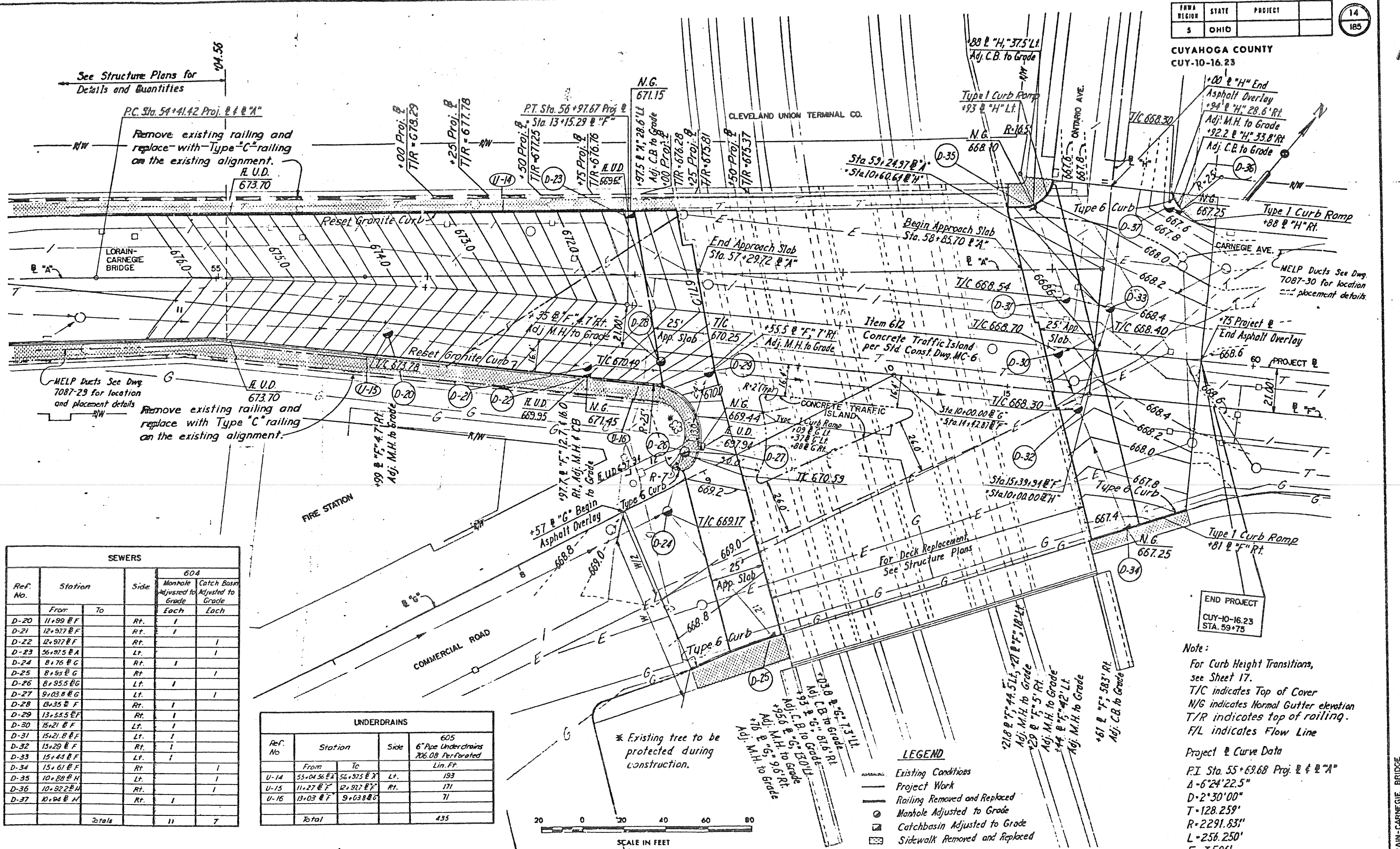


CUYAHOGA COUNTY
CUY-10-16.23



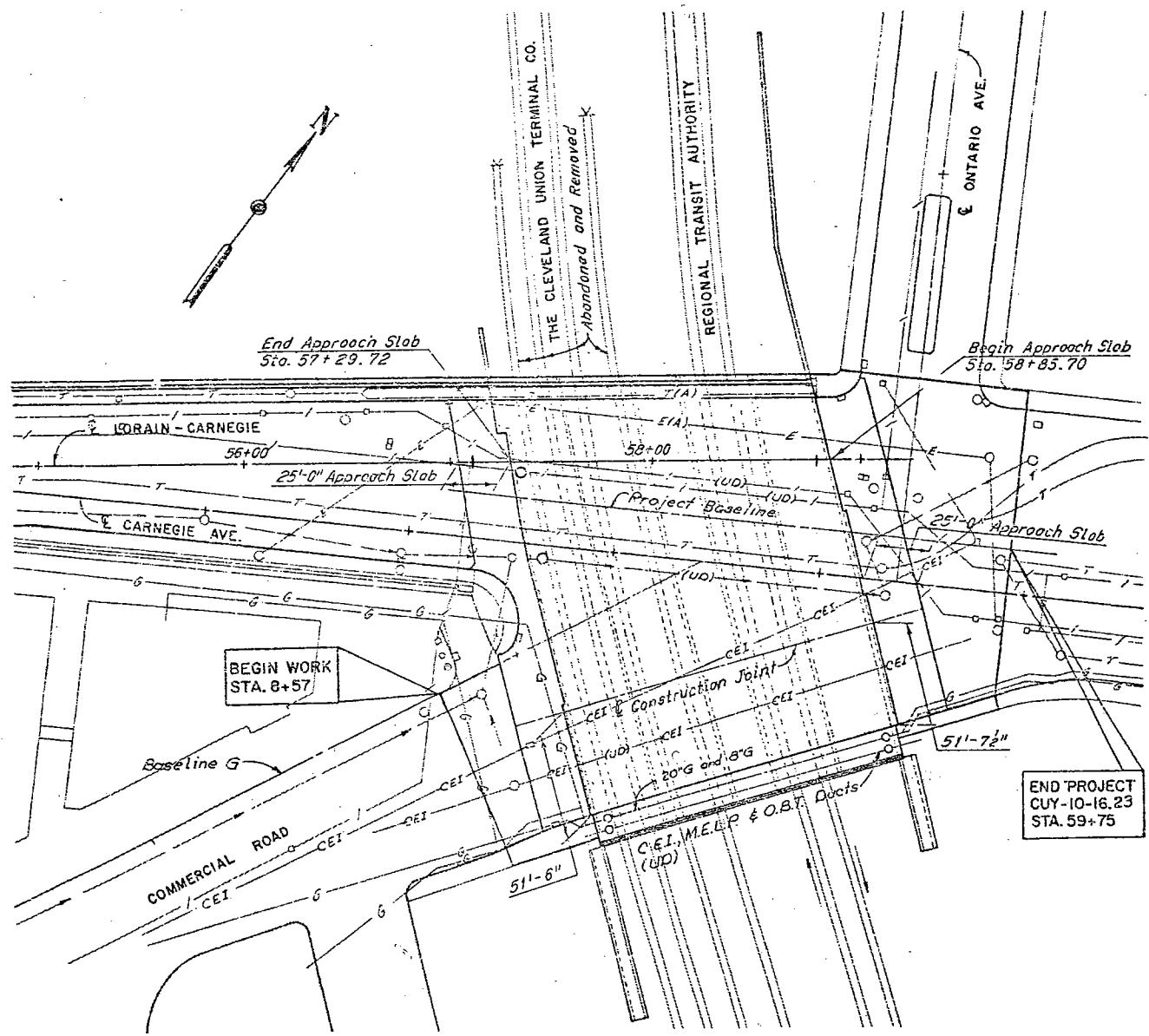
SEWERS					
Ref. No.	Station		Side	604	
	From	To		Manhole Adjusted to Grade Each	Catch Basin Adjusted to Grade Each
D-20	11+99	12+00	Rt.	1	
D-21	12+97	13+00	Rt.	1	
D-22	12+97	13+00	Rt.		1
D-23	56+97.5	57+00	Lt.		1
D-24	8+76	8+80	Rt.	1	
D-25	8+93	8+95	Rt.		1
D-26	8+95.5	8+98	Lt.	1	
D-27	9+03.8	9+05	Lt.		1
D-28	13+35	13+40	Rt.	1	
D-29	13+53.5	13+55	Rt.	1	
D-30	15+21	15+25	Lt.	1	
D-31	15+21	15+25	Lt.		1
D-32	15+29	15+35	Rt.	1	
D-33	15+43	15+45	Lt.	1	
D-34	15+61	15+65	Rt.		1
D-35	10+88	10+90	Lt.	1	
D-36	10+82	10+85	Rt.		1
D-37	10+84	10+85	Rt.	1	
Totals			11	7	

UNDERDRAINS				
Ref. No.	Station		Side	605 6" Pipe Underdrains 706.08 Perforated Lin. Ft.
	From	To		
U-14	55+04.56	56+97.5	Lt.	193
U-15	11+27	12+97	Rt.	171
U-16	13+03	9+03.8	G	71
Total				435

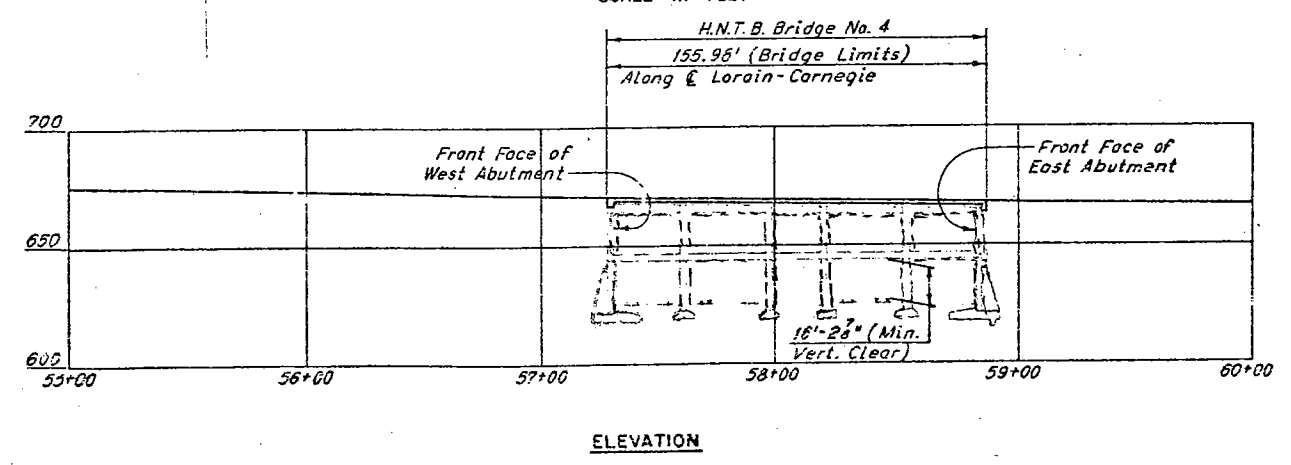
- LEGEND**
- Existing Conditions
 - Project Work
 - Railing Removed and Replaced
 - Manhole Adjusted to Grade
 - Catchbasin Adjusted to Grade
 - Sidewalk Removed and Replaced

Note:
For Curb Height Transitions, see Sheet 17.
T/C indicates Top of Cover
N/G indicates Normal Gutter elevation
T/R indicates top of railing.
F/L indicates Flow Line

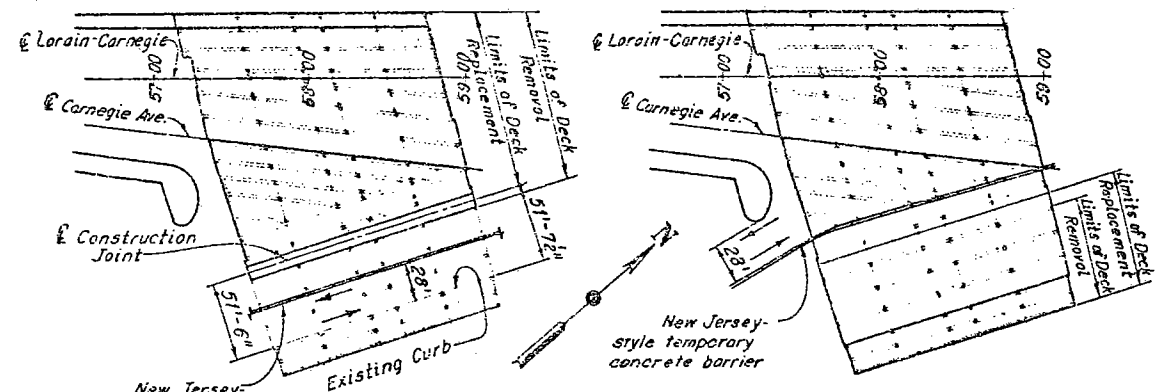
Project & Curve Data
P.I. Sta. 55+69.68 Proj. & Curve "A"
Δ=6°24'22.5"
D=2°30'00"
T=128.259'
R=2291.83'
L=256.250'
E=3.586'



PLAN
(Utilities not shown otherwise are underground utilities)
40 0 40 80 120 160
SCALE IN FEET



ELEVATION



STAGE I
STAGE II
TRAFFIC MAINTENANCE - CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
Scale: 1"=60'

The stage construction applies within the bridge and approach slab limits. All repair work shall be coordinated with the stage construction as shown.

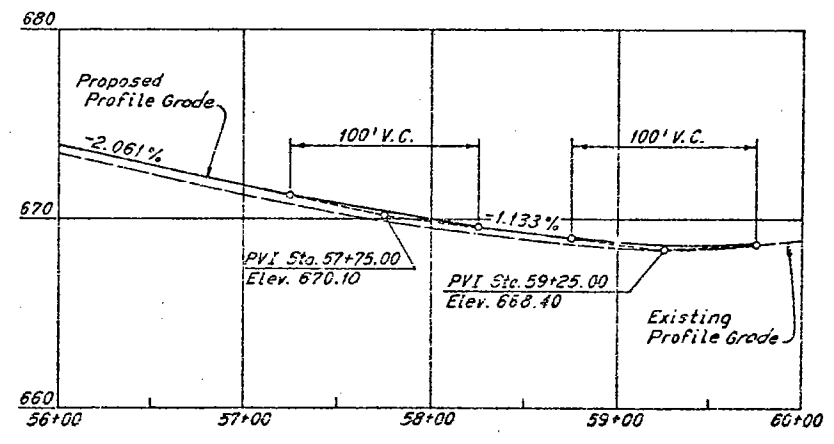
Notes:
Subeaved linework indicates existing conditions.
For Project Baseline Data, and Baseline G Data,
See Roadway Plans.

Note:
Underground and underdeck utilities not indicated as being abandoned shall remain. The information shown on this drawing concerning type and location of underground and underdeck utilities is not guaranteed to be accurate or all inclusive. The Contractor is responsible for making his own determination as to the type and location of underground and underdeck utilities as may be necessary to avoid damage thereto. Full expense involved in relocating the affected utility, except where the relocation is covered in these plans, shall be borne by the Owner of the utility. The Contractor and Owner are requested to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum.

UTILITY LEGEND

- (A) - Indicates a utility to be abandoned
- (UD) - Indicates an underdeck utility
- E - Indicates Municipal Electric Light and Power line (M.E.L.P.)
- T - Indicates Ohio Bell Telephone Line (O.B.T.)
- l - Indicates water line
- G - Indicates gas line
- - Indicates sewer line
- CEI— - Indicates Cleveland Electric Illuminating Company line (C.E.I.)

PROPOSED STRUCTURE DATA ON CONCRETE GIRDERS
BRIDGE NO. CUY-10-1685
TYPE: Reinforced Concrete Girder, Deck and Substructure
SPAN: See Framing Plan, Sheet No. 150.
ROADWAY: Varies
LOADING: HS 20-44 Case II and The Alternate Military Loading
SKEW: Varies
WEARING SURF: 2 3/4" Asphalt Concrete (Rubberized)
ALIGN: Tangent



PROFILE GRADE GRADE SEPARATION
ALONG PROJECT BASELINE

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

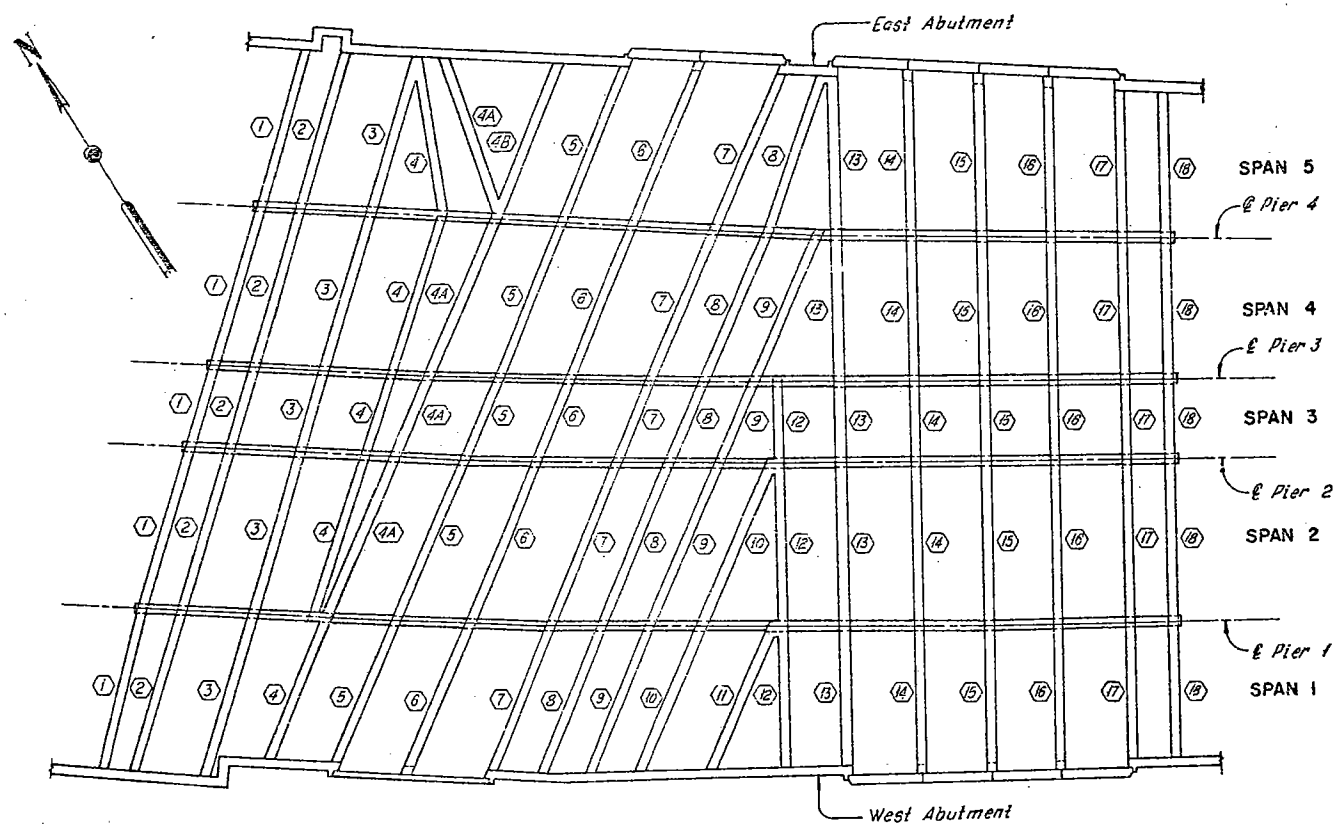
HNTB

SITE PLAN

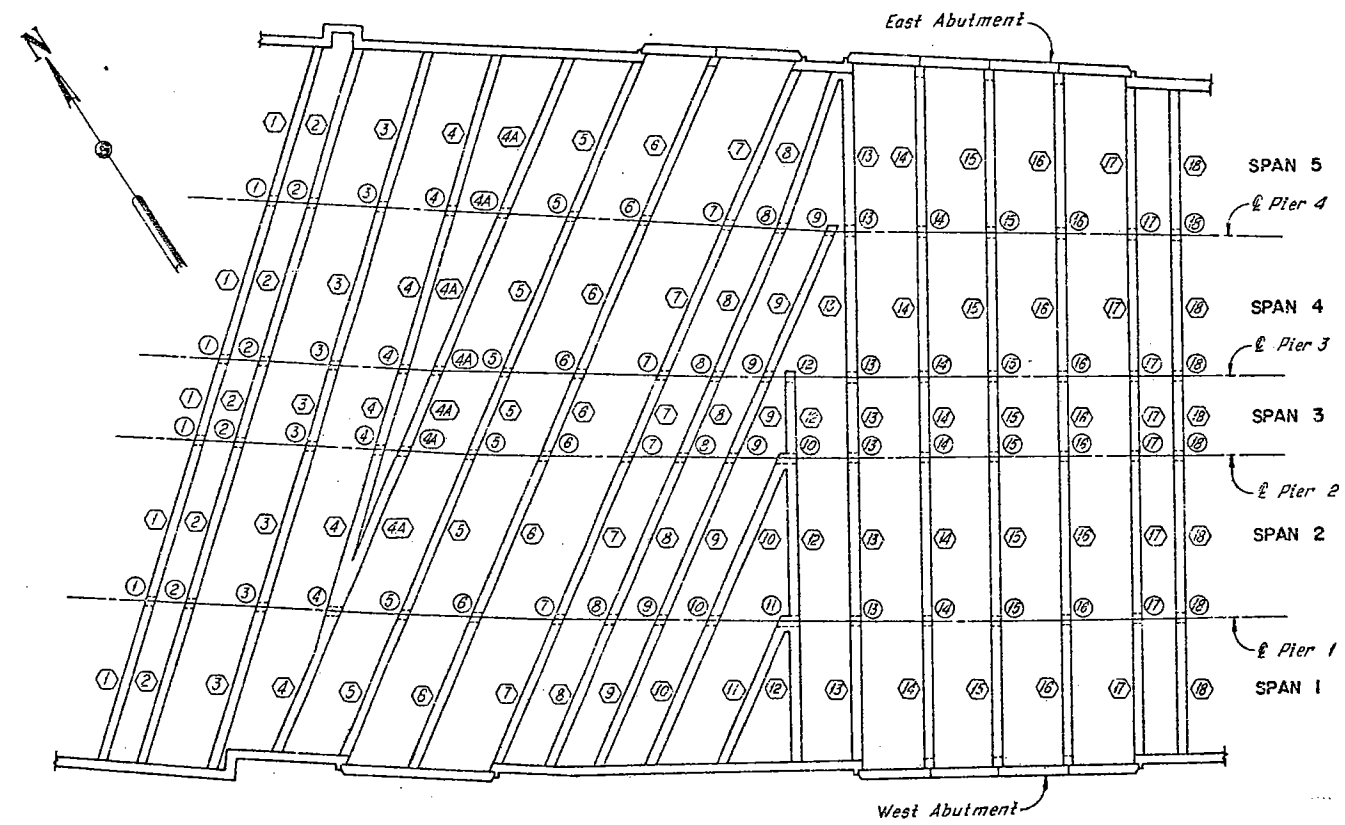
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY-10-1685 STA. 57+29.72
CUYAHOGA COUNTY OHIO STA. 58+85.70

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
DATE 9-23-75	DATE 9-7-75	DATE 9-25-75	DATE	

SHEET 1 OF 3



STRUT AND PIER IDENTIFICATION PLAN
(Lower Level Framing)



GIRDER AND COLUMN IDENTIFICATION PLAN
(Upper Level Framing)

LEGEND:

- Strut or Girder
- Column

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

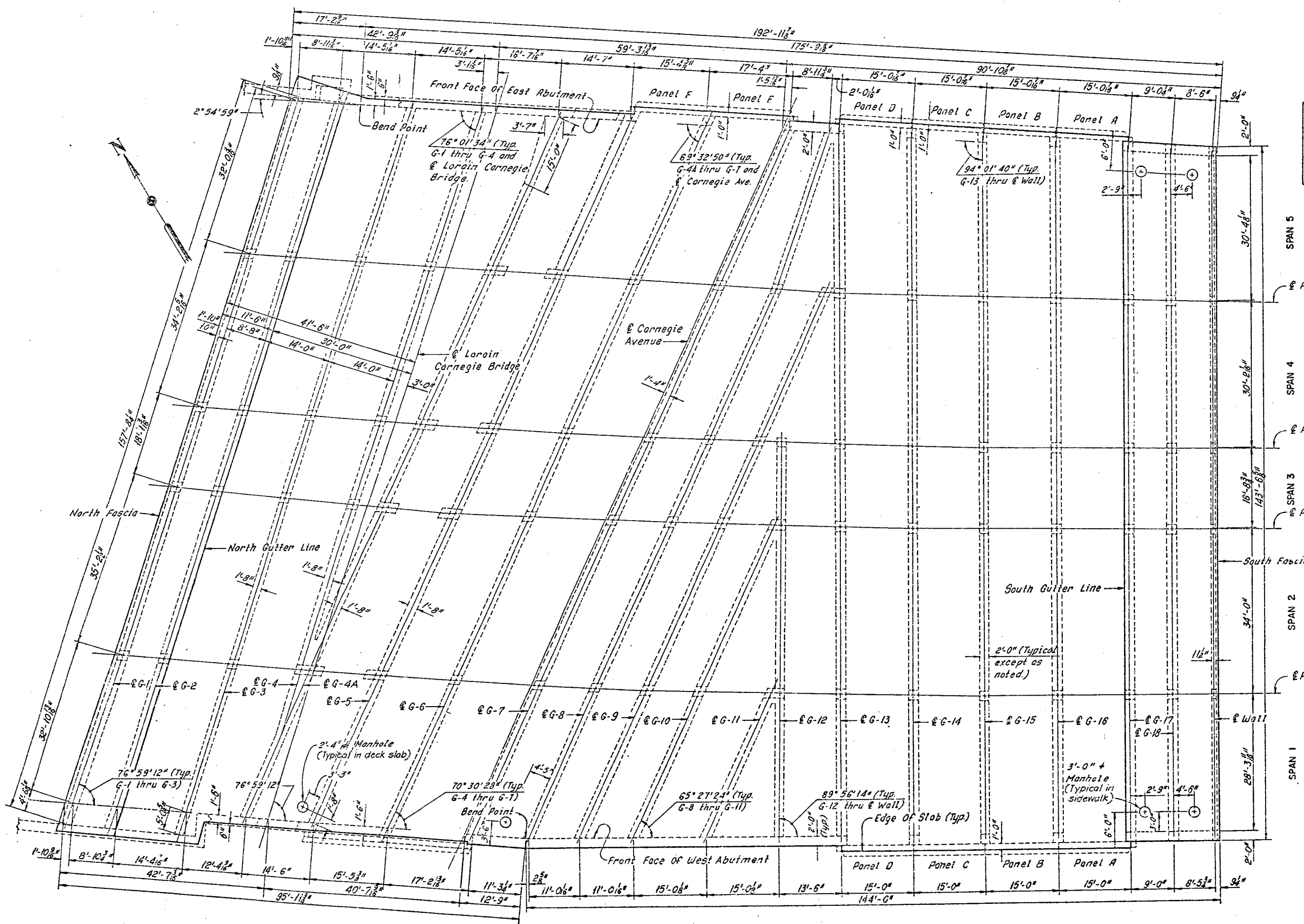
HNTB

MEMBER IDENTIFICATION PLANS

REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY-10-1685 STA. 57+29.72
CUYAHOGA COUNTY STA. 58+85.70
OHIO

DRAWN BY	TRACED BY	CHECKED BY	REVIEWED	REVISED
DATE: 4-25-85	DATE: 4-25-85	DATE: 4-25-85	DATE:	DATE:

Note:
Prior to deck removal over the girders, Girders 2 thru 16 shall be shored. For Girders 2 thru 18 removal, see removal plans, typical section along Pier 3, Sheet 4/31.



Notes:
For typical deck and girder removal details, see Sheet 4/31.
The existing manholes shall be reconstructed to grade. For details, see Sheets 25/31 and 27/31.

For strut and column removal details, see Sheet 6/31.

For removal plans of the West Abutment, see Sheets 7/31 thru 9/31.

For removal plans of the East Abutment, see Sheets 10/31 thru 12/31.

For removal plans along Pier 3, see Sheets 4/31 and 5/31.

For stage construction, see Sheet 1/31.

DECK PLAN

HNTB BRIDGE NO. 4

HOWARD, NEEDLES TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

DECK REMOVAL AND FRAMING PLAN

REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)

BR. NO. CUY. -10-1685 STA 57+29.72
STA 58+85.70

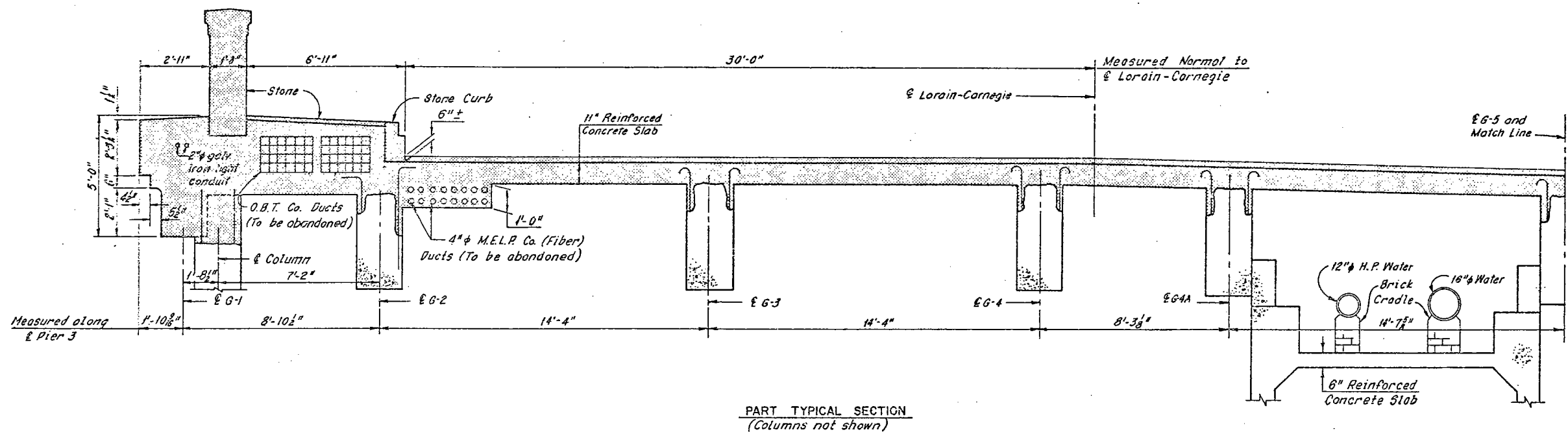
CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
BO	EP	FR		
DATE 20-7-72	DATE 20-7-72	DATE 7-72	DATE	SHEET 3/31

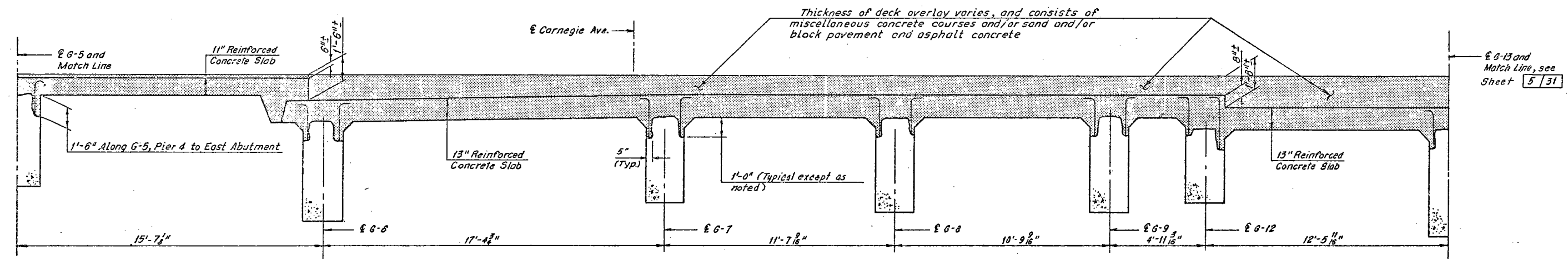
FHWA REGION	STATE	PROJECT
5	OHIO	

151
185

CUYAHOGA COUNTY
CUY-10-16.23



PART TYPICAL SECTION
(Columns not shown)



PART TYPICAL SECTION
(Columns not shown)

SPECIAL REQUIREMENTS FOR GIRDER 1 AND DECK REMOVAL

- The girders are under a compressive load from the abutments. Before Girder 1 replacement work begins the Contractor shall temporarily support the abutments at the girder. The supports shall be preloaded to resist a total compressive force of 35 kips at each abutment and shall be retained until the replacement Girder 1 attains its design strength. (For requirements and payment for temporary supports see General Note 9 on Sheet GN-1 and notes on Sheet E-1)
- Suggested deck removal sequence:
 - Laterally support Girders 2 thru 18 at each pier before deck removal operations begin.
 - Remove the deck between girders.
 - Shore girders 2 thru 18 continually throughout their length. Preload the supports with an upward force equal to the weight of the girder and remaining deck (Shoring shall remain in place until the replacement deck attains its design strength).
 - Remove the remaining portion of the deck.
 - An alternate sequence may be submitted to the Director for consideration and approval.

Notes:

- Zip-a-tone indicates portions of the structure to be removed.
- For Removal Details at Girders 2 thru 13, see Detail A, Sheet 5/31.
- For Framing Plan, see Sheet 3/31.
- For Modified Typical Section at Pier 3, see Sheets 22/31 and 23/31.
- The following abbreviations are used:
 - Typ. = Typical
 - O.B.T. = Ohio Bell Telephone Company
 - C.E.I. = Cleveland Electric Illuminating Company
 - M.E.L.P. = Municipality Electric Light and Power
 - P.H.P. = Plain and, high pressure
 - H.P. = High Pressure
- All existing reinforcing shown shall be retained. Other existing reinforcing shall be removed, except as noted in Detail A, Sheet 5/31.
- For Stage Construction, see Sheet 1/31.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND HNTB

REMOVAL PLANS
TYPICAL SECTION ALONG PIER 3
REHABILITATION OF THE
CARNegie AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY-10-1685 STA. 57+29.72
CUYAHOGA COUNTY STA. 58+85.70 OHIO

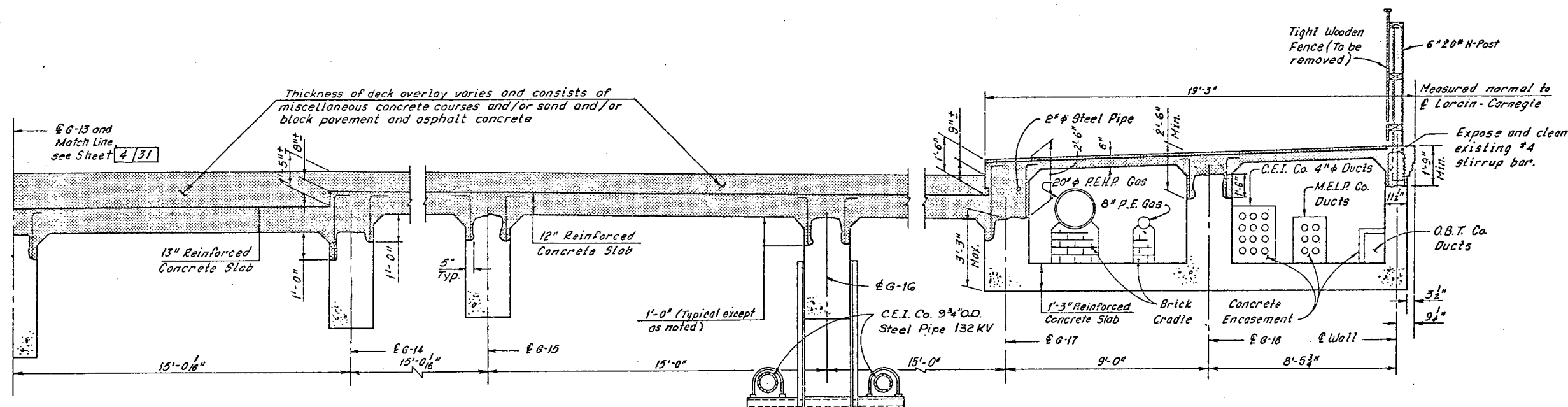
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DATE: 11-78	DATE: 3-78	DATE: 7-78	DATE:	DATE:

SHEET 4/31

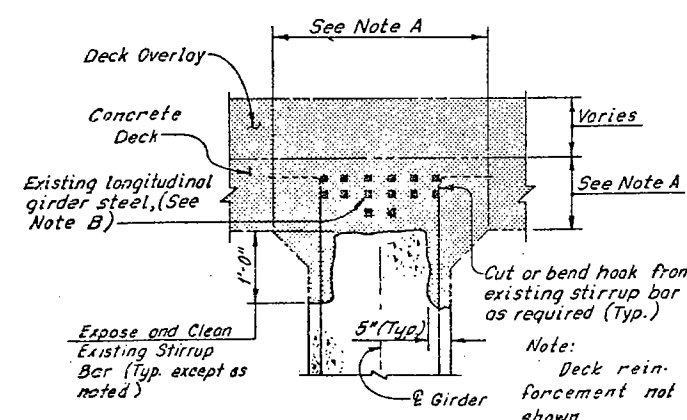
FHWA REGION	STATE	PROJECT
5	OHIO	

152
185

CUYAHOGA COUNTY
CUY-10-16.23



PART TYPICAL SECTION
(Columns and C.E.I. Protection not shown)



DETAIL A
(Girder 2 Thru Girder 18)

Note A:
Concrete above the girders shall remain in place until the girders have been properly shored. Special requirements for Girder 1 and Deck Removal, see Sheet 4/31.

Note B:
All existing longitudinal girder reinforcement shall be retained except at the option of the Contractor and with the approval of the Engineer new bars may be substituted for the original bars. The new bars may be round or square with a cross-sectional area equal or greater than the original bars. No additional payment will be made for substituting new bars for the original bars.

Notes:
Zip-a-tone indicates portions of the structure to be removed.
For Framing Plan, see Sheet 3/31.
For Modified Typical Section of Pier 3, see Sheets 22/31 and 23/31.
The following abbreviations are used:
Typ. = Typical
O.B.T. = Ohio Bell Telephone Company
C.E.I. = Cleveland Electric Illuminating Company
M.E.L.P. = Municipaly Electric Light and Power
P.E.H.P. = Plain end, high pressure
H.P. = High Pressure
All existing reinforcing shown shall be retained. Other existing reinforcing shall be removed, except as noted in Detail A.
For Stage Construction, see Sheet 1/31.

