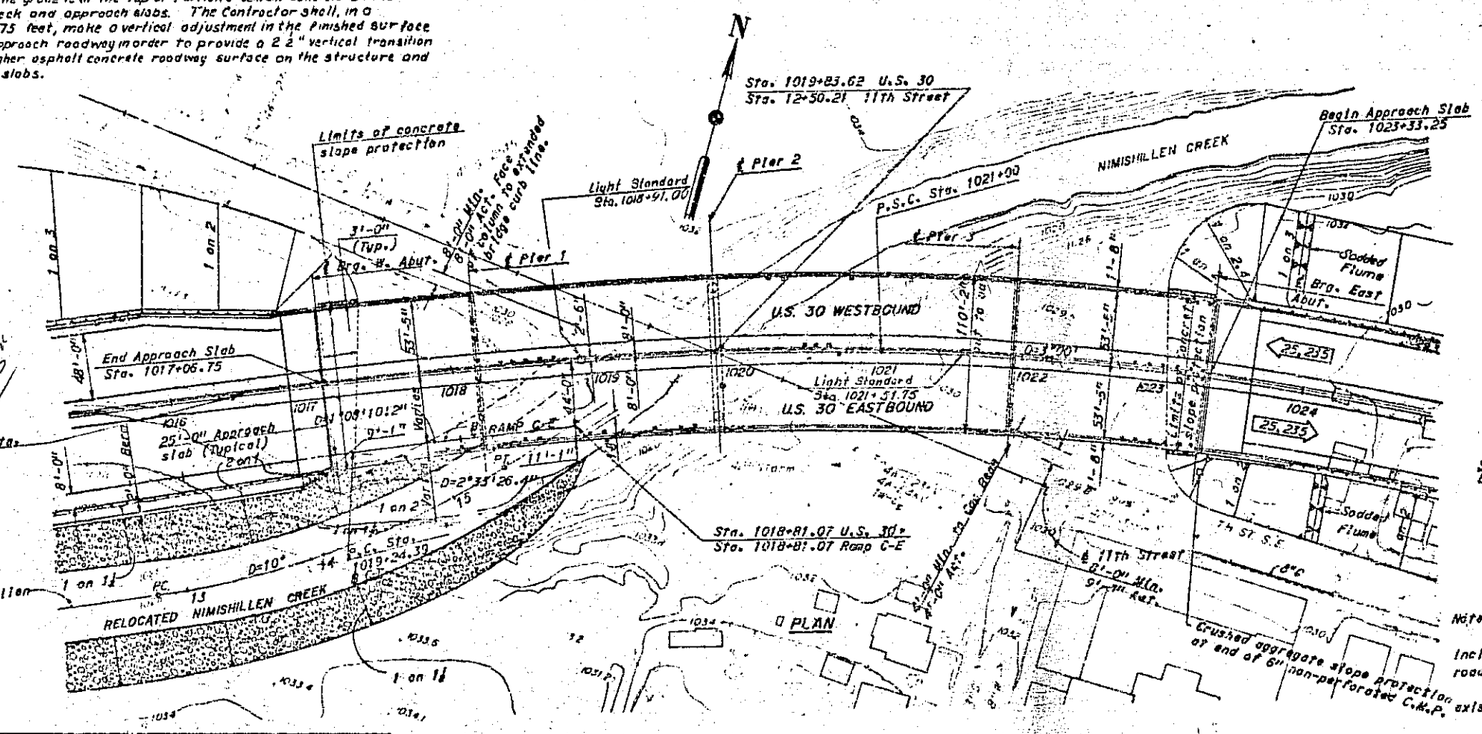
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
5	OHIO		

223
328

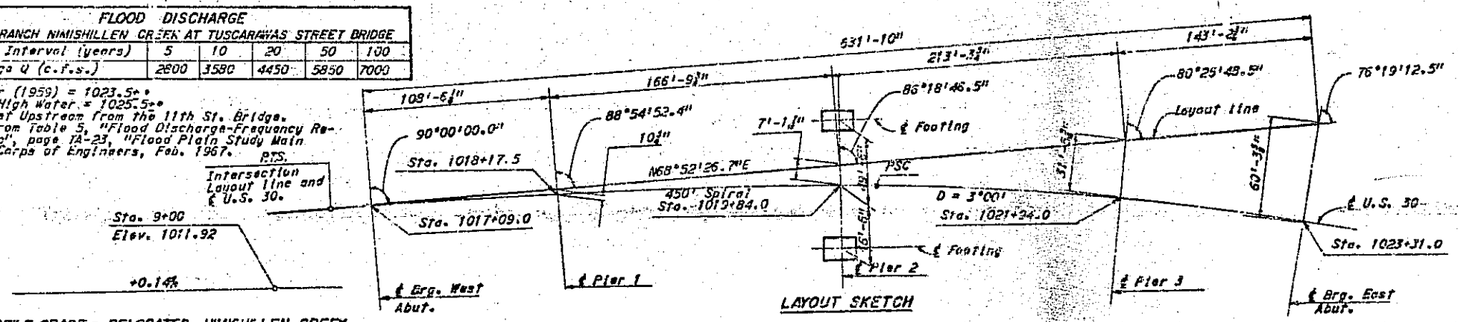
STARK COUNTY
STA-30-15.66

Note A:
Profile grade is at the top of Portland Cement Concrete on the bridge deck and approach slabs. The Contractor shall, in a length of 75 feet, make a vertical adjustment in the finished surface of the approach roadway in order to provide a 2 1/2" vertical transition to the higher asphalt concrete roadway surface on the structure and approach slabs.

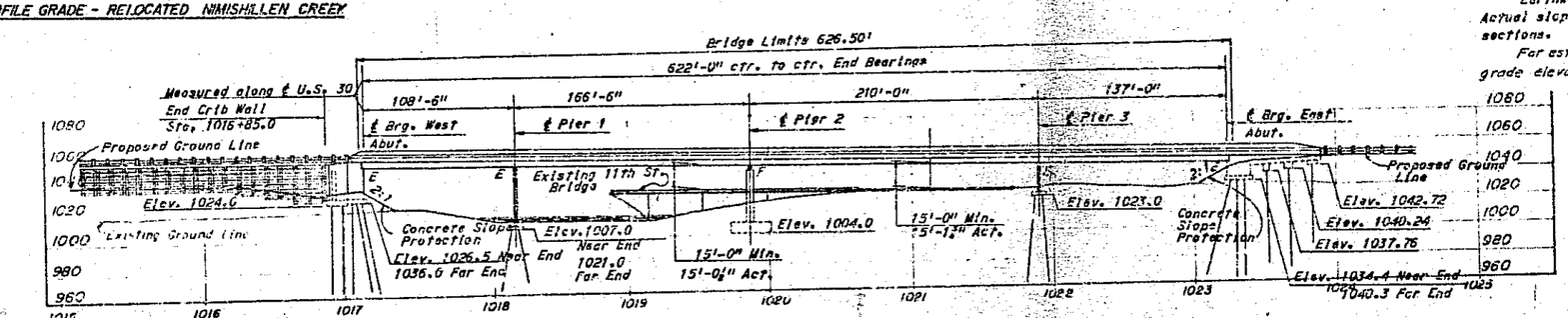


FLOOD DISCHARGE — EAST BRANCH NIMISHILLEN CREEK AT TUSCARAWAS STREET BRIDGE					
Occurence Interval (years)	5	10	20	50	100
**Discharge Q (c.f.s.)	2800	3580	4450	5850	7000

High Water (1959) = 1023.5±*
100 year High Water = 1025.5±*
*3500± Feet Upstream from the 11th St. Bridge.
**Taken from Table 5, "Flood Discharge-Frequency Relationship", page IA-25, "Flood Plain Study Main Report", Corps of Engineers, Feb. 1967.



LAYOUT SKETCH



ELEVATION

PROFILE GRADE - RELOCATED NIMISHILLEN CREEK

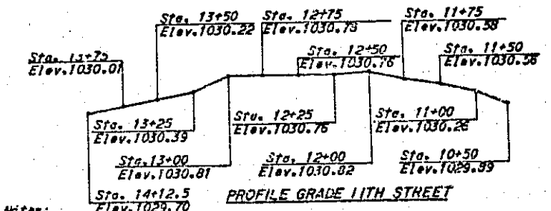
EXISTING UTILITY LEGEND

4"G	Gas
W	Water
Storm	Storm Sewer
San	Sanitary Sewer
T	Telephone
E	Power Lines
4W-4KV	4 Wire Primary 4 Kilovolt
3W-Es	3 Wire Secondary
	Water Hydrant
	Manhole
	Catch Basin

U.S. 30 CURVE DATA
PTS = Sta. 1016+50.00
PSC = Sta. 1021+00.00
D_c = 3° 00' 00.0"
Δ = 22° 48' 22.0"
Δ_c = 9° 18' 22.0"
R_c = 1909.859'
T_s = 610.988'
T_c = 155.444'
L_s = 450.00'
L_c = 310.204'

℄ RAMP C E CURVE DATA
PI = Sta. 1018+03.736
D_c = 1° 08' 10.2"
Δ = 1° 46' 48.2"
R = 5042.908'
T = 78.342'
L = 156.672'

SOUTH GUTTERLINE CURVE DATA
PI = Sta. 1018+10.21 ℄ C-E
D_c = 2° 33' 26.4"
Δ = 3° 35' 55.4"
R = 2240.445'
T = 70.384'
L = 140.722'



PROFILE GRADE 11TH STREET

Notes:
The following items are not included in the bridge plans. See roadway plans for details.
1. Relocation or removal of existing utilities.
2. Approach grading, pavements and slabs.
3. Guardrails.

25,235 Denotes one way 1981 average daily traffic.

Foundation design and foundation quantities are based on a study of standard penetration test borings made at the site.

O Denotes points of minimum vertical clearance.

All piles shall be 12" ϕ cast-in-place concrete with an estimated average pay length of 80' for the Abutments, 74' for Pier 1 and 68' for Pier 3. These estimates are based on boring data and are approximate only. The contractor shall assume full responsibility for the length of pile selected for driving.

Earthwork limits shown are schematic. Actual slopes shall conform to plan cross-sections.

For estimated quantities and profile grade elevations see Sheet E1.

* Denotes standard scupper.

Contractor shall use adequate precautions in constructing Pier 2 footings to avoid any damage to the existing 11th Street Bridge.

EXISTING 11TH STREET STRUCTURE

Type: Continuous Rolled Beam with reinforced concrete slab.
Spans: 2 Spans at 49'-7 1/2" = 99'-3" ctr. to ctr. End Bearings.
Roadway: 40'-0" Face to face of curbs plus two 6'-1" sidewalks and rails = 52'-2" out to out of structure.
Skew: 35°
Wearing Surface: 3" Fiber brick wearing course with 1" oil to sand bedding course.
Alignment: Tangent.
Foundation: Spread Footing on gravel.

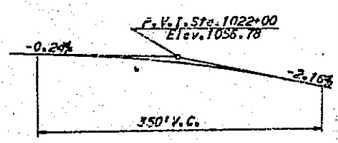
PROPOSED STRUCTURE

Type: Continuous Welded Girder with reinforced concrete slab.
Spans: 108'-6", 166'-6", 210'-0", 137'-0" = 622'-0" ctr. to ctr. of end bearings along ℄ U.S. 30.
Roadway: Varies; face to face of Parapets including 2'-6" median barrier.
Loading: HS20-44, Class I and HS Alternate Military Loading
Skew: Radial to Baseline
Wearing Surface: 2½ inch Asphalt Concrete.
Approach Slab: 25'-0" (AS-1-72) Modified.
Alignment: 450' Spiral to 3° Curve Right on ℄ U.S. 30.

Modify Std. Dwg. AS-1-72 by providing 3" clear over the top rebars instead of the 2" shown on the Std. Dwg. Tie jacking holes as called for on Std. Dwg. AS-1-72 are not required.

Revised: 2-20-79 By RAS

H.M.T.B. BRIDGE NO. 18



PROFILE GRADE U.S. 30
(See Note A)

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

1/20

SITE PLAN
U.S. 30 OVER 11TH STREET
F.R. NO. STA-30-1595 — STA. 1017+06.75
SCALE: 1"=50'-0" — STA. 1023+33.25
RELOCATED U.S. 30
CANTON — STARK COUNTY — OHIO

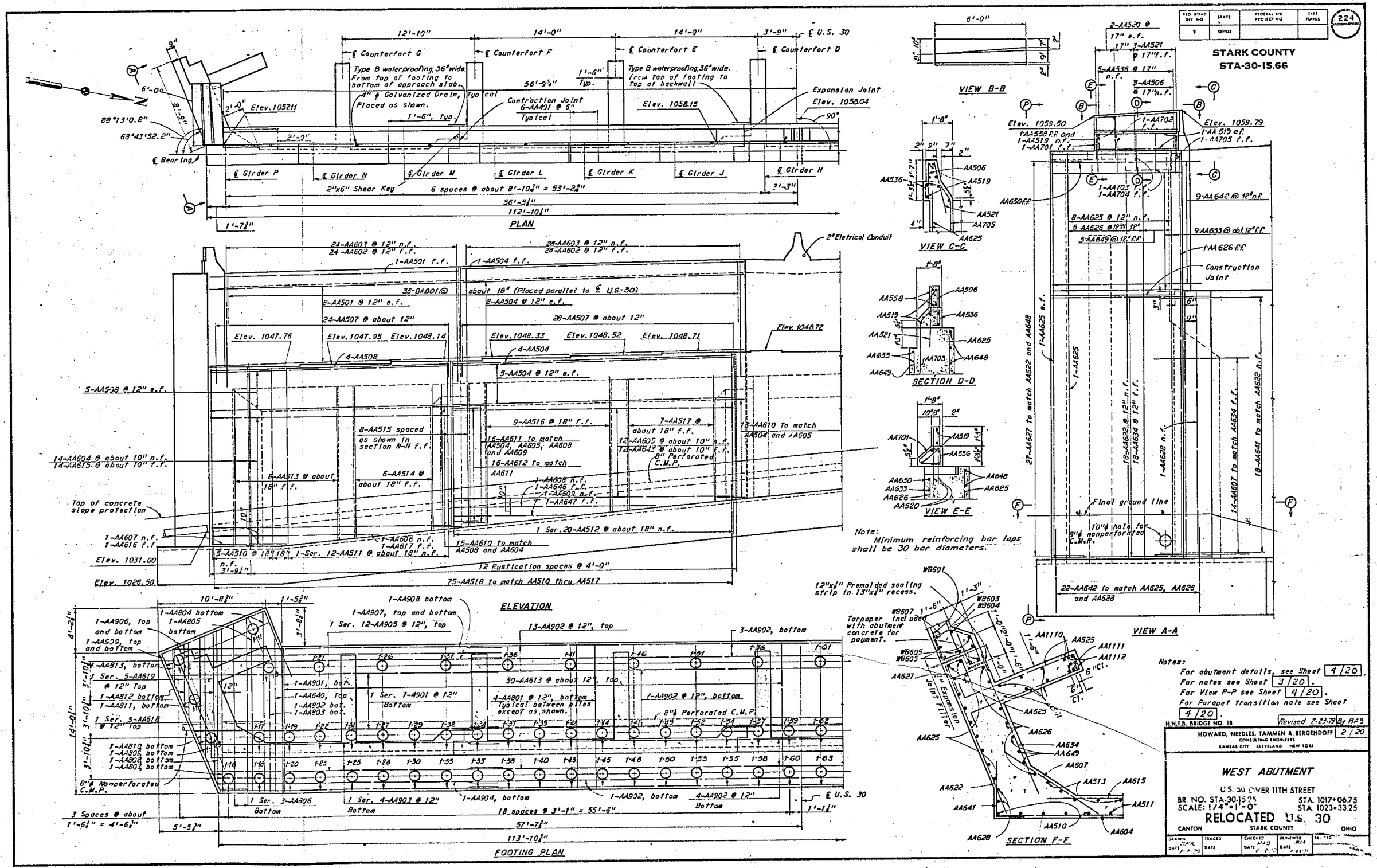
DRAWN JDA	TRACED	CHECKED JRG	REVIEWED MJK	REVISED
DATE 3-13-70	DATE	DATE 11-6-70	DATE 11-23-71	1668

STA-30-1595

FED ROAD DIV NO	STATE	FEDERAL AID PROJECT NO	TYPE FUNDS
3	OHIO		

224

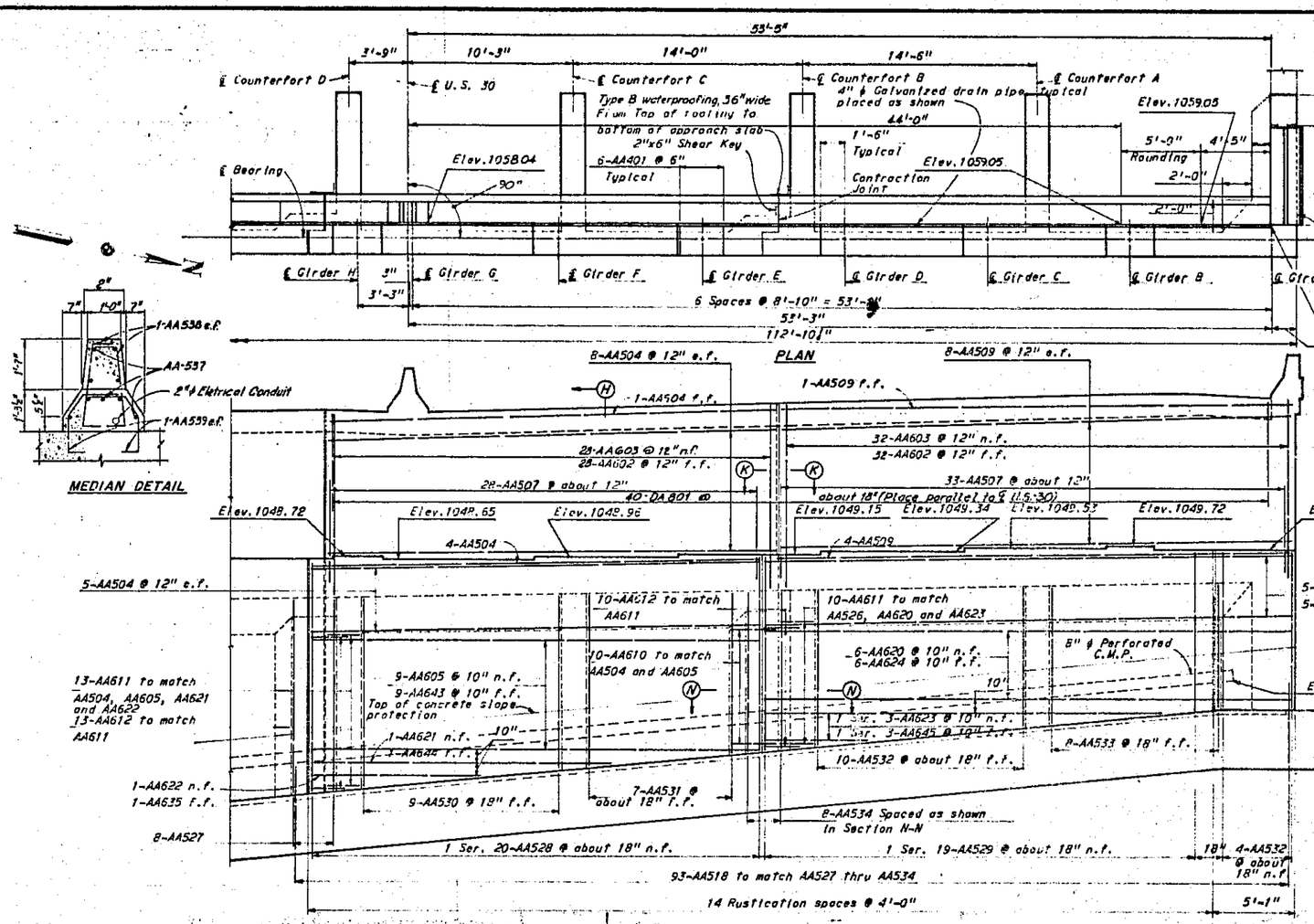
STARK COUNTY
STA-30-15.66



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

225/328

STARK COUNTY
STA-30-15.66



Notes:

All piles are 12" ϕ cast-in-place reinforced concrete.

All battered piles are battered 4 in 12.

O→ Denotes battered piles and directions of batter.

Pile dimensions are measured along bottom of footing.

AA401 bars shall be placed 2½" ± below top of bridge seat.

n.f. denotes near face, f.f. denotes far face and e.f. denotes each face.

For reinforcement schedule see Sheet 18/20.

For sections H-H and N-N, see Sheet 4/20.

H.I.I.T.S. BRIDGE NO. 18 — Revised 2-23-79 By RAS

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

3/20

WEST ABUTMENT

U.S. 30 OVER 11TH STREET

BR. NO. STA-30-1595 — STA. 1017+06.75
SCALE: 1/4" = 1'-0" — STA. 1023+33.25

RELOCATED U.S. 30

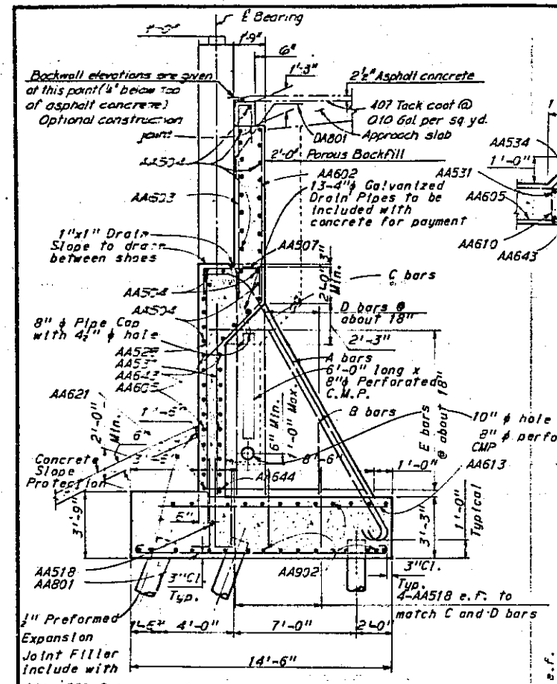
CANTON — STARK COUNTY — OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
D.P.K.		M.A.G.	R.L.R.	
DATE 7-14-70	DATE	DATE 8-18-70	DATE 11-23-71	1666

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS	226 / 328
2	OHIO			

STARK COUNTY
STA-30-15.66

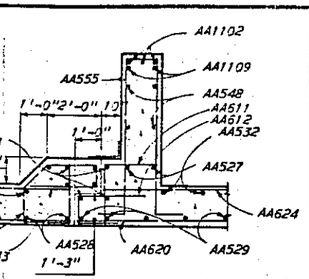
COUNTERFORT REINFORCING					
Counterfort	A bars	B bars	C bars	D bars	E bars
A	3-AA1101	2-AA1108	1-AA540 e.f.	1 Ser. 3-AA547 e.f.	1 Ser. 6-AA554
B	3-AA1102	2-AA1109	1-AA527 e.f.	1 Ser. 3-AA548 e.f.	1 Ser. 7-AA555
C	3-AA1103	2-AA1113	1-AA542 e.f.	1 Ser. 3-AA549 e.f.	1 Ser. 7-AA555
D	4-AA1104	4-AA1114	1-AA514 e.f.	1 Ser. 3-AA550 e.f.	1 Ser. 8-AA556
E	4-AA1105	4-AA1109	1-AA544 e.f.	1 Ser. 3-AA551 e.f.	1 Ser. 9-AA557
F	4-AA1106	4-AA1113	1-AA545 e.f.	1 Ser. 3-AA552 e.f.	1 Ser. 9-AA557
G	4-AA1107	4-AA1115	1-AA546 e.f.	1 Ser. 3-AA553 e.f.	1 Ser. 10-AA543



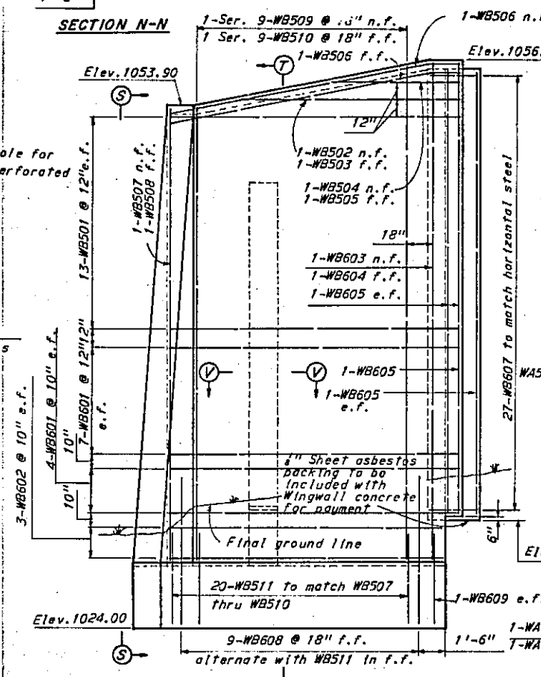
Backwall Concrete: In addition to the provisions of 511.08, backwall concrete above the optional construction joint at the approach slab seat shall not be placed until after the deck concrete in the span adjacent to the abutment has been placed.

SECTION H-H

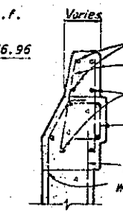
Note: See Section T-T for details of steel sheet piling.



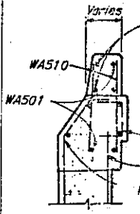
SECTION N-N



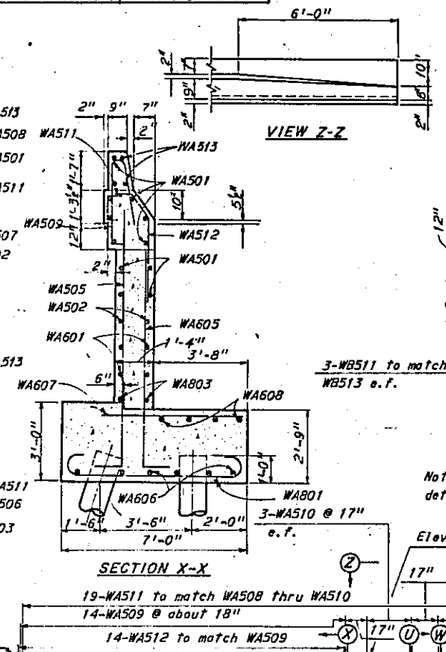
ELEVATION



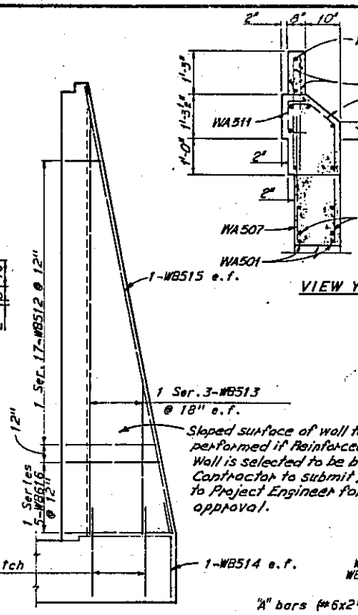
SECTION W-W



SECTION U-U



SECTION X-X

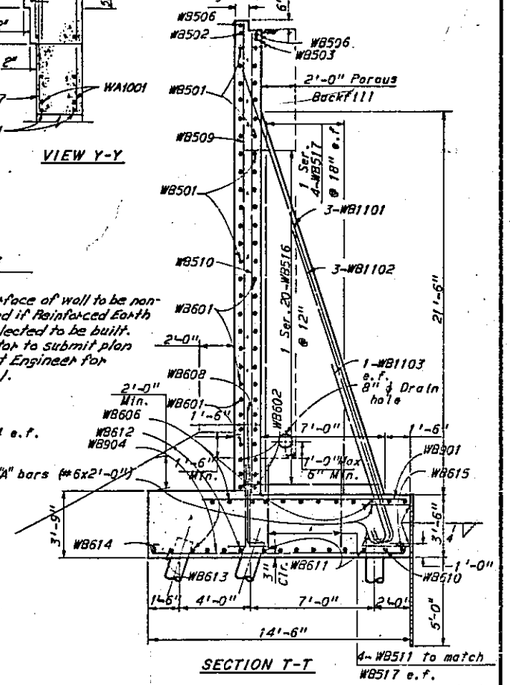


VIEW Y-Y

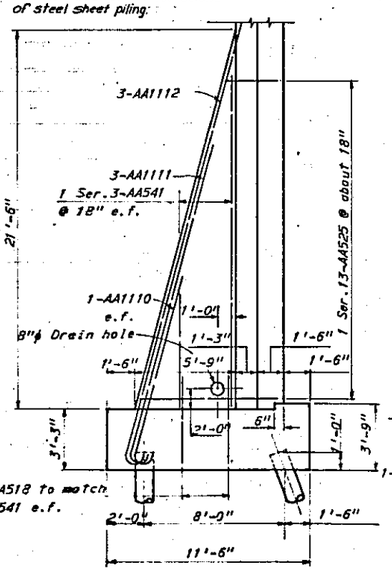
VIEW Z-Z

Note: See Section T-T for details of steel sheet piling.

