APR 2 1980

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | U-534(9) | |

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98

BELMONT COUNTY
BEL-7- 19.86

# STATE OF OHIO
# DEPARTMENT OF HIGHWAYS
# BEL-7- 19.86
## VILLAGE OF BRIDGEPORT
## GRADE SEPARATION WITH THE B. & O. RAILROAD COMPANY
## GRADE SEPARATION WITH THE PENNA. RAILROAD COMPANY
## *BELMONT COUNTY*

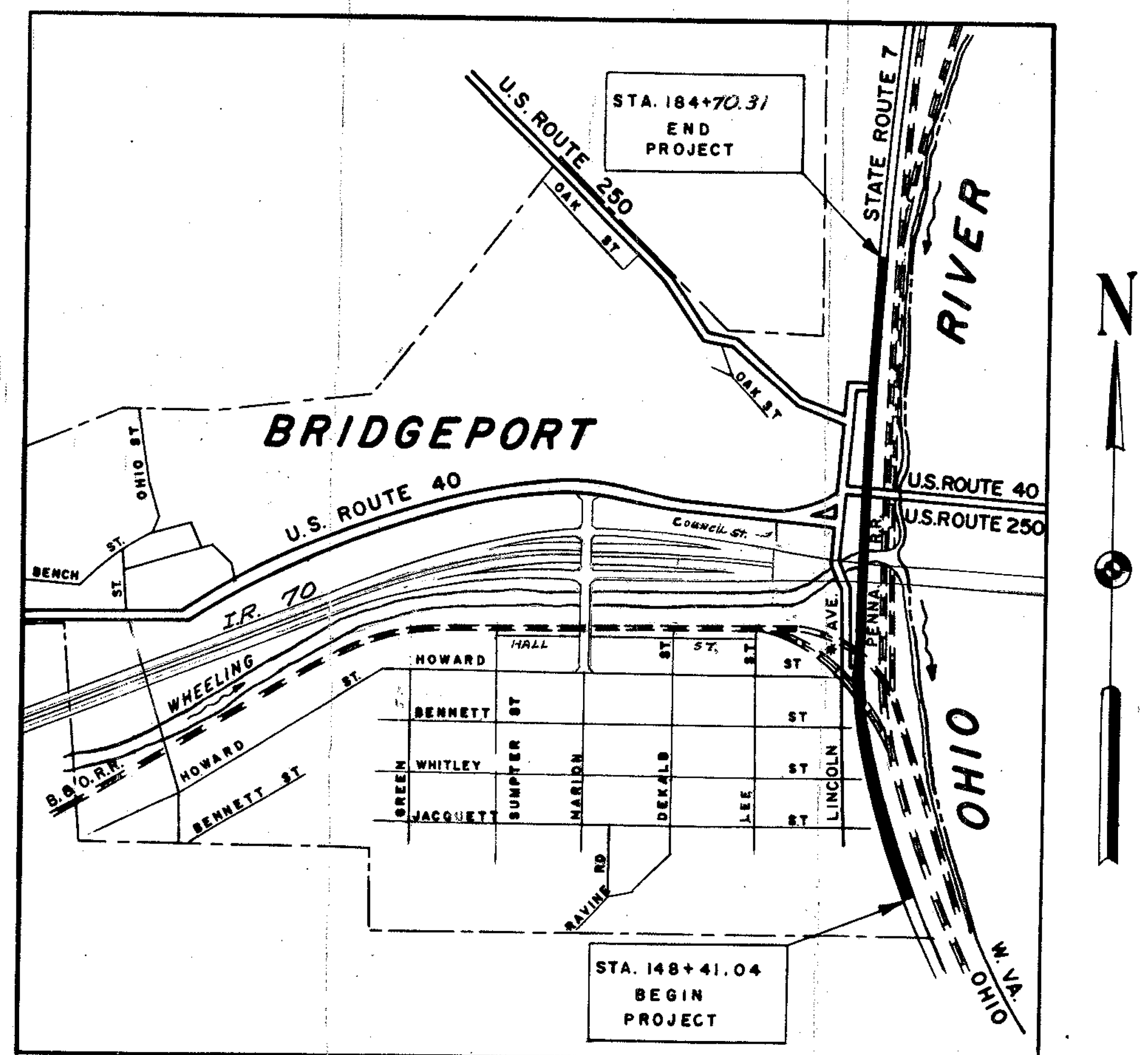
U-534(9)
LIMITED ACCESS

### LIMITED ACCESS

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

### —CONVENTIONAL SIGNS—

STATE LINE
PROPERTY LINE — R
LIMITED ACCESS LINE — L A
SECTION LINE
CENTER LINE
CORPORATION LINE
FENCE LINE
GUARD RAIL (EXISTING)
GUARD RAIL (PROPOSED)
RAILROAD
POWER POLES
TELEPHONE POLES
GENERAL UTILITY POLES
TREES
EXISTING WATER LINES — W
EXISTING GAS LINES — G
EXISTING TELEPHONE CONDUITS — T




* DELIVERY POINT: B. & O. R.R. and PENNA. R.R. — AVERAGE HAUL: 0.3 MILES

—LOCATION MAP—

400 0 400 800 1200 1600
SCALE IN FEET

PORTION TO BE IMPROVED
FEDERAL HIGHWAYS
STATE HIGHWAYS
STREETS

### *1965 SPECIFICATIONS*

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

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

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

APPROVED *Earl W. Nelson*
DATE *9-13-65* DIVISION DEPUTY DIRECTOR

APPROVED *C. H. Altwater*
DATE *7-7-66* ENGINEER OF BRIDGES

APPROVED *R. R. Rickett*
DATE *7-6-66* ENGINEER OF LOCATION & DESIGN

APPROVED *R. E. Shultz*
DATE *7-6-66* DEPUTY DIRECTOR OF DESIGN & CONSTRUCTION

APPROVED *T. H. Borend*
DATE *7-14-66* DEPUTY DIRECTOR OF RIGHT OF WAY

APPROVED *E. W. Wilson*
DATE *7-14-66* DEPUTY DIRECTOR OF PLANNING & PROGRAMMING

APPROVED
DATE FIRST ASSISTANT DIRECTOR

APPROVED *P. E. Masheter*
DATE *7/14/66* DIRECTOR OF HIGHWAYS

### INDEX OF SHEETS



*Sheet No. 59 Revised*
*8-31-66 C.E.H.*
*Sheet No. 6 revised 1-14-6?*

### SCALES

PLAN — 1" = 50'
PROFILE-HORIZONTAL — 1" = 50'
PROFILE-VERTICAL — 1" = 10'

### LINE DATA

*Begin Project Sta. 148+41.04*
*End Project Sta. 184+70.31*
*Length of Project = 3,629.27 L.F. or 0.687 Miles*
*Begin Work Sta. 142+25.00*
*Station Equation Sta. 184+70.31 Bk = Sta. 1089+75 Ah.*
*End Work Sta. 1093+70*
*Length of Work = 4640.31 L.F. or 0.878 Miles*

PREPARED AND RECOMMENDED BY
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
*O. R. Erb*

H. G. SOURS
ASSOCIATE
COLUMBUS

| SUPPLEMENTAL SPECIFICATIONS | | | |
|---|---|---|---|
| Number | Date | Number | Date |
| 814 | 3-16-66 | 1001 | 3-21-66 |
| 808 | 2-7-66 | | |
| 816 | 8-6-65 | 825 | 4-22-65 |
| 815 | 8-6-65 | 828 | 3-21-66 |
| | | 811 | 3-29-65 |

| STANDARD DRAWINGS | | | | | |
|---|---|---|---|---|---|
| Number | Date | HL-1 | 11-1-65 | HL-2 | 11-1-65 |
| BP-1 | 6-1-65 | MC-5 | 6-1-65 | RB-1-55 | 2-2-59 |
| BP-2 | 6-1-65 | MC-6 | 6-1-65 | BR-1-65 Sh. 2 of 2 | 11-24-65 |
| BP-3 | 6-1-65 | FACI-1 | 6-1-65 | | |
| BP-4 | 6-1-65 | FACI-2 | 6-1-65 | AS-1-54 | 8-10-65 |
| BP-5 | 6-1-65 | CB 2-2 A&B | 6-1-65 | SD-1-65 | 11-8-65 |
| BP-6 | 6-1-65 | CB 2-3 & 2-4 | 6-1-65 | HW-1 | 6-1-65 |
| BP-7 | 1-1-66 | CB-3 | 6-1-65 | HW-2 | 6-1-65 |
| MC-1 | 6-1-65 | CB-3A | 6-1-65 | GR-1 | 6-1-65 |
| MC-3 | 5-1-66 | MH-1 | 6-1-65 | GR-2A | 9-1-65 |
| MC-4 | 6-1-65 | MH-2 | 6-1-65 | L-1 | 6-1-65 |
| MC-2 | 6-1-65 | MH-1A | 6-1-65 | HL-3 | 11-1-65 |
| F-1 | 6-1-65 | F-3 | 6-1-65 | HL-4 | 1-1-66 |

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED:
DIVISION ENGINEER DATE

FILE NO. BELMONT COUNTY
BEL-7- 19.86
DATE OF LETTING ________, 196__
CONTRACT NO.

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

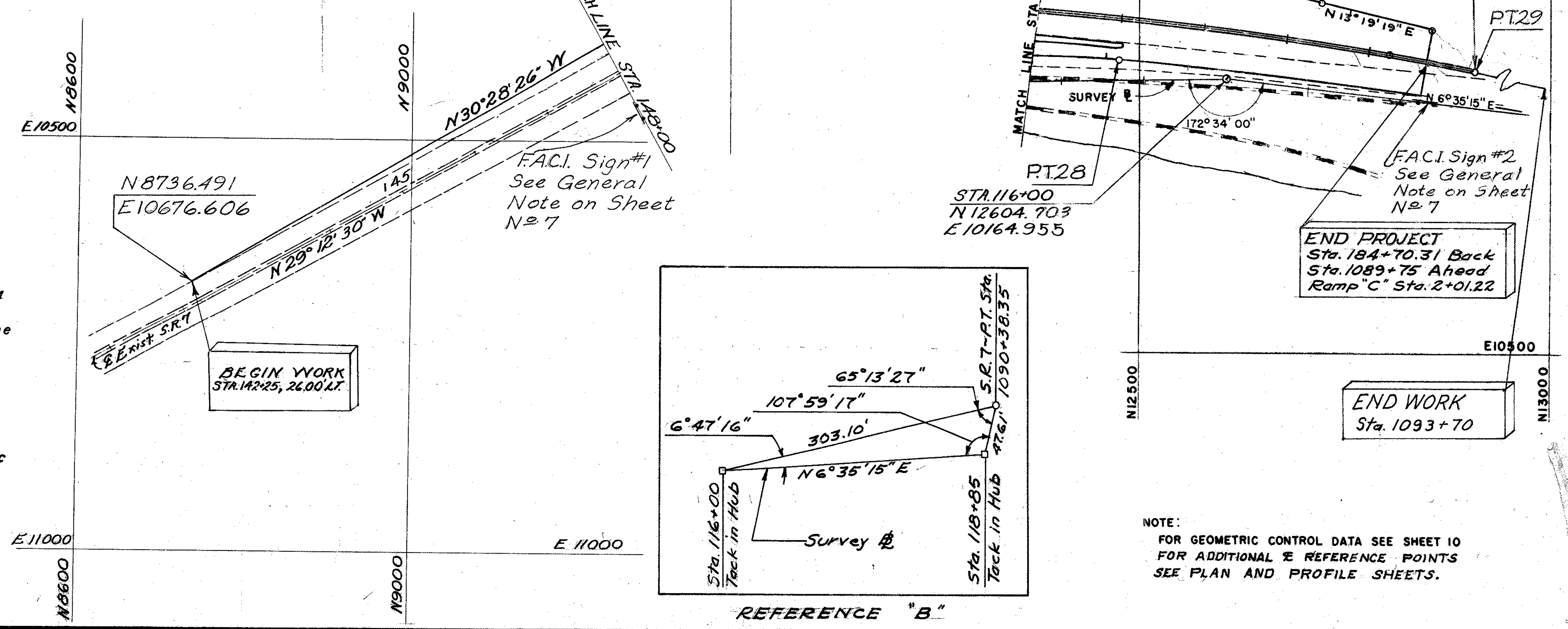
(2)

BELMONT COUNTY
BEL - 7 - 19.86

## DESIGN DESIGNATION

1964 Current A.D.T. 12830
1980 Design Year A.D.T. 19,245
D.H.V. 2889
D. (Directional Distribution) 67%
T. (Percent B&C Trucks) 11%
V. (Design Speed 50 mph.


NOTE: All coordinates and bearings shown are based on a point N10,000.000 E10,000.000 at the intersection of the State Route 7 back tangent and the Survey ℄ of Lincoln Avenue, with the Survey ℄ of Lincoln Avenue bearing due North. This point is station 156+30.30 on the Survey ℄ of Lincoln Avenue.




### SUGGESTED CONSTRUCTION PROCEDURE for MAINTENANCE OF TRAFFIC

**NORTH APPROACH**

1. Make the excavation on the west side and relocate utilities along bench. (Water line only is in this contract. Power, telephone, and gas are to be relocated by their respective owners). Construct portion of Ramp "C", providing temporary connections at Sta. 176+50± (Lincoln Avenue) and at Sta. 184+70±.
2. Maintain two-way traffic over Lincoln Avenue and the finished portion of Ramp "C". Construct Ramp "D" and the U.S. 250 Crossover.
3. Maintain two-way traffic on Ramp "D". Complete Ramp "C" including U.S. 250 intersection and Lincoln Avenue. The U.S. 250 intersection is to be constructed in such a manner as to permit two-way traffic (east-west) at all times.
4. Northbound traffic can be carried on Ramp "D" and southbound traffic on Ramp "C". All other work can continue.

**SOUTH APPROACH**

1. Two-way traffic can be maintained over the existing southbound lanes while the grading and new pavement is constructed on the right side from Sta. 148+41.04 to Sta. 154+50. Ramp "B" can be constructed.
2. Two-way traffic can be maintained on Ramp "B" and the northbound lanes while the portion of Lincoln Ave. between Howard Street and Whitley Street, Ramp "A", and the southbound lanes are constructed.
3. Southbound traffic can be carried over Ramp "A". Northbound traffic can be carried over Ramp "B". All other work can continue.

For additional notes regarding maintenance of traffic See sheet 7.

NOTE:
FOR GEOMETRIC CONTROL DATA SEE SHEET 10
FOR ADDITIONAL ℄ REFERENCE POINTS SEE PLAN AND PROFILE SHEETS.

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

| | | | |
|---|---|---|---|
| MADE DDS | DATE 8-5-59 | TRACED NES | DATE 8-15-59 |
| CHECKED LVM | DATE 10-26-61 | SCALE 1" = 100' | |

SCHEMATIC PLAN

# TYPICAL SECTIONS

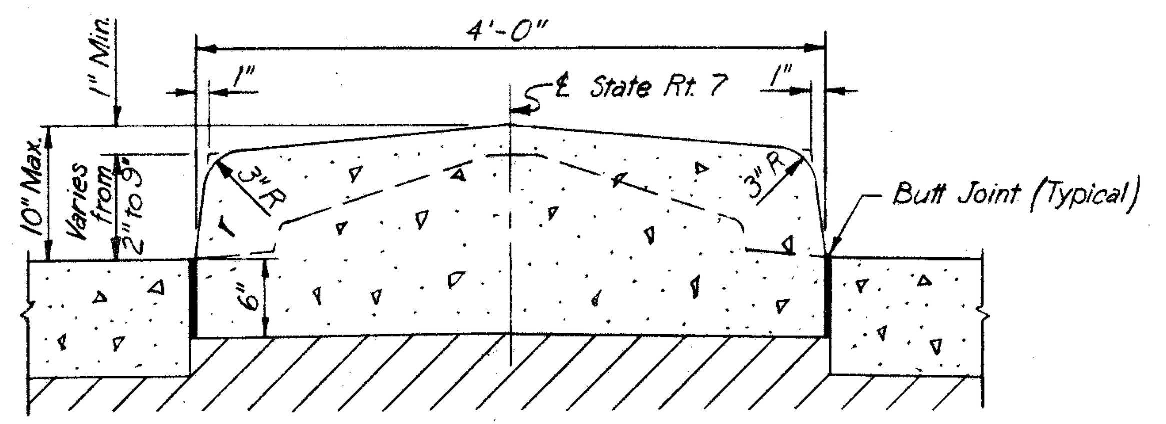
## TYPE T-71 REINFORCED CONCRETE PAVEMENT

*SCALE: 1/4" = 1'*

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

3

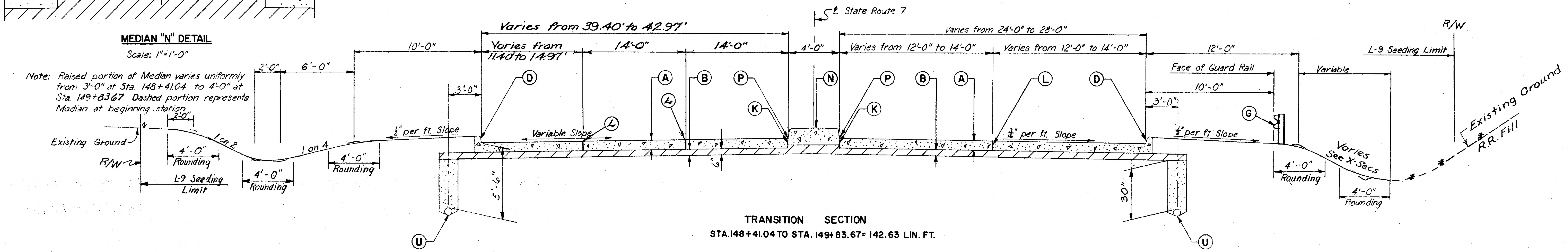
BELMONT COUNTY
BEL-7-19.86



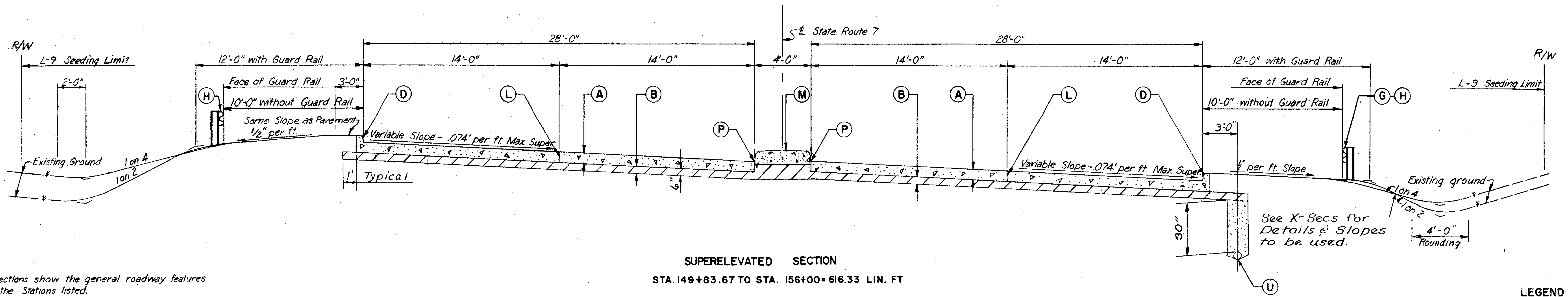

**MEDIAN "N" DETAIL**

Scale: 1" = 1'-0"

Note: Raised portion of Median varies uniformly from 3'-0" at Sta. 148+41.04 to 4'-0" at Sta. 149+83.67. Dashed portion represents Median at beginning station.

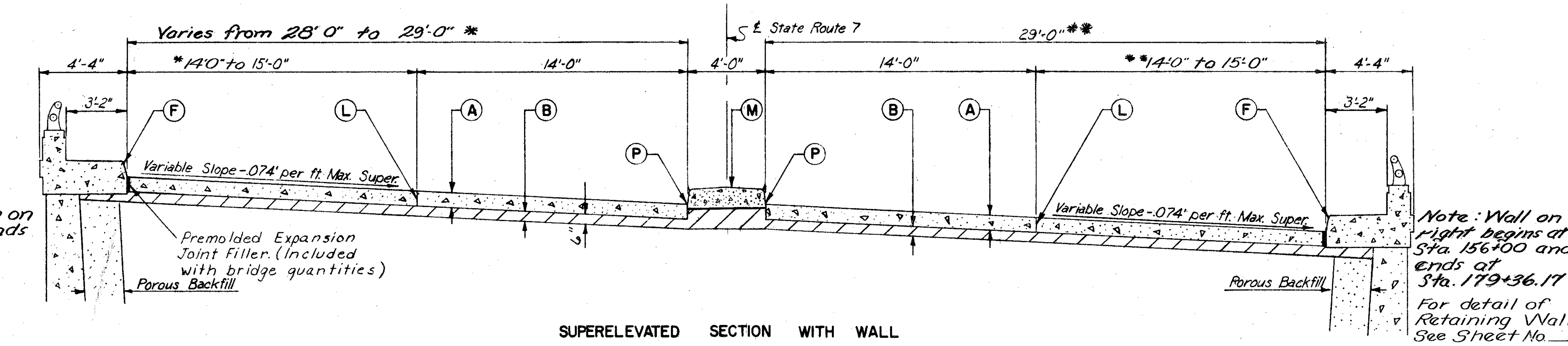



TRANSITION SECTION
STA. 148+41.04 TO STA. 149+83.67 = 142.63 LIN. FT.




SUPERELEVATED SECTION
STA. 149+83.67 TO STA. 156+00 = 616.33 LIN. FT

Notes: Typical Sections show the general roadway features between the Stations listed.
Where variable conditions are encountered on side slopes, Cross Sections shall govern over Typical Sections.
For limits of Guard Rail see Plan-Profile sheets.
Unless otherwise shown on the plans, underdrains shall be laid parallel to profile grade with 30" cover from bottom of subbase to top of pipe. Where deep underdrains are called for, 4'-3" cover from bottom of subbase to top of pipe shall be provided.




Note: Wall does not begin on Lt. until Sta. 157+00 and ends at Sta. 178+25

Note: Wall on right begins at Sta. 156+00 and ends at Sta. 179+36.17
For detail of Retaining Wall See Sheet No. ____

SUPERELEVATED SECTION WITH WALL
STA. 156+00 TO STA. 158+87.75 = 287.75 LIN. FT.
STA. 175+70.25 To STA. 178+25 = 254.75 Lin. Ft. (Left side only)
STA. 175+70.25 To STA. 179+36.17 = 365.92 Lin. Ft. (Right Side only)

* Pavement width transitions from 28'-0" to 29'-0" between Sta. 156+75 and Sta. 157+00

** Pavement width varies from 30'-0" to 29'-0" as shown on the detail Sheet 35, due to the extra width required for Exit Ramp "B".

**LEGEND**

- (A) Item T-71, 9" Reinforced Portland Cement Concrete Pavement
- (B) Item I-22, Subbase, Grading "A" or "B" as per plan
- (D) Item I-12, Standard Type 2-A Concrete Curb
- (F) Safety Curb
- (K) Butt Joint
- (L) Standard Longitudinal Joint
- (M) Item I-21, 9" Concrete Median
- (N) Item I-21, Concrete Median - Modified, as per plan.
- (P) Profile Grade
- (U) Item I-1, 6" Pipe Class I-3 (Deep or shallow as indicated on plans)
- (G) Item I-15, Guard Rail Removed & Rebuilt
- (H) Item I-15, Guard Rail, Steel Beam, Standard Type (Deep)


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

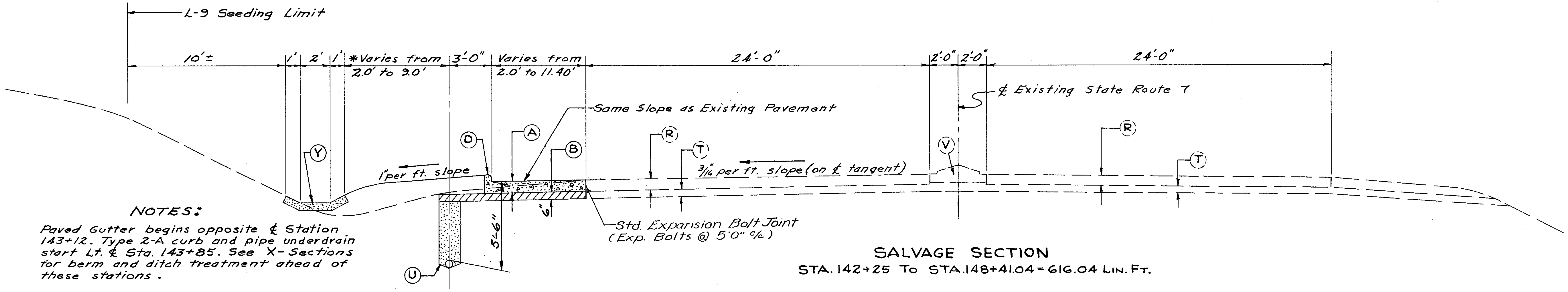

| | | | |
|---|---|---|---|
| MADE LVM | DATE 7-8-58 | TRACED | DATE |
| CHECKED E.C.E. | DATE 7-13-61 | SCALE 1/4" = 1'-0" or as shown | |

Rev. 7-25-66

# TYPICAL SECTIONS

TYPE T-71 REINFORCED CONCRETE PAVEMENT

SCALE: ¼" = 1'



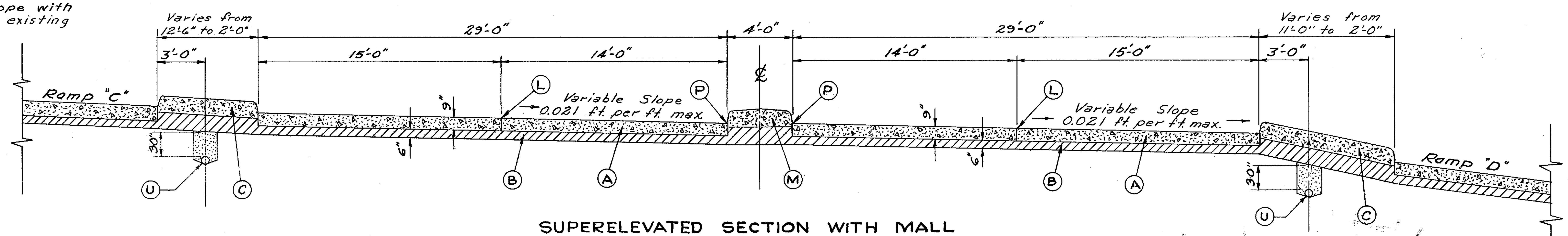

## NOTES:

Paved Gutter begins opposite ℄ Station 143+12. Type 2-A curb and pipe underdrain start Lt. ℄ Sta. 143+85. See X-Sections for berm and ditch treatment ahead of these stations.

* Berm width varies so that Paved Gutter may be constructed on back-slope with a minimum of disturbance to the existing slope cover.

SALVAGE SECTION

STA. 142+25 To STA. 148+41.04 = 616.04 LIN. FT.

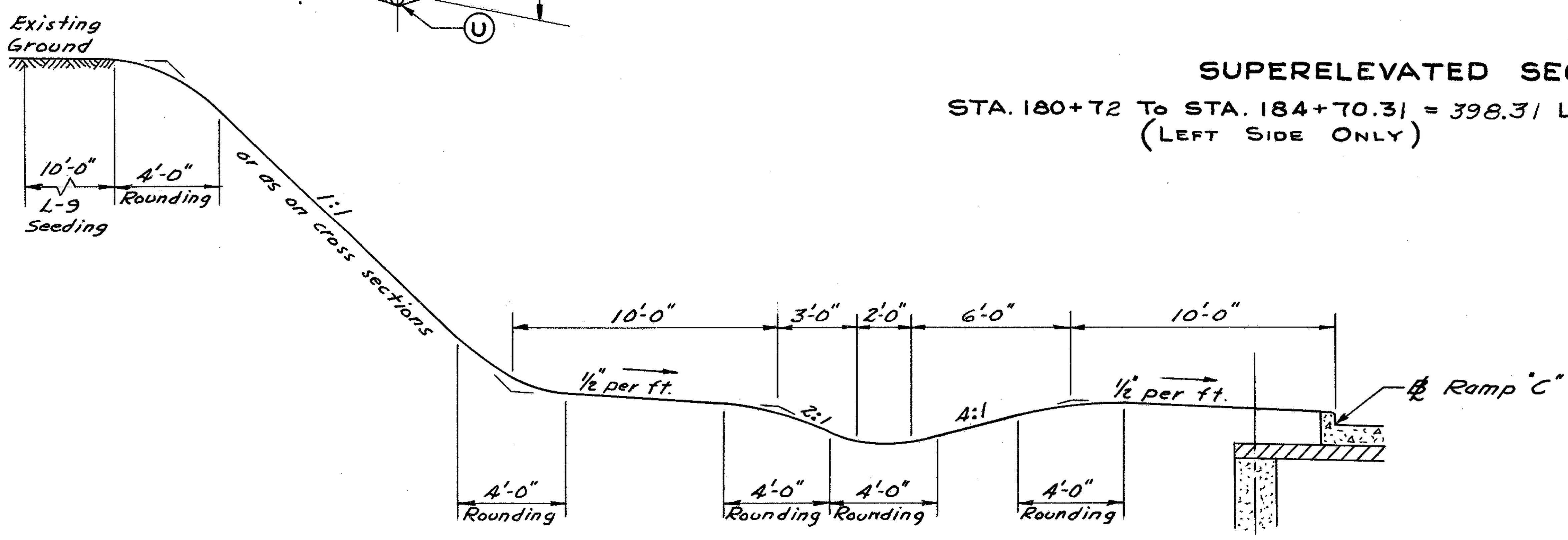



SUPERELEVATED SECTION WITH MALL

STA. 178+25 To STA. 180+72 = 247 LIN. FT. (LEFT SIDE ONLY) ~ STA. 179+36.17 To STA. 181+02 = 165.83 LIN. FT. (RIGHT SIDE ONLY)


SUPERELEVATED SECTION WITH ACCEL. & DECEL. LANES

STA. 180+72 To STA. 184+70.31 = 398.31 LIN. FT. (LEFT SIDE ONLY) ~ STA. 181+02 To STA. 184+70.31 = 368.31 LIN. FT. (RIGHT SIDE ONLY)




DITCH AND SLOPE DETAIL FOR SUPERELEVATED SECTION ABOVE

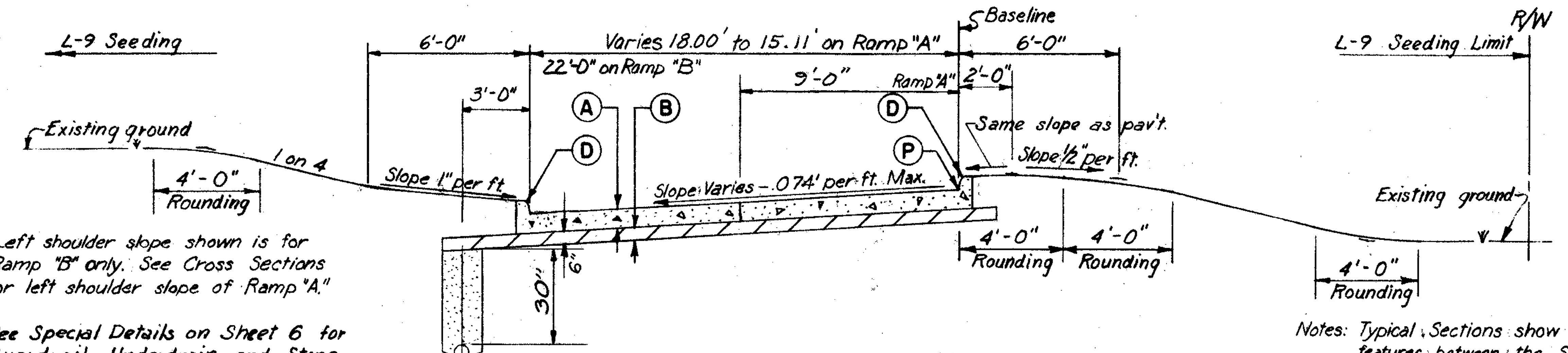
## LEGEND

- (A) Item T-71, 9" Reinforced Portland Cement Conc. Pav't.
- (B) Item I-22, Subbase, Grading "A" or "B"
- (D) Item I-12, Standard Type 2-A Concrete Curb.
- (H) Item I-15, Guard Rail, Steel Beam Standard Type (Deep)
- (J) Item E-4, Borrow, Using Granular Material. (No. 3 Aggregate, Sec. M-3.5)
- (L) Standard Longitudinal Joint.
- (C) Item I-21, 6" Portland Cement Concrete Median.
- (M) Item I-21, 9" Concrete Median
- (P) Profile Grade.
- (R) Existing 9" Reinforced Concrete Pavement.
- (T) Existing 6" Subbase.
- (U) Item I-1, 6" Pipe, Class I-3. (Deep or shallow as indicated on Plans)
- (V) Existing Type I Median Pavement.
- (Y) Item I-14.

# TYPICAL SECTIONS

## TYPE T-71 REINFORCED CONCRETE PAVEMENT

BELMONT COUNTY
BEL-7-19.86



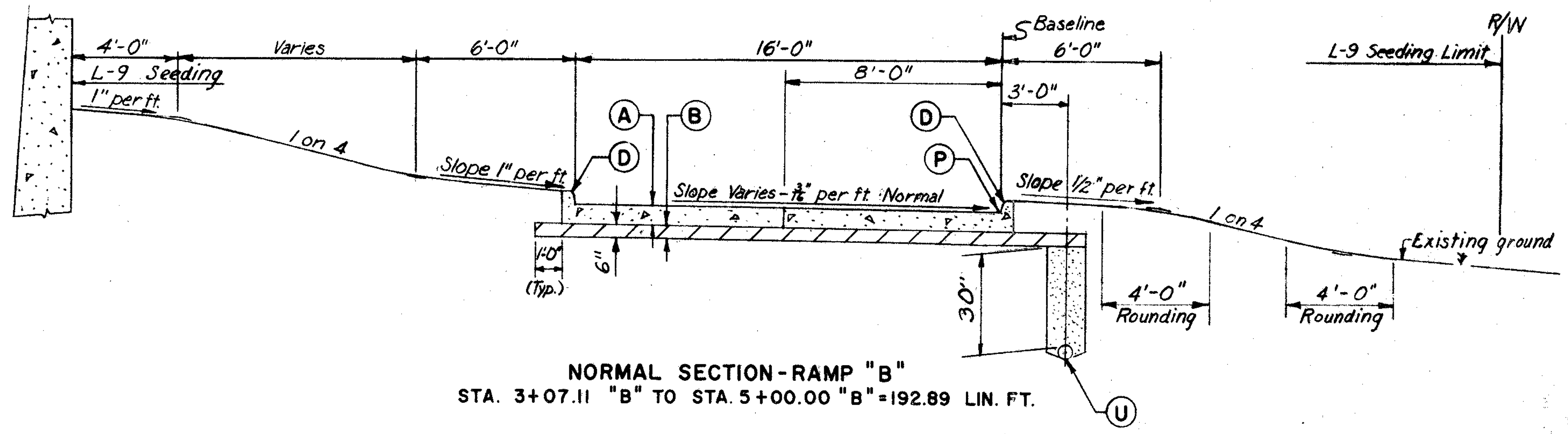

Note: Left shoulder slope shown is for Ramp "B" only. See Cross Sections for left shoulder slope of Ramp "A."

*See Special Details on Sheet 6 for Guardrail, Underdrain, and Stone Fill Treatment adjacent to Penna R.R. Transfer track. (Sta. 6+00 "B" to Sta. 7+25 "B").

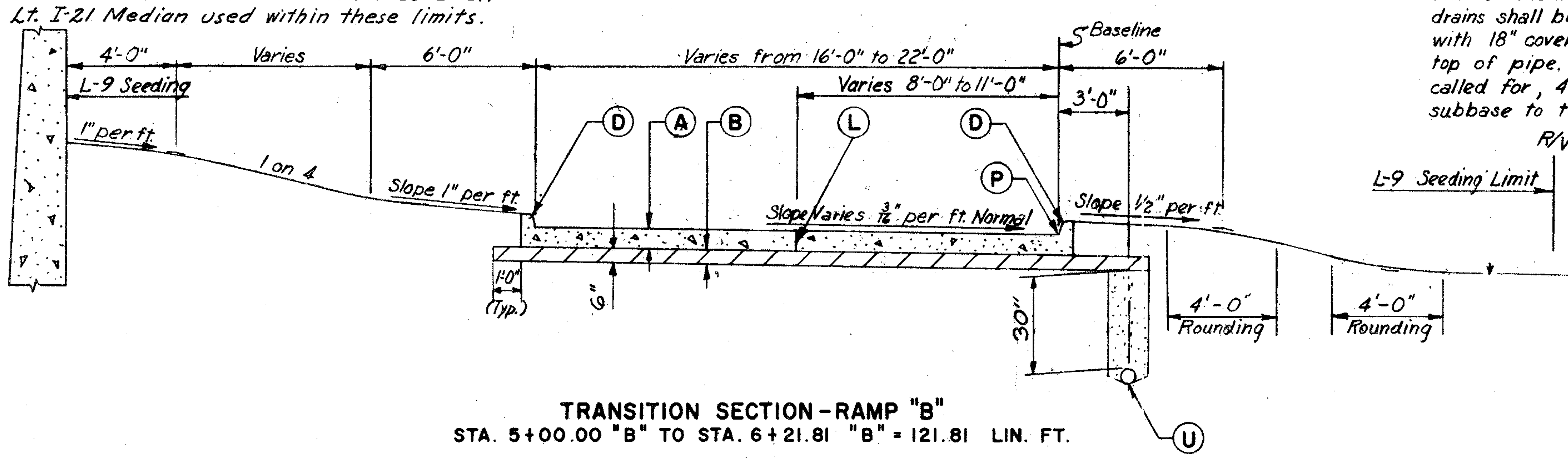
** Sta. 1+63.88 to Sta. 4+79.77. No curb on Lt. I-21 Median used within these limits.

SUPERELEVATED SECTION - RAMPS "A" & "B"
**STA. 1+31.05 "A" TO STA. 4+79.77 "A" = 348.72 LIN. FT.
*STA. 6+21.81 "B" TO STA. 7+85.45 "B" = 163.64 LIN. FT.

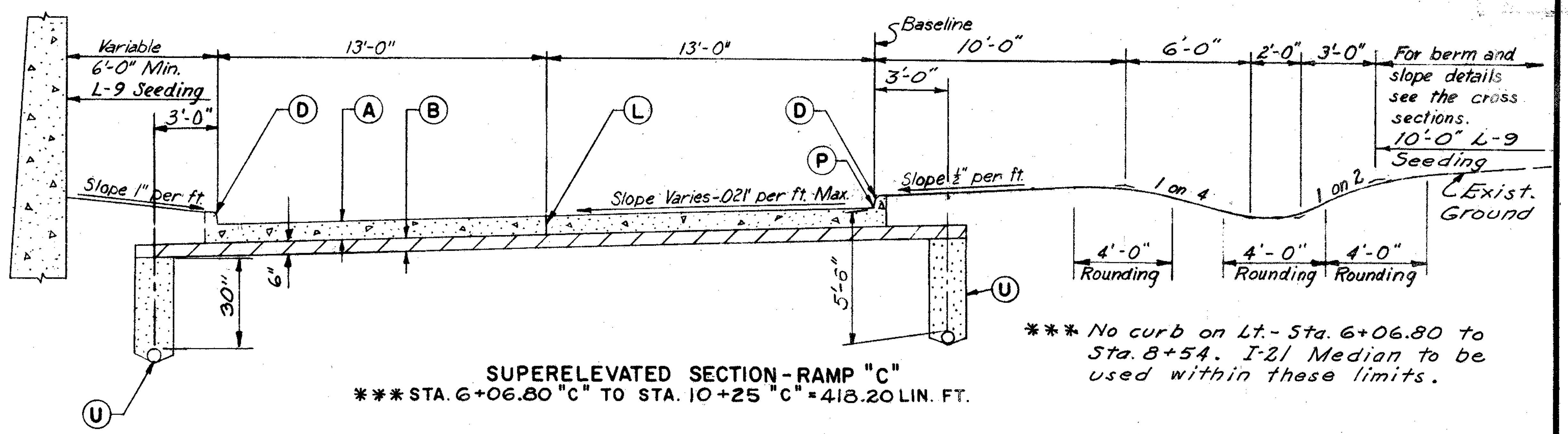
Notes: Typical Sections show the general roadway features between the Stations listed.
Where variable conditions are encountered on side slopes, Cross Sections shall govern over Typical Sections.
Unless otherwise shown on the plans, underdrains shall be laid parallel to profile grade with 18" cover from bottom of subbase to top of pipe. Where deep underdrains are called for, 4'-3" cover from bottom of subbase to top of pipe shall be provided.




NORMAL SECTION - RAMP "B"
STA. 3+07.11 "B" TO STA. 5+00.00 "B" = 192.89 LIN. FT.

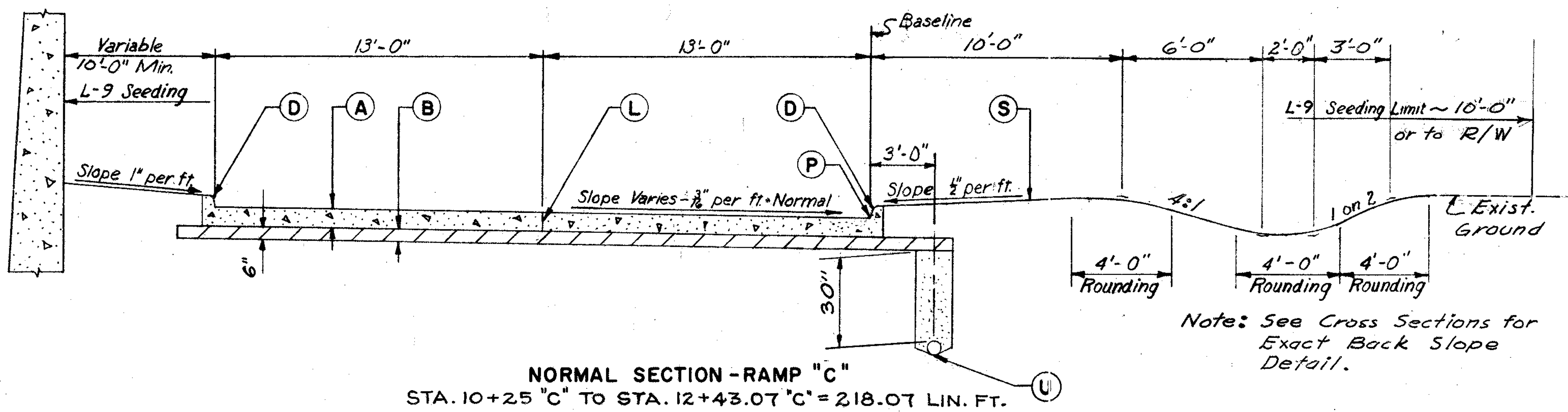



TRANSITION SECTION - RAMP "B"
STA. 5+00.00 "B" TO STA. 6+21.81 "B" = 121.81 LIN. FT.



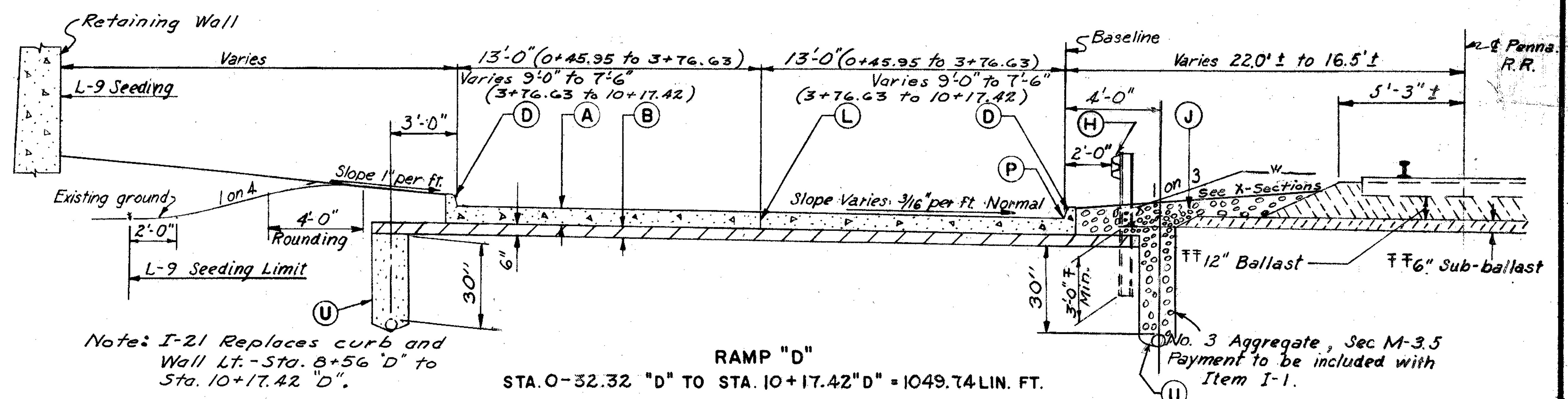

*** No curb on Lt. - Sta. 6+06.80 to Sta. 8+54. I-21 Median to be used within these limits.

SUPERELEVATED SECTION - RAMP "C"
***STA. 6+06.80 "C" TO STA. 10+25 "C" = 418.20 LIN. FT.



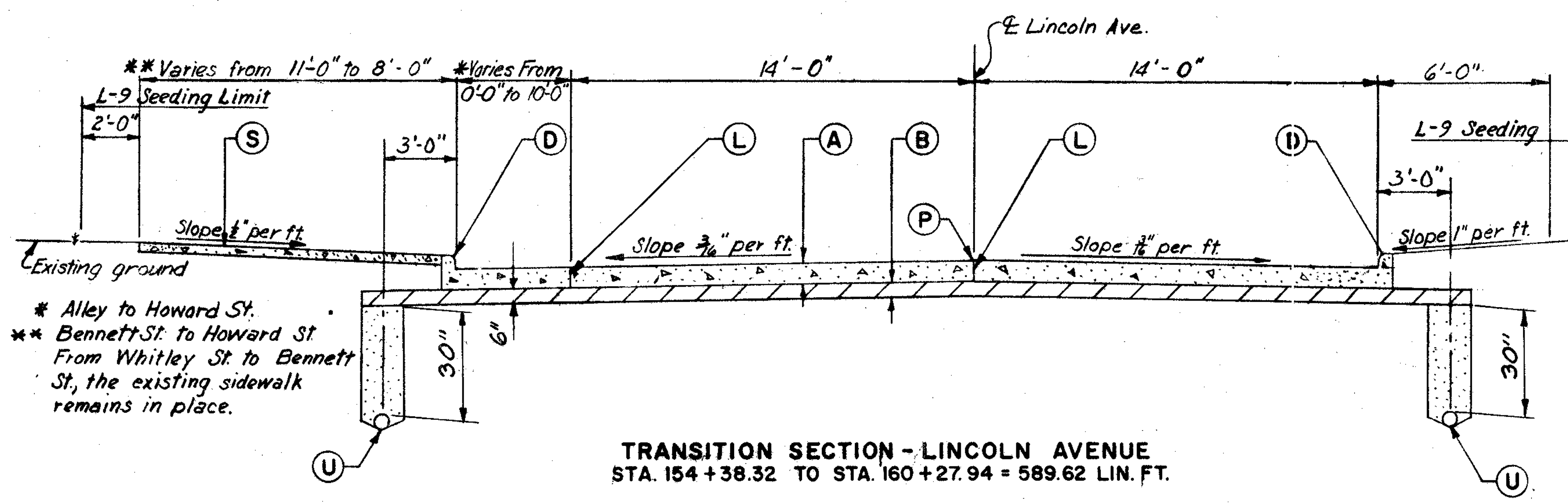

Note: See Cross Sections for Exact Back Slope Detail.

NORMAL SECTION - RAMP "C"
STA. 10+25 "C" TO STA. 12+43.07 "C" = 218.07 LIN. FT.




Note: I-21 Replaces curb and Wall Lt. - Sta. 8+56 "D" to Sta. 10+17.42 "D".

RAMP "D"
STA. 0-32.32 "D" TO STA. 10+17.42 "D" = 1049.74 LIN. FT.

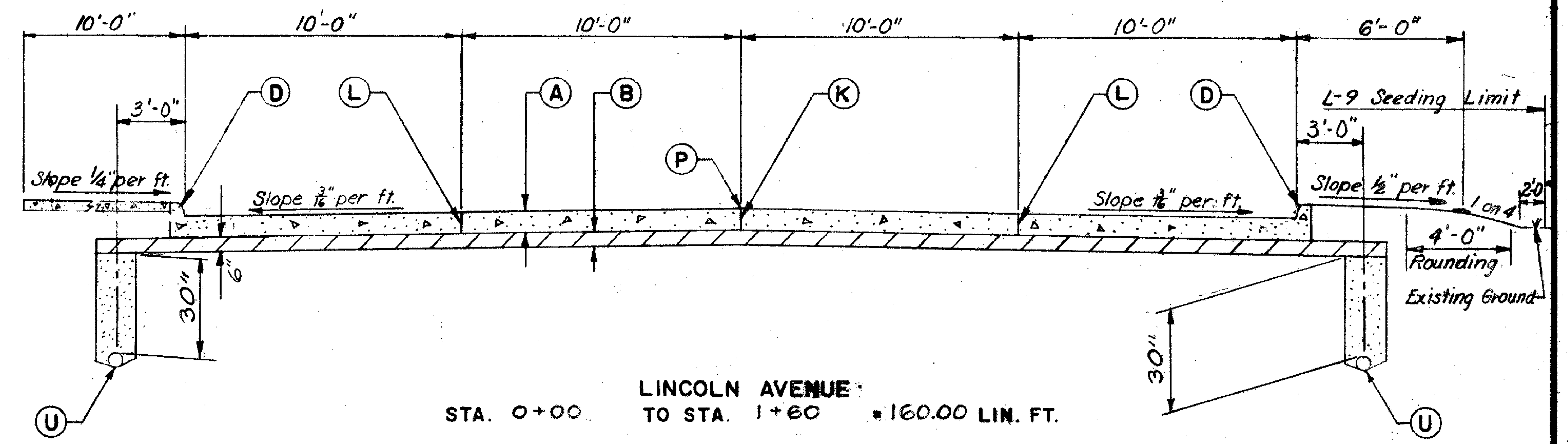



* Alley to Howard St.
** Bennett St. to Howard St. From Whitley St. to Bennett St, the existing sidewalk remains in place.

TRANSITION SECTION - LINCOLN AVENUE
STA. 154+38.32 TO STA. 160+27.94 = 589.62 LIN. FT.

### LEGEND

- (A) Item T-71, 9" Reinforced Portland Cement Concrete Pavement
- (B) Item I-22, Subbase
- (D) Item I-12, Standard Type 2-A Concrete Curb
- (U) Item I-1, 6" Pipe Class I-3 (Deep or shallow as indicated on plans)
- (L) Standard Longitudinal Joint
- (P) Profile Grade
- (S) Item I-13, 4" Portland Cement Concrete Sidewalk
- (J) Item E-4, Borrow, Using Granular Material (No. 3 Aggregate, Sec. M-3.5)
- (K) Key Joint without tie bars.
- (H) Item I-15 Guard Rail, Steel Beam Standard Type (Deep).
- ‡ Typical within limits of granular material.
- ‡‡ The track section shown (ballast and sub-ballast) is based on the Pennsylvania Railroad's standard section and does not necessarily represent the outline of the existing track section.




LINCOLN AVENUE
STA. 0+00 TO STA. 1+60 = 160.00 LIN. FT.

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

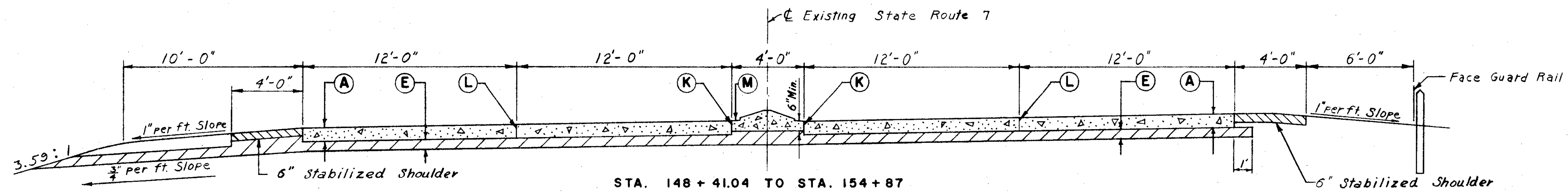
MADE LVM DATE 7-15-58 TRACED DATE
CHECKED E.C.E. DATE 3-10-62 SCALE ¼" = 1'-0"

# TYPICAL SECTIONS

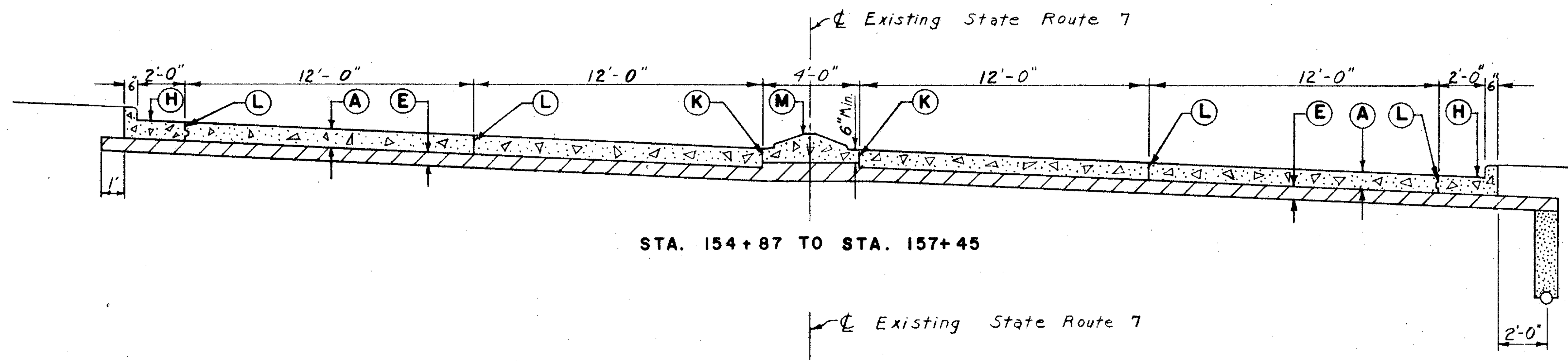
| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

G

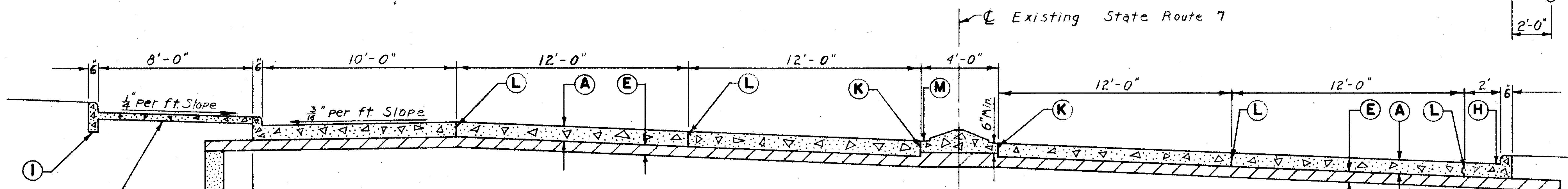
BELMONT COUNTY
BEL-7-19.86



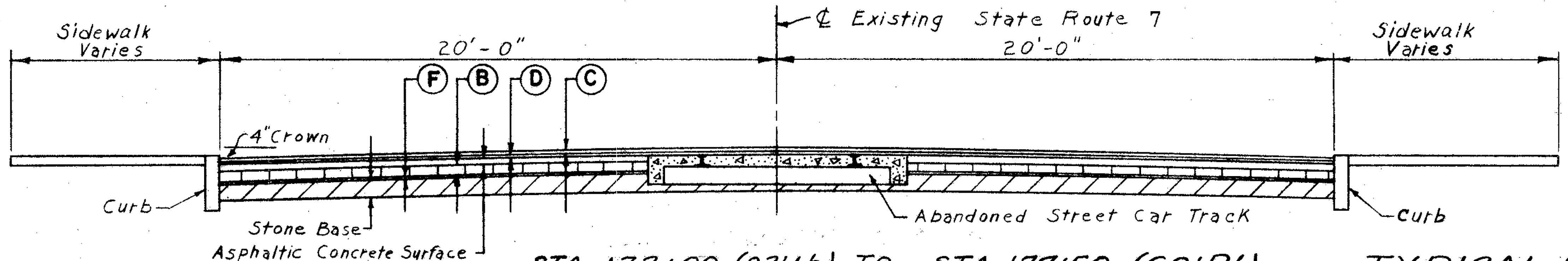

STA. 148 + 41.04 TO STA. 154 + 87



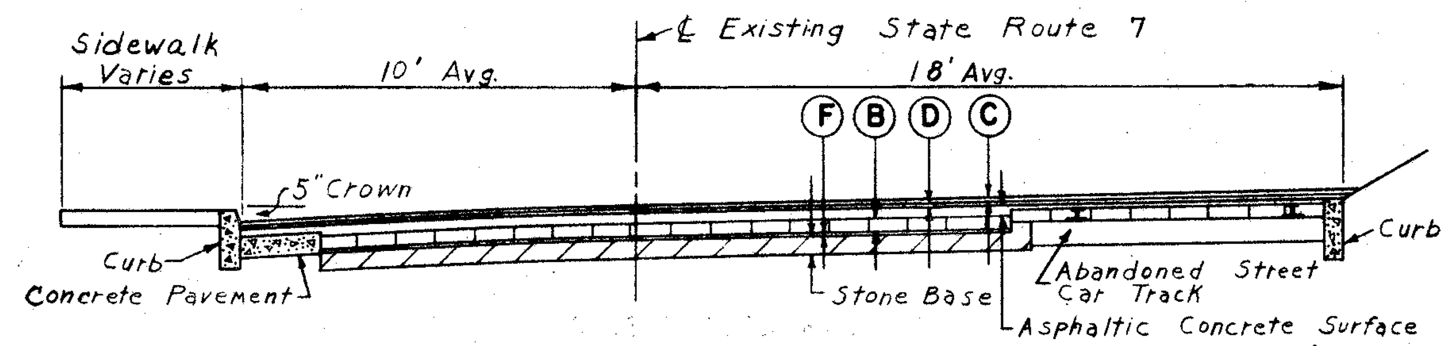

STA. 154 + 87 TO STA. 157 + 45




STA. 157 + 45 TO STA. 161 + 00



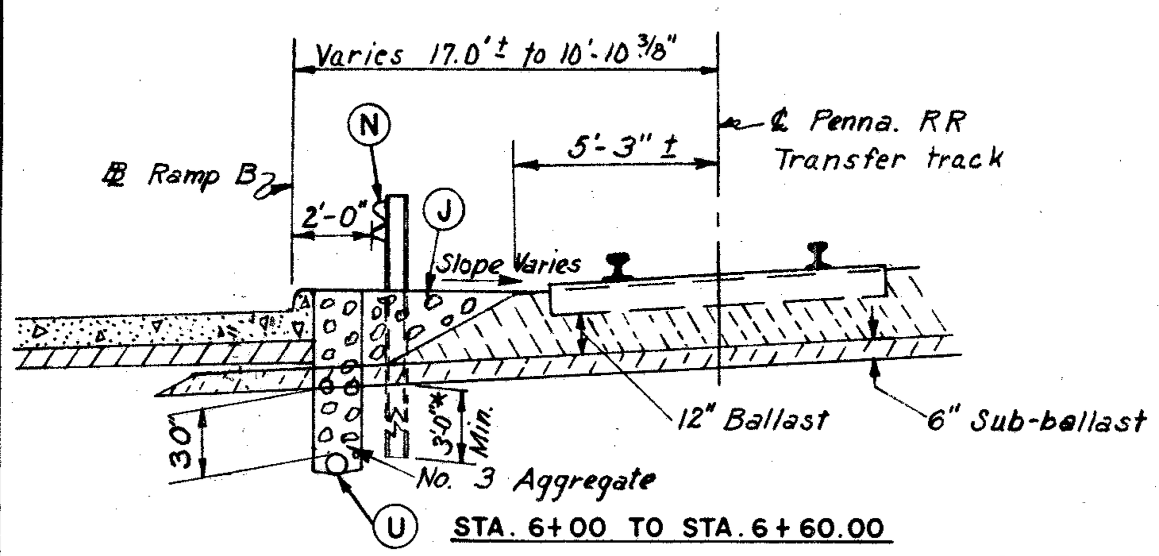

STA. 173+00 (82' Lt.) TO STA. 177+50 (60' Rt.)



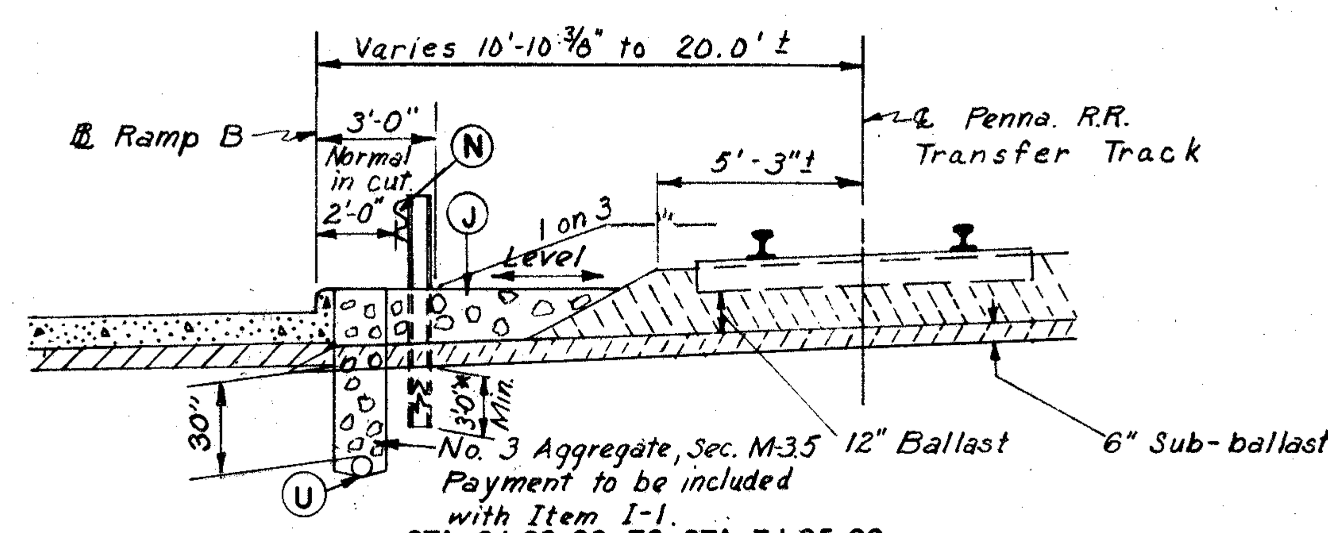

STA. 177+50 (60' Rt.) TO STA. 184+70.31 (30' Rt.)

TYPICAL SECTIONS FOR
**EXISTING STATE ROUTE 7**

* Typical within limits of granular material.
** The track section shown (ballast and sub-ballast) is based on the Pennsylvania Railroad's standard section and does not necessarily represent the outline of the existing track section.




STA. 6+00 TO STA. 6+60.00




STA. 6+60.00 TO STA. 7+25.00

**SPECIAL SHOULDER DETAILS - RAMP "B"**

**LEGEND**

**EXISTING**

- (A) 9" Reinforced Concrete Pavement
- (B) Brick Pavement
- (C) Asphaltic Concrete Surface Course
- (D) Asphaltic Concrete Leveling Course
- (E) 6" Subbase
- (F) Sand Cushion
- (S) 4" Concrete Sidewalk
- (H) Type 2 Concrete Curb & Gutter
- (I) Type 6 Modified Concrete Curb
- (K) Plain Butt Joint Without Tie Bars
- (L) Standard Longitudinal Joint
- (M) Type I Median Pavement

**PROPOSED**

- (U) Item I-1, 6" Pipe, Class I-3
- (J) Item I-4, Borrow, using Granular Material (No. 3 Aggregate, Sec. M-3.5)
- (N) Item I-15, Guard Rail, Steel Beam Standard Type (Deep)

| MADE W.C.I | DATE 9-1-61 | TRACED | DATE |
|---|---|---|---|
| CHECKED E.C.E | DATE 3-13-62 | SCALE 1/4" = 1'-0" | |

# GENERAL NOTES

## GENERAL

ELEVATION DATUM

All elevations shown on these plans are in feet above the U.S. Coast and Geodetic Survey Datum Plane.

FIELD OFFICE

The Contractor shall in addition to the requirements of 105.152, provide a suitable field office having a minimum of 500 sq. ft. of floor space. The Contractor shall have a telephone installed and maintained in this field office during the construction of this project. The Contractor shall also provide and maintain sanitary provisions as per 107.06. All the above is included in the lump sum price bid for Field Office.

UNDERGROUND UTILITIES

The locations of the underground utilities shown on the plans have been obtained by diligent field checks and searches of available records. It is believed that they are essentially correct, but the State of Ohio makes no guarantee as to their accuracy or completeness.

MAINTENANCE OF TRAFFIC

Two-way traffic shall be maintained on US 40 at all times except for limited periods of time during erections of steel over US 40. Erecting steel over US 40 will not be permitted during week days between the hours of 7:00 to 9:00 A.M. and 3:00 to 5:00 P.M.

The Contractor for this project will be required to schedule his operations so as to provide for the maintenance of two-way traffic at all times on U.S. 250 and S.R. 7 (Lincoln Avenue) by use of either the existing pavements, proposed pavements, or temporary connections surfaced with 410 aggregate and stabilized with 616 Calc. Chl. See sheet 2 for "Suggested Construction Procedure for Maintenance of Traffic".

Attention is directed to the need for providing adequate facilities to accommodate school children and other pedestrian traffic in the vicinity of the project. The Contractor shall provide and maintain such temporary boardwalks, cinder walks, hand-rails adjacent to excavations, etc., as may be necessary to accommodate in a reasonable and safe manner pedestrian traffic in the vicinity of the project. All the above except Items 410,615 & 616 , shall be included for payment in the lump sum price bid for maintaining traffic, Item 614.

ACCESS ROAD

The Mountain State Construction Company, have been granted a 20' wide access across our right of way at Sta. 165+06, to construct a haul road to their project I-70-1(100)0. This area appears cross hatched on the right of way plan. All precaution should be taken to keep this area clear and available for their use.

LIGHTS, SIGNS, AND BARRICADES

The Contractor shall, in addition to the general requirements of Item 614 , on this project perform the following

Provide, erect, and maintain Standard 48"x30" size "Road Closed" signs, sign supports, and lights at the following locations during periods in which the affected roads are closed to traffic

1. Lincoln Avenue just north of Jacquett Street
2. Whitley Street just east of Lee Street
3. Bennett Street just east of Lee Street

Sign supports and lights for "Road Closed" signs shall be as detailed in the "Ohio Manual of Uniform Traffic Control Devices".

Payment for providing, erecting, maintaining and removing barricades, gates, lights, signs and sign supports shall be included in the lump sum price bid for Item 614 Maintaining Traffic .

FEDERAL AID CONSTRUCTION IDENTIFICATION SIGNS:

The Contractor shall furnish, erect, maintain and subsequently remove Federal Aid Construction Identification sign at each of the following locations.

1. State Route 7 ~ Sta. 148+00 (Right)
2. State Route 7 ~ Sta. 184+70 (Right)
3. On traffic island at intersection of U.S. 40 and State Route 7 ~ Sta. 169+00 (Left)

Sign details shall be specified on standard Drawing F.A.C.I. Code N-55 (2)-120 (2) for signs 1 & 2, Code N-54 (1)-96 (2) for sign 3, and shall be erected in accordance with Standard Drawing F.A.C.I.-2. Additional requirements shall be in accordance with notes in proposal.

Signs 1 & 2 shall include BEL-70-26.43 project.

ESTIMATED QUANTITIES

Specific locations and usage of estimated quantities set up in this plan to be used "as directed by the Engineer" shall be made a matter of record by incorporation into the final change order governing completion of the project.

## ROADWAY

REMOVAL OF TREES AND STUMPS

Unless otherwise shown on the plans or directed by the Engineer, all trees and stumps lying within the construction limits of this project shall be removed under the lump sum price bid for Item 201, Clearing and Grubbing.

The following is an approximate estimate of the number of trees to be removed.

| Sizes | No. of Trees |
|---|---|
| 12"-18" | 39 |
| 18"-24" | 5 |
| 24"-30" | 2 |
| 30"-36" | 1 |

The above estimate is approximate and the State of Ohio reserves the right to order the removal of additional trees or stumps outside of the limits of construction but within the right of way and easement lines. Payment for the removal of these additional trees or stumps shall be included in the lump sum price bid for Item 201 , Clearing & Grubbing.

SEEDING AND PROTECTING

The quantities shown for seeding were computed for all soil areas between the work limits, as shown on the cross sections.

Seed shall be a uniform mixture in the following proportions:

45 % Kentucky 31 Fescue or Alta Fescue
25 % Kentucky Bluegrass
10 % Red Top
20 % Creeping Red Fescue

SEQUENCE OF OPERATIONS: (FOR UTILITY CONSTRUCTION)

The Contractors first operation on this project shall be the construction of the embankment and excavation to plan lines on Ramp C and to the Left from Sta. 174+00 to 184+70.31, to provide an area for relocated utilities. Upon completion of this work, the Contractor shall notify the Utility companies involved and then vacate all area Sta 174+00 north for a period of 2½ months, to allow the utilities to be relocated uninterruptedly. The contractor shall excercise extreme caution while working in the vicinity of existing or relocated utilities.

I-70 CONTRACT:

The Contractor is advised that I-70 (BEL-70-26.92) is currently under contract crossing over this project at approximate Sta. 166+27.

ROUNDING OF CORNERS ON CROSS SECTIONS

The rounded corners shown on Standard Construction Drawing MC-1 as modified by the typical sections apply to all cross sections even though otherwise shown in these plans.

GRADE TOLERANCES

The provisions for grading in accordance with Sec. 659.09 shall be considered to be particularly applicable in the following areas:

Lincoln Avenue - Sta. 154+38 to Howard Street (Left)
State Route 7 - Sta. 176+20 to Sta. 184+70 (Left)

SIDEWALKS AND STEPS

A quantity of Item 608 , 4" Sidewalks has been included in the General Summary for reconstruction of the sidewalks in front of the Church and Post Office between Bennett Street and Howard Street, and also in front of the Scott Lumber Company Sta. 173+25± on Lincoln Avenue. It may be determined by the Engineer that construction of concrete steps is necessary at these locations. Concrete steps at these locations, if necessary, will be measured and paid for at the unit price bid per linear foot for Item 608 , Concrete Steps. A quantity of 20 Lin.Ft. of concrete steps is included in the General Summary. An adjustment must be made in the elevation of the steel cover to the Scott Lumber Company basement entrance at Sta. 173+50± Lincoln Avenue. Payment for this work is to be included in the unit price bid per square foot for Item 608 , 4" Sidewalks.

| MADE | E.C.E. | DATE | 4-26-62 | TRACED | | DATE | |
|---|---|---|---|---|---|---|---|
| CHECKED | J.C.T. | DATE | 5-10-62 | SCALE | | | |

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

# GENERAL NOTES

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |



BELMONT COUNTY

BEL-7-19.86

## ROADWAY (con't.)

### SPECIFICATIONS

All items appearing throughout the plans referring to the 1963 Construction and Material Specifications are to be used for reference purposes only. This project shall be constructed in accordance with the requirements of the 1965 Construction and Material Specifications. The cross references to the 1965 Specifications are shown on the general summary sheets Nos. 12, 13 & 14.

ITEM 203, BORROW USING GRANULAR MATERIAL, AS PER PLAN

Material furnished for this item shall be No. 3 Aggregate meeting the requirements of 703 and shall be measured in place. The limits of granular material shall be adjusted, if necessary, by the Engineer at the time of construction in order to provide adequate drainage for the existing Pennsylvania Railroad track section.

CONSTRUCTION LAYOUT STAKES

See note in proposal describing the work included in this lump sum pay item.

UTILITIES

Following is a list of the utilities within the limits of construction:

- Ohio Valley Gas Company, Sunset Blvd., Steubenville, Ohio.
- Ohio Power Company, 301-315 Cleveland Ave. S.W., Canton 2, Ohio
- Manufacturers Light and Heat Company, 800 Union Trust Bldg, Pittsburg 19, Pa.
- Ohio Bell Telephone Company, North 5th St., Steubenville, Ohio
- Village of Bridgeport Water Department, Bridgeport, Ohio
- American Telephone and Telegraph Company, Union Commerce Bldg., Room 1538, Cleveland, O.
- Sanitary Sewers-Village of Bridgeport, Bridgeport, Ohio
- Sanitary Sewers-Belmont County Sewer Authority No. One, P.O. Box 508, Bridgeport, Ohio

## CONVERSION TABLE

| STANDARD DRAWINGS | | | | | | | | SUPPLEMENTALS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1963 | 1965 | 1963 | 1965 | 1963 | 1965 | 1963 | 1965 | 1963 | 1965 | 1963 | 1965 |
| B-T-70-71 | BP-1 | RI-2 | MC-2 | FACI-2 | FACI-2 | HW No. 1 | HW-1 | S-101 | 808 | I-129 | 816 |
| B-T-71-R | BP-2 | G-7.07 | MC-3 | I-8 C.B. 2-2-A & B | CB 2-2 A & B | HW No. 2 | HW-2 | S-307 | 811 | | 825 |
| L.J. No. 1 | BP-3 | I-1 | MC-4 | I-8 C.B. 2-3 & 2-4 | CB 2-3 & 2-4 | I-15 No. 1 | GR-1 | I-124 | 814 | | 828 |
| T.S. | BP-4 | I-14G | MC-5 | I-8 C.B. No. 3 | CB-3 | I-15 No. 2-A | GR-2A | | | | |
| T-35 | BP-5 | I-21-23 | MC-6 | I-8 C.B. No. 3-A | CB-3A | | HL-1 | | | | |
| DR-1 | BP-6 | F-1 | F-1 | I-8 M.H. No. 1 | MH-1 | | HL-2 | | | | |
| I-12 | BP-7 | F-3 | F-3 | I-8 M.H. No. 1-A | MH-1A | | HL-3 | | | | |
| RI-1 | MC-1 | FACI-1 | FACI-1 | I-8 M.H. No. 2 | MH-2 | | HL-4 | | | | |
| | | | | | | L-1 | L-1 | | | | |

CONTRACTION AND EXPANSION JOINTS

Although specific locations of certain expansion and contraction joints have been detailed on this plan, no waiver of the Specifications is intended. Provision of expansion joints at all major structures and the maximum spacing between contraction joints shall in all cases be in accordance with Standard Construction Drawings, and the Specifications.

## DRAINAGE

EXISTING SEWERS

The Contractor shall so conduct his operations that the flow of all sewers which are to remain in service will be maintained at all times. Any additional cost or labor involved in maintaining this flow by pumping or any other approved method shall be included in the unit price bid per linear foot for Item 603, Conduit.

When working in the area adjacent to existing sewers, the Contractor is to proceed with caution in order that no damage is done to the existing sewers. Any damage to existing sewers resulting from the Contractor's operations or negligence as determined by the Engineer shall immediately be repaired by the Contractor at no additional cost to the State.

Payment for cutting and plugging shall be included in the unit price bid for Item 203, "Excavation Including Embankment Construction".

Where it is necessary under Item 604 "Manholes Reconstructed to Grade" or "Manholes Adjusted to Grade" to replace unsatisfactory manhole frame and cover castings, they shall be replaced with castings in good condition, that have been salvaged under Item 202, Manholes Removed.

CONNECTIONS TO EXISTING PIPE

When the plans provide for proposed drainage pipe to be connected to existing pipe, the Contractor shall locate the existing pipe both as to line and grade before laying the proposed pipe. The cost of this operation shall be included in the unit price bid for the pertinent pipe item.

PIPE CUT-OFFS

When bell and spigot pipe is used, any necessary pipe cut-offs will be made at the spigot end of the length of pipe adjacent to the end length. When tongue and groove pipe is used, the length of pipe next to the end length shall be cut and butt joint formed with a concrete collar in accordance with Standard Construction Drawing MC-4.

UNDERDRAIN:

The flow line elevations at beginning and end of all runs of underdrain are shown on the Plan Sheets.

ITEM 604, MANHOLE RECONSTRUCTED TO GRADE, AS PER PLAN

This item shall consist of the careful removal of the existing manhole to an elevation below the new grade, as required by the Engineer, and reconstruction of the manhole to the new grade, conforming as nearly as practicable to the existing dimensions and type of construction and using the salvaged manhole frame and cover.

TRACK BRACING

Construction of the 24" storm sewer under the Pennsylvania Railroad and the Baltimore and Ohio Railroad tracks shall be done in such a manner that the tracks are adequately braced as required by the Railroads and at such a time approved by the Railroads so as to cause no interference with Railroad operations.

COOPERATION - TRAFFIC SIGNAL DEVICES

A separate traffic control device Contractor will be required to install or erect traffic control devices within the contract work limits prior to completion of this Contract.

The Contractor shall cooperate with the separate Contractor to arrange a suitable work schedule, subject to the approval of the Engineer, to permit the separate Contractor to work and operate necessary equipment within work limits to carry out the provisions of his contract. The Engineer shall notify the Contractor a minimum of thirty (30) days prior to any scheduled work by the seperate Contractor.

Each Contractor shall be held responsible for any damage by him, or his agents, to the work performed by the other Contractor.

Compensation for the above cooperation shall be incidental to the various pay items included within this construction project.

SPECIAL

For Removal and Disposal of existing underground Storage tanks, See note in proposal.

### ITEM SPECIAL - SAND BACKFILL

This item shall consist of backfilling of existing slab bridge with sand (703.06) or other granular material approved by the Engineer.

The fill material shall be pumped into place or placed by some other means approved by the Engineer.

All the above shall be paid for at the contract unit price bid per Cu. Yd. for "Item Special, Sand Backfill," which price and payment shall constitute full compensation for furnishing, hauling, and placing all the necessary materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

### ITEM 310 SUBBASE, GRADING A OR B AS PER PLAN

Material for this item shall meet the requirements of grading A or B of 310.02 except that for either grading, no more than 10% of the material shall pass a No. 200 sieve after all operations of placing and compacting have been completed.

### MEDIAN PAVEMENT ON APPROACH SLABS

The width and type of median pavement on approach slabs shall be transitioned from the standard section used on the approach pavement to the section used on the bridge within the limits of the approach slab.

### STRUCTURE EXCAVATION

Heavy foundations (machinery) exist in the area approximately from Sta. 162+47 to Sta. 164+50.

Any removal of these foundations found necessary to construct piers shall be included in Item 503, Excavation for Structures.

| | | | |
|---|---|---|---|
| MADE E.C.E | DATE 4-26-62 | TRACED | DATE |
| CHECKED J.C.T | DATE 5-10-62 | SCALE | |

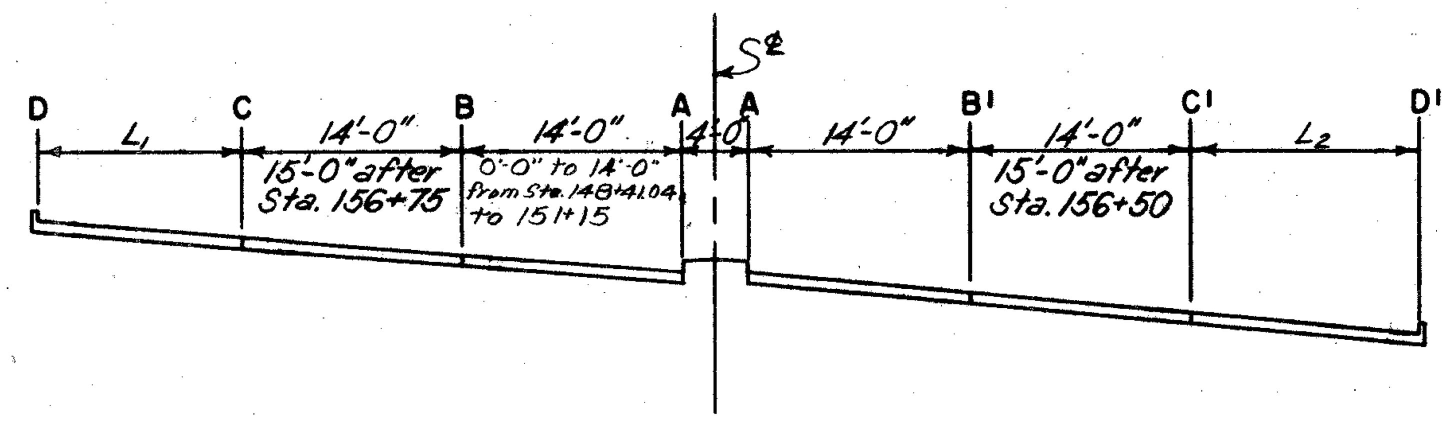
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

Rev 7-25-66

# SUPERELEVATION TABLES

| FED. RD. DIVISION | STATE | PROJECT | | 9 |
|---|---|---|---|---|
| 2 | OHIO | | | |

BELMONT COUNTY
BEL-7-19.86

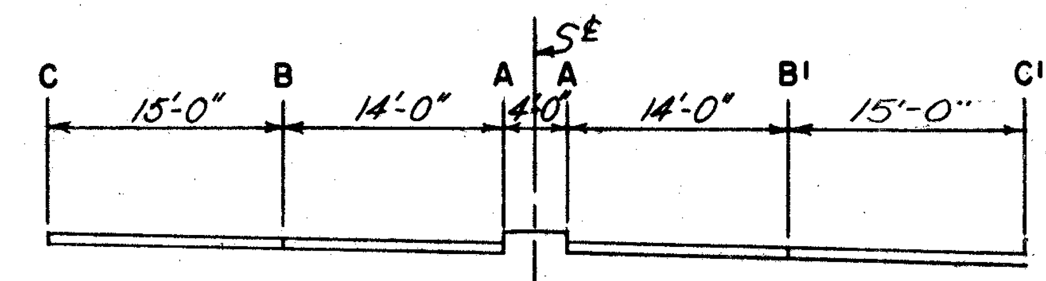



FULL SUPERELEVATION SECTION

STA. 153+33.67 TO STA. 156+24.63

*Note: Between Stations 148+41.04 and 149+83.67, B' distances to joint are shown at right of table.*

*D' are elevations at ℄ of Ramp B for elevations at ℄ for ramps A, C & D see special Details on Sheets No: 37 to 40.*




FULL SUPERELEVATION SECTION
STA. 176+21.99 TO STA. 184+70.31

| 4°30' Curve - 350' Spirals T.S. 149+83.67 - S.T. 159+74.63 - Design Speed 50 M.P.H. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | C | B | A PROFILE GRADE | ℄ STATION | B' | C' | D' | L2 |
| | | 664.31 | 664.33 | 664.35 | 148+41.04 | 664.14 | 663.92 | | |
| | | 64.32 | 64.32 | 64.32 | 148+50 | 64.11 | 63.90 | | |
| | | 64.33 | 64.28 | 64.25 | +75 | 64.04 | 63.82 | | |
| | | 64.34 | 64.24 | 64.17 | 149+00 | 63.96 | 63.74 | | |
| | | 64.35 | 64.21 | 64.10 | +25 | 63.88 | 63.66 | | |
| | | 64.37 | 64.18 | 64.02 | +50 | 63.80 | 63.58 | | |
| | | 64.38 | 64.15 | 63.95 | +75 | 63.73 | 63.51 | | |
| | | 64.38 | 64.13 | 63.92 | 149+83.67 | 63.70 | 63.48 | | |
| | | 64.39 | 64.11 | 63.87 | 150+00 | 63.61 | 63.36 | | |
| | | 64.40 | 64.09 | 63.80 | +25 | 63.48 | 63.17 | | |
| | | 64.44 | 64.08 | 63.72 | +50 | 63.34 | 62.97 | | |
| | | 64.49 | 64.06 | 63.65 | +75 | 63.22 | 62.79 | | |
| | | 64.54 | 64.05 | 63.57 | 151+00 | 63.08 | 62.59 | | |
| | | 64.60 | 64.05 | 63.50 | +25 | 62.95 | 62.40 | | |
| | | 64.63 | 64.02 | 63.42 | +50 | 62.82 | 62.21 | | |
| | | 64.68 | 64.01 | 63.35 | +75 | 62.69 | 62.02 | | |
| | | 64.72 | 63.99 | 63.27 | 152+00 | 62.55 | 61.82 | | |
| | | 64.76 | 63.98 | 63.20 | +25 | 62.42 | 61.64 | | |
| | | 64.80 | 63.96 | 63.12 | +50 | 62.28 | 61.44 | | |
| | | 64.85 | 63.95 | 63.05 | +75 | 62.15 | 61.25 | 661.24 | 0.14 |
| | | 64.88 | 63.93 | 62.97 | 153+00 | 62.01 | 61.06 | 61.01 | 0.66 |
| | | 64.93 | 63.92 | 62.90 | +25 | 61.88 | 60.87 | 60.76 | 1.54 |
| | | 64.96 | 63.93 | 62.89 | 153+33.67 | 61.85 | 60.82 | | |
| | | 64.96 | 63.93 | 62.89 | +50 | 61.85 | 60.82 | 60.62 | 2.72 |
| | | 65.01 | 63.98 | 62.94 | +75 | 61.90 | 60.87 | 60.56 | 4.20 |
| | | 65.14 | 64.11 | 63.07 | 154+00 | 62.03 | 61.00 | 60.56 | 5.98 |
| | | 65.32 | 64.29 | 63.25 | +25 | 62.21 | 61.18 | 60.58 | 8.06 |
| | | 65.58 | 64.55 | 63.51 | +50 | 62.47 | 61.44 | 60.67 | 10.43 |
| | | 65.90 | 64.87 | 63.83 | +75 | 62.79 | 61.76 | 60.79 | 13.10 |
| | | 66.29 | 65.26 | 64.22 | 155+00 | 63.18 | 62.15 | 60.96 | 16.06 |
| | | 66.75 | 65.72 | 64.68 | +25 | 63.64 | 62.61 | 61.18 | 19.31 |
| | | 67.27 | 66.24 | 65.20 | +50 | 64.16 | 63.13 | 61.44 | 22.85 |
| | | 67.87 | 66.84 | 65.80 | +75 | 64.76 | 63.73 | | |
| | | 68.52 | 67.49 | 66.45 | 156+00 | 65.41 | 64.38 | | |
| | | 69.25 | 68.22 | 67.18 | 156+24.63 | 66.14 | *65.01 | | |
| | | 69.25 | 68.22 | 67.18 | +25 | 66.14 | *65.01 | | |
| | | 69.89 | 68.93 | 67.97 | +50 | 67.01 | *65.98 | | |
| | | 70.60 | 69.71 | 68.83 | +75 | 67.95 | 67.01 | | |
| | | 71.45 | 70.58 | 69.76 | 157+00 | 68.94 | 68.07 | | |
| | | 72.28 | 71.49 | 70.75 | +25 | 70.01 | 69.22 | | |
| | | 73.13 | 72.41 | 71.75 | +50 | 71.09 | 70.37 | | |
| | | 73.98 | 73.34 | 72.75 | +75 | 72.16 | 71.53 | | |
| | | 74.83 | 74.27 | 73.75 | 158+00 | 73.23 | 72.68 | | |
| | | 75.67 | 75.19 | 74.75 | +25 | 74.31 | 73.83 | | |
| | | 76.52 | 76.12 | 75.75 | +50 | 75.38 | 74.98 | | |
| | | 77.34 | 77.03 | 76.73 | +75 | 76.43 | 76.12 | | |
| | | 78.09 | 77.85 | 77.63 | 159+00 | 77.41 | 77.18 | | |
| | | 78.76 | 78.60 | 78.46 | +25 | 78.24 | 78.01 | | |
| | | 679.35 | 679.28 | 679.21 | +50 | 678.99 | 678.76 | | |

B' = 12.00'
B' = 12.13'
B' = 12.48'
B' = 12.83'
B' = 13.18'
B' = 13.53'
B' = 13.88'
B' = 14.00'

** Note: Indicates face of curb. See pavement detail sheets. 37 to 40.*

| 4° 30' CURVE CONT'D. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| L1 | D | C | B | A | STATION | B' | C' | D' | L2 |
| | | 679.88 | 679.88 | 679.88 | 159+74.63 | 679.66 | 679.43 | | |
| | | 79.89 | 79.89 | 79.89 | +75 | 79.67 | 79.44 | | |
| | | 80.43 | 80.46 | 80.49 | 160+00 | 80.27 | 80.04 | | |
| | | 80.89 | 80.96 | 81.02 | +25 | 80.80 | 80.57 | | |
| | | 81.27 | 81.37 | 81.47 | +50 | 81.25 | 81.02 | | |
| | | 81.59 | 81.73 | 81.85 | +75 | 81.63 | 81.40 | | |
| | | 81.82 | 81.99 | 82.15 | 161+00 | 81.93 | 81.70 | | |
| | | 81.99 | 82.19 | 82.38 | +25 | 82.16 | 81.93 | | |
| | | 682.07 | 682.30 | 682.52 | 161+49.63 | 682.30 | 682.07 | | |

| 1°15' Curve - P.C. STA. 176+21.99 - P.T. 1090+38.35 · Design Speed 50 M.P.H. | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | LT. EDGE EL. | B | A PROFILE GRADE | ℄ STATION | B' | RT. Edge EL. | | | |
| | | 676.49 | 676.72 | 676.94 | 173+86.40 | 676.72 | 676.49 | | | |
| | | 76.23 | 76.45 | 76.65 | 174+00 | 76.43 | 76.20 | | | |
| | | 75.71 | 75.89 | 76.06 | +25 | 75.84 | 75.61 | | | |
| | | 75.11 | 75.26 | 75.40 | +50 | 75.18 | 74.95 | | | |
| | | 74.43 | 74.55 | 74.66 | +75 | 74.44 | 74.21 | | | |
| | | 73.69 | 73.77 | 73.85 | 175+00 | 73.63 | 73.40 | | | |
| | | 72.87 | 72.92 | 72.96 | +25 | 72.74 | 72.51 | | | |
| | | 71.97 | 71.99 | 72.00 | +50 | 71.78 | 71.55 | | | |
| | | 71.07 | 71.03 | 71.00 | +75 | 70.78 | 70.55 | | | |
| | | 70.20 | 70.10 | 70.00 | 176+00 | 69.78 | 69.55 | | | |
| | | 69.49 | 69.34 | 69.12 | 176+21.99 | 68.90 | 68.67 | | | |
| | | 69.33 | 69.16 | 69.00 | +25 | 68.78 | 68.54 | | | |
| | | 68.46 | 68.22 | 68.00 | +50 | 67.76 | 67.50 | | | |
| | | 67.60 | 67.31 | 67.04 | +75 | 66.78 | 66.51 | | | |
| | | 66.76 | | 66.15 | 177+00 | | 65.57 | | | |
| | | 65.94 | | 65.33 | +25 | | 64.72 | | | |
| | | 65.19 | | 64.58 | +50 | | 63.97 | | | |
| | | 64.52 | | 63.91 | +75 | | 63.30 | | | |
| | | 63.92 | | 63.31 | 178+00 | | 62.70 | | | |
| | | 63.39 | | 62.78 | +25 | | 62.17 | | | |
| | | 62.94 | | 62.33 | +50 | | 61.72 | | | |
| | | 62.57 | | 61.95 | +75 | | 61.34 | | | |
| | | 62.26 | | 61.65 | 179+00 | | 61.04 | | | |
| | | 62.03 | | 61.42 | +25 | | 60.81 | | | |
| | | 61.86 | | 61.25 | +50 | | 60.64 | | | |
| | | 61.74 | | 61.13 | +75 | | 60.52 | | | |
| | | 61.62 | | 61.01 | 180+00 | | 60.40 | | | |
| | | 61.52 | | 60.91 | +25 | | 60.30 | | | |
| | | 61.42 | | 60.81 | +50 | | 60.20 | | | |
| | | 61.34 | | 60.73 | +75 | | 60.12 | | | |
| | | | | | | | | | | |
| | | 61.26 | | 60.65 | 181+00 | | 60.04 | | | |
| | | 61.21 | | 60.60 | +25 | | 59.99 | | | |
| | | 61.15 | | 60.54 | +50 | | 59.93 | | | |
| | | 61.12 | | 60.51 | +75 | | 659.90 | | | |
| | | 61.08 | | 60.47 | 182+00 | | 59.86 | | | |
| | | 61.07 | | 60.46 | +25 | | 59.85 | | | |
| | | 61.06 | | 60.45 | +50 | | 59.84 | | | |
| | | 61.07 | | 60.46 | +75 | | 59.85 | | | |
| | | 61.08 | | 60.47 | 183+00 | | 59.86 | | | |

| 1°15' CURVE CONT'D P.C. STA. 176+21.99 - P.T. 1090+38.35 | | | | | |
|---|---|---|---|---|---|
| LT. EDGE EL. | B | A PROFILE GRADE | ℄ STATION | B' | RT. EDGE EL. |
| 661.11 | | 660.50 | 183+25 | | 659.89 |
| 61.15 | | 60.54 | +50 | | 59.93 |
| 61.20 | | 60.59 | +75 | | 59.98 |
| 61.25 | | 60.64 | 184+00 | | 60.03 |
| 61.32 | | 60.71 | +25 | | 60.10 |
| 61.41 | | 60.80 | +50 | | 60.19 |
| 61.48 | | 60.87 | +70.31 | | 60.26 |

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

| MADE HJH | DATE 3-9-59 | TRACED | DATE |
|---|---|---|---|
| CHECKED ECE | DATE 10-25-61 | SCALE | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

BELMONT COUNTY

BEL-7-19.86



# GEOMETRIC CONTROL DATA

| CURVE | BEGINNING OF CURVE STATION | BEGINNING OF CURVE COORDINATES | | ENDING OF CURVE STATION | ENDING OF CURVE COORDINATES | | Δ | D | R | T | L | E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | T.S. 149+83.67 | N 9411.38 | E 10329.08 | S.C. 153+33.67 | N 9724.12 | E 10172.58 | 28°50'36" | θs=7°52'30" | L.T.=233.57' S.T.=116.88' | T.S.=503.35 | Ls=350.00' | Es=45.57' |
| 2 | S.C. 153+33.67 | N 9724.12 | E 10172.58 | C.S. 156+24.63 | N 10004.83 | E 10098.49 | 13°05'36" | 4°30'00" | 1273.24' | | 290.96' | |
| 3 | C.S. 156+24.63 | N 10004.83 | E 10098.49 | S.T. 159+74.63 | N 10354.07 | E 10080.25 | 28°50'36" | θs=7°52'30" | L.T.=233.57' S.T.=116.88' | T.S.=503.35 | Ls=350.00' | Es=45.57' |
| 4 | P.C. 0+00.00 "A" | N 9808.02 | E 10010.90 | P.C.C. 0+46.52 "A" | N 9852.88 | E 10021.52 | 26°39'06" | | 100.00' | 23.69' | 46.52' | 2.77' |
| 5 | P.C.C. 0+46.52 "A" | N 9852.88 | E 10021.52 | P.C.C. 0+84.53 "A" | N 9857.91 | E 10053.68 | 108°53'52" | | 20.00' | 27.99' | 38.01' | 14.40' |
| 6 | P.C.C. 0+84.53 "A" | N 9857.91 | E 10053.68 | P.T. 1+31.05 "A" | N 9818.45 | E 10077.50 | 26°39'06" | | 100.00' | 23.69' | 46.52' | 2.77' |
| 7 | P.C. 1+63.88 "A" | N 9787.19 | E 10087.54 | P.T. 4+20.71 "A" | N 9553.45 | E 10192.68 | 12°50'30" | 5°00'00" | 1145.92' | 128.96' | 256.83' | 7.23' |
| 8 | P.C. 0-09.63 "a" | N 9927.66 | E 10010.90 | P.T. 0+12.01 "a" | N 9910.00 | E 10021.51 | 62°00'00" | | 20.00' | 12.02' | 21.64' | 3.33' |
| 9 | P.C. 0+53.60 "a" | N 9890.47 | E 10058.23 | P.T. 0+92.61 "a" | N 9861.19 | E 10082.50 | 44°42'13" | | 50.00' | 20.56' | 39.01' | 4.07' |
| 10 | P.C. 0+00.00 "B" | N 9663.23 | E 10230.99 | P.T. 3+21.94 "B" | N 9975.30 | E 10162.17 | 24°08'45" | 7°30'00" | | 163.40' | 321.94' | 17.28' |
| 11 | P.C. 6+21.80 "B" | N 10275.18 | E 10160.26 | P.T. 7+85.44 "B" | N 10414.23 | E 10086.51 | 55°09'12" | | 170.00' | 88.79' | 163.64' | 21.79' |
| 12 | P.C. 8+36.24 "B" | N 10442.99 | E 10044.63 | P.C.C. 8+58.70 "B" | N 10461.84 | E 10033.84 | 51°29'07" | | 25.00' | 12.06' | 22.46' | 2.75' |
| 13 | P.C. 8+03.44 "b" | N 10406.28 | E 10059.21 | P.T. 8+68.62 "b" | N 10381.55 | E 10012.23 | 124°28'55" | | 30.00' | 57.00' | 65.18' | 34.41' |
| 14 | P.C. 0+42.31 Bennett | | | P.T. 158+25.40 Lincoln | | | 90°28'30" | | 25.00' | 25.21' | 39.48' | 10.51' |
| 15 | P.C. 159+11.40 Lincoln | N 10291.10 | E 9974.30 | P.T. 159+21.40 Lincoln | N 10281.10 | E 9984.23 | 89°37'30" | | 10.00' | 9.94' | 15.64' | 4.10' |
| 16 | P.C. 159+30.41 Lincoln | | | P.T. 159+41.36 Lincoln | | | 95°49'27" | | 10.00' | 11.07' | 16.72' | 4.92' |
| 17 | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | |
| 19 | P.C. 0-32.32 "D" | N 11453.00 | E 10202.99 | P.T. 0+45.95 "D" | N 11502.68 | E 10152.94 | 89°41'31" | | 50.00' | 49.73' | 78.27' | 20.52' |
| 20 | P.C.C. 0-05.81 "d" | | | P.T. 0+45.25 "d" | | | 29°15'27" | 57°17'45" | 100.00' | 26.10' | 51.06' | 3.35' |
| 21 | P.R.C. 0-09.93 "d" | | | P.C.C. 0-05.81 "d" | | | 47°15'17" | | 5.00' | 2.19' | 4.12' | 0.46' |
| 22 | P.C. 3+13.63 "d" | | | P.C.C. 3+53.18 "d" | | | 45°19'31" | | 50.00' | 20.88' | 39.55' | 4.50' |
| 23 | P.C.C. 3+53.18 "d" | | | P.T. 0+44.36 U.S. 250 | | | 44°40'29" | | 5.00' | 2.05' | 3.90' | 0.39' |
| 24 | P.C. 0+44.49 - U.S. 250 | | | P.C.C. 0+41.26 - U.S. 250 | | | 40°12'51" | | 5.00' | 1.83' | 3.51' | |
| 25 | P.C.C. 0+41.26 - U.S. 250 | | | P.C.C. 4+14.51 - "d" | | | 41°14'12" | | 60.00' | 22.57' | 43.18' | |
| 26 | P.C.C. 4+14.51 - "d" | | | P.T. 4+50.39 - "d" | | | 8°32'57" | | 240.00' | 17.94' | 35.81' | |
| 27 | P.C. 4+83.64 "D" | N 11940.37 | E 10150.15 | P.T. 6+99.78 "D" | N 12156.43 | E 10144.81 | 2°09'41" | 1°00'00" | 5729.58 | 108.08' | 216.14' | 1.02' |
| 28 | P.C. 8+42.42 "D" | N 12298.93 | E 10138.66 | P.T. 10+17.42 "D" | N 12473.80 | E 10141.72 | 7°00' | 4°00'00" | 1432.40' | 87.61' | 175.00' | 2.68' |
| 29 | P.C. 176+21.99 | N 12,001.40 | E 10069.76 | P.T. 1090+38.35 | N 12,907.62 | E 10154.36 | 11°23'45" | 1°15'00" | 4583.66' | 457.34' | 911.67' | 22.76' |
| 30 | P.C. 3+37.24 "C" | N 12720.18 | E 10071.47 | P.C.C. 6+06.80 "C" | N 12454.38 | E 10028.04 | 8°05'12" | 3°00'00" | 1909.86' | 135.00' | 269.56' | 4.77' |
| 31 | P.C.C. 6+06.80 "C" | N 12454.38 | E 10028.04 | P.R.C. 10+60.85 "C" | N 12,001.01 | E 10006.06 | 4°55'08" | 1°05' | 5288.84' | 227.16' | 454.05' | 4.88' |
| 32 | P.R.C. 10+60.85 "C" | N 12,001.01 | E 10006.06 | P.T. 11+03.96 "C" | N 11,958.002 | E 10,004.186 | 4°21'46" | 10°07'56" | 565.44' | 21.54' | 43.11' | 0.41' |
| 33 | P.C. 11+57.64 "C" | | | P.T. 11+06.36 U.S. 250 | | | 104°27'54" | | 60' | 77.44' | 109.40' | |
| 34 | P.C. 10+47.92 U.S. 250 | | | P.T. 1+14.94 Lincoln | | | 71°34'55" | | 35' | 25.23' | 43.73' | |
| 35 | P.C. 1+25.83 Lin. | | | P.T. 0+99.19 U.S. 250 | | | 84°57'22" | | 25.00' | 22.89' | 37.07' | |
| 36 | P.C. 1+17.02 - U.S. 250 | | | P.T. 12+06.59 "C" | | | 95°02'38" | | 20.00' | 21.84' | 33.18' | |
| 37 | | | | | | | | | | | | |
| 38 | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | |
| 41 | | | | | | | | | | | | |
| 42 | P.C. 157+50.98 Lincoln | | | P.T. 0+42.11 Bennett | | | 89°31'30" | | 25.00' | 24.79' | 39.06' | 10.51' |
| 43 | P.C. 0+42.31 Whitley | | | P.T. 155+56.29 Lincoln | | | 90°28'30" | | 25.00' | 25.21' | 39.48' | 10.51' |
| 44 | P.C. 154+87.25 Lincoln | | | P.T. 0+36.73 Whitley | | | 89°31'30" | | 20.00' | 19.83' | 31.25' | 8.17' |

# QUANTITY CALCULATIONS

| LOCATION | STATION FROM | STATION TO | SIDE ℄ | T-71 · 9" Reinforced Portland Cement Concrete Pavement Width Feet | Length Lin. Ft. | Sq. Yds. | I-22 6" Subbase Width Feet | Length Lin. Ft. | Cu. Yds. | I-13 4" Port. Cem. Conc. Sidewalk Sq. Ft. | I-12 Standard 2-A Conc. Curb Lin. Ft. | T-70 8" Port. Cem. Conc. Pavement Sq. Yds. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Main Line | 148+41.04 | 151+15.00 | Lt. | 26.0* | 273.96 | 791.4 | 28.0* | 273.96 | 142.1 | | | | |
| | 151+15.00 | 154+19.44 | Lt. | 28.0 | 304.44 | 947.2 | 30.0 | 304.44 | 169.1 | | | | |
| | 154+19.44 | 156+75.00 | Lt. | 28.5 | 255.56 | 809.3 | 31.5 | 255.56 | 149.1 | | | | |
| | 156+75.00 | 157+00.00 | Lt. | 28.8* | 25.00 | 79.9 | 32.0* | 25.00 | 14.8 | | | | |
| | 157+00.00 | 158+87.75 | Lt. | 29.0 | 187.75 | 605.0 | | | | | | | |
| | 157+00.00 | 159+12.25 | Lt. | | | | 33.8 | 212.25 | 132.9 | | | | |
| | 175+70.25 | 184+70.31 | Lt. | 29.0 | 900.06 | 2900.2 | | | | | | | |
| | 175+45.75 | 178+25.00 | Lt. | | | | 33.8 | 279.25 | 174.8 | | | | |
| | 178+25.00 | 184+70.31 | Lt. | | | | 31.0 | 645.31 | 370.5 | | | | |
| | 148+41.04 | 149+83.67 | Rt. | 26.5* | 142.63 | 420.0 | 31.75 | 142.63 | 83.9 | | | | |
| | 149+83.67 | 152+50.00 | Rt. | 28.5 | 266.33 | 843.4 | 33.75 | 266.33 | 166.5 | | | | |
| | 152+50.00 | 156+00.00 | Rt. | 28.0 | 350.00 | 1088.9 | 30.0 | 350.00 | 194.4 | | | | |
| | 156+00.00 | 158+87.75 | Rt. | 29.0 | 287.75 | 927.2 | | | | | | | |
| | 156+00.00 | 159+12.25 | Rt. | | | | 33.8 | 312.25 | 195.4 | | | | |
| | 175+70.25 | 184+70.31 | Rt. | 29.0 | 900.06 | 2900.2 | | | | | | | |
| | 175+45.75 | 179+36.17 | Rt. | | | | 33.8 | 390.42 | 244.4 | | | | |
| | 179+36.17 | 184+70.31 | Rt. | | | | 31.0 | 534.14 | 306.6 | | | | |
| Ramp "B" | 0+00 | 3+07.11 | Lt. | | | 323.7 | | | 61.4 | | | | Extra Area |
| | 3+07.11 | 3+87.11 | Lt. | 18.0* | 80.00 | 160.0 | 22.25* | 80.00 | 33.0 | | | | |
| | 3+87.11 | 5+00.00 | Lt. | 17.0 | 112.89 | 213.2 | 21.5 | 112.89 | 44.9 | | | | |
| | 5+00.00 | 6+21.81 | Lt. | 20.0* | 121.81 | 270.7 | 24.13* | 121.81 | 54.4 | | | | |
| | 6+21.81 | 8+00.00 | Lt. | 23.0 | 178.19 | 455.4 | 27.13* | 178.19 | 89.5 | | | | |
| | | | | | | | | | | | | | |
| Lincoln Ave. | 0+00 | 1+25.83 | Rt. | 20.5 | 125.83 | 286.6 | 23.75 | 125.83 | 55.3 | | 125.83 | | |
| | 1+25.83 | 1+60.00 | Rt. | 20.0 | 34.17 | 75.9 | 20.0 | 34.17 | 12.7 | | | | |
| | 0+00 | 1+14.94 | Lt. | 20.5 | 114.94 | 261.8 | 23.75 | 114.94 | 50.6 | | | | |
| | 1+14.94 | 1+60.00 | Lt. | 20.0 | 45.06 | 100.1 | 20.0 | 45.06 | 16.7 | | | | |
| | 0+00 | 1+14.94 | Lt. | 2.0* | 114.94 | 25.5 | 2.0* | 114.94 | 4.3 | 1149.4 | 115.01 | | Flared Pavement |
| U.S. 250 Int. | 10+20.65 | 10+47.92 | Lt. | 12.0 | 27.27 | 36.4 | 12.0 | 27.27 | 6.1 | | | | |
| | | | Lt. | | | 31.0 | | | 6.4 | 274.7 | 43.10 | | S.W. Radius |
| | 10+47.92 | 11+06.36 | Lt. | 10.5 | 58.44 | 68.2 | 13.75 | 58.44 | 14.9 | | | | |
| | 10+47.92 | 11+06.36 | Lt. | 1.0* | 58.44 | 6.5 | 1.0* | 58.44 | 1.1 | 81.0 | 58.47 | | Flared Pavement |
| | 10+86.00 | | Lt. | | | | | | 4.9 | | | 29.3 | Driveway |
| | 10+24.21 | 11+06.36 | Rt. | 12.5 | 82.15 | 114.1 | 15.75 | 82.15 | 24.0 | | | | |
| | | | Rt. | | | 157.7 | | | 32.6 | | 108.5 | | N.W. Radius |
| 250 X-Over | 0+26.00 | 0+44.36 | Lt. | 13.0 | 18.36 | 26.5 | 13.0 | 18.36 | 4.4 | | | | |
| | 0+44.36 | 0+99.19 | Lt. | 13.5 | 54.83 | 82.3 | 16.75 | 54.83 | 17.0 | | 54.83 | | |
| | 0+99.19 | 1+20.93 | Lt. | 13.0 | 21.74 | 31.4 | 13.0 | 21.74 | 3.6 | | | | |
| | | | Lt. | | | 14.1 | | | 2.6 | | 36.33 | | S.W. Radius |
| | | | Lt. | | | 25.2 | | | 6.6 | | 42.70 | | S.E. Radius |
| | 0+26.00 | 0+44.49 | Rt. | 13.0 | 18.49 | 26.7 | 13.0 | 18.49 | 4.5 | | | | |
| | 0+44.49 | 1+17.02 | Rt. | 13.5 | 72.53 | 108.8 | 16.75 | 72.53 | 22.5 | | 72.53 | | |
| | 1+17.02 | 1+40.01 | Rt. | 13.0 | 22.99 | 33.2 | 13.0 | 22.99 | 5.5 | | | | |
| | | | Rt. | | | 13.5 | | | 4.0 | | 32.40 | | N.W. Radius |
| | | | Rt. | | | 56.0 | | | 14.1 | | 81.70 | | N.E. Radius |
| Ramp "D" | 0-32.32 | 0+50.00 | Lt. | | | 236.0 | | | 39.0 | 150.0 | 146.0 | | U.S. 40 Inter. |
| | 0+50.00 | 3+13.63 | Lt. | 27.0 | 263.63 | 790.9 | 34.5 | 263.63 | 168.4 | | 527.26 | | |
| | 3+13.63 | 3+76.63 | Lt. | 26.5 | 63.00 | 185.5 | 30.75 | 63.00 | 35.9 | | 63.00 | | |
| | 3+76.63 | 4+50.39 | Lt. | 18.5 | 73.76 | 151.6 | 22.75 | 73.76 | 31.1 | | 73.76 | | |
| | 4+50.39 | 8+56.50 | Lt. | 19.0 | 406.11 | 857.3 | 26.50 | 406.11 | 199.3 | | 812.22 | | |
| | 8+56.50 | 8+67.42 | Lt. | 18.5 | 10.92 | 22.5 | 22.75 | 10.92 | 4.6 | | 10.92 | | |
| | 8+67.42 | 10+17.42 | Lt. | 17.0* | 150.00 | 283.3 | 21.25* | 150.00 | 59.0 | | 150.00 | | |
| | 10+17.42 | 13+84.82 | Lt. | | | 613.3 | | | 131.1 | | 367.40 | | Acceleration Lane |
| Ramp "C" | 2+01.22 | 6+06.80 | Lt. | | | 1016.0 | | | 193.8 | | 405.58 | | Deceleration Lane |
| | | | Lt. | | | 66.7 | | | 11.1 | | | | Flare Along N1 |
| | 6+06.80 | 7+06.80 | Lt. | 19.5* | 100.00 | 216.7 | 22.75* | 100.00 | 42.1 | | 100.00 | | |
| | 7+06.80 | 8+25.00 | Lt. | 18.5 | 118.20 | 243.0 | 21.75* | 118.20 | 47.6 | | 118.20 | | |
| | 8+25.00 | 8+54.50 | Lt.-Rt. | 19.7* | 29.50 | 64.6 | 22.90* | 29.50 | 12.5 | | 29.50 | | |
| | 8+54.50 | 9+25.00 | Lt.-Rt. | 24.2* | 70.50 | 189.6 | 30.7* | 70.50 | 40.1 | | 141.00 | | |
| | 9+25.00 | 11+57.64 | Lt.-Rt. | 27.0 | 232.64 | 697.9 | 33.5 | 232.64 | 144.3 | | 465.28 | | |
| | 11+57.64 | 12+06.59 | Lt.-Rt. | 26.5 | 48.95 | 144.1 | 29.75 | 48.95 | 27.0 | | 48.95 | | |
| | 12+06.59 | 12+43.07 | Lt.-Rt. | 26.0 | 36.48 | 105.4 | 26.0 | 36.48 | 17.6 | | | | |
| | 12+43.07 | 12+50.00 | Rt. | | | 2.8 | | | 0.5 | | | | Ext. Area @ Ramp Int. |
| | | | | | | 21,204.4 | | | 4,147.1 | 1655.1 | 4230.47 | 29.3 | |

* = Average Width

| | | | | |
|---|---|---|---|---|
| MADE F.V.R. | DATE 6-5-61 | TRACED | DATE | |
| CHECKED W.C.I. | DATE 8-25-61 | SCALE | | |

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

# QUANTITY CALCULATIONS

## E-4 BORROW, using GRANULAR MATERIAL

| From X-Sec. Sheet | Cu.Yds. |
|---|---|
| 28 | 9 |
| 29 | 21 |
| 33 | 120 |
| 34 | 216 |
| 35 | 61 |
| 36 | 18 |
| Total | 445 Cu.Yds. |

## T-10 TRAFFIC COMPACTED SURFACE COURSE

STA. 142+00 to STA. 160+00 = 1800 LIN. FT.
STA. 170+00 to STA. 185+00 = 1500 LIN. FT.
3300 LIN.FT.÷100 x 150 = 4950 USE 5000 Cu.Yds.