HNTB BRIDGE NO. 4

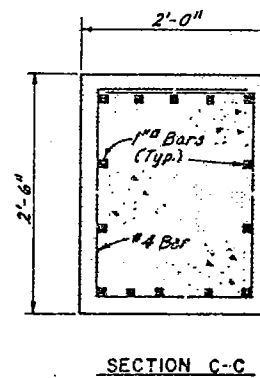
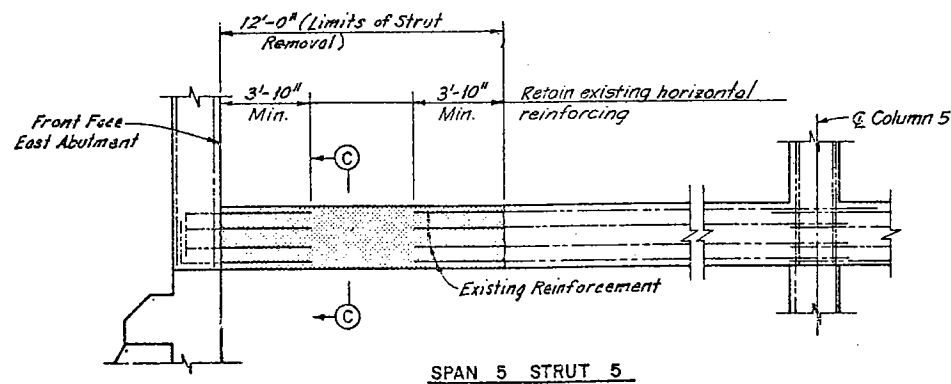
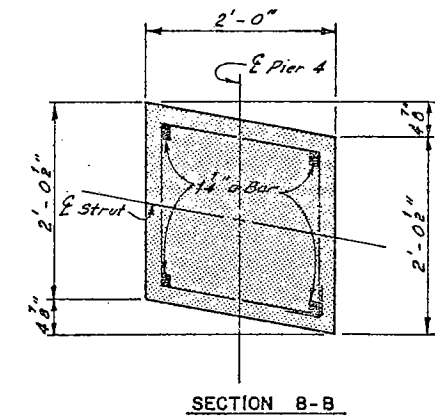
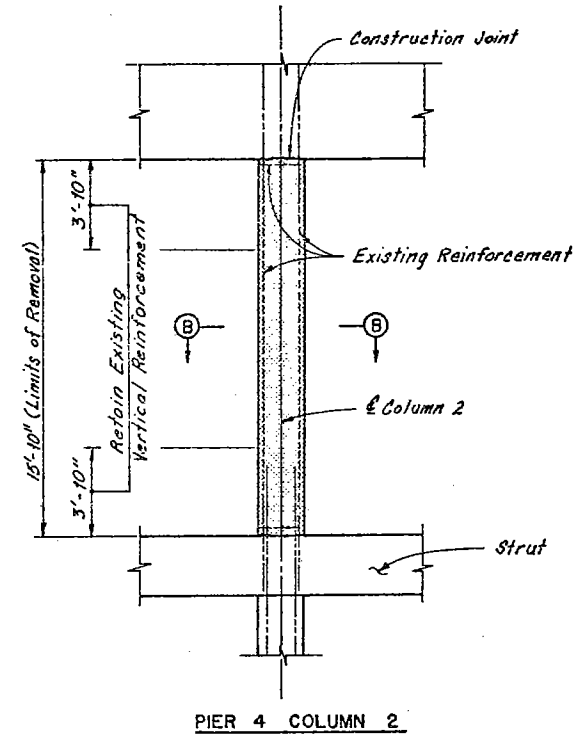
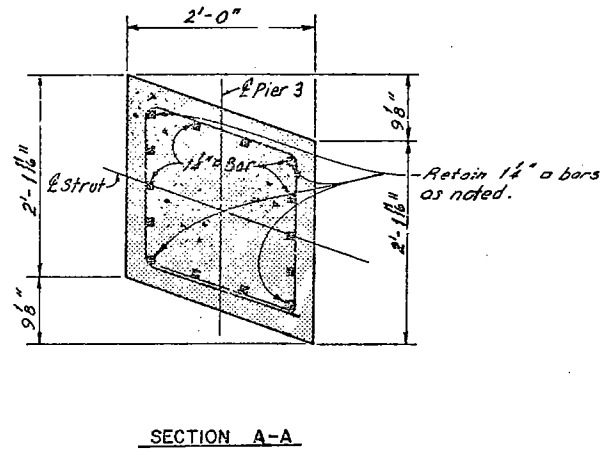
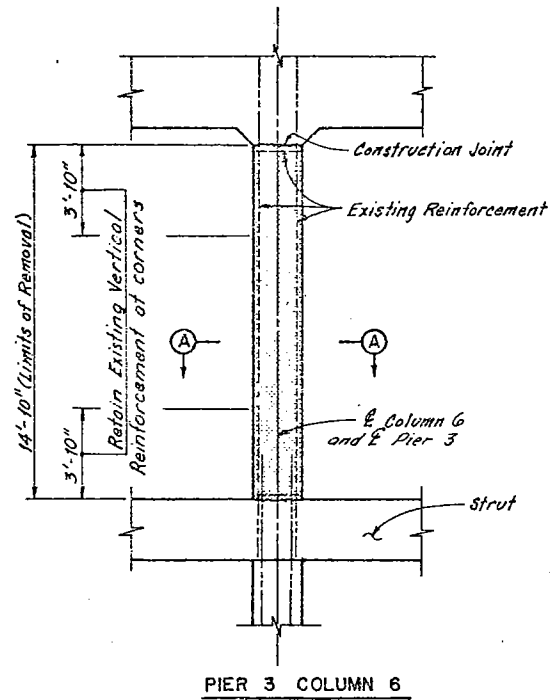
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

REMOVAL PLANS
TYPICAL SECTION ALONG PIER 3
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72
CUYAHOGA COUNTY STA. 58+85.70
OHIO

DRAWN R.P.	TRACED S.P.	CHECKED P.B.	REVIEWED	REVISED
DATE: 5-17-77	DATE: 5-31-77	DATE: 7-7-78	DATE	

SHEET 5/31



Special Requirements for Strut Removal

1. The strut removal and repair shall be accomplished prior to shoring the girders.
2. The strut is under a compressive load from the abutments. Before strut removal work begins, the Contractor shall install temporary supports between Column 5 and the East Abutment as close as possible to the strut top. The supports shall be preloaded with a total load 153.5 kips and this load shall be retained until the replacement strut attains design strength.

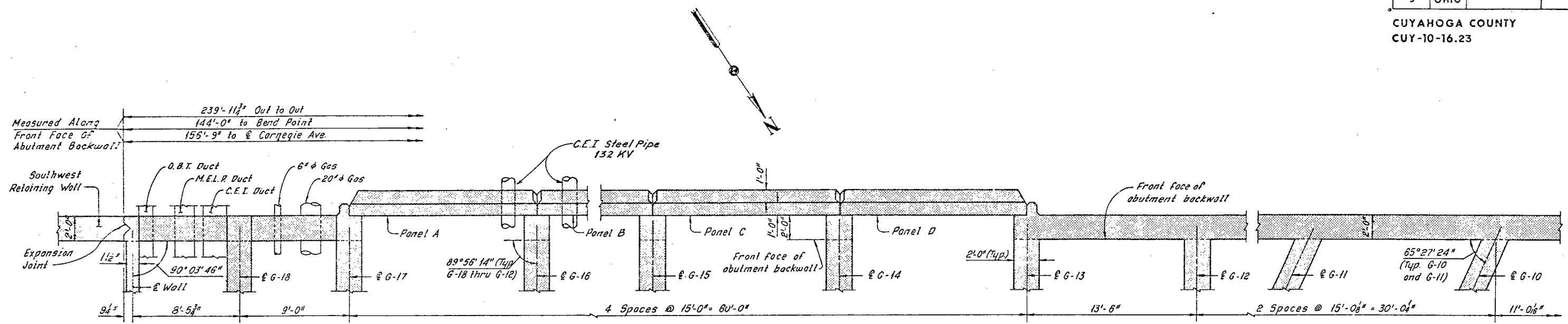
Note:
 Zipatone indicates portions of structure to be removed.
 For strut and column repair details, see Sheet 19/31.
 For member identification plans, see Sheet 2/31.

HNTB BRIDGE NO. 4		HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND		HNTB	
STRUT AND COLUMN REMOVAL DETAILS REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (SR 10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY) BR. NO. CUY-10-1685 STA. 57+29.72 CUYAHOGA COUNTY OHIO STA. 58+85.70					
DRAWN	TRACED	CHECKED	REVIEWED	REVISED	
AJT	DES	RAJ			
DATE 8-1-78	DATE 8-3-78	DATE 9-6-78	DATE		SHEET 5/31

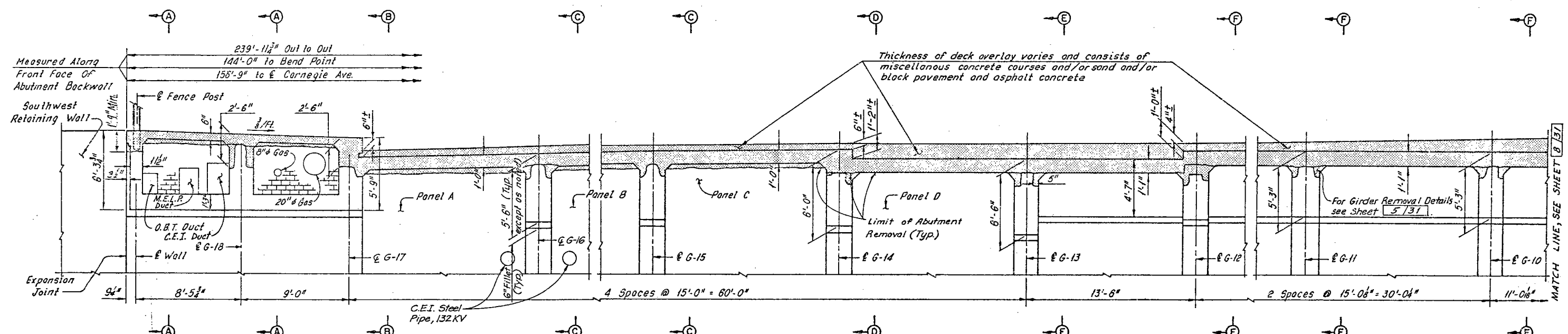
FHWA REGION	STATE	PROJECT
5	OHIO	

154
185

CUYAHOGA COUNTY
CUI-10-16.23



PART PLAN - WEST ABUTMENT
(Slab not shown)



PART ELEVATION - WEST ABUTMENT

Note:
All existing vertical abutment reinforcement and all existing horizontal abutment reinforcement below the bottom of the new deck shall be retained as part of the new construction, except at new slab edge beams shown on Sheet 14/31. Horizontal reinforcement may be replaced in kind at no additional cost to the State.

Notes:
Zip-a-tone indicates portions of the structure to be removed.
For Sections A-A thru F-F, see Sheet 9/31.
For Modified West Abutment Details, see Sheets 13/31 thru 15/31.
The following abbreviations are used:
Typ. = Typical
M.E.L.P. = Municipal Electric Light and Power
O.B.T. = Ohio Bell Telephone Company
C.E.I. = Cleveland Electric Illuminating Company
For Stage Construction, see Sheet 1/31.

HNTB BRIDGE NO. 4

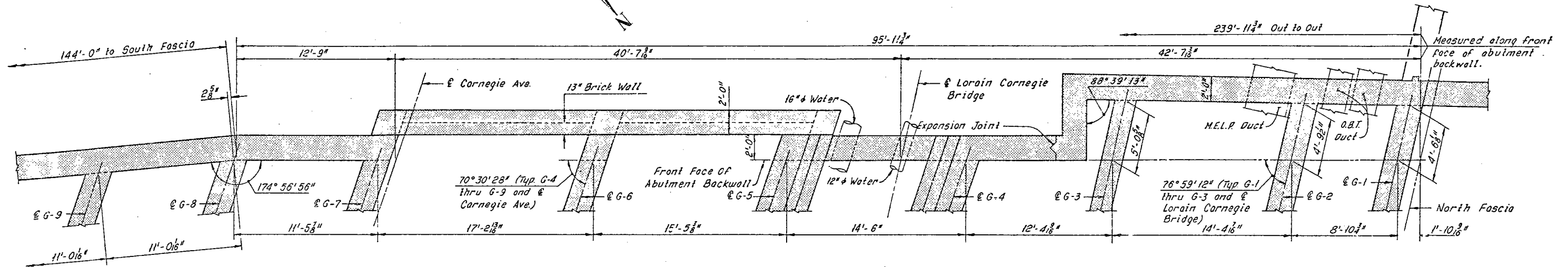
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

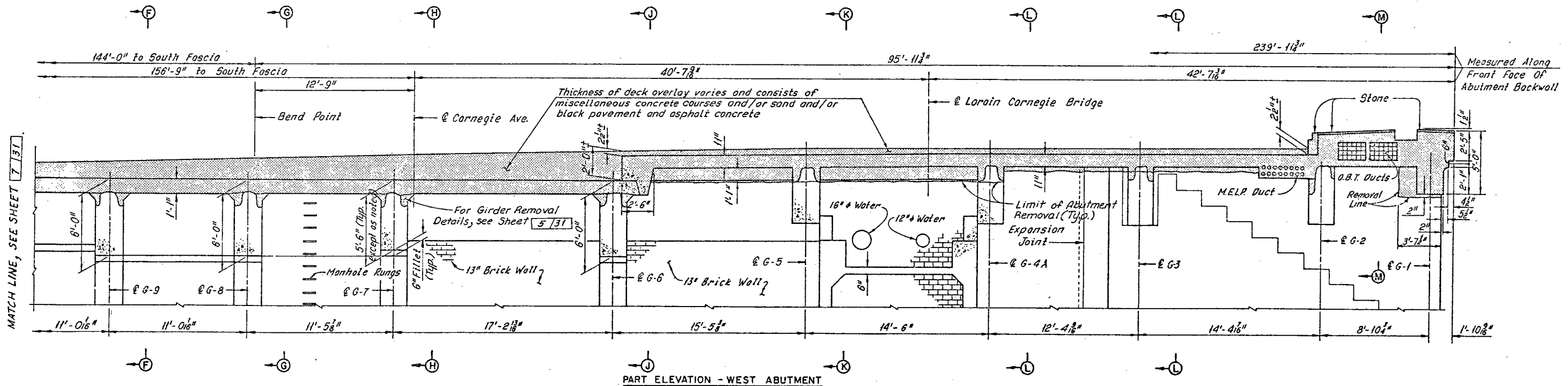
**REMOVAL PLANS
WEST ABUTMENT**
REHABILITATION OF THE
CARNegie AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR NO. CUY. -10-1685 STA. 57+29.72
CUYAHOGA COUNTY OHIO STA. 58+85.70

DRAWN BP DATE 5-17-85	TRACED SP DATE 10-13-85	CHECKED PB DATE 7-7-85	REVIEWED DATE	REVISED DATE
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SHEET 7/31



PART PLAN - WEST ABUTMENT
(Slab not shown)



PART ELEVATION - WEST ABUTMENT

Note:
All existing vertical abutment reinforcement and all existing horizontal abutment reinforcement below the bottom of the new deck shall be retained as part of the new construction, except at new slab edge beams shown on Sheet 14/31. Horizontal reinforcement may be replaced in kind at no additional cost to the State.

Notes:
Zia-a-tone indicates portions of the structure to be removed.
For Sections F-F thru M-M, see Sheet 9/31.
For modified West Abutment details, see Sheets 13/31 thru 15/31.
The following abbreviations are used:
Typ. = Typical
M.E.L.P. = Municipal Electric Light and Power
O.B.T. = Ohio Bell Telephone Company
C.E.I. = Cleveland Electric Illuminating Company

HNTB BRIDGE NO. 4

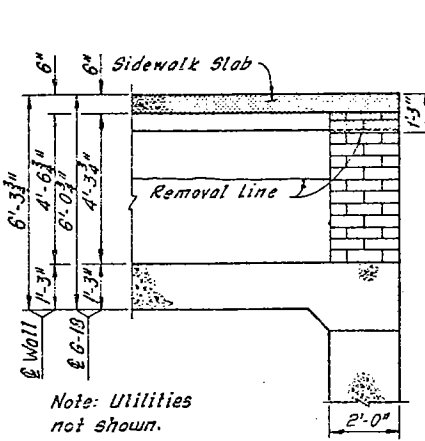
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

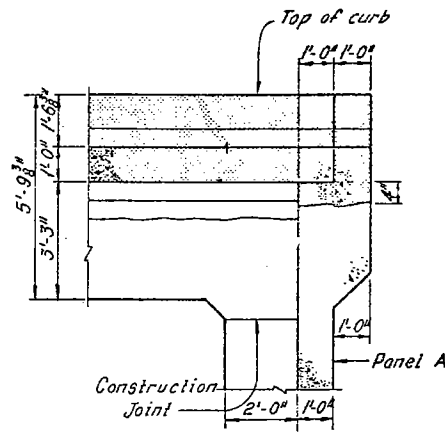
**REMOVAL PLANS
WEST ABUTMENT**
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY-10-1685 STA. 57+29.72
CUYAHOGA COUNTY STA. 58+25.70 OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
DATE 3-18-21	DATE 10-11-21	DATE 7-7-21	DATE	DATE

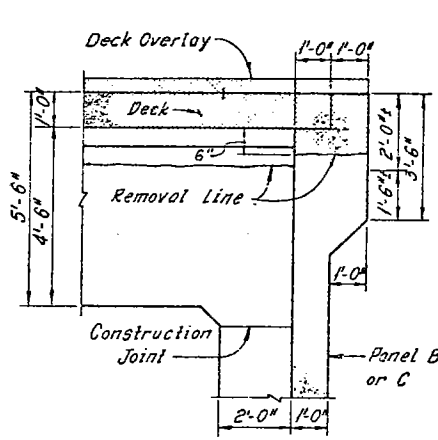
SHEET 8/31



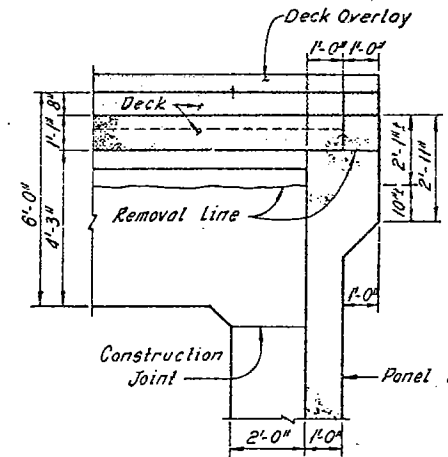
SECTION A-A



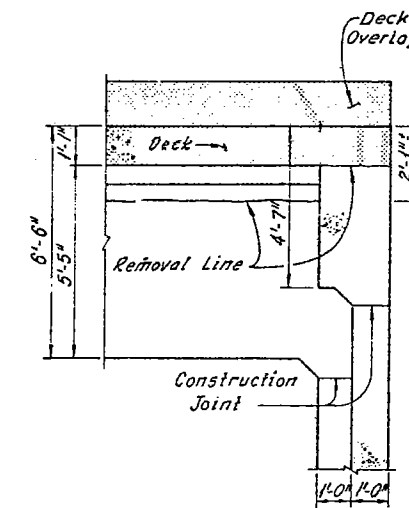
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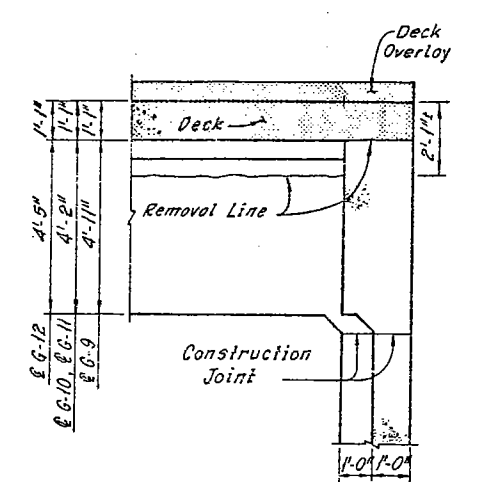
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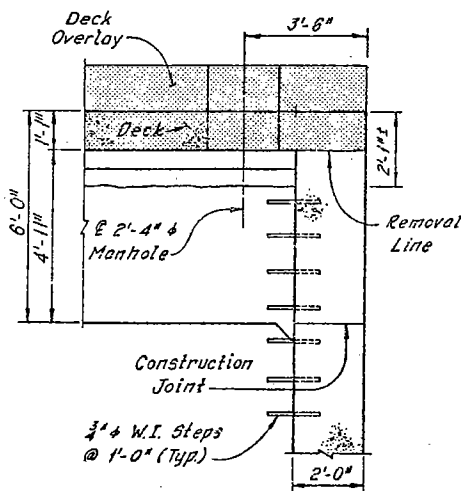
SECTION D-D



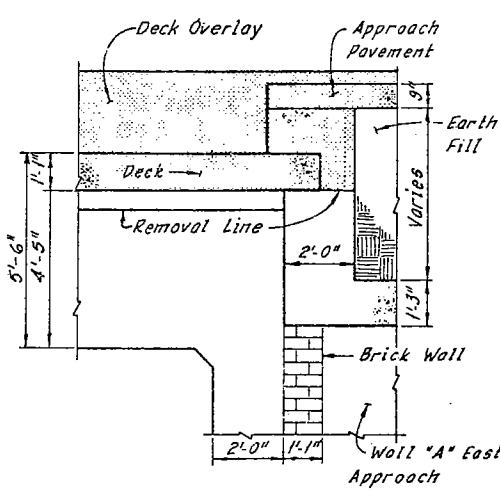
SECTION E-E



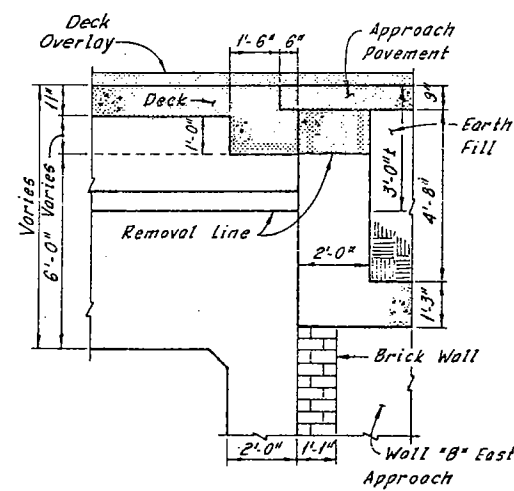
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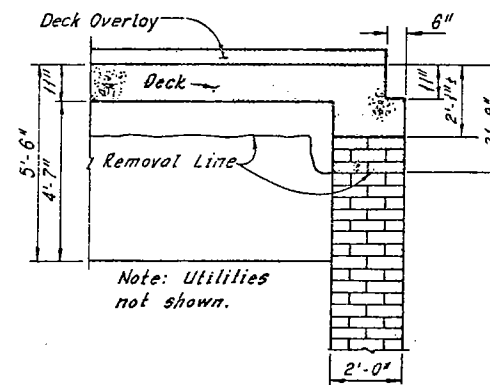
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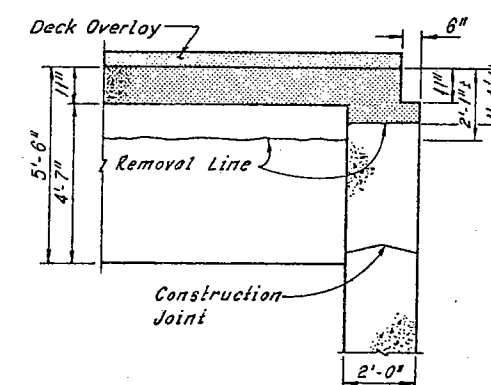
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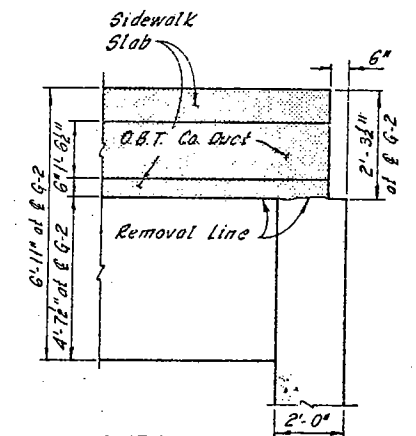
SECTION J-J



SECTION K-K



SECTION L-L



SECTION M-M

Note:
Existing reinforcement not shown. All existing vertical abutment reinforcement and all existing horizontal abutment reinforcement below the bottom of the new deck slab shall be retained as part of the new construction, except at new slab edge beams shown on Sheet 14/31. Horizontal reinforcement may be replaced in kind at no additional cost to the State.

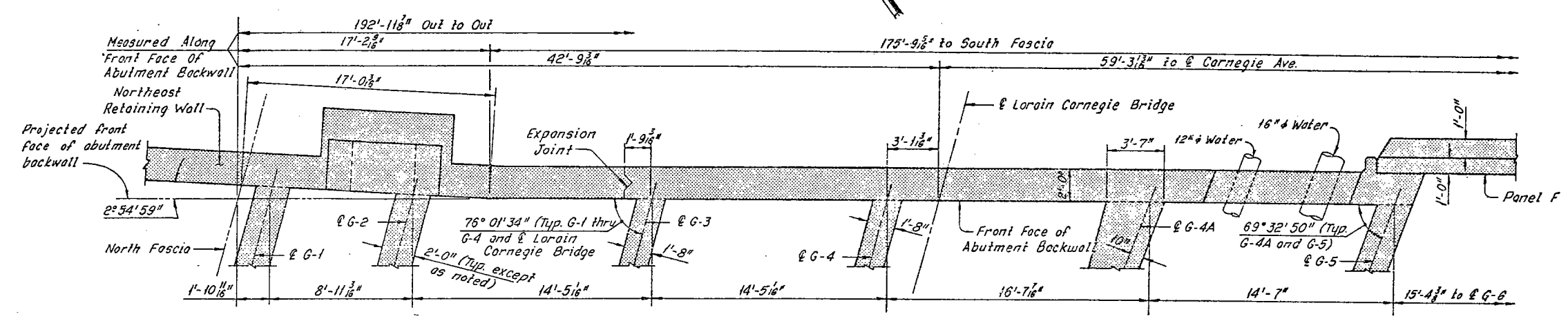
Notes:
Zip-a-tone indicates portions of structure to be removed.
For limits of existing girder removal, see Detail A, Sheet 5/31.
For location of Sections A-A thru F-F, see Sheet 7/31.
For location of Sections F-F thru M-M, see Sheet 8/31.

HNTB BRIDGE NO. 4		HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND		HNTB	
REMOVAL PLANS WEST ABUTMENT					
REHABILITATION OF THE CARNegie AVENUE GRADE SEPARATION STRUCTURE (S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)					
BR. NO. CUY. -10-1685			STA. 57+29.72 STA. 58+85.70		
CUYAHOGA COUNTY			OHIO		
DRAWN BP	IN CHARGE BP	CHECKED F3	REVIEWED	REVISED	
DATE 3/7/75	DATE 6/13/75	DATE 7/7/75	DATE		SHEET 9/31

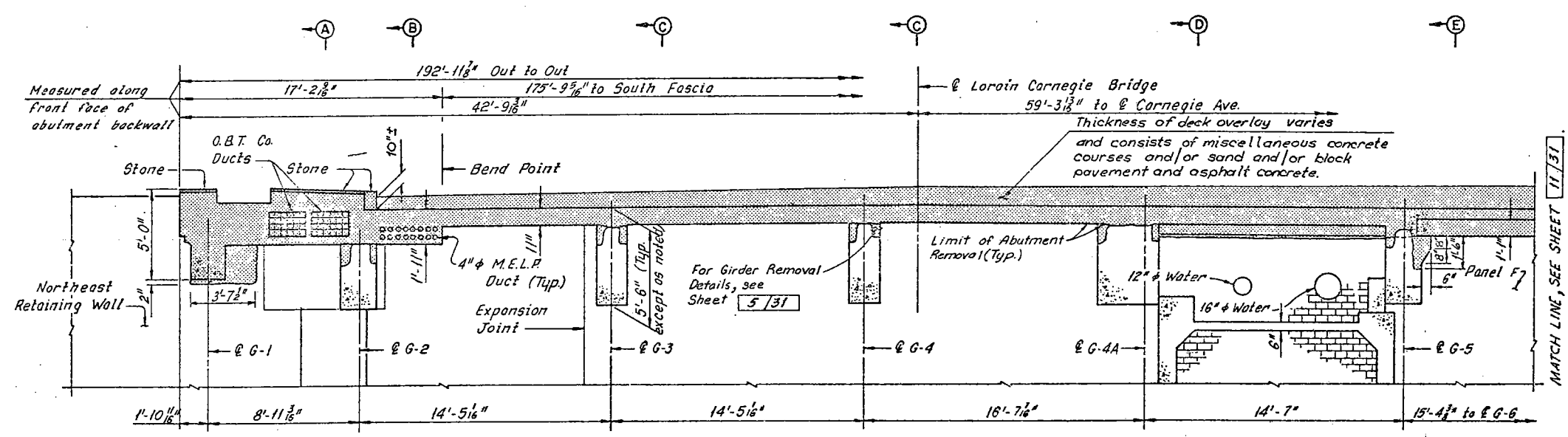
FHWA REGION	STATE	PROJECT
5	OHIO	

157
185

CUYAHOGA COUNTY
CUY-10-16.23



PART PLAN - EAST ABUTMENT
(Slab not shown)



PART ELEVATION - EAST ABUTMENT

Note:
All existing vertical abutment reinforcement and all existing horizontal abutment reinforcement below the bottom of the new deck slab shall be retained as part of the new construction, except at new slab edge beams shown on Sheet 16/31. Horizontal reinforcement may be replaced in kind at no additional cost to the State.

Notes:
Zip-a-tone indicates portions of the structure to be removed.
For Sections A-A thru E-E, see Sheet 12/31.
For modified East Abutment details, see Sheets 16/31 thru 18/31.
The following abbreviations are used:
Typ. = Typical
M.E.L.P. = Municipal Electric Light and Power
O.B.T. = Ohio Bell Telephone Company
C.E.I. = Cleveland Electric Illuminating Company

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

**REMOVAL PLANS
EAST ABUTMENT**

REHABILITATION OF THE
CARNegie AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)

BR NO. CUY.-10-1685 STA. 57+29.72
CUYAHOGA COUNTY STA. 58+85.70
OHIO

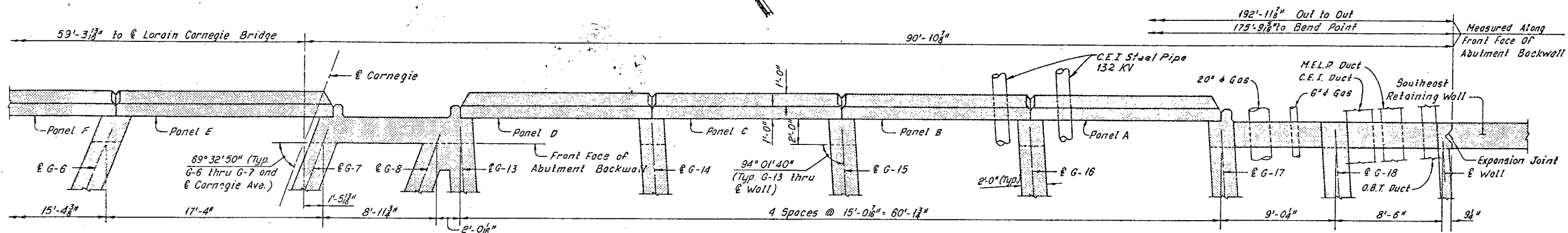
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DATE 3-17-35	DATE 6-22-35	DATE 7-7-35	DATE	DATE

SHEET 10/31

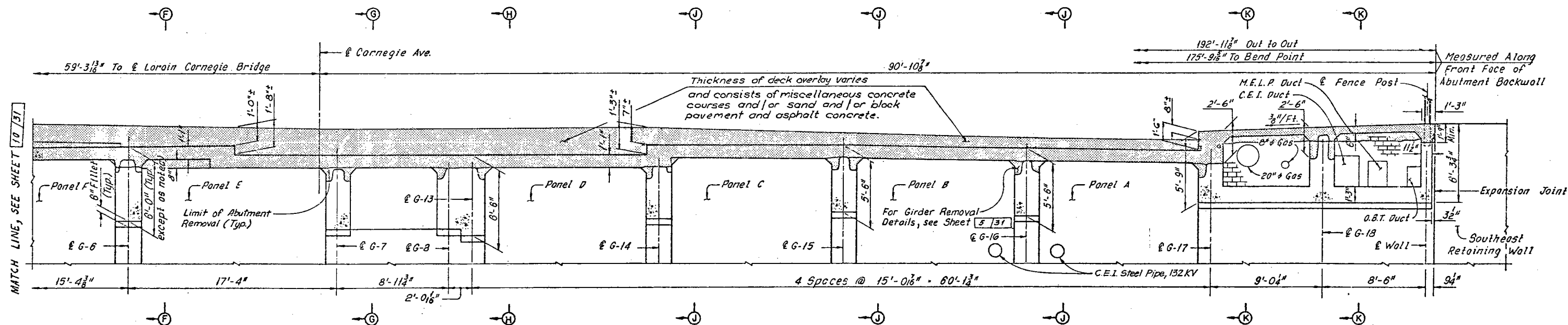
FHWA REGION	STATE	PROJECT
5	OHIO	

158
185

CUYAHOGA COUNTY
CUY-10-16.23



PART PLAN - EAST ABUTMENT
(Slab not shown)



PART ELEVATION - EAST ABUTMENT

Note:
All existing vertical abutment reinforcement and all existing horizontal abutment reinforcement below the bottom of the new deck slab shall be retained as part of the new construction, except at new slab edge beams shown on Sheet 16/31. Horizontal reinforcement may be replaced in kind at no additional cost to the State.

Notes:
Zip-a-tone indicates portions of the structure to be removed.
For Sections F-F thru K-K, see Sheet 12/31.
For modified East Abutment details, see Sheets 16/31 thru 18/31.
The following abbreviations are used:
Typ. = Typical
M.E.L.P. = Municipal Electric Light and Power
O.B.T. = Ohio Bell Telephone Company
C.E.I. = Cleveland Electric Illuminating Company
For stage construction, see Sheet 1/31.

HNTB BRIDGE NO. 4

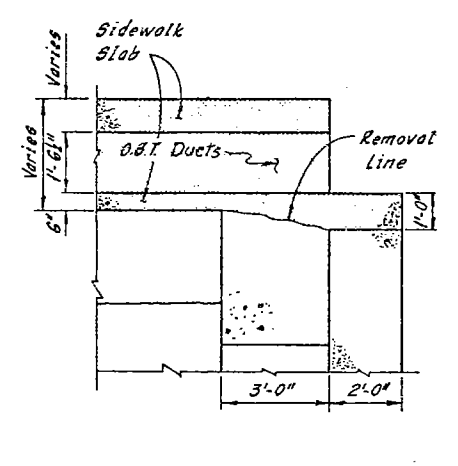
HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND		HNTB	
REMOVAL PLANS EAST ABUTMENT			
REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)			
BR. NO. CUY-10-1685		STA. 57+29.72 STA. 58+85.70	
CUYAHOGA COUNTY		OHIO	
DRAWN B.P.	CHECKED P.B.	REVIEWED DATE	REVISED DATE
DATE: 11-75	DATE: 10-75	DATE: 7-78	DATE:
			SHEET 11/31

MATCH LINE, SEE SHEET 10/31

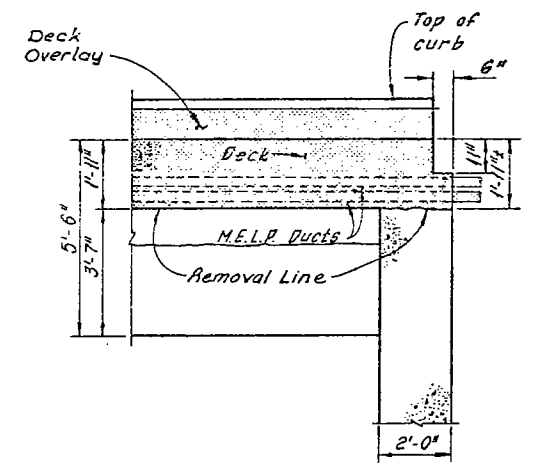
FHWA REGION	STATE	PROJECT
5	OHIO	

159
185

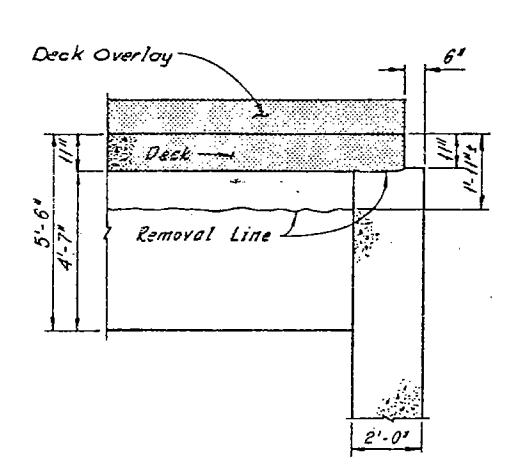
CUYAHOGA COUNTY
CUY-10-16.23



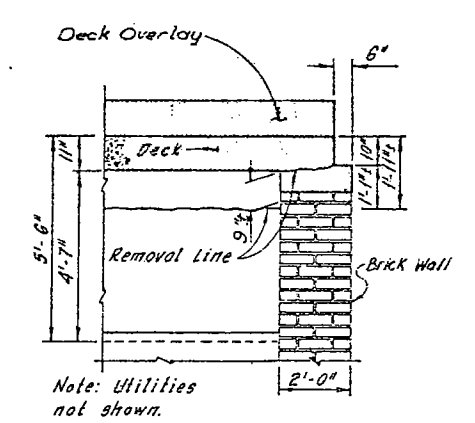
SECTION A-A



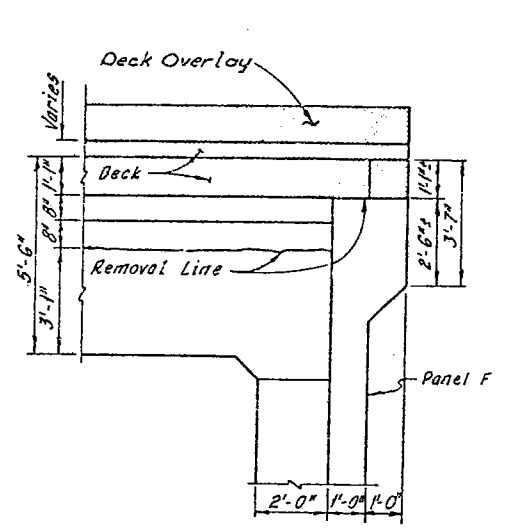
SECTION B-B



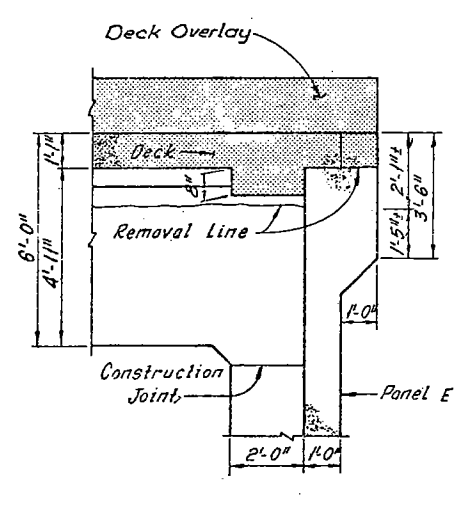
SECTION C-C



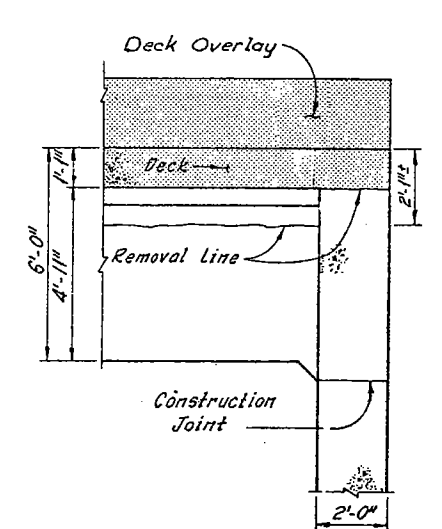
SECTION D-D



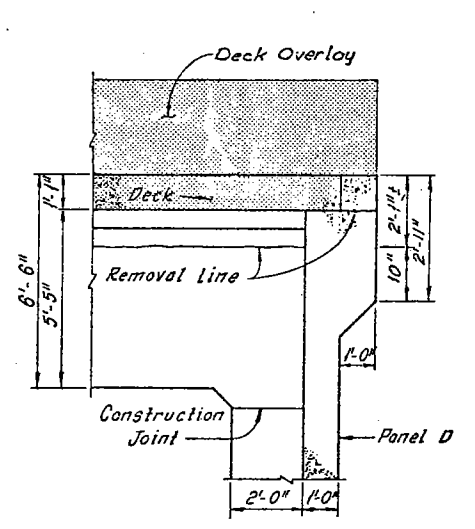
SECTION E-E



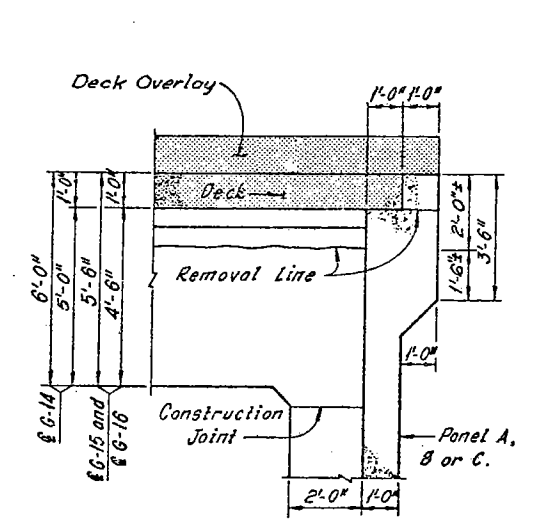
SECTION F-F



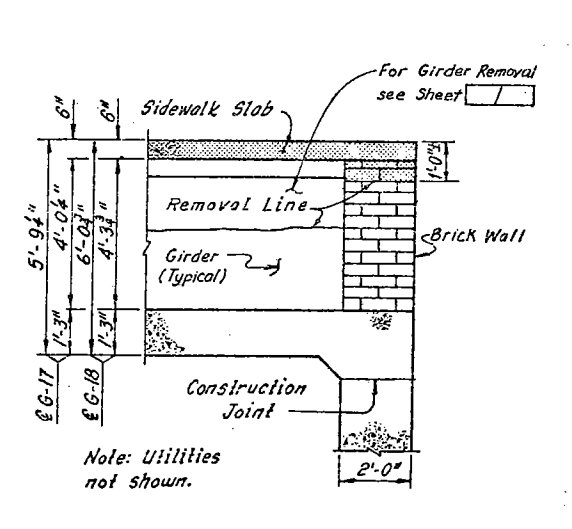
SECTION G-G



SECTION H-H



SECTION J-J



SECTION K-K

Note:
Existing reinforcement not shown. All existing vertical abutment reinforcement and all existing horizontal abutment reinforcement below the bottom of the new deck slab shall be retained as part of the new construction, except at new slab edge beams shown on Sheet 16/31. Horizontal reinforcement may be replaced in kind at no additional cost to the State.

