



CUY-90-14.90

PID 77332/85531

APPENDIX EX-07

**U.S. Route 42 Relocation Part 3
(Reference Document)**

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

**Innerbelt Bridge
Construction Contract Group 1 (CCG1)**

CUY-90-15.45

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO	STATE	122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT
CUY-42R-17.50 PART 3

MICROFILMED
FEB 15 1983

CUY - 42R - 17.50

INNER BELT FREEWAY - CENTRAL VIADUCT

BR. NO. CU-42R-175
CUYAHOGA COUNTY
CITY OF CLEVELAND

MAR 15 1952
GROUND PHOTOLAB

PART 3 - SUPERSTRUCTURE

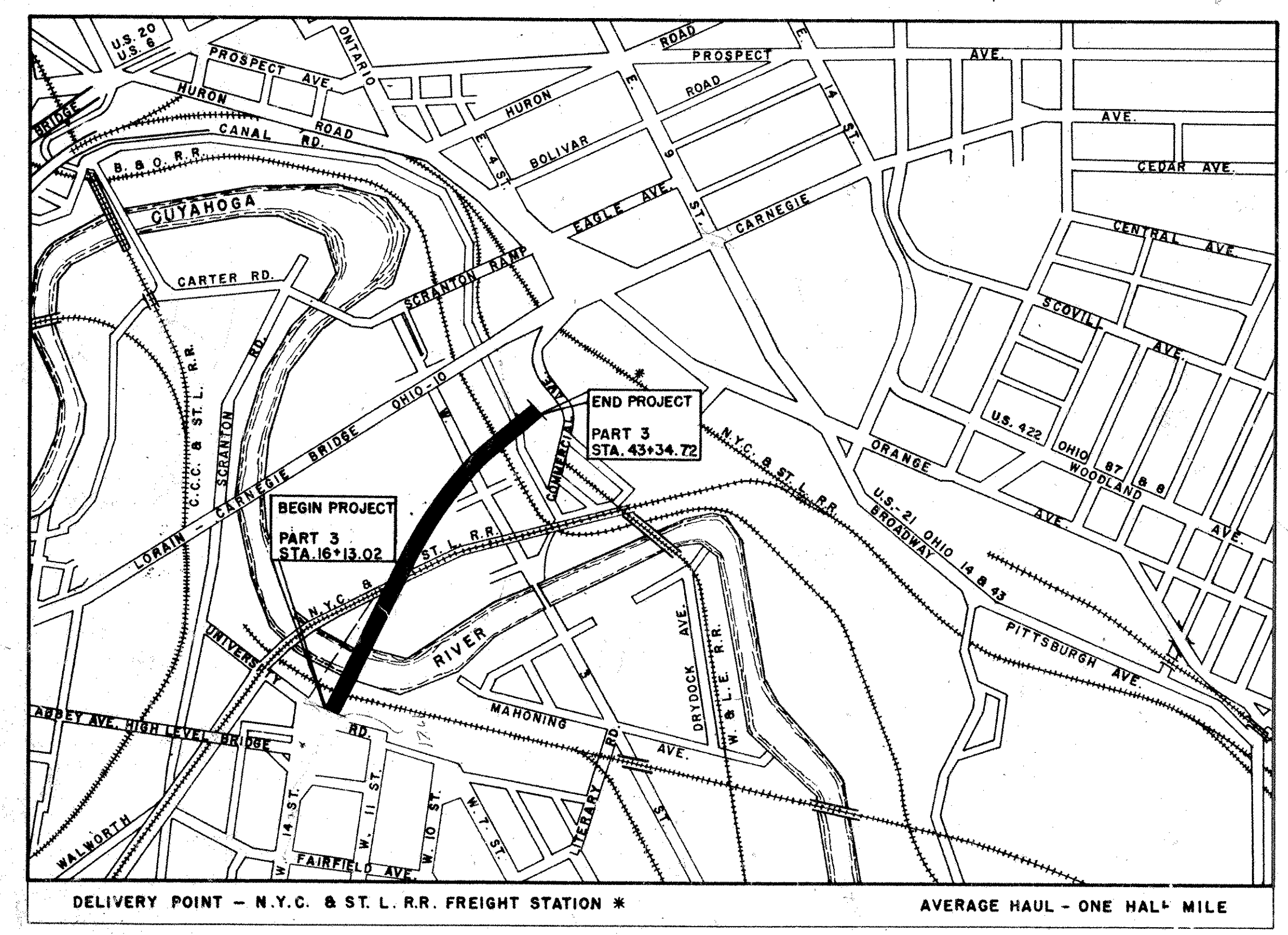
THIS IMPROVEMENT HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR OF HIGHWAYS IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 REVISED CODE OF OHIO AND IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC.

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LINE DATA

BEGIN PROJECT	STA. 16 + 13.02
END PROJECT	STA. 43 + 34.72
NET LENGTH	2,721.70 LIN. FT. OR 0.515 MILES



LOCATION PLAN



SCALE IN FEET

PORTION TO BE IMPROVED

SUPPLEMENTAL SPECIFICATIONS			
NUMBER	DATE	NUMBER	DATE
21	5-29-55		
M-206.14	7-15-55		
3-207	4-28-55		

STANDARD DRAWINGS			
NUMBER	DATE	NUMBER	DATE

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 5/11/55 *Rouis R. Truesler* DIRECTOR OF PUBLIC SERVICE, CITY OF CLEVELAND
- APPROVED DATE 5-11-55 *Arthur A. Gessner* DIVISION DEPUTY DIRECTOR
- APPROVED DATE 6-2-55 *John J. Neenan* DEPUTY DIRECTOR OF PLANNING AND PROGRAMMING
- APPROVED DATE 5-10-55 *Richard Orth* ENGINEER OF BRIDGES
- APPROVED DATE _____ ENGINEER OF LOCATION & DESIGN
- APPROVED DATE _____ DEPUTY DIRECTOR OF DESIGN & CONSTRUCTION
- APPROVED DATE 6-2-55 *L. J. Schaublin* FIRST ASSISTANT DIRECTOR
- APPROVED DATE 6-2-55 *L. V. Jurgell* DIRECTOR OF HIGHWAYS
- APPROVED DATE 4-28-55 *B. Blowers* CHIEF ENGINEER, ERIE RAILROAD
- APPROVED DATE 4-27-55 *F. H. Simpson* CHIEF ENGINEER, NEW YORK CENTRAL SYSTEM
- APPROVED DATE 6-2-55 *H. F. Whitmore* CHIEF ENGINEER, NEW YORK, CHICAGO AND SAINT LOUIS RAILROAD CO.
- APPROVED DATE 5-11-55 *R. J. Wagner* CHIEF ENGINEER, BALTIMORE AND OHIO RAILROAD

HOWARD NEEDLES TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

H.G. SOURS
ASSOCIATE
COLUMBUS

Russ Bergendoff

FILE NO.	CUYAHOGA COUNTY
SEC	00078
DATE OF LETTING	_____, 195__
CONTRACT NO.	

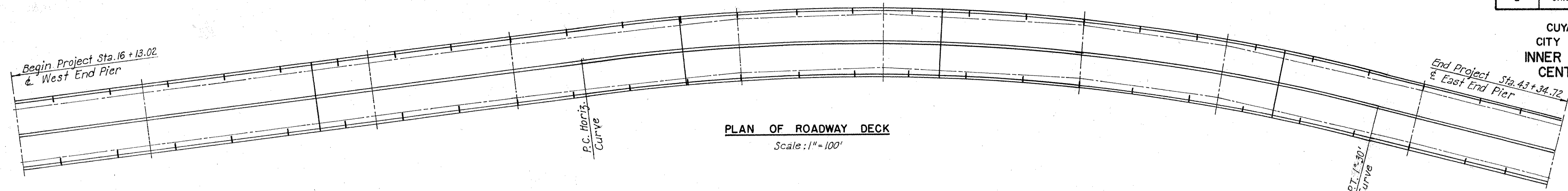
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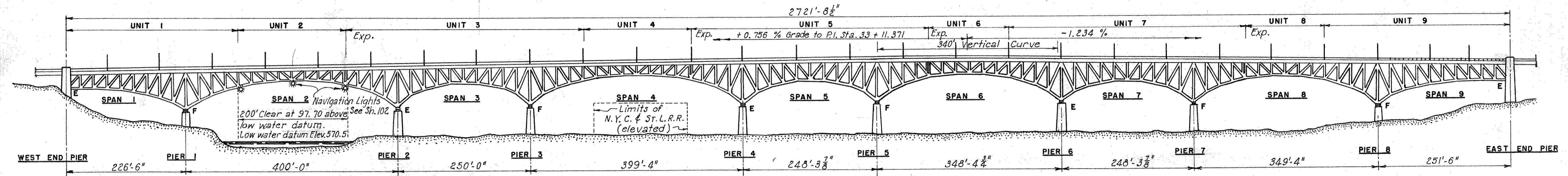
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

2
122

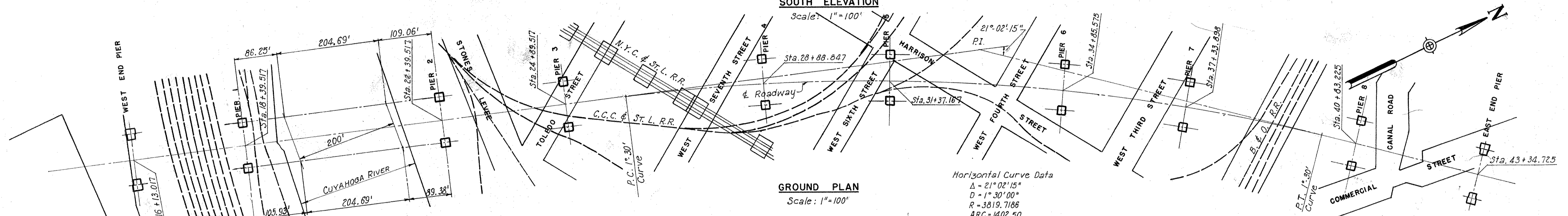
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



PLAN OF ROADWAY DECK
Scale: 1"=100'

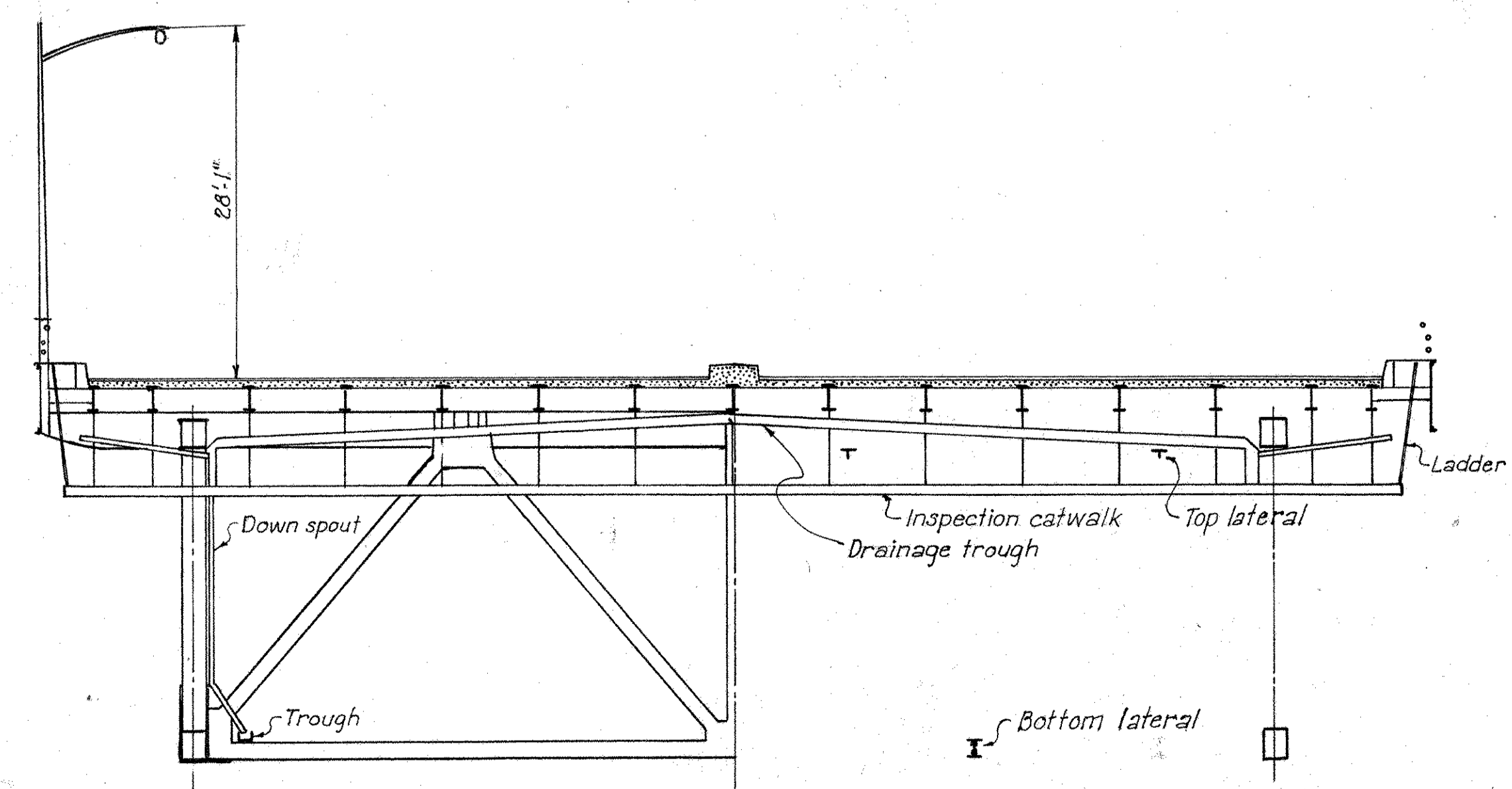


SOUTH ELEVATION
Scale: 1"=100'

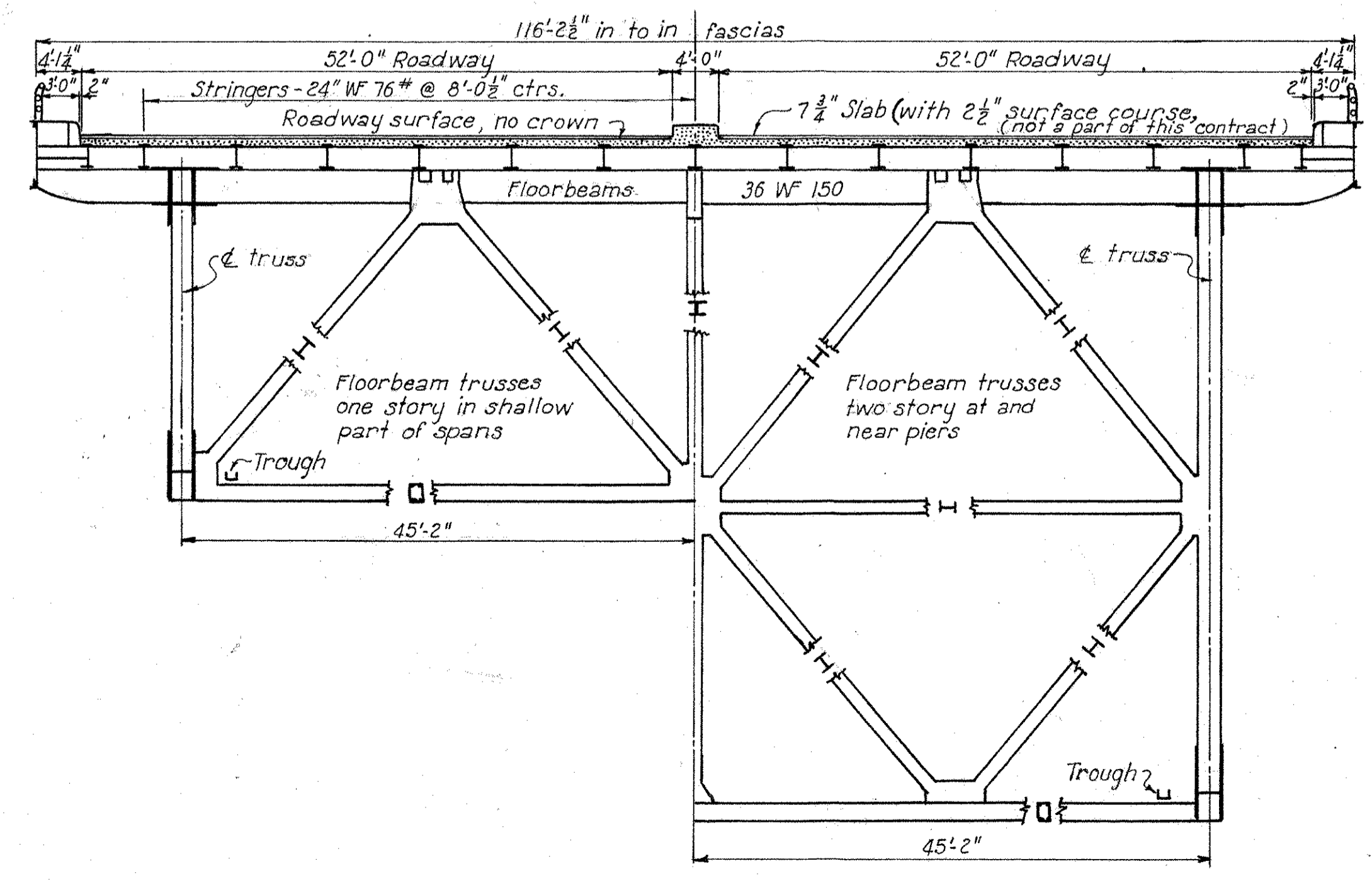


GROUND PLAN
Scale: 1"=100'

Horizontal Curve Data
 $\Delta = 21^\circ 02' 15''$
 $D = 1^\circ 30' 00''$
 $R = 3819.7188$
 $ARC = 1402.50$
 $T = 709.2360$
 $CH = 1394.6348$
 $EX = 65.2867$



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"

- Work included in this contract:
1. All superstructure above tops of piers.
 2. Roadway lighting system.
 3. Navigation lights.
 4. Roadway drainage system.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17 5

GENERAL PLAN AND ELEVATION

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: As shown
 MADE BY: DATE: 3-15-54
 TRCD BY: DATE: 8-13-54
 CKD BY: DATE: 8-5-54

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2. 02

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT

GENERAL NOTES

1. DESIGN SPECIFICATIONS

"Design Specifications for Highway Structures", State of Ohio, Department of Highways, dated October 1, 1951, as revised July 15, 1952, April, 1954, and February 1, 1955, (with a load frequency rating of CF (200-5)) are used in the design of this structure. The A.A.S.H.O. standard specifications for highway bridges, Article 3.4.8, (structural silicon steel) are used for the allowable unit stresses in manganese structural steel.

2. CONSTRUCTION SPECIFICATIONS

"Construction and Material Specifications", State of Ohio, Department of Highways, dated January 1, 1955, as modified by notes on the plans and in the proposal, shall govern.

3. SCOPE OF CONTRACT

The work included in this contract consists of the following: Furnishing and erecting the entire steel superstructure of the bridge from Sta. 16 + 13.02 to Sta. 43 + 34.72 including lead plates under shoes; shoes; steel superstructure; the bridge drainage system including downspouts, drainage troughs, hoppers, and connection to the downspouts in the pier shafts; the expansion joints; inspection walkways; ladders; the aluminum handrail, steel sidewalk and curbs; the reinforced concrete roadway slab; the navigation lighting system; the bridge roadway lighting system; and any and all other incidentals including painting of metal-work, but not including roadway surface course, necessary to complete the work, ready for use.

4. DIMENSIONS

Dimensions given are measured horizontally and at 60° F., unless otherwise noted.

5. DATUM PLANE FOR ELEVATIONS

All elevations are regional geodetic survey datum.

6. FIELD OFFICE

The Contractor shall provide a field office, in accordance with Sec. S-0.01 (b) of the "Construction and Material Specifications" as soon as possible after the award of the contract, having a minimum of 500 square feet of floor space. The office shall be of watertight construction with suitable windows and doors, properly screened, and with interior walls and ceiling finished with celotex or similar insulating board. The floor shall be double thickness. The office shall be provided with heating, lighting, and telephone facilities and shall be equipped with one desk, one camp type plan table, one camp type work table and two chairs. The Contractor shall maintain the office and services until completion of his contract.

7. BORINGS

The log of each of the test hole borings is shown in these plans.

8. TRAFFIC

Portions of this project shall be constructed under traffic and the Contractor, to the satisfaction of the Engineer, shall plan and conduct his operations so that traffic shall be maintained as herein specified.

Local traffic shall be maintained as per Sec. G-4.05, during the entire construction period. If any street is closed to traffic temporarily, work on that particular street shall be prosecuted to the fullest to allow for its reopening as soon as possible. Existing streets adjacent to the project shall remain open as long as possible and feasible.

Construction operations may interfere with traffic on existing railroad tracks. The tracks will in some cases be relocated by the owners, and in other cases will be removed. The Contractor shall coordinate his construction operations so as to interfere the least possible amount with train movements. Flagmen and watchmen shall be supplied as required by the railroads, at the expense of the Contractor.

9. MINIMUM TEMPORARY CONSTRUCTION CLEARANCE FOR RAILROAD TRACKS

The minimum temporary construction clearance for railroad tracks shall be 21' -0" vertically above top of rail and 8' -0" horizontally from centerline of the nearest track.

10. WORK IN NAVIGABLE WATERS

All construction operations in the river shall conform to the requirements or directions of the District Engineer, U. S. Army, and to the requirements of the U. S. Coast Guard. The Contractor shall notify the District Engineer's Office, Corps of Engineers, U. S. Army, seven days in advance of commencement of work in the river so that navigation interests may be notified of the presence of construction equipment and also shall notify the same office when work in the river is completed. The Contractor shall provide and maintain navigation lights and other navigation signals or facilities which may be required on temporary constructions or vessels, and shall provide and maintain navigation lights on partially or entirely completed spans for the duration of his contract, in accordance with the requirements of the U. S. Coast Guard. The Contractor shall apply for and secure all necessary Department of the Army permits for dredging and dumping and for constructing falsework or other temporary constructions in the river. The Contractor shall provide areas for disposal of excavated materials at his own expense.

11. SEWAGE

The Contractor shall so conduct his operations that the flow of all existing sewers will be maintained at all times.

12. SIGNS

In addition to the requirements of Section G-7.07, "Barricades", "Danger" and "Warning" signs, the Contractor shall display one "Please - Men Working on Road" sign, Section G-7.07, furnished by the State at each end of each zone where work is in progress and in such a position as to be visible to the traffic approaching the zone.

The Contractor shall be responsible for the preservation of these signs, shall advance the signs as work progresses and shall return the signs to the state at the completion of work.

In addition to the above, the Item of "Maintaining Traffic" shall include furnishing lights, signs (other than those mentioned above), barricades and watchmen to assure the flow of traffic twenty-four (24) hours daily.

13. CONCRETE

All concrete shall be class "C".

A. The concrete roadway slabs shall be so constructed that, after completion and after removal of forms and any falsework, and after the steelwork has deflected under the weight of the concrete and wearing surface, the top surface of the roadway shall conform as nearly as practicable to the elevations and contour lines shown on the plans.

B. The roadway slabs shall, in general, be of uniform thickness between stringers. The thickness of the slab over the stringers shall vary to compensate for the deflection of the stringer due to dead load.

C. The theoretical deflections for each span are to be computed by the Contractor. The allowances to be made in screed setting to compensate for the deflections due to the dead load weight of the concrete, the asphaltic concrete surface course and the structural steel not yet in place at the time the slab is poured are to be computed; such allowances 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.

D. The concrete of the roadway slabs on the steel spans shall be poured in special sequence. There are shown on the plans the sequences, extent and direction of individual pours for each unit. 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 median strip.

E. Any pouring sequence may be used which adheres to the following general rules:

a. For units with one cantilever arm, pour the adjacent suspended span first, i.e.:

- (1) Pour Unit No. 2 before Unit No. 1.
- (2) Pour Unit No. 8 before Unit No. 9.

b. For units with double cantilever arms, pour both adjacent suspended spans first, i.e.:

- (1) Pour Units No. 2 and No. 4 before Unit No. 3.
- (2) Pour Units No. 4 and No. 6 before Unit No. 5.
- (3) Pour Units No. 6 and No. 8 before Unit No. 7.

c. Pour the adjacent slabs on the cantilever arms of the particular unit.

d. Complete the pouring of the unit by placing the slabs on the anchor arms.

A particular sequence starting at the west end of the viaduct is shown on the plans.

The slab must be placed for the full width of the roadway for a particular pour before proceeding with the next pour. Longitudinal construction joints in the slab will be permitted only over the center stringer. Transverse construction joints through the slab are shown on the plans. The Contractor may provide additional transverse construction joints at other locations, conforming to the details shown on Sheet 114, 103. The Contractor's proposed general arrangement of construction joints must be approved by the Director of Highways before any slab concrete is placed.

Concrete base for wearing surface shall be finished according to Section S-1.23.

14. REINFORCING BARS

All laps in reinforcing bars at splices shall be 30 diameters of the bar.

All bars are designated on the plans by bar numbers. The bar size is indicated by the first digit of three-digit numbers and by the first two digits of four-digit numbers.

Clear distance from face of concrete to bars shall be 2 inches, except for slabs the clear distance shall be 1 inch or as shown on the plans.

15. ASPHALTIC CONCRETE SURFACE COURSE AND TYPE "C" WATERPROOFING

The asphaltic concrete wearing surface course and type "C" waterproofing are not a part of this contract.

16. SUB-DRAINAGE FOR WEARING SURFACE COURSE

The copper tubes required on the bridge deck slab, for sub-drainage will be paid for at the contract unit price each bid for Item S-29, "Sub-Drainage for Wearing Surface Course". There shall be a line of copper tubes within one foot of each expansion joint, contraction joint, and roadway drain.

The steel angles will be included in a later contract with the asphaltic concrete wearing surface course and type "C" waterproofing.

17. CLEANING AND REPAIRING SUBSTRUCTURE

The Contractor shall, without additional compensation, clean and repair any portion of the substructure which is soiled or damaged as a result of his operations.

18. ELECTRICAL GROUNDS

All parts of the superstructure steelwork and the entire roadway lighting system shall be thoroughly grounded at pier shafts. The contractor for substructure will embed in the concrete of each of these pier shafts a No. 0 solid copper wire brazed at its lower end to a steel concrete pile casing, or steel pile, and at its upper end extending sufficiently above top of concrete to provide for convenient splicing and extension by the contractor for superstructure. At each such pier shaft the trusses shall be grounded by a No. 6 copper wire bolted or brazed to the bottom chord of the truss 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 at both trusses, 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 structural steelwork.

Payment will be made under "Item S-25, Electrical grounds".

19. PAINTING

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

A. 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 Sec. 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 a 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 a 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.

B. Materials

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

Pigment	Red Lead (97% grade)	99.6% (minimum)
	Aluminum Stearate	0.3-0.4%
Vehicle	Raw Linseed Oil	35% to 50%
	*Pale Heat Bodied Linseed Oil (Z ₂)	15% to 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 (Gardiner 1933) and shall have a Wijs iodine value of 110-125.

Paint	First Coat	Second Coat
	Pigment	73% (minimum)
Vehicle	27% (maximum)	23% (maximum)
Weight per gallon	21.0 pounds (minimum)	24.0 pounds (minimum)
Consistency	175 grams to 250 grams	ASTM Method D562-42-T or Federal Specification TT-P-141a, Method 428.1)

Fineness of grind 5 (minimum)	Drying Time	
	Set to touch	6 Hours (maximum)
	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 lampblack-in-oil to change its color to a chocolate brown.

b. The white lead third and fourth coats of paint shall conform to Sec. M-9.6 (b) of the Construction and Material Specifications.

c. The aluminum third and fourth coats of paint shall conform to Sec. M-9.12 of the Construction and Material Specifications.

20. GRAVEL

If gravel is used as the coarse aggregate it shall meet the requirements of Section M-3.93 of the Construction and Material Specifications

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU -42 R-17 5

GENERAL NOTES

CLEVELAND	CUYAHOGA COUNTY	OHIO
SCALE	DATE	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE	DATE	CONSULTING ENGINEERS
TRCD	DATE	KANSAS CITY CLEVELAND NEW YORK
CKD	DATE	914-1A SHEET 2.03

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT

GENERAL NOTES, CONTINUED

STRUCTURAL STEEL, DRAINAGE SYSTEM, AND ALUMINUM HANDRAIL

1. CHARACTER OF METAL

A. Metal not otherwise specified shall be copper-bearing carbon structural steel. In general, trusses, trussed floorbeam horizontal bottom struts at piers, and top laterals adjacent to piers shall be of a special high strength steel, known hereinafter as manganese structural steel. These special steel parts are identified on the drawings by the suffix "S". Other parts of the spans, including the entire floor system, shall be of copper-bearing carbon structural steel. All rivets and bolts shall be copper-bearing rivet steel. Pins not otherwise specified shall be cold rolled or forged. Castings not otherwise specified shall be steel.

B. Copper-bearing carbon structural and rivet steel shall conform to Sec. M-7.4 (b) of the specifications.

C. Manganese structural steel shall conform to the following specifications:

Chemical Composition - Per Cent

	Ladle	Check
Carbon	0.28 Max.	0.32 Max.
Manganese	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

	1/2" and over 1/2 to 3/4"		over 3/4 to 1"		over 1 to 1-1/2"	
	Under	incl.	incl.	incl.	incl.	incl.
Thickness	50,000	47,000	46,000	45,000		
Yield Point	70,000	70,000	67,000	67,000		
Tensile Strength	18% Min.	18% Min.	19% Min.	19% Min.		
Elongation in 8"						
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.

D. Steel castings not otherwise specified shall conform to Sec. M-7.7 of the Specifications.

E. Steel forgings shall conform to Sec. M-7.5 of the Specifications, except alloy steel forgings shall conform to A.S.T.M. Specification A237-52T, Class B.

F. Wrought iron. Wrought iron plates shall conform to A.S.T.M. Specifications for wrought iron plates, designation A42. Wrought iron rivets shall conform to A.S.T.M. Specifications for wrought iron rivets, designation A152.

G. Cold rolled steel shall conform to Sec. M-7.17 of the Specifications.

H. Soft steel in bent curb plates shall conform to A.S.T.M. Specifications low and intermediate tensile strength carbon steel plates of structural quality, designation A283-52T, Grade A.

I. For materials in fixed and expansion shoes, see Sh. 97.

J. High strength bolts shall conform to Supplemental Specification No. S-207 dated 4-28-55.

K. Lead Plates under shoes shall conform to Specification M-7.14.

L. Wrought iron pipe shall be "Standard Weight", conforming to Specification M-6.10.

M. Copper-bearing steel is not required for castings, cold rolled or forged pins, or forgings, or for high-strength bolts.

N. Where wrought iron is specified for flashing, troughs, hoppers and downspouts of the roadway drainage system, Mayari R or Corten steel may be used as an alternate.

2. FABRICATION

A. Shop assemblies and camber. The trusses of the deck truss spans shall be cambered so that when erected and under full dead load they will have their normal outline with all members of the normal length shown on the plans. The lengths of unstressed members shall be so determined. Except as otherwise approved each truss shall be separately completely assembled in the shop. The chord members of each truss shall be assembled in correct geometric pattern conforming to the final outline and the holes for field rivets in the splices of the chords shall be reamed. These splices shall then be fitted with sufficient numbers of tight fitting bolts and pins to prevent any movement of the members at the splices as the chords are adjusted into cambered position. The assembly of each truss in the shop in cambered position shall be completed by addition of the web members, and the holes for field rivets in web member connections shall be reamed or drilled while the truss is so assembled. Care shall be taken to keep the centerlines of all truss members in a plane and to set the web members at their correct geometric angles with the chords.

In lieu of the complete shop assembly of each truss as specified above, alternate procedures will be considered which will provide for the assembly and reaming of truss chords and truss web members according to an approved plan which will insure accuracy of field holes and fitting of parts equivalent to that to be secured by complete assembly. In case the Contractor should desire to use such a method, complete data regarding the method to be used and precautions which will be followed to assure accuracy shall be submitted to the Engineer for approval or modification. Final approval of the exact details of the operations must be secured before the work progresses, and if not approved there shall be complete assembly of the trusses.

B. Holes in all parts of trusses, except diaphragms, and in all metal connected to the trusses through these holes shall be reamed.

All single and double story floorbeam trusses shall be completely assembled in the shop, matchmarked, and all field holes reamed. Connections for lateral bracing shall be reamed to steel templates. Floorbeam cantilevers shall be assembled with the floorbeams and the top chord, and the holes in the tension tie plates reamed.

C. Plates 36 inches wide and under shall have rolled edges. Edges of angles cut to special size shall be finished by machining or grinding. Sheared edges of steel plates in excess of 3/4" shall be planed to a depth of one quarter inch. Sheared edges of irregular shaped truss gusset plates shall be planed to a depth of one-quarter inch.

Wherever there is flame cutting of manganese steel and carbon steel gusset plates 3/4" or more in thickness, the flame cut edges shall be machined off or ground off to a depth not less than 1/4". In lieu of such machining or grinding, the flame cut edges may be flame softened or annealed, provided these operations restore the metal to substantially its original degree of hardness and other physical properties. Flame softening or annealing shall be done with suitable equipment operated by experienced operators and in general shall consist of heating with a gas flame directed at right angles to the cut surface so that the edge of the work is heated 1/8" deep along its entire length to a cherry red color visible in daylight. To demonstrate the efficiency of the flame softening or annealing, the Contractor may be required to prepare samples by flame cutting and flame softening or annealing of portions of the steel cut away, and shall test these for tensile strength, bending and for hardness, and for comparison shall prepare similar samples by machining or other methods not involving flame cutting and shall test these control samples similarly for the same qualities. The numbers of such tests shall depend upon the extent of flame cutting, and shall be made at intervals of time as the work progresses sufficient to demonstrate the efficiency and uniformity of the operations.

Details not covered by the Design Specifications for Highway Structures of the State of Ohio, shall meet the requirements of the American Association of State Highway Officials Standard Specifications for Highway Bridges, 1953.

3. ERECTION OF SUPERSTRUCTURE METALWORK

Unless otherwise required and approved for particular erection conditions, laterals shall not be riveted until after spans are swung and are supporting their own dead load weight of steel. In cantilever erection, laterals may be riveted at any time when the stresses in the chord members adjacent to the specific laterals are approximately the same as the final dead load stresses which will be in these chord members after the span is completed. Prior to riveting, laterals subject to wind loads and other stresses under erection conditions shall be connected with sufficient bolts and drift pins to provide suitably for all such possible stresses.

Should the Contractor elect to provide increased section in certain truss members or in other parts of the superstructure metalwork, for methods of erection which the Contractor may adopt, such increases of sections and parts may be incorporated in the structure, subject to the approval of the Engineer, but shall be paid for by the Contractor and will not be included in final pay quantities.

The Contractor may also provide any other additional members or parts to be temporarily attached to but not permanently incorporated in the final structure for any erection purpose. All such parts shall be classed as erection equipment and falsework and shall not be included in the final pay quantities.

Should changes in any members or other portions of the truss spans, made for purposes of erection, increase the weights of the trusses, the Contractor shall calculate the camber of the structure as affected by such modifications, and shall modify the camber of the trusses as the changed conditions make necessary. The Contractor shall have full responsibility to provide the completed structure, adjusted and in correct final position. The strain in each truss member to be used in computing the camber shall be determined from the Formula $S = \frac{SL}{AE}$ where S = dead load stress in pounds, E = modulus of elasticity = 29,000,000 lb. per sq. inch.

including the slab L = length of member, c-c panel points, in inches. A = 1.05 x gross area, in sq. inches.

4. GENERAL

A. Welding shall be class "A".

B. Welds shown as field may, at the Contractor's option, be made in the shop.

C. Rivets shall be 7/8 inch in diameter unless otherwise specified. In the preparation of working drawings, the spacing of rivet holes shall be made to maintain the full net section shown on the plans for all tension members. Where rivet girths exceed 6 diameters specially designed rivets or high strength bolts shall be used.

D. Drain holes of character and locations as approved by the Engineer shall be provided in metal work parts wherever water might collect and have no other means of drainage. Should it become evident after erection that sufficient drain holes have not been provided in fabrication, the Contractor shall provide additional drainage holes of character and locations as may be approved.

E. Bending of steel plates shall conform to A.A.S.H.O. 1953 Specifications; Section 2.10.29.

5. EXPANSION JOINTS

Steel castings for roadway expansion joints shall be machined on bottom surfaces which will contact supporting steel and top surfaces shall be spot faced for nuts. All sections for both sides of each joint (except for end piers) shall be shop assembled with nominal clearance of 3/4 inch between ends and roots of mating projections. While thus assembled the joint shall be checked and corrected to provide not less than 1/8 inch clearance between sides of projections and not less than 5/8 inch clearance between ends and roots of projections. All parts of roadway joints so assembled shall be matchmarked.

Roadway expansion joint castings shall be erected according to the shop matchmarking and shall be set to the longitudinal clearance required for the temperature at the time of setting, to the required grade of roadway, and to provide equal side clearance between mating projections. Holes in the supporting steel shall be drilled in the field after the castings are adjusted in final position.

Sidewalk and curb joints shall be shop assembled, corrected to provide uniform close contact between any two mating parts of each joint, matchmarked and erected to required lines and grades.

6. CURBS, SIDEWALK, FASCIA AND HANDRAIL

A. The edge of pavement and curb lines are defined on the plans. On the horizontal and vertical curves, the curb, sidewalk, fascia and handrail shall be fabricated in straight panels between floorbeams.

B. Curbs shall be formed of soft steel bent plates. The curb units thus formed shall be erected so that after the spans have deflected under the dead load of slab and steel, the curbs shall depart not more than one-eighth inch from the required line and grade shown on the plans and shall show no abrupt kinks. Vertical adjustment of the curb supports shall be accomplished by shimming on the horizontal supporting struts. Holes for rivets attaching the curb supports to the struts shall be sub-punched and field reamed to provide lateral adjustment.

C. The fascia beams supported at the ends of the sidewalk brackets shall be adjusted, before the roadway slab and wearing surface are in place, so as to depart not more than one-eighth inch from the required line and grade shown on the plans, and shall show no abrupt kinks. Adjustments shall be made by reaming the connection holes.

D. The raised pattern floor plate similar and equivalent to Carnegie Multi-grip floor plate, shall be field welded to the fascia, curb and supporting angles. The plates shall be furnished in sections not to exceed one floor beam panel in length. Care shall be exercised in field assembly to maintain a neat line of the edge of the plate along the top of the supporting curb. Joints shall be accurately formed, so that they may be completely filled with weld. The plates shall not be placed and attached until after the roadway slab is in place with the full dead load on the supporting steel work. The floor plate shall be neatly cut and tightly fitting adjacent to steel posts supporting the light pole units. After adjustment of the posts a seal weld shall be run entirely around the post at the surface of the plate, except adjoining access doors to junction boxes.

7. PAYMENT FOR STRUCTURAL STEEL

Item S-7, Structural carbon steel, includes all structural carbon steel, castings, forgings, rivets, bolts, shoes, roadway and curb expansion joints, curbs, walkways, stringers, beams, laterals, trusses, inspection walks (except grating), sidewalk hatches, ladders, wrought iron, lead plates, and every other item of metalwork for which payment is not otherwise provided, including shop painting of all metalwork covered by this item.

8. ROADWAY DRAINAGE SYSTEM

A complete roadway drainage system with inspection walkways and access ladders, is shown on the plans. Access is provided to the drainage collection troughs beneath the roadway surface by hatches in the sidewalk area giving access to ladders and inspection catwalks near the water collection troughs. The inspection catwalks, made up of a light grating floor between channel stringers, are hung from the roadway stringers by angle hangers. The walkway grating for these inspection catwalks and for the walks providing access to the navigation lights, shall be 1 inch grating. The grating shall be securely attached in place by field tack welding. All walkway grating shall conform to Supplemental Specifications No. 24 dated May 28, 1948.

Item S-29, Roadway Drainage System, includes the following: Perforated roadway cross drains with parts shop welded thereto; wrought iron flashing; transverse collection troughs; angle frameworks connected to the inspection walkway but supporting the transverse collection troughs; hoppers; frameworks supporting hoppers; downspouts; split collar connectors and bolts; longitudinal collection troughs; hoppers and their supports on pier tops; and all other angles and plates and miscellaneous parts required solely for the attaching and support of parts of the drainage system.

Painting of the drainage system is included in Item S-8, and shall consist of the two red lead and the two white lead paint coats specified for the structural steel except that the first red lead coat may be applied in the field to those members that require no shop fabrication.

Access ladders and the supporting frameworks of the transverse inspection walkways with the handrail and walkway stringers and bracing are included in Item S-7, Structural Carbon Steel. Walkway grating is paid for under Item S-24.

Item S-7, Manganese structural steel, includes all manganese steel used in trusses, laterals, struts and connecting plates, including shop painting of all metalwork covered by this item.

In accordance with Sec. S-7.28 of the Construction and Material Specifications, the weight of waste material, such as is removed by burning, cutting, coping, clipping, machining, punching, drilling, etc., shall not be considered as pay weight, but material removed to form rivet and bolt holes shall be included in the pay quantity provided that only those portions of the rivets and bolts projecting beyond the holes are included. Furthermore, any thickness and weight of members in excess of that called for on the plans (due to overweight or other cause) shall not be included in determining the weight to be paid for, unless an increase in the size of a member is authorized by the Director.

9. ALUMINUM TUBE HANDRAIL

The handrail for this structure shall consist of aluminum tubes and posts mounted on the attaching brackets extending through the sidewalk plate. The horizontal members of the rail shall consist of three round tubes, with the top tube of 4-1/2 inch outside diameter and a wall thickness of 3/16 inch, and with the center and bottom tubes of 3-1/2 inch outside diameter and a wall thickness of 5/16 inch or 3" Extra Strong Pipe (3-1/2" O.D.). Each post shall be a cast aluminum curved H section with a monolithic recessed base and tubular sockets for insertion of the rails. The horizontal tubes shall be fastened in the post socket with aluminum bolts. Posts shall be attached to the brackets with steel stud bolts welded into the brackets.

Fabrication of aluminum alloy steel in general conform to the practices recommended in Aluminum Company of America's Structural Handbook, and the following specific requirements:

1. Material shall be sawed or milled.
2. Flame cutting is not permitted.
3. Material may be heated to a temperature not exceeding 400° F. for a period not exceeding 15 minutes to facilitate bending.
4. Holes in extruded alloys shall be drilled. All holes in castings shall be cored, and rail socket holes shall be reamed.
5. Welding shall be done by the inert gas shielded arc method and no flux shall be used. Welding is permitted only where specifically called for on the plans.

In handling aluminum materials in the shop and in the field every precaution shall be taken to avoid scoring or marring of the surfaces, and any such scoring or marring of the surfaces, sufficient in the opinion of the Engineer to give an objectionable appearance, shall be cause for rejection of the material. Cast parts shall have all fins, pipes or other irregularities removed. Tubing shall be seamless and uniform in quality and temper. Exterior and interior surfaces shall be clean, smooth and free from seams, slivers, laminations, grooves, cracks or other defects. End plugs shall be welded and ground smooth.

Aluminum alloy tubing shall conform to A.S.T.M. Tentative Specifications for Aluminum Alloy Extruded Tubes, Designation B235-54T, and shall be alloy 6061, Temper T6. Aluminum posts shall conform to either A.S.T.M. Tentative Specifications for Aluminum Base Alloy Sand Castings, Designation B26-54T, Alloy SG70A, Condition T6; or A.S.T.M. Tentative Specifications for Aluminum Base Alloy Permanent Mold Castings, Designation B108-54T, Alloy SG70A, Condition T6. Aluminum bolts and nuts shall be produced from rods and bars conforming to A.S.T.M. Tentative Specifications for Aluminum-Alloy Bars, Rods and Wire, Designation B211-54T and shall be alloy 6062, Temper T4. Aluminum bolts for attaching rails to posts shall be Semi-finished Regular Carriage Bolts. Aluminum nuts shall be Hexagon Semi-finished Regular Nuts. Threads shall be American Standard Coarse Thread Series Class 2 free fit. Anchor bolts shall be structural steel, and shall be galvanized. All nuts and washers for anchor bolts shall be galvanized. Aluminum alloy tubing and posts shall have no special finish. The cast aluminum posts shall be given a light sand blast finish. Aluminum materials shall have all fabrication marks and irregularities corrected after all drilling, reaming, welding or other fabrication or erection operations are completed.

Before the posts are set in place the bottoms of the posts shall receive a heavy coating of Aluminastic compound, Consistency "K", or equal, completely filling the recesses in the post base and the space between the sidewalk plate and the post-supporting bracket. Anchor bolt studs and the top of bases of posts under the bolt nuts and washers shall also be coated with aluminastic material of a heavy brushing consistency. Before the nuts are tightened the holes through the base of the post shall be filled with Aluminastic compound, Consistency "K", completely filling the bolt hole which is not occupied by the bolt. Aluminastic compound shall be as manufactured by the Parr Paint and Color Company, Cleveland, Ohio, or approved equivalent.

Erection of rails and posts shall continue successively until all of the handrail of any one unit of the structure is erected. The handrail shall then be aligned by adjustment of the steel tees to which the posts are bolted. The adjustment of the handrail shall be such that the top rail shall not depart more than one-eighth inch from correct line and grade. Handrail on curve shall be aligned in straight panels between floor beams.

The Contractor shall furnish a pattern of the cast aluminum handrail post to the City of Cleveland for use in the future replacement of damaged posts.

Payment for furnishing and placing the aluminum tube handrail complete including rails, aluminum posts, bolts, etc., shall be made at the contract unit price per linear foot of handrail, which payment shall be complete compensation for all materials, equipment, tools, labor and all work incidental to the manufacture, fabrication and erection of the handrail. Payment will be made on the basis of the measured length of handrail between ends of handrail, measured at the top of top rail.

Payment for stud anchor bolts will be included in payment for Item S-7, Structural Carbon Steel.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-175

GENERAL NOTES

CLEVELAND	GUYAHOGA COUNTY	OHIO
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SCALE: _____
MADE 8A DATE 10-7-54
TRCD. _____ DATE _____
CKD. DME DATE 2-9-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.04

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

5
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT

GENERAL NOTES , CONTINUED

ROADWAY AND NAVIGATION LIGHTING

1. GENERAL

This Specification shall govern for the materials used and for the installation of a complete series roadway and navigation lighting system for the viaduct. The type and location of lights, the circuits and the location of cables and conduits shall be as indicated on the plans. The installation for roadway lights shall be in fiber or asbestos-cement conduit. For the roadway lighting, 15,000 lumen incandescent lights are to be installed as indicated on the plans, and are to be operated on a 6.6 amp. series circuit. The navigation lights are to be 50 watt, their branch circuits are to be in rigid conduit, and are to be installed for 115 volt secondary operation through insulating transformers from the 6.6 amp. series circuit.

The Contractor shall 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 meters, meter mounts, metering equipment or housing for same. The Contractor shall provide proper termination of loop circuits for connection to future adjacent series circuits.

The Contractor shall furnish and install lighting equipment, including all lamps, luminaires, navigation lighting fixtures, wiring, luminaire brackets, poles, expansion couplings, flexible couplings, tops of posts (bases for poles), pole cap screws, cable, all conduit for lighting circuits, and all incidentals necessary for a complete circuit installation, installed and connected for operation. The loops of lighting circuits shall be complete, and the Contractor shall furnish and install all equipment necessary for the satisfactory future operation of the circuits and for the complete operation of the lighting system, (excluding the future adjacent sections, leads, primary transformers, primary fuse cutouts, primary arresters, 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 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 shifting as the Engineer may direct in order to conform to local conditions.

Before commencement of installation of the roadway lighting system, 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 may 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 shall 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 10 ft. bracket and a luminaire similar to General Electric Form 79-AR. Luminaires lighting the roadway shall meet the general requirements of IES, Type IV distribution. Luminaires shall overhang about 6 ft. out from curb.

Light standards shall conform as nearly as possible to the specifications and Drawing M-20, 35, of the City of Cleveland as to general design and finish, height, base, mast arm and dimensions. In general, the standards 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.

A cast steel anchor base of adequate strength and of the shape and size shown on Sheet No. 122 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 steel shaft of the lighting standard shall be fabricated from not less than #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 #7 manufacturers' standard gauge.

Each standard shall have a mast or bracket arm ten feet in length made of standard pipe of the size shown on the plans. The inner end of the bracket 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.

Each standard shall have two 9/16 inch holes provided, where shown on Sheet No. 122. Painting shall be as specified under paragraph 20, Sheet 3.

The luminaire shall consist of a supporting hood, and external body or casing, an internal 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 fixture shall produce an I.E.S. Type IV light distribution curve equal to the curve produced by the General Electric Form 79AR.

Lamps for navigation fixtures shall be 50 watt, vibration service, and for luminaires shall be 15,000 lumen, PS-40 bulbs, mogul base, as indicated on Sheet No. 122.

For navigation lighting, suspension bridge lamps shall be provided where indicated on the plans. The channel margin suspension bridge lamps shall be galvanized cast iron with 180° red fresnel lens, equipped with shock absorbing sockets, retriever chains, and similar to Western Railroad Supply Company Figure #2. The channel center pivot type suspension bridge lamps with 360° green fresnel lens shall be equipped with retriever chains, and equal to Western Railroad Supply Company Figure #11.

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 center.

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 the street lighting transformers will be connected with their primary windings in a 6.6 ampere 60 cycle regulated circuit, and shall be located in the sidewalk junction boxes. The secondary of the transformer for the navigation lights shall be 60 watt, 120 volt, multiple secondary and shall be equal to Westinghouse No. 348293. The secondary of the 10,000/15,000 lumen transformers will supply 20 amperes to one lamp rated 15,000 lumens. When the lamp wattage varies between 8X above and 20X below normal, the secondary or lamp current shall not vary more than 1X 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, as nearly as obtainable, like that shown on Drawing No. 3863 of the Division of Light and Power of the City of Cleveland, which is the type preferred by the City and 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 noncorrosive name plate showing the following data:

Maker's name and style or catalog number
Rating in Lumens
Primary current
Secondary current
Frequency

Conductor for Roadway lighting shall be #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 rubber-like compound known commercially as ozone resistant type insulation. The insulating compound shall conform in every respect and shall be tested in accordance with ASTM Designation D574-46T, or the latest revision thereof. The outside jacket or sheath shall be 4/64 inch thick and shall be made of GR-M Polychloroprene (Neo Prene) sheath compound. The sheath compound shall conform in every respect and shall be tested in accordance with ASTM Designation D753-44T, or the latest revision thereof. The cable shall be shipped on reels. Each reel shall be marked "Street Lighting Cable" and marking card shall carry manufacturer's descriptive data for the conductor and insulation.

The junction boxes for branches to lights from 3" longitudinal conduit runs shall be suitably attached under sidewalk where indicated. Brass or monel screws shall hold cover tightly. The finish inside shall be hot-dip galvanizing. Boxes shall be similar to Hopes 1252 size 24 x 12 x 6, with no lugs. See Sheet 122 for an alternate welded sheet metal junction box.

Conductors on truss spans of bridge shall be in asbestos cement conduit conforming to Supplemental Specification No. M - 206.14 or in fiber conduit equivalent to Orangeburg Concrete. The conduits shall be 3 inch inside diameter and be placed on hangers that are furnished with the structural steel and shown on Sheet 100. All conduits on the bridge shall be supported at not over 6 ft. spaces.

Conduits cross the structure transversely in span 1 and span 9, as shown on Sheets 18, 26 and 122. These four conduits shall be 2 inch diameter asbestos cement conduit conforming to Supplemental Specification No. M - 206.14 or fiber conduit equivalent to Orangeburg Concrete.

Rigid metal conduit from junction boxes to navigation lights shall be 1 inch, National "Sherarduct" or an approved equivalent. This conduit shall be furnished with tapered threaded fittings as required.

The circuit conductors for the 110 volt multiple circuit lighting cable to the navigation lighting units shall be No. 12 AWG conductors, as specified on Sheet No. 122. The conductors at pivot type fixtures shall be No. 12 AWG, 600 V., extra flexible, ASTM Class D. The conductors shall be continuous from outlet to outlet, and no splices shall be made except within outlet or junction boxes. The conductors shall have 3/64 inch insulation and 3/64 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 navigation lights is to be placed in rigid metal conduit fastened by suitable clamps. Longitudinal runs of conduits on the trusses are to be placed on hangers that are furnished with the structural steel and shown on Sheet 122.

Poles shall be carefully set, they shall be vertical, and the luminaires shall be supported with brackets about 28"-1" above pavement as indicated on the plans. 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 tolerances 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.

The installation of all luminaires and wiring shall conform to the recommendations of the equipment manufacturers and the practice of the power company.

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. Care shall be taken to insure water-tight joints.

Splices shall not be made in conduits. Splices of conductors shall be made mechanically and electrically secure and flooded with solder, and wrapped 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.

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 not be at 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 expansion coupling with rubber ring shall be used at least every 75 feet. Rigid conduit across expansion joints if used shall have an expansion coupling similar to D.2, Type EX or AX as required, complete with bonding jumper, or be in flexible couplings equal to Crouse Hinds Type EC.

4. TESTS

It is anticipated that the work under this contract will be completed prior to the completion of the adjoining girder spans. The Contractor shall install the series lighting cable in the conduits to the ends of the project and leave pig tails for connection by others to the lighting circuits.

The Contractor shall furnish all equipment and appliances necessary to test the completed cable systems. A burning test will not be necessary for the street lights on the truss spans. 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 nongrounded series

circuits is not less than 50,000 OHMS.

In the event that the truss spans are completed ahead of the approach spans which will be in a subsequent contract, it will be necessary to provide power for the navigation lights. If this power is needed, the Bridge Contractor will furnish and install a separate circuit consisting of two number 6 wires or a low voltage cable, on each side of the bridge. Each such circuit would serve the three navigation lights on the respective side of the bridge. These temporary circuits for the navigation lights would extend to the end of the truss spans only and the Contractor would there leave pig tails for connections by others to an existing 120 volt line on University Road near the west end pier. Separate conduits would not be required for these temporary navigation light circuits as the temporary circuits would be carried in the street lighting conduits.

5. GUARANTEE

The Contractor shall be responsible for the proper performance in part and as a whole of the structural, mechanical and electrical equipment provided for the roadway and navigation lighting circuits and related parts for the period of one year after final acceptance of the work, to the extent that he shall correct at his own expense any difficulties with the operation which may arise during this period as the result of defects in material, equipment, manufacture and erection. Responsibility for such correction shall include the repair, readjustment and replacement not only of defective parts, but of other parts which may be damaged thereby. The State of Ohio and City of Cleveland reserve the right to themselves to correct any such defects and the Contractor shall pay the cost thereof. The Contractor shall give a written guarantee satisfactory to the State and City to insure the carrying out of these obligations.

6. PAYMENT FOR ROADWAY AND NAVIGATION LIGHTING

Payment for the three inch diameter conduit under each sidewalk; two inch diameter conduit across the structure in spans 1 and 9; conduit attachments and U bolt hangers; junction boxes; couplings; expansion couplings; standards; base castings; mast arms; ornamental pole tops; plumbizers; and all bolts, nuts, screws, fittings, clamps and other miscellaneous accessories shall be made in a lump sum payment for Item S-25, Roadway Lighting System, Part A.

Payment for cable; flexible cables and connections; wiring; splices; luminaires; globes; sockets; lamps; lighting transformers; ballasts; clamps; tests; removing waste; and all incidentals necessary for completing the Roadway Lighting System in an acceptable operating condition shall be made in a lump sum for Item S-25, Roadway Lighting System, Part B.

Payment for conduit from the navigation lights to the junction boxes of the Roadway Lighting System; pull boxes; splicing boxes; fixtures; globes; lamps; retriever chains; bolts; wiring of the navigation lights from the secondaries of the lighting transformers located in the junction boxes of the Roadway Lighting System; fittings; couplings; splices; attachments; tests; and all incidentals necessary for the installation and satisfactory operation of the six navigation lights, shall be made in a lump sum for Item S-25, Navigation Lights.

Payment for Item S-25 Electrical Grounds, shall include all materials and work described under paragraph 18, Electrical Grounds, on Sheet 3.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17.5

GENERAL NOTES

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE _____ DATE 10-7-54, 9-54
MADE G.A. HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD. DATE _____ CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
CRD. DNE. DATE 2-9-55 914-1A SHEET 2.05

MICROFILMED
FEB 15 1983

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	6
2	OHIO			122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	TOTAL	UNIT	PROJECT IN GENERAL	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	UNIT 6	UNIT 7	UNIT 8	UNIT 9	AS BUILT
S-1	Class "C" Concrete	7,280.1	Cu. Yds.		869.5	540.1	1,197.9	540.2	1,186.0	409.7	1,189.7	405.8	941.2	
S-4	Reinforcing Steel	2,324,480	Pounds		279,192	170,930	383,408	171,730	378,565	129,320	382,258	128,565	300,512	
* S-7	Structural Carbon Steel	15,011,600 15,011,600	Pounds		1,790,000	1,080,000	2,470,000	1,060,000	2,610,000	840,000	2,460,000	830,000	1,860,000	C-10, 18,520 15,011,600
* S-7 & Special	Structural Manganese Steel	9,594,001 9,668,000	Pounds		1,130,000	640,000	1,990,000	620,000	1,770,000	310,000	1,680,000	310,000	1,210,000	C-1, 30,120 C-10, 88,444 C-4, 22,660 9,594,001
S-8	Field Painting Structural Steel and Drainage System	25,646,771 25,733,000	Pounds		3,080,000	1,765,000	4,670,000	1,725,000	4,580,000	1,152,000	4,350,000	1,181,000	3,230,000	C-10, 88,229 25,646,771
S-9	Copper Water Stops including 1" hot poured joint sealer, Sec. M-10.23	2,592	Lin. Ft.		324	108	540	108	432	108	540	108	324	
S-9	1" Preformed Gray Rubber Expansion Joint Filler, Sec. M-10.02	73.2	Sq. Ft.		6.1	6.1	12.2	6.1	12.2	6.1	12.2	6.1	6.1	
S-14	Handrail (Aluminum)	5,404	Lin. Ft.		633.4	403.0	897.0	403.0	887.6	303.0	890.6	303.0	683.4	
SS-24	Walkway grating	8,225	Sq. Ft.		1,275	350	1,610	265	1,600		1,600	265	1,260	
** S-25	Roadway Lighting System, Part A	1	Lump Sum	1										
** (1) S-25	Roadway Lighting System, Part B	1	Lump Sum	1										
** S-25	Navigation Lights	1	Lump Sum	1										
S-25	Electrical Grounds	1	Lump Sum	1										
S-29	Copper Tubes for Sub-drainage Wearing Surface Course	738	Each		108	36	126	36	126	36	126	36	108	
*** S-29	Roadway Drainage System	1,093,955 1,073,000	Pounds		160,000	45,000	210,000	45,000	200,000	2,000	210,000	41,000	160,000	C-10, 426,955 1,093,955

* See General Notes, Sheet 4, paragraph 8, for items included for payment.
 ** See General Notes, Sheet 5, paragraph 6, for division of items for payment.
 *** See General Notes, Sheet 4, paragraph 7, for items included for payment.
 (1) No State participation.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-175

ESTIMATED QUANTITIES

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE
MADE N.A.M. DATE 6-1-54
TRCD. A.H. DATE 4-13-55
CKD. GA. DATE 4-20-55

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

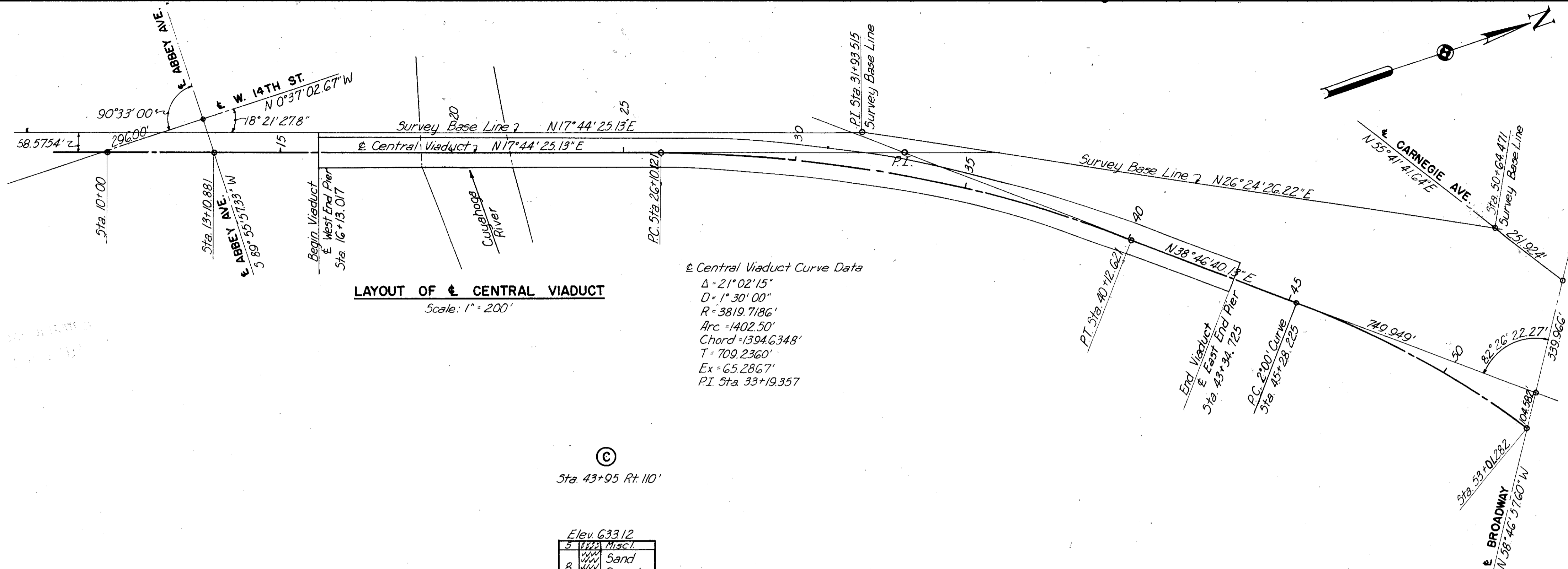
914-1A SHEET 2.06

MICROFILMED
FEB 15 1983

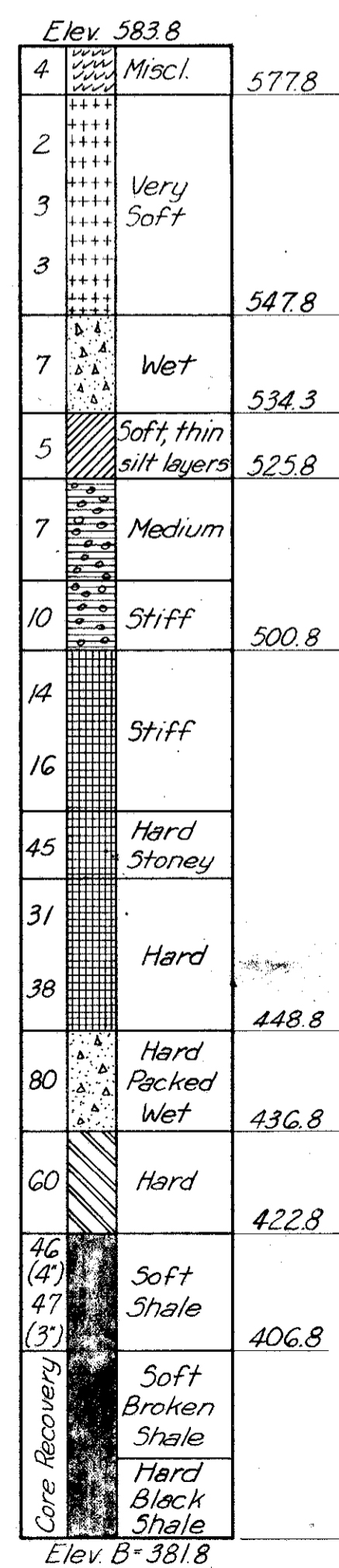
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

7
122

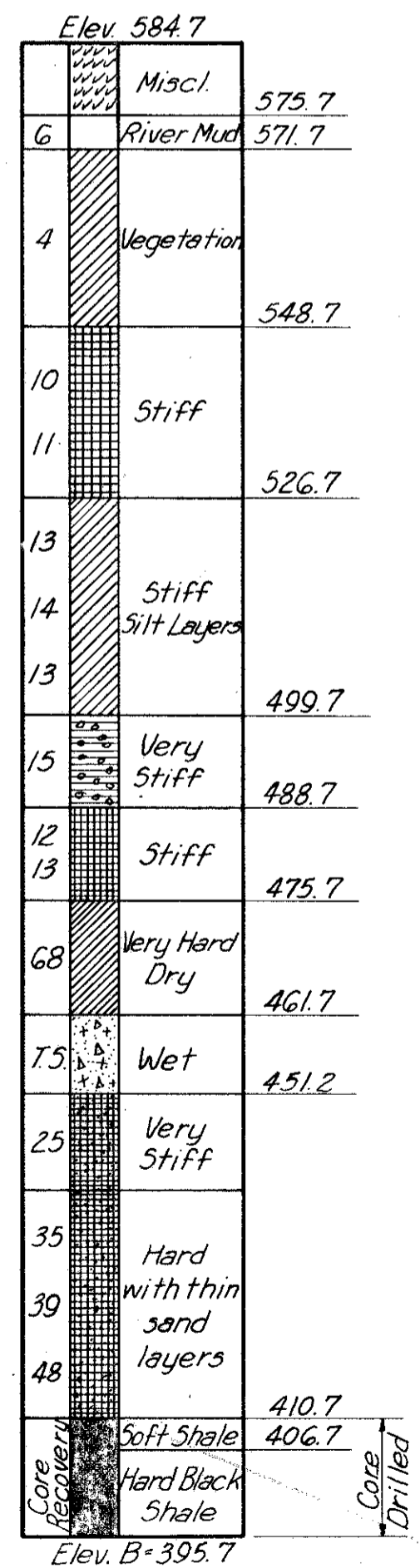
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT
CUY - 42 R - 17.50



(A)
Sta. 29+53 Rt. 265

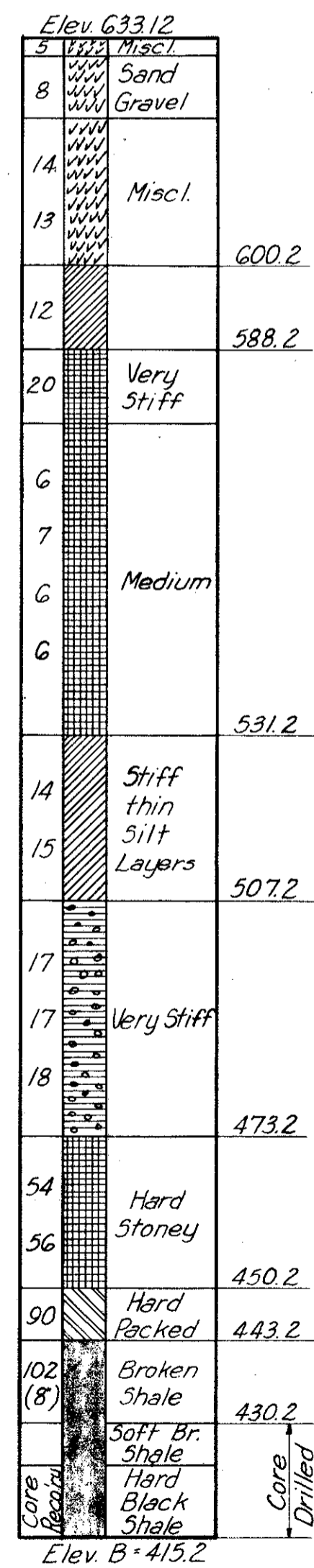


(B)
Sta. 37+10 Rt. 205'



TEST HOLE BORINGS A, B AND C

(C)
Sta. 43+95 Rt. 110'



GENERAL NOTES

SOIL LEGEND

- Misc. [Symbol]
- Fill [Symbol]
- Clay [Symbol]
- Sand [Symbol]
- Silt [Symbol]
- Silty Sand [Symbol]
- Silty Clay [Symbol]
- Sandy Clay [Symbol]
- Pebbly Clay [Symbol]
- Sand and Gravel [Symbol]
- Silt, Sand and Gravel [Symbol]
- Sand, Clay and Gravel [Symbol]
- Rock [Symbol]
- Ground Water [Symbol]
- Trap Sample T.S.
- Auger Sample A.S.
- Tube Trap T.T.

BORING LEGEND

(a)	(b)	(c)	(d)
Elev. 100.0			
A5	Fill		95.0
3	Soft & Wet		
2	Soft & Wet		
7.5	Soft & Wet		
10	Soft & Wet		
12	Very Stiff		
14	Very Stiff		
20	Very Stiff		60.0
25	Fine & Wet		55.0
30	Shale		

Elev. B = 50.0

With reference to above example;
 1. In column (a) the figures 2, 3, etc. are the hammer blows required to advance the casing one foot unless otherwise noted.
 2. Column (b) shows the legend of soil types and ground water elevation.
 3. Column (c) shows soil classification.
 4. Column (d) shows the intermediate elevations of limits of different soil layers.

Misc. Notes: Vertical scale for boring 1" = 20'.
 All samples taken with Split Type Tube, 2" O.D. x 15" I.D. and 4" steel casing unless otherwise noted.
 Hammer wt. 140#. Average Fall 30'.

PART 3

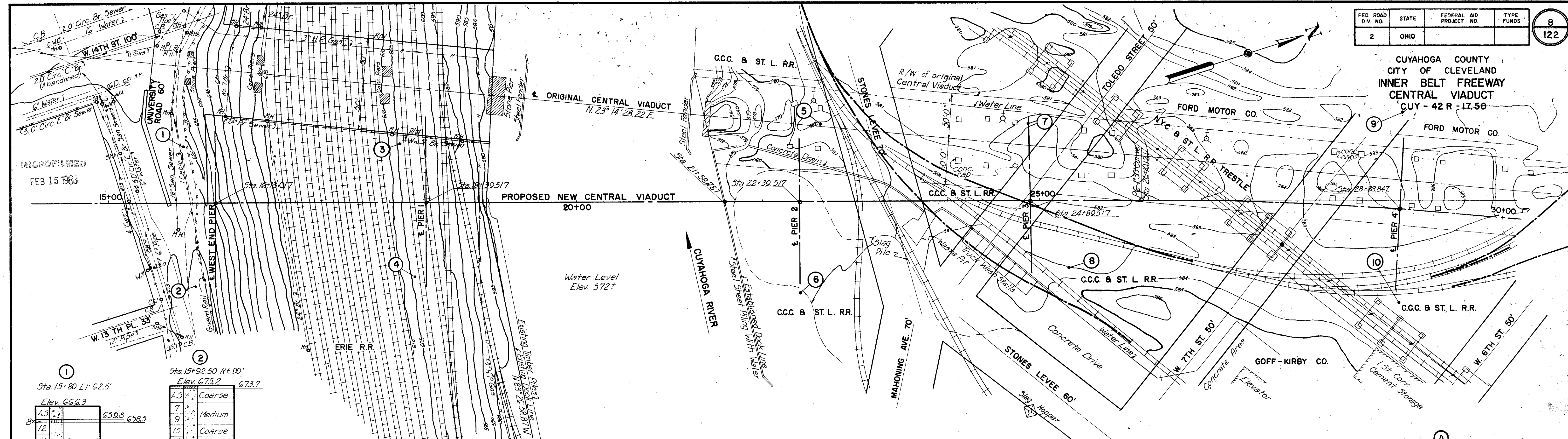
U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
 BR. NO. CU - 42 R - 17.5
GENERAL LAYOUT AND TEST HOLE BORINGS
 CLEVELAND CUYAHOGA COUNTY OHIO

SCALE Vertical: 1" = 20'
 MADE 16.5 DATE: 2-27-54
 TRCD N.A.M. DATE: 2-6-54
 CKD C.V.C. DATE: 2-25-54

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

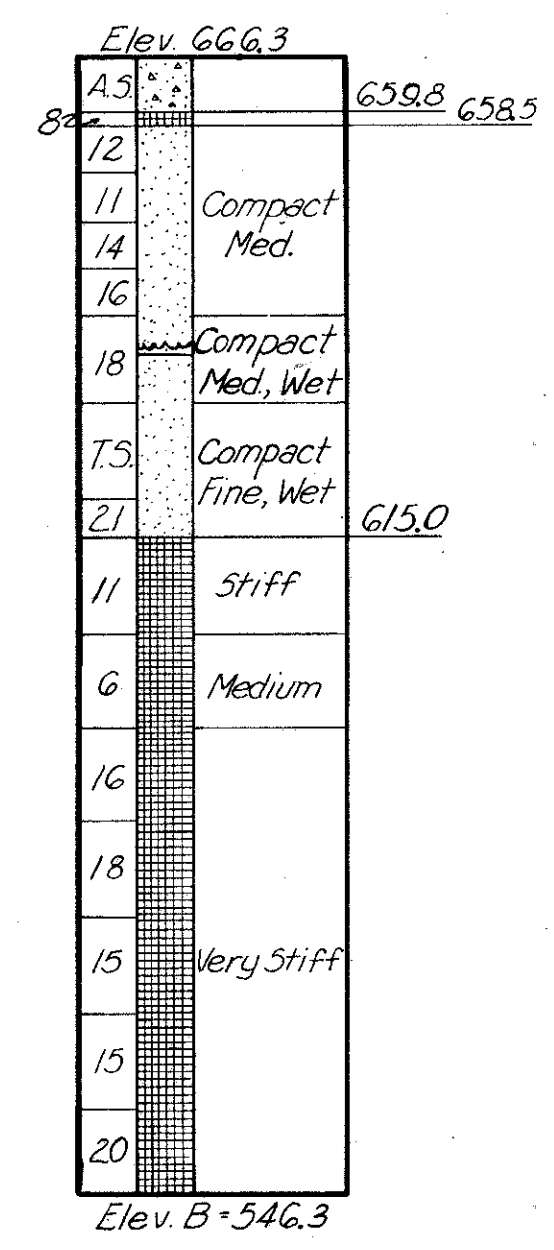
914-1A SHEET 2.07

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT
CUY-42 R-17.50

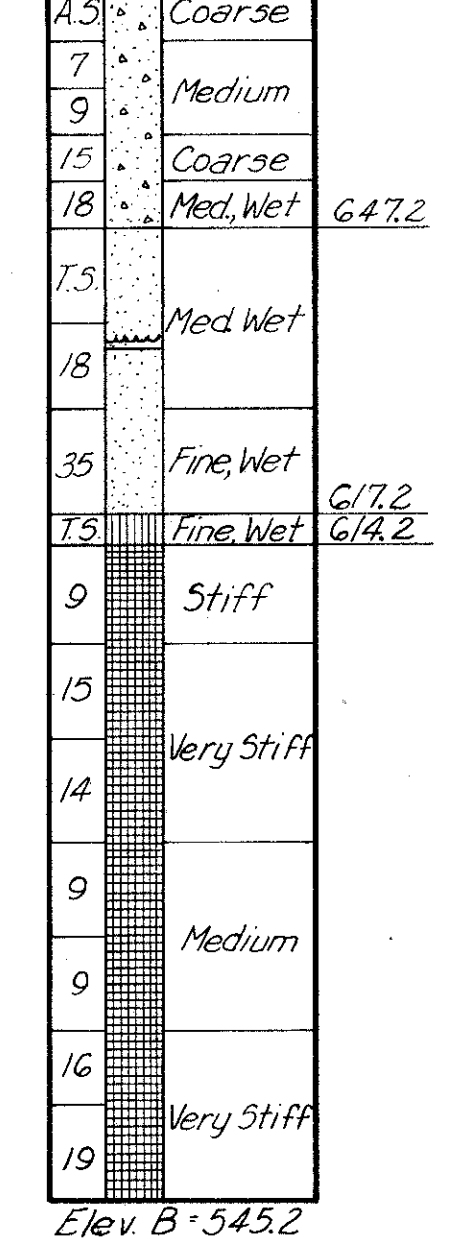


Water Level
Elev. 572±

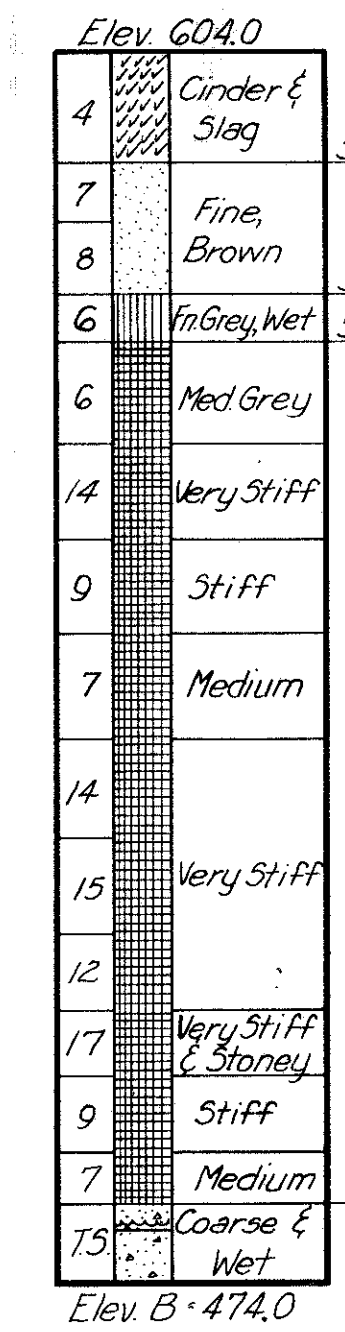
1
Sta. 15+80 Lt. 62.5'
Elev. 666.3



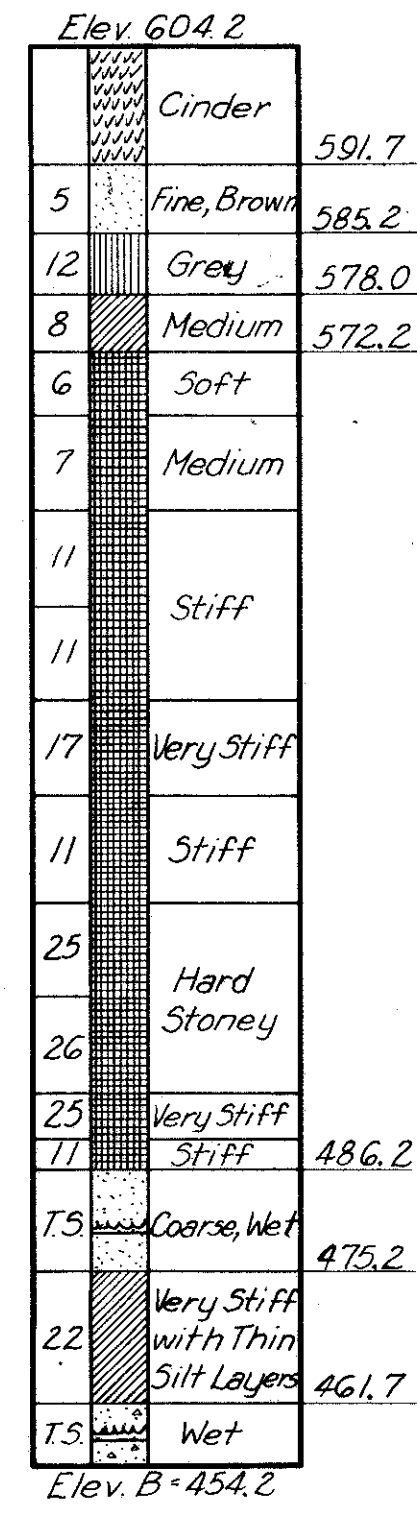
2
Sta. 15+92.50 Rt. 90'
Elev. 675.2



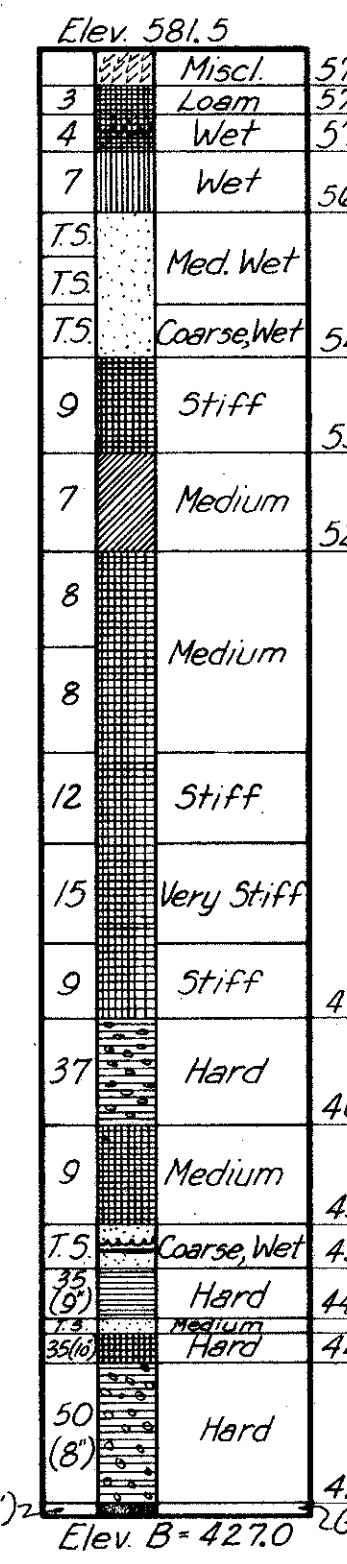
3
Sta. 18+11.50 Lt. 64'
Elev. 604.0



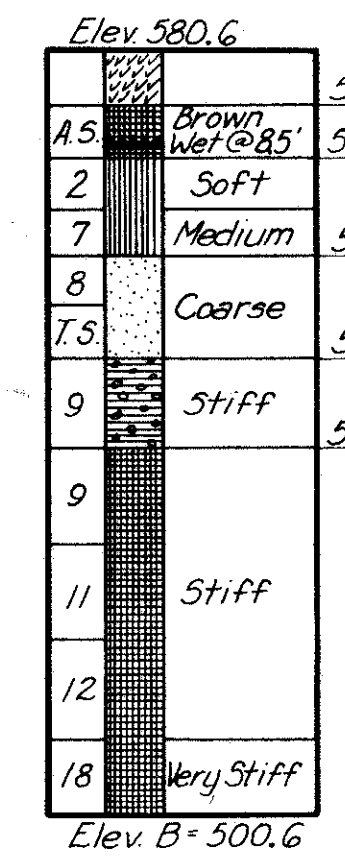
4
Sta. 18+27.50 Rt. 90'
Elev. 604.2



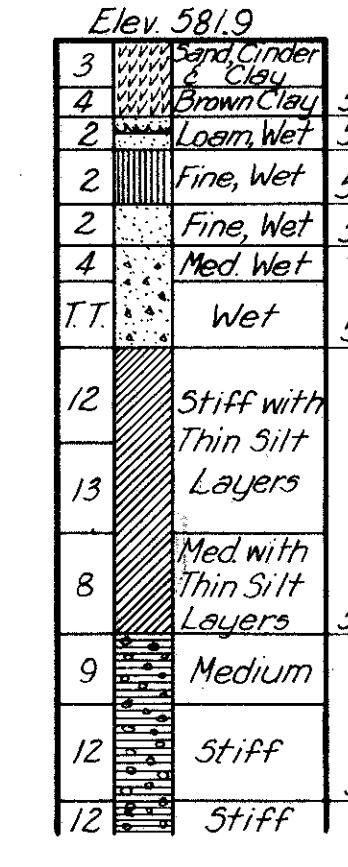
5
Sta. 22+62 Lt. 85'
Elev. 581.5



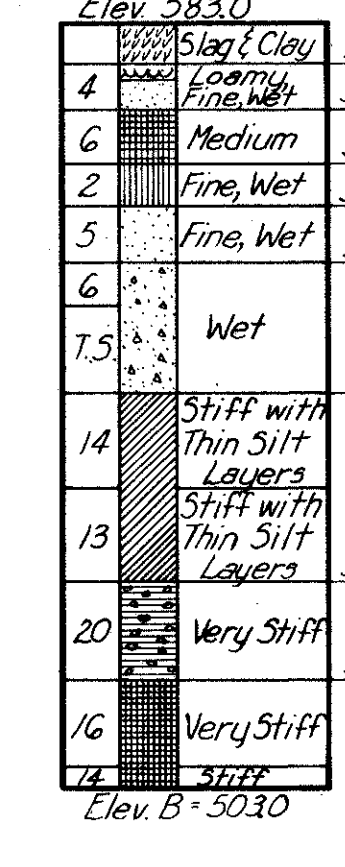
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Sta. 22+40 Rt. 100.5'
Elev. 580.6



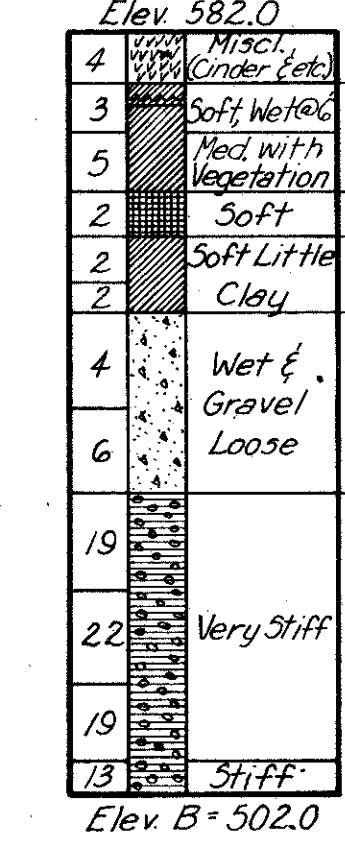
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Sta. 24+89 Lt. 85'
Elev. 581.9



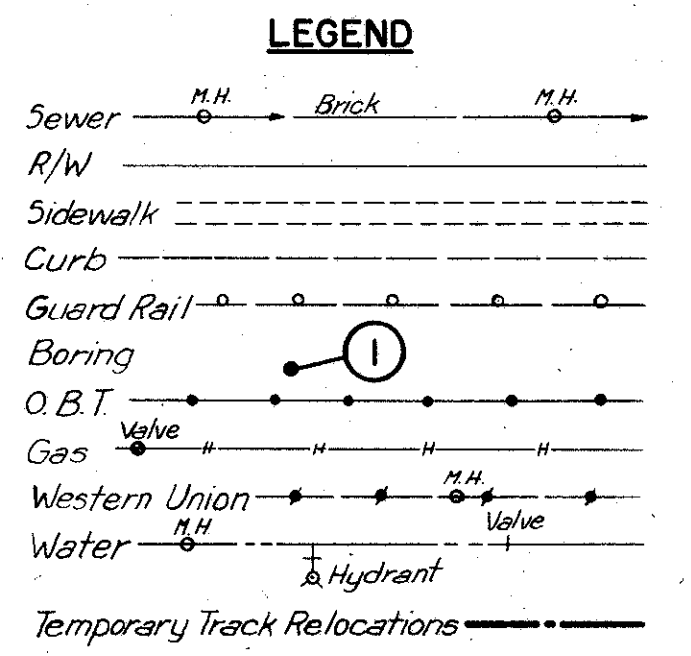
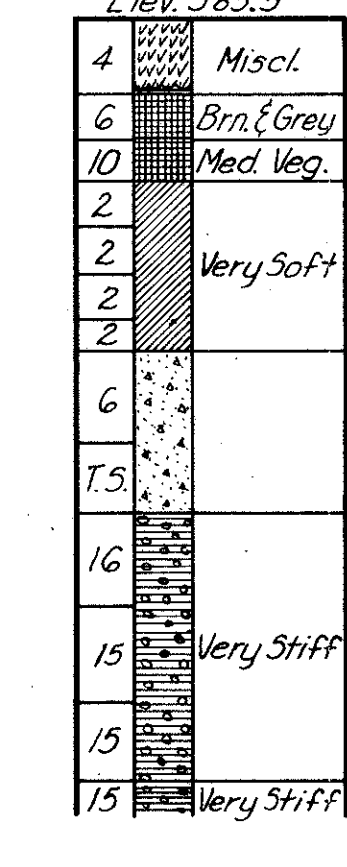
8
Sta. 25+30 Rt. 75'
Elev. 583.0



9
Sta. 28+85 Lt. 105.5'
Elev. 582.0



10
Sta. 28+94 Rt. 104.5'
Elev. 583.3



Notes: For general notes on borings and soil and boring legends, see Sheet 7.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R - 17.5'

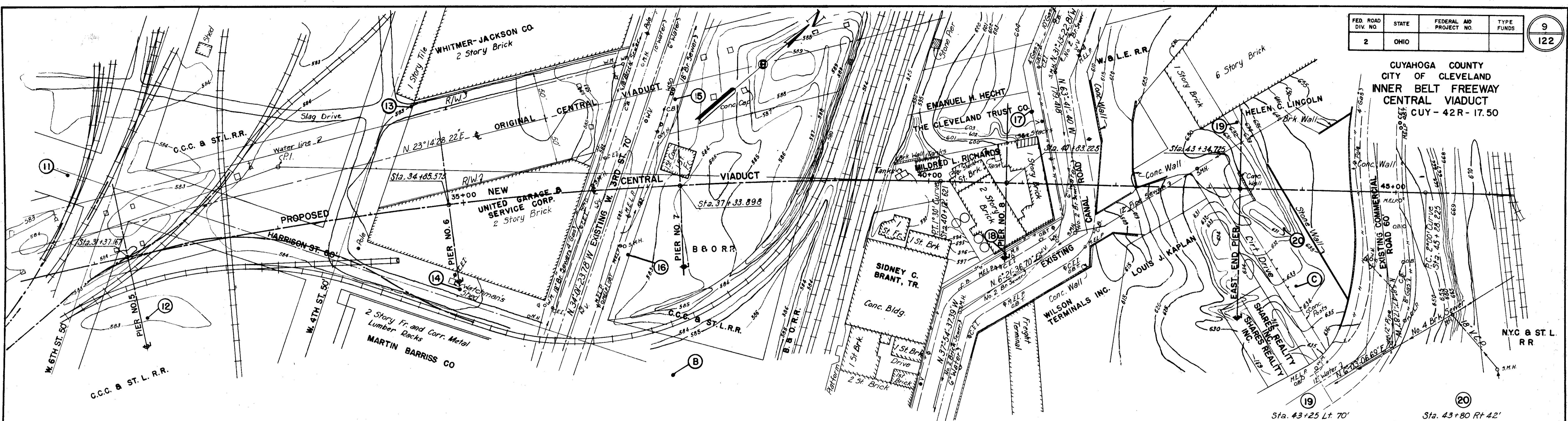
**EXISTING CONDITIONS AND
TEST HOLE BORINGS**

CLEVELAND	CUYAHOGA COUNTY	OHIO
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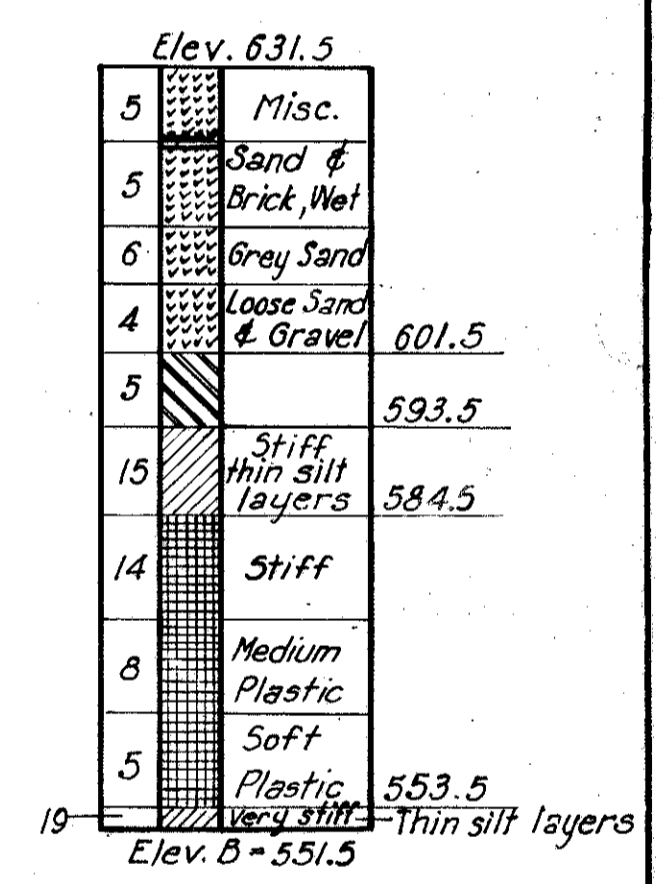
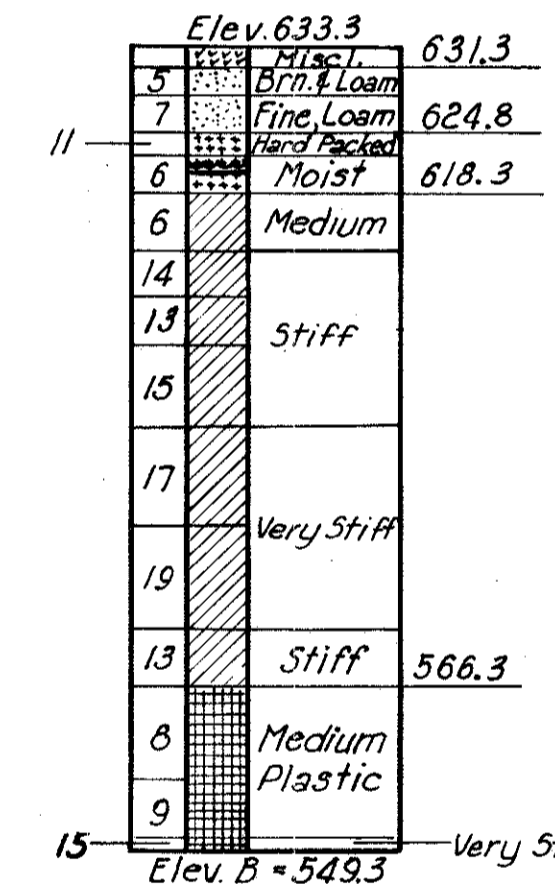
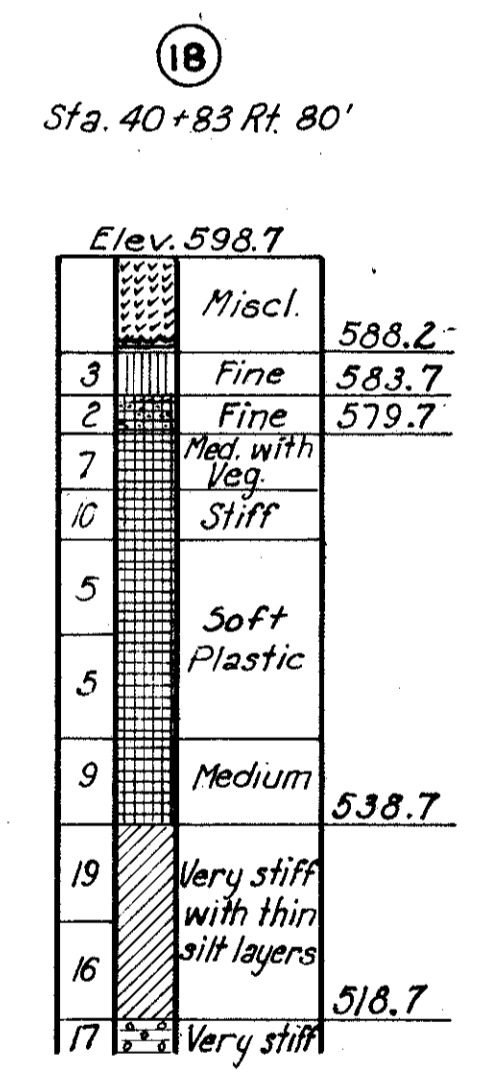
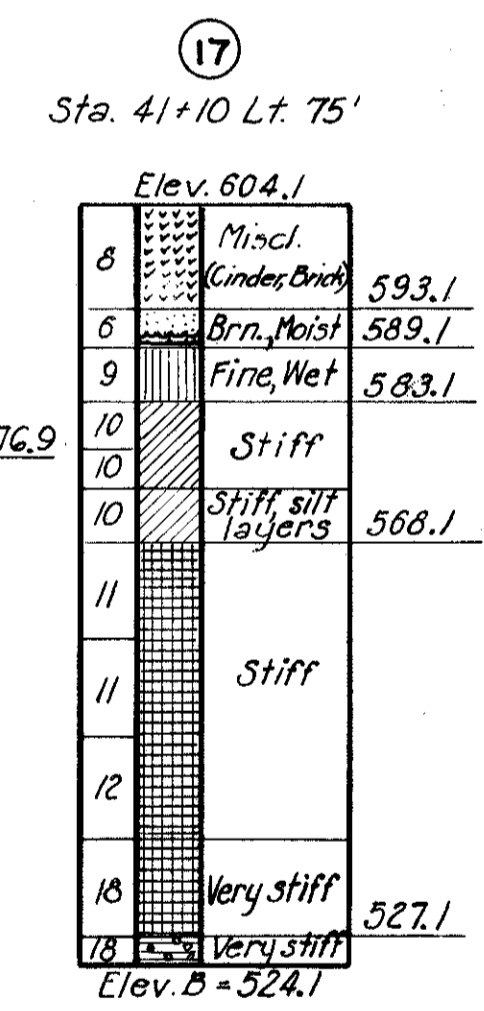
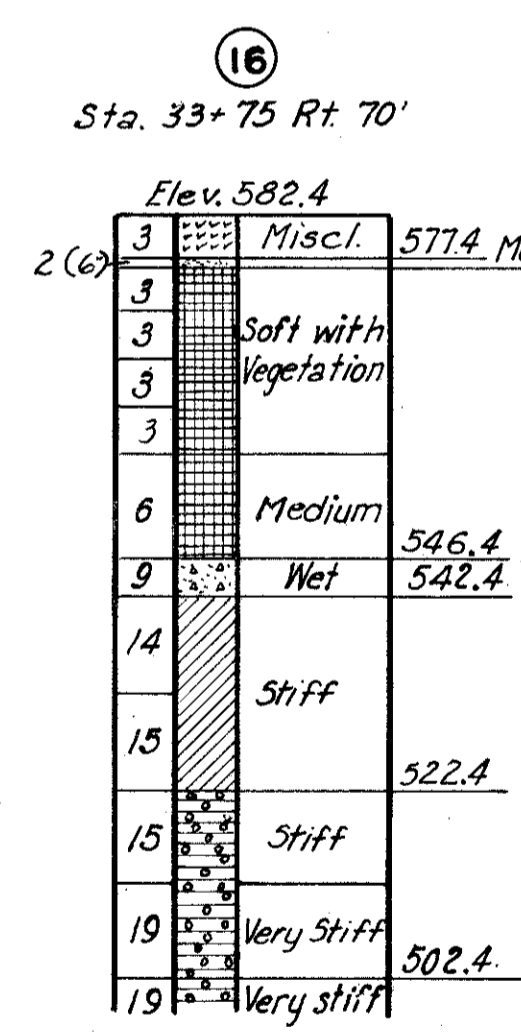
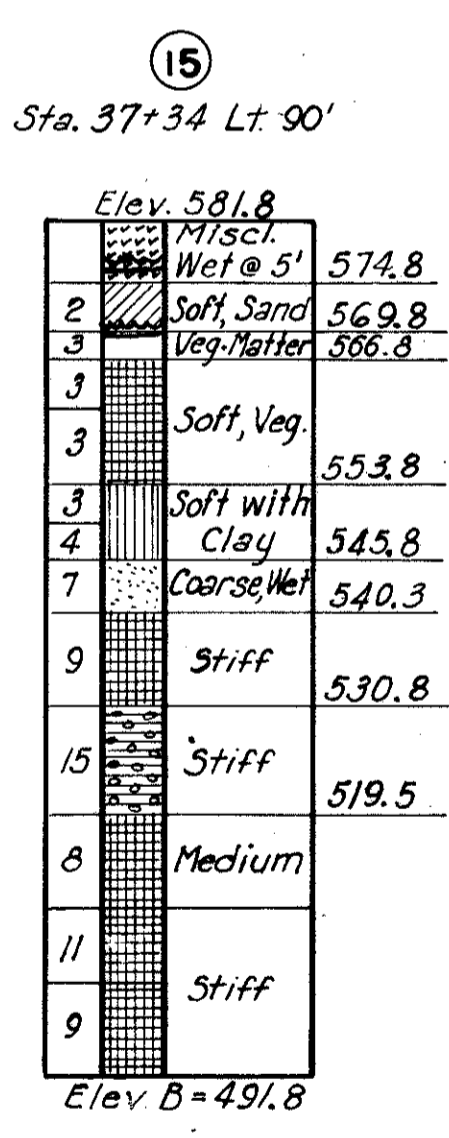
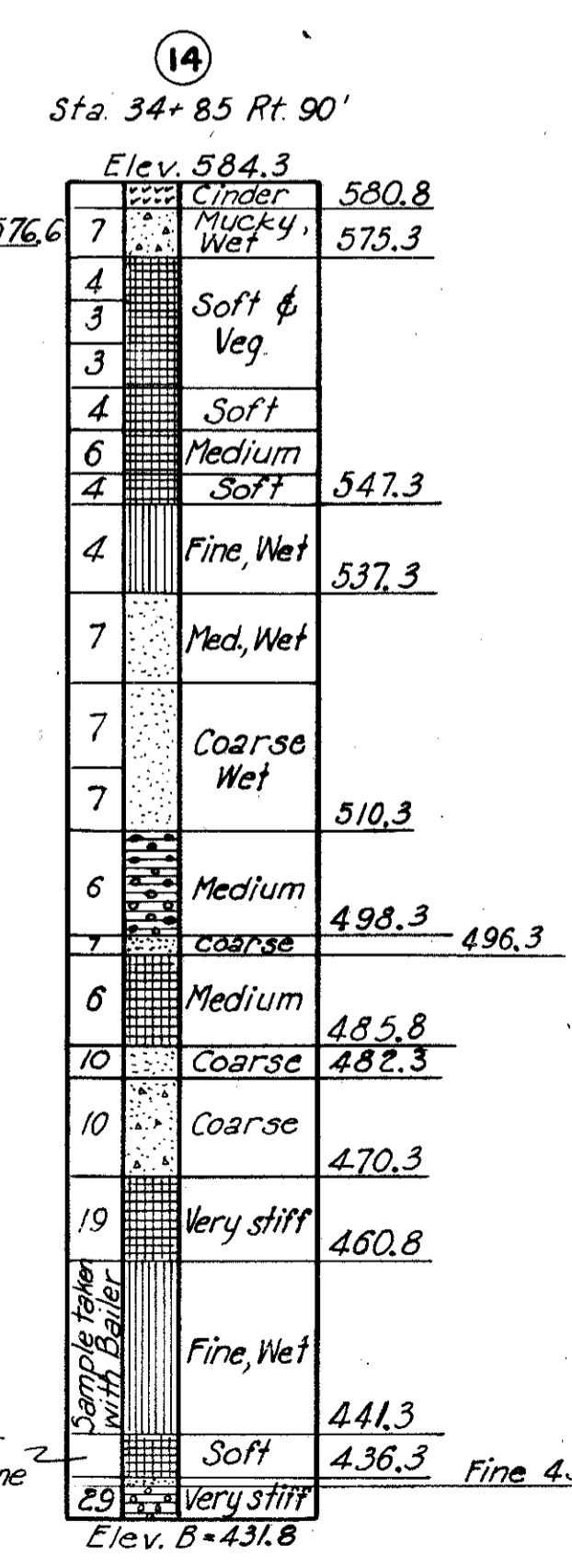
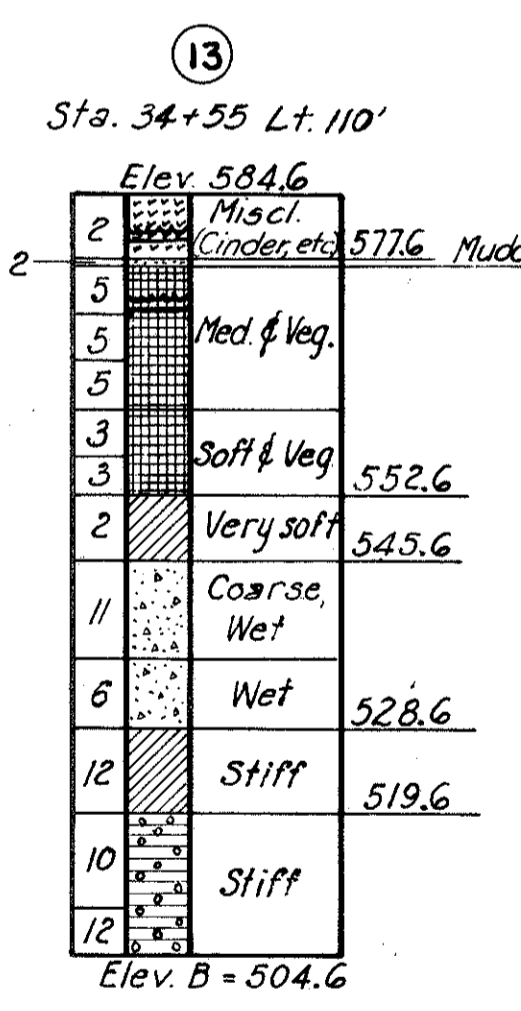
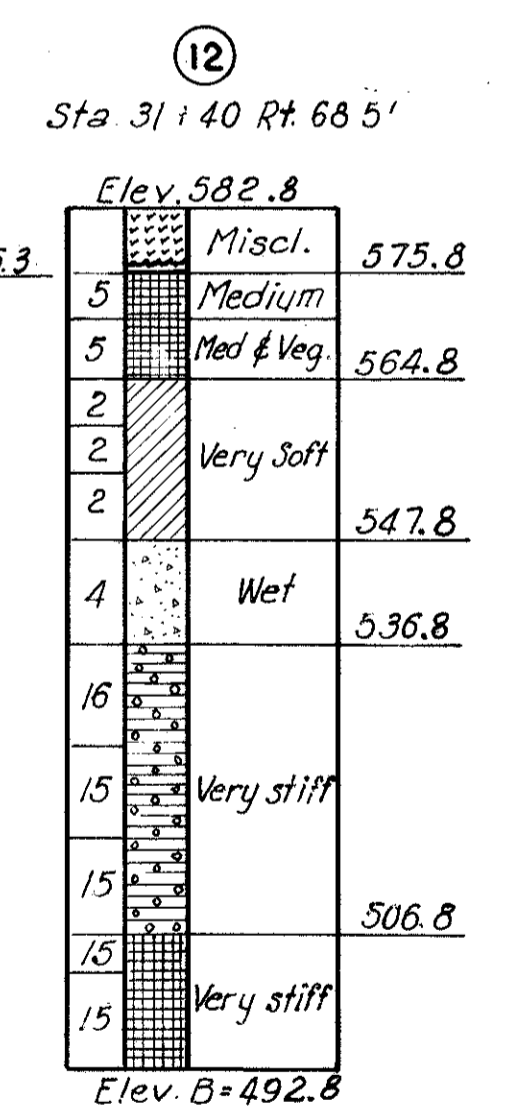
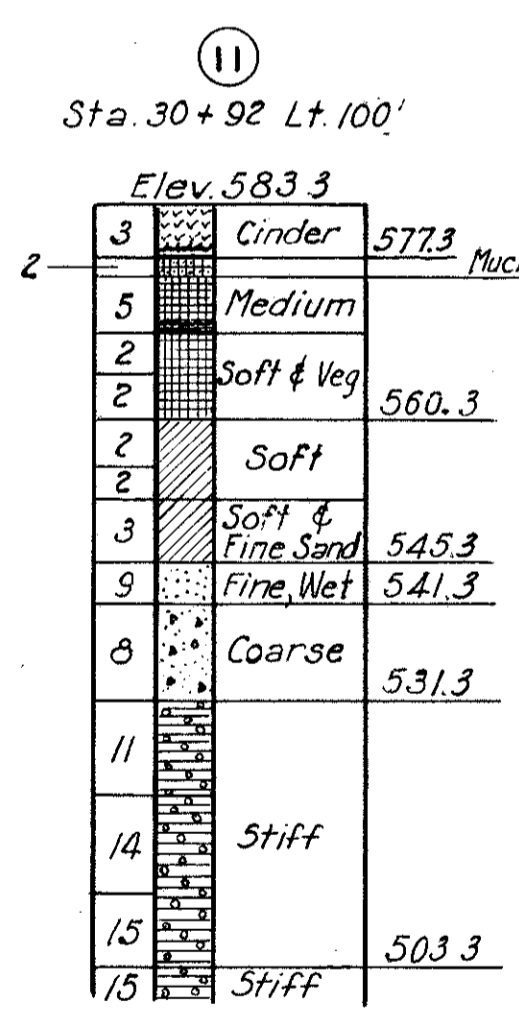
SCALE: 1" = 50', 20'
MADE: 6.5 DATE: 1-12-54
TRCD: 11 DATE: 2-11-54
CKD: C.W.C. DATE: 2-25-54

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.08

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT
CUY - 42R - 17.50



(MICROFILMED)
FEB 15 1983



Notes: For general notes on borings and soil and boring legend, see Sheet 7.
Vertical scale for borings: 1" = 20'.
For existing conditions legend, see Sheet 8.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO CU - 42R-17.5

EXISTING CONDITIONS AND
TEST HOLE BORINGS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1" = 50', 20'
MADE 1.65 DATE 1.13-54
TRCD R.A.H. DATE 1.19-54
CKD. F.G. DATE 2.26-54

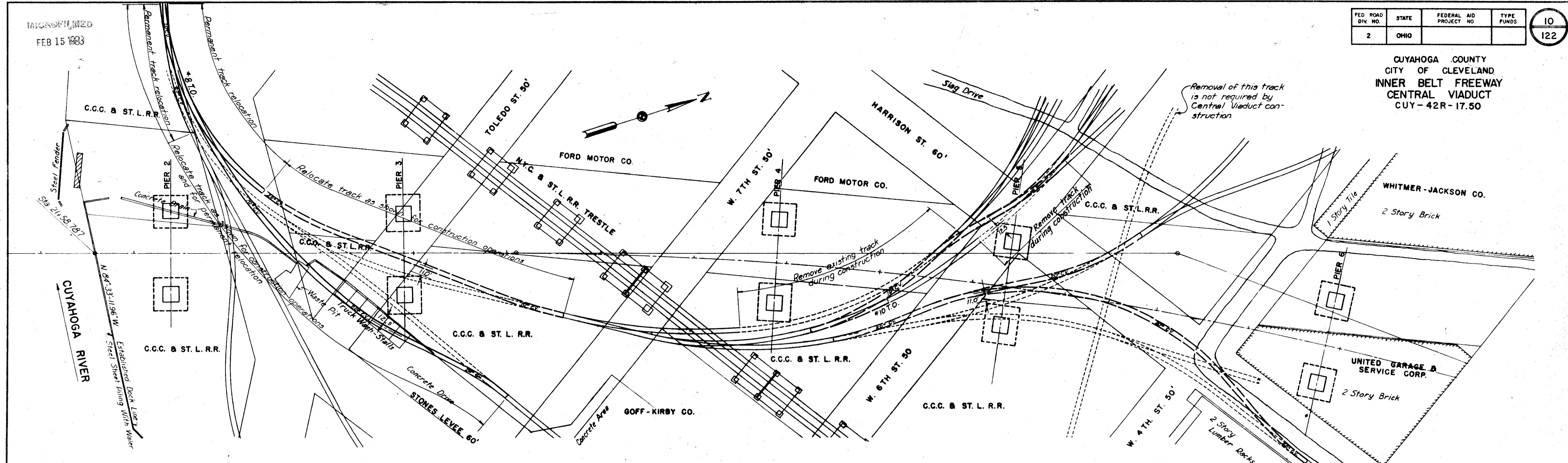
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET - 2.09

MICROFILMED
FEB 15 1983

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

10
122

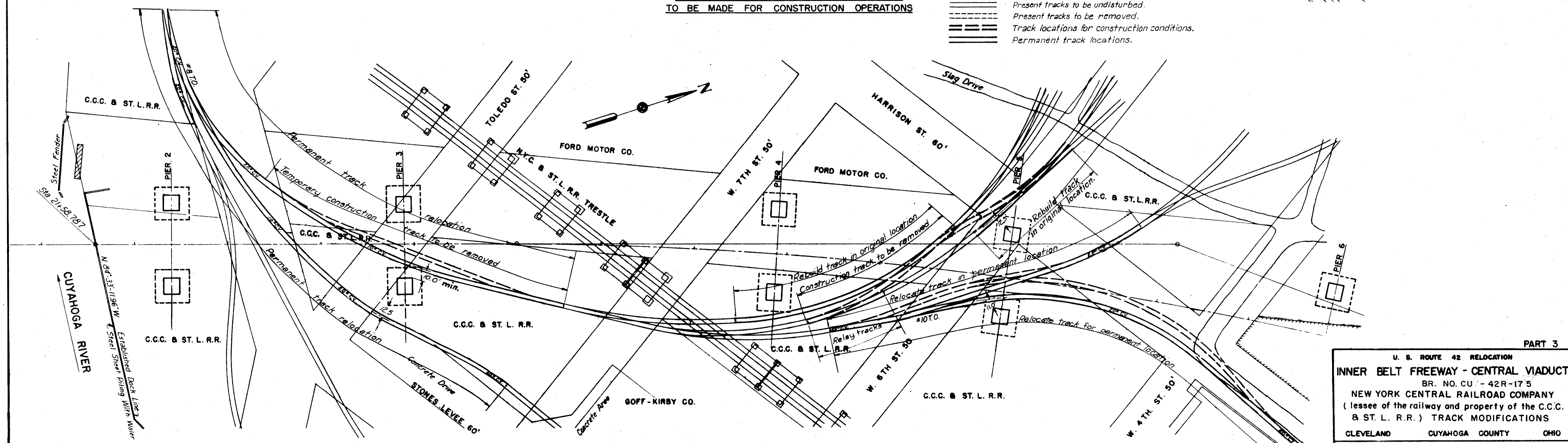
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT
CUY-42R-17.50



**EXISTING CONDITIONS AND TRACK CHANGES
TO BE MADE FOR CONSTRUCTION OPERATIONS**

LEGEND

- Present tracks to be undisturbed.
- - - Present tracks to be removed.
- === Track locations for construction conditions.
- Permanent track locations.