VIEW S-S

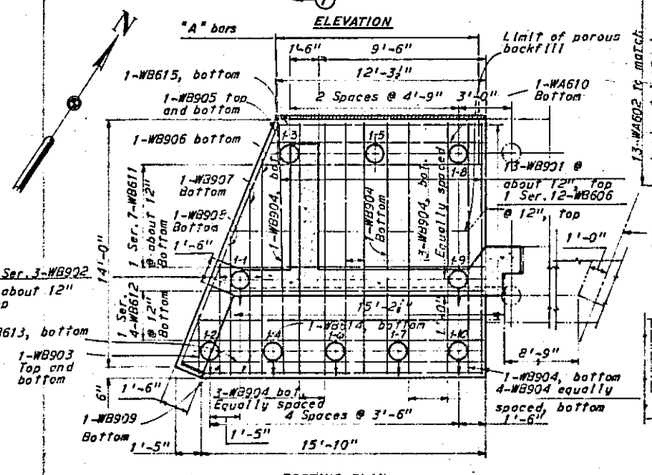


SECTION T-T



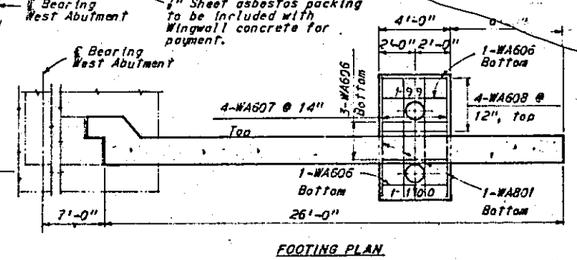
VIEW P-P

Note: See Section T-T for details of steel sheet piling.



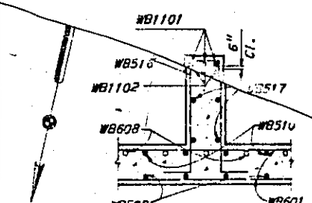
FOOTING PLAN

SOUTHWEST WINGWALL



FOOTING PLAN

NORTHWEST WINGWALL



SECTION V-V

Notes:
All piles are 12" ϕ cast-in-place reinforced concrete.
All battered piles and sheet piling are battered 4 in 12.
⊖ Denotes battered piles and direction of batter.
Pile dimensions are measured along bottom of footing.
n.f. Denotes near face.
f.f. Denotes far face.
e.f. Denotes each face.
Piles are not shown in elevations.
For key details, see Sheets 2/20 and 3/20.
For reinforcement schedule see Sheets 18/20 and 19/20.
"A" bars are to be included with Item 504.
Sheet steel Piling for payment.
Sheet steel piling left in place shall be a minimum section modulus of 7 in. cubed per foot of wall. Used piling in good condition may be used.
Parapet transitions shall be as shown on Std. Drwg. BR-1-67 revised 1-1-71. Reinforcing Steel shall be field bent or cut to fit the revised shape.
Minimum reinforcing bar laps shall be 30 bar diameters.

H.N.T.B. BRIDGE NO. 18 — Revised 2-29-79 By RAS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF — 4/20
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

WEST ABUTMENT DETAILS

U.S. 30 OVER 11TH STREET
BR No. STA. 30-15.95 — STA. 1017+06.75
SCALE 1" = 1'-0" — STA. 1023+33.25
RELOCATED U.S. 30
CANTON — STARK COUNTY — OHIO

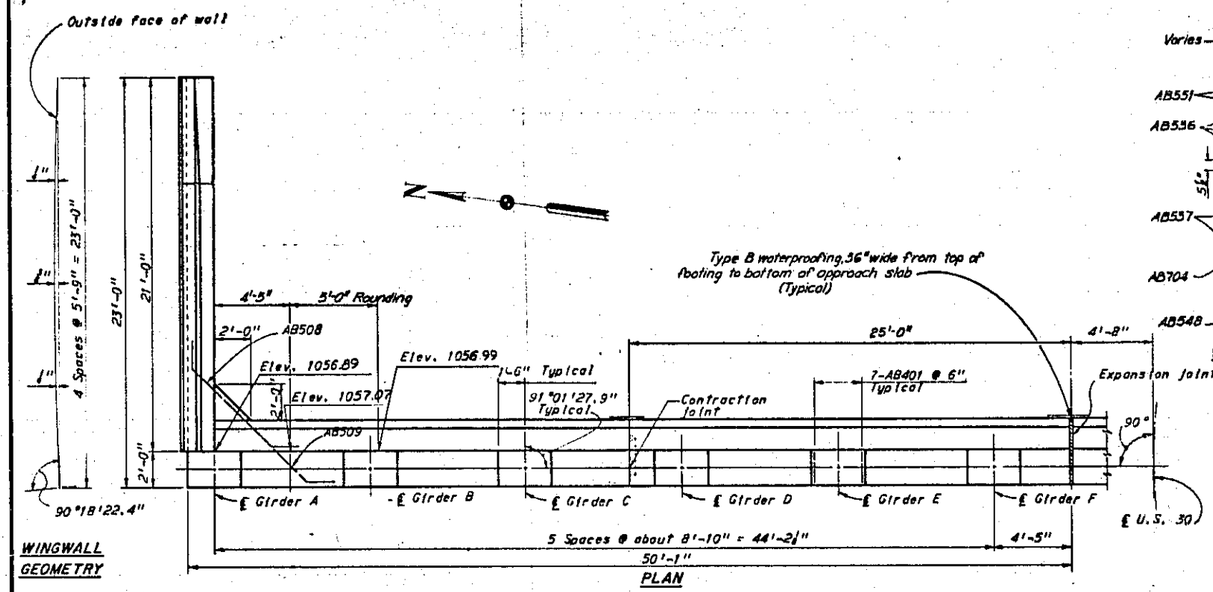
DRAWN — TRACED — DATE — CHECKED MAC — DATE 8-18-78 — REVISED 2-1-82

1658

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

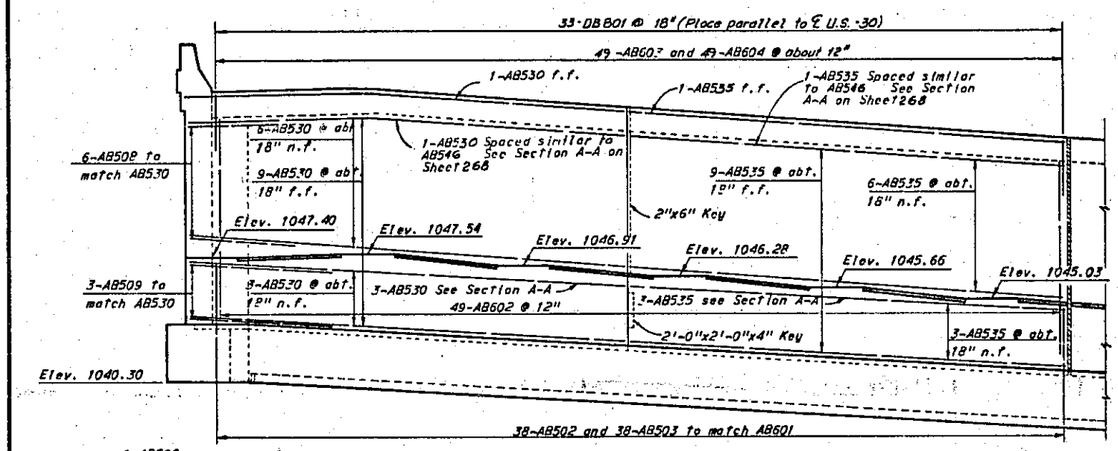
227 / 328

STARK COUNTY
STA-30-15.66

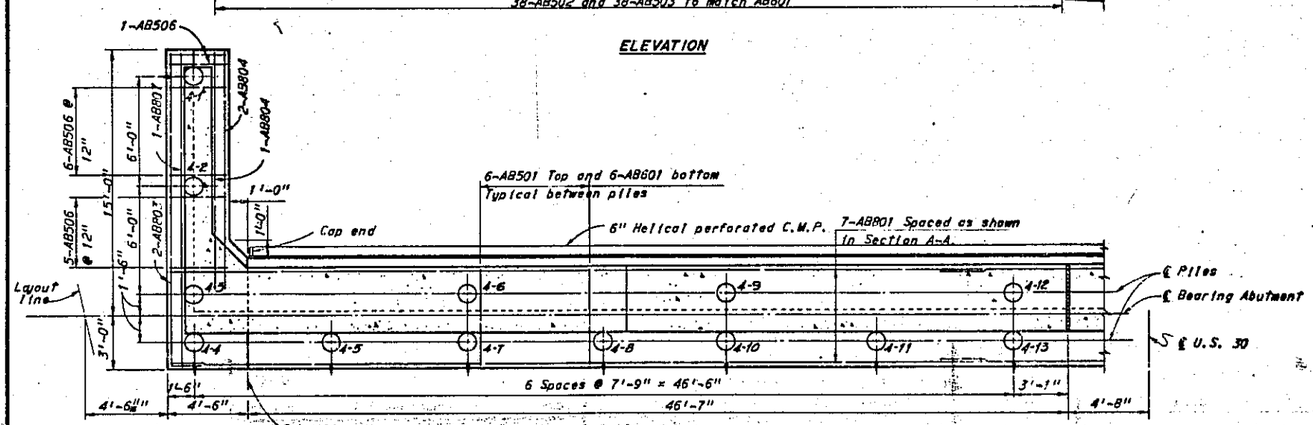


WINGWALL GEOMETRY

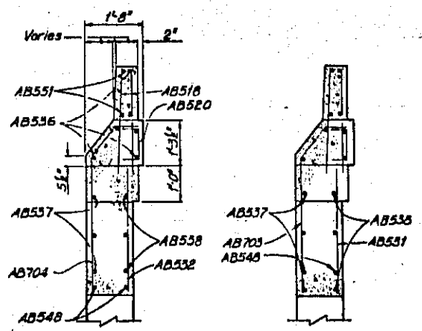
PLAN



ELEVATION

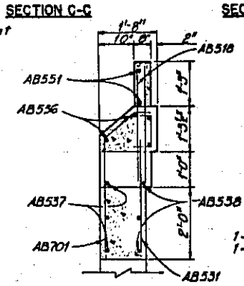


FOOTING PLAN

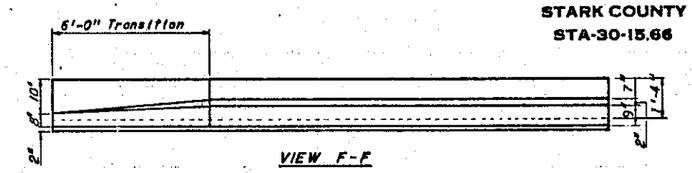


SECTION C-C

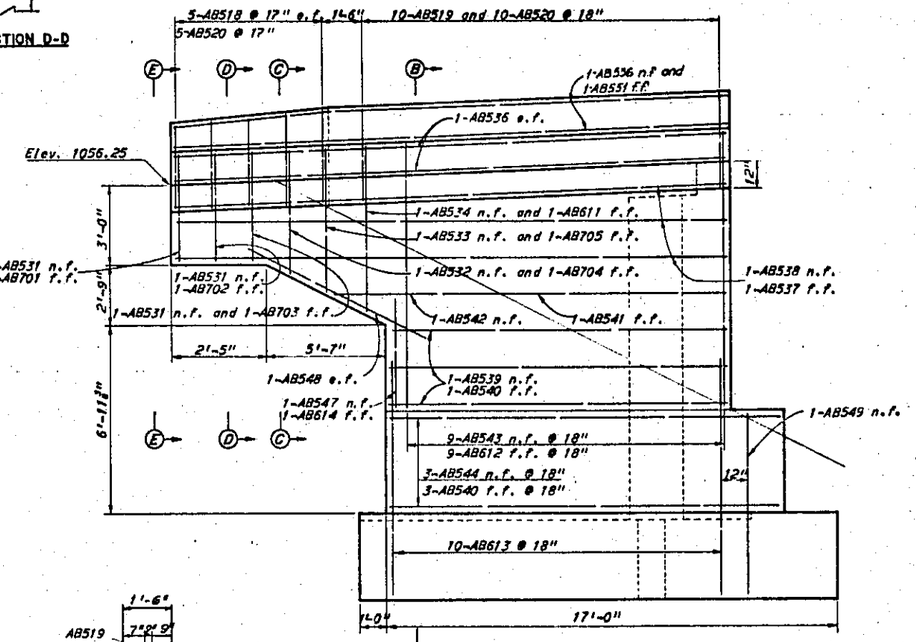
SECTION D-D



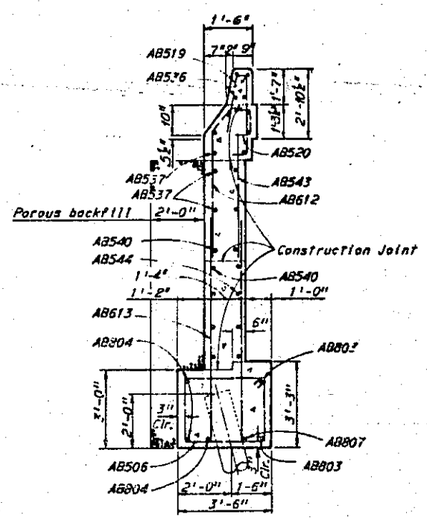
VIEW E-E



VIEW F-F



NORTHEAST WINGWALL ELEVATION



SECTION B-B

Notes:
For Parapet transition note, see Sheet 4 / 20.
For other notes see Sheet 7 / 20.
Minimum reinforcing bar laps shall be 30 bar diameters.

H.N.T.B. BRIDGE NO. 18 — Revised 2-29-79 By RAS

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

5 / 20

EAST ABUTMENT

U.S. 30 OVER 11TH STREET

P.P. NO. STA-30-15.95 — STA. 1017+06.75
SCALE: 1/4" = 1'-0" — STA. 1023+33.25

RELOCATED U.S. 30

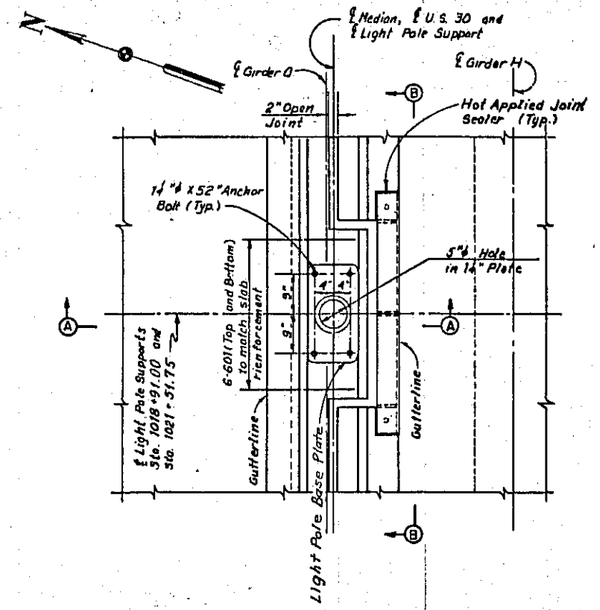
CANTON — STARK COUNTY — OHIO

DRAWN T.F.S.	TRACED	CHECKED RAS	REVIEWED WJK	REVISED
DATE 7-25-77	DATE	DATE 11-6-78	DATE 11-22-77	1669

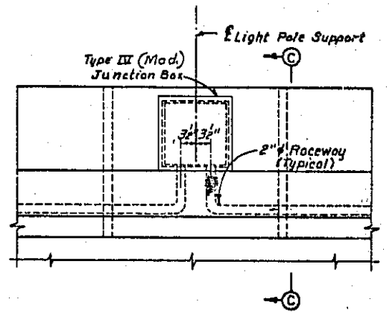
FED ROAD DIV NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
2	OHIO		

243
328

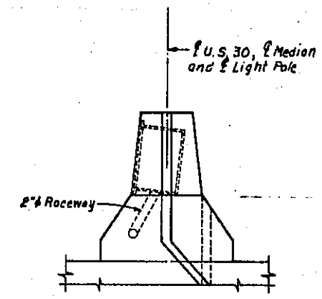
STARK COUNTY
STA-30-15.66



PLAN
(Conduit not shown)



ELEVATION
(Looking South)

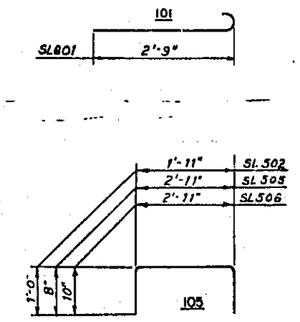


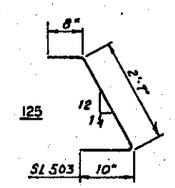
SECTION C - C

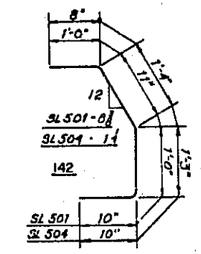
REINFORCEMENT SCHEDULE				
MARK	NO.	LENGTH	TYPE	WEIGHT (LBS.)
ESL501	5	3'-7"	142	19
ESL502	5	3'-9"	105	20
ESL503	4	3'-11"	125	16
ESL504	4	3'-11"	142	16
ESL505	1	4'-1"	105	4
ESL506	3	4'-5"	105	14
ESL601	6	3'-5"	101	31
Total Weight For One Light Support =				120

Note: Reinforcement shown is for one (1) median mounted light pole support. Two (2) light pole supports are required.

BENDING DIAGRAMS



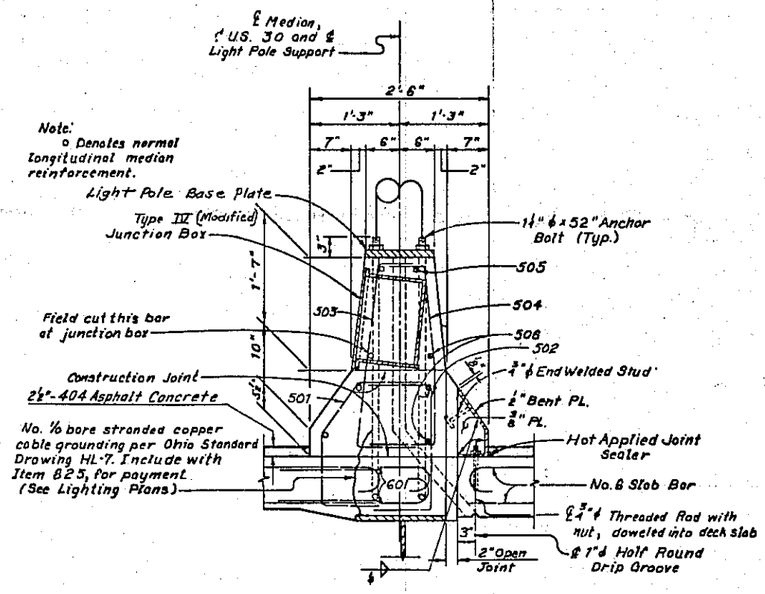




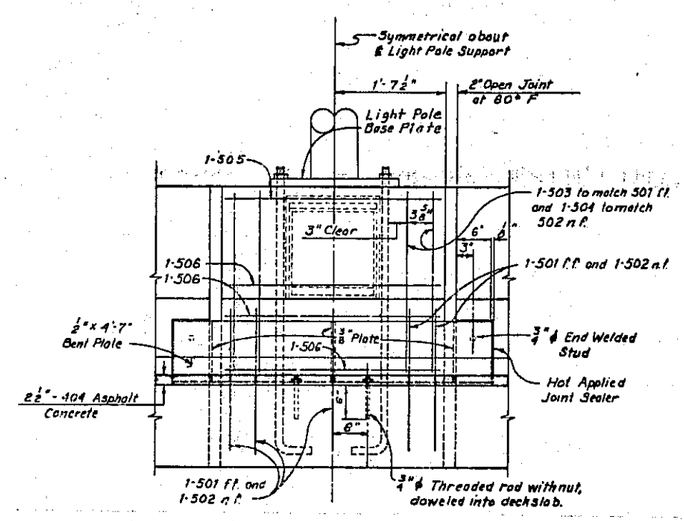
CONDUIT DETAILS
(Wearing Course not shown)

Note:
All bars shall be epoxy coated.
All reinforcing bar marks shall be prefixed

Note:
o Denotes normal longitudinal median reinforcement.



SECTION A-A
(Conduit not shown)



SECTION B-B
(Conduit not shown)

REQUIRED LAP LENGTH
No. 6 Bar = 2'-0" Minimum

Notes:

Transverse reinforcement bars SL501, SL502, SL503 and SL504 replace normal media transverse reinforcement bars SA621 thru SA627. Longitudinal reinforcement in the median shall be field cut as required at the light pole support. Field cutting shall be included with Item 509, Reinforcing Steel, for payment.

The 1¼"ϕx52" anchor bolts, nuts, and junction box shall be included with Item 625 for payment.

All structural steel comprising the curb area shall be included with Item 513, Structural Steel, for payment.

All structural steel shall be galvanized according to 711.02. Galvanizing of steel shall be included with Item 513, Structural Steel, for payment.

Hot applied joint sealer (705.01) shall be included with Item 511, Class "S" Concrete, Superstructure, for payment.

For details of junction box and additional notes, see Ohio Standard Drawing HL-22.

The following abbreviations are used:

n.f. = near face — Typ. = Typical
f.f. = far face — Sta. = Station

H.N.T.B. BRIDGE NO. 18

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

MEDIAN MOUNTED LIGHT POLE SUPPORT DETAILS

BR. NO. STA-30-1595 — STA.1017 06.75 — STA.1023 33.25

RELOCATED U.S. 30

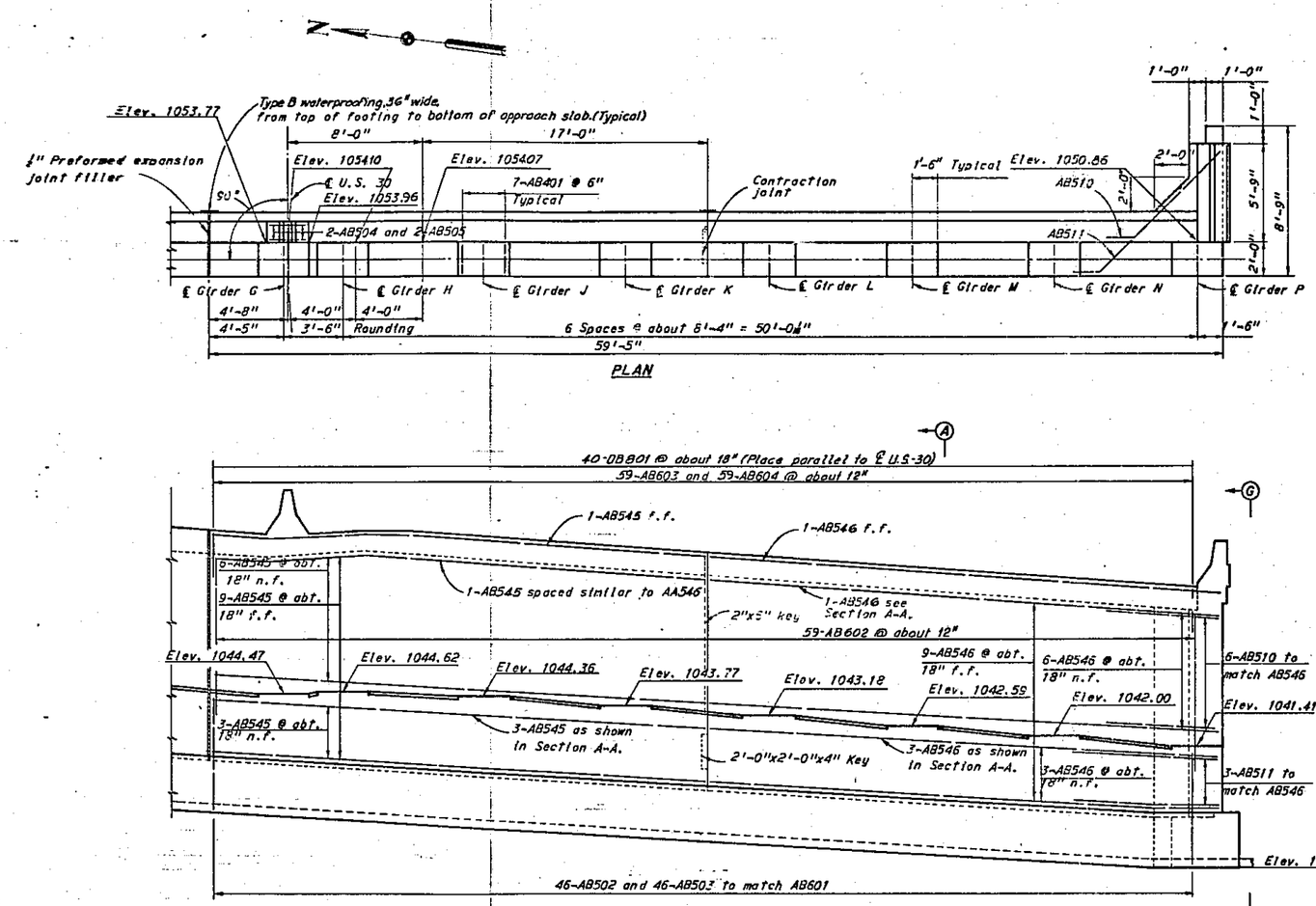
CANTON — STARK COUNTY — OHIO

DRAWN DRJ	TRACED DRJ	CHECKED D.P.	REVIEWED	REVISED
DATE 3-23-79	DATE 3-26-79	DATE 4-6-79	DATE	

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

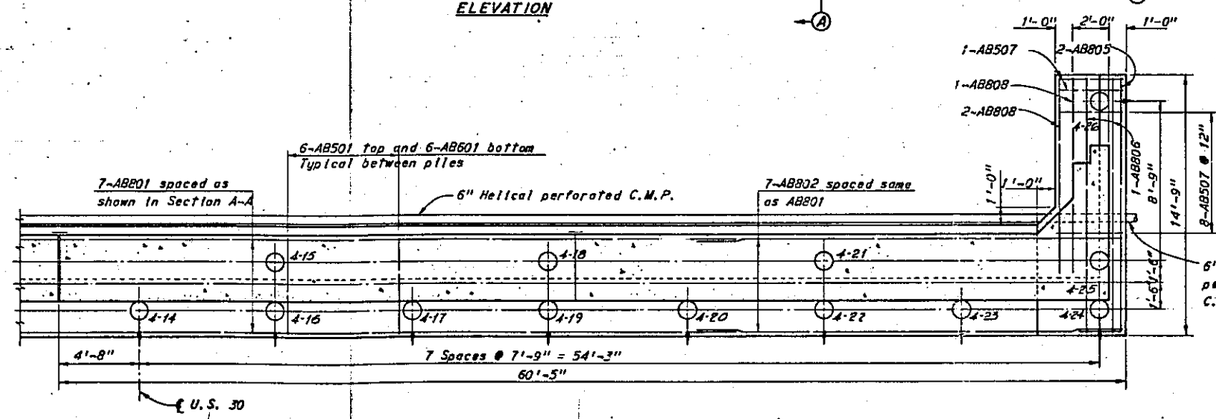
228/328

STARK COUNTY
STA-30-15.66

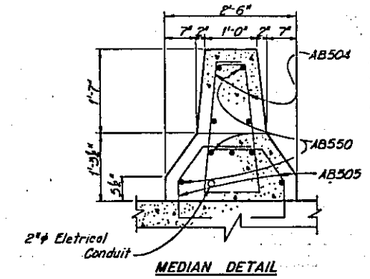


PLAN

ELEVATION



FOOTING PLAN



MEDIAN DETAIL

Backwall Concrete: In addition to the provisions of 511.08, backwall concrete above the optional construction joint at the approach slab seat shall not be placed until after the deck concrete in the span adjacent to the abutment has been placed.