Notes:
Zip-a-tone indicates portions of structure to be removed.
For limits of existing girder removal, see Detail A, Sheet 5/31.
For location of Sections A-A thru E-E, see Sheet 10/31.
For location of Sections F-F thru K-K, see Sheet 11/31.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND

HNTB

REMOVAL PLANS
EAST ABUTMENT
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY. -10-1685 STA. 57+29.72
STA. 58+85.70
OHIO

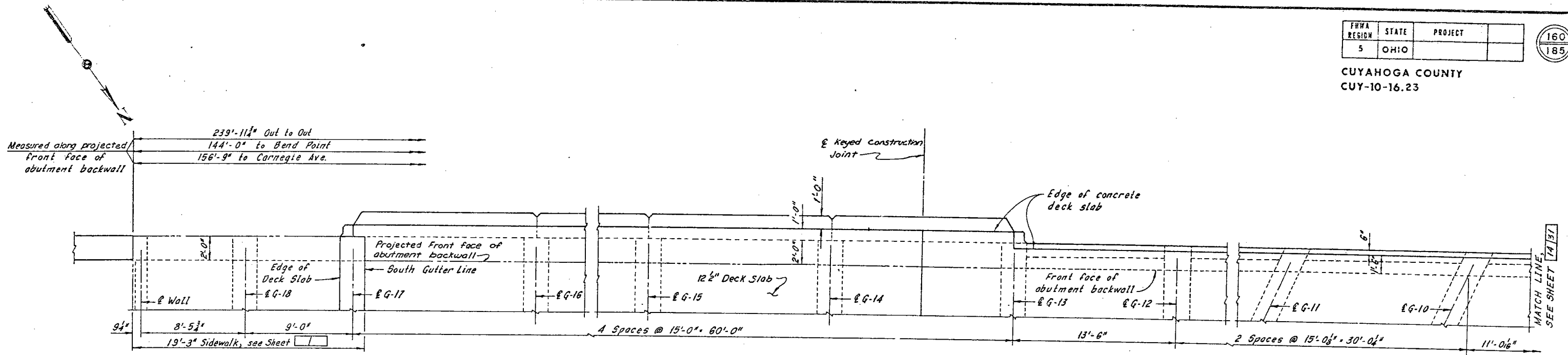
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DATE: 11/75	DATE: 10/25	DATE: 2/75	DATE:	

SHEET 12/31

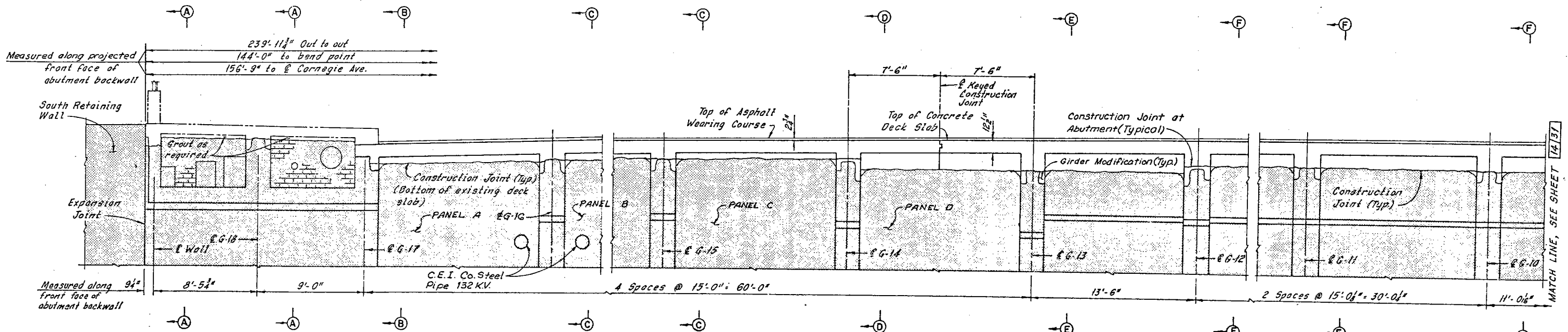
FHWA REGION	STATE	PROJECT	
5	OHIO		

160
185

CUYAHOGA COUNTY
CUI-10-16.23



PART PLAN - WEST ABUTMENT



PART ELEVATION - WEST ABUTMENT

(Deck slab, girder and retained abutment reinforcement not shown)

Notes:

- Zip-a-tone indicates existing structure.
- For removal of West Abutment, see Sheets 7/31 thru 9/31.
- For Typical Girder Modification Repair, see Sheet 23/31.
- For Sections A-A thru F-F, see Sheet 15/31.
- For Sidewalk Details, see Sheet 27/31.
- For Stage Construction, see Sheet 1/31.
- For Contour Plan, see Sheet 30/31.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND **HNTB**

PART MODIFIED PLAN AND ELEVATION WEST ABUTMENT
REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY. 10-1685 STA. 57+29.72 STA. 58+85.70
CUYAHOGA COUNTY OHIO

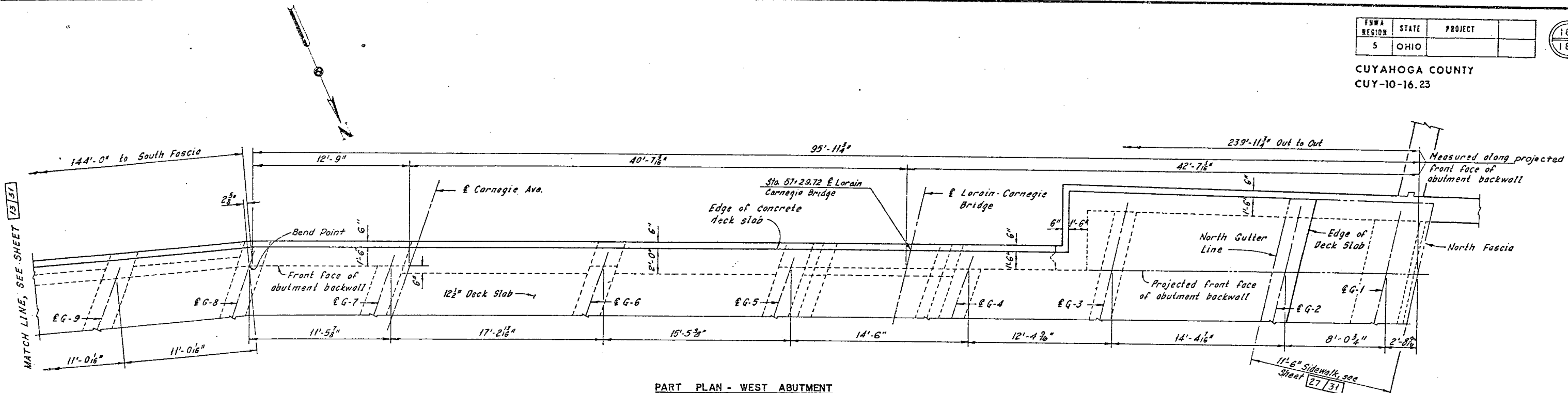
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DATE 12-2-72	DATE 12-2-72	DATE 2-27-73	DATE	DATE

SHEET 13/31

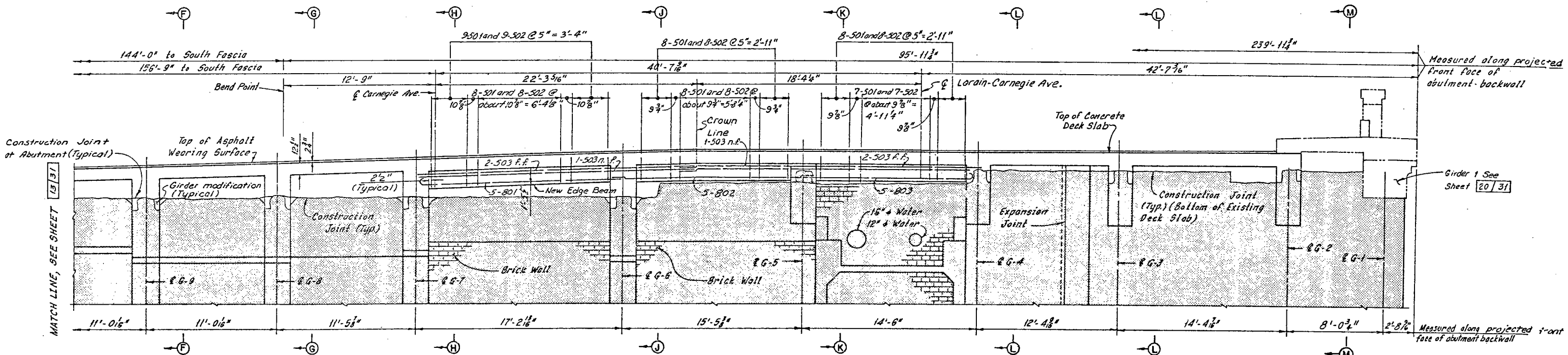
FHWA REGION	STATE	PROJECT
5	OHIO	

161
185

CUYAHOGA COUNTY
CUY-10-16.23



PART PLAN - WEST ABUTMENT



PART ELEVATION - WEST ABUTMENT
(Deck slab, girder and retained abutment reinforcement not shown)

Note:
All reinforcing bar marks shall be prefixed MA.

- Notes:
- Zip-a-tone indicates existing structure.
 - Phantom lines indicate new construction details of which are shown elsewhere in these plans.
 - For Sections F-F thru M-M, see Sheet 15/31.
 - For Reinforcement Schedule, see Sheet R/4.
 - For Stage Construction, see Sheet 7/31.
 - For Contour Plan, see Sheet 30/31.
 - For additional notes, see Sheet 13/31.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

PART MODIFIED PLAN AND ELEVATION
WEST ABUTMENT

REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)

BR. NO. CUY.-10-1685 STA. 57+29.72
CUYAHOGA COUNTY STA. 58+85.70
OHIO

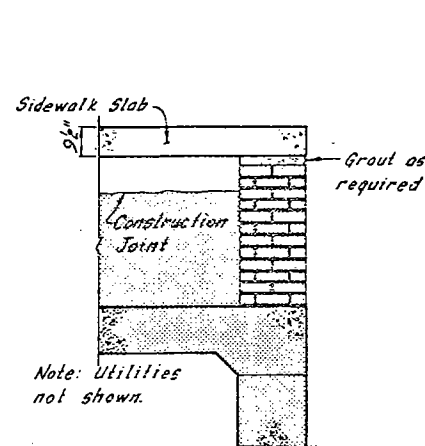
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DATE 2-24-78	DATE 3-7-78	DATE 3-22-78	DATE	DATE

SHEET 14/31

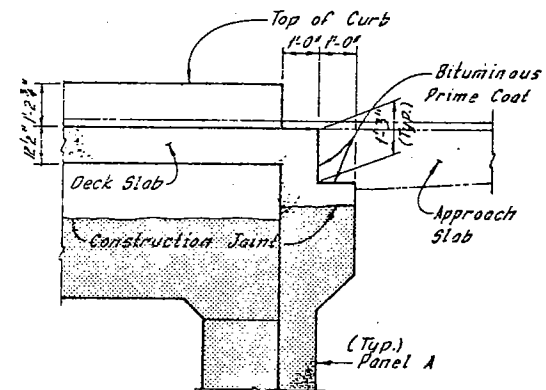
FHWA REGION	STATE	PROJECT
5	OHIO	

162
185

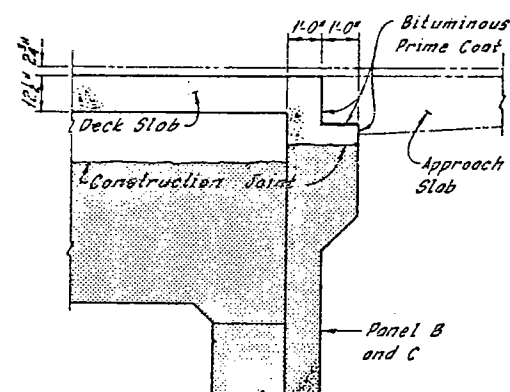
CUYAHOGA COUNTY
CUY-10-16.23



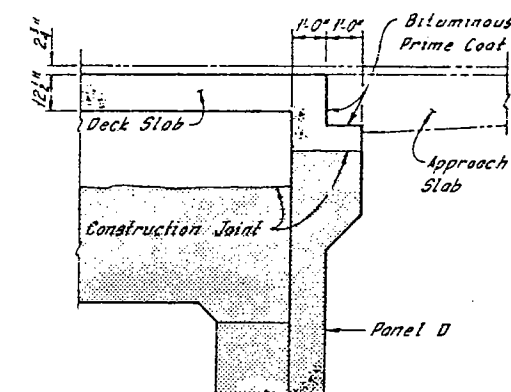
SECTION A-A



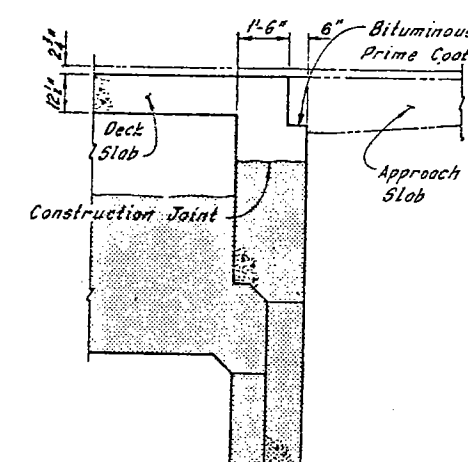
SECTION B-B



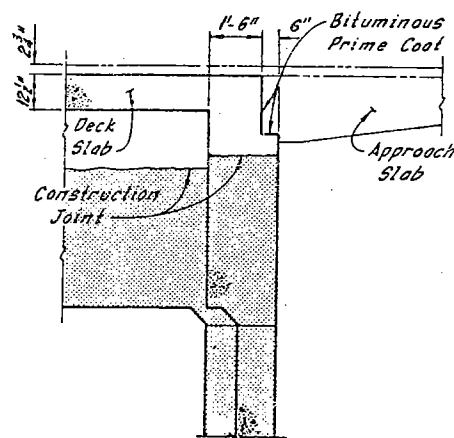
SECTION C-C



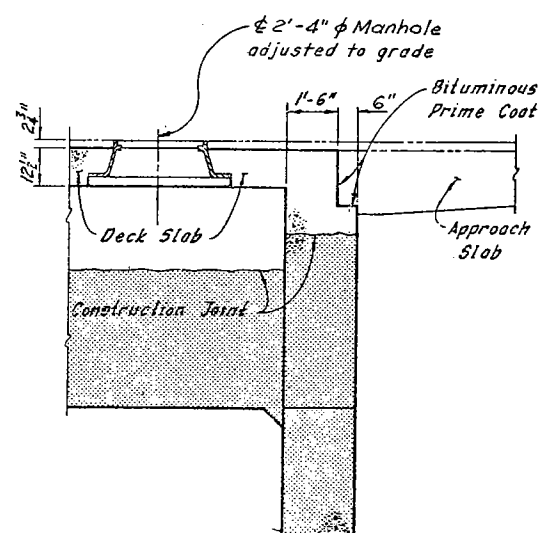
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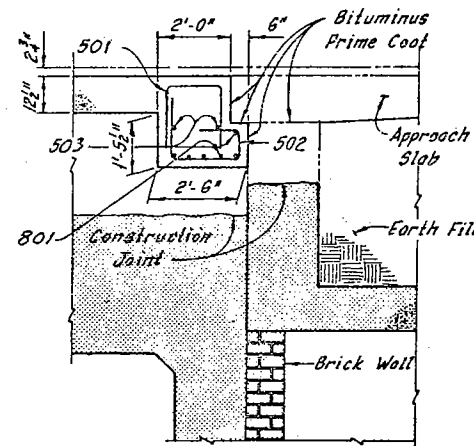
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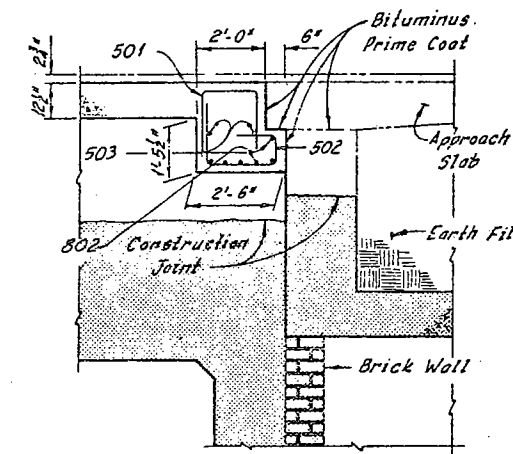
SECTION F-F



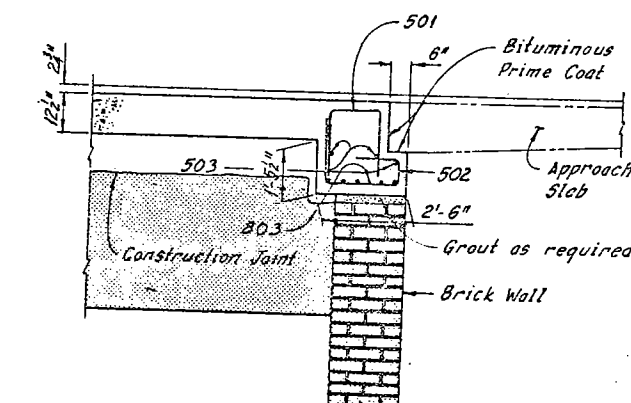
SECTION G-G



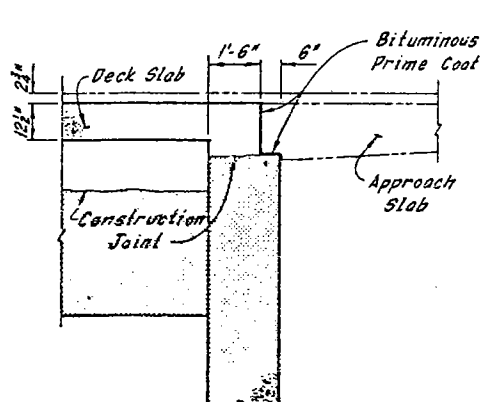
SECTION H-H



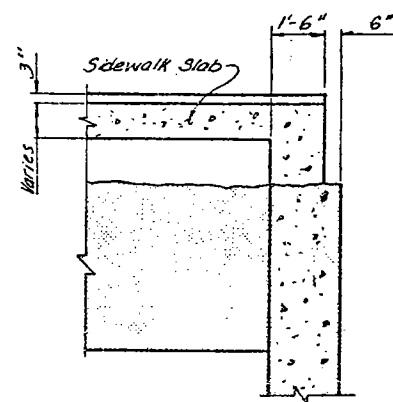
SECTION J-J



SECTION K-K



SECTION L-L



SECTION M-M

Note:
All reinforcing bar marks shall be prefixed WA.

Notes:
Zip-tone indicates existing structure.
Sidewalk, deck, girder and retained existing abutment reinforcement is not shown.
For location of Sections A-A thru F-F, see Sheet 13/31.
For location of Sections G-G thru M-M, see Sheet 14/31.
For manhole locations, see Sheet 26/31.
The cost of grouting shall be included with the unit price bid for Item 511, Class C Concrete, Abutments Above Footings, for payment.
For Reinforcement Schedule, see Sheet R/R.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

MODIFIED TYPICAL CROSS SECTIONS
WEST ABUTMENT
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY. -10-1685 STA. 57+29.72
STA. 58+85.70
OHIO

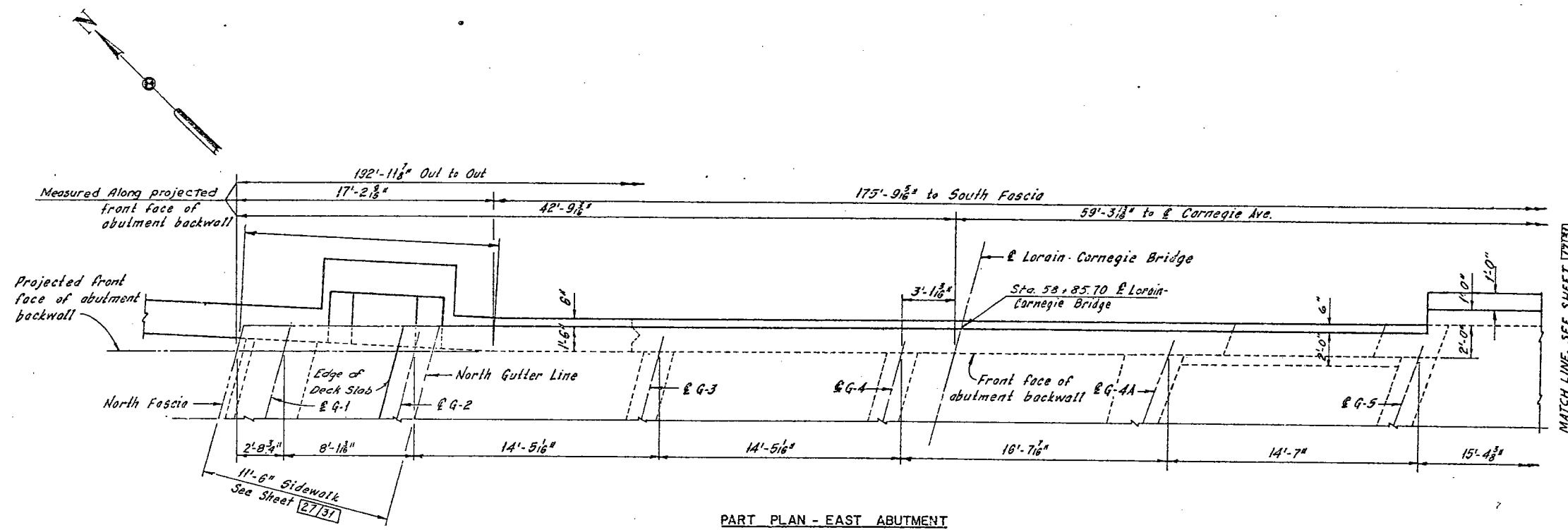
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DATE 8-24-83	DATE 8-24-83	DATE 2-27-84	DATE	DATE

SHEET 15/31

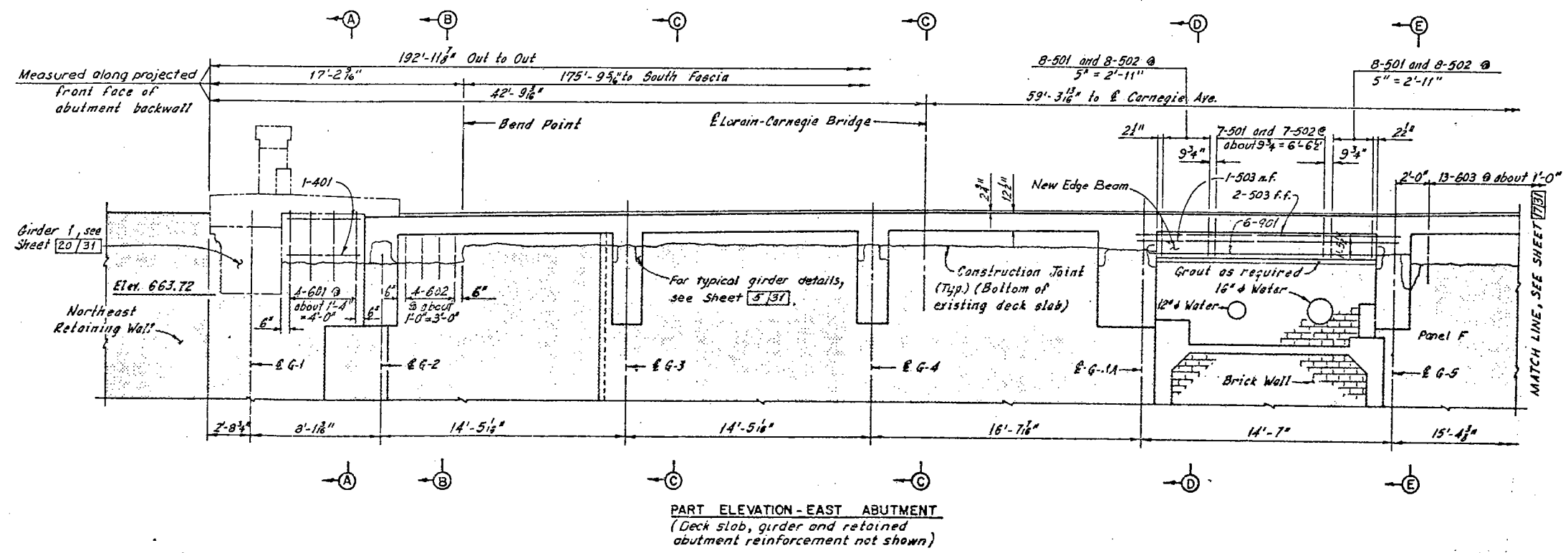
FHWA REGION	STATE	PROJECT
5	OHIO	

163
185

CUYAHOGA COUNTY
CUY-10-16.23



Note:
All reinforcing bar marks shall be prefixed EA.



Notes:
Zip-a-tone indicates existing structure.
Phantom lines indicate new construction details of which are shown elsewhere on these plans.
For Removal of East Abutment, see Sheets 10/31 thru 12/31.
For Typical Girder Repair, see Sheet 23/31.
For Approach Slab Details, see roadway plans.
For Sections A-A thru E-E, see Sheet 18/31.
For Contour Plan, see Sheet 30/31.
For reinforcement schedule see Sheet R/4.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

PART MODIFIED PLAN AND ELEVATION
EAST ABUTMENT
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY).
BR. NO. CUY-10-1685 STA. 57+29.72
CUYAHOGA COUNTY STA. 58+85.70
OHIO

DRAWN AJT	TRACED DES	CHECKED RAS	REVIEWED	REVISED
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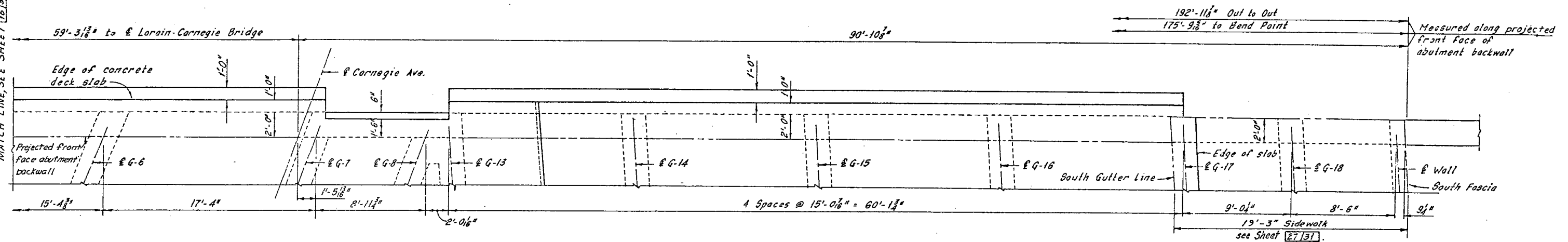
SHEET 16/31

FHWA REGION	STATE	PROJECT
5	OHIO	

184
185

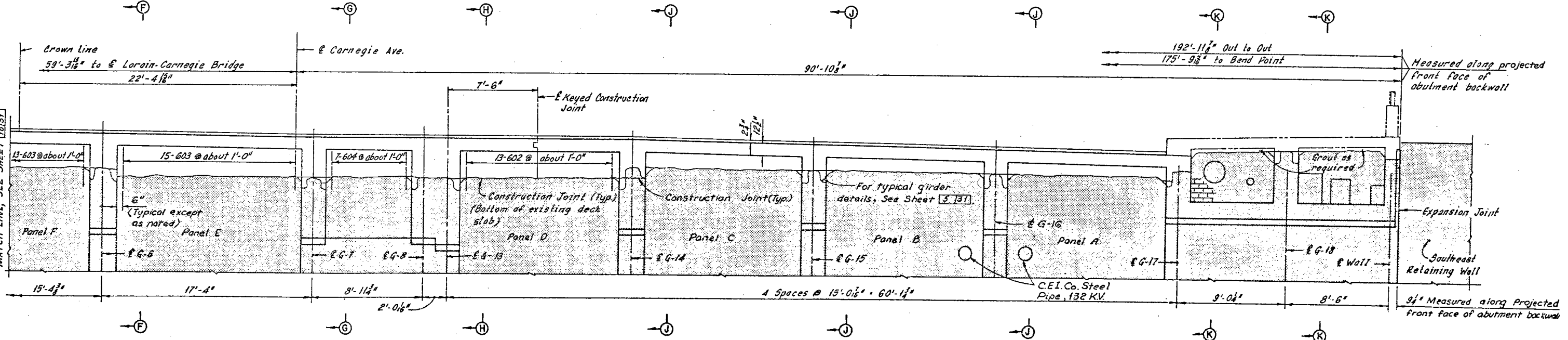
CUYAHOGA COUNTY
CUY-10-16.23

MATCH LINE, SEE SHEET 183



PART PLAN - EAST ABUTMENT

MATCH LINE, SEE SHEET 183



PART ELEVATION - EAST ABUTMENT
(Deck slab, girder, and retained abutment reinforcement not shown)

Note:
All reinforcing bar marks
shall be prefixed EA.

- Notes:
- Zip-o-tone indicates existing structures.
 - For Removal of East Abutment, see Sheets 10/31 thru 12/31.
 - For Typical Girder Repair, see Sheet 23/31.
 - For Approach Slab Details, see roadway plans.
 - For Sections F-F thru K-K, see Sheet 18/31.
 - For Contour Plan, see Sheet 30/31.
 - For reinforcement schedule, see Sheet R/4.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

PART MODIFIED PLAN AND ELEVATION
EAST ABUTMENT
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY-10-1625 STA. 57+23.72
CUYAHOGA COUNTY STA. 58+85.70
OHIO

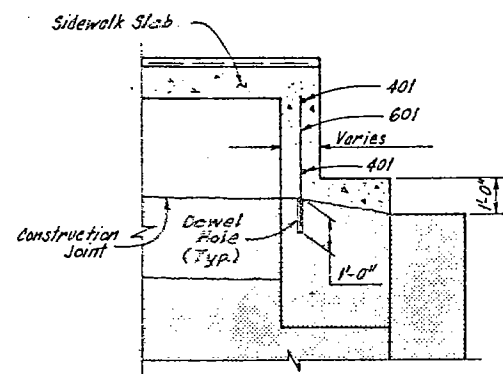
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DATE 10/78	DATE 11/78	DATE 1/79	DATE	DATE

SHEET 17/31

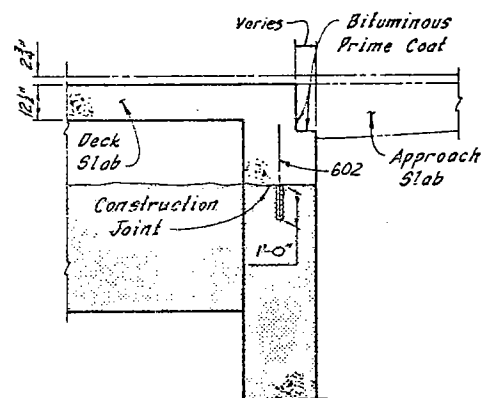
FHWA REGION	STATE	PROJECT
5	OHIO	

165
185

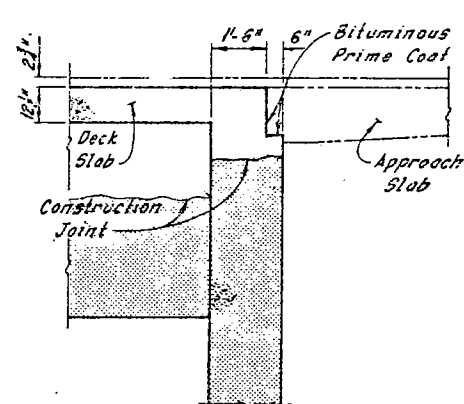
CUYAHOGA COUNTY
CUY-10-16.23



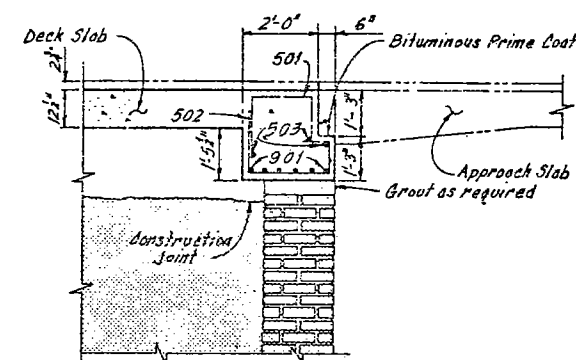
SECTION A-A



SECTION B-B

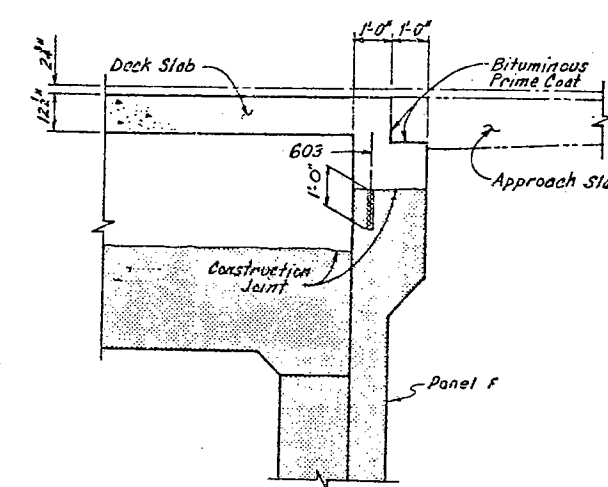


SECTION C-C

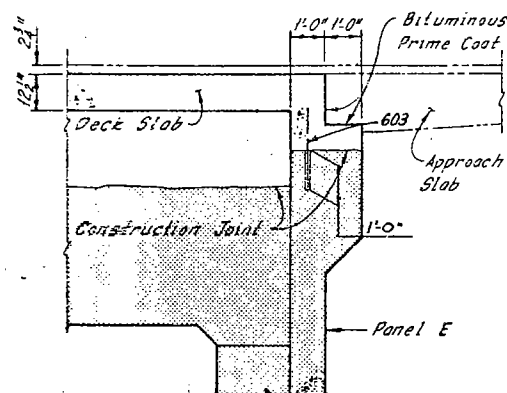


Note: Utilities not shown.