**CONSTRUCTION CONDITIONS AND
PERMANENT TRACK RELOCATIONS**

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17.5
NEW YORK CENTRAL RAILROAD COMPANY
(lessee of the railway and property of the C.C.C.
& ST. L. R.R.) TRACK MODIFICATIONS
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1" = 50'
MADE N.A.M. DATE 4-12-54
TRCD N.A.M. DATE 4-13-54
CKD S.A. DATE 4-15-54

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

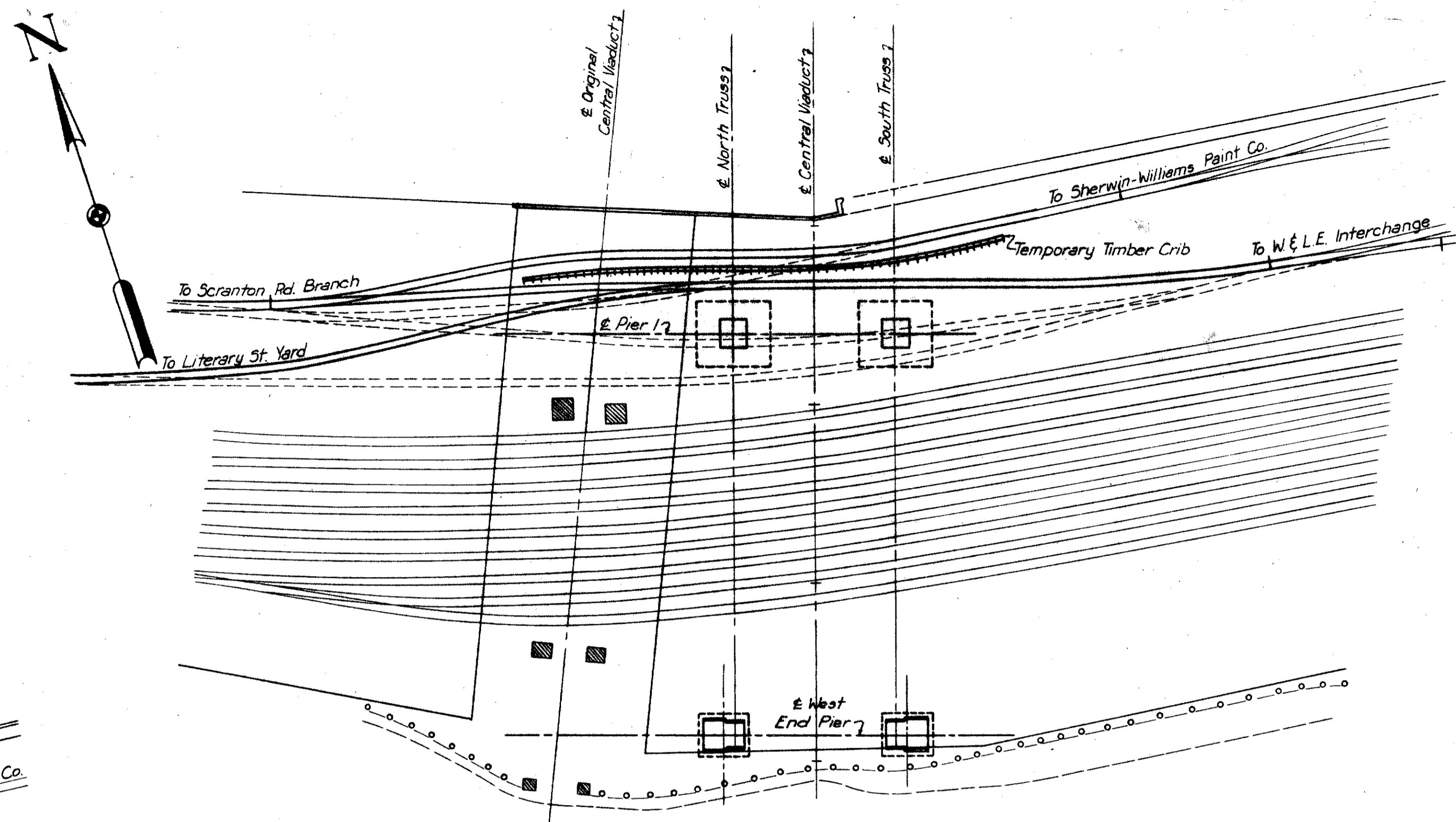
914-1A SHEET 2.10

MICROFILMED
FEB 15 1983

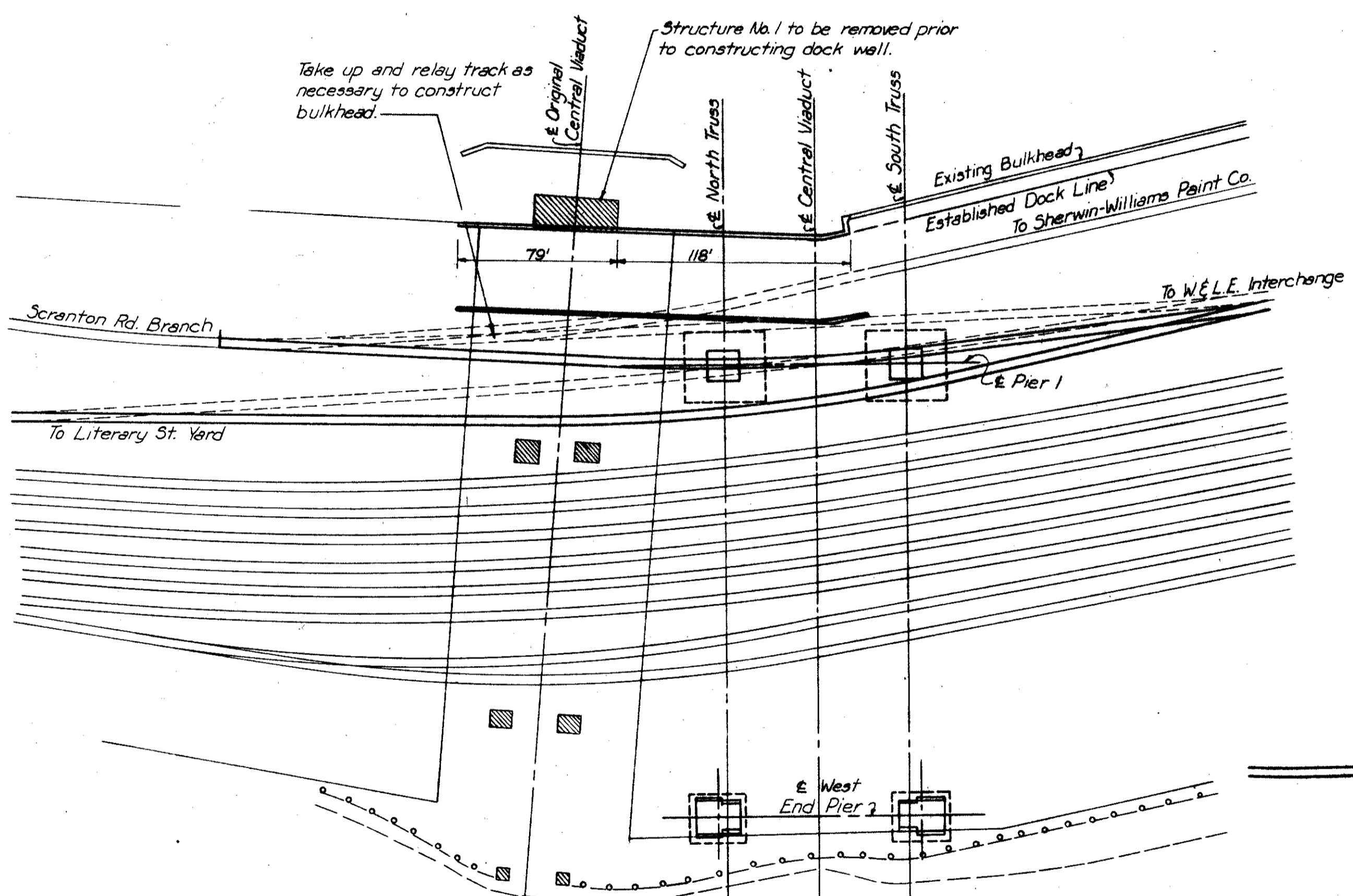
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

11
122

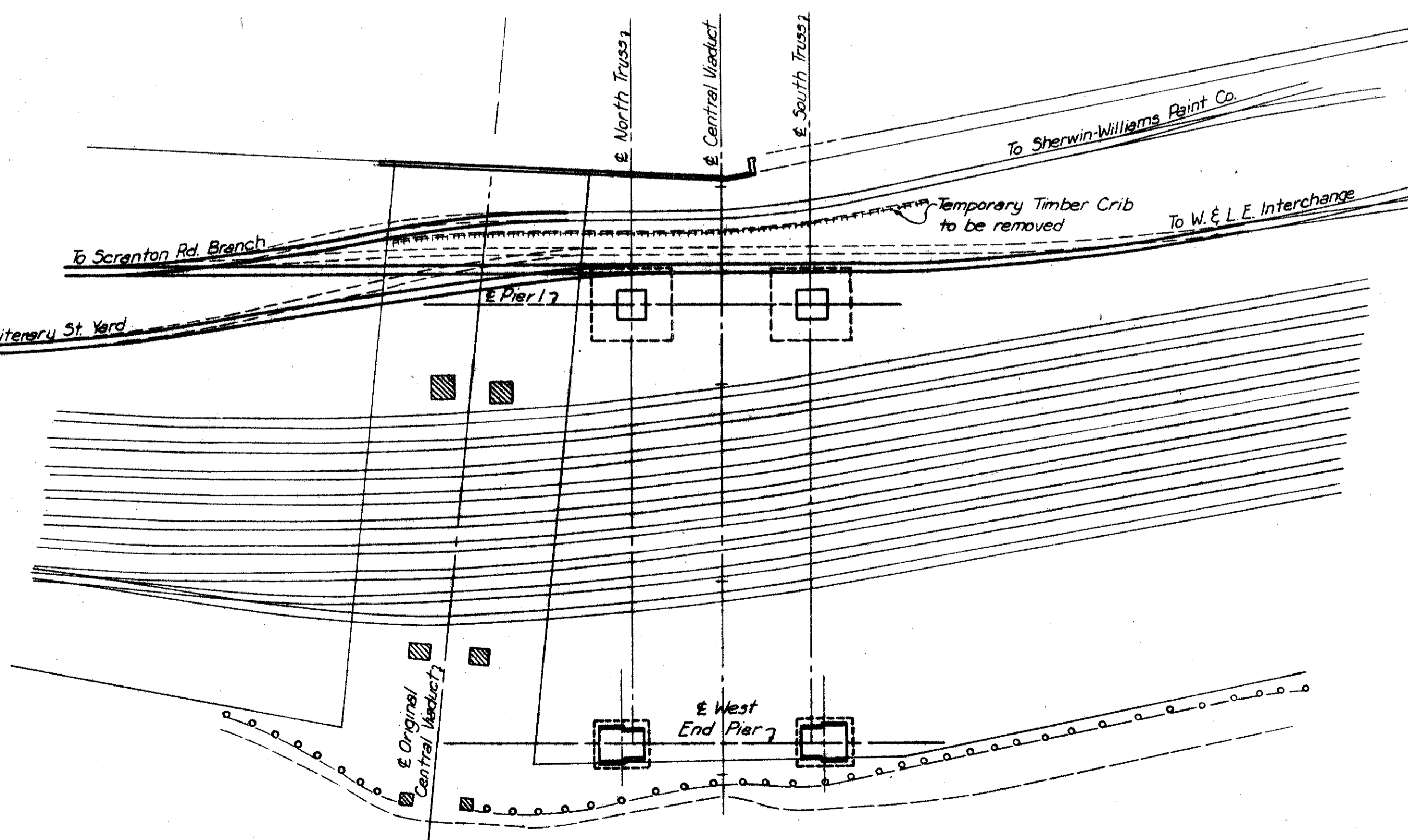
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT
CUY - 42R - 17.50



**EXISTING CONDITIONS AND TRACK CHANGES
TO BE MADE FOR CONSTRUCTION OPERATIONS
FOR PIER 1**



**EXISTING CONDITIONS AND TRACK CHANGES
TO BE MADE FOR CONSTRUCTING
STEEL BULKHEAD**



**CONSTRUCTION CONDITIONS AND
PERMANENT TRACK RELOCATIONS**

LEGEND

	Present tracks to be undisturbed.
	Present tracks to be removed.
	Track relocations.

Information for track location was taken from Erie Railroad Company drawings D-194, D-195, and D-196. Revised Aug. 13, 1954

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R - 17.5

ERIE RAILROAD TRACK MODIFICATIONS

CLEVELAND	GUYAHOGA COUNTY	OHIO
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SCALE 1" = 50.0'

MADE N.A.M. DATE 4-16-54	HOWARD, NEEDLES, TAMMEN & BERGENOFF
TRCD. N.A.M. DATE 4-30-54	CONSULTING ENGINEERS
CKD G.A. DATE 8-30-54	KANSAS CITY CLEVELAND NEW YORK

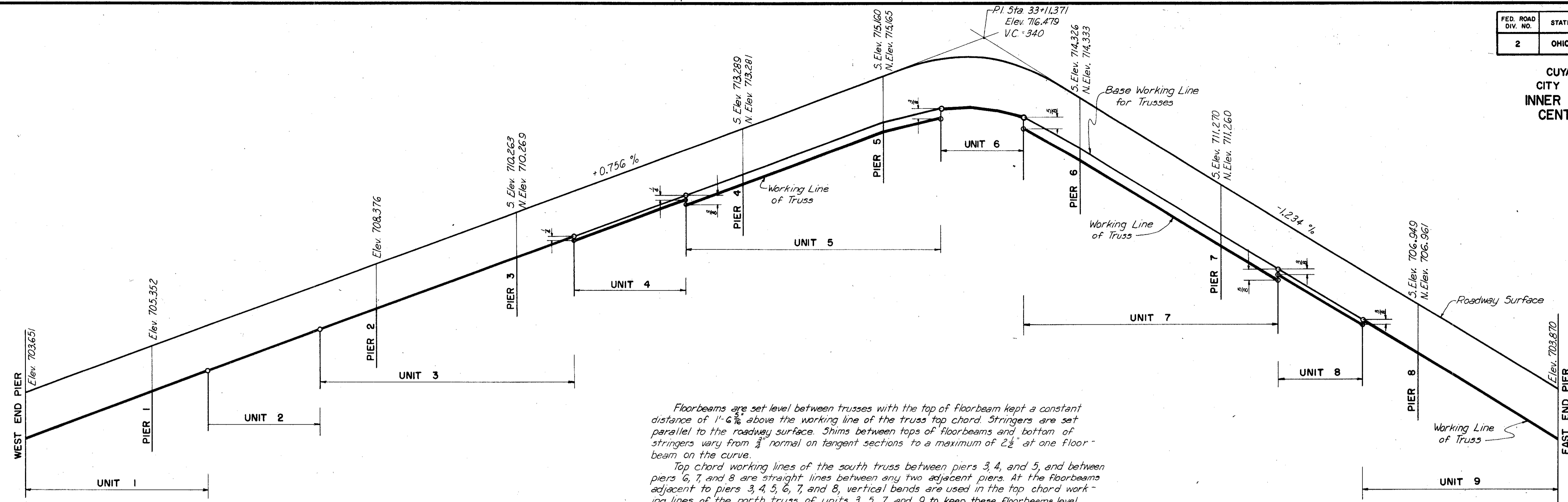
914-1A SHEET 2.11

MICROFILMED
FEB 15 1963

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

12
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



Floorbeams are set level between trusses with the top of floorbeam kept a constant distance of 1'-6" 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 $\frac{1}{8}$ " normal on tangent sections to a maximum of $2\frac{1}{2}$ " 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		
Pier 2	300	703.266	707.643	4.377	707.643	4.377	
	301	703.432	707.809	4.377	707.809	4.377	
	302	703.621	707.998	4.377	707.998	4.377	
	303	703.810	708.187	4.377	708.187	4.377	
	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
Pier 3	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
	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
Pier 4	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
	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
Pier 5	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
	514	710.752	715.165	4.413	715.160	4.408
	515	710.865	715.345	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
Pier 6	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 7	704	709.897	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
	714	706.841	711.260	4.419	711.270	4.429
	715	706.562	710.940	4.378	710.991	4.429
Pier 8	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
Pier 8	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
	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
E. End Pier	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
	914	699.493	703.870	4.377	703.870	4.377

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-175

GRADES AND ELEVATIONS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: None
MADE: 9/18 DATE: 11-54
TRCD: DATE: _____
CRD: C.J.C. DATE: 2-54

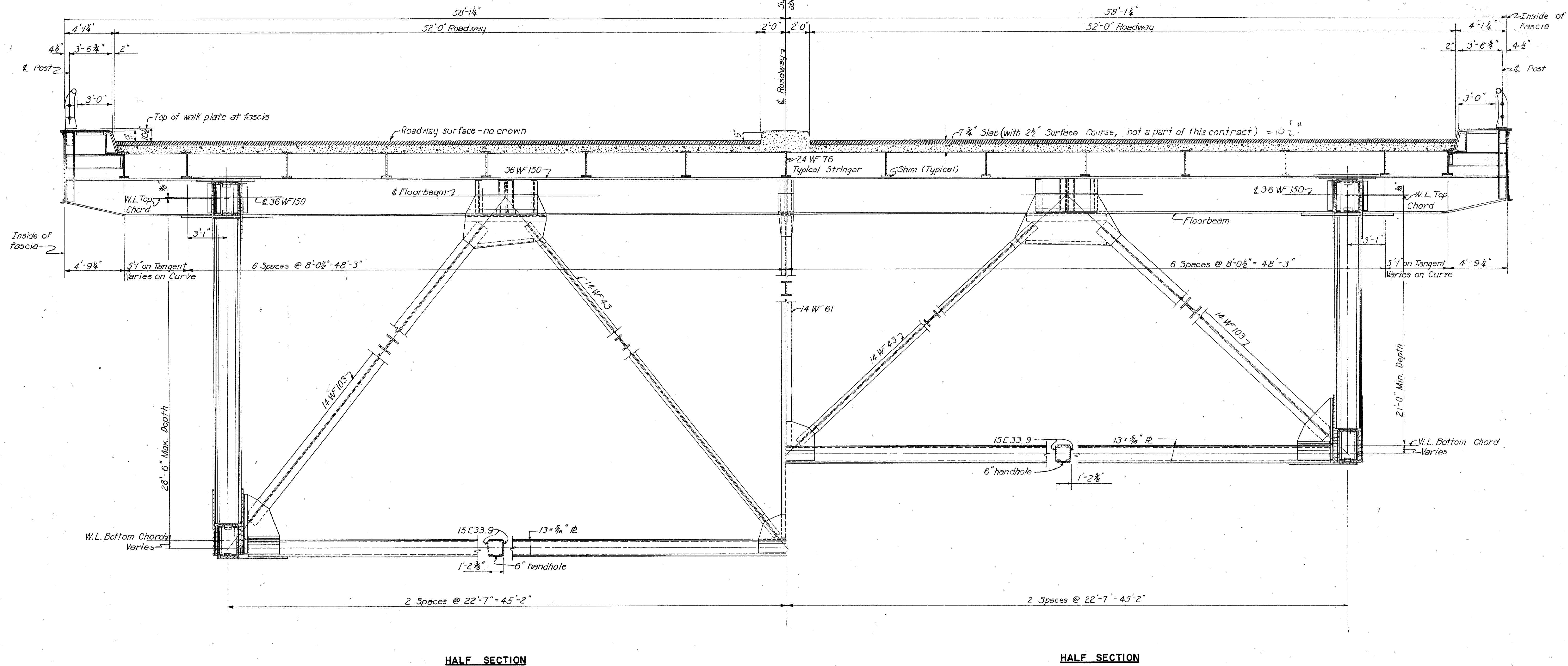
HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET: 2.12

MICROFILMED
FEB 15 1983

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	13 122
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT

58 2 1/2
116



Note:
For details of Floorbeam Truss F1 see Sheet 29
For location of Floorbeam Trusses see Framing Plans.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17 5
GENERAL CROSS SECTION
FLOOR BEAM TRUSSES F1

CLEVELAND	CUYAHOGA COUNTY	OHIO
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SCALE 1/4" = 1'-0"
MADE WEG DATE 1-27-54
TRCD GJK DATE 11-8-54
CKD DMD DATE 11-11-54

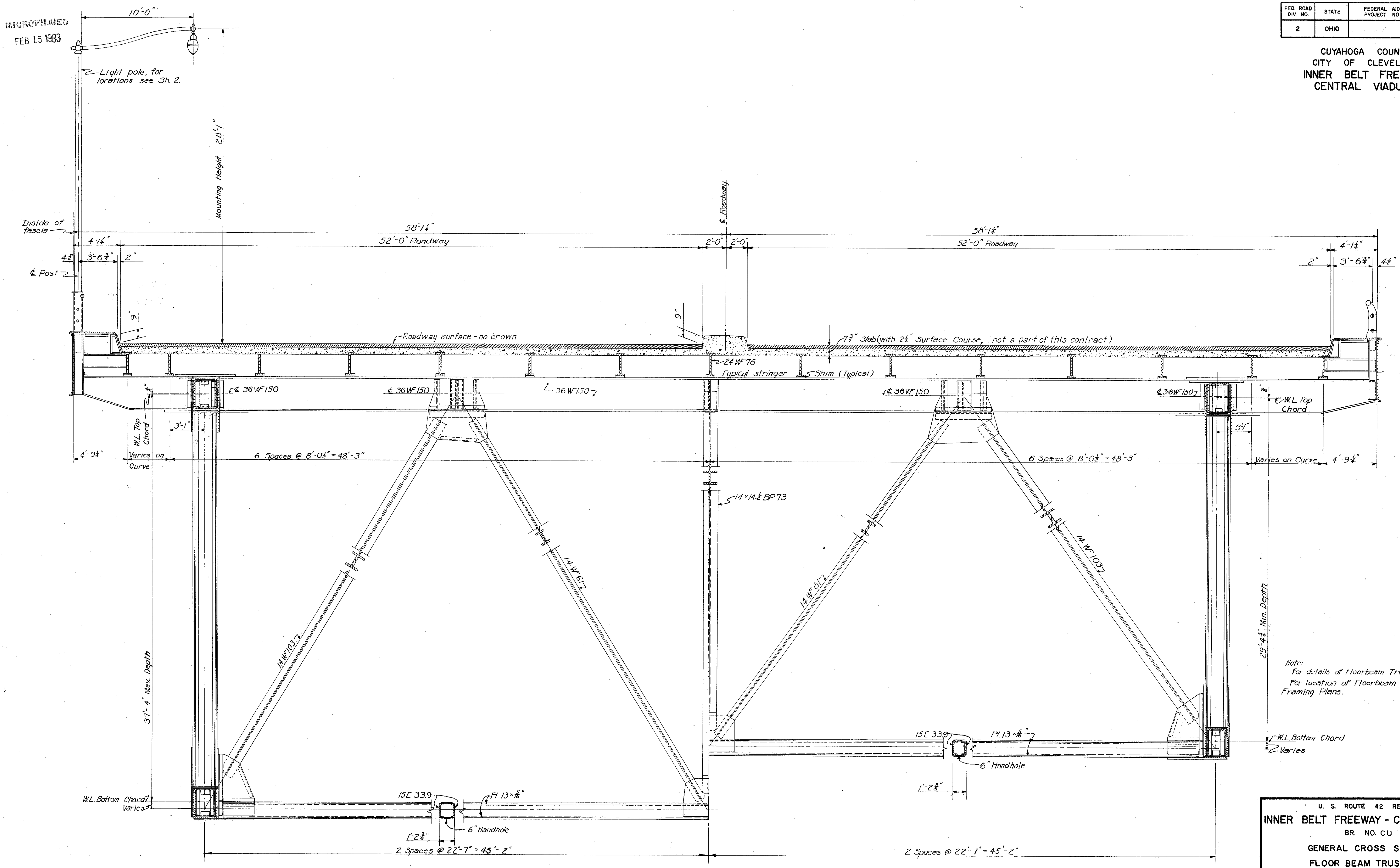
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-IA SHEET 2.13

MICROFILMED
FEB 15 1983

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

14
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



Note:
For details of Floorbeam Truss F2 see Sh.30.
For location of Floorbeam Trusses see Framing Plans.

HALF SECTION

HALF SECTION

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-175
GENERAL CROSS SECTION
FLOOR BEAM TRUSSES F2

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1/4" = 1'-0"

MADE WEG DATE 1-29-54	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD GJK DATE 9-21-54	CONSULTING ENGINEERS
CRD DMD DATE 9-22-54	KANSAS CITY CLEVELAND NEW YORK

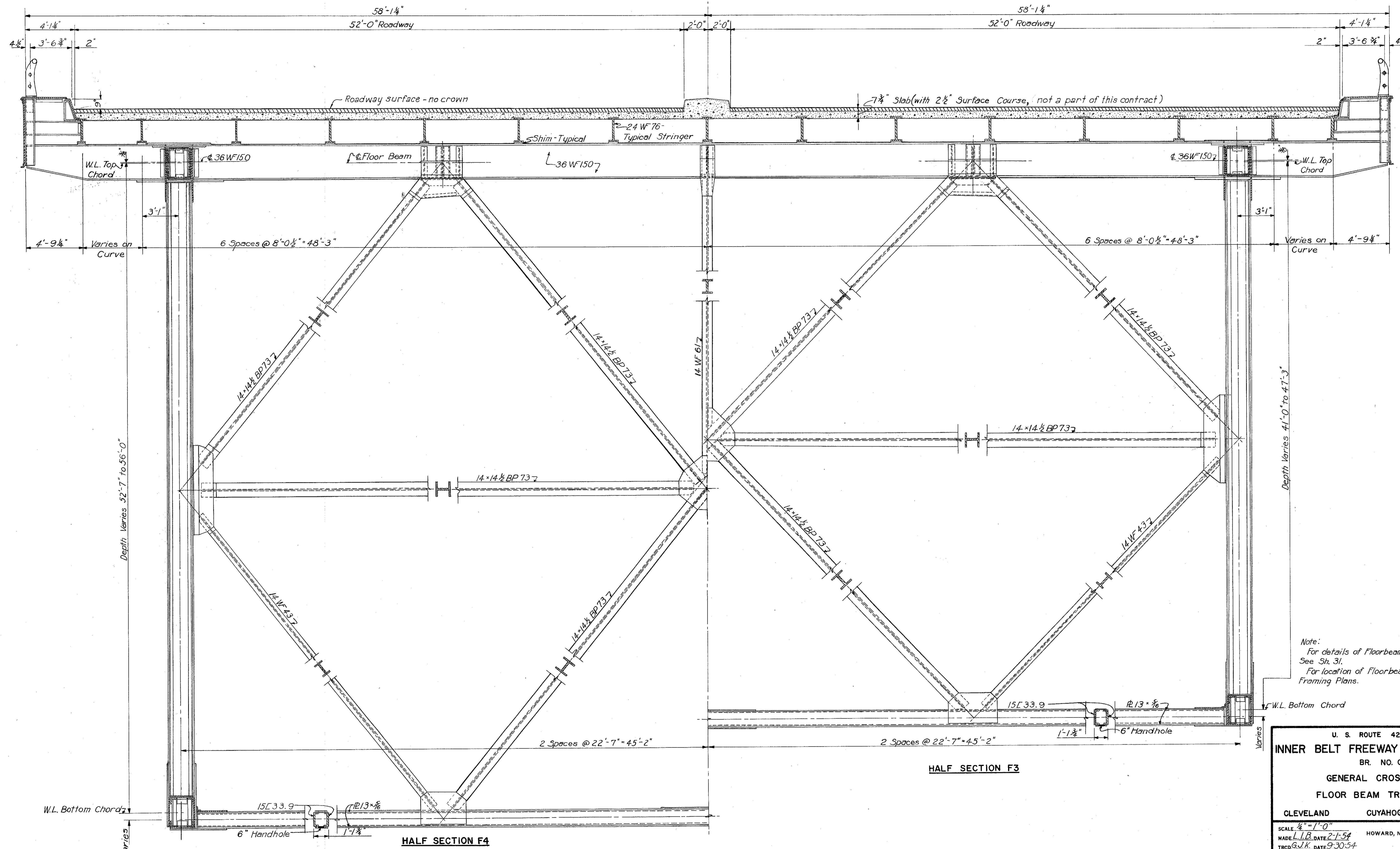
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MICROFILMED
FEB 15 1983

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

15
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



Note:
For details of Floorbeam Trusses F3 & F4
See Sh. 31.
For location of Floorbeam Trusses see
Framing Plans.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU. 42 R 175
GENERAL CROSS SECTION
FLOOR BEAM TRUSSES F3 & F4

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/2" = 1'-0"
MADE L.I.B. DATE 2-1-54
TRCD G.J.K. DATE 9-30-54
CND. D.M.D. DATE 9-2-54

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

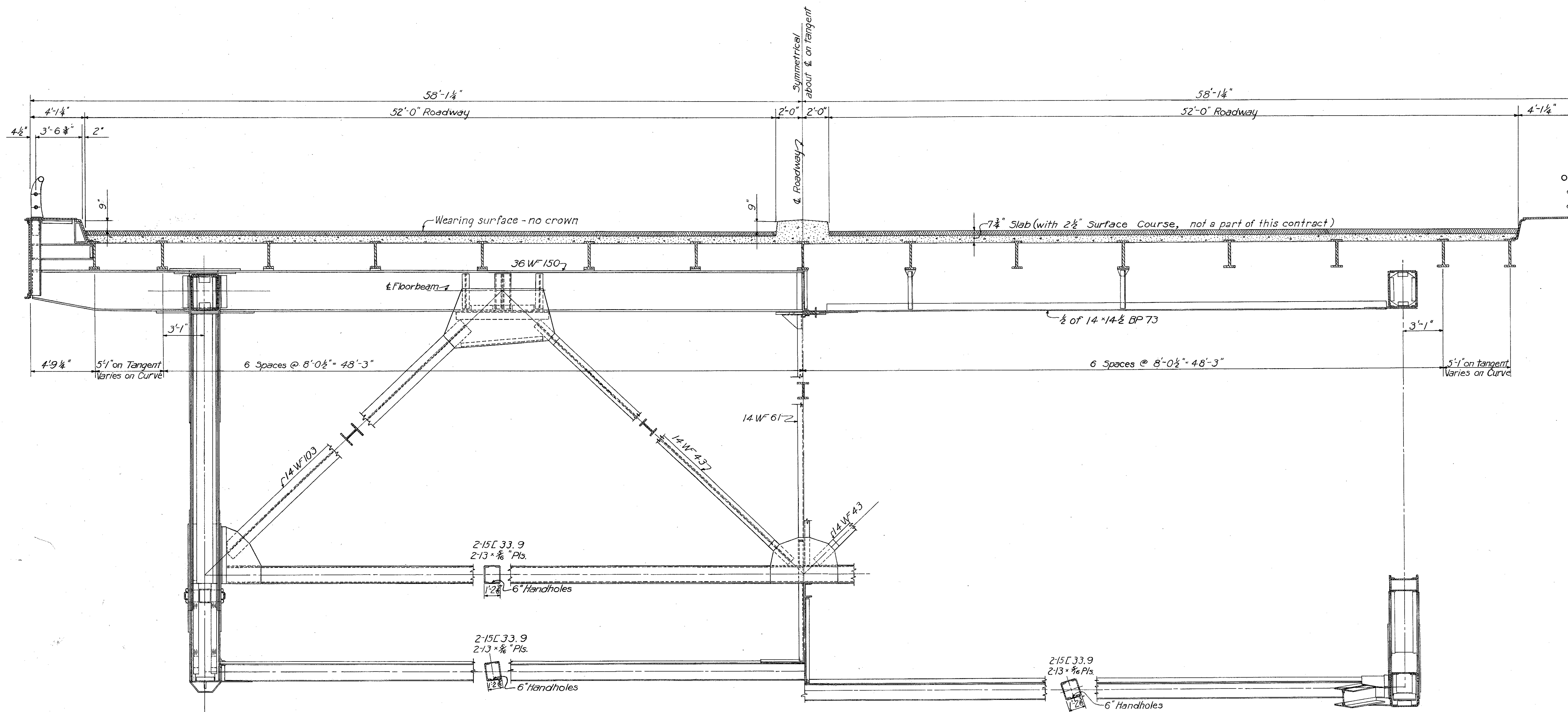
914-1A SHEET-2.15

MICROFILMED
FEB 15 1983

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

16
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



HALF SECTION F5

HALF SECTION F6

Note:
For details of Floorbeam Trusses F5 & F6 see Sh.32.
For location of Floorbeam Trusses see Framing Plans.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-175

GENERAL CROSS SECTION
FLOOR BEAM TRUSSES F5 & F6

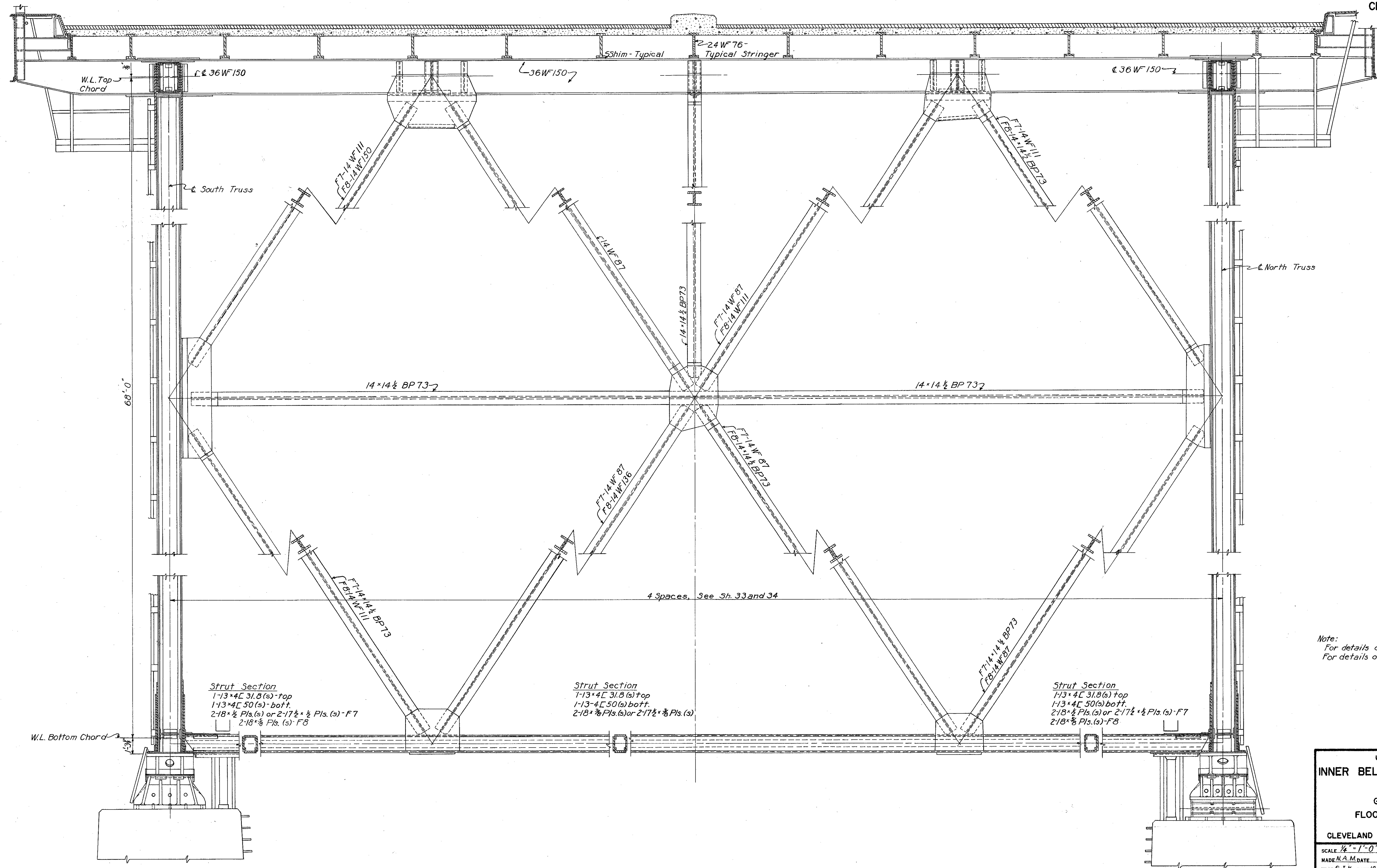
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/4" = 1'-0"
MADE BY NMM DATE 10-9-54 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD BY GJK DATE 10-9-54 CONSULTING ENGINEERS
CRO BY DMD DATE 9-2-54 KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.16

MICROFILMED
FEB 15 1983

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	17
2	OHIO			122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



Strut Section
1-13x4L 31.8 (s) top
1-13x4L 50 (s) bott.
2-18x8/8 Pls. (s) or 2-17 1/2 x 8/8 Pls. (s) F7
2-18x8/8 Pls. (s) F8

Strut Section
1-13x4L 31.8 (s) top
1-13x4L 50 (s) bott.
2-18x8/8 Pls. (s) or 2-17 1/2 x 8/8 Pls. (s)

Strut Section
1-13x4L 31.8 (s) top
1-13x4L 50 (s) bott.
2-18x8/8 Pls. (s) or 2-17 1/2 x 8/8 Pls. (s) F7
2-18x8/8 Pls. (s) F8

Note:
For details of Floorbeam Truss F7 see Sh. 33.
For details of Floorbeam Truss F8 see Sh. 36.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17.5
GENERAL CROSS SECTION
FLOOR BEAM TRUSSES F7 & F8

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/4" = 1'-0"
MADE N.A.M. DATE _____
TRCD. S.J.K. DATE 10-18-54
CKD. D.M.D. DATE 9-2-54

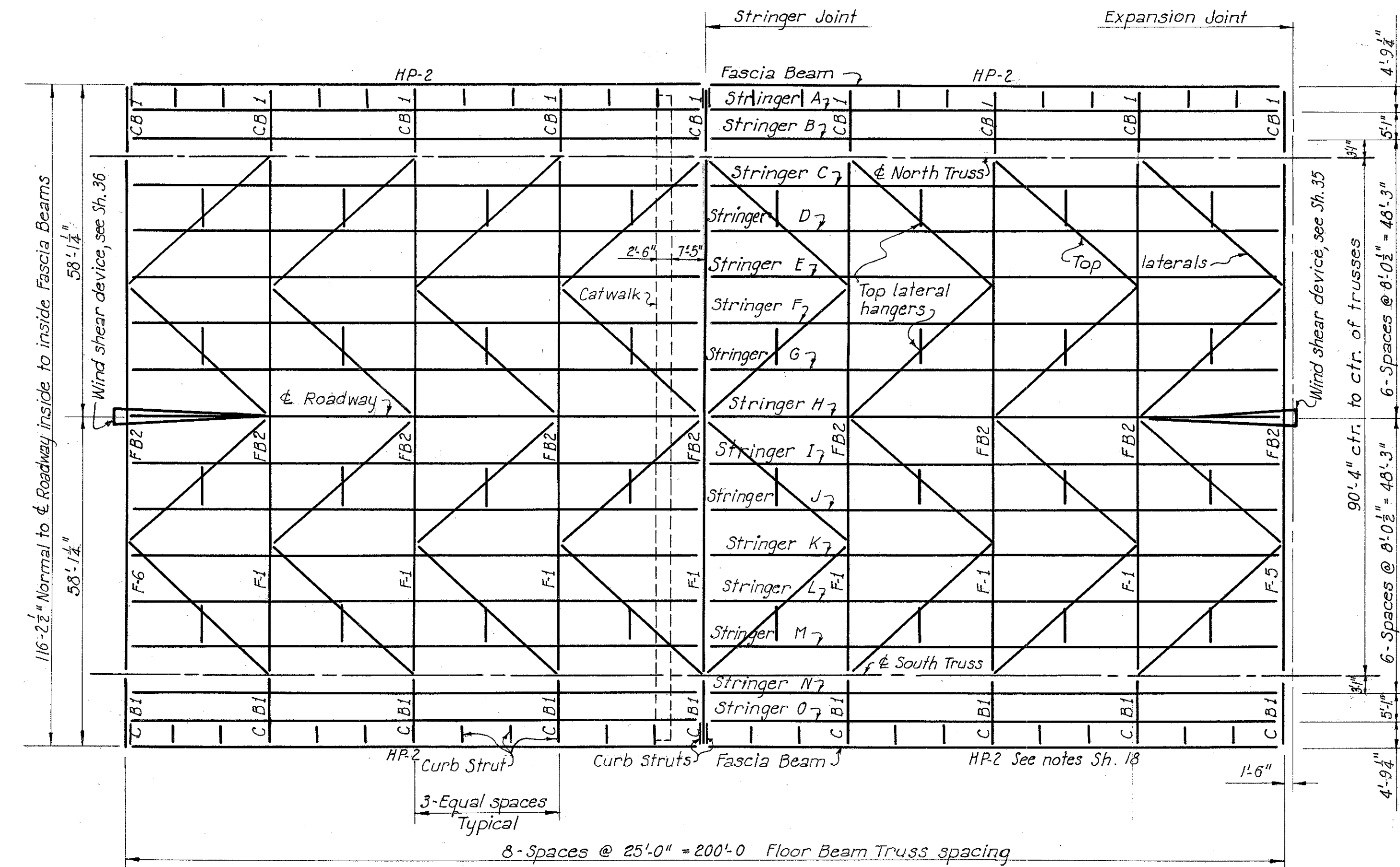
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CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.17

MICROFILMED
FEB 15 1963

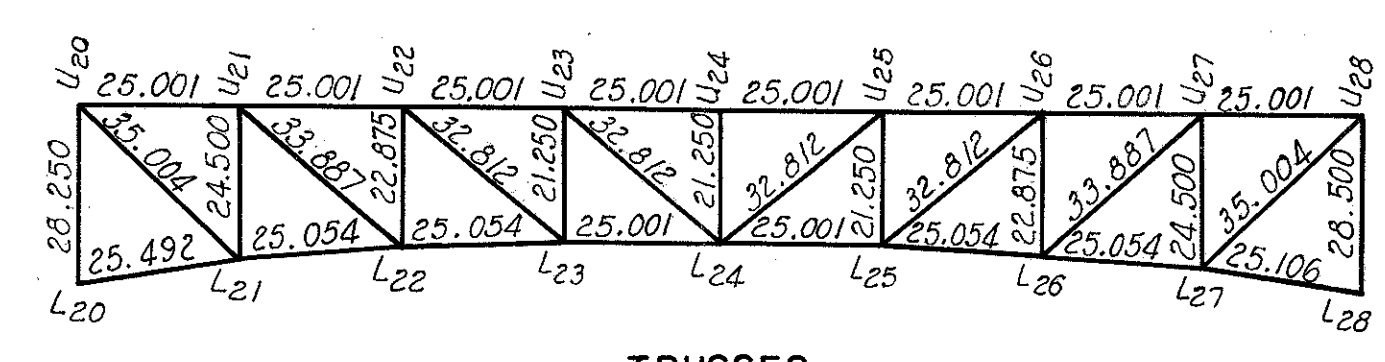
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

19
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT

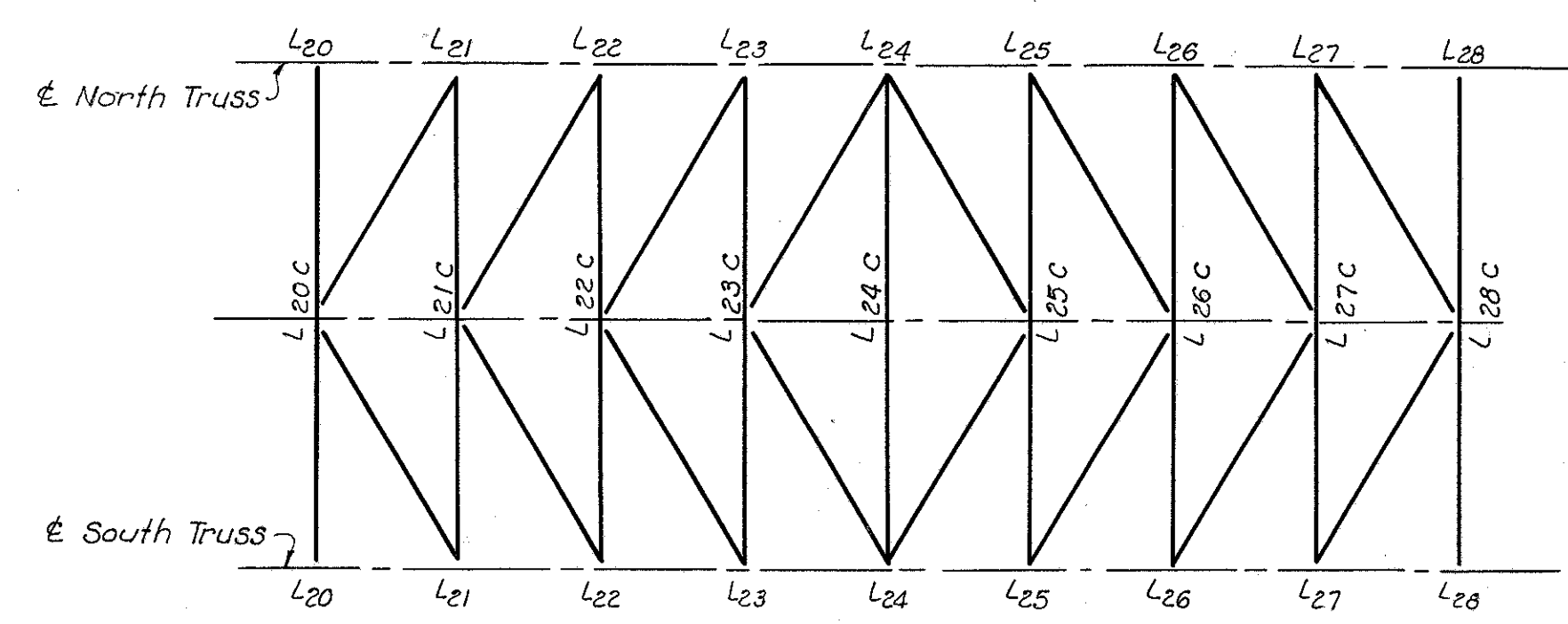


DECK PLAN
Scale: 1/16" = 1'-0"



TRUSSES
Scale: 1" = 30'-0"

Top laterals 1/2 of 12 BP 53 #
Bottom laterals 4 bulb L^s 8 x 3 1/2 x 16.0 # - web 12.15 x 3/8
Stringers 24 WF 76 #
Floorbeams 36 WF 150 #
Bottom lateral struts 2 @ 15 x 33.9 - 2 #s. 13 x 5/8
Working line of truss top chord is 4'-4 1/2" below roadway surface. See the table of grades and Elevations, Sheet 12.
For truss sections and details, see Sheets 44 to 46
Posts at ends of unit are vertical; other posts are normal to top chord.
For typical top lateral hanger, see Sheets 28 and 35.



BOTTOM CHORD LATERAL BRACING
Scale: 1" = 30'-0"

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17.5

FRAMING PLAN - UNIT 2

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: As shown
MADE: F.G. DATE: 1-16-54
TRCD: G.K.A.H. DATE: 7-27-54
CKD: P.M.D. DATE: 9-30-54

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

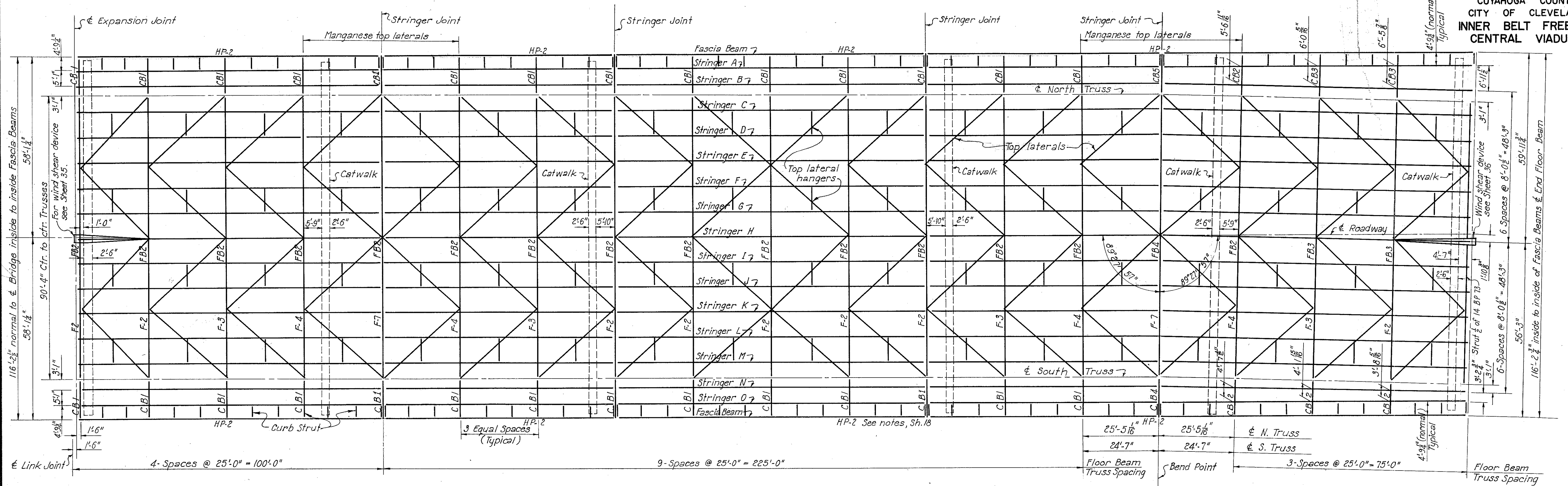
914-1A SHEET 2.19

MICROFILMED
FEB 15 1993

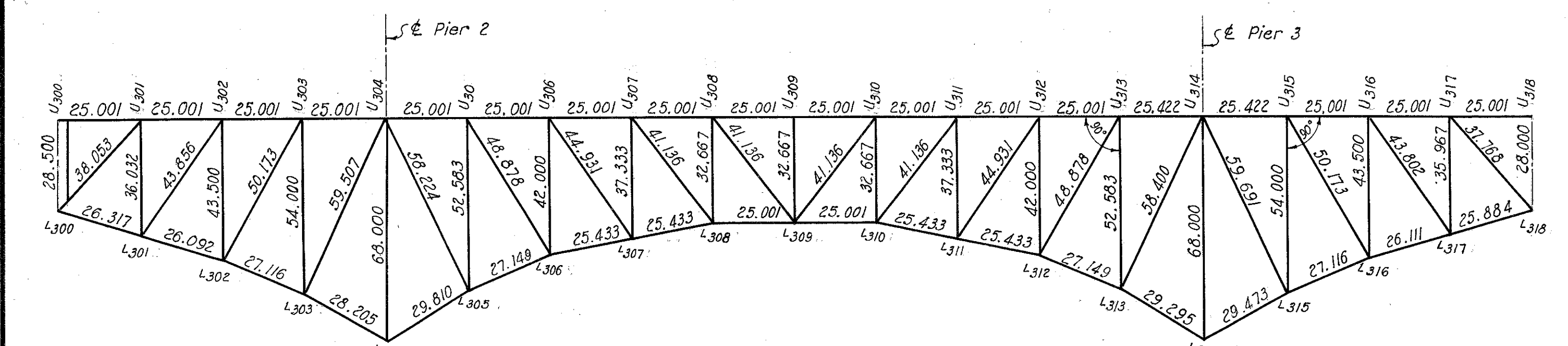
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

20
122

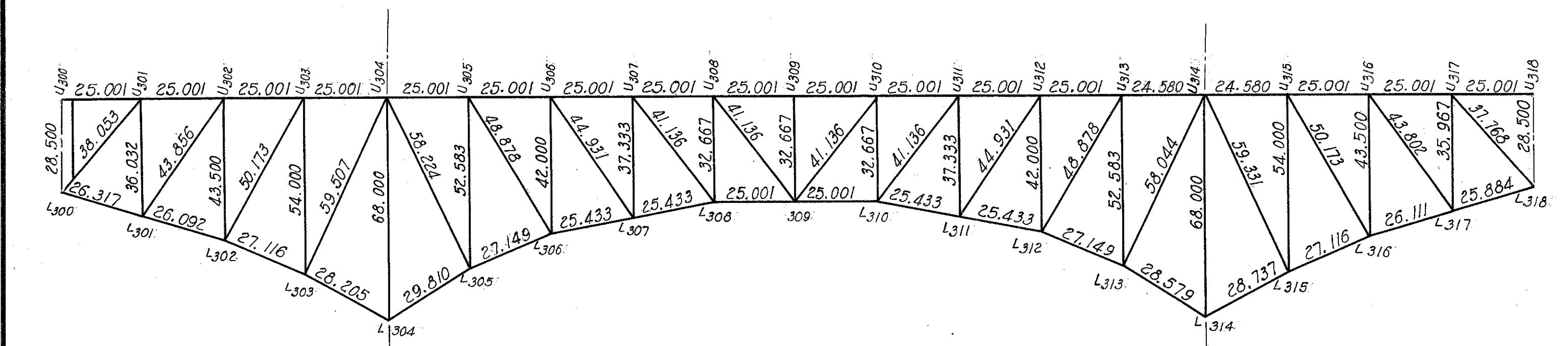
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



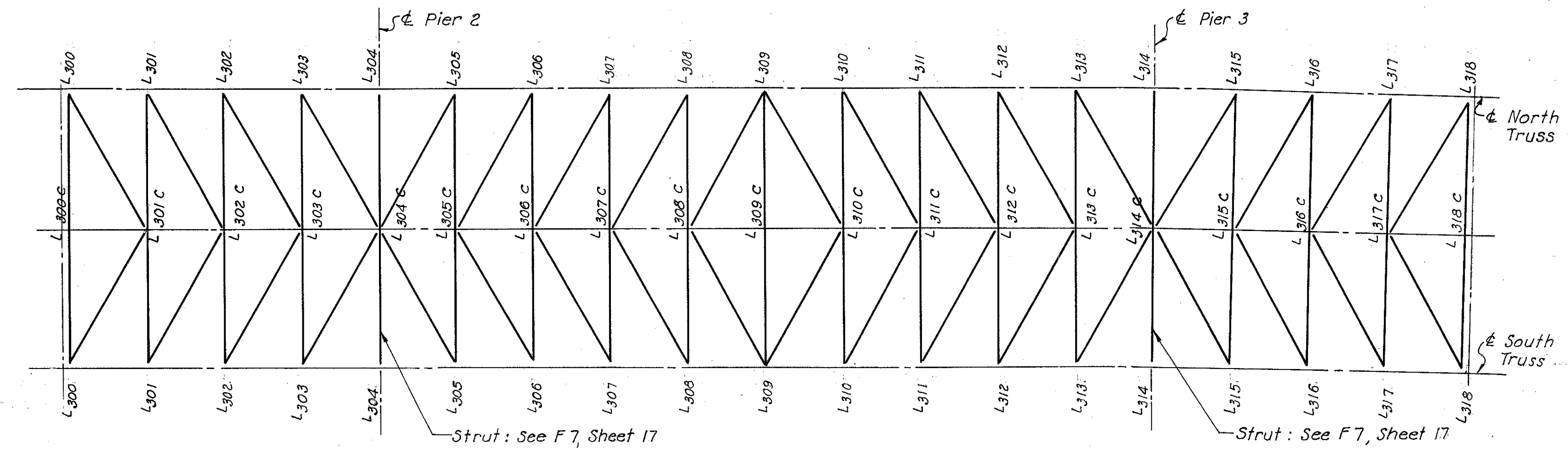
PIER 2
PIER 3
DECK PLAN
Scale: 1" = 16'-0"



NORTH TRUSS
Scale: 1" = 30'-0"



SOUTH TRUSS
Scale: 1" = 30'-0"



BOTTOM CHORD LATERAL BRACING
Scale: 1" = 30'-0"

All top laterals carbon steel unless noted. 1/2 of 12 BP 53.
Bottom laterals 4 bulb L³ 8x3 1/2 x 16.0 # - web 15 x 3/8 R.
Stringers 24 WF 76 #.
Floorbeams 36 WF 150 #.
Top lateral struts 1/2 of 14 BP 73 #.
Bottom lateral struts 2 B 15x3.3.9 - 2 fls. 13 x 5/16 unless noted.
For the distance from the roadway surface to the working line of the truss top chord at each panel point, see the table of Grades and Elevations Sheet 12.
For truss sections and details, see Sheets 47 to 57 inclusive.
Posts at piers and at ends of unit are vertical; other posts are normal to top chord.
For typical top lateral hanger, see Sheets 28 and 35.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-175

FRAMING PLAN - UNIT 3

CLEVELAND	CUYAHOGA COUNTY	OHIO
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SCALE: As shown
MADE: L.W.L. DATE 1-18-54
TRCD: A.H. DATE 7-12-54
CKD: R.M.D. DATE 9-22-54

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

914-1A SHEET- 2.20

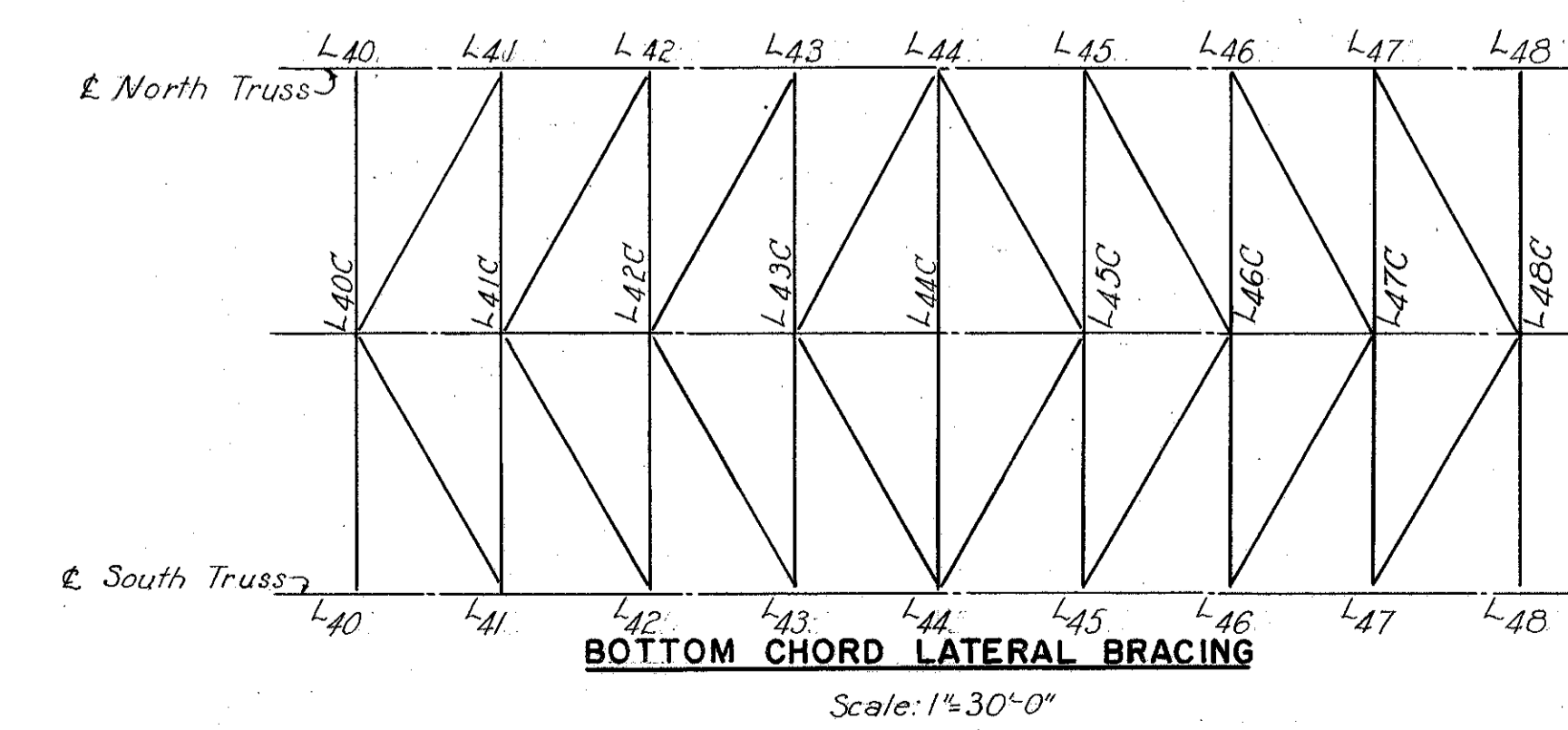
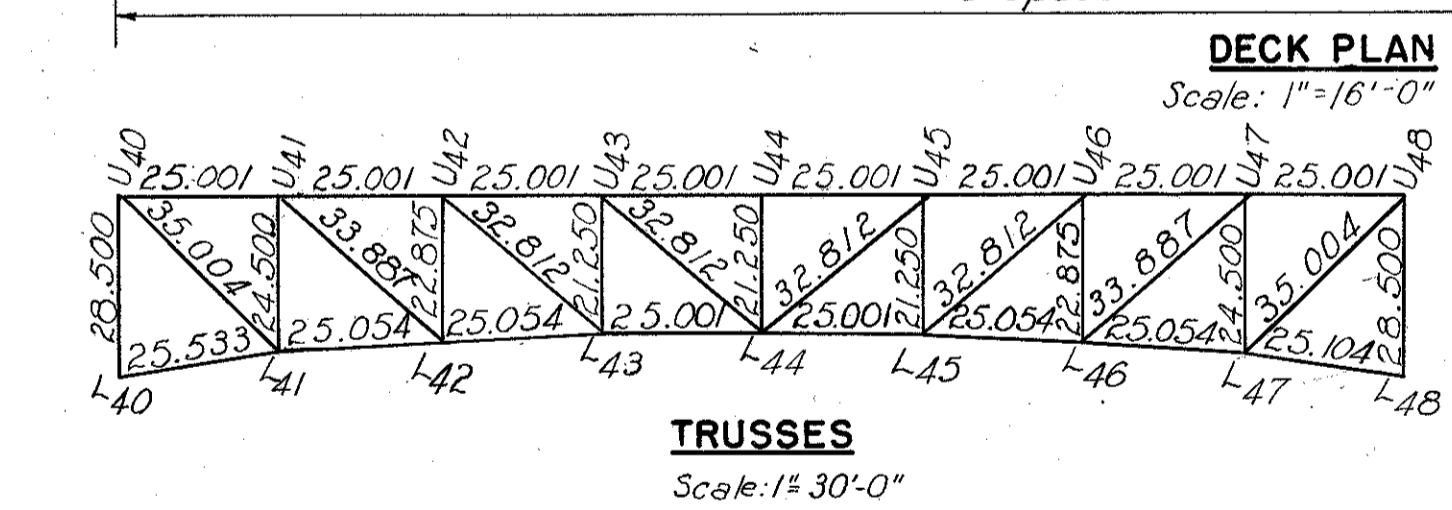
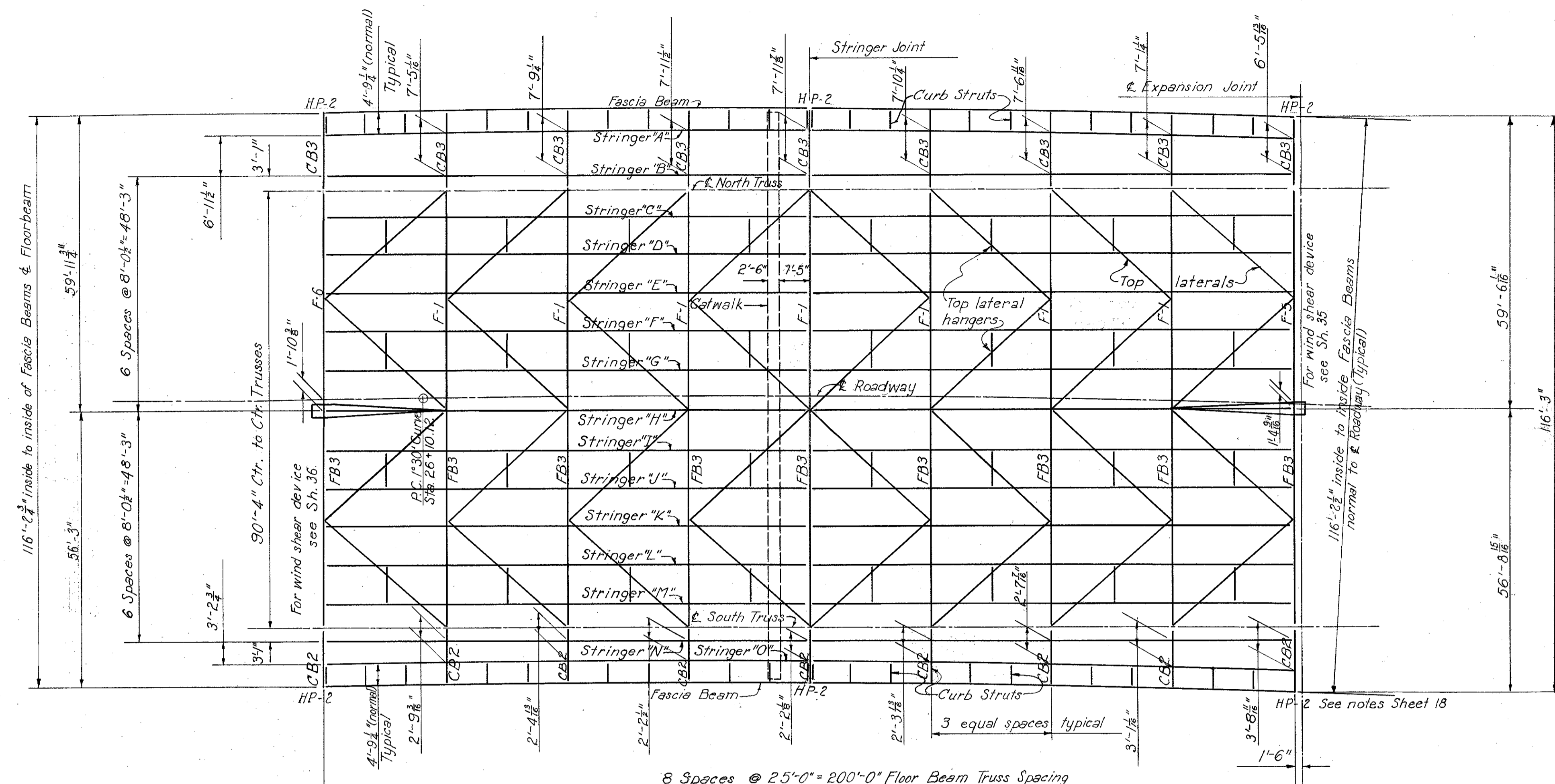
216

MICROFILMED
FEB 15 1993

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

21
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



All top laterals 1/2 of 12BP53#
Bottom laterals 4 bulb ls 8x3 1/2 x 16.0#-Web Pl. 15 x 8#
Stringers 24WF76#
Floorbeams 36WF150#
Bottom lateral struts: 2 @ 15x33.9-2 Pls. 13x16#
For the distance from the roadway surface to the working line of the truss top chord at each panel point, see the table of Grades and Elevations, Sh. 12.
For truss sections and details see Sheets 58 to 62 inclusive.
Posts at ends of unit are vertical; other posts are normal to top chord.
For typical top lateral hanger, see Sheets 28 and 35.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-175

FRAMING PLAN-UNIT 4

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE as shown
MADE L.L.D. DATE
TRCD B.L.R. DATE 6-8-54
CKD D.M.D. DATE 9-30-54

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

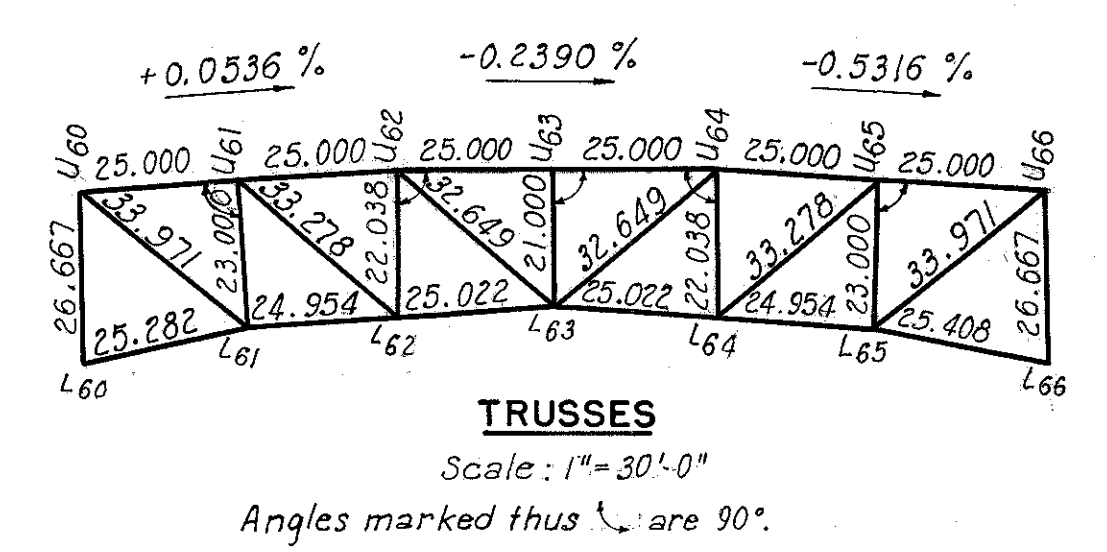
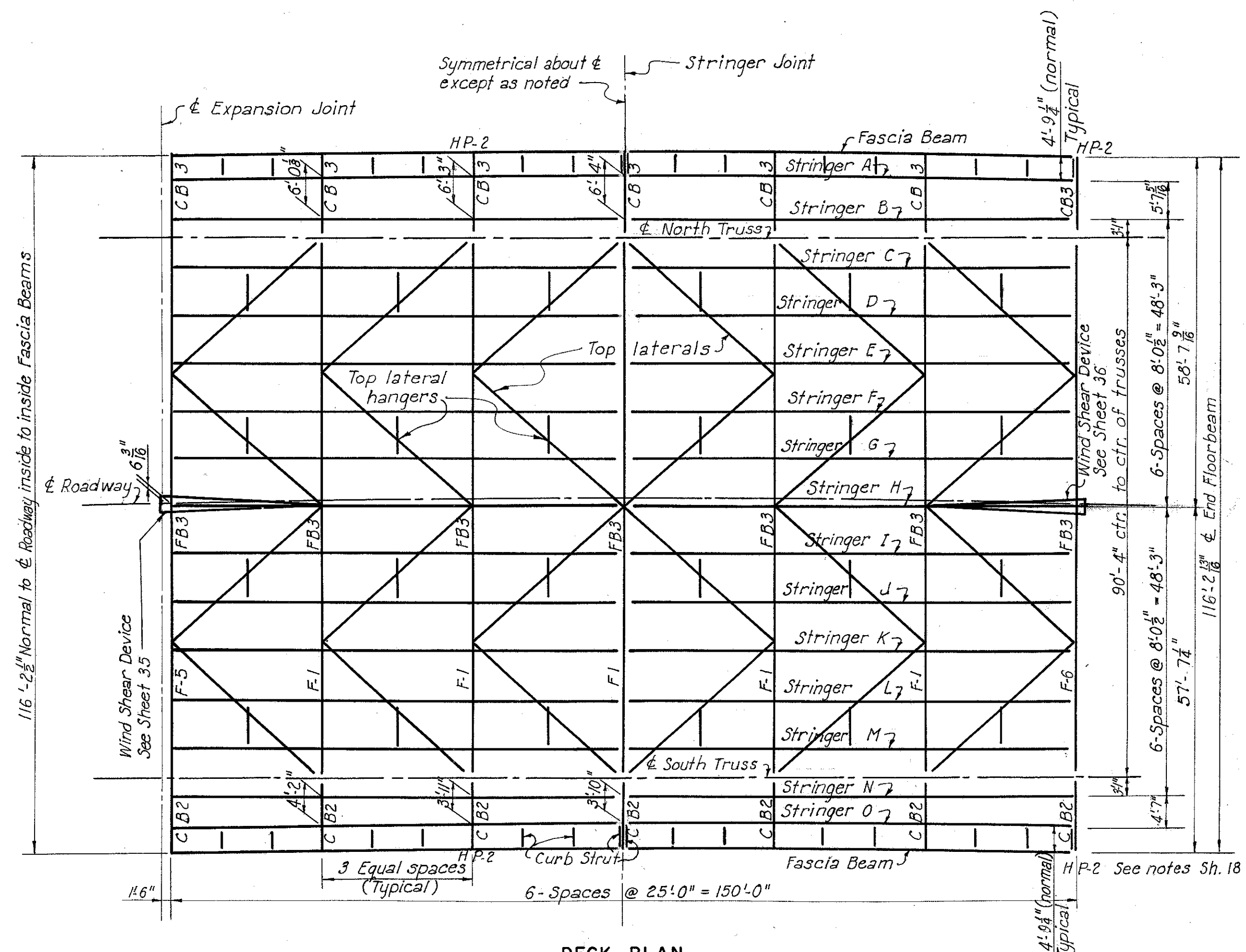
914-1A SHEET 2.21

MICROFILMED
FEB 15 1963

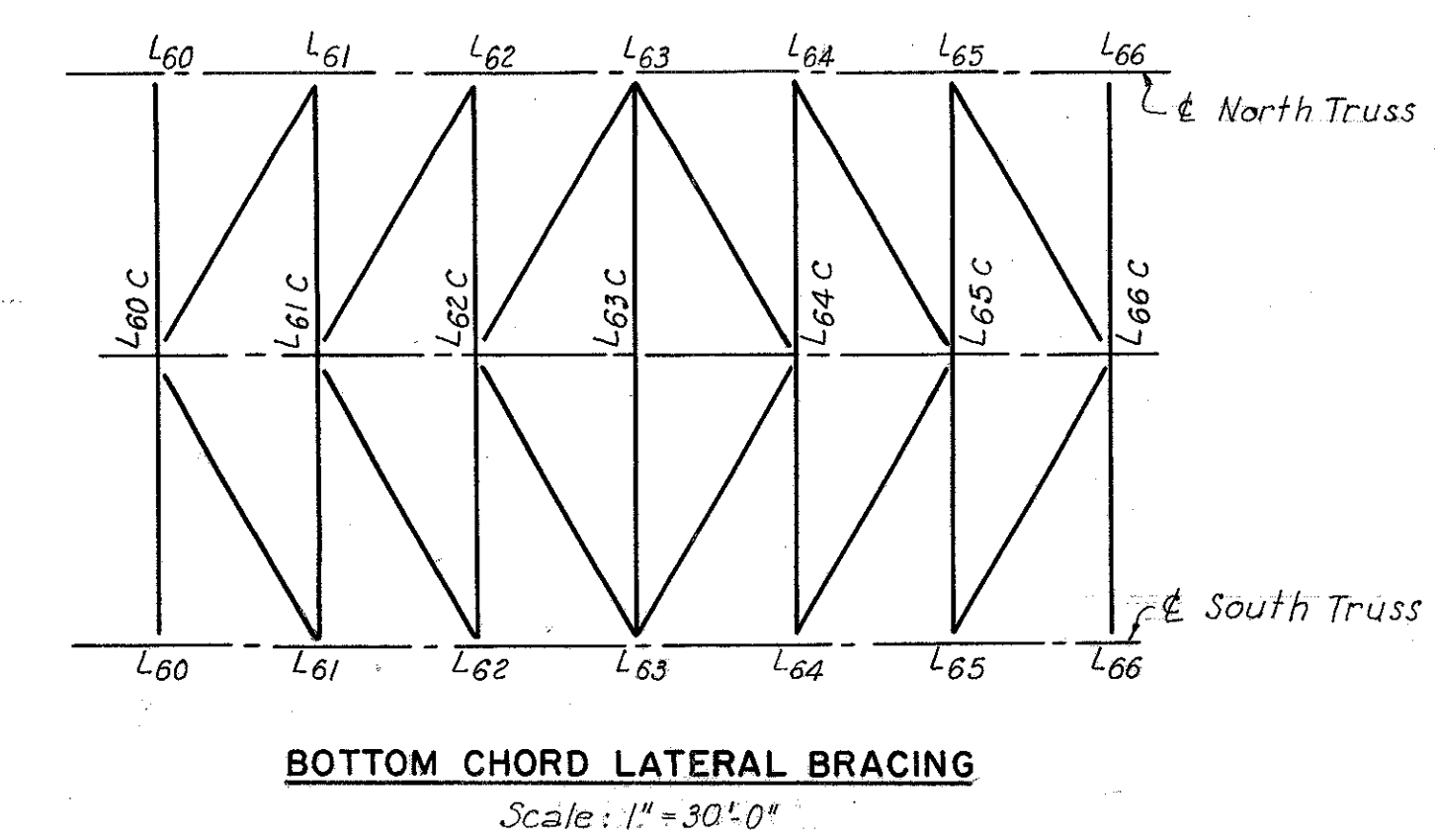
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

23
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



Top laterals $\frac{1}{2}$ of 12 BP 53 #
Bottom laterals 4 bulb I₅ 8x3 $\frac{1}{2}$ x16.0 # - 1 web @ 15x $\frac{3}{8}$
Stringers 24 W 76 #
Floorbeams 36 W 150 #
Bottom lateral struts 2 @ 15x33.9 - 2- fls. 13x $\frac{5}{8}$
For the distance from the roadway surface to the working line of the truss top chords at each panel point, see the table of Grades and Elevations, Sheet 12.
For truss sections and details see Sheets 77 to 79 inclusive.
Posts at ends of unit are vertical; other posts are normal to top chord as shown.
For typical top lateral hanger, see Sheets 28 and 35.



PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17.5

FRAMING PLAN - UNIT 6

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: As shown
MADE R. K. DATE 7-12-54
TRCD G. K. DATE 8-13-54
CKD. D. M. P. DATE 9-30-54

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

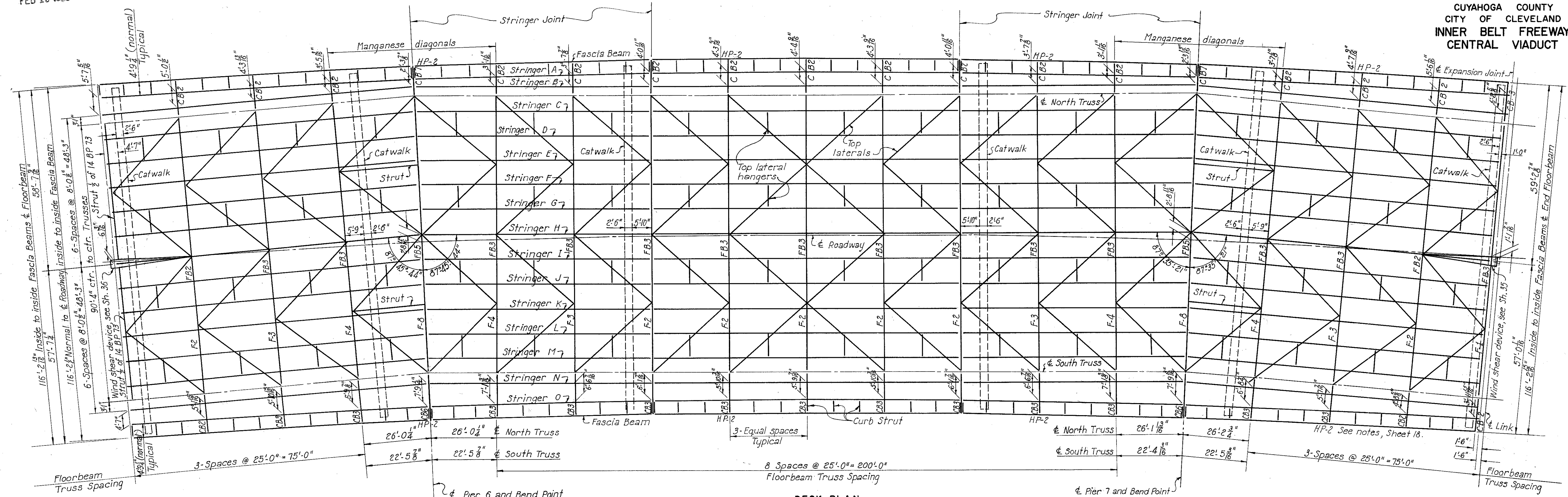
914-1A SHEET 2.23

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FEB 15 1983

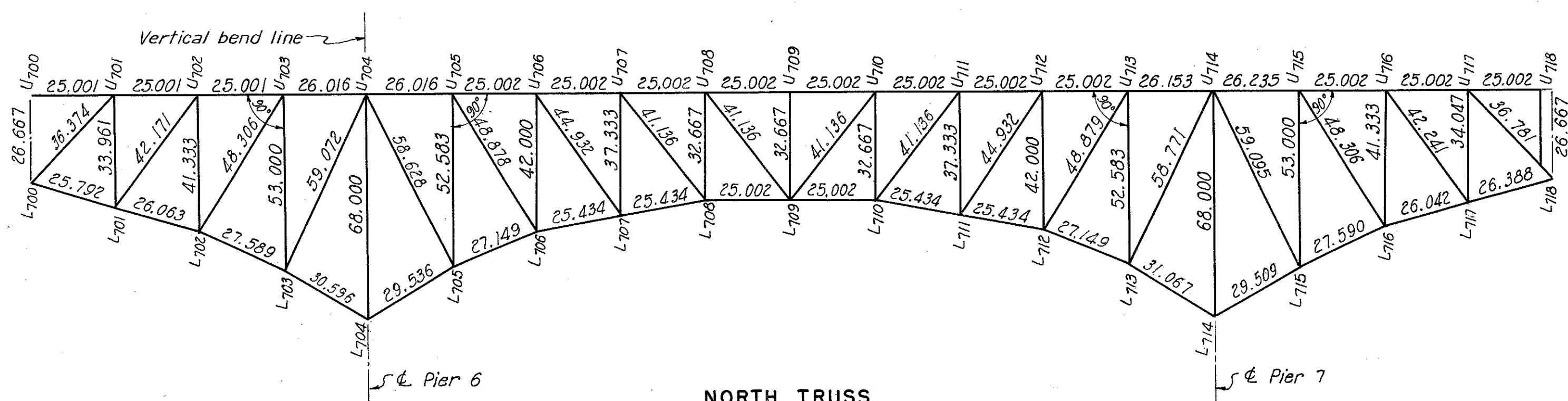
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

24
122

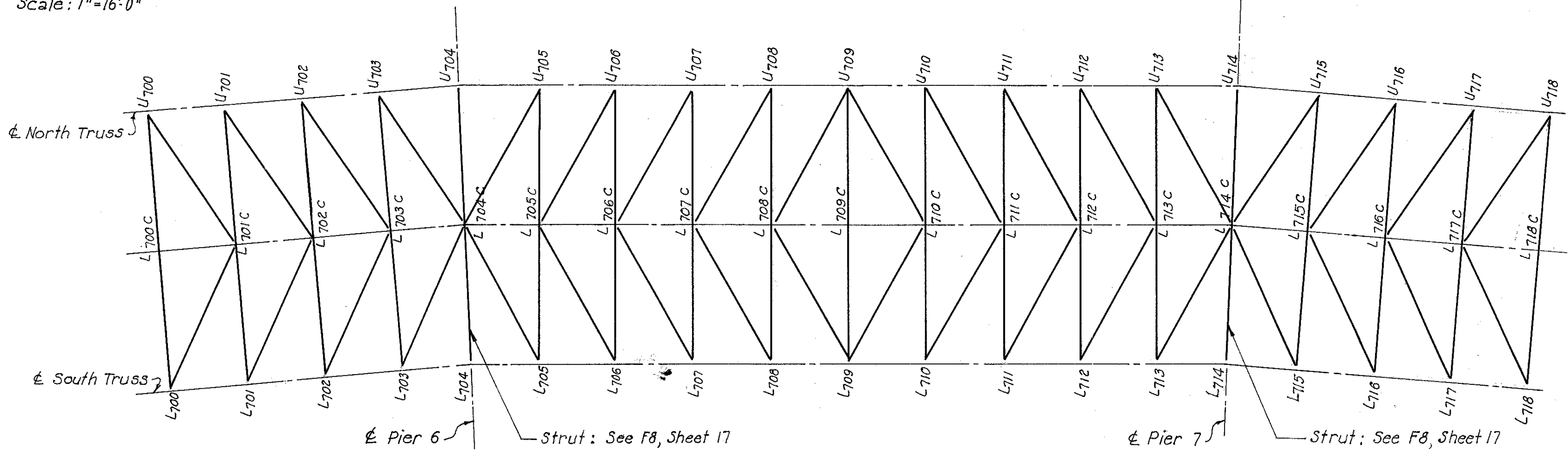
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



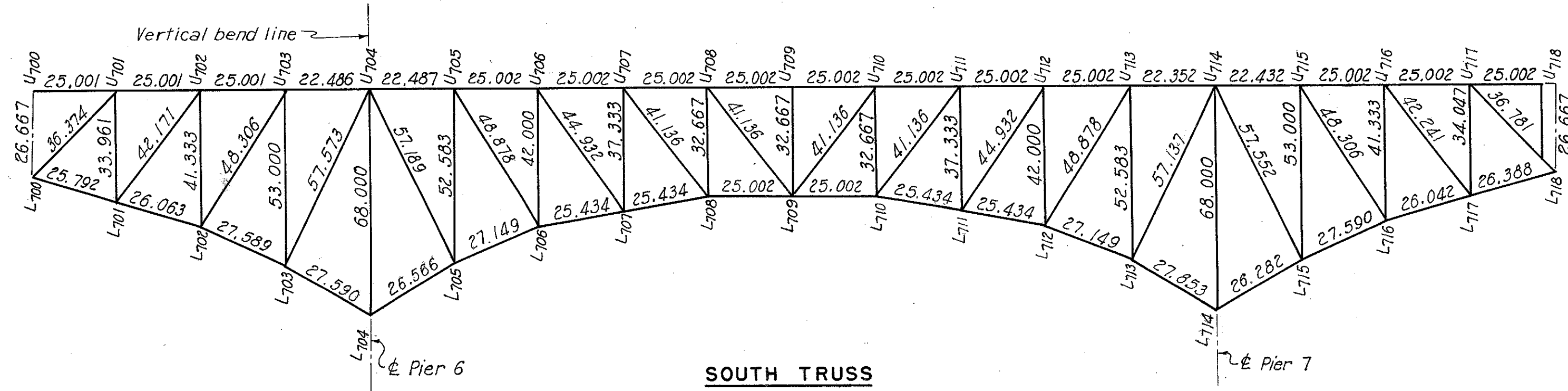
DECK PLAN
Scale: 1"=16'-0"



NORTH TRUSS
Scale: 1"=30'-0"



BOTTOM CHORD LATERAL BRACING
Scale: 1"=30'-0"



SOUTH TRUSS
Scale: 1"=30'-0"

Top laterals and struts 1/2 of 12 BP 53# carbon steel unless noted.
Bottom laterals 4 bulb L³ 8 x 3 1/2 x 16.0# - web R 15 x 3/8
Stringers 24 WF 76#
Floorbeams 36 WF 150#
Bottom lateral struts 2 C 15 x 33.9# - 2 R^s 13 x 5/8 unless noted.
For the distance from the roadway surface to the working line of the truss top chords at each panel point, see the table of Grades and Elevations on Sheet 12.
For truss sections and details see Sheets 80 to 87 inclusive.
Posts at piers and at ends of unit are vertical; other posts are normal to top chord.
For typical top lateral hanger, see Sheets 28 and 35.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17.5

FRAMING PLAN - UNIT 7

CLEVELAND CUYAHOGA COUNTY OHIO

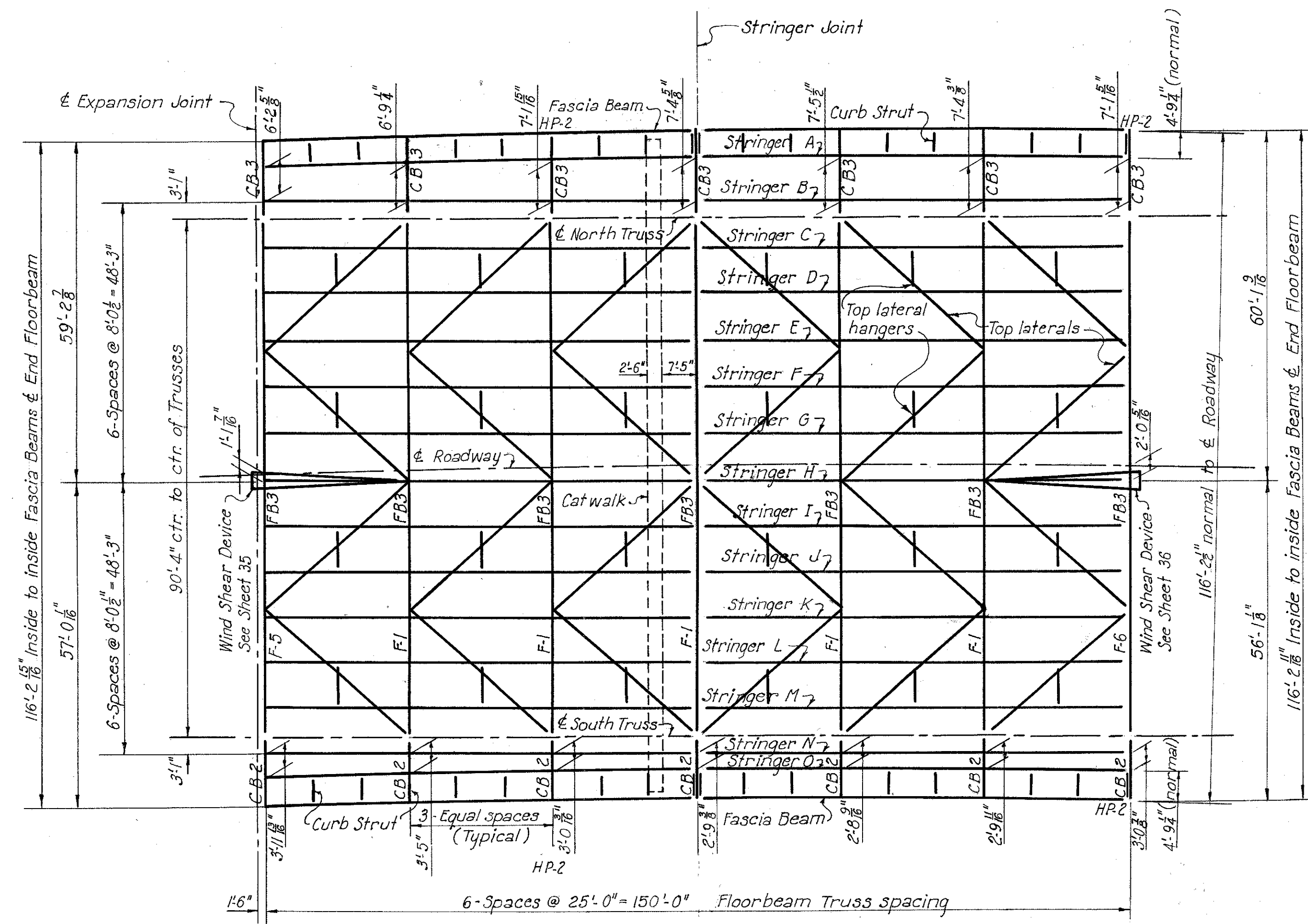
SCALE: As shown
MADE N.A.M. DATE
TRCD. A.H. DATE: 7-26-54
CKD. P.M.D. DATE: 9-27-54

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

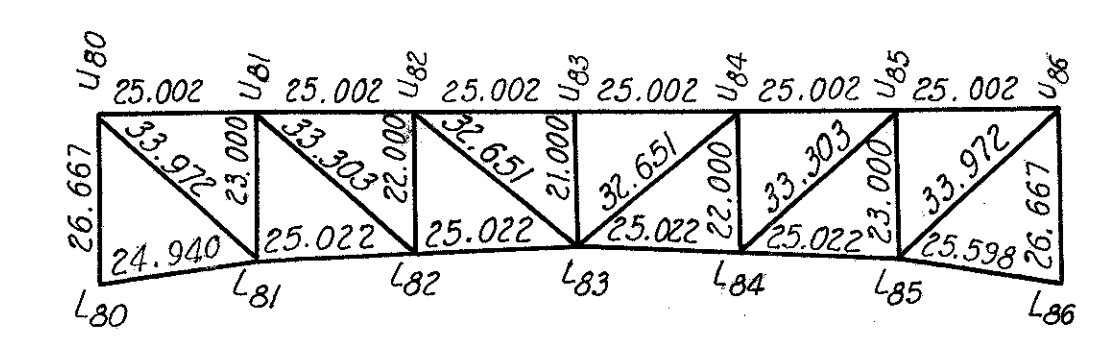
914-1A SHEET 2.24

220

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT

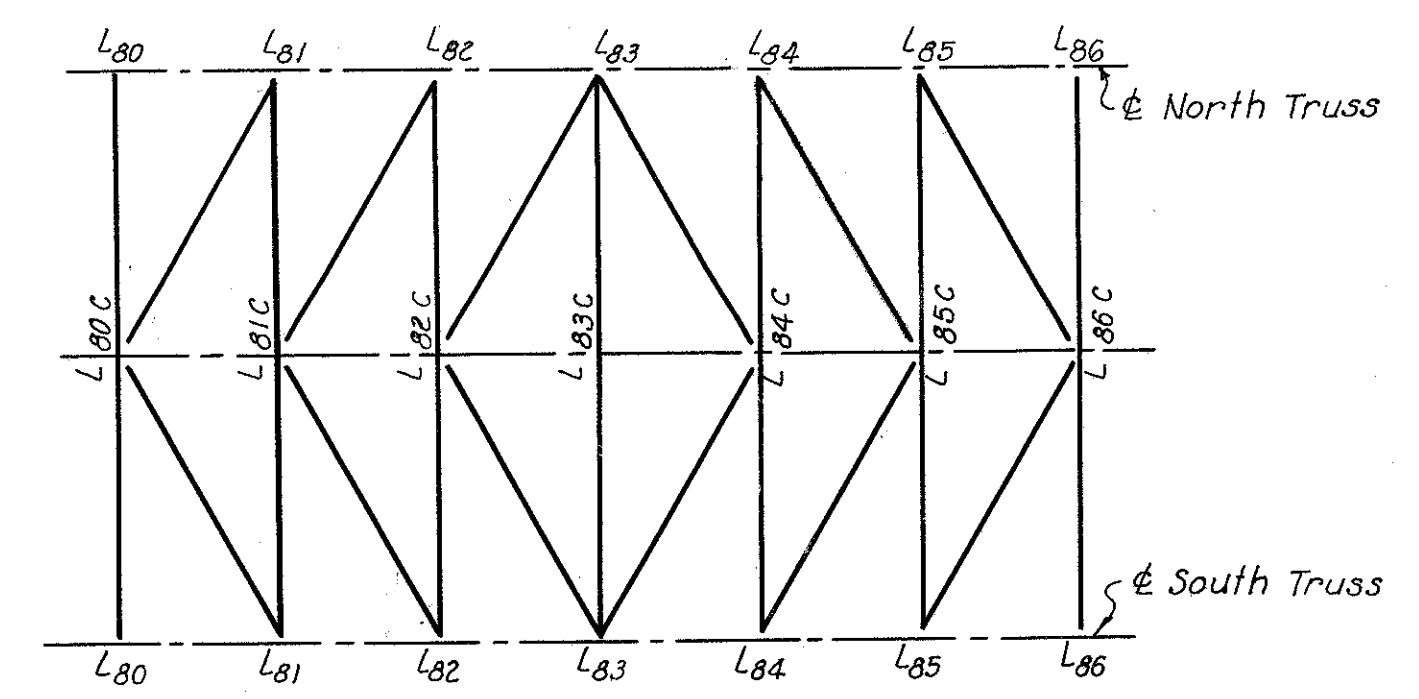


DECK PLAN
Scale: 1"=16'-0"



TRUSSES
Scale: 1"=30'

Top laterals $\frac{1}{2}$ of 12 BP 53 #
 Bottom laterals 4 bulb 13 8 x 3 1/2 x 16.0 # - Web 15 x 3/8
 Stringers 24 WF 76 #
 Floorbeams 36 WF 150 #
 Bottom lateral struts 2 C 15 x 33.9 # - 2 fls. 13 x 5/8
 For details of north truss, see Sheet 78 for Unit 6.
 For details of south truss, see Sheet 79 for Unit 6.
 Sections are identical to trusses of Unit 6, and details will be similar except as modified by lengths of members in end panels, and vertical bend points in trusses of Unit 6 at U62 and U64.
 For the distance from the roadway surface to the working line of the truss top chord, see the table of Grades and Elevations, Sheet 12.
 For truss sections and stresses, see the Stress sheet for Unit 8, Sheet 88.
 Posts at ends of units are vertical; other posts are normal to the top chord.
 For typical top lateral hanger, see Sheets 28 and 35.