Notes:
For notes see Sheet 7/20.
Minimum reinforcing bar laps shall be 30 bar diameters.

F.A.I.N.T.B. BRIDGE NO. 18 — Revised 2-23-79 By RAS — 6/20

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

EAST ABUTMENT

U.S. 30 OVER 11TH STREET

BR NO. STA-30-1595 — STA. 1017+06.75
SCALE: 1/4" = 1'-0" — STA. 1020+33.25

RELOCATED U.S. 30

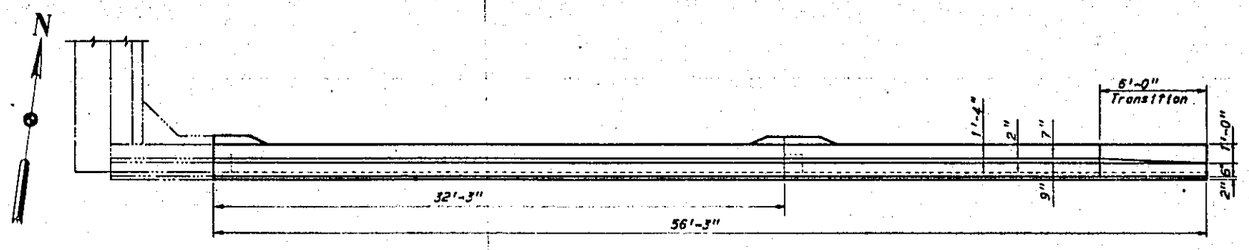
CANTON — STARK COUNTY — OHIO

DRAWN T.P.S.	TRACED	CHECKED PAS	REVIEWED RAR	REVISED
DATE 8-7-78	DATE	DATE	DATE 11-13-78	1668

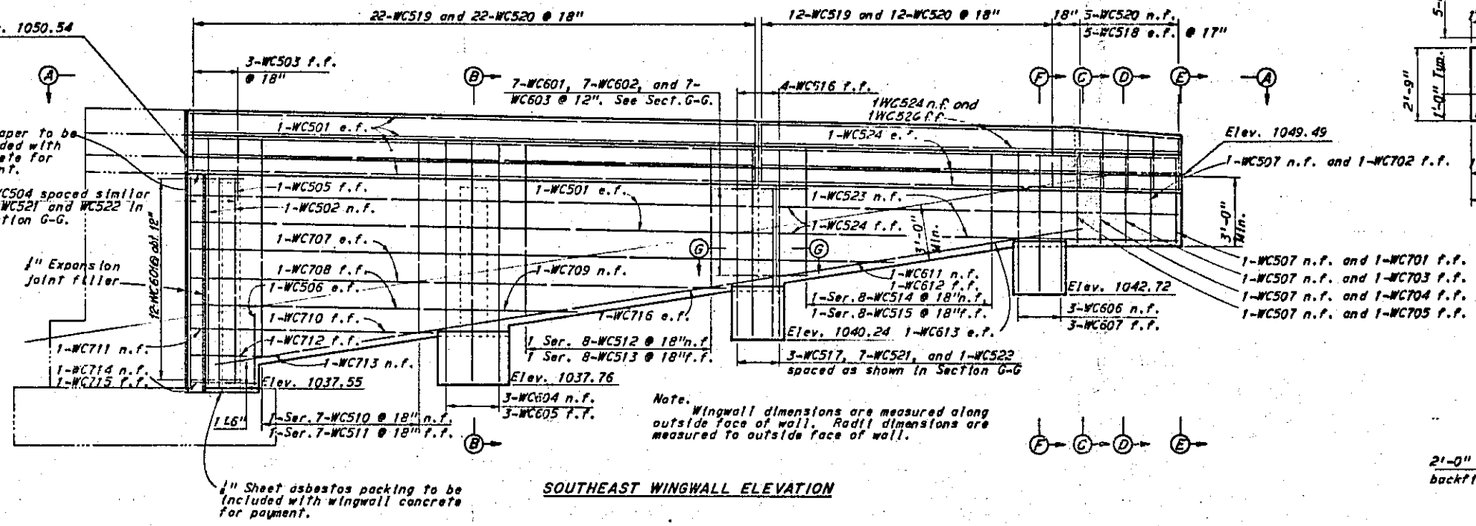
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
5	OHIO		

229
328

STARK COUNTY
STA-30-15.66

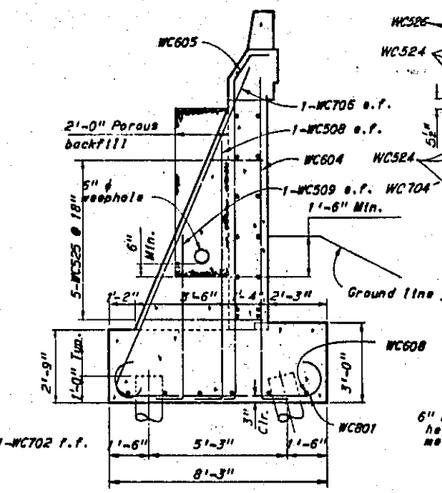


VIEW A-A

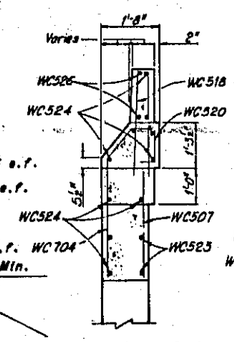


Note. Wingwall dimensions are measured along outside face of wall. Radii dimensions are measured to outside face of wall.

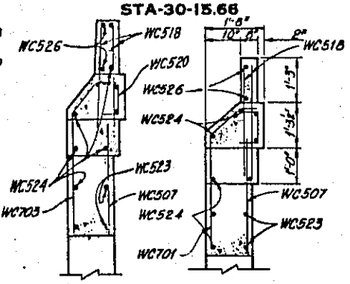
SOUTHEAST WINGWALL ELEVATION



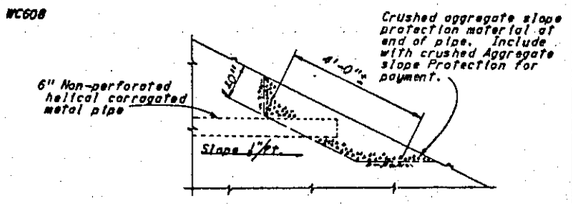
SECTION B-B



SECTION C-C



SECTION D-D VIEW E-E



METHOD OF TERMINATING 6" CMP AT THE FRONT SLOPE

Notes:

For roadway end dam details see Ohio Standard Drawing SD-1-69, Sheets 1 and 2 of 4.

AB401 bars shall be placed 2½" below top of bridge seat.

n.f. Denotes near face, f.f. denotes far face, and e.f. denotes each face.

For reinforcing schedule see Sheet 20/20.

All battered piles are battered 3 in 12.

Pile dimensions are measured along bottom of footing.

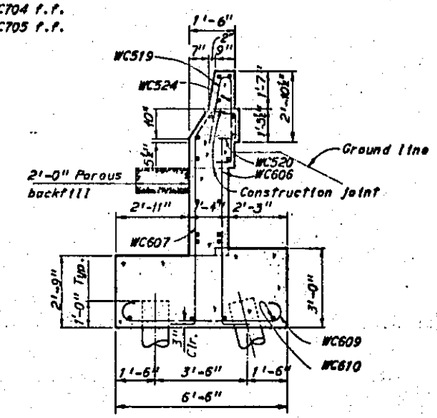
Piles not shown in elevation.

All piles are 12" ϕ C.I.P. concrete piles.

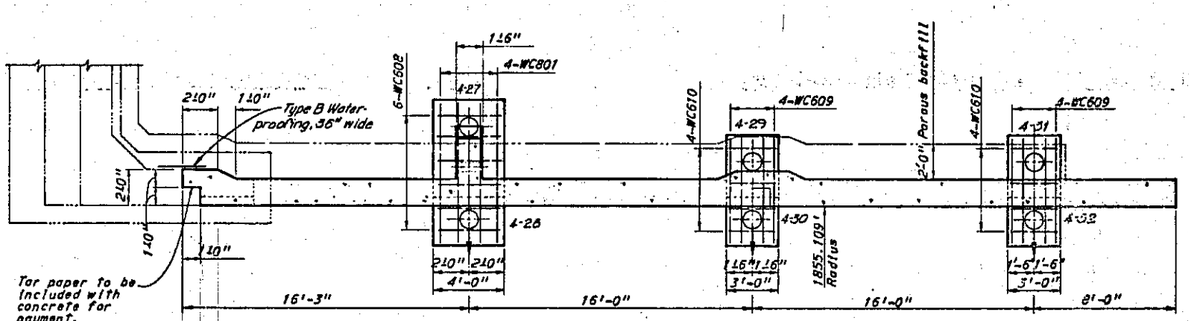
O→ Denotes battered pile.

For notes concerning Parapet transition see Sheet 4/20.

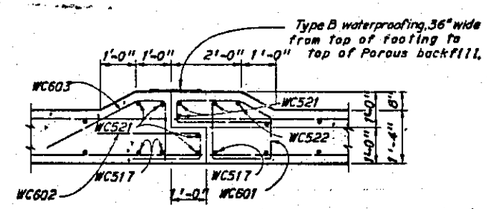
Minimum reinforcing bar laps shall be 30 bar diameters.



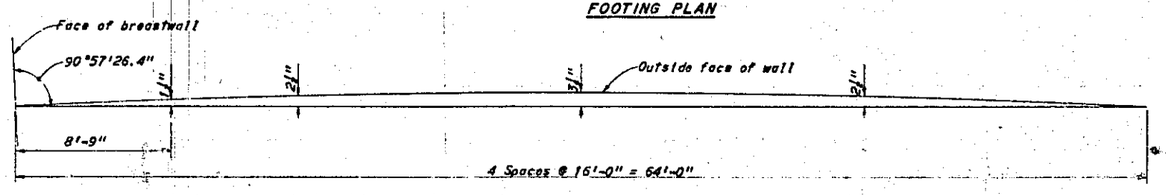
SECTION F-F



FOOTING PLAN



SECTION G-G



WINGWALL GEOMETRY

H.N.T.B. BRIDGE NO. 18 — Revised 2-29-79 By RAS

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

7/20

EAST ABUTMENT DETAILS

U.S. 30 OVER 11TH STREET

BR. NO. STA-30-15.95 — STA. 1017+06.75
SCALE: 3/8" = 1'-0" — STA. 1023+33.25

RELOCATED U.S. 30

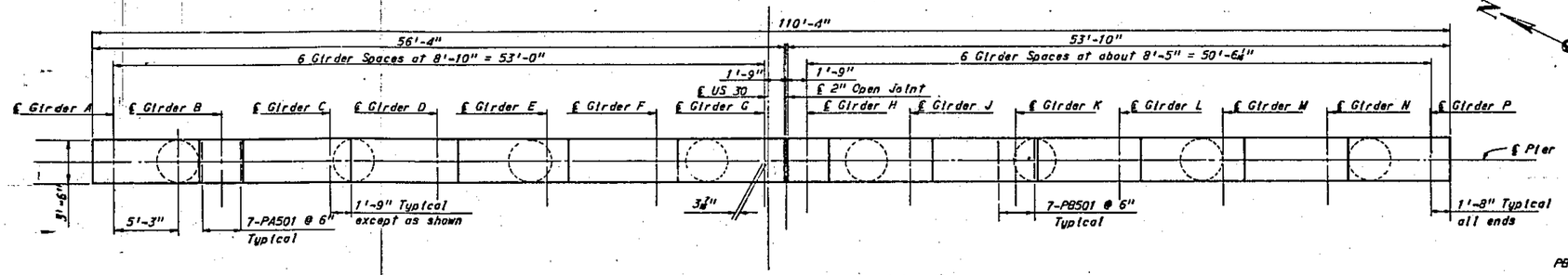
CANTON — STARK COUNTY — OHIO

DRAWN T.P.S.	TRACED	CHECKED RAS	REVIEWED MJK	REVISED
DATE 8-16-70	DATE	DATE 11-6-70	DATE 11-23-71	1668

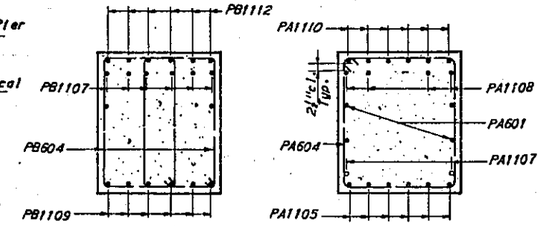
FED ROAD DIV NO	STATE	FEDERAL AID PROJECT NO	TYPE FUNDS
2	OHIO		

230 / 328

STARK COUNTY
STA-30-15.66

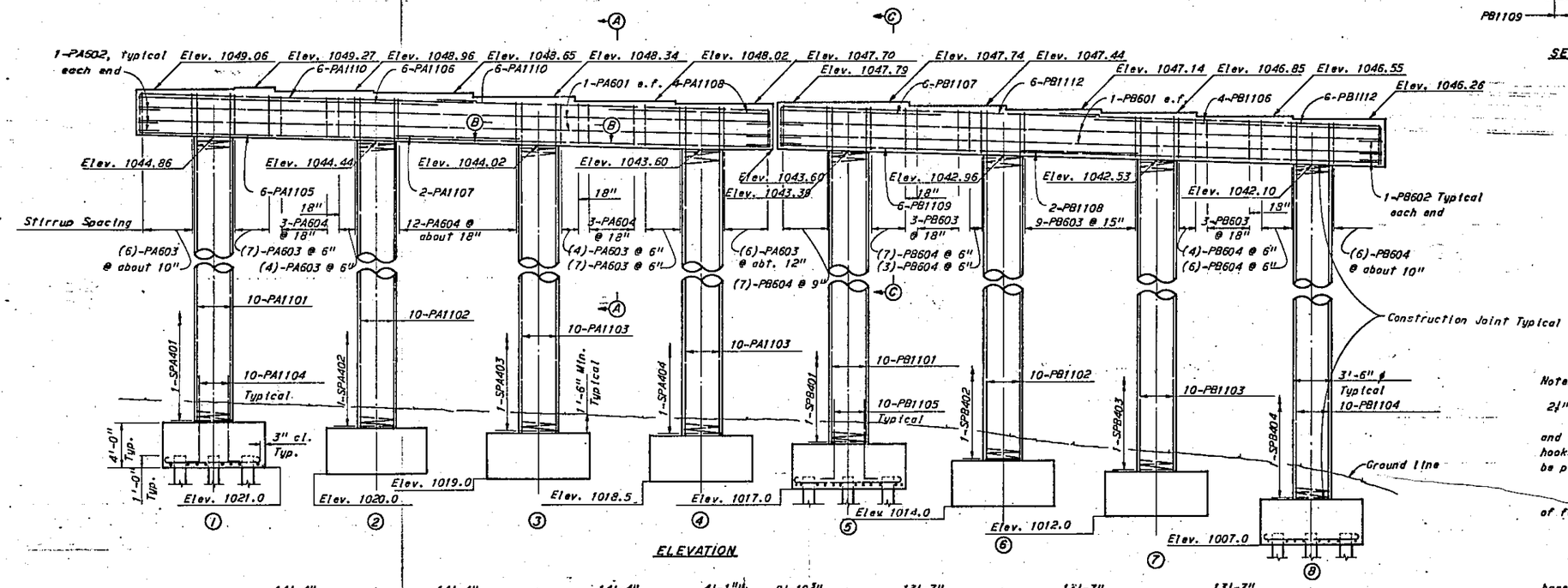


PLAN

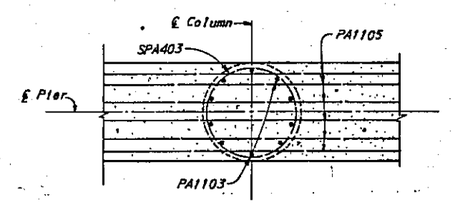


SECTION C-C

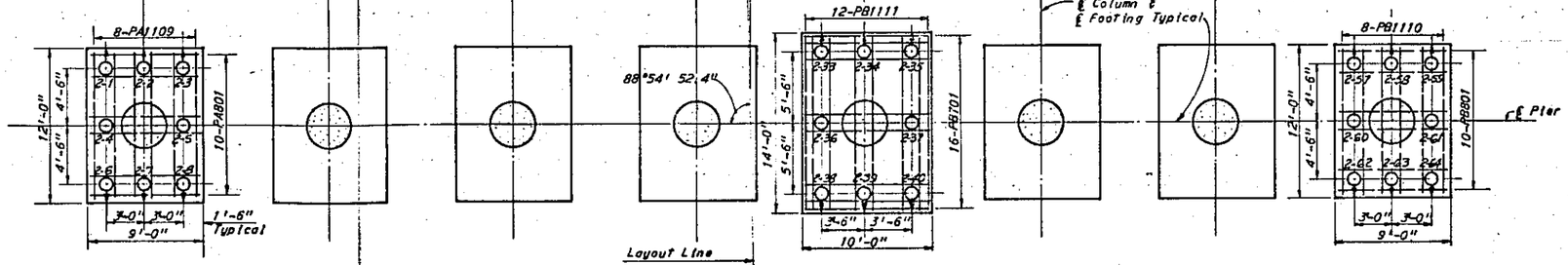
SECTION A-A



ELEVATION



SECTION B-B



FOOTING PLAN

Notes:

PA501 and PB501 bars shall be placed 2½" ± below top of cap beam.

The stirrups within 4 feet of the ℄ columns and in cantilever spans shall be placed with the hooks in the bottom of cap beam. All others shall be placed with hooks in the top.

All piles are 12" cast-in-place concrete.

Pile dimensions are measured along bottom of footing.

○→ Denotes battered pile.

All battered piles shall be battered 3 in 12.

e.f. denotes each face.

(*) denotes number of sets of 2 stirrup bars required. (7)-PA603 denotes 7 sets of 2-PA603.

Footings ②, ③ and ④ are identical to footing ①.

Footings ⑥ and ⑦ are identical to footing ⑧.

For reinforcement schedule see Sheet 19/20.

Minimum reinforcing bar laps shall be 30 bar diameters.

H.N.T.B. BRIDGE NO. 18 — Revised 8-29-79 By RAS

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

8 / 20

PIER 1

U.S. 30 OVER 11TH STREET

BR NO. STA-30-15.95 — STA. 1017+06.75
SCALE: 3/16" = 1'-0" — STA. 1023+33.25

RELOCATED U.S. 30

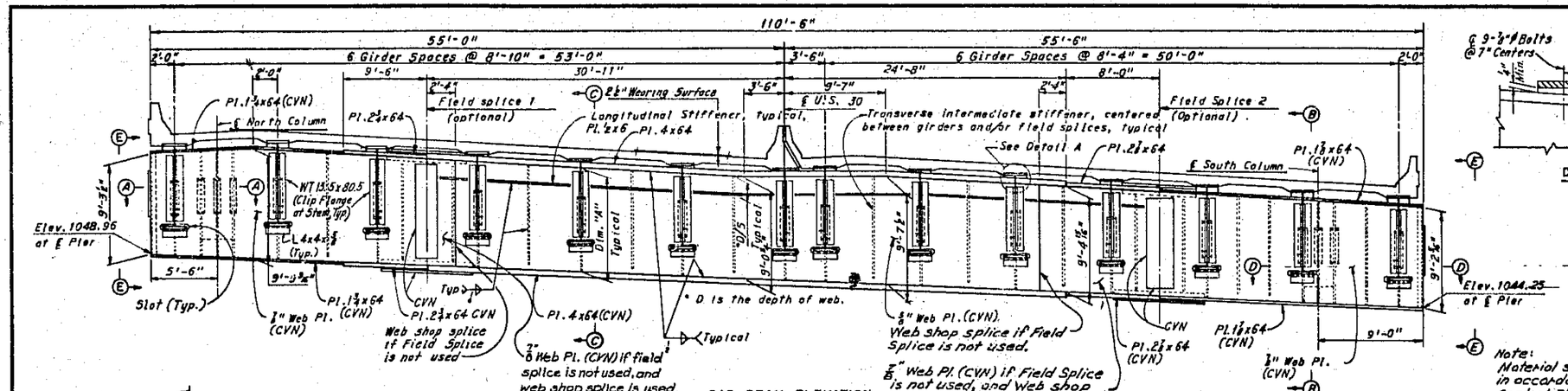
CANTON — STARK COUNTY — OHIO

DRAWN MAJ	TRACED	CHECKED C.C.	REVIEWED RJ.4	REVISED
DATE 9-21-78	DATE	DATE 8-10-79	DATE 11-28-79	1664

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

231
328

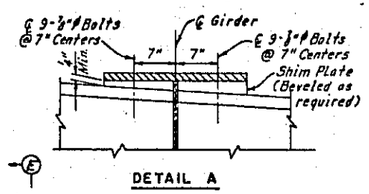
STARK COUNTY
STA-30-15.66



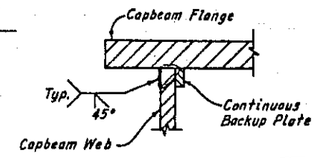
CAP BEAM ELEVATION

Note: If Optional Field Splices 1 and 2 are not used, stiffener details between Girders C and D, and Girders L and M shall be similar to those between Girders M and N.

Note: Material shall be fabricated in accordance with the Fracture Control Plan. See Proposal Note.

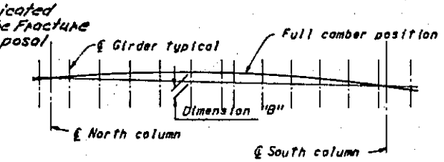


DETAIL A



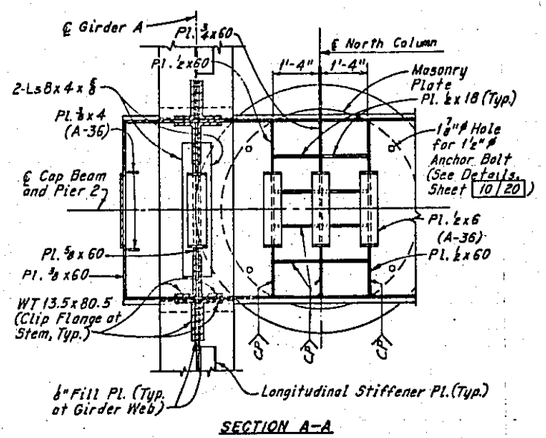
ALTERNATE CAPBEAM WEB TO FLANGE WELD:

A full penetration groove weld, with a continuous backup plate may be used as an alternate to the ½" fillet weld, both sides as shown on the capbeam elevation.

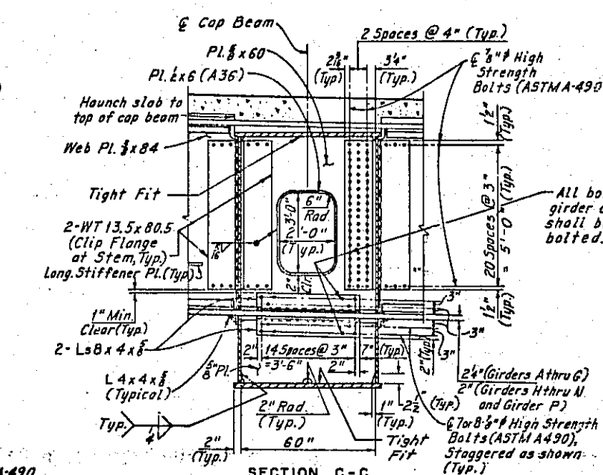


CAMBER DIAGRAM

Note: 30% of dead load deflection due to steel.

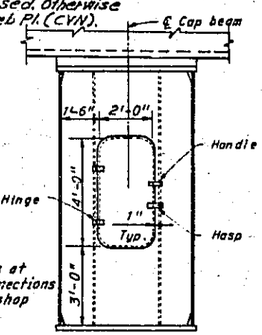


SECTION A-A



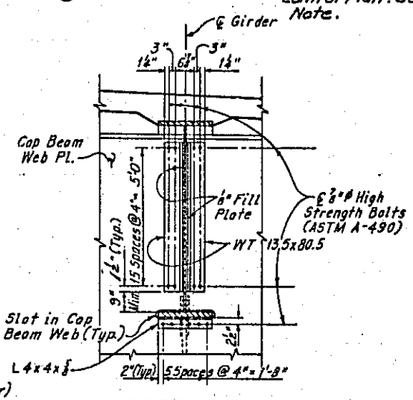
SECTION C-C

(Typical, Girders A thru M and P)



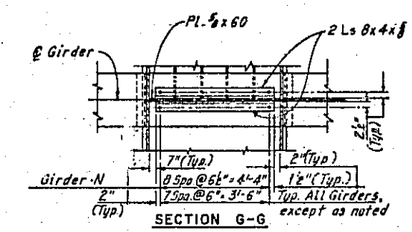
VIEW E-E

(South End Shown, North End Similar)

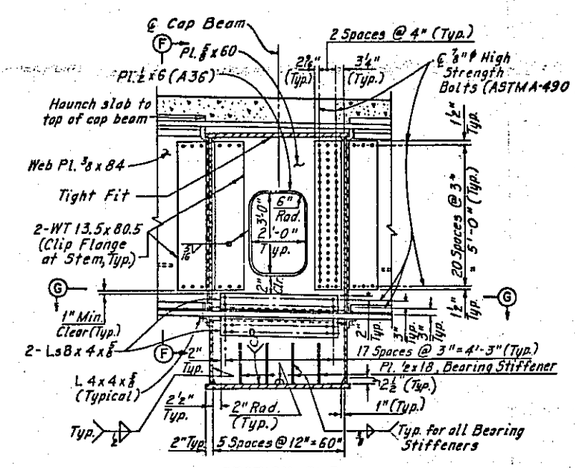


SECTION F-F

(Typical, All Girders - Girder flange splice plates and flange to web angles not shown).