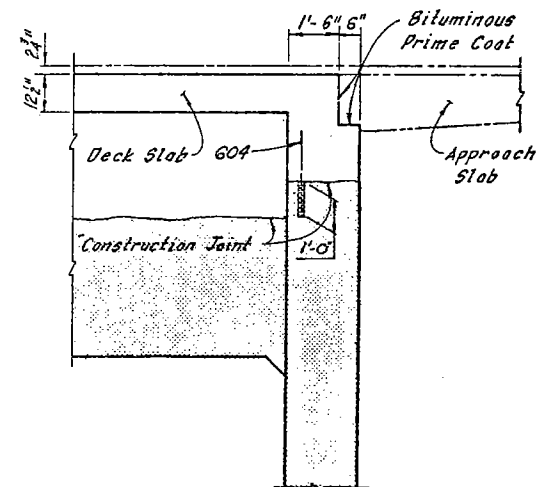
SECTION D-D



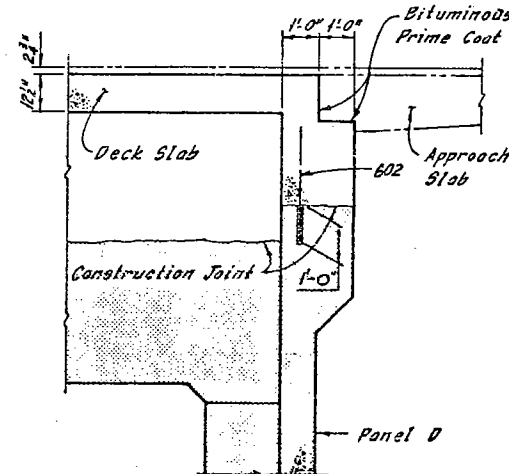
SECTION E-E



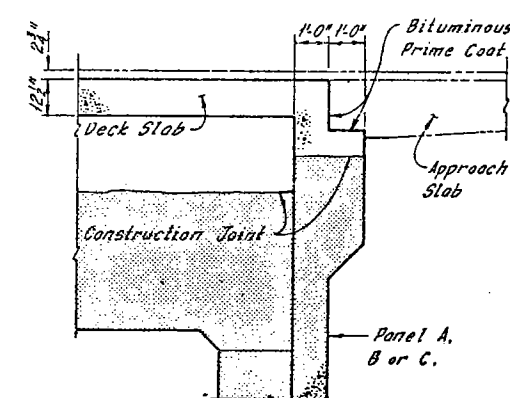
SECTION F-F



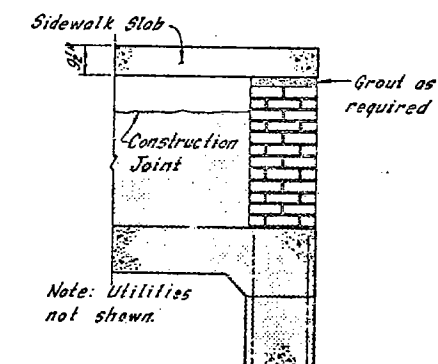
SECTION G-G



SECTION H-H



SECTION J-J



SECTION K-K

Note:
All reinforcing bar marks shall be prefixed EA.

Notes:
Zip-tone indicates existing structures.
Sidewalk, deck, existing girder and retained abutment reinforcement is not shown.
The cost of grouting shall be included with the unit price bid for Item 511, Class C Concrete, Abutments Above Footings, for payment.
For reinforcement schedule see Sheet R/4.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

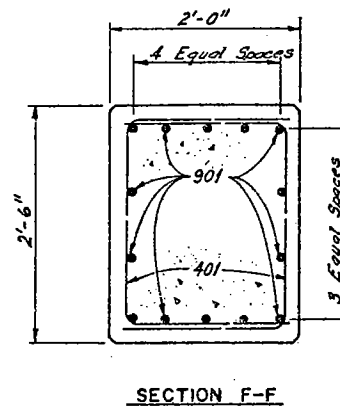
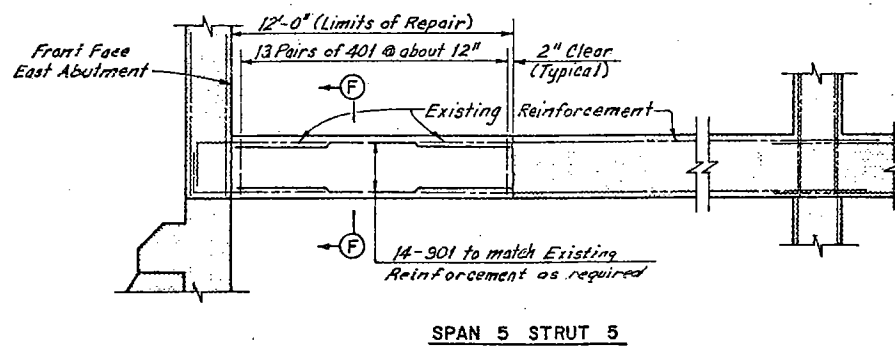
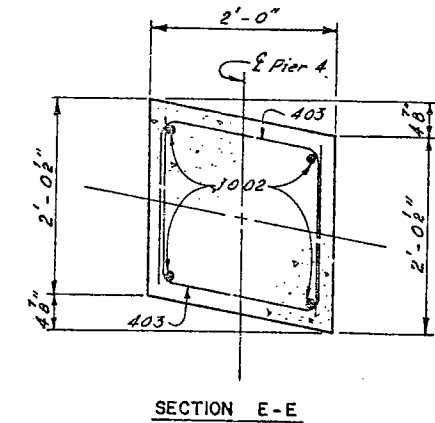
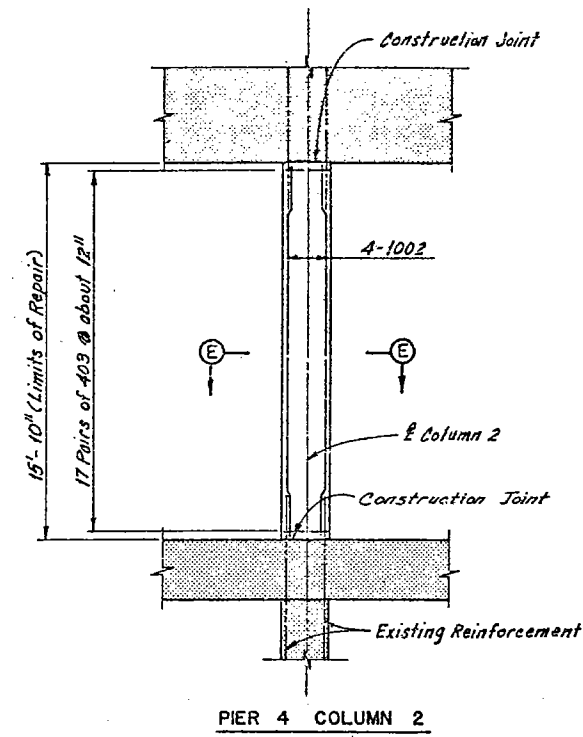
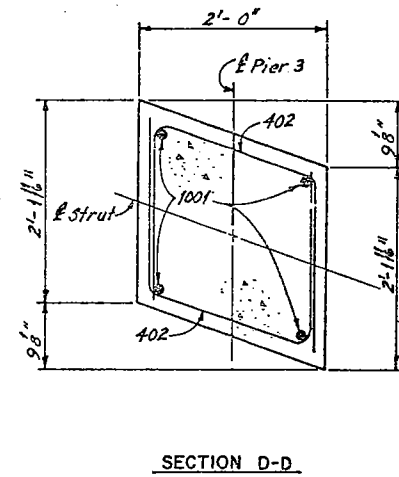
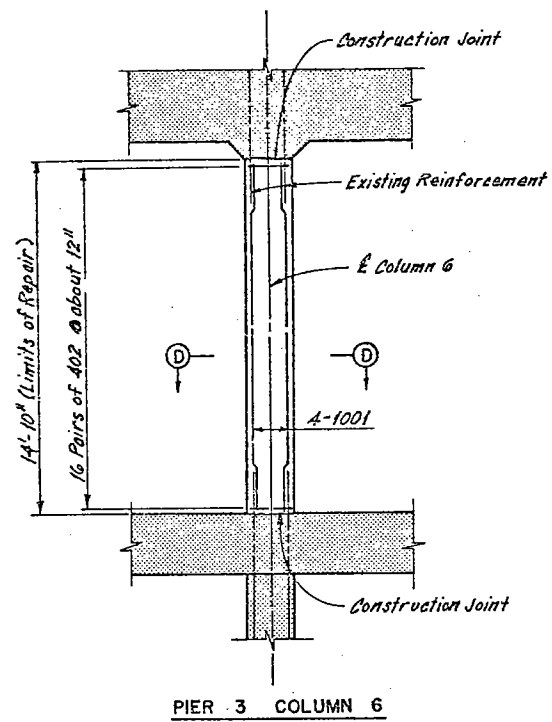
MODIFIED TYPICAL CROSS SECTIONS
EAST ABUTMENT
REHABILITATION OF THE
CARNegie AVENUE GRADE SEPARATION STRUCTURE
(S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY-10-1685 STA. 57+29.72
CUYAHOGA COUNTY STA. 58+85.70
OHIO

DRAWN A/T	TRACED DES	CHECKED R.F.S	REVIEWED DATE	REVISED
DATE: 11-78	DATE: 11-78	DATE: 11-78	DATE	SHEET 15/31

FHWA REGION	STATE	PROJECT	
5	OHIO		

166
185

CUYAHOGA COUNTY
CUY-10-16.23



Notes:
 Zip-a-tone indicates existing structure.
 For strut and column removal details, see Sheet 6/31.
 For reinforcement schedule, see Sheet R/S.

Note: All reinforcing bar marks shall be prefixed SC.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

STRUT AND COLUMN
REPAIR DETAILS

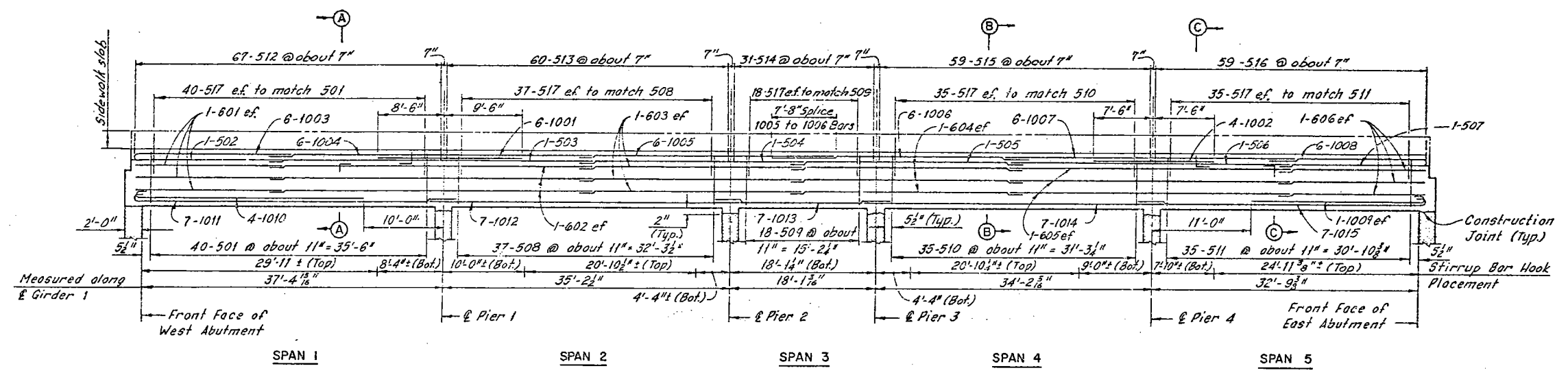
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)

BR. NO. CUY-10-1685 STA. 57+29.72
STA. 58+85.70

CUYAHOGA COUNTY OHIO

DRAWN AUT	TRACED DES	CHECKED RAS	REVIEWED	REVISED
DATE 8-1-75	DATE 8-3-75	DATE 9-6-75	DATE	DATE

SHEET 19/31



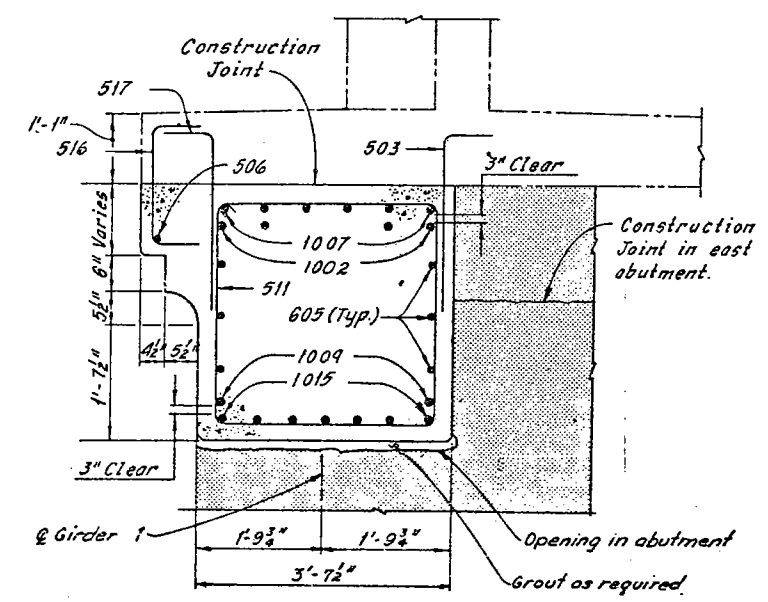
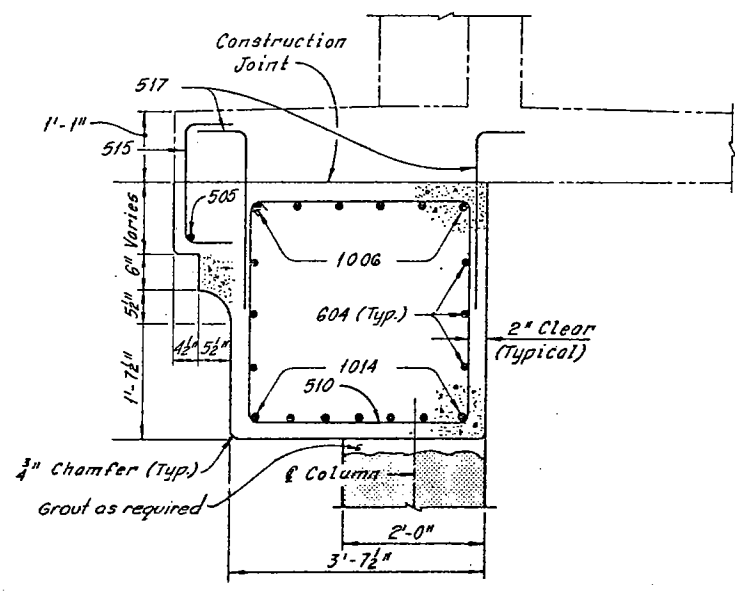
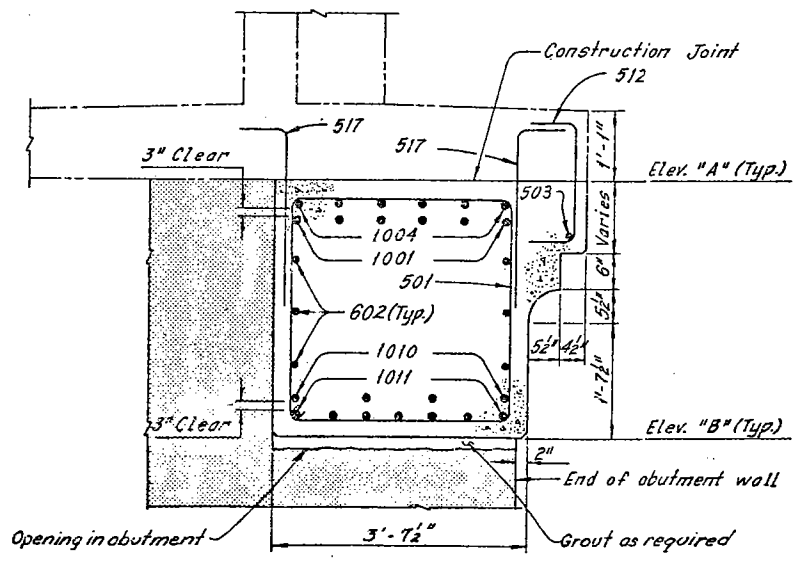
GIRDER ELEVATION
(Looking North)

Note: All reinforcing bar marks shall be prefixed GM.

MINIMUM LAP LENGTHS (Except as noted)	
Bar No.	Lengths
5	1' - 7"
6	1' - 11"
10	3' - 2"

GIRDER DEPTH		
Location	Elev. A	Elev. B
* Front face of west abutment	670.95	667.60
& Pier 1	670.27	666.83
& Pier 2	669.62	666.13
& Pier 3	669.36	665.77
& Pier 4	668.91	665.07
* Front face of east abutment	668.48	663.72

* Given to the actual front face of abutment backwall



Notes:
Zip-a-tone indicates existing structure. Phantom lines indicate new construction, details of which are shown elsewhere in these plans.
For Removal Plans, see Sheets 4/31
For Sidewalk Plans, see Sheets 27/31
For Reinforcement Schedule, see Sheet R/S
The following abbreviations are used:
Typ. = Typical Bot. = Bottom
e.f. = each face f.f. = far face
The cost of grouting shall be included with the unit price bid for Item 511, Class C Concrete, Abutments Above Footings, for payment.

FNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND

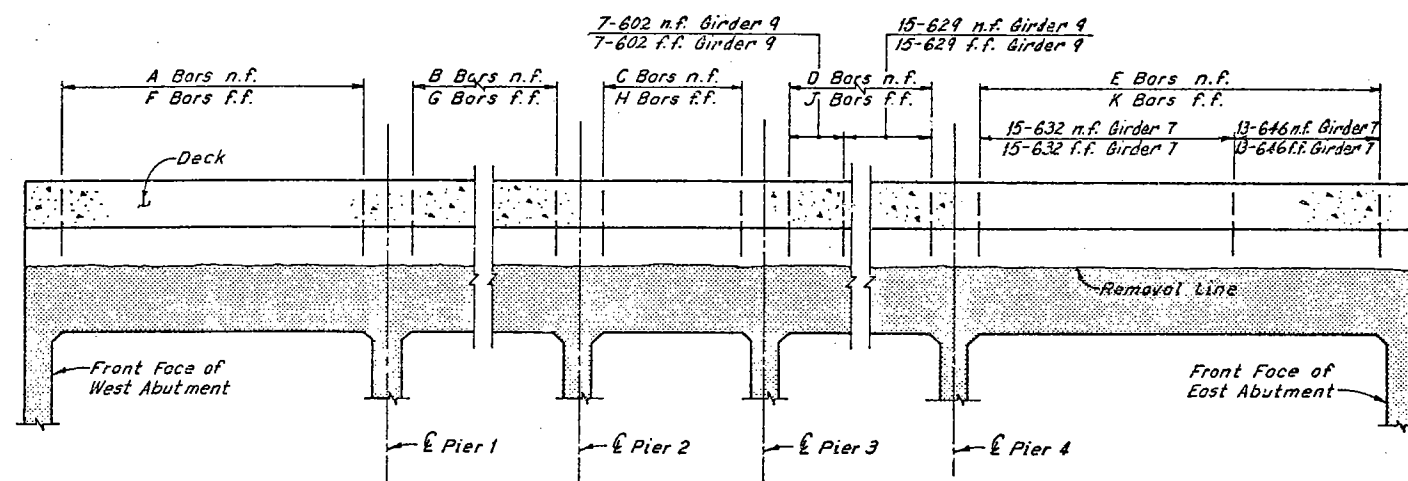
HNTB

GIRDER-I REPLACEMENT

REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R. 10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY) BR. NO. CUY. -10-1685 STA. 57+29.72 STA. 58+85.70 CUYAHOGA COUNTY OHIO

DRAWN BY	TRACED BY	CHECKED BY	REVIEWED BY	REVISED BY
DATE 7-28-72	DATE 8-1-72	DATE 8-7-72	DATE	DATE

SHEET 20/31



Note:
Reinforcing bars shall be spaced to match existing girder reinforcement.

TYPICAL GIRDER ELEVATION
(Existing Girder reinforcement and new slab reinforcement not shown)

GIRDER	BAR A		BAR B		BAR C		BAR D		BAR E		BAR F		BAR G		BAR H		BAR J		BAR K	
	NO.	MARK	NO.	MARK	NO.	MARK	NO.	MARK	NO.	MARK	NO.	MARK	NO.	MARK	NO.	MARK	NO.	MARK	NO.	MARK
2	24	602	22	602	4	605	1 Ser. 16	607	1 Ser. 16	609	24	601	22	601	4	603	1 Ser. 16	606	1 Ser. 16	608
3	26	610	24	610	4	611	1 Ser. 20	612	1 Ser. 18	613	26	610	24	610	4	611	1 Ser. 20	612	1 Ser. 18	613
4	16	614	18	615	4	611	1 Ser. 16	616	1 Ser. 20	617	16	614	18	615	4	611	1 Ser. 16	616	1 Ser. 20	617
4A	-	-	18	615	4	611	1 Ser. 16	618	1 Ser. 20	619	-	-	18	615	4	611	1 Ser. 16	618	1 Ser. 20	619
5	18	611	22	620	1 Ser. 4	621	1 Ser. 20	622	1 Ser. 22	625	18	611	22	620	1 Ser. 4	621	1 Ser. 20	622	1 Ser. 22	624
6	1 Ser. 23	626	1 Ser. 32	627	8	628	28	628	26	629	1 Ser. 23	626	1 Ser. 32	627	8	628	28	628	26	629
7	22	629	28	630	8	630	1 Ser. 23	631	15 13 632 646	22	629	28	630	8	630	1 Ser. 23	631	15 13 632 646	26	635
8	17	603	19	633	8	601	1 Ser. 17	634	26	635	17	603	19	633	8	601	1 Ser. 17	634	26	635
9	17	601	19	605	8	602	15 602 629	-	-	17	601	19	605	8	602	15 602 629	-	-	-	-
10	19	636	21	605	-	-	-	-	-	19	635	21	605	-	-	-	-	-	-	-
11	1 Ser. 16	637	-	-	-	-	-	-	-	1 Ser. 16	637	-	-	-	-	-	-	-	-	-
12	1 Ser. 21	638	29	640	8	629	-	-	-	1 Ser. 21	639	29	636	8	636	-	-	-	-	-
13	23	601	24	633	8	630	20	629	32	635	23	601	24	633	8	630	20	629	32	635
14	19	620	32	641	8	641	19	642	21	643	19	601	32	601	8	601	19	633	21	645
15	1 Ser. 17	644	20	620	7	620	14	641	16	641	1 Ser. 17	644	20	620	7	620	14	641	16	641
16	17	611	20	611	7	620	14	620	16	604	17	611	20	611	7	620	14	620	16	604
17	16	≠ 641	20	≠ 620	8	≠ 620	16	≠ 620	18	≠ 604	16	≠ 611	20	≠ 641	8	≠ 642	16	≠ 642	18	≠ 623
18	18	604	28	604	7	641	20	641	17	642	18	604	28	604	7	641	20	641	17	642

Notes:
Zip-4-tone indicates existing structure.
For Girder 1 replacement details, see Sheet 20/31.
For Reinforcement Schedule, see Sheet R/5.
For Member Identification Plans, see Sheet 2/31.
For Typical Section thru girders, see Modified Typical Section Along Pier 3, see Sheet 22/31.

Note: All reinforcing bar marks shall be prefixed GR.

≠ denotes epoxy coated reinforcing steel

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND HNTB

GIRDER REINFORCEMENT
GIRDERS 2 THRU 18
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY. -10-1685 STA. 57+29.72
CUYAHOGA COUNTY OHIO STA. 58+85.70

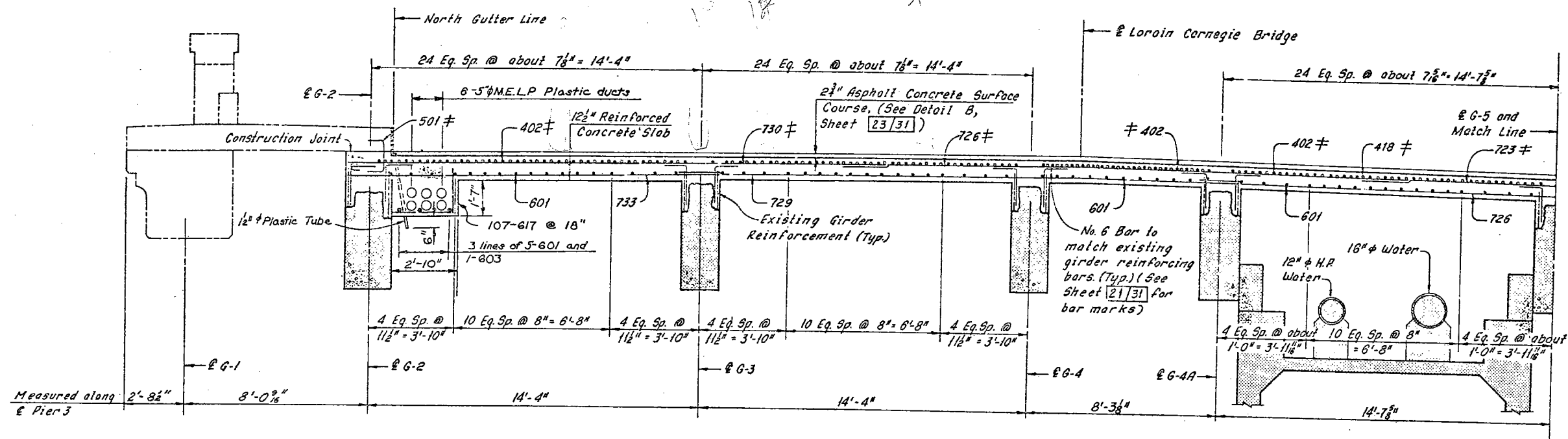
DRAWN AJT	TRACED DES	CHECKED AN	REVIEWED	REVISED
DATE: 8-2-78	DATE: 8-4-78	DATE: 8-7-78	DATE	DATE

SHEET 21/31

FHWA REGION	STATE	PROJECT
5	OHIO	

169
185

CUYAHOGA COUNTY
CUY-10-16.23

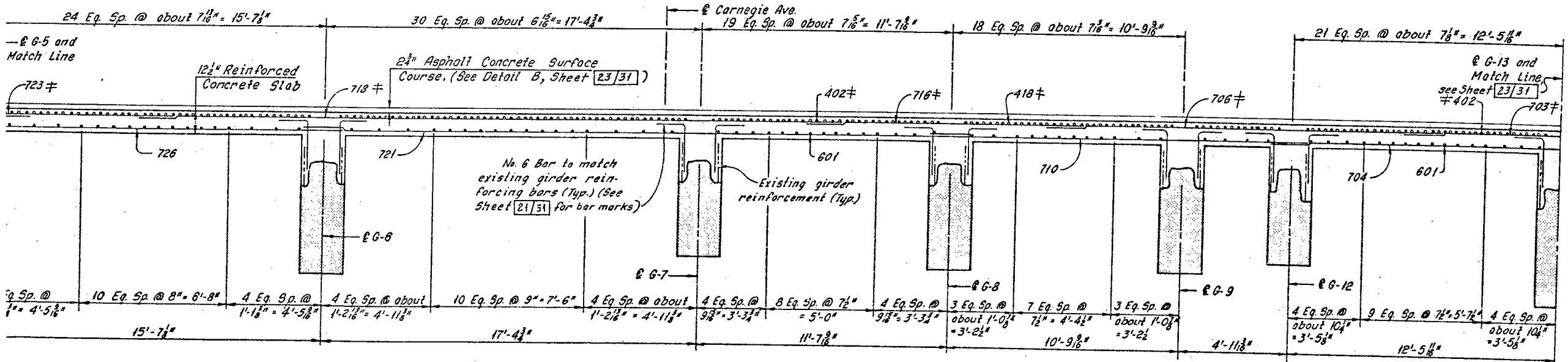


PART TYPICAL SECTION
(Columns Not Shown)

denotes epoxy coated reinforcing steel

Note: Existing Longitudinal Girder Reinforcement not shown.

Note:
Reinforcing bars shown shall be prefixed as follows:
BR = Bottom Transverse Reinforcing
TR = Top Transverse Reinforcing
LR = Longitudinal Reinforcing



PART TYPICAL SECTION
(Columns Not Shown)

Notes:
Zip-a-tone indicates existing structures.
Phantom lines indicate new construction, details of which are shown elsewhere in these plans.
For Removal Plans, see Sheet 4/31.
For Sidewalk Details, see Sheet 27/31.
For Girder 1 Details, see Sheet 30/31.
For Reinforcement Schedule, see Sheet R/4.
The following abbreviations are used:
Typ. = Typical
H.P. = High Pressure
Eq. Sp. = Equal Spaces
For Slab Plans, see Sheets 24/31, 25/31 and 26/31.
For stage construction see Sheet 1/31.

HNTB BRIDGE NO. 4

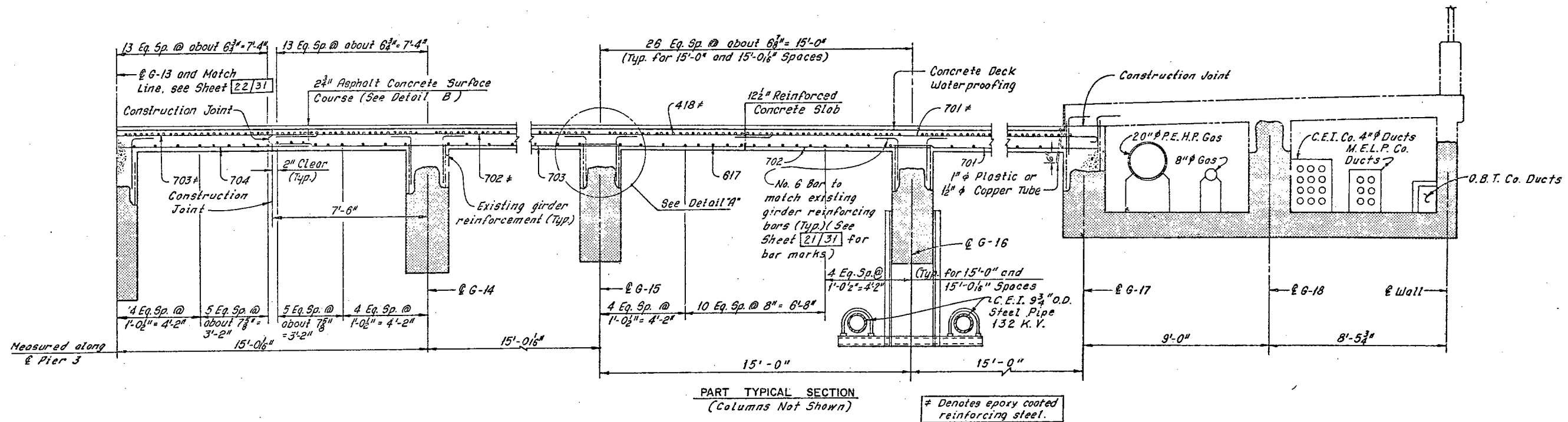
HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND

HNTB

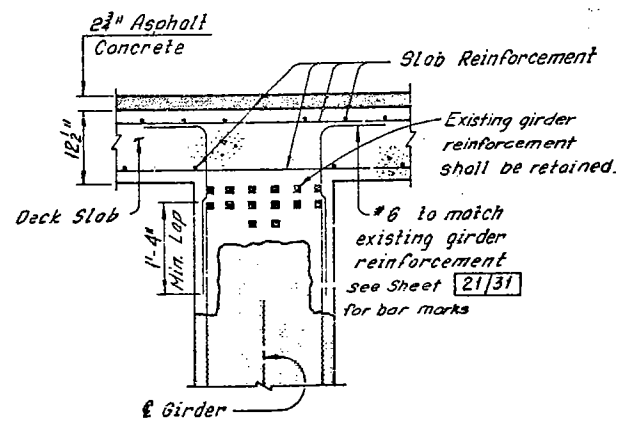
MODIFIED TYPICAL SECTION
ALONG PIER 3
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY-10-1685 STA. 57+29.72
CUYAHOGA COUNTY OHIO STA. 58+65.70

DRAWN BY	TRACED BY	CHECKED BY	REVIEWED	REVISED
DATE 9-25-78	DATE 10-3-78	DATE 7-7-78	DATE	DATE

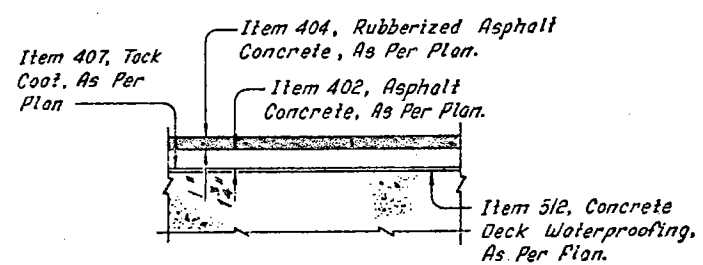
SHEET 22/31



Note:
Reinforcing bars shown shall be prefixed as follows:
BR = Bottom Transverse Reinforcing
TR = Top Transverse Reinforcing
LR = Longitudinal Reinforcing



DETAIL A
(Girder 2 thru Girder 18)



DETAIL B

Note:
For Notes, see Sheet 22/31

HNTB BRIDGE NO. 4

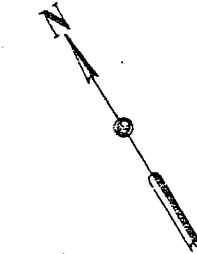
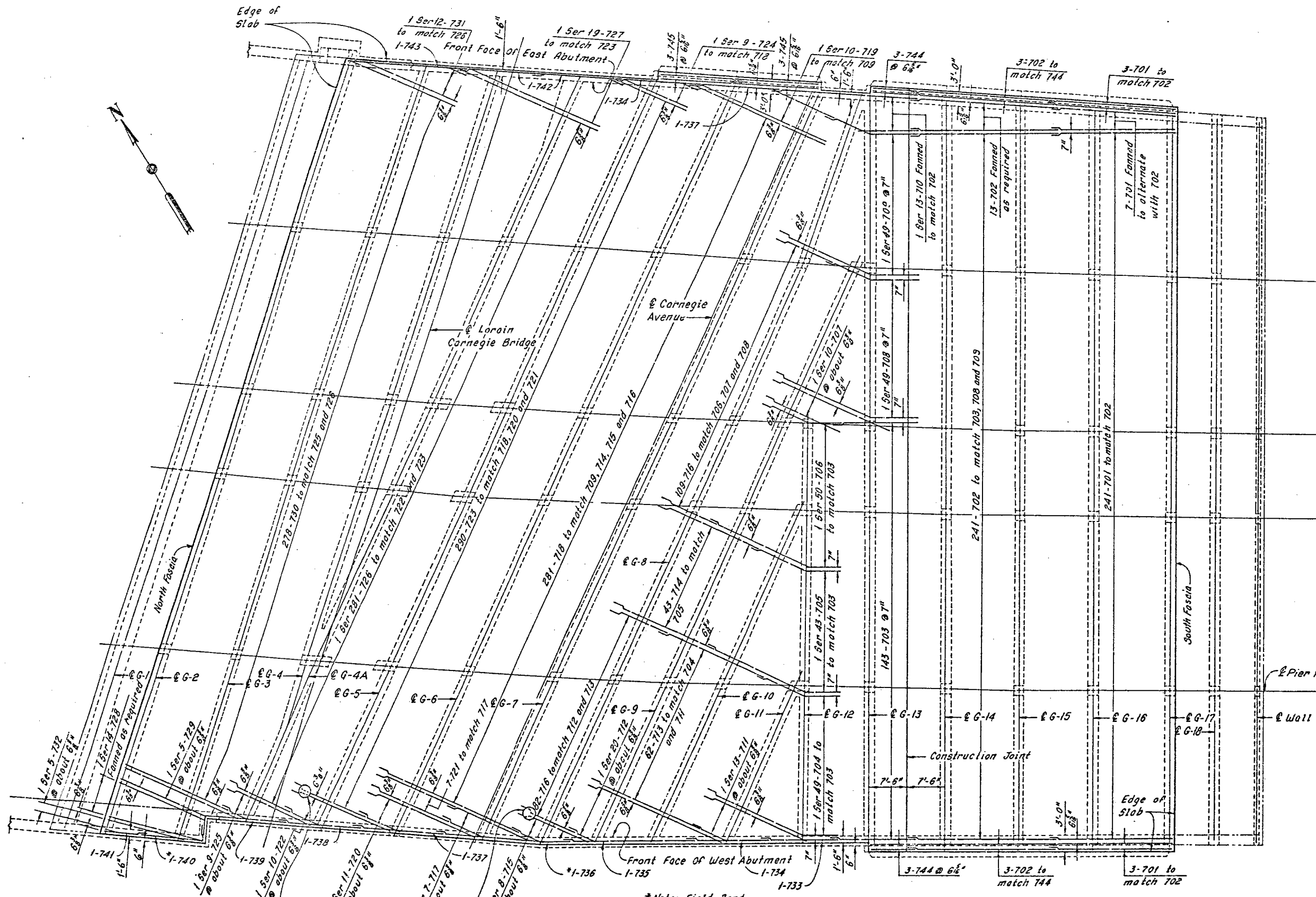
HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND

HNTB

MODIFIED TYPICAL SECTION
ALONG PIER 3
REHABILITATION OF THE
CARNegie AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR NO. CUY. -10-1685 STA 57+29.72
CUYAHOGA COUNTY OHIO STA 58+85.70

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DATE 9-25-83	DATE 10-3-83	DATE 7-7-83	DATE	

SHEET 23/31



REQUIRED LAP LENGTHS
No. 7 Bar 2'-0" Min.

Notes:
 For longitudinal deck slab reinforcement, see Sheet 26/31.
 For bottom transverse deck slab reinforcement, see Sheet 25/31.
 For Modified Typical Section at Pier 3, see Sheet 22/31.
 For Sidewalk Plans and Details, see Sheet 27/31.
 For Hauling Plans and Details, see Sheet 29/31.
 For Approach Slab Details, see roadway plans.
 For reinforcement Schedule and Bending Diagrams, see Sheet R/4.
 For additional reinforcement at 30" Manholes, see Detail A, Sheet 26/31.
 For slope construction, see Sheet 1/31.

*Note: Field Bend as required.

Note: All reinforcing steel shown on this sheet shall be epoxy coated.

Note: All reinforcing bar marks shall be prefixed TR.