T-10 = 5000 x 25% = 1250 Cu. Yds.
T-10 Mod.: 5000 x 75% = 3750 Cu. Yds.

## I-4 CALCIUM CHLORIDE For DUST CONTROL

5000 Cu. Yds. ÷ 50 = Use 100 Tons

## I-4 WATER For DUST CONTROL

Estimated 15 M. Gals

## E-1 COMPACTED SUBGRADE

| | | |
|---|---|---|
| Area as T-70 | = | 30 Sq. Yds. |
| Area as T-71 | = | 25,792 Sq. Yds. |
| Area as I-7 | = | 328 Sq. Yds. |
| Total | = | 26,150 Sq. Yds. |

## E-1 Embankment

Basement Backfill = 6,000 Cu. Yds.

## E-8 REMOVAL AND DISPOSAL OF EXISTING SIDEWALK

| Location | Station From | Station To | Length Ft. | Width Ft. | Area Sq.Ft. | Side | Remarks |
|---|---|---|---|---|---|---|---|
| Lincoln | 154+38 | 154+99 | 112 | 5 | 560 | Rt. | Includes south of Whitley |
| | 154+96 | 155+05 | 14 | 5 | 70 | Lt. | Rt. Corner Whitley |
| | 155+30 | 155+38 | | Varies | 72 | Lt. | Lt. Corner Whitley |
| | 157+50 | 157+77 | 30 | 5 | 150 | Lt. | Rt. Corner Bennett |
| | 158+00 | 158+40 | | Varies | 424 | Lt. | Between Bennett and Alley |
| | 158+40 | 159+20 | 81 | 9 | 729 | Lt. | Between Bennett and Alley |
| | 159+30 | 160+44 | | Varies | 1027 | Lt. | Between Alley and Howard |
| S.R. - 7 (Proposed) | 164+25 | 164+54 | 29 | 8 | 232 | Lt. | Parking Turnout |
| | 170+75 | | | | 225 | Rt. | |
| Jacquett | | | 11 | 6 | 66 | Rt. | East End |
| Lincoln (S.R.7 Sta) | 172+98 | 173+54 | 56 | 10 | 560 | Lt. | |
| | 174+75 | 176+18 | | | 1735 | Lt. | (7.5)(152)+(3)(159)+118 |
| S.R. - 7 (Proposed) | 177+36 | 178+85 | 150 | 6 | 900 | Rt. | |
| | 178+97 | 180+43 | 146 | 7 | 1022 | Rt. | |
| | 180+52 | 182+08 | 157 | 7 | 1099 | Rt. | |
| | 182+19 | 183+50 | 133 | 7 | 931 | Rt. | |
| | 183+63 | 184+70.31 | 108 | 7 | 756 | Rt. | |
| | | | | | TOTAL = 10,558 Sq.Ft. | | |

## I-12 10" CONCRETE CURB

| Location | Station From | Station To | Length Lin.Ft. | Remarks |
|---|---|---|---|---|
| S.R. - 7 | 156+75 | 157+00 | 25 | Left side - Tapered from 10" to 6" |
| | | TOTAL = | 25 Lin.Ft. | |

## L-9 AGRICULTURAL LIMING MATERIAL

Area Seeded = 29,639 Sq. Yds.
Area Sodded = 110 Sq. Yds.
Total Area = 29,749 Sq. Yds.
(29,749 x 9 x 100) ÷ (1,000 x 2,000) = 13.39 Tons

## E-8 REMOVAL AND DISPOSAL OF EXISTING CURB

| Location | Station From | Station To | Length Lin.Ft. | Side | Remarks |
|---|---|---|---|---|---|
| Lincoln | 154+38.32 | 155+07 | 95 | Lt. | |
| S.R. - 7 (existing) | 154+87 | 160+48 | 561 | Rt. | |
| Lincoln | 155+30 | 157+76 | 296 | Lt. | |
| | 155+55 | 157+46 | 191 | Rt. | |
| S.R. - 7 (existing) | 155+62 | 157+54 | 210 | Lt. | Lt. side S.R. - 7 to Edge Lincoln |
| Lincoln | 158+01.62 | 159+21.40 | 175 | Lt. | Between Bennett and Alley |
| | 158+30 | 159+20 | 91 | Lt. | Behind sidewalk |
| | 159+30 | 160+32 | 102 | Lt. | Behind sidewalk |
| | 159+30.41 | 160+27.94 | 112 | Lt. | Between Alley and Howard |
| | 160+81 | 160+92.14 | 10 | Rt. | |
| S.R. - 7 (Proposed) | 164+00 | 164+08 | 8 | Lt. | Parking Turnout |
| | 164+25 | 164+64 | 39 | Lt. | Parking Turnout |
| Whitley | South | Side | 149 | | Rt. of Lincoln |
| | North | Side | 97 | | Rt. of Lincoln |
| Jacquett | | | 11 | | East End |
| S.R. - 7 (Proposed) | 170+67 | 170+90 | 32 | Rt. | Ramp "D" and U.S. 40 |
| | 170+72 | | 24 | Rt. | Ramp "D" and U.S. 40 |
| | 174+39 | 175+00 | 61 | Lt. | |
| | 174+70 | 175+90 | 132 | Lt. | |
| | 175+40 | 175+85 | 43 | Lt. | |
| S.R. - 7 (Proposed) | 176+45 | 176+90 | 64 | Lt.-Rt. | |
| | 177+68 | 178+85 | 117 | Rt. | |
| | 177+74 | 178+87 | 115 | Lt. | Behind Eagle's Lodge |
| | 178+97 | 180+47 | 146 | Rt. | |
| | 180+50 | 182+10 | 157 | Rt. | |
| | 182+20 | 183+50 | 132 | -Rt. | |
| | 183+63 | 184+70.31 | 108 | Rt. | |
| | TOTAL = | 3,278 Lin.Ft. | | | |

## L-9 COMMERCIAL FERTILIZER (12-12-12)

Area Seeded = 29,639 Sq. Yds.
Area Sodded = 110 Sq. Yds.
Total Area = 29,749 Sq. Yds.
(29,749 x 9 x 20) ÷ (1,000 x 2,000) = 2.68 Tons

## E-8 REMOVAL AND DISPOSAL OF APRONS AND DRIVEWAYS

| Location | Station | Side | Type | Area Sq. Yds. |
|---|---|---|---|---|
| S.R. - 7 (Proposed) | 180+48 | Lt.-Rt. | Residential | 137 |
| | 182+16 | Lt.-Rt. | Residential | 26 |
| | | | TOTAL = 163 Sq. Yds. | |

148+41.04 158+87.75 ~~1046.71~~ 465.2

## I-21 9" PORTLAND CEMENT CONCRETE MEDIAN, ~~AS PER PLAN~~ & I-22 SUBBASE

| Location | Station From | Station To | Side ℄ | I-21 Length | I-21 Width | I-21 Sq. Yds. | I-22 Length | I-22 Width | I-22 Thick | I-22 Cu.Yds. |
|---|---|---|---|---|---|---|---|---|---|---|
| Main Line | 149+83.67 | 159+12.75 | Lt.℄Rt. | 929.08 | 4'00" | 412.9 | | | | |
| Main Line | 149+83.67 | 158+87.75 | Lt.℄Rt. | | | | 904.08 | 4'00" | 6" | 67.0 |
| Main Line | 175+45.25 | 184+70.31 | Lt.℄Rt. | 925.06 | 4'00" | 411.1 | | | | |
| Main Line | 175+70.25 | 184+70.31 | Lt.℄Rt. | | | | 900.06 | 4'00" | 6" | 66.7 |
| | 70.26 | | | | | | | | | |
| Totals | | | | | 824.0 | | | 133.7 | | |

900.06 865.2 400.0

## E-8 REMOVAL AND DISPOSAL OF EXISTING MEDIAN PAVEMENT

| Location | Station From | Station To | Length Ft. | Width Ft. | Area Sq. Yds. | Remarks |
|---|---|---|---|---|---|---|
| S.R. - 7 | 148+41.04 | 154+84 | 642.96 | 3 | 214 | Stationed along ℄ of existing S.R. - 7 |
| | 155+68 | 157+55 | 187 | 3 | 62 | |
| | 158+41 | 160+22 | 181 | 3 | 60 | |
| | | | | TOTAL = | 336 SQ. YDS. | |

## I-21 9" PORTLAND CEMENT CONCRETE MEDIAN, ~~AS PER PLAN~~ & I-22 SUBBASE

| Location | Station From | Station To | Side ℄ | I-21 Length | I-21 Width | I-21 Sq. Yds. | I-22 Length | I-22 Width | I-22 Thick | I-22 Cu. Yds. |
|---|---|---|---|---|---|---|---|---|---|---|
| Ramp "A" nose | 151+13 | 154+19.44 | LT. | 306.44 | 2' to 11.3' | 267.6 | 306.44 | 2' to 11.3' | 12" | 89.2 |
| Ramp "C" nose | 178+25 | 180+72 | LT. | 246.0 | 12.5' to 2' | 273.8 | 246.0 | 12.5' to 2' | 12" | 91.3 |
| Ramp "D" nose | 179+36.17 | 181+02 | RT. | 165.83 | 11.2' to 2' | 116.4 | 165.83 | 11.2' to 2' | 12" | 38.3 |
| Ramp "B" nose | 155+72.43 | 156+00 | RT. | 28.0 | 2' to 11.5 | 24.0 | 28.0 | 2' to 11.5 | 12" | 8.0 |
| Totals | | | | | | 681.8 | | | | 226.8 |

## E-8 REMOVAL AND DISPOSAL OF EXISTING RIGID PAVEMENT

| Location | Station From | Station To | Length Ft. | Width Ft. | Area Sq. Yds. | Remarks |
|---|---|---|---|---|---|---|
| S.R. - 7 | 148+41.04 | 154+84 | 642.96 | 48 | 3429 | Stationed along ℄ of existing S.R. - 7 |
| | 154+84 | 154+87 | 3 | 52 | 17 | |
| | 154+87 | 155+62 | 75 | 56.5 | 471 | |
| | 155+62 | 155+68 | 6 | 57 | 38 | |
| | 155+68 | 157+55 | 187 | 53 | 1101 | |
| | 157+55 | 158+41 | 86 | 28.5 | 272 | Rt. of existing ℄ S.R. 7 |
| | 157+55 | 158+41 | 86 | Varies | 631 | Lt. of existing ℄ S.R. 7 |
| | 158+41 | 160+22 | 181 | 61 | 1227 | |
| | 160+22 | 160+92 | 70 | Varies | 163 | |
| Lincoln | 164+08 | 164+72 | 64 | 2.5 | 18 | Parking Turnout |
| Ramp "D" | 170+65 | 171+35 | 70 | Varies | 530 | Right of S.R.-7 @ U.S. 40 |
| S.R. 7 | 172+51 | 172+83 | 32 | Varies | 42 | Parking Turnout |
| | | TOTAL = | | | 7,939 Sq. Yds. | |

## E-11 WATER

Embankment = 40,147 Cu. Yds.
I-22 Subbase = 5,432 Cu. Yds.
Total = 45,579 Cu. Yds.
Water = 45,579 x 5 + 1,000 = 228 M. Gal.

## I-7 REINFORCED CONCRETE APPROACH SLABS (T=13")

| Location | Station From | Station To | Length Ft. | Width Ft. | Area Sq. Yds. |
|---|---|---|---|---|---|
| S.R. - 7 | 158+87.75 | 159+12.75 | 25 | 59 | 163.9 |
| | 175+45.25 | 175+70.25 | 25 | 59 | 163.9 |
| | | | TOTAL = 327.8 Sq. Yds. | | |

## I-21 PORTLAND CEMENT CONCRETE MEDIAN, MOD., AS PER PLAN.

| Location | Station From | Station To | Length Ft. | Av. Area Sq.Ft. | Volume Cu. Yds. | Remarks |
|---|---|---|---|---|---|---|
| S.R. - 7 | 148+41.04 / 147+00 | 149+83.67 / 148+41.04 | 142.63 / 141.04 | 4.10 | 21.7 / 4 | See Median "N" Detail Sheet 3 |
| | | TOTAL | = | | 22 Cu. Yds. | |

| | | | |
|---|---|---|---|
| MADE W.C.I. | DATE 8-16-61 | TRACED | DATE |
| CHECKED E.C.E. | DATE 9-14-61 | SCALE | |

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

# GENERAL SUMMARY

## CODE TYPE 7221

| SHEET NUMBER 7 | 10 | 11 | 15 | 16 | 17 | 18 | 19 | 37 | 38 | 57 | 93 | LINE No. | 1965 SPECS ITEM | 1963 SPECS ITEM | QUAN. | UNIT | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | 1 | | | | | ROADWAY |
| | | | 483 | 2,028 | 193 | 24,653 | 4,442 | | | | | 2 | 203 | E-1 | 31,799 | CuYds | Roadway Excavation, Method A, as per plan |
| | | 26,150 | | | | | | | | | | 3 | 203 | E-1 | 26,150 | SqYds | Compacted Subgrade |
| | | 6,000 | 588 | 25,810 | 17 | 13,732 | 0 | | | | | 4 | 203 | E-1 | 46,147 | CuYds | Embankment, Method A |
| | | 336 | | | | | | | | | | 5 | 202 | E-8 | 336 | SqYds | Removal and Disposal of Existing Median Pavement |
| | | 163 | | | | | | | | | | 6 | 202 | E-8 | 163 | SqYds | Removal and Disposal of Existing Aprons and Driveways |
| | | 7,939 | | | | | | | | | | 7 | 202 | E-8 | 7,939 | SqYds | Removal and Disposal of Existing Rigid Pavement |
| | | 3,278 | | | | | | | | | | 8 | 202 | E-8 | 3,278 | LinFt | Removal and Disposal of Existing Curb |
| | | 10,558 | | | | | | | | | | 9 | 202 | E-8 | 10,558 | SqFt | Removal and Disposal of Existing Sidewalk |
| Lump | | | | | | | | | | | | 10 | 201 | E-9 | Lump | Lump | Removal of Trees and Stumps |
| | | 445 | | | | | | | | | | 11 | 203 | E-4 | 445 | CuYds | Borrow, Using Granular Material (No.3 Aggregate, Sec. M-3.5), |
| | | | | | | | | | | | | 12 | | | | | as per plan |
| | | | | | | | | | | | | 13 | | | | | |
| | | 228 | | | | | | | | | | 14 | 203 | E-11 | 228 | MGal | Water |
| | | | | | | | | | | | | 15 | | | | | |
| | | | | | | | | | | | | 16 | | | | | |
| | | | | | | | | | | | 5 | 17 | 604 | I-8 | 5 | Each | Standard Monument Assemblies |
| 20 | | | | | | | | | | | | 18 | 608 | I-13 | 20 | LinFt | Concrete Steps, as per plan |
| | 1,655 | | | | | | | | 2,000 | | | 19 | 608 | I-13 | 3,655 | SqFt | 4" Portland Cement Concrete Sidewalk |
| | | | | 300 | 80 | 1,090 | 167.5 | | | | | 20 | 606 | I-15 | 1,637.5 | LinFt | Guard Rail, Steel Beam Standard Type (Deep) |
| | | | 159 | 325 | | | | | | | | 21 | 202 606 | I-15 | 484 | LinFt | Guard Rail Removed and Rebuilt |
| | | | | 522 | | 290 | | | | | | 22 | 607 | I-26 | 812 | LinFt | Chain Link Fence |
| | | | | | | | | | | | | 23 | | | | | |
| | | | 3,537 | 11,998 | 90 | 12,394 | 1,620 | | | | | 24 | 659 | L-9 | 29,639 | SqYds | Seeding and Protecting, as per plan |
| | | 2.68 | | | | | | | | | | 25 | 659 | L-9 | 2.68 | Tons | Commercial Fertilizer (12-12-12) |
| | | 13.39 | | | | | | | | | | 26 | 659 | L-9 | 13.39 | Tons | Agricultural Liming Material, as per plan |
| | | | | | | | | | | | | 27 | | | | | |
| | | 15 | | | | | | | | | | 28 | 616 | I-4 | 15 | M-Gal. | Water for Dust Control |
| | | 100 | | | | | | | | | | 29 | 616 | I-4 | 100 | Tons | Calcium Chloride For Dust Crontrol |
| | | 1250 | | | | | | | | | | 30 | 410 | T-10 | 1250 | CuYds | Traffic Compacted Surface Course for Maintaining Traffic |
| | | 3750 | | | | | | | | | | 31 | 410 | T-10 | 3750 | Cu.Yds. | Traffic Compacted Surface Course for Maintaining Traffic, as per plan. |
| | | | | | | | | | | | | 32 | | | | | PAVEMENT |
| | | 328 | | | | | | | | | | 33 | 611 | I-7 | 328 | SqYds | Reinforced Concrete Approach Slabs, (T=13") as per plan. |
| | 4,231 | | | | | | | 1,384 | 1188 | | | 34 | 609 | I-12 | 6803 | LinFt | Standard Type 2-A Concrete Curb |
| | | | | | | | | | | | | 35 | | | | | |
| | | | | | | | | | 103 | | | 36 | 609 | I-12 | 103 | LinFt | Standard Type 6 Concrete Curb |
| | | 25 | | | | | | | | | | 37 | 609 | I-12 | 25 | LinFt | 10" Concrete Curb, as per plan |
| | | | | | | | | | | | | 38 | | | | | |
| | | | | | | | | | | | | 39 | | | | | |
| | | | | | | | | | | | | 40 | | | | | |
| | | 22 | | | | | | | | | | 41 | 612 | I-21 | 22 | Cu.Yds. | Portland Cement Concrete Median, Modified as per plan. |
| | | 1506 | | | | | | | | | | 42 | 612 | I-21 | 1506 | SqYds | 9"— Portland Cement Concrete Median, |
| | | | | | | | | | | | | 43 | | | | | |
| | 4,147 | 361 | | | | | | 467 | 434 | | | 44 | 310 | I-22 | 5409 | CuYds | Subbase, Grading "A" or "B", as per plan |
| | | | | | | | | | | | | 45 | | | | | |
| | | | | | | | | | | | | 46 | | | | | |
| | 30 | | | | | | | | | | | 47 | 452 | T-70 | 30 | SqYds | 8" Portland Cement Concrete Pavement for Driveways |
| | 21,204 | | | | | | | 2,107 | 2206 | | | 48 | 451 | T-71 | 25,517 | SqYds | 9" Reinforced Portland Cement Concrete Pavement |
| | | | | | | | | | | | | 49 | | | | | |
| | | | | | | | | | | | | 50 | | | | | |
| | | | | | | | | | | | | 51 | | | | | |
| | | | | | | | | | | | | 52 | | | | | |
| | | | | | | | | | | | | 53 | | | | | TRAFFIC CONTROL |
| | | | | | | | | | | 4.05 | | 54 | 621 | I-125 | 4.05 | Miles | 4" Edge Lines |
| | | | | | | | | | | 0.10 | | 55 | 621 | I-125 | 0.10 | Miles | 4" Lane Lines |
| | | | | | | | | | | 1.75 | | 56 | 621 | I-125 | 1.75 | Miles | 6" Lane Lines And Center Lines |
| | | | | | | | | | | 0.17 | | 57 | 621 | I-125 | 0.17 | Miles | 8" Channelizing Lines |
| | | | | | | | | | | Lump | | 58 | 621 | I-125 | Lump | Sum | Curb And Island Marking |
| | | | | | | | | | | Lump | | 59 | 621 | I-125 | Lump | Sum | Diagonal Strips |
| | | | | | | | | | | 99 | | 60 | 620 | I-127 | 99 | Each | Delineators Type C-2, Post Mounted |
| | | | | | | | | | | 1 | | 61 | 620 | I-127 | 1 | Each | Delineators, Type C-3, Post Mounted |
| | | | | | | | | | | | | 62 | | | | | |
| | | | | | | | | | | | | 63 | | | | | |
| | | | | | | | | | | | | 64 | | | | | Traffic Control Continued on Sh. No. 48 |
| | | | | | | | | | | | | 65 | | | | | |
| | | | | | | | | | | | | 66 | | | | | |
| | | | | | | | | | | | | 67 | | | | | |
| | | | | | | | | | | | | 68 | | | | | |
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# GENERAL SUMMARY

## CODE TYPE 7221

BELMONT COUNTY
BEL-7-19.86

| SHEET NUMBER 15 | 16 | 17 | 18 | 19 | 43 | | LINE No. | 1965 SPECS ITEM | 1963 SPECS ITEM | QUAN. | UNIT | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 70 | | | | | DRAINAGE |
| 200 | 405 | | | | | | 71 | 202 | E-12 | 605 | LinFt | Pipe Removed 15" and under |
| | 454 | | | | | | 72 | 202 | E-12 | 454 | LinFt | Pipe Removed over 15" |
| | | | | | | | 73 | | | | | |
| 754 | 3099 | 240 | 3,158 | 340 | | | 74 | 605 | I-1 | 7,591 | LinFt | 6" Pipe, Class I-3 |
| 23 | 250 | | 190 | | | | 75 | 603 | I-1 | 463 | LinFt | 6" Pipe, Class F-4 |
| | 8 | | 20 | | | | 76 | 603 | I-1 | 28 | LinFt | 6" Pipe, Class A-1, Sec. M-6.6 (a) or M-6.8 (b). |
| | 499 | | 779 | | | | 77 | 603 | I-1 | 1,278 | LinFt | 12" Pipe, Class A-1 Sec. M-6.6(a), M-6.8(b) |
| | | 263 | | | | | 78 | 603 | I-1 | 263 | LinFt | 12" Pipe, Class C-1 |
| | 372 | | 156 | | | | 79 | 603 | I-1 | 528 | LinFt | 12" Pipe, Class E-1 |
| | 122 | | 197 | | | | 80 | 603 | I-1 | 319 | LinFt | 15" Pipe, Class A-1 Sec. M-6.6(a), M-6.8(b) |
| 200 | 35 | | | | | | 81 | 603 | I-1 | 235 | LinFt | 15" Pipe, Class E-1 |
| | 83 | | 201 | | | | 82 | 603 | I-1 | 284 | LinFt | 18" Pipe, Class A-1 Sec. M-6.6(a), M-6.8(b) |
| | | | | | | | 83 | | | | | |
| | 220 | | 123 | | | | 84 | 603 | I-1 | 343 | LinFt | 24" Pipe, Class A-1 Sec. M-6.6(a), M-6.8(b) |
| | | | 203 | | | | 85 | 603 | I-1 | 203 | LinFt | 24" Pipe, Class A-1 Sec M-6.6(d), under Railroad |
| 160 | 387 | | 67 | | | | 86 | 603 | I-1 | 614 | LinFt | 24" Pipe, Class E-1 |
| | | | | | | | 87 | | | | | |
| | 25 | | | | | | 88 | 603 | I-1 | 25 | LinFt | 30" Pipe, Class A-1 Sec. M-6.6(b), M-6.8(b) |
| | 170 | | | | | | 89 | 603 | I-1 | 170 | LinFt | 42" Pipe, Class A-1 Sec. M-6.6(d) |
| | 88 | | | | | | 90 | 603 | I-1 | 88 | LinFt | 18" Pipe, Class E-1 Sec. M-6.6(b), M-6.8(b) |
| | | | 50 | | | | 91 | 603 | I-1 | 50 | LinFt | 18" Pipe, Class E-1. |
| | | | 54 | | | | 92 | 603 | I-1 | 54 | LinFt | 21" Pipe, Class A-1, Sec M-6.6(a) or Sec M-6.8(b) |
| | | | | | | | 93 | | | | | |
| | 18.2 | 0.2 | 10.60 | | | | 94 | 602 | I-2 | 29.1 | CuYds | Masonry |
| | | | | | | | 95 | | | | | |
| | | | | | | | 96 | | | | | |
| 1 | 1 | | 3 | | | | 97 | 605 | I-5 | 5 | Each | 6" Pipe Specials, Class I-3 |
| | | | | | | | 98 | | | | | |
| | | | | | | | 99 | | | | | |
| | 6 | | 9 | | | | 100 | 604 | I-8 | 15 | Each | Standard No. 3 Catch Basin |
| | 10 | | 12 | | | | 101 | 604 | I-8 | 22 | Each | Standard No. 3A Catch Basin |
| | 1 | | | | | | 102 | 604 | I-8 | 1 | Each | Standard No. 2-3 Catch Basin |
| 2 | 1 | | 6 | | | | 103 | 604 | I-8 | 9 | Each | Standard No. 2-2A Catch Basin |
| | 2 | 2 | 3 | | | | 104 | 604 | I-8 | 7 | Each | Standard No. 1 Manholes |
| | 2 | | 1 | | | | 105 | 604 | I-8 | 3 | Each | Standard No. 2 Manholes |
| | 1 | | | | | | 106 | 604 | I-8 | 1 | Each | Catch Basins Adjusted to Grade |
| | 1 | | 6 | | | | 107 | 604 | I-8 | 7 | Each | Manholes Adjusted to Grade (Sanitary), as per plan |
| | | | | | | | 108 | | | | | |
| | 3 | 7 | 28 | | | | 109 | 601 | I-10 | 38 | CuYds | Dumped Rock Channel Protection, as per plan |
| | | | | | 36 | | 110 | 601 | I-10 | 36 | CuYds | Dumped Rock Fill, Type A, as per plan |
| | 27 | | 23 | | | | 111 | 601 | I-10 | 50 | SqYds | Rip-Rap, 6" Reinforced Concrete Slab, as per plan |
| 680 | 300 | | | | | | 112 | 601 | I-14 | 980 | LinFt | Standard Type 1 Paved Gutter |
| | 90 | | 135 | | | | 113 | 601 | I-14 | 225 | LinFt | Standard Type 1 Paved Gutter, Modified, as per plan |
| | | | | | | | 114 | | | | | |
| | 6 | | 3 | | | | 115 | 202 | I-16 | 9 | Each | Manholes Abandoned |
| | 19 | | 4 | | | | 116 | 202 | I-16 | 23 | Each | Catch Basins Abandoned |
| | | | | | | | 117 | | | | | |
| | | | 110 | | | | 118 | 660 | L-10 | 110 | SqYds | Sodding, as per plan |
| | | | | | | | 119 | | | | | |
| | Lump | | | | | | 120 | 202 | S-22 | Lump | Lump | Removal of Portions of Existing Structure, as per plan |
| | | | | | | | 121 | | | | | |
| | | | | | 105 | | 122 | Special | Special | 105 | CuYds | Sand Backfill, Sec. M-2.1, as per plan |
| | | | | | | | 123 | | | | | |
| | | | | | | | 124 | | | | | |
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| SHEET NUMBER 7 | 8 | | | | | | | LINE No. | 1965 SPECS ITEM | 1963 SPECS ITEM | QUAN. | UNIT | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 139 | | | | | BUILDING REMOVAL |
| | | | | | | | | 140 | | | | | SEE SHEET 14 |
| | | | | | | | | 141 | | | | | |
| | | | | | | | | 142 | | | | | |
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| | | | | | | | | 168 | | | | | |
| | | | | | | | L.S. | 169 | Special | Special | Lump | Lump | Removed & Disposal of Existing Underground Storage Tanks |
| | | | | | | | | 170 | | | | | WATER WORK |
| | | | | | | | | 171 | | | | | (For Quantities See Sheet 42) |
| | | | | | | | | 172 | | | | | |
| | | | | | | | | 173 | | | | | |
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| | | | | | | | | 186 | | | | | (For Quantities, See Sheet 48) |
| | | | | | | | | 187 | | | | | |
| | | | | | | | | 188 | | | | | LIGHTING |
| | | | | | | | | 189 | | | | | (For Quantities see Sheet 59) |
| | | | | | | | | 190 | | | | | |
| | | | | | | | | 191 | | | | | STRUCTURES OVER 20 FT. SPAN |
| | | | | | | | | 192 | | | | | Br. No. BEL-7-2006 (For Quantities see sheet 66) |
| | | | | | | | | 193 | | | | | |
| | | | | | | | | 194 | | | Lump | Lump | Construction Layout Stakes |
| | | | | | | | | 195 | | | | | |
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| | | | | | | | | 201 | | | | | |
| | | | | | | | | 202 | | | | | |
| | | | | | | | | 203 | | | | | |
| | | | | | | | | 204 | | | | | |
| | | | | | | | | 205 | | | | | |
| | Lump | | | | | | | 206 | | | Lump | Lump | Field Office |
| Lump | | | | | | | | 207 | 614 | I-3 | Lump | Lump | Maintaining Traffic |

| | | | | | |
|---|---|---|---|---|---|
| MADE WCI | DATE 4-12-62 | TRACED AEK | DATE 5-17-62 | | |
| CHECKED ECE | DATE 5-15-62 | SCALE None | | | |

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

# GENERAL SUMMARY



| Quan. From Sh. 12&13 Line No. | 1965 Specs Item | Quantity | Unit | Code Type | Description |
|---|---|---|---|---|---|
| 1 | | | | | ROADWAY |
| 2 | 203 | 31,799 | Cu.Yds. | 7221 | Excavation not Including Embankment Construction |
| 3 | 203 | 26,150 | Sq.Yds. | 7221 | Subgrade Preparation |
| 4 | 203 | 46,147 | Cu.Yds. | 7221 | Embankment |
| 11 | 203 | 445 | Cu.Yds. | 7221 | Borrow, Using Granular Material, as per plan |
| 12 | | | | | |
| 14 | 203 | 228 | M-GAL | 7221 | Water |
| 5 | 202 | 336 | Sq.Yds. | 7221 | Existing Median Pavement Removed and Disposed Of. |
| 6&7 | 202 | 8,102 | Sq.Yds. | 7221 | Existing Pavement Removed and Disposed Of. |
| 8 | 202 | 3,278 | Lin.Ft. | 7221 | Existing Curb Removed and Disposed Of. |
| 9 | 202 | 10,558 | Sq.Ft. | 7221 | Existing Sidewalk Removed and Disposed Of. |
| 21 | 202 | 484 | Lin.Ft. | 7221 | Guard Rail Removed for Re-use. |
| 10 | 201 | Lump | Lump | 7221 | Clearing and Grubbing |
| 17 | 604 | 5 | Each | 7221 | Standard Monument Assembly |
| 18 | 608 | 20 | Lin.Ft. | 7221 | Concrete Steps, Std. Type B, as per plan |
| 19 | 608 | 3,655 | Sq.Ft. | 7221 | 4" Concrete Walk, as per plan |
| 20 | 606 | 1,637.5 | Lin.Ft. | 7221 | Guard Rail Type 4. |
| 21 | 606 | 484 | Lin.Ft. | 7221 | Guard Rail Rebuilt. |
| 22 | 607 | 812 | Lin.Ft. | 7221 | Fence, TYPE CL |
| 24 | 659 | 29,639 | Sq.Yds. | Y005 | Seeding and Mulching, as per plan |
| 25 | 659 | 2.68 | Tons | Y005 | Commercial Fertilizer (12-12-12) |
| 26 | 659 | 13.39 | Tons | Y005 | Agricultural Liming |
| 28 | 616 | 15 | M-Gals. | 7221 | Water |
| 29 | 616 | 100 | Tons | 7221 | Calcium Chloride |
| 30 | 410 | 1,250 | Cu.Yds. | 7221 | Traffic Compacted Surface Course, Type A or B |
| 31 | 410 | 3,750 | Cu.Yds. | 7221 | Traffic Compacted Surface Course, Type C. |
| | Spec | Lump | Lump | 7221 | Removal and Disposal of Existing Underground Storage Tanks (Parcel Nos. 9LA & 19LA) |
| 32 | | | | | PAVEMENT |
| 33 | 611 | 328 | Sq.Yds. | 7221 | Reinforced Concrete Approach Slabs (T=13") |
| 34 | 609 | 6803 | Lin.Ft. | 7221 | Concrete Curb Standard Type 2-A |
| 36 | 609 | 103 | Lin.Ft. | 7221 | Concrete Curb Standard Type 6 |
| 37 | 609 | 25 | Lin.Ft. | 7221 | Concrete Curb 10", as per plan. |
| 41 | 612 | 22 | Cu.Yds. | 7221 | Concrete Median, Modified as per plan. |
| 42 | 612 | 1506 | Sq.Yds. | 7221 | 9" Concrete Median |
| 44 | 310 | 5409 | Cu.Yds. | 7221 | Subbase, Grading A or B as per plan. |
| 47 | 452 | 30 | Sq.Yds. | 7221 | 8" Plain Portland Cement Concrete Pavement |
| 48 | 451 | 25,517 | Sq.Yds. | 7221 | 9" Reinforced Portland Cement Concrete Pavement |
| | | | | | TRAFFIC CONTROL |
| 54 | 621 | 4.05 | Miles | 7221 | 4" Edge Lines |
| 55 | 621 | 0.10 | Miles | 7221 | 4" Lane Lines |
| 56 | 621 | 1.75 | Miles | 7221 | 6" Lane Lines And Center Lines |
| 57 | 621 | 898 | Lin.Ft. | 7221 | 8" Channelizing Lines |
| 58 | 621 | Lump | Lump | 7221 | Curb And Island Marking |
| 59 | 621 | Lump | Lump | 7221 | Diagonal Stripes |
| 60 | 620 | 99 | Each | 7221 | Delineator, Type C-2, Post Mounted, Mono-Directional |
| 61 | 620 | 1 | Each | 7221 | Delineator, Type C-3, Post Mounted, Mono-Directional |
| | | | | | Traffic Control Continued on Sheet No. 48 |

| Quan. From Sh. 12&13 Line No. | 1965 Specs Item | Quantity | Unit | Code Type | Description |
|---|---|---|---|---|---|
| 70 | | | | | DRAINAGE |
| 71 | 202 | 605 | Lin.Ft. | 7221 | Pipe Removed 15" and Under |
| 72 | 202 | 454 | Lin.Ft. | 7221 | Pipe Removed, Over 15" |
| 74 | 605 | 6,091 | Lin.Ft. | 7221 | 6" Shallow Pipe Underdrains |
| 74 | 605 | 1,500 | Lin.Ft. | 7221 | 6" Deep Pipe Underdrains |
| 75 | 603 | 463 | Lin.Ft. | 7221 | 6" Conduit Type F |
| 76 | 603 | 28 | Lin.Ft. | 7221 | 6" Conduit, Type B with Class B Bedding. |
| 77 | 603 | 1,278 | Lin.Ft. | 7221 | 12" Conduit, Type "B" with Class B Bedding |
| 78-79 | 603 | 791 | Lin.Ft. | 7221 | 12" Conduit, Type C with Class B Bedding. |
| 80 | 603 | 319 | Lin.Ft. | 7221 | 15" Conduit, Type B with Class B Bedding |
| 81 | 603 | 235 | Lin.Ft. | 7221 | 15" Conduit, Type C with Class "B" Bedding |
| 90 | 603 | 88 | Lin.Ft. | 7221 | 18" Conduit, Type C (706.02 Class III) or (706.08 E.S.) with Class B Bedding |
| 82 | 603 | 284 | Lin.Ft. | 7221 | 18" Conduit, Type B with Class B Bedding |
| 91 | 603 | 50 | Lin.Ft. | 7221 | 18" Conduit, Type C with Class B Bedding |
| 92 | 603 | 51 | Lin.Ft. | 7221 | 21" Conduit, Type B with Class B Bedding |
| 84 | 603 | 343 | Lin.Ft. | 7221 | 24" Conduit, Type B with Class B Bedding |
| 85 | 603 | 203 | Lin.Ft. | 7221 | 24" Conduit, Type B (706.02 Class V) with Class "B" Bedding, under Railroad |
| 86 | 603 | 614 | Lin.Ft. | 7221 | 24" Conduit, Type C with Class "B" Bedding |
| 88 | 603 | 25 | Lin.Ft. | 7221 | 30" Conduit, Type B (706.02 Class III) or (706.08) with Class B Bedding. |
| 89 | 603 | 170 | Lin.Ft. | 7221 | 42 Conduit, Type B (706.02 Class V) with Class B Bedding. |
| 94 | 602 | 29.1 | Cu.Yds. | * | Concrete Masonry. |
| 100 | 604 | 15 | Each | 7221 | Standard No. 3 Catch Basin |
| 101 | 604 | 22 | Each | 7221 | Standard No. 3-A Catch Basin |
| 102 | 604 | 1 | Each | 7221 | Standard No. 2-3 Catch Basin |
| 103 | 604 | 9 | Each | 7221 | Standard No. 2-2A Catch Basin |
| 104 | 604 | 7 | Each | 7221 | Standard No. 1 Manhole |
| 105 | 604 | 3 | Each | 7221 | Standard No. 2 Manhole |
| 106 | 604 | 1 | Each | 7221 | Catch Basin Adjusted to Grade, as per plan. |
| 107 | 604 | 7 | Each | Y060 | Manhole Adjusted to Grade (Sanitary), as per plan. |
| 109 | 601 | 38 | Cu.Yds. | Y005 | Dumped Rock Channel Protection, as per plan. |
| 110 | 601 | 36 | Cu.Yds. | Y005 | Dumped Rock Fill, Type A, as per plan. |
| 111 | 601 | 50 | Sq.Yds. | Y005 | Riprap Using 6" Reinforced Concrete Slab, as per plan. |
| 112 | 601 | 980 | Lin.Ft. | Y005 | Paved Gutter, Standard Type 1-2 |
| 113 | 601 | 225 | Lin.Ft. | Y005 | Paved Gutter, Standard Type 1-2, Modified as per plan. |
| 115 | 202 | 9 | Each | ** | Manhole Removed. |
| 116 | 202 | 23 | Each | 7221 | Catch Basin Removed. |
| 118 | 660 | 110 | Sq.Yds. | Y005 | Sodding, as per plan. |
| 120 | 202 | Lump | Lump | 7221 | Portions of Existing Structures Removed, as per plan |
| 122 | Special | 105 | Cu.Yds. | 7221 | Sand Backfill |

| Quan. From Sh. 12&13 Line No. | 1965 Specs Item | Quantity | Unit | Code Type | Description |
|---|---|---|---|---|---|
| | | | | | BUILDING REMOVALS |
| | 202 | Lump | Lump | 7221 | Parcel No. 4-WL, Removal of one 2-story frame residence. |
| | 202 | Lump | Lump | 7221 | Parcel No. 14-WL, Removal of one 1-story brick and concrete block commercial building. |
| | 202 | Lump | Lump | 7221 | Parcels Nos. 16-WL & 17-WL, Removal of one 3-story brick building and one 3-story brick building with 1-story brick addition. |
| | 202 | Lump | Lump | 7221 | Parcel No. 18-T, Removal of one 1-story frame building. |
| | 202 | Lump | Lump | 7221 | Parcel No. 20-WL, Removal of one 2-story brick building |
| | 202 | Lump | Lump | 7221 | Parcel No. 31-WL, Removal of one 1-story brick service station building. |
| | | | | | WATER WORK |
| 171 | | | | | (For Quantities, See Sheet No. 42) |
| 185 | | | | | |
| 186 | | | | | |
| 188 | | | | | LIGHTING |
| 189 | | | | | (For Quantities, See Sheet No. 59) |
| 191 | | | | | STRUCTURES OVER 20' SPAN |
| 192 | | | | | Br No. BEL-7-2006 (For Quantities, See Sheet No. 66) |
| 194 | | Lump | Lump | 7221 | Construction Layout Stakes |
| 206 | | Lump | Lump | 7221 | Field Office. |
| 207 | 614 | Lump | Lump | 7221 | Maintaining Traffic. |

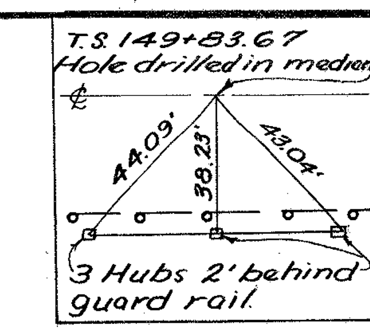
* 11.1 C.Y. Under Code Type 7221 & 18.0 C.Y. Under CODE TYPE Y-060 **3 are Sanitary Manholes CODE TYPE Y-060 & 6 are Code Type 7221

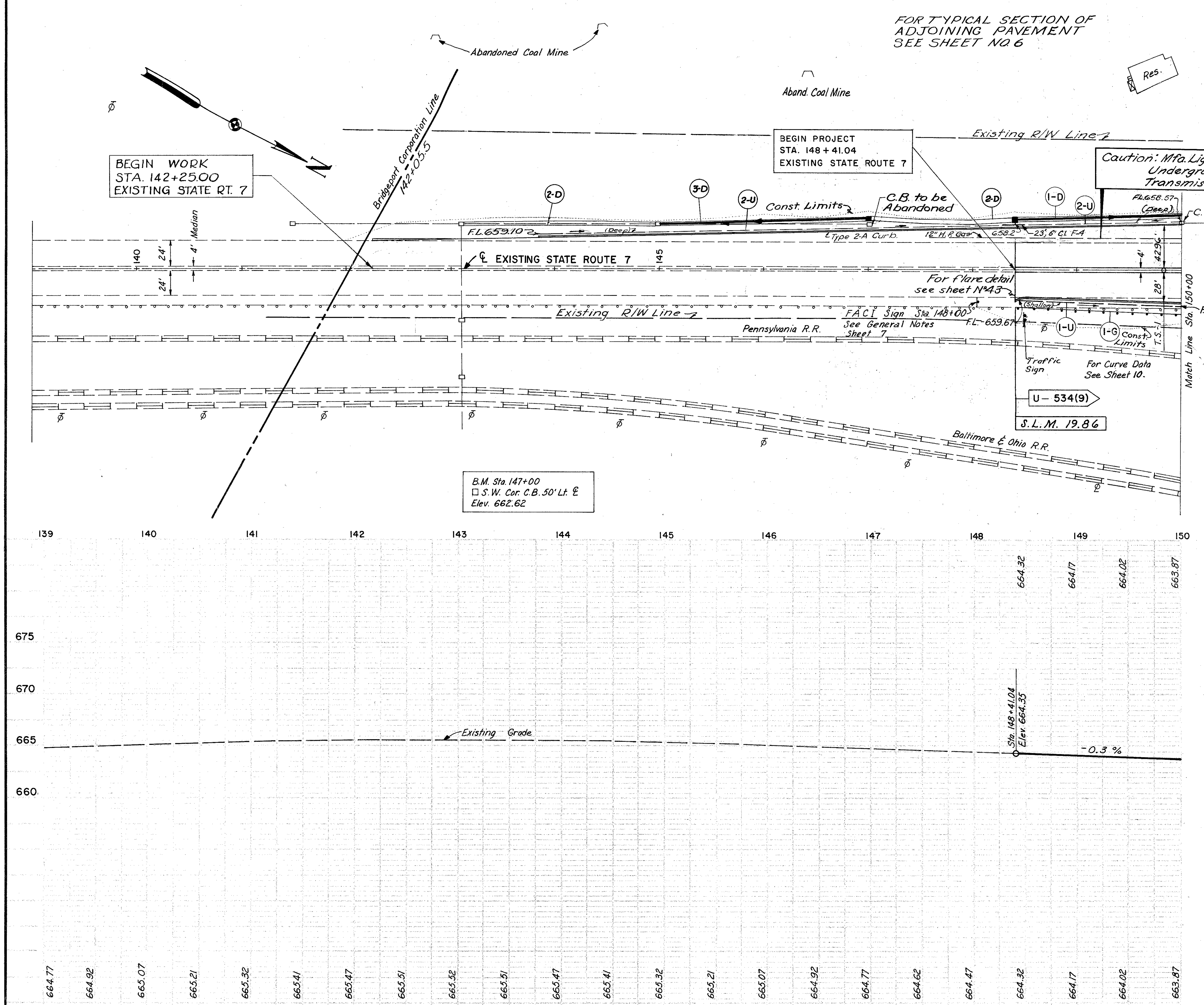
| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |



BELMONT COUNTY

BEL-7-19.86




## DRAINAGE LEGEND AND ABBREVIATIONS

- Proposed Sewer
- Existing Storm Sewer
- Existing Sanitary Sewer
- Sodded Ditch
- Underdrains
- Proposed Manhole, Catch Basin
- Existing Manhole, Catch Basin
- Existing Sewer to be removed
- T/C — Top of Cover
- T/G — Top of Grate
- C.B. — Catch Basin
- M.H. — Manhole
- D — Drainage Items
- E — Removal Items
- U — Underdrains

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

**ROADWAY**

| REF. NO. | STATION From | STATION To | SIDE | I-15 Guard Rail Removed and Rebuilt Lin. Ft. |
|---|---|---|---|---|
| I-G | 148+41 | 150+00 | Rt. | 159 |
| Total | | | | 159 |

NOTE: All flow line elevations shown on plan and profile sheets are underdrain elevations.

**DRAINAGE**

| REF. NO. | STATION | | SIDE | I-1 | | | I-5 | I-8 | I-1 | I-14 | E-12 | I-16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Class E-1 24" | Class I-3 6" | Class F-4 6" | Class I-3 6" Tee | Std. 2-2A C.B. | Class E-1 15" | St'd. Type I Pvd Gutter | Pipe Rem'd 15" and Under | C.B. Aban. |
| | From | To | | Lin. Ft. | | | Each | | Lin. Ft. | Lin. Ft. | Lin. Ft. | Each |
| 2-D | 143+12 | 150+00 | Lt. | | | | | | | 680 | | |
| 1-D | 148+40 | 150+00 | Lt. | 160 | | | | 1 | | | | |
| 1-U | 148+41 | 150+00 | Rt. | | 159 | | | | | | | |
| *2-U | 143+85 | 150+00 | Lt. | | *595 | *23 | 1 | | | | | |
| 3-D | 145+00 | 147+00 | Lt. | | | | | 1 | 200 | | 200 | 1 |
| Total | | | | 160 | 754 | 23 | 1 | 2 | 200 | 680 | 200 | 1 |

* Deep Underdrain

Note: All buildings located within the Right-of-Way have been omitted from Sheets 15 thru. 19. For building locations, types and disposition see sheets 14, 94 and 95.

For Typical Section of adjoining pavement See sheet 6

Note: For Sewer Profiles See Sheets 44 & 45. Curb Details at Sta. 148+41 are shown on Sheet 37.

| | |
|---|---|
| Seeding | 3,537 Sq. Yds. |
| Excavation | 483 Cu. Yds. |
| Embankment | 588 Cu. Yds. |
| Embankment + 15 % | 676 Cu. Yds. |

PLAN — NOTE BOOK, NO. — SURVEYED, PLOTTED, ALIGNMENT CHECKED, RT. OF WAY CHECKED — BY W.C.I., E.C.E. — DATE 9-30-61, 3-21-62

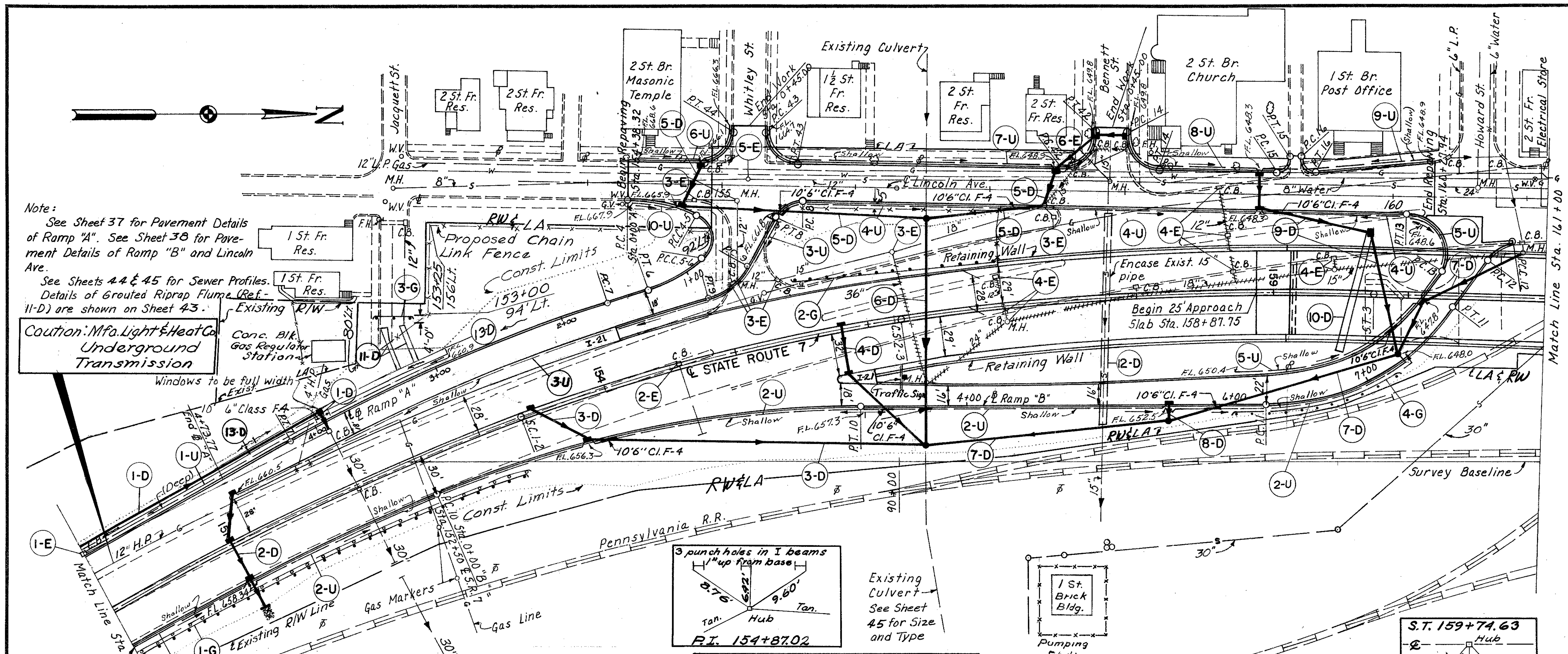
PROFILE — NOTE BOOK, NO. — SURVEYED, PLOTTED, GRADES CHECKED, B. M.s NOTED, STRUCTURE NOTAT'NS CH'KD — BY GED, E.C.E. — DATE 7-18-58, 3-21-62

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

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | 16 |

Note:
See Sheet 37 for Pavement Details of Ramp "A". See Sheet 38 for Pavement Details of Ramp "B" and Lincoln Ave.
See Sheets 44 & 45 for Sewer Profiles. Details of Grouted Riprap Flume (Ref. 11-D) are shown on Sheet 43.

Caution: Mfg. Light & Heat Co. Underground Transmission




| R/W FENCE | | I-26 |
|---|---|---|
| STATION | | Lin. Ft. |
| From | To | |
| 152+38 | 155+00 | 340 |
| 159+69 | 157+00 | 182 |
| TOTAL | | 522 |

ROADWAY

| REF. NO. | STATION From | STATION To | SIDE | I-15 Guard Rail Steel Beam Std. Type (Deep) Lin. Ft. | I-15 Guard Rail Removed & Rebuilt Lin. Ft. |
|---|---|---|---|---|---|
| 1-G | 150+00 | 153+25 | Rt. | | 325 |
| 2-G | 155+50 | 157+00 | Lt. | 150 | |
| 3-G | 152+60 | 152+85 | Lt. | 25 | |
| 4-G | 6+00 B | 7+25 B | Rt. | 125 | |
| | Total | | | 300 | 325 |

ADJUSTED MANHOLES (SAN.)

| REF. NO. | Sta. & Lincoln | Side | Existing T/C Elev. | Adjusted T/C Elev. |
|---|---|---|---|---|
| 5-E | 155+20 | Lt. | 647.9 | 647.8 |
| 6-E | 157+90 | Lt. | 653.79 | 653.5 |

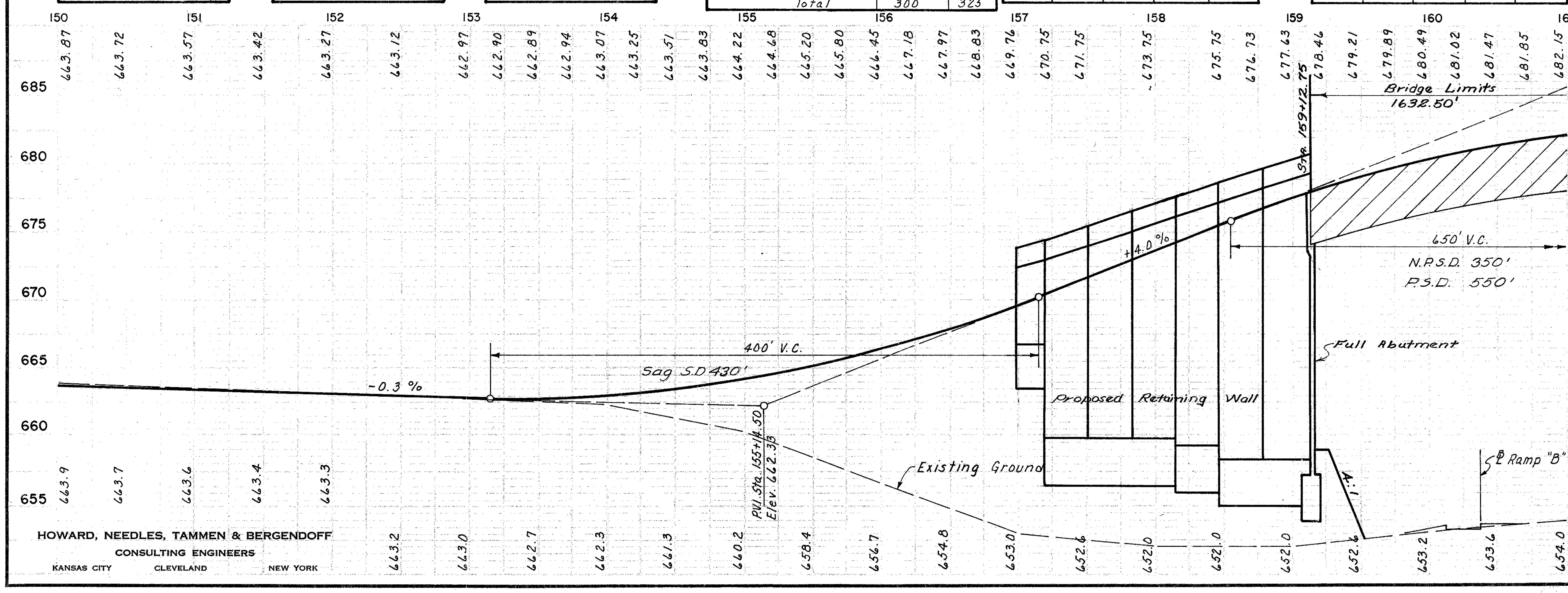
ADJUSTED CATCH BASINS

| REF. NO. | Sta. & Lincoln | Side | Existing T/G Elev. | Adjusted T/G Elev. |
|---|---|---|---|---|
| 5-D | 157+40 | Rt. | 653. | 654.5 |

B.M. Sta. 156+02
R.R. Spike in root of 18" Buckeye - 85' Lt. ℄
Elev. 663.68

B.M. Sta. 158+40
+ on top of N.W. bolt in base of P.R.R. Signal
130' Rt. ℄ Elev. 656.99

B.M.
☐ Bottom step of N. Stairs to U.S. Post Office
Elev. 653.87

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KANSAS CITY CLEVELAND NEW YORK

DRAINAGE

★ M-6.6(a) or M-6.8(b)

| REF. NO. | STATION From | STATION To | SIDE | I-1 Cl. "A-1" M-6.6(a) M-6.8(b) 12" | I-1 Cl. "A-1" M-6.6(a) M-6.8(b) 15" | I-1 Cl. "A-1" M-6.6(a) M-6.8(b) 18" | I-1 Cl. "A-1" M-6.6(a) M-6.8(b) 24" | I-1 | I-1 Cl. A-1 M-6.6(b) M-6.8(b) 30" | I-1 Cl. "A-1" M-6.6(d) 42" | I-1 Cl. "E-1" 12" | I-1 Cl. "E-1" 15" | I-1 Cl. "E-1" M-6.6(b) M-6.8(b) 18" | I-1 Cl. "E-1" 24" | I-1 | I-1 Cl. "F4" 6" | I-1 Cl. "I-3" 6" | I-2 Cl. "C" Masonry | I-2 Cl. "E" Masonry | I-8 Std. 2-2A C.B. | I-8 Std. 2-3 C.B. | I-8 Std. 3A C.B. | I-8 Std. No. 1 M.H. | I-8 Std. No. 2 M.H. | I-8 M.H. Adj. to Grd. (San.) | I-8 C.B. Adj. to Grd. | I-8 Std. No. 3 C.B. | I-10 Rip-Rap (6" Reinf. Conc. slab) | I-14 Std. Type I Mod. Pvd. Gut. | I-16 M.H. Aban. | I-16 C.B. Aban. | E-12 Pipe Rem. Over 15" | E-12 Pipe Rem. 15" and Under | S-22 Rem. Port. of Exist. Struct. | I-1 Cl. A-1 6" ★ | I-5 Cl. I-3 6" Spec. 90° | I-10 Dump Rock Chan. Prot. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Lin. Ft. | | | | | | | | | | | | | | Cu. Yds. | | Each | | | | | | | | Sq. Yds. | Lin. Ft. | Each | | Lin. Ft. | | Lump | Lin. Ft. | Ea. | Cu. Yds. |
| 1-D | 150+00 | 152+00 | Lt. | | | | | | 25 | | | | | 205 | | | | | | | 1 | | | | | | | | | | 2 | | | | | | |
| 2-D | 4+77 "a" | 151+00 | Lt. & Rt. | 68 | | | | | | | 23 | | | | | | | .23 | | | | 2 | | | | | 1 | | | | | | | | | | 3 |
| 3-D | 153+43 | 3+69 "B" | Lt. & Rt. | 46 | | | | | | | 251 | | | | | | | | | | | | | | | | 2 | | | | | | | | | | |
| 4-D | 155+80 | 3+69 "B" | Rt. | 115 | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | |
| 5-D | 154+85 Linc. | 157+50 Linc. | Lt. & Rt. | 244 | 30 | | | | | | | 35 | 88 | | | | | | | | | 5 | | | | 1 | | | | | | | | | | | |
| 6-D | 156+55 | 3+69 "B" | Lt. & Rt. | | | | | | | 170 | | | | | | | | | | | | | | 2 | | | | | | 1 | | 112 | | Lump | | | |
| 7-D | 3+69 "B" | 160+85 | Lt. & Rt. | | | 83 | 220 | | | | | | | 182 | | | | | | | | | 2 | | | | 1 | | | | | | | | | | |
| 8-D | 5+50 "B" | | Rt. | | | | | | | | 13 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | |
| 9-D | 159+00 Lin. | 7+30 "B" | Lt. & Rt. | 26 | 92 | | | | | | 85 | | | | | | | | | 1 | | | | | | | 2 | | | | | | | | | | |
| 10-D | 159+50 | 159+70 | Lt. & Rt. | | | | | | | | | | | | | | | | | | | | | | | | | | 90 | | | | | | | | |
| 11-D | 152+60 and 152+75 | | Lt. | | | | | | | | | | | | | | | | | | | | | | | | | 27 | | | | | | | | | |
| 12-D | 157+78 | | Lt. & Rt. | | | | | | | | | | | | | | | | 18 | | | | | | | | | | | | | | | | | | |
| *1-U | 150+00 | 153+00 | Lt. | | | | | | | | | | | | | 10 | 300 | | | | | | | | | | | | | | | | | | | | |
| 2-U | 150+00 | 7+30 "B" | Rt. | | | | | | | | | | | | | 80 | 980 | | | | | | | | | | | | | | | | | | 8 | 1 | |
| 3-U | 4+77 "a" | 0-10 "a" | Lt. | | | | | | | | | | | | | 20 | 477 | | | | | | | | | | | | | | | | | | | | |
| 4-U | 155+60 | 160+10 | Rt. Lin. | | | | | | | | | | | | | 40 | 450 | | | | | | | | | | | | | | | | | | | | |
| 5-U | 6+00 "b" | 8+69 "b" | Lt. | | | | | | | | | | | | | 30 | 269 | | | | | | | | | | | | | | | | | | | | |
| 6-U | 154+30 | 155+10 | Lt. Lin. | | | | | | | | | | | | | 20 | 75 | | | | | | | | | | | | | | | | | | | | |
| 7-U | 155+35 | 157+75 | Lt. Lin. | | | | | | | | | | | | | 20 | 275 | | | | | | | | | | | | | | | | | | | | |
| 8-U | 158+00 | 159+00 | Lt. Lin. | | | | | | | | | | | | | 10 | 115 | | | | | | | | | | | | | | | | | | | | |
| 9-U | 159+00 | 160+28 | Lt. Lin. | | | | | | | | | | | | | 10 | 128 | | | | | | | | | | | | | | | | | | | | |
| 10-U | 0+00 "A" | 0+40 "A" | Rt. | | | | | | | | | | | | | 10 | 30 | | | | | | | | | | | | | | | | | | | | |
| 1-E | 150+00 | | Lt. | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | |
| 2-E | 154+57 | | ℄ | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | |
| 3-E | 154+80 | 157+50 | Rt. Lin. | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | 4 | 98 | | | | | |
| 4-E | 157+00 | 159+50 | Rt. & Lt. | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 7 | 244 | 325 | | | | |
| 5-E | 155+00 | 155+20 | Lt. Lin. | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | 1 | | | | | | |
| 6-E | 157+60 | 157+90 | Lt. Lin. | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | 3 | | 80 | | | | |
| **13-D | 150+00 | 153+00 | Lt. | | | | | | | | | | | | | | | | | | | | | | | | | | 300** | | | | | | | | |
| | Total | | | 499 | 122 | 83 | 220 | | 25 | 170 | 372 | 35 | 88 | 387 | | 250 | 3099 | 0.23 | 18 | 1 | 1 | 10 | 2 | 2 | 2 | 1 | 6 | 27 | 90 300** | 6 | 19 | 454 | 405 | Lump | 8 | 1 | 3 |

* Deep Underdrain ** No Modification Required.

| | | |
|---|---|---|
| Seeding | 11,998 | Sq. Yds. |
| Excavation | 2,028 | Cu. Yds. |
| Embankment | 25,810 | Cu. Yds. |
| Embankment + 15% | 29,682 | Cu. Yds. |

| PLAN | | BY | DATE |
|---|---|---|---|
| NOTE BOOK | SURVEYED | | |
| NO. | PLOTTED | W.C.I. | 9-25-61 |
| | ALIGNMENT CHECKED | E.C.E. | 3-21-62 |
| | RT. OF WAY CHECKED | | |

| PROFILE | | BY | DATE |
|---|---|---|---|
| NOTE BOOK | SURVEYED | | |
| NO. | PLOTTED | G.E.D. | 7-15-58 |
| | GRADES CHECKED | E.C.E. | 3-21-62 |
| | B. M's NOTED | | |
| | STRUCTURE NOTAT'NS CH'KD | | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

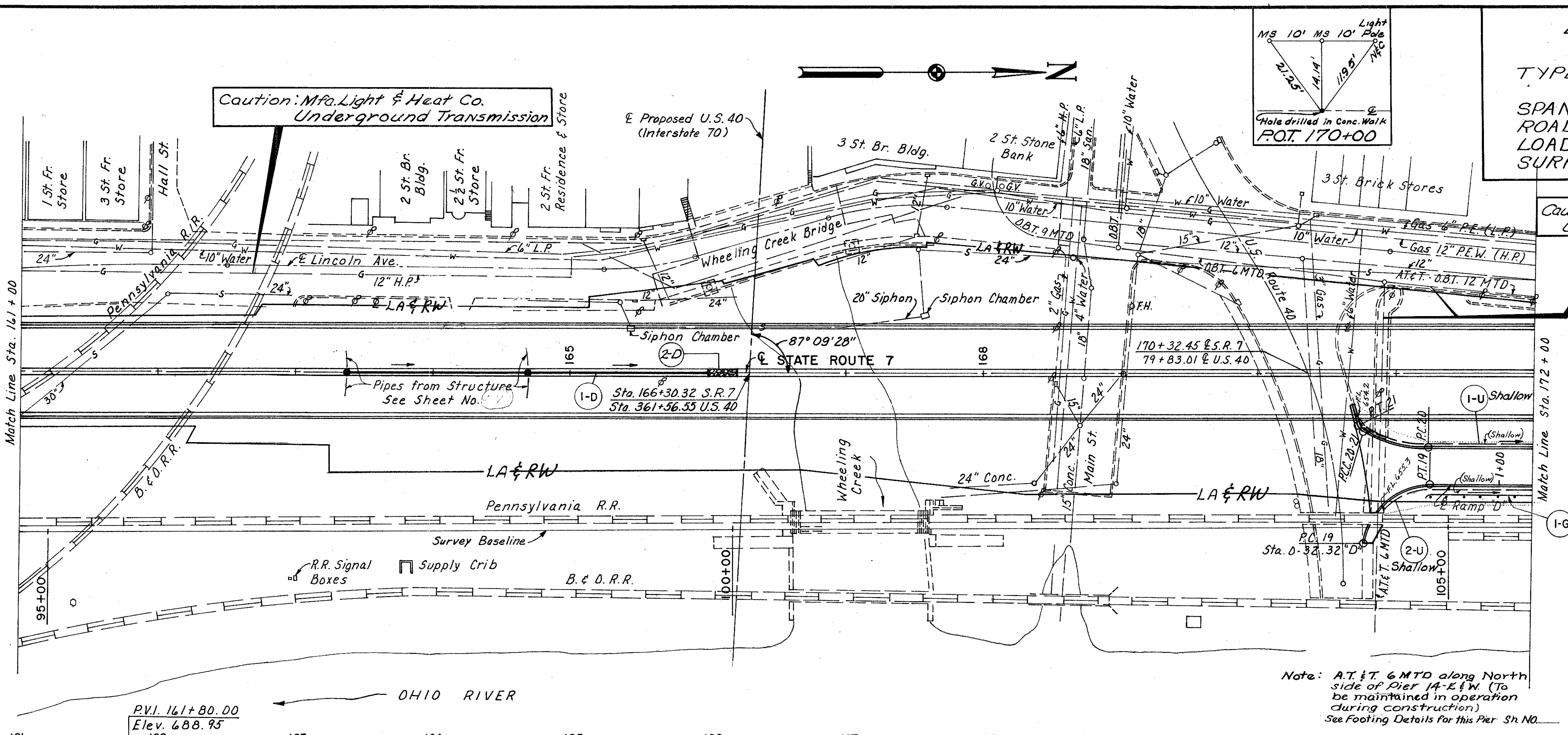


BELMONT COUNTY

BEL-7-19.86

## EXISTING BRIDGE BEL-7-20.26

TYPE: Steel girder with concrete deck and substructure.
SPAN: 108'-0"
ROADWAY: 43'-8", 2 5'-0" Sidewalks
LOADING: Street Car and H15-33
SURFACE COURSE: 2½" Asphaltic Concrete




Note: See Sheet 39 for Intersection Details of Ramp "D" & U.S. Route 40.

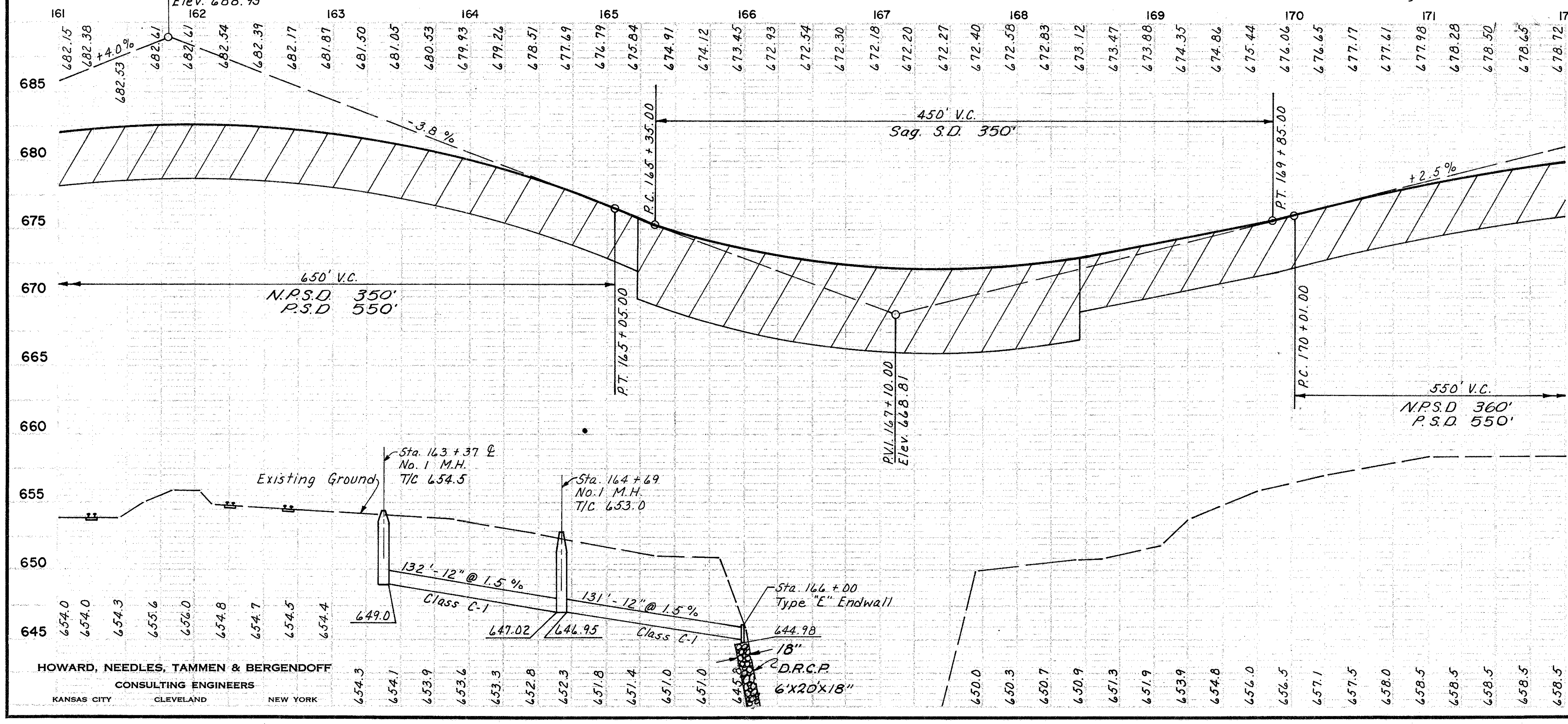
## PROPOSED STRUCTURE

TYPE: Continuous rolled beam and welded girders with reinforced concrete deck and substructures.
SPANS: Vary, see plan.
ROADWAY: 62'-0" f/f of 3'-2" safety curbs with 4'-0" raised median
LOADING: CF 2000 (57) Adequate for AASHO alternate loading
SKEW: None
WEARING SURFACE: 1" Monolithic Concrete
APPROACH SLABS: AS-1-54 (25'-0" long)
ALIGNMENT: Varies Unit 1; Tangent Units 2, 3, 4 and 5

U.S.C.&G.S. B.M.
Brass plate on top step of B. & O. R.R. Freight Sta. Elev. 657.27

B.M.
+ on top N. post of E. bridge railing of Lincoln Ave. bridge over Wheeling Cr. Elev. 655.27

Note: A.T. & T. 6 MTD along North side of Pier 14-E & W. (To be maintained in operation during construction)
See Footing Details for this Pier Sh. No.




## DRAINAGE

| REF. NO. | STATION From | STATION To | SIDE | I-1 Class I-3 6" Lin. Ft. | I-1 Class C-1 12" Lin. Ft. | I-2 Class "C" Masonry Cu. Yd. | I-8 Std. #1 M.H. Each | I-10 Dump Rock Channel Protection Cu. Yd. |
|---|---|---|---|---|---|---|---|---|
| I-D | 163+37 | 166+00 | ℄ | | 263 | 0.23 | 2 | |
| I-U | 0-06 | 1+23 | Lt. "D" | 129 | | | | |
| 2-U | 0+11 | 1+23 | Rt. "D" | 111 | | | | |
| 2-D | 166+00 | 166+20 | ℄ | | | | | 7 |
| Total | | | | 240 | 263 | 0.23 | 2 | 7 |

## ROADWAY

| REF. NO. | STATION From | STATION To | SIDE | I-15 Guard Rail Steel Beam Std. Type (Deep) Lin. Ft. |
|---|---|---|---|---|
| I-G | 0+45 D | 1+25 D | Rt. | 80 |
| Total | | | | 80 |

| | | |
|---|---|---|
| Seeding | 90 | Sq. Yds. |
| Excavation | 193 | Cu. Yds. |
| Embankment | 17 | Cu. Yds. |
| Embankment + 15% | 20 | Cu. Yds. |

PLAN — NOTE BOOK / NO. — SURVEYED / PLOTTED / ALIGNMENT CHECKED / RT. OF WAY CHECKED — BY: L.V.M., E.C.F.

PROFILE — NOTE BOOK / NO. — SURVEYED / PLOTTED / GRADES CHECKED / B.M.'s NOTED / STRUCTURE NOTAT'NS CH'KD — BY: L.V.M., E.C.F.

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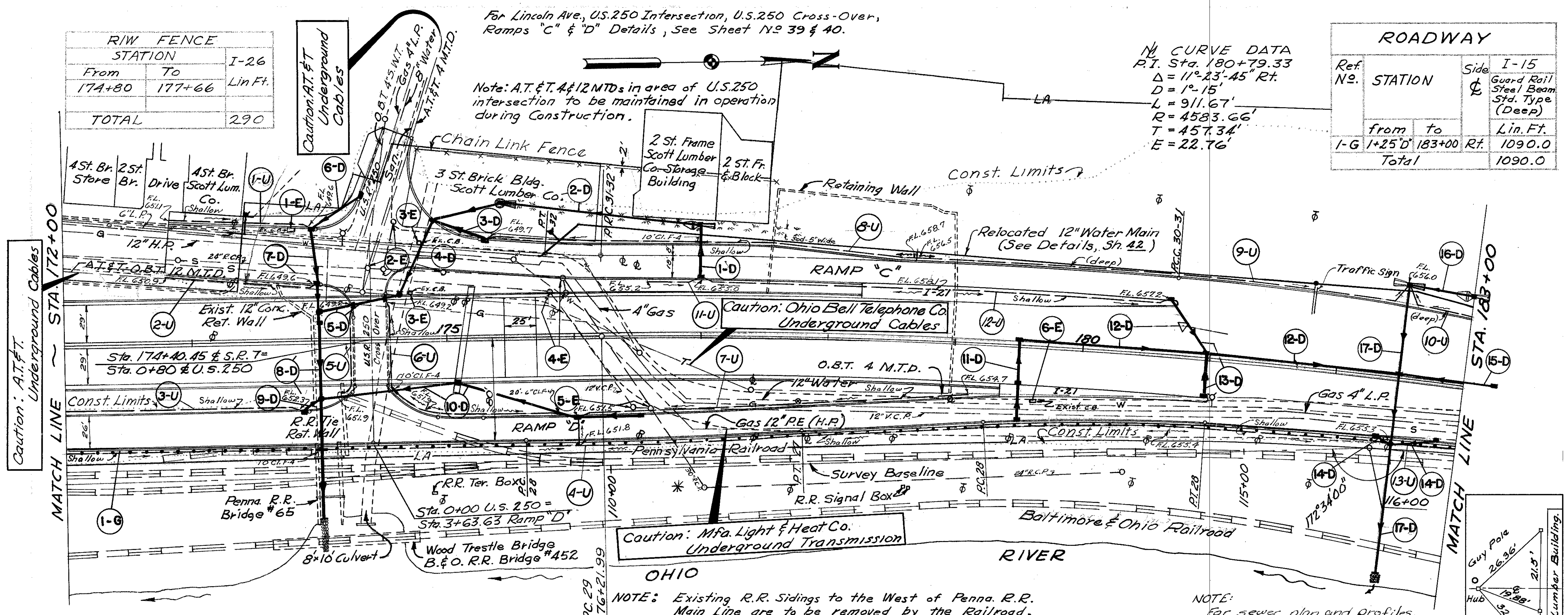
For Lincoln Ave., U.S. 250 Intersection, U.S. 250 Cross-Over, Ramps "C" & "D" Details, See Sheet No 39 & 40.

Note: A.T.&T. 4 & 12 MTDs in area of U.S. 250 intersection to be maintained in operation during Construction.

| R/W FENCE | | |
|---|---|---|
| STATION | | I-26 |
| From | To | Lin. Ft. |
| 174+80 | 177+66 | |
| TOTAL | | 290 |

CURVE DATA
P.I. Sta. 180+79.33
$\Delta = 11°-23'-45''$ Rt.
$D = 1°-15'$
$L = 911.67'$
$R = 4583.66'$
$T = 457.34'$
$E = 22.76'$

| ROADWAY | | | | |
|---|---|---|---|---|
| Ref. No. | STATION | | Side ℄ | I-15 Guard Rail Steel Beam Std. Type (Deep) |
| | from | to | | Lin. Ft. |
| 1-G | 1+25 "D" | 183+00 | Rt. | 1090.0 |
| | Total | | | 1090.0 |

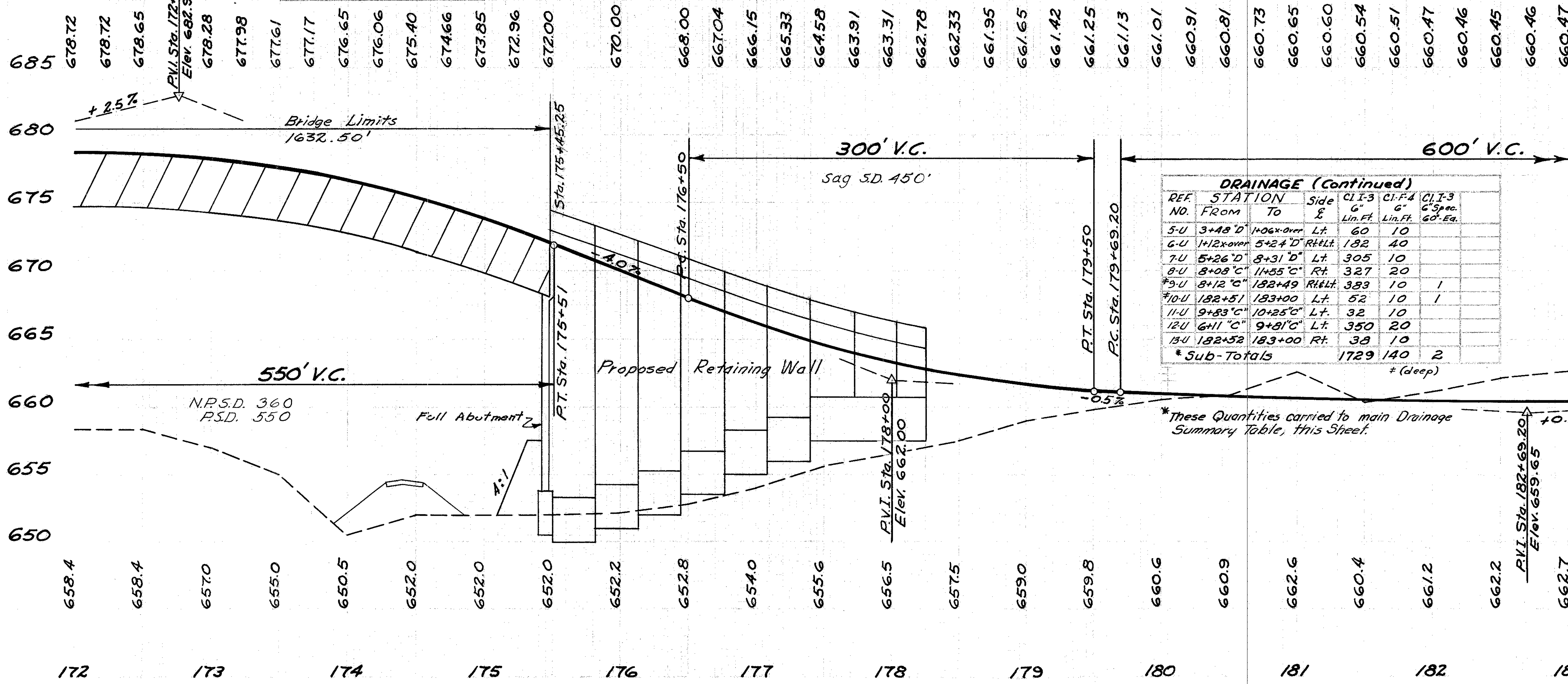



NOTE: Existing R.R. Sidings to the West of Penna. R.R. Main Line are to be removed by the Railroad. The existing 12" concrete retaining wall and railroad tie retaining wall adjacent to the Penna. R.R. Bridge #65 shall be removed in accordance with Sec. E-1.03(c) of the Specifications. Payment for this work is to be included in the unit price bid for Item E-1, Roadway Excavation.

NOTE: For sewer plan and profiles, See Sheets 46 & 47, 32, 33 & 34.

* NOTE: Place cross reference on page 18. "For profile of existing 30" sewers See pages 68, 79 & 80."

B.M. Sta. 174+25
M.S. in Power Pole
38' Lt.
El. 651.81




| DRAINAGE (Continued) | | | | | | |
|---|---|---|---|---|---|---|
| Ref. No. | Station From | To | Side ℄ | Cl. I-3 6" Lin. Ft. | Cl. F-4 6" Lin. Ft. | Cl. I-3 6" Spec. 60° Ea. |
| 5-U | 3+48 "D" | 1+06 x-over | Lt. | 60 | 10 | |
| 6-U | 1+12 x-over | 5+24 "D" | Rt.&Lt. | 182 | 40 | |
| 7-U | 5+26 "D" | 8+31 "D" | Lt. | 305 | 10 | |
| 8-U | 8+08 "C" | 11+55 "C" | Rt. | 327 | 20 | |
| *9-U | 8+12 "C" | 182+49 | Rt.&Lt. | 383 | 10 | 1 |
| *10-U | 182+51 | 183+00 | Lt. | 52 | 10 | 1 |
| 11-U | 9+83 "C" | 10+25 "C" | Lt. | 32 | 10 | |
| 12-U | 6+11 "C" | 9+81 "C" | Lt. | 350 | 20 | |
| 13-U | 182+52 | 183+00 | Rt. | 38 | 10 | |
| * Sub-Totals | | | | 1729 | 140 | 2 |

* (deep)

*These Quantities carried to main Drainage Summary Table, this Sheet.

★ 6.6(a) or 6.8(b)

DRAINAGE

| REF. NO. | STATION FROM | TO | SIDE ℄ of SR-7 | I-1 Class A-1 6.6(a) 6.8(b) 12" | I-1 Class E-1 12" | I-1 Class A-1 6.6(a) 6.8(b) 15" | I-1 Class A-1 6.6(a) 6.8(b) 24" | I-1 Class A-1 6.6(a) 6.8(b) 18" | I-1 Class E-1 18" | I-1 Class A-1 6.6(a) 6.8(b) 21" | I-1 Class A-1 6.6(d) RR/plan 24" | I-1 Class E-1 24" | I-1 Class I-3 6" | I-1 Class 6" F-4 | I-1 Class 6" A-1★ | I-5 Class I-3 6" Special Tee | I-5 Class I-3 6" Special 60° | I-8 Std. #22A C.Basin | I-8 St'd. #3 C.Basin | I-8 St'd. #3A C.Basin | I-8 St'd #1 M.H. | I-8 St'd. #2 M.H. W/drop | I-8 M.H. Reconstructed to Grade San. | I-2 Masonry Class "C" | I-10 DRC Protection | I-10 Riprap 6" R.C. slab | I-16 Abandoned M.H. (San.) | I-16 Abandoned C.B. | L-10 Sodding | I-14 Paved Gutter Mod. Type I |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Lin. Ft. | | | | | | | | | | | | Each | | | | | | | | Cu.Yds. | | S.Y. | Each | | S.Y. | Lin.Ft. |
| 1-D | 9+82 "C" | 177+00 | Lt. | 43 | | | | | | | | | | | | | | | | 1 | | | | | | | | | | |
| 2-D | 177+00 | 11+97 "C" | Lt. | | 156 | | | 58 | | | | | | | | | | 2 | | | | | | | | 14 | | | 110 | 20 |
| 3-D | 11+56 "C" | 11+97 "C" | Lt. | 44 | | | | | | | | | | | | | | | | 1 | | | | | | | | | | |
| 4-D | 11+97 "C" | 1+15 X-over | Lt. | | | | | 65 | | | | | | | | | | | 1 | | | | | | | | | | | |
| 5-D | 1+15 X-over | 1+02 X-over | Lt. | | | | | 11 | | 54 | | | | | | | | | 2 | | 1 | | | | | | | | | |
| 6-D | 10+48 S.R. 250 | 1+12 Linc. | Lt. | | | 45 | | | | | | | | | | | | | 1 | | | | | | | | | | | |
| 7-D | 1+12 Linc. | 1+02 X-over | Lt. | | | | | 67 | | | | | | | | | | | | 2 | | | | | | | | | | |
| 8-D | 1+02 X-over | 3+21 "D" | Rt.&Lt. | | | | | | | | 97 | 67 | | | | | | 1 | | | 1 | 1 | | 5.3 | 19 | | | | | |
| 9-D | 13+10 "D" | 0+35 X-over | Rt. | 14 | | | | | | | | | | | | | | | | 1 | | | | | | | | | | |
| 10-D | 5+75 "D" | 0+35 X-over | Rt. | 259 | | | | | | | | | | | | | | 1 | 1 | 1 | | | | | | | | | | 85 |
| 11-D | 8+69 "D" | 179+50 | Rt. | 61 | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | |
| 12-D | 179+50 | 182+50 | Lt. | 148 | | 152 | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | |
| 13-D | 180+98 | 6+10 "C" | Rt.&Lt. | 83 | | | | | | | | | | | | | | | | 2 | | | | | | | | | | |
| 14-D | 182+35 | 182+85 | Rt. | 51 | | | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | |
| 15-D | 182+50 | 183+25 | Lt. | 76 | | | | | | | | | | | | | | | | 1 | | | | | | | | | | |
| 16-D | 182+50 | 183+00 | Lt. | | | | | | 50 | | | | | | | | | 1 | | | | | | | | 9 | | | | 10 |
| 17-D | 182+50 | | Rt.&Lt. | | | | 123 | | | | 106 | | | | | | | 1 | 1 | | 1 | | | 5.3 | 9 | | | | | 20 |
| 1-E | 173+80 | | Lt. | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| 2-E | 174+55 | 175+00 | Lt. | | | | | | | | | | | | | | | | | | | | 4 | | | | | | | |
| 3-E | 174+70 | 174+80 | Lt. | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | |
| 4-E | 175+80 | 175+95 | Lt. | | | | | | | | | | | | | | | | | | | | 2 | | | | 1 | | | |
| 5-E | 176+45 | 176+60 | Rt. | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | |
| 6-E | 179+60 | | Rt. | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| 1-U | 0+00 Lin. | 1+11 Lin. | Lt. | | | | | | | | | | 101 | 10 | | | | | | | | | | | | | | | | |
| 2-U | 0+00 Lin. | 1+22 Lin. | Rt. | | | | | | | | | | 112 | 10 | | | | | | | | | | | | | | | | |
| 3-U | 1+23 "D" | 3+09 "D" | Lt. | | | | | | | | | | 276 | 10 | | | | | | | | | | | | | | | | |
| 4-U | 1+23 "D" | 182+48 | Rt.&Lt. | | | | | | | | | | 1040 | 20 | 20 | 1 | | | | | | | | | | | | | | |
| 5-U-13U | See Supplementary Box (This Sheet.) | | Lt.&Rt. | | | | | | | | | | 1729 | 140 | | | 2 | | | | | | | | | | | | | |
| TOTALS | | | | 779 | 156 | 197 | 123 | 201 | 50 | 54 | 203 | 67 | 3158 | 190 | 20 | 1 | 2 | 6 | 9 | 12 | 3 | 1 | 6 | 106 | 28 | 23 | 3 | 4 | 110 | 135 |

| | |
|---|---|
| Seeding | 12,394 Sq. Yds. |
| Excavation | 24,653 Cu. Yds. |
| Embankment | 13,732 Cu. Yds. |
| Embankment + 15% | 15,792 Cu. Yds. |

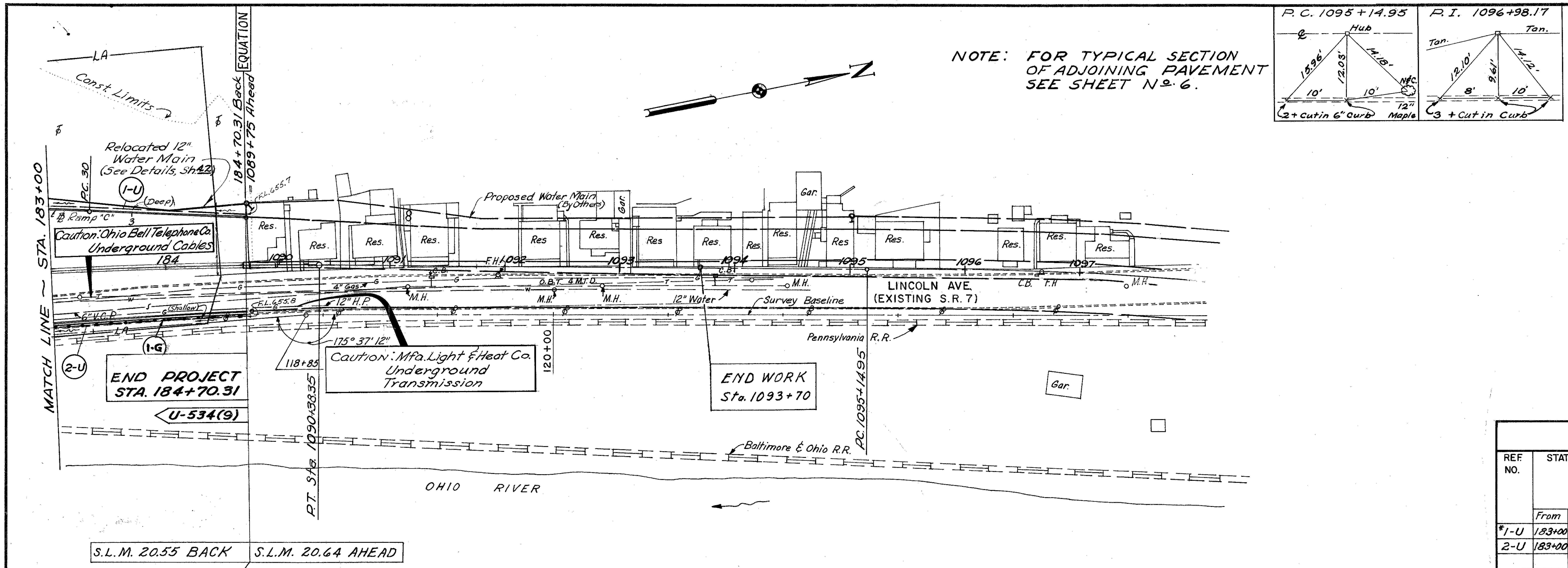
| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

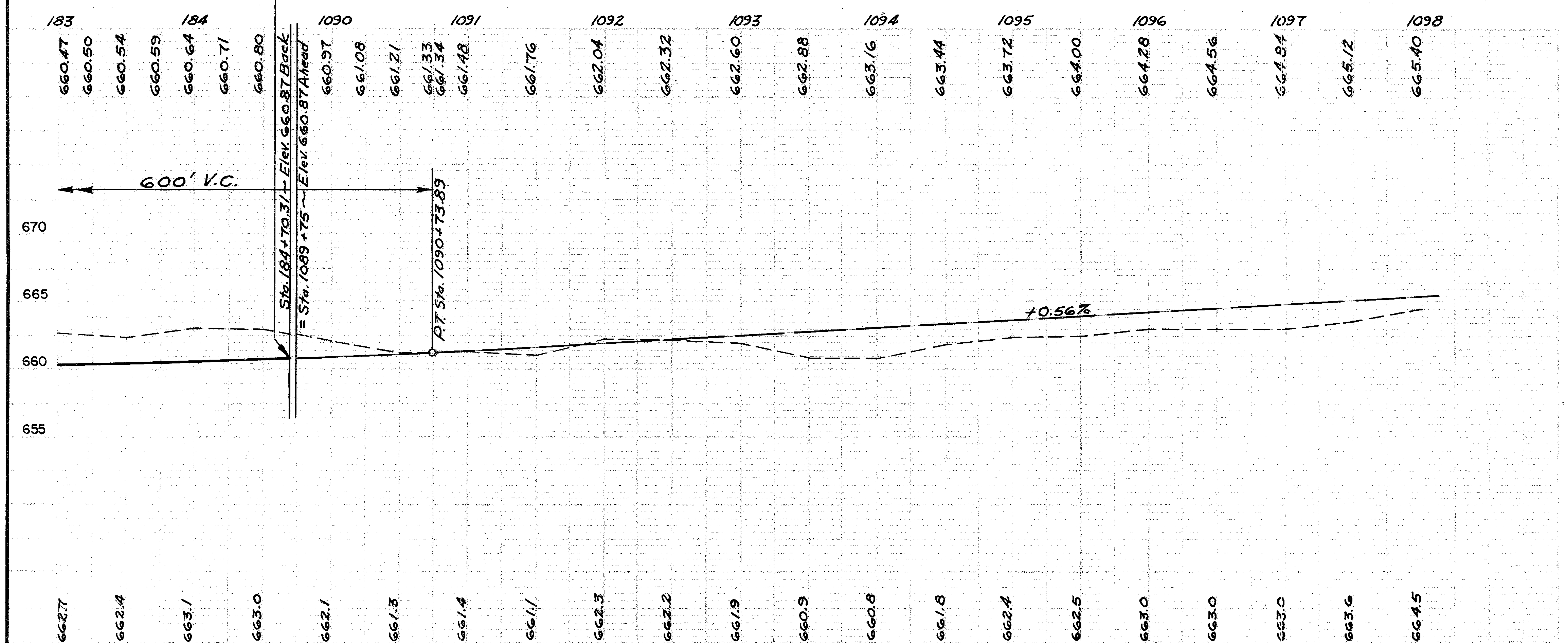
19

BELMONT COUNTY

BEL-7-19.86

NOTE: FOR TYPICAL SECTION OF ADJOINING PAVEMENT SEE SHEET Nº 6.




| PLAN | BY | DATE |
|---|---|---|
| SURVEYED | | |
| PLOTTED | | |
| ALIGNMENT CHECKED | E.C.E. | 3-19-62 |
| RT OF WAY CHECKED | D.W.K. | 3-23-62 |
| NOTE BOOK | | |
| NO. | | |

| PROFILE | BY | DATE |
|---|---|---|
| SURVEYED | | |
| PLOTTED | | |
| GRADES CHECKED | LVM | 7-8-58 |
| B. M. NOTED | E.C.E. | 3-20-62 |
| STRUCTURE NOTAT'NS CHK'D | | |
| NOTE BOOK | | |
| NO. | | |

**DRAINAGE**

| REF NO. | STATION From | STATION To | SIDE | I-1 Class I-3 6" Lin. Ft. | | | I-8 Each | |
|---|---|---|---|---|---|---|---|---|
| *1-U | 183+00 | 184+70 | Lt. | 170 | | | | |
| 2-U | 183+00 | 184+70 | Rt. | 170 | | | | |
| | | | | | | | | |
| | Total | | | 340 | | | | |

* Deep Underdrain

**ROADWAY**

| REF. NO. | STATION From | STATION To | SIDE ℄ | I-15 Guard Rail Steel Beam Std. Type (Deep) Lin. Ft. |
|---|---|---|---|---|
| 1-G | 183+00 | 184+68.5 | Rt. | 167.5 |
| | Total | | | 167.5 |

| | | |
|---|---|---|
| Seeding | 1,620 | Sq. Yds. |
| Excavation | 4,442 | Cu. Yds. |
| Embankment | 0 | Cu. Yds. |
| Embankment + 15% | 0 | Cu. Yds. |

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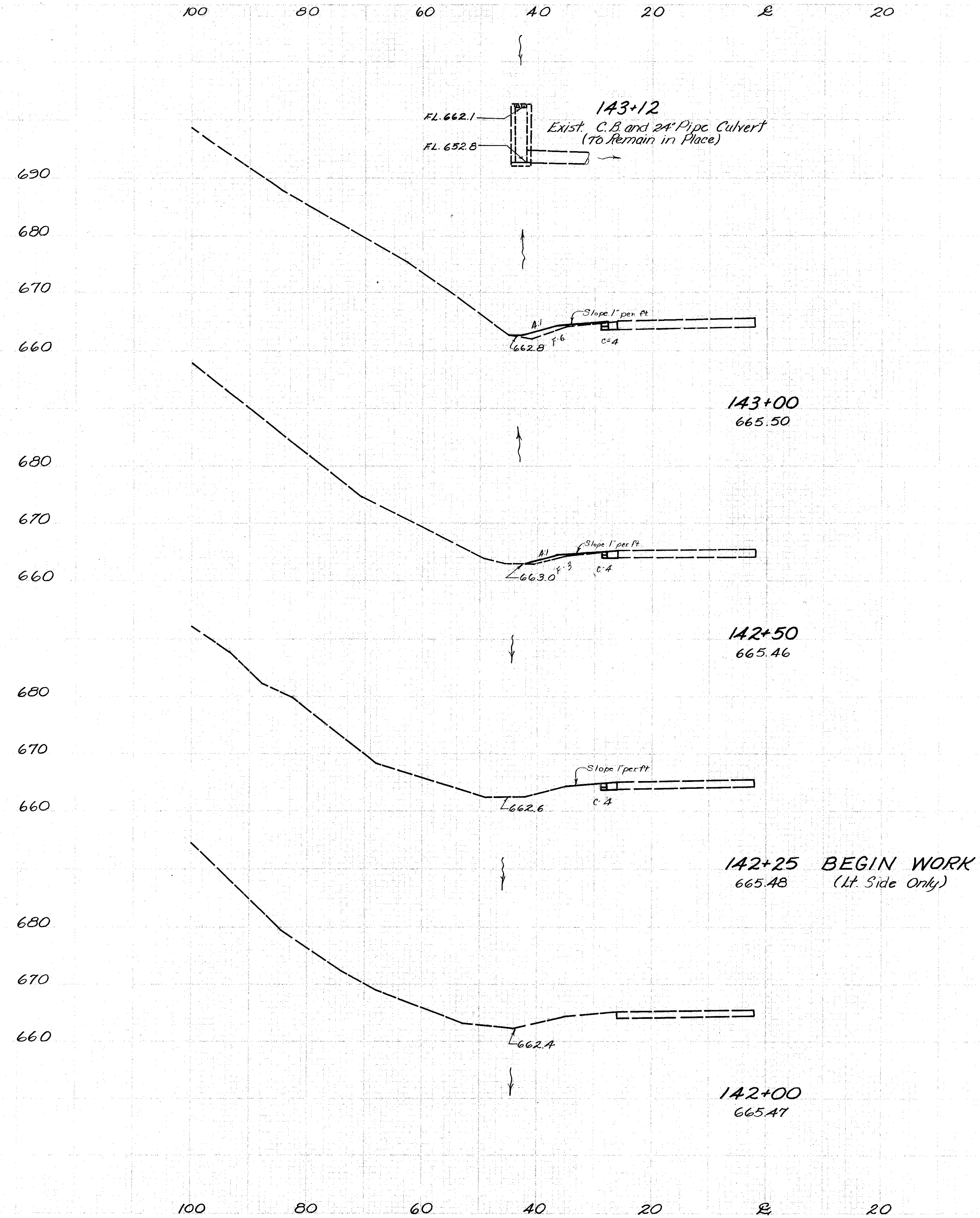
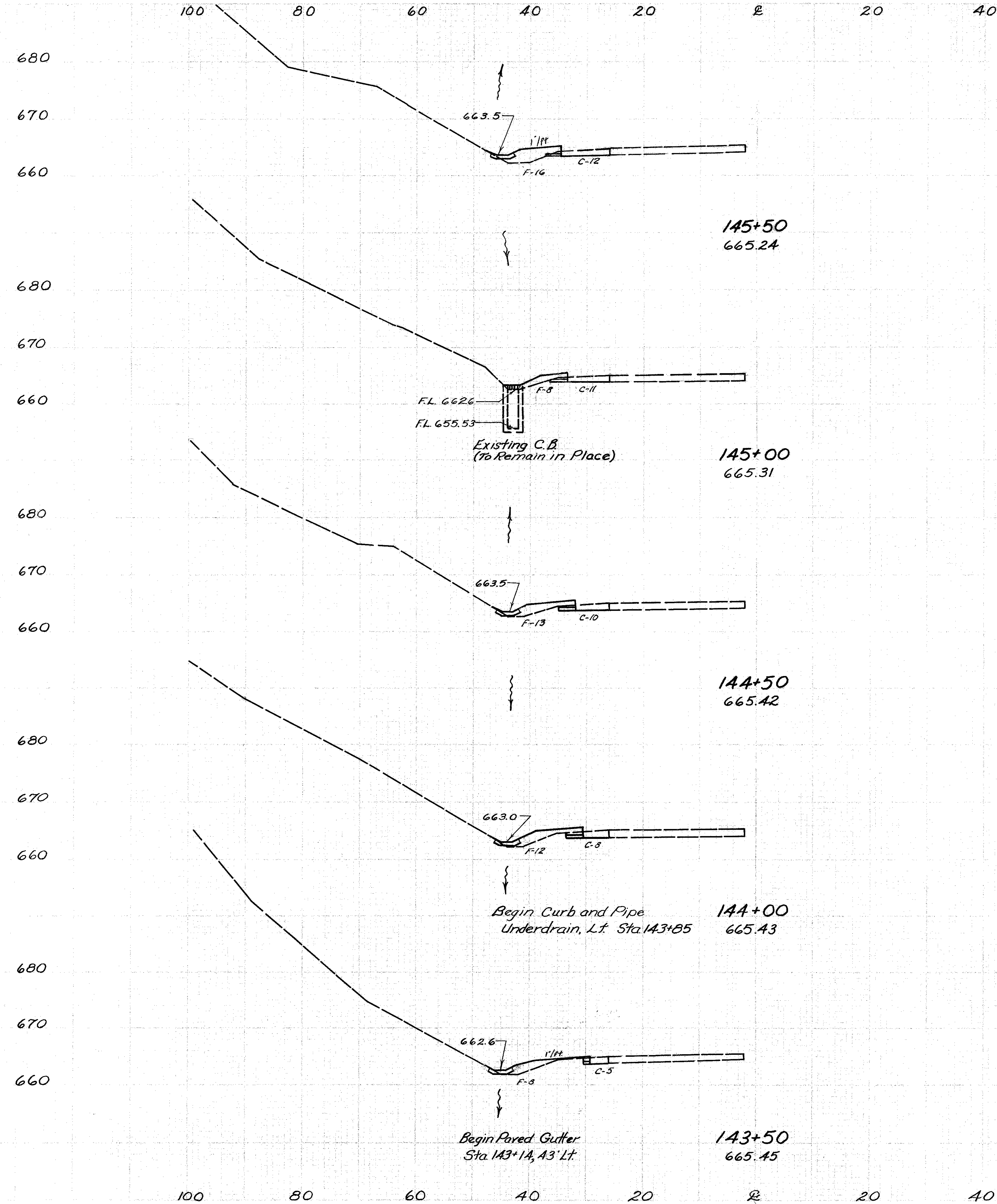



| SEEDING | | EARTHWORK | | | |
|---|---|---|---|---|---|
| WIDTH | AREA | END AREA | | VOLUME | |
| LIN.FT. | SQ.YD. | EXC. | EMB. | EXC. | EMB. |
| | 119 | | | 8 | 13 |
| 19 | | 4 | 6 | | |
| | 100 | | | 7 | 8 |
| 17 | | 4 | 3 | | |
| | 33 | | | 4 | 1 |
| 7 | | 4 | 0 | | |
| | 10 | | | 0 | 0 |
| 0 | | 0 | 0 | | |

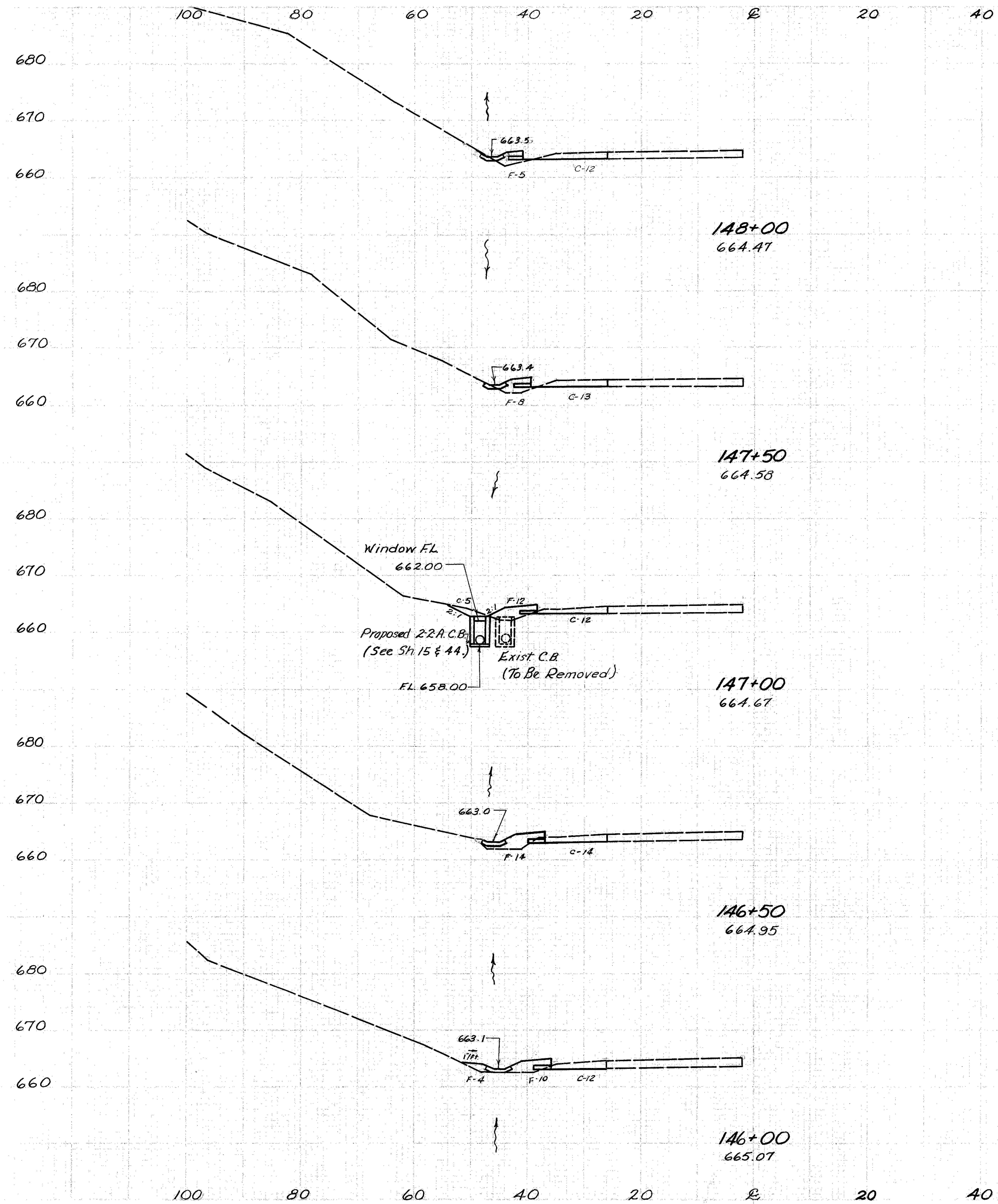
STA. 142+00 TO STA. 143+00

BEL ~ 7 ~ 19.86




| SEEDING | | EARTHWORK | | | |
|---|---|---|---|---|---|
| WIDTH | AREA | END AREA | | VOLUME | |
| LIN.FT. | SQ.YD. | EXC. | EMB. | EXC. | EMB. |
| 19 | | 12 | 16 | | |
| | 103 | | | 21 | 22 |
| 18 | | 11 | 8 | | |
| | 106 | | | 19 | 20 |
| 20 | | 10 | 13 | | |
| | 117 | | | 17 | 23 |
| 22 | | 8 | 12 | | |
| | 128 | | | 12 | 19 |
| 24 | | 5 | 8 | | |