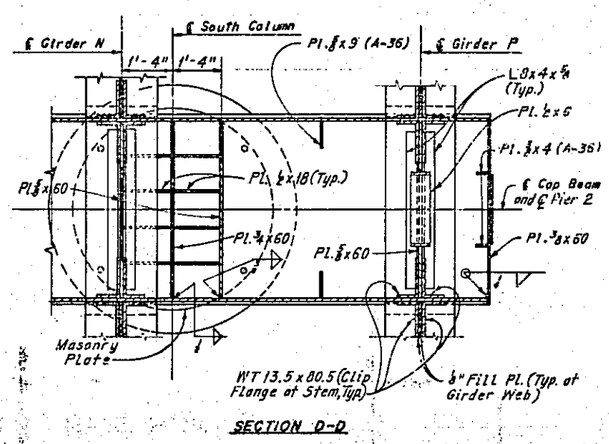


SECTION G-G

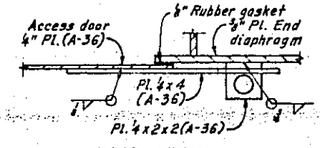


SECTION B-B

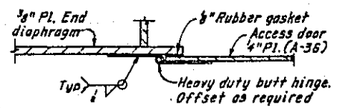
(South Column Area at Girder N Shown)



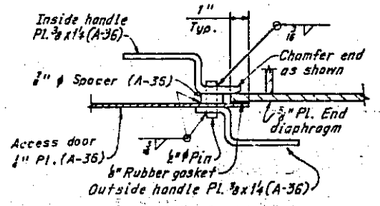
SECTION D-D



HASP DETAIL



HINGE DETAIL



HANDLE DETAIL

CAP BEAM DATA		
GIRDER	DIMENSION A	DIMENSION B
A	9'-4⅝"	-¾"
B	9'-9⅛"	1"
C	9'-7 5/16"	⅜"
D	9'-5½"	⅝"
E	9'-3 11/16"	1⅜"
F	9'-1⅞"	1⅜"
G	9'-2⅝"	1⅜"
H	9'-4⅝"	1⅜"
J	9'-7⅛"	1⅛"
K	9'-5 5/16"	1 1/16"
L	9'-4⅝"	0"
M	9'-3⅝"	⅜"
N	9'-3⅝"	1/16"
P	9'-2⅝"	-⅜"

Note: Dimension A is the vertical distance from the top of the web to the bottom of the web at the centerline of the cap beam.

Dimension B is the required shop camber. The camber is given to the nearest ⅛" and negative camber indicates downward camber.

Notes:

All structural steel shall be painted in accordance with Item 514 of the specifications.

All bolts shown shall be ⅞"ϕ ASTM A-490 bolts, Type 3.

All steel shall be A-588, unless shown otherwise.

Longitudinal stiffeners shall be Pls. ½x6 (A-36) on outside face of webs only.

Transverse intermediate stiffeners shall be Pls. ⅝x9 (A-36) on inside face of webs and placed as shown and noted.

Bearing stiffeners and bearing diaphragms shall be either milled to bear on bottom flange or be attached to the bottom flange by a complete joint penetration weld.

Top and bottom flange plates shall be horizontal, normal to the centerline of the capbeam.

For Splice Details, see Sheet CD4.

For bearing shoe details and column and footing details, see Sheet 10/20.

For longitudinal girder data, see Sheets 12/20 and 13/20.

H.N.T.S. BRIDGE NO. 19

HOWARD, NEEDLES, TAMMEN & BERGENDOFF — 9/20
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

STEEL CAP BEAM
PIER 2

U.S. 30 OVER 11TH STREET

JP. NO. STA-30-15.95 — STA. 1017+06.75
SCALE: 3/16" = 1'-0" — STA. 1023+33.25

RELOCATED U.S. 30

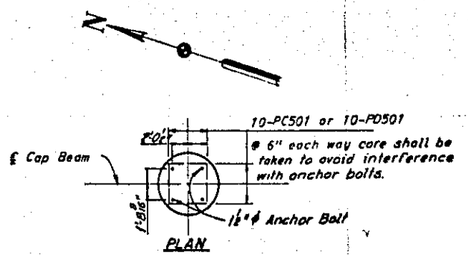
CANTON — STARK COUNTY — OHIO

DRAWN C.P.	TRACED C.P.	CHECKED R.A.S.	REVIEWED	REVISED
DATE 7-28-80	DATE 8-4-80	DATE 8-6-80	DATE	668

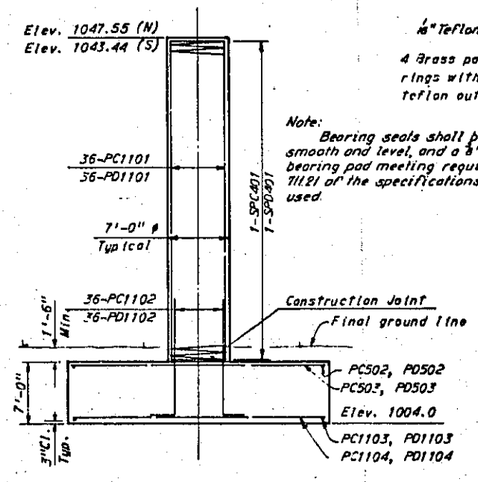
FED ROAD DIV NO	STATE	FEDERAL AID PROJECT NO	TYPE FUNDS
2	OHIO		

232
328

STARK COUNTY
STA-30-15.66

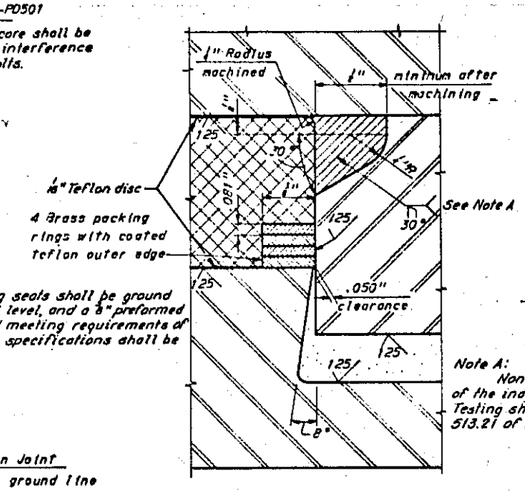


PLAN



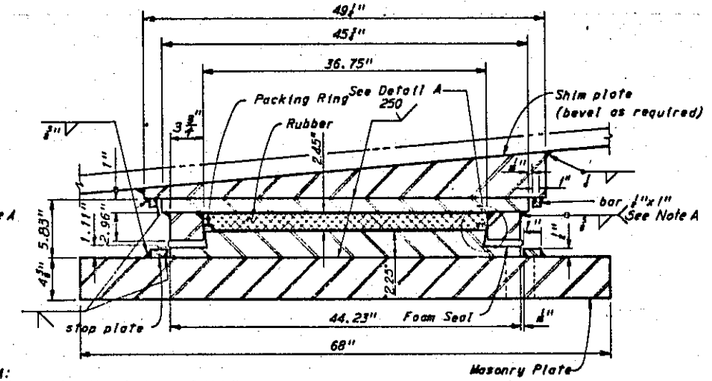
ELEVATION

Note:
Bearing seals shall be ground smooth and level, and a ⅛" preformed bearing pad meeting requirements of 711.21 of the specifications shall be used.

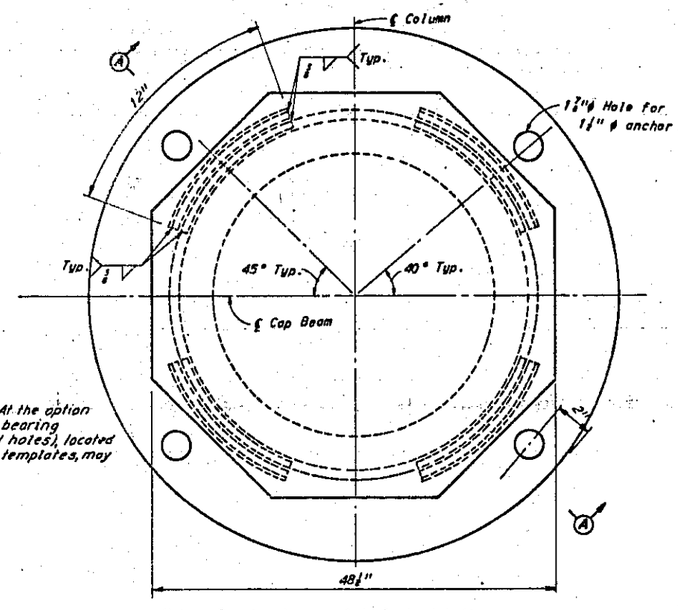


DETAIL A

Note A:
Non-destructive testing of 100% of the indicated welds shall be made. Testing shall be in accordance with 513.21 of the specifications.

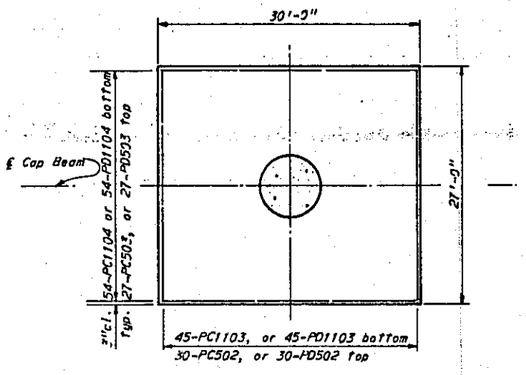


SECTION A-A

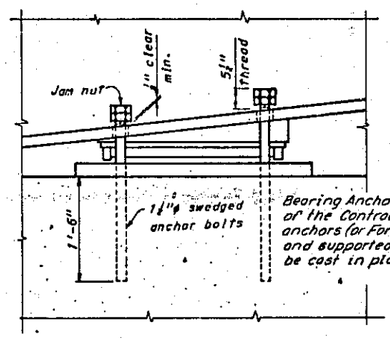


Note: Bearing is symmetrical about both axes.

PLAN



FOOTING PLAN



Bearing Anchors: At the option of the Contractor, bearing anchors (or Formed holes), located and supported by templates, may be cast in place.

ANCHOR BOLT DETAIL

Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bolt setting.
(N) denotes North Column - (S) denotes South Column
Bars marked PC are for North Column
Bars marked PD are for South Column
For footing layout see Sheet 1/20.
For Cap Beam details see Sheet 9/20.
For reinforcement schedule see Sheet 19/20.
Minimum reinforcing bar laps shall be 30 bar diameters.

BEARING DEVICE DETAILS
(Bearing Capacity-1850 Tons)

Bearing Notes:
In addition to the provisions of Section 500 of the Specifications, and particularly those of 501.04, additionally the bearing fabricator shall have had at least 6 years of experience in constructing, testing and furnishing bearings similar to those described herein for other transportation projects.

Notes:

The rubber used in the bearings shall be manufactured to the highest standards from a compound based on natural rubber and free from fillers other than carbon black and zinc oxide in sufficient quantity to give the required hardness. An antiozonisant must be included in sufficient quantity and of such a type that a sample of the rubber tested in accordance with ASTM D 1149 will show no evidence of cracking when subjected to a concentration of one part per million ozone and a strain of 20 per cent.

The rubber shall have the following characteristics.

Hardness	50 - 55 Shore A durometer
Min. tensile strength	2700 lbs./sq. in.
Min. tear strength	285 lbs./sq. in.
Elongation at break	600%
Max. compression set.	25% of original thickness (ASTM D 395 Method B)

The bearings shall show no detectable increase in stiffening rate after 168 hours at - 30° C. (-22°F.) and shall be no more than twice as stiff at this temperature as compared with +20° C. (+68°F.)

All structural steel in these bearings shall conform to ASTM A-36. Shim and masonry plate shall conform to ASTM A-588.

When assembling, the rubber should be entirely coated with a suitable lubricant which will have no adverse effect on materials in the bearings. A minimum of four brass split sealing rings, coated with tetra fluoro-ethylene fluorocarbon resin on their outer edges, shall be placed so as to prevent any possibility of extrusion between piston and cylinder. Split lines shall be offset 90° relative to each other.

The piston and cylinder assembly shall be sealed with a heavy polyurethane foam impregnated throughout with a special solution of petroleum resins, isobutylene and isoprene. This seal shall be held in compression by top screws holding the assembly together for shipping and installation. These screws shall be designed to break away under load.

Welds shall be made and tested in accordance with the standard specifications. The welds shall be full fillet welds and the preparation for the internal weld of the cylinder shall be as shown.

Mating horizontal surfaces in the bearing plates shall have a finish not less than USASI #250. This same limit applies to the outer surfaces of the bearings and bearing of sole plates in direct contact with the bearings.

All external metal shall be metalized.

In addition to the requirements of the standard specifications, certified test reports from a recognized testing laboratory acceptable to the engineer, showing compliance with the above requirements, shall be furnished by the contractor at no extra cost to the State. Bearing devices shall be delivered to the job site at least 15 days prior to the date required for installation in order that tests may be conducted on the units to be used if required by the engineer.

No separate measurement and payment will be made for furnishing and placing the confined elastomer utilized in bearing devices, it being understood that the payment therefore is included in the payment made for structural steel, Item 513.

H.N.T.B. BRIDGE NO. 18 — Revised 7-31-80 By RAS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF — 10/20
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIER 2

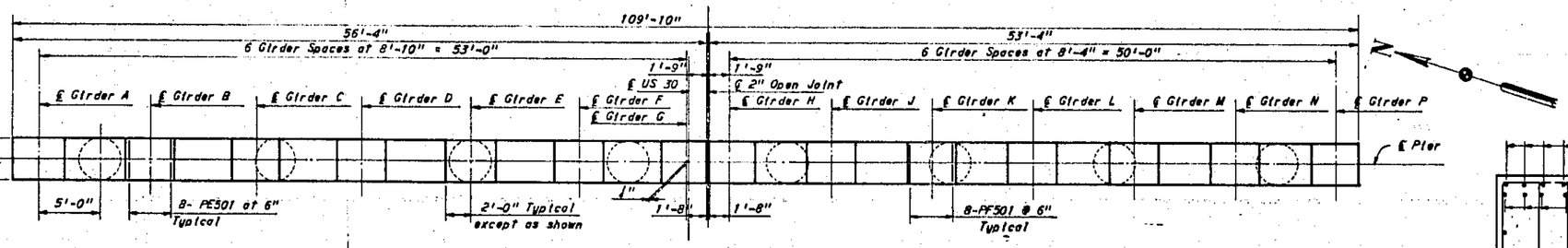
U.S. 30 OVER 11TH STREET
BR NO. STA-30-1595 STA. 1017+06.75
SCALE: 1/8" = 1'-0" STA. 1023+33.25
RELOCATED U.S. 30
CANTON STARK COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
m.a.g. DATE 8-7-70	DATE	C.A.C. DATE 7-27-70	W.J.K. DATE 11-22-11	1668.

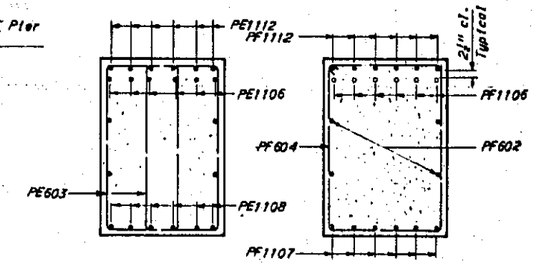
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
5	OHIO		

233
328

STARK COUNTY
STA-30-15.66

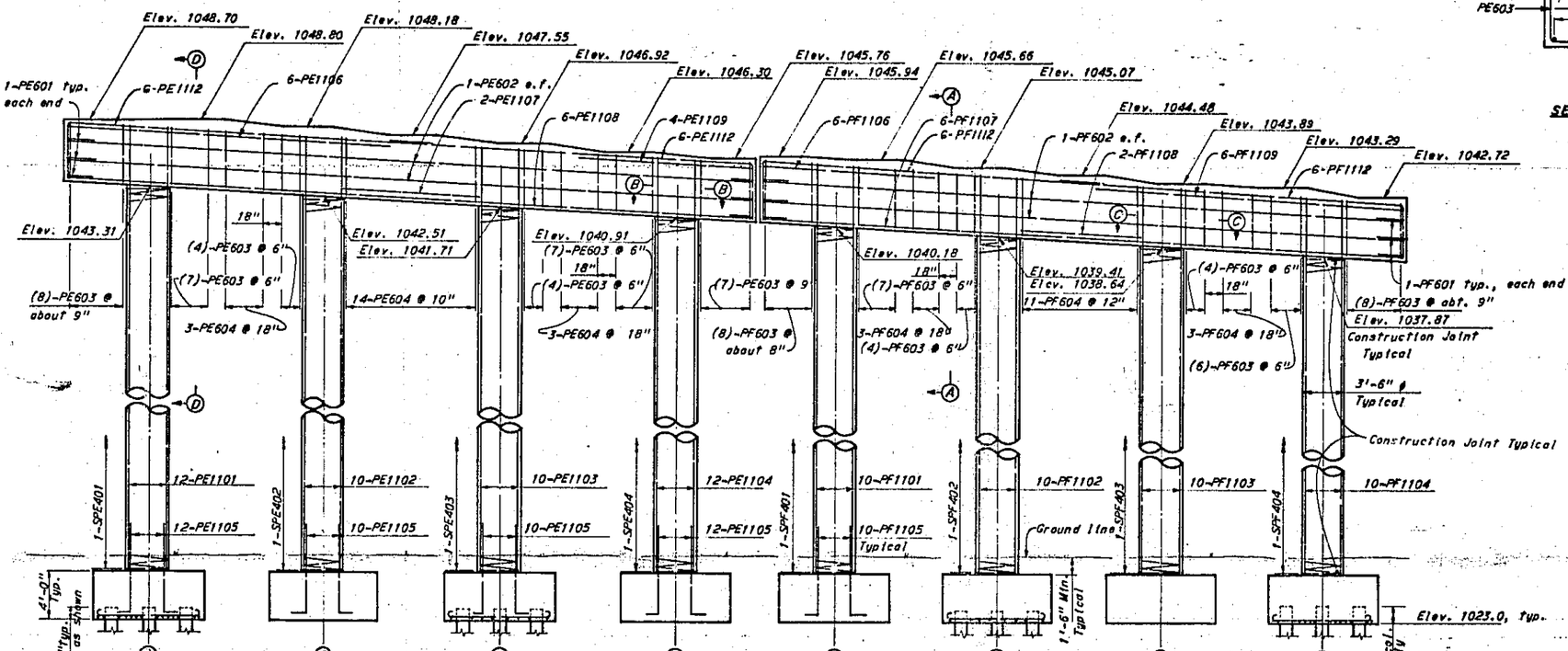


PLAN

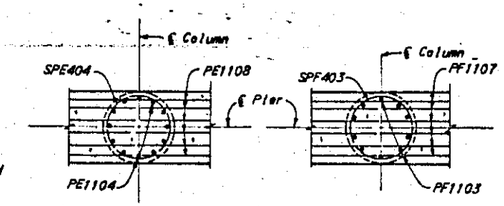


SECTION D-D

SECTION A-A

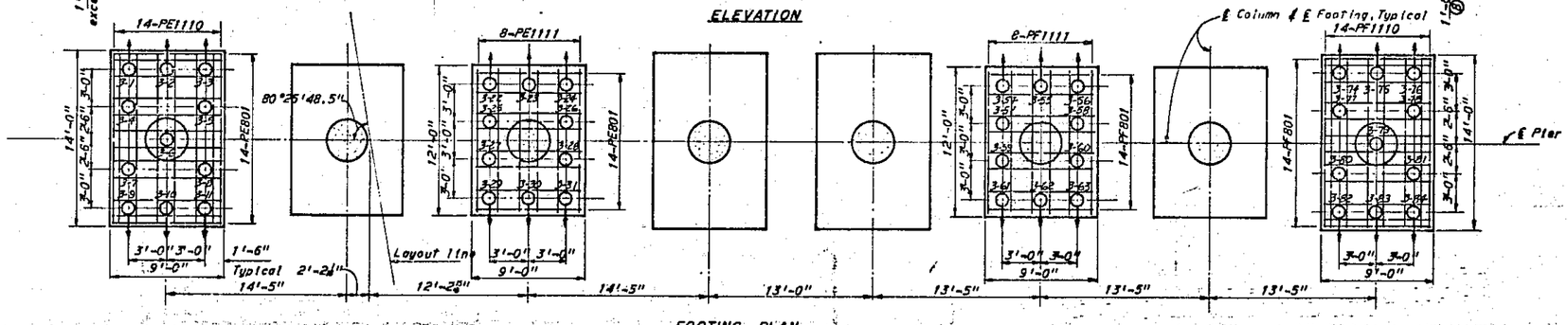


ELEVATION



SECTION B-B

SECTION C-C



FOOTING PLAN

Notes:

PE501 and PF501 bars shall be placed 2½" ± below top of cap beam.

The stirrups within 4 feet of ℄ columns and in cantilever spans shall be placed with the hooks in the bottom of the cap beam. All others shall be placed with hooks in the top.

All piles are 12" ϕ cast-in-place concrete.

Pile dimensions are measured along bottom of footing.

○— Denotes battered pile

All battered piles shall be battered 3 in 12

e.f. Denotes each face

(*) Denotes number of sets of 2 stirrup bars required. (7)-PE603 denotes 7 sets of 2-PE603.

Footing ④ is identical to footing ①.

Footing ② is identical to footing ③.

Footing ⑤ is identical to footing ⑧ except as noted.

Footing ⑦ is identical to footing ⑥.

For reinforcement schedule see Sheet 281.

Minimum reinforcing bar laps shall be 30 bar diameters.

H.N.T.B. BRIDGE NO. 18 — Revised 2-29-72 By RAS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF — 11/20
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIER 3

U.S. 30 OVER 11TH STREET

BR. NO. STA-30-15.95 — STA. 1017+06.75
SCALE: 3/16" = 1'-0" — STA. 1023+33.25

RELOCATED U.S. 30

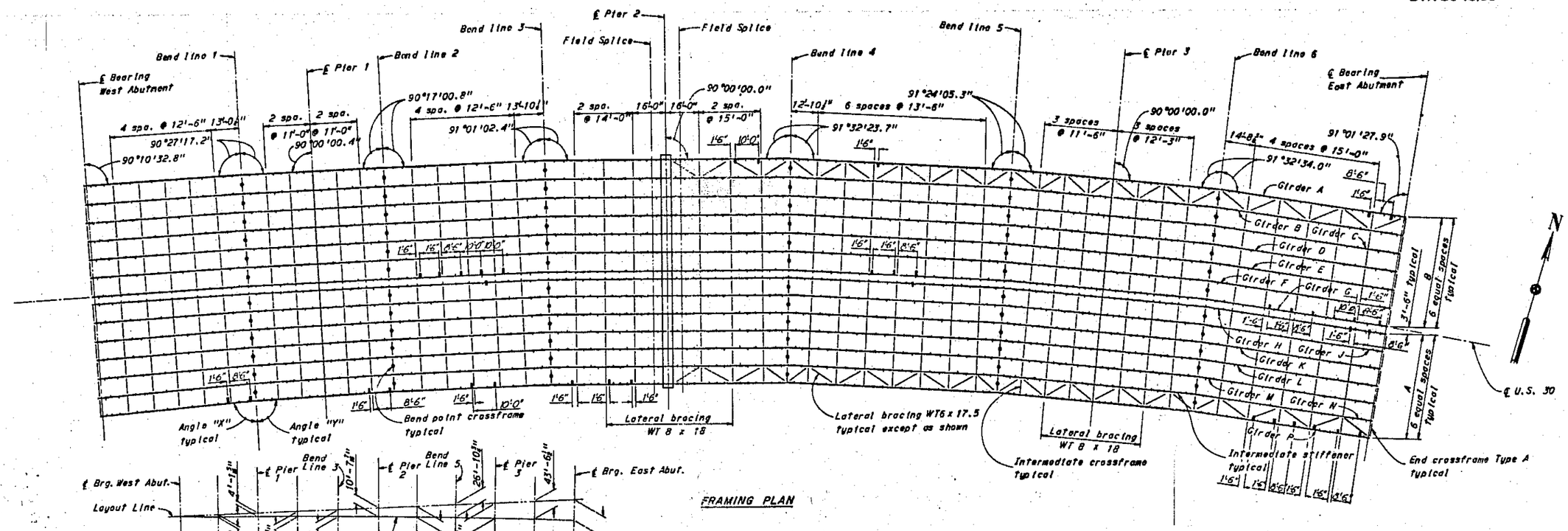
CANTON STARK COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
T.M.G.		C.P.C.	M.K.	
DATE 7-23-70	DATE	DATE 8-18-70	DATE 8-28-71	1668

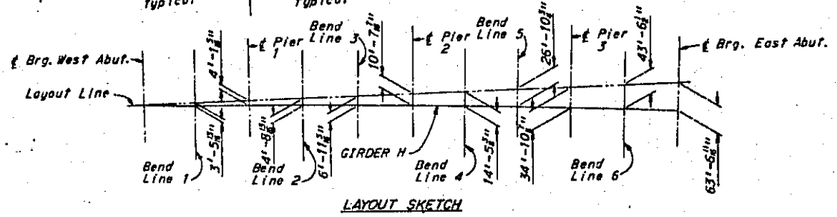
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
5	OHIO		

234
328

STARK COUNTY
STA-30-15.56



FRAMING PLAN



LAYOUT SKETCH

GIRDER ANGLES "X" AND "Y"						
	WEST ABUTMENT	BEND AND SPLICE LINE 1		PIER 1	BEND AND SPLICE LINE 2	
GIRDER	ANGLE "Y"	ANGLE "X"	ANGLE "Y"	ANGLE "X"	ANGLE "X"	ANGLE "Y"
H	89°49'29.3"	89°32'40.7"	89°32'41.6"	90°00'00.8"	89°43'00.4"	89°42'59.2"
J	90°06'14.9"	89°15'55.1"	89°41'27.0"	89°51'15.4"	89°34'15.0"	
K	90°23'02.6"	88°59'07.4"	89°50'12.7"	89°42'29.7"	89°25'29.3"	
L	90°39'52.8"	88°42'17.2"	89°59'03.3"	89°33'39.1"	89°16'38.7"	
M	90°56'45.4"	88°25'24.6"	90°07'52.6"	89°24'49.8"	89°07'49.4"	
N	91°13'40.4"	88°08'29.6"	90°16'43.5"	89°15'58.9"	88°58'58.5"	
P	91°30'37.7"	87°51'32.3"	90°25'39.7"	89°07'02.7"	88°50'02.3"	89°42'59.2"

GIRDER SPACING		
	A	B
WEST ABUT.	53'-2⅜"	53'-0"
BEND 1	51'-0⅛"	53'-0"
PIER 1	50'-6⅜"	53'-0"
BEND 2	50'-0"	53'-0"
BEND 3	50'-0⅛"	53'-0⅛"
PIER 2	50'-0"	53'-0"
BEND 4	50'-0⅛"	53'-0⅛"
BEND 5	50'-0⅛"	53'-0⅛"
PIER 3	50'-0"	53'-0"
BEND 6	50'-0⅛"	53'-0⅛"
EAST ABUT.	50'-0⅛"	53'-0⅛"

Notes:

Girder angles shown on plan for Girder A are typical for all girders except as shown in table of girder angles.

