STATE OF OHIO
DEPARTMENT OF HIGHWAYS
TUS-21-26.33 & TUS-250-11.60
TUSCARAWAS COUNTY
DOVER & GOSHEN TOWNSHIPS

I-77-3(9)83
F-675(5)

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

1/235

TUS-21-26.33
TUS-250-11.60

MICROFILMED
JUN 7 1967
GROUND PHOTO LAB

LIMITED ACCESS - Project is especially designed for through traffic and has been declared a limited access highway or freeway by action of the Director of Highways in accordance with the provisions of Section 5511.02 of the Revised Code of Ohio.

MICROFILMED
JUN 7 1967
GROUND PHOTO LAB

CONVENTIONAL SIGNS

CENTER LINE
TOWNSHIP LINE
CORPORATION LINE
PROPERTY LINE
POLE LINE
FENCE LINE
RAILROADS
GUARDRAIL
SEWERS & DRAINAGE
EXISTING RIGHT-OF-WAY
LIMITED ACCESS
RIGHT-OF-WAY ONLY

Telephone ℄ Electric ℄
New Old
New Old
LA
R/W

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* Sheet 11 deleted from Plans

LINE DATA

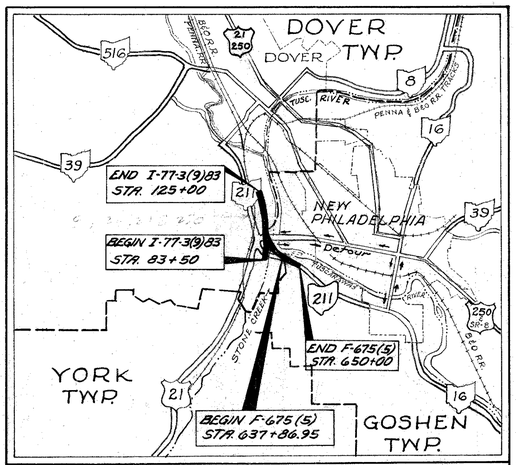
BEGIN I-77-3(9)83 STA. 83+50
END I-77-3(9)83 STA. 125+00
NO ADDITIONS OR DEDUCTIONS
NET LENGTH OF I-77-3(9)83 = 4150.00 LIN.FT. or 0.785 MILES
ADD FOR APPROACHES:
STA. 83+00 TO STA. 83+50 = 50.00 LIN.FT.
EXIST. U.S.R. 21 STA. 54+50 TO STA. 65+42.80 = 1092.80 LIN.FT.
NET LENGTH OF WORK I-77-3(9)83 = 5292.80 LIN.FT. or 1.002 MILES

BEGIN F-675(5) STA. 637+86.95
END F-675(5) STA. 650+00
NO ADDITIONS OR DEDUCTIONS
NET LENGTH OF F-675(5) = 1213.05 LIN.FT. or 0.229 MILES
ADD FOR APPROACHES:
STA. 650+00 TO STA. 657+00 = 700.00 LIN.FT.
NET LENGTH OF WORK F-675(5) = 1913.05 LIN.FT. or 0.362 MILES

STA. 50+00 to STA. 54+50 = 450.00 LIN.FT.
NET LENGTH OF WORK 100% STATE = 450.00 LIN.FT. or 0.085 MILES

TOTAL LENGTH OF PROJECT = 5363.05 LIN.FT. or 1.015 MILES
TOTAL LENGTH OF WORK = 7655.85 LIN.FT. or 1.449 MILES

File No.	TUS-21-26.33 & TUS-250-11.60
-----	Date of Letting ----- 196
	Contract No. -----



N.

AVERAGE HAUL FROM SIDING - 1.0 MILE
Point OF DELIVERY - NEW PHILADELPHIA, OHIO

LOCATION PLAN

SCALE: 1" = 1.0 MI.

Portion To be Improved
Federal Roads
State Roads
Other Roads
Detours Shown Thus

SCALES

Plan
Profile-Horz.
Profile-Vert.
Cross Sections

Plan, Profile-Horz.: 0 25 50 75 100
Profile-Vert.: 0 5 10 15 20

Revised sheet 217 Lighting Circuits C.E.H. 7-11-63
Revised sheet 217 (Quantity split) C.E.H. 11-19-64

The standard specifications of The State of Ohio, Department of Highways, including changes and supplemental specifications listed in the proposal shall govern this improvement.

The Right of Way for this improvement will be provided by the State of Ohio.

I hereby approve these plans and declare the making of this improvement will not require the closing of U.S.R. 21 to traffic and that provisions for the maintenance and safety of traffic will be set forth on the plans and estimates. The improvement will require the closing of S.R. 211 to traffic except as noted on Sheet #16, and detours will be provided as indicated on the plans.

Approved: Wm P McKenna
Date: 8-28-62 Division Deputy Director

Approved: D A Berryman
Date: 10-8-62 Engineer of Bridges

Approved: M Cameron
Date: 10-10-62 Engineer of Location and Design

Approved: C W McCaughey
Date: 10-10-62 Deputy Director of Design and Construction

Approved: _____
Date: _____ Deputy Director of Right of Way

Approved: Harry E Vaughan
Date: 10-10-62 Deputy Director of Planning and Programming

Approved: D A Berry
Date: 10-10-62 First Assistant Director

Approved: E L Preston
Date: 10-10-62 Director of Highways

STANDARD DRAWINGS

B-T-70-71	11-15-60	HW-E	11-15-60	I-15 Nº 1	11-15-60	T.J.	9-12-60	CSB-2-56(Sh.1,2,3)	2-2-59
B-T-71 R	3-2-53	I-1	11-15-60	I-15 Nº 2-A	8-17-60	FACI-1	12-27-61		
DR-1	1-3-55	I-8 C.B. 2-2A&B	3-2-59	I-21-23	8-1-56	FACI-2	12-27-61	AR-1-57	4-2-62
F-2	10-1-58	I-8 C.B. Nº6	1-26-59	L-3	4-1-50	L-1	4-1-50	AS-1-54	7-5-62
F-3	9-1-59	I-8 C.B. Nº8	3-15-60	L-3-A	4-1-50			RB-1-55	2-2-59
G-7.07	6-1-56	I-8 I Nº2	4-23-59	L.J. Nº1	7-1-55			CSB-1-55(Sh.1,2)	2-2-59
HW-A&B	7-15-57	I-12	7-1-59	R.I. 1	7-15-58			FSB-1-62	4-19-62
HW-C	7-15-57	I-14G	1-22-52	T-35	1-2-56				

SUPPLEMENTAL SPECIFICATIONS

18 Rev.	6-15-59
L-120 Rev.	1-2-62
I-127 Rev.	1-15-62
I-128	7-31-59
I-129 Rev.	4-5-61
C.E. 101.04	5-22-56
S-207.10	4-25-61
S-307	8-23-60
B-112	8-21-61
M-109.28 Rev.	8-12-59
I-212 Rev.	6-23-61
M-107.18 Rev.	9-3-61

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED:

_____ DIVISION ENGINEER

_____ DATE

SCHEMATIC LAYOUT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

2
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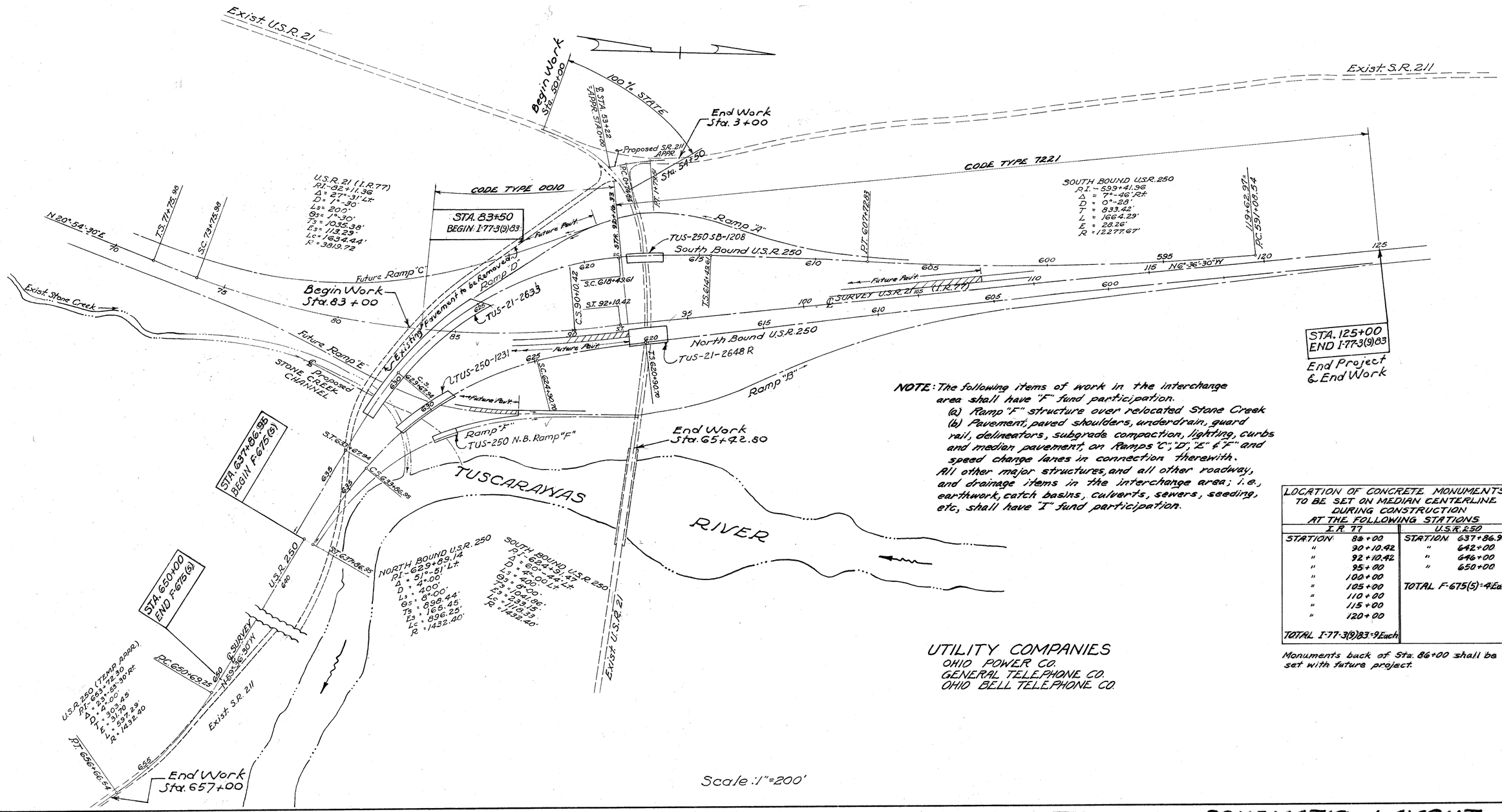
TUS-21-26.33-TUS-250-11.60



NOTE: The following items of work in the interchange area shall have "F" fund participation.
(a) Ramp "F" structure over relocated Stone Creek
(b) Pavement, paved shoulders, underdrain, guard rail, delineators, subgrade compaction, lighting, curbs and median pavement, on Ramps "C", "D", "E" & "F" and speed change lanes in connection therewith.
All other major structures, and all other roadway, and drainage items in the interchange area; i.e., earthwork, catch basins, culverts, sewers, seeding, etc, shall have "I" fund participation.

LOCATION OF CONCRETE MONUMENTS TO BE SET ON MEDIAN CENTERLINE DURING CONSTRUCTION AT THE FOLLOWING STATIONS

I.R. 77		U.S.R. 250	
STATION	86+00	STATION	637+86.95
"	90+10.42	"	642+00
"	92+10.42	"	646+00
"	95+00	"	650+00
"	100+00		
"	105+00	TOTAL F-675(5) = 4 Each	
"	110+00		
"	115+00		
"	120+00		
TOTAL I-77-3(9)83 = 9 Each			

Monuments back of Sta. 86+00 shall be set with future project.

UTILITY COMPANIES
OHIO POWER CO.
GENERAL TELEPHONE CO.
OHIO BELL TELEPHONE CO.

Scale: 1" = 200'

SCHEMATIC LAYOUT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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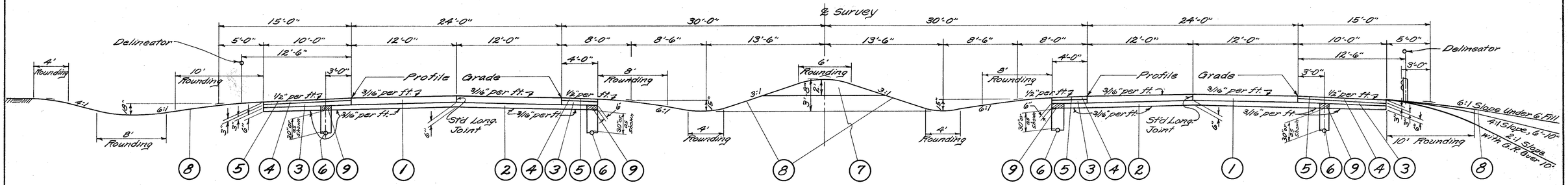
TUS - 21 - 26.33
TUS - 250 - 11.60

TYPICAL SECTIONS

TYPE T-71 & GRADING ONLY

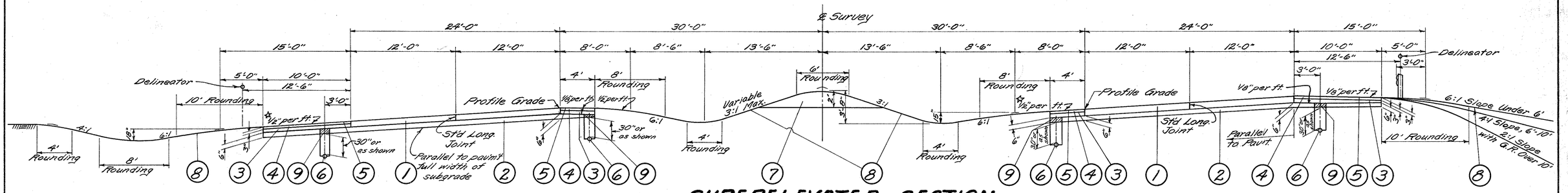
SCALE: 3/16" = 1'-0"



NORMAL SECTION

STA. 92+40 to STA. 125+00 (Rt. Lanes paved from Sta. 94+29.11 to Sta. 125+00) (Lt. Lanes paved from Sta. 107+77.50 to Sta. 125+00)

BRIDGE LOCATION (Rt. side only)
STA. 92+16.33 to STA. 94+31.97
(Station Limits include approach slabs and are plusses obtained by using bridge limits.



SUPERELEVATED SECTION

STA. 83+50 to STA. 92+40 (No pavement, earthwork only. Except approach slab right side from Sta. 92+16.33)

SEQUENCE OF CONSTRUCTION OPERATIONS:

Underdrains shall be installed and backfilled to subgrade elevation, immediately prior to construction of the subbase, except that, where subsurface conditions are such that improvement of an unstable subgrade can be accomplished through the drying action of deep underdrains, the project engineer may authorize or require the contractor to delay the construction of the subbase as necessary.

The subbase shall then be constructed under the concrete pavement area and extended out to cover the porous backfill for the underdrain.

Pavement shall then be constructed.

If, after testing the subbase material for composition, it is found that removal of contaminated material from the surface is necessary, such material shall be replaced in the shoulder area with material meeting the requirements of Item B-112, Porous Base Course, at the expense of the Contractor.

After the surface of the subbase in the shoulder area is in place and compacted as specified, and immediately prior to placing the porous base course, the material located above and within the underdrain trench shall be removed to the depth necessary to expose clean Class 3 backfill. The trench so excavated shall be backfilled with new Class 3 backfill material.

Porous base course shall then be constructed and construction of the waterproofed aggregate course shall follow immediately.

Payment for all of the above shall be included in the pertinent items affected.

LEGEND

(1) Item T-71 - 9" Reinforced Portland Cement Concrete Pavement
(2) Item I-22 - Subbase, Grading A or B modified as per General Note
(3) Item B-112 - Porous Base Course
(4) Item B-21 - †* Waterproofed Aggregate Base Course (Type "A" T-35 Material may be used in construction of this course (See Note in Proposal)
(5) Item T-31 - Bituminous Surface Treatment, using 0.008 Cu. Yd. No. 6 Aggregate per Sq. Yd. and 0.25 Gal. bituminous material per Sq. Yd. (See Note in Proposal)
(6) Item I-1 - 6" Pipe, Class I-3
(7) Item L-3 - Placing Stockpiled Topsoil
(8) Item L-9 - Seeding and Protecting (See General Note for Seeding Limits)
(9) Remove subbase for width of Item I-1 trench and replace with Class 3 backfill immediately prior to placing the Item B-112, Porous Base Course. Cost shall be included in price bid per lin. ft. for Item I-1.

☆ Except where pavement slope is greater than ½" per ft, then same slope as pavement.

* 3" thickness adjacent to main roadway pavement and 6" thickness (2-3" Courses) adjacent to speed change lanes and ramps. (Where 6" thickness is used, a compensating reduction has been applied to the porous base course.)

† Thickness shown is designed thickness as described in Section B-21.01

TYPICAL SECTIONS CONT'D
TYPE T-71

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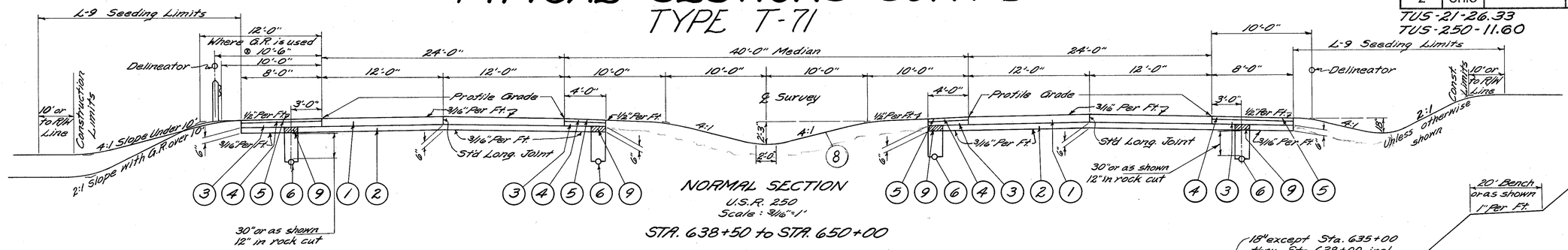
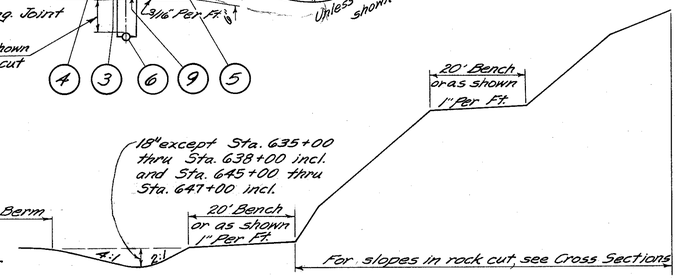
TUS-21-26.33
TUS-250-11.60

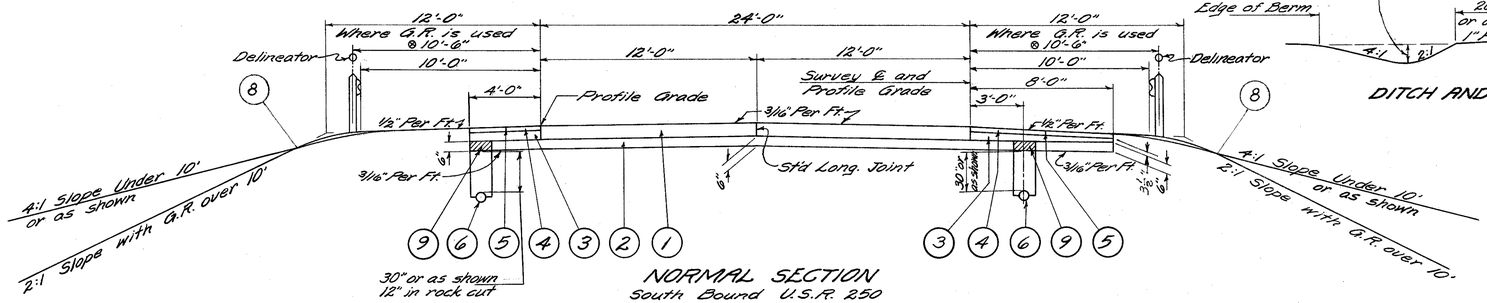


NORMAL SECTION
U.S.R. 250
Scale : 3/16"=1'

STA. 638+50 to STA. 650+00



DITCH AND SLOPE DETAIL IN ROCK CUT

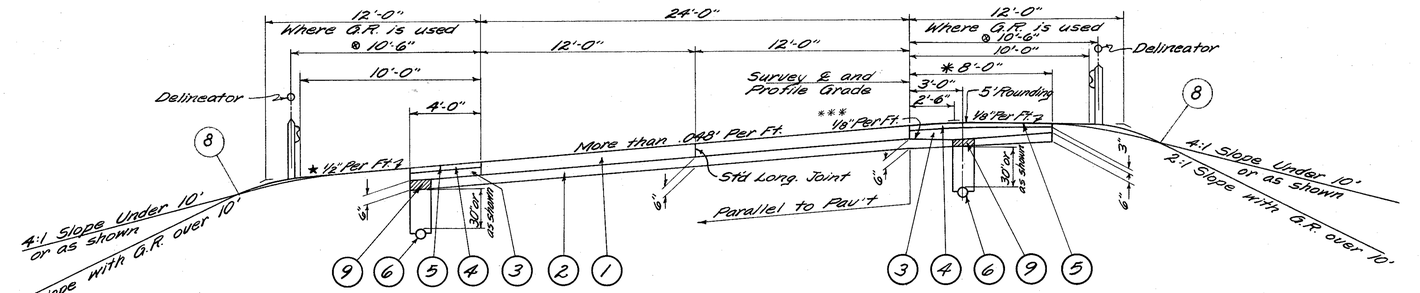


NORMAL SECTION
South Bound U.S.R. 250
Scale : 1/4"=1'

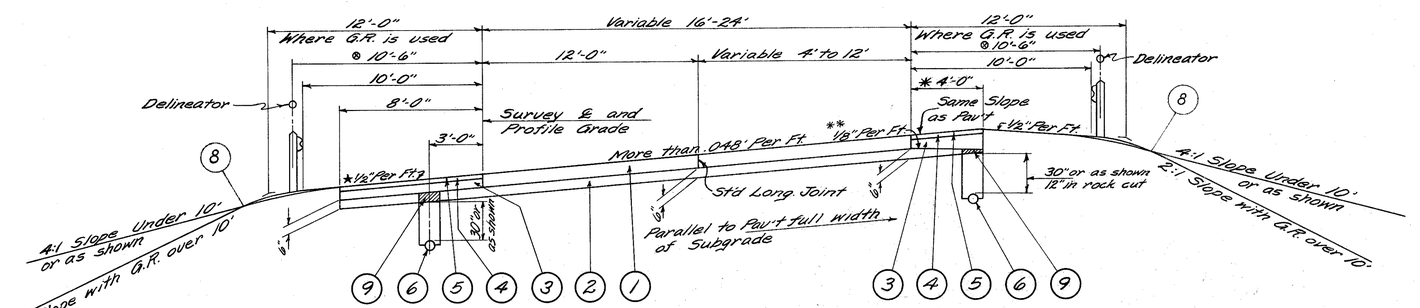
NOTE

★ Except where pavement slope is greater than ½" per ft, then same slope as pavement.

All rounding in four feet except where shown.



SUPERELEVATED SECTION
South Bound U.S.R. 250
Scale : 1/4"=1'



SUPERELEVATED SECTION
North Bound U.S.R. 250
Scale : 1/4"=1'

* Transition Paved Berm Slope on high side from ½" per ft when pavement slope is .016' per ft to ⅛" per ft when pavement slope attains .048' per ft. slope

For Legend and Sequence of Construction Operations see Sh. # 3

⊗ Except where Guard Rail is not used then Delineator is 10'-0" from edge of pavement.

** Make 3/16 per ft. until pavement attains .016' per ft. slope.

*** Where pavement slope is not more than .016' per ft., subbase shall be a uniform 6" thickness and B-112 shall vary uniformly from 6" to 3", except on normal section.

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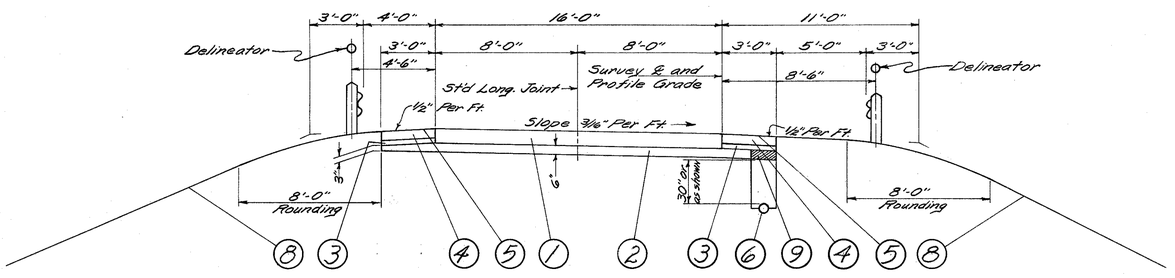
TYPICAL SECTIONS CONT'D

TYPE T-71

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

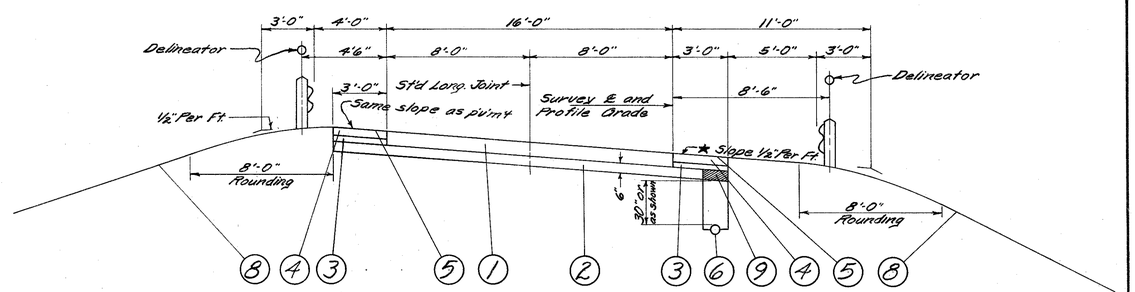


NON-SUPERELEVATED SECTION

* RAMPS "A"
RAMP "B" (As Shown)
RAMP "D" (As Shown except pav't slope in opposite direction)

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

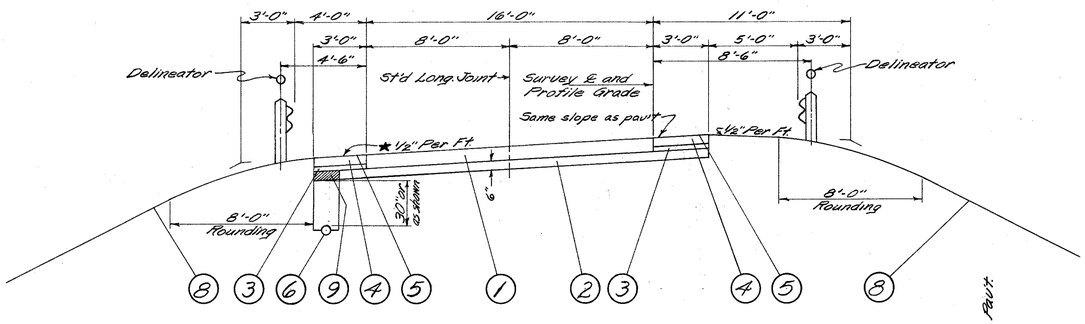
A portion of the earthwork on Ramps "C" & "E" will be constructed and the typical sections for Ramps "D" & "F", without pavement, shall be generally followed except as otherwise shown on cross sections.



SUPERELEVATED SECTION
RAMP "B" (As Shown)
* RAMPS "A" & "F"

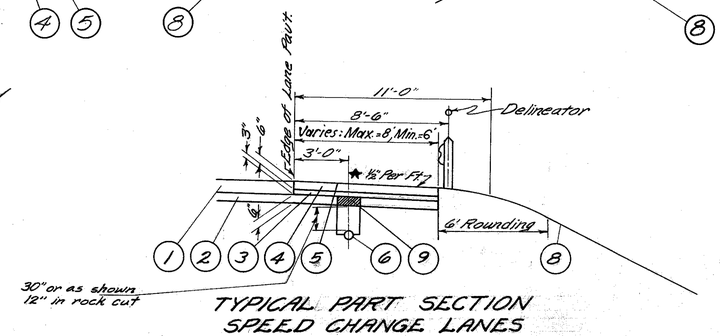
Scale: 1/4" = 1'-0"

NOTE:~
All Fill Slopes
0' to 6' 6:1 Slope
Over 6' to 10' 4:1 Slope
Over 10' 2:1 Slope



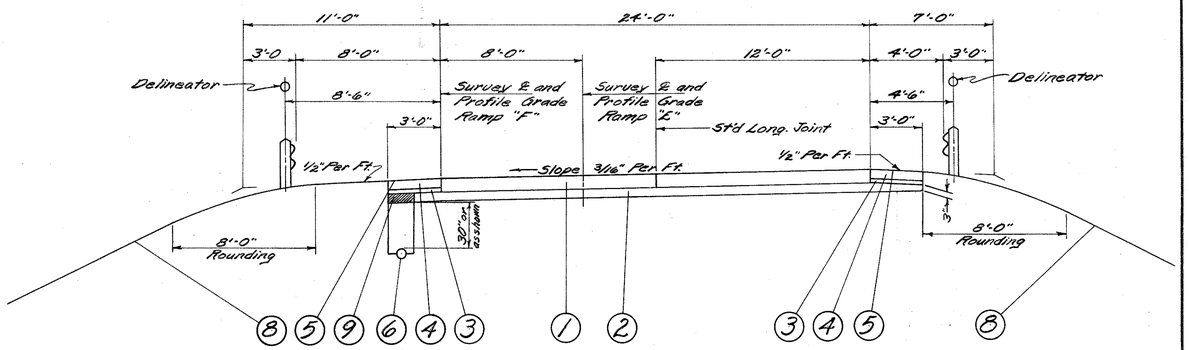
SUPERELEVATED SECTION
RAMPS "B" & "D" (As Shown)
* RAMP "A"

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



TYPICAL PART SECTION
SPEED CHANGE LANES

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



NON-SUPERELEVATED SECTION
RAMPS "E" & "F" COMBINED

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

For Legend and Sequence of Const. Operations, see Sht. 3

★ Except where pavement slope is greater than 1/2" per ft., then same slope as pavement

* Survey &, Profile grade and wide berm on left side; narrow berm on right side and pavement slopes in opposite direction

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TUS-21-26.33
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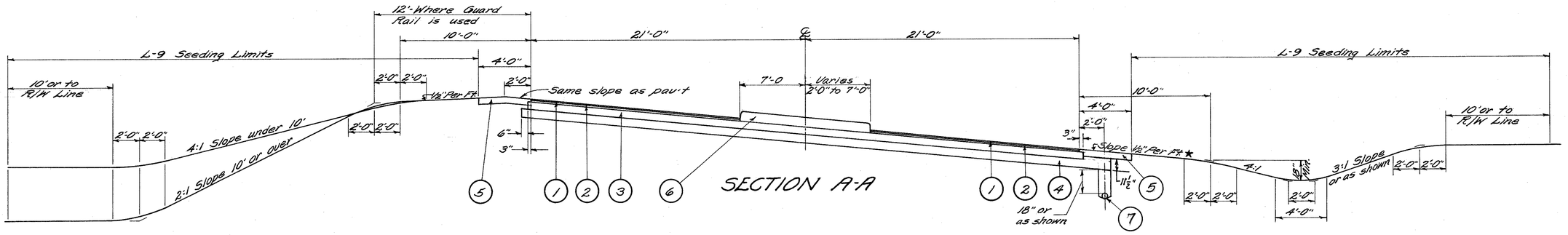
TYPICAL SECTIONS

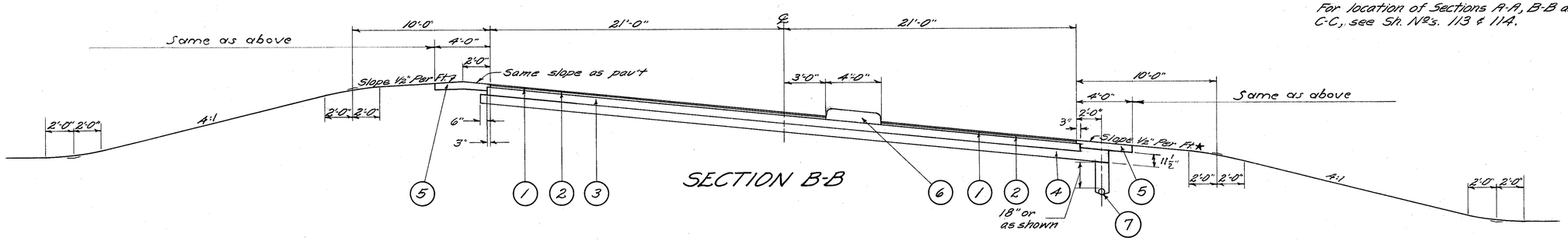
TYPE T-35 ON B-21

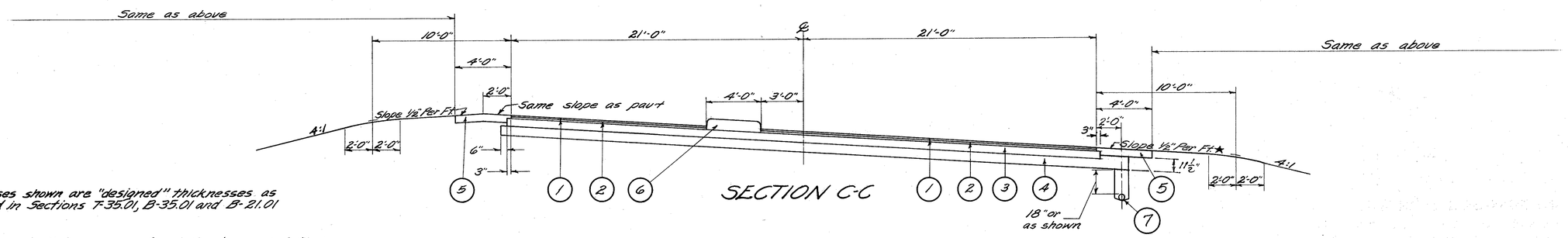
EXISTING U.S.R. 21

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



For location of Sections A-A, B-B and C-C, see Sh. Nos. 113 & 114.





* Thicknesses shown are "designed" thicknesses as described in Sections T-35.01, B-35.01 and B-21.01

● NOTE: This item shall be nonperformed, where existing subgrade in cut is sand and gravel, with not more than 15% passing a No. 200 Sieve.

★ When pavement slope is greater than 1/2" per ft., make same slope as pavement.

LEGEND

1 — Item T-35 * 1" Asphaltic Concrete Surface Course Type 'C' (70-85)
2 — Item B-35 * 1/2" Asphaltic Concrete Leveling Course (70-85)
3 — Item B-21 * 7" Waterproofed Aggregate Base Course
4 — Item I-22 Subbase (See ● NOTE) 8" Thick unless otherwise shown
5 — Item I-18 6" Stabilized Crushed Aggregate Shoulders & Approaches (See Note in Proposal for Stabilization with Calcium Chloride).
6 — Item I-21 Portland Cement Concrete Median Pavement, Standard Type 2
7 — Item I-1 6" Pipe, Class I-3

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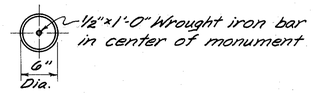
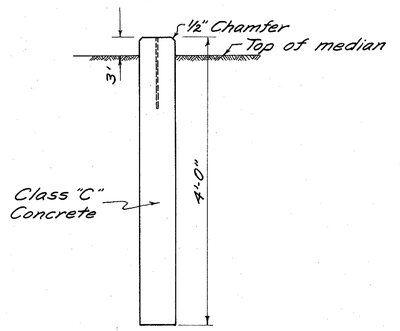
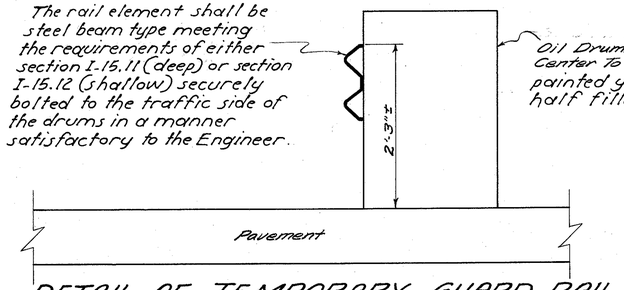
SPECIAL DETAILS





DETAIL OF CONCRETE MONUMENT

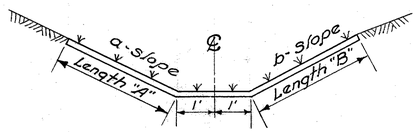


DETAIL OF TEMPORARY GUARD RAIL

Scale : 1" = 1'

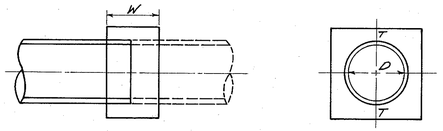
Steel Beam Type Guard Rail (Deep or Shallow) may be new or used as approved by the Engineer. Guard Rail Elements will be constructed as shown on Std Construction Dwgs. and bolted to oil drums instead of posts. Unit price bid per lin. ft. Item I-15 Temp. Guard Rail as per plan to include complete in place installation as shown above.

JUTE MATTING TABLE				
Slopes	A	B	Bottom Width	Total
a = 3:1 ; b = 6:1	1'-11"	3'-9"	2'-0"	7'-8"
a = 2:1 ; b = 4:1	1'-11"	3'-9"	2'-0"	7'-8"
a = 2:1 ; b = 5:1	1'-8"	4'-0"	2'-0"	7'-8"
a = 4:1 ; b = 6:1	2'-3"	3'-5"	2'-0"	7'-8"
a = 4:1 ; b = 5:1	2'-6"	3'-2"	2'-0"	7'-8"



NOTE:- Cost of overseeding required by L-120.03 shall be included in the price bid per square yard for Jute Matting.

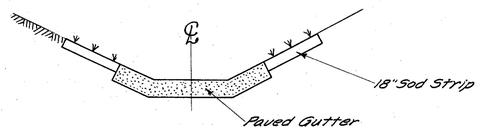
JUTE MATTING DETAIL



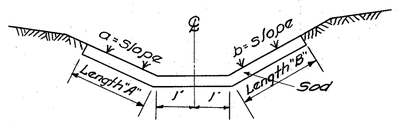
DETAIL OF CONNECTING COLLAR

PIPE Dia.	T	W	Concrete
12"	6"	2'-0"	.300
15"	6"	2'-0"	.357
18"	6"	2'-0"	.416
21"	6"	2'-0"	.479
24"	6"	2'-0"	.544
27"	6"	2'-0"	.601
30"	6"	2'-0"	.682
33"	6"	2'-0"	.755
36"	6"	2'-0"	.831

NOTE: Cost of Concrete Collar to be included in the unit price bid per lineal foot of Pipe.



PAVED GUTTER DETAIL WITH 18" SOD STRIP



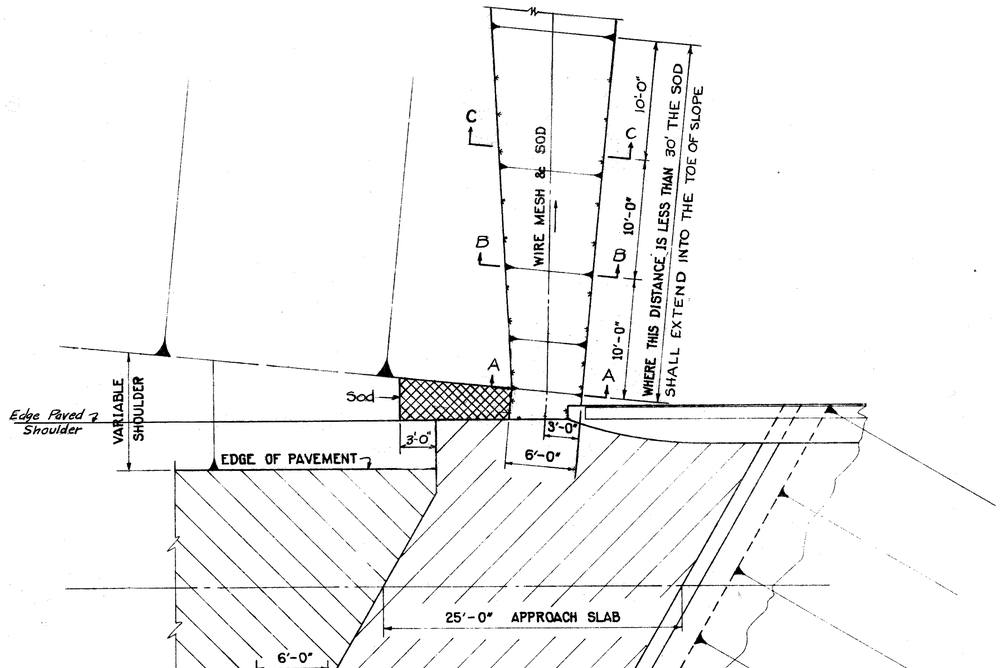
SOD DETAIL

SOD TABLE				
Slopes	A	B	Bottom Width	Total
a=3:1 ; b=6:1	1'-4"	2'-8"	2'-0"	6'-0"
a=2:1 ; b=4:1	1'-4"	2'-8"	2'-0"	6'-0"
a=2:1 ; b=3:1	1'-7"	2'-5"	2'-0"	6'-0"
a=6:1 ; b=5:1	2'-2"	1'-10"	2'-0"	6'-0"
a=4:1 ; b=3:1	2'-1"	1'-8"	2'-0"	6'-0"
a=2:1 ; b=5:1	1'-2"	2'-10"	2'-0"	6'-0"
a=3:1 ; b=5:1	1'-6"	2'-6"	2'-0"	6'-0"

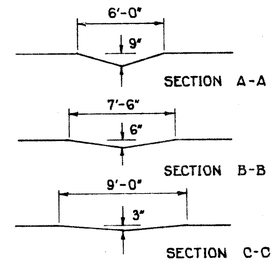
TUS-21-26.33
TUS-250-11.60

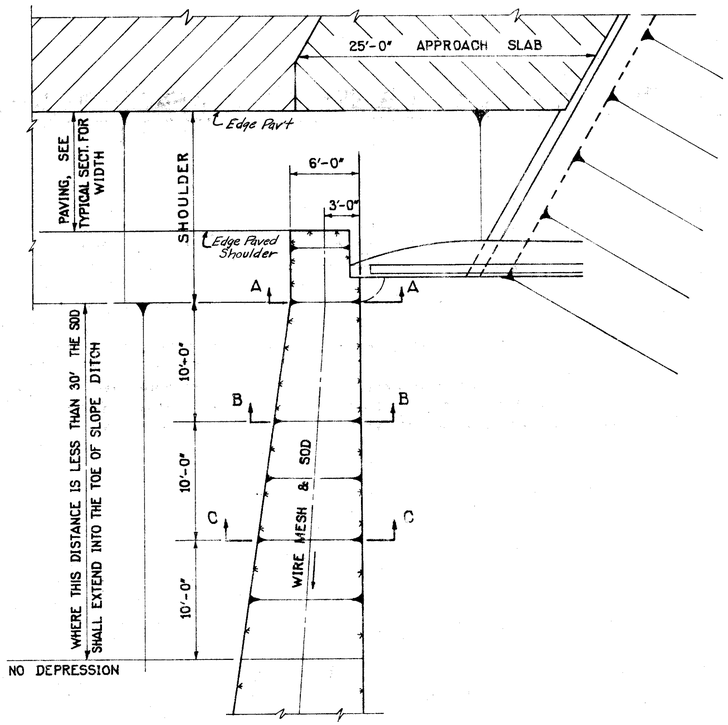
TYPICAL DETAILS OF UNDERDRAIN OUTLET

TYPICAL FOR 4-SP



TYPICAL FOR 3-SP & 5-SP





TYPICAL FOR 1-SP & 2-SP

SPECIAL BERM AND SLOPE PROTECTION

PRIOR TO REPLACEMENT OF SOD IN THE BERM AND SLOPE, GALVANIZED POULTRY FENCE SHALL BE PLACED ON THE FINISHED GRADE IN STRANDS WHICH SHALL BE AT RIGHT ANGLES TO THE DIRECTIONS OF FLOW. EACH STRAND SHALL BE STAKED SECURELY ON TOP AND BOTTOM WITH STAKES PLACED AT FOUR FOOT INTERVALS AND ALTERNATED IN ROWS FOUR FEET APART.

STAKES SHALL BE 1"×1"×8" WOOD STAKES AND SHALL BE PERPENDICULAR TO THE GROUND AND FLUSH WITH THE FINISHED GRADE.

THE FENCE SHALL BE STRAIGHT LINE POULTRY FENCE OR EQUIVALENT WITH STRAND WIDTH OF FOUR FEET HAVING A TWO INCH MESH AND ALL WIRES NO. 20 GAUGE.

THE STRANDS OF FENCING SHALL BE FASTENED TOGETHER AT TWELVE INCH INTERVALS BY MEANS OF HOG RINGS.

THE FENCE SHALL BE SECURED TO THE WOOD STAKES BY METAL STAPLES.

SOD SHALL BE LAID IN ACCORDANCE WITH THE CONSTRUCTION AND MATERIALS SPECIFICATIONS SECTION L-1007.

PAYMENT FOR ALL THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "ITEM L-10 SODDING FOR SPECIAL BERM AND SLOPE PROTECTION."

Note to Designer:
Erosion control should be specified only where rate of side slope is steeper than 6:1

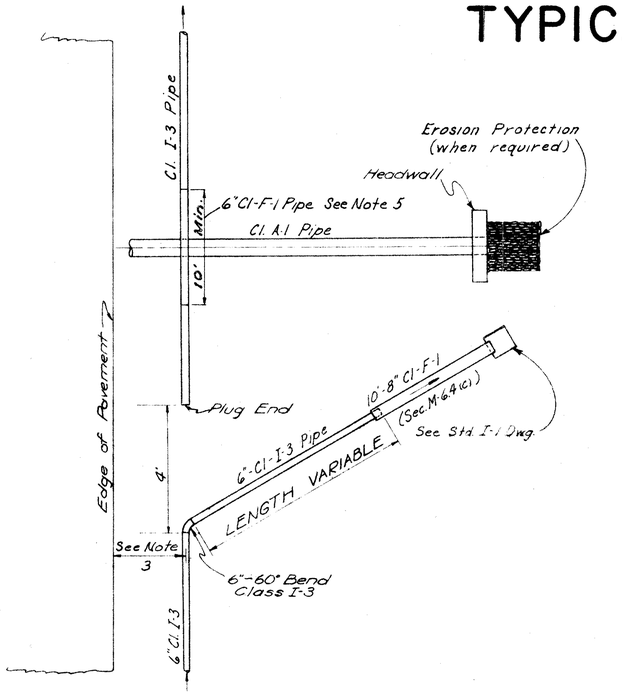
APPROACH SLAB EROSION CONTROL

TYPICAL DETAILS OF UNDERDRAIN OUTLETS

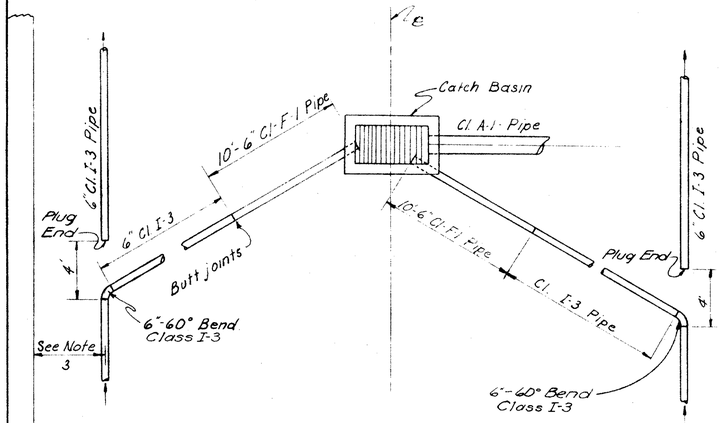
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

9/235

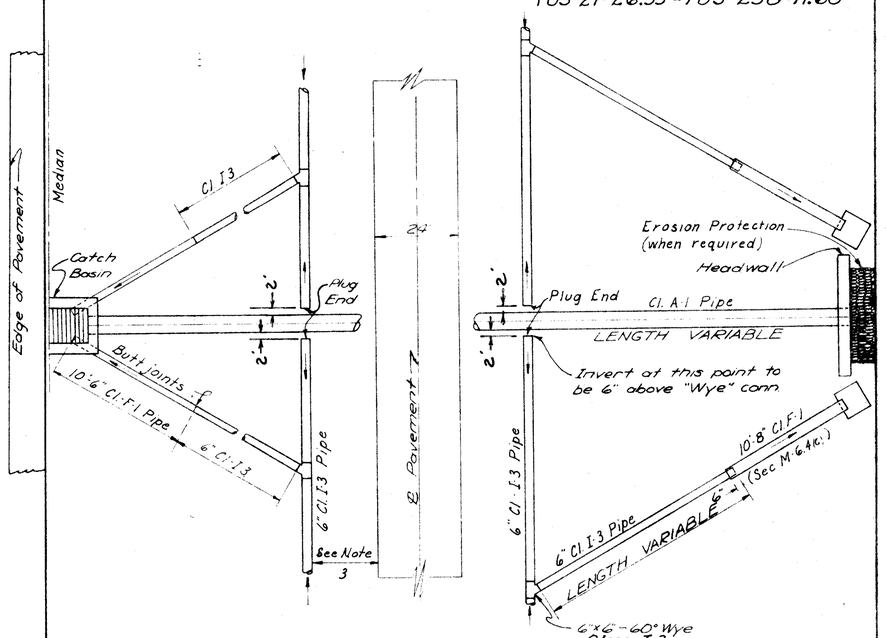
TUS-21-26.33-TUS-250-11.60



UNDERDRAIN OUTLET DETAIL "A"



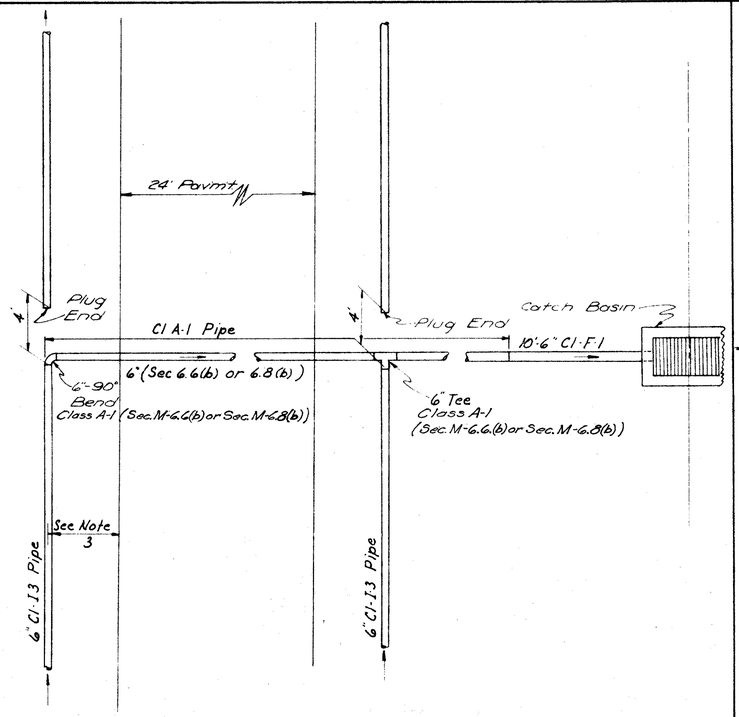
UNDERDRAIN OUTLET DETAIL "B"



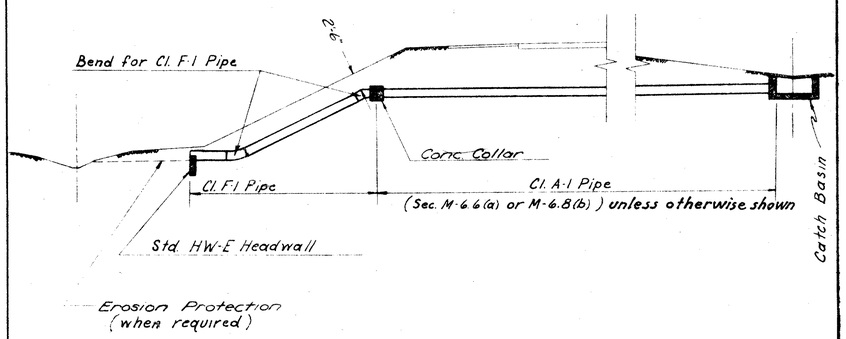
UNDERDRAIN OUTLET DETAIL "C"

NOTES

1. Details shall be modified as median width and shape will require.
2. Where 8" Cl. F-1 pipe (Sec. M-6.4 (c)) is shown it shall be furnished with one rolled end.
3. The distance of underdrain lines from the edge of pavement shall be taken from the approved typical section.
4. The advantages of matching the crown of pipes in the catch basin should be considered.
5. When it is desirable to continue the underdrain across a transverse line such as in detail "A" a 10' min. length of 6" class F-1 pipe should be used to span the trench unless such crossing is above the area of granular backfill.



UNDERDRAIN OUTLET DETAIL "D"



MEDIAN OUTLET DETAIL IN HIGH FILL

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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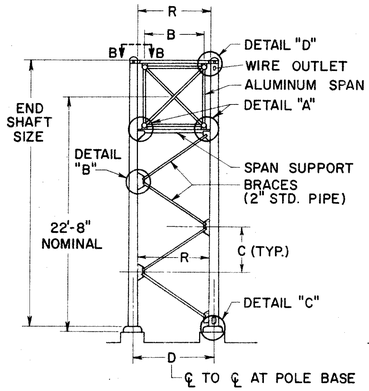
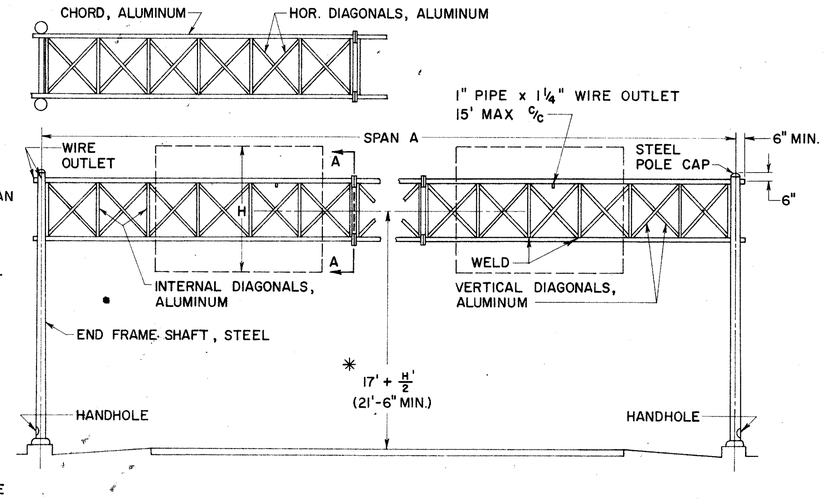
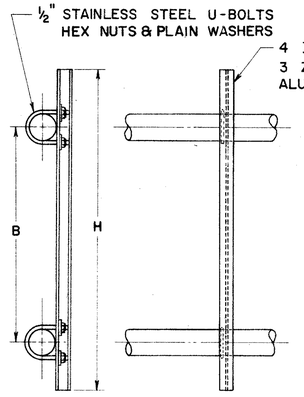
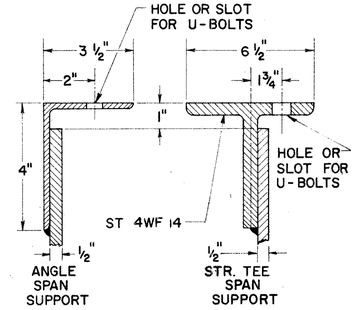






SIGN ATTACHMENT



SECTION D-D

NOTES

MATERIALS

THE OVERHEAD SPAN TRUSS SHALL BE ALUMINUM AND THE END FRAMES SHALL BE STEEL.

SPAN TRUSS AND END FRAMES, INCLUDING HARDWARE, SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION I-129 UNLESS OTHERWISE NOTED.

STEEL POLE BASES AND GUSSETS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A-373.

AFTER FABRICATION THE TAPERED POLES SHALL HAVE A MINIMUM YIELD STRENGTH OF 48,000 PSI.

FABRICATION

THE ENTIRE STEEL END FRAME SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SEC. M-7.4(d).

MAXIMUM LENGTH OF SPAN SECTIONS IS 30 FT.

ERECTION

USE A MINIMUM OF 1" CAMBER IN SPAN TRUSS MEMBER FOR A 50' SPAN; ADD ¼" OF CAMBER FOR EACH 5' OF INCREASE IN SPAN OVER 50'.

PAYMENT

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

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

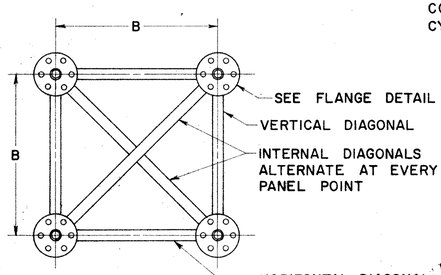
COST OF REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM I-129 CONCRETE FOR SIGN SUPPORT FOUNDATIONS. BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATE THE BAR SIZE NUMBER.

*FOUNDATION ELEVATION

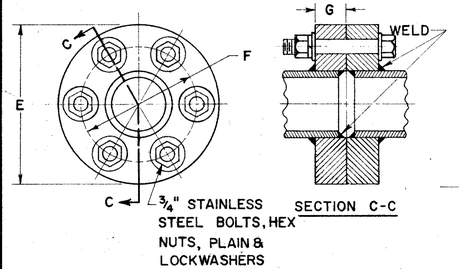
ELEVATION OF TOPS OF FOUNDATIONS SHALL BE BUILT UP SO THAT 17' CLEARANCE IS MAINTAINED OVER THE ENTIRE WIDTH OF THE PAVEMENT AND SHOULDERS.