BEL-7-1986

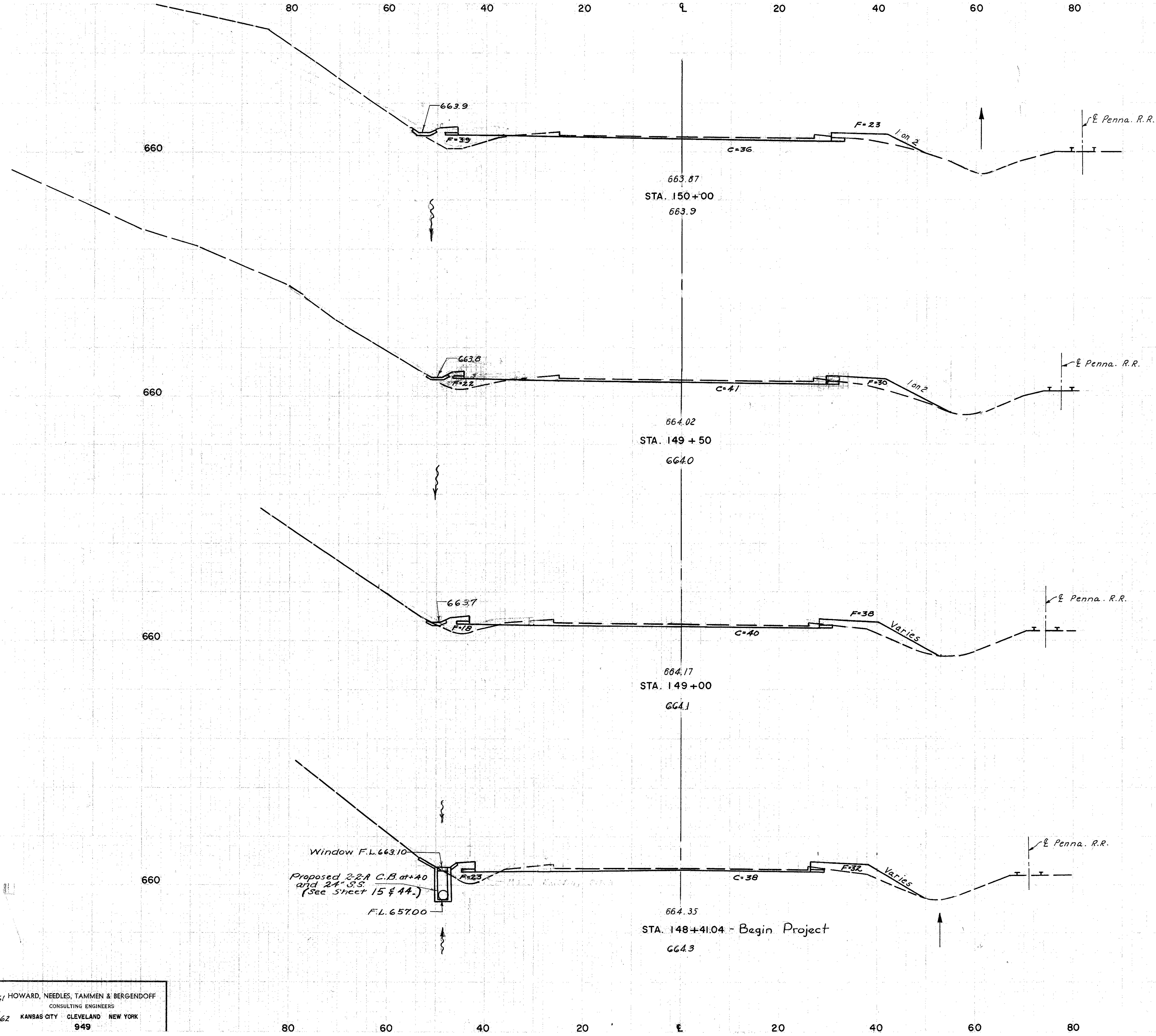



| SEEDING | | EARTHWORK | | | |
|---|---|---|---|---|---|
| WIDTH | AREA | END AREA | | VOLUME | |
| LIN.FT. | SQ.YD. | EXC. | EMB. | EXC. | EMB. |
| 14 | | 12 | 5 | | |
| | 81 | | | 23 | 12 |
| 15 | | 13 | 8 | | |
| | 106 | | | 28 | 19 |
| 23 | | 17 | 12 | | |
| | 117 | | | 29 | 24 |
| 19 | | 14 | 14 | | |
| | 117 | | | 24 | 26 |
| 23 | | 12 | 14 | | |
| | 117 | | | 22 | 28 |

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

23

BEL-7-19.86




| SEEDING | | EARTHWORK | | | |
|---|---|---|---|---|---|
| WIDTH | AREA | END AREA | | VOLUME | |
| LIN. FT. | SQ. YD. | EXC. | EMB. | EXC. | EMB. |
| 108 | | 36 | 62 | | |
| | 600 | | | 71 | 106 |
| 108 | | 41 | 52 | | |
| | 619 | | | 75 | 100 |
| 115 | | 40 | 56 | | |
| | 763 | | | 85 | 121 |
| 118 | | 38 | 55 | | |
| | 301 | | | 38 | 46 |
| 14 | | 12 | 5 | | |

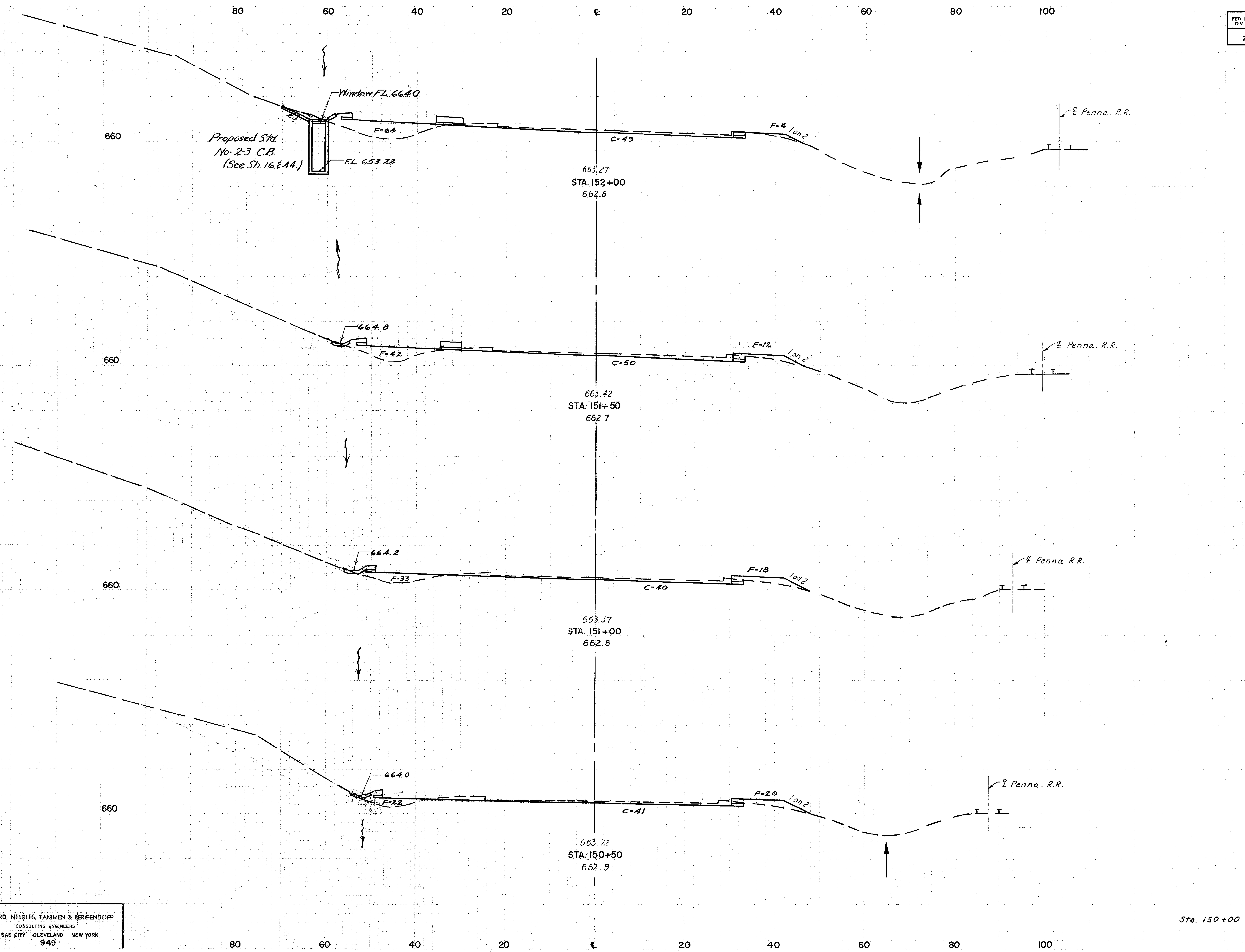
SCALE 1" = 10'
MADE LVM DATE 11-7-61 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD. ____ DATE ____ CONSULTING ENGINEERS
CKD. E.C.E. DATE 3-13-62 KANSAS CITY CLEVELAND NEW YORK
949

STA. 148+41.04 TO STA. 150+00

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



BEL-7-19.86




| SEEDING | | EARTHWORK | | | |
|---|---|---|---|---|---|
| WIDTH | AREA | END AREA | | VOLUME | |
| LIN.FT. | SQ.YD. | EXC. | EMB. | EXC. | EMB. |
| 124 | | 49 | 68 | | |
| | 658 | | | 92 | 113 |
| 113 | | 50 | 54 | | |
| | 578 | | | 83 | 97 |
| 95 | | 40 | 51 | | |
| | 556 | | | 75 | 86 |
| 105 | | 41 | 42 | | |
| | 592 | | | 71 | 96 |
| 108 | | 36 | 62 | | |

SCALE 1" = 10'
MADE LVM DATE 11-7-61
TRCD ____ DATE ____
CKD ECE DATE 3-13-62

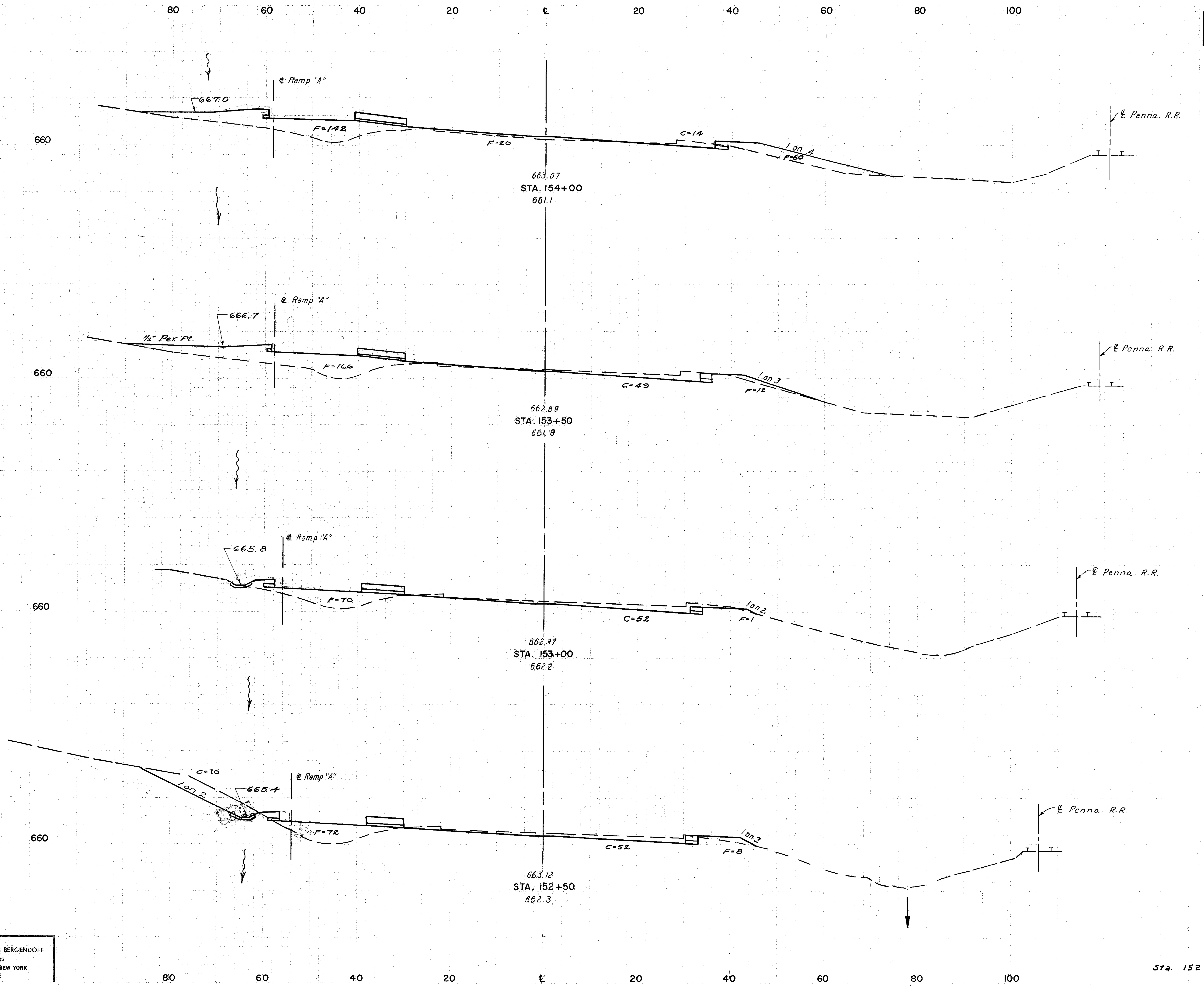
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
949

STA. 150+50 TO STA. 152+00

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



BEL-7-19.86




| SEEDING | | EARTHWORK | | | |
|---|---|---|---|---|---|
| WIDTH | AREA | END AREA | | VOLUME | |
| LIN.FT. | SQ.YD. | EXC. | EMB. | EXC. | EMB. |
| 111 | | 14 | 222 | | |
| | 681 | | | 58 | 370 |
| 134 | | 49 | 178 | | |
| | 619 | | | 94 | 231 |
| 89 | | 52 | 71 | | |
| | 517 | | | 161 | 140 |
| 97 | | 122 | 80 | | |
| | 614 | | | 158 | 137 |
| 124 | | 49 | 68 | | |

SCALE 1" = 10'
MADE L.V.M. DATE 11-7-61
TRCD. DATE
CKD. E.C.E. DATE 3-13-62

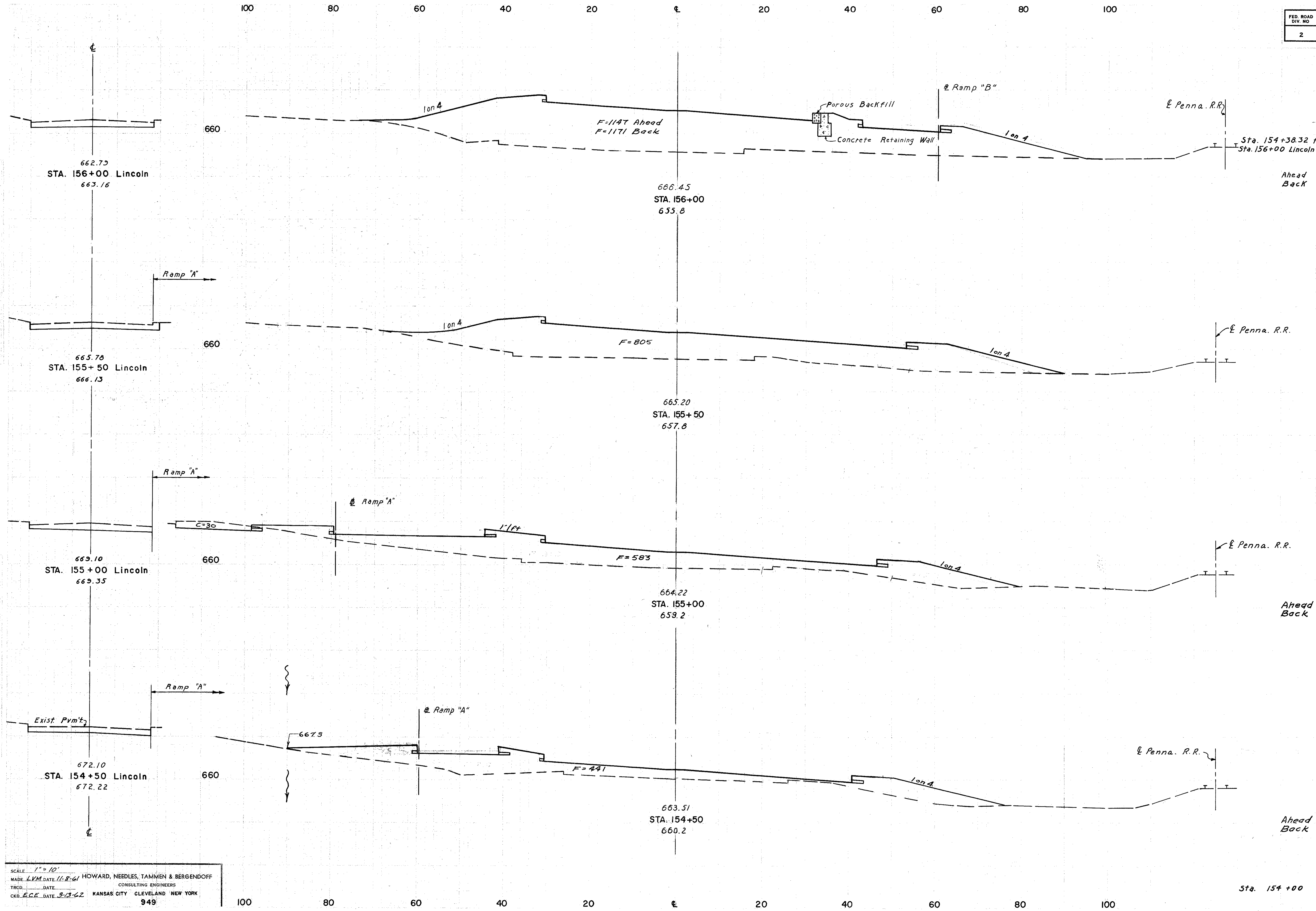
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
949

STA. 152+50 TO STA. 154+00

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

26

BEL–7–19.86




| SEEDING | | EARTHWORK | | | |
|---|---|---|---|---|---|
| WIDTH | AREA | END AREA | | VOLUME | |
| LIN.FT. | SQ.YD. | EXC. | EMB. | EXC. | EMB. |
| Sta. 154+38.32 to Sta. 156+00 Lincoln | 36 | | | 227 | 0 |
| Ahead 118 | | 0 | 1147 | | |
| Back 120 | | 0 | 1171 | | |
| | 636 | | | 0 | 1830 |
| 109 | | 0 | 805 | | |
| | 489 | | | 28 | 1285 |
| Ahead 67 | | 30 | 583 | | |
| Back 86 | | 30 | 583 | | |
| | 606 | | | 28 | 948 |
| Ahead 132 | | 0 | 441 | | |
| Back 111 | | 0 | 441 | | |
| | 617 | | | 13 | 614 |
| Sta. 154+00 111 | | 14 | 222 | | |

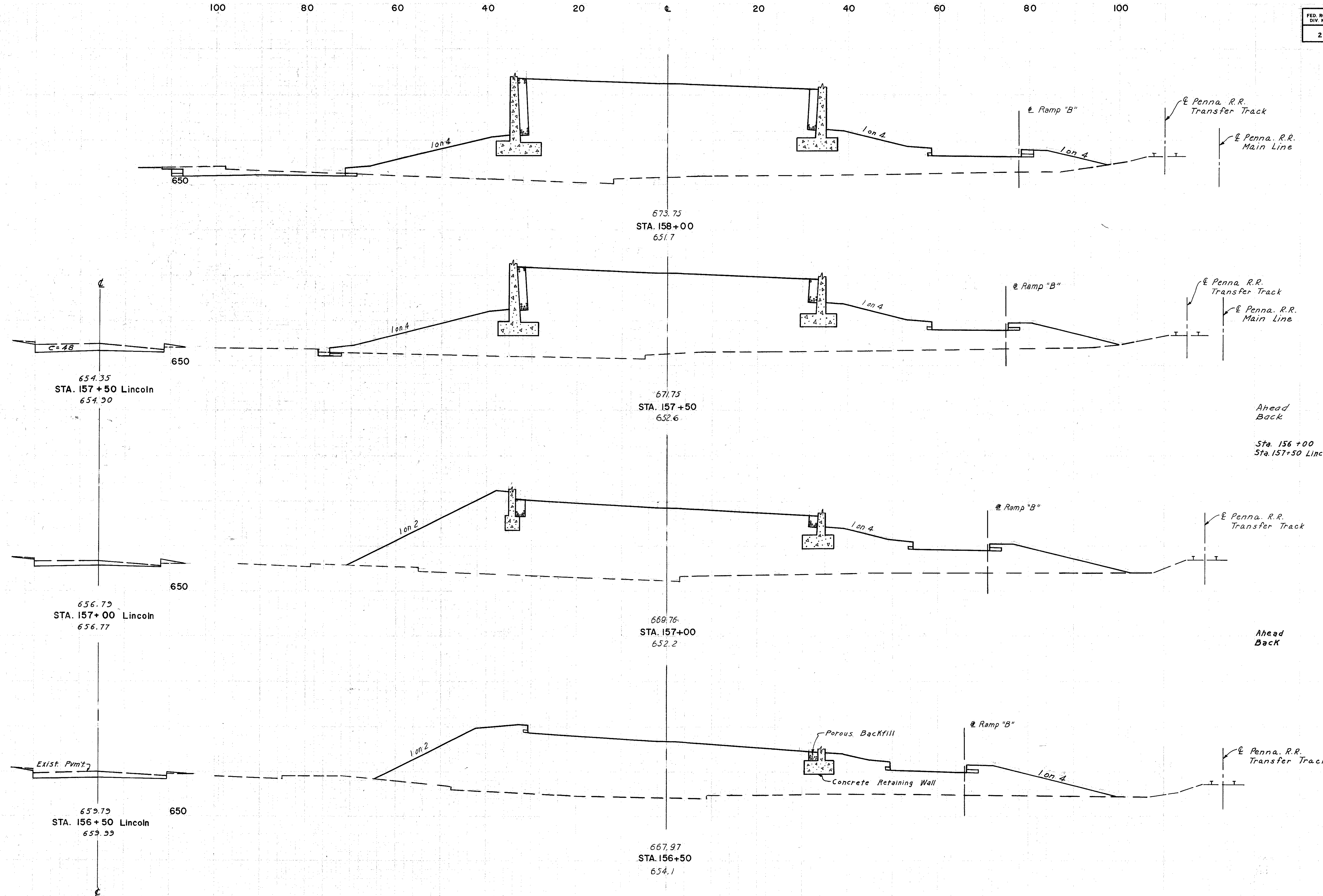
SCALE 1" = 10'
MADE LVM DATE 11-8-61 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD. DATE CONSULTING ENGINEERS
CKD. ECE DATE 9-13-62 KANSAS CITY CLEVELAND NEW YORK
949

STA. 154+50 TO STA. 156+00

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

27

BEL-7-19.86




| | SEEDING | | EARTHWORK | | | |
|---|---|---|---|---|---|---|
| | WIDTH | AREA | END AREA | | VOLUME | |
| | LIN.FT | SQ.YD. | EXC. | EMB. | EXC. | EMB. |
| | 83 | | 55 | 1815 | | |
| | | 497 | | | 35 | 3263 |
| Ahead | 96 | | 48 | 1705 | | |
| Back | 94 | | 0 | 1709 | | |
| Sta. 156+00 to Sta. 157+50 Lincoln | | 33 | | | 201 | 12 |
| | | 553 | | | 0 | 3158 |
| Ahead | 105 | | 0 | 1701 | | |
| Back | 107 | | 0 | 1766 | | |
| | | 617 | | | | 2356 |
| | 115 | | 0 | 1426 | | |
| | | 647 | | | | 2382 |
| Sta. 156+00 | 118 | | 0 | 1147 | | |

SCALE 1" = 10'
MADE LVM DATE 11-8-61
TRCD. DATE
CKD. ECE DATE 3-14-62

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

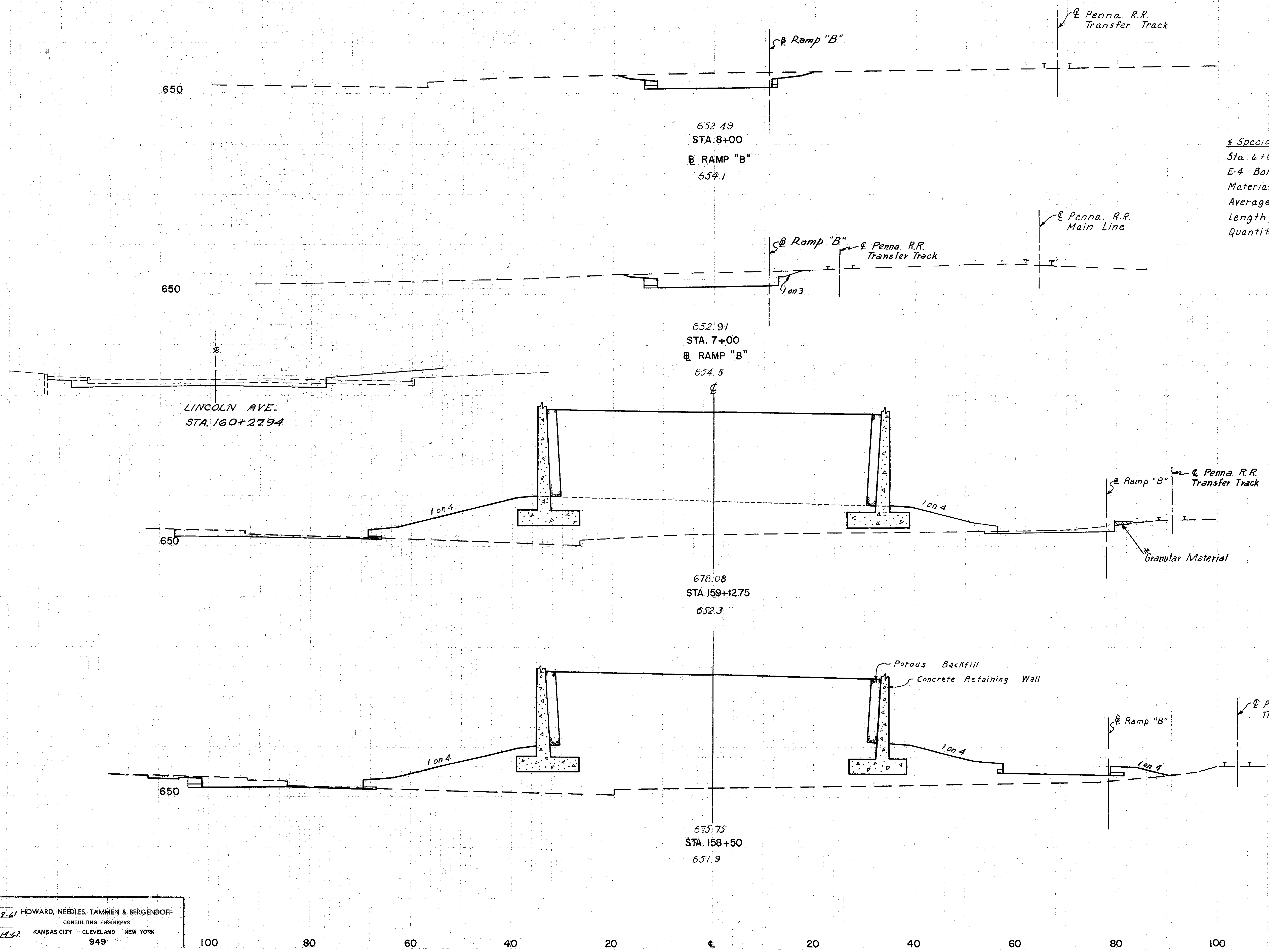
949

STA. 156+50 TO STA. 158+00

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

28

BEL-7-19.86




*Special Quantity*
Sta. 6+00 "B" to 6+75 "B"
E-4 Borrow, Using Granular
Material (No. 3 Agg., Sec. M-3.5)
Average Area = 3 $Ft.^2$
Length = 75 Ft.
Quantity = 3 x 75 ÷ 27 = 9 Cu. Yds.

| | SEEDING | | EARTHWORK | | | |
|---|---|---|---|---|---|---|
| | WIDTH | AREA | END AREA | | VOLUME | |
| | LIN.FT. | SQ.YD. | EXC. | EMB. | EXC. | EMB. |
| Sta. 8+40 Ramp "B" | 0 | | 0 | 0 | | |
| | | 144 | | | 63 | 3 |
| | 65 | | 85 | 4 | | |
| | | 472 | | | 298 | 15 |
| | 20 | | 76 | 4 | | |
| Sta. 159+12.75 to Sta. 160+27.94 Lincoln | | 26 | | | | 7 |
| Sta. 159+49 | | | | 4 | | |
| | | 140 | | | 113 | 365 |
| Sta. 159+22.75 | | | | 747 | | |
| Seeding Under Structure Sta. 159+12.75 to Sta. 160+30 = | | 792 | | | | 277 |
| Ahead-Ramp "B" | 22 | | 46 | 747 | | |
| Back | 58 | | 46 | 1722 | | |
| | | 450 | | | 90 | 4084 |
| | 71 | | 31 | 1793 | | |
| | | 428 | | | 80 | 3341 |
| Sta. 158+00 | 83 | | 55 | 1815 | | |

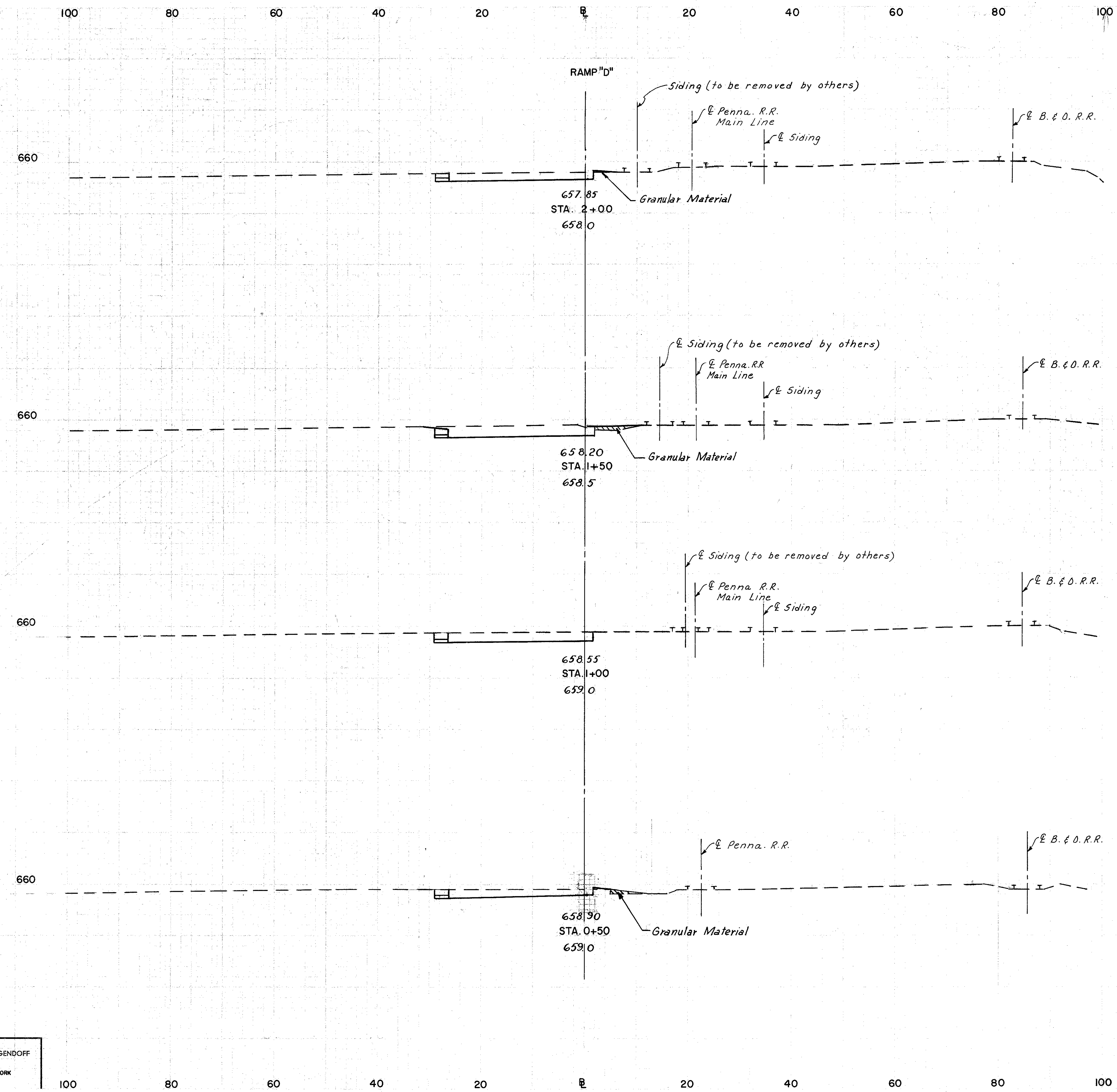
SCALE 1" = 10'
MADE LVM DATE 11-8-61
TRCD. DATE
CKD. ECE DATE 3-14-62
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
949

STA. 158+50 TO STA. 159+12.75, STA. 7+00 TO STA. 8+00 RAMP "B"

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



BEL–7–19.86




Sta. 0+00

| GRANULAR MAT'L. | | SEEDING | | EARTHWORK | | | |
|---|---|---|---|---|---|---|---|
| | | WIDTH | AREA | END AREA | | VOLUME | |
| END AREA | VOLUME | LIN.FT | SQ.YD | EXC. | EMB. | EXC. | EMB. |
| 1 | | 9 | | 48 | 4 | | |
| | 7 | | 61 | | | 102 | 12 |
| 6 | | 13 | | 62 | 9 | | |
| | 6 | | 47 | | | 106 | 12 |
| 0 | | 4 | | 52 | 4 | | |
| | 4 | | 31 | | | 94 | 7 |
| 4 | | 7 | | 50 | 4 | | |
| | 4 | | 39 | | | 46 | 4 |
| 0 | | 7 | | 0 | 0 | | |

SCALE 1" = 10'
MADE LYM DATE 11-9-61
TRCD. DATE
CKD. ECE DATE 3-14-62
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
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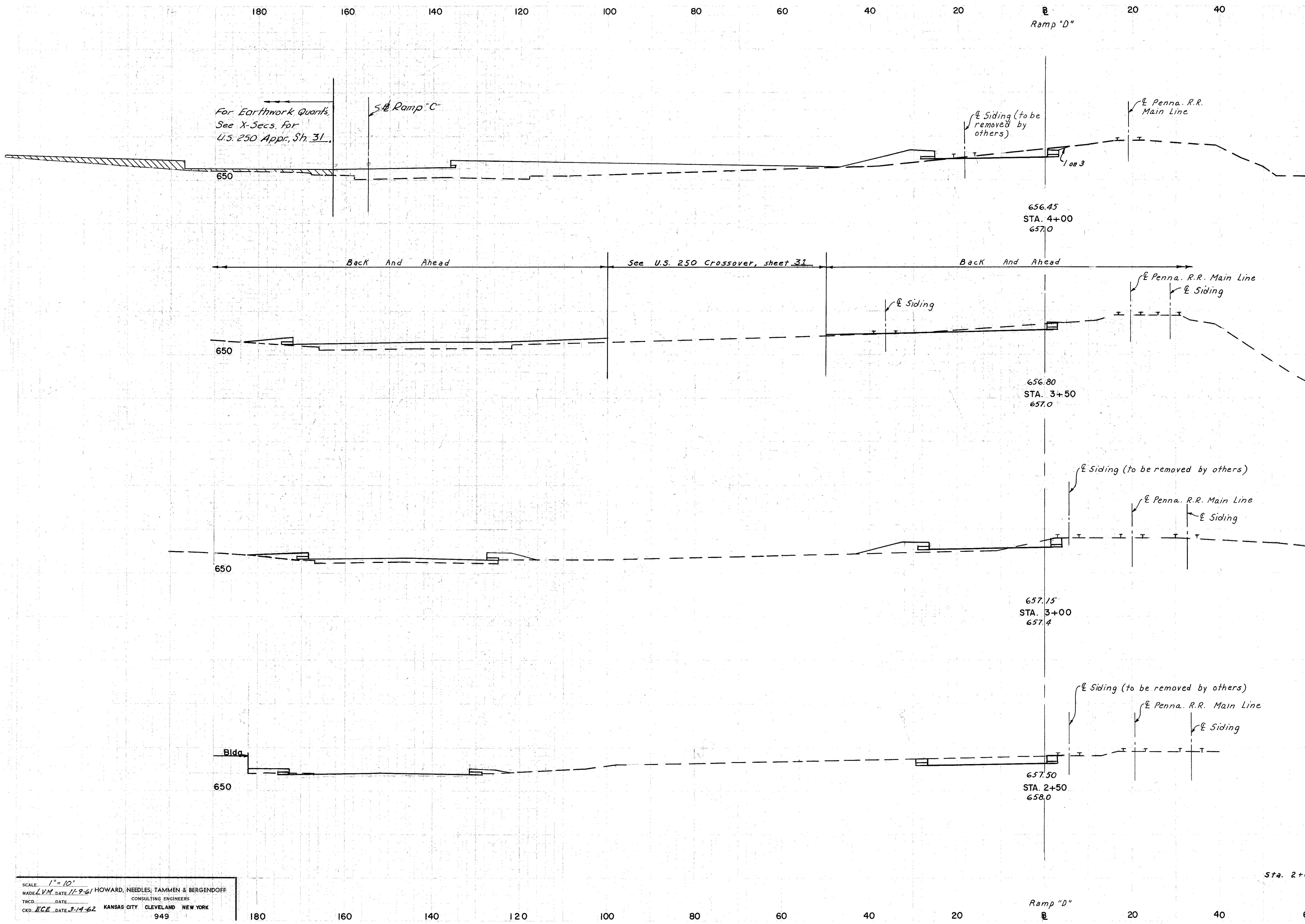
STA. 0+50 TO STA. 2+00 RAMP "D"




| SEEDING | | EARTHWORK | | | |
|---|---|---|---|---|---|
| WIDTH | AREA | END AREA | | VOLUME | |
| LIN.FT. | SQ.YD. | EXC. | EMB. | EXC. | EMB. |
| 29 | | 22 | 289 | | |
| | 114 | | | 39 | 361 |
| 12 | | 20 | 101 | | |
| | 150 | | | 27 | 206 |
| 42 | | 9 | 121 | | |
| | 183 | | | 57 | 130 |
| 24 | | 53 | 19 | | |
| | 92 | | | 34 | 21 |
| 9 | | 48 | 4 | | |

SCALE 1" = 10'
MADE LVM DATE 11-9-61
TRCD. DATE
CKD. ECE DATE 3-14-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
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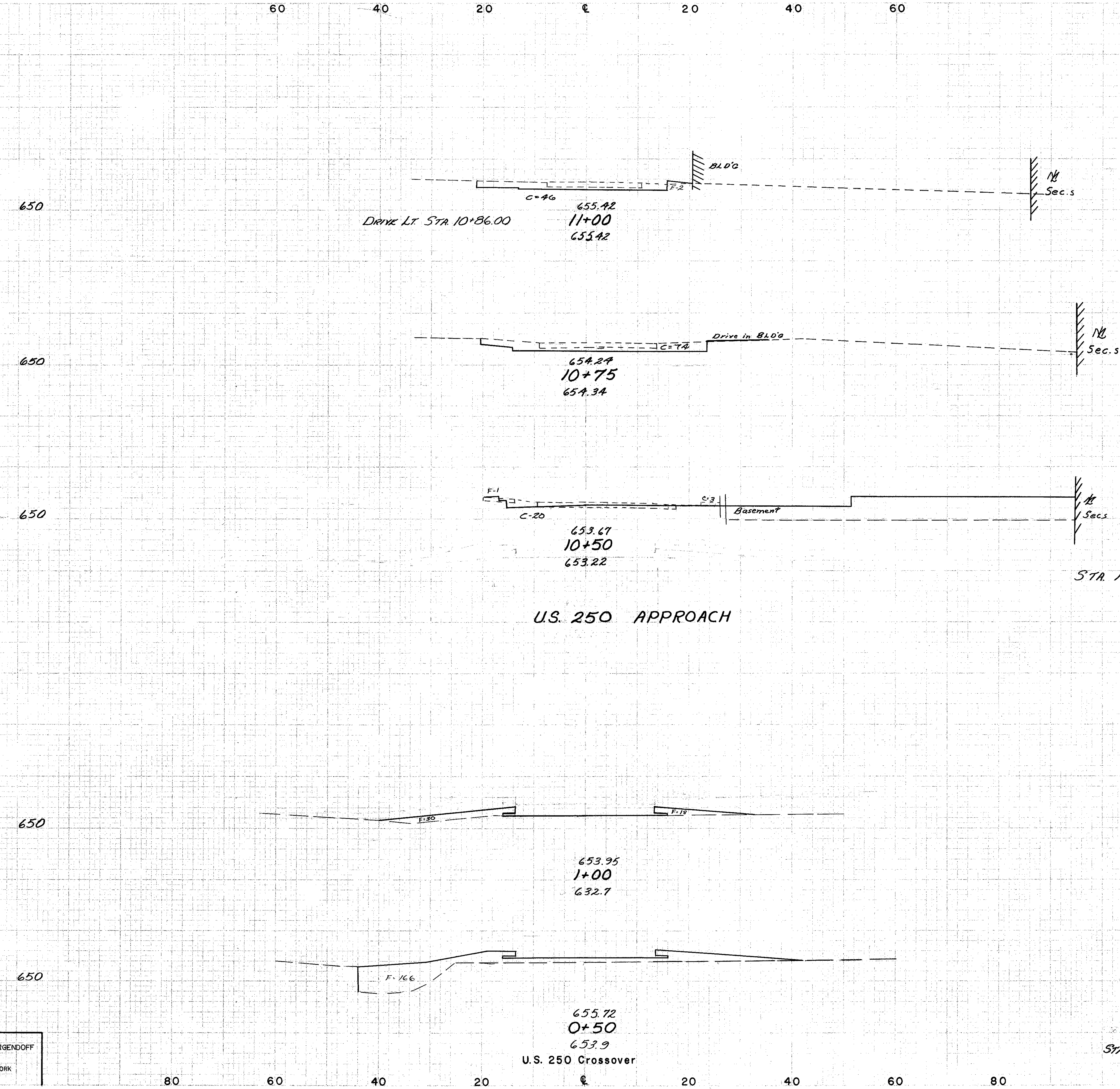
STA. 2+50 TO STA. 4+00 RAMP "D"

| FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | TYPE FUNDS | |
|---|---|---|---|---|
| 2 | OHIO | | | 31 |

BEL- 7-19.86




STA. 11+25 END WORK -

STA. 11+06.36 END APPR. - Ⓐ Ⓑ

STA. 10+24 BEGIN EARTHWORK

STA. 0-63 to STA 0+50 (ALLEY)

| SEEDING | | EARTHWORK | | | |
|---|---|---|---|---|---|
| WIDTH | AREA | END AREA | | VOLUME | |
| LIN.FT. | SQ.YD. | EXC. | EMB. | EXC. | EMB. |
| 0 | | 0 | 0 | | |
| | | | | 0 | 1 |
| | 101 | 0<br>46 | 2<br>2 | | |
| | | | | 11 | 1 |
| 73 | | 46 | 2 | | |
| | 206 | | | 56 | 1 |
| 75 | | 74 | 0 | | |
| | 176 | | | 45 | 1 |
| 52 | | 23 | 1 | | |
| | | | | 22 | 1 |
| | | 23 | 1 | | |
| 58 | | 0 | 48 | | |
| | 316 | | | | 198 |
| 56 | | 0 | 166 | | |
| | | | | | 630 |

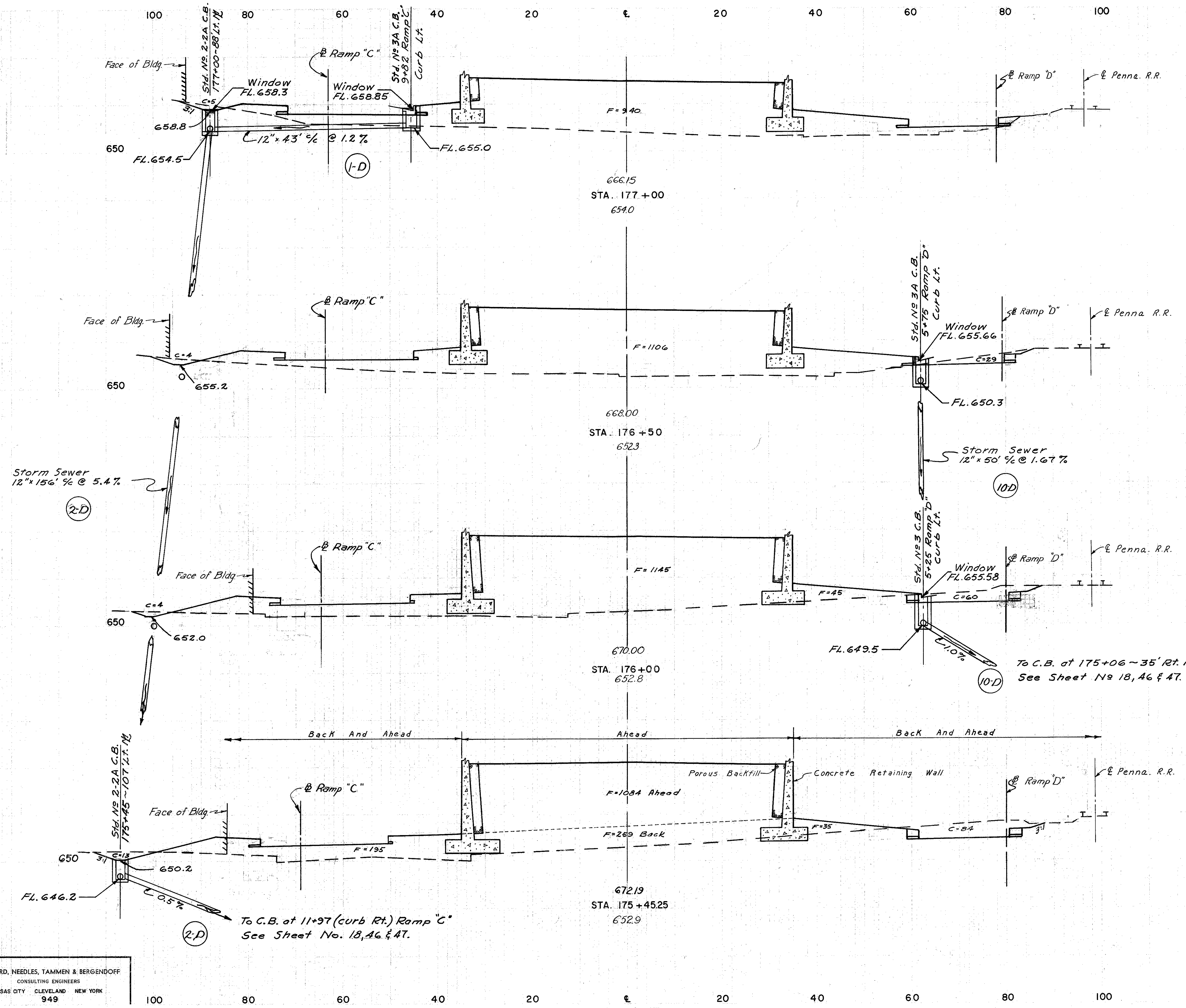
SCALE 1" = 10'
MADE LVM DATE 11-9-61 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD. ____ DATE ____ CONSULTING ENGINEERS
CKD. ECE DATE 3-15-62 KANSAS CITY CLEVELAND NEW YORK
949

U.S. 250 APPROACH

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

32

BEL-7-19.86




| | SEEDING | | EARTHWORK | | | |
|---|---|---|---|---|---|---|
| | WIDTH | AREA | END AREA | | VOLUME | |
| | LIN.FT. | SQ.YD. | EXC. | EMB. | EXC. | EMB. |
| | 104 | | 5 | 940 | | |
| Seeding For Bldg. Backfill Left ℄ Sta. 177+00 = | | 421 | | | | |
| | | 594 | | | 35 | 1894 |
| | 110 | | 33 | 1106 | | |
| | | 622 | | | 90 | 2126 |
| | 114 | | 64 | 1190 | | |
| | | 712 | | | 163 | 2539 |
| Ahead - ℄ & Ramps | 120 | | 97 | 1314 | | |
| Back - Ramp "D" | 35 | | 97 | 489 | | |
| Spill Quantity = | | | | | | 232 |
| | | 236 | | | 146 | 955 |
| Seeding Under Structure Sta. 174+79 to 175+45.25 = | | 749 | | | | |
| Sta. 4+00 Ramp "D" only | 29 | | 22 | 289 | | |

STA. 175+45.25 TO STA. 177+00

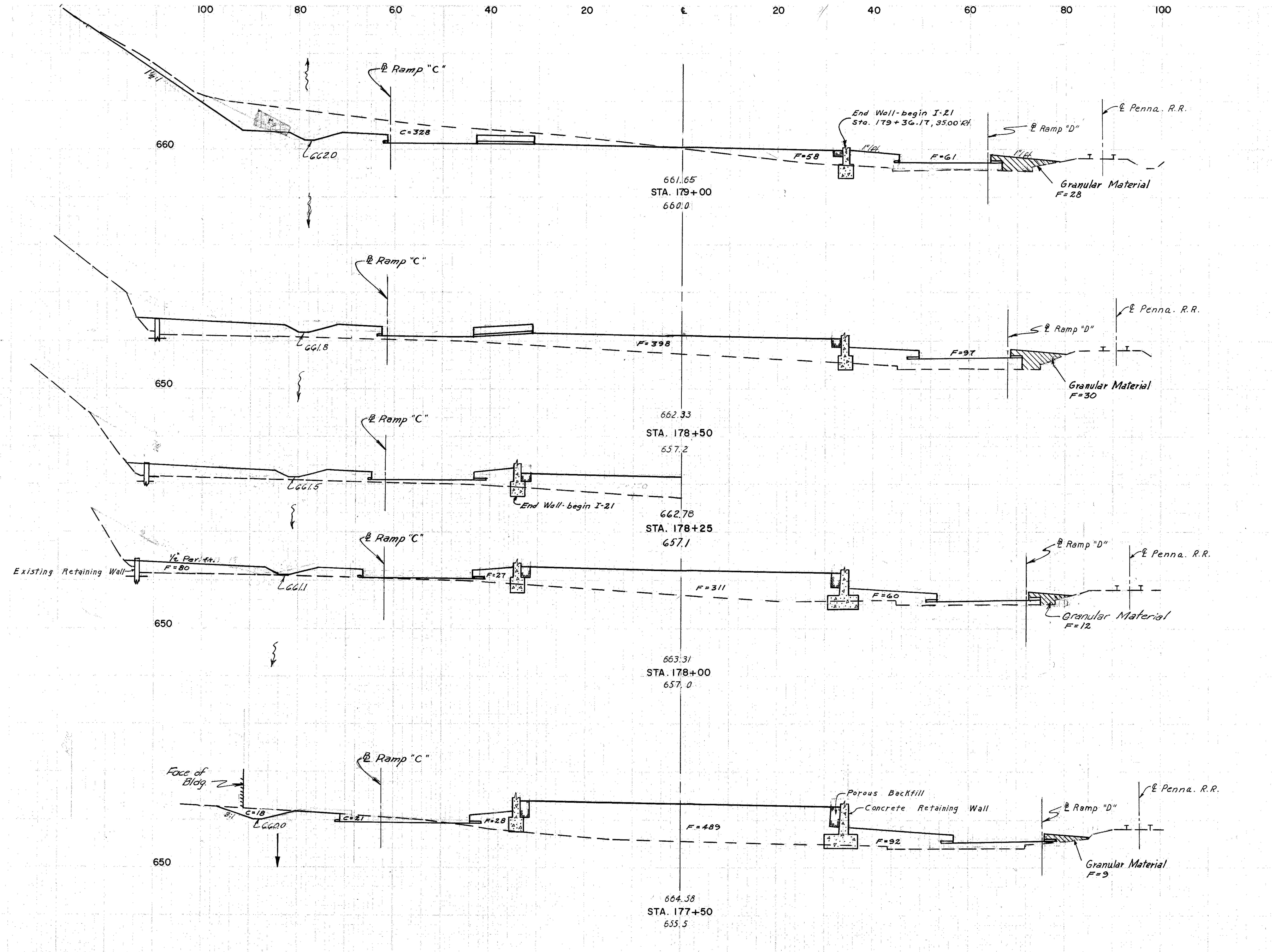
SCALE 1" = 10'
MADE LVM DATE 11-10-61
TRCD. DATE
CKD. ECE DATE 3-15-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
949

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

33

BEL-7-19.86




| GRANULAR MAT'L. | | SEEDING | | EARTHWORK | | | |
|---|---|---|---|---|---|---|---|
| END AREA | VOLUME | WIDTH | AREA | END AREA | | VOLUME | |
| | | LIN.FT | SQ.YD | EXC. | EMB. | EXC. | EMB. |
| 28 | | 87 | | 328 | 119 | | |
| | 54 | | 453 | | | 304 | 569 |
| 30 | | 76 | | 0 | 495 | | |
| | 39 | | 456 | | | 0 | 901 |
| 12 | | 88 | | 0 | 478 | | |
| | 19 | | 486 | | | 36 | 1006 |
| 9 | | 87 | | 39 | 609 | | |
| | 8 | | 531 | | | 41 | 1434 |
| 0 | | 104 | | 5 | 940 | | |

Sta. 177 + 00

SCALE 1" = 10'
MADE LVM DATE 11-10-61
TRCD. DATE
CKD. ECE DATE 3-15-62

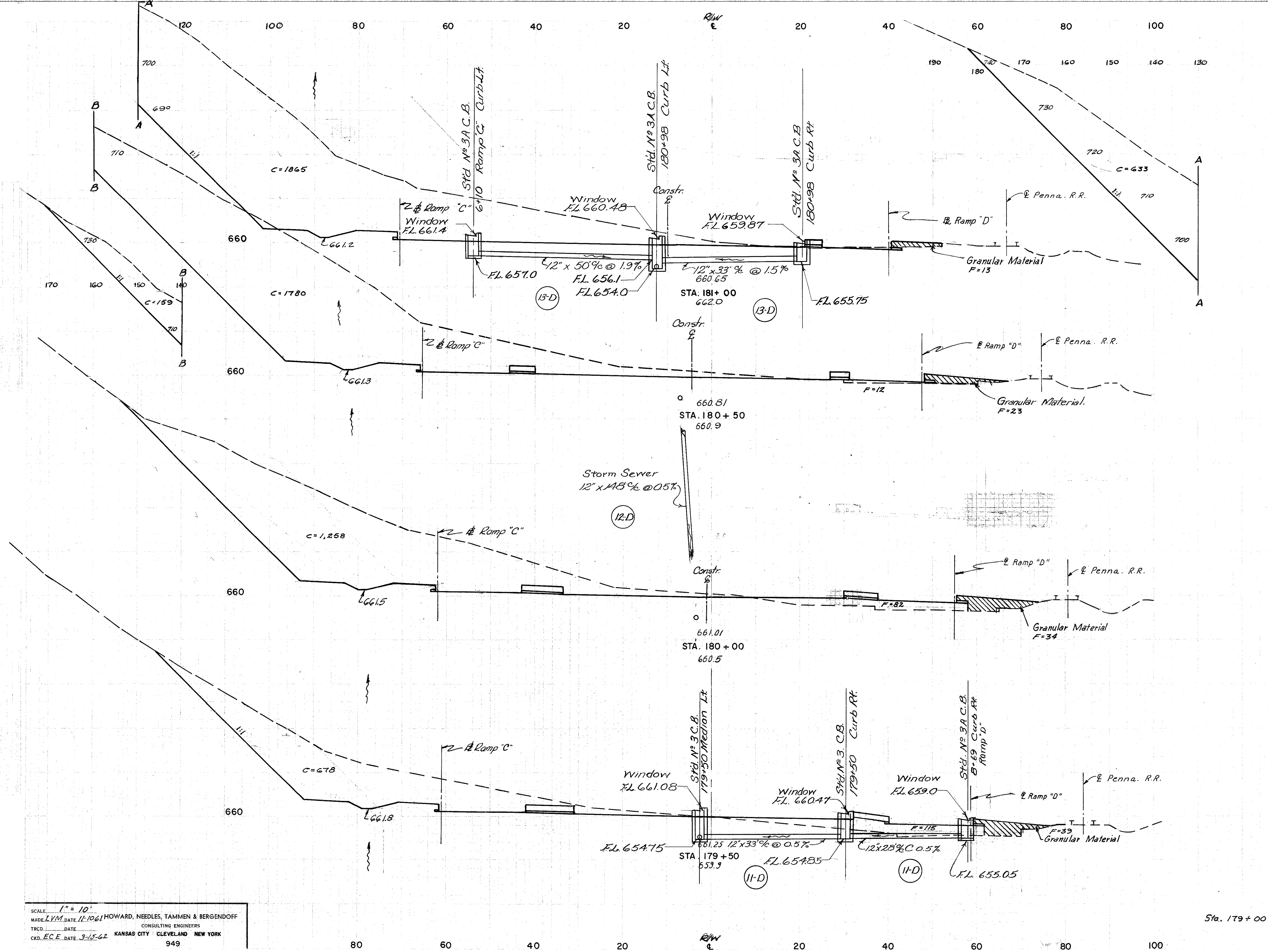
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
949

STA. 177+50 TO STA. 179+00

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



BEL-7-19.86




| GRANULAR MAT'L. | | SEEDING | | EARTHWORK | | | |
|---|---|---|---|---|---|---|---|
| | | WIDTH | AREA | END AREA | | VOLUME | |
| END AREA | VOLUME | LIN.FT. | SQ.YD. | EXC. | EMB. | EXC. | EMB. |
| 13 | | 155 | | 2498 | 0 | | |
| | 33 | | 839 | | | 4108 | 11 |
| 23 | | 147 | | 1939 | 12 | | |
| | 53 | | 683 | | | 2960 | 87 |
| 34 | | 99 | | 1258 | 82 | | |
| | 68 | | 536 | | | 1793 | 182 |
| 39 | | 94 | | 678 | 115 | | |
| | 62 | | 503 | | | 931 | 217 |
| 28 | | 87 | | 328 | 119 | | |

SCALE 1" = 10'
MADE LVM DATE 11-10-61
TRCD. DATE
CKD. ECE DATE 3-15-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
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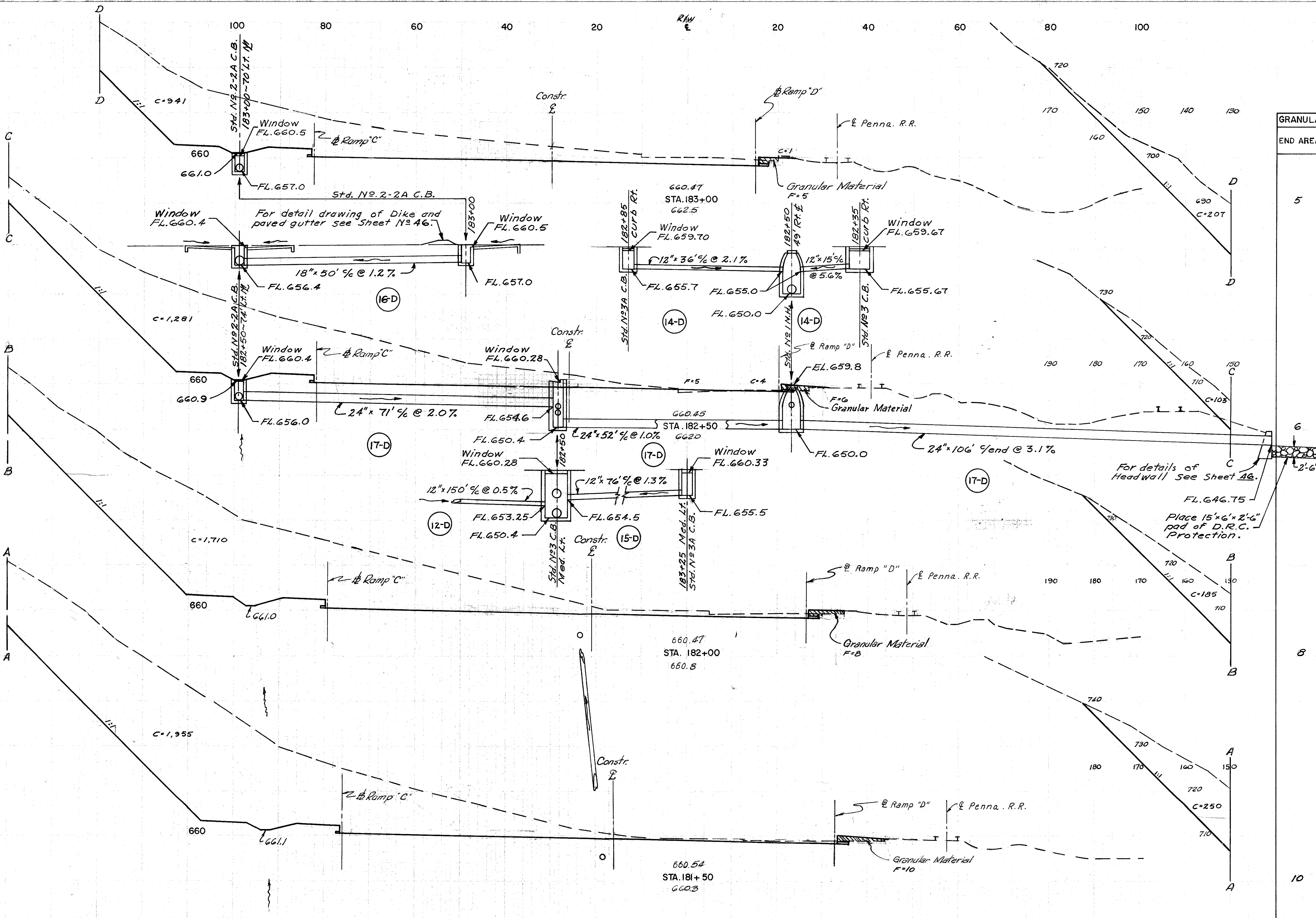
KANSAS CITY CLEVELAND NEW YORK
949

STA. 179+50 TO STA. 181+00

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

35

BEL–7–19.86




| GRANULAR MAT'L. | | SEEDING | | EARTHWORK | | | |
|---|---|---|---|---|---|---|---|
| END AREA | VOLUME | WIDTH | AREA | END AREA | | VOLUME | |
| | | LIN. FT. | SQ. YD. | EXC. | EMB. | EXC. | EMB. |
| 5 | | 124 | | 1149 | 0 | | |
| | 10 | | 719 | | | 2349 | 5 |
| 6 | | 135 | | 1388 | 5 | | |
| | 13 | | 775 | | | 3040 | 5 |
| 8 | | 144 | | 1895 | 0 | | |
| | 17 | | 811 | | | 3796 | 0 |
| 10 | | 148 | | 2205 | 0 | | |
| | 21 | | 842 | | | 4355 | 0 |
| 13 | | 155 | | 2498 | 0 | | |

STA. 181+50 TO STA. 183+00

SCALE 1" = 10'
MADE LVM DATE 11-13-61
TRCD ____ DATE ____
CKD ECE DATE 3-16-62

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
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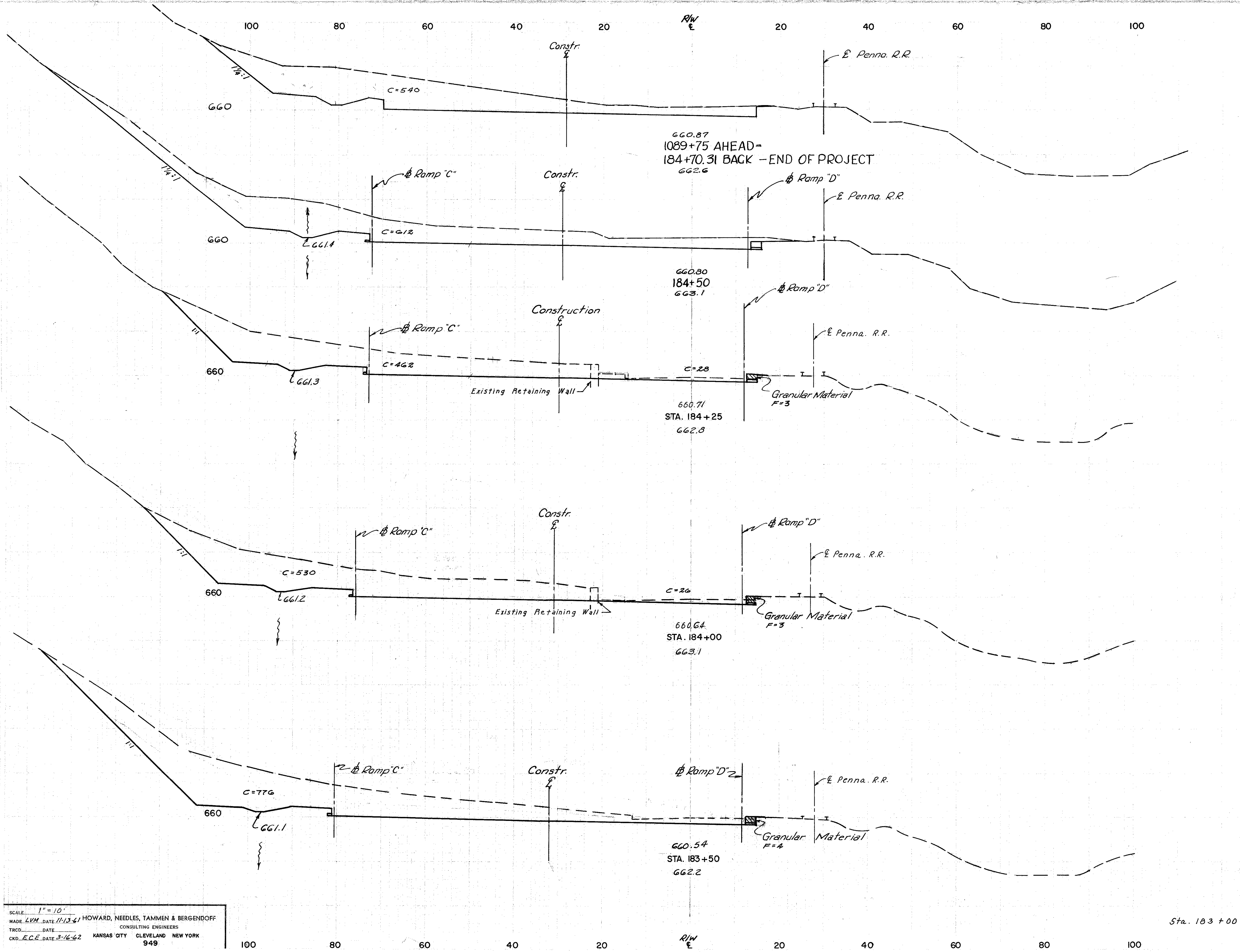
KANSAS CITY CLEVELAND NEW YORK
949

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

36

BEL-7-19.86




SCALE 1" = 10'
MADE LVM DATE 11-13-61 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
TRCD. DATE CONSULTING ENGINEERS
CKD. ECE DATE 3-16-62 KANSAS CITY CLEVELAND NEW YORK
949

| GRANULAR MAT'L. | | SEEDING | | EARTHWORK | | | |
|---|---|---|---|---|---|---|---|
| END AREA | VOLUME | WIDTH | AREA | END AREA | | VOLUME | |
| | | LIN.FT. | SQ.YD. | EXC. | EMB. | EXC. | EMB. |
| | | 61 | | 540 | 0 | | |
| | | | 194 | | | 433 | 0 |
| 0 | | 103 | | 612 | 0 | | |
| | 1 | | 229 | | | 510 | 0 |
| 3 | | 62 | | 490 | 0 | | |
| | 3 | | 175 | | | 484 | 0 |
| 3 | | 64 | | 556 | 0 | | |
| | 6 | | 428 | | | 1233 | 0 |
| 4 | | 90 | | 776 | 0 | | |
| | | | 594 | | | 1782 | 0 |
| | 8 | | | | | | |
| 5 | | 124 | | 1149 | 0 | | |

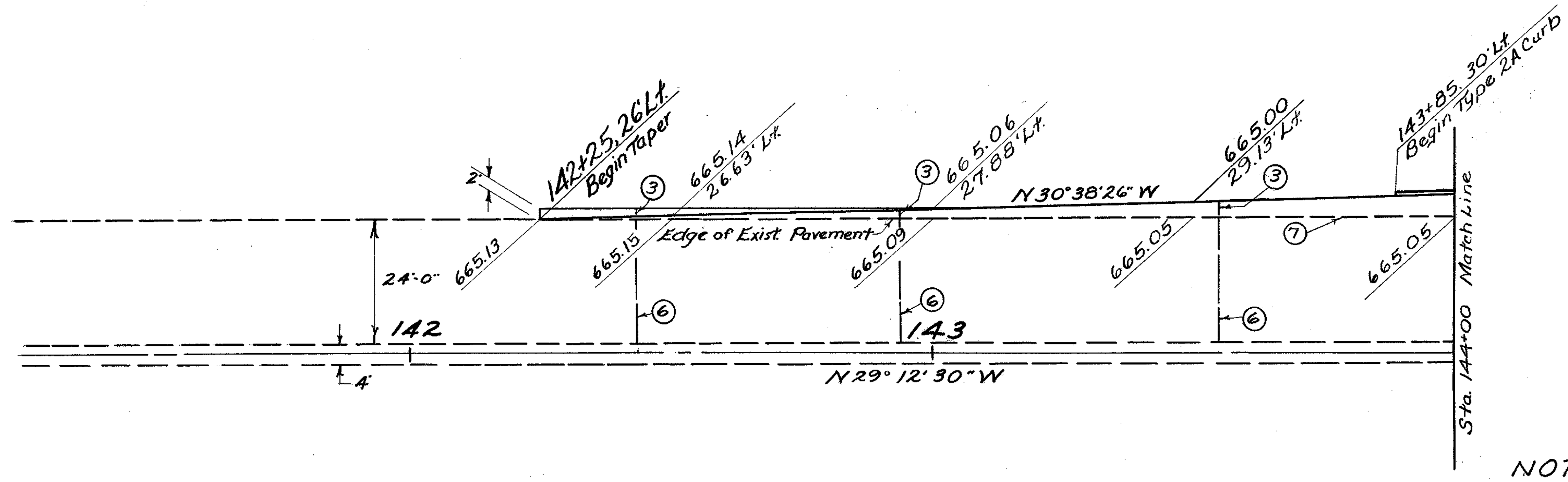
STA. 183+50 TO STA. 184+70.

# BEL-7-19.86

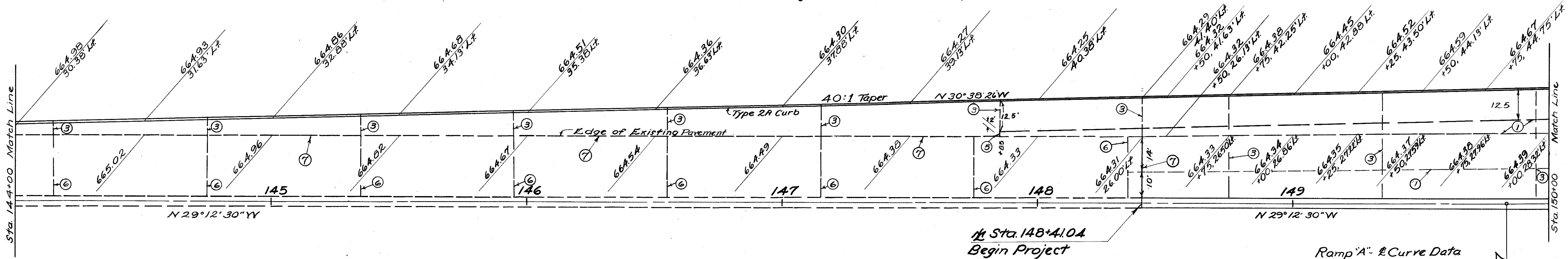
| CURVE DATA | | | | | | |
|---|---|---|---|---|---|---|
| NO. | Δ | D | R | T | L | E |
| | | | | | | |
| 4 | 26°-39'-06" | | 100.00 | 23.69 | 46.52 | 2.77 |
| 5 | 108°-53'-52" | | 20.00 | 27.99 | 38.01 | 14.40 |
| 6 | 26°-39'-06" | | 100.00 | 23.69 | 46.52 | 2.77 |
| 8 | 62°-00'-00" | | 20.00 | 12.02 | 21.64 | 3.33 |
| 9 | 44°-42'-13" | | 50.00 | 20.56 | 39.01 | 4.07 |

## EXTRA AREA QUANTITIES

| Location | T-71 9" Reinf. Port. Cem. Concrete Pavement Sq. Yds. | I-22 Subbase Cu. Yds. | I-12 Standard Type 2-A Concrete Curb Lin. Ft. | | |
|---|---|---|---|---|---|
| Ramp "A" | 2107 | 467 | 1384 | | |
| | | | | | |
| | | | | | |
| | | | | | |
| Totals | 2107 | 467 | 1384 | | |



NOTE: Where elevations are shown along curbed sections, the elevations are to the gutter line and not top of curb.



Ramp "A" - ℄ Curve Data
P.I. 2+92.84
Δ = 12° 50' 30" Lt.
D = 5° 00'
R = 1145.92' (7)
T = 128.96'
L = 256.83'
E = 7.23'

## JOINT LEGEND

1. Standard Longitudinal Joint
2. Standard Expansion Joint
3. Standard Contraction Joint
4. Key Joint without tie bars
5. Expansion Joint without Dowels (2' Offset Typical)
6. Existing Transverse Pavement Joint
7. Standard Expansion Bolt-Joint @ 5'0" c/c.
8. Butt-Joint

M ℄ Curve Data
Δ = 28° 50' 36" Rt.
$D_c$ = 4° 30'
$L_s$ = 350'
$\theta_s$ = 7° 52' 30"
$T_s$ = 503.35'
$E_s$ = 45.57'
L.T. = 233.57'
S.T. = 116.88'

EXTRA AREA DETAILS — RAMP "A"

# EXTRA AREA DETAILS

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

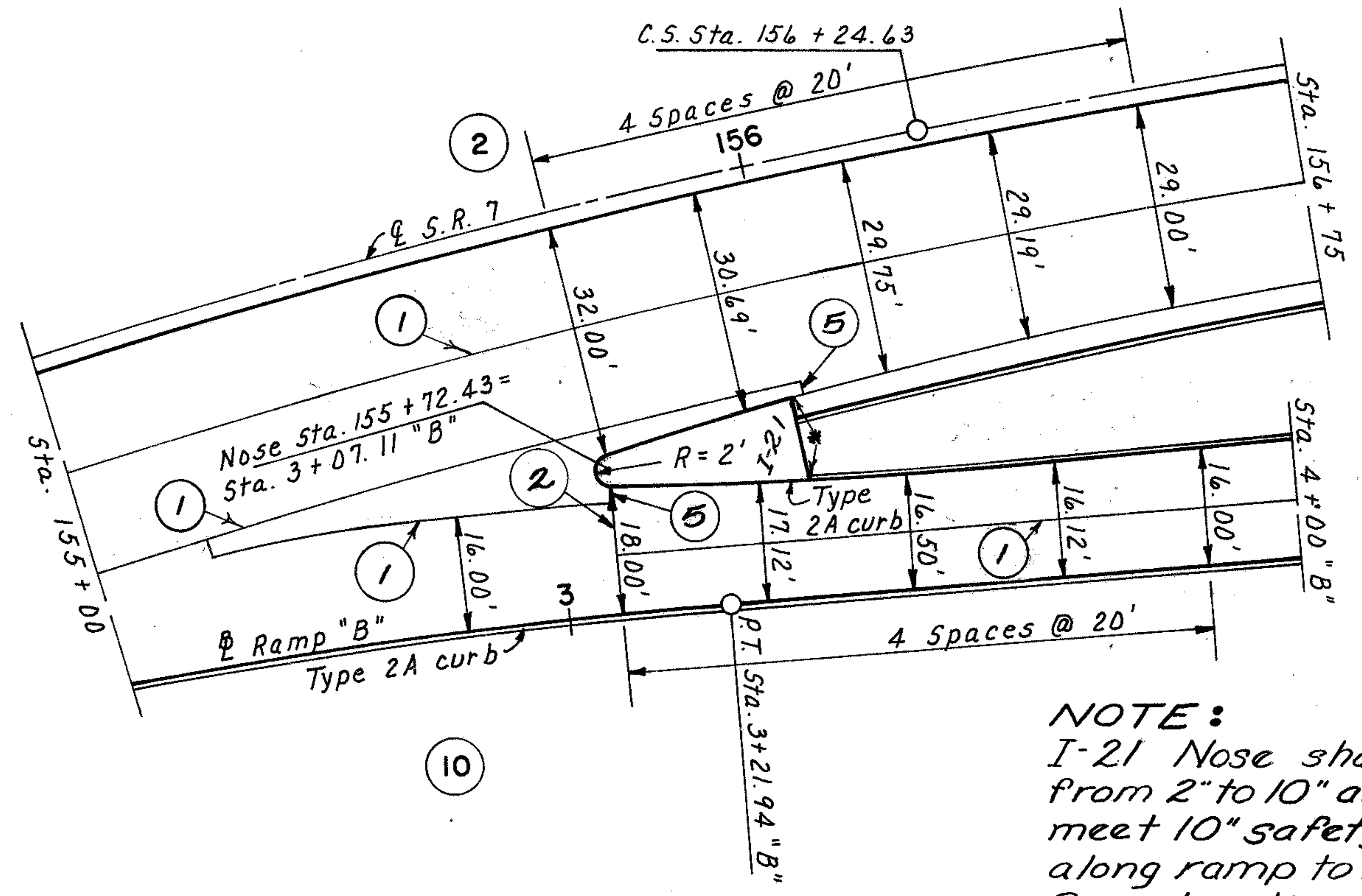


BELMONT COUNTY

BEL-7-19.86

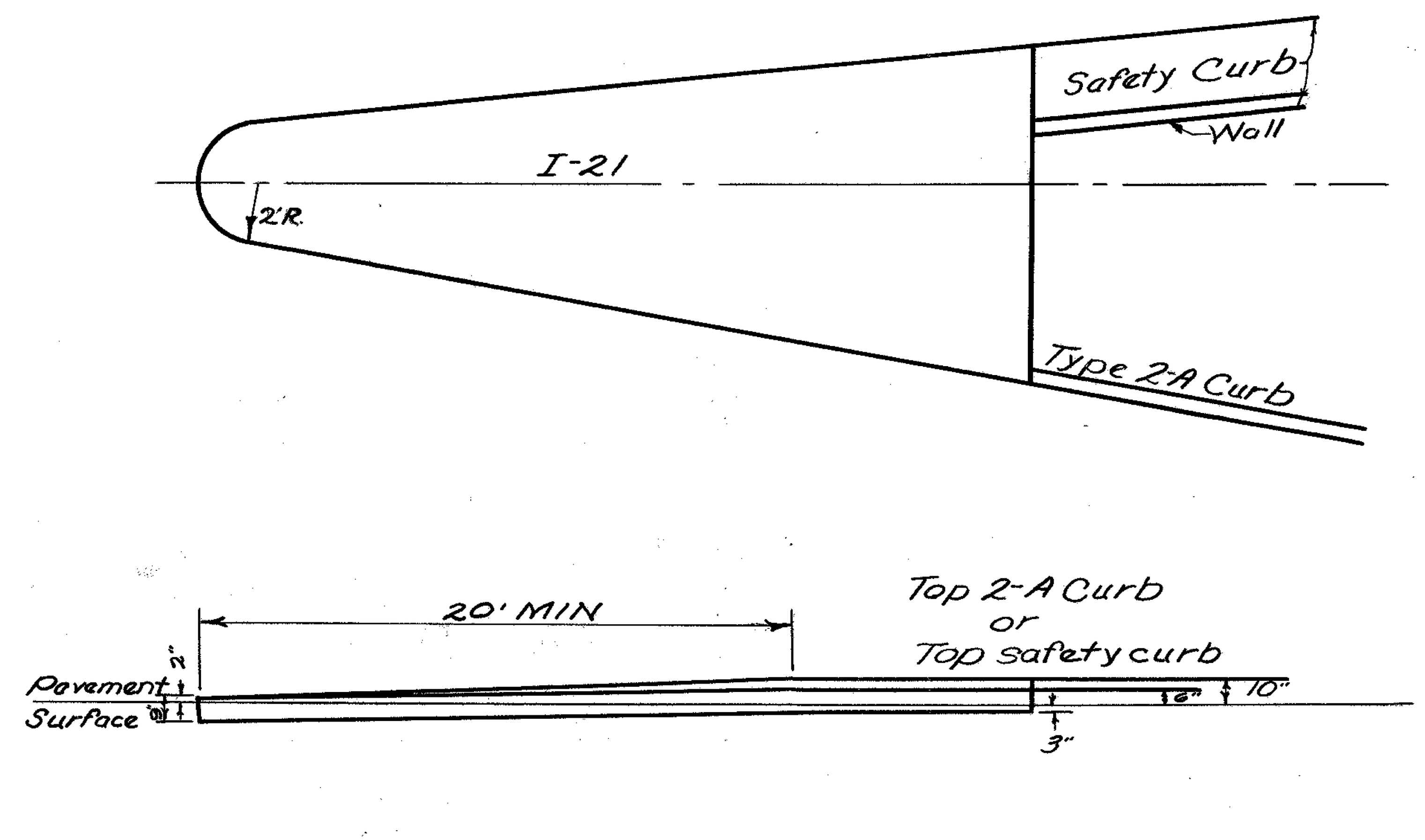

DETAIL - LINCOLN AVENUE

For Detail of Ramp "A" See Detail Sheet № 37.




DETAIL - RAMP "B"

NOTE:
I-21 Nose should be tapered from 2" to 10" along main line to meet 10" safety curb and 2" to 6" along ramp to meet Type 2-A Curb. See elevation detail, this sheet.




I-21 NOSE DETAIL

* Form I-21 to meet 10" Safety Curb at end of wall, and 6" Type 2A Curb on ramps.

## LEGEND

1. Standard Longitudinal Joint
2. Standard Expansion Joint
3. Standard Contraction Joints
4. Standard Key Joint without Tie Bars
5. Standard Expansion Joint without Dowels (2' offset Typical)
6. Existing Transverse Pavement Joint
7. Standard Expansion Bolt Joint (Exp. Bolts 5'0" ℄)
8. Butt Joint

| EXTRA AREA QUANTITIES | | | | | | |
|---|---|---|---|---|---|---|
| LOCATION | T-71 9" REINF. PORT. CEM CONCRETE PVMT. | I-22 SUBBASE | I-12 STD. TYPE 2A CONCRETE CURB | I-12 STD. TYPE 6 CONCRETE CURB | | I-13 4" PORT. CEMENT CONCRETE SIDEWALK |
| | Sq. Yd. | Cu. Yd. | Lin. Ft. | Lin. Ft. | | Sq. Ft. |
| | | | | | | |
| Sta. 154+38.32 Lincoln to 160+27.94 | 2,095 | 394 | 1,060 | 103 | | 2,000 |
| Sta 8+00 "B" to Paving Limits | 211 | 40 | 128 | | | |
| | | | | | | |
| Total | 2206 | 434 | 1188 | 103 | | 2,000 |

| CURVE DATA | | | | | | |
|---|---|---|---|---|---|---|
| NO. | Δ | D | R | T | L | E |
| 2 | – | 4°30'00 | – | – | 290.96 | – |
| 10 | 24°08'45" | 7°30'00" | – | 163.40 | 321.94 | 17.28 |
| 12 | 51°29'07" | – | 25 | 12.06 | 22.46 | 2.75 |
| 13 | 124°28'55" | – | 30 | 57.00 | 65.18 | 34.41 |
| 14 | 90°28'30" | – | 25 | 25.21 | 39.48 | 10.51 |
| 15 | 89°37'30" | – | 10 | 9.94 | 15.64 | 4.10 |
| 16 | 95°49'27" | – | 10 | 11.07 | 16.72 | 4.92 |
| 17 | 90°00'00" | – | 20 | 20.00 | 31.42 | 8.28 |
| 18 | 90°00'00" | – | 20 | 20.00 | 31.42 | 8.28 |
| 42 | 89°31'30" | – | 25 | 24.79 | 39.06 | 10.21 |
| 43 | 90°28'30" | – | 25 | 25.21 | 39.48 | 10.51 |
| 44 | 89°31'30" | – | 20 | 19.83 | 31.25 | 8.17 |

MADE WCI DATE 9-13-61 TRACED AEK DATE 5-14-62
CHECKED FVR DATE 9-15-61 SCALE 1" = 20'

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

NOTE: Where elevations are shown along curbed section, the elevation are to the gutter line and not top of the curb.

(32)
RAMP "C"
P.I. STA. 10+82.39
Δ = 4°21'46" Rt.
D = 10°07'56"
L = 43.11'
R = 565.49'
T = 21.54
E = 0.41'

(31)
RAMP "C"
P.I. STA. 8+33.96
Δ = 4°55'08" Lt.
D = 1°05'
L = 454.05'
R = 5288.84'
T = 227.16'
E = 4.88'

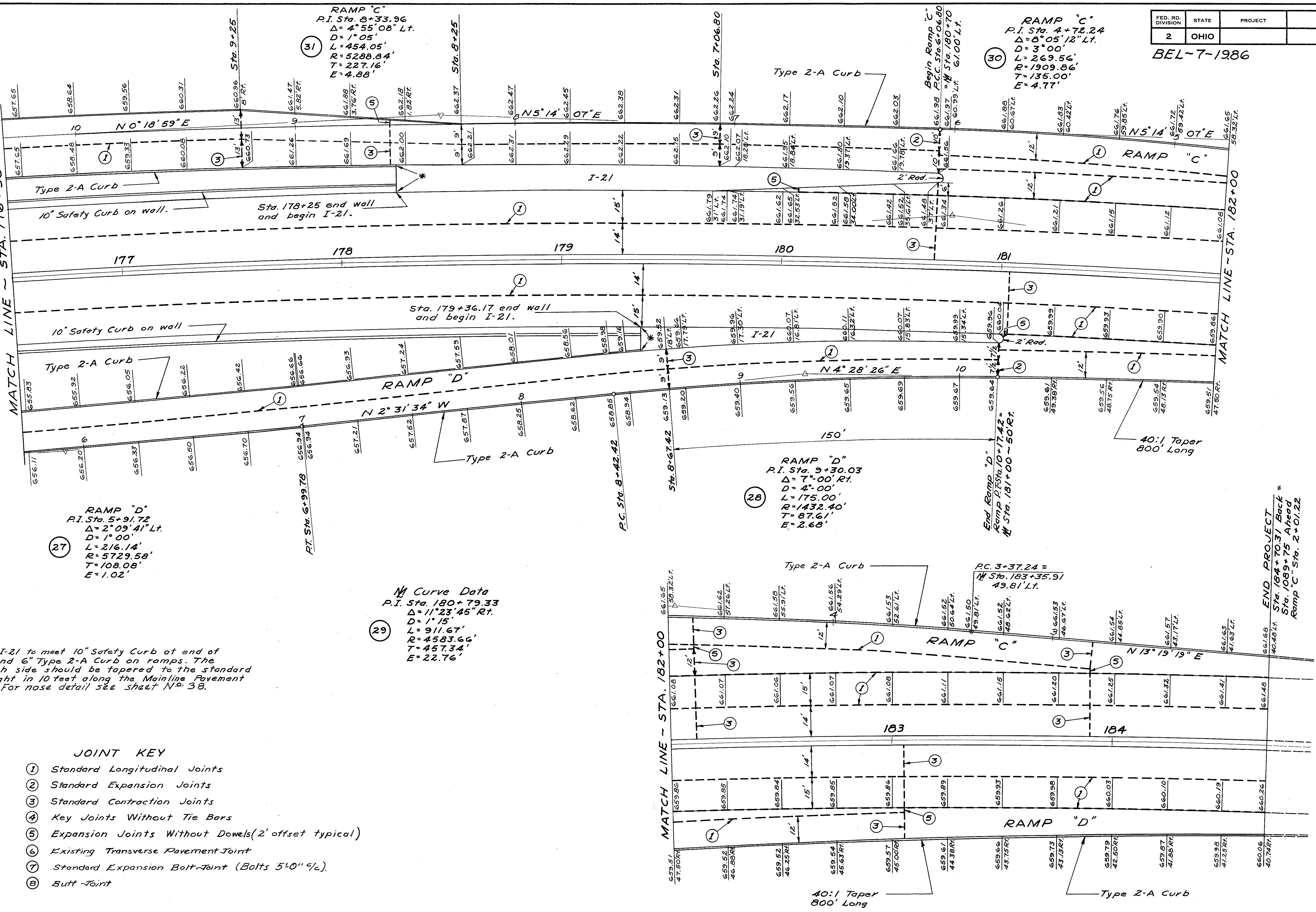

(27)
RAMP "D"
P.I. STA. 5+91.72
Δ = 2°09'41" Lt.
D = 1°00'
L = 216.14'
R = 5729.58'
T = 108.08'
E = 1.02'

(29)
℄ CURVE DATA
P.I. STA. 180+79.33
Δ = 11°23'45" Rt.
D = 1°15'
L = 911.67'
R = 4583.66'
T = 457.34'
E = 22.76'

~ JOINT KEY ~

1. Standard Longitudinal Joints
2. Standard Expansion Joints
3. Standard Contraction Joints
4. Key Joints Without Tie Bars
5. Expansion Joints Without Dowels (2' Offset Typical)
6. Existing Transverse Pavement Joint
7. Standard Expansion Bolt Joint Bolts 5'0" c/c
8. Butt Joint

EXTRA AREA DETAILS — RAMP "C" AND RAMP "D" U.S. 250 APPROACH AND CROSS-OVER




RAMP "C"
P.I. Sta. 8+33.96
(31)
Δ = 4° 55' 08" Lt.
D = 1° 05'
L = 454.05'
R = 5288.84'
T = 227.16'
E = 4.88'

RAMP "C"
P.I. Sta. 4+72.24
(30)
Δ = 8° 05' 12" Lt.
D = 3° 00'
L = 269.56'
R = 1909.86'
T = 135.00'
E = 4.77'

RAMP "D"
P.I. Sta. 9+30.03
(28)
Δ = 7° 00' Rt.
D = 4° 00'
L = 175.00'
R = 1432.40'
T = 87.61'
E = 2.68'

RAMP "D"
P.I. Sta. 5+91.72
(27)
Δ = 2° 09' 41" Lt.
D = 1° 00'
L = 216.14'
R = 5729.58'
T = 108.08'
E = 1.02'

℄ Curve Data
P.I. Sta. 180+79.33
(29)
Δ = 11° 23' 45" Rt.
D = 1° 15'
L = 911.67'
R = 4583.66'
T = 457.34'
E = 22.76'

* Form I-21 to meet 10" Safety Curb at end of wall, and 6" Type 2-A Curb on ramps. The 10" high side should be tapered to the standard 6" height in 10 feet along the Mainline Pavement edge. For nose detail see Sheet No. 38.

JOINT KEY

1. Standard Longitudinal Joints
2. Standard Expansion Joints
3. Standard Contraction Joints
4. Key Joints Without Tie Bars
5. Expansion Joints Without Dowels (2' offset typical)
6. Existing Transverse Pavement Joint
7. Standard Expansion Bolt-Joint (Bolts 5'-0" c/c)
8. Butt Joint

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PROFILES FOR RAMPS A, B, C & D, U.S. 250 X-OVER, U.S. 250 APPROACH & LINCOLN AVE.

NOTES:

A 6" Low Pressure Gas Line lies in the area of the connection shown in Detail "B", being about 30" below the surface of the existing street. Since the existing water mains are 3'± and 5'± below the streets surface, the gas line should not interfere with the connection, but the Contractor is urged to use extreme caution while working in the area.

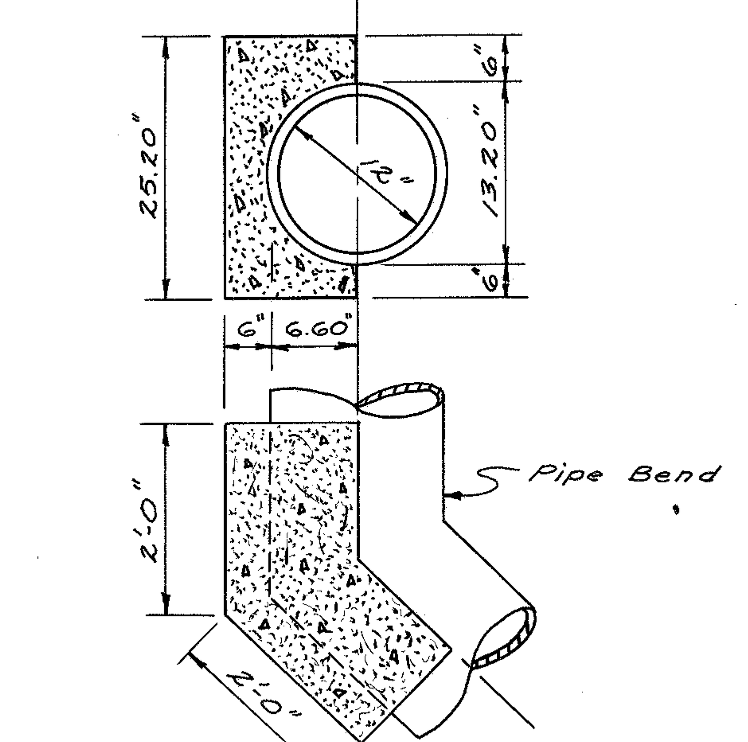
* The fire hydrant at the intersection of Lincoln Avenue and U.S.R. 250 shall be removed from its present location and re-set at a position behind the proposed sidewalk and approximately three (3) feet North of the N.E. Corner of the Scott Hardware Building and in line with the front face of the building.
The 4" Valve shall be set at a suitable location determined by the Engineer.

The Contractor shall complete the water main relocation with the exception of making the connections to the existing water mains. The relocated main shall be tested in accordance with the State of Ohio, Department of Highways, "Suplemental Specification No. I-124, Water Mains and Service Branches". The connections to the existing main shall be made at a time designated by the Engineer.


PLAN
SCALE: 1" = 50'

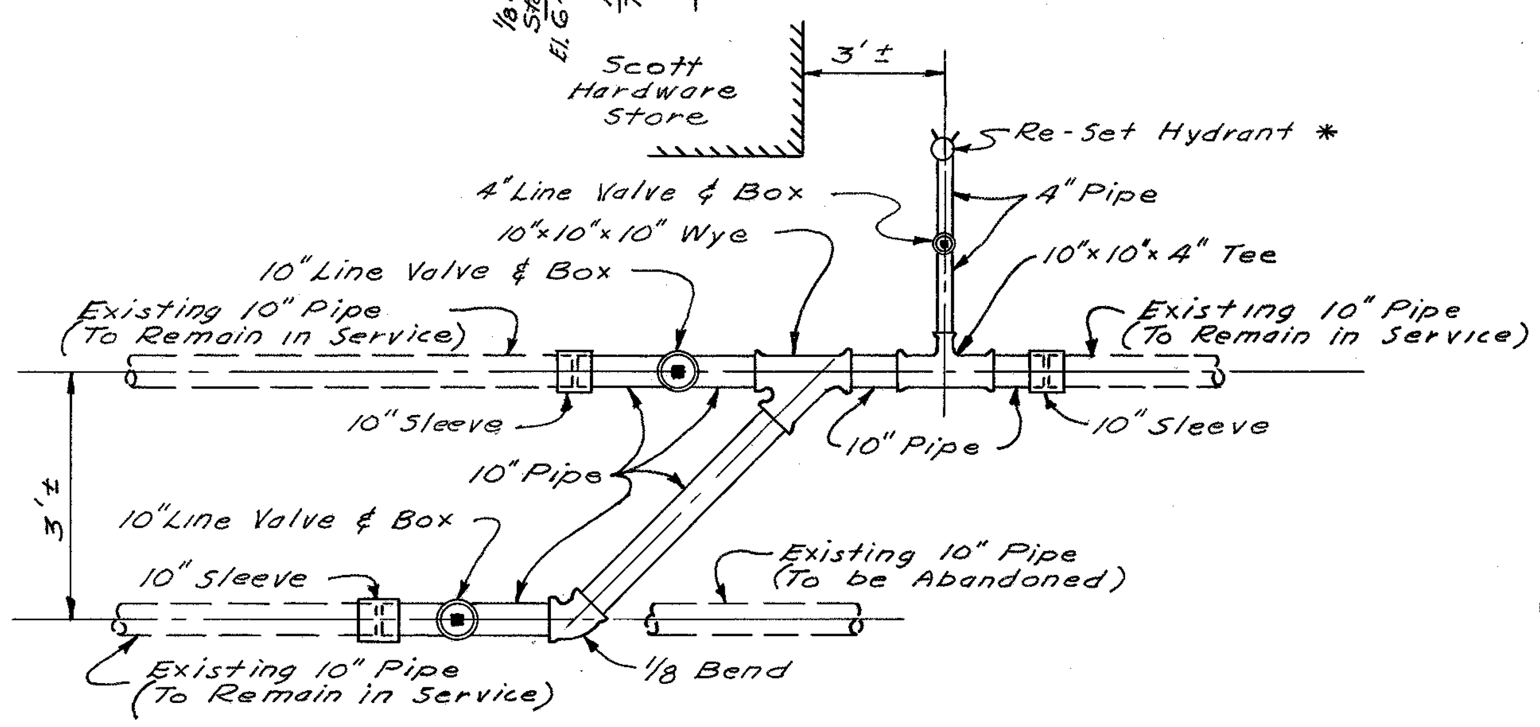
* This section of Water Main shall be built only if proposed "12" Line by Others" is not ready for operation at the time the Engineer directs that the connection be made.


PROFILE
HOR. SCALE: 1" = 50'
VERT. SCALE: 1" = 10'

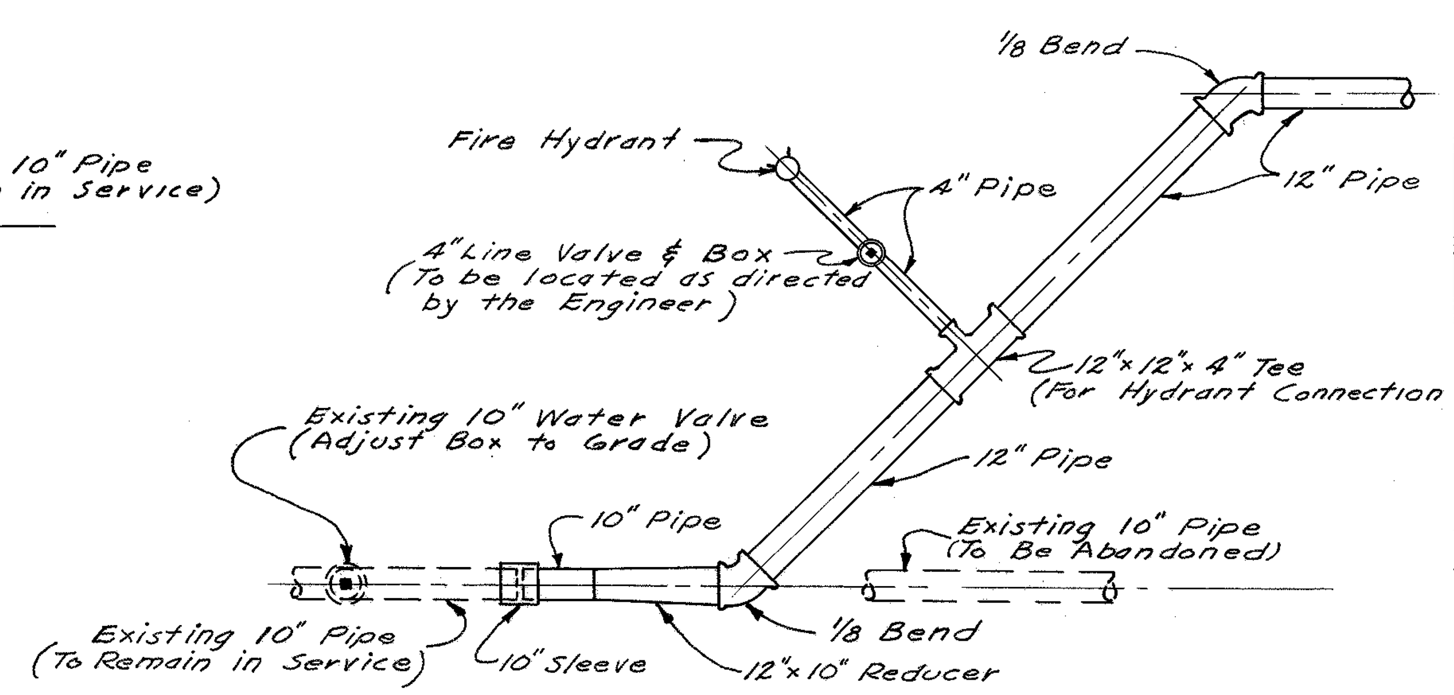



NOTE:
Concrete Volume is Approx. 0.3 Cu. Yd. - Per Backing-Pier.

BACKING-PIER DETAIL
CLASS "E" CONCRETE
(Not To Scale)




WATER MAIN CONNECTION - DETAIL "B"
(Not To Scale)




WATER MAIN CONNECTION - DETAIL "A"
(Not To Scale)

## CODE TYPE Y-060

WATER MAIN QUANTITIES

| Item | Description | I-124 | I-16 | S-1 | Unit |
|---|---|---|---|---|---|
| 814 | 4" A.S.A. Class 22 C.I. Pipe, (Mechanical Joint) | 30 | | | Lin. Ft. |
| 814 | 10" A.S.A. Class 22 C.I. Pipe, (Mechanical Joint) | 40 | | | Lin. Ft. |
| 814 | 12" A.S.A. Class 23 C.I. Pipe, (Mechanical Joint) | 1000 | | | Lin. Ft. |
| 814 | 4" Line Valve & Box | 2 | | | Each |
| 814 | 10" Line Valve & Box | 2 | | | Each |
| 814 | 10" Class 22 C.I. 1/8 Bend, with lead joints. | 1 | | | Each |
| 814 | 12" Class 23 C.I. 1/8 Bend, with Lead Joints | 1 | | | Each |
| 814 | 12" Class 23 C.I. 1/32 Bend, with lead joints | 2 | | | Each |
| 814 | 12" Class 23 C.I. 1/4 Bend, with lead joints | 2 | | | Each |
| 814 | 10"x10"x10" Class 22 C.I. All Bell Wye | 1 | | | Each |
| 814 | 10"x10"x4" Class 22 C.I. All Bell Tee | 1 | | | Each |
| 814 | 12"x12"x4" Class 23 C.I. All Bell Tee | 1 | | | Each |
| 814 | 12"x10" Class 23 C.I. Reducer | 1 | | | Each |
| 814 | 10" Sleeve, Class 22 C.I. | 4 | | | Each |
| 814 | 12" Sleeve, Class 23 C.I. | 1 | | | Each |
| 814 | 10" Water Main Lowered or Raised | 50 | | | Lin. Ft. |
| 814 | Fire Hydrant. (Mechanical Joint) | 1 | | | Each |
| 814 | Fire Hydrant, Removed & Reset | 1 | | | Each |
| 202 | Manhole Removed | | 2 | | Each |
| 511 | Concrete for Structures (Concrete Backing) Class "E", as per plan. | | | 2 | Cu. Yds. |
| 814 | Water Valve Service Boxes Adjusted to Grade | 2 | | | Each |
| | 1965 SPECIFICATIONS ITEM NO. | 814 | 202 | 511 | |

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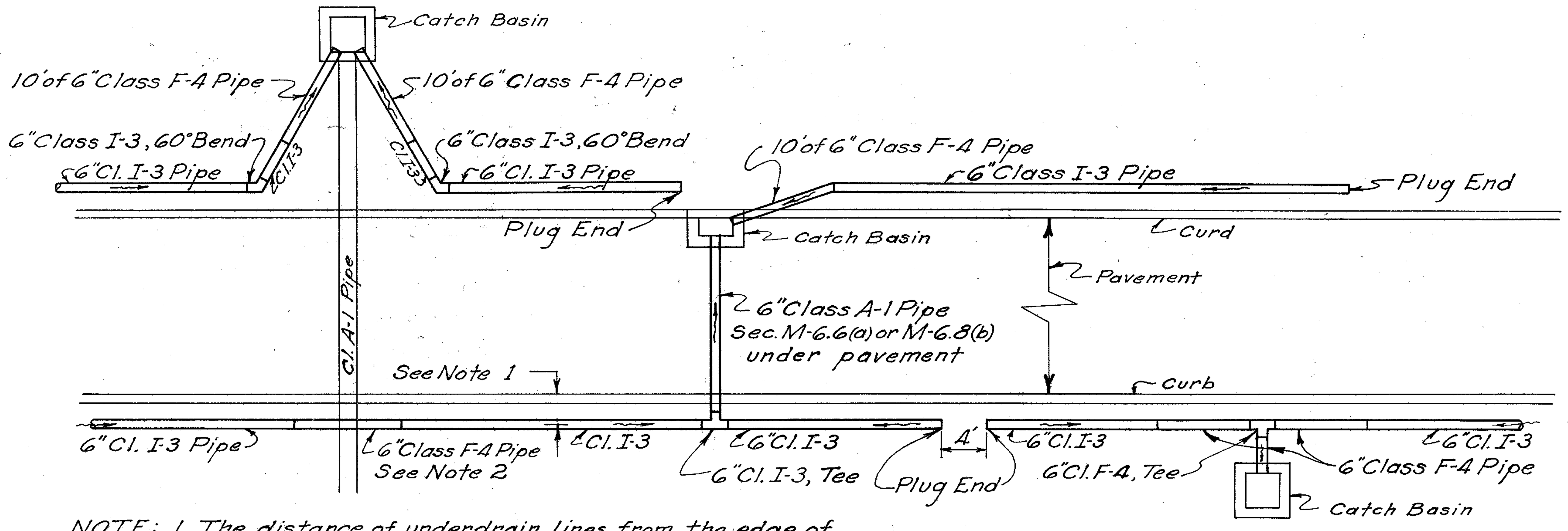
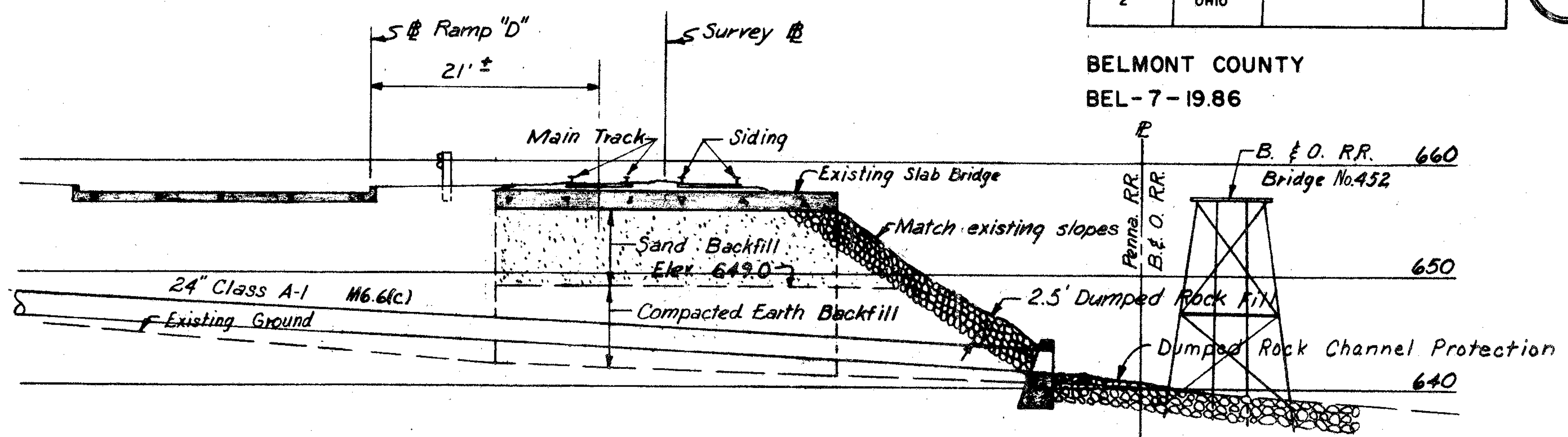


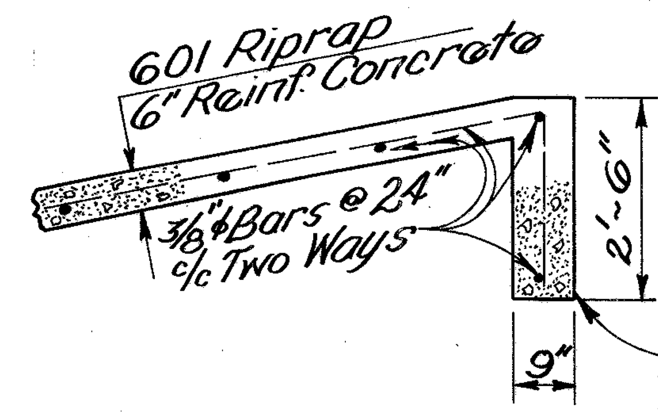

NOTE: 1. The distance of underdrain lines from the edge of pavement shall be taken from the appropriate typical section.
2. A minimum of 10' of 6" Class F-4 Pipe shall be placed in the area of granular backfill over storm sewers.

## TYPICAL DETAILS OF UNDERDRAIN OUTLETS



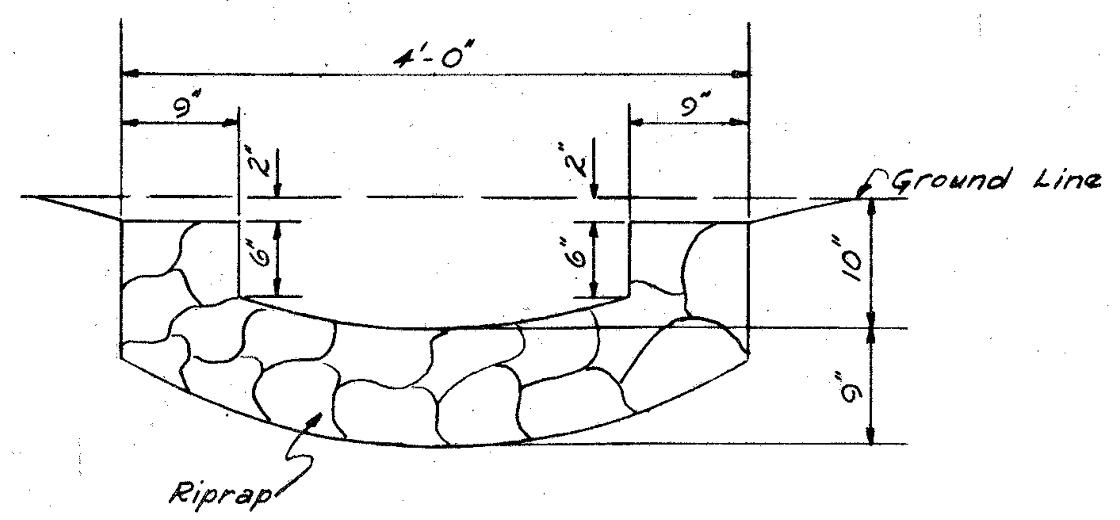

**FILL TREATMENT AT PENNSYLVANIA R.R. BR. NO. 65**
**S.R.-7 STA. 174 + 00**
Scale 1" = 10'

Dumped Rock Fill = 36 Cu. Yds.
Sand - Sec. M2.1 = 105 Cu. Yds.
See Sheet 46 for details of dumped rock channel protection.

