CUY-90-14.90

PID 77332/85531

APPENDIX EX-09

Inner Belt Freeway – Part 5 – East Approach to Central Viaduct (CUY-42-17.43 and CUY-42-18.02)

(Reference Document)

State of Ohio
Department of Transportation
Jolene M. Molitoris, Director

Innerbelt Bridge
Construction Contract Group 1 (CCG1)

Revision Date: 1957

Q-12

CUY-90-15.38-15.97 ±

FED. ROAD DIV. NO.	STATE	PROJ.	
2	OHIO	I-1057(5)	

CUY - 42-(17.43-18.02)

1 / 117

OVEMENT 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
FEB 2 5 1998

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

INNER BELT FREEWAY

CUY - 42-(17.43-18.02)
CUYAHOGA COUNTY
CITY OF CLEVELAND

MAR 15 1962
GROUND PHOTOLAB

I-1057(5)
LIMITED ACCESS

PART 5 EAST APPROACH TO CENTRAL VIADUCT

GRADE SEPARATION WITH NEW YORK, CHICAGO AND ST. LOUIS RAILROAD AND CLEVELAND UNION TERMINALS COMPANY

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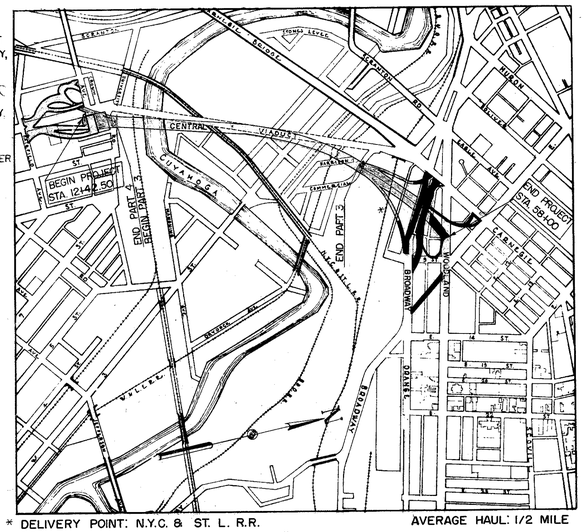
LINE DATA

BEGIN PROJECT STA. 12+42.50	
END PROJECT STA. 58+00.00	
NET LENGTH OF PROJECT =	4,557.50 LIN. FT. OR 0.863 MILES
ADDITIONS: STA. 58+00 TO STA. 60+20 & STA. 10+70 TO 12+42.5	392.50 LIN. FT.
NEW EAST NINTH ST. STA. 10+75± TO STA. 19+61± =	886± LIN. FT.
BROADWAY WEST BOUND STA. 37+89.86 TO STA. 49+60± =	1,170.14 LIN. FT.
NET LENGTH OF WORK =	7,006.14 LIN. FT. OR 1.326 MILES

NOTE:
THIS SET OF PLANS, PART 5 OF THE INNER BELT FREEWAY, INCLUDES THE SURFACING OF THE WEST APPROACH VIADUCT, AND THE CENTRAL VIADUCT, PARTS 3 AND 4 RESPECTIVELY, AND EXTENDS FROM WEST PIER 3-A TO STA. 58+00.
PARTS 1 THRU 4 ARE UNDER PREVIOUS CONTRACTS.



* DELIVERY POINT: N.Y.C. & ST. L. R.R. AVERAGE HAUL: 1/2 MILE

LOCATION PLAN

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 7/9/57 DIRECTOR OF PUBLIC SERVICE, CITY OF CLEVELAND

APPROVED _____
DATE 7-2-57 DIVISION DEPUTY DIRECTOR

APPROVED _____
DATE 10-25-57 DEPUTY DIRECTOR OF PLANNING AND PROGRAMMING

APPROVED _____
DATE 10-18-57 ENGINEER OF BRIDGES

APPROVED _____
DATE 10-22-57 ENGINEER OF LOCATION AND DESIGN

APPROVED _____
DATE 10-22-57 DEPUTY DIRECTOR OF DESIGN AND CONSTRUCTION

APPROVED _____
DATE _____ FIRST ASSISTANT DIRECTOR

APPROVED _____
DATE 10/28/57 ACTING DIRECTOR OF HIGHWAYS

APPROVED _____
DATE 11-25-57 CHIEF ENGINEER NEW YORK, CHICAGO AND ST. LOUIS RAILROAD

APPROVED _____
DATE 10-30-57 CHIEF ENGINEER CLEVELAND UNION TERMINALS COMPANY

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

H. G. SOURS
ASSOCIATE
COLUMBUS

E NO.	CUYAHOGA COUNTY 00081-K
	SEC. CUY-42-(17.43-18.02)
	DATE OF LETTING _____, 195__
	CONTRACT NO. _____

SUPPLEMENTAL SPECIFICATIONS

NUMBER	DATE	NUMBER	DATE
		S 207	4-28-55
E-101	1-1-57		
5	6-8-55		
S-114	8-1-57		
M 206.14	7-15-49		

0 400 800 1600 2400 3200
SCALE IN FEET

PORTION TO BE IMPROVED
OTHER HIGHWAYS & STREETS

STANDARD DRAWINGS

NUMBER	DATE	NUMBER	DATE
L-3	4-1-50	05-2	12-17-56
L-3-A	4-1-50	I-15 NO. 2-B	6-1-57
RI-1	1-3-55	BT-50-70-71E NO.1	10-1-47
B-T-71R	3-2-53	AS-1-54	12-1-54
LJ NO.1	7-1-55	G-7.07	6-1-56
I-1,2,3,4, & 5	2-20-45	I-8MH NO. 1-A	1-3-55
I-8CB NO. 2-2A&B	8-1-56	I-12	7-1-54
I-8CB 2-3 & 2-4	5-1-52	L-1	4-1-50
I-8I NO.2	12-1-54	TJ	5-1-56
I-8 MH NO. 1	5-1-52	OS-1	12-17-56
I-8 MH NO. 2	5-1-52	I-21:23	8-1-56
I-15 NO. 1	8-1-55	I-14-G	1-22-52
		I-35	1-2-56

MAR 15 1962
GROUND PHOTOLAB

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED:

DIVISION ENGINEER DATE

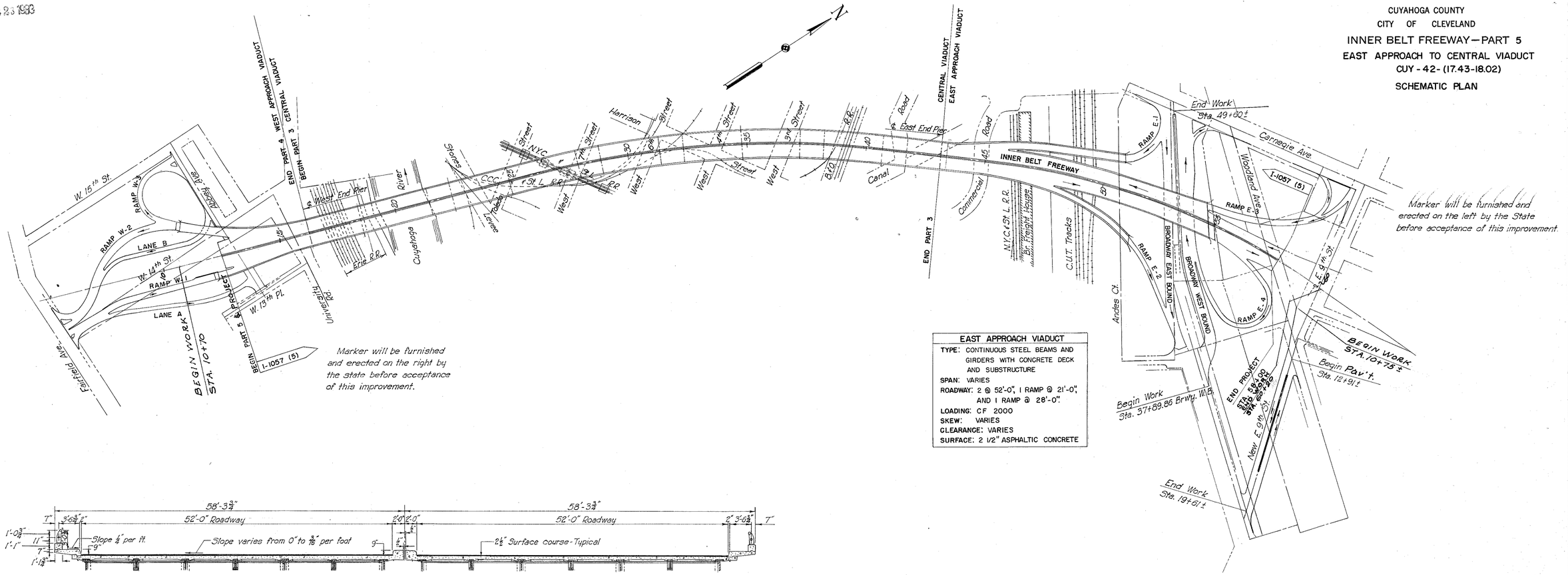
MICROFILMED
FEB 23 1959

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

2 / 117

CUYAHOGA COUNTY
CITY OF CLEVELAND

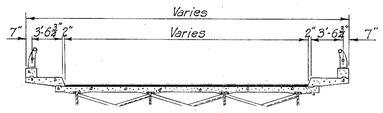
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY - 42 - (17.43-18.02)
SCHEMATIC PLAN



EAST APPROACH VIADUCT

TYPE: CONTINUOUS STEEL BEAMS AND GIRDERS WITH CONCRETE DECK AND SUBSTRUCTURE
SPAN: VARIES
ROADWAY: 2 @ 52'-0", 1 RAMP @ 21'-0", AND 1 RAMP @ 28'-0".
LOADING: CF 2000
SKEW: VARIES
CLEARANCE: VARIES
SURFACE: 2 1/2" ASPHALTIC CONCRETE

TYPICAL SECTION
WEST APPROACH VIADUCT
Scale: 1/8" = 1'-0"



RAMP TYPICAL SECTION
Scale: 1/8" = 1'-0"

SCALE 1" = 200'
MADE HKM DATE 3-21-57
TRCD. BMO DATE 3-22-57
CKD. JFS DATE 4-26-57

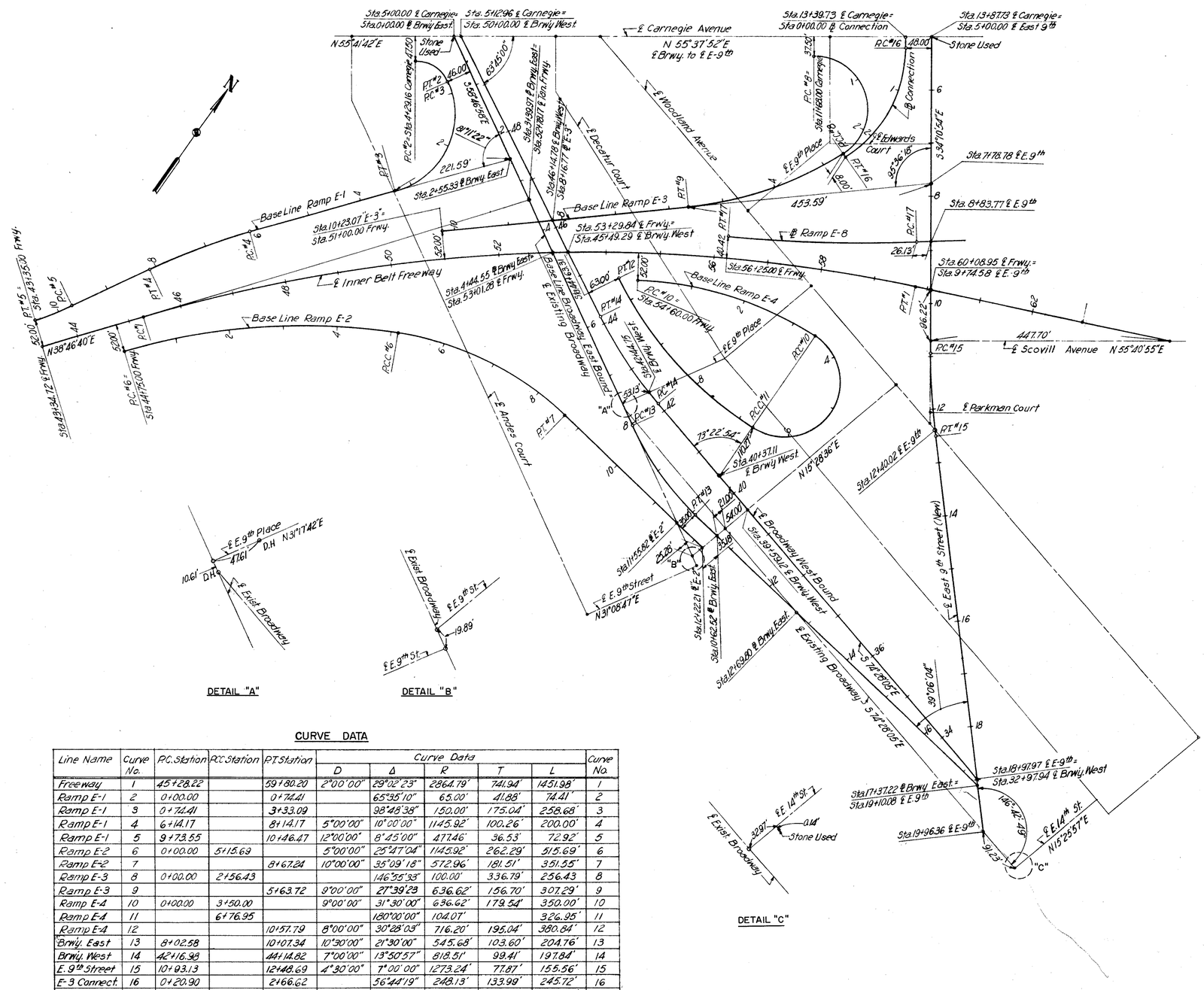
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 2

UNCONFIRMED
FEB 3 0 1933

FED ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

2-A
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY – PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
GEOMETRIC LAYOUT



DETAIL "A"

DETAIL "B"

DETAIL "C"

CURVE DATA

Line Name	Curve No.	P.C. Station	P.C.C. Station	P.T. Station	Curve Data					Curve No.
					D	Δ	R	T	L	
Freeway	1	45+28.22		59+80.20	2°00'00"	29°02'23"	2864.79'	741.94'	1451.98'	1
Ramp E-1	2	0+00.00		0+74.41		65°35'10"	65.00'	41.88'	74.41'	2
Ramp E-1	3	0+74.41		3+33.09		98°48'38"	150.00'	175.04'	258.68'	3
Ramp E-1	4	6+14.17		8+14.17	5°00'00"	10°00'00"	1145.92'	100.26'	200.00'	4
Ramp E-1	5	9+73.55		10+46.47	12°00'00"	8°45'00"	477.46'	36.53'	72.92'	5
Ramp E-2	6	0+00.00	5+15.69		5°00'00"	25°47'04"	1145.92'	262.29'	515.69'	6
Ramp E-2	7			8+67.24	10°00'00"	35°09'18"	572.96'	181.51'	351.55'	7
Ramp E-3	8	0+00.00	2+56.43			146°35'33"	100.00'	336.79'	256.43	8
Ramp E-3	9			5+63.72	9°00'00"	27°39'23"	636.62'	156.70'	307.29'	9
Ramp E-4	10	0+00.00	3+50.00		9°00'00"	31°30'00"	636.62'	179.54'	350.00'	10
Ramp E-4	11		6+76.95			180°00'00"	104.07'		326.95'	11
Ramp E-4	12			10+57.79	8°00'00"	30°28'03"	716.20'	195.04'	380.84'	12
Brwy. East	13	8+02.58		10+07.34	10°30'00"	21°30'00"	545.68'	103.60'	204.76'	13
Brwy. West	14	42+16.98		44+14.82	7°00'00"	13°50'57"	818.51'	99.41'	197.84'	14
E.9th Street	15	10+93.13		12+48.69	4°30'00"	7°00'00"	1273.24'	77.87'	155.56'	15
E-3 Connect.	16	0+20.90		2+66.62		56°44'19"	248.13'	133.99'	245.72'	16
Ramp E-8	17				2°00'00"	7°00'00"	2864.79'	175.22'	350.00'	17

SCALE 1"=100
MADE HAM DATE 11-10-56
TRCD. ____ DATE ____
CKD. EG DATE 12-7-56

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

914 SHEET 2-A

MICROFILMED
FEB 23 1983

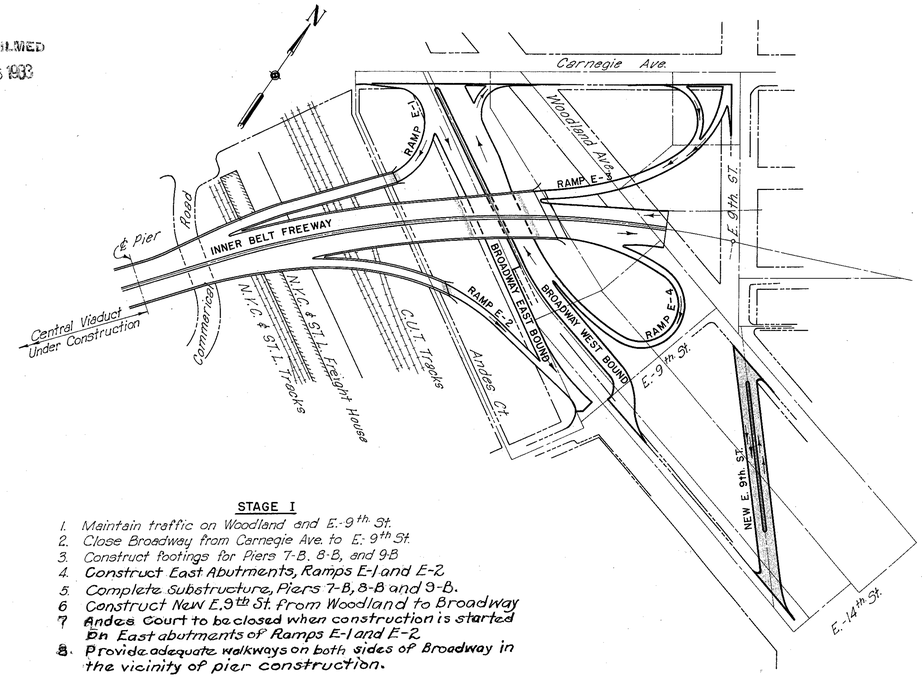
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

3
117

CUYAHOGA COUNTY
CITY OF CLEVELAND

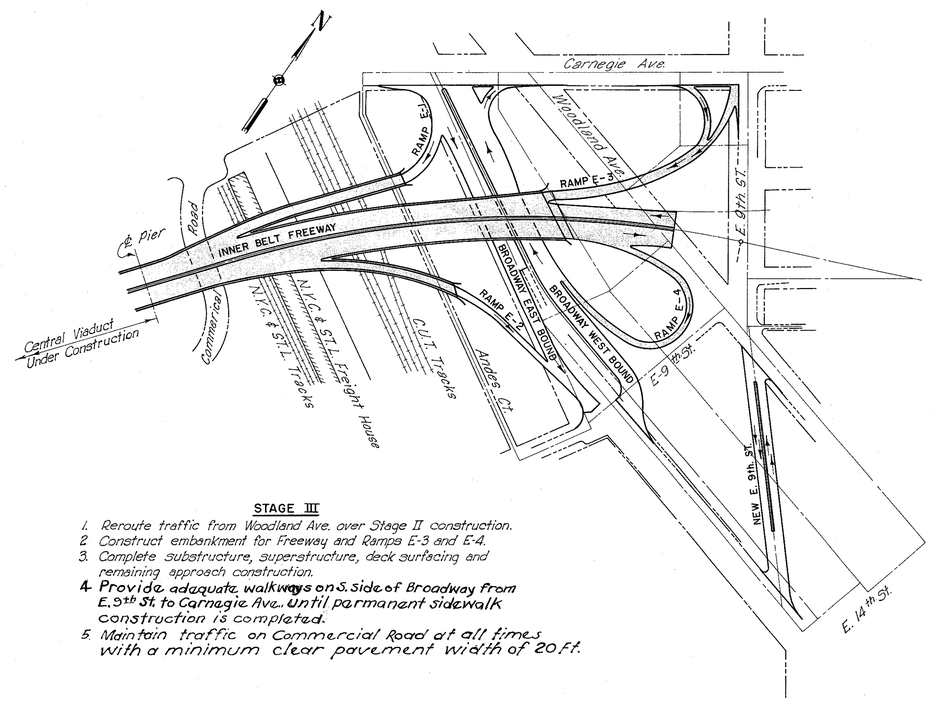
INNER BELT FREEWAY—PART 5

EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
SEQUENCE OF CONSTRUCTION



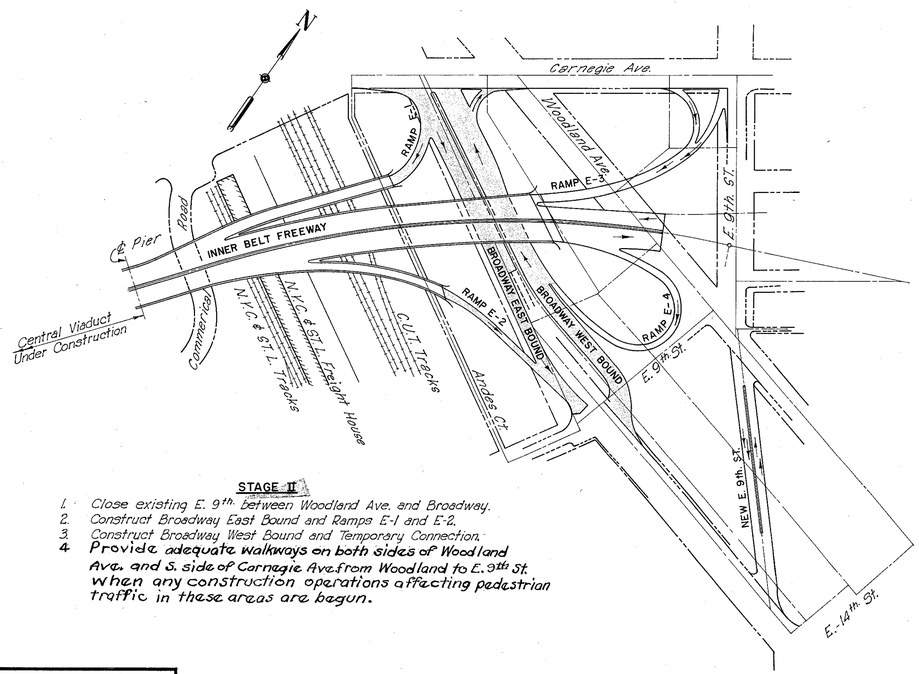
STAGE I

1. Maintain traffic on Woodland and E.-9th St.
2. Close Broadway from Carnegie Ave. to E. 9th St.
3. Construct footings for Piers 7-B, 8-B, and 9-B
4. Construct East Abutments, Ramps E-1 and E-2
5. Complete Substructure, Piers 7-B, 8-B and 9-B.
6. Construct New E. 9th St. from Woodland to Broadway
7. Andes Court to be closed when construction is started on East abutments of Ramps E-1 and E-2.
8. Provide adequate walkways on both sides of Broadway in the vicinity of pier construction.



STAGE III

1. Reroute traffic from Woodland Ave. over Stage II construction.
2. Construct embankment for Freeway and Ramps E-3 and E-4.
3. Complete substructure, superstructure, deck surfacing and remaining approach construction.
4. Provide adequate walkways on S. side of Broadway from E. 9th St. to Carnegie Ave. until permanent sidewalk construction is completed.
5. Maintain traffic on Commercial Road at all times with a minimum clear pavement width of 20 Ft.



STAGE II

1. Close existing E. 9th between Woodland Ave. and Broadway.
2. Construct Broadway East Bound and Ramps E-1 and E-2.
3. Construct Broadway West Bound and Temporary Connection.
4. Provide adequate walkways on both sides of Woodland Ave. and S. side of Carnegie Ave. from Woodland to E. 9th St. when any construction operations affecting pedestrian traffic in these areas are begun.

SCALE	1"=200'	
MADE	JFS	DATE 4-3-57
TRCD.	B.G.	DATE 4-17-57
CKD.	HHM	DATE 4-19-57

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

914 SHEET 3

MICROFILMED
FEB 23 1983

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

4
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
GENERAL NOTES

GENERAL NOTES

GENERAL

ADJACENT CONTRACTS

IT IS ANTICIPATED THAT THE CONTRACT FOR THIS PROJECT WILL BE AWARDED DURING THE LIFE OF THE CONTRACTS FOR PART 3 AND PART 4. THE CONTRACTORS ATTENTION IS DIRECTED TO THE FACT THAT THE SURFACING OF THE TWO APPROACH STRUCTURES AND THE CENTRAL VIADUCT IS INCLUDED IN THIS PROJECT. THEREFORE, IN ORDER TO FACILITATE THE WORK ON THIS PROJECT AS WELL AS THAT ON THE ADJACENT PROJECTS IT WILL BE NECESSARY FOR THE CONTRACTOR TO COORDINATE HIS OPERATIONS WITH THE OPERATIONS OF THE CONTRACTORS ON THE ADJACENT PROJECTS.

DESIGN STANDARDS

THE DESIGN SPEED FOR THIS PROJECT IS 50 M.P.H.

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.

PERMITS, LAWS AND REGULATIONS

THE CONTRACTOR SHALL SECURE, AT HIS OWN EXPENSE, ALL NECESSARY PERMITS FROM THE MUNICIPAL OR OTHER PUBLIC AUTHORITIES, SHALL GIVE ALL NOTICES REQUIRED BY LAW OR MUNICIPAL ORDINANCES, AND SHALL PAY ALL FEES AND CHARGES INCIDENT TO THE DUE AND LAWFUL PROSECUTION OF THE WORK COVERED BY THIS CONTRACT.

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 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 STATE CONTRACTOR.

WORK BY THE CITY OF CLEVELAND

THE CITY WILL PROVIDE FOR THE REMOVAL OR DISPOSAL OF ALL EXISTING BUILDINGS WITHIN THE LIMITS OF THE EASEMENT LINES TO THE TOP OF THE EXISTING FOUNDATIONS.

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 STREETS CONCERNED WILL BE CLOSED TO TRAFFIC. FOR SUGGESTED SEQUENCE OF CONSTRUCTION, SEE SHEET 3.

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

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 BOARD WALKS, CINDER WALKS, HANDRAILS ADJACENT TO EXCAVATIONS, ETC. AS MAY BE NECESSARY TO ACCOMMODATE IN A REASONABLE AND SAFE MANNER PEDESTRIAN TRAFFIC IN THE VICINITY OF THE PROJECT.

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

AGGREGATE AND CALCIUM CHLORIDE ARE CARRIED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER, FOR THE MAINTENANCE OF LOCAL TRAFFIC.

ROADWAY

REMOVAL OF TREES AND STUMPS

ALL TREES AND STUMPS WITHIN THE LIMITS OF THE RIGHT OF WAY SHALL BE DISPOSED OF AS SPECIFIED IN SECTION E-101.03 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.

TREES SHALL NOT BE REMOVED, REGARDLESS OF SIZE, UNTIL SPECIFICALLY AND CONSPICUOUSLY MARKED BY THE ENGINEER.

PAYMENT FOR THE REMOVAL OF TREES ANS STUMPS IS INCLUDED IN THE UNIT PRICE BID FOR ITEM E-101, ROADWAY EXCAVATION.

PAVEMENT REMOVAL

Removal and disposal of all existing pavement where required, except that set up for removal on the plans as Item E-8 (See detail on sheet No 9A), shall be removed and paid for as Item E-101 Roadway Excavation.

CURB TRANSITIONS

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

SANDSTONE CURB RESET

ALL SALVAGEABLE SANDSTONE CURB REMOVED FOR RE-USE UNDER ITEM E-8 SHALL BE RESET. AN ESTIMATED QUANTITY OF 2492 LIN. FT. HAS BEEN ASSUMED TO BE SALVAGEABLE AND IS LISTED IN THE GENERAL SUMMARY.

NEW SANDSTONE CURB FURNISHED AND PLACED SHALL NOT BE INTERSPERSED WITH SALVAGED CURB.

FILL COMPACTION USING HEAVY PNEUMATIC TIRED ROLLERS

DESCRIPTION - THIS ITEM SHALL CONSIST OF COMPACTING PAVEMENT FOUNDATION OR EMBANKMENT WITH AN APPROVED PNEUMATIC TIRED ROLLER AS DIRECTED BY THE ENGINEER.

EQUIPMENT - PNEUMATIC TIRED EQUIPMENT SHALL BE OF SUCH CAPACITY THAT THE GROSS LOAD MAY BE VARIED FROM 25 TO 50 TONS. THE TOTAL LOAD SHALL BE TRANSMITTED TO THE GROUND ON FOUR PNEUMATIC TIRES SPACED EVENLY ALONG A SINGLE LINE ACROSS THE WIDTH OF THE ROLLER. THE TIRES SHALL BE SO ATTACHED TO THE BODY OF THE ROLLER THAT OSCILLATION IS POSSIBLE EITHER IN ADJACENT PAIRS OR IN EACH TIRE. THE TIRES SHALL BE CAPABLE OF OPERATING AT INFLATION PRESSURES RANGING FROM 30 TO 150 P.S.I.

CONSTRUCTION METHODS - THE AREAS SPECIFIED AND AS DIRECTED BY THE ENGINEER SHALL BE PREPARED IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION NO. E-101 PRIOR TO PERFORMING ADDITIONAL COMPACTION. PRELIMINARY ROLLING SHALL BE DONE WITH THE HEAVIEST LOAD AND HIGHEST TIRE INFLATION PRESSURE AT WHICH THE EQUIPMENT CAN BE EFFICIENTLY OPERATED. WHEN SATISFACTORY COMPACTION HAS BEEN OBTAINED UNDER THIS LOADING THE TOTAL LOAD AND TIRE PRESSURE SHALL BE INCREASED BY INCREMENTS AS DIRECTED BY THE ENGINEER UNTIL THE MAXIMUM TOTAL LOAD AND TIRE INFLATION PRESSURES ARE USED. THIS ROLLING SHALL BE CONTINUED UNTIL THE DEGREE OF COMPACTION AND STABILITY REQUIRED BY THE ENGINEER HAS BEEN OBTAINED.

IN ROLLING, ONE PASS SHALL BE TAKEN TO REPRESENT TWO TRIPS OF THE ROLLER, EACH TRIP OFFSET FROM THE OTHER THE WIDTH OF ONE TIRE TO OBTAIN COMPLETE AREA COVERAGE. THE ROLLER SHALL PROGRESS IN A SYSTEMATIC MANNER AND A RECORD SHALL BE KEPT OF THE TOTAL NUMBER OF PASSES MADE AT EACH INCREMENT OF LOADING. AS THE ROLLING PROGRESSES THE IRREGULARITIES BETWEEN TIRE MARKS SHALL BE LEVELED OFF TO FACILITATE COMPACTION AND TO PERMIT COMPLETE AREA COVERAGE BY THE TIRES. ALL LOCAL DEPRESSIONS WHICH INTERFERE WITH THE ROLLING SHALL BE FILLED WITH SELECTED BORROW MEETING SEC. E-101.02 REQUIREMENTS FOR GRANULAR MATERIAL. THE NECESSARY SELECTED BORROW SHALL BE PAID FOR AS A SEPARATE ITEM AT THE CONTRACT UNIT PRICE BID. WHEN THE CONDITION OF THE FOUNDATION IS SATISFACTORY FOR NORMAL ROLLING THE SPEED OF THE ROLLER SHALL BE NOT LESS THAN 2-1/2 MILES PER HOUR.

METHOD OF MEASUREMENT - THE QUANTITY TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF HOURS OF ROLLING TIME. NO PAYMENT WILL BE MADE FOR IDLE EQUIPMENT DUE TO REPAIRS, BAD WEATHER, WET SUBGRADE OR FOR ANY OTHER REASON. THE ACTUAL ROLLING TIME SHALL BE RECORDED TO THE NEAREST MINUTE BY THE CONTRACTOR. THIS TIME SHALL BE CHECKED DAILY BY THE ENGINEER.

BASIS OF PAYMENT - THE NUMBER OF HOURS OF ACTUAL ROLLING TIME MEASURED AS PROVIDED ABOVE SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER HOUR FOR ITEM SPECIAL, FILL COMPACTION USING HEAVY PNEUMATIC TIRED ROLLER, WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING ALL LABOR, EQUIPMENT, FUEL AND INCIDENTALS, INCLUDING LABOR AND EQUIPMENT NEEDED FOR SHAPING AND LEVELLING BETWEEN ROLLER PASSES, NECESSARY TO COMPLETE THIS ITEM.

NO. 2-8 INLETS, AS PER PLAN

This item shall be constructed in accordance with standard drawing I-8.1 No. 2 except that the opening shall be 8'-0" in length. The number of S-5-a and V-5-b bars and the length of S-5-c, S-5-d and H-5-a bars listed on the standard drawing shall be varied as necessary to meet the requirements shown thereon.

AREA TO BE COMPACTED - THAT PORTION OF THE EXISTING MAN-MADE REFUSE FILL UNDER THE NEW PAVEMENT AND EXTENDING TO THE TOE OF THE SLOPE IN THE AREA GENERALLY EAST OF BROADWAY AND AS INDICATED ON SHEETS 24 AND 25 OF THE CONSTRUCTION PLANS SHALL BE PRECONSOLIDATED BY THE USE OF A HEAVY PNEUMATIC TIRED ROLLER AS DESCRIBED ABOVE.

THIS FOUNDATION AREA SHALL BE CLEARED AND SCALPED IN ACCORDANCE WITH THE REQUIREMENTS OF SEC. E-101 AND THEN COMPACTED AS SPECIFIED ABOVE PRIOR TO PLACING ANY FILL OTHER THAN THAT NEEDED TO FILL RUTS, ETC. TO PERMIT EFFICIENT OPERATION OF THE ROLLER.

COMPACTION OF SOIL BACKFILL

SPECIAL CARE SHALL BE TAKEN TO PROPERLY COMPACT SOIL BACKFILL PLACED ADJACENT TO AN EXISTING PAVEMENT EDGE.

ROUNDING OF CORNERS ON CROSS SECTIONS

THE ROUNDED CORNERS, SHOWN ON STANDARD DRAWING RI-1, APPLY TO ALL CROSS SECTIONS EVEN THOUGH OTHERWISE SHOWN IN THESE PLANS.

SPECIAL DITCHES

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

CONNECTIONS TO EXISTING SEWERS

AT PLACES WHERE THE PLANS PROVIDE FOR PROPOSED DRAINAGE PIPE TO BE CONNECTED TO EXISTING PIPES, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE, BEFORE HE STARTS TO LAY THE PROPOSED SEWER. THE COST OF THIS OPERATION SHALL BE INCLUDED IN THE COST BID FOR ITEM 1-2 STORM SEWER.

THE CONTRACTOR 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 WHICH IS NECESSARY FOR THE COMPLETION OF THIS PROJECT SHALL BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF STORM SEWERS, ITEM 1-2.

SEEDING AND PROTECTING

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS BETWEEN LINES TEN (10) FEET OUTSIDE THE CONSTRUCTION LIMITS AS SHOWN ON THE CROSS SECTIONS OR TO THE R/W LINE IF SUCH LINE IS LESS THAN TEN (10) FEET FROM THE CONSTRUCTION LIMITS, EXCEPT THAT ALL AREAS WHICH ARE ENTIRELY SURROUNDED BY RAMPS SHALL BE SEEDED FROM EDGE TO EDGE OF PAVED SHOULDER. 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.

L-9 COMMERCIAL FERTILIZER

ALL AREAS TO BE SEEDED OR SODDED SHALL HAVE COMMERCIAL FERTILIZER 12-12-12 APPLIED AT THE RATE OF TWENTY (20) POUNDS PER 1,000 SQ. FT. THE FOLLOWING SEED MIX SHALL BE USED ON ALL AREAS:

20% KENTUCKY BLUEGRASS (POA PRATENSIS)
20% KENTUCKY, 31 FESCUE (FESTUCA ELATIOR VAR KY. 31)
40% CREEPING RED FESCUE (FESTUCA RUBRA)
15% RED TOP (AGROSTIS ALBA)
5% WHITE DUTCH CLOVER (TRIFOLIUM REPENS)

UTILITIES

FOLLOWING, IS A LIST OF THE UTILITIES WITHIN THE LIMITS OF PART 5 CONSTRUCTION:

EAST OHIO GAS CO.
CITY OF CLEVELAND WATER DEPT.
CLEVELAND ELECTRIC ILLUMINATING CO.
MUNICIPAL ELECTRIC LIGHT AND POWER CO.
OHIO BELL TELEPHONE CO.
WESTERN UNION
WHITE WAY LIGHTS

OTHER NOTES

LIGHTING - SHEET 4-A AND 36

DRAINAGE - SHEET 20

STRUCTURES - SHEET 36

REPLACEMENT
All existing facilities such as pavement, curb, sidewalk, drainage structures, etc. which are to remain in place shall be protected by the Contractor. Any damage resulting from the Contractor's operations shall be repaired by him at his own expense.

SCALE None
MADE HKM DATE 1-1-57
TRCD. DATE
CKD. HKM DATE 5-1-57
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY, CLEVELAND, NEW YORK
914 SHEET 4

RECEIVED
FEB 23 1960

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

4-A
117

CUYAHOGA COUNTY
CITY OF CLEVELAND

INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY - 42-(17.43 - 18.02)

LIGHTING NOTES

1. GENERAL

THIS SPECIFICATION SHALL SUPPLEMENT THE STATE OF OHIO CONSTRUCTION AND MATERIAL SPECIFICATIONS DATED JANUARY 1, 1957, FOR THE MATERIALS USED AND FOR THE INSTALLATION OF COMPLETE SERIES ROADWAY AND MULTIPLE UNDERDECK LIGHTING SYSTEMS FOR THE EAST APPROACH TO THE CENTRAL VIADUCT AND INTERCHANGE. THE TYPE AND LOCATION OF LIGHTS, THE CIRCUITS AND THE LOCATION OF CABLES AND CONDUITS SHALL BE AS INDICATED ON THE PLANS. THE CABLES FOR ROADWAY LIGHTS SHALL BE IN CONCRETE ENCASED FIBER OR ASBESTOS-CEMENT CONDUIT.FOR THE ROADWAY LIGHTING, 15,000 LUMEN AND 10,000 LUMEN INCANDESCENT LIGHTS ARE TO BE INSTALLED WHERE AND AS INDICATED ON THE PLANS, AND ARE TO BE OPERATED ON THREE COMPLETE AND ONE PARTIAL 6.6 AMP. SERIES CIRCUITS. THE UNDERDECK LIGHTS ARE TO BE 200 WATT, AND THE FOUR DOUBLE POLE BRANCH CIRCUITS ARE TO BE IN RIGID CONDUIT, AND BALLASTS ARE TO BE INSTALLED FOR 230 VOLT SECONDARY OPERATION FROM ONE TRANSFORMER AS INDICATED ON SHEET 15.

THE CONTRACTOR SHALL CONSULT AND COOPERATE WITH THE CLEVELAND DIVISION OF LIGHT AND POWER AND THE CLEVELAND ELECTRIC ILLUMINATING COMPANY, BUT HE WILL NOT BE REQUIRED TO FURNISH, INSTALL OR CONNECT CONSTANT CURRENT OR MULTIPLE SERVICES, METERS, METER MOUNTS, METERING EQUIPMENT OR HOUSINGS FOR SAME. THE CONTRACTOR SHALL PROVIDE PROPER CONNECTIONS TO THE EXISTING SERIES CIRCUITS INSTALLED ON THE MAIN VIADUCT BY OTHERS.

THE CONTRACTOR SHALL FURNISH AND INSTALL LIGHTING EQUIPMENT INCLUDING TRANSFORMER VAULT, MANHOLE, ALL LAMPS, LUMINAIRES, UNDERDECK LIGHTING FIXTURES, BALLASTS, WIRING, LUMINAIRE BRACKETS, STANDARDS, TEMPORARY WOOD POLE, EXPANSION COUPLINGS, FLEXIBLE COUPLINGS, TOPS OR POSTS (BASES FOR POLES ON STRUCTURES), POLE CAP SCREWS, CABLE, CONCRETE POLE BASES, INSULATING TRANSFORMERS, POTHEADS, CONCRETE POLE BASE BOXES, GROUNDS, ALL CONDUITS FOR PRIMARY AND LIGHTING CIRCUITS WHERE INDICATED AND ALL INCIDENTALS NECESSARY AND INDICATED FOR COMPLETE CIRCUIT INSTALLATIONS, INSTALLED, ACCEPTED AND CONNECTED FOR OPERATION. THE CLOSED TYPE LOOPS OF ALL SERIES LIGHTING CIRCUITS SHALL BE COMPLETE, AND THE CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT NECESSARY FOR THE SATISFACTORY OPERATION OF THE CIRCUITS AND FOR THE COMPLETE OPERATION OF THE LIGHTING SYSTEMS, (EXCLUDING PRIMARY SERVICE LEADS, DISTRIBUTION TRANSFORMERS, PRIMARY ARRESTERS, PRIMARY INSULATORS, CONSTANT CURRENT REGULATORS, SECONDARY ARRESTERS, TIME CLOCKS, OIL SWITCHES, PRIMARY CONTACTORS, POWER POLES, PRIMARY FUSE CUTOUTS, AND PRIMARY CONNECTIONS TO THE POWER SOURCES) WHETHER SPECIFICALLY MENTIONED OR NOT.

THE LIGHTING INSTALLATION, WHEN COMPLETED SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF THE A.I.E.E. STANDARDS AND PRACTICES, AMERICAN STANDARDS, AND NATIONAL ELECTRIC MANUFACTURERS' ASSOCIATION STANDARDS, AND SHALL CONFORM TO ALL LOCAL AND SPECIAL LAWS AND/OR ORDINANCES GOVERNING SUCH INSTALLATION, AND TO THE SPECIAL REQUIREMENTS HEREIN SET FORTH. SHOULD THE PLANS AND DETAIL SPECIFICATIONS BE IN CONFLICT WITH THESE REQUIREMENTS, THROUGH ERROR OR OMISSION, THE CONTRACTOR SHALL CALL SUCH CONFLICT TO THE ATTENTION OF THE ENGINEER, AND THE CONTRACTOR SHALL MAKE THE NECESSARY CORRECTIONS IN THE INSTALLATION AS MAY BE DIRECTED BY THE ENGINEER.

INSOFAR AS PRACTICABLE, ALL MAJOR ITEMS OF ELECTRICAL EQUIPMENT SUCH AS LUMINAIRES, CABLE, POLES, INSULATING TRANSFORMERS, ETC., SHALL CONSIST OF PRODUCTS OF THE SAME MANUFACTURER IN ORDER TO SECURE SINGLE RESPONSIBILITY AND MOST SATISFACTORY SERVICE. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL ELECTRICAL EQUIPMENT SHALL BE EQUAL TO THE BEST GRADE OF THAT TYPE OF EQUIPMENT AS MANUFACTURED BY THE GENERAL ELECTRIC COMPANY, THE WESTINGHOUSE ELECTRIC COMPANY, OR THE LINE MATERIAL COMPANY. REFERENCE TO ANY NAME, MAKE OR MANUFACTURER'S NUMBER FOR AN ARTICLE OF EQUIPMENT OR MATERIAL IS INTENDED TO BE DESCRIPTIVE, BUT NOT RESTRICTIVE, AND IS INTENDED TO INDICATE THE MATERIALS THAT WILL BE ACCEPTABLE.

A LAYOUT WIRING DIAGRAM SHOWING IN GENERAL THE ARRANGEMENTS AND LOCATION OF THE EQUIPMENT IS SHOWN ON THE PLANS. THIS SHALL BE CONSIDERED ONLY AS ILLUSTRATIVE AND, SUBJECT TO THE APPROVAL OF THE ENGINEER, THE CONTRACTOR SHALL MODIFY IT AS NECESSARY FOR COMPLETE AND PROPER CONSTRUCTION AND OPERATION. THE LOCATION OF THE TRANSFORMERS, SERVICES, CONDUIT AND LUMINAIRES SHOWN ON THE PLANS ARE DIAGRAMMATIC ONLY, AND MAY BE SUBJECT TO SLIGHT SHIFTING AS THE ENGINEER MAY DIRECT IN ORDER TO CONFORM TO LOCAL CONDITIONS.

BEFORE COMMENCEMENT OF INSTALLATION OF THE ROADWAY AND UNDERDECK LIGHTING SYSTEMS, A COMPLETE SCHEDULE OF MATERIALS AND EQUIPMENT PROPOSED FOR INSTALLATION SHALL BE SUBMITTED FOR THE APPROVAL OF THE ENGINEER. THE SCHEDULE SHALL INCLUDE CATALOGS, CUTS, DIAGRAMS, DRAWINGS, AND OTHER SUCH DESCRIPTIVE DATA AS MAY BE REQUIRED BY THE ENGINEER. IN THE EVENT ANY ITEMS OF MATERIAL OR EQUIPMENT CONTAINED IN THE SCHEDULE FAIL TO COMPLY WITH SPECIFICATION REQUIREMENTS, SUCH ITEMS WILL BE REJECTED.

2. MATERIALS AND EQUIPMENT

ALL BOLTS, NUTS, STUDS, WASHERS, PINS, TERMINALS, SPRINGS, AND SIMILAR FASTENINGS AND FITTINGS SHALL BE, WHERE PRACTICABLE, OF AN APPROVED CORROSION-RESISTING MATERIAL SUCH AS BRASS OR BRONZE, OR OF A MATERIAL TREATED IN AN APPROVED MANNER TO RENDER IT ADEQUATELY RESISTANT TO CORROSION; HOT-DIP GALVANIZING WILL BE CONSIDERED SUCH APPROVED TREATMENT. ALL MATERIALS FURNISHED SHALL BE NEW, SHALL BE OF THE BEST QUALITY AND WORKMANSHIP, SHALL BE THE BEST STANDARD PRODUCT OF A MANUFACTURER REGULARLY ENGAGED IN THE PRODUCTION OF THIS TYPE OF EQUIPMENT AND SHALL BE OF THE MANUFACTURER'S LATEST APPROVED DESIGN.

EACH ROADWAY LIGHTING UNIT SHALL COMPRISE A POLE WITH A 6 FT. OR 10 FT. BRACKET, A 15,000 LUMEN LUMINAIRE SIMILAR TO GENERAL ELECTRIC FORM 79-AR OR A 10,000 LUMEN LUMINAIRE SIMILAR TO WESTINGHOUSE AK-10 AS INDICATED ON SHEET 15. LUMINAIRES LIGHTING THE ROADWAY ON THE STRUCTURE, RAMPS AND STREETS SHALL MEET THE GENERAL REQUIREMENTS OF I.E.S. TYPE III OR TYPE IV DISTRIBUTION AS INDICATED.

LIGHT STANDARDS SHALL CONFORM AS NEARLY AS POSSIBLE TO THE SPECIFICATIONS HEREIN AND SHALL BE SIMILAR TO UNION METAL DESIGN NO. 70423-Y3 FOR STANDARD ON STRUCTURE, AND UNION METAL DESIGN NO. 70161-Y23 FOR STANDARDS ALONG ROADWAYS AS TO GENERAL DESIGN AND FINISH, HEIGHT, BASE, MAST ARM, DIMENSIONS AND TO METHOD OF FABRICATION. IN GENERAL, EACH STANDARD SHALL CONSIST OF A CAST STEEL ANCHOR BASE TO WHICH SHALL BE WELDED A TAPERED STEEL POLE. TO THE STEEL POLE SHALL BE FASTENED AN ORNAMENTAL POLE TOP TO WHICH SHALL BE WELDED A MAST ARM FOR SUPPORTING THE LIGHTING UNIT.

TO MOUNT LIGHT STANDARDS ON THE BRIDGE STRUCTURE A CAST STEEL ANCHOR BASE OF ADEQUATE STRENGTH AND OF THE SHAPE AND SIZE SHOWN ON SHEET NO. 110 IN THE STRUCTURAL PLANS SHALL BE SECURED TO THE LOWER END OF THE SHAFT BY MEANS OF A DOUBLE ELECTRIC WELD. TO OBTAIN THIS CONSTRUCTION, THE BASE SHALL TELESCOPE THE SHAFT, AND ONE WELD SHALL BE ON THE OUTSIDE OF THE SHAFT AT THE END OF THE SHAFT AND THE OTHER SHALL BE ON THE INSIDE AT THE TOP OF THE BASE. THE TRANSFORMER BOX FOR ALL OTHER STANDARDS SHALL BE A PART OF THE POLE BASE FOUNDATION AS INDICATED ON THE PLANS, WITH CLASS E CONCRETE USING NO. 4 AGGREGATE.

THE STEEL SHAFT OF THE LIGHTING STANDARDS FOR SINGLE LUMINAIRES SHALL.BE FABRICATED FROM NOT LESS THAN NO. 11 MANUFACTURERS' STANDARD GAUGE. THE SHAFT SHALL BE FORMED AND WELDED WITH ONLY ONE LONGITUDINAL, AUTOMATICALLY ELECTRICALLY WELDED JOINT AND SHALL HAVE NO HORIZONTAL JOINTS OR WELDS. THE WELD SHALL BE OF FULL PENETRATION. AFTER FORMING AND WELDING, THE TAPERED SHAFT SHALL BE COLD ROLLED OR WORKED UNDER SUFFICIENT PRESSURE TO FLATTEN OUT THE WELD, TO INCREASE THE ELASTIC LIMIT OF THE METAL IN THE COMPLETED SHAFT, AND TO PRODUCE A TRUE TAPERED TUBE WITHOUT FLAT SPOTS AND A CIRCULAR CROSS-SECTION THROUGHOUT THE LENGTH OF THE SHAFT. IF THE SHAFT IS FABRICATED BY MEANS OF A BRAKE OR OTHER PROCESS WHICH DOES NOT UTILIZE THE COLD ROLLING PRINCIPLE, IT SHALL BE FABRICATED FROM A STEEL SHEET HAVING A THICKNESS OF NO. 7 MANUFACTURERS' STANDARD GAUGE.

EACH STANDARD SHALL HAVE A MAST OR BRACKET ARM MADE OF STANDARD PIPE OF THE SIZE AND LENGTH AS SHOWN ON THE PLANS. THE INNER END OF THE BRACKET ARM SHALL BE WELDED TO A CAST STEEL HEAD BLOCK SO DESIGNED THAT THE BLOCK CAN BE BOLTED THROUGH A CAST IRON NECK PIECE TO A PLATE WELDED TO THE TOP OF THE POLE TO PERMIT RADIAL ADJUSTMENT OF THE BRACKET ARM. PROVISIONS SHALL BE MADE TO PERMIT PASSAGE OF THE CONCEALED WIRES TO BRACKET ARM. THE ORNAMENTAL CASTING WELDED TO THE OUTER END OF THE BRACKET SHALL BE ARRANGED WITH A LEVELING DEVICE OR "PLUMBIZER" FOR ADJUSTMENT OF A PENDANT LIGHTING FIXTURE AND SHALL BE TAPPED FOR 1-1/4 INCH PIPE CONNECTION. THE POLE BASE FOUNDATIONS SHALL BE CLASS "E" CONCRETE WITH 1-1/4" x 5' CADMIUM COATED STEEL ANCHOR BOLTS EXTENDED 3-1/16" ABOVE BASE WITH 4" L-BEND AT BOTTOM. EACH ROD SHALL HAVE ONE GALVANIZED AMERICAN STANDARD HEX-NUT. EACH CABLE SHALL ENTER THE STANDARD THROUGH 2-INCH FIBER CONDUIT INSTALLED IN THE CONCRETE FOUNDATION FROM TRANSFORMER POLE BASE BOX. CONDUIT SHALL EXTEND AT LEAST 3 INCHES ABOVE TOP OF FOUNDATION..

EACH STANDARD SHALL HAVE TWO 9/16 INCH HOLES PROVIDED, WHERE SHOWN ON SHEET NO. 14. PAINTING OF ALL STANDARDS ON STRUCTURES SHALL BE AS SPECIFIED UNDER PARAGRAPH 13-1-d, SHEET 36. POLES AND BRACKETS ON STRUCTURES AND ON SHOULDERS OF RAMPS SHALL BE PAINTED WITH TWO FIELD COATS OF ALUMINUM. POLES AND BRACKETS ON CITY STREETS SHALL BE PAINTED WITH TWO COATS OF DARK GREEN WEATHER RESISTING ENAMEL AS USED ON CITY STREETS. FINISH FIELD COATS SHALL BE APPLIED AFTER ERECTION.

EACH LUMINAIRE SHALL CONSIST OF A SUPPORTING HOOD, AND EXTERNAL BODY OR CASING, MAIN REFLECTOR, AND A REFRACTOR GLOBE. THE HOOD SHALL BE MADE OF CAST ALUMINUM AND SHALL BE TAPPED FOR 1-1/4" STANDARD PIPE. THE EXTERNAL BODY OR CASING SHALL BE MADE OF CAST ALUMINUM AND SHALL BE FIRMLY ATTACHED TO THE HOOD BY MEANS OF ADEQUATE SCREWS OR BOLTS. THE MAIN REFLECTOR SHALL BE MADE OF HEAVY GAUGE ALUMINUM SHEET, ALZAK FINISHED AND POLISHED. THE ENTIRE REFLECTING ELEMENT SHALL BE RIGIDLY ATTACHED TO THE EXTERNAL BODY BY MEANS OF SCREWS OR BOLTS.

THE GLOBES SHALL BE SUPPLIED WITH A NON-RUSTING METAL SUPPORTING RING OR BAND WITH CLAMPS AROUND THE RIM OR FLANGE OF THE GLOBE. THE SUPPORTING RING SHALL BE SO DESIGNED THAT BROKEN GLOBES CAN BE REPLACED AT THE LAMP LOCATION WITH THE USE OF SIMPLE HAND TOOLS. ALL SCREWS, NUTS, WASHERS, ETC., WHICH MUST BE REMOVED IN ORDER TO REPLACE A BROKEN GLOBE SHALL BE NON-FERROUS AND CORROSION-PROOF. THE GLOBE SUPPORTING RING SHALL BE ATTACHED TO THE REFLECTOR BY MEANS OF A HINGE OR ITS EQUIVALENT ON ONE SIDE AND A LATCH, THUMB SCREW, OR EQUIVALENT ON THE OPPOSITE SIDE. THESE DEVICES SHALL BE SO DESIGNED THAT WITH THE GLOBE IN PLACE, THE LATCH OR THUMB SCREW CAN BE RELEASED BY HAND, THE GLOBE SWUNG DOWN AND THEN LIFTED OFF THE HINGE SO THAT THE GLOBE CAN BE WASHED SEPARATELY FROM THE FIXTURE. THE DESIGN SHALL BE SUCH THAT AFTER WASHING, THE GLOBE CAN BE HOOKED ON TO THE HINGE AND THEN PUSHED UP INTO PLACE AGAINST THE GASKET WITH ONE HAND WHILE THE LATCH OR THUMB SCREW IS TIGHTENED WITH THE OTHER HAND. THE BEST DESIGN SHALL BE THAT WHICH COMBINES SIMPLICITY AND EASE OF OPERATION WITH THE MOST EFFECTIVE SEAL BETWEEN THE GLASS GLOBE AND THE REFLECTOR. FIXTURES HAVING THE REFLECTOR PERMANENTLY ATTACHED OR "SPUN ON" TO THE GLASS GLOBE WILL NOT BE ACCEPTED. A SKELETON TYPE MOGUL MULTIPLE SOCKET SHALL BE MOUNTED IN THE HOOD AND SHALL BE SUITABLE FOR 10,000 OR 15,000 LUMEN, 20 AMPERE LAMPS. THE LUMINAIRES SHALL PRODUCE AN I.E.S. TYPE IV LIGHT DISTRIBUTION CURVE EQUAL TO THE CURVE PRODUCED BY THE GENERAL ELECTRIC FORM 79-AR OR AN I.E.S. TYPE III PRODUCED BY WESTINGHOUSE AK-10, AS REQUIRED.

LAMPS FOR UNDERDECK LUMINAIRES SHALL BE 100 WATT, FLUORESCENT 1 AMP, CW/RS, AND FOR ROADWAY UPRIGHT LUMINAIRES SHALL BE 10,000 LUMEN OR 15,000 LUMEN, 2000 HOUR LAMPS FOR REGULAR REPLACEMENT, PS-40 BULBS, MOGUL BASE, AS INDICATED ON SHEET NO. 15.

EXTERNAL PARTS OF ALL LUMINAIRES SHALL BE FINISHED ALUMINUM. GASKETS USED FOR SEALING THE JOINT BETWEEN GLOBES AND REFLECTORS OR CASINGS SHALL BE PREFORMED CORK OR FELT AND SHALL BE CEMENTED IN PLACE. THE FIXTURES AS SPECIFIED ARE PRECISION OPTICAL DEVICES AND IN ORDER TO DELIVER THE PERFORMANCE REQUIRED THEY MUST HAVE THE LAMP FILAMENT CORRECTLY LOCATED WITH REFERENCE TO THE REFLECTING OR REFRACTING ELEMENTS. THE SOCKETS SHALL PREFERABLY BE SOLIDLY MOUNTED, WITH THE LAMP FILAMENT AT THE CORRECT OPTICAL CENTER. IF THE MANUFACTURER'S DESIGN PROVIDES FOR VERTICAL ADJUSTMENT OF THE SOCKET, HE SHALL FURNISH A DRAWING SHOWING THE PROPER DIMENSION TO SOME CONVENIENT REFERENCE POINT, SUCH AS THE LOWER EDGE OF THE REFLECTOR OR CASING, SO THAT THE PURCHASER CAN MAKE A GAUGE TO BE USED FOR ACCURATELY SETTING AND LOCKING THE SOCKETS. REFRACTING GLOBES SHALL PREFERABLY BE KEYED TO THE SUPPORTING REFLECTOR SO THAT THEY CANNOT BE PLACED IN ANY OTHER THAN THE CORRECT ANGULAR LOCATION. IN ANY EVENT, THE GLOBES MUST BE PLAINLY MARKED TO INDICATE THE "STREET SIDE" AND THE "HOUSE" OR "SIDEWALK SIDE". ALL LAMPS USED IN THESE FIXTURES WILL BE STANDARD 20 AMPERE, BASE UP MAZDA TYPE WITH MOGUL BASES AND 7 INCH LIGHT CENTERS.

LAMP SOCKETS USED IN ENCLOSED FIXTURES OF THE TYPES SPECIFIED ARE SUBJECTED TO HIGH TEMPERATURES AND THE SOCKETS FURNISHED SHALL BE FOR HEAVY DUTY AND SHALL INCORPORATE ALL THE LATEST DESIGN FEATURES AVAILABLE SUCH AS CENTER SPRING LOADED CONTACTS, PLATED PARTS AND EXTRA HEAVY CAST TERMINALS TO REDUCE THE POSSIBILITY OF CONTACT TROUBLES AND WELDING OF THE LAMP BASE TO THE SOCKET SHELL;EACH FIXTURE SHALL PREFERABLY BE COMPLETELY ASSEMBLED AT THE FACTORY AND SHIPPED IN A SINGLE CONTAINER AS A COMPLETE UNIT.

ALL OF THE SERIES STREET LIGHTING INSULATING TRANSFORMERS WILL BE CONNECTED WITH THEIR PRIMARY WINDINGS IN A 6.6 AMPERE, 60 CYCLE REGULATED CIRCUIT, AND SHALL BE LOCATED EITHER IN CONCRETE POLE BASE BOXES OR IN PARAPET JUNCTION BOXES. TRANSFORMERS FOR LIGHTING UNITS ON RAMPS, ROADWAYS AND LANES SHALL BE LOCATED IN THE POLE BASE BOX OF EACH POLE. THE SECONDARY OF THE 10,000/15,000 LUMEN TRANSFORMERS WILL SUPPLY 20 AMPERES TO ONE LAMP RATED 10,000 OR 15,000 LUMENS. WHEN THE LAMP WATTAGE VARIES BETWEEN 8% ABOVE AND 20% BELOW NORMAL, THE SECONDARY OR LAMP CURRENT SHALL NOT VARY MORE THAN 1% FROM 20 AMPERES WITH 6.6 AMPERES AT 60 CYCLES SUPPLIED TO THE PRIMARY WINDING. EACH TRANSFORMER SHALL BE GIVEN A DIELECTRIC TEST BY THE MANUFACTURER AND SHALL WITHSTAND 22,000 VOLTS BETWEEN PRIMARY WINDING AND ALL OTHER PARTS OF THE TRANSFORMER AND 1,500 VOLTS BETWEEN THE SECONDARY WINDING AND ALL OTHER PARTS OF THE TRANSFORMER. BOTH OF THE ABOVE TESTS SHALL BE APPLIED FOR ONE MINUTE, WITHOUT FAILURE. THE STREET LIGHTING TRANSFORMERS SHALL BE FOR POLE BASE MOUNTING WITH TAPING SLEEVES SIMILAR TO G.E. CAT. NO. 9SA6A2 WHICH WILL BE THE CRITERION IN JUDGING THE ADEQUACY OF THE TYPE PROPOSED BY THE CONTRACTOR. INDIVIDUAL TRANSFORMERS SHALL BE FURNISHED FOR EACH LIGHT.

EACH TRANSFORMER SHALL BE SUPPLIED WITH A NON-CORROSIVE NAME PLATE SHOWING THE FOLLOWING DATA: MAKER'S NAME AND STYLE OR CATALOG NUMBER, RATING IN LUMENS, PRIMARY CURRENT, SECONDARY CURRENT, AND FREQUENCY.

ALL CONDUITS, CABLES AND CONNECTIONS SHALL BE FURNISHED AND INSTALLED TO CONNECT THE EXISTING SERIES CIRCUITS ON THE MAIN VIADUCT TO THE NEW SERIES CIRCUITS TO BE INSTALLED UNDER THIS CONTRACT, AS INDICATED ON SHEET 15.

CONDUCTORS FOR ROADWAY LIGHTING SHALL BE TWO SINGLE NO. 8 AWG SOLID SOFT DRAWN COPPER OF NOT LESS THAN 98% CONDUCTIVITY AND SHALL BE COATED WITH LEAD, TIN, OR ANTIMONY ALLOY. INSULATION SHALL CONSIST OF 10/64 INCH OF POLYVINYL CHLORIDE COMPOUND MADE IN ACCORDANCE WITH A.S.T.M. SPEC. D-734. ALL CONDUCTORS SHALL BE PLACED IN CONDUIT.

CABLE TO BE INSTALLED FROM THE SECONDARY TAPS OF THE ISOLATING TRANSFORMERS TO THE BRACKET LAMP STANDARD SHALL BE NO. 8 AWG, SINGLE CONDUCTORS, 600 V. CABLE. INSULATION SHALL CONSIST OF 4/64 INCH OF RUBBER OR RUBBER LIKE COMPOUND KNOWN COMMERCIALLY AS OZONE RESISTANT INSULATION WITH AN OUTSIDE JACKET OR SHEATH OF NEOPRENE, 1/64 INCH THICK.

ASBESTOS WIRE TO BE INSTALLED WITHIN THE BRACKET AT LAMP STANDARD TO LAMP SOCKET SHALL BE NO. 8 AWG SINGLE CONDUCTOR, SOLID. INSULATION SHALL BE ASBESTOS APPLIED TO THE CONDUCTOR TO FORM A CONTINUOUS TUBE OF ASBESTOS FIBRES AT LEAST 40 MILS THICK TIGHTLY COMPRESSED AND IMPREGNATED WITH A FLAME, HEAT AND MOISTURE-PROOF COMPOUND, AND AN OUTER ASBESTOS BRAID AT LEAST 45 MILS THICK.

THE JUNCTION BOXES AT EACH ROADWAY LIGHTING UNIT ON STRUCTURE FOR BRANCHES TO LIGHTS FROM THE 2-INCH OR 3-INCH LONGITUDINAL CONDUIT RUNS SHALL BE WATERTIGHT AND SUITABLY ATTACHED IN PARAPETS WHERE INDICATED. BRASS OR MONEL SCREWS SHALL HOLD COVER TIGHTLY. THE FINISH INSIDE SHALL BE HOT-DIP GALVANIZING. BOXES SHALL BE SIZE 24 INCH BY 12 INCH BY 9 INCH, WITH NO LUGS. SEE SHEET 111 FOR DETAIL OF WELDED SHEET METAL JUNCTION BOX.

CONDUCTORS IN PARAPETS OF BRIDGE SHALL BE IN ASBESTOS CEMENT CONDUIT CONFORMING TO SUPPLEMENTAL SPECIFICATION NO. M-206.14 OR IN FIBER CONDUIT EQUIVALENT TO ORANGEBURG NOCRETE. THE CONDUITS SHALL BE 2-INCH OR 3-INCH INSIDE DIAMETER AND BE PLACED AS SHOWN ON SHEET 111

UNDERDECK LUMINAIRES SHALL BE EQUAL TO LINE MATERIAL NO. 65 5000 C-1 WITH TWO 1-AMP, STREET LIGHTING, RAPID START FLUORESCENT LAMP, PRE-HEATED CATHODE, CAT. NO. 100T12-CW-RS, COMPLETE WITH 230 VOLT AC MULTIPLE BALLASTS. THE JUNCTION BOX FOR EACH UNDERDECK LUMINAIRE SHALL BE CAST IRON, WATERTIGHT, AND EQUAL TO O.Z. TYPE YH CAT. NO. 060603.

RIGID METAL CONDUIT FOR UNDERDECK LIGHTS SHALL BE 3/4 OR 2-INCH AS INDICATED, AND NATIONAL "SHERARDUCT" OR AN APPROVED EQUIVALENT. THIS CONDUIT SHALL BE FURNISHED WITH TAPERED, THREADED FITTINGS AS REQUIRED. RIGID METAL CONDUITS BETWEEN BRANCH CIRCUIT JUNCTION BOXES SHALL BE 2-INCH, AS SHOWN ON PLANS.

THE CIRCUIT CONDUCTORS IN CONDUIT FOR THE 220 VOLT MULTIPLE CIRCUITS TO THE UNDERDECK LIGHTING UNITS SHALL BE TWO NO. 1/0 OR NO. 12 AWG, AS SPECIFIED ON SHEET NO. 15. BRANCH CONDUCTORS TO FIXTURES SHALL BE NO. 12 AWG, 600 V., STRANDED. THE CONDUCTORS SHALL BE CONTINUOUS FROM BOX TO BOX, AND NO SPLICES SHALL BE MADE EXCEPT WITHIN JUNCTION BOXES. THE CONDUCTORS SHALL HAVE 3/64 INCH RUBBER INSULATION AND 1/64 INCH NEOPRENE JACKET.

3. CONSTRUCTION METHODS

THE INSTALLATION AS A WHOLE SHALL BE CARRIED OUT IN CONFORMANCE WITH THE REQUIREMENTS HEREIN STATED AND IMPLIED, AND UPON COMPLETION OF THE WORK SHALL PRESENT A NEAT AND WORKMANLIKE FINISHED APPEARANCE. SAFE CONSTRUCTION AND OPERATING PRACTICES MEETING THE REQUIREMENTS OF THE NATIONAL ELECTRIC SAFETY CODE SHALL BE MAINTAINED. ALL WIRING TO UNDERDECK LIGHTS IS TO BE PLACED IN RIGID METAL CONDUIT FASTENED BY SUITABLE CLAMPS.

POLES SHALL BE CAREFULLY SET, THEY SHALL BE RAKED AS SHOWN ON SHEET 14 AND THE LUMINAIRES SHALL BE SUPPORTED WITH BRACKETS ABOUT 28'-0" ABOVE PAVEMENT AS INDICATED. THE CAREFUL ALIGNING AND GRADING OF POLES IS CONSIDERED TO BE AN ESSENTIAL FEATURE OF THE INSTALLATION. THE WORK SHALL BE AS NEARLY PERFECT AS PRACTICABLE, AND NO PERCEPTIBLE VARIANCES WILL BE PERMITTED. IN ORDER TO ACCOMPLISH THE DESIRED PERFECTION OF ALIGNMENT OF THE LUMINAIRES, THE POLES SHALL BE CAREFULLY ALIGNED AND WELDED IN PLACE, OR ALIGNED BY SHIMS AS REQUIRED.

THE INSTALLATION OF ALL LUMINAIRES AND WIRING SHALL CONFORM TO THE RECOMMENDATIONS OF THE EQUIPMENT MANUFACTURERS AND THE PRACTICE OF THE POWER COMPANY. 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.

CABLES SHALL BE INSTALLED IN CONTINUOUS LENGTHS WITHOUT SPLICES, FROM TERMINAL TO TERMINAL. AT THE TERMINALS, CABLE SHALL BE SPLICED TO THE EQUIPMENT LEADS IN STRICT CONFORMITY WITH THE MANUFACTURER'S INSTRUCTIONS AND AS DIRECTED. CARE SHALL BE TAKEN TO INSURE WATERTIGHT JOINTS. SPLICES MAY BE MADE IN CONCRETE PULL BOXES.

SPLICES SHALL NOT BE MADE IN CONDUITS. SPLICES OF CONDUCTORS SHALL BE MADE MECHANICALLY AND ELECTRICALLY SECURE BY USING FOUR SCREW COPPER CONNECTORS AND WRAPPING IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER OF THE CABLE SO THAT THE INSULATION AND THE MECHANICAL AND ELECTRICAL QUALITIES OF THE SPLICES SHALL BE EQUAL TO THAT OF THE REMAINDER OF THE CONDUCTOR. TAPE OF THE SAME COMPOSITION AS THE CABLE INSULATION OR SCOTCH BRAND TAPE SHALL BE USED.

CONDUITS SHALL BE FIRMLY CLAMPED TO THE STRUCTURES TO PREVENT RATTLING, SHALL BE RUN IN LINES PARALLEL AND PERPENDICULAR TO LINES OF STRUCTURES AND SHALL BE SO PLACED THAT DIRT WILL NOT ACCUMULATE AROUND THEM. SUPPORTS SHALL BE AT NOT MORE THAN 6 FT. CENTERS. THERE SHALL BE AT LEAST ONE INCH CLEARANCE BETWEEN CONDUITS. IF ON A HORIZONTAL SURFACE FOR OVER ONE FOOT, THEY SHALL CLEAR THE SURFACE BY AT LEAST THREE INCHES. ADEQUATE APPROVED PROVISION FOR THE MOVEMENT OF CONDUITS SHALL BE MADE WHEREVER CONDUITS CROSS EXPANSION OR FIXED JOINTS IN THE SUPPORTING STRUCTURES. WHERE ASBESTOS CEMENT CONDUIT IS ON THE STRUCTURES, ONE FACTORY EXPANSION COUPLING WITH RUBBER RING SHALL BE USED AT EXPANSION JOINTS. RIGID CONDUIT ACROSS EXPANSION JOINTS WHERE USED SHALL HAVE AN EXPANSION COUPLING SIMILAR TO O.Z. TYPE EX OR AX AS REQUIRED, COMPLETE WITH BONDING JUMPER, OR BE IN FLEXIBLE COUPLINGS EQUAL TO CROUSE-HINDS TYPE EC.

ALL PARTS OF THE SUPERSTRUCTURE STEELWORK AND THE CONDUIT AND EQUIPMENT FOR THE LIGHTING SYSTEM ON STRUCTURE SHALL BE THOROUGHLY GROUNDED AT PIER SHAFTS. THE CONTRACTOR WILL EMBED IN THE CONCRETE OF THE PIER SHAFTS A NO. 0 SOLID COPPER WIRE BRAZED AT ITS LOWER END TO A STEEL CONCRETE PILE CASING, AND AT ITS UPPER END AS PROVIDED BY NOTE 18 SHEET 36 TO PROVIDE FOR CONVENIENT SPLICING AND EXTENSION. AT EACH SUCH PIER SHAFT THE GIRDERS SHALL BE GROUNDED BY A NO. 6 COPPER WIRE BOLTED OR BRAZED TO THE BOTTOM FLANGE AND TO THE BOTTOM CASTING OF THE SHOE, AND CARRIED TO CONNECTION WITH THE GROUND WIRE EXTENDING TO THE FOUNDATION PILE. ACROSS ALL ROADWAY EXPANSION JOINTS THERE SHALL BE PROVIDED A NO. 6 STRANDED TINNED COPPER WIRE SUITABLY LOOPED TO ALLOW FOR EXPANSION OF THE STEELWORK, AND CONNECTED TO EACH SIDE OF THE EXPANSION JOINT BY BOLTING OR BRAZING SO AS TO PROVIDE AN EFFECTIVE ELECTRICAL CONNECTION FOR GROUNDING THE ENTIRE STRUCTUAL STEELWORK. CONDUIT AND EQUIPMENT SECURELY ATTACHED TO SUPERSTRUCTURE STEELWORK REQUIRES NO FURTHER GROUNDING.

4. TESTS

THE CONTRACTOR SHALL FURNISH ALL EQUIPMENT AND APPLIANCES NECESSARY TO TEST THE COMPLETED CABLE SYSTEMS. A BURNING TEST WILL BE REQUIRED FOR THE LIGHTS. IN ADDITION, THE CITY OF CLEVELAND WILL MAKE A "MEGGER" TEST OF ALL CIRCUITS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DEMONSTRATE TO THE SATISFACTION OF THE DIRECTOR OF HIGHWAYS THAT ALL LIGHTING CIRCUITS ARE CONTINUOUS AND FREE FROM SHORT CIRCUITS AND UNSPECIFIED GROUNDS, THAT ALL CIRCUITS ARE PROPERLY CONNECTED IN ACCORDANCE WITH THE APPLICABLE WIRING DIAGRAMS AND THAT THE RESISTANCE TO GROUND OF NON-GROUNDED SERIES CIRCUITS IS NOT LESS THAN 50,000 OHMS AND PARALLEL UNGROUNDED CIRCUITS IS NOT LESS THAN 100,000 OHMS.

5. PAYMENT FOR ROADWAY AND UNDERDECK LIGHTING

PAYMENT FOR THE ROADWAY AND UNDERDECK LIGHTING SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR ITEMS AS INDICATED IN THE SCHEDULE OF QUANTITIES, WHICH PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY, WHETHER SPECIFICALLY MENTIONED OR NOT, TO COMPLETE THE ENTIRE WORK, INSTALLED AND IN OPERATING CONDITION, ACCORDING TO THE PLANS AND SPECIFICATIONS. PAYMENT WILL BE MADE AS FOLLOWS:

A. "15,000 LUMEN LUMINAIRE AND INSULATING TRANSFORMER", PER EACH AND SHALL INCLUDE LAMP, GLOBE, REFLECTOR, REFRACTOR, LAMP RECEPTACLE,

EARTHWORK QUANTITIES

ITEM	QUANTITY
Total Excavation	44,878
**Total Pavement Removal	3,000
Total Embankment	74,061
Total Embankment x1.15	85,170
Total Borrow	37,292

MICROFILMED
FEB 23 1968

TYPE CODE 7221

** Existing pavement removed to be used in embankment

GENERAL SUMMARY
ESTIMATED QUANTITIES

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

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CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
QUANTITIES

ITEM NO.	FREEWAY	RAMPS E-1	RAMPS E-2	RAMPS E-3	RAMPS E-4	BROADWAY EASTBOUND	BROADWAY WESTBOUND	STREETS E-9th	STREETS CARNEGIE	STREETS WOODLAND	STREETS COMMERCIAL	STREETS DECATUR CT.	STREETS EDWARDS CT.	STREETS E-9th PL.	GENERAL	CODE 7221	* CITY	TOTAL	ITEM NO.	UNIT	DESCRIPTION
PAVEMENT																					
B-33	566	116	201	505	700											2088		2088	B-33	Sq. Yd.	3" Bituminous Macadam Base Course
I-7	257	81	55	76												469		469	I-7	Sq. Yd.	Reinforced Concrete Approach Slabs (T-13")
I-11	245	111	136	362	264	445	483	446								2492		2492	I-11	Lin. Ft.	Sandstone Curb Reset
I-11	654	296	363	963	701	1185	1285	1186								6633		6633	I-11	Lin. Ft.	6"x18" Sandstone curb, as per plan
I-12						201	597	756								1554		1554	I-12	Lin. Ft.	Standard Type 2A Concrete Curb
I-18	81	15	27	65	90											278		278	I-18	Cu. Yd.	Stabilized Crushed Aggregate Shoulders and Approaches
I-21	103							142								245		245	I-21	Sq. Yd.	Concrete Median Pavement, Standard Type 1
I-22	703	74	101	261	224		2,354	687								4404		4,404	I-22	Cu. Yd.	Subbase
T-30	198	41	70	177	245											731		731	T-30	Gal.	Bituminous Prime Coat, Sec. M 5.7 RT-2 or RT-3, or Sec. M 5.3, MC-0 or MC-1
T-31	283	58	101	253	350											1045		1045	T-31	Gal.	Bituminous Surface Treatment Bituminous Material, as per plan
T-31	5	1	2	4	6											18		18	T-31	Cu. Yd.	Bituminous Surface Treatment No. 6 Aggregate
T-31	5	1	2	4	6											18		18	T-31	Cu.Yd.	Bituminous Surface Treatmen No 46 Aggregate
T-70						458	1,709	2,198								4365		4,365	T-70	Sq. Yd.	9" Portland Cement Concrete Pavement
T-71	2915	817	635	2188	1933	4,518	5,232	1,600								19838		19,838	T-71	Sq. Yd.	9" Reinforced Portland Cement Concrete Pavement
ROADWAY																					
E-101	22 060	684	251	737	483		11,212	7,904							154	44878		44,878	E-101	Cu. Yd.	Roadway Excavation, as per plan.
E-101	3738	1014	891	2769	2633	4976	6941	3798								26760		26760	E-101	Sq. Yd.	Compacted Subgrade
E-4																37,292		37,292	E-4	Cu. Yd.	Borrow
E-4															500	500		500	E-4	Cu. Yd.	Borrow, using Granular Material, as per plan.
E-8							7,696	1,512	220	3427				806		13,661		13,661	E-8	Sq. Yd.	Removal and Disposal of Existing Pavement, as per plan.
E-8							1,292	440	287	1,026						3,045		3,045	E-8	Lin. Ft.	Removal and Disposal of Existing Curb (Sandstone)
E-8							1,058	360	235	839						2,492		2,492	E-8	Lin. Ft.	Removal for Reuse of Existing curb (sandstone)
E-11															554	554		554	E-11	M. Gal.	Water
I-8															2	2		2	I-8	Ea.	Monument Assembly, Standard.
I-8															2	2		2	I-8	Ea.	Monument Boxes, Standard.
I-13		1522	916	4,400		3,385	2,588	8,230			#1200					22,241		22,241	I-13	Sq. Ft.	4" Portland Cement Concrete Sidewalk, as per plan
I-15	362.5		62.5	750	812.5	12.5	375									2,037.5		2,037.5	I-15	Lin. Ft.	Guard Rail, Steel Beam, Standard Type (Deep), as per Standard Drawing I-15 NO. 2-B.
L-9	3,262	876	1,998	2,996	4,265		10,408	3,433							12,586	39,824		39,824	L-9	Sq. Yd.	Seeding and Protecting, as per plan
L-9															3,606	3.606		3.606	L-9	Ton	Commercial Fertilizer (12-12-12)
L-10		94														94		94	L-10	Sq. Yd.	Sodding
L-10		20	57	80												157		157	L-10	Sq. Yd.	Sodding, including 2" galvanized wire mesh, as per plan
M-10															1	1		1	M-10	Ton	Calcium Chloride Furnished and Applied for Maintaining Traffic
T-10															50	50		50	T-10	Cu. Yd	Traffic Compacted Surface Course for Maintaining Traffic
Special															100	100		100	Special	Hours	Fill Compaction Using Heavy Pneumatic Tired Roller
S-25	30 *			1 *			1 *	1 *									33	33	S-25	Each	15,000 Lumen Luminaire and Insulating Transformer, as per plan.
S-25		9 *	10 *	9 *	10 *	12 *	11 *	8 *									69	69	S-25	Each	10,000 Lumen Luminaire and Insulating Transformer, as per plan.
S-25	23	6	5																		(Lamp Standards, 6' Bracket, as per plan. To Bridge Sheet 37)
S-25	7	3	5	10	10	11 *	11 *	9 *								35	31	66	S-25	Each	Lamp Standards, 10' Bracket, as per plan.
S-25						1 *											1	1	S-25	Each	Lamp Standard, 10 Double Bracket, as per plan.
S-25	7	3	5	10	10	12 *	11 *	9 *								35	32	67	S-25	Each	Concrete Pole Base, as per plan.
S-25	1			2	1	2 *	4 *	1 *								4	7	11	S-25	Each	Pull Boxes, Concrete, as per plan.
S-25	8,000 *	1,550 *	1,550 *	3,800 *	1,750 *	2,400 *	2,250 *	2,100 *									23,400	23,400	S-25	Lin. Ft.	# 8 AWG, 5kV, Single Conductor Lighting Cable, as per plan.
S-25	800	350	550	2,200	850	1,450 *	1,300 *	2,000 *								2038	7462	9,500	S-25	Lin. Ft.	2" Duct, Concrete Encased, as per plan.
S-25				900			350 *									200	1,050	1,250	S-25	Lin. Ft.	4" Duct, Concrete Encased, as per plan.

* 100% City Participation.

Est. 1200 Sq. Ft. of 4" Concrete Sidewalk for replacement of existing sidewalk along Commercial Road adjacent to pier No 1-B.

Structure over 20 Ft. Span
For Quantities Bridge No. CUY-42-18.02 See Sheet 37

SCALE None
MADE HKM DATE 3/22/67
TRCD BMO DATE 3/23/67
CKD JFS DATE 3-8-67

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

MICROFILMED
FEB 23 1959

GENERAL SUMMARY
ESTIMATED QUANTITIES

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

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CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
QUANTITIES

ITEM NO.	FREEWAY	RAMPS E-1	RAMPS E-2	RAMPS E-3	RAMPS E-4	BROADWAY EASTBOUND	BROADWAY WESTBOUND	STREETS E-9TH	STREETS CARNEGIE	STREETS WOODLAND	STREETS ANDES CT.	STREETS DECATUR CT.	STREETS EDWARDS CT.	STREETS E-9TH PL.	GENERAL	CODE 7221	C.I.T.Y.	TOTAL	ITEM NO.	UNIT	DESCRIPTION
ROADWAY (cont'd.)																					
S-25								1 *									1	1	S-25	Each	Wood Pole, as per plan.
S-25						36 *											36	36	S-25	Each	Fluorescent Underdeck Lights, as per plan.
S-25						1 *											1	1	S-25	Each	Service Panel, as per plan.
S-25						4 *											4	4	S-25	Each	Junction Boxes, as per plan.
S-25						1200 *											1200	1200	S-25	Lin. Ft.	Service for Underdeck Lighting, as per plan.
S-25						200 *											200	200	S-25	Lin. Ft.	2" Rigid Galvanized Conduit, as per plan.
S-25						550 *											550	550	S-25	Lin. Ft.	¾" Rigid Galvanized Conduit, as per plan.
S-25				1 *													1	1	S-25	Each	Regulator Vault, as per plan.
S-25							1 *										1	1	S-25	Each	Manhole (5'x 8'), as per plan.
Special	2															1		1	Special	Each	Single Pole Overhead Sign Assembly, Type "A" B=18'
Special						1										1		1	Special	Each	Bridge Type Overhead Sign Assembly, Type "A" 65' Span
Special																lump		lump	Special	LUMP	Construction Layout Stakes.
DRAINAGE																					
I-2		42	68	155	52	47				12						376		376	I-2	Lin. Ft.	12" Class A Storm Sewers
I-2								121								121		121	I-2	Lin. Ft.	12" Class A Storm Sewers Under Pavement or Approaches, Sec. M.6.5(b) or M-6.8(b)
I-2	185	50	17				38									290		290	I-2	Lin. Ft.	12" Class B Storm Sewers
I-2	95															95		95	I-2	Lin. Ft.	12" Class B Storm Sewers, Sec. M-6.6.(b)
I-2	283	38	30	72		149	166	183	90							1011		1011	I-2	Lin. Ft.	12" Class B Storm Sewers Under Pavement or Approaches
I-2		40				156	181	136								513		513	I-2	Lin. Ft.	15" Class B Storm Sewers Under Pavement or Approaches
I-2					35											35		35	I-2	Lin. Ft.	18" Class A Storm Sewers Under Pavement or Approaches, Sec. M.6.5(b) or M.6.8 (b)
I-2							104	227								331		331	I-2	Lin. Ft.	18" Class B Storm Sewers Under Pavement or Approaches
I-2				30 *			60 *										90	90	I-2	Lin. Ft.	6" Class B Storm Sewers, Sec. M-6.8(b).
I-4	94	418	702	1254	1731	701	568	600								6,068		6,068	I-4	Lin. Ft.	6" Underdrains
I-8	1	2	1	4	1	1										10		10	I-8	Each	Standard No. 2-2-A Catch Basins
I-8					1											1		1	I-8	Each	Standard No. 2-4 Catch Basin, Modified as per plan
I-8	4	2	1	2			1	2	1							13		13	I-8	Each	Standard No. 2-6 Inlets
I-8			1			3	3	3								10		10	I-8	Each	No. 2-8 Inlets, as per plan.
I-8							1	2								3		3	I-8	Each	Standard No. 2-10 Inlets
I-8			1			1										2		2	I-8	Each	Standard No. 1 Manholes, Modified as per plan.
I-8	1															1		1	I-8	Each	Standard No. 2 Manhole, Modified as per plan, with Drop Pipe
I-8	1															1		1	I-8	Each	Standard No. 2 Manhole, Modified as per plan, without Drop Pipe
I-8				1		2										3		# 3	I-8	Each	Manholes Adjusted to grade
I-8															2	2	..	2	I-8	Each	Manhole Frames and Covers, Furnished and Placed, as per plan.
I-14															70	70		70	I-14	Lin. Ft.	Standard Type 1 Paved Gutter
I-16	1				1											2		2	I-16	Each	Manholes Abandoned, as per plan.
I-16	1			1	3	5	2	2	2							16		16	I-16	Each	Inlets and Catch Basins Abandoned.
E-12	20															20		20	E-12	Lin. Ft.	Pipe Removed, over 15", as per plan.
																					Lump Sum Construction Layout Stakes

* 100% City Participation.

All Manholes adjusted to grade are on Storm or Combination Type Sewers.

SCALE None
MADE HKW DATE 4-9-57
TRCD. BMO DATE 3-29-57
CKD. J.F.S. DATE 5-6-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 6

MICROFILMED
FEB 23 '68

TYPE T-71

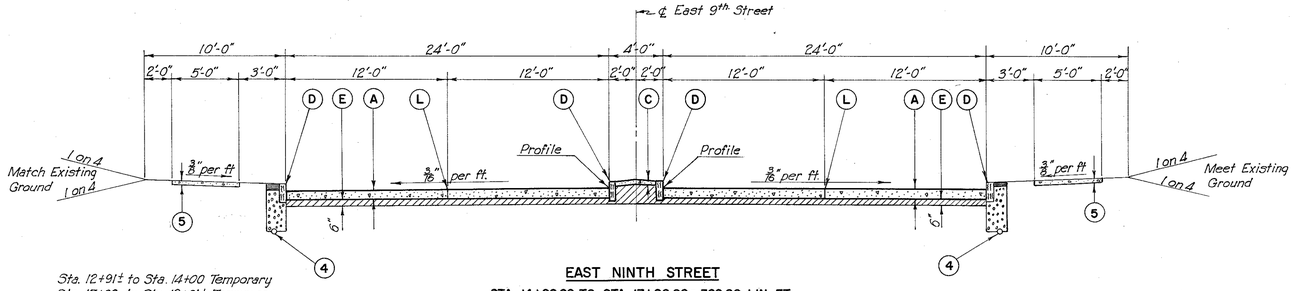
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

7
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
TYPICAL CROSS SECTIONS

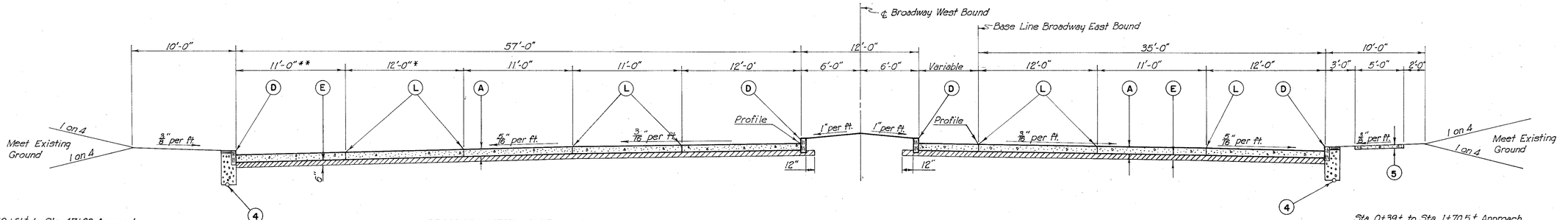
LEGEND

- (A) 9" Reinforced Portland Cement Concrete Pavement, Item T-71
- (B) Standard Type 2-A Concrete Curb, Item I-12
- (C) Standard Type 1 Median Pavement, Item I-21
- (D) 6"x 18" Sandstone Curb, Item I-11
- (E) Subbase, Item I-22
- (L) Standard Longitudinal Joint
- (1) 3" Bituminous Macadam Base Course, Item B-33
- (2) Bituminous Prime Coat, Item T-30, Sec. M5.1 RT-2 or RT-3 or Sec. M5.3 MC-0 or MC-1 applied at rate of 0.35 gal. per sq. yd.
- (3) Stabilized Crushed Aggregate Shoulder, Item I-18
- (4) 6" Underdrain, For details of trench see Detail T Sheet 13.
- (5) 4" Portland Cement Concrete Sidewalk, Item I-13
- (6) Seal Coat, Item T-31, placed in two applications (See note in Proposal.)



Sta. 12+91± to Sta. 14+00 Temporary
Sta. 17+00 to Sta. 19+61± Temporary
See Sheet 9.

EAST NINTH STREET
STA. 14+00.00 TO STA. 17+00.00 = 300.00 LIN. FT.

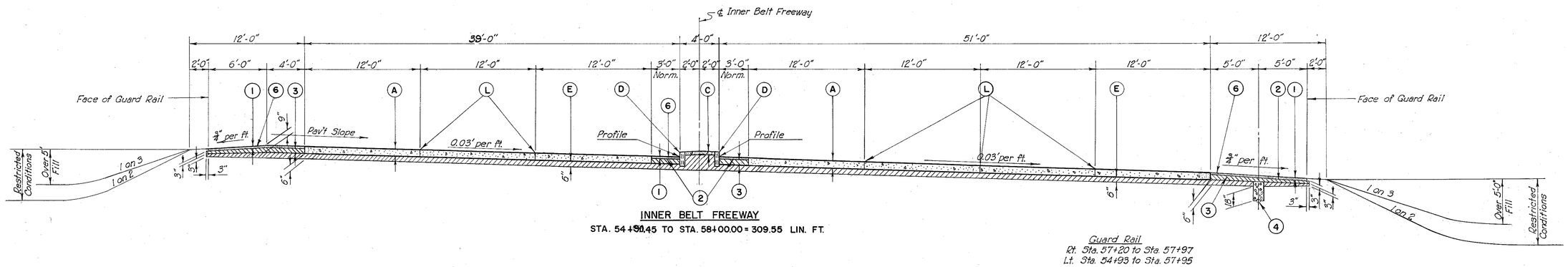


Sta. 49+61± to Sta. 47+00 Approach
Sta. 47+00 to Sta. 46+00 Taper
* Sta. 41+50 to Sta. 40+00± Temporary See Sheet 9.

BROADWAY WEST BOUND
** STA. 46+00.00 TO STA. 44+63.31 = 136.69 LIN. FT.
* STA. 43+16.68 TO STA. 41+50.00 = 166.68 LIN. FT.

BROADWAY EAST BOUND
STA. 1+70.5± TO STA. 9+38± = 767.5± LIN. FT.

Sta. 0+39± to Sta. 1+70.5± Approach
Sta. 9+38± to Sta. 10+43± Temporary See Sheet 9.



Guard Rail
Rt. Sta. 57+20 to Sta. 57+97
Lt. Sta. 54+93 to Sta. 57+95

SCALE 3/16" = 1'-0"
MADE H.K.M. DATE 10-17-57
TRCD. B.M.Q. DATE 11-28-57
CKD. J.F.S. DATE 5-7-61

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 7

UNCORRECTED
FEB 23 1993

TYPE T-71 AND T-70

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

8 / 117

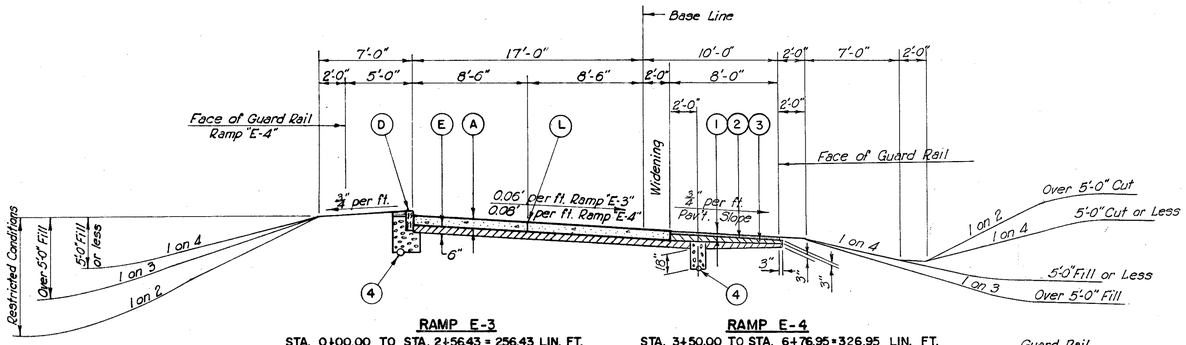
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)

TYPICAL CROSS SECTIONS
RAMPS

LEGEND

For Legend See Sheet 7

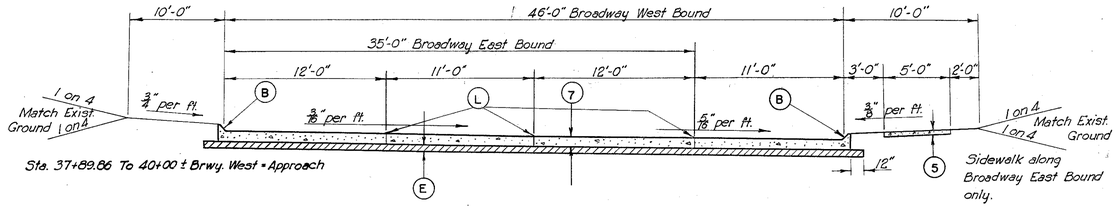
(7) 9" Portland Cement Concrete Pavement, Item T-70



RAMP E-3
STA. 0+00.00 TO STA. 2+56.43 = 256.43 LIN. FT.

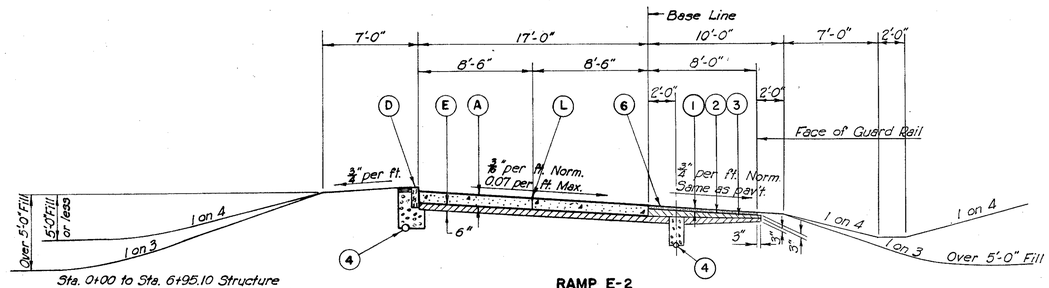
RAMP E-4
STA. 3+50.00 TO STA. 6+76.95 = 326.95 LIN. FT.

Guard Rail
Lt. "E-4" Sta. 2+50 to Sta. 5+53



Sta. 37+89.86 To 40+00 ± Brwy. West = Approach

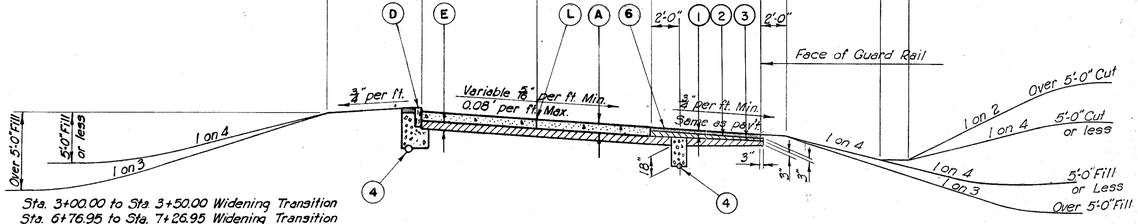
TEMPORARY PAVEMENT
BROADWAY WESTBOUND-STA. 40+00± TO STA. 41+50=150± LIN. FT.
BROADWAY EASTBOUND-STA. 9+38± TO STA. 10+43±=105± LIN. FT.
E-9TH STREET-FOR CROWN, WIDTH, AND LIMITS SEE SHEETS 7 & 9



Sta. 0+00 to Sta. 6+95.10 Structure
Sta. 6+95.10 to Sta. 7+20.10 Approach Slab
Sta. 10+22.99 to Sta. 12+05± Merging Transition

RAMP E-2
STA. 7+20.10 TO STA. 10+22.99=302.89 LIN. FT.

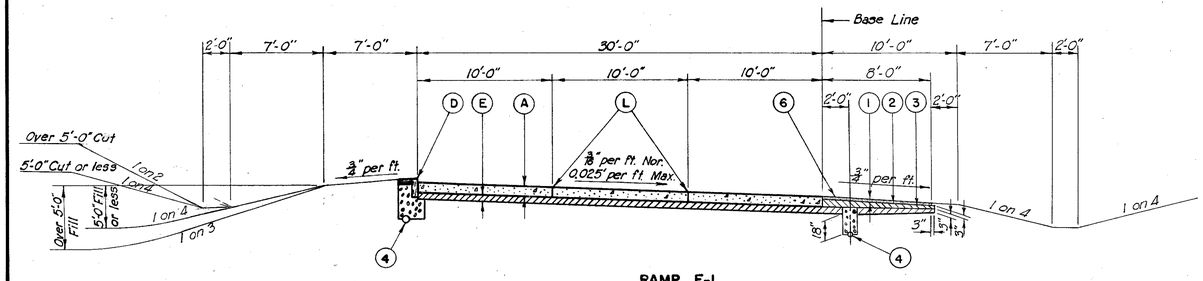
Guard Rail
Rt. Sta. 7+30 to Sta. 7+94



Sta. 3+00.00 to Sta. 3+50.00 Widening Transition
Sta. 6+76.95 to Sta. 7+26.95 Widening Transition
Sta. 9+20.28 to Sta. 10+57.79 Merging Transition

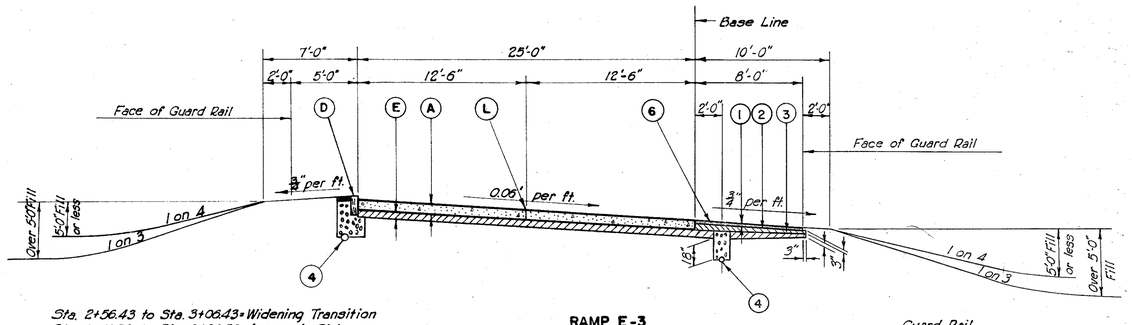
RAMP E-4
STA. 2+16.24 TO STA. 3+00.00 = 83.70 LIN. FT.
STA. 7+26.95 TO STA. 9+20.28 = 193.33 LIN. FT.

Guard Rail
Rt. Sta. 0+45 to Sta. 5+28



Sta. 0+00.00 to Sta. 1+60.5± = Merging Transition
Sta. 2+76.95 to Sta 3+01.95 = Approach Slab

RAMP E-1
STA. 1+60.5± TO STA. 2+76.95 = 116.45 LIN. FT.



Sta. 2+56.43 to Sta. 3+06.43 = Widening Transition
Sta. 6+61.50 to Sta. 6+86.50 Approach Slab

RAMP E-3
STA. 3+06.43 TO STA. 6+61.50 = 355.07 LIN. FT.

Guard Rail
Rt. Sta. 3+00 to Sta. 6+80
Lt. Sta. 2+64 to Sta. 6+22

SCALE 3/16" = 1'-0"
MADE H.K.M. DATE 12-13-56
TRCD. B.M.O. DATE 12-14-56
CKD. J.F.S. DATE 5-3-57
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 8

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	9 / 117
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND

INNER BELT FREEWAY — PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY - 42 - (17.43 - 18.02)
PAVEMENT DETAILS

INCORPORATED FEB 23 1933

Nose Sta. 5+89.5± E. 9th = Sta. 0+86.5± Connection

See Detail E.

Note:
See Geometric Layout, sheet 2-A for Curve Data
Location of monument assemblies to be determined by the Engineer.
For size of ductways under pavement see sheets 13 & 15

Match Line Sta. 15+00 ℄ E.-9th St.

LEGEND

L - Standard Longitudinal Joint
E - Expansion Joint
C - Construction Joint

OVERHEAD SIGN STRUCTURES						
Station	Type	Span	Pole	B	H	Supports
* 48+37±E. Bound	OS-1-A		19'-6"(3ga)	18'	3'	4
57+50 Frwy. 73'Rt.	OS-1-A		19'-6"(3ga)	18'	3'	4
2+75 Brwy. E.B.	OS-2-A	65'			3'	4(6", 15', 15', 25')

* Carried to bridge quantities, see sheet 37

SCALE 1"=50'
MADE J.F.S. DATE 10-5-56
TRCD. B.M.D. DATE 11-26-56
CKD. H.K.M. DATE 5-6-57

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

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

9-A
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY - 42 - (17.43-18.02)
PAVEMENT REMOVAL DETAILS

Note:
Existing pavement areas on this sheet shown by shading thus [redacted] are to be removed and paid for under Item E-8 "Removal & Disposal of Existing pavement."

Nose Sta. 5+89.5± E. 9th = Sta. 0+86.5± Connection

See Detail E.

Note:
See Geometric Layout, sheet 2-A for Curve Data
Location of monument assemblies to be determined by the Engineer.
For size of ductways under pavement see sheets 13 & 15

"This portion of Woodland Avenue (as indicated by cross hatching) is not to be removed but shall be broken up & left in place. Removal of pavement as per the above included in the operation shall be included in the price bid for Item E-10."

Match Line Sta. 15+00 ℄ E. 9th St.

Match Line Sta. 15+00 ℄ E. 9th St.

FEB 23 1959

LEGEND
L - Standard Longitudinal Joint
E - Expansion Joint
C - Construction Joint

OVERHEAD SIGN STRUCTURES						
Station	Type	Span	Pole	B	H	Supports
* 48+37± E. Bound	OS-1-A		19'-6"(3 spa)	18'	3'	4
57+50 Frwy. 73' Rt.	OS-1-A		19'-6"(3 spa)	18'	3'	4
2+75 Brwy. E.B.	OS-2-A	65'			3'	4(6', 15', 15', 25')

* Carried to bridge quantities, see sheet 37

SCALE 1" = 50'
MADE J.F.S. DATE 10-5-56
TRCD. B.M.O. DATE 11-26-56
CKD. H.K.M. DATE 5-6-57

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

MICROFILMED
FEB 23 1957

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

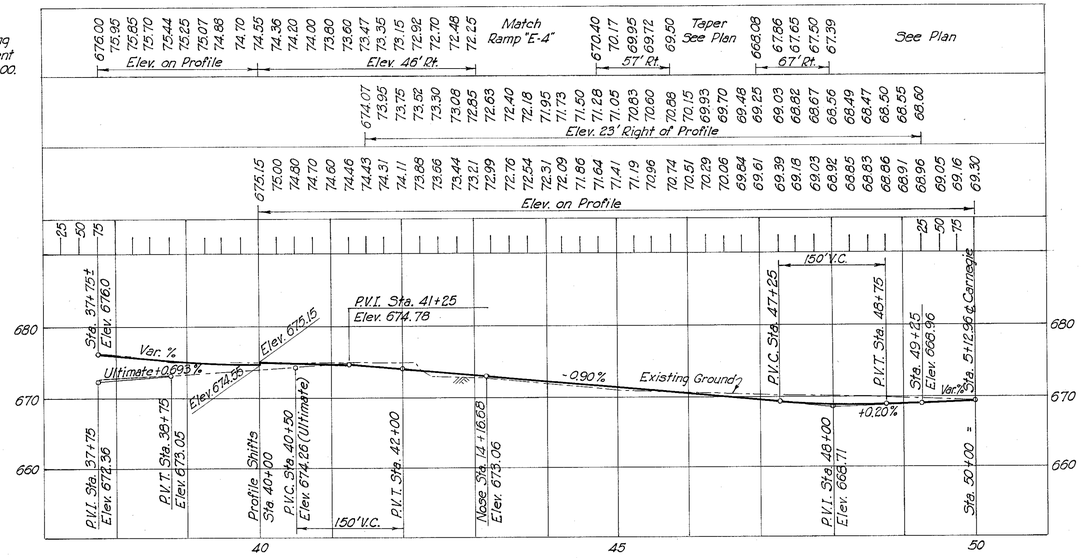
10
117

CUYAHOGA COUNTY
CITY OF CLEVELAND

INNER BELT FREEWAY—PART 5

EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
PROFILES - STREETS

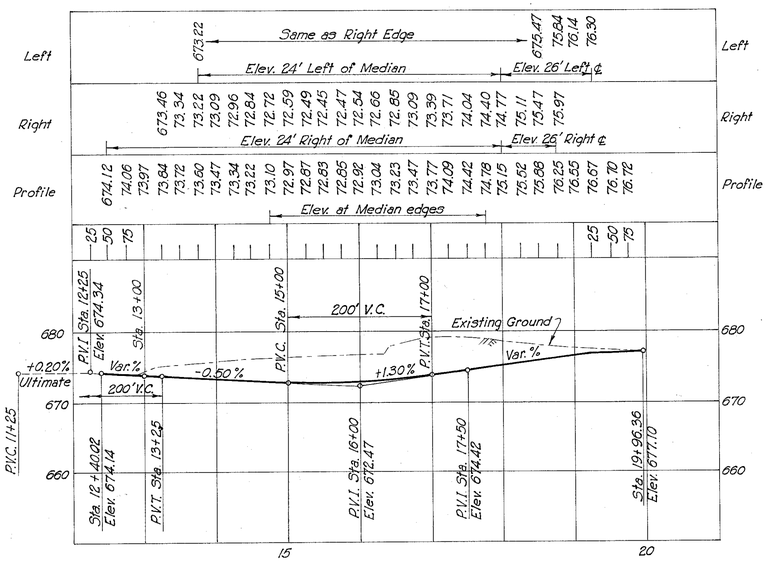
Note:
Stationing is along North Edge of Pavement Sta. 37+75 to Sta. 40+00.



BROADWAY WESTBOUND

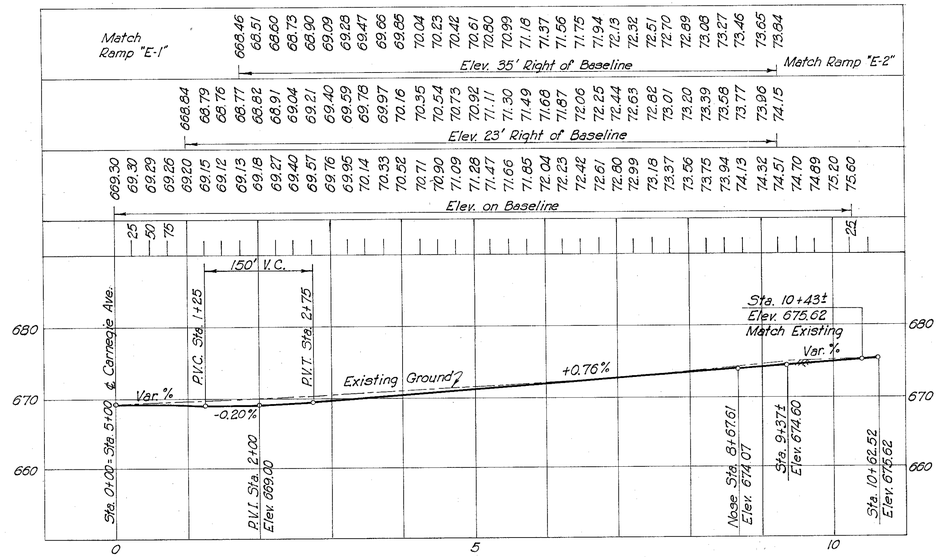
Note: Profile grade carried on median edge.

<u>Bench Mark:</u> OM 42 Elev. 669.727
Approx. 46' N.E of Woodland Ave. and 48' S of ℄ of Carnegie Ave.



EAST NINTH STREET

Note: Profile grade carried on centerline unless otherwise noted.



BROADWAY EASTBOUND

Note: Profile grade carried on Baseline

SCALE Hor. 1"=100' Vert. 1"=10'
MADE E.G DATE 11-27-56
TRCD. BMQ DATE 12-10-56
CKD. HKM DATE 1-24-57
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 10

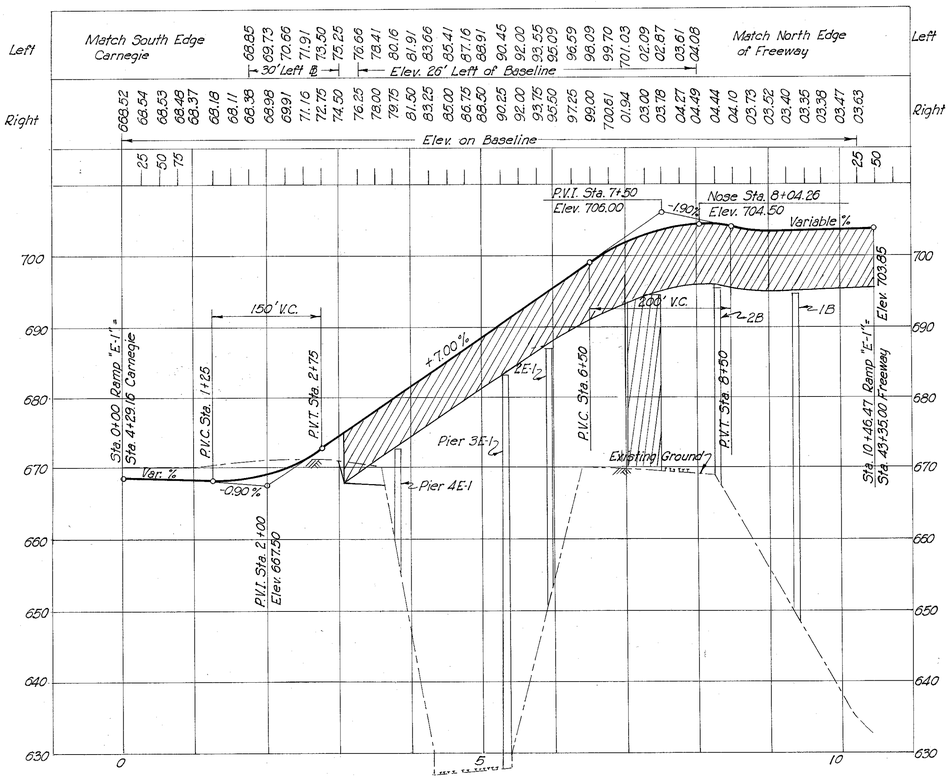
MICROFILMED
FEB 23 1983

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

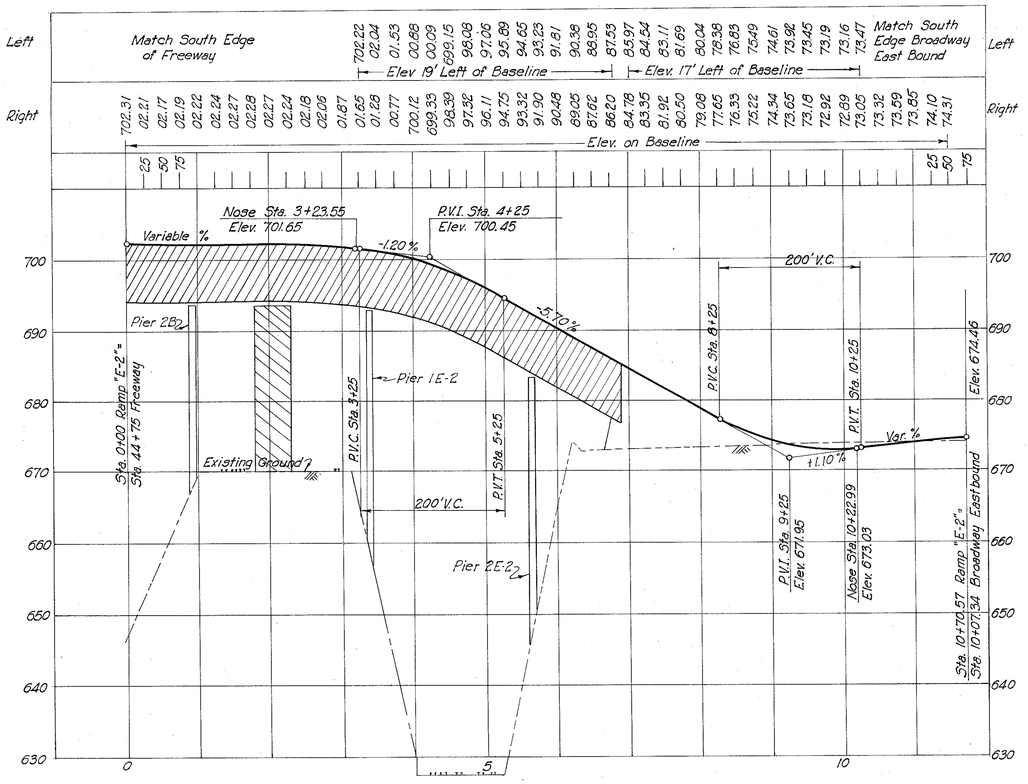
11
117

CUYAHOGA COUNTY
CITY OF CLEVELAND

INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
RAMP PROFILES



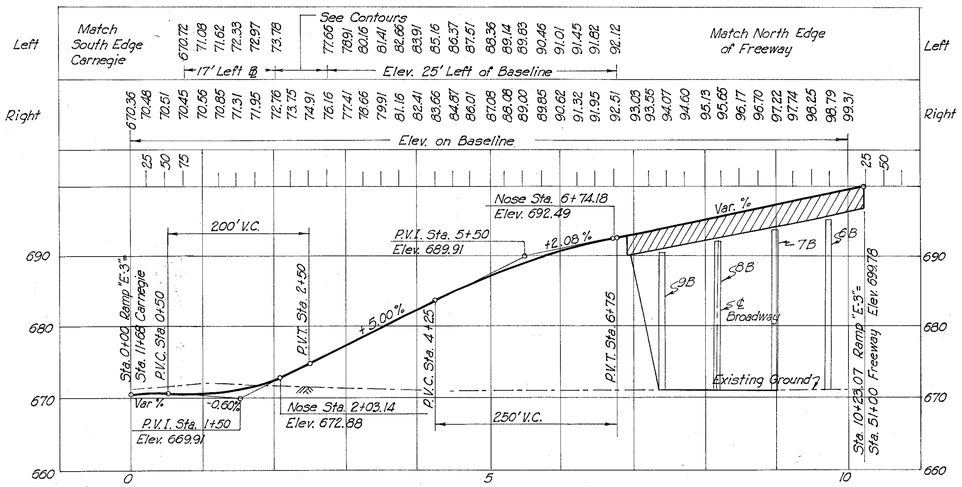
RAMP "E-1"



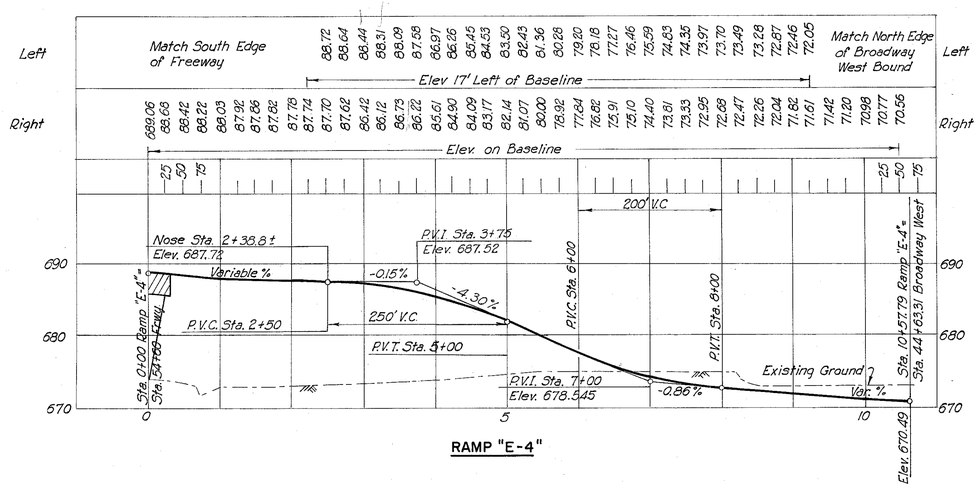
RAMP "E-2"

Bench Mark: OM 42 Elev. 669.727
Approx. 46' N.E. of ℄ Woodland Ave.
and 48' S. of ℄ of Carnegie Ave.

Note:
Profile Grade is on Baseline.