DESIGN

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

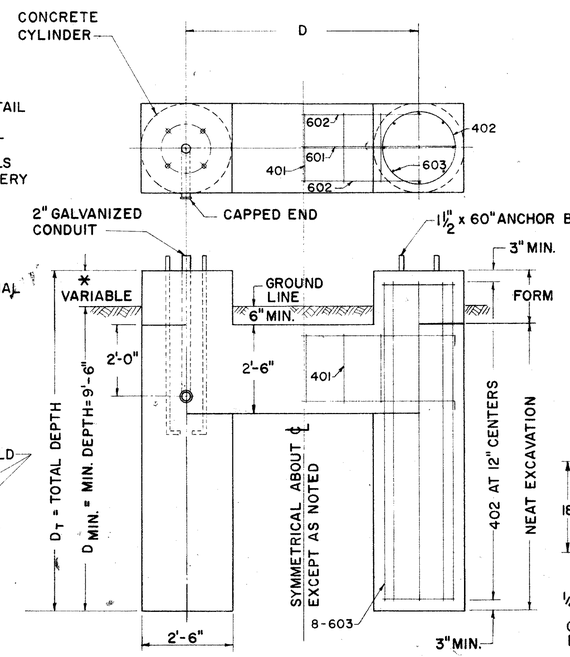


SECTION A-A



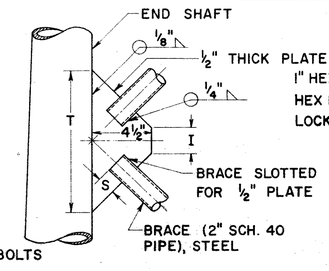
CAST FLANGE, B-26 ALLOY SG 70A-T7 (356-T7)

FLANGE DETAIL

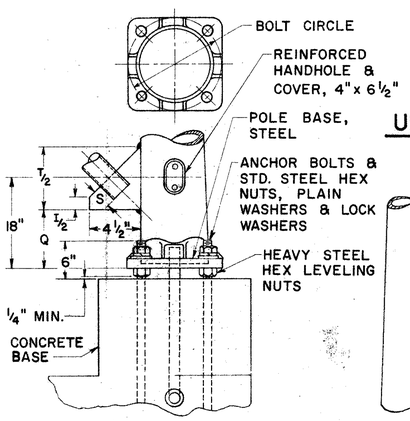


FOUNDATION DETAIL

(RIGHT HAND SHOWN — LEFT HAND OPPOSITE)

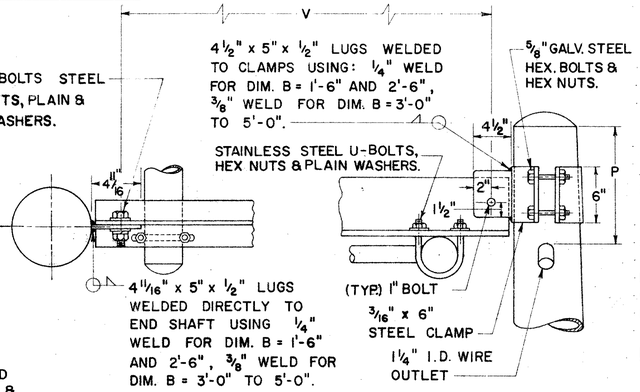


DETAIL "B"



DETAIL "C"

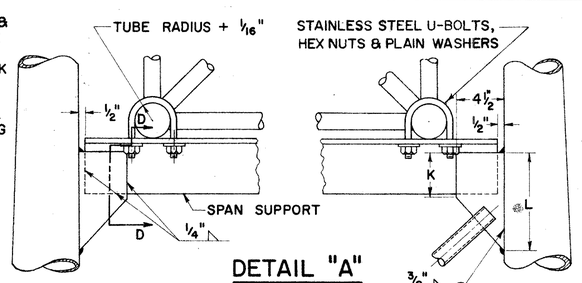
POLE BASE DETAIL



VIEW B-B

DETAIL "D"

UPPER SPAN SUPPORT (ALTERNATE METHODS)

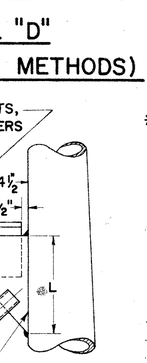


DETAIL "A"

LOWER SPAN SUPPORT

DESIGN NO.	SPAN A	B	C	D	E	END SHAFT	BRACE LENGTH	F	G	I	K	L	P	Q	R	S	T	U BOLTS	V	BOLT CIRCLE	SPAN SUPPORT SECTION D-D	CHORDS	HORIZONTAL AND INTERNAL DIAGONAL	VERTICAL DIAGONAL
1	50' thru 75'	3'-0"	4'-11¾"	4'-5"	9¼"	8"x4.5"x25'-0", 3 GA.	5'-10 13/16"	7 7/16"	1⅜"	3½"	4¾"	8"	12"	6⅝"	3'-9"	1½"	10"	⅝"	3'-3⅝"	11"	SPLIT TEE 3'-8"	4¾" x .188"	1.900" x .145"	1.660" x .140"
2	80' thru 85'	4'-0"	4'-10¼"	5'-6"	9¼"	7"x5.18"x26'-0", 3GA.	6'-7⅛"	7 7/16"	1⅜"	⅝"	4⅜"	7¾"	18"	6¼"	4'-11"	1½"	9½"	⅝"	4'-5⅝"	10"	SPLIT TEE 4'-10"	4¾" x .188"	2" x .188"	1.900" x .145"
3	90'	4'-0"	4'-10¼"	5'-6"	11"	7"x5.18"x26'-0", 3GA.	6'-7⅛"	8½"	1½"	⅝"	4⅜"	7¾"	18"	6¼"	4'-11"	1½"	9½"	⅝"	4'-5⅝"	10"	SPLIT TEE 4'-10"	5½" x .250"	2" x .188"	1.900" x .145"
4	95' thru 110'	5'-0"	4'-8½"	6'-6"	11"	7"x5.18"x26'-0", 3GA.	7'-3¼"	8½"	1½"	—	3½"	7¾"	12"	7¼"	5'-11"	1¾"	11¼"	¾"	5'-5⅝"	10"	SPLIT TEE 5'-10"	5½" x .250"	2½" x .188"	2½" x .188"

REINFORCEMENT SCHEDULE			
MARK	NO.	LENGTH	TYPE
401	12"C/C	8'-6"	102
402	12"C/C	7'-6"	103
601	4	D+4'-0"	101
602	8	D+2'-0"	101
603	32	D_T - 6"	STR.



BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

OVERHEAD SIGN SUPPORTS

I-129 No.7.4

DATE 5-2-62 7-25-62

APPROVED Robert E. Conner
ENGINEER OF TRAFFIC

400 SQ. FT. SIGN AREA

OVERHEAD SIGN SUPPORT, I-129 NO.7.4

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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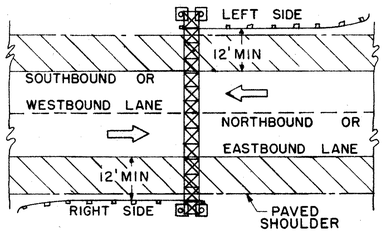
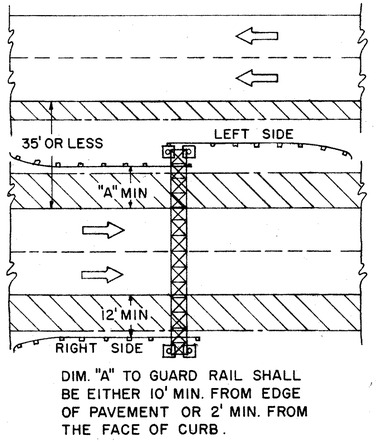
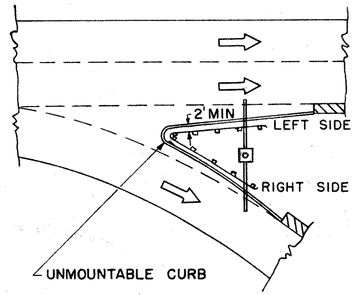


MULTIPLE LANE UNDIVIDED

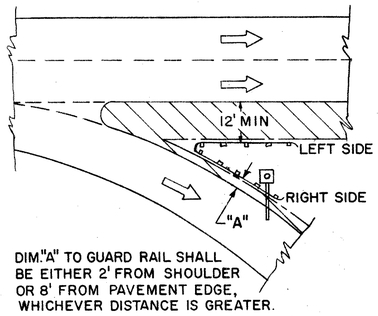


DIM. "A" TO GUARD RAIL SHALL BE EITHER 10' MIN. FROM EDGE OF PAVEMENT OR 2' MIN. FROM THE FACE OF CURB.

FOUR LANE DIVIDED



(CURB SECTION)



DIM."A" TO GUARD RAIL SHALL BE EITHER 2' FROM SHOULDER OR 8' FROM PAVEMENT EDGE, WHICHEVER DISTANCE IS GREATER.

(SHOULDER SECTION)

BIFURCATION

NOTES

GENERAL

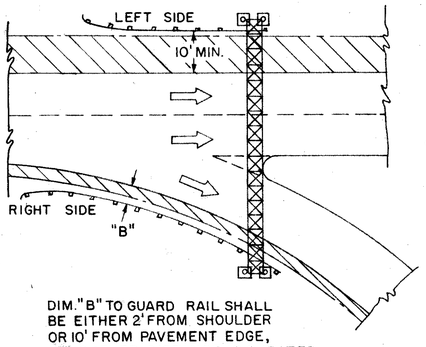
PROTECTIVE GUARD RAIL FOR OVERHEAD SIGN STRUCTURES SHALL CONFORM TO SEC. I-15, FOR STEEL BEAM TYPE (DEEP).

AT LOCATIONS WHERE GUARD RAIL IS IN PLACE, THE SIGN SUPPORT FOUNDATIONS SHALL BE ERECTED BEHIND EXISTING GUARD RAIL.

A MINIMUM OF SIX GUARD RAIL POSTS IS REQUIRED IN ADVANCE OF THE SIGN SUPPORT.

THE LENGTH OF GUARD RAIL DEPENDS ON THE POST SPACING. (EXAMPLE: FOR A SINGLE LINE OF GUARD RAIL IN ADVANCE OF A SIGN SUPPORT, THE MINIMUM LENGTH IS 50 FT. FOR A POST SPACING OF 6'-3", 100 FT. FOR A POST SPACING OF 12'-6".)

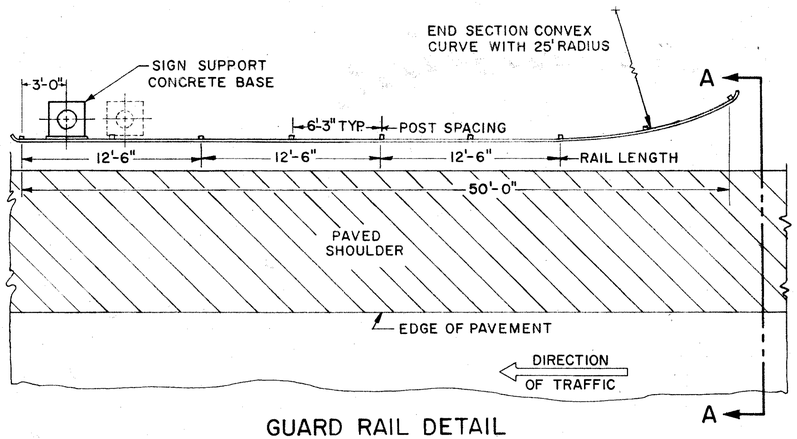
WHERE PROPOSED GUARD RAIL FLARES ARE CONSTRUCTED OF RAIL ELEMENTS WHICH HAVE NOT BEEN FABRICATED EXACTLY TO FIT THE CURVATURE SHOWN ON THE PLANS. THE TWO END POSTS OF EACH FLARED SECTION SHALL BE ENCASED IN A MINIMUM 4" THICKNESS OF CLASS "E" CONCRETE FOR THE FULL DEPTH OF THE POST BELOW THE GROUND LINE. PAYMENT FOR ENCASEMENT, IF REQUIRED, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE GUARD RAIL.



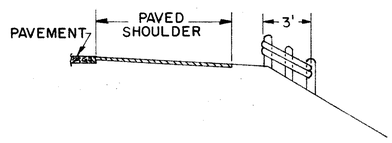
DIM."B" TO GUARD RAIL SHALL BE EITHER 2' FROM SHOULDER OR 10' FROM PAVEMENT EDGE, WHICHEVER DISTANCE IS GREATER.

(ROADWAY SPAN)

BIFURCATION



GUARD RAIL DETAIL



SECTION A-A

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.

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

GUARD RAIL

I-129
I-15

DATE
4-8-60
6-20-60
1-2-62
4-18-62

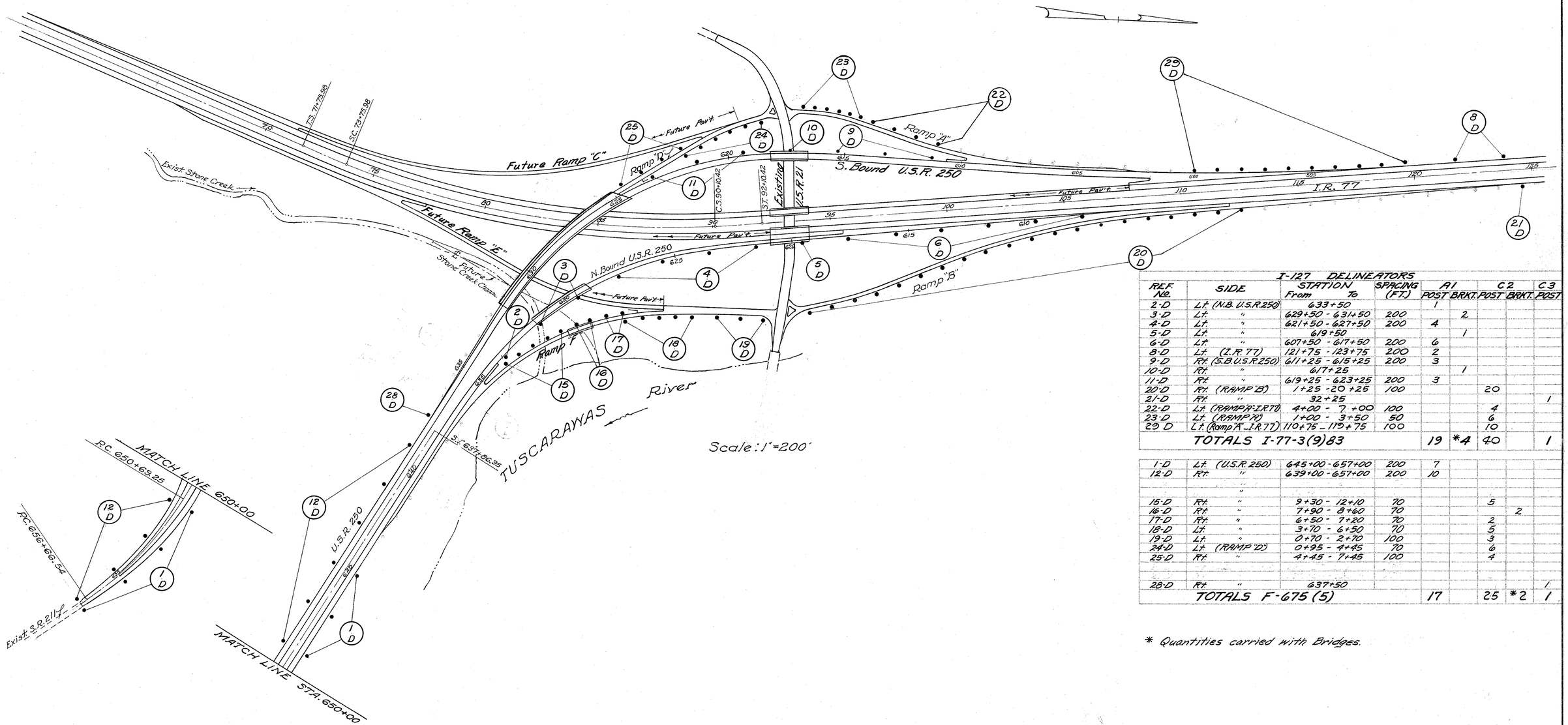
APPROVED Robert E. Conner
ENGINEER OF TRAFFIC

GUARD RAIL FOR OVERHEAD SIGN SUPPORTS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

13
235

TUS-21- 26.33
TUS-250- 11.60



I-127 DELINEATORS

REF. No.	SIDE	STATION From	STATION To	SPACING (FT.)	A1 POST	A1 BRKT.	C2 POST	C2 BRKT.	C3 POST
2-D	Lt. (N.B. U.S.R.250)	633+50			1				
3-D	Lt. "	629+50	631+50	200		2			
4-D	Lt. "	621+50	627+50	200	4				
5-D	Lt. "	619+50				1			
6-D	Lt. "	607+50	617+50	200	6				
8-D	Lt. (I.R. 77)	121+75	123+75	200	2				
9-D	Rt. (S.B. U.S.R.250)	611+25	615+25	200	3				
10-D	Rt. "	617+25				1			
11-D	Rt. "	619+25	623+25	200	3				
20-D	Rt. (RAMP "B")	1+25	20+25	100			20		
21-D	Rt. "	32+25							1
22-D	Lt. (RAMP "A"-I.R.77)	4+00	7+00	100			4		
23-D	Lt. (RAMP "A")	1+00	3+50	50			6		
29 D	Lt. (Ramp "A"-I.R.77)	110+75	115+75	100			10		
TOTALS I-77-3(9)83					19	*4	40		1
1-D	Lt. (U.S.R. 250)	645+00	657+00	200	7				
12-D	Rt. "	639+00	657+00	200	10				
	"								
	"								
15-D	Rt. "	9+30	12+10	70			5		
16-D	Rt. "	7+90	8+60	70				2	
17-D	Rt. "	6+50	7+20	70			2		
18-D	Lt. "	3+70	6+50	70			5		
19-D	Lt. "	0+70	2+70	100			3		
24-D	Lt. (RAMP "D")	0+95	4+45	70			6		
25-D	Rt. "	4+45	7+45	100			4		
28-D	Rt. "	637+50							1
TOTALS F-675 (5)					17		25	*2	1

* Quantities carried with Bridges.

SCHEMATIC LAYOUT SHOWING DELINEATORS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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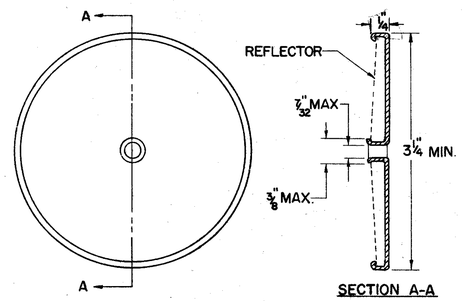
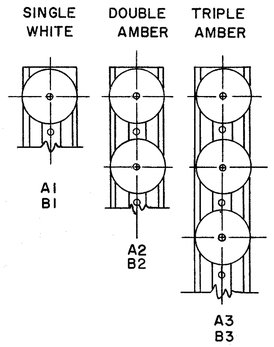
TYPE A





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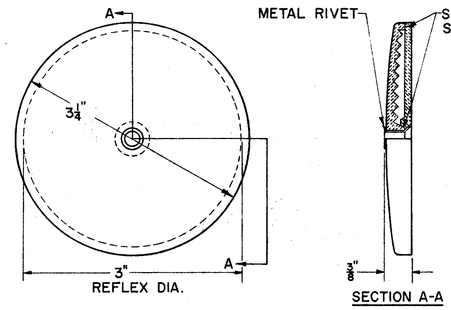
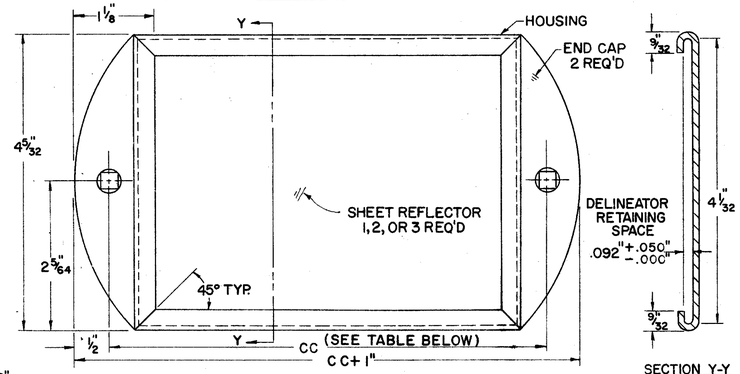
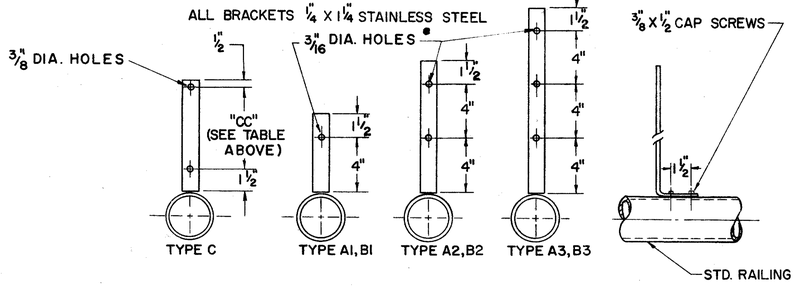


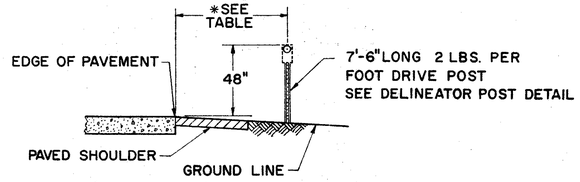
TYPE C



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



BRIDGE RAIL BRACKET

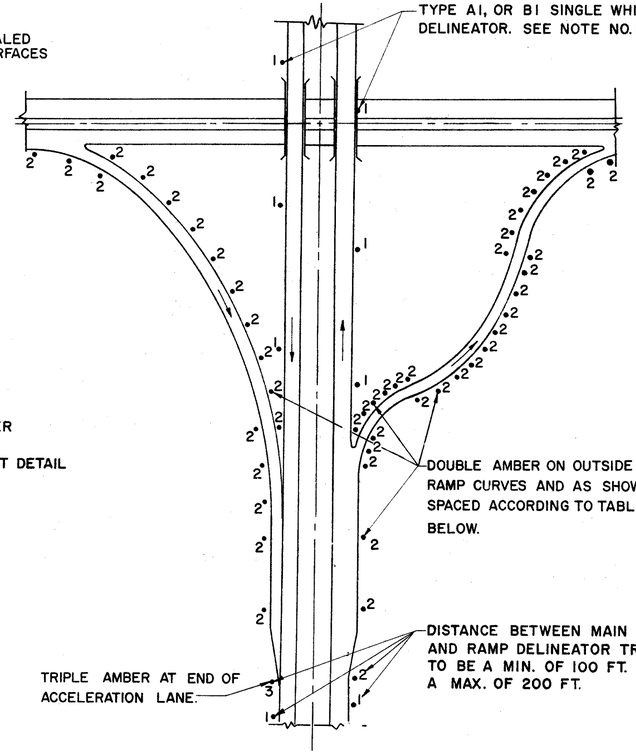


LATERAL PLACEMENT OF DELINEATORS

* 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

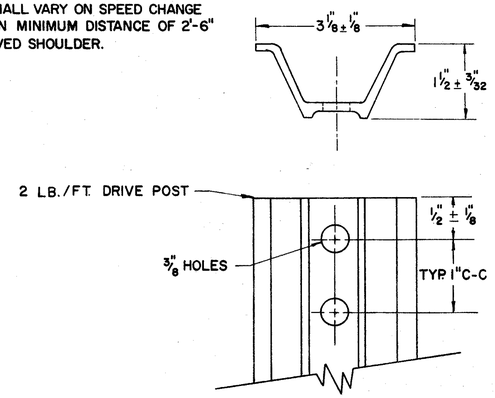
** THIS DIMENSION SHALL VARY ON SPEED CHANGE LANES TO MAINTAIN MINIMUM DISTANCE OF 2'-6" FROM EDGE OF PAVED SHOULDER.



TYPICAL DELINEATOR USE

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.
2. DELINEATORS SHALL BE FURNISHED AND ERECTED IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION NO. I-127, (1-15-62).
3. PAYMENT FOR SUPPORTS (DRIVEPOST OR BRACKET) SHALL BE INCLUDED IN THE UNIT PRICE BID PER EACH FOR "ITEM I-127 DELINEATORS".



DELINEATOR POST

DELINEATOR SPACING ON RAMP HORIZONTAL CURVES

RADII, FT. FROM	RADII, FT. TO	SPACING ON CURVE	SPACING 1ST SPACE*
TANGENT	2,276	100'	100'
2,275	1,801	90'	100'
1,800	1,401	80'	100'
1,400	1,001	70'	100'
1,000	751	60'	100'
750	551	50'	80'
550	326	40'	70'
325	——	30'	60'

* FIRST SPACE IN ADVANCE AND BEYOND CURVE.

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

DELINEATOR DETAILS

I-127

DATE
12-27-61
1-15-62
5-14-62
7-25-62

APPROVED Robert E. Comer
ENGINEER OF TRAFFIC

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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TUS-21-26.33
TUS-250-11.60

GENERAL NOTES

DESIGN SPEED :~ The geometrics for this project have been planned for a design speed of 70 miles per hour for U.S.R. 21 (I.R. 77) and 60 miles per hour for U.S.R. 250.

ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS :~ The rounded corners shown on the typical sections, apply to all cross sections, even though otherwise shown on these plans.

UTILITY ADJUSTMENT :~ Any or all work required for Public or Private Utilities will be done by and at the expense of their respective owners, unless otherwise noted on these plans.

FIELD OFFICE :~ The contractor shall, in accordance with Sec. S-0.01 (b), provide, for the exclusive use of the State's employees, a suitable field office having a minimum of 500 sq. ft. of floor space, within 10 days after work is started on this contract. 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 install wiring and outlets suitable for connecting electric lights and office equipment in the field office and provide 110 volt alternating current to the office during the entire period of construction of this project.)

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 guarantees as to their accuracy or completeness.

SUPERELEVATION :~ Superelevated curves shall be built without crown. The crown shall be worked out of the pavement in the portion between the beginning of the transition and the point where the superelevation equals twice the crown.

NON-RIGID PAVEMENT REMOVAL :~ Removal and disposal of existing non-rigid pavement, unless otherwise indicated on these plans, shall be measured and paid for as Item E-1, Roadway Excavation.

ITEM I-15, GUARD RAIL REMOVED AND STORED, AS PER PLAN :~ This item shall include storage only of the rail elements and incidental hardware. The posts shall become the property of the contractor and be disposed of by him.

SEEDING :~ Quantities for U.S.R. 21 (I.R. 71) are calculated for the soil areas between the right-of-way fence lines, between the right-of-way line in unfenced areas, and within the work limits for areas outside the right of way lines covered by work agreement or slope easement, except for existing U.S.R. 21 outside of ramp intersections, where seeding is calculated for soil areas between lines ten (10) feet outside the work limits, or to the right-of-way lines if such line is less than ten (10) feet from the work limits.

Quantities for U.S.R. 250, from Sta. 637+86.95 to Sta. 657+00, are calculated for the soil areas between lines ten (10) feet outside the work limits, or to the right-of-way line if such line is less than ten (10) feet from the work limits. Seeding shall not be used on areas where rock or hard shale is encountered in cut slopes or where fill slopes are composed of rock.

SCARIFICATION OF EXISTING FLEXIBLE PAVEMENT :~ Within the limits of construction where the existing flexible pavement will have less than six (6) inches of fill placed upon it, the pavement shall be thoroughly scarified for its full depth, mixed with sufficent soil and properly recompacted to insure the elimination of any planes of separation between it and the embankment placed thereon. Payment for scarification as described above shall be included in the unit price bid for Item E-1, Roadway Excavation.

REMOVAL OF TREES AND STUMPS :~ All trees and stumps lying within the construction limits of this project shall be removed under the lump sum price bid for Item E-9, Removal of Trees and Stumps, except that those trees and stumps for which protection and preservation work is indicated elsewhere in these plans shall not be removed.

The following is an approximate estimate of the number of trees and stumps to be removed:

Sizes	I-77-3 (9) 83		F-675 (5)	Sizes	I-77-3 (9) 8.3		F-675 (5)
	Nº. Trees	Nº. Stumps	Nº. Trees		Nº. Trees	Nº. Stumps	Nº. Trees
12" - 18"	235	40	124	36" - 42"	2	1	0
18" - 24"	34	38	60	42" - 48"	5	0	1
24" - 30"	15	8	11	Over 48"	4	1	0
30" - 36"	9	9	3				

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/or easement lines. Payment for the removal of these additional trees or stumps shall be included in the lump sum price bid for Item E-9, Removal of Trees and Stumps.

PAVEMENT REMOVAL OUTSIDE NORMAL CONSTRUCTION LIMITS :~ After the existing pavement has been removed, the old roadway shall be plowed, harrowed, and dragged to a smooth grade, the old ditches filled, and the entire area sloped to drain and left in a neat condition ready for seeding. Payment for this work shall be included in the unit price bid for pavement removal, Item E-8. Seeding shall be measured and paid for in accordance with Item L-9.

ROCK SUBGRADE :~ The contractor shall be paid for the thickness of I-22 material shown on the typical sections in rock excavation areas. Any pockets in the rock below the plan subgrade elevation shall drain either longitudinally or laterally and all irregularities in the rock below this elevation shall be filled with I-22 material at no additional cost to the State.

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 Drawing T.J.

ITEM I-22 SUBBASE, GRADING "A" OR "B", AS PER PLAN :~ The material furnished for this item shall meet the requirements of Grading "A" or "B" of Sec. I-22.02 except that for either grading no more than 10 percent of the material shall pass a Nº. 200 sieve, after all operations of placement and compaction have been completed.

ITEM L-1, TOPSOIL STOCKPILED :~ The material to be stockpiled for placement under Item L-3 on this project shall be obtained under Item L-1 from areas within the limits of the proposed right-of-way as directed by the Engineer.

Provision of this separate L-1 item shall, in no way, be construed as a waiver of the provisions of Sec. E-1.03 (a) and sod and incidental topsoil removed elsewhere on this project shall be salvaged and used as described in Item E-1 with payment therefor included in the unit price bid for Roadway Excavation, Item E-1.

ITEM L-3 PLACING STOCKPILED TOPSOIL, AS PER PLAN :~ On this project, the method of measurement for this item shall be in cubic yards compacted in place in lieu of square yards as specified in Sec. L-3.10. Furnishing and placing of commercial fertilizer in conjunction with this item shall be in accordance with Item L-9 and payment therefor shall be at the unit price bid for Item L-9 Commercial Fertilizer. Except as noted above, all other requirements of this item shall be in accordance with Item L-3.

REINFORCED END ON CORRUGATED METAL PIPE :~ Reinforced ends will be required on all corrugated metal, Class F-1 (except helical) pipe for driveways and underdrain outlets, if the pipe ends are unprotected by headwalls, catch basins or manholes.

EROSION CONTROL :~ Items I-10, I-14, and L-10 are provided in these plans for erosion control. Rock of a stable nature will not be removed in order to place any of these items. The Engineer shall check and non-perform quantities or adjust locations and quantities for these items where indicated by field conditions during construction.

STANDARD Nº. 6 CATCH BASIN :~ In lieu of the provisions for depressing the pavement 1" as shown on Standard Drawing I-8 C.B. Nº. 6, the pavement shall be depressed 2" on this project.

ITEM S.S. CE-101.04 :~ An estimated quantity for this item has been included in the General Summary, for use as directed by the Engineer, in proof rolling of all subgrade, except for areas where rock or shale is encountered. The pneumatic tired roller shall be operated at 50 ton gross load for the final proof rolling.

CONSTRUCTION LAYOUT STAKES :~ See Note in Proposal describing the work included in this lump sum pay item.

T-10 MODIFIED :~ This item shall consist of furnishing Nº. 3 or Nº. 34 aggregate, as directed by the Engineer, in lieu of the grading specified under Item T-10. All other provisions of Item T-10 shall apply. The weights to be used in calculating the yardage to be paid for under this Item shall be the same as those indicated in the Construction and Material Specifications for crusher run or bank run materials.

FIELD DRAINS :~ All farm tiles which are encountered during construction shall be provided with unobstructed outlets under the direction of the Engineer. Existing collectors which are located below the roadway ditch elevations and which cross the roadway shall be replaced within the right-of-way limits by Item I-1 Class A-1 pipe, Sec. M-6.6 (a) or M-6.8 (b).

Existing collectors and isolated farm tiles which are encountered above the elevation of the roadway ditches shall be outletted into roadway ditch. The optimum outlet elevation shall be, if possible, one foot above the flowline elevation of the ditch. Lateral tile fields which cross the roadway shall be intercepted by Item I-1 Class H-2 pipe and carried in a longitudinal direction to an adequate outlet or roadway crossing.

The location, type, size, and grade of required replacements shall be determined by the Engineer during construction and payment shall be made on final measurements.

The following estimated quantities have been included in the general summary for the work noted above:

I-1	12"	Class A-1 Pipe Sec. M-6.6 (a) or M-6.8 (b)	500	Lin. Ft.
I-1	12"	Class H-2 Pipe	500	Lin. Ft.
I-1	12"	Class F-1	100	Lin. Ft.
I-5	12"	Pipe Specials Class H-2	5	Each

SOD ADJACENT TO PAVED GUTTERS :~ Eighteen (18") inch width of sod shall be used on all slopes adjacent to paved gutter.

FEDERAL AID CONSTRUCTION IDENTIFICATION SIGNS :~ The Contractor shall furnish, erect, maintain and subsequently remove Federal Aid Construction Identification Signs at each of the following locations:

1. On the right and left near the limits of work on existing U.S. Route 21.
2. On the west side of the S. Route 211 approach, near the northerly limits of work.

Sign details shall be in accordance with Code N-43 (2)-144 on Standard Drawing FACI-1, and mounted in accordance with Standard Drawing FACI-2. For additional details, see note in proposal.

GENERAL NOTES - Continued

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TUS-21- 26.33
TUS-250- 11.60

CONSTRUCTION OF EMBANKMENT:~ The following provisions shall govern the construction of embankment on this project.

Rock, i.e., broken sandstone or limestone essentially free from admixtures of shale or soil, shall be placed in layers not to exceed 18 inches in depth. Rock which cannot be incorporated in an 18 inch lift shall be reduced in size until it can be so incorporated. Rock fill made up principally of small rock shall be rolled as directed by the Engineer. All other provisions governing the placement of rock embankment of Sec. E.1.08 shall remain in effect.

Shale - In addition to the requirements of Sec. E-1.08 each shale layer shall be sprinkled as directed by the Engineer to bring the moisture content within a range of optimum minus 3 percent and optimum. Each layer shall be rolled with at least 4 complete coverages of a fully ballasted tamping roller and at least two complete coverages of a fully ballasted 50 ton Pneumatic tired roller as specified in Supplemental Specifications C.E. 101.04. Cost of this rolling both for the tamping roller and the 50 ton Pneumatic tired roller shall be included in the price bid for Item E-1, Roadway Excavation. All other provisions of Sec. E-1.08 relating to the construction of embankment and of S.S.C.E.-101.04 shall remain in effect.

Mixtures of shale and rock shall be placed in accordance with the above noted provisions for shale. Rock which cannot be incorporated in the 8 inch layer shall be reduced in size so that it can be so incorporated.

EMBANKMENT:~ The Contractor shall so control his embankment operations, that no rock is placed in the embankment from Sta. 628+00 to Sta. 629+21 and from Sta. 630+97 to Sta. 632+00, on North Bound U.S. Route 250 and from Sta. 631+32 to Sta. 632+50 on South Bound U.S. Route 250, which would interfere with the driving of H-piles for abutments of Bridge No. TUS-21-2633 and TUS-250-1231.

SCHEDULE OF CONSTRUCTION OPERATIONS:~ The Contractor shall so arrange his operations that the following items of work shall be completed by Sept. 1, 1963, in order that this portion of the facility can be opened to traffic on that date: (1) All grading and drainage items on the project from existing U.S. Route 21, northerly to the end of project; (2) all pavement, paved berms and curbs on Ramps "A" and "B"; (3) the pavement, paved berms and curbs on U.S. Route 250 Southbound, from Sta. 591+08.54 to Sta. 611+00; (4) all pavement, paved berm and curb on I.R. 77 from Sta. 107+75 to Sta. 125+00; and (5) all grading, drainage, pavement, stabilized berm and median pavement items on existing U.S. Route 21 from Sta. 50+00 to Sta. 65+42.8.

If the foregoing items have not been completed by Sept. 1, 1963, the facility north of existing U.S.R. 21, will still be opened to traffic on that date and the Contractor will be required to maintain traffic on temporary roadways, at his own expense. This will include the furnishing and placing of T-10 and M-10 materials and maintaining the temporary roadways at all times in a manner satisfactory to the Engineer.

REMOVAL OF PLATE ARCH:~ Item E-12, Removal of 16'-7" x 10'-1" Sectional Corrugated Metal Arch, shall include the careful removal of all bolts and the cleaning and neatly stacking of individual plates on the right of way, for subsequent removal by State Forces.

MAINTAINING TRAFFIC:~ The Contractor shall maintain two-way traffic at all times on existing U.S. Route 21 from Sta. 50+00 to Sta. 65+42.8 and from Sta. 0+00 to Sta. 3+00 on existing S.R. 211, except that one way traffic will be permitted on existing U.S. Route 21 during removal of the 12'x8' box culvert at Sta. 57+30 for a period not to exceed 10 days and during B & T-35 paving operations on existing U.S. Route 21 and S.R. 211. The contractor shall safeguard the traveling public on existing U.S. Route 21 by providing platforms, nets, or other suitable protection above the traveled lanes during overhead bridge construction. (Payment for this protection shall be included in the lump sum bid for "Maintaining Traffic"). All hauling operations on existing roads shall be subject to load limits on highways and bridges, as outlined in Chapters 5577 and 5591 of the Revised Code of Ohio. However, the Contractor shall be permitted to cross existing U.S. Route 21 at 2 points during grading operations north of existing U.S. Route 21. Locations to be determined by the Engineer. The width of each crossing shall not exceed 40 feet. The Contractor shall furnish flagmen, lights, and signs at each point of crossing for the protection of the traveling public. Hauling operations shall be so controlled that traffic is not unduly delayed.

Between the time that the present pavement on existing U.S.R. 21 and S.R. 211 is removed and the new pavement is constructed, Traffic shall be maintained by use of Temporary Traffic Lanes surfaced with T-10 material, treated with calcium chloride and the surface maintained daily in a manner satisfactory to the Engineer. Two-way traffic lanes shall be surfaced with aggregate at least 20 feet wide and one-way traffic lanes shall have surfacing not less than 12 feet wide.

Maintenance of traffic shall be in accordance with the provisions of Sec. G-7.07. Payment for constructing, maintaining and removing all materials used in temporary traffic lanes, except furnishing and placing T-10 and M-10 Items, shall be included in the lump sum bid for "Maintaining Traffic." T-10 and M-10 shall be placed where directed and in amounts requested by the Engineer.

After the new pavement is placed on existing U.S. Route 21, the Contractor shall not haul on it or across it except with legal loads.

S.R. 211, southeast of its intersection with U.S. Route 21, to the end of Work (Sta 657+00) will be closed to traffic and the Contractor need not maintain any part of it during construction operations, after April 1, 1963.

UTILITY POLES:~ The Ohio Power Co. is the owner of the relocated power line, which crosses the project at Sta. 91+36 ±. Four poles of this line fall within the construction limits of this project. The General Telephone Co. is the owner of the relocated telephone cable line, which crosses the project at Sta. 94+65 ±. Three poles of this line fall within the construction limits of this project. The Contractor will be required to work around all these poles with extreme caution when placing embankment during construction.

SPECIAL EMBANKMENT:~ Soft wet clays, SHTL Classes A-5 and A-7-5 will be encountered in the foundation in the following areas:

STA. 85+00 to STA. 87+00 on U.S.R. 21
STA. 618+00 to STA. 619+00 on U.S.R. 250 S.B.
STA. 8+00 to STA. 9+00 on Ramp "E"

In these areas, specification requirements for scalping and pre-compaction of the foundation shall not be performed. The bottom 2 feet for the full width of the embankment between the foregoing Stations shall be constructed of rock or granular material as defined in Sec. E-1.02, except that if granular material is used, at least 85% by weight of the grains or particles shall be retained on a No. 200 sieve. The rock or granular material shall be placed in a single lift by the method of end dumping and the material shall be obtained from roadway excavation or borrow. The cost of furnishing and placing this material shall be included in the unit price bid for Item E-1 Roadway Excavation or Item E-4 Borrow.

ESTIMATED QUANTITIES: Specific locations and usage of estimated quantities set up on 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 this project.

DUST CONTROL: The following quantities have been included in the general summary for the alleviation or prevention of dust nuisance as per Sec. G-7.14:

Item M-10 Calcium Chloride for dust control ..... 5 Tons
Item E-11 Water for dust control ..... 273 M. Gals.

REMOVAL OF EXISTING PIPE: The removal of all existing pipe drains within the limits of proposed excavation items shall be included for payment in the unit prices bid for the respective excavation items, unless otherwise shown in the plans.

BENCHING OF FOUNDATION SLOPES: Although cross sections on this plan indicate specific widths and depths of proposed benching of the embankment foundation in certain areas, no waiver of the specifications is intended and all other sloped foundation areas shall be benched as set forth in Sec. E-1.04. No additional payment will be made for benching required by the provisions of Sec. E-1.04.

CUT-OFF WALLS FOR RIPRAP: The cut-off walls for "Item I-10, Riprap using 6" Reinforced Concrete Slab, as per plan" shall be included for payment with this I-10 item.

CONTRACTOR'S MAINTENANCE RESPONSIBILITY: On this project, the Contractor's responsibility for maintenance of the existing pavement per Sec. G-7.07 shall be limited to those portions of the existing pavement lying within the proposed work limits.

Rev. 10-17-62

PAVEMENT CALCULATIONS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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TUS-21-26.33 - TUS-250-11.60

I.R. 77

BEGIN PAVEMENT RT. ⌒ STA. 94+29.11
BEGIN PAVEMENT LT. ⌒ STA. 107+77.50
END PROJECT & PAVEMENT RT. & LT. ⌒ STA. 125+00
I-77-3-(9)83 NET LENGTH OF 24' PAVEMENT = 4,793.39 LIN. FT.

T-71 - 9" REINFORCED CONCRETE PAVEMENT

4,793.39 x 24 ÷ 9	=	12,782.4 Sq. Yds.
Ramp "A" & Dec. Lane (See Sh. Nº 86)	=	2,941.8 Sq. Yds.
Ramp "B" & Acc. Lane (See Sh. Nos 89, 90 & 91)	=	5,435.5 Sq. Yds.
N.B. U.S.R. 250 & Acc. Lane (See Sh. Nos 38, 39 & 40)	=	5,101.6 Sq. Yds.
S.B. U.S.R. 250 & Dec. Lane (See Sh. Nos 44, 45, 46 & 47)	=	9,047.2 Sq. Yds.
TOTAL I-77-3(9)83	=	35,308.5 SQ. YDS.

U.S.R. 250 - STA. 637+86.95 to STA. 650+00

1213.05 x 48 ÷ 9	= 6,469.6	Sq. Yds.
Ramp "D" & Acc. Lane (See Sh. Nos 96 & 97)	= 1,859.1	Sq. Yds.
Ramp "E" & "F" & Dec. Lane (See Sh. Nos 101 & 102)	= 4,155.1	Sq. Yds.
TOTAL F-675(5)	= 12,483.8	SQ. YDS.

I-22 SUBBASE

Under Main Pav't - 12,782.4 x 6 ÷ 36	= 2130.4	Cu. Yds.
Add for Appr. Slabs - 211.8 x 6 ÷ 36	= 35.3	Cu. Yds.
Add for Under Paved Berms -		
Rt. Sta. 94+27.86 to 95+50 - 122.14 x ½ (11.71+10) 6 ÷ 27 x 12	= 24.5	Cu. Yds.
OUTSIDE BERMS - Rt. Sta. 108+00 to 112+00 - 400 x ½ (16.36+10) 6 ÷ 27 x 12	= 97.6	Cu. Yds.
Rt. Sta. 124+50 to 125+00 - 50 x 10 x 6 ÷ 27 x 12	= 9.3	Cu. Yds.
INSIDE BERMS - Lt. Sta. 119+62.97 to 125+00 - 537.03 x 10 x 6 ÷ 27 x 12	= 99.5	Cu. Yds.
Rt. Sta. 94+05.06 to 125+00 - 3094.94 x 4 x 6 ÷ 27 x 12	= 229.3	Cu. Yds.
Lt. Sta. 107+77.50 to 125+00 - 1722.50 x 4 x 6 ÷ 27 x 12	= 127.6	Cu. Yds.
Ramp "A" & Dec. Lane (See Sh. Nº 86)	= 691.5	Cu. Yds.
Ramp "B" & Acc. Lane (See Sh. Nos 89, 90 & 91)	= 1338.4	Cu. Yds.
N.B. U.S.R. 250 & Acc. Lane (See Sh. Nos 38, 39 & 40)	= 1331.9	Cu. Yds.
S.B. U.S.R. 250 & Dec. Lane (See Sh. Nos 44, 45, 46 & 47)	= 2104.7	Cu. Yds.
Exist. U.S.R. 21 Sta. 54+50 to Sta. 65+42.8 (See Sh. Nº 109)	= 1141.8	Cu. Yds.
TOTAL I-77-3(9)83	= 9361.8	CU. YDS.
Exist. U.S.R. 21 Sta. 50+00 to Sta. 54+50 (See Sh. Nº 109)	= 396.9	Cu. Yds.
TOTAL 100% STATE	= 396.9	CU. YDS.

U.S.R. 250 - STA. 637+86.95 to STA. 650+00

Under Main Pav't - 6469.6 x 6 ÷ 36	= 1078.3	Cu. Yds.
Add for Under Paved Berms -		
OUTSIDE BERMS - Rt. Sta. 637+86.95 to 650+00 - 1213.05 x 8 x 6 ÷ 27 x 12	= 179.7	Cu. Yds.
Lt. Sta. 643+00 to 650+00 - 700 x 8 x 6 ÷ 27 x 12	= 103.7	Cu. Yds.
INSIDE BERMS - Rt & Lt Sta. 637+86.95 to 650+00 - 1213.05 x 8 x 6 ÷ 27 x 12	= 179.7	Cu. Yds.
Ramp "D" & Acc. Lane (See Sh. Nos 96 & 97)	= 490.9	Cu. Yds.
Ramp "E" & "F" & Dec. Lane (See Sh. Nos 101 & 102)	= 959.2	Cu. Yds.
TOTAL F-675(5)	= 2991.5	CU. YDS.

B-112-POROUS BASE COURSE

Rt. Sta. 94+27.86 to 95+50 - 122.14 x ½ (11.71+10) 6 ÷ 27 x 12	= 24.5	Cu. Yds.
OUTSIDE BERMS - Rt. Sta. 108+00 to 112+00 - 400 x ½ (16.36+10) 6 ÷ 27 x 12	= 97.6	Cu. Yds.
Rt. Sta. 124+50 to 125+00 - 50 x 10 x 4.5" Av. ÷ 27 x 12	= 6.9	Cu. Yds.
INSIDE BERMS - Lt. Sta. 119+62.97 to 125+00 - 537.03 x 10 x 4.5" Av. ÷ 27 x 12	= 74.6	Cu. Yds.
Rt. Sta. 94+05.06 to 125+00 - 3094.94 x 4 x 5.375" Av. ÷ 27 x 12	= 205.4	Cu. Yds.
Lt. Sta. 107+77.50 to 125+00 - 1722.50 x 4 x 5.375" Av. ÷ 27 x 12	= 114.3	Cu. Yds.
Ramp "A" & Dec. Lane (See Sh. Nº 86)	= 101.0	Cu. Yds.
Ramp "B" & Acc. Lane (See Sh. Nos 89, 90 & 91)	= 211.4	Cu. Yds.
N.B. U.S.R. 250 & Acc. Lane (See Sh. Nos 38, 39 & 40)	= 390.3	Cu. Yds.
S.B. U.S.R. 250 & Dec. Lane (See Sh. Nos 44, 45, 46 & 47)	= 462.1	Cu. Yds.
TOTAL I-77-3(9)83	= 1688.1	CU. YDS.

U.S.R. 250 - STA. 637+86.95 to STA. 650+00

OUTSIDE BERMS - Rt. Sta. 637+86.95 to 650+00 - 1213.05 x 8 x 4.75" Av. ÷ 27 x 12	= 142.3	Cu. Yds.
INSIDE BERMS - Lt. Sta. 643+00 to 650+00 - 700 x 8 x 4.75" Av. ÷ 27 x 12	= 82.1	Cu. Yds.
Rt & Lt 637+86.95 to 650+00 - 1213.05 x 8 x 5.375" Av. ÷ 27 x 12	= 161.0	Cu. Yds.
Ramp "D" & Acc. Lane (See Sh. Nos 96 & 97)	= 81.0	Cu. Yds.
Ramp "E" & "F" & Dec. Lane (See Sh. Nº 101 & 102)	= 126.4	Cu. Yds.
TOTAL F-675(5)	= 592.8	CU. YDS.

B-21-WATERPROOFED AGGREGATE BASE COURSE

Rt. Sta. 94+27.86 to 95+50 - 122.14 x ½ (11.71+10) 3 ÷ 27 x 12	= 12.3	Cu. Yds.
OUTSIDE BERMS - Rt. Sta. 108+00 to 112+00 - 400 x ½ (16.36+10) 3 ÷ 27 x 12	= 48.8	Cu. Yds.
Rt. Sta. 124+50 to 125+00 - 50 x 10 x 3 ÷ 27 x 12	= 4.6	Cu. Yds.
INSIDE BERMS - Lt. Sta. 119+62.97 to 125+00 - 537.03 x 10 x 3 ÷ 27 x 12	= 49.7	Cu. Yds.
Rt. Sta. 94+05.06 to 125+00 - 3094.94 x 4 x 3 ÷ 27 x 12	= 114.6	Cu. Yds.
Lt. Sta. 107+77.50 to 125+00 - 1722.50 x 4 x 3 ÷ 27 x 12	= 63.8	Cu. Yds.
Ramp "A" & Dec. Lane (See Sh. Nº 86)	= 202.0	Cu. Yds.
Ramp "B" & Acc. Lane (See Sh. Nos 89, 90 & 91)	= 422.8	Cu. Yds.
N.B. U.S.R. 250 & Acc. Lane (See Sh. Nos 38, 39 & 40)	= 314.7	Cu. Yds.
S.B. U.S.R. 250 & Dec. Lane (See Sh. Nos 44, 45, 46 & 47)	= 370.8	Cu. Yds.
Exist. U.S.R. 21 Sta. 54+50 to Sta. 65+42.8 (See Sh. Nº 109)	= 1015.2	Cu. Yds.
TOTAL I-77-3(9)83	= 2619.3	CU. YDS.
Exist. U.S.R. 21 Sta. 50+00 to Sta. 54+50 (See Sh. Nº 109)	= 356.0	Cu. Yds.
TOTAL 100% STATE	356.0	CU. YDS.

U.S.R. 250 - STA. 637+86.95 to STA. 650+00

OUTSIDE BERMS - Rt. Sta. 637+86.95 to 650+00 - 1213.05 x 8 x 3 ÷ 27 x 12	= 89.9	Cu. Yds.
Lt. Sta. 643+00 to 650+00 - 700 x 8 x 3 ÷ 27 x 12	= 51.9	Cu. Yds.
INSIDE BERMS - Rt & Lt 637+86.95 to 650+00 - 1213.05 x 8 x 3 ÷ 27 x 12	= 89.9	Cu. Yds.
Ramp "D" & Acc. Lane (See Sh. Nos 96 & 97)	= 162.0	Cu. Yds.
Ramp "E" & "F" & Dec. Lane (See Sh. Nos 101 & 102)	= 252.8	Cu. Yds.
TOTAL F-675(5)	= 646.5	CU. YDS.

B-35-1½" ASPHALTIC CONCRETE LEVELING COURSE

Exist. U.S.R. 21 (See Sh. Nº 109) = 246.9 CU. YDS.

TOTAL I-77-3(9)83	= 179.8	CU. YDS.
TOTAL 100% STATE	= 67.1	CU. YDS.

T-35-1" ASPHALTIC CONCRETE SURFACE COURSE

Exist. U.S.R. 21 (See Sh. Nº 109) = 165.8 CU. YDS.

TOTAL I-77-3(9)83	= 121.1	CU. YDS.
TOTAL 100% STATE	44.7	CU. YDS.

I-18 STABILIZED CRUSHED AGGR. SHOULDERS & APPROACHES

Exist. U.S.R. 21 (See Sh. Nº 109) = 135.5 CU. YDS.

TOTAL I-77-3(9)83	= 96.5	CU. YDS.
TOTAL 100% STATE	39.0	CU. YDS.

I-21-PORTLAND CEMENT CONC. MED. PAV'T (Std. Type 2)

Exist. U.S.R. 21 (See Sh. Nº 109) = 704.7 SQ. YDS.

TOTAL I-77-3-(9)83	= 614.1	SQ. YDS.
TOTAL 100% STATE	= 90.6	SQ. YDS.

T-31 AGGREGATE

Rt. Sta. 94+27.86 to 95+50 - 122.14 x ½ (11.71+10) .008 ÷ 9	= 1.2	Cu. Yds.
OUTSIDE BERMS - Rt. Sta. 108+00 to 112+00 - 400 x ½ (16.36+10) .008 ÷ 9	= 4.7	Cu. Yds.
Rt. Sta. 124+50 to 125+00 - 50 x 10 x .008 ÷ 9	= 0.4	Cu. Yds.
INSIDE BERMS - Lt. Sta. 119+62.97 to 125+00 - 537.03 x 10 x .008 ÷ 9	= 4.8	Cu. Yds.
Rt. Sta. 94+05.06 to 125+00 - 3094.94 x 4 x .008 ÷ 9	= 11.0	Cu. Yds.
Lt. Sta. 107+77.50 to 125+00 - 1722.50 x 4 x .008 ÷ 9	= 6.1	Cu. Yds.
Ramp "A" & Dec. Lane (See Sh. Nº 86)	= 9.7	Cu. Yds.
Ramp "B" & Acc. Lane (See Sh. Nos 89, 90 & 91)	= 20.3	Cu. Yds.
N.B. U.S.R. 250 & Acc. Lane (See Sh. Nos 38, 39 & 40)	= 22.0	Cu. Yds.
S.B. U.S.R. 250 & Dec. Lane (See Sh. Nos 44, 45, 46 & 47)	= 27.2	Cu. Yds.
TOTAL I-77-3(9)83	= 107.4	CU. YDS.

U.S.R. 250 - STA. 637+86.95 to STA. 650+00

OUTSIDE BERMS - Rt. Sta. 637+86.95 to 650+00 - 1213.05 x 8 x .008 ÷ 9	= 8.6	Cu. Yds.
Lt. Sta. 643+00 to 650+00 - 700 x 8 x .008 ÷ 9	= 5.0	Cu. Yds.
INSIDE BERMS - Rt & Lt Sta. 637+86.95 to 650+00 - 1213.05 x 8 x .008 ÷ 9	= 8.6	Cu. Yds.
Ramp "D" & Acc. Lane (See Sh. Nos 96 & 97)	= 7.8	Cu. Yds.
Ramp "E" & "F" & Dec. Lane (See Sh. Nos 101 & 102)	= 12.1	Cu. Yds.
TOTAL F-675(5)	= 42.1	CU. YDS.

T-31 - BITUMINOUS MATERIAL

Rt. Sta. 94+27.86 to 95+50 - 122.14 x ½ (11.71+10) .25 ÷ 9	= 36.8	Gals.
OUTSIDE BERMS - Rt. Sta. 108+00 to 112+00 - 400 x ½ (16.36+10) .25 ÷ 9	= 146.4	Gals.
Rt. Sta. 124+50 to 125+00 - 50 x 10 x .25 ÷ 9	= 13.9	Gals.
INSIDE BERMS - Lt. Sta. 119+62.97 to 125+00 - 537.03 x 10 x .25 ÷ 9	= 149.2	Gals.
Rt. Sta. 94+05.06 to 125+00 - 3094.94 x 4 x .25 ÷ 9	= 343.9	Gals.
Lt. Sta. 107+77.50 to 125+00 - 1722.50 x 4 x .25 ÷ 9	= 191.4	Gals.
Ramp "A" & Dec. Lane (See Sh. Nº 86)	= 303.2	Gals.
Ramp "B" & Acc. Lane (See Sh. Nos 89, 90 & 91)	= 634.3	Gals.
N.B. U.S.R. 250 & Acc. Lane (See Sh. Nos 38, 39 & 40)	= 686.5	Gals.
S.B. U.S.R. 250 & Dec. Lane (See Sh. Nos 44, 45, 46 & 47)	= 852.0	Gals.
TOTAL I-77-3(9)83	= 3357.6	GALS.

U.S.R. 250 - STA. 637+86.95 to STA. 650+00

OUTSIDE BERMS - Rt. Sta. 637+86.95 to 650+00 - 1213.05 x 8 x .25 ÷ 9	= 269.6	Gals.
INSIDE BERMS - Lt. Sta. 643+00 to 650+00 - 700 x 8 x .25 ÷ 9	= 155.6	Gals.
Rt & Lt 637+86.95 to 650+00 - 1213.05 x 8 x .25 ÷ 9	= 269.6	Gals.
Ramp "D" & Acc. Lane (See Sh. Nos 96 & 97)	= 242.9	Gals.
Ramp "E" & "F" & Dec. Lane (See Sh. Nos 101 & 102)	= 379.2	Gals.
TOTAL F-675(5)	= 1316.9	GALS.

E-1 - COMPACTED SUBGRADE

Under Main Pav't.	= 12,782.4	Sq. Yds.
Add for Approach Slabs	= 211.8	Sq. Yds.
Add for Under Berms -		
Rt. Sta. 94+27.86 to 95+50 - 122.14 x ½ (11.71+10) ÷ 9	= 147.2	Sq. Yds.
OUTSIDE BERMS - Rt. Sta. 108+00 to 112+00 - 400 x ½ (16.36+10) ÷ 9	= 585.8	Sq. Yds.
Rt. Sta. 124+50 to 125+00 - 50 x 10 ÷ 9	= 55.6	Sq. Yds.
INSIDE BERMS - Lt. Sta. 119+62.97 to 125+00 - 537.03 x 10 ÷ 9	= 596.7	Sq. Yds.
Rt. Sta. 94+05.06 to 125+00 - 3094.94 x 4 ÷ 9	= 1375.5	Sq. Yds.
Lt. Sta. 107+77.50 to 125+00 - 1722.50 x 4 ÷ 9	= 765.6	Sq. Yds.
Ramp "A" & Dec. Lane (See Sh. Nº 86)	= 4165.7	Sq. Yds.
Ramp "B" & Acc. Lane (See Sh. Nos 89, 90 & 91)	= 8044.5	Sq. Yds.
N.B. U.S.R. 250 & Acc. Lane (See Sh. Nos 38, 39 & 40)	= 7865.4	Sq. Yds.
S.B. U.S.R. 250 & Dec. Lane (See Sh. Nos 44, 45, 46 & 47)	= 12089.7	Sq. Yds.
Exist. U.S.R. 21 Sta. 54+50 to Sta. 65+42.8 (See Sh. Nº 109)	= 4945.1	Sq. Yds.
TOTAL I-77-3(9)83	= 53,631.0	SQ. YDS.
Exist. U.S.R. 21 Sta. 50+00 to Sta. 54+50 (See Sh. Nº 109)	= 1700.0	Sq. Yds.
TOTAL 100% STATE	1700.0	SQ. YDS.

U.S.R. 250 - 645+50 to 646+00 - 50 x ½ (20+36) ÷ 9 = 155.6 Sq. Yds.
646+00 to 646+50 - 50 x 36 ÷ 9 = 200.0 Sq. Yds.
646+50 to 647+00 - 50 x ½ (36+72) ÷ 9 = 300.0 Sq. Yds.
647+00 to 650+00 - 300 x 72 ÷ 9 = 2400.0 Sq. Yds.

Ramp "D" & Acc. Lane (See Sh. Nos 96 & 97)	= 2722.2	Sq. Yds.
Ramp "E" & "F" & Dec. Lane (See Sh. Nos 101 & 102)	= 4716.0	Sq. Yds.
TOTAL F-675(5)	= 10,493.8	SQ. YDS.

E-9 - TREE REMOVAL (See Sh. Nº 15)

TOTAL I-77-3(9)83	= LUMP
TOTAL F-675(5)	= LUMP

I-8-CONCRETE MONUMENTS (See Sh. Nº 2)

TOTAL I-77-3(9)83	= 9 EACH
TOTAL F-675(5)	= 4 EACH

L-1-TOPSOIL STOCKPILED

2240 Cu. Yds. x 114 % = 2554 CU. YDS.

TOTAL I-77-3(9)83	= 2554 CU. YDS.

L-3 - PLACING STOCKPILED TOPSOIL

TOTAL I-77-3-(9)83	= 2240 CU. YDS.

PAVEMENT CALCULATIONS CONT.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

18/235

TUS-21-26.33-TUS-250-11.60

S.S. CE-101.04-COMPACTION USING HEAVY PNEUMATIC TIRED ROLLER

*48,685.9 Sq. Yds ÷ 2000 = 28 HOURS (*Does not include exist. U.S.R. 21)

TOTAL I-77-3(9)83 = 25 HOURS

10,493.8 Sq. Yds. ÷ 2000 = 6 HOURS

TOTAL F-675(5) = 6 HOURS

S.S. 18-R/W FENCE, TYPE "D" (See R/W Sheets for Location)

TOTAL I-77-3(9)83 = 9250 LIN. FT.

TOTAL F-675(5) = 1855 LIN. FT.

I-10-DUMPED ROCK

(For Type 2 Crossing at R/W Fence) - See R/W Sheets for Location

TOTAL I-77-3(9)83 = 9 CU. YDS.

TOTAL F-675(5) = 9 CU. YDS.

E-11-WATER

Embankment - 954,032 x 5 ÷ 1000 = 4770.2 M-Gal.
I-18 Aggregate - 235 x 5 ÷ 1000 = 1.2 M-Gal.
I-22 Subbase - 9,960 x 5 ÷ 1000 = 49.8 M-Gal.

TOTAL I-77-3(9)83 = 4821 M-GAL.

Embankment - 22,468 x 5 ÷ 1000 = 112.3 M-Gal
I-22-Subbase - 3,692 x 5 ÷ 1000 = 18.5 M-Gal.

TOTAL F-675(5) = 131 M-GAL.

E-11-WATER FOR DUST CONTROL

(ESTIMATED) TOTAL I-77-3(9)83 = 228 M-GAL.

(ESTIMATED) TOTAL F-675(5) = 45 M-GAL.

T-10-TRAFFIC COMPACTED SURFACE COURSE

Length (Estimated) = 1800 Lin. Ft.
1800 x 150 ÷ 100 = 2700 Cu. Yd.
2700 x 25% = 675 Cu. Yd.

TOTAL I-77-3(9)83 = 675 CU. YDS.

T-10-TRAFFIC COMPACTED SURFACE COURSE MODIFIED AS PER PLAN

2700 x 75% = 2025 Cu. Yds.

TOTAL I-77-3(9)83 = 2025 CU. YDS.

SPECIAL MIXING CALCIUM CHLORIDE AND AGGREGATE

1677 Lin. Ft. (Exist. U.S.R. 21 - STA. 54+50 to STA. 65+42.8) = 1677 x 4 ÷ 9 = 745 Sq. Yds.

TOTAL I-77-3(9)83 = 745 SQ. YDS.

700 Lin. Ft. (Exist U.S.R. 21 - STA. 50+00 to STA. 54+50
526 Lin. Ft. (S.R. 211 App.) = 1226 x 4 ÷ 9 = 545 Sq. Yds.

TOTAL 100% STATE = 545 SQ. YDS.