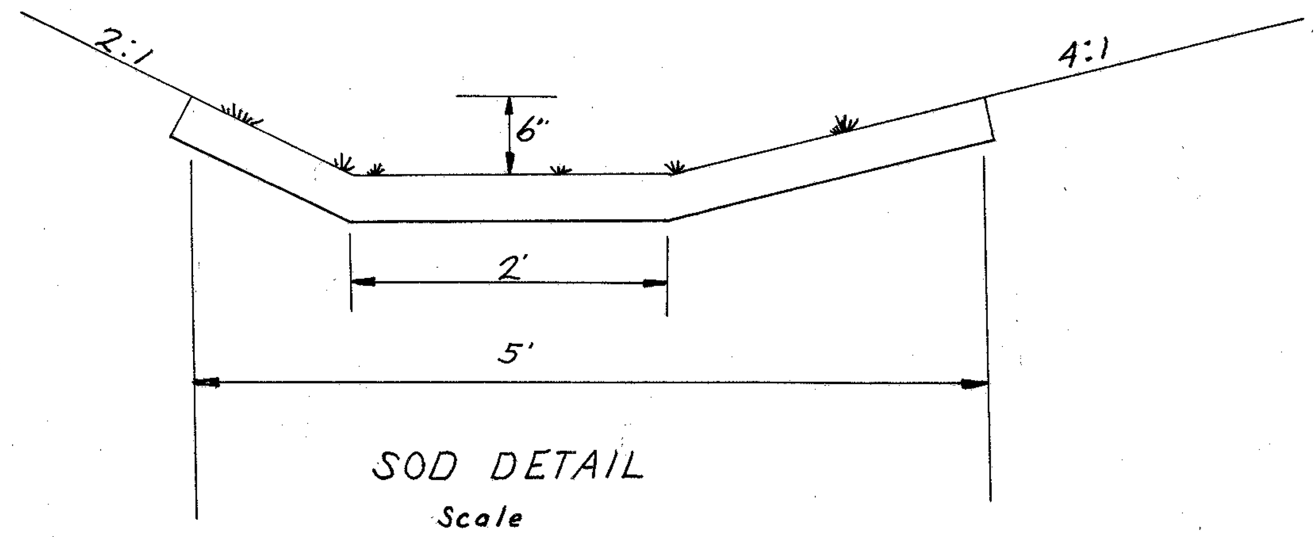



Cut-off wall is to be included for payment in the price bid for Item 601 Riprap - 6" Reinforced Concrete Slab.

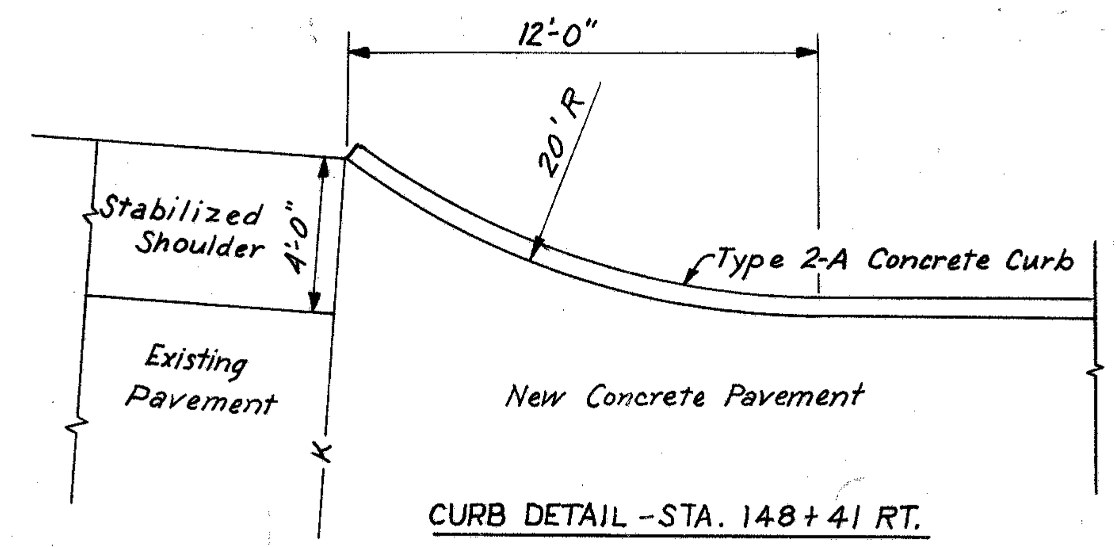
## DETAIL OF CUT-OFF WALL



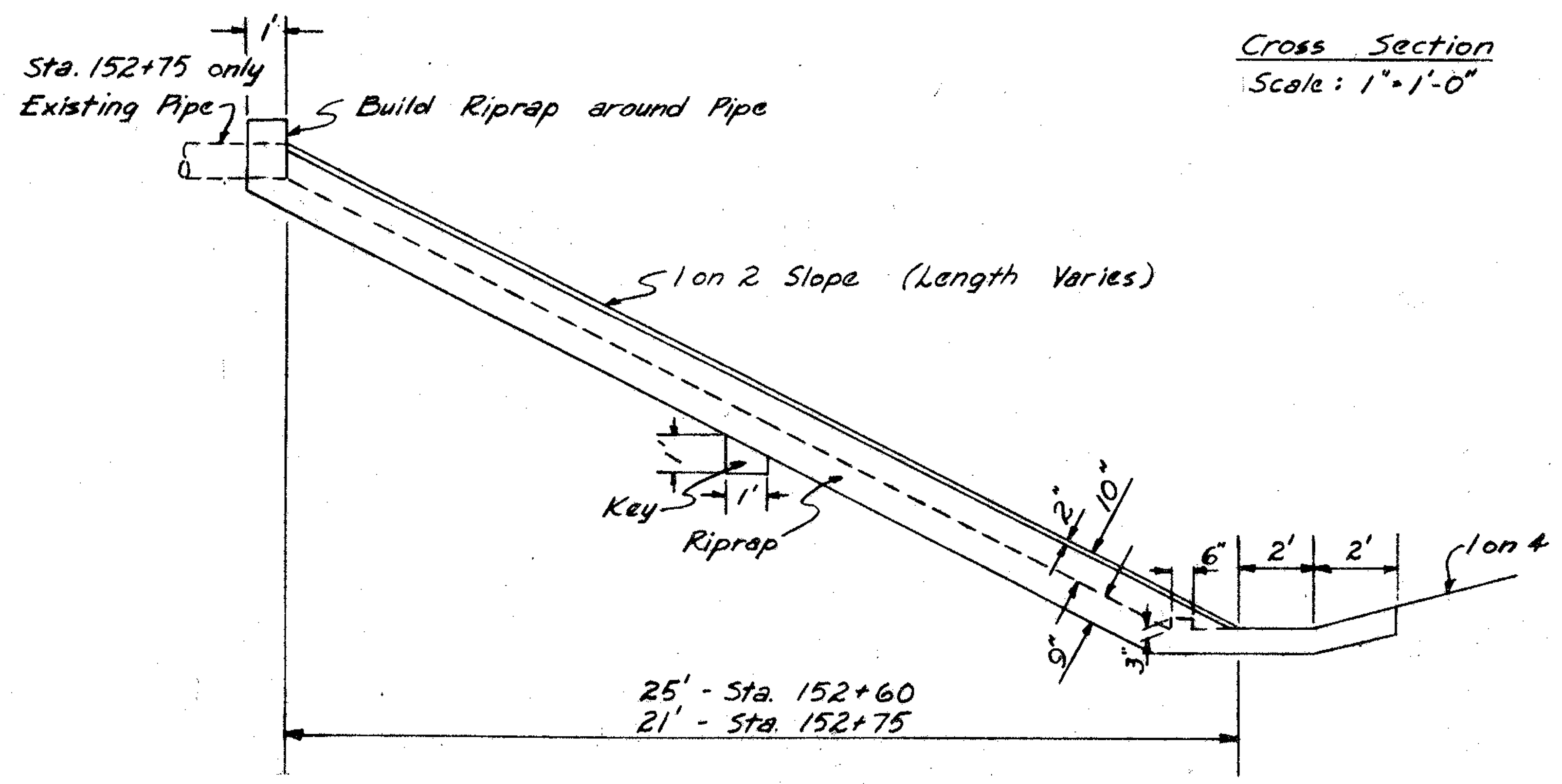

Cross Section
Scale: 1" = 1'-0"




SOD DETAIL
Scale
0 1'

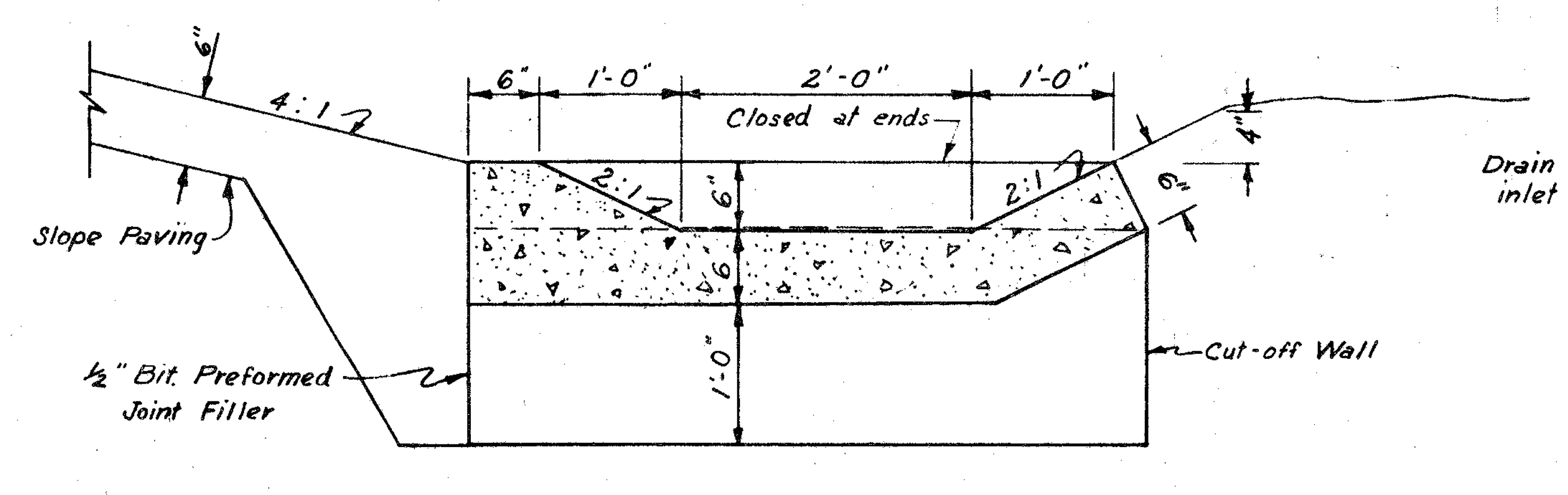



CURB DETAIL - STA. 148 + 41 RT.
Scale 1/4" = 1'-0"

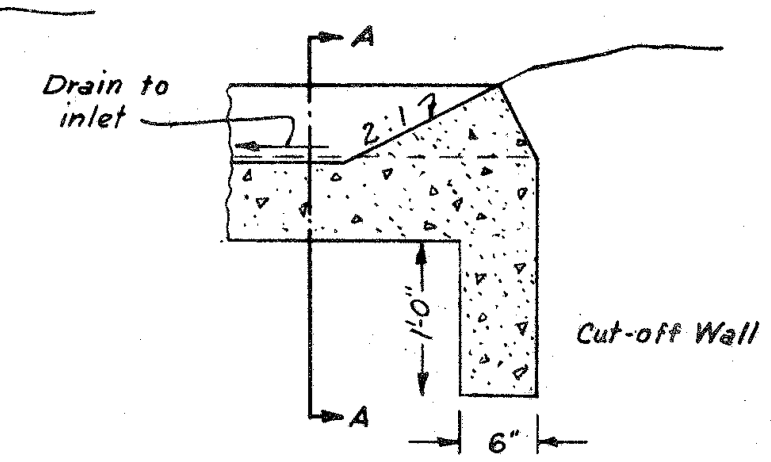



Elevation
No Scale

**GROUTED RIPRAP FLUME DETAILS**
Sta. 152+60 & Sta. 152+75




Section A-A




End Section

**TYPE I MODIFIED PAVED GUTTER**
Scale 1" = 1'-0"

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CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

| | | | |
|---|---|---|---|
| MADE LVM | DATE 6-29-61 | TRACED | DATE |
| CHECKED E.C.E | DATE 11-7-61 | SCALE As Shown | |

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CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

F.X.R. 7-10-61
E.C.E. 11-6-61

SEWER PROFILE

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CONSULTING ENGINEERS

KANSAS CITY CLEVELAND NEW YORK

SEW

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Detail Drawing of Dike and Catch Basin Protection
Scale 0 5'

Note: If C. Basin is in sag (182+50), use two windows and place Mod. Type 1 Paved Gutter protection, as shown above, on both sides. Catch Basin at Sta. 11+38, Rt. Ramp "C", is located at the terminal end of the ditch; place paved gutter at entrance to basin, as shown above and add 5 Sq. Yds. Riprap around basin.

NOTE: See plan and profile sheet No 18 and schematic sewer plan sheet No 47 for location of all above pipe.

DETAIL OF HEADWALL

# STORM SEWER PROFILE– SR250 & 7 INTERS.

SEWER PROFILES

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NOTE: The profile of Storm Sewer system at intersection of SR 250 & 7 is on Sheet No. 46. The profiles of the remaining system on this sheet are on Cross Section Sheets 32, 33, 34, 35, and 36.


SCHEMATIC STORM SEWER PLAN STA. 174+00 TO STA. 184+00

# GENERAL NOTES AND SUMMARY OF QUANTITIES

## TRAFFIC CONTROL

### MATERIALS — GENERAL

Materials to be furnished may be specified in the plans by a given manufacturer's catalog number or type. This is for descriptive purposes only and the contractor may assume that approved equal materials may be furnished.

### 816 STRUCTURAL SUPPORTS STEEL BEAM (TYPE),

The structural steel beam supports shall be Galvanized (After punching) in accordance with ASTM A-123. Quantities for Item 816 "Structural supports, steel beam (type), " appearing in the quantity tables are approximate. The contractor shall be responsible for determing exact support lengths prior to fabrication and galvanizing of supports. Payment shall be at the contract unit price bid per Lin. Ft. which price and payment shall include all costs in connection with the embedment of the supports.

The cost of the concrete used for embedment will be a seperate pay item.

### 816 OVERHEAD SIGN SUPPORT, BY TYPE,

All component parts of the overhead sign supports shall be steel, execpt for the truss and components for the number 7 series which shall be Aluminum. For specific details and materials see sheet numbers 52 and 53 sign brackets and the

Cost of furnishing and installing the fixture support arm, length "G", with mounting holes and hardware (See sheets 54 and 55 Shall be included in the contract unit price bid for overhead sign supports.

Modifying supplemental specification 816 switch enclosure mounting brackets including mounting bolts and drilled holes shall be furnished and installed under payment for Item 816 Overhead Sign Support structures at the contract price per "Overhead Sign Support, by type, ".

Payment for this item shall be made at the contract unit price bid for each "Overhead Sign Support, by type, installed in place and accepted, which price shall be full compensation for furnishing all anchor bolts (for installation under Item 816 Concrete for "Overhead Sign Support Foundations"), and for furnishing and installing each overhead sign support structure shown on sheet numbers 50&51 including fixture support arms, switch enclosure mounting bracket, sign brackets and all component parts necessary to make a complete workable installation ready for sign erection, installation of disconnect switch and enclosure, ground rod and wire connections and sign wiring.

Erection of these supports shall be accomplished in a manner meeting the requirements of supplemental specification number 816.

### 816 CONCRETE FOR SIGN SUPPORT FOUNDATIONS, BY TYPE, AS PER PLAN

Payment for this item shall be per cubic yard based on approved plan dimensions or dimensions as modified by the engineer in lieu of plan quantities as specified in supplemental specification 816.

Payment for furnishing and installing reinforcing steel shall be included in the unit price pid per cubic yard of concrete for Overhead Sign Support Foundations in lieu of being a separate pay item as called for in supplemental specification No. 816.

Payment for installation only of the 2 inch galvanized steel conduit ells and the ½ inch EMT ground wire conduit will be included in this item. Payment for furnishing this conduit is included under "Sign Service, as per plan" and "Ground Rod and Wire Conection ".

Foundations shall be construeted in the manner called for under supplemental specification 816. Concrete shall be class "C".

### 815 SIGN ERECTION, BY TYPE, AS PER PLAN

The contractor shall erect sign panels furnished by others as shown on the "Signing Plan" sheet number 49. The panels shall be mounted on the brackets or beam supports provided in the plans.

A schedual for sign erection shall be submitted to the engineer, Bureau of Traffic, 450 East Town Street, Columbus, Ohio, 60 calendar days prior to the start of any scheduled erection work. The schedule shall include proposed dates, time, sign numbers and delivery point.

The price bid per square foot for, "Item 815, sign erection by type, as per plan" shall include all necessary equipment, manpower and tools to erect the signs noted. All sign material and accessories will be furnished and transported to a designated delivery point, on or near the subject project by others.

The contractor shall be responsible for the handling and storage of the sign panels and accessories from the time of arrival at the delivery point.

### ELECTRICAL — GENERAL

This Item shall consist of furnishing all necessary material, labor and facilities required to complete the electrical installation in accordance with the designs, dimensions and details shown in the plans and described in the specifications.

All material, workmanship and construction methods, except as modified herein, shall conform to the general requirements of the State of Ohio, Department of Highways, Construction and Materials Specifications, January 1, 1965.

### ITEM 625 SIGN SERVICE

This Item will consist of the completion of the electrical system and components connecting from the ESNA connectors in the pull box (included within the roadway lighting quantities) to the primary side of the disconnect switch.

Work will include the furnishing of the 2 inch galvanized steel conduit ells (to be installed) under Item " 816 Concrete For Sign Support Foundations, by type, as per plan" and the furnishing and installing (including trenching and backfilling) of the 2 inch galvanized steel conduit and couplings from the pull box to the sign support foundation.

This Item will also include the furnishing and installing of the 1/c 600 volt service wire from the connectors to the disconnect switch.

Basis of payment shall be at the contract unit price per each installation. Which price shall include all material, labor, equipment, and incidentals necessary to finish the complete Item of work.

### WIRE AND CABLE

Wire and cable installation shall conform to section 625.14 of the Construction and Material Specifications and shall be of the size and types shown on the plans.

Wire or cable installed in conduit on/or within sign structures shall be #12 RHW, (3/64" insulation and 3/64" jacket), 600 volt, standard copper wire.

Cable installed underground leading from the pull box to the disconnect switch shall be number 12, single conductor, seven strand FAA specification L-824 type A, 600 Volt direct burial wire.

### ITEM 625 DISCONNECT SWITCH WITH TYPE "Y" OR "Z" ENCLOSURE

The basis for payment for this Item shall be on a unit bid per each basis, furnished installed, complete, and accepted.

The Item shall include furnishing of a 30 AMP. 600 volt fused disconnect switch of type and make as indicated on sheet 56 and shall be mounted in a NEMA (4) stainless steel enclosure type "Y" or "Z" and attached to each sign support by means of a mounting bracket as described in detail on the above sheet.

### ITEM 625 TRANSFORMER, BY TYPE.

This Item of work shall consist of furnishing and installing transformers as detailed and specified on sheet 56.

Basis of payment for this Item shall be at contract unit price per each, which shall include all labor, tools, material and equipment required for this complete Item of work.

### ITEM 625 BALLAST, BY TYPE

This Item of work shall consist of furnishing all ballast types A through D as detailed and specified on sheet 55.

Basis of payment for this Item shall be at the contract unit price per each furnished to the job for installation under Item 625 "Signs Wired Complete, ".

### ITEM 625 LIGHT FIXTURE WITH LAMP, BY TYPE AND SIZE

This Item of work shall consist of furnishing all light fixtures and lamps, types and sizes as specified on sheet 55.

Basis of payment for this Item shall be all the contract unit price per each furnished to the job for installation under Item 625 signs wired complete .

### ITEM 625 GROUND ROD AND WIRE CONNECTION

This Item of work shall consist of furnishing and installing ground rod and wire as detailed and specified on sheet 56 also included will be the cost furnishing the ½ EMT ground wire conduit for installation under Item 816 "Concrete For Sign Support Foundations."

Basis of payment for this Item shall be at contract unit price per each, which shall include all labor, tools, materials and equipment required for the complete Item of work.

### ITEM 625 SIGNS WIRED, COMPLETE

This Item shall consist of the furnishing and installation of the electrical sign lighting system components for each illuminated sign.

Work shall include installation of light fixtures and ballast, and furnishing and installation of all rigid and flexible conduit, condulets, junction boxes, wire, fasteners, hardware, and all other Items required to energize the sign lighting system. See details on sheets 55 & 56.

Basis of payment shall be at the contract unit price per each sign wired which price shall include all labor, materials, tools, equipment, and other incidentals to provide a complete and accepted Item of work.

The cost of furnishing and installing wire and necessary fasteners from the disconnect switch to the signs (or between signs) within sign support members shall be incidental to the cost of various Items included in this Item of work.

Illuminated signs requiring two (2) ballasts shall be considered as an equivalent of two (2) separate signs for determination of payment quantities.

### INSPECTION AND TESTING OF SIGN LIGHTING

The contractor shall furnish all equipment necessary to demonstrate to the engineer that all circuits are free from short circuits and unspecified grounds, and are properly connected and operable before acceptance. This demonstration shall include a meggaring test to show that all conductors are clear of grounds and that the resistance at the ground is not more than 25 ohms. Voltage and amperage test shall be made at the sign support switch.

Payment for these test shall be considered a subsidiary work Item, included in the unit price bid for the respective Items tested.

After the sign lighting system is completed, the entire system shall be operated continuously each night until seven (7) consecutive days elapse without failure or defect. The contractor shall correct any defects which may develop at no extra cost to the state.

During the test period, adjustments to fixture aiming angles shall be made as directed by the engineer to obtain maximum uniformity in sign illumination.

### CERTIFICATION AND APPROVAL OF SIGN SUPPORTS AND LIGHTING ITEMS

The contractor shall submit through proper channels the drawings. Information or samples as required below:

(A) Six (6) copies of the following:
Shop drawings and material lists for approval for
1. Overhead sign supports.
2. Sign lighting details.
3. Catalog cuts, descriptions or samples of fabricator's standard Items as shown in the plans or their equal for approval.

(B) Certifications or samples for all materials which have been approved above under Item (A) shall be in possession of the contractor prior to any purchase or installation.

### TYPE CODE 7221

| SHEET NUMBER 58 / SIGN DESIGNATION 1 | 2 | | SHEET NUMBER 59 / 3 | | | ITEM NO. 1963 SPECS. | ITEM NO. 1965 SPECS. | TOTAL | UNIT | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|
| 12'x9'-6" | 15'x7'-6 | | 15'x7'-6" | | | | | | | Effective Sign Size |
| 114 | 127.5 | | 127.5 | | | I-129 | 815 | 369 | Sq. Ft. | Sign Erection, Directional Guide Type as per plan. |
| | 1 | | | | | I-129 | 816 | 1 | Each | Overhead Sign Support No 9.24, Design 2, Arms 8'-6" and 6'-6" |
| | | | 1 | | | I-129 | 816 | 1 | Each | Overhead Sign Support No 12.24 Design 4, 20'-0" Arm, |
| 52 | | | | | | I-129 | 816 | 52 | Lin. Ft. | Structural Support, Steel beam, 12 B 22 |
| | 3.2 | | 3.1 | | | I-129 | 816 | 6.3 | Cu. Yds. | Concrete Foundations for Overhead Sign Supports, as per plan |
| 2.5 | | | | | | I-129 | 816 | 2.5 | Cu. Yds. | Concrete Foundations for Ground Mounted Sign Supports, as per plan. |
| | 25 | | 50 | | | I-15 | 606 | 75 | Lin. Ft. | Guard Rail, Type 4, as per Plan. |
| | 1 | | 1 | | | S-25 | 625 | 2 | Each | 30 Amp. 600 Volt Fused Disconnect Switch with Type Z Enclosure, |
| | 1 | | 1 | | | S-25 | 625 | 2 | Each | Overhead Signs Wired , Complete, |
| | 1 | | 1 | | | S-25 | 625 | 2 | Each | Sign Support Ground Rod Unit |
| | 1 | | 1 | | | S-25 | 625 | 2 | Each | Sign Ballast, Type D, |
| | 2 | | 2 | | | S-25 | 625 | 4 | Each | 72" Light Fixture with S.H.O. Lamps, |
| | 1 | | 1 | | | S-25 | 625 | 2 | Each | 0.75 K.V.A. 480/120V Transformer, Type III |
| | 1 | | 1 | | | S-25 | 625 | 2 | Each | Sign Service, |

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# I-127 DELINEATORS

| MAIN LINE | | | | RAMP A | | RAMP B | | RAMP C | | RAMP D | | | | 250 X Over | | 250 ℄ | | LINCOLN AVE. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STA. | SIDE ℄ | STA. | SIDE ℄ | STA. | SIDE ℄ | STA. | SIDE ℄ | STA. | SIDE ℄ | STA. | SIDE ℄ | STA. | SIDE ℄ | STA. | SIDE ℄ | STA. | SIDE ℄ | STA. | SIDE ℄ |
| 142+25✻ | Lt. | 153+65 | Rt. | 0+10 | Rt. | 3+45 | Rt. | 7+05 | Rt. | 0-10 | Lt. | 6+45 | Rt. | 0+50 | Lt. | 10+50 | Rt. | 1+25 | Rt. |
| 143+25 | Lt. | 154+30 | Rt. | 0+15 | Lt. | 4+45 | Rt. | 8+05 | Rt. | 0-35 | Rt. | 7+45 | Rt. | 0+50 | Rt. | 10+65 | Rt. | | |
| 144+25 | Lt. | 154+85 | Rt. | 0+40 | Rt. | 5+45 | Rt. | 9+05 | Rt. | 0+20 | Rt. | 8+45 | Rt. | 0+75 | Lt. | 10+85 | Rt. | | |
| 145+25 | Lt. | 155+50 | Rt. | 0+45 | Lt. | 6+05 | Rt. | 9+05 | Lt. | 0+30 | Lt. | 9+25 | Rt. | 0+75 | Rt. | 11+05 | Rt. | | |
| 146+25 | Lt. | 180+70 | Lt. | 0+70 | Lt. | 6+30 | Rt. | 10+05 | Rt. | 0+45 | Rt. | 10+05 | Rt. | 1+00 | Lt. | | | | |
| 147+25 | Lt | 181+70 | Lt. | 0+75 | Rt. | 6+60 | Rt. | 10+05 | Lt. | 0+45 | Lt. | | | 1+00 | Rt. | | | | |
| 148+25 | Lt. | 181+90 | Rt. | 1+05 | Lt. | 6+90 | Rt. | 11+05 | Rt. | 1+45 | Rt. | | | 1+25 | Rt. | | | | |
| 148+40 | Rt. | 182+70 | Lt. | 1+05 | Rt. | 7+20 | Rt. | 11+05 | Lt. | 1+45 | Lt. | | | 1+25 | Lt. | | | | |
| 149+25 | Lt. | 182+90 | Rt. | 1+35 | Rt. | 7+50 | Rt. | 11+60 | Rt. | 2+45 | Rt. | | | | | | | | |
| 149+40 | Rt. | 183+70 | Lt. | 1+95 | Rt. | 7+80 | Rt | 12+05 | Lt. | 2+45 | Lt. | | | | | | | | |
| 150+25 | Lt. | 183+90 | Rt. | 2+65 | Rt. | 8+10 | Rt. | | | 3+15 | Lt. | | | | | | | | |
| 150+40 | Rt. | 184+70 | Lt. | 3+35 | Rt. | 8+40 | Rt. | | | 3+35 | Lt. | | | | | | | | |
| 151+40 | Rt. | 184+70 | Rt. | 4+05 | Rt. | 8+10(P.C.13) | Lt. | | | 3+45 | Rt. | | | | | | | | |
| 152+40 | Rt. | | | 4+75 | Rt. | 8+40(Ext.13) | Lt. | | | 4+45 | Rt | | | | | | | | |
| 153+05 | Rt. | | | | | 8+70(P.T.13) | Lt. | | | 5+45 | Rt. | | | | | | | | |

✻ Type C-3 Delineator, Post Mounted
ALL others Type C-2, Post Mounted

• = Delineators


## I-125 TRAFFIC PAINT MARKING

| DESCRIPTION | UNIT | TOTAL |
|---|---|---|
| 6" Lane Lines And Center Line | MILES | 1.75 |
| 4" Edge Lines | MILES | 4.05 |
| 4" Lane Lines | MILES | 0.10 |
| 8" Channelizing Lines | MILES | 0.17 |
| Curb And Island | LUMP | Sum |
| Diagonal Strips | LUMP | Sum |

Note: Sign sizes do not include added 1'-0" for Glare Shield at bottom of Sign.

SIGNING PLAN

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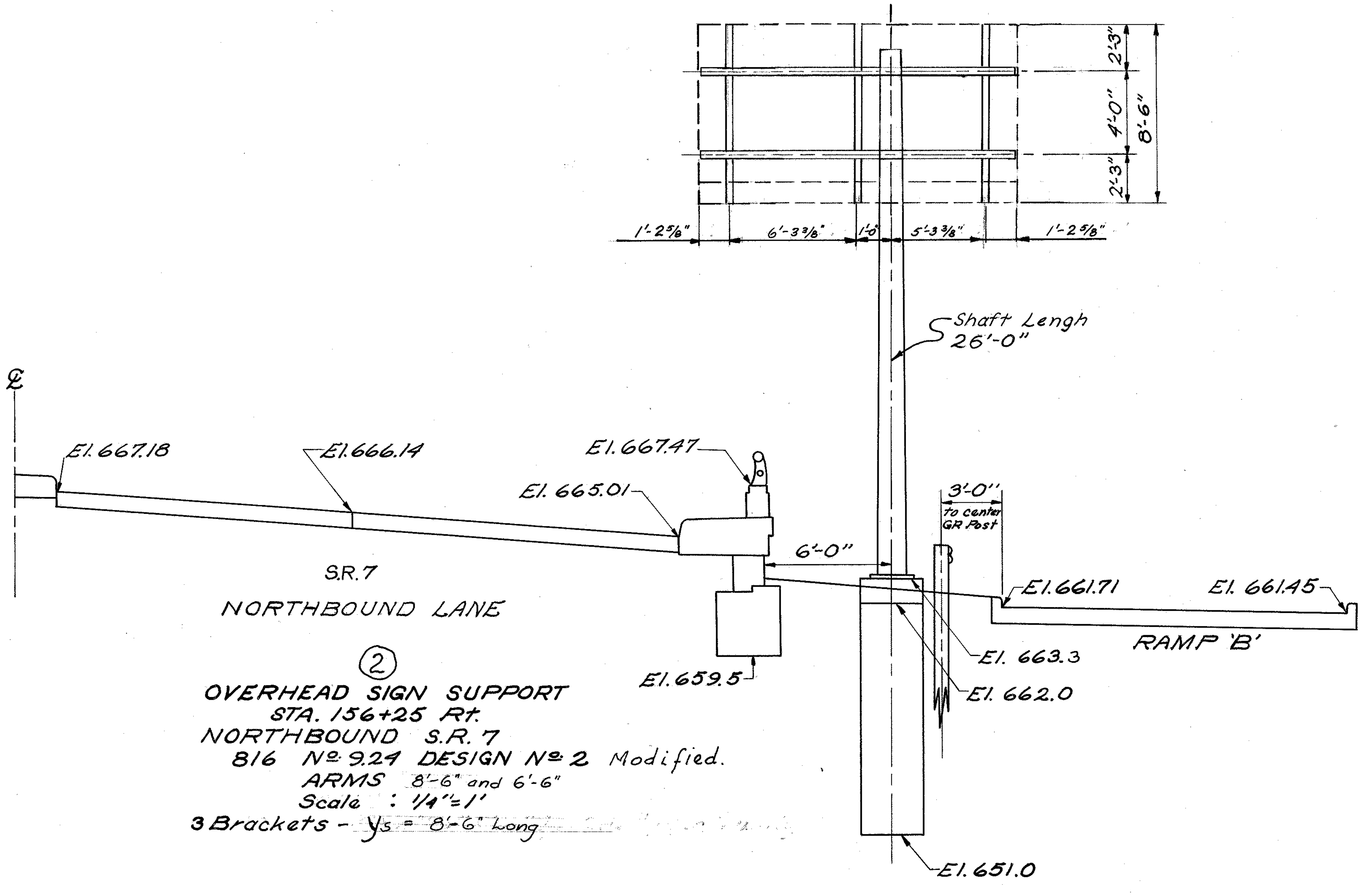
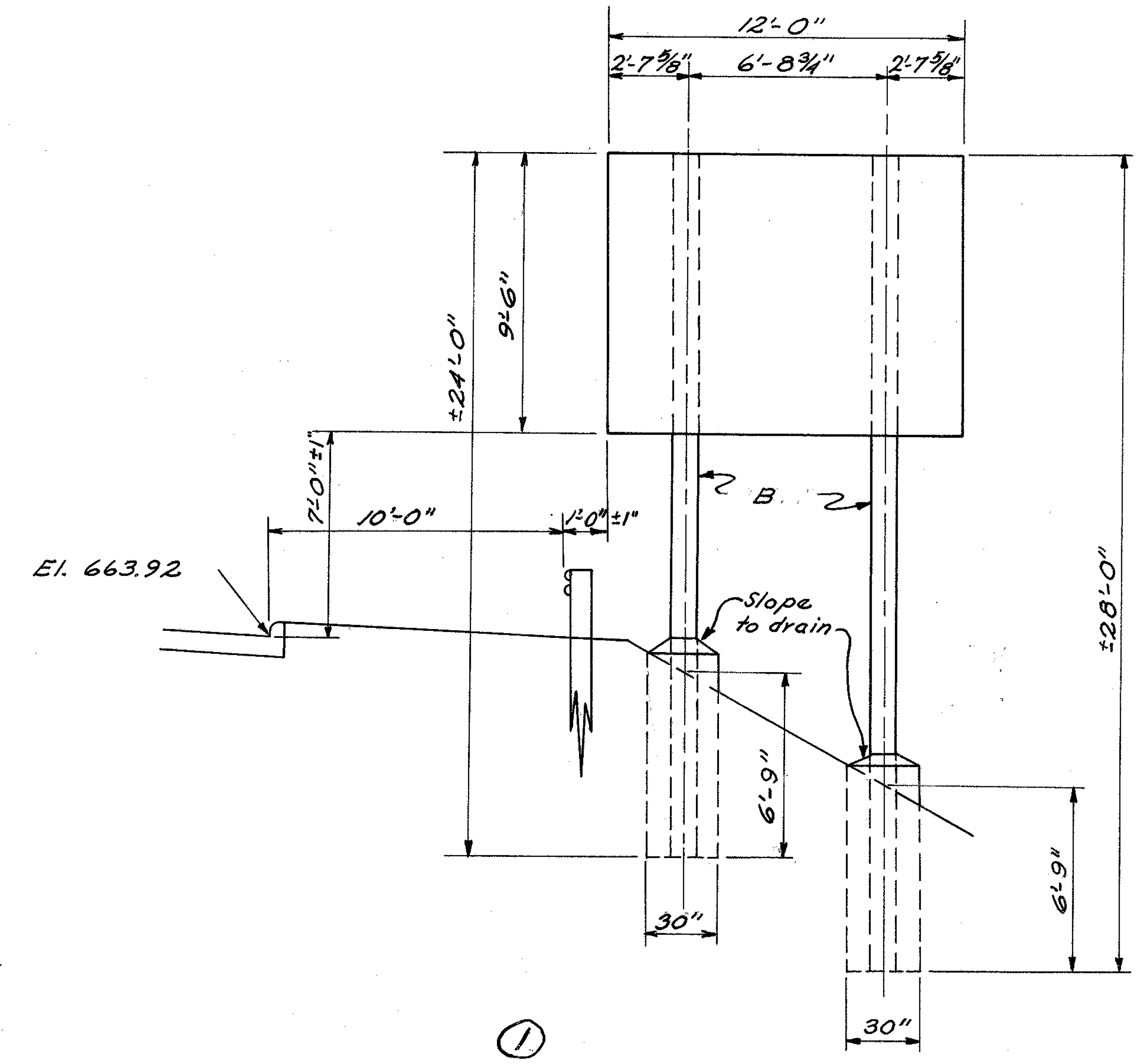
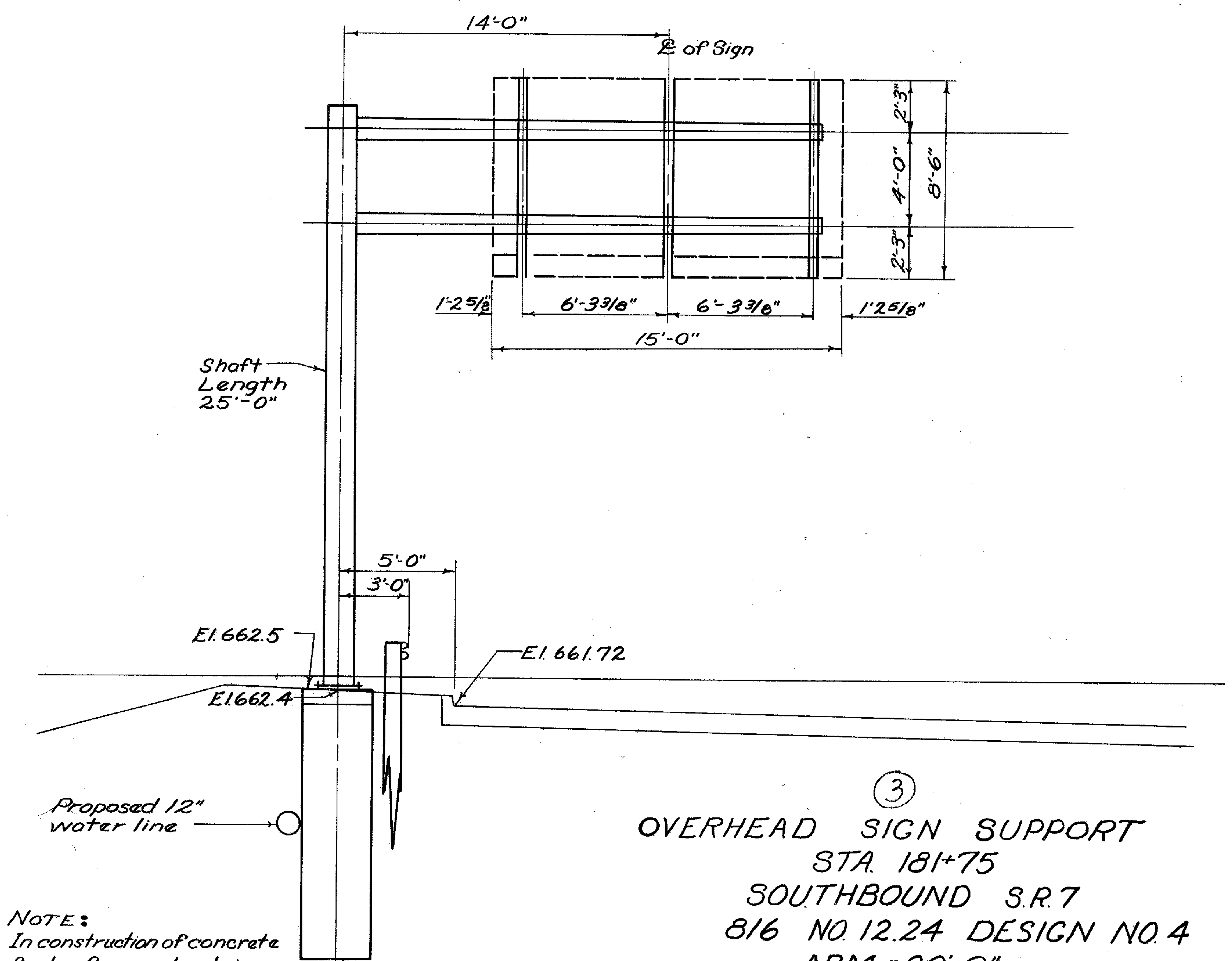



(2)
OVERHEAD SIGN SUPPORT
STA. 156+25 Rt.
NORTHBOUND S.R. 7
816 No. 9.24 DESIGN No. 2 Modified.
ARMS 8'-6" and 6'-6"
Scale : 1/4"=1'
3 Brackets - Ys = 8'-6" Long

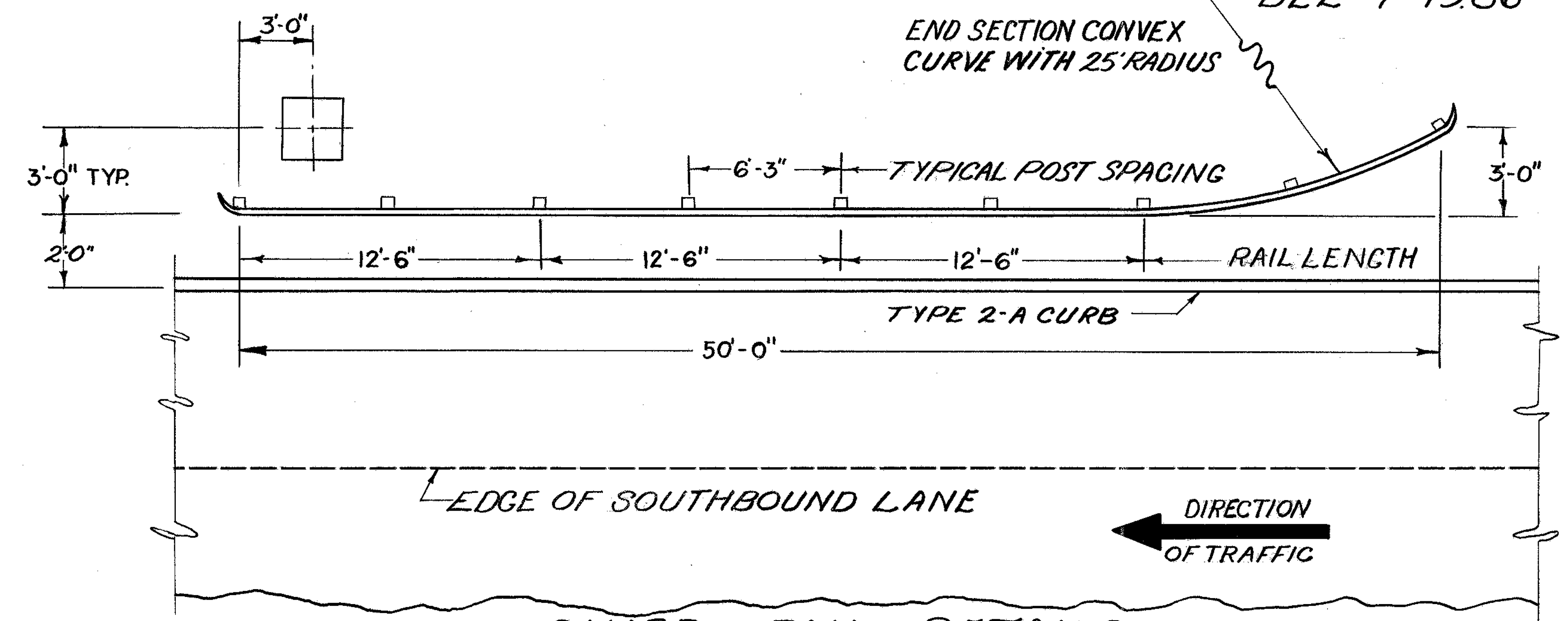



(1)
ELEVATION FOR
GROUND MOUNT
N1 STA. 148+42 RT.
SCALE: 1/4"=1'

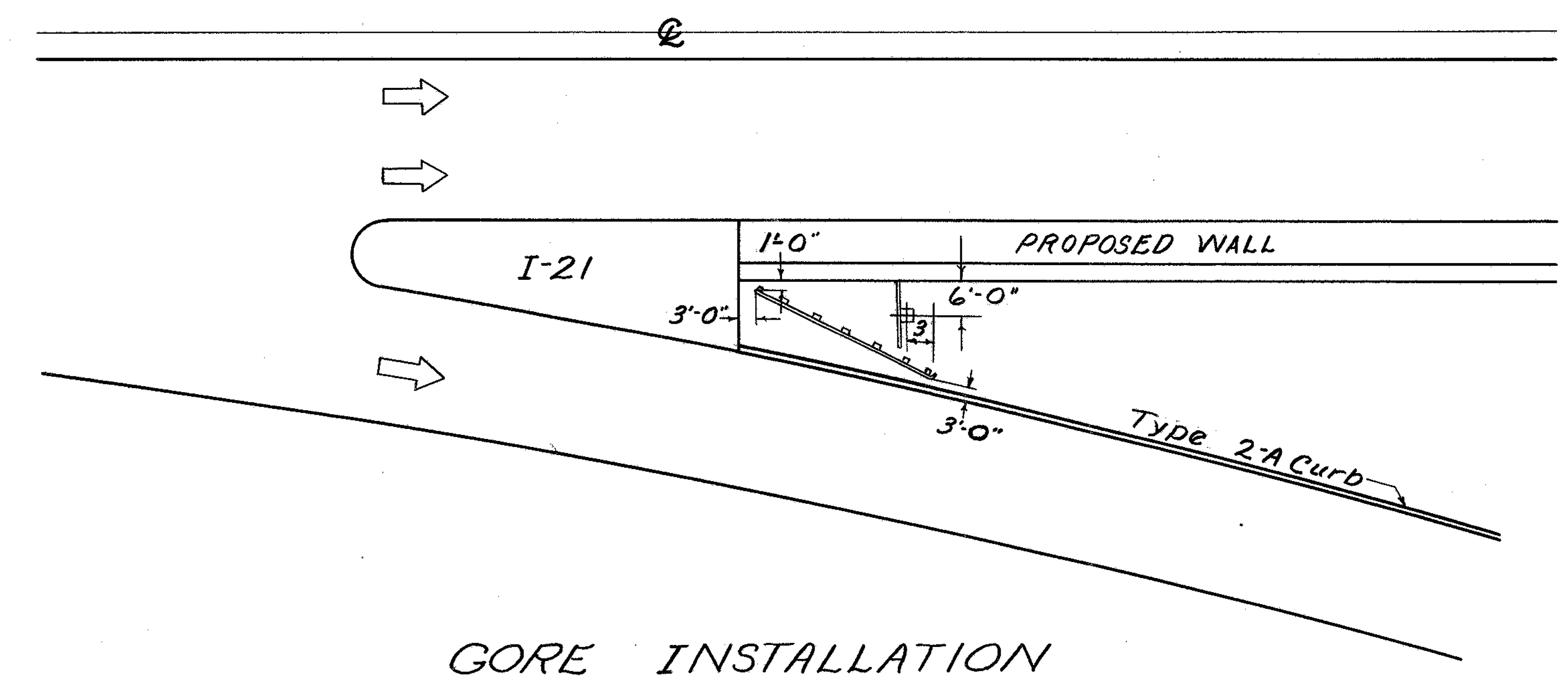



NOTE: In construction of concrete footer for overhead sign support, all precaution shall be taken to prevent damage to the 12" water lines. The Contractor will be responsible for any such damage.

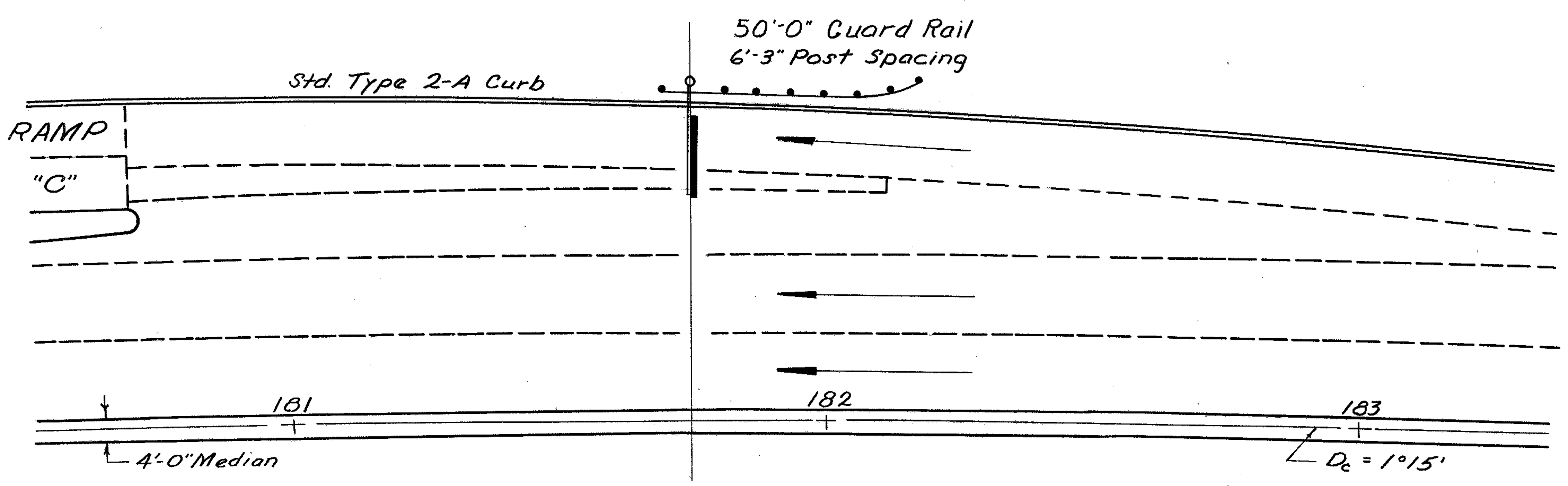
(3)
OVERHEAD SIGN SUPPORT
STA. 181+75
SOUTHBOUND S.R. 7
8/6 NO. 12.24 DESIGN NO. 4
ARM - 20'-0"
SCALE: 1/4" = 1'
3 Brackets - Ys = 8'-6" Long




GUARD RAIL DETAILS




GORE INSTALLATION
(TYPICAL)




PLAN
SCALE: 1" = 20'

## NOTES

GENERAL

PROTECTIVE GUARD RAIL FOR OVERHEAD SIGN STRUCTURES SHALL CONFORM TO ITEM 606 AND STANDARD CONSTRUCTION DRAWING GR. NO. 1 & 2A.

A MIN. OF 50' OF GUARDRAIL IS REQUIRED USING 6'3" POST SPACING. When 12'6" POST SPACING IS SPECIFIED, THE MINIMUM GUARD RAIL LENGTH SHALL BE 75'.

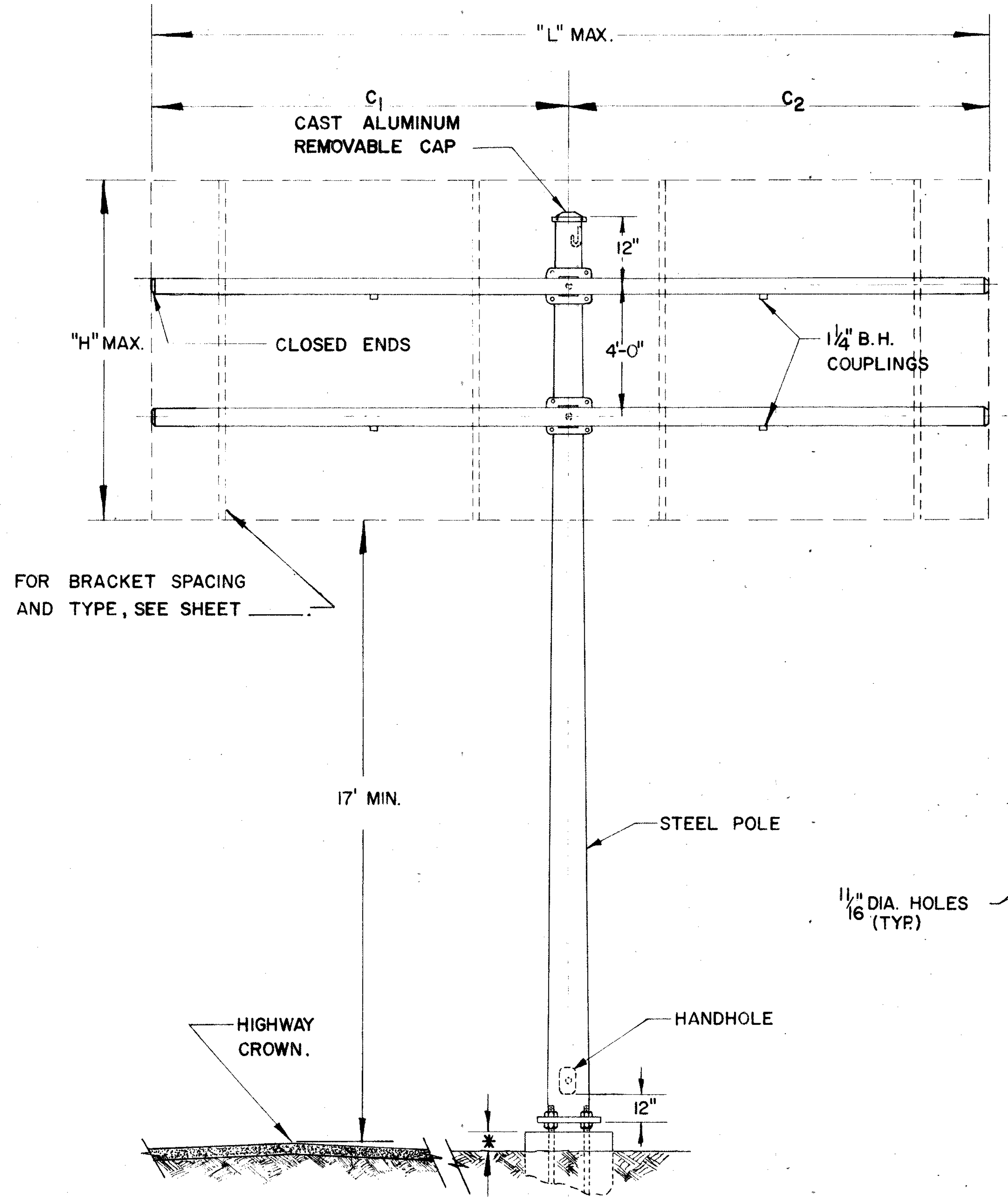
WHERE THE PROPOSED GUARD RAIL FLARES, IT SHALL BE CONSTRUCTED OF GUARD RAIL ELEMENTS WHICH HAVE BEEN FABRICATED TO FIT.

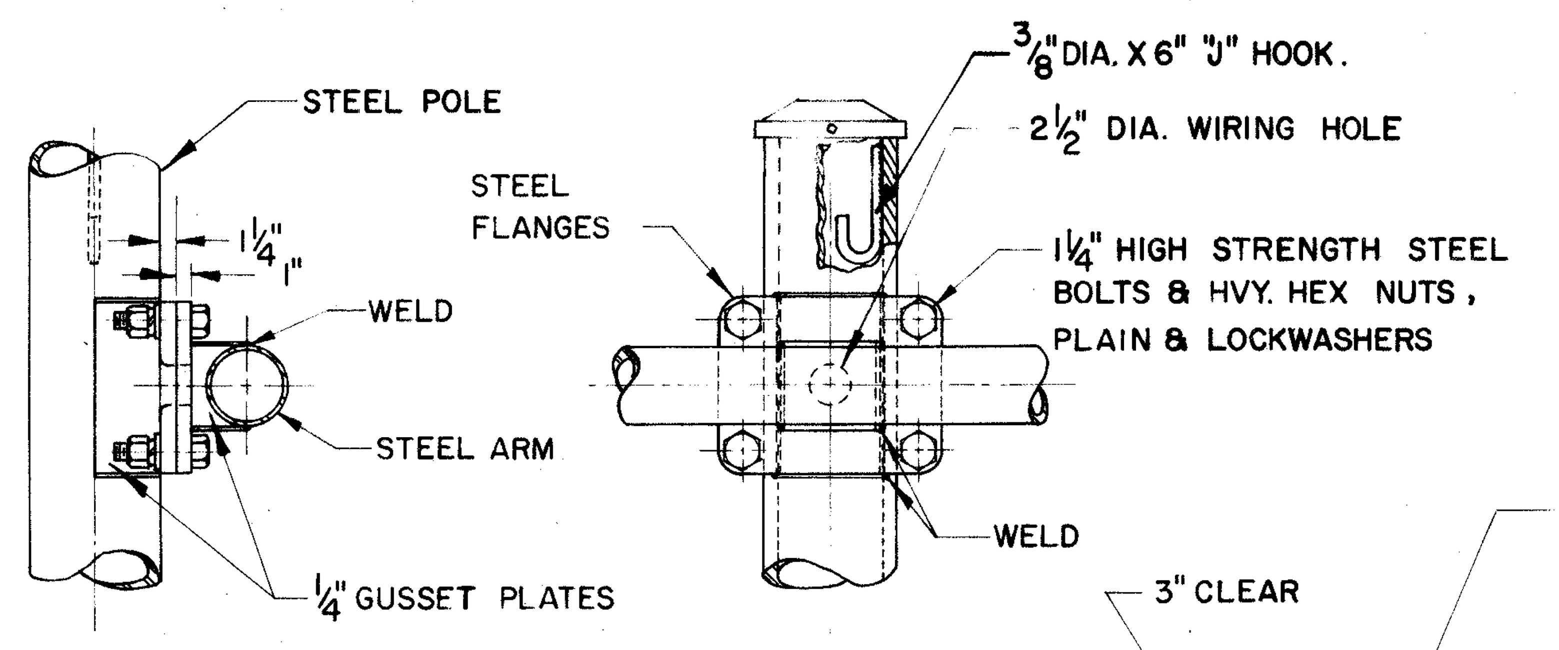
IN CASES WHERE NO RADII HAS BEEN SPECIFIED OR THE FABRICATED ELEMENTS DO NOT FIT THE CONDITIONS, THE TWO END POSTS OF THE FLARED SECTION SHALL BE ENCASED IN A MINIMUM THICKNESS OF 4" OF CLASS "E" CONCRETE FOR THE FULL DEPTH OF THE POST BELOW THE GROUND LINE. PAYMENT FOR ENCASEMENT, IF REQUIRED, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR GUARDRAIL.

ALL GUARD RAIL SHALL HAVE APPROPRIATE TERMINAL SECTIONS. FOR DETAILS SEE GR. NO. 2A.

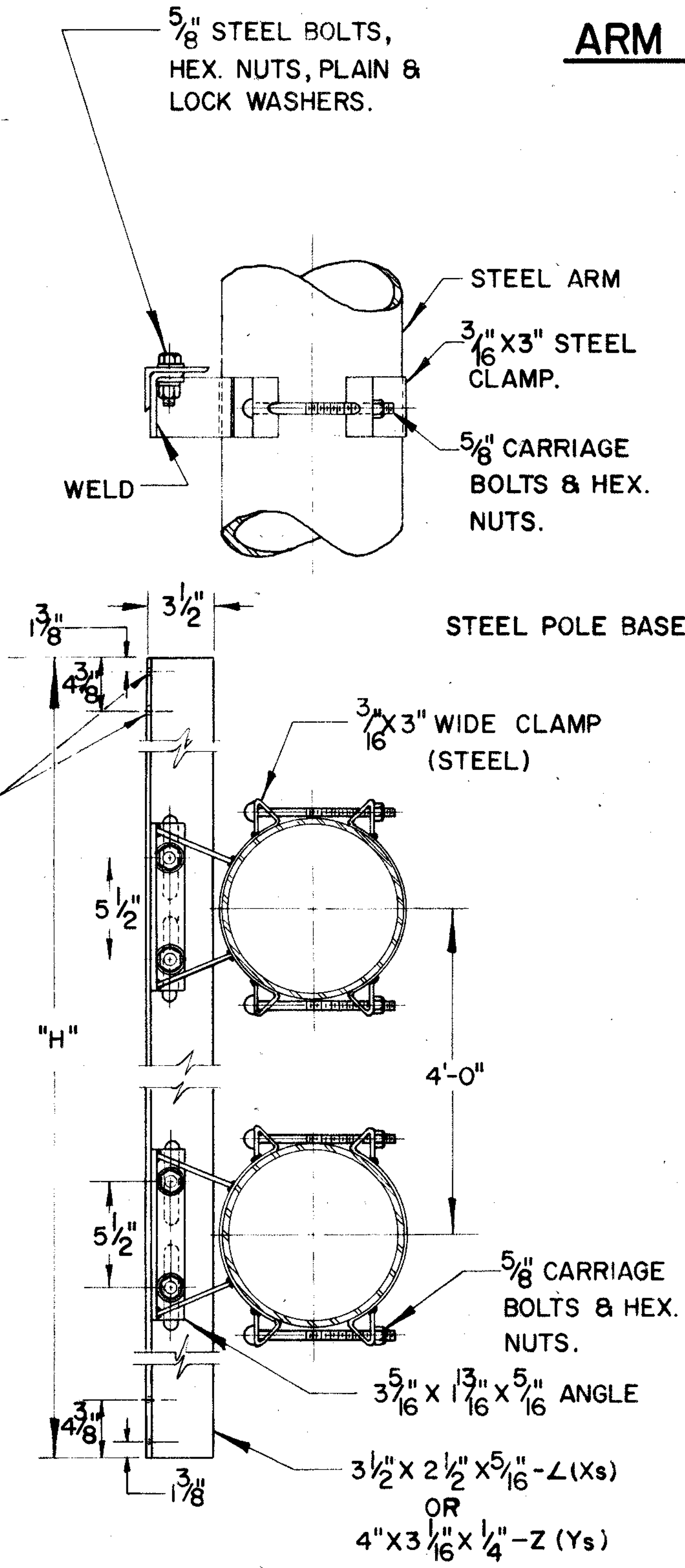
DESIGN

THE DESIGN OF GUARD RAIL PROTECTION FOR OVERHEAD SUPPORTS IS IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, ADOPTED JUNE 12, 1961

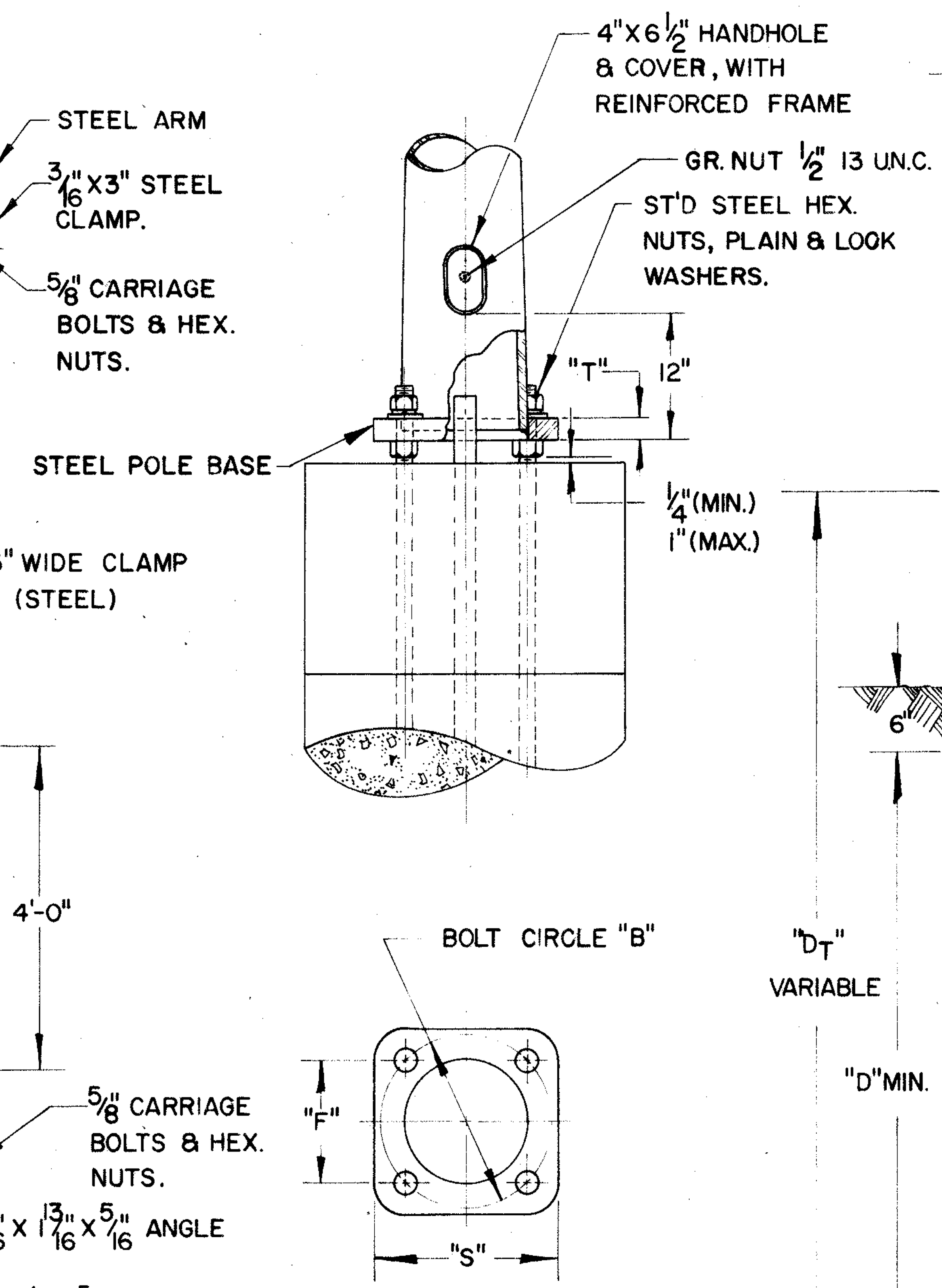


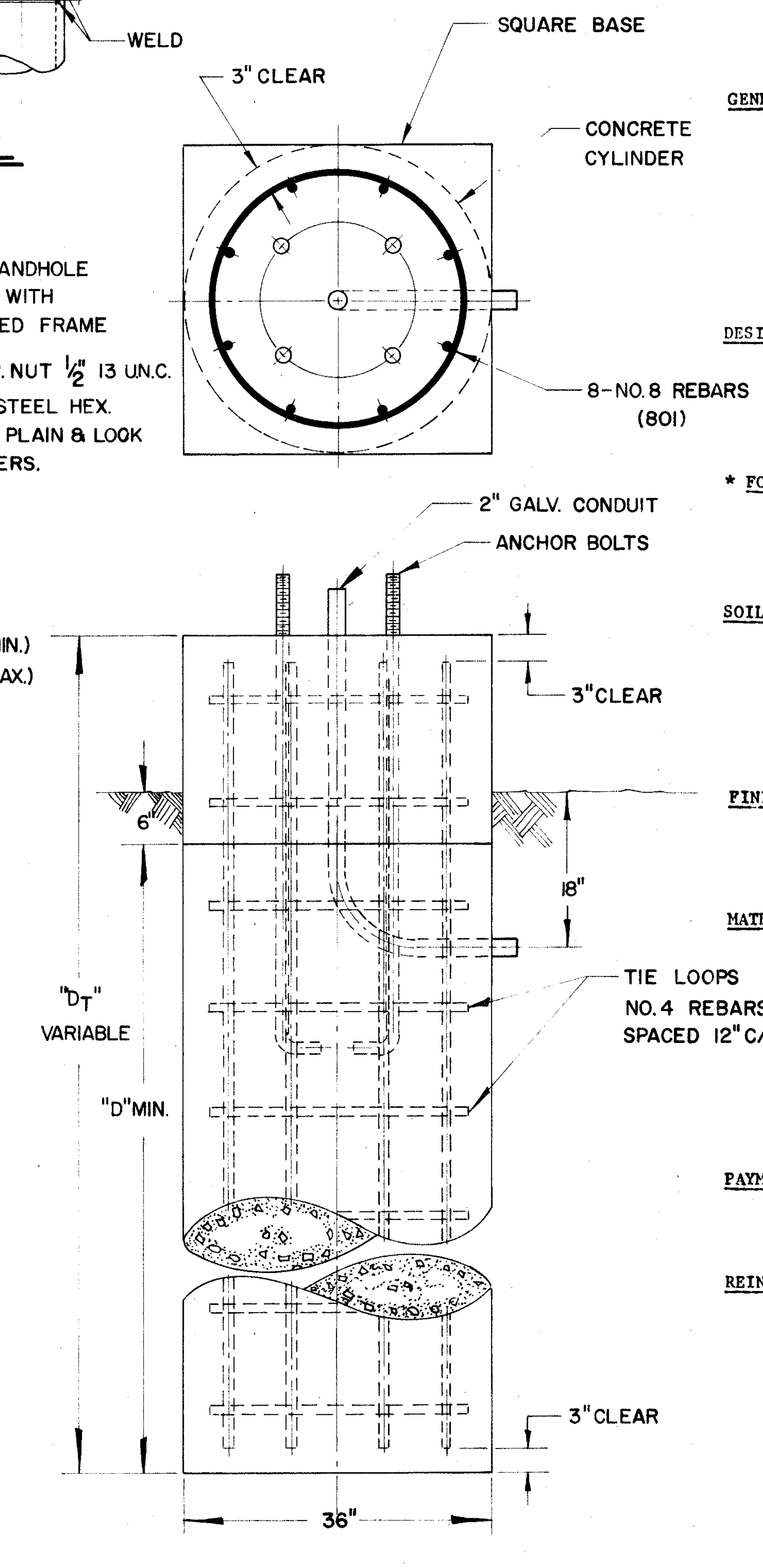

## ARM ATTACHMENT DETAIL




## SIGN ATTACHMENT DETAIL




## POLE DETAIL




## FOUNDATION DETAIL

## NOTES

GENERAL

MAXIMUM SIGN AREAS AND ARM LENGTHS SHOWN IN TABLE, ARE FOR BALANCED DESIGN ($C_1 = C_2$).

FOR UNBALANCED DESIGN ($C_1 \gtrless C_2$), THE PRODUCT OF THE ACTUAL SIGN AREA ($C_1$ H or $C_2$ H) TIMES 1/2 OF ACTUAL ARM (1/2 $C_1$ or 1/2 $C_2$) SHALL BE LESS THAN THE PRODUCT OF 45% OF MAXIMUM SIGN AREA TIMES 1/2 MAX ARM FOR BALANCED DESIGN. (0.45 H 2$C_1$ 1/2$C_1$ or 0.45 H 2$C_2$ 1/2$C_2$)

DESIGN

THE DESIGN OF OVERHEAD SUPPORTS SHALL BE IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATION FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, ADOPTED JUNE 13, 1961.

* FOUNDATION

THE TOP ELEVATION OF FOUNDATIONS SHALL BE VARIED SO AS TO MAINTAIN A MINIMUM CLEARANCE OF 17' BETWEEN THE BOTTOM OF THE SIGN AND THE HIGHWAY CROWN.

SOILS

THE FOUNDATION DETAILS SHOWN ARE FOR AVERAGE SOIL CONDITIONS (MEDIUM CLAY, CEMENTED SAND AND GRAVEL, SANDY CLAY, OR STIFF CLAY). FOR POOR SOIL CONDITIONS, INCREASE "D" MIN. BY: 50% IN DRY OR WET SAND, 60% IN SILTY CLAY, 100% IN SOFT CLAY, AND FROM 75% TO 150% IN WET SILT, DEPENDING ON QUICKSAND ACTION.

FINISH

ALL STRUCTURAL PORTIONS OF THE SIGN SUPPORTS, SIGN BRACKETS, HARDWARE AND CONDUIT SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH SEC. 711.02 (EXCEPT AS OTHER WISE SHOWN).

MATERIALS

ALL MATERIALS TO BE FURNISHED SHALL BE IN ACCORDANCE WITH SEC. 711.02 WITH THE FOLLOWING ADDITIONS:

TAPERED TUBES SHALL BE STEEL, SAE 1015 AND COLD ROLLED TO OBTAIN A MINIMUM YIELD STRENGTH OF 48,000PSI.
STEEL PIPE: 4" DIAMETER AND UNDER SHALL BE STEEL-ASTM-A120
OVER 4" DIAMETER SHALL BE ASTM-A53, GRADE B
ANCHOR BOLTS SHALL BE HIGH STRENGTH STEEL ASTM-A107, GRADE C-1035
HIGH STRENGTH CLAMPS SHALL BE STEEL-ASTM-A242

PAYMENT FOR CONDUIT

PAYMENT FOR THE GALVANIZED CONDUIT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OVERHEAD SIGN SUPPORTS.

REINFORCING STEEL

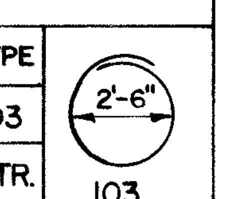
COST OF REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM 816 CONCRETE FOR SIGN SUPPORT FOUNDATIONS.

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INCIDATE THE BAR SIZE NUMBER.

| DESIGN | POLE SIZE (STD.) | MAX. ARM SIZE | MAX. SIGN LENGTH "L" | MAX. SIGN AREA | B | F | P | S | T | ANCHOR BOLTS | "D" MIN. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | 3GA. 14"X10.78"X23' | 4" SCH.40 12'-0" | 24'-0" | 120 SQ FT | 20" | 14 1/8" | 7" | 20½" | 2" | 1¾" X 90" | 9' |
| 2. | 3GA. 16.5"X13"X25' | 4" SCH.40 9'-0" | 18'-0" | 180 SQ FT | 23½" | 16 5/8" | 8" | 24½" | 2" | 2" X 96" | 11' |
| 3. | 3GA. 16.5"X13.28"X23' | 6" SCH.40 12'-0" | 24'-0" | 180 SQ FT | 23½" | 16 5/8" | 8" | 24½" | 2" | 2" X 96" | 11' |
| 4. | 0GA. 18"X14.5"X25' | 6" SCH.40 12'-0" | 24'-0" | 240 SQ FT | 25½" | 18" | 9" | 26½" | 2½" | 2¼" X 96" | 13' |

REINFORCEMENT SCHEDULE

| MARK | NO. | LEN. | TYPE |
|---|---|---|---|
| 402 | 12" c/c | 8'-6" | 103 |
| 801 | 8 | $D_T$-6" | STR. |
| | | | |




BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

**OVERHEAD SIGN SUPPORT** | 816 No. 9.24 | DATE 6-17-64

APPROVED ____________
ENGINEER OF TRAFFIC

| FED. RD. DIVISION | STATE | PROJECT | | |
|---|---|---|---|---|
| 2 | OHIO | | | |

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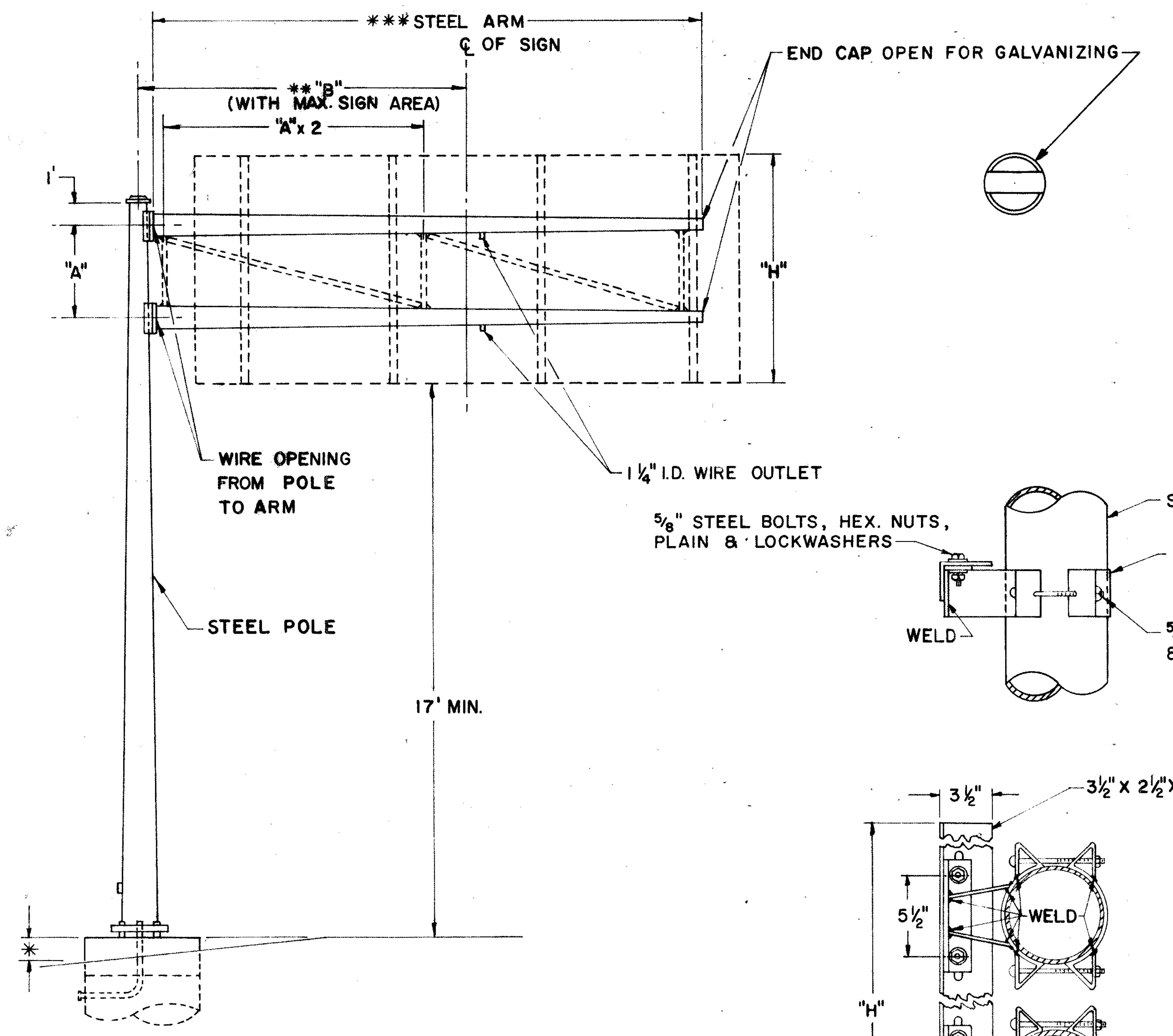
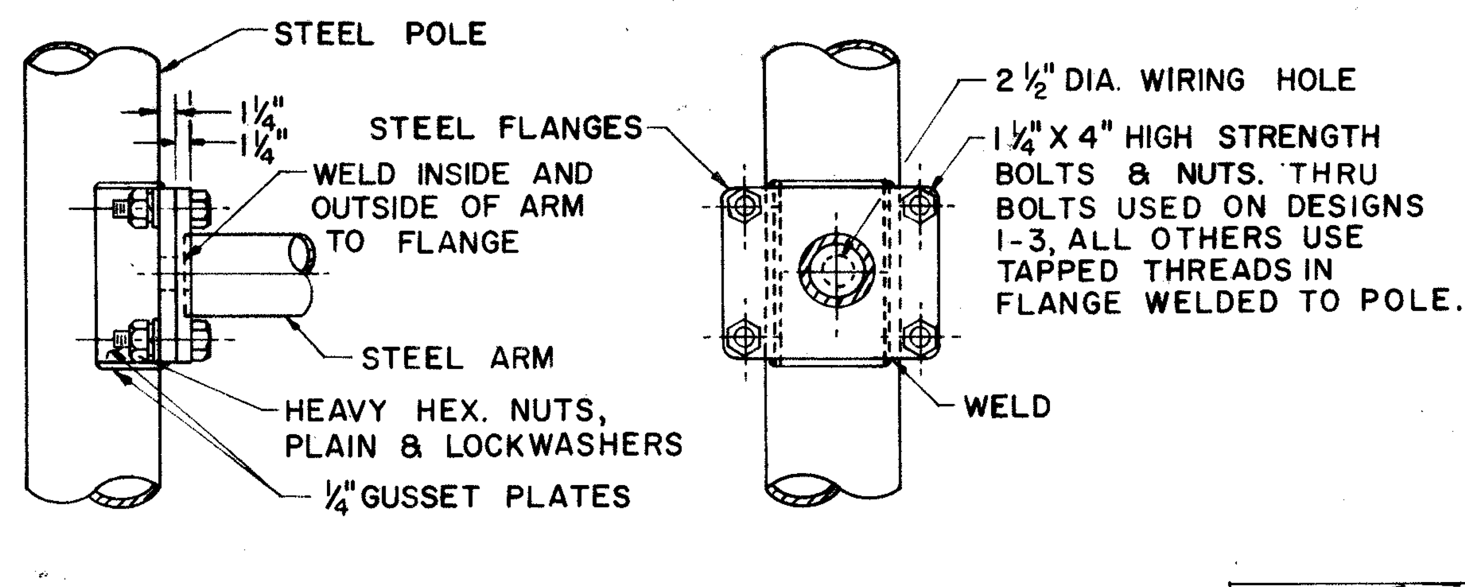
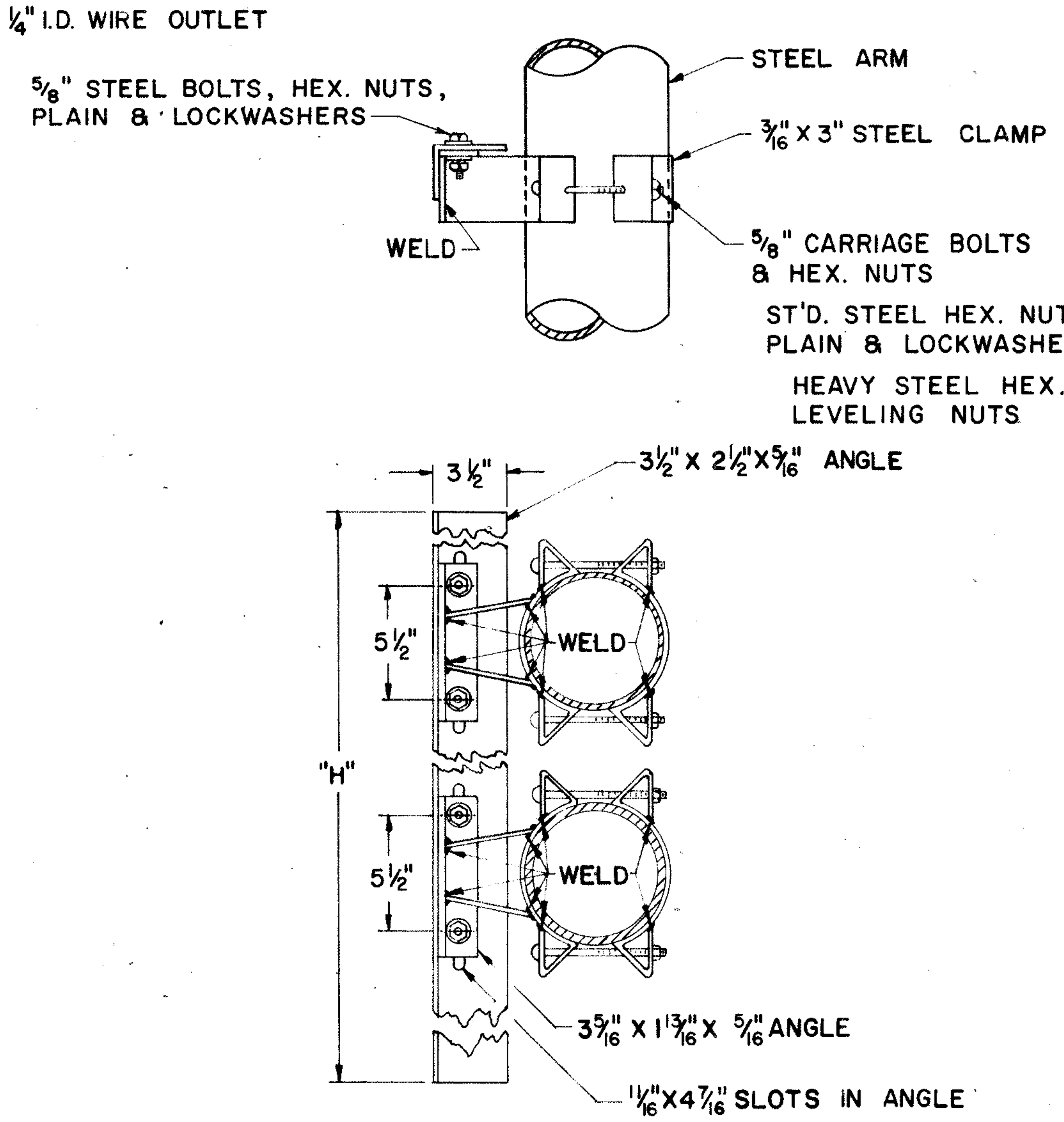
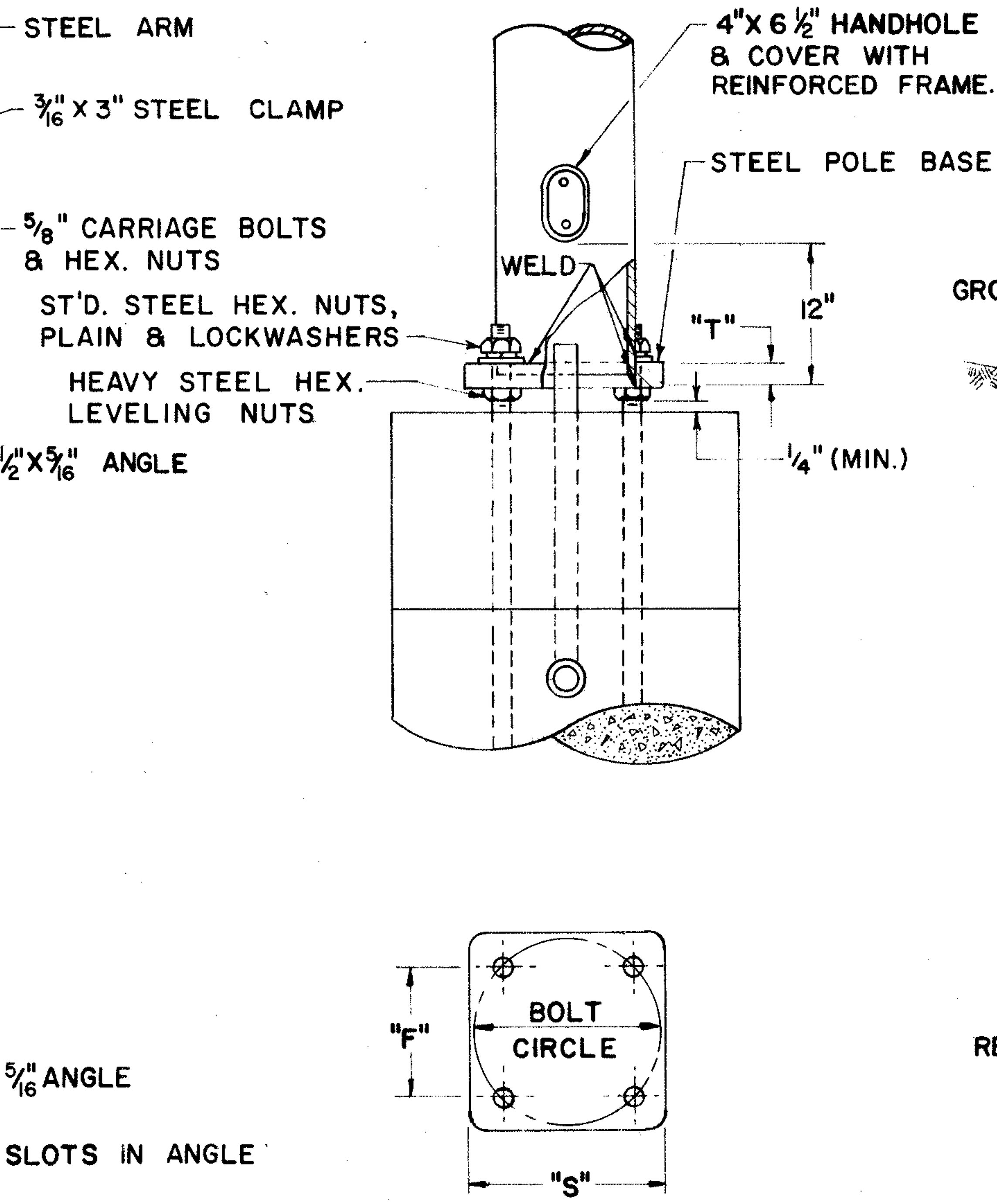


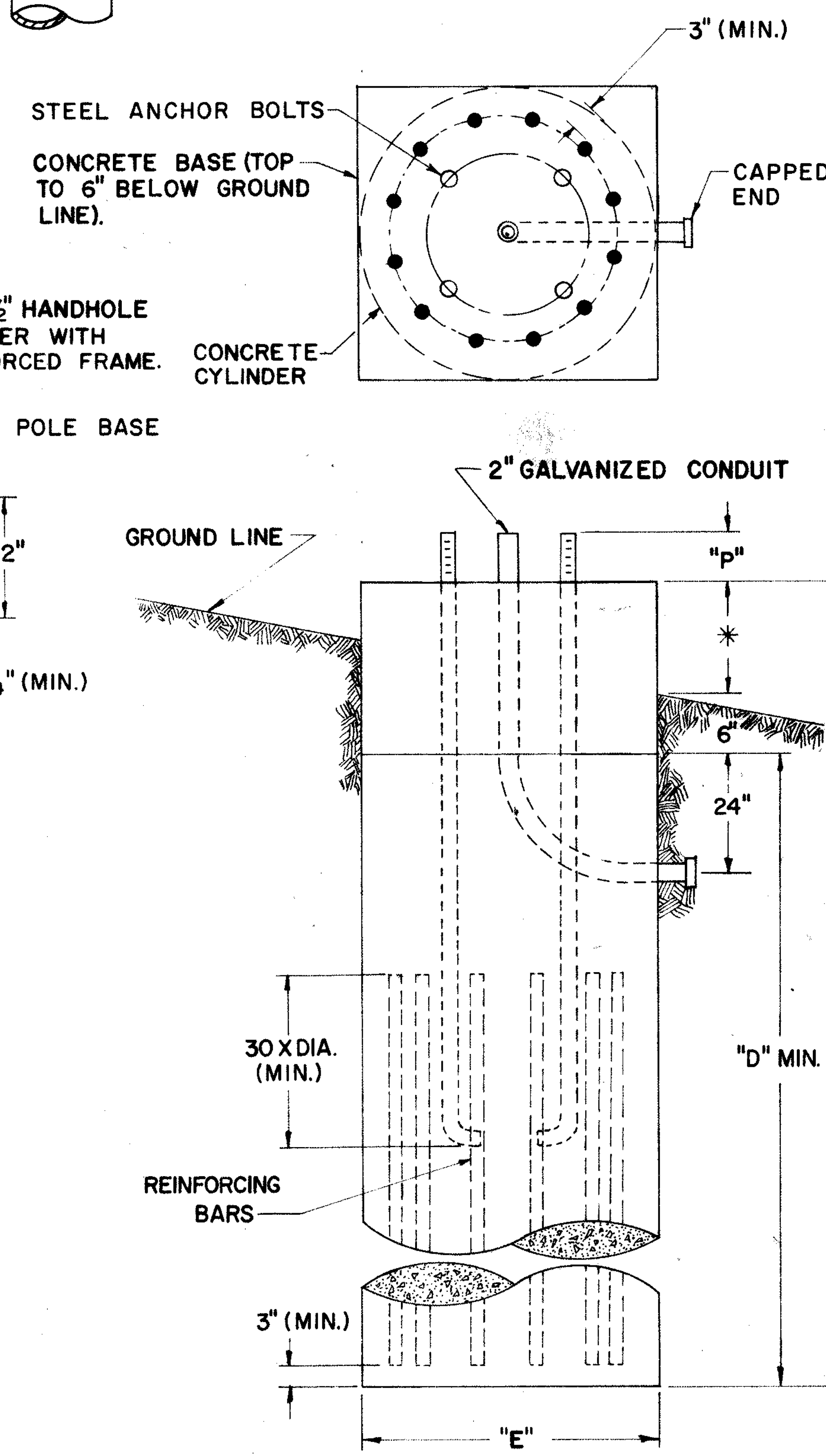

ARM ATTACHMENT




SIGN ATTACHMENT DETAIL

POLE DETAIL




FOUNDATION DETAIL

| DESIGN NO. | POLE SIZE | *** ARM SIZE | DIM A | DIM ** B | DIM "D" MIN. | DIM E | DIM F | DIM P | DIM S | DIM T | BOLT CIRCLE | ANCHOR BOLT SIZE | MAX SIGN AREA | REINF. BARS SIZE | REINF. BARS NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3 Ga, 12" X 8.78" X 23'-0" | 7Ga, 6.9" X 4.66" X16'-0" | 4' | 12' | 9' | 3'-0" | 11 5/16" | 7¾" | 17" | 2" | 16" | 1¾" X 90" | 80 | ¾" | 12 |
| 2 | 3 Ga, 12" X 8.78" X 23'-0" | 7 Ga, 8" X 5.2" X 20'-0" | 4' | 16' | 9' | 3'-0" | 11 5/16" | 7¾" | 17" | 2" | 16" | 1¾" X 90" | 80 | ¾" | 12 |
| 3 | 3 Ga, 15" X 11.5" X 25'-0" | 7 Ga, 8.3" X 6.06" X 16'-0" | 4' | 12' | 11' | 3'-0" | 15½" | 8⅜" | 23" | 2" | 22" | 2" X 96" | 120 | 1" | 12 |
| 4 | 3 Ga, 16" X 12.5" X 25'-0" | 3 Ga, 9.2" X 6.40" X 20'-0" | 4' | 16' | 11' | 3'-0" | 16⅝" | 8⅜" | 24½" | 2" | 23½" | 2" X 96" | 120 | 1" | 12 |
| 5 | 0 Ga, 18" X 14.36" X 26'-0" | 7 Ga, 11" X 7.92" X 22'-0" | 6' | 14' | 13' | 3'-0" | 18" | 9⅜" | 26½" | 2½" | 25½" | 2¼" X 120" | 180 | 1⅛" | 12 |
| 6 | 0 Ga, 18" X 14.36" X 26'-0" | 7 Ga, 12.5" X 8.86" X 26'-0" | 6' | 18' | 13' | 3'-0" | 18" | 9⅜" | 26½" | 2½" | 25½" | 2¼" X 120" | 180 | 1⅛" | 12 |
| 7 | 2 PLY 7 Ga, 18" X 14.36" X 26'-0" | 7 Ga, 12.5" X 9.14" X 24'-0" | 6' | 14' | 15' | 3'-0" | 18" | 9¾" | 26½" | 2½" | 25½" | 2½" X 144" | 240 | 1¼" | 12 |
| 8 | 2 PLY ¼", 18" X 14.36" X 26'-0" | 3 Ga, 12.5" X 8.58" X 28'-0" | 6' | 18' | 15' | 3'-0" | 18" | 11¼" | 26½" | 3" | 25½" | 3" X 144" | 240 | 1¼" | 12 |

## NOTES

FABRICATION - ALL PORTIONS OF THE SIGN SUPPORT, INCLUDING SIGN ATTACHMENTS, SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH THE REQUIREMENTS OF A.S.T.M. DESIGNATIONS A-123 AND A-153. THE CONDUIT SHALL BE GALVANIZED IN ACCORDANCE WITH SEC. 625.13 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OVERHEAD SIGN SUPPORTS FOR PAYMENT.

* FOUNDATION - THE TOP ELEVATION OF FOUNDATIONS SHALL BE VARIED SO AS TO MAINTAIN A MINIMUM CLEARANCE OF 17' BETWEEN THE BOTTOM OF THE SIGN AND THE HIGHWAY CROWN.

** ERECTION - VALUES OF "B" MAY BE EXCEEDED PROVIDED THE PRODUCT OF ACTUAL SIGN AREA TIMES THE DISTANCE FROM ℄ OF POLE TO ℄ OF SIGN DOES NOT EXCEED THE MAX. SIGN AREA TIMES "B".

*** ARMS 20' LONG OR LONGER ARE TO BE TRUSS TYPE WITH 3" X 3" X 3/8" ANGLES WELDED TO GUSSET PLATES.

MATERIAL - STEEL POLE BASES, FLANGES, AND END CAPS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A 30 GRADE B.
HIGH STRENGTH STEEL BOLTS SHALL CONFORM TO ASTM SPECIFICATION A193 GRADE B7.
AFTER FABRICATION TAPERED POLES AND ARMS SHALL HAVE A MINIMUM YIELD STRENGTH OF 48,000 PSI.

SOILS - THE FOUNDATION DETAILS SHOWN ARE FOR AVERAGE SOIL CONDITIONS (MEDIUM CLAY, CEMENTED SAND AND GRAVEL, SANDY CLAY, OR STIFF CLAY). FOR POOR SOIL CONDITIONS, INCREASE "D" MIN. BY 50% IN DRY OR WET SAND, 60% IN SILTY CLAY, 100% IN SOFT CLAY, AND FROM 75% TO 150% IN WET SILT, DEPENDING ON QUICKSAND ACTION.

REINFORCING STEEL - REINFORCING STEEL AS SHOWN IN TABLE SHALL BE INSTALLED WHEN "$D_T$" EXCEEDS THE ANCHOR BOLT LENGTH BY MORE THAN 3 FT. THE COST AND PLACEMENT OF REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM 816 CONCRETE FOR SIGN SUPPORT FOUNDATIONS.

DESIGN

THE DESIGN OF OVERHEAD SUPPORTS IS IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, ADOPTED JUNE 12, 1961.

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

OVERHEAD SIGN SUPPORT — 816 No. 12.24 — DATE 8-18-61, 4-11-62

APPROVED Robert E. [signature]
ENGINEER OF TRAFFIC

| FED. RD. DIVISION | STATE | PROJECT | | 
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| 2 | OHIO | | |

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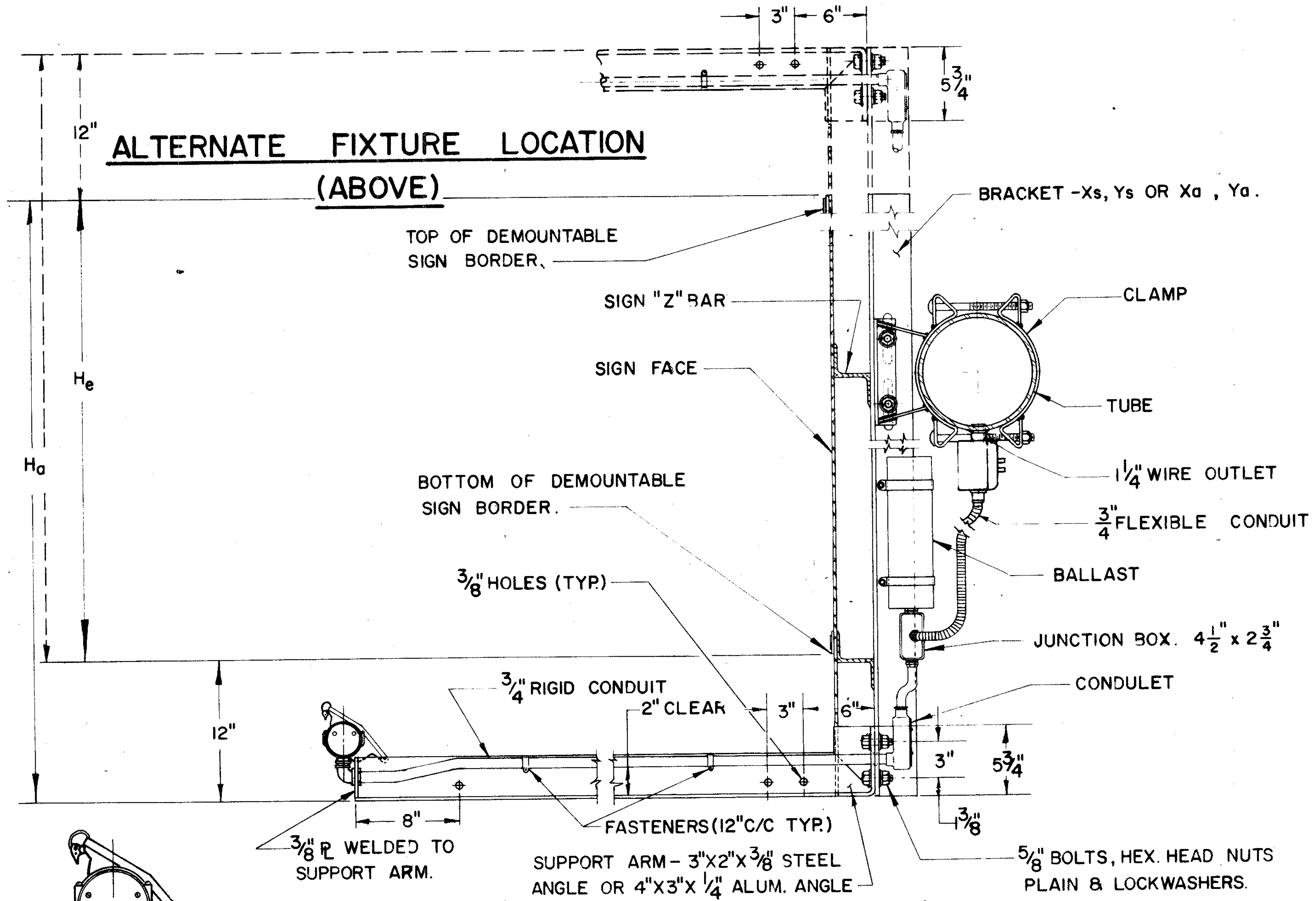
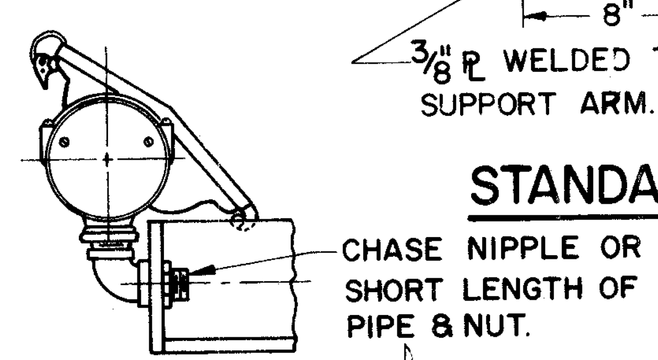



STANDARD FIXTURE LOCATION (BELOW)




FIXTURE CONNECTION WHERE WIRING CONDUIT IS NOT NEEDED.

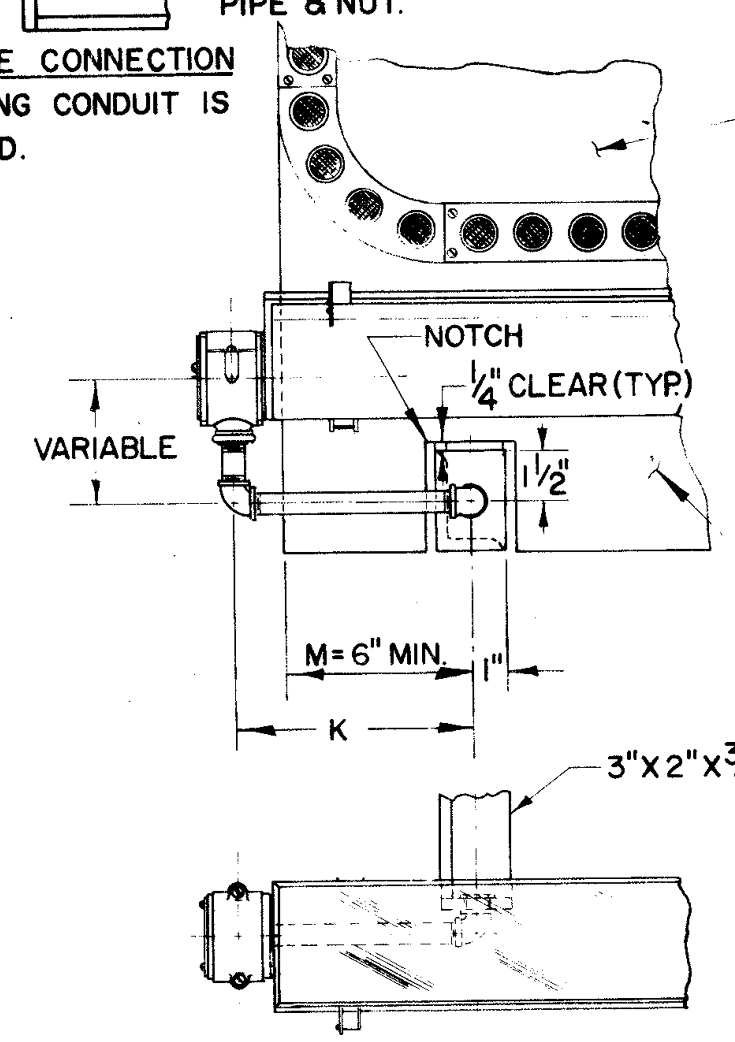
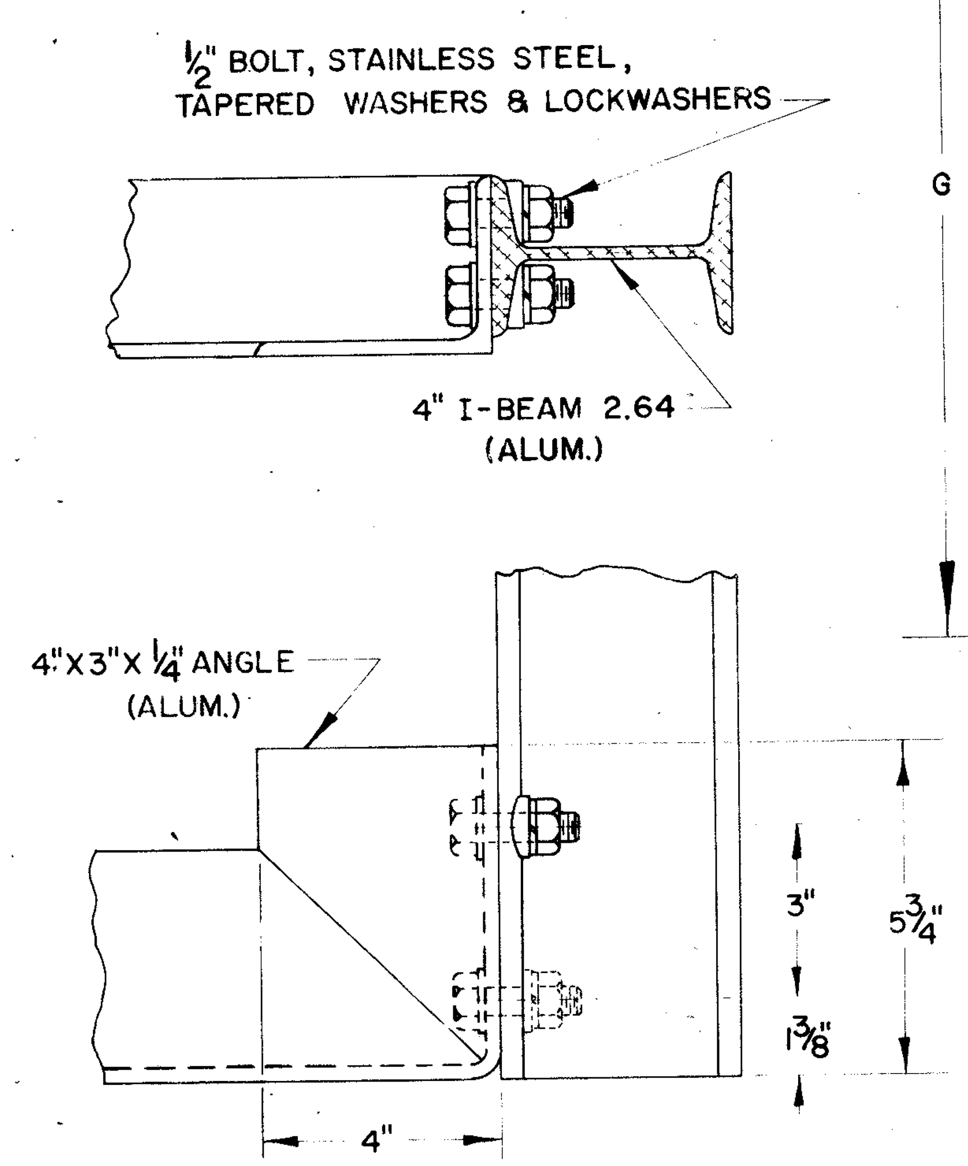



TABLE III.

| L | K |
|---|---|
| 6'-0" | 7 11/16" |
| 7'-0" | 1 11/16" |
| 12'-0" | 9 3/8" |
| 13'-0" | 3 3/8" |

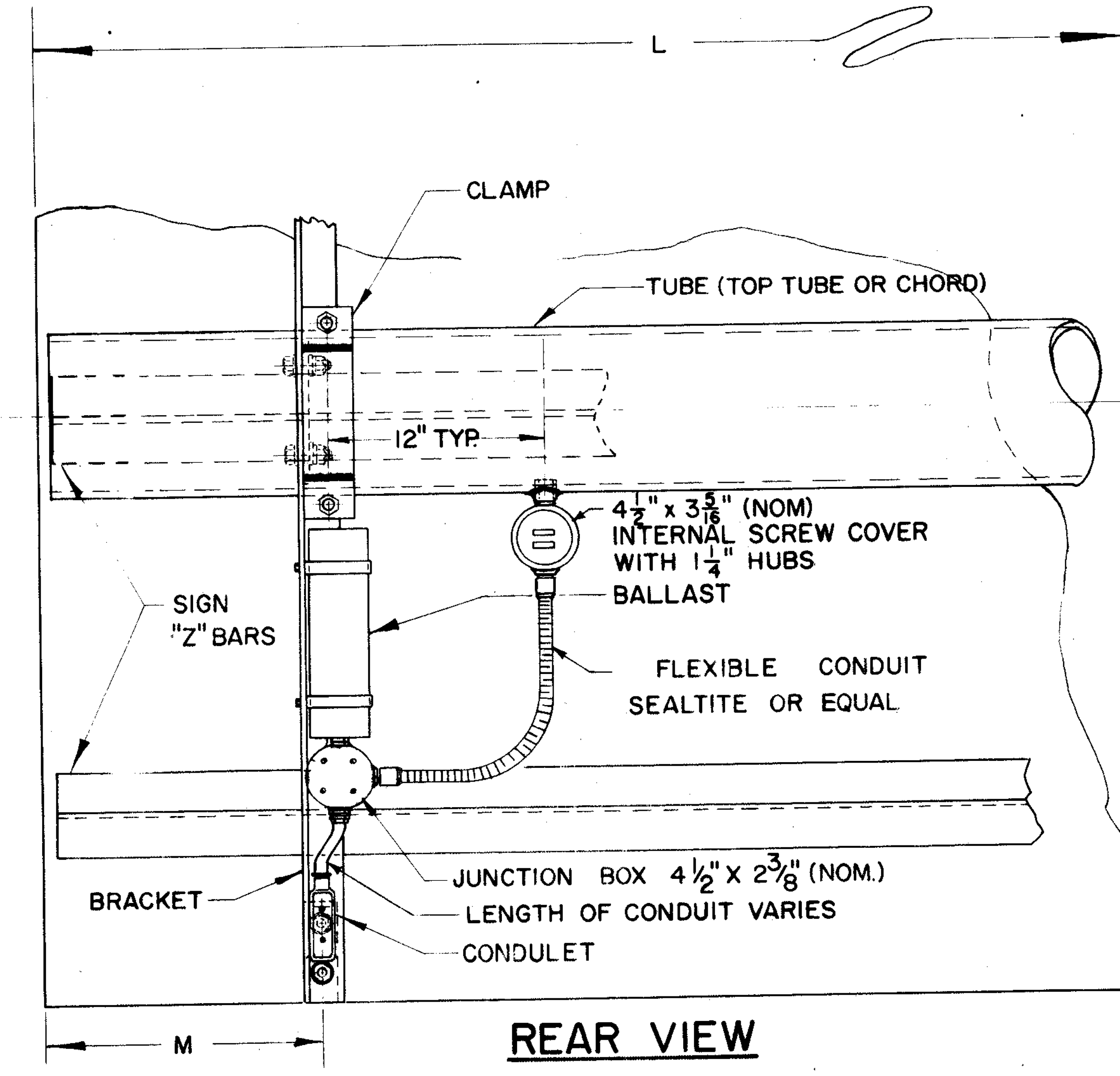
ALTERNATE FIXTURE CONNECTIONS FOR SIGN 6', 7', 12' & 13' IN LENGTH.