BOTTOM CHORD LATERAL BRACING
Scale: 1"=30'-0"

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17.5

FRAMING PLAN - UNIT 8

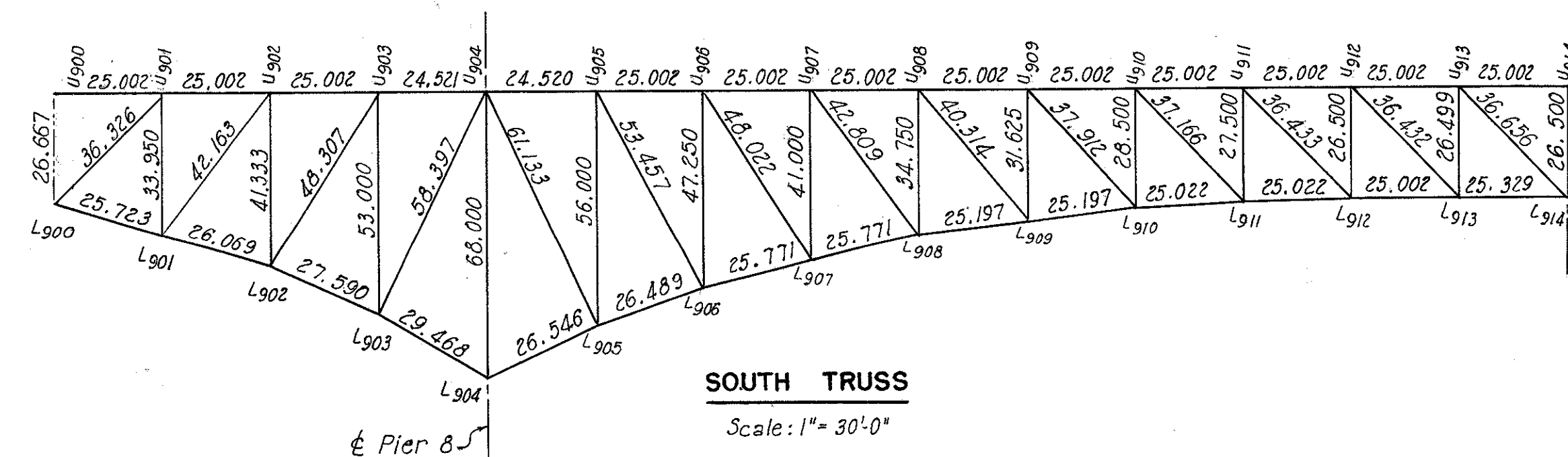
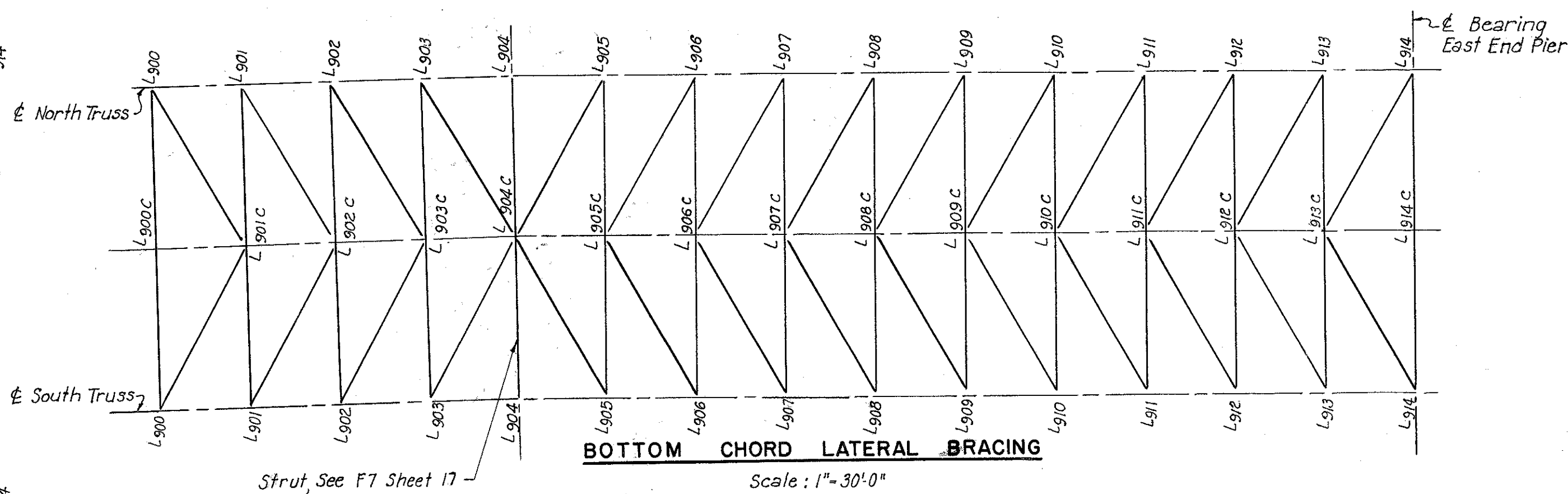
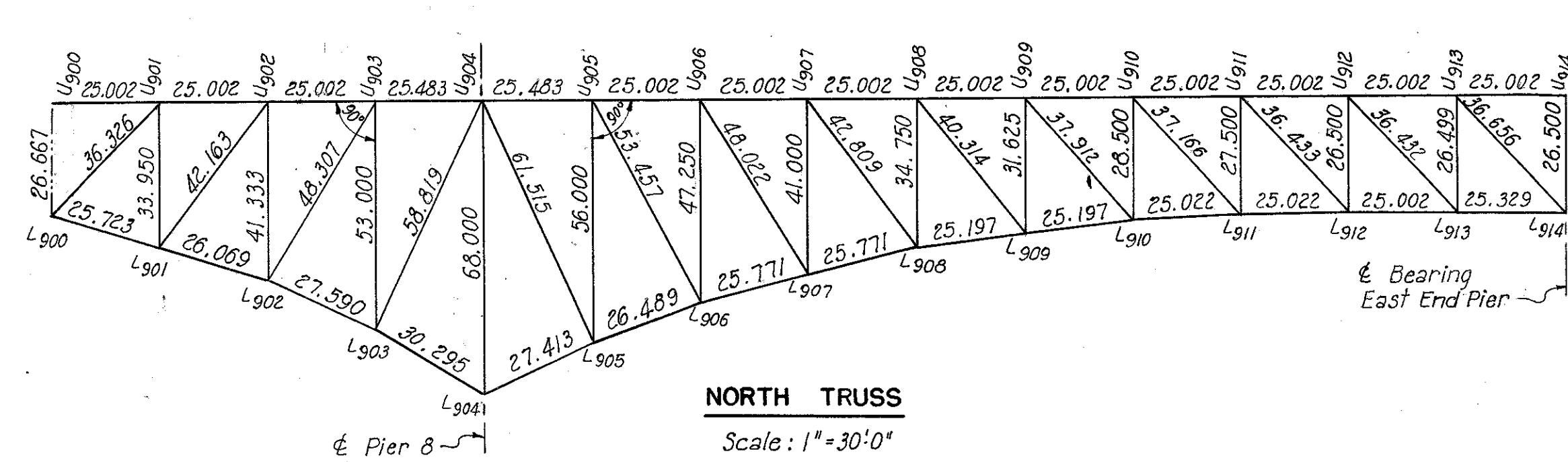
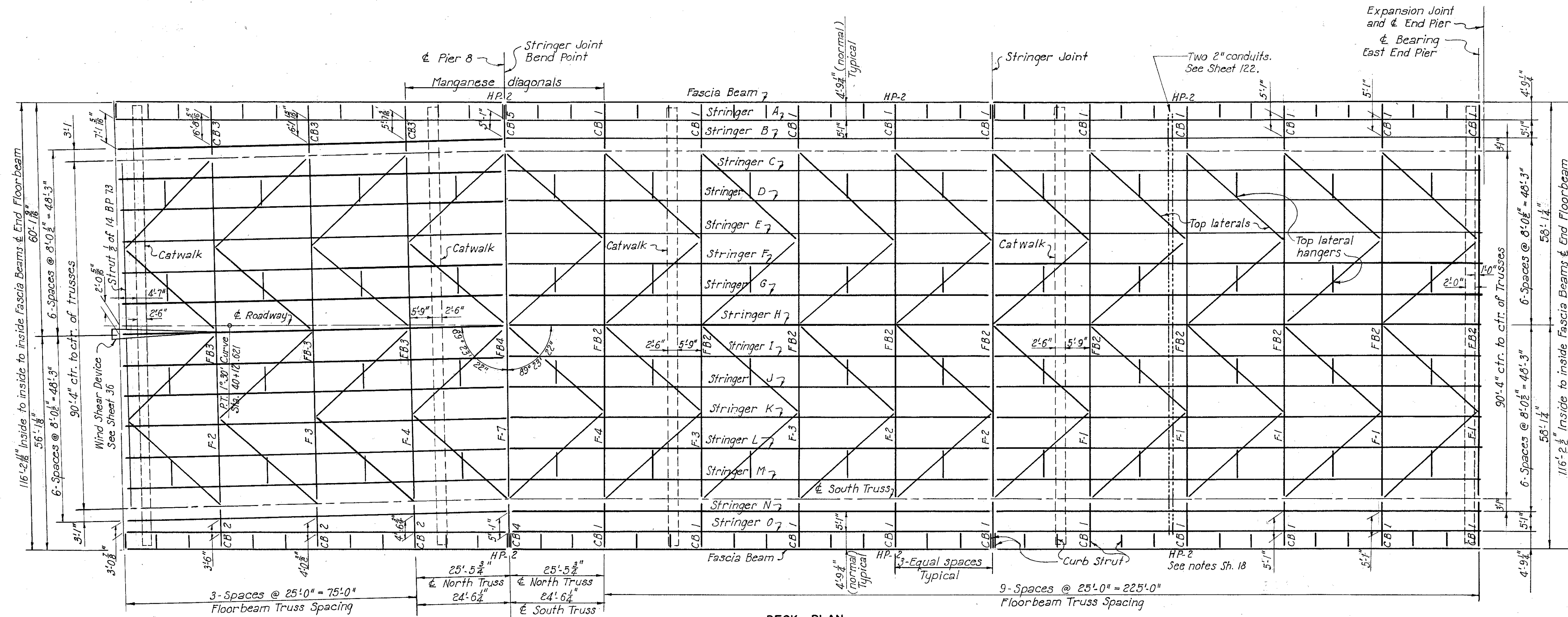
CLEVELAND	GUYAHOGA COUNTY	OHIO
SCALE: As shown		
MADE U.S. DATE 1-14-54	HOWARD, NEEDLES, TAMMEN & BERGENDOFF	
TRC:G.K.A. DATE 8-17-54	CONSULTING ENGINEERS	
CKD: D.M.D. DATE 9-29-54	KANSAS CITY	CLEVELAND NEW YORK
	914-1A	SHEET 2.25

MICROFILMED
FEB 15 1983

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
CENTRAL VIADUCT



Top laterals 1/2 of 12 BP 53 #, carbon steel unless noted.
Bottom laterals 4 bulb 1 1/2 x 3 1/2 x 16.0 # and web R 15 x 3/8
Stringers 24 WF 76 #
Floorbeams 36 WF 150 #
Bottom lateral struts 2 L 15 x 33.9 - 2 #s. 13 x 5/8 unless noted.
For the distance from the roadway surface to the working line of the truss top chord, see the table of Grades and Elevations Sheet 12.
For truss sections and details, see Sheets 89 to 94 inclusive.
Posts at piers and at ends of unit are vertical; other posts are normal to top chord.
For typical top lateral hanger, see Sheets 28 and 35.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17.5

FRAMING PLAN - UNIT 9

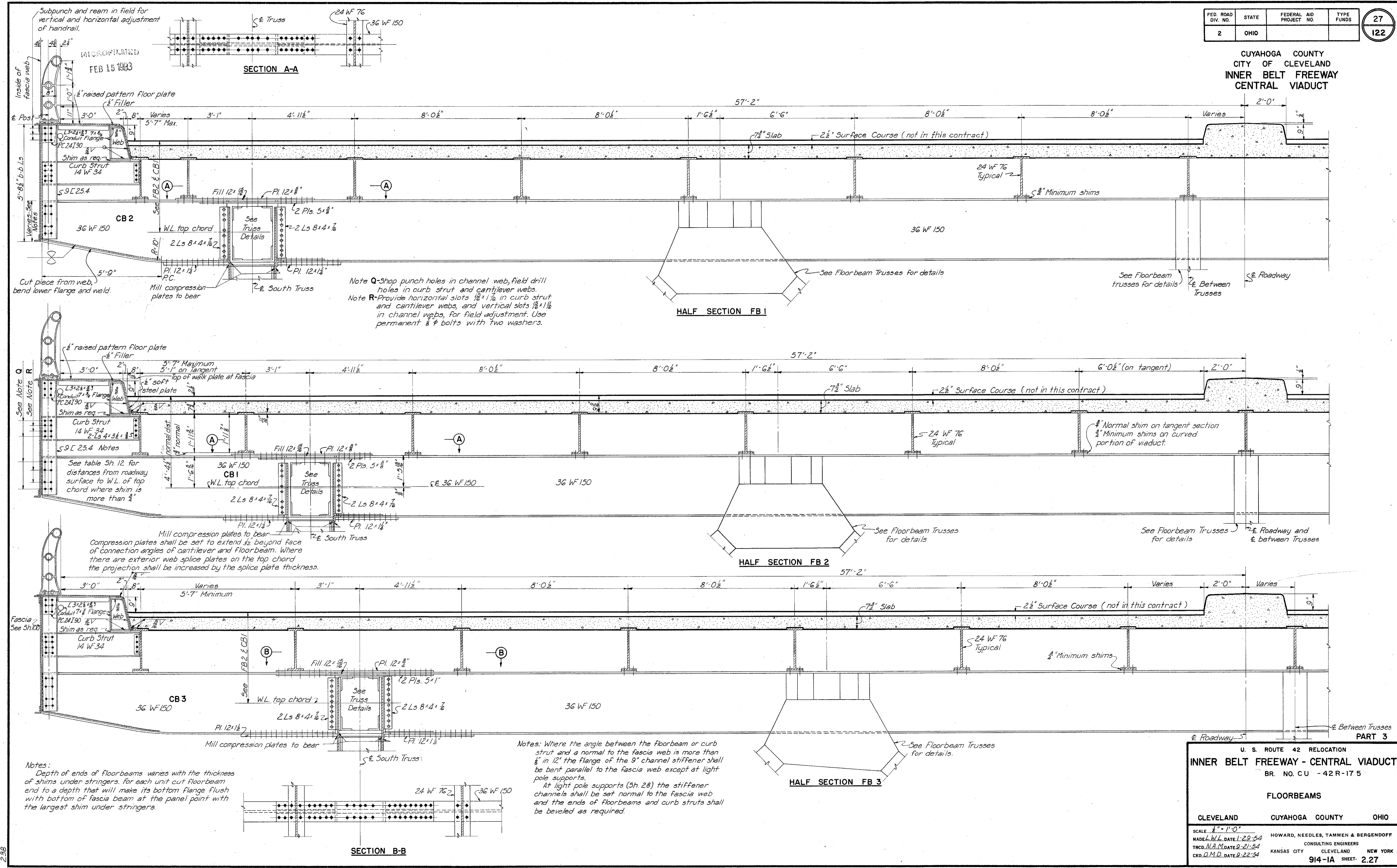
CLEVELAND GUYAHOGA COUNTY OHIO

SCALE AS SHOWN
MADE I.F.G. DATE 1-21-54
TRCD # 231 DATE 8-17-54
CKD. D.H.D. DATE 9-29-54
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.26

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

27
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CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



SECTION A-A

HALF SECTION FB 1

HALF SECTION FB 2

HALF SECTION FB 3

SECTION B-B

Note Q-Shop punch holes in channel web, field drill holes in curb strut and cantilever webs.
Note R-Provide horizontal slots $\frac{1}{8} \times 1 \frac{1}{2}$ in curb strut and cantilever webs, and vertical slots $\frac{1}{8} \times 1 \frac{1}{2}$ in channel webs, for field adjustment. Use permanent $\frac{3}{8}$ bolts with two washers.

Notes: Where the angle between the floorbeam or curb strut and a normal to the fascia web is more than $\frac{1}{4}$ in 12 the flange of the 9" channel stiffener shall be bent parallel to the fascia web except at light pole supports.
At light pole supports (Sh 28) the stiffener channels shall be set normal to the fascia web and the ends of floorbeams and curb struts shall be beveled as required.

Notes:
Depth of ends of floorbeams varies with the thickness of shims under stringers. For each unit cut floorbeam end to a depth that will make its bottom flange flush with bottom of fascia beam at the panel point with the largest shim under stringers.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17 5

FLOORBEAMS

CLEVELAND	CUYAHOGA COUNTY	OHIO
SCALE: 1" = 1'-0"	HOWARD, NEEDLES, TAMMEN & BERGENDOFF	
MADE L.W.L. DATE 1-29-54	CONSULTING ENGINEERS	
TRCD. N.A.M. DATE 9-21-54	KANSAS CITY CLEVELAND NEW YORK	
CKD. D.M.D. DATE 9-22-54	914-IA SHEET- 2.27	

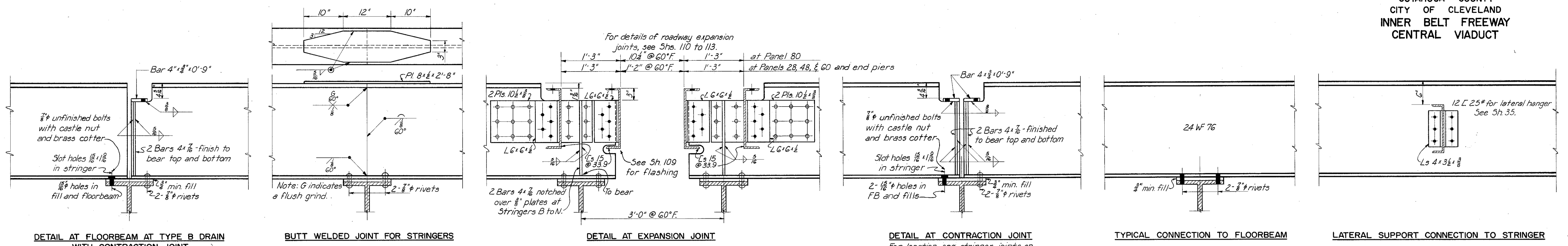
2-38

MICROFILMED
FEB 15 1983

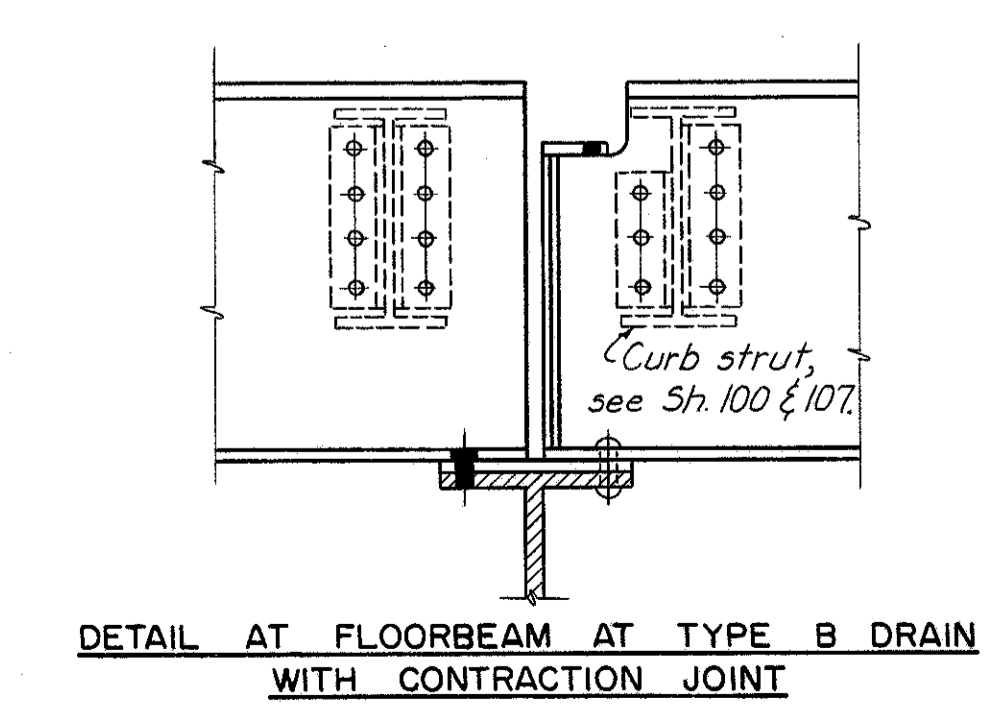
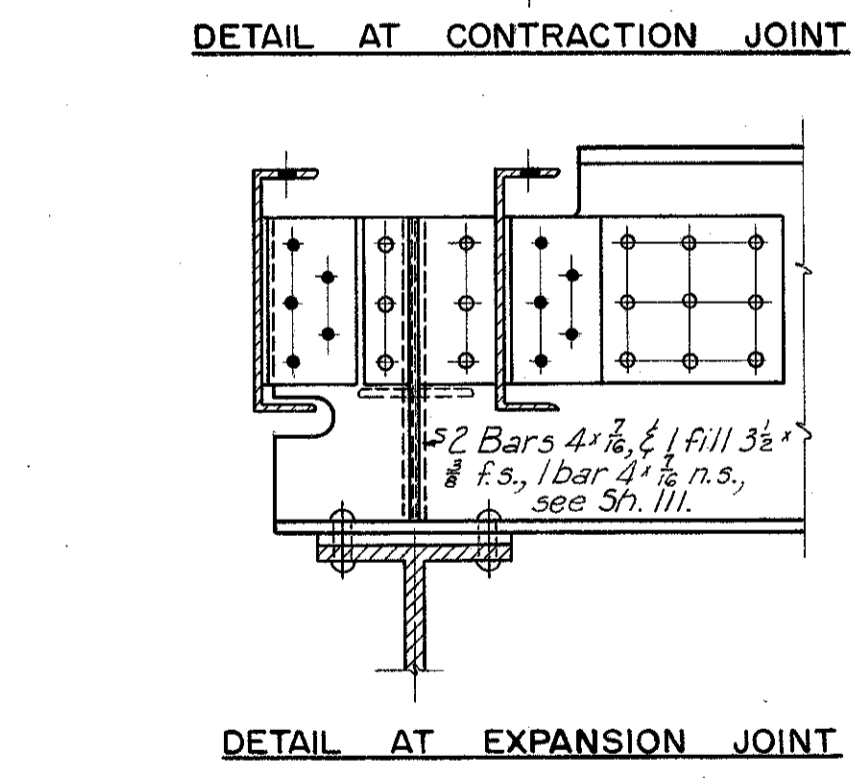
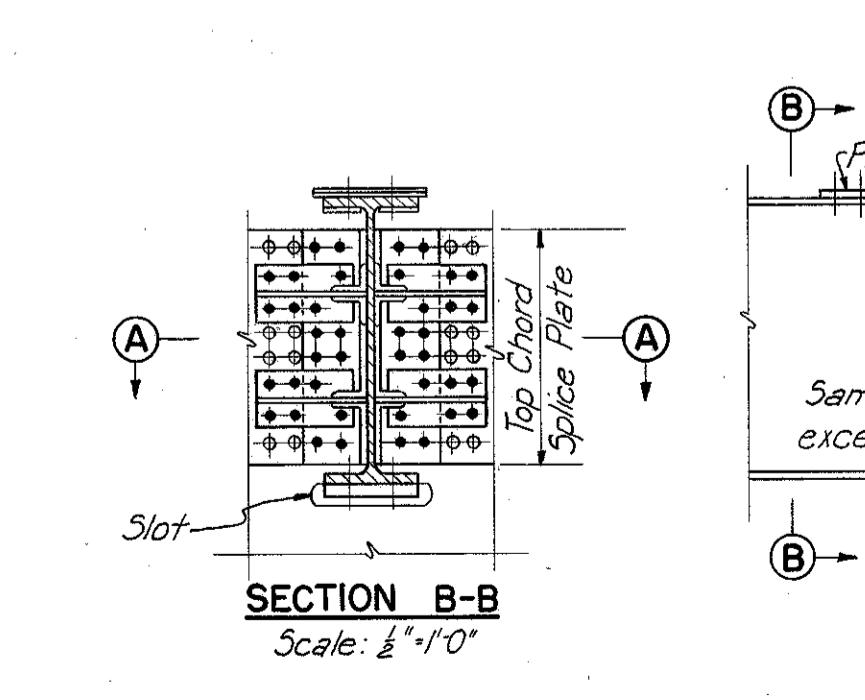
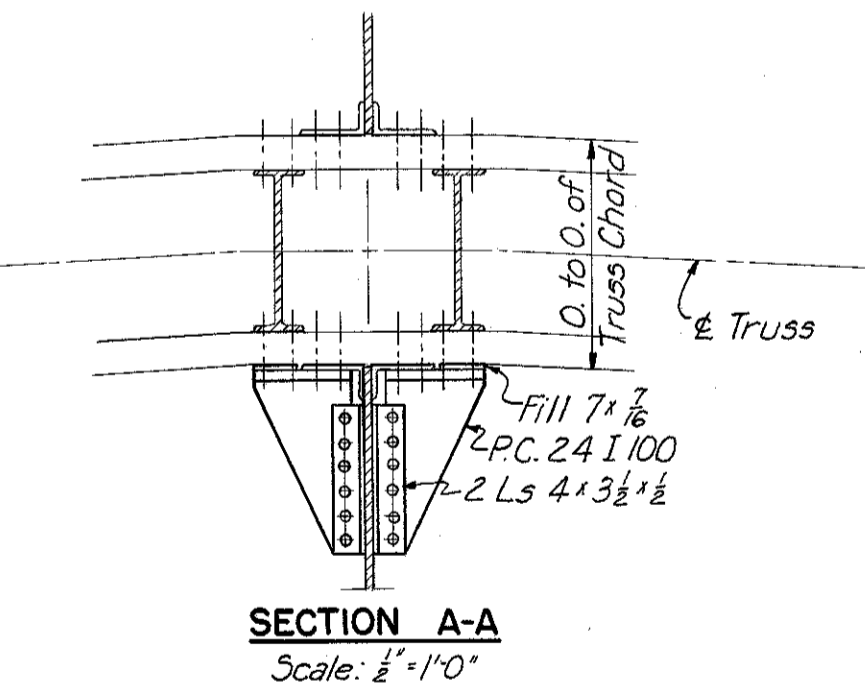
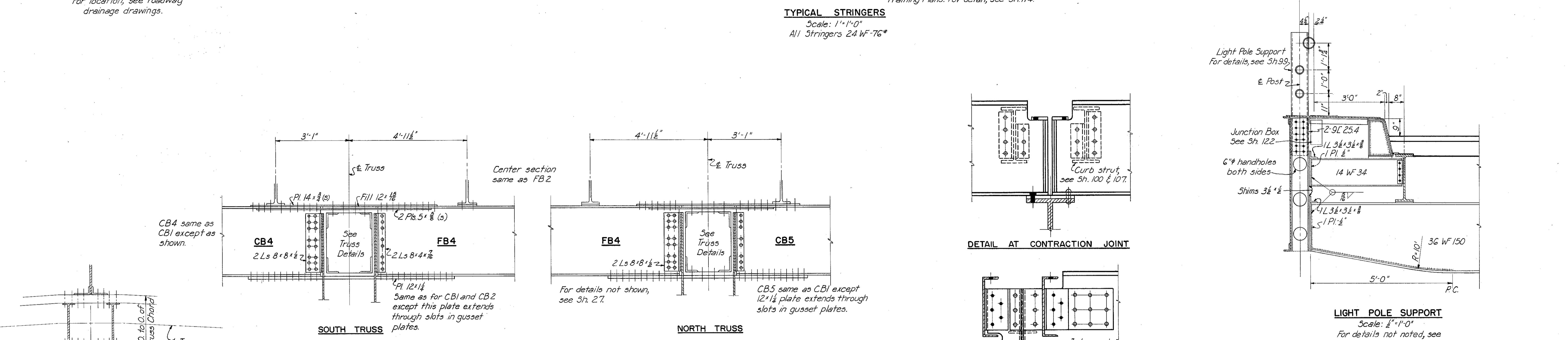
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

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122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



TYPICAL STRINGERS
Scale: 1"=1'-0"
All Stringers 24 WF-76*



PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17.5

FLOORBEAMS AND STRINGERS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: As shown
MADE IN U.S.A. DATE: 7-28-54
TRCD. N.A.M. DATE: 9-24-54
CKD. D.M.D. DATE: 9-25-54

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

914-1A SHEET 2.28

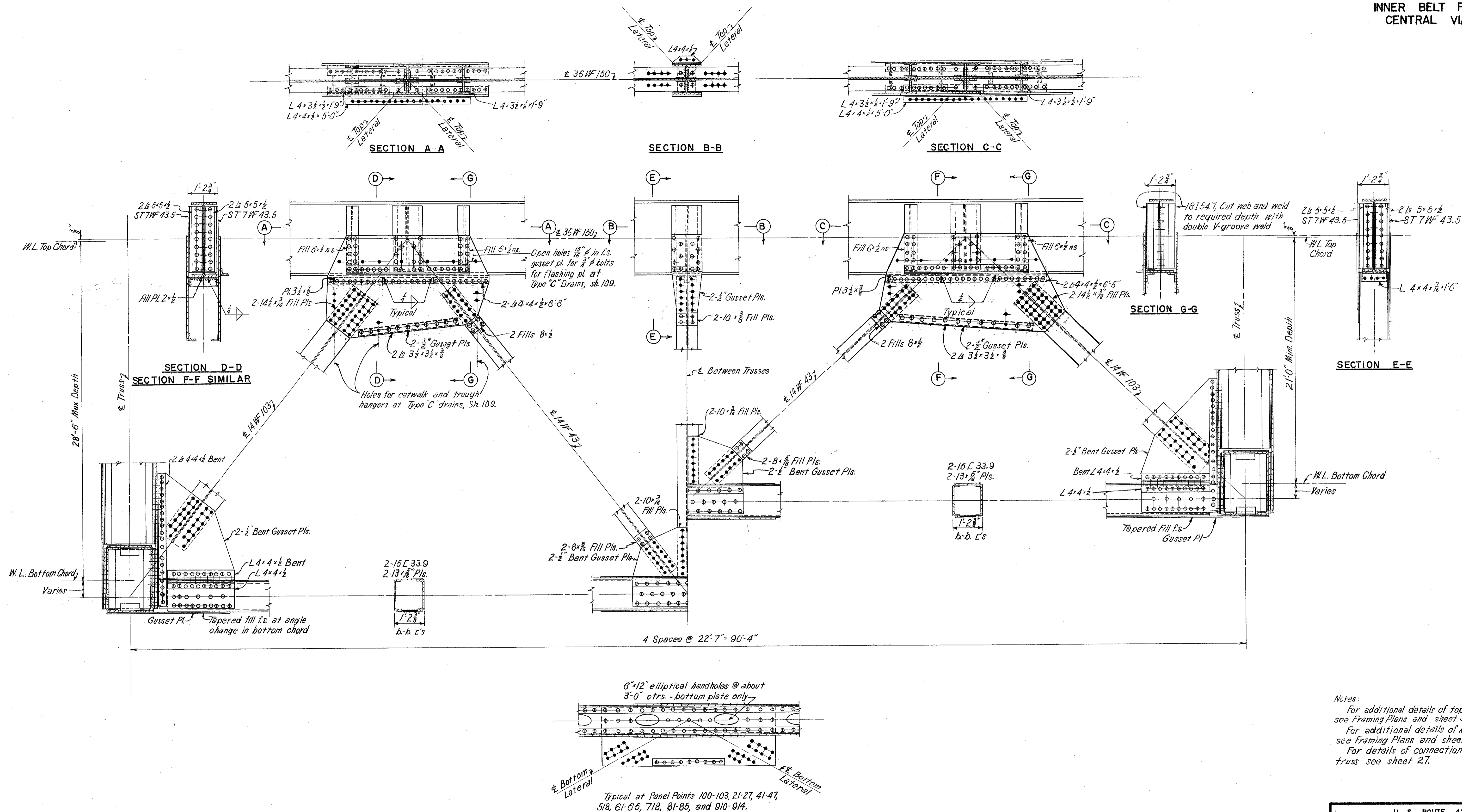
228

MICROFILMED
FEB 15 1983

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

29
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-175

FLOORBEAM TRUSS FI DETAILS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/2" = 1'-0"

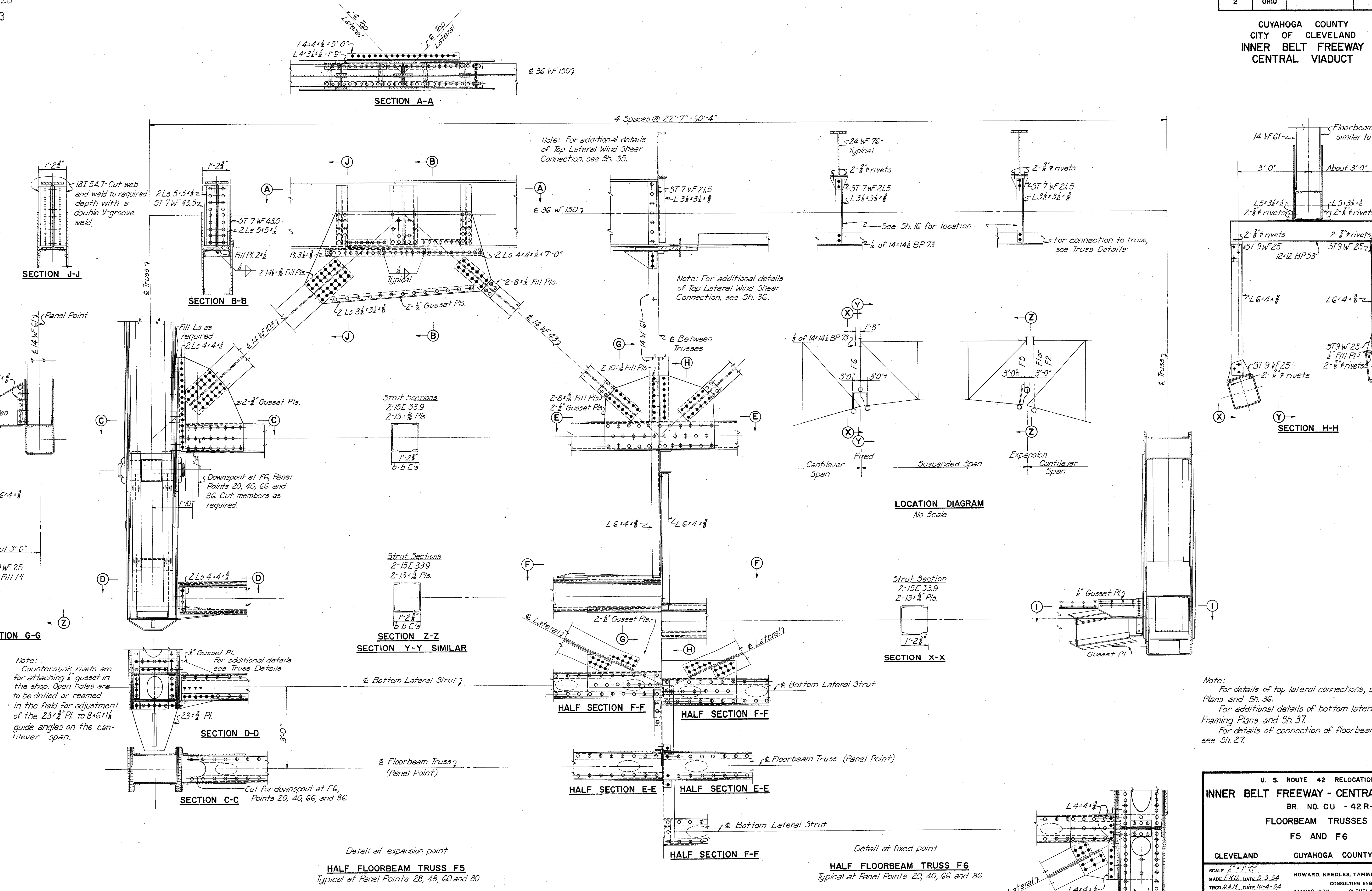
MADE F.X.D. DATE 3-30-54 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD. W.E.L. DATE 11-9-54 CONSULTING ENGINEERS
CKD.DMD. DATE 11-1-54 KANSAS CITY CLEVELAND NEW YORK

914-1A SHEET 229

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FEB 15 1983

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	32 122
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



Note: For additional details of Top Lateral Wind Shear Connection, see Sh. 35.

Note: For additional details of Top Lateral Wind Shear Connection, see Sh. 36.

LOCATION DIAGRAM
No Scale

Note:
For details of top lateral connections, see Framing Plans and Sh. 36.
For additional details of bottom laterals, see Framing Plans and Sh. 37.
For details of connection of floorbeam to truss, see Sh. 27.

Note:
Countersunk rivets are for attaching 1/2" gusset in the shop. Open holes are to be drilled or reamed in the field for adjustment of the 23 1/2" Pl. to 8x6 1/2" guide angles on the cantilever span.

Detail at expansion point
HALF FLOORBEAM TRUSS F5
Typical at Panel Points 28, 48, 60 and 80

Detail at fixed point
HALF FLOORBEAM TRUSS F6
Typical at Panel Points 20, 40, 66 and 86

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17 5
FLOORBEAM TRUSSES
F5 AND F6

CLEVELAND	CUYAHOGA COUNTY	OHIO
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SCALE: 1/2" = 1'-0"
MADE F.K.D. DATE 5-5-54
TRCD. N.A.H. DATE 10-4-54
CKD. D.M.D. DATE 10-5-54

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.32

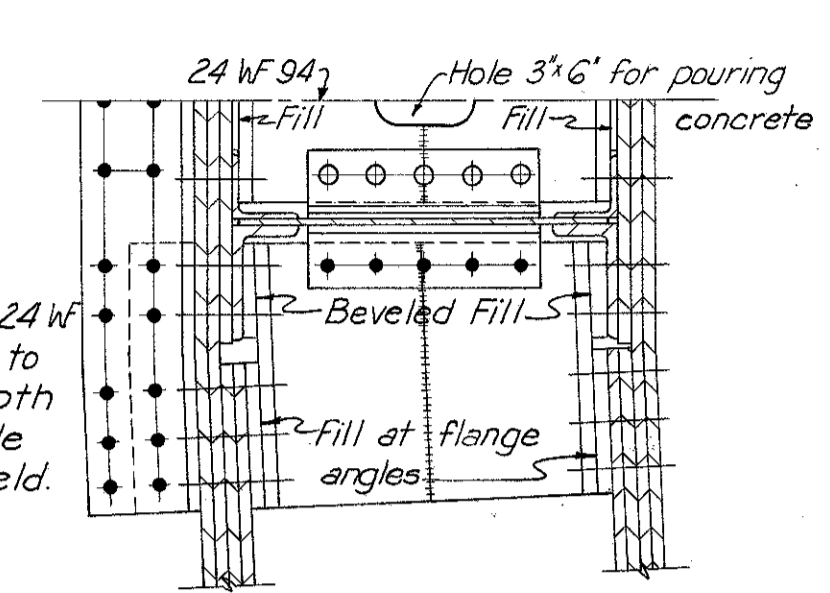
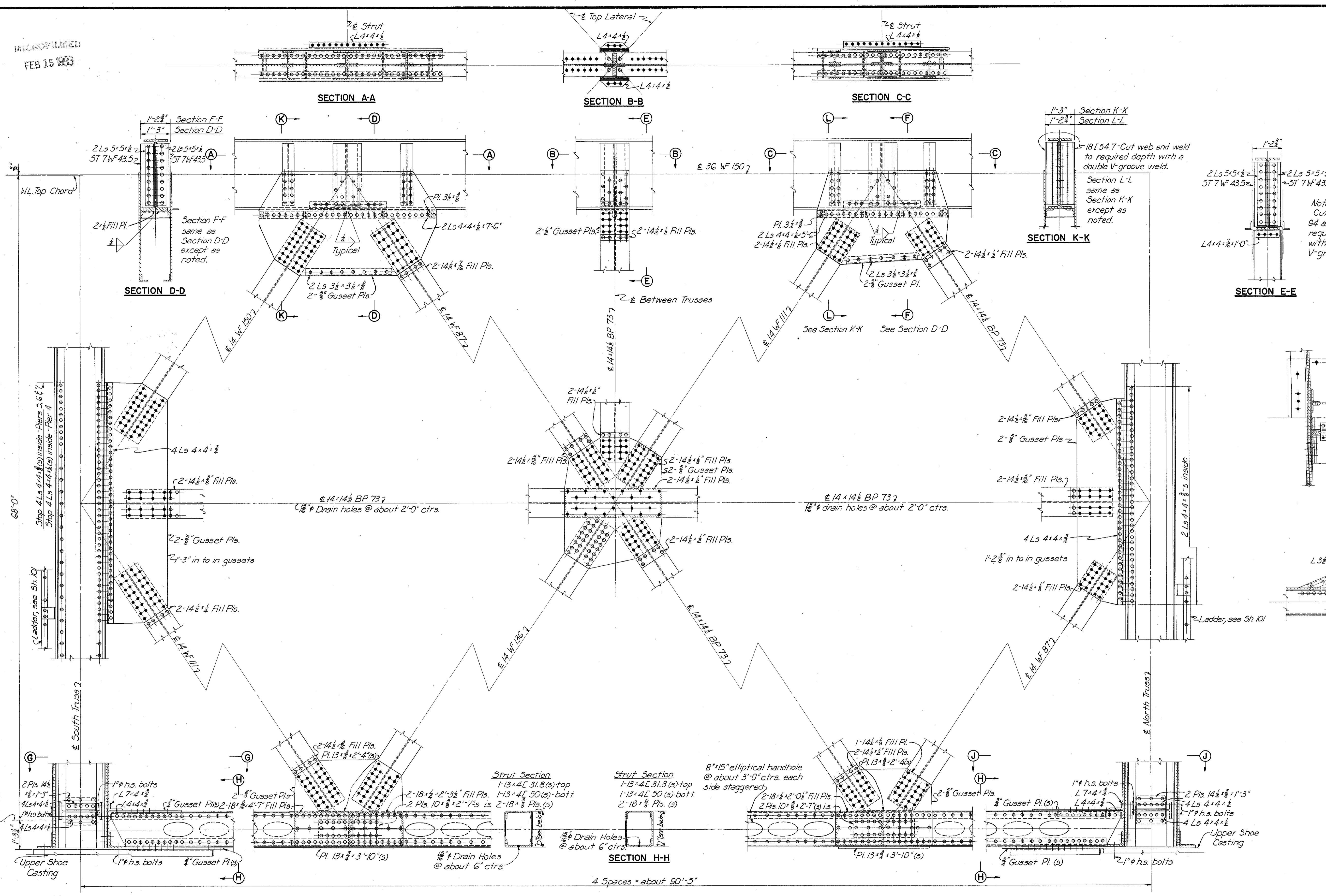
3/8

REPRODUCED
FEB 15 1953

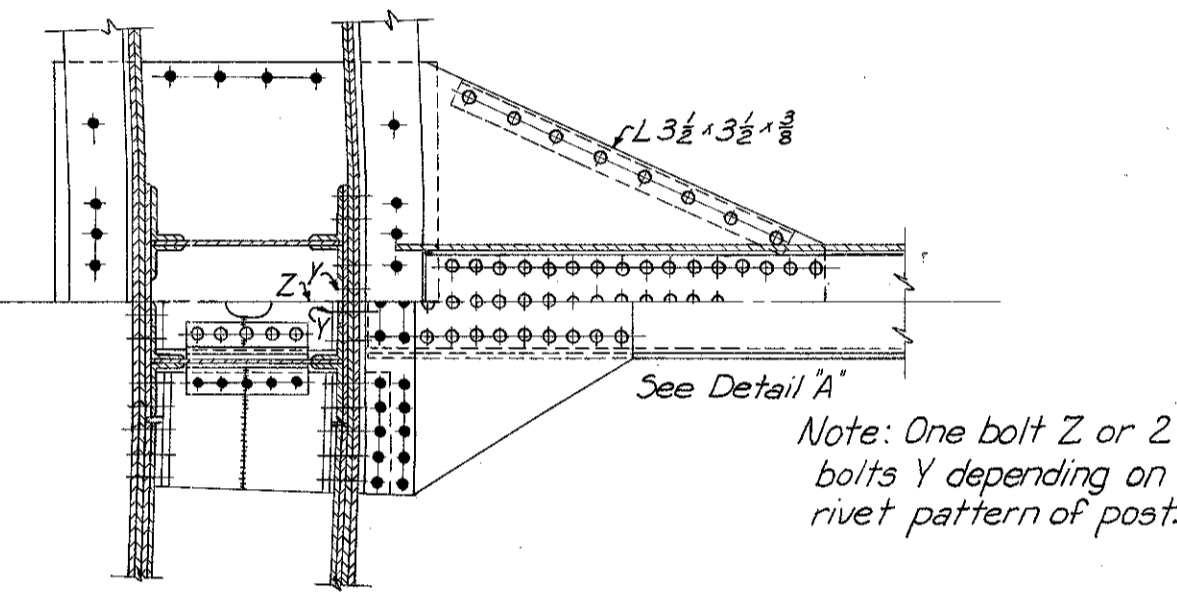
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

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122

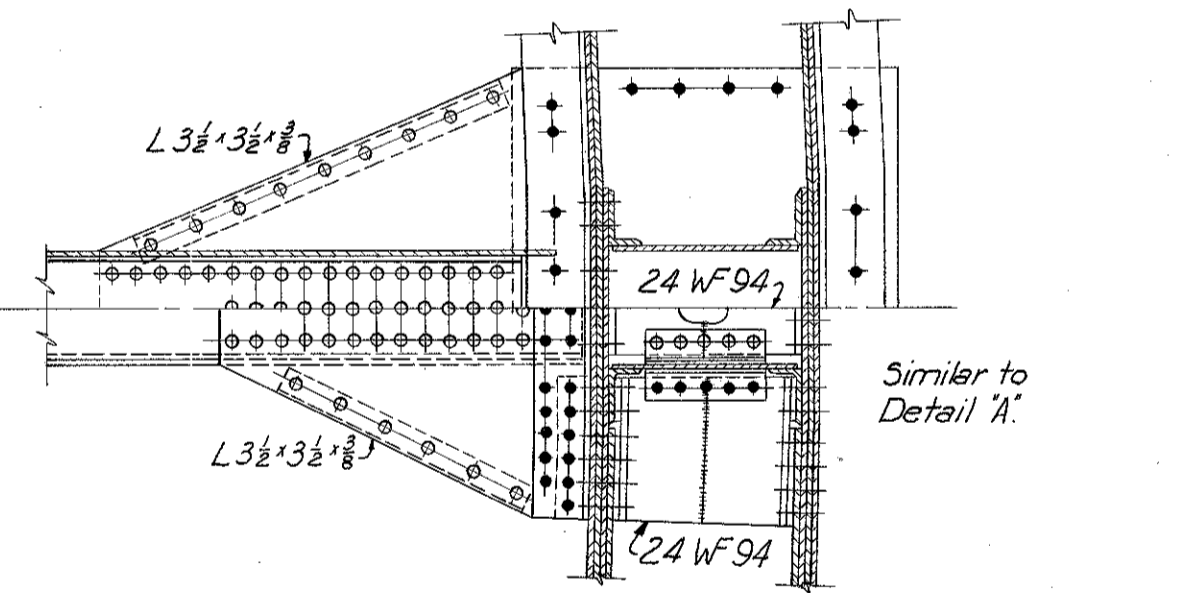
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



DETAIL "A"
Scale: 1" = 1'-0"



SECTION G-G



SECTION J-J

Note:
For additional details of top lateral connections, see Framing Plans and Sheet 35.
For details of bottom lateral connections, see Framing Plans and Sheet 37.
For details of connection of floorbeam to truss, see Sheet 28.
For additional details of strut connection to truss, see Truss Details.

Location	'D' (b.b.L's)
Pier 4	1'-6 1/2"
Pier 5	1'-7"
Pier 6	1'-7 1/2"
Pier 7	1'-7"

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-175

FLOORBEAM TRUSS F8
AT PIERS 4, 5, 6, & 7

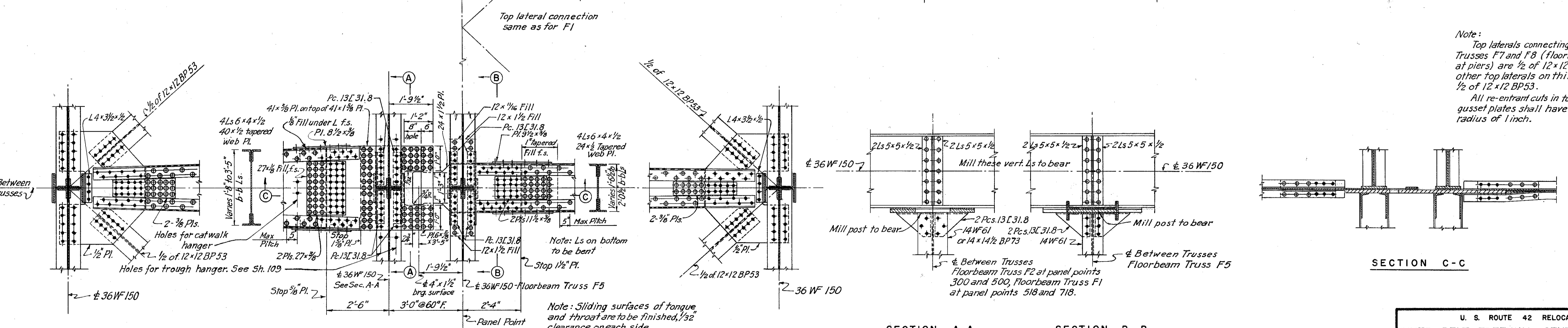
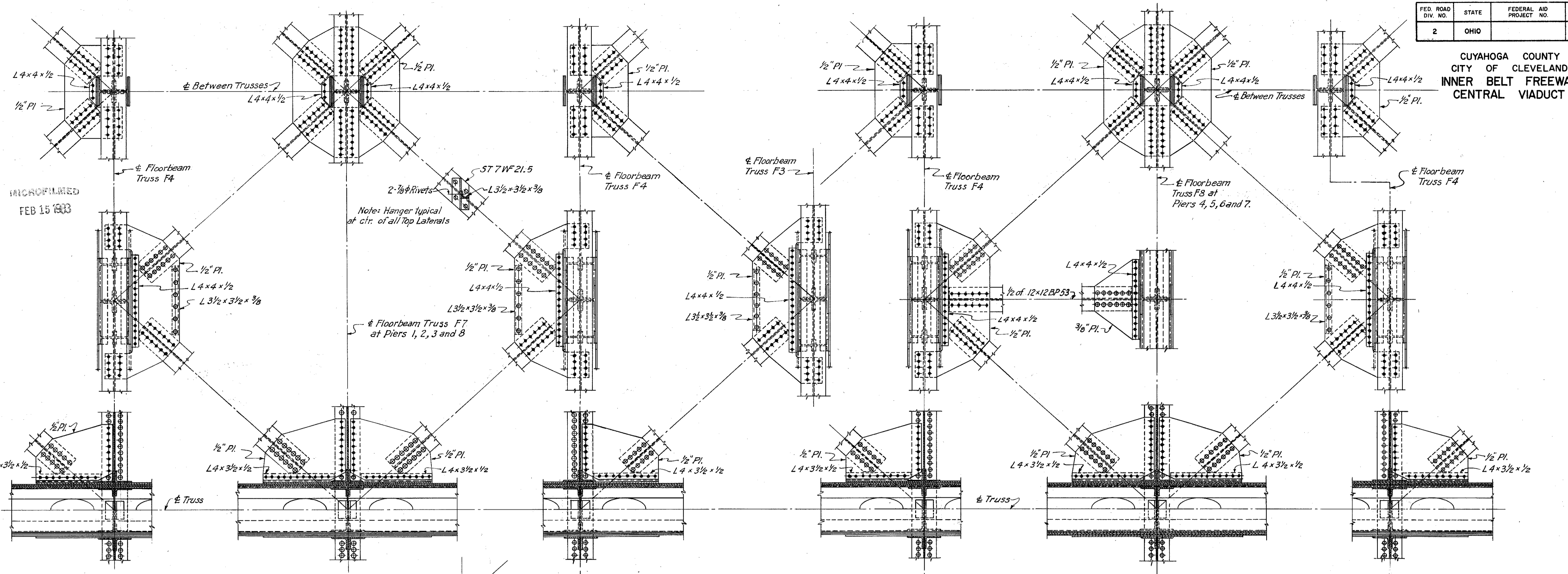
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1/2" = 1'-0" or as shown
MADE F.K.D. DATE: 4-27-54
TRCD. N.A.M. DATE: 9-13-54
CHK'D. M.D. DATE: 9-20-54

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.34

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CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



Note:
Top laterals connecting to Floorbeam Trusses F7 and F8 (floorbeam trusses at piers) are 1/2 of 12x12 BP53. All other top laterals on this sheet are 1/2 of 12x12 BP53.
All re-entrant cuts in top lateral gusset plates shall have a minimum radius of 1 inch.

CANTILEVER SPAN

SUSPENDED SPAN

TOP LATERAL WIND SHEAR CONNECTION

Typical at Panel Points 28-300, 48-500, 518-60 and 718-80, Expansion Points

SECTION C-C

SECTION A-A

SECTION B-B

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-175

TOP LATERALS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/2" = 1'-0"
MADE P.K.D. DATE 4-6-54 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD H.T.S. DATE 10-18-54 CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
CKD D.M.D. DATE 10-19-54 914-1A SHEET 2.35

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT

LINE	MEMBER	TENSION CHORD													COMPRESSION CHORD													
		L100	L101	L102	L103	L104	L105	L106	L107	L108	L109	L110	L111	L112	L113	U100	U101	U102	U103	U104	U105	U106	U107	U108	U109	U110	U111	U112
1	Dead Load	+334	+384	+186	+222	+769	+1310	+1874	+2351	+2311	+1771	+998	0	0	-334	-384	-186	-222	-769	-1310	-1874	-2351	-2311	-1771	-998	0	0	
2	0.8 Dead Load	+267	+307	+149	+178	+616	+1048	+1500	+1881	+1849	+1417	+799	0	0	-267	-307	-149	-178	-616	-1048	-1500	-1881	-1849	-1417	-799	0	0	
3	Live Load+Imp.-Tension																											
4	Reduced LL+Imp.-Tension	+271	+453	+556	+513	+585	+595	+603	+581	+484	+391	+230	0	0	-271	-453	-556	-513	-585	-595	-603	-581	-484	-391	-230	0	0	
5	Live Load+Imp.-Comp.																											
6	Reduced LL+Imp.-Comp.	-153	-295	-428	-545	-497	-385	-266	-129	0	0	0	0	0	+153	+295	+428	+545	+497	+385	+266	+129	0	0	0	0	0	
7	Reduced LL+Imp.-Ten. x D(CF)e	+449	+751	+922	+850	+970	+986	+1000	+963	+802	+648	+381	0	0	-449	-751	-922	-850	-970	-986	-1000	-963	-802	-648	-381	0	0	
8	Reduced LL+Imp.-Comp. x D(CF)e	-254	-489	-709	-903	-824	-638	-441	-214	0	0	0	0	0	+254	+489	+709	+903	+824	+638	+441	+214	0	0	0	0	0	
9	Ratio - $\frac{LL+Imp.}{LL+Imp. \text{ or } LL+Imp. \text{ or } LL+Imp.}$	0.458	0.768	2.300	2.455	0.647	0.294	0.055	0	0	0	0	0	0	0.458	0.768	2.300	2.455	0.647	0.294	0.055	0	0	0	0	0	0	
10	LL Sidewalk-Tension	+13	+22	+27	+29	+33	+33	+34	+32	+26	+20	+11	0	0	-13	-22	-27	-29	-33	-33	-34	-32	-26	-20	-11	0	0	
11	LL Sidewalk-Comp.	-9	-16	-24	-27	-25	-19	-13	-6	0	0	0	0	0	+9	+16	+24	+27	+25	+19	+13	+6	0	0	0	0	0	
12	Direct Design Stress	+729	+1080	+1098	+1057	+1619	+2067	+2834	+2876	+2677	+2085	+1191	0	0	-729	-1080	-1098	-1057	-1619	-2067	-2834	-2876	-2677	-2085	-1191	0	0	
13	Reverse Design Stress																											
SECTION		Holes out for Tension																										
a	Flange Angles	2	4x4x1/2	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	8x6x3/8	
b	1st Outside Web Plate	4	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	30x3/8	
c	Top Cover Plate	3	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	
d	Bottom Cover Plate	2	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	
e	1st Inside Web Plate	2																										
f	2nd Inside Web Plate	4																										
g	2nd Outside Web Plate	4																										
25	Length	In.													300	300	300	300	302.4	302.4	309.3	309.3	317.8	327.2	327.2	329.8	317.2	305.8
26	Min. Radius of Guration	In.													10.98	10.98	11.20	11.20	10.63	10.63	11.19	10.82	10.82	10.80	10.80	10.80	10.40	10.62
27	Allowable Stress	Lbs./Sq. In.	18,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	18,000	14,810	14,810	16,671	16,671	19,630	19,630	19,630	19,630	19,580	19,580	19,570	19,570	19,620	
28	Actual Gross Area	Sq. In.	49.19	57.91	57.91	57.91	80.41	102.19	124.69	139.69	132.69	100.16	57.91	43.79	57.91	57.91	65.41	65.41	60.85	60.85	83.35	110.57	158.67	172.67	183.17	158.67	70.22	
29	Net Area	Sq. In.	40.50	49.72	49.72	49.72	69.22	87.57	107.07	120.07	114.07	86.22	49.72	36.60	51.51	51.51	59.49	59.49	54.28	54.28	82.97	110.19	135.07	158.67	172.67	183.17	158.67	
30	Actual Unit Stress	Lbs./Sq. In.	18,000	21,720	22,080	21,260	23,390	23,600	23,100	23,950	23,520	24,180	23,950	0	0	0	14,150	18,160	18,450	19,680	19,560	19,320	19,340	19,200	19,540	19,460	18,800	
31	Material		C	S	S	S	S	S	S	S	S	S	S	C	C	C	S	S	S	S	S	S	S	S	S	S	S	

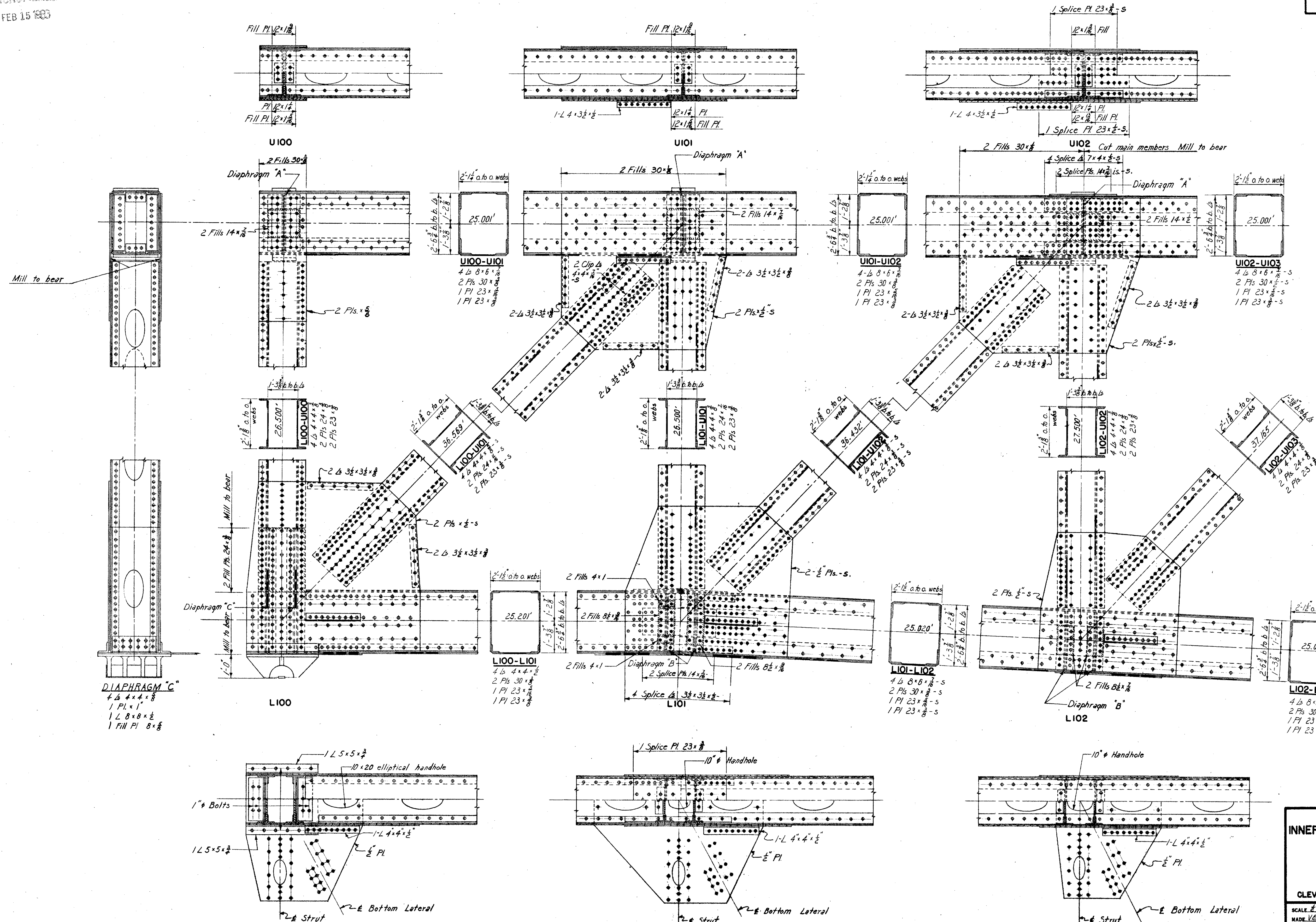
LINE	MEMBER	TENSION WEB MEMBERS													COMPRESSION WEB MEMBERS												
		L102	L103	L104	L105	L106	L107	L108	L109	L110	L111	L112	L113	U100	U101	U102	U103	U104	U105	U106	U107	U108	U109	U110	U111	U112	
1	Dead Load	+295	+618	+881	+928	+1082	+1022	+842	+914	+1070	+1306	+1501	+230	+67	-102	-488	-73	-339	-595	-816	-889	-1032	-1075	-1218	-1051	-1195	
2	0.8 Dead Load	+236	+495	+705	+743	+866	+818	+674	+731	+856	+1045	+1201	+184	+54	-82	-391	-59	-271	-476	-653	-711	-826	-860	-975	-841	-956	
3	Live Load+Imp.-Tension																										
4	Reduced LL+Imp.-Tension	+207	+196	+211	+252	+277	+308	+315	+201	+238	+298	+347	+254	+183	0	+225	+208	+132	+58	+33	+2	+2	+2	+2	+40	+40	
5	Live Load+Imp.-Comp.																										
6	Reduced LL+Imp.-Comp.	-219	-112	-69	-7	-3	-47	-105	0	0	0	0	-163	-152	-47	-397	-296	-154	-154	-175	-220	-271	-249	-296	-288		
7	Reduced LL+Imp.-Ten. x D(CF)e	+343	+325	+349	+418	+459	+511	+522	+333	+395	+494	+575	+421	+303	0	+373	+345	+219	+96	+55	+4	+4	+4	+4	+66		
8	Reduced LL+Imp.-Comp. x D(CF)e	-363	-186	-115	-12	-5	-78	-174	0	0	0	0	-270	-252	-78	-658	-491	-255	-255	-290	-365	-449	-413	-491	-477		
9	Ratio - $\frac{LL+Imp.}{LL+Imp. \text{ or } LL+Imp. \text{ or } LL+Imp.}$	0.742	0.182	0.078	0.007	0.003	0.046	0.125	0	0	0	0	0.709	2.265	0	0.461	2.850	0.407	0.098	0.041	0.002	0.002	0.002	0.038	0.033		
10	LL Sidewalk-Tension	+12	+11	+13	+11	+13	+14	+15	+10	+12	+15	+17	+12	+8	0	+13	+12	+6	+2	+1	0	0	0	+2	+2		
11	LL Sidewalk-Comp.	-9	-4	-2	0	0	-3	-6	0	0	0	-9	-8	-8	-1	-19	-13	-9	-9	-11	-10	-12	-12	-14	-14		
12	Direct Design Stress	+591	+831	+1067	+1172	+1338	+1343	+1211	+1074	+1263	+1554	+1793	+617	+365	-161	-1068	-563	-535	-740	-954	-1086	-1287	-1285	-1480	-1332		
13	Reverse Design Stress																										
SECTION		Holes out for Tension																									
a	Outer Flange Angles	2	4x4x3/8	4x4x3/8	4x4x1/2	4x4x5/8	4x4x3/4	4x4x3/8	4x4x5/8	4x4x1/2	4x4x1/2	4x4x3/4	4x4x5/8	4x4x3/8	4x4x3/8	4x4x3/8	4x4x3/8	4x4x1/2	4x4x3/8	4x4x3/8	4x4x3/8	4x4x3/8	4x4x3/8	4x4x3/8	4x4x3/8	4x4x3/8	4x4x3/8
b	1st Web Plates	3	24x3/8	24x7/16	24x5/8	24x3/4	24x3/4	28x5/8	28x1/2	26x3/4	24x1/2	24x5/8	24x1/16	24x3/8	24x3/8	24x3/8	24x3/8	24x3/8	24x3/8	24x3/8	24x3/8	24x3/8	24x3/8	24x3/8	24x3/8	24x3/8	24x3/8
c	Cover Plates	2	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8	23x3/8
e	Inner Flange Angles	2																									
g	2nd Web Plates	3																									
Length	In.														318	438.8	437.2	342	379.5	417	492	492	567	567	672	672	
Min. Radius of Guration	In.														7.70	7.70	7.70	7.70	7.60	7.63	7.69	7.50	8.00	7.78	8.56		
Allowable Stress	Lbs./Sq. In.	18,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	18,000	18,000	14,570	18,510	18,520	19,090	18,850	18,630	18,020	18,020	17,560	17,560	17,040			
Actual Gross Area	Sq. In.	39.19	42.19	54.75	59.82	69.14	68.82	63.19	55.25	65.38	80.26	88.94	42.19	39.19	61.19	39.19	39.19	45.94	56.38	62.82	74.26	72.14	83.58				
Net Area	Sq. In.	32.44	35.07	45.50	49.32	56.89	56.07	51.69	45.50	53.63	66.51	74.69	35.07	31.88	59.64	31.33	31.33	39.28	52.78	61.27	74.26	72.14	83.58				
Actual Unit Stress	Lbs./																										

MICROFILMED
FEB 15 1983

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

39
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



Note: For details of Diaphragm "A" and "B" See Sheet 43.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17.5
TRUSS DETAILS UNIT I
PANELS 100, 101, 102
CLEVELAND CUYAHOGA COUNTY OHIO

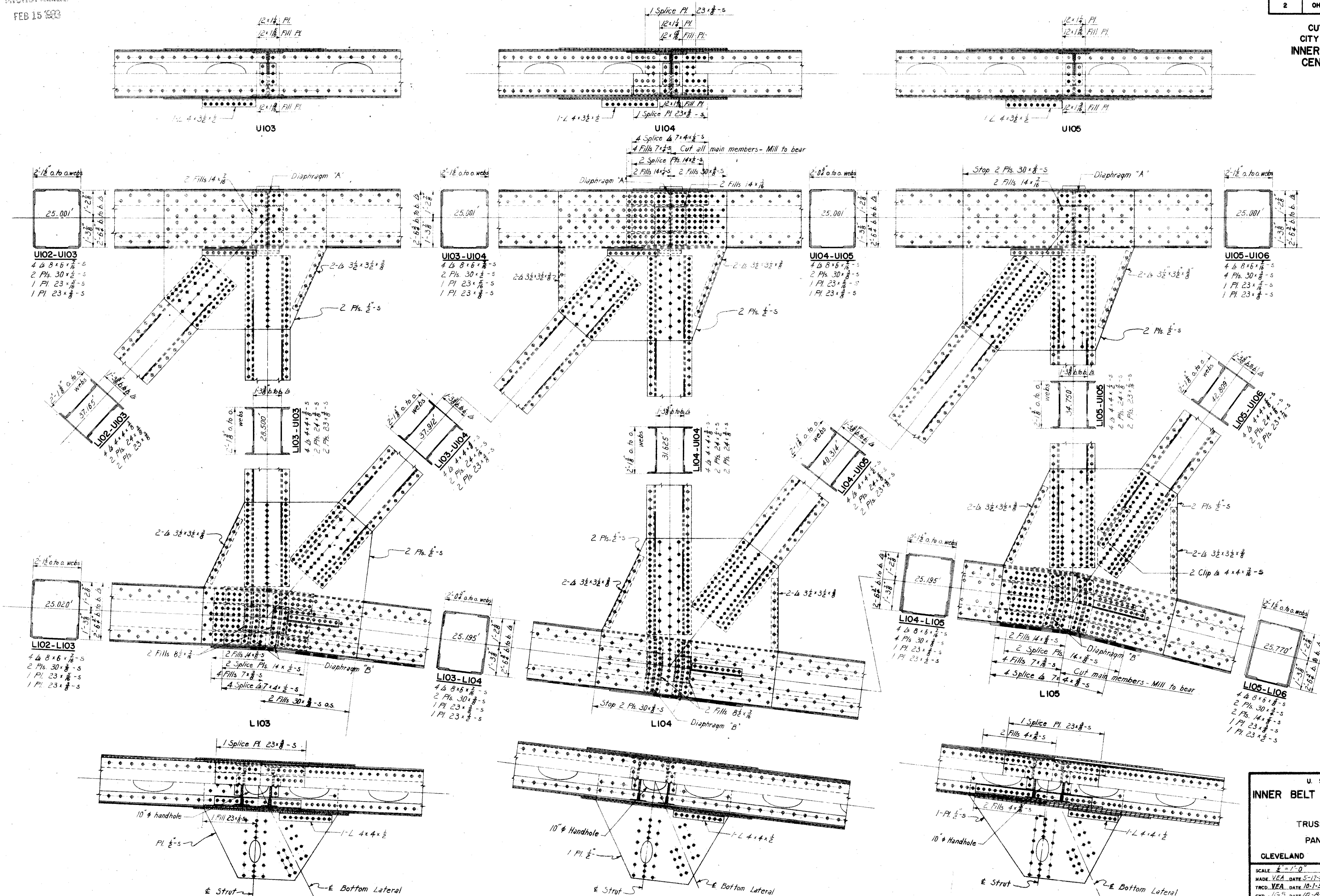
SCALE: 1/2" = 1'-0"
MADE: VEA DATE 6-28-54 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD: VEA DATE 7-21-54 CONSULTING ENGINEERS
CKD: JGS DATE 10-5-54 KANSAS CITY CLEVELAND NEW YORK
914-IA SHEET: 2.39

UNRECORDED
FEB 15 1954

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

40
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



Note: For Details of Diaphragms 'A' and 'B' See Sheet 43.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-175
TRUSS DETAILS UNIT I
PANELS 103, 104, 105
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1/2" = 1'-0"
 MADE V.E.A. DATE: 5-17-54
 TRCD. V.E.A. DATE: 10-1-54
 CKD. V.E.A. DATE: 10-8-54

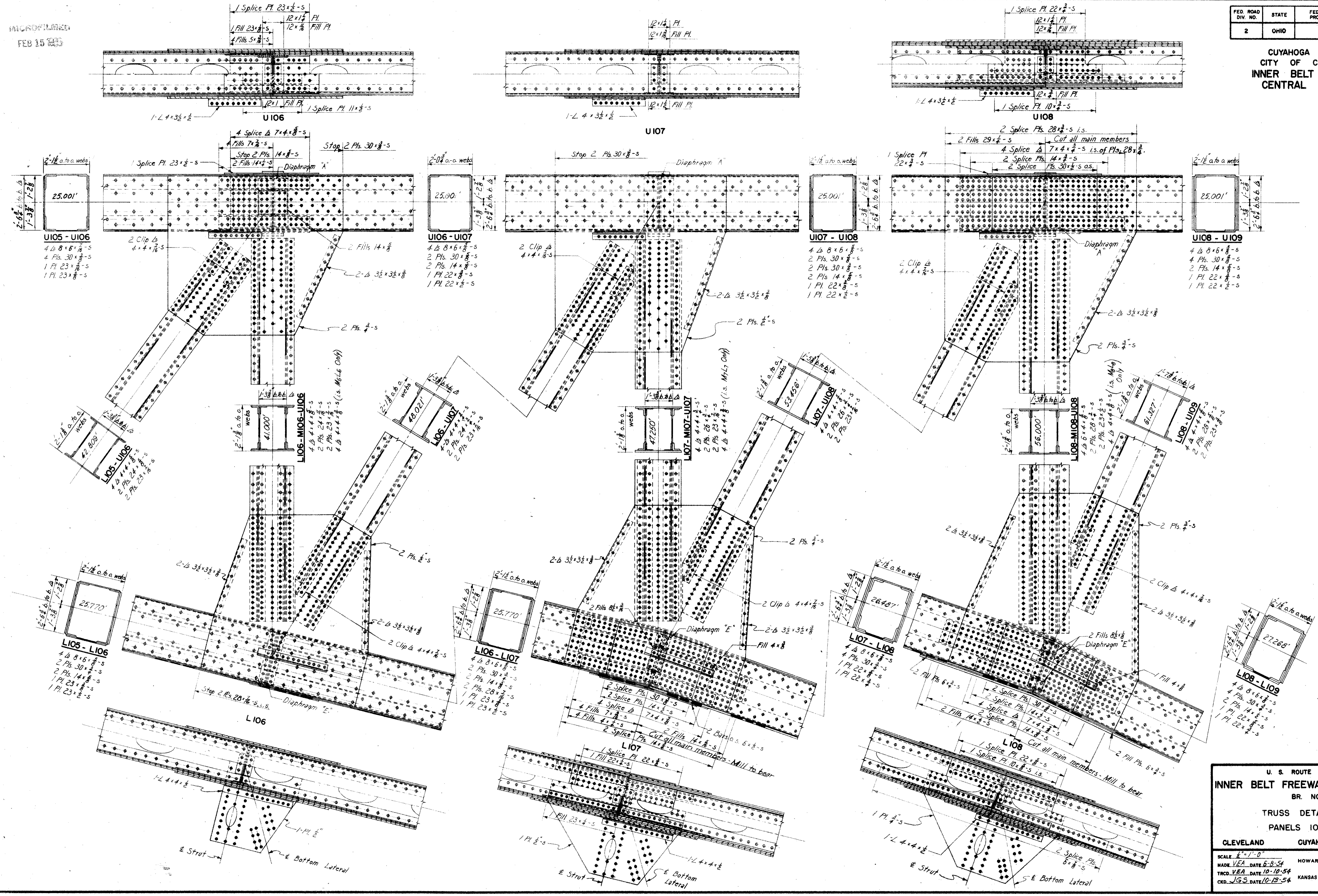
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET: 2.40

260

MICROFILMED
FEB 15 1955

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	41
2	OHIO			122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



Note: For Details of Diaphragms "A" and "E" See Sheet 43.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-175

TRUSS DETAILS UNIT I
PANELS 106, 107, 108

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1/2" = 1'-0"
MADE V.E.A. DATE 6-8-54
TRCD V.E.A. DATE 10-10-54
CKD. J.G.S. DATE 10-13-54

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

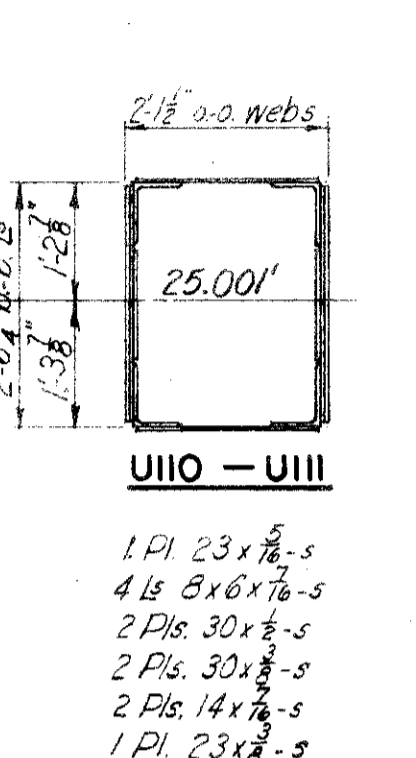
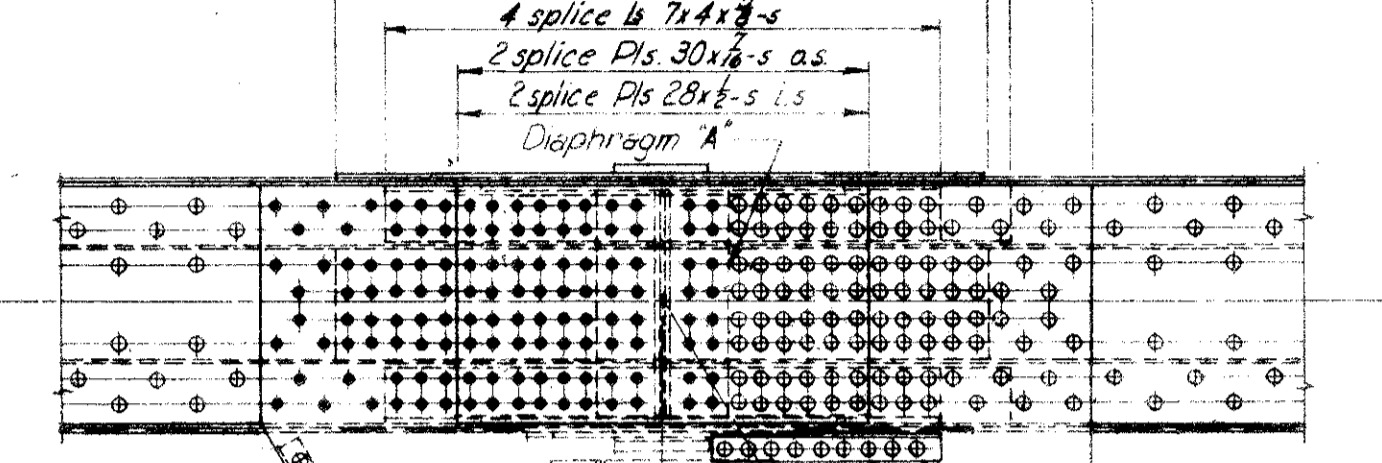
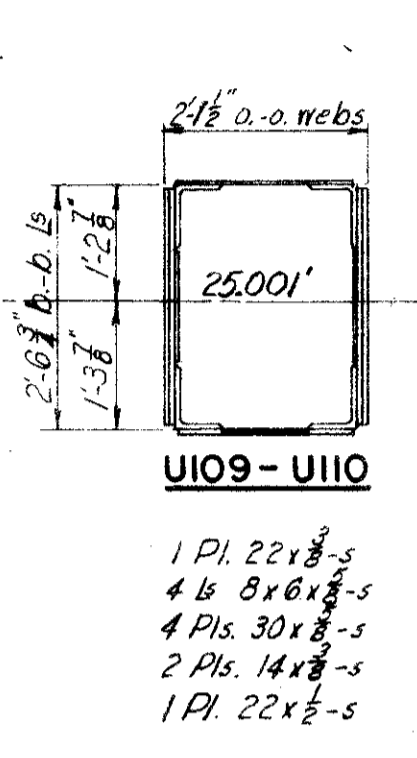
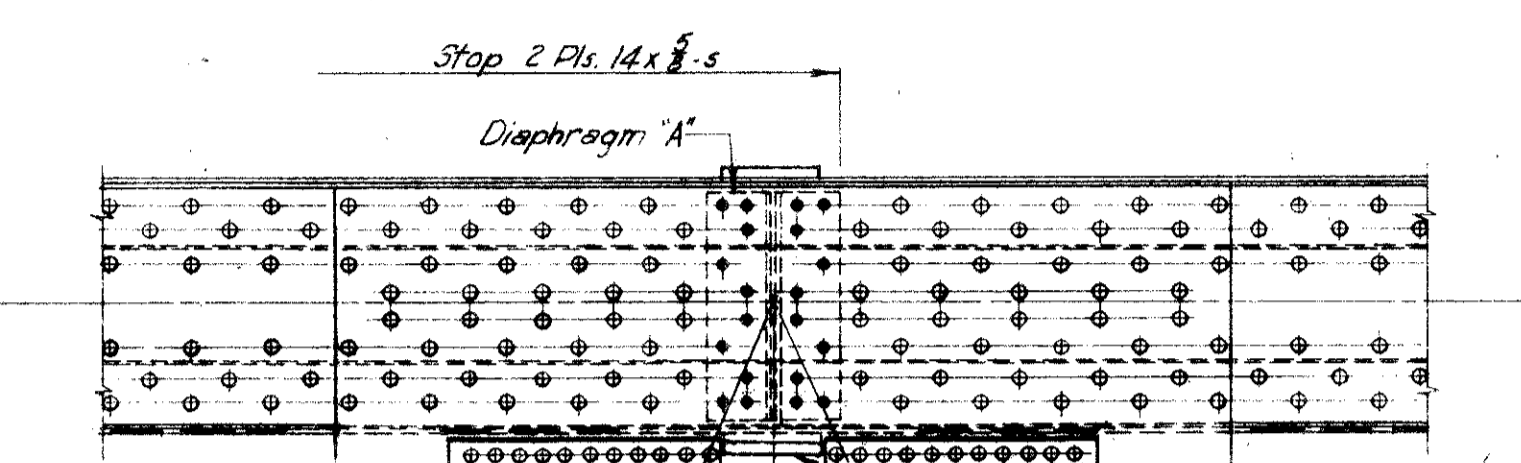
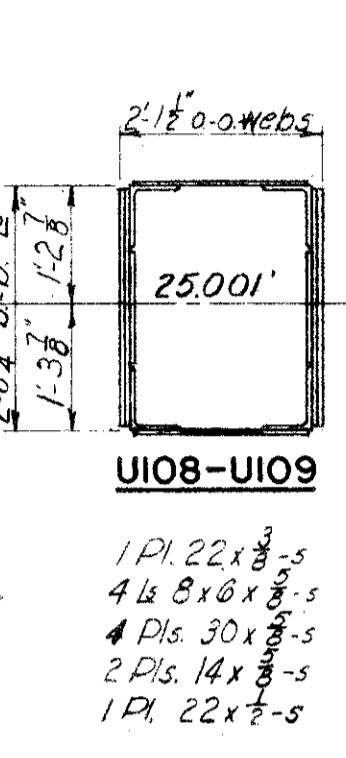
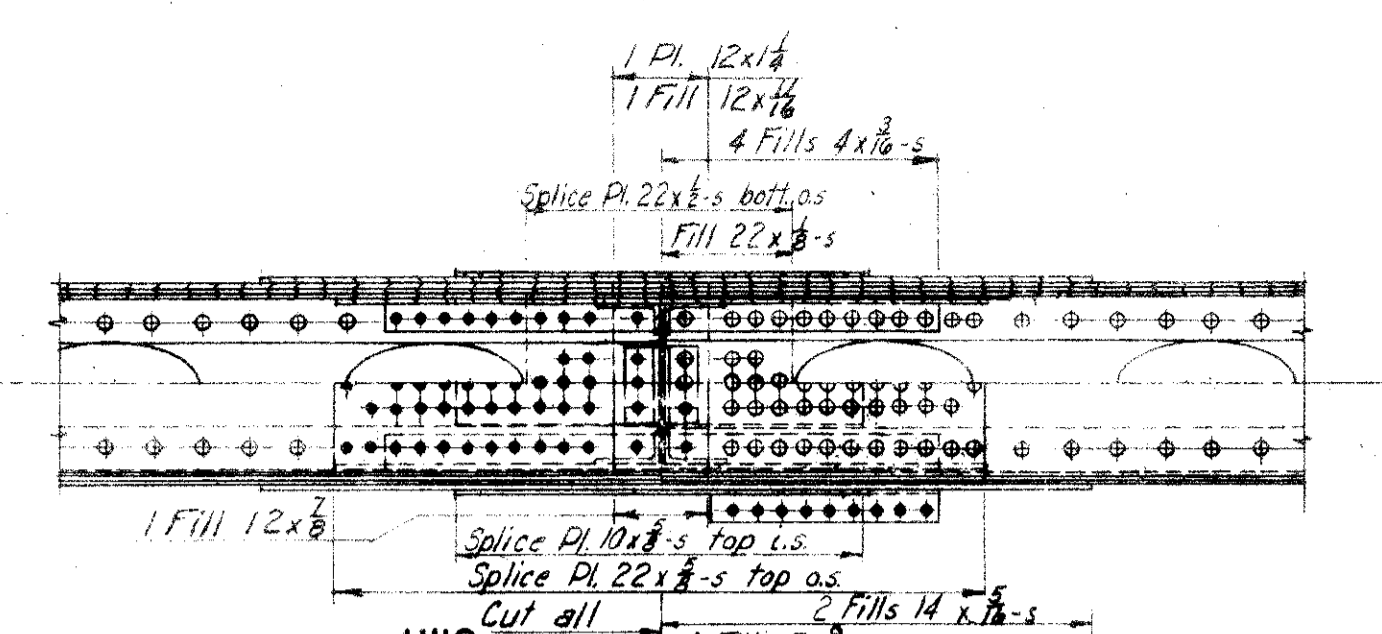
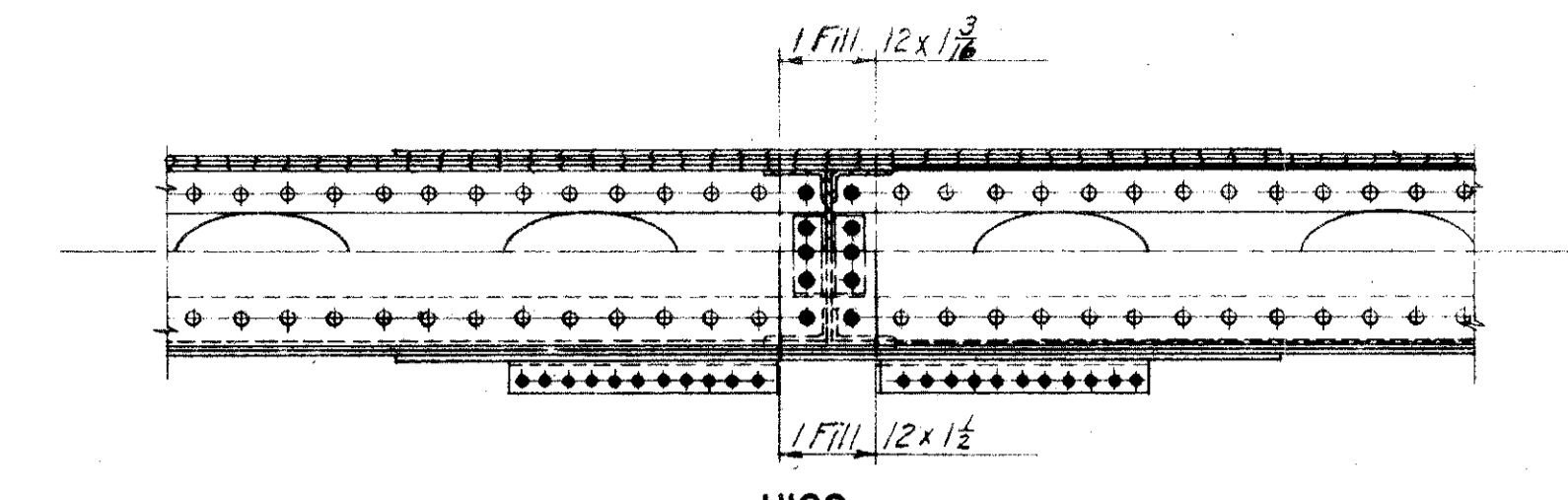
914-1A SHEET 2.41

MICROFILMED
FEB 15 1960

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

42
122

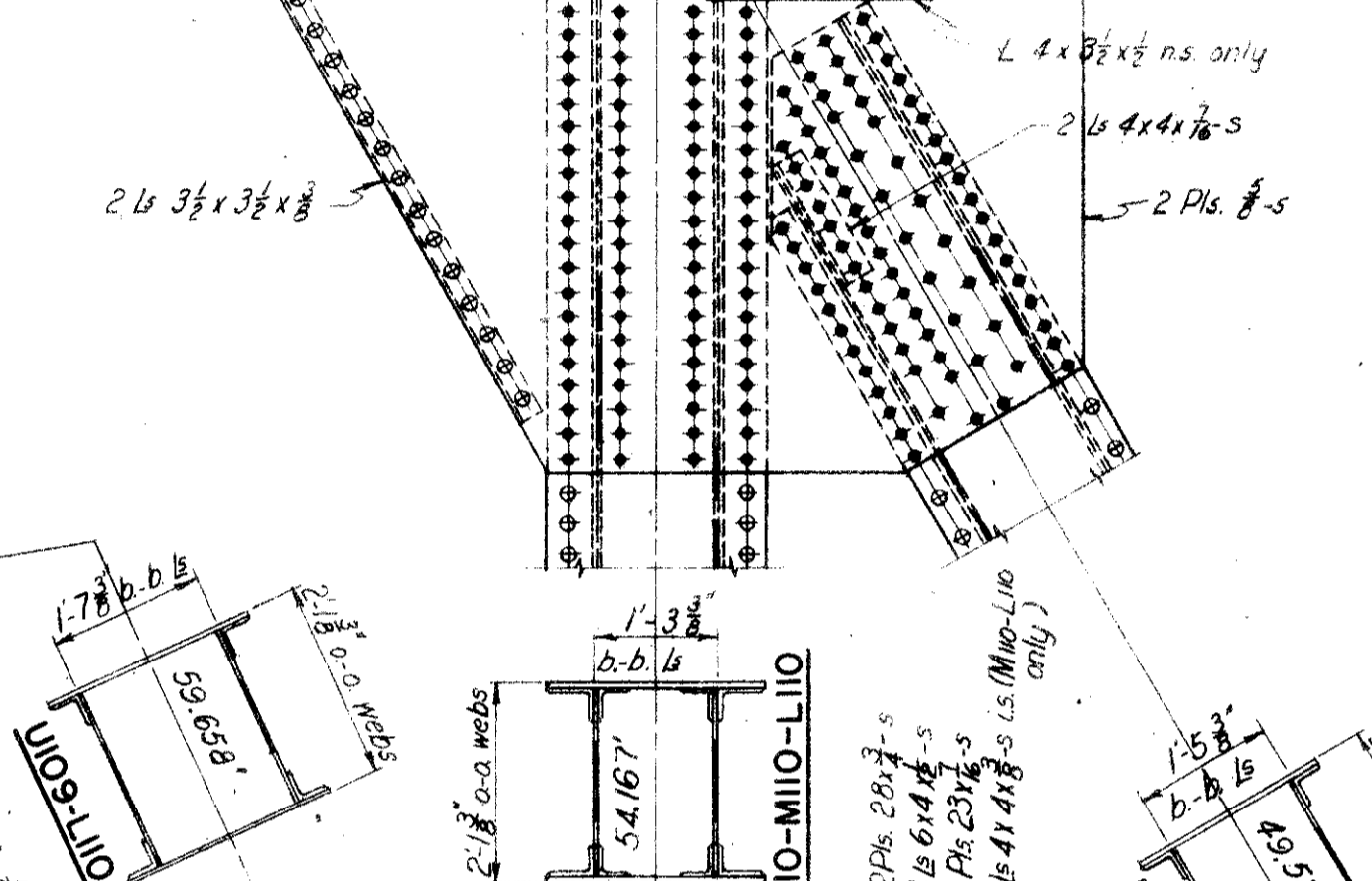
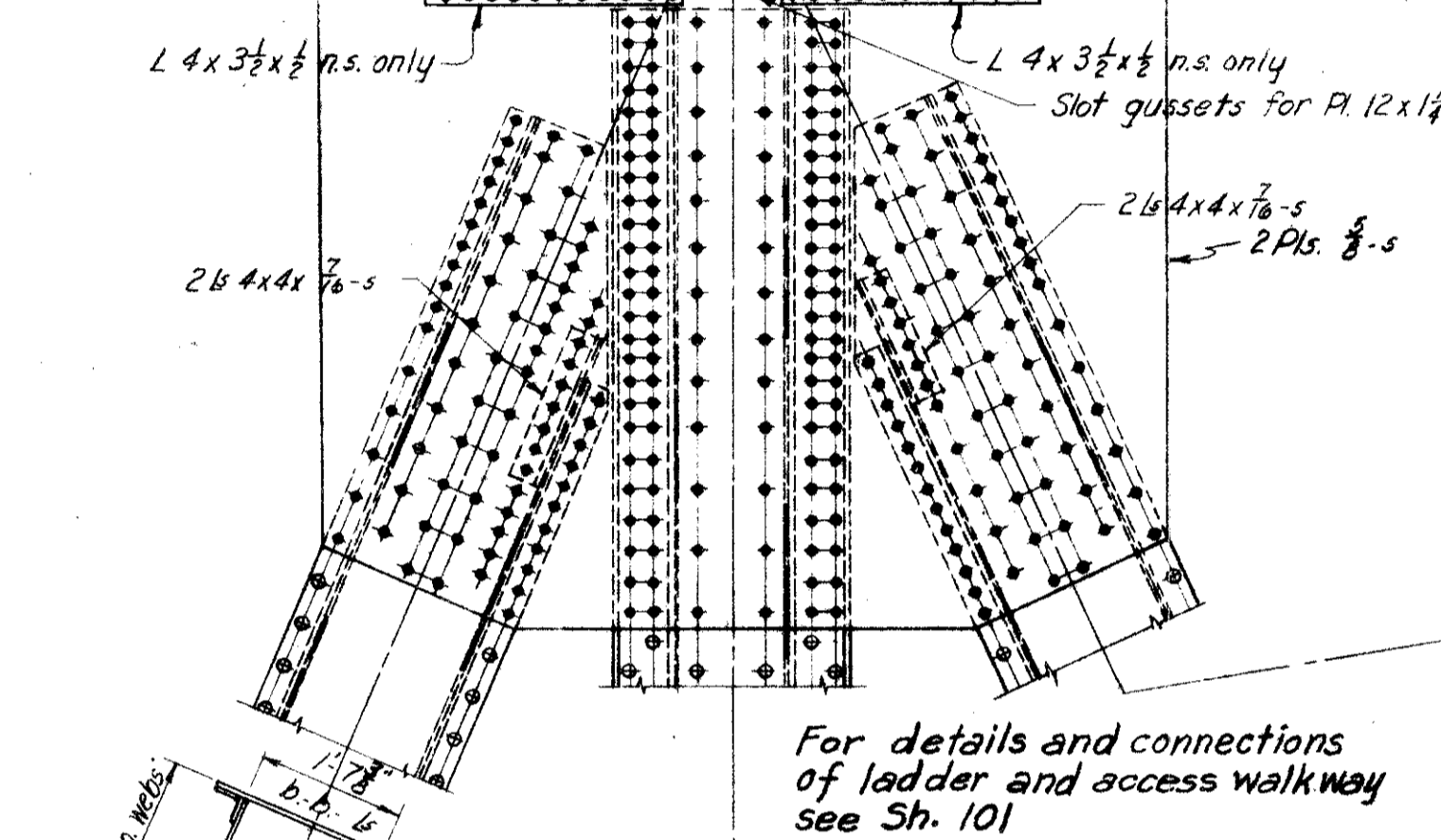
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