M-10 CALCIUM CHLORIDE

For Maintaining Traffic = 2700 ÷ 50 = 54.0 TONS
For Stabilized Shoulders = 745 x 2.1 ÷ 2000 = 0.8 TONS

TOTAL I-77-3(9)83 = 54.8 TONS

For Stabilized Shoulders = 545 x 2.1 ÷ 2000 = 0.6 TONS

TOTAL 100% STATE = 0.6 TONS

M-10 CALCIUM CHLORIDE FOR DUST CONTROL

(ESTIMATED) TOTAL I-77-3(9)83 = 4 TONS

(ESTIMATED) TOTAL F-675(5) = 1 TON

	EARTHWORK & SEEDING								
	STATION FROM	STATION TO	Excavation Cu. Yds.	Channel Excav. Cu. Yds.	Embankment Cu. Yds.	Dumped Rock Cu. Yds.	Seeding Sq. Yds.	Fertilizer Tons	Lime Tons
U.S.R. 21 (I.R. 71)	83+00	124+00	87,852	8,223	953,264	—	248,602	22.37	111.85
	TOTALS I-77-3(9)83		87,852	8,223	953,264	—	248,602	22.37	111.85
U.S.R. 250	637+86.95	657+00	518,645	NONE	22,468	—	50,439	4.54	22.70
	TOTALS F-675(5)		518,645	NONE	22,468	—	50,439	4.54	22.70
Exist. U.S.R. 21	50+00	54+50	1982	NONE	768	—	3,275	0.30	1.50
	TOTALS 100% STATE		1982	NONE	768	—	3,275	0.30	1.50

EXCESS EXCAVATION: [F-675(5)] = 518,645 - 22,468 = 496,177 CU. YDS. *

EXCESS EXCAVATION: (100% STATE) = 1982 - 768 = 1,214 CU. YDS.

BORROW: [I-77-3(9)83] = 953,264 - (496,177) = 457,087 x 114% = 521,079 - (87,852 + 1214 + 8223 + 4047) = 419,743 CU. YDS.

* This quantity of excess excavation is predominantly rock and no shrinkage is anticipated.

GENERAL SUMMARY

I-77-3 (9) 83 FROM SHEET Nº.																						100% STATE SHEET Nº.			F-675 (5) FROM SHEET Nº.										ITEM	100% STATE TOTAL	I-77-3(9)83 CODE TYPE		I-77-3(9)83 TOTAL	F-675(5) CODE 7221 TOTAL	GRAND TOTAL	UNIT	DESCRIPTION
13	15	17	18	21	22	23	24	38	39	40	44	45	46	47	86	89	90	91	96	101	109	17	18	109	13	17	18	40	47	63	64	96	101	102			0010	7221					
																																											~ ROADWAY ~
			87,852																				1982				518,645								E-1	1982		87,852	87,852	518,645	608,479	CU.YD.	ROADWAY EXCAVATION, METHOD "B", AS PER PLAN
		53,631																				1700		875		10,494					2948				E-1	2575		53,631	53,631	13,442	69,648	SQ.YD.	COMPACTED SUBGRADE
			419,743																																E-4			419,743	419,743		419,743	CU.YD.	BORROW
										140									923					312				31		2190					E-8	312		1,063	1,063	2,221	3,596	SQ.YD.	REMOVAL AND DISPOSAL OF EXISTING PAVEMENT (FLEXIBLE) AS PER PLAN
																					900			900											E-8	900		900	900		1,800	SQ.YD.	REMOVAL AND DISPOSAL OF EXISTING PAVEMENT (RIGID-INCLUDING ASPHALTIC SURFACE) AS PER PLAN
		LUMP																								LUMP									E-9		LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	REMOVAL OF TREES AND STUMPS
			4,821																								131								E-11		690	4,131	4,821	131	4,952	M-GAL.	WATER
			228																								45								E-11		28	200	228	45	273	M-GAL.	WATER FOR DUST CONTROL
														34																247	137				E-12			34	34	384	418	LIN.FT.	PIPE REMOVED (15" AND UNDER)
																															148				E-12					148	148	LIN.FT.	PIPE REMOVED (OVER 15")
														156																					E-12			156	156		156	LIN.FT.	PIPE REMOVED AND STORED, 16'-7" x 10'-1" SECTIONAL CORRUGATED METAL ARCH, AS PER PLAN.
		9																								4									I-8		3	6	9	4	13	EACH	CONCRETE MONUMENTS, AS PER PLAN
						100		627.6	1058	614.4	112.5	1260.6	1039.4	1125	1950	1301.2	723.8							550					200	550	675	1000	399.6	600	I-15	550		8900	8900	3424.6	12,874.6	LIN.FT.	GUARD RAIL STEEL BEAM STANDARD TYPE (DEEP)
																					50														I-15			50	50		50	LIN.FT.	GUARD RAIL REMOVED AND REBUILT
														496										425											I-15	425		496	496		921	LIN.FT.	GUARD RAIL REMOVED AND STORED, AS PER PLAN
																					790									704	464				I-15			790	790	1,168	1,958	LIN.FT.	GUARD RAIL REMOVED AND DISPOSED OF
											600																								I-15			600	600		600	LIN.FT.	TEMPORARY GUARD RAIL, AS PER PLAN
																																			E-10					Lump	Lump	Lump	REMOVAL OF ONE 1 STORY BLOCK RESIDENCE PARCEL Nº 28 L A
19																									17										I-127			19	19	17	36	EACH	DELINEATORS TYPE A-1, POST MOUNTED
40																									25										I-127			40	40	25	65	EACH	DELINEATORS TYPE C-2, POST MOUNTED
1																									1										I-127			1	1	1	2	EACH	DELINEATORS TYPE C-3, POST MOUNTED
												1																							I-129			1	1		1	EACH	OVERHEAD SIGN SUPPORT, SPAN 65' Nº 7.4 DESIGN 1
																																											10 SIGN ATTACHMENT BRACKETS H=9'
						1																													I-129			1	1		1	EACH	OVERHEAD SIGN SUPPORT, SPAN 65' Nº 7.4 DESIGN 1
																																											6 SIGN ATTACHMENT BRACKETS H=7'; 4 Sign Attachments H=9'
						9.3						9.3																							I-129			18.6	18.6		18.6	CU.YD.	CONCRETE FOR SIGN SUPPORT FOUNDATIONS, CLASS "C"
		2554																																	L-1		481	2,073	2,554		2,554	CU.YD.	TOPSOIL STOCKPILED, AS PER PLAN
		2240																																	L-3		422	1,818	2,240		2,240	CU.YD.	PLACING STOCKPILED TOPSOIL, AS PER PLAN
			248,602																				3275				50,439								L-9	3275	28,318	220,284	248,602	50,439	302,316	SQ.YD.	SEEDING AND PROTECTING
			22.37																				0.30				4.54								L-9	0.30	2.55	19.82	22.37	4.54	27.21	TONS	COMMERCIAL FERTILIZER (12-12-12)
			111.85																				1.50				22.70								L-9	1.50	12.75	99.10	111.85	22.70	136.05	TONS	AGRICULTURAL LIMING MATERIAL
				912	323	97				191		28	317	463						135										246					L-10		437	2,029	2,466	246	2,712	SQ.YD.	SODDING
					65					60			125	55																					L-10			305	305		305	SQ.YD.	SODDING, SPECIAL BERM AND SLOPE PROTECTION, AS PER PLAN
					361	811	484					178																							L-120			1,834	1,834		1,834	SQ.YD.	JUTE MATTING, AS PER PLAN
			9250																								1855								SS-18			9250	9250	1855	11,105	LIN.FT.	FENCE, TYPE "D"
			25																								6								SS.CE-101.04			25	25	6	31	HOURS	COMPACTION USING HEAVY PNEUMATIC TIRED ROLLER
			4																								1								M-10		1	3	4	1	5	TONS	CALCIUM CHLORIDE FOR DUST CONTROL
			54.8																				0.6												M-10	0.6		54.8	54.8		55.4	TONS	CALCIUM CHLORIDE FURNISHED AND APPLIED
			675																																T-10			675	675		675	CU.YD.	TRAFFIC COMPACTED SURFACE COURSE FOR MAINTAINING TRAFFIC
			2025																																T-10			2,025	2,025		2,025	CU.YD.	TRAFFIC COMPACTED SURFACE COURSE, MODIFIED, FOR MAINTAINING TRAFFIC, AS PER PLAN
			745																				545												SPECIAL	545		745	745		1,290	SQ.YD.	MIXING CALCIUM CHLORIDE AND AGGREGATE
																																											~ DRAINAGE ~
			8,223									55	8			267				450	5														E-3			9,008	9,008		9,008	CU.YD.	CHANNEL EXCAVATION
																															102				I-1					102	102	LIN.FT.	6" PIPE, CLASS A-1, SEC. M-6.6 (b) or SEC. M-6.8 (b)
					20	37	60			20	5	10		10	10															20		30	10	10	I-1			172	172	70	242	LIN.FT.	6" PIPE, CLASS F-1
					780	2138	2581	1079	1314	1069	1460	1702	1283	307	1694	1205	1004	1240			915			420					280	773	400	849	1083	155	I-1	420		19,771	19,771	3540	23,731	LIN.FT.	6" PIPE, CLASS I-3 AS PER PLAN
										187				287														13	338	3103				707	I-1			474	474	4161	4,635	LIN.FT.	6" PIPE, CLASS I-3, SEC. M-6.4 (h)
							10		40	20	10		20		30	30	20	40			20								10	20	10	20	30	10	I-1			240	240	100	340	LIN.FT.	8" PIPE, CLASS F-1, SEC. M-6.4 (c)
	500				102	188	27		30			42							28		193														I-1			1110	1110		1110	LIN.FT.	12" PIPE, CLASS A-1, SEC. M-6.6 (a) or SEC. M-6.8 (b)
	100								44			36							26																I-1			206	206		206	LIN.FT.	12" PIPE, CLASS F-1
	500																																		I-1			500	500		500	LIN.FT.	12" PIPE, CLASS H-2
				86	100		140			126											53														I-1		86	419	505		505	LIN.FT.	15" PIPE, CLASS A-1, SEC. M-6.6 (a) or SEC. M-6.8 (b)
						136																													I-1			136	136		136	LIN.FT.	15" PIPE, CLASS A-1, SEC. M-6.6 (b) or SEC. M-6.8 (b)
				26	50					50																									I-1		26	100	126		126	LIN.FT.	15" PIPE, CLASS F-1
							182																												I-1			182	182		182	LIN.FT.	18" PIPE, CLASS A-1, SEC. M-6.6 (a) or SEC. M-6.8 (b)
																					44										103				I-1			44	44	103	147	LIN.FT.	24" PIPE, CLASS A-1
												136	154																						I-1			290	290		290	LIN.FT.	24" PIPE, CLASS A-1, SEC. M-6.6 (d)
																														122					I-1					122	122	LIN.FT.	30" PIPE, CLASS A-1, SEC. M-6.6 (a) or SEC. M-6.8 (b)

GENERAL SUMMARY

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

20 / 235

TUS-21-26.33-TUS-250-11.60

I-77-3(9)83 FROM SHEET NO.																				100% STATE SHEET NO.		F-675(5) FROM SHEET NO.										ITEM	100% STATE TOTAL	I-77-3(9)83 CODE 0010	I-77-3(9)83 TYPE 7221	I-77-3(9)83 TOTAL	F-675(5) CODE 7221 TOTAL	GRAND TOTAL	UNIT	DESCRIPTION
17	17	18	21	22	23	24	39	40	44	45	46	47	86	89	90	91	96	101	109	17	109	17	18	47	63	64	96	101	102											~ DRAINAGE (Cont.) ~
																		40							40					I-1					40	40	LIN.FT.	30" PIPE, CLASS F-1
																		108												I-1			108	108		108	LIN.FT.	36" PIPE, CLASS A-1, SEC. M-6.6(b) or SEC. M-6.8(b)
				262																										I-1			262	262		262	LIN.FT.	36" PIPE, CLASS A-1, SEC. M-6.6(d)
														82																I-1			82	82		82	LIN.FT.	72" PIPE, CLASS A-1, SEC. M-6.6(b)
										198																				I-1			198	198		198	LIN.FT.	72" PIPE, CLASS A-1, SEC. M-6.6(c)
				254																										I-1			254	254		254	LIN.FT.	72" PIPE, CLASS A-1, SEC. M-6.6(d)
					48																									I-1			48	48		48	LIN.FT.	72"x44" PIPE ARCH, CLASS G-1, SEC. M-6.4(i)(c) or 68"x43" ELLIPTICAL CONCRETE PIPE, CLASS G-1, SEC. M-6.7(a)
			0.3	73.5	4.1	0.9	0.3	0.3		67.5	10.2			57.0			0.3	16.2	1.7						1.0					I-2		0.3	232.0	232.3	1.0	233.3	CU.YD.	MASONRY
																										4				I-5					4	4	EACH	6" PIPE SPECIALS CLASS A-1, SEC. M-6.6(b) or SEC. M-6.8(b)
				1	3	7	4	2	2		2	1	3	3	2	4			2					1	2		2	3		I-5			36	36	8	44	EACH	6" PIPE SPECIALS, CLASS I-3
																									2				1	I-5					3	3	EACH	6" PIPE SPECIALS, CLASS I-3, SEC. M-6.4(h)
							2			2								2												I-5			6	6		6	EACH	12" PIPE SPECIALS, CLASS F-1
5			2	2				2																						I-5			5	5		5	EACH	12" PIPE SPECIALS, CLASS H-2
																														I-5		2	4	6		6	EACH	15" PIPE SPECIALS, CLASS F-1
																									2					I-5					2	2	EACH	30" PIPE SPECIALS, CLASS F-1
				1	3		1	1		1								1								1				I-8					1	1	EACH	STANDARD NO. 2-2A CATCH BASIN
																														I-8			8	8		8	EACH	STANDARD NO. 6 CATCH BASINS
			2	2	2	6		1																	1					I-8		2	11	13	1	14	EACH	STANDARD NO. 8 CATCH BASINS
																			2											I-8			2	2		2	EACH	STANDARD NO. 2-6 MEDIAN INLETS
																			2											I-8			2	2		2	EACH	STANDARD NO. 2-8 MEDIAN INLETS
										106	37			65				24							11					I-10			232	232	11	243	SQ.YD.	RIPRAP, USING 6" REINFORCED CONCRETE SLAB, AS PER PLAN
		9	134	10	30	30	10	10		10	23	34		51				9					9		60					I-10		72	288	360	69	429	CU.YD.	DUMPED ROCK CHANNEL PROTECTION
			120	775	292			180		85	457	560						120							210					I-14			2,589	2,589	210	2,799	LIN.FT.	PAVED GUTTER, STANDARD TYPE 1
										20		440							2											S-22			462	462		462	CU.YD.	REMOVAL OF PORTIONS OF EXISTING STRUCTURES
																			3											S-23			3	3		3	LIN.FT.	DOWEL HOLES
																			LUMP											S-24			LUMP	LUMP		LUMP	LUMP	REMOVAL OF EXISTING STRUCTURES
																																							~ PAVEMENT ~
2,619																				356	173	647					586			B-21	529		2,619	2,619	1,233	4,381	CU.YD.	WATERPROOFED AGGREGATE BASE COURSE, AS PER PLAN
180																				67	37						123			B-35	104		180	180	123	407	CU.YD.	ASPHALTIC CONCRETE LEVELING COURSE (70-85)
1,688																						593								B-112			1,688	1,688	593	2,281	CU.YD.	POROUS BASE COURSE
				298				176			288	118																	89	I-7			880	880	89	969	SQ.YD.	REINFORCED CONCRETE APPROACH SLABS (T=13")
														112														86		I-12			112	112	86	198	LIN.FT.	CONCRETE CURB, STANDARD TYPE 2-A
									2045			2045									132								205	I-12	132		409	409	205	746	LIN.FT.	CONCRETE CURB, STANDARD TYPE 6
							412								591													205	191	I-12			1003	1003	396	1,399	LIN.FT.	SPECIAL CONCRETE BARRIER CURB
97				61						27			35	64						39	38									I-18	77		158	158		235	CU.YD.	STABILIZED CRUSHED AGGREGATE SHOULDERS AND APPROACHES
																					96						49	34	I-21	96		126	126	83	305	SQ.YD.	PORTLAND CEMENT CONCRETE MEDIAN PAVEMENT, STANDARD TYPE I
614																				91										I-21	91		614	614		705	SQ.YD.	PORTLAND CEMENT CONCRETE MEDIAN PAVEMENT, STANDARD TYPE 2
9,362																				397	201	2,992					700			I-22	598		9,362	9,362	3,692	13,652	CU.YD.	SUBBASE, GRADING A or B, AS PER PLAN
3,358																						1,317								F-31			3,358	3,358	1,317	4,675	GALS.	BITUMINOUS SURFACE TREATMENT, BITUMINOUS MATERIAL, AS PER PLAN
107																						42								F-31			107	107	42	149	CU.YD.	BITUMINOUS SURFACE TREATMENT, NO. 6 AGGREGATE
121																				45	26						82			F-35	71		121	121	82	274	CU.YD.	ASPHALTIC CONCRETE SURFACE COURSE, TYPE "C" (70-85)
35,309																						12,484								T-71			35,309	35,309	12,484	47,793	SQ.YD.	9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
																																LUMP	LUMP	LUMP	LUMP	LUMP	LUMP	CONSTRUCTION LAYOUT STAKES

~ STRUCTURES OVER 20' SPAN ~

QUANTITIES FOR BRIDGE NO. TUS-21-2633-RAMP "E" & STONE CREEK - SEE SH. NO. 149

QUANTITIES FOR BRIDGE NO. TUS-21-2648 R - SEE SH. NO. 183

QUANTITIES FOR BRIDGE NO. TUS-250-1208 S.B - SEE SH. NO. 189

QUANTITIES FOR BRIDGE NO. TUS-250-1231 N.B. - SEE SH. NO. 198

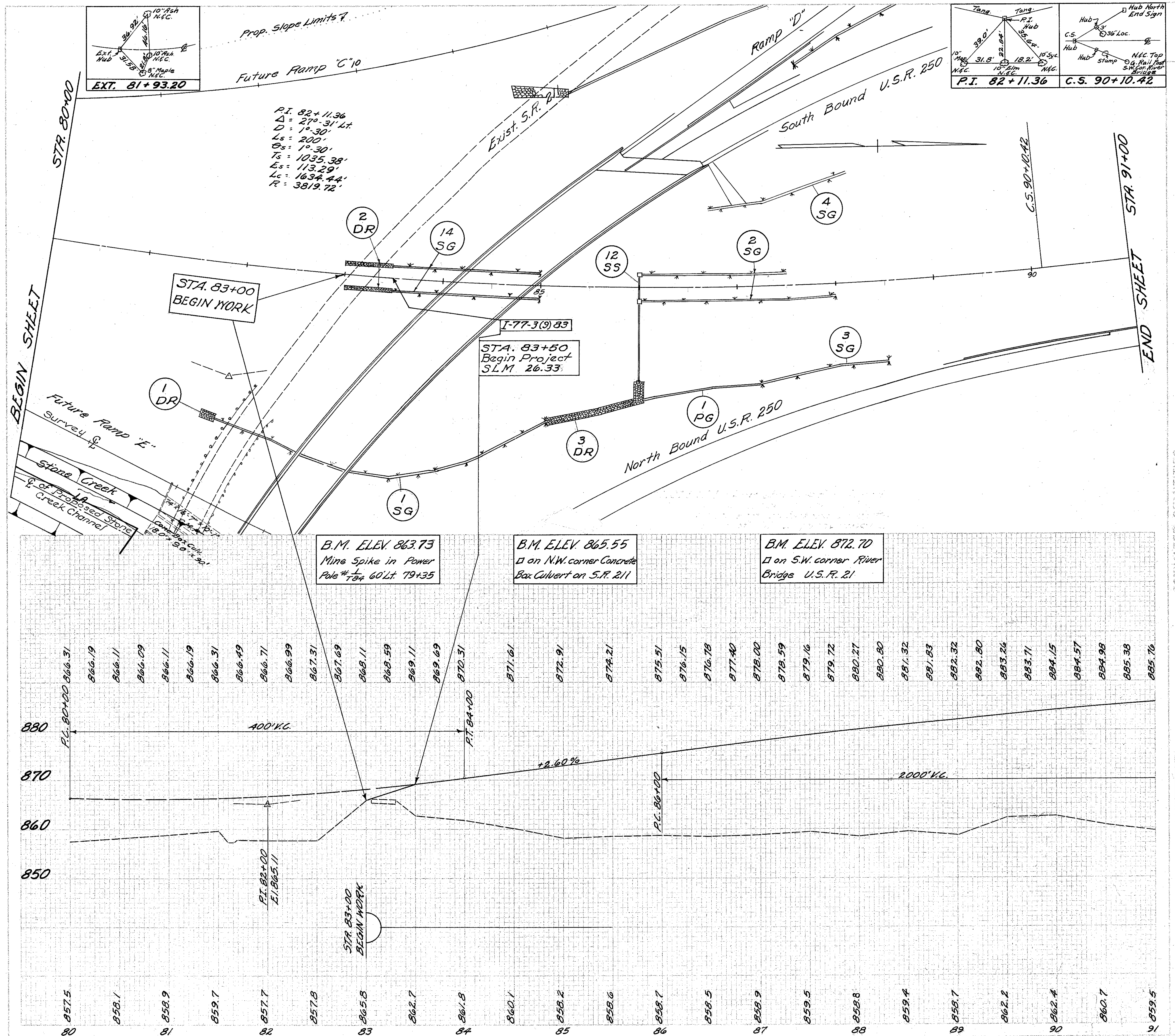
QUANTITIES FOR BRIDGE NO. TUS-250-N.B. RAMP "F" - SEE SH. NO. 209

~ LIGHTING EQUIPMENT ~

FOR QUANTITIES - SEE SHEET NO. 217

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

TUS-21-26.33 TUS-250-11.60



ESTIMATED QUANTITIES

SEE SHEET NO.	STATION TO STATION		SIDE	PIPE FOR CULV. & SEWERS 15" Class A-1 Sec. M-6.6(a) or M-6.8(b)	15" Class F1	Specials 15"x30° Bend Class F1	Standard No 8 C. Basin	Sod	Paved Gutter	Dumped Rock Chan. Prot.	Masonry
				LIN.FT.	LIN.FT.	EACH	EACH	SQ.YD.	LIN.FT.	CU.YDS	CU.YD.
1-DR	81+75	to 83+50	Rt.							9	
2-DR	83+00	to 86+05	Rt.&Lt.							56	
3-DR	85+00	to 85+00	Rt.							53	
1-SG	81+85	to 85+00	Rt.					245			
2-SG	86+00	to 88+00	Rt.&Lt.					234			
3-SG	87+20	to 88+50	Rt.					89			
4-SG	86+70	to 88+17	Lt.					101			
14-SG	83+50	to 85+00	Rt.&Lt.					203			
1-PG	86+05	to 87+20	Rt.					40	120		
12-SS 27	86+00		Rt.&Lt.	86	26	2	2			16	0.3
				86	26	2	2	912	120	134	0.3

PLAN & PROFILE --STA. 80+00 to STA. 91+00

S.T. 92+10.42

Note: Marker shall be furnished and erected by State Forces at Sta. 92+16.33 on the right prior to acceptance of this improvement.

STR. 91+00 BEGIN SHEET

STR. 102+00 END SHEET

5 SG

1 S TUS-21-2647

S.T. 92+10.42

P.C. 59+51.18

2 JM

2 PG

Exist 3' Stone Culv.

Ramp "A"

Drive

South Bound U.S.R. 250

4 PG

2 S TUS-21-2660

1 JM

J-U

2 AS

N 6°-36'-30" W

95'

100

4' Paved Berm

1 AS

Future Pav't

Entrance Lane North Bound U.S.R. 250

8' Paved Berm

8' Paved Berm

1 SS

1 SP

TUS-21-2648 R

PROPOSED STRUCTURE

TYPE: Continuous steel beams with reinf. conc. deck and substructure.
SPAN: 47'-67.12'-47' ℄ brgs.
ROADWAY: Variable width
LOAD FREQUENCY: CF=2000(57)(Adequate for AASHO Alternate Loading
SKEW: 3°-54' L.F.
WEARING SURFACE: 1" Mono. Conc.
APP. SLAB: AS-1-54 (25' long) (Special)
ALIGNMENT: Tangent

3 PG

3 JM

Ramp "B"

Prop. Slope Limits

LA

Exist. U.S.R. 21

I-77-3(9)83

B.M. ELEV. 872.70
□ on S.W. corner of River Bridge

STA.	885.76	886.13	886.48	886.82	887.15	887.46	887.76	888.05	888.32	888.58	888.82	889.05	889.27	889.47	889.66	889.84	890.00	890.15	890.28	890.40	890.51	890.60	890.68	890.75	890.80	890.84	890.86	890.87	890.87	890.85	890.82	890.78	890.72	890.65	890.56	890.46	890.35	890.22	890.08	889.93	889.76	889.58	889.38	889.17	888.95
	91				92				93				94				95				96				97				98				99				100				101				102	
	859.5	860.7	861.1	860.6	864.7	866.7	860.7	861.5	861.1	861.1	861.7	861.5	862.0	862.0	859.0	862.2	862.1	861.4	860.7	861.8	861.5	861.2	866.0																						

Bridge Limits

Sta. 92+41.33

Sta. 94+06.97

+2.60%

-1.80%

Place 10' of 6" Cl. F-1 pipe over storm sewer

94+65 Rt. F.L. 885.4 60° Wye

94+51 Rt. F.L. 884.0 Outlet

94+30 Rt. F.L. 885.9 Plug End

21.96+00 Elev. 901.51

2000" V.C.

J-U

890
880
870
860
850

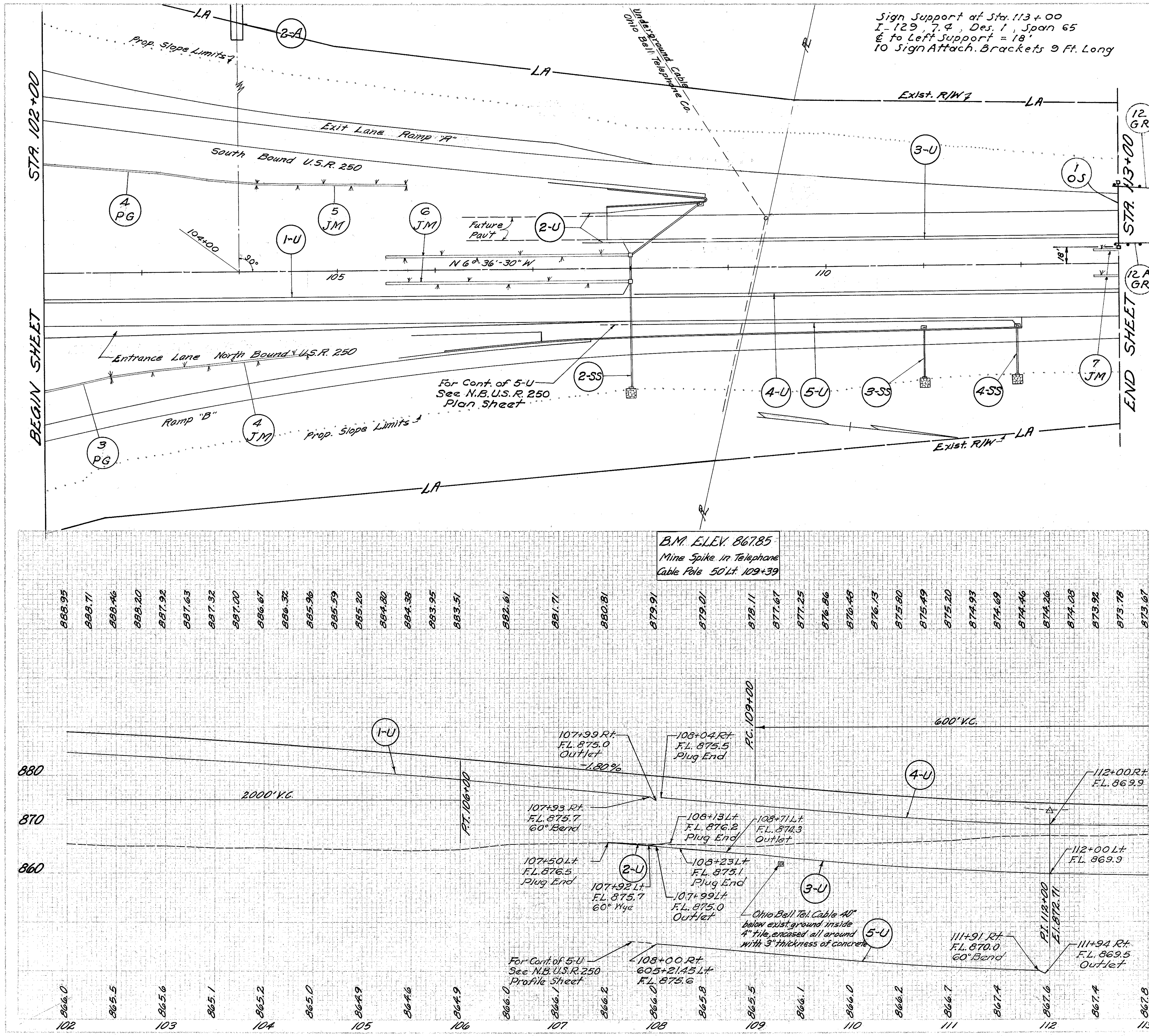
ESTIMATED QUANTITIES

SHEET NO.	STATION TO STATION	SIDE	Special Ditch Slope Protection Sq. YD.	PIPE FOR DRAINS (D=Depth (Typical Average of pairs)) 6" Class F3 D=36" Lin. Ft.	6" Class F3 Class F1 6"+6"Wye Class F3 Each	SPECIAL Approach Slabs Class F3 Sq. Yd.	Jute Mat'lng 13" Sq. Yd.	Paved Gutter-Slope Lin. Ft.	S. Y.	Dumped Rock Chan. Prot. C.Y.	Masonry C.Y.
1-SD	92+10 to 92+25	Rt.	65								
1-U	94+30 to 102+00	Rt.		780	20	1					
1-AS	92+16.33 to 92+41.33	Rt.				154.2					
2-AS	94+06.97 to 94+31.97	Rt.				143.7					
1-S	92+00	Rt&Lt.									16.2
2-S	93+75	Rt&Lt.									570
1-JM	94+50 to 96+00	Rt&Lt.					175				
2-JM	96+20 to 97+15	Lt.					84				
3-JM	97+63 to 98+75	Rt.					102				
2-PG	97+30 to 98+70	Lt.						140	46		
3-PG	98+92 to 102+00	Rt.						315	104		
4-PG	98+81 to 102+00	Lt.						320	106		
1-SS	94+50	Rt&Lt.								10	0.3
5-SG	91+00 to 91+25	Lt.							67		

PIPE FOR CULVERTS & SEWERS

SHEET NO.	12" Class A-1 Class F1 Sec. M-6.08(B) Sec. M-6.08(A) or M-6.08(B) Each	15" Class A-1 Class F1 Sec. M-6.08(B) Each	15"x23" Class A-1 (Class F1 Bevel) Class F1 Sec. M-6.08(B) Sec. M-6.08(A) Each	18" Specials Sec. M-6.08(B) Lin. Ft.	36" Class A-1 (Class F1 Sec. M-6.08(B) Lin. Ft.	72" Class A-1 Sec. M-6.08(B) Lin. Ft.
8						
125						
125						
134					262	
135					254	
128				2		
1	2	102	100	50	2	262
1	2	102	100	50	2	254

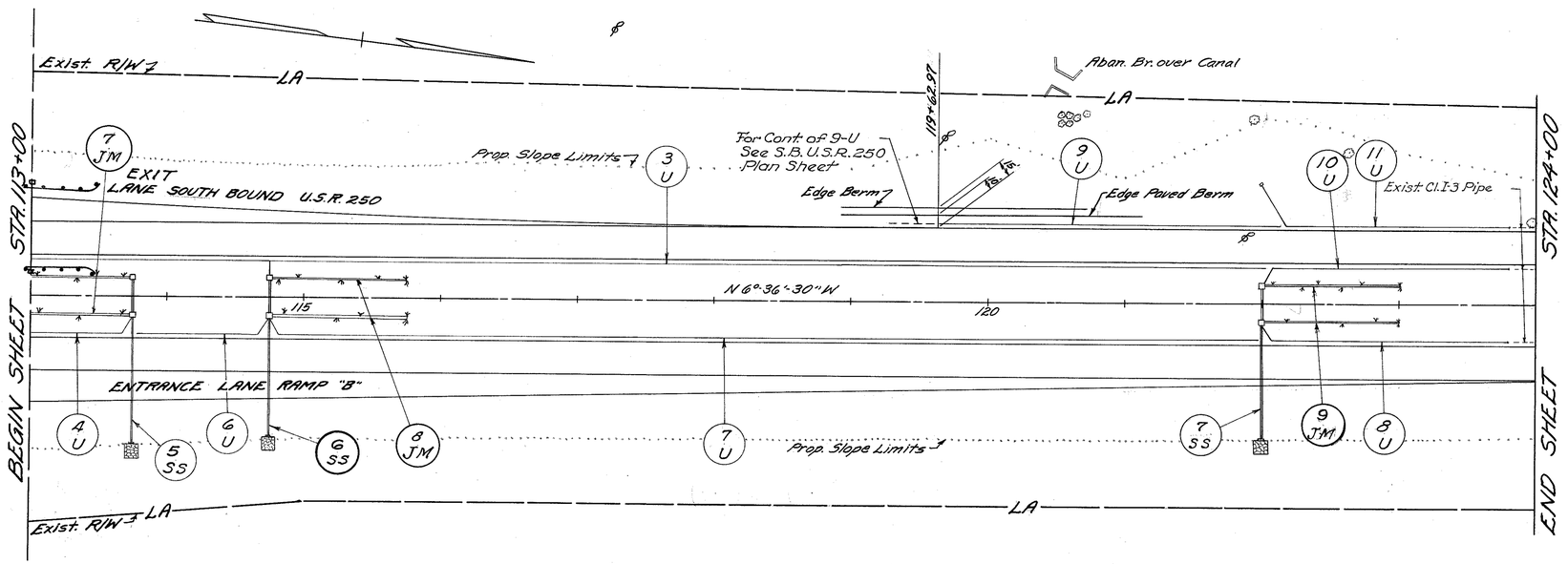
PLAN & PROFILE -- STA. 91+00 to STA. 102+00

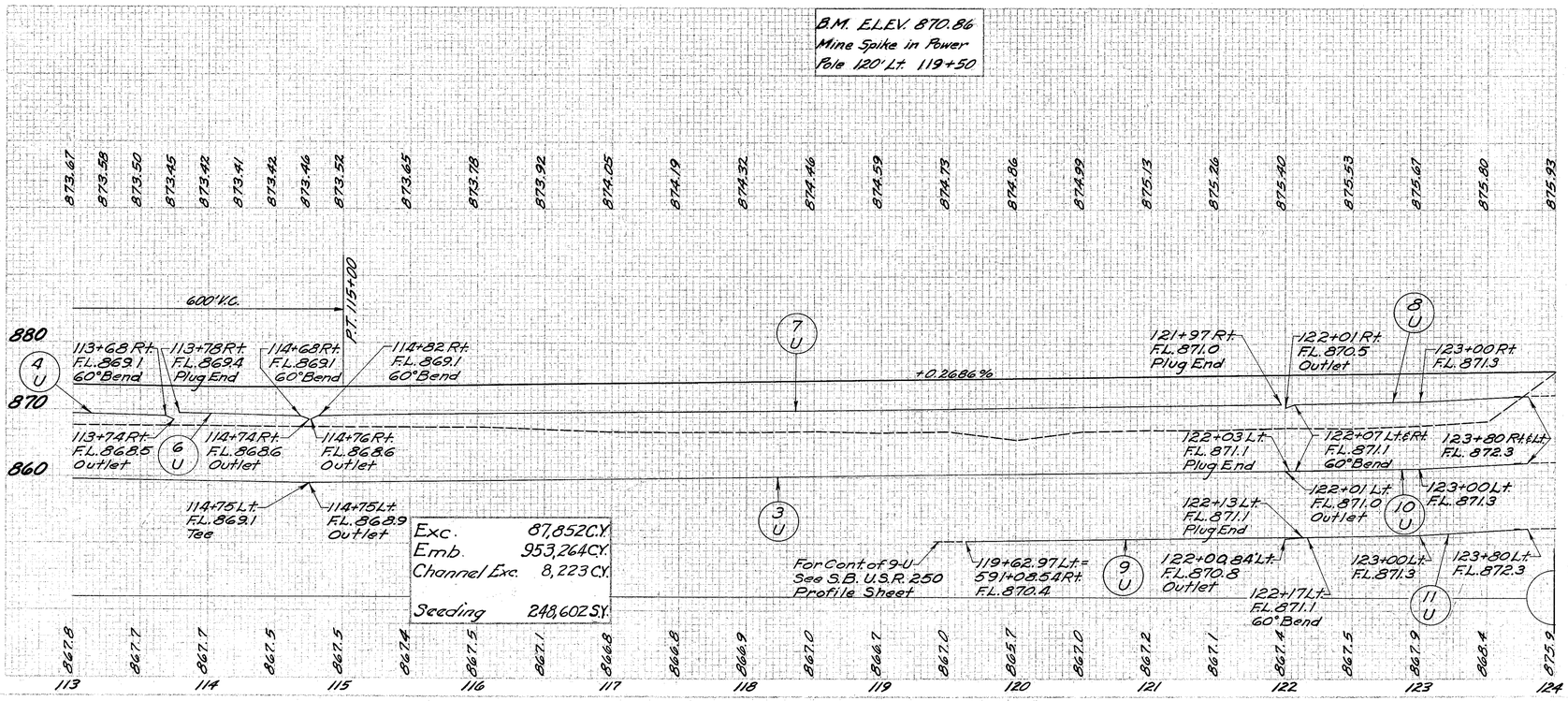


ESTIMATED QUANTITIES

	Station to Station	Side	Pipe for Culv. & Sewers 68"x43" Sec. M-6.7(a) or 72"x44" Sec. M-6.4(1)(a) Class G-1 (Lin. Ft.)	Pipe for Culv. & Sewers 12" Class A-1 Sec. M-6.6(a) or M-6.8(a) (Lin. Ft.)	Pipe for Culv. & Sewers 15" Class A-1 Sec. M-6.6(b) or M-6.8(b) (Lin. Ft.)	St'd. No. 6 C. Basin (Each)	St'd. No. 8 C. Basin (Each)	Dumped Rock Chan. Prot. (Cu. Yd.)	Sod (Sq. Yd.)	Jute Matting (Sq. Yd.)	Paved Gutter (L.F.)	Masonry (C.Y.)	I-18 (C.Y.)	Pipe for Drains 6" Specials Cl. 1-3 60° Bend (Each)	Pipe for Drains 6" Specials Cl. 1-3 60° Wye (Each)	Pipe for Drains 6" Class 13 D=30" (Lin. Ft.)	Pipe for Drains 6" Class Fl (Lin. Ft.)	Guardrail Standard Str. (L.F.)	Guardrail Standard Cir. (L.F.)	Overhead Sign Support SPAN 65 (Each)	Concrete for Sign Support (Cu. YD.)	See Sheet No.
1-OS	113+00	Lt.																		1	9.3	10 & 11
1-U	102+00 to 107+99	Rt.												1		597	10					
2-U	107+50 to 108+71	Lt.													1	178	20					
3-U	108+23 to 113+00	Lt.														477						
4-U	108+04 to 113+00	Rt.														496						
5-U	108+00 to 111+94	Rt.												1		390	7					
12-GR	112+97 to 113+47	Lt.																37.5	12.5			12
12AGR	112+97 to 113+47	Rt.																37.5	12.5			
2-A	104+00	Lt.	48									3.2	60.6									123
4-JM	102+67 to 104+70	Rt.								183												
5-JM	104+20 to 105+72	Lt.								135												
6-JM	105+50 to 108+00	Rt.&Lt.								445												
7-JM	112+75 to 113+00	Rt.&Lt.								48												
3-PG	102+00 to 102+67	Rt.							23		70											
4-PG	102+00 to 104+20	Lt.							74		222											
2-SS	108+00	Rt.&Lt.		90	136	1	2	10				0.3										129
3-SS	111+00	Rt.		50		1		10				0.3										35
4-SS	111+95	Rt.		48		1		10				0.3										35
			48	188	136	3	2	30	97	811	292	4.1	60.6	3		2138	37	100		1	9.3	

PLAN & PROFILE -- STA. 102+00 to STA. 113+00





PIPE FOR DRAINS

	6"	8"
6° Specials	Each	1
Class I-3	Lin. Ft.	905
Tee e. qal Sand	Each	1
	D-30°	72
	Each	1
	Lin. Ft.	94
	Each	1
	Lin. Ft.	720
	Each	1
	Lin. Ft.	220
	Each	1
	Lin. Ft.	177
	Each	1
	Lin. Ft.	186
Class H3 Class F/ Class F/ Sec M.4.4(b)	Lin. Ft.	10
		10
		10
		10
		10
		10

ESTIMATED QUANTITIES

SHEET NO.	STATION TO STATION		12" Class 4 Cl. Class 4 Cl. Sec M.4.4(b) or M.4.6(b)	15" Class 4 Cl. Class 4 Cl. Sec M.4.4(b) or M.4.6(b)	18" Class 4 Cl. Class 4 Cl. Sec M.4.4(b) or M.4.6(b)	Standard 1968 C. Basin	Masonry	Dumped Rock Chan. Prot.	Jute Matting
			Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Cu. Yd.	Cu. Yd.	Sq. Yd.
3-U	113+00 to 122+03	Lt.							128
4-U	113+00 to 113+74	Rt.							178
6-U	113+78 to 114+74	Rt.							178
7-U	114+76 to 121+97	Rt.							
8-U	122+01 to 123+80	Lt.							
9-U	119+62.97 to 122+13	Lt.							
10-U	122+00 to 123+80	Lt.							
11-U	122+00 to 123+00	Lt.							
7-JM	113+00 to 113+75	Rt. & Lt.							
8-JM	114+75 to 115+75	Rt. & Lt.							
9-JM	122+00 to 123+00	Rt. & Lt.							
5-SS	113+75	Rt. & Lt.		27	94	2	0.3	10	
6-SS	114+75	Rt. & Lt.		27	88	2	0.3	10	
7-SS	122+00	Rt. & Lt.	27	86		2			
			27	140	182	6	0.9	30	484

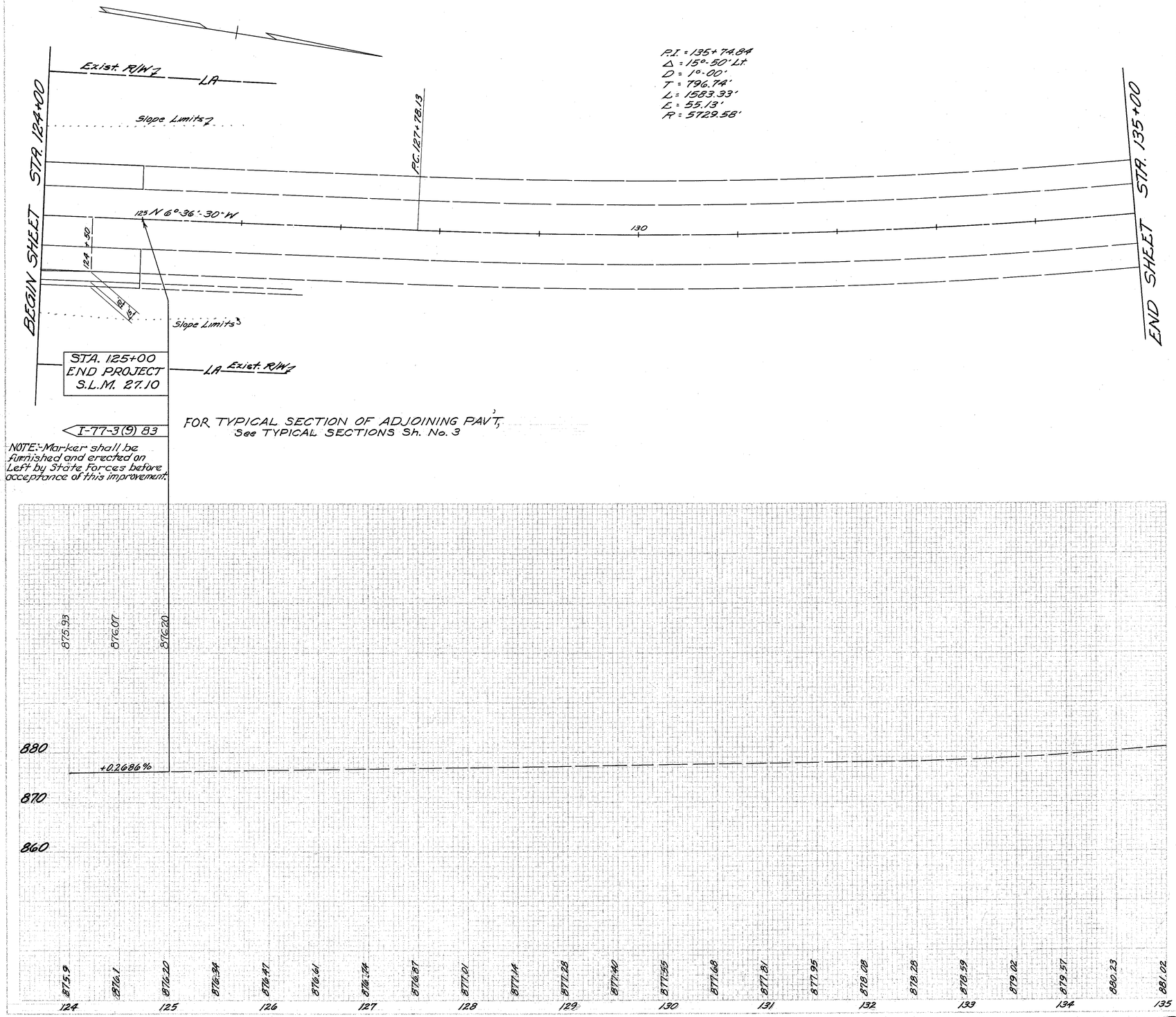
36 36 37

7 258' 60 10

PLAN & PROFILE -- STA. 113+00 to STA. 124+00

FED. AID DIVISION	STATE	PROJECT		SHEET NO.
2	OHIO			25 235

TUS-21-26.33 TUS-250-11.60



FOR TYPICAL SECTION OF ADJOINING PAVT.
See TYPICAL SECTIONS Sh. No. 3

ESTIMATED QUANTITIES

SEE SHEET NO.

ITEM	UNIT	STATION TO STATION	SHEET NO.

PLAN & PROFILE -- STA. 124+00 to STA. 135+00

TUS-21-26.33
TUS-250-11.60

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120

870
860
C-12.0 ½"/ft ↗
6:1
F-12.79
4:1
See N.B.U.S.R. 250 X-Secs.
870.31
84+00
861.8

870
860
Future Fill Ramp "C"
6:1
F-9.94
4:1
See Ramp "E" X-Secs.
869.11
83+50
862.7

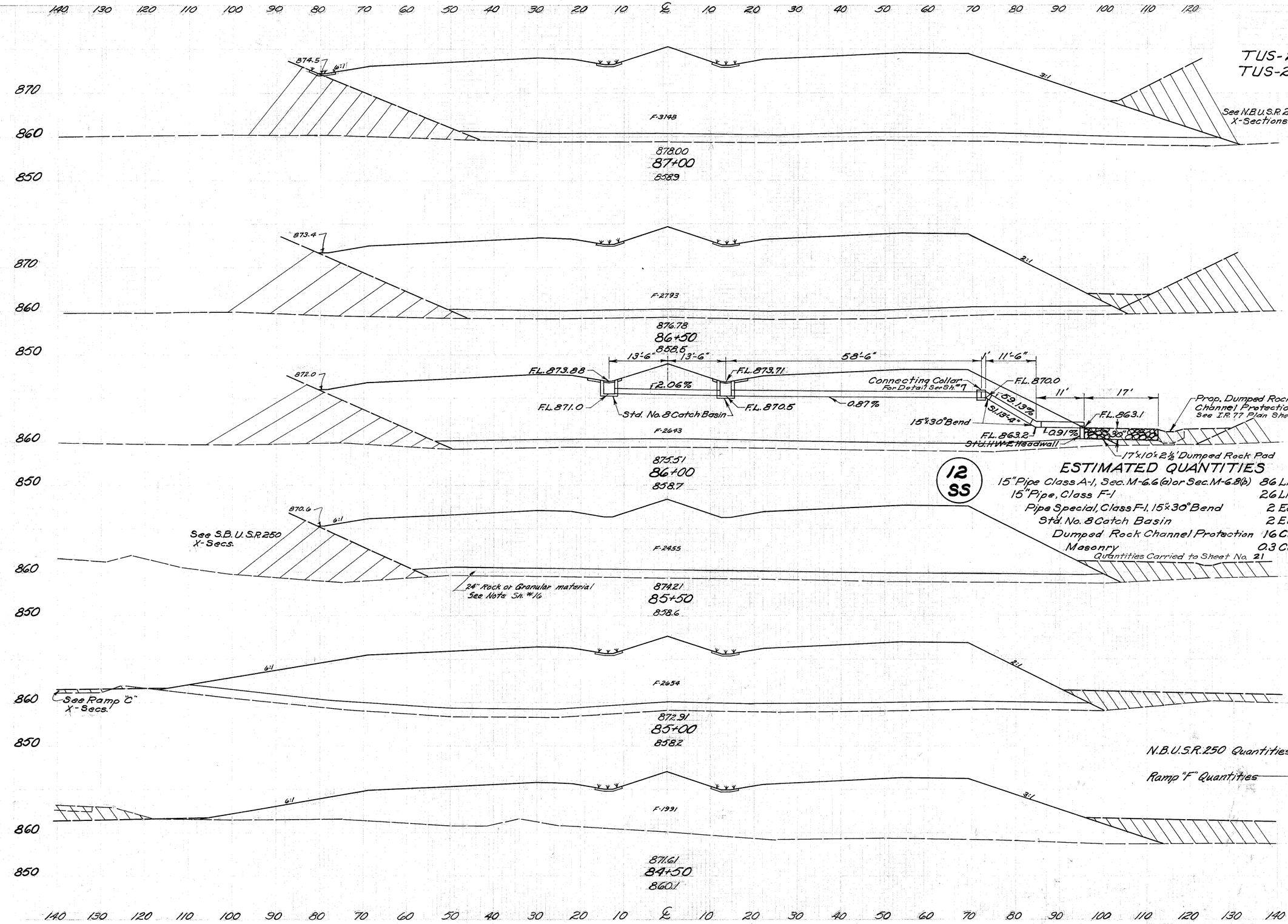
870
860
868.11
83+00
865.8
ZERO EARTHWORK

Station	Channel Exc. Cu. Yds.	Dumped Rock Cu. Yds.	Seeding Width	Seeding S.Y.	End Area Cut	End Area Fill	Cu. Yds. Exc.	Cu. Yds. Emb.
			250		126	12.79		
Ramp "E" Quantities →	7,580		→ 32,166		→ 1416		33302	
Stone Creek Channel Quantities →			→ 780		→ 255			
			1336			117	2105	
			231		0	9.94		
			642			0	9.20	
			0		0	0		

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 83+00 to STA. 84+00

TUS-21-26.33
TUS-250-11.60



12
SS

ESTIMATED QUANTITIES

15" Pipe Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)	86 Lin. Ft.
15" Pipe, Class F-1	26 Lin. Ft.
Pipe Special, Class F-1, 15"x30° Bend	2 Each
Std. No. 8 Catch Basin	2 Each
Dumped Rock Channel Protection	16 Cu. Yds.
Masonry	0.3 Cu. Yds.

Quantities Carried to Sheet No. 21

Seeding Width	S.Y.	End Area Cut	End Area Fill	Cu. Yds. Exc.	Cu. Yds. Emb.
	1025			0	6341
185		0	3148		
	1019			0	5501
182		0	2793		
	1006			0	5033
180		0	2643		
	997			0	4720
179		0	2455		
	1081			0	4731
210		0	2654		
N.B.U.S.R.250 Quantities →	9115	→	4	55715	
Ramp "F" Quantities →	3199	→	281	7500	
	1153			0	4301
205		0	1991		
	1264			117	3028

STA. 84+50 to STA. 87+00

TUS-21-26.33
TUS-250-11.60

120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

880
870
860
850

5:1 5:1 881.90 881.70 2:1 F-4762 8:1 6:1 883.70 2:1

883.26
89+50
862.2

S.B. U.S.R. 250 Quantities →

6:1 5:1 882.30 See Ramp "E" X-Secs. F-5346

882.32
89+00
858.7

Ramp "C" Quantities →

5:1 4:1 880.40 F-5149

881.32
88+50
859.4

N.B. U.S.R. 2.50

4:1 4:1 878.00 2:1 F-5372

880.27
88+00
858.8

4:1 4:1 3:1 2:1 Ahead F-5259 Back F-3700 874.80 See S.B. U.S.R. 250 X-Secs.

879.16
87+50
859.5

	Seeding Width	End Area S.Y.	Cu. Yds. Cut	Fill Exc.	Emb.
	232	0	4762		
	5,080.5 →		79,449	218,736	
	1303		0	9359	
	237	0	5346		
	2528 →		734	5901	
	1342		0	9718	
	246	0	5149		
	1392		0	9742	
	255	0	5372		
	1444		0	9844	
Ahead	265	0	5259		
Back	184	0	3700		

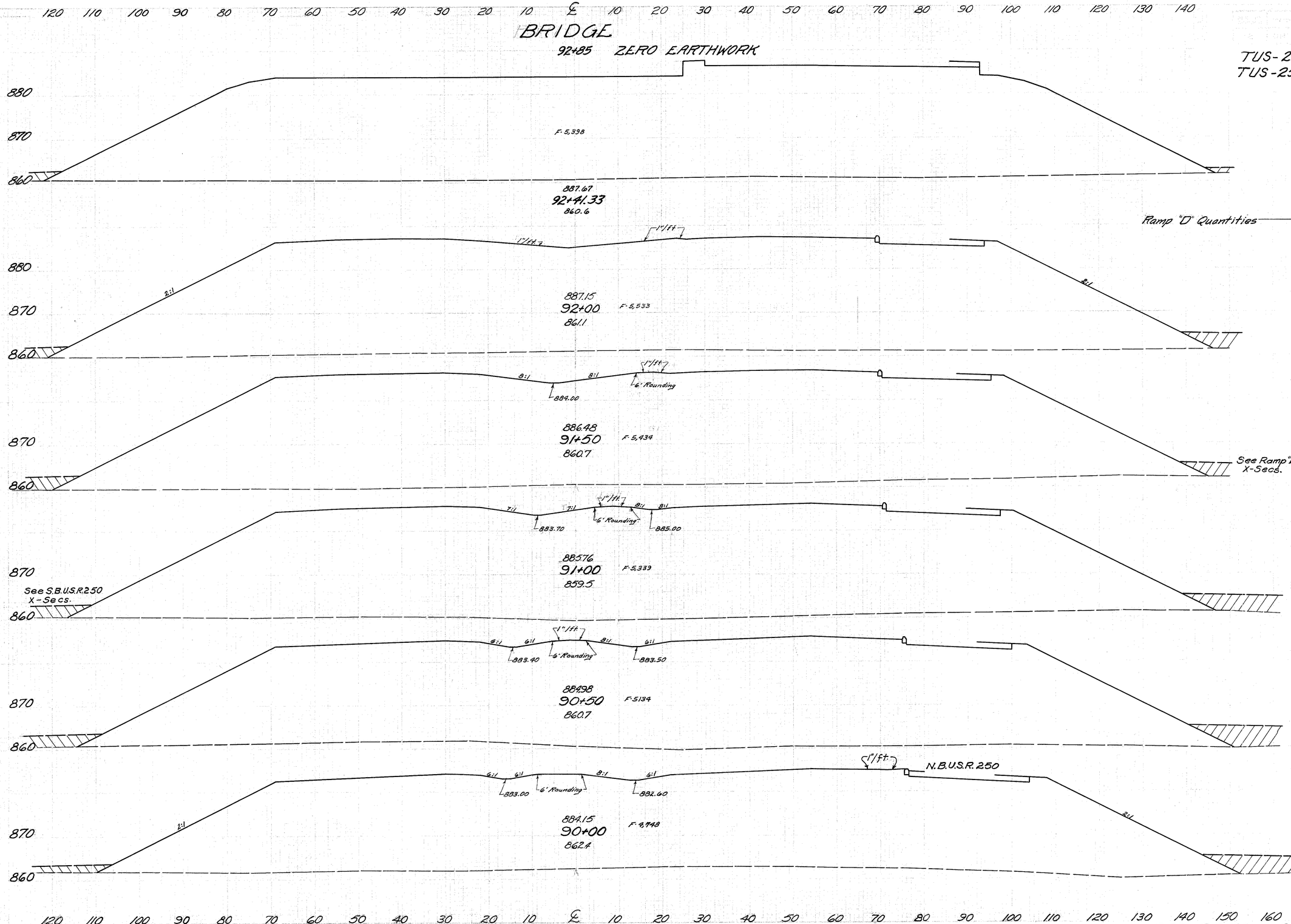
120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170

STA 87+50 to STA 89+50

TUS-21-26.33
TUS-250-11.60

BRIDGE

92+85 ZERO EARTHWORK



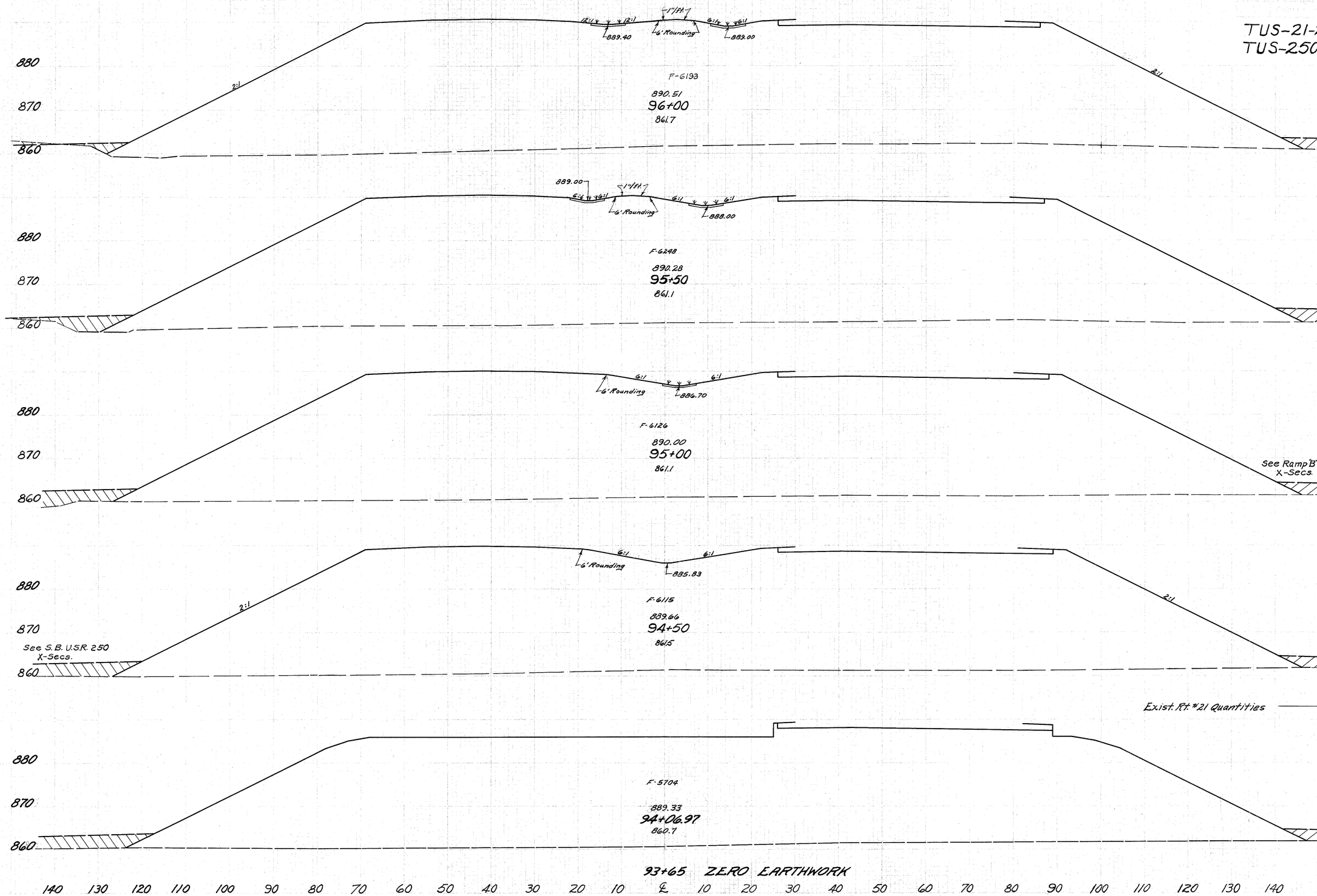
Ramp "D" Quantities →

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
0		0	0		
	493			0	4365
203		0	5398		
	841.5			711	20439
	1019			0	8366
241		0	5533		
	1325			0	10155
236		0	5434		
	1303			0	9975
233		0	5339		
	1294			0	9697
233		0	5134		
	1289			0	9150
231		0	4748		
	1286			0	8806

STA. 90+00 to STA. 92+85

TUS-21-26.33
TUS-250-11.60

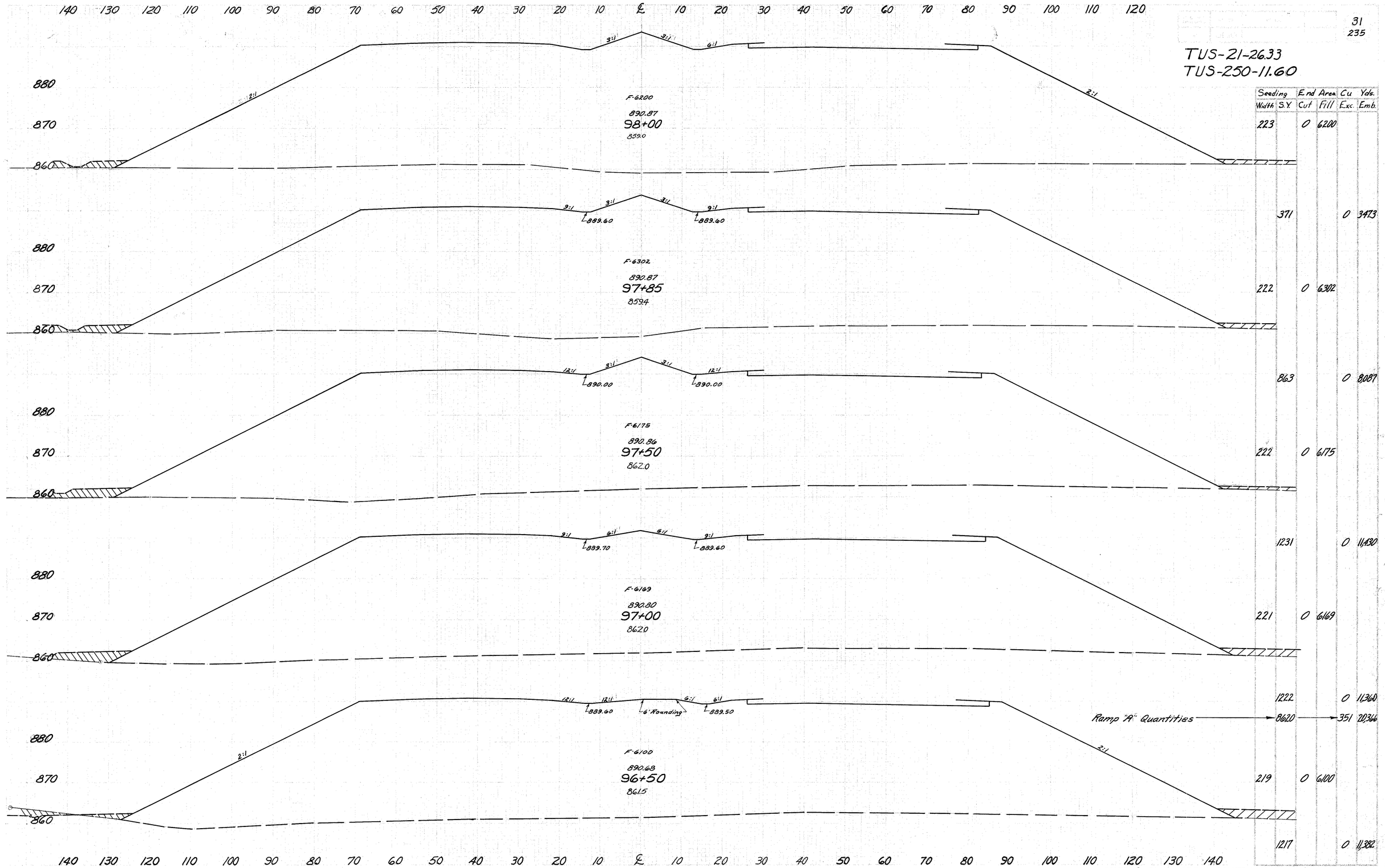
140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120



Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
219		0	6193		
	1206			0	11,519
215		0	6248		
	1186			0	11,457
212		0	6126		
	1172			0	11,334
210		0	6115		
Exist. Rt. #21 Quantities →	7898	→	45335716		
	990			0	9477
204		0	5704		
	476			0	4405
0		0	0		

STA. 93+65 to STA. 96+00

TUS-21-26.33
TUS-250-11.60



Seeding Width	S.Y.	End Area Cut	Fill	Cu Yds. Exc.	Emb.
223		0	6200		
	371			0	3473
222		0	6302		
	863			0	8087
222		0	6175		
	1231			0	11,430
221		0	6169		
	1222			0	11360
Ramp "A" Quantities → 862.0	→ 351		→ 20,366		
219		0	6100		
	1217			0	11,382

STA. 96+50 to STA. 98+00

TUS-21-26.33
TUS-250-11.60

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120

890
880
870
860

2:1

See S.B. USR250 X-Secs.