DETAIL A.

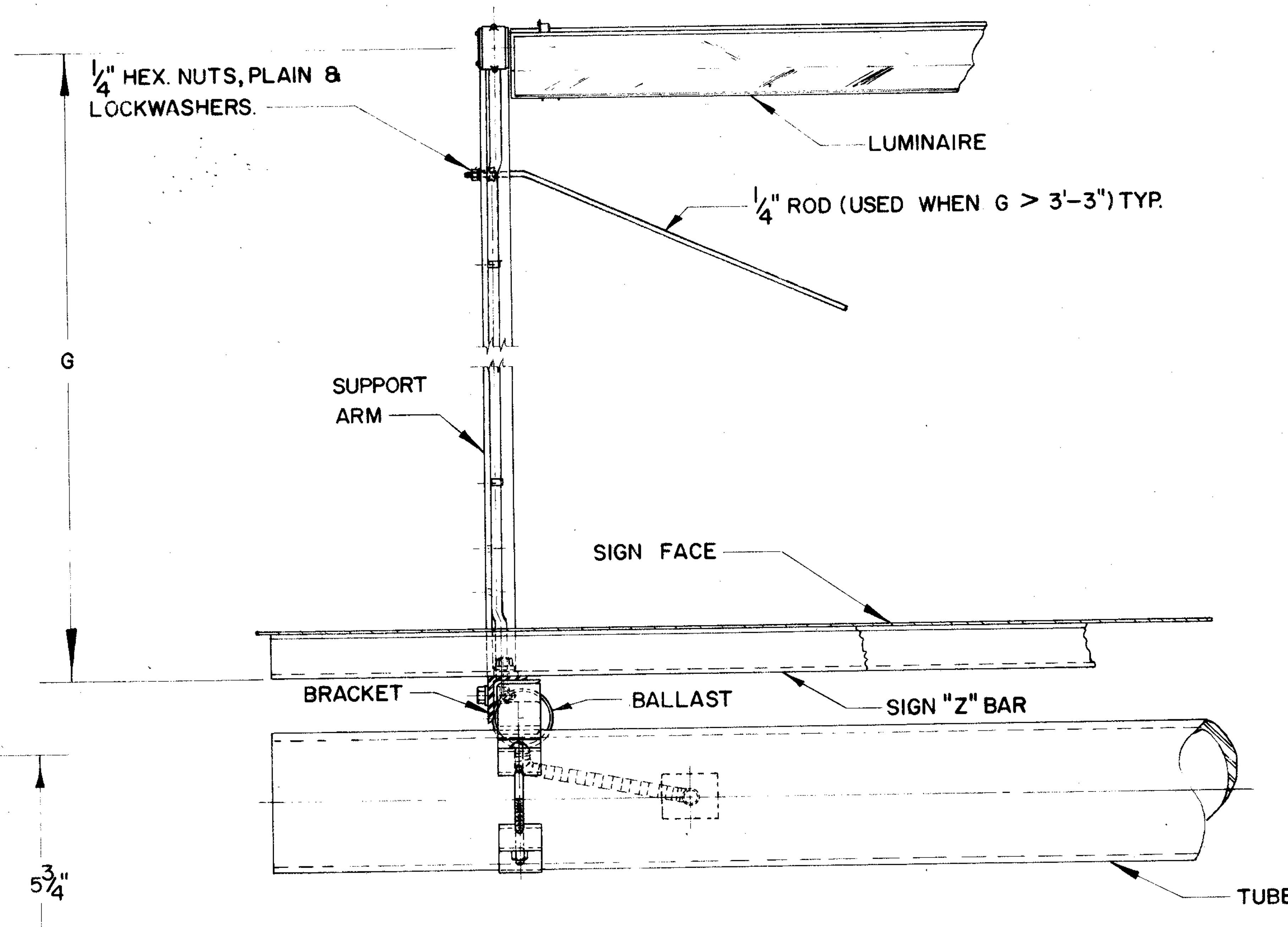



FOR SUPPORTS 7.2-7.6

DETAIL B.




REAR VIEW




TOP VIEW

FABRICATION — ALL STRUCTURAL COMPONENTS SHOWN ON THIS SHEET SHALL CONFORM TO SUPPLEMENT SPECIFICATIONS 816.

MATERIALS — THE MATERIALS USED IN THE COMPONENTS SHOWN ON THIS SHEET SHALL BE IN CONFORMANCE WITH THE MATERIALS USED IN THE SIGN SUPPORT.

TABLE I.

| "L" SIGN LENGTH | | NUMBER OF FIXTURES | | "M" EDGE DISTANCE | | | | NO. BALLAST |
|---|---|---|---|---|---|---|---|---|
| | | | | A | | B | | |
| A | B | 75 3/8 | 99 3/8 | LT. | RT. | LT. | RT. | |
| 6'-0" | 7'-0" | 1 | | 6" | 6" | 6" | 6" | 1 |
| 8'-0" | 9'-0" | 1 | | 10 3/8 | 10 1/4 | 16 3/8 | 16 1/4 | 1 |
| 10'-0" | 11'-0" | | 1 | 10 3/8 | 10 1/4 | 16 3/8 | 16 1/4 | 1 |
| 12'-0" | 13'-0" | 2 | | 6" | 6 | 6 | 6 | 1 |
| 14'-0" | 15'-0" | 2 | | 8 5/8 | 8 5/8 | 14 5/8 | 14 5/8 | 1 |
| 16'-0" | 17'-0" | 1 | 1 | 8 5/8 | 8 5/8 | 14 5/8 | 14 5/8 | 1 |
| 18'-0" | 19'-0" | | 2 | 8 5/8 | 8 5/8 | 14 5/8 | 14 5/8 | 1 |
| 20'-0" | 21'-0" | 3 | | 7" | 6 7/8 | 13 | 12 7/8 | 2 |
| 22'-0" | 23'-0" | 2 | 1 | 7" | 6 7/8 | 13 | 12 7/8 | 2 |
| 24'-0" | 25'-0" | 1 | 2 | 7" | 6 7/8 | 13 | 12 7/8 | 2 |
| 26'-0" | 27'-0" | | 3 | 7" | 6 7/8 | 13 | 12 7/8 | 2 |

Sn = Nominal Fixture Length, 72" & 96" respectively.
Sa = Actual Fixture Length, for mounting purposes, 75 3/8" and 99 3/8" respectively. (Slight variation for different manufacturers.)
M = Distance from edge of sign to ℄ of notch, min. 6". When the length of the sign minus 1'-0" is less than the sum of the actual fixture lengths, an offset "K" is used. For additional details see detail A and table III.

TABLE II

MAX. BRACKET SPACING FOR EXTERNALLY ILLUMINATED SIGNS

| ACTUAL SIGN HEIGHT "Ha" | SUPPORT TYPES | | | |
|---|---|---|---|---|
| | 9.12, 11.08, 13.2, 7.2 | 9.24, 10.48, 12.24, 14.5, 15.8, 7.2 to 7.6 | | |
| | SINGLE TUBE DOUBLE TUBE LESS 36" C/C | DOUBLE TUBE | | |
| | | C/C 36"-42" | C/C 48"-54" | C/C 60"-72" |
| | MAXIMUM BRACKET SPACING | | | |
| to 5'-0" | 6'-4" with X 8'-4" with Y | 8'-4" with X | 8'-4" with X | 8'-4" with X |
| 5'-6" to 8'-0" | 6'-4" with Y | 4'-2" with X 6'-4" with Y | 6'-4" with X 8'-4" with Y | 8'-4" with X |
| 8'-6" to 10'-0" | 3'-2" with X 4'-2" with Y | 6'-4" with Y | 6'-4" with Y | 8'-4" with Y |
| 10'-6" to 12'-0" | ——— | 4'-2" with Y | 6'-4" with Y | 6'-4" with Y |
| 12'-6" to 14'-0" | ——— | 3'-2" with Y | 3'-2" with Y | 4'-2" with Y |

Ha = ACTUAL SIGN HEIGHT
He = EFFECTIVE SIGN HEIGHT

BRACKET SIZE: Xs = 3 1/2" X 2 1/2" X 5/16" — L @ 6.1 LB. STEEL } 9.12, 10.48, 11.08, 12.24, 14.5 & 15.8
Ys = 4" X 3 1/16" X 1/4" — Z @ 8.2 LB. STEEL
Xa = 3" X 2 11/16" X 1/4" — Z @ 2.33 LB. ALUM. } 7.2 Thru 7.6
Ya = 4" X 2 21/32" X 3/16" — I @ 2.64 LB. ALUM.

WHEN MAX. ALLOWABLE SPACING IS LESS THAN ACTUAL FIXTURE LENGTHS, Sa, ADDITIONAL STANDARD BRACKETS MUST BE FURNISHED, EQUAL IN HEIGHT TO "Ha".

SUPPORTS 7.2 THROUGH 7.6 SHALL HAVE AN ALUMINUM FIXTURE ARM, 4"X3"X 1/4" ANGLE. SEE DETAIL B. BOLTS AND ACCESSORIES SHALL BE STAINLESS STEEL.

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

STRUCTURAL DETAILS FOR EXTERNALLY ILLUMINATED SIGNS

EI-1

DATE 10-16-63 5-6-64 10-29-64

APPROVED Fred C. Tarbox
ENGINEER OF TRAFFIC

STRUCTURAL DETAILS FOR EXTERNALLY ILLUMINATED SIGNS

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |



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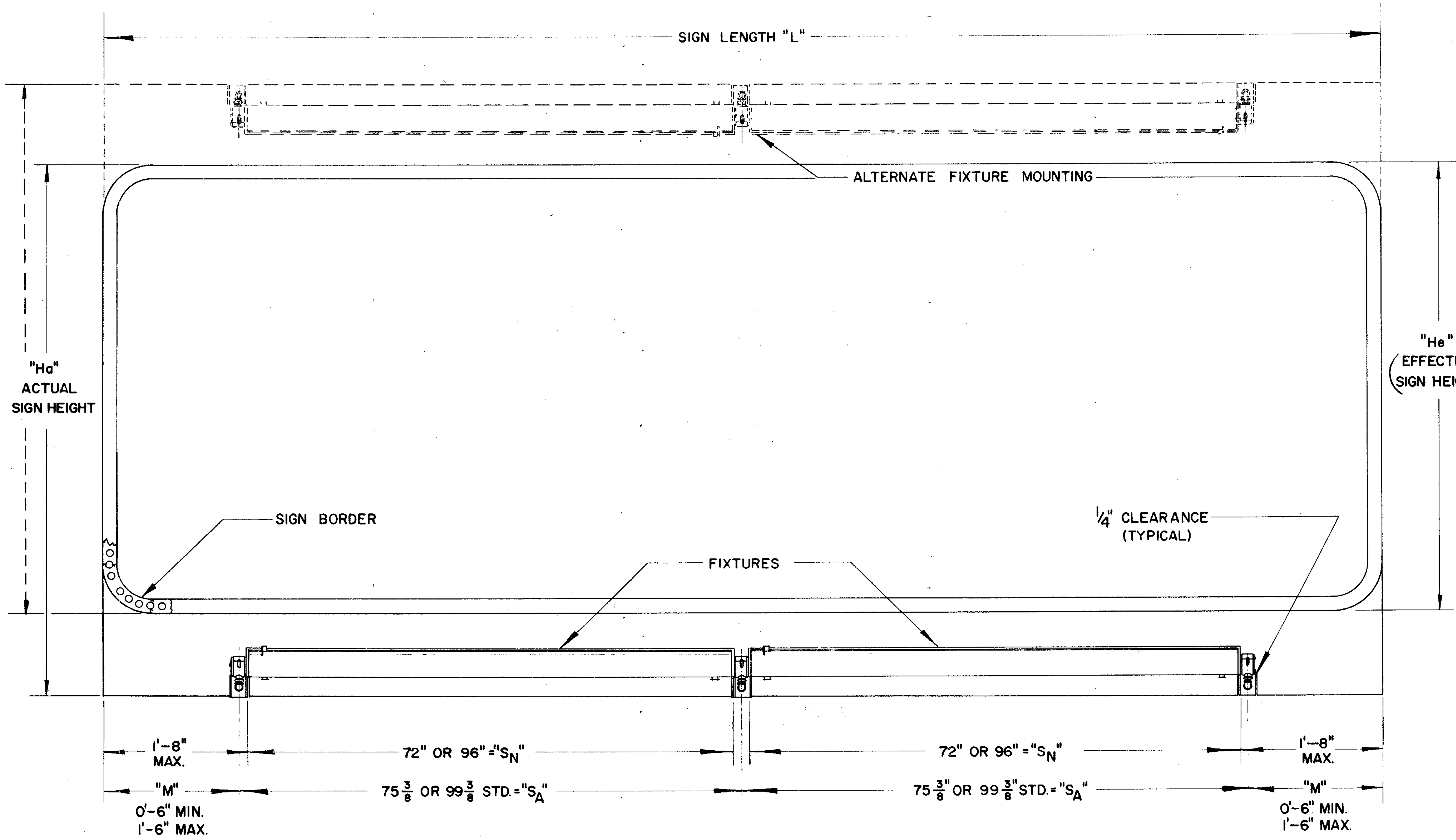
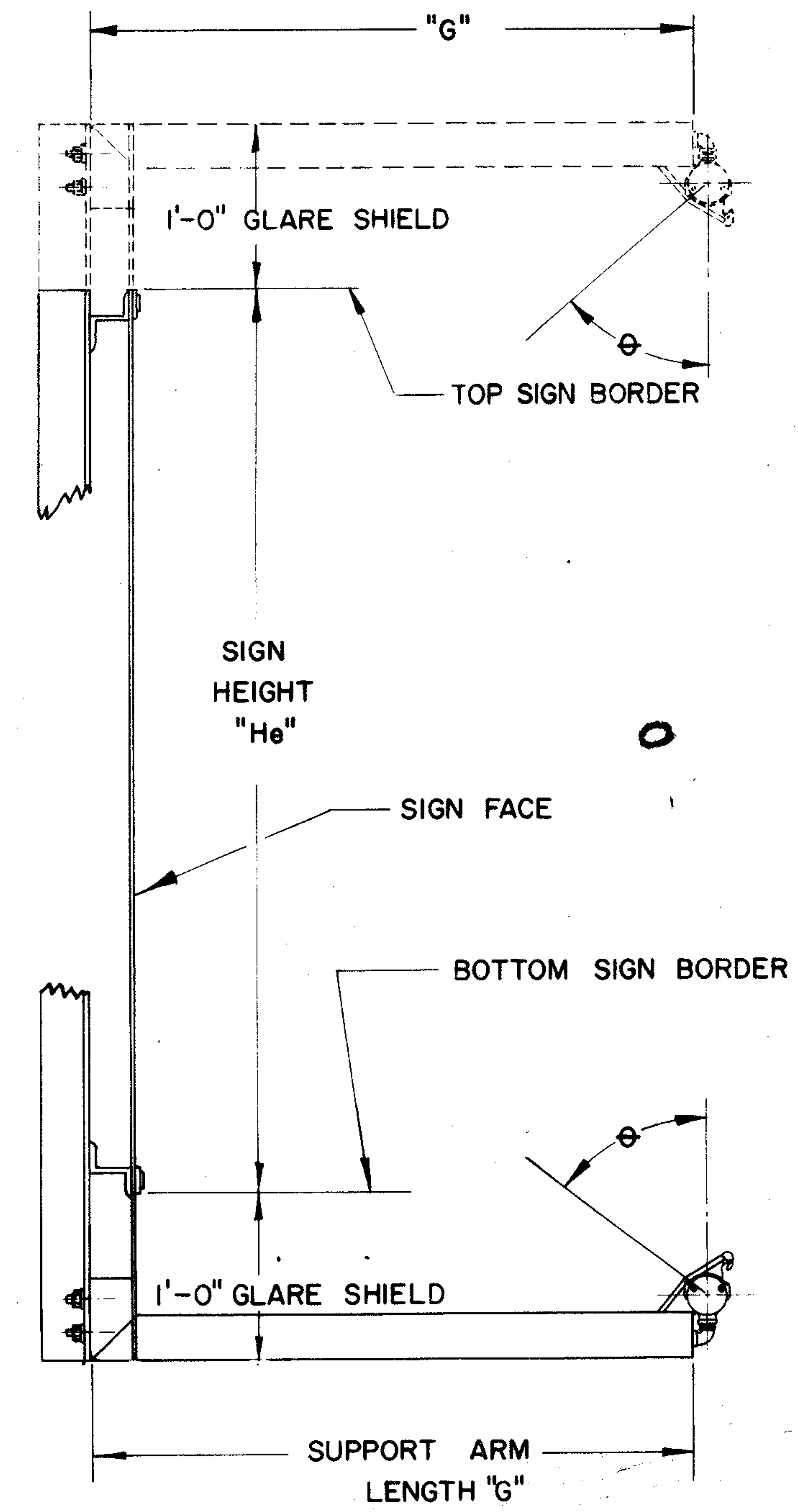



## SIGN LIGHTING NOTES

**SIGN ILLUMINATION**

SIGN ILLUMINATION SHALL BE BY ATTACHED FLUORESCENT FIXTURES AS SHOWN ON ILLUMINATED SIGN DETAIL SHEETS.

**LAMPS**

LAMPS SHALL BE TYPE F72 OR F96-T12/CW/HO AS MANUFACTURED BY WESTINGHOUSE, GENERAL ELECTRIC OR APPROVED EQUAL FOR SIGNS TO A MAXIMUM HEIGHT OF 6'-6". LAMP TYPE SHALL BE F72 OR F96-T12/CW/SHO AS MANUFACTURED BY WESTINGHOUSE, F72 OR F96-PG17/CW AS MANUFACTURED BY GENERAL ELECTRIC OR APPROVED EQUAL FOR SIGNS THAT ARE 7'-0" OR GREATER IN HEIGHT.

**LAMP FIXTURES**

LIGHTING FIXTURES SHALL BE CONSTRUCTED OF CORROSION RESISTANT MATERIALS OR WITH HIGH QUALITY CORROSION RESISTANT FINISH. ALL FIXTURES SHALL BE SPECIFICALLY DESIGNED FOR OUTDOOR SIGN LIGHTING SERVICE. MAJOR COMPONENTS SHALL INCLUDE WEATHERPROOF CAST ALUMINUM MOUNTING HUBS DESIGNED TO SECURELY LOCK THE FIXTURES AT ANY ANGLE THROUGH 360 DEGREES. INDICATORS IN 10 DEGREE INCREMENTS SHALL BE STAMPED OR CAST INTO THE HUB TO FACILITATE PROPER AIMING OF THE FIXTURE. FINAL ADJUSTMENT OF FIXTURE SHALL BE DONE AT NIGHT UNDER THE PROJECT ENGINEER'S DIRECTION.

THE BODY DESIGN OF THE FIXTURE SHALL PROVIDE AN ASYMMETRIC SPECULAR ALZAK REFLECTOR TO GIVE A HIGH LEVEL OF UNIFORM ILLUMINATION AND SHALL PROVIDE A WIREWAY FROM END TO END. WHEN ADJACENT FIXTURES ARE WIRED TOGETHER THROUGH THE WIREWAY, WIRE BETWEEN FIXTURES SHALL BE ENTIRELY ENCLOSED.

EXTERIOR FINISH OF THE FIXTURE BODY SHALL BE INTERSTATE GREEN COLOR, HEAT RESISTANT BAKED ENAMEL AS #8950 UNIVERSAL PAINT AND VARNISH INC., OR *EQUIVAENT BY MID-WESTERN COLOR WORKS OR APPROVED EQUAL. REFLECTOR LAMPS AND SOCKETS SHALL BE PROTECTED BY A HINGED DOOR OF CLEAR ACRYLIC PLASTIC WITH ALUMINUM OR STAINLESS STEEL FRAME AND NEOPRENE GASKETING.*

**BALLASTS**

BALLASTS FOR FIXTURES SHALL BE WEATHER-PROOF OUTDOOR TYPE FOR A 120 VOLT 60 CYCLE SYSTEM AND SHALL PROVIDE LAMP STARTING AT AN AMBIENT TEMPERATURE OF −20°F. BALLASTS SHALL BE MOUNTED ON SIGN BRACKET ONLY. WIRING SHALL BE ACCOMPLISHED IN SUCH A MANNER THAT THE SIGN MAY BE REMOVED WITHOUT DISTURBING THE ELECTRICAL WIRING.

| EFFECTIVE SIGN HEIGHT "H" | SUPPORT ARM LENGTH "G" | APPROX. AIMING ANGLE θ |
|---|---|---|
| 3'-0" to 5'-0" | 2'-9" | 25° |
| 5'-0" to 6'-6" | 3'-3" | 25° |
| 7'-0" to 10'-0" | 4'-3" | 17° |
| 10'-6" to 13'-0" | 5'-9" | 23° |

| "L" SIGN LENGTH | NO. OF FIXTURES | | | He=3'-0" to 6'-6" LAMP=T12/cw/ho | | | He=7'-0" to 13'-0" LAMP=T12/cw/sho | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 72 | 96 | BALLAST NO. | BALLAST TYPE | WATTAGE PER SIGN | BALLAST NO. | BALLAST TYPE | WATTAGE PER SIGN |
| 6'-0" to 7'-0" | | 1 | | 1 | A | 190 | 1 | C | 250 |
| 8'-0" to 9'-0" | | 1 | | 1 | A | 190 | 1 | C | 250 |
| 10'-0" to 11'-0" | | | 1 | 1 | A | 190 | 1 | C | 250 |
| 12'-0" to 13'-0" | | 2 | | 1 | B | 250 | 1 | D | 425 |
| 14'-0" to 15'-0" | | 2 | | 1 | B | 250 | 1 | D | 425 |
| 16'-0" to 17'-0" | | 1 | 1 | 1 | B | 250 | 1 | D | 425 |
| 18'-0" to 19'-0" | | | 2 | 1 | B | 250 | 1 | D | 425 |
| 20'-0" to 21'-0" | | 3 | | 2 | A & B | 440 | 2 | C & D | 675 |
| 22'-0" to 23'-0" | | 2 | 1 | 2 | A & B | 440 | 2 | C & D | 675 |
| 24'-0" to 25'-0" | | 1 | 2 | 2 | A & B | 440 | 2 | C & D | 675 |
| 26'-0" to 27'-0" | | | 3 | 2 | A & B | 440 | 2 | C & D | 675 |

### BALLASTS

| TYPE | MANUFACTURERS G.E. | MANUFACTURERS JEFFERSON | WATTAGE |
|---|---|---|---|
| A | GG 3583 | 257-321 | 190 |
| B | GG 3535 | 257-331 | 250 |
| C | GG 3585 | 257-361 | 250 |
| D | GG 3588 | 257-371 | 425 |
| | | | |

BALLASTS SHALL BE GENERAL ELECTRIC, JEFFERSON AS SPECIFIED ABOVE OR EQUAL.

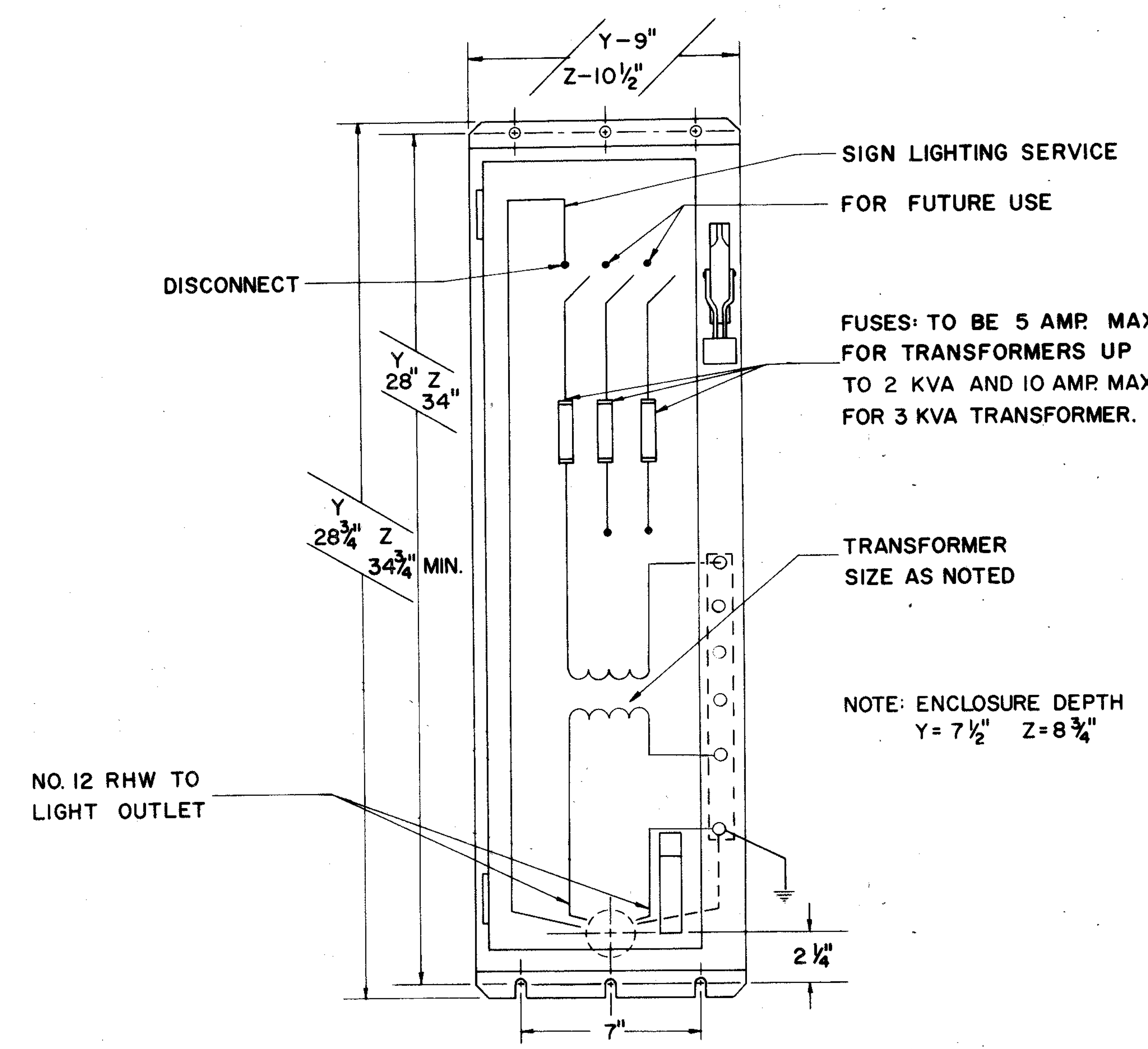
BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

**ELECTRICAL DETAILS FOR EXTERNALLY ILLUMINATED SIGNS**

**EI-2**

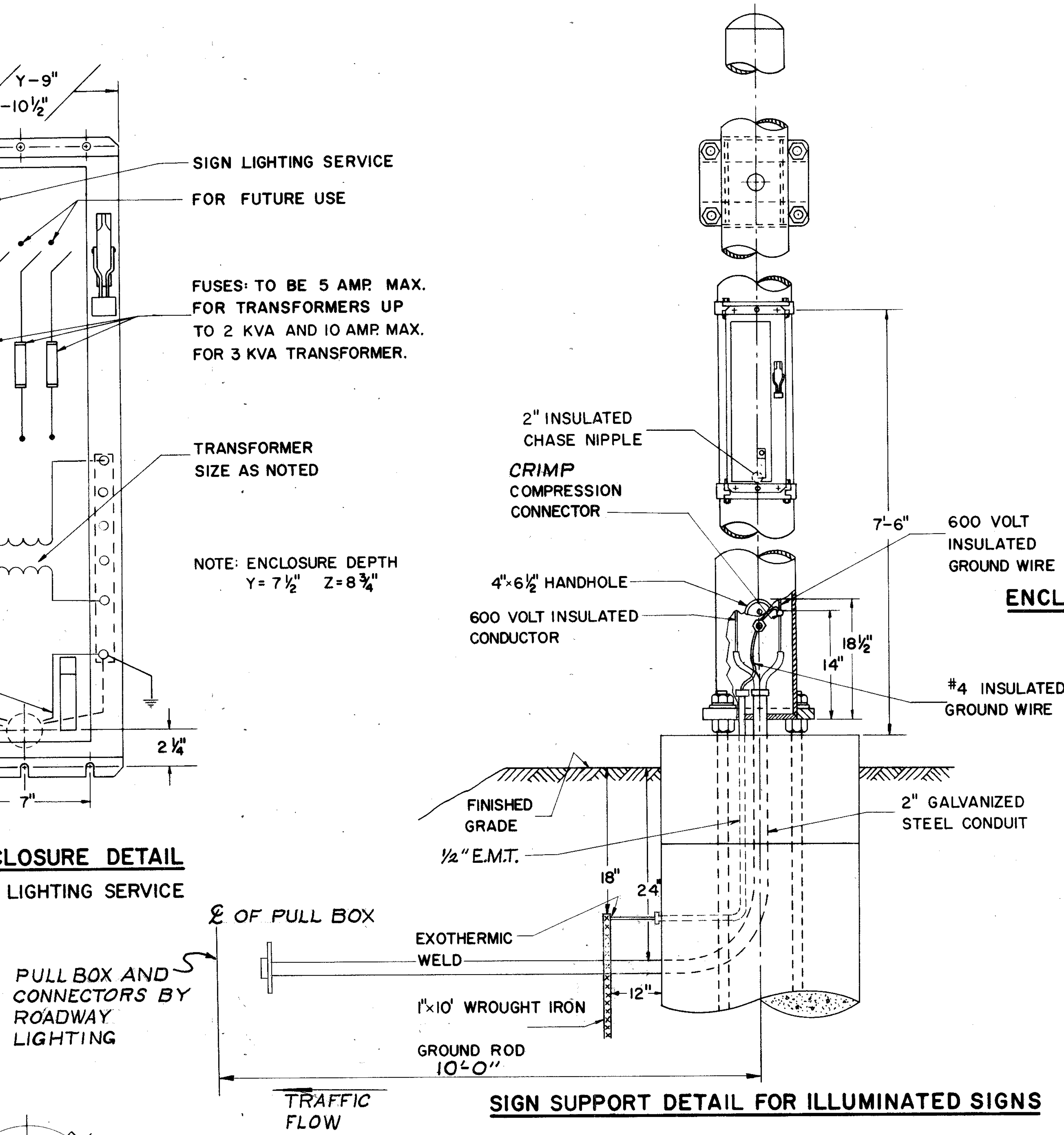
DATE
10-31-63
5-6-64
10-29-64

APPROVED [signature]
ENGINEER OF TRAFFIC

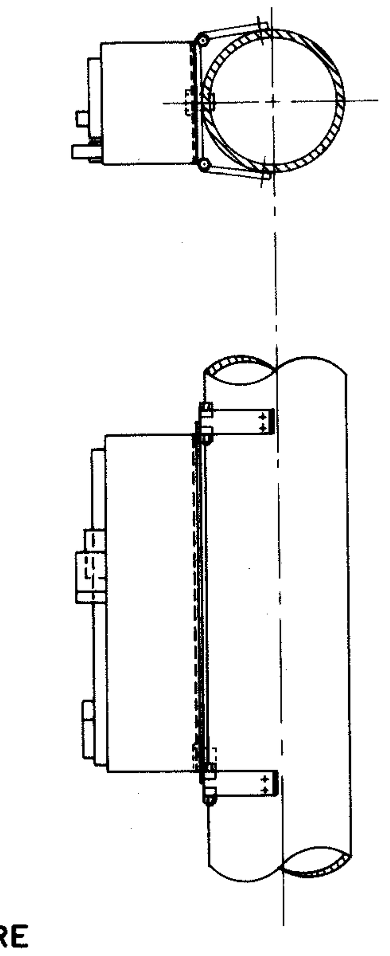



TYPICAL ENCLOSURE DETAIL

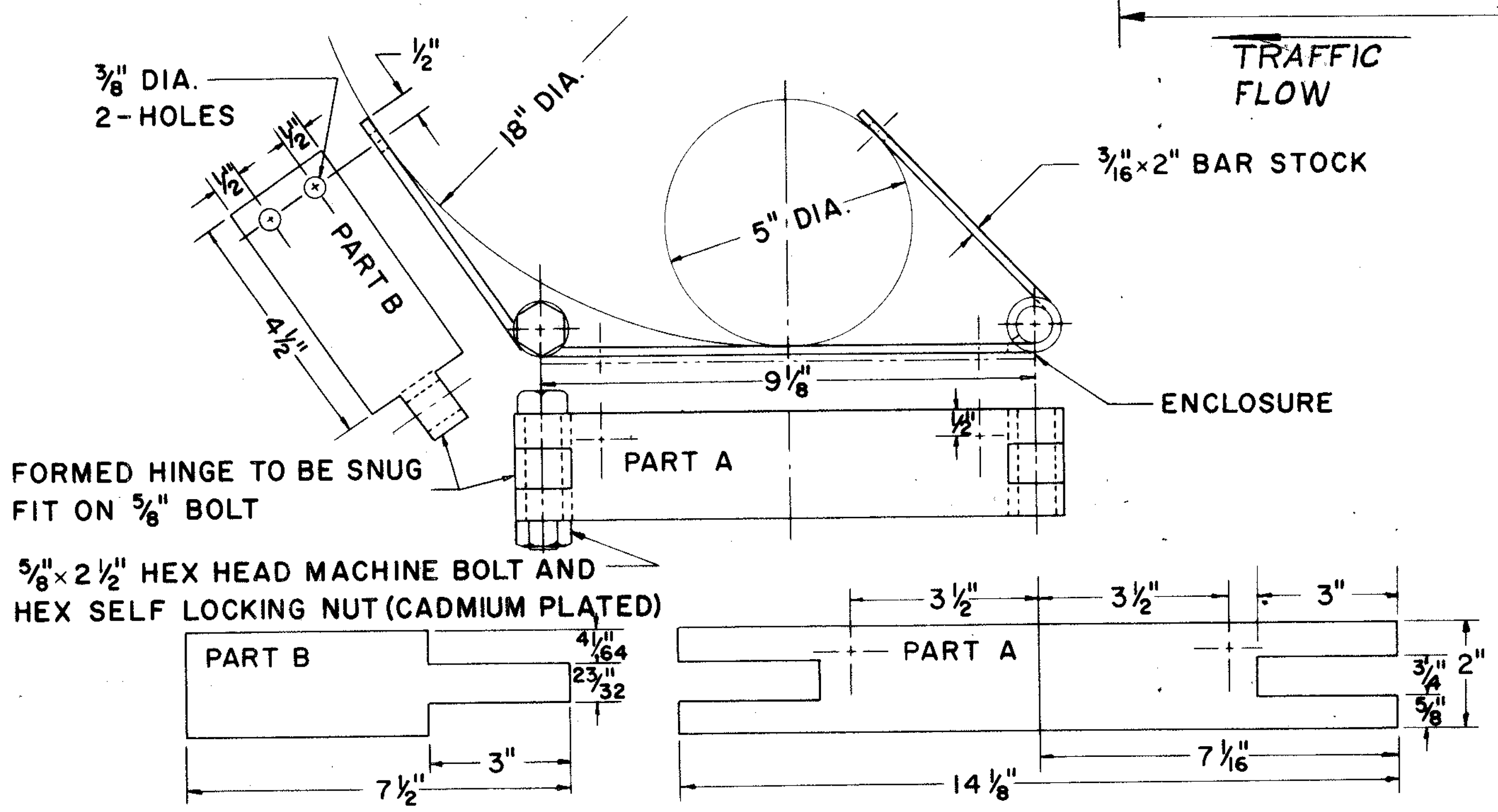
480 VOLT SIGN LIGHTING SERVICE



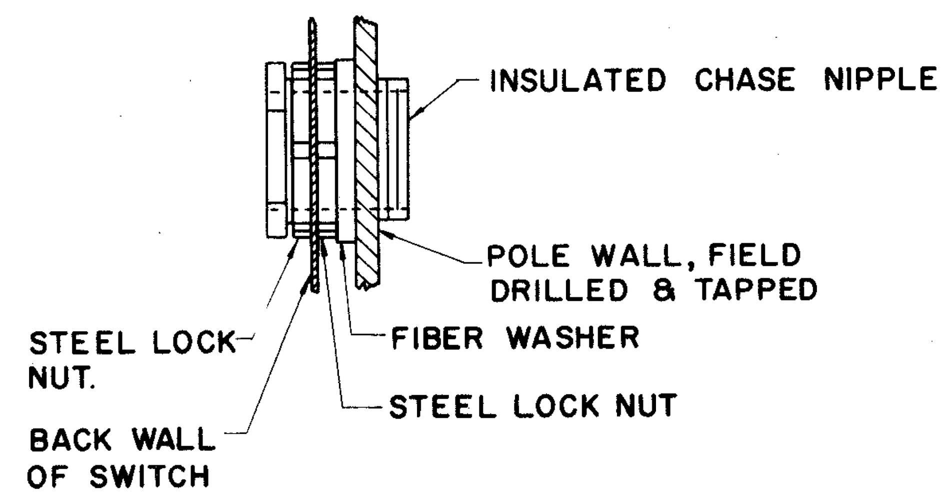

SIGN SUPPORT DETAIL FOR ILLUMINATED SIGNS



ENCLOSURE MOUNTING DETAIL




ENCLOSURE MOUNTING BRACKET




CHASE NIPPLE ASSEMBLY DETAIL

*AS MANUFACTURED BY THOMAS BETTS, APPLETON OR STEEL CITY OR EQUAL.*

## NOTES

GENERAL

DETAILS OF THIS SHEET SHALL APPLY TO EACH OVERHEAD SIGN STRUCTURE TO SUPPORT EXTERNALLY ILLUMINATED SIGNS.

SERVICE

ELECTRIC SERVICE SHALL ENTER THROUGH A 2" GALVANIZED RIGID STEEL CONDUIT INSTALLED IN STRUCTURE FOUNDATION AS PER DETAIL. SIGN SERVICE OR CIRCUITRY SHALL BE CONTROLLED AS REQUIRED BY THE SYSTEM DESIGN AT THE PRIMARY SOURCE.

SERVICE CONDUCTORS SHALL BE THE SIZE AND TYPE AS SPECIFIED.

COMBINATION SWITCH AND TRANSFORMER

(TYPE Y OR Z ENCLOSURE REQUIRED AS PER SCHEDULE ON THIS SHEET)

THIS COMBINATION SHALL BE A 30 OR 60 AMPERE 600 VOLT SWITCH WITH A .25 TO 3.0 KVA TRANSFORMER. THE COMBINATION AND ENCLOSURE SHALL BE AS SQUARE D CLASS 9421, COLUMBUS ELECTRIC WORKS CLASS 101, PANALS INCORPORATED-CLASS 9400, OR APPROVED EQUAL.

TRANSFORMER

THE TRANSFORMER SHALL BE DRY TYPE SINGLE FACE 240/480 VOLT PRIMARY 120/240 VOLT SECONDARY, THE TYPE AND CAPACITY AS SPECIFIED IN DETAILED SCHEDULE ON THIS SHEET.

ENCLOSURE

THE ENCLOSURE SHALL BE NEMA #4 WATER TIGHT .063 GAGE STAINLESS STEEL ASTA 302-303. A DISCONNECT HANDLE SHALL BE FLANGE MOUNTED AND CAPABLE OF BEING LOCKED IN EITHER POSITION. THE ENCLOSURE SHALL BE EQUIPPED WITH A DOOR LOCKING MECHANISM WITH A DEFEATER THAT NECESSITATES TWO HANDS TO OPERATE MECHANISM WITH THE SWITCH IN OFF POSITION. SPACE FOR A 2" INSULATED CHASE NIPPLE SHALL BE PROVIDED APPROXIMATELY 2¼" ABOVE THE CENTER LINE OF THE LOWER MOUNTING SLOT. THIS ENCLOSURE AND STRUCTURE SHALL BE FIELD DRILLED AND TAPPED FOR THE REQUIRED NIPPLE AS SHOWN ON THE DETAIL ON THIS SHEET.

THIS ENCLOSURE SHALL BE FLANGE MOUNTED ON BRACKETS WITH 5⁄16"-18×¾" HEX HEAD CADMIUM PLATED MACHINE BOLTS. ENCLOSURES SHALL BE TYPE Y OR Z AS SPECIFIED AND DIMENSIONED ON THIS SHEET.

ENCLOSURE MOUNTING BRACKET

THE ENCLOSURE MOUNTING BRACKET SHALL BE FABRICATED THEN GALVANIZED BEFORE ASSEMBLY. THE BRACKET SHALL BE FIELD MOUNTED WITH 5⁄16 HEX HEAD SELF TAPPING CADMIUM PLATED SCREWS. THE SIGN SUPPORT SHALL BE FIELD DRILLED, AS PER DETAIL.

WIRE AND CABLE

ALL WIRE AND CABLE UP TO AND INCLUDING #4 SHALL COMPLY WITH FAA TYPE A SPECIFICATIONS. #2 OR LARGER WIRE OR CABLE SHALL BE G.E. 58006 OR ANACONDA AP-10711, OR EQUAL. ALL WIRE AND CABLE SHALL BE 600 VOLT.

GROUNDING

EACH SIGN SUPPORT OR STRUCTURE SHALL BE GROUNDED WITH A #4 RUBBER INSULATION AND NEOPRENE JACKETED CONDUCTOR. THE GROUNDING CONDUCTOR SHALL BE CONNECTED TO THE SWITCH THEN TO THE COMPRESSION CONNECTOR IN THE SIGN SUPPORT THEN TO A 1"×10' WROUGHT IRON GROUND ROD. GROUND CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO GROUND ROD AND THEN TAPED WITH PLASTIC ELECTRICAL TAPE AT EACH EXPOSED PORTION OF CONDUCTOR. THE WELDED CONNECTION AND TAPED PORTION SHALL BE PAINTED 2 COATS OF . INSULATING ENAMEL.

TRANSFORMERS

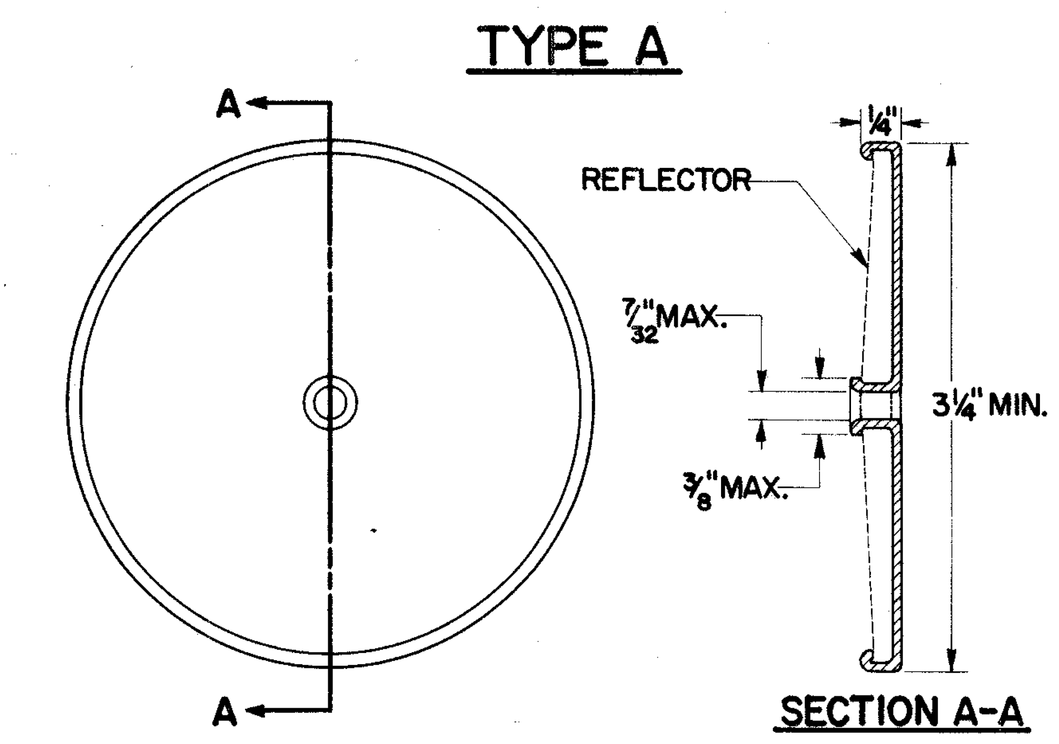
| TYPE | MANUFACTURERS G.E. | MANUFACTURERS JEFFERSON | OUTPUT K.V.A. | SWITCH TRANSFORMER ENCLOSURE |
|---|---|---|---|---|
| I | 9T51Y7 | 220-041 | .25 | Y |
| II | 9T51Y8 | 220-051 | .50 | Y |
| III | 9T51Y9 | 220-061 | .75 | Y |
| IV | 9T51Y10 | 220-071 | 1.00 | Z |
| V | 9T51Y11 | 220-081 | 1.50 | Z |
| VI | 9T51Y12 | 220-091 | 2.00 | Z |
| VII | 9T51Y13 | 221-102 | 3.00 | Z |

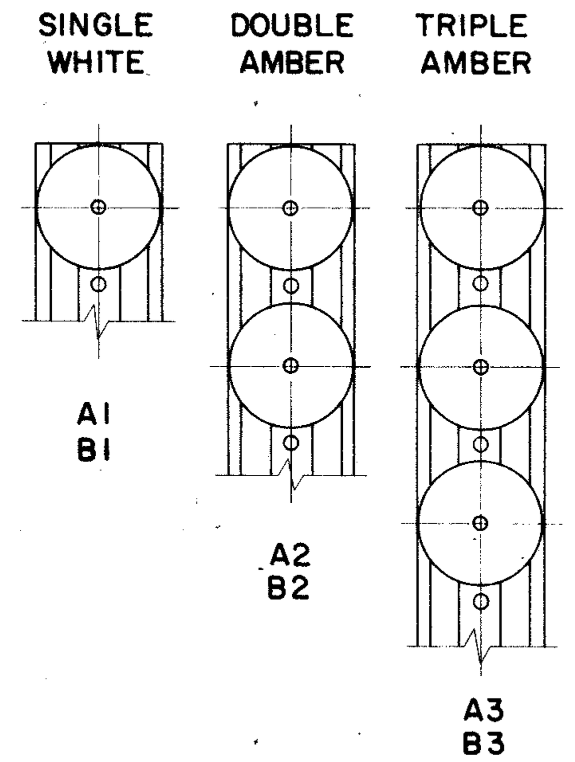
BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

| ELECTRICAL SIGN SERVICE DETAILS 480 VOLT SYSTEM | ES-3A | DATE 6-18-64 |
|---|---|---|

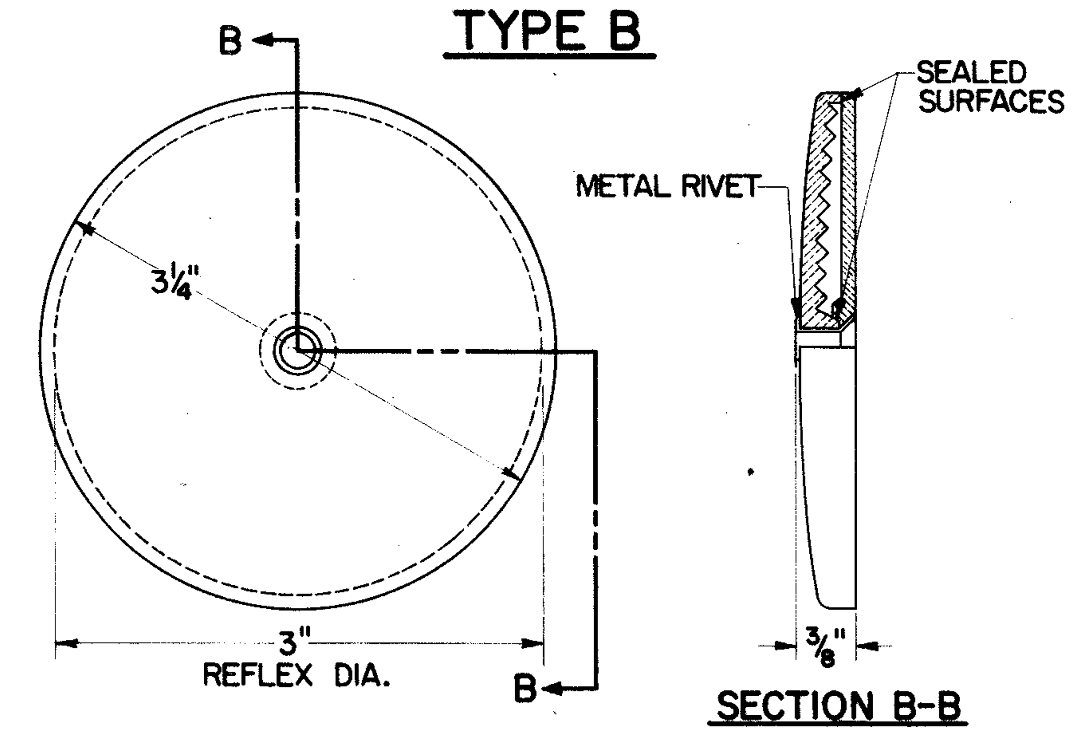
APPROVED ____________
ENGINEER OF TRAFFIC

## TYPE A

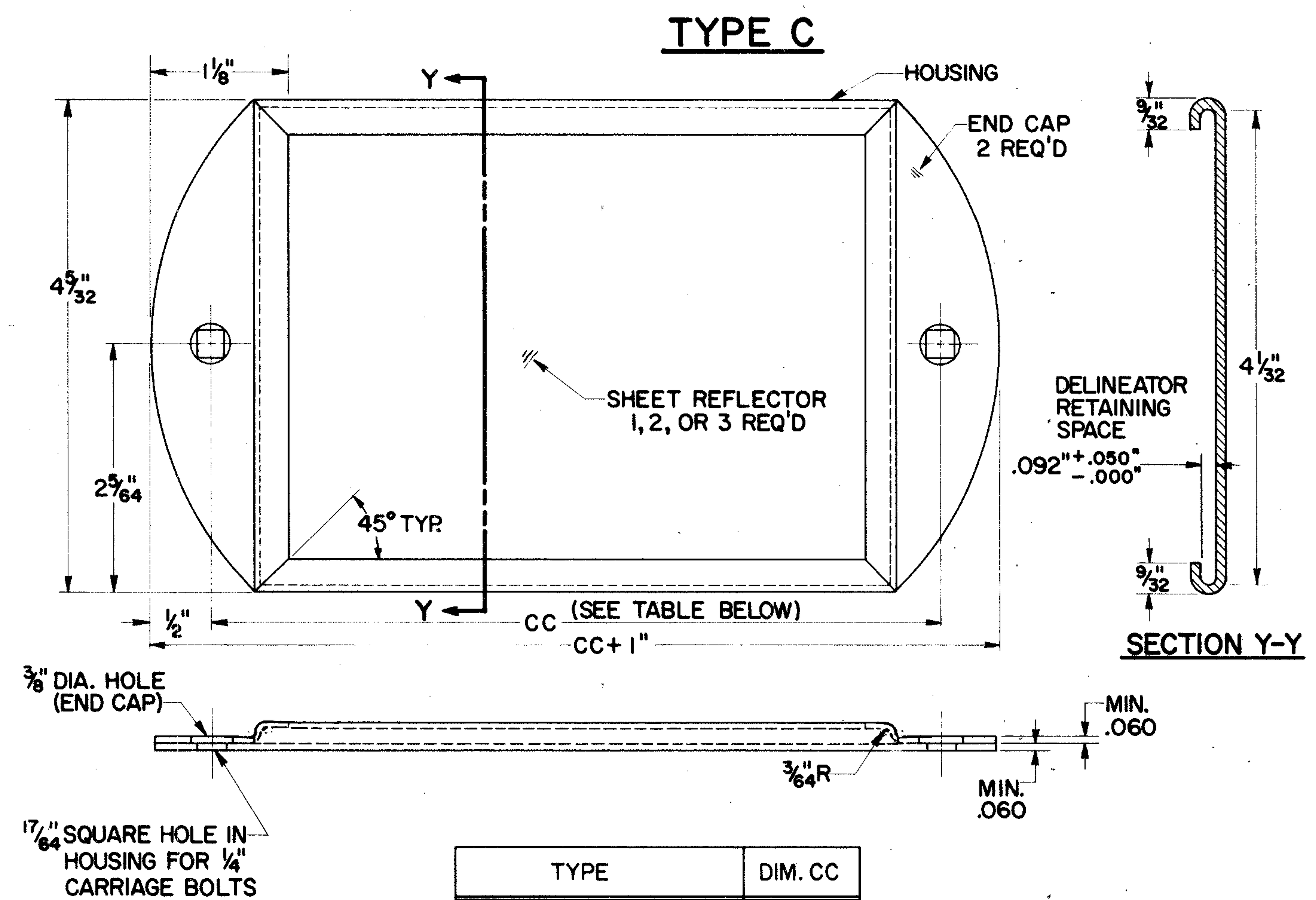



## TYPE B

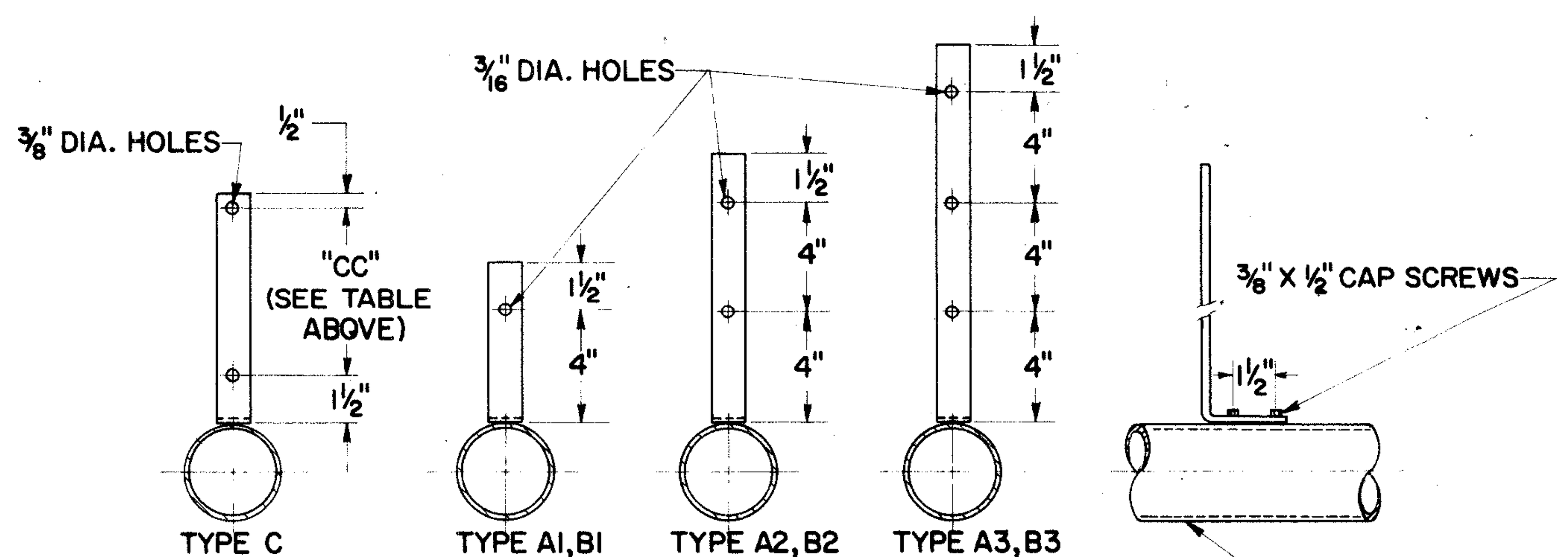



## TYPE C

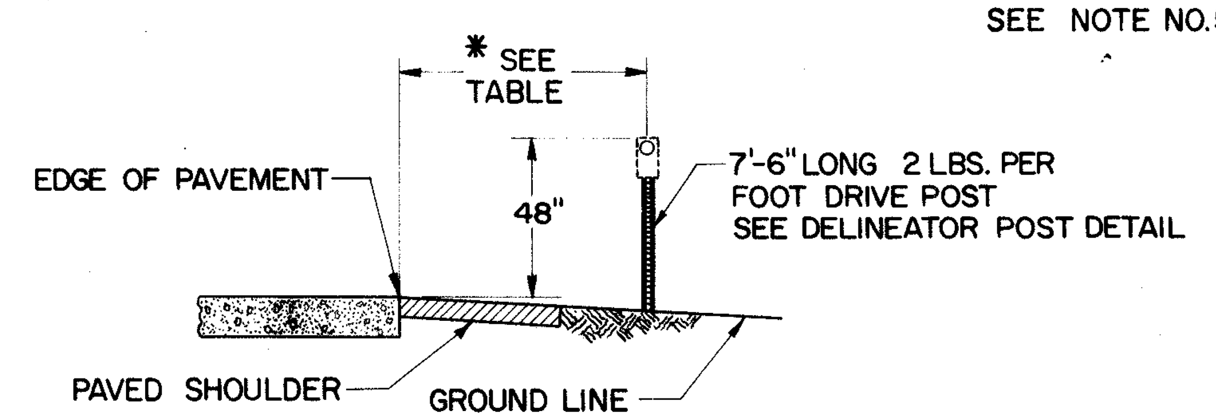



| TYPE | DIM. CC |
|---|---|
| C1-SINGLE WHITE | 6" |
| C2-DOUBLE AMBER | 11" |
| C3-TRIPLE AMBER | 16" |

ALL BRACKETS ¼" X 1¼" STAINLESS STEEL




## BRIDGE RAIL BRACKET

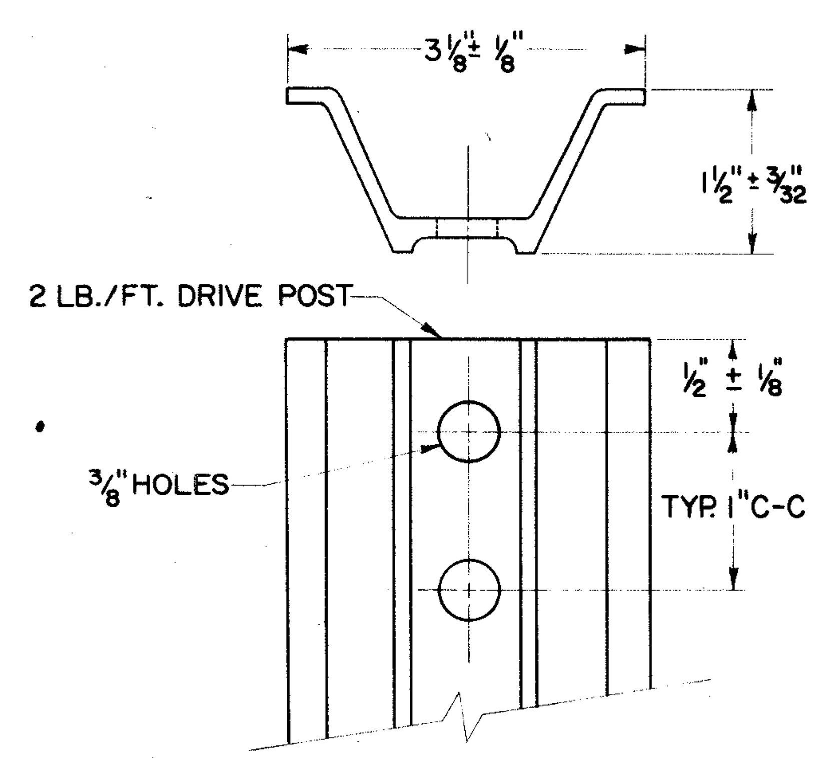



## LATERAL PLACEMENT OF DELINEATORS

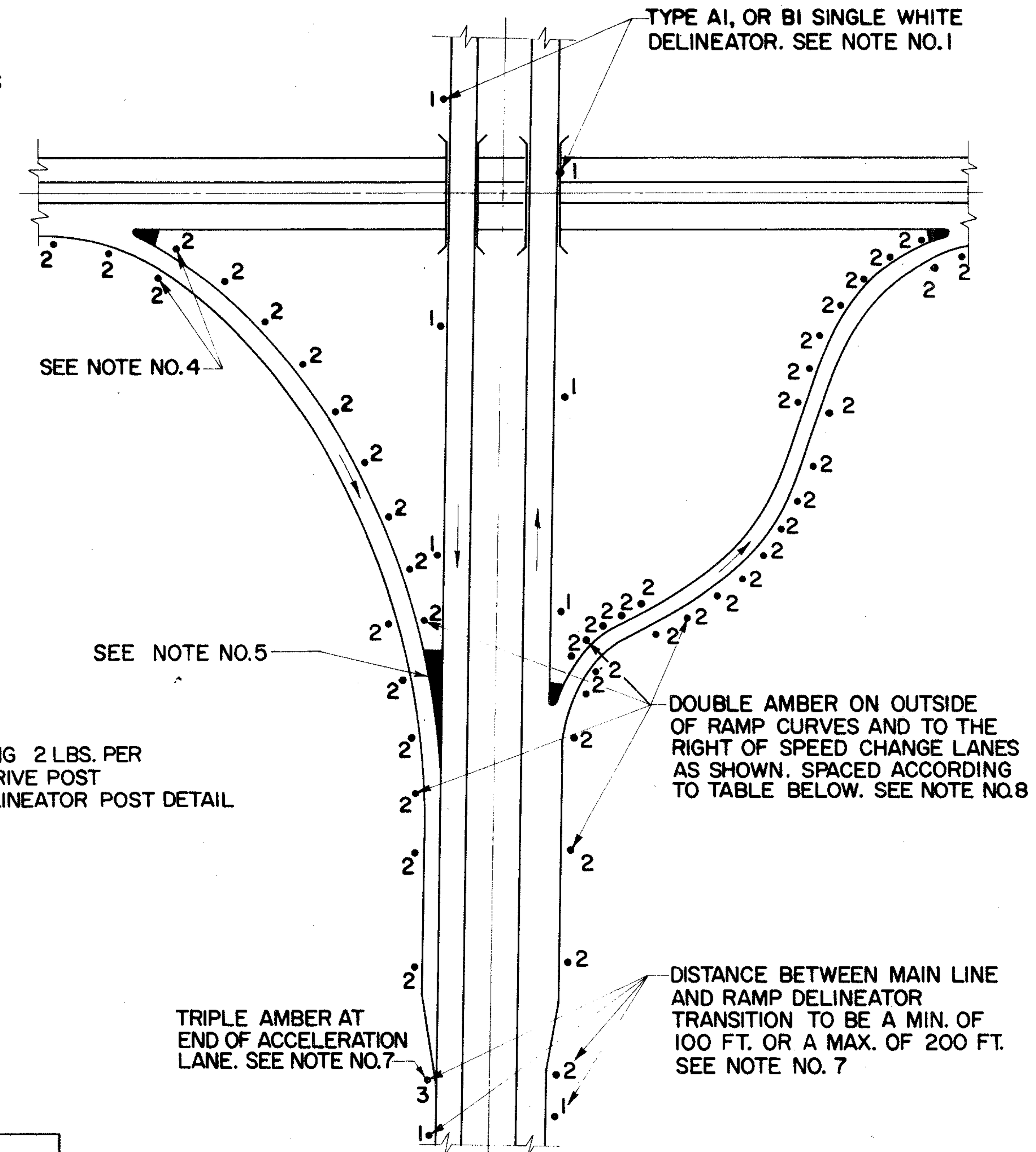
* TABLE

| TYPE DELINEATOR | NO GUARDRAIL | GUARDRAIL |
|---|---|---|
| SINGLE WHITE | 12'-6" | 6" OUTSIDE |
| DOUBLE AMBER RIGHT SIDE | ** 8'-6" | 6" OUTSIDE |
| DOUBLE AMBER LEFT SIDE | 4'-6" | 6" OUTSIDE |
| TRIPLE AMBER | 12'-6" | 6" OUTSIDE |

** THIS DIMENSION SHALL VARY ON SPEED CHANGE LANES TO MAINTAIN MINIMUM DISTANCE OF 2'-6" FROM EDGE OF PAVED SHOULDER.




## DELINEATOR POST




## TYPICAL DELINEATOR PLACEMENT

DELINEATOR SPACING ON RAMP HORIZONTAL CURVES

| RADII, FT. FROM | RADII, FT. TO | SPACING ON CURVE | * TRANSITION SPACING | |
|---|---|---|---|---|
| TANGENT | 1,801 | 100' | 100' | 100' |
| 1,800 | 1,401 | 80' | 100' | 100' |
| 1,400 | 1,001 | 70' | 100' | 100' |
| 1,000 | 751 | 60' | 100' | 100' |
| 750 | 551 | 50' | 80' | 100' |
| 550 | 326 | 40' | 70' | 100' |
| 325 | —— | 30' | 60' | 100' |

* SUCH AS 40' TO 70' TO 100' OR 100' TO 80' TO 50' OR ANY OTHER COMBINATION SHOWN ABOVE.

## NOTES

1. TYPE A1 OR B1 DELINEATORS ON THE RIGHT OF THE THROUGH ROADWAY ARE TO BE SPACED AT 200 FT. INTERVALS THROUGHOUT, REGARDLESS OF CURVES, BEGINNING AT STA. +00, +25, +50, OR +75.
2. DELINEATORS SHALL BE FURNISHED AND ERECTED IN ACCORDANCE WITH ITEM 620.
3. PAYMENT FOR SUPPORTS (DRIVEPOST OR BRACKET) SHALL BE INCLUDED IN THE UNIT PRICE BID PER EACH FOR "ITEM 620 DELINEATORS".
4. WHEN CROSSING FROM LEFT TO RIGHT OR FROM RIGHT TO LEFT ON THE RAMPS THE DELINEATORS AT THE POINT OF CROSSOVER ARE TO BE AT THE SAME STATION ON EACH SIDE.
5. NO DELINEATORS ARE TO BE PLACED IN PAVED BERM
6. WHEN RADII OF CURVE ON RAMPS REQUIRE 100' SPACING THE DELINEATORS SHALL BE PLACED ON THE RIGHT IN RELATION TO THE FLOW OF TRAFFIC.
7. RAMP DELINEATOR AT END OF ACCELERATION & BEGINNING OF DECELERATION LANES TO BE A MAXIMUM OF 5' FROM POINT OF TANGENCY AT MAIN LINE.
8. ALL RAMP DELINEATORS SHALL BE PLACED TO THE NEAREST 5' INCREMENTS, SUCH AS +05, +10, +15, +20 AND SO ON.

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

DELINEATOR DETAILS

6-20

DATE 9-25-62 5-24-65

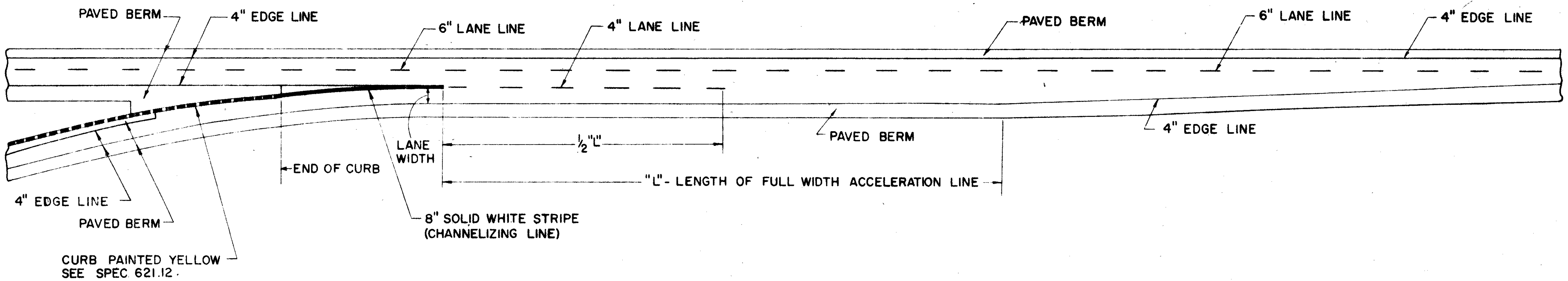
APPROVED Robert E. Conner
ENGINEER OF TRAFFIC

| FED. RD. DIVISION | STATE | PROJECT | | |
|---|---|---|---|---|
| 2 | OHIO | | | |

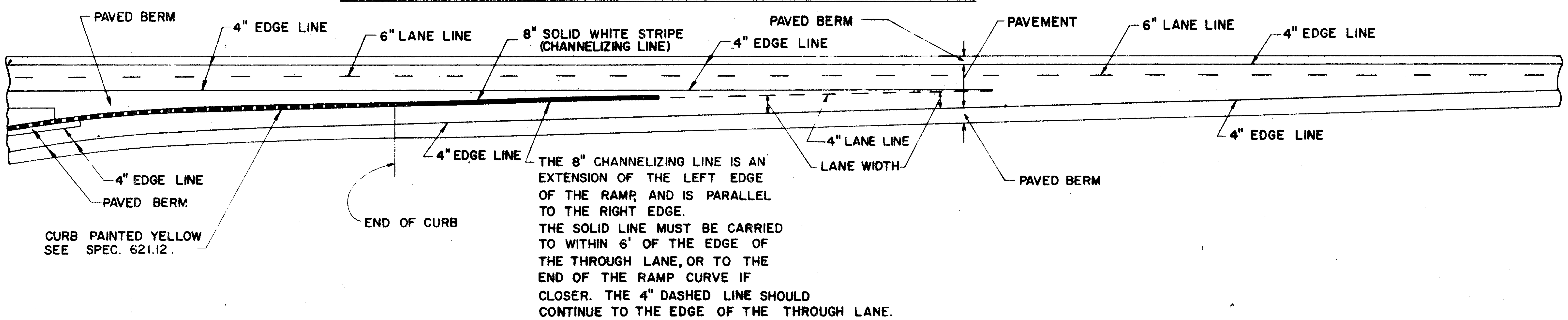
58

BEL-7-19.86

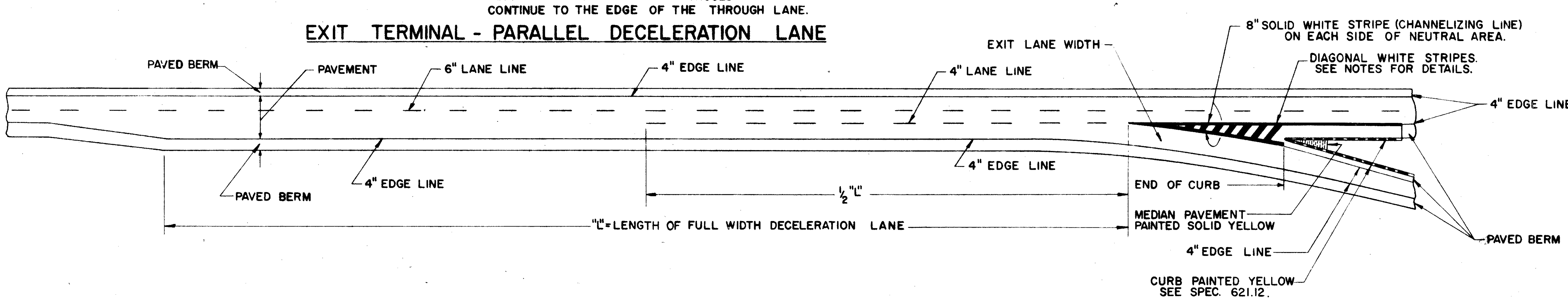
## ENTRANCE TERMINAL - PARALLEL ACCELERATION LANE



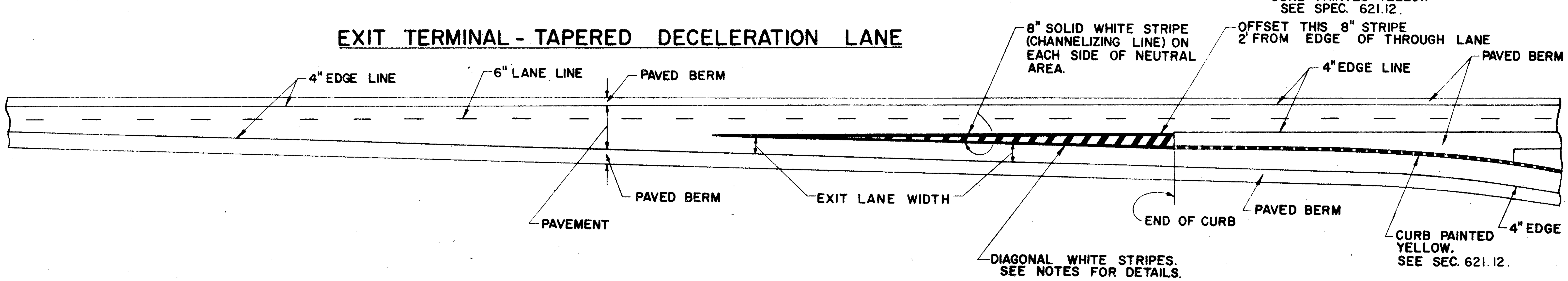

## ENTRANCE TERMINAL - TAPERED ACCELERATION LANE




## EXIT TERMINAL - PARALLEL DECELERATION LANE




## EXIT TERMINAL - TAPERED DECELERATION LANE




## NOTES

<u>EDGE LINES</u> SHALL BE PLACED IN THE LOCATIONS AS SHOWN TO CONFORM TO ITEM No. 621 AND DEFINED IN SECTION 621.06.

<u>LANE LINES</u> SHALL BE PLACED IN THE LOCATIONS AS SHOWN TO CONFORM TO ITEM No. 621 AND DEFINED IN SECTION 621.07.

<u>CHANNELIZING LINES</u> SHALL BE CONTINUOUS WHITE BEADED STRIPES 8" IN WIDTH PLACED IN THE LOCATIONS AS SHOWN TO CONFORM TO ITEM No. 621 AND DEFINED IN SECTION 621.09.

<u>DIAGONAL STRIPES IN EXIT RAMP MARKINGS</u> SHALL BE 2' WIDE WHITE BEADED STRIPES SET AT A 45° ANGLE TO THE CENTER LINE OF THE THROUGH PAVEMENT AND SLANTED IN THE DIRECTION OF THE FLOW OF TRAFFIC ON SAID PAVEMENT. SPACE BETWEEN THE 2' DIAGONAL STRIPES SHALL BE 6' AS MEASURED PARALLEL TO THE CENTER LINE OF THE THROUGH PAVEMENT. PAINT ON THE DIAGONAL STRIPES SHALL BE APPLIED AT THE RATE OF ONE GALLON TO EACH 100 SQUARE FEET AND GLASS BEADS SHALL BE APPLIED AT THE RATE OF SIX POUNDS PER GALLON OF PAINT. DIAGONAL WHITE STRIPES SHALL BE PLACED BETWEEN THE TWO 8" WHITE CHANNELIZING LINES AT EXIT RAMPS AS SHOWN TO CONFORM TO ITEM No. 621 AND DEFINED IN SECTION 621.11.

| BUREAU OF TRAFFIC OHIO DEPARTMENT OF HIGHWAYS | | |
|---|---|---|
| PAVEMENT MARKING | 621 | DATE 7-17-61 4-6-62 5-24-65 |
| APPROVED Robert E. Lower ENGINEER OF TRAFFIC | | |

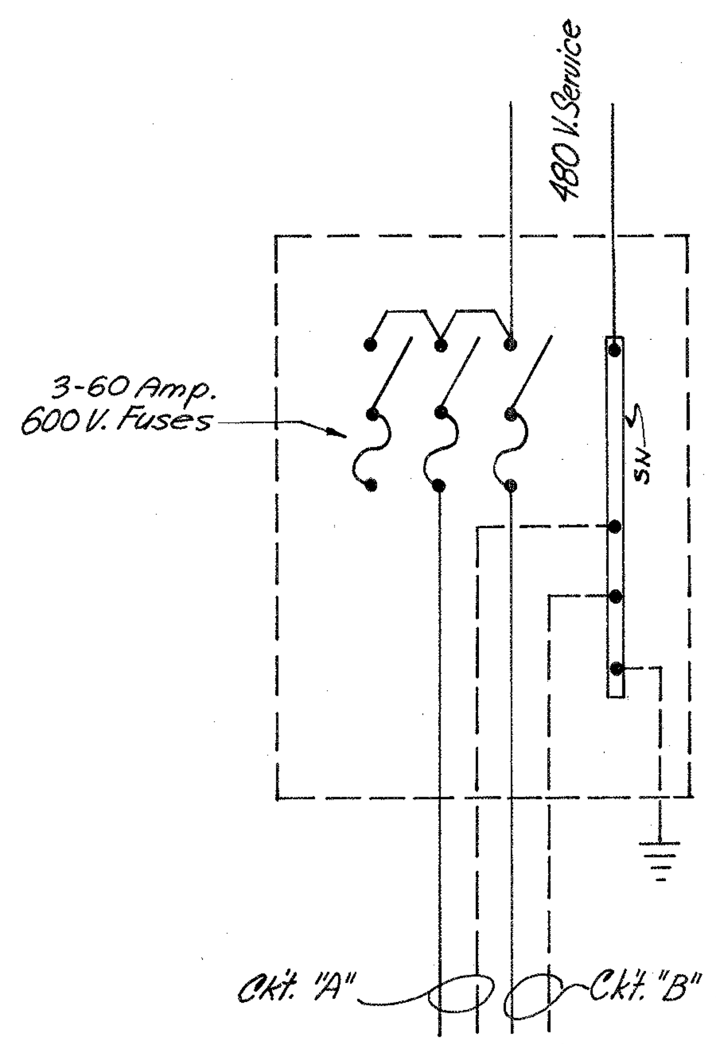
BELMONT COUNTY
BEL-7-19.86

# GENERAL LIGHTING QUANTITIES

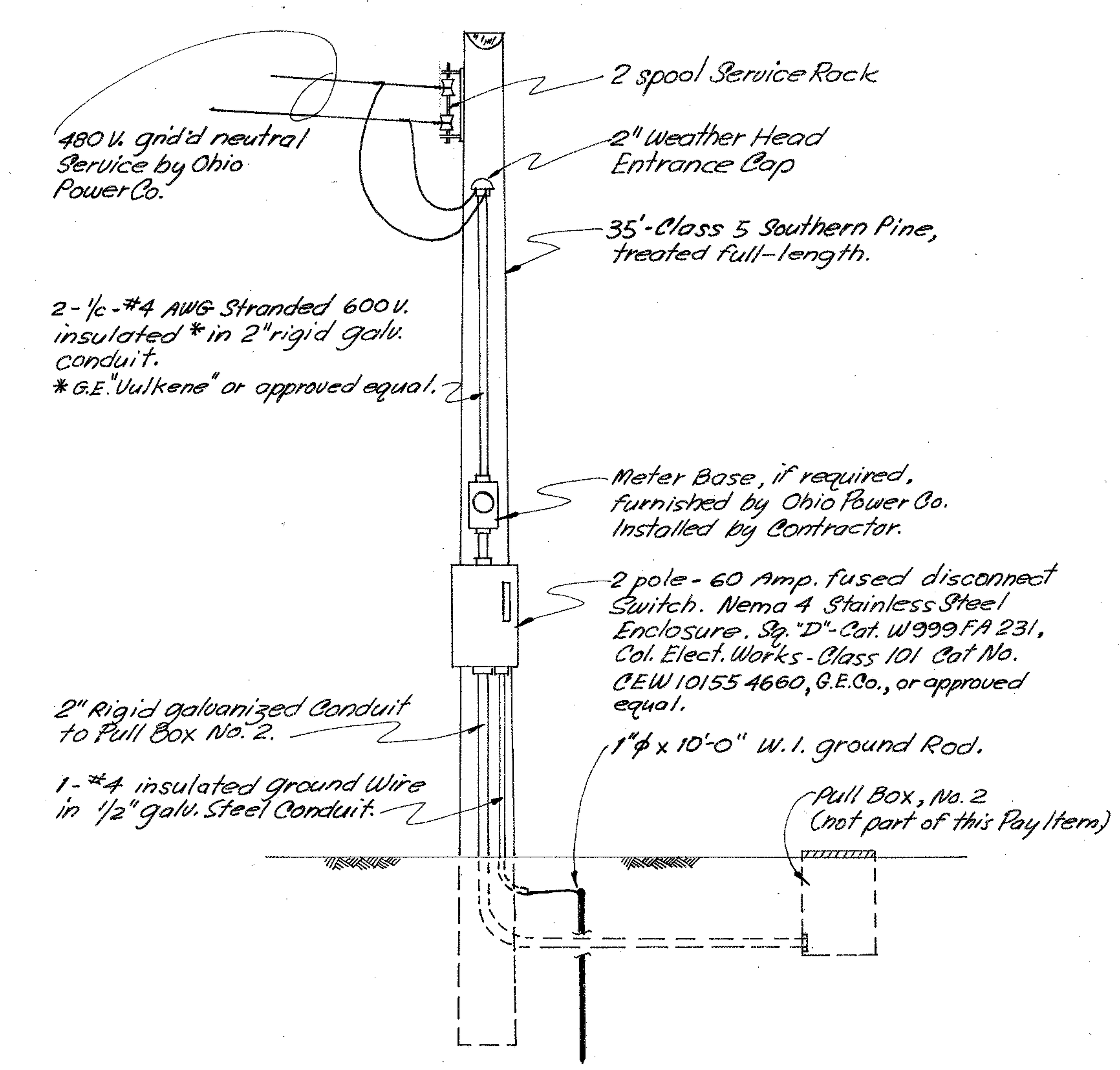
| LINE NO. | ITEM | BRIDGE BEL-7-20.06 | | | RETAINING WALLS S.E. | S.W. | N.W. | | N.E. | | TOTAL | STRUCTURE TOTAL | ROADWAY and RAMPS NORMAL | | | CODE 7221 TOTAL | REPLACEMENT LINCOLN AVE | US RT. 40 | CODE Y060 TOTAL | ROADWAY TOTAL | ITEM | UNIT | DESCRIPTION | LINE NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHEET NO. | | | | TOTAL | | | | | | | | | | | | TOTAL | | | TOTAL | | | | | |
| 1 | 625 | 2 | 10 | 12 | 1 | | | 1 | | 1 | 3 | 15 | | | | | | | | | 625 | Each | Light Pole w/ 8'-0" Bracket - Design 11A8B 30 * | 1 |
| 2 | 625 | | | | | | | | | | | | 9 | 3 | 1 | 13 | 1 | 2 | 3 | 16 | 625 | Each | Light Pole w/10'-0" Bracket-Design 11A10 B 32.5* | 2 |
| 3 | 625 | | | | | | | | | | | | 4 | 1 | 5 | 10 | | | | 10 | 625 | Each | Light Pole w/ 12'-0" Bracket-Design 11A12 B 32.5* | 3 |
| 4 | 625 | | | | | | | | | | | | 4 | | 7 | 11 | | | | 11 | 625 | Each | Light Pole w/ 15'-0" Bracket - Design 11A15 B 32.5* | 4 |
| 5 | 625 | | | | | | | | | | | | 1 | | | 1 | | | | 1 | 625 | Each | Light Pole w/ two 10'-0" Brackets-Design 11A10B32.5* | 5 |
| 6 | 625 | 2 | 10 | 12 | 1 | | | 1 | | 1 | 3 | 15 | 19 | 4 | 13 | 36 | 1 | 2 | 3 | 39 | 625 | Each | Luminaire, Type III 400W. Merc. w/ 400 W. Ballast | 6 |
| 7 | 625 | 2 | 10 | 12 | 1 | | | 1 | | 1 | 3 | 15 | 19 | 4 | 13 | 36 | 1 | 2 | 3 | 39 | 625 | Each | Mercury Vapor Lamp, 400W. - H-33-1CD - Clear | 7 |
| 8 | 625 | | | | | | | | | | | | 18 | 4 | 13 | 35 | 1 | 2 | 3 | 38 | 625 | Each | Light Pole Foundation 24"x 24" x 6' deep | 8 |
| 9 | 625 | | | | | | | | | | | | 3 | | | 3 | | | | 3 | 625 | Each | Glare Shields | 9 |
| 10 | 625 | | | | | | | | | | | | 18 | 4 | 13 | 35 | 1 | 2 | 3 | 38 | 625 | Each | Ground Rod Units | 10 |
| 11 | 625 | | | | | | | | | | | | 7 | | 4 | 11 | | 1 | 1 | 12 | 625 | Each | Pull Box, Fiber 18" I.D. w/ 19" x 1/4" Thk. C.I. Cover | 11 |
| 12 | 625 | | | | | | | | | | | | 3080 | 566 | 2445 | 6091 | | 285 | 285 | 6376 | 625 | Lin. Ft. | Trench, 24" depth. | 12 |
| 14 | 625 | 596 | 2702 | 3298 | 208 | 311 | 49 | 230 | 49 | 341 | 1188 | 4486 | 120 | | 95 | 215 | | | | 215 | 625 | Lin. Ft. | Conduit, 2" rigid metal, type II or III | 14 |
| 15 | 625 | | | | | | | | | | | | 150 | | 65 | 215 | | 65 | 65 | 280 | 625 | Lin. Ft. | Conduit, 3" rigid metal, type II or III | 15 |
| 16 | 625 | 1232 | 5604 | 6836 | 436 | 622 | 98 | 245 | 98 | 361 | 1860 | 8696 | 540 | | 350 | 890 | | 130 | 130 | 1020 | 625 | Lin. Ft. | Circuit Cable, 600 Volt 1/c No. 6 | 16 |
| 17 | 625 | 200 | 1000 | 1200 | 100 | | | 100 | | 100 | 300 | 1500 | 1800 | 400 | 1300 | 3500 | 100 | 200 | 300 | 3800 | 625 | Lin. Ft. | Pole and Bracket Cable 600 Volt, 1/c No. 10 | 17 |
| 18 | 625 | | | | | | | | | | | | 2960 | 621 | 2400 | 5981 | | 230 | 230 | 6211 | 625 | Lin. Ft. | Duct-Cable 600V. - 2 insulated 1/c No. 6 | 18 |
| 19 | 625 | | | | | | | | | | | | 4 | | 4 | 8 | | 2 | 2 | 10 | 625 | Each | Connector Kit - Type I | 19 |
| 20 | 625 | 2 | 10 | 12 | 1 | | | 1 | | 1 | 3 | 15 | 17 | 4 | 13 | 34 | 1 | 2 | 3 | 37 | 625 | Each | Connector Kit - Type II | 20 |
| 21 | 625 | 2 | 10 | 12 | 1 | | | 1 | | 1 | 3 | 15 | 17 | 4 | 13 | 34 | 1 | 2 | 3 | 37 | 625 | Each | Connector Kit - Type III | 21 |
| 22 | 625 | | | | | | | | | | | | 14 | | 4 | 18 | | | | 18 | 625 | Each | Connector Kit - Type IV | 22 |
| 23 | 625 | | | | | | | | | | | | Lump | | | Lump | | | | Lump | 625 | Lump | Service Pole | 23 |
| 24 | 625 | 2 | 8 | 10 | | | | | | | | 10 | | | | | | | | | 625 | Each | Structure Grounding System | 24 |
| 25 | 625 | Lump | Lump | Lump | Lump | | | Lump | | Lump | Lump | Lump | Lump | Lump | Lump | Lump | Lump | Lump | Lump | Lump | 625 | Lump | Circuit and Light Pole Identification | 25 |
| 26 | 625 | 2 | 10 | 12 | 1 | | | 1 | | 1 | 3 | 15 | | | | | | | | | 625 | Set | Light Pole Anchor Bolts, "U" for Structure | |
| ALTERNATE BID ITEMS | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | 625 | 2 | 10 | 12 | 1 | | | 1 | | 1 | 3 | 15 | | | | | | | | | 625 | Each | Light Pole w/ 8'-0" Bracket-Design 11A8B 30 ** | 31 |
| 32 | 625 | | | | | | | | | | | | 9 | 3 | 1 | 13 | 1 | 2 | 3 | 16 | 625 | Each | Light Pole w/10'-0" Bracket-Design 11A10 B 32.5 ** | 32 |
| 33 | 625 | | | | | | | | | | | | 4 | 1 | 5 | 10 | | | | 10 | 625 | Each | Light Pole w/ 12'-0" Bracket-Design 11A12 B 32.5 ** | 33 |
| 34 | 625 | | | | | | | | | | | | 4 | | 7 | 11 | | | | 11 | 625 | Each | Light Pole w/15'-0" Bracket-Design 11A15 B 32.5 ** | 34 |
| 35 | 625 | | | | | | | | | | | | 1 | | | 1 | | | | 1 | 625 | Each | Light Pole w/ Two 10'-0" Bracket-Design 11A10 B 32.5** | 35 |

* Circular Cross Section

** Other Than Circular Cross Section




WIRING DIAGRAM




SERVICE POLE

## LIGHTING NOTES

### Construction & Material Specifications

These plans and specifications are Supplementary to State of Ohio, Department of Highways, Construction and Material Specifications, dated Jan. 1, 1965. The following notes are amendments to, and shall be considered part of, the above specifications.

### 625.03 General

1. Electrical energy furnished by Ohio Power Co., Canton, Ohio.
2. Power Requirements: 50 KVA, 480 V., 60 cycle, single phase, 2 wire grounded neutral system. 35.75 KVA initial connected load.

### 625.07 Luminaires

Luminaires to be G.E. M-400, Westinghouse OV-25 or Line Material "Unistyle" or approved equal. Luminaires shall be ASA-IES-type III medium cutoff. Ballasts shall be integral regulator type 240/480 Volt operation.

### 625.08 Lamps

Lamps shall be ASA-H33-1CD 400 W. Clear. Lamps shall be G.E. Bonus Line, Westinghouse Lifeguard, Sylvania Banner Line, or approved equal.

### 625.11 Pull Boxes

Use 18" dia. fiber pull boxes, (wall thickness, 0.370") w/ 19" cast iron covers. See Std. Dwgs. No. H.L.-3

### 625.13 Conduit

All conduit directly buried in ground including 3" crossover conduit shall be 713.04, Type II or III.

Rev. 8-31-66 C.E.H.

### 625.14 Cable

Rome or Simplex or

All circuit cable shall be No.6 AWG copper stranded single conductor cable, cross-linked filled polyethylene insulation without jacket, G.E. Cable No. SI-58073 or approved equivalent by other manufacturers.
Pole and Bracket Cable shall be No. 10 AWG copper stranded single conductor w/ Type THHN insulation.

### 625.15 Unit Type Duct-Cable Systems.

The internal diameter of the polyethylene duct shall be no less than 1 1/2". The factory preassembled cable shall be 2-No.6 AWG copper conductors, as specified in 625.14, in 1 1/2" duct.

### 625.17 Connections.

Where fused type kits are used they shall be equipped with a 6 amp. fuse and shall be connected in the phase line only.

### Wire-Cable - Duct-Cable Identification

All circuit and ground cables and duct-cable shall be identified in each pull box, manhole, bridge junction box (Type A or B) control housing, etc. Tags shall be circular in shape, 1 3/8" minimum in diameter and not less than .031" thick copper, brass or plastic. Use steel lettering dies, 1/4" minimum size, or the equivalent engraving process to mark the tag. It shall be securely attached with an AWG #16 or larger bare copper wire. Marking of tags shall consist of an abbrev. for the ground wires "Gr'd" and circuit w/ Number or letter "Ckt. A", etc.

LIGHTING SUMMARY, LIGHTING NOTES and DETAILS.


| | |
|---|---|
| | -Mercury Vapor Luminaire: 400 watt size; ASA-IES Type III; on Poles ; H33-1CD , Mercury Vapor Lamp; off structure. |
| | -Mercury Vapor Luminaire: 400 watt size; ASA-IES Type III; on Poles ; H33-1CD , Mercury Vapor Lamp; on structures. |
| | - Duct-Cable , directly buried. |
| | -Multiple circuits, in 2" ⌀, Type II or III rigid metal conduit on structure. (713.04) Lighting & Electrical Materials. |
| | 3" ⌀ Type II or III Conduit, under paved areas. |
| III-400 W-8 | -Typical Luminaire Designation: III represents ASA-IES Type; 400 w is lamp watts; 8 is bracket length. |
| □ | -18" Fiber pull box. |
| * | -Glare shield |
| Ⓓ | -Conduit drain at low point in run, on structure only, shift as required. |
| Ⓔ | -Expansion coupling in conduit, on structure. |
| Ⓖ | -Bridge ground to earth. |
| | Distribution Center. |

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

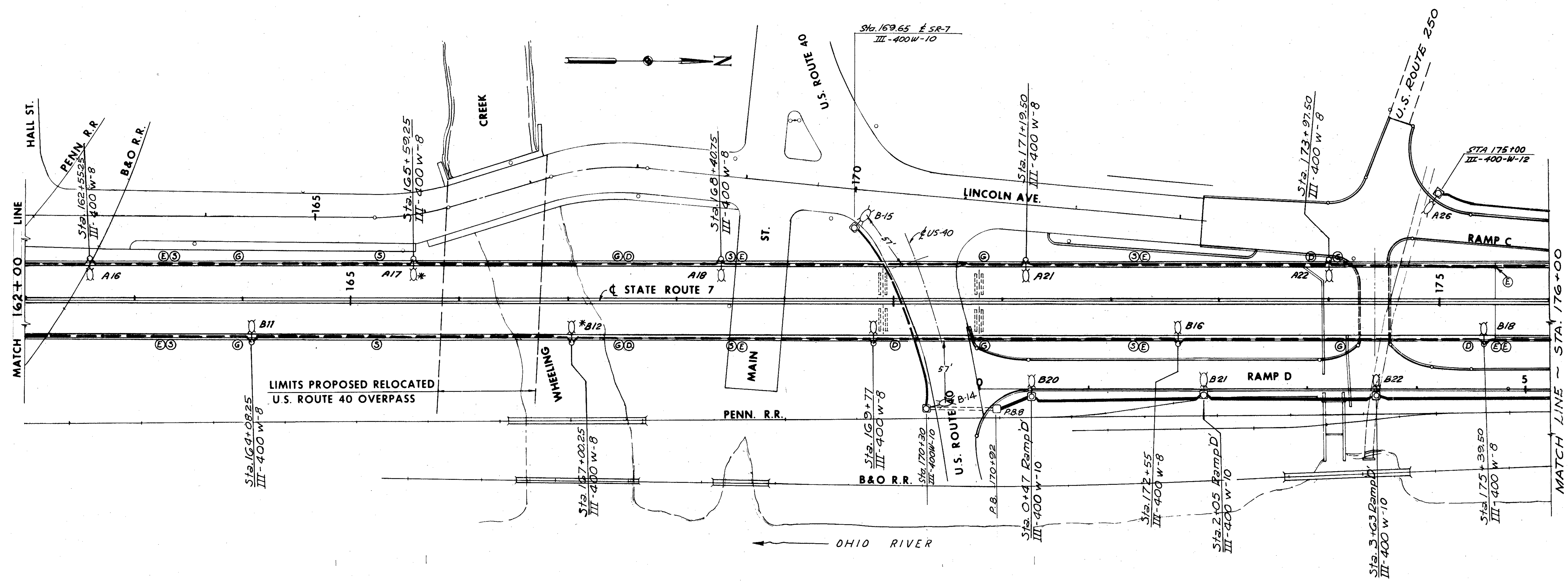
| | | | | | |
|---|---|---|---|---|---|
| MADE J.R.K. | DATE 9-13-61 | TRACED J.H. | DATE 5-31-62 | | |
| CHECKED G.J.C. | DATE 10-31-62 | SCALE 1" = 50' | | | |

LIGHTING LAYOUT STA 142+25 TO STA 162+00

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |



BEL-7-19.86




| | |
|---|---|
| | -Mercury Vapor Luminaire: 400 watt size; ASA-IES Type III; on Pole ; H33-ICD ; Mercury Vapor Lamp; off structure. or Lamp; off structure. |
| | -Mercury Vapor Luminaire: 400 watt size; ASA-IES Type III; on Pole ; H33-ICD , Mercury Vapor Lamp; on structures, |
| | Duct-Cable , directly buried. |
| | -Multiple circuits, in 2"⌀, Type II or III, conduit on structures. |
| G | -Bridge ground to earth. |
| S | -Steel ground between girders across expansion joints. |
| III-400 w-8 | -Typical Luminaire Designation: III represents ASA-IES Type; 400 w is lamp wattage; 8 is bracket length. |
| □ | 18" Fiber pull box. |
| D | -Conduit drain at low point in run, on structure only. |
| E | -Expansion coupling in conduit, on structure only. |
| * | -Glare Shield |
| | -3"⌀, Type II or III, galv. steel conduit. |

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KANSAS CITY, CLEVELAND NEW YORK

| | | | | | |
|---|---|---|---|---|---|
| MADE J.D.K. | DATE 9-15-61 | TRACED J.H. | DATE 5-31-62 | | |
| CHECKED G.J.C. | DATE 10-31-62 | SCALE 1" = 50' | Rev. 1-13-65 | | |

| FED. RD. DIVISION | STATE | PROJECT | |
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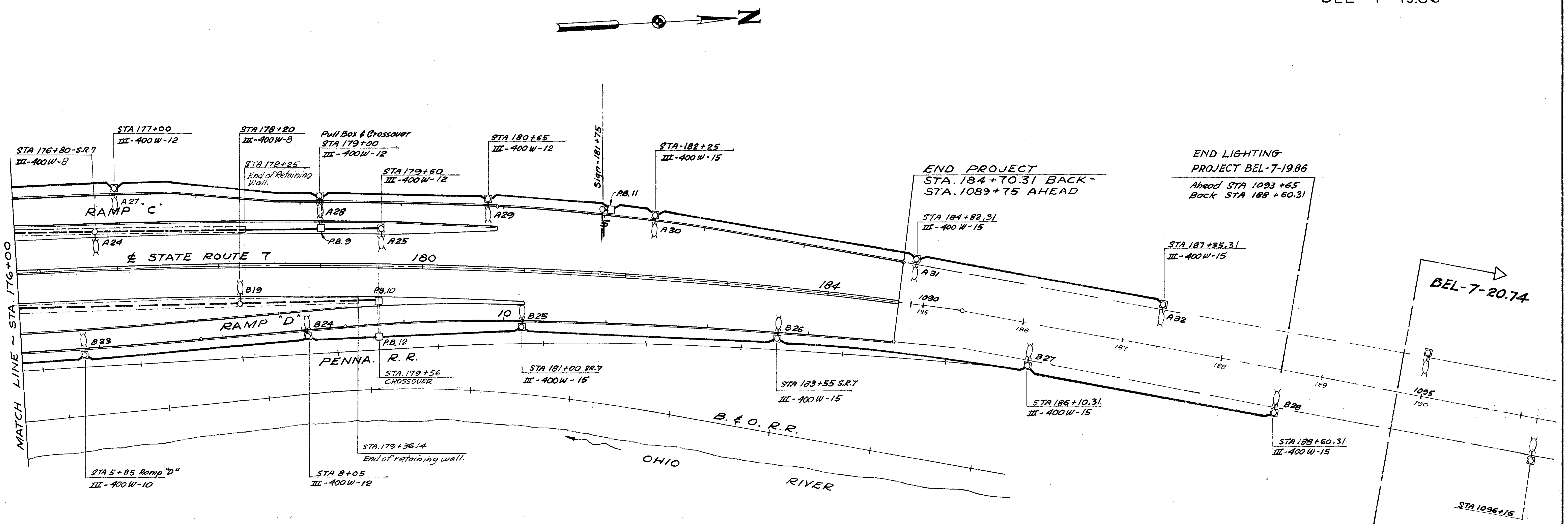
| 2 | OHIO | | |

BEL-7-19.86




KEY

| | |
|---|---|
| (symbol) | – Mercury Vapor Luminaire: 400 watt size; ASA-IES Type III; on Poles ; H33-1CD, Mercury Vapor Lamp; off structures. |
| (symbol) | – Mercury Vapor Luminaire; 400 watt size; ASA-IES Type III; on Pole ; H33-1CD, Mercury Vapor Lamp; on structures. |
| (symbol) | – Duct-Cable, directly buried. |
| (symbol) | – Multiple Circuits, in 2" ϕ, Type II or III Conduits. |
| ▫ | – 18" Fiber pull box. |
| * | – Glare shield. |
| (symbol) | – 3" ϕ, Type II or III galv. st. conduit, under paved areas. |
| III-400W-8 | – Typical Luminaire Designation: III represents ASA-IES Type; 400 w is lamp watts; 8 is bracket length. |

1. DESIGN SPECIFICATIONS

Design Specifications for Highway Structures of the State of Ohio, Department of Highways, dated September 1, 1957, together with current revisions thereof.

2. SUPPLEMENTAL SPECIFICATIONS

Reference shall be made to Supplemental Specifications 811, dated 3-29-65, 808 dated 2-7-66, 825 dated 4-22-65, and 828 dated 3-21-66.

3. REFERENCE DRAWINGS

Reference shall be made to Standard Drawings Numbers RB-1-55 revised 2-2-59, BR-1-65 revised 11-24-65 (Sheet 2 of 2), SD-1-65 dated 11-8-65, and AS-1-54 revised 8-10-65

4. DIMENSIONS

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

5. UTILITIES

a. Any existing privately owned utility facilities encountered at the site of the work which will interfere with portions of the finished roadways or structures will be removed or relocated by others. The Contractor shall co-ordinate his operations with the work of the utility owners or others who may be making the relocations, and shall notify the owners of the utilities of his schedule sufficiently in advance to permit them to make the necessary alterations.

b. Existing water lines and sewers will be relocated or removed by the Contractor as shown on the Roadway Plans.

6. EXCAVATION AND BACKFILL

The embankment shall be placed and compacted to the final ground line along the front faces of the abutments and retaining walls, after which excavation shall be made. The excavation quantity includes the removal of embankment material required for construction of the retaining walls and abutments.

7. SPREAD TYPE FOOTINGS

Spread footings at Piers 9 and 10 are designed for a maximum bearing pressure of 10 tons per square foot. Footings shall extend a minimum of 3" into firm rock, or to the elevation shown on the plans, whichever is lower.

Excavations shall be inspected by a State Highway Department soils engineer prior to placing the concrete footings. The excavations shall not be exposed to weather for prolonged periods and shall be kept dry at all times. Footings shall be placed as soon as practical after excavations have been completed.

8. PILE TEST LOADS

Pile Test Loads shall be made at Piers 1 through 4 if and where directed by the Director of Highways. Pile Test Loads shall be according to Item 506 except that the maximum load required shall be approximately 3 times the design load.

9. STEEL BEARING PILES

All piles shall be driven to firm contact with rock. If the length of penetration is approximately equal to the depth to rock according to the Bridge Foundation Investigation Report the firm contact shall be considered as attained when the capacity, according to the formula in Section 507.05 of the Specifications, is not less than the following value for a pile hammer of the indicated energy rating.

For Piers 11 through 20, north abutment and north retaining walls:
45 tons per pile using an 11,000 foot-pound hammer
40 tons per pile using a 15,000 foot-pound hammer

If the energy rating of the hammer is between the ratings shown above, the required formula capacity shall be determined by interpolation.

For Piers 5 through 8:
50 tons per pile using a 15,000 foot-pound hammer

The design load for the steel bearing piles is 40 tons per pile for Piers 5 through 8 and 35 tons per pile for Piers 11 through 20, the north abutment and north retaining walls.

10. CAST-IN-PLACE REINFORCED CONCRETE PILES

The 12-inch piling for the south retaining walls and the south abutment shall be driven to a minimum bearing capacity of 40 tons per pile.

The 14-inch piling for Piers 1 through 4 shall be driven to a minimum bearing capacity of 50 tons per pile.

Piling shall be driven according to the formula in Section 507.05 of the Specifications. After the first pile test load has been applied, the co-efficient in the formula shall be checked against the test results and adjusted accordingly.

The length of penetration of all piles shall be at least 80 per cent of the estimated average pay length of the piles as indicated on the plans unless a lesser penetration is approved by the Director.

11. CONCRETE DECK

a. The steel girders and beams shall be fabricated with camber, as specified on the plans, to compensate for the deflections due to weight of concrete and steel and vertical curvature.

b. The final surface of the roadway shall conform as nearly as practicable to the elevations shown on the plans. To compensate for deflections due to dead load of concrete, the screeds used to strike off the surface of the concrete to the final desired grade line shall be adjusted by amounts equal to deflections shown for this dead load. Screeds may require further adjustments due to irregularities in the fabricated steel.

c. The depth of concrete over each beam or girder (top of concrete to top of flange) at the supports is given on the plans. The concrete slab shall be of uniform thickness between beams or girders, with adjustments obtained by varying the thickness of the haunches over the beams or girders.

d. In order to facilitate water curing of the concrete, its placement shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are parallel to transverse reinforcing steel and are located near the center of any span.

e. The aforementioned depth of concrete over each beam or girder 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 may not have the exact camber or conformation required to place it parallel to the finished grade.

12. MACHINE FINISH

The concrete bridge deck shall be finished by the use of a finishing machine.

13. REINFORCING STEEL

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

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

b. The clear distance between reinforcing steel and face of concrete shall be 3" at bottom of footings, $2\frac{1}{2}$" ± at bar mats under shoes and 2" elsewhere unless otherwise shown on the plans.

The clear distance shall be measured from the inner face of surfaces with rustications.

14. WATERPROOFING

All contraction and expansion joints in back faces of substructure against which earth is to be placed shall be waterproofed with a premolded sealing strip as shown on the plans.

16. SHOP PAINTING STEEL

The surface preparation of all steel, requiring shop painting as per the Plans and Specifications, shall be accomplished by blast cleaning or power tool cleaning, except as noted in the Specifications regarding the use of Chromate Primers.

17. CONSTRUCTION ADJACENT TO RAILROAD TRACKS

a. Minimum temporary construction clearance of 19 feet vertically above top of rail and 8 feet horizontally from centerline of the track shall be maintained at all times.

b. Before construction is started, the Contractor shall submit nine sets of prints showing details of sheeting and bracing to be used for excavation adjacent to any railroad track to the Director for approval by the Department of Highways, and by the Railroad Company affected as determined from the plans.

c. After the Contractor has completed all excavation and backfill adjacent to the track in compliance with Section 503.04 and 503.09 of the Construction and Material Specifications, subject to the supervision of the affected Railroad Company, nothing in Sections 503.04 and 503.09 or 108.04 of the Specifications shall be construed to hold the Contractor liable for aligning and resurfacing the railroad track.

18. LIGHTING

For general notes pertaining to lighting see sheets 59 through 62 of the Roadway Plans.

19. DESIGN DATA:

Design Loading - CF 2000 (57)

Concrete Class C - basic unit stress 1,333 p.s.i.
Concrete Class E - basic unit stress 1,133 p.s.i.

Structural Steel - ASTM A36 - basic unit stress 20,000 p.s.i.
Reinforcing Steel - ASTM A15, A16, A160, Deformed, Intermediate or Hard Grade. Basic unit stress 20,000 p.s.i. Except, spiral reinforcement may be plain, Structural Grade with basic unit stress of 18,000 p.s.i.