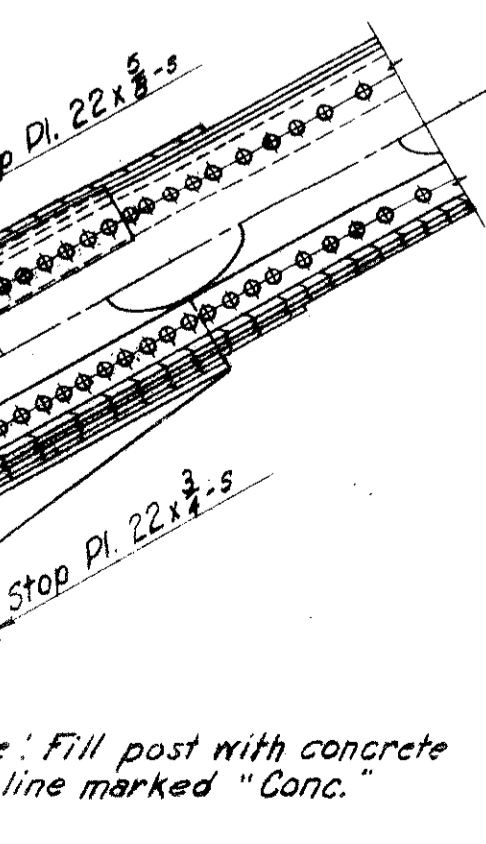
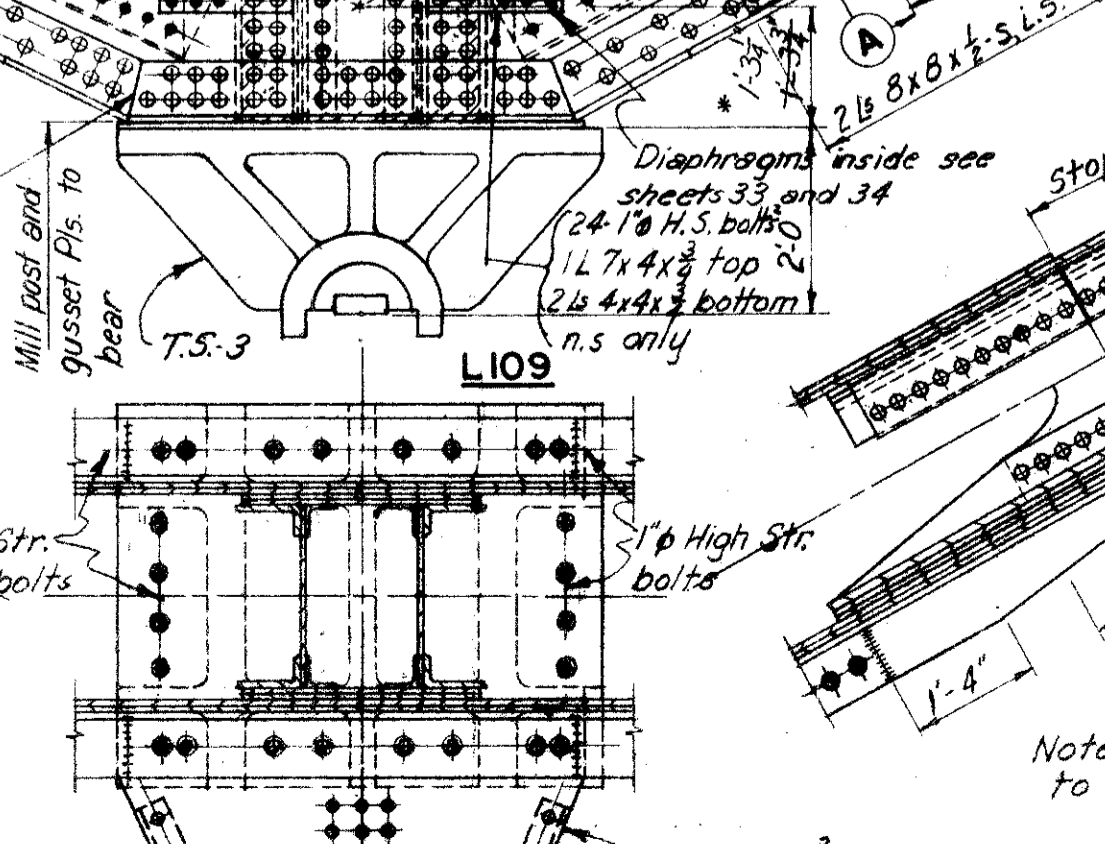
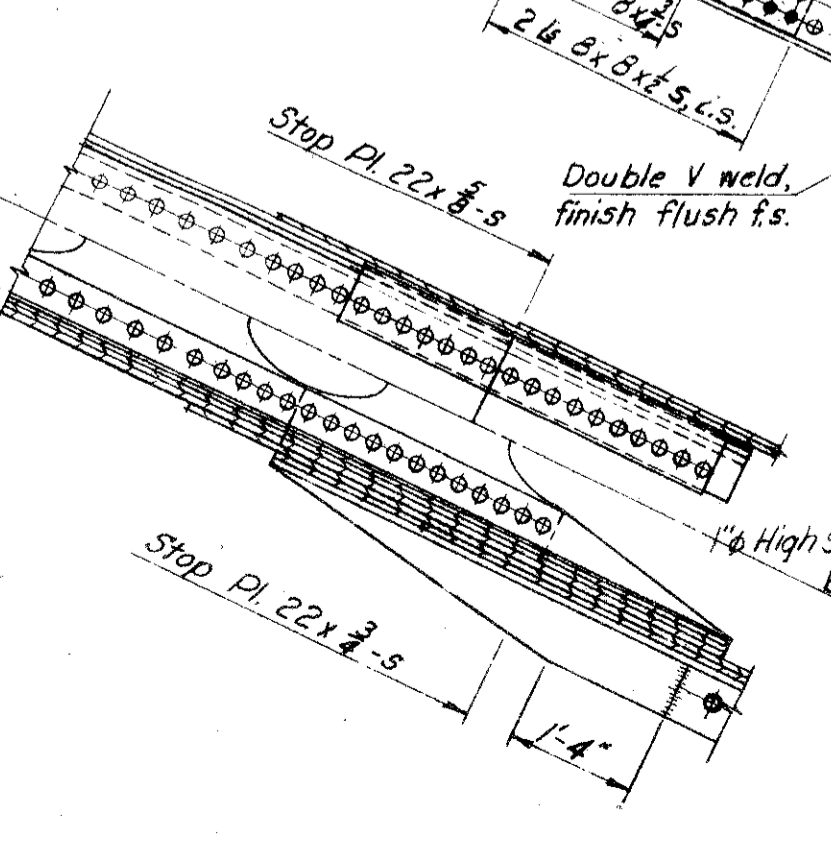
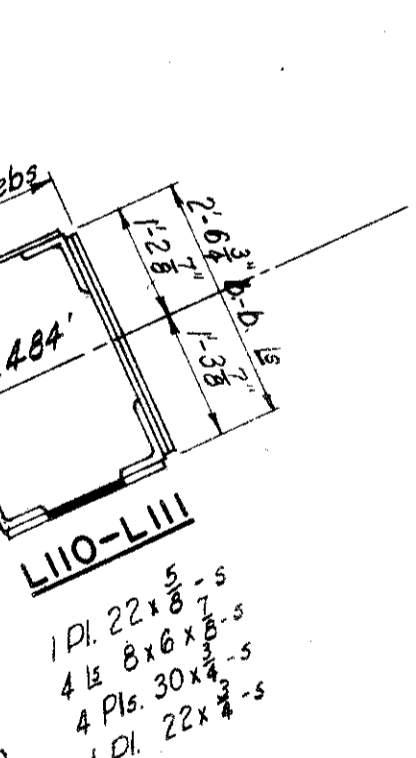
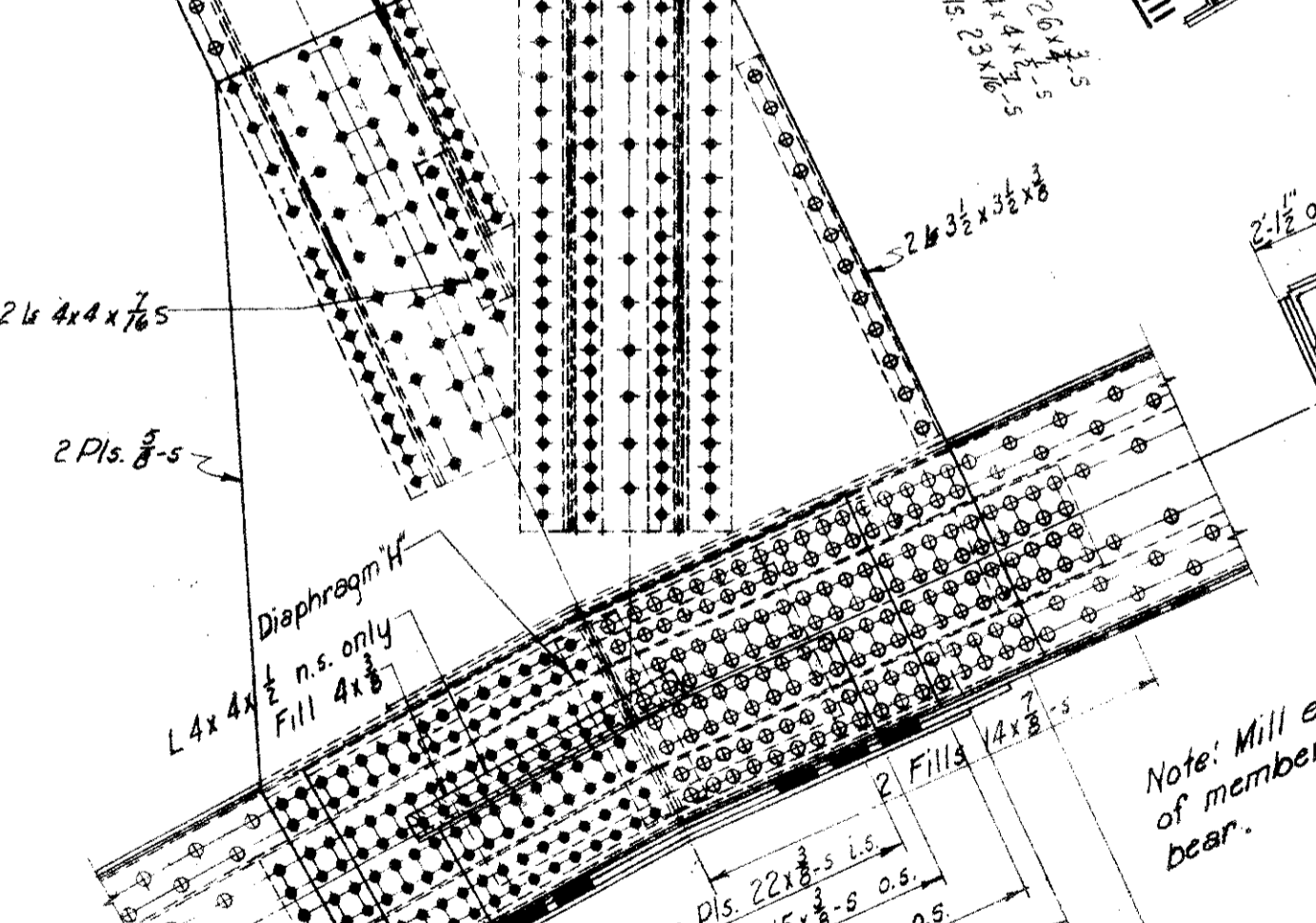
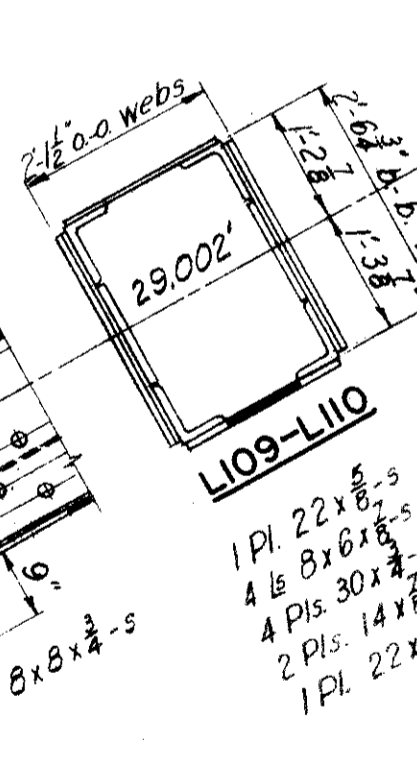
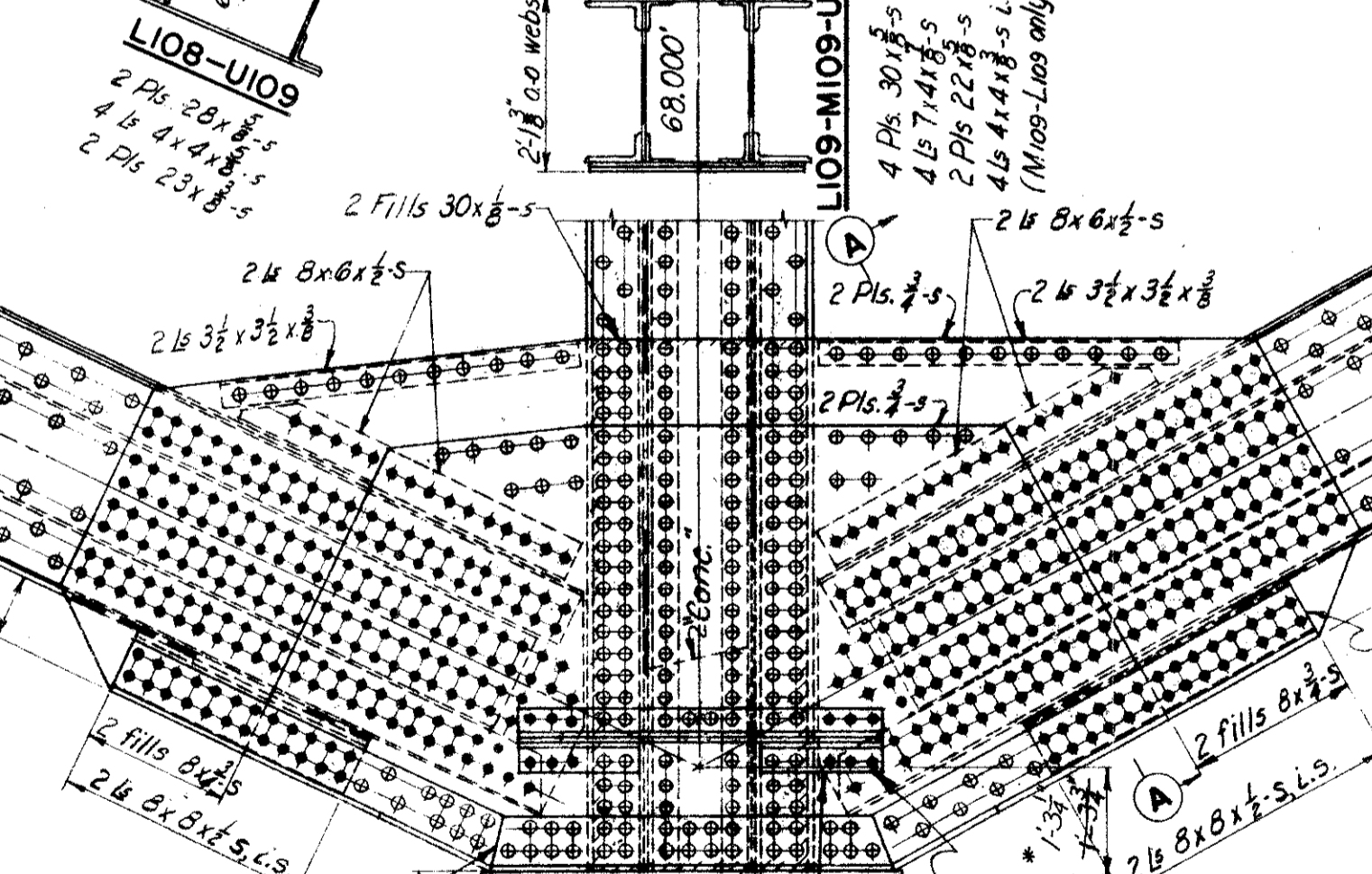
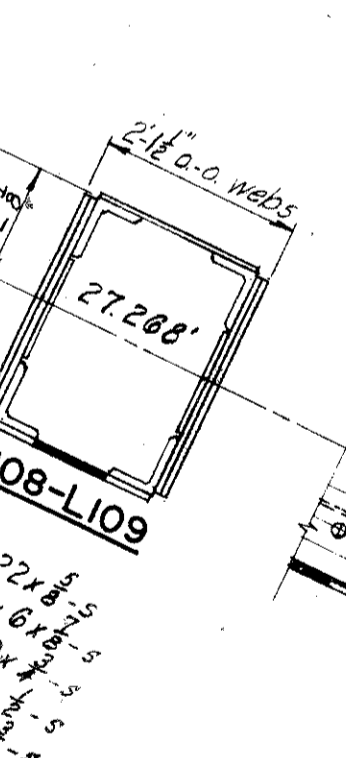
- UI08-UI09**
- 1 Pl. 22x8-s
 - 4 L 8x6x7/8-s
 - 4 Pls. 30x7/8-s
 - 2 Pls. 14x7/8-s
 - 1 Pl. 22x7-s

- UI09-UI10**
- 1 Pl. 22x8-s
 - 4 L 8x6x7/8-s
 - 4 Pls. 30x7/8-s
 - 2 Pls. 14x7/8-s
 - 1 Pl. 22x7-s

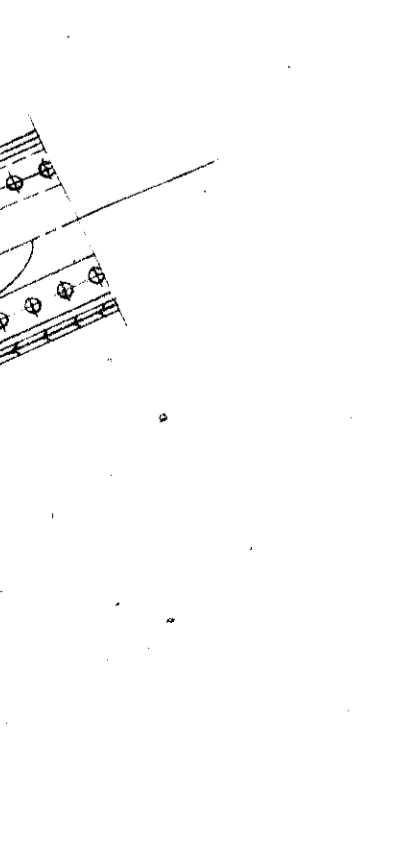
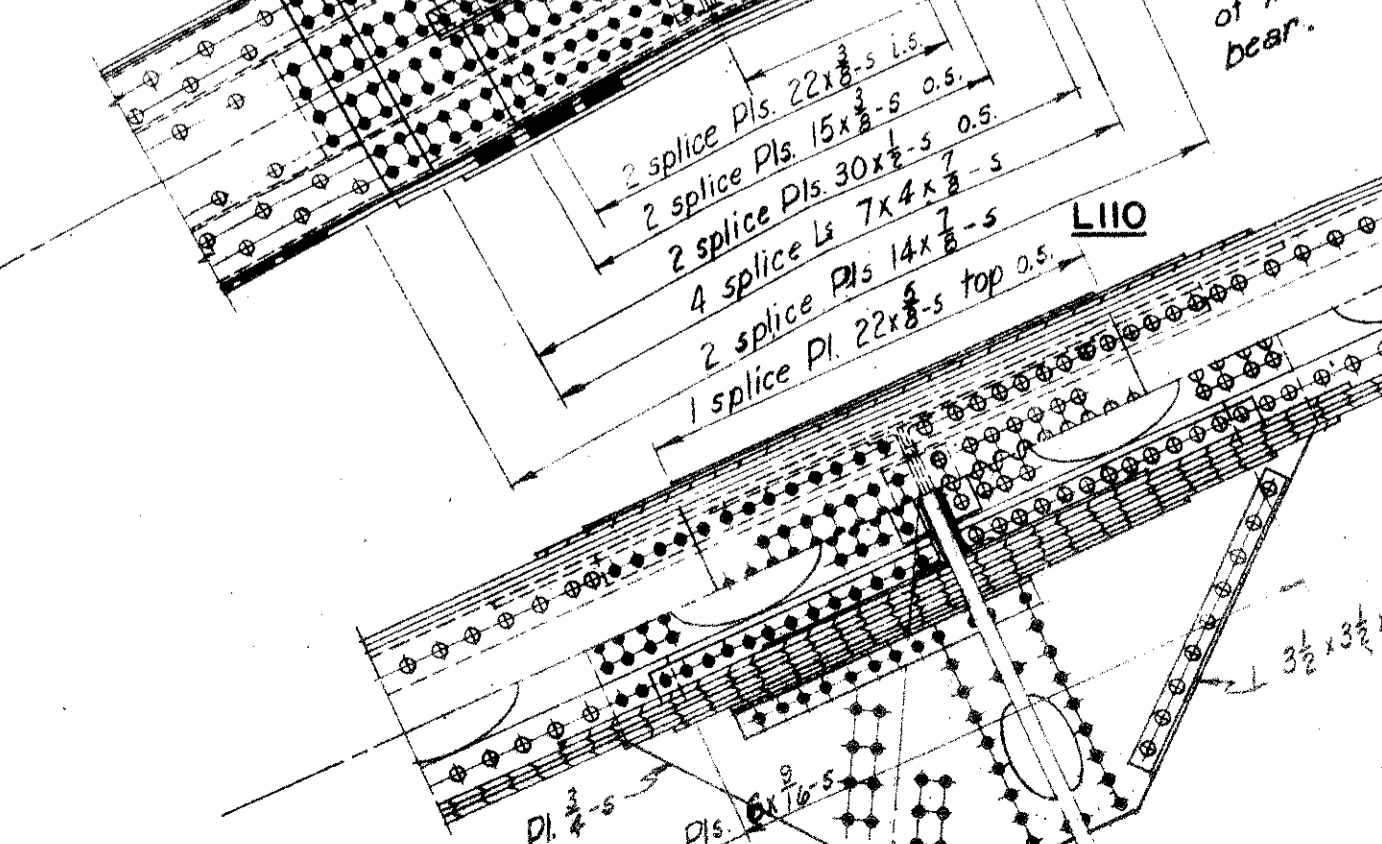
- UI10-UI11**
- 1 Pl. 23x7-s
 - 4 L 8x6x7/8-s
 - 2 Pls. 30x7/8-s
 - 2 Pls. 30x7/8-s
 - 2 Pls. 14x7/8-s
 - 1 Pl. 23x7-s



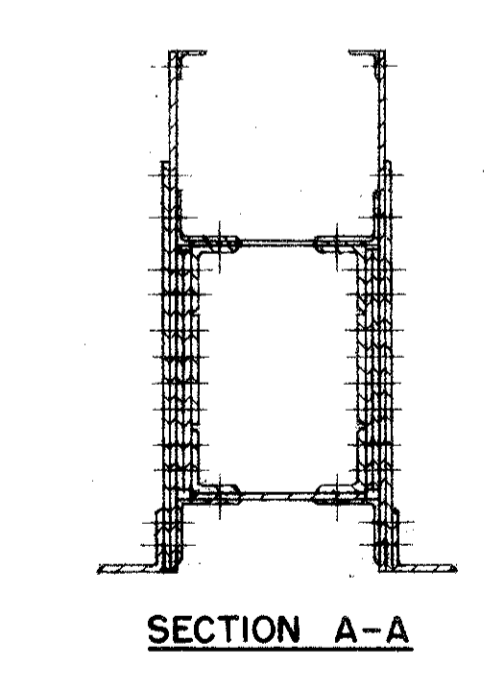
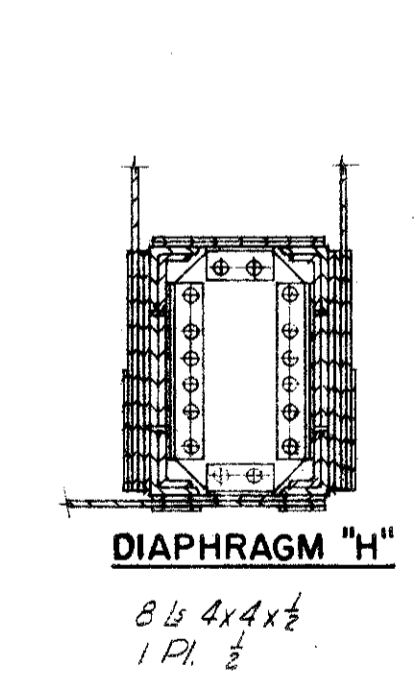
For details and connections of ladder and access walkway see Sh. 101



Note: Fill post with concrete to line marked "Conc."



Note: Mill ends of members to bear.



* 5-23-56 P.N.T.#B PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17.5

TRUSS DETAILS, UNIT I
PANELS I09 AND I10

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1/4" = 1'-0"
MADE P.L.C. DATE 6-7-54
TRCD. YEA. DATE 10-1-54
CKD J.G.S. DATE 10-5-54

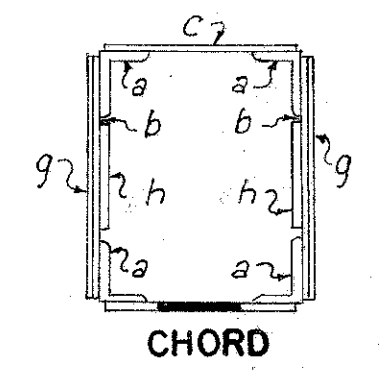
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

914-1A SHEET 2.42

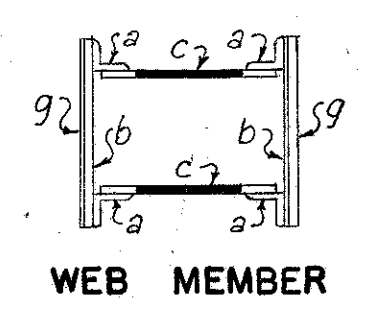
MICROFILMED
FEB 15 1983

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT

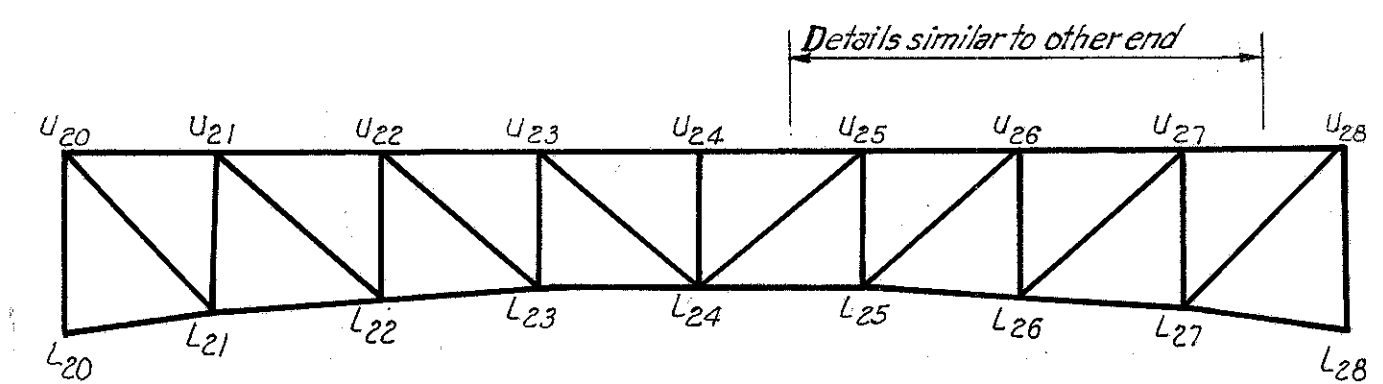
LINE	MEMBER	TENSION CHORD												COMPRESSION CHORD											
		L20	L21	L22	L23	L24	L25	L26	L27	L28	U20	U21	U22	U23	U24	U25	U26	U27	U28						
1	Dead Load	0	+1054	+1941	+2609	+1941	+2609	+1941	+1054	0	-1052	-1937	-2609	-2789	-2789	-2609	-1937	-1052							
2	O.S. Dead Load	0	+843	+1553	+2087	+2087	+1553	+843	0	-842	-1550	-2087	-2231	-2231	-2087	-1550	-842								
3	Live Load + Imp.-Tension																								
4	Reduced L.L. + Imp.-Tension	0	+275	+494	+651	+651	+494	+275	0																
5	Live Load + Imp.-Comp.																								
6	Reduced L.L. + Imp.-Comp.										-272	+493	-651	-675	-675	-651	-493	-272							
7	Reduced L.L. + Imp.-Ten. xD (CF) e																								
8	Reduced L.L. + Imp.-Comp. xD (CF) e										-451	-817	-1079	-1119	-1119	-1079	-817	-451							
9	Ratio = $\frac{Line 4}{Line 3}$ (Comp.) or $\frac{Line 6}{Line 5}$ (Ten.)																								
10	L.L. Sidewalk-Tension	0	+12	+22	+30	+30	+22	+12	0																
11	L.L. Sidewalk-Comp.										-12	-22	-30	-32	-32	-30	-22	-12							
12	Direct Design Stress	0	+1311	+2394	+3196	+3196	+2394	+1311	0	-1305	-2389	-3196	-3382	-3382	-3196	-2389	-1305								
13	Reverse Design Stress																								
14																									
15																									
16																									
17																									
Section																									
a.	Flange Angles	2	4x4x 5/16	8x6x 7/16	8x6x 7/16	8x6x 7/16	8x6x 7/16	8x6x 7/16	4x4x 5/16	2	8x6x 7/16	8x6x 7/16	8x6x 7/16	8x6x 7/16	8x6x 7/16	8x6x 7/16	8x6x 7/16	8x6x 7/16							
b.	1st. Web Plate	4	30x 3/4	30x 9/16	30x 9/16	30x 3/4	30x 3/4	30x 9/16	30x 3/4	4	30x 9/16	30x 9/16	30x 3/4	30x 3/4	30x 3/4	30x 9/16	30x 9/16	30x 9/16							
c.	Top Cover Plate	3	23x 5/16	22x 3/4	22x 3/4	22x 3/4	22x 3/4	22x 3/4	23x 5/16	3	22x 3/4	22x 3/4	22x 3/4	22x 3/4	22x 3/4	22x 3/4	22x 3/4	22x 3/4							
d.	Bottom Cover Plate	2	23x 3/4	22x 3/4	22x 3/4	22x 3/4	22x 3/4	22x 3/4	23x 3/4	2	22x 3/4	22x 3/4	22x 3/4	22x 3/4	22x 3/4	22x 3/4	22x 3/4	22x 3/4							
g.	2nd. Web Plate	4		30x 9/16	30x 3/4	30x 3/4	30x 9/16			4	30x 9/16	30x 3/4	30x 3/4	30x 9/16											
h.	Inside Web Plate	2		14x 7/16	14x 3/4	14x 3/4	14x 7/16			2	14x 3/4	14x 7/16	14x 3/4	14x 7/16											
25	Length	In.									300"	300"	300"	300"	300"	300"	300"	300"							
26	Min. Radius of Gyration	In.									110.61	10.42	10.82	10.59	10.59	10.82	10.42	110.61							
27	Allowable Stress	Lbs./Sq. In.	18,000	24,000	24,000	24,000	24,000	24,000	18,000	19,630	19,620	19,640	19,630	19,630	19,640	19,620	19,630								
28	Actual Gross Area	Sq. In.	43.79	71.22	117.22	156.69	156.69	117.22	43.79	74.50	122.25	164.76	173.51	173.51	164.76	122.25	74.50								
29	Net Area	Sq. In.	36.60	61.10	100.85	134.82	134.82	100.85	36.60	71.13	122.25	164.76	172.76	172.76	164.76	122.25	71.13								
30	Actual Unit Stress	Lbs./Sq. In.	0	21,460	23,740	23,720	23,720	23,740	21,460	18,350	19,550	19,400	19,480	19,480	19,400	19,550	18,350								
31	Material		C	S	S	S	S	S	C	S	S	S	S	S	S	S	S								



LINE	MEMBER	TENSION WEB MEMBERS												COMPRESSION WEB MEMBERS											
		U20	L21	U21	L22	U22	L23	U23	L24	U24	L25	U25	L26	U26	L27	U27	L28								
1	Dead Load	+1473	+1199	+883	+235	+235	+883	+1199	+1473	-1188	-937	-702	-280	-135	-280	-702	-937	-1188							
2	O.S. Dead Load	+1178	+960	+707	+188	+188	+707	+960	+1178	-951	-750	-562	-224	-108	-224	-562	-750	-951							
3	Live Load + Imp.-Tension																								
4	Reduced L.L. + Imp.-Tension	+382	+332	+276	+168	+168	+276	+332	+382																
5	Live Load + Imp.-Comp.																								
6	Reduced L.L. + Imp.-Comp.									-282	-239	-192	-113	-49	-113	-192	-239	-282							
7	Reduced L.L. + Imp.-Ten. xD (CF) e	+633	+550	+458	+278	+278	+458	+550	+633																
8	Reduced L.L. + Imp.-Comp. xD (CF) e	-18	-50	-172	-18	-18	-50	-172	-18	-467	-396	-318	-187	-81	-187	-318	-396	-467							
9	Ratio = $\frac{Line 4}{Line 3}$ (Comp.) or $\frac{Line 6}{Line 5}$ (Ten.)																								
10	L.L. Sidewalk-Tension	+17	+14	+11	+6	+6	+11	+14	+17																
11	L.L. Sidewalk-Comp.									-13	-11	-8	-4	-1	-4	-8	-11	-13							
12	Direct Design Stress	+1828	+1524	+1176	+472	+472	+1176	+1524	+1828	-1431	-1157	-888	-415	-190	-415	-888	-1157	-1431							
13	Reverse Design Stress																								
14																									
15																									
16																									
17																									
Section																									
a.	Flange Angles	2	4x4x 3/4	4x4x 3/4	4x4x 3/4	4x4x 3/4	4x4x 3/4	4x4x 3/4	4x4x 3/4	2	4x4x 3/4	4x4x 3/4	4x4x 3/4	4x4x 3/4	4x4x 3/4	4x4x 3/4	4x4x 3/4	4x4x 3/4							
b.	1st. Web Plate	3	24x 3/4	24x 3/4	24x 3/4	24x 3/4	24x 3/4	24x 3/4	24x 3/4	3	24x 3/4	24x 11/16	24x 3/4	24x 3/4	24x 3/4	24x 11/16	24x 3/4	24x 3/4							
c.	Cover Plates	2	22x 3/4	22x 7/16	23x 7/16	23x 3/4	23x 3/4	23x 7/16	22x 3/4	2	23x 7/16	23x 7/16	23x 3/4	23x 3/4	23x 3/4	23x 7/16	23x 7/16	23x 7/16							
g.	2nd. Web Plate	3	24x 3/4	24x 3/4				24x 3/4	24x 3/4	3	24x 7/16						24x 7/16	24x 7/16							
25	Length	In.									342"	294"	274.5"	255"	255"	255"	274.5"	294"	342"						
26	Min. Radius of Gyration	In.									7.57	7.70	7.68	7.70	7.70	7.68	7.70	7.57							
27	Allowable Stress	Lbs./Sq. In.	24,000	24,000	24,000	18,000	18,000	24,000	24,000	19,060	19,330	19,410	14,720	14,720	14,720	19,410	19,330	19,060							
28	Actual Gross Area	Sq. In.	90.44	76.94	59.82	39.19	39.19	59.82	76.94	74.82	62.82	51.75	39.19	39.19	39.19	51.75	62.82	74.82							
29	Net Area	Sq. In.	75.94	64.19	49.32	32.44	32.44	49.32	64.19	74.82	61.87	46.35	31.88	31.88	31.88	46.35	61.87	74.82							
30	Actual Unit Stress	Lbs./Sq. In.	24,070	23,720	23,850	14,550	14,550	23,850	23,720	19,120	18,900	19,160	13,000	13,000	13,000	19,160	18,900	19,120							
31	Material		S	S	S	C	C	S	S	S	S	S	C	C	S	S	S								



S = Special Steel
C = Carbon Steel
* = 11" Hand Hole Out
** = 10" Hand Hole Out



Truss dimensions are shown on Framing Plan, Sh. 19.
North and south trusses are alike.

All dead load and live load stresses are in kips.
Line 29 - Net area for tension or effective gross area for compression.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17.5

STRESS SHEET UNIT 2
NORTH AND SOUTH TRUSSES

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: None
MADE DMC DATE 5-5-54
TRCWD & DATE 9-20-54
CND. DATE 7-26-54

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

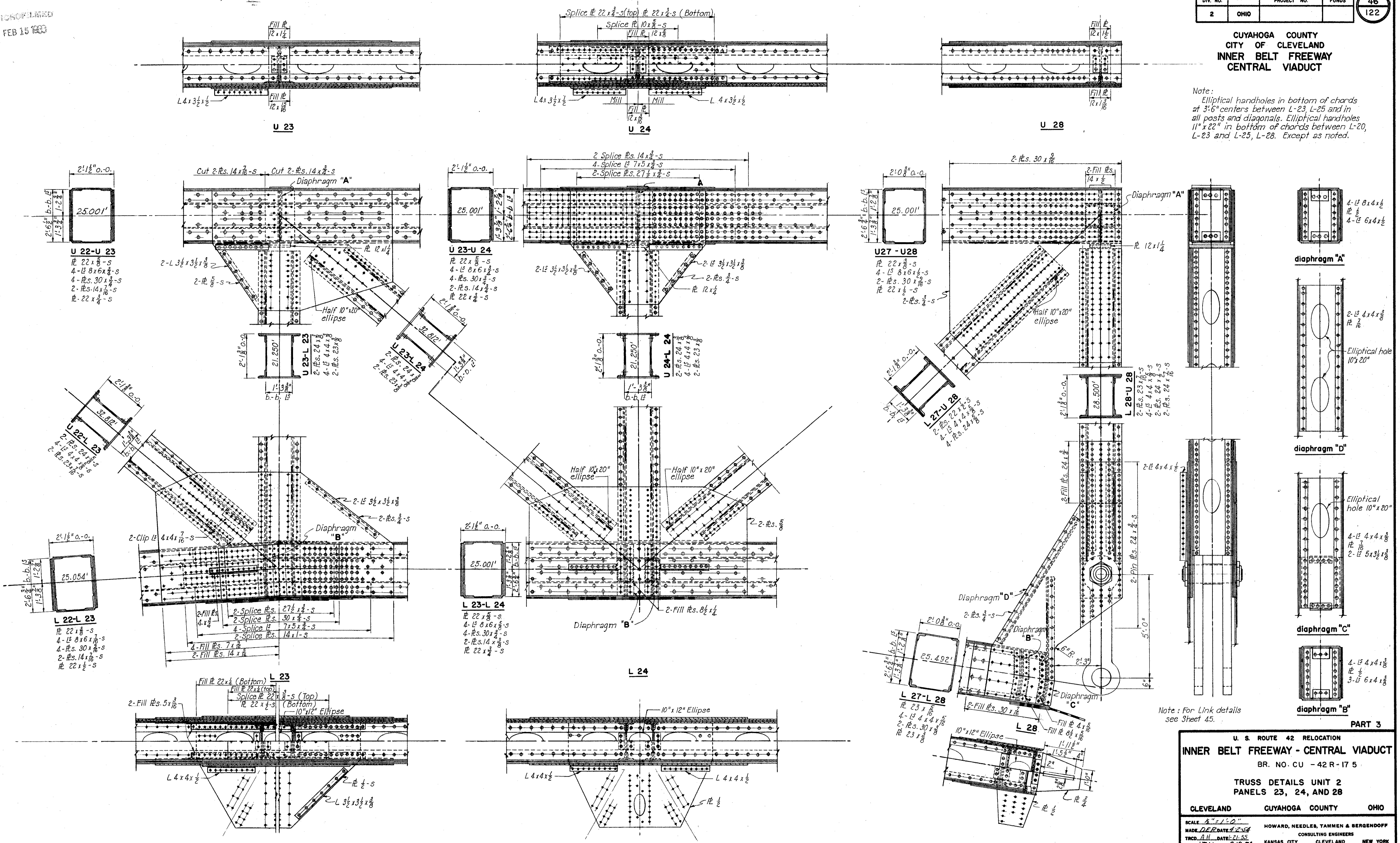
914-1A SHEET 2: 44

INCORPORATED
FEB 15 1950

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	46
2	OHIO			122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT

Note:
Elliptical handholes in bottom of chords at 3'-6" centers between L-23, L-25 and in all posts and diagonals. Elliptical handholes 11" x 22" in bottom of chords between L-20, L-23 and L-25, L-28. Except as noted.



Note: For Link details see Sheet 45.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R - 17 5

TRUSS DETAILS UNIT 2
PANELS 23, 24, AND 28

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/4" = 1'-0"
MADE PER DATE 4-2-54
TRCD. A.H. DATE: 2-1-55
CHK. J.T.K. DATE: 8-12-54

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-IA SHEET 2.46

MICROFILMED
FEB 15 1983

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT

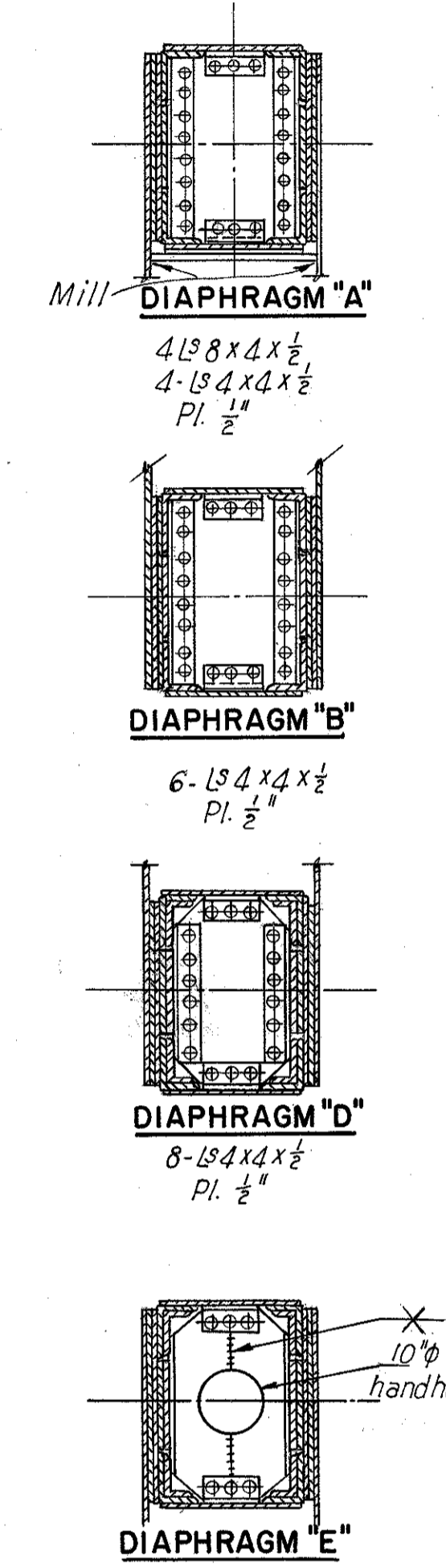
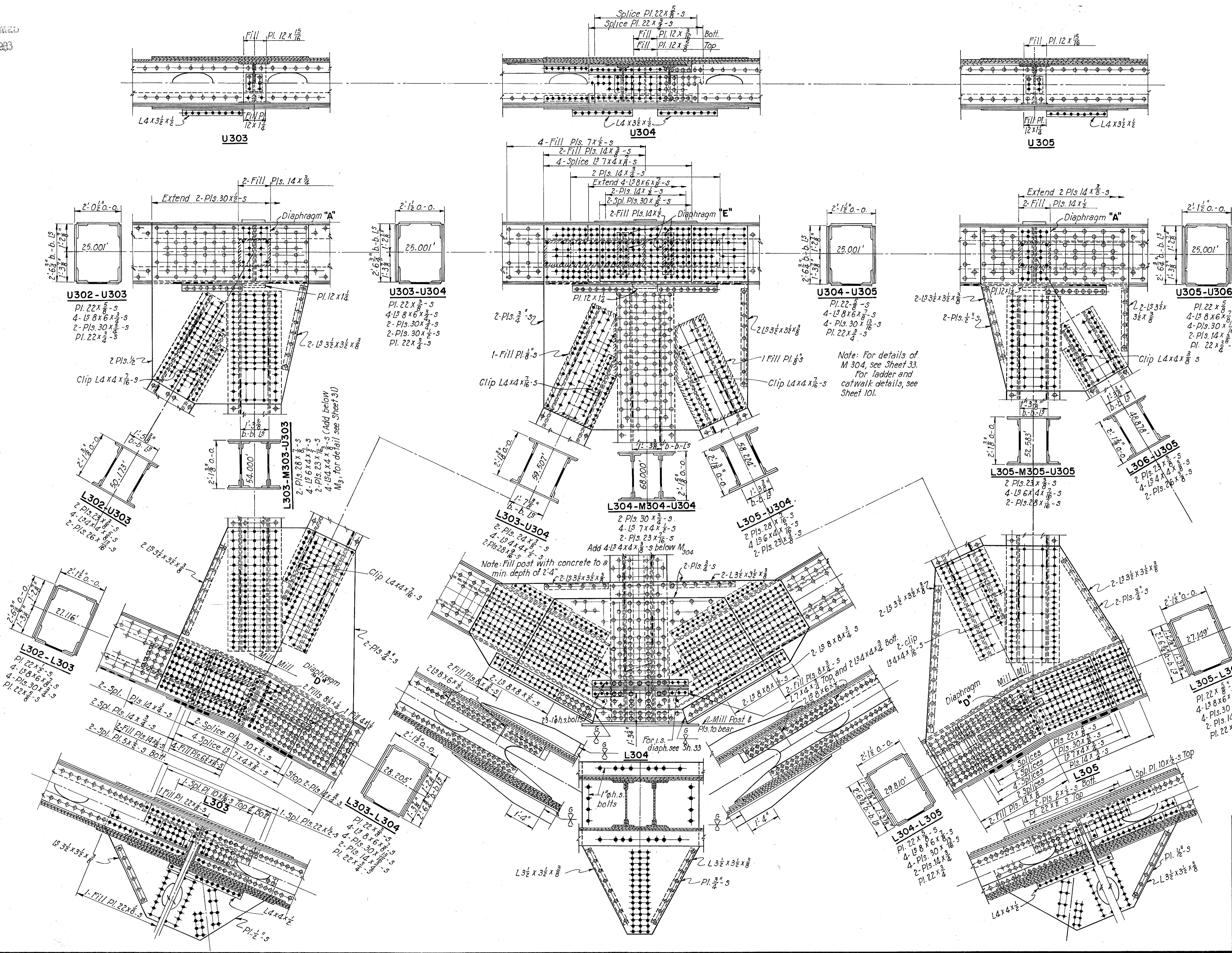
LINE	MEMBER	COMPRESSION CHORD																TENSION CHORD																			
		L300	L301	L302	L303	L304	L305	L306	L307	L308	L309	L310	L311	L312	L313	L314	L315	L316	L317	L318	U300	U301	U302	U303	U304	U305	U306	U307	U308	U309	U310	U311	U312	U313	U314	U315	U316
1	Dead Load	-1016	-1851	-2560	-3086	-3260	-3119	-3006	-2864	-2884	-2912	-2912	-3070	-3193	-3235	-3255	-2611	-1888	-1021	+965	+1773	+2359	+2872	+2956	+2817	+2884	+2782	+2782	+2912	+2864	+3019	+2941	+2407	+1808	+986		
2	0.8 Dead Load	-813	-1481	-2048	-2469	-2608	-2495	-2405	-2291	-2307	-2330	-2330	-2458	-2554	-2588	-2604	-2089	-1510	-817	+772	+1418	+1887	+2298	+2365	+2254	+2307	+2226	+2226	+2330	+2291	+2415	+2353	+1926	+1446	+789		
3	Live Load + Imp. - Tension																			+219	+382	+485	+625	+695	+721	+800	+803	+803	+812	+737	+723	+650	+505	+399	+229		
4	Reduced L.L. + Imp. - Tension																																				
5	Live Load + Imp. - Compression																																				
6	Reduced L.L. + Imp. - Compr.	-230	-399	-526	-616	-630	-679	-707	-733	-800	-813	-749	-735	-706	-655	-640	-548	-416	-241	+363	+633	+804	+1036	+1195	+1326	+1331	+1331	+1331	+1331	+1331	+1331	+1331	+1331	+1331	+1331		
7	Red. L.L. + Imp. - Tension * D(CF) ^e																																				
8	Red. L.L. + Imp. - Compr. * D(CF) ^e	-381	-661	-871	-1021	-1044	-1125	-1172	-1215	-1326	-1347	-1242	-1218	-1170	-1085	-1061	-909	-690	-399																		
9	Ratio = $\frac{Live Load + Imp. - Tension}{Live Load + Imp. - Compression}$																																				
10	L.L. Sidewalk - Tension																																				
11	L.L. Sidewalk - Compression	-11	-20	-28	-34	-35	-42	-49	-55	-62	-62	-55	-49	-42	-35	-34	-28	-20	-11	+11	+19	+26	+38	+48	+54	+62	+62	+62	+62	+62	+62	+62	+62	+62	+62		
12	Direct Design Stress @ $\phi_c \phi_t \phi_w \phi_m$	-1205	-2162	-2947	-3524	-3687	-3662	-3626	-3561	-3695	-3739	-3627	-3723	-3766	-3708	-3699	-3026	-2220	-1227	+1146	+2070	+2717	+3372	+3565	+3503	+3695	+3619	+3619	+3738	+3566	+3661	+3468	+2789	+2126	+1180		
13	Reverse Design Stress																																				
14																																					
15																																					
	Section	Holes out for Tension																																			
	a Angles	2	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$	8x6x $\frac{7}{16}$			
	b First Web Plate	4	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$			
	c Top Plate	3	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$			
	d Bottom Plate	2	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$	22x $\frac{3}{8}$			
	e Inside Web Plate	2	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$	14x $\frac{3}{8}$			
	f Inside Web Plate	4																																			
	g 2 Outside Web Plate	4	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$	30x $\frac{9}{16}$			
	h Inside Web Plate	2																																			
25	Length	In.	315.8"	313.3"	325.4"	353.7"	357.7"	325.8"	305.2"	305.2"	300.0"	300.0"	305.2"	305.2"	325.8"	357.7"	353.7"	325.4"	313.3"	315.8"																	
26	Min. Radius of Gyration	In.	10.61	10.45	10.90	10.80	10.80	10.51	10.60	10.60	10.60	10.60	10.68	10.60	10.51	10.80	10.80	10.90	10.45	10.61																	
27	Allowable Stress	Lbs./Sq. In.	19,590	19,590	19,590	19,490	19,480	19,560	19,620	19,620	19,630	19,630	19,620	19,560	19,480	19,490	19,590	19,590	19,590	19,590	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000
28	Actual Gross Area	Sq. In.	71.22	115.47	154.42	187.17	187.17	190.67	187.17	183.67	187.17	187.17	183.67	187.17	190.67	187.17	154.42	115.47	71.22	57.91	57.91	57.91	57.91	57.91	57.91	57.91	57.91	57.91	57.91	57.91	57.91	57.91	57.91	57.91	57.91	57.91	
29	Net Area	Sq. In.	67.85	115.47	154.42	187.17	187.17	190.67	187.17	183.67	187.17	187.17	183.67	187.17	190.67	187.17	154.42	115.47	67.85	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72
30	Actual Unit Stress - Lbs./Sq. In.		17,760	18,725	19,060	18,830	19,700	19,210	19,370	19,400	19,770	19,750	19,890	19,750	19,890	19,750	19,590	19,230	18,080	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72	49.72
31	Material		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S

LINE	MEMBER	COMPRESSION WEB MEMBERS																TENSION WEB MEMBERS																														
		U304	U305	U307	L310	L312	L313	U300	U301	U307	U308	U309	U310	U302	M302	M303	M304	M305	M306	M306	U312	M312	U313	M313	U314	M314	U315	M315	U316	M316	U311	U317	U317															
-318	-163	-109	-76	-154	-306	-87	-1231	-56	-267	-128	-302	-1303	-1446	-1173	-1317	-686	-839	-1	-145	-346	-489	-371	-514	-11	-155	-742	-821	-1198	-1342	-1327	-1469	-83	-1260	1	Dead Load	+1468	+1417	+1177	+895	+248	+169	+214	+278	+943	+1201	+1440	+1497	
-254	-130	-87	-61	-123	-245	-70	-985	-345	-214	-102	-242	-1042	-1157	-938	-1054	-549	-670	-1	-116	-277	-391	-297	-411	-9	-124	-594	-657	-958	-1074	-1062	-1175	-66	-1008	2	0.8 Dead Load	+1174	+1134	+942	+716	+198	+159	+171	+222	+754	+961	+1152	+1198	
+338	+356	+285	+285	+356	+338			+209	+165		+159		+184	+184	+212	+212	+185	+178	+178	+209	+173														3	Live Load + Imp. - Tension	+334	+313	+255	+192	+307	+245	+249	+307	+196	+262	+323	+349
-259	-248	-279	-270	-245	-260	-45	-264</																																									

MICROFILMED
FEB 15 1963

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	49
2	OHIO			122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17.5

**TRUSS DETAILS UNIT 3 NORTH
PANELS 303 TO 305**

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1/2" = 1'-0"
MADE D.E.R. DATE 5-14-54
TRCD. R.R. DATE 1-22-55
CKD. V.D.G. DATE 9-23-54

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

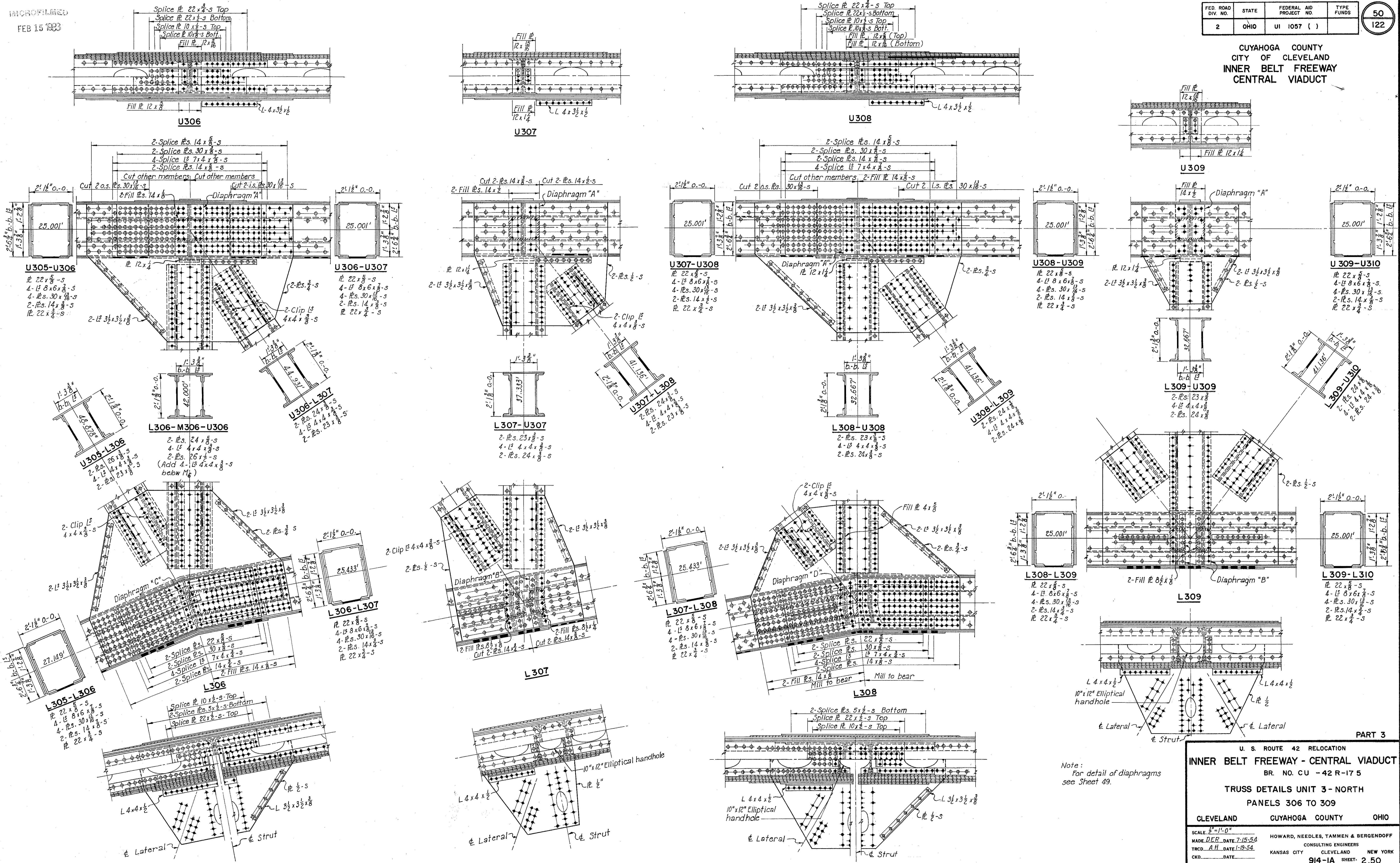
914-1A SHEET-2.49

272

MICROFILMED
FEB 15 1983

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	50
2	OHIO	UI 1057 ()		122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



Note:
For detail of diaphragms
see Sheet 49.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17 5
TRUSS DETAILS UNIT 3-NORTH
PANELS 306 TO 309

CLEVELAND CUYAHOGA COUNTY OHIO

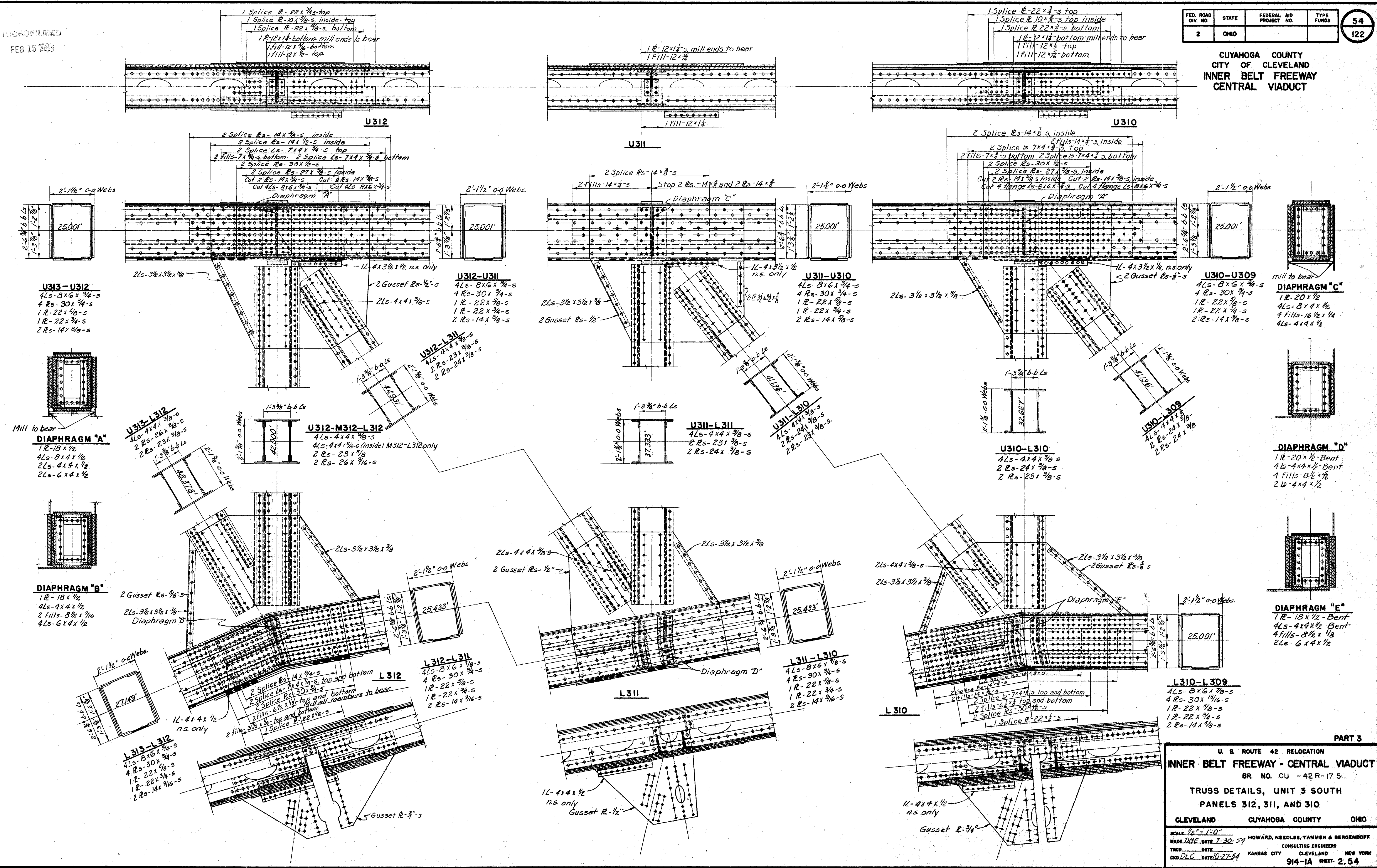
SCALE: 1/2" = 1'-0"
MADE PER DATE 7-15-54 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD. A.H. DATE 1-18-54 CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
CKD. DATE 914-1A SHEET 2.50

UNDESIGNED
FEB 15 1954

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

54
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



U313-U312
4Ls-8x6x3/4-s
4Rs-30x3/4-s
1R-22x3/8-s
1R-22x3/4-s
2Rs-14x3/8-s

U312-U311
4Ls-8x6x3/4-s
4Rs-30x3/4-s
1R-22x3/8-s
1R-22x3/4-s
2Rs-14x3/8-s

U311-U310
4Ls-8x6x3/4-s
4Rs-30x3/4-s
1R-22x3/8-s
1R-22x3/4-s
2Rs-14x3/8-s

U310-U309
4Ls-8x6x3/4-s
4Rs-30x3/4-s
1R-22x3/8-s
1R-22x3/4-s
2Rs-14x3/8-s

U312-M312-L312
4Ls-4x4x3/8-s
4Ls-4x4x3/8-s (inside) M312-L312 only
2Rs-23x3/8-s
2Rs-26x3/16-s

U311-L311
4Ls-4x4x3/8-s
2Rs-23x3/8-s
2Rs-24x3/8-s

U311-L310
4Ls-4x4x3/8-s
2Rs-24x3/8-s
2Rs-24x3/8-s

U310-L310
4Ls-4x4x3/8-s
2Rs-24x3/8-s
2Rs-23x3/8-s

DIAPHRAGM "A"
1R-18x1/2
4Ls-4x4x1/2
2Ls-4x4x1/2
2Ls-6x4x1/2

DIAPHRAGM "B"
1R-18x1/2
4Ls-4x4x1/2
2Fills-8 1/2 x 7/16
4Ls-6x4x1/2

DIAPHRAGM "D"
1R-20x1/2 Bent
4Ls-4x4x1/2 Bent
4Fills-8 1/2 x 7/16
2Ls-4x4x1/2

DIAPHRAGM "E"
1R-18x1/2 Bent
4Ls-4x4x1/2 Bent
4Fills-8 1/2 x 1/8
2Ls-6x4x1/2

L313-L312
4Ls-8x6x3/4-s
4Rs-30x3/4-s
1R-22x3/8-s
1R-22x3/4-s
2Rs-14x3/8-s

L312-L311
4Ls-8x6x3/8-s
4Rs-30x3/4-s
1R-22x3/8-s
1R-22x3/4-s
2Rs-14x3/16-s

L311-L310
4Ls-8x6x3/8-s
4Rs-30x3/4-s
1R-22x3/8-s
1R-22x3/4-s
2Rs-14x3/16-s

L310-L309
4Ls-8x6x3/8-s
4Rs-30x3/4-s
1R-22x3/8-s
1R-22x3/4-s
2Rs-14x3/8-s

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17.5

TRUSS DETAILS, UNIT 3 SOUTH
PANELS 312, 311, AND 310

CLEVELAND CUYAHOGA COUNTY OHIO

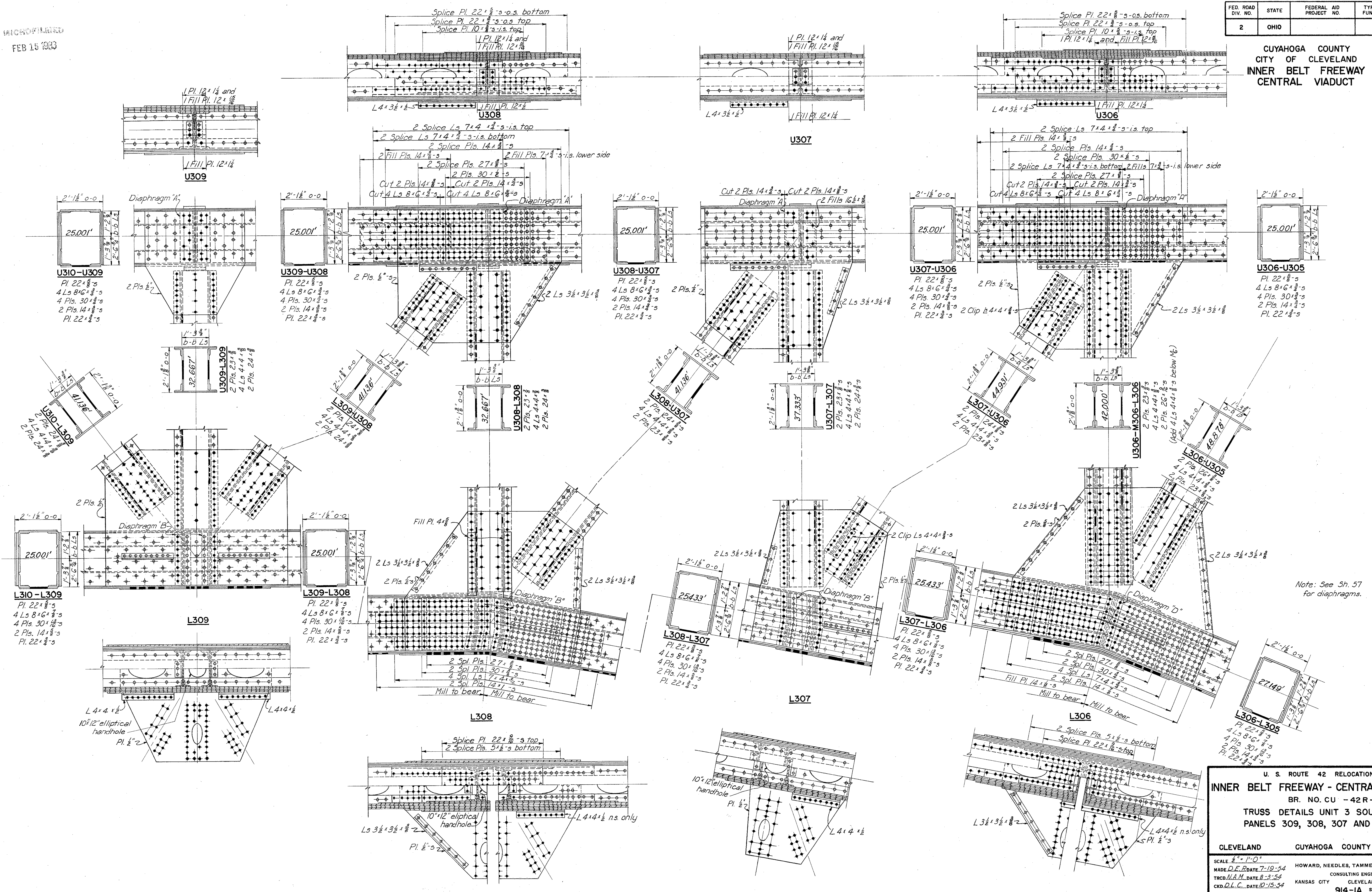
SCALE 1/2" = 1'-0"
MADE D.M.E. DATE 7-30-59 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD DATE CONSULTING ENGINEERS
CRD.D.L.C. DATE 10-27-54 KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.54

MICROFILMED
FEB 15 1983

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

55
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



Note: See Sh. 57
for diaphragms.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17 5
TRUSS DETAILS UNIT 3 SOUTH
PANELS 309, 308, 307 AND 306

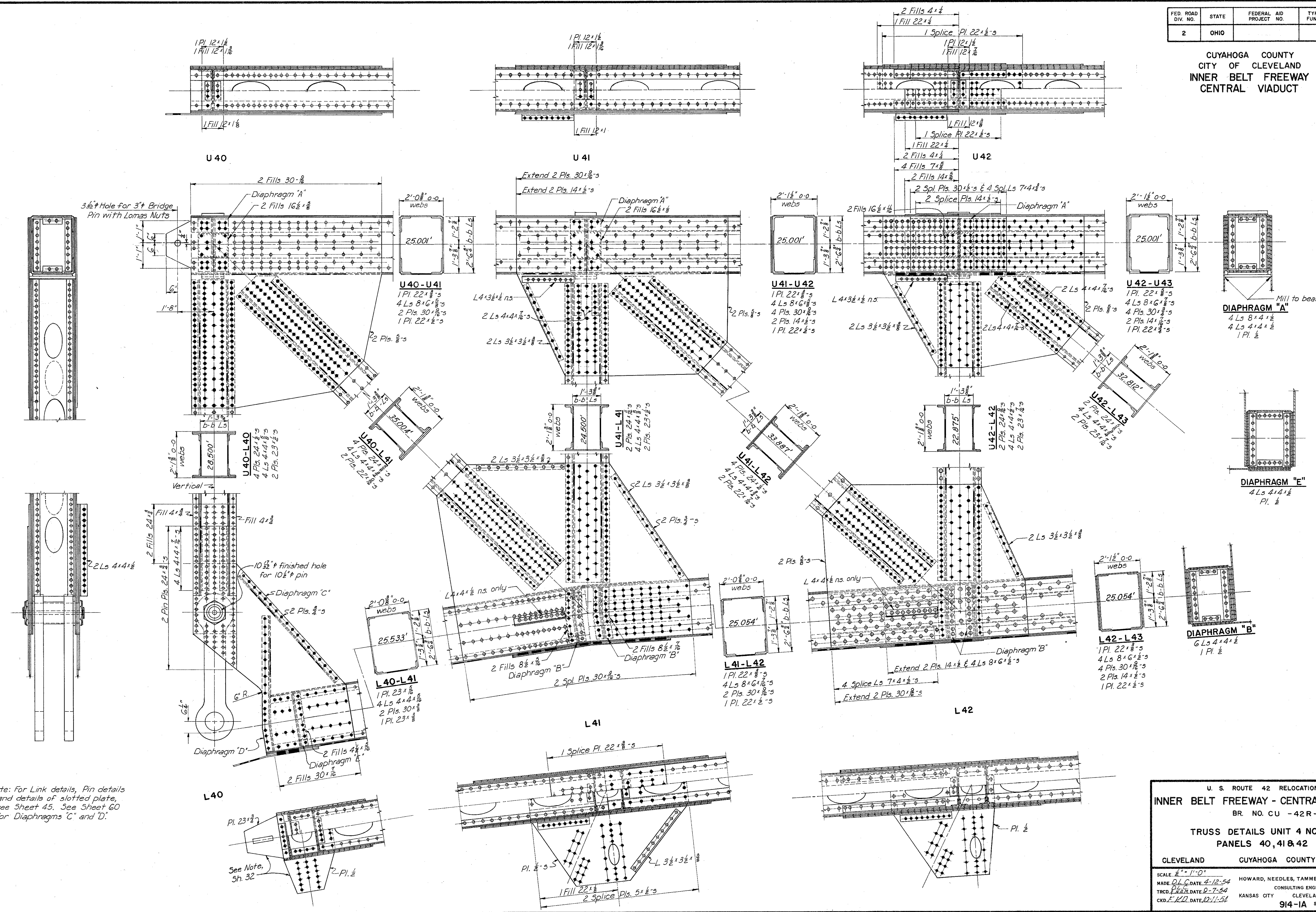
CLEVELAND	CUYAHOGA COUNTY	OHIO
SCALE: 1/4" = 1'-0"	HOWARD, NEEDLES, TAMMEN & BERGENDOFF	CONSULTING ENGINEERS
MADE D.E. ROATE 7-19-54	TRCD N.A.M. DATE 8-3-54	KANSAS CITY CLEVELAND NEW YORK
CKD D.L.C. DATE 10-15-54	914-1A	SHEET- 2.55

MICROFILMED
FEB 15 1963

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

59
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



Note: For Link details, Pin details and details of slotted plate, see Sheet 45. See Sheet 60 for Diaphragms "C" and "D".

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17.5

TRUSS DETAILS UNIT 4 NORTH
PANELS 40, 41 & 42

CLEVELAND	GUYAHOGA COUNTY	OHIO
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SCALE: 1/4" = 1'-0"

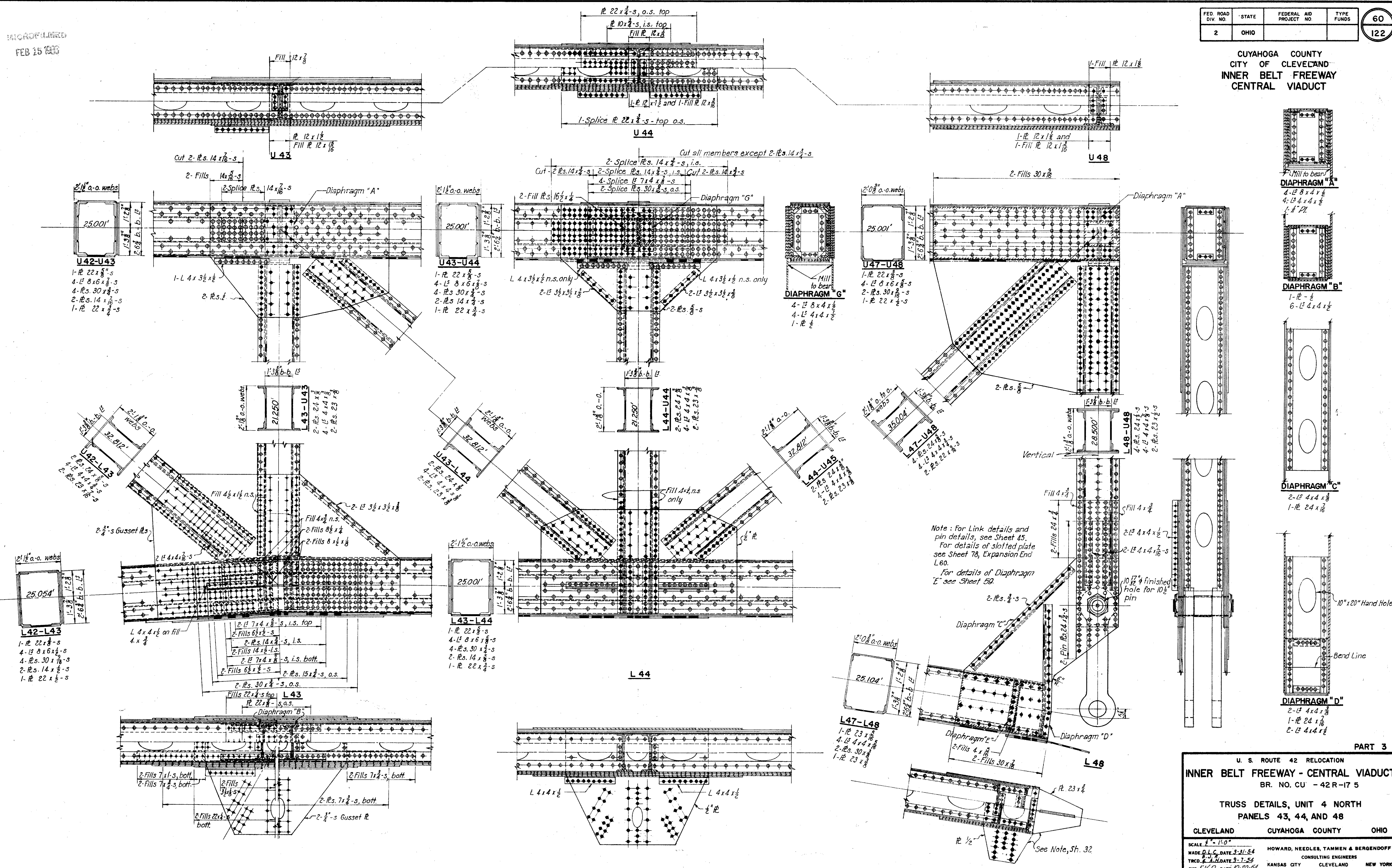
MADE BY: D.L. COATE 4-12-54	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD BY: F.K.D. DATE 9-7-54	CONSULTING ENGINEERS
CHKD. BY: F.K.D. DATE 10-11-54	KANSAS CITY CLEVELAND NEW YORK

914-1A SHEET 2.59

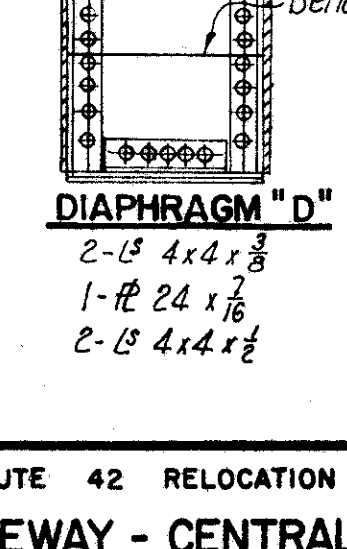
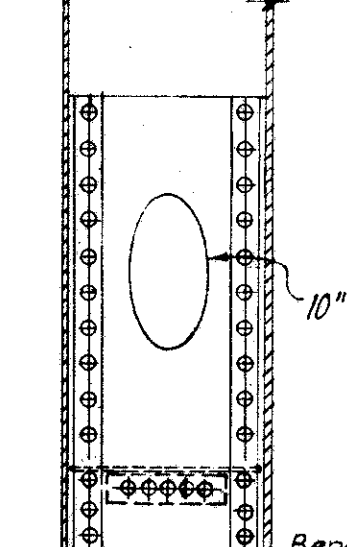
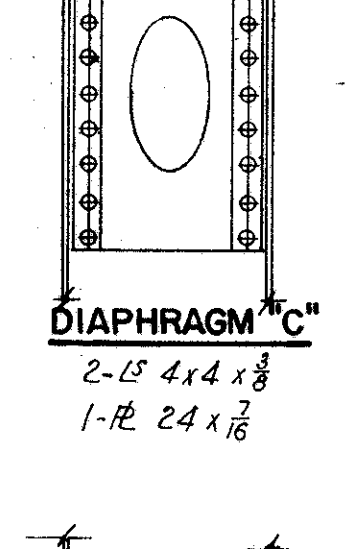
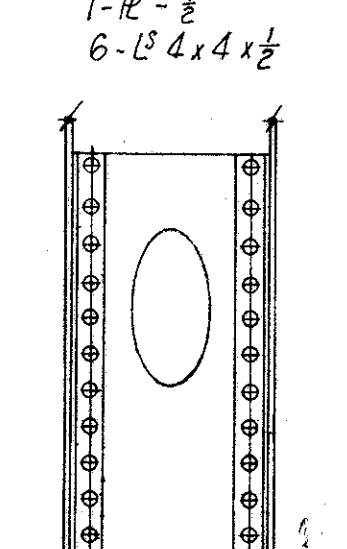
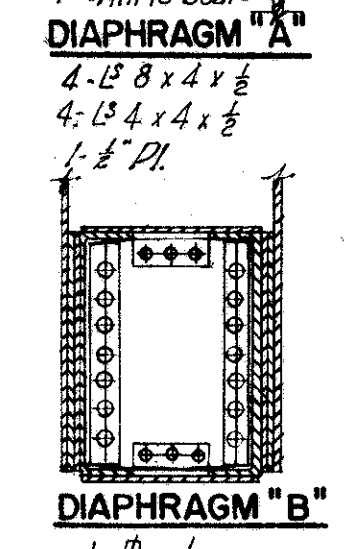
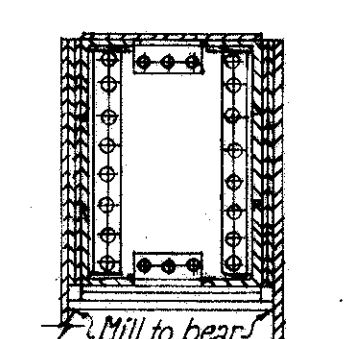
MICROFILMED
FEB 15 1963

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	60 122
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



Note: For Link details and pin details, see Sheet 45.
For details of slotted plate see Sheet 78, Expansion End L60.
For details of Diaphragm 'E' see Sheet 59.



PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17 5

TRUSS DETAILS, UNIT 4 NORTH
PANELS 43, 44, AND 48

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1/4" = 1'-0"

MADE P.L.C. DATE 3-11-54
TRCD. A. DATE 2-7-54
CKD. L.K.D. DATE 12-22-54

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

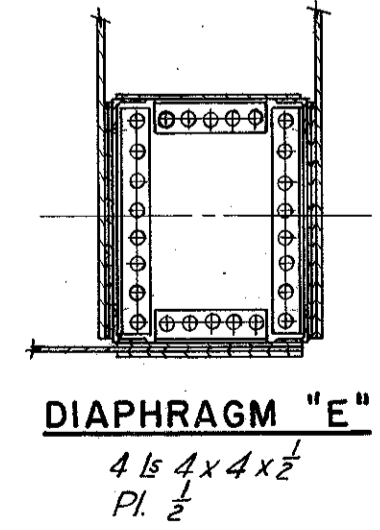
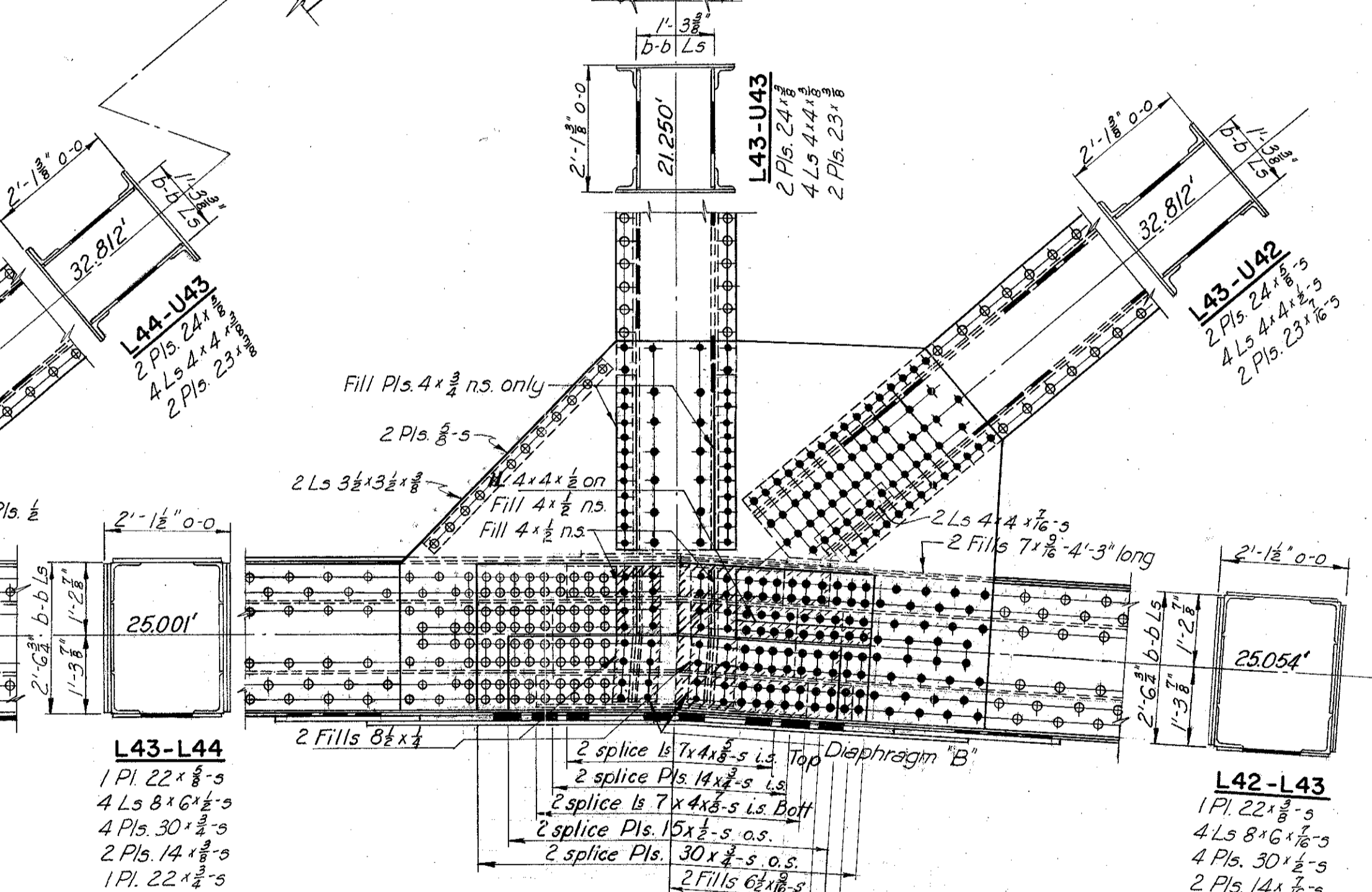
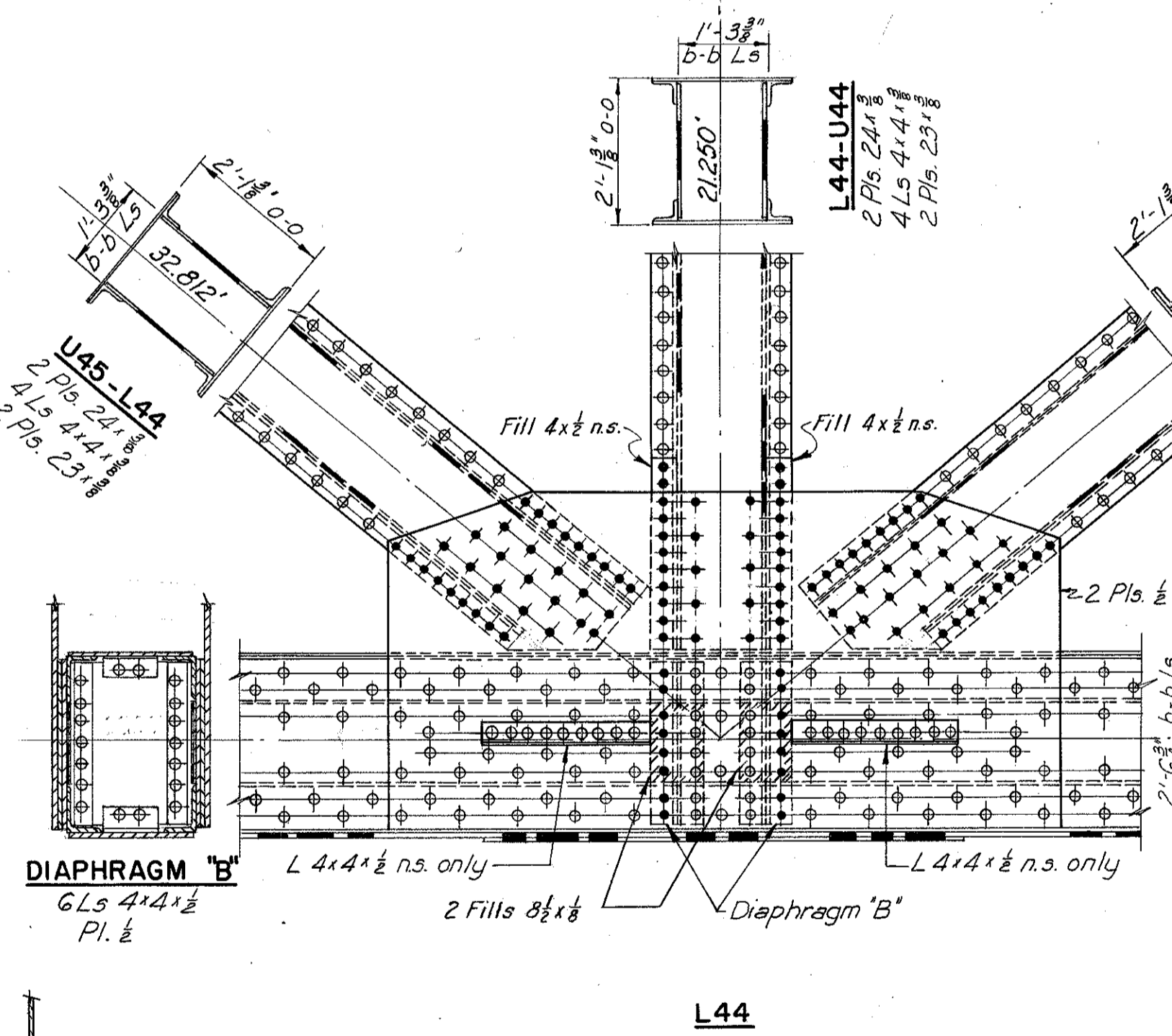
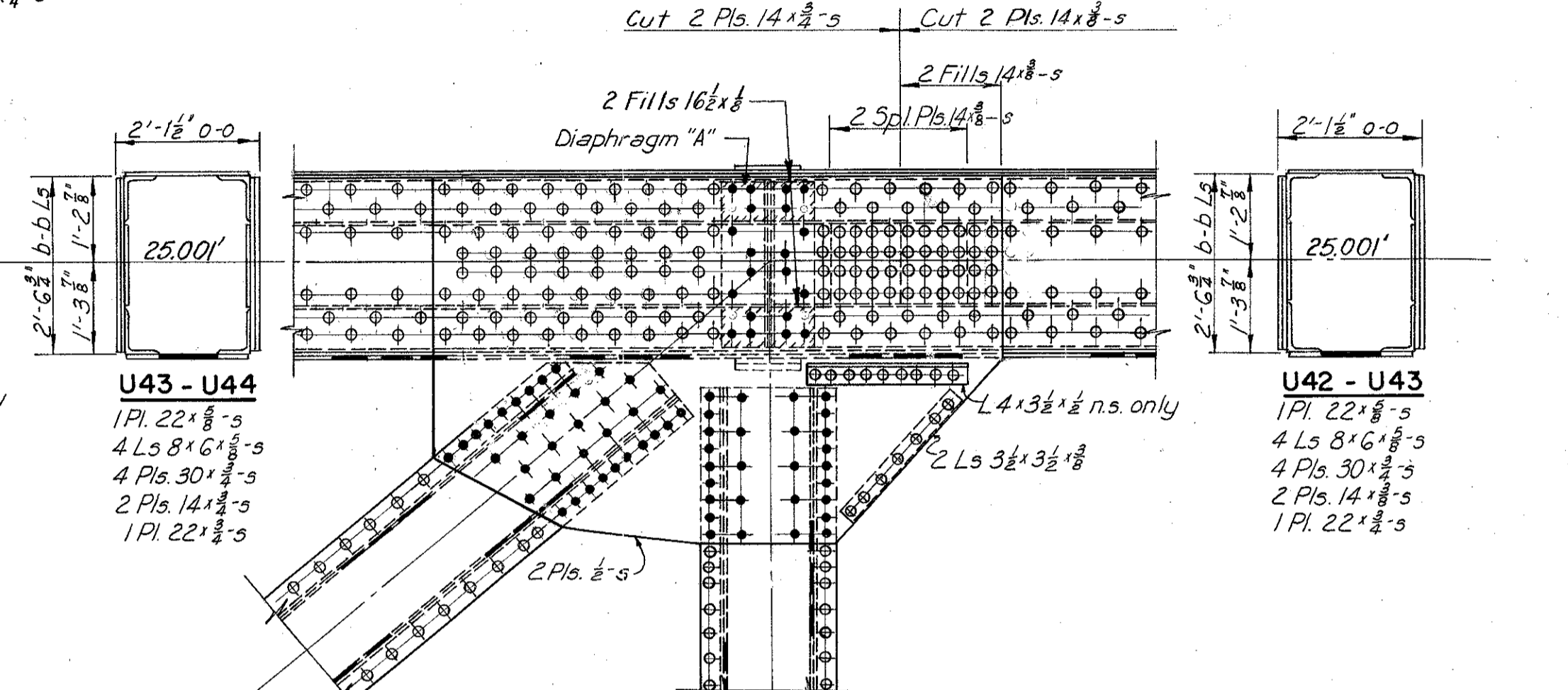
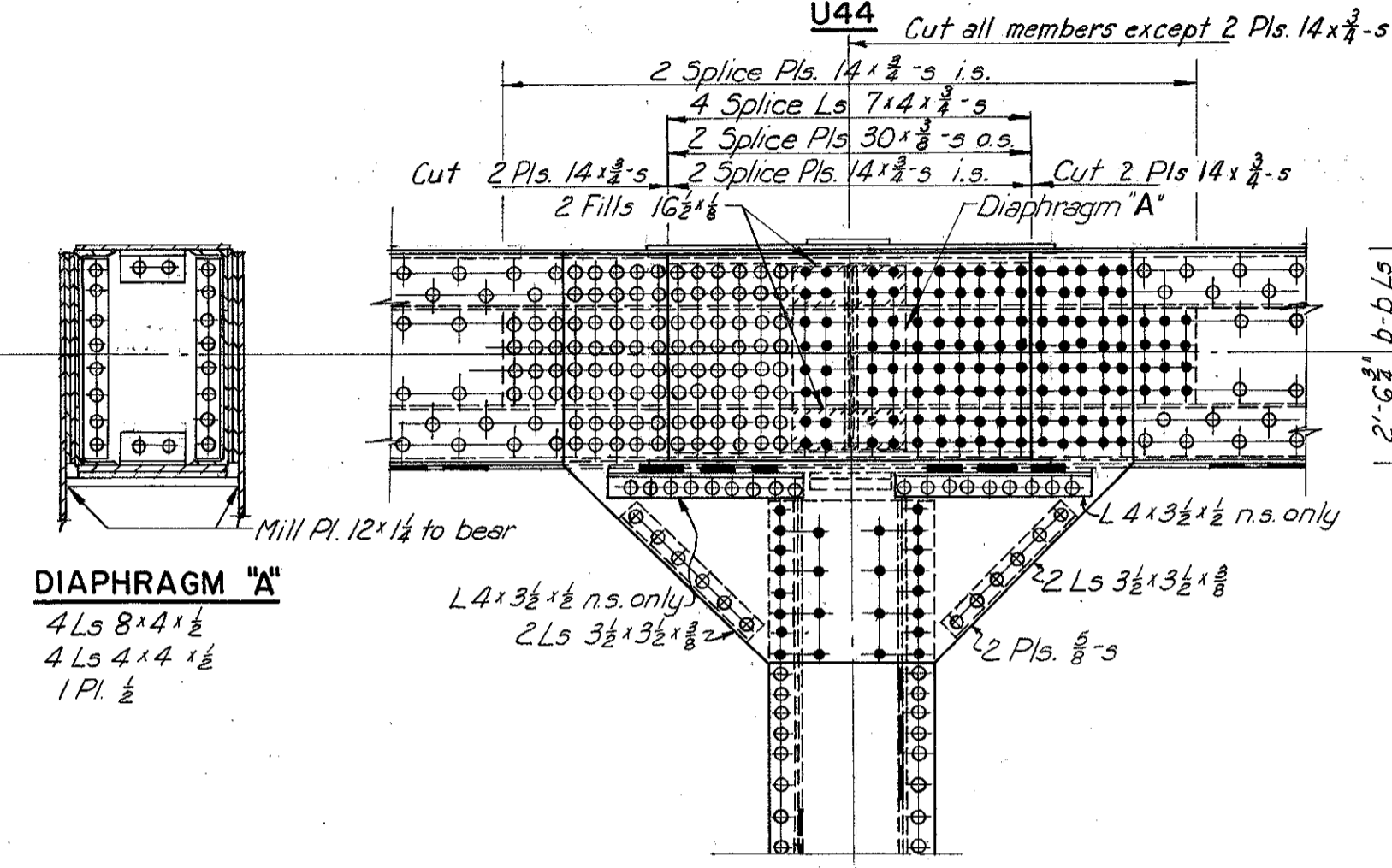
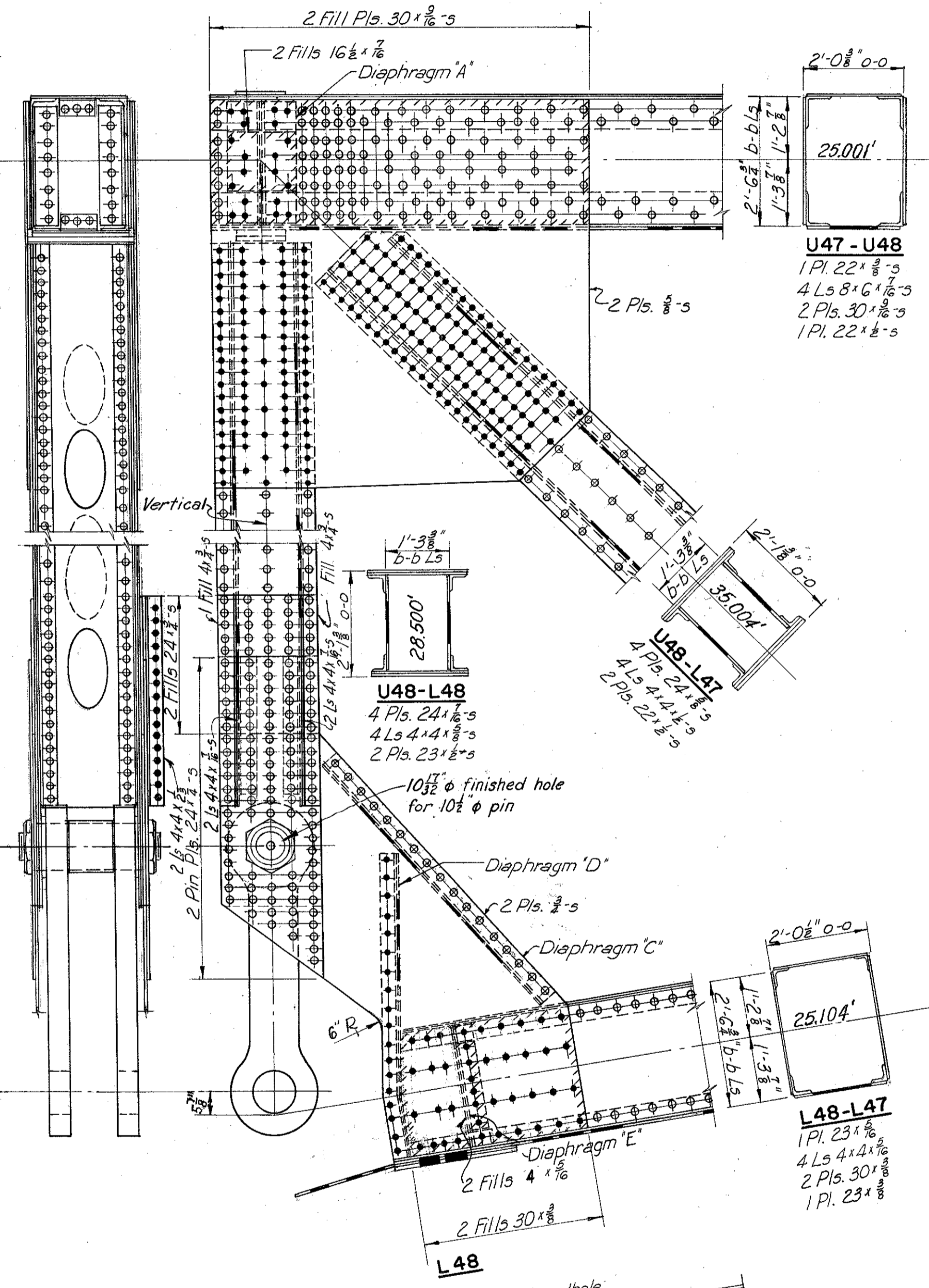
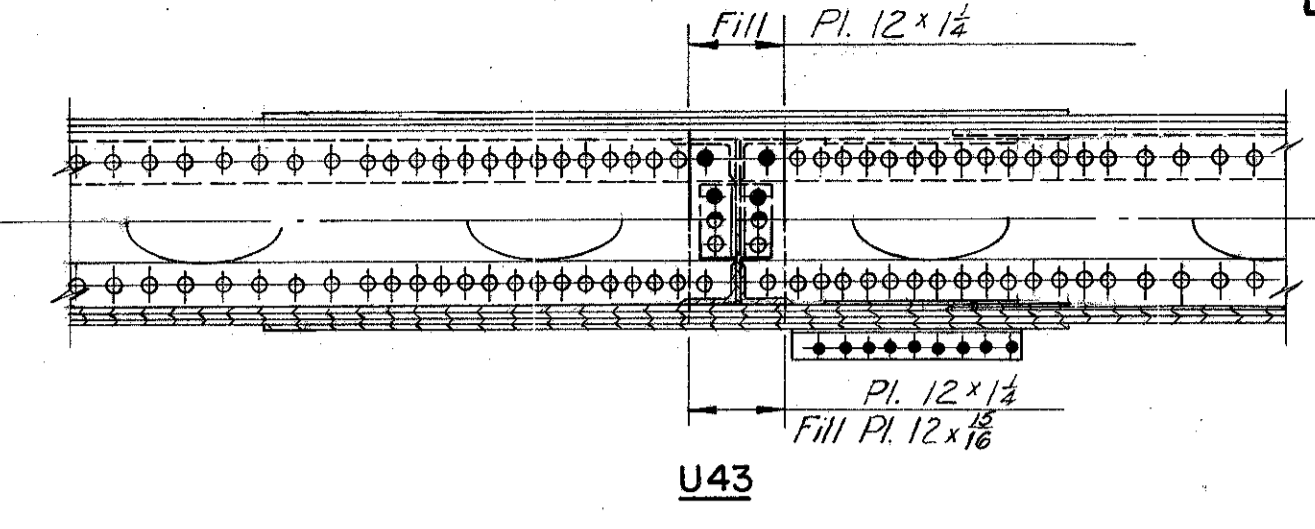
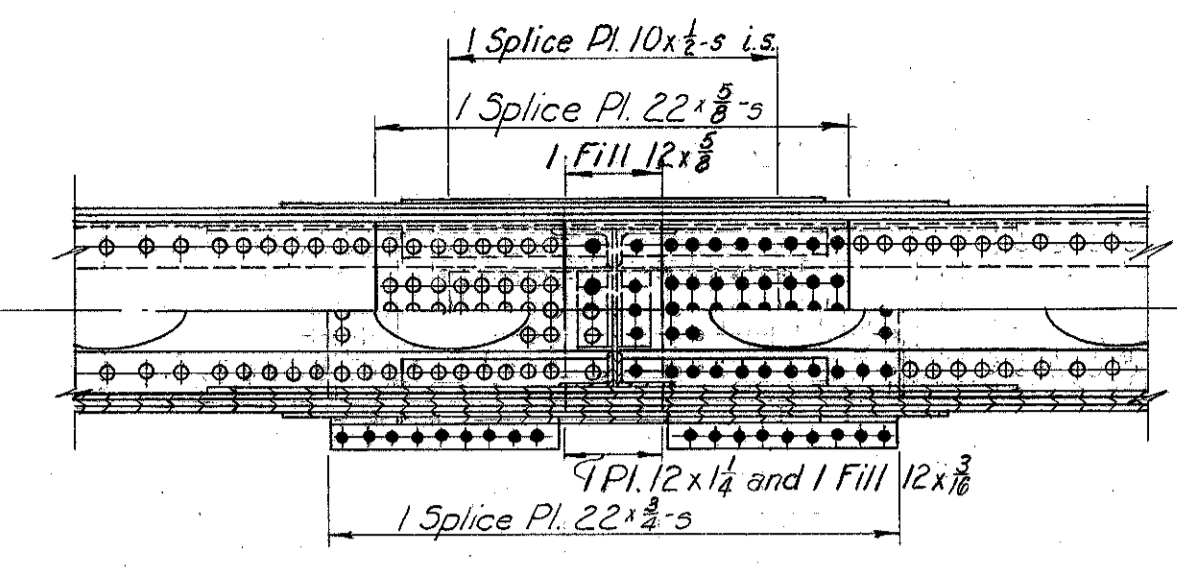
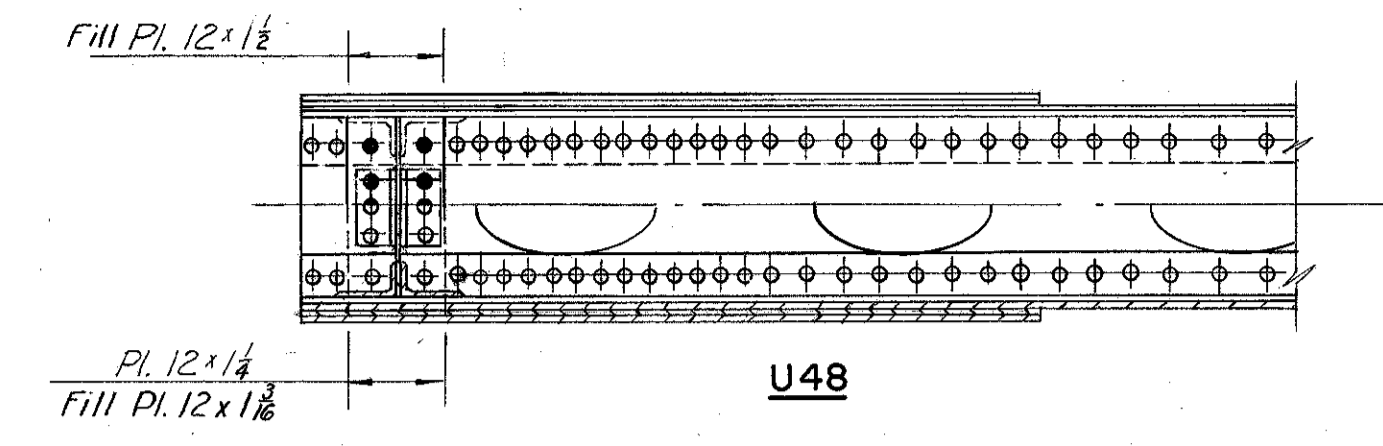
914-1A SHEET 2.60

MICROFILMED
FEB 15 1983

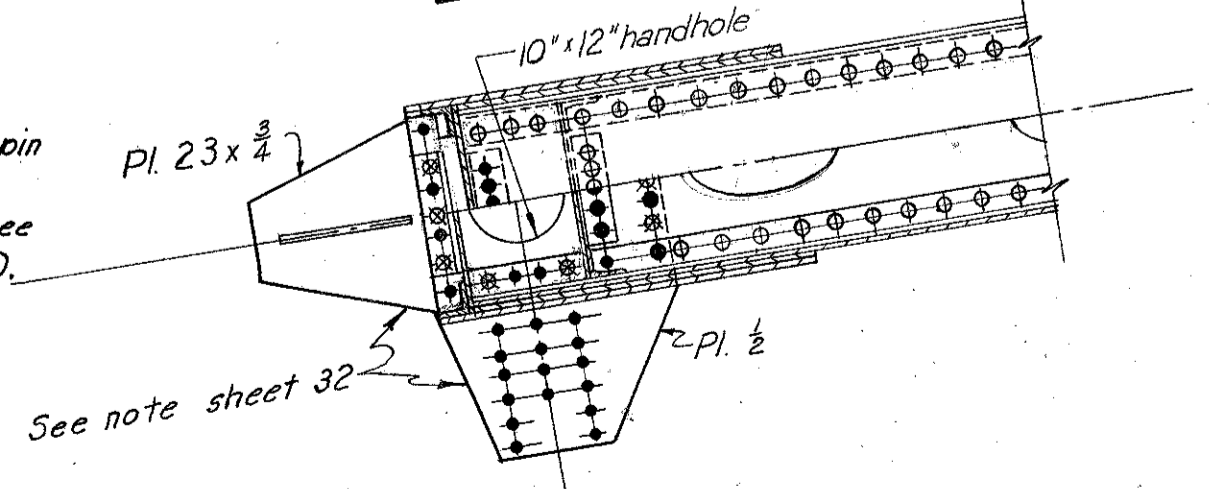
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

61
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



Note: For link details and pin details see sheet 45.
For details of slotted pl. see sheet 78 Expansion End L60.
For details of diaphragms "C" and "D" see sheet 62.



PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17 5

TRUSS DETAILS UNIT 4 - SOUTH
PANELS 43, 44, & 48

CLEVELAND CUYAHOGA COUNTY OHIO

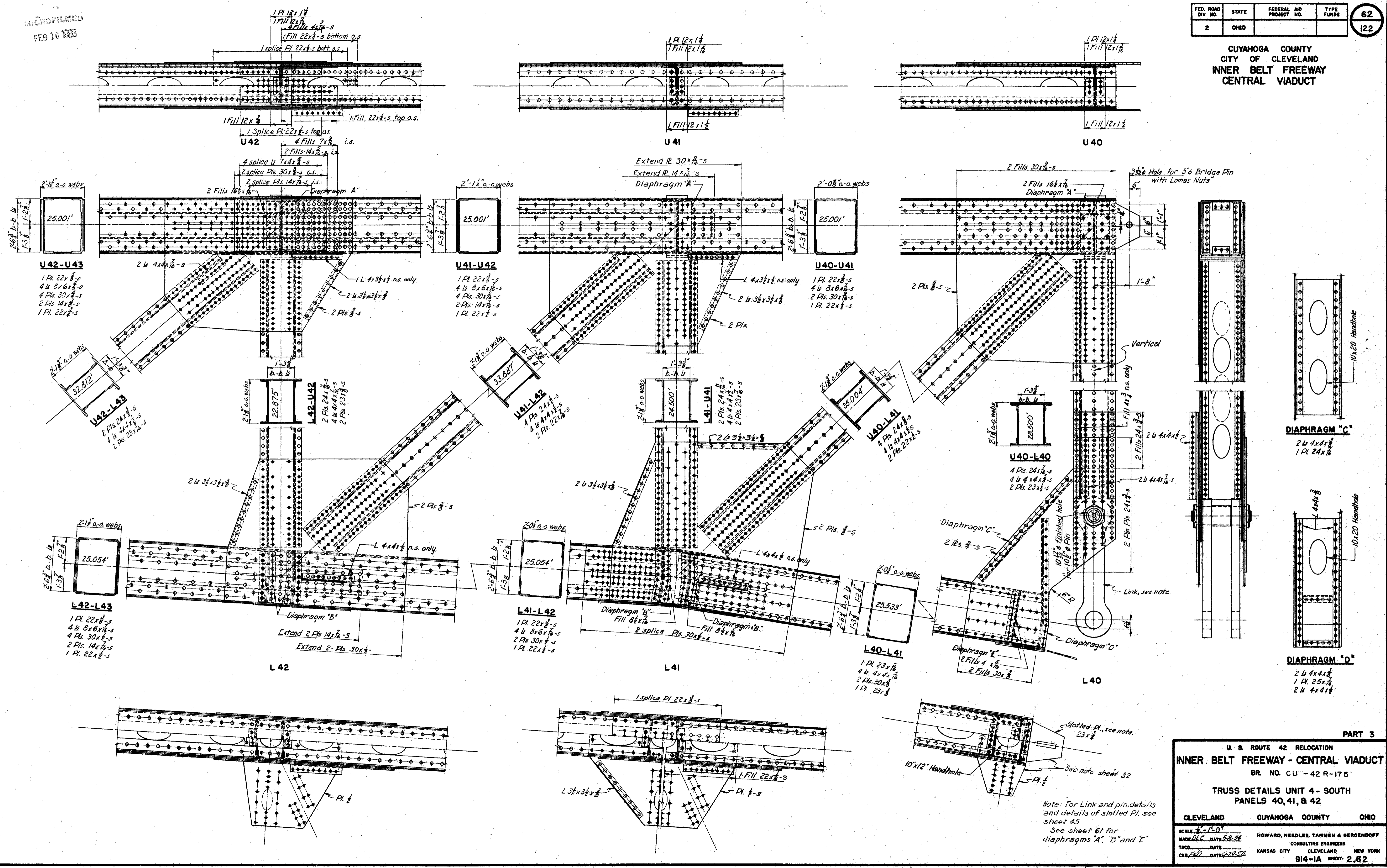
SCALE 1/2" = 1'-0"

MADE D.L.C. DATE 4-30-54 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD. DATE 9-7-54 CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
CND. CKD. DATE 10-8-54 914-1A SHEET 2.61

MICROFILMED
FEB 16 1983

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	62
2	OHIO			122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-175

TRUSS DETAILS UNIT 4 - SOUTH
PANELS 40, 41, & 42

CLEVELAND	CUYAHOGA COUNTY	OHIO
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SCALE: 1/2" = 1'-0"

MADE BY: DATE: 5-8-54
TRCS: DATE: 5-8-54
CHK: EAD DATE: 5-22-54

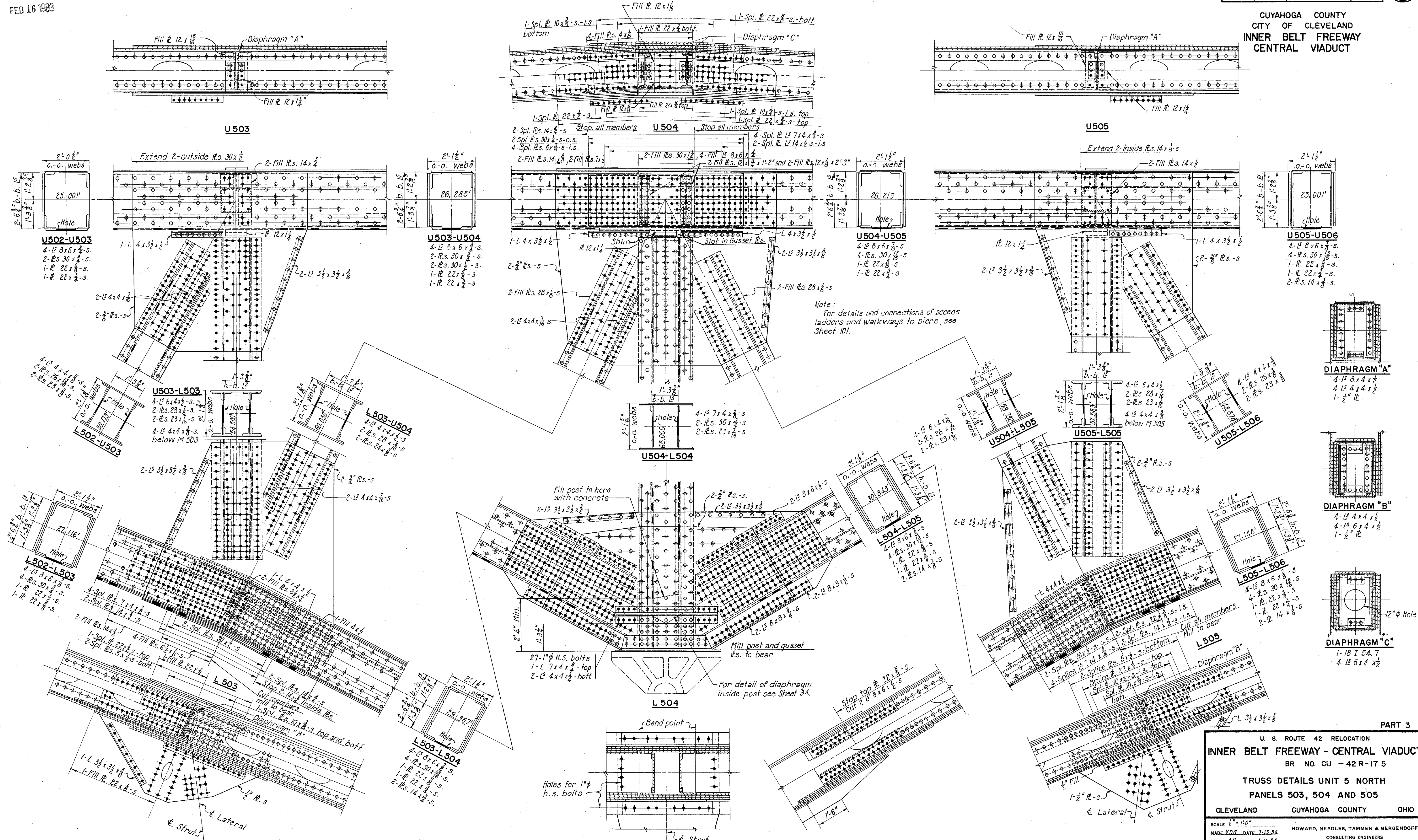
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.62

MICROFILMED
FEB 16 1993

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

66
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-175
TRUSS DETAILS UNIT 5 NORTH
PANELS 503, 504 AND 505
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: $\frac{1}{2}" = 1'-0"$
MADE U/D G. DATE 7-13-54
TRCD. A.H. DATE 1-11-54
CKD/TX. P.E. DATE 1-13-54

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.66

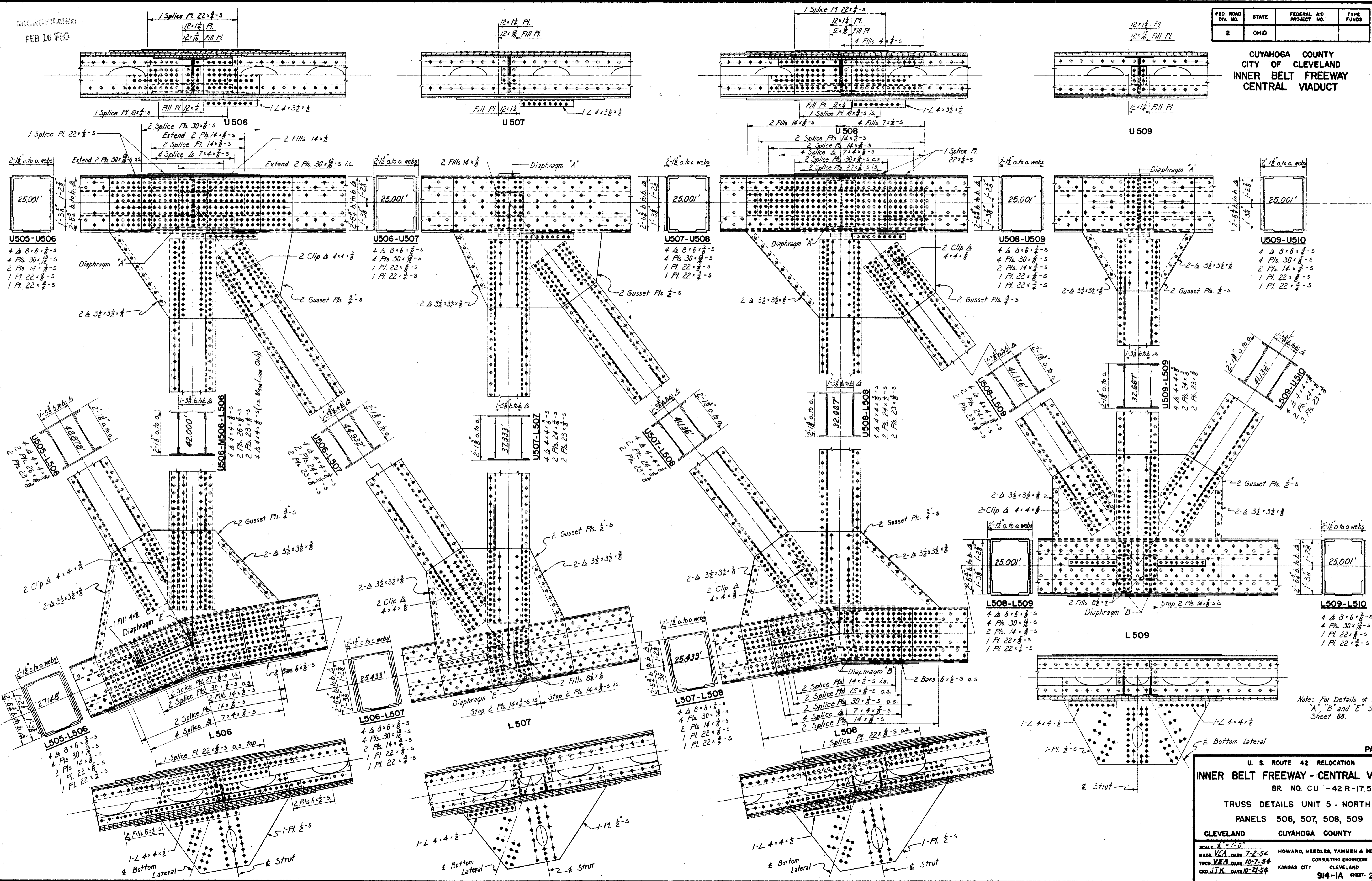
294

MICROFILMED
FEB 16 1980

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

67
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



Note: For Details of Diaphragms
'A', 'B' and 'E' See
Sheet 68.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17.5
TRUSS DETAILS UNIT 5 - NORTH
PANELS 506, 507, 508, 509
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3/8" = 1'-0"
MADE VEA DATE 7-2-54
TRCD VEA DATE 10-2-54
CRD JTK DATE 12-21-54

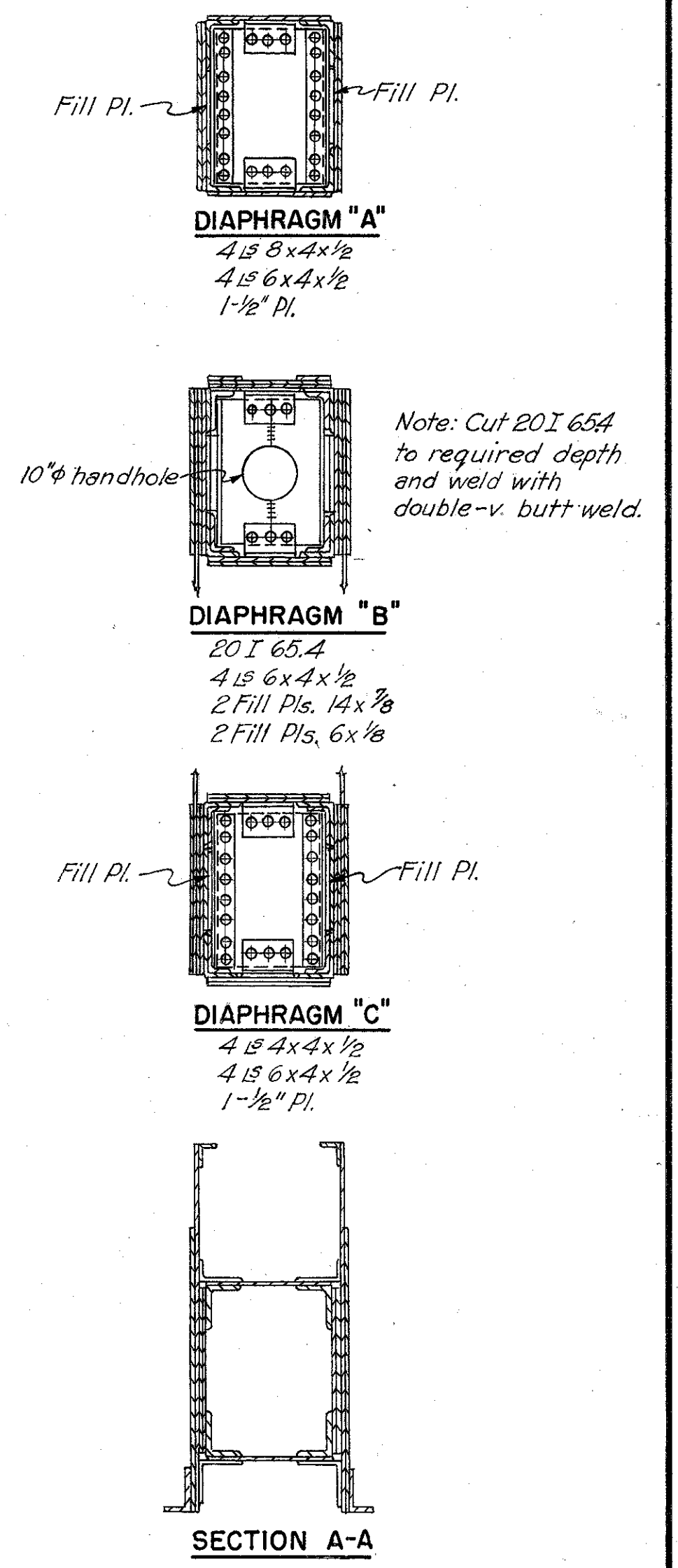
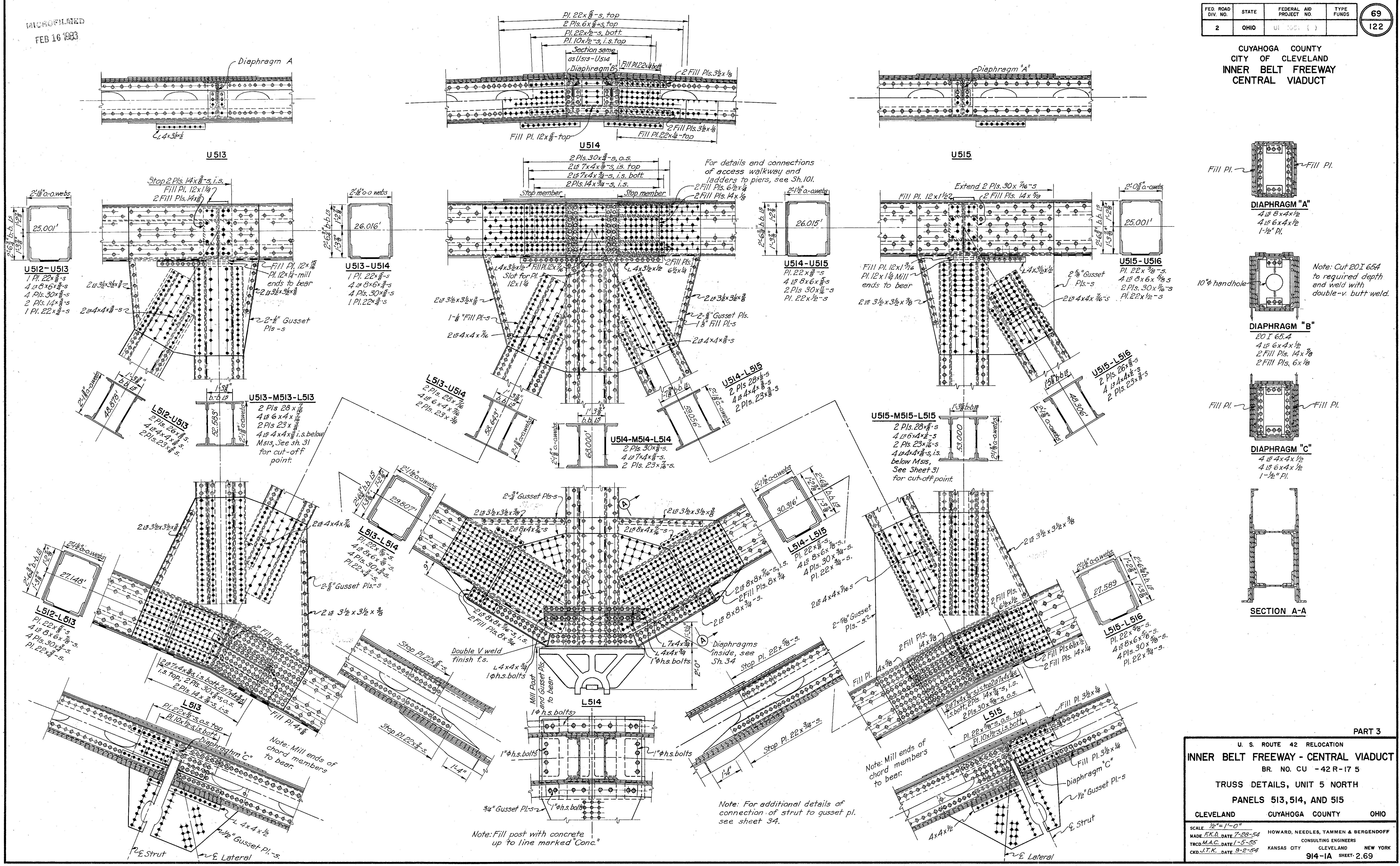
HOWARD, NEEDLES, TAMMEN & BERENDORFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

914-1A SHEET 2.67

MICROFILMED
FEB 16 1983

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	69
2	OHIO	UI 52-1		122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R - 17 5
TRUSS DETAILS, UNIT 5 NORTH
PANELS 513, 514, AND 515
CLEVELAND CUYAHOGA COUNTY OHIO

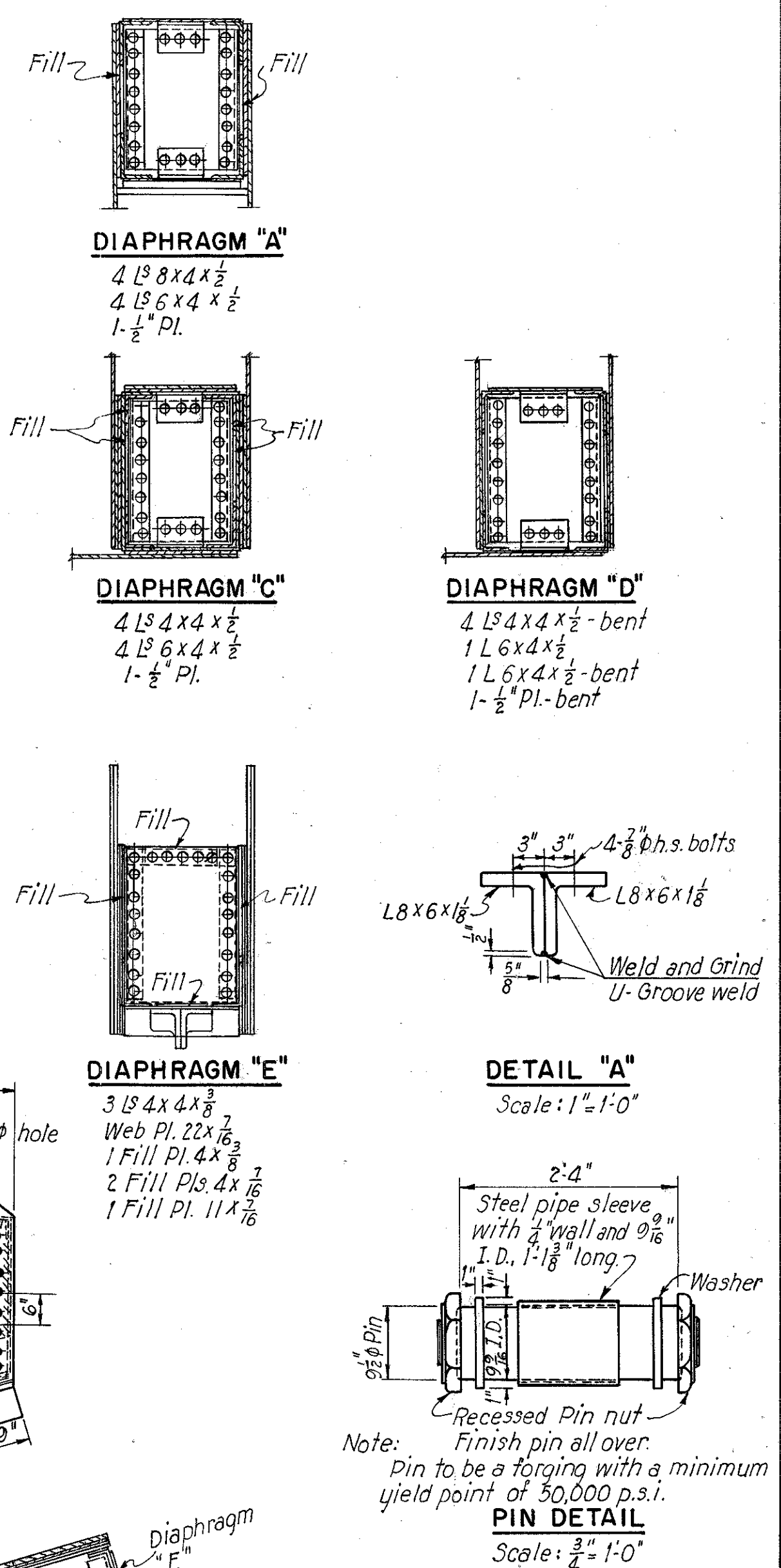
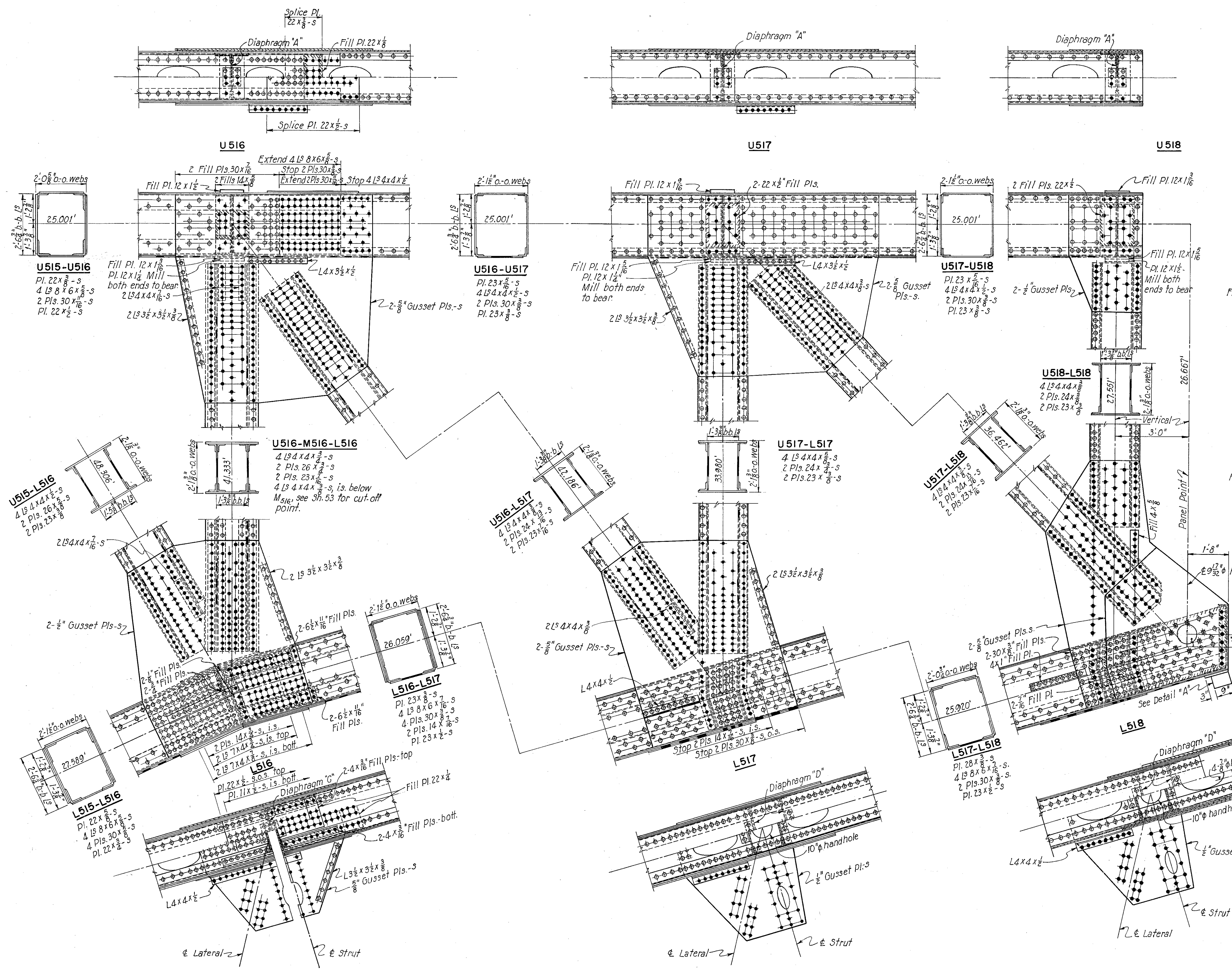
SCALE: 1/2" = 1'-0"
MADE E.K.D. DATE 7-28-54
TRCS M.A.C. DATE 1-5-55
CKD J.T.K. DATE 9-2-54

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.69

MICROFILMED
FEB 16 1983

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	70 122
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-175
TRUSS DETAILS, UNIT 5 NORTH
PANELS 516, 517, AND 518

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1/2" = 1'-0" OR AS SHOWN
MADE F.K.D. DATE 6-10-84
TRCD. R.E. DATE 1-10-85
CKD. J.T.K. DATE 2-9-84

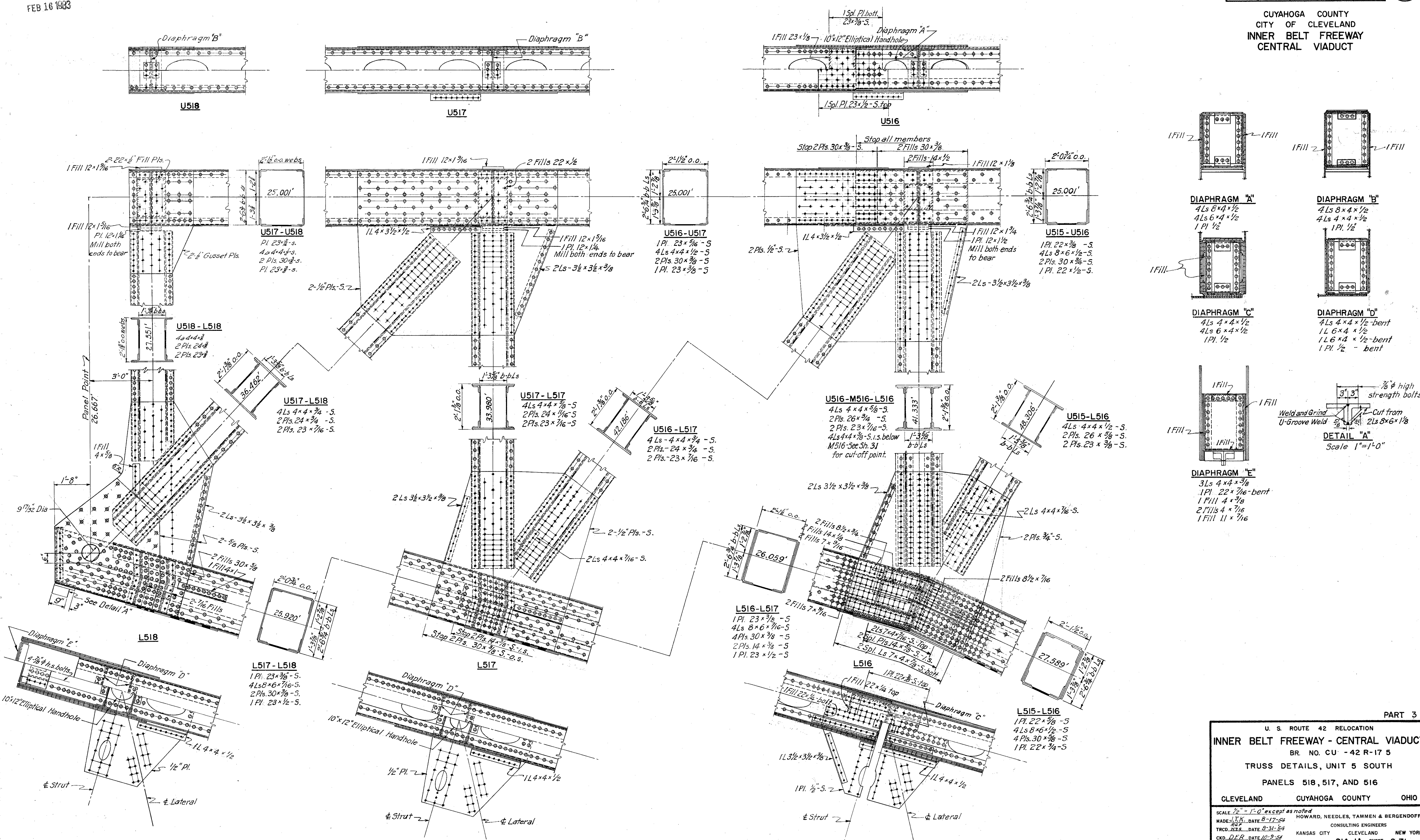
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-IA SHEET 2.70

MACROFILMED
FEB 16 1983

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

71
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17 5
TRUSS DETAILS, UNIT 5 SOUTH
PANELS 518, 517, AND 516
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/2" = 1'-0" except as noted
MADE BY: J.T.K. DATE: 8-17-54
TRCD. DATE: 8-31-54
CKD. DATE: 10-9-54

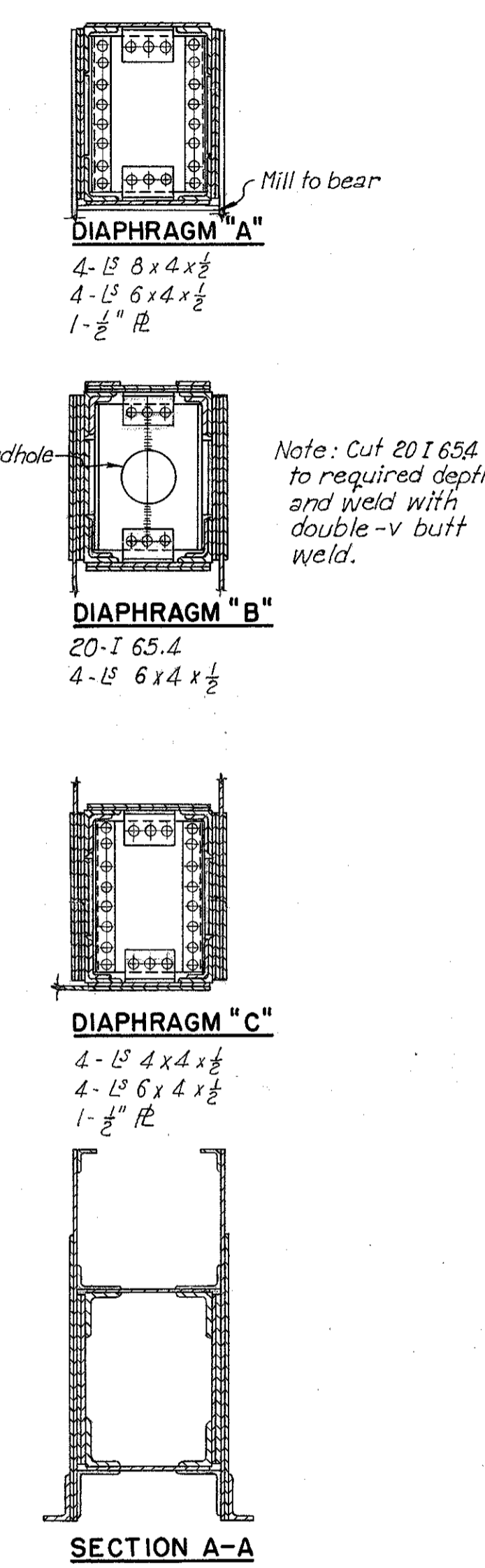
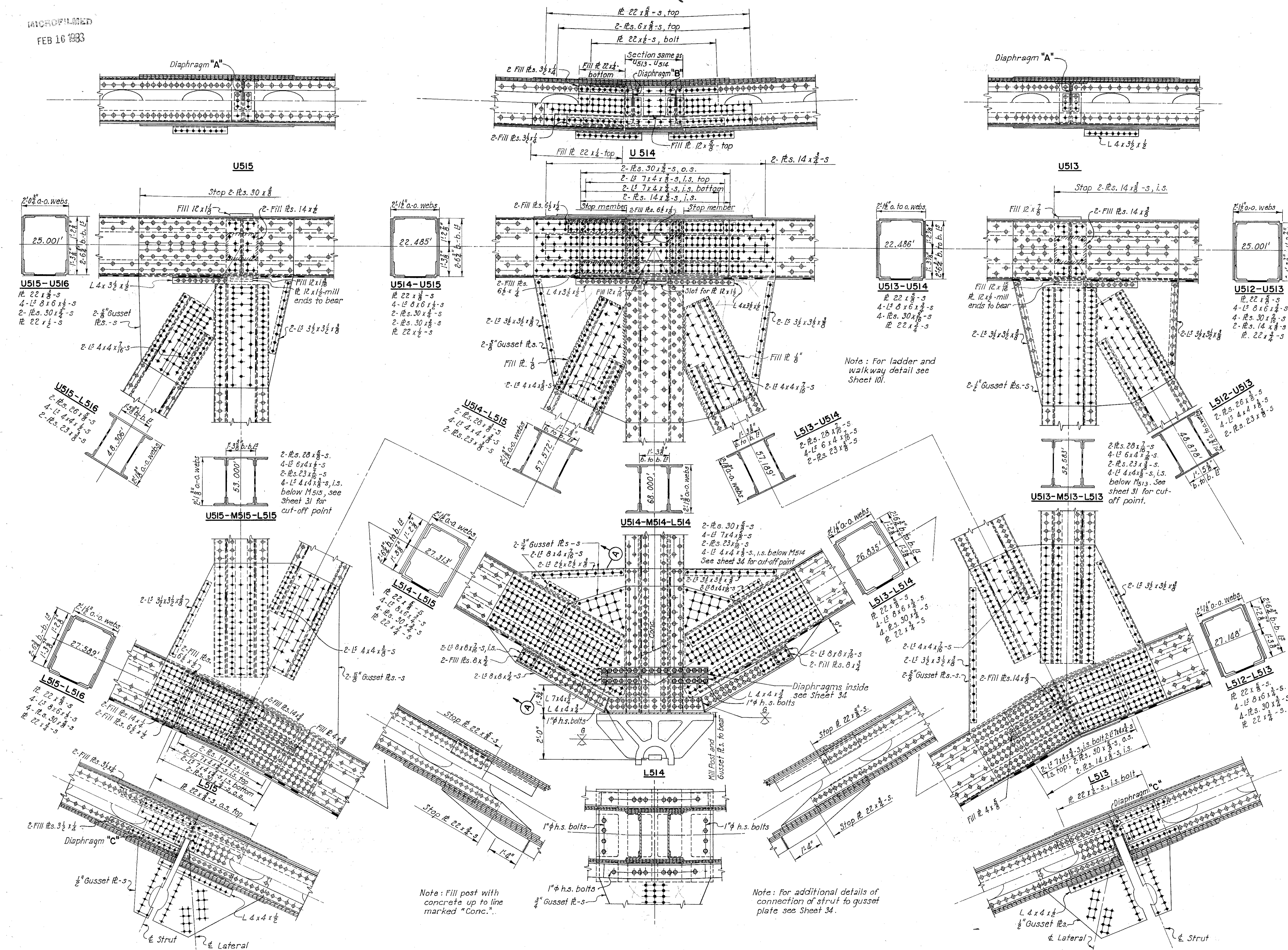
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

914-1A SHEET 2.71

MICROFILMED
FEB 16 1993

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	72 122
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



SECTION A-A

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17 5
TRUSS DETAILS, UNIT 5 SOUTH
PANELS 515, 514, AND 513

CLEVELAND GUYAHOGA COUNTY OHIO

SCALE 1/2" = 1'-0"

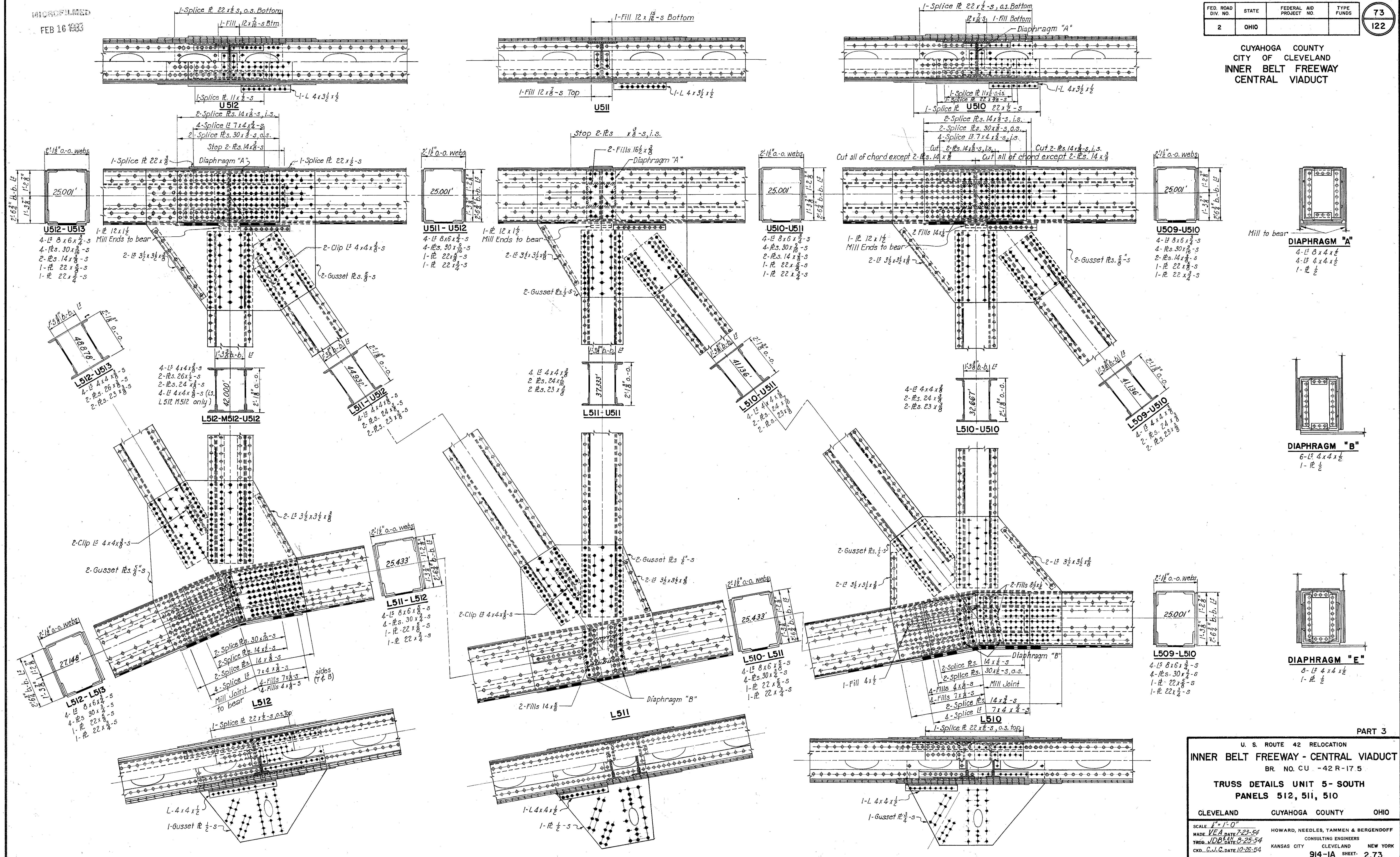
MADE P.K.D. DATE 8-5-94
TRCD. DATE 9-1-94
CKD. DATE 10-8-94

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.72

MICROFILMED
FEB 16 1983

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	73
2	OHIO			122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



PART 3

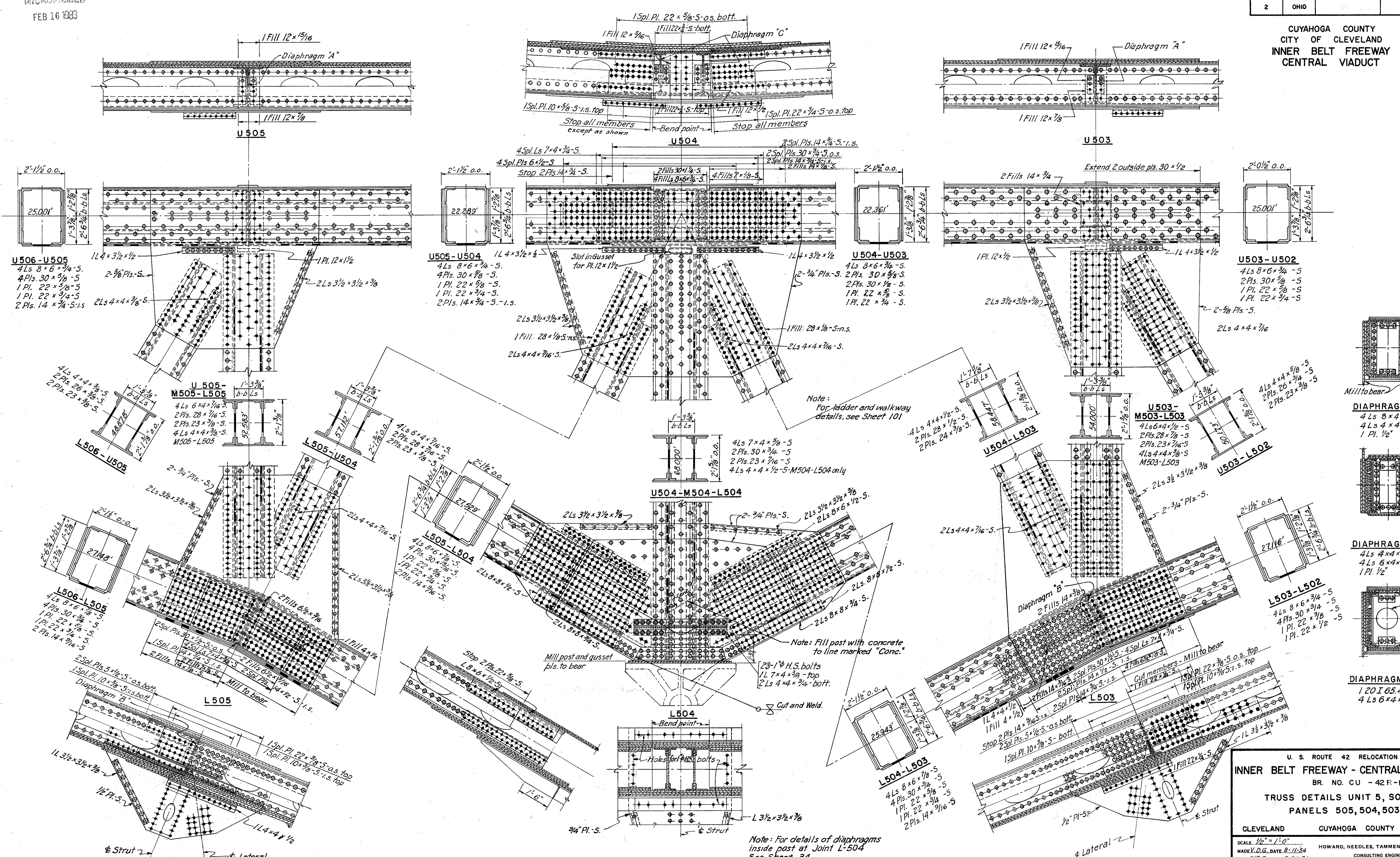
U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17 5

**TRUSS DETAILS UNIT 5-SOUTH
PANELS 512, 511, 510**

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1" = 1'-0"
MADE: VEA DATE 7-23-54 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRG: JDB DATE 8-25-54 CONSULTING ENGINEERS
CKD: C.J.C. DATE 10-26-54 KANSAS CITY CLEVELAND NEW YORK
914-IA SHEET 2.73

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-175
TRUSS DETAILS UNIT 5, SOUTH
PANELS 505, 504, 503

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1/2" = 1'-0"
MADE I.D.G. DATE 8-11-54
TRCD I.G.S. DATE 8-26-54
CKD I.G.S. DATE 10-26-54

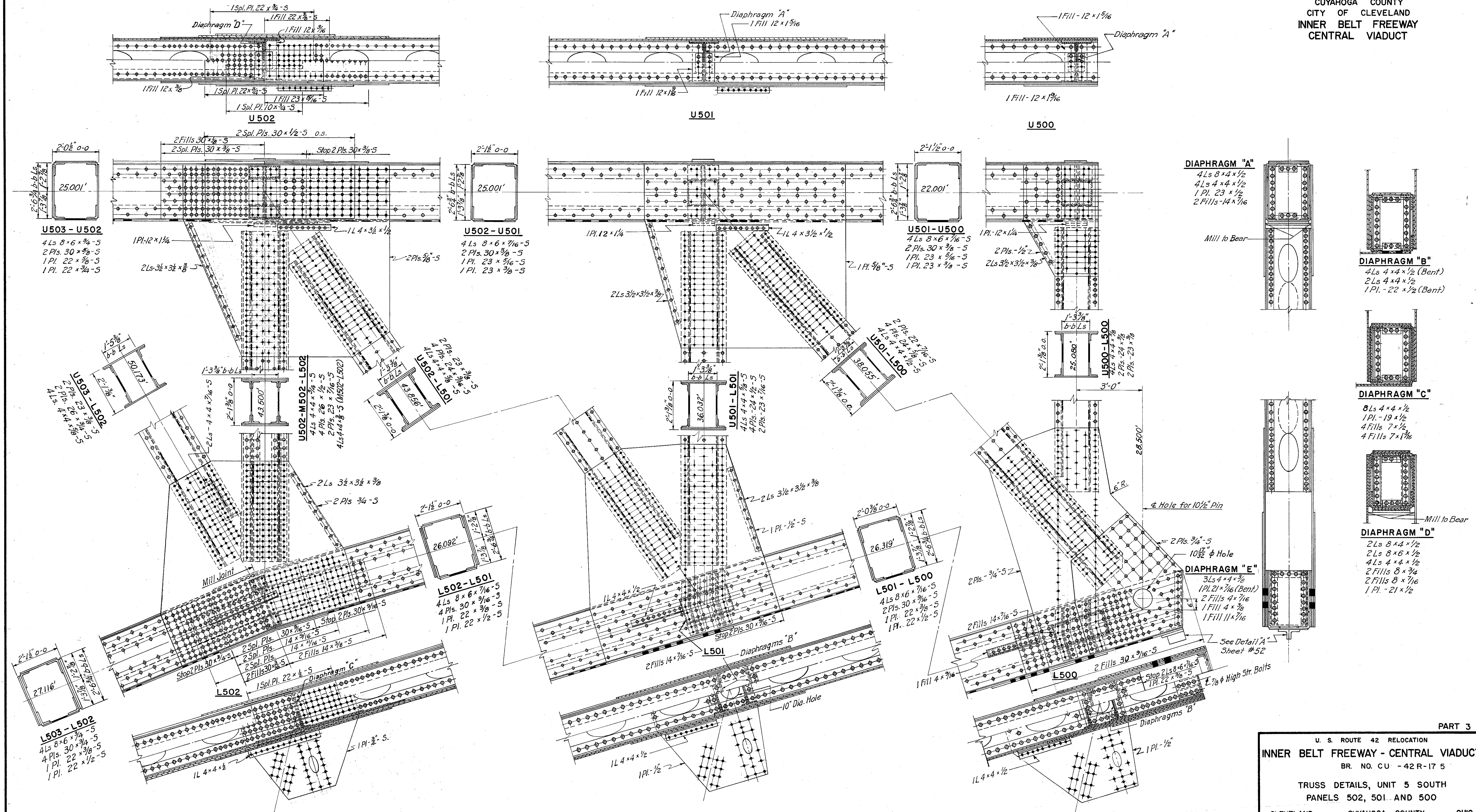
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

914-1A SHEET 2.75

MICROFILMED
FEB 16 1983

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	76
2	OHIO			122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17 5

TRUSS DETAILS, UNIT 5 SOUTH
PANELS 502, 501 AND 500

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/2" = 1'-0"
MADE C.I.C. DATE 8-2-54
TRC D.C.I.C. DATE 8-20-54
CKD D.M.C. DATE 11-8-54

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

914-1A SHEET 2.76

PART 3

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT

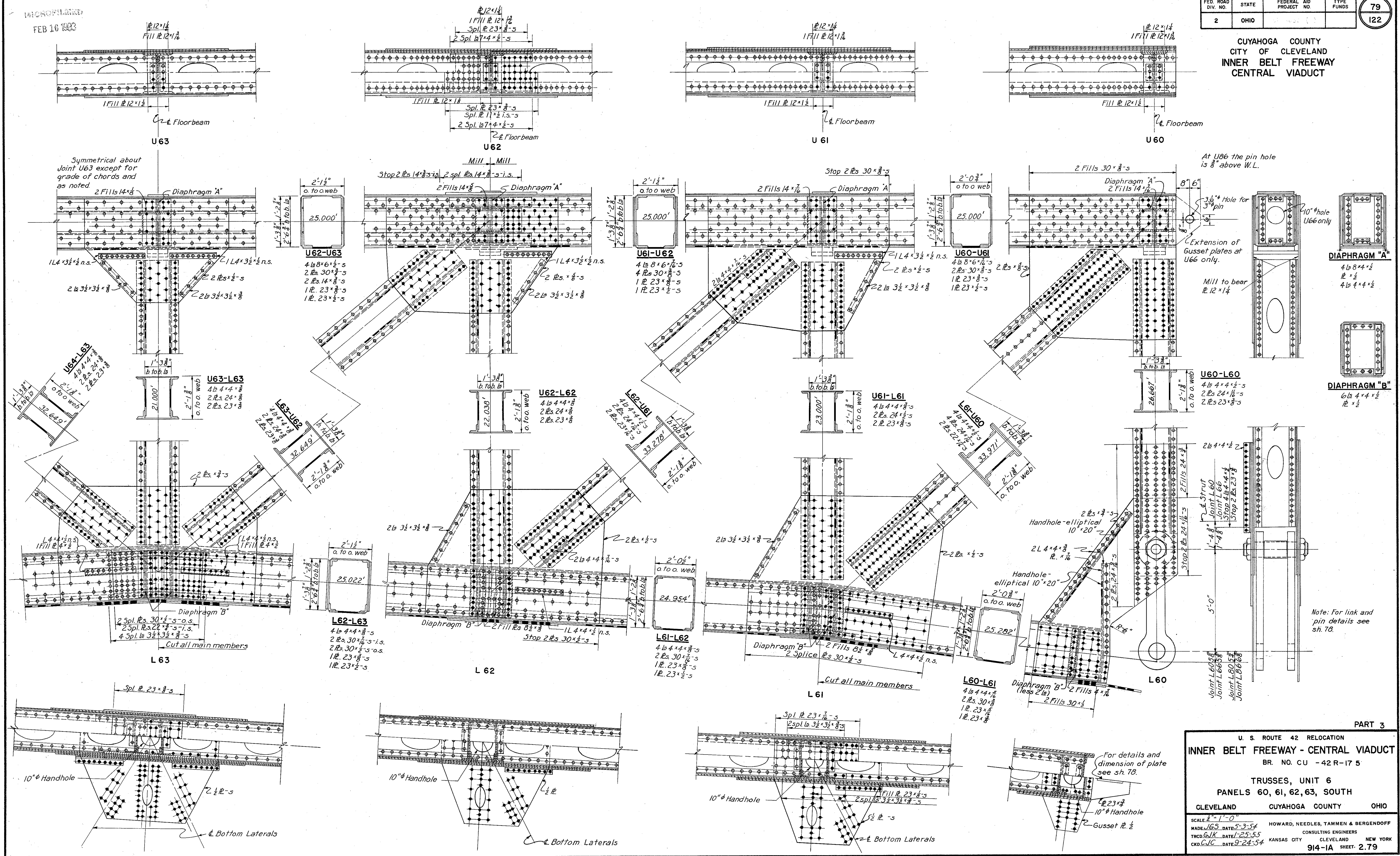
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L60	L61	L62	L63	L64	L65	L66	U60	U61	U62	U63	U64	U65	U66		L60	L61	L62	L63	L64	L65	L66	U60	U61	U62	U63	U64	U65	U66				
0	+743	+1,242	+1,242	+743	0	0	-743	-1,241	-1,469	-1,469	-1,241	-743	0	1	0	+771	+1,290	+1,290	+771	0	0	-770	-1,289	-1,524	-1,524	-1,289	-770	0				
0	+594	+995	+955	+594	0	0	-594	-993	-1,175	-1,175	-993	-594	0	2	0	+617	+1,032	+1,032	+617	0	0	-616	-1,031	-1,219	-1,219	-1,031	-616	0				
0	+232	+375	+375	+232	0	0	0	0	0	0	0	0	0	3	0	+241	+390	+390	+241	0	0	0	0	0	0	0	0	0				
0	+232	+375	+375	+232	0	0	-232	-375	-416	-416	-375	-232	0	4	0	+241	+390	+390	+241	0	0	-241	-390	-433	-433	-390	-241	0				
0	+385	+620	+620	+385	0	0	-232	-375	-416	-416	-375	-232	0	5	0	+241	+390	+390	+241	0	0	-241	-390	-433	-433	-390	-241	0				
0	+385	+620	+620	+385	0	0	-385	-620	-690	-690	-620	-385	0	6	0	+400	+645	+645	+400	0	0	-241	-390	-433	-433	-390	-241	0				
0	+9	+15	+15	+9	0	0	0	0	0	0	0	0	0	7	0	+400	+645	+645	+400	0	0	-400	-645	-717	-717	-645	-400	0				
0	+9	+15	+15	+9	0	0	-9	-15	-18	-18	-15	-9	0	8	0	+10	+16	+16	+10	0	0	-400	-645	-717	-717	-645	-400	0				
0	+988	+1,630	+1,630	+988	0	0	-988	-1,628	-1,883	-1,883	-1,628	-988	0	9	0	+10	+16	+16	+10	0	0	-10	-16	-19	-19	-16	-10	0				
														10	0	+1,027	+1,693	+1,693	+1,027	0	0	-1,026	-1,692	-1,955	-1,955	-1,692	-1,026	0				
														11	0	+1,027	+1,693	+1,693	+1,027	0	0	-1,026	-1,692	-1,955	-1,955	-1,692	-1,026	0				
														12	0	+1,027	+1,693	+1,693	+1,027	0	0	-1,026	-1,692	-1,955	-1,955	-1,692	-1,026	0				
														13	0	+1,027	+1,693	+1,693	+1,027	0	0	-1,026	-1,692	-1,955	-1,955	-1,692	-1,026	0				

UNREPRODUCED
FEB 16 1955

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

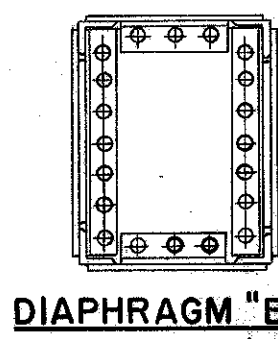
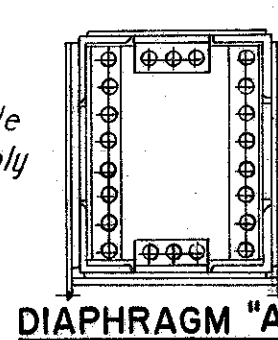
79
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



At U86 the pin hole is 8" above W.L.

3/4" Hole for 3/4" pin
Extension of Gusset plates at U66 only.
Mill to bear 12x14



Note: For link and pin details see sh. 78.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-175

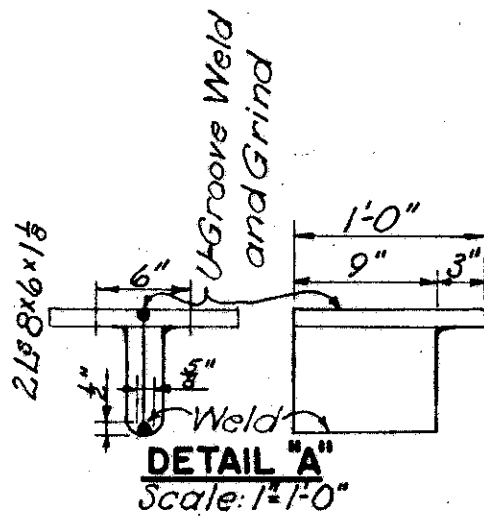
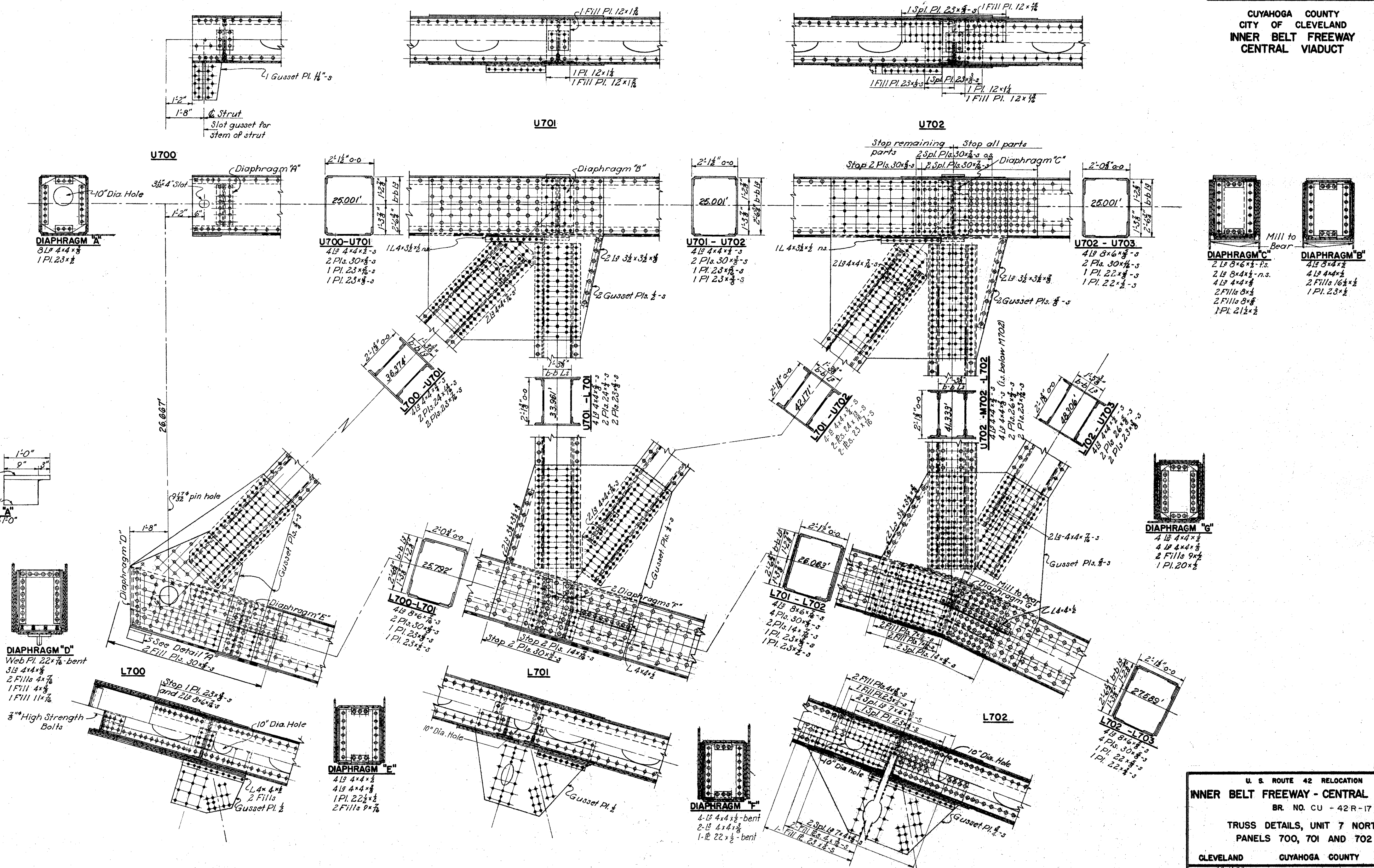
TRUSSES, UNIT 6
PANELS 60, 61, 62, 63, SOUTH

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 1/2" = 1'-0"
MADE JGS DATE 5-3-54
TRCD GJK DATE 1-25-55
CKD GJC DATE 9-24-54

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND NEW YORK
914-1A SHEET 2.79

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-175

TRUSS DETAILS, UNIT 7 NORTH
PANELS 700, 701 AND 702

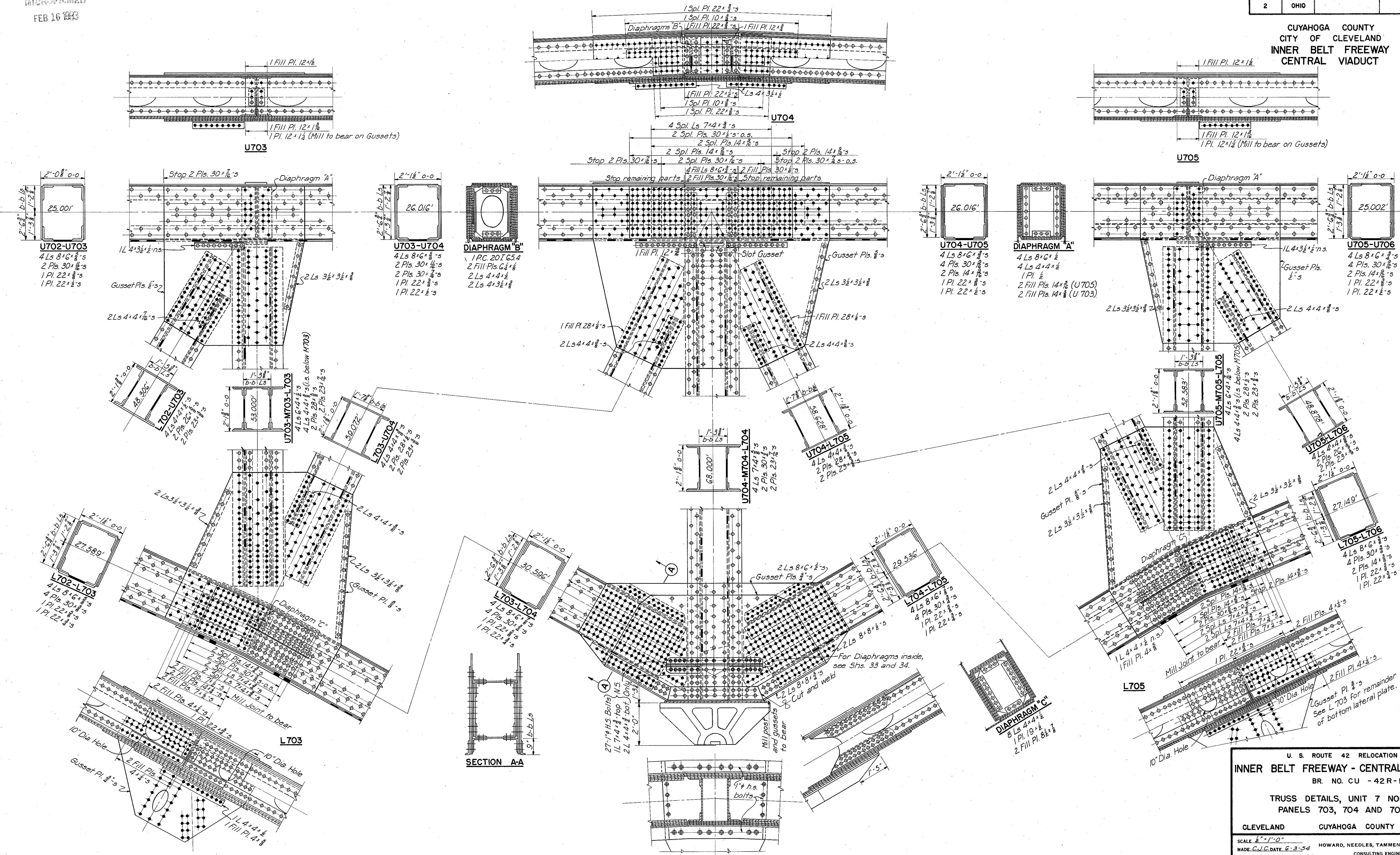
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1/4" = 1'-0"
MADE: GJC DATE: 5-5-54
TRCD: DATE: _____
CKD: DMD DATE: 10-14-54

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

914-1A SHEET: 2.82

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-175

TRUSS DETAILS, UNIT 7 NORTH
PANELS 703, 704 AND 705

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1/2" = 1'-0"
MADE C.O.D. DATE: 6-3-54 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD. U.A. DATE: 12-12-54 CONSULTING ENGINEERS
CKD. D.L.C. DATE: KANSAS CITY CLEVELAND NEW YORK

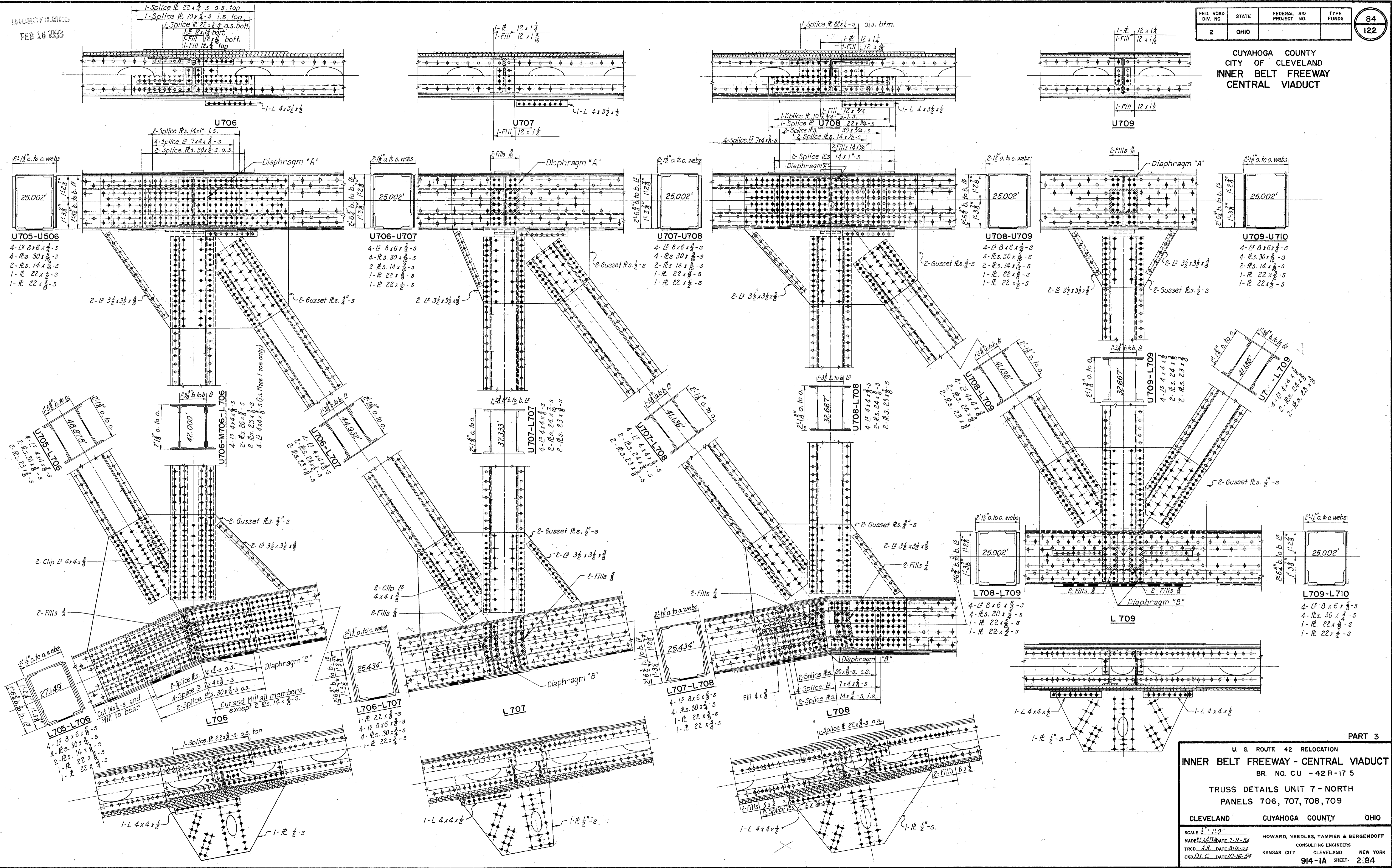
914-1A SHEET 2.83

MICROFILMED
FEB 16 1983

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

84
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-175

TRUSS DETAILS UNIT 7 - NORTH
PANELS 706, 707, 708, 709

CLEVELAND CUYAHOGA COUNTY OHIO

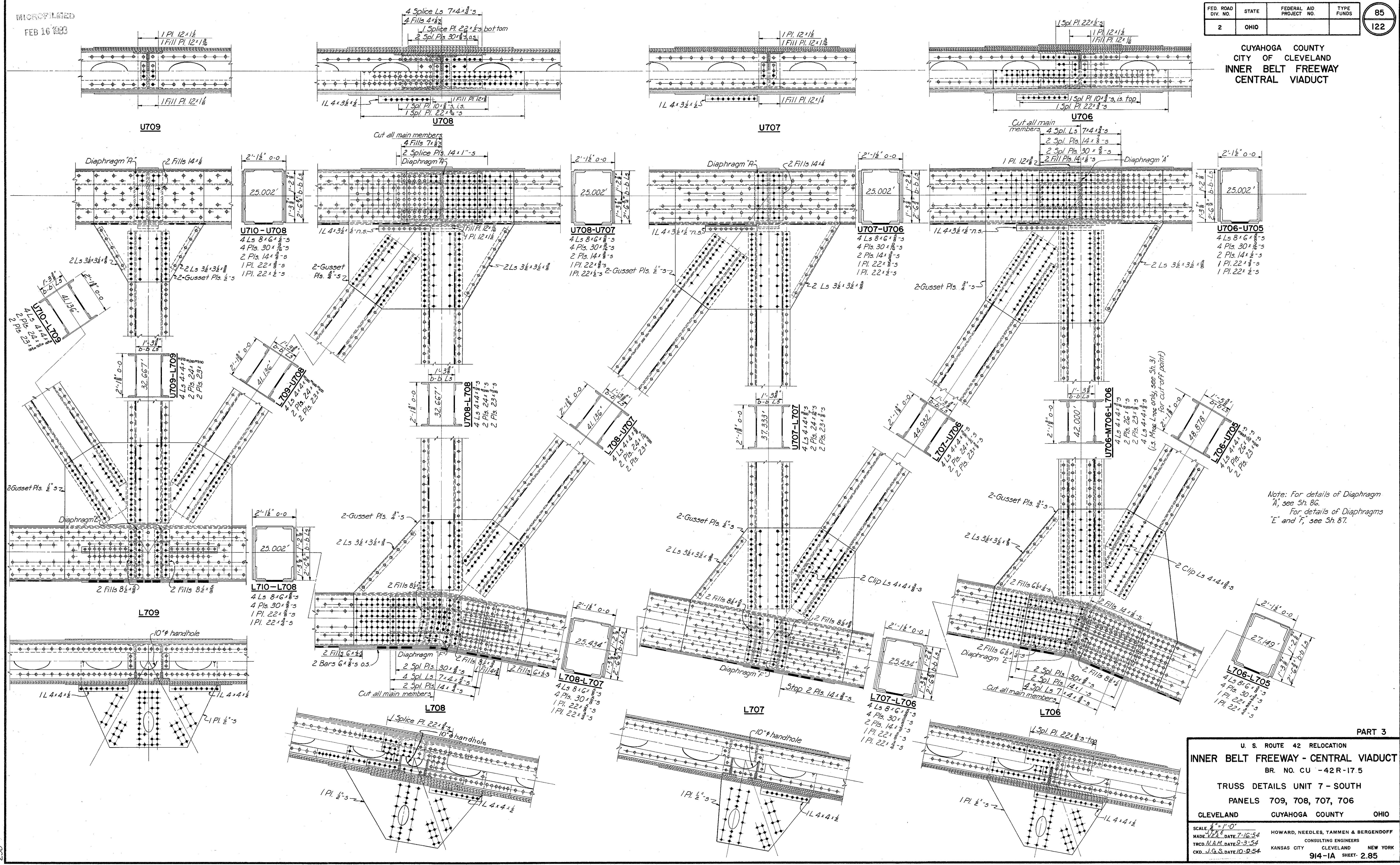
SCALE: 1/2" = 1'-0"
MADE BY DATE: 7-12-54
TRCD. A.H. DATE: 8-12-54
CKD. D.L.C. DATE: 10-16-54

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.84

MICROFILMED
FEB 16 1983

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	85
2	OHIO			122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



Note: For details of Diaphragm A, see Sh. 86.
For details of Diaphragms E and F, see Sh. 87.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU -42R-175

TRUSS DETAILS UNIT 7 - SOUTH
PANELS 709, 708, 707, 706

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1/4" = 1'-0"
MADE: 1/24/54 DATE: 7-16-54
TRCD: N.A.H. DATE: 9-3-54
CKD: J.G.S. DATE: 10-9-54

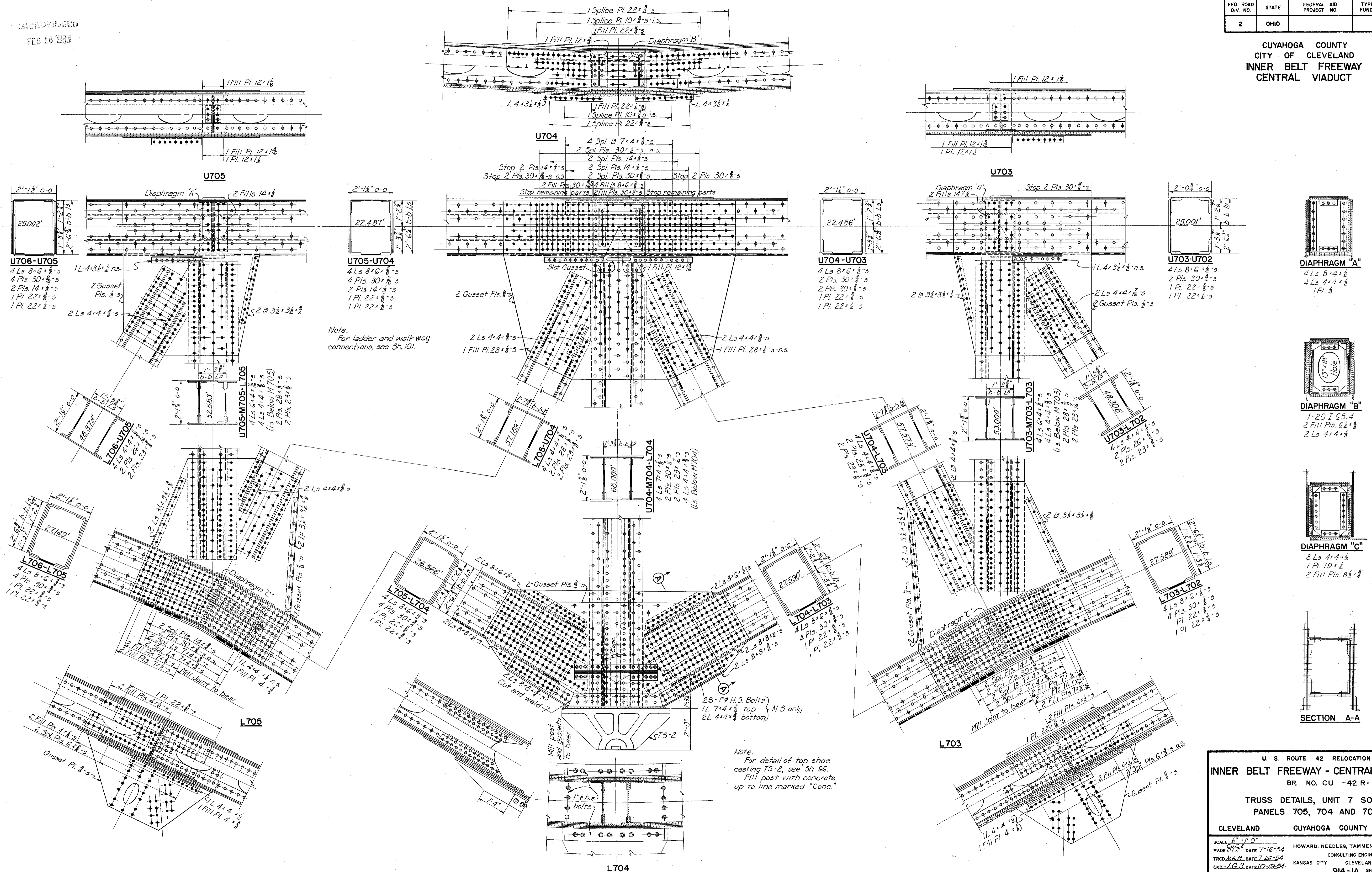
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.85

230

UNCORRECTED
FEB 16 1954

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	86 122
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU -42 R-17.5
TRUSS DETAILS, UNIT 7 SOUTH
PANELS 705, 704 AND 703
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1/4" = 1'-0"
MADE BY: DATE 7-16-54
TRCD N.A.M. DATE 7-26-54
CKD J.G.S. DATE 10-19-54

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.86

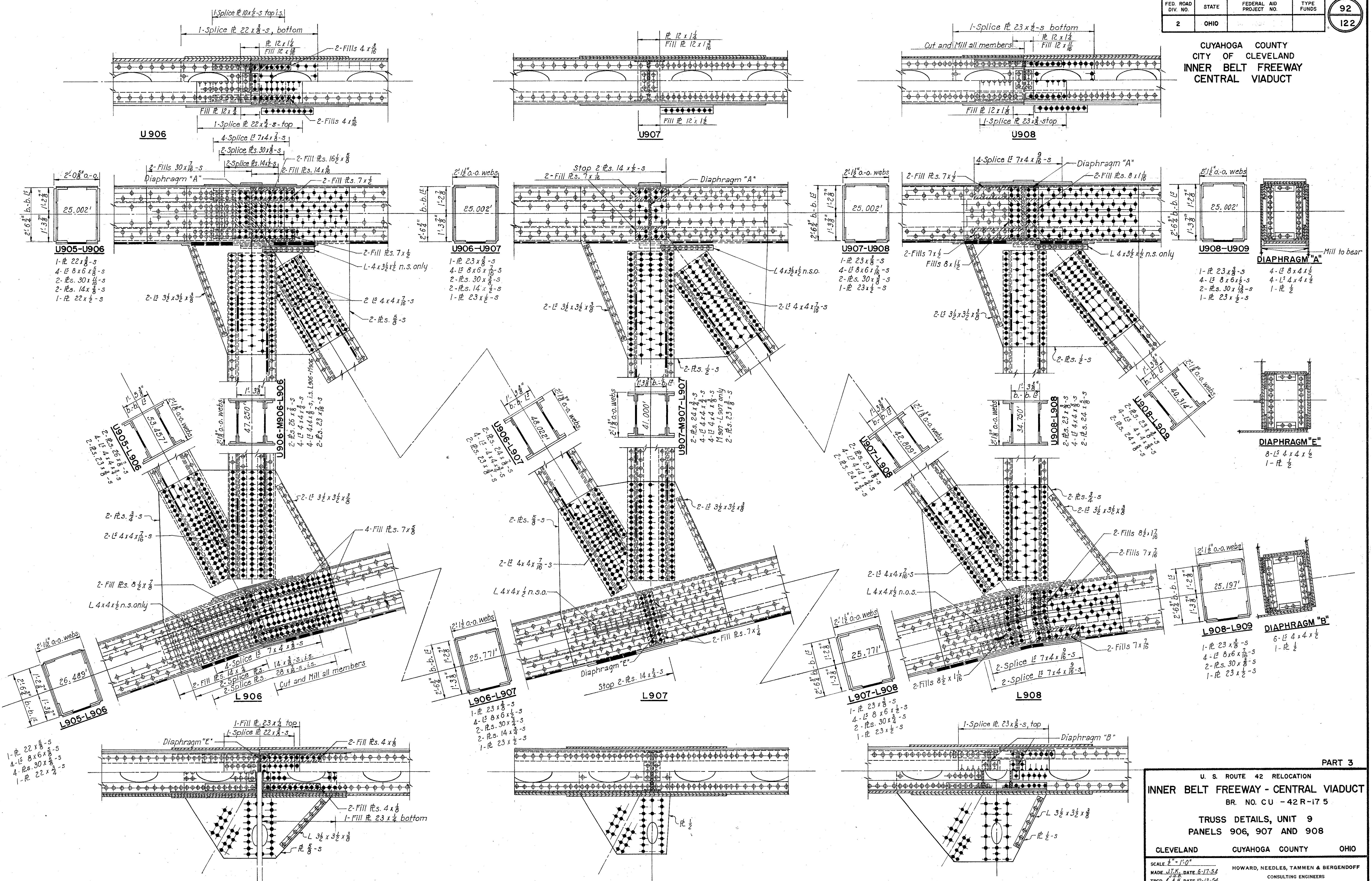
60
FEB 16 1954

CUY-90-1545

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

92
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-175

TRUSS DETAILS, UNIT 9
PANELS 906, 907 AND 908

CLEVELAND	GUYAHOGA COUNTY	OHIO
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SCALE: 1/2" = 1'-0"

MADE J.T.K. DATE 6-17-54	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD L.A.H. DATE 10-13-54	CONSULTING ENGINEERS
CKD D.L.C. DATE 9-22-54	KANSAS CITY CLEVELAND NEW YORK

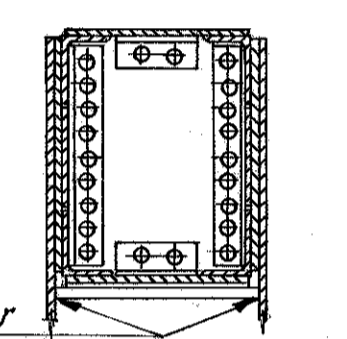
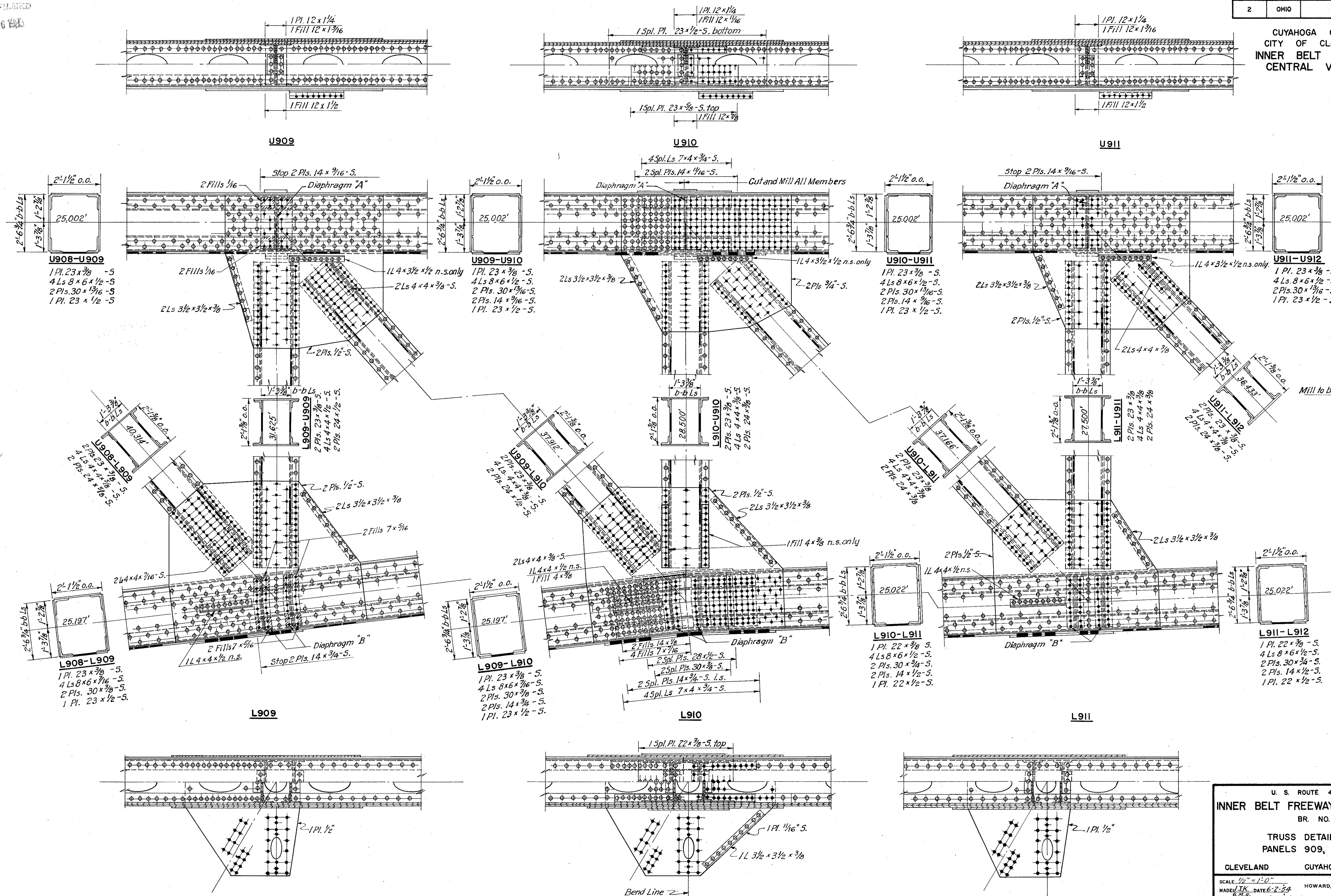
914-1A SHEET 2.92

MICROFILMED
FEB 16 1983

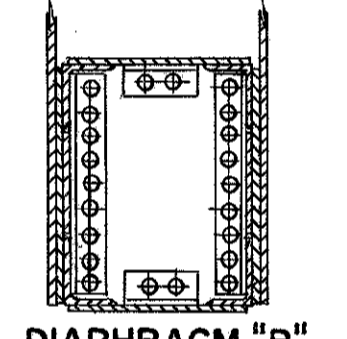
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

93
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



DIAPHRAGM "A"
4 Ls 8 x 4 x 1/2
4 Ls 4 x 4 x 1/2
1 Pl. 1/2"



DIAPHRAGM "B"
6 Ls 4 x 4 x 1/2
1 Pl. 1/2"

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17.5

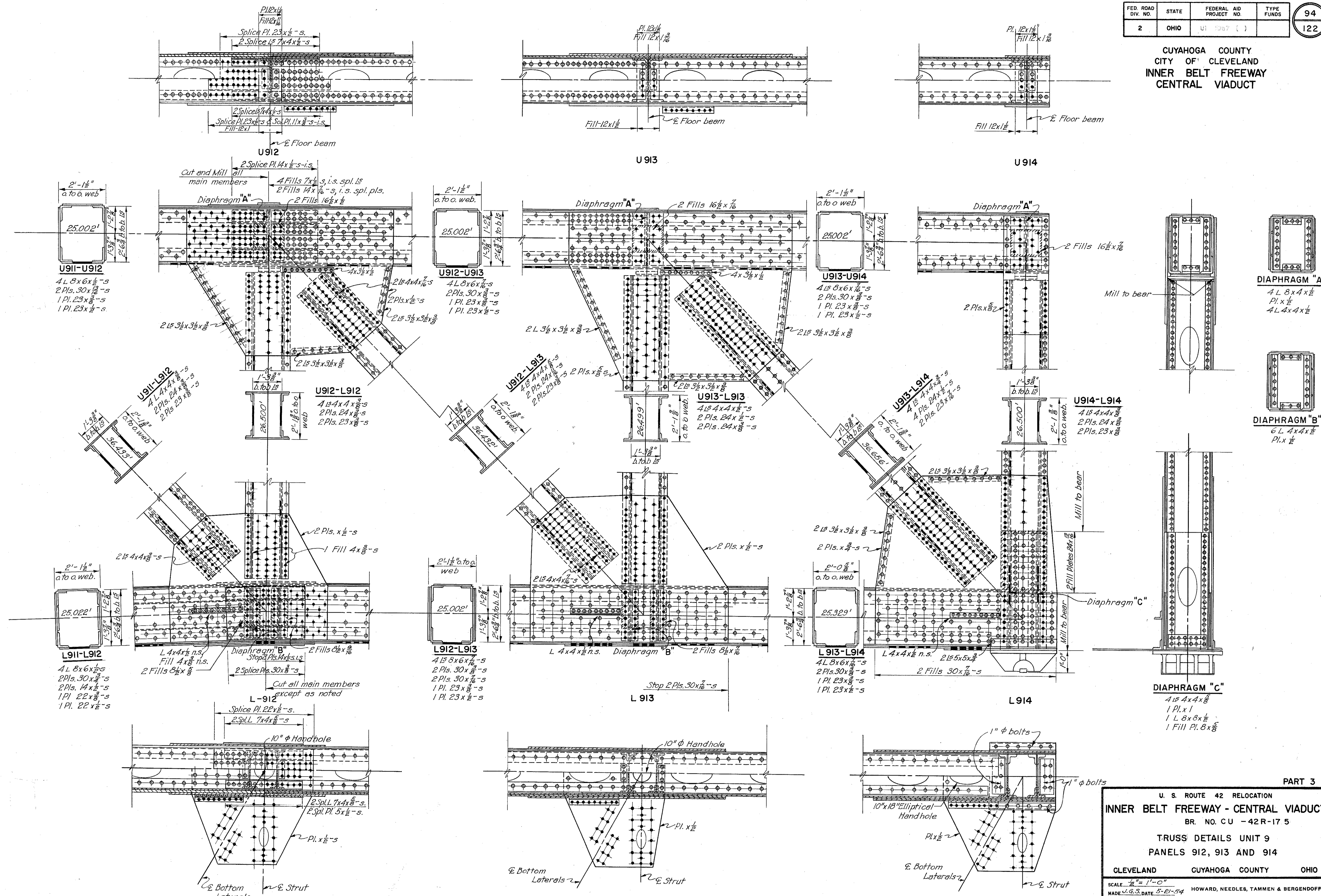
TRUSS DETAILS, UNIT 9
PANELS 909, 910 AND 911

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1/2" = 1'-0"
MADE BY: JTK, DATE: 6-2-54
TRCD BY: JTK, DATE: 9-8-54
CKD BY: D.L.C., DATE: 9-20-54

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.93

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17.5

TRUSS DETAILS UNIT 9
PANELS 912, 913 AND 914

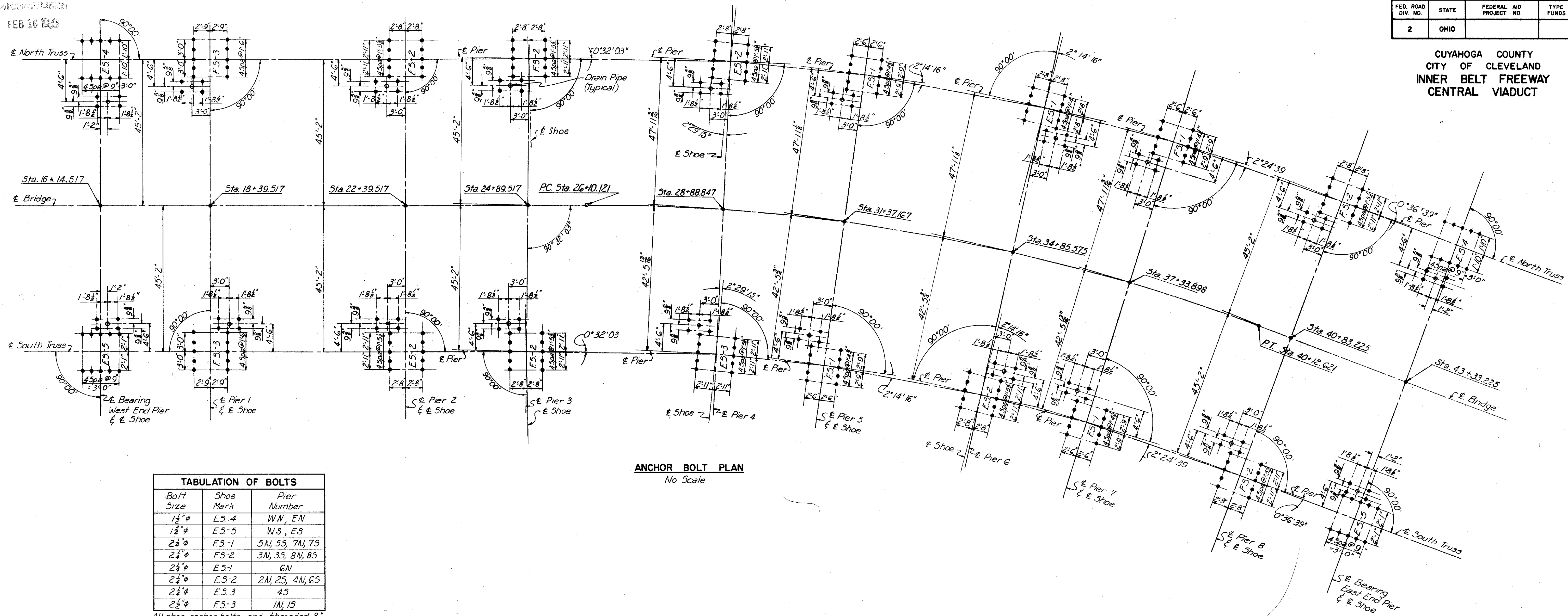
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: $\frac{1}{2}$ " = 1'-0"

MADE U.S.A. DATE: 5-21-54 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD. M.A.C. DATE: 1-10-55 CONSULTING ENGINEERS
CKD. R.L.C. DATE: 7-15-54 KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET: 2.94

FEB 16 1964

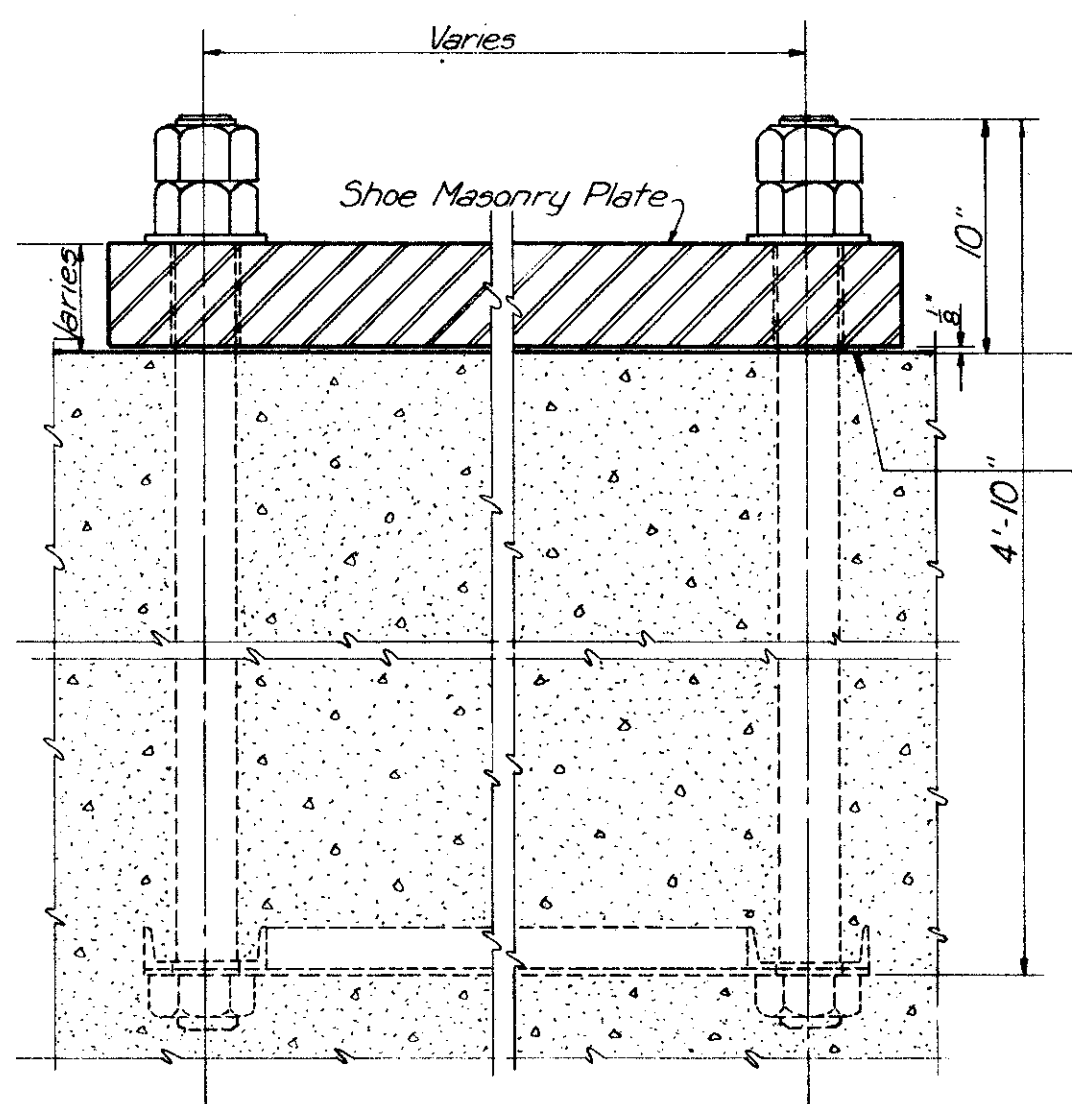
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



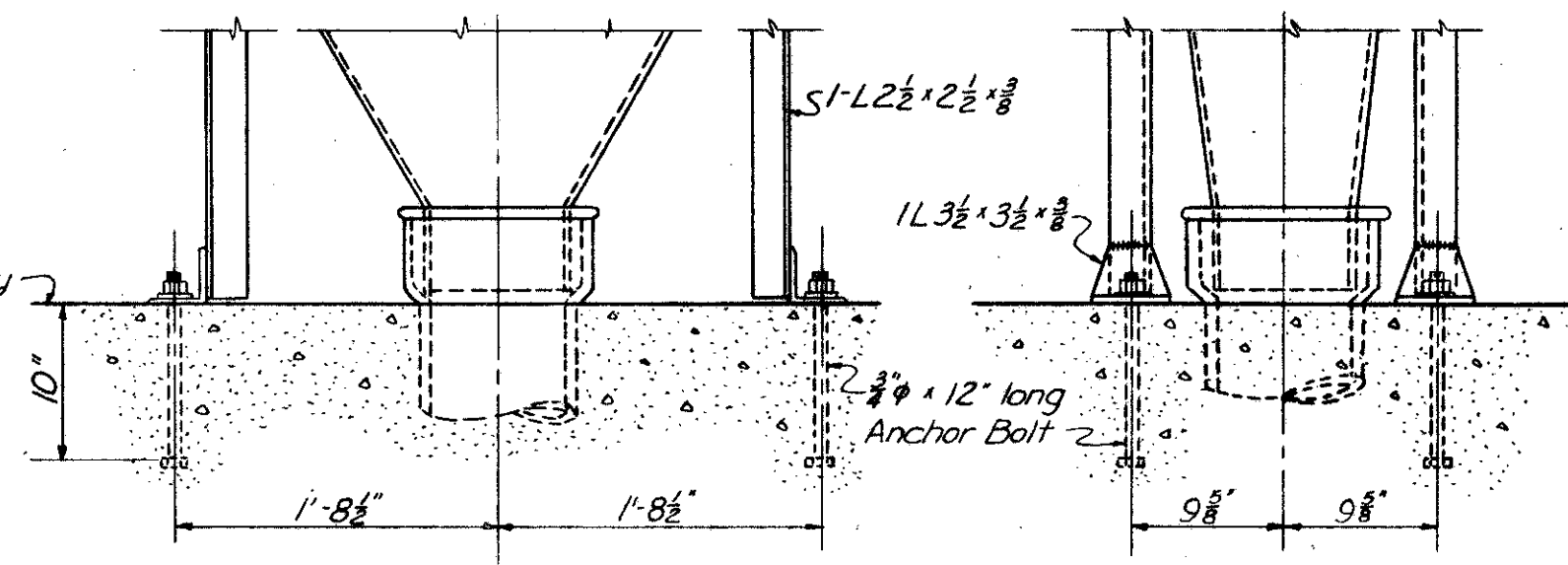
ANCHOR BOLT PLAN
No Scale

TABULATION OF BOLTS		
Bolt Size	Shoe Mark	Pier Number
1 1/2" φ	E5-4	WN, EN
1 3/8" φ	E5-5	WS, ES
2 1/2" φ	FS-1	5N, 5S, 7N, 7S
2 1/2" φ	FS-2	3N, 3S, 8N, 8S
2 1/2" φ	E5-1	6N
2 1/2" φ	E5-2	2N, 2S, 4N, 4S
2 1/2" φ	E5-3	4S
2 1/2" φ	FS-3	1N, 1S

All shoe anchor bolts are threaded 8" and provided with lock washer and hex nuts.
All bolts furnished under a previous contract.