Dimensions to crossframes are along Girder A. All crossframes are set perpendicular to Girder A.

Top and bottom flanges are identical in size and material.

All stiffeners shall be placed normal to girder flanges.

All intermediate stiffener to web welds shall be 4" continuous fillets on both sides of stiffeners.

For detail of field splices see Sheet CD4.

Intermediate stiffeners shall be Pls. 6 x 8, (ASTM A36).

Intermediate stiffeners at crossframes shall be placed in pairs, except that no intermediate stiffeners shall be placed on the exterior face of Girders A and P.

For Camber and Deflection Table see Sheet 17/20.

Intermediate stiffeners shall be placed as shown on framing plan, equally spaced between crossframes or crossframes and bearing stiffeners or crossframes and splices, or splice and web of cap beam.

The girders shall be fabricated to lines parallel to profiles formed by top of pavement elevations directly over girders, plus the camber required to compensate for dead load deflection.

The allowance to be made in screed settings to compensate for dead load deflections due to concrete and asphalt wearing course are to be made above or below the top of the pavement elevations as required. Screeds may require further adjustment due to irregularities in fabricated steel.

For details of curb plates at concrete bridge railing see Ohio Standard Drawing SD-1-69, Sheet 2 of 4.

Intermediate stiffeners shall have a tight fit with the tension flange and may have either a tight fit with, or be welded to the compression flange with fillet welds on both sides, the same size as the web to flange weld of the same location. Intermediate stiffeners which are not placed in pairs shall have a tight fit with the tension flange and shall be welded to the compression flange with fillet welds on both sides, the same size as the web to flange weld of the same location.

For intermediate crossframe details see Sheet 15/20.

All crossframes are intermediate crossframes unless shown otherwise.

For details of roadway end dam, see Ohio Standard Drawing SD-1-69, Sheet 1 of 4, and Sheet CD5.

For bend point crossframe details see Sheet 16/20.

—•— Denotes bend point crossframe.

For details of standard scupper see Ohio Drawing SD-1-69, Sheet 3 of 4.

For underpass light support details see Lighting Plans.

For end crossframe Type A details see Sheet CD5.

* Denotes Ohio standard scupper, to be placed as shown.

For lateral bracing connection details see Sheet 13/20.

All structural steel shall be painted in accordance with Item 514 of the specifications.

H.N.T.B. BRIDGE NO. 18 — Revised 3-23-73 By RAS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF — 12/20
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

FRAMING PLAN

U.S. 30 OVER 11TH STREET

BR. NO. STA-30-1595 — STA. 1017+06.75
SCALE: 1" = 25'-0" — STA. 1023+33.25

RELOCATED U.S. 30

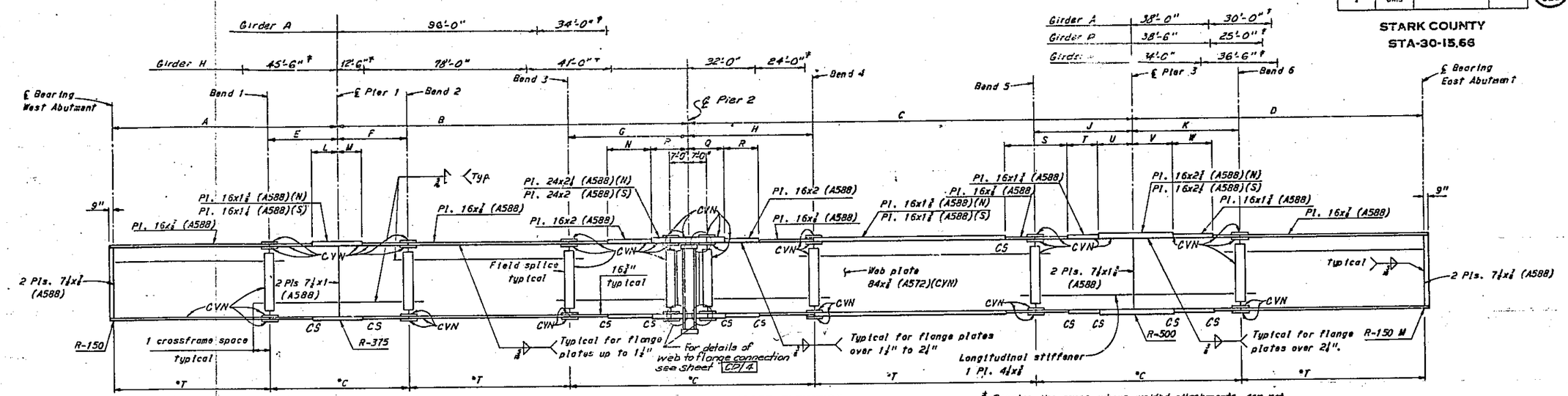
CANTON — STARK COUNTY — OHIO

DRAWN CAC	TRACED	CHECKED M.J.J.	REVIEWED M.J.R.	REVISED
DATE 6-18-70	DATE	DATE 5-23-72	DATE 11-28-71	1658

FED ROAD DIV NO	STATE	FEDERAL AID PROJECT NO	TYPE FUNDS
3	OHIO		

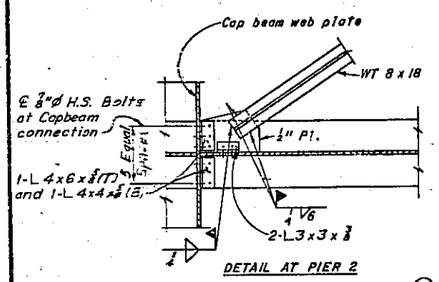
235 / 328

STARK COUNTY
STA-30-15.66

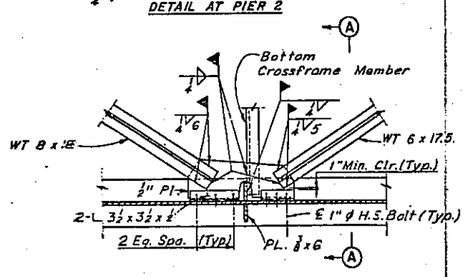


GIRDER ELEVATION

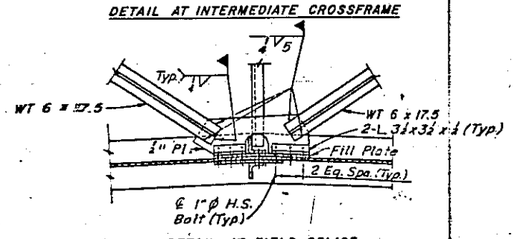
† Denotes the range where welded attachments can not be made on the top flange of the fascia girder indicated.
CS - indicates butt weld subject to compressive stress only.



DETAIL AT PIER 2



DETAIL AT INTERMEDIATE CROSSFRAME



DETAIL AT FIELD SPLICE

LATERAL BRACING CONNECTION DETAILS

All bolts are 1" ø high strength, ASTM A325, except as noted.

GIRDER DIMENSIONS

GIRDER	A	B	C	D	E	F	G	H	J	K
A	109'-6 1/4"	68'-11 7/8"	215'-5 5/8"	140'-9 5/8"	33'-5 1/4"	33'-5 1/4"	57'-11 1/4"	60'-5 1/4"	48'-3 11/16"	51'-5 1/4"
B	109'-4 1/4"	68'-6 3/8"	214'-7"	140'-2 3/8"	33'-4 1/4"	33'-2 3/8"	57'-9 3/8"	60'-2 1/4"	48'-1 1/4"	51'-2 1/4"
C	109'-2 1/4"	68'-1 1/8"	213'-8 1/4"	139'-6 1/4"	33'-3 1/4"	33'-2 1/8"	57'-7 11/16"	59'-11 3/8"	47'-10 1/4"	50'-11 3/8"
D	109'-0 1/4"	67'-8 11/16"	212'-9 1/4"	138'-11 1/4"	33'-2 3/8"	33'-1 13/16"	57'-5 15/16"	59'-8 1/4"	47'-7 1/4"	50'-8 11/16"
E	108'-10 1/4"	67'-3 1/4"	211'-10 1/8"	138'-3 3/8"	33'-1 1/2"	33'-1 1/4"	57'-3 1/4"	59'-5 1/8"	47'-5 3/8"	50'-5 1/4"
F	108'-8 1/4"	66'-11 1/4"	210'-11 1/4"	137'-7 3/8"	33'-0 1/4"	33'-0 3/8"	57'-2"	59'-3"	47'-2 9/16"	50'-3"
G	108'-6 1/4"	66'-6 1/4"	210'-0 3/8"	137'-0 3/8"	33'-0 1/4"	33'-0"	57'-0 1/4"	59'-0 3/8"	47'-0 1/2"	50'-0 1/4"
H	108'-5 1/4"	66'-4 1/2"	209'-8 1/4"	136'-9 3/8"	32'-11 11/16"	32'-11 13/16"	56'-11 1/2"	58'-11 1/4"	46'-11 1/16"	49'-11"
J	108'-3 3/8"	65'-11 15/16"	208'-10"	136'-2 1/4"	32'-10 1/2"	32'-11 3/16"	56'-9 3/16"	58'-8 1/2"	46'-8 3/16"	49'-8 3/8"
K	108'-1 3/8"	65'-7 1/4"	207'-11 3/4"	135'-6 5/8"	32'-10 1/16"	32'-10 11/16"	56'-7 15/16"	58'-5 11/16"	46'-6 1/4"	49'-5 3/8"
L	107'-11 3/16"	65'-2 1/2"	207'-1 1/4"	134'-11 5/8"	32'-9 1/16"	32'-10 3/16"	56'-6 1/16"	58'-3"	46'-3 1/4"	49'-2 15/16"
M	107'-9 11/16"	64'-10 3/16"	206'-3 1/4"	134'-4 3/8"	32'-8 1/4"	32'-9 1/4"	56'-4 3/8"	58'-0 3/8"	46'-1 3/8"	49'-0 1/4"
N	107'-7 1/8"	64'-5 11/16"	205'-4 5/16"	133'-9 1/4"	32'-7 3/16"	32'-8 1/16"	56'-2 1/4"	57'-9 1/4"	45'-10 1/4"	48'-9 3/16"
P	107'-6 1/16"	64'-1 3/16"	204'-6 11/16"	133'-2 1/4"	32'-6 1/16"	32'-7 1/8"	56'-0 3/16"	57'-6 5/16"	45'-8 1/16"	48'-6 1/16"

FLANGE DIMENSIONS

GIRDER	L	M	N	P	Q	R	S	T	U	V	W
A thru D	13'-0"	11'-0"	21'-0"	18'-0"	17'-0"	16'-0"	30'-0"	15'-0"	17'-0"	19'-0"	19'-0"
E thru G	13'-0"	11'-0"	20'-0"	18'-0"	16'-0"	16'-0"	32'-0"	15'-0"	15'-0"	18'-0"	18'-0"
H thru K	10'-0"	9'-0"	19'-0"	16'-0"	16'-0"	16'-0"	36'-0"	14'-0"	13'-0"	16'-0"	18'-0"
L thru P	10'-0"	9'-0"	19'-0"	16'-0"	16'-0"	16'-0"	35'-0"	14'-0"	13'-0"	16'-0"	18'-0"

ROCKER DIMENSIONS

ROCKER NO.	A	B	C	D	F	G	H	K	L	M	R	T	Y	WEIGHT (lbs)
R-150M	3"	14"	3"	2 1/2"	1/4"	8 1/2"	14 1/4"	11 1/2"	22"	19"	10"	1 1/2"	1 3/4"	440
R-375	3 1/4"	20"	3 1/2"	3 1/4"	1"	12"	21 1/4"	14 1/2"	28"	25"	14"	3 1/2"	1 13/16"	1180
R-500	4"	22"	4"	4"	1 1/8"	12"	22 1/8"	16"	33"	30"	15"	3 1/2"	1 9/16"	1620

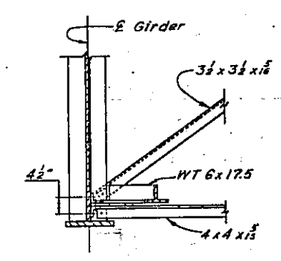
Notes:

Longitudinal stiffeners are located on inside face of girders only.

Longitudinal stiffeners shall be placed to clear field splices, bearing stiffeners, and intermediate stiffeners by 1/4".

(N) denotes North roadway and Girders A thru G.
(S) denotes South roadway and Girders H thru P.
All structural steel shown is A.S.T.M. A36 except as noted as A572 or A588.
For other notes see Sheet 12/20.
*T denotes area of tension in the bottom flange. The top flange in these areas are in compression.
*C denotes area of compression in bottom flange.
CVN, see Sheet ON1.

In lieu of ASTM A588 structural steel the Contractor may use ASTM A572 Grade 50 structural steel for plate thicknesses up to 2" inclusive.



SECTION A-A

Notes:

The table of Rocker Dimensions applies to the standard details shown on Ohio Standard Drawing RB-1-55.

For details of R-150 rocker see Ohio Standard Drawing RB-1-55.

For details of support at Pier 2 see Sheet 10/20.

H.N.T.B. BRIDGE NO. 18 — Revised 3-23-79 By RAS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF — 13/20
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

GIRDER ELEVATION

U.S. 30 OVER 11TH STREET

BR. NO. STA-30-15.95 — STA. 1017+06.75
SCALE: NONE — STA. 1023+33.25

RELOCATED U.S. 30

CANTON STARK COUNTY OHIO

DRAWN CAC	TRACED	CHECKED	REVIEWED	REVISED
DATE 6-20-70	DATE	DATE	DATE	

1868

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

236
328

STARK COUNTY
STA-30-15.66

TOP OF PORTLAND CEMENT CONCRETE ELEVATIONS

Girder	West Abutment	.10	.20	.30	.40	.50	.60	.70	Field Splice 1	.80	.90	Pier 1	.10	Field Splice 2	.20	.30	.40	.50	.60	Field Splice 3	.70	.80	.90	Field Splice 4	Pier 2
A	1058.68	1058.71	1058.74	1058.76	1058.79	1058.82	1058.84	1058.87	1058.87	1058.90	1058.92	1058.95	1058.99	1059.03	1059.03	1059.07	1059.13	1059.18	1059.24	1059.27	1059.30	1059.35	1059.41	1059.45	1059.47
B	1058.92	1058.94	1058.96	1058.99	1059.01	1059.04	1059.06	1059.09	1059.09	1059.11	1059.14	1059.16	1059.20	1059.24	1059.24	1059.27	1059.33	1059.38	1059.44	1059.47	1059.49	1059.52	1059.56	1059.59	1059.61
C	1058.73	1058.74	1058.75	1058.76	1058.77	1058.79	1058.80	1058.82	1058.82	1058.83	1058.84	1058.85	1058.87	1058.89	1058.89	1058.91	1058.94	1058.98	1059.02	1059.04	1059.05	1059.06	1059.08	1059.10	1059.11
D	1058.54	1058.54	1058.54	1058.54	1058.54	1058.54	1058.54	1058.54	1058.54	1058.54	1058.54	1058.54	1058.54	1058.54	1058.54	1058.54	1058.55	1058.57	1058.59	1058.61	1058.60	1058.60	1058.61	1058.61	1058.62
E	1058.35	1058.34	1058.32	1058.31	1058.30	1058.29	1058.28	1058.27	1058.27	1058.25	1058.24	1058.23	1058.21	1058.19	1058.19	1058.17	1058.17	1058.17	1058.17	1058.17	1058.16	1058.14	1058.13	1058.12	1058.12
F	1058.16	1058.13	1058.11	1058.08	1058.06	1058.04	1058.01	1057.99	1057.99	1057.96	1057.94	1057.91	1057.88	1057.84	1057.84	1057.80	1057.78	1057.76	1057.75	1057.74	1057.72	1057.68	1057.65	1057.63	1057.62
G	1057.85	1057.83	1057.80	1057.78	1057.75	1057.72	1057.70	1057.67	1057.67	1057.65	1057.62	1057.59	1057.55	1057.51	1057.51	1057.47	1057.43	1057.39	1057.35	1057.33	1057.31	1057.27	1057.23	1057.21	1057.19
H	1057.88	1057.86	1057.83	1057.81	1057.78	1057.75	1057.73	1057.70	1057.70	1057.68	1057.65	1057.62	1057.58	1057.54	1057.54	1057.50	1057.46	1057.42	1057.38	1057.35	1057.34	1057.30	1057.33	1057.31	1057.30
J	1057.87	1057.84	1057.81	1057.78	1057.75	1057.72	1057.69	1057.66	1057.67	1057.63	1057.60	1057.57	1057.53	1057.48	1057.48	1057.43	1057.39	1057.35	1057.31	1057.28	1057.26	1057.19	1057.13	1057.10	1057.08
K	1057.68	1057.64	1057.60	1057.55	1057.51	1057.48	1057.44	1057.40	1057.40	1057.36	1057.32	1057.27	1057.21	1057.16	1057.15	1057.09	1057.03	1056.96	1056.91	1056.87	1056.84	1056.76	1056.68	1056.64	1056.61
L	1057.49	1057.44	1057.38	1057.33	1057.28	1057.23	1057.18	1057.14	1057.14	1057.08	1057.03	1056.98	1056.90	1056.83	1056.83	1056.74	1056.66	1056.58	1056.51	1056.47	1056.42	1056.33	1056.23	1056.18	1056.14
M	1057.30	1057.23	1057.17	1057.11	1057.05	1056.99	1056.93	1056.87	1056.87	1056.81	1056.74	1056.68	1056.59	1056.50	1056.50	1056.40	1056.30	1056.20	1056.11	1056.06	1056.01	1055.89	1055.78	1055.72	1055.68
N	1057.11	1057.03	1056.96	1056.89	1056.81	1056.74	1056.67	1056.61	1056.61	1056.53	1056.46	1056.38	1056.27	1056.17	1056.17	1056.05	1055.93	1055.82	1055.71	1055.65	1055.59	1055.46	1055.33	1055.26	1055.21
P	1056.92	1056.83	1056.75	1056.66	1056.58	1056.50	1056.42	1056.34	1056.34	1056.26	1056.17	1056.09	1055.96	1055.84	1055.84	1055.70	1055.57	1055.44	1055.31	1055.24	1055.18	1055.02	1054.89	1054.81	1054.75

TOP OF PORTLAND CEMENT CONCRETE ELEVATIONS

Girder	Pier 2	Field Splice 5	.10	.20	Field Splice 6	.30	.40	.50	.60	.70	Field Splice 7	.80	.90	Pier 3	.10	.20	.30	Field Splice 8	.40	.50	.60	.70	.80	.90	East Abutment
A	1059.47	1059.49	1059.54	1059.60	1059.65	1059.66	1059.69	1059.69	1059.62	1059.46	1059.33	1059.28	1059.07	1058.85	1058.68	1058.50	1058.31	1058.18	1058.12	1057.91	1057.70	1057.48	1057.24	1056.99	1056.72
B	1059.61	1059.63	1059.68	1059.76	1059.83	1059.83	1059.83	1059.81	1059.73	1059.60	1059.48	1059.43	1059.20	1058.95	1058.79	1058.63	1058.46	1058.35	1058.27	1058.04	1057.81	1057.58	1057.34	1057.10	1056.86
C	1059.11	1059.13	1059.16	1059.22	1059.27	1059.27	1059.24	1059.20	1059.11	1058.97	1058.86	1058.80	1058.57	1058.33	1058.17	1058.00	1057.83	1057.72	1057.64	1057.42	1057.19	1056.95	1056.71	1056.47	1056.23
D	1058.62	1058.62	1058.64	1058.67	1058.71	1058.70	1058.65	1058.58	1058.48	1058.34	1058.23	1058.18	1057.94	1057.70	1057.54	1057.37	1057.21	1057.10	1057.02	1056.79	1056.56	1056.32	1056.09	1055.85	1055.60
E	1058.12	1058.12	1058.12	1058.13	1058.14	1058.13	1058.06	1057.97	1057.86	1057.72	1057.60	1057.55	1057.31	1057.07	1056.91	1056.75	1056.58	1056.47	1056.39	1056.16	1055.93	1055.70	1055.46	1055.22	1054.98
F	1057.62	1057.61	1057.60	1057.59	1057.58	1057.56	1057.47	1057.36	1057.23	1057.09	1056.98	1056.92	1056.69	1056.45	1056.28	1056.12	1055.95	1055.84	1055.76	1055.53	1055.30	1055.07	1054.83	1054.59	1054.35
G	1057.19	1057.18	1057.14	1057.09	1057.04	1057.03	1056.94	1056.83	1056.69	1056.53	1056.39	1056.35	1056.14	1055.91	1055.74	1055.57	1055.38	1055.25	1055.18	1054.98	1054.76	1054.53	1054.30	1054.05	1053.79
H	1057.30	1057.28	1057.24	1057.18	1057.11	1057.11	1057.04	1056.94	1056.81	1056.64	1056.48	1056.44	1056.25	1056.02	1055.86	1055.67	1055.47	1055.34	1055.27	1055.08	1054.88	1054.65	1054.42	1054.16	1053.90
J	1057.08	1057.06	1057.03	1056.99	1056.95	1056.93	1056.81	1056.67	1056.53	1056.39	1056.27	1056.22	1055.98	1055.74	1055.58	1055.41	1055.25	1055.14	1055.06	1054.83	1054.60	1054.36	1054.13	1053.89	1053.64
K	1056.61	1056.59	1056.54	1056.47	1056.42	1056.40	1056.25	1056.10	1055.94	1055.79	1055.68	1055.62	1055.39	1055.15	1054.99	1054.82	1054.65	1054.54	1054.46	1054.24	1054.01	1053.77	1053.54	1053.30	1053.05
L	1056.14	1056.11	1056.05	1055.96	1055.89	1055.86	1055.69	1055.52	1055.35	1055.20	1055.09	1055.03	1054.80	1054.56	1054.40	1054.23	1054.06	1053.95	1053.87	1053.65	1053.42	1053.18	1052.94	1052.70	1052.48
M	1055.68	1055.62	1055.55	1055.45	1055.36	1055.33	1055.14	1054.94	1054.76	1054.61	1054.49	1054.44	1054.21	1053.97	1053.80	1053.64	1053.47	1053.36	1053.28	1053.05	1052.82	1052.59	1052.35	1052.11	1051.87
N	1055.21	1055.16	1055.06	1054.93	1054.83	1054.79	1054.58	1054.36	1054.18	1054.02	1053.90	1053.85	1053.62	1053.37	1053.21	1053.05	1052.88	1052.77	1052.69	1052.46	1052.23	1052.00	1051.76	1051.52	1051.28
P	1054.75	1054.69	1054.58	1054.42	1054.30	1054.25	1054.02	1053.80	1053.60	1053.43	1053.31	1053.26	1053.03	1052.80	1052.63	1052.46	1052.29	1052.18	1052.10	1051.87	1051.65	1051.43	1051.19	1050.94	1050.69

GUTTERLINE ELEVATIONS AT TOP OF PORTLAND CEMENT CONCRETE

Location	West Abutment	.10	.20	.30	.40	.50	.60	.70	.80	.90	Pier 1	.10	.20	.30	.40	.50	.60	.70	.80	.90	Pier 2
North Gutterline A	1058.68	1058.72	1058.76	1058.79	1058.82	1058.85	1058.87	1058.89	1058.90	1058.92	1058.95	1059.00	1059.06	1059.11	1059.18	1059.23	1059.27	1059.30	1059.34	1059.39	1059.46
North Gutterline of Median G	1057.85	1057.84	1057.82	1057.80	1057.78	1057.75	1057.71	1057.68	1057.65	1057.62	1057.59	1057.56	1057.54	1057.52	1057.48	1057.44	1057.39	1057.33	1057.28	1057.23	1057.19
South Gutterline of Median H	1057.85	1057.84	1057.82	1057.80	1057.77	1057.75	1057.71	1057.68	1057.65	1057.62	1057.59	1057.56	1057.54	1057.51	1057.48	1057.44	1057.39	1057.33	1057.27	1057.23	1057.19
South Gutterline D	1056.91	1056.84	1056.77	1056.69	1056.61	1056.53	1056.44	1056.35	1056.26	1056.17	1056.09	1055.97	1055.85	1055.74	1055.61	1055.47	1055.32	1055.17	1055.02	1054.88	1054.75

Note:
The gutterline elevations shown have been adjusted for dead load deflections due to the weight of concrete and wearing course and are the elevations required before the concrete deck is placed.
Profile grade is at the top of portland cement concrete.
See note A on Sheet 1/20.