RAMP "E-3"



RAMP "E-4"

SCALE 1"=10' Vert. 1"=100' Hor.
MADE C.E.G. DATE 11-20-56
TRCD. P.M.Q. DATE 11-30-56
CKD. HKM DATE 4-24-57

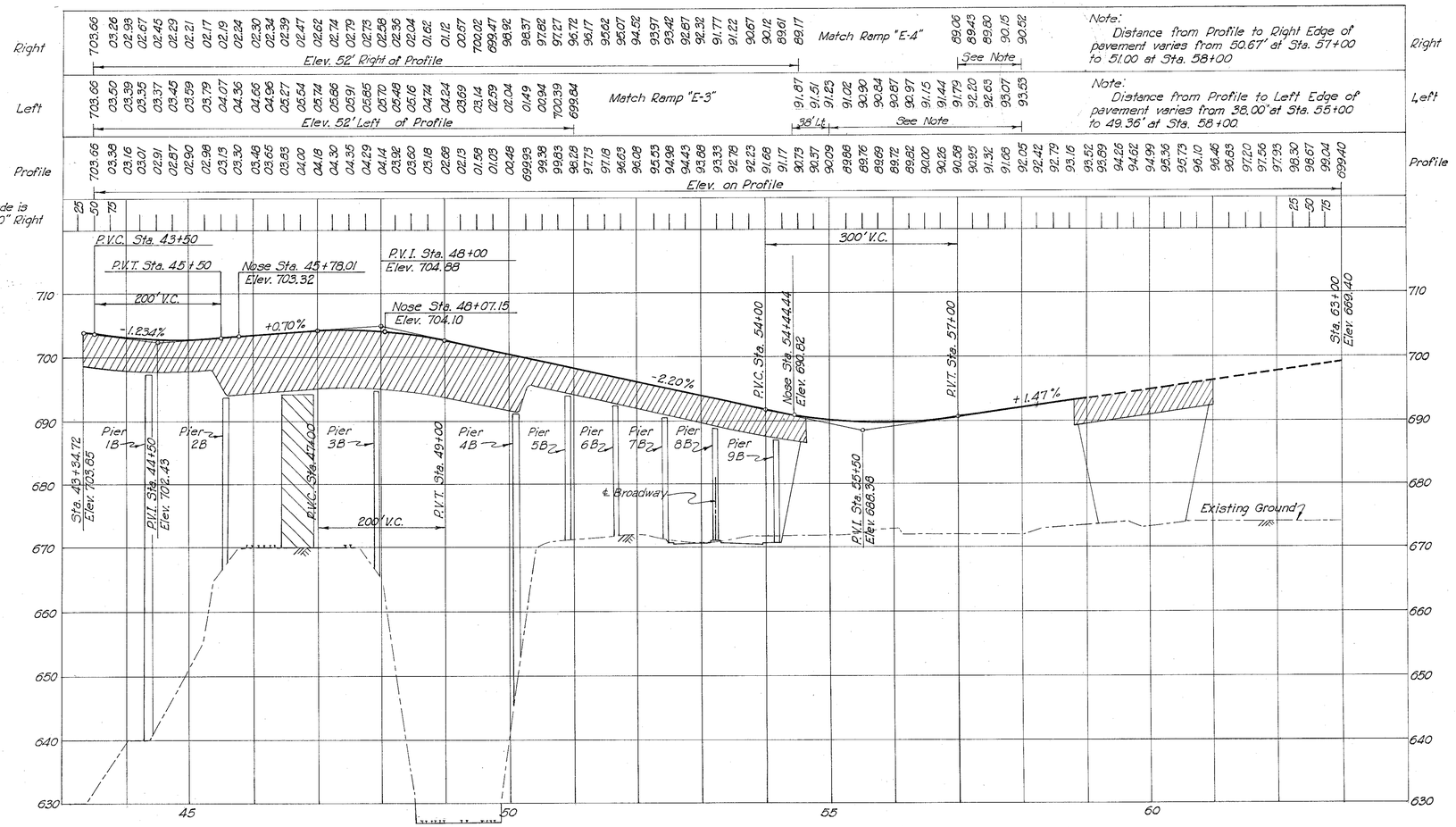
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 11

RECEIVED
FEB 25 1958

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

12
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY — PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
PROFILE — FREEWAY



FREEWAY

Bench Mark: OM 42 Elev. 669.727
Approx. 46' N.E. of ℄ Woodland Ave.
and 48' S. of ℄ of Carnegie Ave.

SCALE 1"=10' Vert; 1"=100' Hor.
MADE GEG DATE 11-20-56
TRCD. BMO DATE 12-11-56
CKD. JFS DATE 5-3-57

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

MICROFILMED
FEB 23 1956

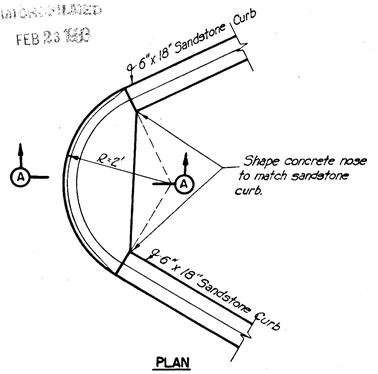
FED.ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

13
117

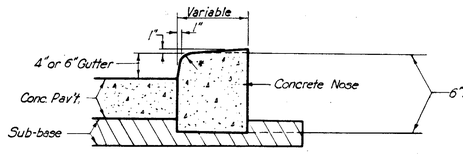
CUYAHOGA COUNTY.
CITY OF CLEVELAND

INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)

MISCELLANEOUS DETAILS



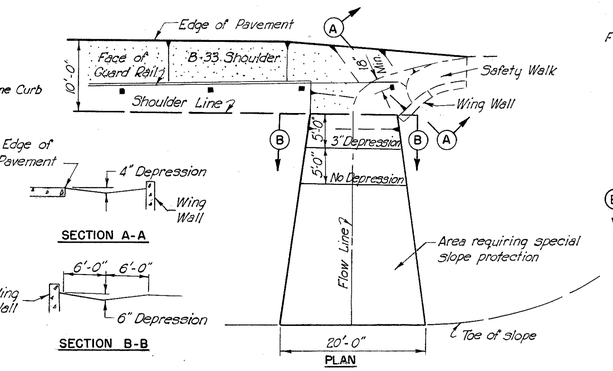
PLAN



SECTION "A-A"
Scale: 3/4"=1'-0"

*Note:
1" Radius for 6" Gutter
3" Radius for 4" Gutter
Concrete nose to be Class "D" concrete and shall be included in price bid per linear foot of Item I-11, 6"x18" Sandstone Curb.

DETAIL "E"
NOSE TERMINATION OF SANDSTONE CURB
Scale: 3/4"=1'-0"



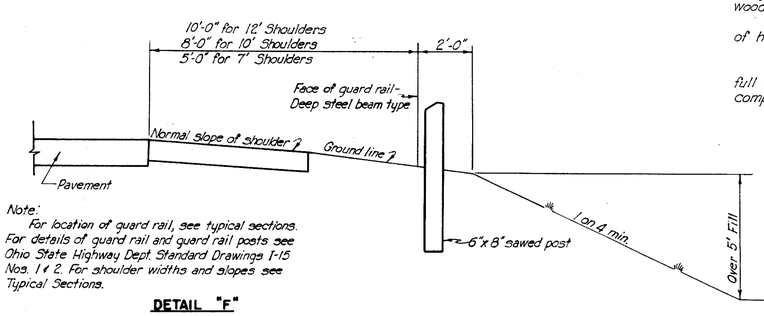
SECTION A-A

SECTION B-B

PLAN

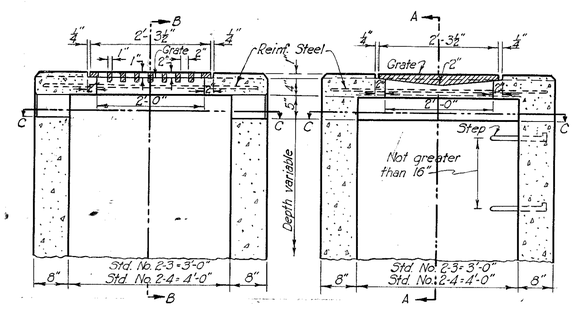
DETAIL "G"
SPECIAL BERM AND SLOPE PROTECTION
Not to Scale.

Note:
Prior to placement of sod, galvanized Straight Line Poultry Fence or equivalent having 2" mesh and all wires No. 20 Guage 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"x2.4" wood stakes, placed at a maximum spacing of 4' and driven flush with finished grade.
Each strand of fencing shall be fastened together at twelve inch inch intervals by means of hog rings and 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 location of Special Berm and Slope Protection see Paving Plans, Sheet No. 9.

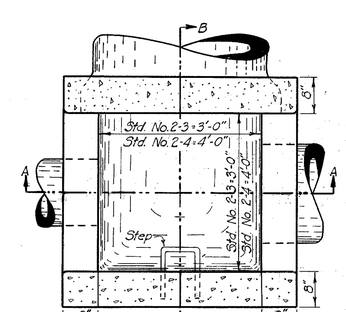


Note:
For location of guard rail, see typical sections. For details of guard rail and guard rail posts see Ohio State Highway Dept. Standard Drawings 1-15 Nos. 1 & 2. For shoulder widths and slopes see Typical Sections.

DETAIL "F"
GUARD RAIL DETAILS
Not to Scale



SECTION A-A

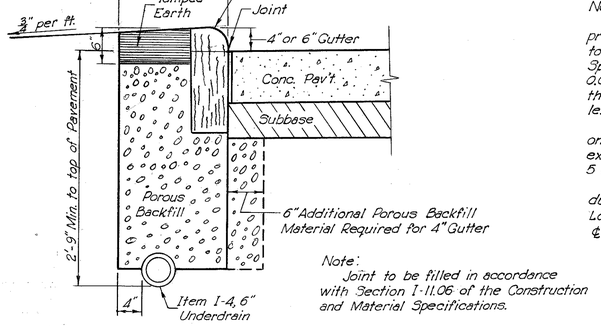


SECTION B-B

SECTION C-C

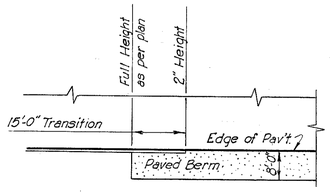
STANDARD NO. 2-3 & 2-4 CATCH BASIN MODIFICATION
Scale: 3/4"=1'-0"

Note:
Catch Basin details not shown shall be similar to those shown on Standard Construction Drawing I-8 C.B. 2-3 & 2-4.
Steps shall be as specified on Standard Drawing I-8 M.H. No. 1.

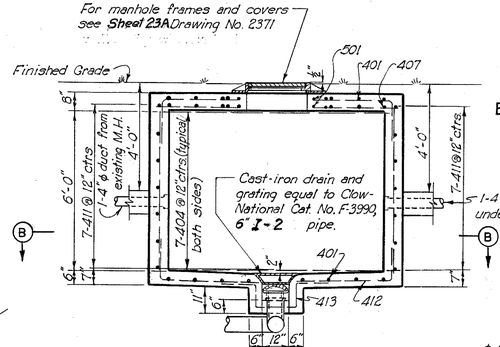


Note:
Joint to be filled in accordance with Section 1-11.06 of the Construction and Material Specifications.

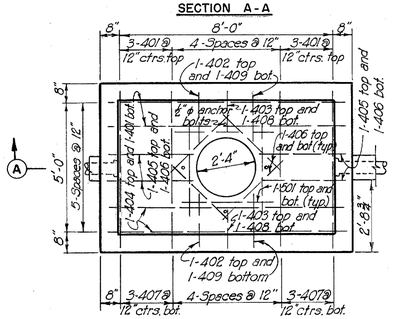
DETAIL "I"
CURB-UNDERDRAIN DETAILS
Scale: 1"=1'-0"



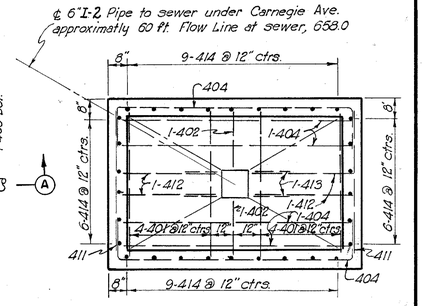
DETAIL "H"
CURB AND SHOULDER TRANSITION
PLAN
Not to Scale



SECTION A-A



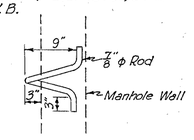
PLAN



SECTION B-B

TRANSFORMER MANHOLE
Scale: 3/8"=1'-0"

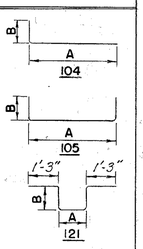
Notes:
The top and sides of the manhole shall be provided with Type "B" waterproofing according to Ohio Standard Construction and Materials Specifications. For the floor vapor barrier a 0.004" polyethylene film shall be applied over the sub-grade. The film shall be lapped not less than 6".
A 1"φ x 10'-0" ground rod shall be placed in one corner of the manhole, with 6" of the rod extending above the floor, for a minimum of 5 ohms to ground.
Install one pulling iron opposite each duct entrance.
Location of manhole; Sta. 48+90, 84' R. ℄ Broadway W.B.

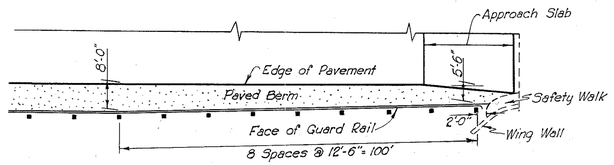


PULLING IRON
No Scale

REINFORCING BAR SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B
401	14	8'-8"	105	5'-8"	1'-6"
402	6	3'-8"	104	2'-2"	1'-6"
403	2	3'-2"	104	1'-8"	1'-6"
404	22	11'-8"	105	8'-8"	1'-6"
405	4	4'-9"	104	3'-3"	1'-6"
406	12	3'-3"	Str.		
407	6	6'-0"	Str.		
408	2	1'-9"	Str.		
409	4	2'-3"	Str.		
410	4	9'-0"	Str.		
411	14	5'-6"	Str.		
412	4	4'-11"	104	3'-5"	1'-6"
413	2	5'-10"	121	11"	1'-6"
414	30	6'-3"	Str.		
501	8	3'-6"	Str.		





DETAIL "J"
TYPICAL SHOULDER TRANSITION AT WING WALL
PLAN
Not to Scale

SCALE As Shown
MADE JHK DATE 1-19-56
TRCD. SMO DATE 1-25-56
CKD H.H.M DATE 1-27-56

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

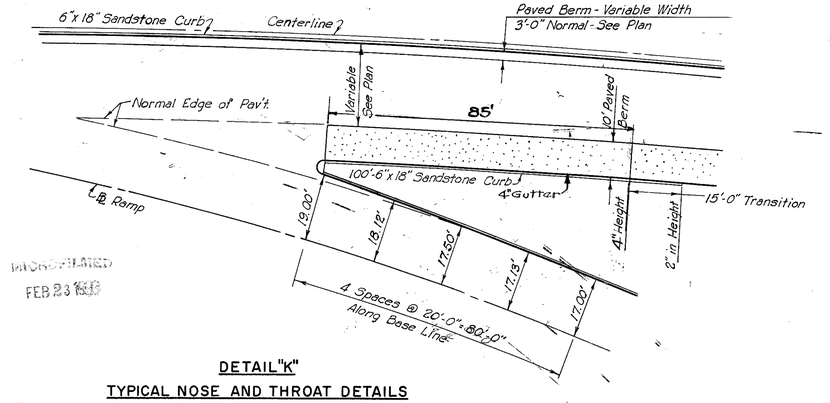
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO	TYPE FUNDS
2	OHIO		

14
117

CUYAHOGA COUNTY
CITY OF CLEVELAND

INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)

MISCELLANEOUS DETAILS

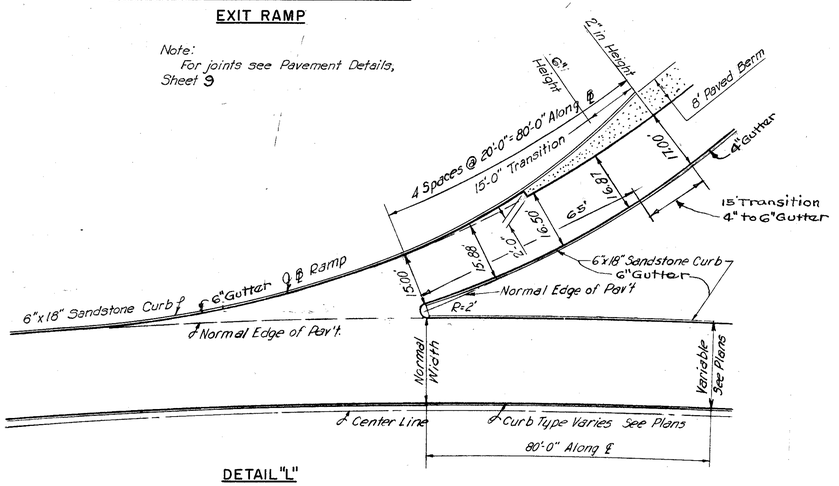


DETAIL "K"

TYPICAL NOSE AND THROAT DETAILS

EXIT RAMP

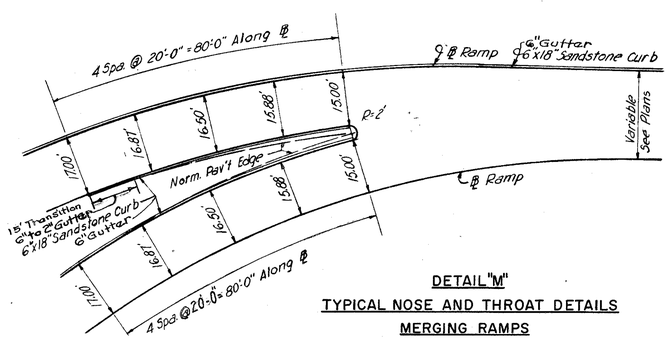
Note:
For joints see Pavement Details, Sheet 9



DETAIL "L"

TYPICAL NOSE AND THROAT DETAILS

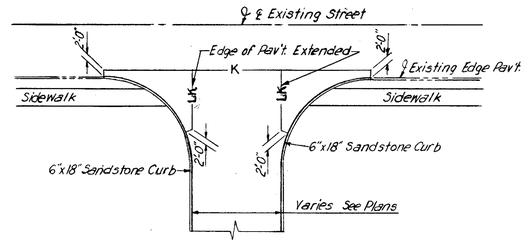
ENTRANCE RAMP



DETAIL "M"

TYPICAL NOSE AND THROAT DETAILS

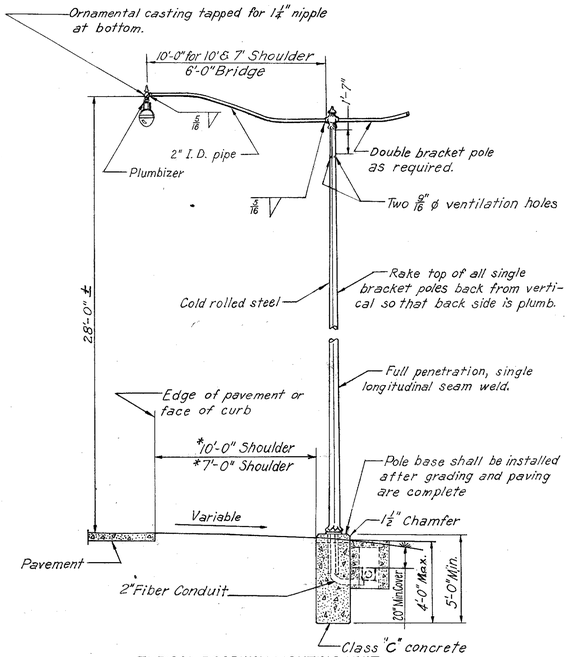
MERGING RAMPS



L - Standard Longitudinal Joint
K - Butt Joint Without Dowels
LK - Standard Longitudinal Key Joint without tie bars.

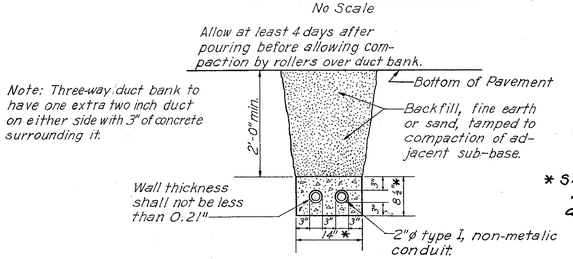
DETAIL "N"

TYPICAL INTERSECTION DETAILS



TYPICAL ROADWAY LIGHTING UNIT

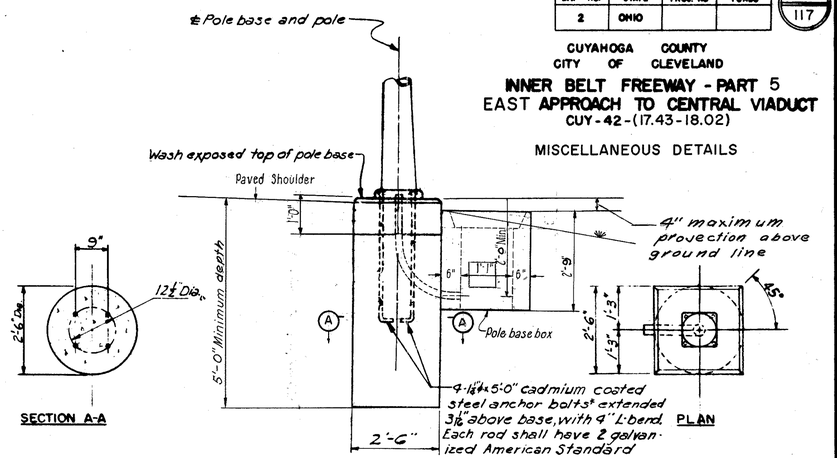
No Scale



TWO-WAY DUCT BANK

Scale: ¾"=1'-0"

* Shown for 2-2" ø duct bank. Arrange 4-way duct banks in a square. Thickness of concrete between conduits and of outside concrete encasement shall not be less than 3".



SECTION A-A

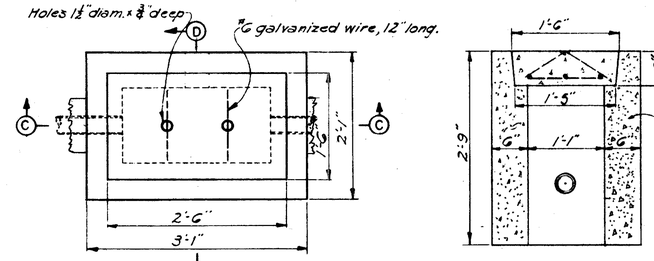
PLAN

ELEVATION

TYPICAL POLE BASE

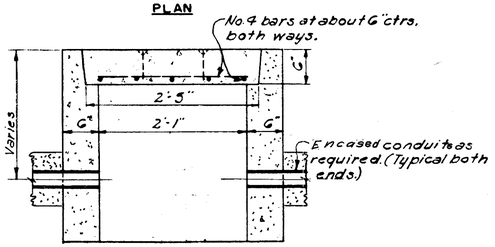
Scale: ½"=1'-0"

*Cadmium coating 11" min.



PLAN

SECTION D-D



SECTION C-C

CONCRETE PULL BOX

Scale: 1"=1'-0"

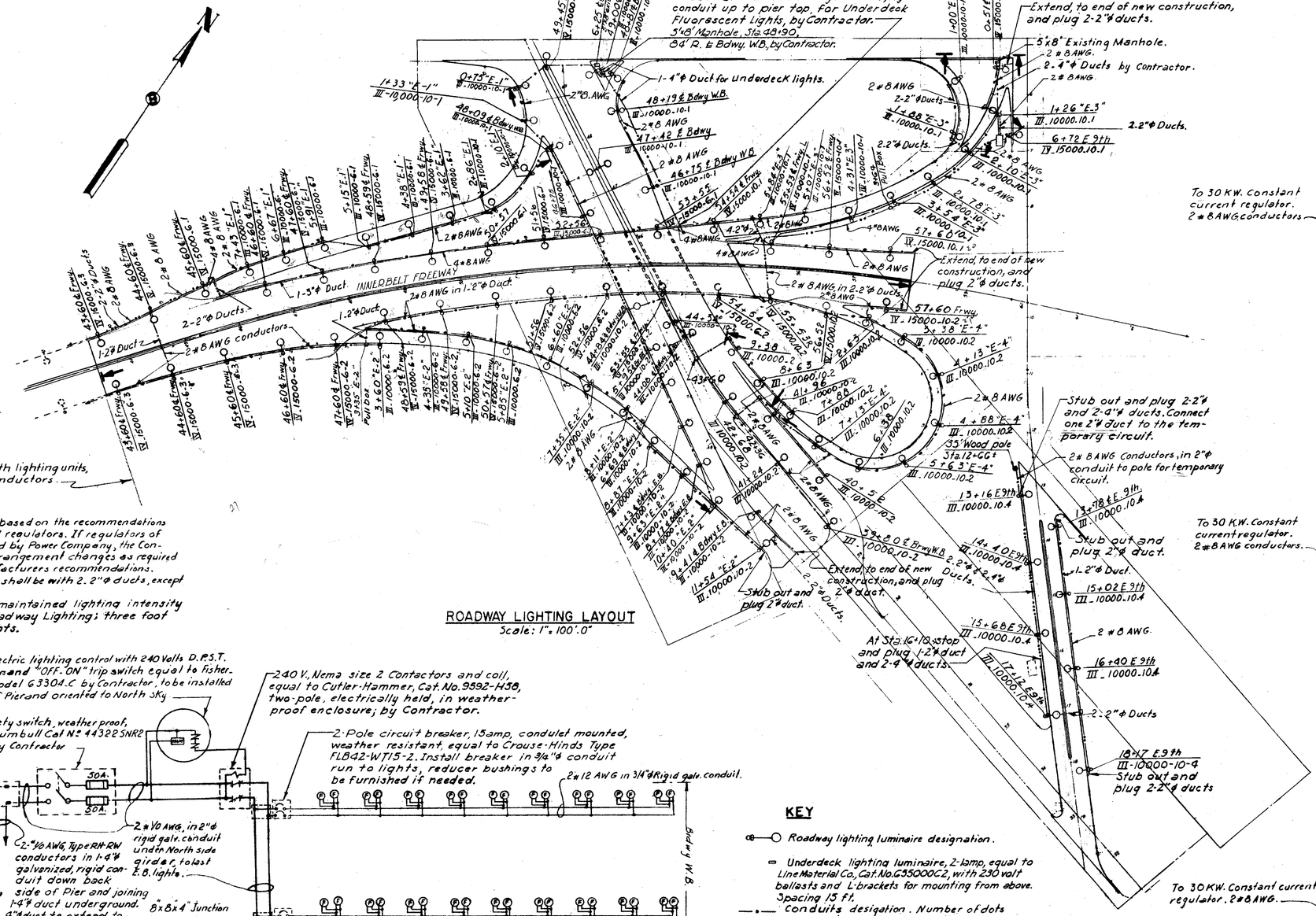
SCALE As Shown
MADE KM DATE 2/11/57 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD. DATE CONSULTING ENGINEERS
CKD. JFS 5-8-57 KANSAS CITY, CLEVELAND, NEW YORK
914 SHEET 14

MICROFILMED
FEB 23 [illegible]

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

15
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY — PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY - 42 -(17.43-18.02)
LIGHTING DETAILS



CIRCUIT - 1

CIRCUIT - 2

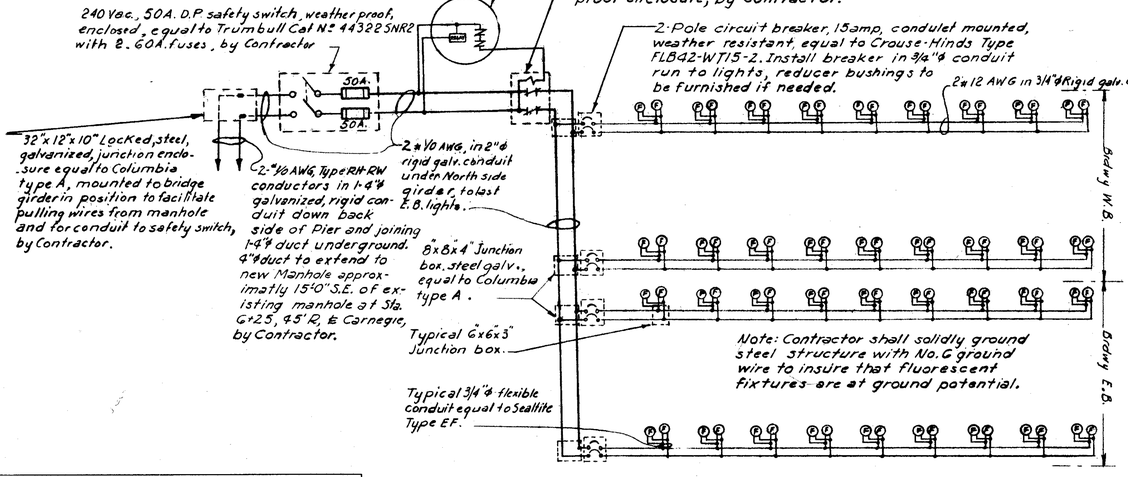
CIRCUIT - 3

CIRCUIT 4

ROADWAY LIGHTING LAYOUT
Scale: 1" = 100'-0"

ROADWAY LIGHTING WIRING DIAGRAM
No scale

Note:
Lamp loads on regulators are based on the recommendations of Westinghouse for their 30 KW regulators. If regulators of other Manufacture are installed by Power Company, the Contractor shall make circuit arrangement changes as required so as to not exceed the manufacturers recommendations.
All crossings under paved areas shall be with 2.2"ϕ ducts, except as shown.
Spacing based on average maintained lighting intensity of one foot candle for Roadway Lighting; three foot candles for underdeck lights.



UNDERDECK LIGHTING WIRING DIAGRAM
No scale

KEY

- Roadway lighting luminaire designation.
- Underdeck lighting luminaire, 2-lamp, equal to LineMaterial Co., Cat. No. G35000C2, with 230 volt ballasts and L-brackets for mounting from above. Spacing 15 ft.
- Conduits designation. Number of dots represents No. of 2"ϕ conduits, except as shown. Double number of conductors for return runs where necessary.
- Luminaire designation: IV represents IES type. 15000 is lamp lumens. 6 is bracket length and 1 is circuit number.
- Regulator vault designation. 8'x22' underground vault.
- Futureregulator vault designation. 8'x11' Underground vault.
- Underdeck Lighting designation: "F" represents fluorescent light.
- 3'-1"x2'-1"x2'-9" Pull box designation.
- Limit of State participation

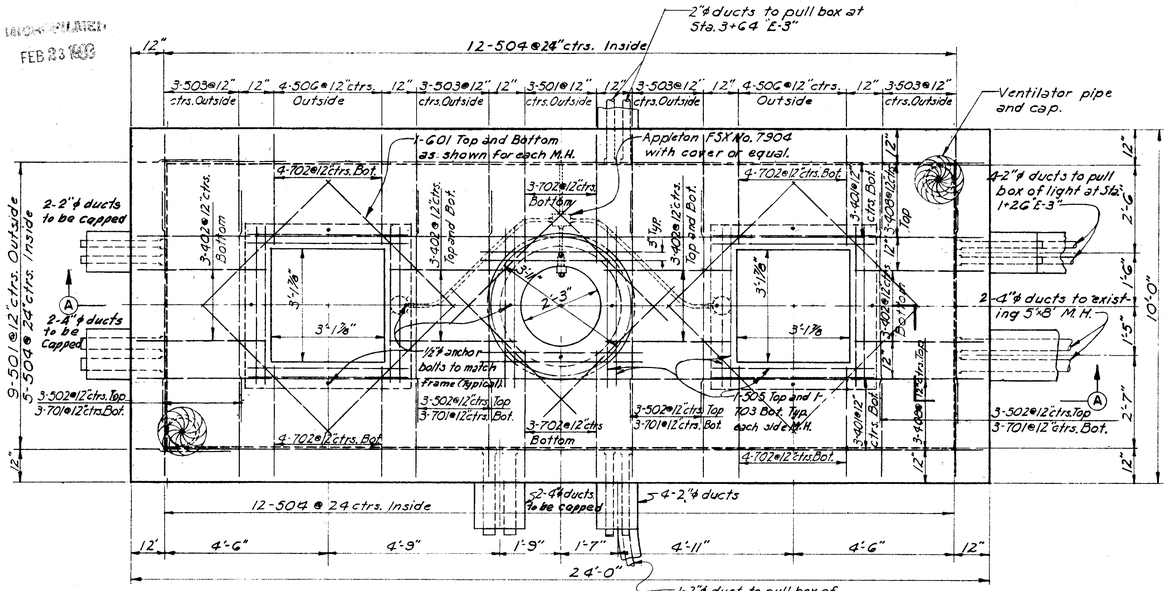
SCALE	1" = 100'
MADE	ATH DATE 2-6-57
TRCD.	DATE
CKD.	JES DATE 2-8-57

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

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

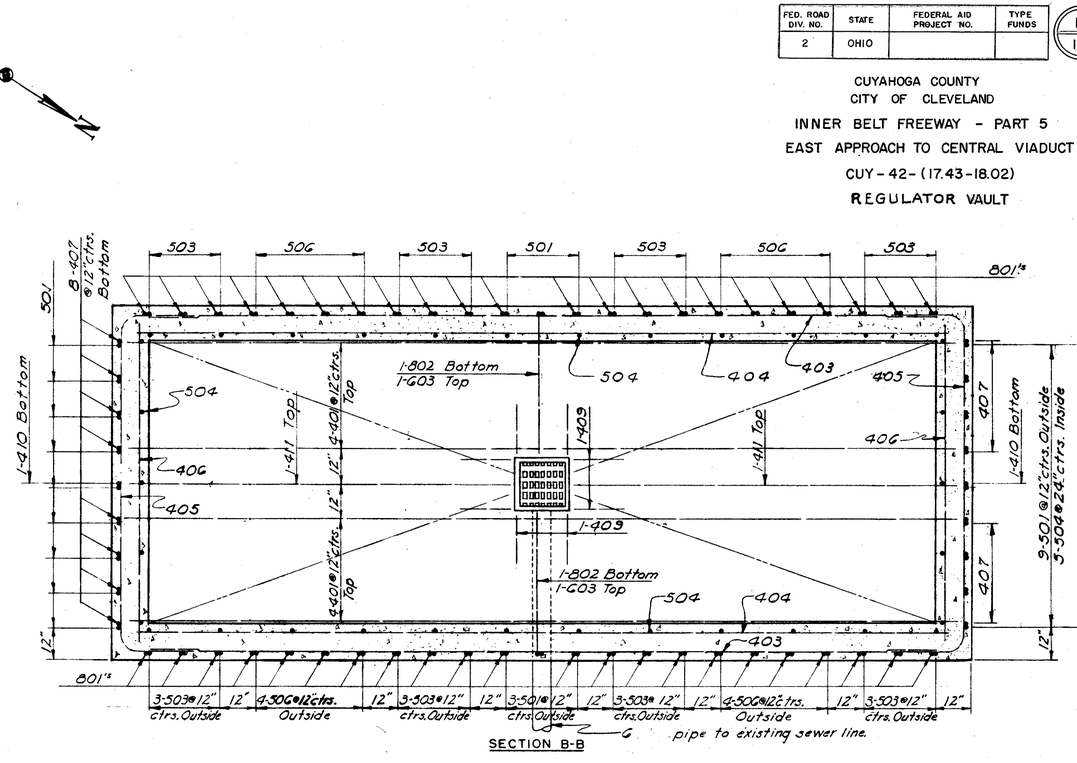
16
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
REGULATOR VAULT

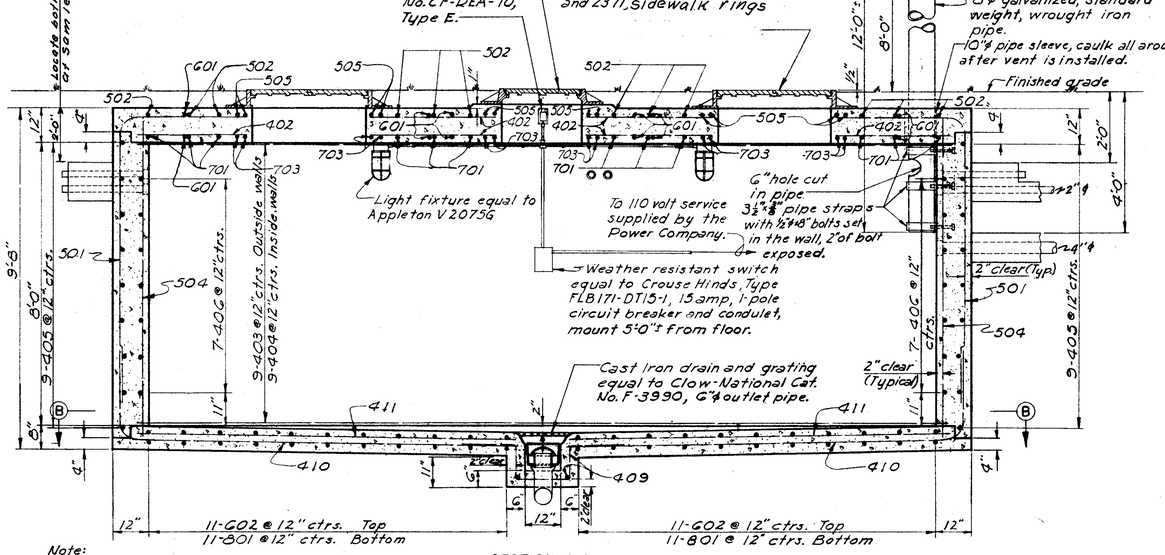


Note: Where initial use of indicated duct banks is not required, extend the ducts thru the walls a minimum of 18" and cap on the outside for future use.

PLAN



SECTION B-B



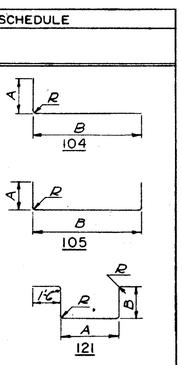
Note:
1"ϕx10'-0" ground rods shall be placed in diagonal corners of the vault with 6" of the rod extending above the floor. Additional ground rods shall be driven if required to insure not over 5 ohm grounds.

SECTION A-A
REGULATOR VAULT
Scale: ½"=1'-0"

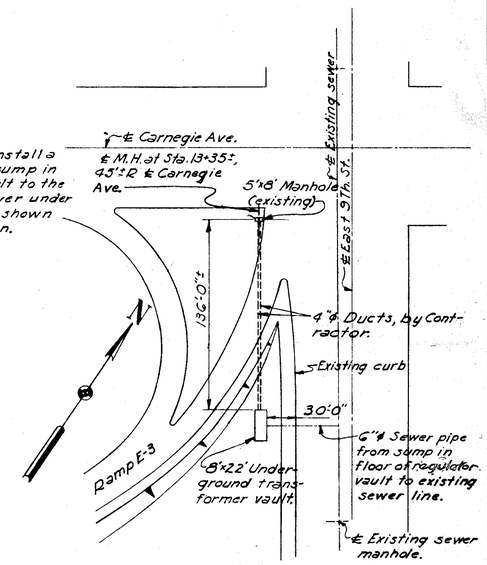
Note: The top and sides of transformer vault shall be provided with Type "B" waterproofing according to Ohio Standard Construction and Materials Specifications. For the floor vapor barrier a 0.004" polyethylene film shall be applied over the sub-grade. The film shall be lapped not less than 6" with the top lap placed in the direction of the spreading of the concrete.

REINFORCING BAR SCHEDULE

MARK	SIZE	NO. REQD	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B
401	4	14	23'-0"	Str.		
402		18	3'-0"	Str.		
403		18	22'-0"	Str.		
404		18	22'-6"	Str.		
405		18	13'-6"	105	2'-0"	9'-6"
406		14	9'-0"	Str.		
407		8	26'-2"	104	2'-6"	23'-8"
408		6	21'-0"	Str.		
409		4	6'-6"	121	1'-6"	1'-0"
410		2	13'-6"	104	2'-6"	11'-0"
411		2	10'-6"	Str.		
501	5	24	12'-0"	104	3'-6"	8'-6"
502		12	6'-6"	Str.		
503		24	10'-8"	104	2'-8"	8'-0"
504		34	5'-0"	Str.		
505		24	8'-6"	Str.		
506		16	11'-7"	104	3'-1"	8'-6"
601	6	24	5'-0"	Str.		
602		22	8'-6"	Str.		
603		2	3'-6"	Str.		
701	7	12	8'-6"	Str.		
702		22	3'-0"	Str.		
703		24	4'-6"	Str.		
801	8	22	14'-8"	105	2'-6"	9'-8"
802		2	6'-7"	104	2'-6"	4'-1"



Note: Contractor to install a 6" I-2 Pipe from the sump in the floor of the vault to the existing storm sewer under East 9th Street, as shown on the Location Plan.



LOCATION PLAN
Scale: 1"=50'-0"

SCALE As Shown
MADE J.R.V. DATE 2-20-57
TRCD. ___ DATE ___
CKD. H.K.M. DATE 5-7-57
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY, CLEVELAND, NEW YORK
914 SHEET 16

MICROFILMED
FEB 23 1962

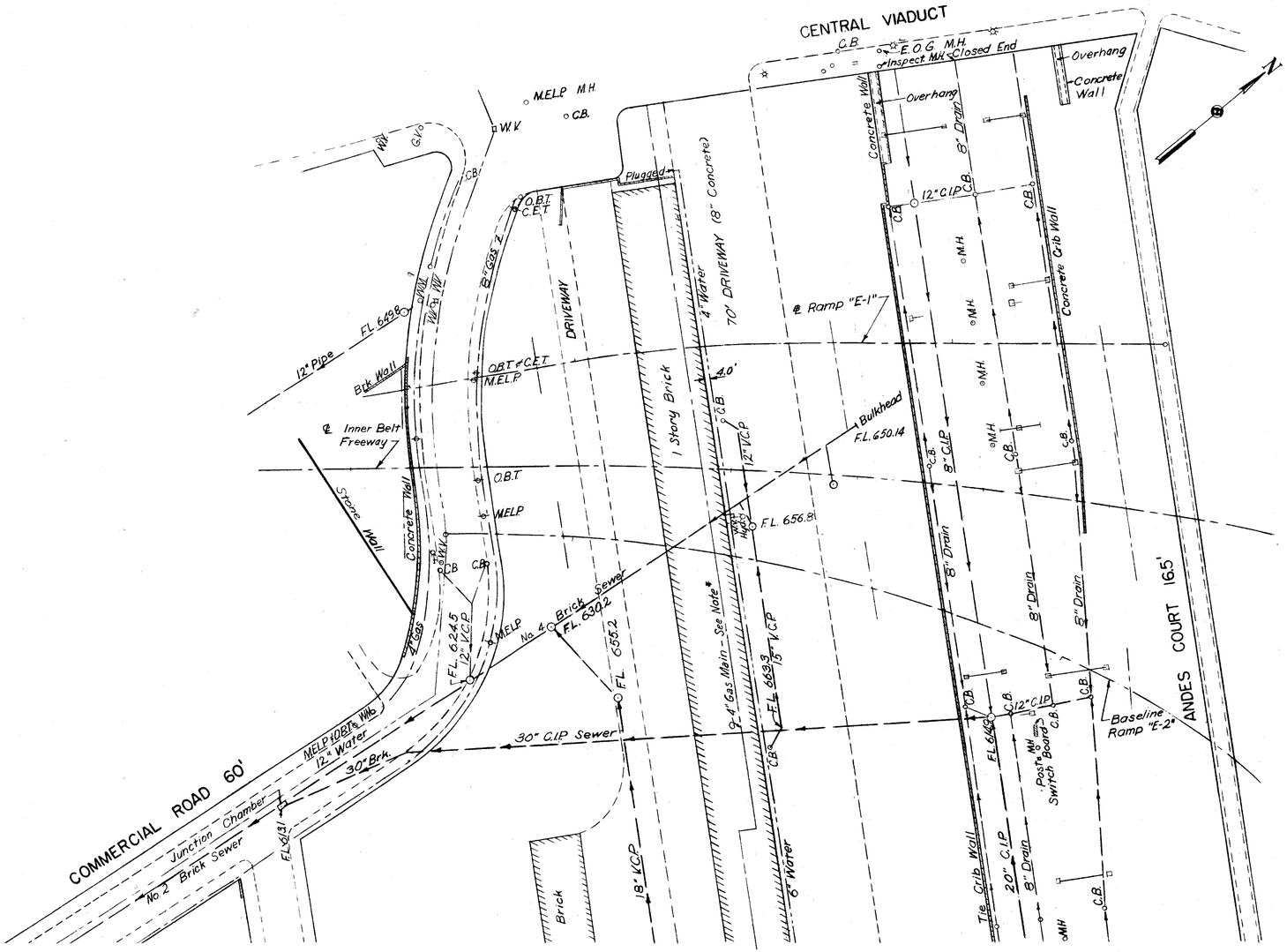
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

17
117

CUYAHOGA COUNTY
CITY OF CLEVELAND

INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)

EXISTING UTILITIES



*Note:
Shown on N.Y.C. & St. L. R.R. Drawing C-59008- "Proposed Building Units", Feb. 26, 1929, as "Proposed 4" Gas Main carried on side of Purlin through Building."

SCALE 1"=50'
MADE C.E.G. DATE 1-7-57
TRCD. ____ DATE ____
CKD. J.F.J. DATE 1-9-57

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

914 SHEET 17

INCORPORATED
FEB 23 1993

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

18
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
EXISTING UTILITIES

N

LORAIN CARNEGIE BRIDGE

ONTARIO 99'

CARNEGIE AVE. 99'

CENTRAL VIADUCT

ANDES CT. 16.5'

RAMP E-1

BROADWAY 99'

BROADWAY EAST BOUND

BROADWAY WEST BOUND

DECATUR CT. 16.5'

WOODLAND AVE. 99'

EAST 9TH. PL. 16.5'

EDWARDS CT.

EAST 9TH ST. 99'

RAMP E-3

INNER BELT FREEWAY

RAMP E-4

Match Line Sta. 5+75 Brwy. E.B.

Match Line Sta. 44+25 Brwy. W.B.

Match Line Sta. 5+75 Ramp E-4

Match Line Sta. 10+50 E. 9th St.

LEGEND

- Right of Way
- Curb
- M.E.L.P.
- O.B.T.
- C.E.I. Light
- C.E.I. Steam
- Western Union
- Transit System Pole
- Telephone & Telegraph Pole
- Power Pole
- Light Pole
- Pole (General)
- Muny Steam
- Sewer — C.B., Face of Curb, M.H., Plug or Bulkhead
- Water — Hydrant, Meter Vault, Valve, M.H.
- Gas — Valve
- W.W.L. — Light Pole, M.H.

Note:
Existing Utilities reproduced from City of Cleveland Drawing U-1 of U-11. Easterly Approach.

SCALE 1"=50'
MADE JFS DATE 2-11-57
TRCD BMO DATE 2-13-57
CKD HKM DATE 5-9-57
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 18

RECEIVED
FEB 23 1959

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

19
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42 - (17.43-18.02)
EXISTING UTILITIES

N

WOODLAND AVE. 99'

Match Line 101+50 E. 9th St.

Match Line 3+75 Ramp E-4

PL. 16.5'

ST. 66'

DECATUR CT. 16.5'

EAST 9TH

RAMP E-4

BROADWAY WEST BOUND

Match Line Sta. 44+25 Brwy. W.B.

Match Line Sta. 5+75 Brwy. E.B.

BROADWAY EAST BOUND

BROADWAY 99'

RAMP E-2

ANDES CT. 16.5'

EAST 9TH ST. 82.5'

EAST 9TH ST.

EAST 14TH ST. 84.8'

94.8' EAST 14TH ST.

100' BROADWAY

86'

Note:
Existing Utilities reproduced from City of Cleveland Drawing U-2 of U-11, Easterly Approach.
For legend see Sheet 18

SCALE 1"=50'
MADE JFS DATE 2-14-57
TRCD. EMO DATE 2-15-57
CKD. HKM. DATE 5-9-57
914 SHEET 19

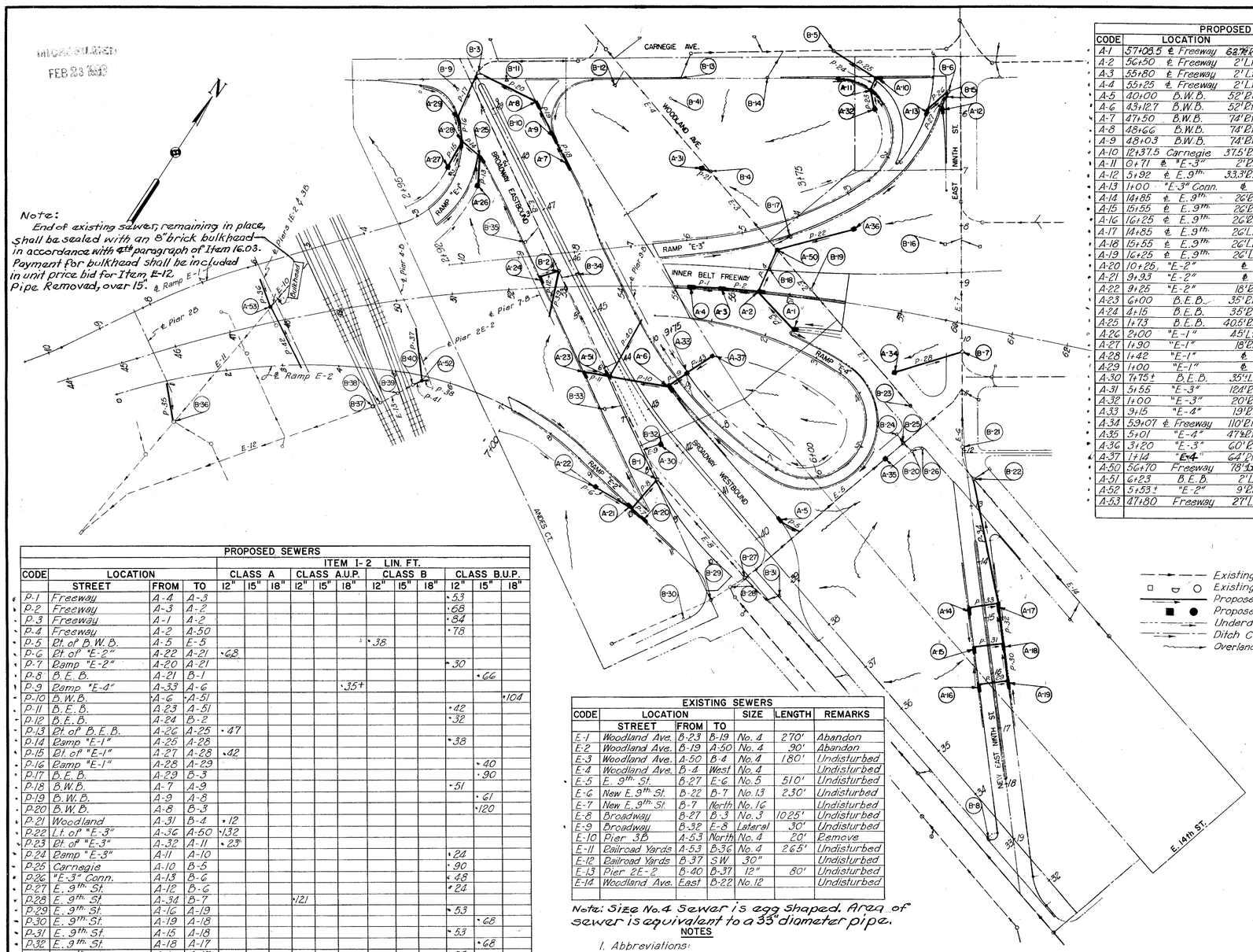
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

MISCELLANEOUS
FEB 23 1959

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

20
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
DRAINAGE PLAN



PROPOSED SEWERS

CODE	LOCATION STREET	FROM	TO	ITEM I-2 LIN. FT. CLASS A 12"	15"	18"	CLASS A.U.P. 12"	15"	18"	CLASS B 12"	15"	18"	CLASS B.U.P. 12"	15"	18"
P-1	Freeway	A-4	A-3										53		
P-2	Freeway	A-3	A-2										68		
P-3	Freeway	A-1	A-2										84		
P-4	Freeway	A-2	A-50										78		
P-5	Ft. of B.W.B.	A-5	E-5							38					
P-6	Ft. of "E-2"	A-22	A-21	68											
P-7	Ramp "E-2"	A-20	A-21										30		
P-8	B.E.B.	A-21	B-1											66	
P-9	Ramp "E-4"	A-33	A-6						35†						
P-10	B.W.B.	A-6	A-51												104
P-11	B.E.B.	A-23	A-51										42		
P-12	B.E.B.	A-24	B-2										32		
P-13	Ft. of B.E.B.	A-26	A-25	47											
P-14	Ramp "E-1"	A-25	A-28										38		
P-15	Ft. of "E-1"	A-27	A-28	42											
P-16	Ramp "E-1"	A-28	A-29											40	
P-17	B.E.B.	A-29	B-3											90	
P-18	B.W.B.	A-7	A-9										51		
P-19	B.W.B.	A-9	A-8											61	
P-20	B.W.B.	A-8	B-3											120	
P-21	Woodland	A-31	B-4	12											
P-22	Lt. of "E-3"	A-36	A-50	132											
P-23	Ft. of "E-3"	A-32	A-11	23											
P-24	Ramp "E-3"	A-11	A-10										24		
P-25	Carnegie	A-10	B-5										90		
P-26	"E-3" Conn.	A-13	B-6										48		
P-27	E. 9th St.	A-12	B-6										24		
P-28	E. 9th St.	A-34	B-7				121								
P-29	E. 9th St.	A-16	A-19										53		
P-30	E. 9th St.	A-19	A-18											68	
P-31	E. 9th St.	A-15	A-18										53		
P-32	E. 9th St.	A-18	A-17											68	
P-33	E. 9th St.	A-14	A-17										53		
P-34	E. 9th St.	A-17	B-22												227
P-35	Pier 2B	Pier 2B	B-36							65					
P-36	Pier 2E-1	2E-1	A-53							50					
P-37	Pier 4B	4B	A-52							95®					
P-38	Pier 2E-2	2E-2	A-52							5					
P-39	B.E.B.	Pier 7-B	B-2										75		
P-40	B.W.B.	Pier 3-B	A-51										115		
P-41	Pier 2E-2	A-52	B-40							12					
P-42	Piers 3B & 1E-2	1E-2	A-53							120					
P-43	Ramp "E-4"	A-37	A-33	52											
TOTAL				376			121		35	290			1011	513	331
										95					

® Sec. M-6.6(b)
† Sec. M-6.5(b) or M 6.8(b)

PROPOSED DRAINAGE STRUCTURES

CODE	LOCATION	DESCRIPTION	ELEV.	REMARKS
A-1	57+08.5 ℄ Freeway 62.7'Rt.	2-6 Inlet	688.89	See Note No. 5
A-2	56+50 ℄ Freeway 2'Lt.	2-6 Inlet	690.00	for all Standard
A-3	55+80 ℄ Freeway 2'Lt.	2-6 Inlet	689.69	No. 2 Inlets
A-4	55+25 ℄ Freeway 2'Lt.	2-6 Inlet	689.88	
A-5	40+00 B.W.B. 52'Rt.	2-6 Inlet	674.53	
A-6	43+12.7 B.W.B. 52'Rt.	2-8 Inlet	672.14	
A-7	47+50 B.W.B. 74'Rt.	2-10 Inlet	667.65	
A-8	48+66 B.W.B. 74'Rt.	2-8 Inlet	668.20	
A-9	48+03 B.W.B. 74'Rt.	2-8 Inlet	667.39	
A-10	12+37.5 Carnegie 37.5'Rt.	2-6 Inlet	670.7±	
A-11	0+71 ℄ "E-3" 2'Rt.	2-6 Inlet	670.37	
A-12	5+92 ℄ E. 9th. 33.3'Rt.	2-6 Inlet	671.2±	
A-13	1+00 "E-3" Conn. ℄	2-6 Inlet	670.58	
A-14	14+85 ℄ E. 9th. 26'Rt.	2-8 Inlet	672.67	
A-15	15+55 ℄ E. 9th. 26'Rt.	2-6 Inlet	672.45	
A-16	16+25 ℄ E. 9th. 26'Rt.	2-8 Inlet	672.66	
A-17	14+85 ℄ E. 9th. 26'Lt.	2-10 Inlet	672.67	
A-18	15+55 ℄ E. 9th. 26'Lt.	2-8 Inlet	672.45	
A-19	16+25 ℄ E. 9th. 26'Lt.	2-10 Inlet	672.66	
A-20	10+26, "E-2" ℄	2-8 Inlet	673.05	
A-21	9+93 "E-2" ℄	2-6 Inlet	672.87	
A-22	9+25 "E-2" 18'Rt.	2-2A Catch Basin	671.3	Top of Grate 671.3
A-23	6+00 B.E.B. 35'Rt.	2-8 Inlet	671.37	
A-24	4+15 B.E.B. 35'Rt.	2-8 Inlet	669.96	
A-25	1+73 B.E.B. 40.5'Rt.	2-8 Inlet	668.65	
A-26	2+00 "E-1" 45'Lt.	2-2A Catch Basin	667.8	Top of Grate 667.8
A-27	1+90 "E-1" 18'Rt.	2-2A Catch Basin	666.3	Top of Grate 666.3
A-28	1+42 "E-1" ℄	2-6 Inlet	668.11	
A-29	1+00 "E-1" ℄	2-6 Inlet	668.37	
A-30	7+75± B.E.B. 35'Lt.	2-2A Catch Basin	671.0	Top of Grate 671.0
A-31	5+55 "E-3" 12'Rt.	2-2A Catch Basin	668.0	Top of Grate 668.0
A-32	1+00 "E-3" 20'Rt.	2-2A Catch Basin	668.1	Top of Grate 668.1
A-33	9+15 "E-4" 19'Rt.	2-2A Catch Basin	669.2	Top of Grate 669.2
A-34	59+07 ℄ Freeway 110'Rt.	2-2A Catch Basin	672.5	Top of Grate 672.5
A-35	5+01 "E-4" 47'Rt.	2-4 Catch Basin	674.00	Top of Grate 674.33
A-36	3+20 "E-3" 60'Rt.	2-2A Catch Basin	672.5	Top of Grate 672.5
A-37	1+14 "E-4" 64'Rt.	2-2A Catch Basin	670.7	Top of Grate 670.7
A-50	56+70 Freeway 78'Rt.	Std. No.2 Manhole	682.3	Provide Drop Pipe
A-51	6+23 B.E.B. 2'Lt.	Std. No.1 Manhole	672.72	
A-52	5+53± "E-2" 9'Rt.	Std. No. 1 Manhole	633±	
A-53	47+80 Freeway 27'Lt.	Std. No.2 Manhole	668.5±	

EXISTING DRAINAGE STRUCTURES

CODE	LOCATION	DESCRIPTION	ELEV.	REMARKS
B-1	8+27 B.E.B. 3'Lt.	Manhole	673.77	Adjust to Grade
B-2	4+14 B.E.B. ℄	Manhole	670.63	Adjust to Grade
B-3	0+37 B.E.B. 19'Lt.	Manhole		Undisturbed
B-4	5+43 ℄ "E-3" 115'Rt.	Manhole	668.5±	Adjust to Grade
B-5	11+60 Carnegie 10'Lt.	Manhole		Undisturbed
B-6	5+62± E. 9th. St. 22'Rt.	Manhole		Undisturbed
B-7	10+23 E. 9th. St. ℄	Manhole		Undisturbed
B-8	181+90 E. 9th. St. 45'Rt.	Catch Basin		Abandon
B-9	0+47 B.E.B. 27'Rt.	Catch Basin		Abandon
B-10	49+12 B.W.B. 13'Rt.	Catch Basin		Abandon
B-11	5+82 Carnegie 37'Rt.	Catch Basin		Abandon
B-12	7+75 Carnegie 47'Rt.	Catch Basin		Abandon
B-13	8+90 Carnegie 36'Rt.	Catch Basin		Undisturbed
B-14	10+40 Carnegie 37'Rt.	Catch Basin		Undisturbed
B-15	5+72 E. 9th St. 24'Rt.	Catch Basin		Abandon
B-16	8+34 E. 9th St. 29'Rt.	Catch Basin		Undisturbed
B-17	4+18 "E-3" 30'Lt.	Catch Basin		Abandon
B-18	56+58 Freeway 43'Lt.	Catch Basin		Abandon
B-19	57+35 Freeway 16'Lt.	Manhole		Abandon
B-20	4+83 "E-4" 90'Lt.	Catch Basin		Abandon
B-21	11+95 E. 9th St. 4'Rt.	Manhole		Undisturbed
B-22	12+50 E. 9th St. 10'Lt.	Manhole		Undisturbed
B-23	4+36 "E-4" 80'Lt.	Manhole		Abandon
B-24	4+70 "E-4" 55'Lt.	Catch Basin		Abandon
B-25	4+80 "E-4" 69'Lt.	Manhole		Undisturbed
B-26	4+80 "E-4" 105'Lt.	Catch Basin		Abandon
B-27	10+61 B.E.B. 14'Lt.	Manhole		Undisturbed
B-28	10+54 B.E.B. 15'Rt.	Manhole		Undisturbed
B-29	10+40 B.E.B. 56'Rt.	Manhole		Undisturbed
B-30	10+34 B.E.B. 110'Rt.	Catch Basin		Undisturbed
B-31	38+95 B.W.B. 35'Lt.	Catch Basin		Abandon
B-32	7+75 B.E.B. 35'Lt.	Catch Basin		Remove
B-33	6+90 B.E.B. 30'Rt.	Catch Basin		Abandon
B-34	4+34 B.E.B. 25'Lt.	Catch Basin		Abandon
B-35	3+45 B.E.B. 25'Rt.	Catch Basin		Abandon
B-36	0+82 "E-2" 13'Rt.	Manhole		Undisturbed
B-37	4+70 "E-2" 67'Rt.	Manhole		Undisturbed
B-38	4+80 "E-2" 59'Rt.	Catch Basin		Undisturbed
B-39	5+10 "E-2" 35'Rt.	Catch Basin		Undisturbed
B-40	5+34 "E-2" 19'Rt.	Catch Basin		Undisturbed
B-41	8+73 Carnegie 12'Rt.	Catch Basin		Abandon

EXISTING SEWERS

CODE	LOCATION STREET	FROM	TO	SIZE	LENGTH	REMARKS
E-1	Woodland Ave.	B-23	B-19	No. 4	270'	Abandon
E-2	Woodland Ave.	B-19	A-50	No. 4	90'	Abandon
E-3	Woodland Ave.	A-50	B-4	No. 4	180'	Undisturbed
E-4	Woodland Ave.	B-4	West	No. 4		Undisturbed
E-5	E. 9th St.	B-27	E-6	No. 5	510'	Undisturbed
E-6	New E. 9th St.	B-22	B-7	No. 13	230'	Undisturbed
E-7	New E. 9th St.	B-7	North	No. 16		Undisturbed
E-8	Broadway	B-27	B-3	No. 3	1025'	Undisturbed
E-9	Broadway	B-32	E-8	Lateral	30'	Undisturbed
E-10	Pier 3B	A-53	North	No. 4	20'	Remove
E-11	Railroad Yards	A-53	B-36	No. 4	265'	Undisturbed
E-12	Railroad Yards	B-37	S.W.	30"		Undisturbed
E-13	Pier 2E-2	B-40	B-37	12"	80'	Undisturbed
E-14	Woodland Ave.	East	B-22	No. 12		Undisturbed

Note: Size No. 4 Sewer is egg shaped. Area of sewer is equivalent to a 33" diameter pipe.

NOTES

1. Abbreviations:
   Ft. - Right
   Lt. - Left
   U.P. - Under Pavement
   Directions are noted as: E, W, S, & N.

2. Call Letters:
   Drainage structures and pipes are prefixed with the following call letters:
   A - Proposed Structures
   P - Proposed Pipe Sewers
   B - Existing Structures
   E - Existing Pipe Sewers
   The direction of sewer flow is indicated by arrows.

4. Elevations:
   Elevations shown in the tables are normal ditch and center of structure for 2-2A catch basins; top of cover at the center for manholes; normal grade at the intersection of the center line of cover and at curb face for all 2-6, 2-8, and 2-10 inlets.

5. Standard No. 2 Inlets:
   The Standard No. 2 Inlets shall be provided with a 2" depression in the pavement at the face of the curb for the length of the inlet. The pavement transition required to obtain the depression should not be longer than 2 feet along the curb nor more than 3 feet toward the center of the pavement.

LEGEND

- Existing Sewer
- Existing Catch Basin or Manhole
- Proposed Sewer
- Proposed Inlet, Catch Basin, or Manhole
- Underdrain
- Ditch Centerline
- Overland Flow

GENERAL NOTES

Sewers are designed by the Rational Formula based on a 10 year storm frequency flowing full.

Minimum Velocity of flow is 3.0 F.P.S. for main lines and 2.5 F.P.S. for laterals.

The abandoning of existing manholes shall be in accordance with Section I-16.03 of the Construction and Material Specifications with the following exceptions. (1) The existing inlet and outlet pipes shall be sealed with brick. (2) After the sealing of the existing pipes is completed and the walls removed to the required depth, the manhole shall be filled with sand and compacted in accordance with Section I-16.03.

Where proposed sewer pipes are to be connected into existing sewers, the hole in the existing sewer shall be cut by the City of Cleveland.

Not all sewer pipes connected to existing catch basins are shown on the plans. Where sewer pipes not shown are encountered during construction the pipes shall be cut at the limits of construction and sealed to the satisfaction of the Engineer. Payment for cutting and sealing in accordance with 4th paragraph of Item 16.03 shall be included in the unit price bid for Item E-101 Roadway Excavation.

Where it is necessary under Item 1-8, "Manholes Adjusted to Grade", to replace unsatisfactory manhole frame and cover castings, payment for the new castings shall be made at the Contract unit price bid per each for Item 1-8, "Manhole Frame and Covers, Furnished and Placed (City Standard Casting)." Payment shall constitute full compensation for furnishing, hauling, and placing all castings and any incidentals necessary to complete the item to the satisfaction of the Engineer.

Standard City Manhole Frames and Covers as shown on Sheet No. 23 shall be used on all new manholes.

Where precast reinforced concrete rings are used for Standard No. 1 or No. 2 Manholes, attention is directed to Standard Construction Drawing 1-8 M.H. No. 1-A for strength and design requirements.

10 ft. of Type I Paved Gutter shall be placed on the upstream side of all Standard No. 2-2 A Catch Basins located in a defined 2 foot bottom ditch.

SCALE 1"= 100'
MADE CEG DATE 1-18-57
TRCD. B.M.C. DATE 1-21-57
CKD. H.K.M. DATE 2-7-57

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

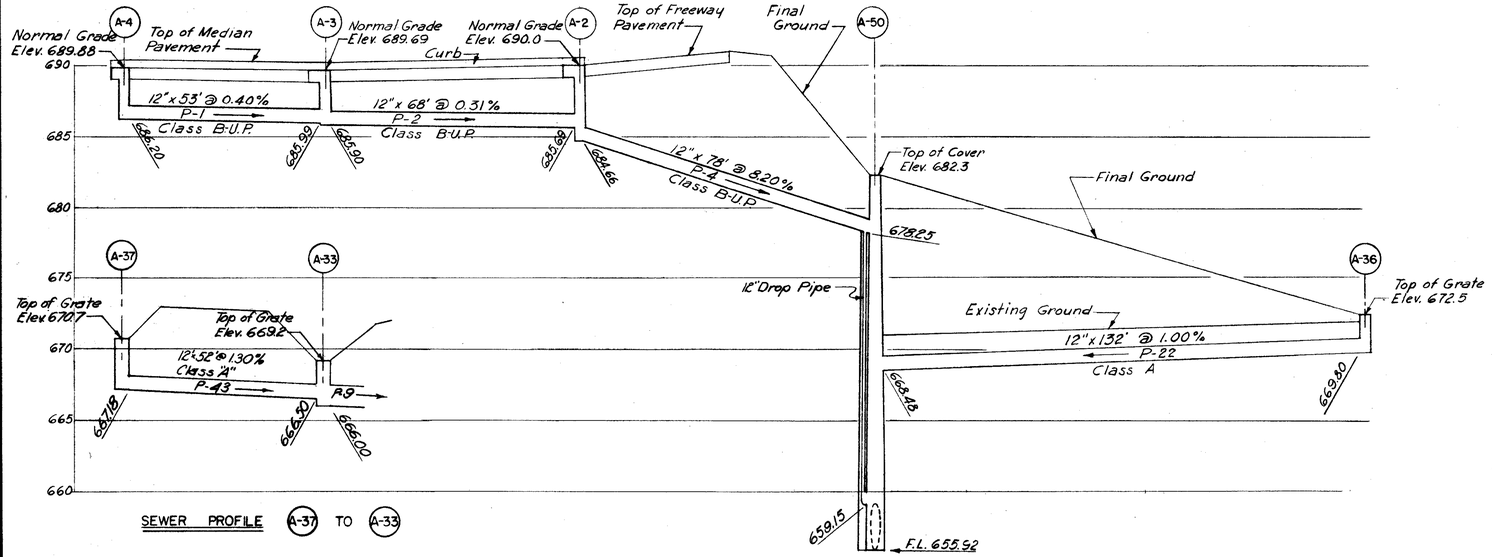
914 SHEET. 20

MICROFILMED
FEB 23 1963

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

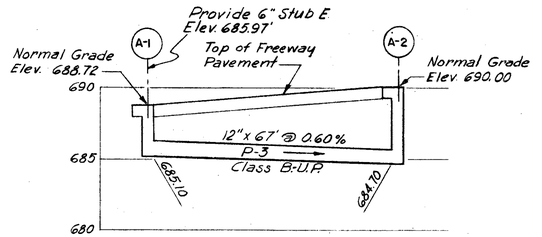
21
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
SEWER PROFILES



SEWER PROFILE (A-37) TO (A-33)

SEWER PROFILE (A-4) TO (A-36)



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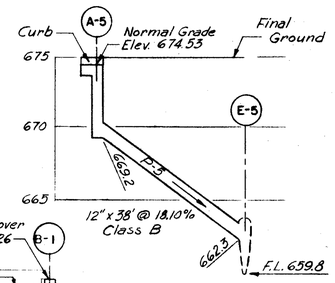

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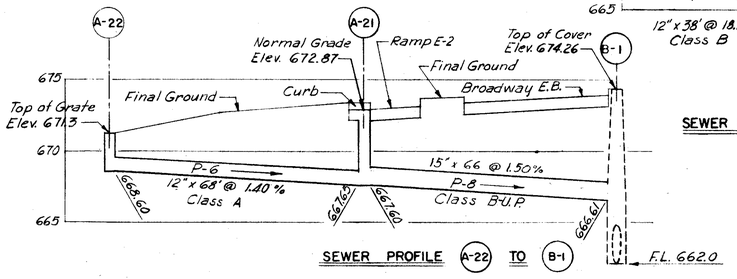

SEWER PROFILE (A-22) TO (B-1)

LIST OF SEWER PROFILES on this sheet

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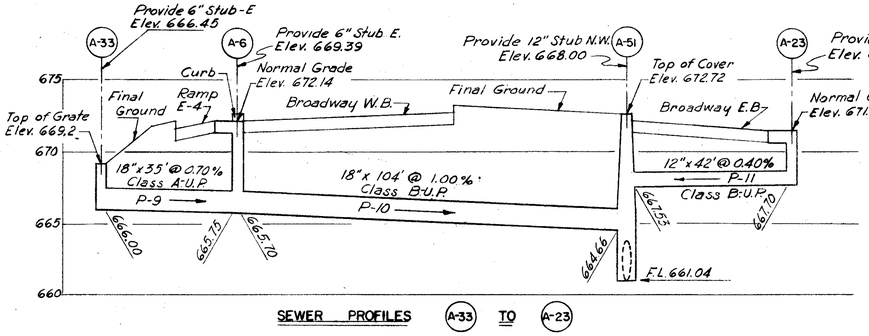
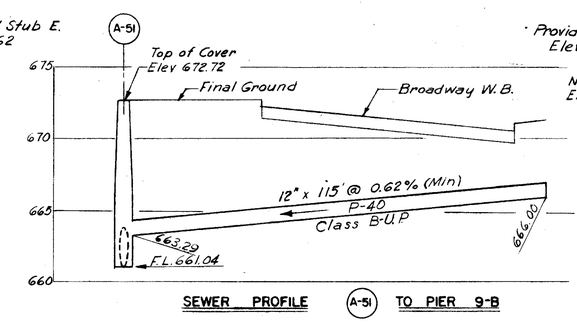
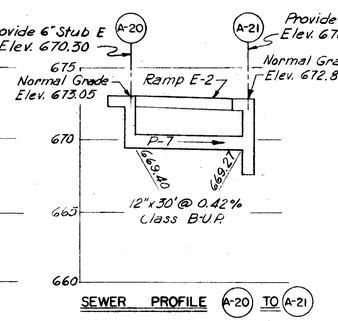
thru
P-20
P-22
P-39
P-40
P-43





SEWER PROFILES (A-33) TO (A-23)

SEWER PROFILE (A-51) TO PIER 9-B



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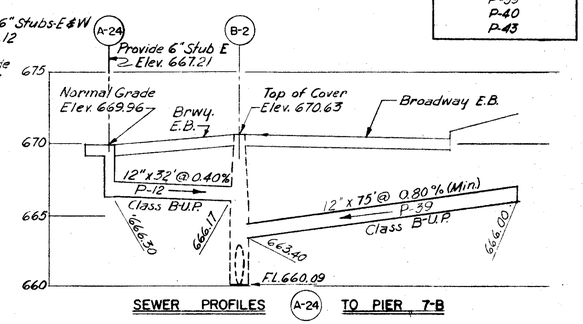
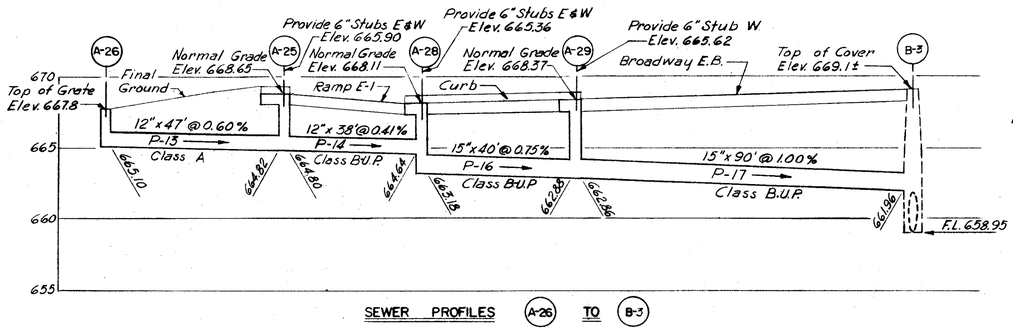


SEWER PROFILES (A-24) TO PIER 7-B



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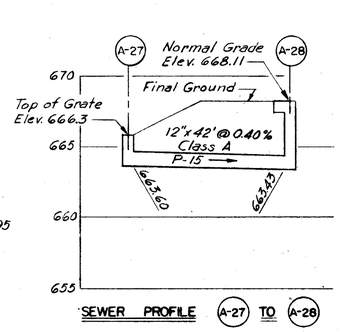

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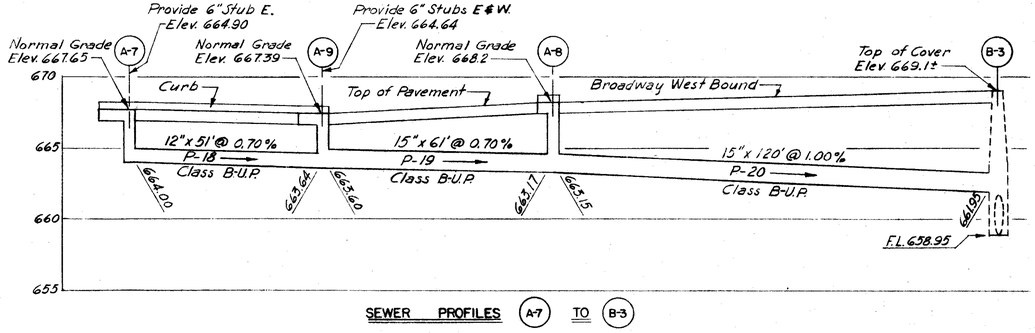


SEWER PROFILES (A-7) TO (B-3)

SCALE Vert: 1"=5' Hor: 1"=20'
MADE CEG DATE 1-15-57
TRCD. DATE
CKD. RLL DATE 2-14-57
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 21

RECEIVED FEB 23 1957

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

22
117

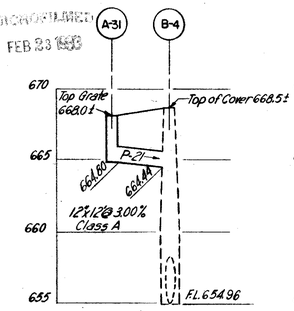
CUYAHOGA COUNTY
CITY OF CLEVELAND

INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43 - 18.02)

DRAINAGE PROFILES

INDEX

P-21
P-23 thru P-38
P-41
P-42



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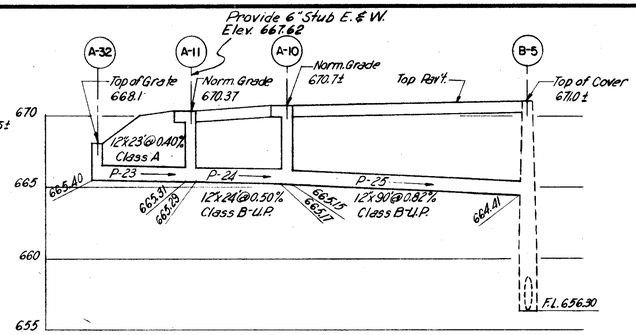
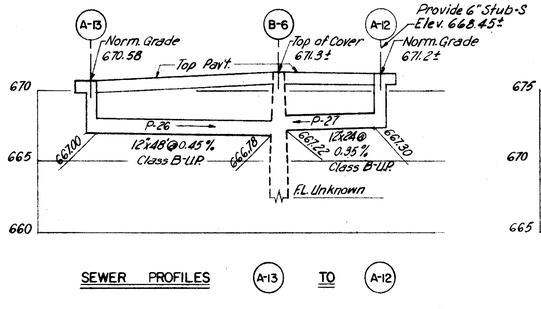


SEWER PROFILES A-32 TO B-5



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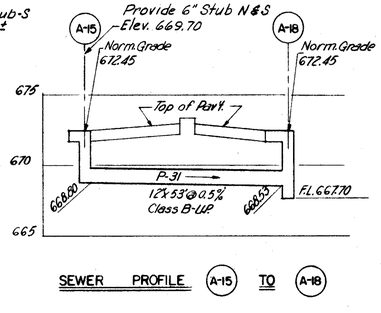

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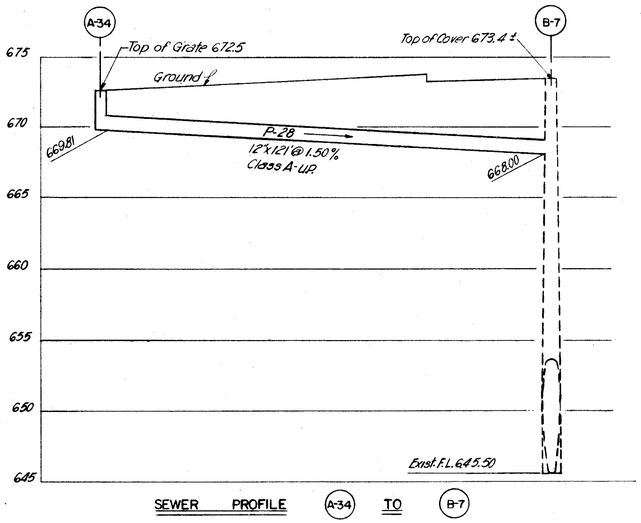

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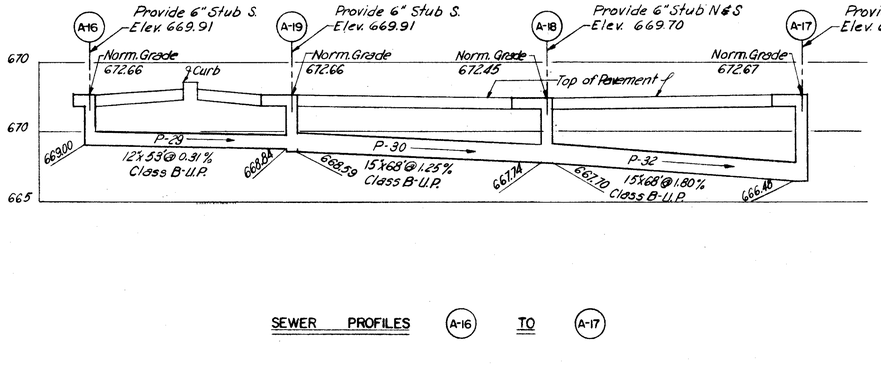

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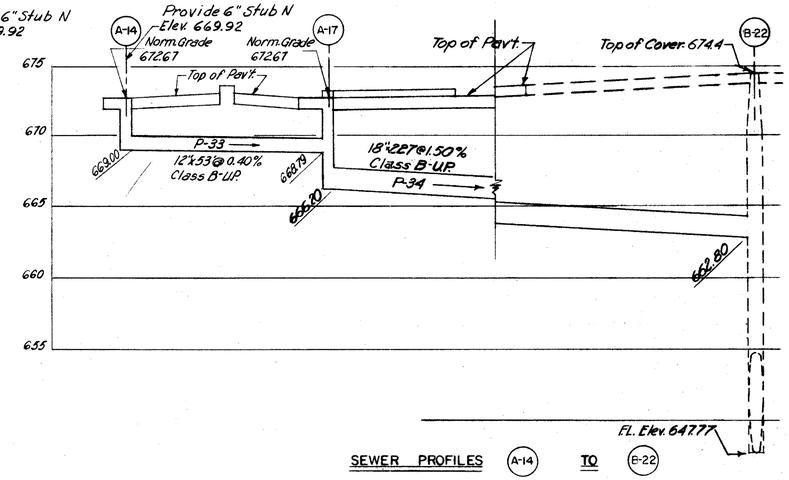

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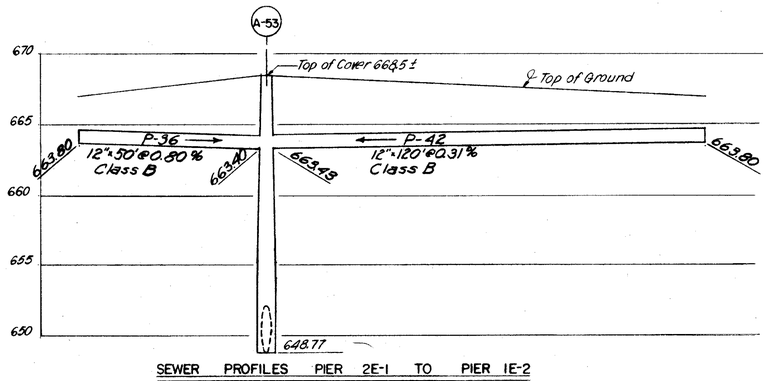

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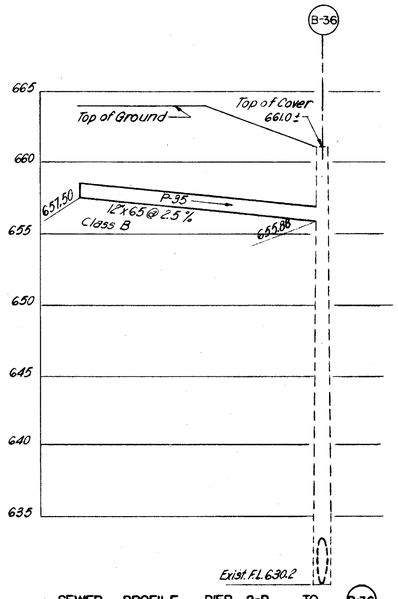
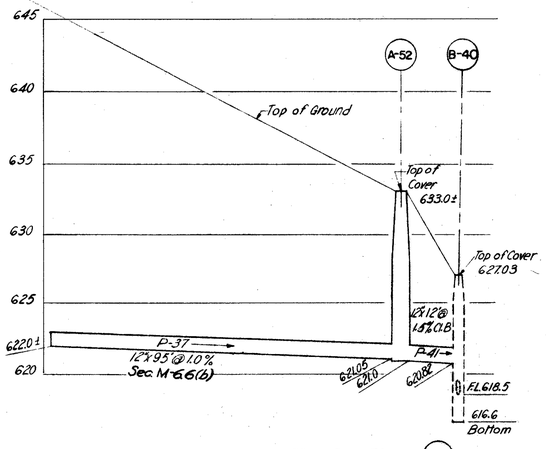


SEWER PROFILE PIER 2-B TO B-36



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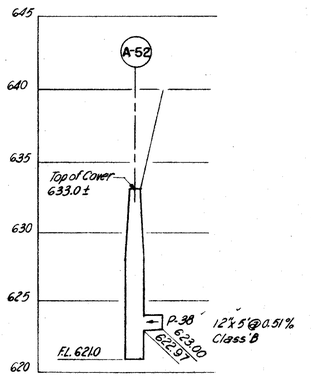


SEWER PROFILE PIER 2E-2 TO A-52

SCALE 1"=5' Vert. & 1"=20' Hor.
MADE C.E.G. DATE 1-17-57
TRCD. ____ DATE ____
CKD. R.L.L. DATE 2-20-57

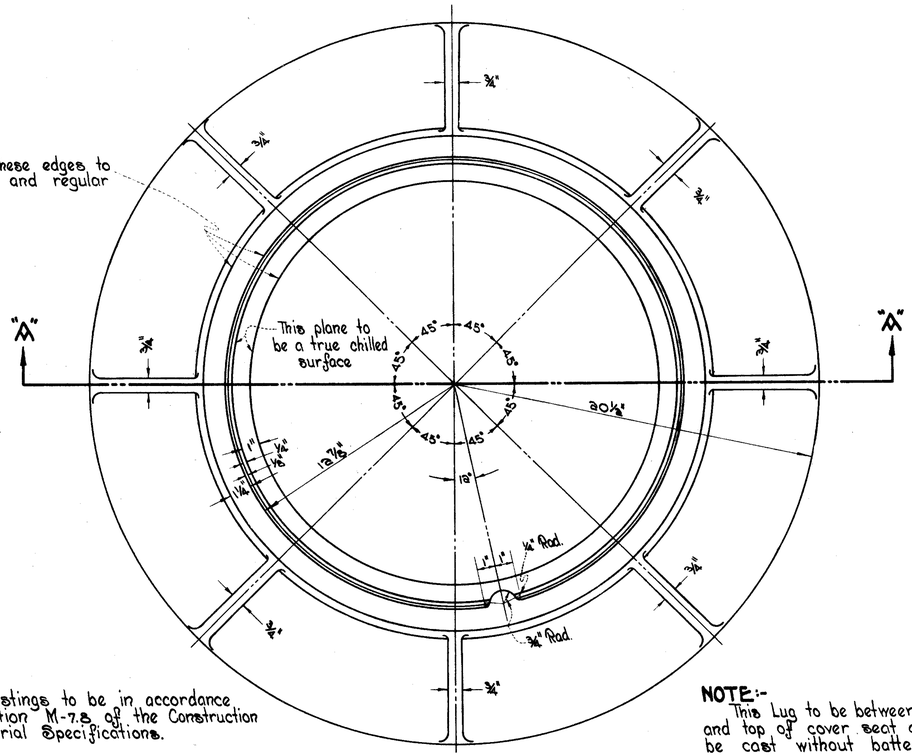
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY, CLEVELAND, NEW YORK
914 SHEET 22

SPECIAL MANHOLE FRAME

STANDARD CITY TYPE

Scale 3" = 1'-0"

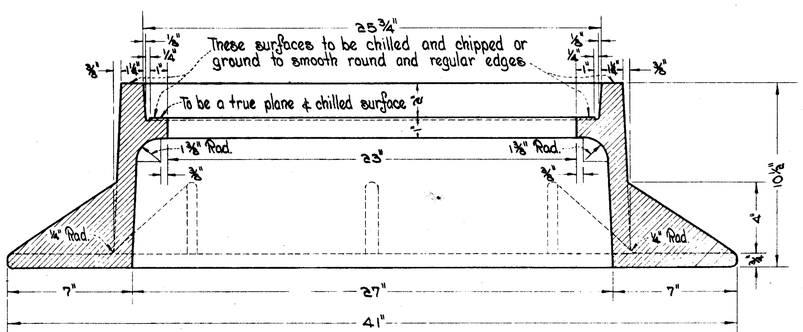
APPROVED
FEB 23 1962



PLAN

NOTE:-
All castings to be in accordance with Section M-7.8 of the Construction and Material Specifications.

NOTE:-
This Lug to be between top of frame and top of cover seat only and shall be cast without batter.



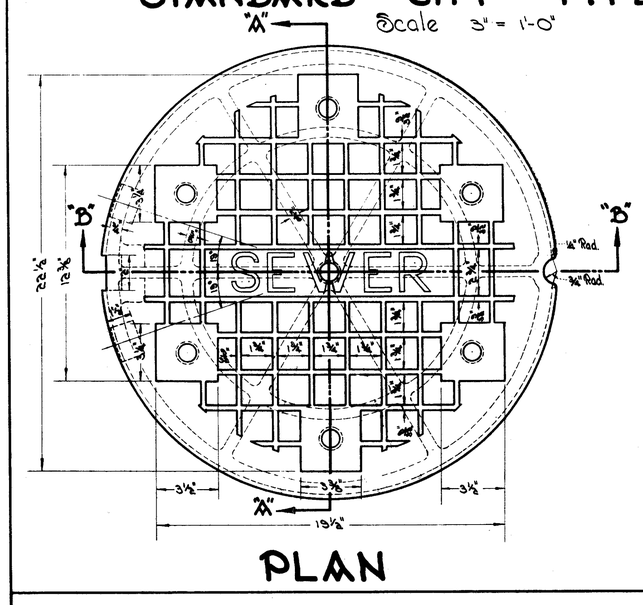
SECTION "A-A"

Weight of Frame 400 lbs. Min.

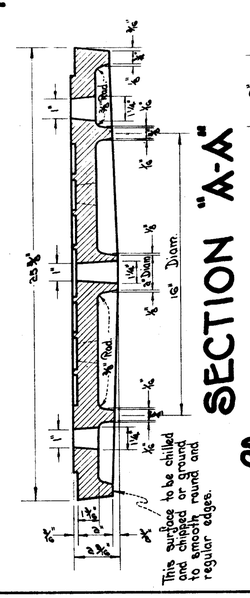
SPECIAL COVER

STANDARD CITY TYPE

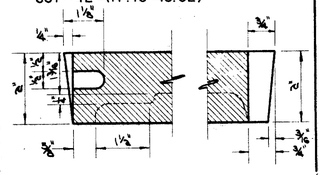
Scale 3" = 1'-0"



PLAN

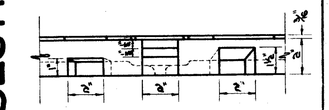


SECTION "A-A"



PART SECTION "B-B"

Scale ½" = 1"



SIDE ELEVATION OF NOTCHES

Weight of Cover 195 lbs. Min.

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

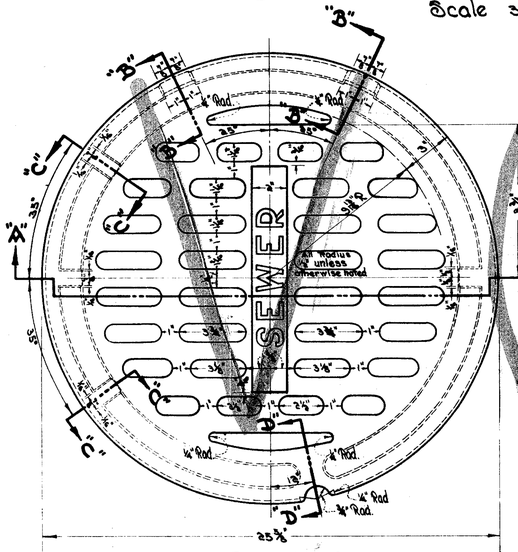
23
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY - 42 - (17.43 - 18.02)

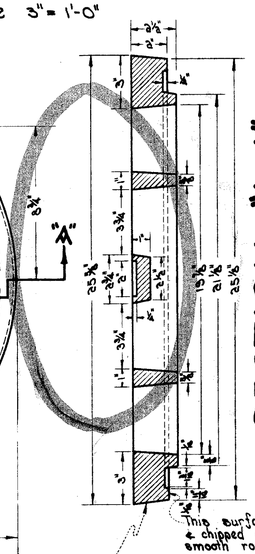
SPECIAL GRATED COVER

STANDARD CITY TYPE

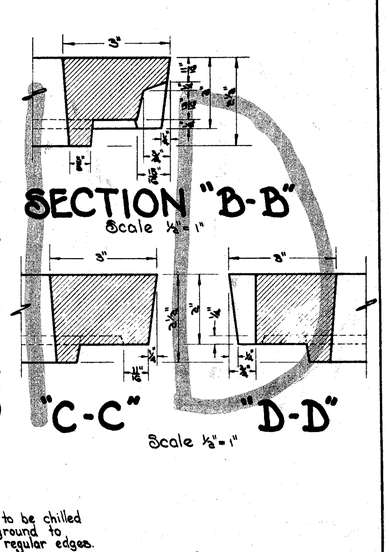
Scale 3" = 1'-0"



PLAN



SECTION "A-A"



SECTION "B-B"

Scale ½" = 1"

"C-C" "D-D"

Scale ½" = 1"

Weight of Cover 190 lbs. Min.

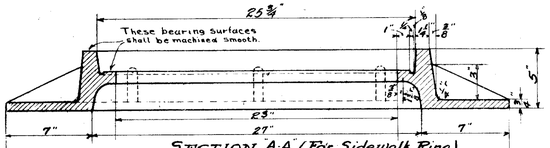
SPECIAL MANHOLE FRAME AND COVERS

MICROFILMED
FEB 23 1960

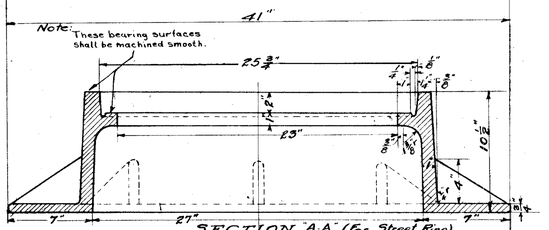
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

23A
117

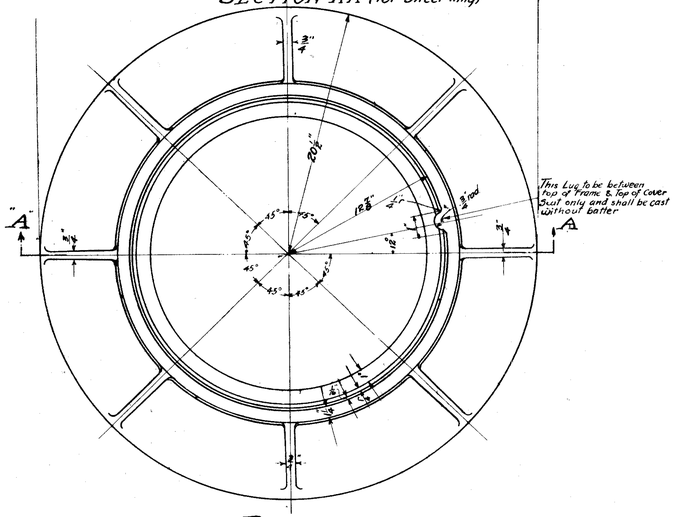
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY - PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)



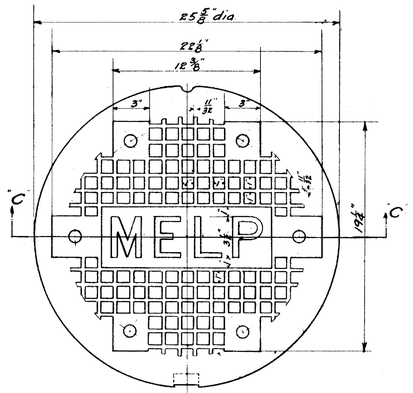
SECTION AA (For Sidewalk Ring)



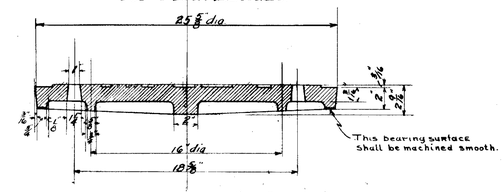
SECTION AA (For Street Ring)



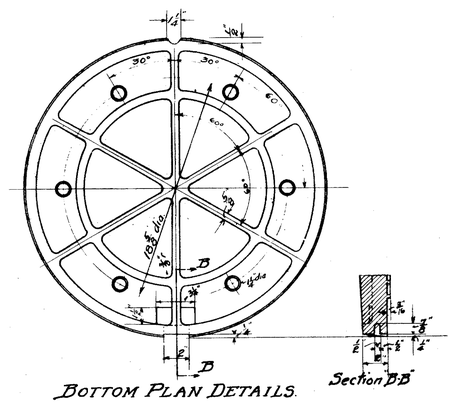
DETAIL OF STANDARD C.I. MANHOLE RING.



TOP PLAN DETAILS.



SECTION "CC"

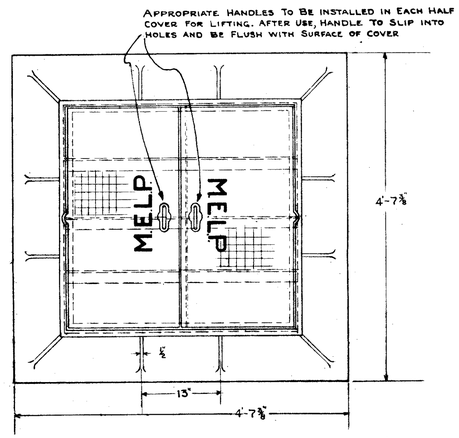


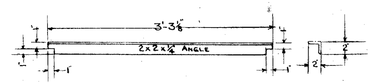
BOTTOM PLAN DETAILS.

DETAIL OF STANDARD C.I MANHOLE COVER

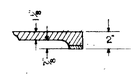
NOTE ALL COVERS AND FRAMES MUST BE INTERCHANGEABLE COVERS FOR STREET AND SIDEWALK FRAMES ARE IDENTICAL.

STANDARD CAST IRON MANHOLE RING & COVER			
VF		2 in = 1 ft.	2371
REV 9-5-47	1-22-54	12-9-32	

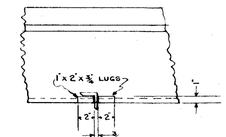




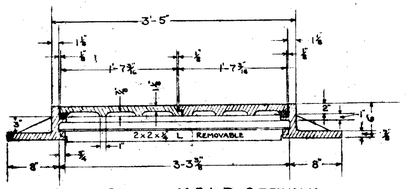
3 PIECES REQUIRED FOR EACH FRAME



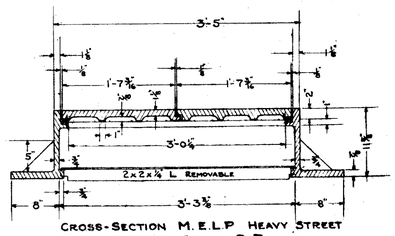
SECTION OF COVER



INSIDE ELEVATION SHOWING LUGS FOR ANGLE SUPPORTS



CROSS-SECTION M.E.L.P SIDEWALK TYPE MANHOLE COVER & FRAME

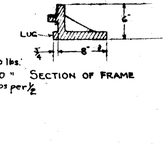


CROSS-SECTION M.E.L.P HEAVY STREET TYPE MANHOLE COVER & FRAME

NOTE ALL COVERS AND FRAMES MUST BE INTERCHANGEABLE, COVERS FOR STREET AND SIDEWALK FRAMES ARE IDENTICAL.

NOTE RIBS OF COVER TO BE SUFFICIENTLY STRONG TO PREVENT BREAKAGE

—WEIGHT—
STREET TYPE SQUARE MANHOLE CASTING WITHOUT COVER, 700 lbs.
SIDEWALK " " " " " " 450 "
SQUARE MANHOLE COVER ---------- 250 lbs per ½



SECTION OF FRAME

STANDARD SQUARE MANHOLE COVER & FRAME			
A.C.		1 in. = 1 ft.	2346
Revised 7-21-36-9-5-47 1-6-53	1-22-54	12-15-33	

EE-9

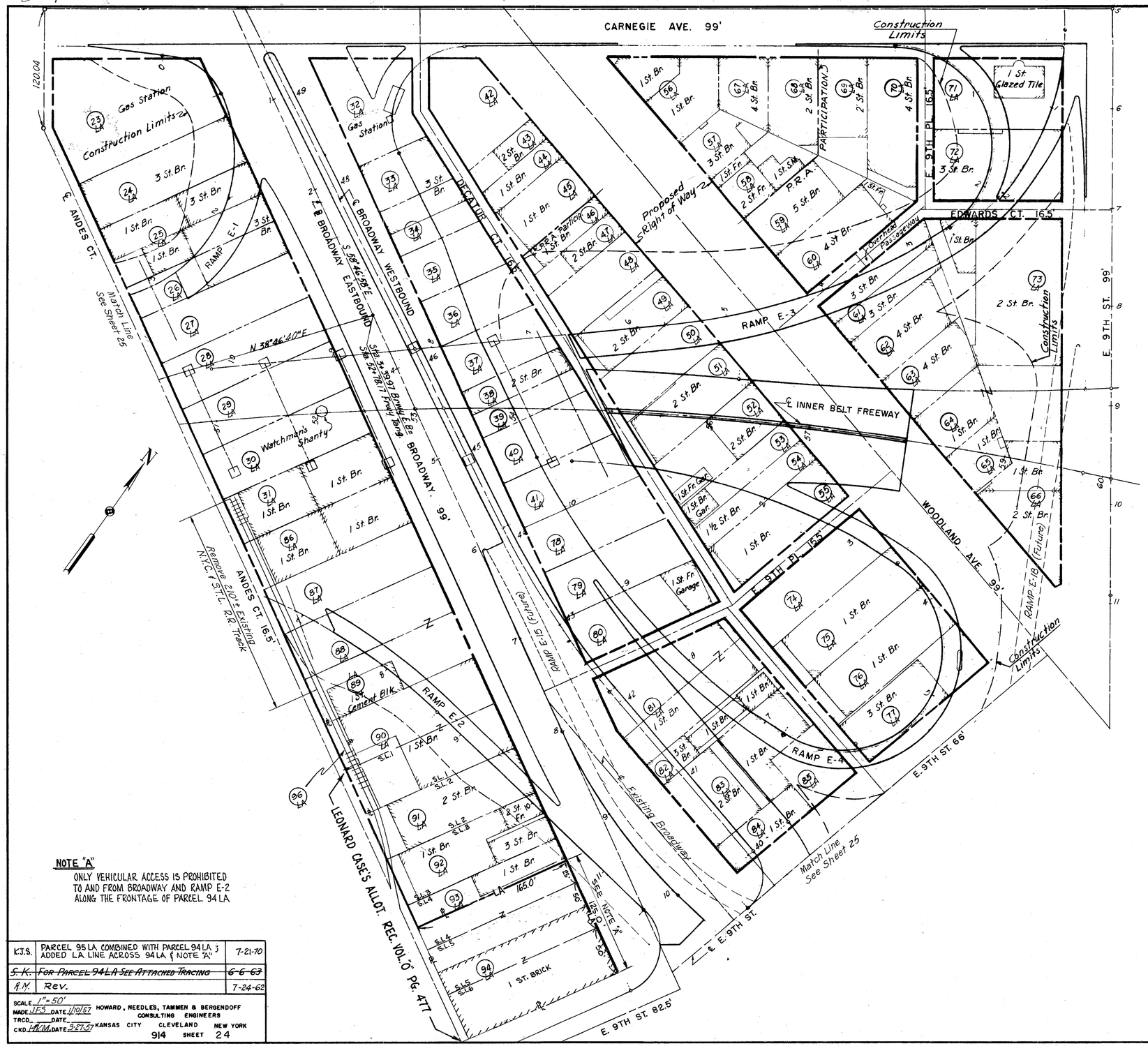
CUY-90-15.38
15.97

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	24 / 117
2	OHIO	F-155(5)		

CUYAHOGA COUNTY
CITY OF CLEVELAND

INNER BELT FREEWAY - PART 5
APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)

RIGHT OF WAY



NOTE "A"
ONLY VEHICULAR ACCESS IS PROHIBITED TO AND FROM BROADWAY AND RAMP E-2 ALONG THE FRONTAGE OF PARCEL 94 LA

K.T.S.	PARCEL 95 LA COMBINED WITH PARCEL 94 LA ; ADDED LA LINE ACROSS 94 LA & NOTE "A"	7-21-70
~~S.K.~~	~~FOR PARCEL 94 LA SEE ATTACHED TRACING~~	~~6-6-63~~
A.M.	Rev.	7-24-62

SCALE 1"=50'
MADE JFS DATE 1/10/67
TRCD. ___ DATE ___
CKD. A.M. DATE 3-27-67

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 24

PARCEL NO.	OWNER OF RECORD	AREA SQ. FT.
23 LA	Willis J. Zangerle	15,683.1
24 LA	N.Y.C. & St. L. R.R.	8,250.0
25 LA	Rose Kowit et al	10,725.0
26 LA	Rose Kowit et al	5,775.0
27 LA	Howard Kowit	8,250.0
28 LA	H.W. Black	8,250.0
29 LA	Howard Kowit	8,250.0
30 LA	H.W. Black	8,250.0
31 LA	Maxco Company	8,250.0
32 LA	Cleveland Trust Co.	8,421.1
33 LA	Cleveland Trust Co.	3,90.5.0
34 LA	Cleveland Trust Co.	4,180.0
35 LA	Chas. Weinberg & Chas. Sugarman	4,520.8
36 LA	Cleveland Trust Co.	4,941.0
37 LA	S. Mechalovitz Co.	5,287.0
38 LA	S. Mechalovitz Co.	2,773.3
39 LA	Meyer Schlam	2,859.4
40 LA	Meyer Schlam	5,977.5
41 LA	Cleveland Trust Co.	6,323.0
42 LA	Cleveland Trust Co.	7,085.5
43 LA	Outdoor Investment Co.	2,081.8
44 LA	Sam R. Delson	2,168.3
45 LA	Comella Realty Co.	4,786.6
46 LA	Comella Realty Co.	2,142.5
47 LA	Comella Realty Co.	2,607.5
48 LA	H.S. & F.E. Allen et al	5,287.0
49 LA	Bet Rose, Inc.	5,632.8
50 LA	Chas I. & M.J. Cianciolo	5,977.5
51 LA	Harry R. & R.N. Wiesenberger	6,323.0
52 LA	Chas. I. & M.J. Cianciolo	6,668.8
53 LA	Kramer Holding Co.	3464.1
54 LA	Kramer Holding Co.	3,550.5
55 LA	Mamie Corso	7,360.5
56 LA	Frank & Anthony Dindia	5,757.2
57 LA	Bramson Construction Co.	3,170.8
58 LA	Harry Perchan	4,335.2
59 LA	The Ascot Co.	5,500.3
60 LA	Woodland-Ninth Realty Co.	6,665.0
61 LA	Woodland-Ninth Realty Co.	6,581.2
62 LA	Plumwood Corp.	5,668.7
63 LA	E. & Ann Venizelos	4,756.2
64 LA	Hill Floral Products Co.	9,267.0
65 LA	Hill Floral Products Co.	2,755.1
66 LA	Ruth R. Hinman et al	8,155.5
67 LA	Ira W. Crouse	3,170.8
68 LA	" "	4,335.2
69 LA	Abe Dubick	5,500.3
70 LA	Frank W. Tarbox, A. A. Hilkert & L. Botzum	6,665.0
71 LA	Cleveland Trust Co.	9,524.8
72 LA	Goodwill Industries	9,505.4
73 LA	Cleveland Trust Co. Tr.	17,006.2
74 LA	Kerwood Realty Inc.	7,961.3
75 LA	Zelda Katovsky	7,961.3
76 LA	Chas. I. & M.J. Cianciolo	7,961.3
77 LA	Family Inc.	7,961.3
78 LA	Cleveland Trust Co.	6,668.8
79 LA	Kramer Holding Co.	7,014.5
80 LA	Mamie Corso	7,360.5
81 LA	The Broadway Ninth Co.	12,828.0
82 LA	Jean Kerick	4,075.5
83 LA	Michelina Demma	11,137.5
84 LA	Stephen G. Grecch	3,300.0
85 LA	Erie Realty & Investment Co.	3,745.5
86 LA	Wm J. Bialosky et al	8,250.0
87 LA	Rose Sugarman	8,250.0
88 LA	Rose Sugarman	8,250.0
89 LA	Rose Sugarman	8,250.0
90 LA	Chas. & Rose Sugarman	14,900.0
91 LA	Rose Kowit	8,250.0
92 LA	Rose Sugarman	8,172.5
93 LA	Ed Klein & N. Weiner	4,125.0
94 LA	Sam Braman	LA ONLY (SEE NOTE "A"
95 LA	Sam Braman	COMBINED WITH PAR. 94 LA
96 LA	N.Y.C. & St. L. R.R.	1,600.0

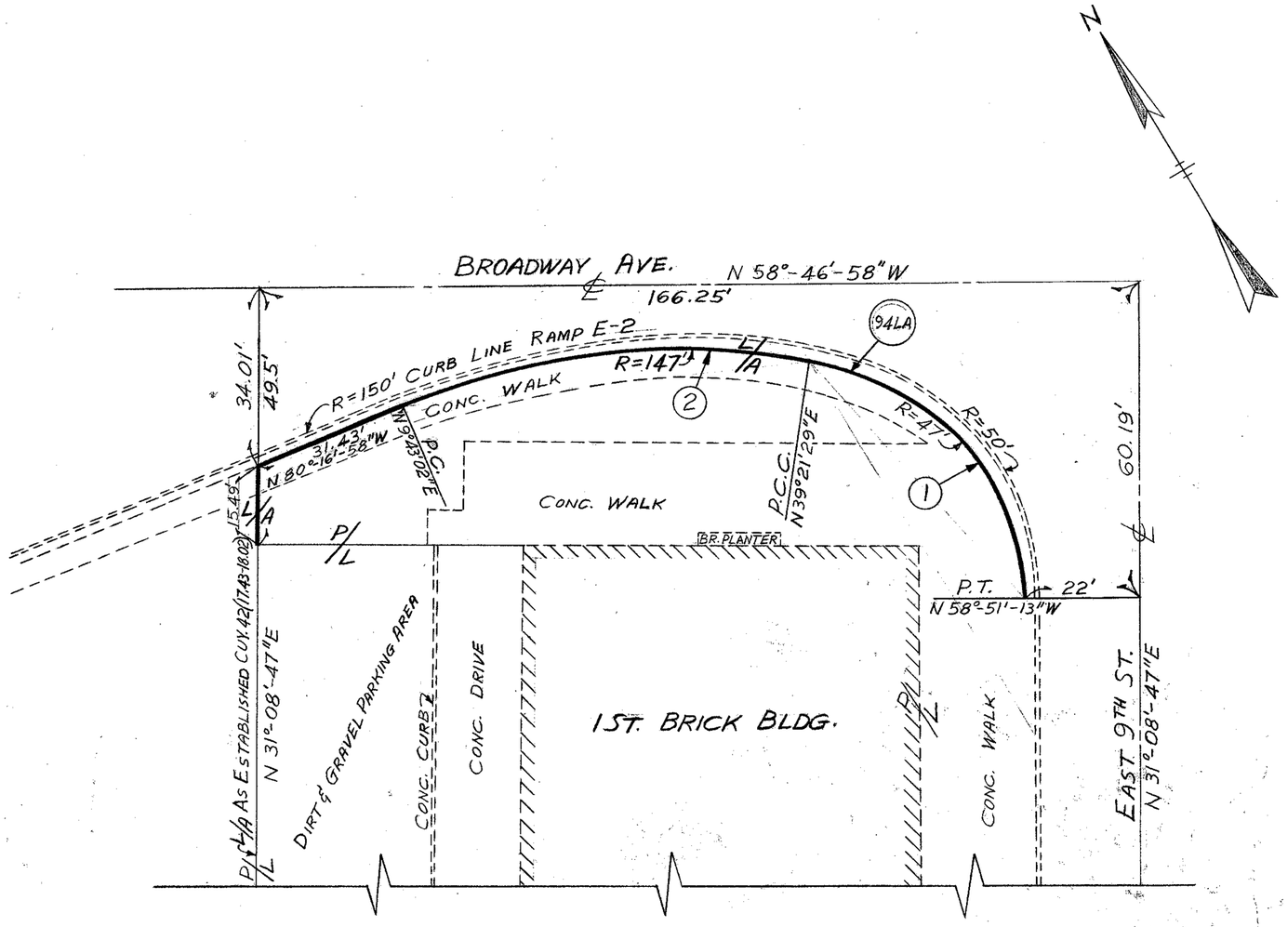
FED. ROAD DIVISION	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	I-1057(5)	

24-A
117

CUYAHOGA COUNTY
CITY OF CLEVELAND

INNER BELT FREEWAY - PART 5
APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)

RIGHT OF WAY



LIMITED ACCESS CURVE DATA	
(1)	(2)
Δ = 81°-47'-18"	Δ = 29°-38'-27"
R = 47.00'	R = 147.00'
T = 40.70'	T = 38.89'
Ch = 61.58'	Ch = 75.21'
A = 67.09'	A = 76.05'
Ch. Bearing = N9°-44'-52"W	Ch. Bearing = N65°-27'-44"W

PARCEL 94 LA

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
PLAT OF
LIMITED ACCESS RIGHT OF WAY
FOR PROPERTY OWNED BY
SAM BRAMAN
CITY OF CLEVELAND
CUYAHOGA COUNTY

SCALE: 1"=20'

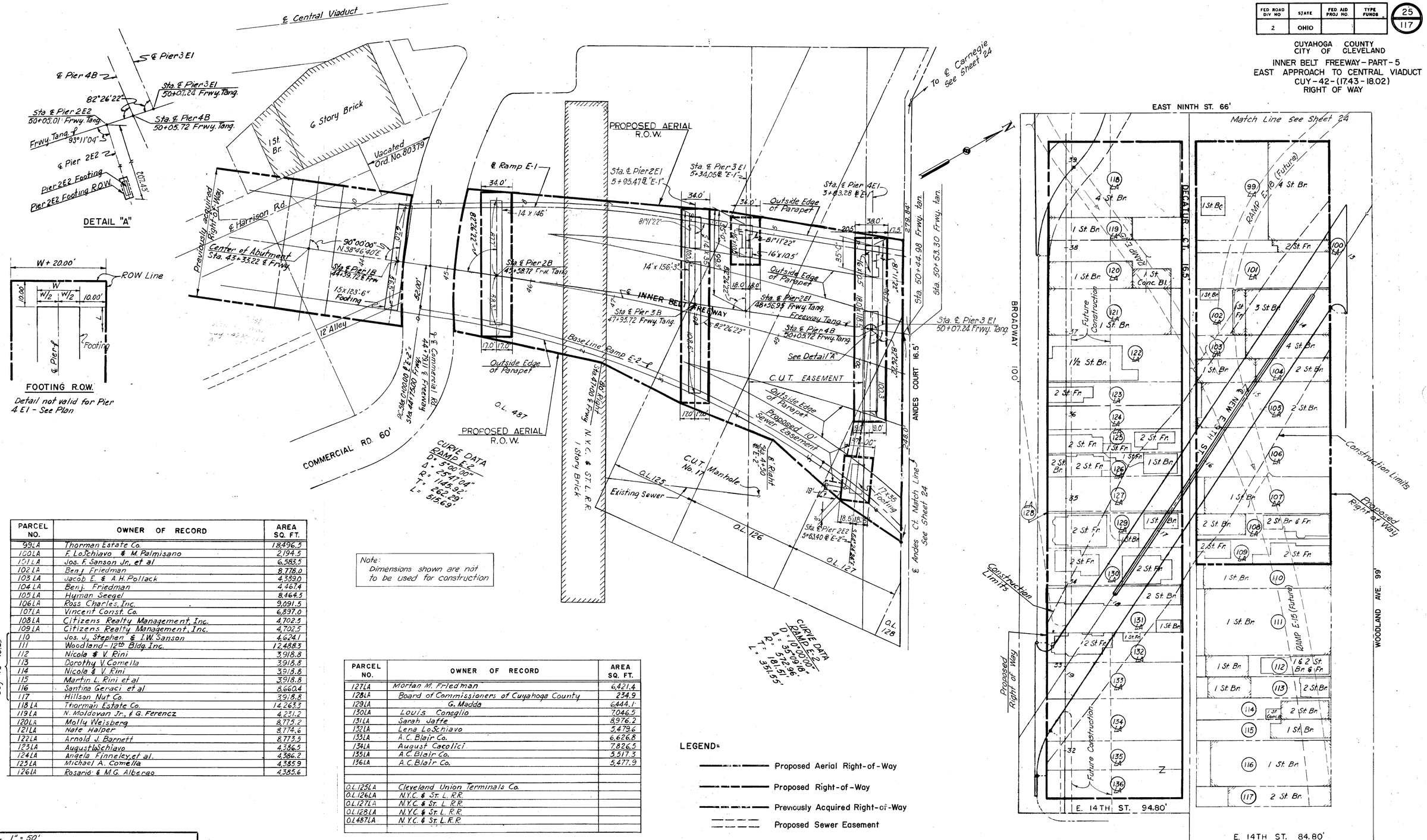
JUNE 6, 1963

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

25
117

CUYAHOGA COUNTY
CITY OF CLEVELAND

INNER BELT FREEWAY - PART - 5
EAST APPROACH TO CENTRAL VIADUCT
CUY - 42 - (17.43 - 18.02)
RIGHT OF WAY



PARCEL NO.	OWNER OF RECORD	AREA SQ. FT.
99 LA	Thorman Estate Co.	18,496.5
100 LA	F. LoChiavo & M. Palmisano	2,194.5
101 LA	Jos. F. Sanson Jr., et al	6,583.5
102 LA	Benj. Friedman	8,778.0
103 LA	Jacob E. & A.H. Pollack	4,389.0
104 LA	Benj. Friedman	4,467.4
105 LA	Hyman Seegel	8,464.5
106 LA	Ross Charles, Inc.	9,091.5
107 LA	Vincent Const. Co.	6,897.0
108 LA	Citizens Realty Management, Inc.	4,702.5
109 LA	Citizens Realty Management, Inc.	4,702.5
110	Jos. J. Stephen & I.W. Sanson	4,624.1
111	Woodland - 12th Bldg. Inc.	12,488.3
112	Nicola & V. Rini	3,918.8
113	Dorothy V. Comella	3,918.8
114	Nicola & V. Rini	3,918.8
115	Martin L. Rini et al	3,918.8
116	Santino Geraci et al	8,660.4
117	Hillson Nut Co.	3,918.8
118 LA	Thorman Estate Co.	14,263.3
119 LA	N. Moldovan Jr., & G. Ferencz	4,231.2
120 LA	Molly Weisberg	8,775.2
121 LA	Nate Halper	8,774.6
122 LA	Arnold J. Barnett	8,773.5
123 LA	August LoChiavo	4,386.5
124 LA	Angela Finneley, et al.	4,386.2
125 LA	Michael A. Comella	4,385.9
126 LA	Rosario & M.G. Albergo	4,385.6

Acquired on Cuy-42-18.29

Note:
Dimensions shown are not to be used for construction

PARCEL NO.	OWNER OF RECORD	AREA SQ. FT.
127 LA	Morton M. Friedman	6,421.4
128 LA	Board of Commissioners of Cuyahoga County	234.9
129 LA	G. Madda	6,444.1
130 LA	Louis Coneglio	7,046.5
131 LA	Sarah Jaffe	8,976.2
132 LA	Lena LoSchiavo	5,479.6
133 LA	A.C. Blair Co.	6,626.8
134 LA	August Cacolici	7,826.5
135 LA	A.C. Blair Co.	5,517.3
136 LA	A.C. Blair Co.	5,477.9
O.L. 125 LA	Cleveland Union Terminals Co.	
O.L. 126 LA	N.Y.C. & St. L. R.R.	
O.L. 127 LA	N.Y.C. & St. L. R.R.	
O.L. 128 LA	N.Y.C. & St. L. R.R.	
O.L. 487 LA	N.Y.C. & St. L. R.R.	