F-5878
890.35
100+00
860.7

2:1

F-5822
890.56
99+50
861.4

F-5887
890.72
99+00
862.1

F-5977
890.82
98+50
862.2

F-6307
890.86
98+15
861.8

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
223		0	5818		
	1242			0	10833
224		0	5822		
Ramp "B" Quantities →	2762.1	→		→ 122	43419
	1247			0	10842
225		0	5887		
	1247			0	10885
224		0	5977		
	875			0	7962
226		0	6307		
	374			0	3474

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 98+15 to STA. 100+00

TUS-21-2633
TUS-250-11.60

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120

880
870
860

See S.B. U.S.R.250 X-Secs.

1:1

F-4665
888.95
102+00
866.0

2:1

See Ramp 'B' X-Secs.

F-5142
889.24
101+67
862.1

F-5389
889.38
101+50
861.2

F-5705
889.76
101+00
861.5

2:1

F-5815
890.08
100+50
861.8

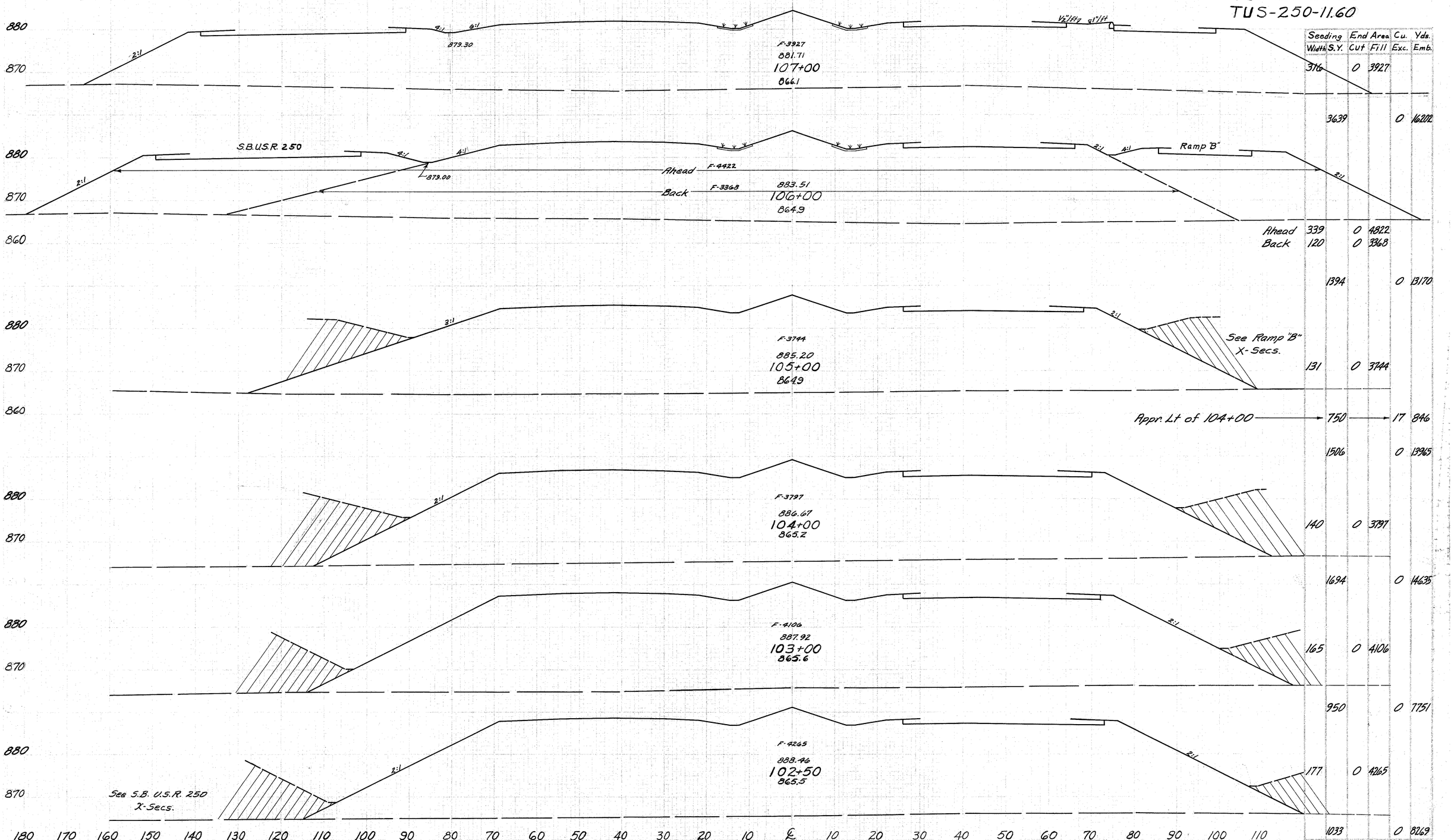
2:1

Channel Exc. Cu. Yds.	Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
	195		0	4665		
	726				0	5993
Channel Lt. 98+75 to 105+74 → 643	1355				→ 114	
	201		0	5142		
	383				0	3315
	205		0	5389		
	1161				0	10272
	213		0	5705		
	1203				0	10667
	220		0	5815		
	1231				0	10827

STA. 100+50 to STA. 102+00

TUS-21-26.33
TUS-250-11.60

180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90



	Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
	316		0	3927		
		3639			0	16202
Ahead	339		0	4822		
Back	120		0	3368		
		1394			0	13170
Appr. Lt of 104+00 →	750	→	17	846		
	1506		0	13965		
	140		0	3797		
		1694			0	14635
	165		0	4106		
		950			0	7751
	177		0	4265		
		1033			0	8269

STA. 102+50 to STA. 107+00

TUS-21-26.33
TUS-250-11.60

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120

870
860

4:1 F-1015 4:1

873.67
113+00
867.8

ESTIMATED QUANITIES

12" Pipe, Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)	48	Lin. Ft.
St'd. No. 6 Catch Basin	1	Each
Masonry	0.3	Cu. Yds.
Dumped Rock Channel Protection	10	Cu. Yds.

Quantities Carried to Sheet No. 23

4 SS

STA. 111+95
64.07' Rt.
F.L. 874.0
St'd. No. 6 C.B.
Prop. 6" Cl. F-1 pipe
F.L. 869.5
48'
3.13%
St'd. HW-E Headwall
10'
F.L. 868.0
30°
10'x10'x2½' Dumped Rock Pad

870
860

F-1201

874.26
112+00
867.6

65.34'
50'
10'
F.L. 874.88
St'd. No. 6 C.B.
F.L. 871.5
6.6%
St'd. HW-E Headwall
F.L. 868.2
30°
10'x10'x2½' Dumped Rock Pad

870
860

F-1422

875.20
111+00
866.7

3 SS

ESTIMATED QUANITIES

12" Pipe, Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)	50	Lin. Ft.
St'd. No. 6 Catch Basin	1	Each
Masonry	0.3	Cu. Yds.
Dumped Rock Channel Protection	10	Cu. Yds.

Quantities Carried to Sheet No. 23

870
860

4:1 F-1835 4:1

876.48
110+00
866.0

870
860

3:1 F-2469 3:1

878.11
109+00
865.5

870
860

S.B. U.S.R. 250
1"/ft.
2:1 F-2934 2:1

879.91
108+00
866.0

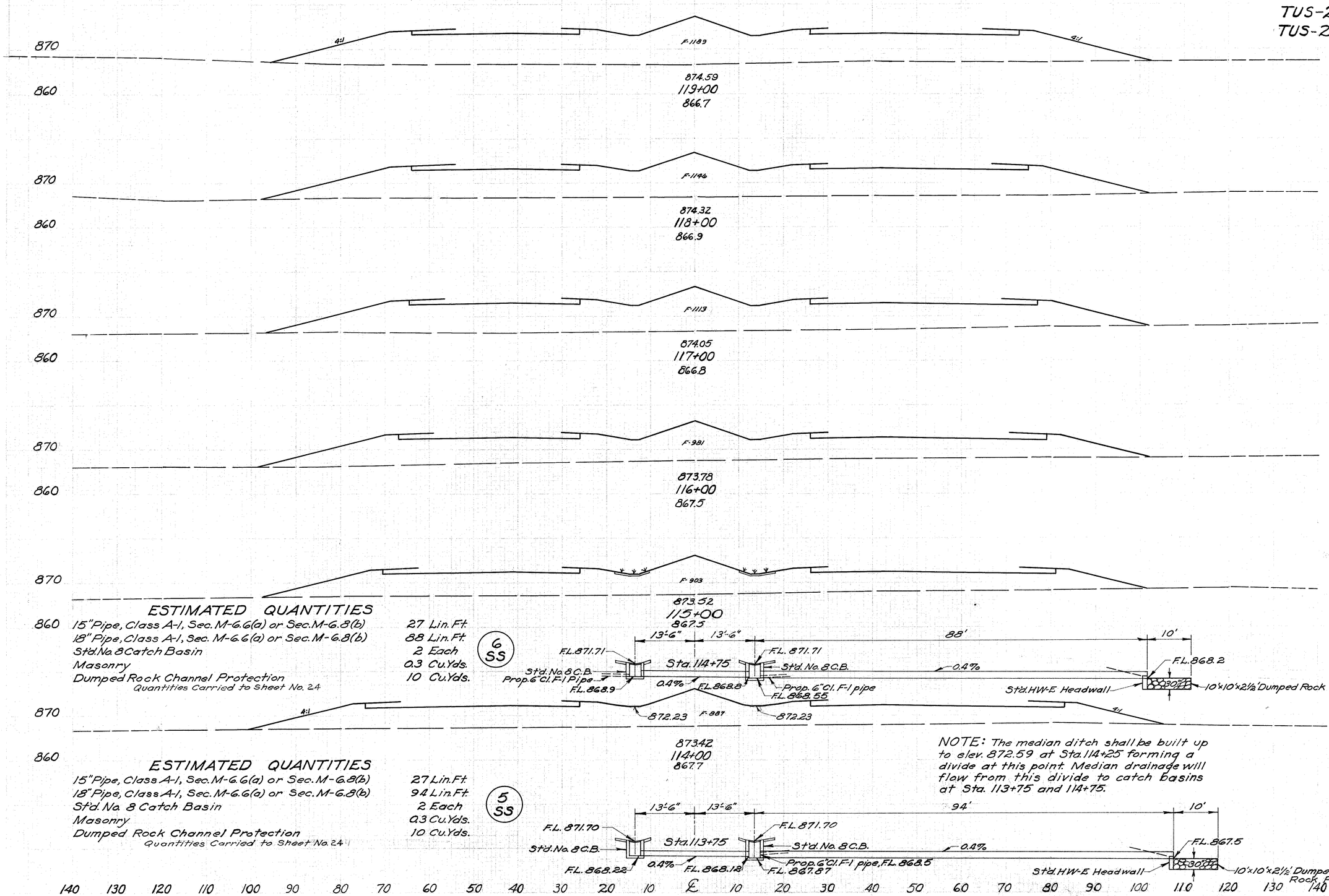
Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
220		0	1015		
	2461			0	4104
223		0	1201		
	2478			0	4851
223		0	1422		
	2494			0	6143
226		0	1895		
	2556			0	8081
234		0	2469		
	2717			0	10006
255		0	2934		
	3172			0	12706

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 108+00 to STA. 113+00

TUS-21-26.33
TUS-250-11.60

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120



ESTIMATED QUANTITIES

15" Pipe, Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)	27 Lin. Ft.
18" Pipe, Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)	88 Lin. Ft.
Std. No. 8 Catch Basin	2 Each
Masonry	0.3 Cu. Yds.
Dumped Rock Channel Protection	10 Cu. Yds.

Quantities Carried to Sheet No. 24

6 SS

ESTIMATED QUANTITIES

15" Pipe, Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)	27 Lin. Ft.
18" Pipe, Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)	94 Lin. Ft.
Std. No. 8 Catch Basin	2 Each
Masonry	0.3 Cu. Yds.
Dumped Rock Channel Protection	10 Cu. Yds.

Quantities Carried to Sheet No. 24

5 SS

NOTE: The median ditch shall be built up to elev. 872.59 at Sta. 114+25 forming a divide at this point. Median drainage will flow from this divide to catch basins at Sta. 113+75 and 114+75.

Seeding Width	S. Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
224		0	1189		
	2483			0	4324
223		0	1146		
	2472			0	4183
222		0	1113		
	2456			0	3878
220		0	981		
	2417			0	3488
215		0	903		
	2411			0	3315
219		0	887		
	2439			0	3522

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 114+00 to STA. 119+00

TUS-21-26.33
TUS-250-11.60

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120

870
860

4:1 4:1

875.93
124+00

870
860

1½:1 Ft. F-1313

875.80
123+50
868.4

870
860

F-1383

875.67
123+00
867.9

870
860

F-1430

875.53
122+50
867.5

870
860

13'-6" 13'-6" 86' 10'

F.L. 873.65 F.L. 873.65
Prop. 6"Cl. F-1 Pipe
Std. No. 8 C.B.
F-1403
F.L. 871.0
1.03%
3.96%
F.L. 867.2
F.L. 870.5
Prop. 6"Cl. F-1 Pipe
F.L. 870.75
St'd. HW-E Headwall
30"
10'x10'x2½' Dumped Rock Pad

875.40
122+00
867.4

870
860

2:1

F-1409

875.13
121+00
867.2

870
860

2:1 4:1 4:1

Va:1 Ft.
F-50
F-1255

874.86
120+00
865.7

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140

Exc.	87,852 C.Y.
Emb.	953,264 C.Y.
Channel Exc.	8,223 C.Y.
Seeding	248,602 S.Y.

Seeding Width	Seeding S.Y.	End Area Cut	End Area Fill	Cu. Yds. Exc.	Cu. Yds. Emb.
0		0	0		
	622			0	1208
224		0	1313		
	1247			0	2496
225		0	1383		
	1256			0	2605
227		0	1430		
	1256			0	2623
225		0	1403		
	2489			0	5207
223		0	1409		
	2483			0	4619
224		0	1305		
	2489			0	5026

7
SS

ESTIMATED QUANTITIES

12" Pipe, Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)	27 Lin. Ft.
15" Pipe, Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)	86 Lin. Ft.
Std. No. 8 Catch Basin	2 Each
Masonry	0.3 Cu. Yds.
Dumped Rock Channel Protection	10 Cu. Yds.

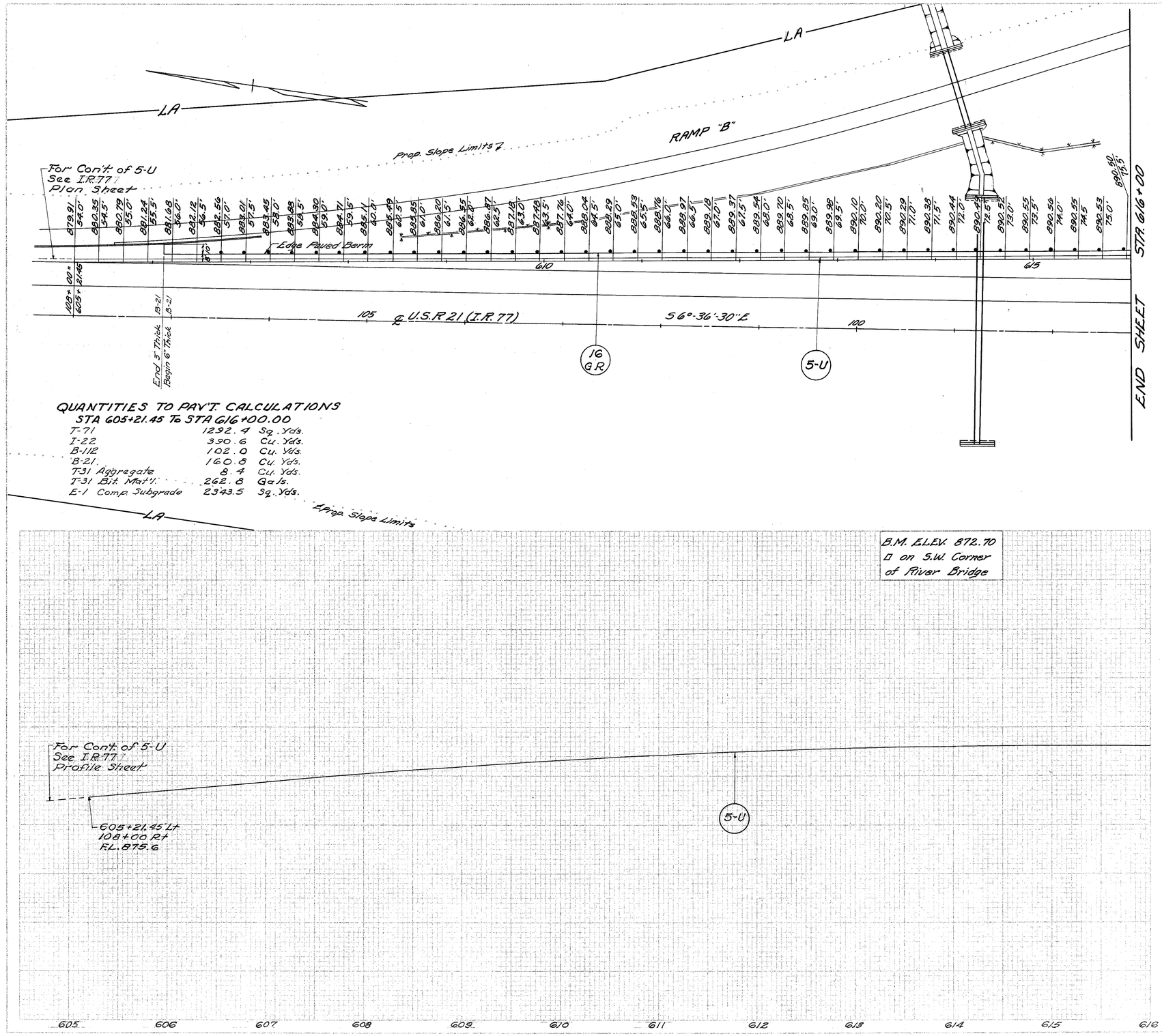
Quantities Carried to Sheet No. 24

STA. 120+00 TO STA. 124+00

FED. AID PROJECT	STATE	PROJECT	
2	OHIO		

38
235

TUS-21-26.33 TUS-250-11.60



QUANTITIES TO PAV'T. CALCULATIONS
STA 605+21.45 To STA 616+00.00

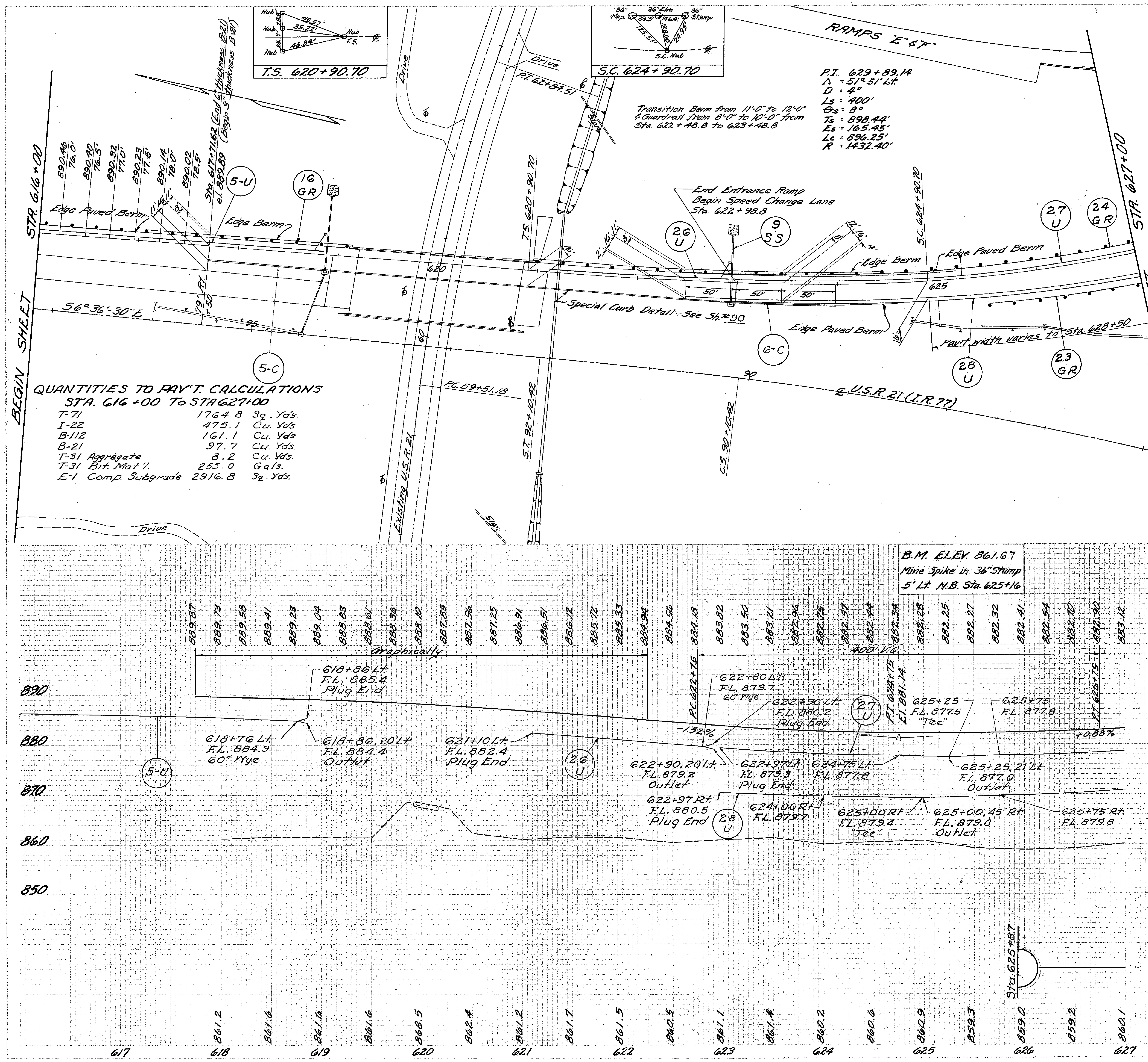
T-71	1292.4	Sq. Yds.
I-22	390.6	Cu. Yds.
B-112	102.0	Cu. Yds.
B-21	160.8	Cu. Yds.
T-31 Aggregate	8.4	Cu. Yds.
T-31 Bit. Mat'l.	262.8	Gals.
E-1 Comp. Subgrade	2343.5	Sq. Yds.

ESTIMATED QUANTITIES

SHEET NO.	STATION TO STATION		Pipe Encasing 6"Dia. Class 13 D-3034	Guardrail/ Standard
			Lin. Ft.	Lin. Ft.
16GR	609+72.4 to 616+00	Lt.		627.6
5-U	605+21.45 to 616+00	Lt.	1079	

9229
1079

ENTRANCE LANE NORTH BOUND U.S.R 250 PLAN & PROFILE STA. 605+21.45 to STA. 616+00

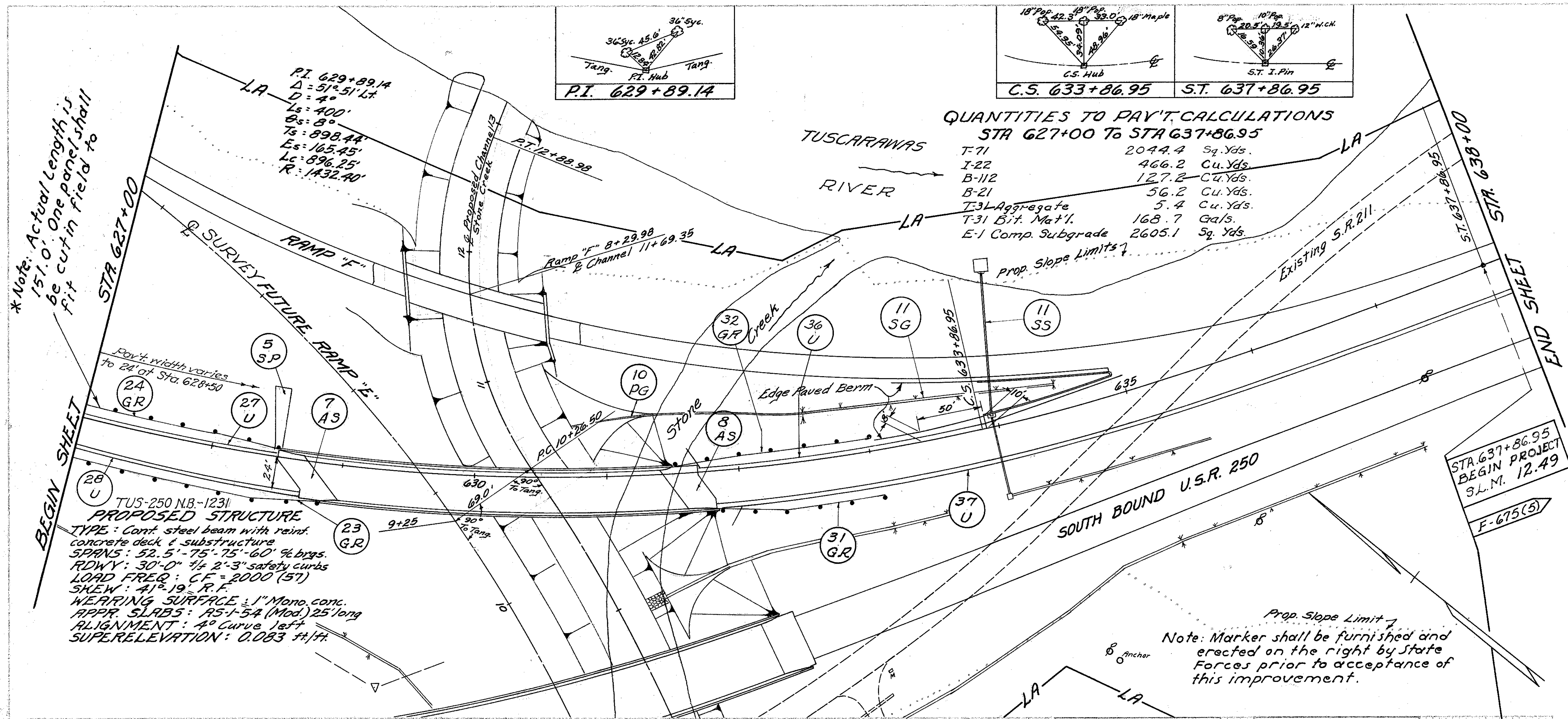


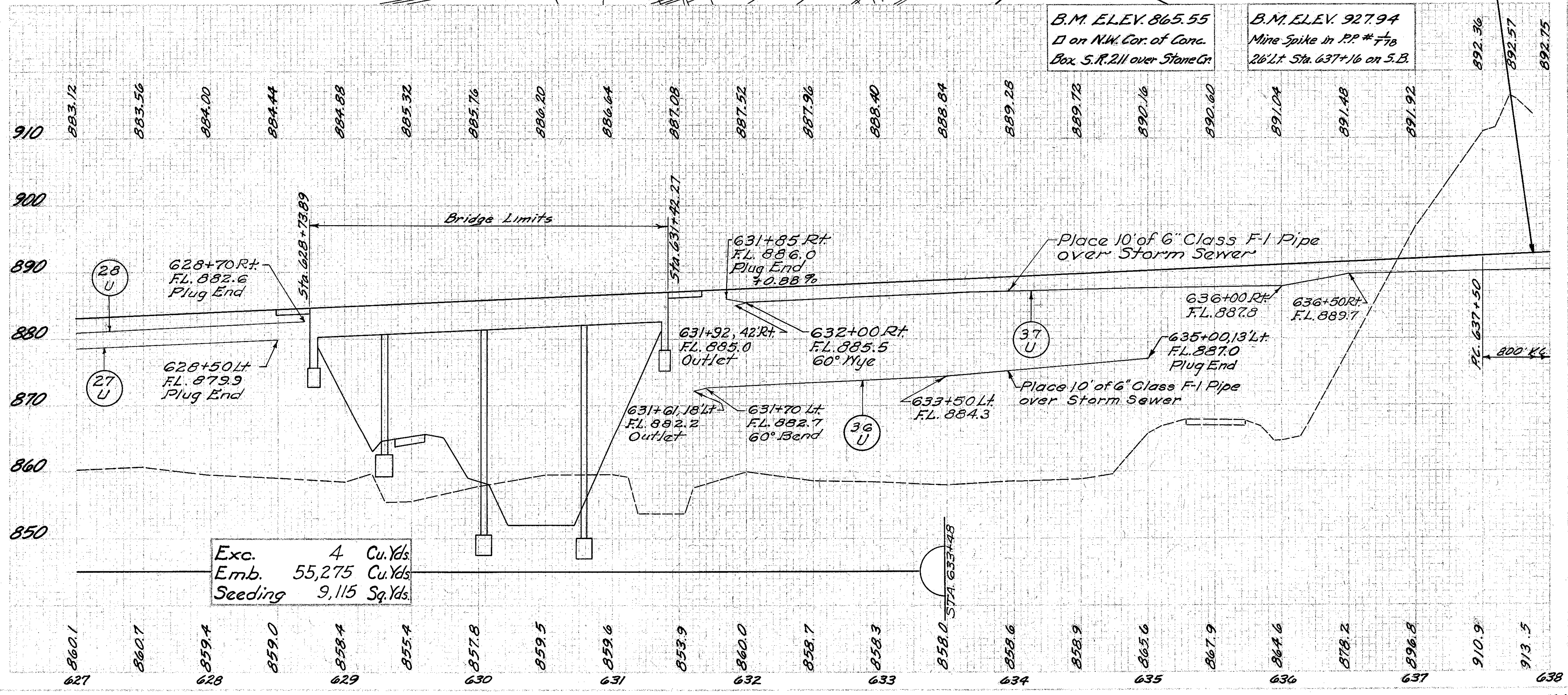
QUANTITIES TO PAV'T. CALCULATIONS
STA. 616+00 To STA 627+00

T-71	1764.8	Sq. Yds.
I-22	475.1	Cu. Yds.
B-112	161.1	Cu. Yds.
B-21	97.7	Cu. Yds.
T-31 Aggregate	8.2	Cu. Yds.
T-31 Bit. Mat'l.	255.0	Gals.
E-1 Comp. Subgrade	2916.8	Sq. Yds.

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	PIPE FOR CULV. & SEWERS 12" Class A-1 Sec. M-66(a) or M-6.8(b)	12" Class F-1	Specials Class F-1 12"x30° Bend	Standard No6 C. Basin	Masonry	Special Concrete Curb	Guardrail Standard	Dumped Rock Chann. Prot.	PIPE FOR DRAINS 6" Specials Class I-3 60° Wye	"TEE"	6" Class I-3 D=30"	8" Class F-1 Sec. M-64(e)	SEE SHEET NO.
			Lin. Ft.	Lin. Ft.	Each	Each	Cu. Yd.	Lin. Ft.	Lin. Ft.	C.Y.	Each	Each	Lin. Ft.	Lin. Ft.	
16-GR	616+00 to 619+09.90	Lt.							309.9						
23-GR	625+51.2 to 627+00	Rt.							150.8						
24-GR	620+99.8 to 627+00	Lt.							597.3						
5-U	616+00 to 618+86	Lt.									1		296	10	
26-U	621+10 to 622+90	Lt.									1		187	10	
27-U	622+97 to 627+00	Lt.										1	411	10	
28-U	622+97 to 627+00	Rt.										1	420	10	
5-C	617+71.62 to 618+93.84	Rt.						122.5							90
6-C	621+09.69 to 623+97.90	Rt.						289.9							90
9-SS	622+94	Rt.&Lt.	30	44	2	1	0.3			10					130
			30	44	2	1	0.3	412.4	1058	10	4 (60° Wye + "TEE", bracketed)		1314	40	





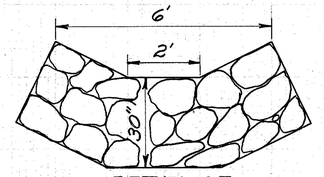
ESTIMATED QUANTITIES

Ref. No.	Station to Station	Side	Special Berm & Slope Protection Sq.Yd.	Guardrail Standard Lin.Ft.	Approach Slabs T=13" Sq.Yd.	Removal Existing Flexible Pav't Sq.Yd.	Pipe for Culv. & Sewers 15" Class A-1 Sec. M-6.6(a) or M-6.8(b) Lin.Ft.	15" Class F-1 Lin.Ft.	Special Class F-1 15"x30° Bend Each	Std. No 6 C.Basin Each	Std. No. 8 C.Basin Each	Sod S.Y.	Paved Gutter L.F.	Pipe for Drain 6" Specials Class I-3 60° Bend Each	60° Wye Each	6" Class I-3 D=30" Lin.Ft.	6" Class I-3 D=12 Sec. M-6.4(b) Lin.Ft.	8" Class F-1 Sec. M-6.4(c) Lin.Ft.	6" Class F-1 Lin.Ft.	Masonry Cu.YD.	Dumped Rock Chan. Prot. Cu.YD.	See Sheet No.
5-SP	628+40 to 628+54	Lt.	60																			8
23-GR	627+00 to 628+84.87	Rt.		186.7																		
24-GR	627+00 to 628+51.61	Lt.		*152.7																		
31-GR	631+82.51 to 633+04.6	Rt.		125.0																		
32-GR	631+55.03 to 633+05.6	Lt.		150.0																		
7-AS	628+48.89 to 628+73.89	Rt.&Lt.			88.2																	127
8-AS	631+42.27 to 631+67.27	Rt.&Lt.			87.4																	127
	637+00 to 637+86.95	Lt.				140																
27-U	627+00 to 628+50	Lt.														150						
28-U	627+00 to 628+70	Rt.														170						
36-U	631+61 to 635+00	Lt.												1		338		10	10			
37-U	631+85 to 637+86.95	Rt.													1	411	187	10	10			
10-PG	630+75 to 632+50	Lt.										60	180									
11-SG	632+50 to 634+50	Lt.										131										
11-SS	633+96	Rt.&Lt.					126	50	2	1	1									0.3	10	131
	I-77-3 (9) 83 TOTALS		60	614.4	175.6	140	126	50	2	1	1	191	180	2		1069	187	20	20	0.3	10	
	637+86.95 to 638+00					31											13					
37-U	637+86.95 to 638+00					31											13					

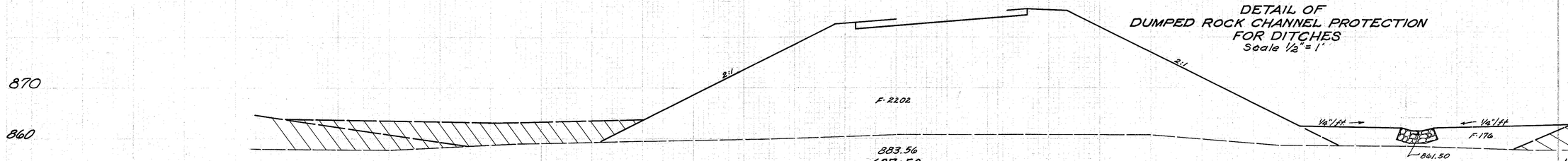
F-675 (5)

NORTH BOUND U.S.R. 250 PLAN & PROFILE STA. 627+00 to STA. 638

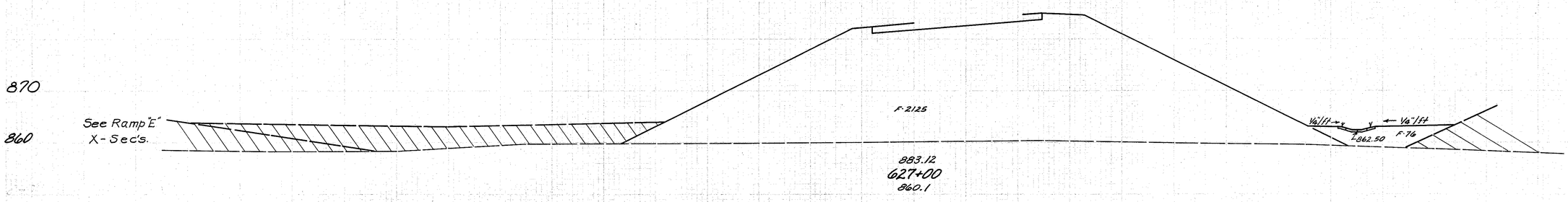
TUS-21-26.33
TUS-250-11.60



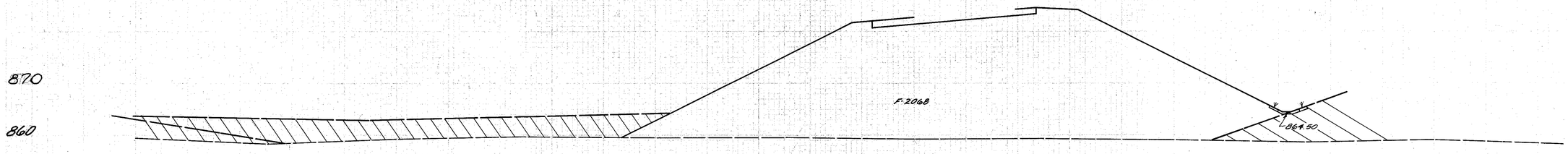
DETAIL OF
DUMPED ROCK CHANNEL PROTECTION
FOR DITCHES
Scale 1/2" = 1'



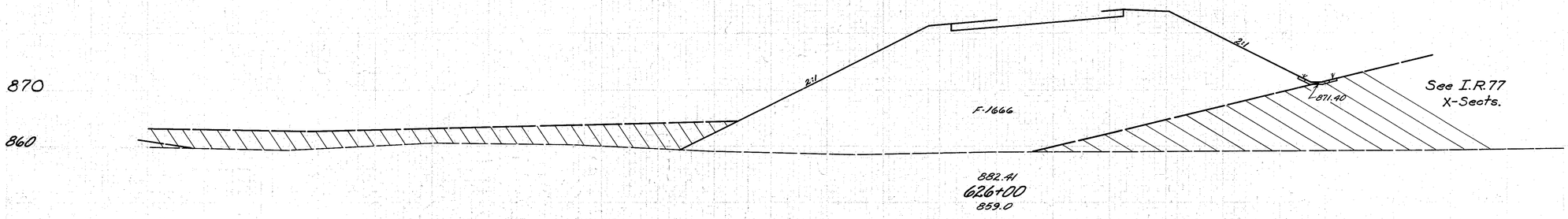
883.56
627+50
860.7



883.12
627+00
860.1



882.70
626+50
859.2



882.41
626+00
859.0

625+87 (See X-Sect. 87+50 Sh.#28)

Station	Seeding Width	Seeding S.Y.	End Area Cut	End Area Fill	Cu. Yds. Exc.	Cu. Yds. Emb.
170						
160						
150						
140						
130						
120						
110						
100						
90						
80						
70						
60						
50						
40						
30						
20						
10						
℄						
10						
20						
30						
40						
50						
60						
70						
80						
90						
100						
110						
120						
		978			0	4673
		159			0	2378
		800			0	4240
		129			0	2201
		622			0	3953
		95			0	2068
		486			0	3457
		80			0	1666
		116			0	776
		80			0	1559

NORTH BOUND U.S.R.250 STA.625+87 to STA.627+50

TUS-21-26.33
TUS-250-11.60

100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190

880
870
860

See Ramp "F" X-Secs.

2:1

F-2561

C-3

Channel X-Sects.

887.01
631+42.27 Normal to ℄
851.8

630+91 ZERO EARTHWORK

BRIDGE

629+21 ZERO EARTHWORK

880
870
860

See Ramp "E" X-Secs.

2:1

F-2170

1/4"/ft. → ← 1/4"/ft.

B61.00 F-484

884.65
628+73.89 Normal to ℄
858.5

880
870
860

2:1

F-2531

1/4"/ft. → ← 1/4"/ft.

F-488

B61.10

884.44
628+50
859.0

880
870
860

2:1

F-2409

1/4"/ft. → ← 1/4"/ft.

F-260

B61.30

See I.R. 77 X-Secs.

884.00
628+00
859.4

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
145		3	2561		
	413			3	2432
0		0	0		
0		0	0		
	591			0	2315
226		0	2654		
	599			0	2510
225		0	3019		
	1161			0	5267
193		0	2669		

NORTH BOUND U.S.R. 250 STA. 628+00 to STA. 631+42.27

TUS-21-26.33
TUS-250-11.60

633+48 (See South Bound X-Sect. Sta. 633+50 Sh.#58)

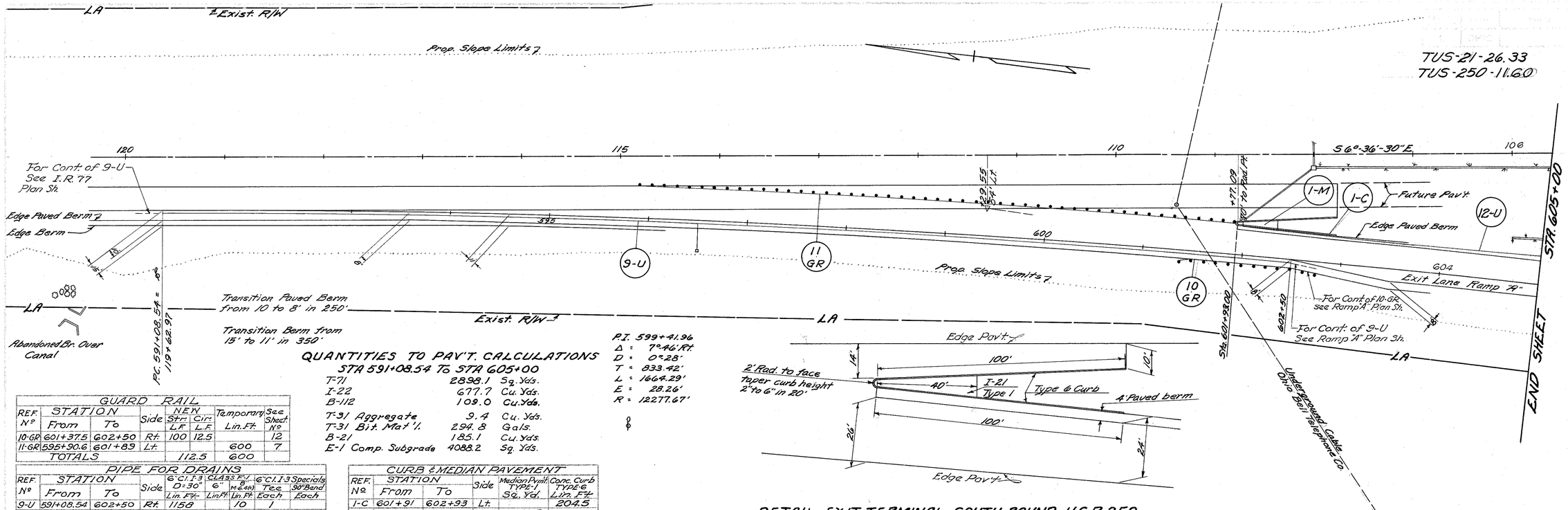
Ramp "F"
Tuscarawas River
Rock Fill
Stone Creek Channel Outlet
E.E.W.
Existing Stone Creek
See Ramp "F" X-Secs.
See S.B. U.S.R. 250 X-Sec's.
Ahead
Back
F-3290
F-4024
F-4168
F-2698
F-2890
882.80
888.40
633+00
858.3
875.90
876.00
887.96
632+50
858.7
872.00
871.00
887.52
632+00
860.0
860.50
887.17
631+60
857.6

Exc.	4 Cu. Yds.
Emb.	55,275 Cu. Yds.
Seeding	9,115 Sq. Yds.

	Seeding Width	End Area Cu. Yds. Cut	Fill Exc.	Emb.
	141	0	2747	
	728		0	5366
	132	0	3190	
	878		0	6772
	184	0	4024	
	1047		0	7585
Ahead	193	0	4168	
Back	86	0	2698	
	442		0	4139
	113	0	2890	
	254		1	1790

NORTH BOUND U.S.R. 250 STA. 631+60 to STA. 633+48

TUS-21-26.33
TUS-250-11.60



QUANTITIES TO PAV'T. CALCULATIONS
STA 591+08.54 To STA 605+00

T-71	2898.1	Sq. Yds.
I-22	677.7	Cu. Yds.
B-112	109.0	Cu. Yds.
T-31 Aggregate	9.4	Cu. Yds.
T-31 Bit. Mat'l.	294.8	Gals.
B-21	185.1	Cu. Yds.
E-1 Comp. Subgrade	4088.2	Sq. Yds.

P.I. 599+41.96
Δ = 7°-46'-Rt.
D = 0°-28'
T = 833.42'
L = 1664.29'
E = 28.26'
R = 12277.67'

Underground Cable Ohio Bell Telephone Co.

DETAIL-EXIT TERMINAL SOUTH BOUND U.S.R. 250
Scale: 1" = 20'

GUARD RAIL

REF. Nº	STATION From	STATION To	Side	NEW Str. L.F.	NEW Cir. L.F.	Temporary Lin. Ft.	See Sheet Nº
10-GR	601+37.5	602+50	Rt.	100	12.5		12
11-GR	595+90.6	601+83	Lt.			600	7
TOTALS					112.5	600	

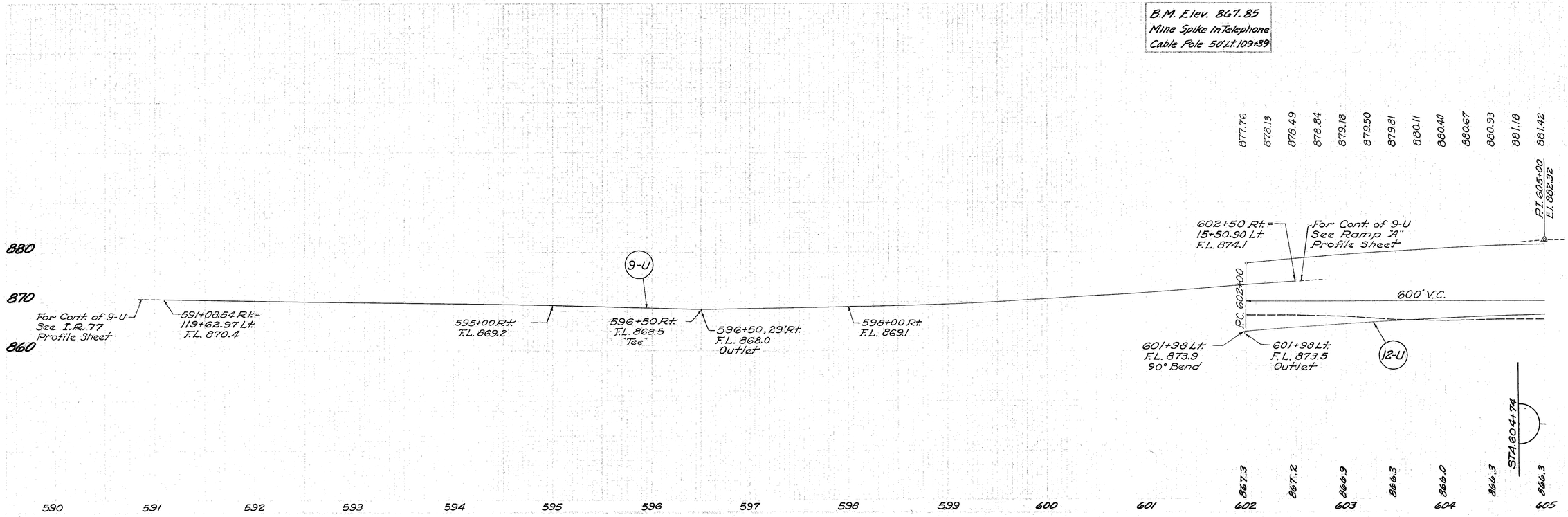
PIPE FOR DRAINS

REF. Nº	STATION From	STATION To	Side	6" C.I. I-3 D=30" Lin. Ft.	CLASS F-1 6" Lin. Ft.	8" M.4(6) Lin. Ft.	6" C.I. I-3 Tee Each	Specials 90° Bend Each
9-U	591+08.54	602+50	Rt.	1158		10	1	
12-U	601+98	605+00	Lt.	302	5			1
TOTALS				1460	5	10	2	

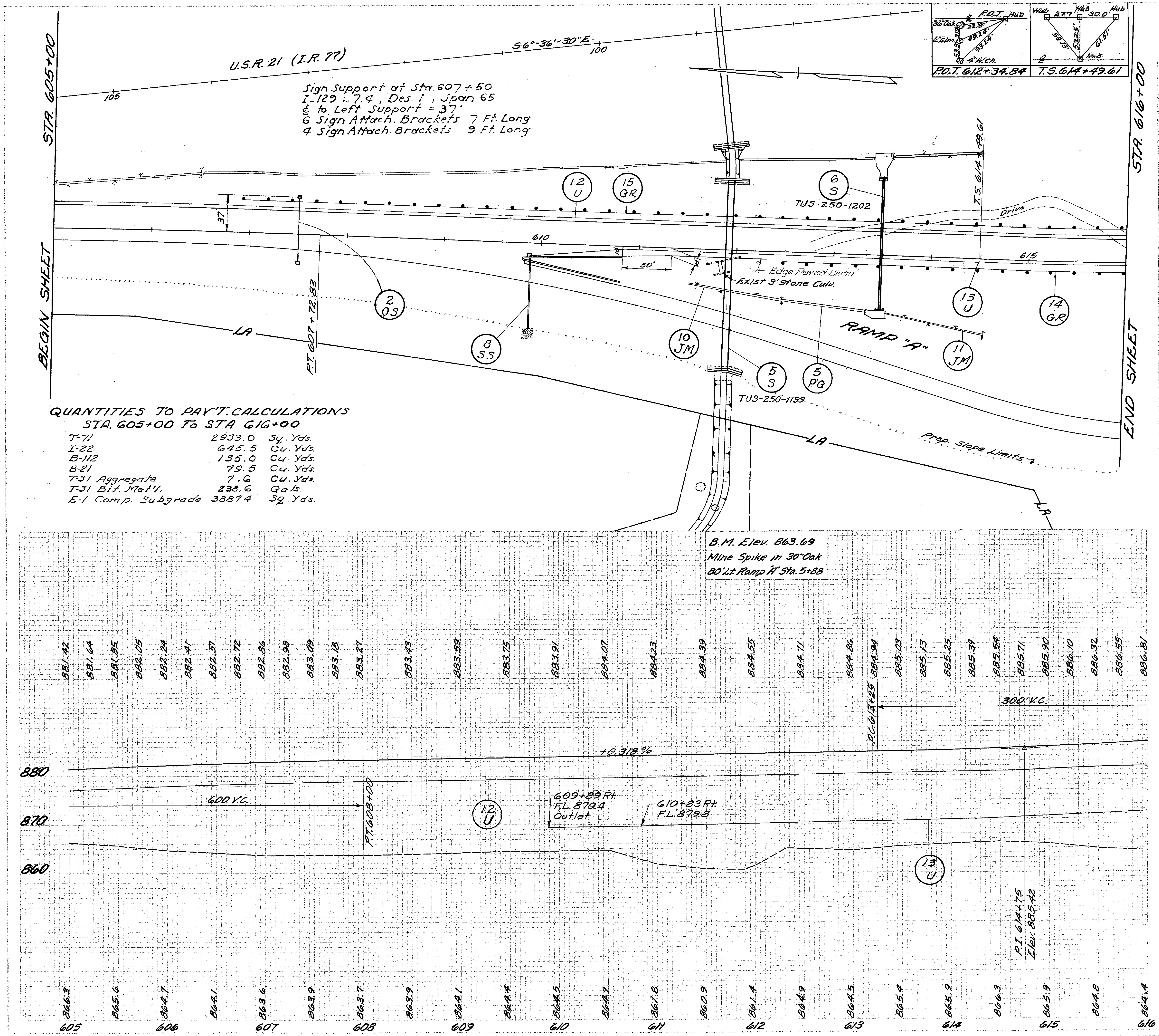
CURB & MEDIAN PAVEMENT

REF. Nº	STATION From	STATION To	Side	Median Pvmt. TYPE-1 Sq. Yd.	Conc. Curb TYPE-6 Lin. Ft.
1-C	601+91	602+93	Lt.		204.5
1-M	601+91.5	602+33	Lt.	27.5	
TOTALS				27.5	204.5

B.M. Elev. 867.85
Mine Spike in Telephone
Cable Pole 50' Lt. 109+39



EXIT LANE SOUTH BOUND U.S.R. 250 PLAN & PROFILE STA. 591+08.54 to STA. 605+00



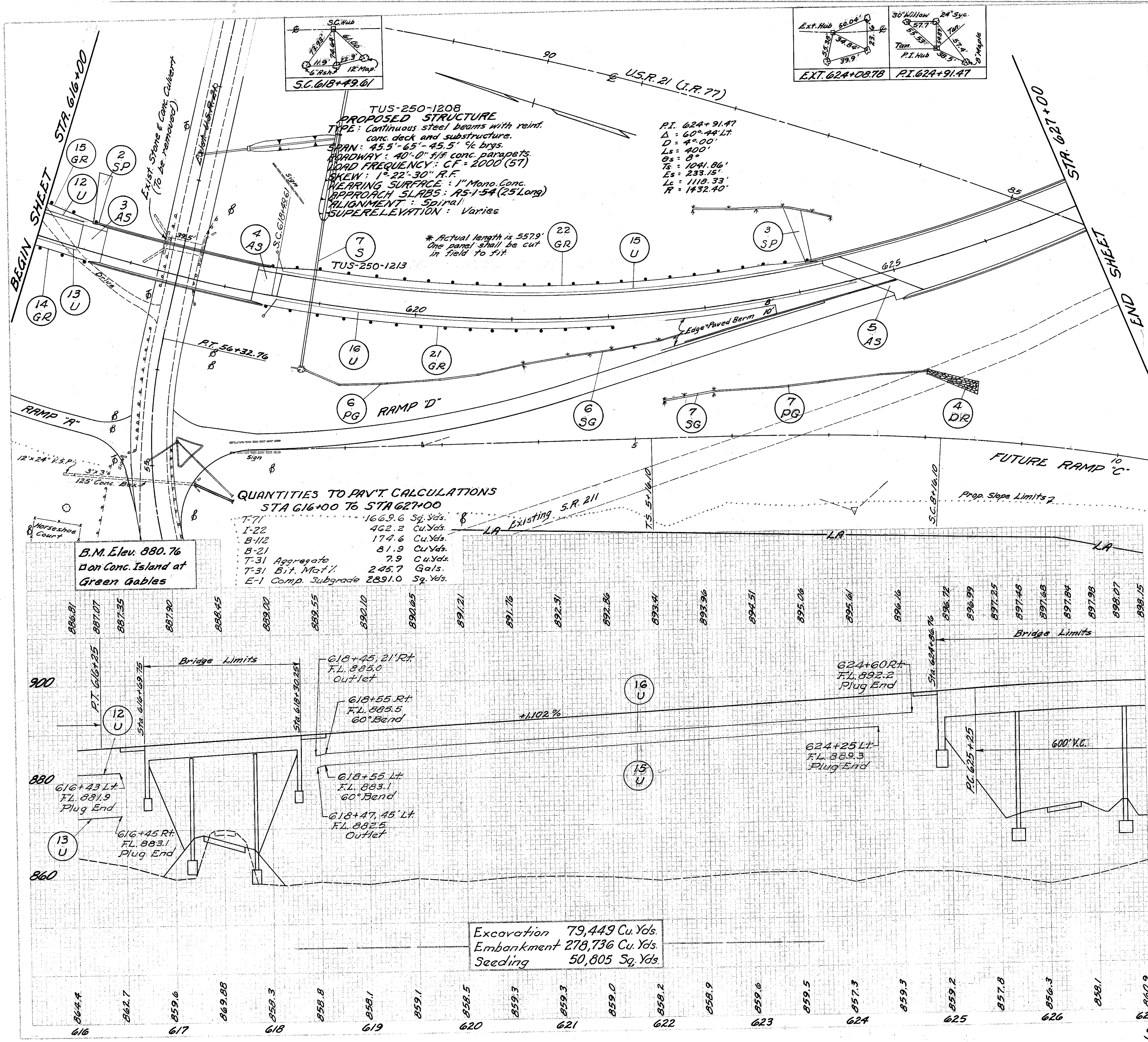
QUANTITIES TO PAV'T. CALCULATIONS
STA. 605+00 To STA 616+00

T-71	2933.0	Sq. Yds.
I-22	645.5	Cu. Yds.
B-112	135.0	Cu. Yds.
B-21	79.5	Cu. Yds.
T-31 Aggregate	7.6	Cu. Yds.
T-31 Bit. Mat'l.	238.6	Gals.
E-1 Comp. Subgrade	3887.4	Sq. Yds.