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CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

GENERAL NOTES
STATE ROUTE 7 VIADUCT

BR. NO. BEL-7-2006 STA. 159 + 12.75
SCALE: ______ STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

| DRAWN OMK | TRACED | CHECKED WF | REVIEWED WF | REVISED |
|---|---|---|---|---|
| DATE 5-28-62 | DATE | DATE 5-28-62 | DATE 5-29-62 | 949 SHEET 65 |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |



BELMONT COUNTY
BEL-7-19.86

## ESTIMATED QUANTITIES

| ITEM | DESCRIPTION | UNIT | ABUTMENTS | | PIERS | | SUPERSTRUCTURE | | RETAINING WALLS | | | | | GENERAL | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | North | South | 1 thru 8; 11 thru 20 | 9 and 10 | Units 1,2,4 and 5 | Unit 3 | Northeast | Northwest | Southeast | Southwest | | | | | |
| 503 | Excavation for Structures (Unclassified) | Cu. Yds. | 190 | 185 | 1,670 | 1,402 | | | 615 | 560 | 563 | 544 | | | 5729 | | |
| 503 | Cofferdams, Cribs and Sheeting | Lump Sum | | | | | | | | | | | | Lump Sum | Lump Sum | | |
| 511 | Class C Concrete, Superstructure | Cu. Yds. | | | | | 3,230 | 785 | | | | | | | 4,015 | | |
| 511 | Class C Concrete, Pier Caps and Pier Shafts | Cu. Yds. | | | 1,625 | 600 | | | | | | | | | 2,225 | | |
| 511 | Class E Concrete, Abutments (Above Footings) | Cu. Yds. | 115 | 140 | | | | | | | | | | | 255 | | |
| 511 | Class E Concrete, Retaining Walls (Above Footings) | Cu. Yds. | | | | | | | 280 | 250 | 279 | 280 | | | 1089 | | |
| 511 | Class E Concrete, Footings (Abutments, Piers and Walls) | Cu. Yds. | 86 | 94 | 795 | 186 | | | 300 | 259 | 265 | 246 | | | 2231 | | |
| 512 | Waterproofing, Premolded Sealing Strip | Lin. Ft. | 20 | 23 | | | | | 85 | 73 | 101 | 104 | | | 406 | | |
| 509 | Reinforcing Steel | Lbs. | 11,908 | 14,633 | 213,466 | 66,469 | 807,527 | 203,439 | 31,099 | 30,535 | 32,699 | 34,239 | | | 1446014 | | |
| 513 | Structural Steel | Lbs. | | | | | 3,180,000 | 806,000 | | | | | | | 3,986,000 | | |
| 514 | Field Painting of Structural Steel | Lbs. | | | | | 3,180,000 | 806,000 | | | | | | | 3,986,000 | | |
| 516 | 1" Preformed Expansion Joint Filler, AASHO M153 | Sq. Ft. | 55 | 72 | | | | | 93 | 107 | 147 | 100 | | | 574 | | |
| 516 | ½" Preformed Expansion Joint Filler, AASHO M153 | Sq. Ft. | | | | | | | 296 | 160 | 176 | 119 | | | 751 | | |
| 517 | RAILING TYPE 2 | Lin. Ft. | 11.50 | 11.50 | | | 2616.35 | 643.65 | 384 | 276.81 | 302.76 | 211.20 | | | 4457.77 | | |
| 505 | First Test Pile | Lump Sum | | | | | | | | | | | | Lump Sum | Lump Sum | | |
| 506 | First Pile Test Load | Lump Sum | | | | | | | | | | | | Lump Sum | Lump Sum | | |
| 506 | Subsequent Pile Test Load | Each | | | | | | | | | | | | 1 | 1 | | |
| 507 | Steel Bearing Piles (12 BP 53) | Lin. Ft. | | | 4,640 | | | | | | | | | | 4,640 | | |
| 507 | Steel Bearing Piles (10 BP 42) | Lin. Ft. | 1,180 | | 11,720 | | | | 3150 | 2650 | | | | | 18700 | | |
| 507 | 14" Φ Cast-In-Place Reinforced Concrete Piles | Lin. Ft. | | | 6,750 | | | | | | | | | | 6,750 | | |
| 507 | 12" Φ Cast-In-Place Reinforced Concrete Piles | Lin. Ft. | | 2,470 | | | | | | | 5460 | 5270 | | | 13,200 | 13195 | |
| | | | | | | | | | | | | | | | | | |
| 625 | For Lighting Quantities, See Sheet 59 | | | | | | | | | | | | | | | | |
| 828 | Joint sealer (end dam) | Lin. Ft. | | | | | 348 | | | | | | | | 348 | | |
| 518 | Porous Backfill | Cu. Yds. | 82 | 115 | | | | | 146 | 135 | 160 | 182 | | | 820 | | |
| 518 | Type A Scuppers (As Per Plan) | Each | | | | | 24 | 8 | | | | | | | 32 | | |
| 518 | Type B Scuppers (As Per Plan) | Each | | | | | 2 | | | | | | | | 2 | | |
| 518 | 8" Wrought Iron or Galvanized Steel Pipe Including Fastenings | | | | | | | | | | | | | | | | |
| | and Specials | Lin. Ft. | | | | | | | | | | | | 268 | 268 | | |
| 518 | 8" Pipe Trough Including Specials | Lin. Ft. | | | | | | | | | | | | 117 | 117 | | |
| 518 | 8" Φ Perforated C.M.P. including specials 707.06, | Lin. Ft. | 48 | 48 | | | | | | | | | | | 96 | | |
| | bituminous coated per 707.04. | | | | | | | | | | | | | | | | |
| 518 | 12" Non-perforated C.M.P. 707.06, bituminous coated per 707.04 | Lin. Ft. | | | | | | | | | | | | 180 | 180 | | |
| 601 | Concrete Slope Protection, | Sq. Yds. | | | | | | | | | | | | 585 | 585 | | |
| Special | Preboring For Piling (Including Backfill) (1) | Lin. Ft. | | | 148 | | | | | | | | | | 148 | | |
| 808 | Water-Reducing Set-Retarding Admixture | Units | | | | | 3,230 | 785 | | | | | | | 4,015 | | |
| 825 | Concrete Surface treatment | Sq. Yd | 40 | 40 | | | 10,830 | 2680 | 270 | 200 | 210 | 150 | | | 14,420 | | |

(1) Backfill (after piles are driven) shall conform to Item 310 of the construction specifications.

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KANSAS CITY CLEVELAND NEW YORK

**ESTIMATED QUANTITIES**
**STATE ROUTE 7 VIADUCT**

BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: None STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

| DRAWN C.H.B. | TRACED | CHECKED C.K.B. | REVIEWED W.F. | REVISED |
|---|---|---|---|---|
| DATE 5-31-61 | DATE | DATE 5-30-62 | DATE 6-5-62 | 949 SHEET 54 |

BELMONT COUNTY
BEL-7-19.86

U.S.G.S. B.M.
Brass plate on top step of B.&O. R.R. Freight Sta. Elev. 657.27


## PROPOSED STRUCTURE

TYPE: Continuous rolled beam and welded girders with reinforced concrete deck and substructure.
SPANS: Vary, see Plan
ROADWAY: 62'-0" f/f of 3'-2" safety curbs with 4'-0" raised median.
LOADING: CF2000(57)-Adequate for AASHO alternate loading
SKEW: None
WEARING SURFACE: 1" Monolithic Concrete
APPROACH SLABS: AS-1-54 (25'-0" long)
ALIGNMENT: Varies Unit 1; Tangent Units 2,3,4 and 5

**NOTES:**

* 15'-0" Required minimum vertical clearance. Point of actual minimum vertical clearance occurs at East exterior beam and South gutter of Ramp B.

** 22'-0" Required minimum vertical clearance. Point of actual minimum vertical clearance occurs at East exterior beam and North rail of P.R.R. Lead to B.&O. Team Track.

*** 22'-0" Required minimum vertical clearance. Point of actual minimum vertical clearance occurs at West exterior beam and North rail of B.&O. R.R. West Bound Main Track.

The estimated average vertical length of piles at each substructure unit is shown thus, ○ in Feet. The type and size of piles are as follows:
- 12" Dia. C.I.P. Reinforced Concrete - South Retaining Walls and South Abutment.
- 14" Dia. C.I.P. Reinforced Concrete - Piers 1-E and 1-W through Piers 4-E and 4-W.
- 12 BP53 - Piers 5-E and 5-W through Piers 8-E and 8-W.
- 10 BP42 - Piers 11-E and 11-W through Piers 20-E and 20-W, North Abutment and North Retaining Walls.

Foundation design and foundation quantities are based on a study of rod soundings and soil-sampling soundings made at the site. This sounding information, the accuracy of which the State does not guarantee, may be examined in the office of the Bureau of Bridges in Columbus or in the Division Office in New Philadelphia.

The following items are not included in the Bridge Plans. See Roadway Plans for details and quantities.
- Removal of existing pavement, etc.
- Relocation, protection, or removal of existing utilities.
- Approach grading; pavements, and slabs.
- Type 1 modified paved gutter.
- Guard Rail
- Lighting

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## GENERAL PLAN AND ELEVATION
## STATE ROUTE 7 VIADUCT

BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: HOR. = 1"=50' VER. = 1"=30' STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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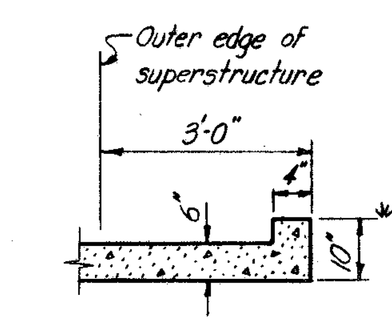
BELMONT COUNTY
BEL-7-19.86

**CURVE DATA- ℄ S.R.7**

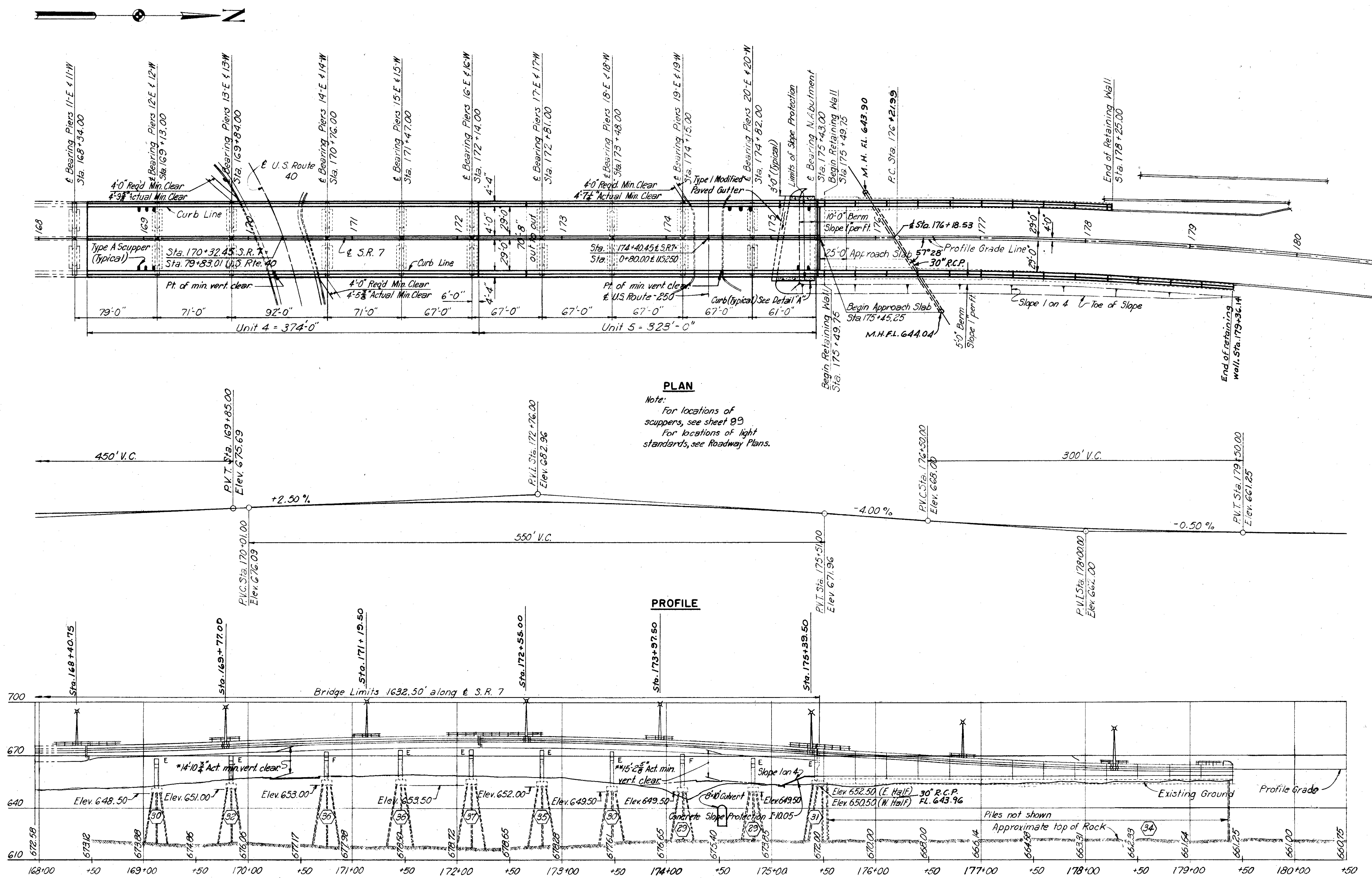
P.I. Sta. = 180+79.33
P.C. Sta. = 176+21.99

$\Delta$ = 11° 23'-45" Rt.
D = 1° 15' 00"
R = 4583.66'

T = 457.34
E = 22.76




**DETAIL "A"**
(No Scale)




**ELEVATION**

Notes:
* 15'-0" Design vertical clearance. Point of actual minimum vertical clearance occurs at East exterior beam and South edge of pavement of U.S. Route 40.
** 15'-0" Design vertical clearance. Point of actual minimum vertical clearance occurs at North gutter of U.S. Route 250 and East exterior beam.
For additional notes, see sheet 67

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**GENERAL PLAN AND ELEVATION**
**STATE ROUTE 7 VIADUCT**

BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: HOR.-1"=50' VER.-1"=30' STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

| DRAWN A.J.S. | TRACED | CHECKED CHB | REVIEWED W. | REVISED |
|---|---|---|---|---|
| DATE 3-17-59 | DATE | DATE 6-6-61 | DATE 6-5-62 | 949 SHEET 56 |

| FED. RD. DIVISION | STATE | PROJECT | | |
|---|---|---|---|---|
| 2 | OHIO | | | |

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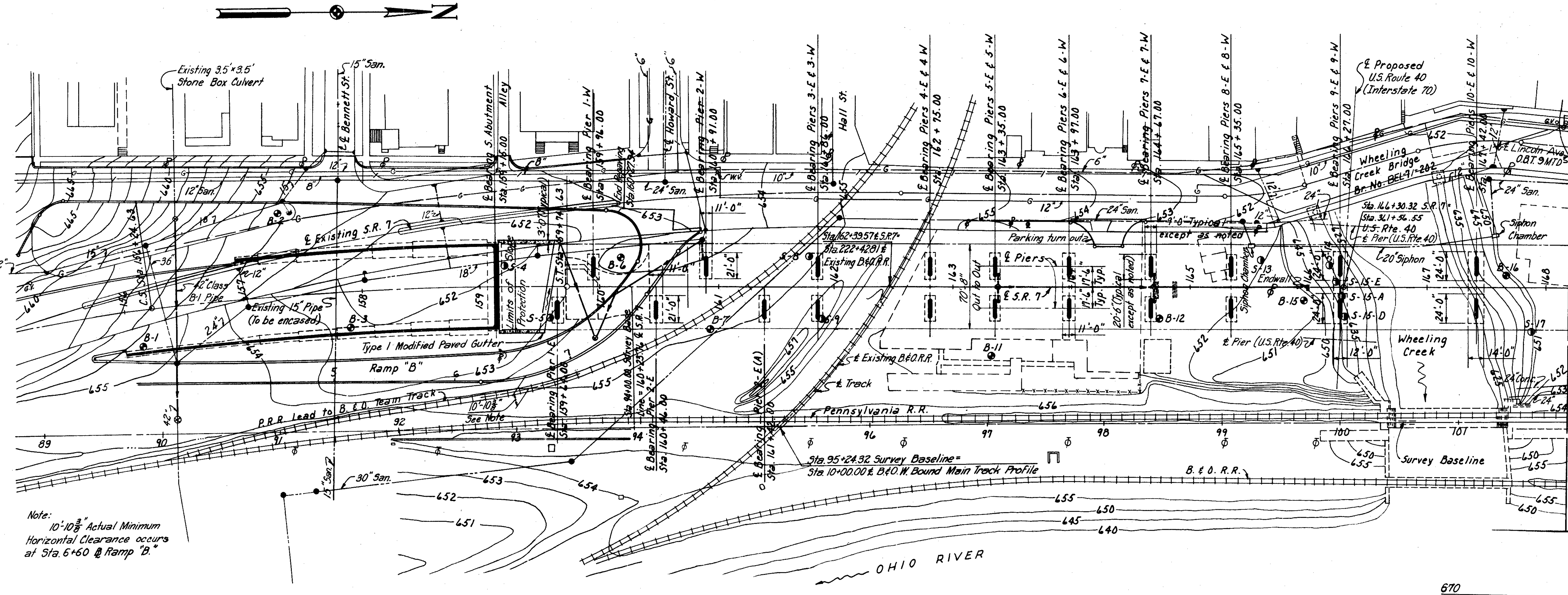
BELMONT COUNTY

BEL-7-19.86



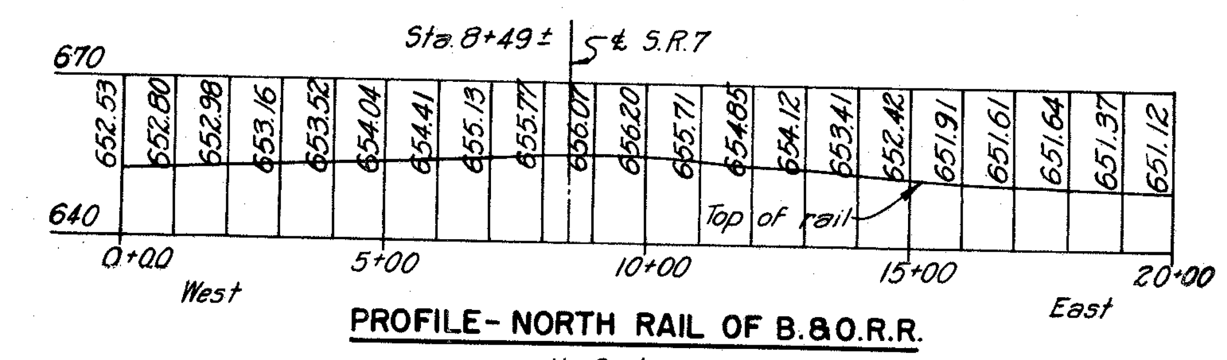

STA. 156 + 00.00 TO STA. 168 + 20.00

## LEGEND

- Existing Water Main
- Existing Sewer
- Existing Gas Line
- Existing A.T.&T. Cable
- Existing Power Pole
- Existing A.T.&T. M.H.
- Existing Sewer M.H.
- Existing Sewer C.B.
- Existing Telephone Pole
- Soil-Sampling Sounding Locations
- Drive Rod Sounding Locations
- Proposed Inlet
- Proposed M.H.
- Proposed Sewer (Roadway Item)
- Proposed Sewer (Bridge Item)

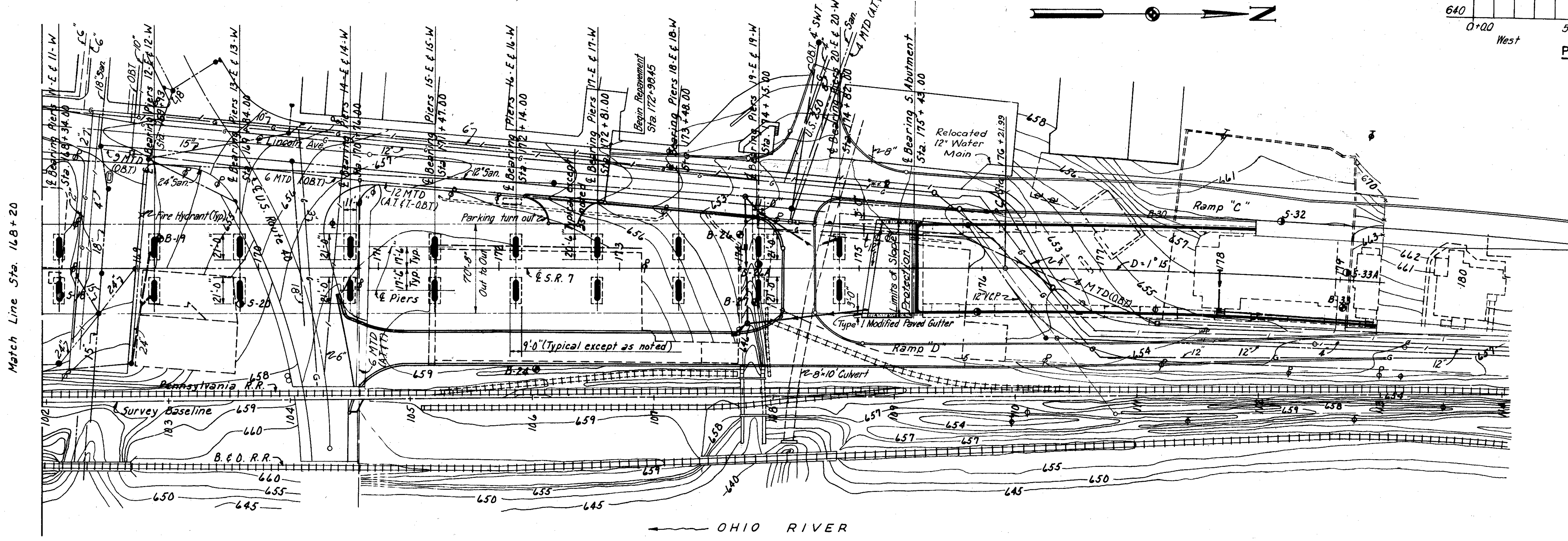
**EXISTING BRIDGE NO. BEL-7-202**

TYPE: Steel girder with concrete deck and substructure.
SPAN: 108'-0"
ROADWAY: 43'-8", 2-5'-0" sidewalks
LOADING: Street Car and H15-33
SURFACE COURSE: 2 1/2" Asphaltic Concrete




PROFILE - NORTH RAIL OF B.&O.R.R.

No Scale




STA. 168 + 20.00 TO STA. 180 + 25.00

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

## SITE PLAN
## STATE ROUTE 7 VIADUCT

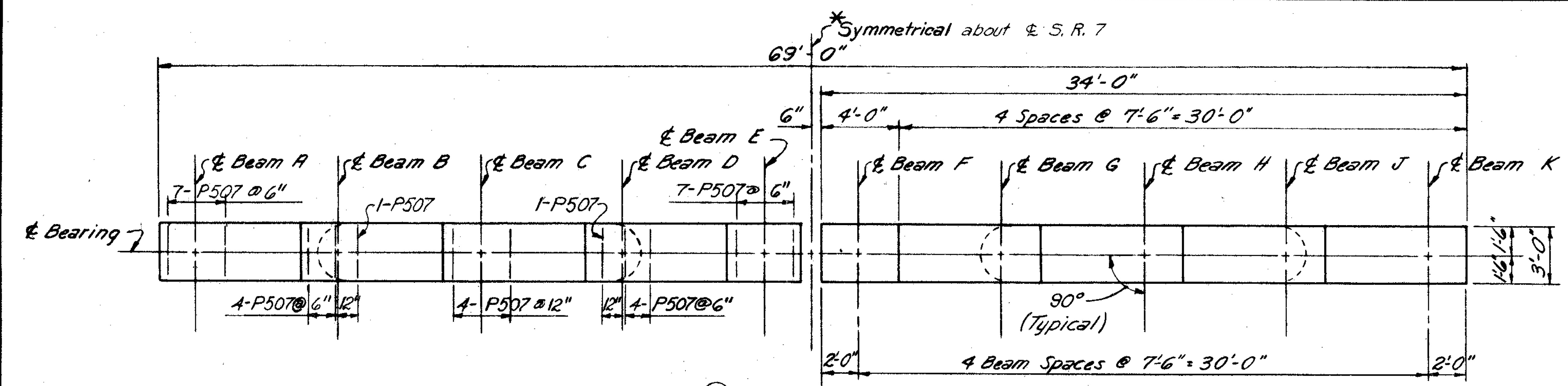
BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: 1" = 50' STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

| DRAWN AJS DATE 3-17-59 | TRACED AEK DATE 4-14-61 | CHECKED CKB DATE 4-28-61 | REVIEWED DATE 6-5-62 | REVISED 949 SHEET 57 |
|---|---|---|---|---|

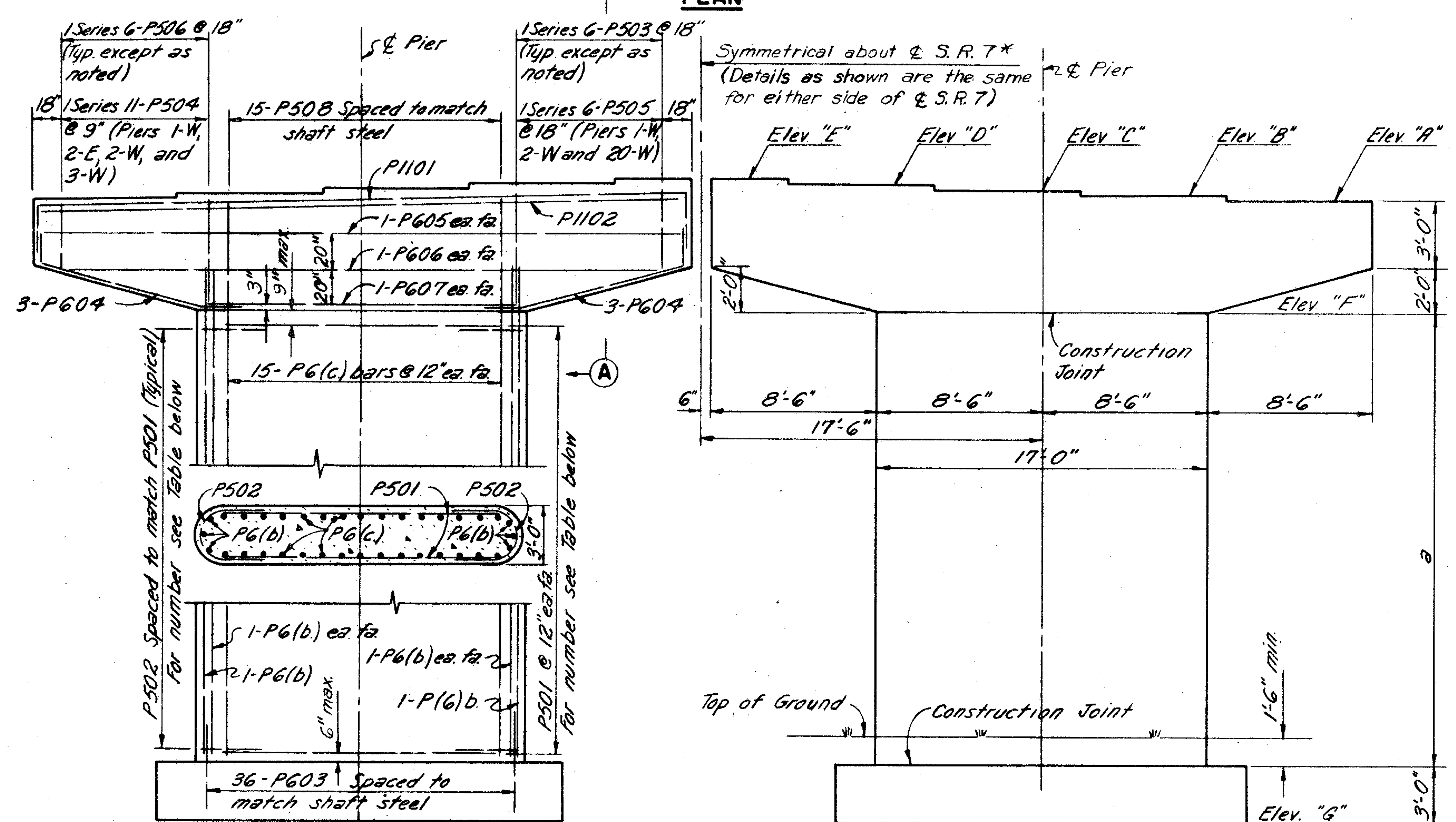
| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

70

BELMONT COUNTY
BEL-7-19.86




## PLAN

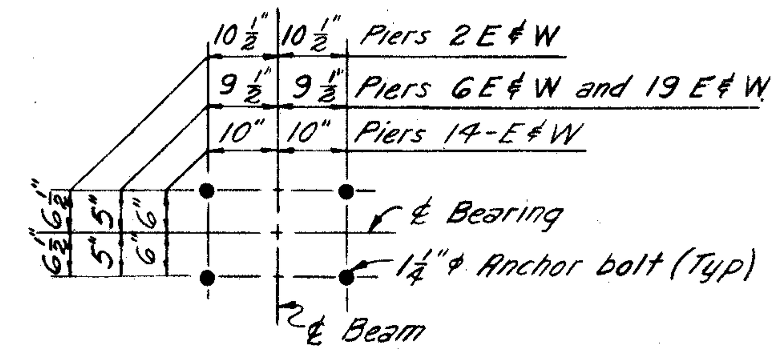



## ELEVATION

Scale: $\frac{3}{16}$" = 1'-0"
(Piling not shown.)

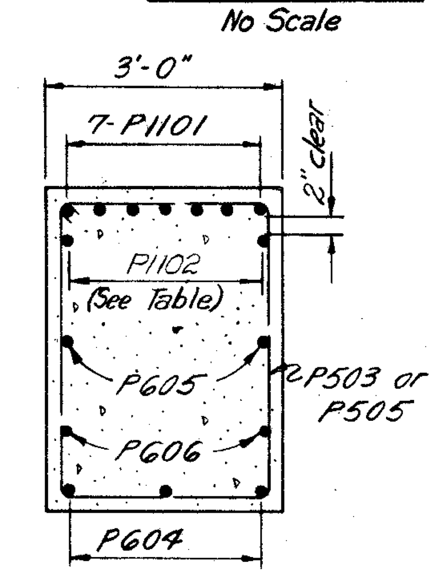
*Note:
Pier 1 symmetrical about extended tangent from S.T. Sta. 159+74.63 ℄ S.R. 7

Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bolt setting.




## ANCHOR BOLT SETTING FOR BOLSTERS

No Scale



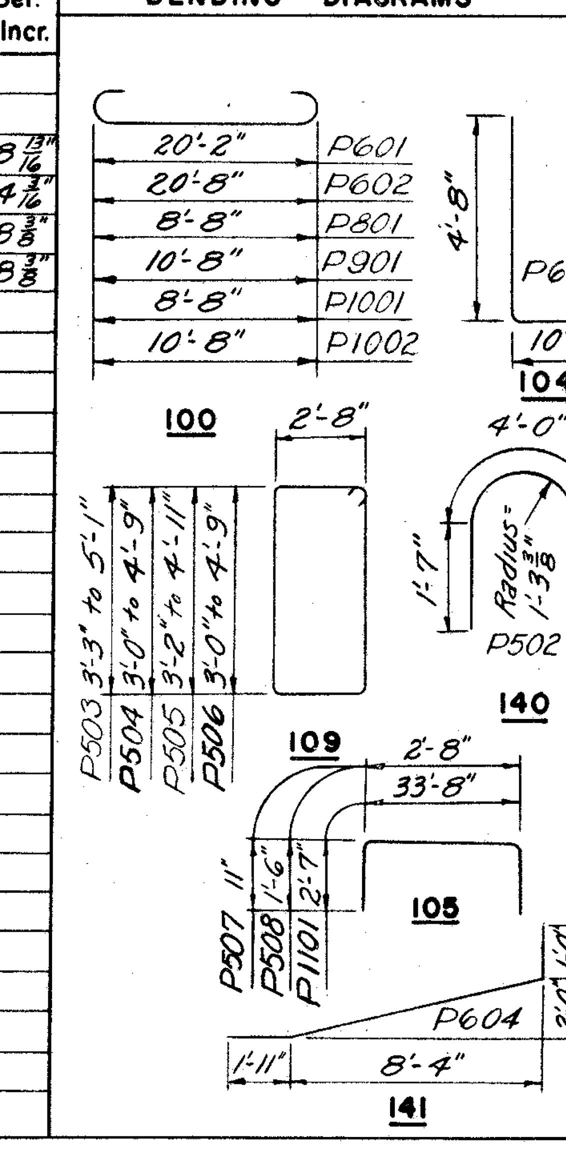

## SECTION A-A

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

## REINFORCEMENT SCHEDULE

| Mark | No. | Length | Weight (Pounds) | Type | Ser. Incr. |
|---|---|---|---|---|---|
| P501 | 1076 | 14'-0" | 15,712 | Str. | |
| P502 | 1076 | 7'-2" | 8,043 | 140 | |
| P503 | 34 Ser 6 | 12'-4" to 16'-0" | 3,014 | 109 | $8\frac{13}{16}$" |
| P504 | 4 Ser 11 | 11'-10" to 15'-4" | 623 | 109 | $4\frac{3}{16}$" |
| P505 | 3 Ser 6 | 12'-2" to 15'-8" | 261 | 109 | $8\frac{3}{8}$" |
| P506 | 33 Ser 6 | 11'-10" to 15'-4" | 2,805 | 109 | $8\frac{3}{8}$" |
| P507 | 1036 | 4'-3" | 4,592 | 105 | |
| P508 | 555 | 5'-5" | 3,136 | 105 | |
| | | | | | |
| P601 | 232 | 21'-6" | 7,492 | 100 | |
| P602 | 64 | 22'-0" | 2,115 | 100 | |
| P603 | 1332 | 5'-4" | 10,670 | 104 | |
| P604 | 222 | 11'-5" | 3,807 | 141 | |
| P605 | 74 | 33'-6" | 3,723 | Str. | |
| P606 | 74 | 31'-9" | 3,529 | Str. | |
| P607 | 74 | 17'-0" | 1,890 | Str. | |
| P608 | 30 | 20'-0" | 901 | Str. | |
| P609 | 30 | 22'-6" | 1,014 | Str. | |
| P610 | 36 | 21'-6" | 1,163 | Str. | |
| P611 | 90 | 23'-9" | 3,211 | Str. | |
| P612 | 84 | 19'-0" | 2,397 | Str. | |
| P613 | 90 | 23'-3" | 3,143 | Str. | |
| P614 | 36 | 15'-3" | 825 | Str. | |
| P615 | 60 | 21'-9" | 1,960 | Str. | |
| P616 | 36 | 12'-9" | 689 | Str. | |
| P617 | 60 | 21'-0" | 1,893 | Str. | |

### BENDING DIAGRAMS



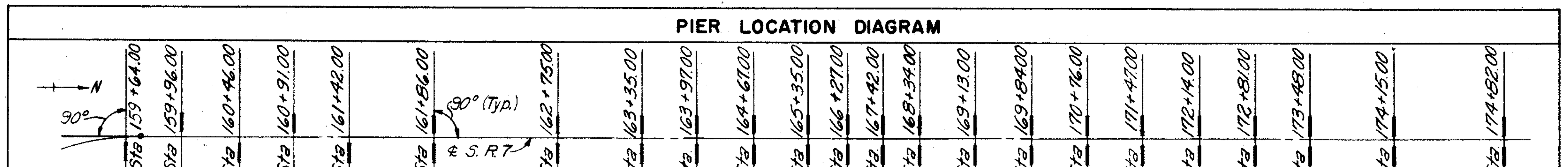

| Mark | No. | Length | Weight (Pounds) | Type |
|---|---|---|---|---|
| P618 | 48 | 14'-0" | 1,009 | Str. |
| P619 | 120 | 17'-6" | 3,154 | Str. |
| P620 | 180 | 15'-6" | 4,191 | Str. |
| P621 | 132 | 16'-9" | 3,321 | Str. |
| P622 | 120 | 16'-3" | 2,929 | Str. |
| P623 | 60 | 18'-0" | 1,622 | Str. |
| P624 | 120 | 22'-0" | 3,965 | Str. |
| | | | | |
| P801 | 536 | 10'-10" | 15,504 | 100 |
| | | | | |
| P901 | 160 | 13'-2" | 7,163 | 100 |
| | | | | |
| P1001 | 168 | 11'-6" | 8,313 | 100 |
| P1002 | 56 | 13'-6" | 3,253 | 100 |
| | | | | |
| P1101 | 259 | 38'-3" | 52,635 | 105 |
| P1102 | 100 | 33'-6" | 17,799 | Str. |
| | | | | |
| | Total Weight = 213,466 | | | |

## REPLACEMENT REINFORCEMENT SCHEDULE

| Size | No. | Length | Type |
|---|---|---|---|
| 4 | 1 | 5'-3" | Str. |
| 5 | 21 | 5'-9" | Str. |
| 6 | 45 | 6'-0" | Str. |
| 7 | 1 | 6'-3" | Str. |
| 8 | 2 | 6'-6" | Str. |
| 9 | 1 | 7'-0" | Str. |
| 10 | 1 | 7'-3" | Str. |
| 11 | 6 | 7'-6" | Str. |

NOTES:
For footing details not shown, see sheet 71
For drainage details of piers, see sheet 89.
For anchor bolt details, see Ohio Standard Drawing RB-1-55.

## PIER LOCATION DIAGRAM




## TABULATION OF PIER DATA

| | | | 1-E (E) | 1-W (E) | 2-E (F) | 2-W (F) | 2-E(A) (E) | 3-E (E) | 3-W (E) | 4-E (E) | 4-W (E) | 5-E&W (E) | 6-E&W (F) | 7-E&W (E) | 8-E&W (E) | 9-E&W and 10-E&W | 11-E&W (E) | 12-E&W (E) | 13-E&W (E) | 14-E&W (F) | 15-E&W (E) | 16-E&W (E) | 17-E&W (E) | 18-E&W (E) | 19-E (F) | 19-W (F) | 20-E (E) | 20-W (E) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ELEVATION | | A | 673.92 | 674.93 | 675.51 | 676.35 | 676.76 | 676.91 | 676.75 | 676.32 | 676.35 | 675.94 | 674.37 | 672.32 | 667.70 | For details, see sheet T-210 | 665.06 | 668.47 | 669.81 | 671.78 | 672.84 | 673.30 | 672.80 | 672.02 | 670.68 | 670.76 | 668.78 | 669.04 |
| | | B | 674.04 | 674.95 | 675.62 | 676.43 | 676.88 | 677.03 | 676.87 | 676.44 | 676.46 | 676.06 | 674.49 | 672.44 | 667.82 | | 665.18 | 668.59 | 669.92 | 671.89 | 672.96 | 673.42 | 672.92 | 672.14 | 670.80 | 670.86 | 668.90 | 669.10 |
| | | C | 674.15 | 674.96 | 675.74 | 676.51 | 676.99 | 677.14 | 676.99 | 676.56 | 676.58 | 676.18 | 674.60 | 672.56 | 667.94 | | 665.30 | 668.71 | 670.04 | 672.01 | 673.08 | 673.54 | 673.03 | 672.26 | 670.92 | 670.95 | 669.02 | 669.15 |
| | | D | 674.27 | 674.98 | 675.86 | 676.59 | 677.11 | 677.26 | 677.10 | 676.67 | 676.70 | 676.29 | 674.72 | 672.68 | 668.05 | | 665.41 | 668.82 | 670.16 | 672.13 | 673.19 | 673.66 | 673.15 | 672.37 | 671.04 | 671.05 | 669.14 | 669.20 |
| | | E | 674.39 | 674.99 | 675.98 | 676.67 | 677.23 | 677.38 | 677.22 | 676.79 | 676.81 | 676.41 | 674.84 | 672.79 | 668.17 | | 665.53 | 668.94 | 670.28 | 672.24 | 673.31 | 673.77 | 673.27 | 672.49 | 671.15 | 671.15 | 669.25 | 669.26 |
| | | F | 668.92 | 669.93 | 670.51 | 671.35 | 671.76 | 671.91 | 671.75 | 671.32 | 671.35 | 670.94 | 669.37 | 667.32 | 662.70 | | 660.06 | 663.47 | 664.81 | 666.78 | 667.84 | 668.30 | 667.80 | 667.02 | 665.68 | 665.76 | 663.78 | 664.04 |
| | | G | 648.00 | 648.00 | 648.00 | 649.00 | 650.50 | 650.50 | 650.50 | 650.50 | 650.50 | 650.50 | 649.50 | 648.00 | 647.00 | | 646.50 | 648.50 | 651.00 | 653.00 | 653.50 | 653.50 | 652.00 | 649.50 | 649.50 | 649.50 | 649.50 | 649.50 |
| Dimension a | | | 17'-11" | 18'-$11\frac{1}{8}$" | 19'-$6\frac{1}{8}$" | 19'-$4\frac{1}{4}$" | 18'-$3\frac{1}{8}$" | 18'-$4\frac{7}{8}$" | 18'-3" | 17'-$9\frac{7}{8}$" | 17'-$10\frac{1}{4}$" | 17'-$5\frac{1}{4}$" | 16'-$10\frac{1}{2}$" | 16'-$3\frac{7}{8}$" | 12'-$8\frac{3}{8}$" | | 10'-$6\frac{3}{4}$" | 11'-$11\frac{5}{8}$" | 10'-$9\frac{3}{4}$" | 10'-$9\frac{3}{8}$" | 11'-$4\frac{1}{8}$" | 11'-$9\frac{5}{8}$" | 12'-$9\frac{5}{8}$" | 14'-$6\frac{1}{4}$" | 13'-$2\frac{1}{8}$" | 13'-$3\frac{1}{8}$" | 11'-$3\frac{3}{8}$" | 11'-$6\frac{1}{2}$" |
| Reinf. Steel | Number | P501 | 36 | 38 | 40 | 40 | 36 | 36 | 36 | 36 | 36 | 36 | 34 | 32 | 26 | | 22 | 24 | 22 | 22 | 24 | 24 | 26 | 30 | 26 | 26 | 22 | 24 |
| | | P502 | 36 | 38 | 40 | 40 | 36 | 36 | 36 | 36 | 36 | 36 | 34 | 32 | 26 | | 22 | 24 | 22 | 22 | 24 | 24 | 26 | 30 | 26 | 26 | 22 | 24 |
| | | P1102 | 2 | 6 | 6 | 6 | 2 | 2 | 6 | 4 | 4 | 0 | 2 | 2 | 2 | | 3 | 3 | 4 | 4 | 3 | 0 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Mark | P6(b) | P608 | P610 | P610 | P610 | P610 | P610 | P610 | P608 | P608 | P608 | P612 | P612 | P614 | | P616 | P618 | P616 | P616 | P618 | P618 | P614 | P621 | P614 | P614 | P618 | P618 |
| | | P6(c) | P609 | P611 | P611 | P611 | P613 | P613 | P613 | P624 | P624 | P624 | P615 | P617 | P619 | | P620 | P621 | P620 | P620 | P622 | P621 | P619 | P612 | P623 | P623 | P622 | P622 |

Note: (E) denotes piers with Rockers.
(F) denotes piers with Bolsters.

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KANSAS CITY CLEVELAND NEW YORK

## PIERS 1 THRU 8 AND 11 THRU 20
## STATE ROUTE 7 VIADUCT

BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: As Noted STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

| DRAWN CKB DATE 4-9-61 | TRACED DATE | CHECKED DATE 10-30-61 | REVIEWED DATE 6-5-62 | REVISED 949 SHEET 58 |
|---|---|---|---|---|

| FED. RD. DIVISION | STATE | PROJECT |
|---|---|---|
| 2 | OHIO | |

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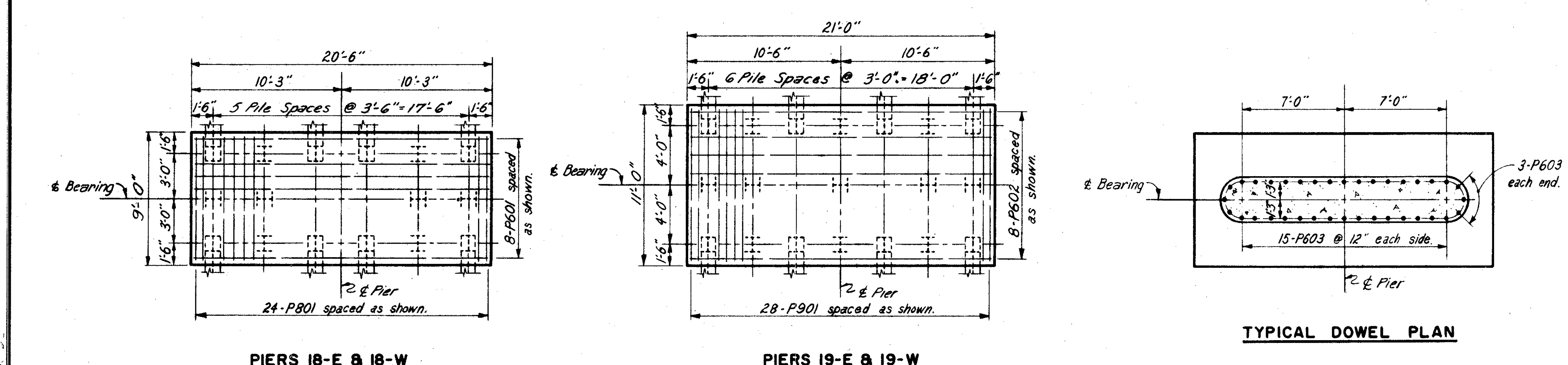
BELMONT COUNTY
BEL-7-19.86


NOTES:

Piles for Piers 1-E&W, 2-E&W, 2-E(A), 3-E&W, and 4-E&W are 14" ⌀ C.I.P. Reinforced Concrete.
Piles for Piers 5-E&W thru 8-E&W are 12 BP 53.
Piles for Piers 11-E&W thru 20-E&W are 10 BP 42.
Pile spacings are given along bottom of footings.
All battered piles to be battered 3 in 12 in direction shown.
For Reinforcement Schedule, see sheet 70.
For footing locations, shaft and cap beam details, see sheet 70.

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

FOOTINGS
PIERS 1 THRU 8 AND 11 THRU 20
STATE ROUTE 7 VIADUCT

BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: 1/8" = 1'-0" STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

DRAWN CM DATE 3-30-59 | TRACED DATE | CHECKED DATE 10-30-61 | REVIEWED DATE 6-5-62 | REVISED 949 SHEET 59

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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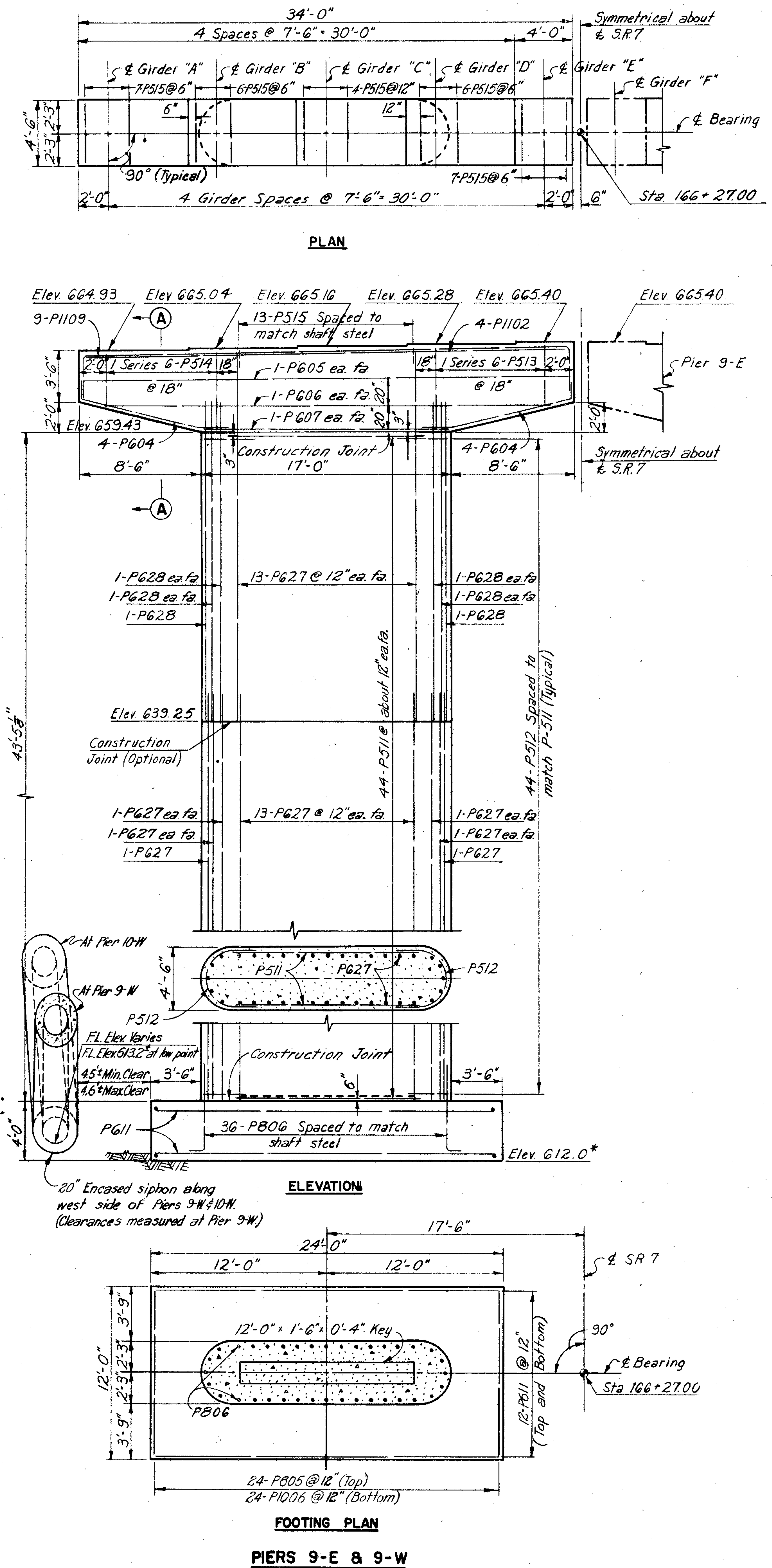
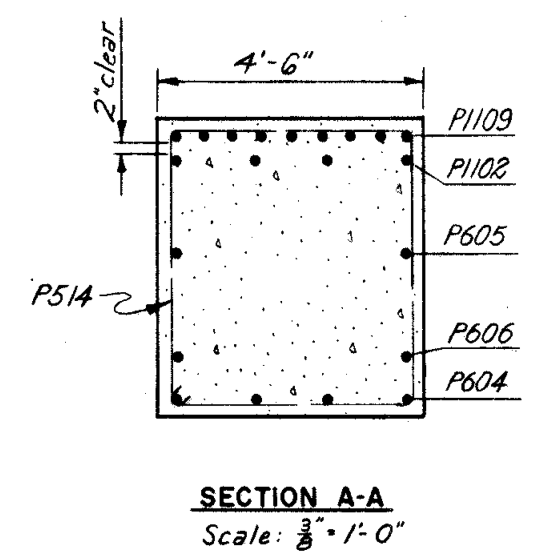
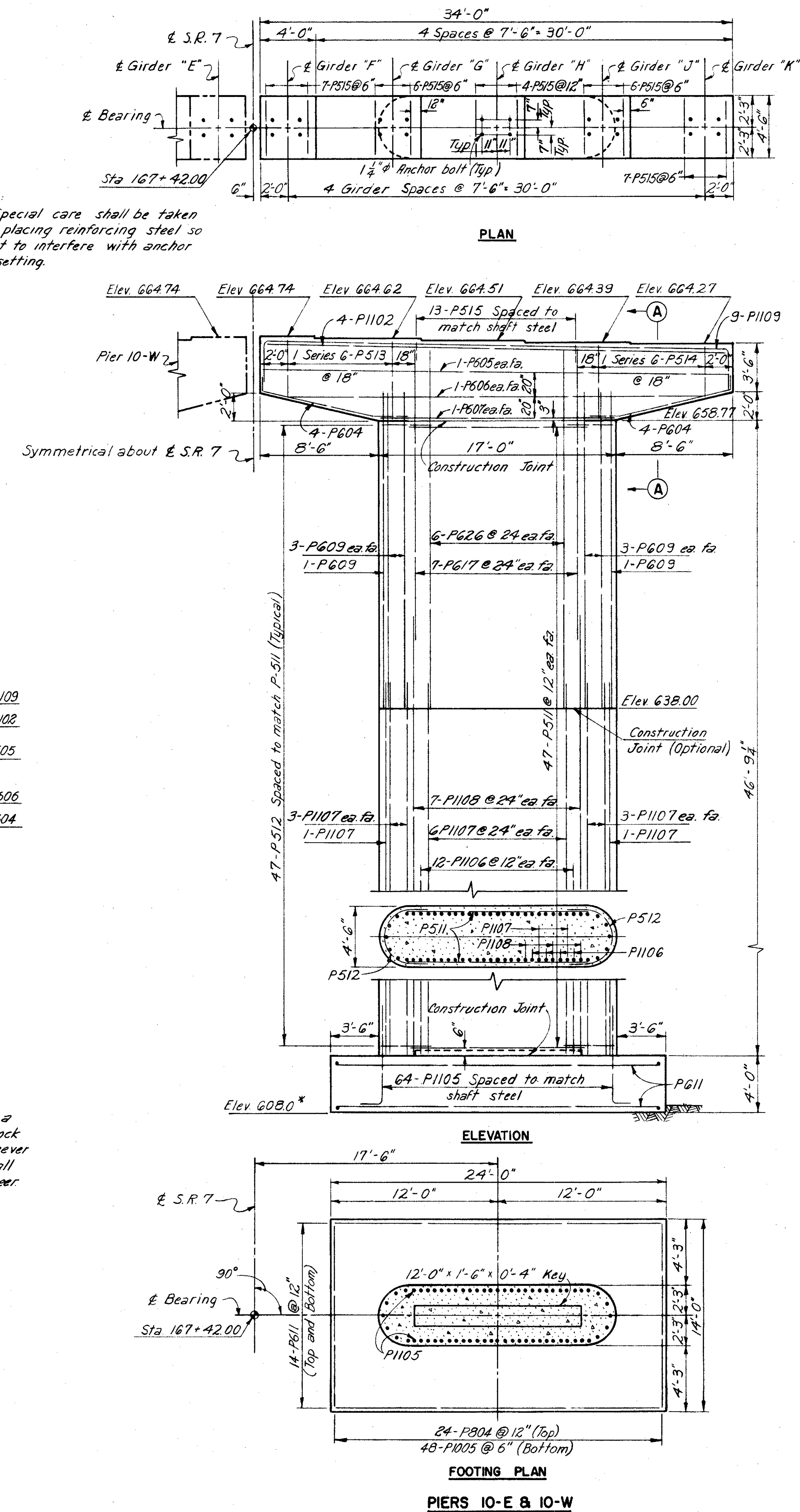
BELMONT COUNTY
BEL-7-19·86




Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with anchor bolt setting.

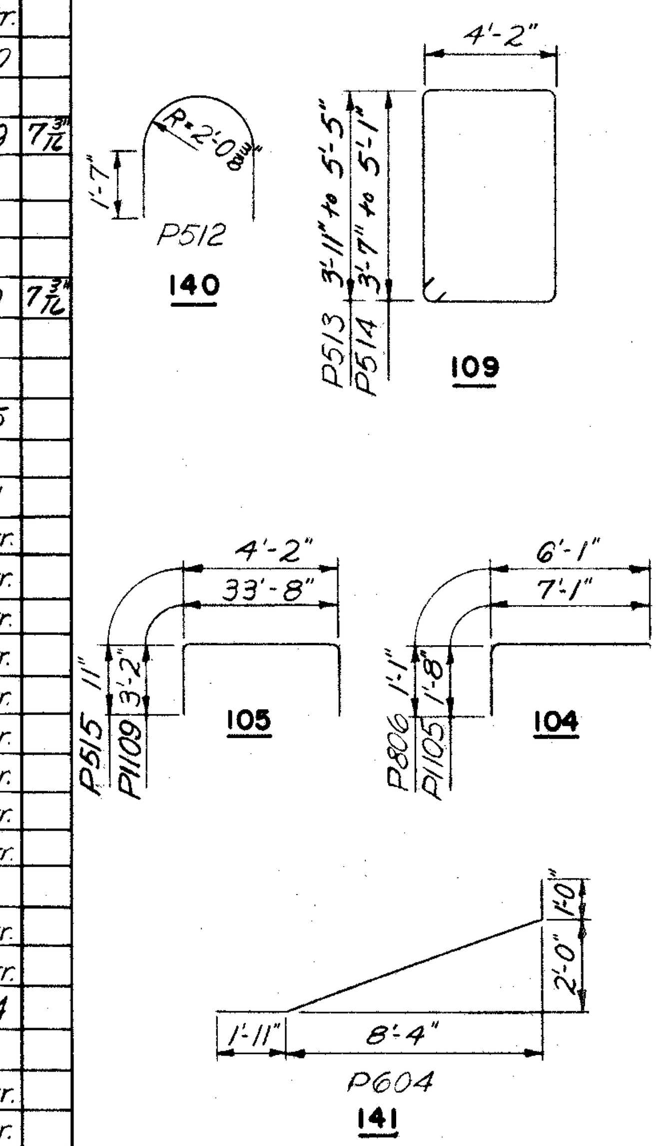



* Note
Footings shall extend a minimum of 3" into firm rock or to elevation shown, whichever is lower. Final elevation shall be determined by the Engineer.




| REINFORCEMENT SCHEDULE | | | | | |
|---|---|---|---|---|---|
| Mark | No. | Length | Weight (Pounds) | Type | Ser. Inc. |
| P511 | 364 | 12'-6" | 4746 | Str. | |
| P512 | 364 | 9'-7" | 3638 | 140 | |
| P513 | 4 Ser 6 | 16'-8" to 19'-8" | 455 | 109 | 7 3/16" |
| P514 | 4 Ser 6 | 16'-0" to 19'-0" | 438 | 109 | 7 3/16" |
| P515 | 172 | 5'-9" | 1032 | 105 | |
| P604 | 32 | 11'-5" | 549 | 141 | |
| P605 | 8 | 33'-6 | 403 | Str. | |
| P606 | 8 | 31'-9" | 382 | Str. | |
| P607 | 8 | 17'-0" | 204 | Str. | |
| P609 | 28 | 22'-9" | 957 | Str. | |
| P611 | 52 | 23'-6" | 1835 | Str. | |
| P617 | 28 | 21'-3" | 894 | Str. | |
| P626 | 24 | 26'-3" | 946 | Str. | |
| P627 | 124 | 25'-6" | 4749 | Str. | |
| P628 | 20 | 22'-3" | 668 | Str. | |
| P804 | 48 | 13'-6" | 1730 | Str. | |
| P805 | 48 | 11'-6" | 1474 | Str. | |
| P806 | 72 | 7'-0" | 1346 | 104 | |
| P1005 | 96 | 13'-6" | 5577 | Str. | |
| P1006 | 48 | 11'-6" | 2375 | Str. | |
| P1102 | 16 | 33'-6" | 2848 | Str. | |
| P1105 | 128 | 8'-5" | 5724 | 104 | |
| P1106 | 48 | 13'-0" | 3315 | Str. | |
| P1107 | 52 | 28'-0" | 7736 | Str. | |

BENDING DIAGRAMS




| Mark | No. | Length | Weight (lbs.) | Type |
|---|---|---|---|---|
| P1108 | 28 | 33'-0" | 4909 | Str. |
| P1109 | 36 | 39'-5" | 7539 | 105 |
| | | Total Weight = | 66,469 | |

**NOTES:**
For anchor bolt details, see Ohio Standard Drawing RB-1-55.
For replacement bar schedule, see sheet 70.

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

## PIERS 9 AND 10
## STATE ROUTE 7 VIADUCT

BR. NO. BEL-7-20.06 — STA. 159 + 12.75
SCALE: 3/16" = 1'-0" Except as noted — STA. 175 + 45.25
BRIDGEPORT — BELMONT CO. — OHIO

| DRAWN CKB DATE 3-30-59 | TRACED DATE | CHECKED [illegible] DATE 10-31-61 | REVIEWED WF DATE 6-5-62 | REVISED 949 SHEET 60 |
|---|---|---|---|---|


PROCEDURE: Before the backwall is placed the embankment shall be placed and compacted up to the level of the subgrade, with a 1 on 1 slope from the bridge seat to the subgrade, for a distance of not less than 200 feet back of the abutment.

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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BELMONT COUNTY
BEL-7-19.86

Notes:
Top of backwall shall match crown and grade of roadway. Backwall shall be poured after expansion joint steel has been attached to superstructure.
The 3"φ pipes extending into the backfill shall be included with "Item 511, Class "E" Concrete, Abutments", for payment.

Note:
West Buttress Wall shown.
East wall is similar except as denoted by elevations and bar marks in parentheses.

Note:
All piles are 12"φ C.I.P. Reinforced Concrete.
Pile spacings are measured along the bottom of the footing.
All battered piles are to be battered 3 in 12 in direction shown.
For end dam details, see sheet 89.
For Reinforcement Schedule, see sheet 83.
For Replacement Bar Schedule, see sheet 70.
For rustication details, see sheet 82.
For railing details, see sheet 91.
Safety curbs and parapets are to be built on curve concentric with ℄ S.R.7.
Abbreviations: f.f. = far face; n.f. = near face; ea. fa. = each face.

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

SOUTH ABUTMENT
STATE ROUTE 7 VIADUCT

BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: ¼" = 1'-0" STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

DRAWN DRK DATE 9-12-58 | TRACED DATE | CHECKED C.A.B. DATE 3-24-60 | REVIEWED W DATE 6-5-62 | REVISED 949 SHEET 61

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

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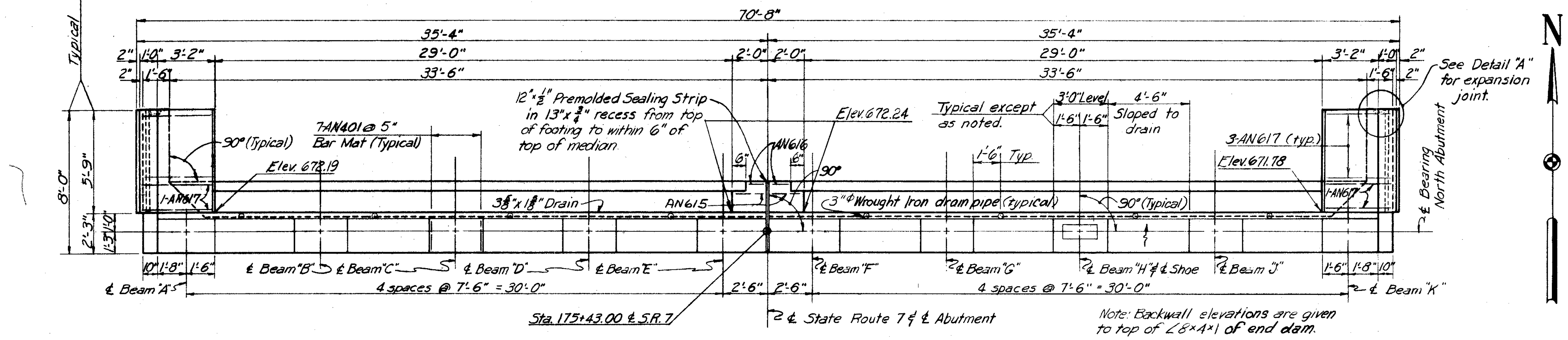
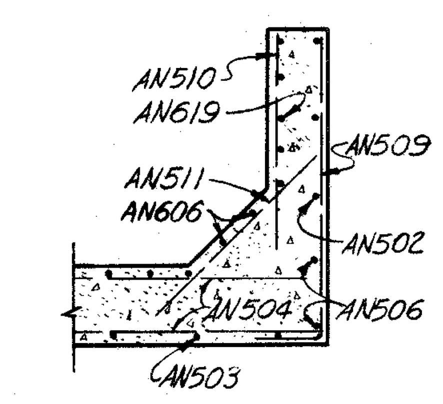
BELMONT COUNTY
BEL-7-19.86

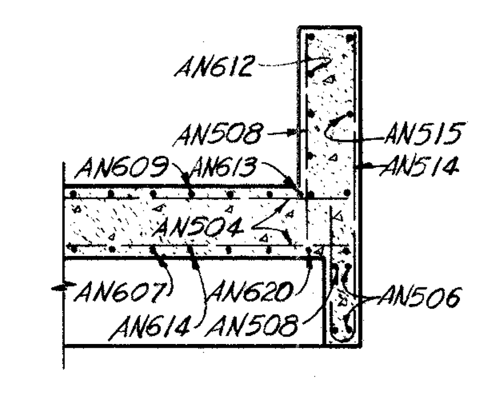



PLAN

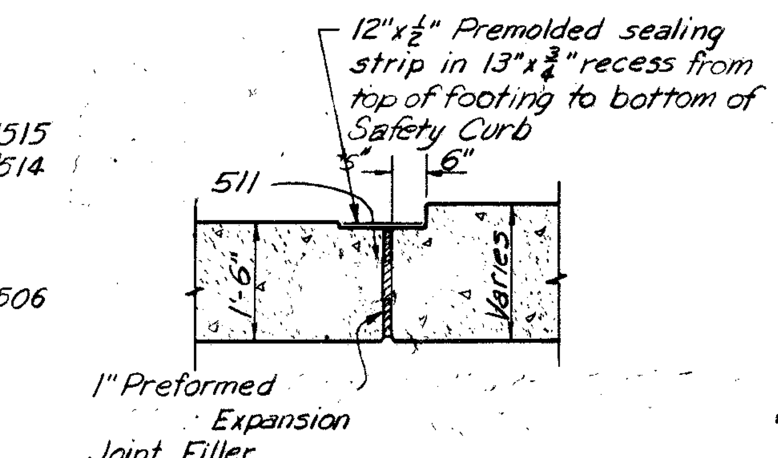
PROCEDURE: Before the backwall is placed the embankment shall be placed and compacted up to the level of the subgrade, with a 1 on 1 slope from the bridge seat to the subgrade, for a distance of not less than 200 feet back of the abutment.



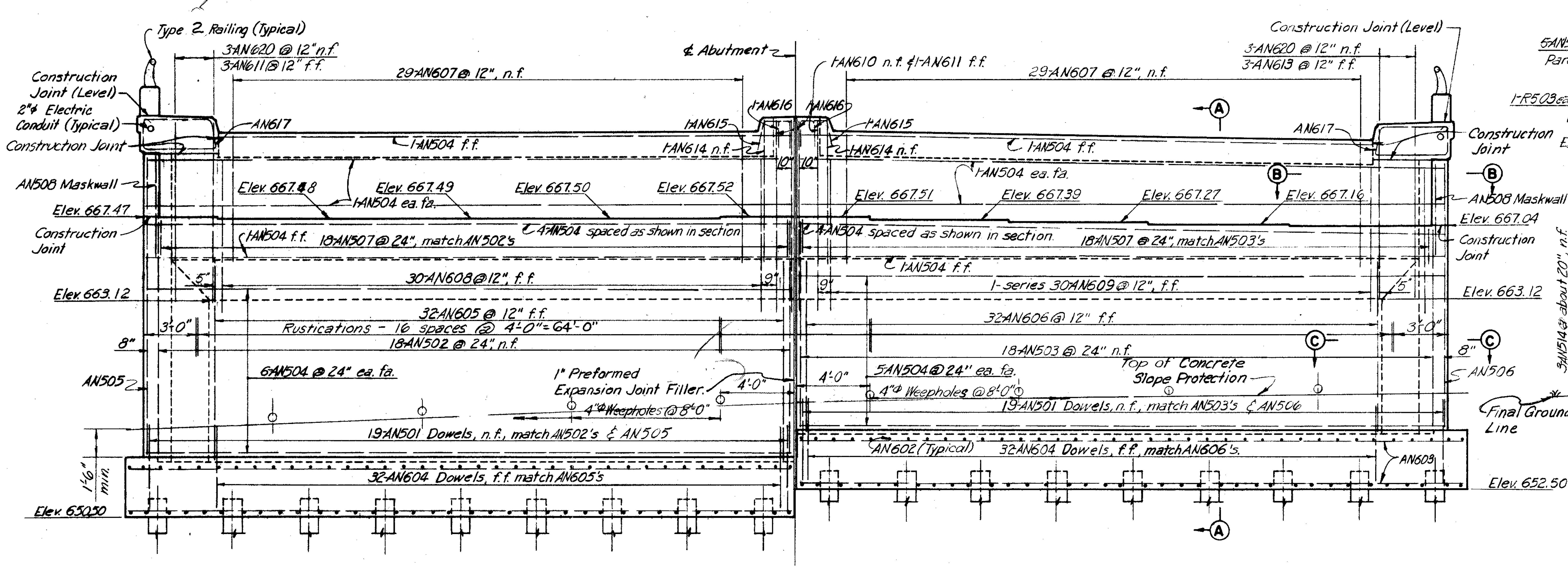

SECTION C-C



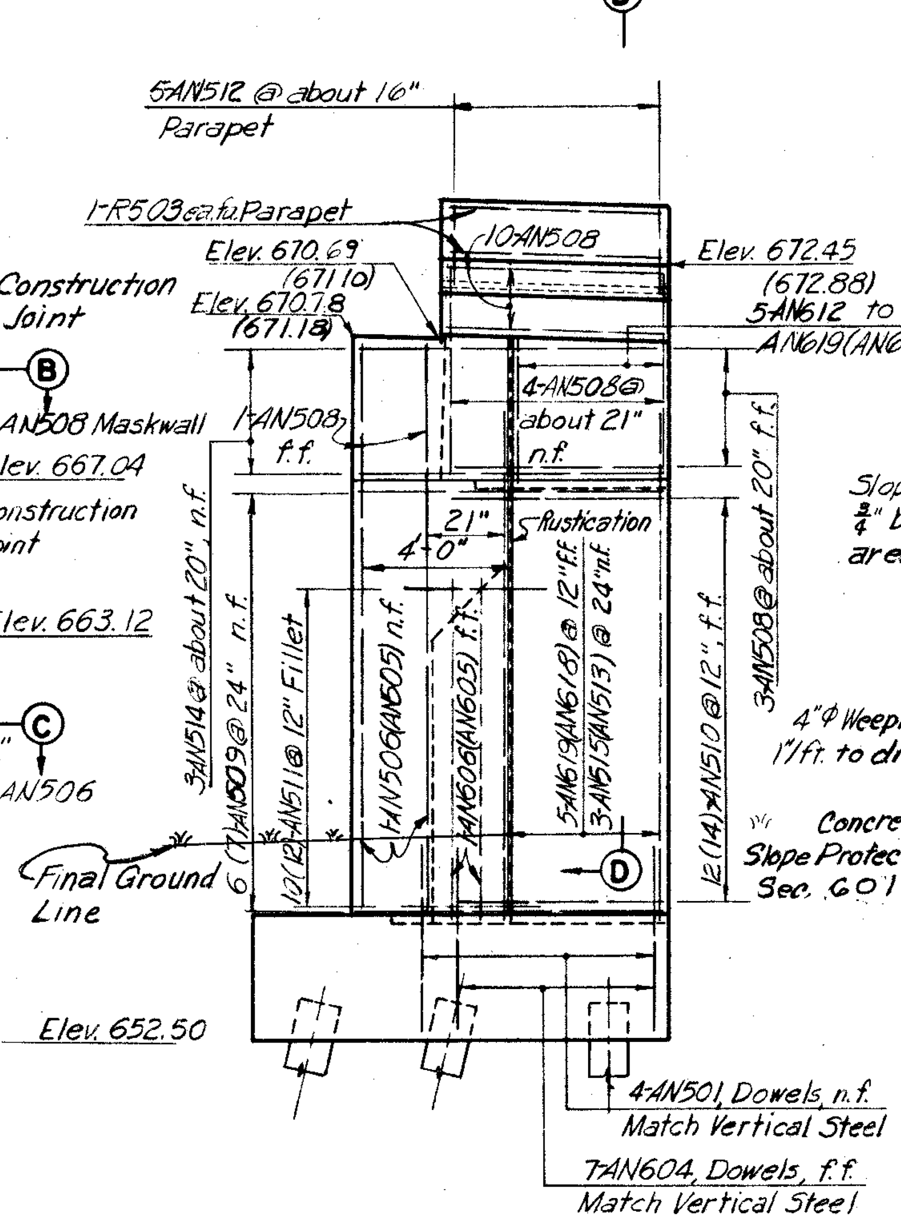

SECTION B-B




DETAIL "A"
Scale: ½" = 1'

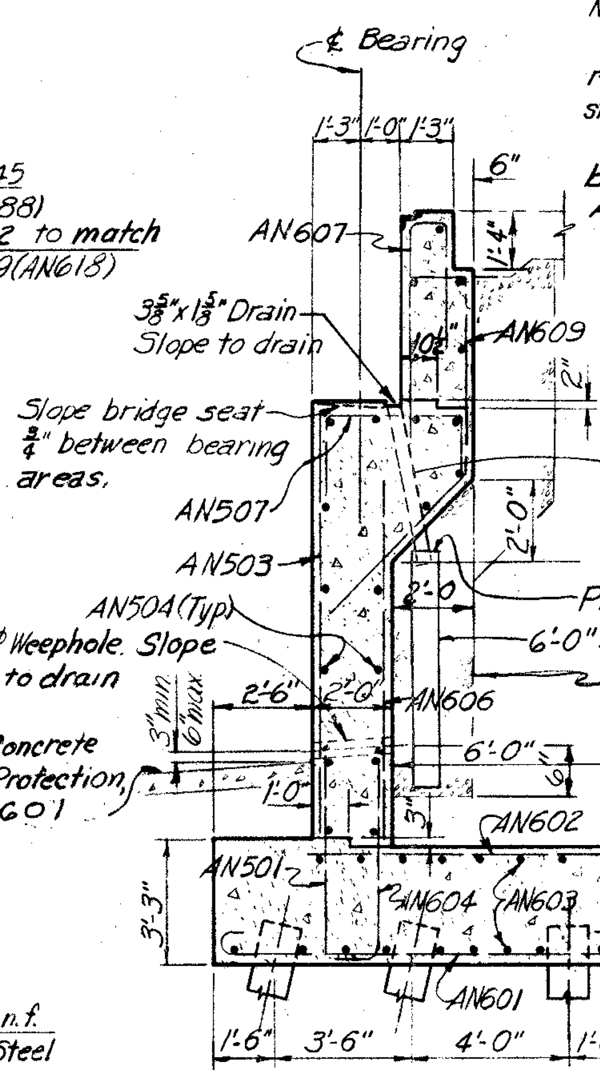



ELEVATION




BUTTRESS WALL

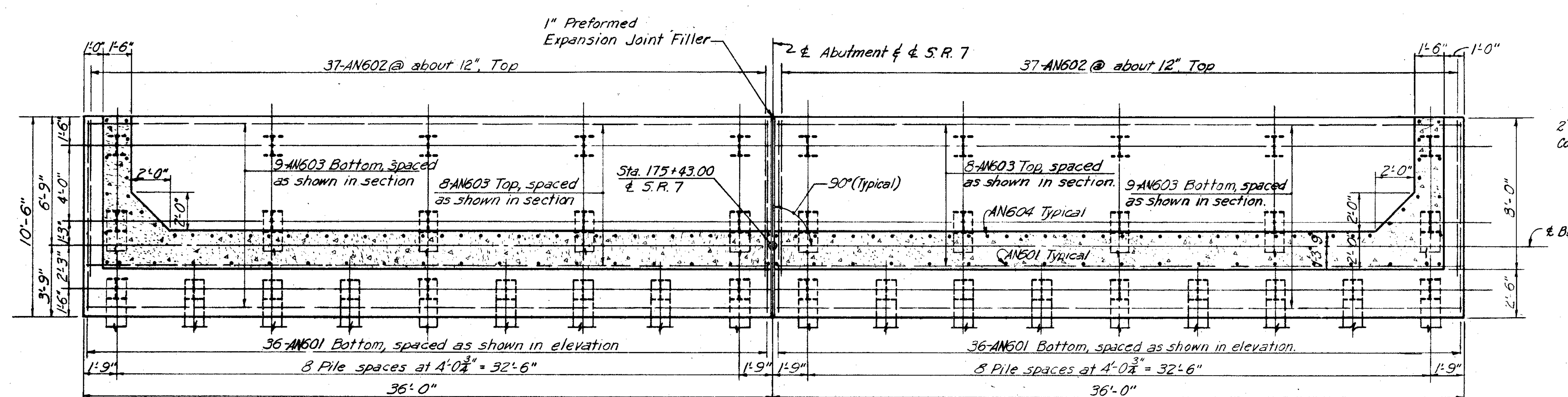
Note: East Buttress Wall shown. West wall is similar except as denoted by elevations and bar marks in parentheses.



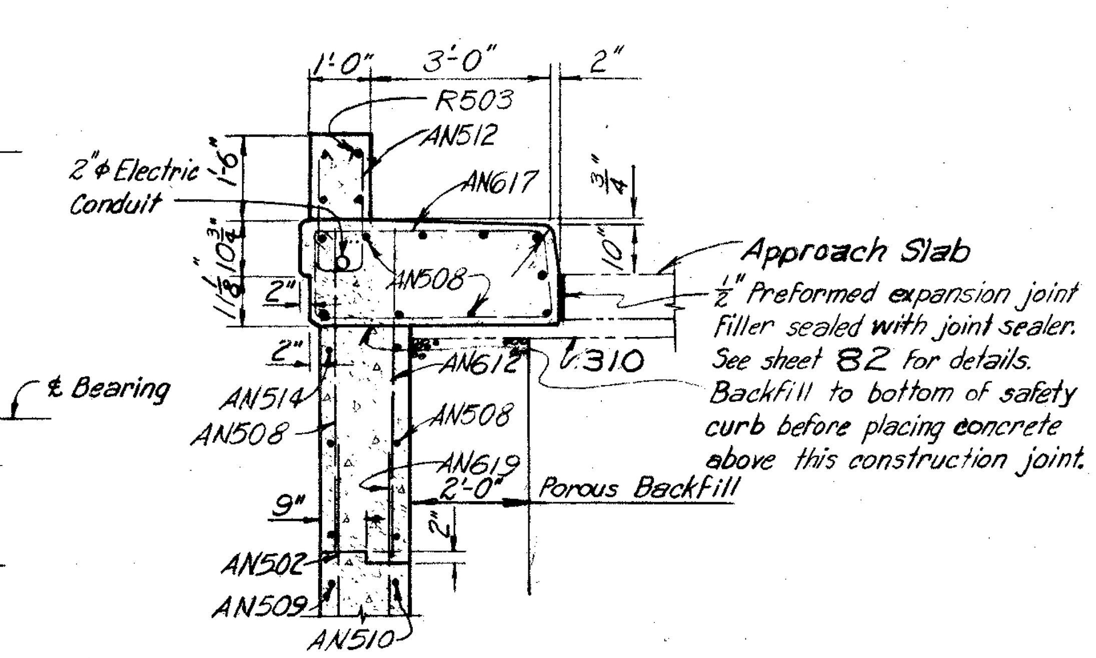

SECTION A-A

Notes:
Top of backwall shall match crown and grade of roadway. Backwall shall be poured after expansion joint steel has been attached to superstructure.
The 3"φ pipes extending into the backfill shall be included with "Item 511, Class C Concrete, Abutments", for payment.

Note: All piles are 12BP53.
Pile spacings are measured along the bottom of the footing.
All battered piles are to be battered 3 in 12 in direction shown.
For end dam details, see sheet 89
For Reinforcement Schedule, see sheet 83.
For Replacement Bar Schedule, see sheet 70.
For rustication details, see sheet 82.
For railing details, see sheet 91.
Abbreviations: f.f. = far face; n.f. = near face; ea. fa. = each face.




FOOTING PLAN




SECTION D-D
Scale: ¾" = 1'-0"

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

NORTH ABUTMENT
STATE ROUTE 7 VIADUCT

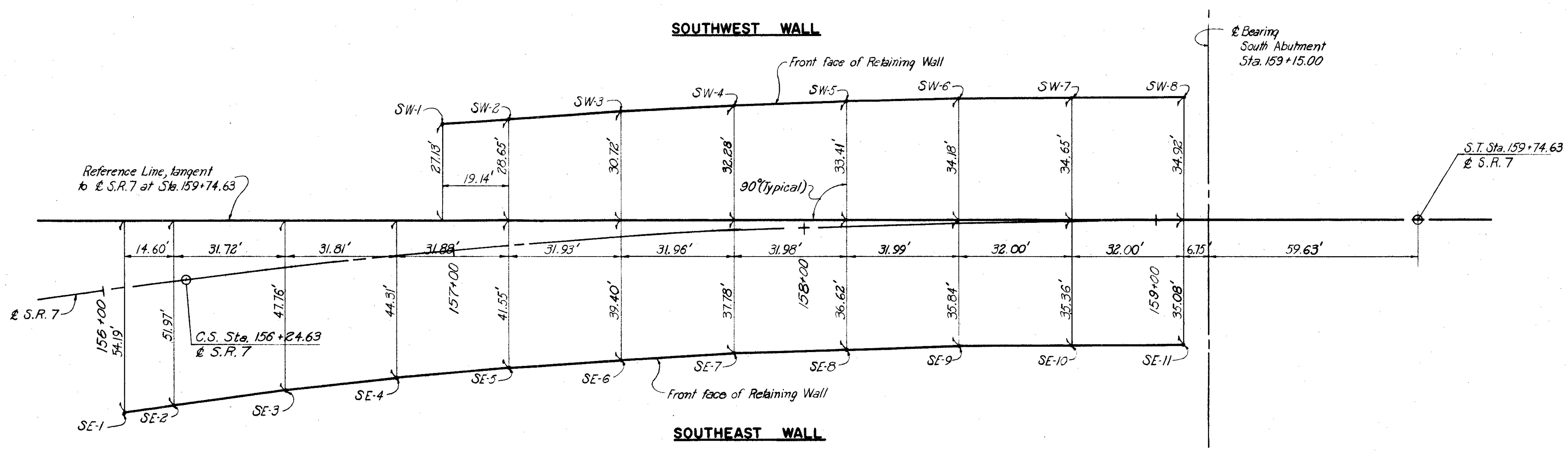
BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: ¼" = 1'-0" STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

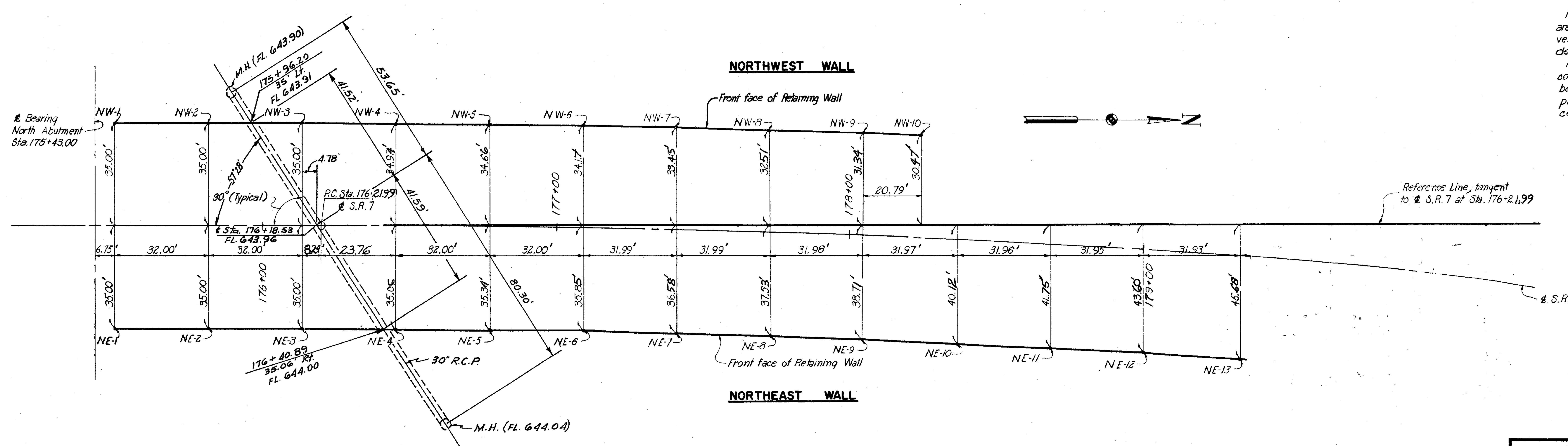
| DRAWN DRK DATE 1-28-59 | TRACED DATE | CHECKED CAB DATE 3-24-59 | REVIEWED WF DATE 6-5-62 | REVISED 949 SHEET 62 |
|---|---|---|---|---|

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |



BELMONT COUNTY
BEL-7-19.86




**NOTES:**

Points on walls designated as SW-1, SW-2, etc. are locations of either vertical expansion or vertical contraction joints. For retaining wall details see sheets 76 thru 82.

Retaining walls, below safety curb construction joint, are to be built on chords between vertical joints. Safety curbs and parapets are to be built on curve concentric with ℄ S.R.7.

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

RETAINING WALL
LAYOUT DIAGRAMS
STATE ROUTE 7 VIADUCT

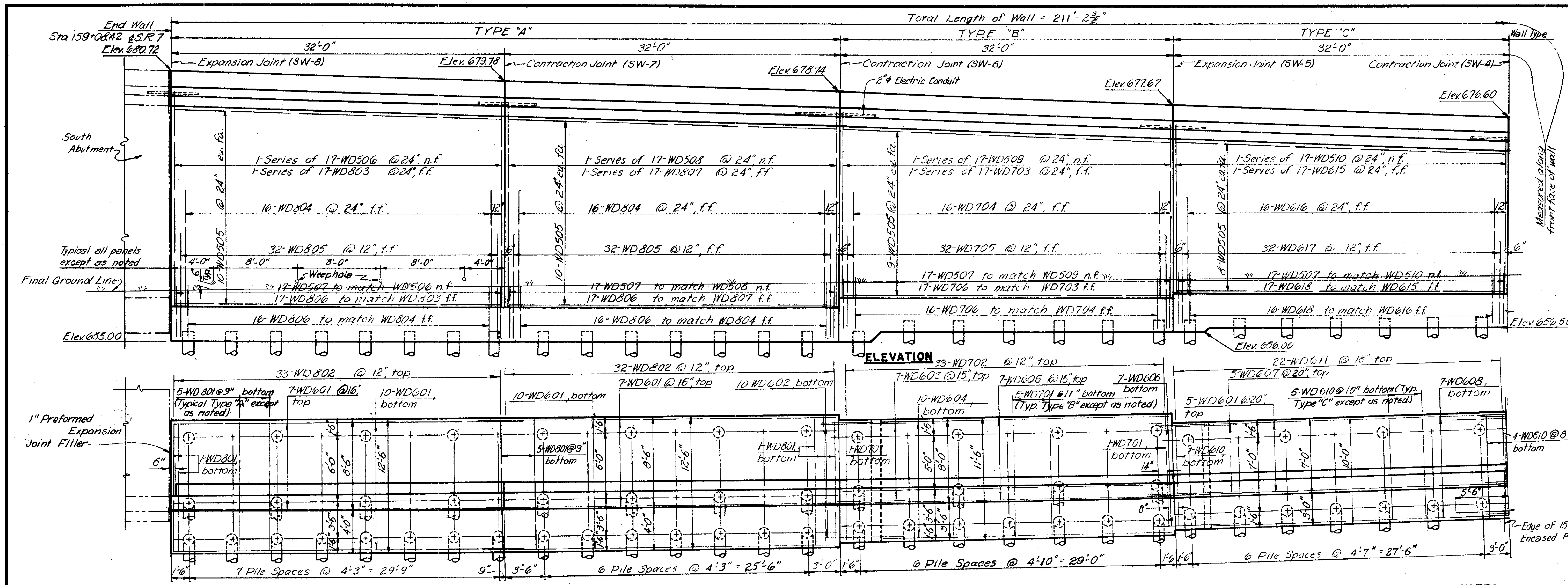
BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: 1" = 20' STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

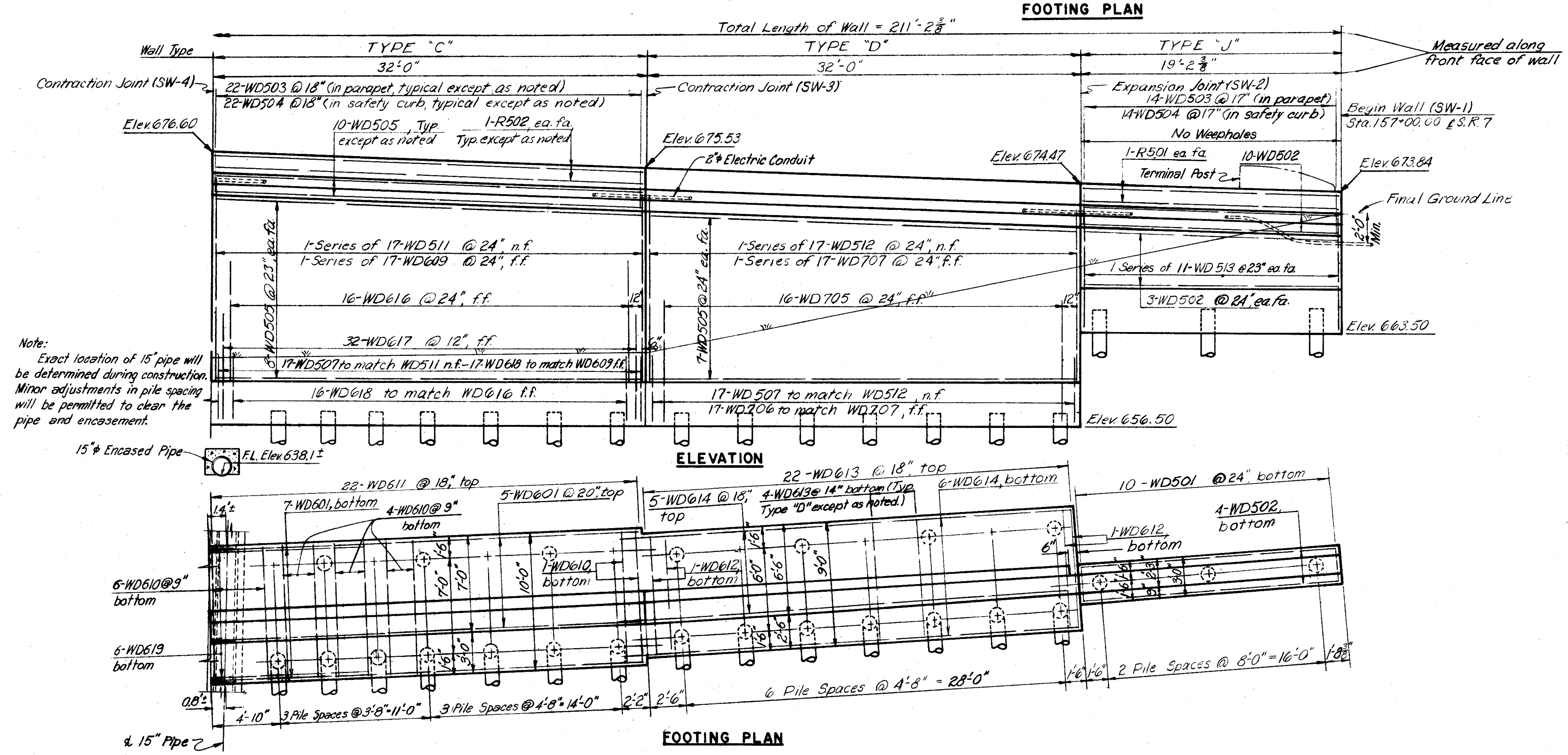
| DRAWN C.A.B. DATE 4-3-59 | TRACED DATE | CHECKED DATE 5-24-61 | REVIEWED DATE 6-5-62 | REVISED 949 SHEET 63 |
|---|---|---|---|---|

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

76

BELMONT COUNTY
BEL-7-19.86




**NOTES:**

Safety curb and parapet are omitted from Plan Views.

All piles are 12"φ C.I.P. reinforced concrete. All battered piles shall be battered 3 in 12 in direction shown. Pile spacing is measured along the front face of the retaining wall and along the bottom of footing.

Vertical rustications shall be provided at all contraction and expansion joints and at 4'-0" intervals between joints and shall extend from top of footing to construction joint at bottom of safety curb.

Locations of construction joints in the footings are optional but shall be located a minimum of 5'-0" from wall joints and shall be centered between piles in the front row.

For retaining wall layout, see sheet 75.

For wall cross sections, details, and placement of bottom longitudinal footing reinforcement, see sheet 82.

For reinforcement schedule and bending diagrams, see sheet 83.

The following abbreviations are used:

f.f. = far face
n.f. = near face
ea. fa. = each face

Type 2 Railing not shown in Elevation Views.

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

## SOUTHWEST RETAINING WALL
## STATE ROUTE 7 VIADUCT

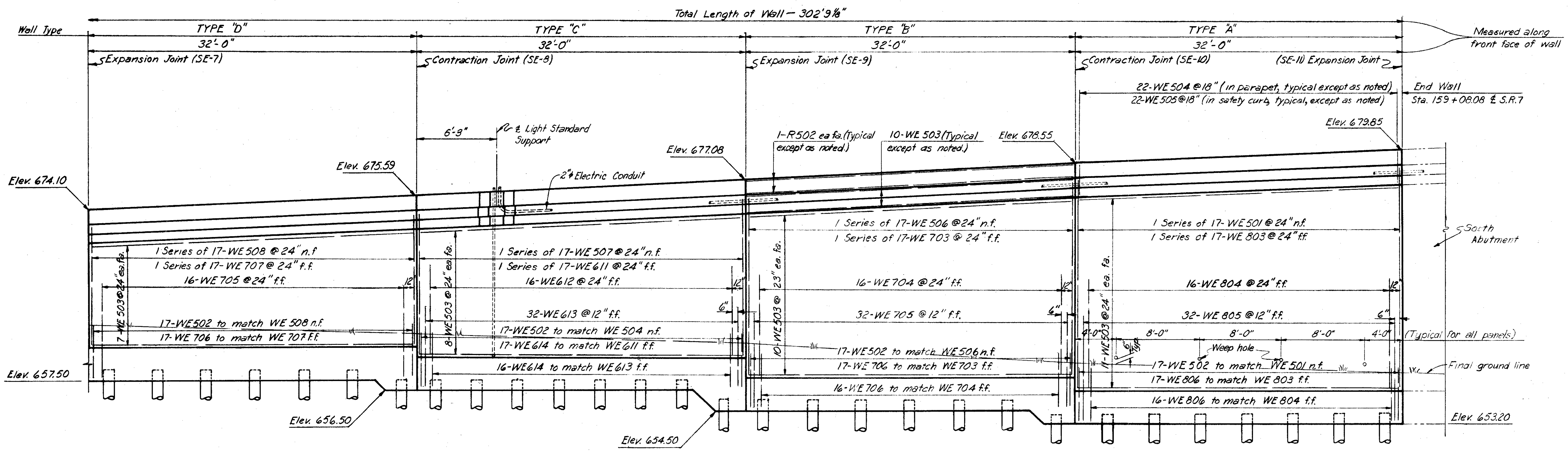
BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: 3/16" = 1'-0" STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

| DRAWN | TRACED | CHECKED | REVIEWED | REVISED |
|---|---|---|---|---|
| DATE 3/13/61 | DATE | DATE 3-17-61 | DATE 6-5-62 | 949 SHEET 64 |

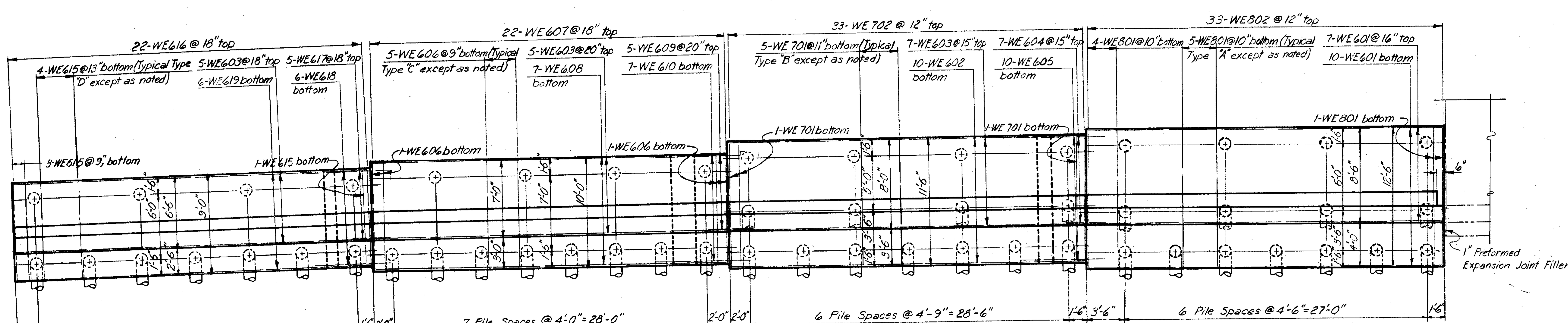
| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |



BELMONT COUNTY
BEL-7-19.86




ELEVATION




FOOTING PLAN

**NOTES:**

For light standard locations, see Roadway Plans.
For details and reinforcement of light standard support, see sheet 89
For additional notes, see sheet 78

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

## SOUTHEAST RETAINING WALL
## STATE ROUTE 7 VIADUCT

BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: 3/16" = 1'-0" STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

| DRAWN LVM | TRACED | CHECKED CHB | REVIEWED WF | REVISED |
|---|---|---|---|---|
| DATE 3-13-61 | DATE | DATE 5-26-61 | DATE 6-5-62 | 949 SHEET 65 |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

78

BELMONT COUNTY
BEL-7-19.86


## ELEVATION

Note:
Exact location of 15"⌀ encased pipe and 42"⌀ Class A, 706.01 pipe will be determined during construction. Minor adjustments in pile spacing will be permitted to clear the 15"⌀ encased pipe and the 42"⌀ Class A, 706.01 pipe.


## FOOTING PLAN

**NOTES:**

Safety curb and parapet are omitted from Plan Views.

All piles are 12"⌀ C.I.P. reinforced concrete. All battered piles shall be battered 3 in 12 in direction shown. Pile spacing is measured along the front face of the retaining wall and along the bottom of footing.

Vertical rustications shall be provided at all contraction and expansion joints and at 4'-0" intervals between joints and shall extend from top of footing to construction joint at bottom of safety curb.

Locations of construction joints in the footings are optional but shall be located a minimum of 5'-0" from wall joints and shall be centered between piles.

For retaining wall layout, see sheet 75.

For wall cross sections, details, and placement of bottom longitudinal footing reinforcement, see sheet 82.

For reinforcement schedule and bending diagrams, see sheet 83.

The following abbreviations are used:
- f.f. = far face
- n.f. = near face
- ea. fa. = each face

Type 2 Railing not shown in Elevation Views.

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

**SOUTHEAST RETAINING WALL**
**STATE ROUTE 7 VIADUCT**

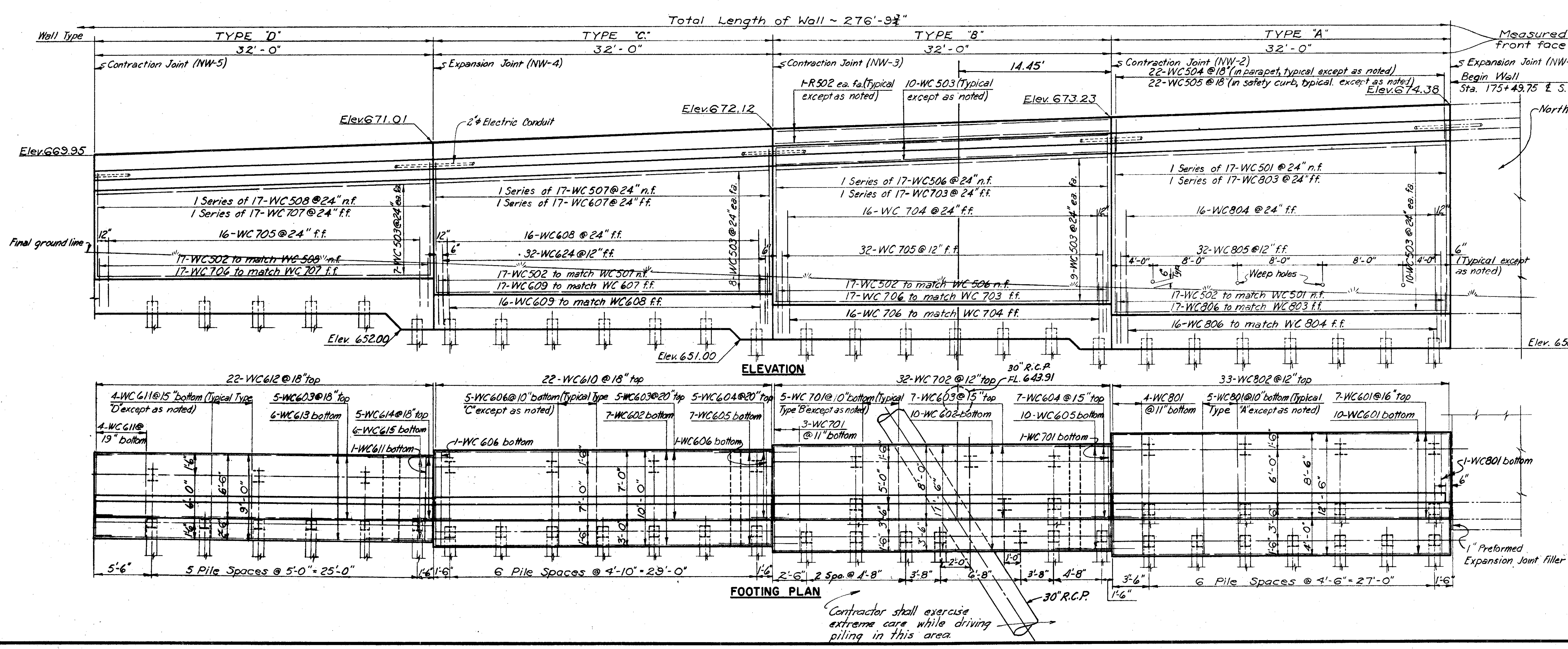
BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: 3/16" = 1'-0" STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

| DRAWN LVM | TRACED | CHECKED CHB | REVIEWED WF | REVISED |
|---|---|---|---|---|
| DATE 3-14-61 | DATE | DATE 5-26-61 | DATE 6-5-62 | 949 SHEET 66 |

| FED. RD. DIVISION | STATE | PROJECT |
|---|---|---|
| 2 | OHIO | |

79

BELMONT COUNTY
BEL-7-19.86


**NOTES:**

Safety curb and parapet are omitted from Plan Views.

All piles are 10BP42. All battered piles shall be battered 3 in 12 in direction shown. Pile spacing is measured along the Front Face of the retaining wall and along the bottom of the footing.

Vertical rustications shall be provided at all contraction and expansion joints and at 4'-0" intervals between joints and shall extend from top of footing to construction joint at bottom of safety curb.

Locations of construction joints in the footings are optional but shall be located a minimum of 5'-0" from wall joints and shall be centered between piles in the front row.

For retaining wall layout, see sheet 75.

For wall cross sections, details, and placement of bottom longitudinal footing reinforcement, see sheet 82.

For reinforcement schedule and bending diagrams, see sheet 83.

The following abbreviations are used:
- f.f. = far face
- n.f. = near face
- ea. fa. = each face

Type 2 Railing not shown in Elevation Views.

For light standard locations, see Roadway Plans.

For details and reinforcement of light standard support, see sheet 89.

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

**NORTHWEST RETAINING WALL**
**STATE ROUTE 7 VIADUCT**

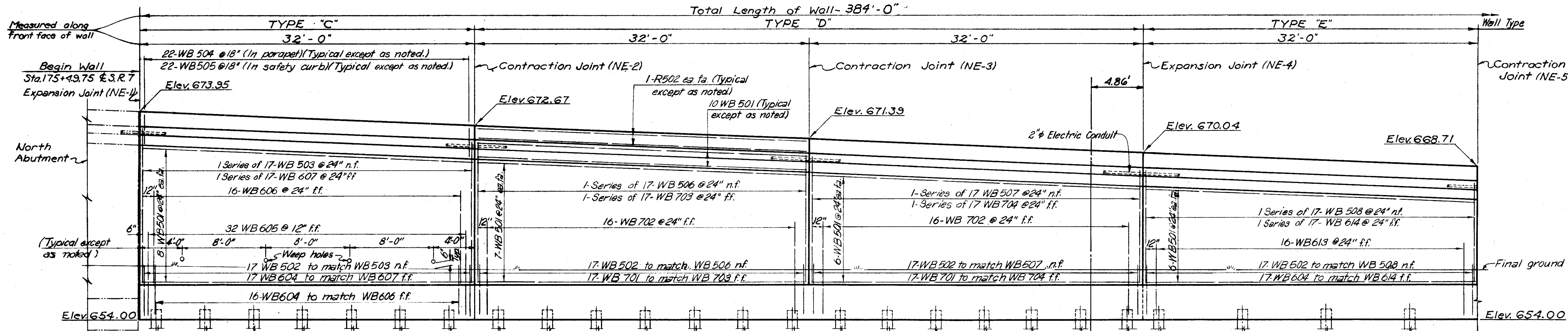
BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: None STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

| DRAWN LVM | TRACED | CHECKED CHB | REVIEWED WF | REVISED |
|---|---|---|---|---|
| DATE 3-7-61 | DATE | DATE 5-4-61 | DATE 6-5-62 | 949 SHEET 67 |

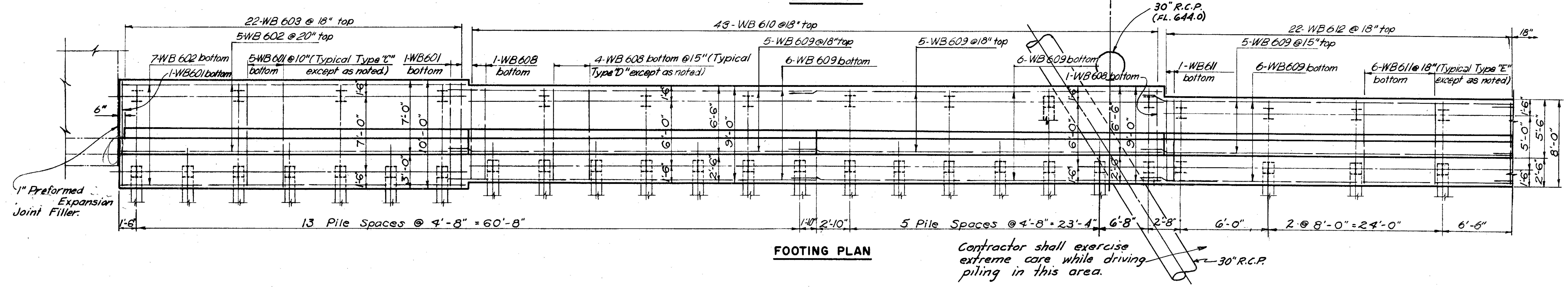
| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

80

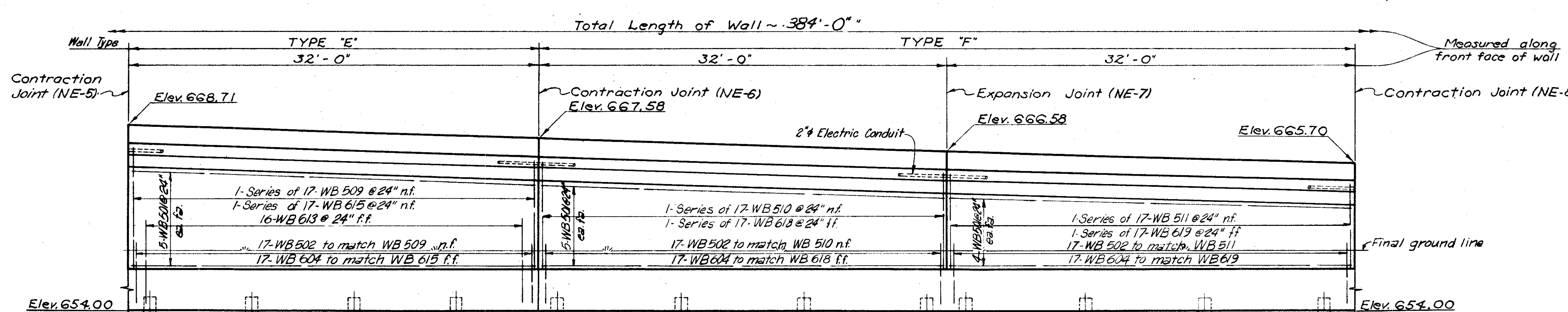
BELMONT COUNTY
BEL-7-19.86



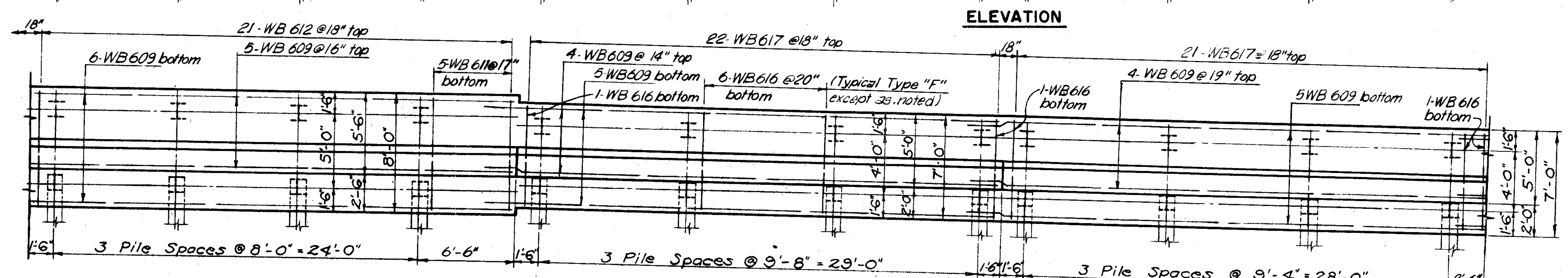

ELEVATION




FOOTING PLAN




ELEVATION




FOOTING PLAN

**NOTES:**

Safety curb and parapet are omitted from Plan Views.

All piles are 10BP42. All battered piles shall be battered 3 in 12 in direction shown. Pile spacing is measured along the front face of the retaining wall and along the bottom of the footing.

Vertical rustications shall be provided at all contraction and expansion joints and at 4'-0" intervals between joints and shall extend from top of footing to construction joint at bottom of safety curb.

Locations of construction joints in the footing are optional but shall be located a minimum of 5'-0" from wall joints and shall be centered between piles in the front row.

For retaining wall layout, see sheet 75.

For wall cross sections, details, and placement of bottom longitudinal footing reinforcement, see sheet 82.

For reinforcement schedule and bending diagrams, see sheet 83.

The following abbreviations are used:
- f.f. = far face
- n.f. = near face
- ea. fa. = each face

Type 2 Railing not shown in Elevation Views.