GUTTERLINE ELEVATIONS AT TOP OF PORTLAND CEMENT CONCRETE

Location	Pier 2	.10	.20	.30	.40	.50	.60	.70	.80	.90	Pier 3	.10	.20	.30	.40	.50	.60	.70	.80	.90	East Abutment
North Gutterline	1059.46	1059.56	1059.69	1059.80	1059.88	1059.89	1059.81	1059.62	1059.38	1059.11	1058.84	1058.66	1058.49	1058.32	1058.14	1057.95	1057.74	1057.51	1057.27	1057.00	1056.72
North Gutterline of Median	1057.19	1057.18	1057.18	1057.17	1057.12	1057.02	1056.87	1056.67	1056.43	1056.17	1055.91	1055.73	1055.55	1055.38	1055.19	1055.00	1054.79	1054.57	1054.33	1054.07	1053.79
South Gutterline of Median	1057.19	1057.19	1057.20	1057.19	1057.15	1057.07	1056.91	1056.69	1056.46	1056.17	1055.91	1055.73	1055.55	1055.38	1055.19	1055.00	1054.79	1054.57	1054.32	1054.07	1053.79
South Gutterline	1054.75	1054.61	1054.49	1054.36	1054.19	1053.99	1053.78	1053.56	1053.33	1053.07	1052.80	1052.63	1052.45	1052.27	1052.09	1051.90	1051.69	1051.46	1051.22	1050.96	1050.69

H.N.T.B. BRIDGE NO. 18 — Revised 3-23-79 By RAS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF — 14/20
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PAVEMENT ELEVATIONS

U.S. 30 OVER 11TH STREET
BR. NO. STA-30-15.95 — STA. 1017+06.75
SCALE: — STA. 1023+33.25

RELOCATED U.S. 30

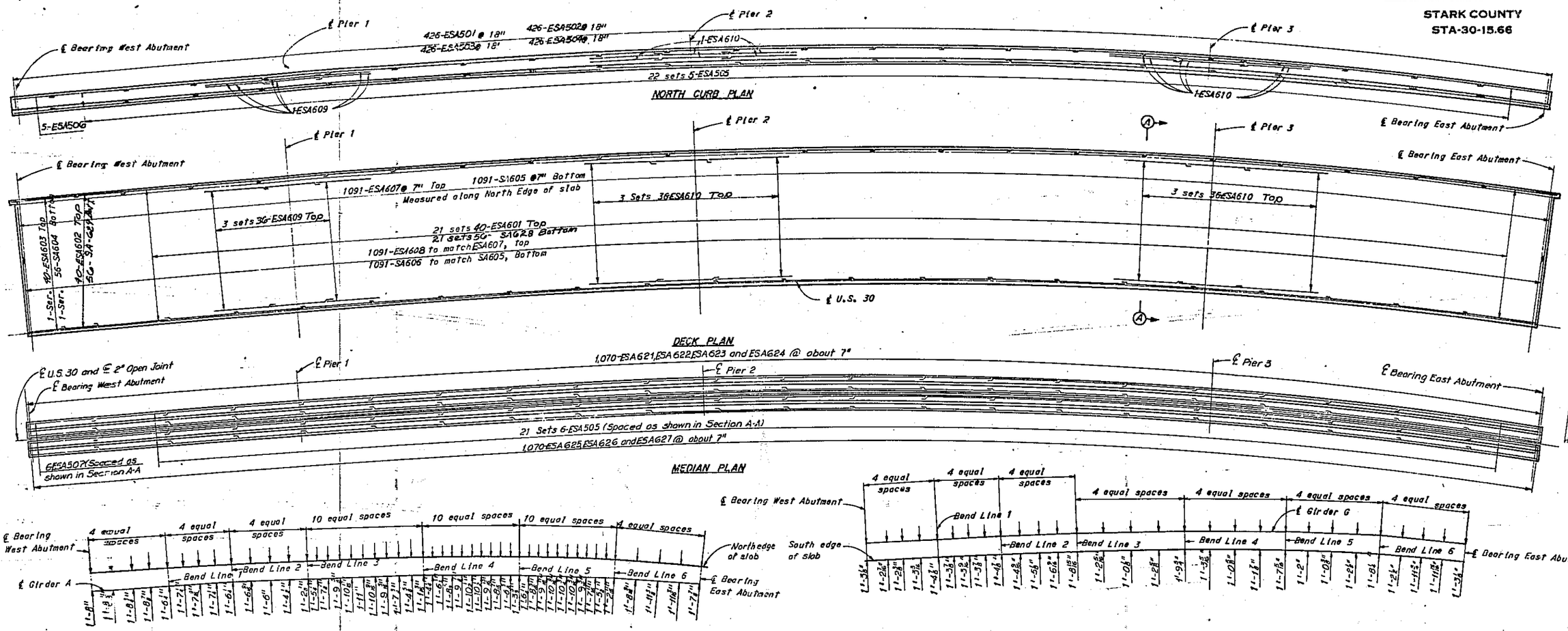
CANTON — STARK COUNTY — OHIO

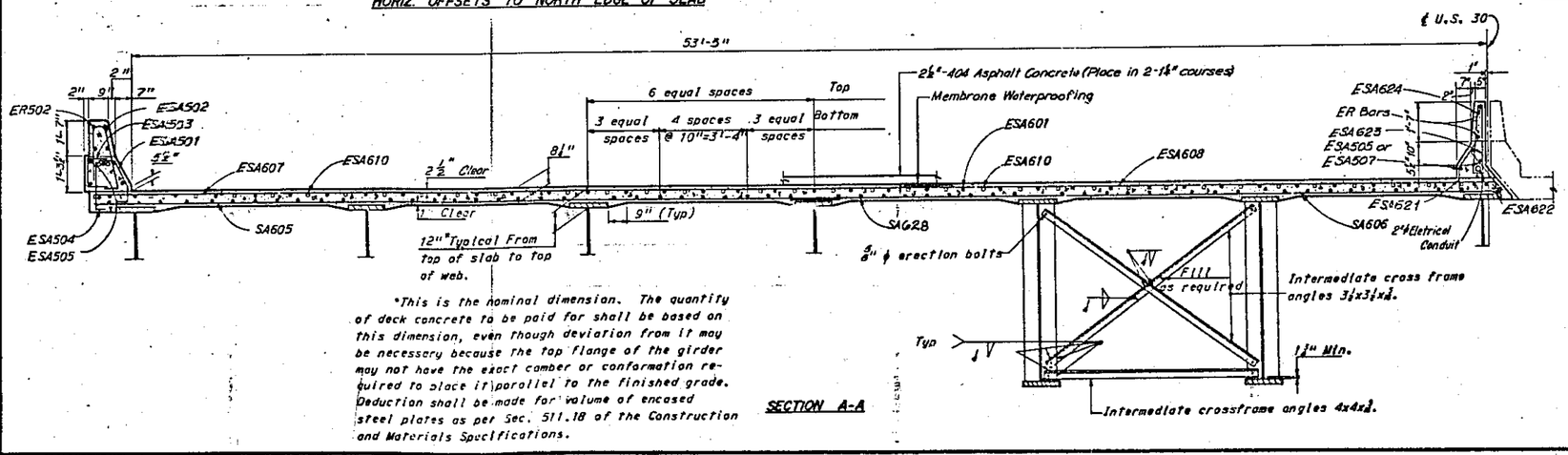
DRAWN CAC	TRACED	CHECKED MAG	REVIEWED MJK	REVISED
DATE 6-23-70	DATE	DATE 7-15-70	DATE 8-23-71	1668

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

237
328

STARK COUNTY
STA-30-15.66





*This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the girder may not have the exact camber or conformation required to place it parallel to the finished grade. Deduction shall be made for volume of encased steel plates as per Sec. 511.18 of the Construction and Materials Specifications.

Notes:

Reinforcing steel shall be adjusted as required to clear scuppers.

For details of light standard support see Sheet L1.

For location of light standards see Sheet 1/20.

A typical haunch width of 9" shall be used for computing quantity of concrete. However, the haunch width may vary between 6" and 12" provided that the slope shall be not more than 1:4 for a haunch less than 9".

For concrete railing details see sheet CD2.

For deflection joint details see sheet CD2.

For median and railing details see Sheet CD2.

For curb and parapet dimensions see Sheet CD5.

Transverse reinforcing steel shall be placed radially to ℄ U.S. 30.

For superelevation transition schema see Sheet 17/20.

Minimum reinforcing bar laps shall be 30 bar diameters.

H.N.T.B. BRIDGE NO. 18 — Revised 2-29-72 By RAS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF — 15/20
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

DECK PLAN

U.S. 30 OVER 11TH STREET

BR. NO. STA-30-1595 — STA. 1017+06.75
SCALE: NONE — STA. 1023+33.25

RELOCATED U.S. 30

CANTON — STARK COUNTY — OHIO

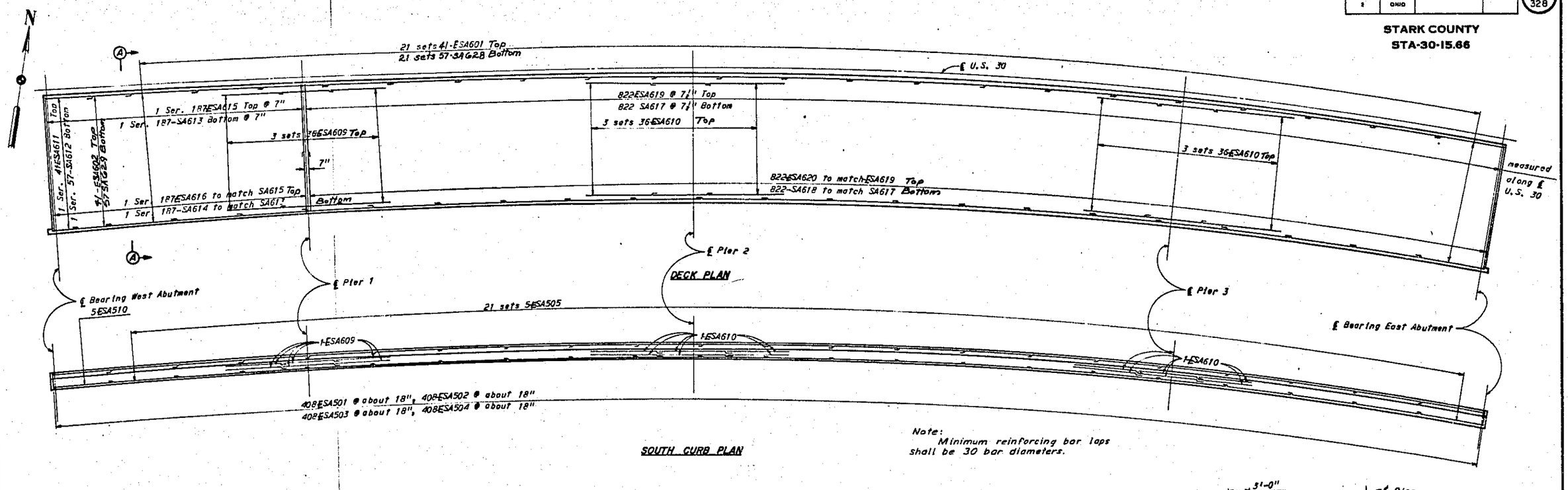
DRAWN R.A.A.	TRACED	CHECKED	REVIEWED	REVISED
DATE 7-28-70	DATE	DATE 7-8-70	DATE 11-23-71	

1668

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE NUMBER
5	OHIO		

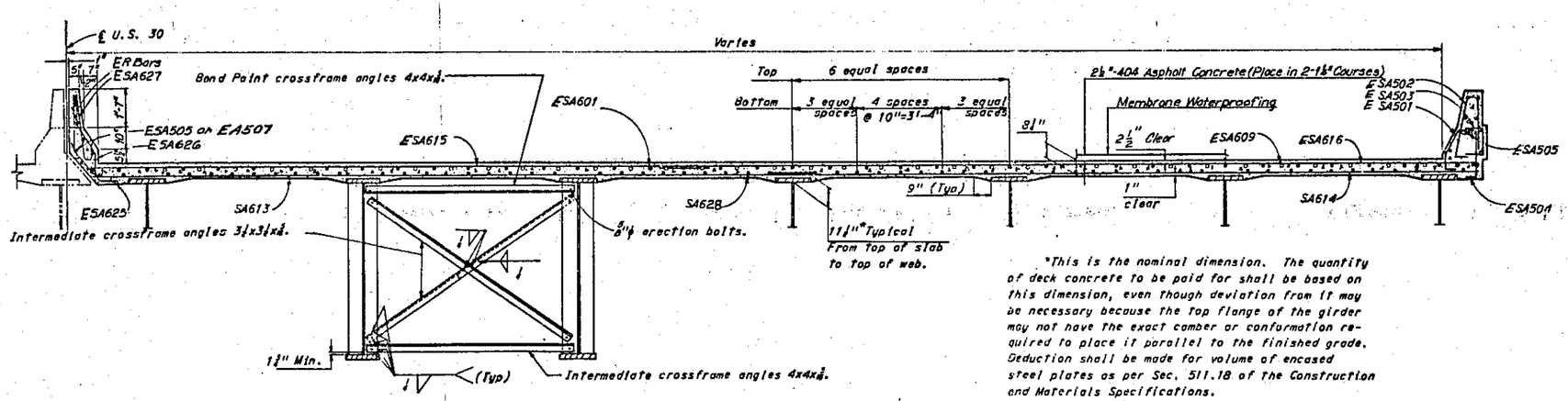
238
328

STARK COUNTY
STA-30-15.66



SOUTH CURB PLAN

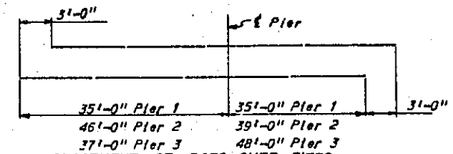
Note:
Minimum reinforcing bar laps shall be 30 bar diameters.



SECTION A-A

*This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the girder may not have the exact camber or conformation required to place it parallel to the finished grade. Deduction shall be made for volume of encased steel plates as per Sec. 511.18 of the Construction and Materials Specifications.

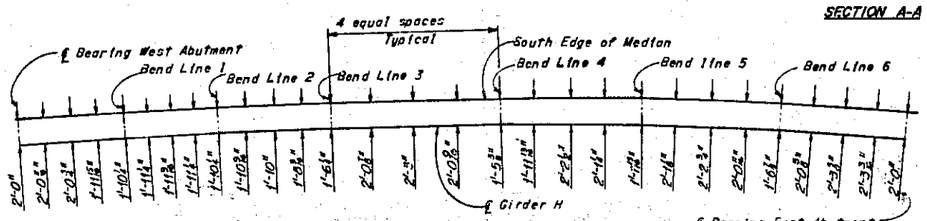
For superelevation transition scheme see Sheet 17/20.



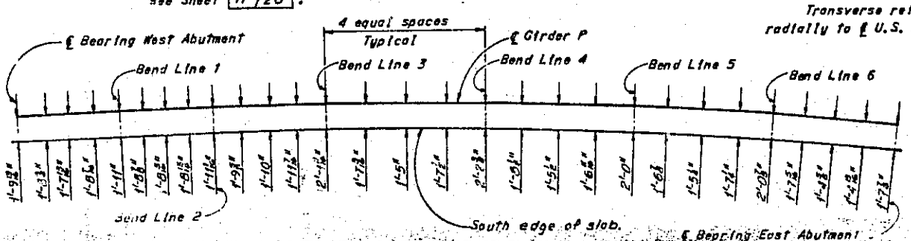
PLACEMENT OF BARS OVER PIERS

Notes:

For Median Plan, see Sheet 15/20.
Reinforcing steel shall be adjusted as required to clear scuppers.
For details of light standard support see Sheet L1.
For location of light standards see Sheet 1/20.
A typical haunch width of 9" shall be used for computing quantity of concrete. However, the haunch width may vary between 6" and 12" provided that the slope shall be not more than 1:4 for a haunch less than 9" in width.
For concrete railing details see Sheet CD2.
For deflection joint details see Sheet CD2.
For median and railing details see Sheet CD2.
For curb and parapet dimensions see Sheet CD5.
Transverse reinforcing steel shall be placed radially to ℄ U.S. 30.



HORIZ. OFFSETS TO NORTH EDGE OF SLAB
Offsets are given to outside of ½" ℄



HORIZ. OFFSETS TO SOUTH EDGE OF SLAB

H.N.T.B. BRIDGE NO. 18 — Revised 2-29-79 By RAS — 16/20

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

DECK PLAN

U.S. 30 OVER 11TH STREET
SR. NO. STA-30-15.95 STA. 1017+06.75
SCALE: NONE STA. 1023+33.25
RELOCATED U.S. 30
CANTON STARK COUNTY OHIO

DRAWN J.D.A.	TRACED	CHECKED CDK	REVIEWED MJK	REVISED
DATE 7/31/70	DATE	DATE 7-9-70	DATE 11-23-71	1668

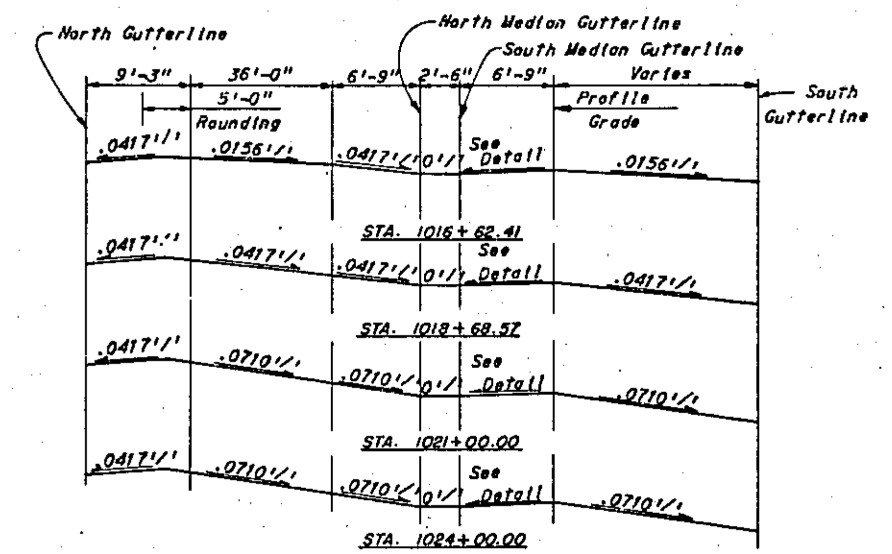
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	TYPE FUNDS
3	OHIO		