ANCHOR BOLT DETAIL
Scale: 1/2" = 1'-0"



HOPPER ANCHOR BOLT DETAIL
Scale: 1" = 1'-0"
Bolts furnished and set under a previous contract.

PART 3

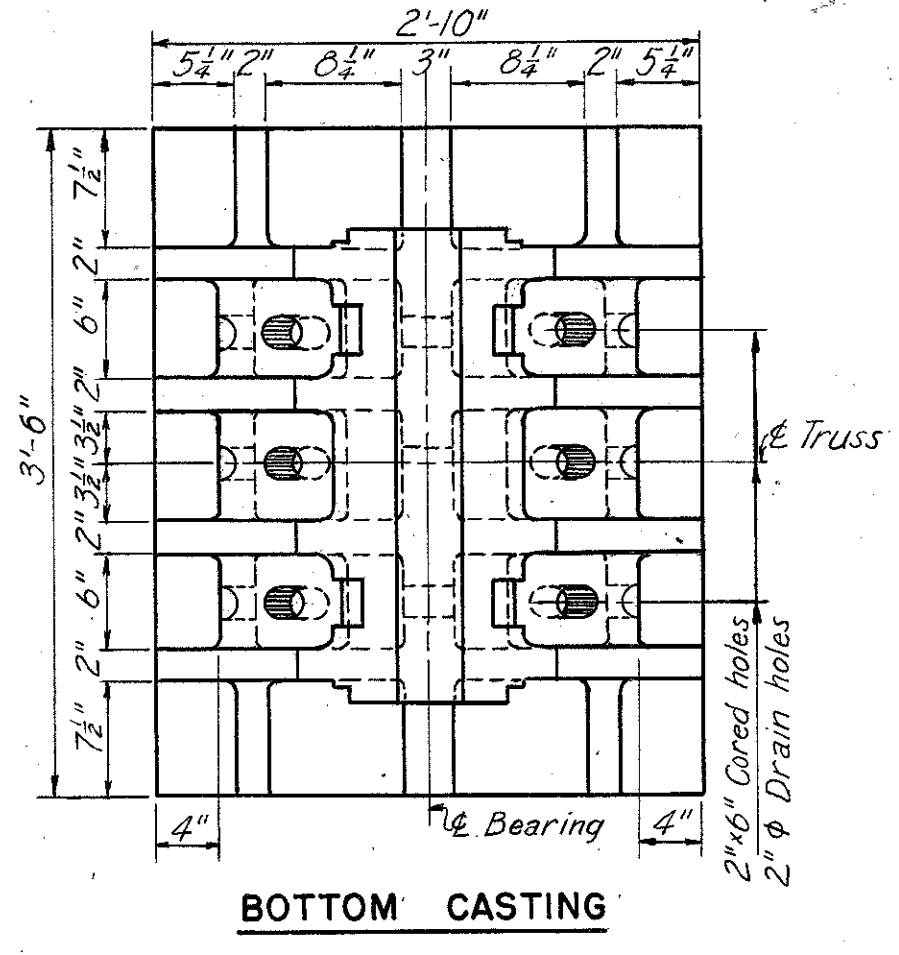
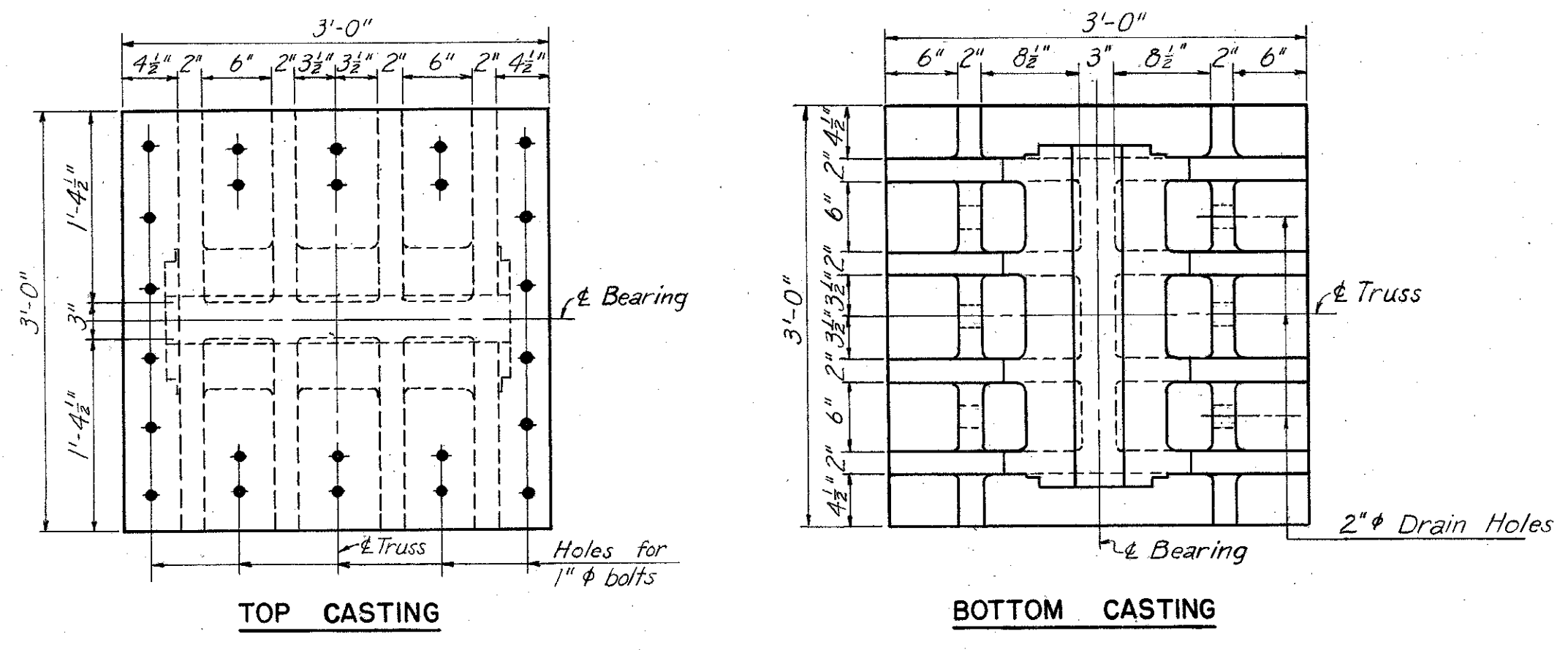
U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17.5

**ANCHOR BOLT PLAN
AND DETAILS**

CLEVELAND CUYAHOGA COUNTY OHIO

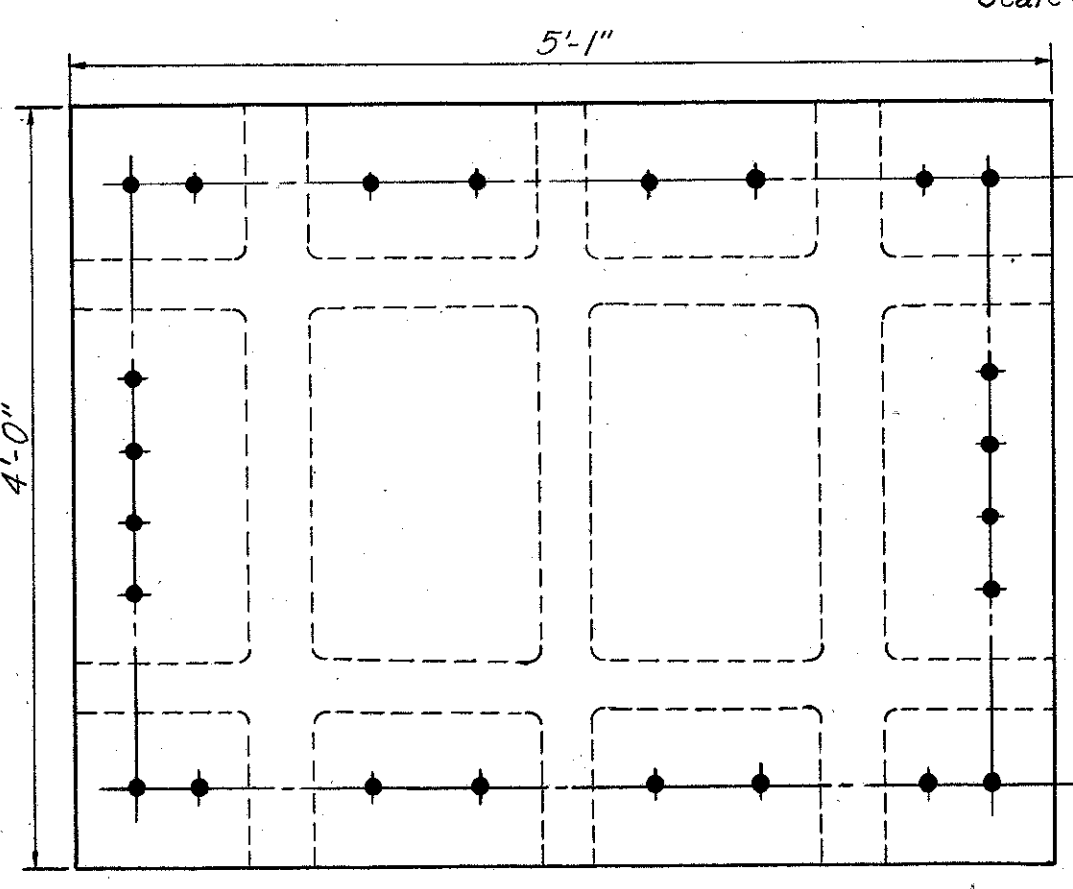
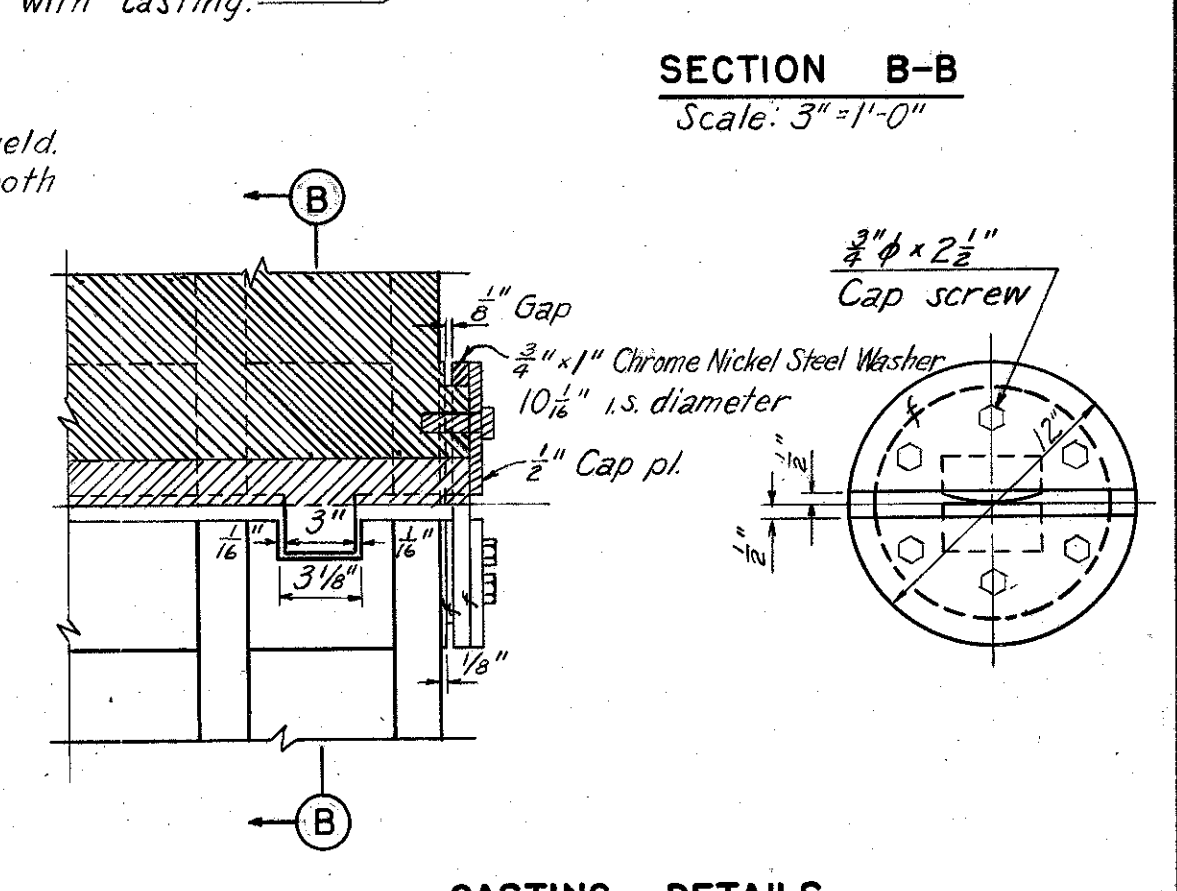
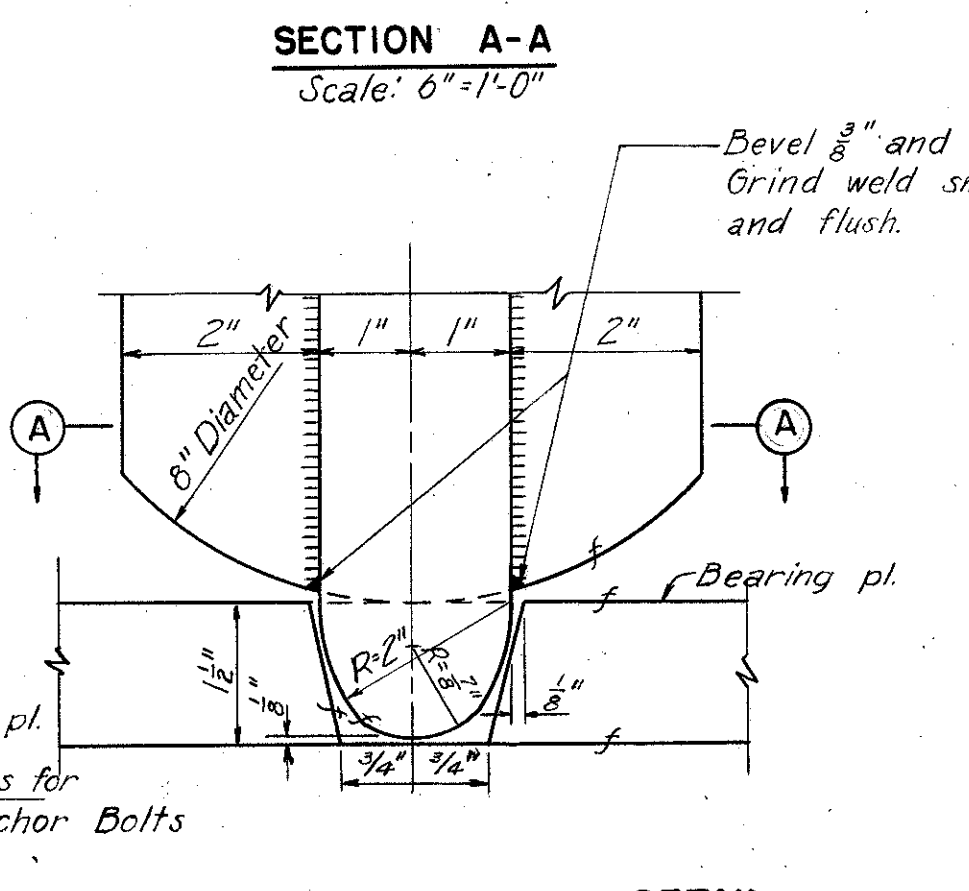
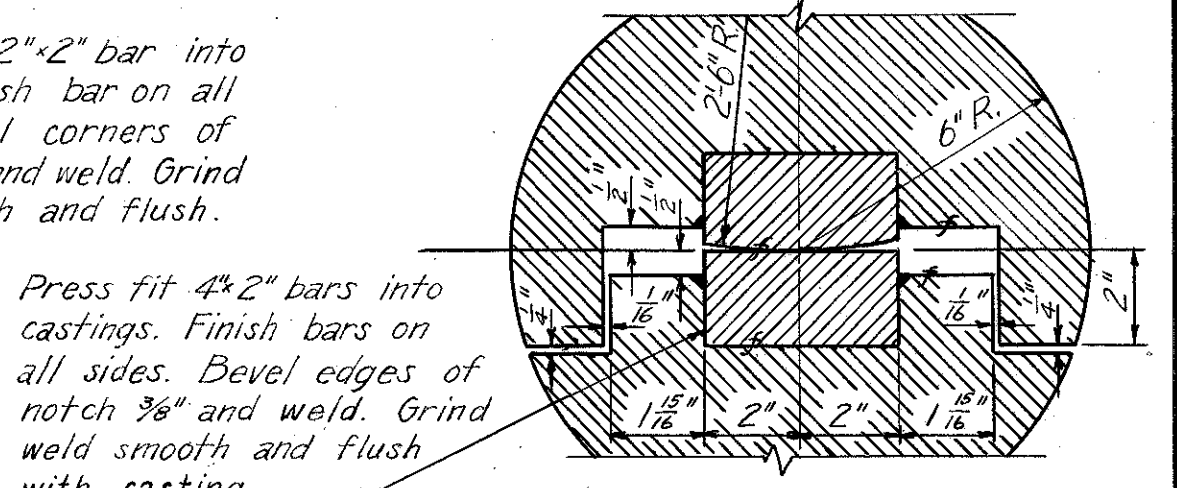
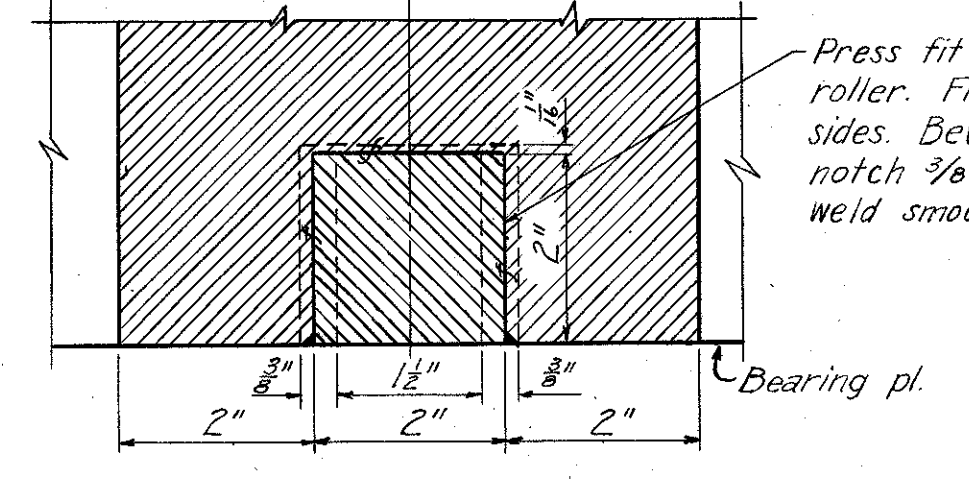
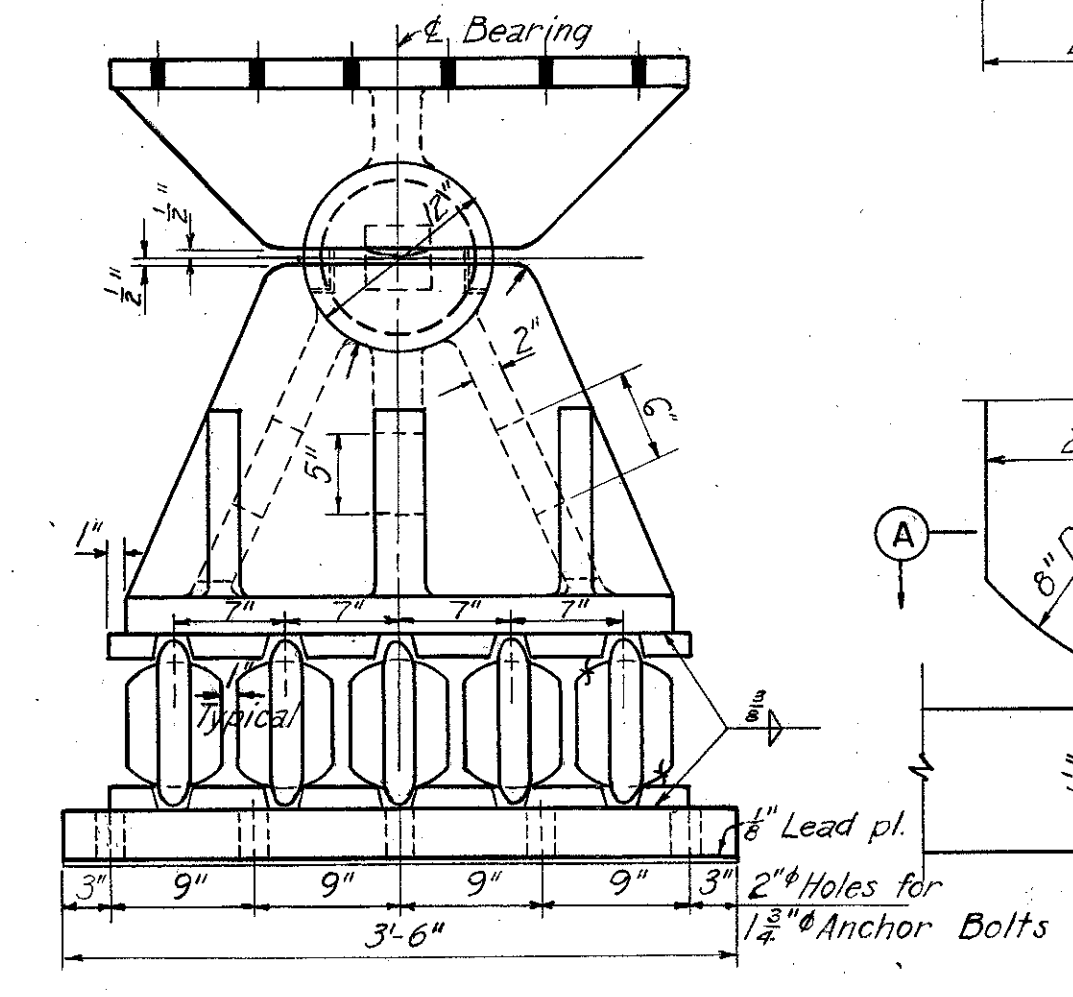
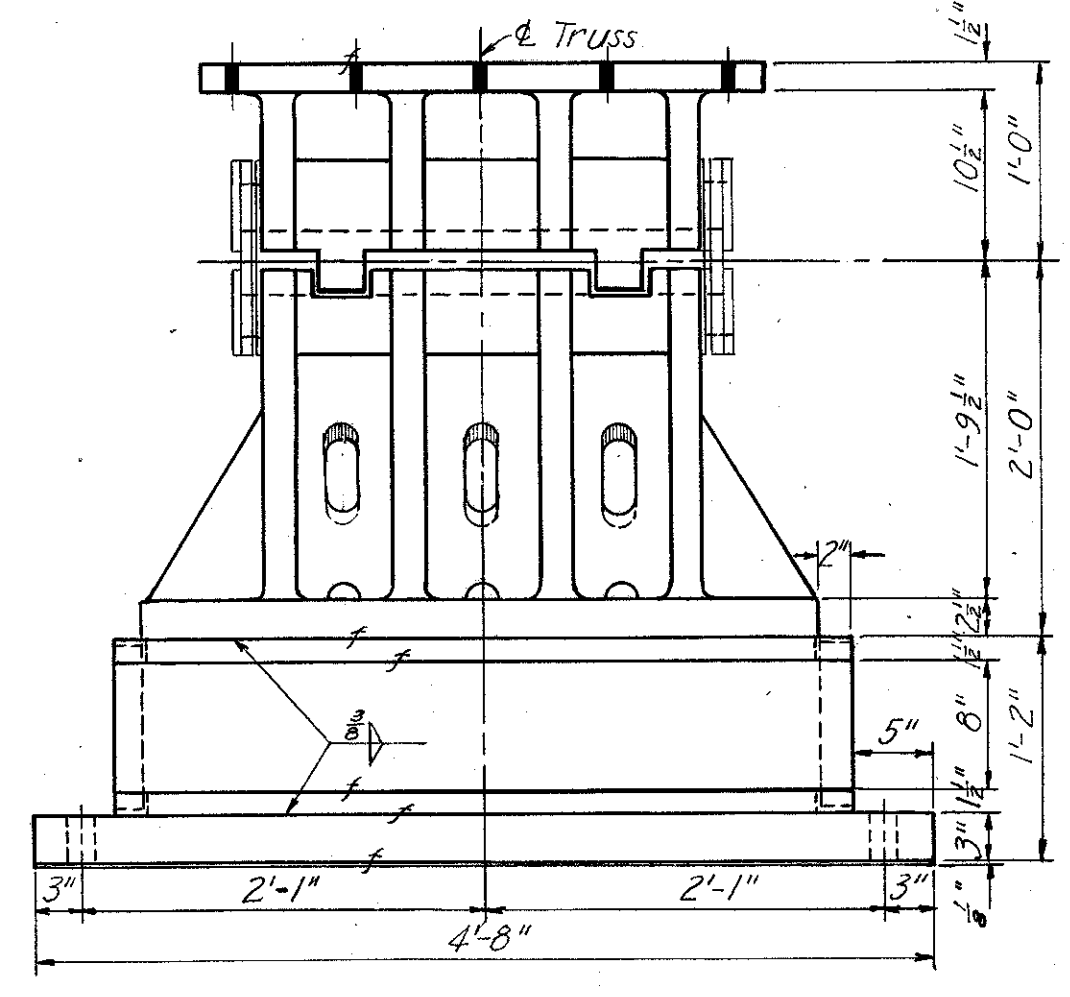
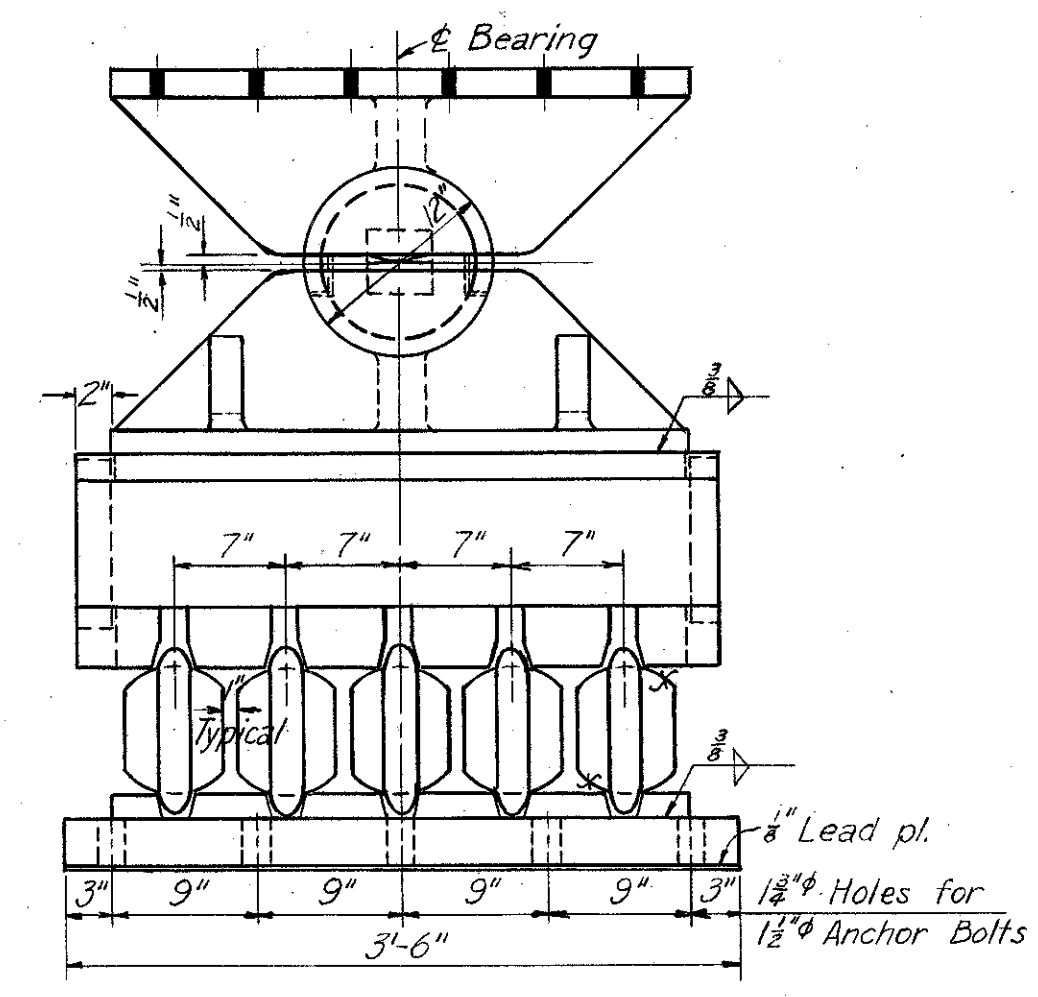
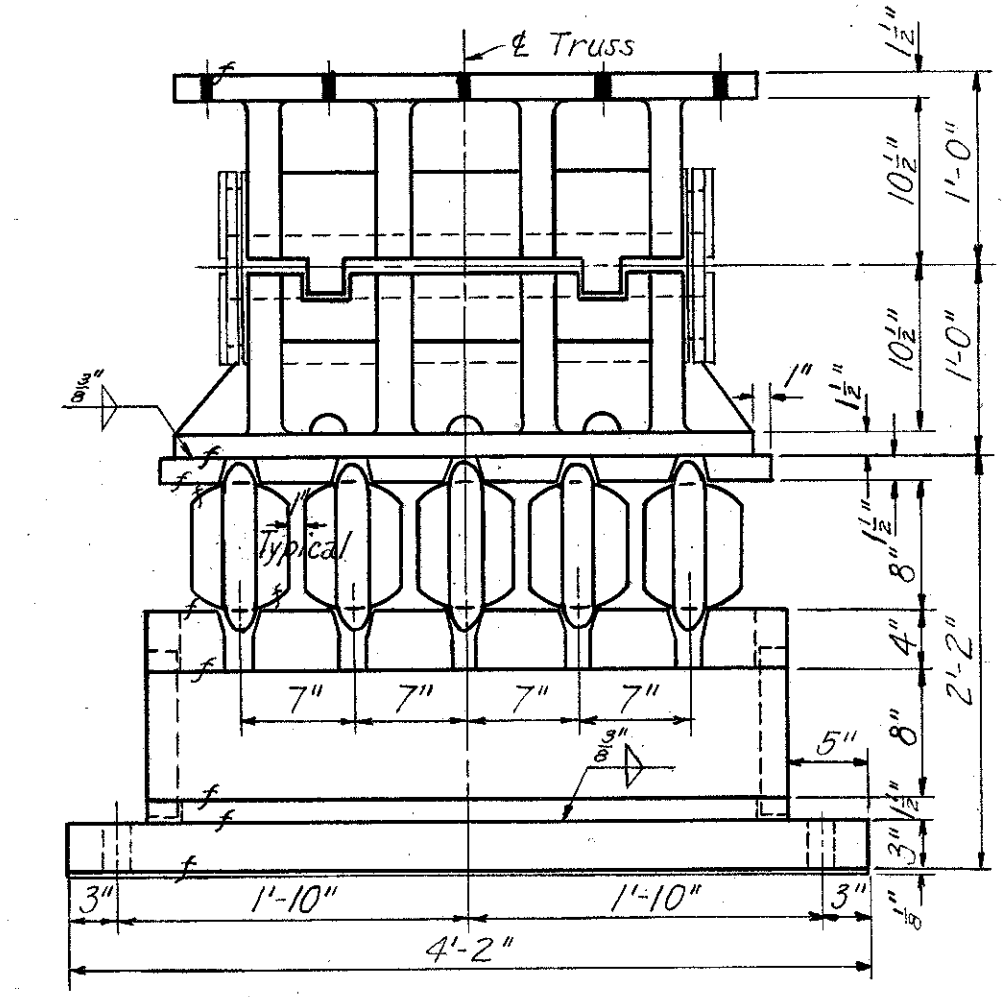
SCALE As Shown	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE P.C. DATE 3-9-54	CONSULTING ENGINEERS
TRCD. N.B.M. DATE 6-4-54	KANSAS CITY CLEVELAND NEW YORK
CRD. D.E.R. DATE 6-28-54	914-1A SHEET 2.95

**CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT**

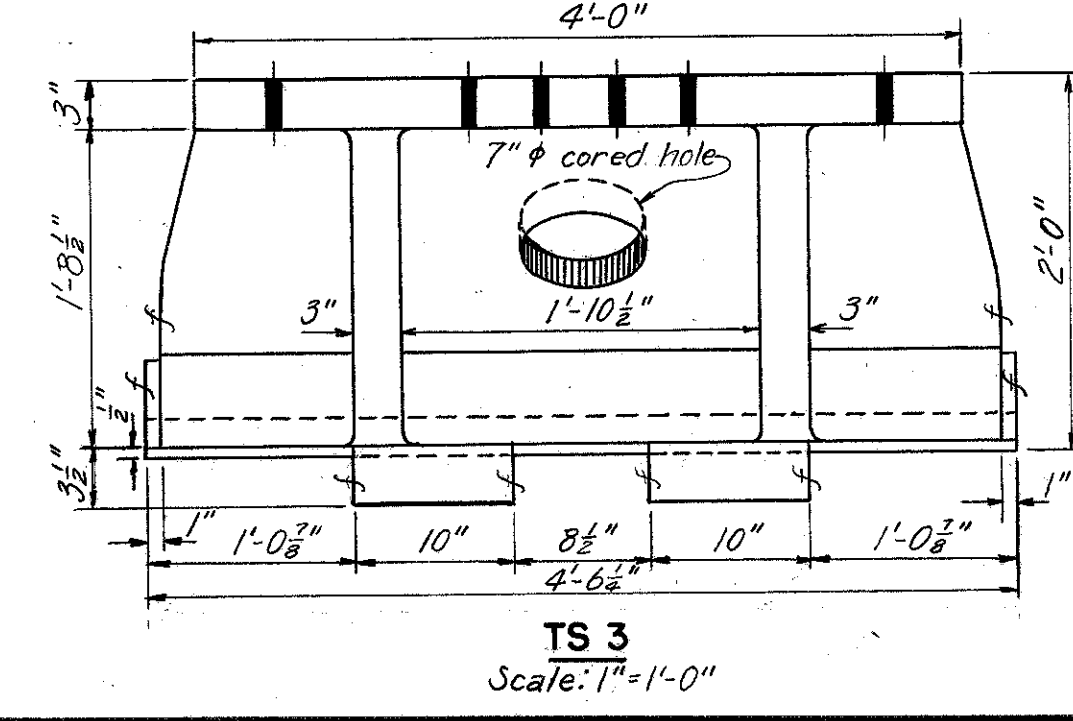
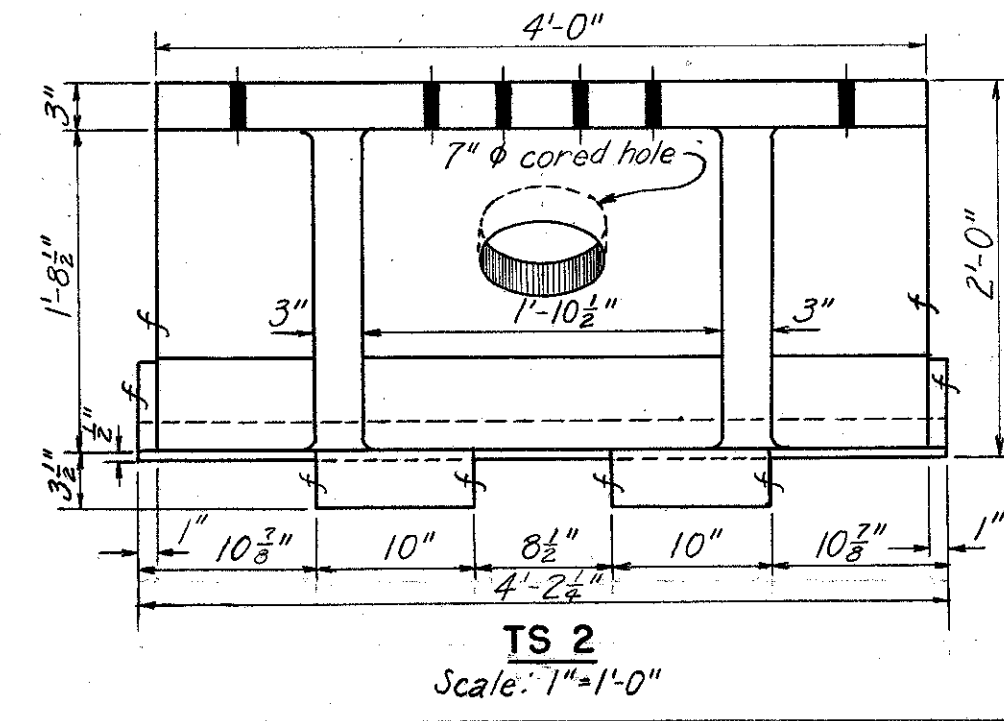
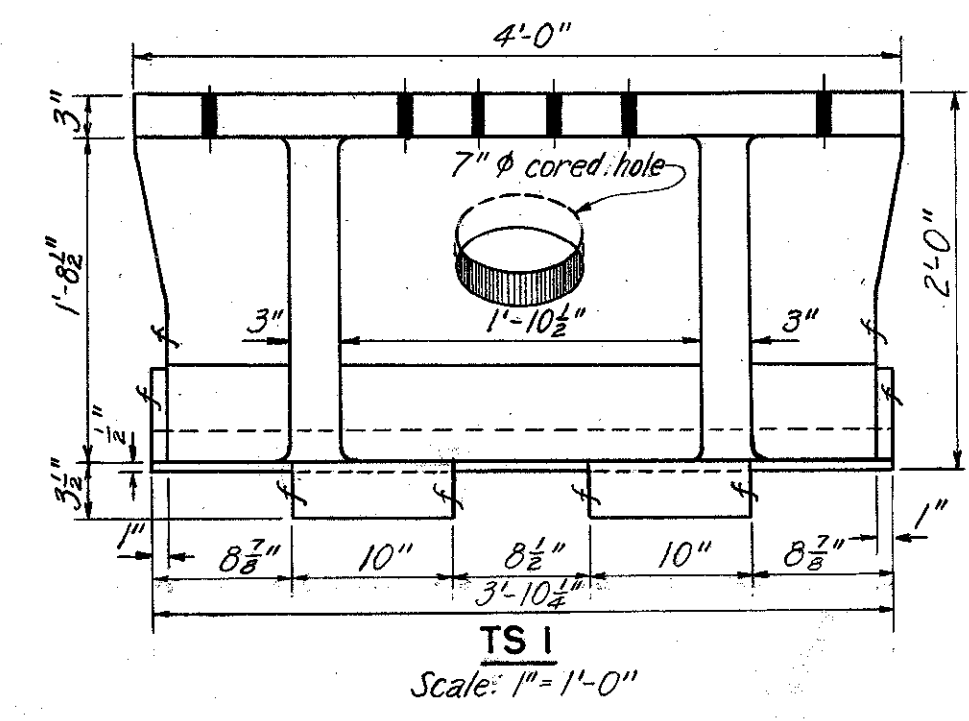
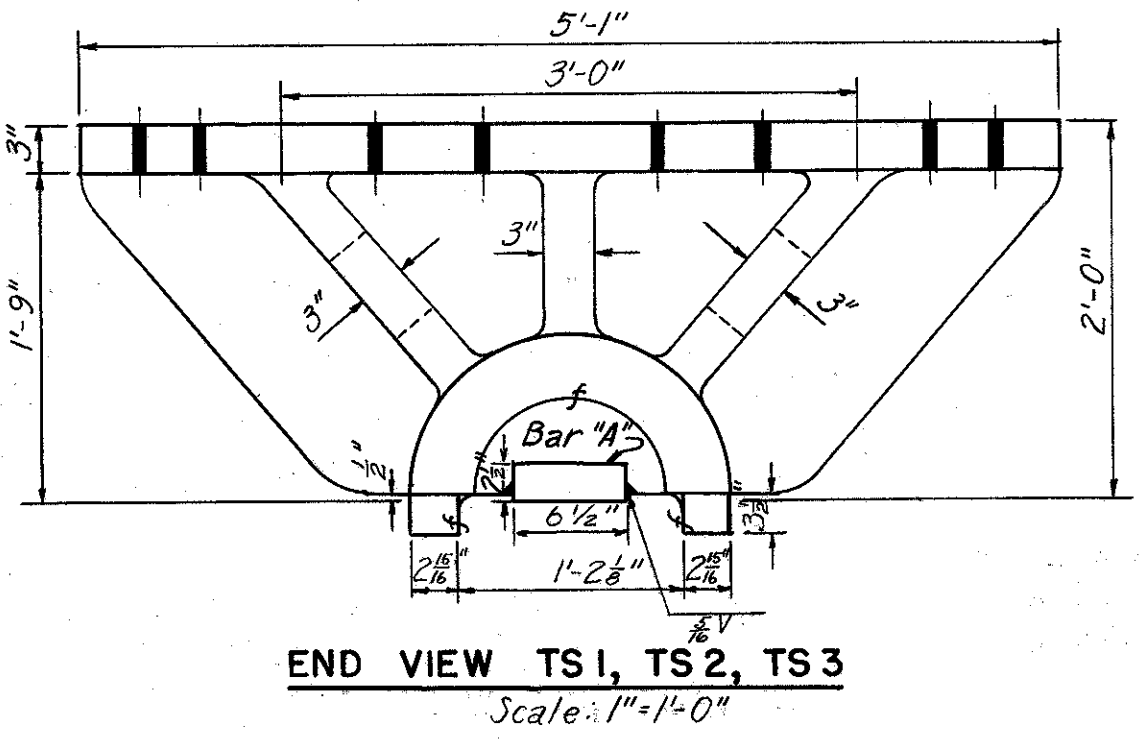


Top casting same as top casting for shoe ES-4

MICROFILMED
FEB 16 1983



Rocker Bar 'R'
1 Bar 6 1/2" x 2 1/2" pressed fit into casting. Bevel edges of casting 1/8" x 45° and weld bar in place. Bar to be U.S.S. Carillon T1 or equal, with a minimum yield point of 90,000 psi. All surfaces to be finished.



TABULATION OF SHOE TOP CASTINGS	
Casting	Pier
TS 1	6N
TS 2	2N, 2S, 3N, 3S, 4N, 5N, 5S, 6S, 7N, 7S, 8N, 8S
TS 3	1N, 1S, 4S

SHOES FOR END PIERS	
Shoe	Pier
ES 4	WN, EN
ES 5	WS, ES

Note:
For General Notes on fabrication and materials of shoe castings, see Sh. 97.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17.5

**SHOES AT END PIERS
AND SHOE TOP CASTINGS**

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As Shown
MADE V.D.C. DATE 4-25-54
TRCD J.D.B. DATE 8-11-54
CKD D.M.E. DATE 8-19-54

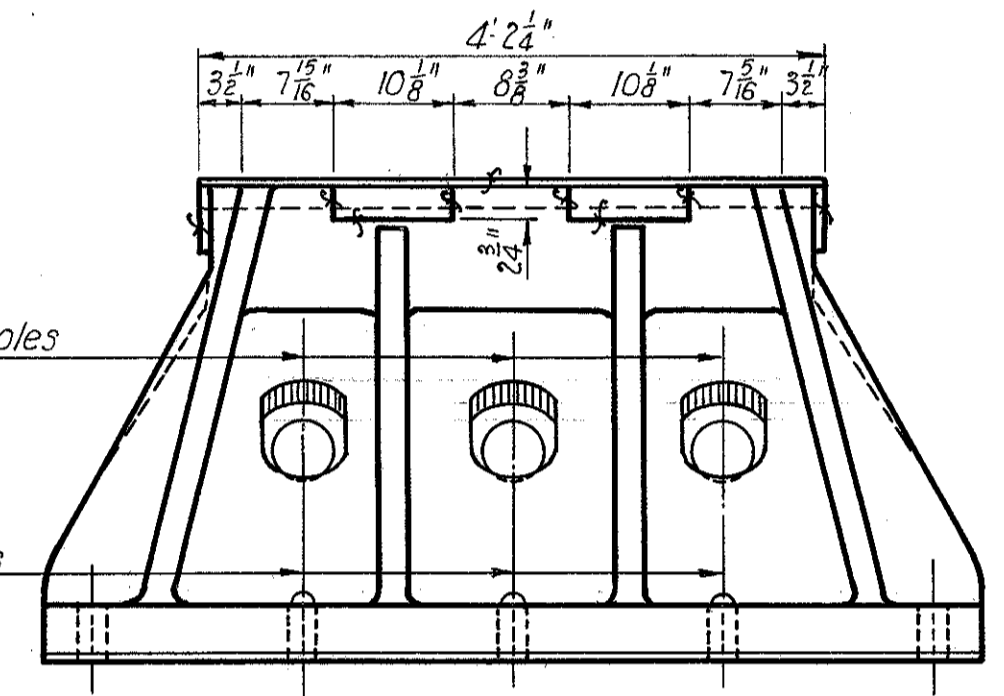
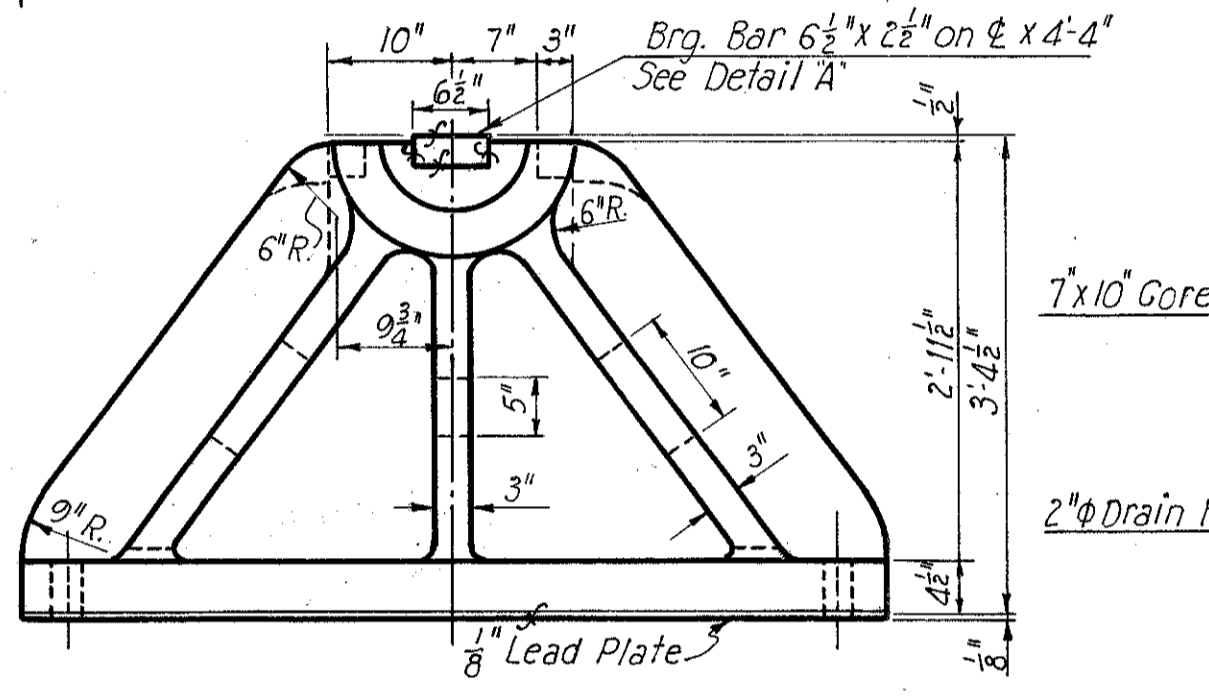
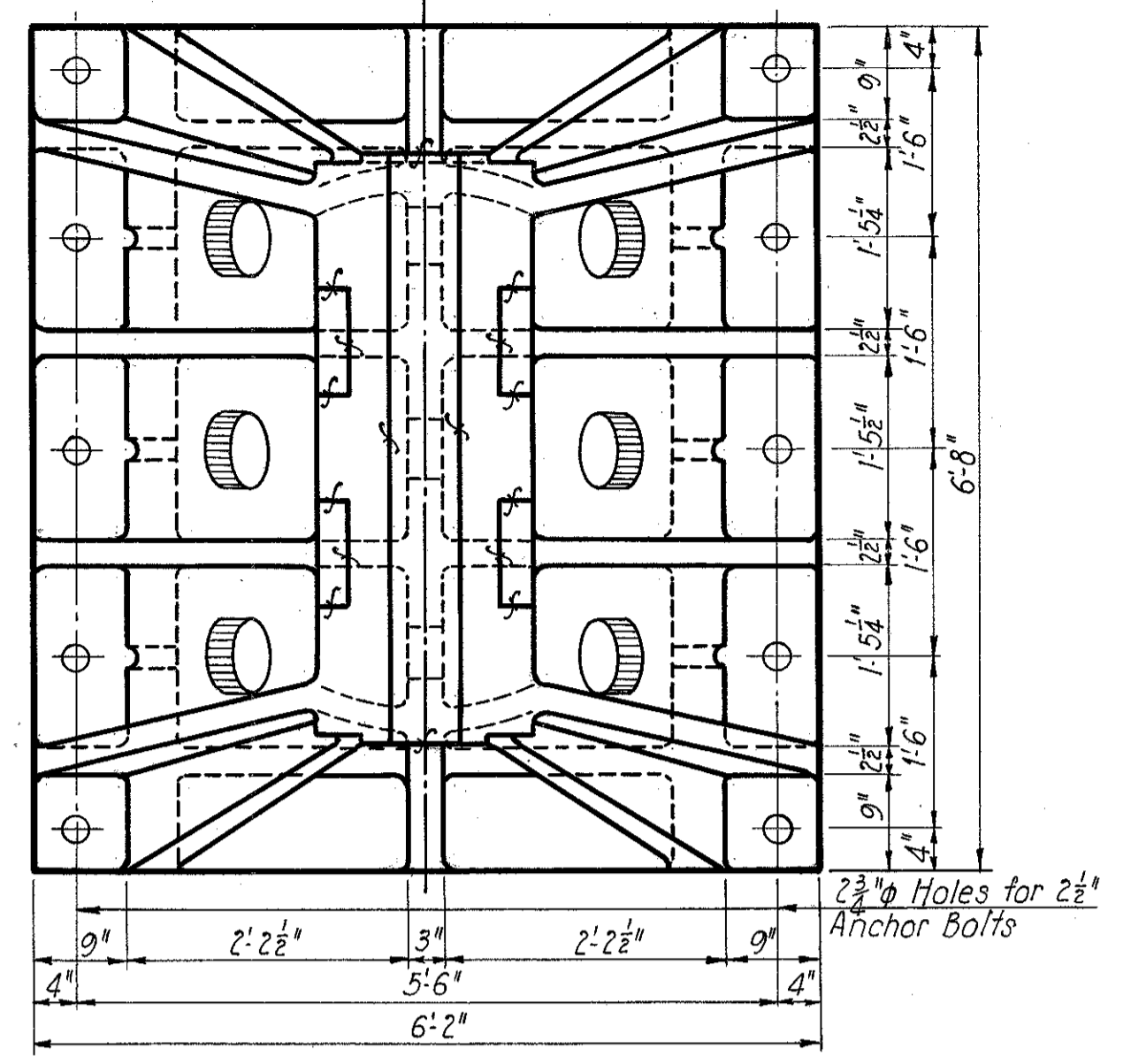
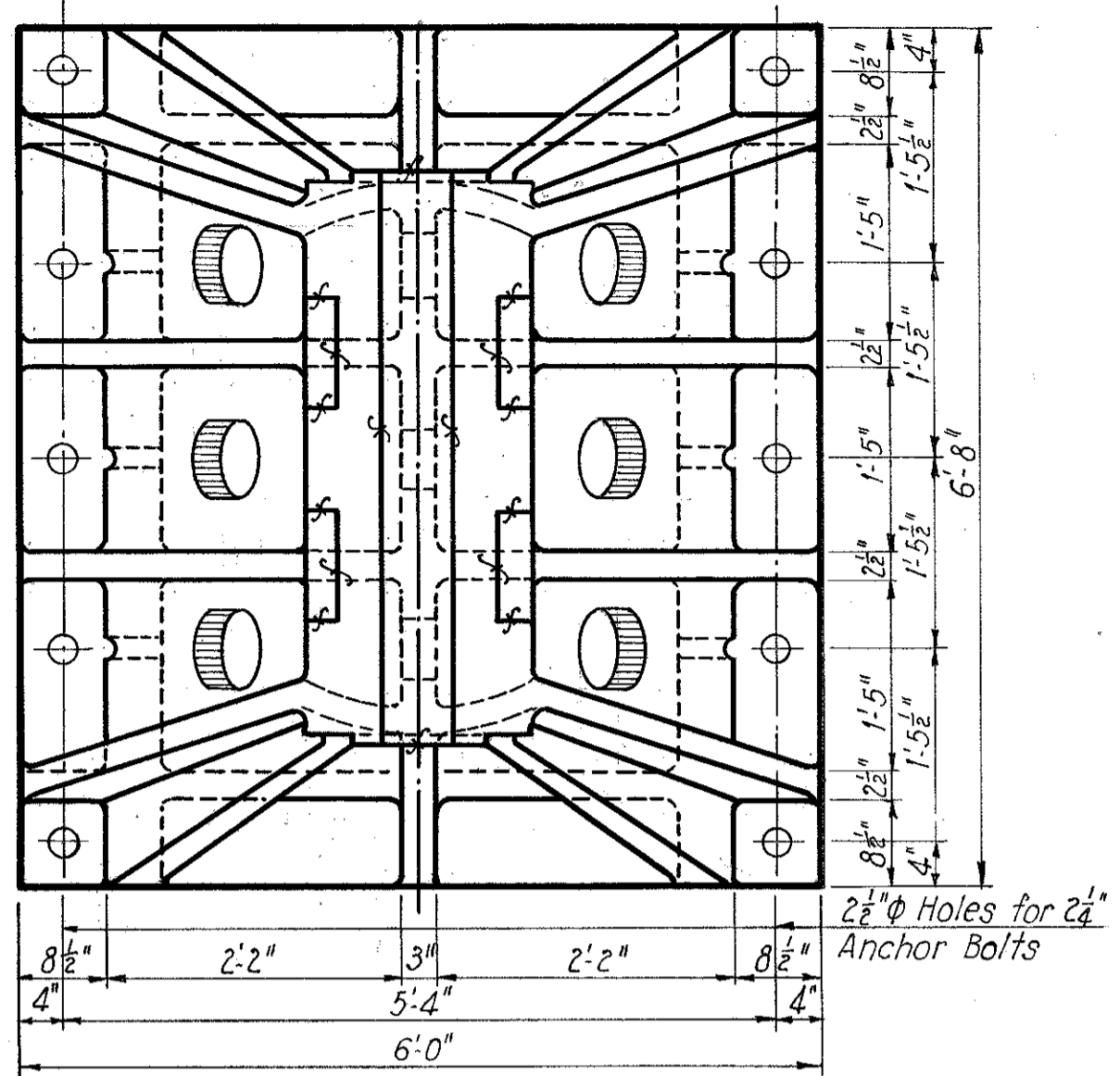
HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.96

MICROFILMED
FEB 16 1980

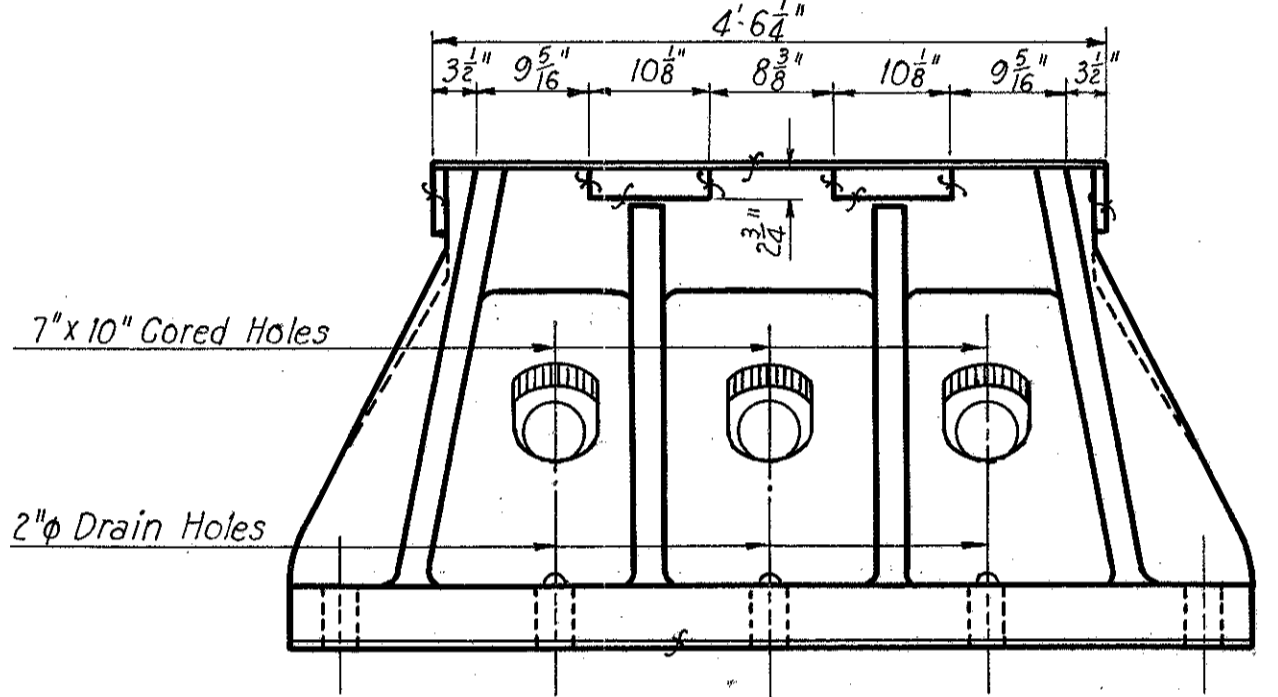
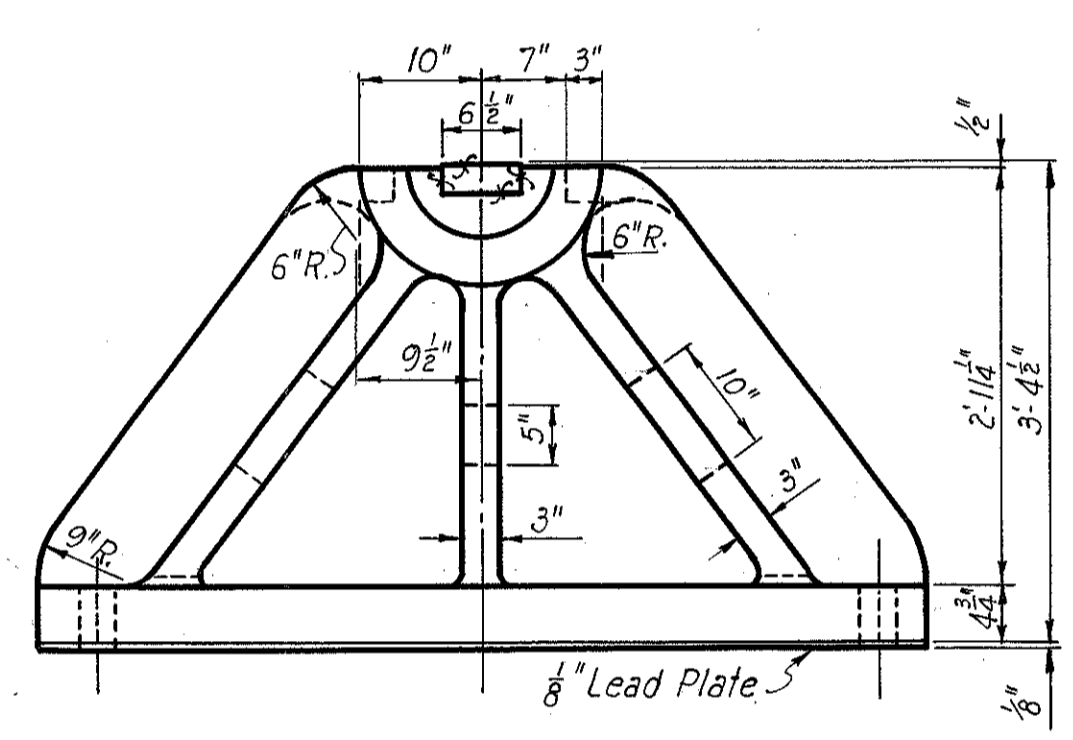
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	98
2	OHIO			122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT

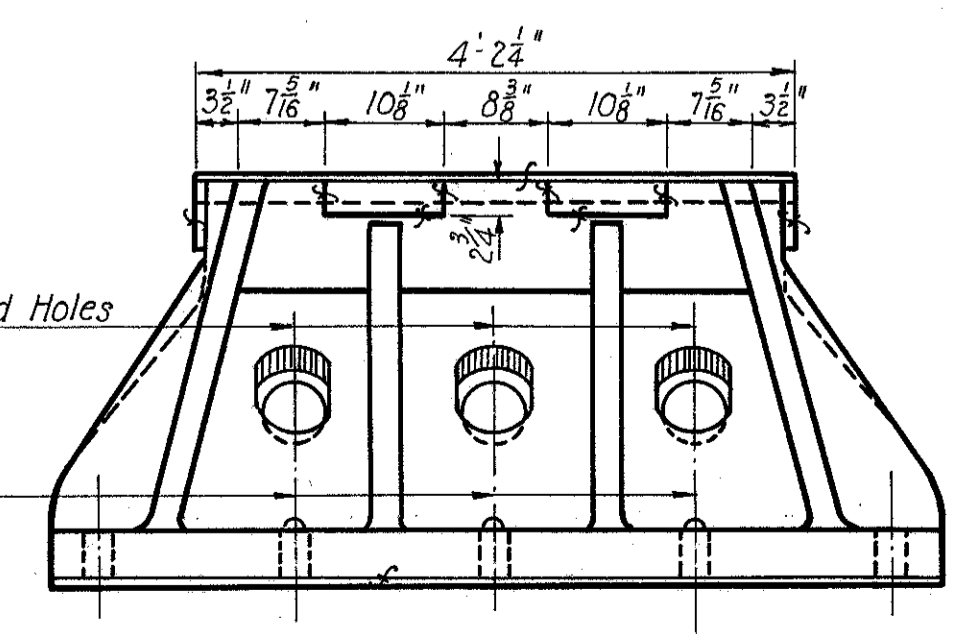
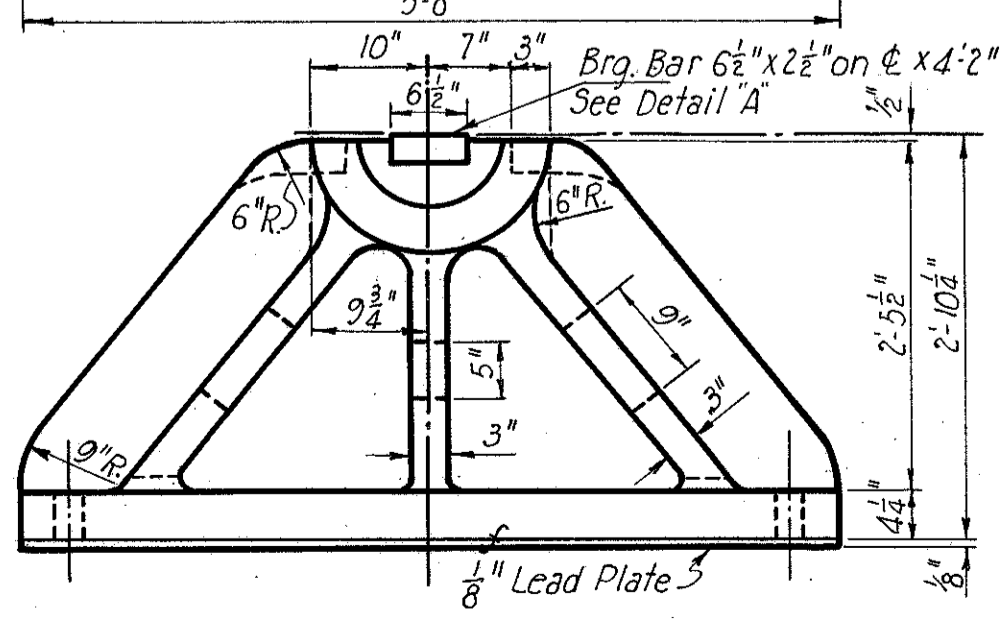
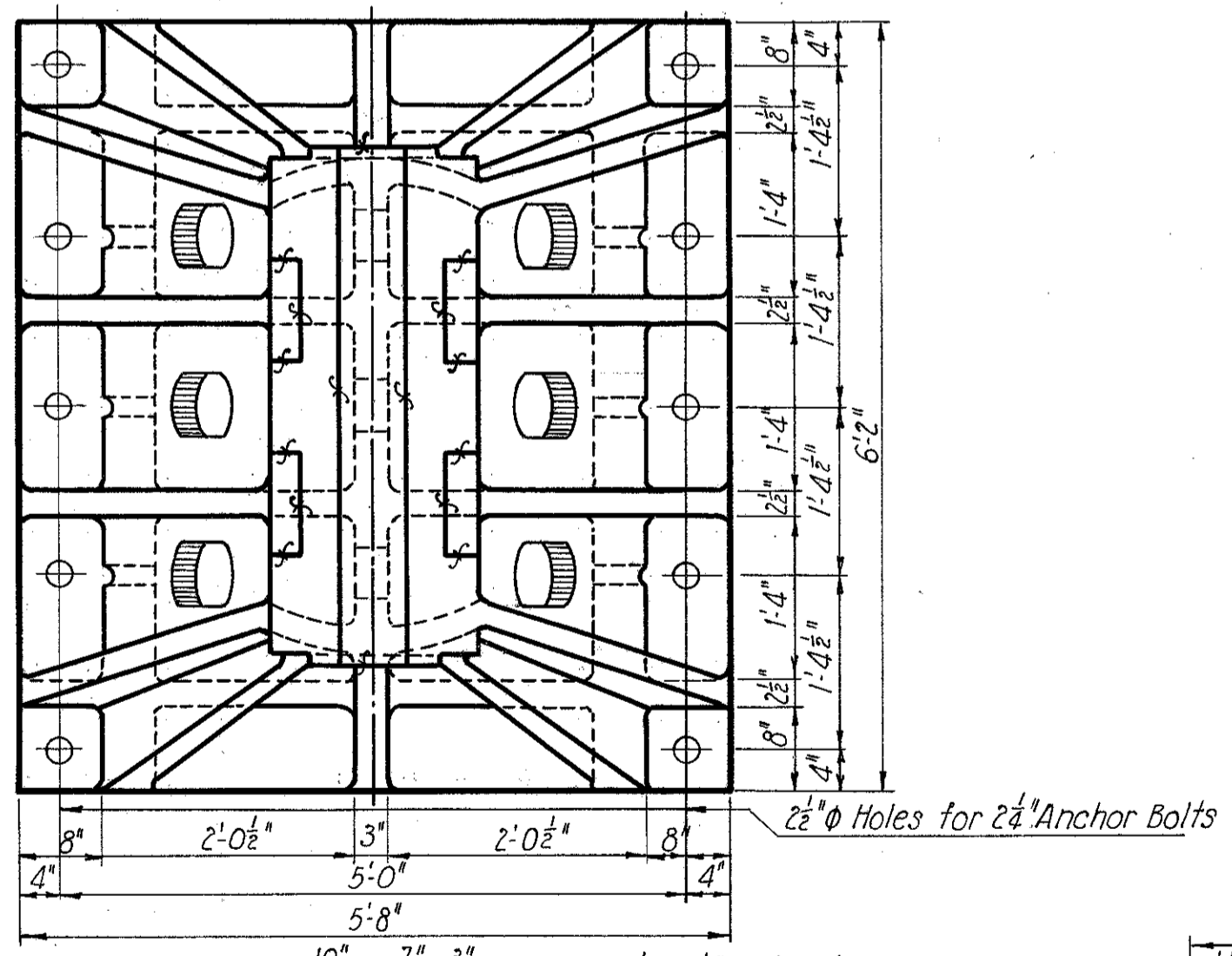
TABULATION OF SHOES	
SHOE	PIER
F31	5 N, 5S, 7N, 7S
F32	3 N, 3S, 8N, 8S
F33	1 N, 1S



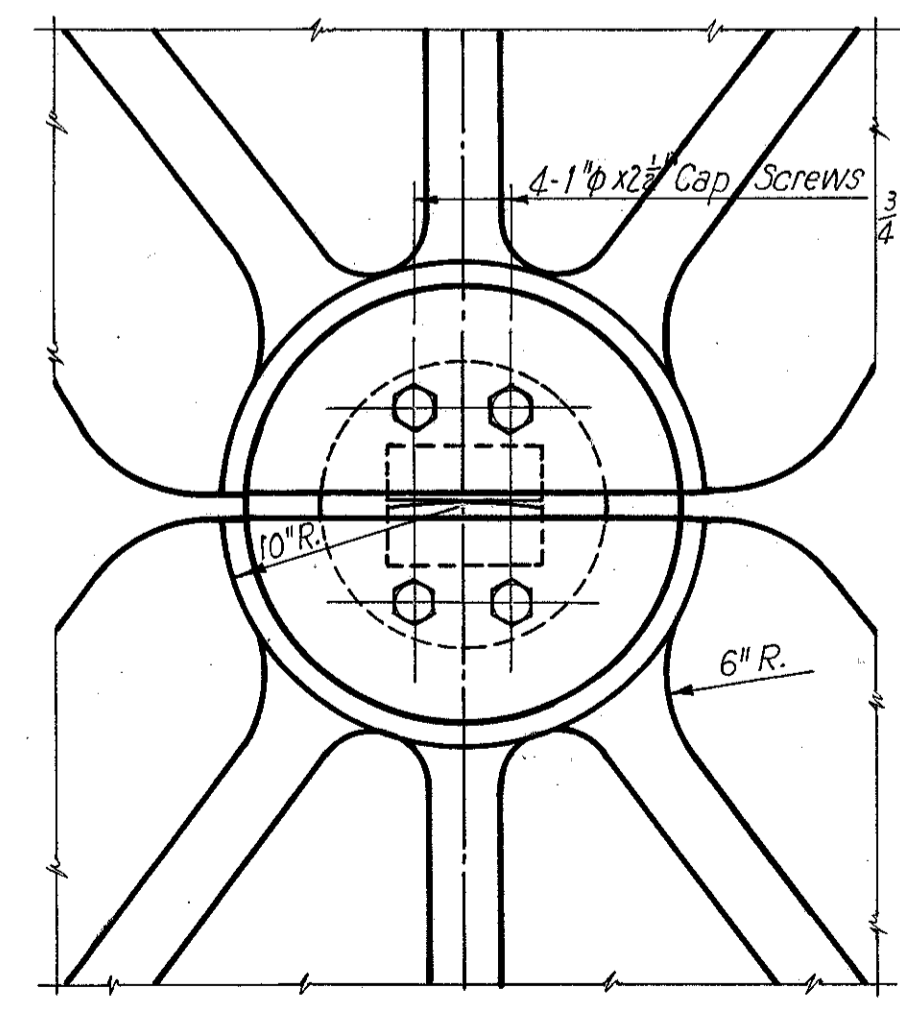
FIXED SHOE F.S.-2
Scale: 3/4" = 1'-0"



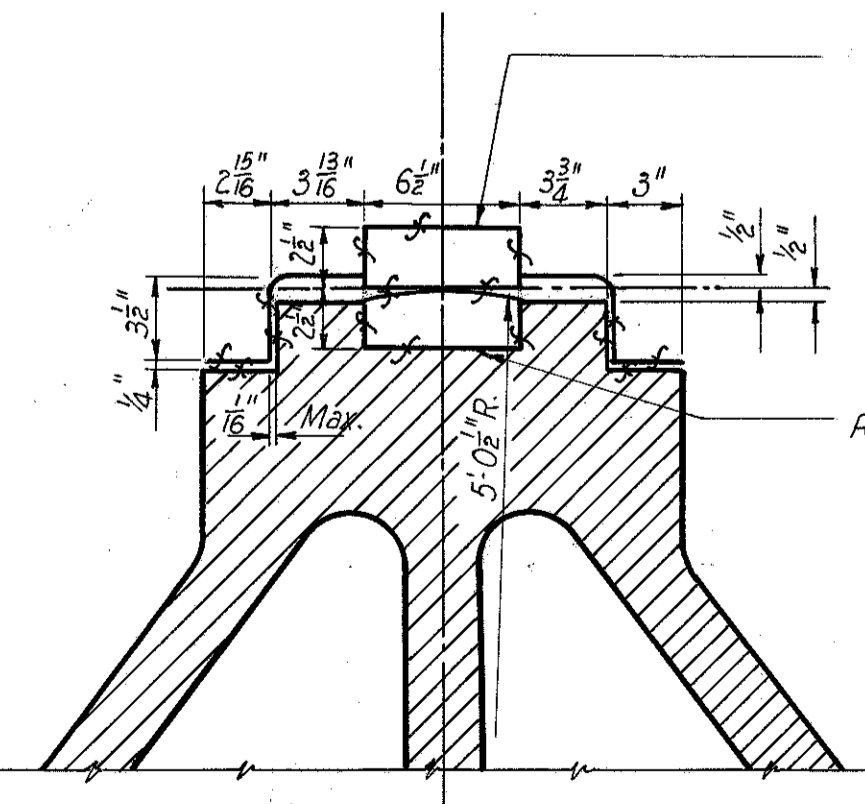
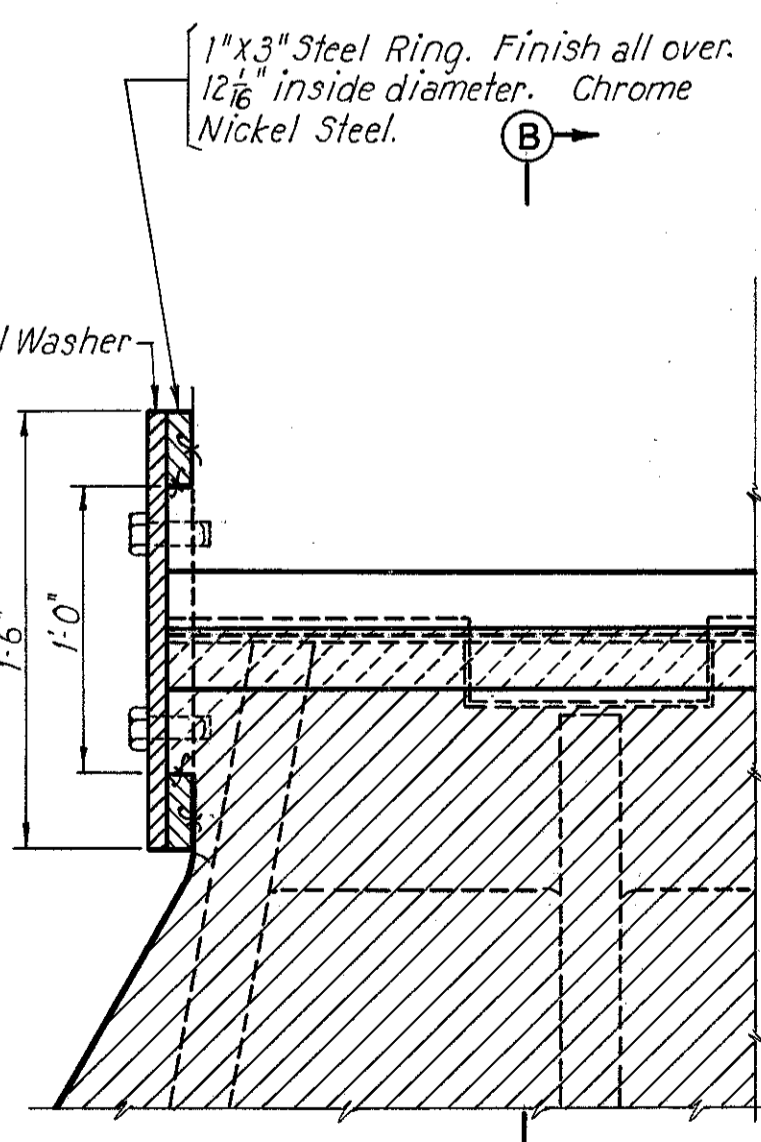
FIXED SHOE F.S.-3
Scale: 3/4" = 1'-0"



FIXED SHOE F.S.-1
Scale: 3/4" = 1'-0"



DETAIL "A"
Scale: 1 1/2" = 1'-0"



SECTION B B
Scale: 1 1/2" = 1'-0"

Note:
For General Notes on fabrication and materials of shoe castings, see Sh. 97.

Rocker Bar 6 1/2" x 2 1/2" Bar to be press fit into upper shoe. Bevel edges of groove in shoe 3/16" @ 45° and weld. Grind weld flush with casting. Bottom surface of bar to be horizontal.

Rocker Bar 6 1/2" x 2 1/2" on center. Bar to be press fit into lower shoe. Bevel edges of groove in shoe 5/16" @ 45° and weld bar to shoe. Grind weld flush with casting.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17 5

FIXED SHOES

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 3/4" = 1'-0"
MADE D.L.C. DATE: 2-26-54
TRCD. R.P. DATE: 8-2-54
CKD. D.M.E. DATE: 9-2-54

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

914-1A SHEET 2.98

MICROFILMED
FEB 16 1983

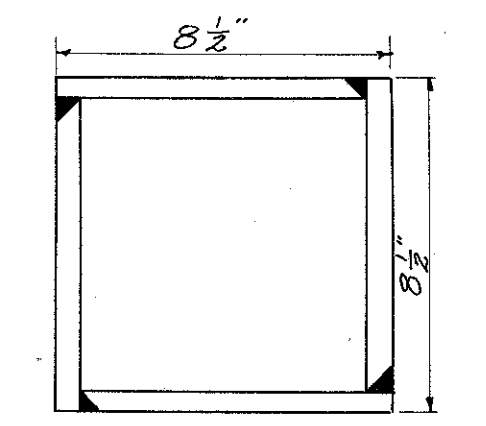
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	99
2	OHIO			122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT

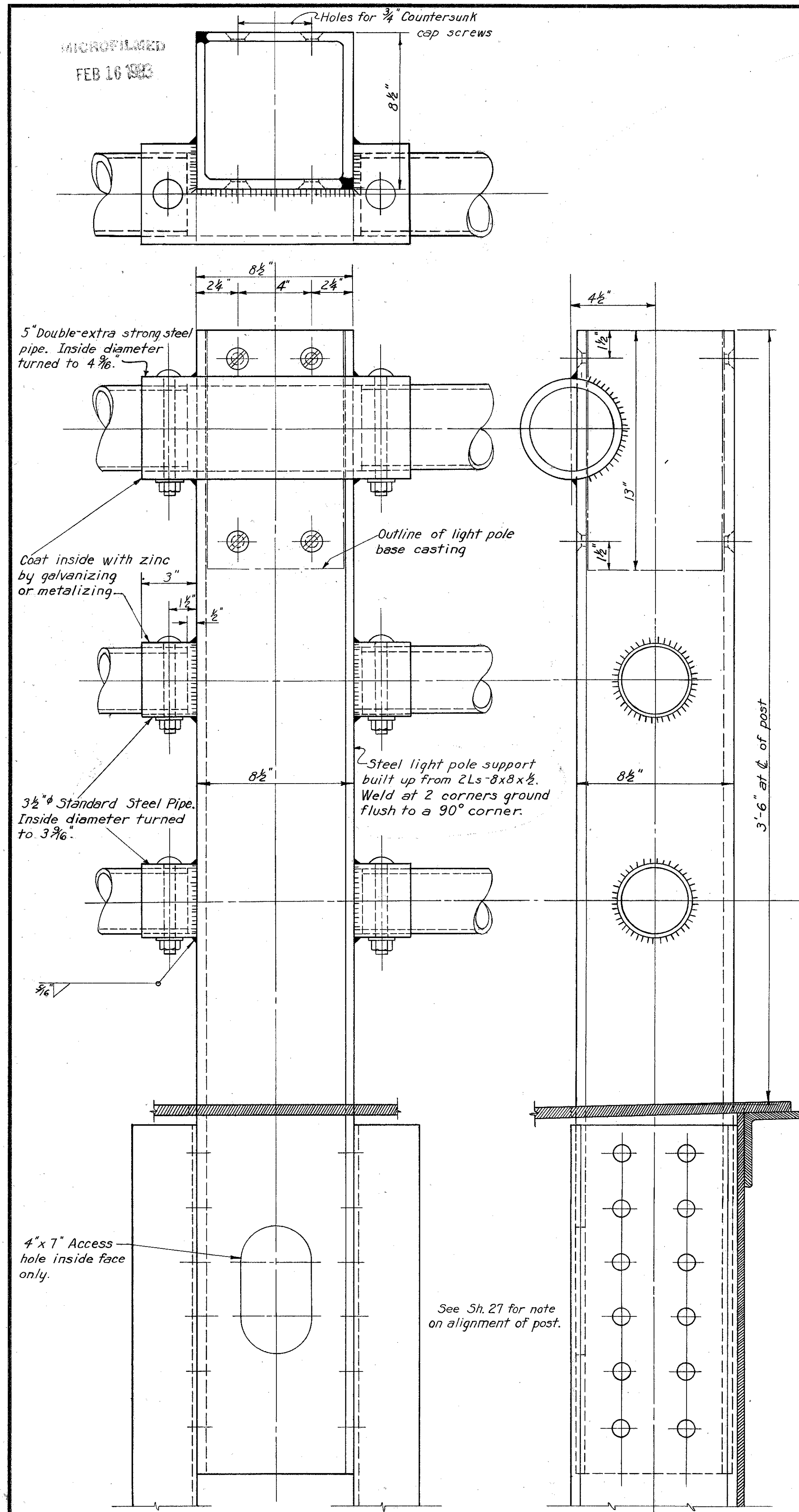
Some of these made from 4-8-1/2" Plates

Fort Pitt asked for this in place of angles because of large amounts of warpage they got with angles

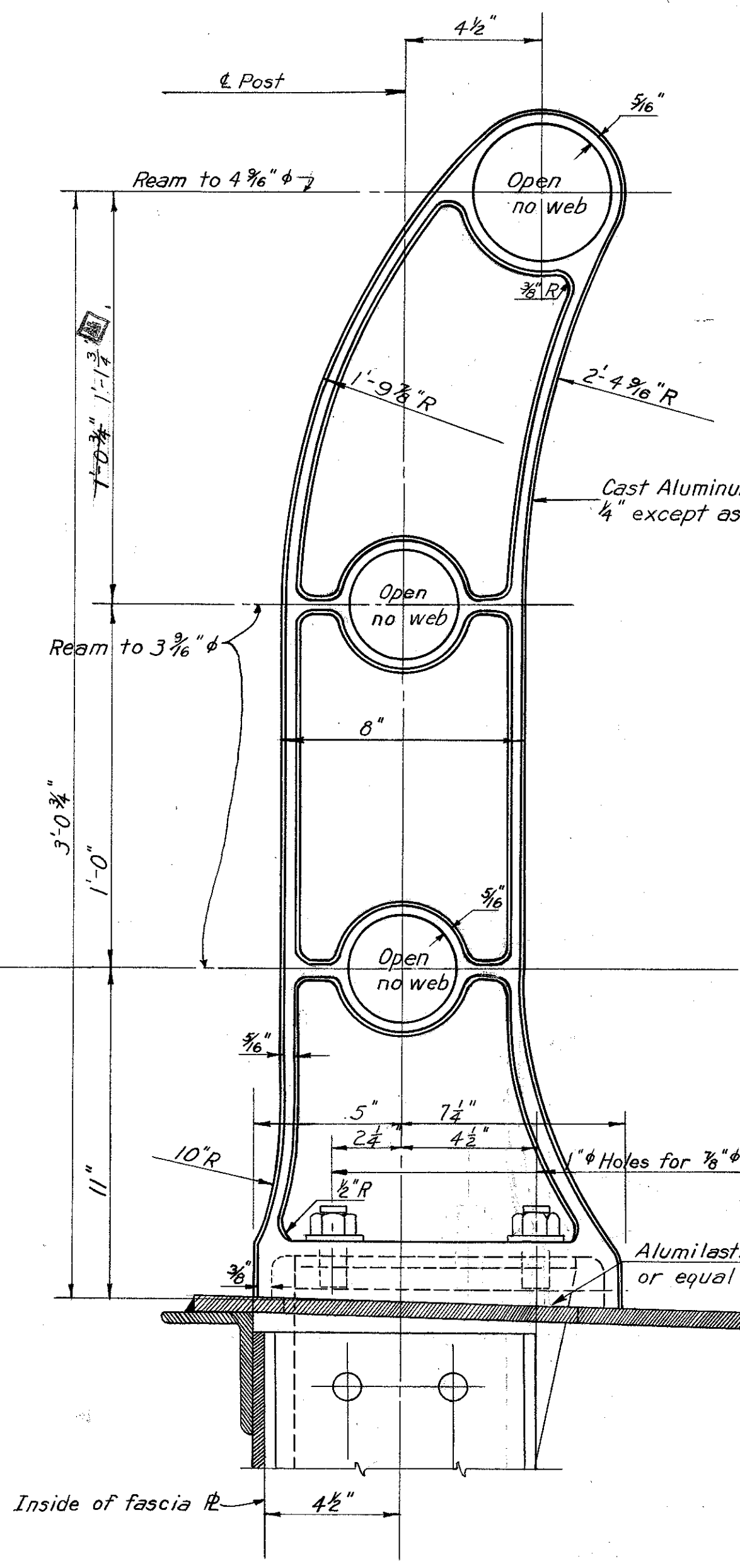
Revised As-Built



4 R's - 8-1/2" instead of 2 R's 8-1/2"



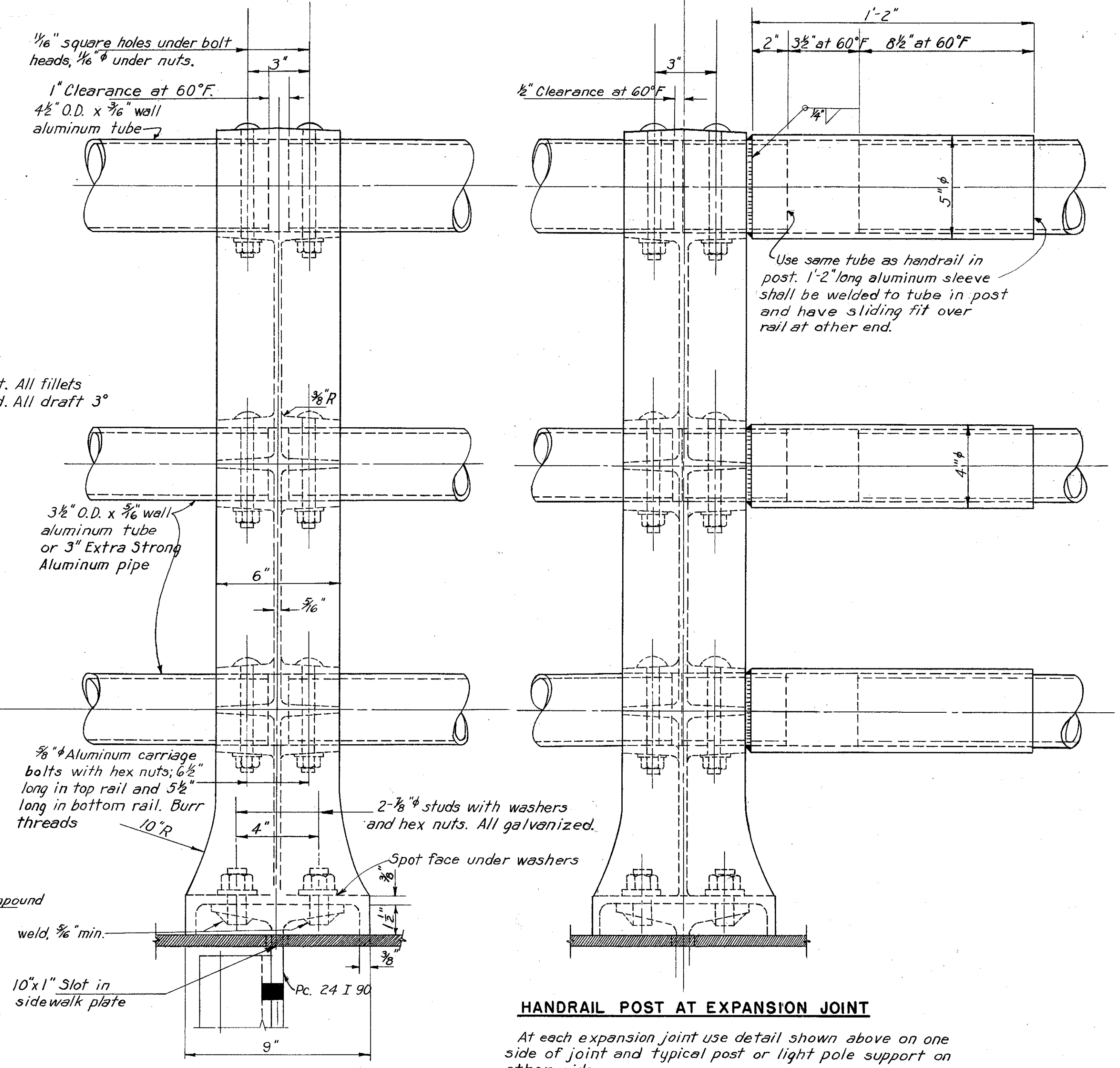
LIGHT POLE SUPPORT HP-2 54 REQUIRED
For details not noted see Typical Handrail Post.



NOTES ON HANDRAILS

Handrails shall be fabricated in lengths equal to 1 space, generally 8'-3". See framing plans for exact spacing.
Bolt holes in tubes shall be 1/8" at one end. Other end shall have slotted holes 1/8" x 1" except at expansion joint where no holes are required at expansion end. Bolts to be centered in slots at 60°F.
Aluminum washer shims may be used between steel and post base to align posts. Maximum thickness shall be 1/8".
Space below post base plate shall be thoroughly calked with Alumilastic compound or equal.
Handrail posts shall be set normal to grade.
Light pole supports shall be set vertical.
For connection of light pole supports and handrail posts to superstructure see Sheets 27, 28, and 100.
Handrail is to end 8'-4" from center of Bearing of end piers. See Sheet 100.

TYPICAL HANDRAIL POST HP-1 606 REQUIRED



HANDRAIL POST AT EXPANSION JOINT

At each expansion joint use detail shown above on one side of joint and typical post or light pole support on other side.