LEGEND:
- Proposed Aerial Right-of-Way
- Proposed Right-of-Way
- Previously Acquired Right-of-Way
- Proposed Sewer Easement

SCALE 1" = 50'
MADE J.F.S. DATE 1-10-57
TRCD DATE
CKD. HKM DATE 5-9-57

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

Revised A.M. 7-26-62
Revised J.F.S. 9-19-57
Revised: HKM 3-19-57

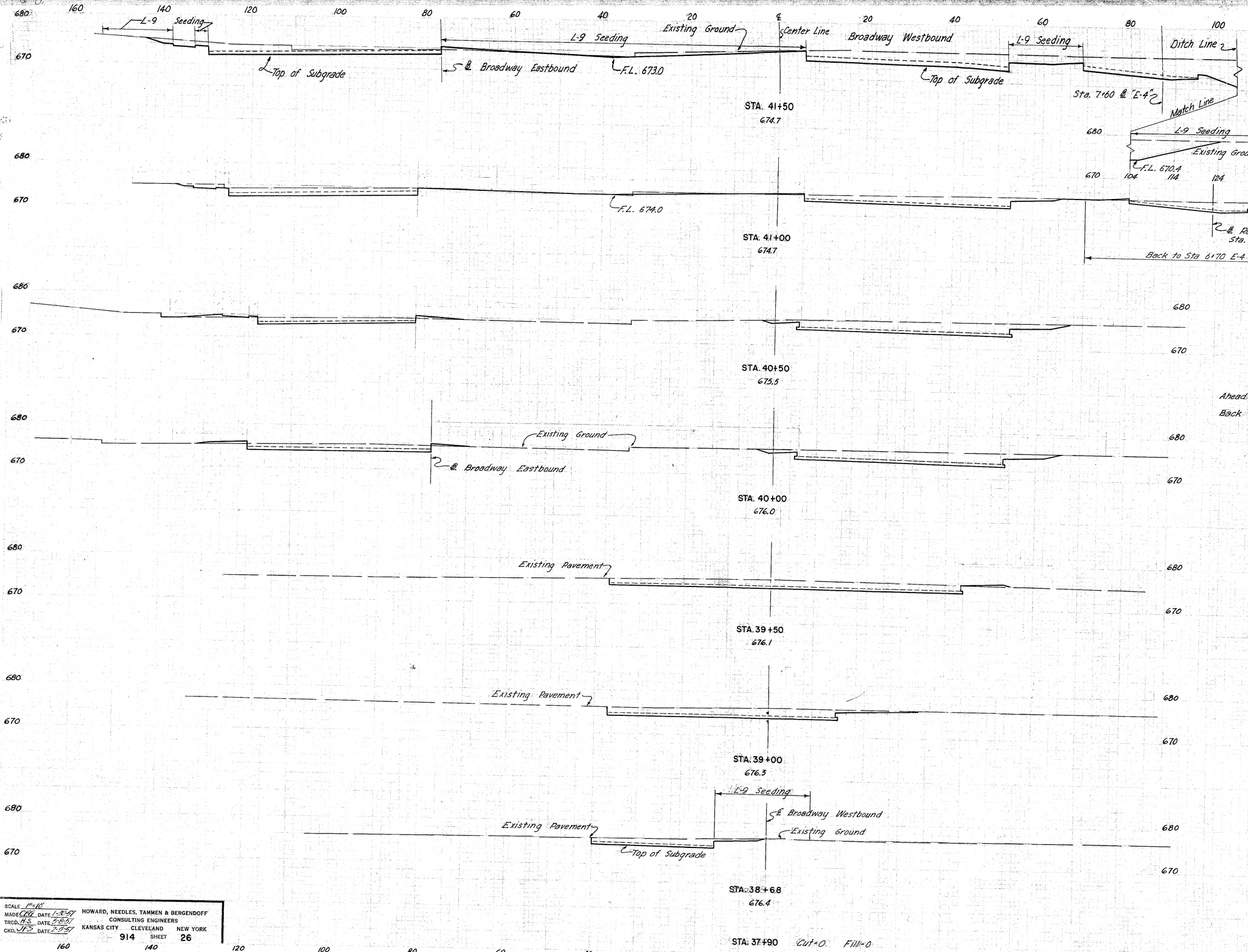
8.0

FEB 23 1967

CUY-90-15.38-15.97

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	26 / 117
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
CROSS SECTIONS



		SEEDING		SUBBASE		EARTHWORK			
		WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
		L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
	41+50	156		61		403	6		
			897		110			608	10
Ahead	41+00	167		58		254	5		
Back	41+00	122		45		140	4		
			711		81			280	17
	40+50	134		42		163	14		
			736		79			300	23
	40+00	131		43		161	11		
			425		78			285	12
	39+50	22		41		147	2		
			125		62			244	2
	39+00	23		26		117	0		
			80		23			101	0
	38+68	22		13		53	0		
			192		19			58	0
	37+90	22		0		0	0		

BROADWAY—STA. 37+90 TO STA. 41+50

SCALE 1"=10'
MADE CHH DATE 1-30-67
TRCD. H.S. DATE 2-8-67
CKD. JFS DATE 2-5-67

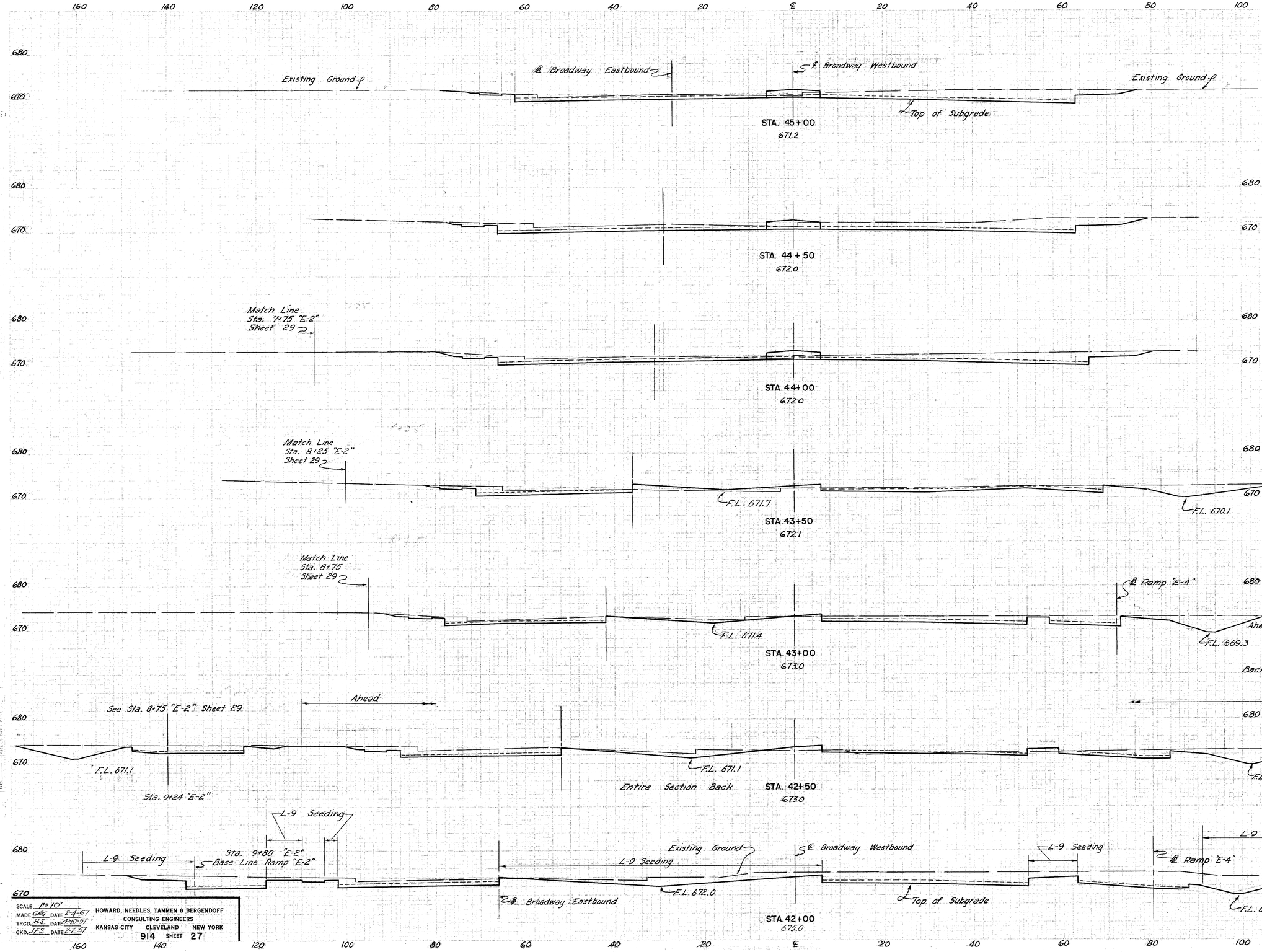
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 26

ORIGINAL SURVEY
SURVEYED
DRAWN
CHECKED
NOTE ERASURES

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

27
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
CROSS SECTIONS



	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
45+00	52		63		205	6		
		298		118			433	12
44+50	55		65		263	7		
		300		119			436	17
44+01	55		67		218	12		
		434		110			376	35
43+50	98		49		180	25		
		572		91			397	29
43+00	108		50		249	6		
		642		92			410	20
42+50	123		50		194	16		
Back 42+50	167		65		274	16		
		883		118			765	18
42+00	151		62		552	3		
		853		114			884	8

SCALE 1" = 10'
MADE GEG DATE 2-4-57
TRCD. H.S. DATE 4-10-57
CKD. JFS DATE 2-7-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 27

BROADWAY-STA. 42+00 TO STA. 45+00

RECEIVED
FEB 23 1957

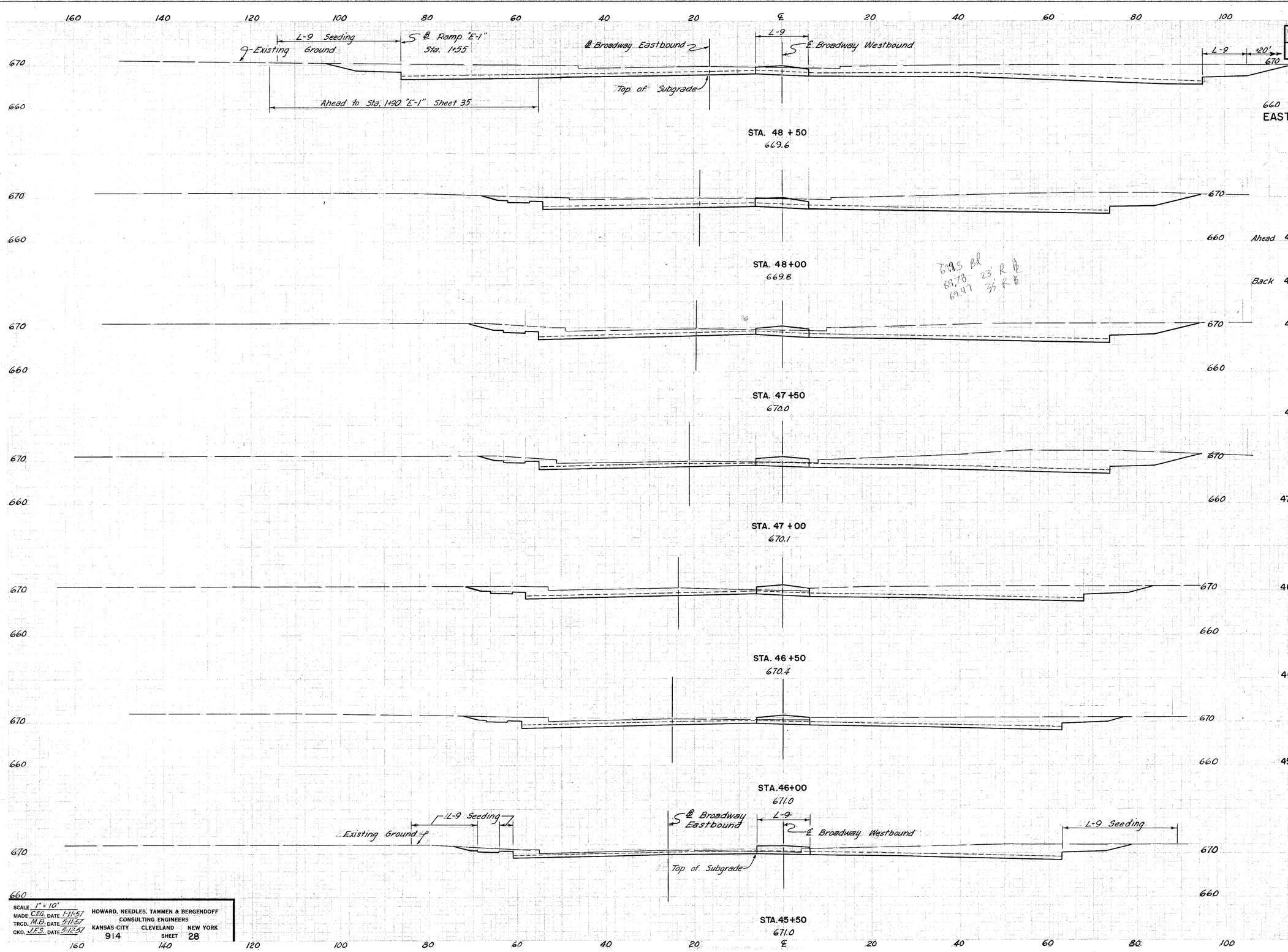
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

28
117

CUYAHOGA COUNTY
CITY OF CLEVELAND

INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT

CUY-42-(17.43-18.02)
CROSS SECTIONS



		SEEDING		SUBBASE		EARTHWORK			
		WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
		L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
Ahead	48+50	36		91		549	0	—	—
Back	48+50	70		76		430	0		
			367		130			800	0
	48+00	62		65		434	0		
			347		120			765	2
	47+50	63		65		392	2		
			347		120			735	5
	47+00	62		65		402	3		
			330		119			656	7
	46+50	57		64		306	5		
			311		116			527	8
	46+00	55		62		263	4		
			294		115			495	10
	45+50	51		63		272	7		
			286		116			442	12

SCALE 1" = 10'
MADE C.E.G. DATE 1-11-57
TRCD. M.D. DATE 2-11-57
CKD. J.F.S. DATE 2-12-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 28

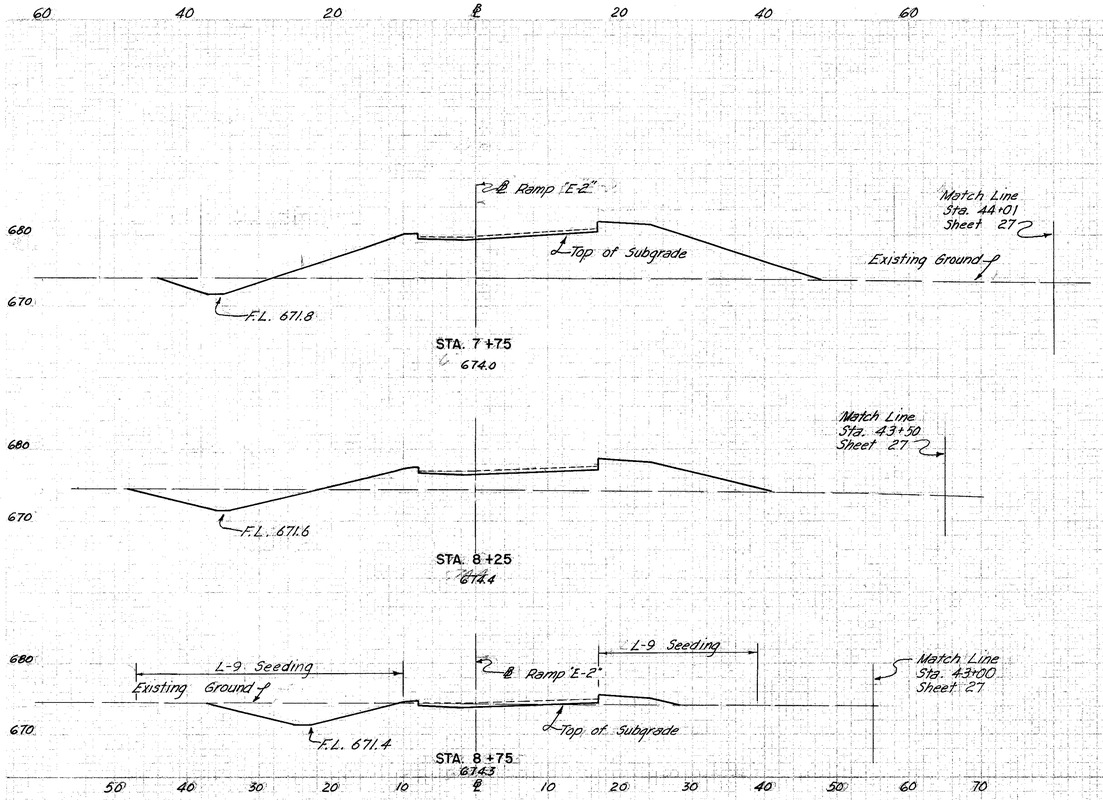
BROADWAY - STA. 45+50 TO 48+50

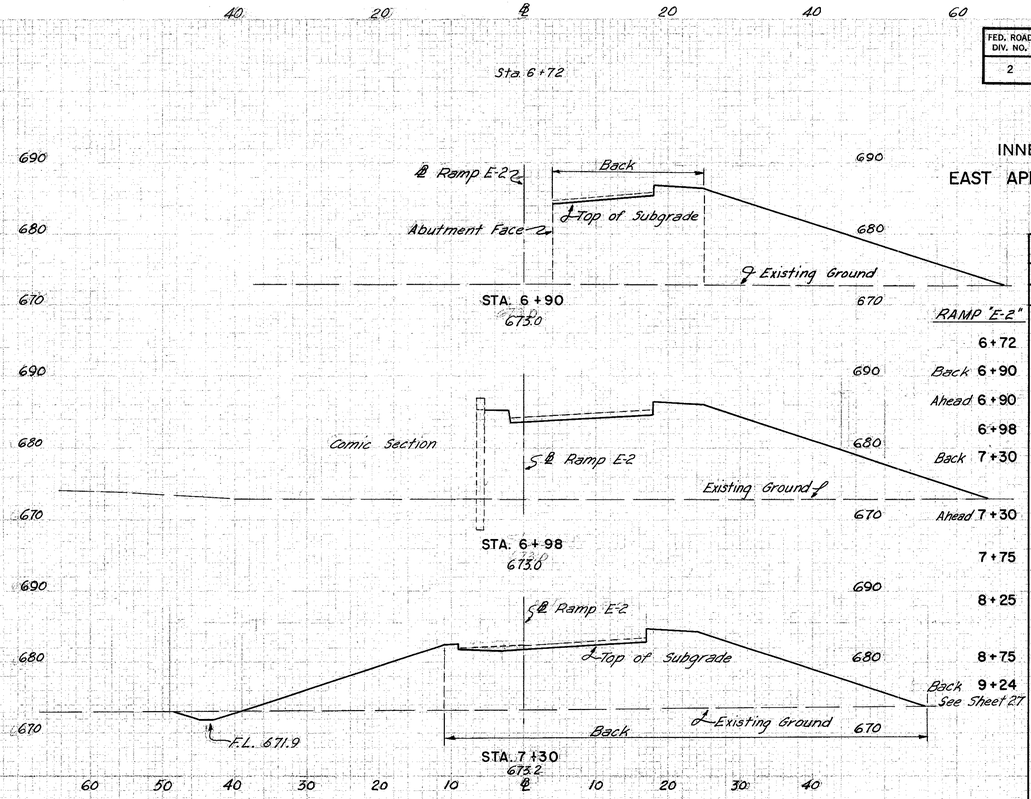
RECEIVED
FEB 23 1959

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

29
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
CROSS SECTIONS





	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
RAMP "E-2"								
6+72			0		Calculated Separately			
		80		2			0	203
Back 6+90			7		0	266		
Ahead 6+90	61		7		0	552		
		53		3			0	176
6+98	59		10			639		
		196		15			0	737
Back 7+30	51		16		0	485		
Ahead 7+30	101		12		5	613		
		+101 470		19			18	810
7+75	87		11		17	359		
		464		20			51	477
8+25	80		11		38	156		
		386		20			68	158
8+75	59		11		35	15		
		248		22			114	14
Back 9+24	32		13		80	0		
See Sheet 27								
Broadway								
50+38			0		0	0		
Calculated		83		11			42	0
49+95			13		53	0		
		135		50			148	0
49+45	34		41		107	0		
		157		93			292	16
49+00	36	200	71		243	19		
Calculated Separately		403		150			733	18
		603						

SCALE 1" = 10'
MADE C.E.G. DATE 1-30-57
TRCD. H.S. DATE 5-16-57
CKD. F.K.M. DATE 5-17-57

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

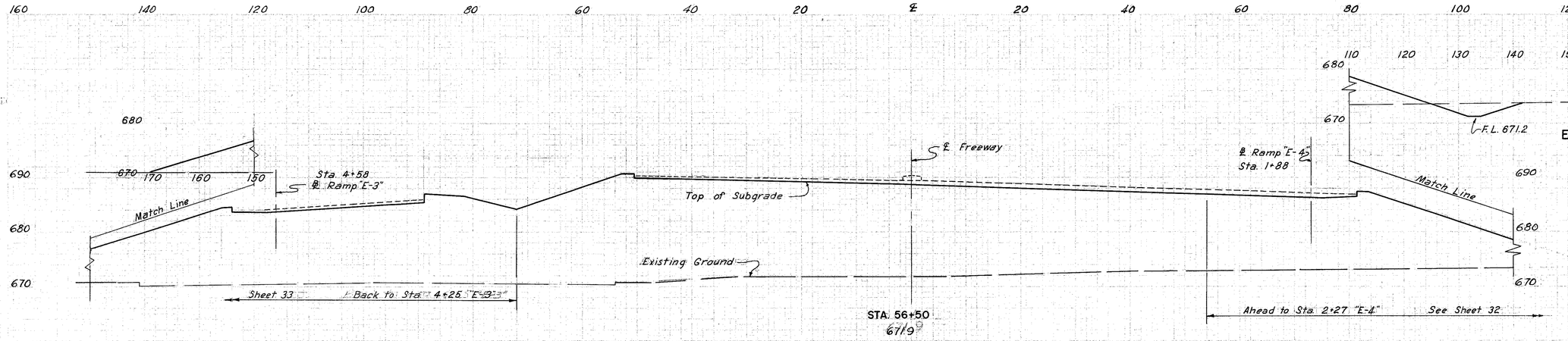
BROADWAY - STA. 49+00 TO STA. 50+38
RAMP "E-2" - STA. 8+75 TO STA. 7+75

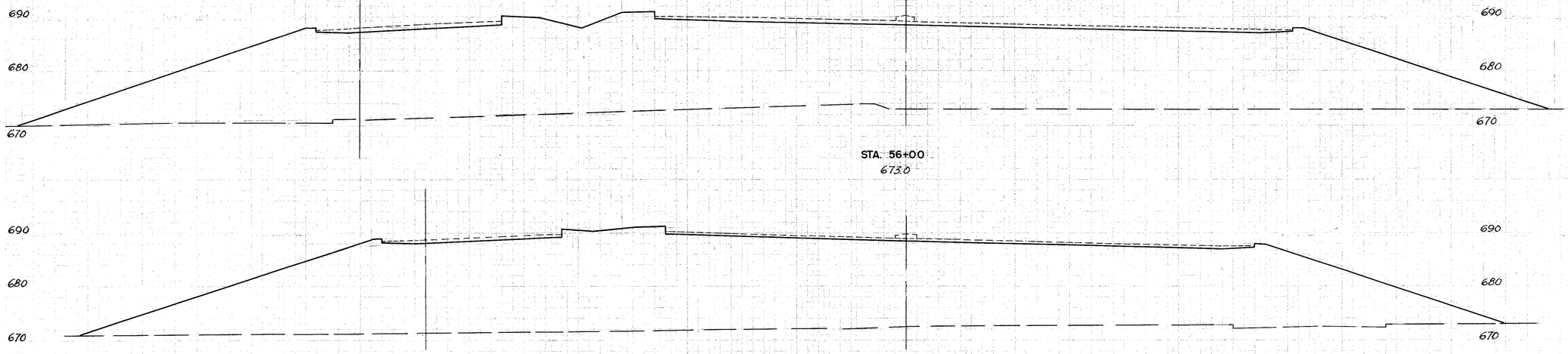
FEB 23 1993

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

30
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
CROSS SECTIONS





		WIDTH L.F.	SEEDING AREA SQ.YD.	SUBBASE AREA S.F.	SUBBASE VOL. C.Y.	EARTHWORK END AREA EXC.	EARTHWORK END AREA EMB.	EARTHWORK VOLUME EXC.	EARTHWORK VOLUME EMB.
Ahead	56+50	94		57		0	2117		
Back	56+50	177		84		27	3912		
			942		146			42	6932
	56+00	162		74		19	3575		
			819		131			18	6601
	55+50	133		68		0	3554		
			731		117			0	6269
Ahead	55+03	147		66		0	3649	-	
Back	55+03			0			3426		
		Calculated Separately						0	8589
	53+94					0	0		
									22000

Roadway Excavation in vicinity of Pier No 4-B, approx. Sta. 49+75 to Sta. 50+80. See Sheet No 38.

SCALE 1" = 10'
MADE LEG DATE 1-7-57
TRCD. HS DATE 8-15-57
CKD. JFS DATE 1-8-57

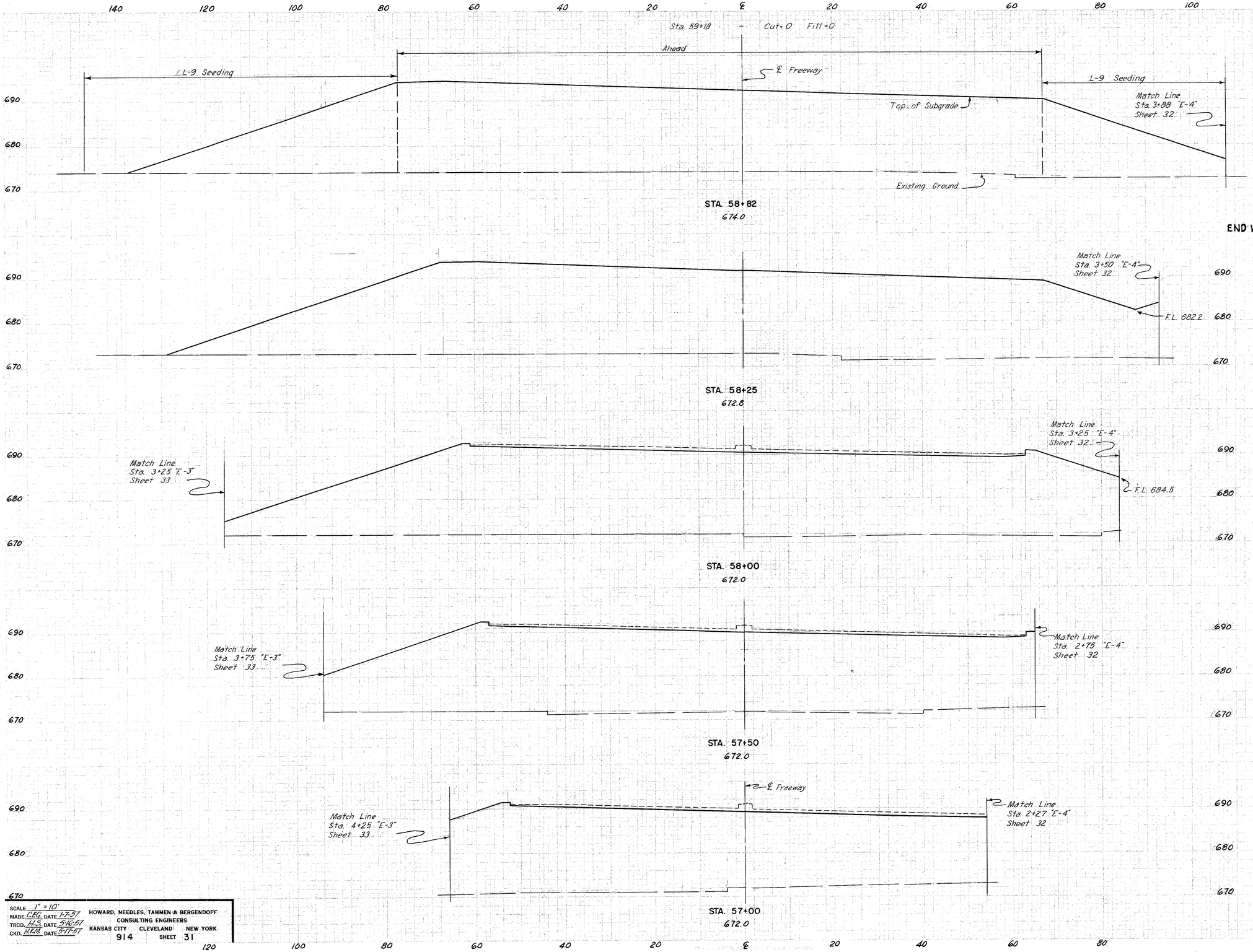
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 30

FREEWAY - STA. 53+94 TO STA. 56+50

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

31
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
CROSS SECTIONS



		SEEDING		SUBBASE		EARTHWORK			
		WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
		L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
END WORK	59+18			0		0			
								0	2513
Ahead	58+82			0		0	2705		
Back	58+82			0		0	3783		
								0	7782
	58+25	92		0		0	3589		
			236					0	3242
	58+00	78		54		0	3413		
			356		104			0	5759
	57+50	50		58		0	2807		
			178		103			0	4604
	57+00	14		53		0	2165		
					102			0	3965

FREEWAY – STA. 57+00 TO STA. 59+18

FEB 28 1963

SCALE 1" = 10'
MADE CEO DATE 1-7-57
TRCD. H.S. DATE 5-16-57
CKD. H.E.M. DATE 5-17-57

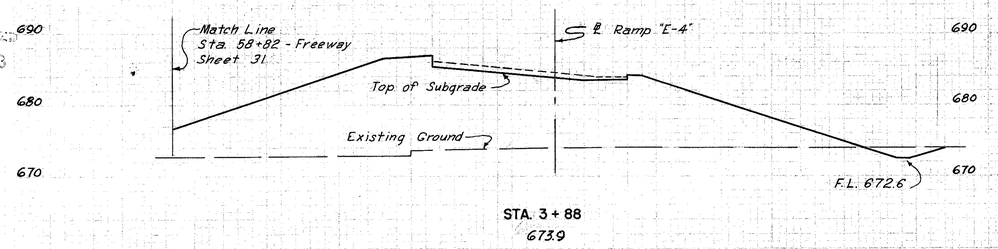
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 31

FEB 23 1963

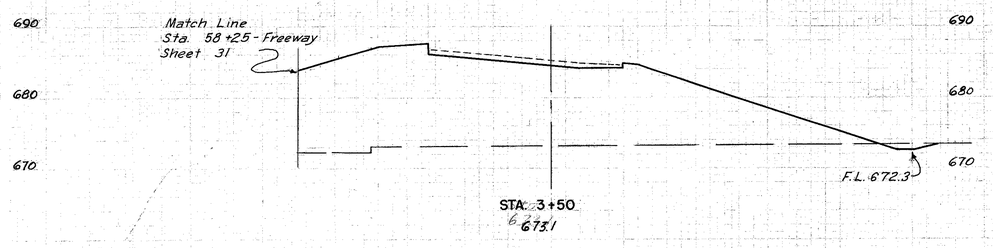
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

32
117

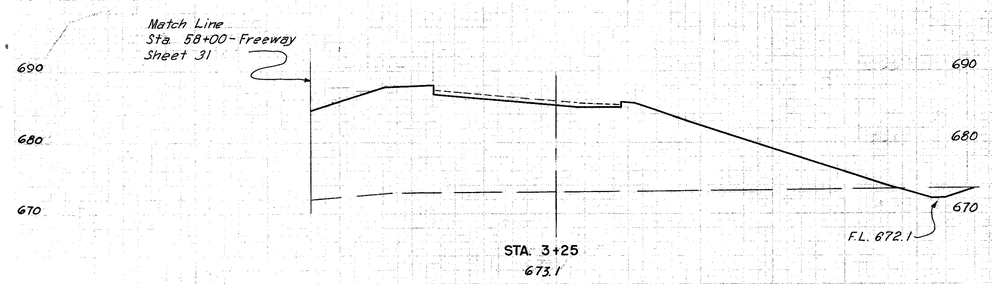
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
CROSS SECTIONS



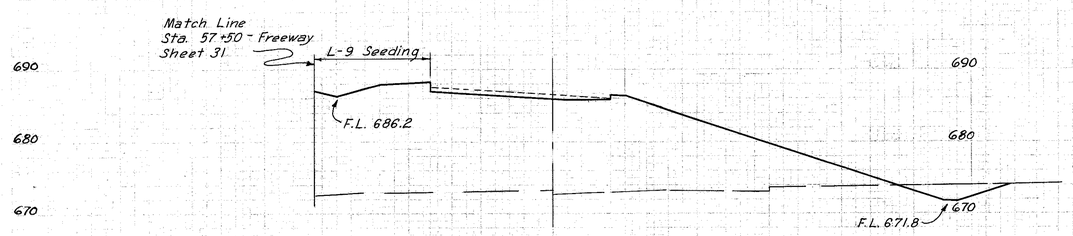
STA. 3 + 88
673.9



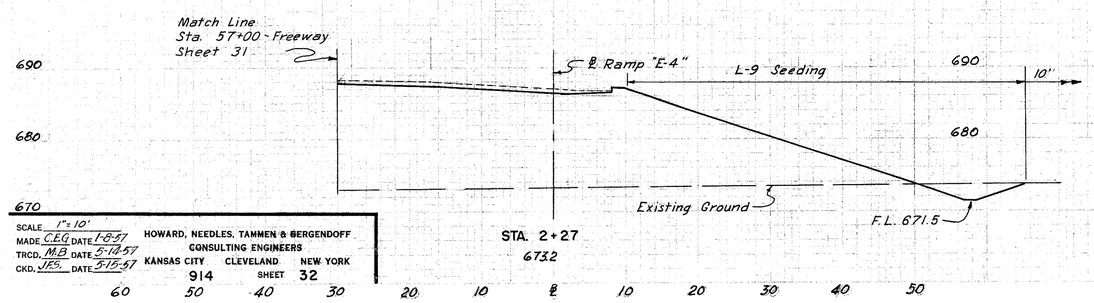
STA. 3+50
673.1



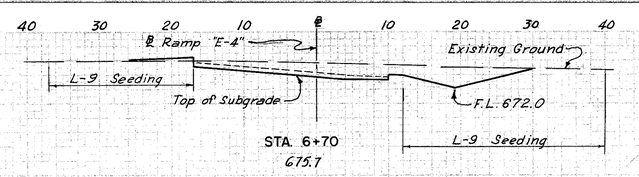
STA. 3+25
673.1



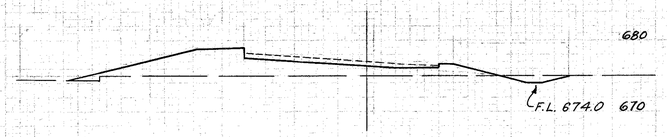
STA. 2+75
673.3



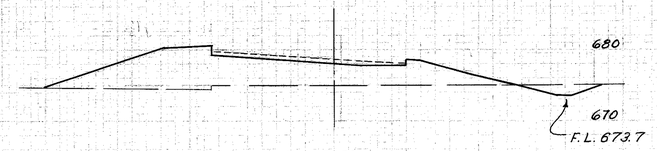
STA. 2+27
673.2



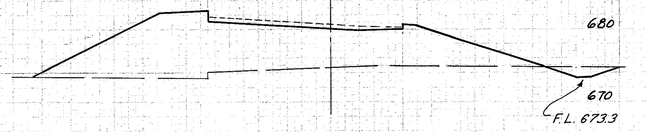
STA. 6+70
675.7



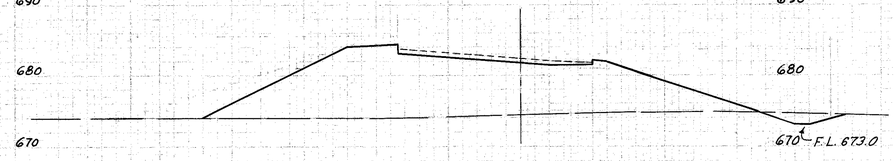
STA. 6+00
675.0



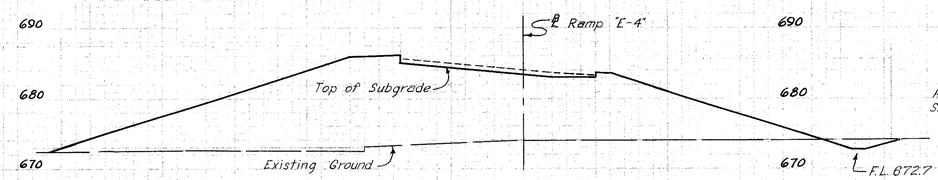
STA. 5+50
675.0



STA. 5+00
674.8



STA. 4+50
674.6



STA. 4+00
674.0

		SEEDING		SUBBASE		EARTHWORK			
		WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
		L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
Back	7+10	50		12		114	1		
See Sheet 26			218		18			158	5
	6+70	48		12		100	6		
			412		31			137	152
	6+00	58		12		6	111		
			353		22			14	318
	5+50	69		12		9	233		
			400		22			16	554
	5+00	75		12		8	365		
			442		22			17	792
	4+50	84		12		10	491		
			547		22			18	1209
	4+00	113		12		9	815		
			137		5			4	366
	3+88	93		12		9	833		
			350		17			10	1138
	3+50	73		12		5	784		
			205		11			7	743
	3+25	75		11		10	821		
			433		19			29	1569
	2+75	81		10		21	874		
			424		18			38	1523
	2+27	78		10		22	839		
			344		17			35	1100
Ahead See Sheet 30	1+88	81		14		27	784		

SCALE 1"=10'
MADE C.E.G. DATE 1-8-57
TRCD. M.B. DATE 5-14-57
CKD. J.F.S. DATE 5-15-57

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

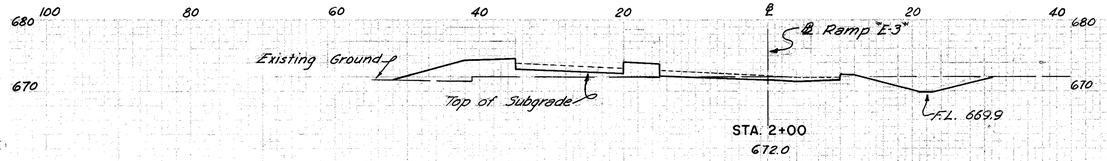
RAMP "E-4" - STA. 2+27 TO STA. 6+70

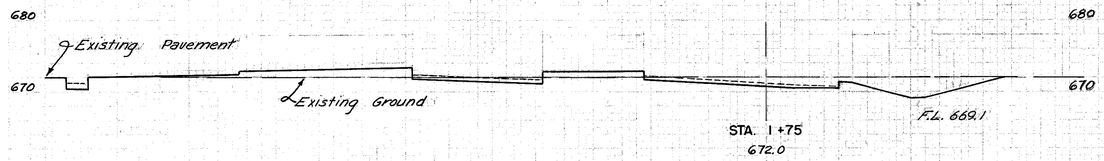
FEB 23 1967

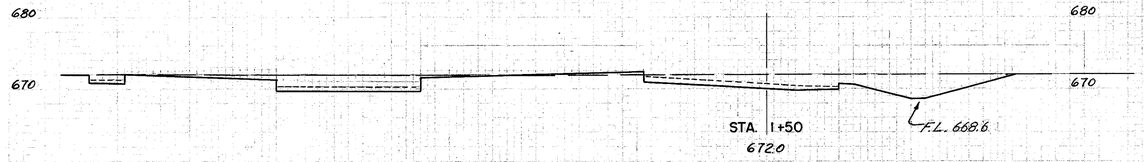
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

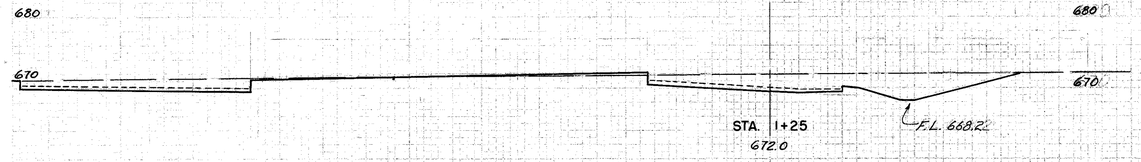
33
117

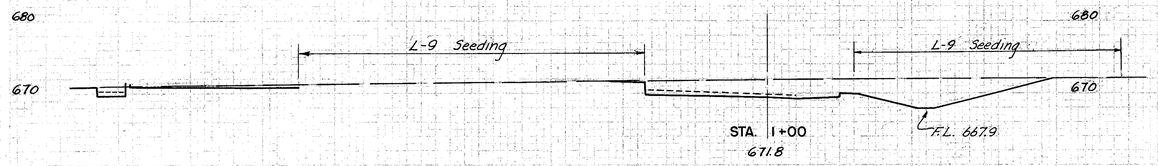
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
CROSS SECTIONS

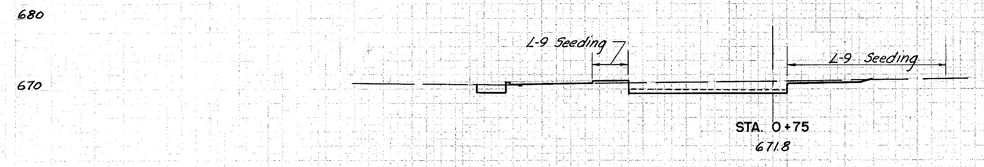


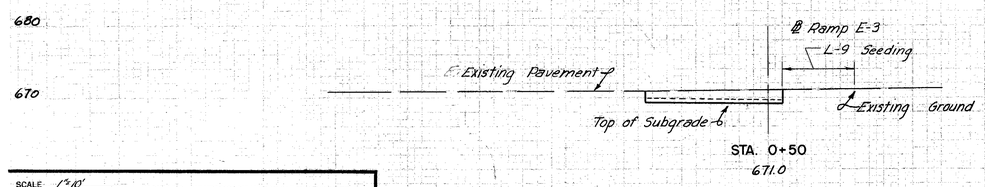




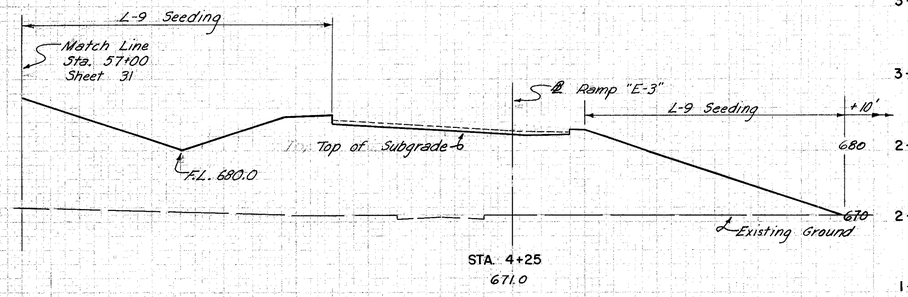


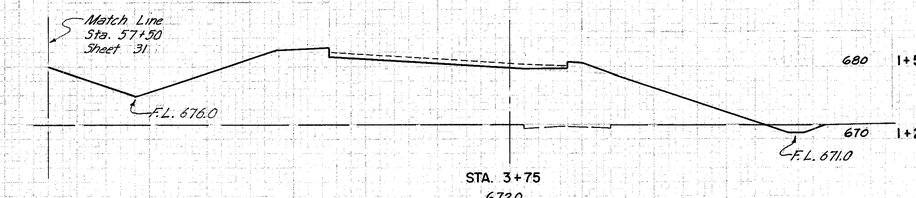


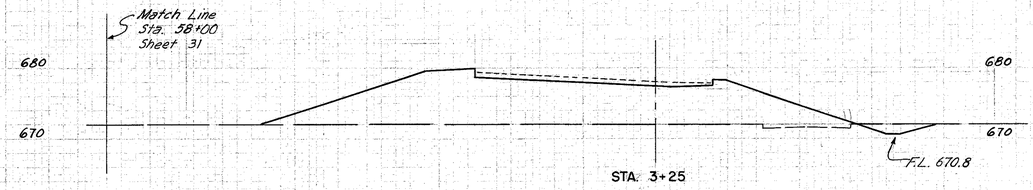


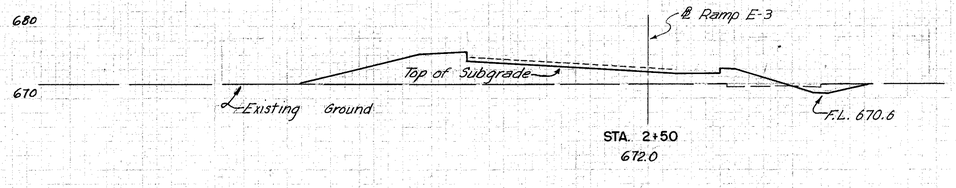


STA. 0+00
Cut-0 Fill-0









		SEEDING		SUBBASE		EARTHWORK			
		WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
		L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
Back	4+58	70		16		0	1111		
See Sheet 30			203		18			0	1391
	4+25	89		14		0	1165		
			475		26			3	1727
	3+75	82		14		3	700		
			442		27			9	1047
	3+25	77		15		7	431		
			575		43			21	826
	2+50	61		16		8	164		
			319		35			45	201
	2+00	54		22		41	53		
			162		20			62	49
	1+75	63		22		92	54		
			169		21			121	27
	1+50	59		24		169	4		
			197		22			159	6
	1+25	83		24		174	10		
			226		18			152	7
	1+00	80		14		152	5		
			149		13			94	4
	0+75	27		13		46	4		
			51		10			38	2
	0+50	10		10		36	0		
			28		8			33	0
	0+00	0		0		0	0		—

RAMP "E-3" - STA. 0+00 TO STA. 4+25

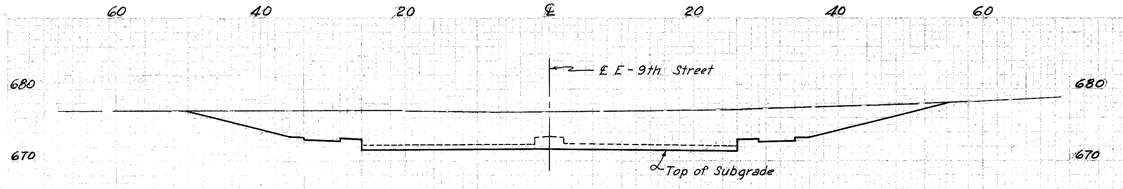
SCALE	1"=10'	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE	CEG DATE 2-4-57	CONSULTING ENGINEERS
TRCD.	M.B. DATE 5-14-57	KANSAS CITY CLEVELAND NEW YORK
CKD.	JFS DATE 2-6-57	914 SHEET 33

RECEIVED
FEB 23 1959

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

34
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY—PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
CROSS SECTIONS



STA. 16+00
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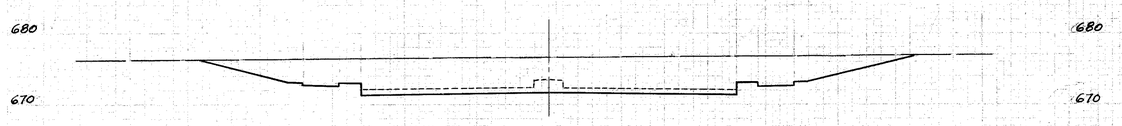

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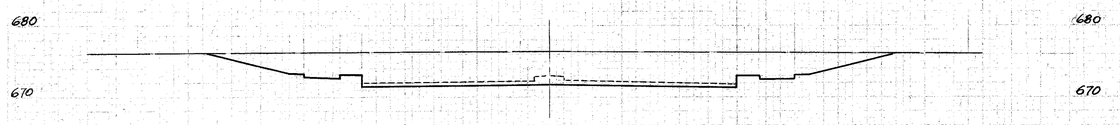

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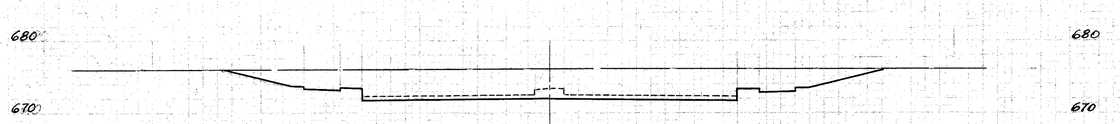

STA. 14+50
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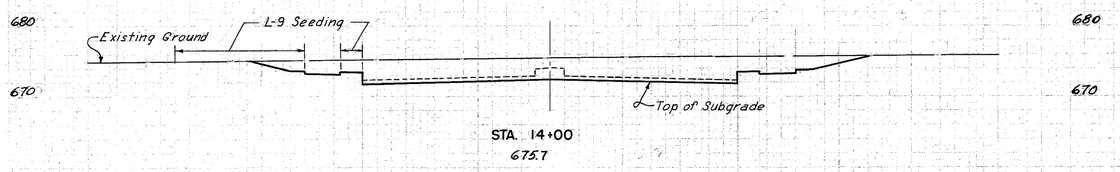

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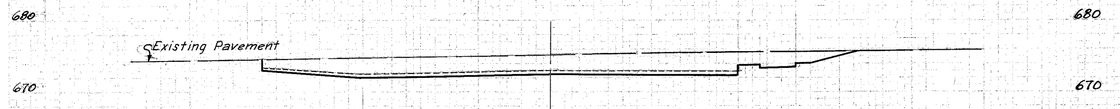

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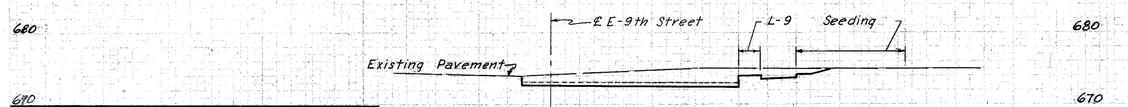
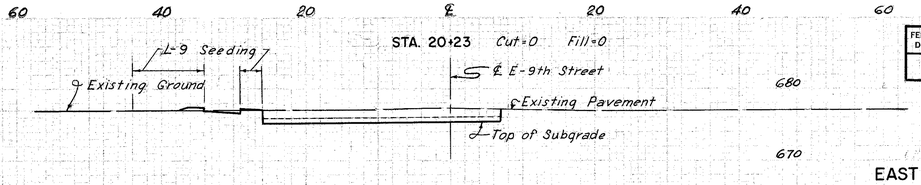


STA. 13+00
674.2
Sta. 12+53 — Cut=0 Fill=0



STA. 20+23 Cut=0 Fill=0

STA. 19+50
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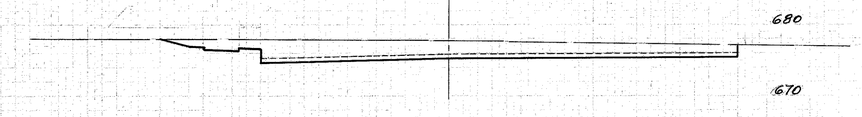

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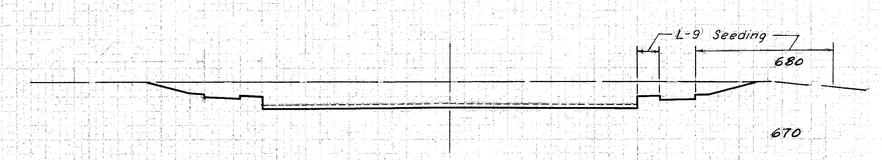

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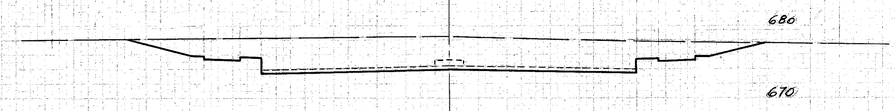

STA. 17+90
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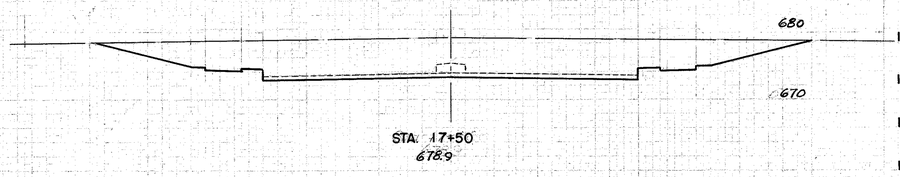

STA. 17+50
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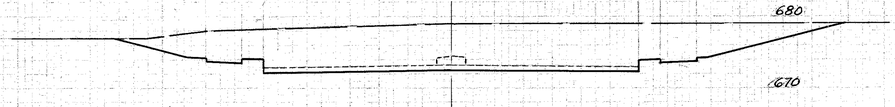

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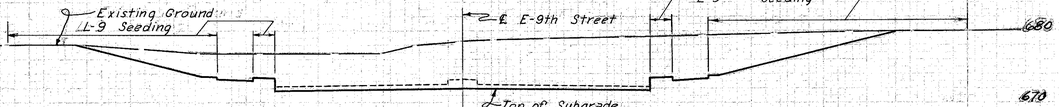


STA. 16+50
678.5

	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L. F.	SQ.YD.	S. F.	C.Y.	EXC.	EMB.	EXC.	EMB.
20+23	0		0		0	0		
		53		23			81	3
19+50	13		17		60	2		
		89		40			214	2
19+00	19		26		171	0		
		172		48			385	0
18+50	43		26		245	0		
		300		60			627	0
17+90	47		28		319	0		
		231		41			552	0
17+50	57		28		426	0		
		325		52			846	0
17+00	60		28.5		488	0		
		364		53			944	0
16+50	71		28.5		532	0		
		375		53			906	0
16+00	64		28.5		446	0		
		333		53			781	0
15+50	56		28.5		398	0		
		303		53			696	0
15+00	53		28.5		354	0		
		283		53			612	0
14+50	49		28.5		307	0		
		261		53			509	0
14+00	45		28.5		243	0		
		186		57			417	0
13+50	22		33		207	0		
		111		35			265	0
13+00	18		15		79	0		
		47		13			69	0
12+53	0		0		0	0		

SCALE 1" = 10'
MADE CEG DATE 1-23-57
TRCD. HS DATE 3-17-57
CKD. HM DATE 1-30-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 SHEET 34

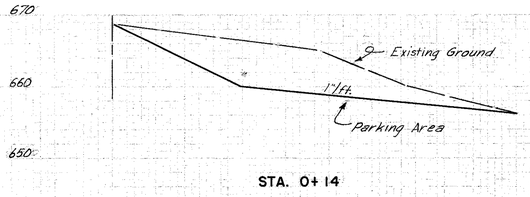
E-9TH ST. — STA. 13+00 TO STA. 19+50

DATA ENTERED
FEB 23 1993

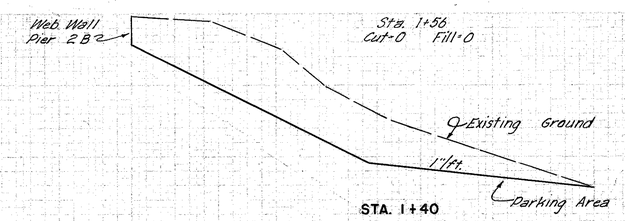
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

35
117

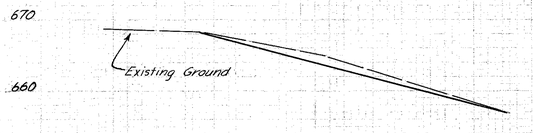
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY--PART 5
EAST APPROACH TO CENTRAL VIADUCT
CUY-42-(17.43-18.02)
CROSS SECTIONS



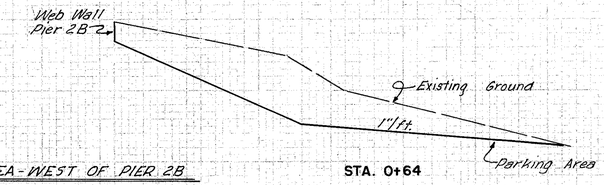
STA. 0+14



STA. 1+40



STA. 0+03

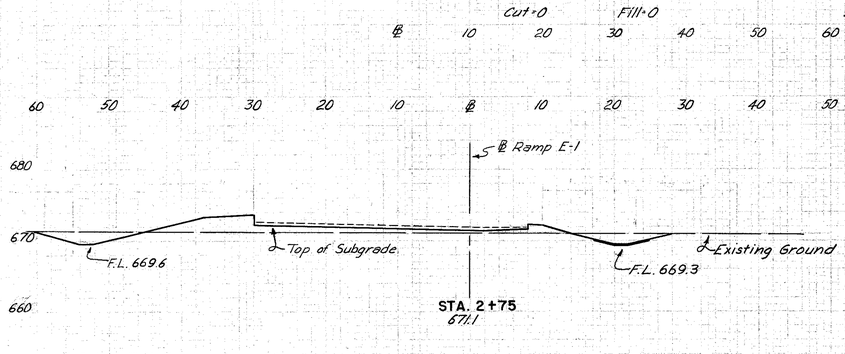


STA. 0+64

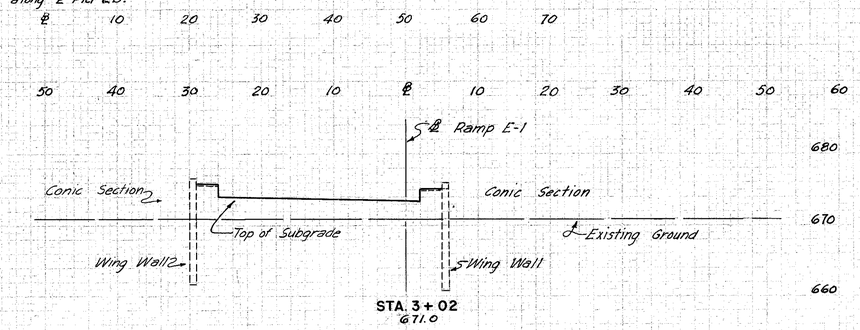
STA. 0+00

N.Y.C. & ST.L. PARKING AREA - WEST OF PIER 2B

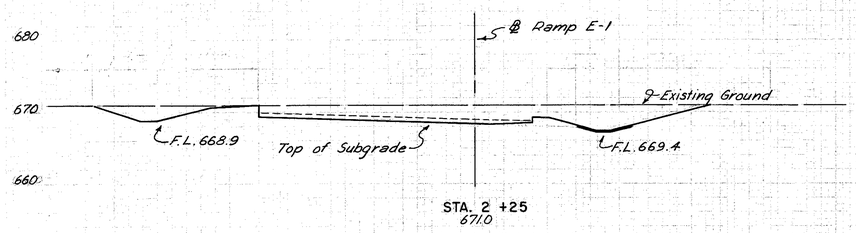
Sections normal to ℄ Pier 2B
Sta. 0+00 is 96' left of ℄ Freeway along ℄ Pier 2B.



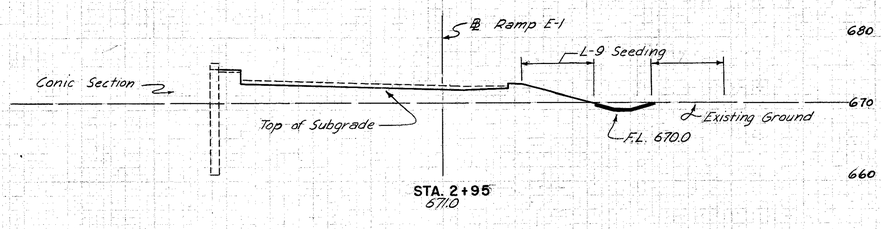
STA. 2+75
671.1



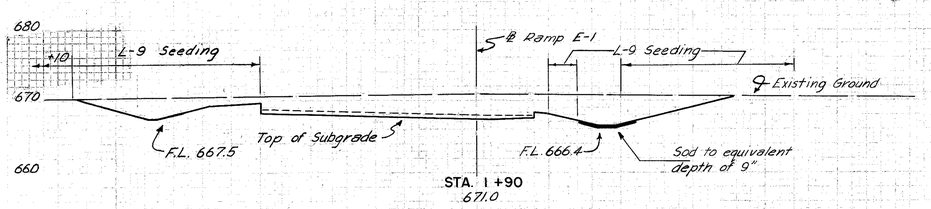
STA. 3+02
671.0



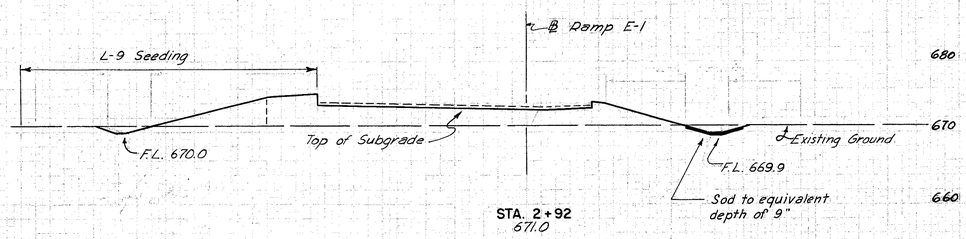
STA. 2 +25
671.0



STA. 2+95
671.0



STA. 1 +90
671.0



STA. 2+92
671.0

		SEEDING		SUBBASE		EARTHWORK			
		WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
		L. F.	SQ. YD.	S. F.	C. Y.	EXC.	EMB.	EXC.	EMB.
1+56						0	0		
								114	0
1+40						384	0		
								930	0
0+64						277	0		
								452	0
0+14						211	0		
								49	0
0+03						28	0		
								2	0
0+00						0	0		
Parking Area									

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
APR 19 1951
KANSAS CITY, MO.

1. SPECIFICATIONS

A. DESIGN SPECIFICATIONS - Specifications for design of Highway structures of the State of Ohio Department of Highways, dated October 1, 1951, together with revisions thereof dated July 15, 1952, April 1, 1954 and February 1, 1955, with a load frequency rating CF-2000-51, adequate for AASHO alternate loading.

B CONSTRUCTION SPECIFICATIONS - Construction and Material Specifications of the State of Ohio, Department of Highways, dated January 1, 1957. Reference should be made to Supplemental Specifications S-114 dated August 1, 1957, Supplemental Specifications M-206.14 dated July 15, 1949, Supplemental Specifications S-207 dated April 28, 1955, and to Standard Drawing AS-1-54, revised December 1, 1954.

2. DATUM FOR ELEVATIONS

All elevations are Regional Geodetic Survey Data.

3. DIMENSIONS

Dimensions given on the plans are measured horizontally and at 60°F. unless shown otherwise.

4. UTILITIES

Any utility facilities encountered at the site of work which will interfere with portions of the finished Freeway or structures, will be removed or relocated by others, unless otherwise shown. 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.

5. CONSTRUCTION ADJACENT TO RAILROAD TRACKS

Certain portions of the work will be performed on or adjacent to the right-of-way of the Cleveland Union Terminal Railroad and the New York Chicago and St. Louis Railroad. All construction operations adjacent to railroad tracks, or on railroad premises, lands or rights of way shall be performed subject to contracts between the State and the railroad. The Contractor shall, before commencing work adjacent to railroad tracks or on railroad property, execute a license agreement with the Railroad covering the Contractor's operations and obtain the insurance required.

The following minimum clearances must be maintained between the top of rail or centerline of track and any temporary construction, equipment, or materials placed adjacent to the tracks:

N.Y.C. & St. L.	19'-0" vertical	8'-0" horizontal
Cleveland Union Terminal	21'-0" vertical	8'-0" horizontal

For Pier 3E1 where the edge of footing is less than 8'-0" from centerline of track, the Contractor shall submit, for approval, a plan of operations.

The Contractor shall perform all of his work on the project without interference with any of the Railroad's tracks or operations, or the operations of other railroads using the Railroad's tracks as tenants or licenses.

Wherever excavations are made adjacent to railroad tracks, the Contractor shall install bracing, shoring, sheeting or other supports for excavation adequate, in the opinion of the Railroad's Chief Engineer, to support all tracks and rail traffic during construction. Wherever pedestrian traffic must be accommodated along adjacent railroad tracks, open excavations shall be suitably planked over when construction operations are not in progress.

The Contractor shall submit eight sets of working drawings showing the type and method of bracing, shoring, sheeting and other support for excavation adjacent to Railroad tracks to the Director for approval by the Department of Highways and the Railroad Company. No such excavations adjacent to tracks shall be started until after written approval of the working drawings has been secured from the Chief Engineer of the Railroad or his authorized representative.

After the Contractor has completed all excavation and backfill adjacent to the railroad tracks in compliance with Sec. E-2.04 and E-2.08 of the Construction and Material Specifications, subject to the supervision of the railroad company, nothing in Sec. E-2.04, E-2.08, or G-8.07 of the Specifications shall be construed to hold the Contractor liable for aligning and resurfacing the railroad tracks.

The Contractor shall bear all costs of protecting any underground and overhead facilities and utility lines of the Railroad so as to maintain the same in service without interruption caused by construction operations, either in a relocated position of the lines or in their present location.

The Contractor shall bear all costs of protecting the Railroad's property and traffic including the property and traffic any Tenant Roads made necessary and occasioned by the Contractor's operations, including costs incurred by the Railroad in furnishing competent inspectors, flagmen, watchmen and the like.

6. MODIFICATION AND PROTECTION OF BUILDING AT STA. 46+50.

A. All materials and construction of the existing building shall be thoroughly protected against damage or disfigurement from the construction operations of the viaduct. Protective measures shall be subject to approval by the Engineer, who may require additional protective measures as necessary to secure adequate protection to the building and contents. The Contractor shall repair all damaged facilities and restore them to a condition satisfactory to the Engineer, at the Contractor's own expense.

B. The parapets of the existing building shall be modified in the area beneath the viaduct, by lowering the height of the parapet and recapping the parapet as required and as directed by the Engineer. Parapet modifications shall extend at a uniform height for the full width of the viaduct, and shall extend on each side, beyond the width of the viaduct, a distance sufficient to clear the supporting steelwork not less than 12 inches horizontally. The modifications to the parapets shall also provide a vertical clearance of the lowest adjacent steelwork not less than 8 inches.

Existing parapet materials may be salvaged and can be used to rebuild the modified parapet, provided the materials are cleaned thoroughly, and not damaged, broken or chipped. All salvaged materials for re-use shall be subject to approval of the Engineer, before being re-used in the structure. Salvaged materials not accepted by the Engineer, shall be removed from the premises and disposed of at the Contractor's own expense. All materials used to rebuild the modified parapet, and all construction details, shall match the type and kind of construction used in the existing parapet.

C. After the modification and protection work of the building is completed and accepted by the Engineer, the Contractor shall remove all temporary construction items. He shall remove all rubbish and materials not needed for the modification work from and about the premises, and shall remove all tools, scaffolding, equipment and materials not the property of the owner.

D. Payment for all building modification and protection work shall be made at the contract lump sum price bid for the special item titled "Modification and Protection of Building at Sta. 46+50" which shall include all protection work required or as ordered by the Engineer, all modification work to the parapet, removal of surplus materials, cleanup work, and all labor and materials necessary to fully complete the reconstruction operations.

7. EXCAVATION

The excavation quantity at abutments to be included for payment will be measured between the earth berm elevation and the bottom of the abutment.

At Piers 7B, 8B and 9B the excavation quantity for payment will be computed from the final ground lines after completion of the roadway excavation for Broadway.

8. PILING

A. Piles shall be driven to a minimum bearing capacity of 40 tons for the abutments and 50 tons for the piers.

B. The pile space dimensions given on the plans are at the level of the bottom of footing.

9. CONCRETE

A. The concrete roadway slabs shall be so constructed that, after completion and after removal of forms and any falsework, and after the steel work 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 girder (top of wearing surface to back of flange angles) at the girder supports is given on the plans. Except as otherwise noted, the steel girders of all spans shall be fabricated with camber to compensate for the deflection due to weight of slab and steel. The theoretical deflections for each span are tabulated on the plans. The allowance to be made in screed setting to compensate for the deflections due to the dead load weight of the concrete are indicated in this tabulation. These allowances are to be made above the elevations stipulated on the plans for finished pavement surfaces. Screeds may require further adjustment due to irregularities in the fabricated steel. Steel beams shall also be cambered where the total deflection exceeds 3/4 inch. The slab shall be of uniform thickness between beams, with camber setting obtained by thickening the haunches over the beams which are not cambered.

C. The concrete of the Roadway slab shall be poured in special sequence. The sequences are shown on the plans, including the extent and direction of individual pours. The Contractor may submit for approval by the Engineer, alternate schemes of placing concrete slabs. The sequence of slab construction shown on the plans does not apply to the sidewalk and median.

D. Transverse construction joints through the slab are shown on the plans. The Contractor may provide additional transverse construction joints at other locations, subject to the approval of the Engineer. At each location, the Contractor shall provide a keyed joint.

10. REINFORCING STEEL

Bars shall be, unless otherwise shown, 3 inches clear from the face of the concrete in the bottoms of footings, 1 inch clear in slabs and 2 inches clear elsewhere.

Bar sizes are designated on the plans by numbers, the first digit in three digit marks and the first two digits in four digit marks indicate the size of the bar.

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 Section S-4.02 need not be furnished and replacement bars will not be required.

11. STRUCTURAL CARBON STEEL

The steel for the beams which are to be fabricated by welding 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.

Holes in web plates, flange angles and cover plates of built-up girders and in all metal connected to the built-up girders through these holes shall be subpunched or subdrilled and reamed.

All built-up girders shall be assembled at their shop and field splices in the shop with bearing points at their correct relative elevations and holes for rivets shall be reamed while the built-up girders are assembled.

For requirements regarding reaming of cross frame and bracing connections, see Section S-7.11.

Plates 36 inches wide and under shall have rolled edges. Edges of angles cut to special size shall have finished edges. Sheared edges of steel plates in excess of three-quarters inch thick shall be planned to a depth of one-quarter inch. Irregular shaped splice plates at girder bend points shall have smooth edges as required below for flame cut edges and corners at the bend point shall be cut on a radius without notches or other defects.

Flame cutting with oxy-acetylene blow pipe may be used as approved by the Engineer. Flame cutting shall be done only with experienced operators and so as to avoid burning the edges of the cut. The cut shall be made by use of machines designed to guide the blow pipe so as to give a smooth cut corresponding to the desired outline. Any ragged edges must be carefully ground off.

Splice locations are shown on the Plans for both shop and field splices for the built-up girders. Should the Contractor desire to alter locations of splices or to modify splice details for his preference in fabrication or erection, or should he desire to increase the number of splices, alterations may be made subject to the approval of the Engineer, provided any increase in weight of the metalwork due to such changes shall not be included in the final pay quantity.

Rivets shall be 7/8 inch in diameter unless otherwise specified. In the preparation of working drawings for the built-up girders, the spacing of rivet holes shall be made to maintain the full net section shown on the Plans for all tension members. Outstanding legs of all back to back stiffener angles on the built-up girders shall be stitch riveted at 6-inch maximum staggered pitch unless otherwise shown. *

Steel Castings - Erected only, Item S-7, refers to the castings for the expansion joint at the East End Pier. They are on the construction site and shall be erected under this contract.

* High strength bolts according to Supplemental Specification S-207 may be used in place of rivets for field connections, tightening being done by Method 7(A).

11A. A.S.T.M. A 242 Steel

The steel for the portions of the plate girders designated as Manganese Steel which are to be joined by welding at bend points shall conform to fully-weldable A.S.T.M. Designation A 242.

12. STRUCTURAL MANGANESE STEEL

Manganese structural steel shall conform to the following specifications:

Chemical Composition - Per Cent

	Ladle	Check
Carbon	0.28 Max.	0.32 Max.
Maganese	1.10 to 1.60	1.65 Max.
Phosphorous	0.045 Max.	0.055 Max.
Sulphur	0.05 Max.	
Silicon	0.30 Max.	
Copper	0.20 Min.	0.18 Min.

Physical Properties

Thickness	1/2" and under	Over 1/2 to 3/4" incl.	Over 3/4 to 1" incl.	Over 1 to 1-1/2" incl.
Yield Point	50,000	47,000	46,000	45,000
Tensile Strength	70,000	70,000	67,000	67,000
Elongation in 8"	18% Min.	18% Min.	19% Min.	19% Min.
Bend Test: (Ratio of Bend Dia to Thickness of Specimen)	1	1	1 - 1/2	2

All other requirements shall be in accordance with A.S.T.M. A6 and A7.

All parts of manganese structural steel shall be identified by paint marks, and stamping at the mill, and these identification marks with some characteristic painting shall be retained throughout the work of fabrication, so that there shall be no mistakes in the use of manganese structural steel parts where required.

13. PAINTING OF STRUCTURAL STEEL AND CASTINGS.

Painting of superstructure metalwork shall be according to Item S-8 of the Construction and Material Specifications except as modified herein.

1. Coats of Paint.

The paint shall be applied by brushing in four coats as follows:

a. A first coat of red lead paint applied in the shop on clean metal surfaces prepared for painting as specified in Section S-8.03.
b. A second coat of red lead paint applied in the field after erection. For surfaces that will be inaccessible after erection, this second coat may be applied either in the shop or in the field.
c. A third and fourth coat consisting of white lead paint. The fourth coat shall be tinted a medium shade of gray that meets the approval of the Director of Highways and the City of Cleveland.
d. Light standards and the steel parts of handrails shall be painted with a first and second coat of red lead paint as specified for the remainder of the structural steel, but the third and fourth coats shall be of aluminum paint.

2. Materials

a. The paint to be used for the first and second red lead coats shall be of the following composition and properties:

Pigment	Vehicle
Red Lead (97% grade) - 99.6% (minimum)	Raw Linseed Oil - 35% to 50%
Aluminum Stearate - 0.3 - 0.4%	*Pale heat bodied linseed oil (2_2) 15%-30%
	Volatile mineral spirits and drier 35% (Maximum)

*The acid number of this oil shall not be over 11, the color not darker than 7 (Gardener 1933) and shall have a Wijs iodine value of 110 - 125.

Paint	First Coat	Second Coat
Pigment	73% (minimum)	77% (minimum)
Vehicle	27% (maximum)	23% (maximum)
Weight per gallon	21.0 Lbs. (minimum)	24.0 Lbs. (minimum)
Consistency	175 Gr. to 250 Gr. (A.S.T.M. Method D562-42T or Federal Specification TT-P-141a, Method 428.1)	
Fineness of grind	5 (minimum)	

Drying Time - Set to Touch - 6 Hours (maximum) and Dry through - 36 hours (maximum)

The paint shall be well ground, shall not settle excessively or cake in the container, shall be readily broken up with a paddle to a smooth uniform paint having good brushing properties. The paint, when brushed on a clean, smooth steel panel maintained in a vertical position, shall dry to a smooth uniform finish free from roughness, grit, unevenness, streaking, separation, running, curtaining and sagging. For contrast between the first and second coats, the second coat shall be tinted with lamp-black-in-oil to change its color to a chocolate brown.

b. The white lead third and fourth coats of paint shall conform to Section M-96 of the Construction and Material Specifications.

14. RAILING

Aluminum for bridge railing shall conform to the requirements of Supplemental Specification S-114. The finished handrail shall be free of burrs, sharp corners and rough surfaces. The final adjustment of the handrail shall be such that the aluminum tubing shall not depart more than 1/8 inch from correct line or grade, and shall show no abrupt kinks.

15. ROADWAY DRAINAGE SYSTEM

This item consists of all 6 and 8 inch round galvanized steel or wrought iron pipe, cleanouts, reducers, elbows, scuppers, troughs, cross drains, grating, and hangers. The 12 inch round pipe, including tees, from the piers and abutment to the inlets is included in the roadway quantities.

16. SUB DRAINAGE FOR WEARING SURFACE

The copper drainage tubes have been placed in the West and Central Viaducts by others and shall be placed in the East Approach Viaduct by the Contractor. The steel angle which covers the copper tubes shall be furnished and placed for the West, Central, and East Viaducts by the Contractor.

The steel angle and copper drain tubes shall be paid for under Item S-29 "Subdrainage for Wearing Surface" and shall be measured by the lineal foot of steel angle furnished and placed. The cost of furnishing and installing the copper drain tubes shall be included in the price bid for this item.

17. ASPHALTIC CONCRETE SURFACE COURSE

The work under this contract includes the construction of the wearing surface for the West Approach Viaduct and the Central Viaduct as well as for the East Approach Viaduct. The wearing surface shall consist of a 2½" Asphaltic Concrete Surface Course, Item T-35, laid in two 1¼" courses.

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

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CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 (17.43–18.02)

18. ELECTRIC LIGHTING SYSTEM.

The structure shall be electrically grounded by means of a solid No. 0 bare copper wire embedded in the concrete of Pier 2B, 7B, 4E1 and 2E2. The lower end shall be brazed to a pile and the upper end to a 5/8" Dia. Copperweld ground rod, 8' long, projecting 6" above top of each pier.

All parts of the superstructure steelwork shall be thoroughly grounded. At each of the above piers one girder shall be attached to the ground rod by means of a No. 6 ground wire. At Pier 7B where the steel framing is divided, two girders shall be grounded, one on each side of the centerline of Freeway. The ground wire shall be connected to girders by bolts or brazing.

For other descriptive notes of the electric lighting system, see sheet 4A.

Payment for items of roadway and underdeck lighting integral with deck, parapet or pier construction shall be made at the contract unit price bid for the following items. Payment shall constitute full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary, whether specifically mentioned or not, to complete the entire work, installed, accepted, and in operating condition, according to the plans and specifications. Payment will be made as follows:

U. "Parapet Junction Box," per each, which price shall include box, cover, gaskets, attachments, fittings, adapters for connecting non-metallic conduit to holes in box for steel pipe fastenings, the 1½"Ø steel conduit from junction box to pole base where required, brass cover screws, and slip holes where required.

V. "2"Ø ID Duct," per lineal foot, which price shall include hangers, couplings, expansion fittings, attachments, bushings, adapters, locknuts, conditioning ducts, No. 9 AWG galvanized iron pull-in wire, and fastenings. Measurement for payment shall be the length of each single duct run times the number of ducts in run.

W. "3"Ø ID Duct," per lineal foot, which price shall include all features required for 2"Ø ID Duct, Item V, except using 3" duct.

X. "Electrical Ground," per each, which price shall include ground wires, brazing or bolting, ground rod, clamps, repainting steel and tests.

19. CONCRETE SURFACE FINISH.

The railing parapets, curb faces, fascias of decks, and exposed surfaces of substructure units, shall receive a rubbed surface finish. All other exposed surfaces shall be governed by the provisions of Item S-1.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750

GENERAL NOTES

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE ____ DATE ____
MADE ____ DATE ____
TRCD ____ DATE ____
CKD ____ DATE ____

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET 5

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FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

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CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 – (17.43 – 18.02)

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	SUPER-STRUC-TURE	ABUTMENT 1B	ABUTMENT E1	ABUTMENT E2	EAST END PIER	PIER 1B *	PIER 2B	PIER 3B **	PIER 4B	PIER 5B	PIER 6B	PIER 7B	PIER 8B	PIER 9B	PIER 2E1	PIER 3E1	PIER 4E1	PIER 2E2		GENERAL	TOTAL	AS BUILT	
E-2	Cofferdams, Cribs & Sheeting	L.S.																				Lump Sum			
E-2	Unclassified Excavation	C.Y.		220	75	100		800	1,350	1,400	950	270	300	280	260	260	290	220	200	250			7,225		
1-10	Type "A" Riprap	S.Y.		500																			500		
S-1	Class "C" Concrete - Abutments	C.Y.		50	36	69	46																201		
S-1	Class "C" Concrete - Pier Cols. & Caps	C.Y.						560	465	580	585	96	94	94	93	94	90	130	111	140			3,132		
S-1	Class "C" Concrete - Superstructure	C.Y.	5,150																				5,150		
S-1	Class "E" Concrete - Footings	C.Y.						354	374	400	392	79	79	86	79	79	72	68	68	109			2,239		
S-1	Class "E" Concrete - Slub Abutments & East End Pier	C.Y.		185	63	80	345																673		
S-3	Waterproofing. Premolded Sealing Strip	L.F.		39		15																	54		
S-3	Type "B" Waterproofing	S.Y.	52,600 ①					5	7														12		
S-3	Type "C" Waterproofing	S.Y.	~~16,700~~																				16,700		
S-4	Reinforcing Steel	Lbs.	1,674,072	18,962	7,985	15,419	20,636	136,739	138,357	153,934	156,240	37,884	36,967	55,084	39,849	42,712	15,762	32,715	29,973	39,144			2,652,434		
S-7	Structural Carbon Steel	Lbs.	~~5,875,000~~																				~~5,875,000~~	C-8, 19 +137,500	6,034,500
S-7	Steel Castings & Forgings - Fabricated & Erected	Lbs.	~~185,000~~																				~~185,000~~	C-8 +2,430	137,430
S-7	Steel Castings - Erected only	Lbs.	15,000																				15,000		
S-8	Field Painting of Structural Steel & Castings (3 coats)	Lbs.	~~18,025,000~~																				~~18,025,000~~	C-8 -442,000	12,583,000
S-9	½" Gray Rubber Preformed Expansion Joint Filler	S.F.						75	72	63	35												245		
S-9	1" Gray Rubber Preformed Expansion Joint Filler	S.F.		37		48																	85		
S-14	Railing (Aluminum Rail & Supports, Conc. Parapets & End Posts)	L.F.	3,888																				3,888		
S-16	First Test Pile (12" C.I.P. Reinforced Concrete)	L.S.																					Lump Sum		
S-16	First Test Pile (14" C.I.P. Reinforced Concrete)	L.S.																					Lump Sum		
S-17	First Pile Test Load (12" C.I.P.)	L.S.																					Lump Sum		
S-17	First Pile Test Load (14" C.I.P.)	L.S.																					Lump Sum		
S-17	Subsequent Pile Test Loads (12" C.I.P.)	Ea.																				1	1		
S-17	Subsequent Pile Test Loads (14" C.I.P.)	Ea.																				2	2		
S-18	12" C.I.P. Reinforced Concrete Piles	L.F.		2,679	730	1,646																	~~5,055~~	C-8 -2,033	3022
S-18	14" C.I.P. Reinforced Concrete Piles	L.F.						4,522	9,394	11,609	5,784	2,640	2,640	3,300	2,640	2,640	1,947	1,570	1,930	3,017			~~53,633~~	C-8 -4141	49,492
S-29	Porous Backfill	C.Y.		51	20	31		46															148		
S-29	Roadway Drainage System	Lbs.	20,600						3,800	1,700	4,800			3,400		3,400	1,250			2,020			40,970		
S-29	Subdrainage for Wearing Surface	L.F.	8,580+																				8,580		
T-35	Asphaltic concrete surface course Type "C" (60-70)	C.Y.	3,655*																				3,655±		
Special	Modification and Protection of Building at Sta. 46+50	L.S.																					Lump Sum		
S-25(U)	Parapet Junction Box	Ea	40																				40		
S-25(V)	2" I.D. Duct	L.F.	2,500																				2,500		
S-25(W)	3" I.D. Duct	L.F.	1,000																				1,000		
S-25(X)	Electrical Ground	Ea.							1					1					1	1			4		
•• S-25	Lamp Standards, 6' brackets as per plan	Each	34																				34		
• Special	Single Pole Overhead sign assembly, Type A (B-18) as per plan	Each	1																				1		
S-7	Structural Manganese Steel, including fully-weldable A.S.T.M. Designation A242 steel @ bend points	lb	~~4,000,000~~																				~~4,000,000~~	C-8 602,000	6,398,000

• Carried from sheet No. 9
•• Carried from sheet No. 5

* Pier 1B quantities include quantities for retaining wall adjacent to Pier
** Pier 3B quantities include quantities for Pier 1E2

† Includes following:
East Approach 3,200 L.F.
Central Viaduct 4,450
West Approach 930
Total 8,580 L.F.

‡ Includes following:
East Approach 1,160 C.Y.
Central Viaduct 2,170
West Approach 325
Total 3,655 C.Y.

① Includes following:
East Approach 16,700 S.Y.
Central Viaduct 31,200
West Approach 4,700
Total 52,600 S.Y.

Revised 1-6-58
Revised As-Built 4.D.L. 9-1-60

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50
ESTIMATED QUANTITIES
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE
MADE W.B. DATE 3-27-57
TRCD W.B. DATE 3-27-57
CKD HHG. DATE 3-6-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 37

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

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CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 – (17.43 – 18.02)

FEB 28 1957

Note:
Piers 2B, 3B, 4B, 5B 6B and 7B are parallel to ℄ Broadway (Exist.)
Piers 8B and 9B and Abutment 1B are parallel to relocated Broadway

Existing Concrete Cribwall to be removed to proposed ground line (Included with Item E-101 for payment).

Sta 45+58.72
Freeway tangent
℄ Freeway
0.164'
℄ Pier 2B

DETAIL "A" (Not to scale)

CURVE DATA ②
Ramp E-1 Base line
D=12°-00' Δ=8°45'00"
R=477.46' T=36.53'
L=72.92'

CURVE DATA ③
Ramp E-1 Base line
D=5°-00' Δ=10°-00'-00"
R=1145.92' T=100.26'
L=200.00'

CURVE DATA ①
Freeway Center line
D=2°-00' Δ=29°-02'-23"
T=741.94' L=1451.98'
R=2864.79'

④ CURVE DATA ⑤

Ramp E2	Base Line
D = 5°-00'	D = 10°-00'
Δ = 25°-47'-04"	Δ = 35°-09'-18"
T = 262.29'	T = 181.51'
R = 1145.92'	R = 572.96
L = 515.69'	L = 351.55'

Note:
Sta 48-07.15 Freeway
Sta 3+23.55 Ramp E-2

Tie Cribwall
PC Sta 6+14.17
℄ Pier 2E1
Sta 5+95.41 @ E1
℄ Pier 3E1
Sta 5+34.05 @ E1
℄ Pier 4E1
Sta 4+89.28 @ E1
PT Sta 3+33.09
℄ Brg. Abut. E-1
Sta 3+05.52 @ E1
Concrete Cribwall
R=150.00'
30'-0"
Approach Slab
Sta 51+00.00 ℄ Fwy
℄ Ramp E-3
End Approach Slab Sta 3+02.77
Sta 10+23.00 ℄ E-3
UNIT 3
Sta 51+57.12
Sta 52+30.87
Sta 53+00.98
Sta 52+78.17
Sta 53+76.43
Freeway tangent
Sta 54+21.44
99°-23'-47.73"
N 50°-12'-48.29" E
153.20'
℄ Ramp E-3
112.969'
137.342'
25'-0"
4" Sandstone Curb
For Nose Detail see Sh. 112
56.00'
38'-0"
25'-0"
Approach Slab
Begin Approach Slab Sta 54+65.78
℄ Ramp "E-4"
℄ Brg. Abut. 1B
℄ Pier 9B
Sta 50+83.37
Sta 50+05.72
97°-33'-37.73"
N 38°-46'-40.13" E
Sta 47+95.72
Freeway tangent
℄ Freeway
UNIT 2
UNIT 1
UNIT 4
Varies
72.684'
91.370'
56.066'
41.360'
℄ Pier 5B
℄ Pier 6B
℄ Pier 7B
℄ Pier 8B
Varies
35'-0"
12" Median
Proposed width of B'way Pavement
Proposed width of Broadway
℄ Existing Broadway
℄ Relocated Broadway
Pc Sta 0+00 Ramp E-4
= Sta 54+60.00 Fwy
R=638.62'
Note: Piers 2B, 3B, 4B, 5B 6B and 7B are parallel to ℄ Broadway (Exist.) Piers 8B and 9B and Abutment 1B are parallel to relocated Broadway
Sta 44+39.72
Sta 45+76.01 Fwy
Nose Sta 45+76.01 Fwy
Sta 8+04.46 "E-1"
PT Sta 8+14.17 "E-1"
PC Sta 9+73.55 "E-1"
PT Sta 0+46.47 "E-1"
Sta 43+35.00 Fwy
℄ East End Pier Central Viaduct
Sta 43+34.72 Back =
Sta A3+34.45 Ahead
℄ Pier 1B
Sta 9+41.09 @ E1
℄ Pier 2B
Sta 8+31.92 @ E1
Commercial Road
NYC ℄ St. L. Railroad Freight Terminal
Existing Brick Wall
For Nose Detail see Sh. 105
See Detail "A"
Existing Stone Wall
Existing Concrete Wall
Concrete Drive
Roadway
4" Median
2'-0"
℄ Brg. Box Girder
Sta 43+36.72
(43+36.45
1'-6"
℄ Brg. Truss Span
Central Viaduct Construction by others
NOTE STATION EQUATION
PC Sta 45+28.22
Sta 44+75.00 Fwy
= Sta 0+00.00 @ E2
℄ Pier 2B
Sta 0+91.20 @ E2
N.Y.C ℄ St. L. R.R.
℄ Pier 1E2
Sta 3+39.16 @ E2
℄ Expansion Jt.
℄ Pier 2E2
Sta 5+63.40 @ E2
℄ Future Tracks
Cleveland Union Terminal Tracks
℄ Future Track
℄ Temporary bent see Notes Sh. 102
Begin Approach Slab Sta 6+95.01
℄ Brg. Abutment E-2
Sta 6+91.00 @ E2
Approach Slab
℄ Pier 3B
℄ Pier 4B
℄ Pier 5B
℄ Pier 6B
Expansion Joint
Apprx. 76°
Apprx. 90°
Court closed
10.0 cl.
83.5'
Sta 48+07.15 Freeway
Sta 3+23.55 Ramp E-2
PC Sta 5+15.69
Sta 44+75.00 Fwy
= Sta 0+00.00 @ E2
Sta 45+28.22
PC Sta 45+28.22
Sta 44+39.72
Sta 43+34.72 Back =
Sta A3+34.45 Ahead
NOTE STATION EQUATION

PLAN

PVI Sta 46+00
El. 704.878
200' V.C.
-1.234%
+0.70%
-2.20%
300' VC
+1.47%
PVI Sta 44+50
El. 702.428
PVI Sta 55+50
El. 688.384
* Pier to Pier distances given along ℄ Freeway.
Note: Profile is taken along Median Gutter line.
Limits of East Approach Viaduct, measured along ℄ Freeway = (1131.06) = 1131.33
℄ East End Pier
℄ Box Girder 103.27
(103.00)
Rear Face of Abut. backwall Sta 54+65.78
℄ Bearing Abutment 1B
℄ Pier 1B
℄ Pier 2B
℄ Pier 3B
℄ Pier 4B
℄ Pier 5B
℄ Pier 6B
℄ Pier 7B
℄ Pier 8B
℄ Pier 9B
Existing Ground
Proposed Ground Line
Final Ground
Construction under this Contract
Construction by others
Parking area
30'±
El. 667.42
El. 634.00
El. 651.00
El. 662.00
El. 665.00
El. 664.50
El. 668.50
El. 664.50
El. 618.50
720
700
680
660
640
620
55.00
44+00
45+00
46+00
47+00
48+00
49+00
50+00
51+00
52+00
53+00
54+00
119.02'*
239.06'
215.68'
80.97'
77.64'
78.43'
79.32'
83.00'
50.11'
Included with Item E-101 for payment

Area between pier and existing wall, which is to be removed, to be backfilled. The cost thereof shall be included in the unclassified excavation item.

Removal of concrete cribwall to Proposed Ground Line included with Item E-101 for payment.

ELEVATION ALONG ℄ FREEWAY

PROPOSED STRUCTURE

Type: Continuous steel beams and girders with concrete deck and substructure.
Span: Varies (see plan)
Roadway: 2@52'-0" with 2-3'-0" sidewalks
Loading: CF 2000, adequate for AASHO alternate loading
Skew: Varies
Surface Course: 2½" asphaltic concrete.
Alignment: 2° Curve Right (.03 ft/ft max. super-elev.)

Note:
E denotes expansion shoes
F denotes fixed shoes
Railroad track clearances shown are actual minimum clearances.

Revised 2-13-58

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

GENERAL PLAN AND ELEVATION

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1"=40'
MADE W.B. DATE 11-29-56
TRCD W.B. DATE 3-18-57
CKD H.H.C. DATE 2-23-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET-38

FEB 23 1962

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

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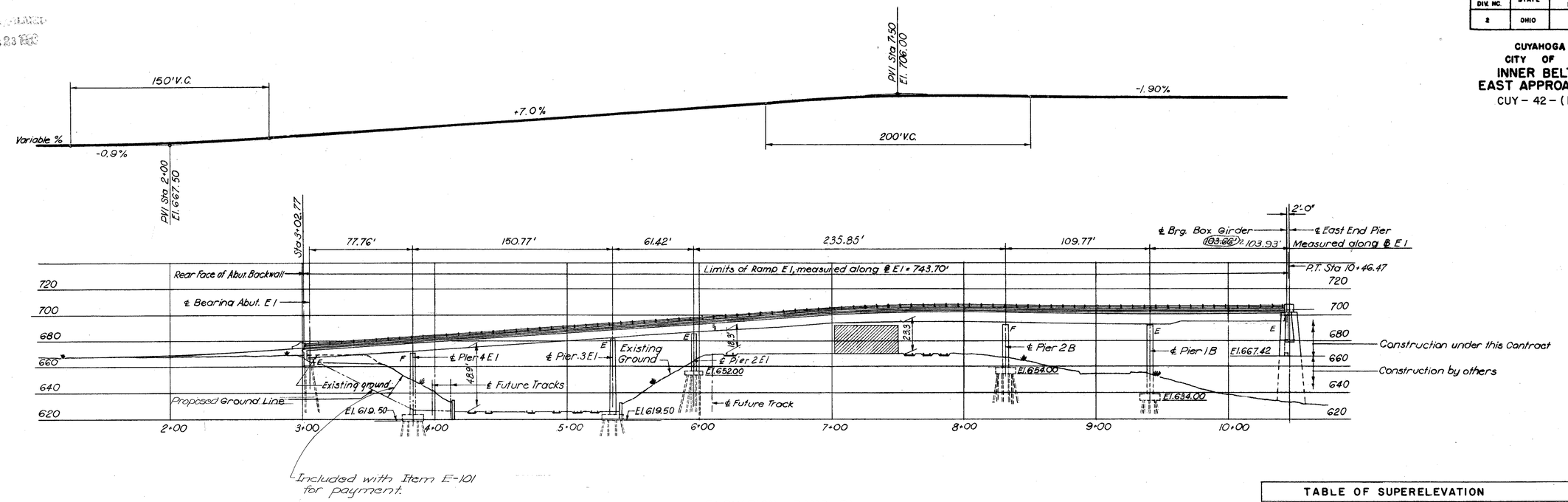
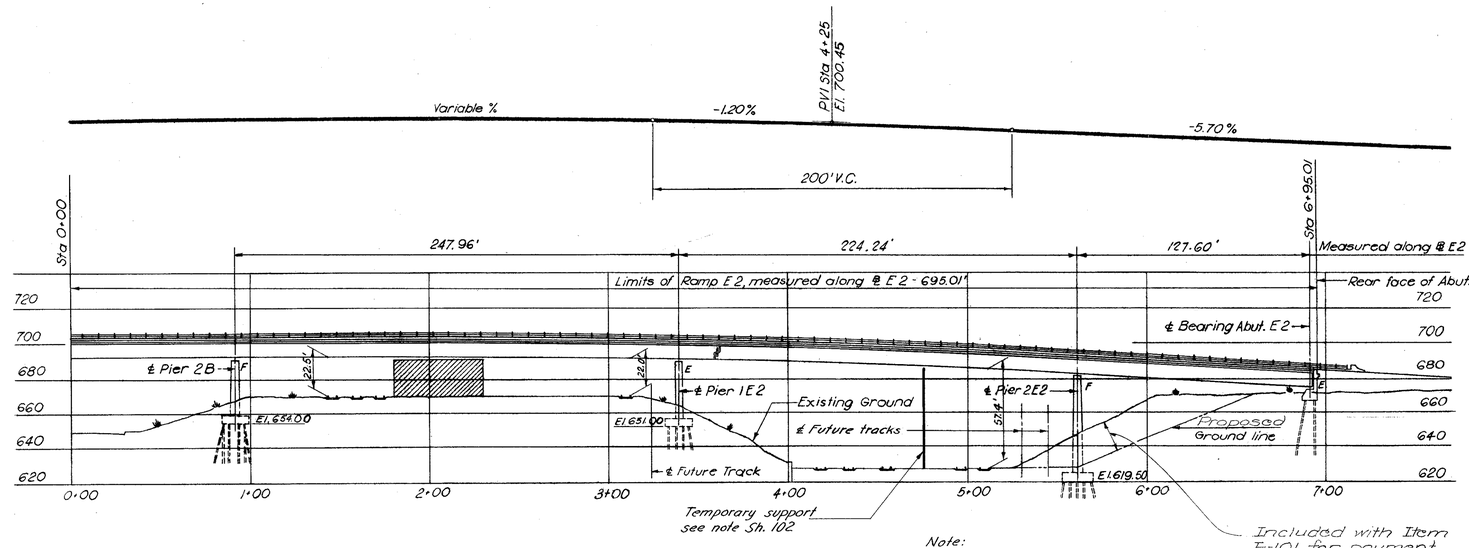
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 – (17.43 – 18.02)



ELEVATION — RAMP E1

(Looking at north face of viaduct.)



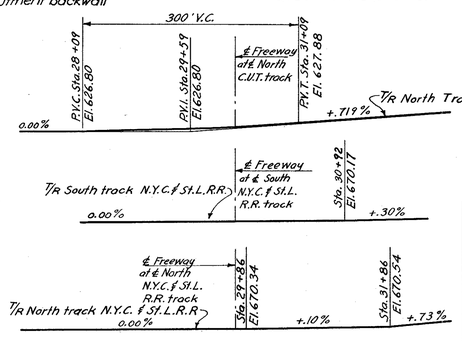
ELEVATION — RAMP E2

(Looking at south face of viaduct)

Note:
E denotes expansion shoes
F denotes fixed shoes
Railroad track clearances shown are actual minimum clearances.

TABLE OF SUPERELEVATION					
℄ Freeway		Ramp E1		Ramp E2	
Station	Super-elevation	Station	Super-elevation	Station	Super-elevation
43+34.72 to 43+50	0.00'/ft	1+75 to 2+00	Varies	3+25 to 3+50	Varies
43+50 to 46+75 So. bound Rdwy., 43+50 to 47+00 No. bound Rdwy	Varies	2+00 to 3+00	0.025'/ft	3+50 to 4+75	0.04'/ft.
		3+00 to 4+22	Varies	4+75 to 5+50	Varies
		4+22 to 5+00	0.0156'/ft	5+50 to 7+75	0.07'/ft
46+75 to 59+00 So. bound Rdwy.	0.03'/ft	5+00 to 6+50	Varies	7+75 to 8+75	Varies
		6+50 to 7+50	-0.035'/ft	8+75 to 10+00	0.0156'/ft
47+00 to 59+00 No. bound Rdwy	-0.03'/ft	7+50 to 10+46.67	Varies	10+00 to 10+25	Varies

Note:
Profile Grade for Freeway is along both median gutters.
Profile Grade for Ramps E-1 and E-2 is along the base line.
Superelevation is shown as + or - for the opposite edge with respect to the profile.



TRACK PROFILES (looking north)

Hor. 1" = 100'
Vert. 1" = 10'

Revised 2-13-58

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

ELEVATION — RAMPS E1 AND E2

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1"=40' Unless Noted
MADE W.B. DATE 12-4-56
TRCD H.G. DATE 2-7-57
CKD H.H.C. DATE 8-26-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET- 39

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

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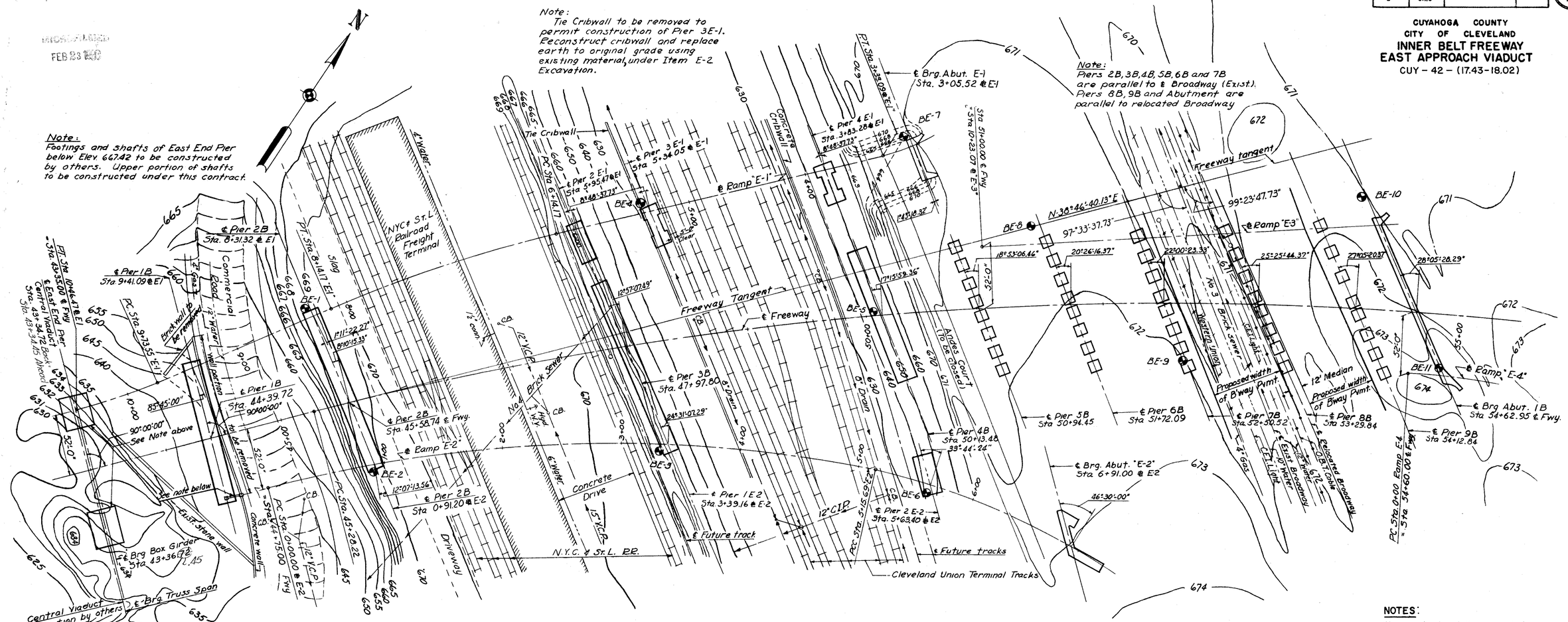
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 – (17.43-18.02)

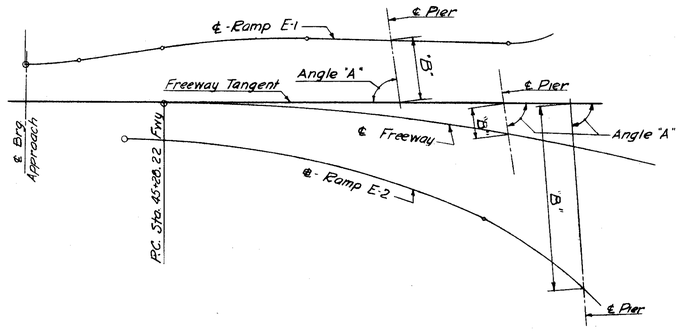
Note:
Tie Cribwall to be removed to permit construction of Pier 3E-1. Reconstruct cribwall and replace earth to original grade using existing material, under Item E-2 Excavation.

Note:
Piers 2B, 3B, 4B, 5B, 6B and 7B are parallel to ℄ Broadway (Exist.). Piers 8B, 9B and Abutment are parallel to relocated Broadway

Note:
Footings and shafts of East End Pier below Elev. 667.42 to be constructed by others. Upper portion of shafts to be constructed under this contract.



Note:
New retaining wall to be constructed to match existing wall. For details see Sh. 44 ℄ 45.
Existing walls to be removed under Item E-2 Excavation.



PIER AND ABUTMENT LOCATION FROM FREEWAY TANGENT

PIER	FREEWAY TAN. STA.	ANGLE "A"	DIM. "B"
2B	45+58.72	82°26'22.27"	0.164'
3B	47+95.72	do.	12.786'
4B	50+05.72	do.	41.360'
5B	50+83.37	do.	56.266'
6B	51+57.12	do.	72.684'
7B	52+30.87	82°26'22.27"	91.370'
8B	53+00.98	80°36'12.27"	112.939'
9B	53+76.43	do.	137.342'
Abut-1B	54+21.44	80°36'12.27"	153.201'
2E1	47+95.72	82°26'22.27"	95.288'
3E1	48+56.95	do.	93.936'
4E1	50+07.24	do.	90.618'
Abut. E1	50+85.00	82°26'22.27"	91.459'
2E2	50+05.01	86°48'55.80"	188.900'
Abut. E2	51+02.54	86°48'55.80"	265.538'

NOTES:
Skew angle given is the angle between the ℄ Pier and Radial line to ℄ Freeway or Ramp ℄.
Existing contours shown by solid lines. Proposed contours shown by dashed lines. Excavation at Abutment E1 shall be performed under this contract as indicated by proposed contours. (To be included in roadway quantities.)
For curve data, see Sh. 38.

Revised 2-13-58

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

GROUND PLAN

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1"=40'
MADE R.J.S DATE 1-21-57
TRCD H.G. DATE 2-7-57
CKD H.H.C. DATE 2-22-57

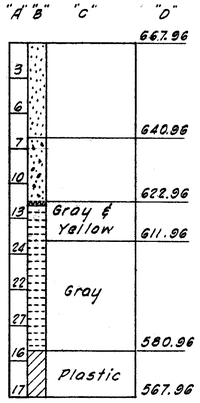
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 40

FEB 23 1962

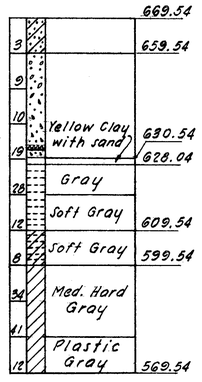
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

41
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



B.E. 1



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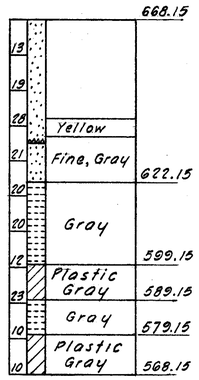

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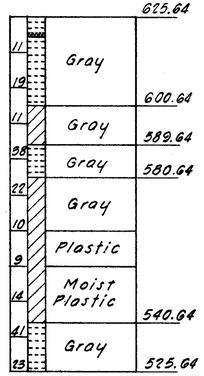

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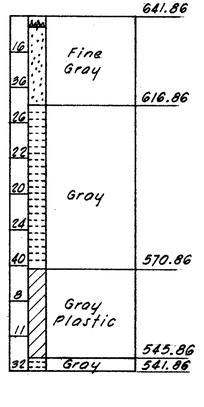

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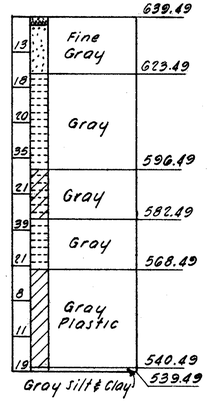
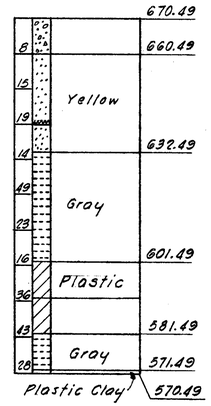
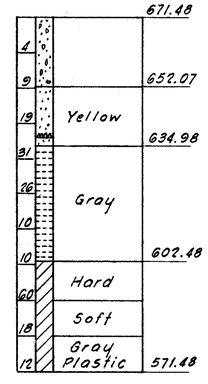


B.E. 6

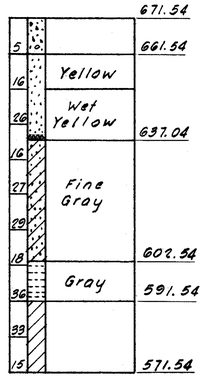
BORING LOGS
Vert. 1" = 20'



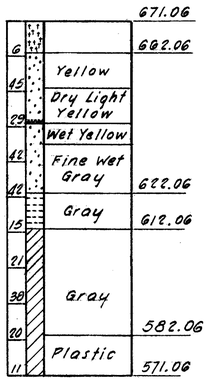
B.E. 7



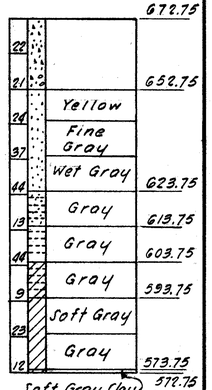
B.E. 8



B.E. 9



B.E. 10



B.E. 11

SOIL LEGEND

- Sand
- Sand & Gravel
- Sand & Clay
- Sand & Silt
- Silt
- Silt & Clay
- Clay
- Cinders & Debris
- Ground Water

NOTES:

With reference to B.E. 1
In Column "A" the figures 3,6,7 etc. are the hammer blows required to advance Sample Spoon one foot.
Column "B" shows the legend of soil type and ground water elevations.
Column "C" shows soil classification.
Column "D" shows elevation of soil levels. Elevation at top is top of ground, elevation at bottom is bottom of hole.
Boring information, logs and samples of materials encountered may be examined in the Cleveland City Engineers office but the borings are not guaranteed to present complete picture of subsurface conditions to be encountered.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

BORING LOGS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As Noted
MADE NFC DATE 11-12-56
TRCD N.R.K. DATE 2-7-57
CKD C.T.H. DATE 12-17-56

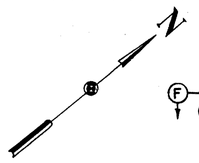
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET- 41

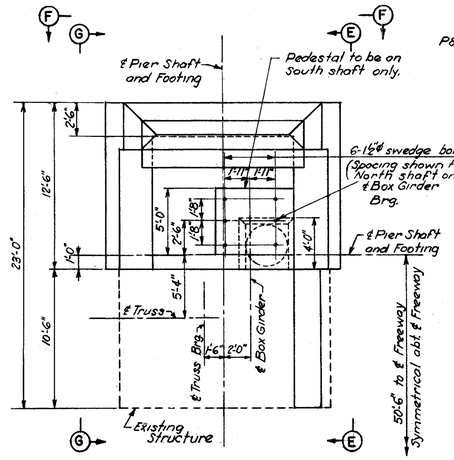
MICROFILMED FEB 23 1988

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

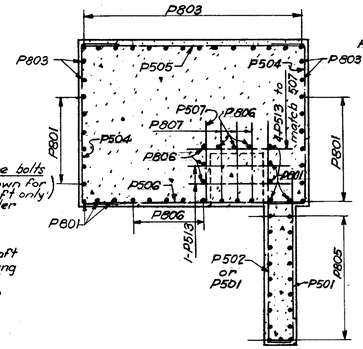
42
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)

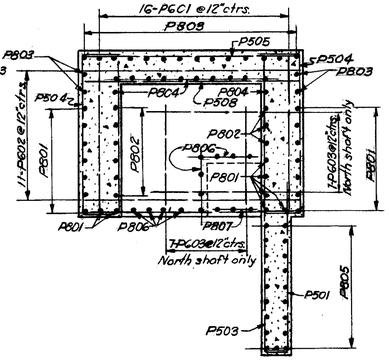




PLAN



SECTION A-A



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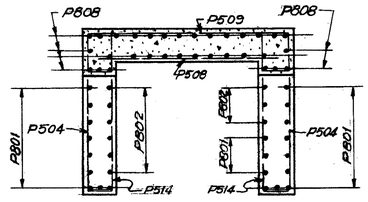
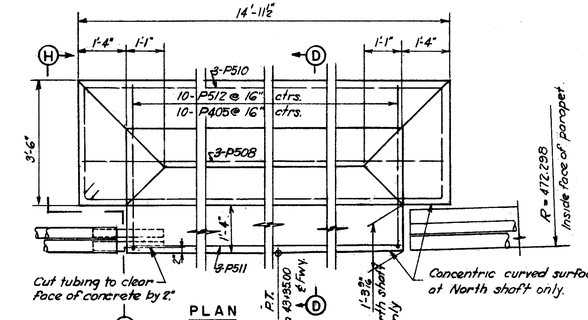
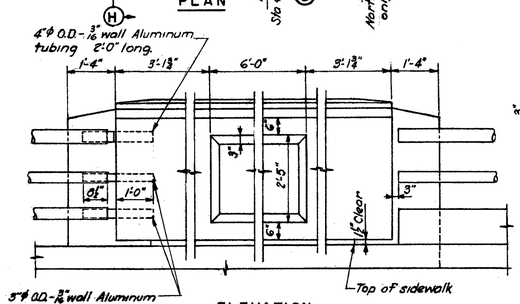


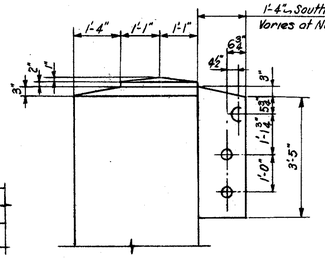
SECTION C-C



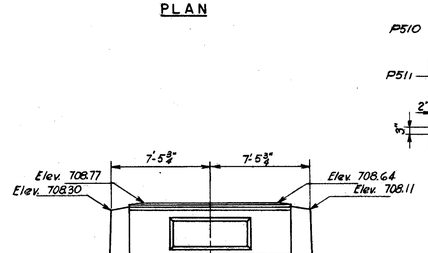
PLAN



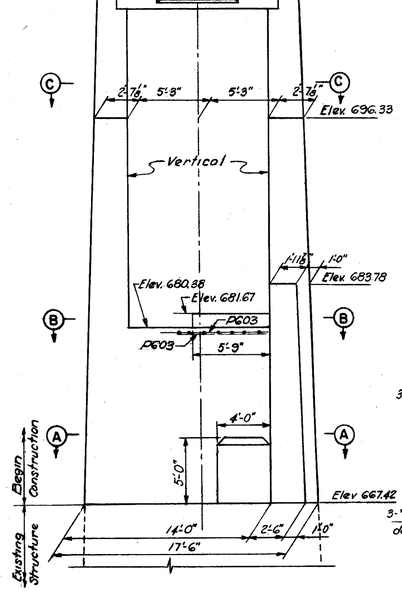
ELEVATION



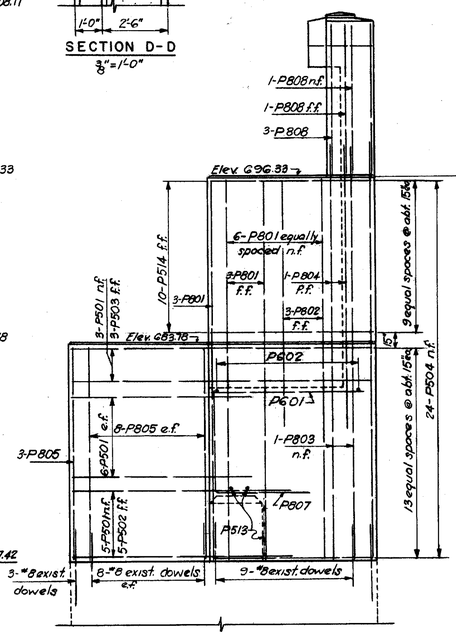
SECTION H-H



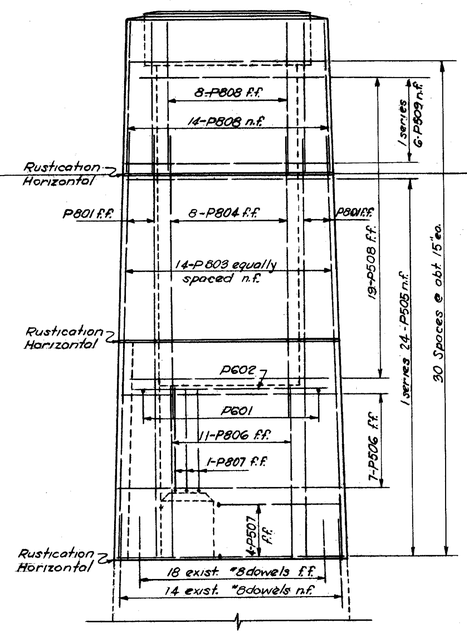
SECTION D-D



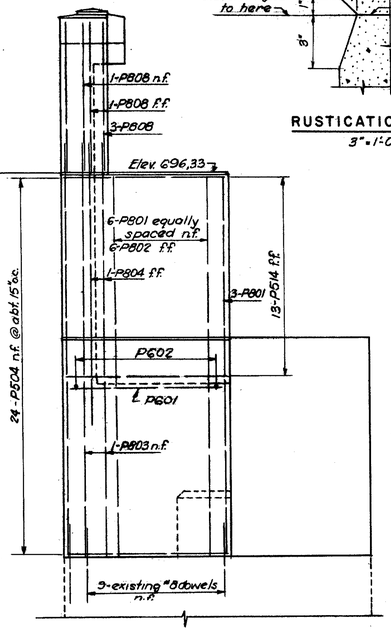
ELEVATION
Looking out from ℄ Freeway



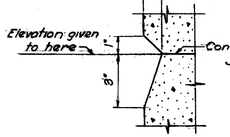
VIEW E-E



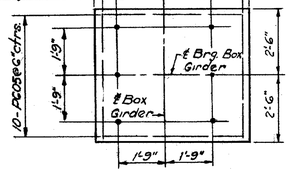
VIEW F-F



VIEW G-G



RUSTICATION DETAIL
3" = 1'-0"



PEDESTAL DETAIL
(South shaft only)
3" = 1'-0"

DETAILS OF PIER TOP
½" = 1'-0"

NOTES:

North shaft shown. South shaft similar except as noted.
Entire pier is to be Class E Concrete, except portion above elevation 696.33 which shall be Class C Concrete.
n.f. denotes near face.
f.f. denotes far face.
e.f. denotes each face.
For reinforcement steel schedule see Sh. 43.
For details of swedge anchor bolts & shoes see Sh. 89.
For replacement steel schedule see Sh. 43.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

EAST END PIER

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE	⅜"=1'-0" area shown	HOWARD, NEEDLES, TAMMEN & BERGENDOFF	
MADE	T.M.J.	DATE	12-13-56
TRCD	N.K.K.	DATE	2-7-57
CKD	E.W.	DATE	2-6-57

CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET- 42

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

43
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)

REINFORCEMENT SCHEDULE – EAST END PIER

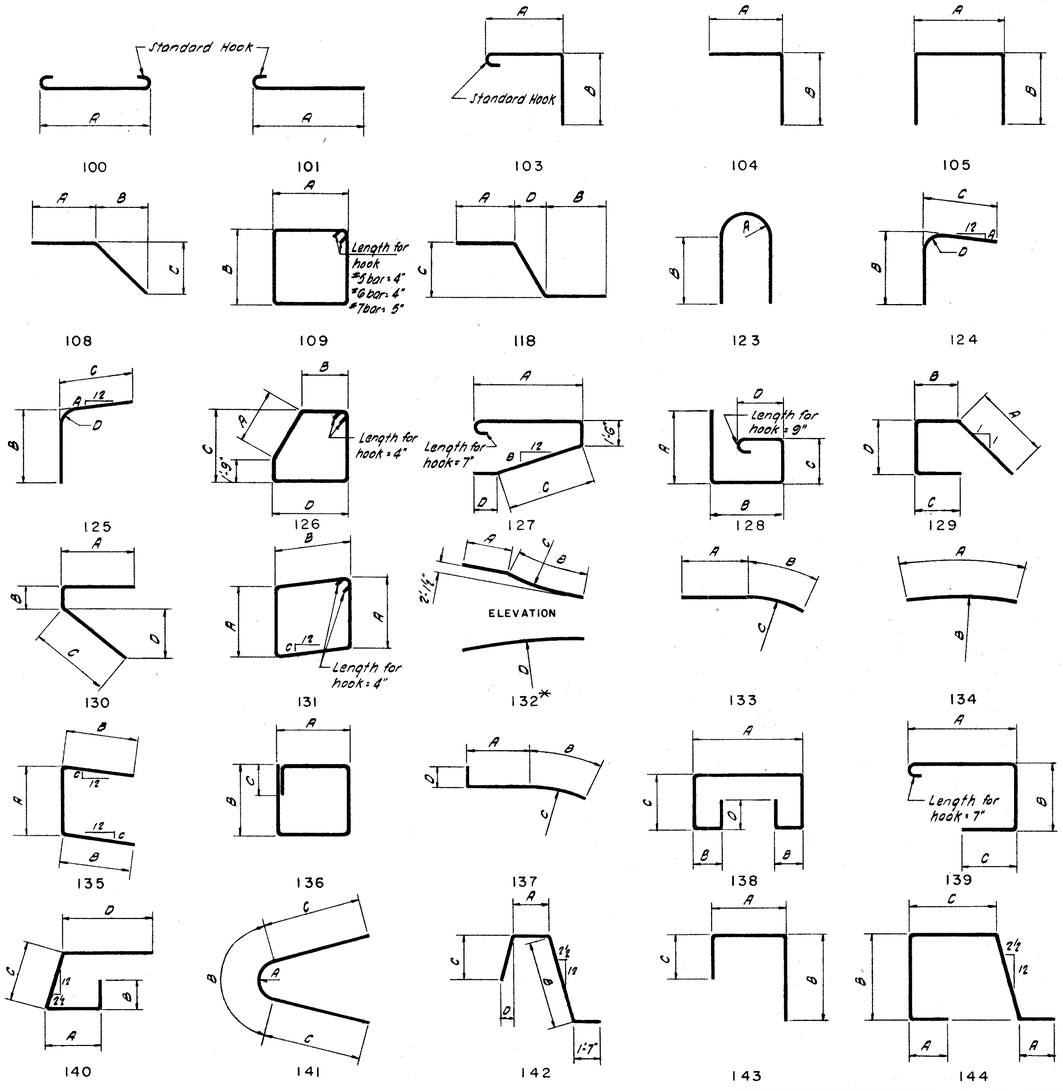
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (Lbs.)
P405	20	4'-3"	Str.						57
P501	40	13'-11"	104	12'-3"	1'-8"				581
P502	10	17'-11"	104	16'-3"	1'-8"				187
P503	6	24'-4"	104	22'-8"	1'-8"				152
P504	90	16'-1"	105	12'-1"	2'-0"				1610
P505	2 SERIES G&I	15'-6"to17'-2"	Str.					7/8"	818
P506	14	16'-3"	Str.						237
P507	8	15'-3"	104	9'-6"	5'-9"				127
P508	38	14'-0"	Str.						555
P509	2 SERIES G	28'-8"to29'-7"	138	14'-10"to 15'-9"	2'-0"to 2'-3"	3'-2"	1'-9"	A=1 B=7/8"	365
P510	6	36'-4"	109	14'-7"	3'-2"				227
P511	6	12'-0"	Str.						75
P512	20	10'-11"	139	4'-3"	3'-1"	3'-0"			228
P513	12	7'-6"	Str.						94
P514	46	13'-6"	104	11'-9"	1'-9"				648
P601	32	18'-0"	Str.						577
P602	22	16'-9"	Str.						337
P603	14	8'-0"	Str.						168
P604	12	10'-8"	105	4'-8"	3'-0"				192
P605	10	11'-5"	105	5'-5"	3'-0"				171
P801	42	28'-9"	Str.						3224
P802	18	18'-9"	Str.						877
P803	36	31'-6"	Str.						3028
P804	24	21'-0"	Str.						1346
P805	38	16'-0"	Str.						1623
P806	22	12'-9"	Str.						749
P807	6	13'-7"	104	7'-7"	6'-0"				218
P808	64	11'-6"	Str.						1965
								TOTAL	20,636

REPLACEMENT BARS

499	1	5'-3"	Str.						
599	41	5'-7"	Str.						
699	50	5'-11"	Str.						
799	2	6'-3"	Str.						
899	3	6'-6"	Str.						
999	2	6'-10"	Str.						
1099	2	7'-2"	Str.						
1199	36	7'-6"	Str.						