ESTIMATED QUANTITIES

Ref. No.	Station to Station	Side	Over-head Sign Support SPAN=65 (Each)	Concrete for Sign Support (Cu. Yd)	Guardrail Standard (Lin. Ft.)	Pipe for Drains: 6" Class I3 D=30" (Lin. Ft.)	Pipe for Drains: 6" Class F1 (Lin. Ft.)	Paved Gutter (Lin. Ft.)	Jute Matting (S.Y.)	Sod (S.Y.)	Riprap 6" Reinf. Conc. (S.Y.)	Channel Excav. (C.Y.)	Dumped Rock Chann. Prot. (C.Y.)	Masonry (C.Y.)	Std. No 6 C.Basin (Each)	Pipe for Culv. & Sewers: 12" Class A-1 Sec. M-6.6(a) or M-6.8(b) (Lin. Ft.)	Pipe for Culv. & Sewers: 12" Class F1 (Lin. Ft.)	Pipe for Culv. & Sewers: 12"x30" Band Class F1 (Each)	Pipe for Culv. & Sewers: 24" Class A-1 Sec. M-6.6(d) (Lin. Ft.)	Pipe for Culv. & Sewers: 72" Class A-1 Sec. M-6.6(4) (Lin. Ft.)	Removal Parts of Exist. Struct. (Cu. Yd)	See Sheet No.
2-OS	607+50	Rt.&Lt.	1	9.3																		10
14-GR	612+46.9 to 616+00	Rt.			353.3																	
15-GR	606+92.3 to 616+00	Lt.			907.3																	
12-U	605+00 to 616+00	Lt.				1100																
13-U	609+89 to 616+00	Rt.				602	10															
5-S	611+92.90	Rt.&Lt.									60	50		57.0						198	20	137
6-S	613+50	Rt.&Lt.									46	5		10.2					136			138
8-SS	609+88	Rt.											10	0.3	1	42	36	2				49
10-JM	611+50 to 612+50	Rt.							89													
11-JM	613+55 to 614+55	Rt.							89													
5-PG	612+50 to 613+33	Rt.						85		28												
			1	9.3	1260.6	1702	10	85	178	28	106	55	10	67.5	1	42	36	2	136	198	20	

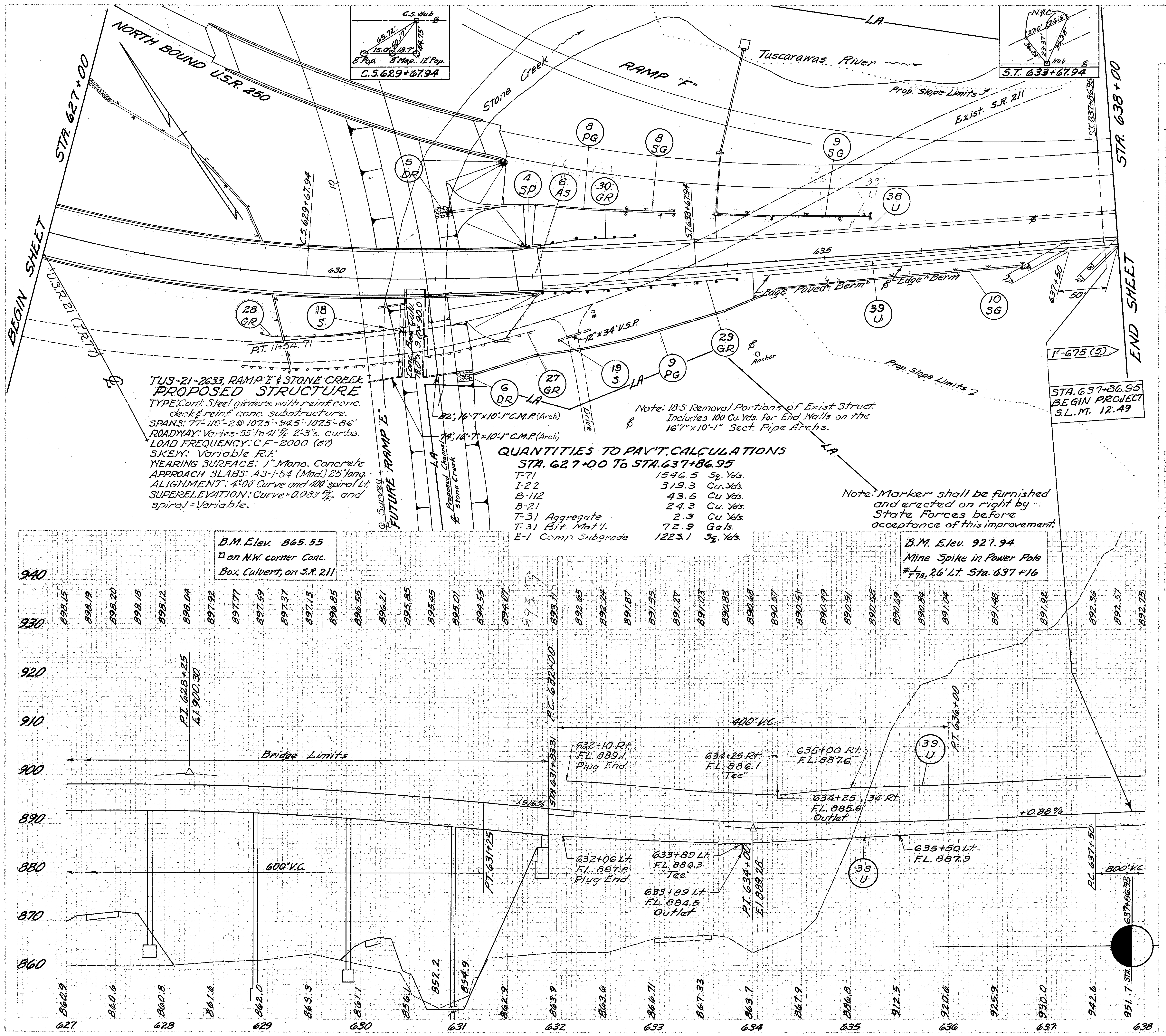
SOUTH BOUND U.S.R. 250 PLAN & PROFILE STA. 605+00 to STA. 616+00



ESTIMATED QUANTITIES

Sheet No.	Station to Station	Side	Special Berm & Slope Protection (Sq. Yd.)	Guardrail Standard (Lin. Ft.)	Pipe for Drains: 6" Class I-3 D=30" (Lin. Ft.)	Pipe for Drains: 8" Class F-1 Sec. M-64(c) (Lin. Ft.)	Pipe for Drains: 6" Special Class I-3 60° Bend (Each)	Approach Slabs T=13" (Sq. Yd.)	Paved Gutter (Lin. Ft.)	Sod (S.Y.)	Dumped Rock Chan. Prot. (C.Y.)	24" Pipe Class A-1 Sec. M-66(d) (Lin. Ft.)	Masonry (Cu. Yd.)	Channel Excav. (Cu. Yd.)	Riprap 6" Reinf. Conc. (Sq. Yd.)	See Sheet No.
2-SP	616+43 to 616+57	Lt.	60													8
3-SP	624+00 to 624+18	Lt.	65													8
14-GR	616+00 to 616+59.00	Rt.		59.2												
15-GR	616+00 to 616+55.62	Lt.		55.2												
21-GR	618+44.55 to 622+04.5	Rt.		362.5												
22-GR	618+43.81 to 624+16.69	Lt.		562.5*												
12-U	616+00 to 616+43	Lt.			43											
13-U	616+00 to 616+45	Rt.			45											
15-U	618+55 to 624+25	Lt.			580	10	1									
16-U	618+55 to 624+60	Rt.			615	10	1									
3-AS	616+44.75 to 616+69.75	Lt.						66.7								
4-AS	618+30.25 to 618+55.25	Lt.						66.7								
5-AS	624+61.76 to 624+86.76	Rt.&Lt.						155.0								126
7-S	618+90	Rt.&Lt.										154	10.2	8	37	139
6-PG	618+96 to 621+13	Rt.							232	77						
7-PG	623+00 to 625+07	Rt.							225	74						
6-SG	621+13 to 623+00	Rt.								132						
7-SG	622+50 to 623+00	Rt.								34						
4-DR	625+07 to 625+50	Rt.									23					
			125	1039.4	1283	20	2	288.4	457	317	23	154	10.2	8	37	

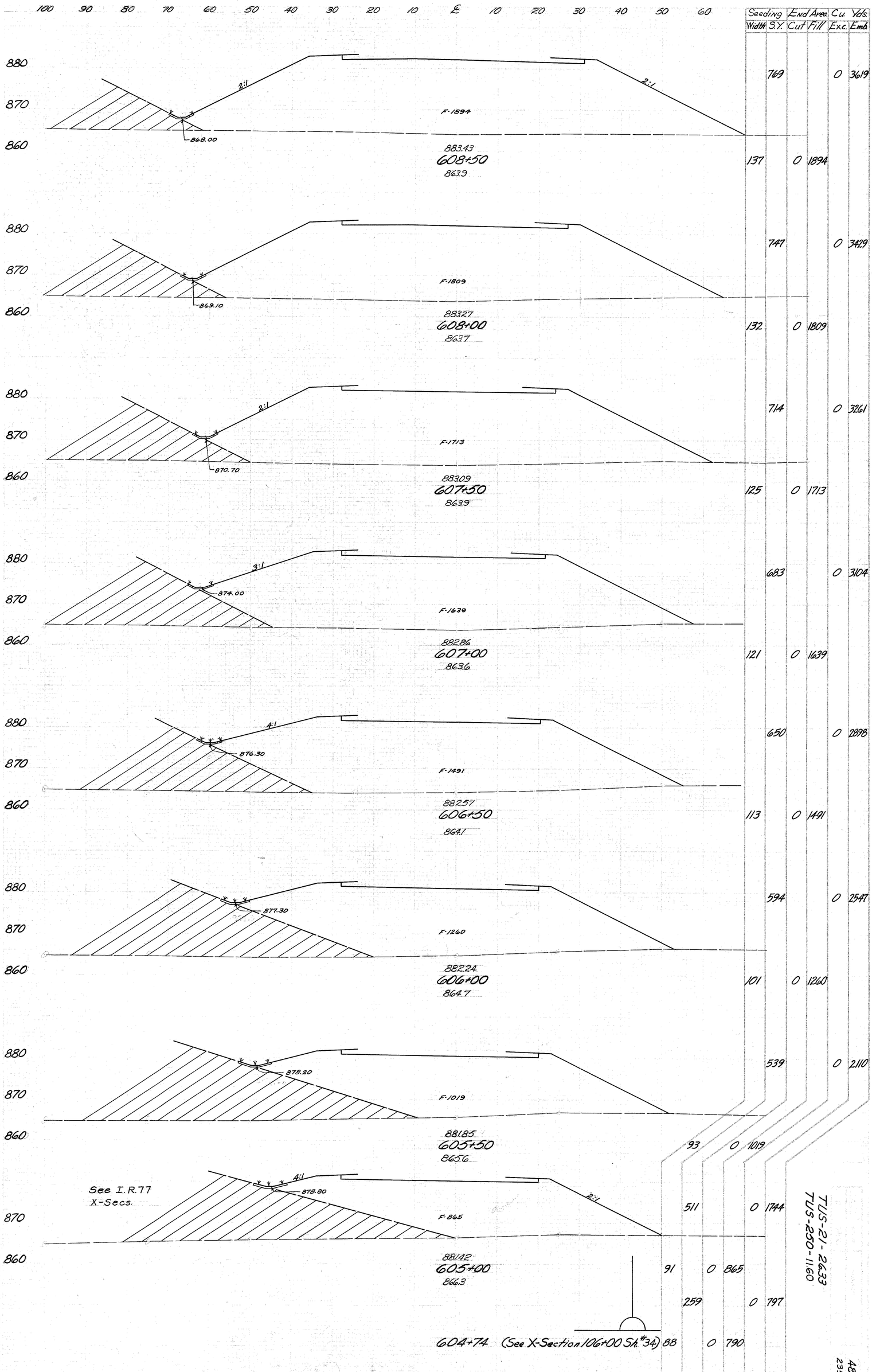
SOUTH BOUND U.S.R. 250 PLAN & PROFILE STA. 616+00 to STA. 627+00



ESTIMATED QUANTITIES

Ref. No.	Station to Station	Side	Special Berm & Slope Protection Sq. YD	Guardrail Standard Lin. Ft.	Guardrail Remove & Store Lin. Ft.	Approach Slab T=13" Sq. Yd.	Removal Ports. of Exist. Str. Cu. Yd.	Pipe Remove & Store 16'7"x10'1" Pipe Arch Lin. Ft.	Pipe Remove 15" & Under Lin. Ft.	Dumped Rock Chann Prot. Cu. Yd.	Paved Gutter Lin. Ft.	Sod Gutter Sq. Yd.	Pipe for Drains: 6" Class I-3 D=30" Lin. Ft.	Pipe for Drains: 6" Class I-3 D=12 M-6.4(h) Lin. Ft.	Pipe for Drains: 8" Class F1 M-6.4(c) Lin. Ft.	Pipe for Drains: 6" Class F1 Lin. Ft.	Pipe for Drains: 6" Special Class I-3 "Tee" Each	See Sheet No.
4-SP	631+94 to 632+07	Lt.	55															8
27-GR	629+10 to 632+00	Rt.			304													
28-GR	629+25 to 630+15	Rt.			192													
30-GR	631+95.10 to 633+08.3	Lt.		112.5														
6-AS	631+83.31 to 632+08.31	Rt.&Lt.				117.9												126
18-S	630+45 to 631+10	Rt.					440	156										
19-S	632+22 to 632+57	Rt.							34									
38-U	632+06 to 637+86.95	Lt.											307	287		10	1	
5-DR	631+10	Lt.								17								
6-DR	631+25	Rt.								17								
8-PG	631+20 to 633+00	Lt.									180	60						
9-PG	631+35 to 635+00	Rt.									380	125						
8-SG	633+00 to 633+50	Lt.										35						
9-SG	633+93 to 635+50	Lt.										107						
10-SG	635+00 to 637+00	Rt.										136						
	I-77-3(9)83 TOTALS		55	112.5	496	117.9	440	156	34	34	560	463	307	287		10	1	
38-U	637+86.95 to 638+00	Lt.												13	10		1	
39-U	632+10 to 638+00	Rt.											280	325				
29-GR	632+04.14 to 634+03.8	Rt.		200														
	F-675 (5)			200									280	338	10		1	

SOUTH BOUND U.S.R. 250 PLAN & PROFILE STA. 627+00 to STA. 638+00



Seeding Width	S.Y.	End Area Cut	Fill	Cu Yds. Exc.	Emb.
	769			0	3619
137		0	1894		
	747			0	3429
132		0	1809		
	714			0	3261
125		0	1713		
	683			0	3104
121		0	1639		
	650			0	2898
113		0	1491		
	594			0	2547
101		0	1260		
	539			0	2110
93		0	1019		
	511			0	1744
91		0	865		
	259			0	797
88		0	790		

TUS-21-2633
TUS-250-11.60

TUS-21-26.33
TUS-250-11.60

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120

880
870
860

6:1 8:1 880.80 2:1 2:1 F-2871 861.50

884.23
611+00
861.8

880
870
860

6:1 V½"/Ft. Ramp "A" F-2631 862.90

884.07
610+50
864.7

880
870
860

See I.R.77
X-Secs.
F-2365 863.40

883.91
610+00
864.5

880
870
860

F-2130 865.70

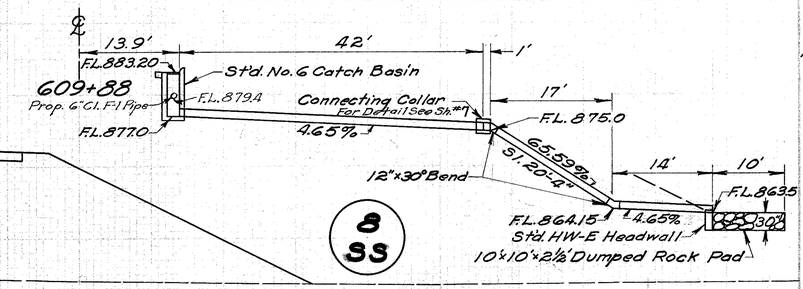
883.75
609+50
864.4

880
870
860

2:1 2:1 F-2014 866.50

883.59
609+00
864.1

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140



ESTIMATED QUANTITIES

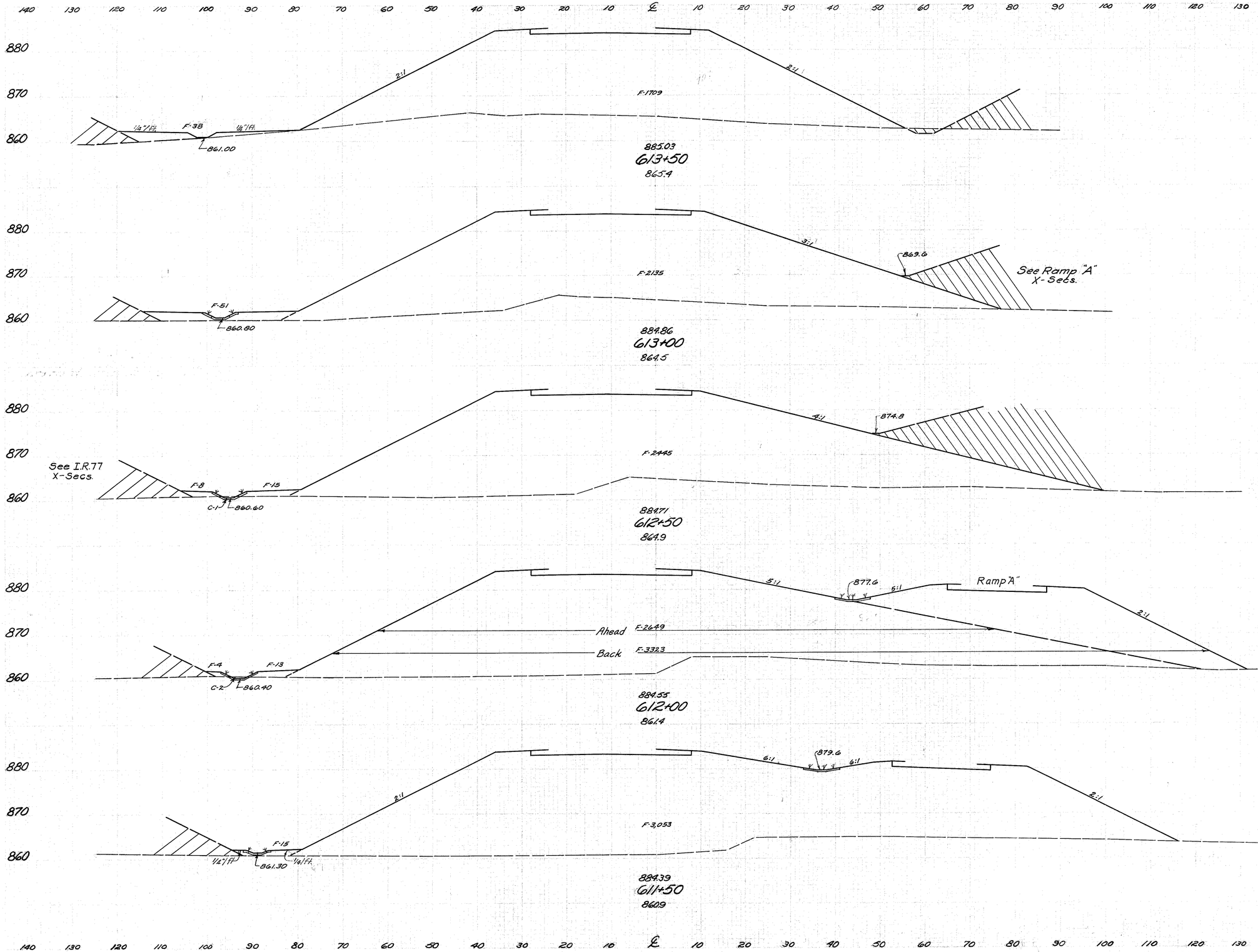
12" Pipe, Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)	42 Lin. Ft.
12" Pipe, Class F-1	36 Lin. Ft.
Pipe Special, Class F-1, (12"x30° Bend)	2 Each
Std. No. 6 Catch Basin	1 Each
Masonry	0.3 Cu. Yds.
Dumped Rock Channel Protection	10 Cu. Yds.

Quantities Carried to Sheet No. 45

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
	1128			0	5499
194		0	2871		
	1011			0	5094
170		0	2631		
	881			0	4626
147		0	2365		
	800			0	4162
141		0	2130		
	781			0	3837
140		0	2014		

SOUTH BOUND U.S.R. 250 STA. 609+00 to STA. 611+00

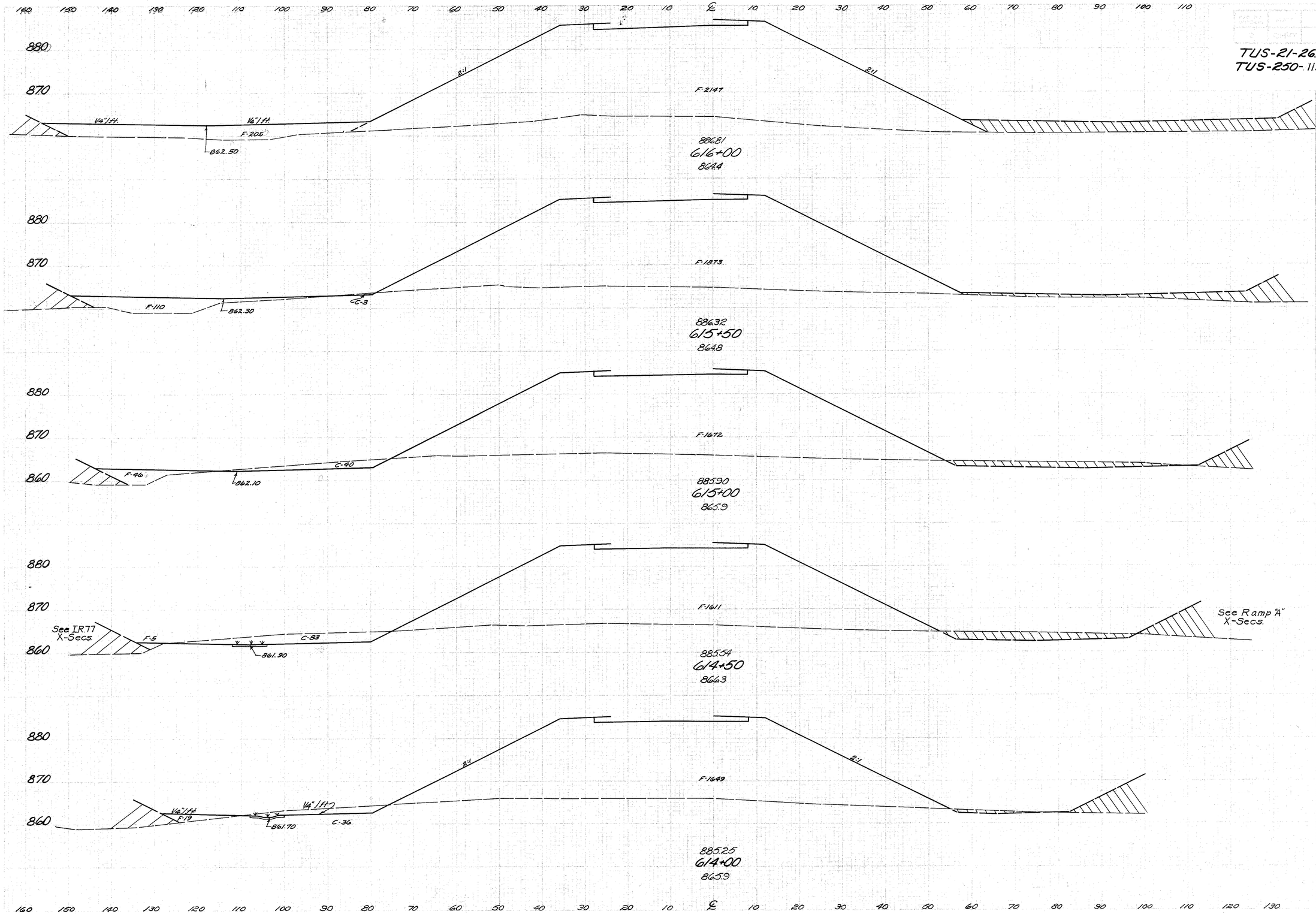
TUS-21-26.33
TUS-250-11.60



	Seeding Width	S.Y.	End Area Cut	Fill	Cu Yds. Exc.	Emb.
	151		0	1747		
		811			0	3642
	141		0	2186		
		739			1	4309
	125		1	2468		
		661			3	4154
Ahead	113		2	2666		
Back	229		2	3340		
		1225			2	5933
	212		0	3068		

SOUTH BOUND U.S.R. 250 STA. 611+50 to STA. 613+50

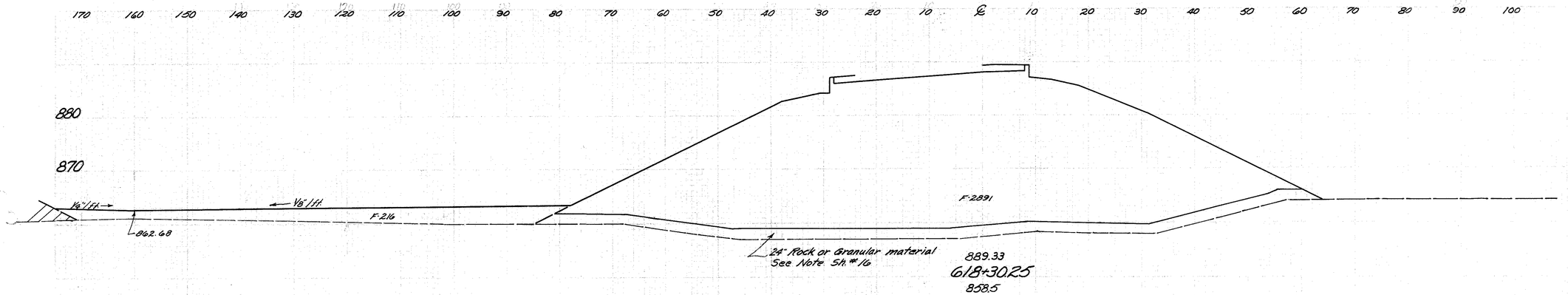
TUS-21-2633
TUS-250-11.60



Seeding Width	End Area S.Y.	Cu. Yds. Cut	Fill	Exc.	Emb.
188	0	2352			
	1028			3	4014
182	3	1983			
	983			40	3427
172	40	1718			
	928			114	3087
162	83	1616			
	889			110	3041
158	36	1668			
	858			33	3162

SOUTHBOUND U.S. R 250 STA 614+00 to STA 616+00

TUS-21 - 26.33
TUS-250 - 11.60

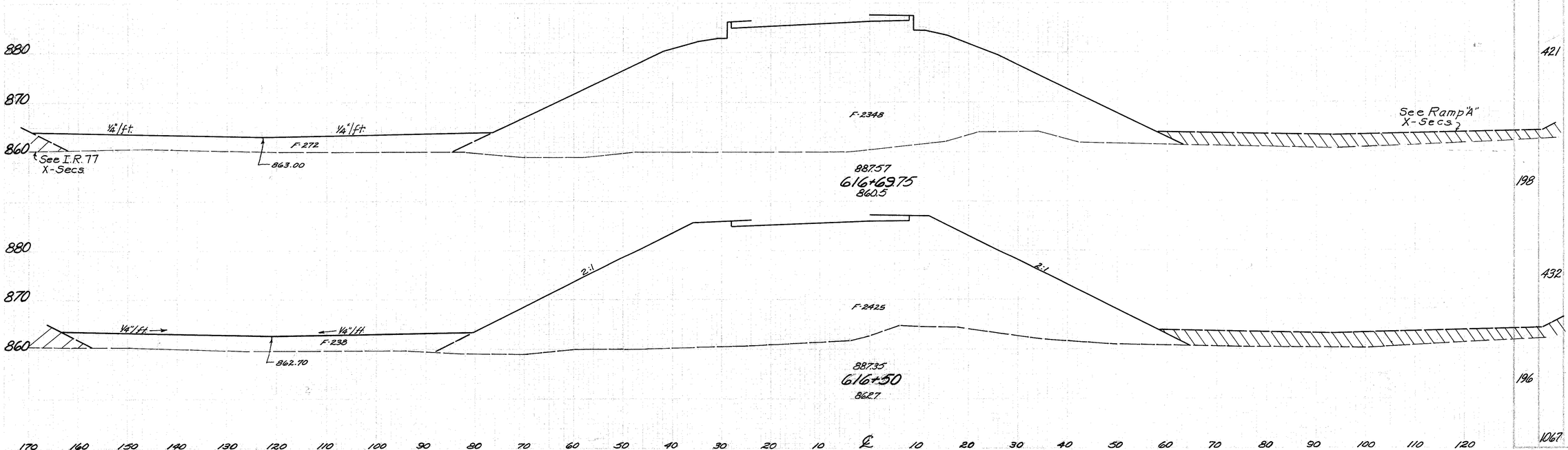


Seeding Width	End Area S.Y.	Cu. Yds. Cut	Fill	Exc.	Emb.
	495			0	2298
235		0	3107		
	578			0	2546

618+30.25 ZERO EARTHWORK

BRIDGE

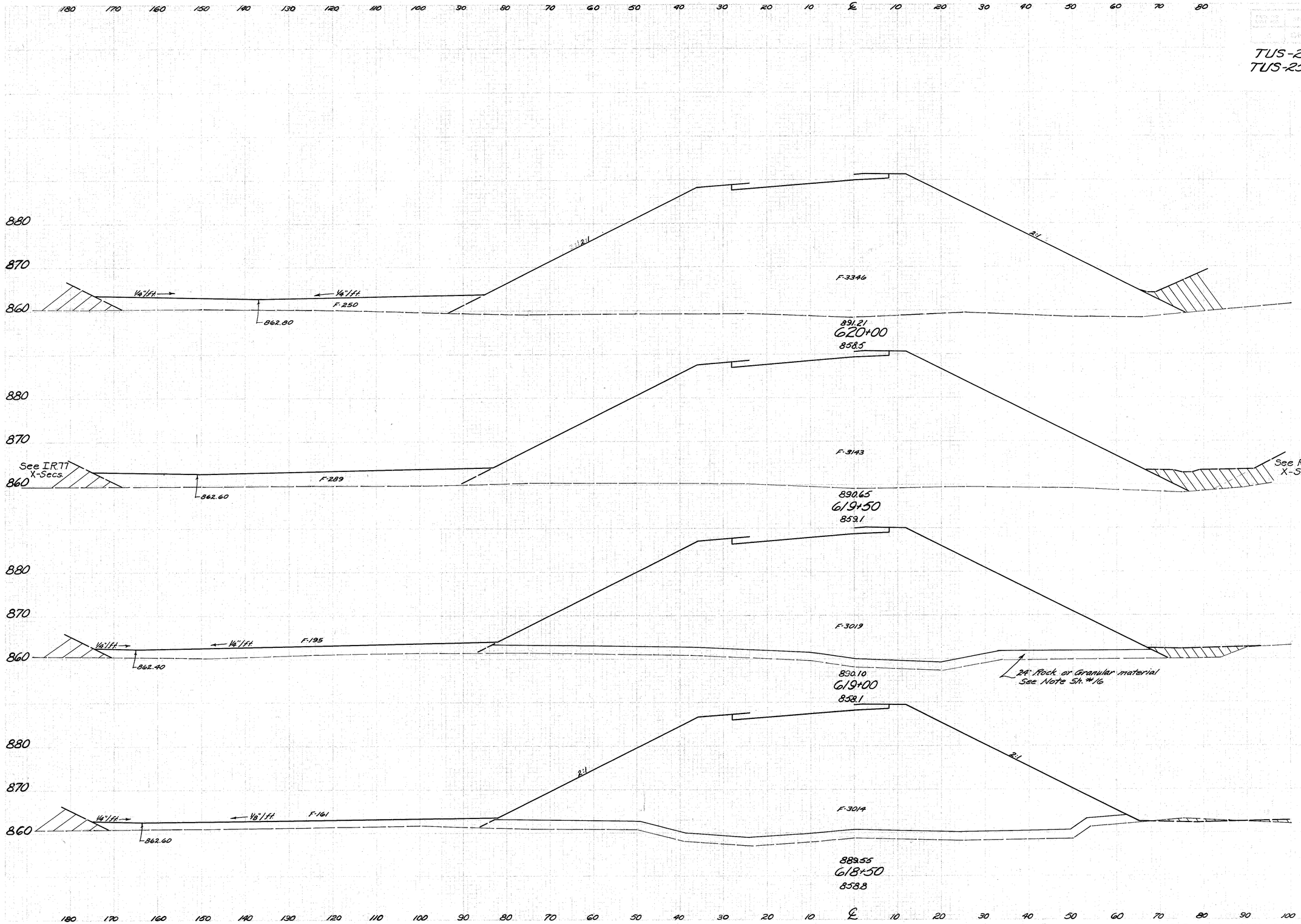
617+08 ZERO EARTHWORK



	421			0	1856
198		0	2620		
	432			0	1932
196		0	2663		
	1067			0	4644

SOUTH-BOUND U.S.R. 250 - STA. 616+50 to STA. 618+30.25

TUS-21-26.33
TUS-250-11.60

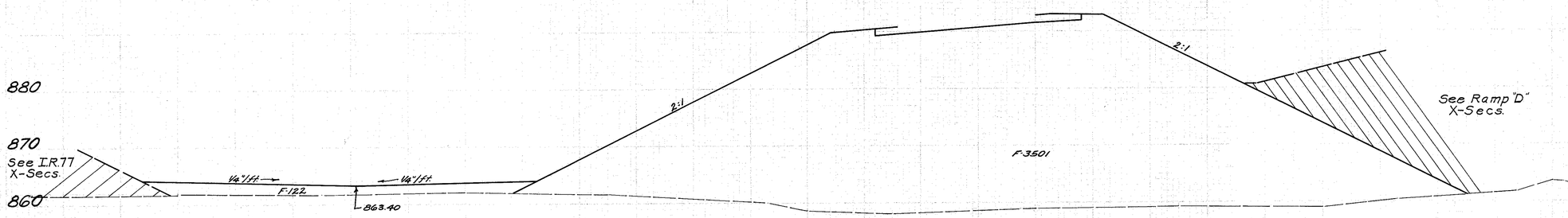


Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
	1169			0	6619
216		0	3596		
	1203			0	6507
217		0	3432		
	1206			0	6154
217		0	3214		
	1203			0	5916
216		0	3175		

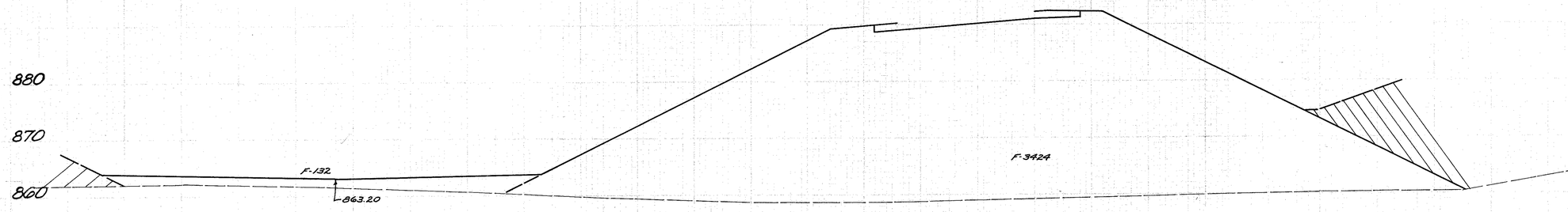
SOUTH BOUND - U.S.R. 250 - STA. 618+50 to STA. 620+00

TUS-21 - 26.33
TUS-250 - 11.60

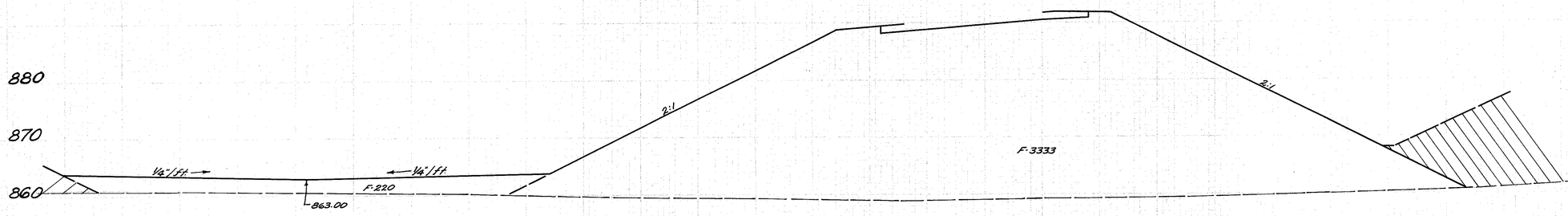
180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90



892.86
621+50
859.0



892.31
621+00
859.3



891.76
620+50
859.3

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
	864		0		1296
	165		0		3623
	975		0		6697
	186		0		3556
	1086		0		6582
	205		0		3553

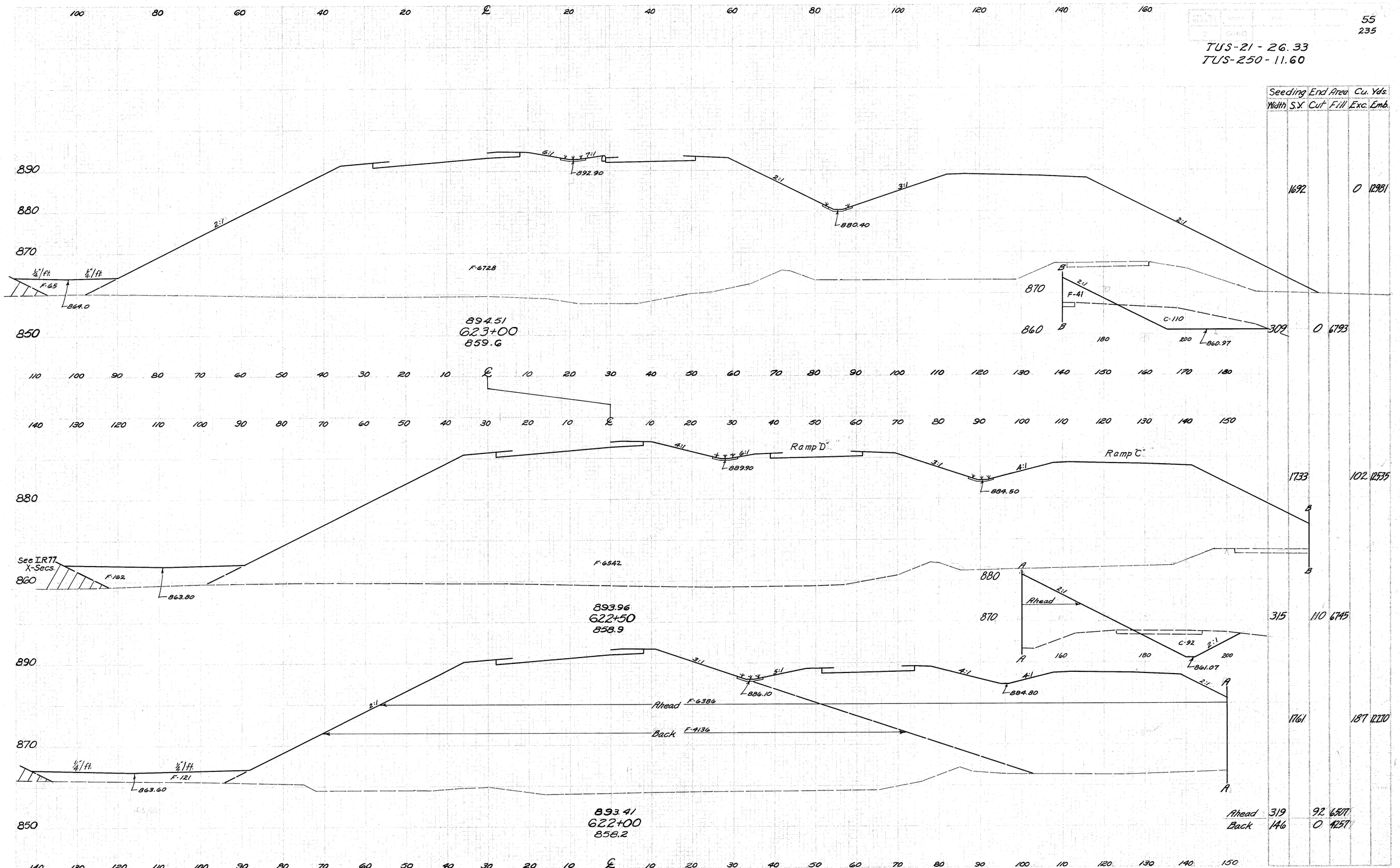
170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110

SOUTH BOUND-U.S.R. 250-STA. 620+50 to STA. 621+50

55
235

TUS-21 - 26.33
TUS-250 - 11.60

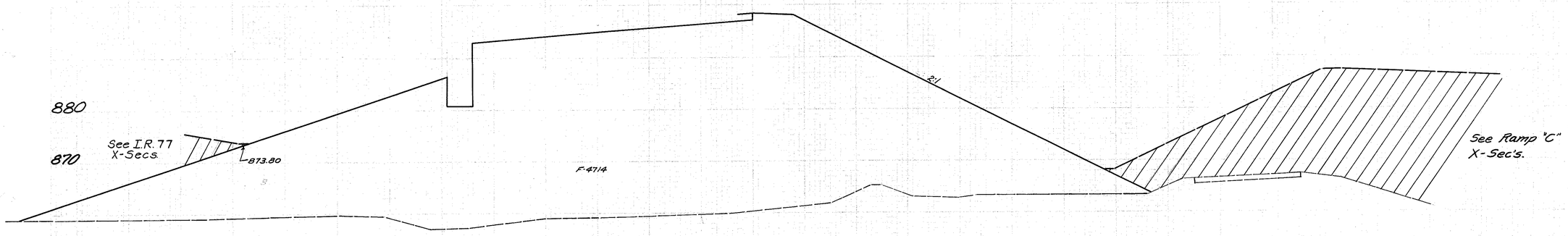
Seeding Width	End Area S.Y.	Cu. Yds. Cut	Fill	Exc.	Emb.
	1692		0		12981
	309		0		6793
	1733		102		12535
	315		110		6745
	1761		187		12210
Rhead	319		92		6507
Back	146		0		4257



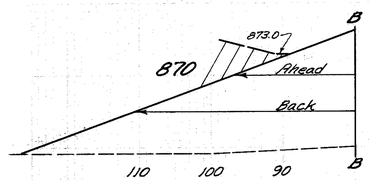
SOUTH BOUND U.S.R.-250 - STA. 622+00 to STA. 623+00

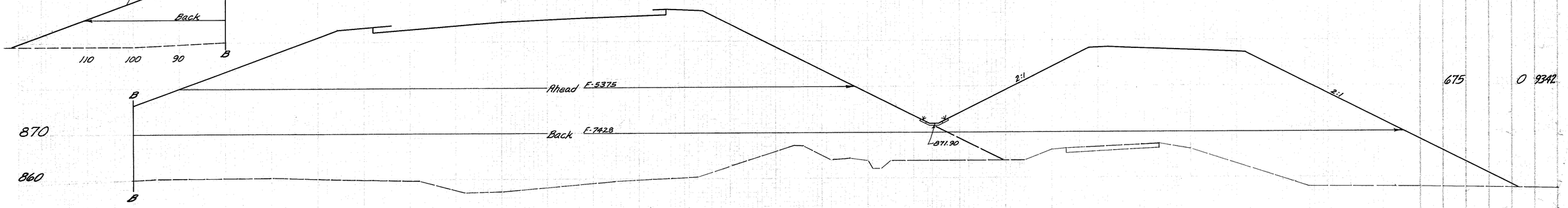
TUS-21 - 26.33
TUS-250 - 11.60

100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170

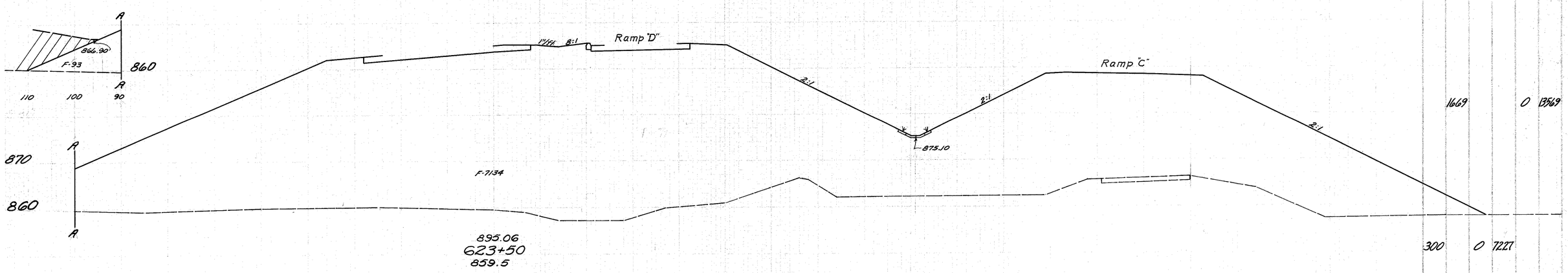


896.16
624+50
859.3





895.61
624+00
857.3



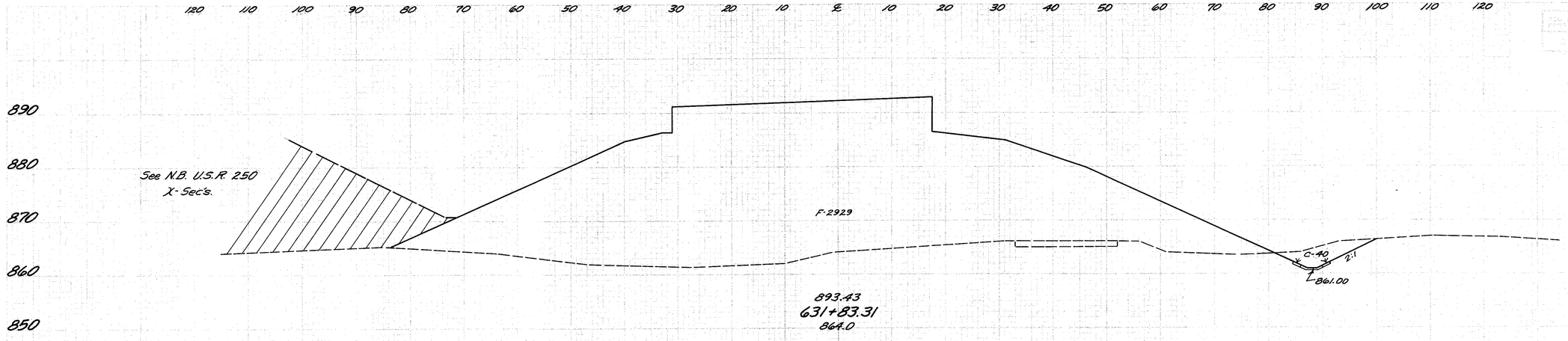
895.06
623+50
859.5

100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190

SOUTH BOUND - U.S.R. 250 - STA. 623+50 to STA. 624+50

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
	494			0	5689
115		0	4714		
	675			0	9342
Ahead	128	0	5375		
Back	301	0	7428		
	1669			0	13569
	300	0	7227		

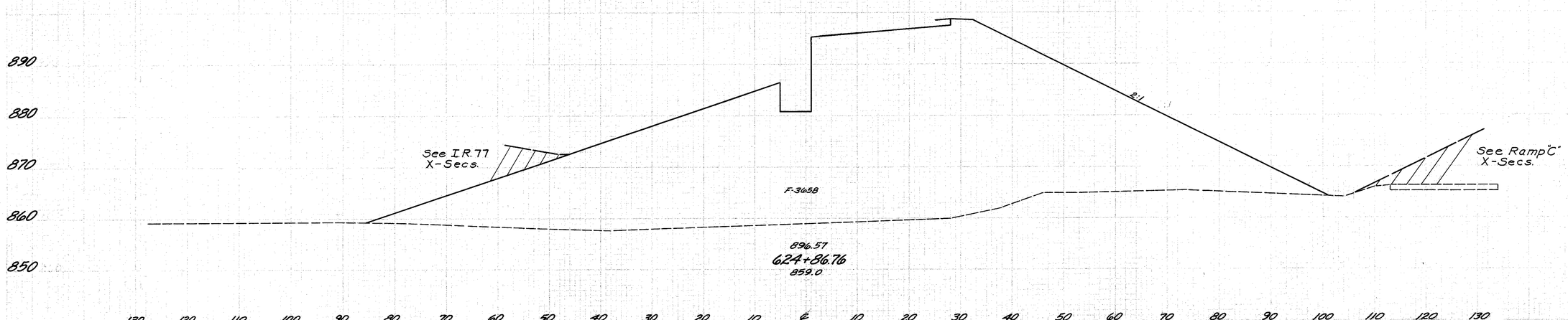
TUS-21- 26.33
TUS-250-11.60



631+32 ZERO EARTHWORK

BRIDGE

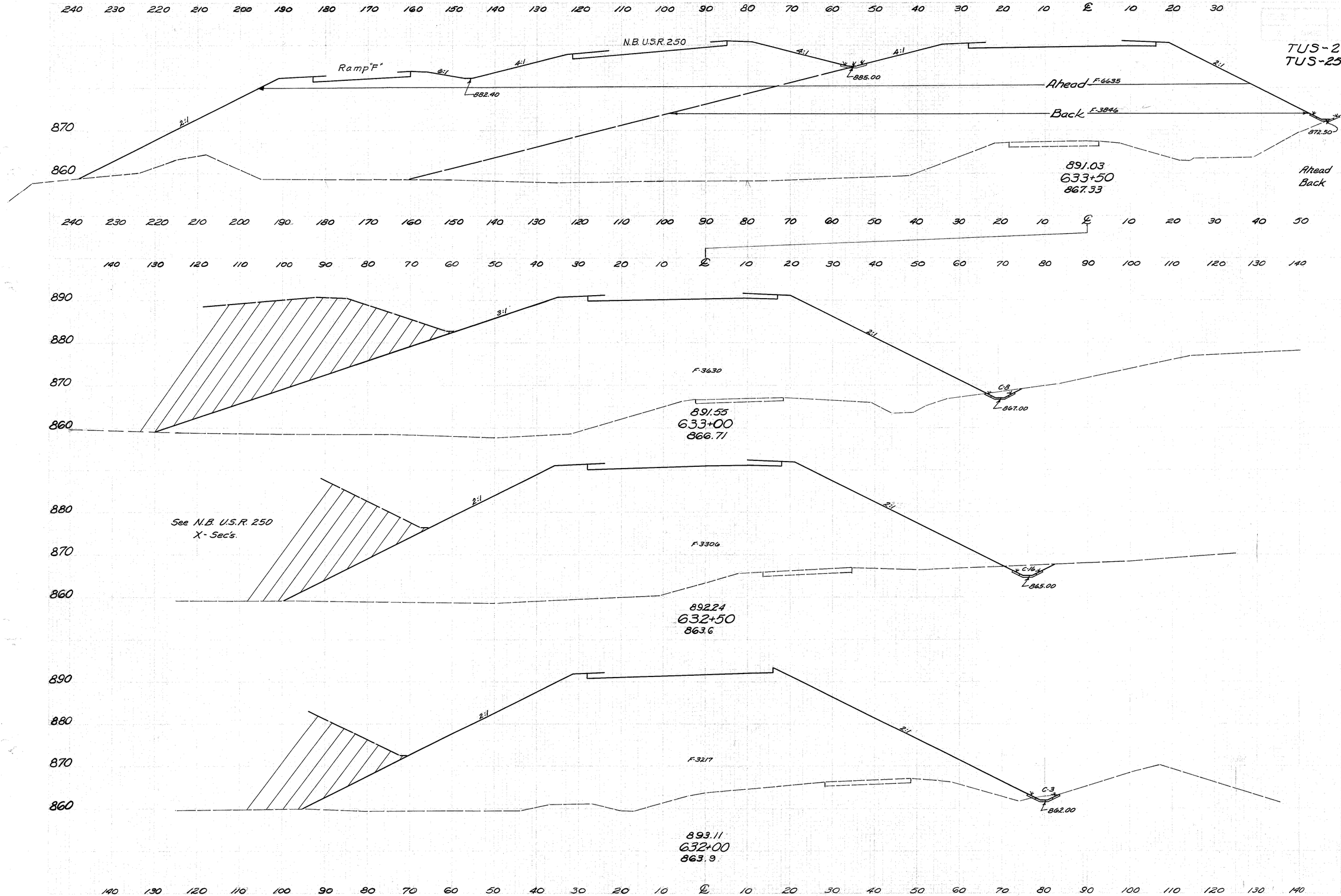
626+03 ZERO EARTHWORK



SOUTHBOUND U.S.R. 250 - STA. 624+86.76 to STA. 631+83

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
	293			13	1900
151		40	2929		
	430			38	2183
0		0	0		
0		0	0		
	820		0	0	1100
127		0	3658		

TUS-21-26.33
TUS-250-11.60

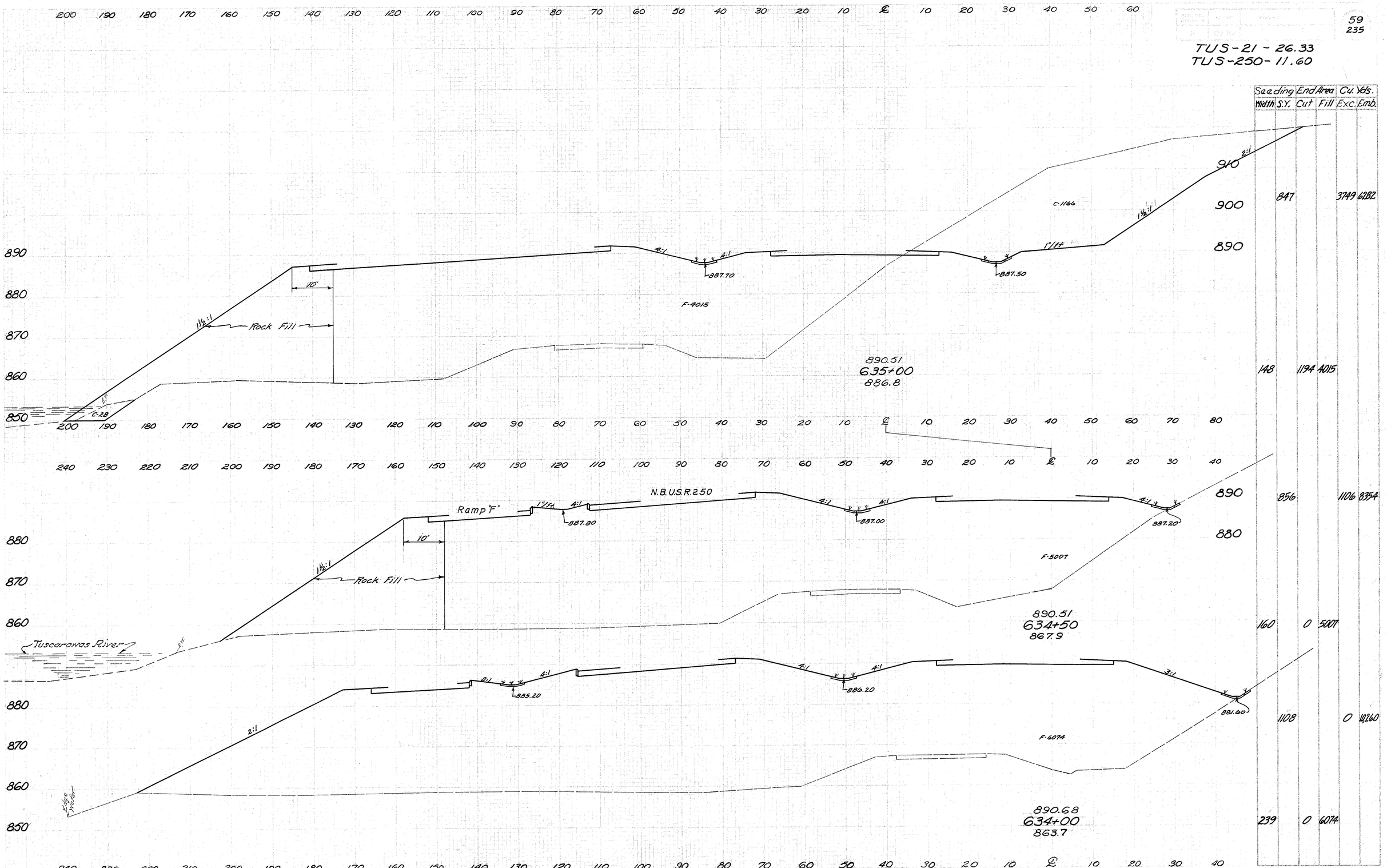


	Seeding Width	S.Y.	End Area Cut	Fill	Cu.Yds. Exc.	Emb.
		1364			0	11,768
Ahead	252		0	6635		
Back	110		0	3846		
		678			7	6922
	134		8	3630		
		817			22	6422
	160		16	3306		
		903			18	6040
	165		3	3217		

SOUTH BOUND - U.S.R. 250 - STA. 632+00 to STA. 633+50

TUS-21 - 26.33
TUS-250- 11.60

Station	Seeding Width	End Area S.Y.	Cu. Yds. Cut	Fill	Exc.	Emb.
635+00						
		847			3749	6282
634+50						
		148		1194	4015	
634+00						
		856		1106	8354	
		160	0	5007		
		1108	0	10,260		
		239	0	6074		

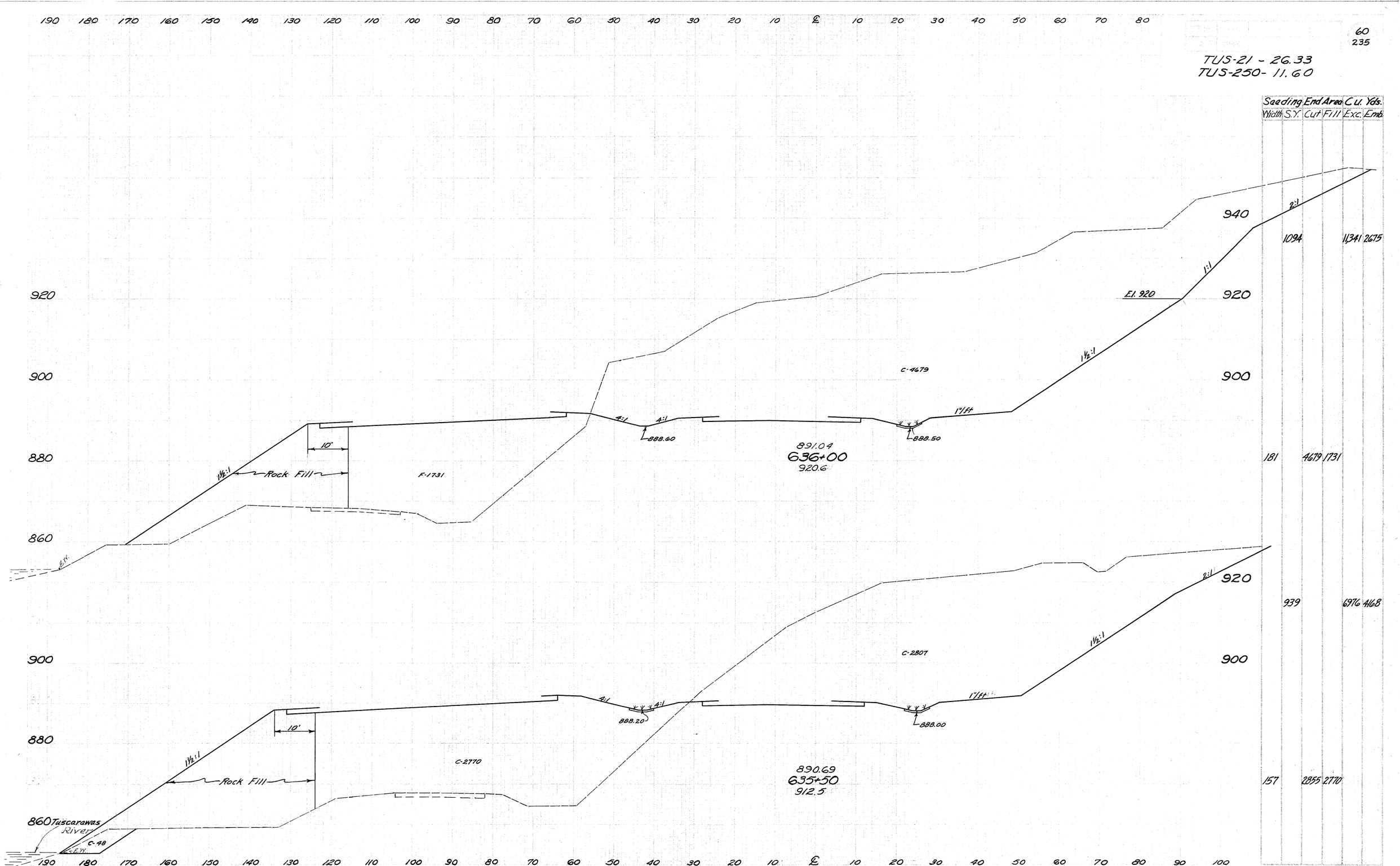


SOUTH BOUND U.S.R.250 - STA. 634+00 to STA. 635+00

60
235

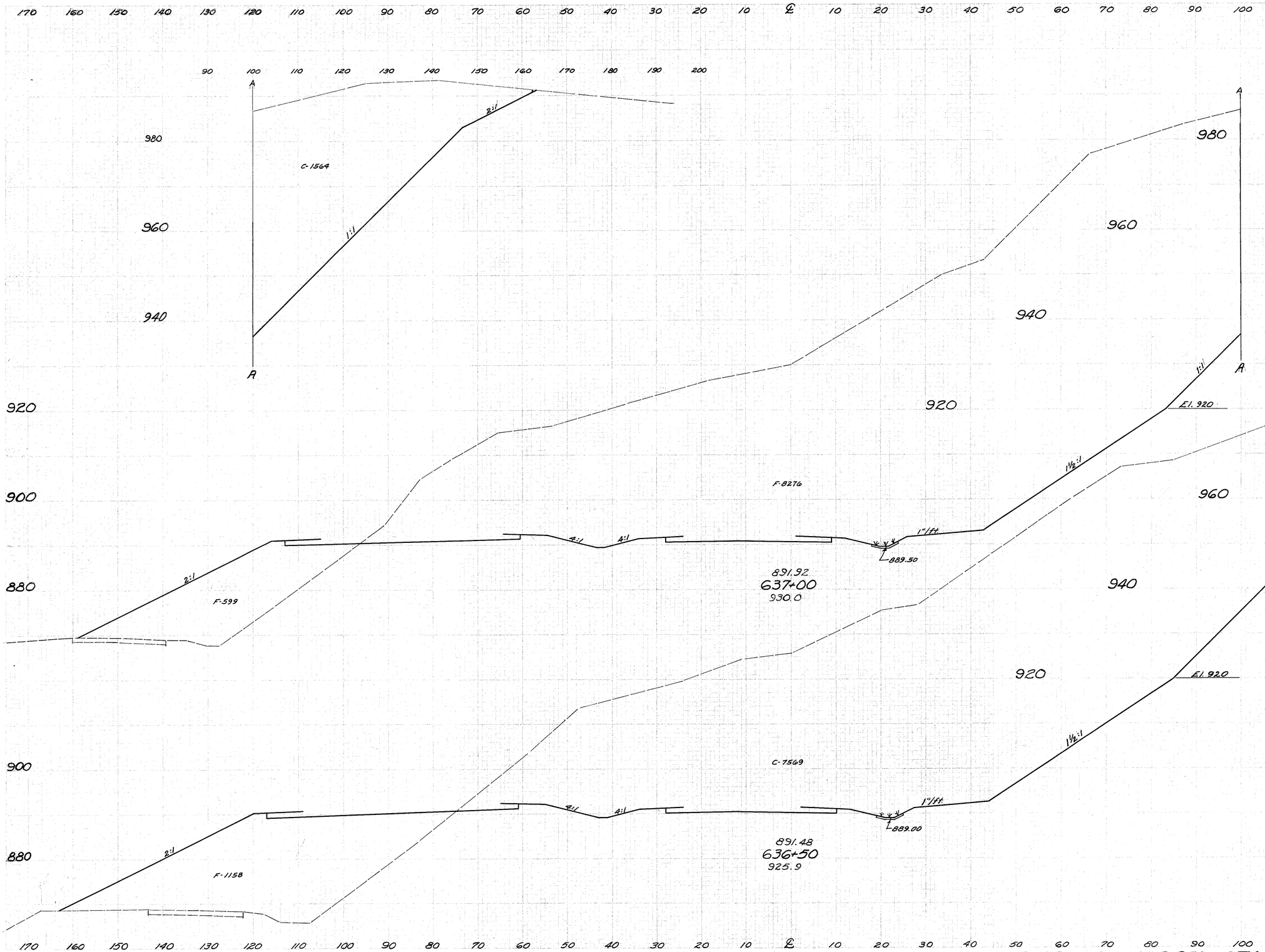
TUS-21 - 26.33
TUS-250- 11.60

Seeding Width	End Area S.Y.	C.u. Yds. Cut	Fill	Exc.	Emb.
	1094		11341	2675	
181		4679	1731		
	939		6976	4468	
157		2855	2770		



SOUTH BOUND-U.S.R. 250-STA. 635+50 TO STA. 636+00

TUS-21-26.33
TUS-250-11.60



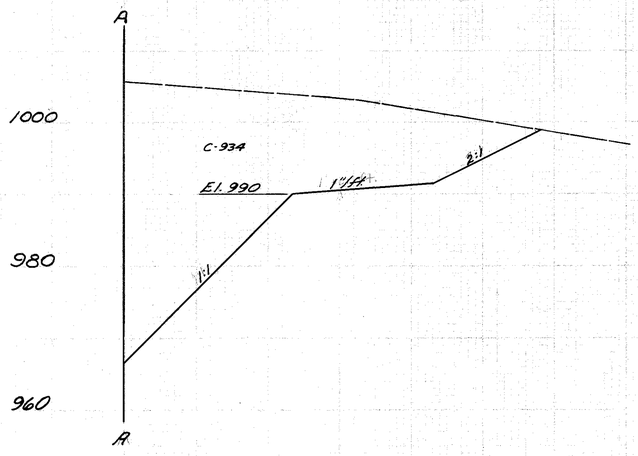
Seeding Width	S.Y.	End Area Cut	End Area Fill	Cu. Yds. Exc.	Cu. Yds. Emb.
	1336			20669	757
	230	9840	599		
	1231			16119	1627
	213	7569	1158		

SOUTH BOUND U.S.R. 250 - STA. 636+50 to STA. 637+00

TUS-21-26.33
TUS-250-11.60

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110

130 140 150 160 170 180



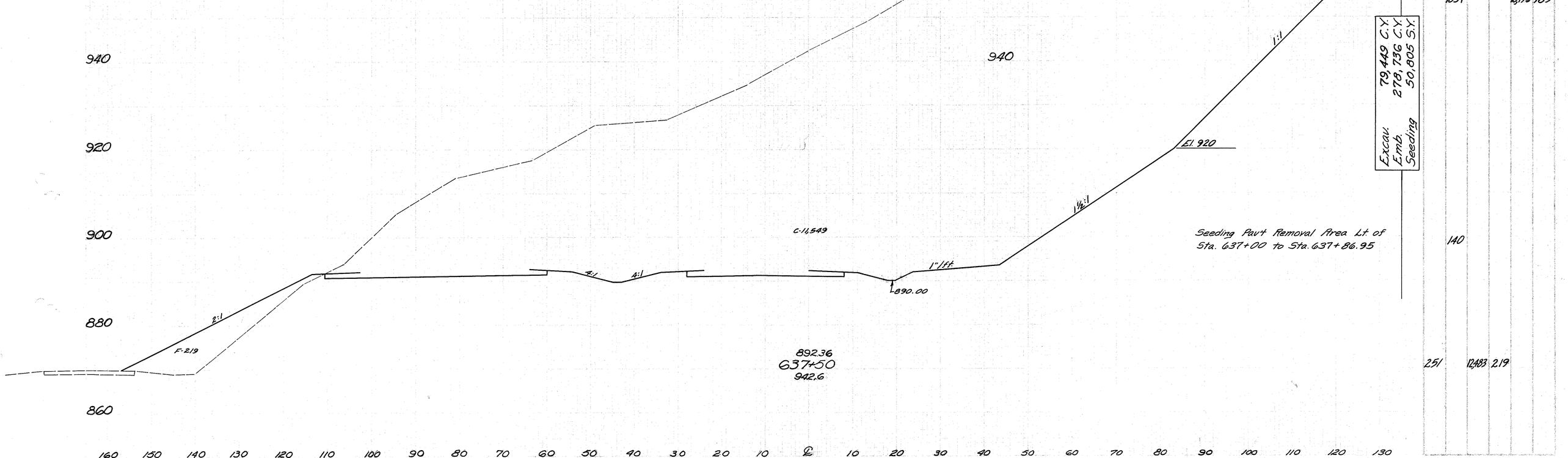
120 130

Sta. 637+86.95 F-675 (5) Ahead / J-77-3(9)83 Back

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
254		14,986		57	
1037		18,796		189	
140					
251		12,483		219	

Excav. 79,449 C.Y.
Emb. 278,736 C.Y.
Seeding 50,805 S.Y.