All vertical dimensions for base of post are at center of Post.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17 5

HANDRAIL

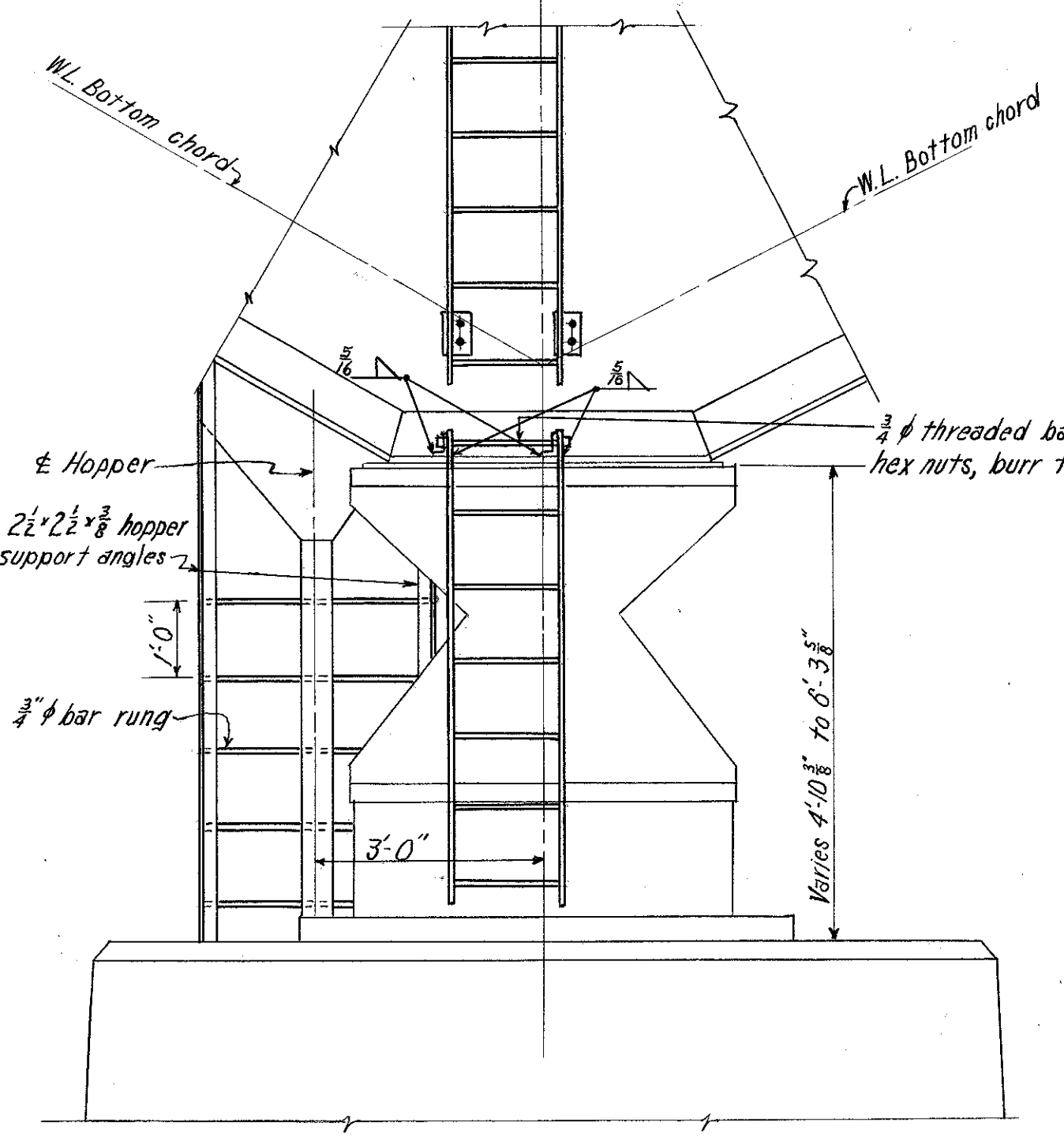
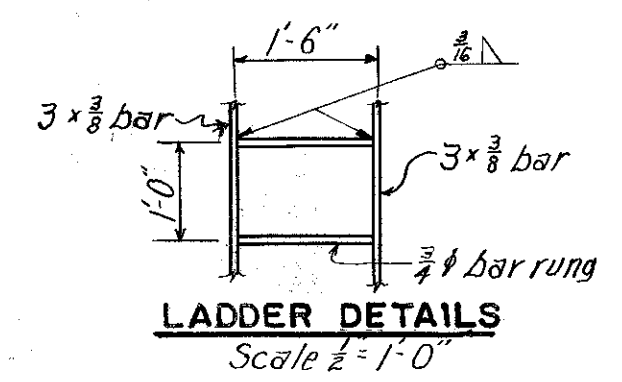
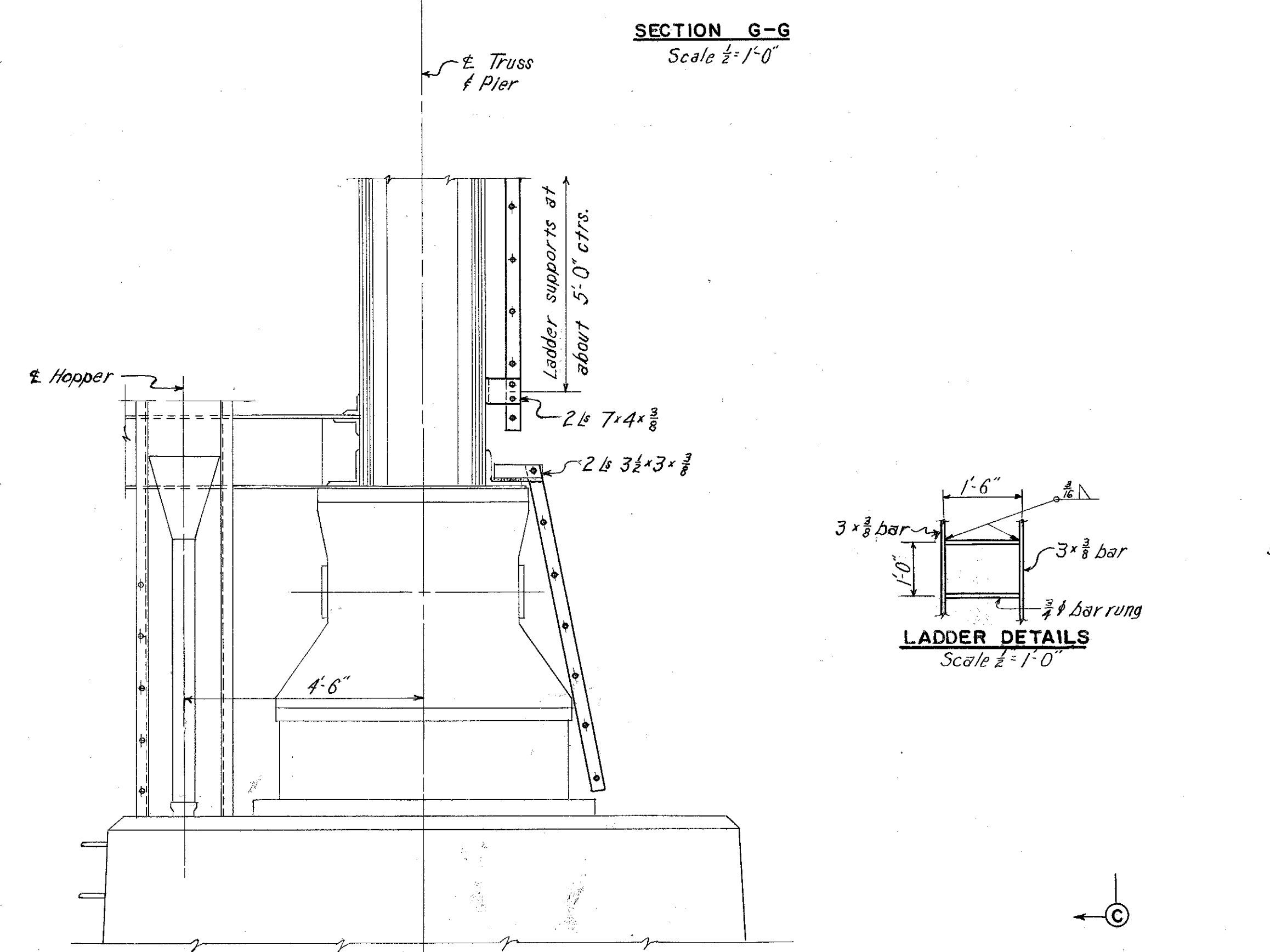
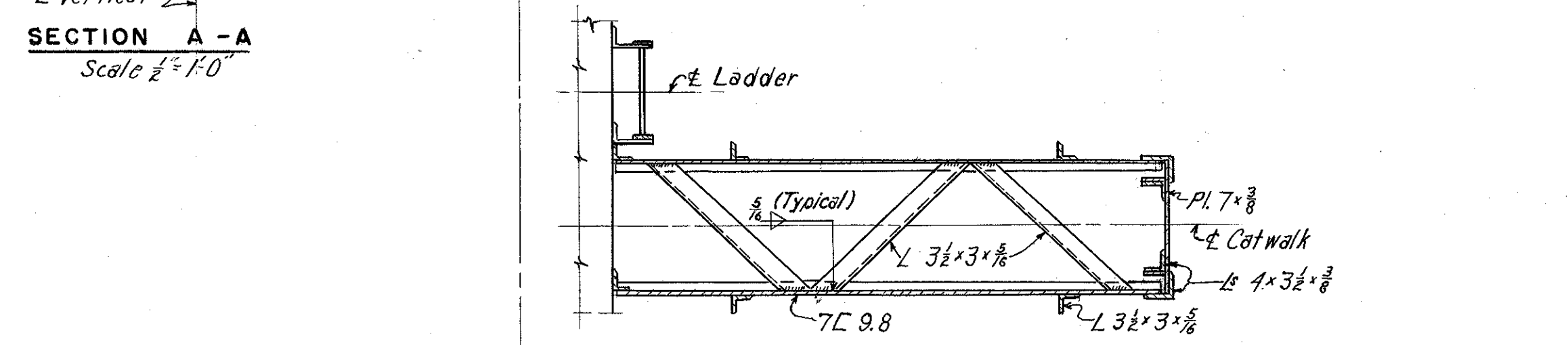
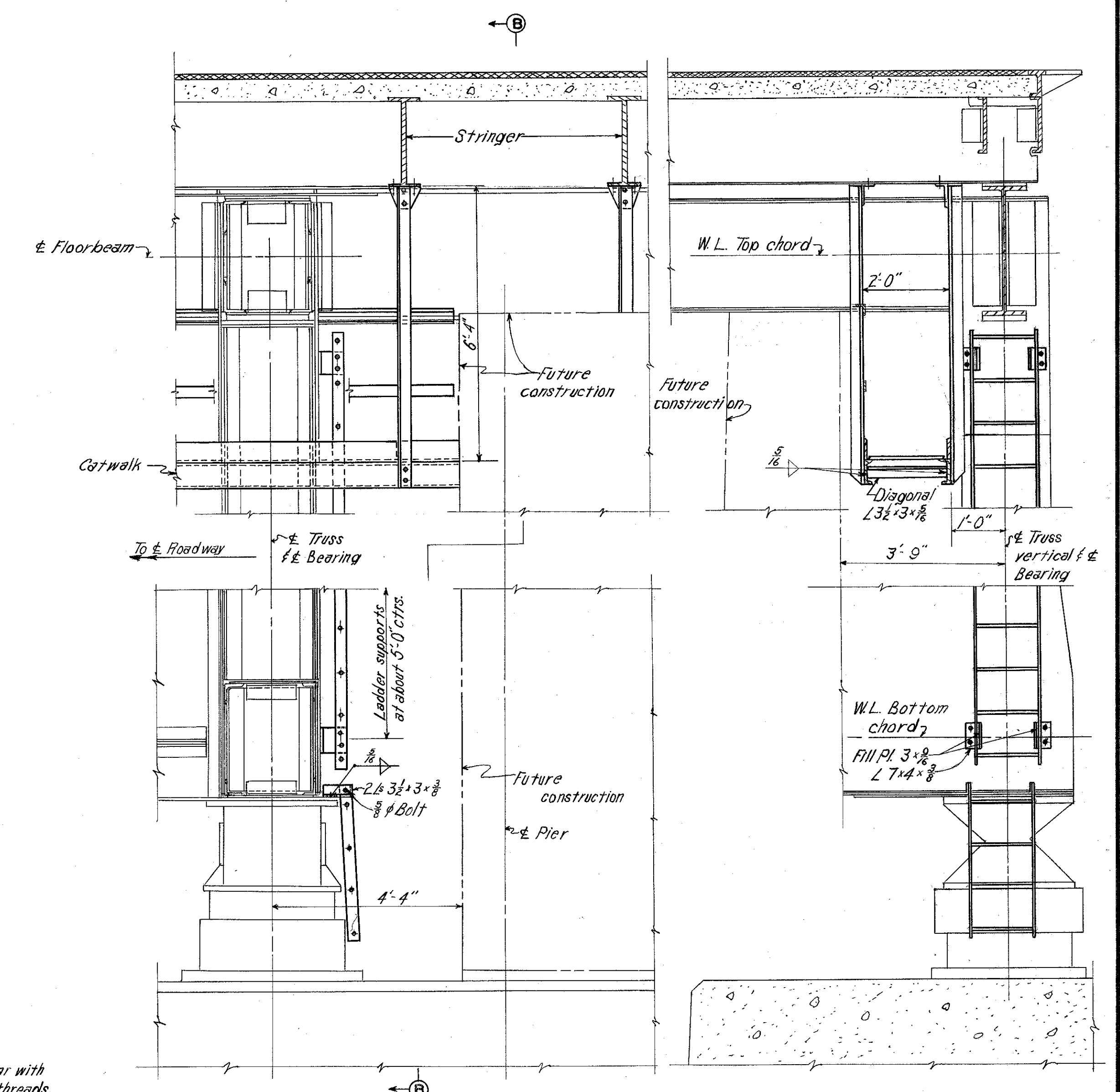
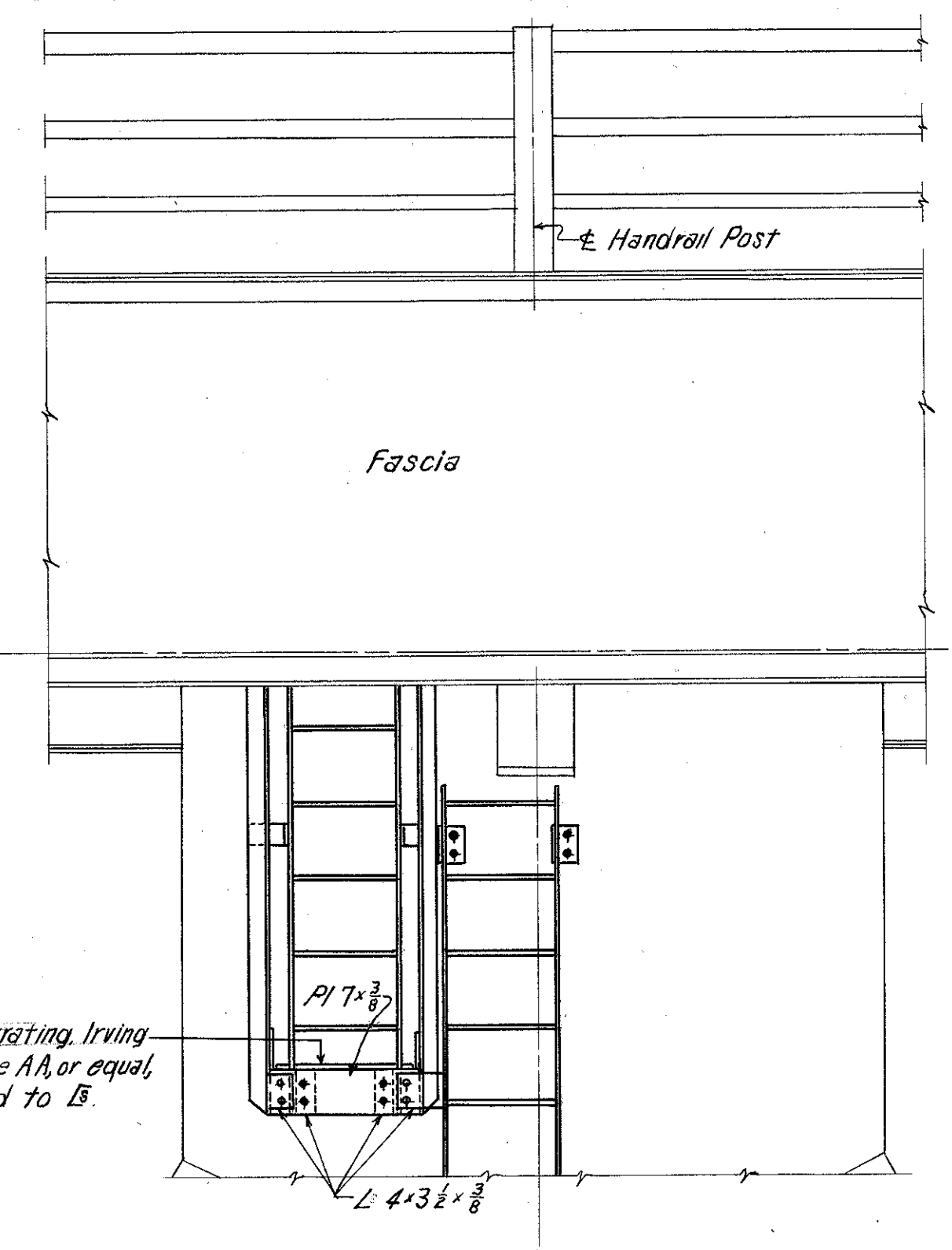
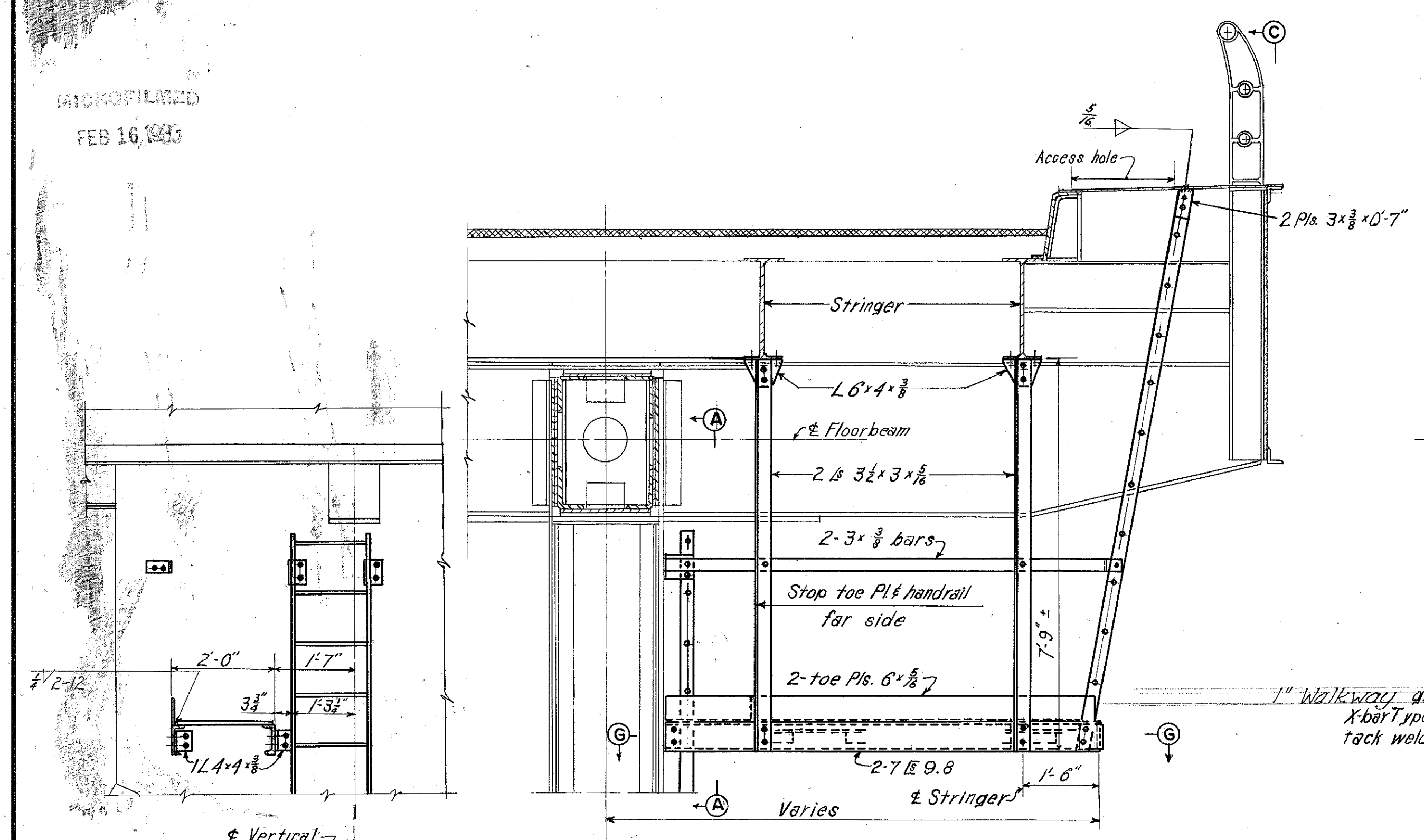
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE 3" = 1'-0"
MADE OME DATE 8-24-54 HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS
TRD. GJK DATE 12-8-54 KANSAS CITY CLEVELAND NEW YORK
CKD. DMD DATE 11-22-54 914-1A SHEET 2.99

MICROFILMED
FEB 16 1965

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	101 122
2	OHIO			

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



Notes:
For detail of access hole and cover see sheets 100 and 113.
For other details of catwalks see section A-A, sheet 109, 10C, 10E
For details of shoes see sheets 96, 97 and 98.

END PIERS

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17 5

LADDERS AT PIERS

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: AS SHOWN
MADE: D.E.R. DATE: 8-27-54
TRCD: W.E.J. DATE: 11-2-54
CKD: E.D. DATE: 11-4-54

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

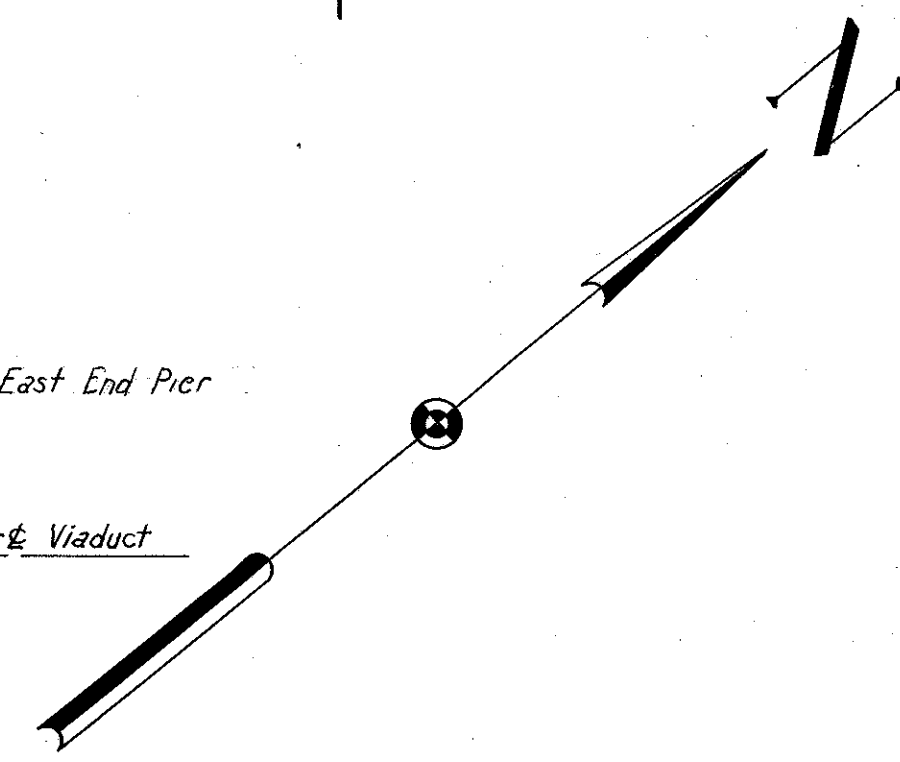
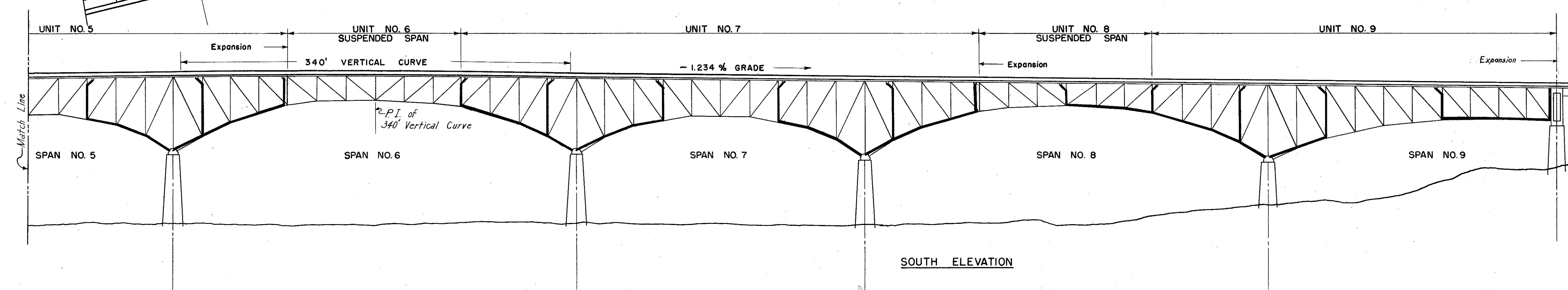
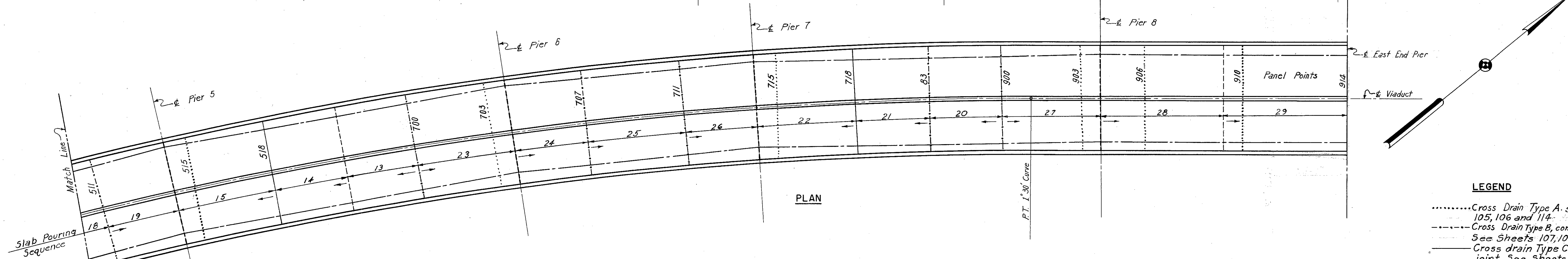
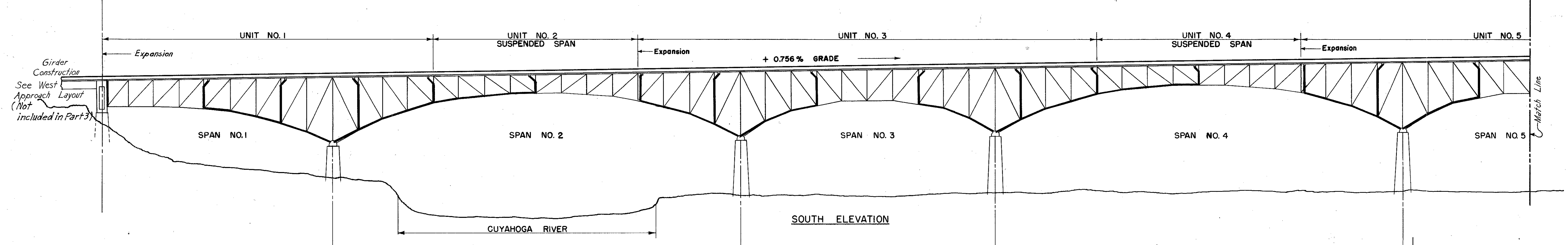
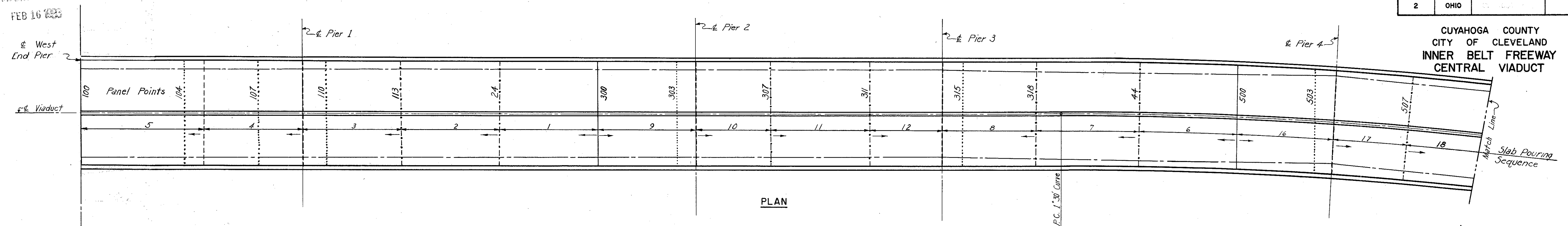
914-1A SHEET 2.101

REPRODUCED
FEB 16 1953

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

103
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



LEGEND

- Cross Drain Type A. see Sheets 105, 106 and 114.
- Cross Drain Type B, contraction joint. See Sheets 107, 108 and 114.
- Cross drain Type C at expansion joint. See Sheets 109 to 113.
- Contraction joint - no drain. See Sheet 114.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-175

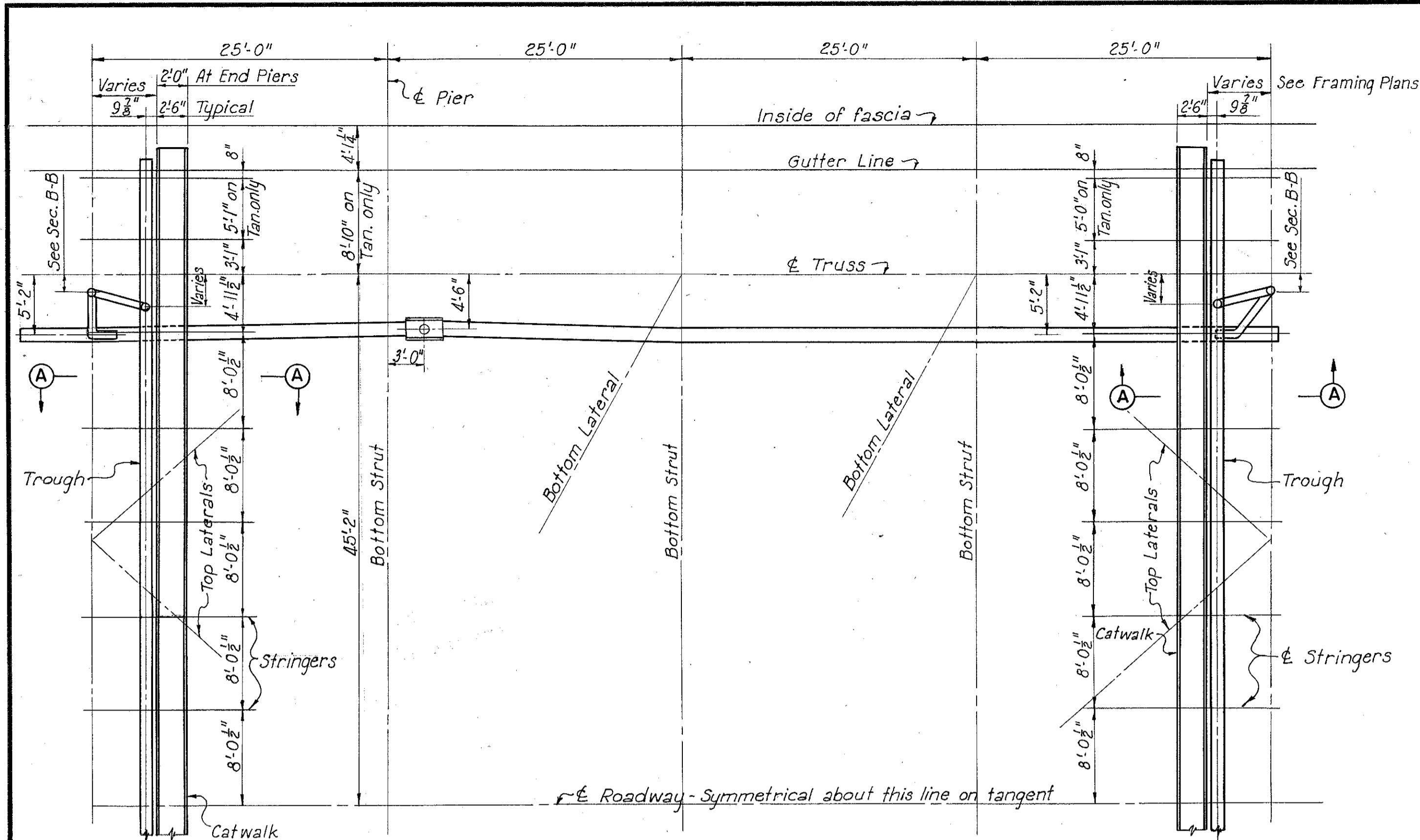
GENERAL LAYOUT
ROADWAY DRAINAGE SYSTEM
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1" = 50'-0"
MADE VEA DATE 12-28-53
TRCD VEA DATE 2-6-54
CKD DMD DATE 11-19-54

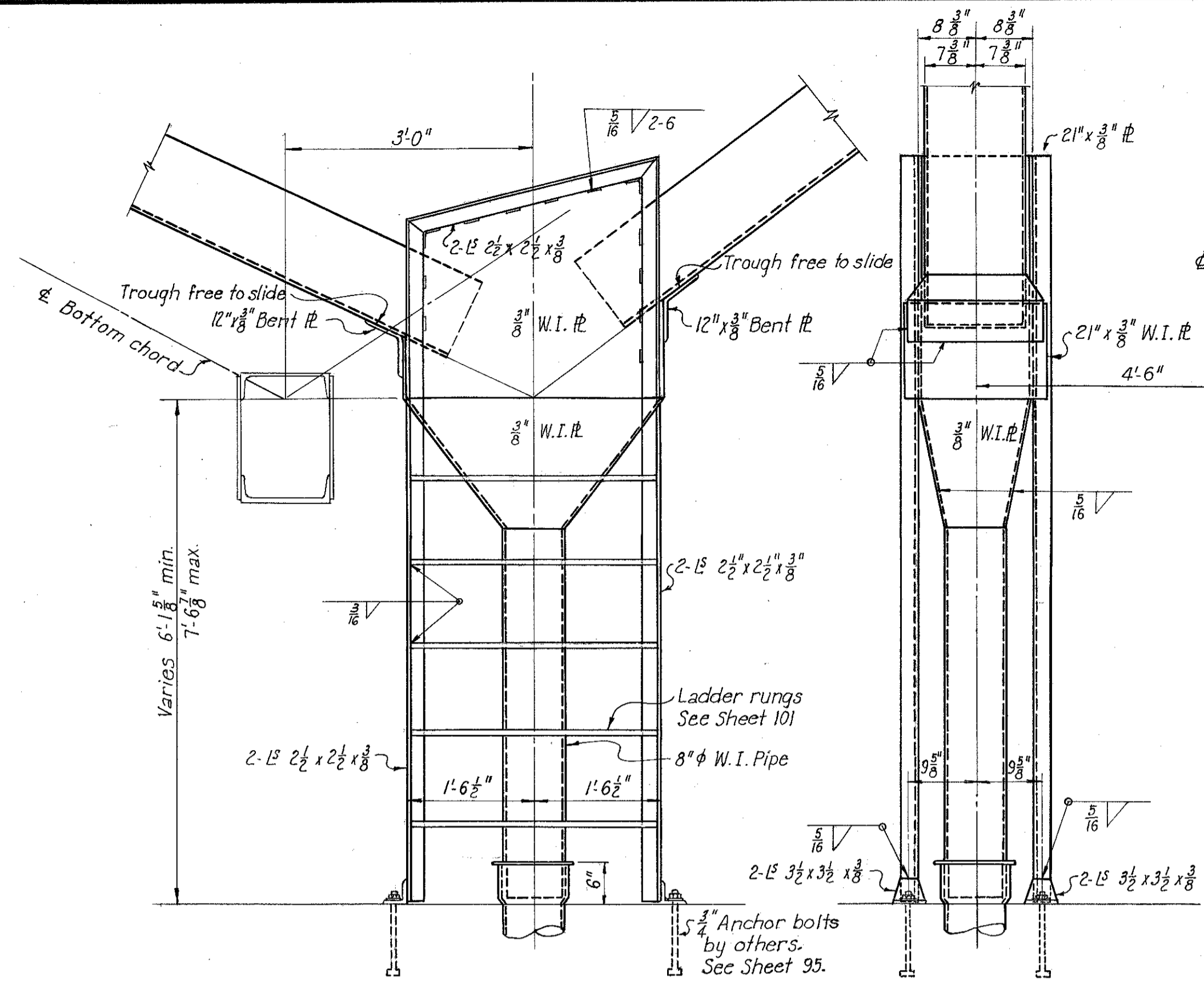
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.103

247

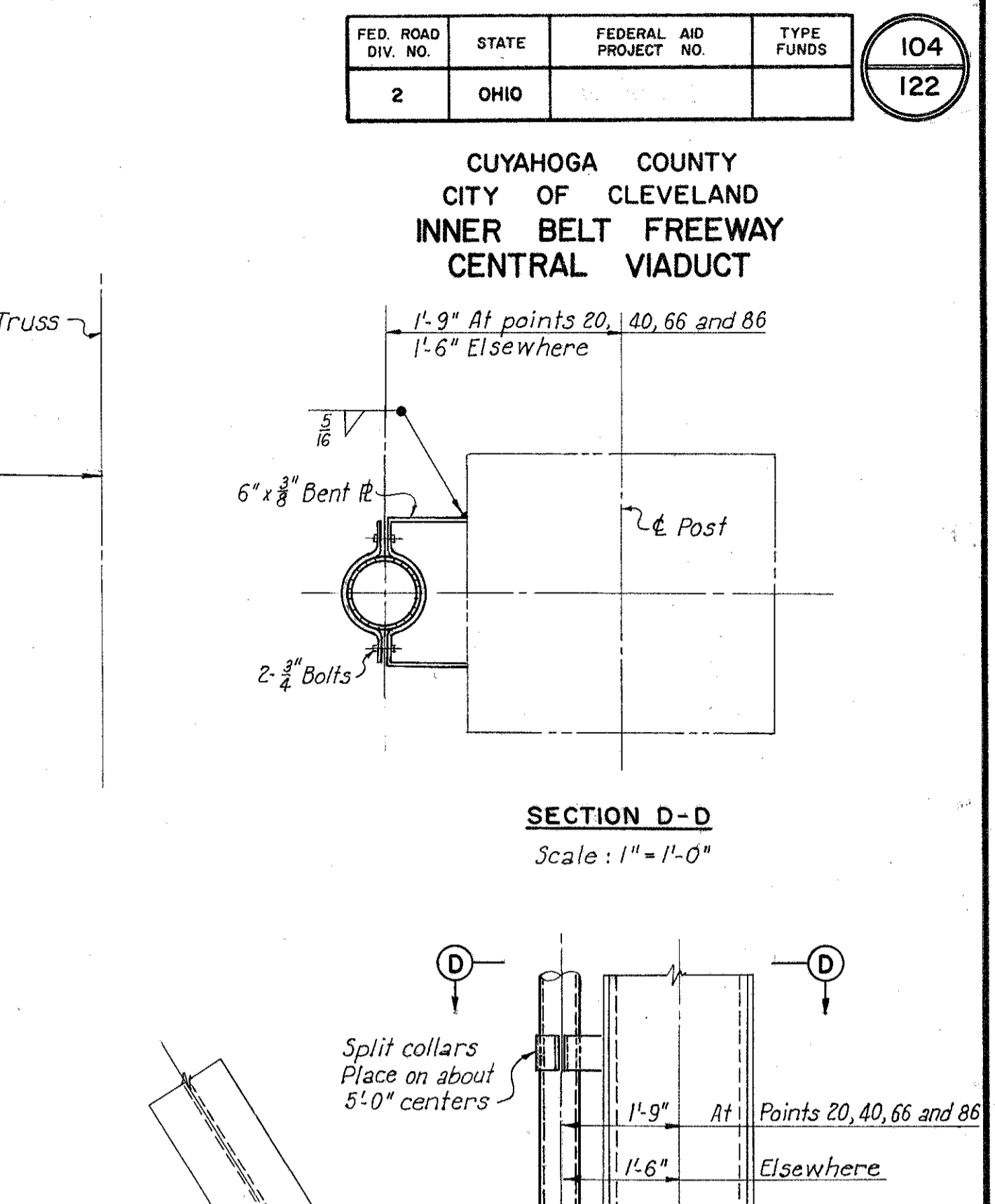
**CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT**



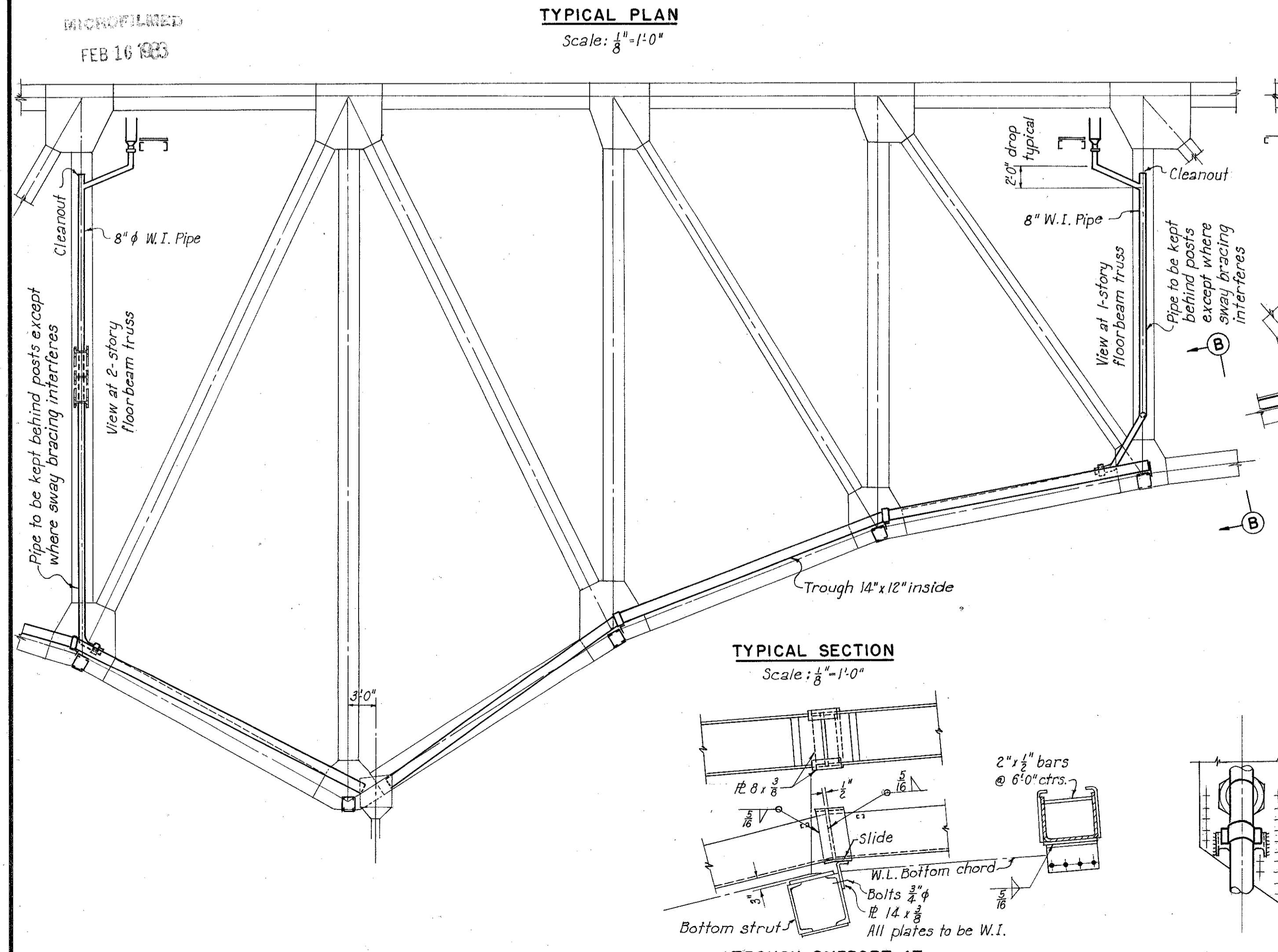
TYPICAL PLAN
Scale: 1/8" = 1'-0"



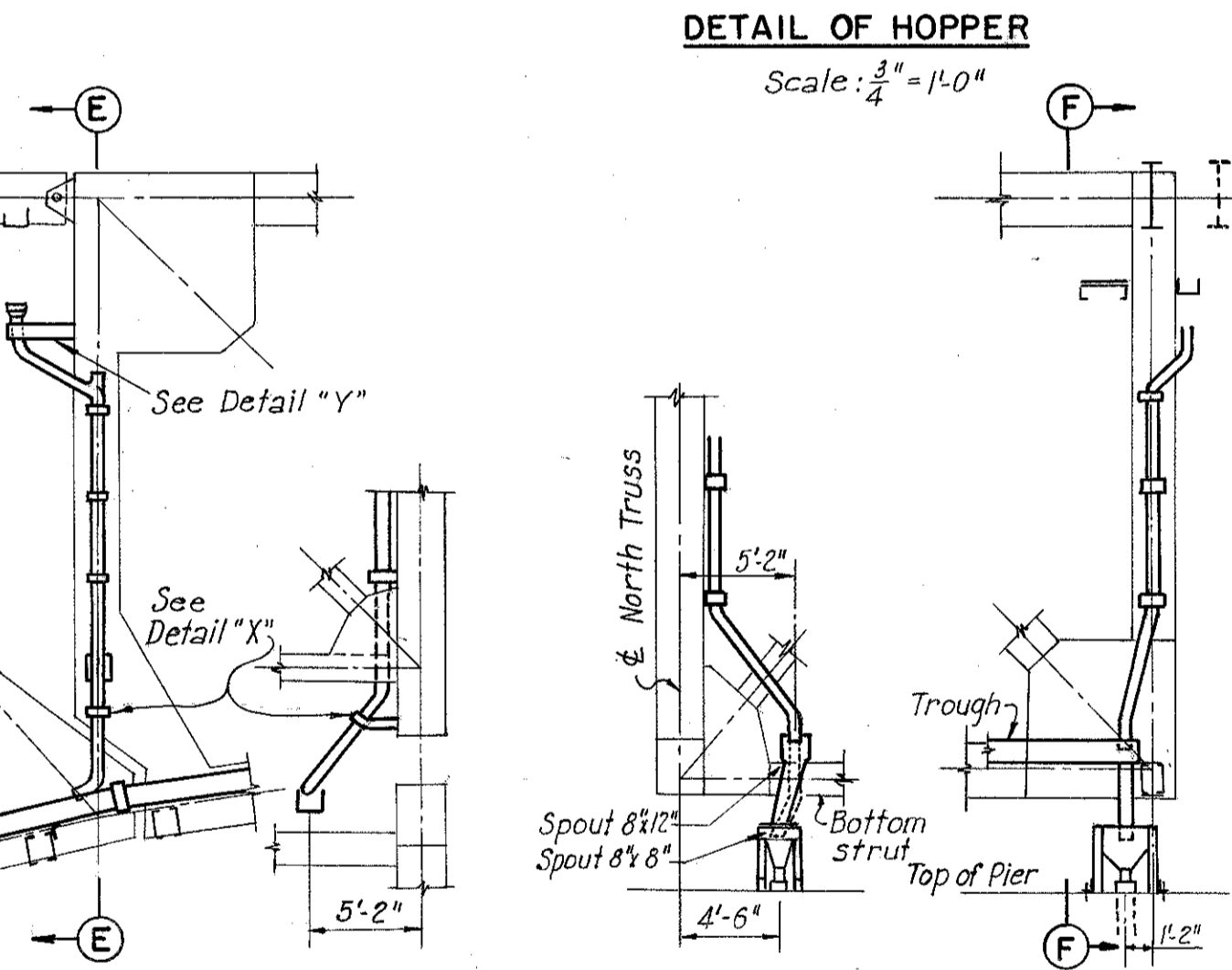
DETAIL OF HOPPER
Scale: 3/4" = 1'-0"



SECTION D-D
Scale: 1" = 1'-0"

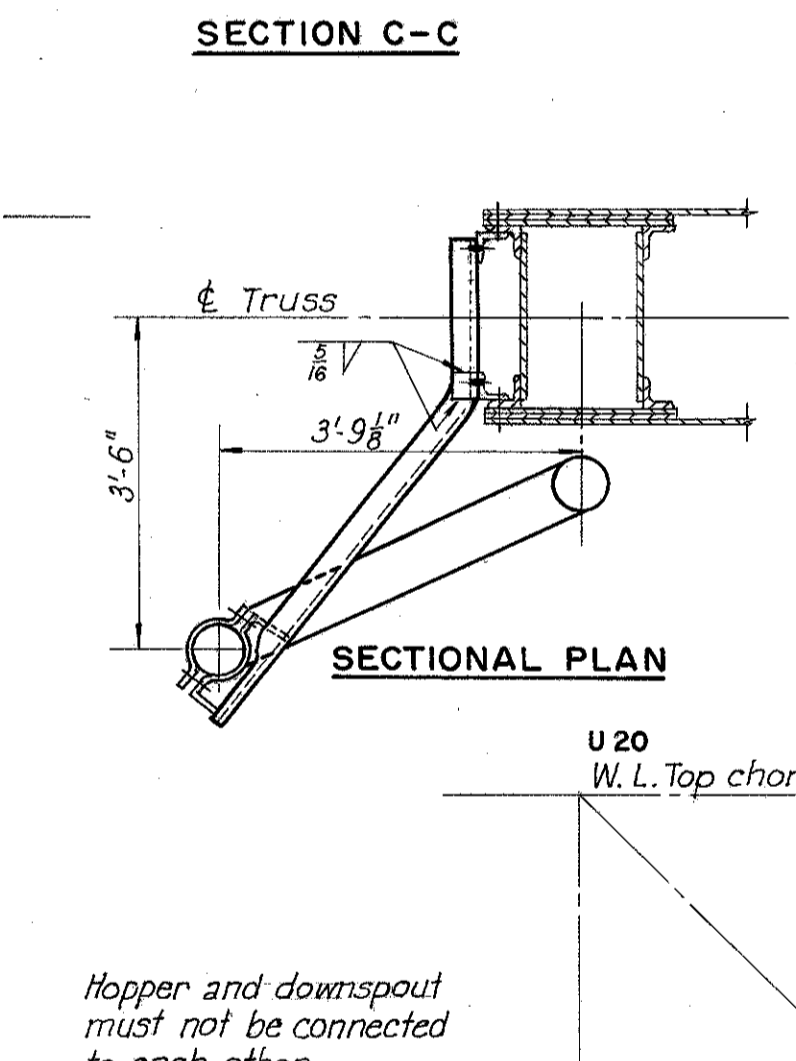


TYPICAL SECTION
Scale: 3/8" = 1'-0"



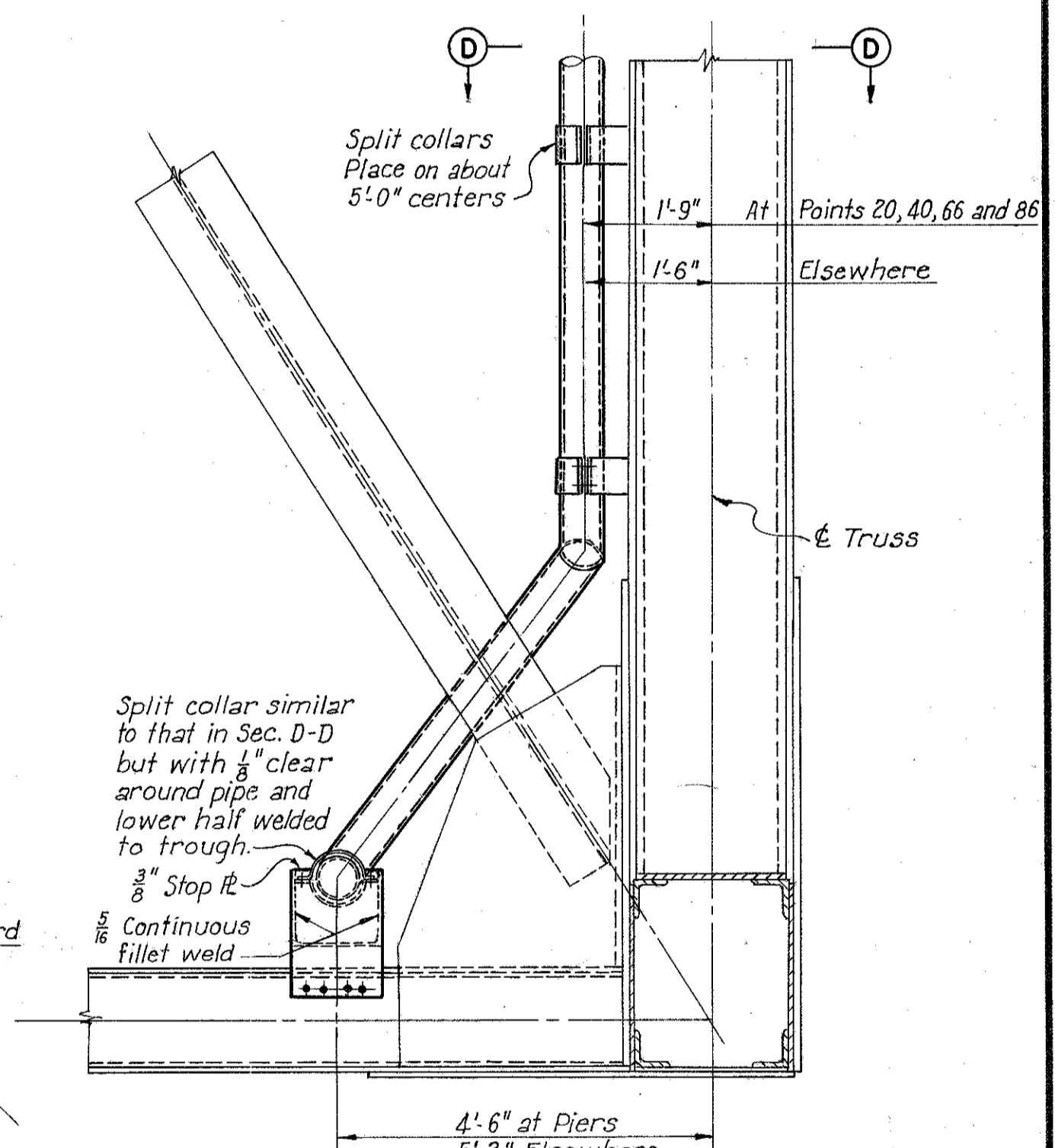
SECTION AT L113-L20
Scale: 3/8" = 1'-0"
Typical for L 318 - L 40,
L 66 - L 700 and L 86 - L 900

East End Pier is shown. At West End Pier the trough is omitted and the downspout goes down into the hopper as shown dotted with a typical split collar at the bottom strut.
Hopper is of typical construction.
Split cover at spout.



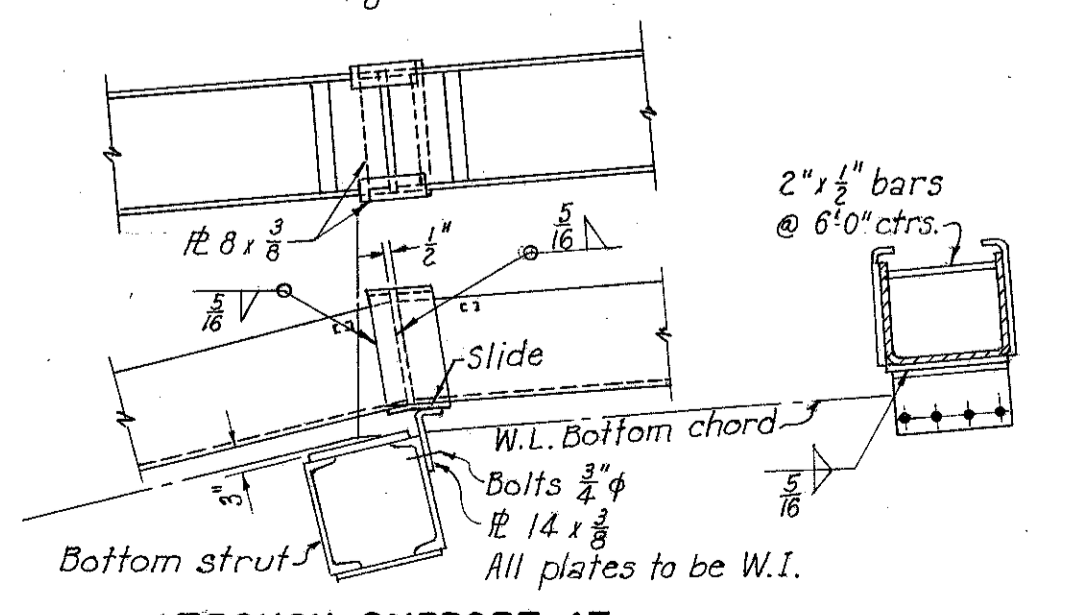
SECTIONAL PLAN

ELEVATION

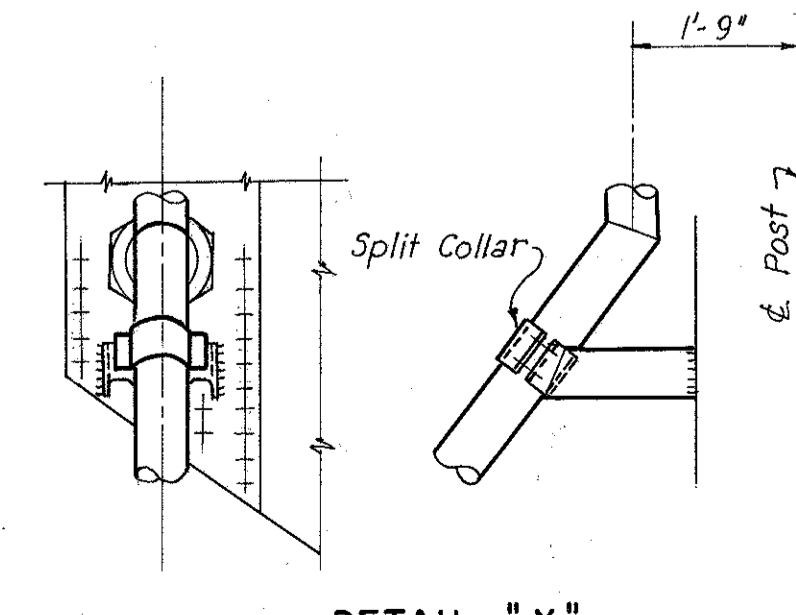


SECTION B-B
Scale: 3/8" = 1'-0"

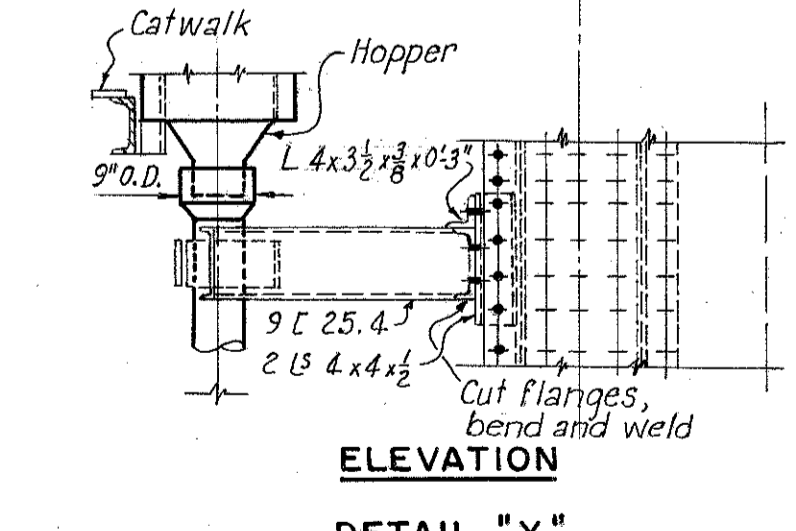
Notes:
For Section A-A, see Shs. 106 and 108.
All bolts to have lock washers.
All trough to be of W.I. flange.
Where wrought iron is specified on sheets 104 to 109 for flashing, troughs, hoppers, or downspouts, the contractor may use Mayari R or Corten steel instead at his option.



TROUGH SUPPORT AT BOTTOM STRUTS



DETAIL "X"
Scale: 1/2" = 1'-0"



SECTION AT END PIERS
Scale: 3/8" = 1'-0"

DETAIL "Y"
Scale: 3/8" = 1'-0"
Drawn for panel point 113-20.
Typical for 318-40, 66-700
and 86-900.

**U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17 5**

**ROADWAY DRAINAGE SYSTEM
COLLECTION TROUGHES**

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: As shown
MADE: VEA DATE: 2-3-54
TRCD: AH DATE: 11-8-54
CKD: DMD DATE: 11-2-54

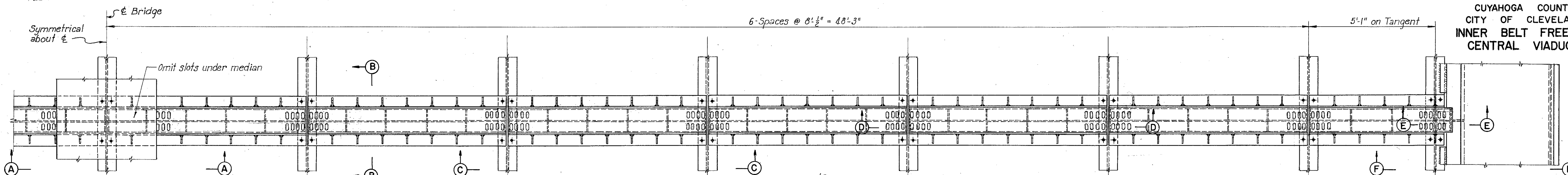
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND NEW YORK
KANSAS CITY
914-1A SHEET 2.104

MICROFILMED
FEB 16 1973

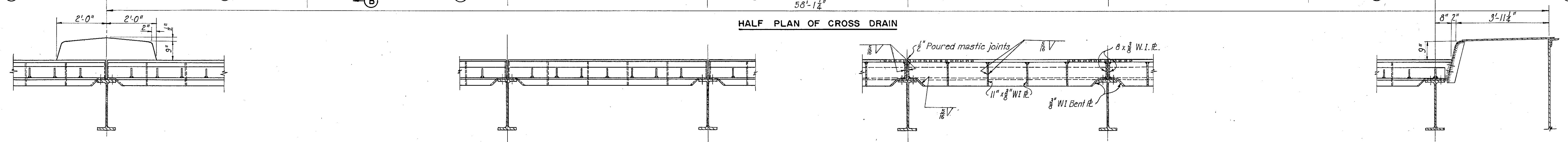
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

105
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



HALF PLAN OF CROSS DRAIN



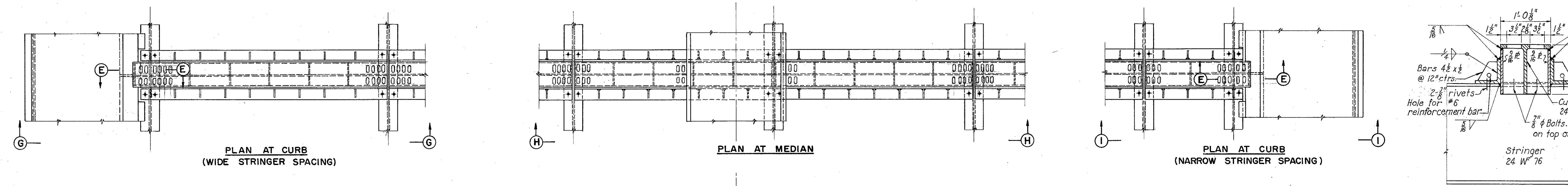
SECTION A-A

SECTION C-C

SECTION D-D

SECTION F-F

CROSS DRAIN WITH FRAMING CENTERED UNDER ROADWAY DECK
Panel Points 104, 107, 110, 303, 906 and 910

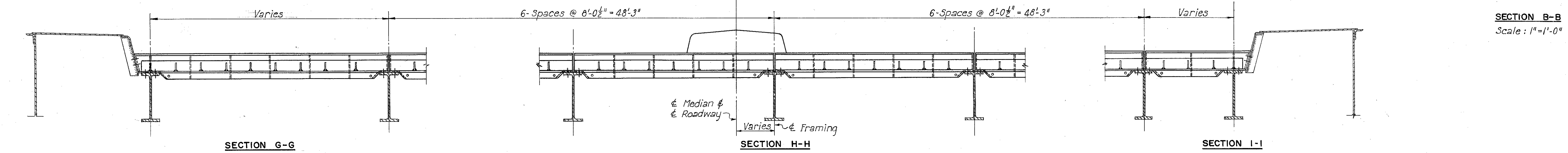


PLAN AT CURB
(WIDE STRINGER SPACING)

PLAN AT MEDIAN

PLAN AT CURB
(NARROW STRINGER SPACING)

SECTION B-B
Scale: 1"=1'-0"

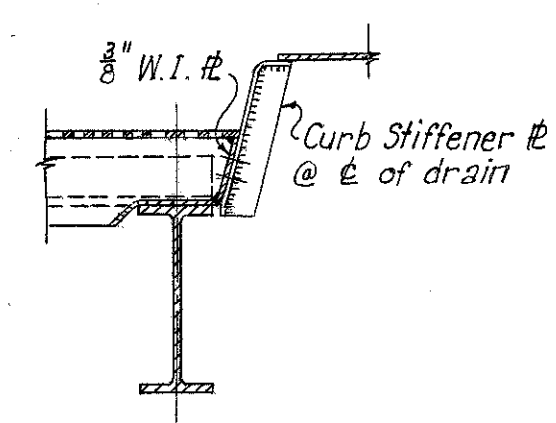


SECTION G-G

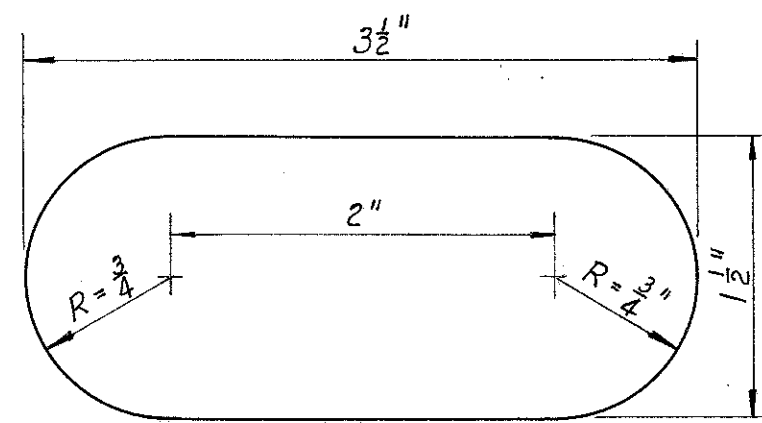
SECTION H-H

SECTION I-I

CROSS DRAIN WITH FRAMING NOT CENTERED UNDER ROADWAY DECK
Panel Points 315, 503, 515, 703, 715 and 903.



SECTION E-E



DETAIL OF DRAIN HOLE
Scale: Full Size

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-175

ROADWAY DRAINS
TYPE A

CLEVELAND CUYAHOGA COUNTY OHIO

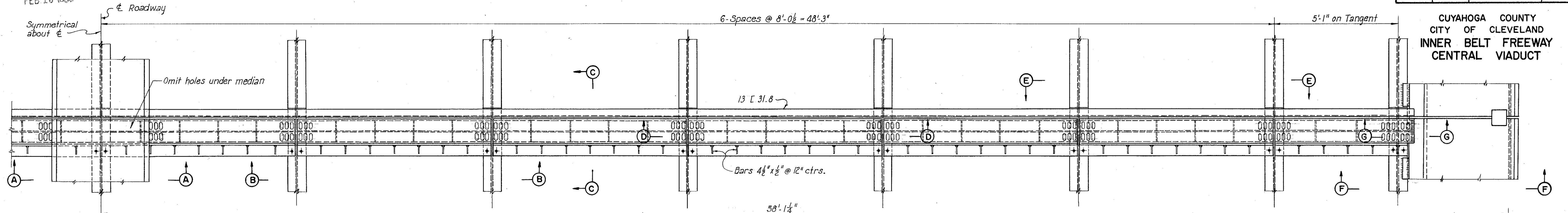
SCALE: 1/2"=1'-0" except as shown
MADE V.E.A. DATE 2-2-54 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD A.H. DATE 11-16-54 CONSULTING ENGINEERS
CKD G.M.D. DATE 11-18-54 KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.105

INCORPORATED
FEB 16 1953

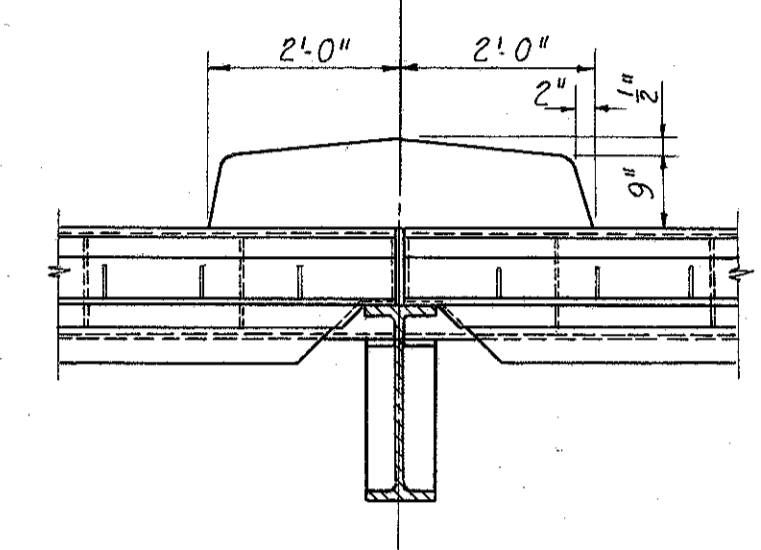
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

107
122

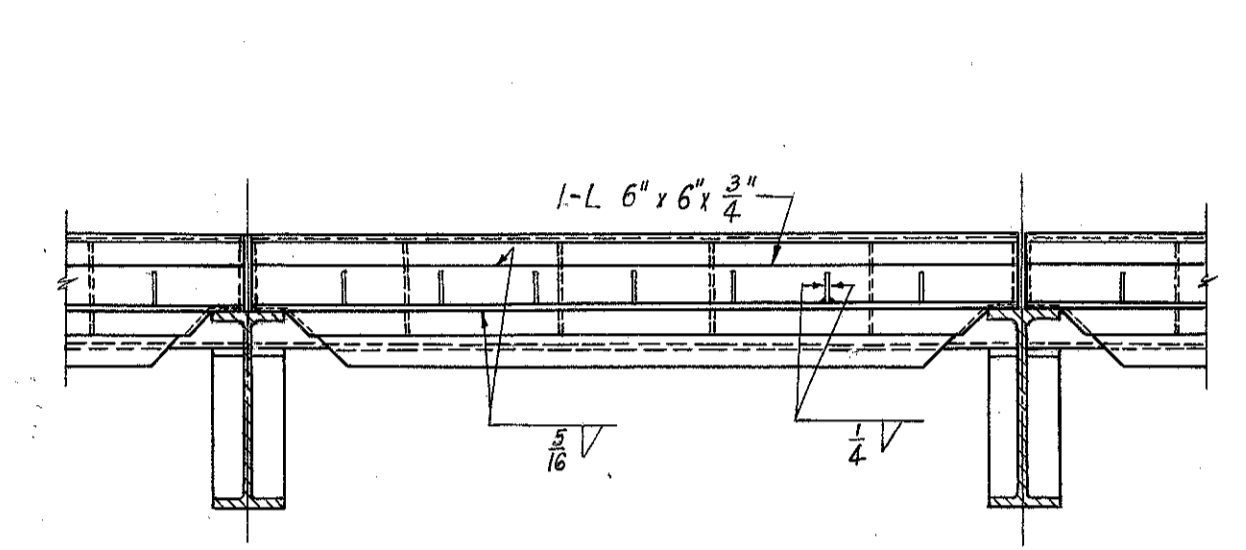
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



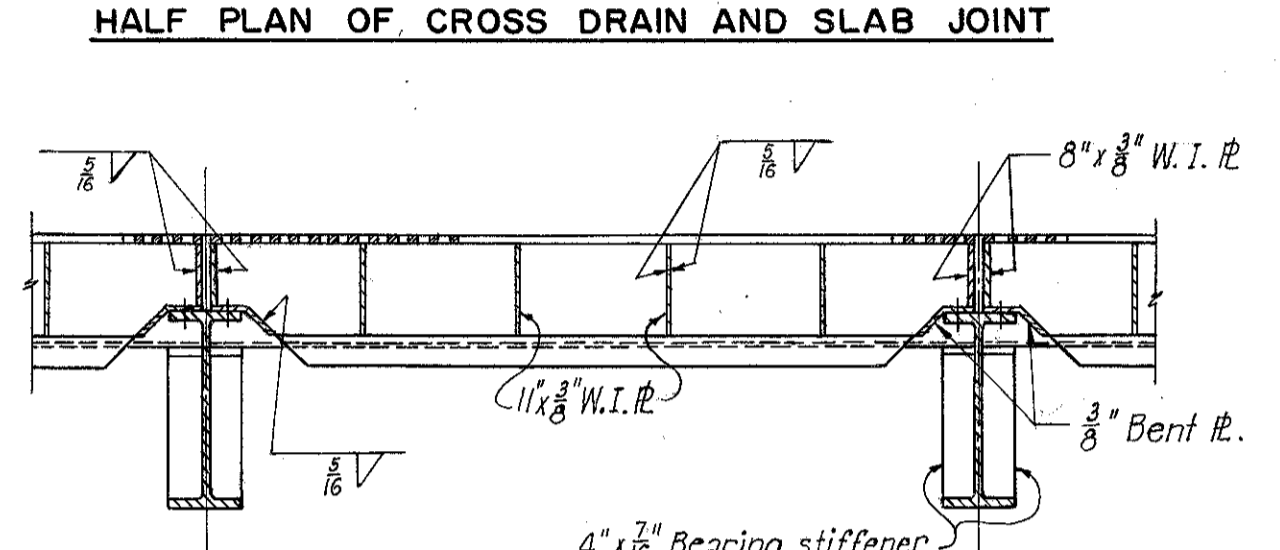
HALF PLAN OF CROSS DRAIN AND SLAB JOINT



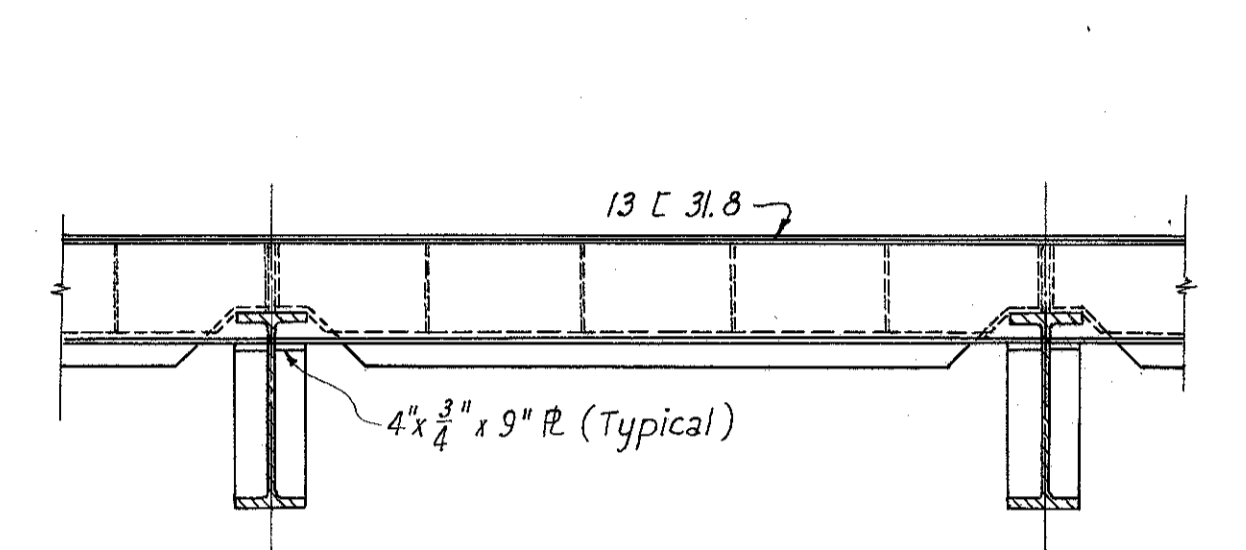
SECTION A-A



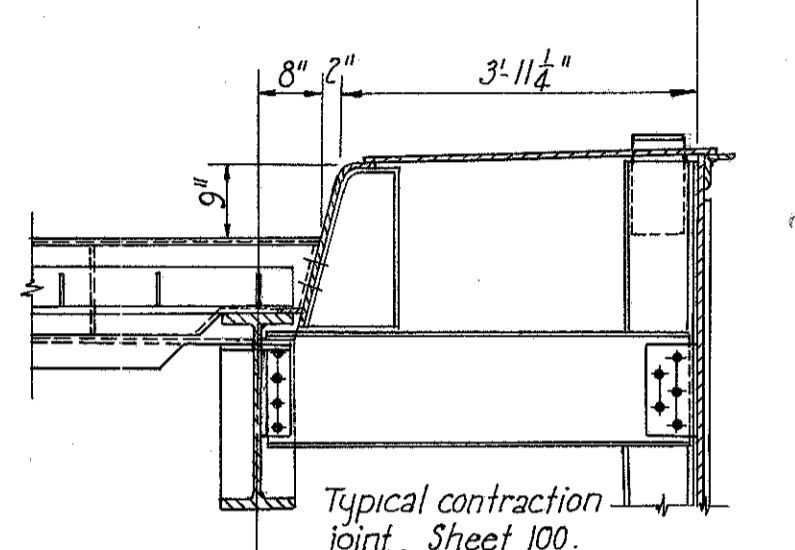
SECTION B-B



SECTION D-D

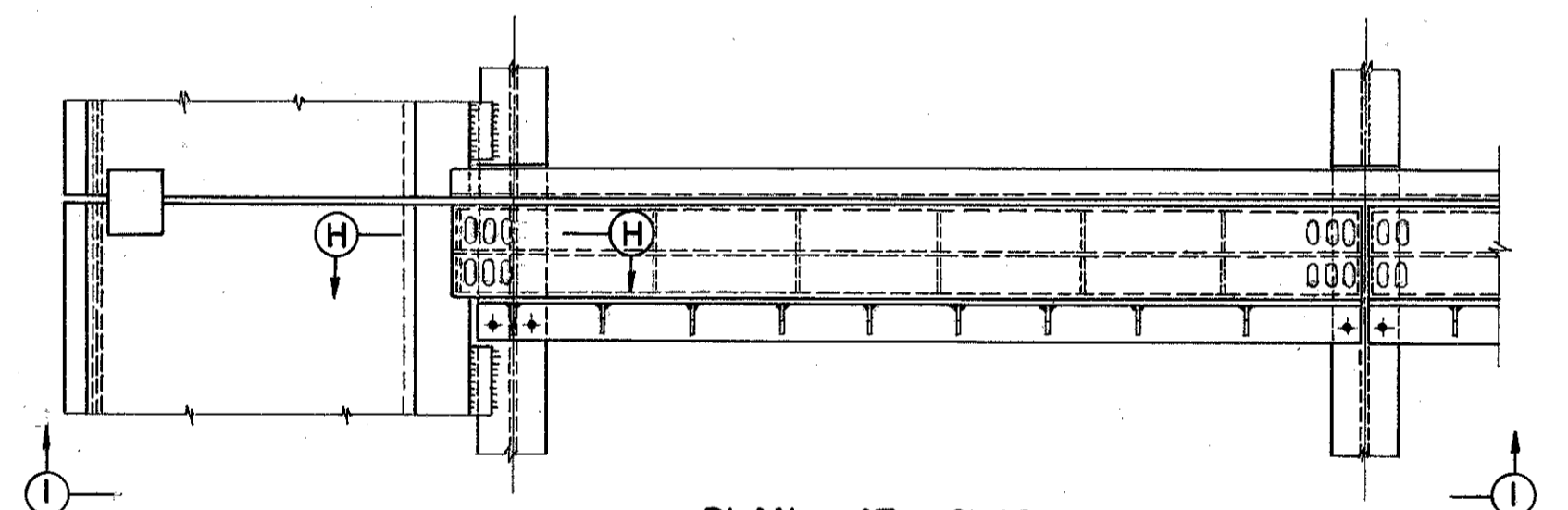


SECTION E-E

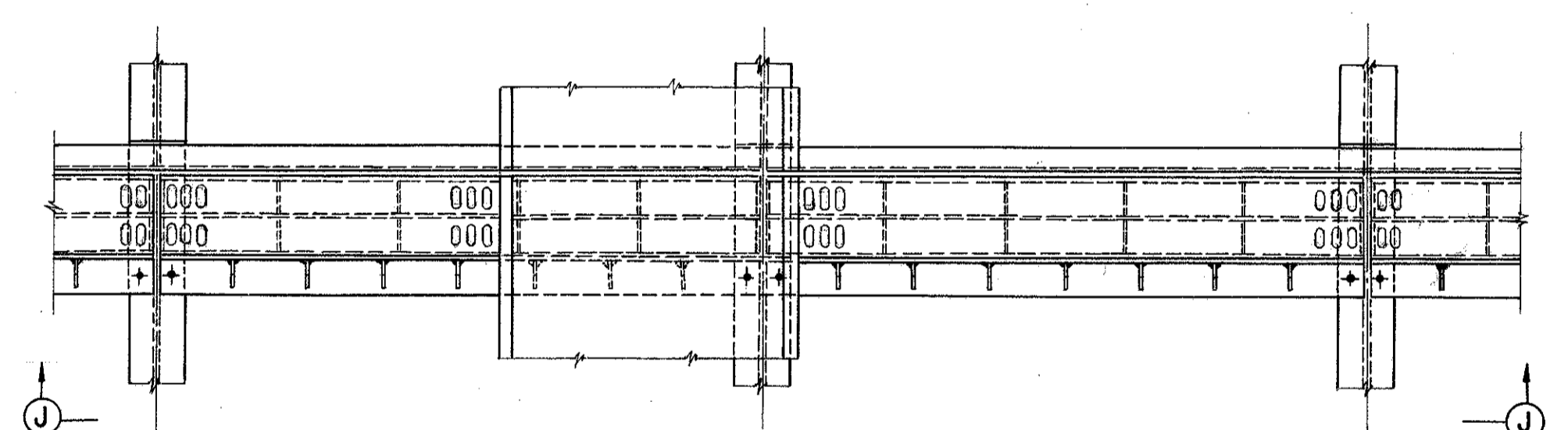


SECTION F-F

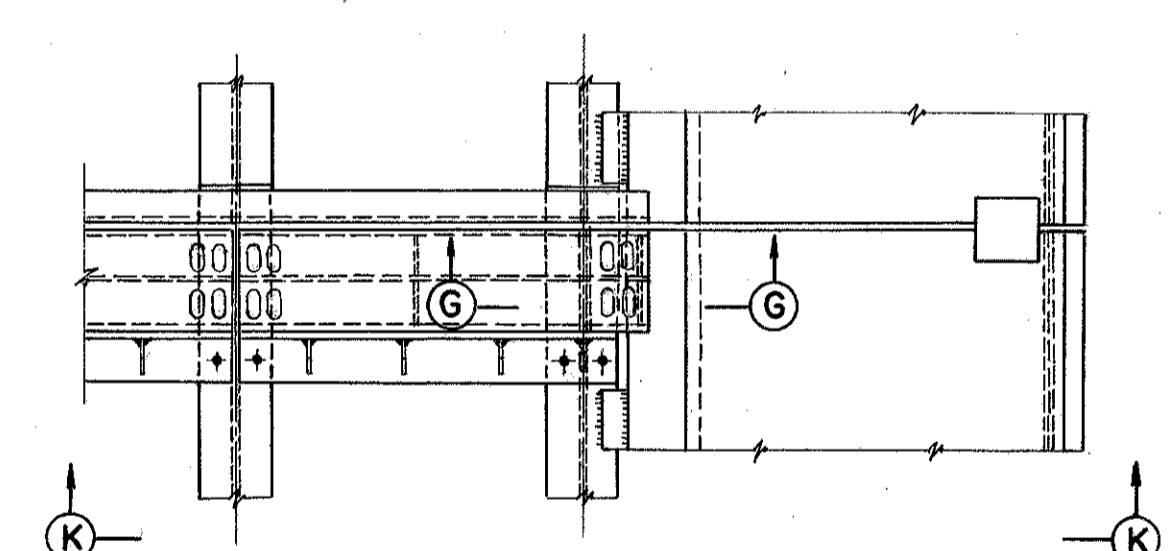
CROSS DRAIN AND SLAB JOINT WITH FRAMING CENTERED UNDER ROADWAY DECK
Panel Points 113, 24, 307, and 311.



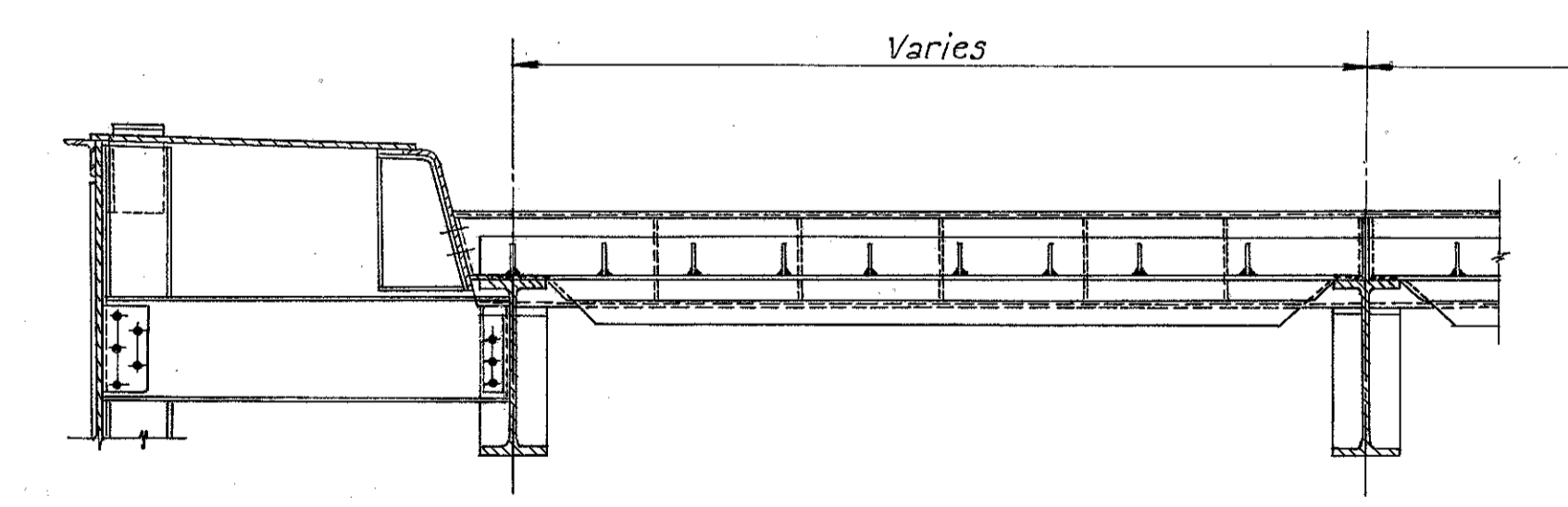
PLAN AT CURB
(WIDE STRINGER SPACING)



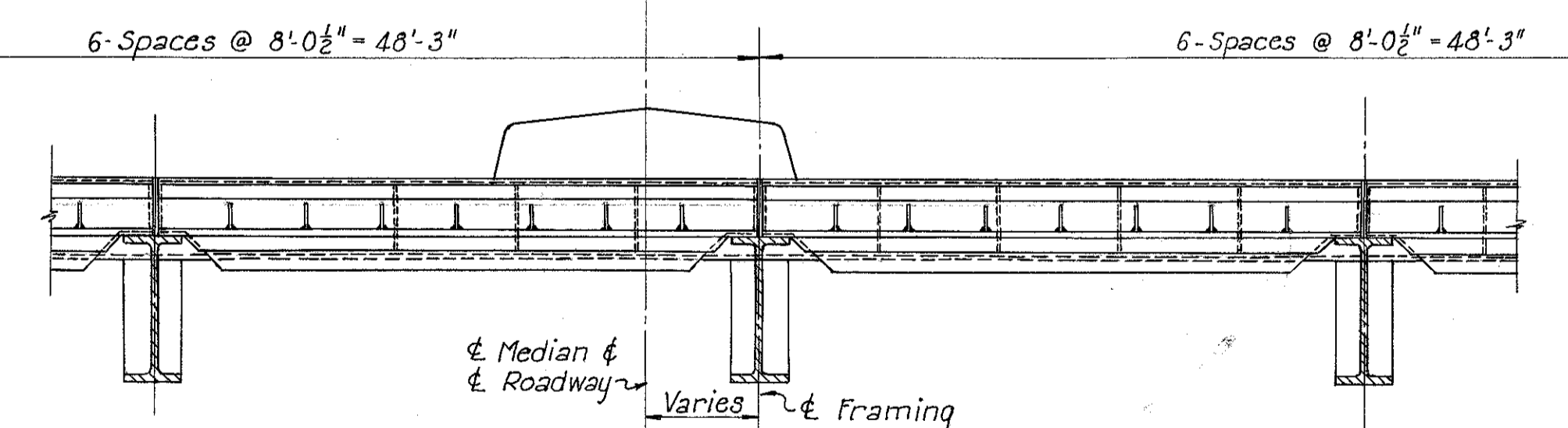
PLAN AT MEDIAN



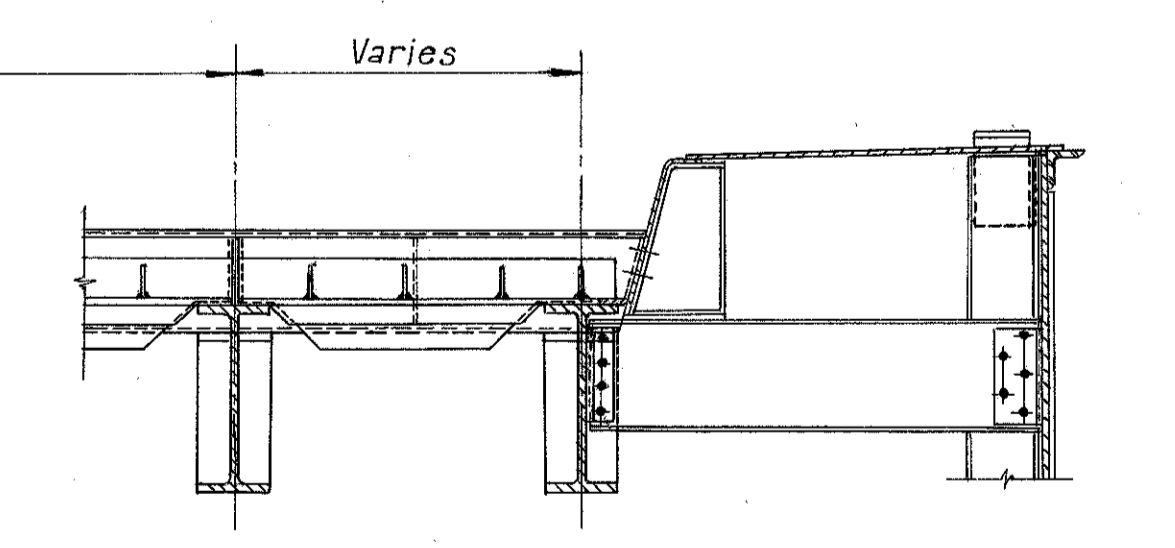
PLAN AT CURB
(NARROW STRINGER SPACING)



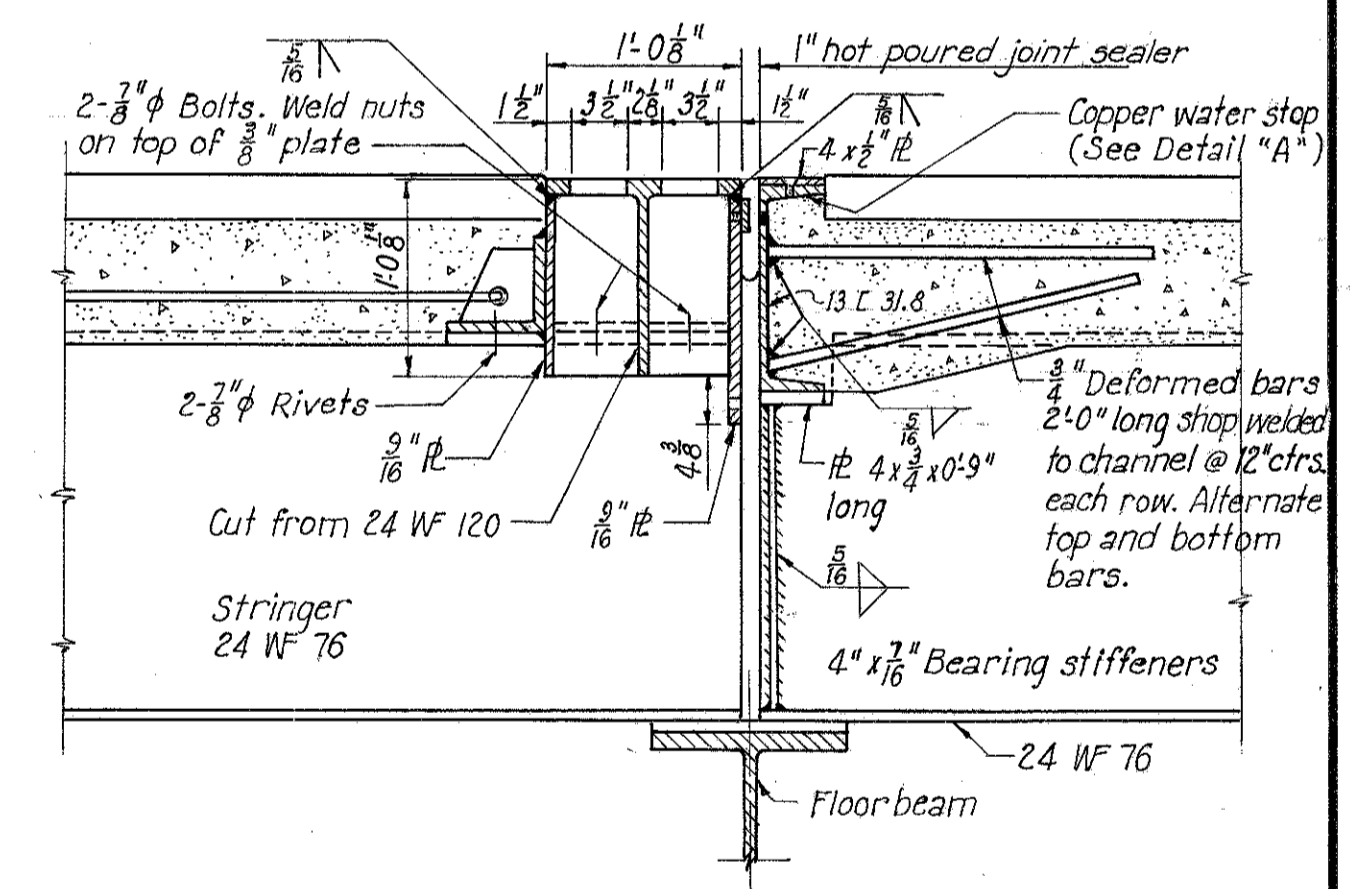
SECTION I-I



SECTION J-J

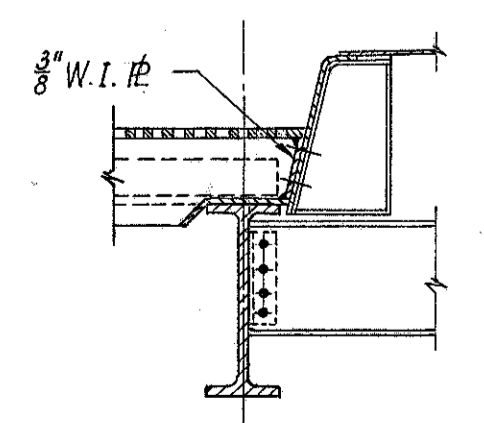


SECTION K-K

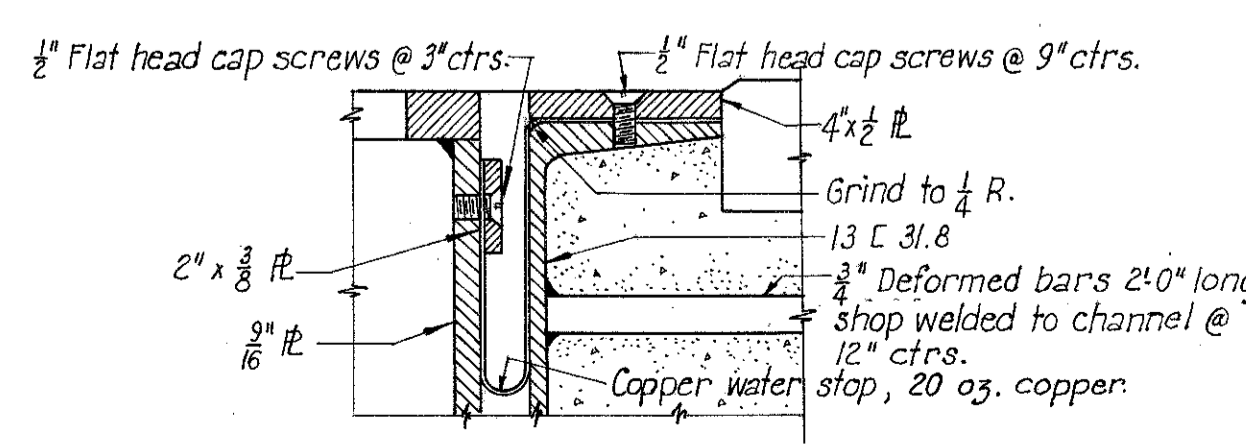


SECTION C-C
Scale: 1" = 1'-0"

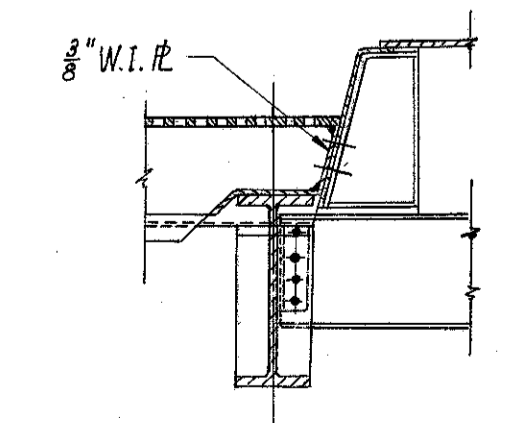
CROSS DRAIN AND SLAB JOINT WITH FRAMING NOT CENTERED UNDER ROADWAY DECK
Panel Points 318, 44, 507, 511, 700, 707, 711, 83, and 900



SECTION H-H



DETAIL "A"
Scale: 3" = 1'-0"



SECTION G-G

PART

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R - 17 5
ROADWAY DRAINS
TYPE B

CLEVELAND CUYAHOGA COUNTY OHIO

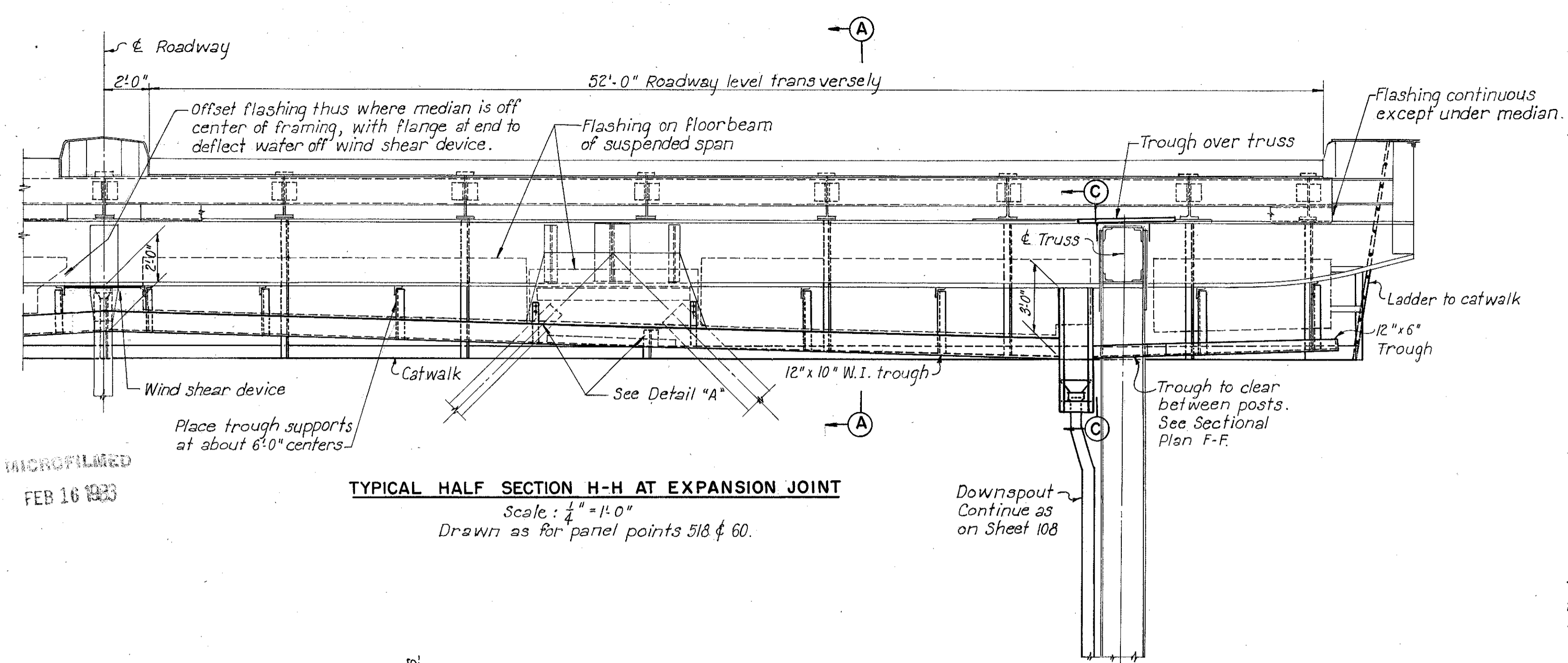
SCALE: 1" = 1'-0" except as shown
MADE I.E.A. DATE 3-10-54
TRCD A.H. DATE 11-23-54
CKD D.M.D. DATE 11-24-54

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

914-1A SHEET 2.107

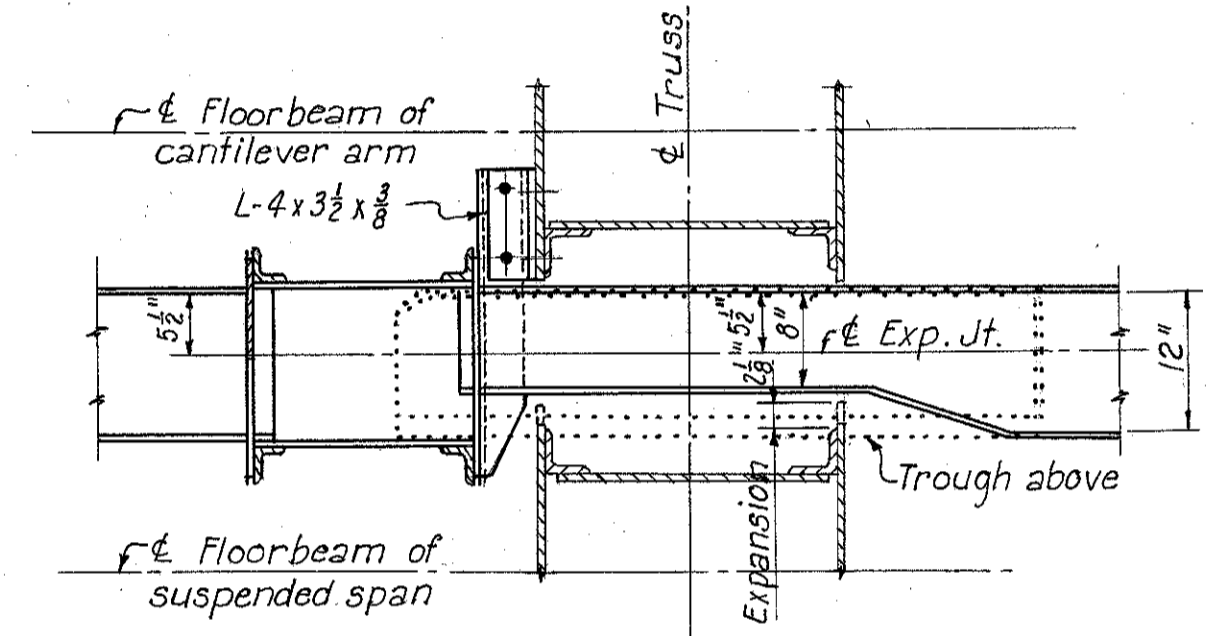
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	109
2	OHIO			122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT

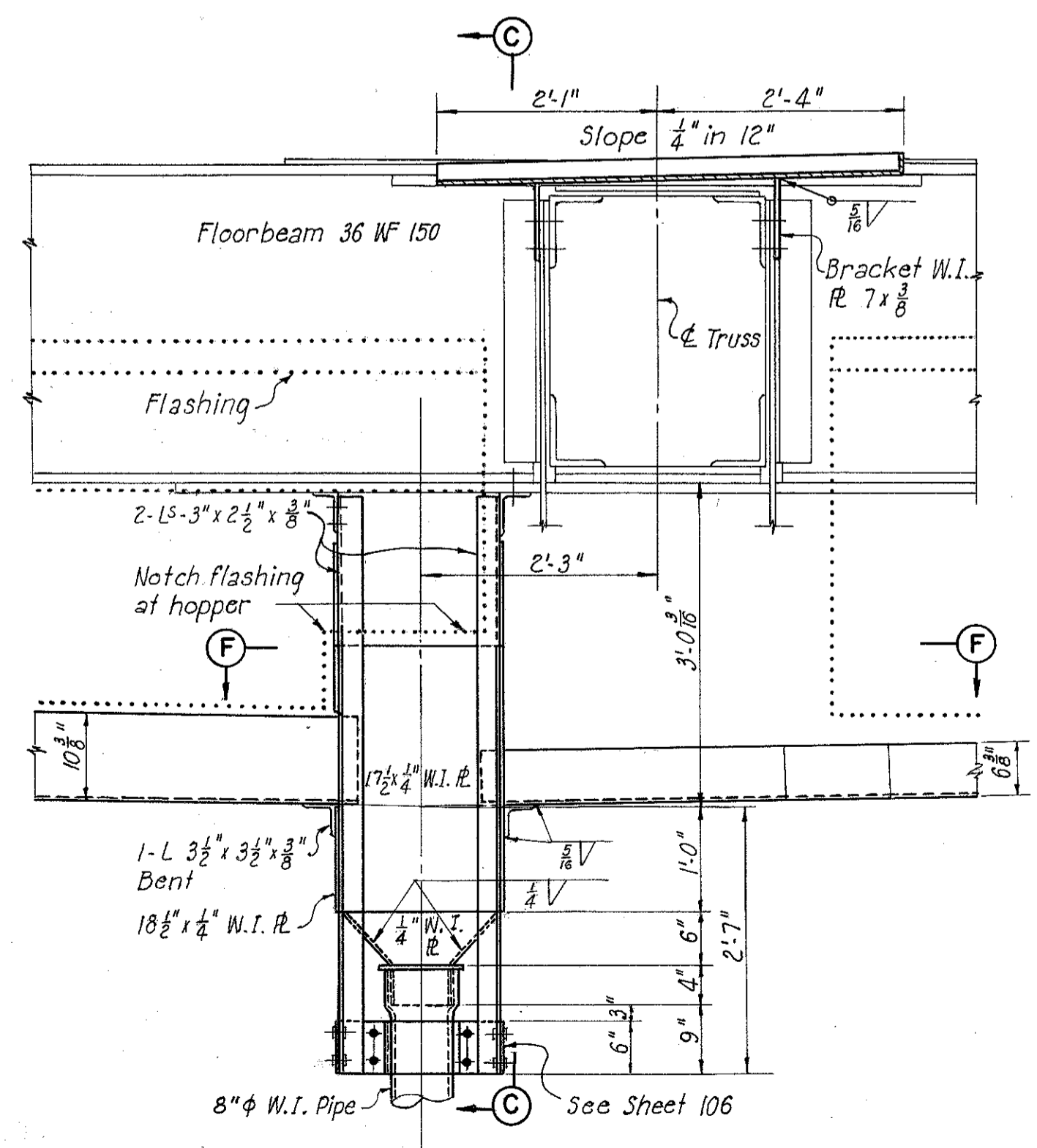


TYPICAL HALF SECTION H-H AT EXPANSION JOINT
Scale: $\frac{1}{4}'' = 1'-0''$
Drawn as for panel points 518 & 60.