NOTE:
Replacement bars are for entire structure.

Length for Standard Hook
5 bar = 7"
6 bar = 9"
8 bar = 1'-1"
9 bar = 1'-3"
10 bar = 1'-5"
11 bar = 1'-7"



BENDING DIAGRAMS

NOTE:
All bar dimensions are "out" to "out"
* Radii C & D may be bent in field.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50
EAST END PIER REINFORCEMENT SCHEDULE
BENDING DIAGRAMS
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE No Scale
MADE J.F.C. DATE 1-25-57
TRCD J.R.K. DATE 2-18-57
CKD T.H.G. DATE 2-27-57

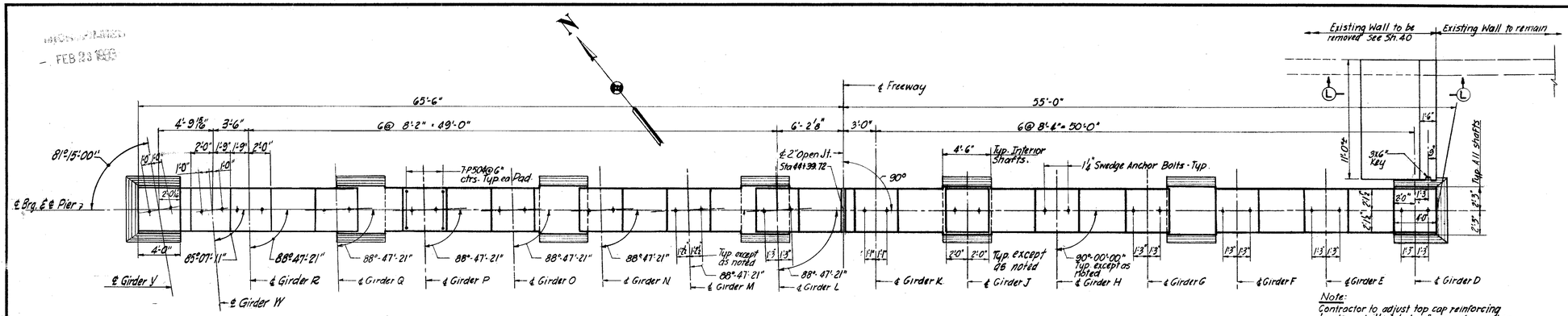
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET- 43

RECEIVED
FEB 23 1965

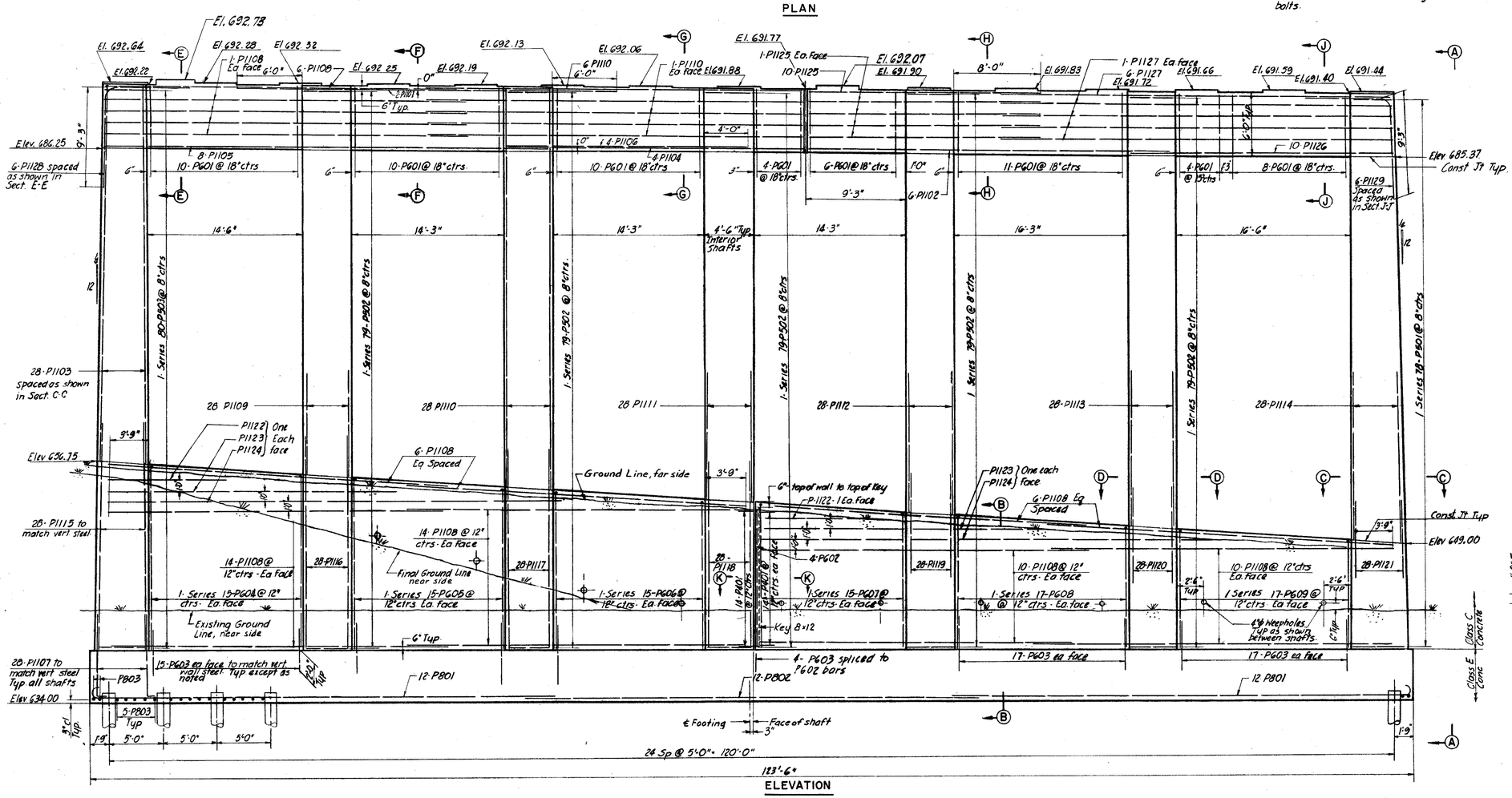
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

44
117

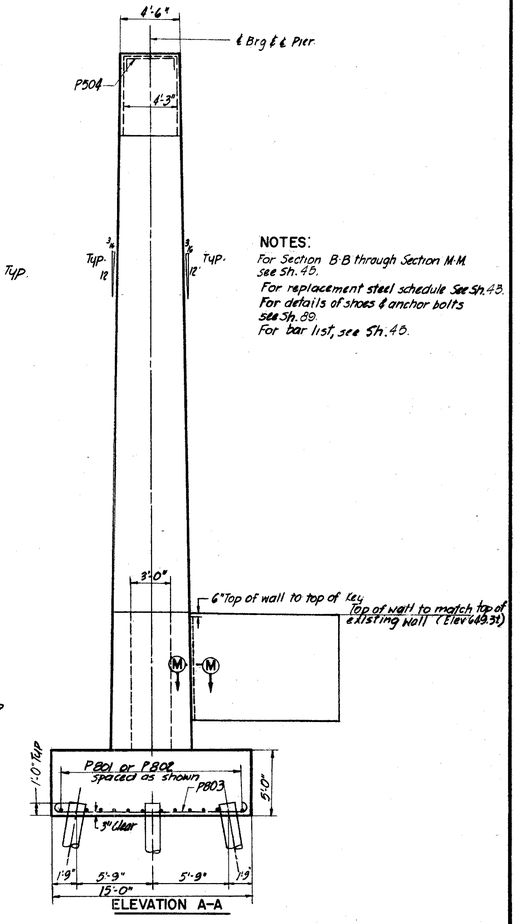
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



PLAN



ELEVATION



ELEVATION A-A

NOTES:
For Section B-B through Section M-M see Sh. 45.
For replacement steel schedule See Sh. 43.
For details of shoes & anchor bolts see Sh. 39.
For bar list, see Sh. 46.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

PIER 1B

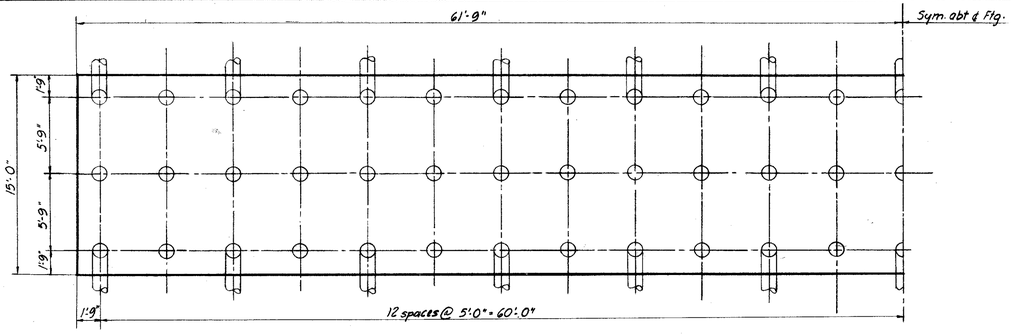
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3/16" = 1'-0"
MADE G.T.H. DATE 1-11-57
TRCD H.R.K. DATE 2-11-57
CKD H.H.S. DATE 8-26-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET-44

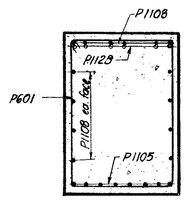
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	45 / 117
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)

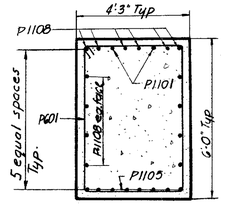


FOOTING PLAN
9/16" = 1'-0"

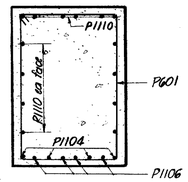
FEB 23



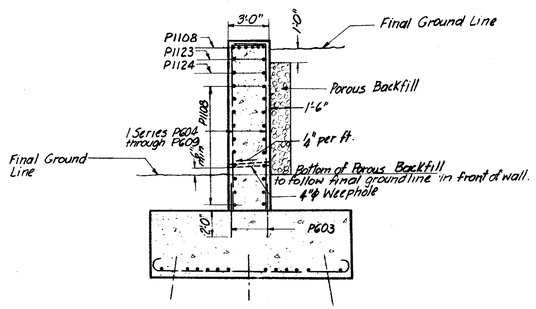
SECTION E-E



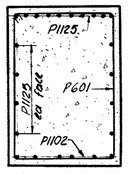
SECTION F-F



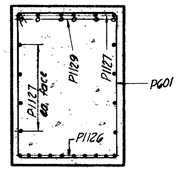
SECTION G-G



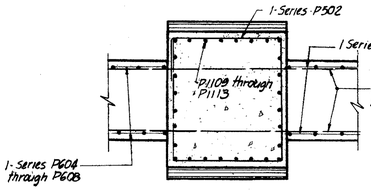
SECTION B-B
3/16" = 1'-0"



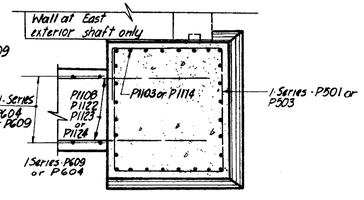
SECTION H-H



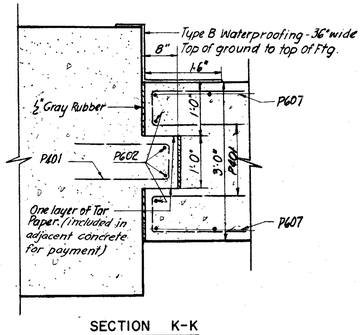
SECTION J-J



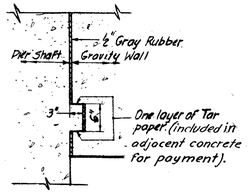
SECTION D-D



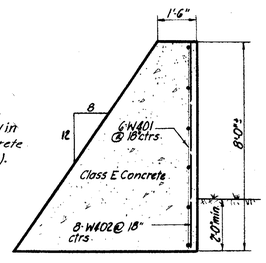
SECTION C-C
Typ. for exterior shafts, except as noted.



SECTION K-K
3/8" = 1'-0"
Shaft reinforcement not shown



SECTION M-M
3/16" = 1'-0"



SECTION L-L

NOTES:
For location of Section B-B through Section M-M See Sh. 44
75 reinf. C.I.P. Piles, 14" Diam. required with an estimated average vertical length of 60 feet.
All battered piles shall be battered 2 on 12.
All piles shall be driven to a capacity of 50 Tons per pile.
For bar bending diagrams See Sh. 48.

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (Lbs.)
P401	42	4'-1"	105	7"	1'-9"				115
W401	6	10'-6"	Str.						42
W402	8	7'-6"	Str.						40
P501	1-Series 20	17'-3" to 22'-7"	136	3'-2 7/32" to 4'-0 5/32"	4'-2" to 5'-0 1/32"	1'-7"		A-0'-0 5/32" B-0'-04"	1620
P502	5-Series 20	18'-3" to 21'-6"	136	4'-2"	4'-2" to 5'-0 1/32"	1'-7"		B-0'-04"	8188
P503	1-Series 20	17'-3" to 22'-9"	136	3'-11" to 4'-9 1/16"	4'-2" to 5'-0 1/32"	1'-7"		A-0'-0 5/32" B-0'-04"	1669
P504	112	5'-11"	105	3'-11"	1'-0"				691
P601	63	19'-10"	109	3'-11"	5'-8"				1877
P602	4	13'-0"	Str.						78
P603	192	4'-0"	Str						1154
P604	2-Series 20	18'-8" to 19'-7"	104	1'-6 3/32" to 2'-3 1/32"	2'-4"			0'-0 3/32"	662
P605	8-Series 20	17'-6" to 18'-4"	104	1'-5 3/32" to 2'-1 29/32"	2'-4"			0'-0 3/32"	807
P606	2-Series 20	16'-4" to 17'-2"	104	1'-4 1/32" to 2'-0 25/32"	2'-4"			0'-0 3/32"	755
P607	2-Series 20	15'-1" to 16'-0"	104	1'-2 29/32" to 1'-11 25/32"	2'-4"			0'-0 3/32"	700
P608	2-Series 20	13'-10" to 14'-10"	104	1'-1 25/32" to 1'-10 21/32"	2'-4"			0'-0 3/32"	732
P609	2-Series 20	12'-6" to 13'-6"	104	0'-10 29/32" to 1'-9 25/32"	2'-4"			0'-0 3/32"	664
P801	24	43'-10"	101	42'-9"					2809
P802	12	42'-9"	Str.						1370
P803	124	16'-10"	100	14'-8"					5573
P1101	2	35'-3"	Str.						379
P1102	6	33'-9"	Str.						1076
P1103	28	35'-6"	Str.						3281
P1104	4	27'-6"	Str.						584
P1105	8	41'-3"	Str.						1753
P1106	4	22'-3"	Str.						473
P1107	196	9'-10"	104	8'-3"	1'-7"				10,260
P1108	134	31'-6"	Str.						22,426
P1109	28	36'-3"	Str.						5,393
P1110	42	37'-3"	Str.						8,312
P1111	28	38'-6"	Str.						5,727
P1112	28	39'-6"	Str.						5,876
P1113	28	40'-6"	Str.						6025
P1114	28	41'-9"	Str.						6211
P1115	28	21'-6"	Str.						3161
P1116	28	20'-0"	Str.						2975
P1117	28	19'-0"	Str.						2827
P1118	28	17'-9"	Str.						2641
P1119	28	16'-6"	Str.						2455
P1120	28	15'-3"	Str.						2269
P1121	28	14'-0"	Str.						2083
P1122	4	11'-0"	Str.						234
P1123	4	27'-0"	Str.						574
P1124	4	42'-6"	Str.						903
P1125	18	21'-6"	Str.						2,056
P1126	10	24'-6"	Str.						1,302
P1127	16	36'-6"	Str.						2,715
P1128	6	16'-5"	125	5/32"	9'-3"	8'-0"	2'-0"		523
P1129	6	16'-5"	125	11/32"	9'-3"	8'-0"	2'-0"		523
								Total	136,739

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

PIER IB DETAILS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3/8" = 1'-0" unless noted
MADE GTH DATE 1-13-57
TRCD N.R.K DATE 2-12-57
CKD H.H.C DATE 8-26-57

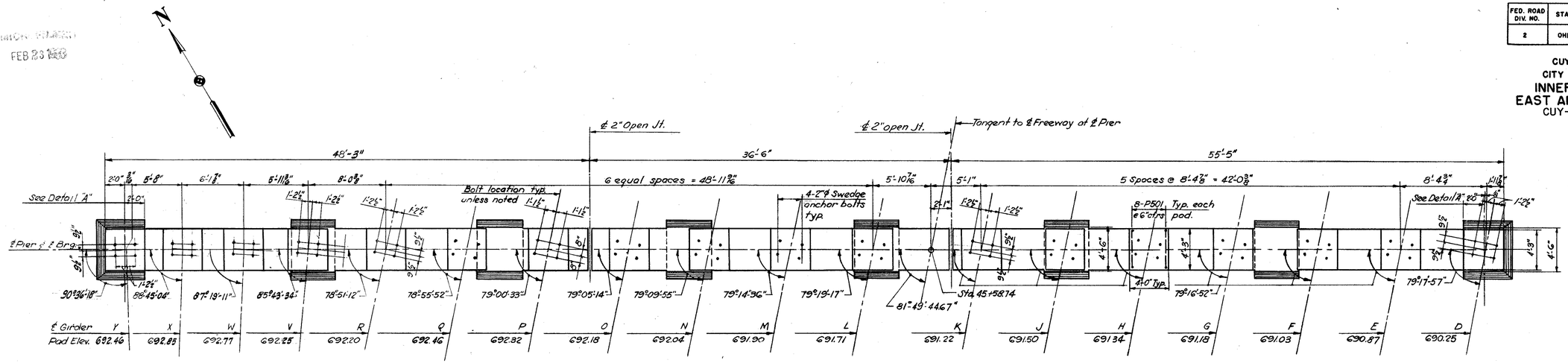
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 45

MICRO FILMED
FEB 23 1959

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

46
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



NOTES:
Contractor to adjust top cap reinforcing to clear holes to be drilled for swedge anchor bolts.
For details of shoes and anchor bolts see Sh. 89.
For drainage details see Sh. 198 & 109.
For reinforcing steel schedule see Sh. 47.
For Sections A-A through H-H, see Sh. 47.
e.f. denotes each face.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50
PIER 2B
CLEVELAND CUYAHOGA COUNTY OHIO

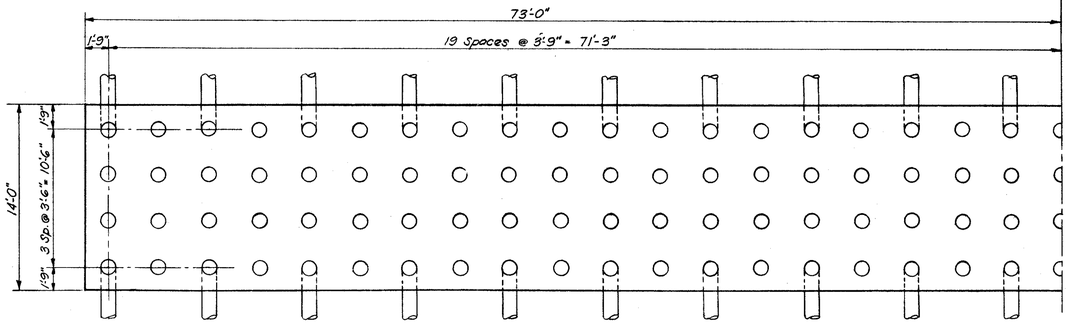
SCALE 3/16" = 1'-0"
MADE T.M.J. DATE 1-7-57
TRCD H.G. DATE 2-11-57
CKD H.H.C. DATE 8-30-57
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 46

RECEIVED
FEB 25 1957

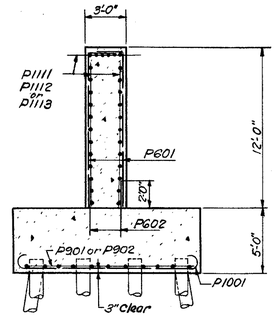
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

47
117

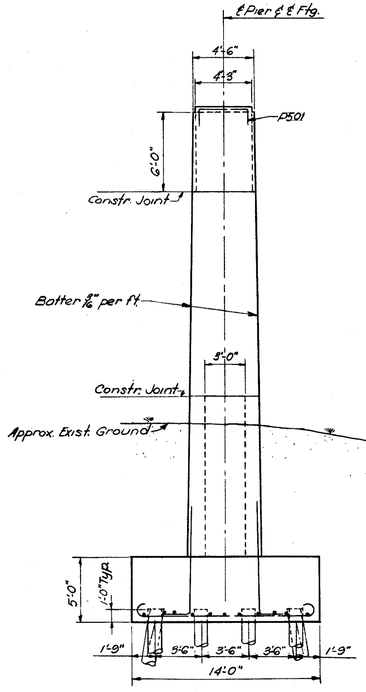
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



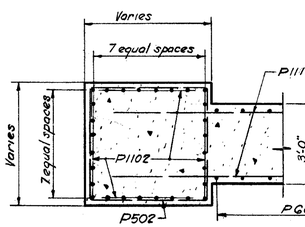
FOOTING PLAN
3/16" = 1'-0"



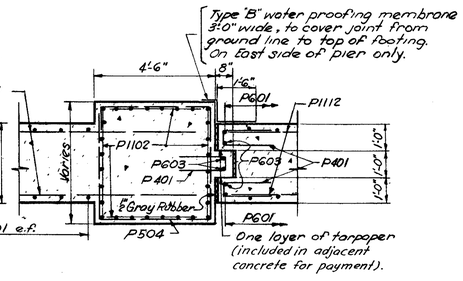
SECTION C-C
3/16" = 1'-0"



ELEVATION H-H
3/16" = 1'-0"

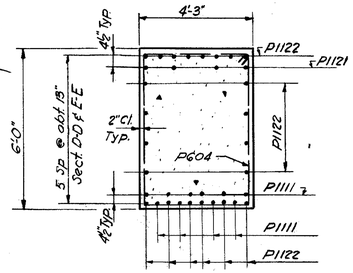


SECTION A-A

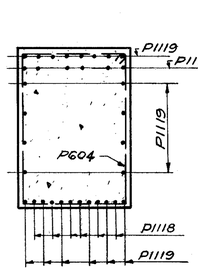


SECTION B-B

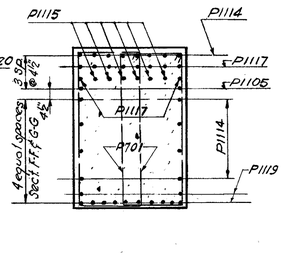
Arrangement of vertical column reinf. typical for all columns.



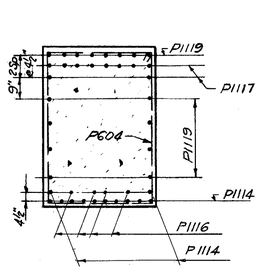
SECTION D-D



SECTION E-E



SECTION F-F



SECTION G-G

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (Lbs.)
P401	72	4'-1"	105	7"	1'-9"				196
P501	144	6'-5"	105	3'-11"	1'-3"				964
P502	1Series 50	17'-3" to 20'-8"	136	3'-8" to 4'-4½"	4'-2" to 5'-2½"	1'-7"		A=5½" + B=4"	989
P503	1Series 50	18'-3" to 20'-3"	136	4'-2"	4'-2" to 5'-2"	1'-7"		B=4"	1004
P504	2Series 49	18'-3" to 20'-3"	136	4'-2"	4'-2" to 5'-2"	1'-7"		B=4"	1968
P505	2Series 48	18'-3" to 20'-3"	136	4'-2"	4'-2" to 5'-2"	1'-7"		B=4"	1927
P506	1Series 47	18'-3" to 20'-2"	136	4'-2"	4'-2" to 5'-1½"	1'-7"		B=4"	942
P507	1Series 47	17'-3" to 20'-6"	136	3'-8" to 4'-8¾"	4'-2" to 5'-3⅜"	1'-7"		A=5½" + B=4"	925
P601	218	14'-2"	104	2'-4"	11'-10"				4639
P602	226	4'-0"	Str.						1358
P603	8	11'-3"	Str.						135
P604	85	19'-10"	109	3'-11"	5'-8"				2532
P701	78	16'-10"	109	2'-4"	5'-8"				2684
P901	22	39'-2"	101	37'-11"					2930
P902	22	39'-2"	Str.						2930
P1001	116	16'-6"	100	13'-8"					8236
P1101	224	9'-10"	104	8'-3"	1'-7"				11703
P1102	224	15'-6"	Str.						18447
P1103	28	21'-0"	Str.						3124
P1104	28	20'-9"	Str.						3087
P1105	30	20'-6"	Str.						3267
P1106	50	20'-0"	Str.						5313
P1107	28	19'-8"	Str.						2938
P1108	28	19'-6"	Str.						2901
P1109	28	19'-3"	Str.						2864
P1110	28	18'-9"	Str.						2789
P1111	40	41'-0"	Str.						8713
P1112	60	27'-9"	Str.						5846
P1113	30	45'-3"	Str.						7212
P1114	28	22'-6"	Str.						3347
P1115	6	21'-6"	Str.						685
P1116	4	24'-8"	Str.						515
P1117	10	42'-6"	Str.						2258
P1118	6	22'-0"	Str.						701
P1119	50	36'-0"	Str.						9563
P1120	6	19'-9"	Str.						630
P1121	4	18'-6"	Str.						398
P1122	22	31'-3"	Str.						3653
P1123	6	16'-5"	125	0	9'-3"	8'-0"	2'-0"		523
P1124	6	16'-6"	125	7/16	9'-3"	8'-0"	2'-0"		526
								Total	138,357

NOTES:
For location of Sections A-A through H-H, see Sh. 46.
156 Reinf. C.I.P. Piles, 14" Diam. required with an estimated average vertical length of 60 feet.
All battered piles shall be battered 2 on 12.
All piles shall be driven to a capacity of 50 tons per pile.
For replacement steel schedule see Sh. 48.
For bar bending diagrams see Sh. 48.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

PIER 2B DETAILS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3/16"=1'-0" unless noted
MADE T.M.J. DATE 1-8-57
TRCD N.R.K. DATE 2-15-57
CKD H.H.C. DATE 8-30-57

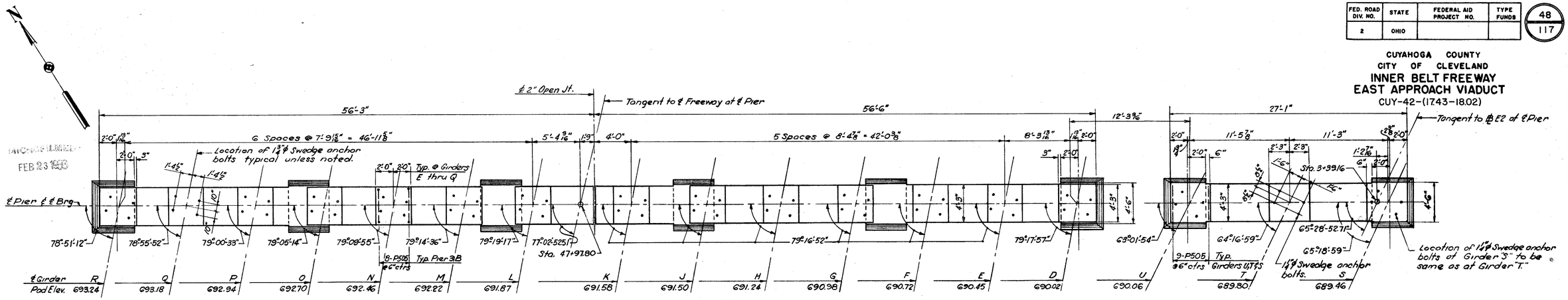
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-47

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

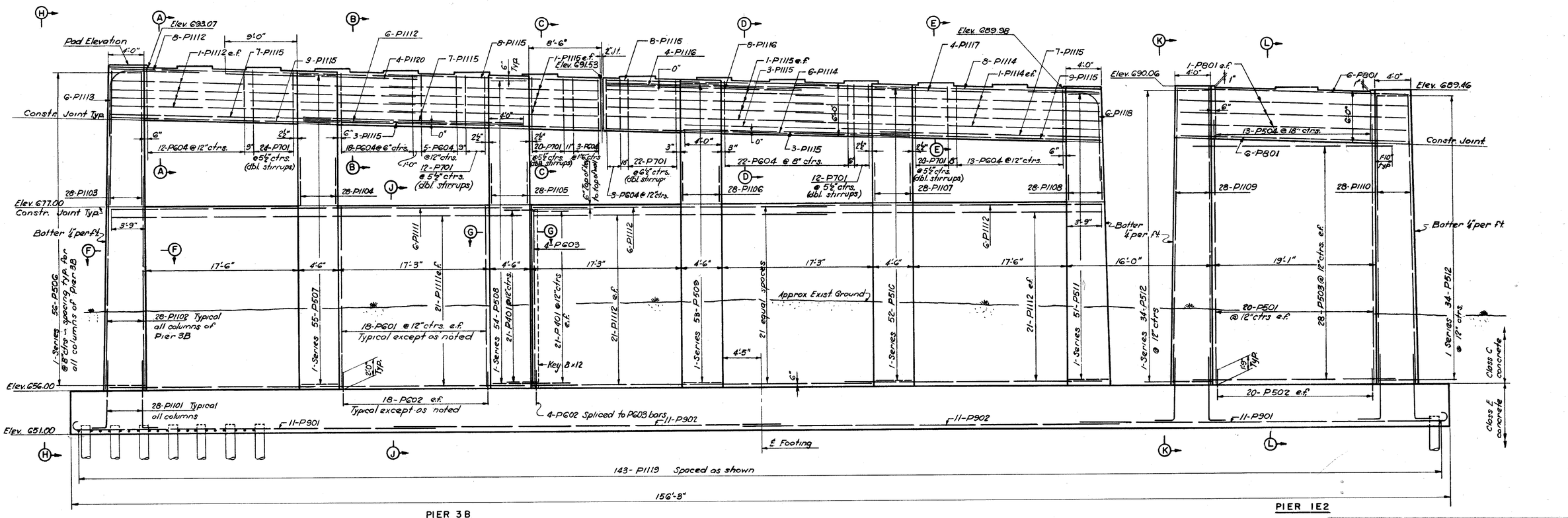
48
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)

RECEIVED
FEB 23 1960



PLAN



ELEVATION

Note:
Dowels in ftg. to match vertical column and wall reinforcement.

NOTES:
Contractor to adjust top cap reinforcing to clear holes to be drilled for swedge anchor bolts.
For details of shoe and anchor bolts see Sh. 89.
For drainage details see Sh. 108 & 109.
For Section A-A through Section L-L see Sh. 49.
For bar list, see Sh. 49.
(e.f.) denotes each face.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

PIER 3B & 1E2

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3/8"=1'-0"
MADE FMJ DATE 1-16-57
TRCD N.R.K. DATE 2-14-57
CKD H.H.C. DATE 2-13-57

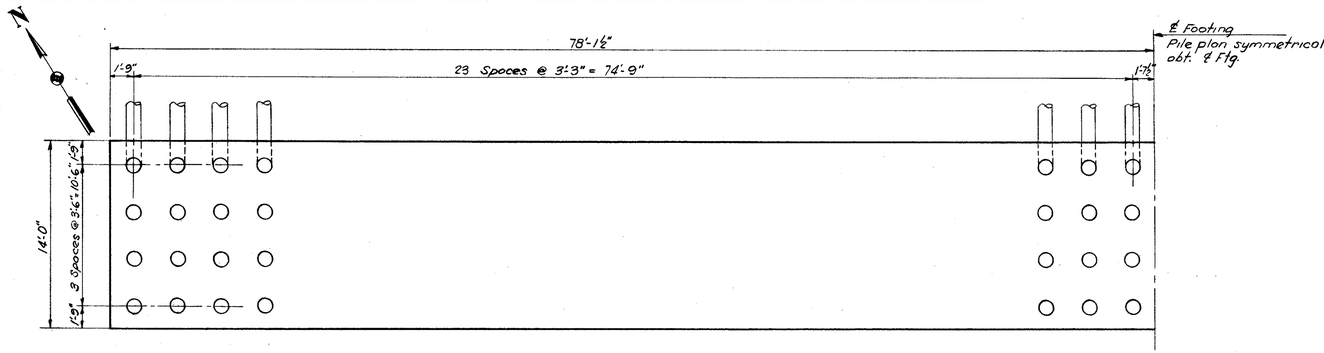
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

914 (2E) B SHEET- 48

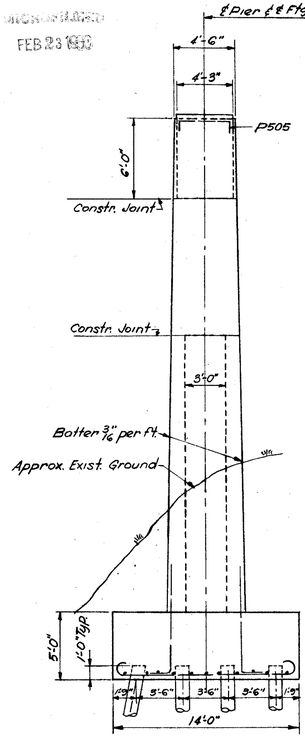
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

49
117

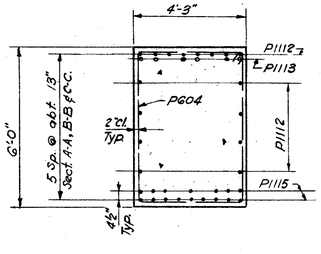
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



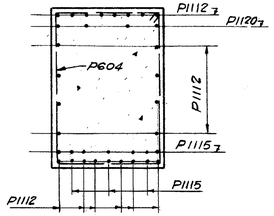
FOOTING PLAN



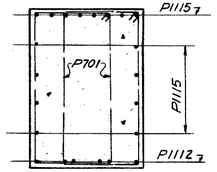
ELEVATION H-H



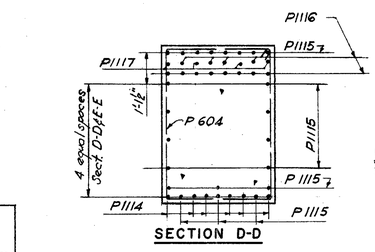
SECTION A-A



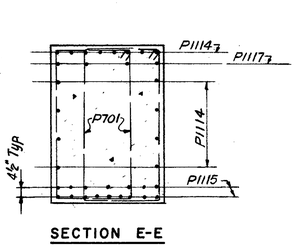
SECTION B-B



SECTION C-C

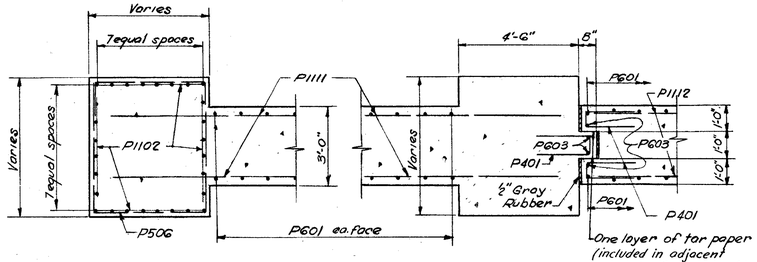


SECTION D-D



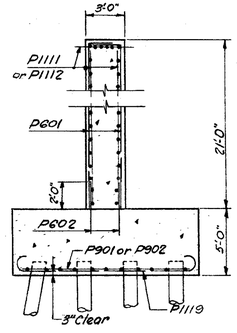
SECTION E-E

DIAPHRAGM SECTIONS
3/8" = 1'-0"

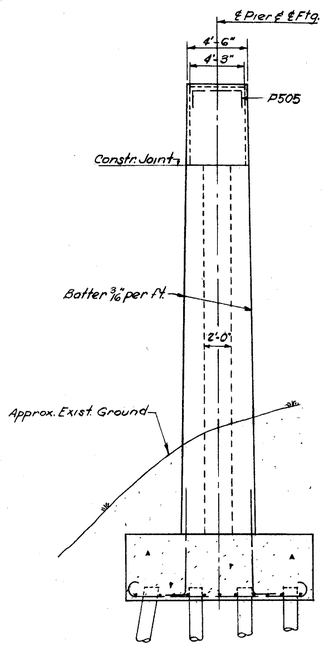


SECTION F-F
3/8" = 1'-0"
Arrangement of vertical column reinf. typical for all columns.

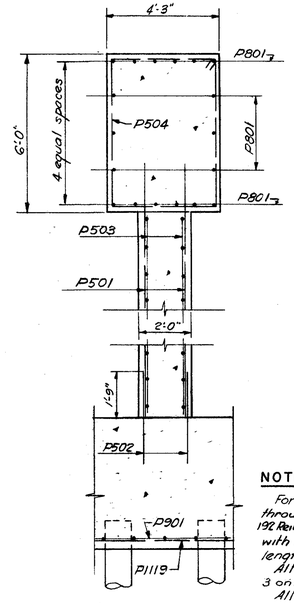
SECTION G-G
3/8" = 1'-0"



SECTION J-J



ELEVATION K-K



SECTION L-L
3/8" = 1'-0"

NOTES:

For location of Sections A-A through L-L, see Sh. 48.
192 Reinf. C.I.P. Piles, 14" Diam. req'd with an estimated average vertical length of 60 Feet.
All battered piles shall be battered 3 on 12.
All piles shall be driven to a capacity of 50 tons per pile.
For replacement steel schedule see Sh. 48.
For bar bending diagrams see Sh. 49.

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (Lbs.)
P401	63	4'-1"	105	7"	1'-9"				172
P501	40	29'-6"	Str.						1231
P502	40	3'-6"	Str.						146
P503	56	22'-9"	Str.						1329
P504	13	19'-10"	109	3'-11"	5'-8"				269
P505	139	5'-11"	105	3'-11"	1'-0"				858
P506	1 Series 56	17'-3" to 21'-1"	136	3'-8" to 4'-5½"	4'-2" to 5'-3¾"	1'-7"		4 @ 3/4" + 8 @ 1"	1119
P507	1 Series 55	18'-3" to 20'-6"	136	4'-2"	4'-2" to 5'-1¾"	1'-7"		8 @ 1"	1111
P508	1 Series 54	18'-3" to 20'-5"	136	4'-2"	4'-2" to 5'-0"	1'-7"		8 @ 1"	1089
P509	1 Series 53	18'-3" to 20'-5"	136	4'-2"	4'-2" to 5'-3"	1'-7"		8 @ 1"	1069
P510	1 Series 52	18'-3" to 20'-4"	136	4'-2"	4'-2" to 5'-2½"	1'-7"		8 @ 1"	1046
P511	1 Series 51	17'-8" to 20'-3"	136	3'-8" to 4'-4½"	4'-2" to 5'-2½"	1'-7"		4 @ 3/4" + 8 @ 1"	1011
P512	2 Series 34	17'-8" to 20'-8"	136	3'-8" to 4'-4½"	4'-2" to 5'-2½"	1'-7"		4 @ 3/4" + 8 @ 1"	1345
P601	180	29'-2"	104	2'-4"	20'-10"				6263
P602	184	4'-0"	Str.						1105
P603	4	20'-3"	Str.						122
P604	76	19'-10"	109	3'-11"	5'-8"				2264
P701	110	18'-0"	109	2'-11"	5'-8"				4047
P801	18	26'-9"	Str.						1286
P901	22	41'-9"	101	40'-6"					3123
P902	22	41'-9"	Str.						3128
P1101	224	9'-10"	104	8'-3"	1'-7"				11703
P1102	168	24'-6"	Str.						21868
P1103	28	15'-9"	Str.						2343
P1104	28	15'-3"	Str.						2269
P1105	28	14'-6"	Str.						2157
P1106	28	13'-9"	Str.						2046
P1107	28	13'-3"	Str.						1971
P1108	28	12'-6"	Str.						1860
P1109	28	33'-9"	Str.						5021
P1110	28	33'-3"	Str.						4946
P1111	48	46'-9"	Str.						11922
P1112	118	34'-0"	Str.						21316
P1113	6	16'-5"	124	1/8	9'-3"	8'-0"	2'-0"		523
P1114	22	34'-3"	Str.						4003
P1115	80	25'-3"	Str.						10732
P1116	12	28'-0"	Str.						1408
P1117	4	43'-9"	Str.						980
P1118	6	16'-6"	125	5/8	9'-3"	8'-0"	2'-0"		526
P1119	143	16'-10"	100	13'-8"					12789
P1120	4	22'-6"	Str.						478
								Total	158,934

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

PIER 3B & 1E2 DETAILS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3/16"=1'-0" unless noted
MADE T.M.J. DATE 1-18-56
TRCD R.R.K. DATE 2-13-57
CKD H.H.C. DATE 2-13-57

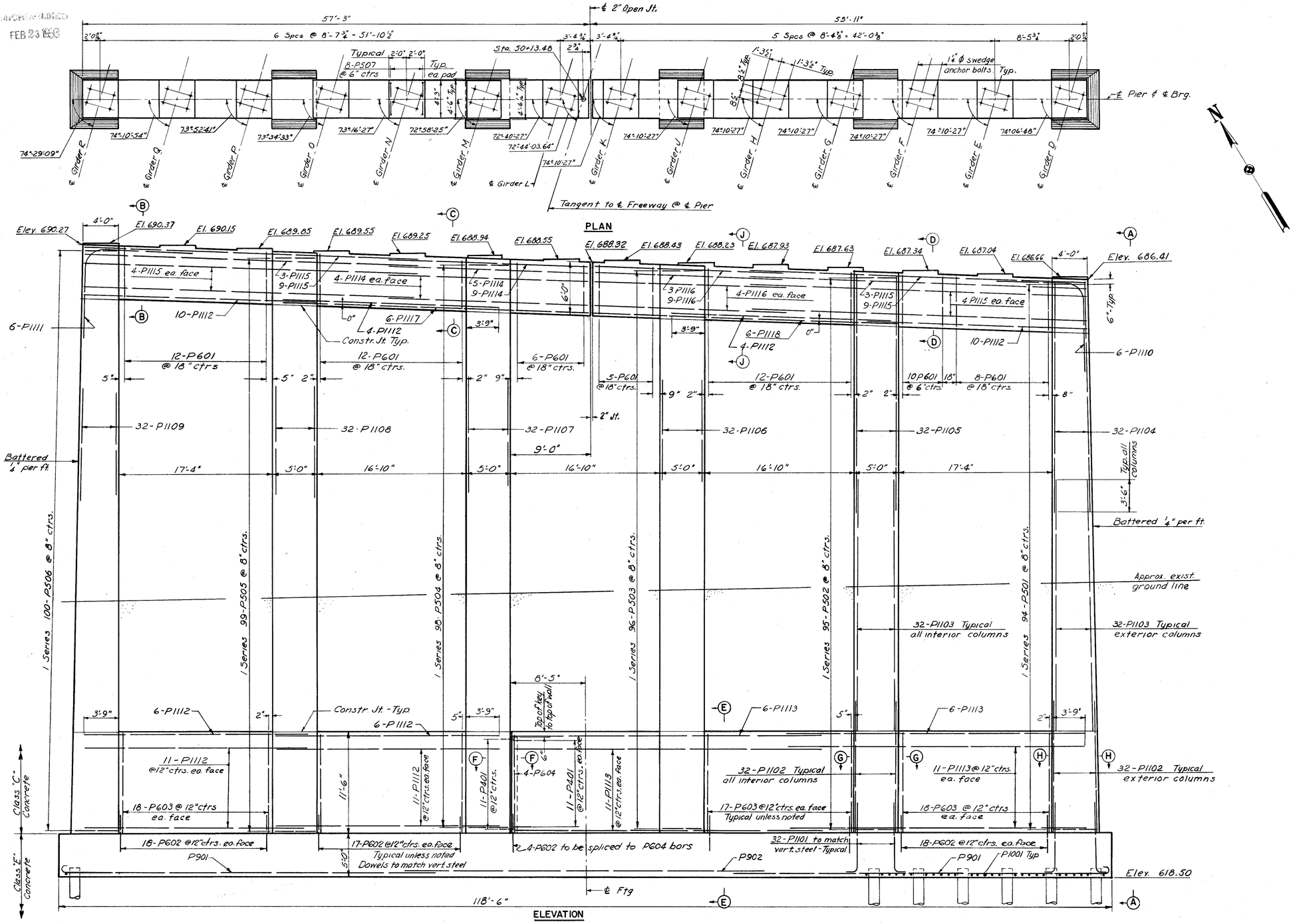
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-49

ACCEPTED
FEB 23 1957

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

50
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



NOTES:
Contractor to adjust top cap reinforcing to clear holes to be drilled for swedge anchor bolts.
For details of shoe and anchor bolts see Sheet 89.
For drainage details see Sheet 108 & 109.
For reinforcing steel schedule see Sheet 51.
For sections A-A through J-J see Sheet 51.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

PIER 4B

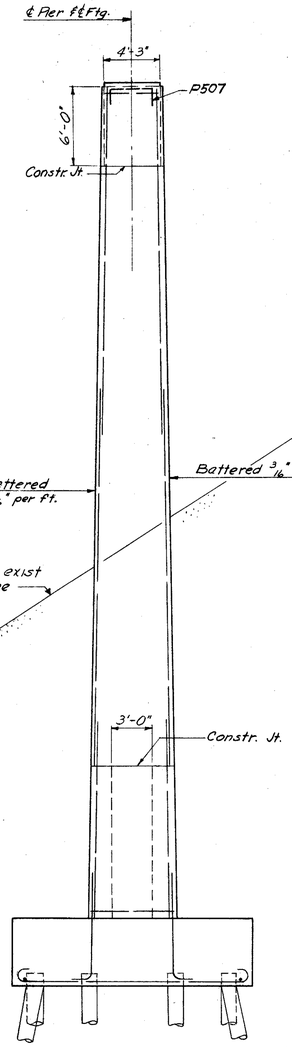
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3/16" = 1'-0"
MADE RJS DATE 1-17-57
TRCD NKK DATE 2-18-57
CKD JMM DATE 2-14-57

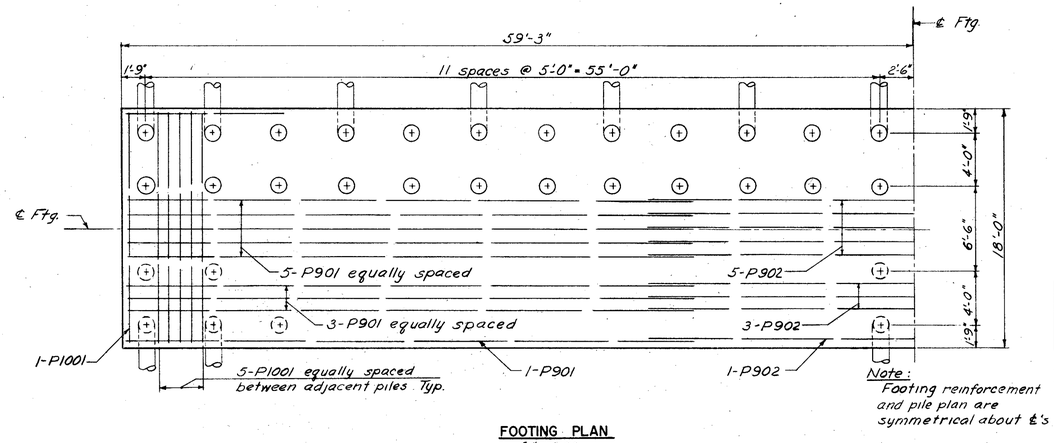
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 50

APPROVED
FEB 23 1960

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)

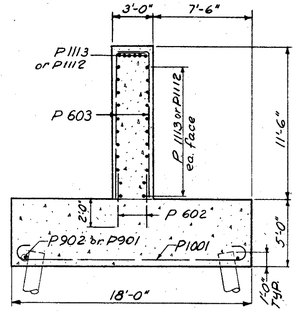


ELEVATION A-A
3/16"=1'-0"

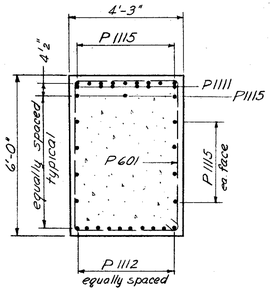


FOOTING PLAN
3/16"=1'-0"

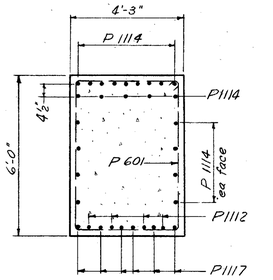
Note:
Footing reinforcement and pile plan are symmetrical about ℄'s



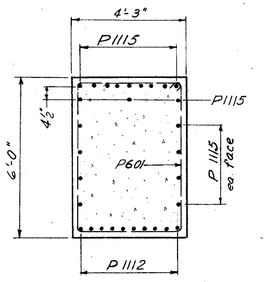
SECTION E-E
3/16"=1'-0"



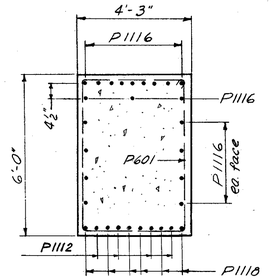
SECTION B-B



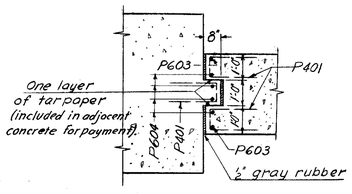
SECTION C-C



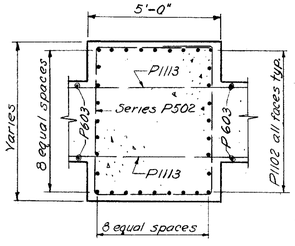
SECTION D-D



SECTION J-J

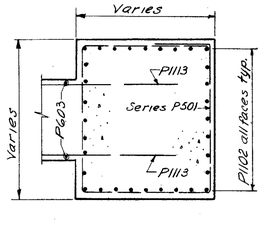


SECTION F-F



SECTION G-G

Arrangement of column vertical reinf. is typical for all columns.



SECTION H-H

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (Lbs.)
P401	33	4'-1"	105	0'-7"	1'-9"				90
P501	1 Series 94	17'-3" to 23'-9"	136	4'-2" to 6'-1"	3'-8" to 5'-1"	1'-7"		A=9" B=3"	2010
P502	1 Series 85	19'-3" to 23'-3"	136	4'-2" to 5'-8"	4'-8"	1'-7"		A=6"	2106
P503	1 Series 86	19'-3" to 23'-3"	136	4'-2" to 6'-8"	4'-8"	1'-7"		A=4"	2128
P504	1 Series 88	19'-3" to 23'-4"	136	4'-2" to 6'-8"	4'-8"	1'-7"		A=4"	2176
P505	1 Series 89	19'-3" to 23'-4"	136	4'-2" to 6'-8"	4'-8"	1'-7"		A=4"	2198
P506	1 Series 100	17'-3" to 24'-2"	136	4'-2" to 6'-3"	3'-8" to 5'-0"	1'-7"		A=6" B=3"	2160
P507	112	6'-5"	105	3'-11"	1'-3"				750
P601	65	19'-10"	109	3'-11"	5'-8"				1936
P602	178	4'-0"	Str.						1069
P603	174	13'-8"	104	2'-4"	11'-4"				3572
P604	4	10'-6"	Str.						63
P901	86	43'-3"	101	42'-0"					3823
P902	13	40'-0"	Str.						1768
P1001	117	20'-6"	100	17'-8"					10321
P1101	192	9'-5"	104	8'-3"	1'-2"				9606
P1102	192	15'-0"	Str.						15301
P1103	192	28'-6"	Str.						29073
P1104	32	26'-0"	Str.						4420
P1105	32	26'-9"	Str.						4548
P1106	32	27'-6"	Str.						4675
P1107	32	28'-3"	Str.						4803
P1108	32	29'-0"	Str.						4930
P1109	32	29'-9"	Str.						5058
P1110	6	16'-6"	125	11/16	9'-3"	8'-0"	2'-0"		526
P1111	6	16'-5"	124	3/16	9'-3"	8'-0"	2'-0"		523
P1112	84	25'-3"	Str.						11269
P1113	56	34'-3"	Str.						10190
P1114	22	22'-9"	Str.						2659
P1115	40	37'-9"	Str.						8023
P1116	20	21'-3"	Str.						2258
P1117	6	35'-3"	Str.						1124
P1118	6	34'-0"	Str.						1084
								Total	156240

NOTES:
96 Reinf. CIP Piles - 14" dia. with an estimated average Vert. length of 60 feet.
All battered piles shall be battered 2 on 12.
All piles shall be driven to a capacity of 50 tons per pile
For bar bending diagrams, see Sheet 43
For replacement steel schedule, see Sheet 43
For location of sections A-A through J-J, see Sheet 50.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

PIER 4B DETAILS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3/16" 1-0" unless noted
MADE BJS DATE 1-18-57
TRCD NRK DATE 2-19-57
CKD T.M.J DATE 2-14-57

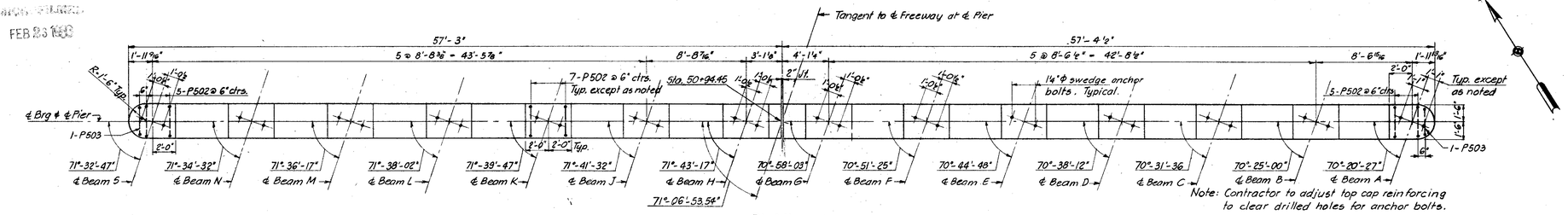
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 51

FEB 23 1960

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

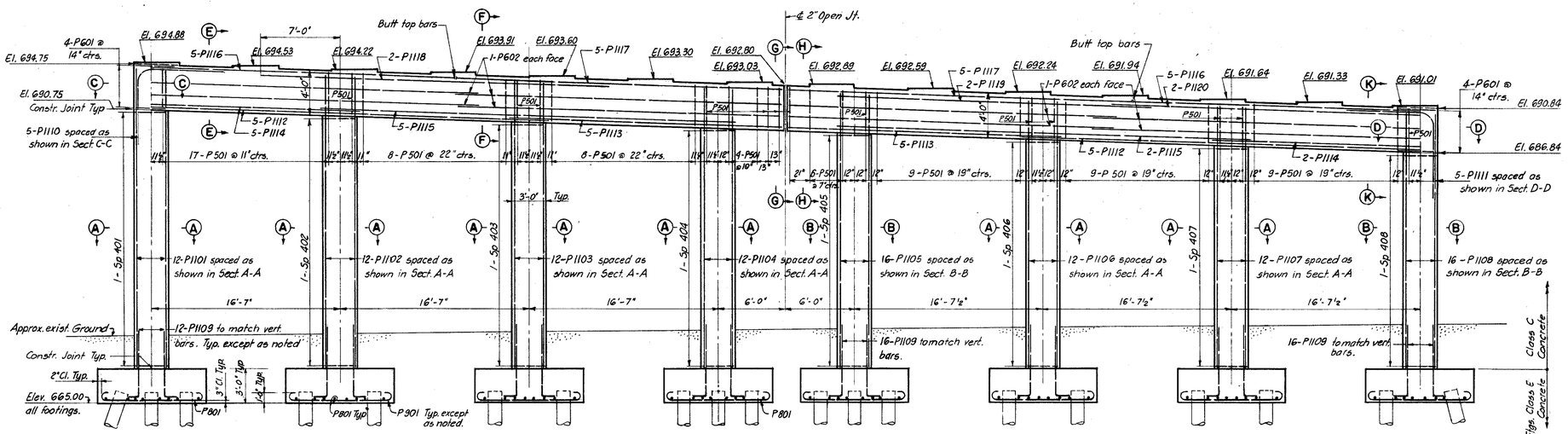
52
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)

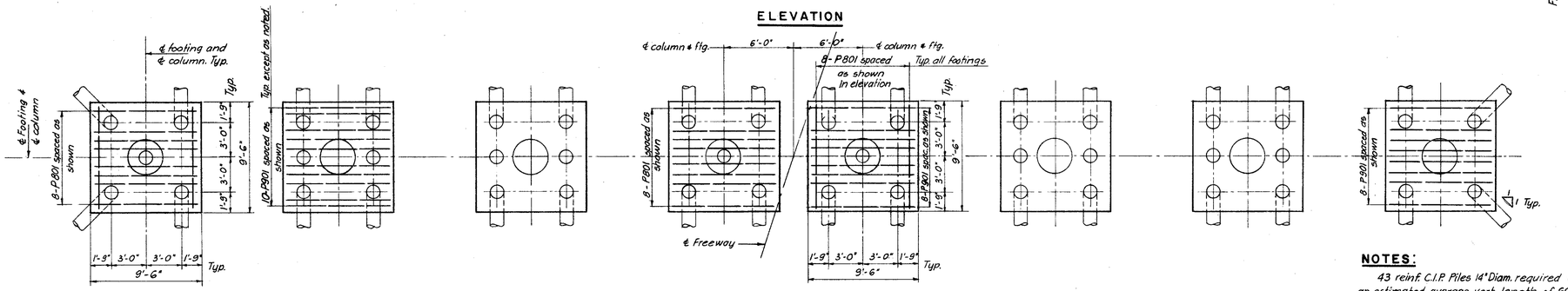


PLAN

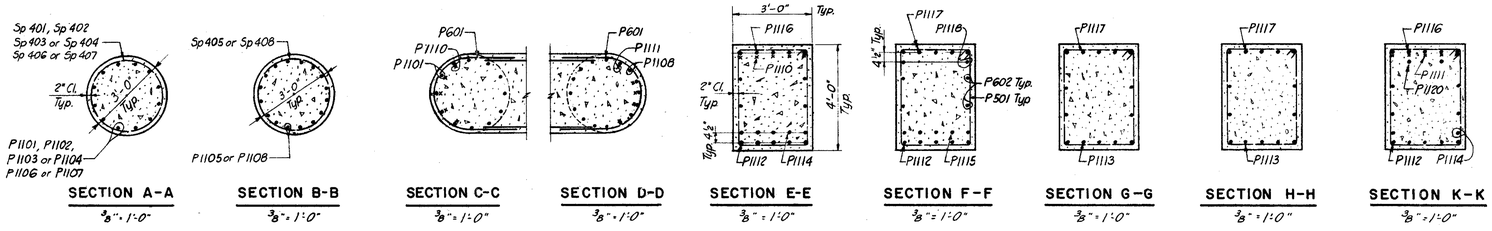
Note: Contractor to adjust top cap reinforcing to clear drilled holes for anchor bolts.



ELEVATION



FOOTING PLAN



SECTION A-A ⅜"=1'-0"
SECTION B-B ⅜"=1'-0"
SECTION C-C ⅜"=1'-0"
SECTION D-D ⅜"=1'-0"
SECTION E-E ⅜"=1'-0"
SECTION F-F ⅜"=1'-0"
SECTION G-G ⅜"=1'-0"
SECTION H-H ⅜"=1'-0"
SECTION K-K ⅜"=1'-0"

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (Lbs.)
P501	83	13'-2"	109	2'-8"	3'-8"				1140
P502	94	4'-8"	105	2'-8"	1'-0"				458
P503	2	4'-3"	105	2'-3"	1'-0"				9
P601	8	8'-2"	123	1'-4"	2'-0"				98
P602	16	28'-9"	Str.						691
P801	80	11'-4"	100	9'-2"					2421
P901	56	11'-8"	100	9'-2					2221
P1101	12	26'-3"	Str.						1674
P1102	12	25'-6"	Str.						1626
P1103	12	25'-0"	Str.						1594
P1104	12	24'-6"	Str.						1562
P1105	16	24'-0"	Str.						2040
P1106	12	23'-6"	Str.						1498
P1107	12	23'-0"	Str.						1466
P1108	16	22'-3"	Str.						1891
P1109	104	8'-4"	104	6'-9"	1'-7"				4605
P1110	5	14'-10"	124	3ϕ"	7'-9"	7'-9"	1'-6"		394
P1111	5	14'-10"	125	3ϕ"	7'-9"	7'-9"	1'-6"		394
P1112	10	35'-0"	Str.						1860
P1113	10	24'-3"	Str.						1288
P1114	7	18'-6"	Str.						688
P1115	7	36'-9"	Str.						1367
P1116	10	25'-0"	Str.						1328
P1117	10	30'-9"	Str.						1634
P1118	2	30'-9"	Str.						327
P1119	2	28'-3"	Str.						300
P1120	2	26'-9"	Str.						284
								Total	34858

SPIRAL REINFORCEMENT SCHEDULE

MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT (Lbs.)
SP 401	1	2'-8"	22'-8"±	4½"	63	409
SP 402	1	2'-8"	22'-1"±	4½"	62	402
SP 403	1	2'-8"	21'-6"±	4½"	60	389
SP 404	1	2'-8"	21'-0"±	4½"	59	382
SP 405	1	2'-8"	20'-7"±	4½"	58	376
SP 406	1	2'-8"	20'-0"±	4½"	56	363
SP 407	1	2'-8"	19'-6"±	4½"	55	356
SP 408	1	2'-8"	18'-11"±	4½"	54	349
					Total	3026

NOTES:

43 reinf. C.I.P. Piles 14" Diam. required with an estimated average vert. length of 60 feet.
All battered piles shall be battered 3 on 12.
For replacement steel schedule see Sheet 48
For bar bending diagrams see Sheet 48
All piles shall be driven to a capacity of 50 tons per pile.
For riustication locations and details see Sheet 55
For details of shoes and anchor bolts see Sheet 60
For spiral reinforcing notes see Sheet 56.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

PIER 5 B

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3/16" = 1'-0" unless noted
MADE H.G. DATE 11 9 56
TRCD W.R.K. DATE 2-20-57
CKD E.W. DATE 2-1-57

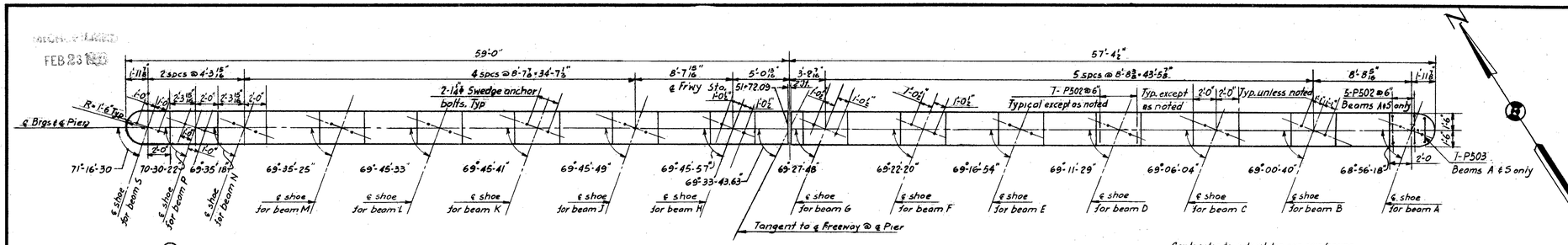
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 52

FEB 23 1957

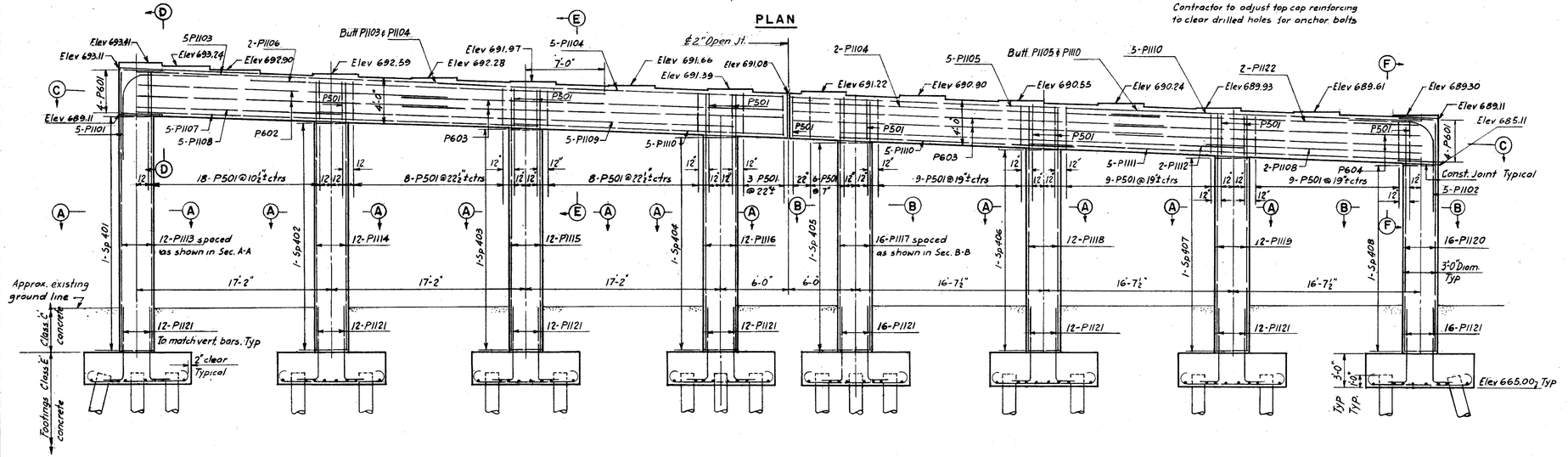
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

53
117

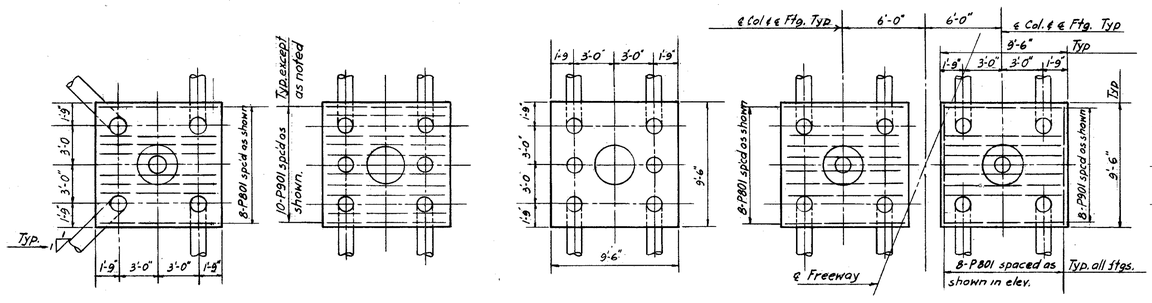
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



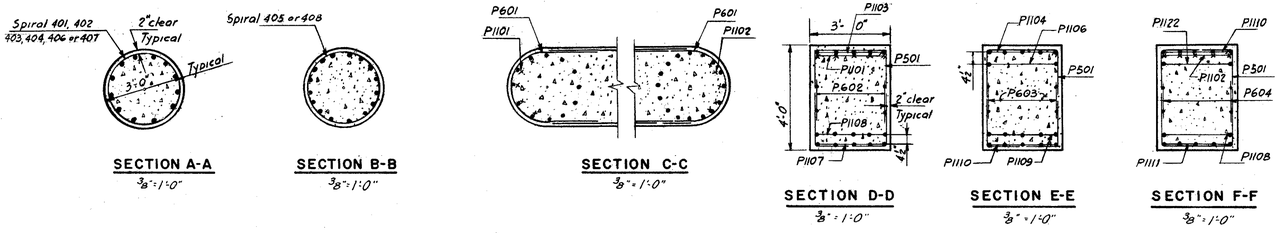
PLAN



ELEVATION



FOOTING PLAN



SECTION A-A ⅜" = 1'-0"

SECTION B-B ⅜" = 1'-0"

SECTION C-C ⅜" = 1'-0"

SECTION D-D ⅜" = 1'-0"

SECTION E-E ⅜" = 1'-0"

SECTION F-F ⅜" = 1'-0"

REINFORCMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (Lbs.)
P501	82	13'-2"	109	2'-8"	3'-8"				1126
P502	101	4'-8"	105	2'-8"	1'-0"				492
P503	2	4'-3"	105	2'-3"	1'-0"				9
P601	8	8'-2"	123	1'-4"	2'-0"				98
P602	4	26'-9"	Str						161
P603	8	32'-9"	Str						394
P604	4	25'-0"	Str						150
P801	80	11'-4"	100	9'-2"					2421
P901	56	11'-8"	100	8'-2"					2221
P1101	5	14'-10"	124	7/16"	7'-9"	7'-9"	1'-6"		394
P1102	5	14'-11"	125	7/16"	7'-9"	7'-9"	1'-6"		396
P1103	5	25'-9"	Str						684
P1104	7	31'-6"	Str						1172
P1105	5	30'-9"	Str						817
P1106	2	31'-3"	Str						332
P1107	5	35'-9"	Str						950
P1108	7	19'-0"	Str						707
P1109	5	37'-9"	Str						1003
P1110	15	25'-0"	Str						1992
P1111	5	34'-6"	Str						916
P1112	2	36'-0"	Str						383
P1113	12	24'-9"	Str						1578
P1114	12	24'-3"	Str						1546
P1115	12	23'-6"	Str						1498
P1116	12	22'-9"	Str						1450
P1117	16	22'-3"	Str						1891
P1118	12	21'-9"	Str						1387
P1119	12	21'-0"	Str						1339
P1120	16	20'-6"	Str						1743
P1121	104	8'-4"	104	6'-9"	1'-7"				4605
P1122	2	28'-0"	Str						298
								Total	34,153

SPIRAL REINFORCEMENT SCHEDULE

MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT (Lbs.)
SP401	1	2'-8"	21'-1" ±	4½"	60	387
SP402	1	2'-8"	20'-6" ±	4½"	58	376
SP403	1	2'-8"	19'-10" ±	4½"	56	363
SP404	1	2'-8"	19'-4" ±	4½"	55	356
SP405	1	2'-8"	18'-11" ±	4½"	54	349
SP406	1	2'-8"	18'-4" ±	4½"	52	337
SP407	1	2'-8"	17'-9" ±	4½"	51	329
SP408	1	2'-8"	17'-2" ±	4½"	49	317
					Total	2814

NOTES:

43 - reinforced CIP piles 14" diameter required with an estimated average vertical length of 60 ft.
All battered piles shall be battered 3 in 12
All piles shall be driven to a capacity of 50 T
For replacement steel schedule see Sh. 48
For bar bending diagrams see Sh. 43
For location of rustications and details see Sh. 55
For anchor bolt & shoe details see Sh. 38
For spiral reinforcing notes see Sh. 56

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

PIER 6 B

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE ½" = 1'-0" unless noted
MADE EW DATE 11-14-56
TRCD HG DATE 2-8-57
CKD CR DATE 2-12-57

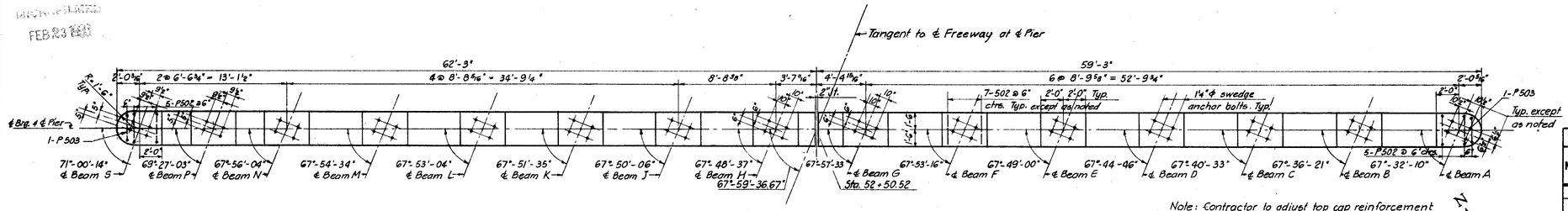
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-53

RECEIVED
FEB 23 1957

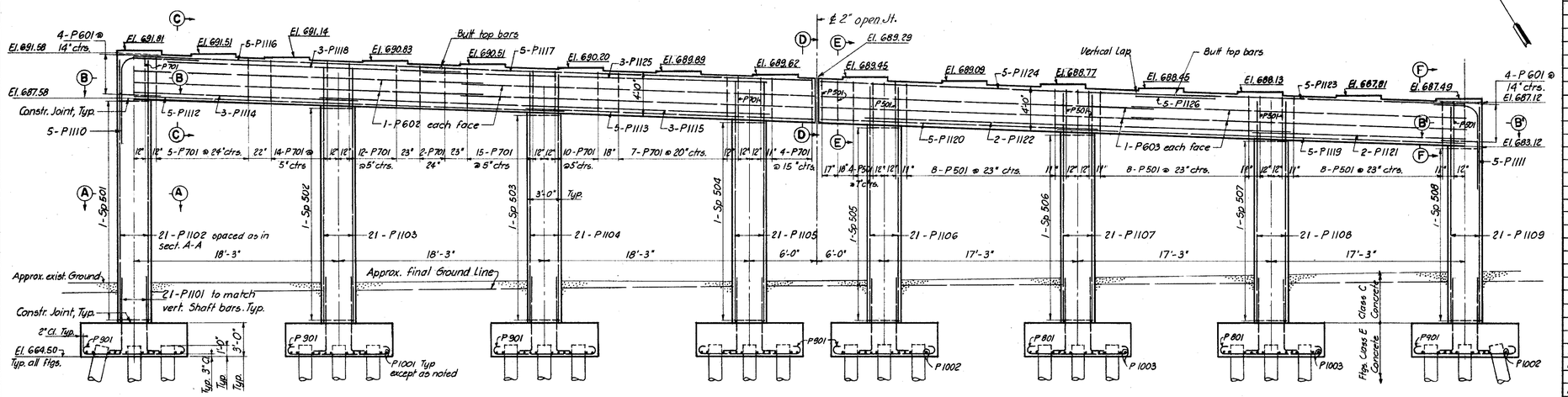
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

54
117

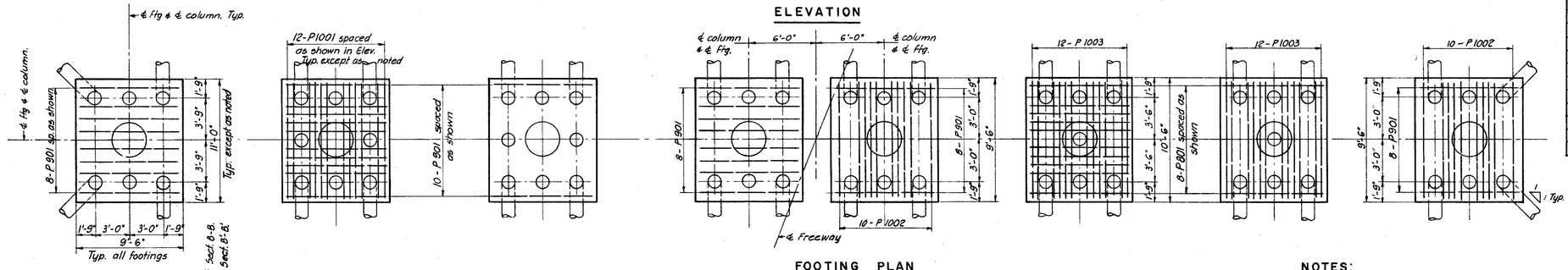
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



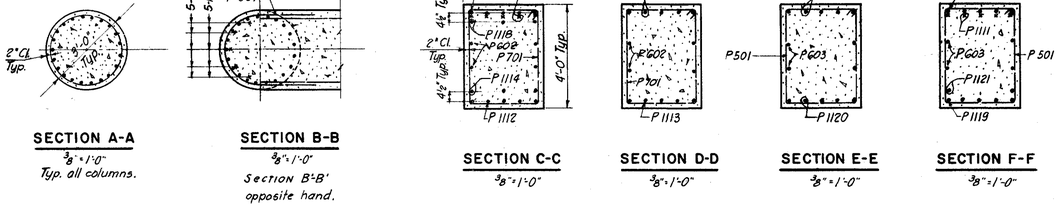
PLAN



ELEVATION



FOOTING PLAN
Not to scale



SECTION A-A
3/8" = 1'-0"
Typ. all columns.

SECTION B-B
3/8" = 1'-0"
Section B'-B' opposite hand.

SECTION C-C
3/8" = 1'-0"

SECTION D-D
3/8" = 1'-0"

SECTION E-E
3/8" = 1'-0"

SECTION F-F
3/8" = 1'-0"

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (Lbs.)
P 501	36	13'-2"	109	2'-8"	3'-8"				494
P 502	101	4'-8"	105	2'-8"	1'-0"				492
P 503	2	4'-3"	105	2'-3"	1'-0"				9
P 601	8	8'-2"	123	1'-4"	2'-0"				98
P 602	8	31'-3"	Str.						376
P 603	8	29'-9"	Str.						357
P 701	72	13'-4"	109	2'-8"	3'-8"				1962
P 801	16	11'-4"	100	9'-2"					484
P 901	52	11'-8"	100	9'-2"					2 063
P 1001	48	13'-6"	100	10'-8"					2 768
P 1002	20	12'-0"	100	9'-2"					1 033
P 1003	24	13'-0"	100	10'-2"					1 343
P 1101	168	8'-4"	104	6'-9"	1'-7"				7 438
P 1102	21	23'-6"	Str.						2 622
P 1103	21	23'-0"	Str.						2 566
P 1104	21	22'-3"	Str.						2 483
P 1105	21	21'-6"	Str.						2 399
P 1106	21	21'-0"	Str.						2 343
P 1107	21	20'-3"	Str.						2 260
P 1108	21	19'-9"	Str.						2 204
P 1109	21	19'-0"	Str.						2 120
P 1110	5	14'-10"	124	7/16	7'-9"	7'-9"	1'-6"		394
P 1111	5	14'-10"	125	7/16	7'-9"	7'-9"	1'-6"		394
P 1112	5	38'-3"	Str.						1016
P 1113	5	25'-9"	Str.						684
P 1114	3	20'-0"	Str.						319
P 1115	3	40'-0"	Str.						638
P 1116	5	27'-6"	Str.						731
P 1117	5	33'-3"	Str.						883
P 1118	3	26'-3"	Str.						418
P 1119	5	36'-3"	Str.						963
P 1120	5	24'-9"	Str.						657
P 1121	2	19'-0"	Str.						202
P 1122	2	38'-0"	Str.						404
P 1123	5	26'-0"	Str.						691
P 1124	5	31'-9"	Str.						843
P 1125	3	30'-6"	Str.						486
P 1126	5	7'-0"	Str.						186
								Total	47 843

SPIRAL REINFORCEMENT SCHEDULE

MARK	NO	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT (Lbs.)
SP 501	1	2'-8"	20'-1" ±	2"	124	1 117
SP 502	1	2'-8"	19'-5" ±	2"	120	1 081
SP 503	1	2'-8"	18'-8" ±	2"	115	1 036
SP 504	1	2'-8"	18'-0" ±	2"	111	1 000
SP 505	1	2'-8"	17'-7" ±	2½"	87	793
SP 506	1	2'-8"	16'-11" ±	2½"	84	766
SP 507	1	2'-8"	16'-4" ±	2½"	81	738
SP 508	1	2'-8"	15'-7" ±	2½"	78	710
					Total	7 241

NOTES:

54 reinf. C.I.P. Piles 14" Diam. required with an estimated average vertical length of 60 feet.
All battered piles shall be 'battered' 3 on 12.
All piles shall be driven to a capacity of 50 tons per pile.
For replacement steel schedule see Sheet 43.
For drainage details see Sheet 100 & 109.
For rustication locations and details see Sheet 85.
For details of shoes and anchor bolts see Sheet 89.
For bar bending diagrams see Sheet 43.
For spiral reinforcing notes see sheet 56

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

PIER 7 B

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3/16"-1'-0" exc. as noted
MADE H.G. DATE 11-14-56
TRCD NGK DATE 2-20-57
CKD EW DATE 2-1-57

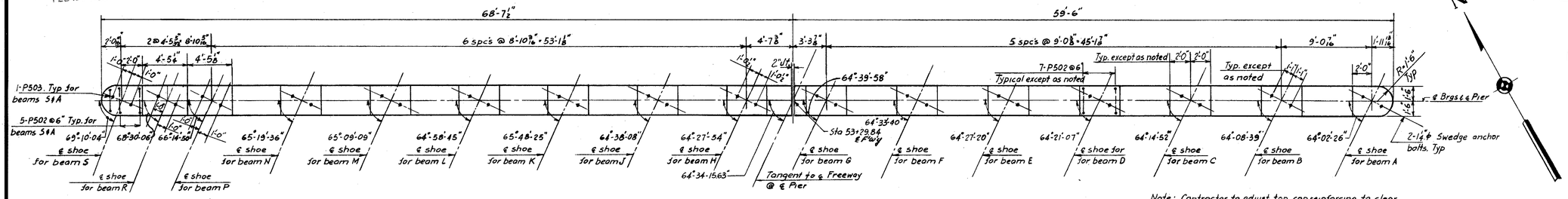
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 54

FEB 23

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

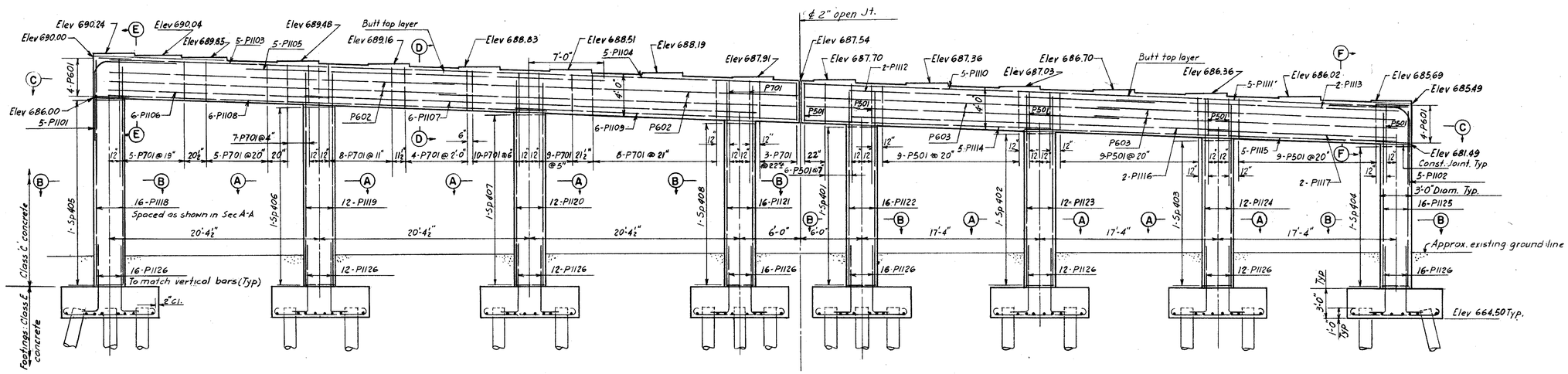
55
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



Note: Contractor to adjust top cap reinforcing to clear drilled holes for anchor bolts

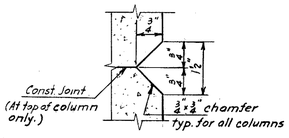
PLAN



ELEVATION

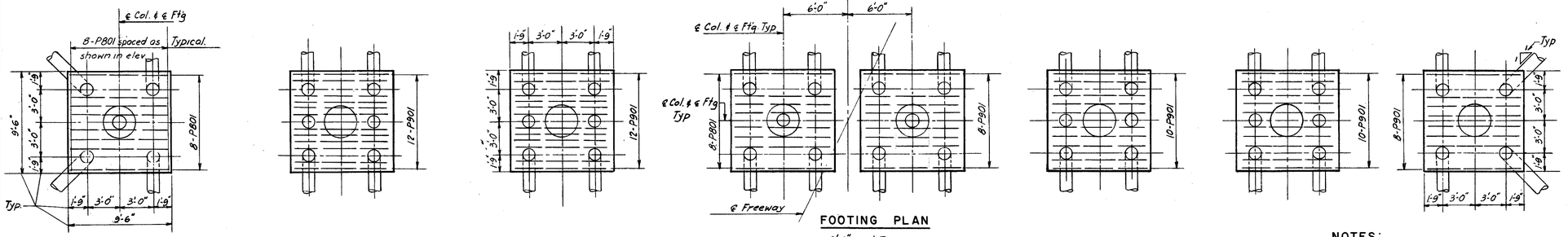
RUSTICATION DETAILS

Piers 5B to 9B incl.
⅜" = 1'-0"

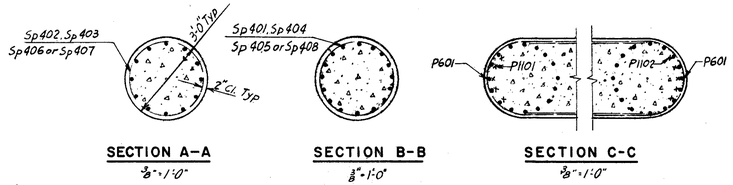


DETAIL A

half size



FOOTING PLAN



SECTION A-A
⅜" = 1'-0"

SECTION B-B
⅜" = 1'-0"

SECTION C-C
⅜" = 1'-0"

SECTION D-D
⅜" = 1'-0"

SECTION E-E
⅜" = 1'-0"

SECTION F-F
⅜" = 1'-0"

NOTES:

43-Reinf. CIP piles 14" Diam required with an estimated average vertical length of 60 ft
All battered piles battered 3 on 12
All piles shall be driven to a capacity of 50 T
For replacement steel schedule see Sh. 43
For shoe & anchor bolt details see Sh. 89
For bar list see Sh. 56
For bar bending diagrams see Sh. 43

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

PIER 8 B

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE ⅜" = 1'-0" unless noted
MADE EW DATE 11-19-56
TRCD FJG DATE 2-11-57
CKD LL DATE 2-12-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 55

FEB 23 1960

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

56
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)

PIER 8B-REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENTS	WEIGHT (lbs)
P501	40	13'-2"	109	2'-8"	3'-8"				549
P502	108	4'-8"	105	2'-8"	1'-0"				526
P503	2	4'-3"	105	2'-3"	1'-0"				9
P601	8	8'-2"	123	1'-4"	2'-0"				98
P602	8	34'-6"	Str.						415
P603	8	30'-0"	Str.						360
P701	61	13'-4"	109	2'-8"	3'-8"				1662
P801	80	11'-4"	100	9'-2"					2421
P901	60	11'-8"	100	9'-2"					2380
P1101	5	14'-10"	124	7/16"	7'-9"	7'-9"	1'-6"		394
P1102	5	14'-11	125	1/16"	7'-9"	7'-9"	1'-6"		396
P1103	5	30'-6"	Str.						810
P1104	5	36'-3"	Str.						963
P1105	5	34'-6"	Str.						916
P1106	6	22'-9"	Str.						709
P1107	6	44'-0"	Str.						1403
P1108	6	42'-6"	Str.						1355
P1109	6	28'-3"	Str.						901
P1110	5	31'-9"	Str.						844
P1111	5	26'-0"	Str.						691
P1112	2	29'-0"	Str.						308
P1113	2	27'-9"	Str.						295
P1114	5	25'-3"	Str.						671
P1115	5	36'-0"	Str.						956
P1116	2	38'-0"	Str.						404
P1117	2	19'-3"	Str.						205
P1118	16	22'-0"	Str.						1870
P1119	12	21'-3"	Str.						1355
P1120	12	20'-6"	Str.						1307
P1121	16	19'-9"	Str.						1679
P1122	16	19'-6"	Str.						1658
P1123	12	19'-0"	Str.						1211
P1124	12	18'-3"	Str.						1164
P1125	16	17'-6"	Str.						1488
P1126	112	8'-4"	104	6'-9"	1'-7"				4959
								TOTAL	37,332

PIER 9B-REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENTS	WEIGHT (lbs.)
P501	43	13'-2"	109	2'-8"	3'-8"				591
P502	112	4'-8"	105	2'-8"	1'-0"				545
P503	2	4'-3"	105	2'-3"	1'-0"				9
P601	8	8'-2"	123	1'-4"	2'-0"				98
P602	8	38'-6"	Str.						463
P603	8	31'-0"	Str.						372
P701	63	13'-4"	109	2'-8"	3'-8"				1717
P801	74	11'-4"	100	9'-2"					2739
P901	72	11'-8"	100	9'-2"					2856
P1101	126	8'-4"	104	6'-9"	1'-7"				5579
P1102	21	20'-6"	Str.						2287
P1103	12	19'-9"	Str.						1259
P1104	12	18'-9"	Str.						1195
P1105	21	18'-0"	Str.						2008
P1106	18	17'-9"	Str.						1698
P1107	12	17'-0"	Str.						1084
P1108	12	16'-3"	Str.						1036
P1109	18	15'-6"	Str.						1482
P1110	4	14'-10"	124	7/16"	7'-9"	7'-9"	1'-6"		315
P1111	5	14'-10"	125	7/16"	7'-9"	7'-9"	1'-6"		394
P1112	6	48'-0"	Str.						1530
P1113	6	30'-9"	Str.						980
P1114	6	25'-0"	Str.						797
P1115	6	49'-9"	Str.						1586
P1116	6	34'-9"	Str.						1108
P1117	6	40'-6"	Str.						1291
P1118	6	43'-3"	Str.						1379
P1119	5	25'-6"	Str.						677
P1120	5	38'-0	Str.						1009
P1121	2	39'-9"	Str.						422
P1122	2	19'-9"	Str.						210
P1123	5	32'-9"	Str.						870
P1124	5	27'-3"	Str.						724
P1125	2	30'-6"	Str.						324
P1126	2	29'-0"	Str.						308
								TOTAL	40,442

PIER 8B SPIRAL REINFORCEMENT SCHEDULE

MARK	NO.	CORE DIA. % SPIRAL.	LENGTH	PITCH	NO. OF TURNS	WEIGHT
SP401	1	2'-8"	15'-11"±	4½"	46	296
SP402	1	2'-8"	15'-3"±	4½"	44	284
SP403	1	2'-8"	14'-8"±	4½"	42	272
SP404	1	2'-8"	14'-0"±	4½"	40	258
SP405	1	2'-8"	18'-5"±	4"	59	375
SP406	1	2'-8"	17'-9"±	4"	56	357
SP407	1	2'-8"	17'-0"±	4"	54	344
SP408	1	2'-8"	16'-3"±	4"	52	331
					TOTAL	2517

PIER 9B-SPIRAL REINFORCEMENT SCHEDULE

MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT
SP401	1	2'-8"	14'-1"±	4½"	41	264
SP402	1	2'-8"	13'-5"±	4½"	39	251
SP403	1	2'-8	12'-9"±	4½"	37	239
SP404	1	2'-8"	12'-1"±	4½"	35	226
SP405	1	2'-8"	17'-1"±	4"	54	344
SP406	1	2'-8"	16'-3"±	4"	52	331
SP407	1	2'-8"	15'-6"±	4"	50	317
SP408	1	2'-8"	14'-6"±	4"	47	298
					TOTAL	2270

NOTES FOR SPIRAL REINFORCING BARS:

The "Length" shown in the reinforcement schedule for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.

The "No. of Turns" shown in the reinforcement schedule for the spiral bars is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number.

Spirol reinforcing bars shall not have deformations but shall in other respects conform to item S-4.

1½ closed coils shall be provided at the ends of each spiral unit.

Four steel channel, tee or angle spacers, weighing aproximately 0.68 lb. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lb. per lin. ft. will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

REINFORCEMENT SCHEDULE-PIERS 8B & 9B

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE None
MADE N.G. DATE 1-7-57
TRCD R.G. DATE 2-12-57
CKD C.F.H. DATE 2-13-57

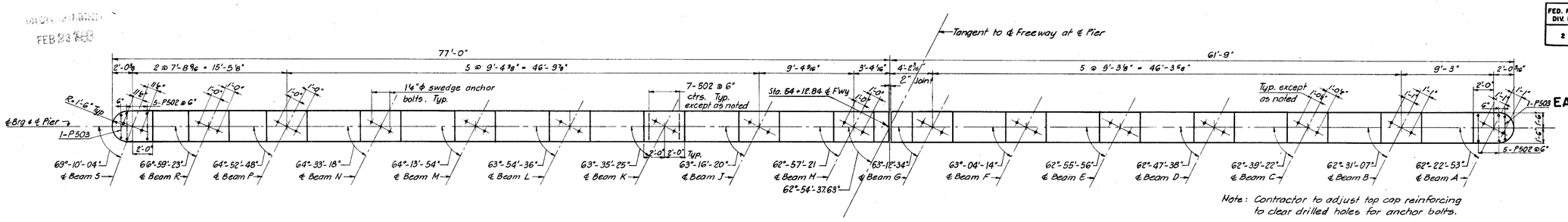
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 56

DIVISION OF PLANNING
FEB 23 1962

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

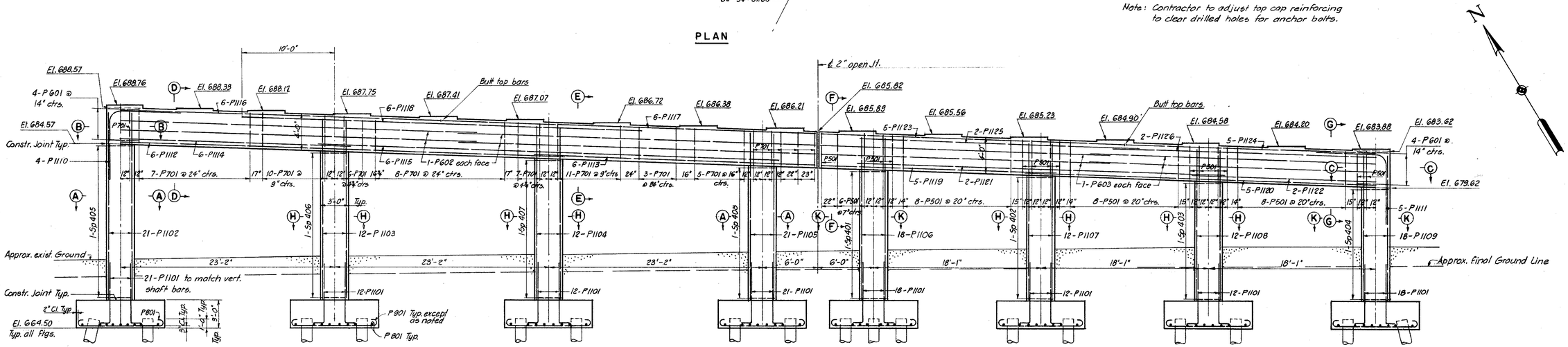
57
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)

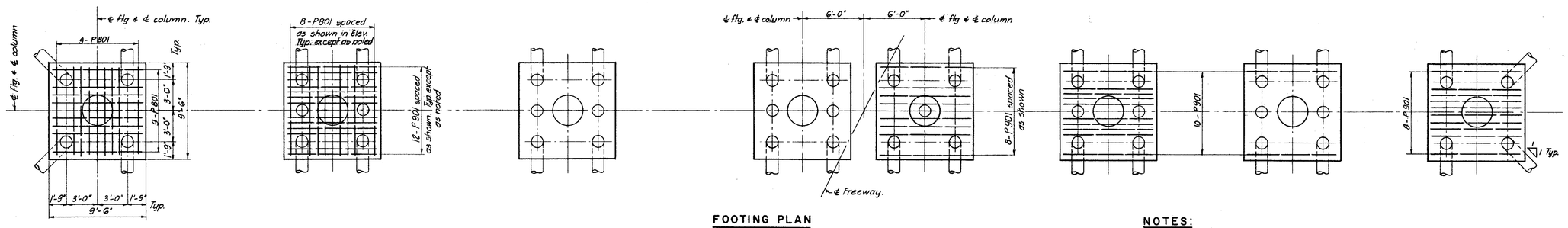


Note: Contractor to adjust top cap reinforcing to clear drilled holes for anchor bolts.

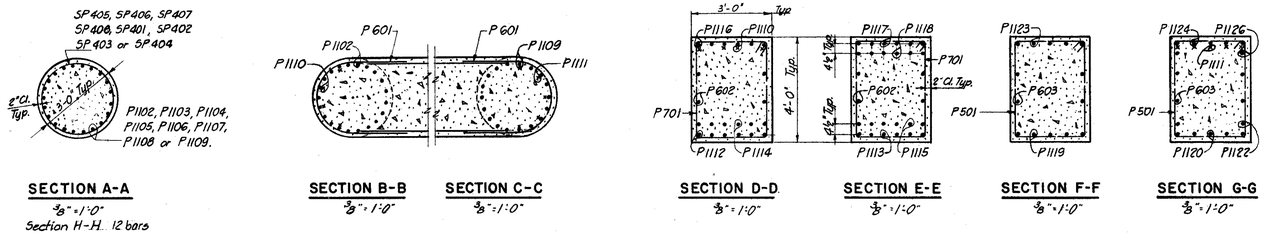
PLAN



ELEVATION



FOOTING PLAN



SECTION A-A
3/8" = 1'-0"
Section H-H 12 bars
Section K-K 18 bars

SECTION B-B
3/8" = 1'-0"

SECTION C-C
3/8" = 1'-0"

SECTION D-D
3/8" = 1'-0"

SECTION E-E
3/8" = 1'-0"

SECTION F-F
3/8" = 1'-0"

SECTION G-G
3/8" = 1'-0"

NOTES:

43 reinf. C.I.P. Piles 14" Diam. required with an estimated average vertical length of 60 feet.
All battered piles shall be battered 3 on 12.
All piles shall be driven to a capacity of 50 tons per pile.
For replacement steel schedule see Sh. 48
For bar list see Sh. 56
For drainage details see Sh. 108 & 109
For rustication locations and details see Sh. 55
For details of shoes and anchor bolts see Sh. 59

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

PIER 9 B

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3/16" = 1'-0" unless noted
MADE H.G. DATE 11-19-56
TRCD N.R.K. DATE 2-20-57
CKD E.W. DATE 2-1-57

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

914 (2E) B SHEET- 57

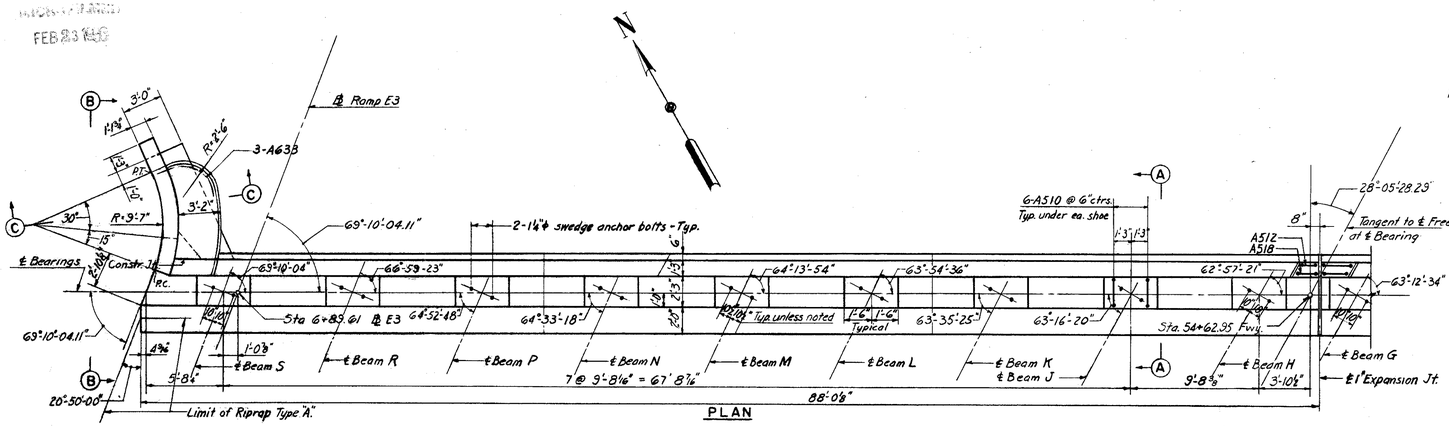
FEB 23 1956

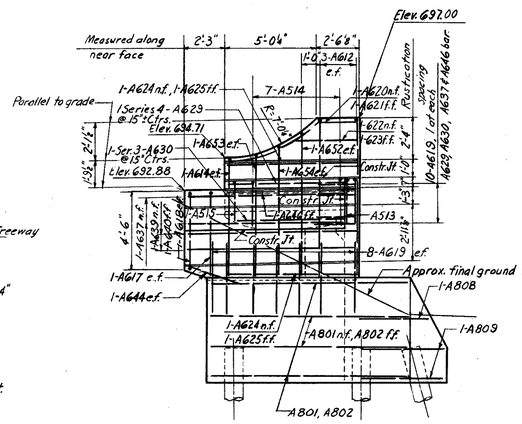
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

58
117

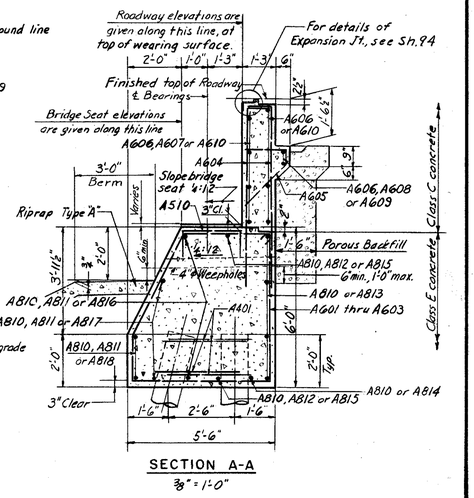
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)

Note:
Top of backwall to follow crown of roadway.

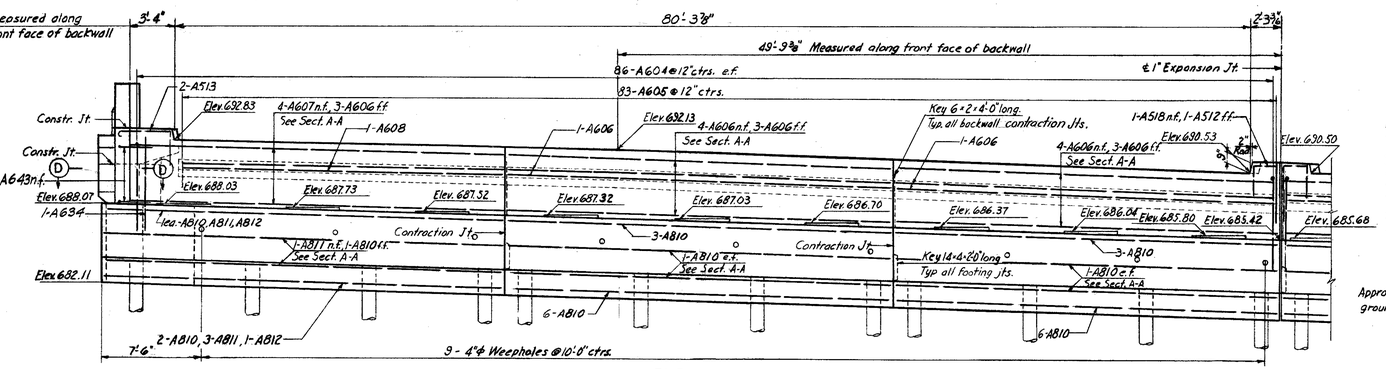




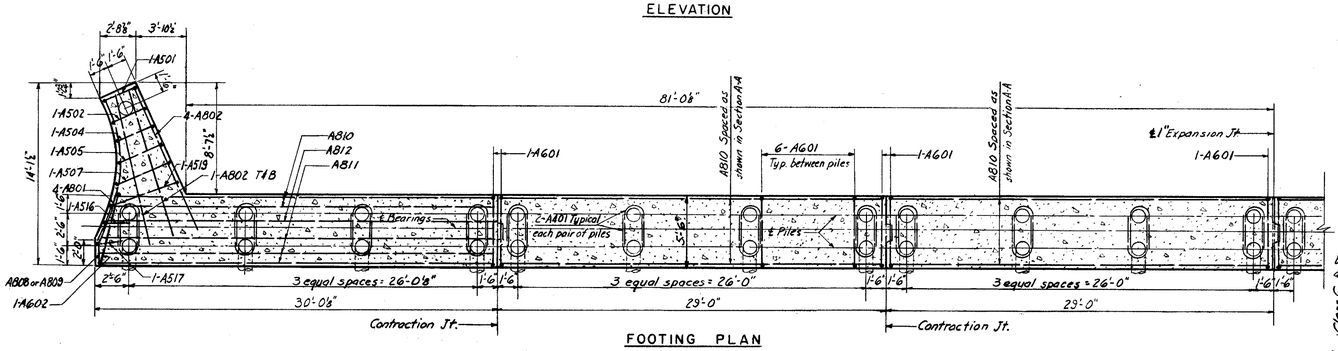
ELEVATION B-B
¼" = 1'-0"



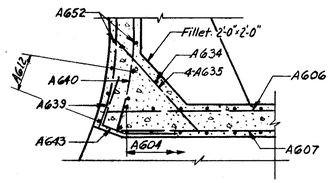
SECTION A-A
⅜" = 1'-0"



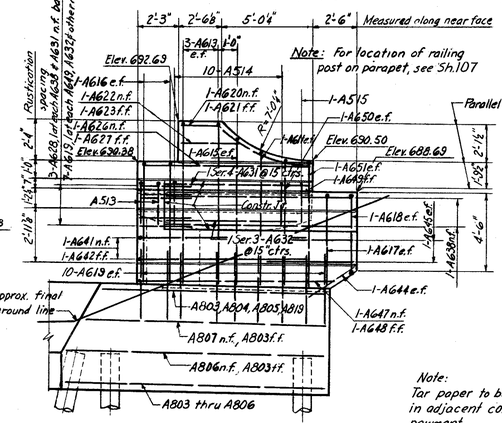
ELEVATION



FOOTING PLAN

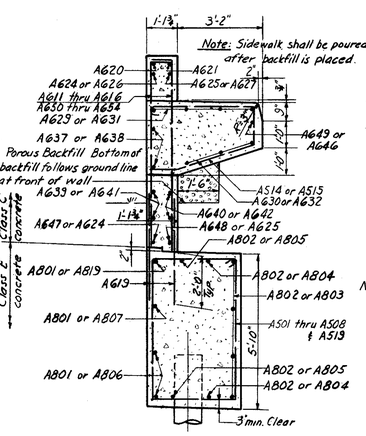


SECTION D-D
⅜" = 1'-0"

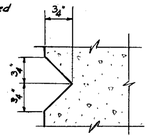


ELEVATION E-E
¼" = 1'-0"

Note:
Tar paper to be included in adjacent concrete for payment.

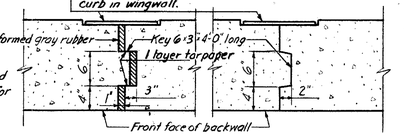


SECTION C-C
⅜" = 1'-0"



RUSTICATION DETAIL
Half Size

Note:
Provide granular material under sidewalk.



EXPANSION JOINT DETAILS
CONTRACTION
1" = 1'-0"

NOTES

Abutment backwall is to be poured after expansion joint is attached to superstructure.

44-12" ϕ Remf. C.I.P. piles reqd. for Abutment 1B, with an estimated average vertical length of 60 feet.

Piles shall be battered 3 on 12 where shown.

All piles shall be driven to a capacity of 40 tons per pile.

For shoes & anchor bolt details, see Sh. 89.

For Bar List, see Sh. 59.

Contractor to adjust reinforcement at bridge seat to clear drilled holes for swedge anchor bolts.

For replacement steel schedule, see Sh. 43.

For location of Elevation E-E, see Sh 59.

n.f., f.f., e.f., T & B. denote near face, far face, each face, Top & Bottom, respectively.

For details of Riprap Type "A", see Sh. 59.

For location of conduit "See Sheet 107 and sheet 111.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

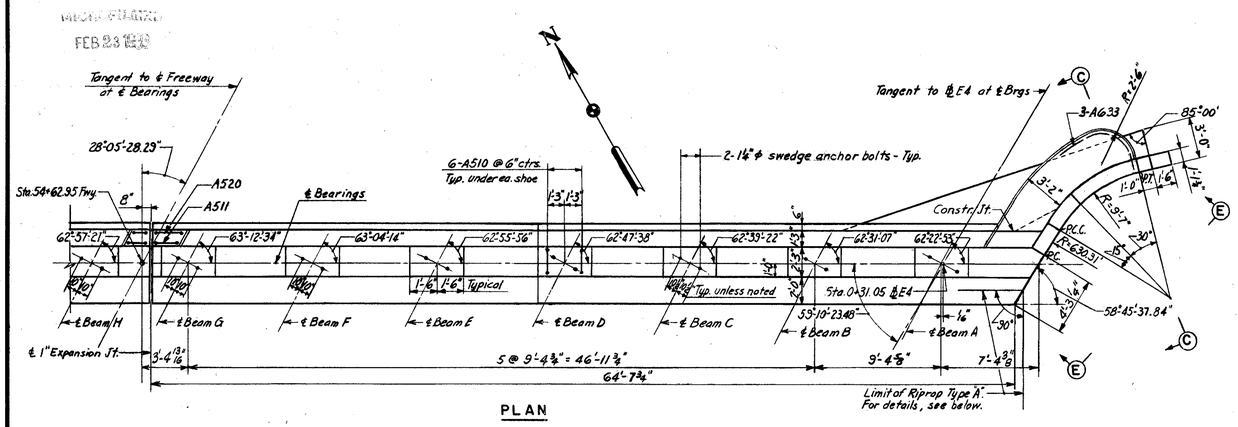
ABUTMENT 1B

CLEVELAND CUYAHOGA COUNTY OHIO

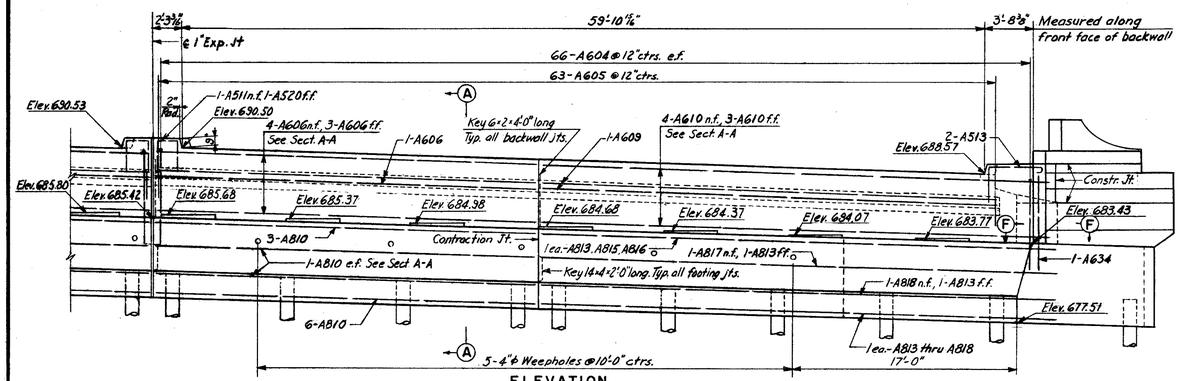
SCALE 3/16" = 1'-0" Unless noted
MADE H.H.C. DATE 12-18-56
TRCD J.L.G. DATE 2-13-57
CKD E.W. DATE 1-22-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET 58

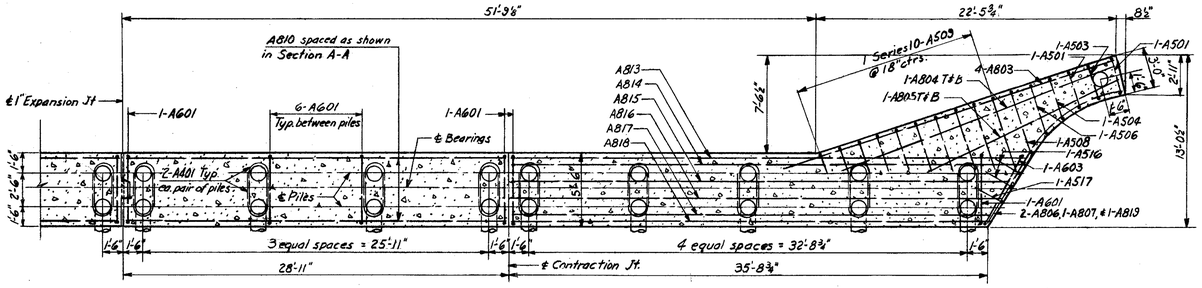
MICRO-FILMED
FEB 23 1962



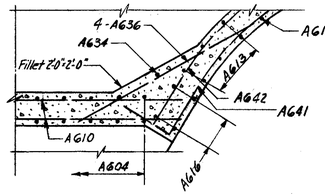
PLAN



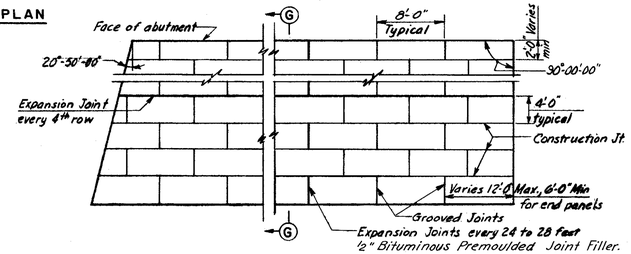
ELEVATION



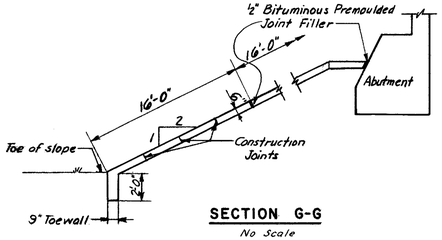
FOOTING PLAN



SECTION F-F
⅜" = 1'-0"



RIPRAP TYPE "A" DETAILS
No Scale



SECTION G-G
No Scale

NOTE:
Riprap Type "A" shall be 6" thick reinforced concrete. Reinforcement shall be 6"x 6" wire mesh #6 gauge. The grooves between expansion joints shall be 1" deep.
Payment for item I-10, Riprap Type "A" concrete slab, shall include all plant, labor, excavation, materials, placing and finishing, including its toewall as shown on the plans.