30" Manhole, for details see Sheet 26/31

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

SLAB PLAN
TOP TRANSVERSE REINFORCEMENT
REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY. -10-1685 STA. 57+29.72
CUYAHOGA COUNTY OHIO STA. 58+85.70

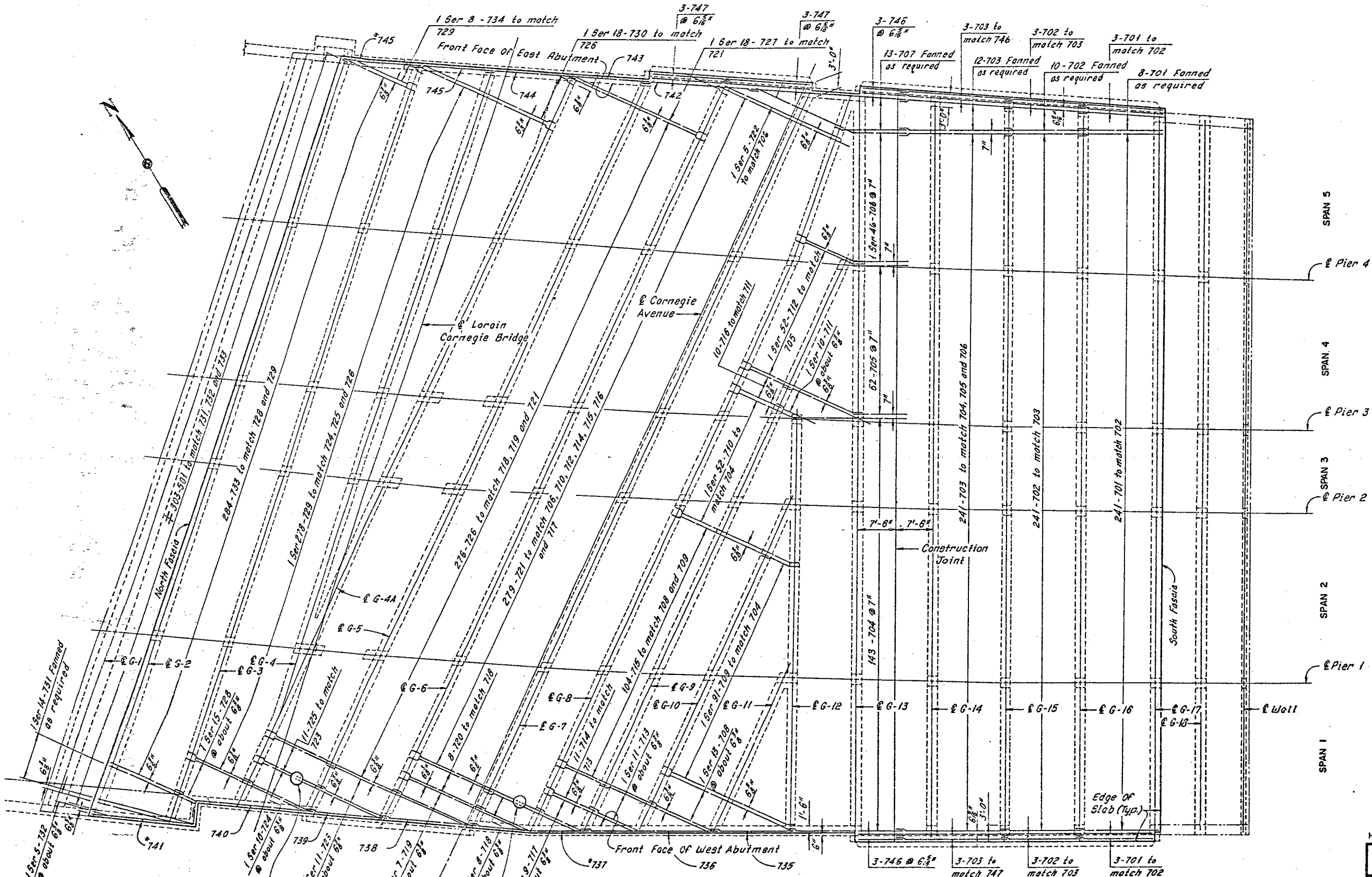
DRAWN E.P.	TRACED B.P.	CHECKED P.B.	REVIEWED P.B.	DATE 7-70
DATE	DATE	DATE	DATE	DATE

SHEET 24/31

FHWA REGION	STATE	PROJECT
5	OHIO	

172
185

CUYAHOGA COUNTY
CUY-10-16.23



REQUIRED LAP LENGTHS
No. 7 Bar 21'-0" Min.

Notes:
 For longitudinal deck slab reinforcement, see Sheet 26/31.
 For top transverse deck slab reinforcement, see Sheet 24/31.
 For Modified Typical Section at Pier 3, see Sheet 22/31.
 For Sidewalk Plans and Details, see Sheet 27/31.
 For Railing Plans and Details, see Sheet 29/31.
 For Approach Slab Details, see roadway plans.
 For Reinforcement Schedule and Bending Diagrams, see Sheet R/4.
 For additional reinforcement of 30" Manhole, see Detail A, Sheet 26/31.
 For slope construction, see Sheet 1/31.

*Note: Field bend as required.

Note: All reinforcing bar marks shall be prefixed BR.

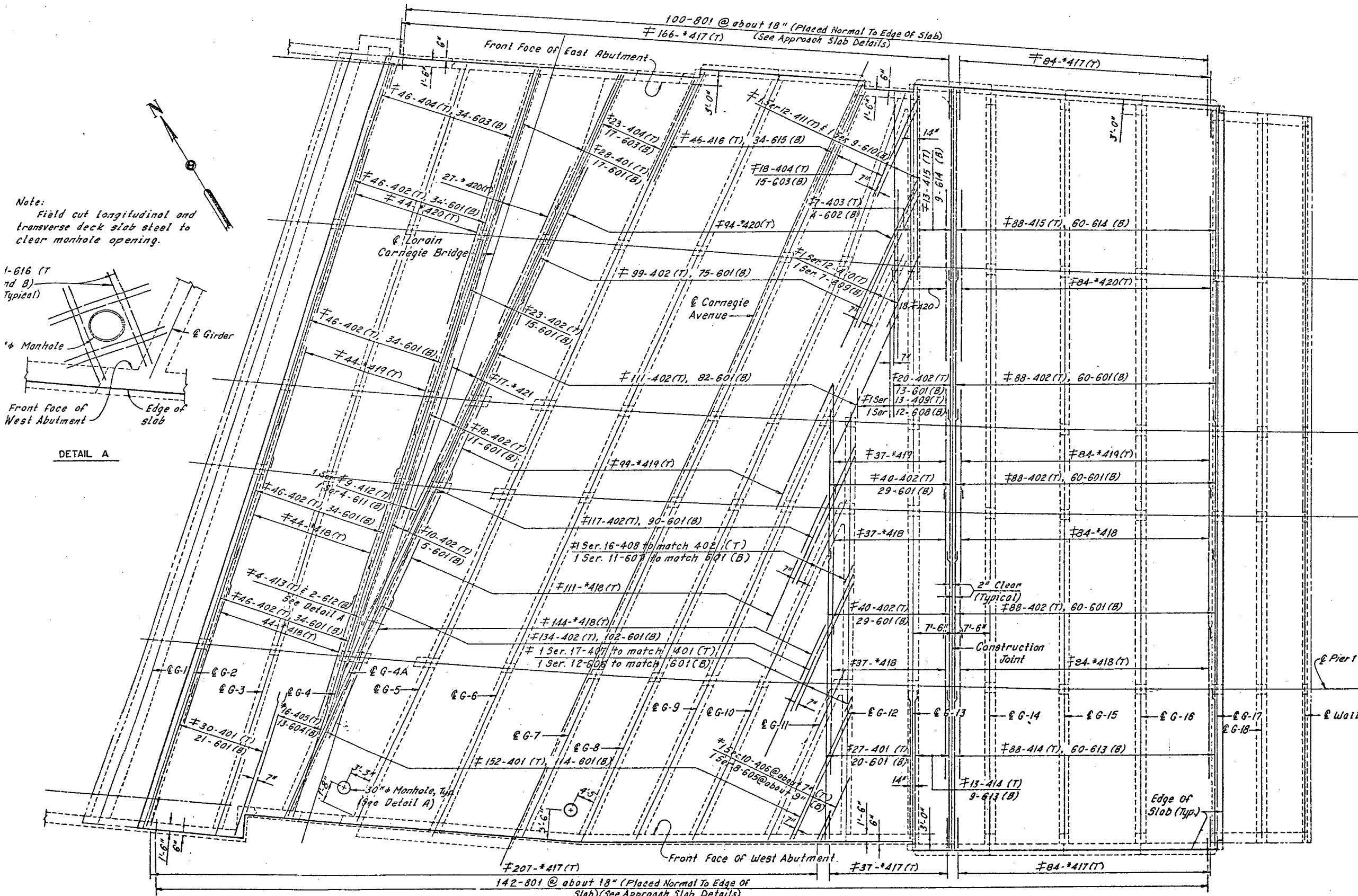
± denotes epoxy coated reinforcing steel.

HNTB BRIDGE NO. 4
 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
 CONSULTING ENGINEERS
 CLEVELAND

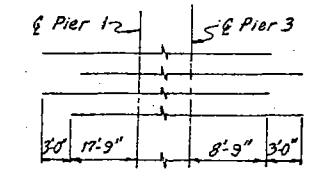
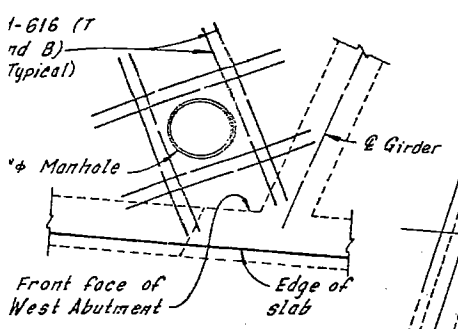
HNTB
 SLAB PLAN
 BOTTOM TRANSVERSE REINFORCEMENT
 REHABILITATION OF THE
 CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
 (S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
 AND THE REGIONAL TRANSIT AUTHORITY)
 BR. NO. CUY.-10-1685 STA. 57+29.72
 CUYAHOGA COUNTY STA. 58+95.70
 OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
DATE 3/20/72	DATE 3/21/72	DATE 3/21/72	DATE	DATE

SHEET 25/31



Note:
Field cut longitudinal and transverse deck slab steel to clear manhole opening.



PLACEMENT OF ADDITIONAL REINFORCEMENT OVER PIERS

MINIMUM REQUIRED BAR SPLICE LENGTH	
Bar No.	Splice length
4	1'-0"
6	1'-5"

Notes:
 * Indicates additional reinforcement over piers or at abutments.
 For placement of longitudinal slab reinforcement, see Sheets 22/31 and 23/31.
 For additional notes, see Sheet 24/31.
 For Approach Slab Details, see roadway plans.
 For stage construction, see Sheet 1/31.

denotes epoxy coated reinforcing steel

Note: All reinforcing bar marks shall be prefixed L.R.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND

HNTB

SLAB PLAN LONGITUDINAL REINFORCEMENT

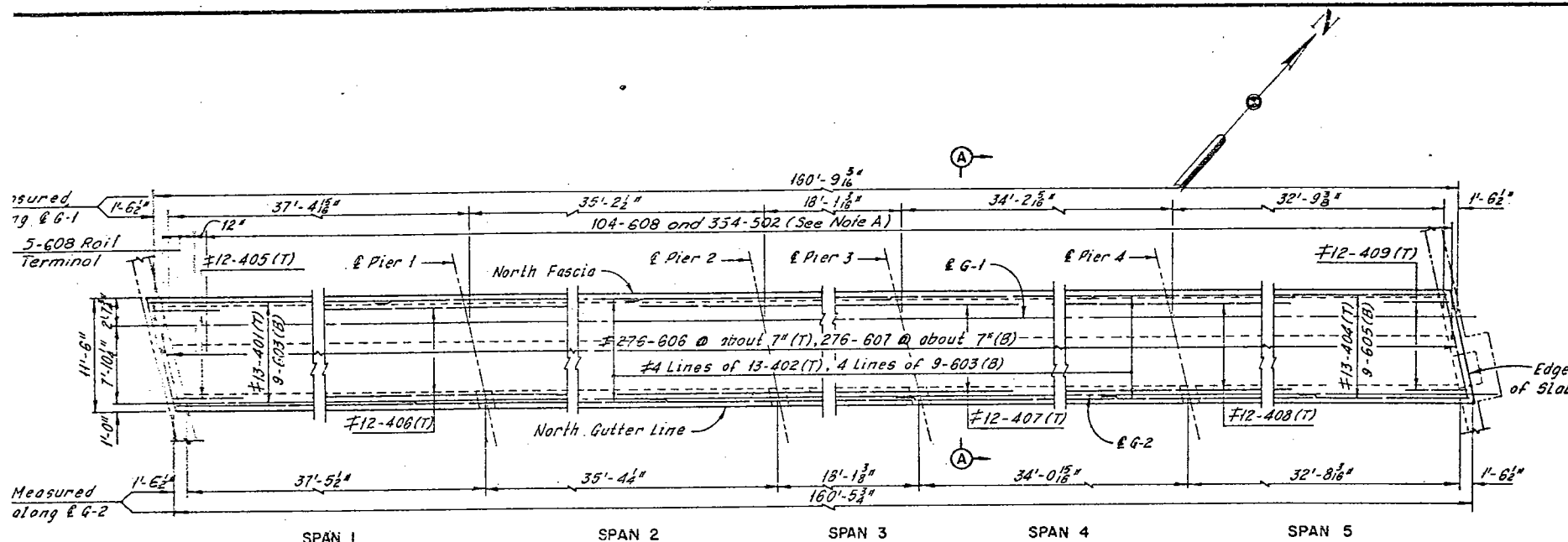
REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)

BR NO. CUY.-10-1685 STA. 57+29.72
CUYAHOGA COUNTY OHIO STA. 58+85.70

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
BP	BP	PS	PS	
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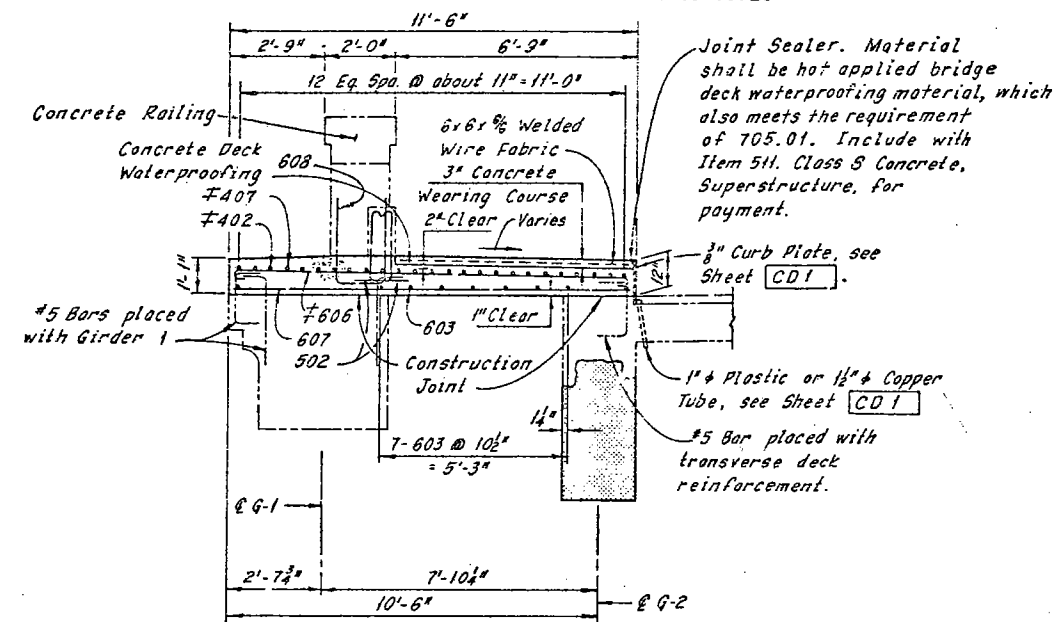
SHEET 26/31

CUYAHOGA COUNTY
CUY-10-16.23

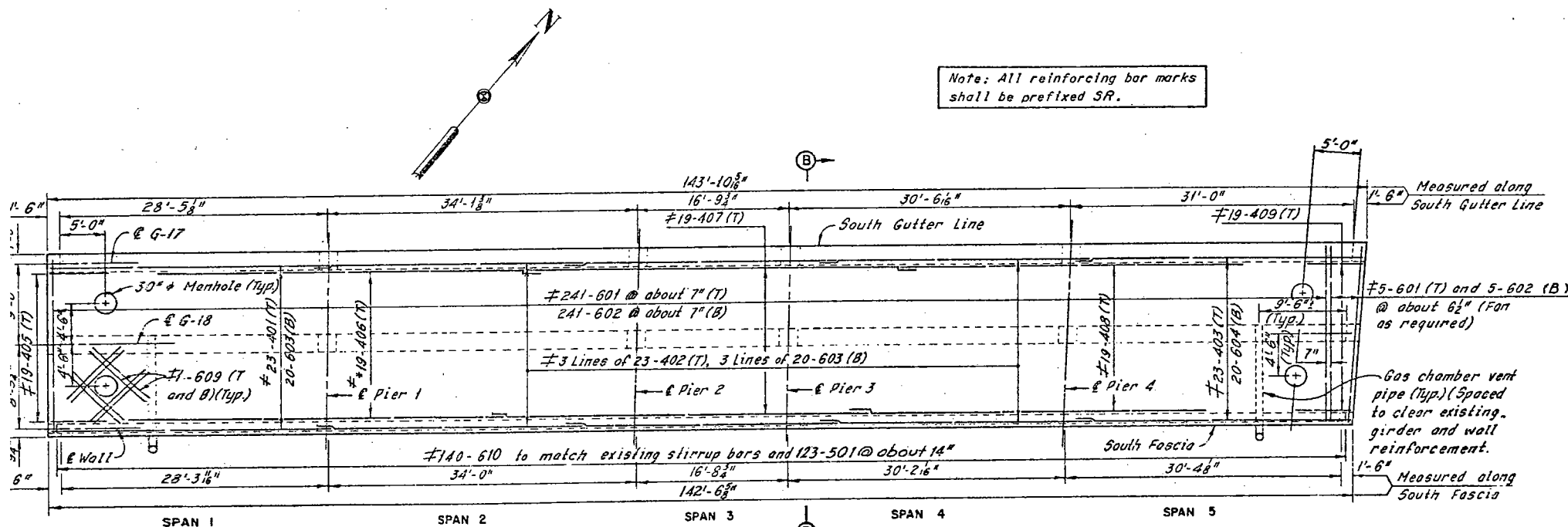


NORTH SIDEWALK PLAN
(Concrete railing not shown)

* Indicates additional reinforcement over piers, see Placement Diagram.



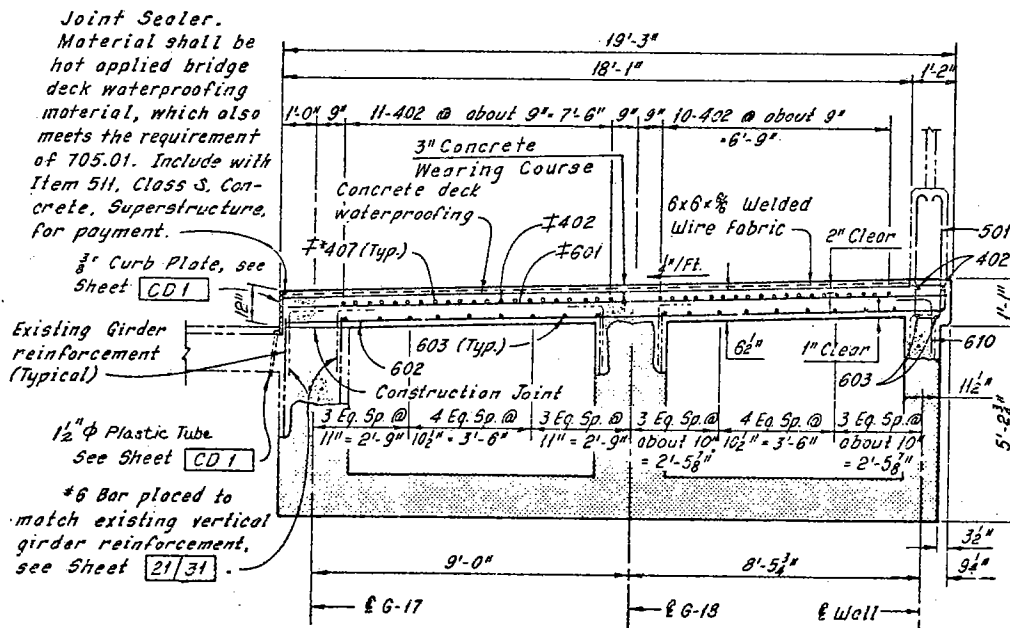
SECTION A-A



SOUTH SIDEWALK PLAN
(Parapet and fence not shown)

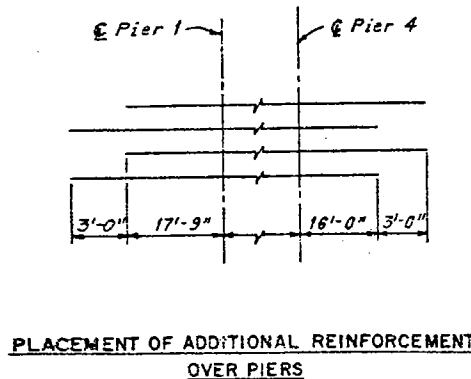
* Indicates additional reinforcement over piers, see Placement Diagram.

denotes epoxy coated reinforcing steel



SECTION B-B
(Utilities Not Shown)

- Notes:**
- Zip-a-tone indicates existing structure.
 - Phantom lines indicate new construction, details of which are shown elsewhere in these plans.
 - For Removal Plans, see Sheets **4/31** and **5/31**.
 - For details of concrete railing on north sidewalk, see Sheet **29/31**.
 - For details of fence and parapet on south sidewalk, see Sheet **28/31**.
 - For Girder 1 Replacement Details, see Sheet **20/31**.
 - For Reinforcement Schedule, see Sheet **R/4**.
 - For Gas Vent Detail, see Sheet **31/31**.



Note A:
Bars SR502 shall be placed at 2 equal spaces (3 sets of 2 bars) between railing posts and at 1 space (2 sets of 2 bars) between railing posts and deflection joints and/or railing posts and open joints. Bars SR 608 shall be placed at each face of railing posts.

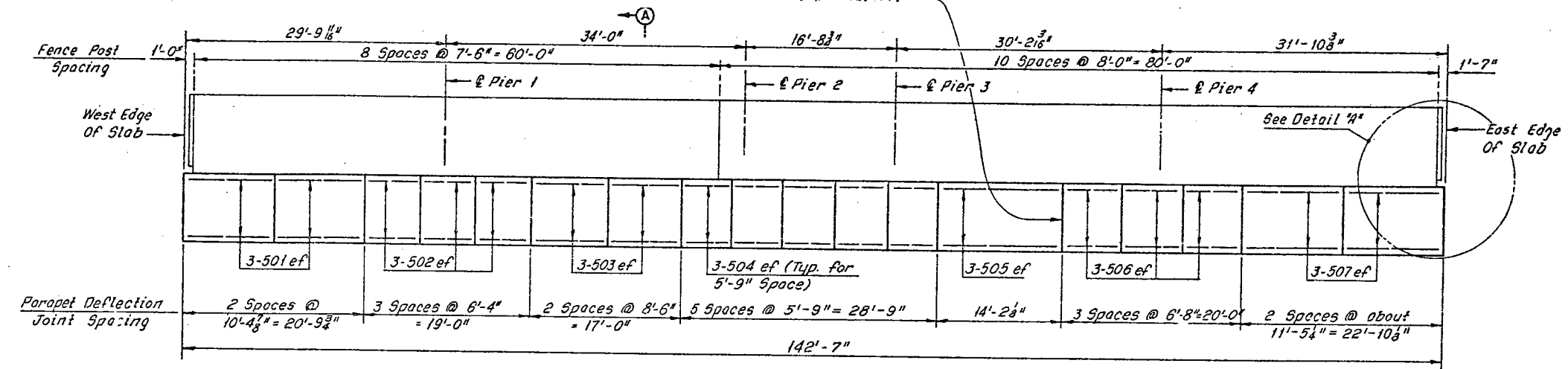
HNTB BRIDGE NO. 4			
HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND			HNTB
SIDEWALK PLANS			
REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)			
BR. NO. CUY-10-1685		STA. 57+29.72	
CUYAHOGA COUNTY		OHIO	
DRAWN S.P.	TRACED B.P.	CHECKED P.B.	REVIEWED DATE
DATE: 5-21-78	DATE: 7-7-78	DATE: 7-7-78	DATE
			SHEET 27/31

FHWA REGION	STATE	PROJECT
5	OHIO	

175
185

CUYAHOGA COUNTY
CUY-10-16.23

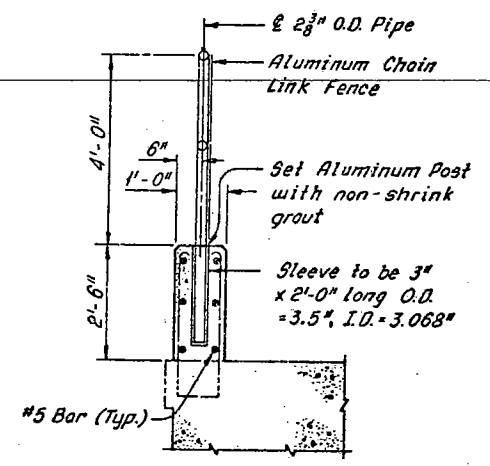
Preformed Expansion Joint Filler in the fencing parapet deflection joints may be either 1/2" gray sponge rubber or 1/2" gray cellular polyvinyl chloride (PVC) sponge. Either material shall meet the requirements of AASHTO M-153, Type 1 except the density of PVC sponge shall be not less than 20 lb. per cu. ft.



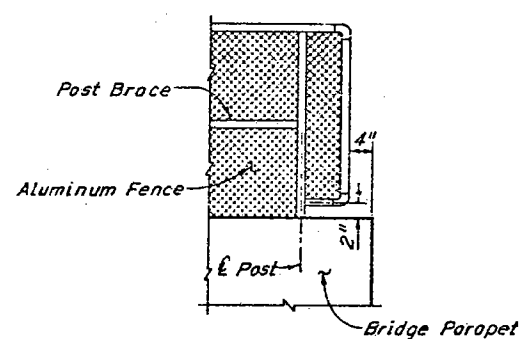
SOUTH PARAPET AND FENCE DETAILS
(Looking North)

Note:
All reinforcing bar marks shall be prefixed RB.

MARK	NO.	LENGTH	TYPE	WEIGHT (LBS)
RB501	12	10'-0"	Str.	125
RB502	18	6'-0"	Str.	113
RB503	12	8'-3"	Str.	103
RB504	30	5'-6"	Str.	172
RB505	6	13'-9"	Str.	86
RB506	18	6'-3"	Str.	117
RB507	12	11'-0"	Str.	138
TOTAL WEIGHT =				854



SECTION A-A



DETAIL A

Notes:
Payment for parapet and fence shall be made at the contract unit price for Item 517, Railing (Concrete Parapet with Chain-Link Fence-AASHTO Designation M-181-Type III Aluminum alloy fabric, posts, hardware and fittings.) Payment length shall be the over-all length of the parapets. Sleeves, parapet expansion joint material, grout and longitudinal reinforcing steel in the parapets shall be included with the unit price bid for Item 517, Railing (Concrete Parapet with Chain-Link Fence-AASHTO Designation M-181-Type III Aluminum alloy fabric, posts, hardware and fittings.), for payment. All other reinforcing steel in the parapets is included with Item 509, Reinforcing Steel, for payment.
Concrete parapets shall be placed in alternate sections by the use of bulkheads. Closing sections shall be placed after removal of bulkheads and after placement of sponge filler. Filler shall be flush with surface of mortar. The anchor posts shall be set in non-shrink grout.
The following abbreviation is used:
ef= each face

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND

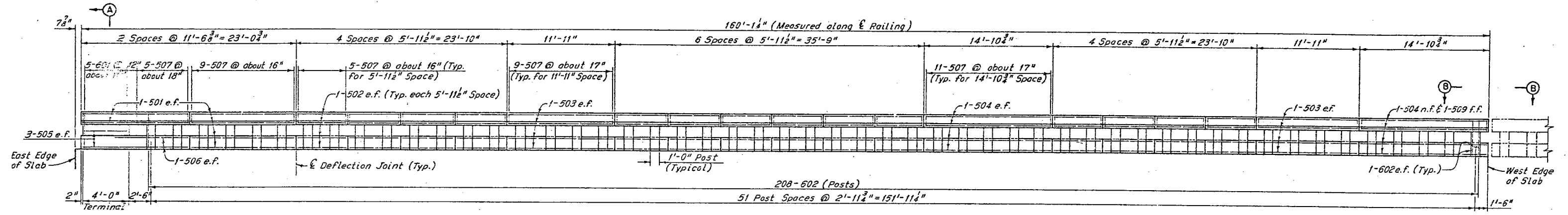
HNTB

SOUTH PARAPET AND FENCE DETAILS

REHABILITATION OF THE CARNegie AVENUE GRADE SEPARATION STRUCTURE (S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY. -10-1685 STA. 57+29.72
CUYAHOGA COUNTY STA. 58+85.70 OHIO

DRAWN R.A.S.	TRACED D.L.R.	CHECKED C.K.T.	REVIEWED	REVISED
DATE 11-28	DATE 11-76	DATE 12-77	DATE	

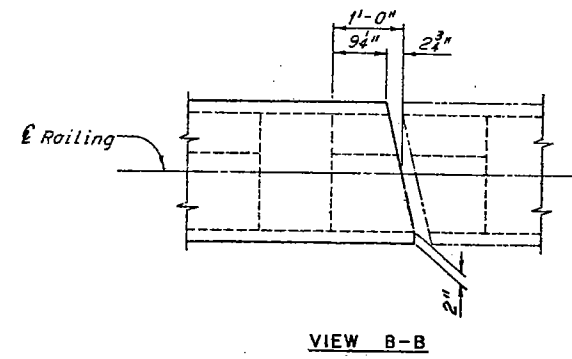
SHEET 28/31



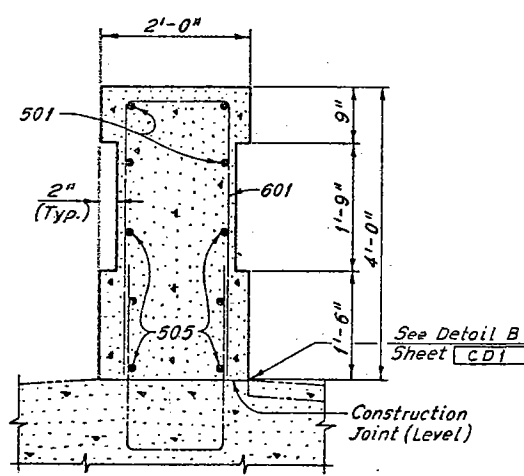
NORTH RAILING
(Looking South)

Note: All reinforcing bar marks shall be prefixed RA.

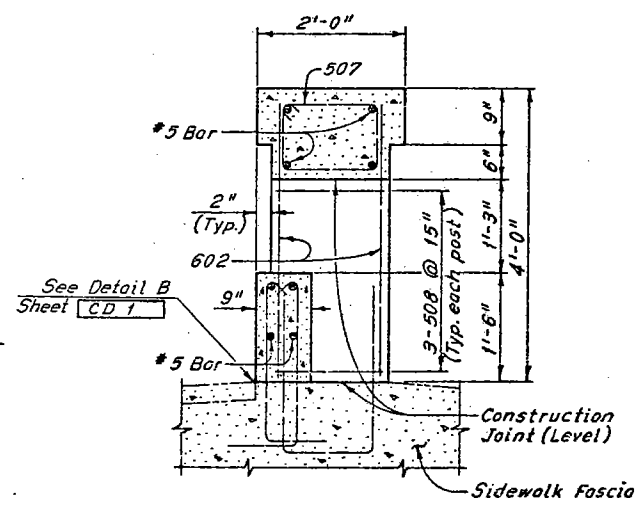
Note: The deflection joints in the railing may be either 1/4" gray sponge rubber or 1/4" gray cellular polyvinyl chloride (PVC) sponge. Either material shall meet the requirements of AASHTO M-153, Type 1, except the density of the (PVC) sponge shall be not less than 20 lb. per cu. ft.



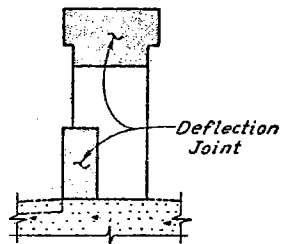
VIEW B-B



SECTION A-A



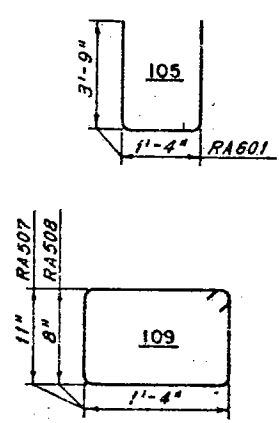
TYPICAL RAILING SECTION



DEFLECTION JOINT DETAIL

MARK	NO.	LENGTH	TYPE	WEIGHT (LBS)
RA 501	12	11'-3"	Str.	141
RA 502	112	5'-6"	Str.	643
RA 503	16	11'-6"	Str.	192
RA 504	12	14'-6"	Str.	181
RA 505	6	3'-9"	Str.	24
RA 506	4	8'-9"	Str.	37
RA 507	124	3'-2"	109	668
RA 508	156	4'-8"	109	759
RA 509	4	14'-3"	Str.	59
RA 601	5	8'-6"	105	64
RA 602	208	3'-9"	Str.	1172
TOTAL WEIGHT =				3940

BENDING DIAGRAMS



Notes:
Payment for the railing shall be made at the contract unit price bid for Items 517, Railing, As Per Plan. Payment length shall be the overall length of the railings. Railing expansion joint and deflection joint material and all reinforcing steel that does not extend into the sidewalk shall be included with Item 517 for payment. Reinforcing steel extending from the sidewalk is included with Item 509, Reinforcing Steel, for payment. Railings shall be placed in alternate sections by the use of bulkheads. Closing sections shall be placed after removal of bulkheads and after placement of sponge filler. The filler shall be attached to the face of the concrete on one side, flush with the surface of concrete and exposed edges shall be free of mortar.