239/328

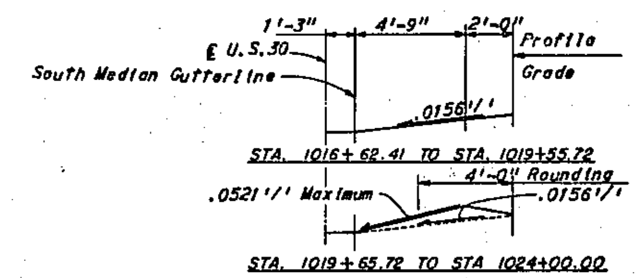
STARK COUNTY
STA-30-15.66

BRIDGE 1595 DEFLECTION AND CAMBER

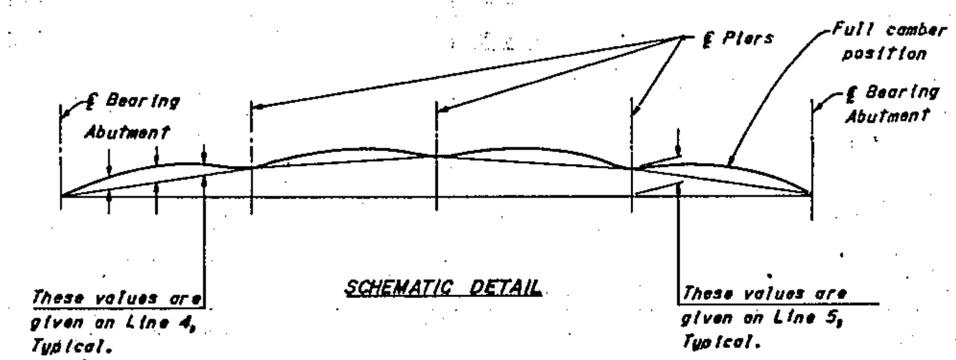
Girder	Line	West Abut.	.10	.20	.30	.40	.50	.60	FS	.80	.90	Pier 1	.10	FS	.30	.40	.50	.60	FS	.80	.90	Pier 2	.10	.20	FS	.40	.50	.60	.70	FS	.90	Pier 3	.10	.20	FS	.40	.50	.60	.70	.80	.90	East Abut.
A	1	0	1/16	1/8	1/8	3/16	1/8	1/8	1/16	0	0	0	1/16	1/8	3/16	1/4	3/16	1/8	1/16	-1/16	-1/16	0	1/4	1/2	13/16	1 1/8	1 3/16	1 1/8	7/8	5/8	1/4	0	-1/16	-1/16	1/16	1/8	1/8	1/4	1/4	1/8	1/8	0
A	2		3/16	3/16	7/16	7/16	7/16	3/16	1/4	1/8	1/16	0	1/8	3/16	5/16	3/8	5/16	3/8	3/16	-1/8	-1/8	0	7/16	1 3/16	1 13/16	2 9/16	2 13/16	2 3/8	2 1/8	1/2	1/2	0	-1/8	-1/16	1/16	1/4	7/16	5/16	5/8	1/2	1/4	
A	3		1/16	1/16	1/16	1/16	0	0	0	0	0	0	-1/8	-1/8	-3/16	-3/8	-5/16	-1/4	-1/4	-3/16	-1/16	0	1 1/8	3 1/4	4 1/4	5 1/8	6 1/4	6 1/4	5 1/4	4 1/2	2	0	1/8	5/8	1 1/8	1 7/16	1 1/2	1 1/8	1 7/8	1 1/4	3/8	
A	4		3/16	1/4	3/8	11/16	5/16	1/16	3/16	1/8	1/16	0	1/16	3/16	3/8	1/2	1/16	1/4	0	-3/8	-1/4	0	2 1/8	4 3/4	6 13/16	9 5/16	10 7/16	10	9 5/8	6 3/16	2 3/4	0	3/8	11/16	1 1/8	1 13/16	2 1/8	2 3/8	2 5/16	1 13/16	1	
A	5											7 1/4"										1'-7 3/4"										1'-8 1/4"										
B	1		1/16	1/8	1/16	3/16	3/16	1/8	1/8	1/16	0	0	1/16	3/16	1/4	1/4	1/4	3/16	1/16	-1/16	-1/16	0	3/16	9/16	13/16	1 3/16	1 1/4	1 3/16	15/16	1/2	1/4	0	-1/16	0	1/8	1/4	3/16	1/4	1/4	3/16	1/8	
B	2		1/4	7/16	9/16	5/8	9/16	1/2	5/16	1/8	1/16	0	1/8	7/16	3/4	7/8	3/4	1/2	5/16	-1/8	-3/16	0	5/8	1 9/16	2 7/16	3 3/8	3 11/16	3 1/2	2 3/4	2	11/16	0	-1/8	-1/8	1/4	3/8	5/8	13/16	13/16	11/16	1/2	
B	3		0	-1/16	-1/16	-1/16	0	0	1/16	1/16	0	0	-1/16	-1/8	-1/4	-3/16	-1/16	1/8	1/8	1/16	0	0	1 3/8	3 1/4	4 1/2	5 3/4	6 3/8	6 1/2	5 3/8	4 1/4	2 1/2	0	1/8	1 1/4	1 3/8	1 7/8	1 3/8	1 3/8	1 1/4	3/4	1/4	
B	4		3/16	1/2	11/16	3/4	3/4	5/8	1/2	1/4	1/16	0	1/8	1/2	3/4	15/16	15/16	13/16	5/16	-1/8	-1/4	0	2 7/16	5 5/16	8	10 3/8	11 5/16	10 13/16	9 1/16	7 3/8	3 1/16	0	1/4	1	2 1/8	2 3/8	2 7/16	2 7/16	2 3/8	1 5/8	5/8	
B	5											7 3/8"										1'-7 3/8"										1'-7 11/16"										
C	1		1/16	1/8	3/16	3/16	3/16	1/8	1/16	1/16	0	0	1/8	3/16	1/4	1/4	1/4	3/16	1/8	0	-1/16	0	3/16	3/8	13/16	1 1/16	1 1/4	1 1/16	15/16	1/2	1/4	0	-1/16	-1/16	1/16	1/4	3/16	1/4	1/4	3/16	1/8	
C	2		1/4	7/16	1/2	9/16	1/2	7/16	5/16	1/8	1/16	0	1/8	7/16	3/4	7/8	15/16	1/2	5/16	-1/8	-3/16	0	5/8	1 9/16	2 7/16	3 5/16	3 5/8	3 7/16	2 11/16	1 13/16	3/8	0	-1/8	-1/8	1/4	5/16	9/16	3/4	13/16	11/16	3/8	
C	3		0	-1/16	-1/16	-1/16	0	0	1/16	1/16	0	0	-1/8	-1/8	-1/4	-5/16	-1/16	1/8	1/8	1/16	-1/16	0	1 1/2	3 3/8	4 3/8	5 5/8	5 3/4	5 9/16	4 5/8	4 1/4	1	0	1/8	1 1/4	1 1/4	1 7/8	1 3/8	1 3/8	1 1/4	3/4	1/4	
C	4		5/16	1/2	5/8	11/16	11/16	9/16	7/16	1/4	1/16	0	1/16	1/2	3/4	15/16	1	13/16	3/8	-1/8	-5/16	0	2 5/16	5 5/8	7 5/8	9 13/16	10 5/8	10 3/16	8 9/16	6 11/16	2 13/16	0	3/8	5/8	2 1/16	2 5/16	2 3/8	2 3/8	2 3/8	1 5/8	15/16	
C	5											6 3/8"										1'-5 13/16"										1'-6 1/4"										
D	1		1/16	1/8	3/16	3/16	3/16	1/8	1/16	0	0	0	1/16	3/16	1/4	5/16	1/4	3/16	1/8	0	-1/16	0	1/4	9/16	13/16	1 3/16	1 1/4	1 3/16	13/16	11/16	1/4	0	-1/16	-1/16	1/16	1/8	1/8	1/4	1/4	3/16	1/4	
D	2		1/4	1/4	1/2	9/16	1/2	3/8	1/4	1/8	0	0	1/8	7/16	3/4	7/8	13/16	9/16	3/8	-1/16	-1/8	0	5/8	1 9/16	2 7/16	3 5/16	3 5/8	3 3/8	2 11/16	1 7/8	5/8	0	-3/16	-1/8	3/16	1/4	9/16	11/16	3/4	5/8	3/8	
D	3		0	-1/16	-1/16	-1/16	0	0	1/16	1/16	0	0	-1/8	-1/8	-1/4	-3/8	-1/16	1/8	1/8	1/16	-1/16	0	1 1/2	2 5/8	4	4 13/16	5 1/4	5	4 7/8	3 3/4	1 13/16	0	1/8	1 1/4	1 1/4	1 7/8	1 3/8	1 3/8	1 1/4	1/2	7/16	
D	4		5/16	7/16	5/8	11/16	11/16	1/2	3/8	3/16	0	0	1/16	1/2	3/4	1	1	7/8	11/16	0	-1/4	0	2 1/4	5 1/16	7 1/4	9 5/16	10	9 9/16	8 1/16	6 5/16	2 11/16	0	3/8	5/8	2	2 1/4	2 3/8	2 5/16	2 3/8	1 7/8	7/8	
D	5											6 1/16"										1'-4 7/8"										1'-5 3/8"										
E	1		1/16	1/8	1/8	3/16	1/8	1/8	1/16	0	0	0	1/16	1/8	1/4	5/16	1/4	3/16	1/8	0	-1/16	0	1/4	9/16	13/16	1 3/16	1 1/4	1 3/16	15/16	11/16	5/16	0	-1/16	-1/16	1/16	1/16	1/8	3/16	1/4	3/16	1/4	
E	2		3/16	3/16	1/2	1/2	1/2	3/8	1/4	1/8	0	0	1/8	7/16	3/4	7/8	7/8	9/16	3/8	-1/16	-1/8	0	5/8	1 5/8	2 7/16	3 5/16	3 5/16	3 7/16	2 11/16	1 7/8	5/8	0	-3/16	-3/16	1/4	1/4	1/2	11/16	11/16	9/16	3/8	
E	3		0	-1/16	-1/16	-1/16	0	0	1/16	1/16	0	0	-1/8	-1/8	-1/4	-3/16	-1/16	1/8	3/16	1/16	-1/16	0	1 1/4	2 5/8	3 11/16	4 5/8	4 1/2	4 7/16	4	3 3/4	1 5/8	0	1/8	1 1/4	1 3/8	1 7/8	1 5/8	1 3/8	1 1/4	1/2	1/4	
E	4		1/4	5/16	7/16	5/8	3/8	1/4	3/8	3/16	0	0	1/16	7/16	3/4	1	1 1/16	7/8	11/16	0	-1/4	0	2 1/8	4 13/16	6 15/16	8 13/16	9 5/16	8 13/16	7 5/8	5 13/16	2 1/8	0	3/8	1/4	1 13/16	2 3/16	2 1/4	2 1/4	2 1/16	1 1/4	1/4	
E	5											5 9/16"										1'-3 1/4"										1'-4 1/4"										
F	1		1/16	1/8	1/8	1/8	1/8	1/8	1/16	0	0	0	1/16	1/8	1/4	3/16	1/4	3/16	1/8	0	0	0	1/4	9/16	13/16	1 1/4	1 1/4	1 1/8	15/16	11/16	3/16	0	-1/16	-1/16	0	1/16	1/8	3/16	3/16	1/8	1/8	
F	2		3/16	3/8	1/2	1/2	7/16	5/16	3/16	1/16	0	0	1/8	7/16	3/4	7/8	7/8	5/8	7/16	0	-1/8	0	5/8	1 5/8	2 7/16	3 3/16	3 1/2	3 5/16	2 9/16	1 13/16	5/8	0	3/16	-3/16	1/8	3/16	7/16	5/8	11/16	9/16	5/16	
F	3		0	-1/16	-1/16	-1/16	0	0	1/16	1/16	0	0	-1/8	-1/8	-1/4	-3/16	-1/16	1/8	1/8	1/16	-1/16	0	1 1/8	2 1/8	3 5/8	3 13/16	3 13/16	3 13/16	3 1/2	3	1 1/2	0	1/8	1 1/4	1 3/8	1 7/8	1 5/8	1 3/8	1 1/4	1/2	1/4	
F	4		1/4	7/16	9/16	5/16	5/16	1/16	3/16	1/8	0	0	1/16	7/16	3/4	1	1 1/16	5/8	11/16	1/16	-3/16	0	2	4 9/16	6 7/16	8 1/4	8 11/16	8 1/4	7	5 1/2	2 3/8	0	3/8	1/2	1 7/8	2 1/4	2 3/8	2 3/16	2	1 1/2	7/8	
F	5											5"										1'-1 3/4"										1'-3 1/4"										
G	1		1/16	1/16	1/8	1/8	1/8	1/16	1/16	0	0	0	0	1/8	1/4	5/16	1/4	3/16	1/8	0	0	0	1/4	9/16	13/16	1 1/8	1 3/8	1 1/8	7/8	3/8	3/16	0	-1/16	-1/16	0	1/16	1/8	3/16	3/16	1/8	1/16	
G	2		[illegible]	[illegible]	3/16	3/16	1/4	1/4	1/8	1/16	-1/16	0	1/8	3/16	1/4	3/8	3/8	1/2	3/16	1/16	-1/16	0	1/2	1 3/16	1 3/4	2 3/8	2 1/2	2 5/16	1 13/16	1 3/8	7/16	0	-1/8	-3/16	1/16	1/16	1/4	3/8	7/16	1/4	1/4	
G	3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15/16	1 7/8	2 1/8	3 1/4	3 3/8	3 1/4	2 7/8	2 3/8	1 1/4	0	9/16	1	1 9/16	1 1/2	1 5/8	1 1/2	1 3/8	1	3/8	
G	4		1/8	3/16	1/16	1/16	1/8	5/16	3/16	1/16	-1/16	0	1/8	1/16	1/4	13/16	7/8	11/16	7/16	1/16	-1/16	0	1 11/16	3 3/8	5 1/16	6 5/8	7 1/16	6 11/16	5 7/16	4 5/16	1 7/8	0	3/8	1/4	1 5/8	1 1/2	1 13/16	2 1/16	1 13/16	1 1/2	7/8	
G	5											5 3/8"										1'-1 5/8"										1'-2 5/8"										
H	1		1/16	1/8	1/8	1/8	1/8	1/16	1/16	0	0	0	0	1/8	1/4	1/4	1/4	3/16	1/8	0	-1/16	0	1/4	5/8	7/8	1 3/16	1 1/4	1 3/16	7/8	3/8	3/16	0	-1/16	-1/16	0	1/16	1/8	3/16	3/16	1/8	1/16	
H	2		1/8	1/4	5/16	3/16	5/16	1/4	1/8	1/16	-1/16	0	1/8	5/16	1/2	5/8	5/8	7/16	5/16	0	-1/16	0	3/8	1 3/8	2 1/16	2 3/4	2 13/16	2 11/16	2 1/8	1 1/2	1/2	0	-3/16	-3/16	0	1/16	1/4	3/8	7/16	1/4	1/4	
H	3		0	0	0	0	0	0	0	0	0	0	-1/16	-3/16	-1/4	-3/8	-1/2	-9/16	-5/16	-11/16	0	0	5/8	1 11/16	2 3/8	3 1/4	3 3/8	3 3/8	2 13/16	2 1/8	1 3/8	0	3/8	5/8	1 3/8	1 1/4	1 1/2	1 3/8	1 1/4	1 1/4	11/16	
H	4		3/16	3/8	7/16	7/16	7/16	5/16	3/16	1/16	-1/16	0	-1/16	1/4	1/2	1/2	3/8	1/16	-3/16	-11/16	-1/8	0	1 13/16	3 11/16	5 3/8	7	7 9/16	7 3/16	5 13/16	4 5/16	1 7/8	0	5/16	11/16	1 3/8	1 3/8	1 7/8	2 3/8	2 1/16	1 3/8	1	
H	5											5 1/4"										1'-2 1/4"										1'-3"										
J	1		1/16	1/16	1/8	1/8	1/8	1/8	1/16	0	0	0	0	1/8	3/16	1/4	1/4	3/16	1/8	0	-1/16	0	1/4	5/8	7/8	1 3/16	1 1/4	1 3/16	15/16	11/16	3/16	0	-1/16	-1/16	1/16	1/16	1/8	1/8	3/16	3/16	1/8	
J	2		3/16	3/8	1/2	1/2	7/16	3/16	3/16	1/16	-1/16	0	1/8	3/16	11/16	13/16	3/4	9/16	3/8	-1/8	-1/8	0	11/16	1 11/16	2 9/16	3 7/16	3 11/16	3 3/8	2 11/16	1 7/8	5/8	0	-3/16	-3/16	1/16	1/8	3/8	9/16	5/8	1/2	1/4	
J	3		0	-1/16	-1/16	-1/16	0	0	1/16	1/16	0	0	1/16	1/8	1/8	3/16	1/4	3/16	1/16	1/8	1/16	0	1	2 1/8	2 13/16	3 1/8	3 1/8	3 1/8	2 13/16	2 3/8	1 3/8	0	1/16	1 1/4	1 3/8	1 1/4	1 3/8	1 3/8	1 1/4	3/4	1/16	
J	4		1/4	3/8	9/16	9/16	9/16	1/16	3/16	1/8	-1/16	0	1/4	3/8	1	1 1/4	1 1/4	1 1/16	13/16	1/16	-1/8	0	1 15/16	4 3/8	6 3/8	7 3/4	8 1/16	7 3/8	6 9/16	5 3/8	2 3/8	0	3/8	7/8	1 7/8	2 1/4	2 1/8	2 1/8	1 15/16	1 7/16	13/16	
J	5											5 1/4"										1'-1"										1'-2"										
K	1		1/16	1/8	1/8	1/8	1/8	1/8	1/16	0	0	0	0	1/8	3/16	1/4	1/4	3/16	1/8	0	-1/16	0	3/16	3/8	7/8	1 3/16	1 1/4	1 1/16	7/8	5/8	3/16	0	-1/16	-1/16	0	1/16	1/8	3/16	3/16	3/16	1/16	
K	2		3/16	3/8	1/2	9/16	1/2	3/16	1/4	1/8	0	0	1/8	3/16	11/16	13/16	3/4	1/2	5/16	-1/8	-1/8	0	11/16	1 5/8	2 7/8	3 5/8	3 9/16	3 5/16	2 5/8	1 7/8	5/8	0	-3/16	-3/16	1/8	3/16	7/16	9/16	5/8	1/2	5/16	
K	3		-1/16	-1/16	-1/16	-1/16	-1/16	0	1/16	1/16	0	0	1/16	1/8	1/8	3/16	1/4	3/16	3/16	3/16	1/16	0	13/16	1 13/16	2 1/8	2 11/16	2 3/8	2 1/8	2 7/8	2 1/8	1 1/8	0	1/16	1 1/4	1 3/8	1 7/8	1 5/8	1 3/8	1 1/8	3/4	7/16	
K	4		3/16	7/16	9/16	5/8	9/16	1/8	3/8	3/16	0	0	1/4	3/8	1	1 1/4	1 1/4	1 1/16	13/16	1/8	-1/8	0	1 11/16	4	5 13/16	7 3/16	7 3/8	7	5 15/16	4 3/4	1 15/16	0	5/16	7/8	1 7/8	2 1/8	2 3/16	2 1/8	1 15/16	1 7/16	13/16	
K	5											4 7/8"										11 13/16"										1'-1"										
L	1		1/16	1/8	1/8	1/8	1/8	1/8	1/16	0	0	0	0	1/8	9/16	1/4	1/4	3/16	1/8	0	-1/16	0	3/16	1/8	13/16	1 1/8	1 3/16	1 1/8	7/8	5/8	1/16	0	-1/16	-1/16	1/16	1/16	1/8	3/16	3/16	3/16	1/16	
L	2		3/16	3/8	1/2	9/16	1/2	3/8	1/4	1/8	0	0	1/8	3/16	11/16	3/4	11/16	1/2	5/16	-1/8	-1/8	0	1/16	1 9/16	2 3/8	3 1/4	3 1/2	3 1/4	2 1/16	1 13/16	5/8	0	-3/16	-1/8	1/8	1/4	7/16	5/8	5/8	1/2	1/16	
L	3		-1/16	-1/16	-1/16	-1/16	-1/16	0	1/16	1/16	0	0	1/16	1/8	1/8	1/8	1/4	1/8	1/8	1/16	1/16	0	1/8	1 3/8	2 3/8	2 3/8	2	1 5/8	2	1 5/8	1	0	1/16	1 1/4	1 1/4	1 7/8	1 3/8	1 3/8	1 1/4	1/2	1/16	
L	4		3/16	7/16	9/16	5/8	9/16	1/2	3/8	3/16	0	0	1/16	11/16	1 1/16	1 3/16	1 3/16	1 1/16	13/16	1/8	-1/8	0	1 3/8	3 3/4	5 3/8	6 9/16	6 11/16	6 5/16	5 7/16	4 3/8	1 13/16	0	5/16	5/8	1 15/16	2 3/16	2 3/16	2 3/16	1 15/16	1 7/16	13/16	
L	5											4 7/8"										10 11/16"										11 5/8"										
M	1		1/16	1/8	1/8	1/8	1/8	1/8	1/16	0	0	0	1/16	1/8	3/16	1/4	1/4	3/16	1/16	0	-1/16	0	3/16	1/4	13/16	1 1/16	1 3/16	1 1/8	7/8	1/2	3/16	0	-1/16	-1/16	1/16	1/16	1/8	3/16	3/16	1/8	1/16	
M	2		3/16	3/16	1/2	9/16	9/16	3/8	5/16	1/8	0	0	1/8	3/16	11/16	3/4	11/16	7/16	5/16	-1/8	-1/8	0	3/8	1 1/2	2 1/4	3 1/8	3 3/8	3 1/8	2 1/2	1 13/16	5/8	0	-1/8	-1/8	3/16	1/4	1/2	5/8	5/8	1/2	5/16	
M	3		-1/16	-1/16	-1/16	-1/16	-1/16	0	1/16	1/16	0	0	1/16	1/16	1/8	1/4	5/16	1/8	1/16	1/16	1/16	0	3/8	1 3/8	1 13/16	1 1/4	1 7/8	1 1/2	1 9/16	1 3/8	13/16	0	1/16	1 1/4	1 3/8	1 7/8	1 3/8	1 3/8	1 1/4	3/4	7/16	
M	4		3/16	5/16	5/16	3/8	5/8	1/4	7/16	3/16	0	0	5/16	11/16	1 1/16	1 1/4	1 1/4	1	3/4	1/16	-1/4	0	1 7/16	3 3/8	4 7/8	5 13/16	6	5 5/8	4 13/16	4	1 3/8	0	1/4	5/8	2	2 3/8	2 1/4	2 3/16	1 15/16	1 7/16	13/16	
M	5											4 1/4"										9 1/4"										10 7/8"										
N	1		1/16	1/8	3/16	3/16	1/8	1/8	1/16	1/16	0	0	1/16	1/8	3/16	1/4	3/16	1/8	1/16	0	-1/16	0	3/16	1/2	3/4	1 1/16	1 3/16	1 1/16	7/8	3/8	1/4	0	-1/16	0	1/16	1/8	1/8	3/16	1/4	1/4	1/16	
N	2		1/4	3/16	1/2	9/16	9/16	7/16	5/16	1/8	1/16	0	1/8	1/4	5/8	3/4	11/16	7/16	1/4	-1/8	-3/16	0	9/16	1 3/8	2 3/16	3	3 1/4	3 1/16	2 7/16	1 3/4	5/8	0	-1/8	-1/8	1/16	1/4	1/2	5/8	3/8	1/2	5/16	
N	3		-1/16	-1/16	-1/16	-1/16	-1/16	0	1/16	1/16	0	0	1/8	1/4	1/4	1/4	1/16	1/8	1/16	1/8	1/16	0	1/2	1 1/8	1 1/4	1 1/4	7/8	11/16	1 1/4	1 1/4	11/16	0	1/8	1 1/8	1 1/4	1 1/4	1 3/8	1 1/8	1 1/8	3/4	3/16	
N	4		1/4	7/16	5/8	11/16	5/8	9/16	7/16	1/4	1/8	0	3/16	1/4	1 1/16	1 1/4	1 3/16	1	1/4	1/16	-1/4	0	1 1/4	3	4 7/8	5 5/16	5 5/16	4 13/16	4 1/16	3 5/8	1 1/2	0	1/8	1	2	2 1/4	2 1/8	2 3/8	2	1 3/8	13/16	
N	5											3 5/8"										8 3/8"										9 7/8"										
P	1		1/16	1/16	1/8	1/8	1/8	1/8	1/16	1/16	0	0	0	1/8	3/16	1/4	1/4	1/4	1/8	0	-1/16	0	1/8	1/2	11/16	1	1 1/16	1	1/2	3/8	1/2	0	0	-1/16	1/16	1/16	1/8	3/16	1/4	3/16	1/16	
P	2		1/8	3/16	1/4	7/16	1/4	3/16	1/4	1/16	0	0	1/8	5/16	1/2	9/16	1/4	3/8	1/4	-1/8	-1/8	0	7/16	1 1/16	1 3/8	2 1/4	2 1/2	2 7/16	1 7/8	1 3/4	1/16	0	-1/8	-1/16	3/16	1/4	1/4	1/4	1/2	1/4	1/4	
P	3		-1/16	-1/16	-1/16	-1/16	-1/16	0	1/16	1/16	0	0	1/8	1/4	1/4	1/4	1/4	3/16	3/16	1/16	1/16	0	5/16	11/16	1	1 1/8	1/4	1/4	1/4	13/16	1/4	0	1/8	1	1 1/4	1 1/4	1 3/8	1 1/4	1 3/8	1	3/8	
P	4		1/8	3/16	1/4	1/4	1/4	7/16	3/16	1/8	0	0	-1/4	11/16	13/16	1 1/16	1	13/16	5/8	0	-1/4	0	1 15/16	2 1/4	3 3/16	3 7/8	3 13/16	3 9/16	3 1/8	2 11/16	1 1/4	0	1/4	7/16	1 7/8	2	2 1/4	2 1/4	2	1 5/16	7/8	
P	5	0										3 1/4"										7 3/8"										9"										0



SUPERELEVATION TRANSITION SCHEME



LOW SIDE MEDIAN SHOULDER DETAIL



SCHEMATIC DETAIL

Notes:

Line 1. Deflections due to the weight of steel.

Line 2. Deflections due to the remaining dead load.

Line 3. Adjustment required for vertical curve.

Line 4. Required shop camber

Line 5. Vertical offsets

Values given in the table are to 1/16".

Negative deflection indicates upward deflection.

FS indicates Field Splice.

H.N.T.B. BRIDGE NO. 18

Revised 3-23-79 By RAS

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

17/20

DEFLECTION AND CAMBER

U.S. 30 OVER 11TH STREET

BR. NO. STA-30-1595 STA. 1017+06.75
SCALE: NONE STA. 1023+33.25

RELOCATED U.S. 30

CANTON STARK COUNTY OHIO

DRAWN L.D. A.	TRACED	CHECKED CAC	REVIEWED M.J.K.	REVISED
DATE 6/18/70	DATE	DATE 7-8-70	DATE 8-21-70	1668

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES INCRE.	WEIGHT POUNDS
		WEST ABUTMENT						
AA401	84	3'-6"	105	1'-0"	1'-9"			197
AA501	17	24'-6"	Str.					434
AA504	62	27'-9"	Str.					1794
AA506	3	2'-6"	Str.					8
AA507	113	6'-2"	105	1'-6"	3'-5"			729
AA508	14	23'-6"	Str.					343
AA509	26	31'-6"	Str.					854
AA510	5	17'-3"	Str.					89
AA511	1 Ser. 12	16'-3" to 17'-3"	Str.				1 1/4"	210
AA512	1 Ser. 20	14'-3" to 16'-3"	Str.				1 1/4"	319
AA513	8	15'-0"	Str.					125
AA514	8	14'-6"	Str.					121
AA515	8	14'-3"	Str.					119
AA516	9	13'-3"	Str.					125
AA517	7	12'-5"	Str.					91
AA518	230	6'-0"	104	5'-1"	1'-0"			1440
AA519	16	5'-9"	Str.					96
AA520	4	3'-8"	Str.					15
AA521	6	3'-9"	Str.					23
AA525	1 Series 1	3'-8" to 18'-2"	121	3'-0" to 7'-9"	1'-2"		4 1/2"	182
AA526	5	32'-9"	Str.					171
AA527	10	12'-0"	Str.					125
AA528	1 Ser. 20	12'-0" to 14'-3"	Str.				1 1/4"	274
AA529	1 Ser. 19	9'-9" to 12'-0"	Str.				1 1/4"	216
AA530	9	11'-3"	Str.					106
AA531	7	10'-6"	Str.					77
AA532	14	9'-6"	Str.					139
AA533	8	8'-6"	Str.					71
AA534	8	10'-0"	Str.					83
AA535	5	6'-11"	114	3'-7"				36
AA536	10	1'-10"	105	6"	1'-0"			19
AA537	9	1'-0"	Str.					9
AA538	4	3'-8"	152	2'-7"	3 1/4"	7 1/2"		15
AA539	4	3'-6"	143	1'-1"	9"			15
AA540	2	11'-0"	Str.					23
AA541	2 Series 3	3'-6" to 17'-6"	Str.				7'-0"	66
AA542	2	12'-9"	Str.					27
AA543	1 Series 1	10'-8" to 21'-2"	121	4'-10" to 9'-3"	1'-2"		7"	166
AA544	2	15'-6"	Str.					32
AA545	2	16'-0"	Str.					33
AA546	2	17'-0"	Str.					35
AA547	2 Ser. 3	3'-0" to 7'-3"	Str.				2'-1 1/4"	32
AA548	2 Ser. 3	3'-3" to 8'-0"	Str.				2'-4 1/4"	36
AA549	2 Ser. 3	3'-9" to 9'-0"	Str.				2'-7 1/2"	40
AA550	2 Ser. 3	4'-0" to 10'-0"	Str.				3'-0"	44
AA551	2 Ser. 3	4'-6" to 11'-0"	Str.				3'-3"	48
AA552	2 Ser. 3	5'-0" to 11'-9"	Str.				3'-4 1/2"	52
AA553	2 Ser. 3	5'-3" to 12'-9"	Str.				3'-9"	56
AA554	1 Ser. 6	10'-8" to 21'-2"	121	4'-0" to 9'-3"	1'-2"		1'-0 3/4"	100
AA555	2 Ser. 7	10'-8" to 21'-2"	121	4'-0" to 9'-3"	1'-2"		10 1/4"	233
AA556	1 Ser. 8	10'-8" to 21'-2"	121	4'-0" to 9'-3"	1'-2"		9"	133
AA557	2 Ser. 9	10'-8" to 21'-2"	121	4'-0" to 9'-3"	1'-2"		7 1/2"	299
AA558	2	9'-3"	Str.					9
AA602	112	14'-10"	108	10'-1"	4'-0"	3'-3"		2495
AA603	112	15'-0"	106	11"	11'-2"	3'-3"		2523
AA604	14	23'-6"	Str.					494
AA605	21	27'-9"	Str.					875
AA606	1	16'-9"	Str.					25
AA607	15	7'-9"	Str.					175
AA608	10	20'-0"	Str.					300
AA609	1	11'-3"	Str.					17
AA610	38	10'-3"	133					585
AA611	39	3'-10"	104	2'-1"	1'-11"			224
AA612	39	5'-5"	106	11"	2'-11"	1'-11"		317
AA613	108	12'-9"	Str.					2070
AA615	14	20'-3"	Str.					425
AA616	1	41'-6"	Str.					17

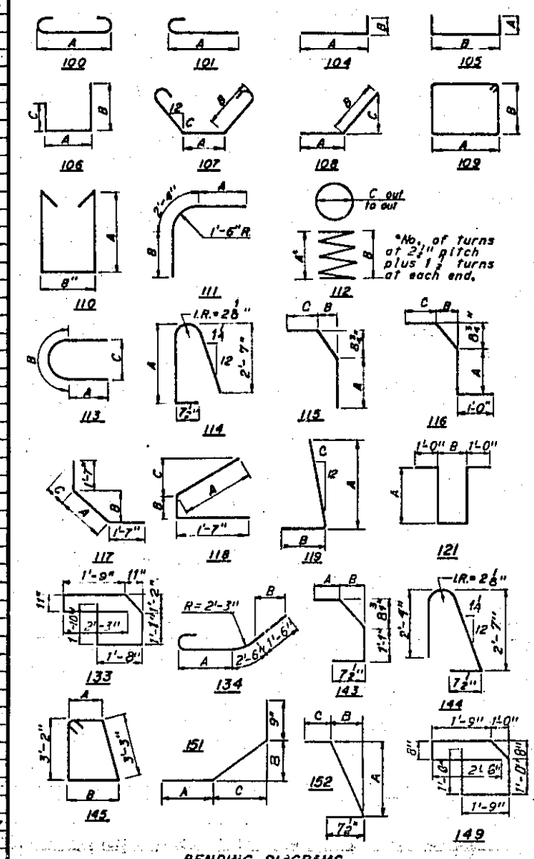
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES INCRE.	WEIGHT POUNDS
AA617	1	13'-6"	Str.					20
AA618	1 Ser. 5	16'-0" to 17'-9"	Str.				5 1/4"	127
AA619	1 Ser. 5	4'-0" to 15'-0"	Str.				2'-9"	71
AA620	6	32'-9"	Str.					295
AA621	5	18'-0"	Str.					81
AA622	19	10'-6"	Str.					300
AA623	1 Ser. 3	7'-0" to 25'-0"	Str.				9'-0"	72
AA624	6	30'-0"	Str.					270
AA625	11	26'-6"	Str.					437
AA626	6	26'-3"	Str.					237
AA627	27	4'-8"	105	1'-11"	1'-2"			190
AA628	2	17'-3"	Str.					52
AA629	5	5'-0"	115	3'-5"	6"	10"		38
AA630	6	15'-3"	106	1'-2"	9'-8"	4'-9"		137
AA631	10	7'-4"	104	5'-3"	2'-3"			110
AA632	6	6'-6"	Str.					59
AA633	9	10'-9"	104	8'-6"	2'-5"			145
AA634	18	11'-6"	104	9'-3"	2'-5"			311
AA635	2	9'-6"	Str.					28
AA636	4	5'-6"	Str.					33
AA637	9	9'-3"	106	1'-2"	5'-8"	2'-9"		125
AA638	9	6'-11"	104	4'-8"	2'-5"			94
AA639	4	11'-3"	106	1'-2"	7'-8"	2'-9"		68
AA640	1	15'-6"	Str.					23
AA641	18	5'-9"	104	4'-0"	1'-11"			155
AA642	42	6'-3"	104	5'-5"	1'-0"			394
AA643	21	26'-9"	Str.					844
AA644	1	17'-6"	Str.					26
AA645	1 Ser. 3	5'-0" to 24'-0"	Str.				9'-0"	68
AA646	1	19'-0"	Str.					29
AA647	1	10'-3"	Str.					15
AA649	9	10'-6"	108	8'-6"	2'-0"	1'-9"		142
AA649	3	25'-6"	Str.					115
AA650	1	6'-4"	104	4'-1"	2'-5"			10
AA651	4	17'-9"	Str.					107
AA701	1	2'-9"	150	1'-2"	1'-0"	6"		6
AA702	1	4'-10"	115	3'-6"	8"	6"		10
AA703	1	4'-11"	115	3'-8"	7 1/2"	7"		10
AA704	1	4'-11"	115	3'-6"	6 3/4"	8"		10
AA705	1	5'-0"	115	3'-6"	6"	9"		10
AA801	127	16'-2"	100	14'-0"				5470
AA802	1	17'-8"	100	15'-6"				47
AA803	1	12'-8"	101	11'-7"				34
AA804	1	20'-0"	100	17'-10"				53
AA805	1	16'-5"	101	15'-4"				44
AA806	1 Ser. 3	18'-8" to 19'-2"	100	16'-6" to 17'-0"			3"	151
AA807	1	18'-2"	100	16'-0"				48
AA808	1	17'-11"	100	15'-9"				48
AA809	1	14'-8"	100	12'-6"				39
AA810	1	13'-2"	100	11'-0"				35
AA811	1	9'-11"	100	7'-9"				26
AA812	1	8'-11"	100	6'-9"				23
AA813	1	5'-11"	100	3'-9"				16
AA901	1 Ser. 7	31'-3" to 33'-6"	Str.				4 1/2"	770
AA902	58	45'-3"	Str.					8,940
AA903	1 Ser. 4	29'-6" to 30'-6"	Str.				4"	408
AA904	2	28'-0"	Str.					190
AA905	1 Ser. 12	29'-6" to 33'-9"	Str.				4 1/2"	1291
AA906	2	18'-0"	104	11'-0"	7'-3"			123
AA907	2	32'-9"	Str.					223
AA908	2	30'-9"	Str.					209
AA909	2	18'-0"	108	14'-9"	3'-3"	3'-0"		123
AA1101	3	18'-0"	134	12'-5"	9 1/2"			287
AA1102	3	18'-10"	134	13'-3"	9"			301
AA1103	3	19'-10"	134	14'-3"	8"			316
AA1104	4	21'-1"	134	15'-6"	7"			449
AA1105	4	21'-10"	134	16'-3"	6 1/2"			465
AA1106	4	22'-10"	134	17'-3"	6"			485
AA1107	4	23'-10"	134	18'-3"	5 1/2"			507
AA1108	2	12'-3"	101	10'-8"				130
AA1109	6	13'-9"	101	12'-2"				439
AA1110	2	11'-3"	101	9'-8"				120
AA1111	3	19'-0"	101	17'-5"				303

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES INCRE.	WEIGHT POUNDS
AA1112	3	30'-9"	101	29'-2"				190
AA1113	6	15'-0"	101	13'-5"				179
AA1114	4	13'-0"	101	11'-5"				277
AA1115	4	16'-0"	101	14'-5"				340
DAB01	73	5'-1"	151	1'-6"	2'-1"	2'-1"		1018
							Total	50,656
		NORTHWEST WINGWALL						
WA501	12	25'-6"	Str.					319
WA502	2	21'-0"	Str.					44
WA503	1 Ser. 9	7'-6" to 13'-9"	Str.				9 1/4"	100
WA504	1 Ser. 9	5'-0" to 12'-3"	Str.				9 1/4	86
WA505	5	10'-11"	104	10'-0"	1'-0"			57
WA506	1 Ser. 3	3'-6" to 5'-0"	Str.				9"	13
WA507	2	3'-6"	Str.					7
WA508	4	3'-3"	Str.					14
WA509	14	6'-11"	114	3'-7"				101
WA510	6	3'-6"	Str.					22
WA511	12	1'-10"	105	6"	1'-0"			36
WA512	14	4'-11"	115	3'-2"	6"	10"		72
WA513	2	24'-0"	Str.					50
WA601	4	19'-0"	Str.					114
WA602	13	10'-3"	133					270
WA603	6	12'-0"	Str.					108
WA604	3	13-6"	Str.					61
WA605	5	9'-3"	104	8'-5"	1'-0"			76
WA606	5	4'-10"	100	3'-6"				44
WA607	4	5'-5"	Str.					33
WA608	4	3'-6"	Str.					21
WA701	1	4'-8"	115	3'-3"	8 3/4"	6"		10
WA702	1	4'-7"	115	3'-3"	8"	6"		10
WA703	1	4'-9"	115	3'-4"	7 1/2"	7"		10
WA704	1	5'-6"	115	4'-1"	6 3/4"	8"		11
WA705	1	5'-3"	115	4'-9"	6"	9"		13
WA801	4	8'-8"	100	6'-6"				53
WA802	2 Ser. 6	3'-6" to 13'-3"	Str.				1'-11 1/2"	268
WA803	2	19'-0"	Str.					100
							Total	2,087
		SOUTHWEST WINGWALL						
WB501	25	16'-3"	108	15'-0"	1'-5"	5"		446
WB502	1	12'-6"	Str.					13
WB503	1	10'-0"	Str.					10
WB504	1	7'-3"	Str.					9
WB505	1	5'-0"	Str.					5
WB506	2	16'-6"	108	14'-10"	1'-6"	4"		34
WB507	1	25'-6"	Str.					27
WB508	1	25'-3"	Str.					26
WB509	1 Ser. 9	25'-6" to 27'-9"	Str.				3 3/4"	250
WB510	1 Ser. 9	25'-3" to 27'-6"	Str.				3 3/4"	248
WB511	34	6'-0"	104	5'-1"	1'-0"			213
WB512	1 Ser. 17	6'-8" to 12'-10"	109	2'-0" to 5'-0"	1'-2"		2 1/4"	173
WB513	1 Ser. 3	8'-9" to 24'-0"	Str.				7-7 1/2"	51
WB514	2	5'-5"	108	3'-6"	1'-11"	5"		11
WB515	2	25'-0"	Str.					54
WB516	1 Ser. 20	12'-2" to 18'-2"	121	1'-9" to 7'-9"	1'-2"		3 3/4"	254
WB517	2 Ser. 4	12'-0" to 16'-3"	Str.				4'-9"	76
WB601	22	15'-5"	108	15'-0"	1'-5"	6"		543
WB602	2	15'-5"	108	14'-0"	1'-5"	5"		139
WB603	1	28'-0"	Str.					42
WB604	1	27'-9"	Str.					42

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

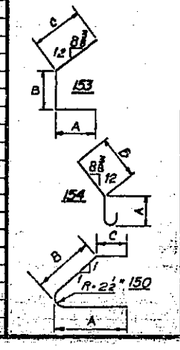
240
328

STARK COUNTY
STA-30-15.66



BENDING DIAGRAMS

Notes:
All bar dimensions are given out to out.
All bars of a series shall vary in length by a constant increment.
For Reinforcing Steel Samples note, see Sheet 20120.
Four steel channels, tee or angle spacers, weighting approximately 0.80 pounds per linear foot shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. An allowance of 0.80 pounds per linear foot for spacers is included with the weight of the spiral bars and paid for as reinforcing steel.