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (Lbs.)
A401	84	7'-1"	123	8"	2'-6"				397
A501	3	16'-6"	109	2'-8"	5'-3"				52
A502	1	16'-8"	109	2'-9"	5'-3"				17
A503	1	16'-2"	109	2'-6"	5'-3"				17
A504	2	17'-2"	109	3'-0"	5'-3"				36
A505	1	18'-4"	109	3'-7"	5'-3"				19
A506	1	18'-8"	109	3'-9"	5'-3"				19
A507	1	20'-0"	109	4'-5"	5'-3"				21
A508	1	20'-6"	109	4'-8"	5'-3"				21
A509	1 Series 10	8'-3" to 17'-3"	105	5'-3"	1'-6" to 6'-0"			0'-6"	133
A510	96	4'-0"	105	2'-0"	1'-0"				401
A511	1	6'-9"	105	1'-9"	2'-6"				7
A512	1	6'-2"	105	1'-2"	2'-6"				6
A513	4	6'-9"	103	3'-8"	2'-6"				28
A514	17	9'-10"	127	3'-9"	3⅜	3'-0"	1'-0"		174
A515	2	8'-2"	127	3'-0"	3⅜	2'-1"	1'-0"		17
A516	3	9'-4"	105	5'-4"	2'-0"				29
A517	2	8'-3"	105	4'-3"	2'-0"				17
A518	1	6'-7"	105	1'-7"	2'-6"				7
A519	1	22'-8"	109	5'-9"	5'-3"				24
A520	1	7'-2"	105	2'-2"	2'-6"				7
A601	105	20'-7"	126	4'-2"	3'-4"	5'-6"	5'-2"		3246
A602	1	20'-10"	126	4'-2"	3'-5"	5'-6"	5'-4"		31
A603	1	21'-9"	126	4'-3"	3'-9"	5'-6"	5'-10"		33
A604	304	7'-6"	104	11"	6'-7"				3425
A605	146	3'-11"	130	1'-5"	6"	2'-0"	1'-5"		859
A606	30	28'-6"	Str.						1,284
A607	4	27'-6"	Str.						165
A608	2	24'-0"	Str.						72
A609	2	34'-0"	Str.						102
A610	7	38'-0"	Str.						400
A611	2	8'-4"	104	10"	7'-6"				25
A612	6	3'-7"	104	10"	8'-9"				86
A613	6	9'-11"	104	10"	9'-1"				89
A614	2	7'-4"	104	10"	6'-6"				22
A615	2	9'-1"	104	10"	8'-3"				27
A616	4	7'-7"	104	10"	6'-9"				46
A617	4	5'-10"	104	10"	5'-0"				35
A618	4	5'-0"	104	10"	4'-2"				30
A619	53	4'-0"	Str.						318
A620	2	7'-9"	132	2'-4"	5'-5"	7'-2"	9'-9"		23
A621	2	8'-2"	132	2'-4"	5'-10"	7'-2"	10'-7"		25
A622	2	3'-6"	134	3'-6"	9'-9"				11
A623	2	3'-9"	134	3'-9"	10'-7"				11
A624	2	7'-4"	134	7'-4"	9'-9"				22
A625	2	8'-0"	134	8'-0"	10'-7"				24
A626	1	9'-5"	133	2'-1"	7'-4"	9'-9"			14
A627	1	10'-1"	133	2'-1"	8'-0"	10'-7"			15
A628	3	2'-6"	104	2'-6"	2'-0"				11
A629	1 Series 4	6'-3"	134	6'-3"	9'-9" to 13'-6"			1'-3"	38
A630	1 Series 3	6'-3" to 6'-9"	134	6'-3" to 6'-9"	11'-6" to 13'-6"			A=0'-3" B=1'-3"	29
A631	1 Series 4	8'-4" to 10'-10"	134	8'-4" to 10'-10"	9'-9" to 13'-6"			A=2'-10" B=1'-3"	58
A632	1 Series 3	9'-2" to 10'-10"	134	9'-2" to 10'-10"	11'-0" to 13'-6"			A=1'-10" B=1'-3"	45
A633	6	7'-0"	133	1'-6"	5'-6"	2'-2"			63
A634	2	7'-0"	Str.						21
A635	4	4'-9"	Str.						29

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (Lbs.)
A636	4	7'-3"	Str.						44
A637	2	8'-5"	133	2'-1"	6'-4"	9'-9"			25
A638	2	10'-10"	133	2'-4"	8'-6"	9'-9"			33
A639	2	9'-5"	133	2'-1"	7'-4"	9'-9"			28
A640	2	10'-1"	133	2'-1"	8'-0"	10'-7"			30
A641	2	11'-7"	137	2'-1"	7'-6"	9'-9"	2'-0"		35
A642	2	10'-4"	133	2'-1"	8'-3"	10'-7"			31
A643	6	4'-7"	130	1'-11"	9"	1'-11"	1'-9"		41
A644	4	3'-0"	Str.						18
A645	4	4'-3"	133	2'-4"	1'-11"	9'-9"			26
A646	1	6'-3"	134	6'-3"	13'-6"				9
A647	1	12'-7"	137	2'-1"	8'-6"	9'-9"	2'-0"		19
A648	1	10'-7"	133	2'-1"	8'-6"	10'-7"			16
A649	1	10'-10"	134	10'-10"	13'-6"				16
A650	2	7'-10"	104	10"	7'-0"				24
A651	2	7'-8"	104	10"	6'-10"				23
A652	2	8'-8"	104	10"	7'-10"				26
A653	2	7'-6"	104	10"	6'-8"				23
A654	2	7'-11"	104	10"	7'-1"				24
A801	4	11'-1"	133	2'-9"	8'-4"	9'-9"			118
A802	8	11'-6"	Str.						246
A803	4	26'-0"	Str.						278
A804	2	21'-9"	Str.						116
A805	2	16'-0"	Str.						85
A806	2	14'-7"	133	6'-3"	8'-4"	9'-9"			78
A807	1	13'-7"	133	5'-3"	8'-4"	9'-9"			36
A808	1	3'-5"	108	11"	2'-4"	11"			9
A809	2	4'-4"	108	1'-10"	2'-4"	11"			23
A810	44	28'-6"	Str.						3348
A811	6	29'-6"	Str.						473
A812	2	29'-0"	Str.						155
A813	4	38'-6"	Str.						411
A814	1	38'-0"	Str.						101
A815	2	37'-3"	Str.						199
A816	2	36'-9"	Str.						196
A817	2	36'-0"	Str.						192
A818	2	35'-6"	Str.						190
A819	1	12'-7"	133	4'-3"	8'-4"	9'-9"			34
								Total	18,962

NOTES:
For Sections A-A, C-C, & E-E, see Sh. 58
For bar bending diagrams, see Sh. 48
For additional notes, see Sh. 58
For location of conduit see sh. 107 and sh. 111.

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

59
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750

ABUTMENT 1B

CLEVELAND CUYAHOGA COUNTY OHIO

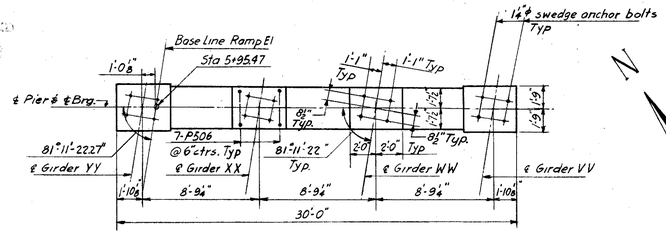
SCALE ⅜"=1'-0" Unless noted
MADE WTG. DATE 12-18-56
TRCD J.G. DATE 2-26-57
CKD E.W. DATE 1-22-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 59

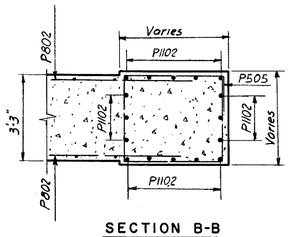
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

64
117

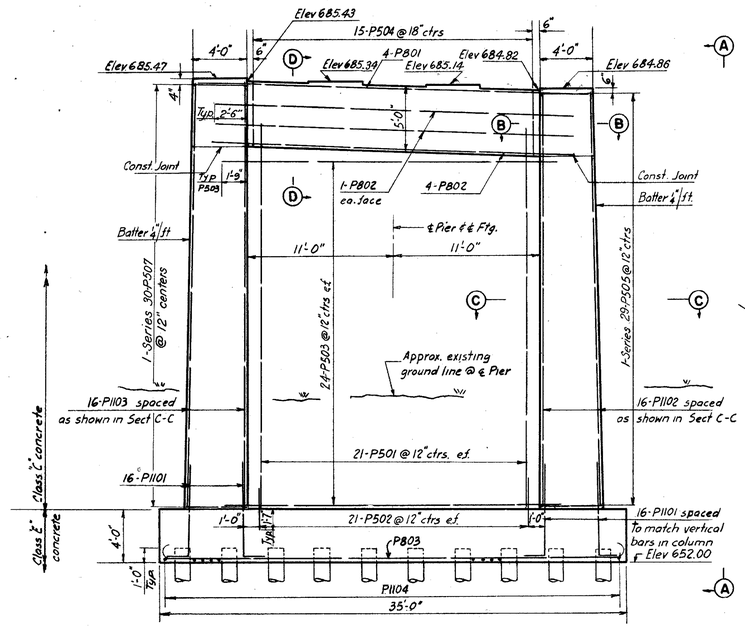
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



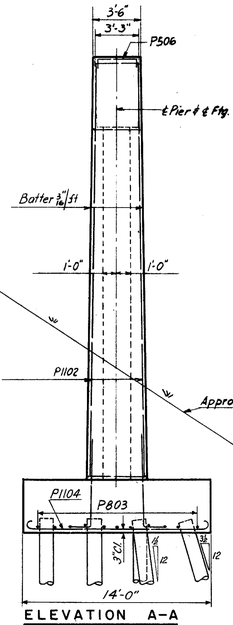
PLAN



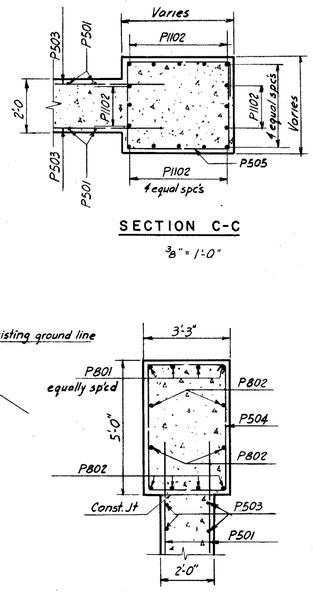
SECTION B-B
⅜" = 1'-0"



ELEVATION

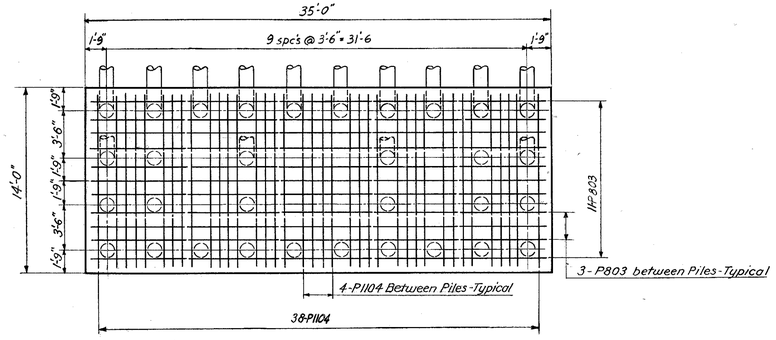


ELEVATION A-A



SECTION C-C
⅜" = 1'-0"

SECTION D-D
⅜" = 1'-0"



FOOTING PLAN

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (Lbs.)
P501	42	26'-0"	Str						1139
P502	42	3'-3"	Str						142
P503	48	25'-6"	Str						1277
P504	15	15'-10"	109	2'-11"	4'-8				248
P505	1 Series 29	15'-3" to 18'-1"	136	3'-8" to 4'-3"	3'-2" to 4'-0"	1'-7"		A=0'-6", B=0'-4"	504
P506	28	4'-11"	105	2'-11	1'-0"				144
P507	1 Series 30	15'-3" to 18'-3"	136	3'-8" to 4'-3"	3'-2" to 4'-1"	1'-7"		A=0'-6", B=0'-8"	524
P801	4	29'-6"	Str						315
P802	8	27'-0"	Str						577
P803	11	36'-10"	100	36'-8"					1082
P1101	32	8'-10"	104	7'-3"	1'-7"				1502
P1102	16	28'-6"	Str						2423
P1103	16	29-3	Str						2486
P1104	38	16'-10	100	13'-8"					3399
								Total =	15,762

NOTES:

32 reinf. CIP Piles 14ø required with an estimated vert. length of 60 ft
All piles shall be driven to a capacity of 50 Tons per pile.
For drainage details see Sh. 108 & 109.
Contractor to adjust top cap reinforcing to provide clearance for swedge anchor bolts.
For details of shoes and anchor bolts see Sh. 89
For replacement steel schedule see Sh. 43.
For bar bending diagrams see Sh. 43.
e.f. denotes each face.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

PIER 2E1

CLEVELAND CUYAHOGA COUNTY OHIO

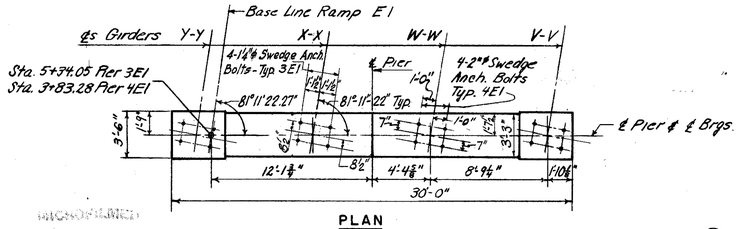
SCALE 1"=1'-0 unless noted
MADE EW DATE 12-11-56
TRCD M.R.S. DATE 2-25-57
CKD H.M.C. DATE 2-26-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-64

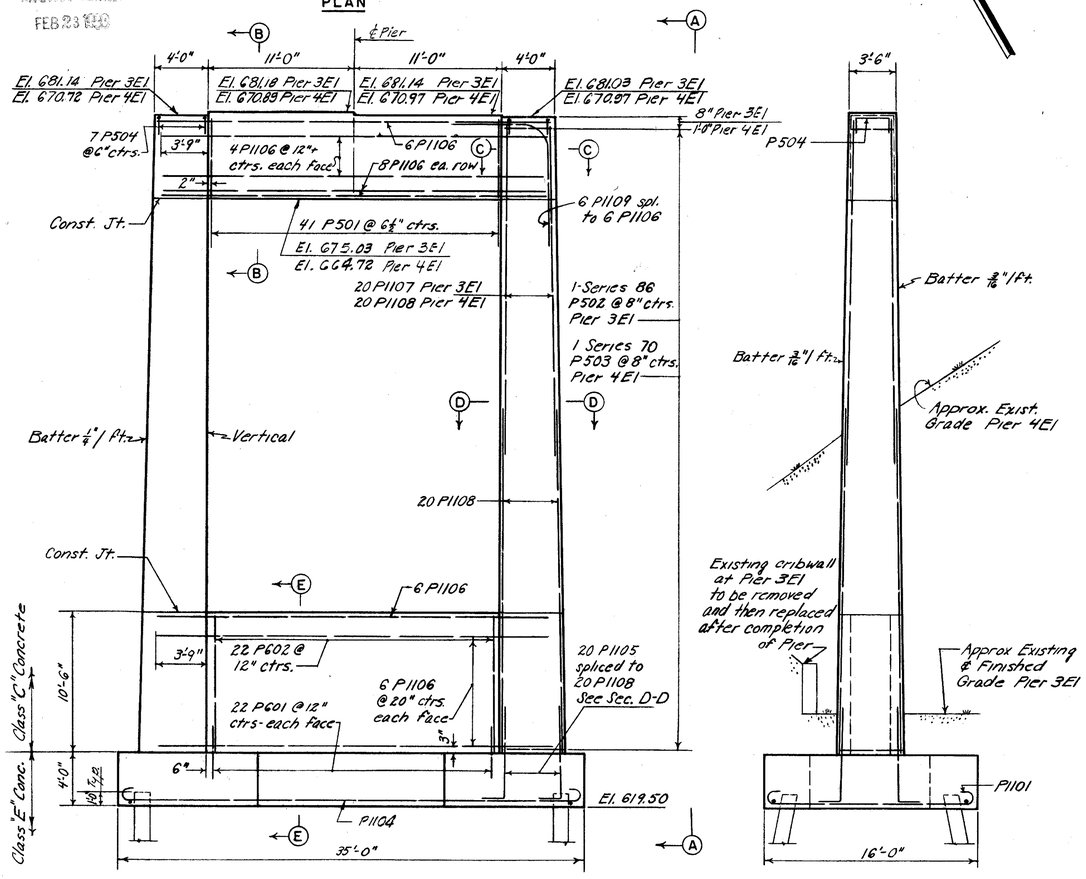
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

65
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



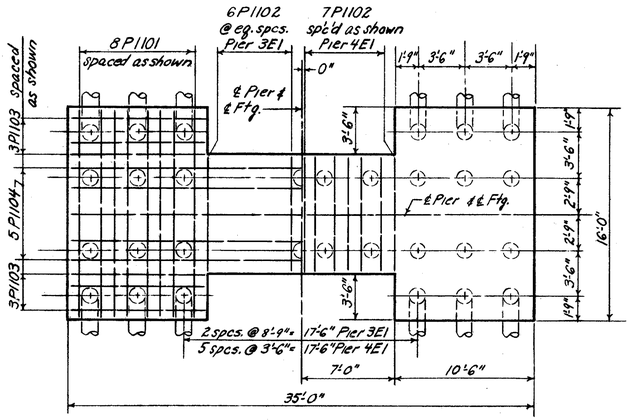
PLAN



ELEVATION

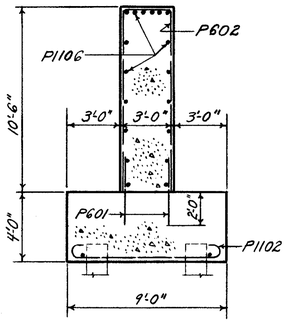
ELEVATION A-A

Piers 3E1 & 4E1 are sym. abt. ℄s except as noted
Top of cap shown for Pier 3E1

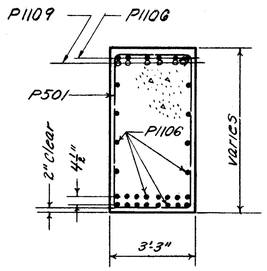


FOOTING PLAN

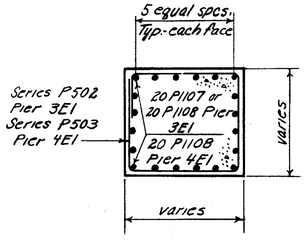
Footing dimensions, pile spacing, & reinf. are sym. abt. ℄s



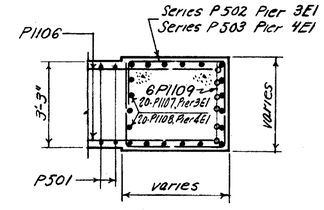
SECTION E-E
¼" = 1'-0"



SECTION B-B
⅜" = 1'-0"



SECTION D-D
⅜" = 1'-0"



SECTION C-C
⅜" = 1'-0"

REINFORCEMENT SCHEDULE									
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (Lbs.)
PIER 3E1									
P501	41	17'-10"	109	2'-11"	5'-8"				763
P502	2 Series 86	15'-3" to 21'-2"	136	3'-8½"&4'-10⅝"	3'-2½"&4'-11⅛"	1'-7"			3267
P504	14	5'-0"	105	3'-0"	1'-0"				73
P601	44	4'-0"	Str.						264
P602	22	23'-4"	105	2'-8"	10'-4"				771
P1101	16	18'-10"	100	15'-8"					1601
P1102	12	11'-10"	100	8'-8"					754
P1103	12	13'-4"	100	10'-2"					850
P1104	5	37'-10"	100	34'-8"					1005
P1105	40	8'-10"	104	7'-3"	1'-7"				1877
P1106	48	29'-6"	Str						7523
P1107	40	35'-6"	Str						7544
P1108	40	25'-6"	Str						5419
P1109	12	15'-9"	124	¼	7'-4"	9'-3"	2'-0"		1004
								Total =	32,715
PIER 4E1									
P501	41	17'-10"	109	2'-11"	5'-8"				763
P503	2 Series 70	15'-6" to 21'-1"	136	3'-8¼"&4'-7½"	3'-2¼"&4'-7½"	1'-7"		4 @ 8" 2 @ 8½" Rad. 8'-0"	2586
P504	14	5'-0"	105	3'-0"	1'-0"				73
P601	44	4'-0"	Str						264
P602	22	23'-4"	105	2'-8"	10'-4"				771
P1101	16	18'-10"	100	15'-8"					1601
P1102	13	11'-10"	100	8'-8"					817
P1103	12	13'-4"	100	10'-2"					850
P1104	5	37'-10"	100	34'-8"					1005
P1105	40	8'-10"	104	7'-3"	1'-7"				1877
P1106	48	29'-6"	Str						7523
P1108	80	25'-6"	Str						10839
P1109	12	15'-9"	124	¼	7'-4"	9'-3"	2'-0"		1004
								Total =	28,973

NOTES:
Piers 3E1 & 4E1 are similar except as noted
All piles are 14"ø cast in place reinf. conc. piles - 50 T capacity
Battered piles are battered 2 on 12
Pier 3E1 - 26 piles - average estimated vertical length = 60'
Pier 4E1 - 32 piles - average estimated vertical length = 60'
Contractor to adjust top cap reinf. to clear drilled holes for swedge anchor bolts.
For shoe & anchor bolt details see Sh. 69.
For Replacement Steel Schedule see Sh. 43.
For Bar Bending Diagrams see Sh. 43.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

PIERS 3E1 & 4E1

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE ½" = 1'-0" UNLESS NOTED
MADE C.P. DATE 12-6-56
TRCD H.H.C. DATE 2-25-57
CKD H.H.C. DATE 2-26-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E1) B SHEET-65

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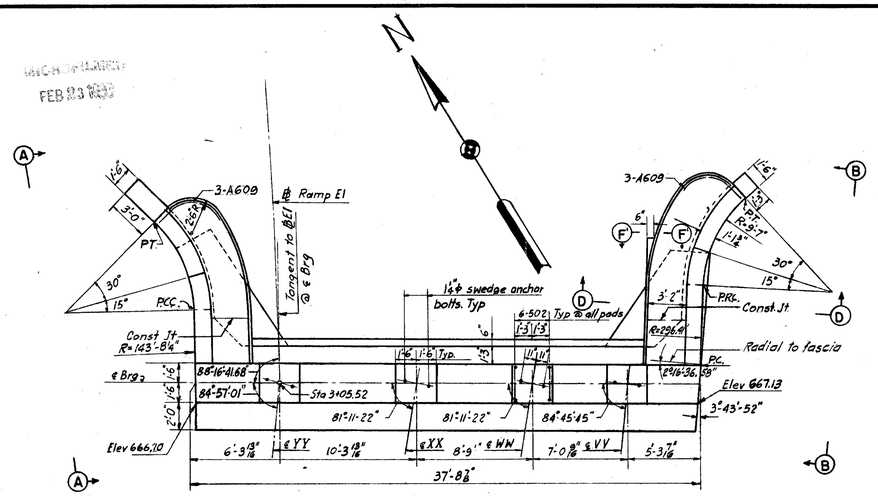
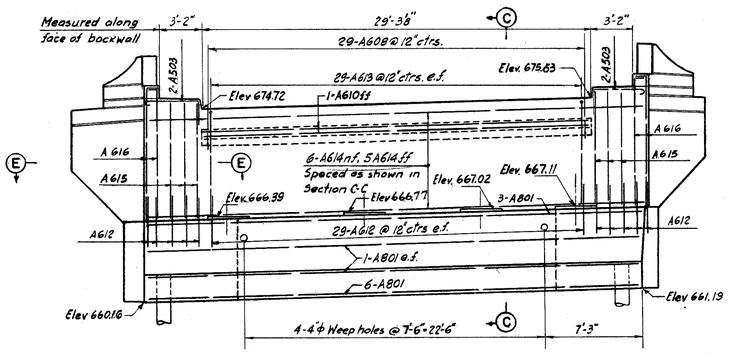
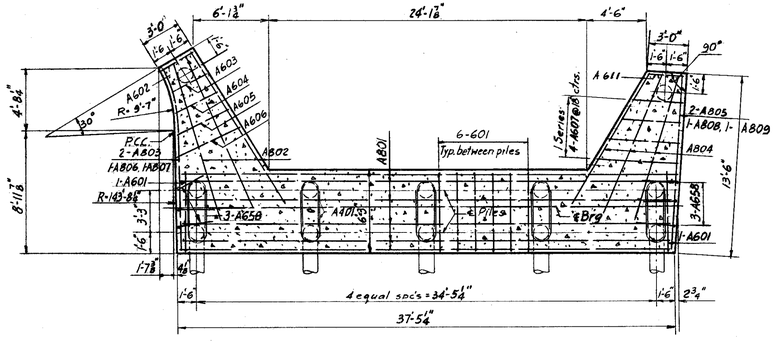


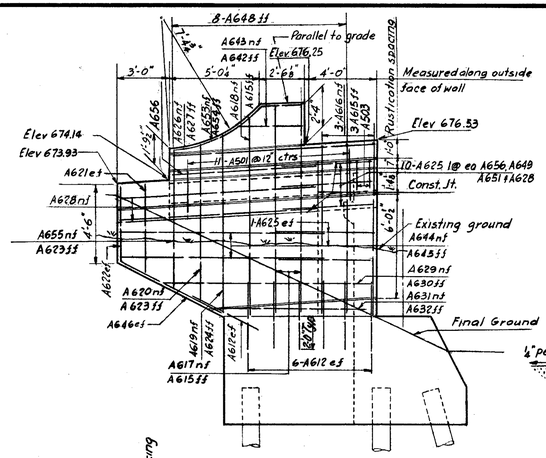
PLAN



ELEVATION

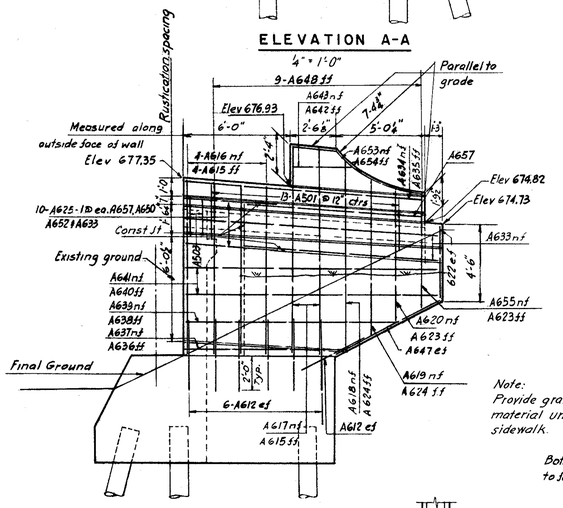


FOOTING PLAN



ELEVATION A-A

4" = 1'-0"

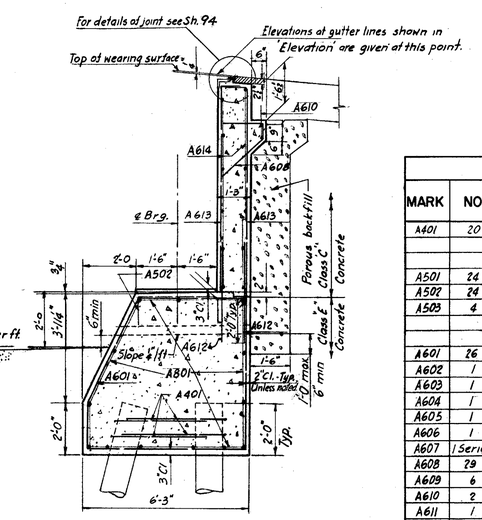


ELEVATION B—B

4" = 1'-0"

NOTES:

12-12"ϕ Reinf. C.I.P. piles req'd with an estimated average vertical length of 60 ft.
Piles shall be bottered 3 on 12 where shown.
All piles shall be driven to a capacity of 90 tons.
Abutment backwall is to be poured after exp. jt is attached to superstructure
Contractor to adjust reinforcing at bridge seat to clear drilled holes for swedge anchor bolts
For replacement steel schedule see Sh. 43
For bar bending diagram see Sh. 43
For railing post on parapet see Sh. 106
For shoes & anchor bolt details see Sh. 88
For Section F-F see Sh. 88
For rustication detail see Sh. 58
Rustication shall be parallel to grade,
Sidewalk shall be poured after backfill has been placed.
n.f., f.f, & e.f. denote near face, far face & each face respectively.
For location of conduit see Sh. 106 and Sh. 111.

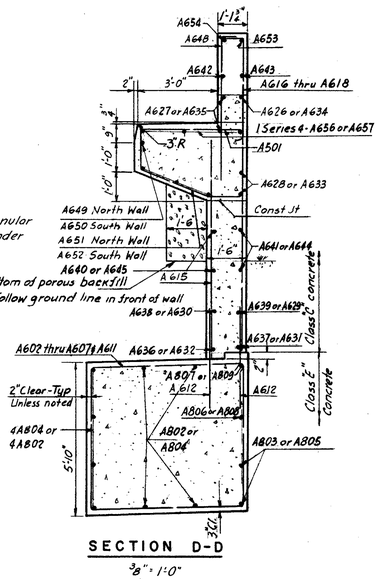


SECTION C-C

3/8" = 1'-0"

SECTION E-E

4" = 1'-0"



SECTION D-D

3/8" = 1'-0"

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (Lbs.)
A801	13	37'-0"	Str						1284
A802	8	13'-6"	Str						288
A803	2	13'-9"	133	8'-10"	4'-11"	9'-9"			73
A804	8	11'-3"	Str						240
A805	2	13'-0"	Str						69
A806	1	12'-9"	133	7'-10"	4'-11"	9'-9"			34
A807	1	11'-9"	133	6'-10"	4'-11"	9'-9"			31
A808	1	12'-0"	Str						32
A809	1	11'-0"	Str						29
								Total :	7985

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

66
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (Lbs.)
A401	20	8'-7"	123	0'-8"	3'-3"				115
A501	24	9'-10"	127	3'-9"	4'-4	2'-8"	1'-4"		246
A502	24	4'-8"	105	2'-8"	1'-0"				117
A503	4	6'-10"	103	3'-9"	2'-6"				29
A601	26	22'-0"	126	4'-2"	4'-0"	5'-6"	5'-11"		869
A602	1	16'-10"	131	5'-5"	2'-8"	5/16			25
A603	1	17'-4"	131	5'-5"	2'-11"	5/16			26
A604	1	18'-4"	131	5'-5"	3'-5"	5/16			28
A605	1	20'-2"	131	5'-5"	4'-4"	5/16			30
A606	1	21'-10"	131	5'-5"	5'-2"	5/16			33
A607	1 Series 4	19'-2" To 24'-2"	131	5'-5"	3'-10 to 6'-6	5/16		B=0'-10"	130
A608	29	3'-11"	130	1'-5"	0'-6"	2'-0"	1'-5"		171
A609	6	7'-0"	133	1'-6"	5'-6"	2'-2"			63
A610	2	28'-9"	Str						86
A611	1	17'-0"	131	5'-5"	2'-9"	5/16			26
A612	92	6'-3"	Str						587
A613	58	9'-2"	106	8'-3"	0'-11"				799
A614	11	37'-6"	Str						620
A615	18	8'-9"	Str						237
A616	9	10'-4"	104	9'-7"	0'-9"				140
A617	4	12'-7"	104	11'-10"	0'-9"				76
A618	2	11'-6"	104	10'-9"	0'-9"				35
A619	2	9'-9"	104	9'-0"	0'-9"				29
A620	2	8'-3"	104	7'-6"	0'-9"				25
A621	2	6'-3"	106	1'-2"	5'-1"				19
A622	4	5'-5"	104	1'-2"	4'-3"				33
A623	10	5'-6"	Str						83
A624	3	7'-0"	Str						32
A625	24	5'-3"	Str						189
A626	1	11'-2"	133	3'-10"	7'-4"	9'-9"			17
A627	1	11'-10"	133	3'-10"	8'-0"	10'-7"			18
A628	2	11'-1"	133	2'-10"	8'-3"	9'-9"			33
A629	1	11'-7"	133	3'-10"	7'-9"	9'-9"			17
A630	1	12'-6"	133	3'-10"	8'-8"	10'-11"			19
A631	1	9'-1"	133	3'-10"	5'-3"	9'-9"			14
A632	1	9'-9"	133	3'-10"	5'-11"	10'-11"			15
A633	2	11'4"	133	2'-9"	8'-7"	9'-9"			34
A634	1	13'-2"	133	5'-10"	7'-4"	9'-9"			20
A635	1	13'-10"	133	5'-10"	8'-0"	10'-7"			21
A636	1	9'-2"	133	5'-10"	3'-0"	10'-11"			14
A637	1	8'-10"	133	5'-10"	2'-8"	9'-9"			13
A638	1	12'-3"	133	5'-10"	6'-5"	10'-11"			18
A639	1	11'-7"	133	5'-10"	5'-9"	9'-9"			17
A640	2	15'-4"	133	5'-10"	9'-6"	10'-11"			46
A641	2	14'-5"	133	5'-10"	8'-7"	9'-9"			43
A642	2	3'-9"	134	3'-9"	10'-7"				11
A643	2	3'-6"	134	3'-6"	9'-9"				11
A644	2	11'-6"	133	2'-10"	8'-8"	9'-9"			35
A645	2	12'-5"	133	2'-10"	9'-7"	10'-11"			37
A646	2	6'-0"	133	3'-0"	3'-0"	10'-0"			18
A647	2	6'-6"	134	6'-6"	10'-0"				20
A648	17	6'-0"	104	0'-9"	5'-3"				153
A649	1	9'-6"	133	0'-9"	8'-9"	13'-6"			14
A650	1	11'-6"	133	2'-9"	8'-9"	13'-6"			17
A651	1 Series 3	8'-3"	133	0'-9"	7'-6"	11'-0 to 13'-6		1'-3"	37
A652	1 Series 3	10'-3"	133	2'-9"	7'-6"	11'-0 to 13'-6		1'-3"	46
A653	2	7'-9"	132	2'-4"	5'-5"	7'-7"	9'-9"		23
A654	2	8'-2"	132	2'-4"	5'-10"	7'-7"	10'-7"		25
A655	2	7'-3"	104	0'-9"	6'-6"				22
A656	1 Series 4	8'-3"	133	0'-9"	7'-6"	9'-5 to 13'-6"		1'-3"	50
A657	1 Series 4	10'-3"	133	2'-9"	7'-6"	9'-9 to 13'-6"		1'-3"	62
A658	6	8'-6"	105	5'-4"	2'-0"				77

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

ABUTMENT E1

CLEVELAND CUYAHOGA COUNTY OHIO

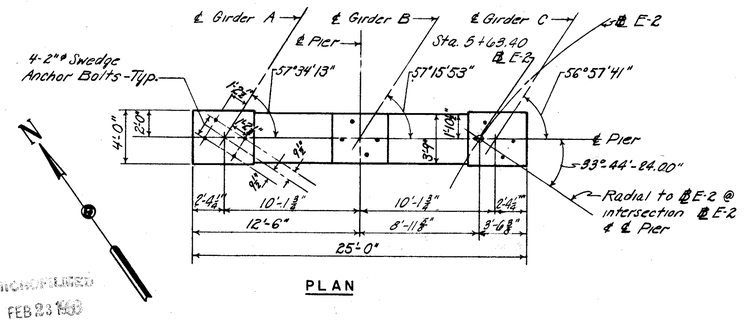
SCALE 3/8" = 1'-0 unless noted
MADE EM DATE 11-17-56
TRCD M.R.K DATE 2-26-57
CKD M.K.C. DATE 2-26-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 66

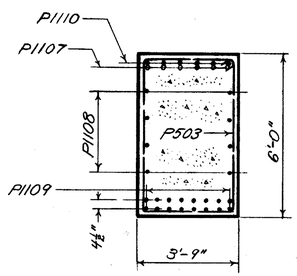
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

67
117

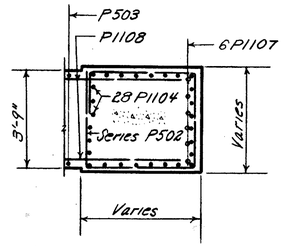
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



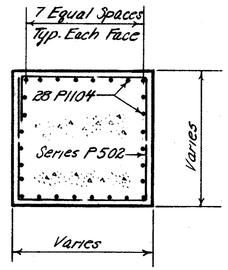
PLAN



SECTION B-B
⅜" = 1'-0"

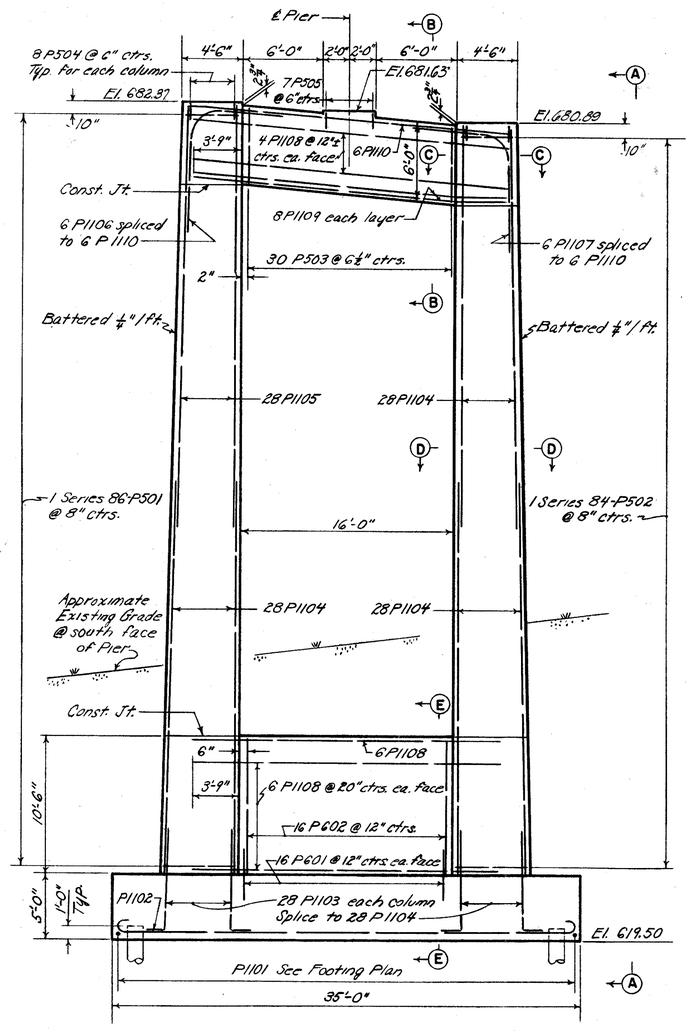


SECTION C-C
⅜" = 1'-0"

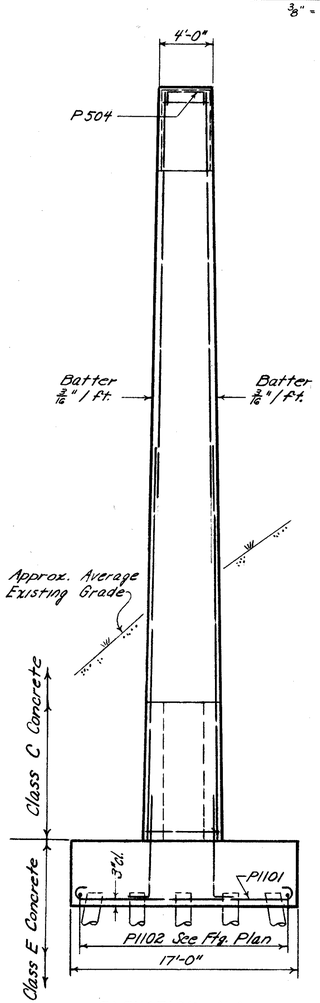


SECTION D-D
⅜" = 1'-0"

REINFORCEMENT SCHEDULE									
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (Lbs.)
P501	1 Series 86	17'-4" to 23'-3"	136	4'-5¹¹⁄₁₆" to 5'-4½"	3'-4¹⁄₁₆" to 5'-5⅛"	1'-7"		A-0'-0²⁵⁄₃₂"	1820
P502	1 Series 84	17'-4" to 23'-3"	136	4'-4¹⁵⁄₁₆" to 5'-4"	3'-3¹⁵⁄₁₆" to 5'-5"	1'-7"		B-0'-0²⁵⁄₃₂"	1770
P503	30	18'-10"	109	3'-5"	5'-8"				589
P504	16	5'-3"	105	3'-3"	1'-0"				88
P505	7	5'-0"	105	3'-0"	1'-0"				37
P601	32	4'-0"	Str.						192
P602	16	23'-4"	105	2'-8"	10'-4"				561
P1101	31	19'-10"	100	16'-8"					3267
P1102	14	37'-10"	100	34'-8"					2814
P1103	56	9'-10"	104	8'-3"	1'-7"				2926
P1104	84	30'-0"	Str.						13389
P1105	28	31'-3"	Str.						4649
P1106	6	16'-2"	124	⅞"	9'-6"	7'-8"	2'-0"		515
P1107	6	15'-9"	125	1⅛"	8'-9"	7'-8"	2'-0"		502
P1108	26	23'-6"	Str.						3246
P1109	16	23'-6"	108	19'-9"	3'-9"	0'-4"			1998
P1110	6	24'-6"	108	23'-3"	1'-3"	0'-1⅞"			781
								Total =	39,144

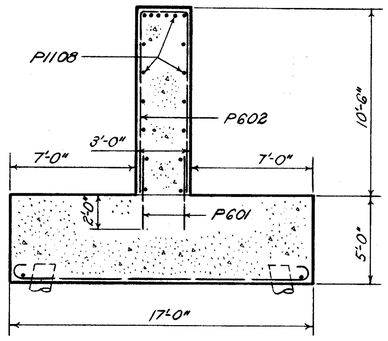


ELEVATION

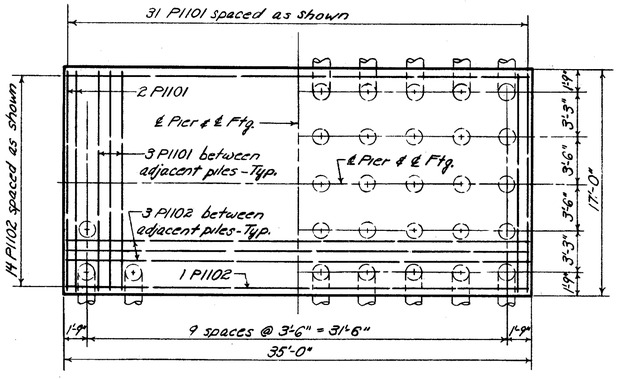


ELEVATION A-A

Pier is symmetrical abt. ℄s except as shown



SECTION E-E
¼" = 1'-0"



FOOTING PLAN

Ftg. dimensions, pile spacing, & reinf. are sym. abt. ℄s

NOTES:
50-14"ø cast in place reinforced concrete piles-50 ᵀ capacity
Battered piles are battered 2 on 12
Estimated average vertical pile length = 60'
Contractor to adjust top cap reinf. to clear drilled holes for swedge anchor bolts
For drainage details see Sh. 108 & 109
For shoe & anchor bolt details see Sh. 89
For replacement steel schedule see Sh. 43
For bar bending diagrams see Sh. 43

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

PIER 2E2

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3/32"=1'-0" UNLESS NOTED
MADE R.C.P. DATE 12-13-56
TRCD H.R.K. DATE 2-27-57
CKD H.H.C. DATE 2-6-57

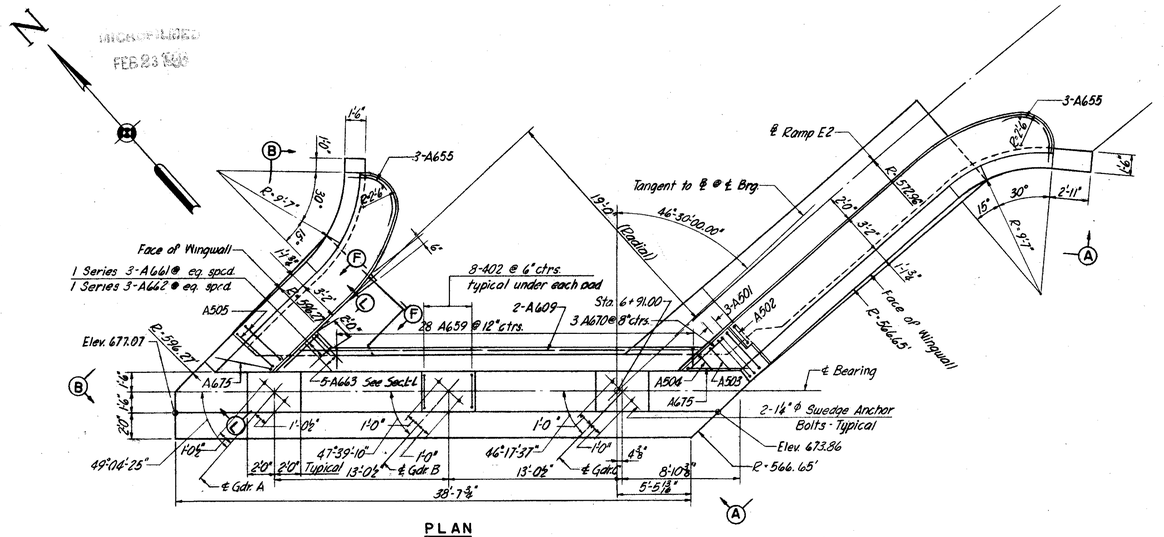
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 67

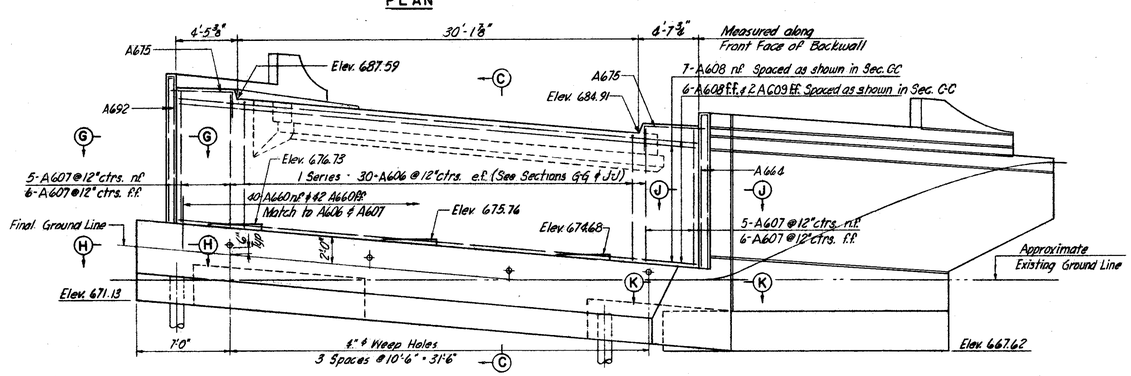
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

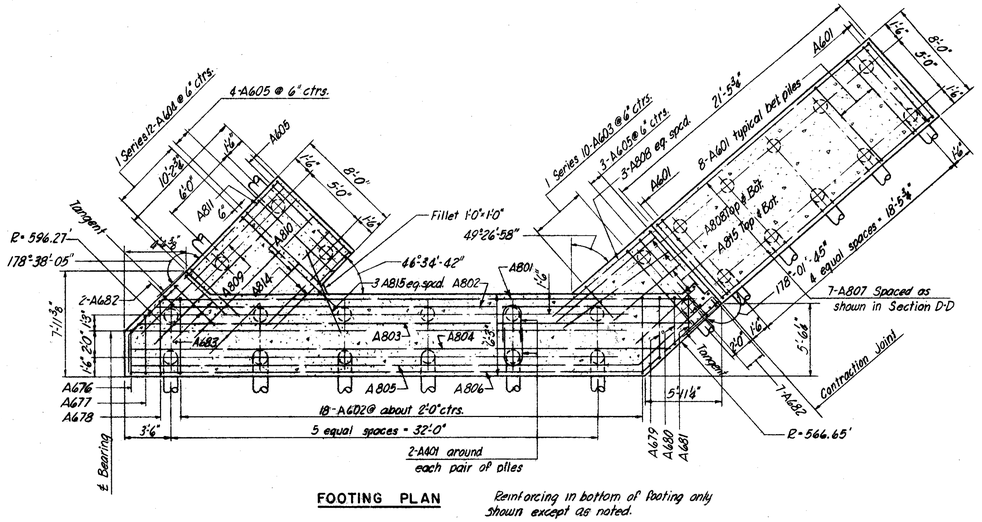
68
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)

RECEIVED
FEB 23 1956





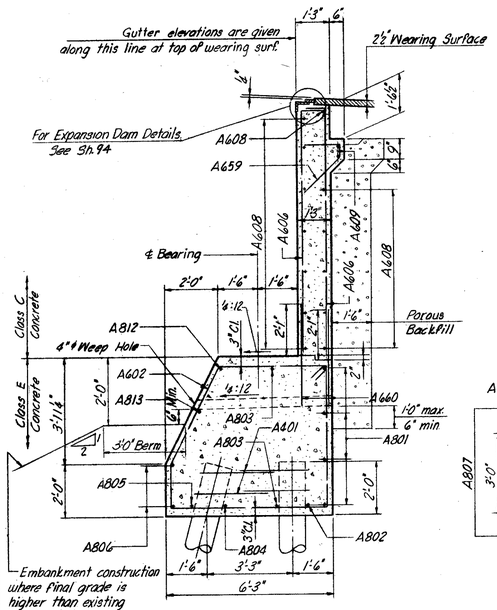


MICROFILMED
FEB 23 1988

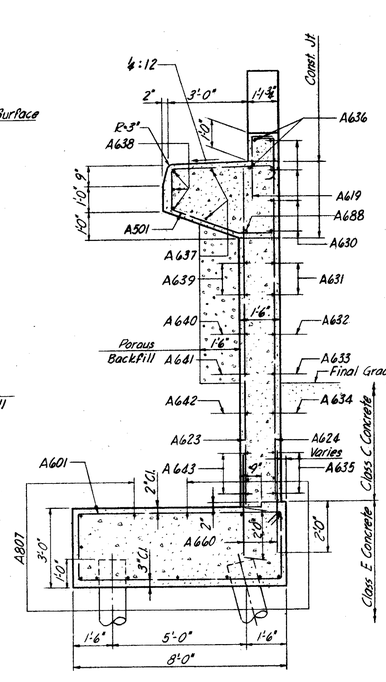
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

69
117

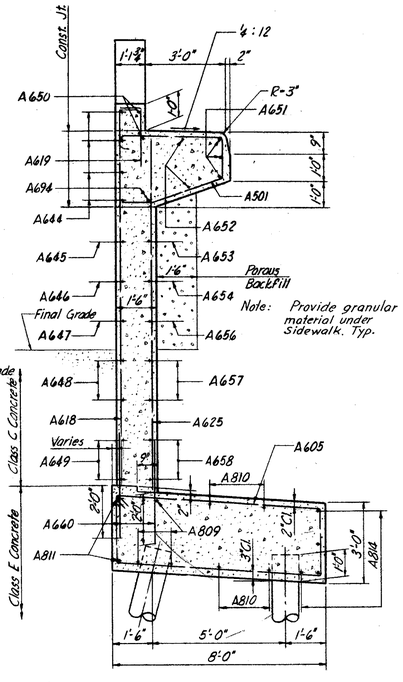
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)



SECTION C-C
⅜" = 1'-0"

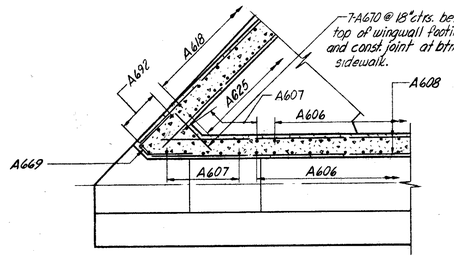


SECTION D-D
⅜" = 1'-0"



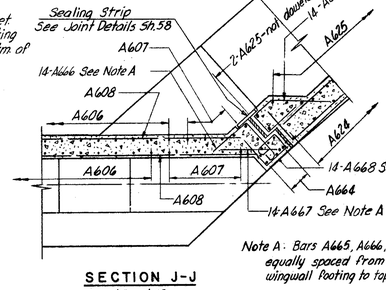
Note: Provide granular material under Sidewalk. Typ.

SECTION E-E
⅜" = 1'-0"



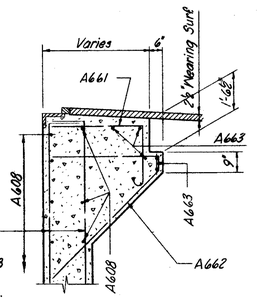
7-A670 @ 13" ctrs. bet top of wingwall footing and const. joint at btm. of sidewalk.

SECTION G-G
¼" = 1'-0"

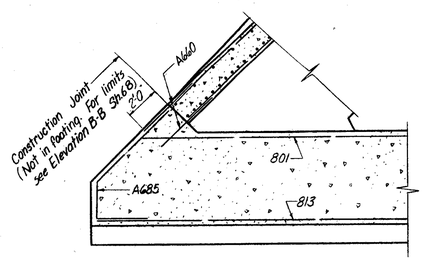


Note A: Bars A665, A666, A667 & A668 equally spaced from top of wingwall footing to top of sidewalk.

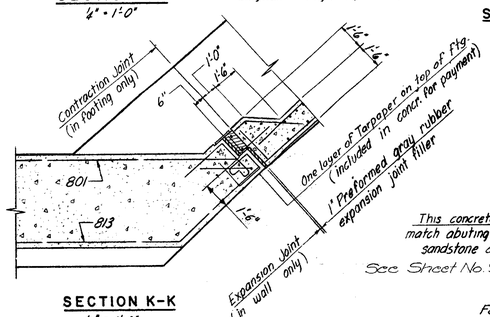
SECTION J-J
¼" = 1'-0"



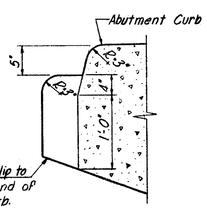
SECTION L-L
⅜" = 1'-0"



SECTION H-H
¼" = 1'-0"



SECTION K-K
¼" = 1'-0"



See Sheet No. 9

SECTION F F & F'F'
1" = 1'-0"

For location of Section F F See Sh. 68.
For location of Section F'F' See Sh. 66.
Section F'F' is opposite hand.

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (Lbs.)
A401	24	8'-1"	123	0'-8"	3'-0"				130
A402	24	4'-8"	105	2'-8"	1'-0"				75
A501	42	9'-10"	127	3'-9"	6⅛"	2'-8"	1'-4"		431
A502	1	7'-0"	127	2'-4"	6⅛"	1'-3"	1'-8"		7
A503	1	6'-0"	105	2'-0"	2'-0"				6
A504	1	5'-3"	105	1'-3"	2'-0"				5
A505	2	6'-8"	103	3'-9"	2'-0"				13
A601	36	21'-2"	109	2'-7"	7'-8"				1165
A602	18	22'-0"	126	4'-3"	3'-11"	5'-6"	5'-11"		595
A603	1 Series 10	8'-7" to 17'-7"	135	2'-7"	5'0" to 7'6"	5⅝"		B-6"	197
A604	1 Series 12	12'-7" to 23'-7"	135	2'-7"	5'0" to 10'6"	5⅝"		B-6"	326
A605	9	21'-2"	131	2'-7"	7'-8"	5⅝"			286
A606	2 Series 30	11'-6" to 11'-7"	104	0'-11"	10'5" to 10'8"			⅛"	1033
A607	22	11'-3"	Str.						372
A608	13	39'-6"	Str.						771
A609	2	29'-3"	Str.						89
A610	1	7'-6"	104	0'-10"	6'-6"				11
A611	1	8'-1"	104	0'-10"	7'-3"				12
A612	1	9'-1"	104	0'-10"	8'-3"				14
A613	1	10'-7"	104	0'-10"	9'-9"				16
A614	1 Series 4	6'-3" to 7'-0"	Str.					9"	35
A615	2 Series 4	6'-1" to 6'-1"	104	0'-10"	5'3" to 5'3"			8"	61
A616	3	18'-7"	104	0'-10"	17'-9"				84
A617	6	6'-1"	104	0'-10"	5'-3"				55
A618	5	16'-6"	104	0'-10"	15'-8"				124
A619	20	9'-7"	104	0'-10"	2'-9"				108
A620	1 Series 4	5'-3" to 8'-0"	Str.					9"	61
A621	2	11'-0"	Str.						33
A622	3	17'-7"	104	0'-10"	16'-9"				79
A623	27	13'-6"	Str.						547
A624	1 Series 13	15'-4" to 16'-5"	104	0'-10"	14'6" to 15'5"			1/16"	310
A625	39	16'-0"	Str.						820
A626	1	11'-10"	104	0'-10"	11'-0"				18
A627	1	10'-6"	106	0'-10"	9'-6"				16
A628	1	9'-6"	104	0'-10"	8'-6"				14
A629	1	8'-6"	104	0'-10"	7'-6"				13
A630	4	28'-3"	137	18'-9"	7'-3"	9'-9"	2'-3"		170
A631	2	31'-3"	137	18'-9"	10'-3"	9'-9"	2'-3"		94
A632	1	30'-0"	137	18'-9"	9'-0"	9'-9"	2'-3"		45
A633	1	27'-0"	137	18'-9"	6'-0"	9'-9"	2'-3"		41
A634	1	24'-3"	137	18'-9"	3'-3"	9'-9"	2'-3"		36
A635	3	23'-3"	137	18'-9"	2'-3"	9'-9"	2'-3"		105
A636	2	26'-7"	133	18'-9"	7'10"	10'-7"			80
A637	2	28'8"	133	19'-8"	9'-0"	12'-0"			86
A638	3	27'8"	133	19'-8"	8'-0"	13'6"			125
A639	2	30'3"	133	18'-9"	11'-6"	10'-11"			91
A640	1	29'1"	133	18'-9"	10'-8"	10'-11"			44
A641	1	25'5"	133	18'-9"	6'8"	10'-11"			38
A642	1	22'4"	133	18'-9"	2'7"	10'-11"			34
A643	3	21'3"	133	18'-9"	2'6"	10'-11"			96
A644	4	14'9"	133	7'6"	7'3"	9'-9"			89
A645	1	18'9"	133	10'6"	8'3"	9'-9"			28
A646	1	17'9"	133	10'6"	7'3"	9'9"			27
A647	1	15'0"	133	10'6"	4'6"	9'9"			23
A648	2	12'9"	133	10'6"	2'3"	9'9"			38
A649	2	10'0"	133	7'9"	2'3"	9'9"			30
A650	2	15'0"	133	7'9"	7'3"	10'7"			65
A651	3	14'0"	133	6'0"	8'0"	13'6"			63
A652	2	16'0"	133	7'0"	9'0"	12'0"			68
A653	1	19'6"	133	10'3"	9'3"	10'11"			29
A654	1	18'4"	133	10'3"	8'1"	10'11"			28
A655	6	6'0"	133	1'0"	5'0"	2'2"			54
A656	1	15'3"	133	10'3"	5'0"	10'11"			23
A657	2	12'9"	133	10'3"	2'6"	10'11"			38
A658	2	10'3"	133	7'9"	2'6"	10'11"			31
A659	28	3'11"	130	1'5"	0'6"	2'0"	1'-5"		165
A660	178	4'0"	Str.						1069
A661	1 Series 3	6'6" to 6'0"	103	1'9" to 3'3"	2'0"			9"	24
A662	1 Series 3	6'0" to 9'6"	130	2'3" to 3'9"	0'6"	3'3" to 5'3"	2'3" to 3'9"	5'-10" to 9'-4"	95
A663	5	4'-9"	100	3'3"					36
A664	7	13'5"	104	0'-10"	12'-7"				141

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (Lbs.)
A665	16	8'-5"	129	3'-6"	1'-4"	2'-5"	1'-2"		177
A666	14	6'-2"	103	2'-8"	2'-9"				130
A667	17	4'-3"	101	3'-6"					109
A668	14	7'-9"	128	2'-6"	1'-8"	1'-2"	1'-8"		163
A669	5	5'-10"	130	2'-6"	0'-10"	2'-6"	1'-9"		44
A670	10	3'-6"	Str.						53
A671	2	5'-0"	134	5'-0"	9'-9"				15
A672	2	5'-6"	134	5'-6"	10'-7"				17
A673	2	7'-9"	132	2'-6"	5'-5"	7'-6"	9'-9"		23
A674	2	8'-6"	132	2'-6"	5'-10"	7'-6"	10'-7"		25
A675	2	6'-3"	104	4'-3"	2'-0"				19
A676	1	16'-10"	126	4'-3"	1'-4"	5'-6"	3'-4"		25
A677	1	19'-2"	126	4'-3"	2'-6"	5'-6"	4'-6"		29
A678	1	21'-6"	126	4'-3"	3'-8"	5'-6"	5'-8"		32
A679	1	18'-9"	126	2'-0"	3'-11"	5'-6"	4'-11"		28
A680	1	19'-8"	109	3'-10"	5'-6"				29
A681	1	14'-3"	105	3'-3"	5'-6"				21
A682	9	7'-9"	Str.						105
A683	2	11'-9"	104	4'-0"	7'-9"				35
A684	1	9'-5"	130	2'-0"	1'-5"	6'-0"	4'-3"		14
A685	1	10'-8"	130	2'-0"	2'-4"	6'-0"	4'-3"		16
A686	1	11'-2"	105	1'-2"	5'-0"				17
A687	2	9'-6"	105	1'-2"	4'-2"				29
A688	1	27'-8"	133	19'-8"	8'-0"	10'-11"			42
A689	2	11'-2"	105	1'-2"	5'-0"				34
A690	1	10'-10"	105	0'-10"	5'-0"				16
A691	2	8'-9"	Str.						26
A692	4	13'-2"	104	0'-10"	12'-4"				79
A693	3	8'-10"	130	5'-0"	0'-10"	3'-0"	2'-1"		40
A694	1	18'-6"	133	10'-6"	8'-0"	10'-11"			28
A695	2	7'-2"	105	1'-2"	3'-0"				22
A801	4	40'-0"	Str.						427
A802	1	39'-0"	Str.						104
A803	2	41'-9"	Str.						223
A804	1	40'-6"	Str.						108
A805	1	45'-6"	108	38'-0"	5'-6"	5'-0"			121
A806	2	46'-2"	108	38'-6"	5'-6"	5'-3"			247
A807	13	21'-0"	Str.						729
A808	7	9'-9"	Str.						182
A809	3	13'-0"	Str.						106
A810	4	11'-9"	Str.						125
A811	2	19'-5"	108	16'-1"	2'-4"	2'-4"			106
A812	1	45'-6"	108	40'-6"	3'-10"	3'-6"			121
A813	1	45'-8"	108	39'-3"	4'-9"	4'-6"			122
A814	4	8'-9"	Str.						93
A815	7	6'-9"	Str.						126
								TOTAL	15,419

NOTES:
For Notes, see Sh. 68
For location of Sections GC to L-L, see sh. 68

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

ABUTMENT E2 DETAILS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As Noted
MADE EKH DATE 12-17-56
TRCD HG DATE 2-1-57
CKD EP DATE 2-26-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 69

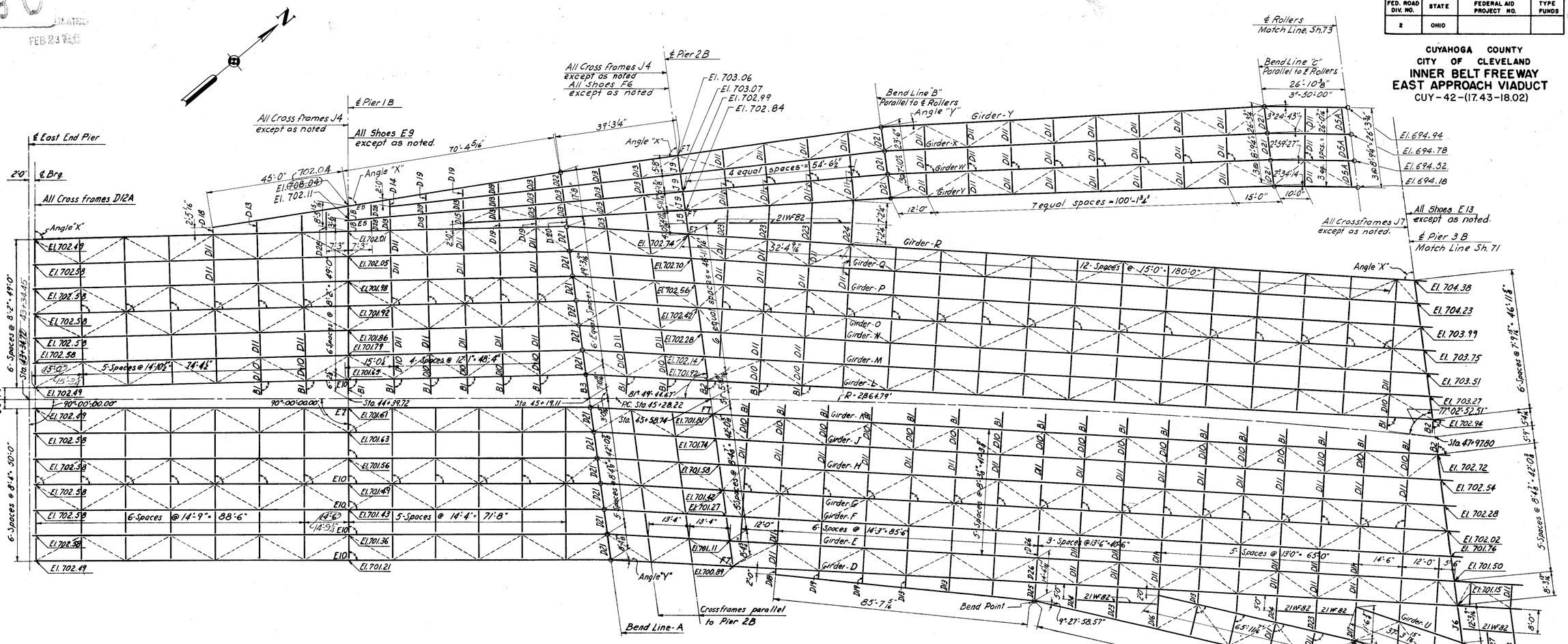
8-0

RELEASED FEB 23 1960

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

70
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



FRAMING PLAN

Girder	East End Pier	Pier 1B	Bend Line-A	Pier 2B	Bend Line-B	Pier 3B	Pier 1E2	Girder Lengths: ℄ Brg. East End Pier to ℄ Pier 1B	℄ Pier 1B to Bend Line-A	Bend Line-A to ℄ Pier 2B	℄ Pier 2B to ℄ Pier 3B	℄ Pier 2B to Bend Line "B"	Bend Line-"B" to Bend Line-"C"
	Angle "X"	Angle "X"	Angle "Y"	Angle "X"	Angle "Y"	Angle "X"	Angle "X"						
D	90°-00'-00"	90°-00'-00"	3°-08'-25"	79°-17'-57"		79°-17'-57"	103°-3 7/16"	= 103°-0"	86'-5⅛"	39'-11½"	239'-1⅝"		
E	do	do	3°-09'-30"	79°-16'-52"		79°-16'-52"		do	85'-3⅛"	39'-11⅝"	239'-1⅞"		
F	do	do	do	do		do		do	84'-2⅛"	do	do		
G	do	do	do	do		do		do	83'-1⅛"	do	do		
H	do	do	do	do		do		do	82'-0"	do	do		
J	do	do	do	do		do		do	80'-10⅜"	do	do		
K	90°-00'-00"	90°-00'-00"	3°-09'-30"	79°-16'-52"		79°-16'-52"	103°-3 1/16"	= 103°-0"	79'-9½"	39'-11⅞"	239'-1⅞"		
L	88°-47'-21"	88°-47'-21"	4°-19'-45"	79°-19'-17"		79°-19'-17"	103°-3 9/16"	= 103°-0 5/16"	78'-4⅝"	39'-11½"	239'-1"		
M	do	do	4°-24'-26"	79°-14'-36"		79°-14'-36"		do	77'-3⅛"	39'-11⅜"	239'-1¼"		
N	do	do	4°-29'-07"	79°-09'-55"		79°-09'-55"		do	76'-2⅛"	39'-11⅜"	239'-2⅛"		
O	do	do	4°-33'-48"	79°-05'-14"		79°-05'-14"		do	75'-1⅛"	39'-11⅞"	239'-3⅛"		
P	do	do	4°-38'-29"	79°-00'-33"		79°-00'-33"		do	74'-0⅛"	40'-0"	239'-4"		
Q	do	do	4°-43'-10"	78°-55'-52"		78°-55'-52"		do	72'-11½"	40'-0⅛"	239'-4⅜"		
R	88°-47'-21"	88°-47'-21"	4°-47'-50"	78°-51'-12"		78°-51'-12"	103°-3 9/16"	= 103°-0 5/16"	71'-10⅝"	40'-0⅛"	239'-5½"		
S							65°-18'-59"						
T							64°-16'-59"						
U							63°-01'-54"						
V				85°-43'-34"	1°-27'-47"							67'-2⅞"	127'-1¾"
W		85°-07'-11"		87°-19'-11"	2°-38'-11"				110'-4⅞" ℄ Pier 1B to ℄ Pier 2B			67'-1 1/16"	127'-0 1/16"
X				88°-45'-04"	3°-38'-49"							67'-0⅜"	126'-11 9/16"
Y		81°-15'-00"	0°-35'-04"	90°-36'-18"	5°-04'-45"							67'-0¼"	126'-10⅜"

NOTES:

Angles marked thus ∠ are 90°-00'-00"
Angle "X" is the acute angle between ℄ Girder and ℄ Bearing, except for Girder Y @ ℄ Pier 2B
Angle "Y" is the right deflection angle of the Girders at Bend Lines - A & B looking east.
Bend Points are marked thus —o—
Lower lateral system is shown thus ———— (ST 6 WF 13.5)
All cross frames to be type D9 except as noted.
All dimensions given are horizontal dimensions.
Elevations shown are back of top flange angles on girders.

Revised 2-13-58

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50
FRAMING PLAN
EAST END PIER TO PIER 3 B
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/4" = 1'-0"
MADE RVS. DATE 1-31-57
TRCD H.R.K. DATE 2-27-57
CKD [illegible] DATE 3-27-57

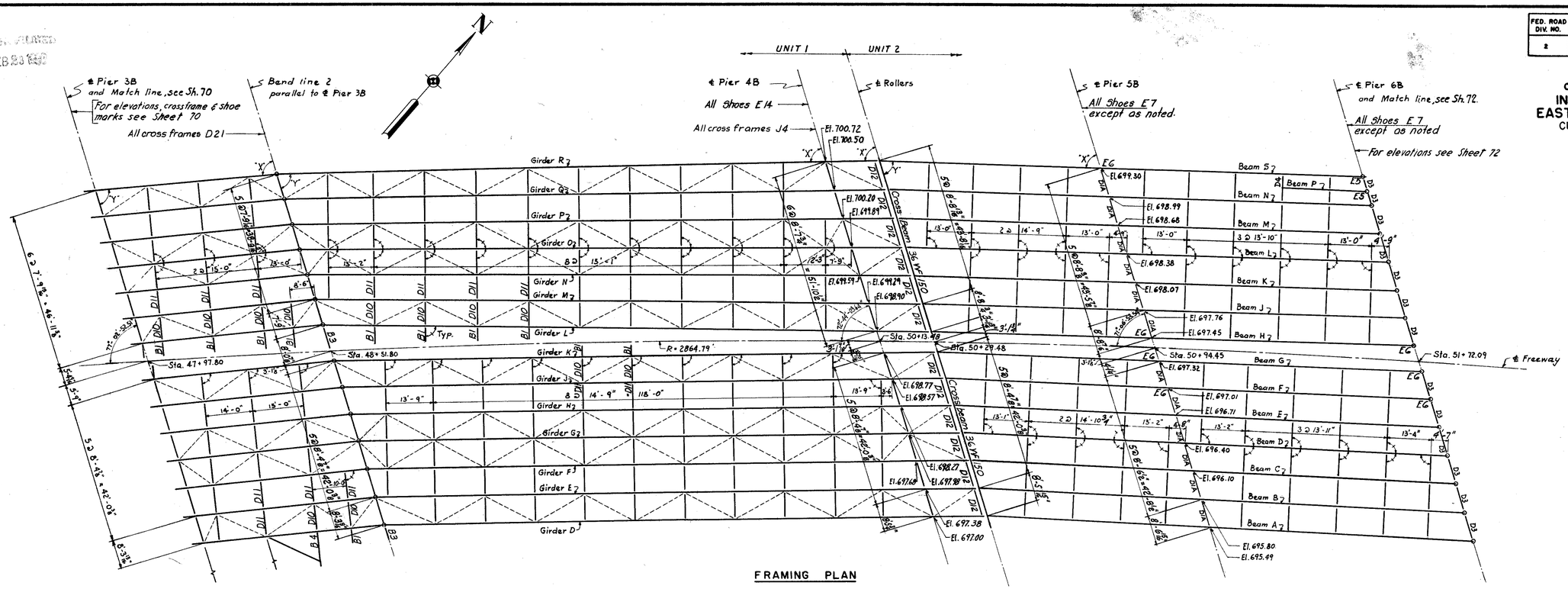
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 70

HIGH PLAINS
FEB 23 1962

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

71
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



FRAMING PLAN

Girder	℄ Pier 3B	℄ Band line 2		℄ Pier 4B	℄ Rollers	Girder Lengths		
	"Y"	"X"	"Y"	"X"	"X"	℄ Pier 3B to Band line	Band line to ℄ Pier 4B	℄ Pier 4B to ℄ Rollers
D	79°-17'-57"	79°-17'-57"	74°-06'-48"	74°-06'-48"	74°-06'-48"	53'-5 4/4"	161'-10 1/8"	15'-10 1/2"
E	79°-16'-52"	79°-16'-52"	74°-10'-27"	74°-10'-27"	74°-10'-27"	53'-5 5/16"	161'-9 9/16"	15'-10 7/16"
F	↓	↓	↓	↓	↓	↓	↓	↓
G	↓	↓	↓	↓	↓	↓	↓	↓
H	↓	↓	↓	↓	↓	↓	↓	↓
J	↓	↓	↓	↓	↓	↓	↓	↓
K	79°-16'-52"	79°-16'-52"	74°-10'-27"	74°-10'-27"	74°-10'-27"	53'-5 5/16"	161'-9 9/16"	15'-10 7/16"
L	79°-19'-17"	79°-19'-17"	72°-40'-27"	72°-40'-27"	72°-40'-27"	53'-5 5/16"	163'-0 3/4"	15'-11 15/16"
M	79°-14'-36"	79°-14'-36"	72°-58'-25"	72°-58'-25"	72°-58'-25"	53'-5 3/8"	162'-9 5/8"	15'-11 5/8"
N	79°-09'-55"	79°-09'-55"	73°-16'-27"	73°-16'-27"	73°-16'-27"	53'-5 9/16"	162'-6 1/2"	15'-11 5/16"
Q	79°-05'-16"	79°-05'-16"	73°-34'-33"	73°-34'-33"	73°-34'-33"	53'-5 3/4"	162'-3 7/16"	15'-11"
P	79°-00'-33"	79°-00'-33"	73°-52'-41"	73°-52'-41"	73°-52'-41"	53'-5 7/8"	162'-0 7/16"	15'-10 3/4"
Q	78°-55'-52"	78°-55'-52"	74°-10'-54"	74°-10'-54"	74°-10'-54"	53'-6 1/16"	161'-9 1/2"	15'-10 7/16"
R	78°-51'-12"	78°-51'-12"	74°-29'-09"	74°-29'-09"	74°-29'-09"	53'-6 1/4"	161'-6 5/8"	15'-10 1/8"

Beam	℄ Rollers	℄ Pier 5B	Beam Lengths	
	"Y"	"X"	℄ Rollers to ℄ Pier 5B	℄ Pier 5B to ℄ Pier 6B
A	70°-20'-27"	70°-20'-27"	65'-6 5/16"	77'-7 3/8"
B	70°-25'-00"	70°-25'-00"	65'-5 15/16"	77'-7 3/16"
C	70°-31'-36"	70°-31'-36"	65'-5 7/16"	77'-6 9/16"
D	70°-38'-12"	70°-38'-12"	65'-4 7/8"	77'-5 15/16"
E	70°-44'-48"	70°-44'-48"	65'-4 3/8"	77'-5 5/16"
F	70°-51'-25"	70°-51'-25"	65'-3 13/16"	~~77'-4 15/16"~~ 77'-4 11/16"
G	70°-58'-03"	70°-58'-03"	65'-3 5/16"	77'-4 1/16"
H	71°-43'-17"	71°-43'-17"	64'-11 13/16"	76'-11 5/8"
J	71°-41'-32"	71°-41'-32"	64'-11 15/16"	77'-0 1/8"
K	71°-39'-47"	71°-39'-47"	65'-0 1/16"	77'-0 1/4"
L	71°-38'-02"	71°-38'-02"	65'-0 3/16"	77'-0 7/16"
M	71°-36'-17"	71°-36'-17"	65'-0 3/8"	77'-0 9/16"
N	71°-34'-32"	71°-34'-32"	65'-0 1/2"	77'-0 3/4"
P				See Sh. 80
S	71°-32'-47"	71°-32'-47"	65'-0 5/8"	77'-0 7/8"

NOTES:

Angles marked thus [X] are 90°-00'-00"
"X" and "Y" are the acute angles between ℄ Girder or ℄ Beam and ℄ bearing or bend line or ℄ rollers
For beam details see Sh. 80
For girder details see Shs. 74, 75, 76, & 77
Elevations shown are to top of top flange on rolled beams and to back of top flange angles on girders.
—e— Indicates change in beam or girder direction.
All beam span (Unit 2) cross frames shown are type D1 except as noted.
Beam and Girder lengths are horizontal dimensions.
Lower lateral system is shown thus - - - - - - -
All girder span (Unit 1) cross frames shown are type D9 except as noted.

Revised 2-13-58

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

FRAMING PLAN - PIERS 3B TO 6B

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/16 = 1'-0"
MADE JAF DATE 12-21-56
TRCD NK-K. DATE 2-28-57
CKD KG HRB DATE 2-28-57

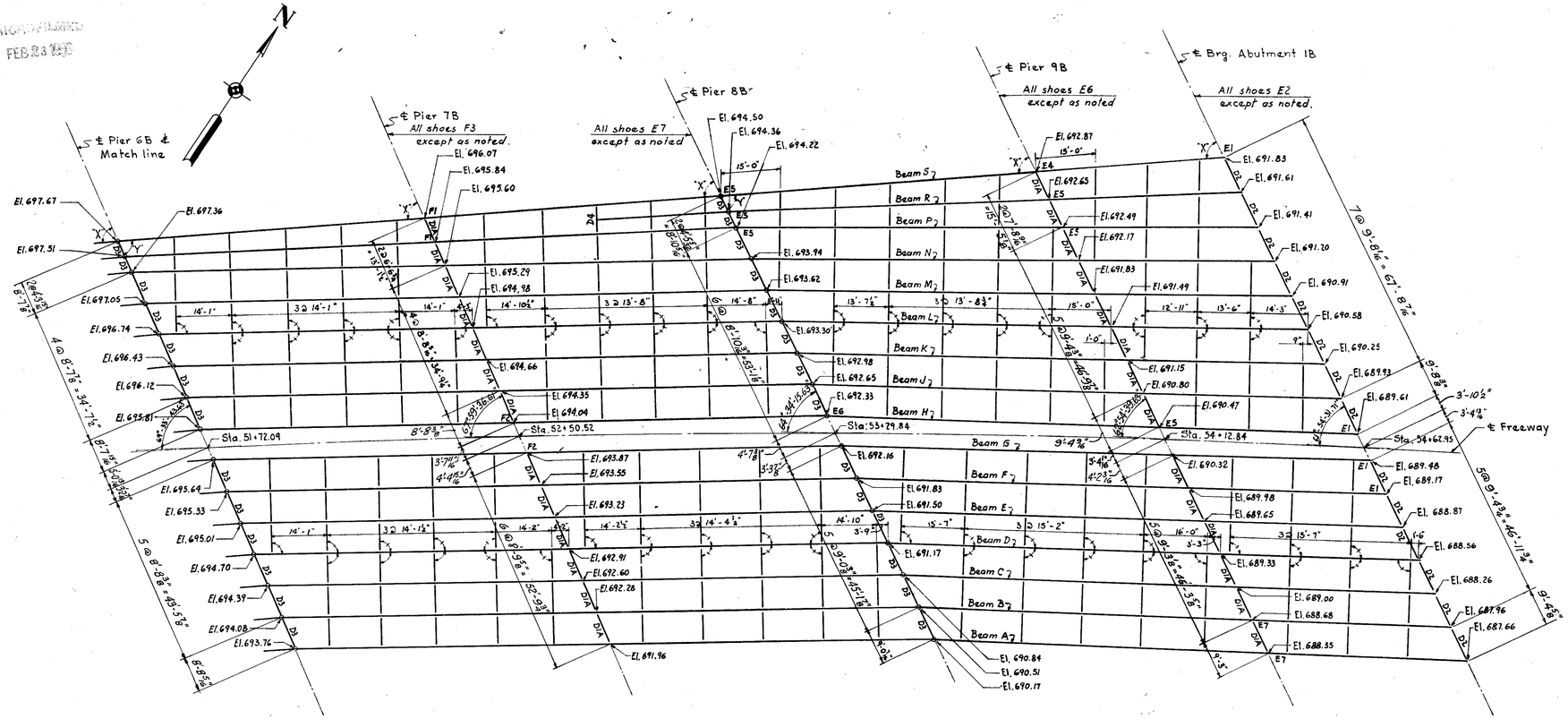
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 71

MICROFILMED
FEB 23 1967

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

72
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



FRAMING PLAN
(Portion of Unit 2)

Beam	℄ Pier 6B "X"	℄ Pier 6B "Y"	℄ Pier 7B "X"	℄ Pier 8B "X"	℄ Pier 8B "Y"	℄ Pier 9B "X"	℄ Abutment 1B "X"	Beam Lengths: ℄ Pier 6B to ℄ Pier 7B	℄ Pier 7B to ℄ Pier 8B	℄ Pier 8B to ℄ Pier 9B	℄ Pier 9B to ℄ Brg. Abut.
A	70°-20'-27"	67°-32'-10"	67°-32'-10"	65°-42'-00"	62°-22'-53"	62°-22'-53"	62°-22'-53"	79'-1⅝"	81'-1⅞"	84'-0⅛"	50'-1½"
B	70°-25'-00"	67°-36'-21"	67°-36'-21"	65°-46'-11"	62°-31'-07"	62°-31'-07"	62°-31'-07"	79'-0⅞"	80'-9⅜"	83'-10¾"	50'-0¾"
C	70°-31'-36"	67°-40'-33"	67°-40'-33"	65°-50'-23"	62°-39'-22"	62°-39'-22"	62°-39'-22"	79'-0⅜"	80'-4⅝"	83'-9½"	50'-0"
D	70°-38'-12"	67°-44'-46"	67°-44'-46"	65°-54'-36"	62°-47'-38"	62°-47'-38"	62°-47'-38"	78'-11⅞"	80'-0 11/16"	83'-8⅜"	49'-11¼"
E	70°-44'-48"	67°-49'-00"	67°-49'-00"	65°-58'-50"	62°-55'-56"	62°-55'-56"	62°-55'-56"	78'-11⅞"	79'-8½"	83'-7"	49'-10½"
F	70°-51'-25"	67°-53'-10"	67°-53'-10"	66°-03'-06"	63°-04'-14"	63°-04'-14"	63°-04'-14"	78'-10 13/16"	79'-4¼"	83'-5 13/16"	49'-9⅜"
G	70°-58'-03"	67°-57'-33"	67°-57'-33"	66°-07'-23"	63°-12'-34"	63°-12'-34"	63°-12'-34"	78'-10 7/16"	79'-0"	83'-4 9/16"	49'-9 1/16"
H	71°-43'-17"	67°-48'-37"	67°-48'-37"	65°-58'-27"	62°-57'-21"	62°-57'-21"	62°-57'-21"	78'-11 7/16"	78'-9 3/16"	83'-6 11/16"	49'-10⅜"
J	71°-41'-32"	67°-50'-06"	67°-50'-06"	65°-59'-56"	63°-16'-20"	63°-16'-20"	63°-16'-20"	78'-11 5/16"	78'-5⅞"	83'-4 1/16"	49'-8 11/16"
K	71°-39'-47"	67°-51'-35"	67°-51'-35"	66°-01'-25"	63°-35'-25"	63°-35'-25"	63°-35'-25"	78'-11⅛"	78'-2 1/16"	83'-1¼"	49'-7 1/16"
L	71°-38'-02"	67°-53'-04"	67°-53'-04"	66°-02'-54"	63°-54'-36"	63°-54'-36"	63°-54'-36"	78'-10 15/16"	77'-10 3/16"	82'-10½"	49'-5 7/16"
M	71°-36'-17"	67°-54'-54"	67°-54'-54"	66°-04'-24"	64°-13'-54"	64°-13'-54"	64°-13'-54"	78'-10 13/16"	77'-6 5/16"	82'-7 13/16"	49'-3 13/16"
N	71°-34'-32"	67°-56'-04"	67°-56'-04"	66°-05'-54"	64°-33'-18"	64°-33'-18"	64°-33'-18"	78'-10⅝"	77'-2⅛"	82'-5⅞"	49'-2 3/16"
P	71°-33'-42"	69°-27'-03"	69°-27'-03"	67°-36'-53"	64°-52'-48"	64°-52'-48"	64°-52'-48"	78'-0⅞"	76'-1⅜"	82'-2½"	49'-0⅝"
R				68°-20'-50"	66°-59'-23"	66°-59'-23"	66°-59'-23"		See Sh.	80'-10⅜"	48'-3"
S	71°-32'-47"	71°-00'-14"	71°-00'-14"	69°-10'-04"	69°-10'-04"	69°-10'-04"	69°-10'-04"	77'-3 13/16"	75'-0 15/16"	79'-7⅝"	47'-6¼"

NOTES:

Angles marked thus ∠1 are 90°-00-00".
"X" and "Y" are the acute angles between ℄ beam and ℄ bearing.
For beam details see Sh. 80.
Elevations shown are to top of top flanges on rolled beams.
-o- Indicates change in beam direction
All cross frames shown are Type D1 except as noted.
Beam lengths are horizontal dimensions.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

FRAMING PLAN-PIER 6B TO ABUTMENT 1B

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/16" = 1'-0"
MADE JAF DATE 12-21-56
TRCD K.C-K DATE 3-1-57
CKD B.V. DATE 2-13-57

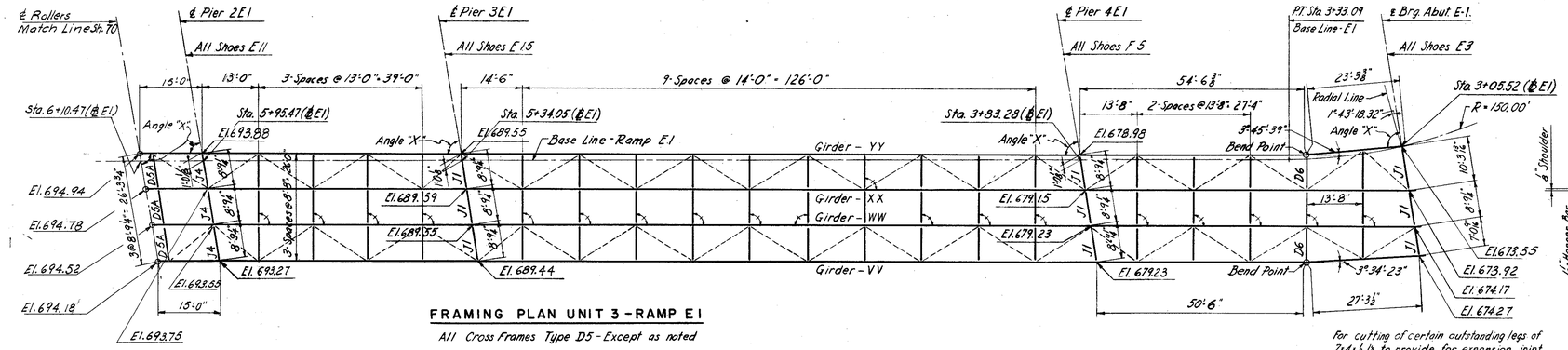
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 72-

FEB 23 1962

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

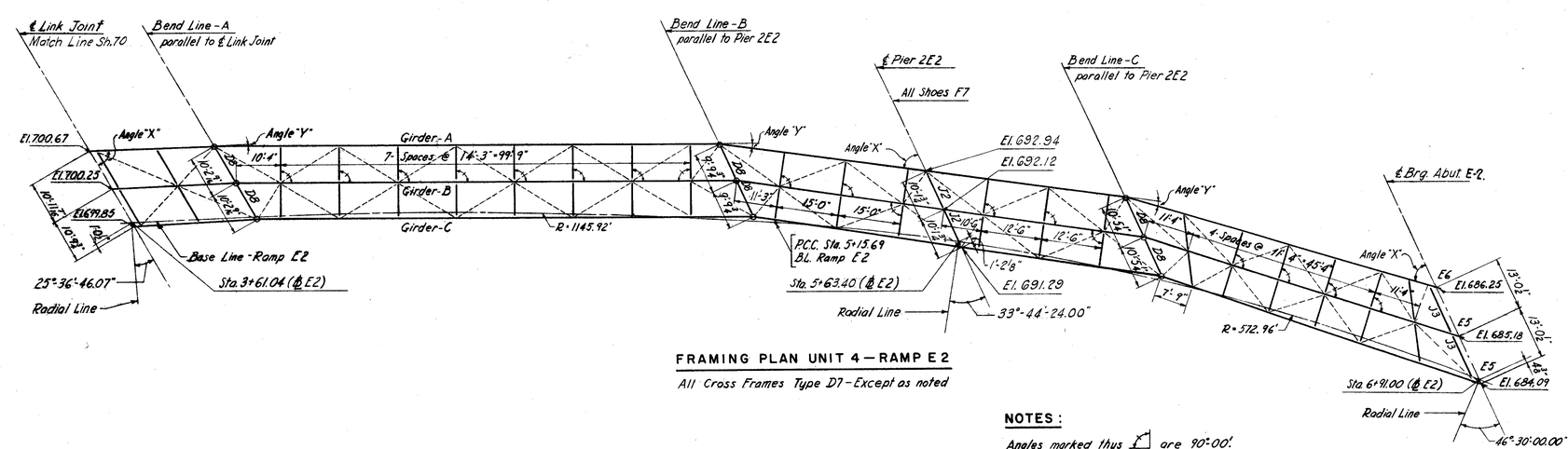
73
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



FRAMING PLAN UNIT 3 - RAMP E1

All Cross Frames Type D5 - Except as noted



FRAMING PLAN UNIT 4 — RAMP E2

All Cross Frames Type D7 - Except as noted

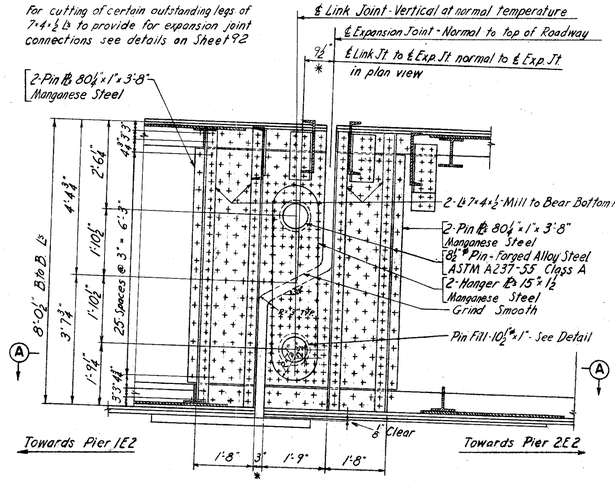
NOTES:

Angles marked thus ☐ are 90°-00'.
Angle "X" is the acute angle between ℄ Girder and ℄ Bearing.
Angle "Y" is the right deflection angle of the Girders at each Bend Line - looking in the direction of decreasing stations
Bend Points are marked thus —o—
Lateral system is shown thus - - - - -
Ramp E1 - Bottom Lateral ST 6 WF 13.5 #
Ramp E2 - Top Lateral ST 6 WF 20 #
Bottom Lateral ST 8 WF 39 #
For details of expansion joint at link joint see Sheet 92.
For details of diaphragms see Sheets 83 & 85.
Elevations shown are at back of top flange angles on girders.
All dimensions given in plan views are horizontal dimensions.

RAMP E1	Girder	℄ Rollers Angle "X"	℄ Pier 2E1 Angle "X"	℄ Pier 3E1 Angle "X"	℄ Pier 4E1 Angle "X"	℄ Brg. Abut. Angle "X"	Girder Lengths: ℄ Rollers to ℄ Pier 2E1	℄ Pier 2E1 to ℄ Pier 3E1	℄ Pier 3E1 to ℄ Pier 4E1	℄ Pier 4E1 to ℄ Brg. Abut.
	YY	81°-11'-22"	81°-11'-22"	81°-11'-22"	81°-11'-22"	84°-57'-01"	15'-0"	61'-5"	150'-9 1/2"	see plan
	XX	81°-11'-22"	81°-11'-22"	81°-11'-22"	81°-11'-22"	81°-11'-22"	15'-0"	61'-5"	150'-9 1/2"	78'-0"
	WW	81°-11'-22"	81°-11'-22"	81°-11'-22"	81°-11'-22"	81°-11'-22"	15'-0"	61'-5"	150'-9 1/2"	78'-0"
	VV	81°-11'-22"	81°-11'-22"	81°-11'-22"	81°-11'-22"	84°-45'-45"	15'-0"	61'-5"	150'-9 1/2"	see plan

RAMP E2	Girder	℄ Link Exp. Jt. Angle "X"	Bend Line-A Angle "Y"	Bend Line-B Angle "Y"	℄ Pier 2E2 Angle "X"	Bend Line-C Angle "Y"	℄ Brg. Abut. Angle "X"	Girder Lengths: ℄ Link Exp. Jt. to Bend Line-A	Bend Line-A to Bend Line-B	Bend Line-B to ℄ Pier 2E2	℄ Pier 2E2 to Bend Line-C	Bend Line-C to ℄ Brg. Abut.
	A	63°-01'-54"	2°-46'-04"	7°-04'-10"	57°-34'-13"	8°-29'-48"	49°-04'-25"	30'-5 7/8"	121'-5 1/2"	52'-7 7/16"	45'-10 11/16"	77'-7 1/8"
	B	64°-16'-59"	4°-01'-10"	7°-22'-30"	57°-15'-53"	9°-36'-43"	47°-39'-10"	30'-1 1/2"	120'-6 11/16"	52'-9 5/16"	46'-0 11/16"	79'-3 11/16"
	C	65°-18'-59"	5°-03'-09"	7°-40'-42"	56°-57'-41"	10°-40'-04"	46°-17'-37"	29'-10 3/4"	119'-8 1/16"	52'-11 7/16"	46'-2 5/8"	81'-1 1/4"

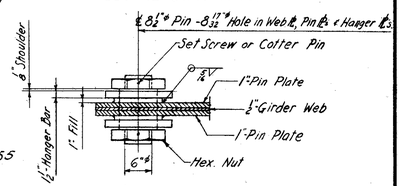
For cutting of certain outstanding legs of 7"x4"x 1/2 lb to provide for expansion joint connections see details on Sheet 92



* = Dimension at normal temperature
Flatten 8 5/8" rivets under & adjacent to Hanger Plates to 8" high.

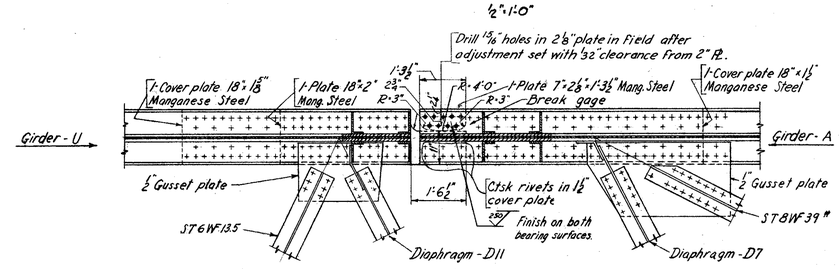
ELEVATION - LINK JOINT

1/2" = 1'-0"



PIN DETAIL

3/4" = 1'-0"



SECTION A-A

1/2" = 1'-0"

Showing wind connection for fascia girders As shown for Girder-U and Girder-A Opposite hand for Girder-S and Girder-C Wind connection of Girders-T and B not required. Omit plates 18" x 2, 18 1/8, 18" x 1/2 and 7" x 2 5/8. All other details similar to above.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

FRAMING PLANS UNIT 3 & UNIT 4

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/4" = 1'-0" Unless Noted
MADE P.V.S. DATE 2-7-57
TRCD N.K.-K. DATE 3-7-57
CKD M.G.-J.R.L. DATE 8-20-57

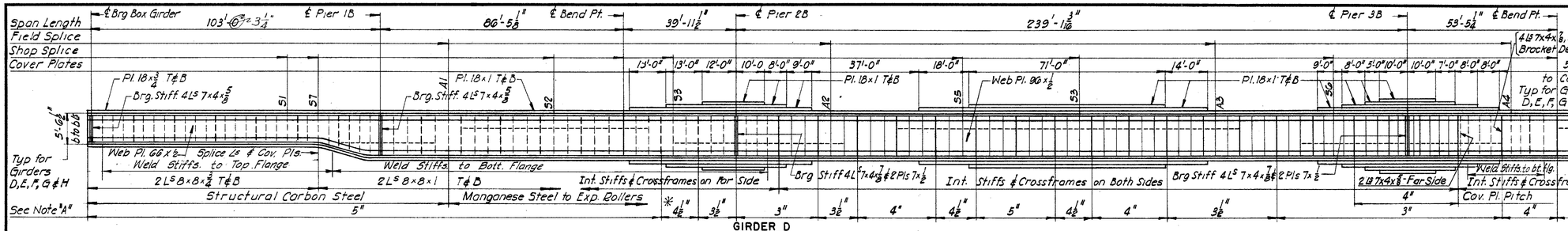
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

914 (2E) B SHEET- 73

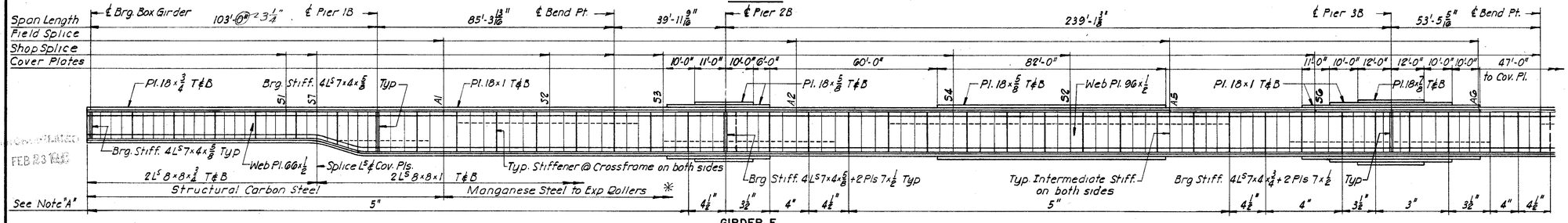
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

74
117

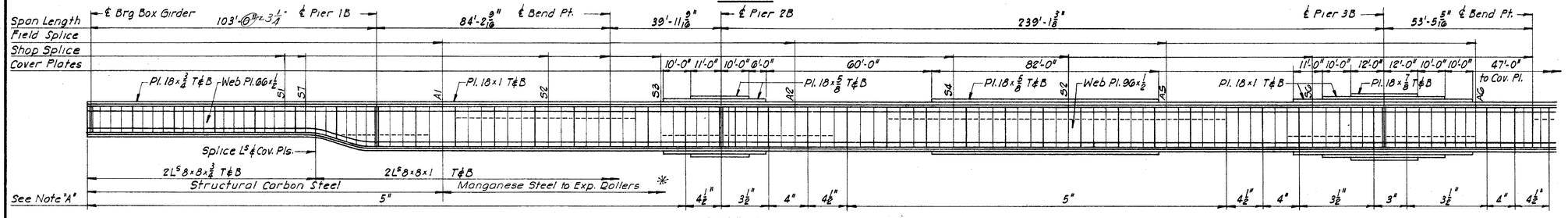
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)



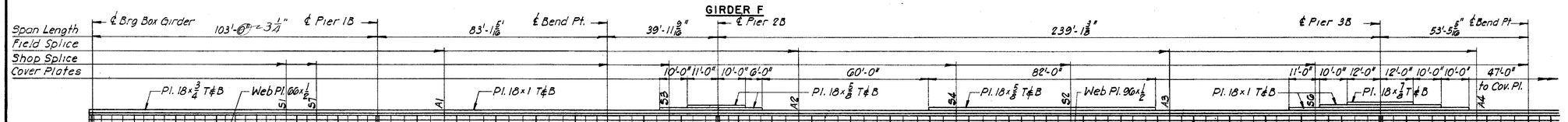
GIRDER D



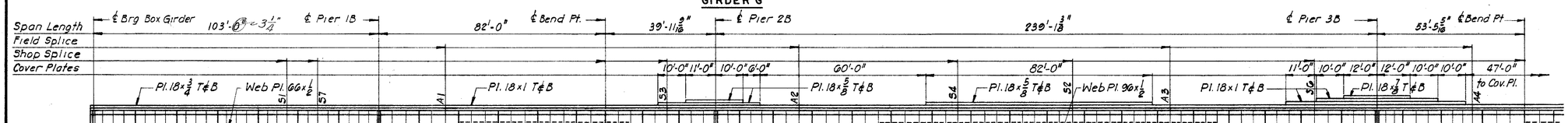
GIRDER E



GIRDER F

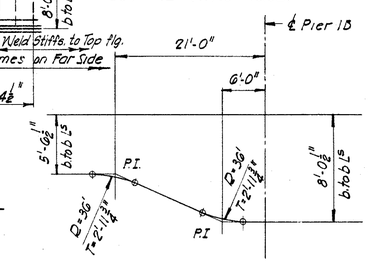


GIRDER G



GIRDER H

MATCH LINE
Typ for Girders D thru H Inclusive.



GEOMETRY OF GIRDERS

D, E, F, G, H, J, K, L, M, N, O, P, Q, R, Y - WEST OF PIER 1B

Locations of P.I.'s are measured horizontally from ℄ of Pier. All other dimensions are parallel or normal to top flange of girders.

NOTES:

Stiffeners, Crossframes and Lateral Bracing Material to be Structural Carbon Steel.

All rivets 7/8" ϕ

Intermediate Stiffs. between Crossframes for all Girders are G x 3 1/2 x 3/8 LS. Fills as required. Crimp Intermediate Stiffeners a maximum of 3/4".

For Girders E, F, G & H use Intermediate Stiffeners on both sides of web. Girder D as noted.

Intermediate Stiffs at Crossframes are 7x4x 7/16 L5 on 1" fills except as shown at Crossframe Details sh. 85 & for Gdr. K & L. No crimping permitted.

Bearing Stiffeners to be milled to bear on Flange angles, top & bottom. Bearing Stiffs shown on Girder E are typical for Girders F, G & H.

All girders drawn looking North.

Longitudinal dimensions of Girders are measured horizontally along ℄ of Web Plate.

Note "A" - Staggered rivet pitch, Flange Angle to Web. Stagg pitch, Flge L5 to Cov Pls 5" unless noted.

For details at Bend Points of Girders see Sh. 83.

Longitudinal Stiffener Angles for all Girders are 1 L 4 x 3 1/2 x 5/16.

Cover Pl. lengths are to be modified as required at splices shown in Girder Splice Details.

The notations "S1", "S2", "A1", "A2", etc. designate a shop or field splice at the particular location. For splice details see Shs. 81 & 82.

For weld detail of intermediate stiffeners see Sh. 85.

* See General Note 11A and Sheet 83

Revised 2-13-58

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

GIRDER ELEVATIONS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1"=80' Horiz., 1"=10' Vert.
MADE H.F.S. DATE 12-28-56
TRCD H.F.S. DATE 3-7-57
CKD H.G. DATE 3-7-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 74

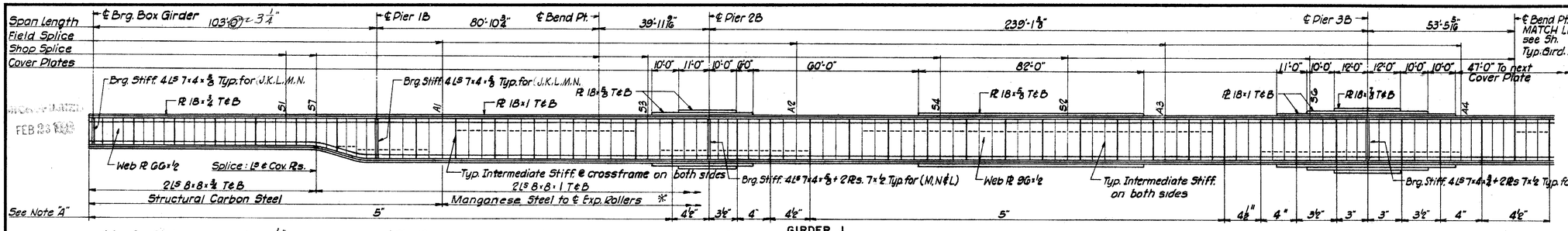
RECEIVED
FEB 23 1962

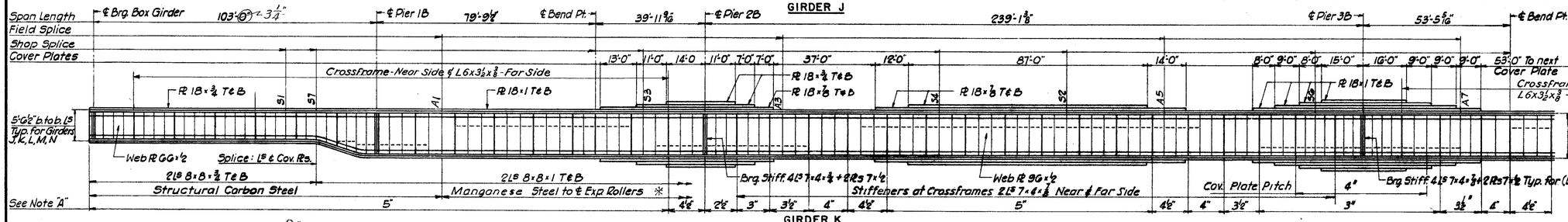
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

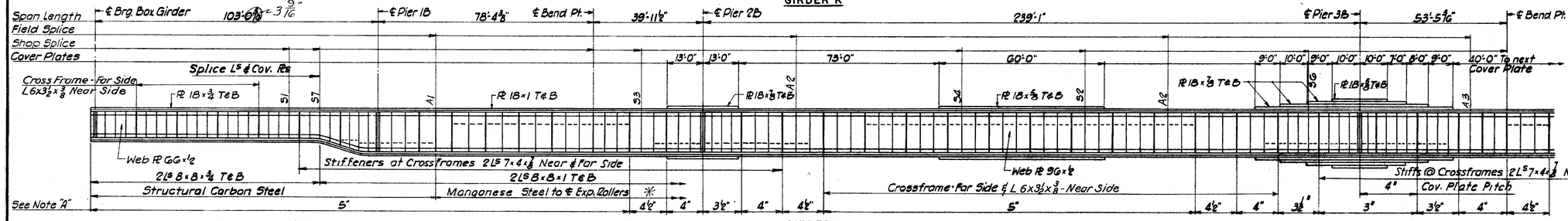
75
117

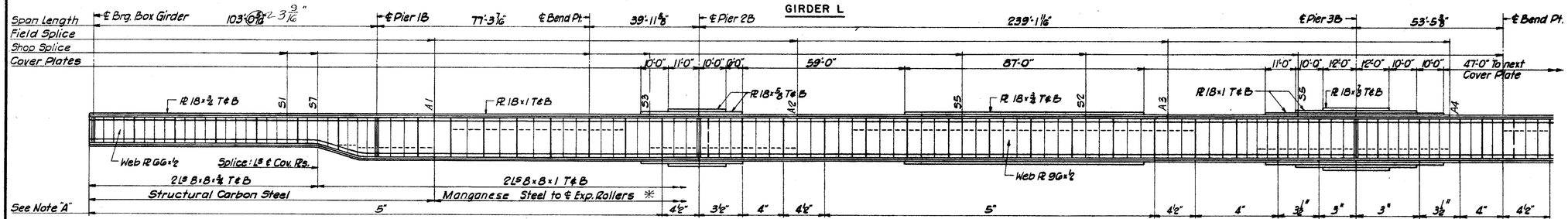
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 – (17.43 – 18.02)

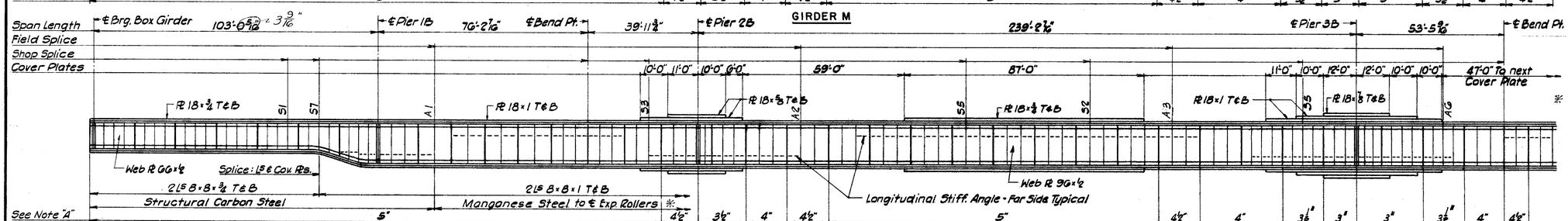
FEB 28 1958

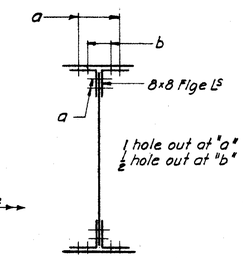




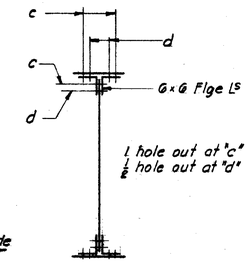








TYPICAL SECTION
GIRDERS A, B, C, D THRU R INCL.,
S THRU Y INCL.



TYPICAL SECTION
GIRDERS V-V, W-W, X-X, Y-Y

NOTES:

All intermediate stiffener L5 6x3 1/2x5/8 including those on side of girder opposite cross frame connections for Girders K & L shall be crimped a maximum of 3/4".

For Notes with reference to Girders J, K, L, M, N, see Sh. 14.

All girders drawn looking North.

Note "A" - Staggered rivet pitch, flange angle to web. Staggered rivet pitch, flange angle to Cover Pl. 5" unless noted.

Intermediate Stiffeners & Crossframes on both sides of web for Girders J, M & N.

Intermediate Stiffeners on both sides of Web for Girders K & L

Cover plate lengths shown are to be modified as required at splices shown in Girder Splice Details.

* See Gen. Note 11A and Sht. 83

Revised 2-13-58

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY – 42 – 17.50

GIRDER ELEVATIONS

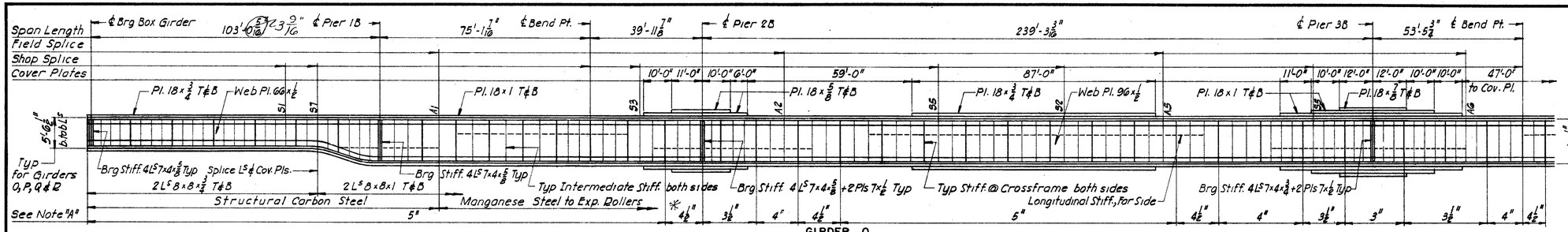
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1"=20' Hor. 1"=10' Vert. HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE T.F.Q. DATE 1-3-57 CONSULTING ENGINEERS
TRCD N.R.K. DATE 3-8-57 KANSAS CITY CLEVELAND NEW YORK
CKD H.G. DATE 2-7-57 914 (2E) 8 SHEET- 75

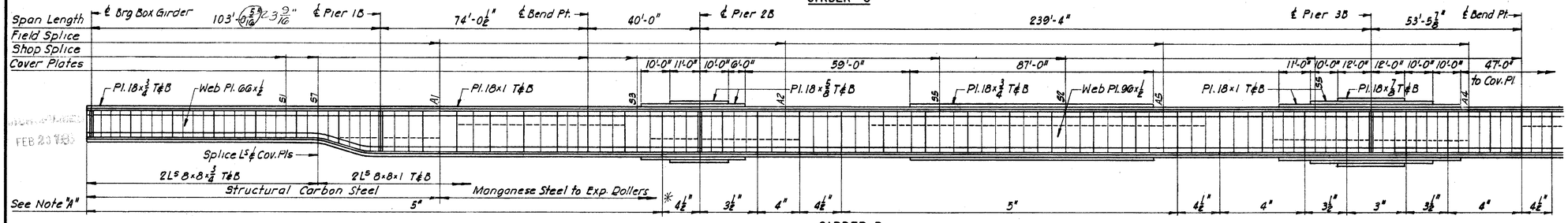
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

76
117

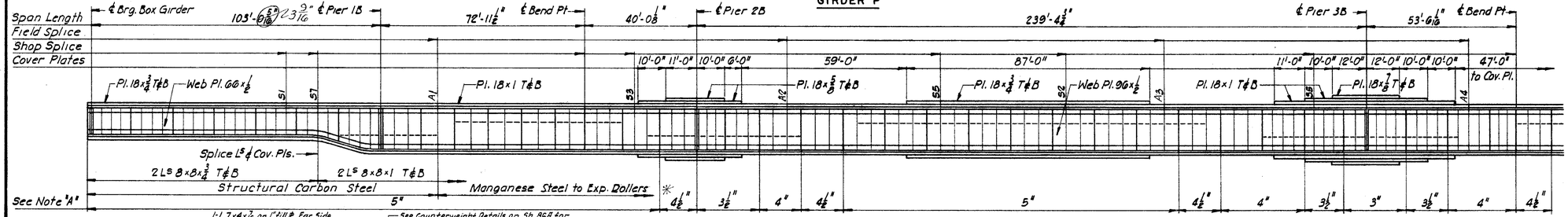
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 – (17.43 – 18.02)



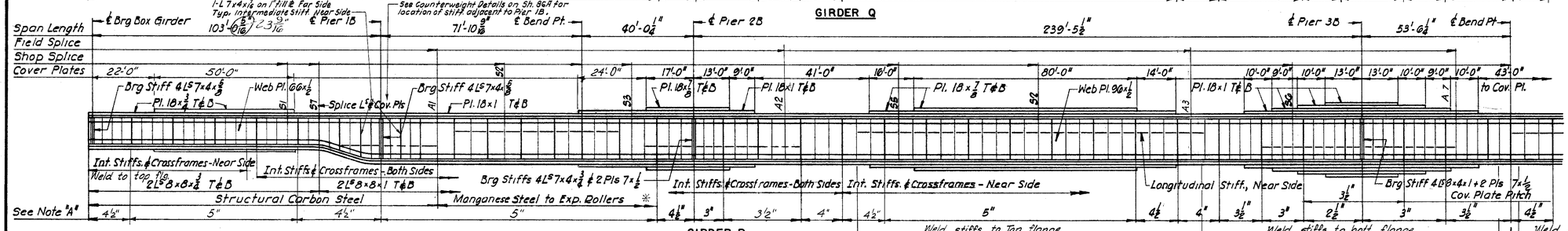
GIRDER O



GIRDER P



GIRDER Q

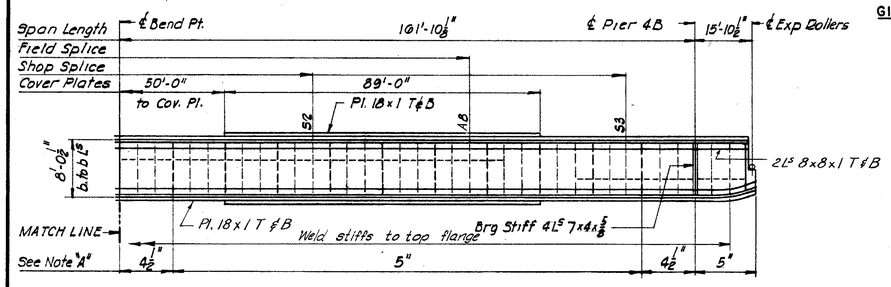


GIRDER R

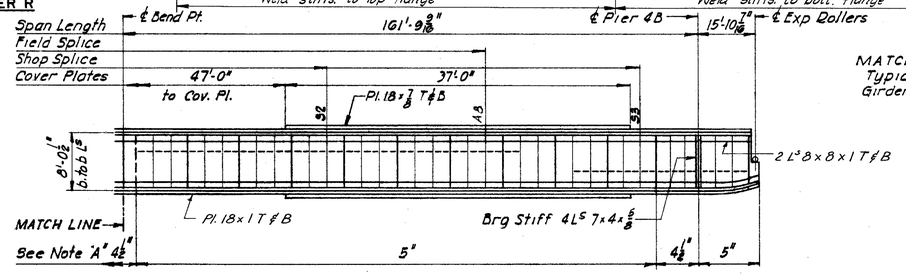
Weld stiffs. to Top flange — Weld stiffs. to bott. flange — Weld stiffs. to top flange

MATCH LINE Typical for Girders O, P, Q, R

* See General Note 11A sheet 83



EAST END GIRDER D



EAST END GIRDER E

NOTES:

Stiffeners, Crossframes and Lateral Bracing material to be Structural Carbon Steel.