Seeding Pavt. Removal Area Lt. of Sta. 637+00 to Sta. 637+86.95



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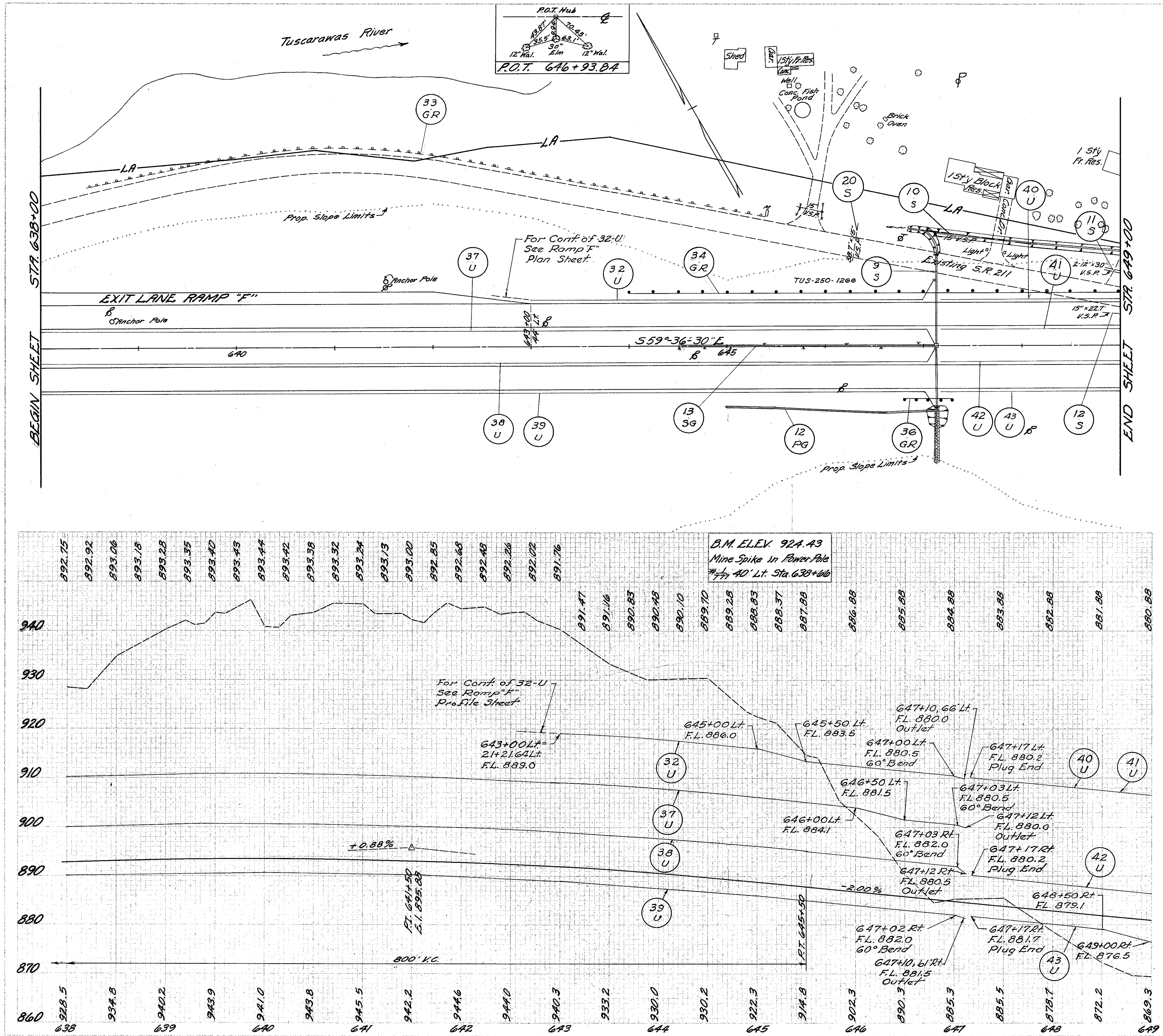
SOUTH BOUND U.S.R. 250 – STA. 637+50 to STA. 637+86.95

Fed. Rd. Division	State	Project		
2	OHIO			63 / 235

TUS-21-26.33 TUS-250-11.60



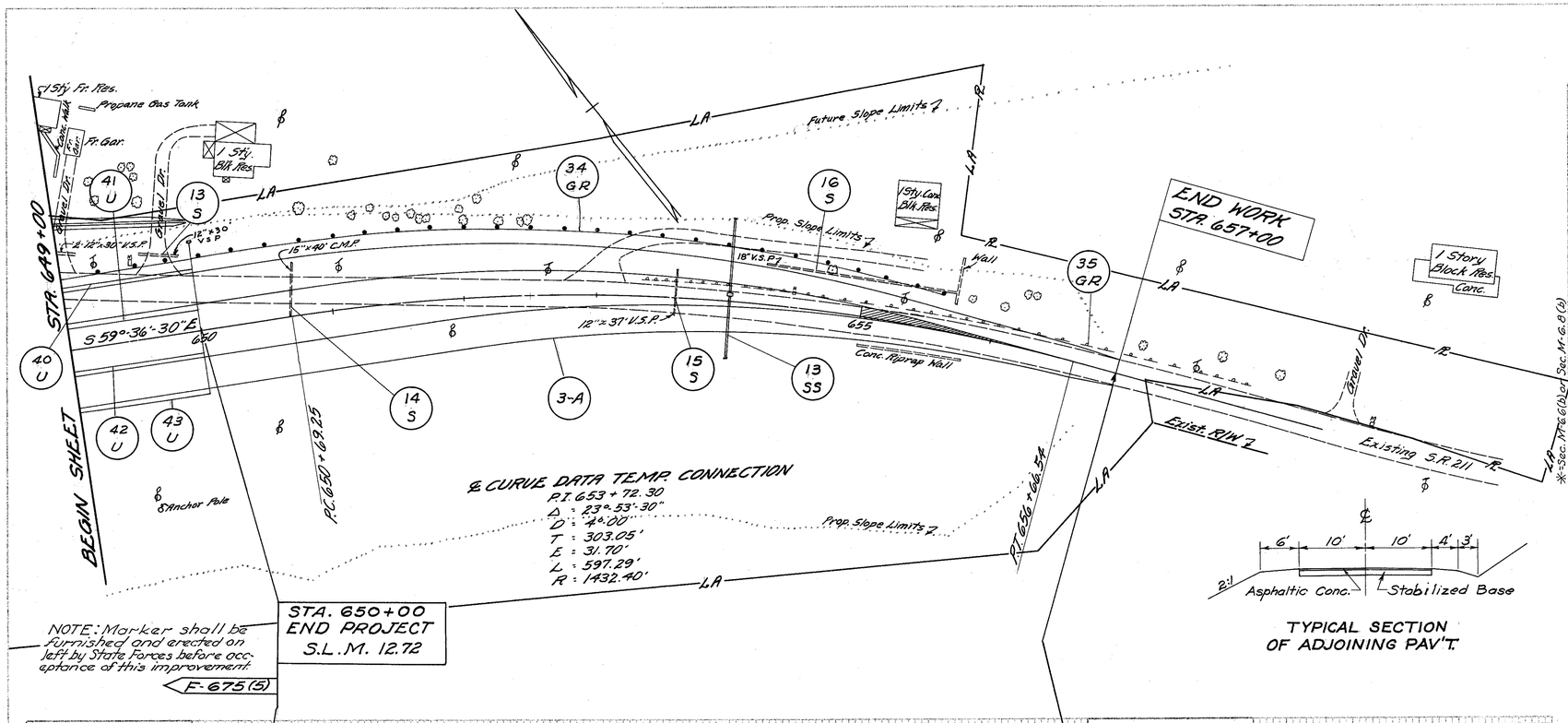
ESTIMATED QUANTITIES

Ref. No.	Station to Station	Side	Guardrail Standard (Lin. Ft.)	Guardrail Remove & Dispose (Lin. Ft.)	Removal Existing Flexible Pavt. (Sq. Yd.)	15" Pipe & Underdrain Removal (Lin. Ft.)	Pipe For Culv. & Sewers: 30" Class A-1 Sec. M-6.6(a) or M-6.8(b) (Lin. Ft.)	Pipe For Culv. & Sewers: 30" Class F-1 (Lin. Ft.)	Pipe For Culv. & Sewers: 30" Special Class F-1 30"x30° Bend (Each)	Std. No 8 C. Basin (Each)	Dumped Rock Chann. Prot. (C.Y.)	Masonry (C.Y.)	Riprap 6" Reinf. (S.Y.)	Sod Gutter (S.Y.)	Paved Gutter (L.F.)	Pipe for Drains: 6" Specials Class I-3 60° Bend M-6.4(h) (Each)	Pipe for Drains: 6" Specials Class I-3 60° Bend (Each)	Pipe for Drains: 6" Class I-3 D=30" (Lin. Ft.)	Pipe for Drains: 6" Class I-3 D=12" Sec. M-6.4(h) (Lin. Ft.)	Pipe for Drains: 6" Class F-1 (Lin. Ft.)	Pipe for Drains: 8" Class F-1 Sec. M-6A(c) (Lin. Ft.)	See Sheet No.
33-GR	638+45 to 645+38	Lt.		704																		
34-GR	644+00 to 649+00	Lt.	500																			
36-GR	646+80 to 647+30	Rt.	50																			
	638+00 to 647+70	Lt.			2190																	
32-U	643+00 to 647+10	Lt.															1	162	250		10	
37-U	638+00 to 647+12	Lt.															1	62	850	10		
38-U	638+00 to 647+12	Rt.														1			912	10		
39-U	638+00 to 647+10	Rt.														1			908		10	
40-U	647+17 to 649+00	Lt.																183				
41-U	647+17 to 649+00	Lt.																183				
42-U	647+17 to 649+00	Rt.																183				
43-U	647+17 to 649+00	Rt.																	183			
9-S	647+13	Rt.&Lt.					122	40	2	1	60	1.0	11									141
10-S	646+85 to 648+10	Lt.				125																
11-S	648+83 to 649+15	Lt.				60																
12-S	648+81 to 649+05	Lt.				23																
20-S	646+30	Lt.				39																
12-PG	645+00 to 647+09	Rt.												70	210							
13-SG	644+50 to 647+13	℄												176								
			550	704	2190	247	122	40	2	1	60	1.0	11	246	210	2	2	773	3103	20	20	

U.S.R. 250 PLAN & PROFILE STA. 638+00 to STA. 649+00

SHEET NO.	STATE	PROJECT	
2	OHIO		64 235

TUS-21-26.33 - TUS-250-11.60



PIPE FOR DRAINS

6" Pipe Special Class A-1	Each	Each	Lin. Ft.	6" Pipe Class F-1	Lin. Ft.	
Tee	90° Bend	D-30*		6" Pipe Class A-1 Sec. M-6.8	Lin. Ft.	
						124
						82
			100			10
			100			
			100			10.2
1	1	1	100			10

4 400 102 10

ESTIMATED QUANTITIES

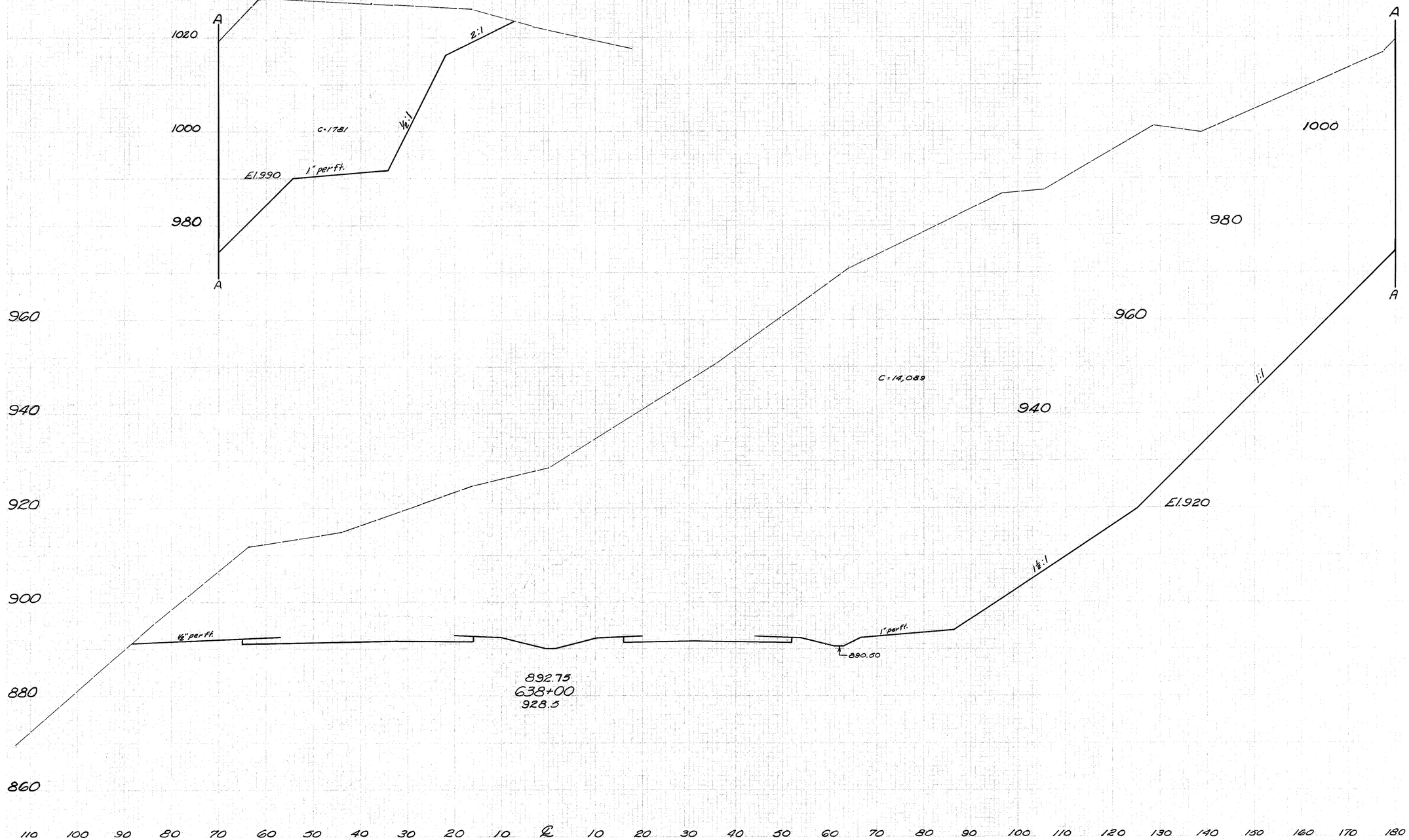
USE STATION TO STATION	SIDE	2" Pipe Class A-1 Lin. Ft.	Standard No. 2.2 A C. Basin Each.	Pipe Removal Over 15" Lin. Ft.	Pipe Removal 15" & Under Lin. Ft.	Guardrail Remove & Dispose Lin. Ft.	Guardrail Standard T-35 Lin. Ft.	B-35 Leveling C.Y.	B-21 Cu. Yd.	I-22 Comp. Subg. S.Y.	E-1 Comp. Subg. S.Y.
34-GR 649+00 to 655+59.1	Lt.						675		81.9	1223.5	8641
35-GR 653+35 to 656+00	Lt.					464					6898
3-A 650+00 to 657+00	Rt. & Lt.			148	60						2948
13-S 649+60 to 649+90	Lt.				40						
14-S 650+68 to 650+76	Lt.				37						
15-S 653+60	Rt. & Lt.										
16-S 654+25 to 656+70	Lt.										
40-U 649+00 to 650+00	Lt.										
41-U 649+00 to 650+00	Lt.										
42-U 649+00 to 650+00	Rt.										
43-U 649+00 to 650+00	Rt. & Lt.										
13-SS 654+00	Rt. & Lt.	103	1								

103 1 148 137 464 675 81.9 1223.5 8641 6898 2948

U.S.R. 250 PLAN & PROFILE STA. 649+00 to STA. 657+00

65
235

TUS-21-26.33-TUS-250-11.60

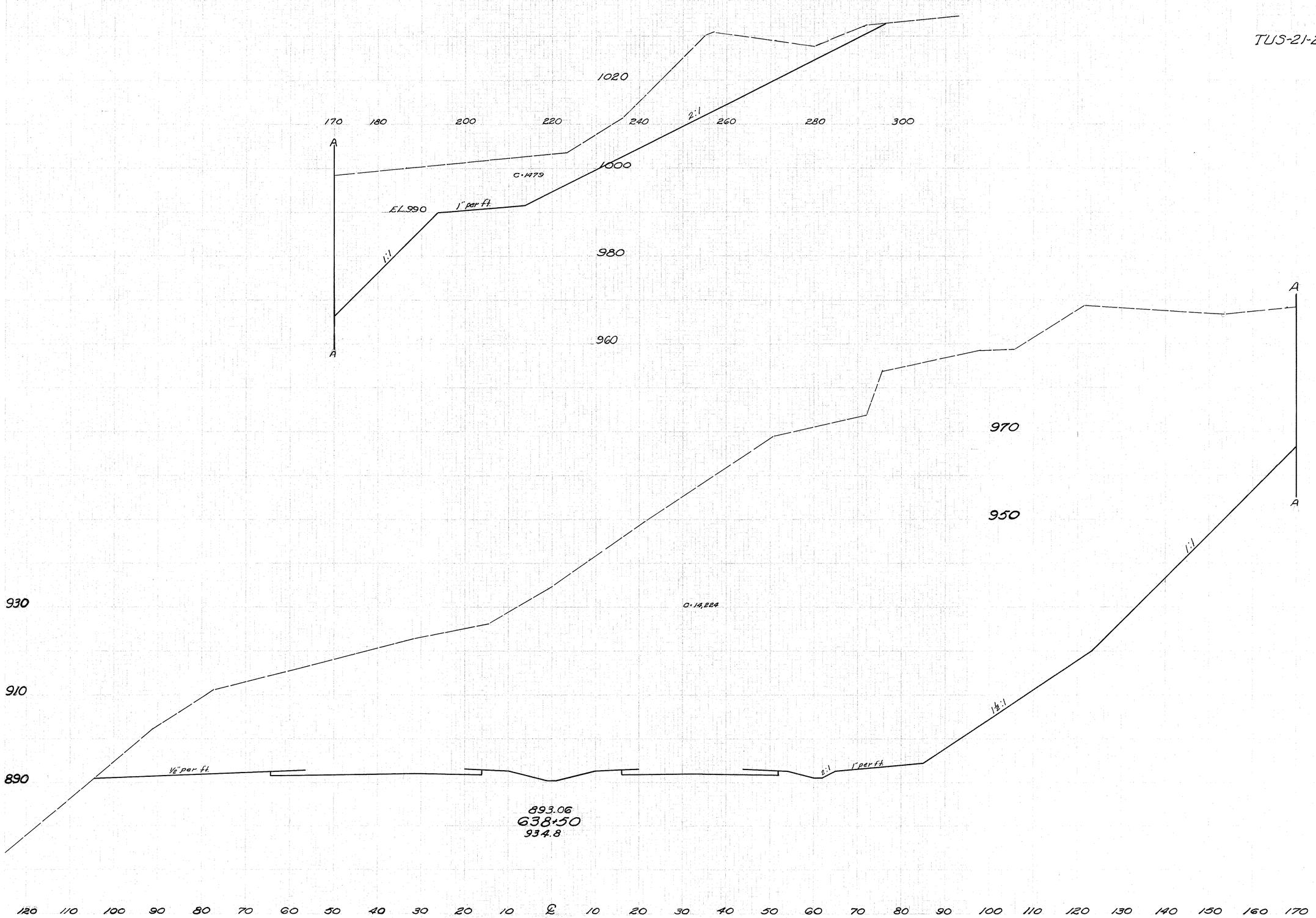


Seeding Width S.Y.	End Area Cut	End Area Fill	Cu. Yds. Exc.	Cu. Yds. Emb.
1508		29734		0
254		15810		0
368		7451.14		

U.S.R. 250 - STA. 638+00

66
235

TUS-21-26.33-TUS-250-11.60



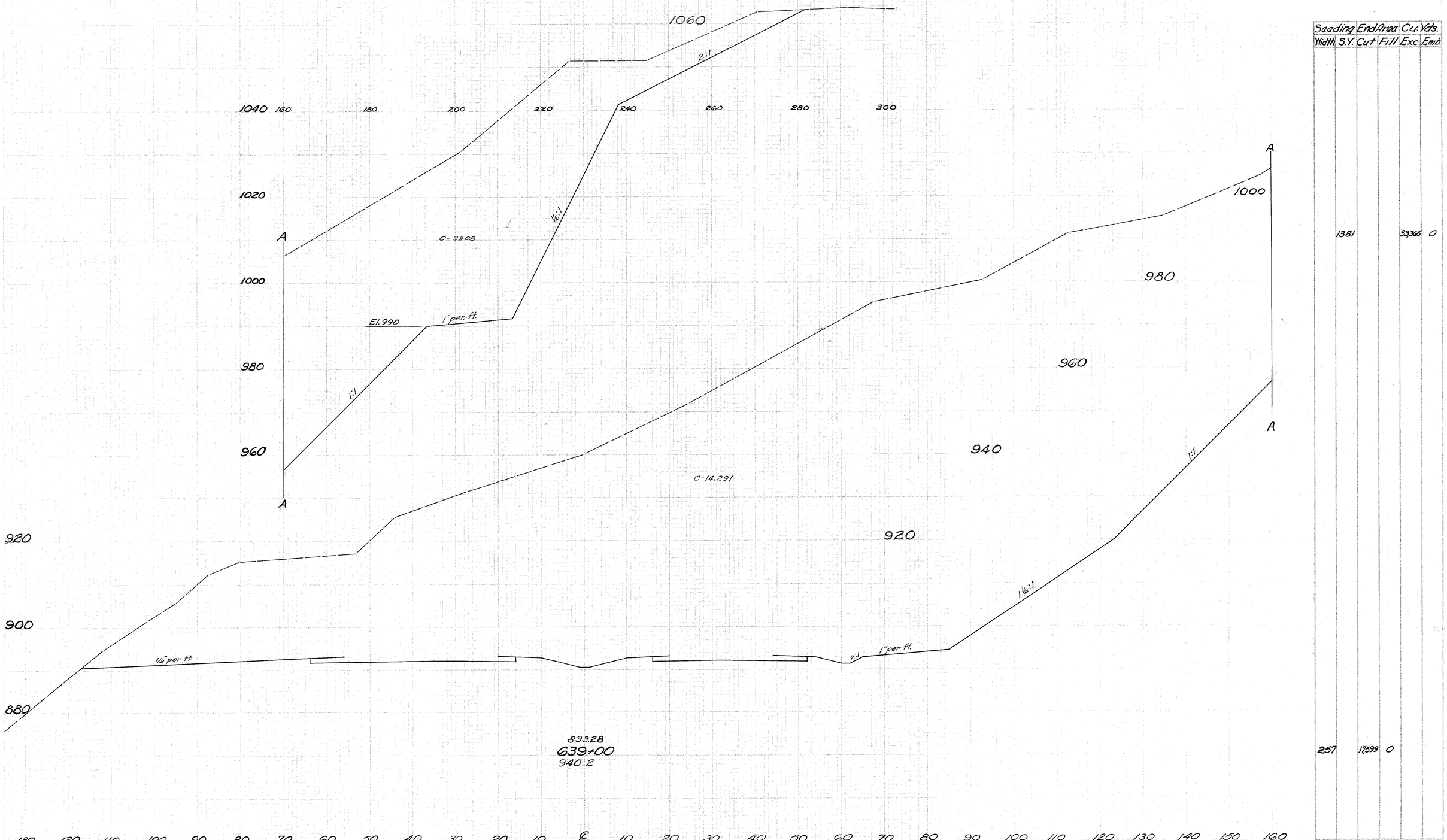
Seeding Width S.Y.	End Area Cut	End Area Fill	Cu. Yds. Exc.	Cu. Yds. Emb.
1517		30835	0	
289	15703	0		

U.S.R. 250 – STA. 638+50

67
235

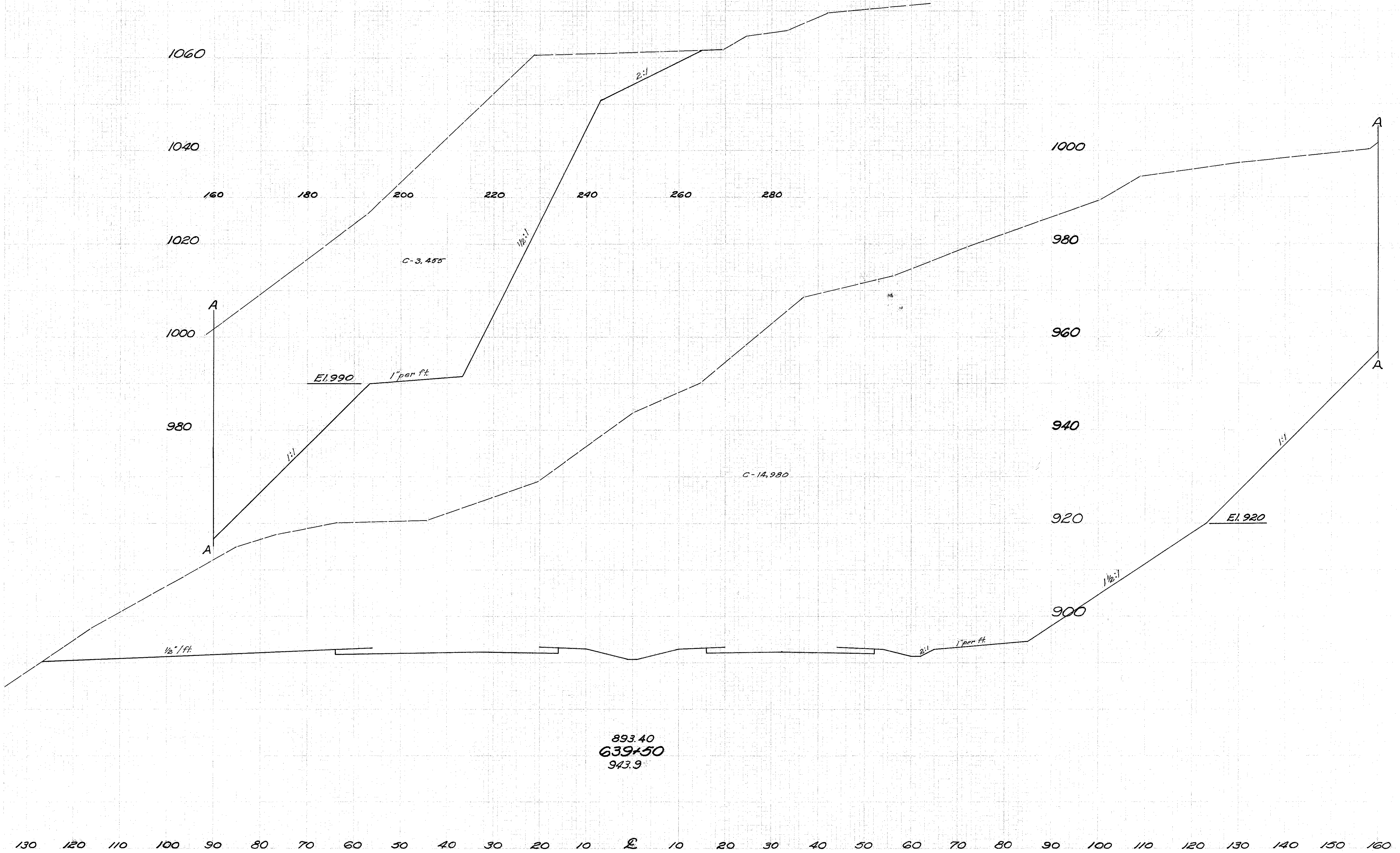
TUS-21-26.33-TUS-250-11.60

Seading Width	End Area S.Y.	Cu. Yds. Cut	Fill	Exc.	Emb.
	1381		33,365	0	
	257		17,599	0	



U.S.R. 250 ~ STA. 639+00

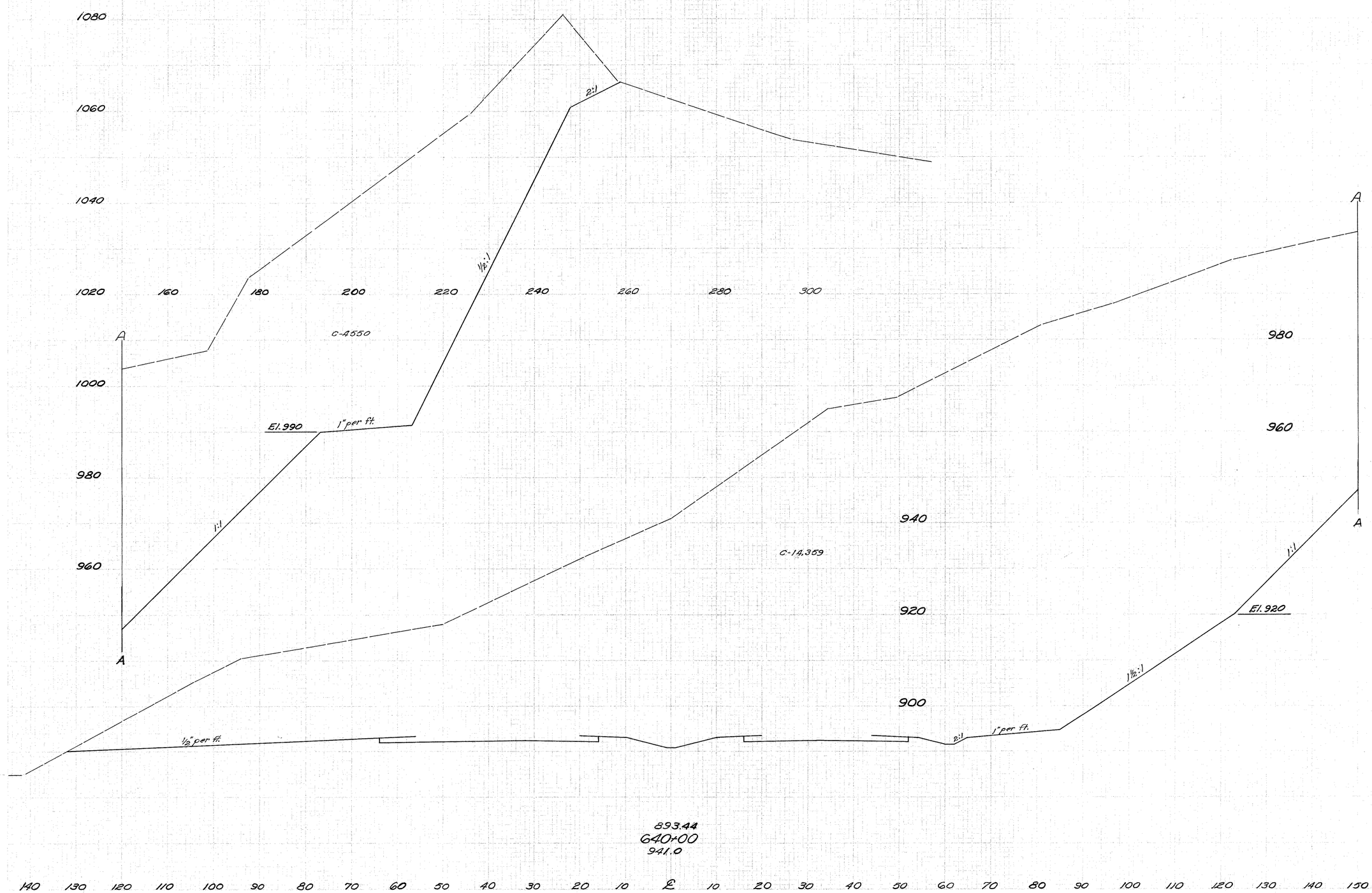
TUS-21-26.33 - TUS-250-11.60



Seeding		End Area		Cu. Yds.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
	1306			34,578	0
240		18,435	0		

U.S.R. 250 - STA. 639+50

TUS-21-26.33 ~ TUS-250-11.60



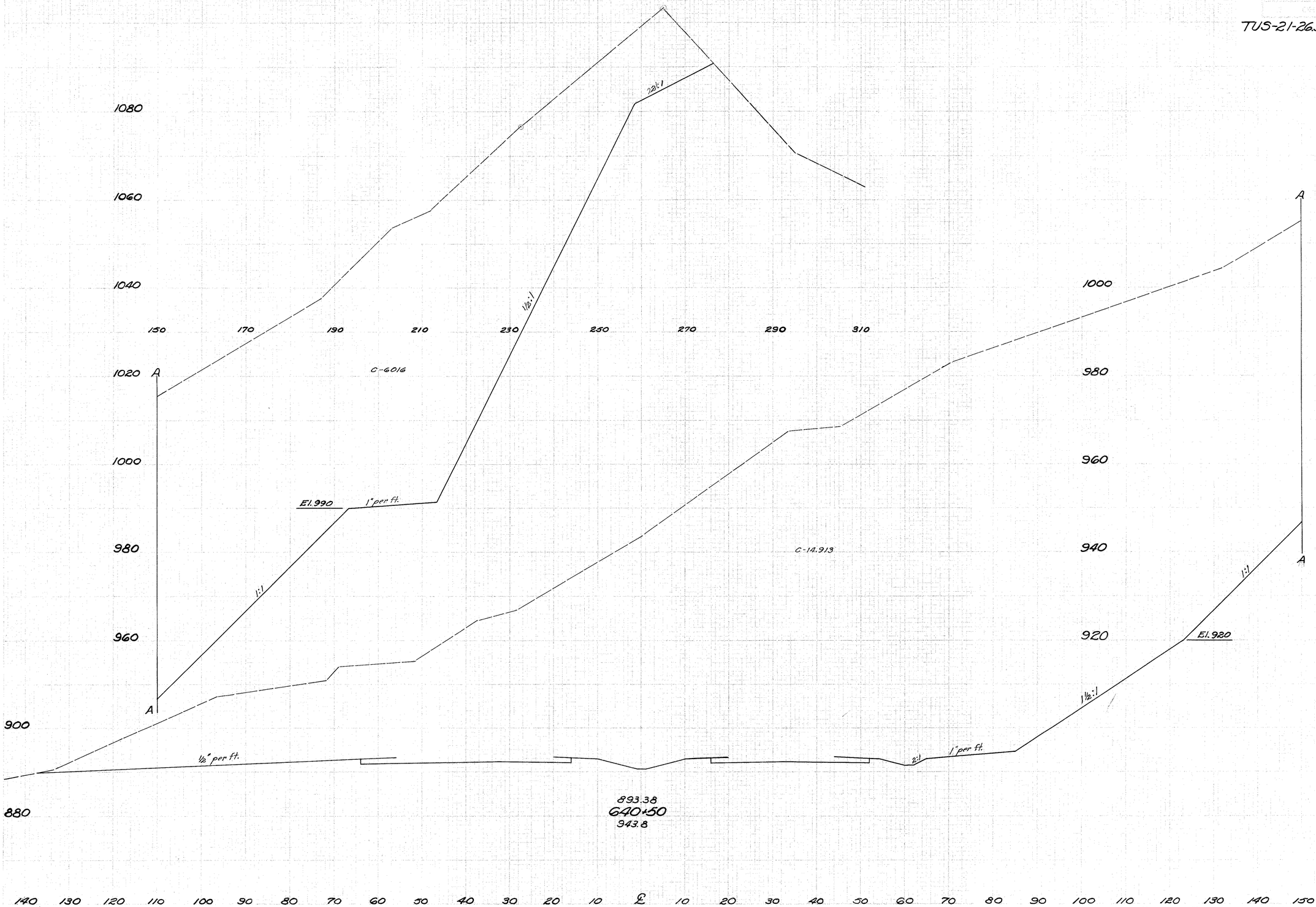
Seeding Width S.Y.	End Area Cu. Yds. Cut	Fill	Exc.	Emb.
1331			36,887	0
230			18,909	0

U.S.R. 250 - STA. 640+00

70
235

TUS-21-26.33 - TUS-250-11.60

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
	1372		3958	0	
	249		2092	9	0

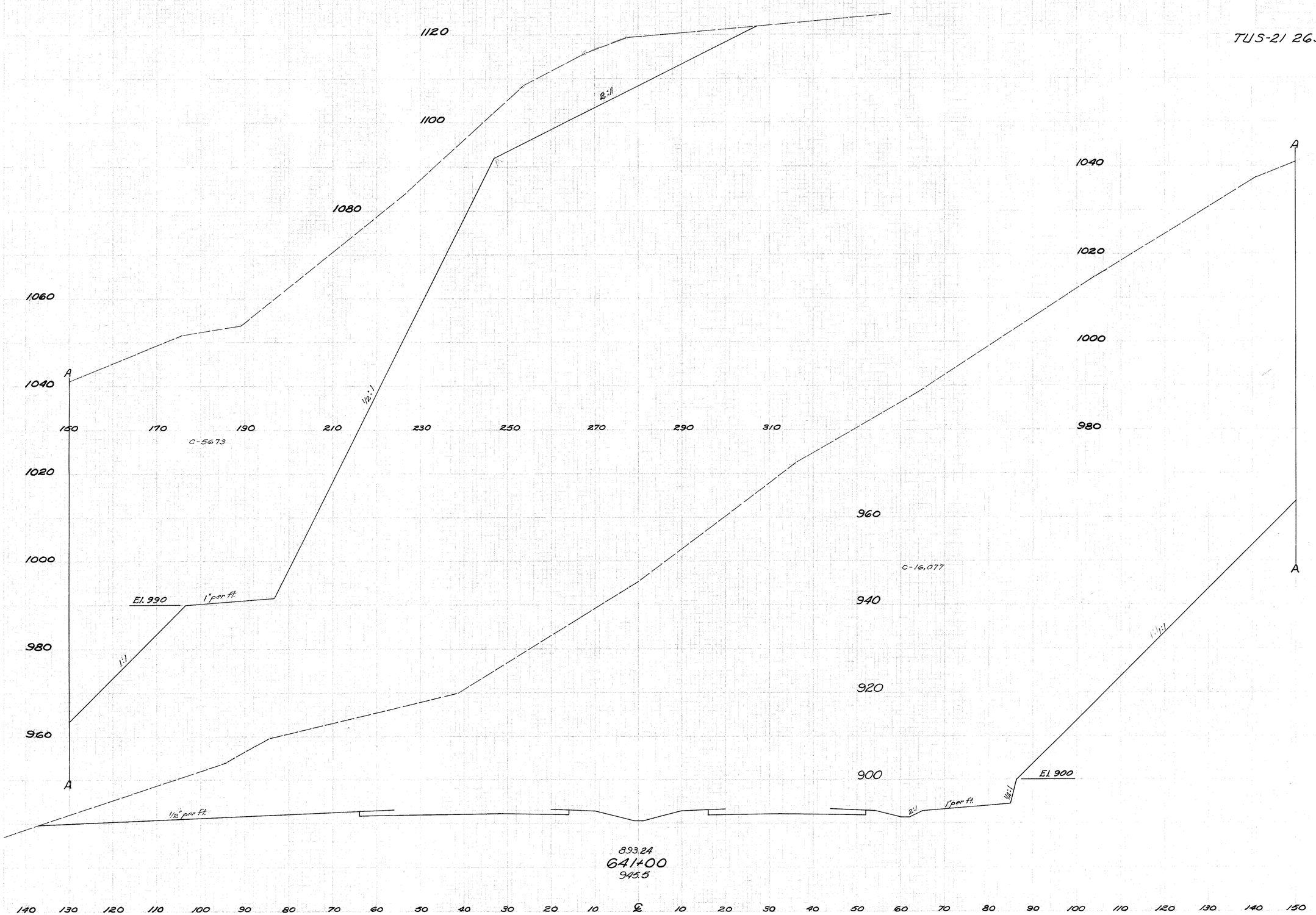


U.S.R. 250 - STA. 640+50

71
235

TUS-21 2633 TUS-250-11.60

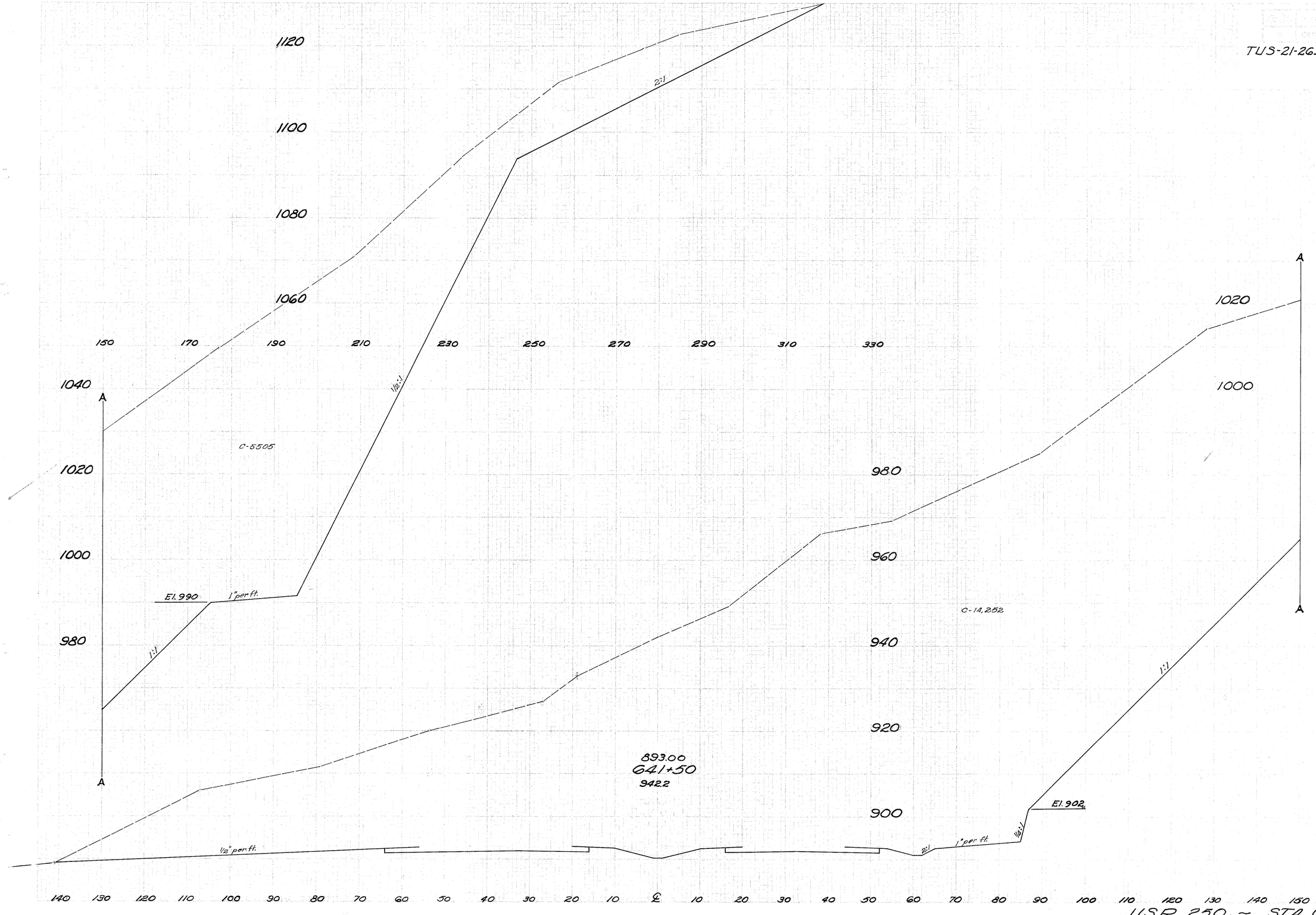
Seeding Width S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
1439			38,432	0
245			21,750	0



U.S.R. 250 – STA. 641+00

TUS-21-26.33~TUS-250-11.60

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
	1544		35,517	0	
	273		19,757	0	

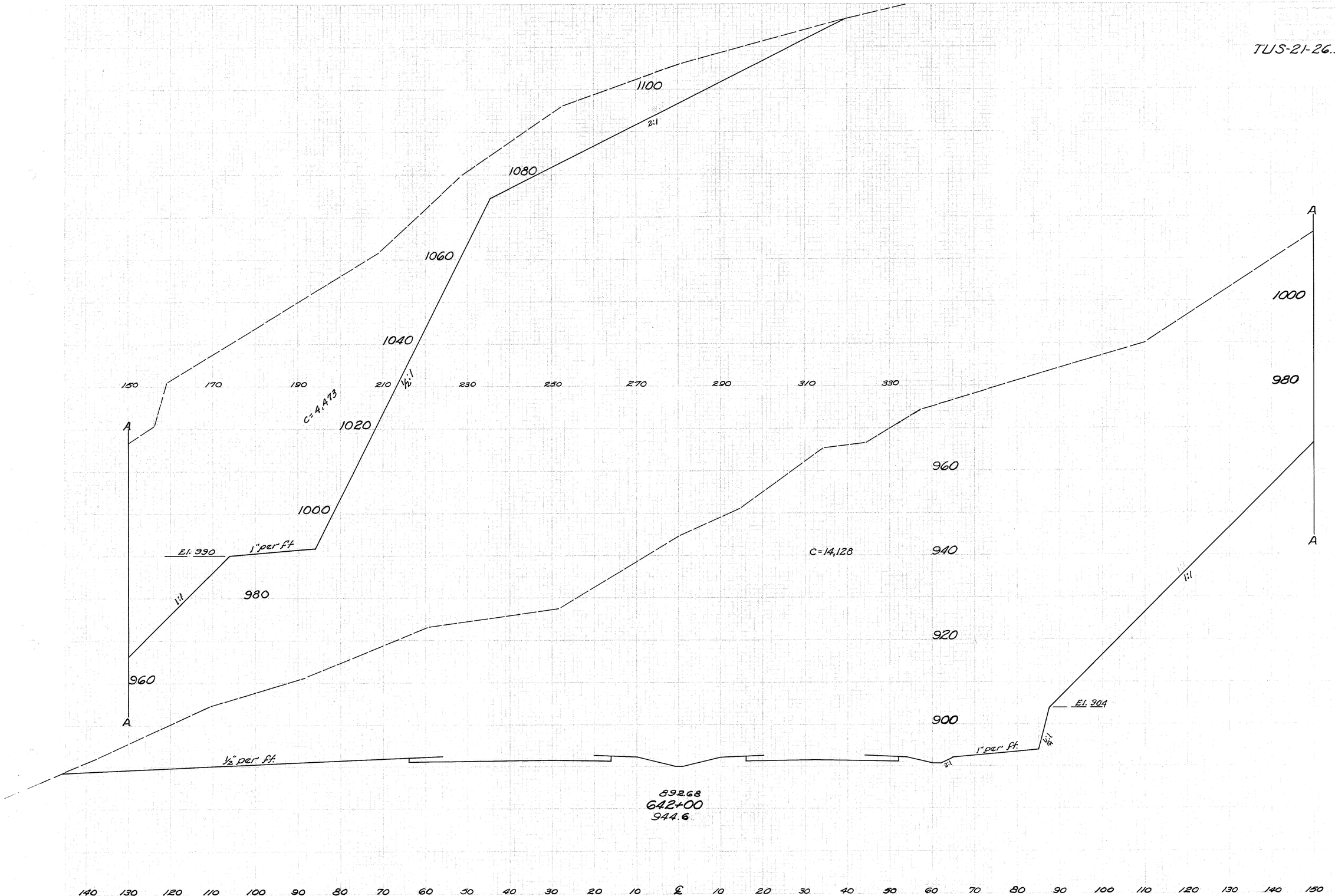


U.S.R. 250 ~ STA 641+50

73
235

TUS-21-26.33-TUS-250-11.60

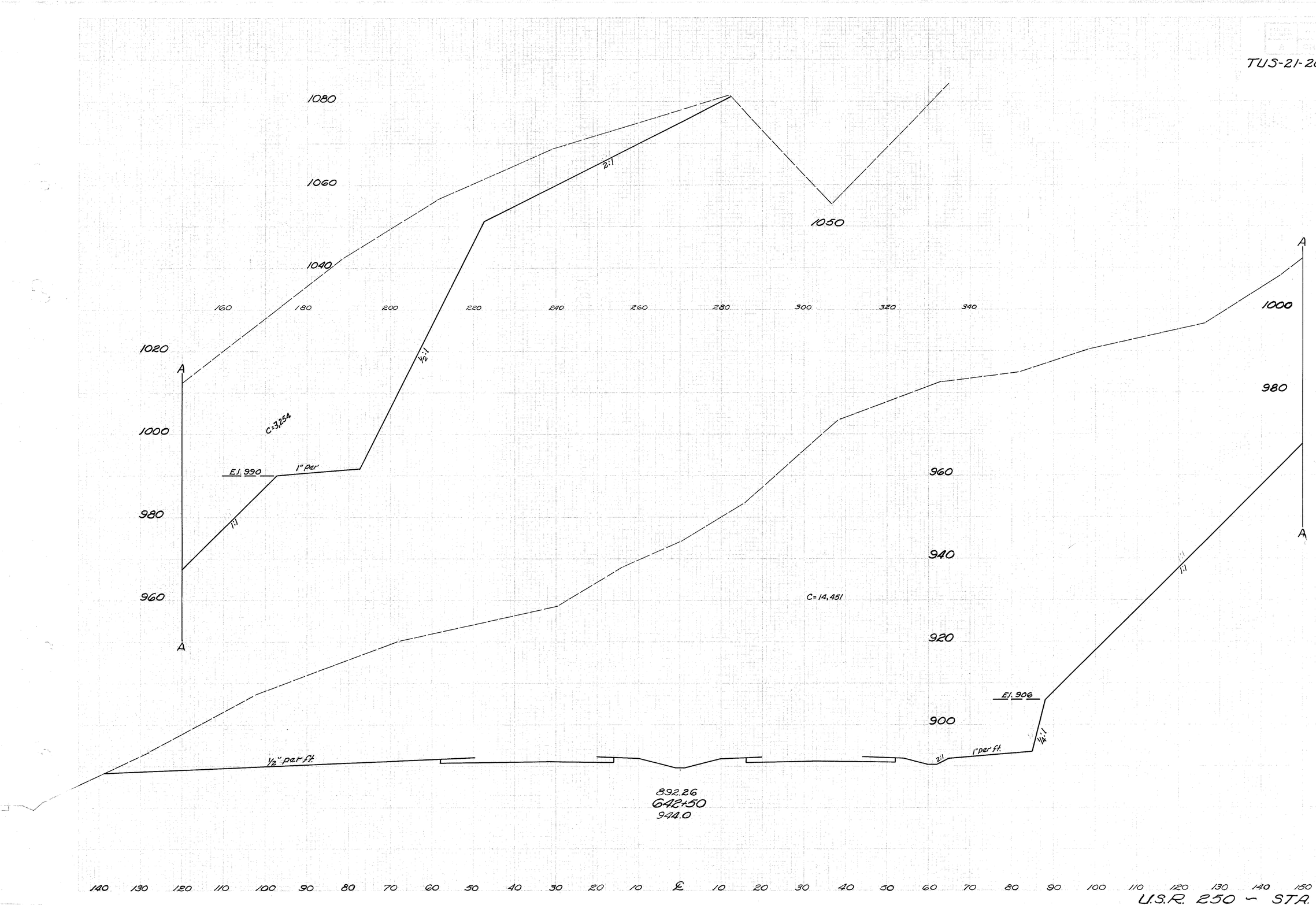
Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
	1500			33,617	0
	283			18,601	0



U.S.R. 250 STA. 642+00

74
235

TUS-21-26.33 TUS-250-11.60

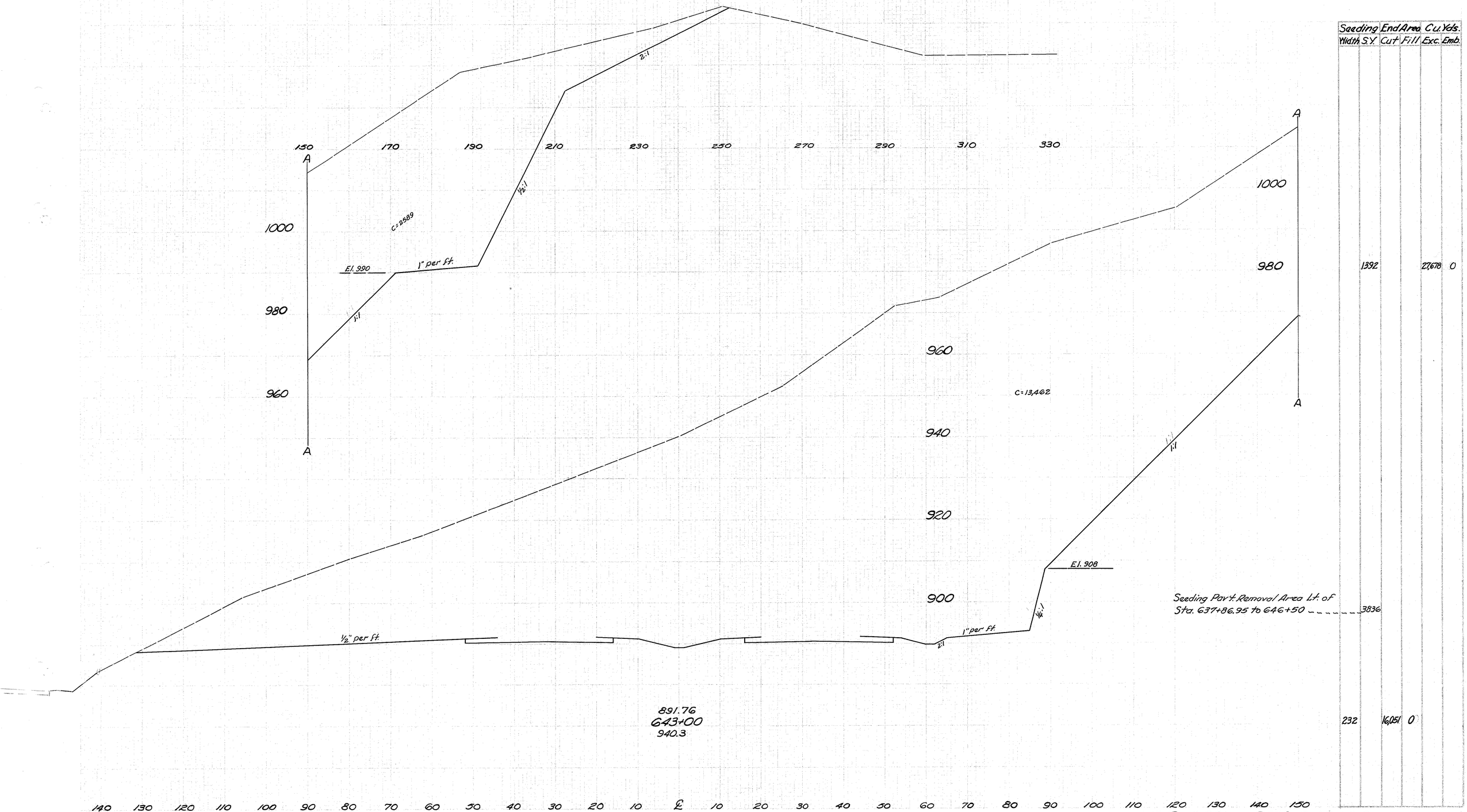


Seeding Width	End Area S.Y.	Cu. Yds. Cut	Fill	Exc.	Emb.
	1358			31,256	0
	257			17,705	0

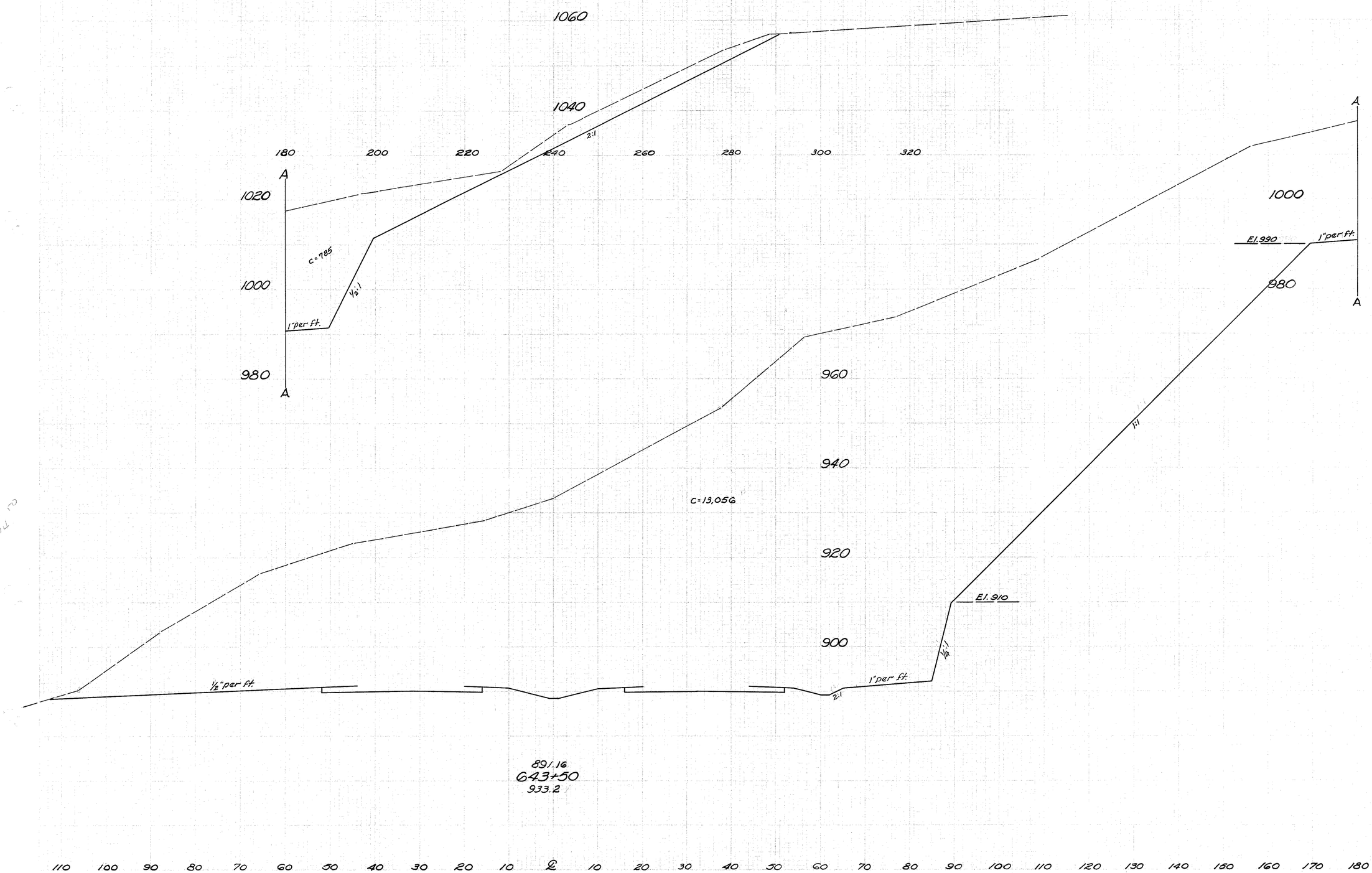
U.S.R. 250 - STA. 642+50

TUS-21-26.33 TUS-250-11.60

Seeding Width S.Y.	End Area Cut	End Area Fill	Cu. Yds. Exc.	Cu. Yds. Emb.
1392		27,678		0
232		16,051		0



TUS-21-26.33 TUS-250-11.60



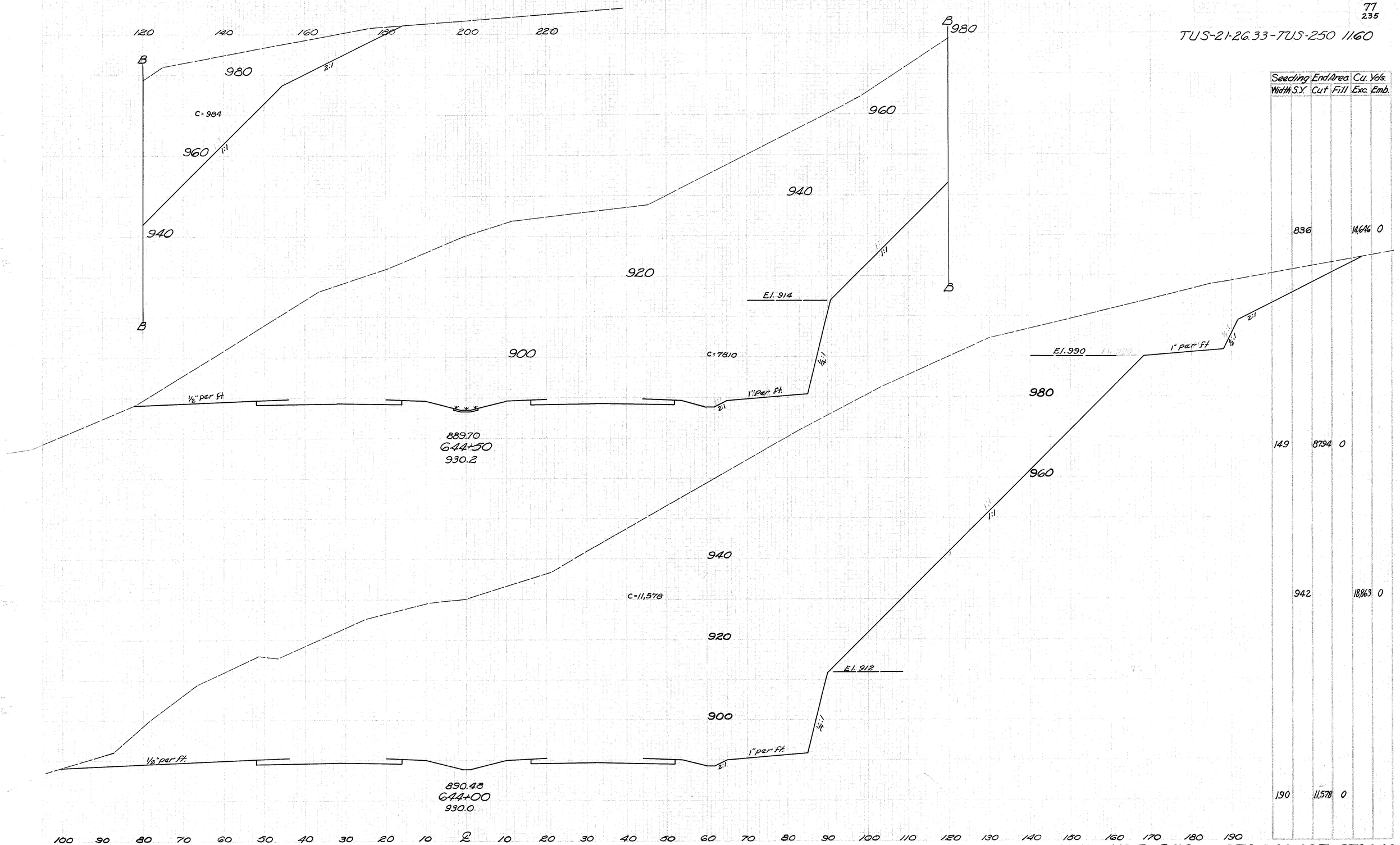
Seeding Width S.Y.	End Area Cut	End Area Fill	Cu. Yds. Exc.	Cu. Yds. Emb.
1275		23,536	0	
269		13,841	0	

USR 250 STA 643+50

77
235

TUS-21-26.33-TUS-250 11.60

Seeding Width S.Y.	End Area Cut	End Area Fill	Cu. Yds. Exc.	Cu. Yds. Emb.
836	14,646	0		
149	8794	0		
942	18,863	0		
190	11,578	0		



U.S.R. 250 – STA. 644+00 To STA. 644+5

TUS-21-26.33 - TUS-250-11.60

110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

880 920 900

2:1 2:1 1¼:1 1"per ft.