H.N.T.S. BRIDGE NO. 18 | Revised 3-23-79 | By RAS | 18/20

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

REINFORCEMENT SCHEDULE

U.S. 30 OVER 11TH STREET
BR NO. STA-30-15.95 STA. 1017+06.75
SCALE: NONE STA. 1023+33.25
RELOCATED U.S. 30
CANTON STARK COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
DATE 10-17-78	DATE	DATE 11-6-78	DATE 11-22-78	

1662

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INCRE.	WEIGHT POUNDS
WB605	7	26'-3"	Str					276
WB606	1 Ser. 12	12'-0" to 16'-0"	Str				4½"	252
WB607	27	10'-3"	132					416
WB608	9	9'-1"	104	8'-3"	1'-0"			124
WB609	2	6'-0"	104	5'-2"	1'-0"			18
WB610	1	12'-6"	Str					19
WB611	1 Ser. 7	13'-0" to 14'-0"	Str				3½"	146
WB612	1 Ser. 4	15'-3" to 16'-6"	Str				5"	95
WB613	1	17'-0"	Str					26
WB614	1	17'-0"	108	15'-6"	1'-6"	6"		26
WB615	1	12'-0"	Str					18
WB616	1 Ser. 5	13'-4" to 14'-10"	109	5'-3" to 6'-0"	1'-2"		2½"	106
WB901	13	11'-9"	Str					539
WB902	1 Ser. 3	3'-9" to 9'-9"	Str				3'-0"	69
WB903	2	3'-3"	Str					22
WB904	14	16'-6"	100	14'-0"				795
WB905	2	15'-9"	104	14'-6"	1'-6"			107
WB906	1	14'-6"	100	12'-0"				40
WB907	1	13'-0"	100	10'-6"				44
WB908	1	10'-6"	100	8'-0"				36
WB909	1	8'-6"	100	6'-0"				22
WB1101	3	29'-0"	101	27'-5"				461
WB1102	3	19'-3"	101	17'-8"				308
WB1103	2	11'-3"	101	9'-8"				120
							Total	6,736
		PIER-1N						
SPA401	1	954'-6"	112	97.2	19'-9"	3'-2"		701
SPA402	1	982'-0"	112	100.0	20'-4"	3'-2"		721
SPA403	1	1009'-6"	112	102.8	21'-11"	3'-2"		741
SPA404	1	1013'-5"	112	103.2	21'-0"	3'-2"		744
PA501	49	4'-11"	105	1'-0"	3'-2"			252
PA601	4	56'-0"	Str					336
PA602	6	6'-10"	105	2'-0"	3'-2"			62
PA603	68	11'-10"	109	2'-0"	3'-8"			1209
PA604	18	14'-2"	109	3'-2"	3'-8"			383
PA801	40	10'-8"	100	8'-6"				1130
PA1101	10	23'-3"	Str					1237
PA1102	10	23'-9"	Str					1261
PA1103	20	24'-6"	Str					2603
PA1104	40	8'-8"	104	1'-2½"	7'-9"			1845
PA1105	6	56'-0"	Str					1785
PA1106	6	26'-6"	Str					844
PA1107	2	11'-0"	Str					117
PA1108	4	14'-6"	Str					308
PA1109	32	14'-8"	100	11'-6"				2495
PA1110	12	33'-0"	104	29'-10"	3'-6"			2104
							Total	20,887
		PIER-1S						
SPB401	1	1072'-4"	112	109.2	22'-3"	3'-2"		788
SPB402	1	1194'-1"	112	121.6	24-10"	3'-2"		877
SPB403	1	1268 - 8"	112	129.2	26'-5"	3'-2"		932
SPB404	1	1484'-9"	112	151.2	31'-0"	3'-2"		1091

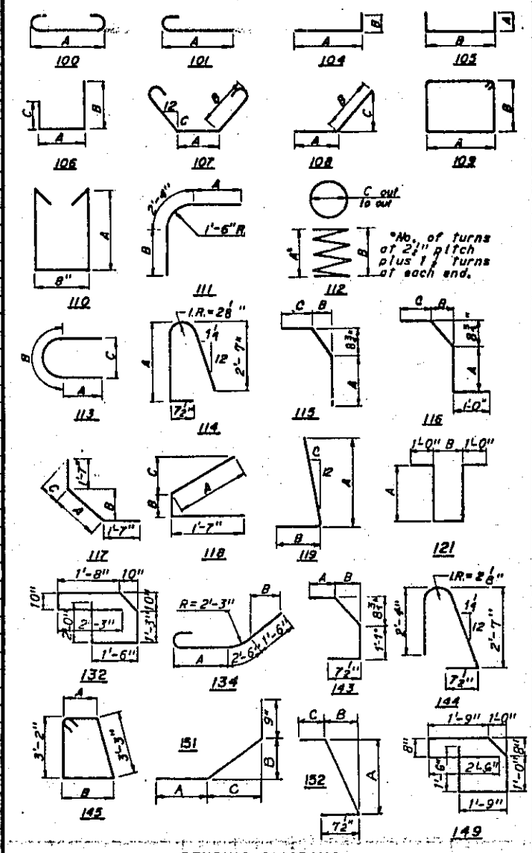
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INCRE.	WEIGHT POUNDS
PB501	49	4'-11"	105	1'-0"	3'-2"			252
PB601	4	53'-6"	Str					322
PB602	6	6'-10"	105	2'-0"	3'-2"			62
PB603	15	14'-2"	109	3'-2"	3'-8"			319
PB604	66	11'-10"	109	2'-0"	3'-8"			1173
PB701	16	11'-2"	100	9'-6"				365
PB801	30	10'-8"	100	8'-6"				954
PB1101	10	25'-9"	Str					1370
PB1102	10	28'-3"	Str					1503
PB1103	10	30'-0"	Str					1595
PB1104	10	34'-6"	Str					1835
PB1105	40	8'-8"	104	1'-2½"	7'-9"			1845
PB1106	4	26'-6"	Str					564
PB1107	6	14'-6"	Str					462
PB1108	2	10'-0"	Str					106
PB1109	6	53'-6"	Str					1706
PB1110	24	14'-8"	100	11'-6"				1870
PB1111	12	16'-8"	100	13'-6"				1062
PB1112	12	31'-11"	104	28'-7"	3'-8"			2035
							Total	22,988
		PIER-2N						
SPC401	1	3688'-3"	112	177.2	33'-5"	5'-8"		2405
PC501	20	7'-5"	105	1'-7"	4'-6"			155
PC502	30	26'-6"	Str					830
PC503	27	29'-6"	Str					830
PC1101	36	36'-3"	Str					6925
PC1102	36	11'-9"	104	10'-9"	1'-3"			2248
PC1103	45	26'-6"	Str					6340
PC1104	54	29'-6"	Str					8460
							Total	28,253
		PIER-2S						
SPD401	1	3280'-4"	112	157.6	32'-4"	6'-0"		2295
PD501	20	7'-5"	105	1'-7"	4'-6"			155
PD502	30	26'-6"	Str					830
PD503	27	29'-6"	Str					830
PD1101	36	32'-3"	Str					6160
PD1102	36	11'-9"	104	10'-9"	1'-3"			2248
PD1103	45	26'-6"	Str					6340
PD1104	54	29'-6"	Str					4460
							Total	27,318

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INCRE.	WEIGHT POUNDS
		PIER-3N						
SPE401	1	785'-7"	112	80.0	16'-2"	3'-2"		577
SPE402	1	746'-4"	112	76.0	15'-4"	3'-2"		548
SPE403	1	714'-10"	112	72.8	14'-8"	3'-2"		524
SPE404	1	675'-7"	112	68.8	13'-10"	3'-2"		496
PE501	56	4'-11"	105	1'-0"	3'-2"			288
PE601	6	6'-8"	105	2'-0"	3'-0"			60
PE602	4	56'-0"	Str					336
PE603	74	13'-10"	109	2'-0"	4'-8"			1,540
PE604	20	16'-2"	109	3'-2"	4'-8"			486
PE801	56	10'-8"	100	8'-6"				1,595
PE1101	12	20'-9"	Str					1,322
PE1102	10	20'-0"	Str					1,062
PE1103	10	19'-3"	Str					1,022
PE1104	12	18'-6"	Str					1,180
PE1105	44	8'-8"	104	1'-2½"	7'-9"			2,029
PE1106	6	27'-0"	Str					860
PE1107	2	11'-0"	Str					117
PE1108	6	56'-0"	Str					1,785
PE1109	4	14'-6"	Str					308
PE1110	28	16'-8"	100	13'-6"				2,480
PE1111	16	14'-8"	100	11'-6"				1,249
PE1112	12	34'-0"	104	29'-10"	4'-6"			2,168
							Total	22,031
		PIER-3S						
SPE401	1	644'-2"	112	65.6	13'-2"	3'-2"		472
SPE402	1	604'-11"	112	61.6	12'-4"	3'-2"		444
SPE403	1	569'-6"	112	58.0	11'-7"	3'-2"		418
SPE404	1	534'-2"	112	54.4	10'-10"	3'-2"		392
PE501	56	4'-11"	105	1'-0"	3'-2"			288
PE601	6	6'-8"	105	2'-0"	3'-0"			60
PE602	4	53'-0"	Str					318
PE603	74	13'-10"	109	2'-0"	4'-8"			1,540
PE604	17	16'-2"	109	3'-2"	4'-8"			413
PE801	56	10'-8"	100	8'-6"				1,595
PE1101	10	17'-9"	Str					942
PE1102	10	16'-9"	Str					890
PE1103	10	16'-0"	Str					850
PE1104	10	15'-3"	Str					810
PE1105	40	8'-8"	104	1'-2½"	7'-9"			1,842
PE1106	6	14'-6"	Str					462
PE1107	6	53'-0"	Str					1,690
PE1108	2	10'-0"	Str					106
PE1109	6	26'-0"	Str					828
PE1110	28	16'-8"	100	13'-6"				2,480
PE1111	16	14'-8"	100	11'-6"				1,249
PE1112	12	32'-8"	104	28'-4"	4'-8"			2,083
							Total	20,172

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

241
328

STARK COUNTY
STA-30-15.66



BENDING DIAGRAMS

Notes:
All bar dimensions are given out to out.
All bars of a series shall vary in length by a constant increment.
For Reinforcing Steel Samples note see Sheet 20/20.
Four steel channels, tee or angle spacers, weighing approximately 0.80 pounds per linear foot shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. An allowance of 0.80 pounds per linear foot for spacers is included with the weight of the spiral bars and paid for as reinforcing steel.

H.N.T.B. BRIDGE NO. 18 | Revised 3-23-79 | By RAS

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

19/20

REINFORCEMENT SCHEDULE

U.S. 30 OVER 11TH STREET

BR. NO. STA-30-15.95 STA. 1017+06.75
SCALE: NONE STA. 1023+33.25

RELOCATED U.S. 30

CANTON STARK COUNTY OHIO

DRAWN J.F.	TRACED	CHECKED RAS	REVIEWED MJK	REVISED
DATE 10-12-78	DATE	DATE 11-6-78	DATE 12-13-78	

1668

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES INCRE.	WEIGHT POUNDS
EAST ABUTMENT								
AB401	98	3'-7"	105	1'-0"	1'-10"			235
AB501	84	8'-4"	105	1'-7"	5'-5"			731
AB502	84	7'-7"	104	6'-8½"	1'-0"			668
AB503	84	7'-7"	105	2'-2½"	3'-5"			865
AB504	4	3'-8"	152	2'-7"	3¼"	7½"		15
AB505	4	3'-7"	143	1'-1"	6"			15
AB506	13	11'-1"	109	3'-0"	2'-3"			150
AB507	10	12'-1"	109	3'-6"	2'-3"			126
AB508	6	9'-10"	117	6'-5"	4'-9"	1'-1½"		62
AB509	3	12'-0"	117	9'-6"	6'-3"	1'-1½"		40
AB510	6	8'-3"	108	1'-7"	5'-8"	4'-9"		52
AB511	3	11'-1"	108	1'-7"	9'-6"	8'-9"		35
AB516	10	5'-3"	Str					55
AB518	10	3'-3"	Str					34
AB519	15	5'-9'	114	3'-7"				106
AB520	20	1'-10"	105	6"	1'-0"			38
AB521	6	7'-8"	104	6'-3"	1'-7"			48
AB522	9	6'-3"	Str					59
AB523	3	9'-8"	104	8'-3"	1'-7"			30
AB524	1	8'-6"	Str					9
AB525	5	9'-3"	Str					53
AB526	3	7'-6"	Str					48
								23
AB530	23	24'-6"	Str					588
AB531	3	3'-6"	Str					11
AB532	1	4'-3"	Str					4
AB533	1	4'-9"	Str					5
AB534	1	5'-9"	Str					6
AB535	23	24'-6"	Str					588
AB536	6	20'-6"	Str					128
AB537	3	18'-9"	Str					59
AB538	3	22'-0"	104	20'-6½"	1'-7"			69
AB539	3	14'-0"	104	12'-6½"	1'-7"			44
AB540	6	10'-6"	Str					66
AB541	1	11'-9"						12
AB542	1	16'-9"	104	15'-3½"	1'-7"			18
AB543	9	9'-6"	Str					89
AB544	3	16'-0"	104	14'-6½"	1'-7"			50
AB545	23	29'-3"	Str					702
AB546	23	29'-6"	Str					708
AB547	1	4'-6"	Str					5
AB548	2	9'-6"	Str					20
AB549	2	6'-9"	Str					14
AB550	9	1'-0"	Str					9
AB551	2	19'-0"	Str					40
AB601	84	14'-5"	105	5'-5"	6'-8"	2'-8"		1820
AB602	108	19'-9"	105	9'-4"	1'-5"			3204
AB603	108	4'-11"	105	1'-11"	1'-5"			798
AB604	108	5'-11"	105	2'-8"	1'-1"			960
AB605	5	5'-2"	115	3'-7"	6"	10"		39
AB606	5	18'-8"	105	8'-9"	1'-6"			140
AB607	5	7'-9"	Str					58
AB608	1	17'-8"	105	8'-9"	6"			26
AB609	13	5'-0"	106	8"	2'-9"	1'-11"		98
AB610	13	3'-5"	104	1'-11"	1'-8"			66
AB611	1	7'-6"	115	5'-9"	6"	10"		11
AB612	9	11'-0"	115	9'3"	6"	10"		149
AB613	10	18'-8"	105	9'-0"	1'-0"			280
AB614	1	4'-6"	Str					7
AB701	1	4'-8"	115	3'-3½"	8¾"	6"		10
AB702	1	4'-8"	115	3'-3½"	8"	6"		10
AB703	1	5'-0"	118	3'-7"	7½"	7"		10
AB704	1	5'-9"	117	4'-4"	8¾"	8"		12
AB705	1	6'-6"	117	5'-0"	6"	9"		13

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES INCRE.	WEIGHT POUNDS
AB801	14	40'-0"	Str.					1720
AB802	7	23'-0"	Str.					413
AB803	2	19'-10"	104	17'-6"	2'-6"			106
AB804	3	14'-0"	Str.					112
AB805	2	16'-7"	104	14'-3"	2'-5"			88
AB806	2	14'-3"	Str.					78
AB807	1	17'-6"	Str.					47
AB808	3	10'-9"	Str.					89
DB801	73	5'-1"	151	1'-6"	2'-1"	2'-1"		931
							Total	17,865
SOUTHEAST WINGWALL								
WC501	14	31'-9"	Str.					464
WC502	2	13'-0"	Str.					27
WC503	3	4'-5"	115	2'-6"	6"			15
WC504	4	11'-6"	Str					48
WC505	1	15'-0"	115	13'-0"	6"			16
WC506	2	3'-6"	Str					7
WC507	5	4'-0"	Str					21
WC508	2	11'-0"	104	10'-2"	1'-0"			23
WC509	2	7'-4"	104	6'-6"	1'-0"			15
WC510	1 Ser. 7	11'-9" to 10'-3"	Str					80
WC511	1 Ser. 7	12'-0" to 13'-5"	115	10'-2" to 11'-8"	6"	10"	2 13/16"	93
WC512	1 Ser. 8	7'-0" to 8'-[illegible]	Str				[illegible]	66
WC513	1 Ser. 8	8'-11" to 11'-0"	115	7'-2" to 9'-2"	6"	10"	3/8"	83
WC514	1 Ser. 8	4'-9" to 6'-3"	Str				[illegible]	46
WC515	1 Ser. 8	6'-6" to 8'-3"	115	4'-8" to 6'-6"	6"	10"	2 3/8"	62
WC516	4	4'-8"	115	2'-6"	9"			14
WC517	3	10'-5"	104	9'-7½"	1'-0"			33
WC518	10	3'-3"	Str					34
WC519	34	6'-9"	114	3'-7"				239
WC520	30	1'-10"	105	6"	1'-0"			75
WC521	7	9'-3"	104	8'-4½"	1'-0"			69
WC522	1	5'-0"	Str.					5
WC523	2	22'-6"	Str.					41
WC524	10	23'-6"	Str.					245
WC525	1 Ser. 5	9'-10" to 11'-10"	121	2'-0" to 4'-6"	1'-2'		1'-3"	41
WC526	2	22'-0"	Str.					46
WC601	19	9'-7"	119					273
WC602	7	5'-2"	106	2'-11"	8"	1'-1"		53
WC603	7	4'-3"	115	2'-0"	9½"	1'-8"		45
WC604	3	13'-6"	104	12'-8"	1'-0"			51
WC605	3	15'-0"	116	12'-7½"	6"	10"		68
WC606	3	7'-1"	104	6'-1"	1'-0"			34
WC607	3	9'-5"	116	7'-1"	6"	10"		42
WC608	6	3'-6"	Str					32
WC609	8	7'-4"	100	6'-0"				80
WC610	8	2'-6"	Str					30
WC611	1	6'-9"	Str					10
WC612	1	7'-9"	Str					12
WC613	2	16'-6"	Str					50
WC701	1	5'-7"	115	4'-2"	8¾"	6"		11
WC702	1	5'-7"	115	4'-3"	8"	6"		12
WC703	1	5'-9"	115	4'-4"	7½"	7"		12
WC704	1	5'-9"	115	4'-4"	6¾"	8"		12
WC705	1	5'-9"	115	4'-4"	6"	9"		12
WC706	2	14'-0"	101	13'-2"				57
WC707	4	31'-9"	Str					260
WC708	1	22'-0"	Str					45
WC709	1	21'-0"	Str					43
WC710	1	17'-9"	Str					36
WC711	1	16'-9"	Str					34
WC712	1	6'-0"	Str					12
WC713	1	5'-0"	Str					10
WC714	1	3'-6"	Str					7
WC715	1	2'-5"	Str					5
WC716	2	32'-0"	Str					131
WC801	4	9'-11"	100	7'-9"				105

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES INCRE.	WEIGHT POUNDS
							Total	3,529
EPOXY COATED REINFORCING STEEL								
ER501	28	15'-3"	Str.					445
ER502	356	7'-0"	Str.					2600
ER503	48	6'-6"	Str.					325
ER504	56	6'-0"	Str.					350
ER505	96	14'-9"	Str.					1475
ER506	68	14'-6"	Str.					1027
ER507	20	14'-3"	Str.					298
ER508	20	14'-0"	Str.					292
ER509	44	15'-0"	Str.					688
E	2	Light Pole Supports (Epoxy Coated)						240
ESA501	834	3'-2"	143	9"	6"			2755
ESA502	834	5'-7"	144					4857
ESA503	834	2'-0"	105	7½"	1'-0"			1740
ESA504	834	2'-6"	104	7½"	2'-0"			2175
ESA505	325	30'-0"	Str.					10,170
ESA506	5	11'-0"	Str.					57
ESA507	5	24'-6"	Str.					128
ESA510	5	13'-0"	Str.					68
ESA601	1701	30'-0"	Str.					76,647
ESA602	81	16'-3"	Str.					1977
ESA603	1 Ser. 40	17'-5" to 32'-5"	101	16'-9" to 31'-9"			4 3/8"	1497
ESA607	1091	33'-5"	101	32'-9"				54800
ESA608	1091	25'-8"	101	25'-0"				42100
ESA609	228	24'-9"	Str.					8475
ESA610	456	29'-9"	Str.					20900
ESA611	1 Ser. 41	5'-6" to 18'-6"	Str.				3 3/8"	739
ESA615	1 Ser. 187	23'-8" to 24'-11"	101	23'-0" to 24'-3"			1/16"	6823
ESA616	1 Ser. 187	34'-5" to 35'-6"	101	33'-9" to 34'-10"			1/16"	9815
ESA619	822	25'-5"	101	24'-9"				31,381
ESA620	822	31'-9"	101	31'-1"				39200
ESA621	1,070	3'-3"	153	10"	1'-1"	1'-6"		5223
ESA622	1,070	2'-11"	119	1'-7"	10"	9 7/8		4688
ESA623	1,070	2'-6"	Str.					4018
ESA624	1,070	3'-1"	119	2'-7½"	7½"	1¼"		4955
ESA625	1,070	4'-6"	151	2'-3"	1'-0¾"	1'-3½"		7232
ESA626	1,070	3'-3"	154	1'-1"	1'-6"			5223
ESA627	1,070	3'-4"	101	2'-8"				5357
						TOTAL =		360,240
DECK								
SA604	1-Ser. 56	16'-9" to 31'-9"	Str.				3¼"	2040
SA605	1091	28'-3"	Str.					46,250
SA606	1091	29'-6"	Str.					48,300
SA612	1-Ser. 57	5'-6" to 18'-6"	Str.				2 13/16"	1227
SA613	1-Ser. 187	28'-3" to 29'-6"	Str.				1/16"	8110
SA614	1-Ser. 187	27'-9" to 29'-6"	Str.				1/8"	8040
SA617	822	28'-0"	Str.					34,570
SA618	822	28'-0"	Str.					34,570
SA628	2373	30'-0"	Str.					106,927
SA629	113	16'-3"	Str.					2758
						TOTAL =		292,792

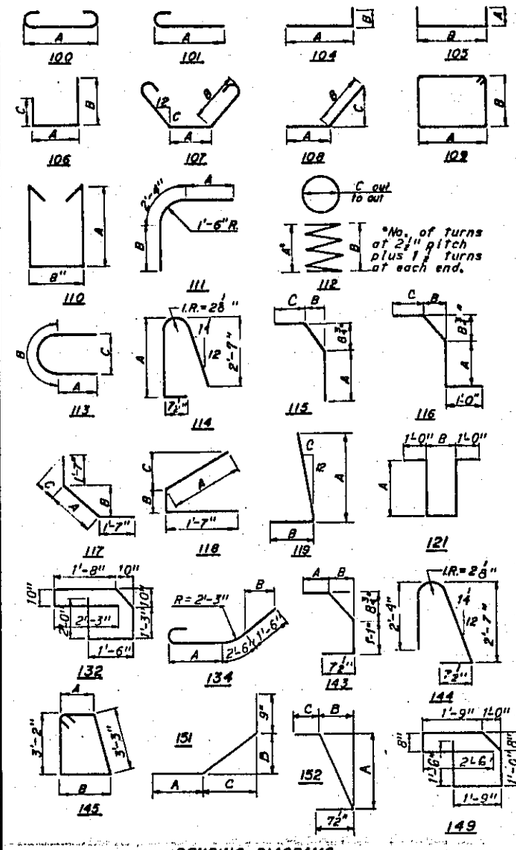
REINFORCING STEEL SAMPLES

Refer to CMS Sections 106.03, 700, 709.01 through 709.05 and 709.08. Sufficient additional reinforcing steel shall be provided for sampling. Random samples shall be replaced in the structures by the additional steel, spliced in accordance with 509.08.

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

242
328

STARK COUNTY
STA-30-15.66

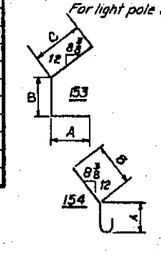


BENDING DIAGRAMS

Notes:
All bar dimensions are given out to out.
All bars of a series shall vary in length by a constant increment.

Four steel channels, tee or angle spacers, weighing approximately 0.80 pounds per linear foot shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. An allowance of 0.80 pounds per linear foot for spacers is included with the weight of the spiral bars and paid for as reinforcing steel.

For light pole support reinforcement see Sheet 41.



H.N.T.B. BRIDGE NO. 18 — Revised 3-23-79 — By RAS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF — 20/20
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

REINFORCEMENT SCHEDULE

U.S. 30 OVER 11TH STREET

BR. NO. STA-30-15.95 — STA. 1017+06.75
SCALE: NONE — STA. 1023+33.25

RELOCATED U.S. 30

CANTON — STARK COUNTY — OHIO

DRAWN J.F.	TRACED	CHECKED	REVIEWED MJK	REVISED
DATE 10-12-79	DATE	DATE 4-6-79	DATE 11-21-79	

1668