All rivets 7/8 ϕ.

Intermediate Stiffeners between Crossframes for Girders O, P, Q & R are G x 3 1/2 x 3/8 L^S. Fill as required. Crimp Intermediate Stiffeners a maximum of 3/4".

For Girders O, P & Q use Intermediate Stiffeners on both sides of Web.

Intermediate Stiffeners at Crossframes are 7 x 4 x 1/16 L^S on 1" fill plates. No crimping permitted.

Bearing Stiffeners to be milled to bear on flange angles, top and bottom. Bearing Stiffeners shown on Girder O are typical for Girders P & Q.

Longitudinal Stiffener Angles for all girders are 1 L 4 x 3 1/2 x 3/8.

All girders drawn looking North.

Longitudinal dimensions of Girders are measured horizontally along ℄ of Web Plate.

Note "A" - Staggered rivet pitch, flange angle to web. Stagg. pitch, flge L^S to Cov. Pl. 5" unless noted.

For Notes pertaining to Girders D & E see Sh. 74.

For details of Bend Points of Girders see Sh. 83.

For splice details see Shs. 81 & 82.

For Geometry of Girders see Sh. 74.

Cover Pl. lengths shown are to be modified at splices as shown in Girder Splice Details.

For weld detail of intermediate stiffeners see Sh. 83.

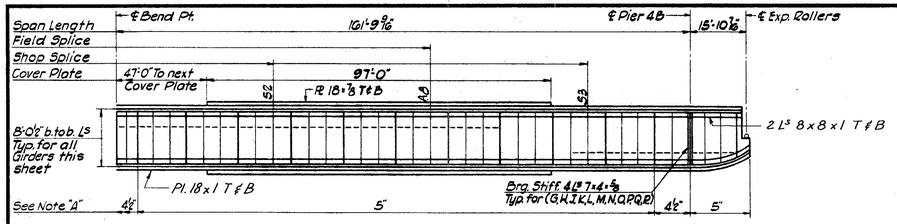
U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY – 42 – 17.50

GIRDER ELEVATIONS

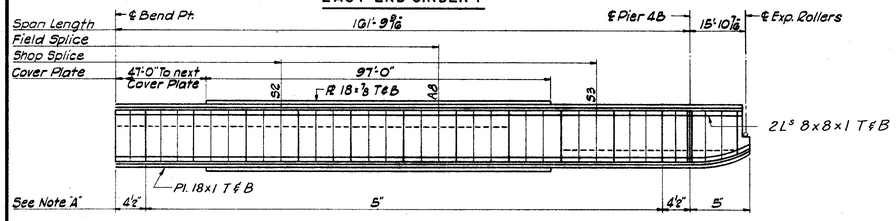
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1"=10 Vert., 1"=20 Horiz. HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS
MADE H.P.S. DATE 1-4-57
TRCD H.R.K. DATE 3-11-57
CKD H.G.H.M. DATE 3-20-57
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 76

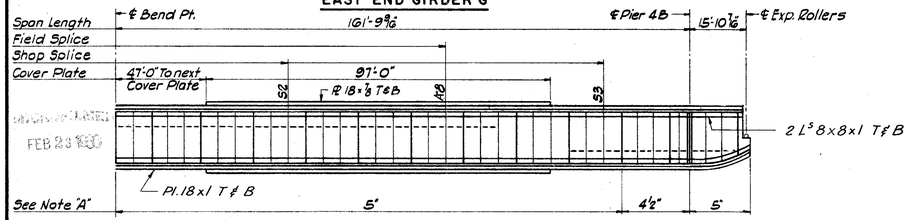
Revised 2-13-58



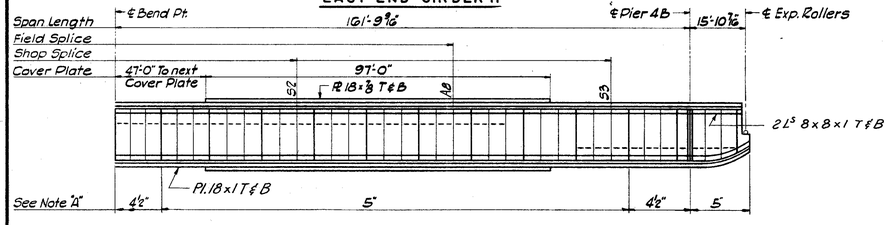
EAST END GIRDER F



EAST END GIRDER G



EAST END GIRDER H



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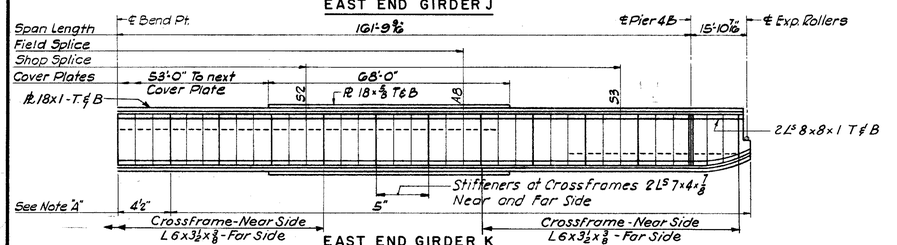

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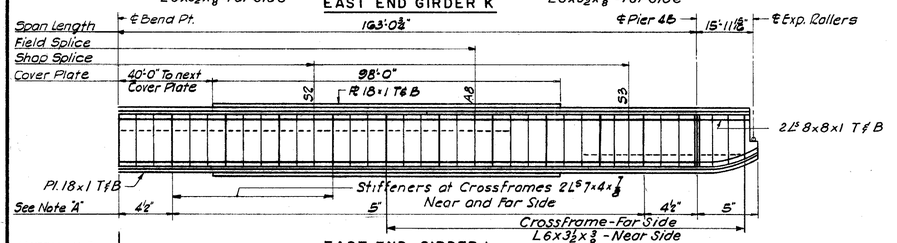
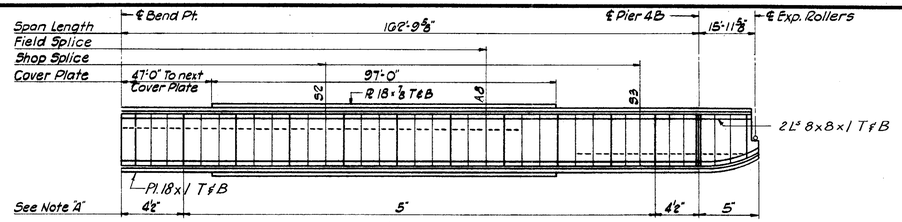
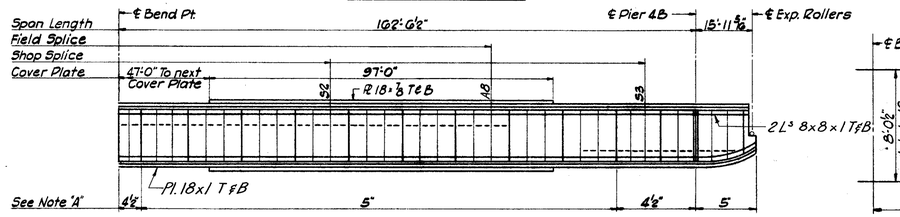


MATCH LINE at ℄ Bend Pt. see Shs. 14, 15 & 16

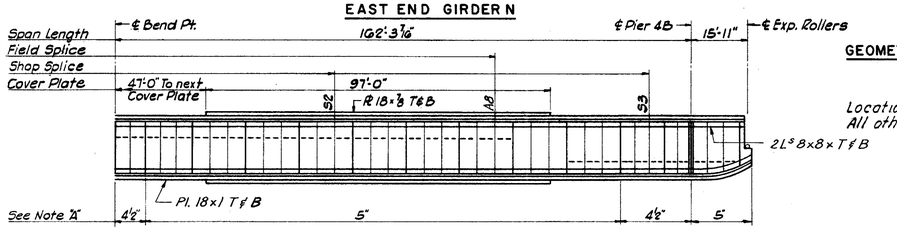
EAST END GIRDER L



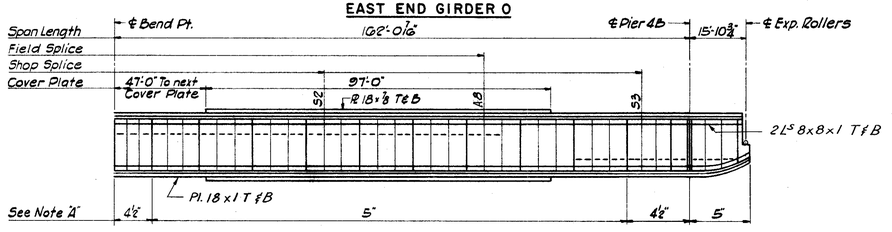
EAST END GIRDER M



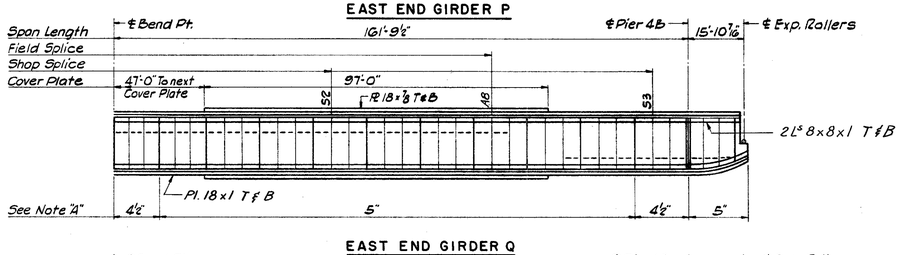
EAST END GIRDER N



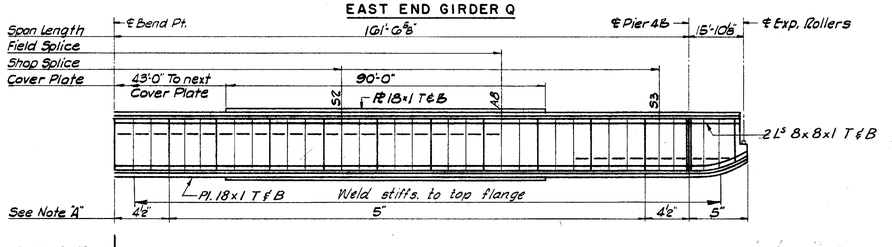
EAST END GIRDER O



EAST END GIRDER P



EAST END GIRDER Q



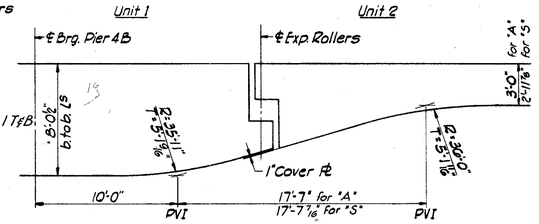
MATCH LINE at ℄ Bend Pt. see Shs. 14, 15 & 16

EAST END GIRDER R

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

77
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 – (17.43-18.02)



GEOMETRY-GIRDERS D & R AND BEAMS A & S AT EXP. ROLLERS

No Scale

Geometry for Girders E thru Q same as above

Locations of P.V.I's are measured horizontally from ℄ of Pier.
All other dimensions are parallel or normal to top flange of girders.

NOTES:

For Notes with reference to Girders F, G, H, J, K, L, M, N, O, P, Q, R, See Sh. 14.

All girders drawn looking North.

Note A"- Staggered rivet pitch, Flange Angle to Web. Staggered rivet pitch, Flange Angles to Cover Plate 5".

For weld detail of intermediate stiffeners see Sh. 85.

All intermediate stiffener L⁵ 6x3 1/2 x 5/8 including those on side of girder opposite cross frame connections for Girders K & L shall be crimped a maximum of 3/4".

See General Notes 11A & Sht. 85

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY – 42 – 17.50

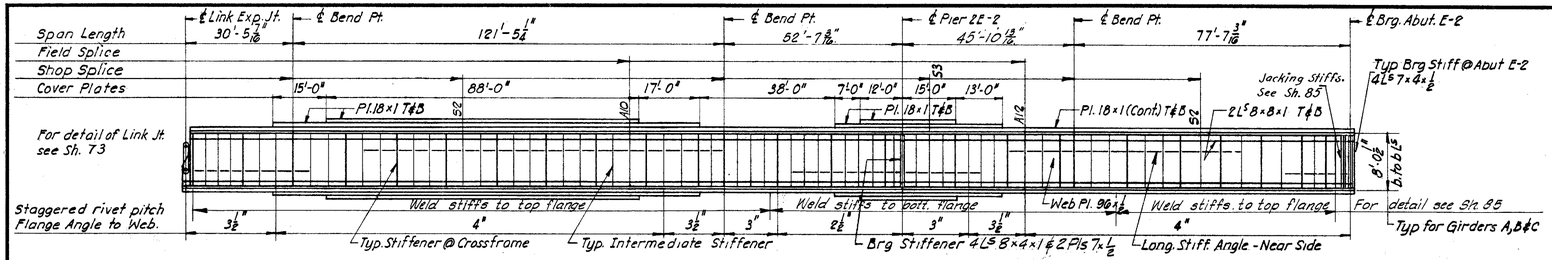
GIRDER ELEVATIONS

CLEVELAND CUYAHOGA COUNTY OHIO

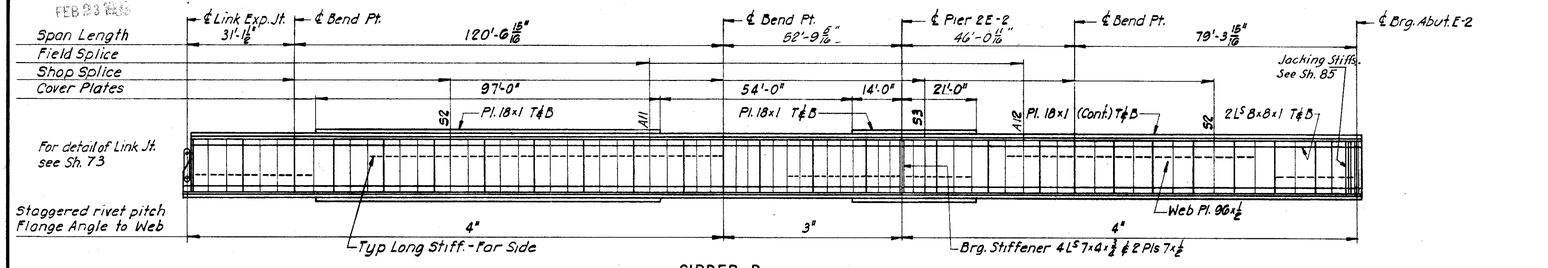
SCALE 1"=20' Hor. 1"=10' Vert.
MADE F.J.Q. DATE 1-12-57
TRCD W.E.K. DATE 3-12-57
CKD W.G. DATE 3-27-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET- 77

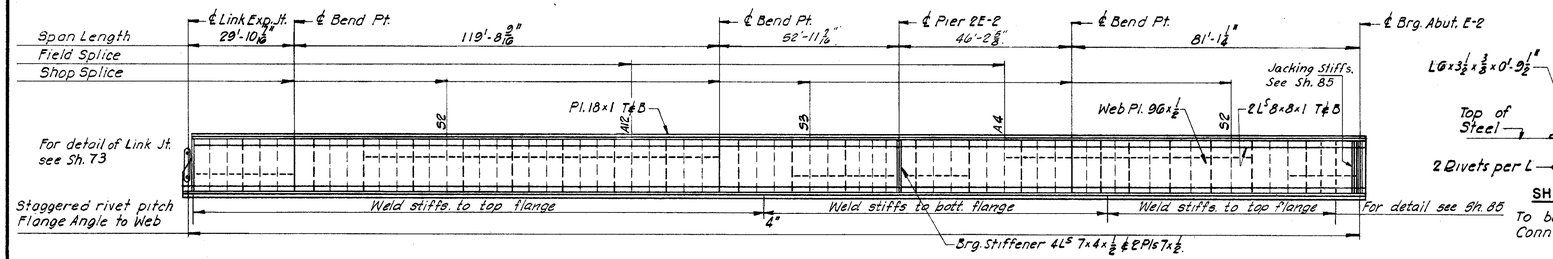
FEB 23 1960



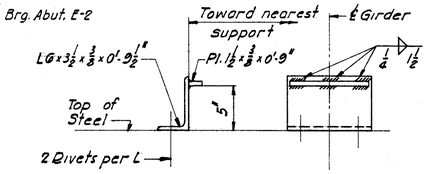
GIRDER A



GIRDER B

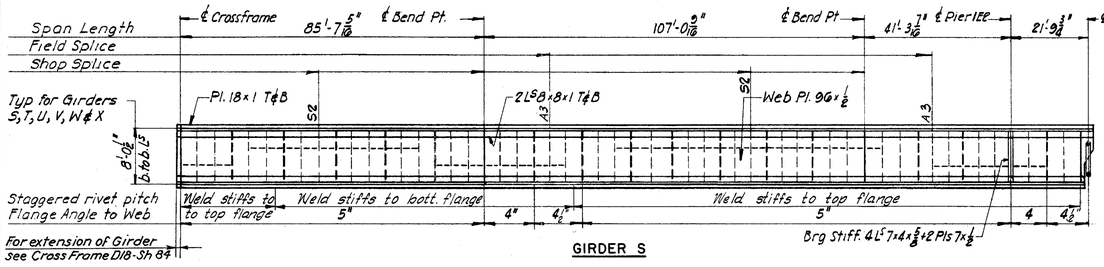


GIRDER C

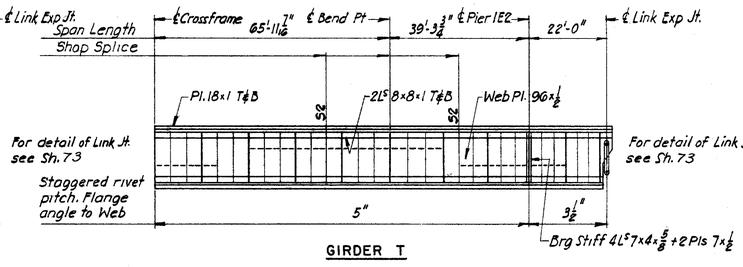


SHEAR CONNECTOR DETAIL

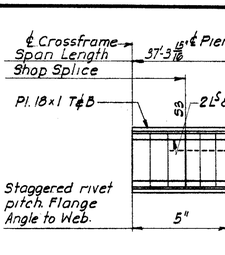
To be used only at Girders A, B ℄ C
Connectors spaced 20" c.c. Maximum
Scale 1 1/2" = 1'-0"



GIRDER S



GIRDER T



GIRDER U

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

78
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)

NOTES:

Cover Plate lengths shown are to be modified at splices as shown in Girder Splice Details.

① Flange angles, web plates and cover plates of Girders A, B, C, S, T, U are Manganese Steel.

Longitudinal Stiffener Angles for all girders are 1-L 4×3 1/2×5/8

Stiffener, Crossframe and Lateral Bracing material for all Girders to be Structural Carbon Steel.

All rivets 7/8" ϕ. Stagg. Pitch Flge Ls to Cov. Pl. 5"

Intermediate stiffeners between crossframes are 6×3 1/2×3/8 Ls. Use 1/4" fill pls for Girders A, B, C, S, T, U. Crimp Intermediate stiffener angles a maximum of 1/4". At Girders A, C and S use one Intermediate stiffener on inside face of Girder. At Girders B, T, U, use Intermediate Stiffeners on both sides of web.

Intermediate stiffeners at crossframes are 7×4×7/8 Ls on fill pls. For Girders A, B, C, S, T and U use 1" fills. No crimping permitted.

All Girders drawn looking North.

Longitudinal dimensions of Girders shown are measured horizontally along ℄ of Web Plate.

For details of Bend Points of Girders see Sh. 83

For splice details see Shs. 81 & 82.

The location of field splices for Girders A, B and C assumes a temporary support to be located approximately 85' West of Pier 2E-2. This support cannot be omitted. Erection of girders is assumed to proceed Eastward from the ℄ of Link Joint to Abut. E-2. The support shall remain in place until entire Superstructure Deck concrete has been placed.

Bearing stiffeners to be milled to bear on flange angles, top ℄ bottom

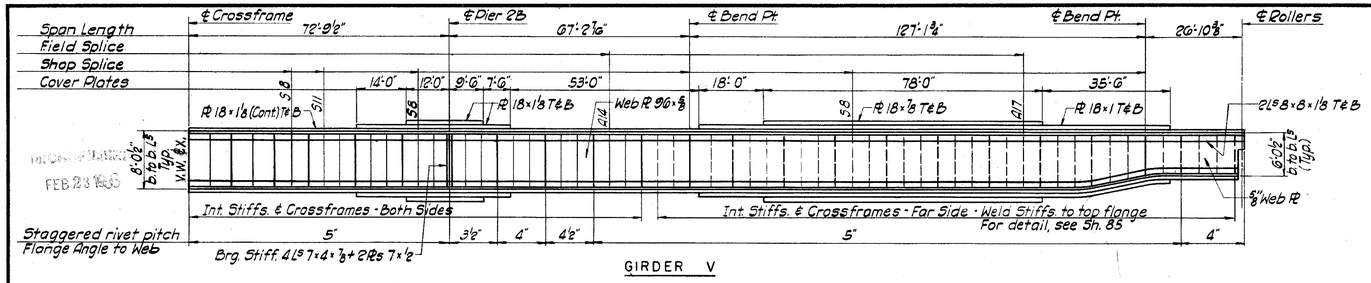
① See General Note 11A and Sheet 83

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50

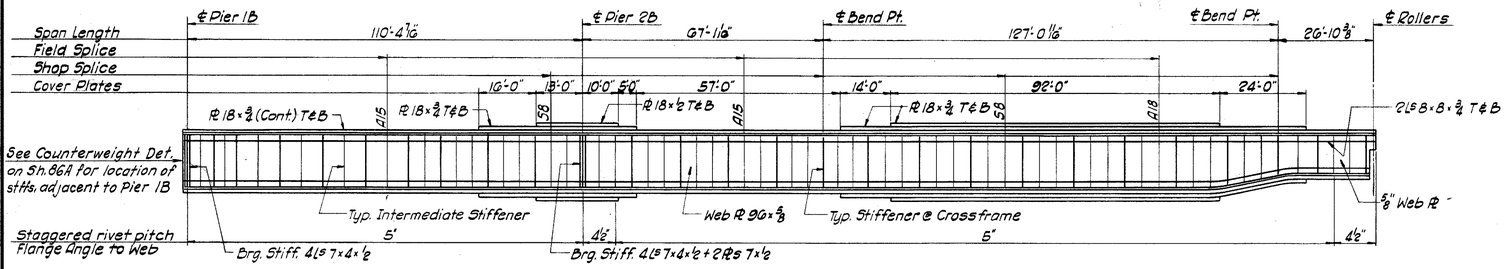
GIRDER ELEVATIONS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1"=10' Vert., 1"=20' Horiz. HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE H.K.S. DATE 1-4-57 CONSULTING ENGINEERS
TRCD A.R.K. DATE 3-13-57 KANSAS CITY CLEVELAND NEW YORK
CKD A.G. FINK DATE 4-20-57 914 (2E) B SHEET- 78



GIRDER V



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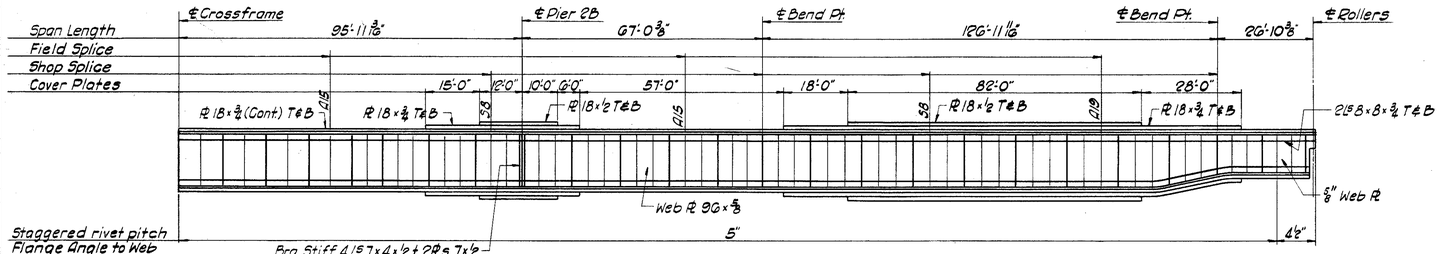
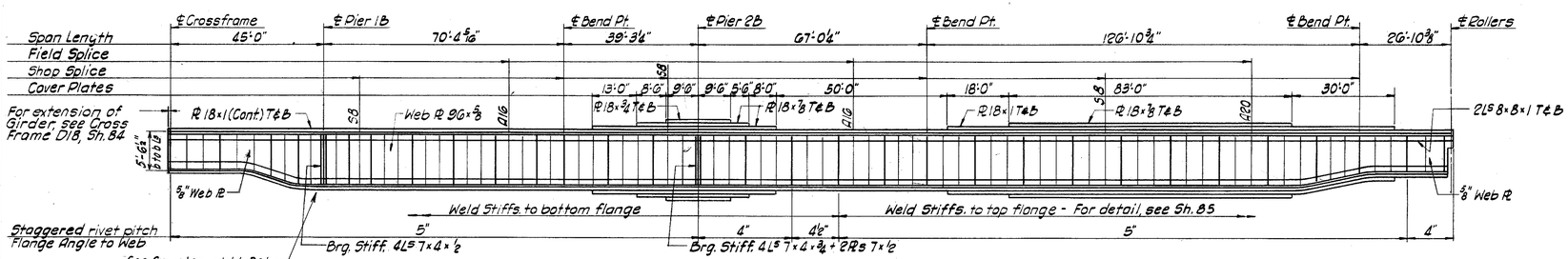
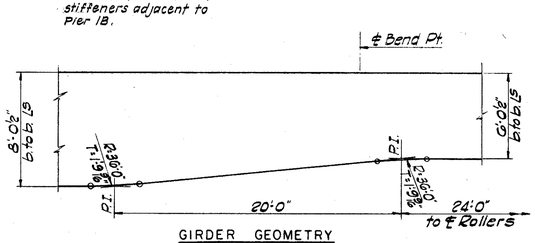


GIRDER X

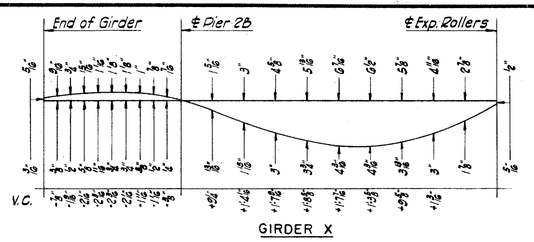


GIRDER Y



GIRDER GEOMETRY

Location of P.I.'s are measured horizontally from ℄ Rollers.
All other dimensions are parallel or normal to top flange of girders.
1"=5'



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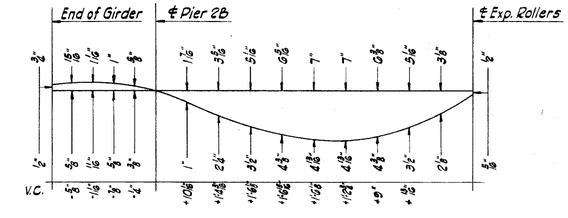

GIRDER V

DEFLECTION DIAGRAMS
No Scale
For notes, see Sh. 90.

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

78A
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CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)

NOTES:

Cover Plate lengths shown are to be modified at splices as shown in Girder Splice Details

① Flange angles, web plates and cover plates to be Manganese Steel.

Stiffener, Crossframe and Lateral Bracing material for all Girders to be Structural Carbon Steel.

All rivets ⅞"ϕ. Stagg Pitch Flge. L⁵ to Cov. Pl. 5". Intermediate Stiffeners betw. crossframes are G×3½×⅜ L⁵. Use 3/16" fill pls. for Girder V and ¼" fill pls. for Girder Y. Crimp Intermediate stiffener angles a max. of ¾". At Girders W and X use Interm. stiffeners on both sides of web. At Girder Y use one Interm. stiffener on inside face of Girder. Girder V as noted.

Intermediate stiffeners at crossframes are 7×4×⅞ L⁵ on fill pls. For Girder Y use 1/8" fills. For Girders W and X use ¾" fills and for Girder Y use 1" fills. No crimping permitted.

Longitudinal dimensions of Girders shown are measured horizontally along ℄ Web Plate.

For details of Bend Points of Girders, see Sh. 83.

For splice details, see Shs. 81 & 82.

Bearing stiffeners to be milled to bear on flange angles, top and bottom.

All Girders drawn looking North.

For details at rollers, see Shs. 86 & 86A.

For geometry of Girder Y West of Pier 1B see Sh. 74.

① See General Notes 11A and Sheet 83

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

GIRDER ELEVATIONS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1"=10' Vert. 1"=20' Hor. Unless Noted
MADE T.H.G. DATE 2-26-57
TRCD R.C.S. DATE 2-27-57
CKD D.J.K.Jr. DATE 2-19-57

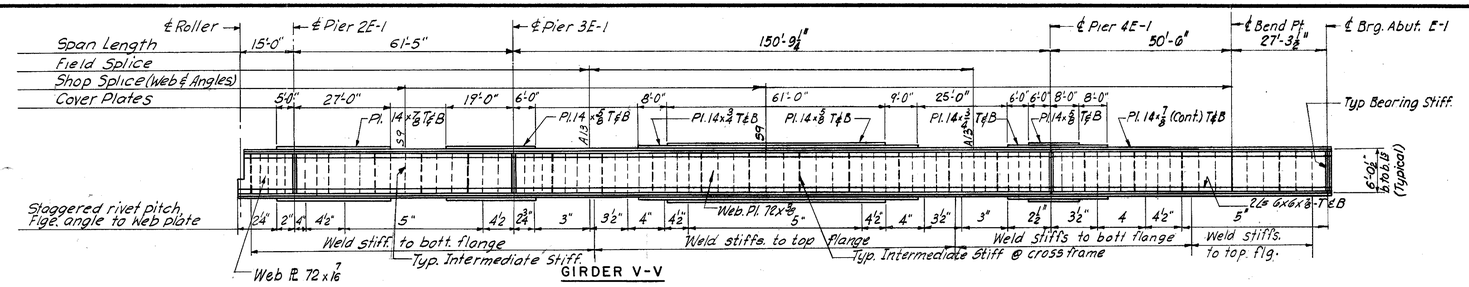
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET- 78A

ARCHIVE COPY
FEB 23 1960

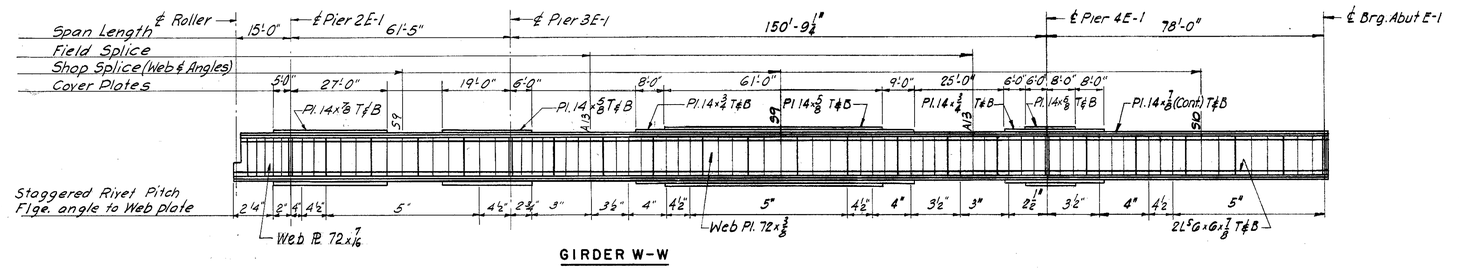
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

79
117

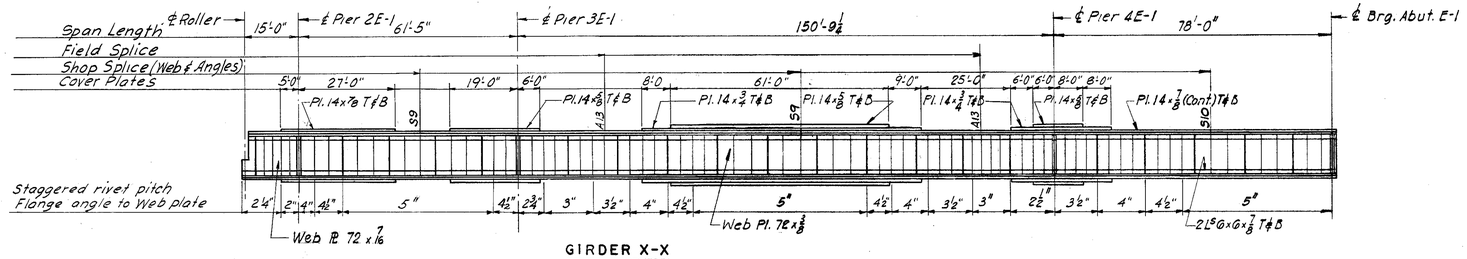
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



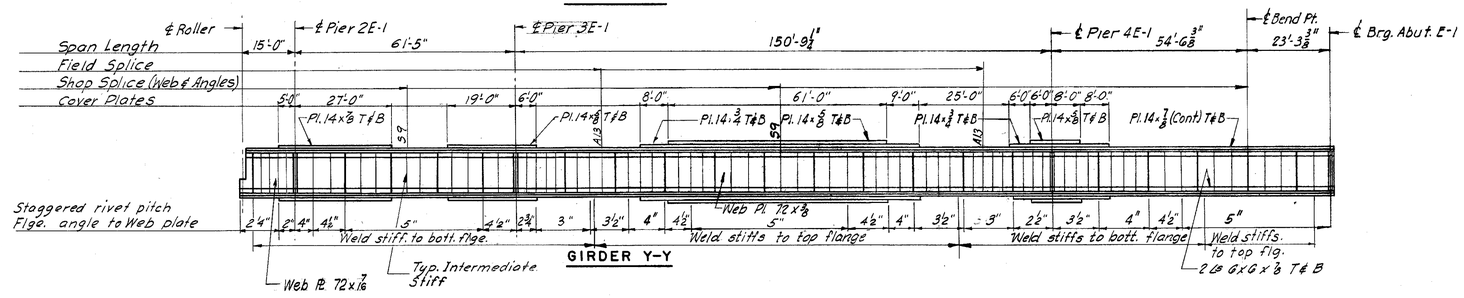
GIRDER V-V



GIRDER W-W



GIRDER X-X



GIRDER Y-Y

NOTES:

Material for all Girders to be Structural Carbon Steel.

All rivets ⅞" ϕ.

Intermediate Stiffeners for Girders V-V, W-W, X-X and Y-Y are 5×3½×5/16 L's on ⅜ Fill pls. Crimp Stiffs. a maximum of ¾". At Girders V-V & Y-Y use one Intermediate Stiffener on inside face of Girder. At Girders W-W and X-X use stiffeners on both sides of Web.

Intermediate Stiffeners at crossfrmes for Girders V-V, W-W, X-X and Y-Y are 6×3½×⅜ L's on ⅞" fill pls. No crimping permitted.

Bearing Stiffeners at Piers 3E-1, 4E-1 and Abutment E-1 are 4 PL 6×4×⅞. Bearing Stiffeners at Pier 2E-1 are 4 PL 6×4×⅞ and 2 PL⁸ 6×⅞. Bearing Stiffeners for all Girders to be milled to bear on flange angles, top and bottom.

Longitudinal dimensions of Girders shown are measured horizontally along ℄ of Web pl.

All girders drawn looking North.

For Splice Details, see Shs. 81 & 82.

Staggered rivet pitch, Flange Angles to Cover Plates 3".

For weld detail of intermediate stiffener, See Sh. 85.

For Roller Details, see Shs. 86 & 86A.

72×7/16 Web Pl and 72×⅜ Web Pl to be spliced at Splice 69 nearest Pier 2E-1.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

GIRDER ELEVATIONS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE	1"=10' Vert., 1"=20' Horiz.	HOWARD, NEEDLES, TAMMEN & BERGENDOFF	
MADE	H.P.S.	DATE 11-23-59	CONSULTING ENGINEERS
TRCD	K.R.K.	DATE 3-15-57	KANSAS CITY CLEVELAND NEW YORK
CKD	H.P.M.S.	DATE 12-1-57	914 (2E) B SHEET- 79

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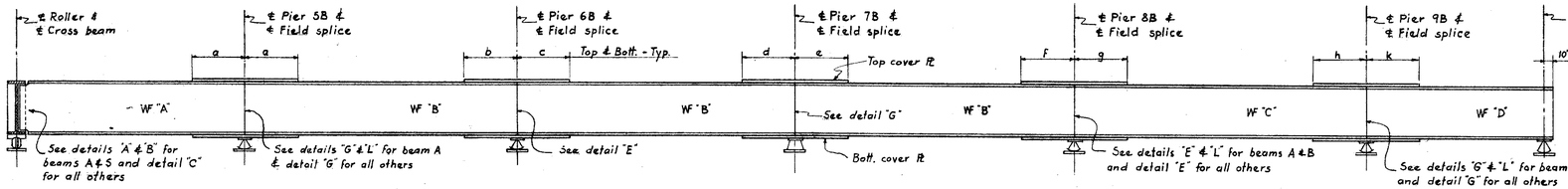
FEB 23 1962

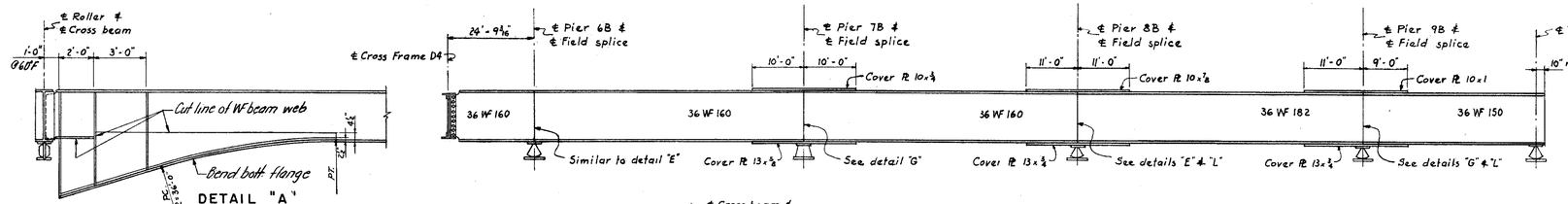
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

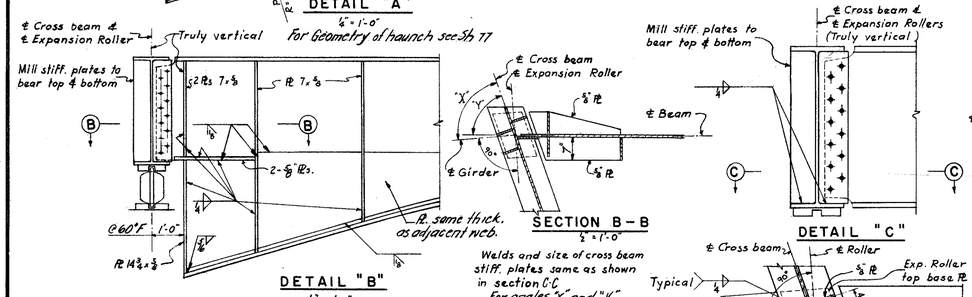
80
117

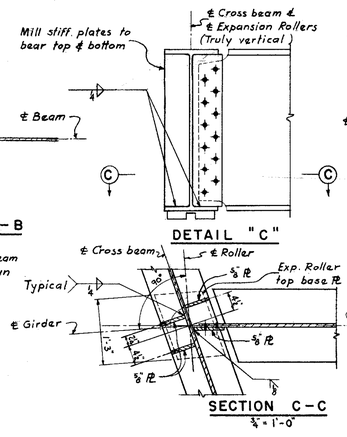
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



ELEVATION BEAMS A TO N & S
No scale







ELEVATION BEAM P
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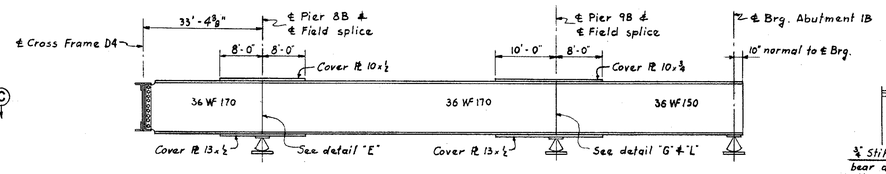

ELEVATION BEAM R
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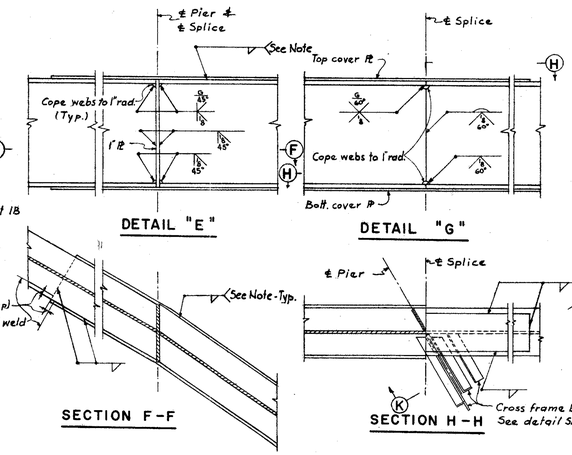
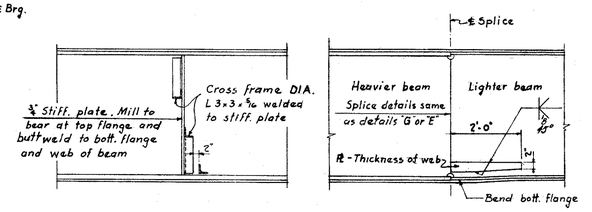


Note: Use 5/8" fillet welds for 36 WF 245 and 5/16" welds for all other beams



BEAM SPLICE DETAILS
1/2" = 1'-0"

Beam	Splice at Pier 7B		Splice at Pier 8B		Splice at Pier 6B		Splice at Pier 5B		Splice at Pier 9B	
A & B	Raise at Pier 6B or Raise at Pier 8B	3 1/16" 3 1/8"	Raise at Pier 9B	2 3/4"	Raise at Pier 5B	2 1/16"	Raise at Exp. joint	1 7/16"	Raise at Abutment	15/16"
C to G	Raise at Pier 6B or Raise at Pier 8B	3" 3"	Raise at Pier 9B	2 11/16"	Raise at Pier 5B	2 1/16"	Raise at Exp. joint	1 5/8"	Raise at Abutment	15/16"
H to N & S	Raise at Pier 6B or Raise at Pier 8B	2 13/16" 2 7/8"	Raise at Pier 9B	2 1/2"	Raise at Pier 5B	2 1/16"	Raise at Exp. joint	1 5/16"	Raise at Abutment	3/8"
P	Raise at Pier 6B	2 3/8"	Raise at Pier 9B	3 1/4"	Raise end of stub beam	3/4"			Raise at Abutment	3/8"
R			Raise end of stub beam	1 1/16"					Raise at Abutment	1 1/4"

TABLE OF BEAM SECTIONS AND COVER PLATES

Stringer	Beam Sections				Cover Pl's at Pier 5B			Cover Pl's at Pier 6B				Cover Pl's at Pier 7B				Cover Pl's at Pier 8B				Cover Pl's at Pier 9B			
	WF "A"	WF "B"	WF "C"	WF "D"	Top Pl	Bott. Pl	a	Top Pl	Bott. Pl	b	c	Top Pl	Bott. Pl	d	e	Top Pl	Bott. Pl	f	g	Top Pl	Bott. Pl	h	k
A	36 WF 245	36 WF 230	36 WF 245	36 WF 230	13 x 11/16	18 x 11/16	10'-0"	13 x 11/16	18 x 11/16	10'-0"	10'-0"	13 x 3/4	18 x 11/16	10'-0"	10'-0"	13 x 1	18 x 13/16	11'-0"	11'-0"	13 x 11/16	18 x 11/16	10'-0"	8'-0"
B	36 WF 230		36 WF 245									13 x 3/4				13 x 1	18 x 13/16						
C	↑	↑	36 WF 230	↑	↑	↑	↓	↑	↑	↑	↑	13 x 11/16	↑	↑	↑	13 x 1	18 x 15/16	↑	↑	↑	↑	↑	↑
D			↑									↑				13 x 7/8	18 x 3/4						
E																13 x 7/8	18 x 3/4						
F							↓							↓	↓	13 x 7/8	18 x 3/4						
G							10'-0"			10'-0"	10'-0"			10'-0"	10'-0"	13 x 3/4	18 x 11/16	11'-0"	11'-0"	13 x 11/16	18 x 11/16	10'-0"	8'-0"
H							7'-0"			7'-0"	7'-0"			7'-0"	7'-0"	13 x 11/16		7'-0"	7'-0"	None	None		
J							8'-0"			9'-6"	10'-0"			9'-6"	10'-0"			10'-0"	10'-6"	13 x 11/16	18 x 11/16	9'-0"	7'-0"
K							↓			↓	↓			↓	↓			↓	↓	↓	↓	↓	↓
L																							
M																							
N	↓	↓	↓	↓	13 x 11/16	18 x 11/16	8'-0"	13 x 11/16	18 x 11/16	9'-6"	10'-0"	13 x 11/16	18 x 11/16	9'-6"	10'-0"	13 x 11/16	18 x 11/16	10'-0"	10'-6"	13 x 11/16	18 x 11/16	9'-0"	7'-0"
S	36 WF 230	36 WF 230	36 WF 230	36 WF 230	13 x 11/16	18 x 11/16	7'-0"	None	None			None	None			None	None			None	None		

FIELD SPLICE WELDING PROCEDURE:

1. Raise the ends of beams to amounts as indicated in the table above. (See Note)
2. Butt-weld the beam flanges and web. Make one pass in each flange, then in the web; repeat until welds are completed.
3. Weld the bottom and top cover plates.
4. Lower the beam ends to final position.

Note: For beams A to N & S: Make splice welding in order shown in table above. Do not lower beams to final position at Rollers & Abut. before last splices at piers 5B & 9B have been completed.
For beam P: Make splice welding at piers 6B & 8B; then splice at piers 7B & 9B. Lower beam into final position at pier 6B & Abut. after welding has been completed.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

UNIT 2 - BEAM ELEVATIONS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As noted
MADE JAF DATE 11-19-56
TRCD M.R.K. DATE 3-14-57
CKD B.V. DATE 2-25-57

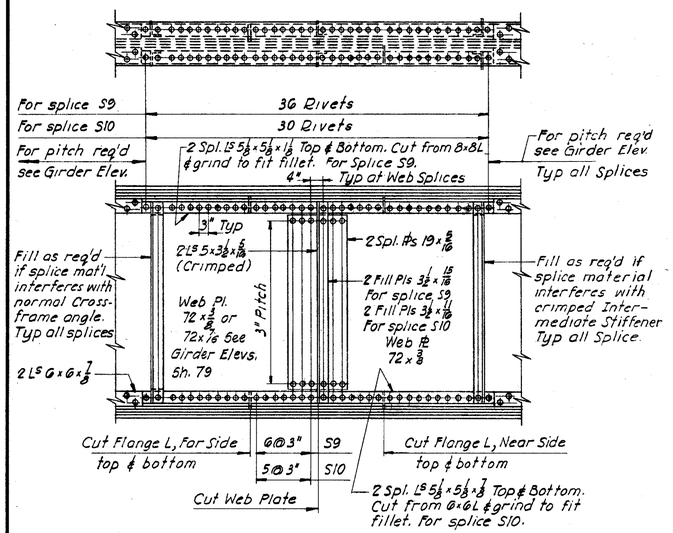
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 80

FEB 23 1960

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

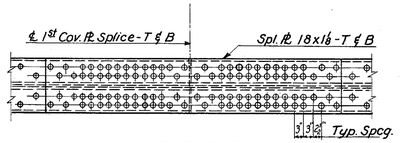
81
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 – (17.43–18.02)



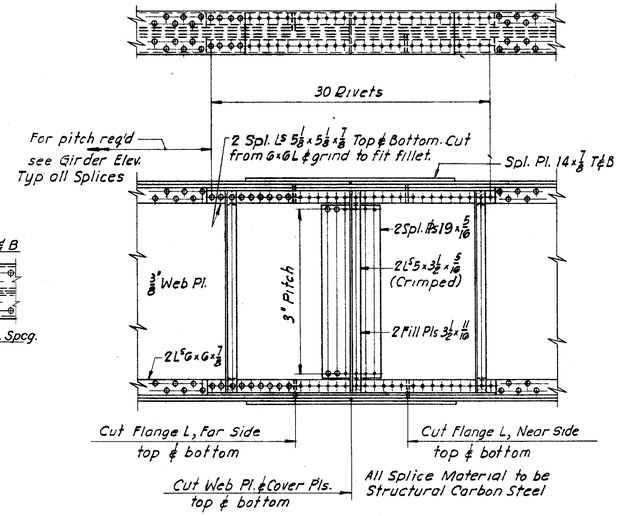
SHOP SPLICE S9 & S10

All Splice Material to be Structural Carbon Steel

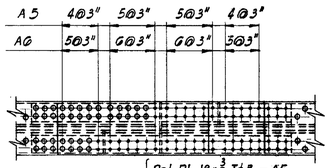


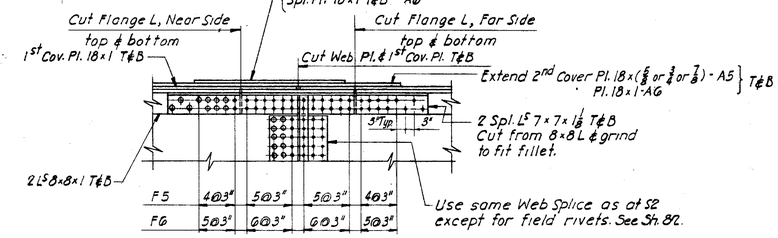
SHOP SPLICE S11

All Splice Material to be Manganese Steel



FIELD SPLICE A13

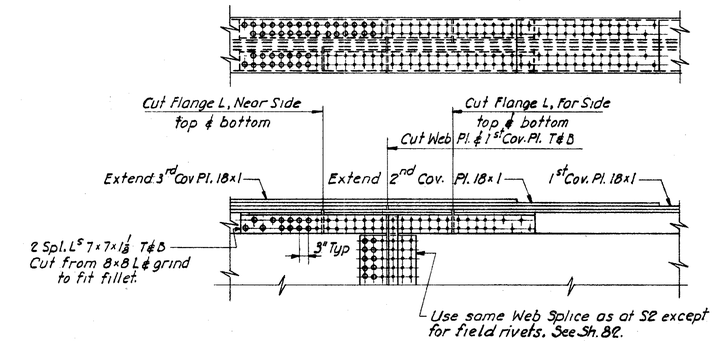




Toward Increasing Moment

FIELD SPLICE A5 & A6

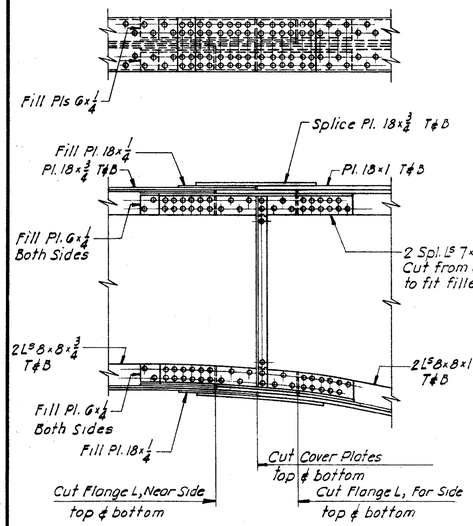
All Splice Material to be Manganese Steel



Toward Increasing Moment

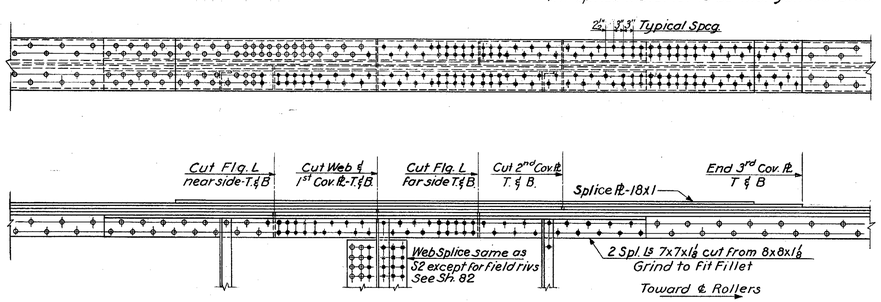
FIELD SPLICE A7

All Splice Material to be Manganese Steel



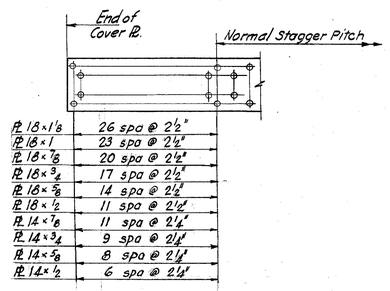
SHOP SPLICE S7

All Splice Material to be Structural Carbon Steel

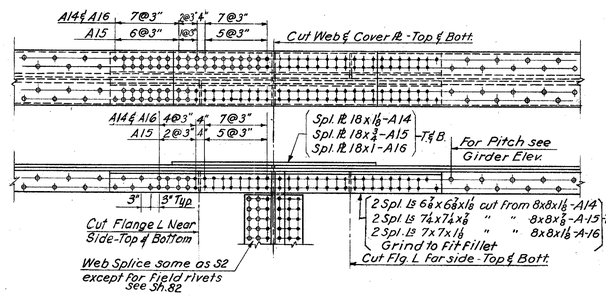


FIELD SPLICE A20

All Splice Material to be Manganese Steel



END COVER PLATE DEVELOPMENT



FIELD SPLICE A14, A15 & A16

All Splice Material to be Manganese Steel

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY – 42 – 17.50

GIRDER SPLICES

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3/4" = 1'-0"
MADE M.P.S. DATE 1-16-57
TRCD N.R.K. DATE 3-14-57
CKD R.W.P.I. DATE 3-5-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 81

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

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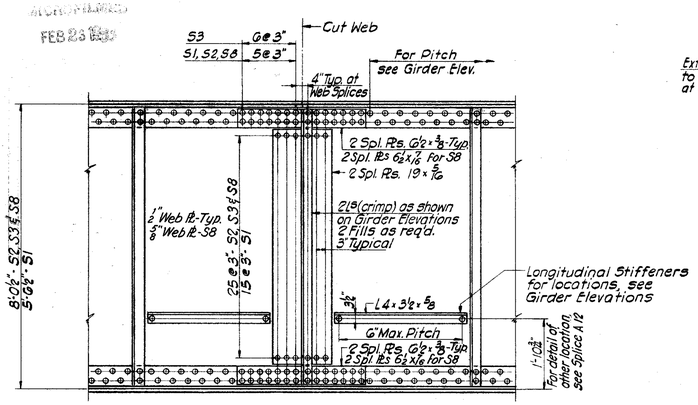
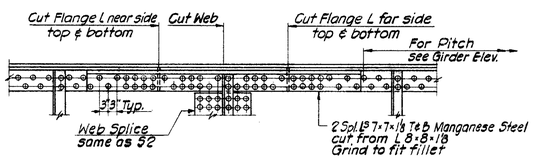
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43-18.02)

FEB 23 1959

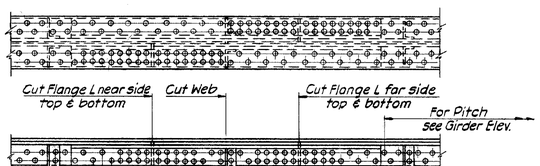


SHOP SPLICE S1, S2, S3 & S8

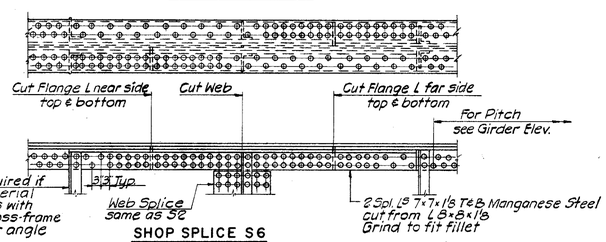
All splice material for S1 to be Struct. Carbon Steel
All splice material for S2, S3 & S8 to be Manganese Steel.



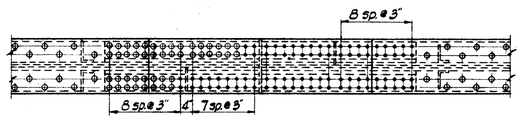
SHOP SPLICE S4

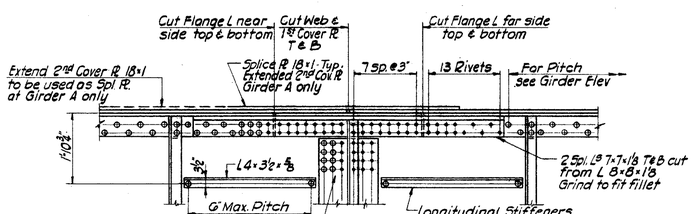


SHOP SPLICE S5



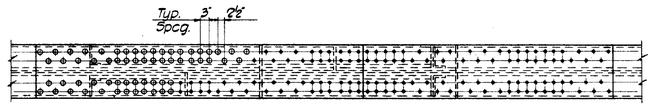
SHOP SPLICE S6

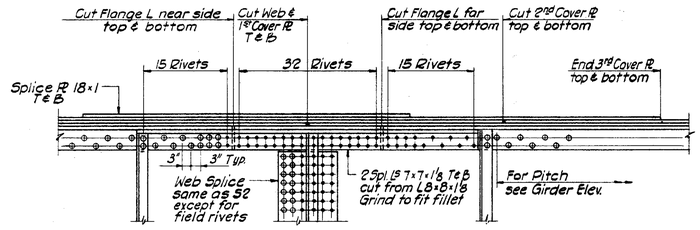




FIELD SPLICE A12

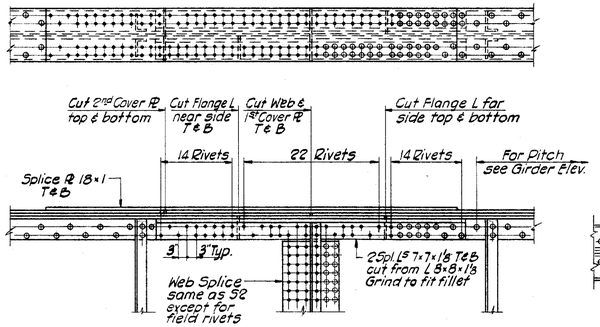
All splice material to be Manganese Steel





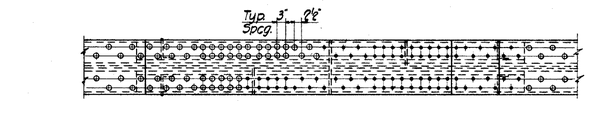
FIELD SPLICE A10

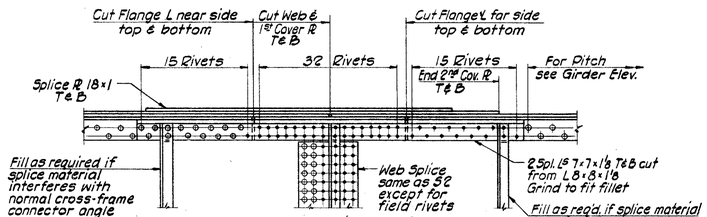
All splice material to be Manganese Steel



FIELD SPLICE A8

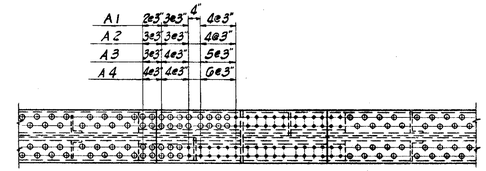
All splice material to be Manganese Steel

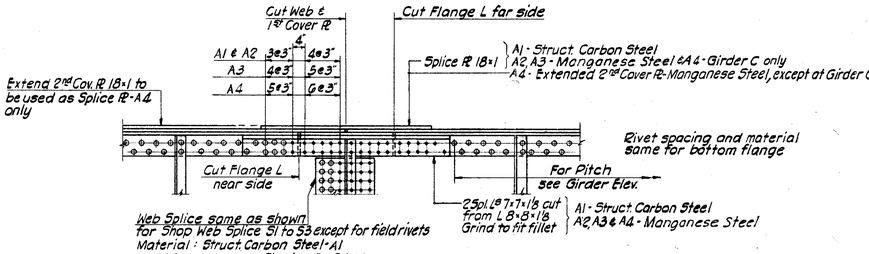




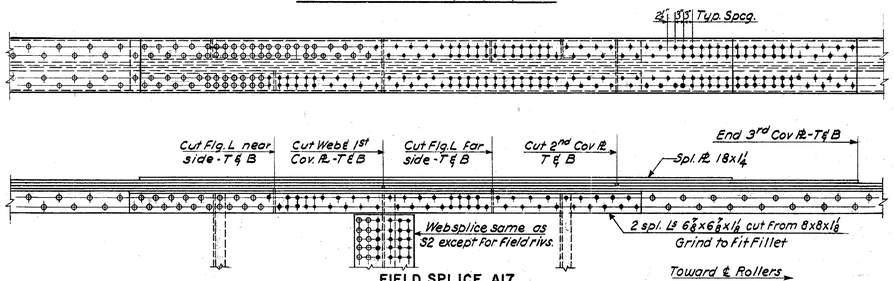
FIELD SPLICE A11

All splice material to be Manganese Steel



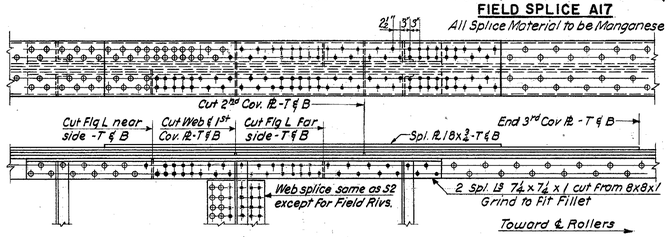


FIELD SPLICE A1, A2, A3, & A4



FIELD SPLICE A17

All Splice Material to be Manganese Steel



FIELD SPLICE A19

All Splice Material to be Manganese Steel

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50

GIRDER SPLICES

CLEVELAND CUYAHOGA COUNTY OHIO

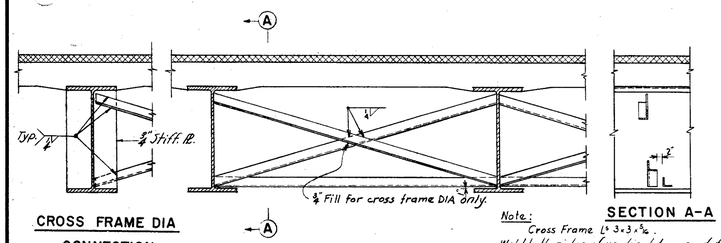
SCALE 1/2" = 1'-0"
MADE T.J.Q. DATE 1-16-57
TRCD N.R.K. DATE 5-18-57
CKD R.H.R.L. DATE 5-5-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET- 82

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

83
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)



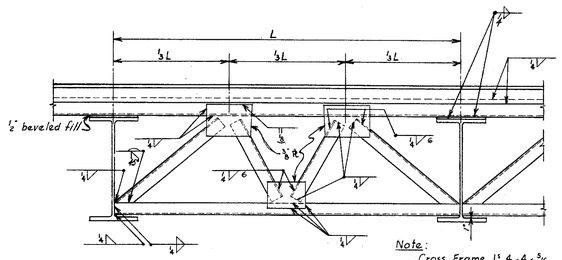
CROSS FRAME DIA CONNECTION

SECTION A-A

CROSS FRAME DI

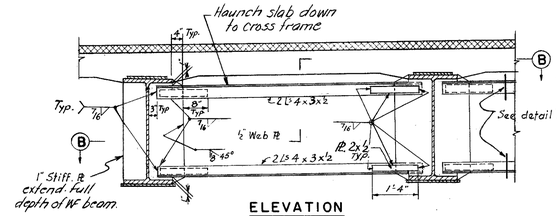
Cross Frame DIA similar except as shown.

Note:
Cross Frame L⁵ 3×3×⅜:
Weld both sides of vertical leg and top side of horizontal leg to beam at each end of 3×3 L with ¼" continuous fillet weld.
For Cross Frame DIA see Section K-K, Sh 80

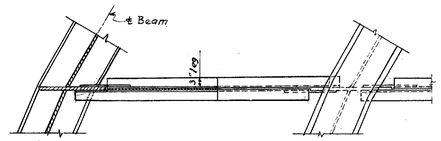


CROSS FRAME D2

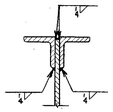
Note:
Cross Frame L⁴ 4×4×⅝
For details of expansion joint at Cross Frame D2 see Sh. 94



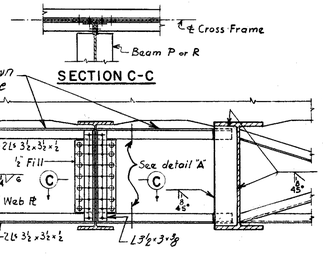
ELEVATION



SECTION B-B



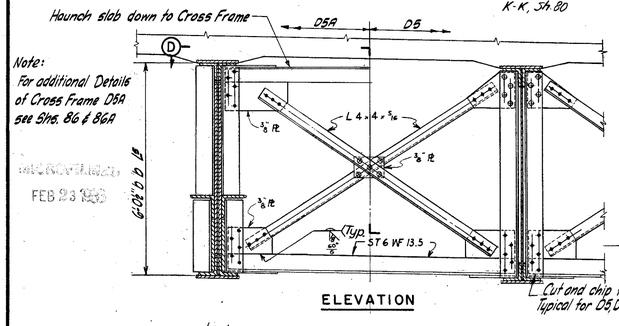
DETAIL "A"
No scale



SECTION C-C

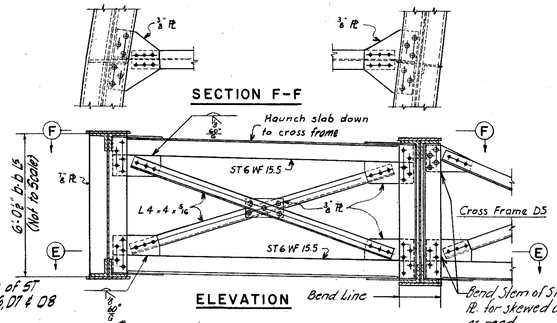
CROSS FRAME D4

CROSS FRAME D3

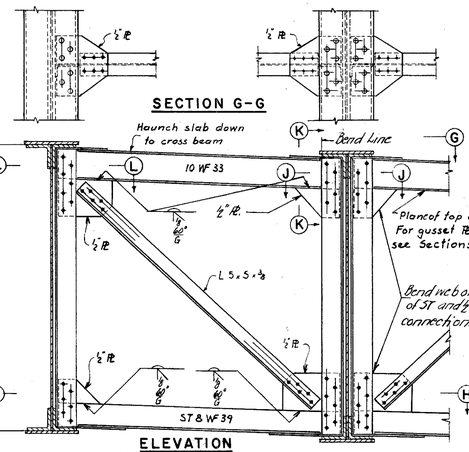


ELEVATION

Note:
For additional Details of Cross Frame D5A see Shs. 86 & 86A



ELEVATION



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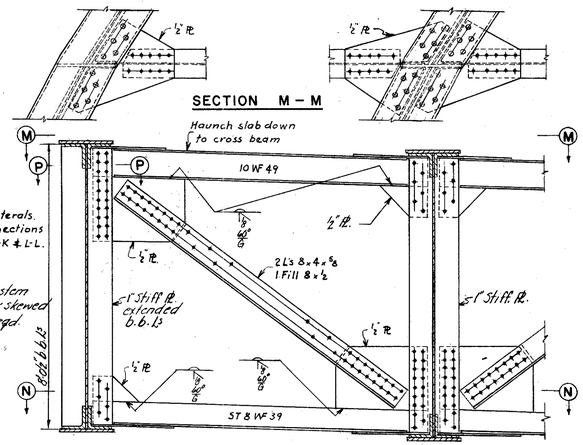
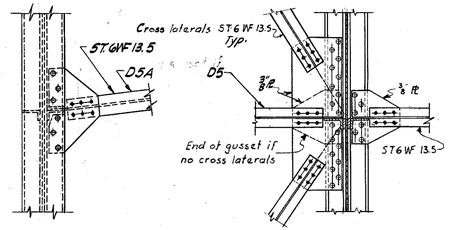
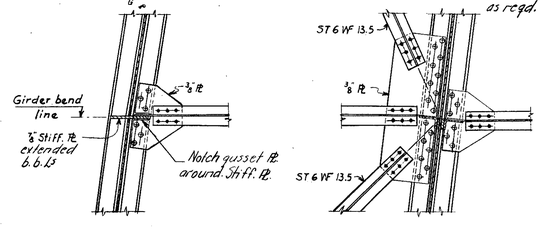


ELEVATION



SECTION D-D

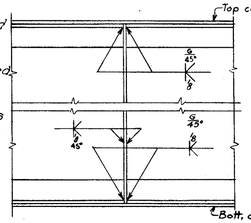
Note:
Bend stem of ST 6 WF and ⅜ conn. Pls at skewed conn. as reqd.



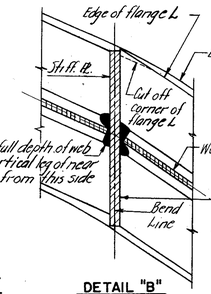
SECTION E-E

CROSS FRAMES D5 & D5A

Girder Splice at Bend Points.
All members of plate girders designated as Manganese Steel which are joined by welding at bend points shall be of fully weldable A.S.T.M. designation A 242 steel. This includes flange angles and web, cover and stiffener plates. (R)

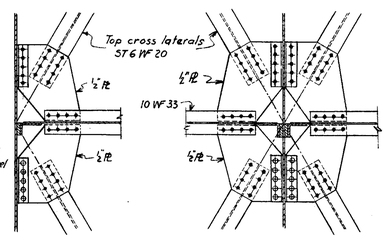


TYPICAL GIRDER SPLICE AT BEND POINT



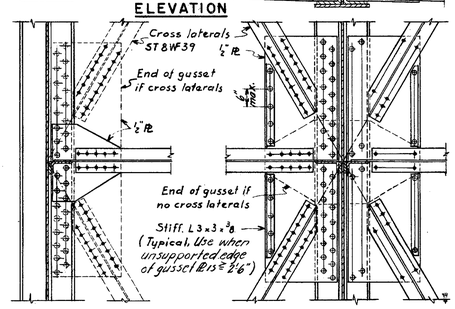
DETAIL "B"
No Scale

CROSS FRAME D6

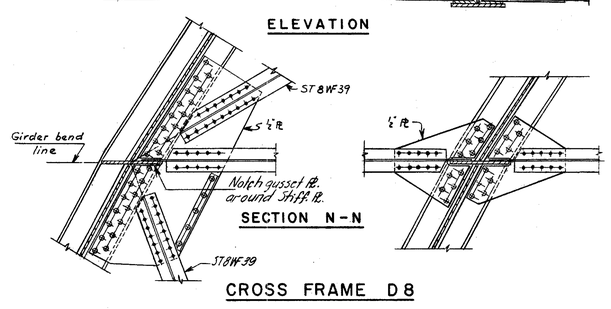


SECTION L-L
Section P-P similar.

SECTION J-J

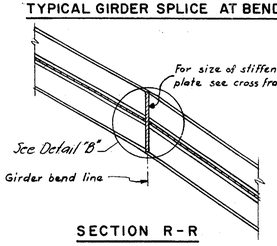


SECTION H-H



SECTION N-N

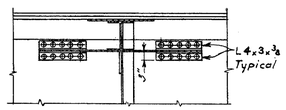
CROSS FRAME D8



SECTION R-R

SPLICE WELDING PROCEDURE

1. Butt weld the Girder flanges and web to Stiff. Pl.: Make one pass in each flange, then in the web; repeat until welds are completed.
2. Rivet the top and bottom cover plates after weld material has been ground smooth.
3. At bend points cover plates shall be rounded to a radius not less then 1'-0".
4. Cover plates may be cut from a single wide plate, or fabricated by butt welding in shop with cover plate splice to be a minimum of 2'-0" from bend point.
5. Care shall be exercised in the welding procedure in order to keep any distortion of main girder material to a minimum and insure adequate strength of the joint and weld material.



SECTION K-K

CROSS FRAME D7

NOTES:
All rivets ⅞".
All cross frame material, gusset plates and connection plates to be Structural Carbon Steel.
For location of diaphragms see Framing Plans Shs. 70, 71, 72 and 73.
All cross frames and laterals shall be fully riveted prior to pouring of slab.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

CROSS FRAMES

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE ½"=1'-0"
MADE JAF DATE 1-19-57
TRCD HG DATE 2-14-57
CKD D.F.W.R.J. DATE 2-22-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET-83

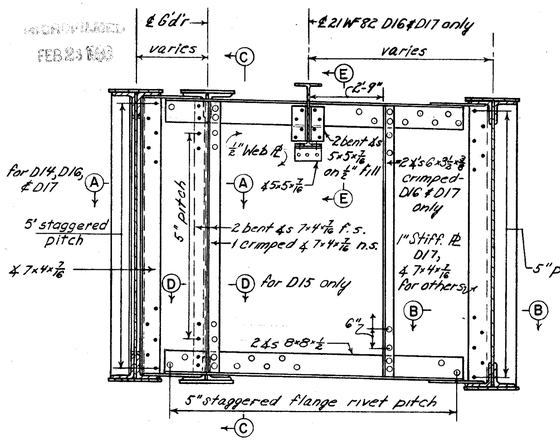
MICROFILMED
FEB 23 1959

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

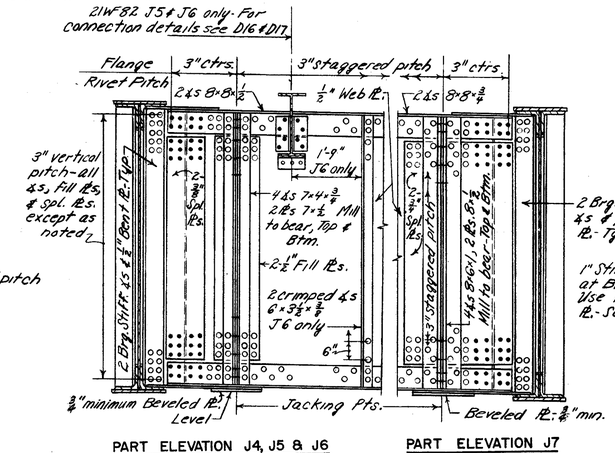
84
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)

RECEIVED FEB 25 1957

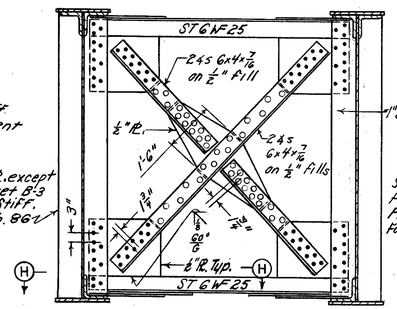


ELEVATION



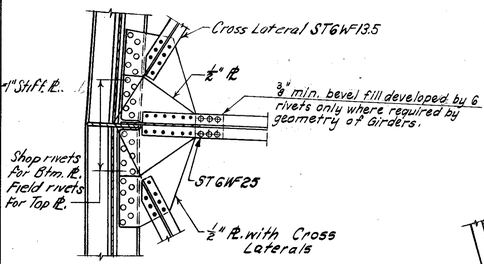
PART ELEVATION J4, J5 & J6
Other Part Similar.

PART ELEVATION J7
Other Part Similar.

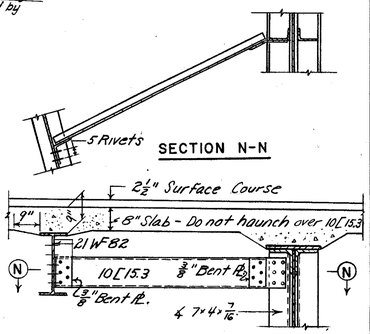


ELEVATION

CROSS FRAME D21

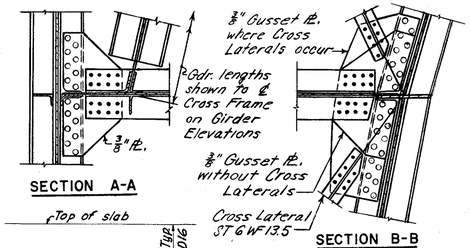


SECTION H-H



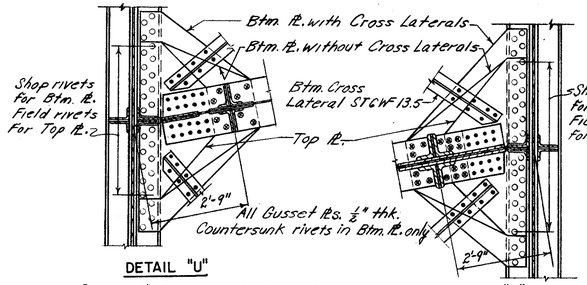
SECTION N-N

CROSS FRAME D27



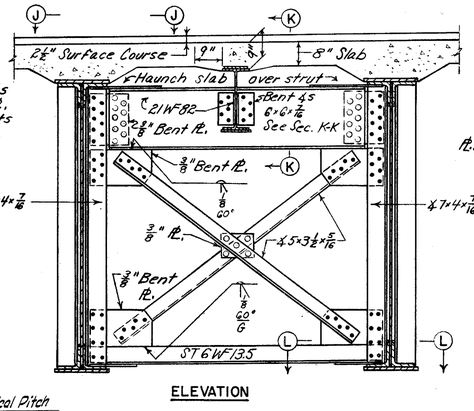
SECTION A-A

SECTION B-B

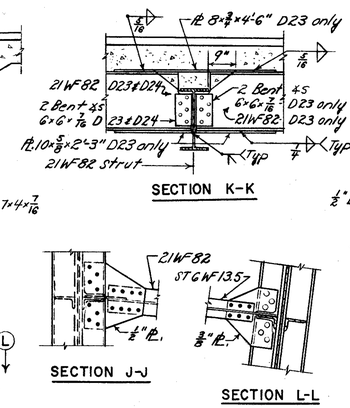


DETAIL "U"
Gusset Pl. Details - J4, J5, & J6.

DETAIL "V"
Gusset Pl. Details - J7.



ELEVATION



SECTION K-K

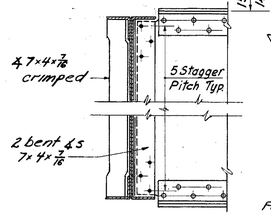
SECTION J-J

SECTION L-L

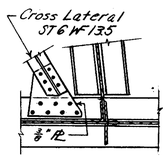
ELEVATION

SECTION P-P

CROSS FRAME D18

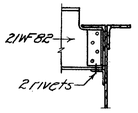


SECTION C-C



SECTION D-D

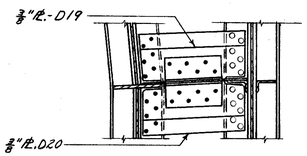
For D15 only - For Gusset Pls. at ends see Sec. A-A & Sec. B-B.



SECTION E-E
For D16 & D17 only.

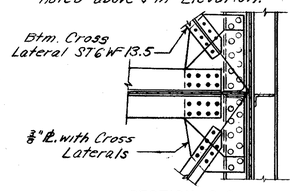
CROSS FRAMES D14, D15, D16 & D17

D14, D15, D16, & D17 similar except as noted

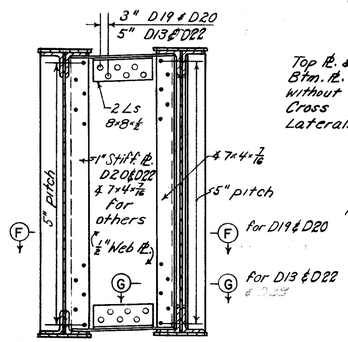


SECTION F-F

D20 shown - D19 similar except as noted above & in Elevation.

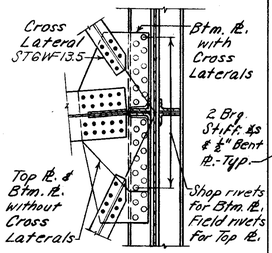


SECTION G-G
For D13 & D22

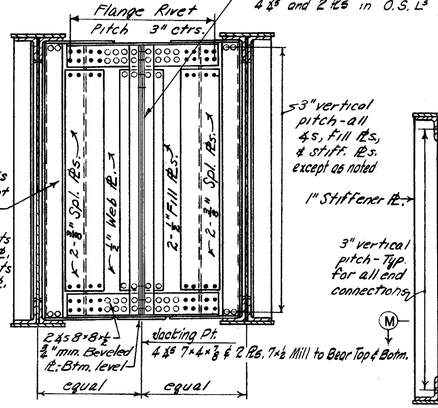


CROSS FRAMES D13, D19, D20, & D22

D20 shown - Others similar except as noted.



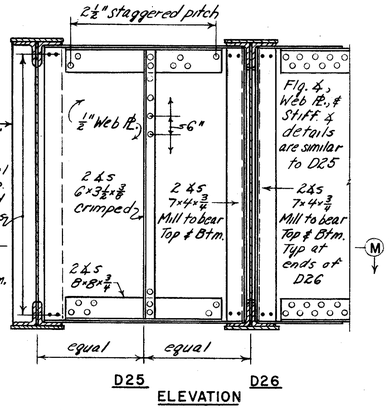
DETAIL "W"
Gusset Pl. Details @ J9
All Gusset Pls. 1/2" Thk.



JACKING FRAME J9

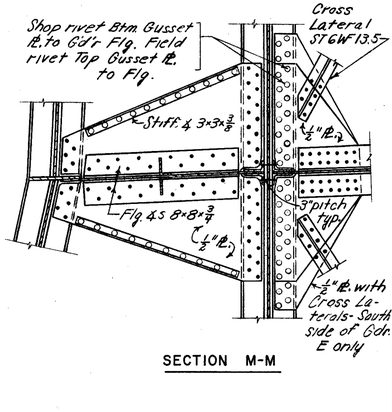
JACKING FRAMES J4, J5, J6 & J7

J4, J5, & J6 are similar except as noted.
Details not shown for J7 are similar to J4.



ELEVATION

CROSS FRAMES D25 & D26



SECTION M-M

CROSS FRAMES D23 & D24

D23 & D24 are similar except as noted.

NOTES:
All Rivets 7/8"ø
All Cross Frames & Jacking Frames to be Structural Carbon Steel.
Connection Pls. to be bent as required for skew & grade of members.
Gusset Pls. to be stiffened by 3x3x3/8 angles where unsupported edges exceed 1-10 1/2" For 3/8" Pls. & 2'-6" for 1/2" Pls. (as shown for D25).
Gusset Pls. at tops of frames are same as btm. Pls. without cross laterals except as noted.
Concrete slab at all Jacking Frames & Cross Frames (except D27) to be haunched down to top members of frames as shown for D23 & D24.
Top & btm. Flange angles for frames are similar.
For Girder intermediate & bearing stiffener angles & details see Sh. 85
For modification of Jacking Frame J4 at drainage trough see Sh. 108
For Jacking Frame J8, see Sh. 86A

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50

CROSS FRAME DETAILS - UNIT I

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/4" = 1'-0"
MADE CP DATE 1-14-57
TRCD HG DATE 2-18-57
CKD E.J.W.H. DATE 2-25-57

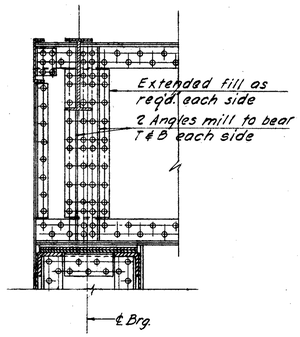
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET - 84

RECEIVED
FEB 23 1959

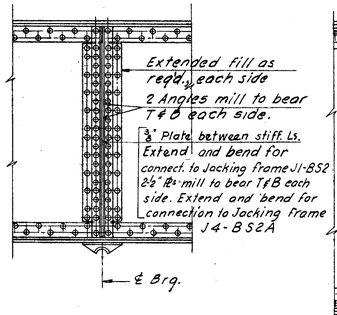
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

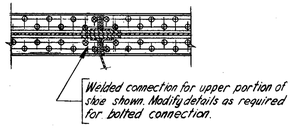
85
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)

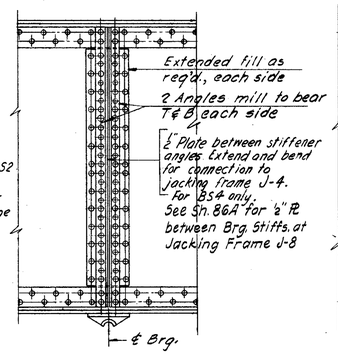


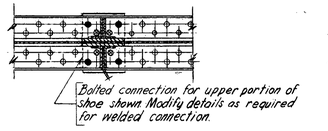
BS1



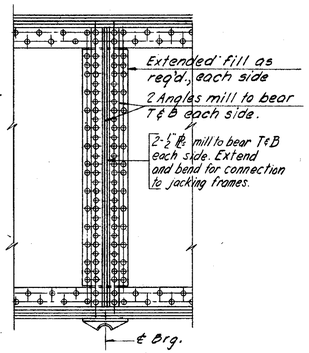


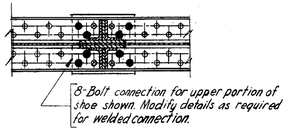
BS2 & BS2A



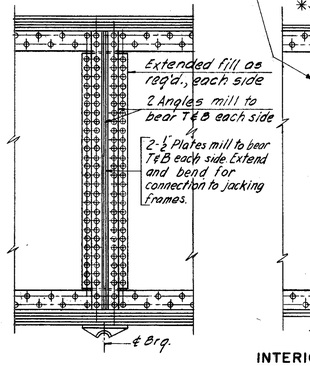


BS3 & BS4

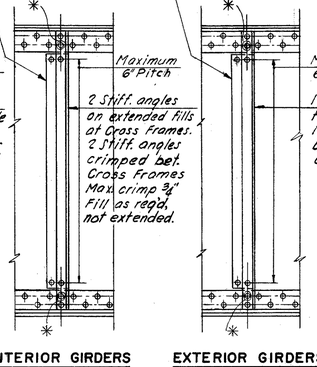




BS5 & BS6



BS7 THRU BS9



INTERIOR GIRDERS EXTERIOR GIRDERS

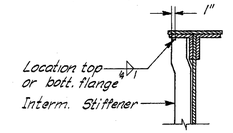
INTERMEDIATE STIFFENERS

Notes:

For sizes and location of stiff. Ls see Girder Elevs.
* Omit this rivet at 6" vertical leg of fig. L

TABLE OF BEARING STIFFENERS										
G, R, Lt	UNIT 1						RAMP E1			
	Box Girder	Pier 1B	Pier 2B	Pier 3B	Pier 4B	Pier 2E2	Pier 2E1	Pier 3E1	Pier 4E1	Abut E1
Y		BS3	BS7				BS2A	BS2	BS2	BS2
X			BS5				BS2A	BS2	BS2	BS2
W		BS3	BS5				BS2A	BS2	BS2	BS2
V			BS8				BS2A	BS2	BS2	BS2
R	BS1	BS4	BS7	BS9	BS4					
Q	BS1	BS4	BS6	BS7	BS4					
P	BS1	BS4	BS6	BS7	BS4					
O	BS1	BS4	BS6	BS7	BS4					
N	BS1	BS4	BS6	BS7	BS4					
M	BS1	BS4	BS6	BS7	BS4					
L	BS1	BS4	BS6	BS8	BS4					
K	BS1	BS4	BS7	BS8	BS4					
J	BS1	BS4	BS6	BS7	BS4					
H	BS1	BS4	BS6	BS7	BS4					
G	BS1	BS4	BS6	BS7	BS4					
F	BS1	BS4	BS6	BS7	BS4					
E	BS1	BS4	BS6	BS7	BS4					
D	BS1	BS4	BS8	BS8	BS4					
U						BS8	Ramp E2			
T						BS6	Pier Abut.			
S						BS6	E2?	E2		
C							BS5	BS3		
B							BS7	BS3		
A							BS9	BS3		

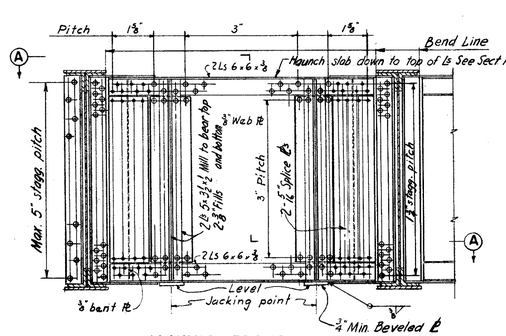
Note:
For sizes of Brg. Stiffs., see Girder Elevs. For modification of BS3 & BS4 @ Jacking Frame J8 (Pier 1B) see Sh. 86A



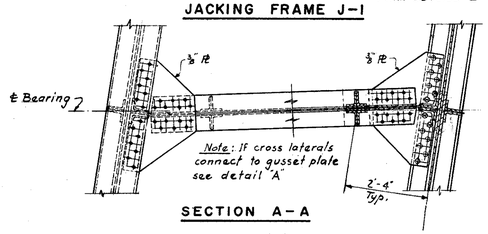
STIFF. WELD DETAIL

To be used only on fascia girders where intermediate stiffeners are omitted on one side of girder. See Girder Elevs. Shs. 74, 76, 77, 78A & 79 for location of stiffs to be welded to top or bottom flange of girder.

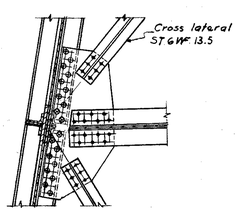
BEARING STIFFENERS



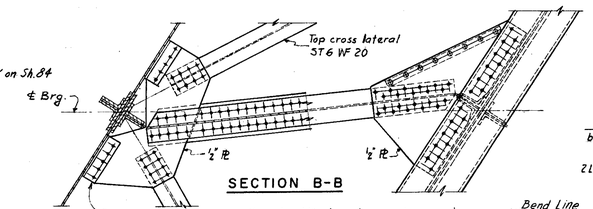
JACKING FRAME J-1



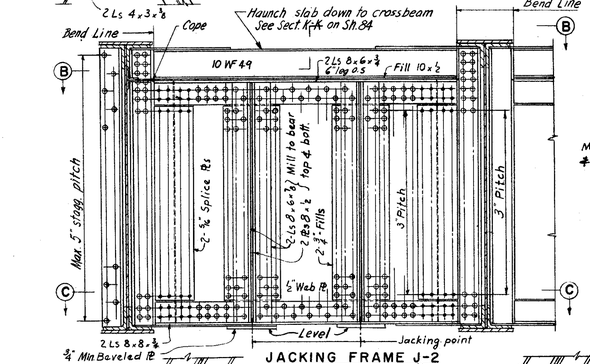
SECTION A-A



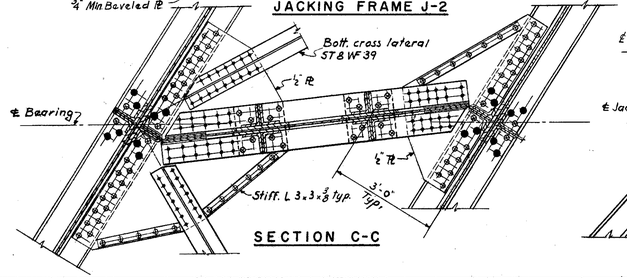
DETAIL "A"



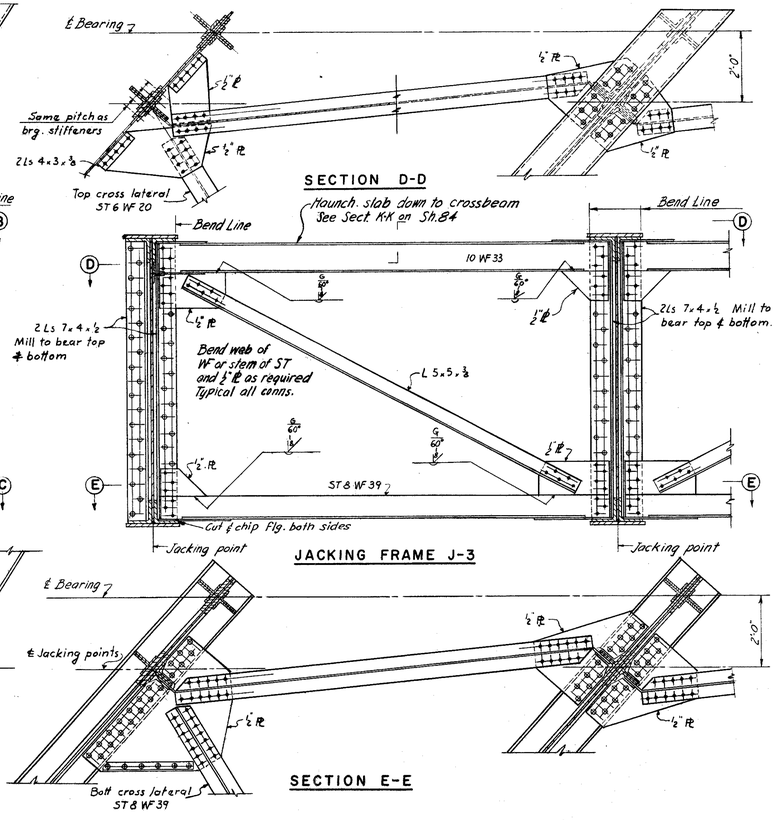
SECTION B-B



JACKING FRAME J-2



SECTION C-C



SECTION D-D

JACKING FRAME J-3

SECTION E-E

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50
STIFFENER AND JACKING FRAME DETAILS
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/2"=1'-0"
MADE JAF DATE 1-21-57
TRCD HG DATE 2-19-57
CKD G.L.V.B.H. DATE 2-27-57

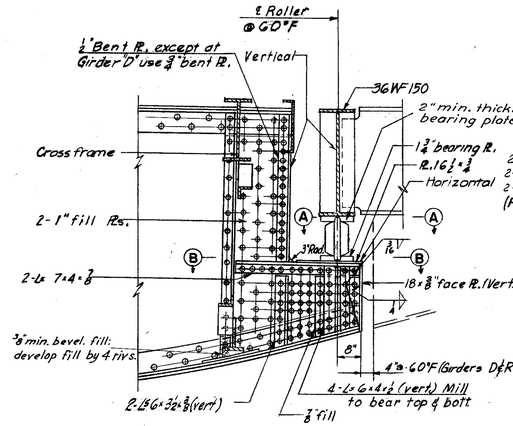
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-85

RECEIVED
FEB 23 1957

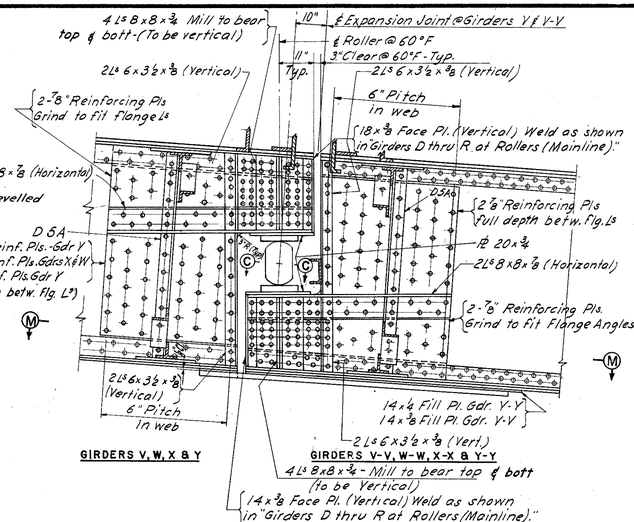
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

86
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)



GIRDERS D THRU R AT ROLLERS (MAINLINE)

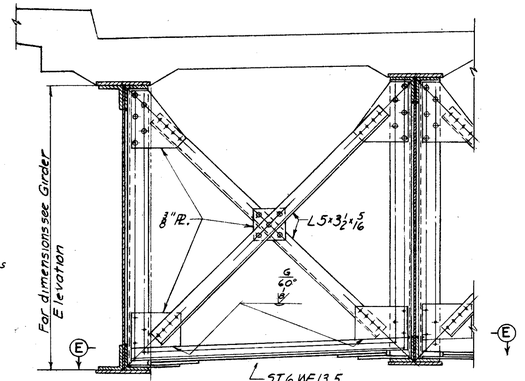


GIRDERS V, W, X & Y

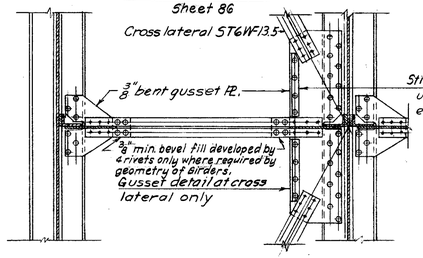
GIRDERS V-V, W-W, X-X & Y-Y

Note:
See Sh. B9A For Section M-M
For details of trough support @ Gdr V-V see Section L-L Sh 109.

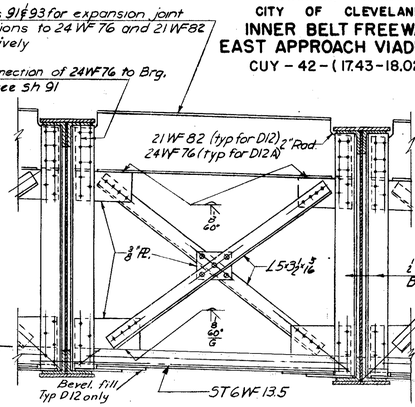
RAMP E-1 GIRDERS AT ROLLERS



CROSS FRAME D9
Sheet 86

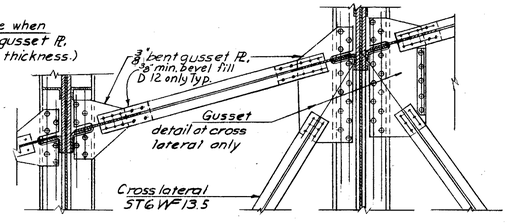


SECTION E-E

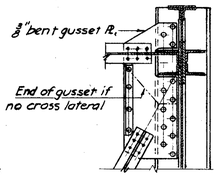


CROSS FRAME D12

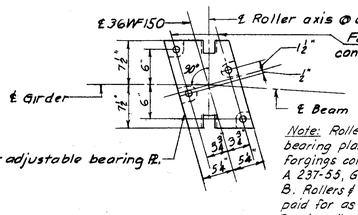
Cross frame D12A similar except as noted,



SECTION F-F (D12)

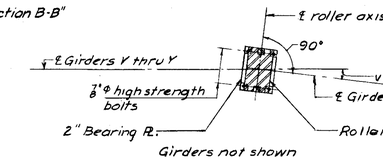


SECTION F-F (D12A)

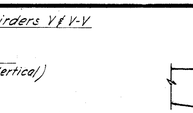


Note: Rollers and adjustable bearing plates shall be steel forgings conforming to A.S.T.M. A 237-55, Grade B0-55, Class B. Rollers & bearing Pls to be paid for as "Steel Castings & Forgings."

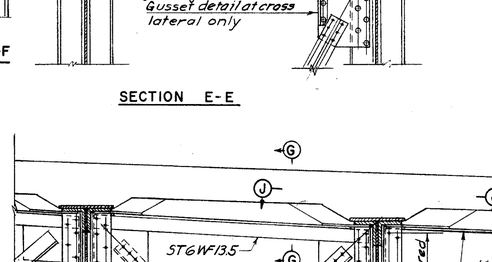
SECTION A-A
1" = 1'-0"



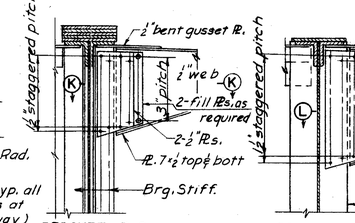
SECTION C-C



SECTION G-G



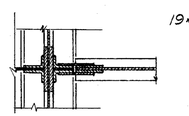
BRACKET B-1



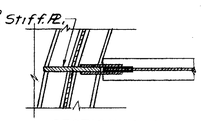
BRACKET B-2

BRACKET B-3

For details of Brackets B2 & B3 not shown see Bracket B1.

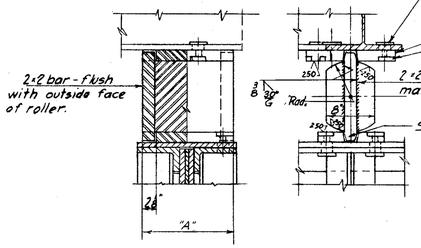


SECTION K-K

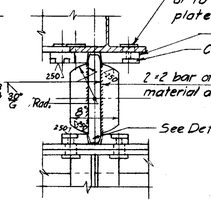


SECTION L-L

NOTE: For location of crossframes & brackets see Shs. 70 & 71.
For additional notes see Sh. B3.



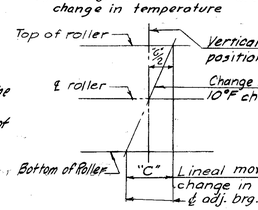
ROLLER DETAIL



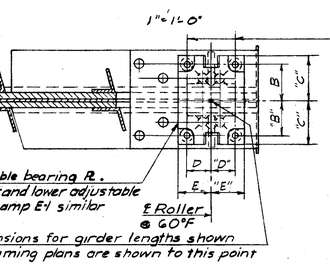
Note: Dimension "C" indicates the position of the roller to be expected if the temperature at the time of erection is other than normal.
Any deviation in these amounts due to irregularities in the erected steel shall be corrected by shifting each adjustable bearing plate one-half the total correction necessary.
A vertical line thru the center of roller at any temperature shall be placed midway between the bearing stiffeners (above & below the roller).

Joint	"C" (inches)
Mainline	0.50
Ramp E-1	0.32

Amounts given in table above are per 10°F change in temperature

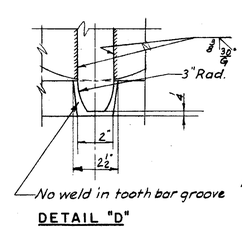


ROLLER POSITIONING

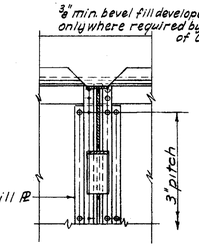


SECTION B-B
1" = 1'-0"

TABLE OF ROLLER DIMENSIONS		
	Main Line	Ramp E1
A	1'-3"	1'-8"
B	6"	8½"
C	7½"	10"
D	4"	4"
E	5½"	5½"
Rad	6"	7½"

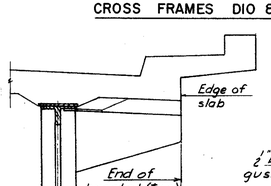


DETAIL "D"
3" = 1'-0"

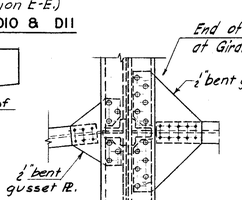


SECTION H-H

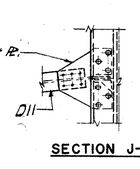
CROSS FRAMES D10 & D11



SIDEWALK BRACKET
⅜" = 1'-0"



SECTION J-J (DIO & BRACKET)



SECTION J-J (D-11)

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

ROLLER AND CROSS FRAME DETAILS

CLEVELAND CUYAHOGA COUNTY OHIO

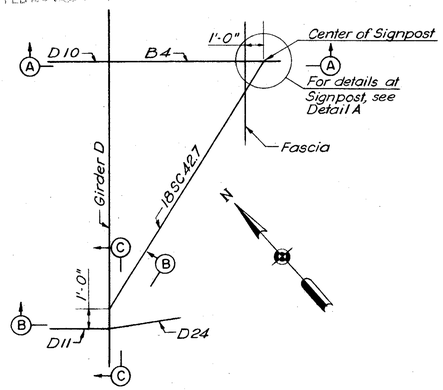
SCALE ½" = 1'-0 Unless Noted
MADE APP. DATE 1-10-57
TRCD H.G. DATE 2-18-57
CKD B.J. DATE 2-27-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET- 86

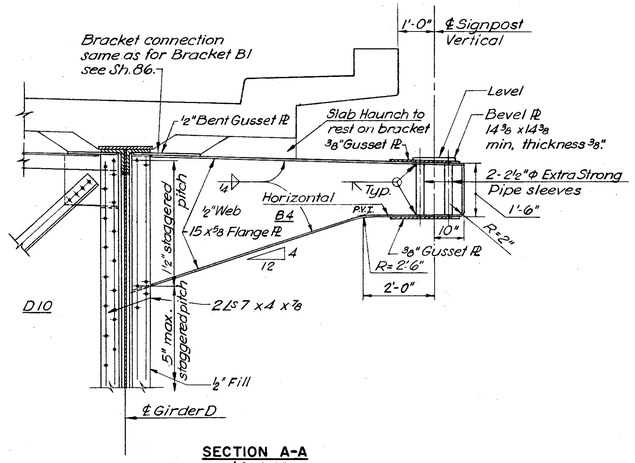
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

86A
117

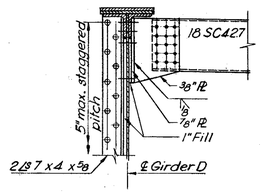
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



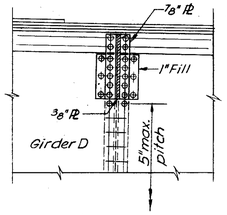
PLAN
1/4" = 1'-0"
For location of Bracket B4 see Sh. 71.



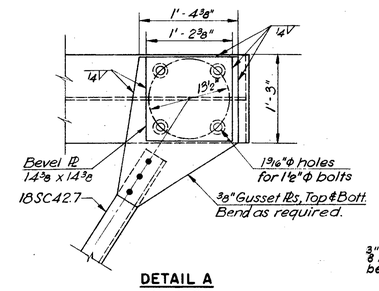
SECTION A-A
1/2" = 1'-0"



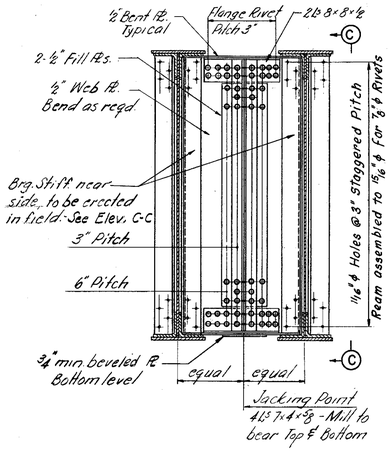
SECTION B-B
1/2" = 1'-0"



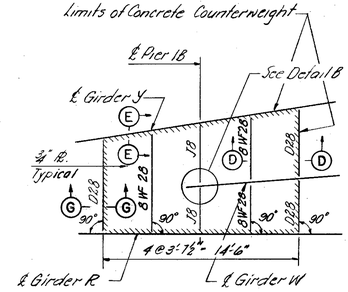
SECTION C-C
1/2" = 1'-0"



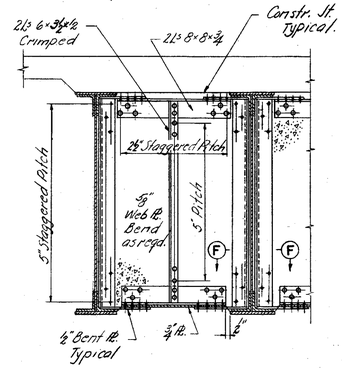
DETAIL A
1" = 1'-0"



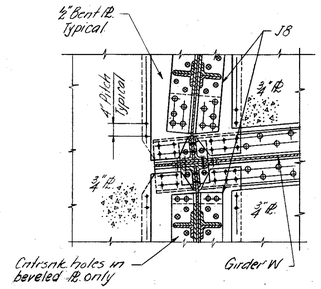
JACKING FRAME J8
1/2" = 1'-0"



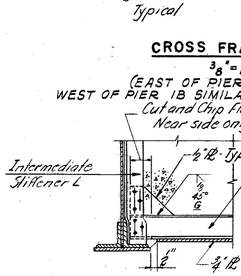
PLAN AT BOTTOM FLANGE
3/16" = 1'-0"



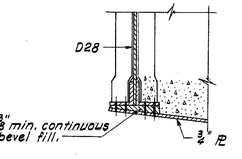
CROSS FRAME D 28
3/8" = 1'-0"
(EAST OF PIER 18 SHOWN, WEST OF PIER 18 SIMILAR. SEE SECTION G-G)



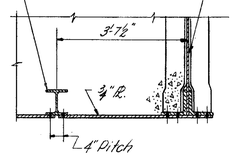
DETAIL B
1/2" = 1'-0"



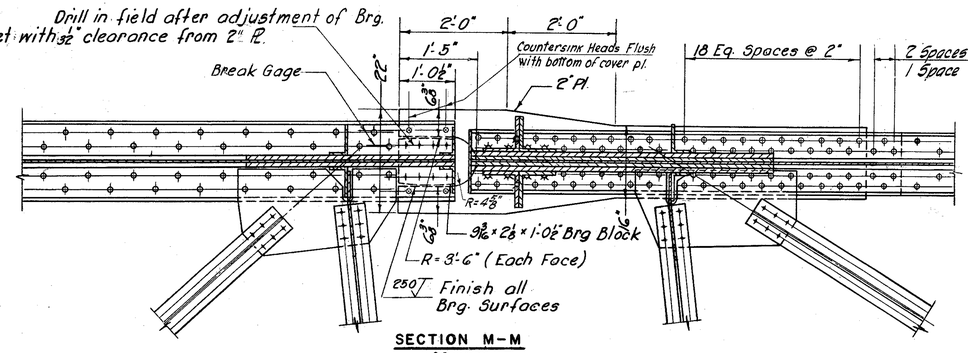
SECTION E-E
1/2" = 1'-0"



SECTION G-G
1/2" = 1'-0"

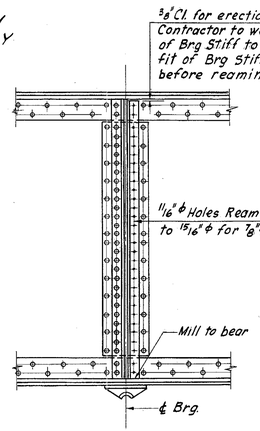


SECTION D-D
1/2" = 1'-0"

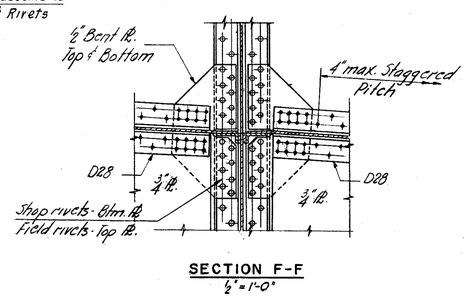


SECTION M-M
3/4" = 1'-0"

Shown for Girders V and V-V. Section at Girders W and W-W, X and X-X, and Y and Y-Y similar.
Note: For location of Section M-M, see "Ramp E-1 Girders at Rollers," Sh. 86.



ELEVATION C-C
1/2" = 1'-0"



SECTION F-F
1/2" = 1'-0"

DETAILS AT PIER 18 COUNTERWEIGHT

Counterweight to be of plain unreinforced concrete to top of Girders. Deck Slab in area of counterweight to have normal reinforcing.
For Cross Frame and Jacking Frame Notes see Sh. 84
Concrete Counterweight to be placed to Constr. Jt. prior to placing of Pour no. 24. See Sh. 102

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

MISCELLANEOUS STEEL DETAILS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As Noted
MADE L.N.E.S. DATE 7-18-57
TRCD F.G.S. DATE 8-27-57
CKD D.J.G.III. DATE 8-28-57

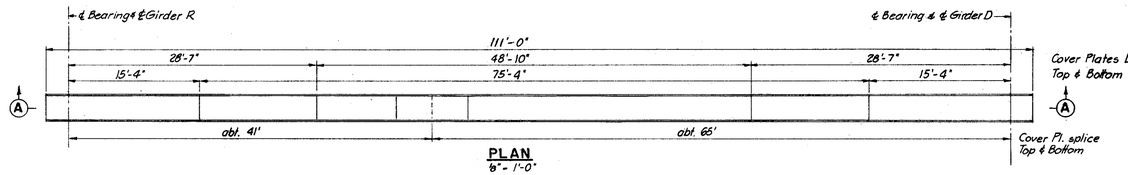
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 86 A

Elevs. Elevs. Shs.

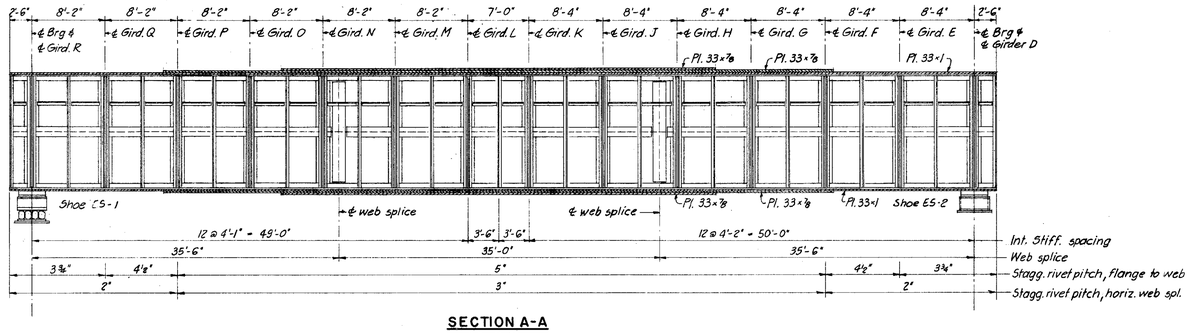
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

87
117

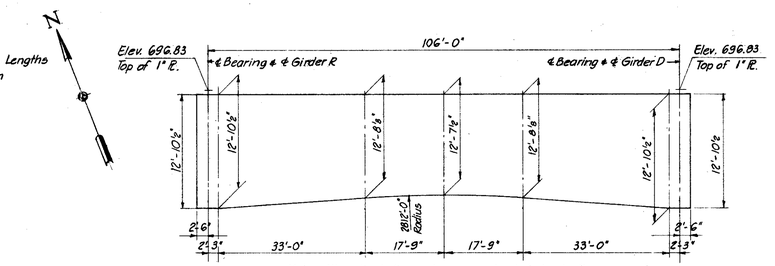
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)



PLAN
8" = 1'-0"

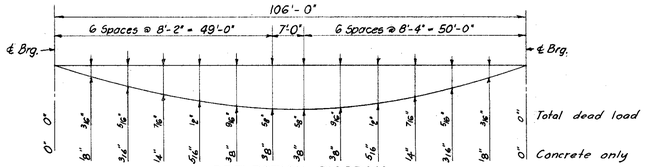


SECTION A-A
8" = 1'-0"

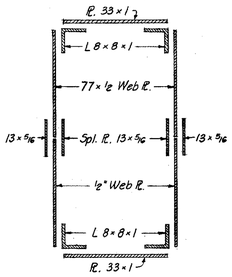


Note: All vertical dimensions are back to back flange angles.

GEOMETRICS
No Scale

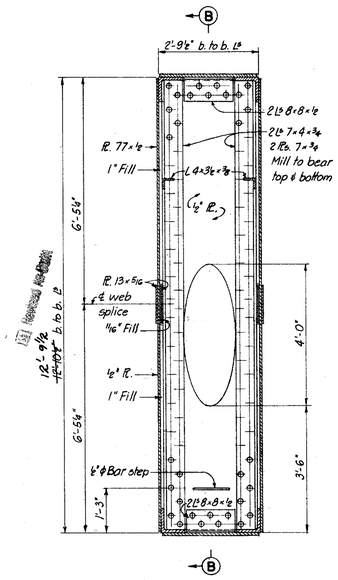


DEFLECTION DIAGRAM
No Scale
Box Girder shall be cambered for total deflection in direction opposite to that in diagram.