The following abbreviations are used:
e.f. = each face n.f. = near face
Typ. = typical f.f. = far face

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

NORTH RAILING DETAILS

REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(S.R.10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72
CUYAHOGA COUNTY STA. 58+85.70 OH:O

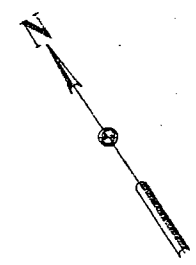
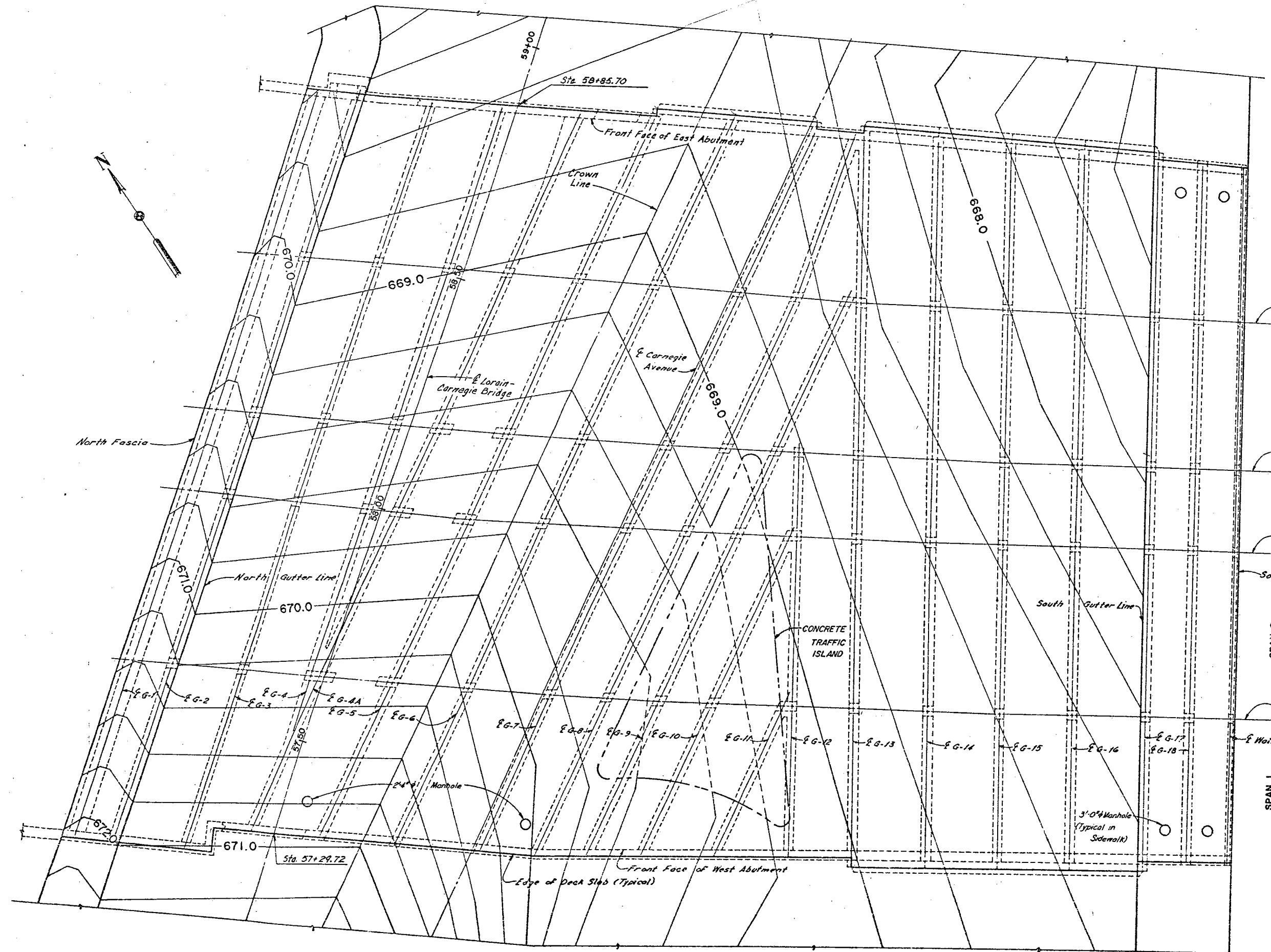
DRAWN RAS	TRACED DLR	CHECKED CKS	REVIEWED	REVISED
DATE: 11-76	DATE: 4-78	DATE: 9-78	DATE:	DATE:

SHEET 29/37

FHWA REGION	STATE	PROJECT
5	OHIO	

177
185

CUYAHOGA COUNTY
CUY-10-16.23



Note:
Contours are shown at top of the asphalt concrete surface course. For details of Concrete Traffic Island see Roadway Plans

10 5 0 5 10
SCALE IN FEET

CONTOUR PLAN

HNTB BRIDGE NO. 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND OHIO

HNTB

CONTOUR PLAN

REHABILITATION OF THE
CARNEGIE AVENUE GRADE SEPARATION STRUCTURE
(SR 10 OVER THE CLEVELAND UNION TERMINALS CO.
AND THE REGIONAL TRANSIT AUTHORITY)
BR. NO. CUY.-10-1685 STA. 57+29.72
CUYAHOGA COUNTY STA. 58+85.70 OHIO

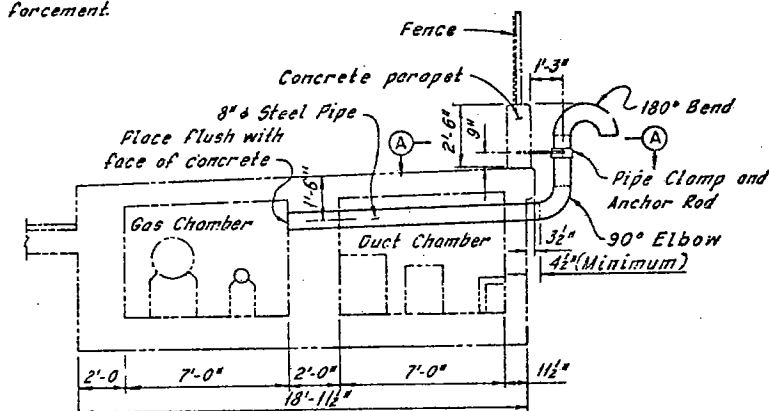
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DATE 9-25-52	DATE 6-22-53	DATE 9-18-53	DATE	

SHEET 30/31

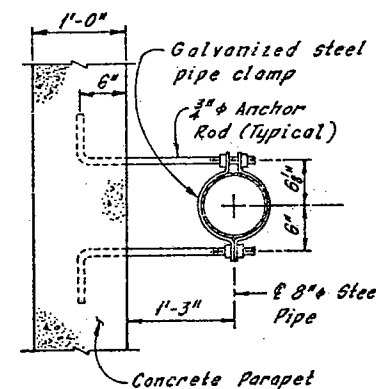
ESTIMATED REPAIR QUANTITIES

LOCATION	PCS		LOCATION	PCS		LOCATION	PCS		LOCATION	PCS	
	SQ. FT.	REP. OF CRACKS LIN. FT.		SQ. FT.	REP. OF CRACKS LIN. FT.		SQ. FT.	REP. OF CRACKS LIN. FT.		SQ. FT.	REP. OF CRACKS LIN. FT.
PIERS											
			4-15	1	-	4-1	-	-	4-3	-	4
1	34	188	4-16	-	-	4-2	-	-	4-4	-	-
2	99	114	4-17	-	-	4-3	1	-	4-4A	-	-
3	75	114	4-18	68	-	4-4	-	-	4-5	-	-
4	311	69				4-4A	-	-	4-6	279	-
			5-1	20	-	4-5	-	-	4-7	-	-
			5-2	74	-	4-6	7	-	4-8	40	-
STRUTS											
			5-3	-	2	4-7	-	-	4-9	-	-
1-1	-	-	5-4	4	-	4-8	-	-	4-13	-	-
1-2	2	-	5-5	65	-	4-9	-	-	4-14	-	-
1-3	11	-	5-4B	86	-	4-13	-	-	4-15	-	-
1-4	2	-	5-5	-	-	4-14	-	-	4-16	4	-
1-5	-	-	5-6	97	9	4-15	-	-	4-17	18	-
1-5	20	-	5-7	12	-	4-16	-	-	4-18	11	-
1-7	-	-	5-8	8	-	4-17	-	-			
1-8	-	-	5-13	11	-	4-18	-	-	5-1	206	-
1-9	39	-	5-14	-	-				5-2	396	-
1-10	-	-	5-15	-	-				5-3	-	-
1-11	-	-	5-16	-	-	GIRDERS			5-4	6	-
1-12	-	-	5-17	65	-	1-1	48	24	5-4A	-	-
1-13	-	-	5-18	25	-	1-2	75	-	5-5	33	-
1-14	-	-				1-3	19	6	5-6	74	-
1-15	1	-				1-4	1	-	5-7	7	-
1-16	7	-	COLUMNS			1-5	2	6	5-8	-	-
1-17	-	-	1-1	1	-	1-6	132	8	5-13	2	-
1-18	13	-	1-2	18	13	1-7	-	-	5-14	-	-
			1-3	2	-	1-8	72	7	5-15	-	-
2-1	4	-	1-4	-	-	1-9	40	6	5-16	1	-
2-2	44	-	1-5	-	-	1-10	1	-	5-17	132	-
2-3	1	-	1-6	-	-	1-11	-	-	5-18	18	-
2-4	-	-	1-7	-	-	1-12	-	-			
2-4A	1	-	1-8	-	-	1-13	6	-			
2-5	1	-	1-9	1	-	1-14	-	-	ABUTMENTS AND WINGWALLS		
2-6	14	-	1-10	1	-	1-15	-	-	EAST	2297	253
2-7	-	-	1-11	1	-	1-16	-	-	WEST	543	196
2-8	-	-	1-13	1	-	1-17	79	-			
2-9	1	-	1-14	-	-	1-18	77	51			
2-10	-	-	1-15	-	-						
			1-16	-	-	2-1	18	2	UTILITY CHAMBERS		
2-12	-	-	1-17	26	-	2-2	54	-	17-18	1,265	-
2-13	-	-	1-18	6	13	2-3	-	13	7-8	7	-
2-14	-	-				2-4	1	-	4-5	567	-
2-15	-	-	2-1	-	-	2-4A	2	-	At 2	539	24
2-16	1	-	2-2	-	-	2-5	1	-			
2-17	20	1	2-3	-	-	2-6	190	-			
2-18	70	6	2-4	1	-	2-7	6	-	GRAND TOTAL	10,002	1,237
			2-4A	2	-	2-8	11	-			
			2-5	-	-	2-9	13	-			
3-1	-	-	2-6	6	-	2-10	7	-			
3-2	-	6	2-7	1	-	2-12	-	-			
3-3	1	2	2-8	-	-	2-13	1	-			
3-4	2	2	2-9	-	-	2-14	3	-			
3-4A	2	-	2-10	-	-	2-15	-	-			
3-5	1	-	2-13	-	-	2-16	8	-			
3-6	65	-	2-14	-	-	2-17	80	22			
3-7	1	-	2-15	1	-	2-18	86	55			
3-8	-	-	2-16	-	-						
3-9	1	-	2-17	45	-	3-1	54	-			
3-12	-	-	2-18	1	-	3-2	158	-			
3-13	-	-				3-3	-	-			
3-14	-	1				3-4	-	-			
3-15	-	-	3-1	4	-	3-4A	-	-			
3-16	-	-	3-2	2	-						
3-17	19	-	3-3	-	2	3-5	8	-			
3-18	-	-	3-4	-	-	3-5	95	-			
			3-4A	1	-	3-7	-	-			
4-1	-	-	3-5	-	-	3-8	20	-			
4-2	-	-	3-6	-	-	3-9	-	-			
4-3	-	1	3-7	-	-	3-12	1	-			
4-4	6	17	3-8	-	-	3-13	1	-			
4-4A	6	-	3-9	-	-	3-14	-	-			
4-5	1	-	3-12	-	-	3-15	-	-			
4-6	58	-	3-13	-	-	3-16	7	-			
4-7	1	-	3-14	-	-	3-17	92	-			
4-8	-	-	3-15	-	-	3-18	40	-			
4-9	6	-	3-16	-	-						
4-13	2	-	3-17	-	-	4-1	304	-			
4-14	-	-	3-18	-	-	4-2	145	-			

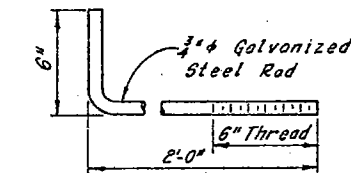
Note:
The 8" steel pipe shall be placed to clear vertical reinforcement.



TYPICAL GAS CHAMBER VENT DETAIL



SECTION A-A
(Parapet Reinforcement not shown)



ANCHOR BOLT DETAIL
4 Required

(Threads are to be Unified Standard Series for Basic Major Diameter of 1/2")

Notes:
PCS indicates Patching Concrete Structures.
For Member Identification Plans, see Sheet 2/31.
For location of Gas Chamber Vents, see Sheet 27/31.
Utility Chambers are identified as at or between the girders called out, for the entire length of the Grade Separation.
All costs for venting the gas chamber shall be borne by the gas company, and shall be paid for at the Lump Sum price bid for Item Special, East Ohio Gas Company H. P. Pipe Air Vents, Complete As Per Plan.

HNTB BRIDGE NO. 4

HOWARD, NEEDLES TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND

HNTB

ESTIMATED REPAIR QUANTITIES AND GAS CHAMBER VENT DETAILS

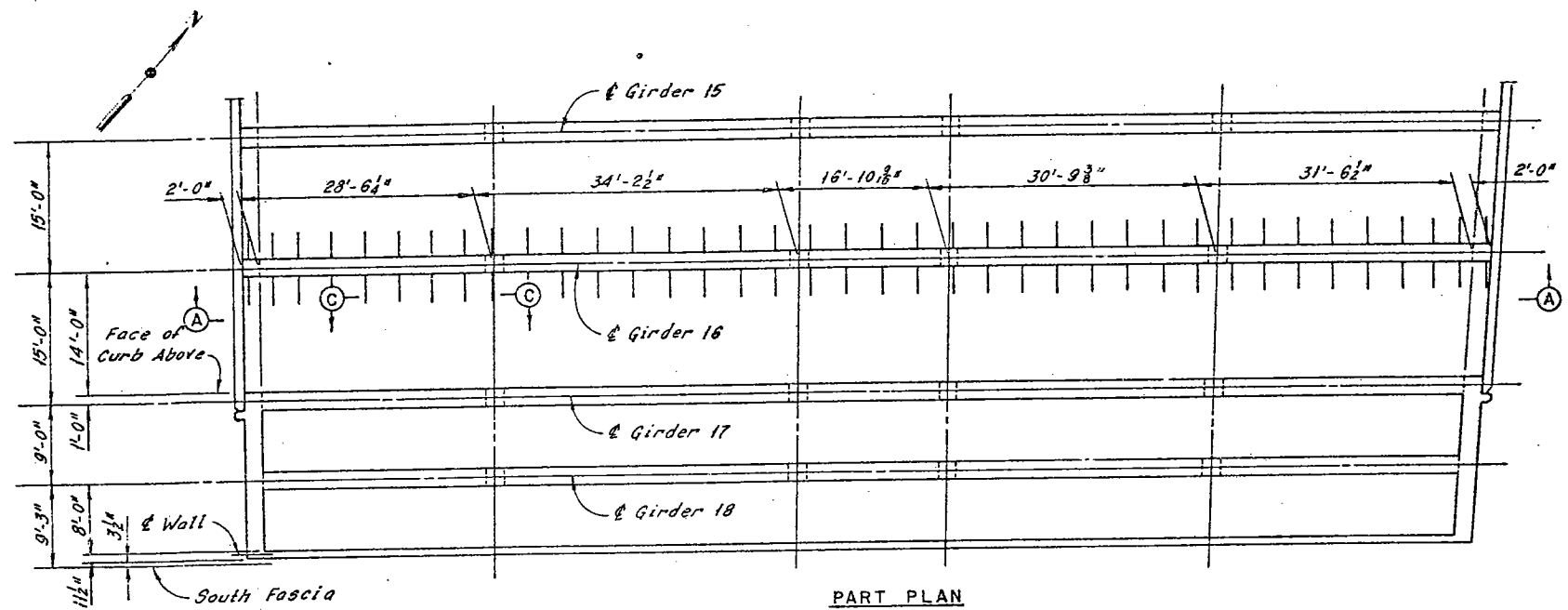
REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)

BR. NO. CUY-10-1685 STA. 57+29.72 STA. 58+65.70

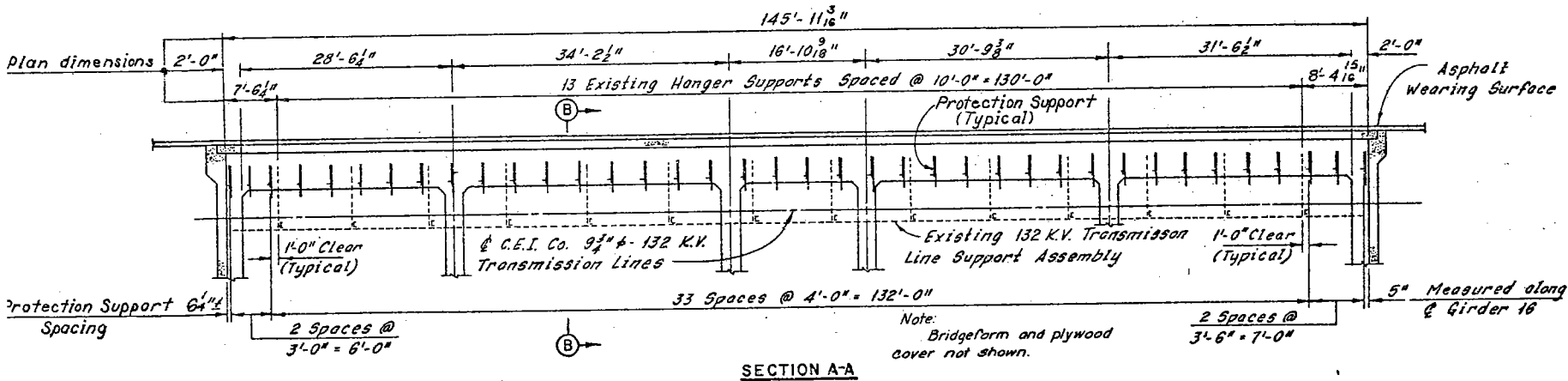
CUYAHOGA COUNTY OHIO

DRAWN BY BP	TRACED BY RAS	CHECKED BY RAS	REVIEWED BY	REVISED BY
DATE: 2/13/22	DATE: 2/14/22	DATE: 2/14/22	DATE:	DATE:

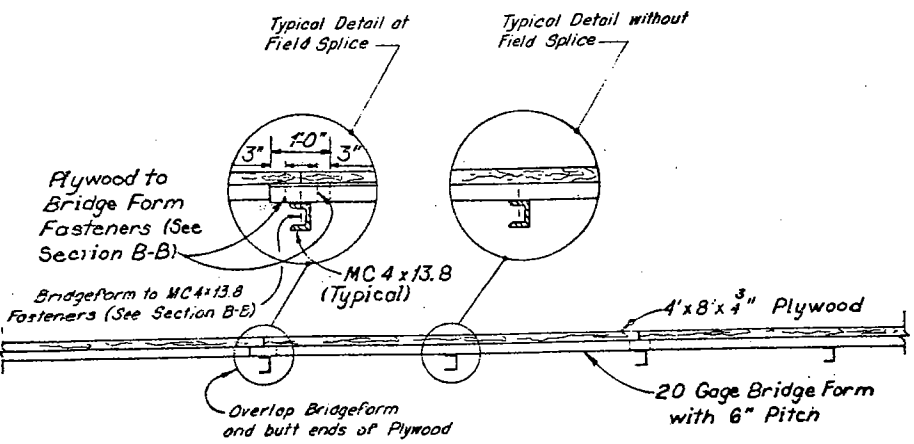
SHEET 31 / 31



PART PLAN
CARNEGIE AVENUE GRADE
SEPARATION STRUCTURE
(Dimension shown are from original plans)



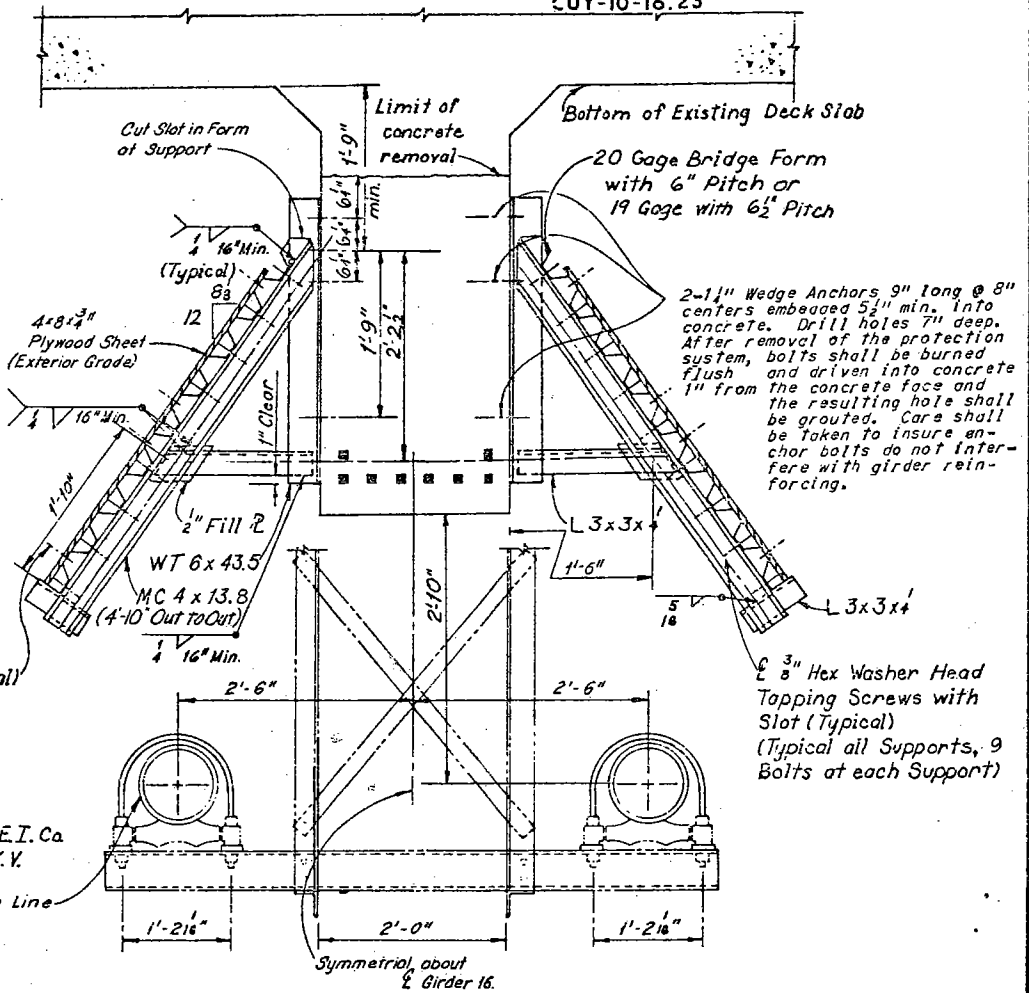
SECTION A-A



SECTION C-C

Notes:
All structural steel shall be ASTM A572 except as noted. (Approx. 16,000 lbs.)
ASTM A572 shall be given one shop coat of primer as per Article 514, System B.
Bridge form, similar to Bethlehem Bridgeform, shall be ASTM A446, Grade E with the following properties:
Thickness = 20 gage
Pitch = 6 in. Depth = 2 in.
I = .400 in.⁴/ft.
S.M. = 0.372 in.³/ft.
F_y = 80,000 psi
Allowable design stress = 30,000 psi
Wedge anchors shall be equivalent to Phillips Wedge Anchors with a minimum pullout load of 40,600 lbs. and a minimum shear load of 48,660 lbs.
1/2" turned bolts shall be ASTM A307.
All temporary protection at the 132 K.V. Transmission Lines, as per plan, shall be in place prior to concrete deck and girder removal between Girder 15 and Girder 17, and shall remain in place until all required work is complete on the permanent structure between Girder 15 and Girder 17.

1/2" Turned Bolt with two Washers or 4" Wood Screws placed from the underside with one washer, 4 per line on 4' max. centers and as shown in Section C-C (Typical)



SECTION B-B

Note: The 132 K.V. pipe type cables contain three copper insulated cables and insulating fluid at a nominal 200 psi. The steel pipes and corrosion control covering on the pipes must be protected from any and all damage.

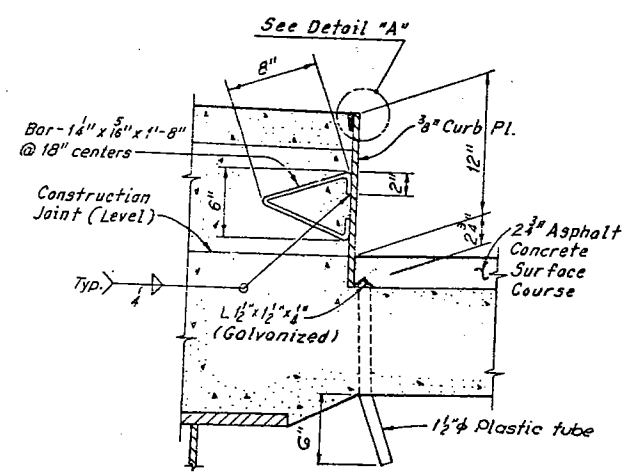
All labor, material and equipment required for the placement and removal of all temporary transmission line protection devices, as per plan, shall be included in the unit price bid for Item Special, Temporary Protection At 132 K.V. Transmission Lines.
Materials used in the protection system shall become the property of the Contractor upon completion of the work, and shall be removed by him from the site.
The Contractor shall assume full responsibility for any damage to the 132 K.V. lines and its supports, and for damages resulting from damage to these lines. The Contractor shall take extraordinary precautions to insure against any damage to the 132 K.V. lines during erection and removal of the temporary protection system and against concrete dropping between Girders 15 and 17. The protection system is designed only for an accidental occurrence of a 50 lb. block of concrete dropping from the level of the deck. If any concrete pieces drop on the protection system, the Contractor shall cease operations, inspect the protection system and make necessary repairs to the system subject to the approval, prior to resuming operations, by the State of Ohio Project Engineer assigned to implement the contract.

Supporting members have been designed for basic allowable stresses increased 50%. Anchors have been designed for a 1.6 Factor of Safety.
The Contractor or his agents must notify the Cleveland Electric Illuminating Company (623-1350, Extension 2445) at least 24 hours in advance if any work is to be performed in the vicinity of the two C.E.I. 132 K.V. pipe type cables. The Illuminating Company will provide a field representative during the time any work is performed near the 132 K.V. cables.

HNTB BRIDGE NO. 4

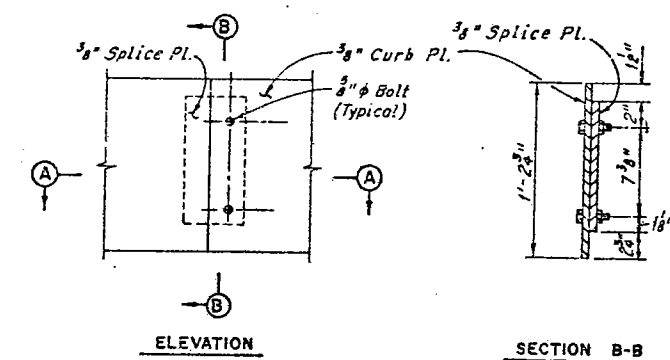
HOWARD NEEDLES TAMMEN & BERGENOFF CONSULTING ENGINEERS CLEVELAND		HNTB
TEMPORARY PROTECTION FOR THE 132 K.V. TRANSMISSION LINES		
REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (S.R.10 OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY)		
BR NO. CUY.-10-1685	STA. 57+29.72	STA. 58+85.70
CUYAHOGA COUNTY		OHIO
DRAWN B.M.P.	TRACED M.M.P.	CHECKED J.H.S.F.S.
DATE 3-16-79	DATE 3-30-79	DATE 4-12-79
REVIEWED	REVISION	DATE

SHEET 31A/31

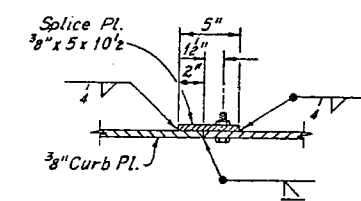


SIDWALK CURB PLATE AND
SUBDRAINAGE FOR SURFACE COURSE DETAIL

For location of drain tubes,
see General Note 24, Sheet GN.5.

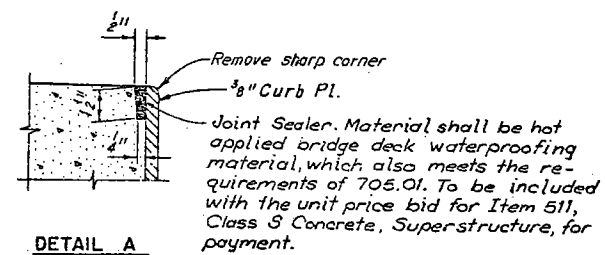


ELEVATION SECTION B-B

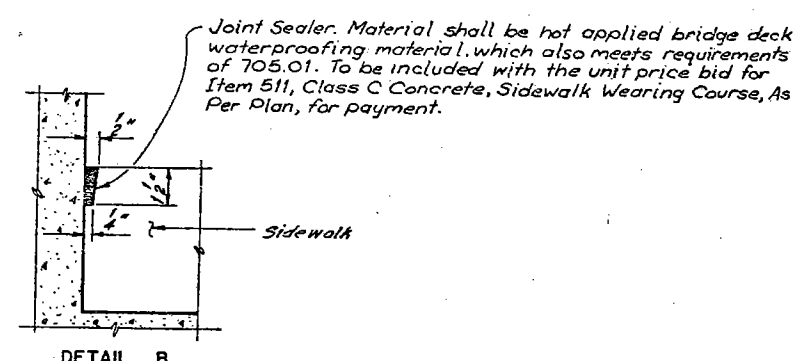


SECTION A-A
CURB PLATE SPLICE DETAIL

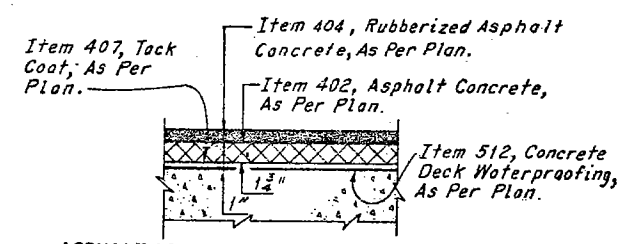
Note:
Remove bolts after field
welds have been completed
Plug weld holes flush with
curb plate.



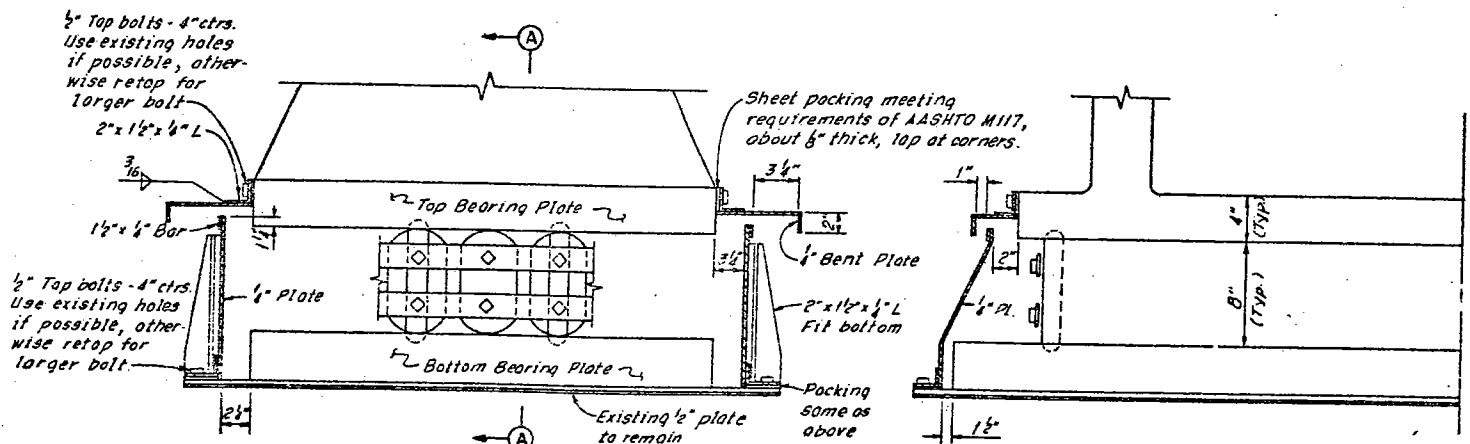
DETAIL A



DETAIL B



ASPHALT CONCRETE SURFACE COURSE DETAIL



SECTION THROUGH GREASE BOX

SECTION A-A

EXPANSION BEARING GREASE BOX REPLACEMENT DETAILS
All new metal parts shall be ASTM A588

LOCATION	TOP PLATE		BOTTOM PLATE		NUMBER OF GREASE BOXES REQUIRED	BASE PLATE THICKNESS
	LONG.	TRANS.	LONG.	TRANS.		
West Pylon - Exterior	3'-4"	2'-8"	3'-6"	3'-5"	2	3 1/2"
West Pylon - Interior	3'-4"	3'-1"	3'-6"	3'-11"	2	4"
East Abutment - Exterior	3'-4"	3'-3"	3'-6"	3'-11 1/2"	2	4"
East Abutment - Center	2'-7"	2'-8"	2'-7"	3'-5"	1	3 1/2"

Note:
Curb plate, curb plate anchors and splice plates shall be ASTM A36 Steel.

HNTB BRIDGE NO. 3 AND 4

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND

HNTB

COMMON DETAILS

CUYAHOGA COUNTY OHIO

DRAWN CAP	CHECKED EES	DESIGNED RAS	REVIEWED DATE	REVISION DATE
DATE: 4-25-78	DATE: 12-16-78	DATE: 9-20-78	DATE	DATE

SHEET CD / 1

MARK	NO	LENGTH	TYPE	SER INCR.	WEIGHT (LBS.)
EAST ABUTMENT					
*EA401	52	29'-9"	Str		1033
*EA402	48	10'-6"	Str		337
EA501	41	3'-2"	105		135
EA502	4	31'-3"	Str		130
EA503	264	3'-9"	163		1033
EA504	37	6'-0"	Str		232
EA505	13	18'-0"	Str		244
*EA601	118	12'-6"	100		2215
EA602	76	6'-0"	105		595
Total Weight (Uncoated) =					2,459
# Total Weight (Epoxy Coated) =					3,585
BOX AT E. ABUTMENT					
*B401	26	21'-9"	Str		378
B501	96	3'-9"	163		375
*B601	46	12'-6"	100		864
B602	28	6'-0"	105		252
Total Weight (Uncoated) =					627
# Total Weight (Epoxy Coated) =					1,242
WEST Pylon					
*WP401	127	27'-6"	Str		2517
*WP402	12	2'-9"	Str		22
WP501	42	15'-3"	100		845
WP502	4	26'-6"	Str		111
WP503	4	26'-9"	Str		112
WP504	12	23'-0"	Str		285
WP505	14	36'-3"	Str		425
WP506	204	13'-0"	100		2702
WP507	24	2'-9"	Str		60
WP601	82	12'-9"	Str		1870
WP602	82	27'-9"	Str		3410
WP603	52	21'-9"	Str		2877
WP604	41	20'-9"	Str		1784
WP605	4	5'-9"	100		34
WP606	4	5'-11"	105		32
WP607	52	21'-9"	105		2027
WP608	52	21'-9"	105		2027
WP609	52	7'-2"	105		560
WP610	14	21'-7"	105		220
WP611	12	7'-11"	105		141
WP612	12	21'-9"	105		150
WP613	111	29'-11"	100		5545
WP1001	10	28'-3"	100		1216
WP1002	8	28'-5"	100		981
WP1101	28	24'-3"	Str		3608
WP1102	12	31'-6"	Str		2217
WP1103	2	20'-0"	Str		84
WP1104	28	17'-6"	Str		1248
WP1105	12	31'-0"	Str		4812
Total Weight (Uncoated) =					24,848
Total Weight (Epoxy Coated) =					16,848
PIER 7					
7P401	4	15'-0"	Str		127
7P402	4	23'-6"	Str		63
7P403	1	9'-6"	Str		6
7P404	1	8'-6"	Str		6
7P405	1	8'-3"	Str		6
7P406	2	16'-9"	Str		22
7P407	1	16'-6"	Str		11
7P408	2	18'-6"	Str		25
7P409	6	4'-6"	Str		18
7P410	7	3'-11"	104		18
7P411	2	7'-3"	104		15
7P412	4	13'-5"	124		36
7P413	2	15'-10"	104		21
7P414	3	21'-3"	126		43
7P415	1	6'-0"	Str		4
7P416	2	5'-0"	Str		7
7P417	6	5'-2"	104		25
7P418	6	6'-5"	104		26
Total Weight =					479
PIER 12					
12P401	35	15'-6"	Str		397
12P402	2	4'-0"	Str		5
12P403	2	3'-9"	Str		4
12P404	2	2'-9"	Str		4
12P405	2	11'-6"	Str		15
12P406	1	11'-3"	Str		8
12P407	1	7'-6"	103		88
12P408	2	18'-7"	105		50
12P409	2	25'-1"	105		33
12P410	2	5'-6"	Str		7
12P411	2	6'-0"	Str		6
Total Weight =					620

MARK	NO	LENGTH	TYPE	SER INCR.	WEIGHT (LBS.)
PIER 10					
10P401	10	19'-0"	Str		127
10P402	4	23'-6"	Str		63
10P403	1	9'-6"	Str		6
10P404	1	8'-6"	Str		6
10P405	1	8'-3"	Str		6
10P406	2	16'-9"	Str		22
10P407	1	16'-6"	Str		11
10P408	2	18'-6"	Str		25
10P409	6	4'-6"	Str		18
10P410	7	3'-11"	104		18
10P411	2	7'-3"	104		15
10P412	4	13'-5"	124		36
10P413	2	15'-10"	104		21
10P414	3	21'-3"	126		43
10P415	1	6'-0"	Str		4
10P416	2	5'-0"	Str		7
10P417	6	5'-2"	104		25
10P418	6	6'-5"	104		26
Total Weight =					479
PIER 12					
12P401	35	15'-6"	Str		397
12P402	2	4'-0"	Str		5
12P403	2	3'-9"	Str		4
12P404	2	2'-9"	Str		4
12P405	2	11'-6"	Str		15
12P406	1	11'-3"	Str		8
12P407	1	7'-6"	103		88
12P408	2	18'-7"	105		50
12P409	2	25'-1"	105		33
12P410	2	5'-6"	Str		7
12P411	2	6'-0"	Str		6
Total Weight =					620
PIER 11					
11P401	41	15'-6"	Str		3207
11P402	21	15'-6"	Str		921
11P403	22	30'-0"	101		1643
11P404	42	20'-0"	Str		2812
11P405	52	16'-0"	101		874
11P406	12	25'-0"	Str		240
11P407	25	15'-0"	Str		252
11P408	103	15'-0"	Str		402
11P409	11	7'-6"	105		922
11P410	2	17'-9"	Str		108
11P411	42	7'-6"	105		108
11P412	42	7'-6"	105		108
11P413	42	7'-6"	105		108
11P414	42	7'-6"	105		108
11P415	42	7'-6"	105		108
11P416	42	7'-6"	105		108
11P417	42	7'-6"	105		108
11P418	42	7'-6"	105		108
11P419	42	7'-6"	105		108
11P420	42	7'-6"	105		108
11P421	42	7'-6"	105		108
11P422	42	7'-6"	105		108
11P423	42	7'-6"	105		108
11P424	42	7'-6"	105		108
11P425	42	7'-6"	105		108
11P426	42	7'-6"	105		108
11P427	42	7'-6"	105		108
11P428	42	7'-6"	105		108
11P429	42	7'-6"	105		108
11P430	42	7'-6"	105		108
11P431	42	7'-6"	105		108
11P432	42	7'-6"	105		108
11P433	42	7'-6"	105		108
11P434	42	7'-6"	105		108
11P435	42	7'-6"	105		108
11P436	42	7'-6"	105		108
11P437	42	7'-6"	105		108
11P438	42	7'-6"	105		108
11P439	42	7'-6"	105		108
11P440	42	7'-6"	105		108
11P441	42	7'-6"	105		108
11P442	42	7'-6"	105		108
11P443	42	7'-6"	105		108
11P444	42	7'-6"	105		108
11P445	42	7'-6"	105		108
11P446	42	7'-6"	105		108
11P447	42	7'-6"	105		108
11P448	42	7'-6"	105		108
11P449	42	7'-6"	105		108
11P450	42	7'-6"	105		108
11P451	42	7'-6"	105		108
11P452	42	7'-6"	105		108
11P453	42	7'-6"	105		108
11P454	42	7'-6"	105		108
11P455	42	7'-6"	105		108
11P456	42	7'-6"	105		108
11P457	42	7'-6"	105		108
11P458	42	7'-6"	105		108
11P459	42	7'-6"	105		108
11P460	42	7'-6"	105		108
11P461	42	7'-6"	105		108
11P462	42	7'-6"	105		108
11P463	42	7'-6"	105		108
11P464	42	7'-6"	105		108
11P465	42	7'-6"	105		108
11P466	42	7'-6"	105		108
11P467	42	7'-6"	105		108
11P468	42	7'-6"	105		108
11P469	42	7'-6"	105		108
11P470	42	7'-6"	105		108
11P471	42	7'-6"	105		108
11P472	42	7'-6"	105		108
11P473	42	7'-6"	105		108
11P474	42	7'-6"	105		108
11P475	42	7'-6"	105		108
11P476	42	7'-6"	105		108
11P477	42	7'-6"	105		108
11P478	42	7'-6"	105		108
11P479	42	7'-6"	105		108
11P480	42	7'-6"	105		108
11P481	42	7'-6"	105		108
11P482	42	7'-6"	105		108
11P483	42	7'-6"	105		108
11P484	42	7'-6"	105		108
11P485	42	7'-6"	105		108
11P486	42	7'-6"	105		108
11P487	42	7'-6"	105		108
11P488	42	7'-6"	105		108
11P489	42	7'-6"	105		108
11P490	42	7'-6"	105		108
11P491	42	7'-6"	105		108
11P492	42	7'-6"	105		108
11P493	42	7'-6"	105		108
11P494	42	7'-6"	105		108
11P495	42	7'-6"	105		108
11P496	42	7'-6"	105		108
11P497	42	7'-6"	105		108
11P498	42	7'-6"	105		108
11P499	42	7'-6"	105		108
11P500	42	7'-6"	105		108
11P501	42	7'-6"	105		108
11P502	42	7'-6"	105		108
11P503	42	7'-6"	105		