½" per ft. F=323 C=3,557 E1. 917 884.0

886.88
646+00
902.3

880 920 900

2:1 2:1 1:1 1"per ft.

F=65 C=5116 E1. 917 885.5

887.88
645+50
914.8

880 940 920 900

2:1 2:1 1:1 1"per ft.

½" per ft. C=7024 E1. 917 886.5

888.83
645+00
922.3

110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc	Emb.
	969			5215	656
160		3557	323		
	853			8031	359
147		5116	65		
	831			11241	60
152		7024	0		

USB 250 - STA 645+00 TO STA 646+00

TUS-21-26.33-TUS-250-11.60

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130

890
880

C=66
½:1/ft.
2:1
F=559
864.45
882.88
648+00
878.7
C=1455
1"per ft.
½:1
2:1
El. 890
2:1

890
880

C=89
864.30
2:1
F=334
883.88
647+50
885.5
C=1173
1"per ft.
½:1
2:1
El. 890
2:1

890
880

C-6
C=75
864.15
2:1
F=367
884.88
647+00
885.3
C=844
1"per ft.
2:1
881.0
2:1

890
880
870

C-1
½:1/ft.
2:1
F=385
885.88
646+50
890.3
C=2074
1"per ft.
½:1
2:1
882.5
2:1

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

Seeding Width S.Y.	End Area Cu. Yds. Cut	Fill	Exc.	Emb.
1322			2,894	1,442
236	1521	559		
1239			2,577	828
210	1262	335		
1169			2019	650
211	919	367		
1111			2772	696
189	2075	385		

U.S.R.-250 - STA. 646+50 TO STA. 648+00

80
235

TUS-21-26.33-TUS-250-11.60

100 80 60 40 20 ℄ 20 40 60 80 100 120 140 A 160

150 170 190 210

A C-177 1.8:1 920 A

180

900 1.8:1 C-1425 1" per ft. 1½:1 2:1 2:1 4:1 4:1 2:1 F-941 880 870 C-11 865.05

877.88
650+50
866.0

910 1.8:1 C-1706 El. 890 1½:1 2:1 1" per Ft. 2:1 F-1093 880 870

878.88
650+00 END PROJECT
866.2

910 1.8:1 C-1530 El. 890 1½:1 2:1 1" per ft. 2:1 F-1154 880 870 C-18 864.90

879.88
649+50
867.3

910 1.8:1 C-1492 El. 890 1½:1 2:1 1" per ft. 2:1 F-1114 880 870 C-40 864.75

880.88
649+00
869.3

900 2:1 C-1362 El. 890 1½:1 2:1 1" per ft. 4:1 4:1 2:1 F-998 880 870 1½ per ft. C-43 864.60

881.88
648+50
872.2

100 80 60 40 20 ℄ 20 40 60 80 100 120 140 160 180

Spacing Width	End Area S.Y.	Cu. Yds. Cut	Fill	Exc.	Emb.
	1,397			3,075	1,690
262		1,602	941		
	1,353			3,073	1,883
225		1,717	1,093		
	1,250			3,079	2,081
225		1,608	1,154		
	1,300			2,907	2,100
243		1,532	1,114		
	1,342			2,905	1,956
240		1,605	998		

U.S.R.-250 - STA. 648+50 TO STA. 650+50

TUS-21-26.33 - TUS-250-11.60

100 80 60 40 20 ℄ 20 40 60 80 100 120 140 160

880
870
2:1 4:1 4:1 2:1 1" per ft. 1½:1
F=446
874.02
653+00
868.23
C=1852 El. 890 1.8:1
920

880
870
2:1 2:1 1" per ft. 1½:1
F=455
874.52
652+50
867.48
C=1945 El. 890 1.8:1
900

880
870
2:1 4:1 4:1 2:1 1" per ft. 1½:1
F=580
875.17
652+00
867.48
C=1824 El. 890 1.8:1
900

880
870
1/8" per ft. 2:1 2:1 1" per ft. 1½:1
F=774
875.93
651+50
867.25
C=1719 El. 890 1.8:1
900

880
870
1/4" per ft. 2:1 4:1 4:1 2:1 1" per ft. 1½:1
F=884
876.88
651+00
866.5

100 80 60 40 20 ℄ 20 40 60 80 100 120 140 160 180

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
1158				3,979	748
208		1852	446		
1169				3,356	834
213		1772	455		
1214				3,492	958
224		1945	580		
1281				3,490	1254
237		1824	774		
1328				3281	1535
241		1719	884		

TUS-21-26.33-TUS-250-11.60

100 80 60 40 20 ℄ 20 40 60 80 100 120 140 160

870

2:1 F-194 C-207 F-194 2:1 1"/ft. 1½:1

873.06
655+00
872.36

890 910

C-1449
El. 890
2:1
1½:1

870

2:1 F-267 873.40 4:1 4:1 873.16 F-79 2:1 1"/ft. 1½:1

654+50
871.43

910

C-1639
El. 890
1.9:1

106'
57' 6' 43'

870

2:1 F-379 871.50 2:1 Std. 2-2A Catch Basin 2:1 1½"/ft.

F.L. 864.00 3.5% 12"RCP F.L. 866.00 3.06% 867.50

873.45
654+00
870.47

C-1739
El. 890
1.83:1

910

C-1905

ESTIMATED QUANTITIES

24" Pipe, Class A-1	103 Lin. Ft.
Std. N° 2-2-A Catch Basin	1 Each

13-SS

870

2:1 F-362 4:1 4:1 2:1 1"/ft. 1½:1

873.66
653+50
869.43

890

El. 890

100 80 60 40 20 ℄ 20 40 60 80 100 120 140 160 180

Seeding Width	End Area S.Y.	Cu. Yds. Cut	Fill	Exc.	Emb.
	1100			2722	295
195		1469	194		
	1139			2878	428
215		1639	268		
	1192			3128	599
214		1739	379		
	1175			3374	686
209		1805	362		

U.S.R. 250 - STA. 653+50 TO STA. 655+00

83
235

TUS-21-26.33-TUS-250-11.60

100 80 60 40 20 ℄ 20 40 60 80 100 110 120 140

870 900 910

C-33

873.97
657+00 End Work
873.97

C-37A 2:1 F-1

870 910

4:1 F-164 C-34

873.74
656+50
873.77

C-1156 El. 880 2:1 1"per ft. 1½:1 10' 2:1

870 910

4:1 F-159

873.56
656+00
873.54

C-1441 El. 890 890 1½:1

870

3:1 F-124 C-30 F-1 2:1 1"per ft. 20'

873.30
655+50
873.05

100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 120 140 160 180

Excavation 518,645 Cu. Yds.
Embankment 22,468 Cu. Yds.
Seeding 50,439 Sq. Yds.

Seeding Width	Seeding S.Y.	End Area Cut	End Area Fill	Cu. Yds. Exc.	Cu. Yds. Emb.
20		33	0		
	497				408
				153	
159		408	165		
	1014				1448
				300	
206		1156	159		
	1131				2432
				263	
201		1471	125		

U.S.R. 250 – STA. 655+50 TO STA. 657+00

CURVE TABLES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

84
235

TUS-21-26.33
TUS-250-11.60

NORTH BOUND U.S.R. 250

T.S. 620+90.70 | D.C. 4°00'Lt. | C.S. 633+86.95
S.C. 624+90.70 | Max. Super. 2.00' | S.T. 637+86.95

Left Edge Survey & Pav't. Elev.	Station	Pavement Width	℄ of Pav't Elev.	Right Edge Survey & Pav't. Elev.
889.87	617 + 75			890.09
889.73	618 + 00			889.95
889.58	+ 25			889.80
889.41	+ 50			889.63
889.23	+ 75			889.46
889.04	619 + 00			889.27
888.83	+ 25			889.06
888.61	+ 50			888.84
888.36	+ 75			888.59
888.10	620 + 00			888.33
887.85	+ 25			888.08
887.56	+ 50			887.79
887.25	+ 75			887.49
887.04	T.S. + 90.70			887.29
886.91	621 + 00			887.18
886.51	+ 25			886.88
886.12	+ 50			886.58
885.72	+ 75			886.27
885.33	622 + 00			885.96
884.94	+ 25			885.65
884.56	+ 50	16.00'		885.27
884.18	+ 75			884.95
883.82	623 + 00			884.63
883.50	+ 25			884.34
883.21	+ 50			884.10
882.96	+ 75			883.95
882.75	624 + 00			883.82
882.57	+ 25			883.73
882.44	+ 50			883.69
882.34	+ 75			883.65
882.30	S.C. + 90.70	16.00'		883.63
882.28	625 + 00	16.21'		883.63
882.25	+ 25	16.76'		883.64
882.27	+ 50	17.32'		883.71
882.32	+ 75	17.88'		883.80
882.41	626 + 00	18.43'		883.94
882.54	+ 25	18.99'		884.12
882.70	+ 50	19.55'		884.32
882.90	+ 75	20.10'		884.57
883.12	627 + 00	20.66'		884.83
883.34	+ 25	21.22'		885.10
883.56	+ 50	21.77'		885.37
883.78	+ 75	22.33'		885.63
884.00	628 + 00	22.89'		885.90
884.22	+ 25	23.44'		886.17
884.44	+ 50	24.00'	885.44	886.44
884.66	+ 75		885.66	886.66
884.88	629 + 00		885.88	886.88
885.10	+ 25		886.10	887.10
885.32	+ 50		886.32	887.32
885.54	+ 75		886.54	887.54
885.76	630 + 00		886.76	887.76
885.98	+ 25		886.98	887.98
886.20	+ 50		887.20	888.20
886.42	+ 75		887.42	888.42
886.64	631 + 00		887.64	888.64
886.86	+ 25		887.86	888.86
887.08	+ 50		888.08	889.08
887.30	+ 75		888.30	889.30
887.52	632 + 00		888.52	889.52
887.74	+ 25		888.74	889.74
887.96	+ 50		888.96	889.96
888.18	+ 75		889.18	890.18
888.40	633 + 00		889.40	890.40
888.62	+ 25	24.00'	889.62	890.62

Variable See Plan

Continued in next column at right

D.C. 4°00'Lt. Max. Super. 2.00'
Continued from column at left

Left Edge Survey & Pav't. Elev.	Station	Pavement Width	℄ of Pav't Elev.	Right Edge Survey & Pav't. Elev.
888.84	633 + 50	24.00'	889.83	890.81
889.06	+ 75		890.03	890.99
889.17	C.S. + 86.95		890.12	891.07
889.28	634 + 00		890.21	891.14
889.50	+ 25		890.40	891.29
889.72	+ 50		890.57	891.42
889.94	+ 75		890.75	891.55
890.16	635 + 00		890.91	891.66
890.38	+ 25		891.08	891.78
890.60	+ 50		891.24	891.88
890.82	+ 75		891.40	891.98
891.04	636 + 00		891.57	892.09
891.26	+ 25		891.73	892.19
891.48	+ 50		891.89	892.30
891.70	+ 75		892.05	892.40
891.92	637 + 00		892.22	892.51
892.14	+ 25		892.38	892.61
892.36	+ 50		892.55	892.71
892.57	+ 75		892.76	892.81
892.67	S.T. + 86.95		892.86	892.86
892.75	638 + 00		892.94	892.89
892.92	+ 25		893.11	892.97
893.06	+ 50	24.00'	893.25	893.06

SOUTH BOUND U.S.R. 250

P.C. 591+08.54 | D.C. 0°28'Rt. Max. Super. 0.38' | P.T. 607+72.83

Left Edge Pav't. Elev.	Station	℄ of Pav't Elev.	Right Edge Survey & Pav't. Elev.
	P.C. 591 + 08.54		874.76
	+ 25		874.72
	+ 50		874.65
	+ 75		874.57
	592 + 00		874.50
	+ 25		874.42
	+ 50		874.34
	+ 75		874.27
	593 + 00		874.19
	+ 25		874.11
	+ 50		874.04
	+ 75		873.97
	594 + 00		873.90
	+ 25		873.82
	+ 50		873.75
	+ 75		873.67
	595 + 00		873.59
	+ 25		873.51
	+ 50		873.44
	+ 75		873.37
	596 + 00		873.31
	+ 25		873.27
	+ 50		873.24
	+ 75		873.23
	597 + 00		873.23
	+ 25		873.25
	+ 50		873.30
	+ 75		873.38
	598 + 00		873.48
	+ 25		873.59
	+ 50		873.70
	+ 75		873.85

Elev. of Left Edge of U.S.R. 21 (I.R. 71)

Continued in next column at right

D.C. 0°28'Rt. Max. Super. 0.38'
Continued from column at left

Left Edge Pav't. Elev.	Station	℄ of Pav't Elev.	Right Edge Survey & Pav't. Elev.
	599 + 00		874.01
	+ 25		874.22
	+ 50		874.46
	+ 75		874.70
	600 + 00		874.97
	+ 25		875.24
	+ 50		875.55
	+ 75		875.89
	601 + 00		876.22
	+ 25		876.58
	+ 50		876.96
	+ 75		877.36
	602 + 00		877.76
	+ 25		878.13
	+ 50		878.49
	+ 75		878.84
	603 + 00	879.37	879.18
	+ 25	879.69	879.50
	+ 50	880.00	879.81
	+ 75	880.30	880.11
	604 + 00	880.59	880.40
	+ 25	880.86	880.67
	+ 50	881.12	880.93
	+ 75	881.37	881.18
	605 + 00	881.61	881.42
	+ 25	881.83	881.64
	+ 50	882.04	881.85
	+ 75	882.24	882.05
	606 + 00	882.43	882.24
	+ 25	882.60	882.41
	+ 50	882.76	882.57
	+ 75	882.91	882.72
	607 + 00	883.05	882.86
	+ 25	883.17	882.98
	+ 50	883.28	883.09
	P.T. + 72.83	883.37	883.18
	+ 75	883.37	883.18
	608 + 00	883.46	883.27
	+ 25	883.54	883.35
	+ 50	883.62	883.43

Elev. of Left Edge of U.S.R. 21 (I.R. 71)

T.S. 614+49.61 | D.C. 4°00'Lt. | C.S. 629+67.94
S.C. 618+49.61 | Max. Super. 2.00' | S.T. 633+67.94

Left Edge Pav't. Elev.	Station	℄ of Pav't Elev.	Right Edge Survey & Pav't. Elev.
885.03	613 + 50	885.22	885.03
885.12	+ 75	885.31	885.13
885.20	614 + 00	885.39	885.25
885.28	+ 25	885.47	885.39
885.35	T.S. + 49.61	885.54	885.54
885.35	+ 50	885.54	885.54
885.42	+ 75	885.61	885.71
885.51	615 + 00	885.71	885.90
885.63	+ 25	885.87	886.10
885.74	+ 50	886.03	886.32
885.87	+ 75	886.21	886.55
886.00	616 + 00	886.41	886.81
886.16	+ 25	886.62	887.07
886.31	+ 50	886.83	887.35
886.47	+ 75	887.05	887.62
886.62	617 + 00	887.26	887.90
886.77	+ 25	887.48	888.18
886.92	+ 50	887.69	888.45
887.09	+ 75	887.91	888.73
887.27	618 + 00	888.14	889.00

Continued in next column at right

D.C. 4°00'Lt. Max. Super. 2.00'
Continued from column at left

Left Edge Pav't. Elev.	Station	℄ of Pav't Elev.	Right Edge Survey & Pav't. Elev.
887.46	618 + 25	888.37	889.28
887.65	S.C. + 49.61	888.60	889.55
887.65	+ 50	888.60	889.55
887.87	+ 75	888.85	889.83
888.11	619 + 00	889.11	890.10
888.38	+ 25	889.38	890.38
888.65	+ 50	889.65	890.65
888.93	+ 75	889.93	890.93
889.21	620 + 00	890.21	891.21
889.48	+ 25	890.48	891.48
889.76	+ 50	890.76	891.76
890.03	+ 75	891.03	892.03
890.31	621 + 00	891.31	892.31
890.58	+ 25	891.58	892.58
890.86	+ 50	891.86	892.86
891.13	+ 75	892.13	893.13
891.41	622 + 00	892.41	893.41
891.69	+ 25	892.69	893.69
891.96	+ 50	892.96	893.96
892.24	+ 75	893.24	894.24
892.51	623 + 00	893.51	894.51
892.79	+ 25	893.79	894.79
893.06	+ 50	894.06	895.06
893.34	+ 75	894.34	895.34
893.61	624 + 00	894.61	895.61
893.89	+ 25	894.89	895.89
894.16	+ 50	895.16	896.16
894.44	+ 75	895.44	896.44
894.72	625 + 00	895.72	896.72
894.99	+ 25	895.99	896.99
895.25	+ 50	896.25	897.25
895.48	+ 75	896.48	897.48
895.68	626 + 00	896.68	897.68
895.84	+ 25	896.84	897.84
895.98	+ 50	896.98	897.98
896.07	+ 75	897.07	898.07
896.15	627 + 00	897.15	898.15
896.19	+ 25	897.19	898.19
896.20	+ 50	897.20	898.20
896.18	+ 75	897.18	898.18
896.12	628 + 00	897.12	898.12
896.04	+ 25	897.04	898.04
895.92	+ 50	896.92	897.92
895.77	+ 75	896.77	897.77
895.60	629 + 00	896.60	897.59
895.40	+ 25	896.39	897.37
895.19	+ 50	896.16	897.13
895.04	C.S. + 67.94	895.99	896.94
894.97	+ 75	895.91	896.85
894.73	630 + 00	895.64	896.55
894.48	+ 25	895.35	896.21
894.20	+ 50	895.03	895.85
893.92	+ 75	894.69	895.45
893.61	631 + 00	894.31	895.01
893.30	+ 25	893.93	894.55
892.95	+ 50	893.51	894.07
892.61	+ 75	893.10	893.59
892.29	632 + 00	892.70	893.11
891.97	+ 25	892.31	892.65
891.68	+ 50	891.96	892.24
891.40	+ 75	891.64	891.87
891.14	633 + 00	891.35	891.55
890.92	+ 25	891.11	891.27
890.77	+ 50	890.96	891.03
890.69	S.T. + 67.94	890.88	890.88
890.68	+ 75	890.87	890.83
890.62	634 + 00	890.81	890.68
890.57	+ 25	890.76	890.57

CURVE TABLES
I.R. 77

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

85
235

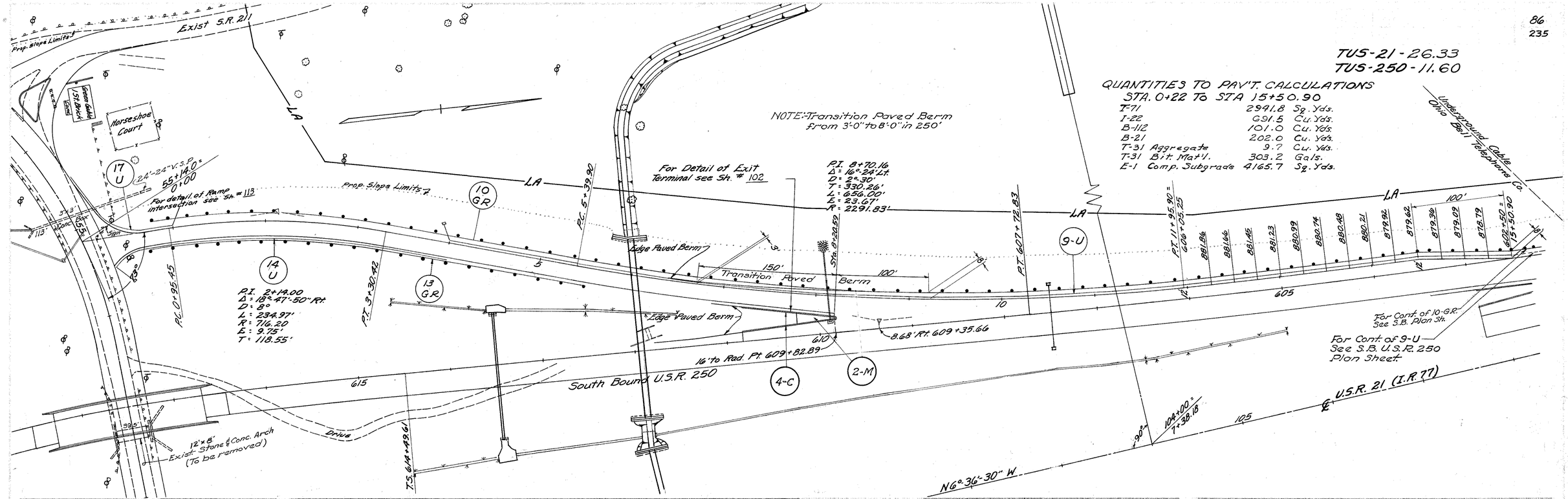
TUS-21-26.33
TUS-250-11.60

T.S. 71+75.98 S.C. 73+75.98			D.C. 1°-30'Lt. Max. Super. 1.15	C.S. 90+10.42 S.T. 92+10.42		
Left Pair Lanes			STATION	Right Pair Lanes		
Left Edge	℄	Right Edge		Left Edge	℄	Right Edge
866.96	867.54	868.11	83+00	868.11	868.69	869.26
867.44	868.02	868.59	+25	868.59	869.17	869.74
867.96	868.54	869.11	+50	869.11	869.69	870.26
868.54	869.12	869.69	+75	869.69	870.27	870.84
869.16	869.74	870.31	84+00	870.31	870.89	871.46
869.81	870.39	870.96	+25	870.96	871.54	872.11
870.46	871.04	871.61	+50	871.61	872.19	872.76
871.11	871.69	872.26	+75	872.26	872.84	873.41
871.76	872.34	872.91	85+00	872.91	873.49	874.06
872.41	872.99	873.56	+25	873.56	874.14	874.71
873.06	873.64	874.21	+50	874.21	874.79	875.36
873.71	874.29	874.86	+75	874.86	875.44	876.01
874.36	874.94	875.51	86+00	875.51	876.09	876.66
875.00	875.58	876.15	+25	876.15	876.73	877.30
875.63	876.21	876.78	+50	876.78	877.36	877.93
876.25	876.83	877.40	+75	877.40	877.98	878.55
876.85	877.43	878.00	87+00	878.00	878.58	879.15
877.44	878.02	878.59	+25	878.59	879.17	879.74
878.01	878.59	879.16	+50	879.16	879.74	880.31
878.57	879.15	879.72	+75	879.72	880.30	880.87
879.12	879.70	880.27	88+00	880.27	880.85	881.42
879.65	880.23	880.80	+25	880.80	881.38	881.95
880.17	880.75	881.32	+50	881.32	881.90	882.47
880.68	881.26	881.83	+75	881.83	882.41	882.98
881.17	881.75	882.32	89+00	882.32	882.90	883.47
881.65	882.23	882.80	+25	882.80	883.38	883.95
882.13	882.70	883.26	+50	883.26	883.83	884.39
882.63	883.17	883.71	+75	883.71	884.24	884.77
883.14	883.65	884.15	90+00	884.15	884.64	885.12
883.37	883.85	884.33	C.S. +10.42	884.33	884.80	885.26
883.67	884.12	884.57	+25	884.57	885.01	885.44
884.18	884.58	884.98	+50	884.98	885.37	885.75
884.69	885.04	885.38	+75	885.38	885.71	886.04
885.17	885.47	885.76	91+00	885.76	886.04	886.32
885.63	885.88	886.13	+25	886.13	886.35	886.57
886.08	886.28	886.48	+50	886.48	886.67	886.80
886.53	886.72	886.82	+75	886.82	887.01	887.02
887.00	887.19	887.15	92+00	887.15	887.34	887.25
887.19	887.38	887.28	S.T. +10.42	887.28	887.47	887.35
887.42	887.61	887.46	+25	887.46	887.65	887.49
887.76	887.95	887.76	+50	887.76	887.95	887.76

TUS-21-26.33
TUS-250-11.60

QUANTITIES TO PAV'T. CALCULATIONS
STA. 0+22 TO STA 15+50.90

T-71	2941.8 Sq. Yds.
I-22	691.5 Cu. Yds.
B-112	101.0 Cu. Yds.
B-21	202.0 Cu. Yds.
T-31 Aggregate	9.7 Cu. Yds.
T-31 Bit. Mat'l.	303.2 Gals.
E-1 Comp. Subgrade	4165.7 Sq. Yds.



B.M. ELEV. 880.76
□ on Gas Island at Green Gables

B.M. ELEV. 863.69
Mine Spike in 30" Oak
80' Lt. Sta. 5+88. Ramp "A"

GUARD RAIL

REF. Nº	STATION From	STATION To	Side	New Lin. Ft.
10-GR	0+76.8	15+50.9	Lt.	1475
13-GR	0+70.0	5+51.5	Rt.	475
TOTALS				1950

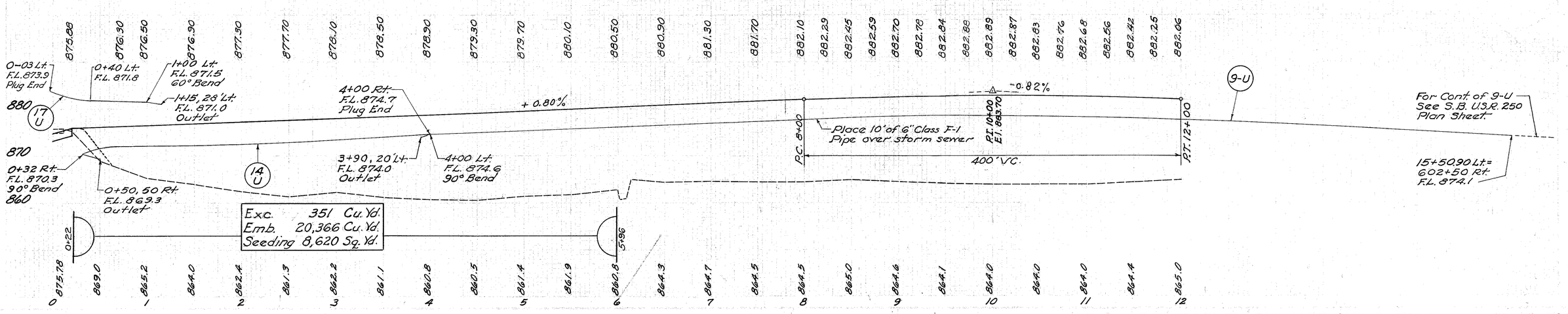
STATION	Rt. Edge Pav't. Elev.	Survey & Lt. Edge Pav't. Elev.
0+22	876.22	876.25
+68.50	876.30	876.30
+75	876.39	876.46
P.C. 0+95.45	876.40	876.50
1+00	876.50	876.50
+25	876.55	876.70
+50	876.61	876.90
+75	876.72	877.10
2+00	876.89	877.30
+25	877.10	877.50
+50	877.40	877.70
+75	877.71	877.90
3+00	878.03	878.10
+25	878.10	878.30
P.T. 3+30.42	878.34	878.50
+50	878.68	878.70
+75	878.99	878.90
4+00	879.28	879.10
+25	879.52	879.30
+50	879.78	879.50
+75	880.02	879.70
5+00	880.29	880.02
+25	880.43	P.C. 5+39.90
+50	880.54	880.08
+75	880.80	880.30
6+00	881.04	880.50
+25	881.31	880.70
+50	881.56	880.90
+75	881.76	881.10
7+00	882.16	881.30
+25	882.38	881.50
+50	882.60	881.70
+75	882.82	881.90
8+00	Rt. Edge of S.B. U.S.R. 250	882.10
+25		882.29
+50		882.45
+75		882.59
9+00		882.70
+25		882.78
+50		882.84
+75		882.88
10+00		882.89
+25		882.87
+50		882.83
+75		882.76
11+00		882.68
+25		882.56
+50		882.42
+75		882.25
P.T. 11+95.90		882.09
12+00		882.06

CURB & MEDIAN PAV'T.

REF. Nº	STATION From	STATION To	Side	Median Pav't. Type I Sq. Yds.	Conc. Curb Type G Lin. Ft.	See Sh. Nº
2-M	7+80.59	8+22.09	Rt.	34.8		102
4-C	7+20.59	8+22.59	Rt.		204.5	102
TOTALS				34.8	204.5	

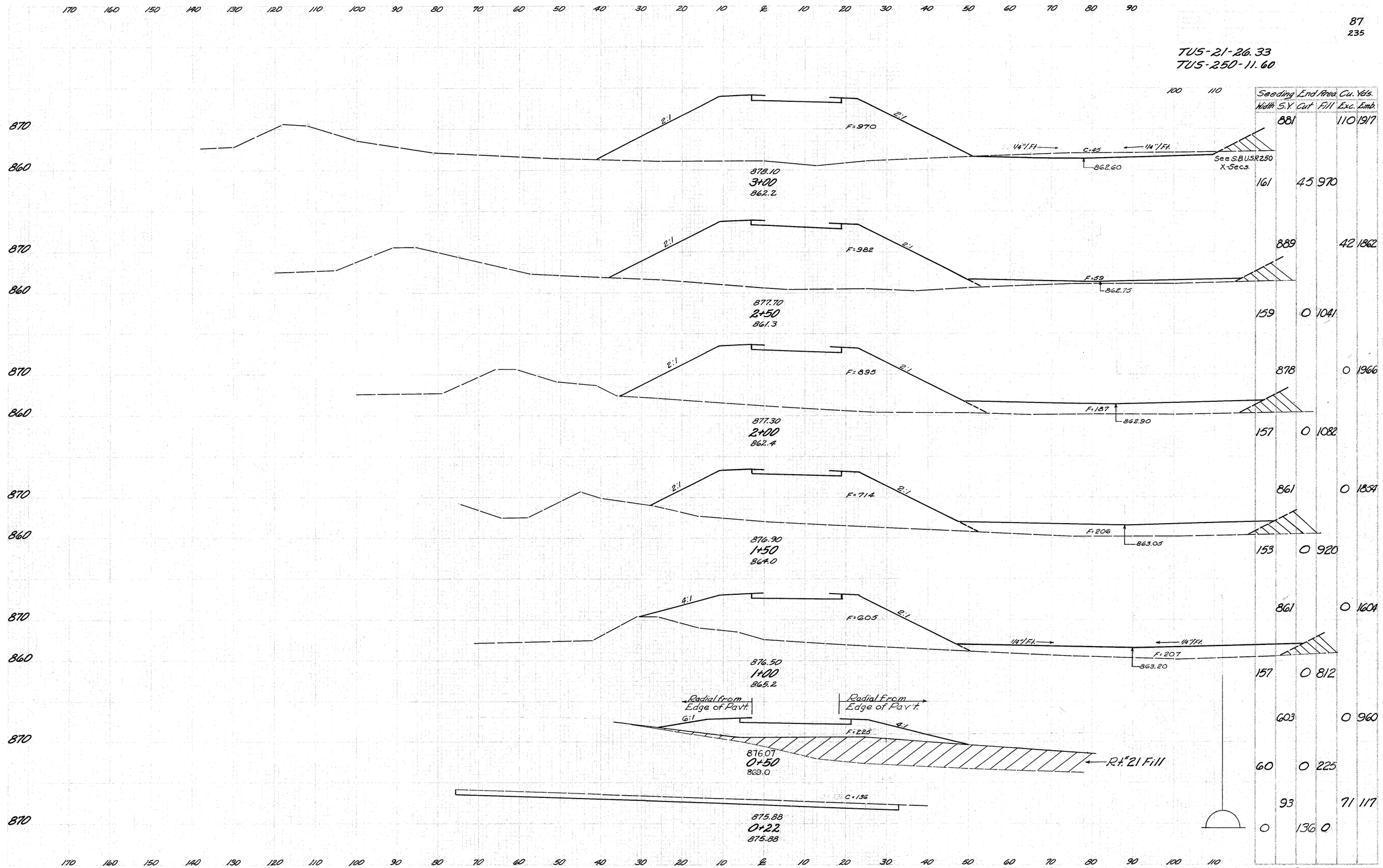
PIPE FOR DRAINS

REF. Nº	STATION From	STATION To	Side	6" C.I. I-3 Pipe, D=30" Lin. Ft.	C.I. F-1 Pipe 6" Lin. Ft.	C.I. F-1 Pipe (6"M-6.46) Lin. Ft.	6" C.I. I-3 Pipe Spec. 90° Bend Each	6" C.I. I-3 Pipe Spec. 60° Bend Each
14-U	0+32	4+00	Rt.	384		10	1	
9-U	3+90	15+50.90	Lt.	1152	10	10		1
17-U	0-30	1+15	Lt.	158		10		1
TOTALS				1694	10	30	3	



RAMP "A" PLAN & PROFILE STA. 0+00 to STA. 15+50.90

TUS-21-26.33
TUS-250-11.60



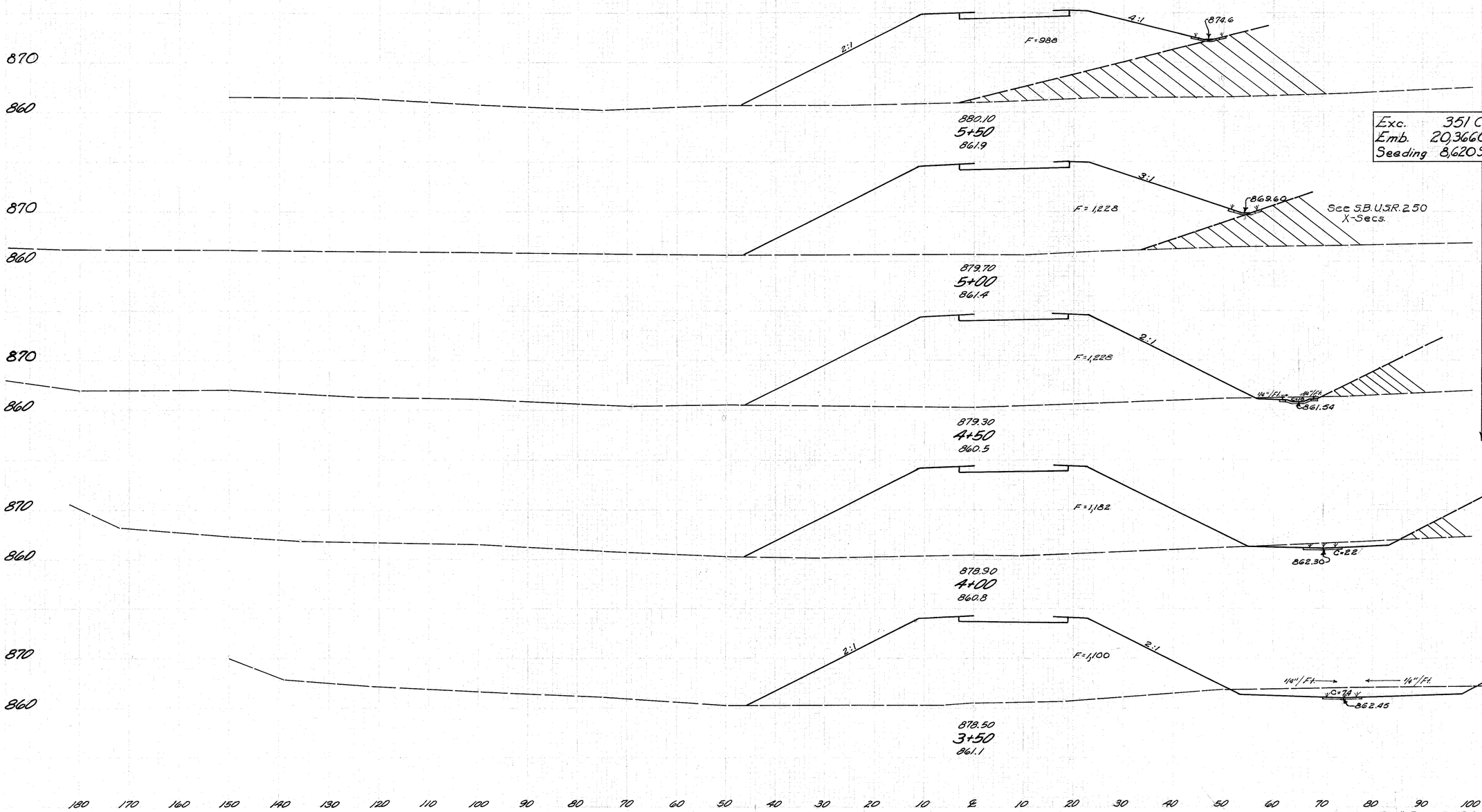
Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
	881			110	1917
	161	45	970		
	889			42	1862
	159	0	1041		
	878			0	1966
	157	0	1082		
	861			0	1854
	153	0	920		
	861			0	1604
	157	0	812		
	603			0	960
	60	0	225		
	93			71	117
	0	136	0		

RAMP "A" STA. 0+22 to STA. 3+00

TUS-21-26.33
TUS-250-11.60

180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100

5+96 (See Cross Section S.B.U.S.R. 250 Sta. 612+00 Sh.# 50)



Exc. 351 Cu. Yds.
Emb. 20,366 Cu. Yds.
Seeding 8,620 Sq. Yds.

Seeding Width	Seeding S.Y.	End Area Cut	End Area Fill	Cu. Yds. Exc.	Cu. Yds. Emb.
114		0	674		
	588			0	1416
116		0	988		
	658			0	2052
121		0	1228		
	703		9	2274	
132		10	1228		
	769		30	2231	
145		22	1,182		
	836		89	2,113	
156		74	1,100		

RAMP "A" STA. 3+50 to STA. 5+96

RAMP 'B' PLAN & PROFILE STA 0+00 to STA 10+00

89
235

TUS-250-11.60

TUS-21-26.33

3 1205 30

ESTIMATED QUANTITIES

1302	1118	624	82	57	267	51	65				
			82	57	267	51	65				140
8-S 6+65		Rdwy									
3-M 0+25 to 0+63		Rdwy					64.4				
3-C 0+25 to 0+63		Rdwy				111.8					
20-U 3+15 to 10+00		Rdwy								1	485
19-U 0+44 to 5+25		Lt								1	512
18-U 0-13 to 1+50		Rdwy								1	208
17-GR 4+00 to 10+00		Lt	601.0								
18-GR 3+00 to 10+00		Rdwy	700.2								

Lin. Ft. | Sq. Yd. | Lin. Ft. | Cu. Yd. | Cu. Yd. | Cu. Yd. | Sq. Yd.

Guardrail Concrete Traffic Tr. Pipe | Channel | Riprap
Shielded Curb | Isle Part Class A1 Masonry | Rock | 6"
Type 8A 1-4" See M.606 | Excav. | Chan. Rmv. Conc.

PIPE FOR DRAINS		
6"Specials	6"	8"
Class 13	Class 13	Class FI
Tee 60 Bend	D = 30" See M.606	
Each	Each Lin. Ft.	Lin. Ft.

END SHEET STA. 10+00

Survey & Ft. Edge Pvmt. Elev.	STATION	Lt. Edge Pavt. Elev.
0+22.3		
1+22.83		871.04
	+25	871.04
	+31.92	871.06
	+50	871.12
	+75	871.23
	PC. +80.34	871.25
	2+00	871.35
	+25	871.51
	+50	871.67
	+75	871.87
	3+00	872.09
	+25	872.33
	+50	872.59
	+75	872.87
	4+00	873.14
	+25	873.42
	+50	873.69
	+75	873.97
	5+00	874.24
	+25	874.52
	+50	874.79
	+75	875.07
	6+00	875.34
	+25	875.62
	+50	875.89
	PT. +68.67	876.02
	PC. +82.10	876.02
	+75	876.17
	7+00	876.44
	+25	876.72
	+50	876.99
	+75	877.27
	8+00	877.54
	+25	877.82
	+50	878.09
	+75	878.37
	9+00	878.64
	+25	878.92
	+50	879.19
	+75	879.47
	10+00	879.74

Excavation 122 Cu. Yds.
Embankment 43,419 Cu. Yds.
Seeding 27,621 Sq. Yds.

B.M. ELEV. 872.70
D on Southwest corner of River Bridge

QUANTITIES TO PAY'T. CALCULATIONS
STA 0+22.3 TO STA. 10+00

T-71	1976.7 Sq. Yds.
I-22	420.5 Cu. Yds.
B-112	56.1 Cu. Yds.
B-21	112.2 Cu. Yds.
T-31	1534 Gals
T-31	Bit. Mat'l.
E-1	Comp. Subgrade 2856.5 Sq. Yds.

P.I. 3+25.00
Δ = 11°-32'-Lt.
D = 4°-00'
T = 144.66'
L = 288.33'
E = 7.29'
R = 1432.40'

P.I. 11+72.43
Δ = 16°-53'-15" Rt.
D = 7°-40'
T = 510.33'
L = 1013.25'
E = 37.67'
R = 3437.75

Tuscarawas River

Prop. Slope Limits

Drive

ACC. LANE N.A. U.S.R. 250

N 68°-36'-30" W 120

℄ U.S.R. 21 (T.R. 77)

Exist. U.S.R. 21

Exist. Bridge U.S.R. 21 over Tusc. River

PC. 1+80.34

PT. 1+68.67

PC. 2+82.10

PT. 4+82.39

PC. 7+80.34

PT. 6+80.34

PT. 6+84.56

63+98.00
0+00

63

For detail of Ramp intersection See Sh. 11 of 18

For Cont. to See Exist. U.S.R. 21 Plan Sheet

For Cont. to See Exist. U.S.R. 21 Profile Sheet

2+50 Lt. FL. 867.0

1+00 Lt. FL. 866.0 "Tee"

1+00.50 Lt. FL. 865.5 Outlet

0+44 Lt. FL. 866.7 Plug End

5+25 Lt. FL. 870.2 Plug End

5+25 Rt. FL. 870.2 60° Bend

5+15.20 Rt. FL. 869.5 Outlet

1+50 Rt. FL. 867.0 Plug End

0+50 Rt. FL. 866.5 "Tee"

0+64 Rt. Rdwy. FL. 866.0 Outlet

0+13 Rt. Rdwy. El. 867.0

P.I. 2+00 El. 870.94

302' V.C.

PT. 3+50

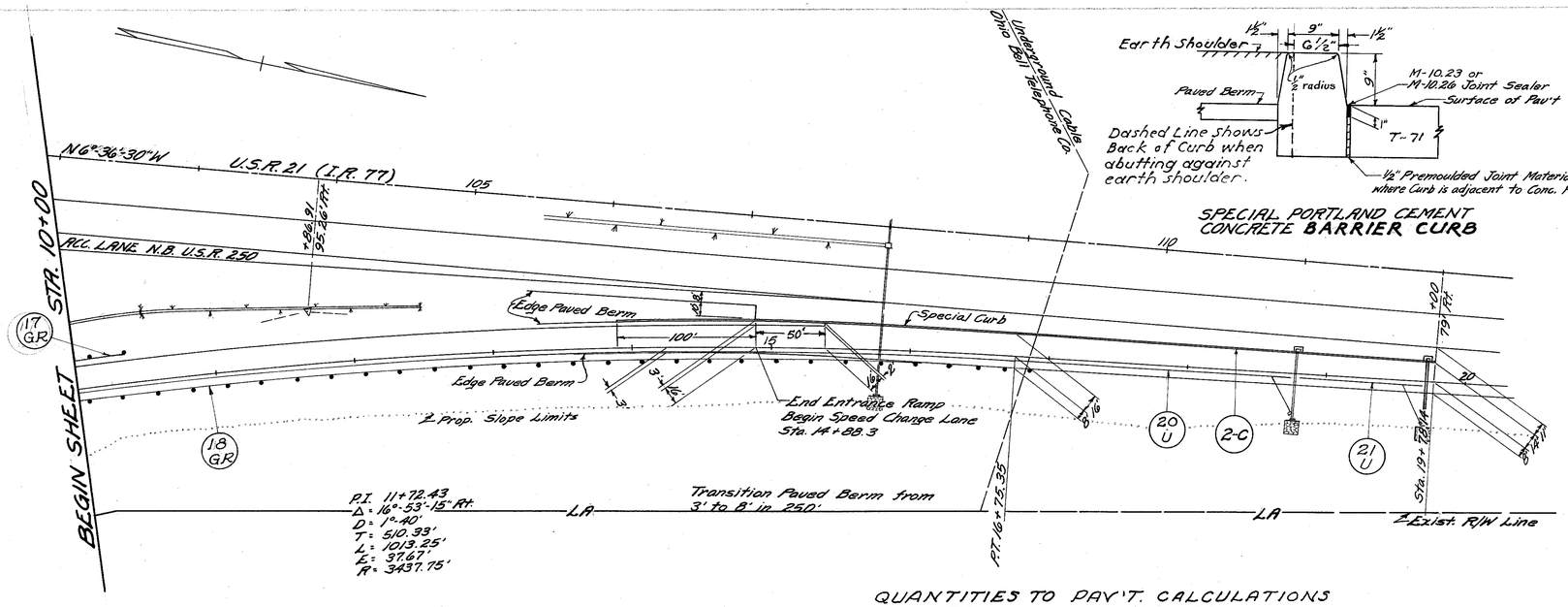
PC. 0+50

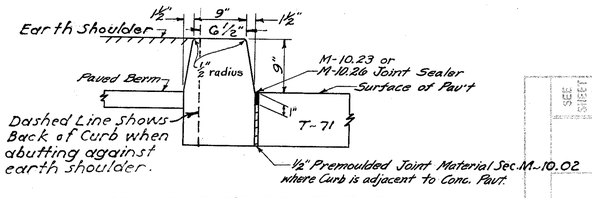
0+22.3

11+01

880 870 860

20 U
19 U
18 U
17 GR
18 GR
8 S
3-M
3-C





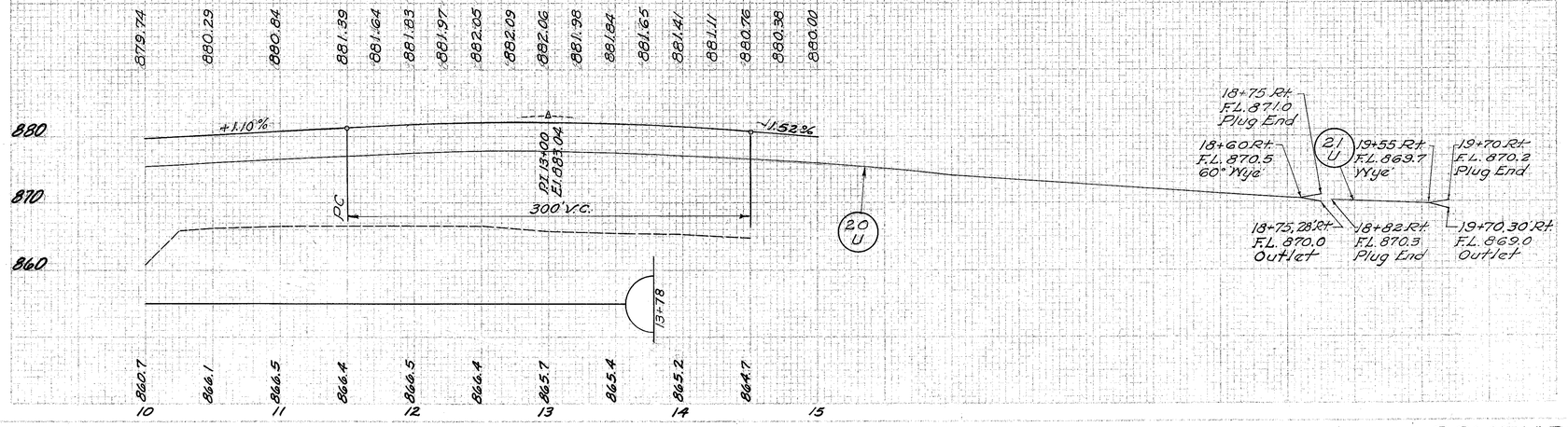
SPECIAL PORTLAND CEMENT CONCRETE **BARRIER CURB**

QUANTITIES TO PAV'T. CALCULATIONS
STA. 10+00 To STA. 19+78.14

T-71	1722.7 Sq. Yds.
I-22	421.5 Cu. Yds.
B-112	61.8 Cu. Yds.
B-21	123.6 Cu. Yds.
T-31 Aggregate	5.9 Cu. Yds.
T-31 Bit. Mat'l.	185.3 Gals.
E-1 Comp. Subgrade	2529.5 Sq. Yds.

B.M. ELEV. 867.85
Mine Spike in Tel. Cable Pole 50' Sta. 109+39

Lt. Edge Pav't. Elev.	STATION	Survey & Rt. Edge Pav't. Elev.
880.45	10 +25	880.02
880.72	+50	880.29
881.00	+75	880.57
881.27	11+00	880.84
881.55	+25	881.12
881.82	+50	881.39
882.07	+75	881.64
882.36	12+00	881.83
882.40	+25	881.91
882.45	+50	882.05
882.52	+75	882.09
882.49	13+00	882.06
882.41	+25	881.98
882.27	+50	881.84
882.09	+75	881.65
881.84	14+00	881.41
881.54	+25	881.11
881.19	+50	880.76
880.81	+75	880.38
880.48	15+00	880.00
880.06	+25	879.63
879.71	+50	879.25
879.32	+75	878.89
878.93	16+00	878.51
878.54	+25	878.13
878.14	+50	877.79
877.75	+75	877.41
877.75	PT +75.35	877.41
877.36	17+00	877.04
876.97	+25	876.67
876.58	+50	876.30
876.19	+75	875.93
875.84	18+00	875.58
875.53	+25	875.28
875.25	+50	875.00
874.98	+75	874.74
874.73	19+00	874.50
874.53	+25	874.30
874.31	+50	874.09
874.11	+75	873.89
874.09	+78.14	873.87



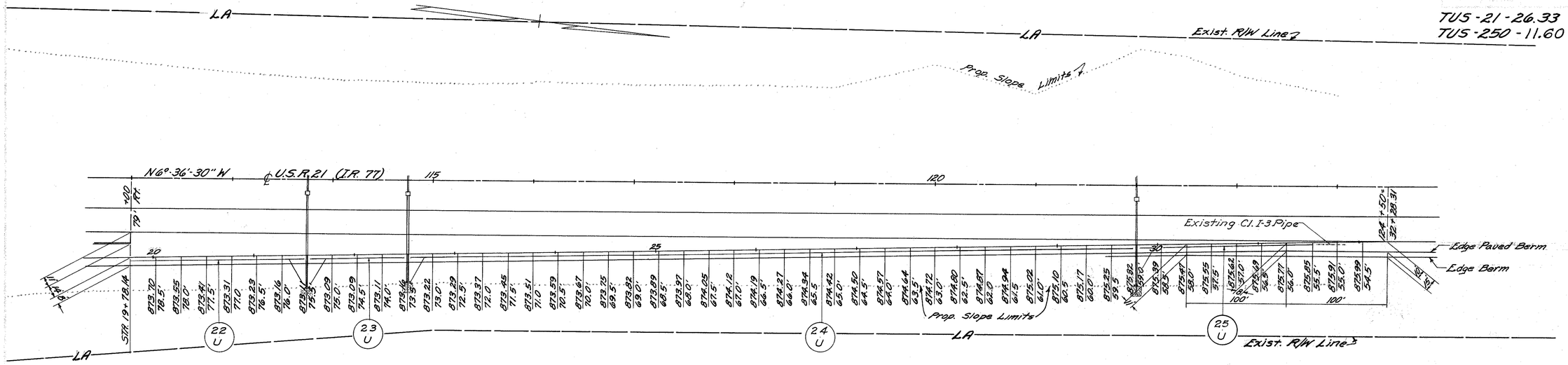
ESTIMATED QUANTITIES

PIPE FOR DRAINS	6" Corrugated Steel Standard	8" CSpecials Special Class F.I. Class I.3 Concrete D=30" Sec. M.4.06 60° Wye	Lin. Ft.	Each	Lin. Ft.
			36.5		
17 G.R. 10+00 to 10+36.3		Lt.	36.5		
18 G.R. 10+00 to 16+88.9		Rt.	68.3		
			104.8		
20-U 10+00 to 18+75		Rt.	894	10	1
21-U 18+82 to 19+70		Rt.	110	10	1
2-C 13+88.85 to 19+78.14		Lt.			590.8

723.8	1004	20	2	590.8

RAMP "B" PLAN & PROFILE STA. 10+00 to STA. 19+78.14

TUS-21-26.33
TUS-250-11.60



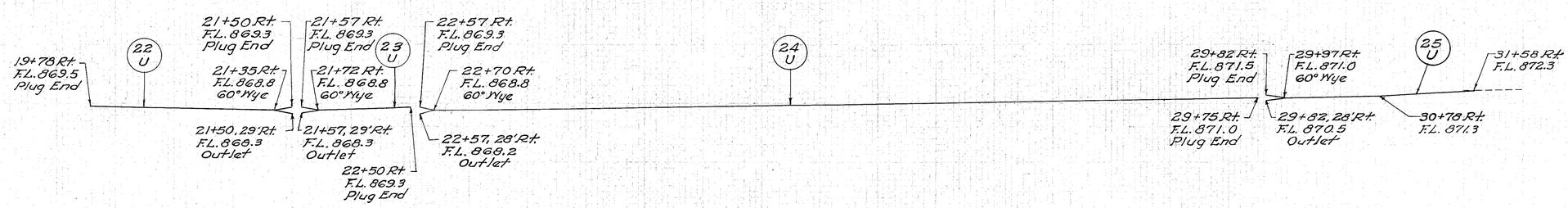
QUANTITIES TO DAY'T. CALCULATIONS
STA. 19+78.14 TO STA. 32.28.31

T-71	1736.1	Sq. Yds.
I-22	476.4	Cu. Yds.
B-112	93.5	Cu. Yds.
B-21	187.0	Cu. Yds.
T-31 Aggregate	9.0	Cu. Yds.
T-31 Bit. Mat'l.	280.6	Gals.
E-1 Comp. Subgrade	2858.5	Sq. Yds.