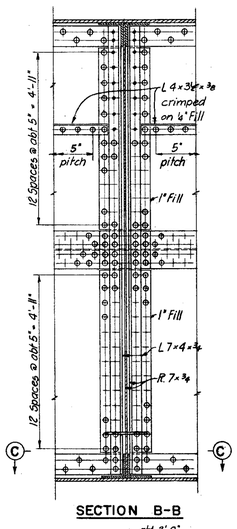


BASIC SECTION
No Scale

RECEIVED
FEB 23 1960

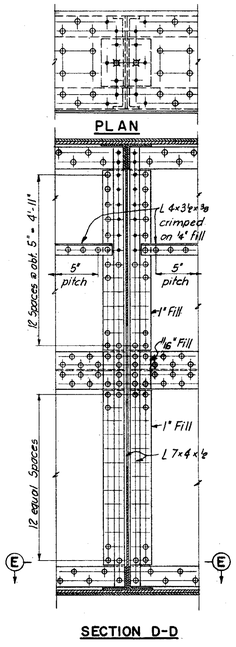


SECTION B-B

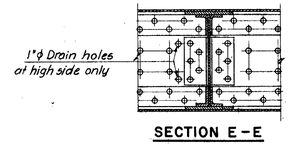


SECTION C-C

SECTION D-D

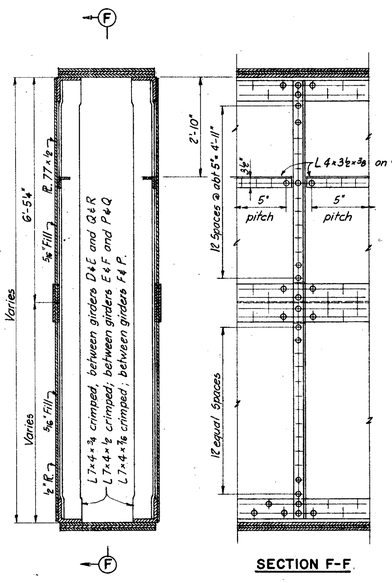


SECTION E-E

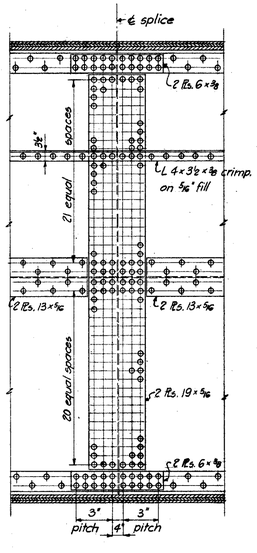


BEARING STIFFENERS AT ℄ BEARINGS
(at ℄ Girders D and R)
½" = 1'-0"

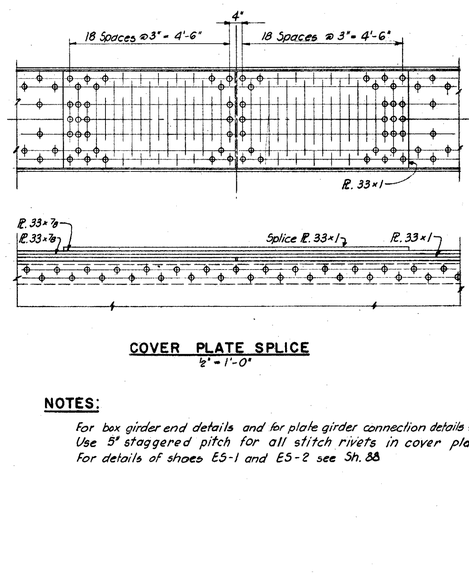
BEARING STIFFENER AT ℄ GIRDERS E TO Q
½" = 1'-0"



INTERMEDIATE STIFFENERS
½" = 1'-0"



WEB SPLICE
½" = 1'-0"



COVER PLATE SPLICE
½" = 1'-0"

Note: Use field rivets through bearing stiffener on the side of girder only which has connection for plate girder.
Plan view of Section B-B is similar to plan of Section D-D.

COVER PLATE END DETAIL
½" = 1'-0"

NOTES:
For box girder end details and for plate girder connection details see Sh. 88
Use 5" staggered pitch for all stitch rivets in cover plates.
For details of shoes E5-1 and E5-2 see Sh. 88

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50
BOX GIRDER
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE as shown
MADE H.G. DATE 11.26.56
TRCD N.R-K DATE 3-18-57
CKD B.J. DATE 1.31.57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET- 87

Standard Oil Building

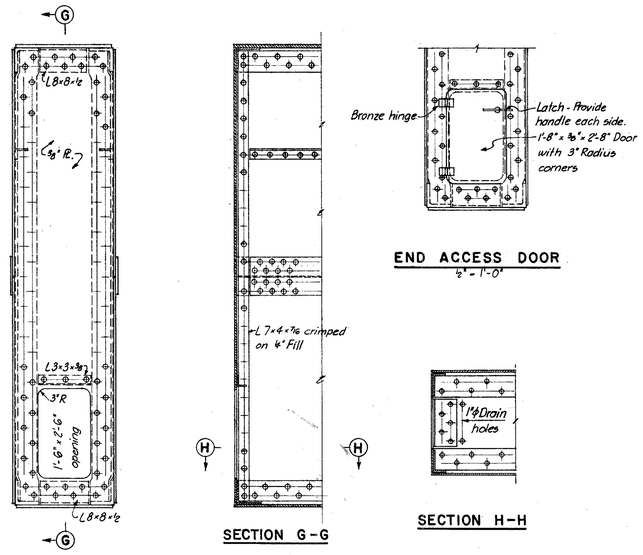
G.D.P.
9-1-60

FEB 23 1959

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

88
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)

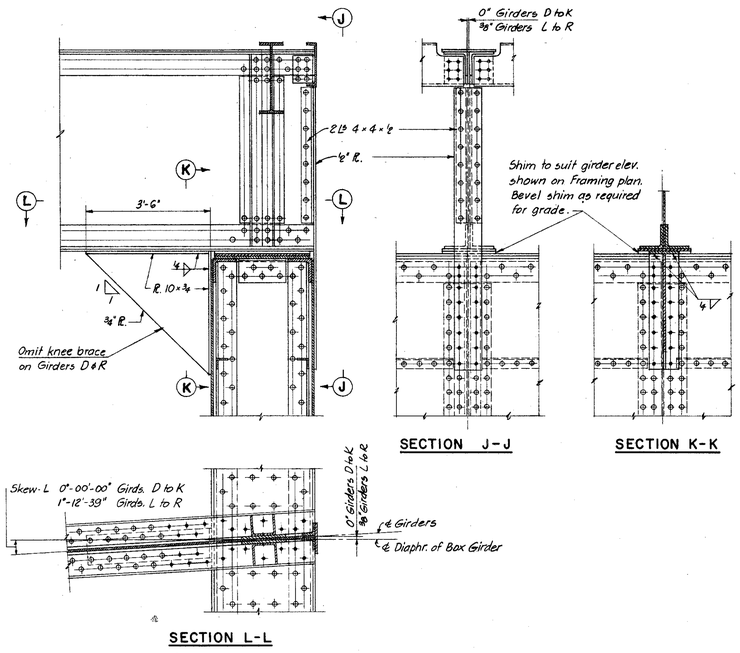


SECTION G-G

END ACCESS DOOR
½" = 1'-0"

SECTION H-H

BOX GIRDER END DETAIL
½" = 1'-0"

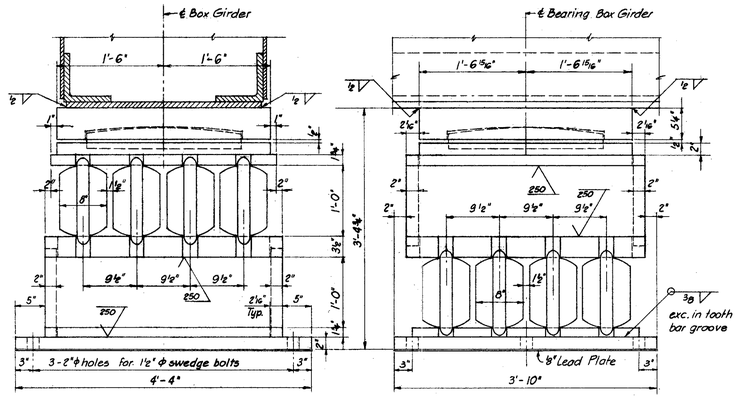


SECTION J-J

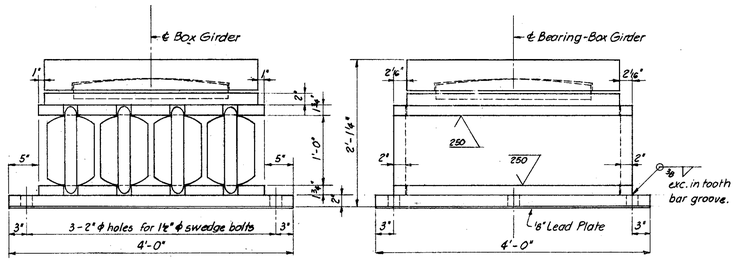
SECTION K-K

SECTION L-L

GIRDER CONNECTION TO BOX GIRDER
½" = 1'-0"

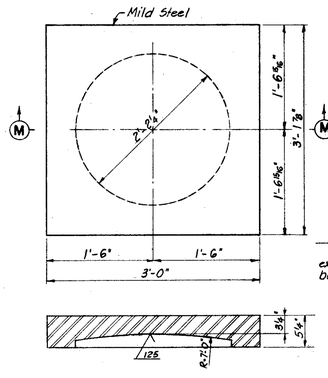


EXPANSION SHOE ES-1



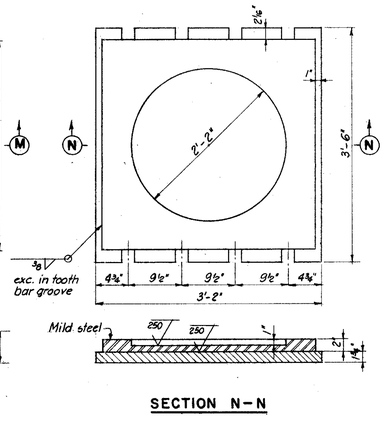
For dimensions not shown on shoe ES-2 see shoe ES-1.

EXPANSION SHOE ES-2



SECTION M-M

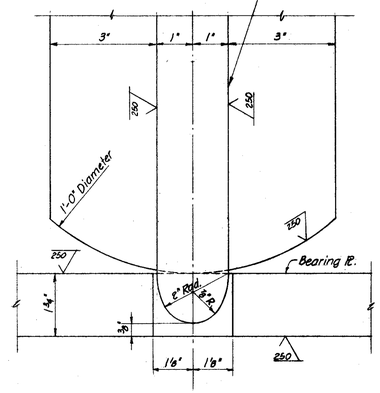
DISC BEARING PLATE



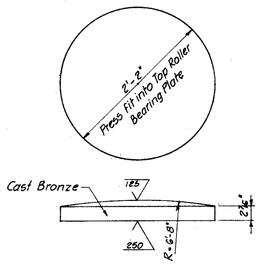
SECTION N-N

TOP ROLLER BEARING PLATE

2"×2" Tooth Bar - Finish all over. Press fit into roller. Bevel roller edge ⅜" and weld. Grind welds smooth and flush. Bar to be finished with roller as part of roller.



ROLLER AND TOOTH BAR DETAIL
6" = 1'-0"
Rollers shall be paid for as "Steel Castings and Forgings."



BRONZE BEARING DISC
Paid for as "Steel Castings and Forgings."

NOTES:

Use Structural Steel Sec. M-7.4 (a) except as noted.

Rollers shall be set vertical under full dead load at 60° F.

Machined surfaces of rollers which bear on base plates and all exposed surfaces shall be painted.

Spaces around anchor bolts in base plates shall be filled with an approved metallic filler, such as babbitt, poured in place before setting nuts. See Sh. 89 for anchor bolt details.

All contact surfaces between metal parts shall be finished as shown.

All base plates and bearing plates shall be scribed with longitudinal and transverse center lines.

Mild steel shall be classified for payment as "Steel Castings and Forgings."

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50

BOX GIRDER DETAILS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1"=1'-0" unless noted
MADE H.G. DATE 11.30.56
TRCD W.R.K. DATE 2-8-57
CKD B.J. DATE 1.31.57

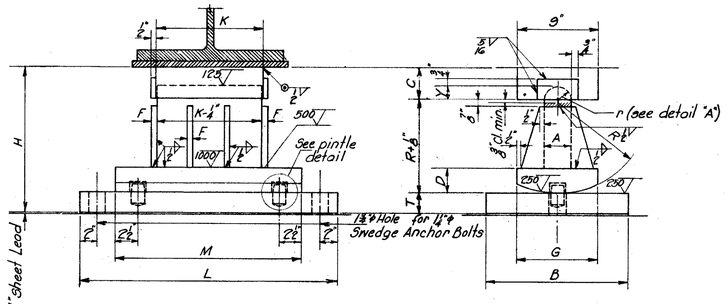
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 88

RECEIVED
FEB 23 1959

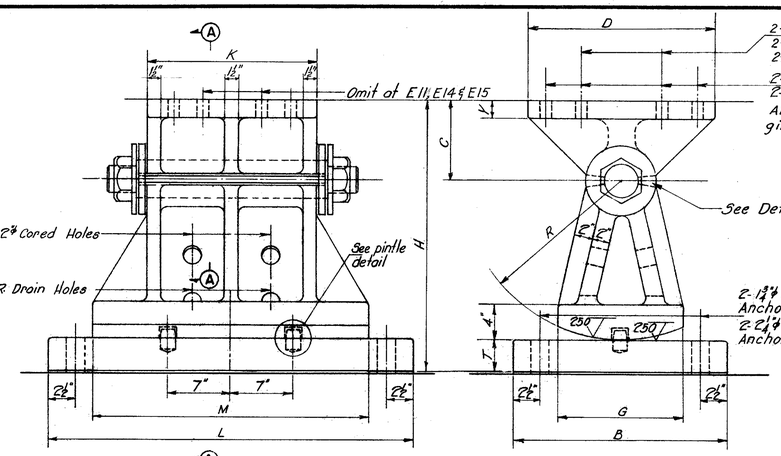
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

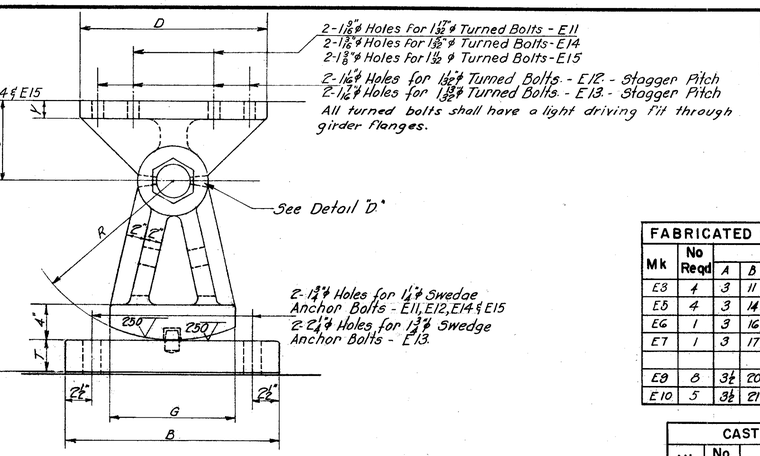
89
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



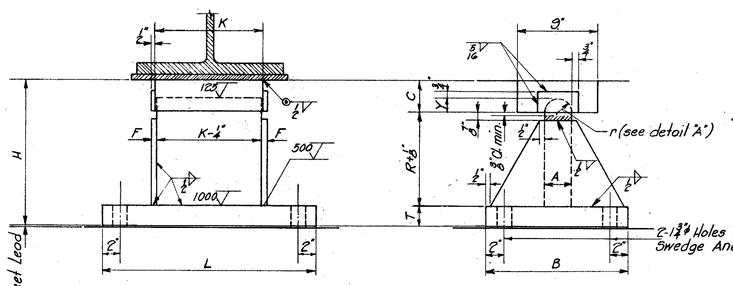
E1 THRU E10



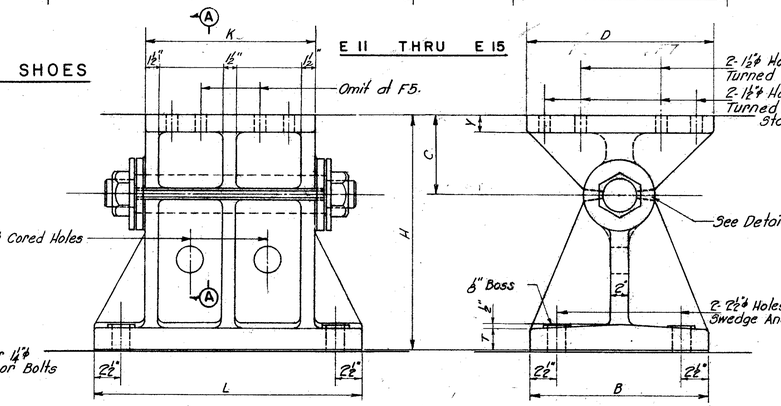


E11 THRU E15

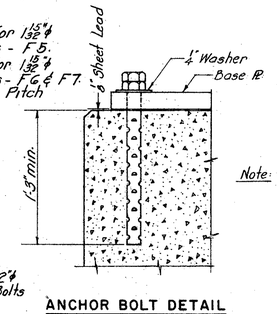
EXPANSION SHOES



F1 THRU F3



F5 THRU F7



ANCHOR BOLT DETAIL

Mk.	No. Reqd.	Dimension-(in inches)									
		B	G	H	L	M	R	T	C	K	D	Y
E11	4	22	14	26½	31	22	17	3¼	6	14	15	1½
E12	2	22	14	31⅜	41	32	19	3¾	9	20	21	2
E13	15	25	16	32	38	29	19	4	9	20	21	2
E14	14	22	14	26½	36	27	17	3¼	6	20	15	1½
E15	4	22	14	26½	32	23	17	3¼	6	14	15	1½
F5	4	19	—	24	29	—	—	2	6	14	15	1½
F6	13	21	—	24	32	—	—	2	9	20	21	2
F7	8	24	—	27	34	—	—	2¼	9	20	21	2

Note: Pads on all piers and abutments shall be poured integrally with pier caps and abutment bridge seats.

NOTES: Shoes E1 thru E10 F1 thru F3, and base plates of shoes E12, E14 & E15 shall be structural steel, Sec. M-7.4.

Upper and lower castings of shoes E12, E14 E15 F5 thru F7, and upper casting of Shoes E11 & E13 shall be steel castings, Sec. M-7.7.

Rocker casting of shoes E11 & E13 shall be high strength steel casting A.S.T.M. A148-Grade 80-50.

Base plate of shoes E11 & E13 shall be a steel forging conforming to A.S.T.M. A237-55, Grade 80-55 class B.

All pins, nuts, washers, rings and pintles shall be structural steel.

Bolts to girder flanges shall have hex heads and self locking nuts. Provide washers under heads and nuts.

Lower portions of shoes shall be centered in both directions under top portion for a temperature of 60°F.

All base plates, rockers and sole plates shall be scribed with centerlines in both directions.

All fillets on castings shall be ¾" unless otherwise noted.

Spaces around anchor bolts in base plates shall be filled with an approved metallic filler before setting nuts.

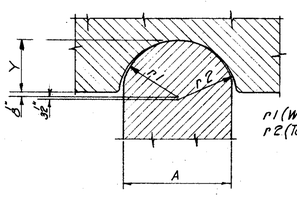
In certain instances, cross frames & lateral gusset plates may interfere with the proper placement of anchor bolts for shoes. In such instances the contractor shall place the shoe anchor bolts prior to the erection of diaphragms or other steel members which may cause interference.

For location of shoe types see framing plans.

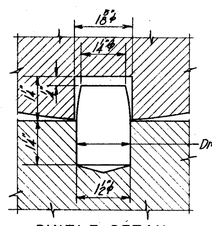
Mk	No Reqd	dimension - (in inches)												
		A	B	C	D	F	G	H	K	L	M	R	T	Y
E3	4	3	11	3	2	½	8	12½	10½	26	18	7½	1½	1¹¹/₁₆
E5	4	3	14	3½	2½	½	9	15½	12	28	20	9½	2	1¹¹/₁₆
E6	1	3	16	3½	2⅞	⅝	9	16⅜	12	29	21	10½	2¼	1¹¹/₁₆
E7	1	3	17	3½	2⅞	⅝	9	16⅜	13	30	22	11	2¼	1¹¹/₁₆
E9	8	3½	20	3½	3¼	¾	12	19⅜	14	33	25	12½	3	1¹¹/₁₆
E10	5	3½	21	3½	3¼	¾	12	19⅜	14	34	26	13	3	1¹¹/₁₆

Mk.	No. Reqd	dimension - (in inches)										
		A	B	C	D	F	G	H	K	L	M	R	T	Y
E1	4	2½	8	2½	1⅜	½	7	9⅜	9	24	16	5½	1½	1¹¹/₁₆
E2	12	2½	10	2½	2	½	7½	10⅜	9	25	17	6½	1½	1¹¹/₁₆
E4	1	3	12	3	2¼	½	8½	13⅜	11½	27	19	6½	1⅝	1¹³/₁₆
E5	6	3	14	3½	2½	½	9	15⅝	12	28	20	9½	2	1¹¹/₁₆
E6	18	3	16	3½	2⅞	⅝	9	16⅜	12	29	21	10½	2¼	1¹¹/₁₆
E7	34	3	17	3½	2⅞	⅝	9	16⅜	13	30	22	11	2¼	1¹¹/₁₆
F1	2	3	14	3½		½		15⅝	12	23		9½	2	1¹¹/₁₆
F2	2	3	16	3½		⅝		16⅜	12	24		10½	2¼	1¹¹/₁₆
F3	11	3	17	3½		⅝		16⅜	13	25		11	2¼	1¹¹/₁₆

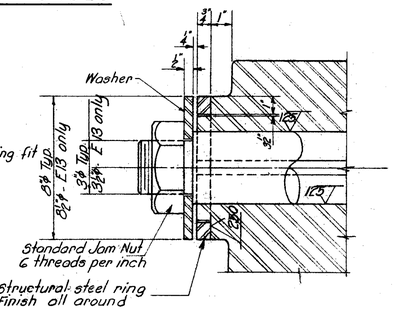
FIXED SHOES



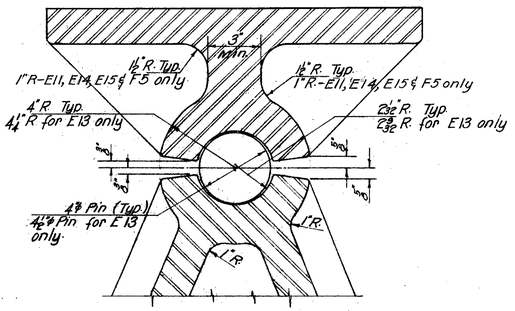
DETAIL "A"
Half Scale



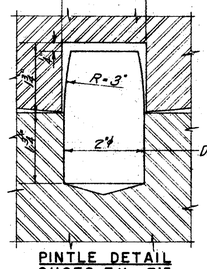
PINTLE DETAIL
SHOES E1 - E10
Half Scale



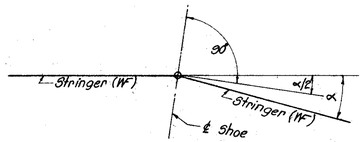
SECTION A-A
3"-1'-0"



DETAIL "D"
3"-1'-0"



PINTLE DETAIL
SHOES E11 - E15
Half Scale



SETTING OF SHOES AT
POINT OF CHANGE OF DIRECTION
IN ROLLED BEAM SPANS

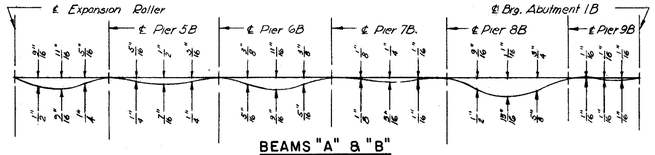
U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50
SHOES
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1"-1'-0" Unless Noted
MADE J.R.L. DATE 12-6-56
TRCD N.R.K. DATE 2-11-57
CKD B.J. DATE 3-25-57

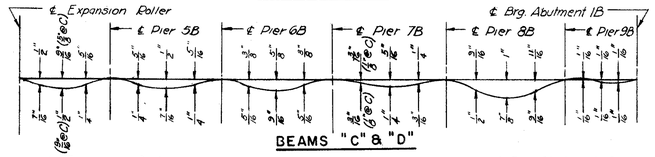
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET-89

RECEIVED
FEB 23 1967

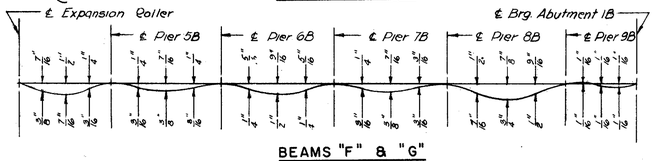
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)



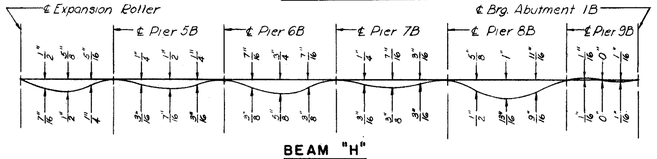
BEAMS "A" & "B"



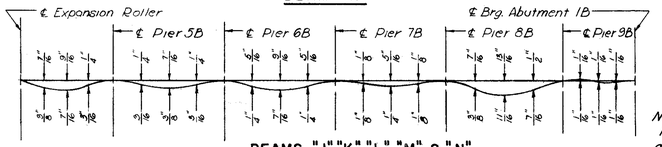
BEAMS "C" & "D"



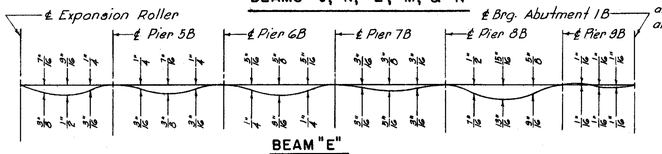
BEAMS "F" & "G"



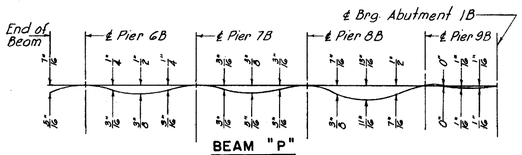
BEAM "H"



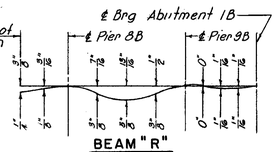
BEAMS "J","K","L","M", & "N"



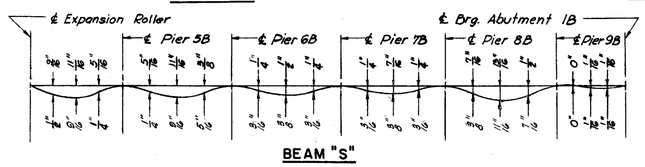
BEAM "E"



BEAM "P"



BEAM "R"

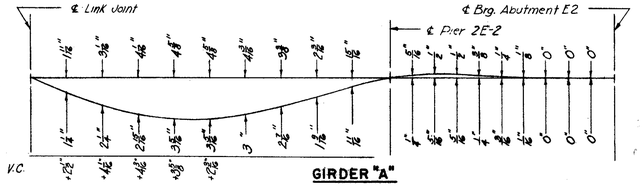


BEAM "S"

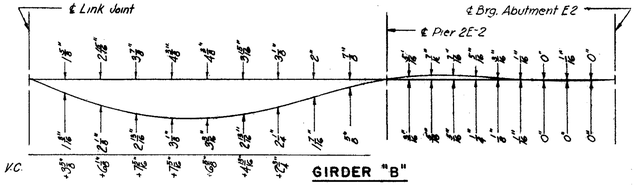
NOTES: (CONTINUED)

All girders shall be cambered for total dead load deflection and vertical curvature correction. At any particular point, if no figure is shown or tabulated for vertical curvature correction, correction is equal to zero.

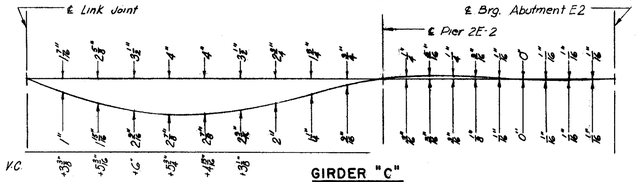
The rolled beams (Unit 2) shall be cambered for total dead load deflection and vertical curvature, when this total exceeds ½". At any point, if no figure is shown or tabulated for vertical curvature correction, correction is equal to zero. However, where rolled beams need not be cambered (total camber less than ½") any mill tolerance deviation from straightness shall be turned opposite to the direction indicated by the deflection diagram.



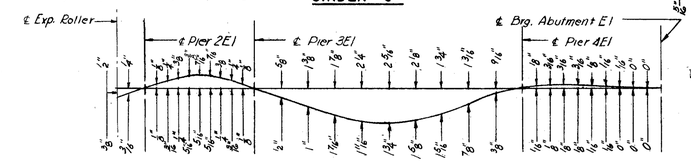
GIRDER "A"



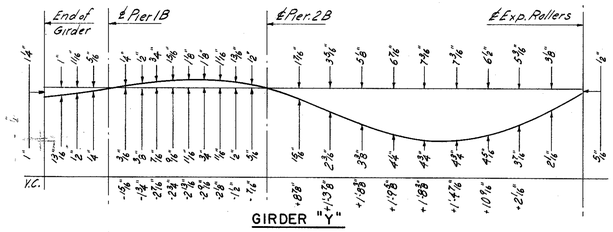
GIRDER "B"



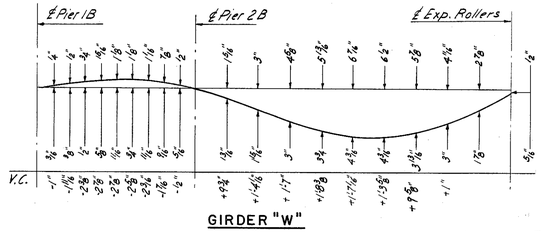
GIRDER "C"



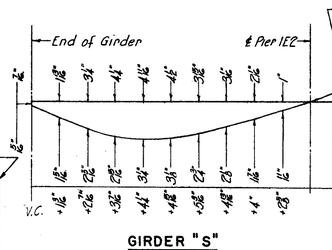
GIRDERS "Y-Y", "X-X", "W-W" & "V-V"



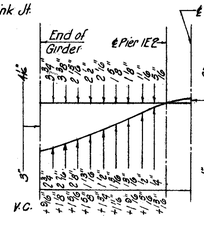
GIRDER "Y"



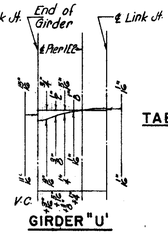
GIRDER "W"



GIRDER "S"

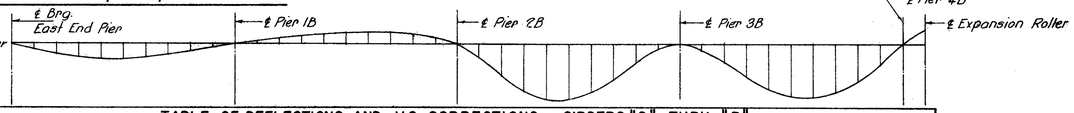


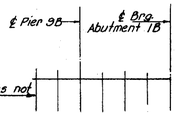
GIRDER "T"



GIRDER "U"

Note:
In setting screeds for the concrete deck, the deflections in the box girder at the East End Pier should be anticipated. See Sh. 87





Mk	¾	¼	½	¾
A	-⅛	-⅛	-¼	-⅜
B	-¼	-¼	-½	-¾
C	-⅛	-¼	-½	-¾
D	-¼	-¼	-½	-¾
E	-⅛	-¼	-½	-¾
F	—	-¼	-½	-¾
G	—	-¼	-½	-¾
H	—	-¼	-½	-¾
J	—	-¼	-½	-¾
K	—	-¼	-½	-¾
L	—	-⅛	-¼	-⅜
M	—	-¼	-½	-¾
N	—	-¼	-½	-¾
P	—	—	-¼	-⅜
R	—	—	-⅛	-¼
S	—	—	-⅛	-¼

TABLE OF V.C. CORRECTIONS
UNIT 2

NOTES:

The deck is to be constructed so as to assume its normal outline under full Dead Load. (see General Notes, Sh. 36)

Base Lines from which Dead Load Deflections are measured are chords connecting points of support (including ℄ Link Joint, ℄ Expansion Rollers and Ends of Girders and Rolled Beams at diaphragms at back of top flange angles of Girder or Rolled Beam Basic Section.

Girder deflections and V.C. corrections are shown or tabulated at tenth points of spans unless otherwise shown. Rolled Beam deflections and V.C. corrections are shown or tabulated at quarter points of spans unless otherwise shown.

Unless tabulated, amount of total dead load deflection is shown above diagram; amount of dead load deflection due to concrete only is shown below diagram.

V.C. indicates correction due to vertical curvature.

Where girder deflections are tabulated T.D.L. indicates total dead load deflection; C.O. indicates dead load deflection due to concrete only.

Plus (+) V.C. correction indicates upward camber.

Minus (-) V.C. correction indicates downward camber.

Camber for dead load shall be in opposite direction to that shown in deflection diagrams.

For Deflection Diagrams of Girders "X" and "Y" See Sh. 78A

TABLE OF DEFLECTIONS AND V.C. CORRECTIONS — GIRDERS "D" THRU "R"

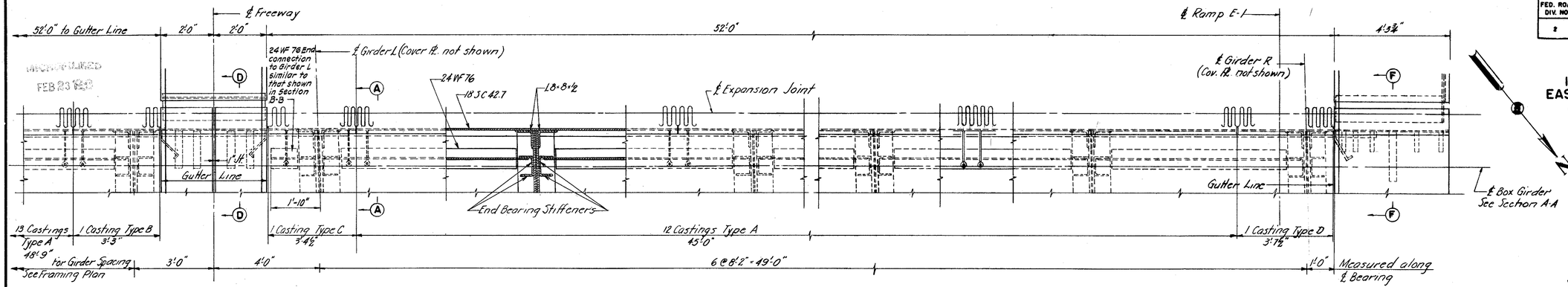
| | | |

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

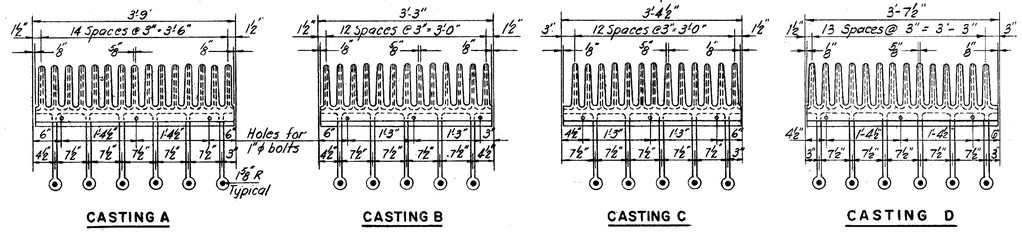
91
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43-18.02)

RECEIVED FEB 23 1959

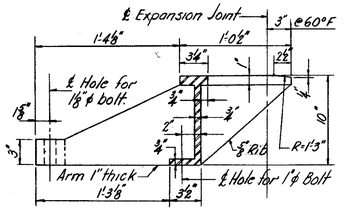


HALF PLAN OF EXPANSION JOINT AT EAST END PIER
½" = 1'-0"

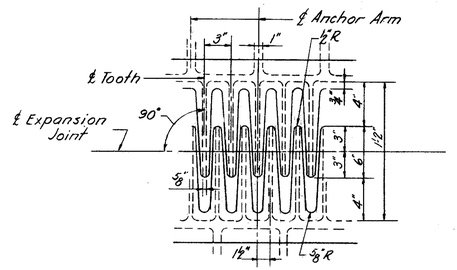


CASTING A | CASTING B | CASTING C | CASTING D

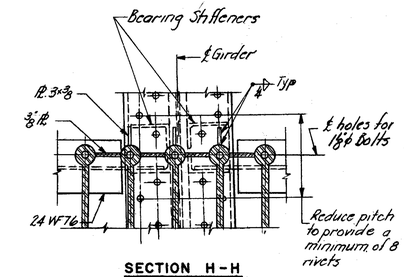
EXPANSION CASTINGS
¾" = 1'-0"



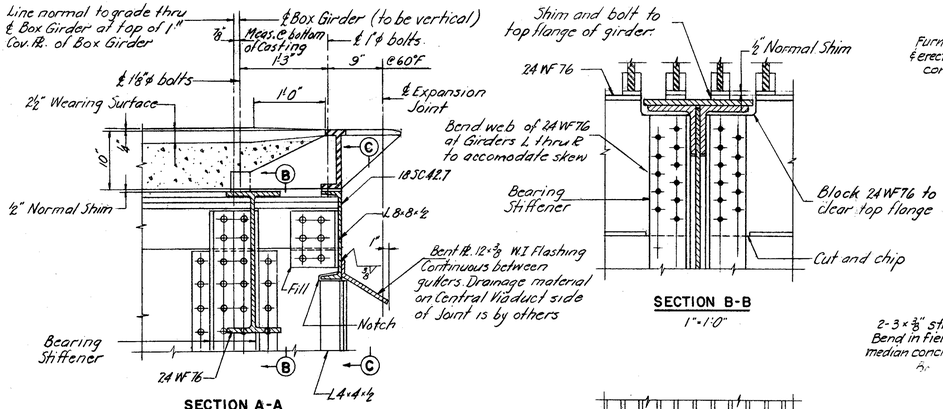
SECTION THRU CASTINGS
1½" = 1'-0"



TYPICAL PLAN
1½" = 1'-0"

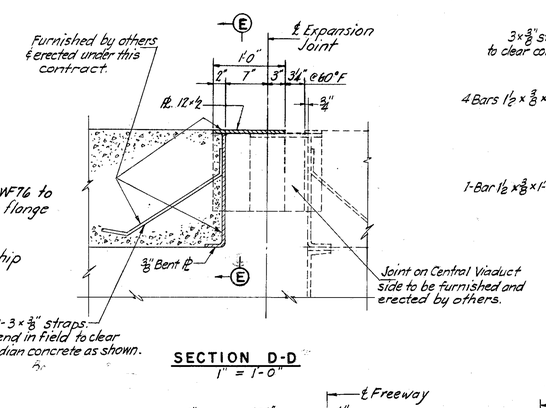


SECTION H-H
1"-1'-0"

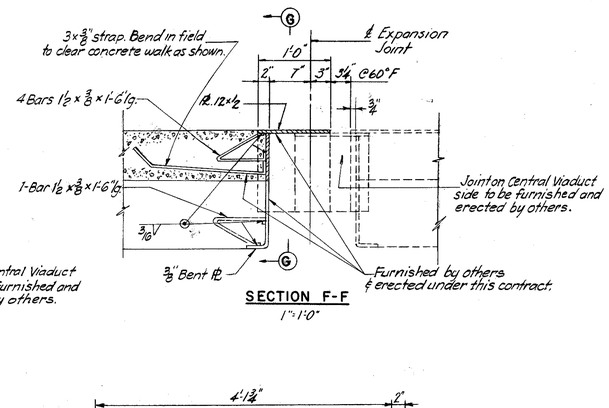


SECTION A-A
1"=1'-0"

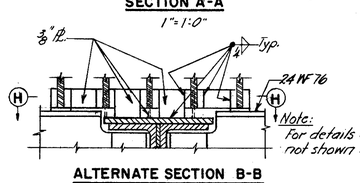
SECTION B-B
1"=1'-0"



SECTION D-D
1" = 1'-0"

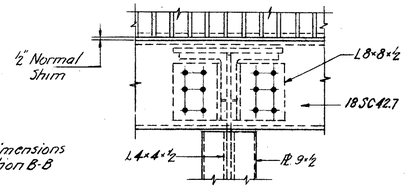


SECTION F-F
1"=1'-0"

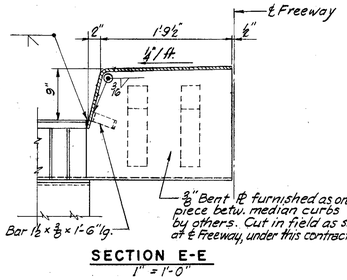


ALTERNATE SECTION B-B
1"=1'-0"

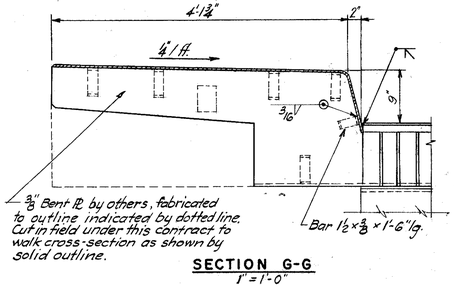
To be used if 1⅛"ϕ rear bolts interfere with normal girder rivet gages and edge distances of plates and angles



SECTION C-C
1"=1'-0



SECTION E-E
1" = 1'-0"



SECTION G-G
1" = 1'-0"

NOTES:

Joint castings shall be adjusted to match castings on Central Viaduct side of joint after concrete roadway slabs have been placed on Approach spans. See "Slab Pouring Sequence," Sh 102.

Bolt holes in castings shall be drilled or reamed.

Top of expansion casting shall be set ¼" below roadway grade elevations.

For details at box girder see Sh 88

All Castings to be furnished by others. Castings for Central Viaduct to be erected by others while Castings for East Approach Viaduct are to be erected under this Contract.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

EXPANSION JOINT AT EAST END PIER

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As noted
MADE S.J.B. DATE 11-27-56
TRCD H.G. DATE 6-21-57
CKD R.T.B.P.V.E. DATE 12-2-57

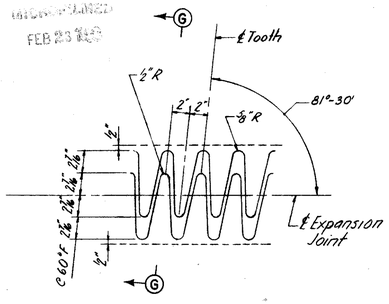
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 91

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

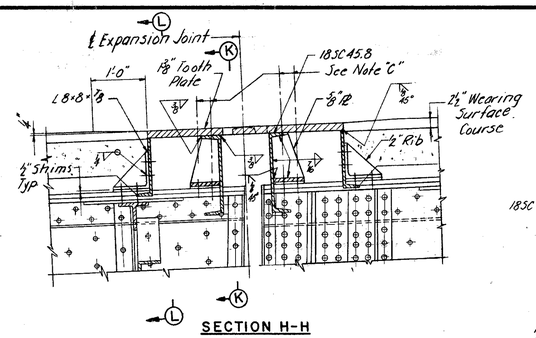
92
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43-18.02)

RECEIVED
FEB 23 1959



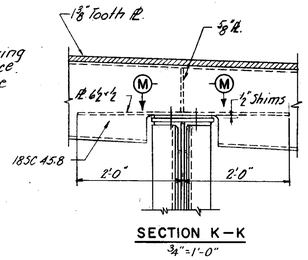
EXPANSION PLATE DETAIL—RAMP E-1
1½"=1'-0"



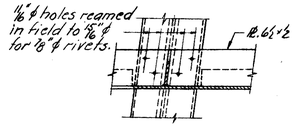
SECTION H-H
¾"=1'-0"

for additional details at Rollers see Sh. 86

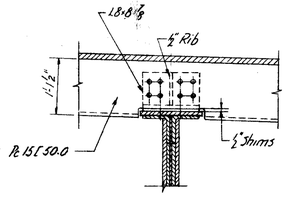
Note "C":
13/16"ϕ holes to be used for field reaming of 1⅛"ϕ holes.



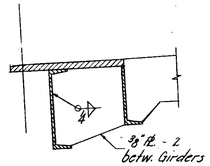
SECTION K-K
¾"=1'-0"



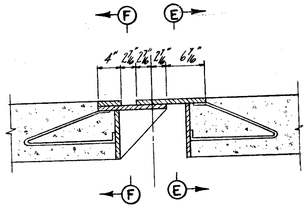
SECTION M-M
¾"=1'-0"



SECTION L-L
¾"=1'-0"

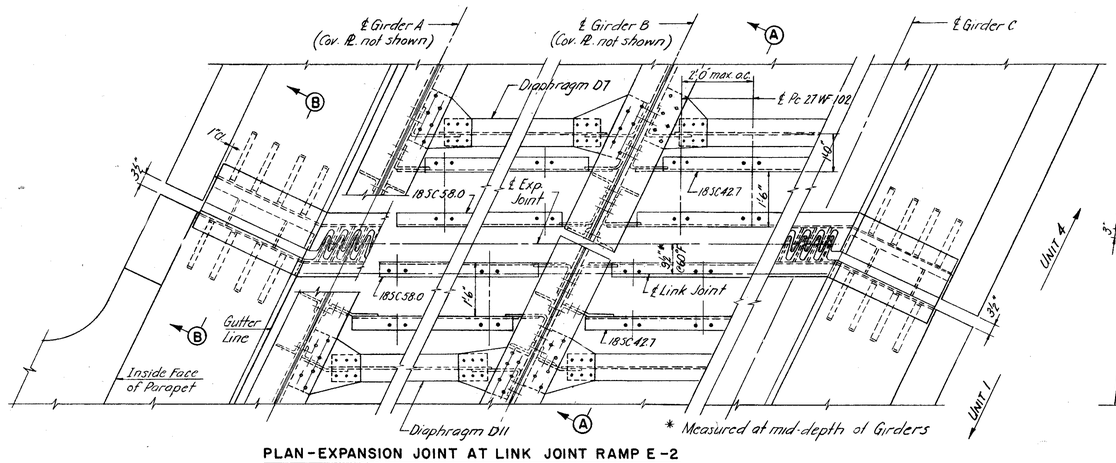


SECTION O-O
¾"=1'-0"



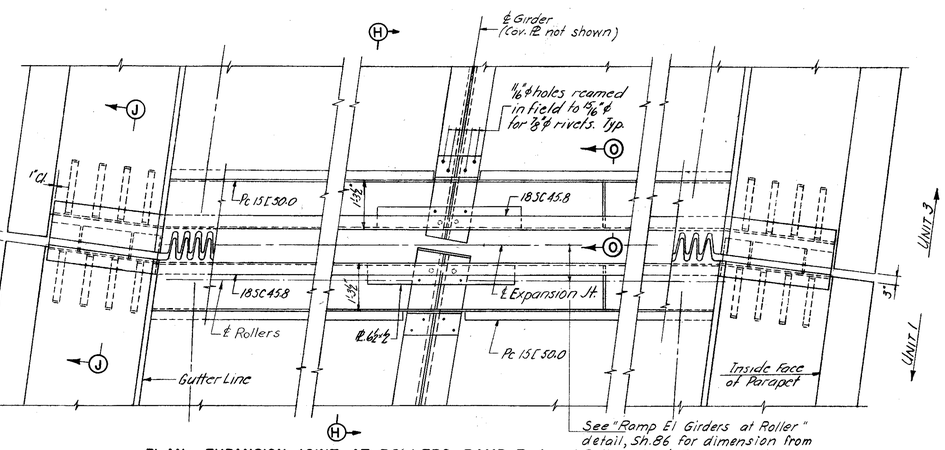
SECTION J-J
1"=1'-0"

Details and dimensions not shown same as Section B-B

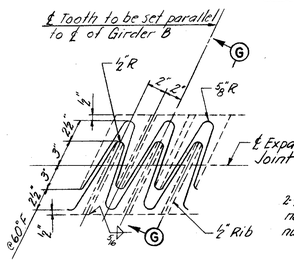


* Measured at mid-depth of Girders

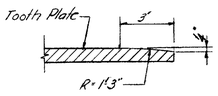
PLAN - EXPANSION JOINT AT LINK JOINT RAMP E-2
½"=1'-0"



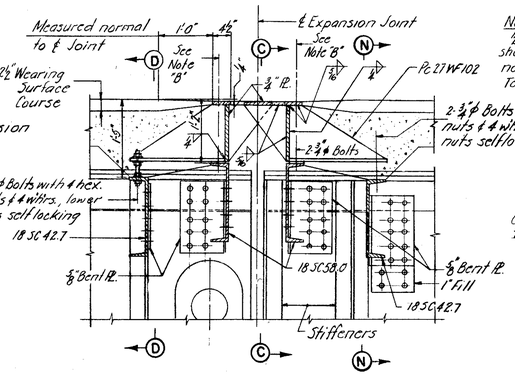
See "Ramp E1 Girders at Roller" detail, Sh. 86 for dimension from ℄ Rollers to ℄ Expansion Jt.



EXPANSION PLATE DETAIL RAMP E-2
1½"=1'-0"



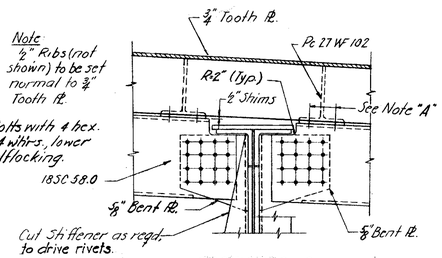
SECTION G-G
3"=1'-0"



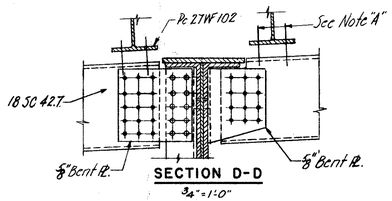
SECTION A-A
¾"=1'-0"

For additional details at Link Joint see Sh. 73

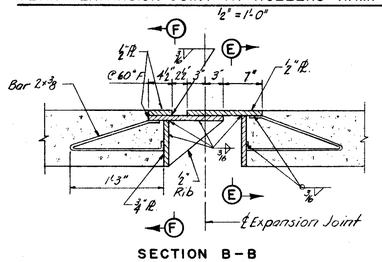
Note "B":
13/16"ϕ holes to be used for field reaming of bolt holes. Concrete to be thoroughly rammed into place until it appears in 13/16"ϕ holes.



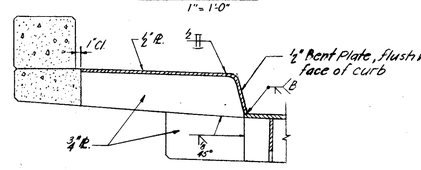
SECTION C-C
¾"=1'-0"



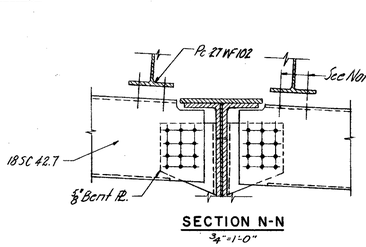
SECTION D-D
¾"=1'-0"



SECTION B-B
1"=1'-0"

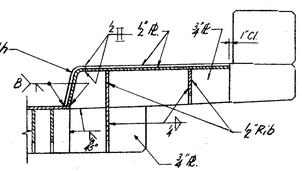


SECTION E-E
¾"=1'-0"



SECTION N-N
¾"=1'-0"

Note "A":
Sub punch bolt holes ¼" smaller than required. Ream in field to required diameter



SECTION F-F
¾"=1'-0"

NOTES:
For General Expansion Joint Notes see Sh. 93

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50
EXPANSION JOINTS
RAMP E-2 AND RAMP E-1
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As Noted
MADE S.J.B. DATE 11-29-56
TRCD W.B. DATE 3-15-57
CKD HGK BJ DATE 8-29-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 92

8-D

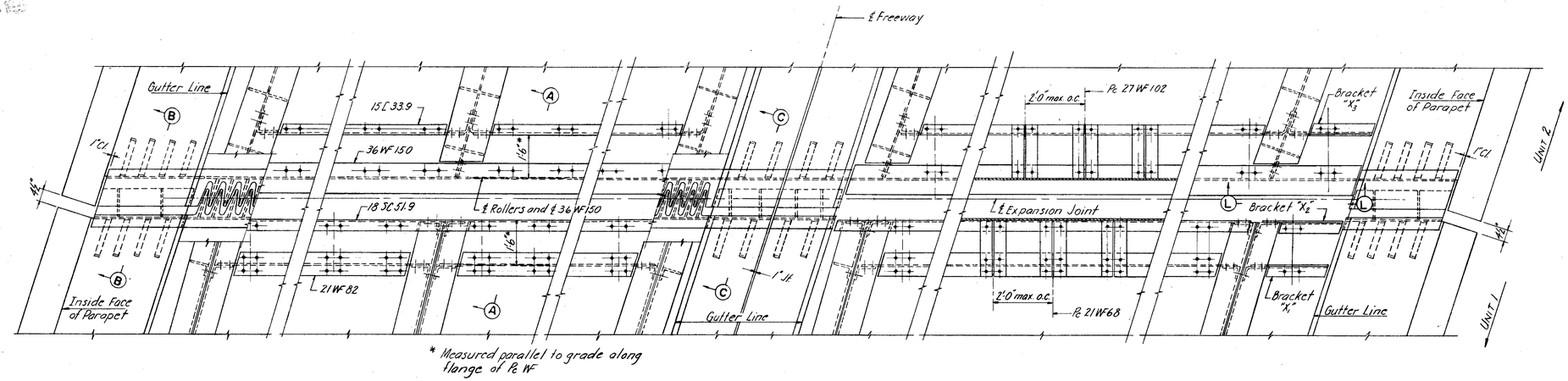
CUY-90-15.38-15.97

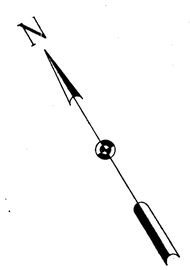
FEB 1958

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

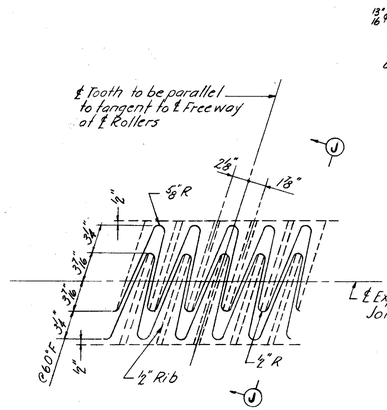
93
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



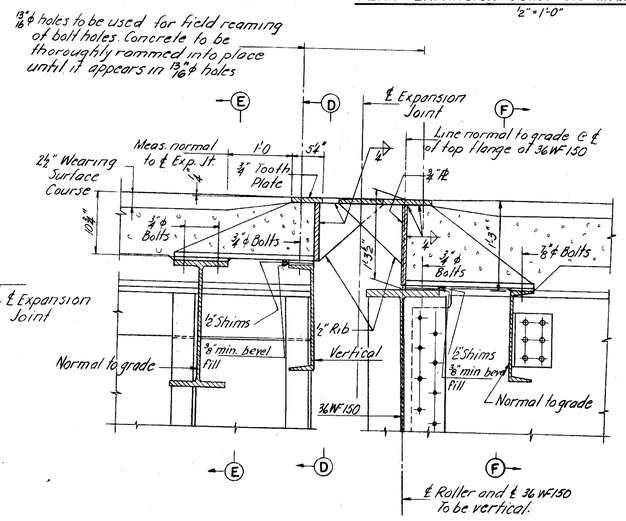


PLAN—EXPANSION JOINT AT MAIN LINE ROLLERS
1/2" = 1'-0"



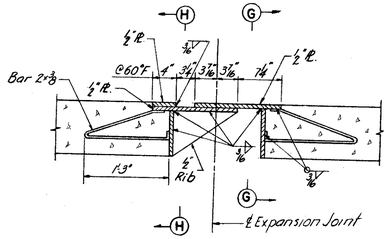
EXPANSION PLATE DETAIL
1/2" = 1'-0"

Section J-J similar to Section G-G Sh. 92



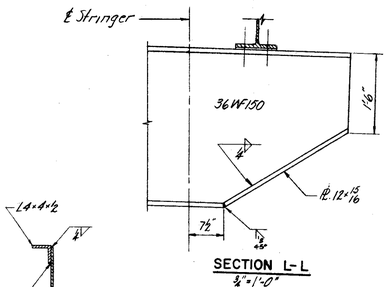
SECTION A—A
1" = 1'-0"

For additional details at Rollers see Sh. 86

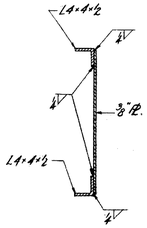


SECTION B-B
1" = 1'-0"

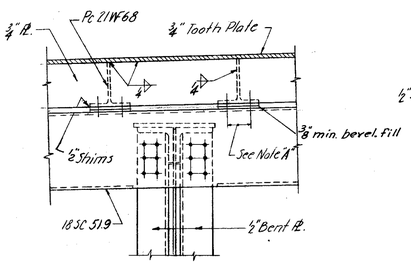
Section C-C similar to Section B-B
Sections G-G and H-H similar to Sections E-E and F-F respectively Sh. 92



SECTION L-L
¾" = 1'-0"

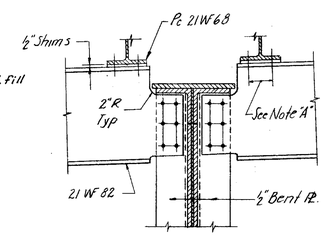


SECTION K-K
¾" = 1'-0"

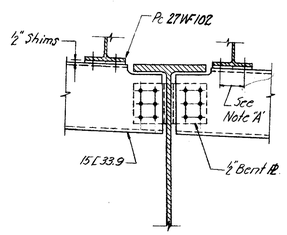


SECTION D-D
¾" = 1'-0"

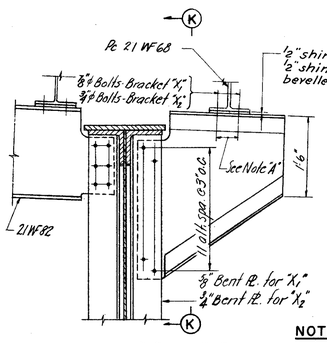
½" Ribs (not shown) to be set normal to ¾" Tooth Plate.



SECTION E-E
¾" = 1'-0"



SECTION F-F
¾" = 1'-0"

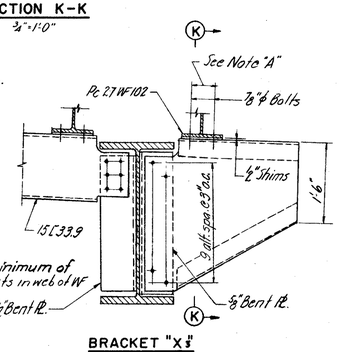


BRACKETS "X1" AND "X2"
¾" = 1'-0"

Bracket "X1" shown Bracket "X2" similar except as noted

NOTE "A"

Subpunch bolt holes ¼" smaller than required. Ream in field to required diameter.



BRACKET "X1"
¾" = 1'-0"

NOTES:

Normal Temperature is 60°F.
Temperature range for movement is from 105°F to -25°F.
For location of Joints and for Stringer spacing, see Framing Plans.
Parapet openings at Expansion Joints over piers to be normal to grade; over abutments to be vertical.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50
EXPANSION JOINT MAIN LINE ROLLERS
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As Noted
MADE S.J.B. DATE 1-13-57
TRCD N.R-K DATE 2-19-57
CKD H.G. DATE 2-13-57

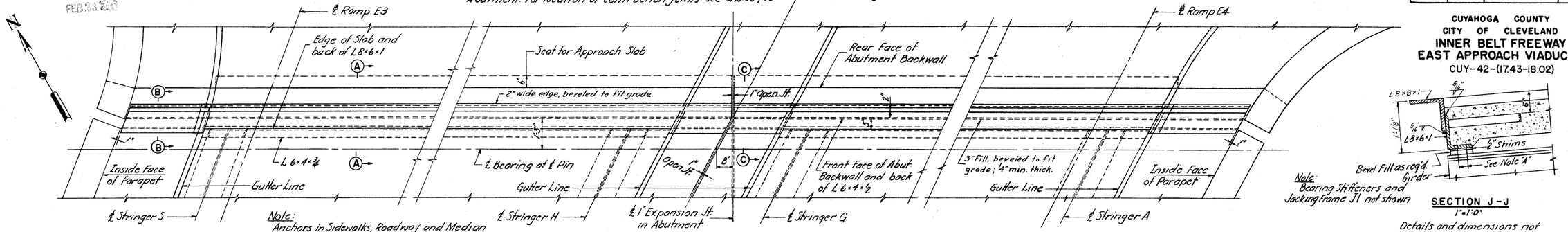
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 93

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

94
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)

FEB 23 1960



Note:
Cut and mill all material on Abutment side of expansion joint along contraction joints in Abutment. For location of contraction joints see Shs. 58 & 59

Tangent to ℄ Freeway at ℄ Bearing

Note:
Anchors in Sidewalks, Roadway and Median not shown See Sections A-A, B-B and C-C.

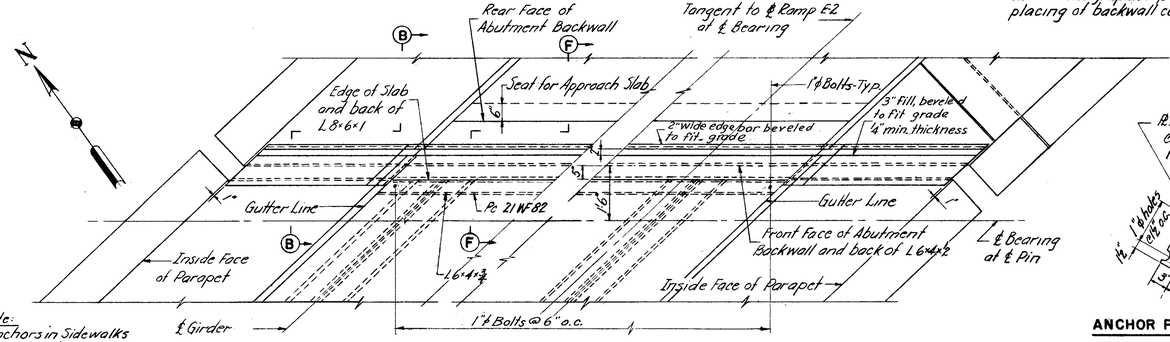
PLAN-EXPANSION JOINT AT ABUTMENT I B
½" = 1'-0"

Note:
Bearing Stiffeners and Jacking Frame J1 not shown

SECTION J-J
1" = 1'-0"

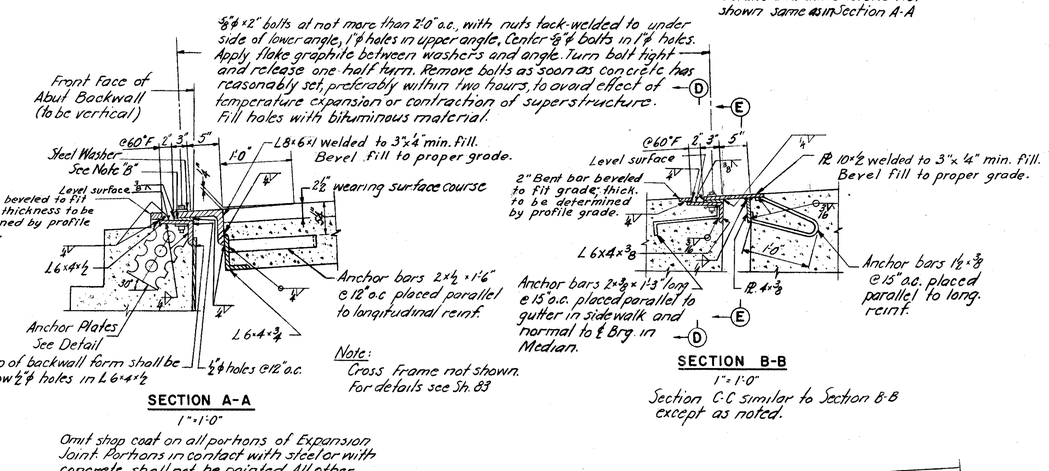
Details and dimensions not shown same as in Section A-A

Note "B"
This contact surface shall not be painted and shall be lubricated with flake graphite prior to placing of backwall concrete.



Note:
Anchors in Sidewalks and Roadway not shown. See Sections B-B and F-F.

PLAN - EXPANSION JOINT AT ABUTMENT E-2
½" = 1'-0"



Note:
Cross Frame not shown. For details see Sh. 83

SECTION A-A
1" = 1'-0"

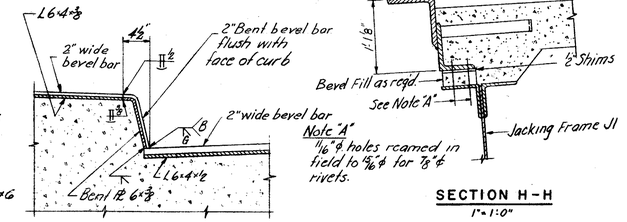
SECTION B-B
1" = 1'-0"

Section C-C similar to Section B-B except as noted.

ANCHOR PLATE DETAIL
1" = 1'-0"

1" ℄ holes may be burned in Pl.

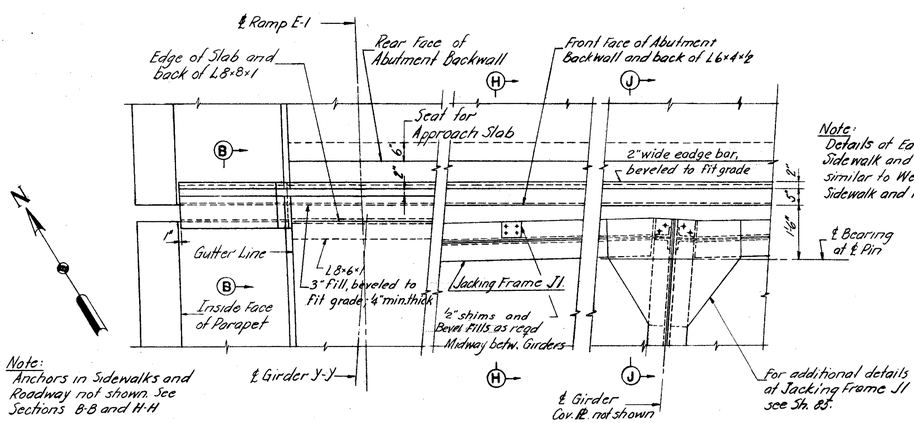
Omit shop coat on all portions of Expansion Joint. Portions in contact with steel or with concrete shall not be painted. All other portions shall be cleaned and given the second red lead coat in the field as well as the two field coats.



Note "A"
1⅛" ℄ holes reamed in field to 1⅛" ℄ for ⅞" ℄ rivets.

SECTION D-D
1" = 1'-0"

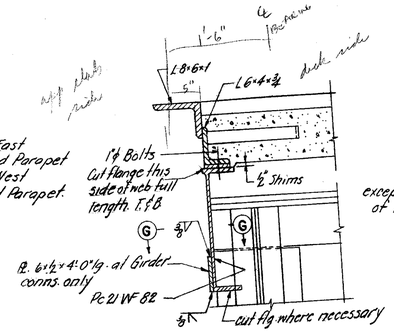
SECTION H-H
1" = 1'-0"



Note:
Anchors in Sidewalks and Roadway not shown. See Sections B-B and H-H

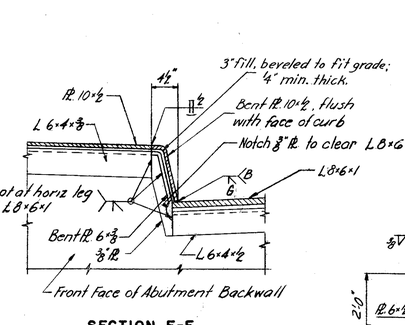
Note:
Details of East Sidewalk and Parapet similar to West Sidewalk and Parapet.

PLAN - EXPANSION JOINT AT ABUTMENT E-1
½" = 1'-0"

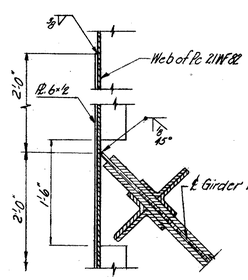


SECTION F-F
1" = 1'-0"

Details and dimensions not shown same as in Section A-A
Holes for 1" ℄ Bolts to be sub punched ¼" smaller than req'd and reamed in field to req'd. diameter.



SECTION E-E
1" = 1'-0"



SECTION G-G
1" = 1'-0"

NOTES:
For Expansion Joint Notes see Sh. 93

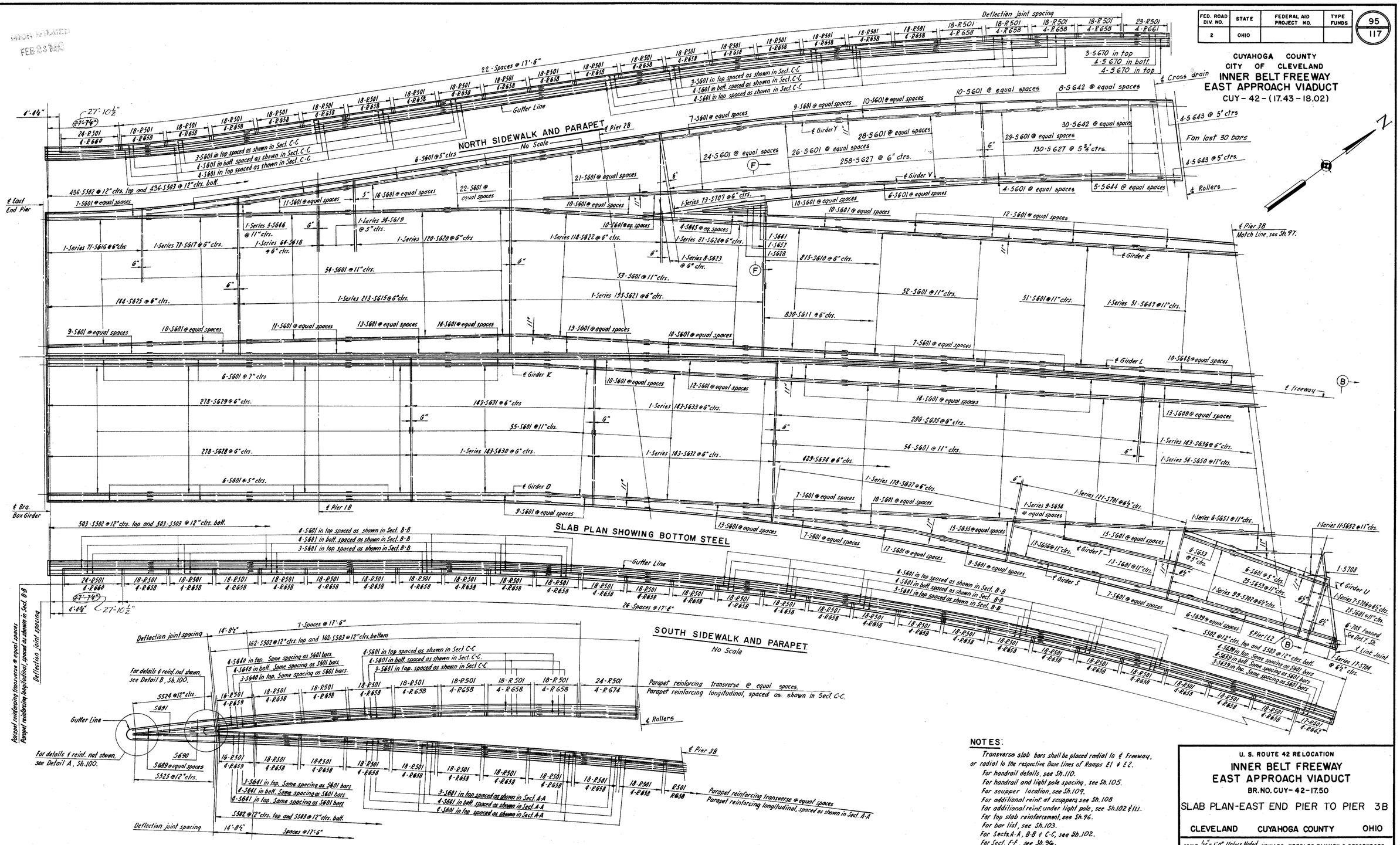
U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50
EXPANSION JOINTS
ABUTMENTS I B, E-1 AND E-2
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As Noted
MADE S.J.B. DATE 11-19-56
TRCD N.K.K. DATE 3-20-57
CKD W.H.E. DATE 5-20-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 94

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



NOTES:

Transverse slab bars shall be placed radial to ℄ Freeway, or radial to the respective Base Lines of Ramps E1 & E2.
For handrail details, see Sh. 110.
For handrail and light pole spacing, see Sh. 105.
For scupper location, see Sh. 109.
For additional reinf. at scuppers see Sh. 108
For additional reinf. under light pole, see Sh. 102 & 111.
For top slab reinforcement, see Sh. 96.
For bar list, see Sh. 103.
For Sects. A-A, B-B & C-C, see Sh. 102.
For Sect. F-F, see Sh. 96.
For reinforcement not shown between ℄ Cross-drain & ℄ Roller, in Ramp E1, see Sh. 109.

Revised 2-13-58

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50
SLAB PLAN-EAST END PIER TO PIER 3B
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/16" = 1'-0" Unless Noted
MADE CCT DATE 1-15-57
TRCD W.B. DATE 3-14-57
CKD F.H.K. H.H.C. DATE 8-30-57

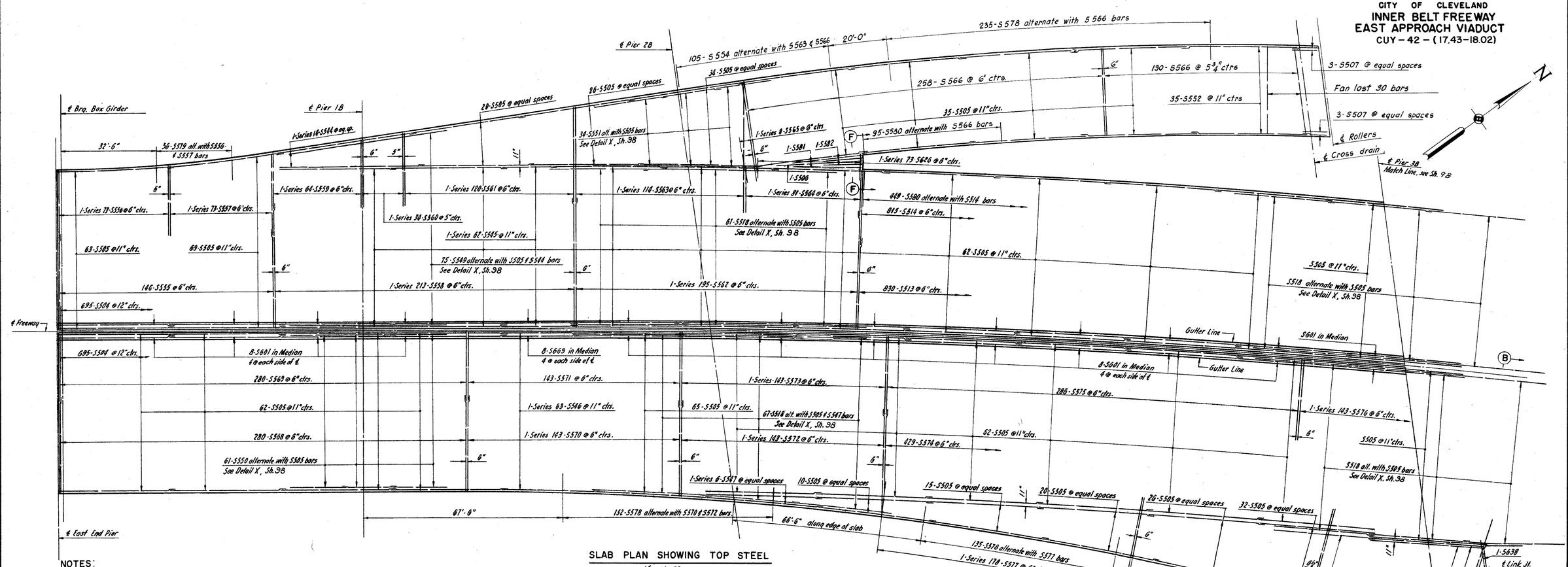
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-95

HIGHWAY HEARING
FEB 23 1957

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

96
117

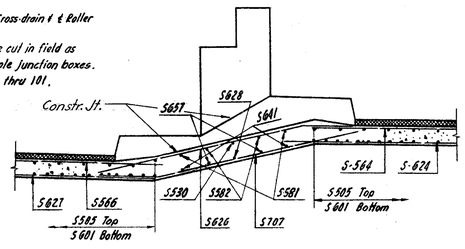
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 – (17.43–18.02)



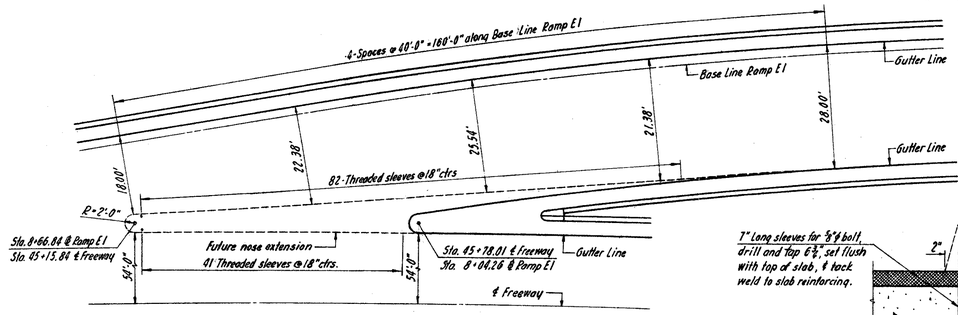
SLAB PLAN SHOWING TOP STEEL
1/16" = 1'-0"

NOTES:

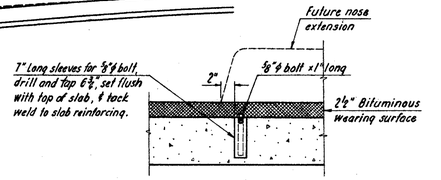
Transverse slab bars shall be placed radial to ℄ Freeway, except at Ramps E1 & E2, radial to respective Base Line as shown.
For location of scuppers see Sh. 109.
For additional reinf. at scuppers see Sh. 108.
For bottom slab reinforcement, see Sh. 95
For bar list, see Sh. 103.
For Sect. B-B, see Sh. 102.
For reinforcement not shown between ℄ Cross-drain t ℄ Roller in Ramp E1, see Sh. 109
Transverse and longitudinal bars shall be cut in field as required to clear all scuppers and light pole junction boxes. Typical for Units 1, 2, 3 & 4, Sheets 95 thru 101.



SECTION F-F
⅜" = 1'-0"



LOCATION OF THREADED SLEEVES
FUTURE NOSE EXTENSION ON RAMP E1
1/16" = 1'-0"



DETAIL OF THREADED SLEEVE
1" = 1'-0"

Note: Threaded sleeves and ⅝" ϕ x 1" bolts will be furnished under Item 5-7, "Structural Steel".

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

SLAB PLAN-EAST END PIER TO PIER 3B

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE AS NOTED
MADE CCT DATE 1-31-57
TRCD W.B. DATE 3-19-57
CKD J.H.K. M.H.C. DATE 2-20-57

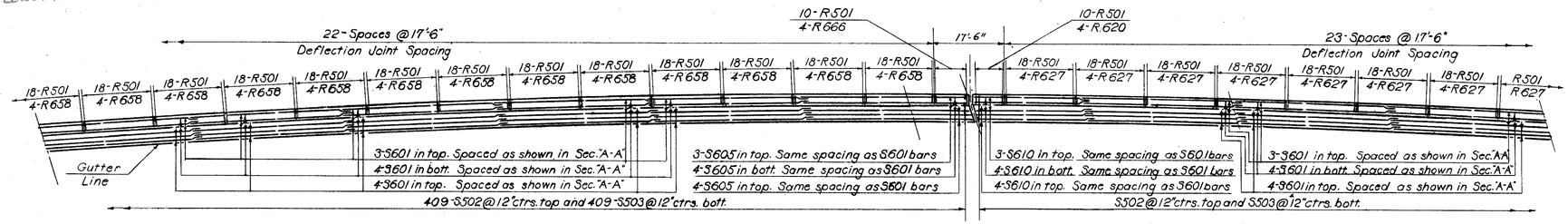
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 96

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

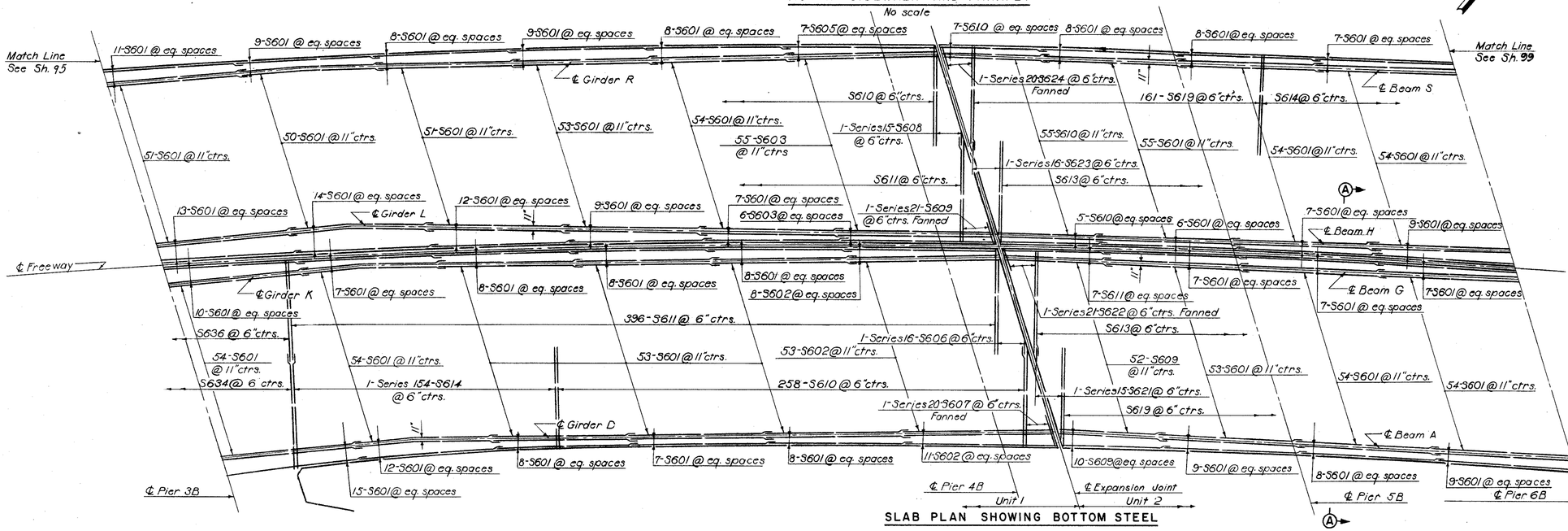
97
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43-18.02)

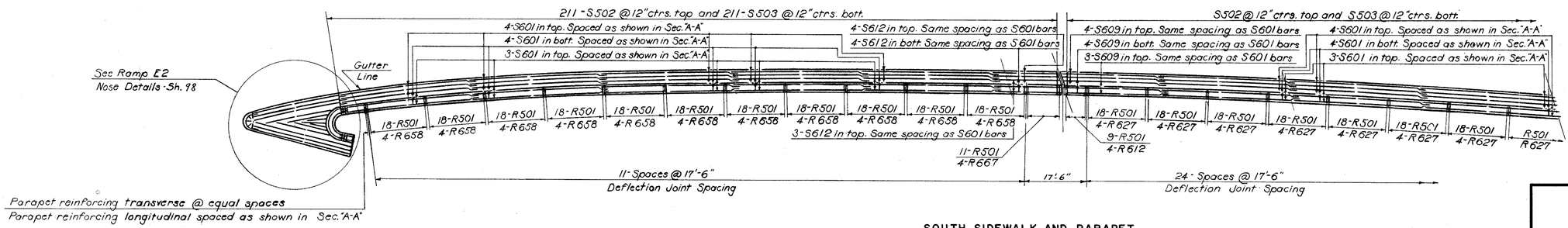
FEB 23 196?



NORTH SIDEWALK AND PARAPET
No scale



SLAB PLAN SHOWING BOTTOM STEEL



SOUTH SIDEWALK AND PARAPET
No scale

NOTES:

For Section A-A see Sh.102.
For handrail details see Sh.110.
For handrail and light pole locations see Sh. 106.
For scupper location see Sh. 109.
For additional reinf. under light poles see Sh.102 & 111
For additional reinf at scupper see Sh.108.
For details of nose on Ramp E2 see Sh.98.
For top slab reinforcement see Sh.98.
For bar list see Shs. 103 & 104
Transverse bars shall be placed radial to ℄ Freeway.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

SLAB PLAN-PIER 3B TO PIER 6B

CLEVELAND CUYAHOGA COUNTY OHIO

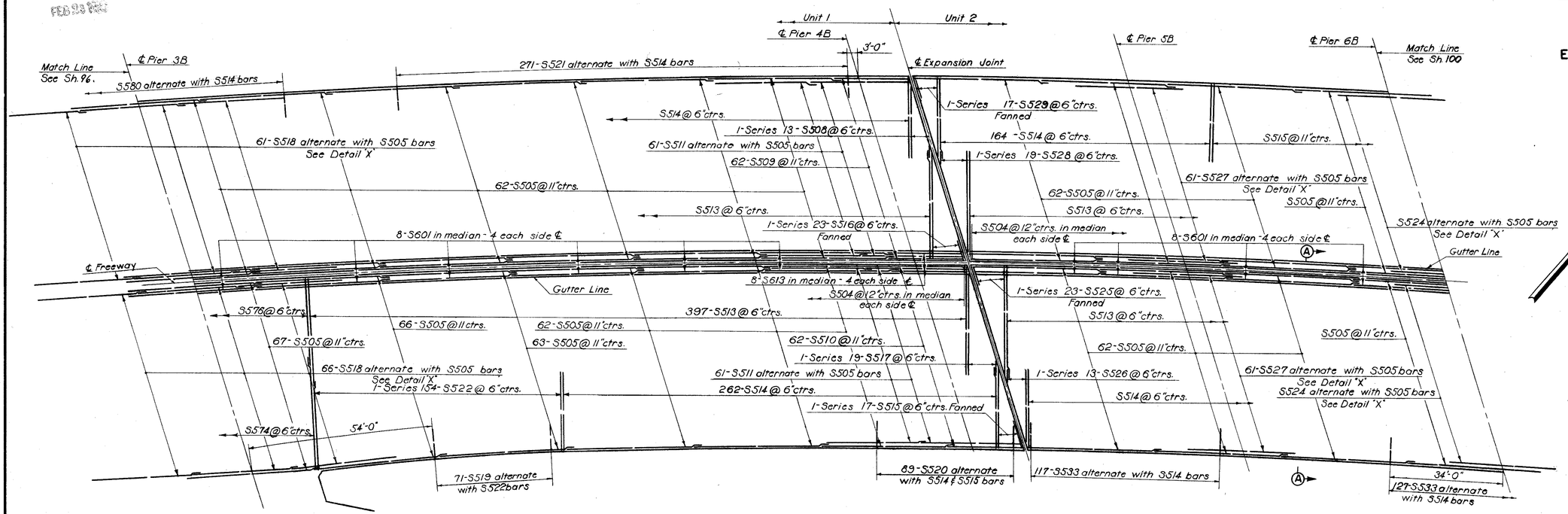
SCALE 1/16"=1'-0" Unless Noted
MADE F.M.L. DATE 1-7-57
TRCD W.B. DATE 3-20-57
CKD F.X.H. DATE 3-6-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-97

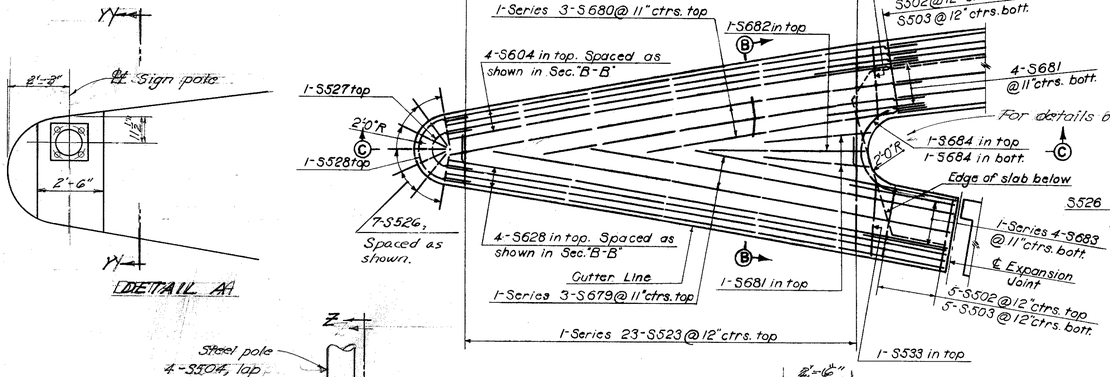
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

98
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43-18.02)

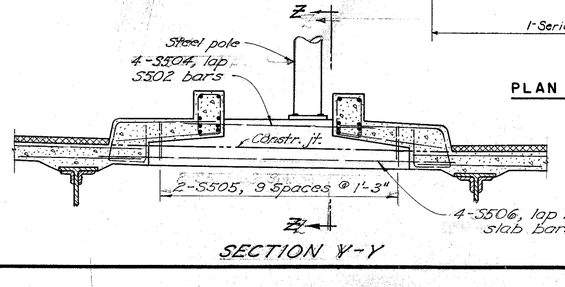


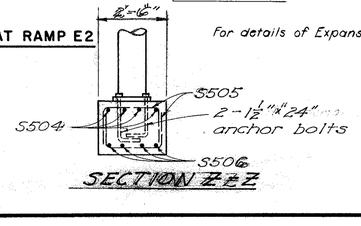
SLAB PLAN SHOWING TOP STEEL
1/16" = 1'-0"



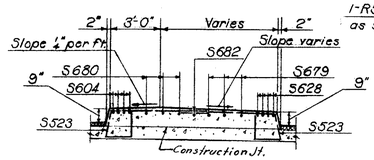
PLAN OF NOSE AT RAMP E2

For details of Expansion Joint see Sh. 92

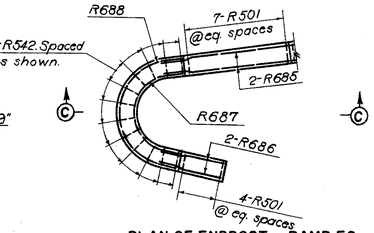




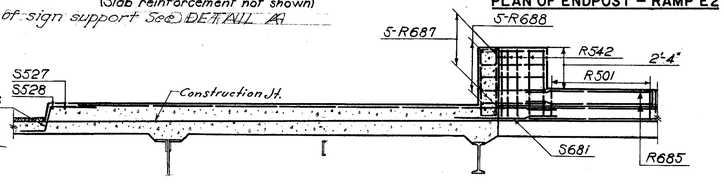
RAMP E2 NOSE DETAILS
4" = 1'-0"



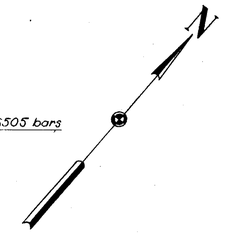
SECTION B-B
(Slab reinforcement not shown)

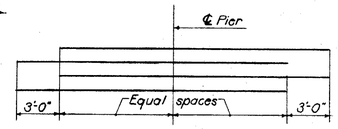


PLAN OF ENDPOST - RAMP E2



SECTION C-C
(Slab reinforcement not shown)





DETAIL "X"
No Scale

Showing placement of additional top slab reinforcing over interior piers of continuous units

NOTES:
For bottom slab reinforcing and sidewalk and parapet reinforcing see Sh. 97.
For Section A-A see Sh. 102.
For station location of Nose Ramp E2 see Sh. 106.
For nose offsets and additional slab dimensions see Sh. 106.
For bar list see Shs. 103 & 104.
Transverse bars shall be placed radial to ℄ Freeway.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50

SLAB PLAN - PIER 3B TO PIER 6B

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As noted
MADE F.M.L. DATE 1-7-57
TRCD W.B. DATE 3-13-57
CHD F.X.H. DATE 4-6-57

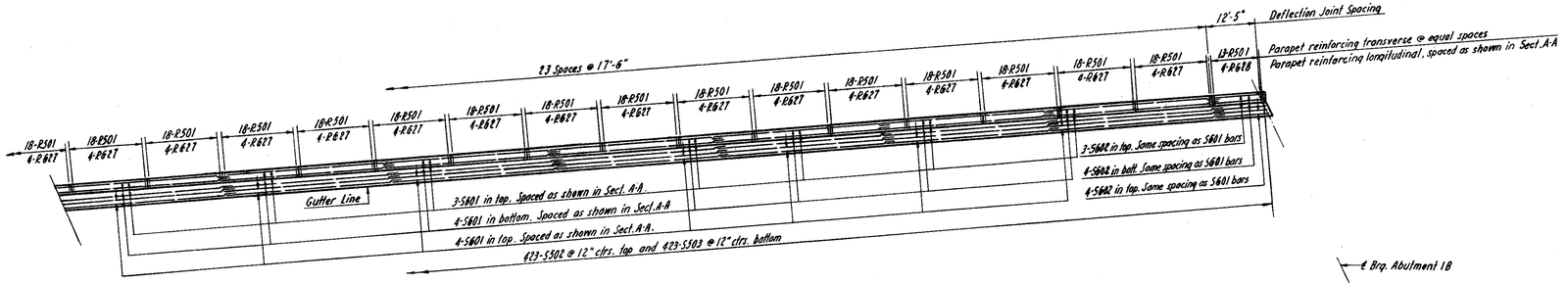
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 98

MICROFILMED
FEB 23 1959

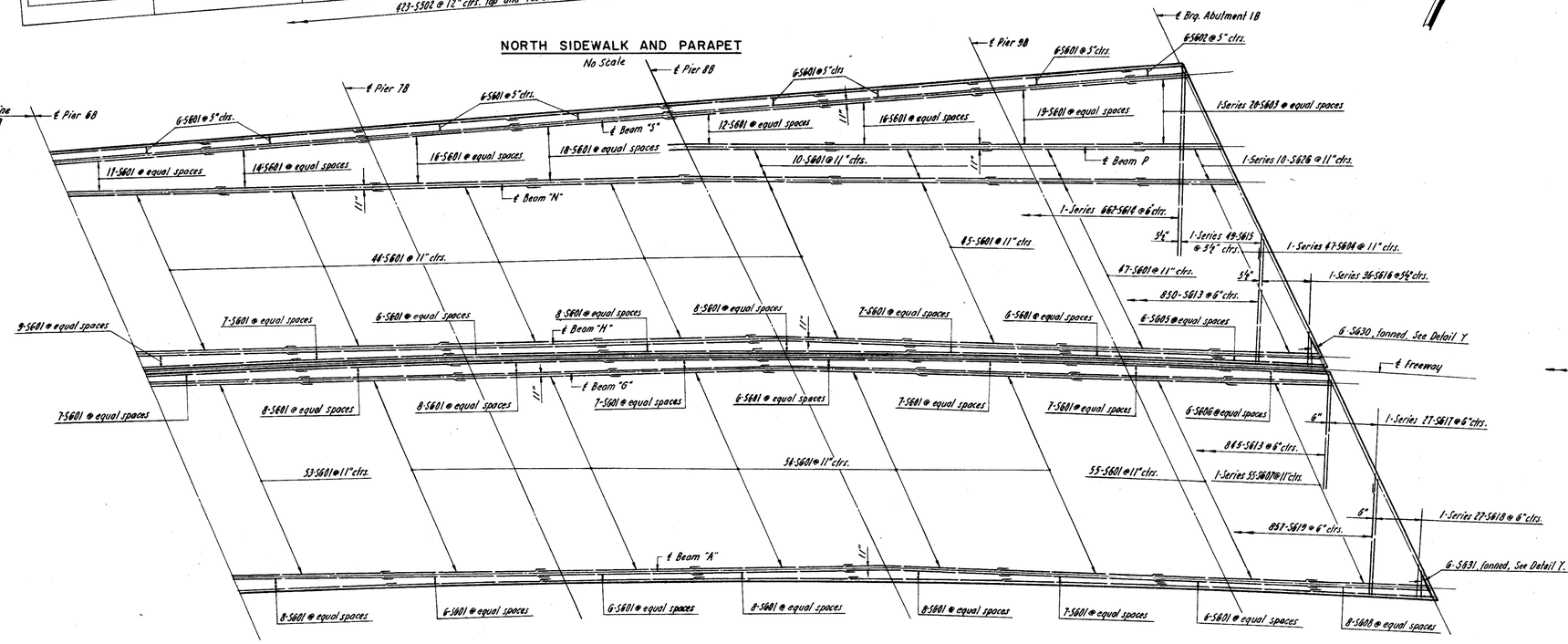
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

99
117

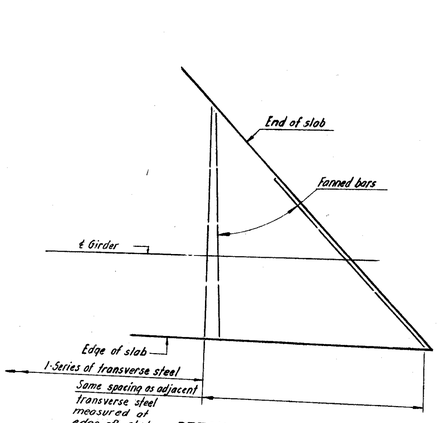
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 – (17.43 – 18.02)



NORTH SIDEWALK AND PARAPET
No Scale

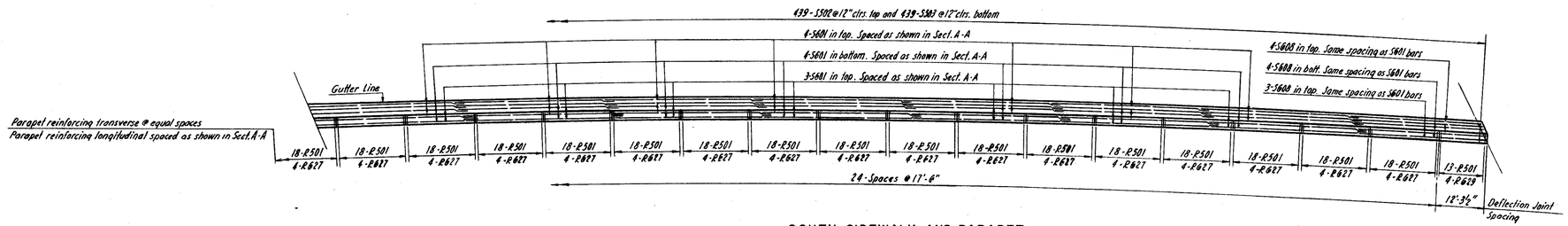


SLAB PLAN SHOWING BOTTOM STEEL



DETAIL Y
Showing placement of fanned bars at acute slab corner
No Scale

NOTES:
- Transverse bars shall be placed radial to ℄ Freeway.
- For handrail details, see Sh. 110.
- For handrail and light pole spacing, see Sh. 107.
- For scupper location, see Sh. 109.
- For additional reinf. under light poles, see Sh. 102 & 111.
- For additional reinf. at scupper, see Sh. 108.
- For top slab reinforcement, see Sh. 100.
- For bar list, see Sh. 104.
- For Sect. A-A, see Sh. 102.



SOUTH SIDEWALK AND PARAPET
No Scale

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY - 42 - 17.50

SLAB PLAN – PIER 6B TO ABUTMENT 1B

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/8" = 1'-0" Unless Noted
MADE C.C.T. DATE 1-9-57
TRCD J.G. DATE 2-1-57
CKD F.M.L. DATE 2-6-57

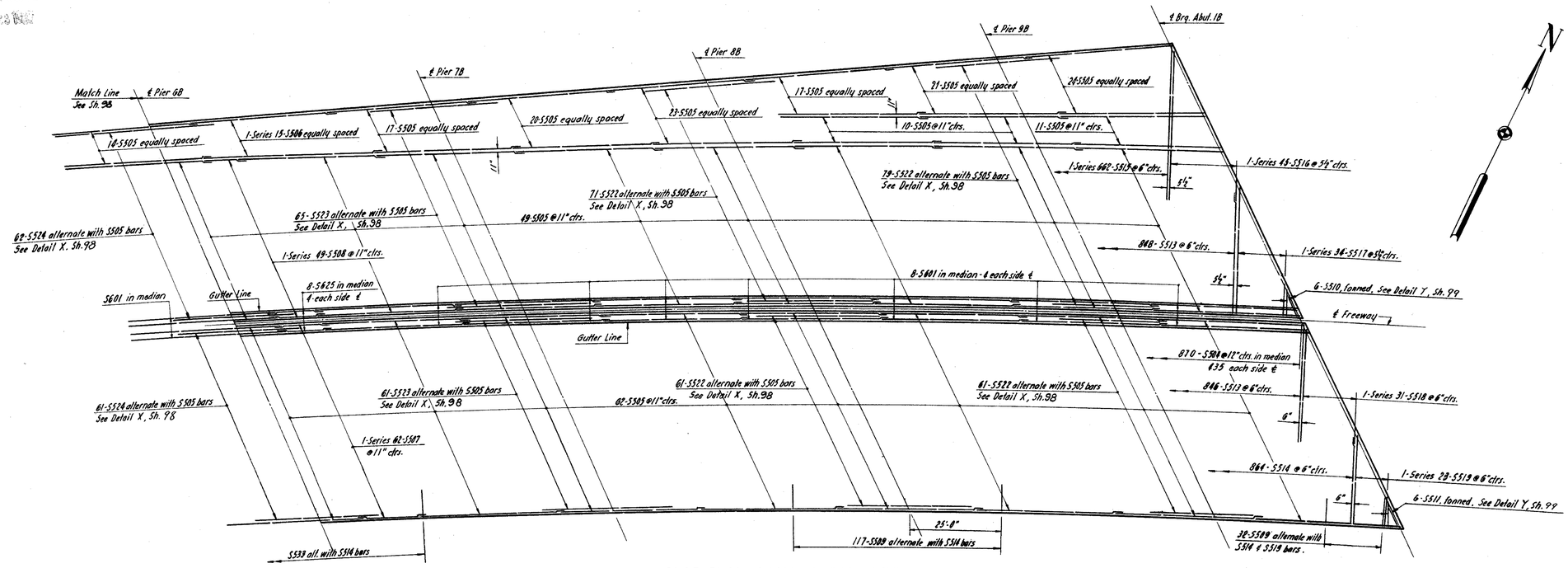
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET- 99

RECEIVED
FEB 23 1957

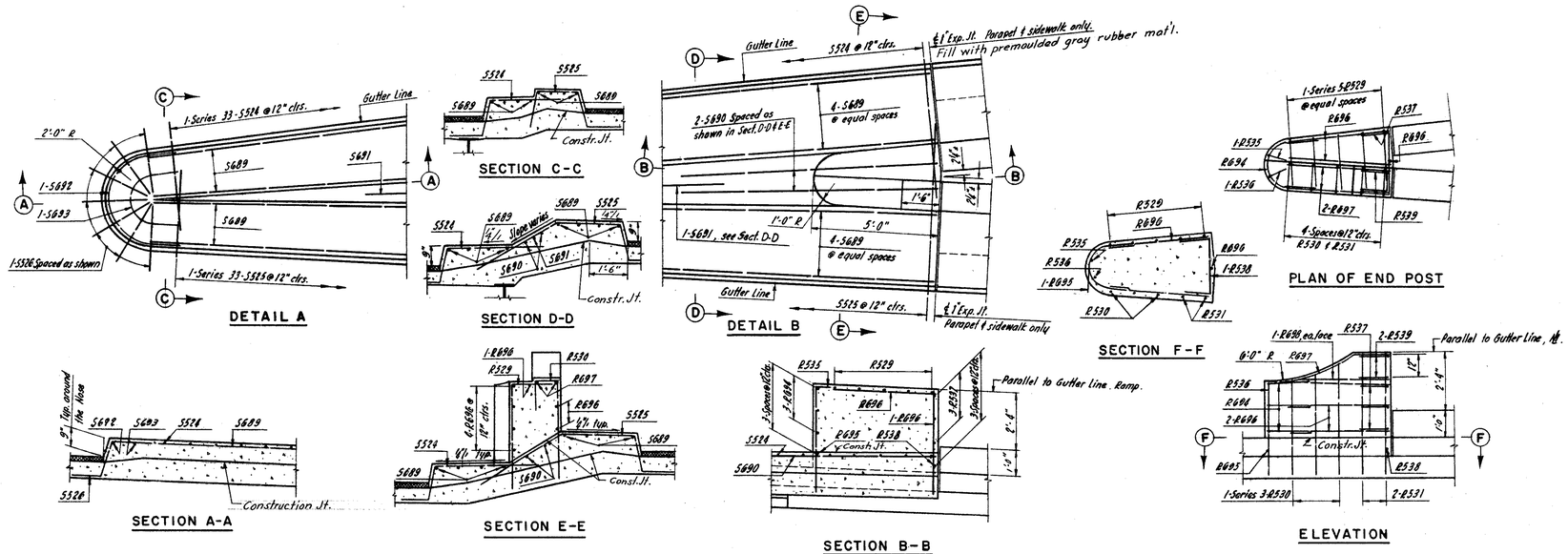
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

100
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 – (17.43 – 18.02)



SLAB PLAN SHOWING TOP STEEL



RAMP E1 NOSE DETAILS

3/8" = 1'-0"

NOTES:
- Transverse bars shall be placed radial to ℄ freeway.
- For parapet, sidewalk and bottom slab reinforcing, see Sh. 99
- For scupper location, see Sh. 109.
- For additional reinf. at scupper, see Sh. 108.
- For bar list, see Sh. 104.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY – 42 – 17.50

SLAB PLAN-PIER 6B TO ABUTMENT 1B

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/2"=1'-0" Unless Noted
MADE C.C.T. DATE 1-9-57
TRCD W.B. DATE 3-19-57
CKD F.M.L. DATE 3-6-57

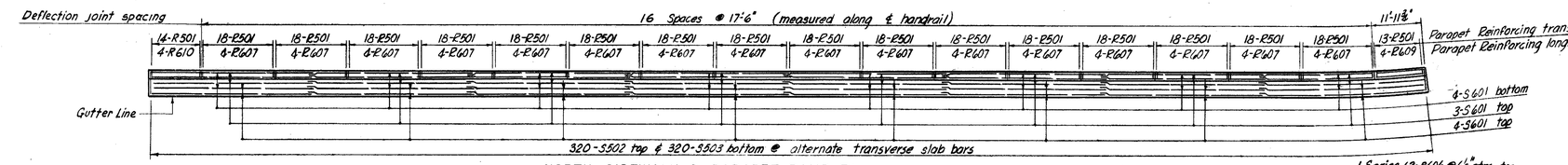
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 100

RECEIVED
FEB 23 1959

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

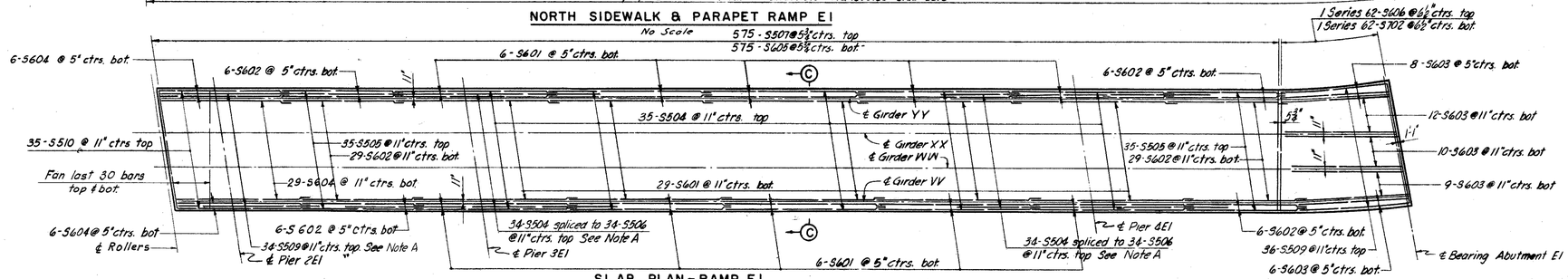
101
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43-18.02)

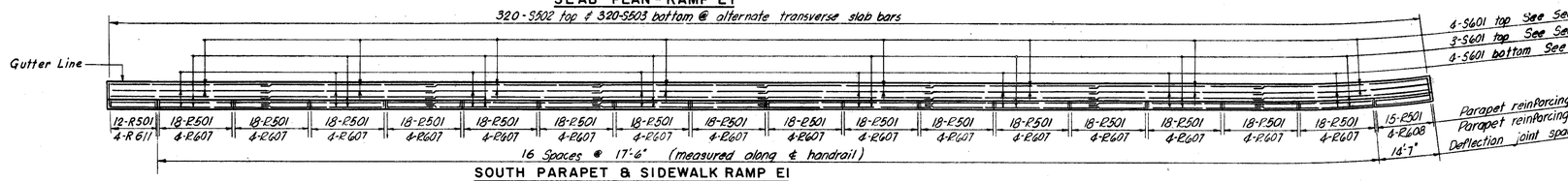


NORTH SIDEWALK & PARAPET RAMP E1

No Scale

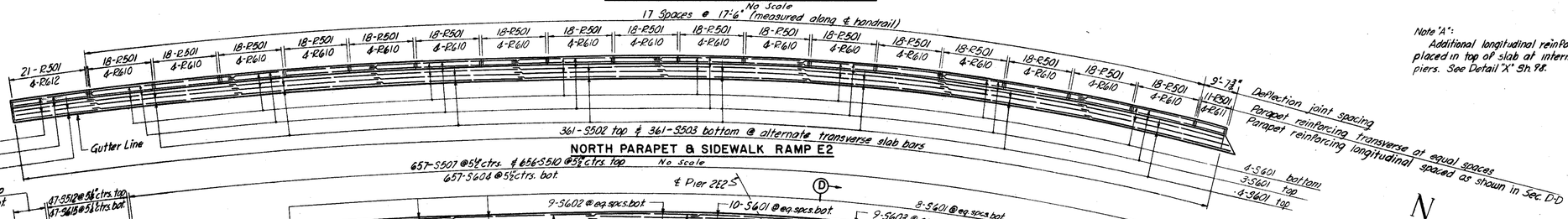


SLAB PLAN - RAMP E1



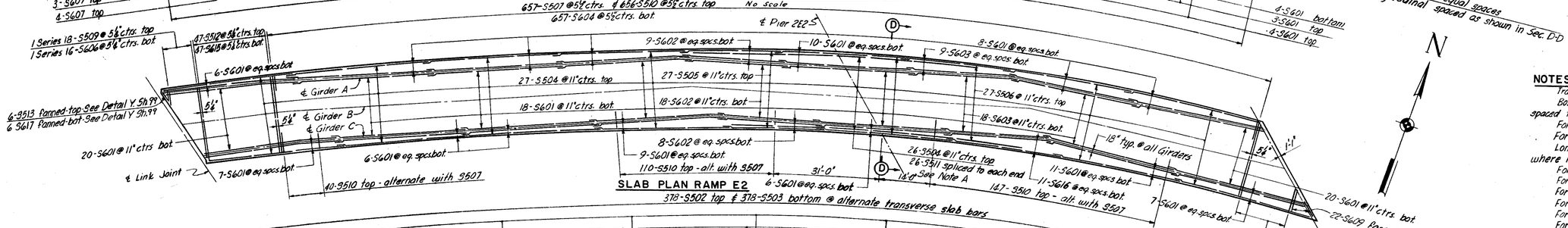
SOUTH PARAPET & SIDEWALK RAMP E1

No Scale



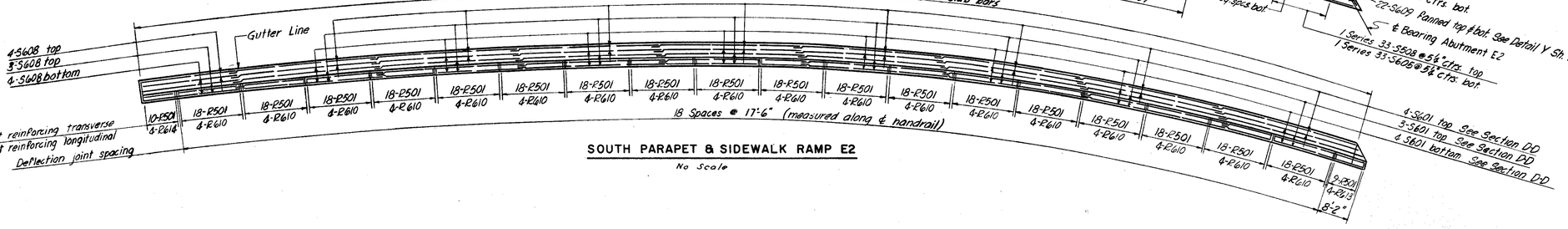
NORTH PARAPET & SIDEWALK RAMP E2

No scale



SLAB PLAN RAMP E2

378-S502 top & 378-S503 bottom @ alternate transverse slab bars



SOUTH PARAPET & SIDEWALK RAMP E2

No Scale

Note 'A':
Additional longitudinal reinforcement placed in top of slab at intermediate piers. See Detail 'X' Sh. 98.

NOTES:
Transverse slab bars shall be placed radial to ℄ of ramps.
Bottom longitudinal reinforcing in Ramp E2 to be spaced to clear shear lugs.
For handrail and light post spacing, see Shs. 105-107.
For handrail details, see Sh. 110.
Longitudinal reinforcing shall be draped in field where necessary to conform to curvature of roadway.
For scupper locations see Sh. 109.
For additional reinf. at scuppers see Sh. 108.
For additional reinf. under light post see Sh. 102 & 111.
For bar list see Sh. 104.
For Sections C-C and D-D see Sh. 102.
For offset of North Gutter Line, Ramp E2 at Link Joint, see Sh. 106.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50
SLAB PLAN
RAMPS E1 AND E2
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE ½"=1'-0" Unless Noted
MADE E.K.H. DATE 12-27-56
TRCD W.B. DATE 3-12-57
CKD C.O'N.M.C. DATE 3-30-57

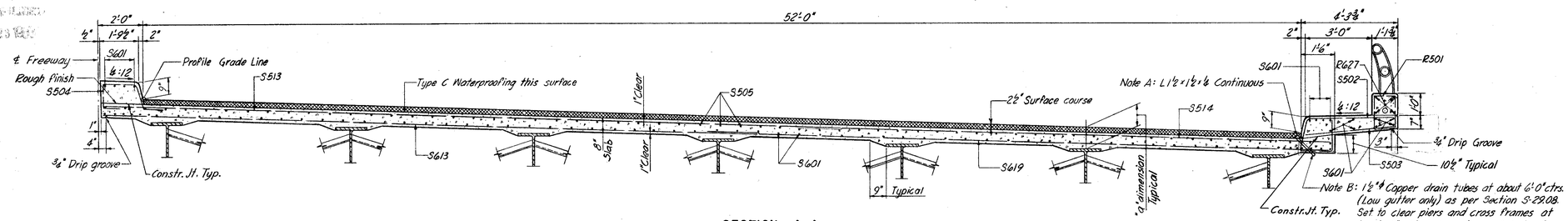
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) 8 SHEET- 101

FEB 23

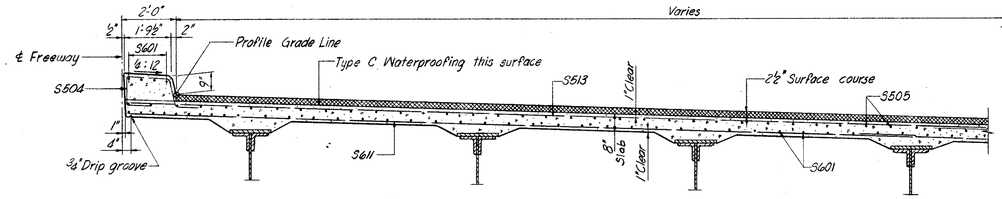
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

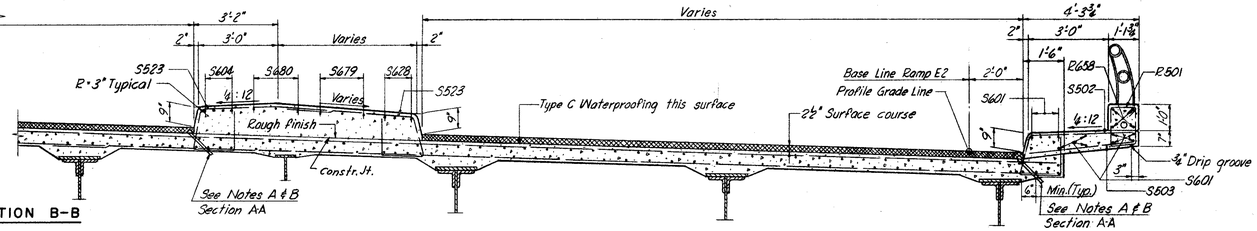
102
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)

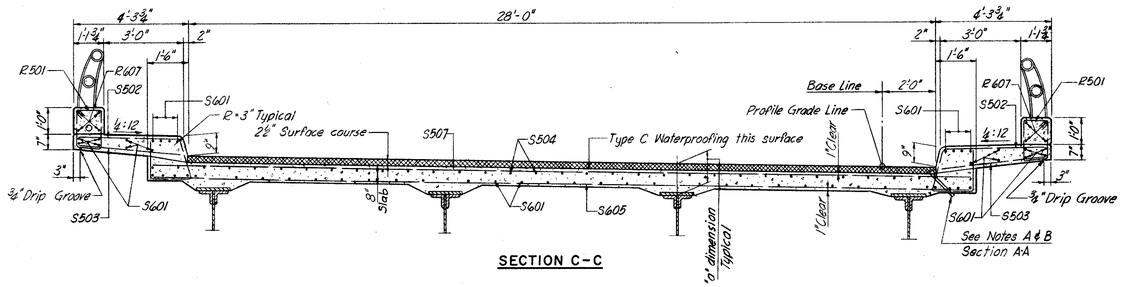


SECTION A-A
(Normal Freeway Deck Section)

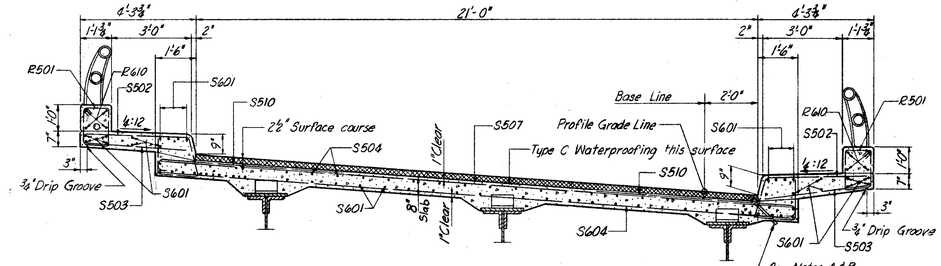




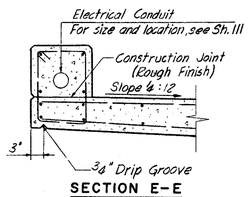
SECTION B-B



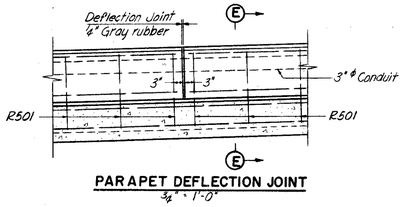
SECTION C-C



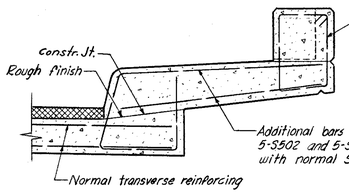
SECTON D-D



SECTION E-E
¾" = 1'-0"

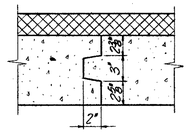


PARAPET DEFLECTION JOINT
¾" = 1'-0"

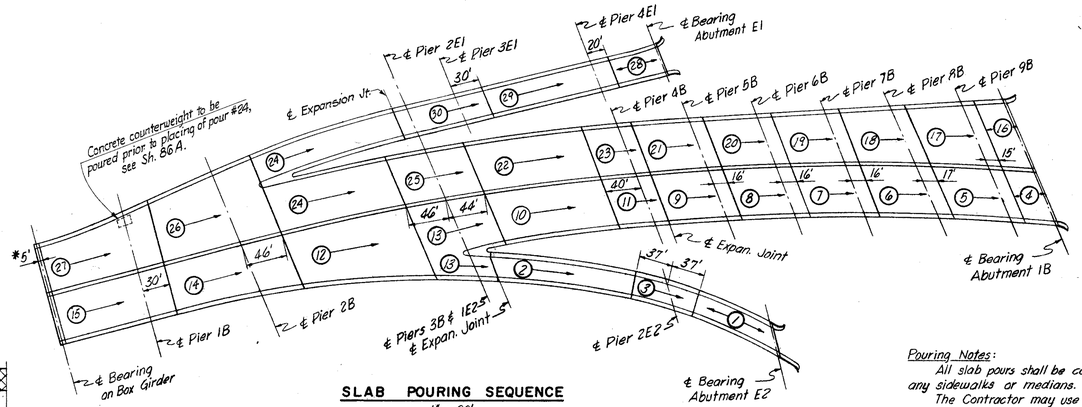


ADDITIONAL REINFORCEMENT AT LIGHT POLES
¾" = 1'-0"

Notes: ¼" Gray Rubber Deflection Joint Material to be included in price bid for Item 314 Deflection Joints to be constructed normal to grade.