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

**NORTHEAST RETAINING WALL**
**STATE ROUTE 7 VIADUCT**

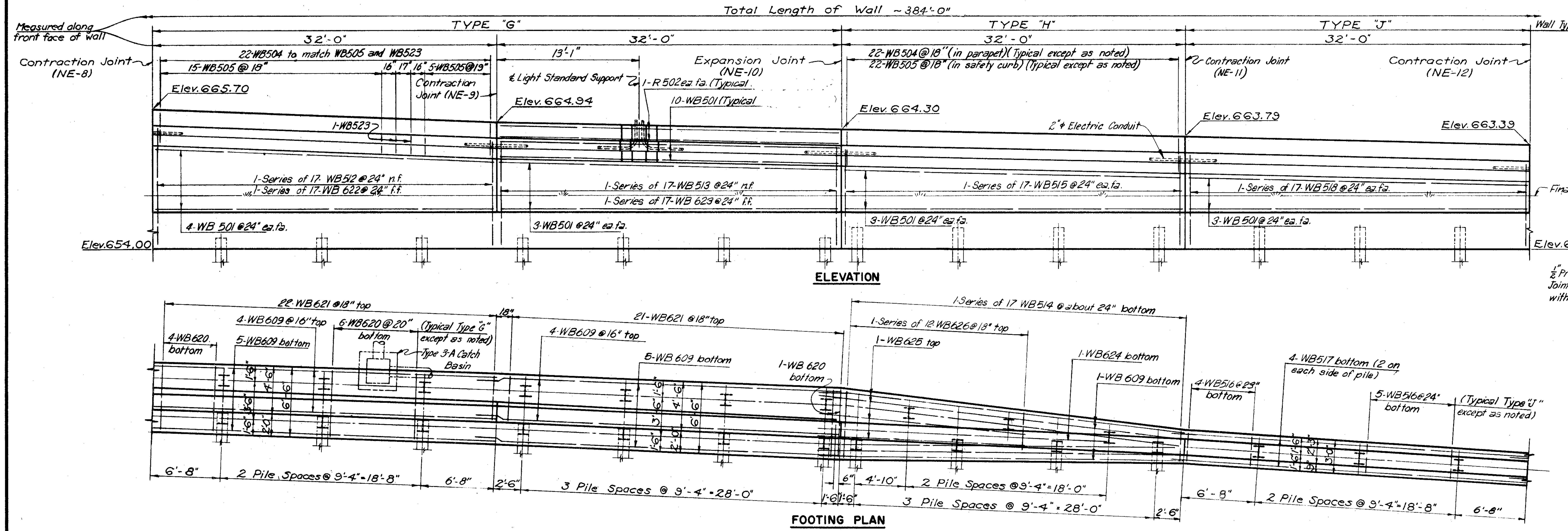
BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: 3/16" = 1'-0" STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

| DRAWN C.H.B. | TRACED | CHECKED C.A.B. | REVIEWED W.F. | REVISED |
|---|---|---|---|---|
| DATE 3-9-61 | DATE | DATE 5-24-61 | DATE 6-5-62 | 949 SHEET 68 |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

81

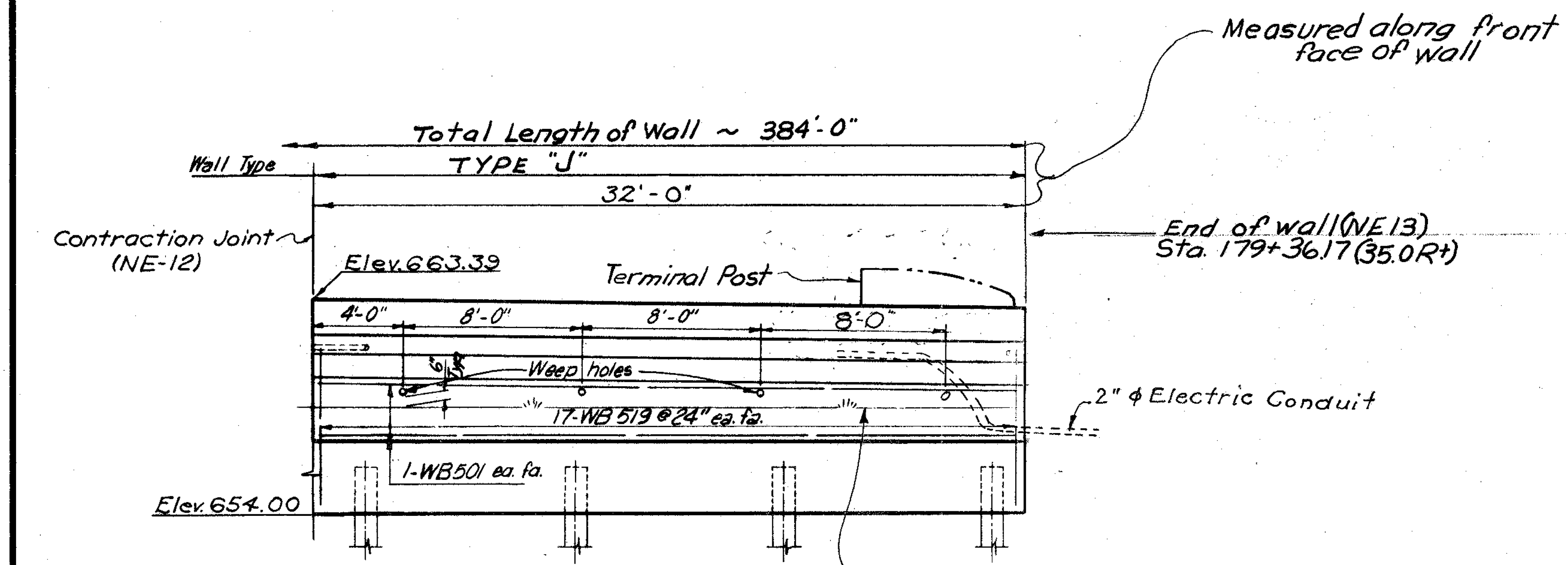
BELMONT COUNTY
BEL-7-19.86



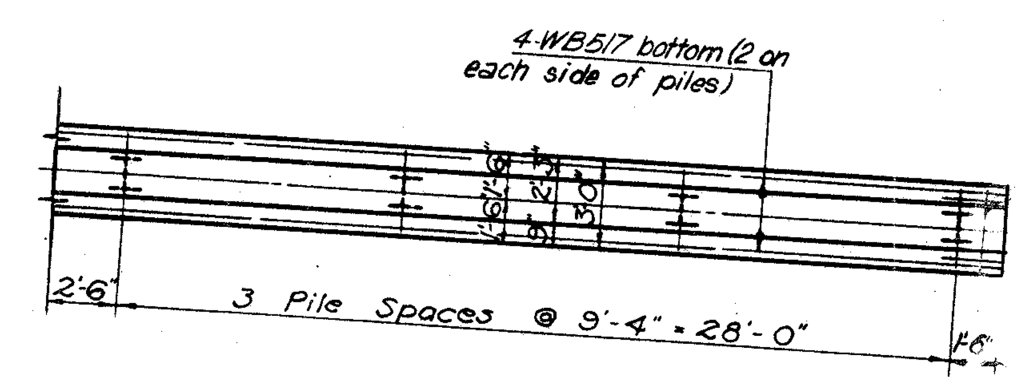

ELEVATION



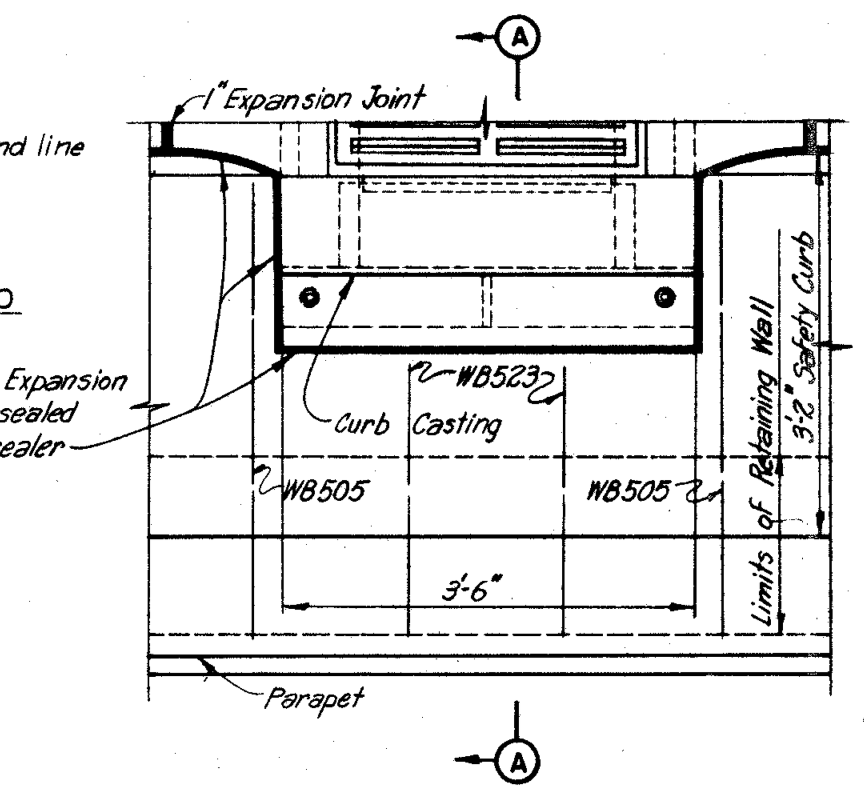
FOOTING PLAN



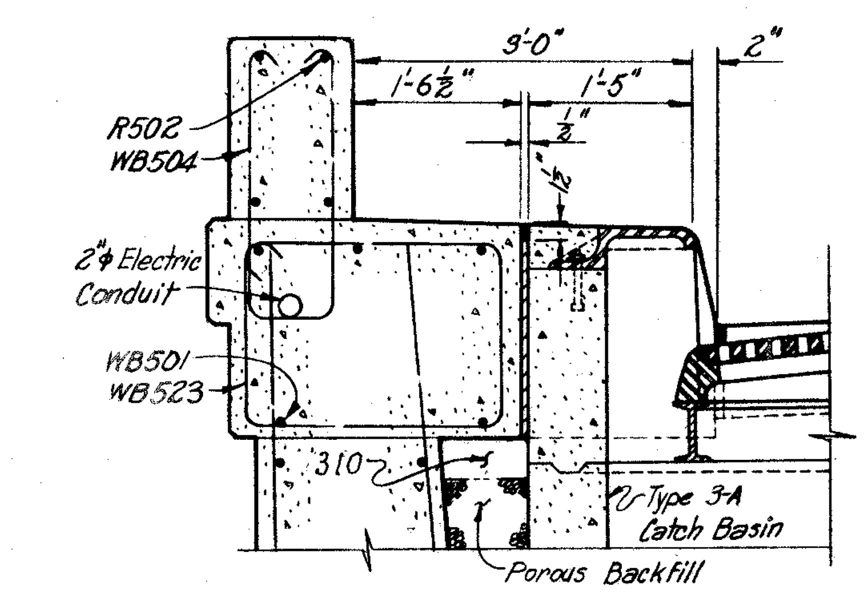

ELEVATION




FOOTING PLAN




PLAN




SECTION A-A

SAFETY CURB DETAILS AT CATCH BASINS

Scale: ¾" = 1'-0"
(Type 2 Railing not shown)

NOTES:

Locations of construction joints in the footings are optional but shall be located a minimum of 5'-0" from wall joints and shall be centered between piles.
For light standard locations, see Roadway Plans.
For details and reinforcement of light standard support, see sheet 89.
For locations and details of Type 3-A Catch Basins, see Roadway Plans.
WB501 Reinforcing bars in the safety curb may be field cut as required at the catch basins. To be included with "Item 509 Reinforcing Steel," for payment.
For additional notes, see sheet 80.

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

NORTHEAST RETAINING WALL
STATE ROUTE 7 VIADUCT

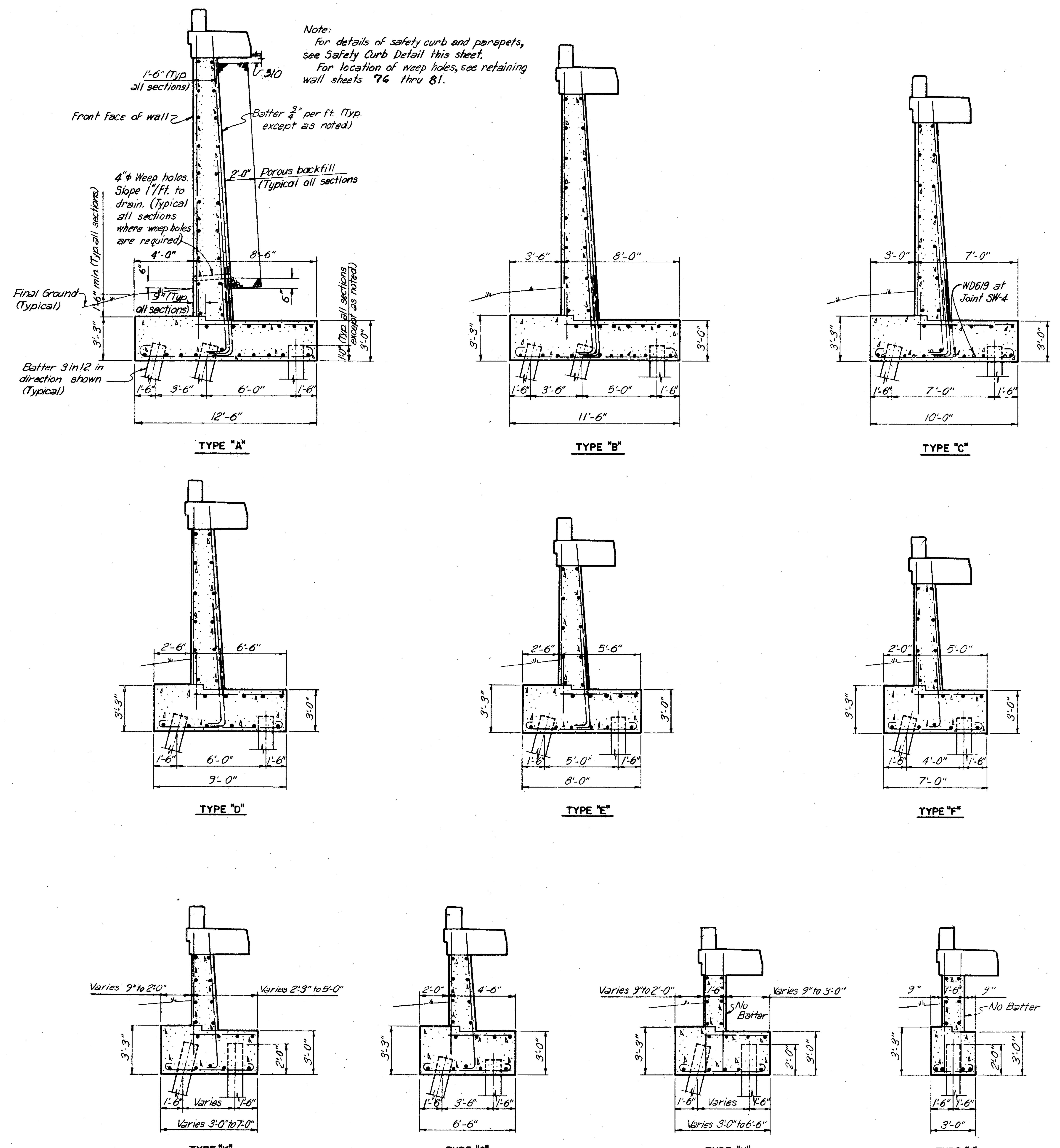
BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: ¼" = 1'-0" Except as noted STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

| DRAWN CHB | TRACED | CHECKED CHB | REVIEWED JV | REVISED |
|---|---|---|---|---|
| DATE 3-9-61 | DATE | DATE 5-24-61 | DATE 6-5-62 | 949 SHEET 69 |

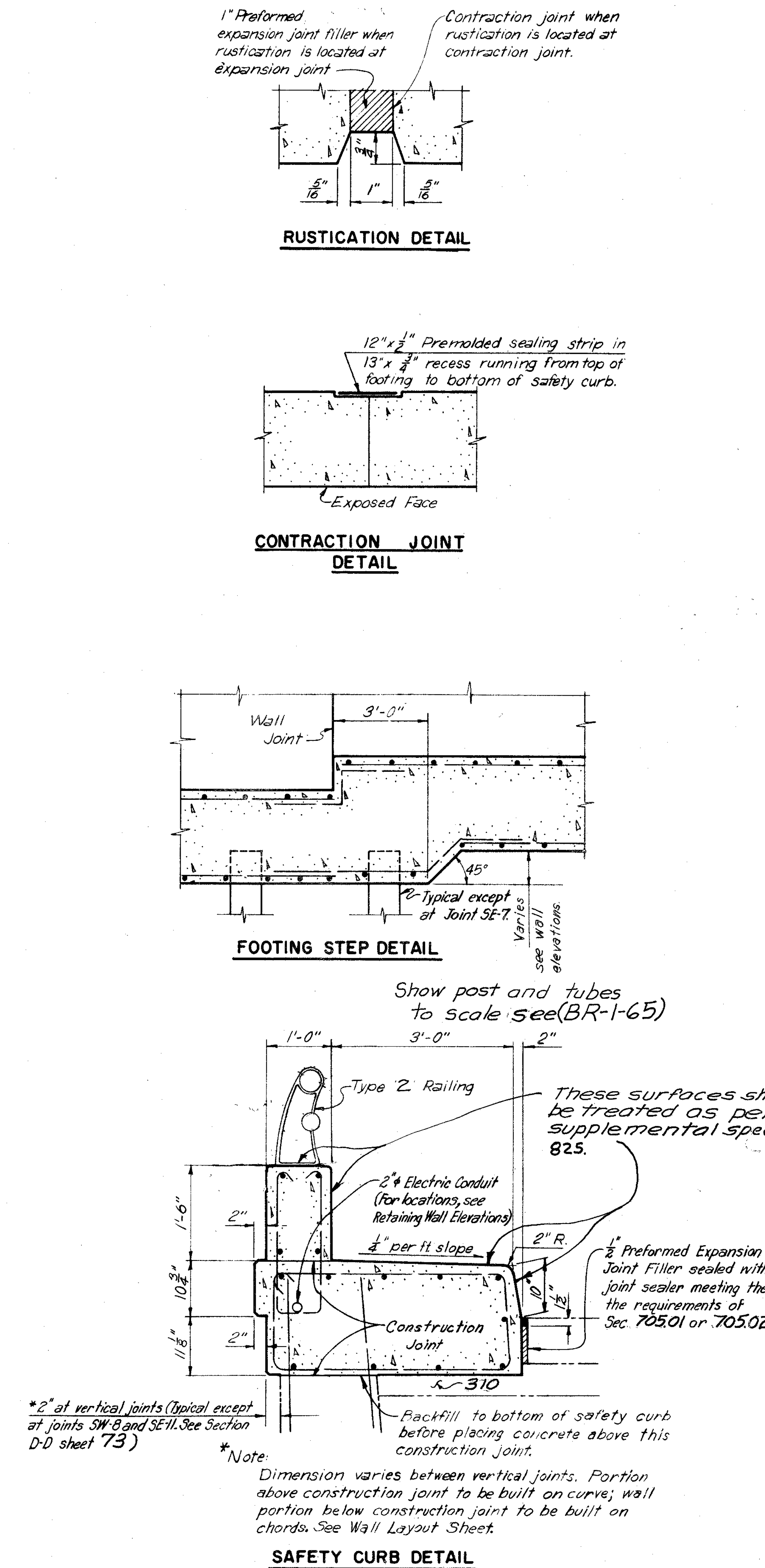
| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 3 | OHIO | | |

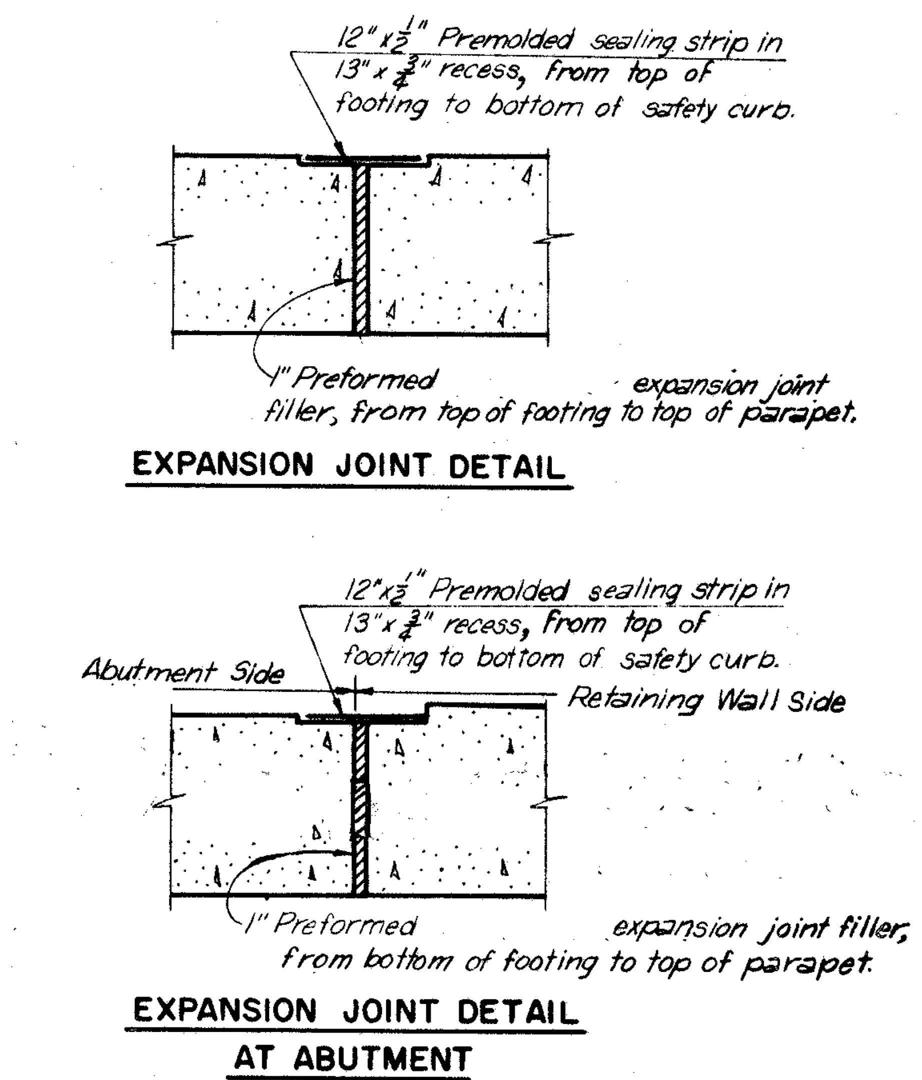
82

BELMONT COUNTY
BEL-7-19.86




TYPICAL CROSS SECTIONS




NOTES:

All piles in the Northeast and Northwest Retaining walls shall be 10BP42.

All piles in the Southeast and Southwest Retaining walls shall be 12" ϕ C.I.P. reinforced concrete.

Typical placement of reinforcement is shown for each wall type. For identification of reinforcement, see retaining wall sheets 76 thru 81.

For railing post spacing and longitudinal parapet reinforcement, see sheet 91.

For terminal post details, see sheet 91.

For railing details, see Ohio Standard Drawing AR-1-57.

For light standard support locations, see Roadway Plans.

For lighting details, see sheet 89

Preformed expansion joint filler and joint sealer within limits of approach slabs shall be included with "Item 611, Approach Slabs," for payment.

For safety curb details at catch basins, see sheet 81

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

## RETAINING WALL DETAILS
## STATE ROUTE 7 VIADUCT

BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: None STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

| DRAWN CHB | TRACED | CHECKED C.A.B. | REVIEWED WF | REVISED |
|---|---|---|---|---|
| DATE 3-15-61 | DATE | DATE 5-24-61 | DATE 6-5-62 | 949 SHEET 70 |

BELMONT COUNTY
BEL-7-19.86

| MARK | NO. | LENGTH | TYPE | SER. INCR. | WEIGHT (LBS) |
|---|---|---|---|---|---|
| SOUTH ABUTMENT | | | | | |
| AS401 | 70 | 2'-10" | 105 | | 132 |
| | | | | | |
| AS501 | 46 | 4'-6" | Str. | | 216 |
| AS502 | 18 | 16'-3" | Str. | | 305 |
| AS503 | 18 | 15'-9" | Str. | | 296 |
| AS504 | 52 | 34'-6" | Str. | | 1,871 |
| AS505 | 4 | 19'-9" | Str. | | 82 |
| AS506 | 38 | 5'-3" | Str. | | 208 |
| AS507 | 34 | 5'-6" | Str. | | 195 |
| AS508 | 28 | 6'-0" | Str. | | 175 |
| AS509 | 18 | 9'-2" | 104 | | 172 |
| AS510 | 10 | 5'-7" | 110 | | 58 |
| AS511 | 6 | 18'-3" | Str. | | 114 |
| AS512 | 36 | 6'-7" | 105 | | 247 |
| AS513 | 6 | 11'-8" | 127 | | 73 |
| | | | | | |
| AS601 | 72 | 12'-6" | 100 | | 1,352 |
| AS602 | 52 | 6'-6" | 101 | | 508 |
| AS603 | 74 | 8'-0" | Str. | | 889 |
| AS604 | 36 | 35'-6" | Str. | | 1,920 |
| AS605 | 78 | 5'-4" | 104 | | 625 |
| AS606 | 72 | 8'-5" | 104 | | 910 |
| AS607 | 34 | 15'-0" | Str. | | 766 |
| AS608 | 34 | 14'-0" | Str. | | 715 |
| AS609 | 58 | 10'-3" | 123 | | 893 |
| AS610 | 1 Ser. of 30 | 10'-10" to 11'-2" | 124 | 1/8" | 496 |
| AS611 | 4 | 10'-5" | 123 | | 63 |
| AS612 | 3 | 12'-7" | 108 | | 57 |
| AS613 | 2 | 11'-10" | 123 | | 36 |
| AS614 | 7 | 11'-9" | 108 | | 124 |
| AS615 | 10 | 11'-1" | 125 | | 166 |
| AS616 | 2 | 4'-7" | 105 | | 14 |
| AS617 | 2 | 5'-0" | 126 | | 15 |
| AS618 | 10 | 18'-9" | Str. | | 282 |
| AS619 | 10 | 5'-3" | Str. | | 79 |
| AS620 | 1 Ser. of 30 | 11'-2" to 11'-6" | 124 | 1/8" | 511 |
| AS621 | 6 | 7'-6" | Str. | | 68 |
| | | | Total | | 14,633 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| NORTH ABUTMENT | | | | | |
| AN401 | 70 | 2'-10" | 105 | | 132 |
| | | | | | |
| AN501 | 46 | 4'-9" | Str. | | 228 |
| AN502 | 18 | 13'-6" | Str. | | 253 |
| AN503 | 18 | 11'-0" | Str. | | 207 |
| AN504 | 42 | 35'-6" | Str. | | 1,555 |
| AN505 | 2 | 17'-0" | Str. | | 35 |
| AN506 | 2 | 14'-9" | Str. | | 31 |
| AN507 | 36 | 6'-7" | 105 | | 247 |
| AN508 | 36 | 5'-3" | Str. | | 197 |
| AN509 | 13 | 9'-2" | 104 | | 124 |
| AN510 | 26 | 5'-6" | Str. | | 149 |
| AN511 | 22 | 6'-0" | Str. | | 138 |
| AN512 | 10 | 5'-7" | 110 | | 58 |
| AN513 | 3 | 15'-6" | Str. | | 48 |
| AN514 | 6 | 11'-8" | 127 | | 73 |
| AN515 | 3 | 13'-0" | Str. | | 41 |
| | | | | | |
| AN601 | 72 | 11'-6" | 100 | | 1,244 |
| AN602 | 74 | 8'-0" | Str. | | 889 |
| AN603 | 34 | 35'-6" | Str. | | 1,813 |
| AN604 | 78 | 5'-4" | 104 | | 625 |
| AN605 | 34 | 11'-9" | Str. | | 600 |
| AN606 | 34 | 9'-9" | Str. | | 498 |
| AN607 | 58 | 10'-1" | 123 | | 878 |
| AN608 | 30 | 11'-4" | 124 | | 511 |
| AN609 | 1 Ser. of 30 | 10'-11" to 11'-4" | 124 | 3/16" | 501 |
| AN610 | 4 | 10'-3" | 123 | | 62 |

| MARK | NO. | LENGTH | TYPE | SER. INCR. | WEIGHT (LBS) |
|---|---|---|---|---|---|
| AN611 | 7 | 12'-1" | 108 | | 127 |
| AN612 | 10 | 5'-3" | Str. | | 79 |
| AN613 | 3 | 11'-8" | 108 | | 53 |
| AN614 | 2 | 11'-8" | 123 | | 35 |
| AN615 | 2 | 5'-0" | 126 | | 15 |
| AN616 | 2 | 4'-7" | 105 | | 14 |
| AN617 | 10 | 11'-1" | 125 | | 166 |
| AN618 | 5 | 16'-0" | Str. | | 120 |
| AN619 | 5 | 13'-6" | Str. | | 101 |
| AN620 | 6 | 7'-3" | Str. | | 65 |
| | | | Total | | 11,908 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
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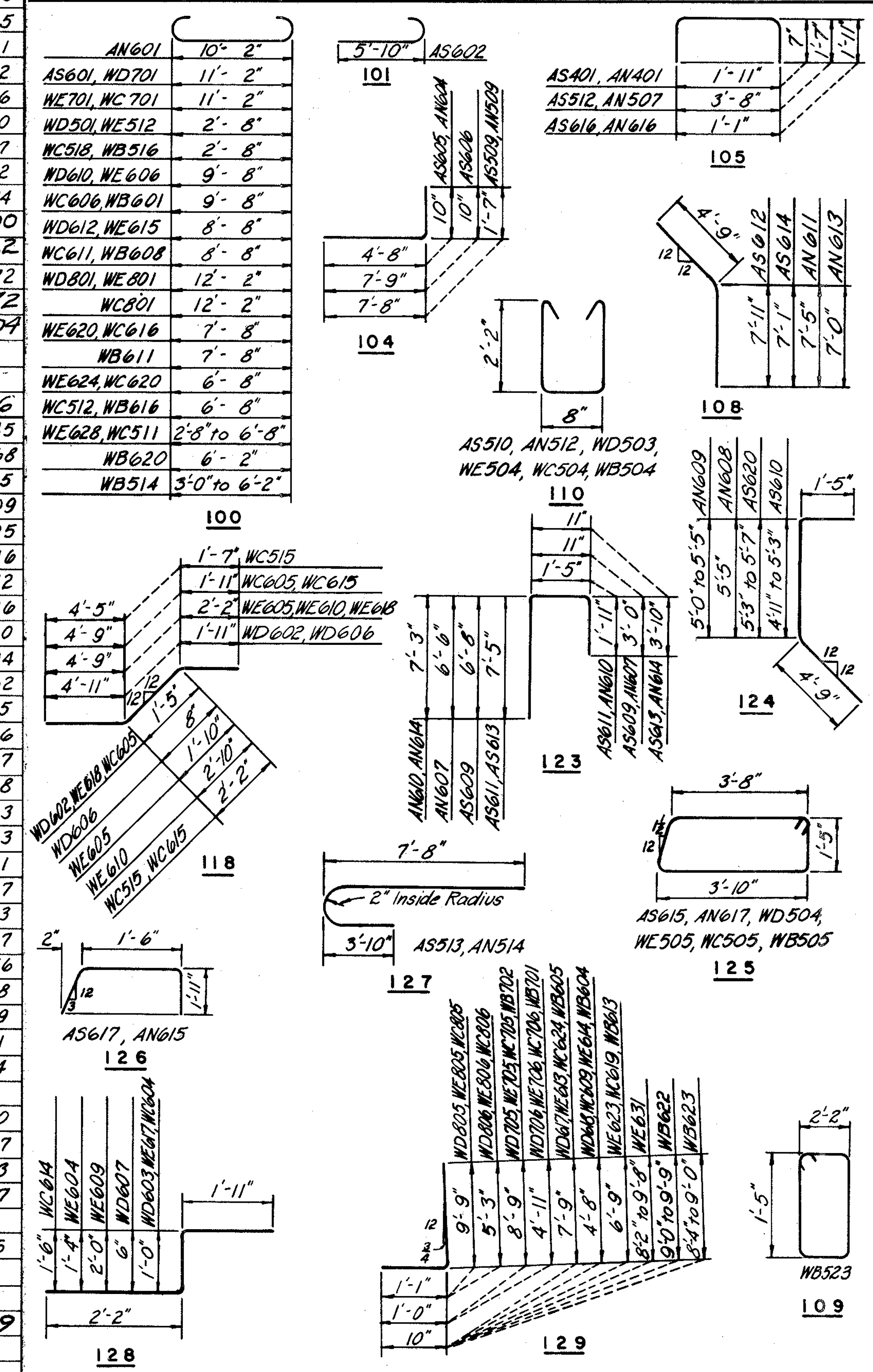
| | | | | | |
| | | | | | |
| SOUTHWEST RETAINING WALL | | | | | |
| WD501 | 10 | 3'-10" | 100 | | 40 |
| WD502 | 20 | 18'-9" | Str. | | 391 |
| WD503 | 146 | 5'-7" | 110 | | 850 |
| WD504 | 146 | 10'-10" | 125 | | 1,650 |
| WD505 | 164 | 31'-6" | Str. | | 5,388 |
| WD506 | 1 Ser. of 17 | 19'-9" to 20'-9" | Str. | 3/4" | 359 |
| WD507 | 102 | 3'-3" | Str. | | 346 |
| WD508 | 1 Ser. of 17 | 18'-9" to 19'-9" | Str. | 3/4" | 341 |
| WD509 | 1 Ser. of 17 | 16'-9" to 17'-9" | Str. | 3/4" | 306 |
| WD510 | 1 Ser. of 17 | 15'-3" to 16'-3" | Str. | 3/4" | 279 |
| WD511 | 1 Ser. of 17 | 14'-1" to 15'-1" | Str. | 3/4" | 259 |
| WD512 | 1 Ser. of 17 | 13'-0" to 14'-0" | Str. | 3/4" | 239 |
| WD513 | 2 Ser. of 11 | 8'-3" to 9'-0" | Str. | 7/8" | 198 |
| | | | | | |
| WD601 | 51 | 33'-0" | Str. | | 2,528 |
| WD602 | 10 | 8'-3" | 118 | | 124 |
| WD603 | 7 | 4'-9" | 128 | | 50 |
| WD604 | 10 | 27'-9" | Str. | | 417 |
| WD605 | 7 | 31'-6" | Str. | | 331 |
| WD606 | 7 | 7'-4" | 118 | | 77 |
| WD607 | 5 | 4'-3" | 128 | | 32 |
| WD608 | 7 | 29'-6" | Str. | | 310 |
| WD609 | 1 Ser. of 17 | 14'-4" to 15'-4" | Str. | 3/4" | 383 |
| WD610 | 70 | 11'-0" | 100 | | 1,157 |
| WD611 | 44 | 6'-9" | Str. | | 446 |
| WD612 | 28 | 10'-0" | 100 | | 421 |
| WD613 | 22 | 6'-3" | Str. | | 207 |
| WD614 | 11 | 33'-9" | Str. | | 558 |
| WD615 | 1 Ser. of 17 | 15'-6" to 16'-6" | Str. | 3/4" | 409 |
| WD616 | 32 | 9'-0" | Str. | | 433 |
| WD617 | 64 | 8'-5" | 129 | | 809 |
| WD618 | 66 | 5'-4" | 129 | | 529 |
| WD619 | 6 | 16'-6" | Str. | | 149 |
| WD701 | 32 | 12'-10" | 100 | | 839 |
| WD702 | 33 | 7'-9" | Str. | | 523 |
| WD703 | 1 Ser. of 17 | 17'-0" to 18'-0" | Str. | 3/4" | 608 |
| WD704 | 16 | 10'-0" | Str. | | 327 |
| WD705 | 48 | 9'-7" | 129 | | 932 |
| WD706 | 50 | 5'-9" | 129 | | 579 |
| WD707 | 1 Ser. of 17 | 13'-3" to 14'-3" | Str. | 3/4" | 478 |
| | | | | | |
| WD801 | 75 | 14'-4" | 100 | | 2,870 |
| WD802 | 65 | 8'-3" | Str. | | 1,432 |
| WD803 | 1 Ser. of 17 | 20'-0" to 21'-0" | Str. | 3/4" | 930 |
| WD804 | 32 | 11'-0" | Str. | | 940 |
| WD805 | 64 | 10'-8" | 129 | | 1,823 |
| WD806 | 66 | 6'-2" | 129 | | 1,087 |
| WD807 | 1 Ser. of 17 | 19'-0" to 20'-0" | Str. | 3/4" | 855 |
| | | | Total | | 34,239 |

| MARK | NO. | LENGTH | TYPE | SER. INCR. | WEIGHT (LBS) |
|---|---|---|---|---|---|
| SOUTHEAST RETAINING WALL | | | | | |
| WE501 | 1 Ser. of 17 | 20'-3" to 21'-7" | Str. | 1" | 371 |
| WE502 | 102 | 3'-3" | Str. | | 346 |
| WE503 | 204 | 31'-6" | Str. | | 6,702 |
| WE504 | 209 | 5'-7" | 110 | | 1,217 |
| WE505 | 209 | 10'-10" | 125 | | 2,362 |
| WE506 | 1 Ser. of 17 | 17'-8" to 19'-0" | Str. | 1" | 325 |
| WE507 | 1 Ser. of 17 | 14'-2" to 15'-6" | Str. | 1" | 263 |
| WE508 | 1 Ser. of 17 | 11'-8" to 13'-0" | Str. | 1" | 219 |
| WE509 | 1 Ser. of 17 | 9'-2" to 10'-6" | Str. | 1" | 174 |
| WE510 | 1 Ser. of 17 | 7'-8" to 9'-0" | Str. | 1" | 148 |
| WE511 | 1 Ser. of 17 | 6'-9" to 8'-3" | Str. | 1 1/8" | 133 |
| WE512 | 51 | 3'-10" | 100 | | 204 |
| WE513 | 8 | 33'-9" | Str. | | 282 |
| WE514 | 2 Ser. of 17 | 6'-9" to 8'-1" | Str. | 1" | 263 |
| WE515 | 2 Ser. of 17 | 5'-6" to 6'-10" | Str. | 1" | 219 |
| WE516 | 4 | 16'-3" | Str. | | 68 |
| WE517 | 14 | 14'-3" | Str. | | 208 |
| WE518 | 2 Ser. of 8 | 5'-3" to 5'-8" | Str. | 1 3/4" | 90 |
| | | | | | |
| WE601 | 17 | 31'-6" | Str. | | 804 |
| WE602 | 10 | 27'-9" | Str. | | 417 |
| WE603 | 26 | 31'-9" | Str. | | 1,240 |
| WE604 | 7 | 5'-1" | 128 | | 53 |
| WE605 | 10 | 8'-7" | 118 | | 129 |
| WE606 | 39 | 11'-0" | 100 | | 644 |
| WE607 | 22 | 6'-9" | Str. | | 223 |
| WE608 | 7 | 27'-0" | Str. | | 284 |
| WE609 | 5 | 5'-9" | 128 | | 43 |
| WE610 | 7 | 9'-7" | 118 | | 101 |
| WE611 | 1 Ser. of 17 | 14'-5" to 15'-9" | Str. | 1" | 385 |
| WE612 | 16 | 9'-0" | Str. | | 216 |
| WE613 | 32 | 8'-5" | 129 | | 405 |
| WE614 | 67 | 5'-4" | 129 | | 536 |
| WE615 | 28 | 10'-0" | 100 | | 421 |
| WE616 | 22 | 6'-3" | Str. | | 207 |
| WE617 | 14 | 4'-9" | 128 | | 100 |
| WE618 | 16 | 8'-2" | 118 | | 196 |
| WE619 | 16 | 28'-0" | Str. | | 673 |
| WE620 | 23 | 9'-0" | 100 | | 311 |
| WE621 | 22 | 5'-3" | Str. | | 173 |
| WE622 | 1 Ser. of 17 | 9'-5" to 10'-9" | Str. | 1" | 257 |
| WE623 | 16 | 7'-5" | 129 | | 178 |
| WE624 | 23 | 8'-0" | 100 | | 276 |
| WE625 | 25 | 4'-9" | Str. | | 178 |
| WE626 | 9 | 34'-0" | Str. | | 460 |
| WE627 | 1 Ser. of 17 | 7'-11" to 9'-3" | Str. | 1" | 219 |
| WE628 | 1 Ser. of 18 | 4'-0" to 8'-0" | 100 | 2 1/8" | 162 |
| WE629 | 1 Ser. of 16 | 3'-0" to 5'-2" | Str. | 1 3/4" | 98 |
| WE630 | 1 | 25'-6" | Str. | | 38 |
| WE631 | 1 Ser. of 17 | 8'-10" to 10'-4" | 129 | 1 1/8" | 245 |
| | | | | | |
| WE701 | 33 | 12'-10" | 100 | | 866 |
| WE702 | 33 | 7'-9" | Str. | | 523 |
| WE703 | 1 Ser. of 17 | 17'-11" to 19'-3" | Str. | 1" | 646 |
| WE704 | 16 | 10'-0" | Str. | | 327 |
| WE705 | 48 | 9'-7" | 129 | | 940 |
| WE706 | 50 | 5'-9" | 129 | | 588 |
| WE707 | 1 Ser. of 17 | 11'-11" to 13'-3" | Str. | 1" | 437 |
| | | | | | |
| WE801 | 36 | 14'-4" | 100 | | 1,378 |
| WE802 | 33 | 8'-3" | Str. | | 727 |
| WE803 | 1 Ser. of 17 | 20'-6" to 21'-10" | Str. | 1" | 961 |
| WE804 | 16 | 11'-0" | Str. | | 470 |
| WE805 | 32 | 10'-8" | 129 | | 911 |
| WE806 | 33 | 6'-2" | 129 | | 543 |
| | | | | | |
| (1) Light | Standard | Support | | | 116 |
| | | | | | |
| | | | Total | | 32,699 |

| MARK | NO. | LENGTH | TYPE | SER. INCR. | WEIGHT (LBS) |
|---|---|---|---|---|---|
| NORTHWEST RETAINING WALL | | | | | |
| | | | | | |
| WC501 | 1 Ser. of 17 | 18'-3" to 19'-5" | Str. | 7/8" | 334 |
| WC502 | 102 | 3'-3" | Str. | | 346 |
| WC503 | 178 | 31'-6" | Str. | | 5,848 |
| WC504 | 191 | 5'-7" | 110 | | 1,112 |
| WC505 | 191 | 10'-10" | 125 | | 2,158 |
| WC506 | 1 Ser. of 17 | 16'-1" to 17'-3" | Str. | 7/8" | 296 |
| WC507 | 1 Ser. of 17 | 14'-0" to 15'-2" | Str. | 7/8" | 259 |
| WC508 | 1 Ser. of 17 | 11'-6" to 12'-6" | Str. | 3/4" | 213 |
| WC509 | 1 Ser. of 17 | 8'-10" to 10'-0" | Str. | 7/8" | 167 |
| WC510 | 1 Ser. of 17 | 6'-9" to 7'-9" | Str. | 3/4" | 129 |
| WC511 | 1 Ser. of 16 | 3'-10" to 7'-10" | 100 | 3 1/4" | 97 |
| WC512 | 3 | 7'-8" | 100 | | 24 |
| WC513 | 4 | 27'-6" | Str. | | 115 |
| WC514 | 1 | 24'-0" | Str. | | 25 |
| WC515 | 5 | 8'-0" | 118 | | 42 |
| WC516 | 2 Ser. of 17 | 7'-6" to 8'-6" | Str. | 3/4" | 284 |
| WC517 | 4 | 33'-6" | Str. | | 140 |
| WC518 | 29 | 3'-8" | 100 | | 116 |
| WC519 | 2 Ser. of 17 | 6'-10" to 7'-6" | Str. | 1/2" | 254 |
| WC520 | 4 | 22'-3" | Str. | | 93 |
| WC521 | 14 | 20'-3" | Str. | | 296 |
| WC522 | 2 Ser. of 11 | 6'-4" to 6'-9" | Str. | 1/2" | 150 |
| | | | | | |
| WC601 | 17 | 31'-6" | Str. | | 804 |
| WC602 | 22 | 28'-0" | Str. | | 925 |
| WC603 | 30 | 31'-9" | Str. | | 1,431 |
| WC604 | 16 | 4'-9" | 128 | | 114 |
| WC605 | 22 | 7'-11" | 118 | | 262 |
| WC606 | 32 | 11'-0" | 100 | | 529 |
| WC607 | 1 Ser. of 17 | 14'-3" to 15'-5" | Str. | 7/8" | 379 |
| WC608 | 16 | 9'-0" | Str. | | 216 |
| WC609 | 67 | 5'-4" | 129 | | 537 |
| WC610 | 22 | 6'-9" | Str. | | 223 |
| WC611 | 25 | 10'-0" | 100 | | 376 |
| WC612 | 22 | 6'-3" | Str. | | 207 |
| WC613 | 12 | 27'-6" | Str. | | 496 |
| WC614 | 14 | 5'-3" | 128 | | 110 |
| WC615 | 12 | 8'-8" | 118 | | 156 |
| WC616 | 22 | 9'-0" | 100 | | 297 |
| WC617 | 22 | 5'-3" | Str. | | 173 |
| WC618 | 1 Ser. of 17 | 9'-1" to 10'-3" | Str. | 7/8" | 247 |
| WC619 | 16 | 7'-5" | 129 | | 178 |
| WC620 | 20 | 8'-0" | 100 | | 240 |
| WC621 | 25 | 4'-9" | Str. | | 178 |
| WC622 | 1 Ser. of 17 | 7'-0" to 8'-0" | Str. | 3/4" | 192 |
| WC623 | 1 Ser. of 13 | 3'-3" to 5'-3" | Str. | 2" | 83 |
| WC624 | 32 | 8'-5" | 129 | | 405 |
| | | | | | |
| WC701 | 34 | 12'-10" | 100 | | 892 |
| WC702 | 33 | 7'-9" | Str. | | 507 |
| WC703 | 1 Ser. of 17 | 16'-4" to 17'-6" | Str. | 7/8" | 588 |
| WC704 | 16 | 10'-0" | Str. | | 327 |
| WC705 | 48 | 9'-7" | 129 | | 940 |
| WC706 | 50 | 5'-9" | 129 | | 588 |
| WC707 | 1 Ser. of 17 | 11'-9" to 12'-9" | Str. | 3/4" | 426 |
| | | | | | |
| WC801 | 36 | 14'-4" | 100 | | 1,378 |
| WC802 | 33 | 8'-3" | Str. | | 727 |
| WC803 | 1 Ser. of 17 | 18'-6" to 19'-8" | Str. | 7/8" | 866 |
| WC804 | 16 | 11'-0" | Str. | | 470 |
| WC805 | 32 | 10'-8" | 129 | | 911 |
| WC806 | 33 | 6'-2" | 129 | | 543 |
| | | | | | |
| (1) Light | Standard | Support | | | 116 |
| | | | | | |
| | | | Total | | 30,535 |

| MARK | NO. | LENGTH | TYPE | SER. INCR. | WEIGHT (LBS) |
|---|---|---|---|---|---|
| NORTHEAST RETAINING WALL | | | | | |
| WB501 | 232 | 31'-6" | Str. | | 7622 |
| WB502 | 119 | 3'-3" | Str. | | 403 |
| WB503 | 1 Ser. of 17 | 13'-8" to 15'-0" | Str. | 1" | 254 |
| WB504 | 264 | 5'-7" | 110 | | 1,537 |
| WB505 | 262 | 10'-10" | 125 | | 2,960 |
| WB506 | 1 Ser. of 17 | 12'-5" to 13'-9" | Str. | 1" | 228 |
| WB507 | 1 Ser. of 17 | 11'-1" to 12'-5" | Str. | 1" | 209 |
| WB508 | 1 Ser. of 17 | 9'-9" to 11'-1" | Str. | 1" | 185 |
| WB509 | 1 Ser. of 17 | 8'-5" to 9'-9" | Str. | 1" | 161 |
| WB510 | 1 Ser. of 17 | 7'-6" to 8'-6" | Str. | 3/4" | 142 |
| WB511 | 1 Ser. of 17 | 6'-9" to 7'-5" | Str. | 1/2" | 126 |
| WB512 | 1 Ser. of 17 | 7'-7" to 8'-3" | Str. | 1/2" | 140 |
| WB513 | 1 Ser. of 17 | 6'-9" to 7'-7" | Str. | 1/2" | 127 |
| WB514 | 1 Ser. of 17 | 4'-2" to 7'-4" | 100 | 2 3/8" | 102 |
| WB515 | 2 Ser. of 17 | 7'-9" to 8'-3" | Str. | 3/8" | 284 |
| WB516 | 50 | 3'-10" | 100 | | 200 |
| WB517 | 8 | 33'-9" | Str. | | 282 |
| WB518 | 2 Ser. of 17 | 7'-6" to 7'-10" | Str. | 1/4" | 272 |
| WB519 | 51 | 7'-0" | Str. | | 372 |
| WB520 | 29 | 6'-9" | Str. | | 204 |
| | | | | | |
| | | | | | |
| WB523 | 2 | 7'-8" | 109 | | 16 |
| WB601 | 33 | 11'-0" | 100 | | 545 |
| WB602 | 12 | 31'-6" | Str. | | 568 |
| WB603 | 22 | 6'-6" | Str. | | 215 |
| WB604 | 101 | 5'-4" | 129 | | 809 |
| WB605 | 32 | 8'-5" | 129 | | 405 |
| WB606 | 16 | 9'-0" | Str. | | 216 |
| WB607 | 1 Ser. of 17 | 13'-11" to 15'-3" | Str. | 1" | 372 |
| WB608 | 55 | 10'-0" | 100 | | 826 |
| WB609 | 84 | 34'-0" | Str. | | 4,290 |
| WB610 | 43 | 6'-3" | Str. | | 404 |
| WB611 | 49 | 9'-0" | 100 | | 662 |
| WB612 | 43 | 5'-6" | Str. | | 355 |
| WB613 | 32 | 7'-5" | 129 | | 356 |
| WB614 | 1 Ser. of 17 | 10'-0" to 11'-4" | Str. | 1" | 277 |
| WB615 | 1 Ser. of 17 | 8'-8" to 10'-0" | Str. | 1" | 238 |
| WB616 | 41 | 8'-0" | 100 | | 493 |
| WB617 | 43 | 5'-0" | Str. | | 323 |
| WB618 | 1 Ser. of 17 | 7'-9" to 8'-9" | Str. | 3/4" | 211 |
| WB619 | 1 Ser. of 17 | 7'-0" to 7'-8" | Str. | 1/2" | 187 |
| WB620 | 42 | 7'-6" | 100 | | 473 |
| WB621 | 43 | 4'-9" | Str. | | 307 |
| WB622 | 1 Ser. of 17 | 9'-8" to 10'-5" | 129 | 9/16" | 256 |
| WB623 | 1 Ser. of 17 | 9'-0" to 9'-8" | 129 | 1/2" | 238 |
| WB624 | 1 | 26'-0" | Str. | | 39 |
| WB625 | 4 | 18'-6" | Str. | | 111 |
| WB626 | 1 Ser. of 12 | 3'-0" to 5'-3" | Str. | 2 1/4" | 74 |
| | | | | | |
| WB701 | 34 | 5'-9" | 129 | | 400 |
| WB702 | 32 | 9'-7" | 129 | | 627 |
| WB703 | 1 Ser. of 17 | 12'-8" to 14'-0" | Str. | 1" | 463 |
| WB704 | 1 Ser. of 17 | 11'-4" to 12'-8" | Str. | 1" | 417 |
| | | | | | |
| (1) Light | Standard | Support | | | 116 |
| | | | | | |
| | | | Total | | 31,099 |

BENDING DIAGRAMS



NOTES:

For longitudinal reinforcement in the parapets (prefix R) see sheet 91

For replacement bar schedule see sheet 70

For Light Standard Support Reinforcement Schedule, see sheet 89

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

**ABUTMENTS AND RETAINING WALLS REINFORCEMENT SCHEDULE STATE ROUTE 7 VIADUCT**

BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: None STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

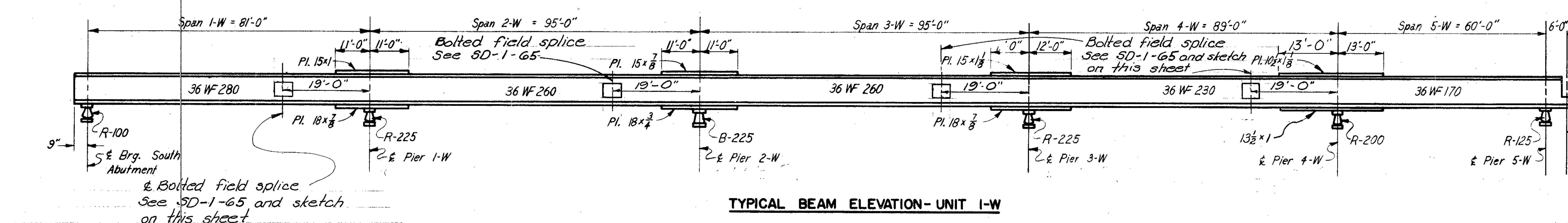
DRAWN SAS DATE 5-15-61 | TRACED DATE | CHECKED CHB DATE 5-26-61 | REVIEWED DATE 6-5-62 | REVISED | 949 SHEET 71

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

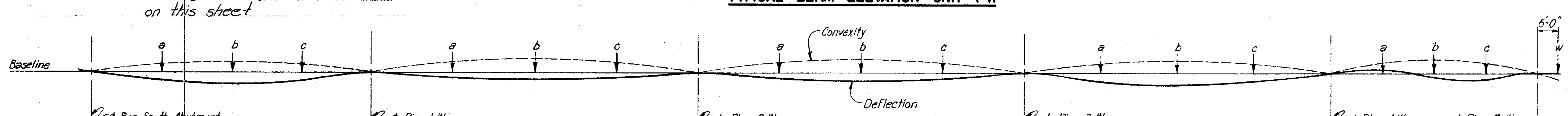
84

BELMONT COUNTY
BEL-7-19.86

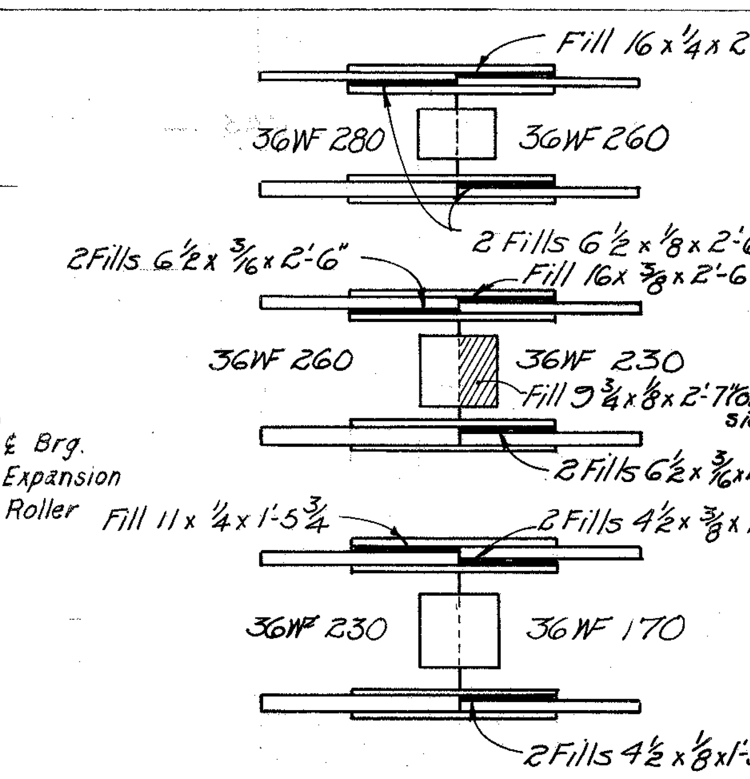

FRAMING PLAN




TYPICAL BEAM ELEVATION - UNIT 1-W




DEAD LOAD DEFLECTION AND CONVEXITY DIAGRAMS - UNIT 1-W




SKETCHES SHOWING NOMINAL FILLS REQUIRED FOR BOLTED FIELD SPLICES.

Deflection Notes:

Total indicates values shown are total deflections due to dead load of steel and concrete.

Conc. indicates values shown are for deflections due to concrete only.

Deflections and convexities are measured to nearest $\frac{1}{16}$ inch.

a indicates $\frac{1}{4}$ point.
b indicates $\frac{1}{2}$ point.
c indicates $\frac{3}{4}$ point.

ELEVATION, DEAD LOAD DEFLECTION, AND CONVEXITY TABLES - UNIT 1-W

| | Location | Span 1-W | | | | | | | | Span 2-W | | | | | | | | Span 3-W | | | | | | | | Span 4-W | | | | | | | | Span 5-W | | | | | | | | Part Span 6-W | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ℄ S. Abut. | a | | b | | c | | ℄ Pier 1-W | a | | b | | c | | ℄ Pier 2-W | a | | b | | c | | ℄ Pier 3-W | a | | b | | c | | ℄ Pier 4-W | a | | b | | c | | ℄ Pier 5-W | w | |
| Elev. | Profile Grade | 678.13 | 678.77 | | 679.36 | | 679.90 | | 680.40 | 680.91 | | 681.36 | | 681.73 | | 682.05 | 682.29 | | 682.46 | | 682.57 | | 682.62 | 682.59 | | 682.51 | | 682.37 | | 682.17 | 682.00 | | 681.80 | | 681.58 | | 681.33 | 681.22 | |
| Elev. | West Gutter | 678.50 | 679.01 | | 679.48 | | 679.90 | | 680.34 | 680.79 | | 681.18 | | 681.49 | | 681.75 | 681.93 | | 682.04 | | 682.12 | | 682.16 | 682.14 | | 682.06 | | 681.91 | | 681.71 | 681.54 | | 681.35 | | 681.12 | | 680.87 | 680.76 | |
| Deflection | Beam | | Total | Conc. | Total | Conc. | Total | Conc. | | Total | Conc. | Total | Conc. | Total | Conc. | | Total | Conc. | Total | Conc. | Total | Conc. | | Total | Conc. | Total | Conc. | Total | Conc. | | Total | Conc. | Total | Conc. | Total | Conc. | | Total | Conc. |
| Deflection | A | 0 | $\frac{3}{4}$ | $\frac{9}{16}$ | $\frac{7}{8}$ | $\frac{11}{16}$ | $\frac{3}{8}$ | $\frac{5}{16}$ | 0 | $\frac{3}{16}$ | $\frac{1}{8}$ | $\frac{1}{2}$ | $\frac{7}{16}$ | $\frac{3}{16}$ | $\frac{3}{16}$ | 0 | $\frac{5}{16}$ | $\frac{1}{4}$ | $\frac{11}{16}$ | $\frac{9}{16}$ | $\frac{5}{16}$ | $\frac{1}{4}$ | 0 | $\frac{5}{16}$ | $\frac{1}{4}$ | $\frac{3}{4}$ | $\frac{5}{8}$ | $\frac{1}{2}$ | $\frac{7}{16}$ | 0 | $-\frac{1}{16}$ | $-\frac{1}{16}$ | $\frac{1}{8}$ | $\frac{1}{16}$ | $\frac{1}{8}$ | $\frac{1}{16}$ | 0 | 0 | 0 |
| Deflection | B, C, D, & E | 0 | $\frac{5}{8}$ | $\frac{1}{2}$ | $\frac{3}{4}$ | $\frac{9}{16}$ | $\frac{5}{16}$ | $\frac{1}{4}$ | 0 | $\frac{1}{8}$ | $\frac{1}{8}$ | $\frac{7}{16}$ | $\frac{3}{8}$ | $\frac{3}{16}$ | $\frac{1}{8}$ | 0 | $\frac{5}{16}$ | $\frac{3}{16}$ | $\frac{5}{8}$ | $\frac{7}{16}$ | $\frac{5}{16}$ | $\frac{1}{4}$ | 0 | $\frac{5}{16}$ | $\frac{1}{4}$ | $\frac{11}{16}$ | $\frac{1}{2}$ | $\frac{7}{16}$ | $\frac{3}{8}$ | 0 | $-\frac{1}{16}$ | $-\frac{1}{16}$ | $\frac{1}{16}$ | $\frac{1}{16}$ | $\frac{1}{16}$ | $\frac{1}{16}$ | 0 | 0 | 0 |
| Convexity | A | 0 | $\frac{9}{16}$ | | $\frac{5}{8}$ | | $\frac{3}{16}$ | | 0 | $1\frac{3}{16}$ | | $1\frac{5}{8}$ | | $1\frac{1}{8}$ | | 0 | $\frac{7}{8}$ | | 1 | | $\frac{3}{4}$ | | 0 | $1\frac{1}{16}$ | | $1\frac{7}{16}$ | | $1\frac{1}{16}$ | | 0 | $\frac{1}{2}$ | | $\frac{5}{8}$ | | $\frac{1}{2}$ | | 0 | $-\frac{5}{16}$ | |
| Convexity | B | 0 | $\frac{3}{8}$ | | $\frac{3}{4}$ | | $\frac{3}{8}$ | | 0 | $1\frac{3}{16}$ | | $1\frac{5}{8}$ | | $1\frac{1}{8}$ | | 0 | $\frac{15}{16}$ | | $1\frac{1}{8}$ | | $\frac{13}{16}$ | | 0 | | | | | | | 0 | | | | | | | 0 | | |
| Convexity | C | 0 | $\frac{3}{4}$ | | $\frac{7}{8}$ | | $\frac{1}{2}$ | | 0 | $1\frac{3}{16}$ | | $1\frac{5}{8}$ | | $1\frac{1}{8}$ | | 0 | $1\frac{1}{16}$ | | $1\frac{1}{4}$ | | $\frac{15}{16}$ | | 0 | | | | | | | 0 | | | | | | | 0 | | |
| Convexity | D | 0 | $\frac{13}{16}$ | | 1 | | $\frac{11}{16}$ | | 0 | $1\frac{3}{16}$ | | $1\frac{5}{8}$ | | $1\frac{1}{8}$ | | 0 | $1\frac{1}{8}$ | | $1\frac{7}{16}$ | | $1\frac{1}{16}$ | | 0 | | | | | | | 0 | | | | | | | 0 | | |
| Convexity | E | 0 | $\frac{7}{8}$ | | $1\frac{1}{8}$ | | $\frac{13}{16}$ | | 0 | $1\frac{3}{16}$ | | $1\frac{5}{8}$ | | $1\frac{3}{16}$ | | 0 | $1\frac{3}{16}$ | | $1\frac{9}{16}$ | | $1\frac{3}{16}$ | | 0 | $1\frac{1}{16}$ | | $1\frac{7}{16}$ | | $1\frac{1}{16}$ | | 0 | $\frac{1}{2}$ | | $\frac{5}{8}$ | | $\frac{1}{2}$ | | 0 | $-\frac{5}{16}$ | |

## BEAM CAMBER NOTE

The beams shall be cambered as follows: where the combined effects of the total dead load deflection and convexity is $\frac{3}{4}$" to 1," the required camber will be 1," and if greater than 1" the required camber will be the same as this sum. Where the combined effects are less than $\frac{3}{4}$," the beams require no camber, but shall be fabricated so that any curved beam will be placed with the convex flange up, except in Span 12-E & W where the convex flange will be placed down.

NOTES:

For details of Rockers and Bolsters, see Ohio Standard Drawing RB-1-55.

In Units 1, 2, 4, and 5; intermediate crossframes shall be 6" clear from ℄ beam splices.

Crossframes shall be set at equal spaces within limits shown.

For details of end crossframes, see Ohio Standard Drawing SD-1-65.

For details of intermediate crossframes and Type "X" crossframes, see sheet 87

For location of gutter elevations, see Detail "B" and Detail "C", sheet 87

For details at expansion rollers, see sheet 88

Cover plate lengths shown are typical top and bottom.

For beam splice details see SD-1-65 and see sheet 86

Top of pavement elevations, between profile grade and gutter, at supports, quarter points (beams) or tenth points (girders) may be determined by straight line interpolation.

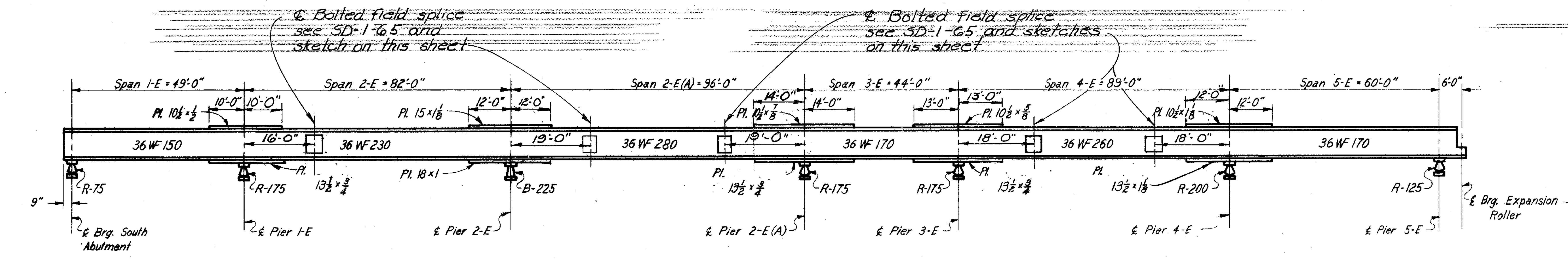
Top of beam elevations, exclusive of cover plates, and top of girder flange elevations, at supports; may be determined by deducting "d" from respective top of pavement elevations. Values for "d" are given in table, "Slab Thickness at ℄ Bearings," sheet 87

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

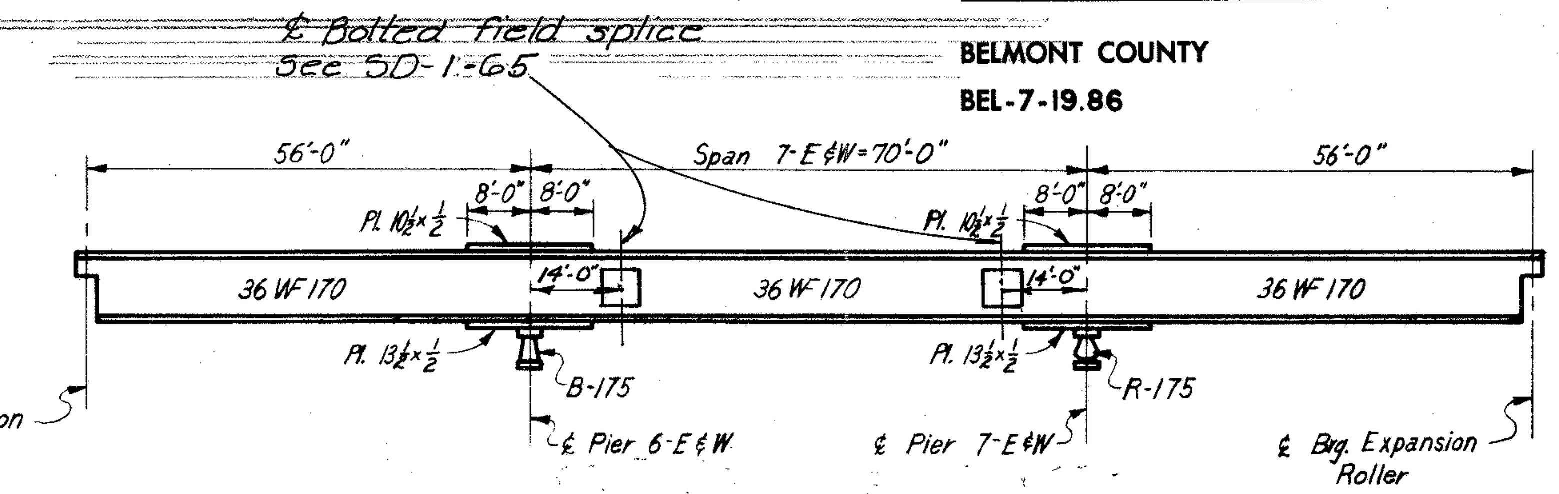
FRAMING PLAN - ALL UNITS
AND BEAM ELEVATION UNIT 1-W
STATE ROUTE 7 VIADUCT

BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: None STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

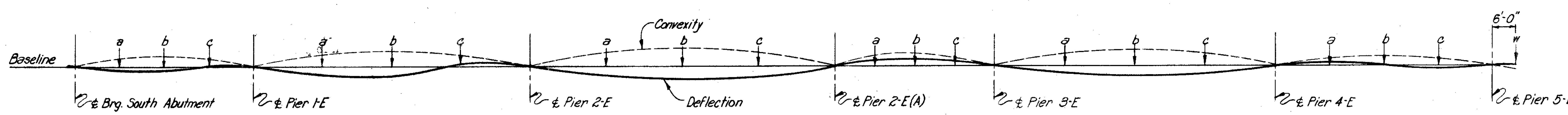
| DRAWN C.M.& F.S.J. DATE 3-1-61 | TRACED DATE | CHECKED CKB DATE 3-21-61 | REVIEWED WF DATE 6-5-62 | REVISED 949 SHEET 72 |
|---|---|---|---|---|



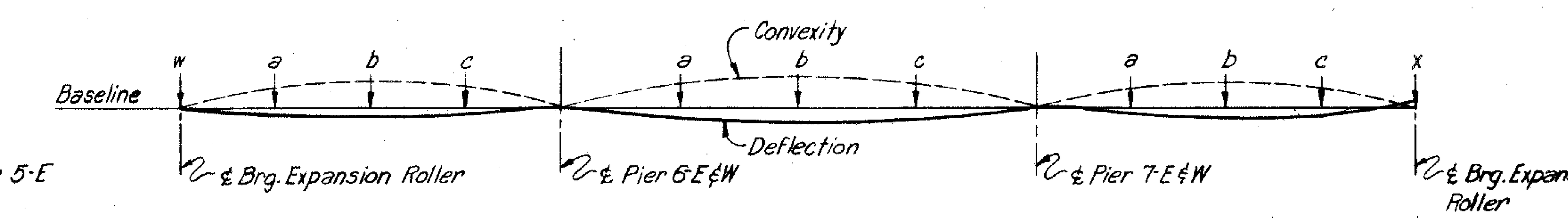

TYPICAL BEAM ELEVATION - UNIT 1-E




TYPICAL BEAM ELEVATION - UNIT 2-E & W




DEAD LOAD DEFLECTION AND CONVEXITY DIAGRAMS - UNIT 1-E




DEAD LOAD DEFLECTION AND CONVEXITY DIAGRAMS - UNIT 2-E & W

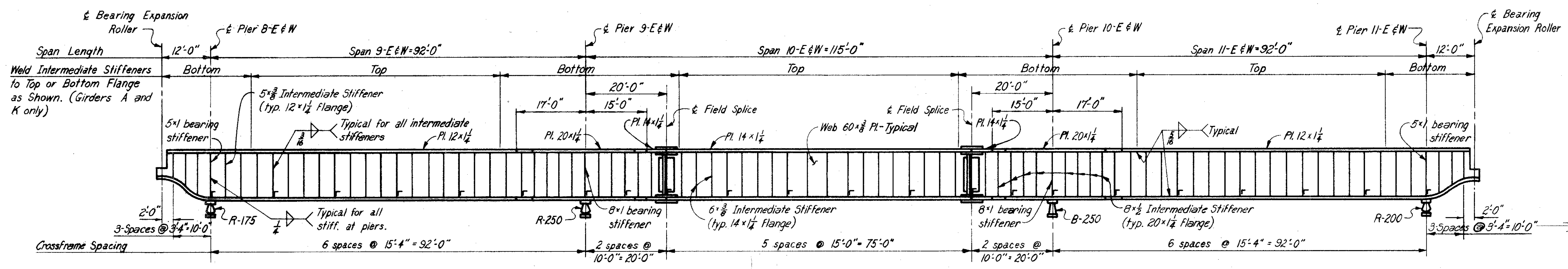
ELEVATION, DEAD LOAD DEFLECTION, AND CONVEXITY TABLES - UNITS 1-E AND 2-E & W

| Location | | Span 1-E | | | | | | | Span 2-E | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ℄ So. Abut. | a | | b | | c | | ℄ Pier 1-E | a | | b | | c | | ℄ Pier 2-E |
| Elev. Profile Grade | 678.13 | 678.53 | | 678.90 | | 679.26 | | 679.60 | 680.12 | | 680.60 | | 681.02 | | 681.40 |
| Elev. East Gutter | 677.68 | 678.07 | | 678.45 | | 678.80 | | 679.14 | 679.67 | | 680.15 | | 680.57 | | 680.95 |
| Deflection Beam | | Total | Conc. | Total | Conc. | Total | Conc. | | Total | Conc. | Total | Conc. | Total | Conc. | |
| K | 0 | 1/8 | 1/8 | 1/8 | 1/8 | 0 | 0 | 0 | 1/4 | 3/16 | 5/16 | 1/4 | 1/16 | 1/16 | 0 |
| F thru J | 0 | 1/8 | 1/8 | 1/8 | 1/8 | 0 | 0 | 0 | 3/16 | 3/16 | 1/4 | 3/16 | -1/16 | -1/16 | 0 |
| Conv. F thru K | 0 | 5/16 | | 7/16 | | 5/16 | | 0 | 7/8 | | 1 3/16 | | 7/8 | | 0 |

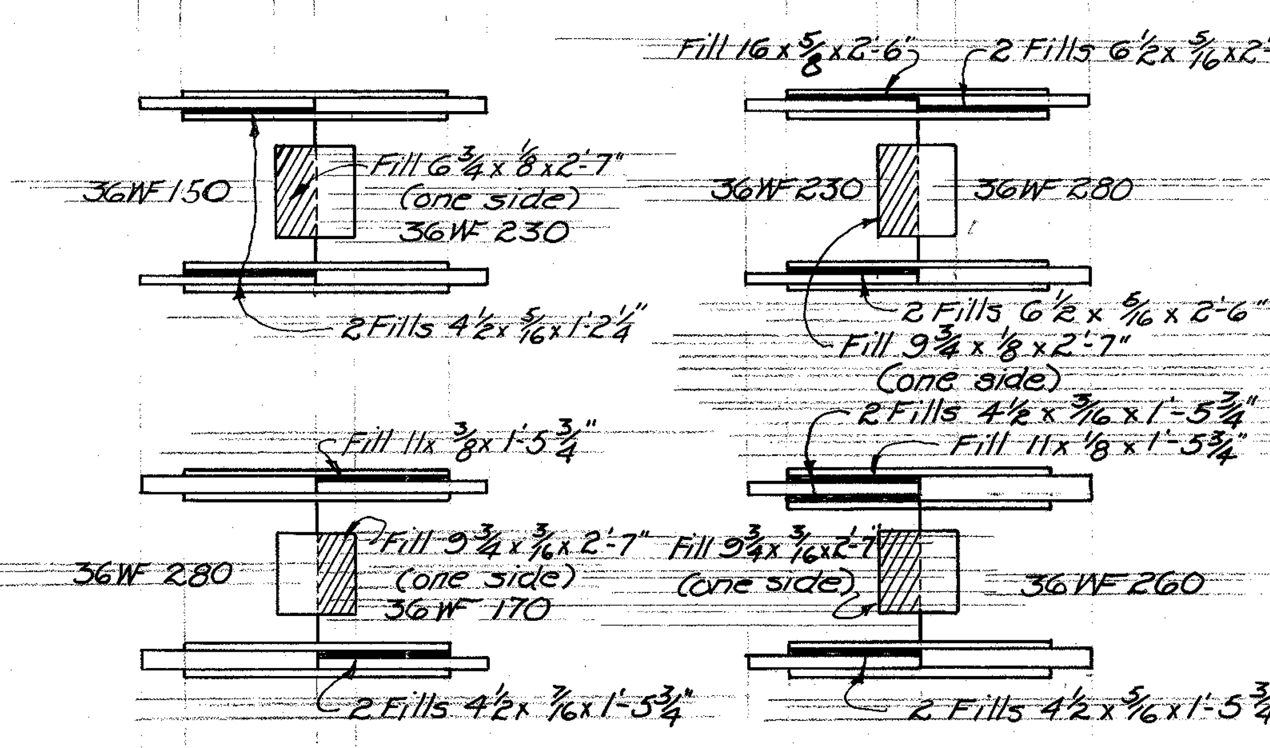
| Location | Span 2-E(A) | | | | | | | Span 3-E | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | a | | b | | c | | ℄ Pier 2-E(A) | a | | b | | c | | ℄ Pier 3-E |
| Elev. Profile Grade | 681.78 | | 682.08 | | 682.32 | | 682.49 | 682.54 | | 682.58 | | 682.61 | | 682.62 |
| Elev. East Gutter | 681.32 | | 681.63 | | 681.87 | | 682.03 | 682.09 | | 682.13 | | 682.15 | | 682.16 |
| Deflection Beam | Total | Conc. | Total | Conc. | Total | Conc. | | Total | Conc. | Total | Conc. | Total | Conc. | |
| K | 3/4 | 9/16 | 1 1/8 | 1 1/16 | 1 | 3/4 | 0 | -3/8 | -5/16 | -7/16 | -3/8 | -5/16 | -1/4 | 0 |
| F thru J | 11/16 | 1/2 | 1 1/4 | 7/8 | 7/8 | 5/8 | 0 | -5/16 | -1/4 | -3/8 | -5/16 | -5/16 | -1/4 | 0 |
| Conv. F thru K | 1 1/4 | | 1 5/8 | | 1 1/4 | | 0 | 1/4 | | 3/8 | | 1/4 | | 0 |

| Location | Span 4-E | | | | | | | Span 5-E | | | | | | | Part Span 6-E | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | a | | b | | c | | ℄ Pier 4-E | a | | b | | c | | ℄ Pier 5-E | w | |
| Elev. Profile Grade | 682.59 | | 682.51 | | 682.37 | | 682.17 | 682.00 | | 681.80 | | 681.58 | | 681.33 | 681.22 | |
| Elev. East Gutter | 682.14 | | 682.06 | | 681.91 | | 681.71 | 681.54 | | 681.35 | | 681.12 | | 680.87 | 680.76 | |
| Deflection Beam | Total | Conc. | Total | Conc. | Total | Conc. | | Total | Conc. | Total | Conc. | Total | Conc. | | Total | Conc. |
| K | 1 | 13/16 | 1 7/16 | 1 1/8 | 7/8 | 3/4 | 0 | -3/16 | -1/8 | 0 | 0 | 1/16 | 1/16 | 0 | 0 | 0 |
| F thru J | 7/8 | 5/8 | 1 1/4 | 15/16 | 3/4 | 9/16 | 0 | -1/8 | -1/8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Conv. F thru K | 1 1/16 | | 1 7/16 | | 1 1/16 | | 0 | 1/2 | | 5/8 | | 1/2 | | 0 | -5/16 | |

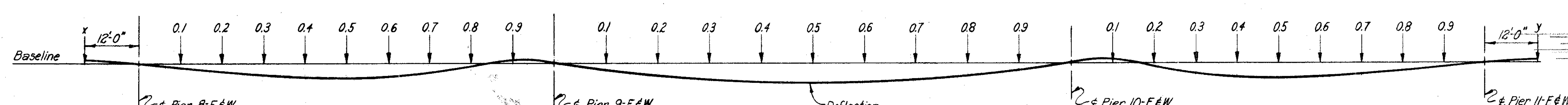
| Location | Part Span 6-E & W | | | | | | | | Span 7-E & W | | | | | | | Part Span 8-E & W | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | w | a | | b | | c | | ℄ Pier 6-E & W | a | | b | | c | | ℄ Pier 7-E & W | a | | b | | c | | x |
| Elev. Profile Grade | 681.22 | 680.95 | | 680.66 | | 680.34 | | 680.00 | 679.55 | | 679.05 | | 678.52 | | 677.96 | 677.48 | | 676.97 | | 676.45 | | 675.92 |
| Elev. E. & W. Gutter | 680.76 | 680.50 | | 680.20 | | 679.89 | | 679.55 | 679.09 | | 678.60 | | 678.07 | | 677.50 | 677.02 | | 676.52 | | 675.99 | | 675.46 |
| Deflection Beam | | Total | Conc. | Total | Conc. | Total | Conc. | | Total | Conc. | Total | Conc. | Total | Conc. | | Total | Conc. | Total | Conc. | Total | Conc. | Total / Conc. |
| A & K | 0 | 1/4 | 1/4 | 5/16 | 1/4 | 1/8 | 1/8 | 0 | 3/16 | 1/8 | 3/8 | 5/16 | 3/16 | 1/8 | 0 | 1/16 | 1/16 | 1/4 | 3/16 | 3/16 | 1/8 | -1/8 / -1/8 |
| B thru J | 0 | 1/4 | 3/16 | 1/4 | 3/16 | 1/8 | 1/16 | 0 | 3/16 | 1/8 | 5/16 | 1/4 | 3/16 | 1/8 | 0 | 1/16 | 1/16 | 3/16 | 3/16 | 1/8 | 1/8 | -1/8 / -1/8 |
| Conv. A thru K | 0 | 7/16 | | 9/16 | | 7/16 | | 0 | 11/16 | | 7/8 | | 11/16 | | 0 | 3/8 | | 7/16 | | 1/4 | | 0 |




TYPICAL GIRDER ELEVATION - UNIT 3-E & W




SKETCHES SHOWING NOMINAL FILLS FOR BOLTED FIELD SPLICES




DEAD LOAD DEFLECTION DIAGRAM - UNIT 3-E & W

ELEVATION AND DEAD LOAD DEFLECTION TABLES - UNIT 3-E & W

| Location | Part Span 8-E & W | | | Span 9-E & W | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | x | | ℄ Pier 8-E & W | 0.1 | | 0.2 | | 0.3 | | 0.4 | | 0.5 | | 0.6 | | 0.7 | | 0.8 | | 0.9 | | ℄ Pier 9-E & W |
| Elev. Profile Grade | 675.92 | | 675.46 | 675.12 | | 674.80 | | 674.50 | | 674.21 | | 673.94 | | 673.70 | | 673.47 | | 673.26 | | 673.07 | | 672.90 |
| Elev. E. & W. Gutter | 675.46 | | 675.01 | 674.67 | | 674.34 | | 674.04 | | 673.76 | | 673.49 | | 673.24 | | 673.02 | | 672.81 | | 672.61 | | 672.44 |
| Deflection Girder | Total | Conc. | | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | |
| A & K | -1/8 | -1/8 | 0 | 1/8 | 1/8 | 1/4 | 3/16 | 3/8 | 5/16 | 3/8 | 5/16 | 3/8 | 5/16 | 5/16 | 1/4 | 1/8 | 1/8 | 0 | 0 | -1/16 | -1/16 | 0 |
| B thru J | -1/8 | -1/16 | 0 | 1/8 | 1/16 | 1/4 | 3/16 | 5/16 | 1/4 | 3/8 | 1/4 | 5/16 | 1/4 | 1/4 | 3/16 | 1/8 | 1/8 | 0 | 0 | -1/16 | -1/16 | 0 |

| Location | Span 10-E & W | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.1 | | 0.2 | | 0.3 | | 0.4 | | 0.5 | | 0.6 | | 0.7 | | 0.8 | | 0.9 | | ℄ Pier 10-E & W |
| Elev. Profile Grade | 672.70 | | 672.54 | | 672.41 | | 672.31 | | 672.24 | | 672.19 | | 672.18 | | 672.19 | | 672.21 | | 672.24 |
| Elev. E. & W. Gutter | 672.25 | | 672.09 | | 671.96 | | 671.86 | | 671.78 | | 671.74 | | 671.72 | | 671.73 | | 671.75 | | 671.79 |
| Deflection Girder | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | |
| A & K | 1/8 | 1/8 | 3/8 | 5/16 | 5/8 | 1/2 | 13/16 | 11/16 | 15/16 | 3/4 | 13/16 | 11/16 | 5/8 | 1/2 | 3/8 | 5/16 | 1/8 | 1/8 | 0 |
| B thru J | 1/8 | 1/16 | 5/16 | 1/4 | 9/16 | 7/16 | 3/4 | 9/16 | 13/16 | 5/8 | 3/4 | 9/16 | 9/16 | 7/16 | 5/16 | 1/4 | 1/8 | 1/16 | 0 |

| Location | Span 11-E & W | | | | | | | | | | | | | | | | | | | Part Span 12-E & W | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.1 | | 0.2 | | 0.3 | | 0.4 | | 0.5 | | 0.6 | | 0.7 | | 0.8 | | 0.9 | | ℄ Pier 11-E & W | y | |
| Elev. Profile Grade | 672.28 | | 672.32 | | 672.37 | | 672.42 | | 672.49 | | 672.56 | | 672.64 | | 672.73 | | 672.82 | | 672.92 | 673.07 | |
| Elev. E. & W. Gutter | 671.82 | | 671.86 | | 671.91 | | 671.97 | | 672.04 | | 672.11 | | 672.19 | | 672.27 | | 672.37 | | 672.47 | 672.62 | |
| Deflection Girder | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | | Total | Conc. |
| A & K | -1/16 | -1/16 | 0 | 0 | 1/8 | 1/16 | 1/4 | 3/16 | 5/16 | 1/4 | 5/16 | 1/4 | 5/16 | 1/4 | 3/16 | 3/16 | 1/16 | 1/16 | 0 | -1/16 | -1/16 |
| B thru J | -1/16 | -1/16 | 0 | 0 | 1/8 | 1/16 | 3/16 | 1/8 | 1/4 | 3/16 | 5/16 | 1/4 | 1/4 | 3/16 | 3/16 | 1/8 | 1/16 | 1/16 | 0 | -1/16 | -1/16 |

Notes:
For Girder Notes, see sheet 87. For girder field splice details and flange plate taper detail see sheet 86. For beam camber note, deflection notes, and additional notes see sheet 84.

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

**BEAM ELEVATIONS - UNITS 1-E AND 2-E & W**
**GIRDER ELEVATION - UNIT 3-E & W**
**STATE ROUTE 7 VIADUCT**

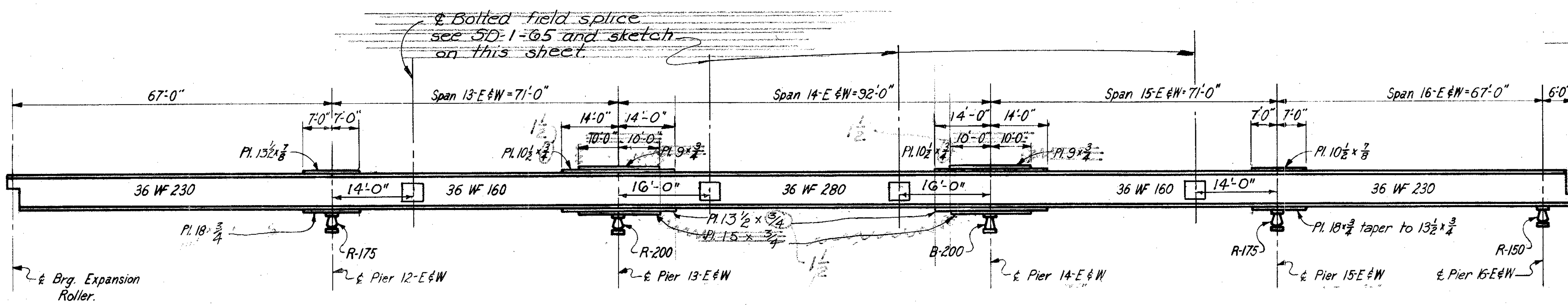
BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: None STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

| DRAWN C.M.G. / F.S.J. | TRACED | CHECKED | REVIEWED W.F. | REVISED |
|---|---|---|---|---|
| DATE 3-2-61 | DATE | DATE C.K.B. 5-27-61 | DATE 6-5-62 | 949 SHEET 73 |

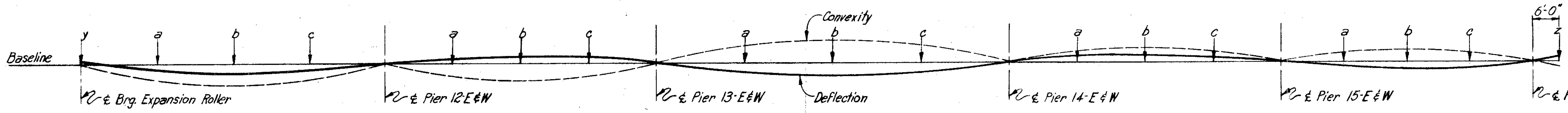
| FED. RD. DIVISION | STATE | PROJECT | |
| --- | --- | --- | --- |
| 2 | OHIO | | |

BELMONT COUNTY
BEL-7-19.86

86




TYPICAL BEAM ELEVATION - UNIT 4-E & W




DEAD LOAD DEFLECTION AND CONVEXITY DIAGRAMS - UNIT 4-E & W

ELEVATION, DEAD LOAD DEFLECTION, AND CONVEXITY TABLES - UNIT 4-E & W

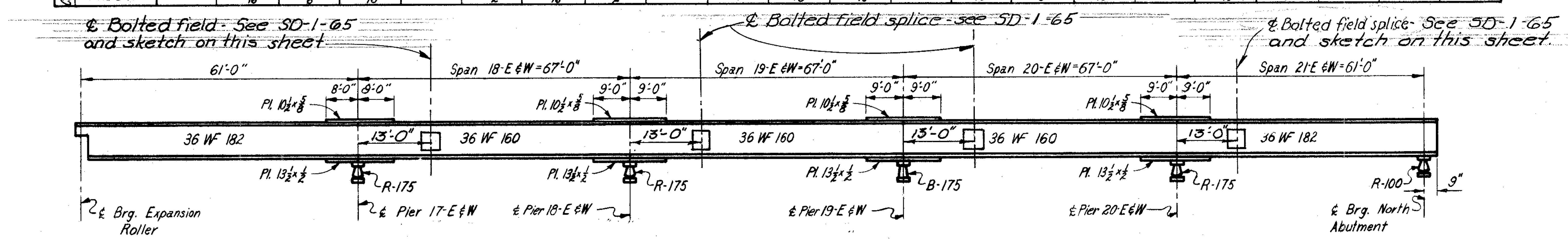
| | Location | Part Span 12-E&W | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | y | | a | | b | | c | | ℄ Pier 12-E&W |
| Elev. | Profile Grade | 673.07 | | 673.29 | | 673.54 | | 673.82 | | 674.12 |
| Elev. | E.&W. Gutter | 672.62 | | 672.84 | | 673.09 | | 673.36 | | 673.66 |
| Deflection | Beam | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | |
| Deflection | A & K | -1/16 | -1/16 | 1/2 | 3/8 | 11/16 | 1/2 | 3/8 | 5/16 | 0 |
| Deflection | B thru J | -1/16 | -1/16 | 7/16 | 3/8 | 9/16 | 7/16 | 5/16 | 1/4 | 0 |
| Conv. | A thru K | 0 | | -7/16 | | -5/8 | | -7/16 | | 0 |

| | Location | Span 13-E&W | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | a | | b | | c | | ℄ Pier 13-E&W |
| Elev. | Profile Grade | 674.46 | | 674.83 | | 675.23 | | 675.66 |
| Elev. | E.&W. Gutter | 674.01 | | 674.38 | | 674.78 | | 675.21 |
| Deflection | Beam | Total | Conc. | Total | Conc. | Total | Conc. | |
| Deflection | A & K | -3/16 | -1/8 | -1/8 | -1/8 | -1/4 | -3/16 | 0 |
| Deflection | B thru J | -1/8 | -1/8 | -1/8 | -1/8 | -1/4 | -3/16 | 0 |
| Conv. | A thru K | -1/2 | | -11/16 | | -1/2 | | 0 |

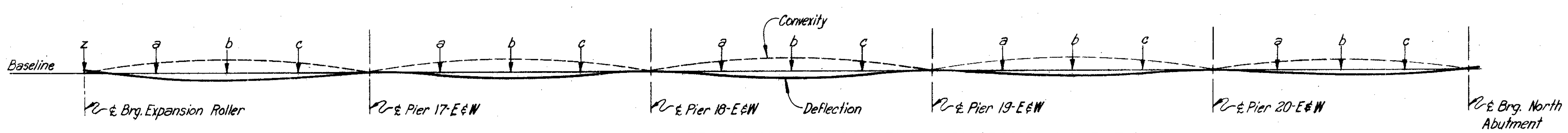
| | Location | Span 14-E&W | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | a | | b | | c | | ℄ Pier 14-E&W |
| Elev. | Profile Grade | 676.23 | | 676.76 | | 677.22 | | 677.63 |
| Elev. | E.&W. Gutter | 675.78 | | 676.31 | | 676.77 | | 677.17 |
| Deflection | Beam | Total | Conc. | Total | Conc. | Total | Conc. | |
| Deflection | A & K | 13/16 | 5/8 | 1 1/4 | 1 | 13/16 | 5/8 | 0 |
| Deflection | B thru J | 11/16 | 1/2 | 1 1/8 | 13/16 | 11/16 | 1/2 | 0 |
| Conv. | A thru K | 1 | | 1 3/8 | | 1 1/16 | | 0 |

| | Location | Span 15-E&W | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | a | | b | | c | | ℄ Pier 15-E&W |
| Elev. | Profile Grade | 677.90 | | 678.13 | | 678.32 | | 678.48 |
| Elev. | E.&W. Gutter | 677.44 | | 677.67 | | 677.87 | | 678.02 |
| Deflection | Beam | Total | Conc. | Total | Conc. | Total | Conc. | |
| Deflection | A & K | -1/4 | -3/16 | -1/16 | -1/16 | -1/8 | -1/16 | 0 |
| Deflection | B thru J | -3/16 | -3/16 | -1/16 | -1/16 | -1/16 | -1/16 | 0 |
| Conv. | A thru K | 11/16 | | 7/8 | | 11/16 | | 0 |

| | Location | Span 16-E&W | | | | | | | Part Span 17-E&W | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | a | | b | | c | | ℄ Pier 16-E&W | z | |
| Elev. | Profile Grade | 678.59 | | 678.67 | | 678.72 | | 678.73 | 678.72 | |
| Elev. | E.&W. Gutter | 678.14 | | 678.21 | | 678.26 | | 678.28 | 678.27 | |
| Deflection | Beam | Total | Conc. | Total | Conc. | Total | Conc. | | Total | Conc. |
| Deflection | A & K | 5/16 | 1/4 | 1/2 | 7/16 | 3/8 | 5/16 | 0 | -1/8 | -1/8 |
| Deflection | B thru J | 1/4 | 3/16 | 7/16 | 3/8 | 5/16 | 1/4 | 0 | -1/8 | -1/16 |
| Conv. | A thru K | 9/16 | | 13/16 | | 9/16 | | 0 | -5/16 | |




TYPICAL BEAM ELEVATION - UNIT 5-E & W




DEAD LOAD DEFLECTION AND CONVEXITY DIAGRAMS - UNIT 5-E & W

ELEVATION, DEAD LOAD DEFLECTION, AND CONVEXITY TABLES - UNIT 5-E & W

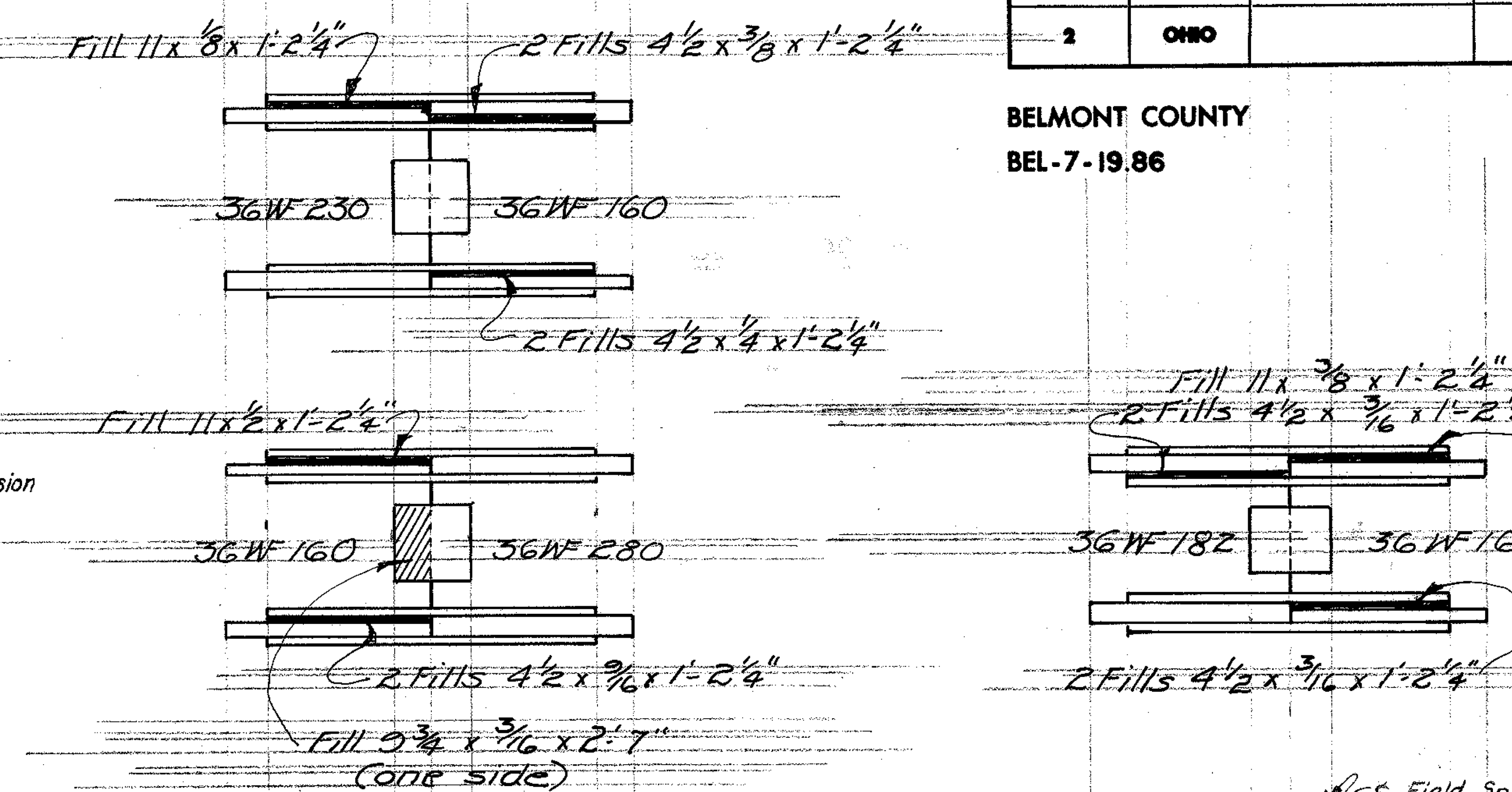
| | Location | Part Span 17-E&W | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | z | | a | | b | | c | | ℄ Pier 17-E&W |
| Elevation | Profile Grade | 678.72 | | 678.70 | | 678.64 | | 678.56 | | 678.45 |
| Elevation | West Gutter | 678.27 | | 678.24 | | 678.19 | | 678.11 | | 678.00 |
| Elevation | East Gutter | 678.27 | | 678.24 | | 678.19 | | 678.11 | | 678.00 |
| Deflection | Beam | Total | Conc. | Total | Conc. | Total | Conc. | Total | Conc. | |
| Deflection | A & K | -1/8 | -1/8 | 5/16 | 1/4 | 7/16 | 3/8 | 3/16 | 3/16 | 0 |
| Deflection | B thru J | -1/8 | -1/16 | 1/4 | 1/4 | 3/8 | 5/16 | 3/16 | 3/16 | 0 |
| Convexity | A | 0 | | 1/2 | | 5/8 | | 1/2 | | 0 |
| Convexity | B | ↕ | | ↕ | | ↕ | | ↕ | | ↕ |
| Convexity | C | ↕ | | ↕ | | ↕ | | ↕ | | ↕ |
| Convexity | D | ↕ | | ↕ | | ↕ | | ↕ | | ↕ |
| Convexity | E | ↕ | | ↕ | | ↕ | | ↕ | | ↕ |
| Convexity | F thru K | 0 | | 1/2 | | 5/8 | | 1/2 | | 0 |

| | Location | Span 18-E&W | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | a | | b | | c | | ℄ Pier 18-E&W |
| Elevation | Profile Grade | 678.30 | | 678.11 | | 677.90 | | 677.64 |
| Elevation | West Gutter | 677.85 | | 677.66 | | 677.44 | | 677.19 |
| Elevation | East Gutter | 677.85 | | 677.66 | | 677.44 | | 677.19 |
| Deflection | Beam | Total | Conc. | Total | Conc. | Total | Conc. | |
| Deflection | A & K | 1/16 | 1/16 | 1/4 | 3/16 | 1/8 | 1/16 | 0 |
| Deflection | B thru J | 1/16 | 1/16 | 3/16 | 3/16 | 1/16 | 1/16 | 0 |
| Convexity | A | 9/16 | | 13/16 | | 9/16 | | 0 |
| Convexity | B | ↕ | | ↕ | | ↕ | | ↕ |
| Convexity | C | ↕ | | ↕ | | ↕ | | ↕ |
| Convexity | D | ↕ | | ↕ | | ↕ | | ↕ |
| Convexity | E | ↕ | | ↕ | | ↕ | | ↕ |
| Convexity | F thru K | 9/16 | | 13/16 | | 9/16 | | 0 |

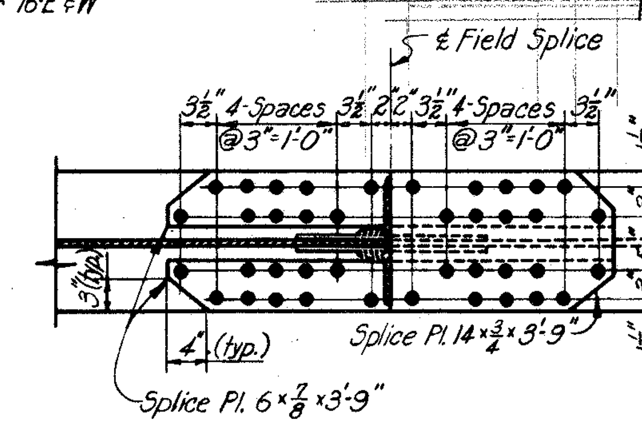
| | Location | Span 19-E&W | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | a | | b | | c | | ℄ Pier 19-E&W |
| Elevation | Profile Grade | 677.36 | | 677.04 | | 676.69 | | 676.31 |
| Elevation | West Gutter | 676.91 | | 676.59 | | 676.27 | | 675.92 |
| Elevation | East Gutter | 676.91 | | 676.59 | | 676.24 | | 675.85 |
| Deflection | Beam | Total | Conc. | Total | Conc. | Total | Conc. | |
| Deflection | A & K | 3/16 | 1/8 | 5/16 | 5/16 | 3/16 | 1/8 | 0 |
| Deflection | B thru J | 3/16 | 1/8 | 5/16 | 1/4 | 9/16 | 1/8 | 0 |
| Convexity | A | 3/8 | | 3/8 | | 5/16 | | 0 |
| Convexity | B | 7/16 | | 7/16 | | 3/8 | | ↕ |
| Convexity | C | 7/16 | | 9/16 | | 7/16 | | ↕ |
| Convexity | D | 1/2 | | 11/16 | | 1/2 | | ↕ |
| Convexity | E | 9/16 | | 13/16 | | 5/8 | | ↕ |
| Convexity | F thru K | 9/16 | | 13/16 | | 9/16 | | 0 |

| | Location | Span 20-E&W | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | a | | b | | c | | ℄ Pier 20-E&W |
| Elevation | Profile Grade | 675.89 | | 675.44 | | 674.96 | | 674.44 |
| Elevation | West Gutter | 675.55 | | 675.15 | | 674.71 | | 674.23 |
| Elevation | East Gutter | 675.44 | | 674.99 | | 674.50 | | 673.99 |
| Deflection | Beam | Total | Conc. | Total | Conc. | Total | Conc. | |
| Deflection | A & K | 1/8 | 1/16 | 1/4 | 3/16 | 1/16 | 1/16 | 0 |
| Deflection | B thru J | 1/16 | 1/16 | 3/16 | 3/16 | 1/16 | 1/16 | 0 |
| Convexity | A | 5/8 | | 3/4 | | 5/8 | | 0 |
| Convexity | B | 5/8 | | 13/16 | | 5/8 | | ↕ |
| Convexity | C | 5/8 | | 13/16 | | 5/8 | | ↕ |
| Convexity | D | 5/8 | | 13/16 | | 5/8 | | ↕ |
| Convexity | E | 5/8 | | 13/16 | | 5/8 | | ↕ |
| Convexity | F thru K | 9/16 | | 13/16 | | 9/16 | | 0 |

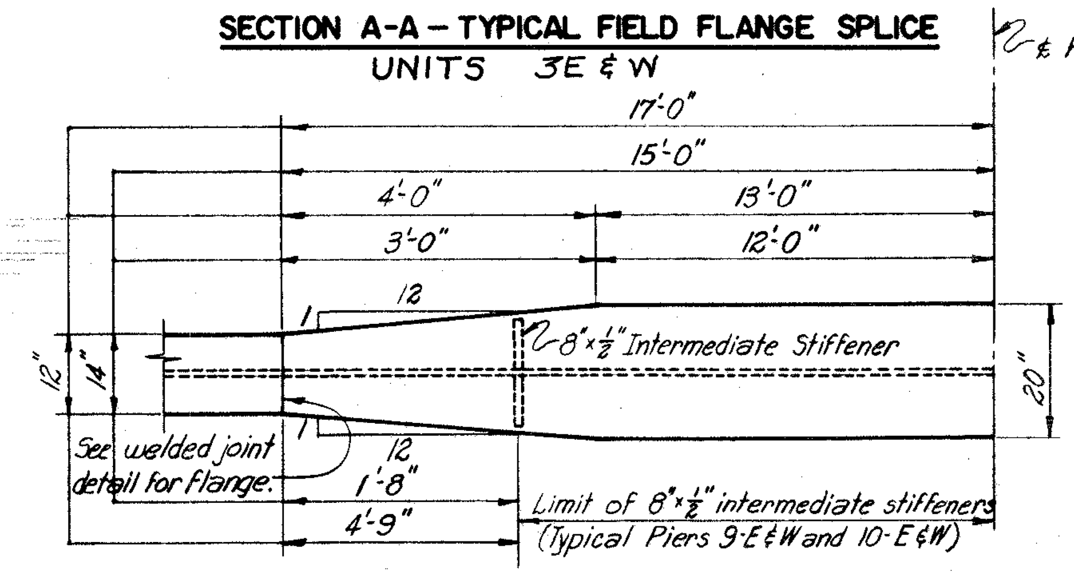
| | Location | Span 21-E&W | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | a | | b | | c | | ℄ Brg. N. Abut. |
| Elevation | Profile Grade | 673.94 | | 673.41 | | 672.86 | | 672.28 |
| Elevation | West Gutter | 673.77 | | 673.29 | | 672.77 | | 672.23 |
| Elevation | East Gutter | 673.49 | | 672.96 | | 672.40 | | 671.82 |
| Deflection | Beam | Total | Conc. | Total | Conc. | Total | Conc. | |
| Deflection | A & K | 1/4 | 3/16 | 1/2 | 7/16 | 7/16 | 3/8 | 0 |
| Deflection | B thru J | 1/4 | 3/16 | 7/16 | 3/8 | 3/8 | 5/16 | 0 |
| Convexity | A | 1/2 | | 11/16 | | 7/16 | | 0 |
| Convexity | B | 1/2 | | 11/16 | | 7/16 | | ↕ |
| Convexity | C | 1/2 | | 11/16 | | 1/2 | | ↕ |
| Convexity | D | 1/2 | | 11/16 | | 1/2 | | ↕ |
| Convexity | E | 1/2 | | 11/16 | | 1/2 | | ↕ |
| Convexity | F thru K | 1/2 | | 11/16 | | 1/2 | | 0 |



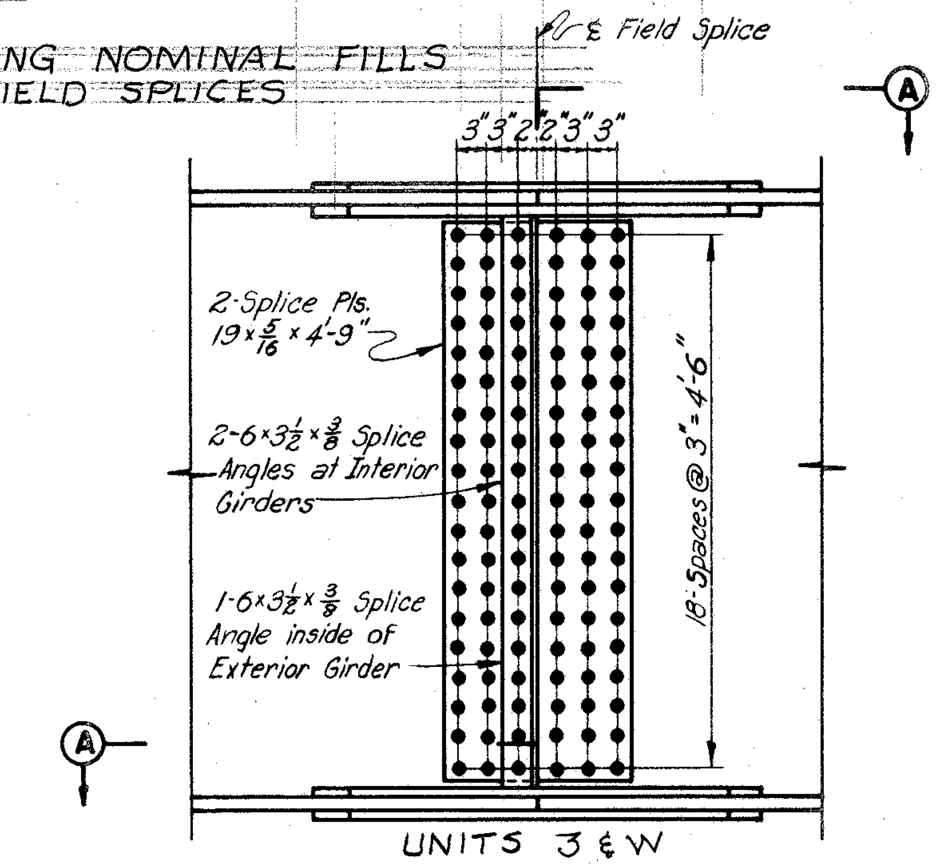

SKETCHES SHOWING NOMINAL FILLS FOR BOLTED FIELD SPLICES




SECTION A-A - TYPICAL FIELD FLANGE SPLICE
UNITS 3E & W

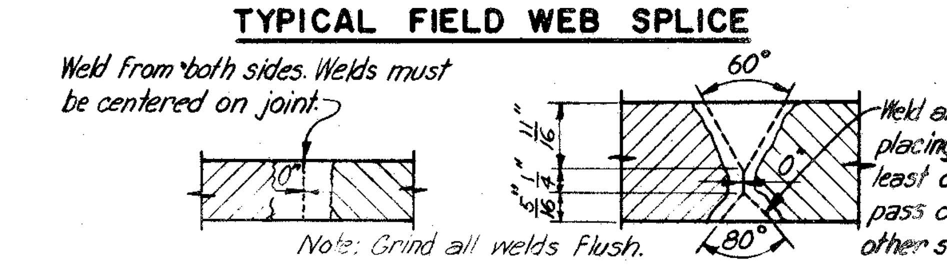



TYPICAL FLANGE PLATE TAPER DETAIL

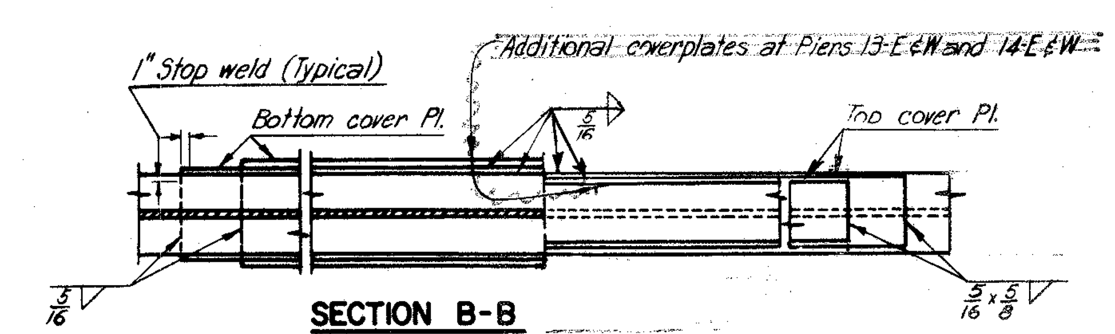



UNITS 3 E & W

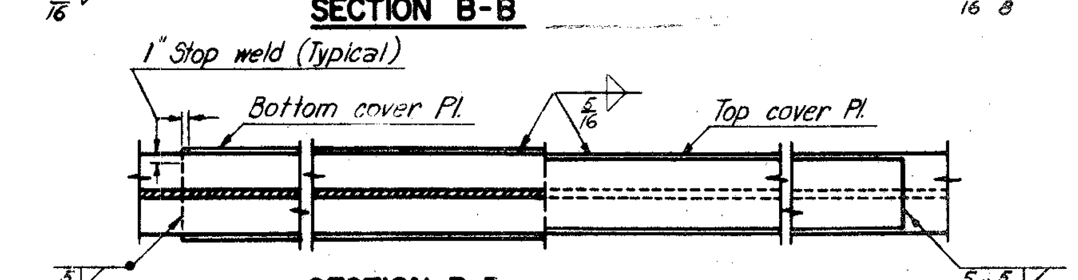
TYPICAL FIELD WEB SPLICE



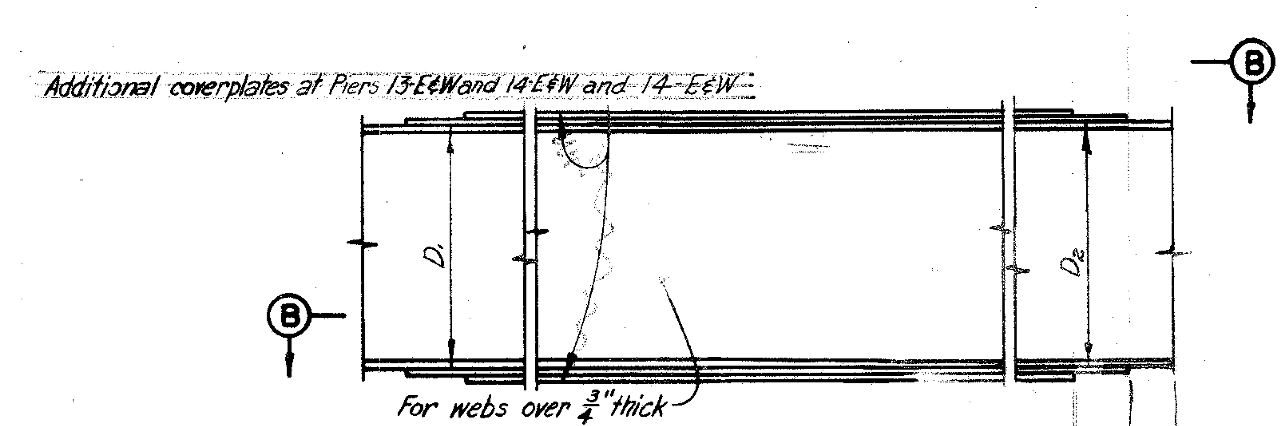

TYPICAL GIRDER SHOP SPLICE




SECTION B-B




SECTION B-B




MOMENT PLATE DETAILS

NOTES:

For beam camber note, deflection notes and additional notes, see sheets 84 and 87

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

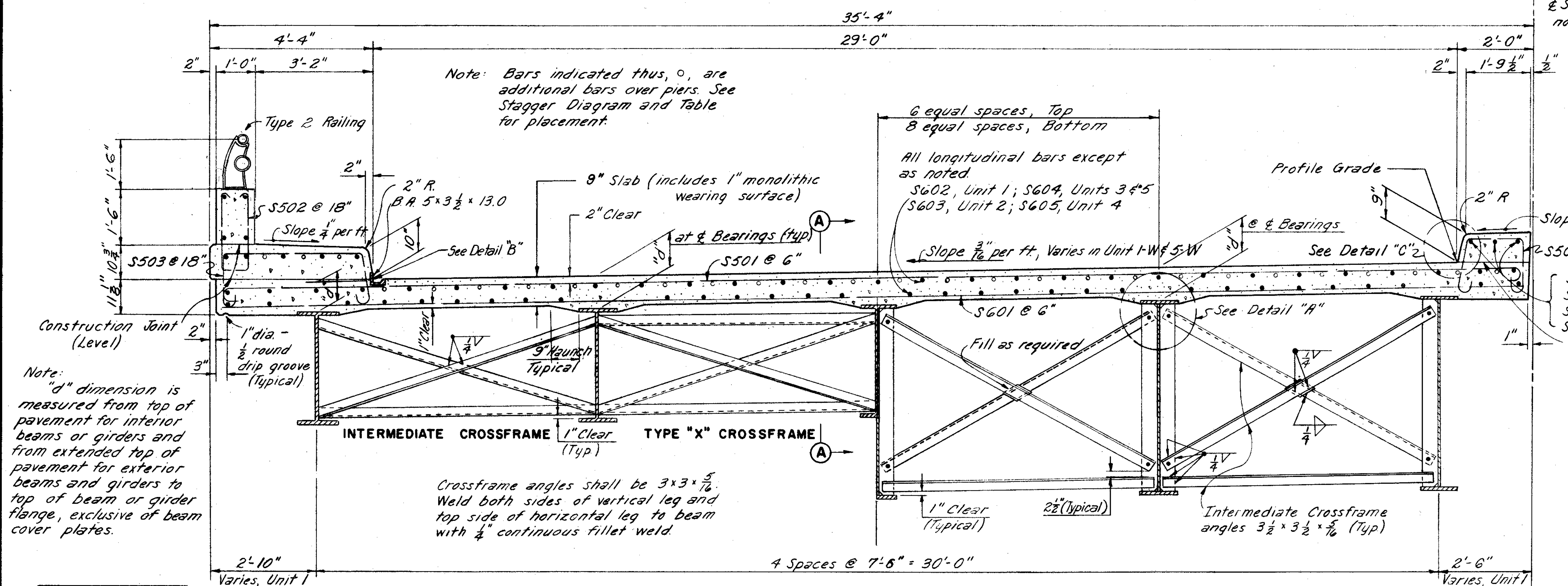
BEAM ELEVATIONS-UNITS 4-E &W AND 5-E &W
BEAM AND GIRDER SPLICE DETAILS
STATE ROUTE 7 VIADUCT

BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: None STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

| DRAWN C.M.E. F.S.J. DATE 3-7-61 | TRACED DATE | CHECKED CKB DATE 3-22-61 | REVIEWED WF DATE 6-5-62. | REVISED [illegible] 949 SHEET 74 |
| --- | --- | --- | --- | --- |

BELMONT COUNTY

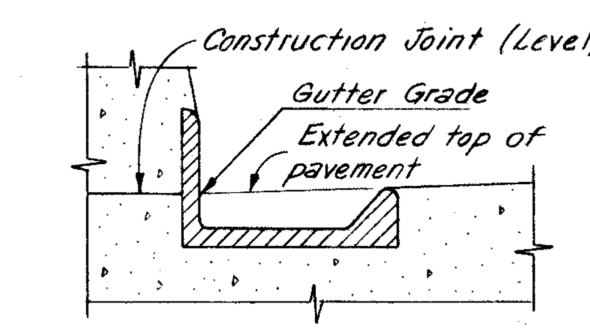
BEL-7-19·86



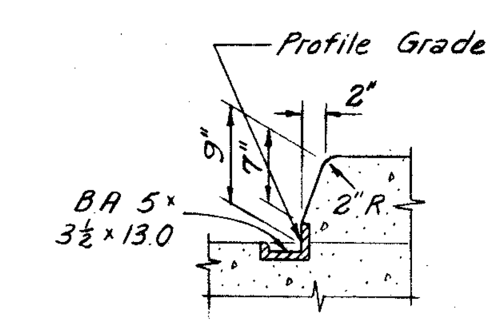

Note:
"d" dimension is measured from top of pavement for interior beams or girders and from extended top of pavement for exterior beams and girders to top of beam or girder flange, exclusive of beam cover plates.