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS)
SLAB-SPAN 3					
0401 #	224	13'-0"	Str		7156
0402 #	206	25'-0"	Str		3440
0403 #	92	33'-0"	101		1643
0404 #	928	23'-0"	Str		18196
0405 #	82	25'-3"	101		1383
0406 #	28	24'-3"	Str		454
2501	332	7'-10"	155		3121
2502	40	23'-5"	Str		980
2503	8	11'-5"	Str		96
2504	4	21'-5"	Str		90
2505	36	30'-0"	Str		1126
2506	4	27'-3"	Str		114
2507	1284	3'-5"	163		4687
2601 #	1256	29'-2"	101		46262
2602 #	528	28'-0"	Str		22800
2603	1056	31'-9"	Str		50359
2604	528	22'-0"	Str		17447
2605	720	30'-0"	Str		32443
2606	80	28'-0"	Str		3464
2607 #	528	12'-6"	100		9913
2608 #	528	3'-0"	105		2379
2609	528	3'-2"	105		2511
2610	380	6'-0"	105		3425
801	40	25'-4"	100		2706
802	8	13'-5"	100		287
803	4	23'-4"	100		249
804	60	30'-0"	Str		4806
805	6	12'-0"	Str		192
Total Weight (Uncoated)					= 128,003
Total Weight (Epoxy Coated)					= 113,626
SLAB-SPAN 4					
401 #	206	13'-0"	Str		1789
402 #	82	30'-0"	101		1643
403 #	138	30'-0"	Str		2766
404 #	82	14'-9"	101		809
405 #	28	13'-9"	Str		257
501	96	7'-0"	155		784
502	12	23'-6"	Str		294
503	8	30'-0"	Str		250
504	4	14'-6"	Str		61
505	324	3'-6"	163		1183
601 #	268	29'-2"	101		11741
602 #	134	28'-9"	Str		5786
603	268	31'-9"	Str		12781
604	134	22'-0"	Str		4428
605	160	30'-0"	Str		7210
606	80	14'-9"	Str		1772
607 #	134	12'-5"	100		2516
608 #	134	3'-0"	105		604
609	134	3'-2"	105		637
610	96	6'-0"	105		865
701	12	30'-0"	Str		961
702	6	17'-0"	Str		272
703	12	25'-4"	100		812
Total Weight (Uncoated)					= 32,310
Total Weight (Epoxy Coated)					= 27,910
SLAB-SPAN 5					
101 #	927	13'-0"	Str		8050
102 #	206	25'-0"	Str		3440
103 #	82	33'-0"	101		1643
104 #	1018	30'-0"	Str		20401
105 #	82	15'-0"	101		1041
106 #	28	18'-0"	Str		337
01	414	7'-10"	155		3322
02	44	23'-5"	Str		1078
03	8	11'-6"	Str		96
04	8	21'-6"	Str		179
05	40	30'-0"	Str		1252
06	1336	3'-5"	163		5296

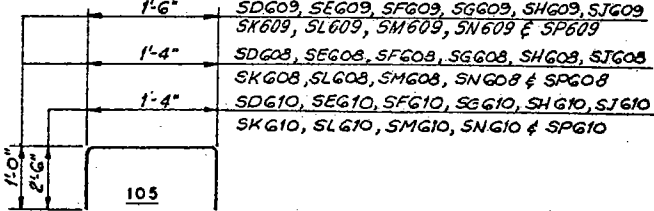
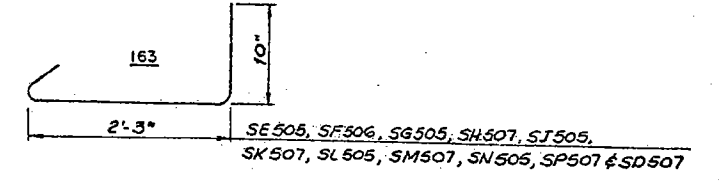
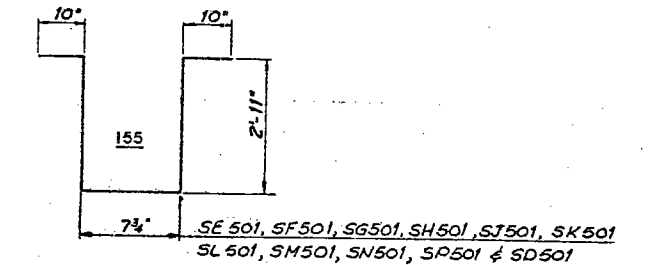
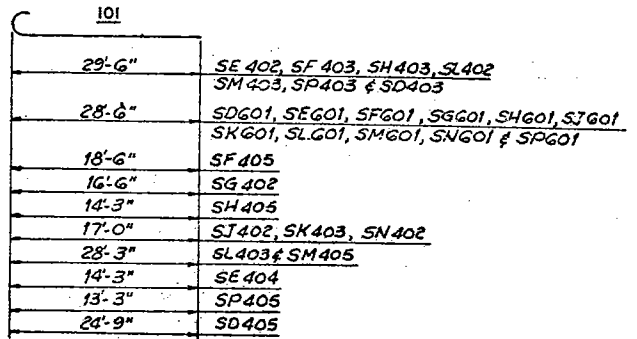
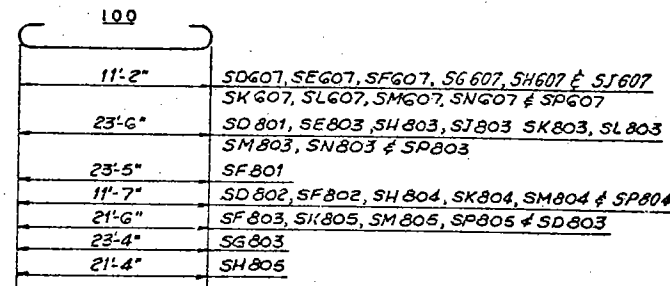
MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS)
*SF601	1140	29'-2"	101		49942
*SF602	570	22'-0"	Str		24614
SF603	1140	31'-9"	Str		54365
SF604	570	22'-0"	Str		18835
SF605	800	30'-0"	Str		36048
SF606	80	22'-3"	Str		2674
*SF607	570	12'-6"	100		10732
*SF608	570	3'-0"	105		2569
SF609	570	3'-2"	105		2711
SF610	412	6'-0"	105		3713
SF801	44	25'-3"	100		2966
SF802	8	13'-5"	100		297
SF803	4	23'-4"	100		249
SF804	66	30'-0"	Str		5287
SF805	6	6'-5"	Str		104
Total Weight (Uncoated)					= 138,322
# Total Weight (Epoxy Coated)					= 122,738
SLAB-SPAN 6					
*SG401	412	12'-5"	Str		3440
*SG402	164	17'-0"	101		1862
*SG403	358	30'-0"	Str		7174
*SG404	28	2'-0"	Str		51
SG501	160	7'-10"	155		1307
SG502	16	30'-0"	Str		501
SG503	4	4'-3"	Str		18
SG504	20	23'-6"	Str		490
SG505	540	3'-6"	163		1971
*SG601	442	29'-2"	101		19363
*SG602	221	28'-9"	Str		9543
SG603	442	31'-9"	Str		21078
SG604	221	22'-0"	Str		7303
SG605	320	30'-0"	Str		14419
SG606	80	4'-6"	Str		541
*SG607	222	12'-6"	100		4168
*SG608	222	3'-0"	105		1000
SG609	222	3'-2"	105		1056
SG610	160	6'-0"	105		1442
SG801	24	30'-0"	Str		1922
SG802	6	9'-3"	Str		148
SG803	20	23'-2"	100		1344
Total Weight (Uncoated)					= 53,540
# Total Weight (Epoxy Coated)					= 46,601
SLAB-SPAN 7					
*SH401	1030	13'-0"	Str		8945
*SH402	206	25'-0"	Str		3440
*SH403	82	30'-0"	101		1643
*SH404	1123	30'-0"	Str		22605
*SH405	82	14'-9"	101		808
*SH406	28	13'-9"	Str		257
SH501	446	7'-10"	155		3644
SH502	44	30'-0"	Str		1377
SH503	4	17'-6"	Str		73
SH504	48	23'-5"	Str		1176
SH505	8	11'-6"	Str		96
SH506	4	21'-3"	Str		89
SH507	1500	3'-6"	163		5476
*SH601	1230	29'-2"	101		53884
*SH602	615	28'-9"	Str		26557
SH603	1230	31'-9"	Str		58657
SH604	615	22'-0"	Str		20322
SH605	980	30'-0"	Str		39653
SH606	80	18'-6"	Str		2223
*SH607	616	12'-5"	100		11565
*SH608	616	3'-0"	105		2772
SH609	616	3'-2"	105		2930
SH410	444	6'-0"	105		4301
SH801	72	30'-0"	Str		5767
SH802	6	3'-9"	Str		60
SH803	48	25'-4"	100		3247
SH804	8	13'-5"	100		287
SH805	4	23'-2"	100		247
Total Weight (Uncoated)					= 149,325
# Total Weight (Epoxy Coated)					= 132,480

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS)
SLAB-SPAN 8					
*SJ401	412	13'-0"	Str		3578
*SJ402	144	17'-6"	101		1917
*SJ403	358	30'-0"	Str		7174
*SJ404	28	3'-9"	Str		70
SJ501	160	7'-10"	155		1307
SJ502	16	30'-0"	Str		501
SJ503	4	5'-0"	Str		21
SJ504	20	23'-6"	Str		490
SJ505	540	3'-6"	163		1971
*SJ601	444	29'-2"	101		19453
*SJ602	222	28'-9"	Str		9587
SJ603	444	31'-9"	Str		21173
SJ604	222	22'-0"	Str		7336
SJ605	320	30'-0"	Str		14419
SJ606	80	5'-3"	Str		631
*SJ607	224	12'-6"	100		4204
*SJ608	224	3'-0"	105		1009
SJ609	224	3'-2"	105		1065
SJ610	160	6'-0"	105		1442
SJ801	24	30'-0"	Str		1922
SJ802	6	10'-0"	Str		160
SJ803	20	25'-4"	100		1353
Total Weight (Uncoated)					= 53,791
# Total Weight (Epoxy Coated)					= 46,994
SLAB-SPAN 9					
*SK401	1236	13'-0"	Str		10733
*SK402	206	25'-0"	Str		3440
*SK403	164	17'-0"	101		1917
*SK404	1348	30'-0"	Str		27014
*SK405	28	3'-9"	Str		70
SK501	510	7'-10"	155		4165
SK502	52	30'-0"	Str		1627
SK503	4	8'-3"	Str		34
SK504	56	23'-6"	Str		1373
SK505	8	11'-6"	Str		96
SK506	4	21'-6"	Str		90
SK507	1716	3'-6"	163		6264
*SK601	1408	29'-2"	101		61689
*SK602	704	28'-9"	Str		30400
SK603	1408	31'-9"	Str		67145
SK604	704	22'-0"	Str		23262
SK605	1040	30'-0"	Str		46862
SK606	80	9'-3"	Str		1111
*SK607	706	12'-6"	100		13255
*SK608	706	3'-0"	105		3181
SK609	706	3'-2"	105		3358
SK610	508	6'-0"	105		4578
SK801	78	30'-0"	Str		6248
SK802	6	24'-6"	Str		392
SK803	56	25'-4"	100		3788
SK804	8	13'-5"	100		287
SK805	4	23'-4"	100		249
Total Weight (Uncoated)					= 170,929
# Total Weight (Epoxy Coated)					= 151,699

* Denotes Epoxy Coated Reinforcing Steel.

FHWA REGION	STATE	PROJECT
5	OHIO	

CUYAHOGA COUNTY
CUY-10-16.23



VOID 3/14/34

H.N.T.B. BRIDGE NO. 3

HOWARD NEEDLES TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

REINFORCEMENT SCHEDULE

REHABILITATION OF THE
LORAIN-CARNEGIE BRIDGE
(S.R. 10 OVER THE CUYAHOGA RIVER)

BR. NO. CUY-10-1618 STA. 22+19.19
CUYAHOGA COUNTY, OHIO STA. 55+04.56

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
R.A.S.		G.L.P.		
DATE 10-22-75	DATE	DATE 10-22-75	DATE	DATE

SHEET R/2

ARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS)
SLAB-SPAN 2					
401#	R24	13'-0"	Str		7154
402#	R26	25'-0"	Str		1220
403#	R2	30'-0"	101		1643
404#	R22	30'-0"	Str		18196
405#	R2	25'-3"	101		1383
406#	R29	24'-3"	Str		452
501	322	7'-10"	155		3121
502	40	23'-6"	Str		292
503	R	11'-6"	Str		25
504	4	21'-6"	Str		20
505	35	30'-0"	Str		1126
506	4	27'-3"	Str		114
507	1284	3'-6"	152		3497
601#	1256	2'-0"	101		60
603	4	4'-0"	Str		20
604	529	7'-0"	Str		1210
605	720	30'-0"	Str		2243
606	80	28'-0"	Str		334
607#	528	12'-6"	100		2912
608#	528	21'-0"	105		2375
609	528	31'-0"	105		2511
610	390	6'-0"	105		3225
801	40	25'-6"	100		2736
802	R	17'-5"	100		287
803	4	23'-4"	100		240
804	60	30'-0"	Str		3536
805	4	12'-0"	Str		192
Total Weight (Uncoated) = 126,880					
Total Weight (Epoxy Coated) = 112,360					
SLAB-SPAN 4					
401#	205	13'-0"	Str		1729
402#	R2	30'-0"	101		1643
403#	138	30'-0"	Str		2766
404#	R2	14'-9"	101		809
405#	R2	13'-9"	Str		257
501	96	7'-10"	155		3121
502	12	23'-6"	Str		292
503	R	30'-0"	Str		252
504	4	14'-6"	Str		61
505	324	3'-6"	152		1183
601#	268	9'-0"	101		7208
603	4	4'-0"	Str		20
604	134	43'-8"	Str		8789
605	160	30'-0"	Str		7210
606	R2	14'-9"	Str		1772
607#	134	12'-5"	100		2516
608#	134	31'-0"	105		252
609	134	31'-2"	105		637
610	96	6'-0"	105		345
701	12	30'-0"	Str		261
702	4	17'-0"	Str		272
703	12	25'-4"	100		312
Total Weight (Uncoated) = 32,225					
Total Weight (Epoxy Coated) = 27,591					
SLAB-SPAN 5					
401#	227	13'-0"	Str		1729
402#	228	20'-0"	Str		1440
403#	R2	20'-0"	101		1643
404#	1018	30'-0"	Str		2243
405#	R2	19'-0"	101		1383
406#	R2	18'-0"	Str		452
501	312	7'-10"	155		3121
502	40	23'-6"	Str		292
503	4	11'-6"	Str		25
504	4	21'-6"	Str		20
505	35	30'-0"	Str		1126
506	4	27'-3"	Str		114
507	1284	3'-6"	152		3497
601#	1256	2'-0"	101		60
603	4	4'-0"	Str		20
604	529	7'-0"	Str		1210
605	720	30'-0"	Str		2243
606	80	28'-0"	Str		334
607#	528	12'-6"	100		2912
608#	528	21'-0"	105		2375
609	528	31'-0"	105		2511
610	390	6'-0"	105		3225
801	40	25'-6"	100		2736
802	R	17'-5"	100		287
803	4	23'-4"	100		240
804	60	30'-0"	Str		3536
805	4	12'-0"	Str		192
Total Weight (Uncoated) = 126,880					
Total Weight (Epoxy Coated) = 112,360					

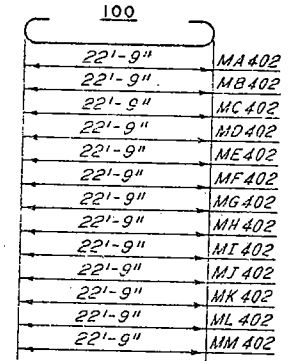
MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS)
#S441	1143	2'-9"	101		73200
S442	70	0'	Str		140
S443	270	1'-8"	Str		1738
S444	270	2'-0"	Str		2608
S445	270	2'-2"	Str		2674
#S446	270	12'-5"	100		10732
#S447	270	3'-0"	105		2590
S448	270	3'-2"	105		2711
S449	417	6'-0"	105		3712
S450	42	25'-3"	100		2266
S451	R	13'-5"	100		297
S452	4	23'-4"	100		240
S453	46	30'-0"	Str		5287
S454	6	6'-6"	Str		104
Total Weight (Uncoated) = 13,000					
# Total Weight (Epoxy Coated) = 11,000					
SLAB-SPAN 6					
#S461	412	12'-6"	Str		3440
#S462	164	17'-6"	101		1917
#S463	258	20'-0"	Str		7174
#S464	258	21'-0"	Str		70
S465	160	7'-10"	155		1307
S466	16	30'-0"	Str		501
S467	4	5'-0"	Str		21
S468	10	23'-6"	Str		490
S469	14	3'-6"	163		1971
#S470	442	4'-9"	101		28509
S471	222	40'-0"	Str		12477
S472	222	43'-8"	Str		14560
S473	222	30'-0"	Str		14419
S474	222	5'-3"	Str		631
#S475	224	12'-6"	100		4204
#S476	224	3'-0"	105		1009
S477	224	3'-2"	105		1065
S478	160	6'-0"	105		1442
S479	22	21'-0"	Str		1322
S480	4	12'-0"	Str		160
S481	20	25'-3"	100		1353
Total Weight (Uncoated) = 53,319					
# Total Weight (Epoxy Coated) = 46,463					
SLAB-SPAN 7					
#S491	1236	13'-0"	Str		10733
#S492	206	25'-0"	Str		3440
#S493	164	17'-6"	101		1917
#S494	1348	30'-0"	Str		27314
#S495	22	3'-0"	Str		70
S496	512	7'-10"	155		4165
S497	50	30'-0"	Str		1627
S498	4	5'-3"	Str		34
S499	56	23'-6"	Str		1373
S500	8	11'-6"	Str		96
S501	4	21'-6"	Str		90
S502	1716	2'-6"	122		6254
#S503	1408	2'-9"	101		90408
S504	0	10'-5"	Str		2711
S505	704	3'-8"	Str		1111
S506	1320	30'-0"	Str		4662
S507	80	9'-3"	Str		1111
#S508	706	12'-6"	100		13255
#S509	706	3'-0"	105		3181
S510	706	3'-2"	105		3358
S511	500	6'-0"	105		4578
S512	78	30'-0"	Str		6248
S513	6	24'-6"	Str		392
S514	56	25'-4"	100		3788
S515	8	13'-5"	100		287
S516	4	23'-4"	100		249
Total Weight (Uncoated) = 169,33					
# Total Weight (Epoxy Coated) = 153,018					
SLAB-SPAN 8					
#S521	1236	42'-9"	101		2838
S522	221	40'	Str		13216
S523	221	4'-0"	Str		1495
S524	221	23'-0"	Str		15310
S525	221	4'-6"	Str		541
#S526	222	12'-6"	100		4168
#S527	222	3'-0"	105		1000
S528	222	3'-2"	105		1056
S529	160	6'-0"	105		1442
S530	22	21'-0"	Str		1322
S531	4	12'-0"	Str		160
S532	20	25'-3"	100		1353
Total Weight (Uncoated) = 53,070					
# Total Weight (Epoxy Coated) = 46,276					
SLAB-SPAN 9					
#S541	1330	13'-0"	Str		8725
#S542	206	25'-0"	Str		3440
#S543	164	17'-6"	101		1917
#S544	1348	30'-0"	Str		27314
#S545	22	3'-0"	Str		70
S546	512	7'-10"	155		4165
S547	50	30'-0"	Str		1627
S548	4	5'-3"	Str		34
S549	56	23'-6"	Str		1373
S550	8	11'-6"	Str		96
S551	4	21'-6"	Str		90
S552	1716	2'-6"	122		6254
#S553	1408	2'-9"	101		90408
S554	0	10'-5"	Str		2711
S555	704	3'-8"	Str		1111
S556	1320	30'-0"	Str		4662
S557	80	9'-3"	Str		1111
#S558	706	12'-6"	100		13255
#S559	706	3'-0"	105		3181
S560	706	3'-2"	105		3358
S561	500	6'-0"	105		4578
S562	78	30'-0"	Str		6248
S563	6	24'-6"	Str		392
S564	56	25'-4"	100		3788
S565	8	13'-5"	100		287
S566	4	23'-4"	100		249
Total Weight (Uncoated) = 169,33					
# Total Weight (Epoxy Coated) = 153,018					
SLAB-SPAN 10					
#S571	615	40'-5"	Str		3337
#S572	211	43'-8"	Str		10336
S573	221	40'	Str		13216
S574	221	4'-0"	Str		1495
S575	221	23'-0"	Str		15310
S576	221	4'-6"	Str		541
#S577	222	12'-6"	100		4168
#S578	222	3'-0"	105		1000
S579	222	3'-2"	105		1056
S580	160	6'-0"	105		1442
S581	22	21'-0"	Str		1322
S582	4	12'-0"	Str		160
S583	20	25'-3"	100		1353
S584	22	21'-0"	Str		1322
S585	4	12'-0"	Str		160
S586	20	25'-3"	100		1353
S587	22	21'-0"	Str		1322
S588	4	12'-0"	Str		160
S589	20	25'-3"	100		1353
S590	22	21'-0"	Str		1322
S591	4	12'-0"	Str		160
S592	20	25'-3"	100		1353
S593	22	21'-0"	Str	</	

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS.)
SLAB - SPAN 11					
1401	515	13'-0"	Str		4472
1402	82	30'-0"	101		1543
1403	82	23'-0"	101		1575
1404	358	30'-0"	Str		7174
1405	28	27'-9"	Str		519
1501	192	7'-10"	155		1562
1502	18	30'-0"	Str		501
1503	4	29'-0"	Str		121
1504	24	23'-6"	Str		522
1505	648	3'-6"	163		2366
1601	522	20'-2"	101		23300
1602	266	28'-9"	Str		11487
1603	522	31'-9"	Str		25370
1604	266	28'-0"	Str		2790
1605	320	30'-0"	Str		14419
1606	80	29'-3"	Str		3515
1607	268	12'-6"	100		5032
1608	248	3'-0"	105		1,208
1609	268	3'-2"	105		1,275
1610	192	6'-0"	105		1730
1801	30	30'-0"	Str		2433
1802	6	6'-6"	Str		104
1803	24	25'-4"	100		1623
Total Weight (Uncoated)					= 64,373
Total Weight (Epoxy Coated)					= 56,412
SLAB - SPAN 11					
1401	1339	13'-0"	Str		11628
1402	205	25'-0"	Str		3440
1403	82	30'-0"	101		1643
1404	1348	30'-0"	Str		27014
1405	82	28'-9"	101		1575
1406	28	27'-9"	Str		519
501	542	7'-10"	155		4426
502	56	30'-0"	Str		1752
503	4	3'-6"	Str		15
504	60	23'-6"	Str		1471
505	8	11'-6"	Str		96
506	4	21'-6"	Str		90
507	1824	3'-6"	163		6659
601	1498	29'-2"	101		65632
602	749	28'-9"	Str		32345
603	1498	31'-9"	Str		71437
604	749	22'-0"	Str		24750
605	1120	30'-0"	Str		50467
606	80	4'-8"	Str		571
607	750	12'-5"	100		14081
608	750	3'-0"	105		3380
609	750	3'-2"	105		3527
610	540	6'-0"	105		4666
901	84	30'-0"	Str		6728
902	6	21'-0"	Str		336
903	60	25'-4"	100		4058
904	8	13'-5"	103		297
905	4	23'-2"	100		249
Total Weight (Uncoated)					= 181,825
Total Weight (Epoxy Coated)					= 161,257
SLAB - SPAN 12					
101	412	13'-0"	Str		3578
102	164	17'-6"	101		7977
103	358	30'-0"	Str		7174
104	28	3'-9"	Str		70
01	160	7'-10"	155		1307
02	15	30'-0"	Str		501
03	4	5'-0"	Str		21
04	22	23'-6"	Str		490
05	540	3'-6"	163		1271
31	444	29'-2"	101		19453
32	222	28'-9"	Str		9587
33	444	31'-9"	Str		21173
34	222	28'-0"	Str		7226

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS.)
SPAN 2					
SN405	322	30'-0"	Str		14419
SN406	82	5'-0"	Str		531
SN407	224	12'-6"	100		4206
SN408	224	3'-0"	105		1009
SN409	224	3'-2"	105		1065
SN410	163	5'-0"	105		1242
SN401	24	30'-0"	Str		1922
SN402	6	15'-0"	Str		160
SN403	20	25'-4"	100		1353
Total Weight (Uncoated)					= 53,791
Total Weight (Epoxy Coated)					= 46,994
SPAN 13					
SP401	927	13'-0"	Str		8050
SP402	103	25'-0"	Str		1720
SP403	82	30'-0"	101		1643
SP404	908	30'-0"	Str		18196
SP405	82	13'-0"	101		753
SP406	28	12'-9"	Str		238
SP501	366	7'-10"	155		2989
SP502	36	30'-0"	Str		1126
SP503	4	15'-0"	Str		66
SP504	40	23'-6"	Str		920
SP505	4	11'-6"	Str		48
SP506	4	21'-6"	Str		90
SP507	1222	3'-6"	163		4423
SP601	1014	28'-2"	101		24,427
SP602	507	28'-9"	Str		21,893
SP603	1014	31'-9"	Str		48,356
SP604	507	22'-9"	Str		16,753
SP605	720	30'-0"	Str		32,443
SP606	20	15'-6"	Str		1,223
SP607	508	12'-6"	100		9,538
SP608	508	3'-0"	105		2,222
SP609	508	3'-2"	105		2,416
SP610	354	6'-0"	105		3,220
SP801	54	30'-0"	Str		4,325
SP802	6	23'-0"	Str		433
SP803	40	25'-4"	100		2,706
SP804	4	13'-5"	100		143
SP805	4	23'-0"	100		249
Total Weight (Uncoated)					= 122,869
Total Weight (Epoxy Coated)					= 108,747
(M 1 OVER SPAN 1 THRU 13)					
SPAN 1					
MA401	250	22'-9"	Str		3951
MA402	216	23'-9"	100		3427
MA403	119	30'-0"	Str		2395
MA404	113	12'-0"	Str		906
MA405	16	13'-0"	Str		139
MA406	22	11'-0"	Str		162
MA407	16	25'-0"	Str		267
MA408	154	21'-0"	Str		2160
Total Weight					= 13,397
SPAN 2					
MB401	116	22'-9"	Str		1763
MB402	72	23'-9"	100		1142
MB403	34	30'-0"	Str		681
MB404	17	12'-0"	Str		145
MB405	22	22'-5"	Str		331
MB406	32	13'-0"	Str		278
Total Weight					= 4340

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS.)
SPAN 3					
MC401	508	22'-9"	Str		7720
MC402	288	23'-9"	100		4569
MC403	153	30'-0"	Str		3055
MC404	17	25'-3"	Str		253
MC405	128	13'-0"	Str		1112
MC406	44	11'-0"	Str		223
MC407	32	25'-0"	Str		534
MC408	22	23'-0"	Str		335
Total Weight					= 17950
SPAN 4					
MD401	116	22'-9"	Str		1763
MD402	72	23'-9"	100		1142
MD403	34	30'-0"	Str		681
MD404	17	12'-0"	Str		145
MD405	22	22'-6"	Str		331
MD406	32	13'-0"	Str		278
Total Weight					= 4340
SPAN 5					
ME401	399	22'-0"	Str		6054
ME402	311	23'-9"	100		4934
ME403	170	30'-0"	Str		3407
ME404	17	20'-3"	Str		230
ME405	144	13'-0"	Str		1250
ME406	44	11'-0"	Str		323
ME407	32	25'-0"	Str		534
ME408	22	23'-0"	Str		338
ME409	154	22'-6"	Str		2315
Total Weight					= 19,395
SPAN 6					
MF401	141	22'-9"	Str		2143
MF402	119	23'-9"	100		1888
MF403	51	30'-0"	Str		1022
MF404	17	30'-9"	Str		349
MF405	64	12'-6"	Str		534
MF406	88	22'-6"	Str		1323
Total Weight					= 7259
SPAN 7					
MG401	622	22'-9"	Str		9453
MG402	336	23'-9"	100		5331
MG403	127	30'-0"	Str		3747
MG404	17	15'-9"	Str		179
MG405	160	13'-0"	Str		1389
MG406	44	11'-0"	Str		323
MG407	32	25'-0"	Str		534
Total Weight					= 20956
SPAN 8					
MH401	186	22'-9"	Str		2827
MH402	120	23'-9"	100		1904
MH403	51	30'-0"	Str		1022
MH404	17	31'-6"	Str		358
MH405	64	13'-0"	Str		556
MH406	22	23'-0"	Str		338
MH407	22	22'-6"	Str		331
Total Weight					= 7336
SPAN 9					
MI401	682	22'-9"	Str		10516
MI402	384	23'-9"	100		6092
MI403	221	30'-0"	Str		4429
MI404	17	6'-0"	Str		68
MI405	192	13'-0"	Str		1667
MI406	44	11'-0"	Str		323
MI407	32	25'-0"	Str		534
MI408	22	23'-0"	Str		338
Total Weight					= 23967

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS.)
SPAN 10					
MJ401	232	22'-9"	Str		3525
MJ402	144	23'-9"	100		2285
MJ403	68	30'-0"	Str		1363
MJ404	17	25'-6"	Str		301
MJ405	80	13'-0"	Str		655
MJ406	22	23'-0"	Str		338
MJ407	22	22'-6"	Str		331
Total Weight					= 8839
SPAN 11					
MK401	732	22'-9"	Str		11215
MK402	408	23'-9"	100		6473
MK403	239	30'-0"	Str		4770
MK404	209	13'-6"	Str		1806
MK405	44	11'-0"	Str		323
MK406	32	25'-0"	Str		534
MK407	22	23'-0"	Str		338
Total Weight					= 25459
SPAN 12					
ML401	186	22'-9"	Str		2827
ML402	120	23'-9"	100		1904
ML403	51	30'-0"	Str		1022
ML404	17	31'-6"	Str		358
ML405	64	13'-0"	Str		556
ML406	22	23'-0"	Str		338
ML407	22	22'-6"	Str		331
Total Weight					= 7336
SPAN 13					
MM401	495	22'-9"	Str		7523
MM402	275	23'-9"	100		4363
MM403	153	30'-0"	Str		3066
MM404	17	13'-6"	Str		153
MM405	144	13'-0"	Str		1250
MM406	22	11'-0"	Str		162
MM407	16	25'-0"	Str		267
MM408	22	23'-0"	Str		338
Total Weight					= 17122



* Denotes Epoxy Coated Reinforcing Steel.

FHW REGION	STATE	PROJECT
5	OHIO	



CUYAHOGA COUNTY
CUY-10-16.23

VOID 3/14/84

H.N.T.B. BRIDGE NO. 3

HOWARD NEEDLES TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

REINFORCEMENT SCHEDULE

REHABILITATION OF THE
LORAIN - CARNEGIE BRIDGE
(S.R. 10 OVER THE CUYAHOGA RIVER)

BR. NO. CUY.-10-16:8 STA. 22+19.19
STA. 55+04.56

CUYAHOGA COUNTY OHIO

DATE	TRACED	CHECKED	REVIEWED	REvised
3/4/84		DIF		
DATE	DATE	DATE	DATE	DATE

SHEET P 13

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS.)
SLAB - SPAN 10					
SL401	515	13'-0"	Str		4472
SL402	82	30'-0"	101		1643
SL403	82	29'-0"	101		1575
SL404	358	30'-0"	Str		7174
SL405	29	27'-9"	Str		519
SL501	192	7'-10"	155		1568
SL502	16	30'-0"	Str		501
SL503	4	29'-0"	Str		121
SL504	24	23'-6"	Str		588
SL505	648	3'-6"	163		2366
SL601	532	4'-9"	101		3216.3
SL603	266	40'-5"	Str		11,122
SL604	266	33'-8"	Str		17442
SL605	320	30'-0"	Str		14419
SL606	80	29'-3"	Str		3515
SL607	268	12'-6"	100		5032
SL608	268	3'-0"	105		1,208
SL609	268	3'-2"	105		1,275
SL610	192	6'-0"	105		1730
SL801	30	30'-0"	Str		2403
SL802	6	6'-6"	Str		104
SL803	24	25'-4"	100		1623
Total Weight (Uncoated)					63,807
* Total Weight (Epoxy Coated)					55,763
SLAB - SPAN 11					
SM401	1339	13'-0"	Str		11629
SM402	206	25'-0"	Str		3440
SM403	82	30'-0"	101		1643
SM404	1348	30'-0"	Str		27014
SM405	82	28'-9"	101		1575
SM406	28	27'-9"	Str		519
SM501	542	7'-10"	155		4426
SM502	56	30'-0"	Str		1752
SM503	4	3'-6"	Str		15
SM504	60	23'-6"	Str		1471
SM505	8	11'-6"	Str		96
SM506	4	21'-6"	Str		90
SM507	1824	3'-6"	163		5659
SM601	1498	4'-9"	101		56,187
SM603	266	40'-5"	Str		11,122
SM604	266	43'-8"	Str		15,469
SM605	1120	30'-0"	Str		50467
SM606	80	4'-9"	Str		571
SM607	750	12'-6"	100		14,081
SM608	750	3'-0"	105		3,380
SM609	750	3'-2"	105		3,567
SM610	540	6'-0"	105		4,866
SM801	84	30'-0"	Str		6728
SM802	6	21'-0"	Str		336
SM803	60	25'-4"	100		4,058
SM804	8	13'-5"	100		287
SM805	4	23'-4"	100		249
Total Weight (Uncoated)					18,112
* Total Weight (Epoxy Coated)					15,917
SLAB - SPAN 12					
SN401	412	13'-0"	Str		3578
SN402	164	17'-6"	101		1917
SN403	358	30'-0"	Str		7174
SN404	28	3'-0"	Str		70
SN501	160	7'-10"	155		1,307
SN502	16	30'-0"	Str		501
SN503	4	5'-0"	Str		21
SN504	20	23'-6"	Str		290
SN505	540	3'-6"	163		1,771
SN601	444	4'-9"	101		20,509
SN603	266	40'-5"	Str		11,122
SN604	266	43'-8"	Str		15,469

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS.)
SN605	320	30'-0"	Str		14419
SN606	80	5'-3"	Str		631
SN607*	224	12'-6"	100		4,206
SN608*	224	3'-0"	105		1,009
SN609	224	3'-2"	105		1,065
SN610	160	6'-0"	105		1,442
SN801	24	30'-0"	Str		1,922
SN802	6	10'-0"	Str		160
SN803	20	25'-4"	100		1,353
Total Weight (Uncoated)					57,215
* Total Weight (Epoxy Coated)					45,413
SLAB - SPAN 13					
SP401*	927	13'-0"	Str		8050
SP402*	103	25'-0"	Str		1,720
SP403*	82	30'-0"	101		1,643
SP404*	908	30'-0"	Str		18,196
SP405*	82	13'-9"	101		753
SP406*	28	12'-9"	Str		238
SP501	366	7'-10"	155		2,989
SP502	36	30'-0"	Str		1,126
SP503	4	15'-9"	Str		66
SP504	40	23'-6"	Str		980
SP505	4	11'-6"	Str		48
SP505	4	21'-6"	Str		90
SP507	1228	3'-6"	163		4,483
SP601*	1018	7'-2"	101		5,119
SP603	50	4'-9"	Str		3,715
SP604	507	11'-8"	Str		7,271
SP605	720	30'-0"	Str		32,443
SP606	80	16'-6"	Str		1,983
SP607*	508	12'-6"	100		9,538
SP608*	508	3'-0"	105		2,289
SP609	508	3'-2"	105		2,416
SP610	364	6'-0"	105		3,280
SP801	54	30'-0"	Str		4,325
SP802	6	27'-0"	Str		433
SP803	40	25'-4"	100		2,706
SP804	4	13'-5"	100		143
SP805	4	23'-4"	100		249
Total Weight (Uncoated)					21,711
* Total Weight (Epoxy Coated)					17,510
(M. JACK SPAN 1 TRAIL 13)					
SPAN 1					
MA401	262	22'-9"	Str		3,951
MA402	216	23'-9"	100		3,427
MA403	119	30'-0"	Str		2,385
MA404	113	12'-0"	Str		906
MA405	16	13'-0"	Str		139
MA406	22	11'-0"	Str		162
MA407	16	25'-0"	Str		267
MA408	154	21'-0"	Str		2,160
Total Weight					13,327
SPAN 2					
MB401	116	22'-9"	Str		1,763
MB402	72	23'-9"	100		1,142
MB403	34	30'-0"	Str		681
MB404	17	12'-9"	Str		145
MB405	22	22'-6"	Str		331
MB406	32	13'-0"	Str		278
Total Weight					4,340
SPAN 3					
MC401	508	22'-9"	Str		7,720
MC402	288	23'-9"	100		4,569
MC403	153	30'-0"	Str		3,066
MC404	17	26'-3"	Str		298
MC405	128	13'-0"	Str		1,112
MC406	44	11'-0"	Str		323
MC407	32	25'-0"	Str		534
MC408	22	23'-0"	Str		338
Total Weight					17,960
SPAN 4					
MD401	116	22'-9"	Str		1,763
MD402	72	23'-9"	100		1,142
MD403	34	30'-0"	Str		681
MD404	17	12'-9"	Str		145
MD405	22	22'-6"	Str		331
MD406	32	13'-0"	Str		278
Total Weight					4,340
SPAN 5					
ME401	399	22'-9"	Str		6,064
ME402	311	23'-9"	100		4,934
ME403	170	30'-0"	Str		3,407
ME404	17	20'-3"	Str		230
ME405	144	13'-0"	Str		1,250
ME406	44	11'-0"	Str		323
ME407	32	25'-0"	Str		534
ME408	22	23'-0"	Str		338
ME409	154	22'-6"	Str		2,315
Total Weight					19,395
SPAN 6					
MF401	141	22'-9"	Str		2,143
MF402	119	23'-9"	100		1,888
MF403	51	30'-0"	Str		1,022
MF404	17	30'-9"	Str		349
MF405	64	12'-6"	Str		534
MF406	88	22'-6"	Str		1,323
Total Weight					7,259
SPAN 7					
MG401	622	22'-9"	Str		9,453
MG402	336	23'-9"	100		5,331
MG403	197	30'-0"	Str		3,747
MG404	17	15'-9"	Str		179
MG405	160	13'-0"	Str		1,389
MG406	44	11'-0"	Str		323
MG407	32	25'-0"	Str		534
Total Weight					20,956
SPAN 8					
MH401	186	22'-9"	Str		2,827
MH402	120	23'-9"	100		1,904
MH403	51	30'-0"	Str		1,022
MH404	17	31'-6"	Str		358
MH405	64	13'-0"	Str		556
MH406	22	23'-0"	Str		338
MH407	22	22'-6"	Str		331
Total Weight					7,336
SPAN 9					
MI401	622	22'-9"	Str		10,516
MI402	336	23'-9"	100		6,092
MI403	197	30'-0"	Str		3,747
MI404	17	6'-0"	Str		69
MI405	132	13'-0"	Str		1,667
MI406	44	11'-0"	Str		323
MI407	32	25'-0"	Str		534
MI408	22	23'-0"	Str		338
Total Weight					23,967