TYP. TRANSVERSE SLAB CONST. JT.
½" = 1'-0"



SLAB POURING SEQUENCE
1" = 80'

* The end 5' of slab shall be placed after other pours are complete and expansion joint castings have been adjusted.

Note:
A temporary bent shall be used to support the girders of ramp E2. It shall be located approximately 85 Ft. west of Pier 2E2 between the railroad tracks. It shall remain in place until the slab has been placed and has attained its design strength. Cost of the bent will not be a specific bid item but will be covered by the various unit prices bid.

Pouring Notes:
All slab pours shall be complete prior to pouring any sidewalks or medians.
The Contractor may use an alternate pouring sequence, subject to approval of the Engineer.
Pours shall extend the full width of the slab.
(7) ⟶ indicates sequence and direction of pours.
The two sections of (13) and the two sections of (24) shall be poured simultaneously.

NOTES:
For Location of section A-A See Shs. 97 & 98
For location of section B-B, See Sh. 95
For location of Sections CC & DD, see Sh. 101
Concrete slab is to be haunched down to top struts of cross frames and top flanges of brackets as shown on Shs. 83 thru 86.
For additional notes, see Sh. 36
For additional top of slab reinforcing at intermediate piers see Shs. 95 thru 101.

TABLE OF "a" DIMENSIONS

℄ Brg. on Box Girder	℄ Link Joint-Rollers						
	Pier					Pier	
Girder	1B	2B	3B	4B		1E2	
E thru J, M thru Q	15"	15"	15"	15"	15"		-
D, K, L, R	16"	16"	16"	16"	16"		-
S	-	-	-	14"	-	14"	14"
T	-	-	-	15"	-	15"	15"
U	-	-	-	16"	-	16"	16"
W	-	15"	15"	-	-	15"	-
X	-	-	15"	-	-	15"	-
Y	-	16"	16"	-	-	16"	-
V	-	-	16"	-	-	16"	-

℄ Rollers						
	Pier					Abt
Beam	5B	6B	7B	8B	9B	1B
B thru F, J thru N	15"	12"	12"	12"	12"	12"
P	-	-	12"	12"	12"	12"
R	-	-	-	12"	12"	12"
A, G, H, S	16"	12"	12"	12"	12"	12"

℄ Link Joint - Rollers						
	Pier				Abt.	
Girder	2E1	3E1	4E1	2E2	E1	E2
A	-	-	-	16"	16"	- 16"
B	-	-	-	15"	15"	- 15"
C	-	-	-	14"	16"	- 14"
XX WW	15"	15"	15"	-	15"	15" -
VV YY	16"	16"	16"	-	16"	16" -

Note:
The "a" dimension for the rolled beams is the distance, measured normal to grade from the top of WF to the top of the roadway surface at points of support. The "a" dimension for the girders is the distance, measured normal to grade, from the back of top flange angles to the top of roadway at points of support.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

SLAB CROSS SECTIONS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE ¾"=1'-0" unless noted
MADE F.K.H. DATE 1-11-57
TRCD H.R.K. DATE 3-21-57
CKD J.E.L. DATE 6-27-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 102

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

103
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 – 17.43 – 18.02

RECEIVED
FEB 23 1958

SUPERSTRUCTURE - UNIT I

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (LBS.)
R501	1760	4'-10"	109	0'-10"	1'-3"				8,872
S502	1726	7'-8"	140	1'-4"	1'-4"	1'-4"	3'-8"		13,802
S503	1726	3'-9"	Str.						6,751
S504	1390	6'-6"	144	1'-6"	1'-0"	1'-6"			9,424
S505	2452	40'-0"	Str.						102,297
S506	1	28'-6"	Str.						29
S507	6	9'-0"	Str.						56
S508	1Series 13	4'-0" to 22'-6"	Str.					1'-6½"	179
S509	62	20'-9"	Str.						1,342
S510	62	19'-6"	Str.						1,261
S511	244	29'-9"	Str.						7,571
S512	114	4'-11"	100	3'-9"					584
S513	1227	33'-0"	Str.						42,232
S514	1077	24'-0"	Str.						26,959
S515	1Series 17	9'-6" to 24'-6"	Str.					0'-11¼"	301
S516	1Series 23	6'-0" to 33'-6"	Str.					1'-3"	474
S517	1Series 19	4'-0" to 31'-3"	Str.					1'-6 3/16"	349
S518	765	34'-3"	Str.						27,328
S519	71	8'-6"	101	7'-11"					630
S520	89	8'-0"	101	7'-5"					743
S521	271	7'-3"	101	6'-8"					2,050
S522	1Series 15	24'-0" to 27'-6"	Str.					0'-0¼"	4,137
S523	2Series 23	6'-9" to 10'-6"	140	1'-4"	1'-4"	1'-4"	2'-9" to 6'-6"	D=0'-2 1/16"	414
S524	1Series 33	5'-10" to 7'-0"	118	2'-11" to 4'-1"	1'-7"	1'-4"	0'-3½"	A=0'-0 1/16"	221
S525	1Series 33	5'-11" to 10'-11"	142	1'-7" to 2'-10"	1'-4"	1'-4" to 2'-4"	0'-4" to 4'-7"	*	290
S526	14	4'-8"	118	1'-8"	1'-7"	1'-4"	0'-3½"		68
S527	1	6'-0"	141	1'-0"	2'-10"	1'-7"			6
S528	1	7'-10"	141	1'-8"	4'-8"	1'-7"			8
R529	1Series 5	5'-10" to 6'-5"	104	1'-8" to 2'-3"	4'-2"			A=0'-1¾"	32
R530	1Series 3	6'-11" to 7'-7"	143	0'-11"	3'-10" to 4'-6"	2'-2"		B=0'-4"	23
R531	2	8'-3"	143	0'-11"	5'-0"	2'-4"			18
S532	10	30'-9"	Str.						321
S533	2	8'-3"	140	1'-4"	1'-4"	1'-4"	4'-3"		18
S534	1	4'-4"	Str.						4
R535	1	4'-9"	104	0'-9"	4'-0"				5
R536	1	4'-8"	104	0'-9"	3'-11"				5
R537	3	5'-6"	105	2'-4"	1'-7"				18
R538	1	3'-11"	104	2'-4"	1'-7"				4
R539	2	3'-4"	105	0'-10"	1'-3"				7
R542	12	9'-6"	109	0'-10"	3'-7"				119
S544	1Series 14	44'-9" to 47'-0"	Str.					0'-2 1/16"	670
S545	1Series 62	14'-0" to 21'-6"	Str.					0'-1½"	1,147
S546	1Series 63	21'-6" to 28'-9"	Str.					0'-1⅜"	1,651
S547	1Series 6	40'-0" to 48'-0"	Str.					1'-6"	275
S548	1Series 34	38'-6" to 45'-6"	Str.					0'-2 9/16"	1,489
S549	75	50'-9"	Str.						3,970
S550	183	19'-0"	Str.						3,627
S551	102	19'-9"	Str.						2,101
S552	35	41'-6"	Str.						1,515
S553	68	37'-6"	Str.						2,660
S554	105	7'-6"	101	6'-11"					821
S555	146	34'-3"	Str.						5,215
S556	1Series 73	22'-9" to 24'-0"	Str.					0'-0 3/16"	1,779
S557	1Series 73	24'-0" to 28'-3"	Str.					0'-0 11/16"	1,989
S558	1Series 28	43'-0" to 45'-3"	Str.					0'-0 1/8"	9,803
S559	1Series 64	19'-6" to 24'-0"	Str.					0'-0 7/8"	1,452
S560	1Series 34	24'-0" to 24'-9"	Str.					0'-0¼"	865
S561	1Series 120	24'-9" to 33'-3"	Str.					0'-0 7/8"	3,630
S562	1Series 195	41'-0" to 45'-3"	Str.					0'-0¼"	8,771
S563	1Series 14	33'-3" to 46'-0"	Str.					0'-1 3/8"	4,711
S564	1Series 81	15'-0" to 17'-0"	Str.					0'-0 5/8"	1,352
S565	1Series 8	12'-0" to 38'-0"	Str.					3'-8 9/16"	209
S566	388	32'-0"	Str.						12,950
S568	280	32'-6"	Str.						9,491
S569	280	24'-6"	Str.						7,155
S570	1Series 143	32'-6" to 34'-0"	Str.					0'-0 1/8"	4,959
S571	143	25'-6"	Str.						3,803
S572	1Series 143	33'-3" to 36'-0"	Str.					0'-0¼"	5,164
S573	1Series 143	26'-0" to 28'-9"	Str.					0'-0¼"	4083
S574	429	26'-6"	Str.						11,857
S575	286	30'-9"	Str.						9,172
S576	1Series 143	26'-6" to 28'-9"	Str.					0'-0 5/8"	4,120

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (LBS.)
S577	1Series 178	11'-3" to 21'-0"	Str.					0'-0 11/16"	2,993
S578	522	8'-0"	101	7'-5"					4,356
S579	56	8'-6"	101	7'-11"					496
S580	544	9'-0"	101	8'-5"					5,107
S581	2	26'-0"	Str.						54
S582	2	17'-0"	Str.						35
S601	3268	40'-0"	Str.						196,341
S602	72	41'-0"	Str.						4,434
S603	61	41'-9"	Str.						3,826
S604	4	26'-9"	Str.						161
S605	18	40'-3"	Str.						1,089
S606	1Series 16	5'-0" to 27'-9"	Str.					1'-6 3/16"	394
S607	1Series 20	9'-6" to 29'-3"	Str.					1'-0½"	581
S608	1Series 15	5'-0" to 26'-6"	Str.					1'-6 7/16"	354
S609	1Series 21	6'-0" to 30'-9"	Str.					1'-2⅞"	580
S610	1073	28'-0"	Str.						45,126
S611	1226	29'-3"	Str.						53,862
S612	11	19'-6"	Str.						323
S613	8	23'-3"	Str.						279
S614	1Series 154	28'-0" to 31'-6"	Str.					0'-0¼"	6,882
S615	1Series 213	39'-0" to 41'-3"	Str.					0'-0 1/8"	12,838
S616	1Series 71	27'-0" to 28'-3"	Str.					0'-0 3/16"	2,945
S617	1Series 73	28'-3" to 32'-6"	Str.					0'-0 11/16"	3,330
S618	1Series 64	23'-9" to 28'-3"	Str.					0'-0⅞"	2,499
S619	1Series 34	28'-3" to 30'-0"	Str.					0'-0 5/8"	1,487
S620	1Series 120	30'-0" to 37'-6"	Str.					0'-0 3/4"	6,083
S621	1Series 195	37'-0" to 41'-3"	Str.					0'-0 1/4"	11,459
S622	1Series 114	37'-6" to 50'-3"	Str.					0'-1 3/8"	7,513
S623	1Series 8	8'-0" to 34'-0"	Str.					3'-8 9/16"	252
S624	1Series 81	20'-0" to 22'-0"	Str.					0'-0 5/16"	2,555
S625	144	30'-3"	Str.						6,543
S626	1Series 73	5'-3" to 9'-6"	108	1'-9"	3'-6" to 7'-6"	0'-2" to 2'-0"		B=0'-0 1/16" C=0'-0 5/16"	808
S627	388	30'-9"	Str.						17,920
S628	283	28'-6"	Str.						12,115
S629	278	28'-9"	Str.						12,004
S630	1Series 143	28'-6" to 30'-0"	Str.					0'-0 1/8"	6,283
S631	143	29'-9"	Str.						6,390
S632	1Series 143	29'-3" to 32'-0"	Str.					0'-0¼"	6,577
S633	1Series 143	30'-3" to 33'-0"	Str.					0'-0¼"	6,792
S634	429	26'-6"	Str.						17,075
S635	286	34'-0"	Str.						14,605
S636	1Series 143	30'-9" to 33'-0"	Str.					0'-0 3/16"	6,846
S637	1Series 178	17'-3" to 17'-0"	Str.					0'-0 1/8"	3,241
S638	1	14'-6"	Str.						22
S639	17	45'-3"	Str.						1,155
S640	11	46'-9"	Str.						772
S641	13	26'-6"	Str.						517
S642	38	49'-0	Str.						2,797
S643	8	9'-0"	Str.						108
S644	5	50'-0"	Str.						376
S645	4	36'-6"	Str.						219
S646	1Series 5	16'-0" to 40'-0"	Str.					6'-0"	210
S647	1Series 51	38'-0" to 44'-0"	Str.					0'-1 7/8"	3,141
S648	10	44'-9"	Str.						673
S649	13	45'-6"	Str.						889
S650	1Series 54	7'-6" to 14'-0"	Str.					0'-1½"	871
S651	1Series 6	15'-0" to 35'-0"	Str.					4'-0"	225
S652	1Series 11	6'-0" to 31'-0"	Str.					2'-6"	306
S653	31	21'-0"	Str.						978
S654	1Series 9	14'-0" to 30'-0"	Str.					2'-0"	207
S655	15	30'-0"	Str.						676
S656	13	36'-0"	Str.						703
S657	2	17'-0"	Str.						51
R658	352	17'-0"	Str.						8,988
R659	8	14'-3"	Str.						171
R660	8	22'-9"	Str.						273
R661	4	21'-6"	Str.						129

23'-0"

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (LBS.)
R662	4	16'-0"	Str.						96
R666	4	8'-3"	Str.						50
R667	4	9'-6"	Str.						57
S669	8	25'-6"	Str.						306
S670	11	16'-0"	Str.						264
S671	1Series 121	21'-3" to 32'-6"	Str.					0'-1⅛"	4,885
S672	1Series 99	32'-6" to 44'-3"	Str.					0'-1 7/16"	5,706
S673	35	7'-0"	101	6'-3"					368
R674	4	23'-0"	Str.						138
S675	1Series 7	24'-6" to 30'-6"	Str.					1'-0"	288
S676	1Series 19	6'-6" to 24'-6"	Str.					1'-0"	442
S677	1	24'-6"	Str.						36
S678	6	5'-6"	Str.						50
S679	1Series 3	16'-0" to 26'-6"	Str.					5'-3"	96
S680	1Series 3	17'-3" to 27'-3"	Str.					5'-0"	99
S681	6	6'-0"	Str.						54
S682	1	9'-0"	Str.						14
S683	1Series 4	4'-9" to 6'-3"	Str.					0'-6"	33
S684	2	9'-11"	141	2'-2"	6'-1"	1'-11"			30
R685	4	7'-6"	Str.						45
R686	4	4'-0"	Str.						24
R687	5	8'-1"	141	2'-2"	6'-1"	1'-0"			60
R688	5	10'-2"	141	2'-11"	8'-2"	1'-0"			77
S689	8	32'-6"	Str.						391
S690	2	14'-3"	Str.						44
S691	1	13'-3"	Str.						20
S692	1	9'-0"	141	1'-8"	5'-2"	1'-11"			14
S693	1	6'-11"	141	1'-0"	3'-1"	1'-11"			11
R694	3	6'-4"	141	0'-10"	2'-6"	1'-11"			29
R695	1	5'-2"	141	0'-10"	1'-4"	1'-11"			8
R696	8	3'-9"	Str.						45
R697	2	4'-0"	132	1'-3"	2'-9"	6'-2"			12
R698	2	3'-3"	Str.						11
S701	1Series 121	17'-3" to 28'-6"	Str.					0'-1⅛"	5,658
S702	1Series 99	28'-6" to 40'-3"	Str.					0'-1 7/16"	6,956
S704	1Series 17	6'-3" to 24'-6"	Str.					1'-11 1/16"	533
S705	6	5'-3"	Str.						65
S706	1Series 7	24'-9" to 30'-6"	Str.					0'-11½"	394
S707	1Series 73	5'-6" to 9'-9"	108	2'-0"	3'-6" to 7'-6"	0'-2" to 2'-0"		B=0'-0 5/16" C=0'-0 5/16"	1,139
S708	1	14'-6"	Str.						29
								TOTAL	939,965
S663	60	6'-9"	Str. @ Scuppers						608
S664	80	6'-6"	Str. @ Junction Box						781
S665	80	2'-0"	Str.						240
R 501	170	4'-10"	109 @ Light Poles	0'-10"	1'-3"				857
S502	170	7'-8"	140	1'-4"	1'-4"	1'-4"	3'-8"		1,359
S 503	170	3'-9"	Str.						665
S504	4	7'-6"	Str. @ Sign Pole Support						31
S505	20	4'-7"	105	2'-2"	1'-4"				96
S506	4	13'-0"	Str.						54
								TOTAL	4,691

Notes:
See Sheet 43 for bending diagrams.
All bar dimensions are 'out' to 'out'.
* A. 0'-0 1/2" C. 0'-0 3/8" D. 0'-1 5/8"

Revised 2-13-58

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50
SUPERSTRUCTURE REINFORCEMENT SCHEDULE
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE None
MADE W. B. DATE 2-26-57
TRCD W. B. DATE 2-26-57
CKD [illegible] DATE 2-26-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 103

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

104
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 – 17.43 – 18.02

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FEB 23 1957

SUPERSTRUCTURE - UNIT 2

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (LBS.)
R501	891	4'-10"	109	0'-10"	1'-3"				4,491
S502	862	7'-8"	140	1'-4"	1'-4"	1'-4"	3'-8"		6,893
S503	862	3'-9"	Str.						3,372
S504	870	6'-6"	144	1'-6"	1'-0"	1'-6"			5,898
S505	1427	40'-0"	Str.						59,535
S506	1Series 15	42'-0" to 46'-6"	Str.					0'-3 7/8"	693
S507	1Series 62	11'-9" to 15'-9"	Str.					0'-0 13/16"	890
S508	1Series 49	8'-3" to 11'-9"	Str.					0'-0 7/8"	511
S509	149	7'-0"	101	6'-5"					1,088
S510	6	5'-0"	Str.						31
S511	6	5'-6"	Str.						34
S513	1694	33'-0"	Str.						58,306
S514	1028	24'-0"	Str.						25,733
S515	1Series 662	24'-0" to 43'-0"	Str.					0'-0 3/8"	23,131
S516	1Series 45	4'-0" to 42'-0"	Str.					0'-10 3/8"	1,080
S517	1Series 34	5'-3" to 34'-3"	Str.					0'-10 9/16"	701
S518	1Series 31	4'-3" to 32'-0"	Str.					0'-11 1/16"	586
S519	1Series 23	5'-9" to 25'-6"	Str.					0'-10 3/4"	374
S522	272	37'-0"	Str.						10,497
S523	126	35'-6"	Str.						4,665
S524	123	35'-0"	Str.						4,490
S525	1Series 23	6'-0" to 33'-6"	Str.					1'-3"	474
S526	1Series 13	4'-0" to 22'-6"	Str.					1'-6 1/2"	179
S527	122	36'-0"	Str.						4,581
S528	1Series 19	4'-0" to 31'-3"	Str.					1'-6 3/16"	349
S529	1Series 17	6'-6" to 24'-6"	Str.					1'-1 1/2"	274
S533	244	8'-0"	101	7'-5"					2,036
S601	1742	40'-0"	Str.						104,659
S602	17	14'-9"	Str.						377
S603	1Series 20	14'-9" to 20'-9"	Str.					0'-3 13/16"	533
S604	1Series 47	23'-0" to 26'-6"	Str.					0'-0 15/16"	1,747
S605	6	26'-6"	Str.						239
S606	5	26'-3"	Str.						197
S607	1Series 55	26'-3" to 29'-6"	Str.					0'-0 3/4"	2,303
S608	19	29'-6"	Str.						843
S609	73	30'-0"	Str.						3,289
S610	78	29'-0"	Str.						3,398
S611	7	29'-6"	Str.						311
R612	4	7'-3"	Str.						44
S613	1695	29'-3"	Str.						74,468
S614	1Series 662	28'-0" to 47'-0"	Str.					0'-0 3/8"	37,287
S615	1Series 49	4'-3" to 46'-0"	Str.					0'-10 7/16"	1,849
S616	1Series 30	5'-3" to 30'-6"	Str.					0'-10 7/16"	805
S617	1Series 27	4'-3" to 28'-3"	Str.					0'-11 1/16"	659
S618	1Series 27	5'-9" to 29'-3"	Str.					0'-10 1/2"	709
S619	1018	28'-0"	Str.						42,813
R620	4	8'-3"	Str.						50
S621	1Series 15	5'-0" to 26'-6"	Str.					1'-6 7/16"	354
S622	1Series 21	6'-0" to 30'-9"	Str.					1'-2 7/8"	580
S623	1Series 16	5'-0" to 27'-9"	Str.					1'-6 3/16"	394
S624	1Series 20	6'-6" to 29'-3"	Str.					1'-2 3/8"	536
S625	8	15'-6"	Str.						186
S626	1Series 10	20'-9" to 23'-0"	Str.					0'-2 11/16"	329
R627	188	17'-0"	Str.						4,800
R628	4	12'-0"	Str.						72
R629	4	11'-9"	Str.						71
S630	6	5'-0"	Str.						45
S631	6	5'-6"	Str.						50
								TOTAL	504,889

SUPERSTRUCTURE - UNIT 3 - RAMP E 1

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (LBS.)
R501	630	4'-10"	109	0'-10"	1'-3"				3,176
S502	640	7'-8"	140	1'-4"	1'-4"	1'-4"	3'-8"		5,118
S503	640	3'-9"	Str.						2,503
S504	243	40'-0"	Str.						10,138
S505	70	30'-0"	Str.						2,190
S506	68	25'-6"	Str.						1,809
S507	575	30'-6"	Str.						18,292
S509	70	28'-0"	Str.						2,044
S510	35	35'-0"	Str.						1,278
S601	381	40'-0"	Str.						22,890
S602	82	30'-0"	Str.						3,695
S603	45	28'-0"	Str.						1,893
S604	41	35'-0"	Str.						2,155
S605	575	30'-6"	Str.						26,341
S606	1Series 62	30'-6" to 31'-9"	Str.					0'-0 1/4"	2,899
R607	126	17'-0"	Str.						3,268
R608	4	14'-3"	Str.						86
R609	4	11'-9"	Str.						71
R610	4	12'-3"	Str.						74
R611	4	10'-9"	Str.						65
S702	1Series 62	30'-6" to 31'-9"	Str.					0'-0 1/4"	3,945
								TOTAL	113,930

SUPERSTRUCTURE - UNIT 4 - RAMP E 2

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (LBS.)
R501	681	4'-10"	109	0'-10"	1'-3"				3,434
S502	739	7'-8"	140	1'-4"	1'-4"	1'-4"	3'-8"		5,910
S503	739	3'-9"	Str.						2,890
S504	215	40'-0"	Str.						8,970
S505	27	30'-0"	Str.						845
S506	27	35'-0"	Str.						986
S507	657	23'-6"	Str.						16,104
S508	1Series 33	9'-3" to 23'-6"	Str.					0'-5 5/16"	563
S509	1Series 18	5'-6" to 21'-0"	Str.					0'-10 15/16"	248
S510	953	8'-6"	101	7'-11"					8,448
S511	52	25'-6"	Str.						1,383
S512	47	23'-9"	Str.						1,164
S513	6	5'-0"	Str.						31
S601	414	40'-0"	Str.						24,873
S602	35	30'-0"	Str.						1,577
S603	27	35'-0"	Str.						1,419
S604	657	23'-6"	Str.						23,191
S605	1Series 33	9'-3" to 23'-6"	Str.					0'-5 5/16"	811
S606	1Series 16	5'-9" to 19'-3"	Str.					0'-10 7/16"	300
S607	11	24'-6"	Str.						406
S608	11	28'-0"	Str.						463
S609	44	9'-0"	Str.						595
R610	140	17'-0"	Str.						3,575
R611	4	9'-3"	Str.						56
R612	4	19'-9"	Str.						119
R613	4	7'-9"	Str.						47
R614	4	9'-0"	Str.						54
S615	47	23'-9"	Str.						1,676
S616	11	36'-0"	Str.						595
S617	6	5'-0"	Str.						45
								TOTAL	110,778

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCREMENT	WEIGHT (LBS.)

Notes:
See Sheet 43 for bending diagrams.
All bar dimensions are 'out' to 'out'.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750
SUPERSTRUCTURE REINFORCEMENT SCHEDULE
CLEVELAND CUYAHOGA COUNTY OHIO

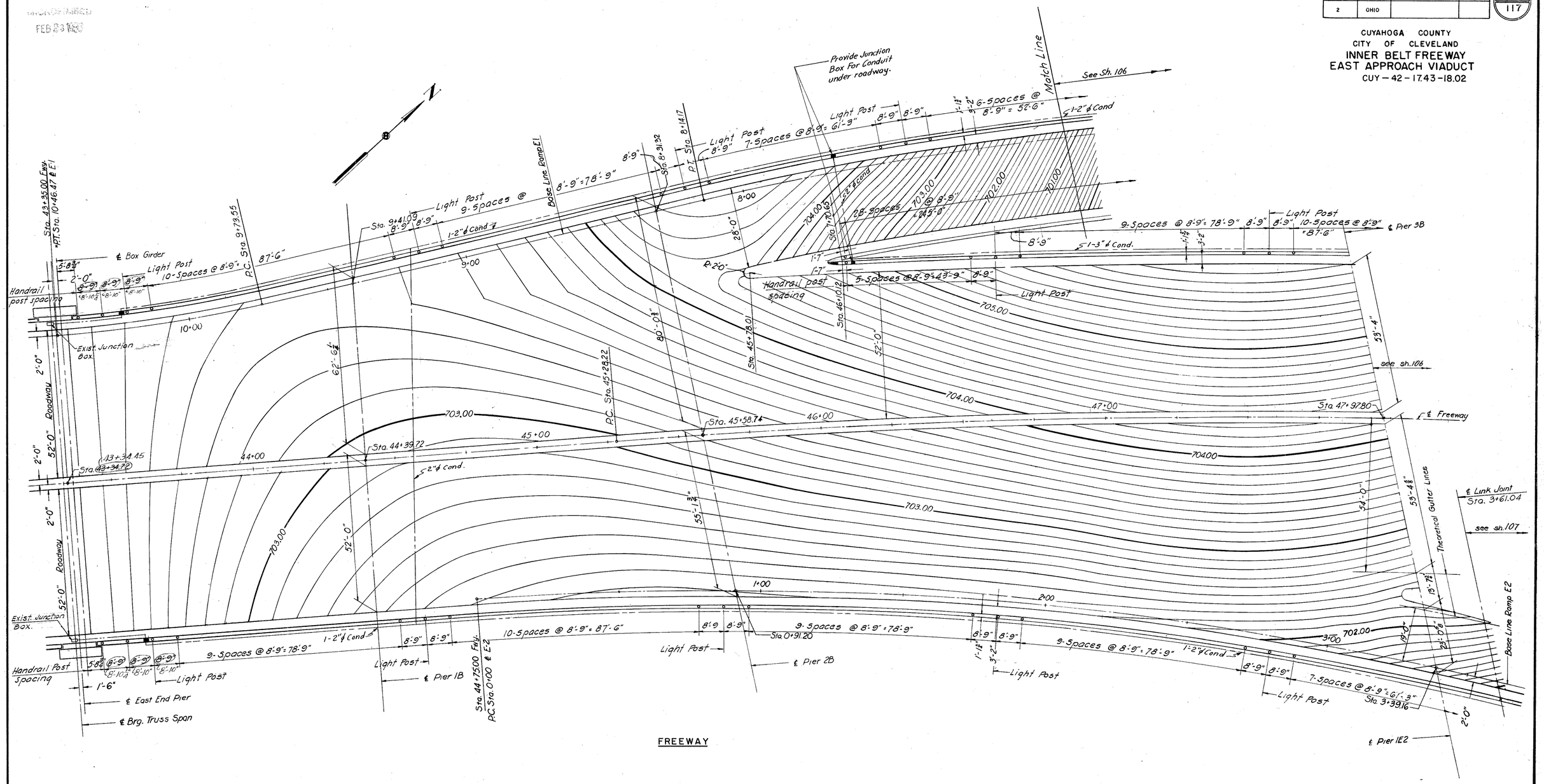
SCALE None
MADE W. B. DATE 2-27-57
TRCD W. B. DATE 2-27-57
CKD C.C.F-H.M. DATE 8-26-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 104

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

105
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 – 17.43 – 18.02



FREEWAY

NOTES:
Handrail spacing is measured horizontally along centerline of railing at top of parapet.
Conduit shown crossing roadway shall be placed below stringers. For details see Sh. 111
Conduits are shown schematically. Conduit shall be placed in parapet, except at East End Pier. For detail see Sh. 111.

Revised 2-13-58

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750
CONTOUR PLAN

CLEVELAND CUYAHOGA COUNTY OHIO

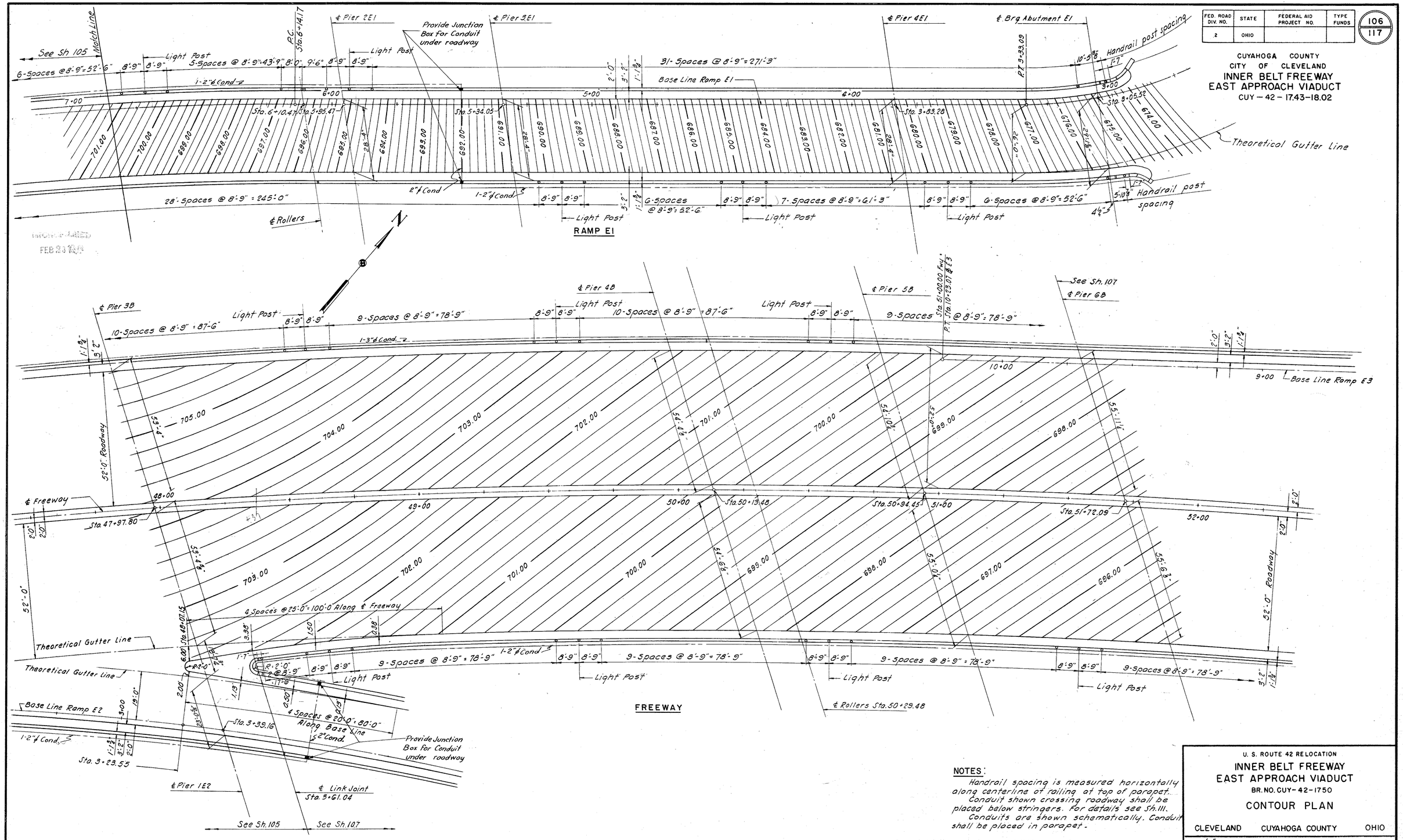
SCALE 1/16"=1'-0"
MADE G.F.S. DATE 12-27-56
TRCD F.G. DATE 2-27-57
CKD MMMc DATE 2-26-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 105

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

106
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 – 17.43–18.02



NOTES:

Handrail spacing is measured horizontally along centerline of railing at top of parapet.

Conduit shown crossing roadway shall be placed below stringers. For details see Sh. 111.

Conduits are shown schematically. Conduit shall be placed in parapet.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750

CONTOUR PLAN

CLEVELAND CUYAHOGA COUNTY OHIO

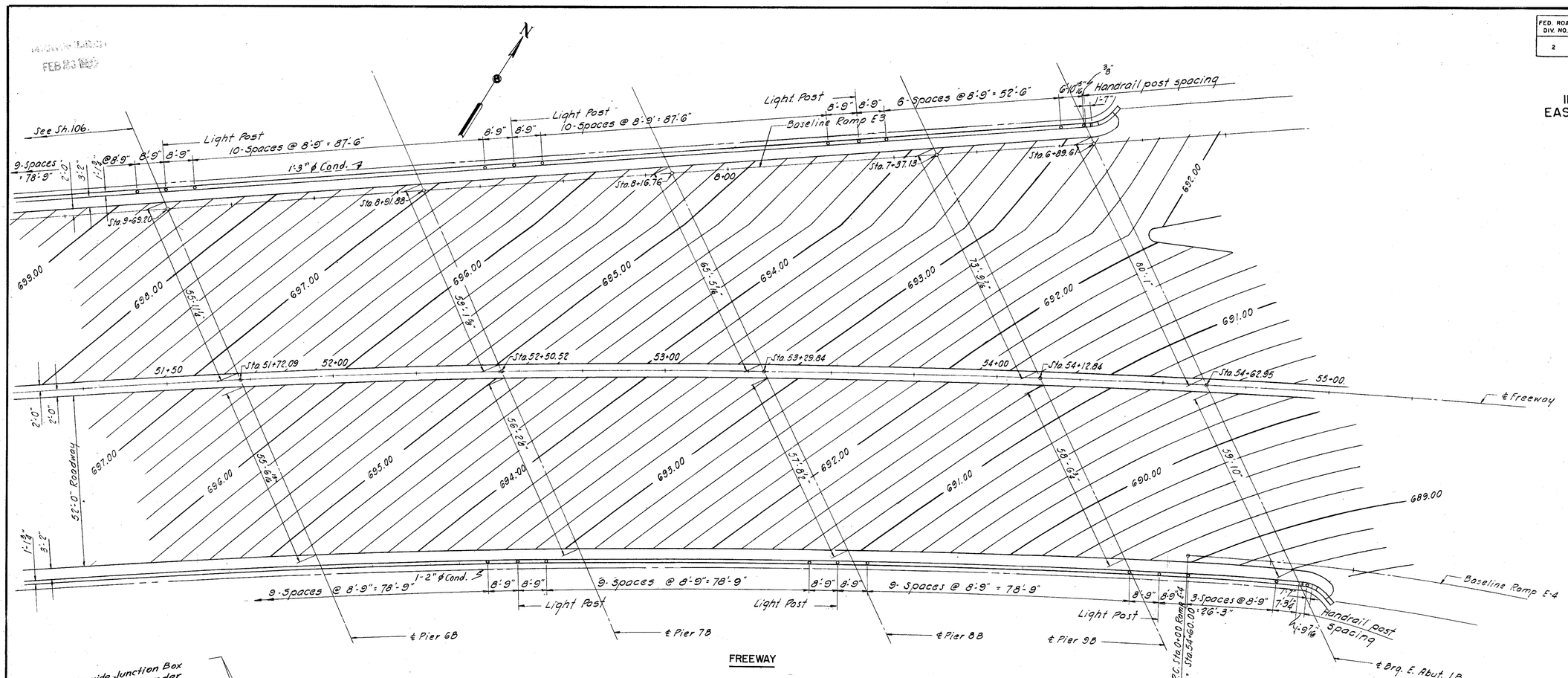
SCALE 1/16" = 1'-0"
MADE N.F.G. DATE 12-26-56
TRCD F.G. DATE 2-7-57
CKD T.M.J. & H.H.C. DATE 2-26-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-106

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

107
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 – 17.43–18.02



NOTES:

Handrail spacing is measured horizontally along centerline of railing at top of parapet.

Conduit shown crossing roadway shall be placed below stringers. For details see Sh. 111

Conduits are shown schematically. Conduit shall be placed in parapet.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750

CONTOUR PLAN

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/4" = 1'-0"
MADE WEG DATE 11-22-57
TRCD EG DATE 2-27-57
CKD [illegible] DATE 2-26-57

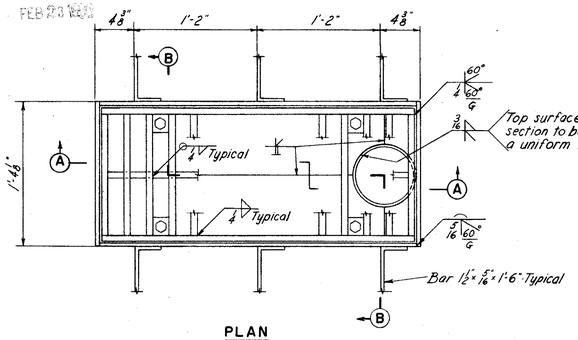
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-107

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

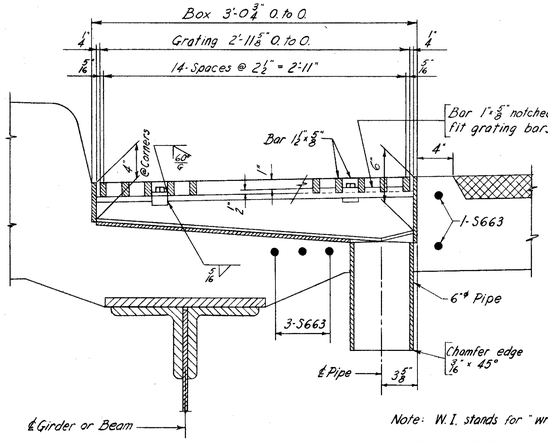
108
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43-18.02)

PLAN

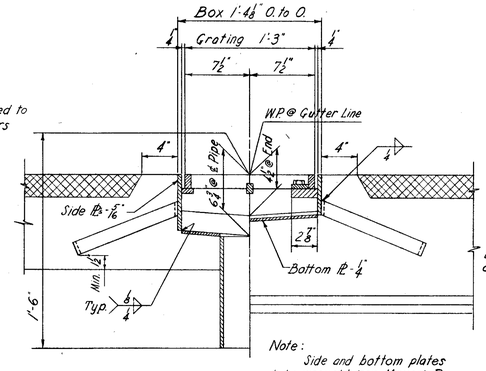


SECTION A-A



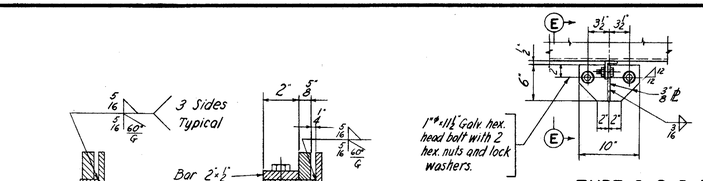
Note: W.I. stands for "wrought iron"

SECTION B-B

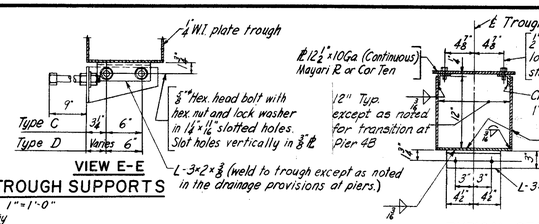


Note:
Side and bottom plates to be wrought iron, Mayari R. Cor-Ten Steel or approved equal.

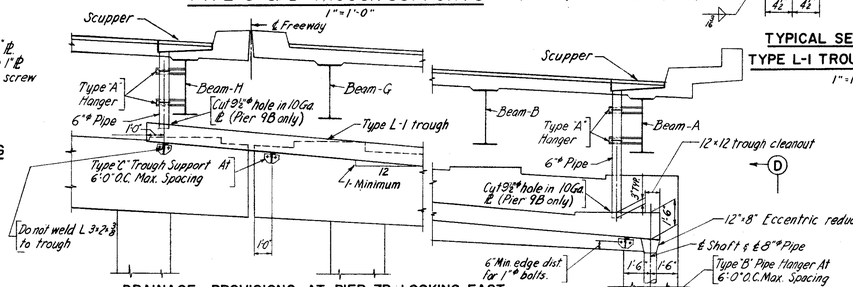
SECTION K-K
¼" = 1'-0"



TYPE C & D TROUGH SUPPORTS
1" = 1'-0"

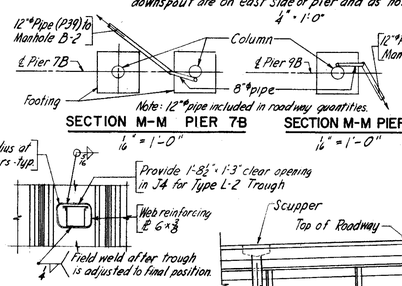


TYPICAL SECTION
TYPE L-1 TROUGH DETAILS
1" = 1'-0"



DRAINAGE PROVISIONS AT PIER 7B-LOOKING EAST

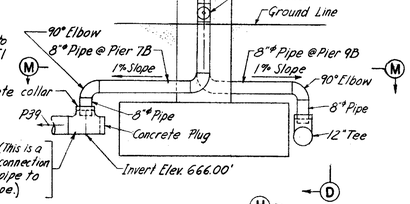
Drainage Provisions at Pier 9B similar except trough and downspout are on east side of pier and as noted.
¼" = 1'-0"

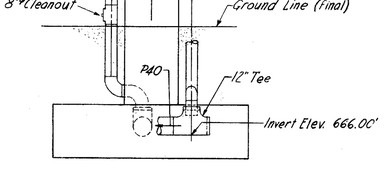


SECTION M-M PIER 7B
1½" = 1'-0"

SECTION M-M PIER 9B
1½" = 1'-0"

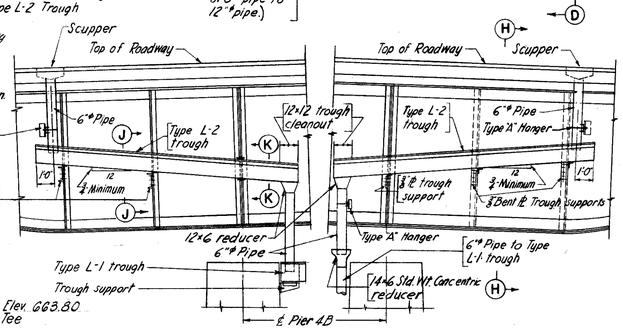
Note: 12"ϕ pipe included in roadway quantities.

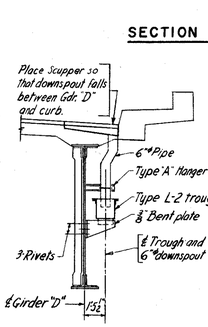




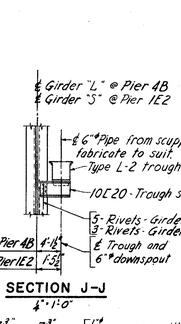
SECTION D-D

SECTION K-K
¼" = 1'-0"

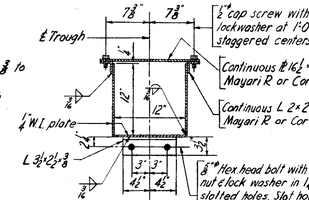




SECTION J-J
¼" = 1'-0"



SECTION H-H
¼" = 1'-0"

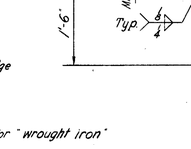


TYPICAL SECTION
TYPE L-2 TROUGH DETAILS
1" = 1'-0"

TROUGH FIELD SPLICE
1" = 1'-0"

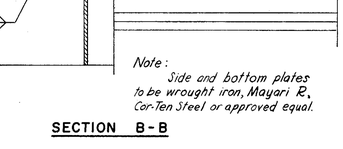
TYPE "A" HANGER

SECTION F-F

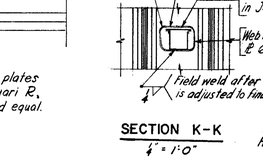


PLAN

SCUPPER DETAILS

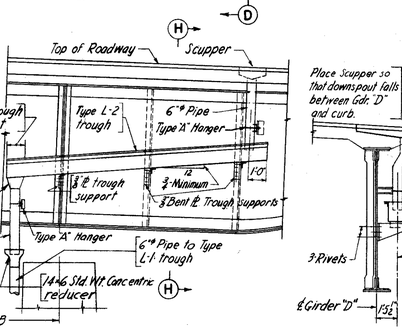


TYPE "B" HANGER



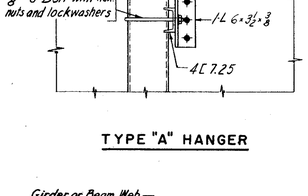
SECTION G-G AT PIER 2E1
¼" = 1'-0"

SECTION L-L
⅛" = 1'-0"

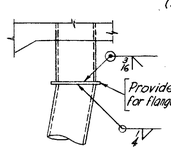


DRAINAGE PROVISIONS AT PIER 4B - LOOKING WEST

Note that trough and downspout are on West Side of pier
⅜" = 1'-0"



SECTION C-C

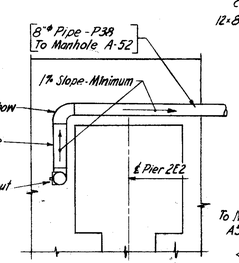


SCUPPER CONNECTION TO DOWNSPOUT
1" = 1'-0"

PIPE HANGER DETAILS
1" = 1'-0"

DRAINAGE PROVISIONS AT PIERS 2E1 & 2E2 — LOOKING SOUTH

Details at Pier 2E2 shown
Reducer & 8"ϕ Pipe on Shaft of Pier 2E1 Similar - Exept to be on West Side of Pier.
¼" = 1'-0"



SECTION G-G AT PIER 2E2
¼" = 1'-0"

NOTES:

For drainage material and additional notes see Sh 109
For detail of Crossframe J4 see Sh. 84

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50
DRAINAGE DETAILS
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As Noted
MADE PVS DATE 1-18-57
TRCD HG DATE 2-1-57
CKD RHP-SJB DATE 2-22-57

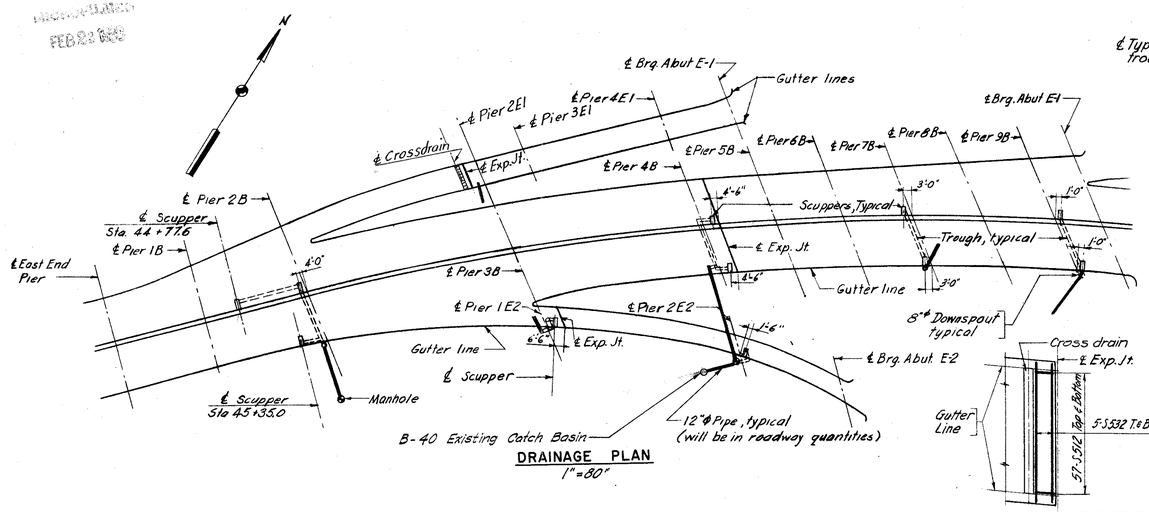
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-108

RECEIVED
FEB 23 1968

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

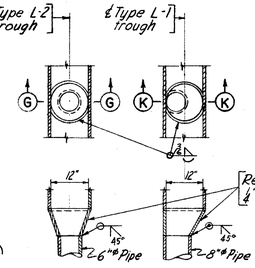
109
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42 - (17.43 - 18.02)



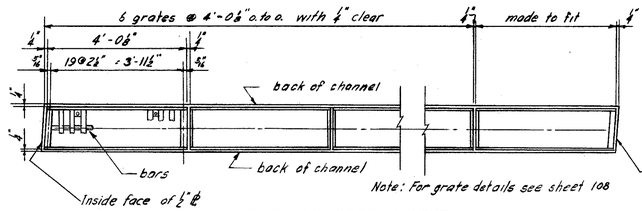
DRAINAGE PLAN
1" = 80'

PLAN - SLAB REINFORCEMENT
1/16" = 1'-0"

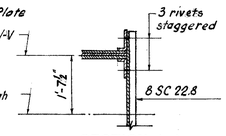


SECTION G-G SECTION K-K

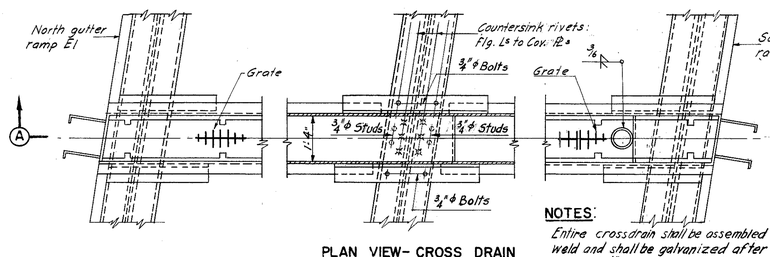
REDUCER DETAILS
½" = 1'-0"



SCHEMATIC GRATE LAYOUT

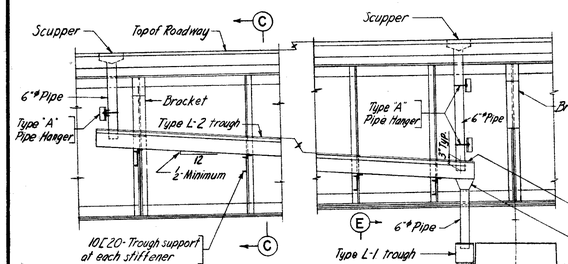


SECTION L-L
½" = 1'-0"

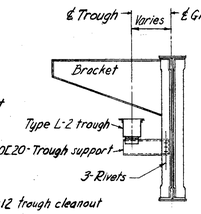


PLAN VIEW - CROSS DRAIN
½" = 1'-0"

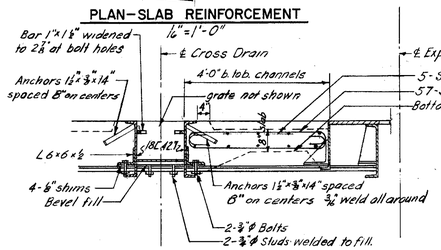
NOTES:
Entire crossdrain shall be assembled with continuous ¼" shop weld and shall be galvanized after fabrication.
Where 4'-⅝ shims are specified, two additional ⅝" shims shall be furnished for use in field adjustment.
For detail of drainage provisions at Pier 2E1 see Sh. 108

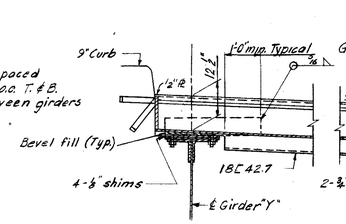


SECTION C-C
¼" = 1'-0"



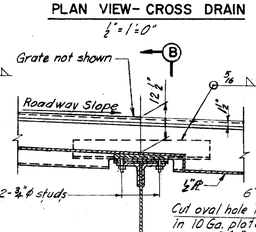
SECTION B-B
½" = 1'-0"



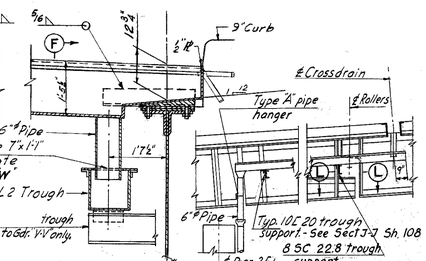


Note: Bolts and studs to have hexagon heads and hexagon self locking nuts and washers under heads and nuts.

DETAILS OF CROSS DRAIN AT RAMP E1

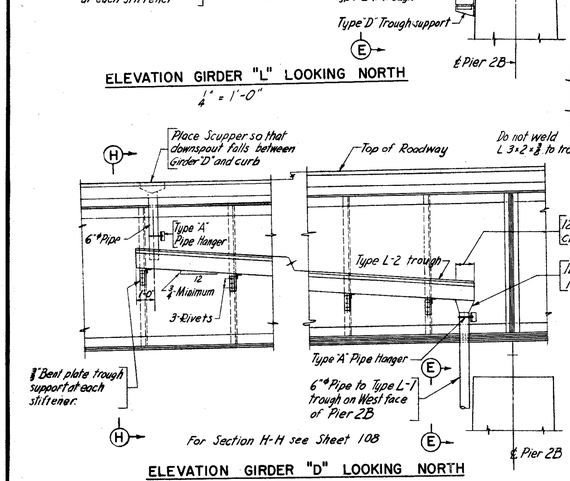


SECTION A-A
½" = 1'-0"

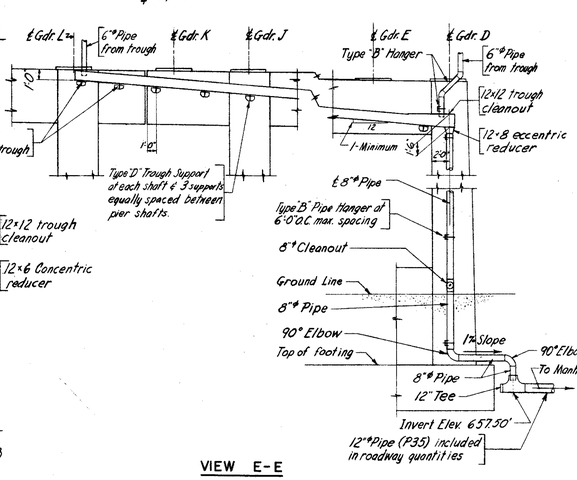


For additional details of Type L-2 Trough see Elevation Girder S-Looking South

SECTION F-F
½" = 1'-0"

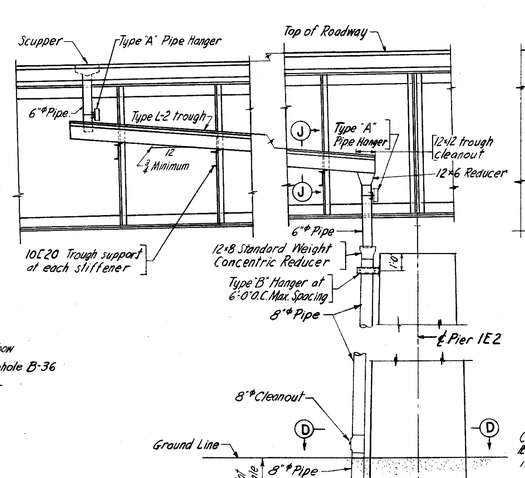


ELEVATION GIRDER "D" LOOKING NORTH
¼" = 1'-0"

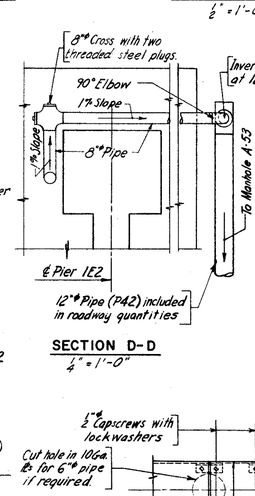


VIEW E-E

DRAINAGE PROVISIONS AT PIER 2B-LOOKING EAST
⅛" = 1'-0"

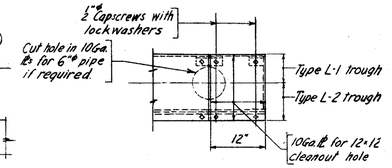


ELEVATION GIRDER "S" LOOKING SOUTH
¼" = 1'-0"



SECTION D-D
¼" = 1'-0"

NOTES:
All metal work of the drainage system will be included in Item S-29.
For location of sewers and manholes see Sh. 22.
Where W.I. plates are called for Mayari R. or Cor Ten steel may be used.
All 6"ϕ and 8"ϕ pipes shall be 'Standard Weight' pipe in accordance with the State of Ohio Department of Highways Construction and Material Specifications. They shall be wrought iron or hot dipped galvanized steel, with extra strong (except as noted) weld type seamless steel fittings or galvanized Victaulic couplings or approved equal.
Welded joints of all pipes and fittings to be single bevel butt welds - full penetration with ¼" root opening and 45° included angle.
Steel pipe, all steel fittings, all pipehangers, trough supports, nuts, bolts and washers shall be hot dipped galvanized after fabrication.
Field welds shall be field galvanized by an approved method.
Cut holes in 10 Ga. ℄ of types L-1 and L-2 troughs for 6"ϕ pipes:- holes to be 7"ϕ unless other wise noted.
For Slab bar list see Shs. 103 & 104.
Center of downspout shall be centered with center of hole in trough or reducer at normal temperature.



PLAN - TROUGH CLEANOUT
¾" = 1'-0"

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

DRAINAGE DETAILS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As Noted
MADE GDP DATE 1-30-57
TRCD HG DATE 2-1-57
CKD RPP-GLB DATE 2-22-57

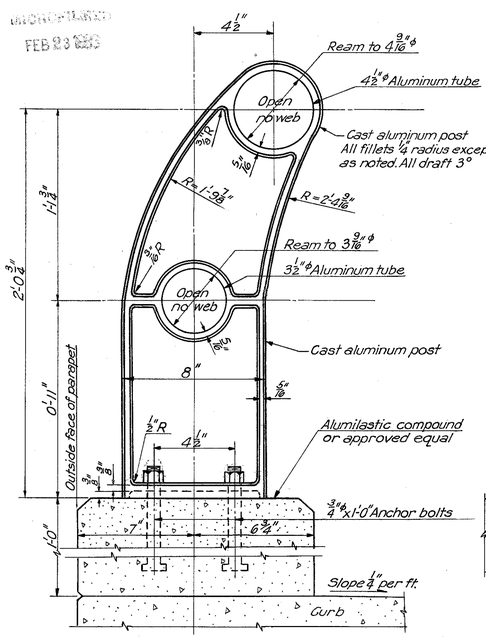
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET-109

HIGHWAYS
FEB 83

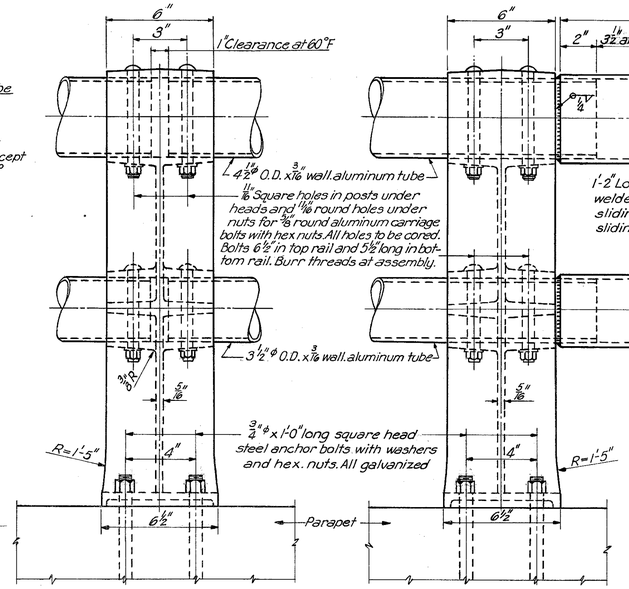
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

110
117

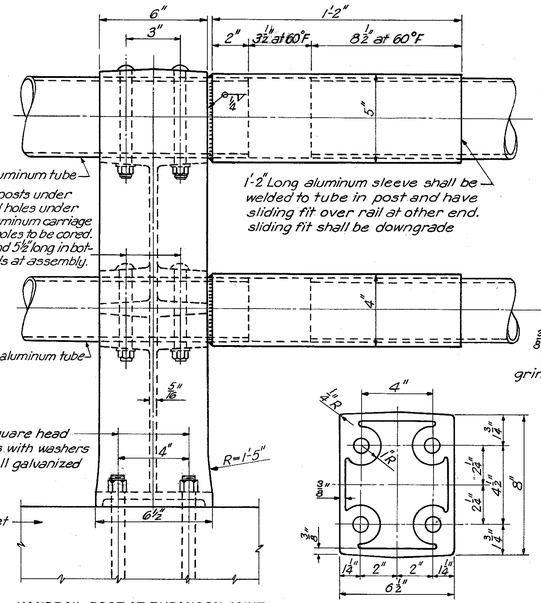
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42-(17.43-18.02)



TYPICAL HANDRAIL POST

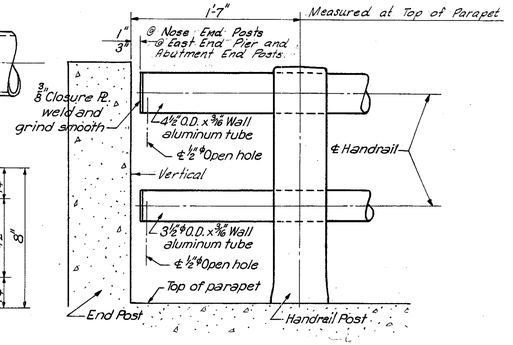


POST ELEVATION



HANDRAIL POST AT EXPANSON JOINT
At each expansion joint use detail shown above on one side of joint and typical post on other side

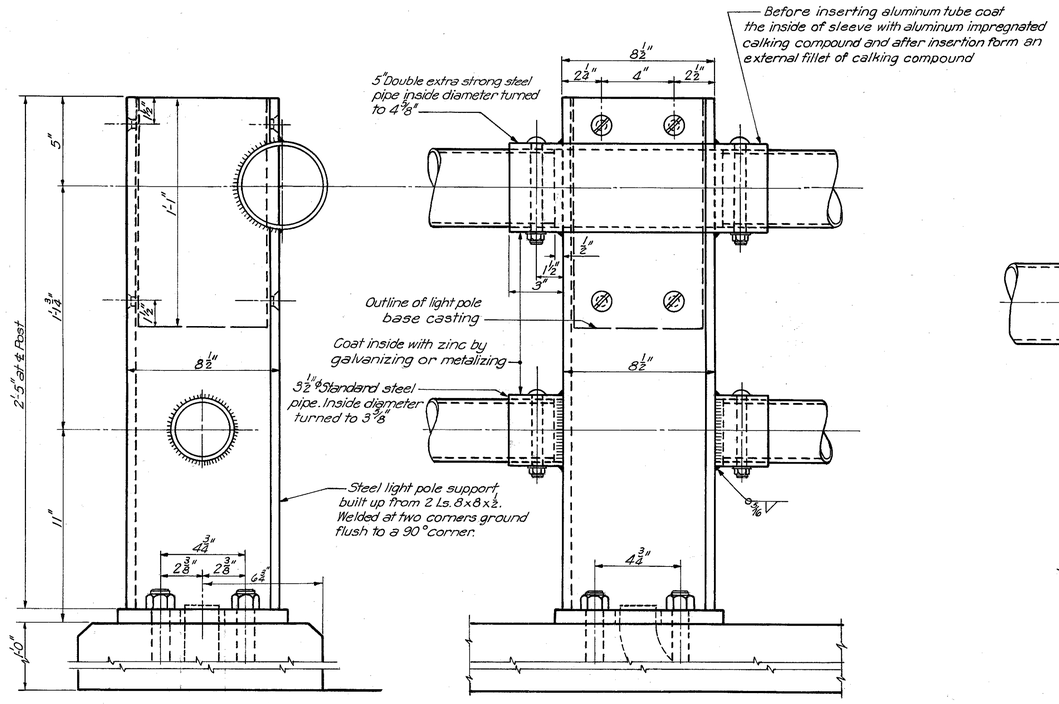
BASE PLAN



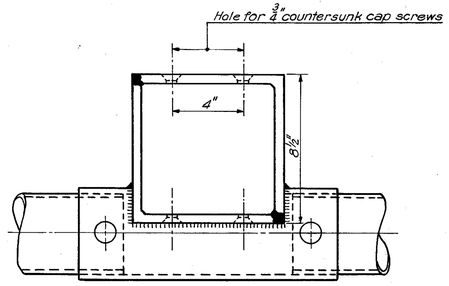
END OF HANDRAIL
Scale: 1½"=1'-0"

Notes:
For aluminum refer to Supplemental Specifications No. 5-114.
Railing shall be fabricated in lengths equal to one post space. see Sheet 105, 106 & 107 for exact spacing.
Bolt holes in tubes shall be 11/16 ϕ at one end. Other end shall have slotted holes 11/16 x 1" ϕ except rails having expansion sleeve shall have 11/16 ϕ holes both ends. Bolts to be centered in slots at 60°F.
Aluminum washer shims may be used between parapet and post base to align posts. Maximum thickness shall be ⅛". Space below post base plate shall be thoroughly calked with Aluminum-impregnated calking compound.
Handrail posts shall be set normal to curb grade and tubes shall parallel curb grade.
Light pole supports shall be set vertical. For lighting details see Sheet 111.

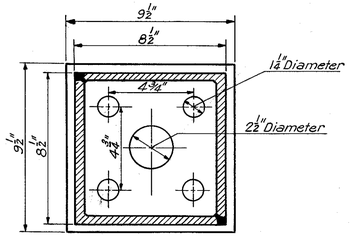
TYPICAL HANDRAIL DETAILS
Scale: 3"=1'-0"



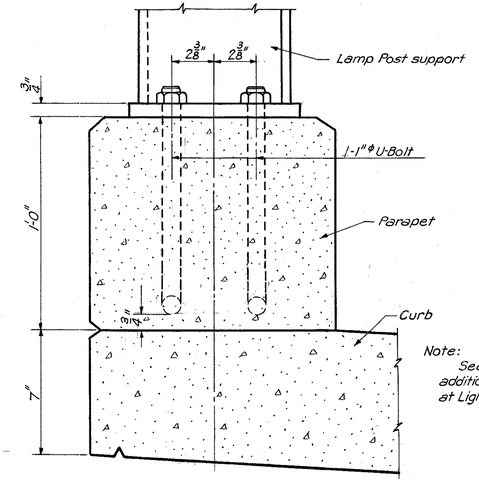
LIGHT POST SUPPORT (For details not noted see Typical Handrail Post)
Scale: 3"=1'-0"
No. required = 34



TOP PLAN



BASE PLAN



Note:
See sheet 102 & 111 for additional reinforcing at Light Posts.

LIGHT POST CONNECTION
Scale: 3"=1'-0"

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

HANDRAIL DETAILS

CLEVELAND CUYAHOGA COUNTY OHIO

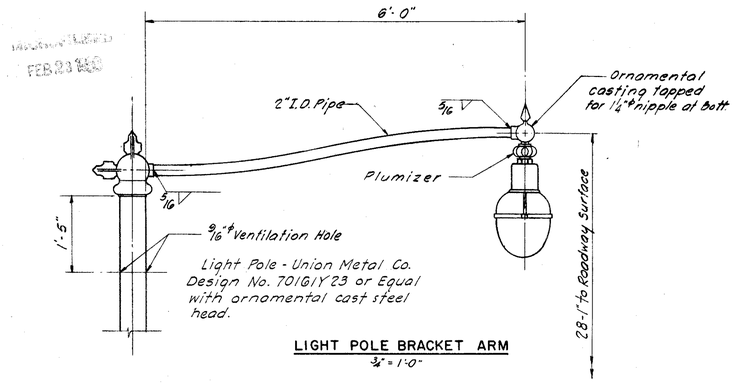
SCALE As Shown
MADE CCC DATE 1-5-56
TRCD CTH DATE 1-21-57
CKD DFB DATE 3-13-56

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 110

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

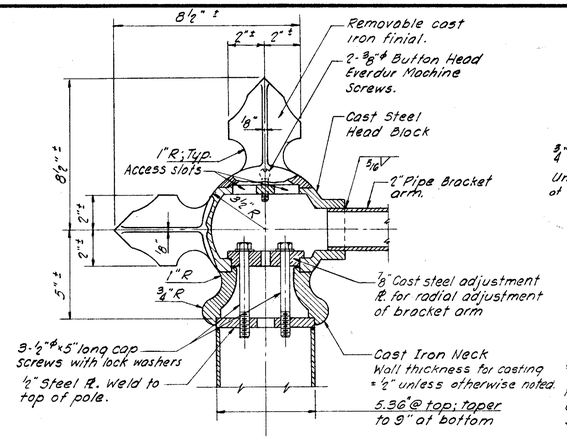
111
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 – (17.43 – 18.02)

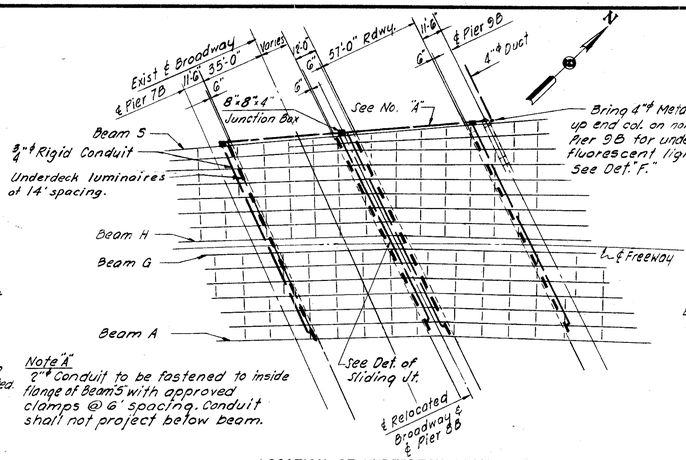


Light Pole - Union Metal Co. Design No. 701G1Y23 or Equal with ornamental cast steel head.

LIGHT POLE BRACKET ARM
¾" = 1'-0"

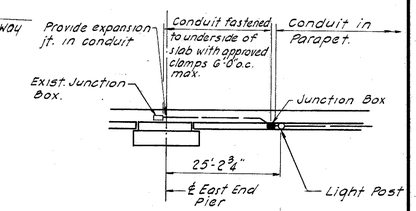


ORNAMENTAL LIGHT POLE HEAD

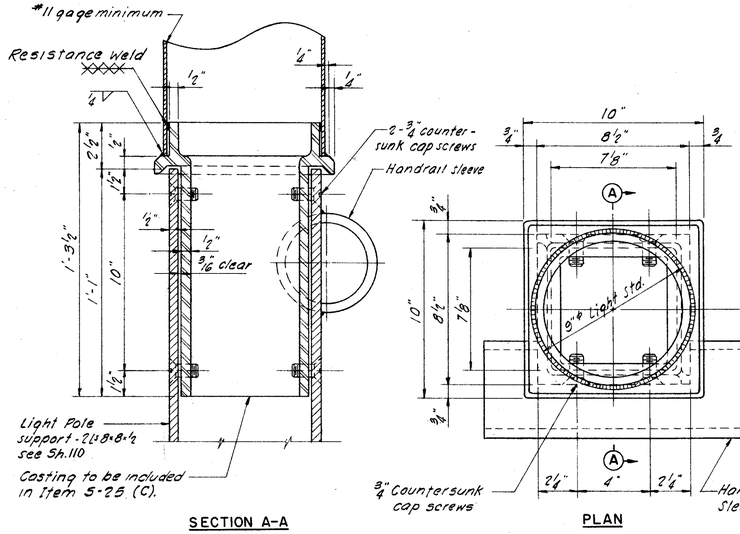


Note "A"
2"ϕ Conduit to be fastened to inside flange of Beam S with approved clamps @ 6' spacing. Conduit shall not project below beam.

LOCATION OF UNDERDECK LUMINAIRES
1" = 40'



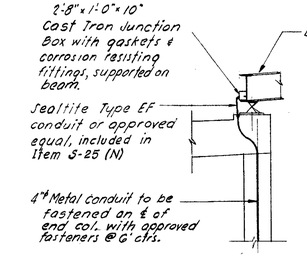
CONDUIT AT EAST END PIER
1/16" = 1'-0"
North & South shafts similar



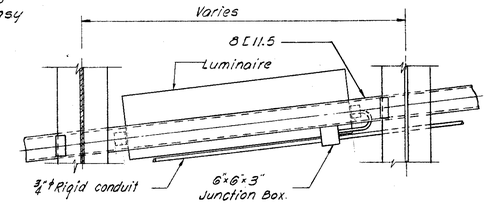
SECTION A-A

PLAN

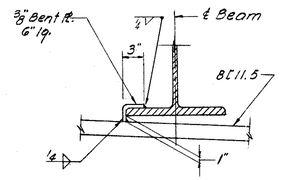
LIGHT POLE BASE
3" = 1'-0"



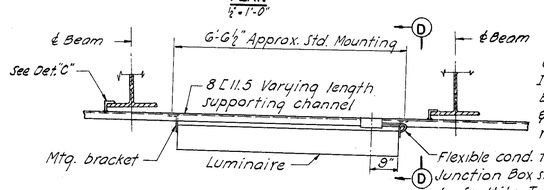
DETAIL "F"
⅛" = 1'-0"



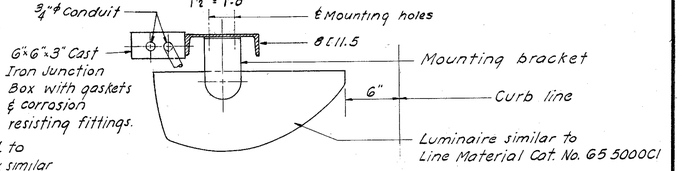
PLAN
½" = 1'-0"



DETAIL "C"
1½" = 1'-0"

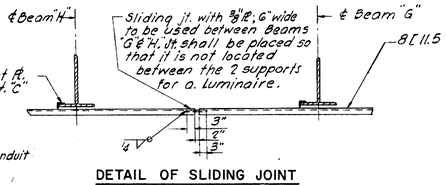


ELEVATION
½" = 1'-0"



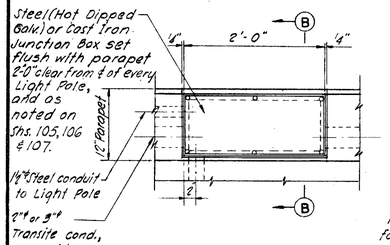
SECTION D-D
1½" = 1'-0"

MOUNTING DETAIL

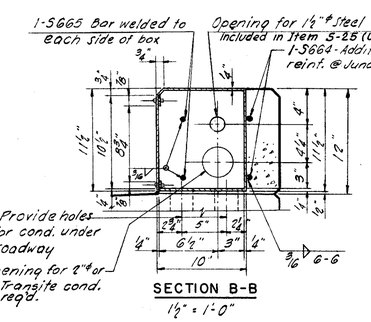


DETAIL OF SLIDING JOINT
⅜" = 1'-0"

Note:
Provide for 2"ϕ Flexible Conduit with fittings at sliding joints, included for payment with 2¼ rigid conduit, Item S-25 (Q)



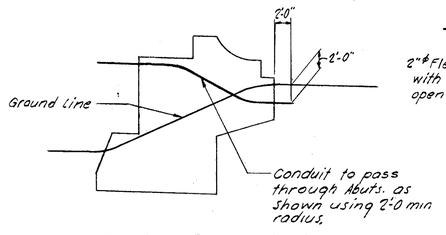
ELEVATION
1" = 1'-0"



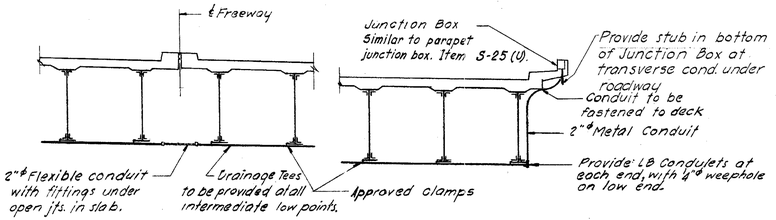
SECTION B-B
1½" = 1'-0"

PARAPET JUNCTION BOX

Note:
Provide holes in bottom of junction box where req'd.
Cover to be set on rubber gasket & fastened with G-⅜" Screws.
Box to be set in ½" wet grout.



TYP. DETAIL FOR CONDUIT AT ABUTMENTS
No Scale



TYPICAL TRANSVERSE CONDUIT UNDER ROADWAY

NOTE:
For location of light poles & conduits, see Sh. 103, 106 & 107.
Steel support channels & connections to bridge structure to be included in Item S-7

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-17.50

LIGHTING DETAILS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As Noted
MADE M.E.G. DATE 2-6-57
TRCD A.E.S. DATE 4-15-57
CKD H.H.G. DATE 5-26-57

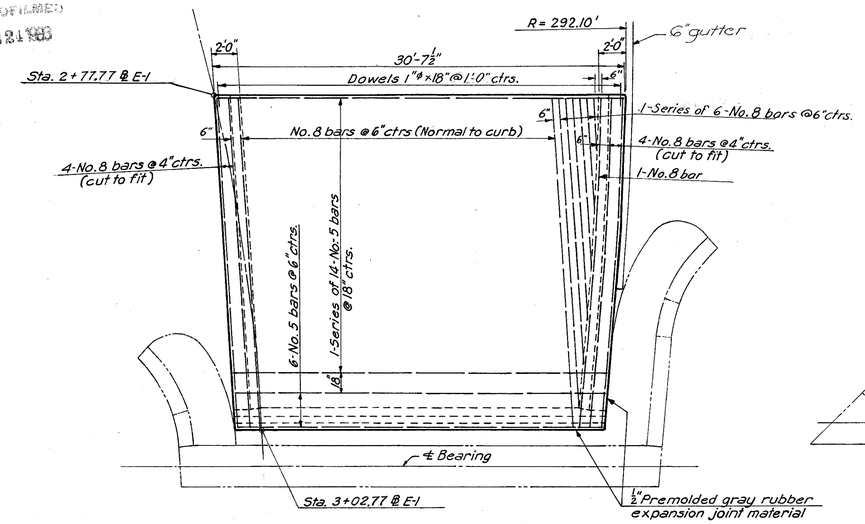
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 ℄E. 8 SHEET- 111

MICROFILMED
FEB 21 1963

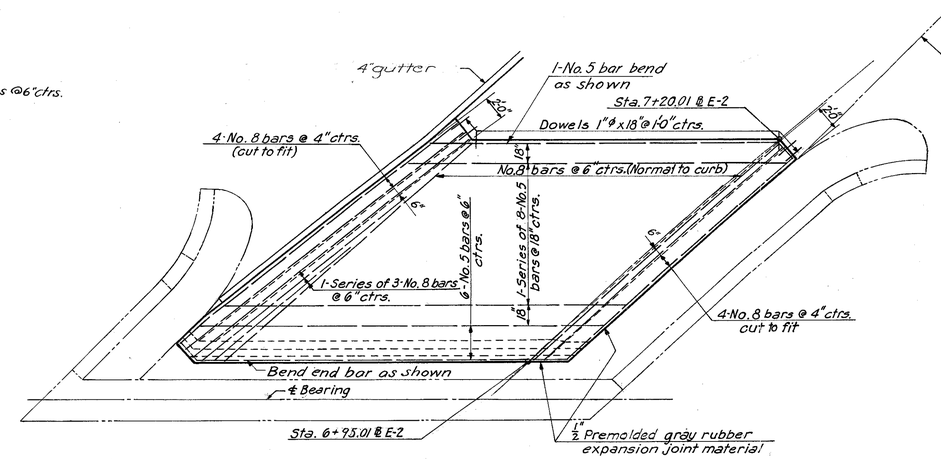
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

112
117

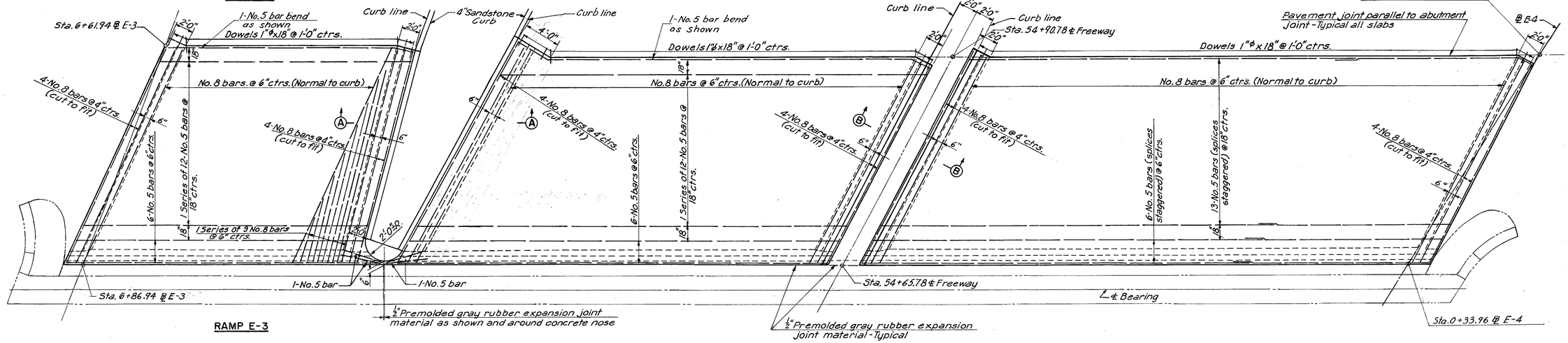
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 R (17.43–18.02)



RAMP E-1

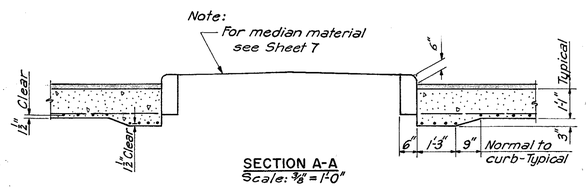


RAMP E-2

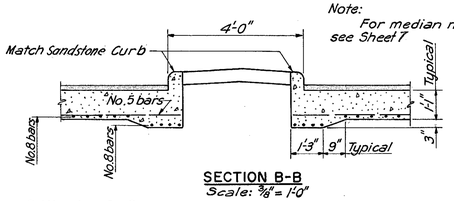


RAMP E-3

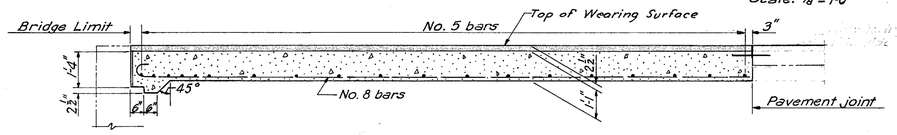
FREEWAY



SECTION A-A
Scale: ⅜" = 1'-0"



SECTION B-B
Scale: ⅜" = 1'-0"



TYPICAL SECTION
Scale: ⅜ = 1'-0"

Notes:
For details not shown see State of Ohio Standard Drawing AS-1-54.
All reinforcing steel is for bottom face.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42 R-17.50
APPROACH SLABS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3/16" = 1'-0" Unless noted
MADE MDS DATE 11-19-56
TRCD. CTH DATE 12-12-56
CKD. SMA DATE 4-17-57

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

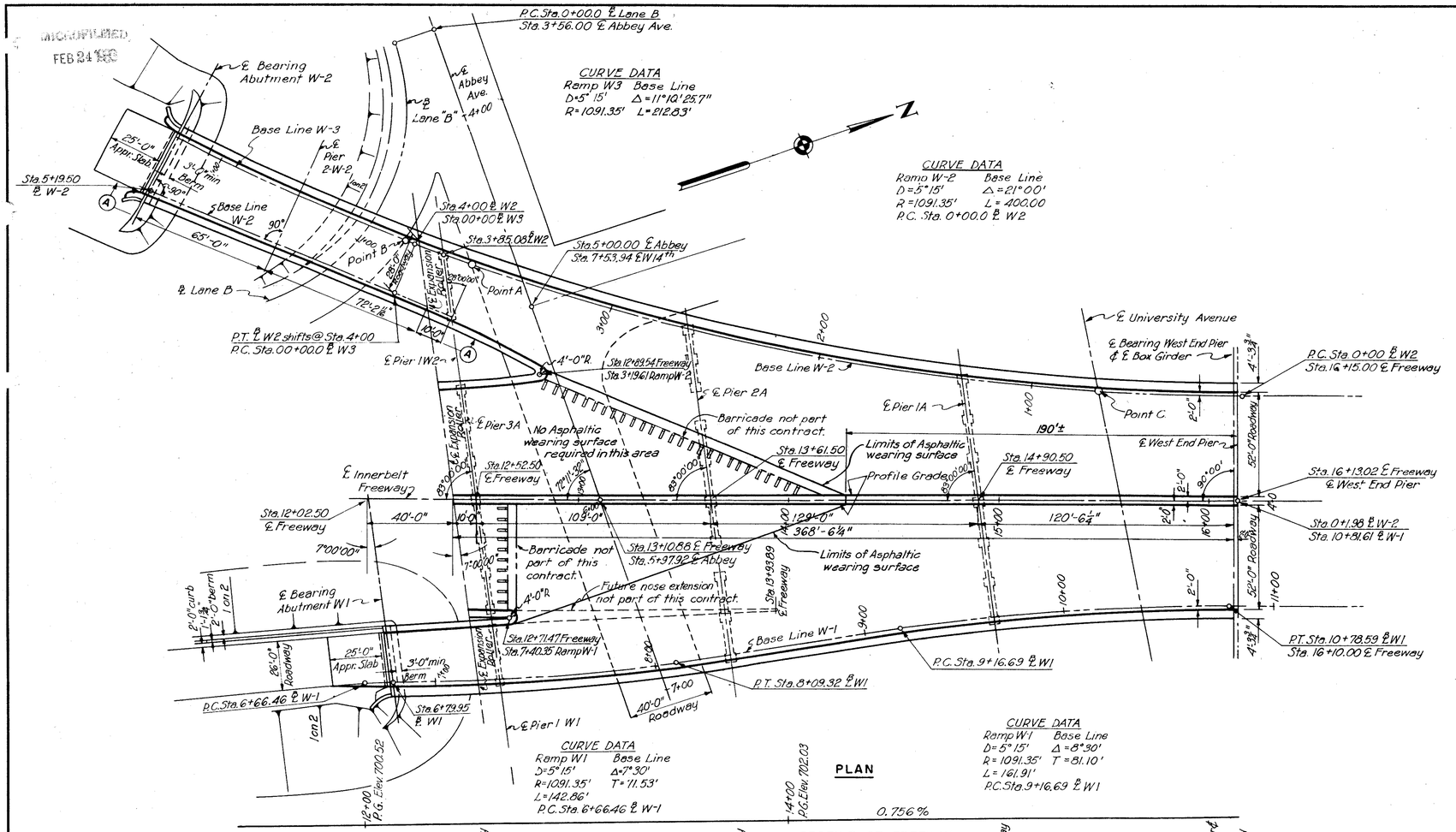
914(2E)B SHEET 112

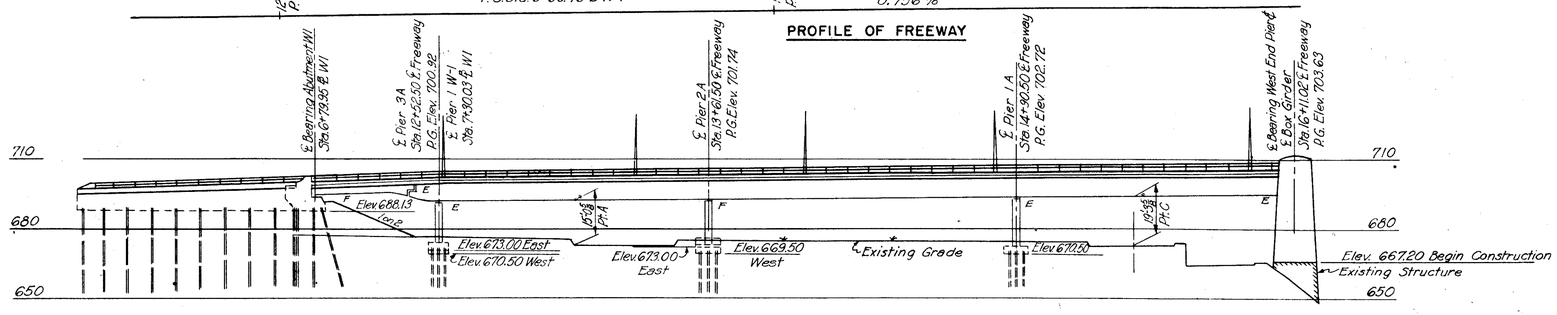
MICROFILMED
FEB 24 1956

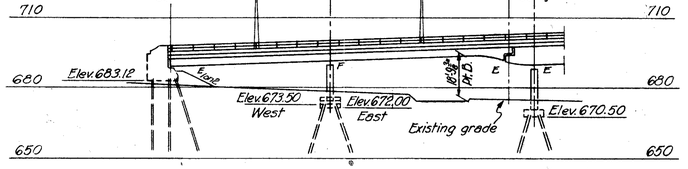
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

113
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY - 42R - 17.43







PROPOSED STRUCTURE

Type: Continuous steel beams and girders with concrete deck and substructure.
Span: Varies (see plan)
Roadway: 2@52'-0" with 2-3'-0" sidewalks
Loading: CF 8000
Skew: Varies.
Surface Course: 2½" asphaltic concrete

Note:
This drawing is taken from a previous contract and is furnished for information only in placing of asphaltic concrete wearing surface.
Wearing surface shall be applied to all roadway surfaces on bridge structure including approach slabs except as noted in plan.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42R-1750
WEARING SURFACE DETAILS
WEST APPROACH GENERAL PLAN
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1"=30'
MADE A.S.R. DATE 2-17-56
TRCD M.A.C. DATE 2-24-56
CKD C.C.F. DATE 2-27-56

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

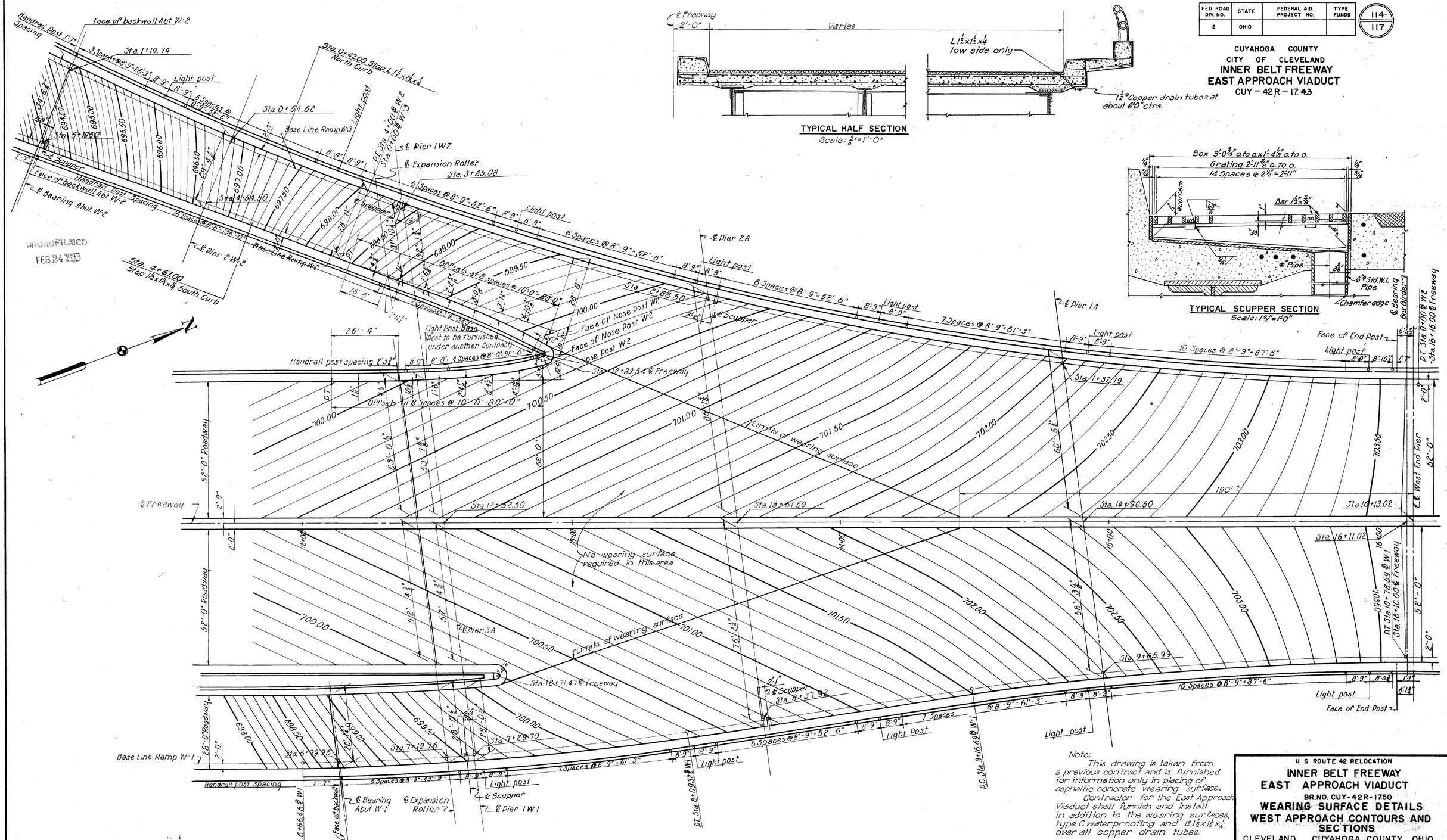
914(2)EB SHEET 113

FED ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY – 42 R – 17.43

TYPICAL HALF SECTION
Scale: ⅜"=1'-0"

TYPICAL SCUPPER SECTION
Scale: 1½"=1'-0"



Note:
This drawing is taken from a previous contract and is furnished for information only in placing of asphaltic concrete wearing surface.
Contractor for the East Approach Viaduct shall furnish and install in addition to the wearing surfaces, type C waterproofing and Ls 1½x1½x¼ over all copper drain tubes.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42R-17.50
WEARING SURFACE DETAILS
WEST APPROACH CONTOURS AND SECTIONS
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/16"=1'-0" Unless noted
MADE W.E.G. DATE 2-21-56
TRCD. J.B.M. DATE 6-3-56
CKD. R.G.C. DATE 3-14-56

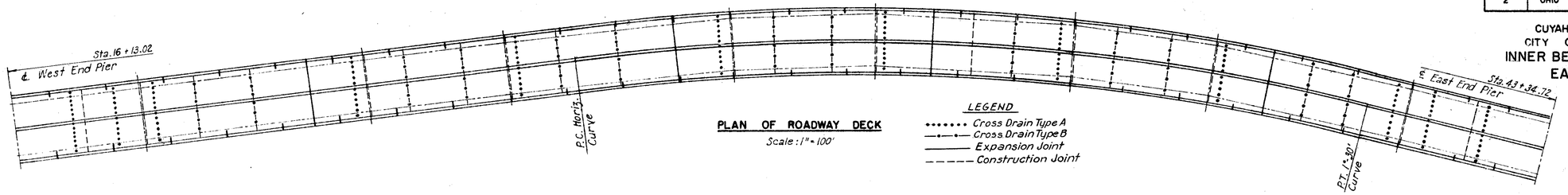
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914(2)EB SHEET 114

MICROFILMED
FEB 24 1959

MICROFILMED
FEB 24 1972

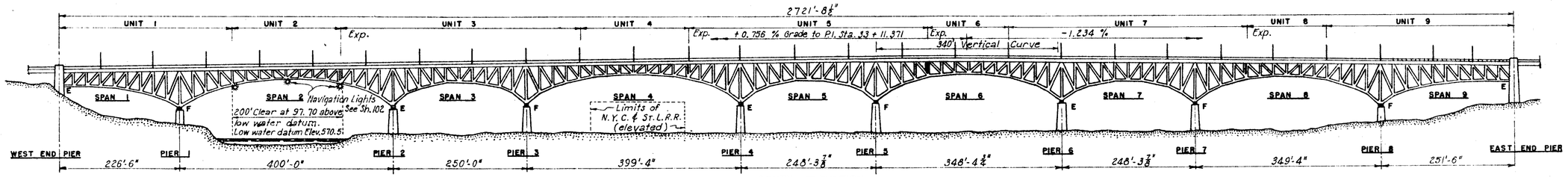
FED ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO	TYPE FUNDS
2	OHIO		

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY-42R-17.43

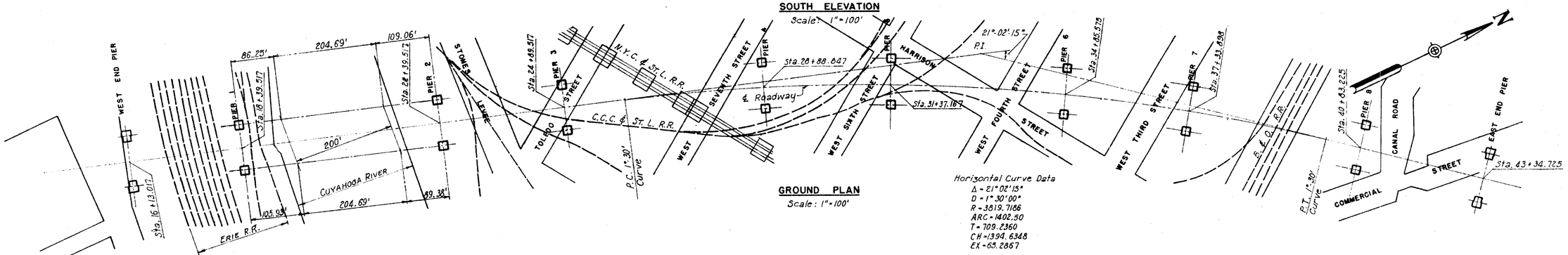


PLAN OF ROADWAY DECK
Scale: 1" = 100'

LEGEND
- Cross Drain Type A
- Cross Drain Type B
- Expansion Joint
- Construction Joint

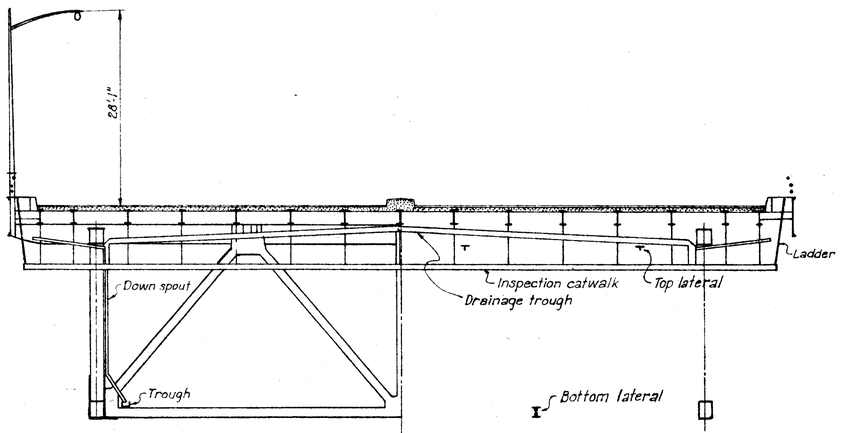


SOUTH ELEVATION
Scale: 1" = 100'

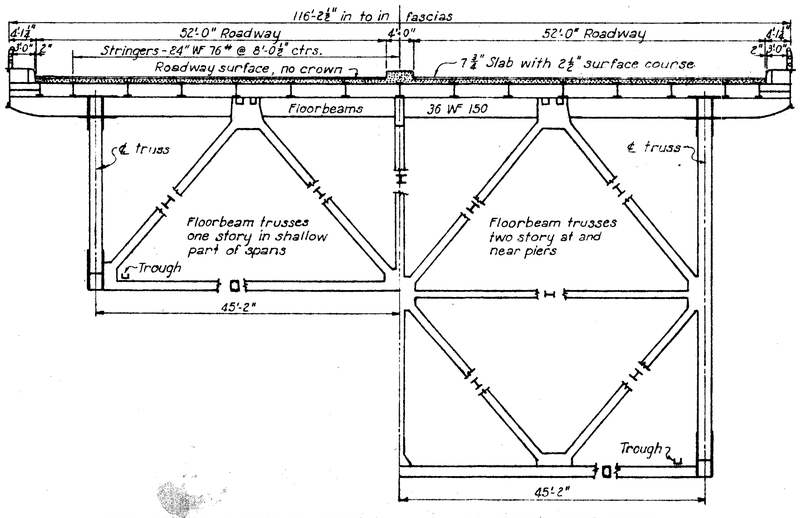


GROUND PLAN
Scale: 1" = 100'

Horizontal Curve Data
Δ = 21°02'15"
D = 1°30'00"
R = 3819.7186
ARC = 1402.50
T = 709.2360
CH = 1394.6348
EX = 65.2867



HALF SECTION AT LIGHT POLE
HALF SECTION BETWEEN FLOORBEAMS
Scale: 3/32" = 1'-0"



HALF SECTION IN SHALLOW SPANS.
HALF SECTION NEAR PIERS.
Scale: 3/32" = 1'-0"

Note:
This drawing is taken from a previous contract and is furnished for information only in placing of asphaltic wearing surface.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42R-1750
WEARING SURFACE DETAILS
CENTRAL VIADUCT GENERAL PLAN

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As shown
MADE NAM, JMS DATE 3-15-54
TRCD G.K.& AH DATE 8-13-54
CKD DMD DATE 11-19-54

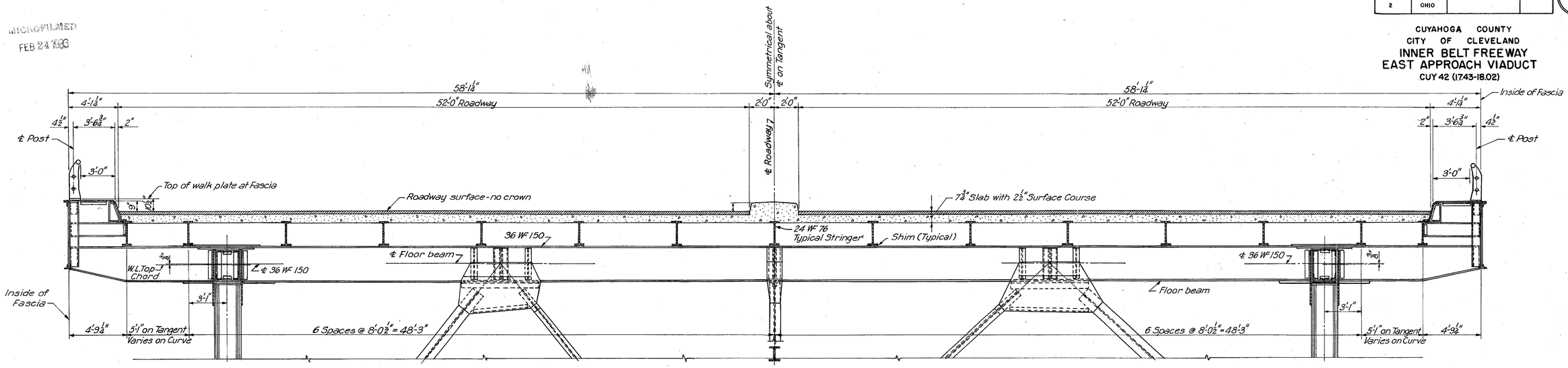
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914(2)EB SHEET 115

MICROFILMED
FEB 24 1966

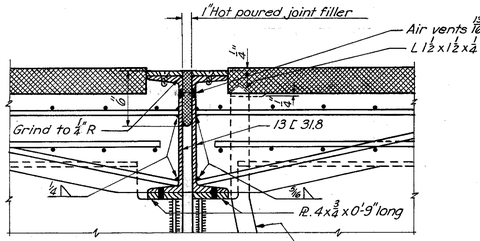
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

116
117

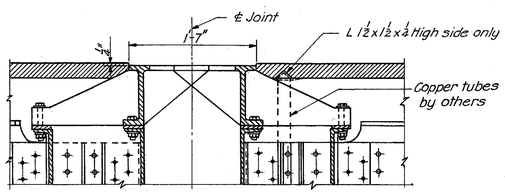
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY 42 (17.43-18.02)



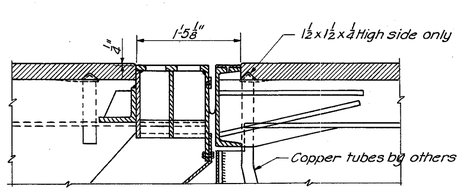
TYPICAL SECTION



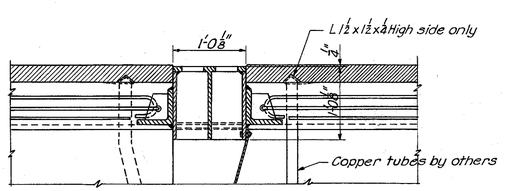
CONSTRUCTION JOINT



EXPANSION JOINT



TYPE B DRAIN



TYPE A DRAIN

Notes:
This drawing is taken from a previous contract and is furnished for information only in placing of asphaltic concrete wearing surface.
Contractor for the East Approach Viaduct shall furnish and install in addition to the wearing surface Type C waterproofing and L's 1½ x 1½ x ¼ over all copper drain tubes.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY-42-1750

WEARING SURFACE DETAILS
CENTRAL VIADUCT SECTIONS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE ¼"=1'-0"
MADE WEG DATE 1-27-54
TRCD CTH DATE 1-29-57
CKD DMD DATE 11-11-54

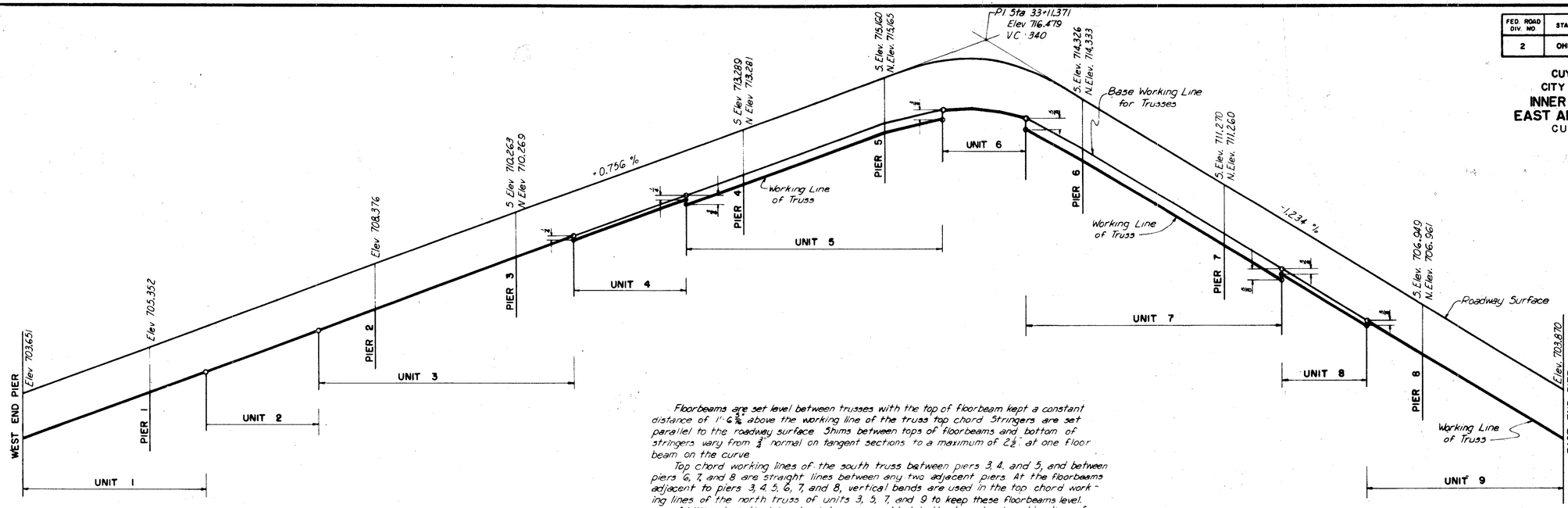
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914 (2E) B SHEET- 116

MICROFILMED
FEB 24 1955

FED. ROAD DIV. NO	STATE	FEDERAL AID PROJECT NO	TYPE FUNDS
2	OHIO		

117
117

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
EAST APPROACH VIADUCT
CUY- 42 R-17. 43



Floorbeams are set level between trusses with the top of floorbeam kept a constant distance of 1'-6 3/16" above the working line of the truss top chord. Stringers are set parallel to the roadway surface. Shims between tops of floorbeams and bottom of stringers vary from 3/8" normal on tangent sections to a maximum of 2 1/2" at one floor beam on the curve.

Top chord working lines of the south truss between piers 3, 4, and 5, and between piers 6, 7, and 8 are straight lines between any two adjacent piers. At the floorbeams adjacent to piers 3, 4, 5, 6, 7, and 8, vertical bends are used in the top chord working lines of the north truss of units 3, 5, 7, and 9 to keep these floorbeams level.

Additional vertical bend points are provided in the top chord working line of both trusses between piers 5 and 6 to allow for the vertical curve. See framing plans, units 5, 6, and 7.

In general, end posts and posts over piers are vertical, other posts are normal to truss top chords.

PIER	PANEL POINT	ELEVATION W.L. OF TRUSS	ELEVATION ROADWAY SURFACE NORTH TRUSS	DISTANCE R.S. TO W.L. OF NORTH TRUSS	ELEVATION ROADWAY SURFACE SOUTH TRUSS	DISTANCE R.S. TO W.L. OF SOUTH TRUSS
W. End Pier	100	699.274	703.651	4.377	703.651	4.377
	101	699.463	703.840	4.377	703.840	4.377
	102	699.652	704.029	4.377	704.029	4.377
	103	699.841	704.218	4.377	704.218	4.377
	104	700.030	704.407	4.377	704.407	4.377
	105	700.219	704.596	4.377	704.596	4.377
	106	700.408	704.785	4.377	704.785	4.377
	107	700.597	704.974	4.377	704.974	4.377
	108	700.786	705.163	4.377	705.163	4.377
Pier 1	109	700.975	705.352	4.377	705.352	4.377
	110	701.164	705.541	4.377	705.541	4.377
	111	701.353	705.730	4.377	705.730	4.377
	112	701.542	705.919	4.377	705.919	4.377
	20	701.731	706.108	4.377	706.108	4.377
	21	701.920	706.297	4.377	706.297	4.377
	22	702.109	706.486	4.377	706.486	4.377
	23	702.298	706.675	4.377	706.675	4.377
	24	702.487	706.864	4.377	706.864	4.377
	25	702.676	707.053	4.377	707.053	4.377
	26	702.865	707.242	4.377	707.242	4.377
	27	703.054	707.431	4.377	707.431	4.377
	28	703.243	707.620	4.377	707.620	4.377
	300	703.266	707.643	4.377	707.643	4.377
	301	703.432	707.809	4.377	707.809	4.377
	302	702.621	707.998	4.377	707.998	4.377
	303	703.810	708.187	4.377	708.187	4.377
Pier 2	304	703.999	708.376	4.377	708.376	4.377
	305	704.188	708.565	4.377	708.565	4.377
	306	704.377	708.754	4.377	708.754	4.377
	307	704.566	708.943	4.377	708.943	4.377
	308	704.755	709.132	4.377	709.132	4.377
	309	704.944	709.321	4.377	709.321	4.377
	310	705.133	709.510	4.377	709.510	4.377

PIER	PANEL POINT	ELEVATION W.L. OF TRUSS	ELEVATION ROADWAY SURFACE NORTH TRUSS	DISTANCE R.S. TO W.L. OF NORTH TRUSS	ELEVATION ROADWAY SURFACE SOUTH TRUSS	DISTANCE R.S. TO W.L. OF SOUTH TRUSS
	311	705.322	709.699	4.377	709.699	4.377
	312	705.511	709.888	4.377	709.888	4.377
	313	705.700	710.077	4.377	710.077	4.377
Pier 3	314	705.886	710.269	4.383	710.269	4.377
	315	706.073	710.462	4.389	710.449	4.376
	316	706.264	710.650	4.386	710.638	4.374
	317	706.454	710.839	4.385	710.827	4.373
	40	706.624	711.028	4.404	711.016	4.392
	41	706.815	711.217	4.402	711.205	4.390
	42	707.005	711.404	4.399	711.396	4.391
	43	707.196	711.591	4.395	711.588	4.392
	44	707.386	711.778	4.392	711.779	4.393
	45	707.577	711.965	4.388	711.971	4.394
	46	707.767	712.152	4.385	712.162	4.395
	47	707.958	712.338	4.380	712.353	4.395
	48	708.148	712.525	4.377	712.545	4.397
	500	708.161	712.547	4.386	712.568	4.407
	501	708.329	712.712	4.383	712.736	4.407
	502	708.519	712.899	4.380	712.927	4.408
	503	708.710	713.085	4.375	713.118	4.408
Pier 4	504	708.881	713.281	4.400	713.289	4.408
	505	709.051	713.477	4.426	713.459	4.408
	506	709.242	713.664	4.422	713.650	4.408
	507	709.433	713.850	4.417	713.841	4.408
	508	709.624	714.037	4.413	714.032	4.408
	509	709.815	714.224	4.409	714.224	4.409
	510	710.006	714.410	4.404	714.415	4.409
	511	710.198	714.597	4.399	714.606	4.408
	512	710.389	714.784	4.395	714.797	4.408
	513	710.580	714.971	4.391	714.988	4.408
Pier 5	514	710.752	715.165	4.413	715.160	4.408
	515	710.865	715.385	4.480	715.322	4.457
	516	710.990	715.482	4.492	715.467	4.477

PIER	PANEL POINT	ELEVATION W.L. OF TRUSS	ELEVATION ROADWAY SURFACE NORTH TRUSS	DISTANCE R.S. TO W.L. OF NORTH TRUSS	ELEVATION ROADWAY SURFACE SOUTH TRUSS	DISTANCE R.S. TO W.L. OF SOUTH TRUSS
	517	711.115	715.584	4.469	715.575	4.460
	518	711.225	715.642	4.417	715.636	4.411
	60	711.271	715.650	4.379	715.646	4.375
	61	711.284	715.680	4.396	715.679	4.395
	62	711.298	715.674	4.376	715.675	4.377
	63	711.239	715.633	4.394	715.633	4.394
	64	711.179	715.556	4.377	715.554	4.375
	65	711.046	715.444	4.398	715.437	4.391
	66	710.913	715.295	4.382	715.283	4.370
	701	710.614	715.111	4.497	715.092	4.478
	702	710.367	714.891	4.524	714.863	4.496
	703	710.119	714.636	4.517	714.597	4.478
Pier 6	704	709.887	714.333	4.436	714.326	4.429
	705	709.616	714.017	4.401	714.046	4.430
	706	709.304	713.712	4.408	713.734	4.430
	707	708.992	713.407	4.415	713.422	4.430
	708	708.680	713.102	4.422	713.110	4.430
	709	708.368	712.798	4.430	712.798	4.430
	710	708.056	712.493	4.437	712.485	4.429
	711	707.744	712.188	4.444	712.173	4.429
	712	707.432	711.883	4.451	711.861	4.429
	713	707.120	711.578	4.458	711.549	4.429
Pier 7	714	706.841	711.260	4.419	711.270	4.429
	715	706.562	710.940	4.378	710.991	4.429
	716	706.250	710.636	4.386	710.679	4.429
	717	705.939	710.331	4.392	710.367	4.428
	718	705.665	710.063	4.398	710.092	4.427
	80	705.649	710.026	4.377	710.055	4.406
	81	705.337	709.721	4.384	709.743	4.406
	82	705.026	709.416	4.390	709.430	4.404
	83	704.714	709.111	4.397	709.118	4.404
	84	704.403	708.806	4.403	708.806	4.403

PIER	PANEL POINT	ELEVATION W.L. OF TRUSS	ELEVATION ROADWAY SURFACE NORTH TRUSS	DISTANCE R.S. TO W.L. OF NORTH TRUSS	ELEVATION ROADWAY SURFACE SOUTH TRUSS	DISTANCE R.S. TO W.L. OF SOUTH TRUSS
	85	704.092	708.501	4.409	708.493	4.401
	86	703.780	708.196	4.416	708.181	4.401
	901	703.500	707.891	4.391	707.869	4.369
	902	703.188	707.584	4.396	707.560	4.372
	903	702.877	707.275	4.398	707.251	4.374
Pier 8	904	702.572	706.961	4.389	706.949	4.377
	905	702.269	706.646	4.377	706.646	4.377
	906	701.961	706.338	4.377	706.338	4.377
	907	701.652	706.029	4.377	706.029	4.377
	908	701.344	705.721	4.377	705.721	4.377
	909	701.035	705.412	4.377	705.412	4.377
	910	700.727	705.104	4.377	705.104	4.377
	911	700.418	704.795	4.377	704.795	4.377
	912	700.110	704.487	4.377	704.487	4.377
	913	699.801	704.178	4.377	704.178	4.377
E. End Pier	914	699.493	703.870	4.377	703.870	4.377

Note:
This drawing is taken from a previous contract and is furnished for information only in placing of asphaltic concrete wearing surface.

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY
EAST APPROACH VIADUCT
BR. NO. CUY- 42 R-1750
WEARING SURFACE DETAILS
CENTRAL VIADUCT ELEVATIONS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE None
DES. G.A.S. DATE 4-16-54
TRCD. DATE
CKD. C.J.C. DATE 4-29-54

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

914(2) E B SHEET- 117