## TYPICAL HALF SECTION

| SLAB THICKNESS AT ℄ BEARINGS | |
|---|---|
| UNIT | "d" |
| 1 | 10½" |
| 2,4 & 5 | 10" |
| 3 | 9⅝" |




DETAIL "B"




DETAIL "C"
West face of median, Unit 1
(See sheet 89)

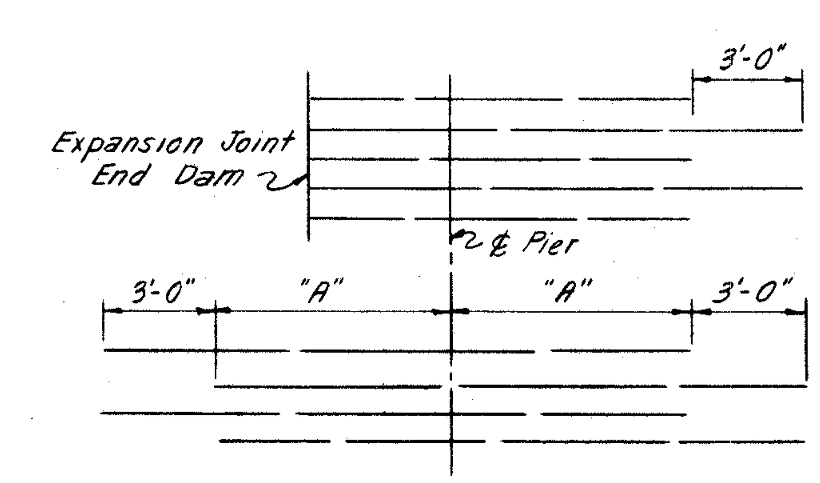



DIAGRAM SHOWING STAGGER OF EXTRA BARS OVER PIERS

**EXTRA BARS OVER PIERS**

| Pier | 1-E | 1-W | 2-E | 2-E(A) | 2-W | 3-E | 3-W | 4-E & W | 5-E & W | | 6-E & W | 7-E & W | 8-E & W | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bar Mark | S606 | S607 | S607 | S607 | S607 | S608 | S607 | S608 | S609 | S615 | S610 | S610 | S611 | S613 |
| "A" | 12'-3" | 14'-6" | 14'-6 | 14'-6" | 14'-6" | 13'-9" | 14'-6" | 13'-9" | * | * | 10'-6" | 10'-6" | * | * |

| Pier | 9-E & W | 10-E & W | 11-E & W | | 12-E & W | 13-E & W | 14-E & W | 15-E & W | 16-E & W | | 17-E & W | 18-E & W | 19-E & W | 20-E & W |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bar Mark | S612 | S612 | S611 | S613 | S606 | S608 | S608 | S610 | S614 | S616 | S610 | S610 | S610 | S610 |
| "A" | 17'-3" | 17'-3" | * | * | 12'-3" | 13'-9" | 13'-9" | 10'-6" | * | * | 10'-6" | 10'-6" | 10'-6" | 10'-6" |

*These bars shall alternate and butt against intermediate expansion joint steel, see diagram.

**GIRDER NOTES**

The girders shall be fabricated to compensate for the effects of vertical curvature and dead load deflections and, under full dead load, shall parallel the profiles formed by the top of pavement elevations directly over the girders.

Top and bottom flange plates are identical and shall be spliced at points shown in the girder elevation.

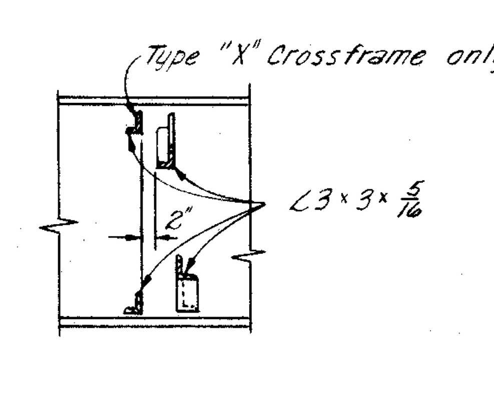
Shop web splices may be located as required by available plate lengths.

Radiographic examination of welds shall be performed in accordance with Supplemental Specification 811 dated 3-29-65.

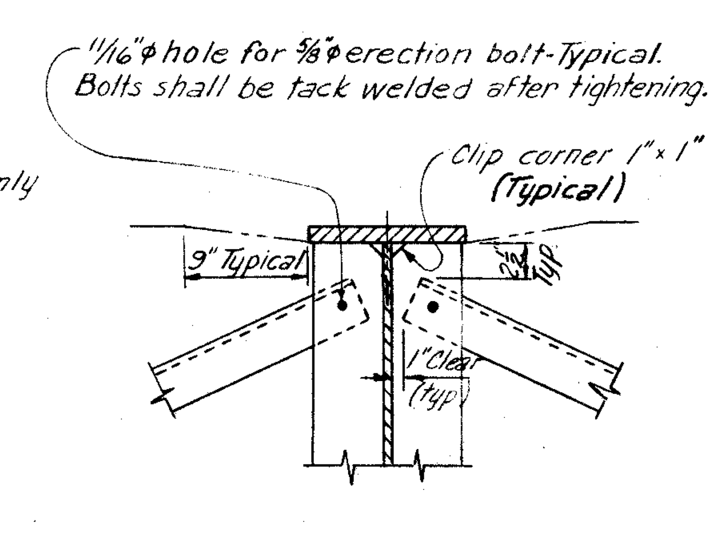
Intermediate stiffeners shall be equally spaced between crossframes as shown on the girder elevation. These stiffeners shall be placed in pairs on all interior girders and on the inside face only of the exterior girders. Stiffeners placed in pairs shall not be welded to the flanges but shall be fitted to close enough contact that the shop coat when applied will fill and close the openings. Stiffeners placed singly shall be welded to top or bottom flanges within the limits shown on the girder elevation with a 5/16" fillet weld on both sides of the joint for a distance of 2" from the outside edge of the stiffener. The other end shall have a tight fit with the flange.

Bearing stiffeners at piers shall be placed in pairs on all girders. They shall be grooved and fully butt welded to the lower flange and fitted to close contact, without welding, to the upper flange.

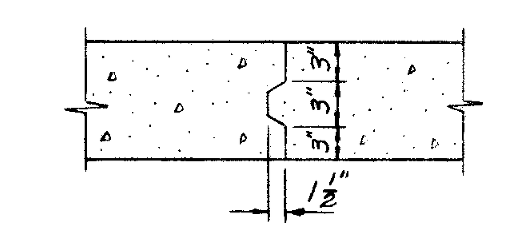
All girder field splices shall be made with 7/8" φ high strength bolts. The bolts shall be placed with their heads on the outside face of exterior girders and on the bottom of girder flanges.




SECTION A-A
(Intermediate crossframe same except as noted)




DETAIL "A"




OPTIONAL CONSTRUCTION JOINT

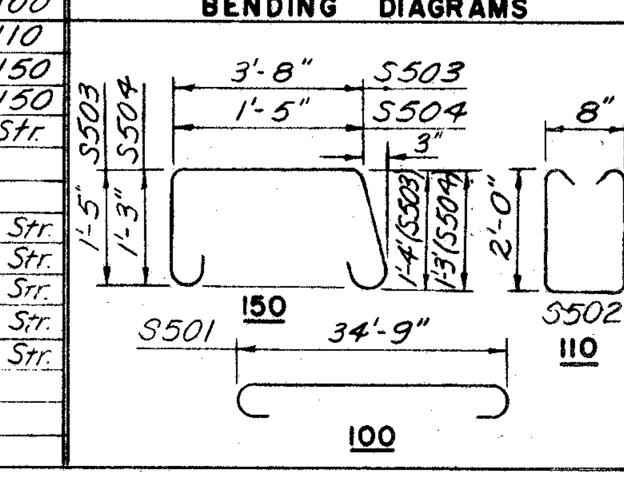
**NOTES:**

The deck slab haunch adjacent to the top of the steel beams or girders, which is shown as 9" wide, may vary from this dimension with a minimum of 6" and maximum of 12". Maximum slope of haunch shall be one vertical to four horizontal. Payment for deck slab concrete shall be based on the 9" width.

For end dam details see sheet 89.

**REINFORCEMENT SCHEDULE**

| Mark | No. | Length | Weight (Pounds) | Type | Mark | No. | Length | Weight (Pounds) | Type |
|---|---|---|---|---|---|---|---|---|---|
| UNIT 1 | | | | | UNIT 4 | | | | |
| S501 | 1704 | 35'-11" | 63,834 | 100 | S501 | 1,494 | 35'-11" | 55,967 | 100 |
| S502 | 570 | 5'-2" | 3,072 | 110 | S502 | 500 | 5'-2" | 2,694 | 110 |
| S503 | 570 | 7'-4" | 4,360 | 150 | S503 | 500 | 7'-4" | 3,824 | 150 |
| S504 | 570 | 4'-10" | 2,873 | 150 | S504 | 500 | 4'-10" | 2,521 | 150 |
| S505 | 72 | 37'-0" | 2,779 | Str. | S508 | 60 | 39'-0" | 2,441 | Str. |
| S601 | 1704 | 34'-9" | 88,939 | Str. | S601 | 1492 | 34'-9" | 77,874 | Str. |
| S602 | 1584 | 37'-3" | 88,624 | Str. | S605 | 1320 | 39'-3" | 77,819 | Str. |
| S606 | 28 | 27'-6" | 1,157 | Str. | S606 | 56 | 27'-6" | 2,313 | Str. |
| S607 | 140 | 32'-0" | 6,729 | Str. | S608 | 112 | 30'-6" | 5,131 | Str. |
| S608 | 84 | 30'-6" | 3,848 | Str. | S610 | 56 | 24'-0" | 2,019 | Str. |
| S609 | 28 | 15'-0" | 631 | Str. | S614 | 28 | 15'-3" | 641 | Str. |
| S615 | 28 | 18'-0" | 757 | Str. | S616 | 28 | 18'-3" | 768 | Str. |
| (3) Light | Standard Supports | | 447 | | (2) Light | Standard Supports | | 298 | |
| Total | Weight - Unit 1 | | 268,050 | | Total | Weight - Unit 4 | | 234,310 | |
| UNIT 2 | | | | | UNIT 5 | | | | |
| S501 | 732 | 35'-11" | 27,422 | 100 | S501 | 1,298 | 35'-11" | 48,624 | 100 |
| S502 | 246 | 5'-2" | 1,326 | 110 | S502 | 434 | 5'-2" | 2,339 | 110 |
| S503 | 246 | 7'-4" | 1,882 | 150 | S503 | 434 | 7'-4" | 3,320 | 150 |
| S504 | 246 | 4'-10" | 1,240 | 150 | S504 | 434 | 4'-10" | 2,189 | 150 |
| S506 | 30 | 38'-0" | 1,189 | Str. | S507 | 54 | 37'-6" | 2,112 | Str. |
| S601 | 728 | 34'-9" | 37,998 | Str. | S601 | 1294 | 34'-9" | 67,540 | Str. |
| S603 | 660 | 38'-3" | 37,918 | Str. | S604 | 1188 | 37'-9" | 67,360 | Str. |
| S610 | 112 | 24'-0" | 4,037 | Str. | S610 | 224 | 24'-0" | 8,075 | Str. |
| (1) Light | Standard Support | | 149 | | (3) Light | Standard Supports | | 447 | |
| Total | Weight - Unit 2 | | 113,161 | | Total | Weight - Unit 5 | | 202,006 | |
| UNIT 3 | | | | | Total Weight - Units 1-5 | | | 1,020,966 | |
| S501 | 1,282 | 35'-11" | 48,025 | 100 | BENDING DIAGRAMS | | | | |
| S502 | 430 | 5'-2" | 2,317 | 110 | | | | | |
| S503 | 430 | 7'-4" | 3,289 | 150 | | | | | |
| S504 | 430 | 4'-10" | 2,168 | 150 | | | | | |
| S507 | 54 | 37'-6" | 2,112 | Str. | | | | | |
| S601 | 1282 | 34'-9" | 66,913 | Str. | | | | | |
| S604 | 1188 | 37'-9" | 67,360 | Str. | | | | | |
| S611 | 56 | 25'-3" | 2,124 | Str. | | | | | |
| S612 | 112 | 37'-6" | 6,308 | Str. | | | | | |
| S613 | 56 | 28'-3" | 2,376 | Str. | | | | | |
| (3) Light | Standard Supports | | 447 | | | | | | |
| Total | Weight - Unit 3 | | 203,439 | | | | | | |




**NOTES:**

In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress up-grade. The slab may be placed in sections between transverse construction joints which are normal to the centerline of the bridge and are located near the center of the span

For railing post and parapet joint spacing see sheet 91.

For longitudinal reinforcement in the parapets see sheet 91.

For details of intermediate expansion joints, see sheet 88.

For drainage details see sheet 90.

For scupper locations see sheet 89.

For location of light standard supports, see Roadway Plans.

For details and reinforcement of light standard supports, see sheet 89.

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

SUPERSTRUCTURE DETAILS

STATE ROUTE 7 VIADUCT

BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: None STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

| DRAWN C.K.B. DATE 3-3-61 | TRACED DATE | CHECKED F.S.J. DATE 4-14-61 | REVIEWED W.F. DATE 6-5-62 | REVISED |
|---|---|---|---|---|
| | | | | 949 SHEET 75 |


| Lineal Corrections | |
|---|---|
| Location | "X" |
| Pier 5-E | 0.2527" |
| Pier 5-W | 0.2203" |
| Piers 8-E&W | 0.2484" |
| Piers 11-E&W | 0.2405" |
| Piers 16-E&W | 0.2441" |

Note: ~~The lineal correction indicates the adjustment to be made in the bearing plates if the temperature at the time of erection is other than 60°F.~~
Corrections required by this temperature variation and by irregularities in the erected steel shall be made by shifting each adjustable bearing plate one-half the total correction necessary.

NOTES:

The rollers and adjustable bearing plates shall be alloy steel forgings conforming to A.S.T.M. A237-55, Class B.

All sliding contact surfaces of the expansion joint shall not be painted, but shall be lubricated with flake graphite.

For superstructure details, see sheet 87

| FED. RD. DIVISION | STATE | PROJECT |
|---|---|---|
| 2 | OHIO | |

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BELMONT COUNTY
BEL-7-19.86

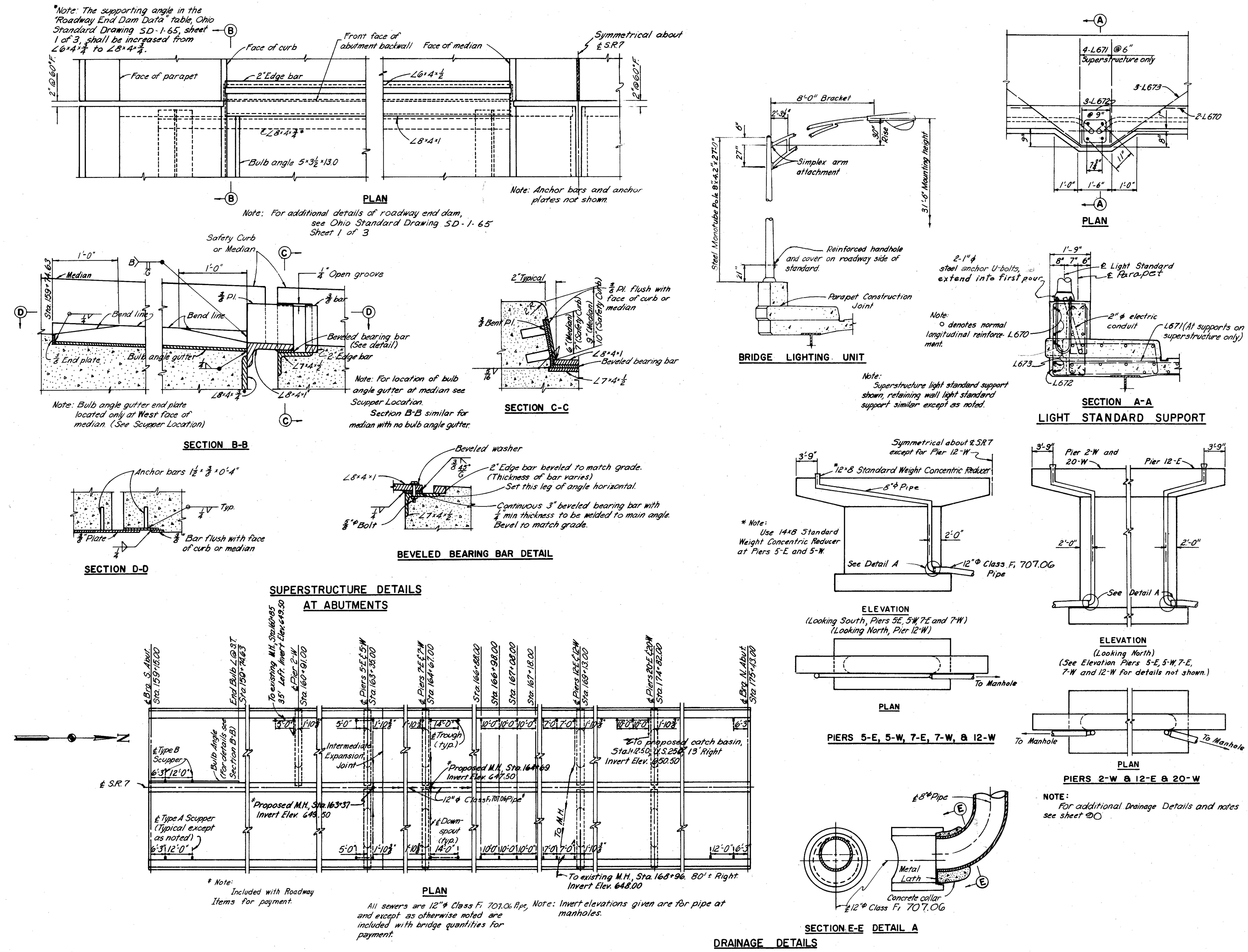
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

INTERMEDIATE EXPANSION JOINTS

STATE ROUTE 7 VIADUCT

BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: As Noted STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

DRAWN CKB DATE 2-28-61 | TRACED DATE | CHECKED TSJ DATE 3-17-61 | REVIEWED W DATE 6-5-62 | REVISED | 949 SHEET 76



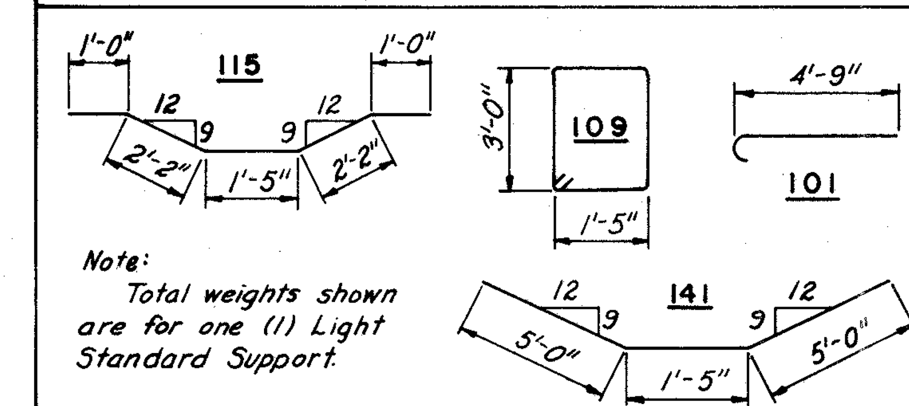

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

89

BELMONT COUNTY
BEL-7-19-86

## LIGHT STANDARD SUPPORT REINFORCEMENT

| Mark | Number | Length | Type | Weight (Pounds) Superstructure | Walls |
|---|---|---|---|---|---|
| L670 | 2 | 7'-5" | 115 | 22 | 22 |
| L671 | 4 | 5'-5" | 101 | 33 | — |
| L672 | 3 | 9'-7" | 109 | 43 | 43 |
| L673 | 3 | 11'-3" | 141 | 51 | 51 |
| | | | | | |
| | | | Total | 149 | 116 |




Note: Total weights shown are for one (1) Light Standard Support.

NOTES:

For Light Standard Support locations see Roadway Plans.

Light Standard Support reinforcement is included for payment with slab or retaining wall reinforcement.

Concrete below parapet joint is included for payment with slab or retaining wall concrete, the concrete above the parapet joint with "Item 517, Type 2 Railing."

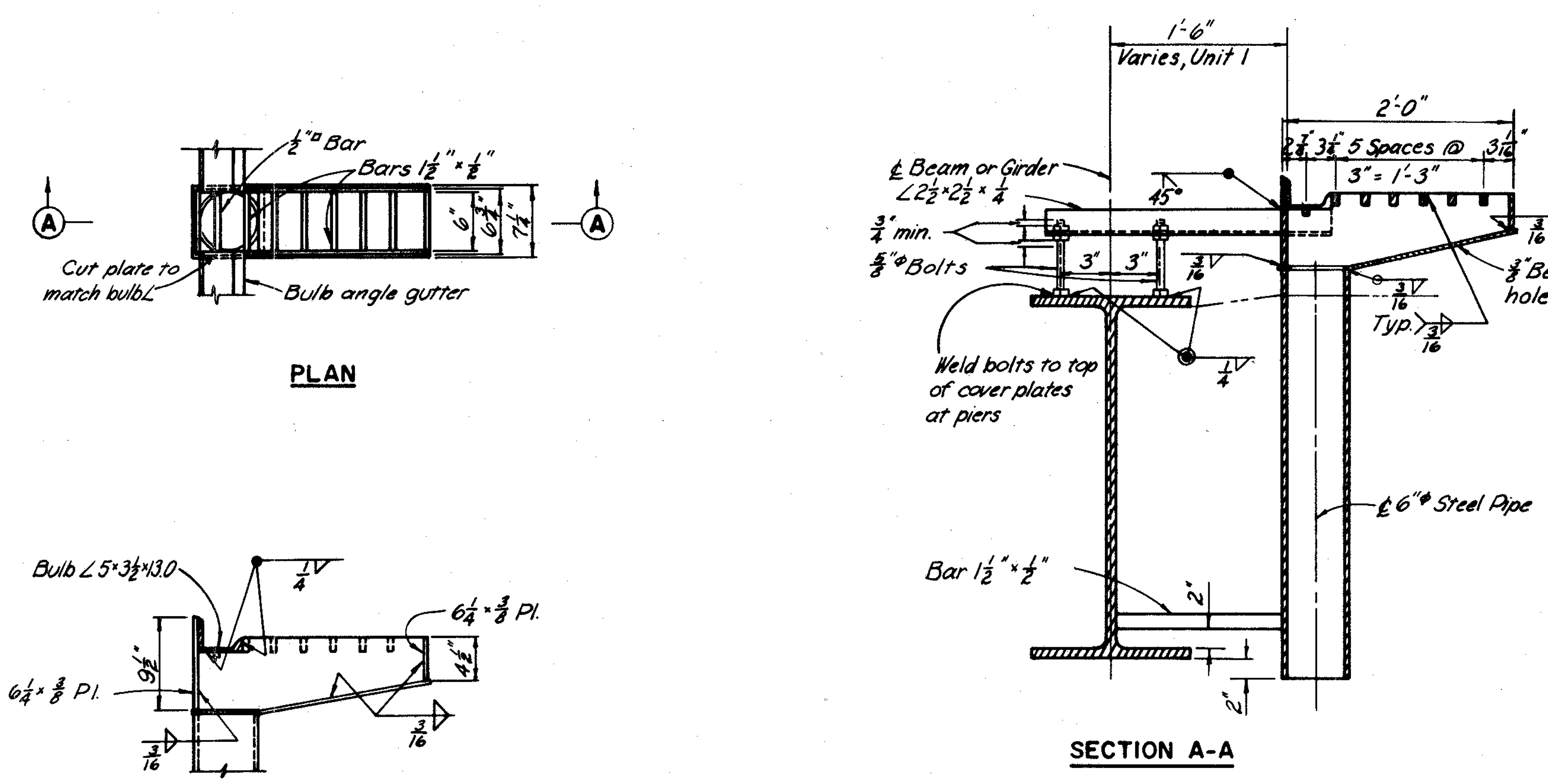
Conduit expansion fittings shall be O.Z. Co. Type EX, Crouse-Hinds, Appleton or approved equal. For locations, see lighting plan sheet nos. 60 to 62.

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

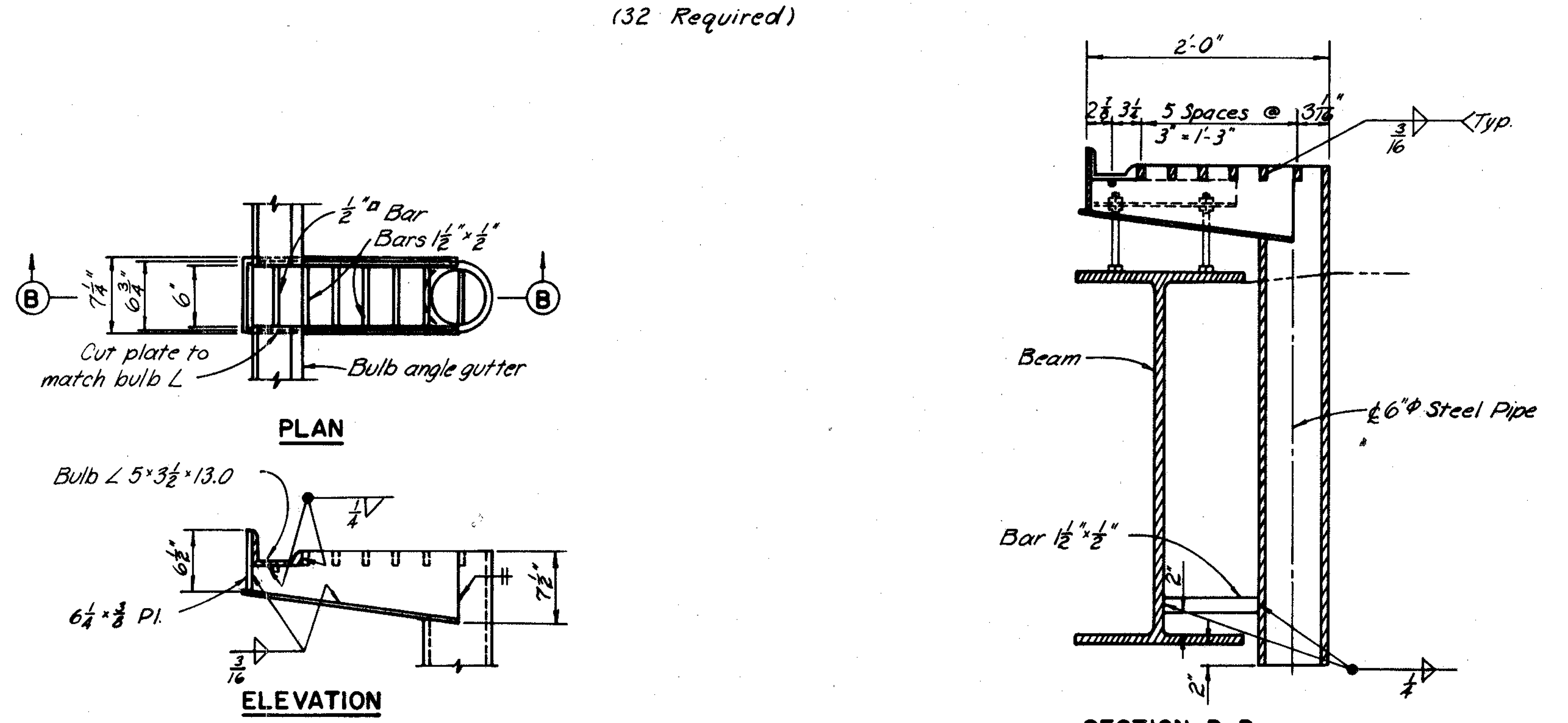
# MISCELLANEOUS SUPERSTRUCTURE, LIGHTING, AND DRAINAGE DETAILS STATE ROUTE 7 VIADUCT

BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: None STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

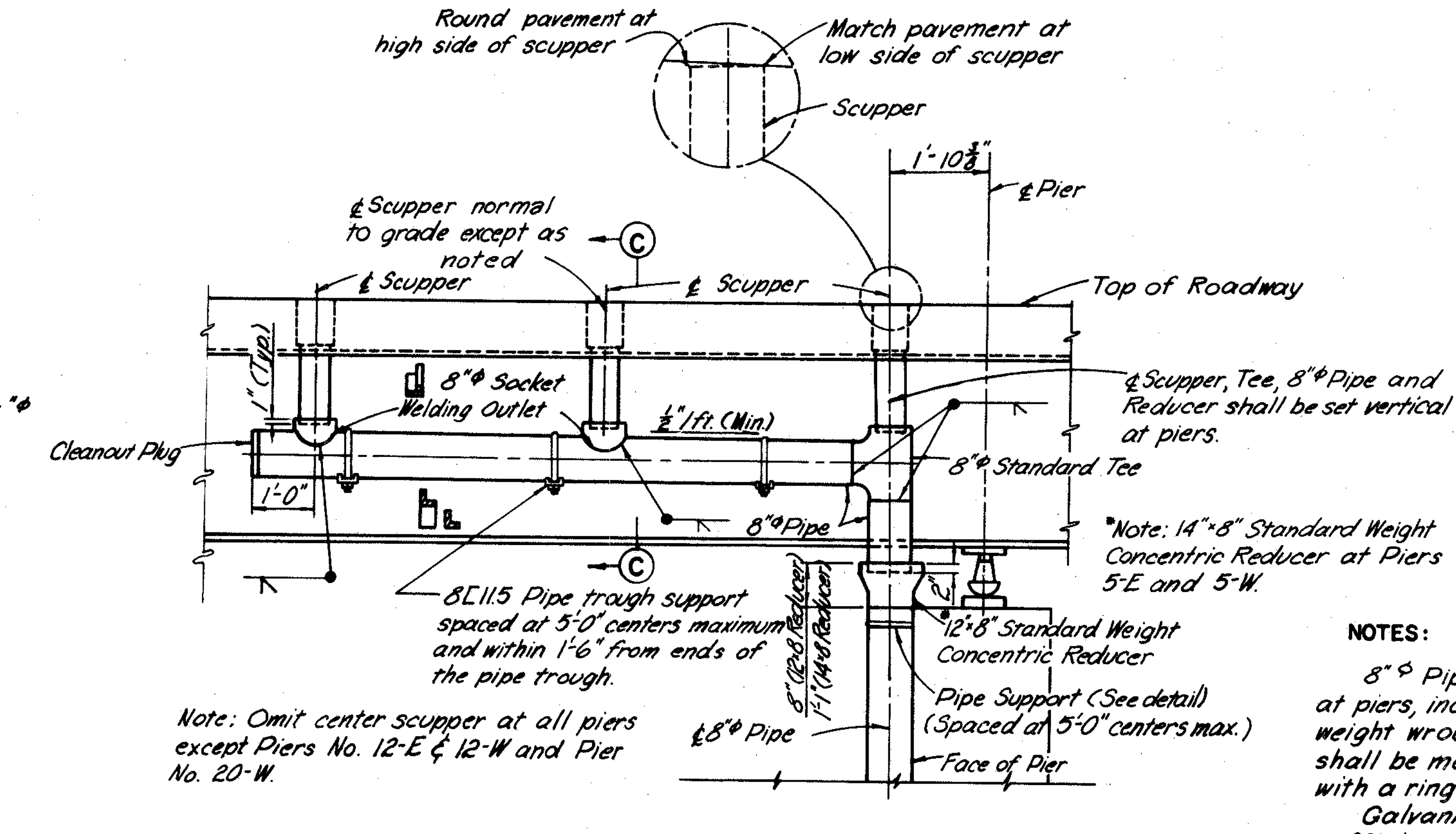
| DRAWN SAS DATE 2-15-61 | TRACED DATE | CHECKED F.S.J. DATE 5-19-61 | REVIEWED WF DATE 6-5-62 | REVISED 949 SHEET 77 |
|---|---|---|---|---|

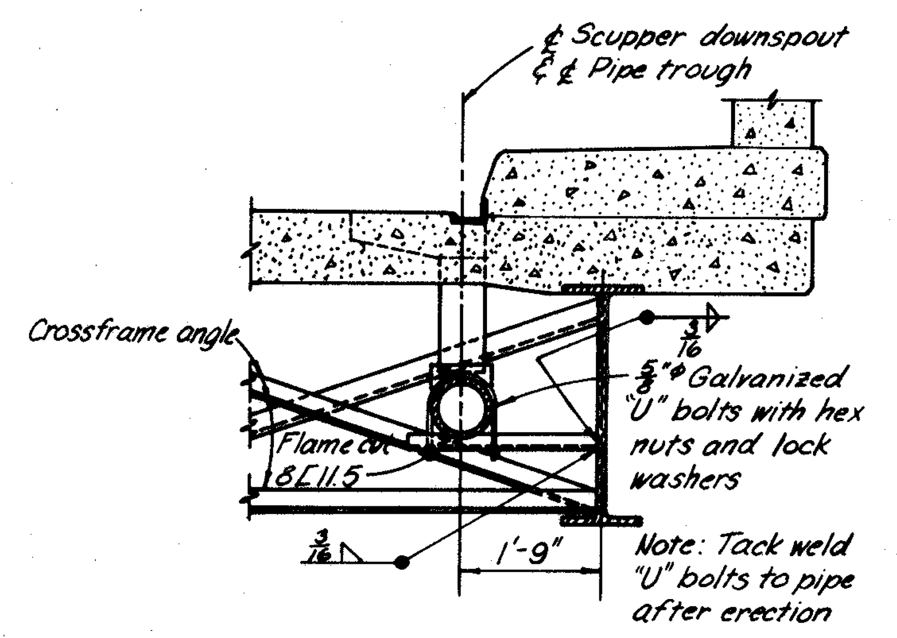


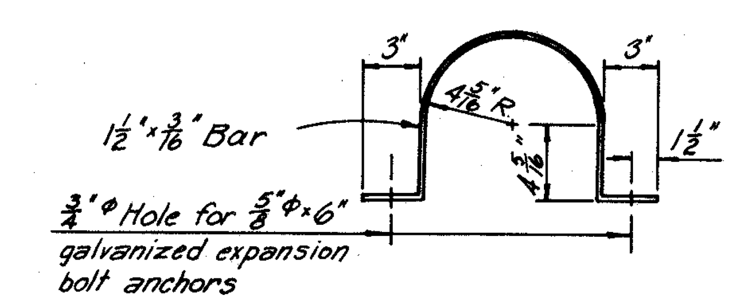

TYPE A SCUPPER
(32 Required)




TYPE B SCUPPER
(2 Required)




PIPE TROUGH DETAILS

NOTES:

8" Φ Pipe trough, including specials and 8" Φ downspouts at piers, including specials and accessories, shall be standard weight wrought iron or hot-dipped galvanized steel pipe. Joints shall be made by welding or by use of a clamp type coupling with a ring gasket. All welding shall be done before galvanizing.

Galvanizing as called for in Section 711.02 will be considered sufficient for bolts.

8 [ 11.5 Trough supports shall be carbon steel and painted according to Item 514

Substructure pipe supports shall be hot-dipped galvanized steel.

For additional details of downspouts at piers see Sheet 89

Scuppers including two supporting ∠s 2 1/2 × 2 1/2 × 1/4, attached 6" Φ steel pipe and supporting bars 1 1/2 × 1/2 are included with "Item 518, Scuppers, Type A (or Type B)," for payment.

8" Φ Pipe trough including supports and accessories are included with "Item 518, 8" Φ Pipe Trough Including Specials," for payment.

All pipe attached to the substructure including fittings, supports and accessories and all materials and labor necessary to connect 8" Φ downspout pipe to 12" Φ Class C-1 pipe shall be included for payment in unit price bid for "Item 518, 8" Φ Wrought Iron or Galvanized Steel Pipe Including Fastenings and Specials."

Bulb angle and supports are included for payment with "Item 513, Structural Steel."

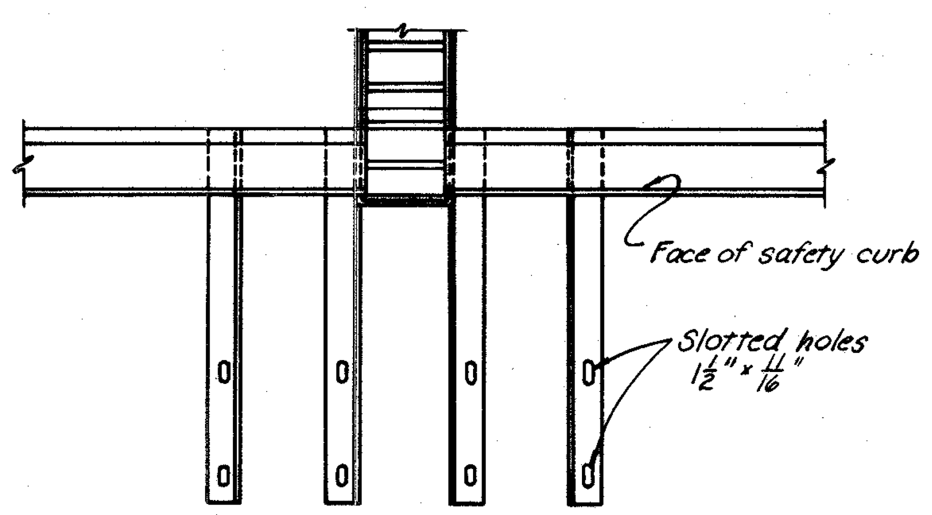
Joints in bulb angle gutters, preferably at intervals of not less than 25 feet, are to be butt joints with milled ends. Support angles shall be placed 6" to 9" on each side of joints.

For locations of scuppers, see sheet 89

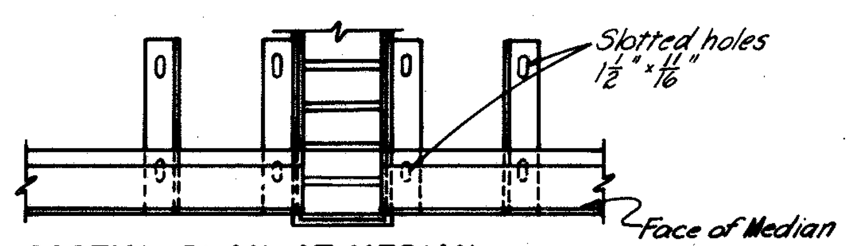
Scuppers are to be supported at the nearest girder or beam.

The bulb angle gutters shall be accurately adjusted for alignment and grade with allowance for dead load deflections before concrete is placed.

Scuppers are to be made of 3/8" steel plate except as shown.

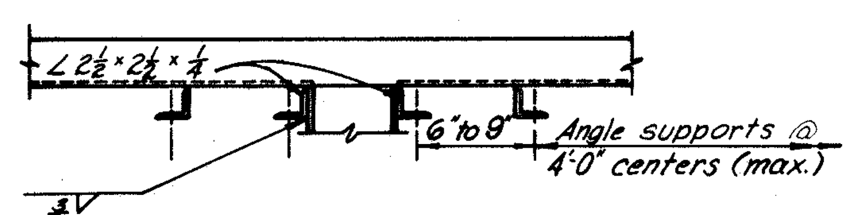



PARTIAL PLAN AT SAFETY CURBS




PARTIAL PLAN AT MEDIAN

GUTTER SUPPORT DETAIL




ELEVATION

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

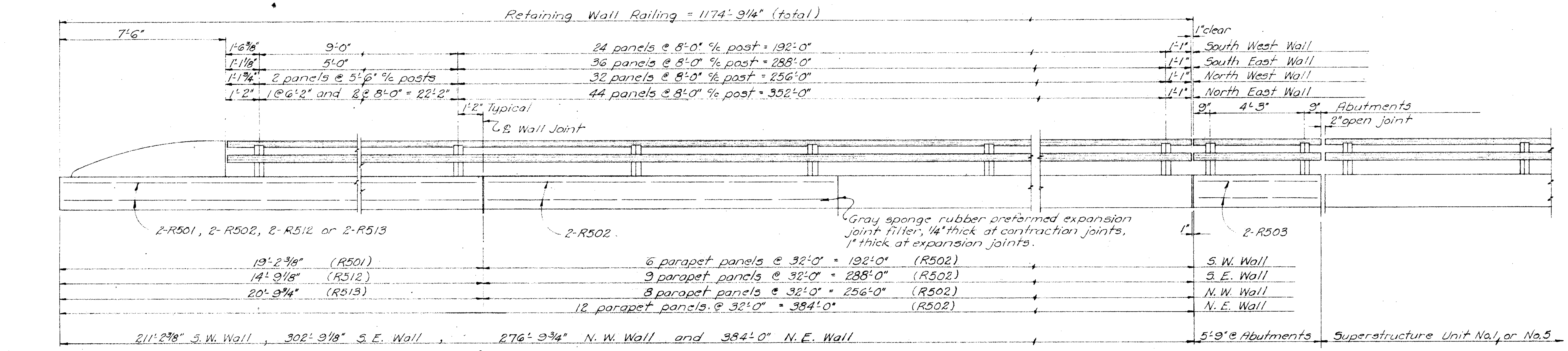
DRAINAGE DETAILS

STATE ROUTE 7 VIADUCT

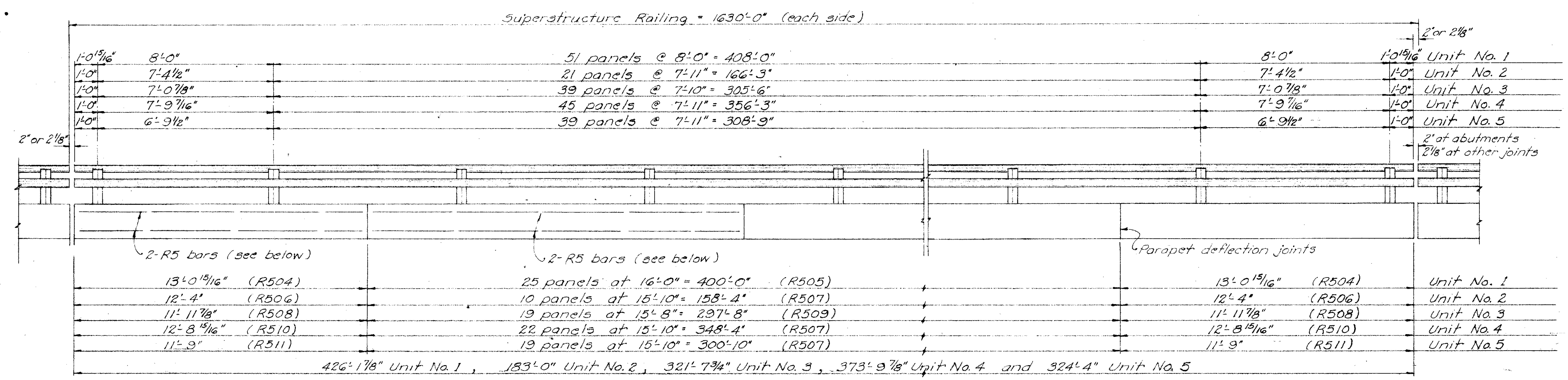
BR. NO. BEL-7-20.06 STA. 159 + 12.75
SCALE: None STA. 175 + 45.25
BRIDGEPORT BELMONT CO. OHIO

| DRAWN | TRACED | CHECKED F.S.J. | REVIEWED W.F. | REVISED |
|---|---|---|---|---|
| DATE 5-3-61 | DATE | DATE 5-22-61 | DATE 6-5-62 | 949 SHEET 78 |

BELMONT COUNTY
BEL-7-19.86




RETAINING WALL AND ABUTMENT RAILING DETAILS

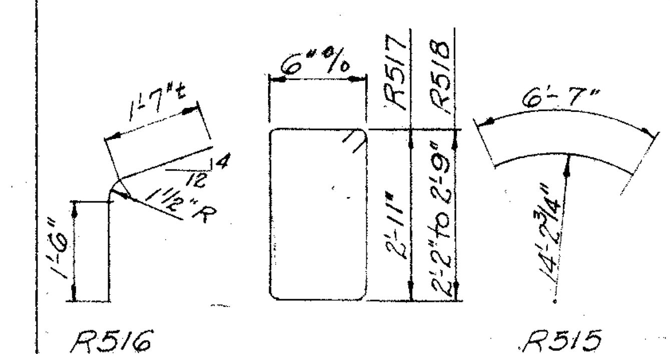



SUPERSTRUCTURE RAILING DETAILS
Typical for each side of deck

REINFORCING STEEL LIST

| Mark | No. | Length | Series Inc. | Shape |
|---|---|---|---|---|
| R501 | 4 | 18'-10" | | St. |
| R502 | 140 | 31'-8" | | St. |
| R503 | 16 | 5'-5" | | St. |
| R504 | 16 | 12'-8" | | St. |
| R505 | 200 | 15'-8" | | St. |
| R506 | 16 | 12'-0" | | St. |
| R507 | 408 | 15'-6" | | St. |
| R508 | 16 | 11'-7" | | St. |
| R509 | 152 | 15'-4" | | St. |
| R510 | 16 | 12'-4" | | St. |
| R511 | 16 | 11'-5" | | St. |
| R512 | 4 | 14'-5" | | St. |
| R513 | 4 | 20'-5" | | St. |
| R514 | 8 | 6'-7" | | St. |
| R515 | 8 | 6'-7" | | Bt. |
| R516 | 8 | 3'-4" | | Bt. |
| R517 | 8 | 7'-4" | | Bt. |
| R518 | 4 series of 3 | 5'-10" to 7'-0" | 7" | Bt. |

Bending Diagrams



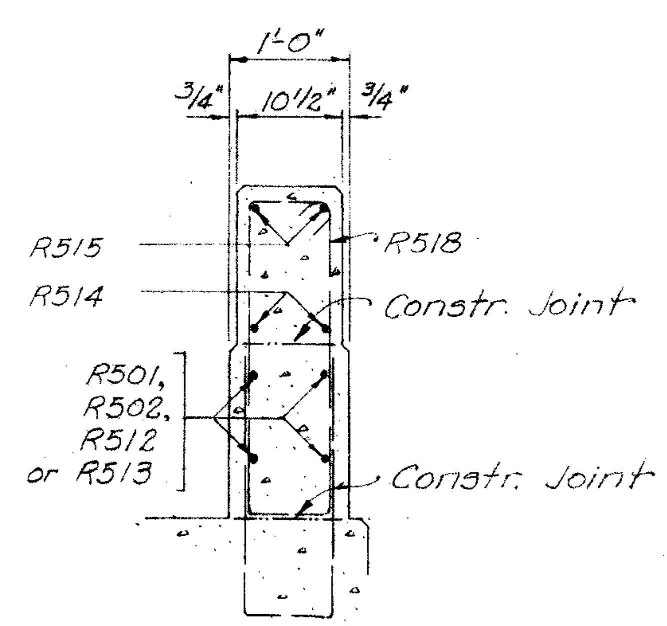

RAILING NOTES:
REFERENCE shall be made to Standard Drawing BR-1-65 for details not shown.

RAIL TUBE SPLICES shall be located within the same panel as parapet deflection joints, wall contraction and expansion joints.

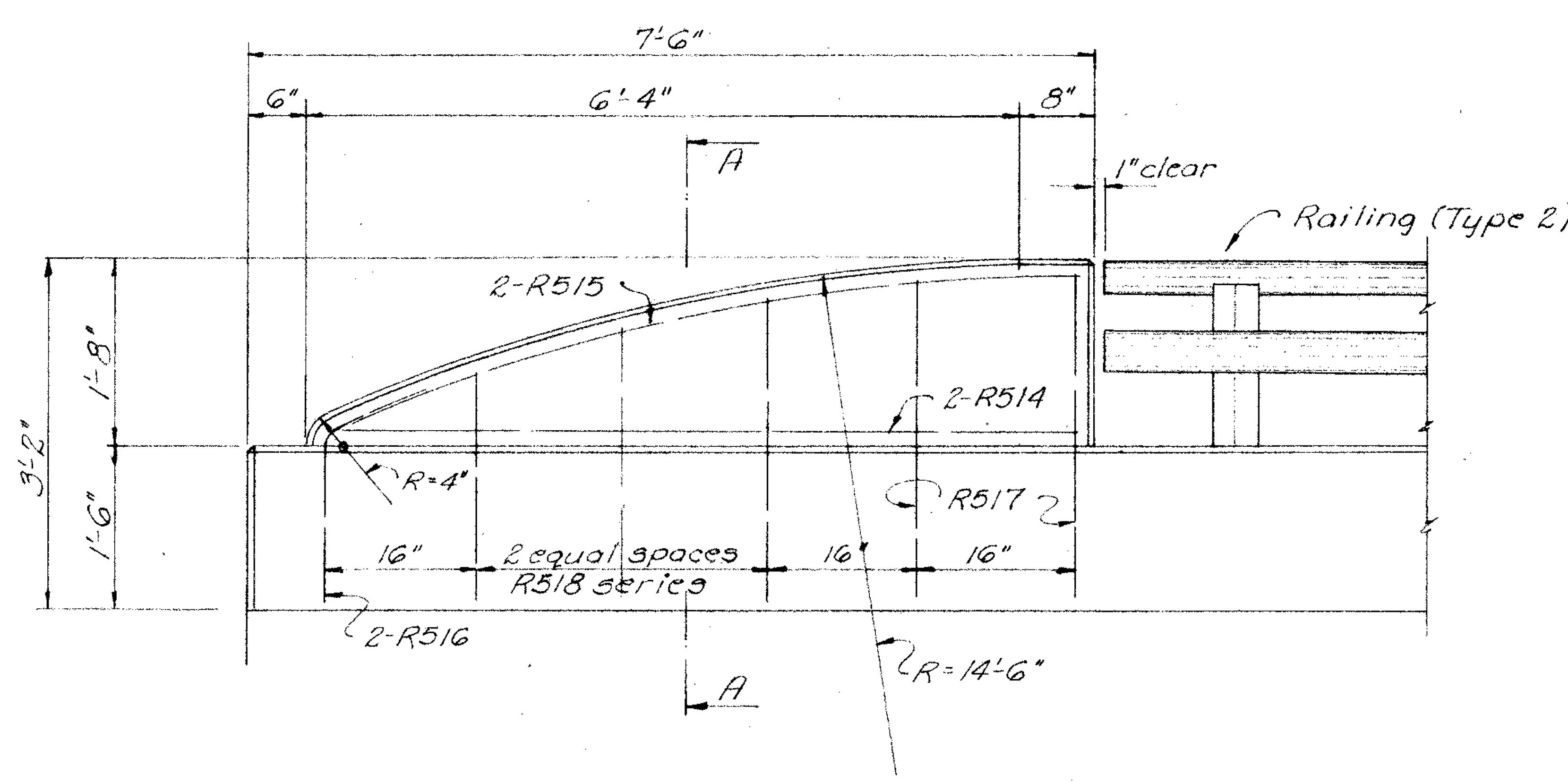
PAYMENT for railing per lin. ft. includes payment for all portions of railing above curb surface construction except that reinforcement not entirely within the parapet and terminal post concrete is included in Item 509 for payment.

LIGHT STANDARD SUPPORT details are shown on sheet 89. Light Standard locations are given on sheets 67, 68, 77, 79 and 81. Refer also to Roadway Plans.

RAILING DETAILS are also shown on sheets 82 and 87. Parapet reinforcing is shown on wall, abutment and superstructure detail sheets.




SECTION A-A




TERMINAL POST DETAILS

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

RAILING DETAILS
STATE ROUTE 7 VIADUCT

BRIDGE NO BEL-7-2006

| DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED | DATE | REVISED |
|---|---|---|---|---|---|---|
| MPB | MPB | | MPB | | | |

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | U-534(9) | |

92

1/7

BELMONT COUNTY
BEL-7- 19.86
R/W PLAN

LIMITED ACCESS

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

# STATE OF OHIO
# DEPARTMENT OF HIGHWAYS
# BEL-7- 19.86

U-534(9)
LIMITED ACCESS

## VILLAGE OF BRIDGEPORT
## GRADE SEPARATION WITH THE B. & O. RAILROAD COMPANY
## GRADE SEPARATION WITH THE PENNA. RAILROAD COMPANY

*BELMONT COUNTY*

## RIGHT OF WAY

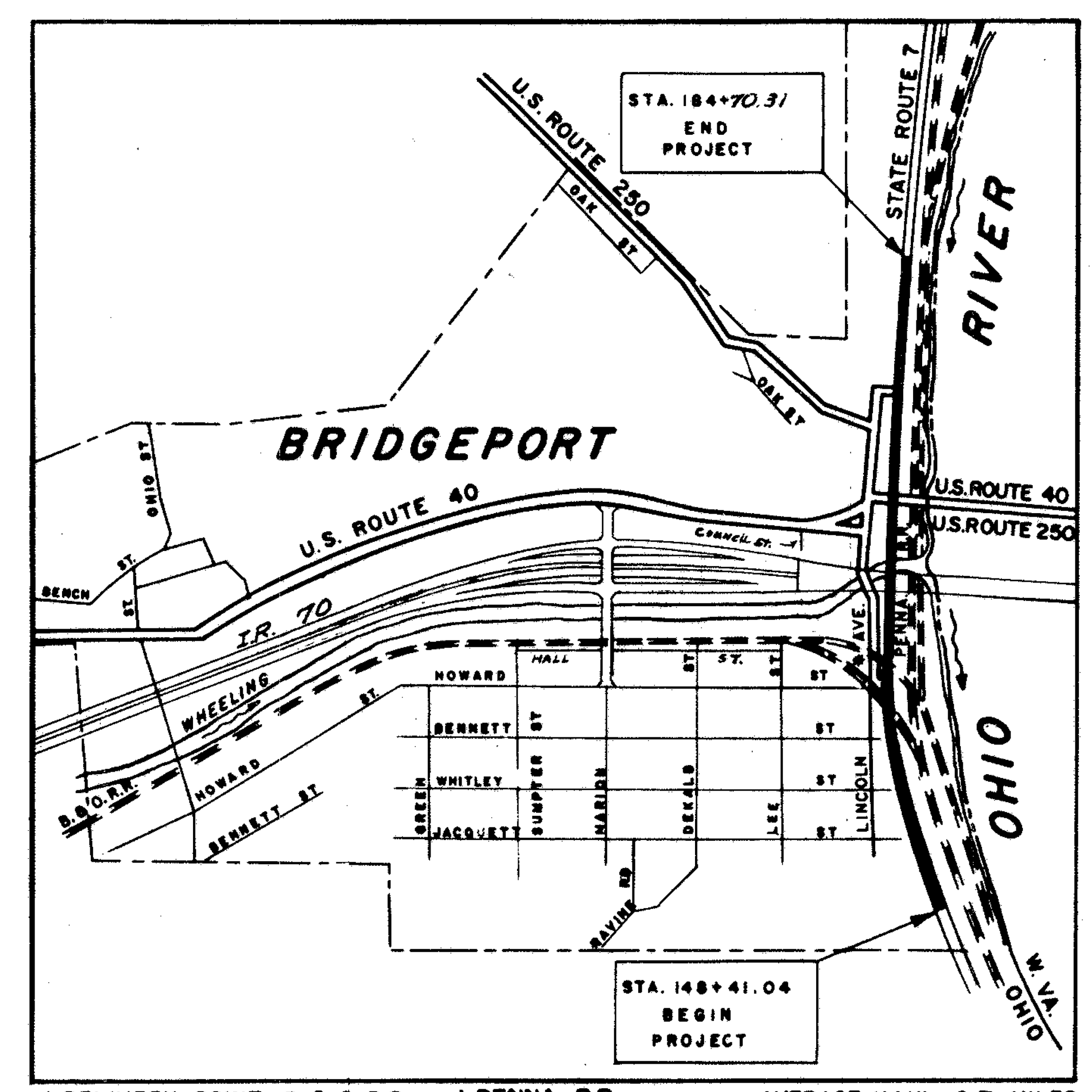
*1965 SPECIFICATIONS*

—CONVENTIONAL SIGNS—

STATE LINE
PROPERTY LINE
LIMITED ACCESS LINE
SECTION LINE
CENTER LINE
CORPORATION LINE
FENCE LINE
GUARD RAIL (EXISTING)
GUARD RAIL (PROPOSED)
RAILROAD
POWER POLES
TELEPHONE POLES
GENERAL UTILITY POLES
TREES
EXISTING WATER LINES
EXISTING GAS LINES
EXISTING TELEPHONE CONDUITS
*PARCEL NUMBER*
*CONSTRUCTION LIMITS*

*INDEX OF SHEETS*

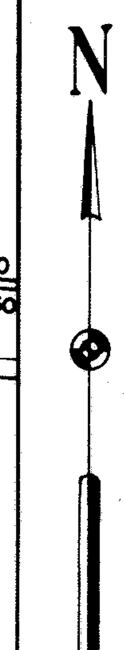
| | | | |
|---|---|---|---|
| Title Sheet | 1 | Cross Sections | 20-36 |
| Schematic Plan & Design Designation | 2 | Extra Area Details | 37-40 |
| Typical Sections | 3-6 | Ramp Profiles | 41 |
| General Notes | 7-8 | Waterline Relocation | 42 |
| Superelevation Tables | 9 | Miscellaneous Details | 43 |
| Geometric Control Data & Quantity Calculations | 10 | Sewer Profiles | 44-46 |
| Quantity Calculations | 11 | Schematic Sewer Plan | 47 |
| General Summary | 12-14 | Signing Plans | 48-58 |
| Plan-Profiles | 15-19 | Lighting Plans | 59 |
| | | Bridge No. BEL-7-2006 | |
| | | Right of Way Plans | |




★DELIVERY POINT: B. & O. R.R. and PENNA. R.R. AVERAGE HAUL: 0.3 MILES

—LOCATION MAP—

400 0 400 800 1200 1600
SCALE IN FEET




PORTION TO BE IMPROVED
FEDERAL HIGHWAYS
STATE HIGHWAYS
STREETS

SCALES

PLAN 1" = 50'
PROFILE-HORIZONTAL 1" = 50'
PROFILE-VERTICAL 1" = 10'

LINE DATA

*Begin Project Sta. 148+41.04*
*End Project Sta. 184+70.31*
*Length of Project = 3,629.27 L.F. or 0.687 Miles*
*Begin Work Sta. 142+25.00*
*End Work Sta. 184+70.31*
*Length of Work = 4,245.31 L.F.*

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

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

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

APPROVED *Earl W. Nelson*
DATE *9-13-65* DIVISION DEPUTY DIRECTOR

APPROVED
DATE ENGINEER OF BRIDGES

APPROVED
DATE ENGINEER OF LOCATION & DESIGN

APPROVED
DATE DEPUTY DIRECTOR OF DESIGN & CONSTRUCTION

APPROVED
DATE DEPUTY DIRECTOR OF RIGHT OF WAY

APPROVED
DATE DEPUTY DIRECTOR OF PLANNING & PROGRAMMING

APPROVED
DATE FIRST ASSISTANT DIRECTOR

APPROVED
DATE DIRECTOR OF HIGHWAYS

APPROVED
DATE CHIEF ENGINEER, BALTIMORE & OHIO RAILROAD

APPROVED
DATE CHIEF ENGINEER, PENNSYLVANIA RAILROAD

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

*O. K. Erb*

H. G. SOURS
ASSOCIATE
COLUMBUS

*SUPPLEMENTAL SPECIFICATIONS*

| Number | Date | Number | Date |
|---|---|---|---|
| 814 | 8-24-65 | M-107.18 | 4-3-61 |
| 808 | 7-14-65 | 909 | 6-11-65 |
| 816 | 8-6-65 | M-206.14 | 7-15-49 |
| I-212 | 6-23-61 | S-207.10 | |
| | | 811 | 3-29-65 |

*STANDARD DRAWINGS*

| Number | Date | Number | Date | Number | Date |
|---|---|---|---|---|---|
| BP-1 | 6-1-65 | MC-5 | 6-1-65 | RB-1-55 | 2-2-59 |
| BP-2 | 6-1-65 | MC-6 | 6-1-65 | BR-1-65 | 2-1-65 |
| BP-3 | 6-1-65 | FACI-1 | 6-1-65 | CSB-2-56 | |
| BP-4 | 6-1-65 | FACI-2 | 6-1-65 | AS-1-54 | 8-10-65 |
| BP-5 | 6-1-65 | CB 2-2 A&B | 6-1-65 | | |
| BP-6 | 6-1-65 | CB 2-3 & 2-4 | 6-1-65 | HW-1 | 6-1-65 |
| BP-7 | 6-1-65 | CB-3 | 6-1-65 | HW-2 | 6-1-65 |
| MC-1 | 6-1-65 | CB-3A | 6-1-65 | GR-1 | 6-1-65 |
| MC-3 | 6-1-65 | MH-1 | 6-1-65 | GR-2A | 9-1-65 |
| MC-4 | 6-1-65 | MH-2 | 6-1-65 | L-1 | 6-1-65 |

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED:
DIVISION ENGINEER DATE

| | |
|---|---|
| FILE NO | BELMONT COUNTY<br>BEL-7- 19.86<br>DATE OF LETTING ____, 196__<br>CONTRACT NO. |

# LOCATION PLAN

## S.R. 7 BEL - 7-19.86

## BELMONT COUNTY

0 200 400 600 800
SCALE 1" = 200'

## LIMITED ACCESS

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

BELMONT COUNTY
BEL - 7-19.86



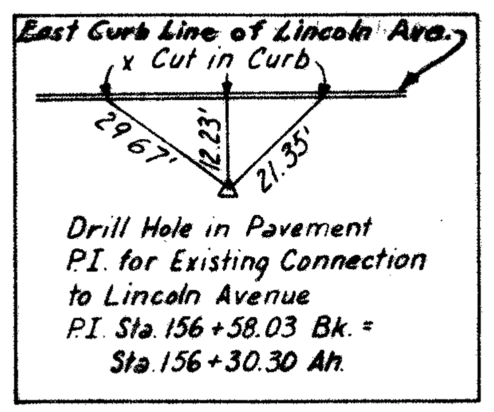


Received ________ at ________
Recorded ________
Plat Book ________ page ________
Signed ________ Recorder, Belmont County, Ohio
Fee ________

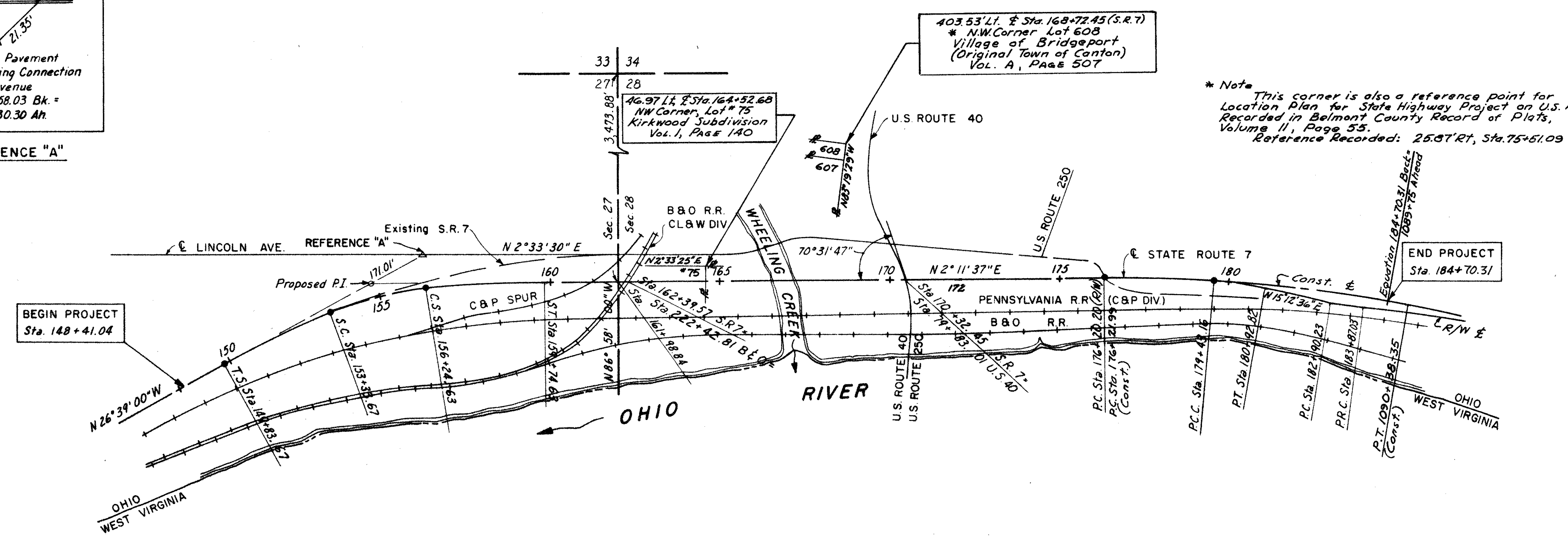
Signed Henry H. [illegible]
Date 8-28-[illegible] Registered Surveyor No. [illegible]
Signed ________
Date ________ Division Deputy Director ________

## VILLAGE OF BRIDGEPORT

TWP. 3 RANGE 2




REFERENCE "A"




### CURVE DATA

**R/W ℄ Const. ℄ Curve**

| | |
|---|---|
| T.S. | = Sta. 149+83.67 |
| S.T. | = Sta. 159+74.63 |
| Δ | = 28° 50' 36" |
| Dc | = 4° 30' 00" |
| Rc | = 1273.24' |
| Ts | = 503.35' |
| Ls | = 350.00' |
| Lc | = 290.96' |
| Es | = 45.57' |

**R/W ℄ Curve**

| | |
|---|---|
| P.C. | = Sta. 176+20.20 |
| P.C.C. | = Sta. 179+43.16 |
| Δ | = 4° 02' 13" |
| D | = 1° 15' 00" |
| R | = 4583.66' |
| T | = 161.54' |
| L | = 322.96' |
| E | = 2.85' |

**R/W ℄ Curve**

| | |
|---|---|
| P.C.C. | = Sta. 179+43.16 |
| P.T. | = Sta. 180+92.82 |
| Δ | = 8° 58' 46" |
| D | = 6° 00' 00" |
| R | = 954.93' |
| T | = 74.98' |
| L | = 149.66' |
| E | = 2.93' |

**R/W ℄ Curve**

| | |
|---|---|
| P.C. | = Sta. 182+90.23 |
| P.R.C. | = Sta. 183+87.03 |
| Δ | = 5° 48' 23" |
| D | = 6° 00' 00" |
| R | = 954.93' |
| T | = 48.44' |
| L | = 96.80' |
| E | = 1.23' |

**R/W ℄ Curve**

| | |
|---|---|
| P.R.C. | = Sta. 183+87.03 |
| P.T. | = Sta. 184+25.00 |
| Δ | = 0° 35' 44" |
| D | = 1° 34' 06" |
| R | = 3653.17' |
| T | = 18.99' |
| L | = 37.97' |
| E | = 0.05' |

**Const. ℄ Curve**

| | |
|---|---|
| P.C. | = Sta. 176+21.99 |
| P.T. | = Sta. 1090+38.35 |
| Δ | = 11° 23' 45" |
| D | = 1° 15' 00" |
| R | = 4583.66' |
| T | = 457.34' |
| L | = 911.67' |
| E | = 22.76' |

Note:
● ℄ Monuments to be provided where symbol is shown.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MADE | E.C.E. | DATE | 4-13-61 | TRACED | J.A.G. | DATE | 4-17-61 |
| CHECKED | D.W.K. | DATE | 7-5-61 | SCALE | 1" = 200' | | |

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

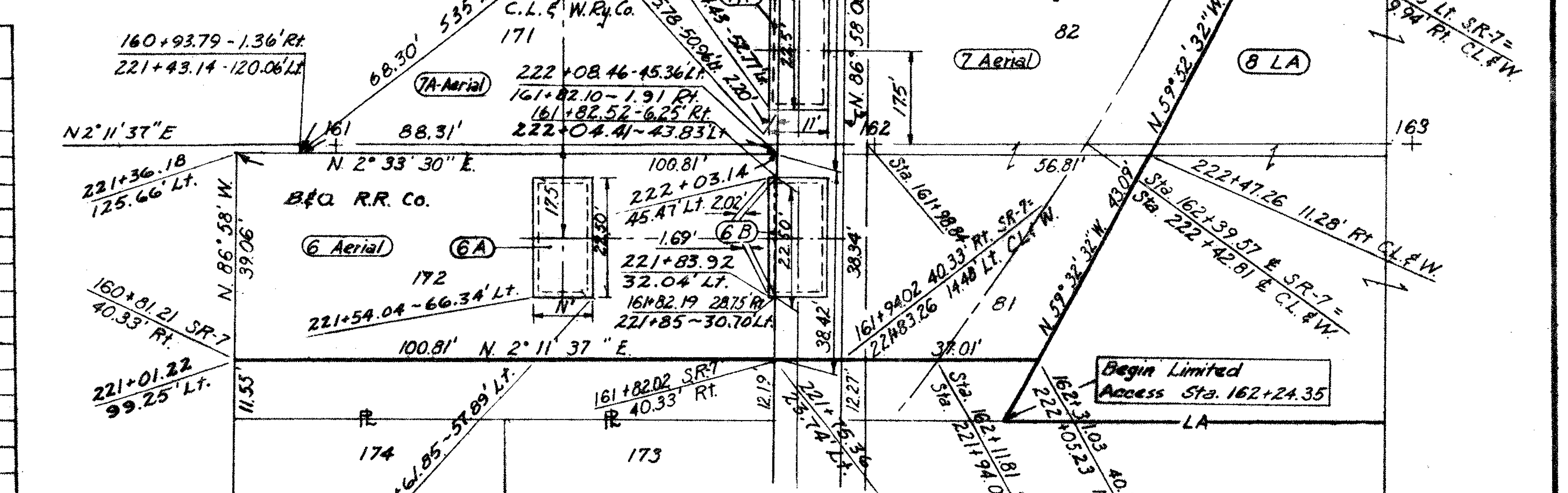
# VILLAGE OF BRIDGEPORT

SPIRAL DATA

$\theta_s$ = 7° 52' 30"
$\Delta$ = 28° 50' 36"
$L_s$ = 350.00'
L.T. = 233.57'
S.T. = 116.88'
$T_s$ = 503.35'
$E_s$ = 45.57'

CURVE DATA

D = 4° 30' 00"
R = 1273.24'
L = 290.96'



ENLARGED PLAN
LOTS 81, 82, 171 & 172
Scale 1" = 20'

## SUMMARY OF ADDITIONAL R/W REQUIRED

| PARCEL NO. | OWNER | DEED RECORD BOOK | DEED RECORD PAGE | DEED AREA | TO BE ACQ'D. LAND | TO BE ACQ'D. BLDGS. | RESIDUE LEFT | RESIDUE RIGHT | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 L.A. | Gertrude Whitlatch | 449 | 126 | 0.135 | 0.129 | Yes | 0 | 0 | 2 Sty. Frame Residence |
| 2 L.A. | James T. & Agness Drumond | 233 | 151 | 0.110 | 0.110 | Yes | | | 1½ Sty. Frame Residence |
| 3 L.A. | Harry W. & Katherine Miller | 386 | 240 | 0.078 | 0.078 | Yes | | | 2 Sty. Frame Residence |
| 4 L.A. | Wilbur A. Hinkle | 345 | 462 | 0.055 | 0.055 | Yes | | | 2 Sty. Frame Residence |
| 5 L.A. | Cleveland & Pittsburgh R.R. Co. (Pa.) | | | | 0.468 | | | | |
| 7 A | Cleveland, Lorain, & Wheeling Ry. (B.&O.) | | | | 0.001 | | | | |
| 6 Aerial | Baltimore & Ohio RR. Co. | | | | 0.083 | | | | |
| 6 A | " " " " " " | | | | 0.006 | | | | |
| 6 B | " " " " " " | | | | 0.001 | | | | |
| 7 A-Aerial | Cleveland, Lorain, & Wheeling Ry. (B.&O.) | | | | 0.060 | | | | |
| 7 Aerial | Cleveland, Lorain & Wheeling Ry. (B.&O.) | | | | 0.108 | | | | |
| 4A L.A. | Robert W. & Anna L. Schulenberg | 417 | 350 | 0.153 | | | 0.153 | | Limited Access Rights taken only |
| 8 L.A. | The Cleveland Graphite Bronze Co. | 352 | 417 | 22,589.71-S.F. | 22,589.71-S.F. | Yes | | | 1 Sty. Brick Parcel Contd. Sh. 2 |
| 4B LA. | Olive Lanning | 461 | 446 | 0.074 | | | 0.074 | | Limited Access Rights taken only |
| 4C LA. | Rose Drake Bergundthal | 433 | 234 | 0.061 | | | 0.061 | | " " " " " |
| 31 | Florence K. Holler | 400 | 314 | 0.169 | 0.012A | | 0.136 | | See sheet #3 for Parcel 31-LA. |
| 31-WA | " " " | | | | | | | | Bldg. Removal |

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

MADE E.C.E. DATE 5-4-61 TRACED DATE
CHECKED F.V.R. DATE 8-17-61 SCALE 1"=50' or as noted

| MADE | REVISION | DATE |
|---|---|---|
| | Added Parcels 31 & 31-WA | 7-13-65 |
| E.C.E. | Revised area to be acquired for Parcel 1-LA | 1-22-62 |
| F.V.R. | Revised Parcels 1 LA. & 2 LA | 8-17-61 |
| F.V.R. | Added Parcels 4A-LA, 4B-LA, 4C-LA, 7A & 7A Aerial | 8-17-61 |

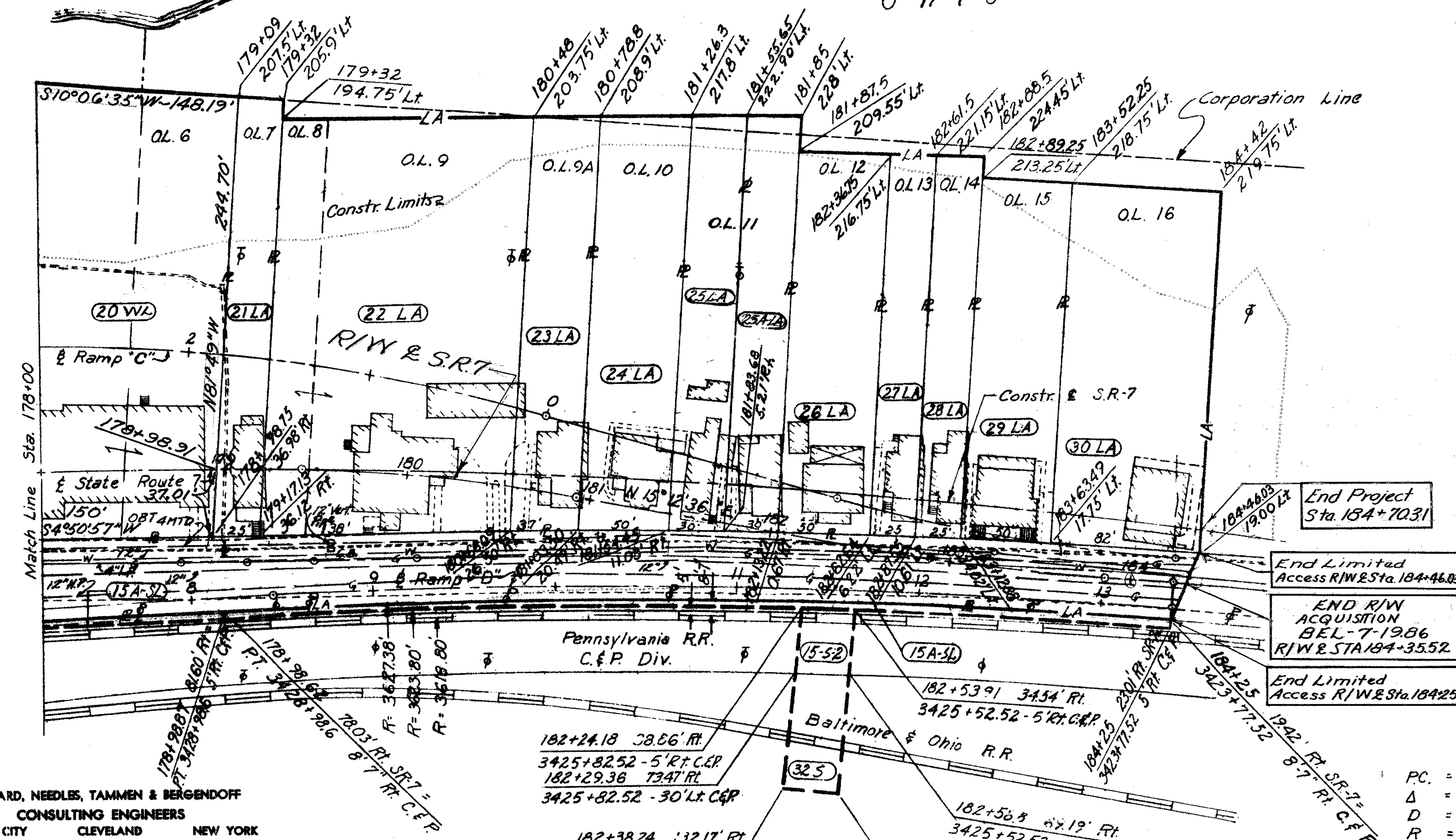
| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

95

4 / 7

BELMONT COUNTY

BEL-7-19.86


## SUMMARY OF ADDITIONAL R/W REQUIRED

| PARCEL NO. | OWNER | DEED RECORD BOOK | DEED RECORD PAGE | DEED AREA | TO BE ACQ'D LAND | TO BE ACQ'D BLDGS. | RESIDUE LEFT | RESIDUE RIGHT | REMARKS (© Calculated Area. * Denotes Area in Sq. Ft.) |
|---|---|---|---|---|---|---|---|---|---|
| 9 LA. | Benjamin R. & Harry W. Berisford | 443 | 47 | 25,229* | 25,229* | Yes | | | "Pure" Gasoline Station. |
| 10 LA. | Frank R. Ferrell | 344 | 331 | 0.290© | 0.290© | Yes | | | 2 Sty. Concrete Block Garage. |
| 11 LA | Jessie A. Cook | 400 | 580 | 0.165© | 0.165© | Yes | | | Taxi Stand. |
| 12 LA | Scott Lumber Company | | | | 0.004 | | | | |
| 13 LA. | Jessie A. Cook | 322 | 396 | 0.180 | 0.180 | Yes | | | 1 Sty. Brick & 1 Sty. Conc. Block.-Billboard |
| 14 LA. | Essex Corporation | 363 | 395 | 0.886 | 0.886 | Yes | | | 1 Sty. Brick & Block A.& P Food Store |
| 15 LA. | Cleveland & Pittsburgh R.R. (Div. of Penna.) | | | | 0.321 | | | | |
| 15 SL. | " " " " " " " | | | | 0.001 | | | | |
| 15 A-SL. | " " " " " " " | | | | 0.075 | | | | |
| 16 W.L. | Scott Lumber Company | 118 | 321 | 0.264 | 0.264 | Yes | | | 3 Sty. Brick. |
| 17 W.L. | Charles J. Hill | 117 | 296 | 0.063 | 0.063 | Yes | | | 1 Sty. Brick Machine Shop |
| 18 W.L. | Scott Lumber Company | 121 | 370 | 3.637 | 0.376 | | 3.261 | | |
| 19 LA. | Waid L. & Jessie Burley | 317 | 472 | 0.264 | 0.264 | Yes | | | "Gulf" Gasoline Station |
| 20 W.L. | Fraternal Order of Eagles | 243 | 382 | 0.865 | 0.865 | Yes. | | | 2 Sty. Brick |
| 21 LA | Waid L. & Jessie Burley | 380 | 510 | 0.139 | 0.139 | Yes | | | 2 Sty. Frame Residence |
| 15-S-1 | Cleveland & Pittsburgh R.R. (Div. of Penna.) | | | | 0.033 | | | | Sewer Easement |
| 22 LA. | Joseph A. George | 317 | 594 | 0.729 | 0.729 | Yes | | | 2 Sty. Frame Res. & 1 Sty. Frame 6 Car Garage |
| 23 LA. | Kathryn & Donald O. Humphrey | 387 | 240 | 0.195 | 0.195 | Yes | | | 1½ Sty. Frame Residence |
| 24 LA. | Charles F. Ferguson | 431 | 290 | 0.264 | 0.264 | Yes | | | 1 Sty. Frame Residence |
| 25 LA. | Charles F. Ferguson | 386 | 50 | 0.320 | 0.158 | Yes | | | 1 Sty. Frame Residence |
| 15-S-2 | Cleveland & Pittsburgh R.R. (Div. of Penna.) | | | | 0.024 | | | | Sewer Easement |
| 26 LA. | Thomas & Mildred Murad | 475 | 755 | 0.242 | 0.242 | ~~Yes~~ | | | 2 Sty. Frame Residence and Garage |
| 27 LA. | Anna Wright | 398 | 593 | 0.120 | 0.120 | Yes | | | 1 Sty. Frame Residence |
| 28 LA. | Robert L. & Jean Tappy | 438 | 508 | 0.121 | 0.121 | Yes | | | 1 Sty. Frame Residence |
| 29 LA. | N. A. Shaheen | 419 | 584 | 0.229 | 0.229 | Yes | | | 2 Sty. Frame Residence |
| 30 LA. | Harriett Drake White | 422 | 342 | 0.376 | 0.376 | Yes | | | 2 Sty. Frame Residence |
| 31 LA | Florence K. Hollar | 400 | 314 | 0.169 | 0.021 | Yes | 0.148 | | "Sunoco" Gasoline Station (See sheet 2 for 31 & 31 WA) |
| 32 S | Baltimore & Ohio R.R. | | | | 0.040 | | | | Sewer Easement |
| 32 WA. | " " " " | | | | 0.015 | | | | Work Agreement |
| 33 LA | Unknown Owner | | | | 0.016 | | | | |

## SUMMARY OF ADDITIONAL R/W REQUIRED

| PARCEL NO. | OWNER | DEED RECORD BOOK | DEED RECORD PAGE | DEED AREA | TO BE ACQ'D LAND | TO BE ACQ'D BLDGS. | RESIDUE LEFT | RESIDUE RIGHT | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 25A-LA | Harry & Helen Scammell | 474 | 297/298 | 0.158 Ac. | 0.158 Ac. | Yes | | | 1 Sty. Frame Residence |
| 34-LA | Unknown Owner | | | | 0.154 Ac. | | | | |
| 15A-LA | Cleveland & Pittsburgh R.R. (Div. of Penna.) | | | | 0.041 Ac. | | | | |
| 18-T | Scott Lumber Company | | | | | | | | Bldg. Removal |

| | | | |
|---|---|---|---|
| P.C. = Sta. 176+20.20 | P.C.C. = Sta. 179+43.16 | P.C = Sta. 182+90.23 | P.R.C. = Sta. 183+87.03 |
| Δ = 4° 02' 13" | Δ = 8° 58' 46" | Δ = 5° 48' 23" | Δ = 0° 35' 44" |
| D = 1° 15' 00" | D = 6° 00' 00" | D = 6° 00' 00" | D = 1° 34' 06" |
| R = 4,583.66' | R = 954.93' | R = 954.93' | R = 3,653.17' |
| T = 161.54' | T = 74.98' | T = 48.44' | T = 18.99' |
| L = 322.96' | L = 149.66' | L = 96.80' | L = 37.97' |
| E = 2.85' | E = 2.93' | E = 1.23' | E = 0.05' |

| MADE | REVISION | DATE |
|---|---|---|
| E.C.E. | Rev. R's and/or areas 9-LA, 10-LA, 11-LA, 13-LA & 31-LA; Added Parcel 33-LA | 1-22-62 |
| E.C.E. | Revised limits Parcel 15-S-1, Added Parcel 32 WA | 11-29-61 |
| E.C.E. | Revised Sta. & Offsets Parcels 15-S-2, & 32-S | 10-11-61 |
| F.V.R. | Revised Parcels 18 LA & 20 LA thru 31 LA. | 8-17-61 |
| F.V.R. | Added Parcels 12 LA, 15-S-1, 15-S-2, & 32S | 8-17-61 |

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
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MADE E.C.E. DATE 5-4-61 TRACED DATE
CHECKED F.V.R. DATE 8-17-61 SCALE 1" = 50'

136

Sta. 163+00 to Sta. 184+25.00 RIGHT OF WAY PLANS


| Parcel No. | Area |
|---|---|
| 5 L.A. | 0.468 Ac. ± |
| 6 A | 0.006 Ac. ± |
| 6 B | 0.001 Ac. ± |
| 6 Aerial | 0.083 Ac. ± |

C.&P. R.R. Curve Data

Δ = 28°20' Lt.
D = 2°15'
T = 642.82'
R = 2546.64'
L = 1259.26'
E = 79.88'
P.T. = 3460+10.72
P.C. = 3447+51.46

S.R.-7 Curve Data

| | |
|---|---|
| S.C. 153+33.67 | C.S. 156+24.63 |
| C.S. 156+24.63 | S.T. 159+74.63 |
| Δ 13°05'36" | Δ 28°50'36" |
| D 4°30'00" | $\theta_s$ 7°52'30" |
| R 1273.24' | L.T. 233.57' |
| L 290.96' | S.T. 116.88' |
| | T.S. 503.35' |
| | $L_s$ 350.00' |
| | $E_s$ 45.57' |

Note: Railroad Survey Stations shown are referred to those shown on Railroad Company R/W Track Map V. 10 Ohio, Sheet 40.

| FED. RD. DIVISION | STATE | PROJECT | |
|---|---|---|---|
| 2 | OHIO | | |

96

BELMONT COUNTY
BEL - 7 - 19.86

5/7

MADE F.V.R. DATE 8-8-61 TRACED DATE
CHECKED E.C.E. DATE 8-30-61 SCALE 1" = 20'

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SUPPLEMENTAL R/W C. & P. DIV. of PENNA. R.R.


**S.R.-7 Curve Data**

| B. of C. | E. of C. | Δ | D | R | T | L | E |
|---|---|---|---|---|---|---|---|
| P.C. 176+20.20 | P.C.C. 179+43.16 | 4°02'31" | 1°15'00" | 4583.66' | 161.54' | 322.96' | 2.85' |
| P.C.C. 179+43.16 | P.T. 180+92.82 | 8°58'46" | 6°00'00" | 954.93' | 74.98' | 149.66' | 2.94' |
| P.C. 182+90.23 | P.R.C. 183+87.03 | 5°48'28" | 6°00'00" | 954.93' | 48.44' | 96.80' | 1.23' |
| P.R.C. 183+87.03 | P.T. 184+25 | 0°35'44" | 1°34'06" | 3653.17' | 18.99' | 37.97' | 0.05' |

| Parcel No. | Area |
|---|---|
| 15 L.A. | 0.321 Ac.± |
| 15 S.L. | 0.001 Ac.± |
| 15A SL | 0.075 Ac.± |
| 15 S-1 | 0.033 Ac.± |
| 15 S-2 | 0.024 Ac.± |

Note: Railroad Survey Stations shown are referred to those shown on Railroad Company R/W Track Map V. 10 Ohio, Sheet 40.

| | | | |
|---|---|---|---|
| MADE F.V.R. | DATE 8-9-61 | TRACED | DATE |
| CHECKED E.C.E. | DATE 8-30-61 | SCALE 1" = 20' | |

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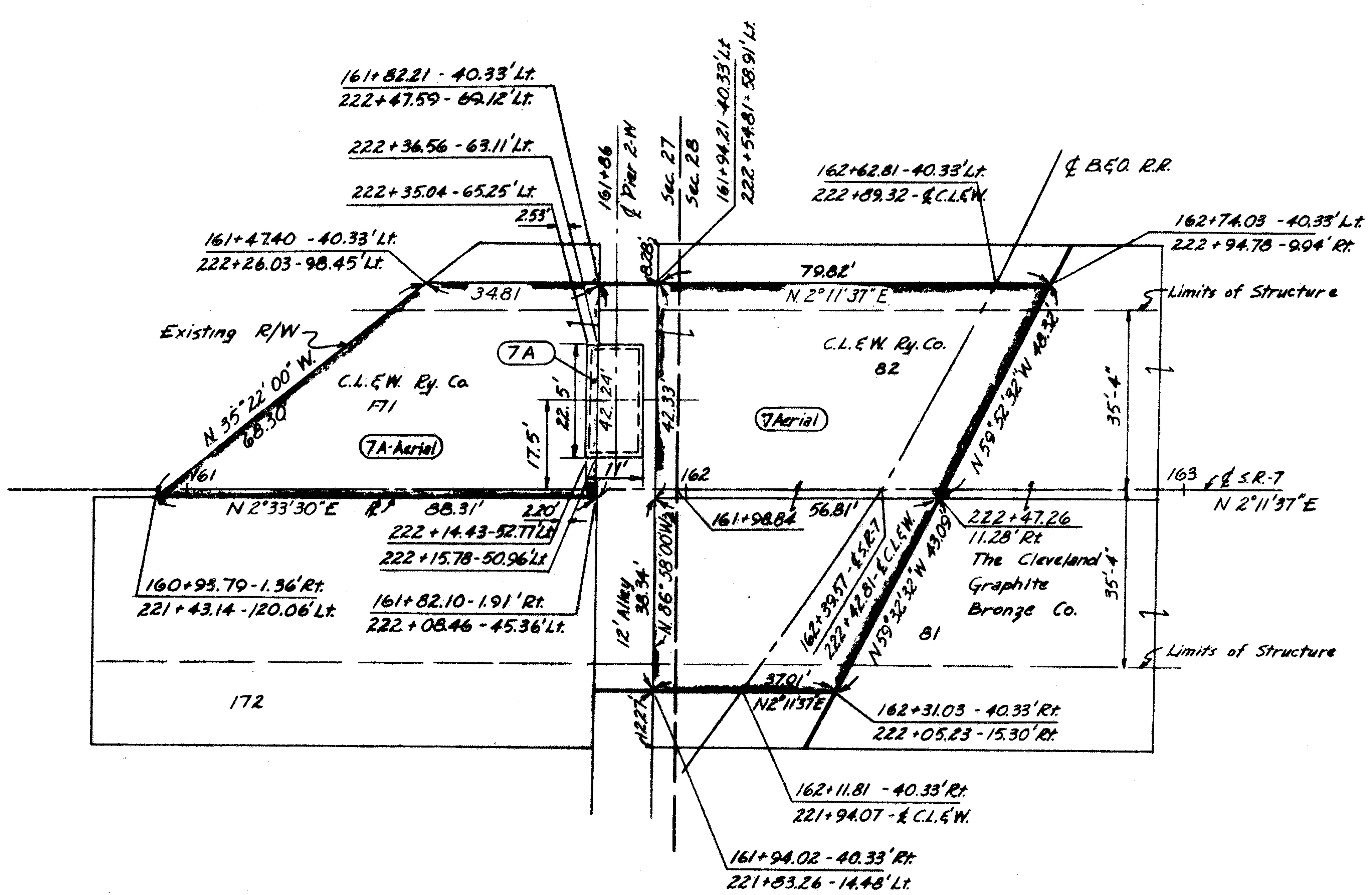
| MADE | REVISION | DATE |
|---|---|---|
| E.C.E. | Rev. limits Parcel 15-S-1, bearings 15-LA & 15-S-2 | 11-29-61 |
| E.C.E. | Revised SR-7 Sta. & Offsets Parcel 15-S-2 | 10-11-61 |

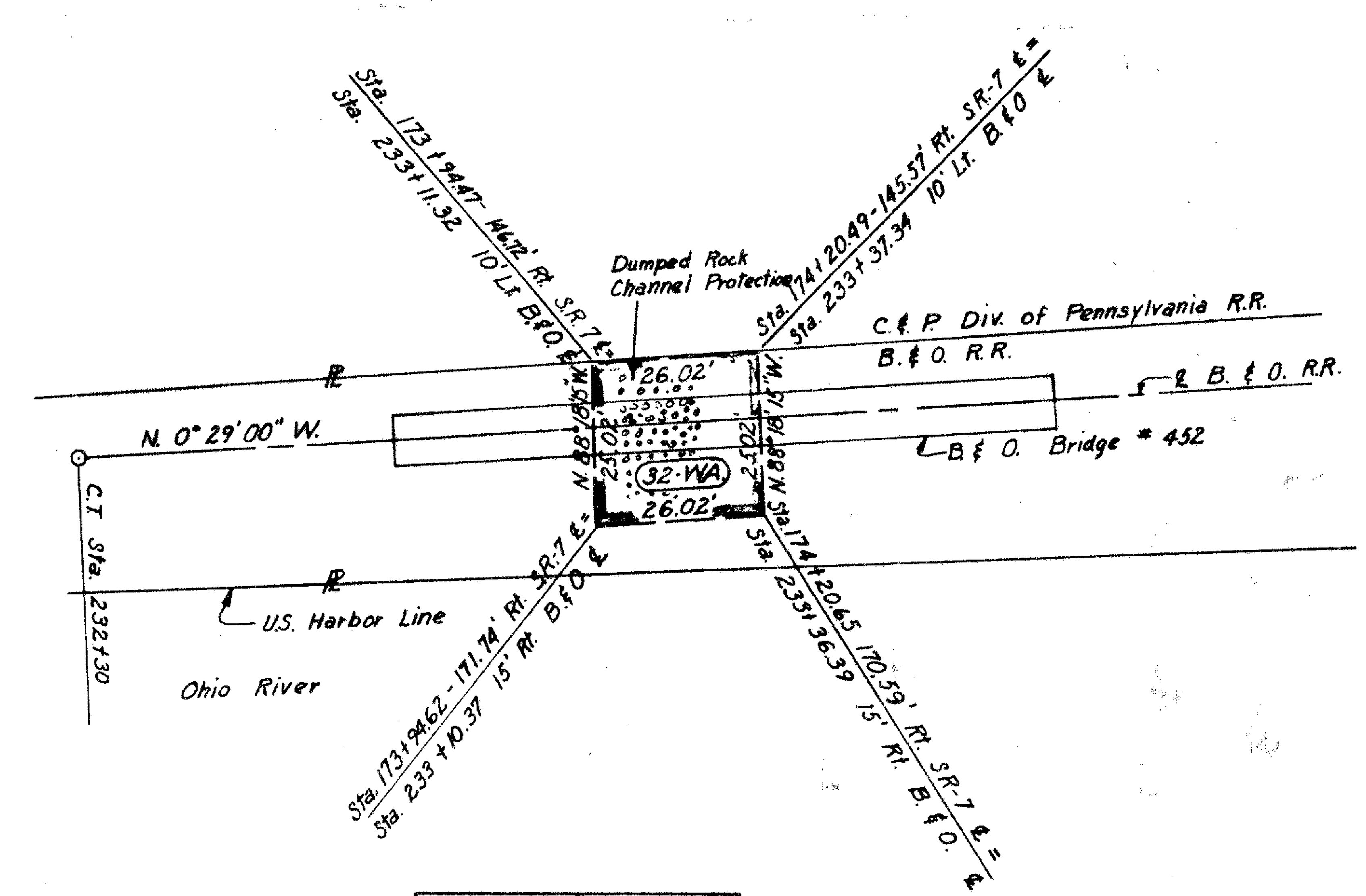
SUPPLEMENTAL R/W C. & P. DIV. of PENNA. R.R.



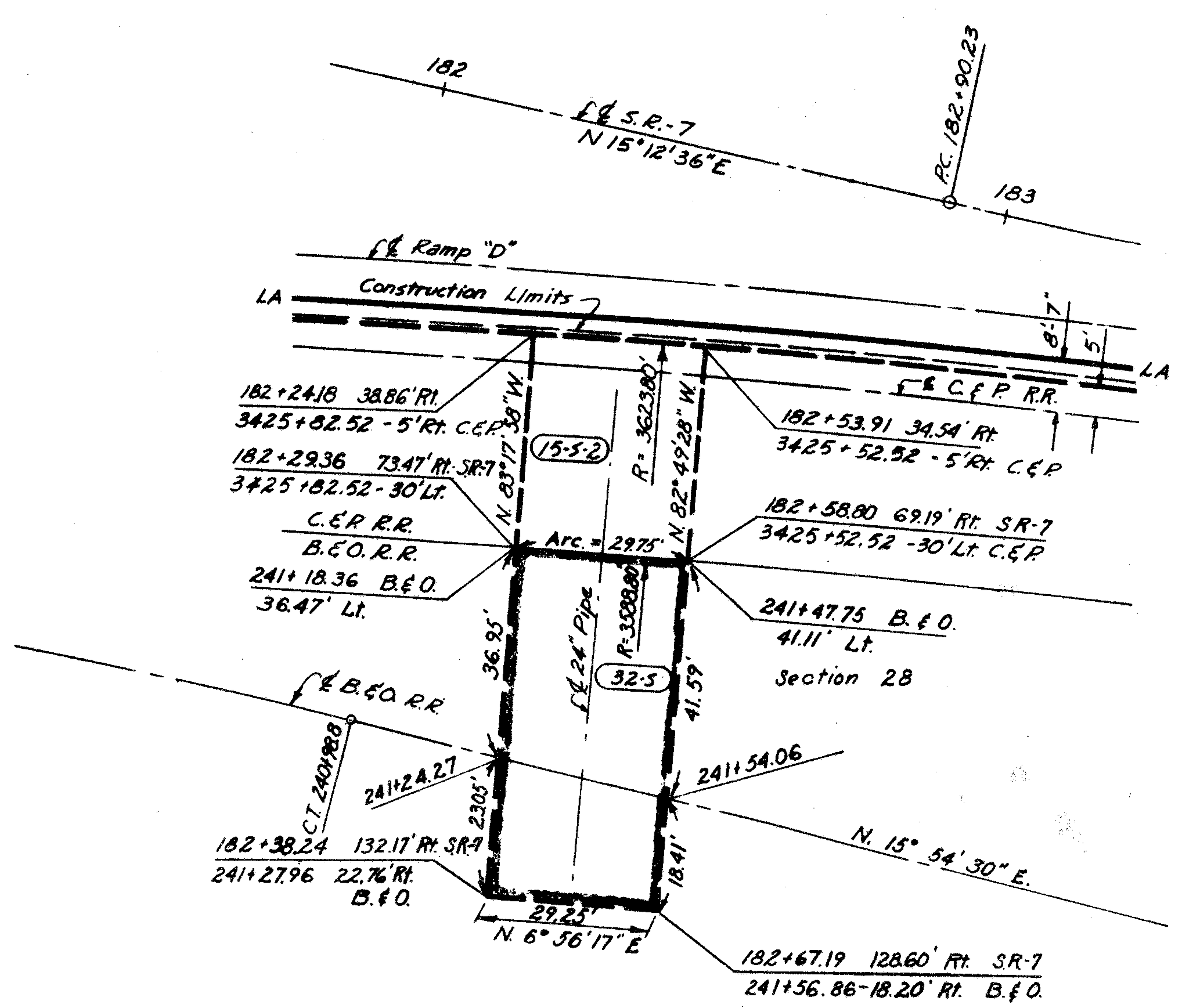

## B.&O. Curve Data

P.C.C. 219+93.22
P.C.C. 224+46.42
Δ = 42°00'10" Lt.
D = 9°00'00"
R = 637.275'
T = 244.64'
L = 466.70'

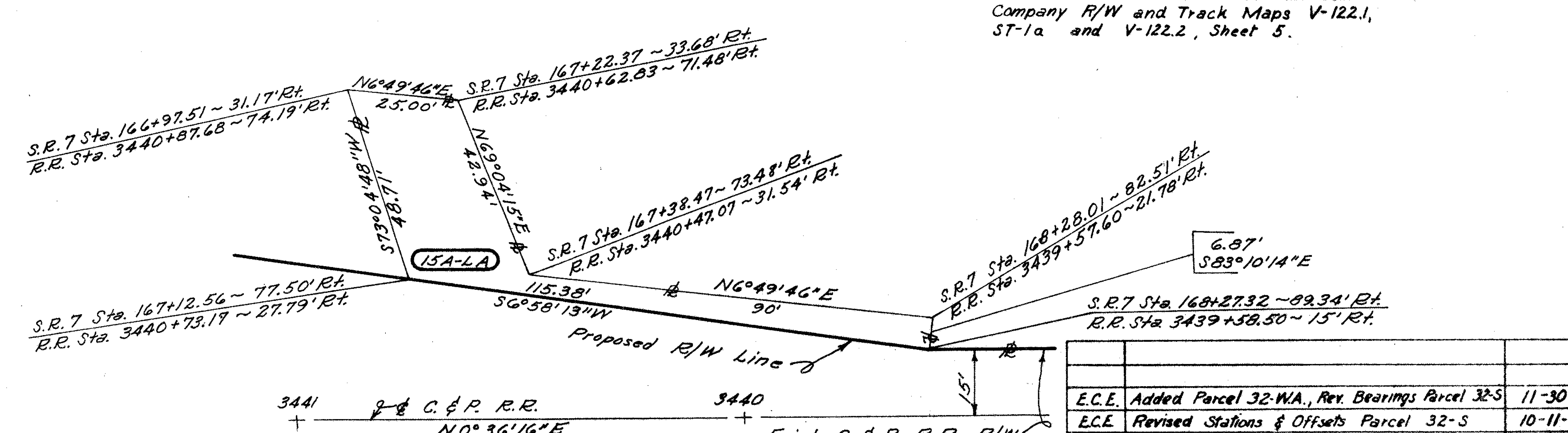
Pease Twp. Belmont Co.
Sec. 27 & 28 Town. 3 Range 2




| Parcel No. | Area |
|---|---|
| 7 Aerial | 0.108 Ac. ± |
| 7A Aerial | 0.060 Ac. ± |
| 7 A | 0.001 Ac. ± |
| 32 - S | 0.040 Ac. ± |
| 32 - WA | 0.015 Ac. ± |




Note: Railroad Survey Stations shown are referred to those shown on Railroad Company R/W and Track Maps V-122.1, ST-1a and V-122.2, Sheet 5.




| MADE | | REVISION | DATE |
|---|---|---|---|
| E.C.E. | Added Parcel 32-W.A., Rev. Bearings Parcel 32-S | | 11-30-61 |
| E.C.E. | Revised Stations & Offsets Parcel 32-S | | 10-11-61 |

MADE E.V.R. DATE 8-21-61 TRACED ____ DATE ____
CHECKED E.C.E. DATE 8-31-61 SCALE 1" = 20'

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SUPPLEMENTAL R/W BALTIMORE & OHIO RAILROAD