MICROFILMED
FEB 16 1983

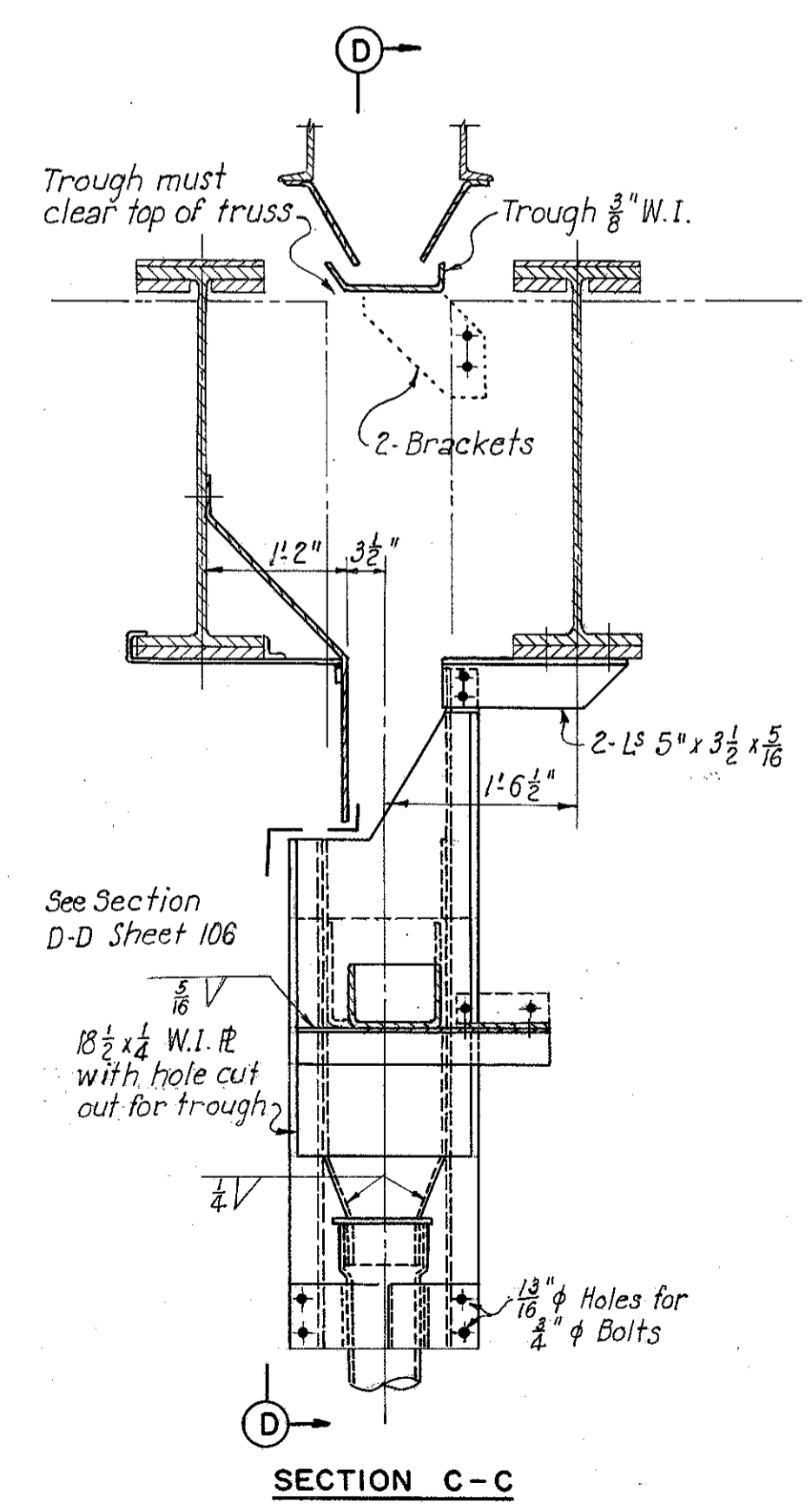


SECTIONAL PLAN AT F-F

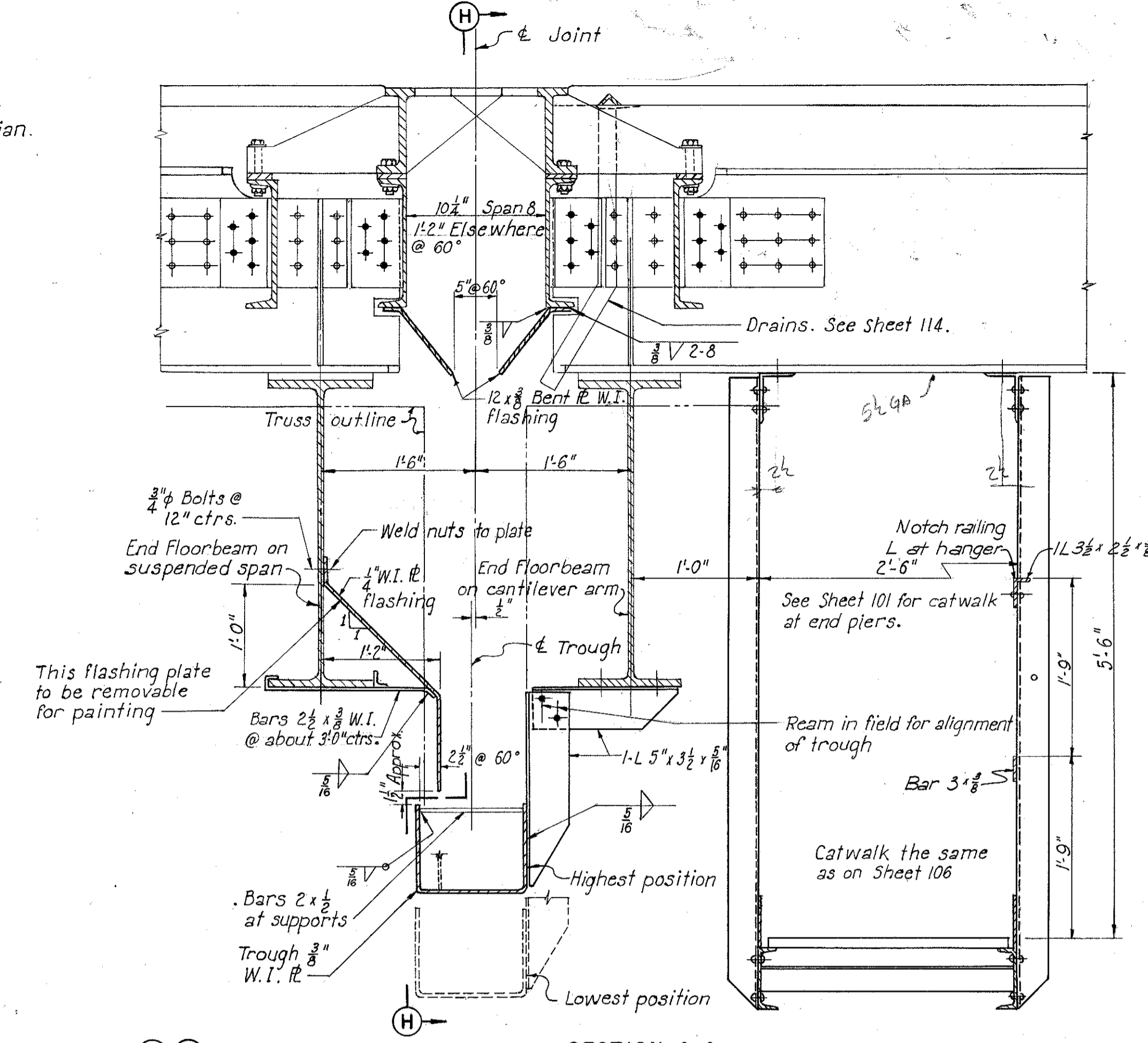


SECTION D-D

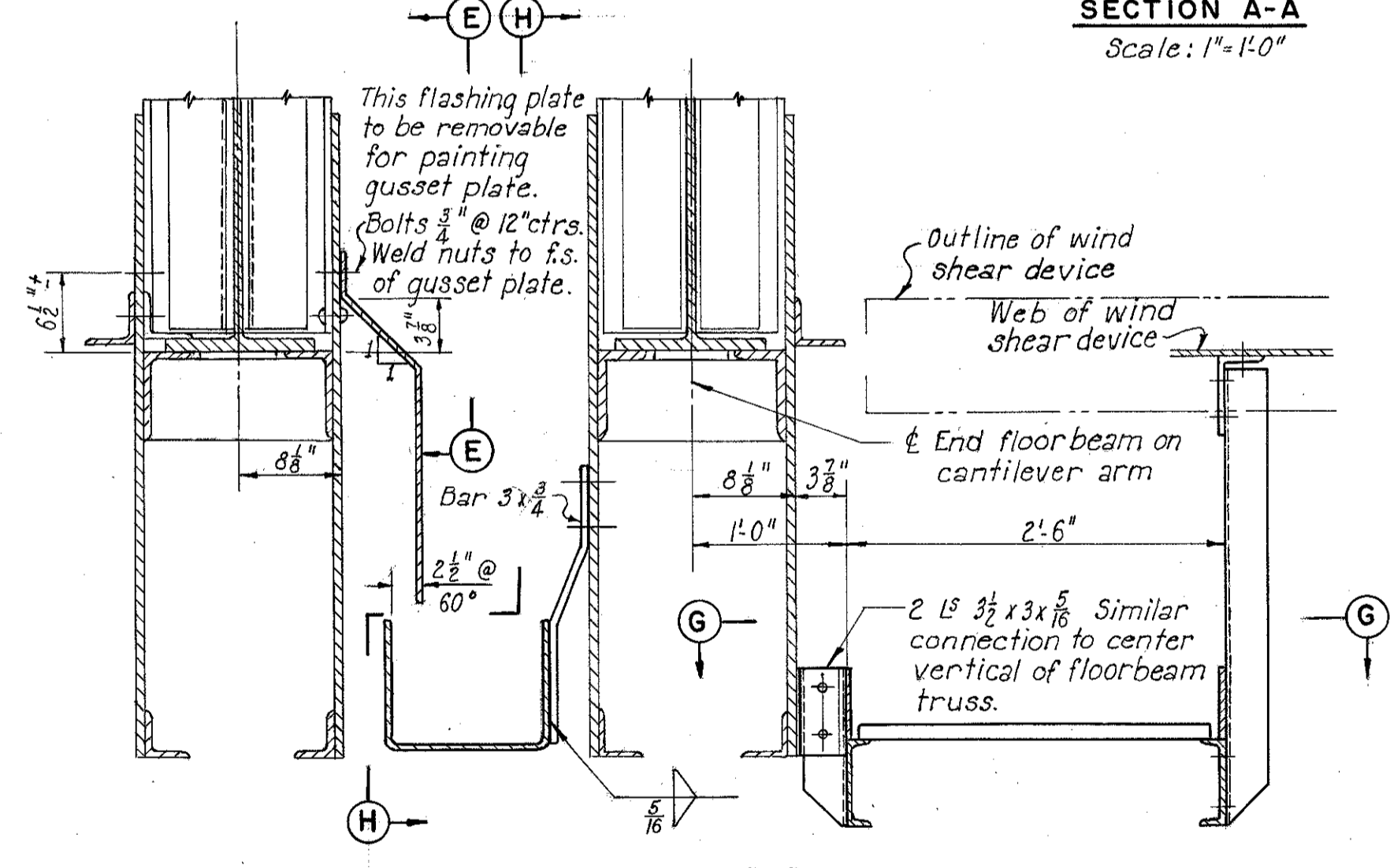
HOPPER DETAILS
Scale: $\frac{3}{4}'' = 1'-0''$



SECTION C-C

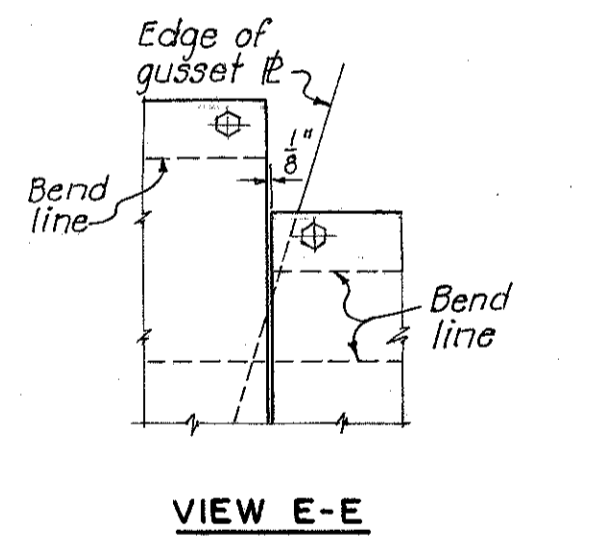


SECTION A-A
Scale: $1'' = 1'-0''$



DETAIL A-A
Scale: $1'' = 1'-0''$

SECTION G-G
Scale: $1'' = 1'-0''$



VIEW E-E

Note:
For construction at end piers this contract includes expansion joint, flashing, trough and hoppers as shown here on cantilever arm.

Supplementary drawing No 109A shows details of roadway drains and catwalk at end piers.
8-13-56 RSH

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-175
ROADWAY DRAINS AND CATWALK
TYPE C

CLEVELAND CUYAHOGA COUNTY OHIO

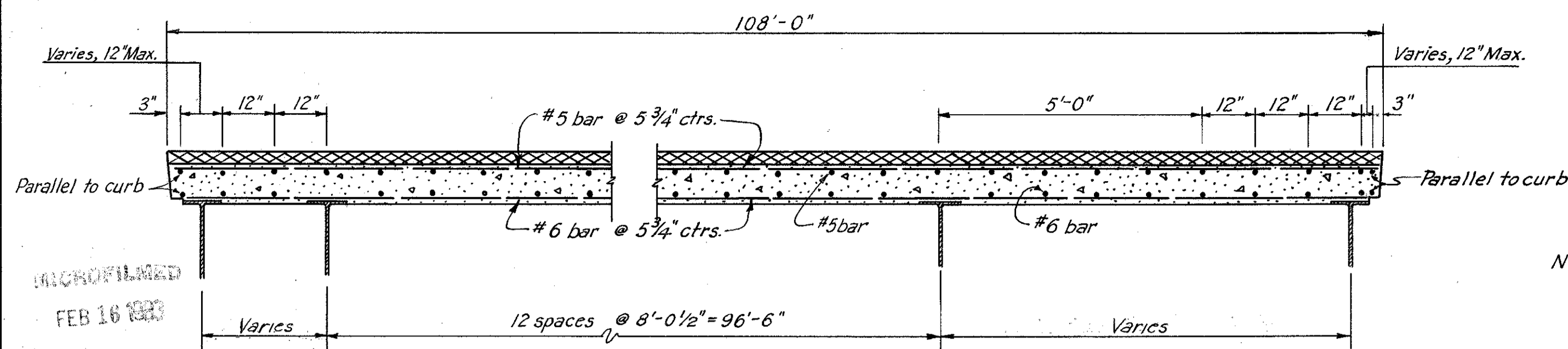
SCALE: As shown
MADE: VEA DATE: 3-23-54
TRCD: AH DATE: 11-30-54
CHK: DMD DATE: 12-3-54

HOWARD, NEEDLES, TAMMEN & BERGENOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2. 109

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

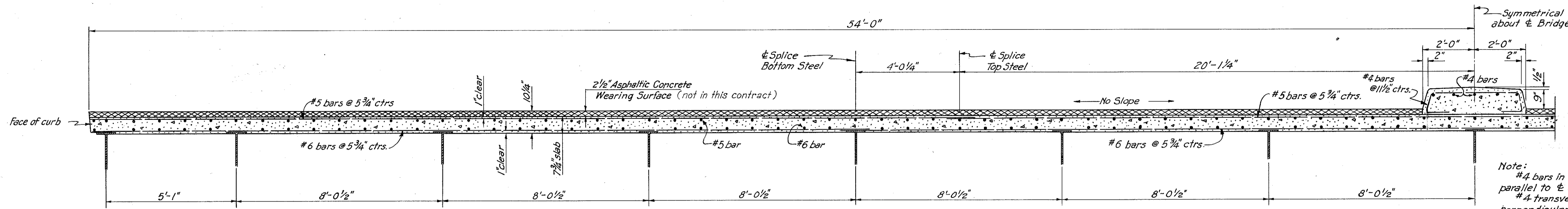
114
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



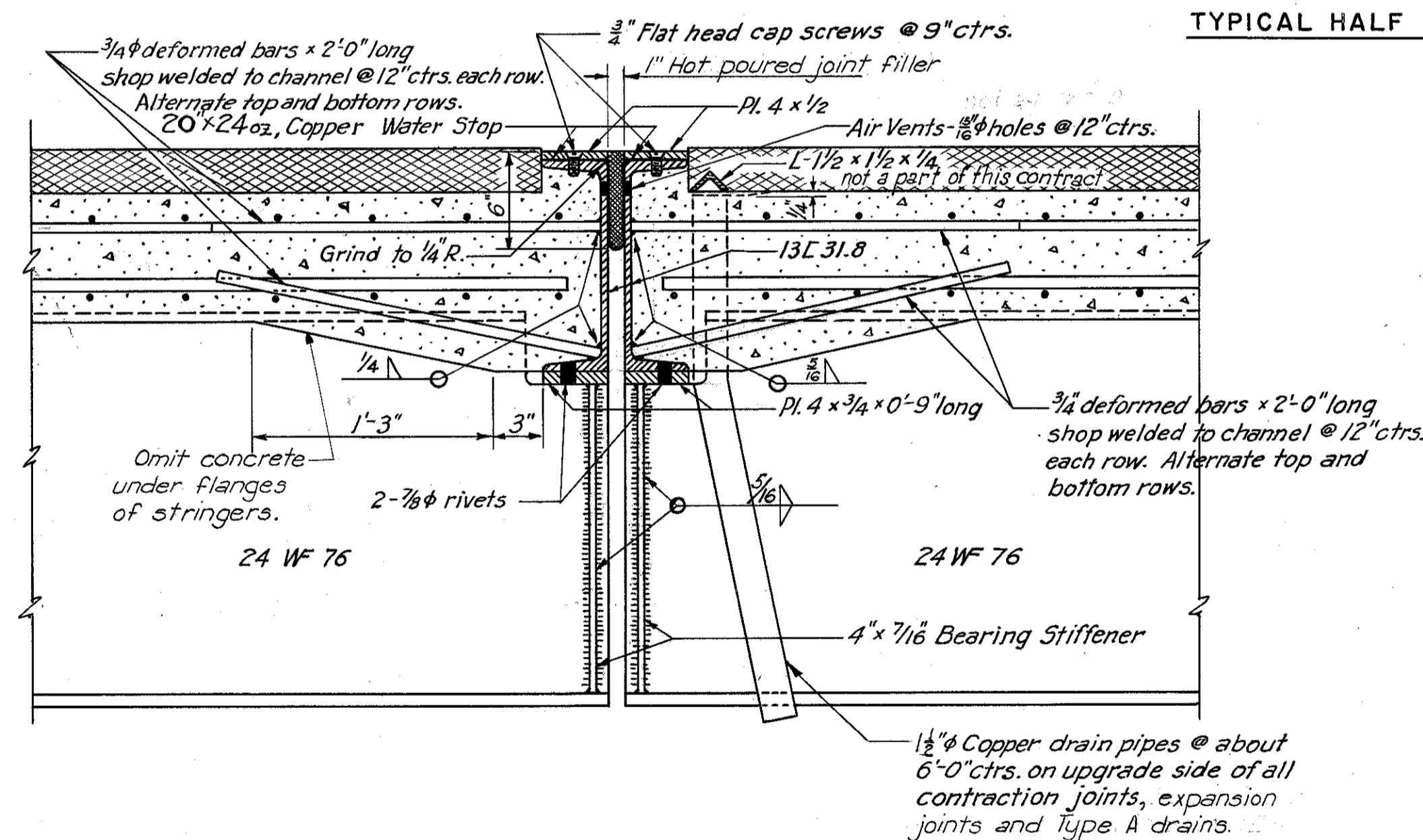
Notes: Longitudinal bars are to be parallel to stringers except bars adjacent to curb as noted.
Top longitudinal bars - #5 bars spaced as shown.
Bottom longitudinal bars - #6 bars spaced as shown.
Transverse bars are to be normal to stringers.
Top transverse bars - #5 bars @ 5 3/4" ctrs.
Bottom transverse bars - #6 bars @ 5" ctrs.

TYPICAL SECTION - STA. 24+89.52 TO STA. 40+83.22
Scale 1/2" = 1'-0"

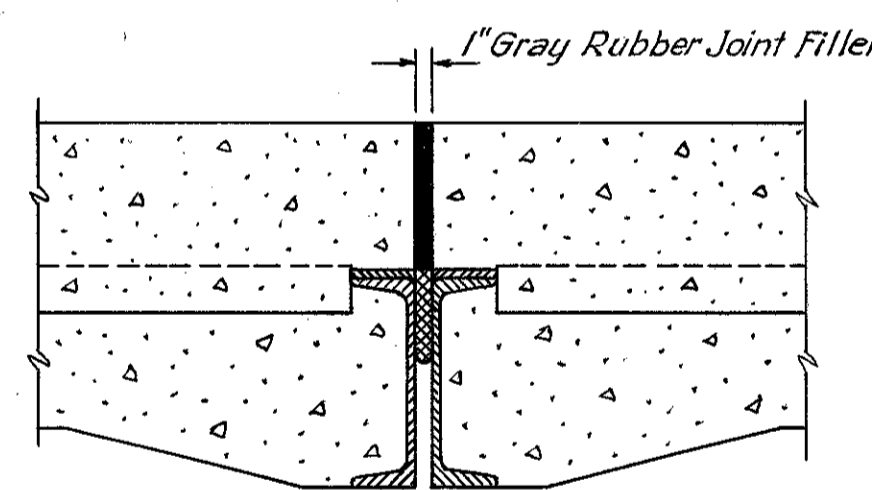


Note:
#4 bars in median to be parallel to centerline of Roadway.
#4 transverse bars to be perpendicular to centerline of Roadway.

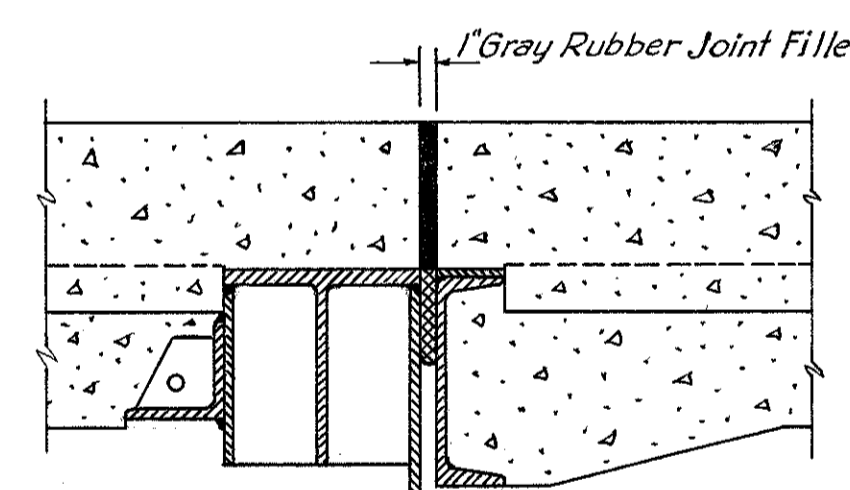
TYPICAL HALF SECTION - STA. 16+13.02 TO STA. 24+89.52 AND STA. 40+83.22 TO STA. 43+34.72
Scale 1/2" = 1'-0"



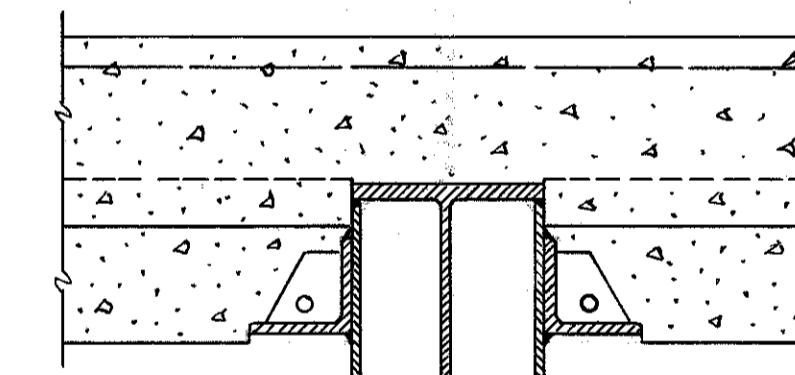
CONTRACTION JOINT DETAILS
Scale 1/2" = 1'-0"
For locations see Sh. 103



AT CONTRACTION JOINT

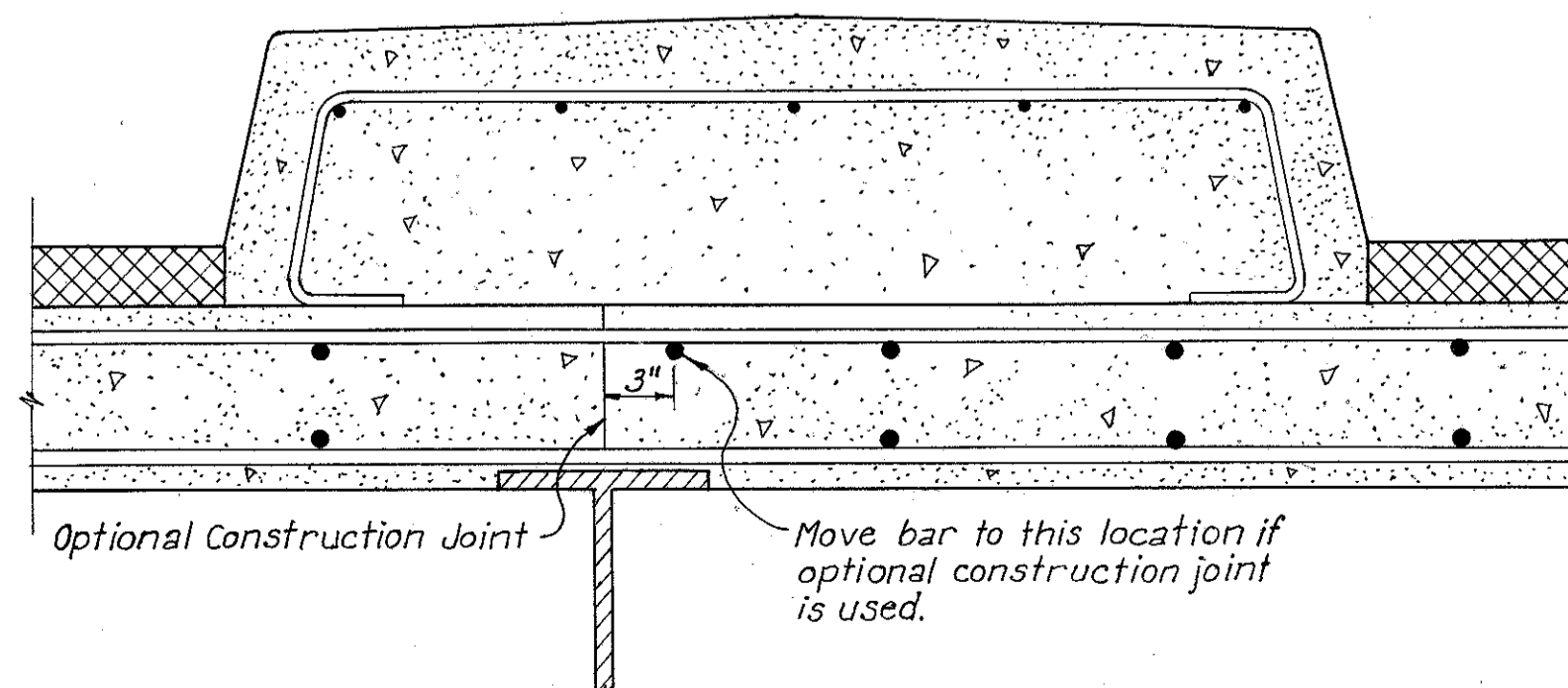


AT TYPE B DRAINS

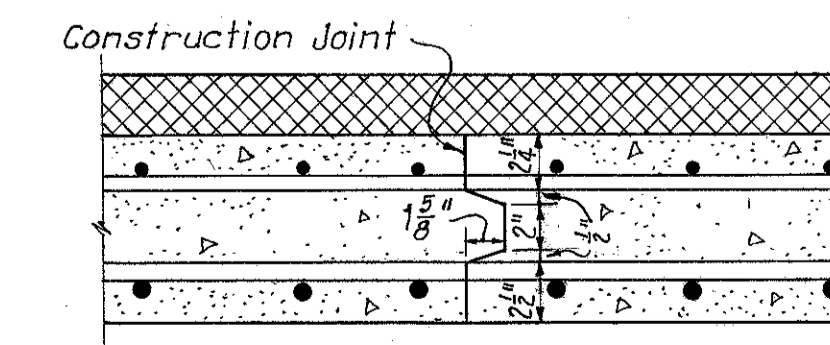


AT TYPE A DRAINS

MEDIAN JOINTS
Scale 1" = 1'-0"



OPTIONAL LONGITUDINAL CONSTRUCTION JOINT
Scale: 1 1/2" = 1'-0"



TRANSVERSE CONSTRUCTION JOINT
Scale: 1 1/2" = 1'-0"

For slab pouring sequence see Sh. 103

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17.5

TYPICAL SLAB SECTIONS

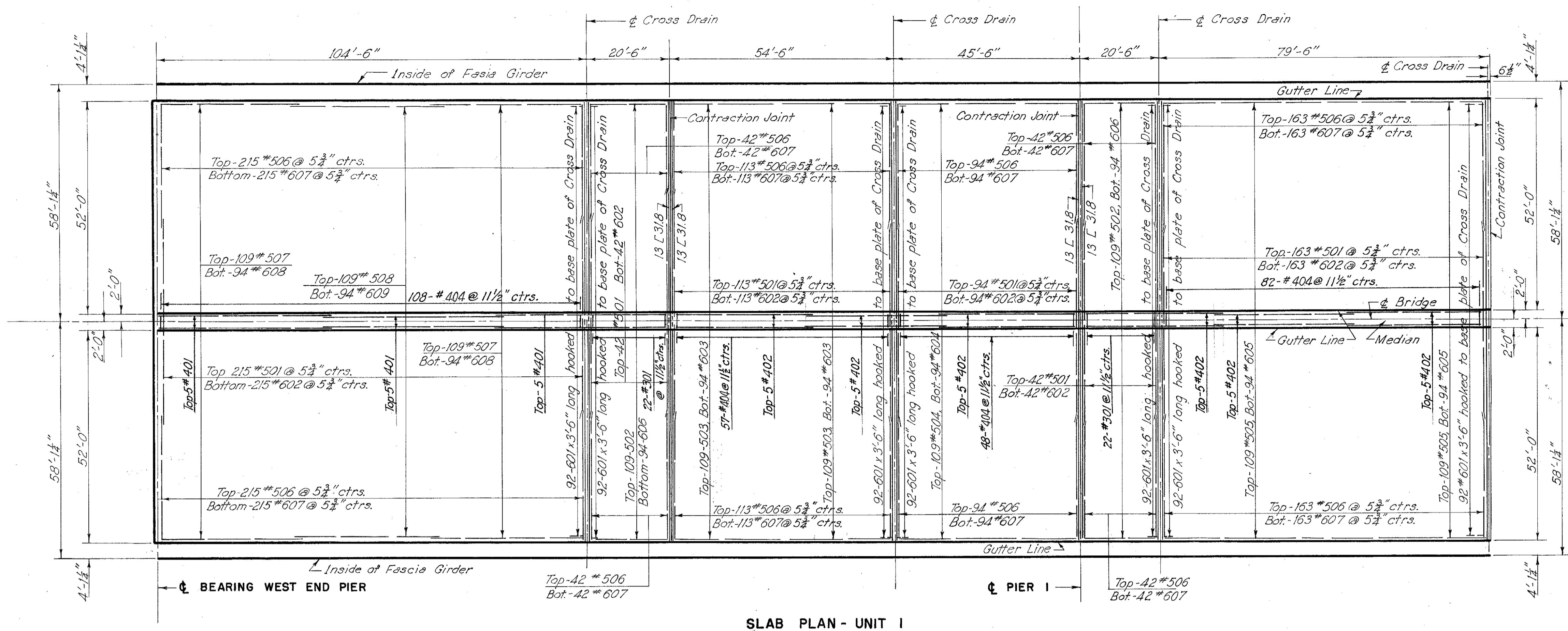
CLEVELAND CUYAHOGA COUNTY OHIO

SCALE As Shown
MADE R.K. DATE 2-12-54 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD A.F.S. DATE 10-1-54 CONSULTING ENGINEERS
CKD A.E.R. DATE 10-1-54 KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.114

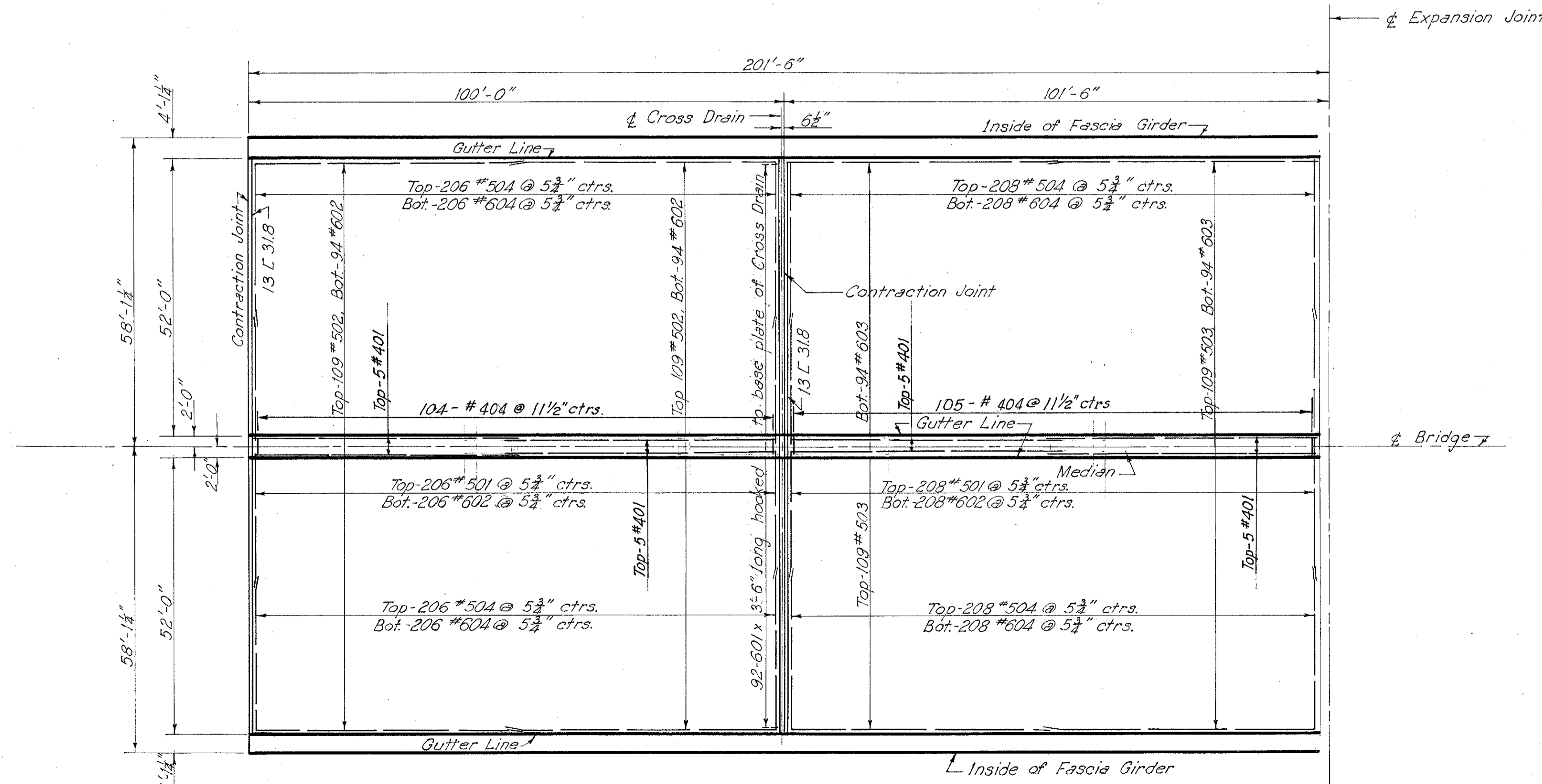
UNRECORDED
FEB 16 1954

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	115
2	OHIO			122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



SLAB PLAN - UNIT 1



SLAB PLAN - UNIT 2

Note:
All longitudinal bars are to be parallel to stringers except bars at edges of curved portion of slab which are parallel to gutter line. For spacing of longitudinal bars, see Typical Section Sheet 114.
All transverse bars are to be normal to Bridge and at 5 3/4" ctrs. Top transverse bars are to be spliced at mid-point between Stringers "E" and "F" and Stringers "J" and "K". Bottom transverse bars are to be spliced over Stringer "E" and Stringer "K".
For Contraction Joint Detail, see Sheet 114.
For Cross Drain Details, see Sheets 105, 107 and 109.
For Reinforcement Schedule, see Sheet 120.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-17.5

SLAB PLAN
UNITS 1 AND 2

CLEVELAND CUYAHOGA COUNTY OHIO

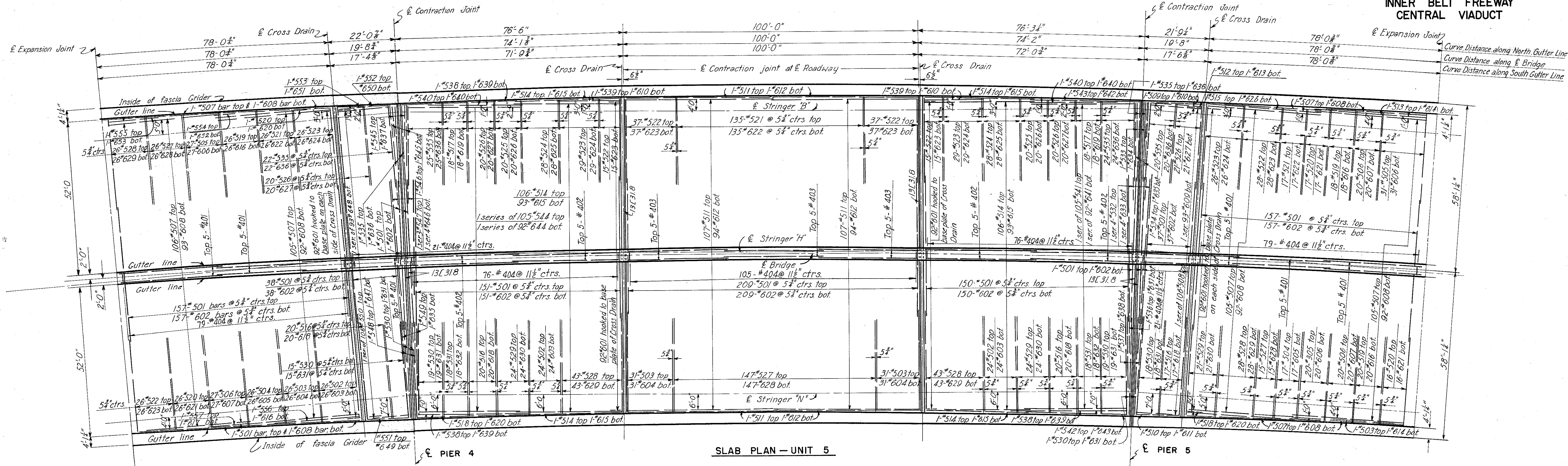
SCALE: 1/4" = 1'-0"
MADE R.K. DATE 1-22-54 HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS
TRCD:AMQ DATE 8-19-54 KANSAS CITY CLEVELAND NEW YORK
CKD:BB DATE 9-9-54 914-1A SHEET 2.115

MICROFILMED
FEB 16 1963

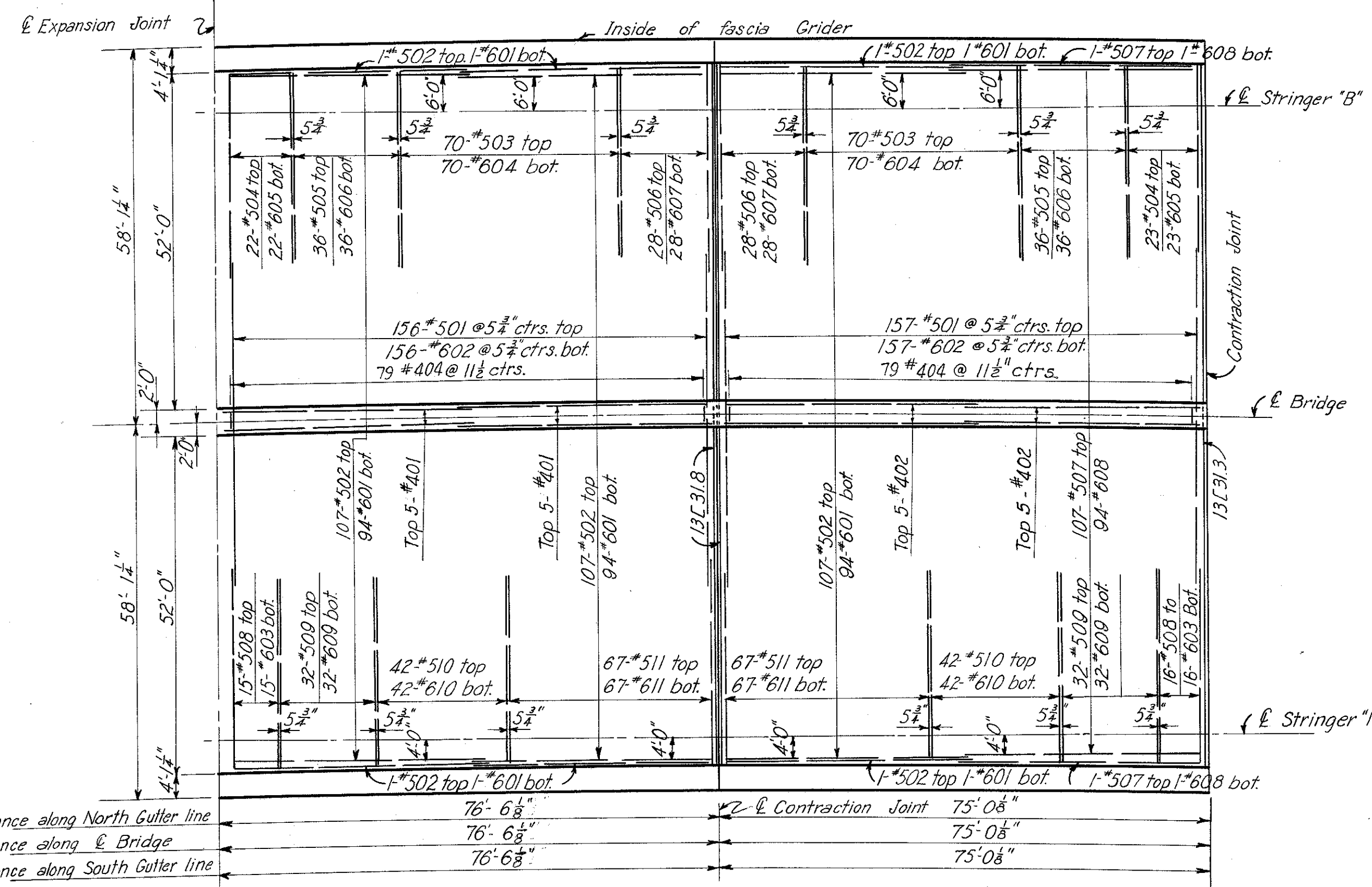
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

117
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



SLAB PLAN - UNIT 5



SLAB PLAN - UNIT 6

Notes:
All longitudinal bars are to be parallel to stringers except the bars at the edges of slab which are parallel to gutter lines. For spacing of longitudinal bars, see Typical Section, Sheet 114.
All transverse bars are to be normal to stringers and of 5" ctrs. except extra bars parallel to edge of joints and cross drains. Top transverse bars are to be spliced at mid-point between Stringers "E" and "F" and Stringers "J" and "K". Bottom transverse bars are to be spliced over Stringer "E" and Stringer "K".
For Details of Contraction Joint, see Sheet 114.
For Reinforcing Steel Schedule, see Sheets 120 and 121.
For Details of Cross Drain, see Sheets 105, 107 and 109.

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42R-175
SLAB PLAN
UNITS 5 AND 6
CLEVELAND CUYAHOGA COUNTY OHIO
SCALE: 1/8" = 1'-0"
MADE: 2-18-54 DATE: 2-18-54
TRCD: 4-1-54 DATE: 8-25-54
CKD: 2-6-54 DATE: 9-10-54
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.117

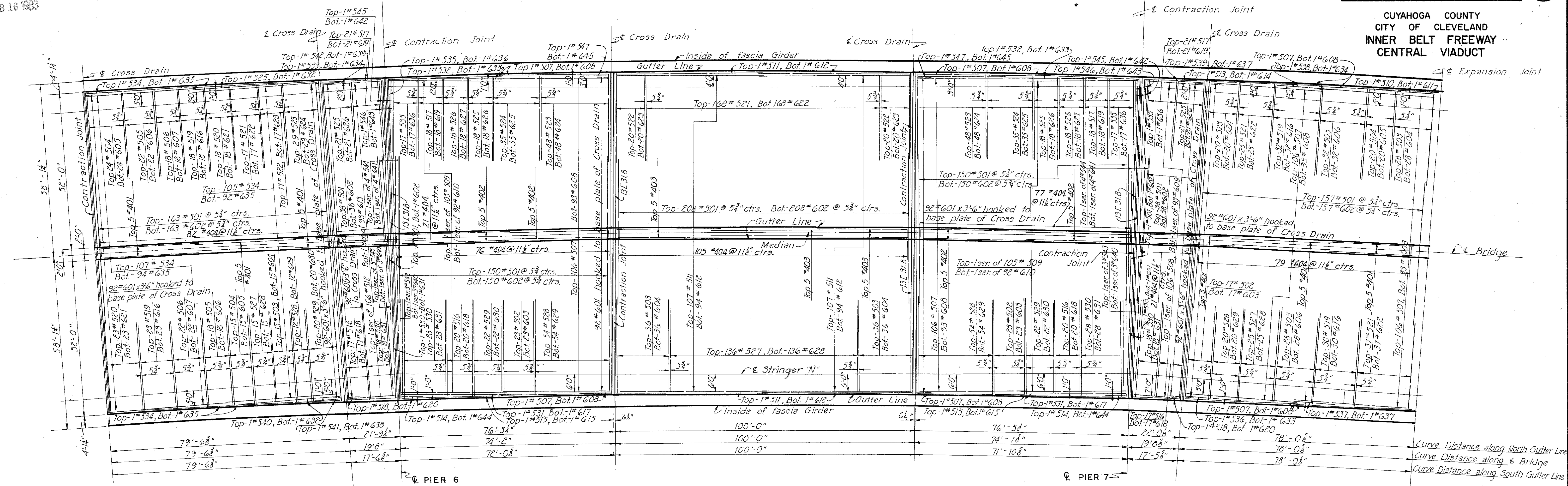
227 & 228

MICROFILMED
FEB 16 1983

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

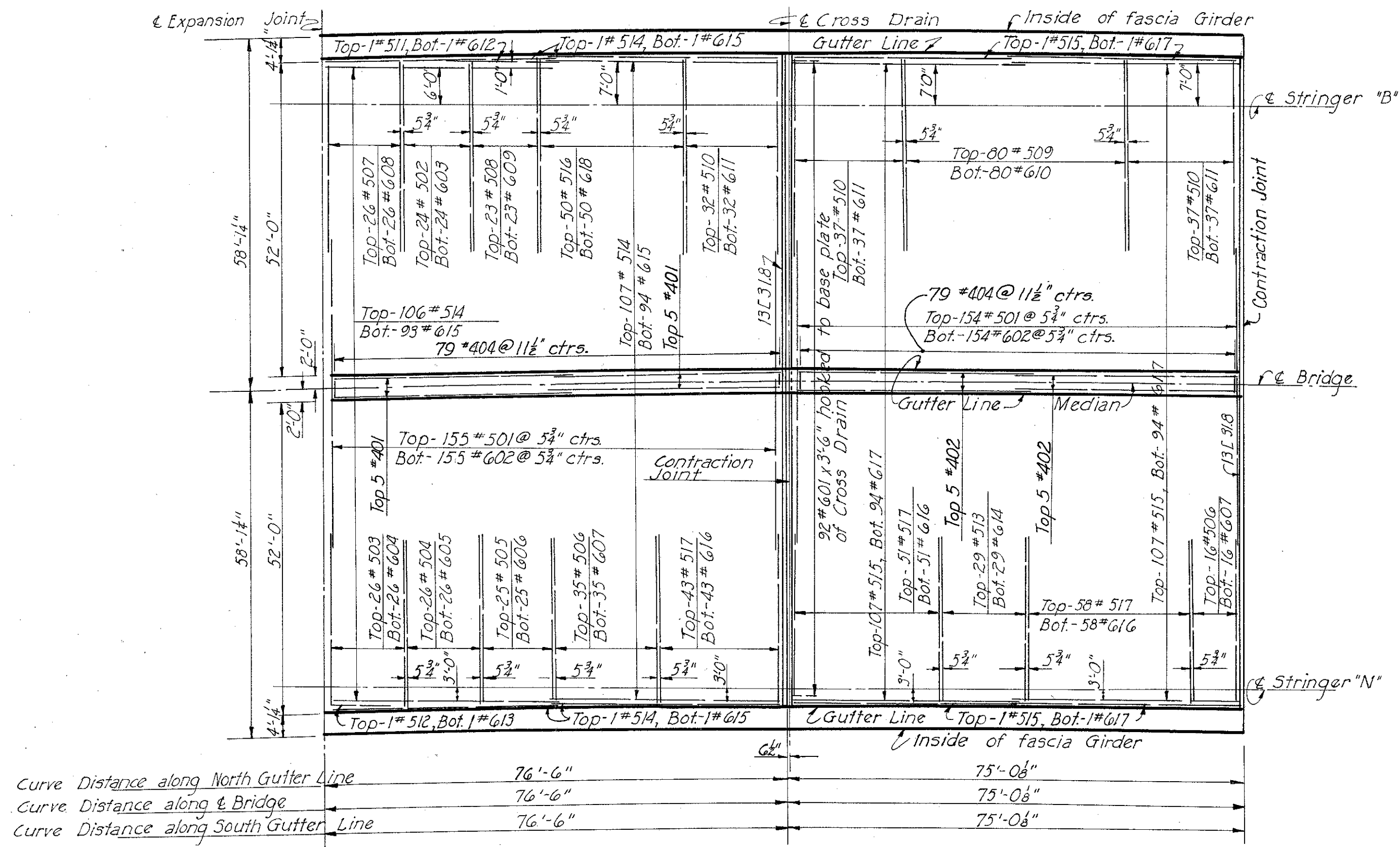
118
122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



SLAB PLAN - UNIT 7

All longitudinal bars are to be parallel to stringer except the bars at the edges of slab which are parallel to gutter lines. For spacing of longitudinal bars, see Typical Section, Sheet 114.
All transverse bars are to be normal to stringers and at 5 1/2" ctrs. except extra bars parallel to edge of joints and cross drains. Top transverse bars are to be spliced at mid-point between Stringers "E" and "F" and Stringers "J" and "K". Bottom transverse bars are to be spliced over Stringer "E" and Stringer "K".
For Details of Contraction Joint, See Sheet 114
For Reinforcing Steel Schedule, See Sheet 121
For Detail of Cross Drain, See Sheet 105, 107 and 109



SLAB PLAN - UNIT 8

Curve Distance along North Gutter Line 76'-6"
Curve Distance along Bridge 76'-6"
Curve Distance along South Gutter Line 76'-6"

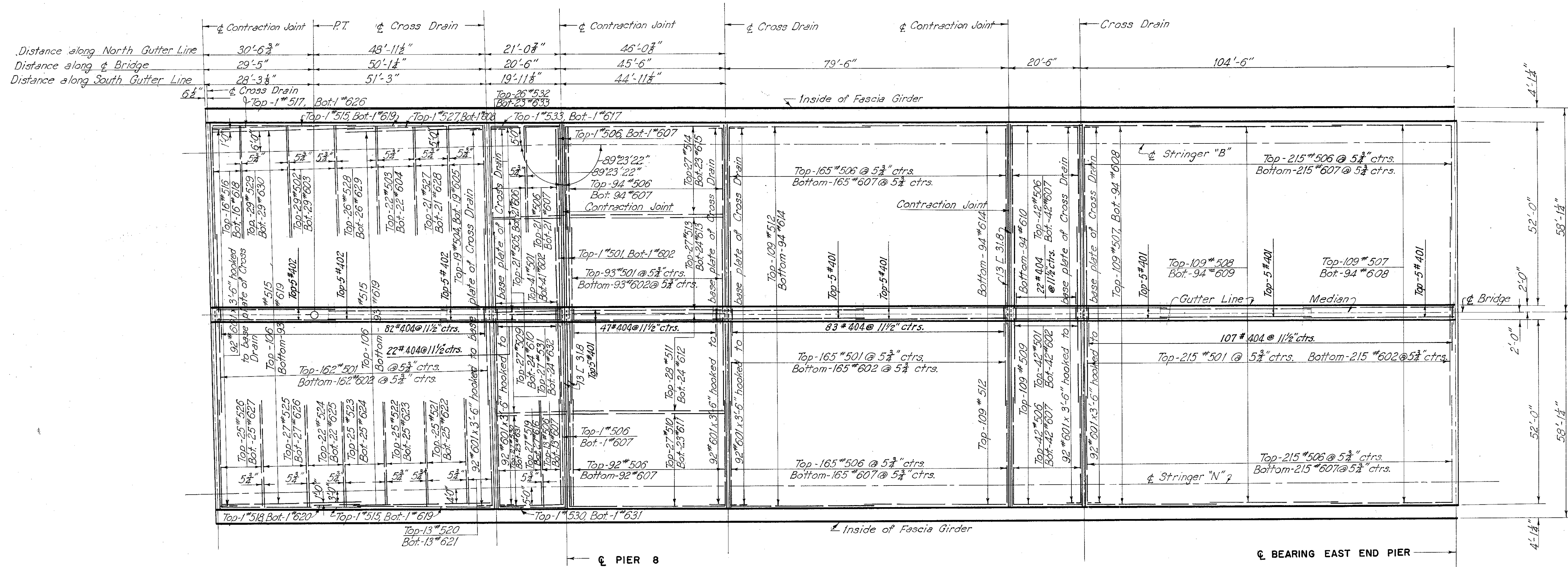
PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17.5
SLAB PLAN
UNITS 7 AND 8
CLEVELAND CUYAHOGA COUNTY OHIO
SCALE 1/2" = 1'-0"
MADE BY DATE 8-24-54
TRCD BY DATE 8-24-54
CHKD BY DATE 9-21-54
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
914-1A SHEET 2.118

MICROFILMED
FEB 16 1983

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	119
2	OHIO			122

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



SLAB PLAN - UNIT 9

Notes:
 All longitudinal bars are to be parallel to stringer except bars at the edges of slab which are parallel to gutter lines. For spacing of longitudinal bars, see Typical Section, Sheet 114.
 All transverse bars are to be normal to stringer and at 5 1/2\"/>

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
 BR. NO. CU - 42R-175

SLAB PLAN
 UNIT 9

CLEVELAND CUYAHOGA COUNTY OHIO

SCALE: 1/4" = 1'-0"
 MADE BY: DATE: 2-4-54
 TRCD: BMO DATE: 8-28-54
 CKD: BBE DATE: 9-11-54

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

914-1A SHEET 2.119

231

UNCORRECTED
FEB 16 1954

CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT

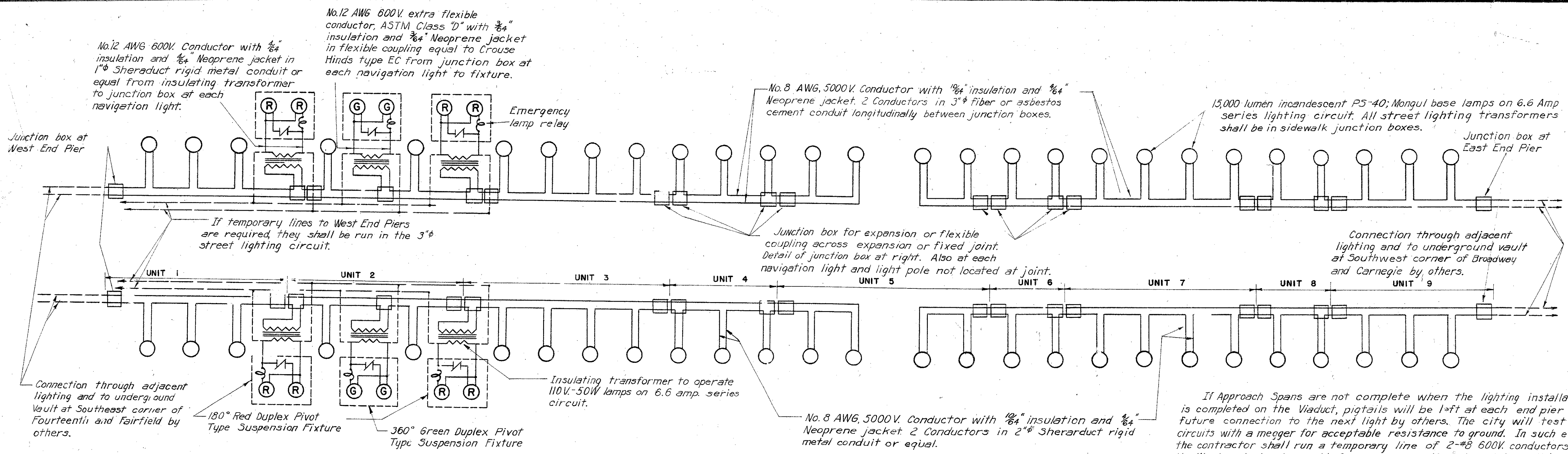
MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS		WEIGHT LBS.
					A	B	
UNIT 6							
501	5	313	42'-0"	Str.			13,711
502	5	327	38'-6"	101	37'-8"	10"	13,131
503	5	140	35'-6"	Str.			5,184
504	5	45	35'-0"	Str.			1,643
505	5	72	35'-3"	Str.			2,647
506	5	56	35'-9"	Str.			2,088
507	5	109	38'-6"	101	38'-6"	10"	4,376
508	5	31	34'-0"	Str.			1,099
509	5	64	33'-9"	Str.			2,253
510	5	84	33'-6"	Str.			2,935
511	5	134	33'-3"	Str.			4,647
404	4	158	5'-9"	120			607
401	4	10	38'-9"	Str.			259
402	4	10	38'-6"	Str.			257
601	6	288	38'-0"	Str.			16,438
602	6	313	50'-3"	Str.			23,624
603	6	31	30'-3"	Str.			1,409
604	6	140	31'-9"	Str.			6,676
605	6	45	31'-3"	Str.			2,112
606	6	72	31'-6"	Str.			3,407
607	6	56	32'-0"	Str.			2,692
608	6	96	38'-6"	Str.			5,551
609	6	64	30'-0"	Str.			2,884
610	6	84	29'-9"	Str.			3,753
611	6	134	29'-6"	Str.			5,937
Total Unit 6							129,320
UNIT 7							
501	5	908	42'-0"	Str.			39,776
502	5	63	36'-0"	Str.			2,366
503	5	115	35'-6"	Str.			4,258
504	5	59	35'-0"	Str.			2,154
505	5	100	34'-9"	Str.			3,624
506	5	40	34'-6"	Str.			1,439
507	5	434	39'-5"	101	38'-7"	10"	17,844
508	5	188	17'-7" to 22'-2"	100	15'-11" to 20'-6"	10"	2,197
509	5	258	34'-9" to 39'-0"	101	33'-11" to 38'-2"	10"	8,077
510	5	105	18'-2"	101	17'-4"	10"	19
511	5	218	51'-3"	101	50'-5"	10"	11,653
512	5	106	17'-8" to 21'-11"	100	16'-0" to 20'-3"	10"	2,188
513	5	1	22'-2"	100	20'-6"	10"	23
514	5	2	5'-8"	101	4'-10"	10"	12
515	5	2	34'-9"	101	33'-11"	10"	72
516	5	74	36'-6"	Str.			2,817
517	5	78	32'-3"	Str.			2,624
518	5	2	17'-7"	100	15'-11"	10"	37
519	5	103	34'-3"	Str.			3,679
520	5	41	34'-0"	Str.			1,454
521	5	247	33'-9"	Str.			8,695
522	5	57	33'-6"	Str.			1,992
523	5	145	33'-3"	Str.			5,029
524	5	70	33'-0"	Str.			2,409
525	5	79	32'-9"	Str.			2,699
526	5	36	32'-6"	Str.			1,220
527	5	176	35'-3"	Str.			6,471
528	5	140	35'-9"	Str.			5,220
529	5	64	36'-3"	Str.			2,420
530	5	96	37'-0"	Str.			3,705
531	5	2	42'-8"	101	41'-10"	10"	89
532	5	2	25'-0"	Str.			52
533	5	1	13'-8"	101	12'-10"	10"	14
534	5	216	40'-4"	101	39'-6"	10"	9,087
535	5	38	32'-0"	Str.			1,268
536	5	1	25'-6"	101	24'-8"	10"	27
537	5	1	16'-0"	Str.			17
538	5	1	12'-9"	Str.			13
539	5	1	16'-8"	101	15'-10"	10"	17
540	5	1	33'-8"	101	32'-10"	10"	35
541	5	1	9'-2"	101	8'-4"	10"	10
542	5	1	21'-11"	100	20'-3"	10"	23
543	5	3	7'-9" to 31'-9"	Str.			247
544	5	4	8'-0" to 37'-0"	Str.			375
Total Unit 7							382,258

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS		WEIGHT LBS.
					A	B	
UNIT 7 CONTINUED							
545	5	4	20'-9"	Str.			87
546	5	4	29'-9"	Str.			124
547	5	2	20'-8"	101	19'-10"	10"	43
404	4	461	5'-9"	120			1771
401	4	30	33'-0"	Str.			661
402	4	20	37'-6"	Str.			501
403	4	15	34'-0"	Str.			341
601	6	644	3'-6"	101	2'-6"	1'-0"	3,386
602	6	908	50'-3"	Str.			68,532
603	6	63	32'-3"	Str.			3,052
604	6	115	31'-9"	Str.			5,484
605	6	59	31'-3"	Str.			2,769
606	6	100	31'-0"	Str.			4,656
607	6	40	30'-9"	Str.			1,847
608	6	382	38'-6"	Str.			22,090
609	6	188	16'-3" to 20'-9"	Str.			2,584
610	6	2	34'-3" to 38'-6"	Str.			10,053
611	6	1	17'-6"	Str.			26
612	6	192	50'-9"	Str.			14,635
613	6	136	16'-3" to 20'-6"	Str.			2,567
614	6	1	20'-9"	Str.			31
615	6	2	34'-3"	Str.			103
616	6	103	30'-6"	Str.			4,719
617	6	2	42'-0"	Str.			126
618	6	74	32'-9"	Str.			3,640
619	6	78	28'-6"	Str.			3,339
620	6	2	16'-3"	Str.			49
621	6	41	30'-3"	Str.			1,863
622	6	247	30'-0"	Str.			11,130
623	6	57	29'-9"	Str.			2,547
624	6	145	29'-6"	Str.			6,425
625	6	70	29'-3"	Str.			3,075
626	6	78	29'-0"	Str.			3,398
627	6	36	28'-9"	Str.			1,555
628	6	176	31'-6"	Str.			8,327
629	6	140	32'-0"	Str.			6,729
630	6	64	32'-6"	Str.			3,124
631	6	96	33'-3"	Str.			4,794
632	6	2	33'-0"	Str.			99
633	6	3	25'-0"	Str.			113
634	6	2	13'-0"	Str.			39
635	6	190	40'-0"	Str.			11,415
636	6	38	28'-3"	Str.			1,612
637	6	2	16'-0"	Str.			48
638	6	1	8'-6"	Str.			13
639	6	1	20'-6"	Str.			31
640	6	4	4'-0" to 28'-0"	Str.			288
641	6	4	12'-0" to 11'-0"	Str.			637
642	6	4	17'-0"	Str.			102
643	6	4	26'-0"	Str.			156
644	6	2	5'-0"	Str.			15
645	6	2	20'-0"	Str.			60
Total Unit 7							382,258

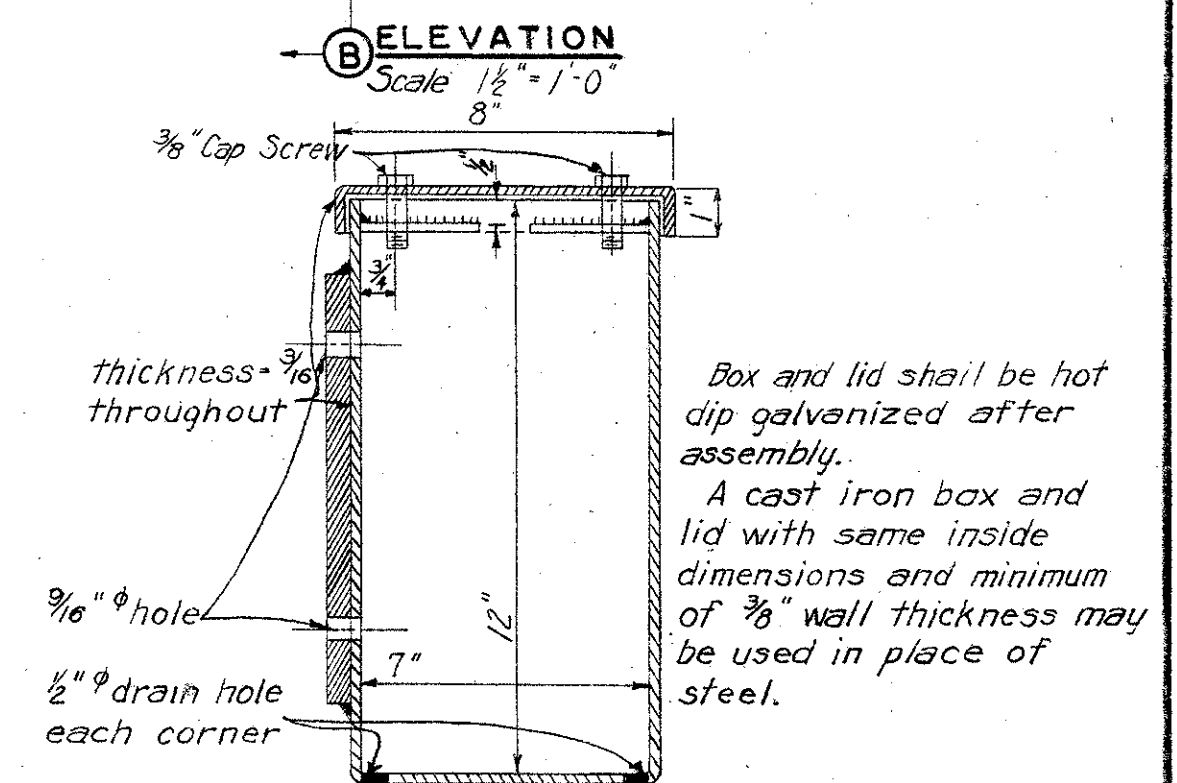
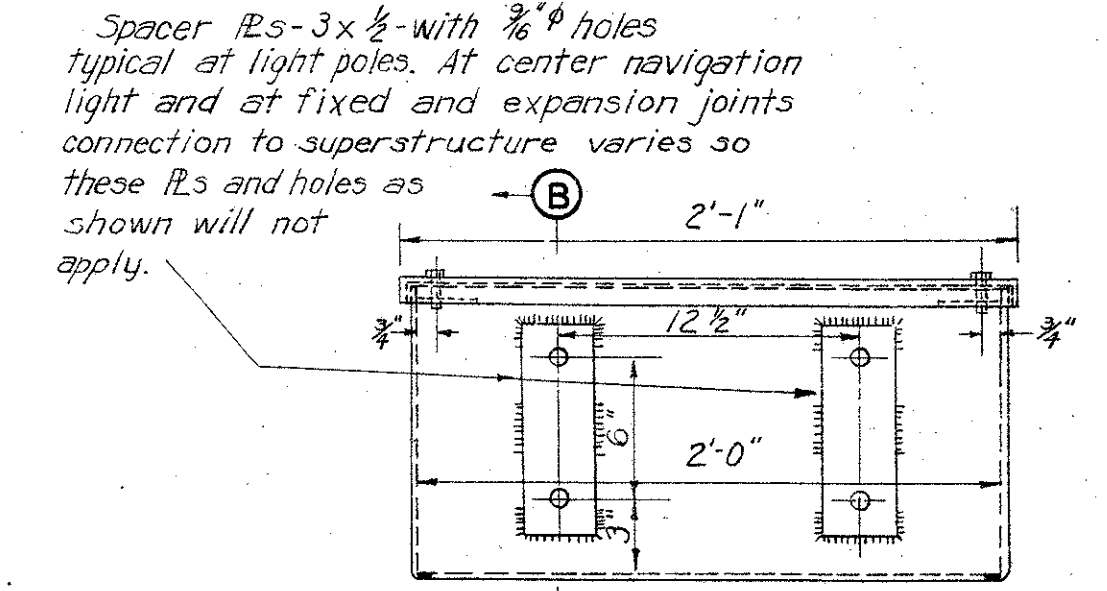
MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS		WEIGHT LBS.
					A	B	
UNIT 8							
501	5	309	42'-0"	Str.			13,336
502	5	24	36'-0"	Str.			901
503	5	26	33'-3"	Str.			902
504	5	26	33'-0"	Str.			895
505	5	25	32'-9"	Str.			854
506	5	51	32'-6"	Str.			1,729
507	5	26	35'-9"	Str.			969
508	5	23	36'-3"	Str.			870
509	5	80	37'-0"	Str.			3,087
510	5	106	36'-9"	Str.			4,063
511	5	1	24'-9"	Str.			26
512	5	1	13'-8"	101	12'-10"	10"	14
513	5	29	32'-0"	Str.			968
514	5	217	38'-6"	101	37'-8"	10"	8,714
515	5	218	38'-2"	101	37'-4"	10"	8,678
516	5	50	36'-6"	Str.			1,903
517	5	152	32'-3"	Str.			5,113
404	4	158	5'-9"	120			607
401	4	10	38'-9"	Str.			259
402	4	10	38'-6"	Str.			257
601	6	92	3'-6"	101	2'-6"	1'-0"	484
602	6	309	50'-3"	Str.			23,322
603	6	24	32'-3"	Str.			1,163
604	6	26	29'-6"	Str.			1,152
605	6	26	29'-3"	Str.			1,142
606	6	25	29'-0"	Str.			1,089
607	6	51	28'-9"	Str.			2,202
608	6	26	32'-0"	Str.			1,250
609	6	23	32'-6"	Str.			1,123
610	6	80	33'-3"	Str.			3,995
611	6	106	33'-0"	Str.			5,254
612	6	1	25'-0"	Str.			38
613	6	1	13'-0"	Str.			20
614	6	29	28'-3"	Str.			1,231
615	6	191	38'-0"	Str.			10,902
616	6	152	28'-6"	Str.			6,507
617	6	192	37'-9"	Str.			10,886
618	6	50	32'-9"	Str.			2,460
Total Unit 8							128,565
UNIT 9							
501	5	720	42'-0"	Str.			31,540
502	5	29	36'-0"	Str.			1,089
503	5	22	35'-6"	Str.			815
504	5	19	35'-0"	Str.			694
505	5	21	34'-9"	Str.			761
506	5	1068	34'-6"	Str.			38,430
507	5	218	36'-0"	101	35'-2"	10"	8,185
508	5	109	36'-3"	Str.			4,121
509	5	136	20'-8"	100	19'-0"	10"	2,932
510	5	27	45'-1"	100	43'-5"	10"	1,270
511	5	28	45'-4"	100	43'-8"	10"	1,324
512	5	218	40'-8"	101	39'-10"	10"	9,247
513	5	27	45'-7"	100	43'-11"	10"	1,284
514	5	27	45'-10"	100	44'-2"	10"	1,291
516	5	16	36'-6"	Str.			609
519	5	27	34'-3"	Str.			965
520	5	13	34'-0"	Str.			461
521	5	25	33'-9"	Str.			880
522	5	25	33'-6"	Str.			874
523	5	25	33'-3"	Str.			867
524	5	22	33'-0"	Str.			757
525	5	27	32'-9"	Str.			922
526	5	25	32'-6"	Str.			847
527	5	22	35'-3"	Str.			809
528	5	26	35'-9"	Str.			969
529	5	29	36'-3"	Str.			1,096
Total Unit 9							300,512

MARK	SIZE	NO.	LENGTH	TYPE	DIMENSIONS		WEIGHT LBS.
					A	B	
UNIT 9 CONTINUED							
530	5						

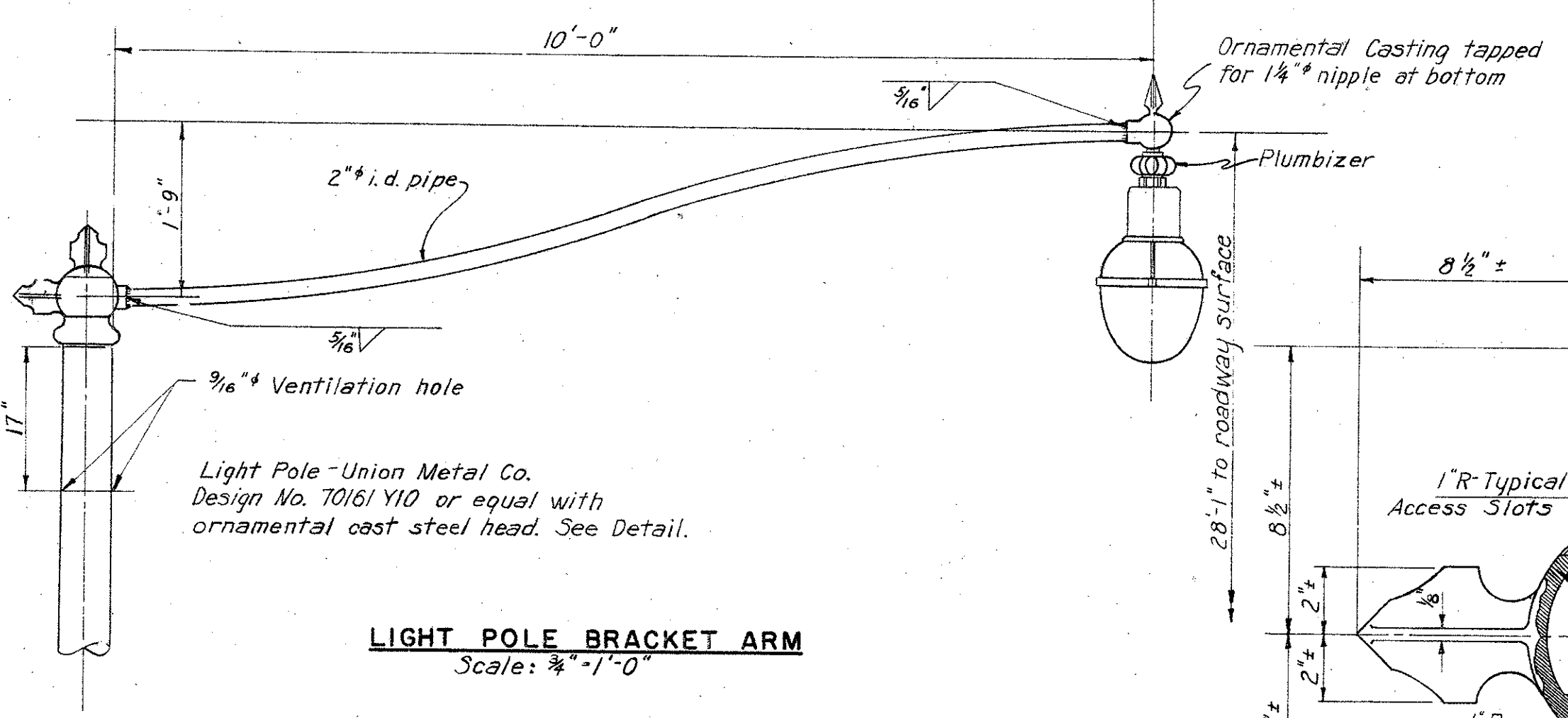
CUYAHOGA COUNTY
CITY OF CLEVELAND
INNER BELT FREEWAY
CENTRAL VIADUCT



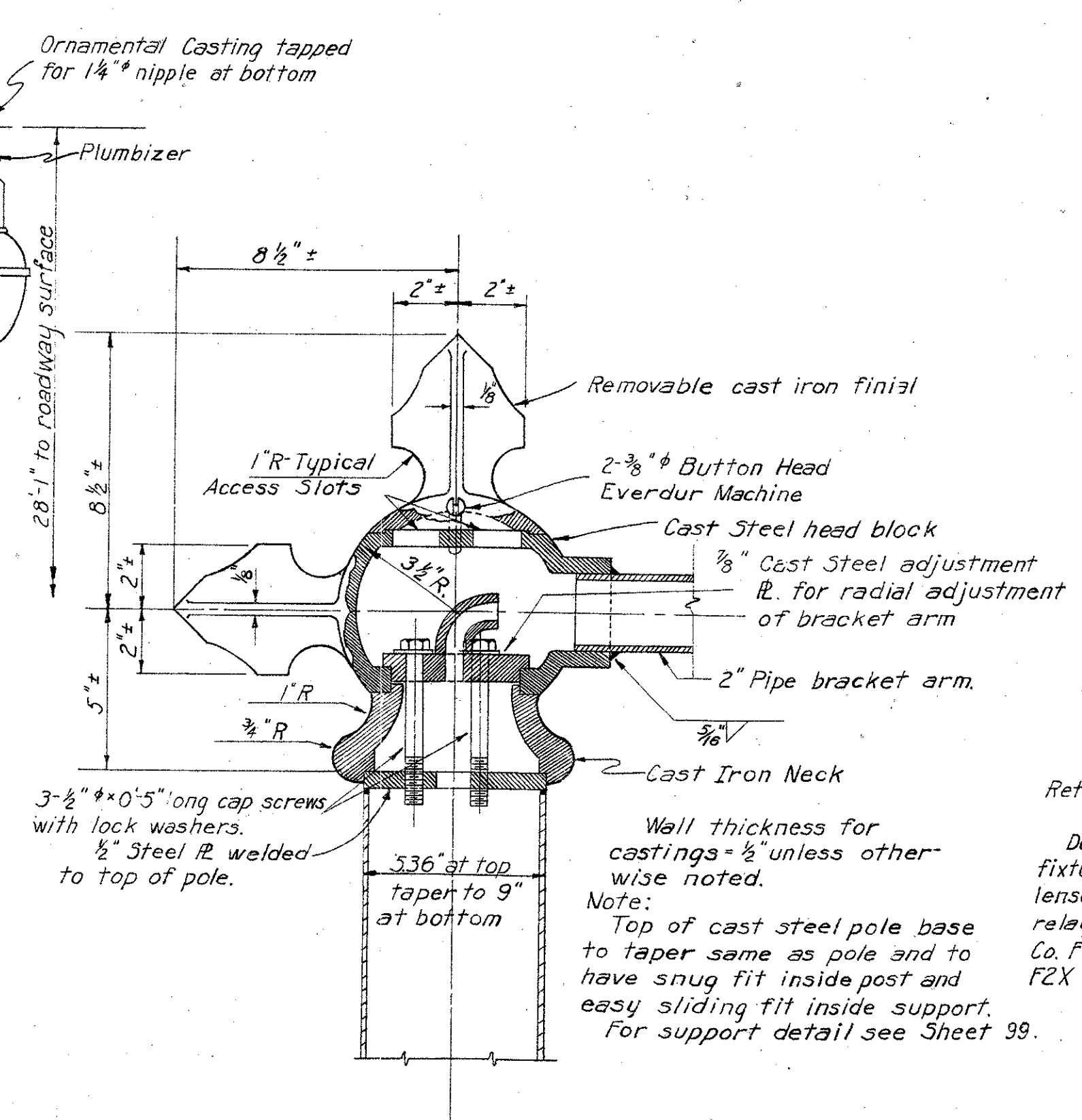
ROADWAY AND NAVIGATION LIGHTING
SERIES WIRING DIAGRAM
No Scale



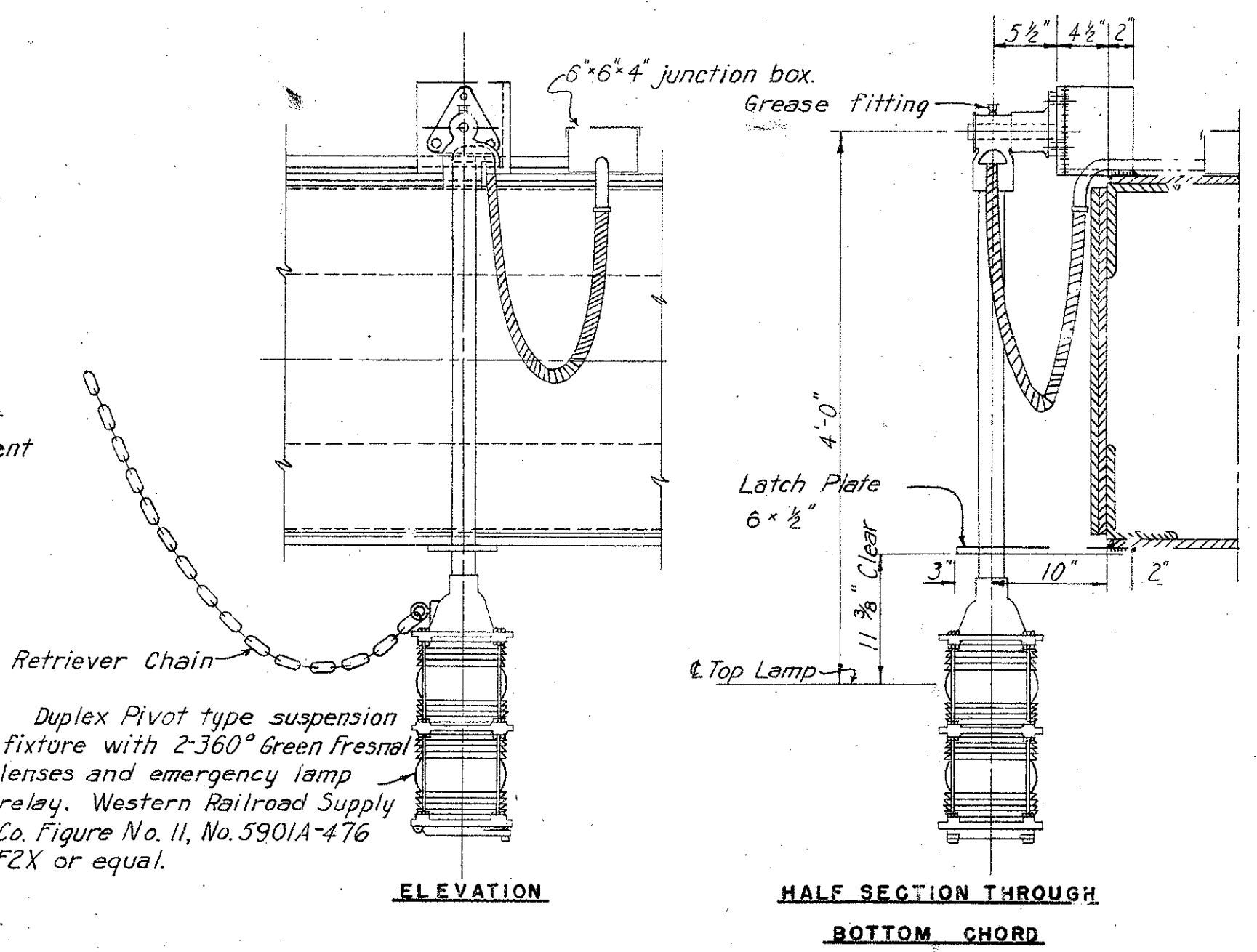
SECTION B-B
Scale: 3" = 1'-0"
JUNCTION BOX - 84 REQUIRED



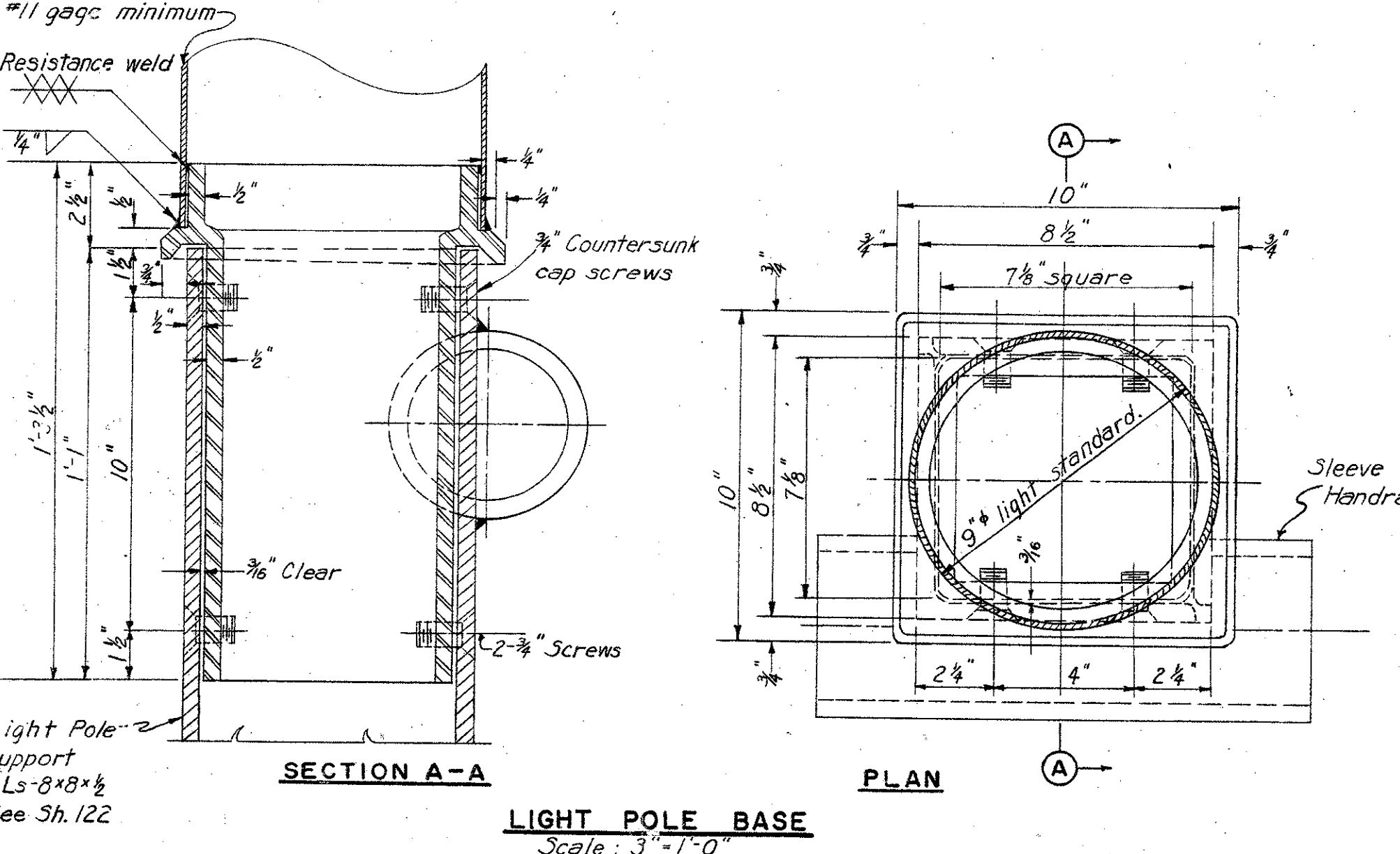
LIGHT POLE BRACKET ARM
Scale: 3/4" = 1'-0"



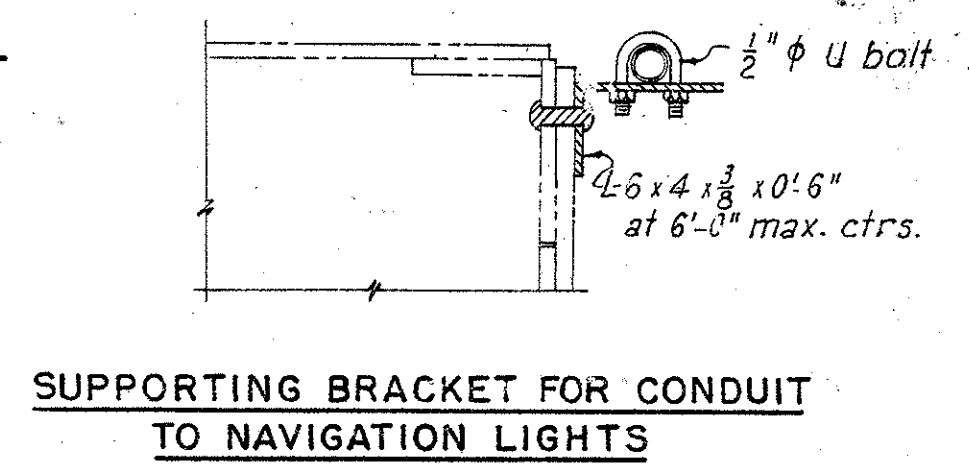
ORNAMENTAL LIGHT POLE HEAD
Scale: 3" = 1'-0"



360° GREEN CLEARANCE LIGHT

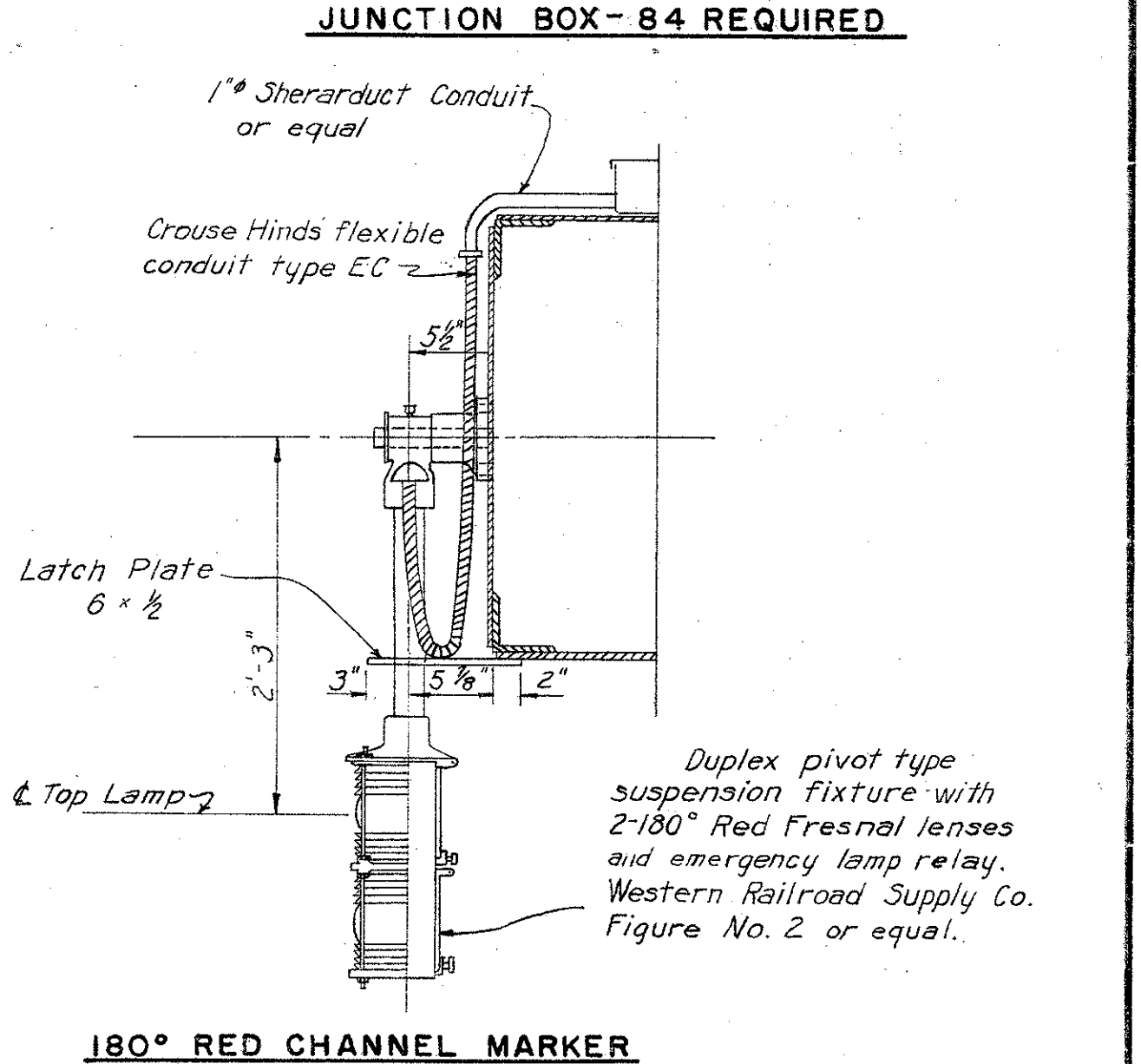


LIGHT POLE BASE
Scale: 3" = 1'-0"



SUPPORTING BRACKET FOR CONDUIT TO NAVIGATION LIGHTS

NAVIGATION LIGHTS
Scale: 1" = 1'-0"



180° RED CHANNEL MARKER

PART 3

U. S. ROUTE 42 RELOCATION
INNER BELT FREEWAY - CENTRAL VIADUCT
BR. NO. CU - 42 R-17 5

ROADWAY AND NAVIGATION LIGHTING

CLEVELAND, OHIO CUYAHOGA COUNTY OHIO

SCALE: As Shown
MADE: DME DATE: 2-25-54
TRCD: DJK DATE: 11-27-54
CKD: G.A. DATE: 2-1-55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
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