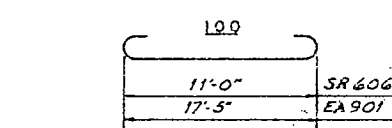
MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS.)
MJ401	232	22'-9"	Str		3,526
MJ402	144	23'-9"	100		2,285
MJ403	68	30'-0"	Str		1,363
MJ404	17	26'-6"	Str		301
MJ405	80	13'-0"	Str		695
MJ406	22	23'-0"	Str		338
MJ407	22	22'-6"	Str		331
Total Weight					8,839
SPAN 10					
MK401	738	22'-9"	Str		11,215
MK402	408	23'-9"	100		6,473
MK403	238	30'-0"	Str		4,770
MK404	208	13'-0"	Str		1,806
MK405	44	11'-0"	Str		323
MK406	32	25'-0"	Str		534
MK407	22	23'-0"	Str		338
Total Weight					25,459
SPAN 11					
ML401	186	22'-9"	Str		2,827
ML402	120	23'-9"	100		1,904
ML403	51	30'-0"	Str		1,022
ML404	17	31'-6"	Str		358
ML405	64	13'-0"	Str		556
ML406	22	23'-0"	Str		338
ML407	22	22'-6"	Str		331
Total Weight					7,336
SPAN 12					
MM401	495	22'-9"	Str		7,523
MM402	275	23'-9"	100		4,363
MM403	153	30'-0"	Str		3,066
MM404	17	13'-6"	Str		153
MM405	144	13'-0"	Str		1,250
MM406	22	11'-0"	Str		162
MM407	16	25'-0"	Str		267
MM408	22	23'-0"	Str		338
Total Weight					17,122
SPAN 13					
MN401	622	22'-9"	Str		9,453
MN402	336	23'-9"	100		5,331
MN403	197	30'-0"	Str		3,747
MN404	17	15'-9"	Str		179
MN405	160	13'-0"	Str		1,389
MN406	44	11'-0"	Str		323
MN407	32	25'-0"	Str		534
Total Weight					20,956
SPAN 14					
MO401	186	22'-9"	Str		2,827
MO402	120	23'-9"	100		1,904
MO403	51	30'-0"	Str		1,022
MO404	17	31'-6"	Str		358
MO405	64	13'-0"	Str		556
MO406	22	23'-0"	Str		338
MO407	22	22'-6"	Str		331
Total Weight					7,336
SPAN 15					
MP401	622	22'-9"	Str		10,516
MP402	336	23'-9"	100		6,092
MP403	197	30'-0"	Str		3,747
MP404	17	6'-0"	Str		69
MP405	132	13'-0"	Str		1,667
MP406	44	11'-0"	Str		323
MP407	32	25'-0"	Str		534
MP408	22	23'-0"	Str		338
Total Weight					23,967

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS.)
MQ401	232	22'-9"	Str		3,526
MQ402	144	23'-9"	100		2,285
MQ403	68	30'-0"	Str		1,363
MQ404	17	26'-6"	Str		301
MQ405	80	13'-0"	Str		

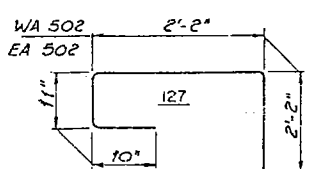
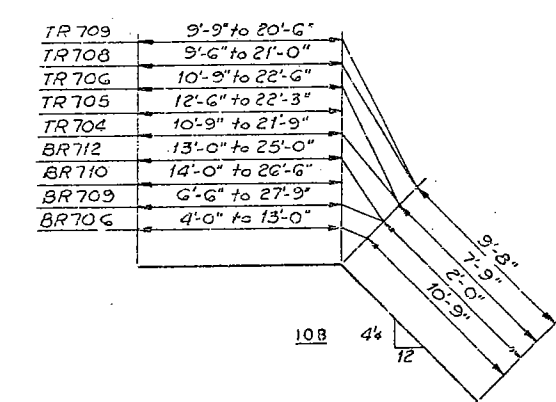
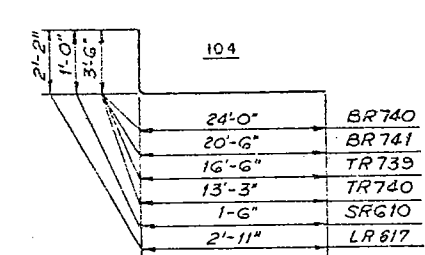
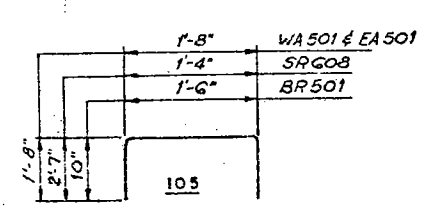
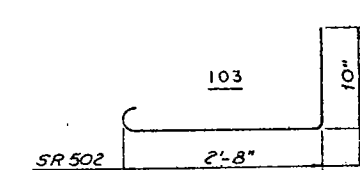
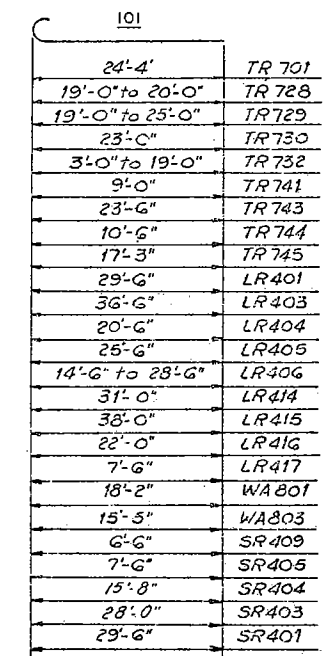
ARK	NO	LENGTH	TYPE	SER INCR	WEIGHT (LBS)
WEST ABUTMENT					
01	73	4'-10"	105		363
02	73	5'-10"	127		444
03	6	24'-3"	Str.		152
01	5	10'-1"	101		255
02	5	17'-6"	Str.		234
03	5	16'-2"	101		212
Total Weight = 1,571					
EAST ABUTMENT					
01	2	4'-5"	Str.		6
01	25	4'-10"	105		125
02	25	5'-10"	127		152
03	3	17'-3"	Str.		54
01	4	4'-0"	Str.		24
02	17	2'-3"	Str.		57
03	22	2'-4"	Str.		105
04	7	2'-9"	Str.		29
01	6	19'-11"	100		406
Total Weight = 959					
SLAB					
Bottom Transverse Bars					
01 #	303	3'-0"	105		948
01	255	16'-9"	Str.		8,730
02	257	17'-9"	Str.		8,930
03	253	23'-6"	Str.		12,153
04	143	24'-3"	Str.		7,088
05	52	10'-9"	Str.		1,143
06	1 Ser. 46	4'-3" to 23'-9"	109	23	1,810
07	1 Ser. 13	14'-9" to 22'-0"	Str.	1'-5"	628
08	1 Ser. 13	14'-9" to 22'-0"	Str.	1'-3"	591
09	1 Ser. 91	16'-8" to 29'-9"	109	26	3,557
10	1 Ser. 52	16'-0" to 23'-6"	109	21	2,365
11	1 Ser. 10	7'-0" to 20'-6"	Str.	1'-6"	281
12	1 Ser. 52	13'-0" to 27'-0"	109	21	2,232
13	1 Ser. 11	11'-0" to 23'-0"	Str.	1'-3"	388
14	11	12'-0"	Str.		270
15	104	22'-0"	Str.		4,677
16	10	12'-0"	Str.		245
17	1 Ser. 9	11'-0" to 23'-0"	Str.	1'-1"	285
18	1 Ser. 9	12'-0" to 20'-6"	Str.	1'-2"	266
19	1 Ser. 7	12'-3" to 26'-0"	Str.	1'-7"	315
20	8	13'-3"	Str.		298
21	279	29'-3"	Str.		15,681
22	1 Ser. 5	19'-9" to 26'-3"	Str.	1'-7"	235
23	1 Ser. 11	13'-6" to 28'-6"	Str.	1'-6"	517
24	1 Ser. 10	13'-0" to 29'-0"	Str.	1'-6"	450
25	11	15'-0"	Str.		354
26	276	30'-3"	Str.		17,065
27	1 Ser. 18	3'-6" to 28'-9"	Str.	1'-5"	593
28	1 Ser. 15	9'-0" to 26'-0"	Str.	1'-6"	475
29	1 Ser. 279	11'-0" to 30'-0"	Str.	0"	12,927
30	1 Ser. 18	3'-6" to 28'-9"	Str.	1'-7"	625
31	1 Ser. 14	13'-0" to 29'-0"	Str.	0"	558
32	1 Ser. 5	3'-0" to 19'-0"	Str.	4'-0"	112
33	284	15'-4"	Str.		9,143
34	1 Ser. 9	3'-6" to 11'-0"	Str.	1'-6"	143
35	1	17'-0"	Str.		36
36	1	28'-0"	Str.		57
37	1	24'-0"	Str.		54
38	1	13'-0"	Str.		40
39	1	17'-0"	Str.		35
40	1	27'-4"	104		56
41	1	23'-10"	104		43
42	1	23'-0"	Str.		47
43	1	16'-0"	Str.		34
44	1	12'-4"	Str.		32
45	2	15'-3"	Str.		66

MARK	NO	LENGTH	TYPE	SER INCR	WEIGHT (LBS)
BR746	6	9'-9"	Str.		129
BR747	6	17'-3"	Str.		212
Top Transverse Bars					
TR701 #	254	25'-2"	101		13,066
TR702 #	243	30'-0"	Str.		15,342
TR703 #	142	17'-4"	Str.		5,379
TR704 #	1 Ser. 49	8'-6" to 28'-6"	109	23	2,404
TR705 #	1 Ser. 43	8'-3" to 36'-0"	109	23	2,277
TR706 #	1 Ser. 50	18'-1" to 36'-3"	109	26	2,491
TR707 #	1 Ser. 19	10'-2" to 25'-0"	Str.	1'-1"	447
TR708 #	1 Ser. 49	18'-2" to 30'-8"	109	23	2,404
TR709 #	1 Ser. 49	18'-3" to 30'-8"	109	23	2,404
TR710 #	1 Ser. 13	12'-3" to 29'-3"	Str.	1'-5"	558
TR711 #	1 Ser. 13	8'-0" to 25'-0"	Str.	1'-3"	412
TR712 #	1 Ser. 29	9'-0" to 28'-0"	Str.	1'-2"	715
TR713 #	F2	24'-3"	Str.		3,041
TR714 #	43	22'-3"	Str.		1,956
TR715 #	1 Ser. 9	8'-8" to 15'-6"	Str.	1'-3"	150
TR716 #	151	12'-7"	Str.		4,782
TR717 #	1 Ser. 7	9'-0" to 18'-9"	Str.	1'-7"	199
TR718 #	221	31'-0"	Str.		17,805
TR719 #	1 Ser. 19	15'-9" to 25'-6"	Str.	1'-6"	462
TR720 #	1 Ser. 11	16'-3" to 25'-3"	Str.	1'-6"	354
TR721 #	7	17'-5"	Str.		250
TR722 #	1 Ser. 10	15'-0" to 25'-9"	Str.	1'-5"	294
TR723 #	290	16'-0"	Str.		9,484
TR724 #	1 Ser. 9	5'-2" to 14'-6"	Str.	1'-6"	166
TR725 #	1 Ser. 9	6'-0" to 14'-0"	Str.	1'-7"	230
TR726 #	1 Ser. 281	12'-3" to 35'-3"	Str.	0"	13,067
TR727 #	1 Ser. 19	9'-0" to 24'-3"	Str.	1'-5"	436
TR728 #	1 Ser. 14	18'-0" to 20'-10"	101	0"	582
TR729 #	1 Ser. 5	10'-0" to 25'-10"	101	1'-6"	233
TR730 #	278	23'-10"	101		13,543
TR731 #	1 Ser. 12	3'-6" to 27'-6"	Str.	1'-7"	307
TR732 #	1 Ser. 5	5'-10" to 19'-10"	101	4'-0"	121
TR733 #	1	15'-3"	Str.		33
TR734 #	2	17'-0"	Str.		69
TR735 #	1	26'-0"	Str.		53
TR736 #	1	27'-5"	Str.		56
TR737 #	2	18'-5"	Str.		76
TR738 #	1	16'-9"	Str.		34
TR739 #	1	10'-10"	104		41
TR740 #	1	16'-7"	104		34
TR741 #	1	9'-10"	101		20
TR742 #	2	17'-9"	Str.		73
TR743 #	1	24'-4"	101		50
TR744 #	6	11'-4"	101		139
TR745 #	6	18'-1"	101		222
Longitudinal Bars					
LH401 #	237	30'-0"	101		4,749
LH402 #	1,060	30'-0"	Str.		21,242
LH403 #	7	37'-0"	101		173
LH404 #	87	21'-0"	101		1,220
LH405 #	16	26'-0"	101		278
LH406 #	1 Ser. 19	15'-0" to 29'-0"	101	1'-6"	147
LH407 #	1 Ser. 17	4'-0" to 29'-0"	Str.	1'-0"	187
LH408 #	1 Ser. 15	4'-0" to 28'-0"	Str.	1'-0"	171
LH409 #	1 Ser. 13	6'-0" to 25'-0"	Str.	1'-2"	113
LH410 #	1 Ser. 12	15'-0" to 23'-0"	Str.	1'-2"	156
LH411 #	1 Ser. 12	3'-0" to 18'-0"	Str.	1'-4"	94
LH412 #	1 Ser. 9	10'-0" to 15'-0"	Str.	4"	69
LH413 #	4	15'-0"	Str.		40
LH414 #	101	31'-5"	101		2,123
LH415 #	101	38'-5"	101		2,502
LH416 #	46	22'-5"	101		891
LH417 #	578	8'-0"	101		3,098
LH418 #	525	30'-0"	Str.		11,723
LH419 #	264	22'-3"	Str.		3,924
LH420 #	267	37'-5"	Str.		6,498
LH421 #	17	32'-0"	Str.		432
LH501	954	20'-0"	Str.		42,987
LH502	4	35'-0"	Str.		215
LH503	69	20'-0"	Str.		2,125
LH504	13	25'-0"	Str.		498
LH505	1 Ser. 8	5'-0" to 29'-0"	Str.	2'-0"	264

MARK	NO	LENGTH	TYPE	SER INCR	WEIGHT (LBS)
LR506	1 Ser. 12	4'-0" to 27'-0"	Str.	2'-2"	297
LR507	1 Ser. 11	4'-0" to 28'-0"	Str.	2'-4"	264
LR508	1 Ser. 12	6'-0" to 28'-0"	Str.	1'-3"	234
LR509	1 Ser. 7	15'-0" to 22'-0"	Str.	2'-2"	205
LR510	1 Ser. 9	3'-0" to 18'-0"	Str.	1'-10"	142
LR511	1 Ser. 4	10'-0" to 15'-0"	Str.	1'-0"	69
LR512	2	15'-0"	Str.		45
LR513	69	31'-5"	Str.		3,265
LR514	69	37'-5"	Str.		3,866
LR515	34	22'-0"	Str.		1,123
LR516 #	32	21'-0"	Str.		385
LR517	107	5'-0"	104		804
LR501	242	4'-0"	Str.		2,585
Total Weight (Uncoated) = 175,983					
# Total Weight (Epoxy Coated) = 178,532					
SIDEWALK					
SR401 #	36	30'-0"	101		721
SR402 #	121	30'-0"	Str.		2,425
SR403 #	23	29'-5"	101		438
SR404 #	13	14'-2"	101		140
SR405 #	31	8'-0"	101		166
SR406 #	31	41'-3"	Str.		854
SR407 #	31	40'-5"	Str.		839
SR408 #	31	37'-5"	Str.		777
SR409 #	31	7'-0"	101		145
SR501	123	7'-11"	110		1,015
SR502	354	3'-11"	103		1,445
SR601 #	246	18'-9"	Str.		6,928
SR602	246	19'-9"	126		7,297
SR603	125	30'-0"	Str.		5,633
SR604	20	31'-0"	Str.		931
SR605	9	17'-5"	Str.		235
SR606 #	276	12'-4"	100		5,113
SR607	276	11'-3"	Str.		4,564
SR608	109	6'-2"	105		2,010
SR609 #	64	8'-0"	Str.		769
SR610 #	140	2'-4"	104		491
Total Weight (Uncoated) = 23,230					
# Total Weight (Epoxy Coated) = 19,808					



* Denotes Epoxy Coated Reinforcing Steel.
 * Note: Only 16-LR616 bars shall be epoxy coated. Only 32-SR609 bars shall be epoxy coated.



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MARK	NO.	LENGTH	TYPE	SER INCR.	WEIGHT (LBS.)
STAIR - COLUMN REPAIR					
SC401	25	5'-4"	104		93
SC402	32	5'-1"	104		105
SC403	35	2'-10"	104		110
SC901	14	1'-10"	STR		550
SC1301	2	1'-4"	STR.		250
SC1302	4	1'-4"	STR.		259
Total weight =					1,390

MARK	NO.	LENGTH	TYPE	SER INCR.	WEIGHT (LBS.)
SIMPLE GI					
GM501	40	1'-2"	104		540
GM502	1	1'-2"	STR.		21
GM503	1	3'-10"	STR.		40
GM504	1	2'-11"	STR.		30
GM505	1	2'-9"	STR.		29
GM506	1	3'-10"	STR.		38
GM507	1	1'-7"	STR.		20
GM508	37	1'-3"	104		511
GM509	19	1'-5"	104		251
GM510	35	1'-7"	104		494
GM511	1 Ser. 35	14'-0"	104	0.2"	551
GM512	67	1'-0"	104		210
GM513	60	1'-1"	104		193
GM514	31	1'-2"	104		102
GM515	59	1'-3"	104		202
GM516	1 Ser. 59	3'-2"	104	0.2"	224
GM517	330	1'-4"	104		1,146

GM601	8	2'-5"	STR.		185
GM602	8	3'-0"	STR.		351
GM603	6	2'-0"	STR.		250
GM604	8	2'-3"	STR.		255
GM605	6	3'-3"	STR.		327
GM606	5	1'-3"	STR.		174

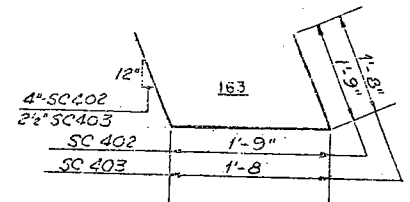
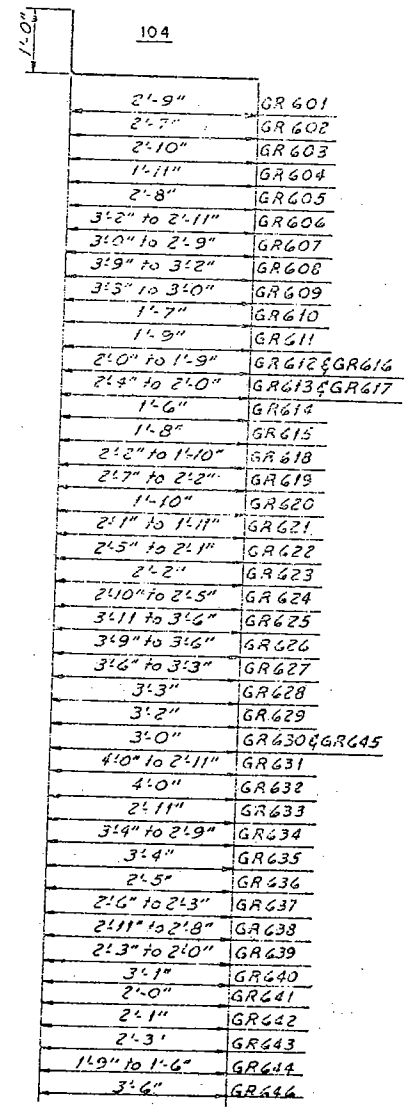
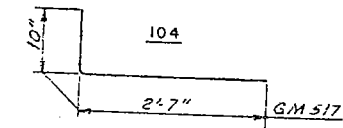
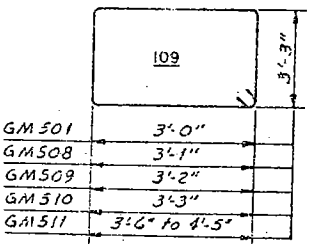
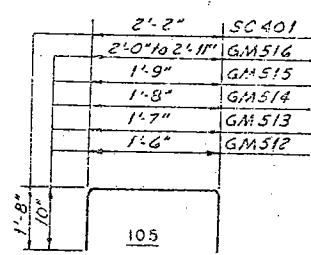
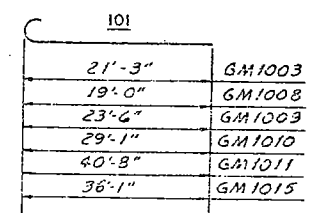
GM1001	6	1'-10"	STR.		464
GM1002	4	1'-5"	STR.		258
GM1003	6	2'-0"	101		585
GM1004	6	4'-2"	STR.		1,093
GM1005	6	3'-2"	STR.		833
GM1006	6	3'-10"	STR.		820
GM1007	6	3'-5"	STR.		868
GM1008	6	2'-5"	101		527
GM1009	2	2'-11"	101		214
GM1010	4	3'-5"	101		525
GM1011	7	4'-1"	101		1,267
GM1012	7	3'-5"	STR.		1,160
GM1013	7	2'-5"	STR.		648
GM1014	7	3'-5"	STR.		1,130
GM1015	7	3'-5"	101		1,130
Total weight =					17,750

MARK	NO.	LENGTH	TYPE	SER INCR.	WEIGHT (LBS.)
GIRDER 2-19					
GM501	201	2'-7"	104		1,092
GM502	75	2'-5"	104		390
GM503	33	3'-0"	104		209
GM504	162	2'-0"	104		587
GM505	64	2'-5"	104		442
GM506	1 Ser. 14	3'-0"	104	0.2"	93
GM507	1 Ser. 14	3'-0"	104	0.2"	89
GM508	1 Ser. 14	4'-0"	104	0.2"	103
GM509	1 Ser. 14	3'-0"	104	0.2"	95
GM510	102	2'-5"	104		363
GM511	15	2'-0"	104		592
GM512	2 Ser. 20	2'-0"	104	0.2"	143
GM513	2 Ser. 10	2'-0"	104	0.2"	142
GM514	12	2'-0"	104		112
GM515	72	2'-0"	104		270
GM516	2 Ser. 10	2'-0"	104	0.2"	130
GM517	2 Ser. 20	2'-0"	104	0.2"	190
GM518	2 Ser. 14	2'-0"	104	0.2"	134
GM519	2 Ser. 20	2'-0"	104	0.2"	133
GM520	20	2'-0"	104		213
GM521	2 Ser. 4	2'-0"	104	0.2"	34

MARK	NO.	LENGTH	TYPE	SER INCR.	WEIGHT (LBS.)
GM622	2 Ser. 20	2'-0"	104	0.2"	185
GM623	12	3'-0"	104		81
GM624	1 Ser. 22	3'-0"	104	0.1"	114
GM625	1 Ser. 22	2'-0"	104	0.1"	150
GM626	2 Ser. 22	4'-7"	104	0.1"	308
GM627	2 Ser. 22	4'-4"	104	0.1"	405
GM628	22	4'-1"	104		441
GM629	174	4'-0"	104		1,045
GM630	23	3'-10"	104		507
GM631	2 Ser. 23	3'-9"	104	0.2"	297
GM632	30	4'-10"	104		213
GM633	125	3'-5"	104		591
GM634	2 Ser. 17	3'-7"	104	0.2"	198
GM635	115	4'-2"	104		725
GM636	75	3'-3"	104		376
GM637	2 Ser. 14	3'-4"	104	0.2"	154
GM638	1 Ser. 21	3'-6"	104	0.2"	114
GM639	1 Ser. 21	2'-10"	104	0.2"	83
GM640	25	3'-11"	104		171
GM641	150	2'-10"	104		809
GM642	77	2'-11"	104		337
GM643	21	3'-11"	104		97
GM644	2 Ser. 17	2'-4"	104	0.2"	126
GM645	21	2'-10"	104		121
GM646	25	4'-4"	104		169
Total Weight (uncoated) =					13,400
# Total Weight (Epoxy Coated) =					651

Denotes Epoxy Coated Reinforcing Steel.

Note:
Only 18-GR604 bars, 16-GR611 bars, 44-GR620 bars, 36-GR641 bars and 24-GR642 bars shall be epoxy coated.



HNTB BRIDGE NO 4

HOWARD NEEDLES TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND

HNTB

REINFORCEMENT SCHEDULE

REHABILITATION OF THE CARNEGIE AVENUE GRADE SEPARATION STRUCTURE (SR 10) OVER THE CLEVELAND UNION TERMINALS CO. AND THE REGIONAL TRANSIT AUTHORITY BR. NO. CUY-10-1685

CUYAHOGA COUNTY

DATE: 03/10

REVISION: 01

STA 57+29.72
STA 58+85.70

COUNTY OF CUYAHOGA
CLEVELAND, OHIO

FROM Felix A. Spittler DATE October 7, 1974
TO Albert S. Porter, County Engineer SUBJECT Lorain-Carnegie Bridge Project
(Carnegie Avenue Grade Separation).

In the initiated Ordinance No. 47814 authorizing the Mayor to enter into a contract with the Cleveland Union Terminals Company passed January 6, 1919, by a vote of 30,731 FOR to 19,859 AGAINST, effective January 8th, 1919, the Cleveland Terminals Company, in Sec. 29, agreed to build the Grade Separation (carry Central Avenue and Central Viaduct over the tracks of said Terminals Company). In Sec. 85 of the same ordinance the Terminals Company agreed to construct, maintain, repair and rebuild the structures mentioned in this ordinance as they became necessary, by and at the expense of the Terminals Company.

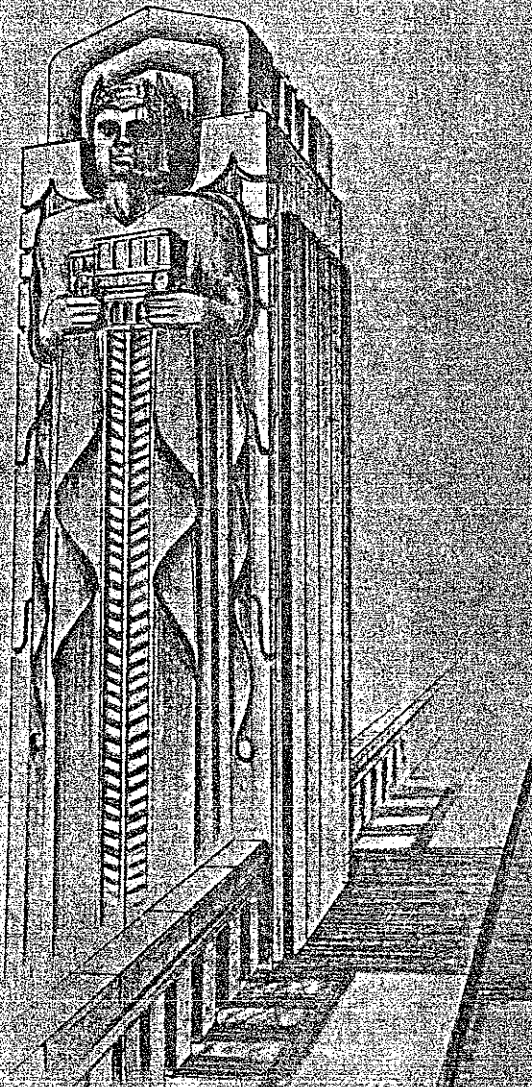
Ordinance No. 8552 passed January 28, 1929, effective March 10, 1929, amended section 30 of Ordinance No. 47814, and provided for the construction of a bridge carrying Central Avenue S.E. and Central Viaduct over the tracks of said Terminals Company, 15 ft. southerly from the center line of Ontario Street S.E. measured along the center line of said avenue and a point 185 feet southerly from the center line of Ontario Street S.E. measured along the center line of said avenue (Carnegie Avenue Grade Separation).

Ordinance No. 93109 passed December 8, 1930, mentioned the extension to the Cleveland Union Terminal Bridge in section 1(d) in connection with the Lorain-Central Bridge project.

Probate Court Case No. 200388 (Lorain-Carnegie Bridge Project) Parcels C, D, and H obligated the County to maintain the southwesterly and northeasterly walls of the Cleveland Union Terminals Company which were to be used as and for piers and/or abutments to support said bridge or bridges and/or approaches thereto and the extension to the Terminals Company bridge.

It appears that the County is responsible for the extension added to the northwest of the original bridge and the southwesterly and northeasterly walls affected, but that the Terminals Company is responsible for the original bridge. To completely follow through on this matter would seem to be a legal matter requiring considerable research by the Prosecutor's Office.

PRELIMINARY ONLY



APRIL
1969

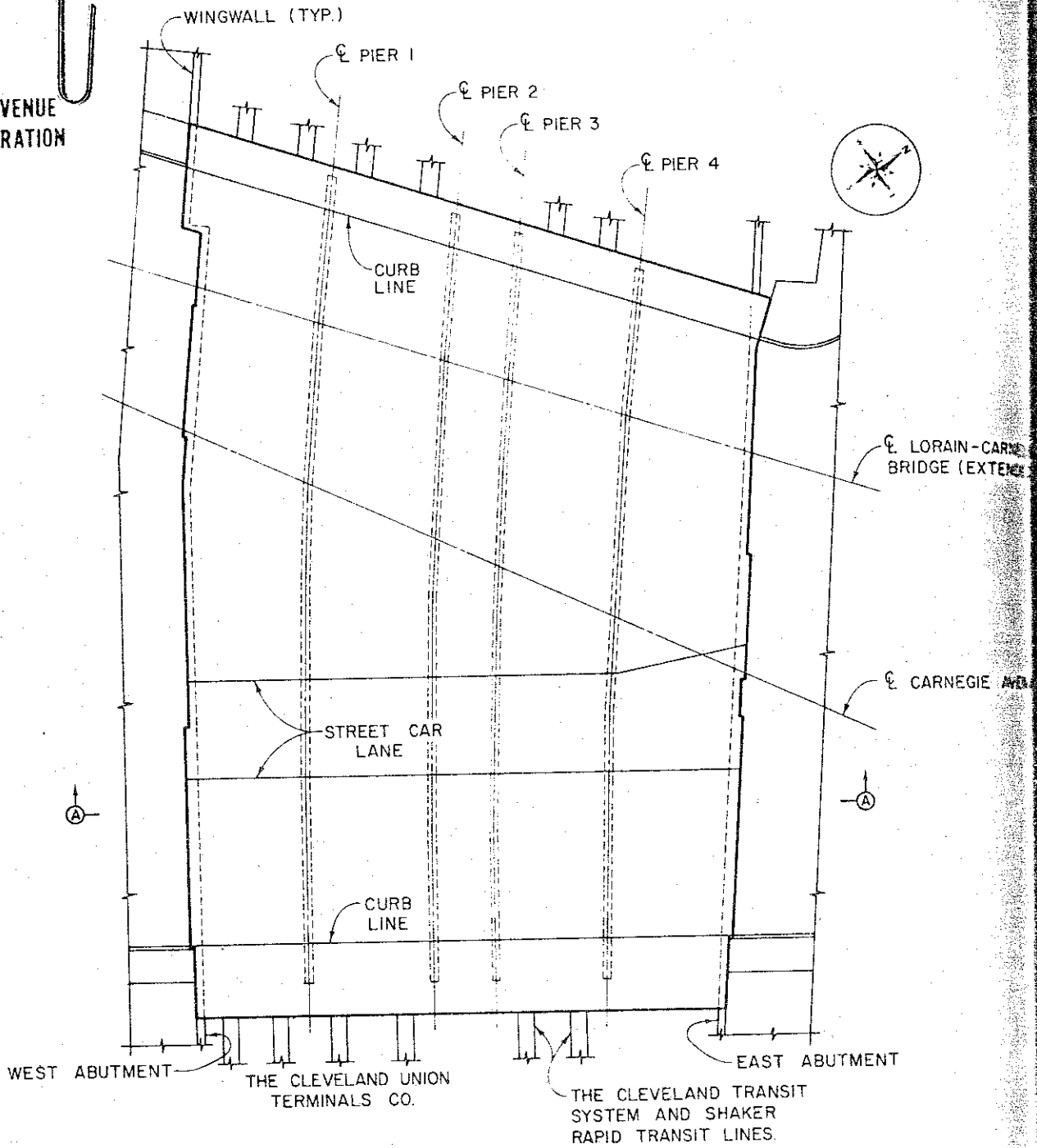
REHABILITATION STUDIES

**LORAIN
CARNEGIE
BRIDGE**

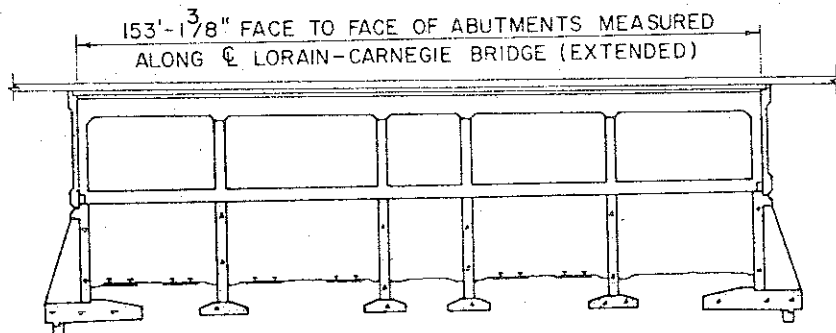
ALBERT S. PORTER
County Engineer
Cuyahoga County, Ohio

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS **HNTB**

FIGURE 5
 CARNEGIE AVENUE
 GRADE SEPARATION
 STRUCTURE



PLAN
 (SHOWING EXISTING
 CONDITIONS)



ELEVATION A-A

The approach roadways are supported on embankment between retaining walls. At the west approach, the retaining walls continue approximately 375 ft beyond the abutment bearings. At the east end, the north wall continues to adjoin the rapid transit grade separation structure, but the south wall terminates at the Commercial Road intersection.

— A General Plan and Elevation of the Carnegie Avenue Grade Separation Structure over the Rapid Transit tracks is shown on Figure 5. This bridge was designed to carry two tracks of street railway traffic and several converging lanes of vehicular traffic on the upper deck with provisions for six tracks of street railway traffic on a future lower deck. The structure comprises five variable length reinforced concrete girder spans having a total length of 153 ft.

C. Lorain-Carnegie Bridge

1. Truss Spans

The steel truss spans over the Cuyahoga River Valley are of deck design, the main carrying elements being Pratt trusses. Each span has four parallel trusses except the simple span at the east end which has three variably spaced trusses. The main members of the trusses are box sections made up of plate and angle channel sections riveted together with lacing bars. Lateral bracing is provided in the exterior bays in the plane of the lower chord members. Each truss line is supported by a pair of bearings on reinforced concrete piers.

The upper roadway deck is a reinforced concrete slab topped with an asphaltic wearing surface. The deck is supported by longitudinal stringers which span between transverse floorbeams. The floorbeams are supported on the top chords of the trusses at panel points (See Figure 6). A planned lower roadway deck has not been constructed, but floorbeams for all three bays are in place. A reinforced concrete utility deck, located in the center bay below the planned lower deck, is carried on longitudinal stringers and transverse floorbeams which are connected to truss verticals.

TABLE II

DESIGN RATING OF EXISTING MEMBERS

LORAIN-CARNEGIE BRIDGE

<u>Location</u>	<u>Member</u>	<u>HS Rating</u>		
		<u>4 Lanes</u>	<u>5 Lanes</u>	<u>6 Lanes</u>
Truss Spans	Interior Stringers	22.2	22.2	20.7
	Fascia Stringers	41.4	42.0	11.7
	Intermediate Floorbeams			
	Center Bay	13.4	16.1	15.3
	Exterior Bays	28.8	24.5	22.9
West Approach Spans	Interior Stringers	25.3	25.3	23.8
	Fascia Stringers	30.1	30.5	8.5
	Intermediate Floorbeams			
	Center Bay	12.4	16.5	15.3
	Exterior Bays	14.1	14.0	13.8

bridge are as follows:

Minimum Yield Point

ASTM A7 - 30,000 psi

ASTM A94 - 45,000 psi

Basic Allowable Design Stress

ASTM A7 - 16,000 psi

ASTM A94 - 24,000 psi

The minimum design ratings obtained using the above allowable stresses are shown in Table II. In order to meet current design standards for modern loadings, the Lorain-Carnegie Bridge should be rehabilitated to provide a minimum rating of HS-20. From a study of Table II, it is apparent that, in the truss spans, the intermediate floorbeams in the center bay will require strengthening for all alternates, and that the fascia stringers will require strengthening for the six-lane alternate. In the approach spans, all floorbeams require strengthening for all alternates, and the fascia stringers must be strengthened for the six-lane alternate. Because of the complexities created by the difference in eccentricity for dead and live loads, the steel columns in the approach spans were not rated, but instead the stresses were checked for HS20 loading. All columns of the approach spans will require strengthening.

At the time of the original construction, the beams used for the intermediate floorbeams in the exterior bays of the truss spans were the minimum sections available with the desired depth. As a result, these floorbeams were understressed for the original design. The ratings shown in Table II assume these members to be in new condition. Deterioration though has occurred in some of the floorbeams adjacent to the curb stringers. Each beam flange could be corroded up to 1/16 inch without overstressing the members, and, for the purposes of this report, it has been assumed that repair or strengthening will not be required.

B. Carnegie Avenue Grade Separation

Design rating of deteriorated reinforced concrete members is not feasible. Therefore, preliminary design of the Carnegie Avenue Grade

Separation consisted of checking the capacity of the members for their repaired condition.

Allowable stresses used for existing concrete members were based on their original composition and on design stresses prevalent at the time of construction. These values should be checked by testing representative core borings prior to preparation of contract plans for reconstruction work. For analyzing the Carnegie Avenue Grade Separation the following values were used for existing materials:

Concrete:	Ultimate Compressive Strength	$f'c = 3,000$ psi	}
	Basic Allowable Compression	$fc = 1,200$ psi	
	Shear	$fv = 90$ psi	
	Modular Ratio(E_s/E_c)	$n = 10$	

Reinforcing Steel: Basic Allowable Tension $fs = 18,000$ psi

The allowable stresses for new materials were in accordance with the American Association of State Highway Officials 1965 Standard Specifications for Highway Bridges including the Ohio Department of Highways Supplement thereto.

Considering the deck slab to be ineffective, the longitudinal girders were found to be deficient at the supports. By properly bonding the new deck slab to the existing girders to function as a T-beam, the girders, when repaired, will be adequate to carry HS 20 loads. The columns and other substructure elements, when restored, will be adequate for HS 20 loadings without strengthening.

For
Repaired
Condition