B.M. ELEV. 870.86
Mine Spike in Power
Pole 120' Lt. Sta. 119+50

PIPE FOR DRAINS

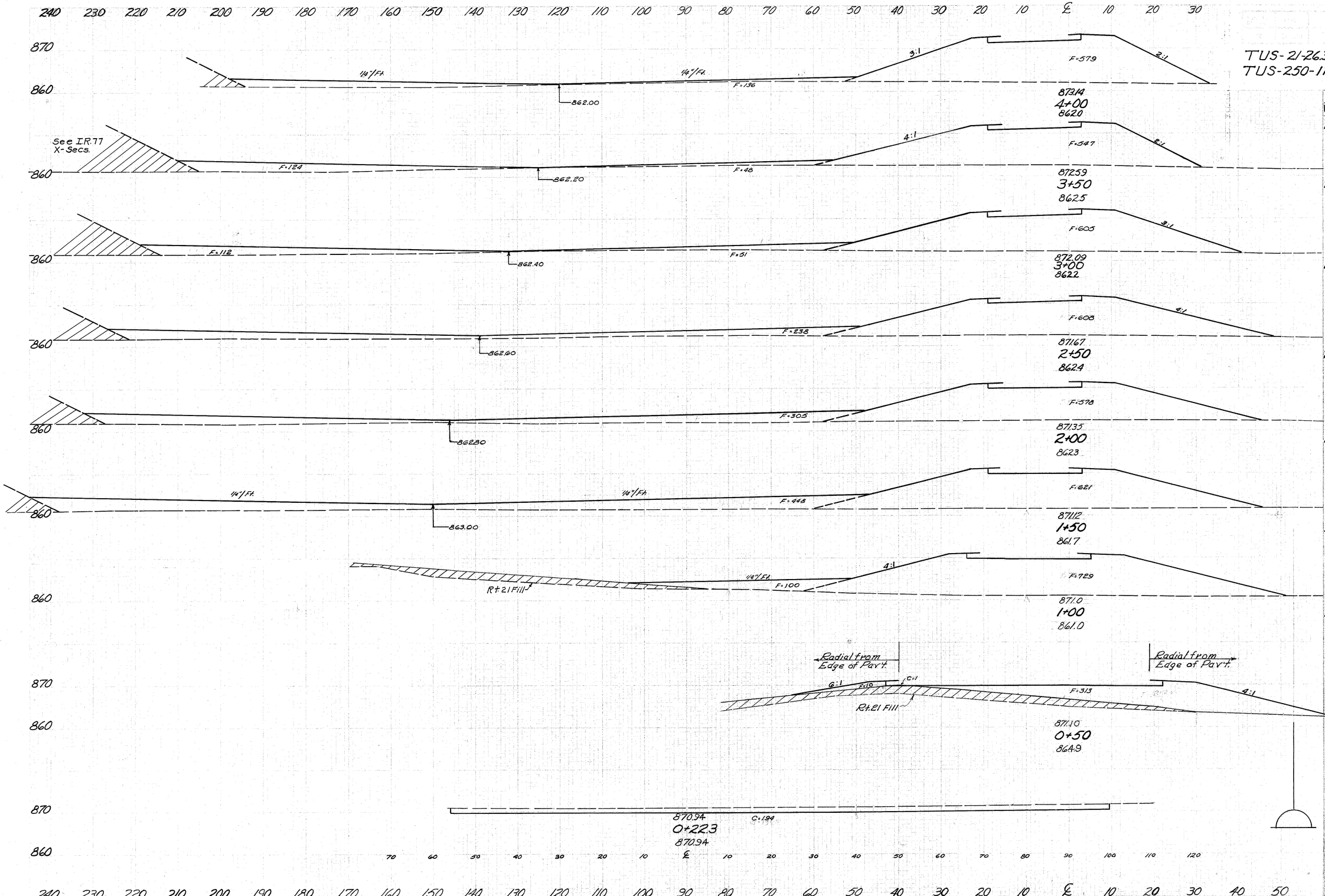
REF.	STATION		Side	6" C.I. I-3 Pipe, D-36	8" C.I. Pipe Sec. M-64(6)	6" Specials CI-B, 60° Wye
Nº	From	To		Lin. Ft.	Lin. Ft.	Each
22-U	19+78	21+50	Rt.	192	10	1
23-U	21+57	22+50	Rt.	114	10	1
24-U	22+57	29+75	Rt.	738	10	1
25-U	29+82	31+58	Rt.	196	10	1
TOTALS				1240	40	4



20 21 22 23 24 25 26 27 28 29 30 31 32 33

RAMP "B" ACCELERATION LANE STA. 19+78.14 to STA. 32+28.31

TUS-21-26.33
TUS-250-11.60

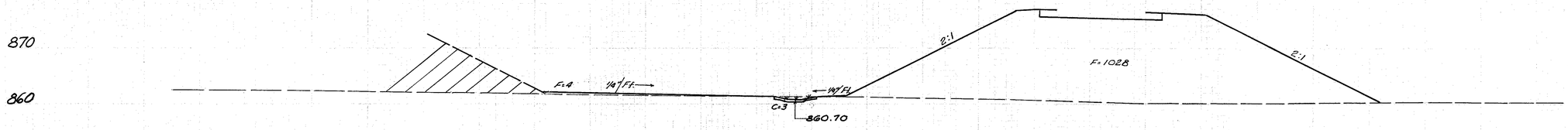


Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
253		0	715		
	1433			0	1328
263		0	719		
	1492			0	1377
274		0	768		
	1550			0	1494
284		0	846		
	1611			0	1601
296		0	883		
	1697			0	1801
315		0	1069		
	1361			0	1757
175		0	829		
	664			1	1067
64		1	323		
	98			100	166
0		194	0		

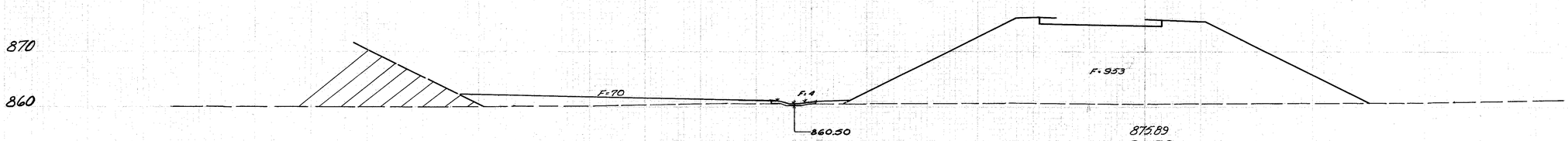
RAMP "B" STA. 0+22.3 to STA. 4+00

TUS-21-26.33
TUS-250-11.60

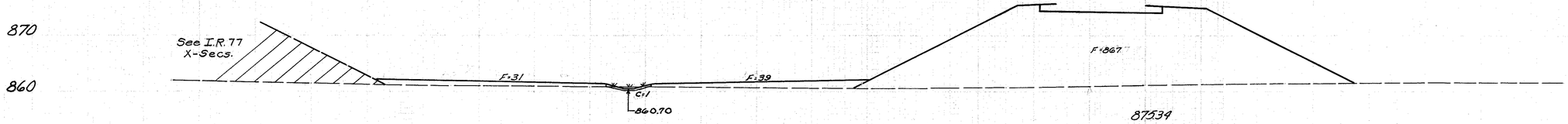
200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70



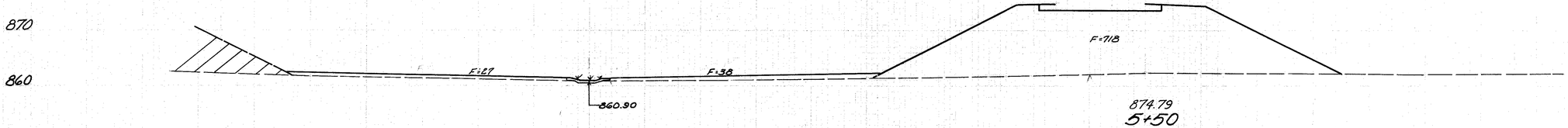
876.44
7+00
860.1



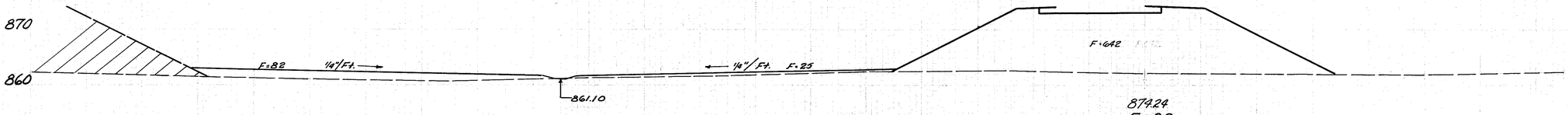
875.89
6+50
860.5



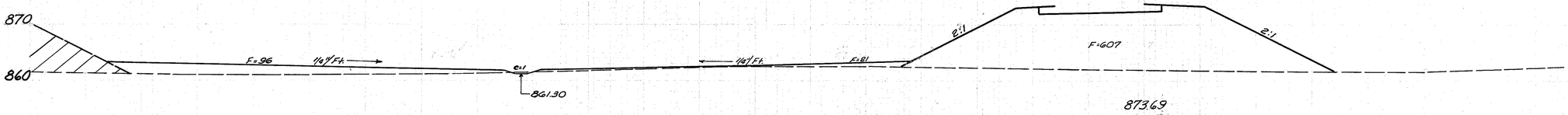
875.34
6+00
861.1



874.79
5+50
862.1



874.24
5+00
862.1



873.69
4+50
862.0

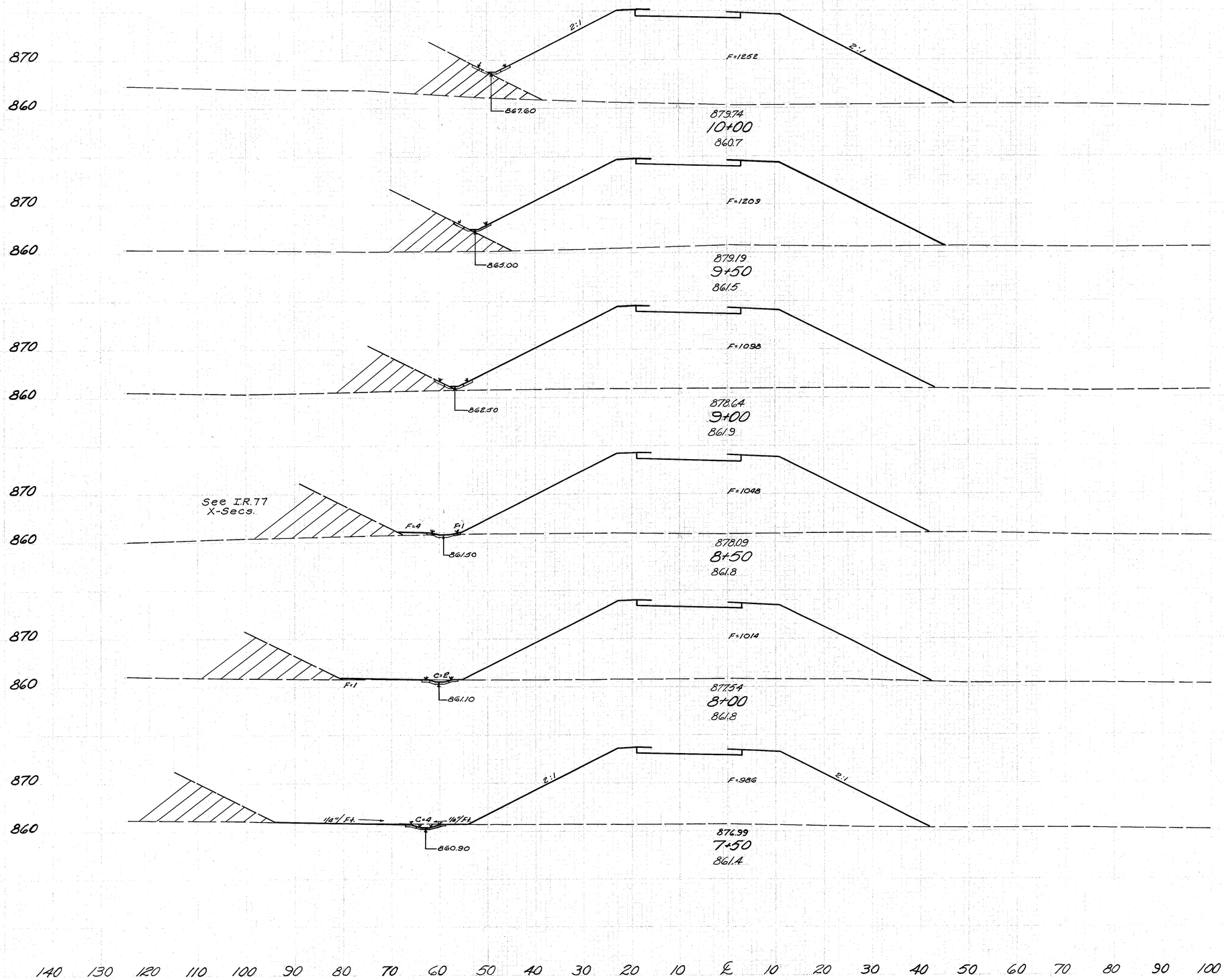
200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90

RAMP "R" STA 4+50 to STA 7+00

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
184		3	1032		
	1053			3	1906
195		0	1027		
	1117			1	1819
207		1	937		
	1181			1	1593
218		0	783		
	1250			0	1419
232		0	749		
	1319			1	1364
243		1	724		
	1378			1	1332

TUS-21-26.33
TUS-250-11.60

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120



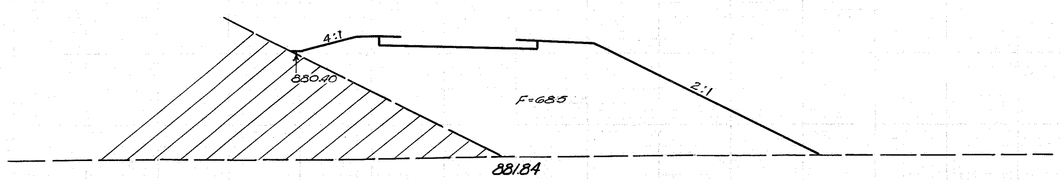
Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
126		0	1252		
	717			0	2279
132		0	1209		
	747			0	2136
137		0	1098		
	786			0	1992
146		0	1053		
	847			2	1915
159		2	1015		
	917			6	1853
171		4	986		
	986			6	1869

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140

RAMP "B" STA. 7+50 to STA. 10+00

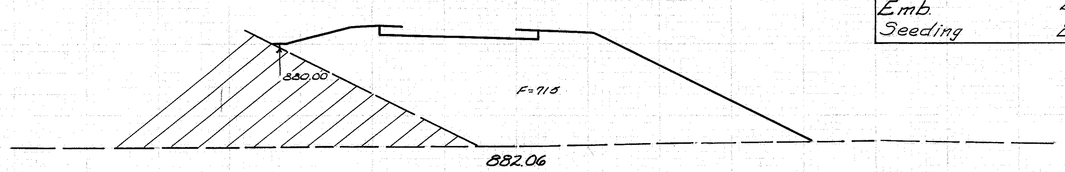
70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90

13+78 (See Cross Section Sta. 106, Sheet No. 34)

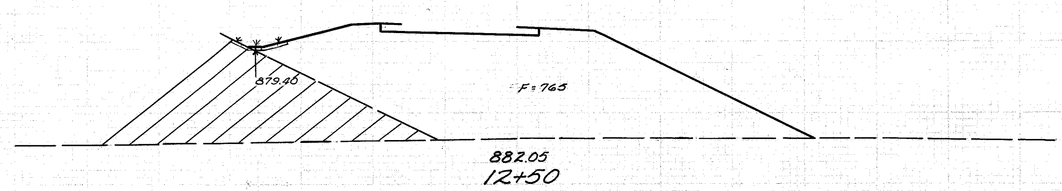


881.84
13+50
865.4

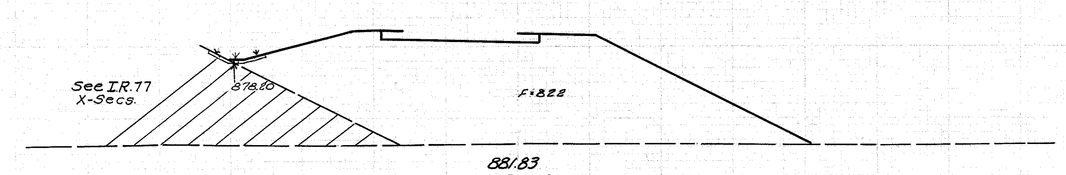
Exc.	122 Cu. Yds.
Emb.	43,419 Cu. Yds.
Seeding	27,621 Sq. Yds.



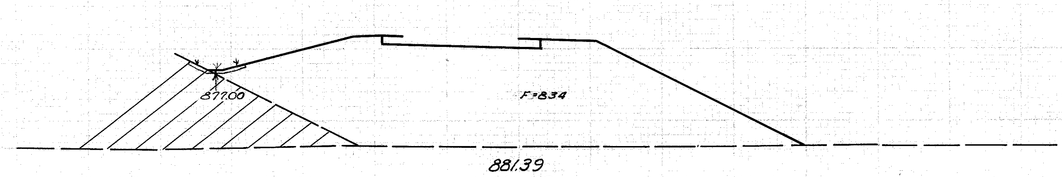
882.06
13+00
865.7



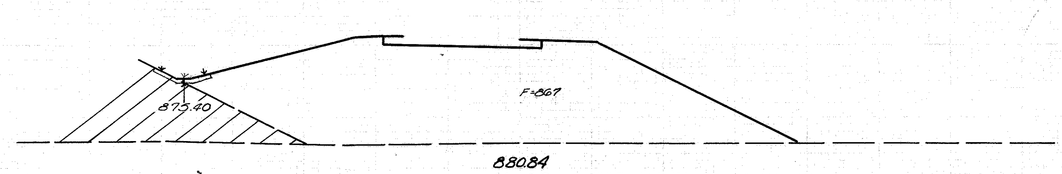
882.05
12+50
866.4



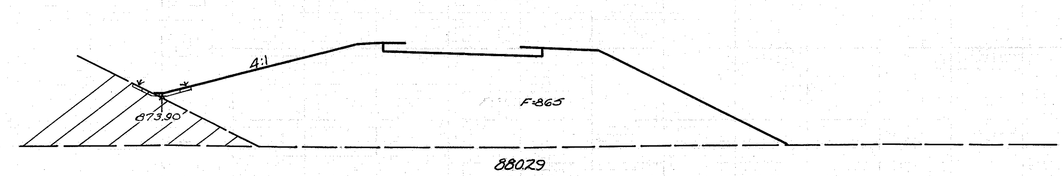
881.83
12+00
866.5



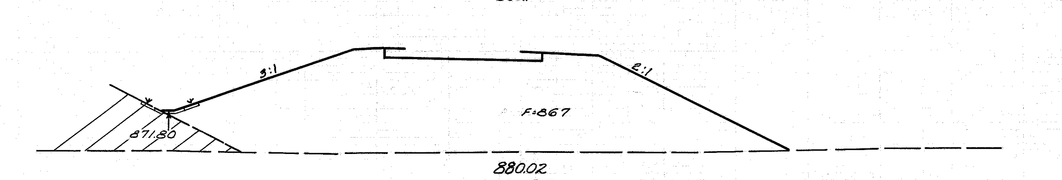
881.39
11+50
866.4



880.84
11+00
866.5



880.29
10+50
866.1



880.02
10+25
865.9

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
130		0	664		
	404			0	699
130		0	685		
	719			0	1296
129		0	715		
	722			0	1370
131		0	765		
	728			0	1469
131		0	822		
	722			0	1533
129		0	834		
	719			0	1583
130		0	867		
	711			0	1612
126		0	865		
	346			0	802
123		0	867		
	346			0	981

70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

RAMP "B" STA. 10+25 to STA. 13+78

TUS-21-26.33
TUS-250-11.60

95
235

RAMP "D" P.C. 1+17.93

RAMP "D" EXT. 2+78.93

RAMP "D" P.I. 2+80.00

RAMP "D" P.T. 4+39.93

RAMP "C" T.S. 5+16.10

RAMP "C" S.C. 8+16.10

RAMP "C" P.T. 13+38.23

QUANTITIES TO PAV'T. CALCULATIONS
STA. 0+21 To Bridge

T-71		1538.1 Sq. Yds.
T-22		344.4 Cu. Yds.
B-1.12		41.0 Cu. Yds.
B-2.12		83.4 Cu. Yds.
T-31	Aggregate	4.0 Cu. Yds.
T-31	Bit. Matl.	125.0 Gals.
E-1	Comp. Subgrade	2092.1 Sq. Yds.

RAMP "D"

Lt. Edge Pavt. Elev.	STATION	Rt. Edge Survey & Pavt. Elev.
—	0+21	—
873.20	P.C. 1+17.93	—
873.40	+25	—
874.19	+50	874.83
875.07	+75	875.82
876.05	2+00	876.90
877.13	+25	877.98
878.20	+50	879.05
879.28	+75	880.13
880.36	3+00	881.21
881.44	+25	882.29
882.52	+50	883.37
883.63	+75	884.45
884.78	4+00	885.53
885.96	+25	886.61
886.69	P.T. +39.93	887.25
887.18	+50	887.69
888.40	+75	888.77
889.57	5+00	889.84
890.67	+25	890.92
891.75	+50	892.00
892.79	+75	893.04
893.75	6+00	894.00
894.62	+25	894.88
895.35	+50	895.69
895.96	+75	896.41
896.48	7+00	897.06
896.80	+25	897.62
897.13	+50	898.11
897.42	+75	898.51
897.64	+96.80	898.80

RAMP "C"

Lt. Edge Elev.	STATION	Rt. Edge Sur. & Elev.
Edge of Ramp 24'	1+50	874.83
	+75	875.82
	2+00	876.90
	+25	877.98
	+50	879.05
	+75	880.13
	3+00	881.21
	+25	882.29
	+50	883.37
	+75	884.40
885.58	4+00	885.31
886.39	+25	886.12
887.07	+50	886.81
887.65	+75	887.40
888.11	5+00	887.86
888.37	T.S. +16.10	888.12
888.49	+25	888.23
888.78	+50	888.49
888.96	+75	888.63
889.05	6+00	888.66
889.03	+25	888.60
888.90	+50	888.41
888.65	+75	888.12
888.28	7+00	887.71
887.80	+25	887.21
887.21	+50	886.58

B.M. ELEV. 880.76
□ on Gas Island at Green Gables Restaur.

Exc. 734 Cu. Yds.
Emb 5,901 Cu. Yds
Seeding 2,528 Sq. Yds.

Exc. 711 Cu. Yds.
Emb 20,439 Cu. Yds.
Seeding 8,415 Sq. Yds.

ESTIMATED QUANTITIES

PIPE FOR DRAINS

	Guardrail/ Standard	6" Class 1-3 D=30"	8" Class F-I Sec M.6.10	6" Special Concrete Special/ Class F-I Flexible Pipe	Concrete Special/ Curb Type 2-A	Concrete Masonry Curb	
	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Each	Lin.Ft.	Cu.Yd.
15-GR 0+98.8 to 6+25+10.75(S&B)	Rt.	700					
20-GR 1+07 to 4+12.1	Lt.	300					
33-U 0+25 to 5+70	Lt.		565		10	1	
34-U 0+32 to 1+25	Rt.		150	20	10	1	
35-U 5+76 to 7+20	Lt.		134	10			
4-M 0+25 to 0+54	Rt&Lt.						86.3
T-C 0+25 to 0+54	Rt&Lt.						204.7
8-C 5+69.3 to 7+73.98	Lt.						
F-6735 (5) TOTALS		1000	849	30	20	2	86.3
0+98 to 4+60	Rt.						204.7
10-SS 5+75	Rt&Lt.						0.3

SEE SHEET NO. | Standard No. | Each | Each | Lin.Ft. | Lin.Ft. | Cu.Yd.

PIPE FOR CULVE SEWERS

12"	12" Special Class F-I Sec M.6.10	Standard 1 & 6 C Basin			
12"	Class A-I Sec M.6.10	12"x 30" Elbow			
Traffic Isle Pav't Exist.	Removal/ Concrete	4" Flexible Pavement	Lin.Ft.	Each	
	Sq. Yds.	Sq. Yds.	Lin.Ft.	Each	

49.1 90 130
49.1 923 1 2 26 28 1 2 26 28
923

0.3 0.3

I-77-3(9)83

RAMPS "C" & "D" PLAN & PROFILE STA. 0+00 to STA. 7+96.80

TUS-21-26.33
TUS-250-11.60

NORTH BOUND U.S.R. 250
℄ U.S.R. 21 (L.R. 77)
℄ FUTURE RAMP "F"
RAMP "F"
Creek
Tuscarawas River
Prop. Slope Limits
Stone
PC 10+00
90°
+90°
69.0'
92.50
SOUTH BOUND U.S.R. 250
625
625+00.00
7+90.80
℄ 629+67.94
℄ 633+67.94
630
635
Exist. S.R. 211 (To be Removed)
Anchor Pole
S 59°-36'-30" E.
640
Edge Berm
Edge Paved Berm
50'
637+50
892.13 0.5'
891.80 1.0'
891.68 1.5'
891.45 2.0'
891.22 2.5'
890.99 3.0'
890.76 3.5'
890.63 4.0'
890.51 4.5'
890.43 5.0'
890.40 5.5'
890.42 6.0'
890.47 6.5'
890.60 7.0'
890.81 7.5'
891.08 8.0'
891.38 8.5'
891.70 9.0'
892.16 9.5'
892.47 10.0'
892.85 10.5'
12" V.S.P. 33.7'
Prop. Slope Limits
℄ FUTURE RAMP "C"
LA
℄ Prop. Channel Stone Creek
69.0'
Drive

QUANTITIES TO PAV'T. CALCULATIONS
ACCELERATION LANE

T-71		321.0 Sq. Yds.
I-22		142.1 Cu. Yds.
B-112		39.3 Cu. Yds.
B-21		78.6 Cu. Yds.
T-3	Aggregate	3.8 Cu. Yds.
T-31	Bit. Mat'l.	117.9 Gals.
E-1	Comp. Subgrade	630.1 Sq. Yds.

B.M. ELEV. 927.94
Mine Spike in P.P. # 778
26' Lt. Sta. 637+16 S.B.

RAMP "D" ACCELERATION LANE

TUS-21-26.33
TUS-250-11.60

180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80

9+50 ZERO EARTHWORK

860

FUTURE FILL
½"/Ft.
C-155

9+00
856.7

See I.R.77
X-Secs.

860

FUTURE FILL
F-67
½"/Ft.
C-212
30"

8+50
856.7

See S.B.U.S.R. 250
X-Secs.

860

FUTURE FILL
C-29
30"
863.00

End Paved Gutter Sta. 8+00
Begin Dumped Rock Channel Protection Sta. 8+00

8+00
857.7

870
860

2:1
2:1
867.50
F-2101

886.58
7+50
859.7

870
860

See S.B.U.S.R. 250
X-Secs.

2:1
2:1
871.30
F-2035

887.71
7+00
866.7

6+98.5 (See S.B. X-Sect. STA. 624+00 Sh. #56)

180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100

Excav.	734 Cu. Yds.
Emb.	5,901 Cu. Yds.
Seeding	2,528 Sq. Yds.

Seeding Width	Seeding S.Y.	End Area Cut	End Area Fill	Cu. Yds. Exc.	Cu. Yds. Emb.
		0	0		
	169			144	0
61		155	0		
	428			340	6
93		212	6		
	344			223	6
31		29	0		
	583			27	1945
179		0	2101		
	975			0	3830
172		0	2035		
	29			0	114
173		0	2053		

RAMP "C" STA. 6+98.5 to STA. 9+50

TUS-21-26.33
TUS-250-11.60

110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180

880
870
860

2:1 2:1 F-1435 E.P. C-16 865.20 862.07
881.21
3+00
863.7

870
860

See S.B.U.S.R.250 X-Secs. F-23 F-1092 E.P. C-13 863.00 862.17
879.05
2+50
866.4

870
860

¼"/ft. ¼"/ft. F-97 F-615 E.P. C-13 862.50 862.27
876.90
2+00
867.1

870
860

2:1 2:1 F-555 F-20 C-14 C-3 862.00 862.37
874.83
1+50
865.9

870
860

3:1 3:1 F-342 E.P. ¼"/ft. ¼"/ft. C-5 C-1a 862.50 862.47
872.70
1+00
868.8

Radial from Edge of Pavt. Radial from Edge of Pavt.

870
860

4:1 4:1 F-372 C-1
872.25
0+50
870.4

870

C-174
872.58
0+21
872.58

Extra Seeding for Pav't Removal
Rt. Sta. 1+00 to Sta. 3+25

Beg. Seeding

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
146		16	1435		
	814			27	2361
147		13	1115		
	814			24	1645
	1200				
146		13	662		
	833			28	1145
154		17	575		
	878			35	849
162		21	342		
	700			20	661
90		1	372		
				94	200
		174	0		

RAMP "D" STA. 0+21 to STA. 3+00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130

100
235

TUS-21-26.33
TUS-250-11.60

140 150

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
173		92	2250		
	489			88	2167
179		97	2430		
956				183	4466
165		101	2393		
892				145	3916
156		56	1836		
839				67	3029

Excavation 711 C.Y.
Embankment 20,439 C.Y.
Seeding 8,415 S.Y.

4+75 (See South Bound X-Sect. STA. 622+00 Sh. #55)

880
870
860

4:1 4:1 4:1 2:1
382.00
F-2430
C-97
861.17
887.69
4+50
860.8

880
870
860

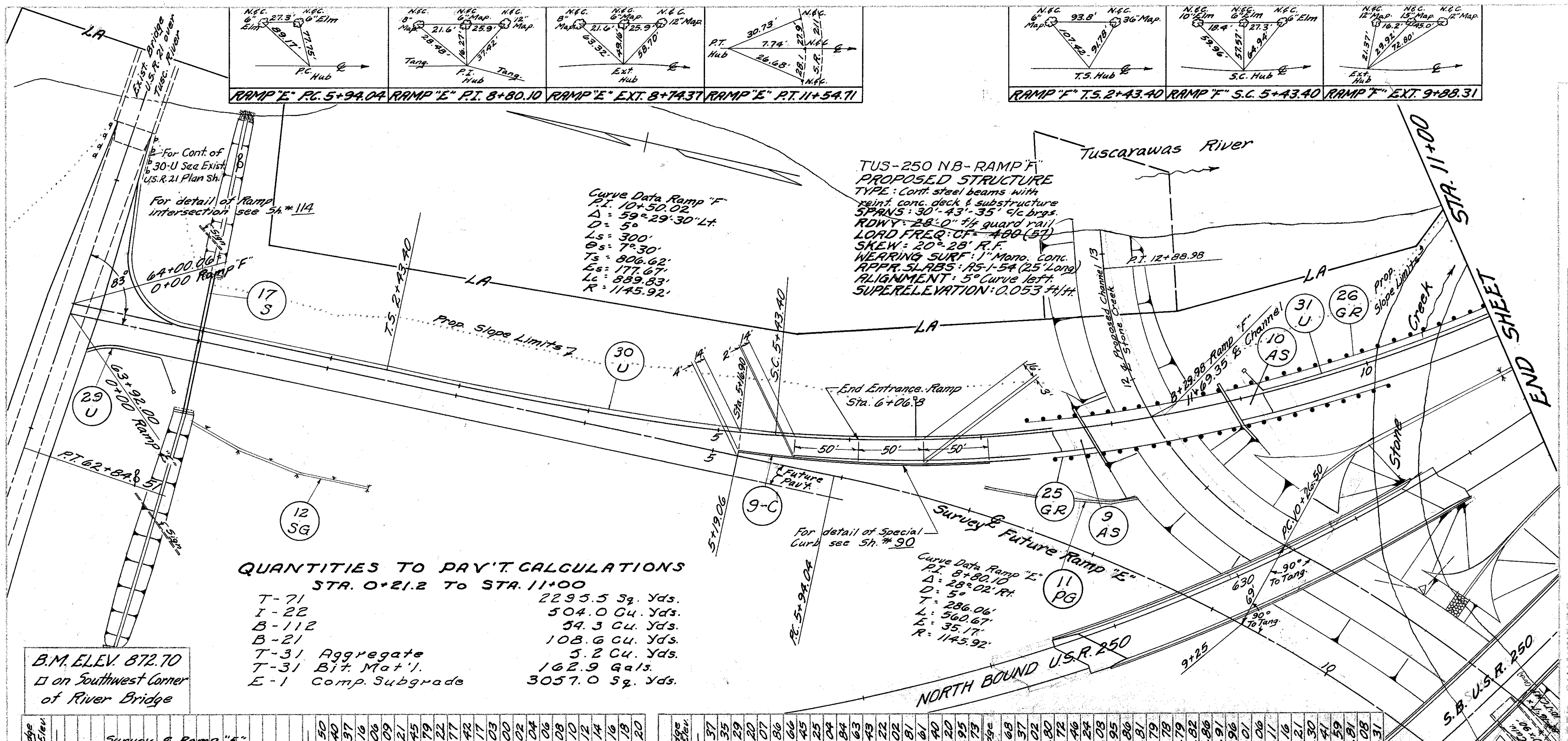
1½"/Ft. Ramp "C"
3:1
876.20
See S.B. U.S.R. 250 X-Secs.
F-2393
C-101
861.27
885.53
4+00
862.4

880
870
860

2:1 2:1
869.70
F-1836
C-56
861.37
883.37
3+50
863.5

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

RAMP "D" STA. 3+50 to STA. 4+75



B.M. ELEV. 872.70
□ on Southwest Corner of River Bridge

QUANTITIES TO PAV'T. CALCULATIONS
STA. 0+21.2 To STA. 11+00

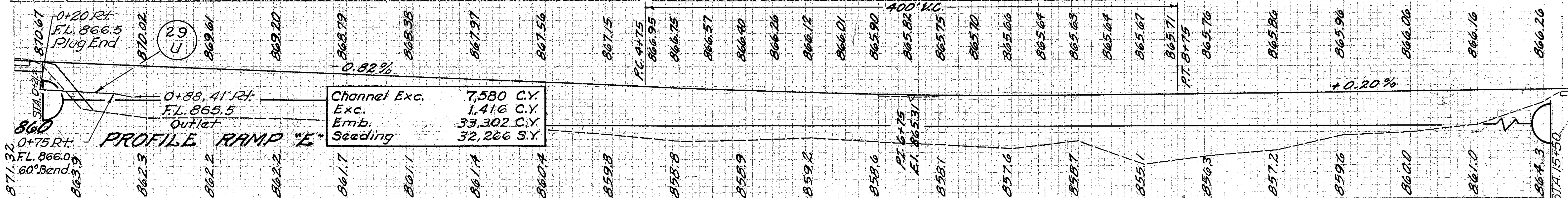
T-71	2295.5 Sq. Yds.
I-22	504.0 Cu. Yds.
B-112	54.3 Cu. Yds.
B-21	108.6 Cu. Yds.
T-31 Aggregate	5.2 Cu. Yds.
T-31 Bit. Mat'l.	162.9 Gals.
E-1 Comp. Subgrade	3057.0 Sq. Yds.

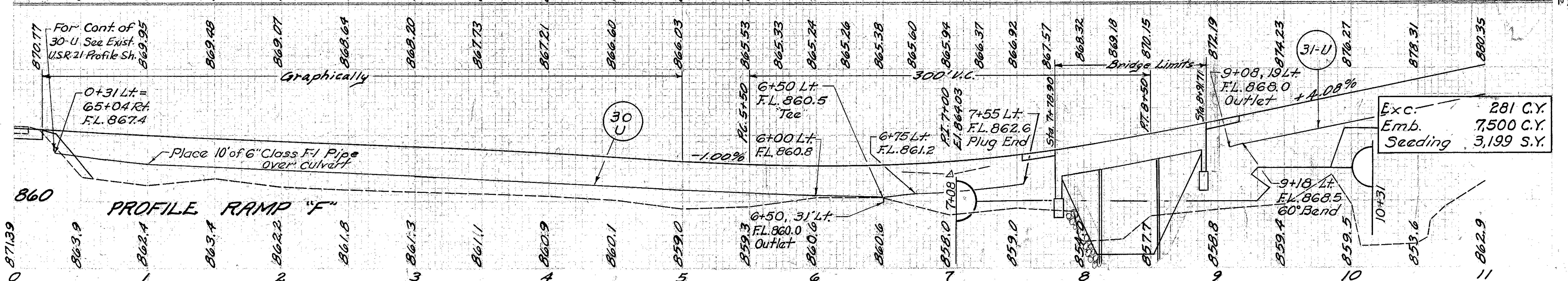
RAMP "F"

Survey ℄ Lt. Edge Pav't. Elev.	Station	Rt. Edge Pav't. Elev.
—	0+21.2	Survey ℄ Ramp "E"
870.12	+87.12	
869.95	1+00	
869.69	+25	
869.48	+50	
869.28	+75	
869.07	2+00	
868.86	+25	
868.70	T.S.+43.40	
868.64	+50	
868.42	+75	
868.20	3+00	
867.97	+25	
867.73	+50	
867.49	+75	
867.21	4+00	
866.90	+25	
866.60	+50	
866.30	+75	
866.03	5+00	
865.78	+25	866.50
865.60	S.C.+43.40	866.40
865.53	+50	866.37
865.33	+75	866.16
865.24	6+00	866.06
865.26	+25	866.09
865.38	+50	866.21
865.60	+75	866.45
865.94	7+00	866.79
866.37	+25	867.22
866.92	+50	867.77
867.57	+75	868.42
868.32	8+00	869.17
869.18	+25	870.03
870.15	+50	871.00
871.17	+75	872.02
872.19	9+00	873.04
873.21	+25	874.06
874.23	+50	875.08
875.25	+75	876.10
876.27	10+00	877.12
877.29	+25	878.14
878.31	+50	879.16
879.33	+75	880.18
880.35	11+00	881.20

RAMP "E"

Survey ℄ Pav't. Elev.	Station	Rt. Edge Pav't. Elev.
—	0+21.2	—
—	+43.28	870.37
—	+50	870.35
—	+75	870.29
—	1+00	870.20
869.82	+25	870.07
869.61	+50	869.86
869.41	+75	869.66
869.20	2+00	869.45
869.00	+25	869.25
868.79	+50	869.04
868.59	+75	868.84
868.38	3+00	868.63
868.18	+25	868.43
867.97	+50	868.22
867.77	+75	868.02
867.56	4+00	867.81
867.36	+25	867.61
867.15	+50	867.40
866.95	+75	867.20
866.75	5+00	866.95
866.60	+19.06	866.73
Lt. Edge Sur. ℄ Elev.	**Station**	**Rt. Edge Elev.**
866.57	5+25	866.68
866.40	+50	866.37
866.26	+75	866.02
866.15	P.C.+94.04	865.80
866.12	6+00	865.72
866.01	+25	865.46
865.90	+50	865.24
865.82	+75	865.08
865.75	7+00	864.95
865.70	+25	864.86
865.66	+50	864.81
865.64	+75	864.79
865.63	8+00	864.78
865.64	+25	864.79
865.67	+50	864.82
865.71	+75	864.86
865.76	9+00	864.91
865.81	+25	864.96
865.86	+50	865.01
865.91	+75	865.06
865.96	10+00	865.11
866.01	+25	865.16
866.06	+50	865.21
866.11	+75	865.30
866.16	11+00	865.41
866.21	+25	865.59
866.26	+50	865.81
866.31	+75	866.08
866.36	12+00	866.31





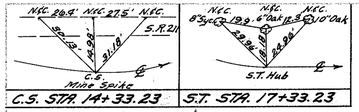
ESTIMATED QUANTITIES

	Station to Station	Side	Guardrail Standard Lin. Ft.	Appr. Slabs T=13" Sq. Yd.	Special Conc. Curb Lin. Ft.	Sod Sq. Yd.	Paved Gutter Lin. Ft.	36" Pipe Class A-1 Sec. M-6.6(b) or M-6.8(b) Lin. Ft.	Channel Excav. Cu. Yd.	Riprap 6" Reinf. Conc. S.Y.	Dumped Rock Chann. Prot. C.Y.	[illegible] Masonry C.Y.	Pipe for Drains: 6" Specials Class I-3 60° Bend Each	Pipe for Drains: 6" Specials Class I-3 "Tee" Each	Pipe for Drains: 6" Class I-3 D=30" Lin. Ft.	Pipe for Drains: 6" Class F-1 Lin. Ft.	Pipe for Drains: 8" Class F-1 Sec. M-6.4(c) Lin. Ft.	See Sheet No.
25-GR	7+53.47 to 10+11.46	Rt.	149.78															
26-GR	7+34.90 to 11+00	Lt.	249.82															
9-AS	7+53.90 to 7+78.90	Rt.		44.4														
10-AS	8+91.71 to 9+16.71	Rt.		44.4														
29-U	0+20 to 0+88	Rt.											1		73		10	
30-U	0+31 to 7+55	Lt.												1	818	10	10	
31-U	9+08 to 11+00	Lt.											1		192		10	
9-C	5+16.90 to 7+05.17	Rt.			191.2													90
F-675(5) TOTALS			399.6	88.8	191.2								3		1083	10	30	
12-SG	1+08 to 2+50	Rt.				95												
11-PG	7+00 to 8+10	Rt.				40	120											142
17-S	1+00	Rt.&Lt.						108	450	24	9	16.2						
I-77-3(9)83						135	120	108	450	24	9	16.2						

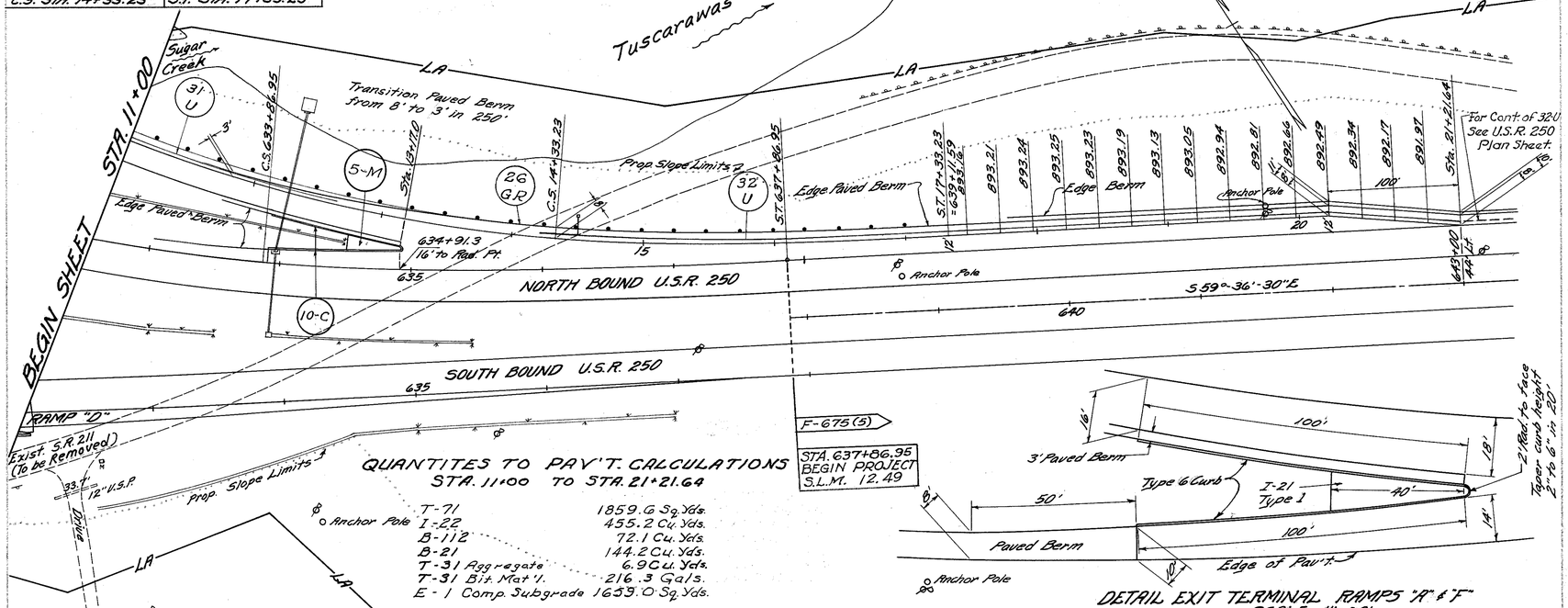
RAMP "E" & "F" PLAN & PROFILE STA. 0+00 to STA. 11+00

FED. ROAD NUMBER	STATE	PROJECT		SHEET NO.
2	OHIO			102
				235

TUS-21-26.33 TUS-250-11.60



C.S. STR. 14+33.23 S.T. STA. 17+33.23



QUANTITES TO PAV'T. CALCULATIONS
STA. 11+00 TO STA. 21+21.64

T-71	1859.6 Sq. Yds.
I-22	455.2 Cu. Yds.
B-112	72.1 Cu. Yds.
B-21	144.2 Cu. Yds.
T-31 Aggregate	6.9 Cu. Yds.
T-31 Bit. Mat'l.	216.3 Gals.
E-1 Comp. Subgrade	1659.0 Sq. Yds.

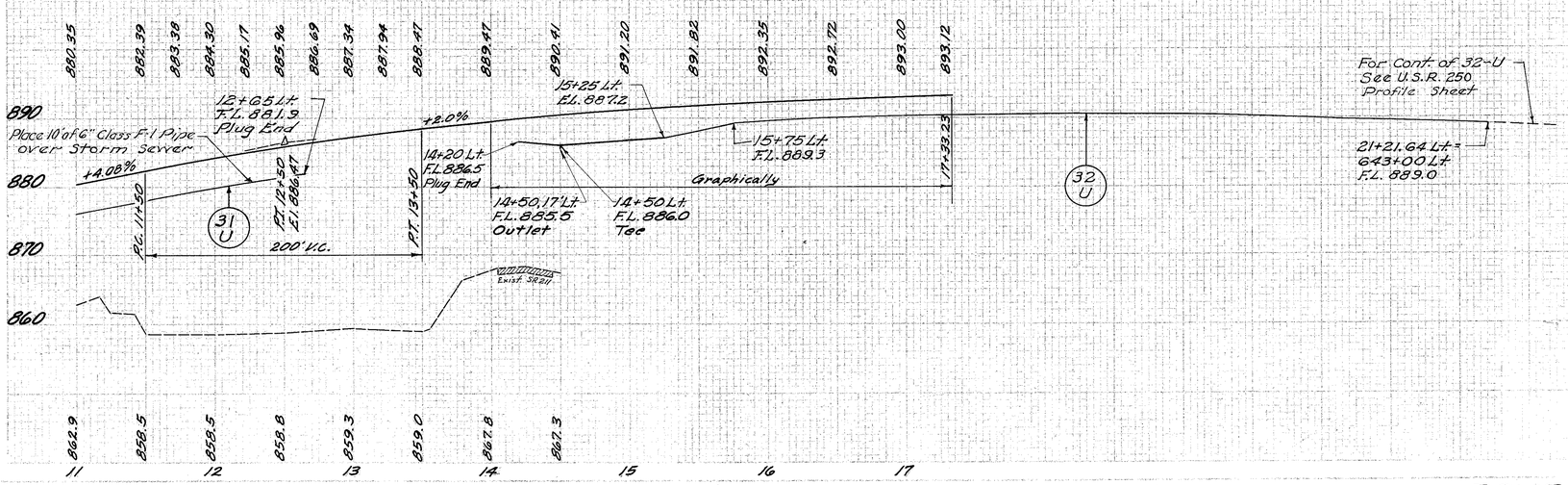
DETAIL EXIT TERMINAL RAMPS "A" & "F"
SCALE - 1" = 20'

B.M. ELEV. 865.55
□ on N.W. Cor. Conc. Culv.
S.R. 211 over Stone Creek

B.M. ELEV. 924.43
Mine Spike in P.P. # 1/777
40' Lt. Sta. 638+66 Med.

Lt. Edge Pav't. Elev.	Station	Rt. Edge Pav't. Elev.
880.35	11+00	881.20
881.37	+25	882.22
882.39	+50	883.24
883.38	+75	884.23
884.30	12+00	885.15
885.17	+25	886.04
885.96	+50	886.86
886.69	+75	887.62
887.34	13+00	888.29
887.94	+25	
888.41	+50	
888.91	+75	
889.41	14+00	
889.91	+25	
890.12	6.5+33.23	
890.41	+50	
890.82	+75	
891.20	15+00	
891.52	+25	
892.00	+50	
892.35	16+00	
892.55	+25	
892.72	+50	
892.89	+75	
893.00	17+00	
893.10	+25	
893.12	ST. +33.23	

Edge of N.B. U.S.R. 250



ESTIMATED QUANTITIES

PIPE FOR DRAINS

SHEET NO.	STATION TO STATION		6" Class 1-3 D-30" Sec. M.4.(a)	6" Class 1-3 Class F-1 Sec. M.4.(a)	6" Class F-1 M-6.4.(c)	8" Class F-1 Class 2-3 Sec. M.4.(c)	6" Steel Guardrail Class 1-3 Sec. M.2.4.(c)	Standard
			Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Lin. Ft.
26GR	11+00 to 17+03.31	Lt.						600
31-U	11+00 to 12+65	Lt.	155	160	547	10	1	
32-U	14+20 to 21+21.64	Lt.				10	1	
5-M	12+77 to 13+18.5	Rt.						
10-C	12+170 to 13+19.0	Rt.						

Concrete Median Curb Type 6 Lin. Ft. 33.7 204.5 Sq. Yds. 33.7 204.5

155 707 10 10 10 11 600

RAMP "F" PLAN & PROFILE STA. 11+00 to STA. 21+21.64

TUS-21- 26.33
TUS-250-11.60

60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210

870
860

4:1 F=499 6:1 ¼"/ft. ← ¼"/ft. F-411
862.40

868.38
3+00
861.1

870
860

4:1 F-456 See I.R.77 X-Sects.
F-328
861.70

868.79
2+50
861.7

870
860

F=502 6:1
F-448
861.50

869.20
2+00
862.2

870
860

F=509 5:1 ½"/ft. C=1 ← ¼"/ft. F-389
861.30

869.61
1+50
862.2

870
860

F=479 4:1 ½"/ft. C=5 ← ¼"/ft. F-384
861.10

870.02
1+00
862.3

Radial from edge of Pavt.

870
860

4:1 F-373 4:1 F-172
Rt. 21 Fill

870.51
0+50
863.9

870

℄ C=170

110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50

870.67
0+21.2
870.7

60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230

Seeding Width S.Y.	End Area Cut	End Area Fill	C.u. Yds. Exc.	C.u. Yds. Emb.
279	0	910		
	1964		0	1569
284	0	784		
	1589		0	1606
288	0	950		
	1619		1	1711
295	1	898		
	1917		6	1631
395	5	863		
	1692		5	1804
214	0	545		
	342		91	292
0	170	0		

RAMP "E" STA. 0+21.2 to STA. 3+00

TUS-21-26.33
TUS-250-11.60

80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190

870
860
6:1 1"Per Ft. 6:1 1/4"/ft. 1/4" per Ft.
4:1
F-651 F=254
863.10
865.90
6+50
858.6

870
860
5:1 Ramp "F"
F=537 F=354
863.00
866.12
6+00
859.2

870
860
6:1
F=568 F=387
862.90
See N.B. U.S.R. 250 X-Secs.
866.40
5+50
858.9

870
860
F=556 F=349
862.8
See I.R.77 X-Secs.
866.75
5+00
858.8

870
860
6:1
F=536 F=392
862.70
867.15
4+50
859.8

870
860
5:1
F=440 F=368
862.60
867.56
4+00
860.4

870
860
4:1 6:1 1/4"/ft 1/4" Per Ft
F=491 F=395
862.50
See I.R.77 X-Secs.
867.97
3+50
861.4

80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210

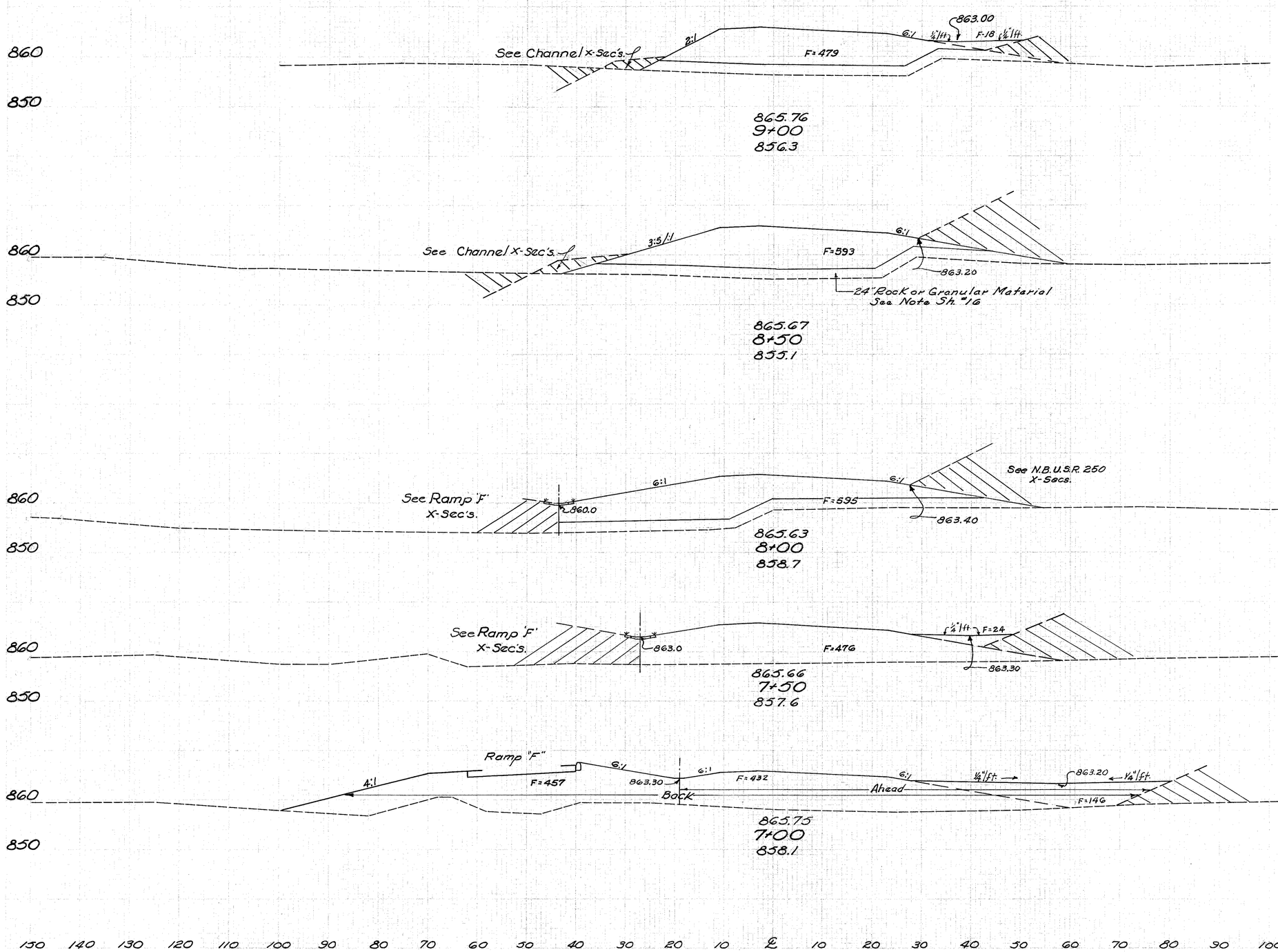
Seeding Width	S.Y.	End Area Cut	Fill	C.u. Yds. Exc.	Emb.
218		0	905		
	1225			0	1663
223		0	891		
	1267			0	1709
233		0	955		
	1283			0	1722
229		0	905		
	1322			0	1697
247		0	928		
	1411			0	1607
261		0	808		
	1489			0	1569
275		0	886		
	1539			0	1663

RAMP "E" STA. 3+50 to STA. 6+50

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120

105
235

TUS-21-26.33
TUS-250-11.60



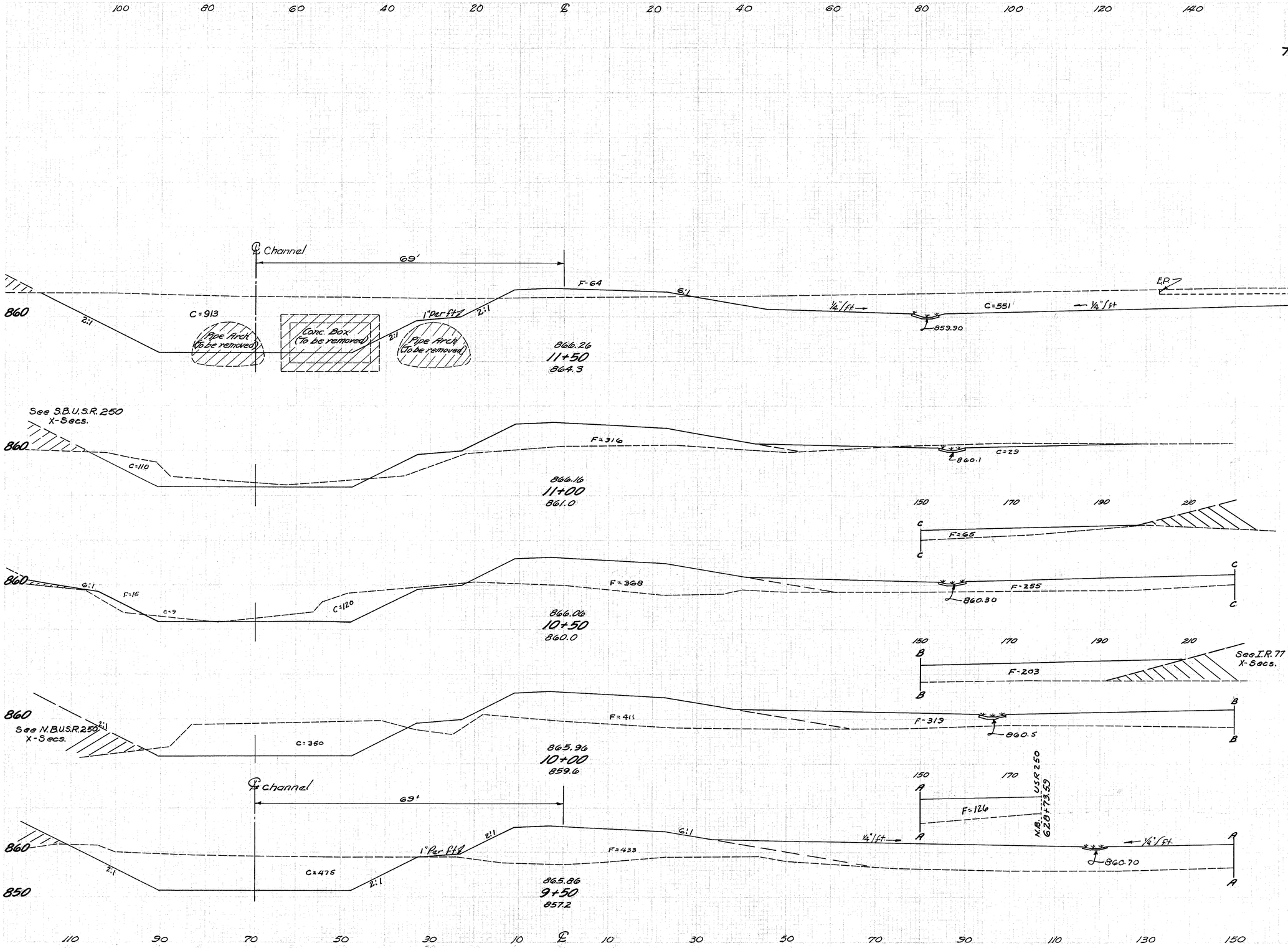
	Seeding Width S.Y.	End Area Cut	End Area Fill	Cu Yds. Exc	Cu Yds. Emb.
	74	0	497		
	369			0	1009
	59	0	593		
	364			0	1100
	72	0	595		
	411			0	1014
	76	0	500		
	489			0	998
Ahead	100	0	578		
Back	210	0	1035		
	1189			0	1796

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140

RAMP "E" STA. 7+00 to STA. 9+00

106
235

TUS-21-26.33 -TUS-250-11.60

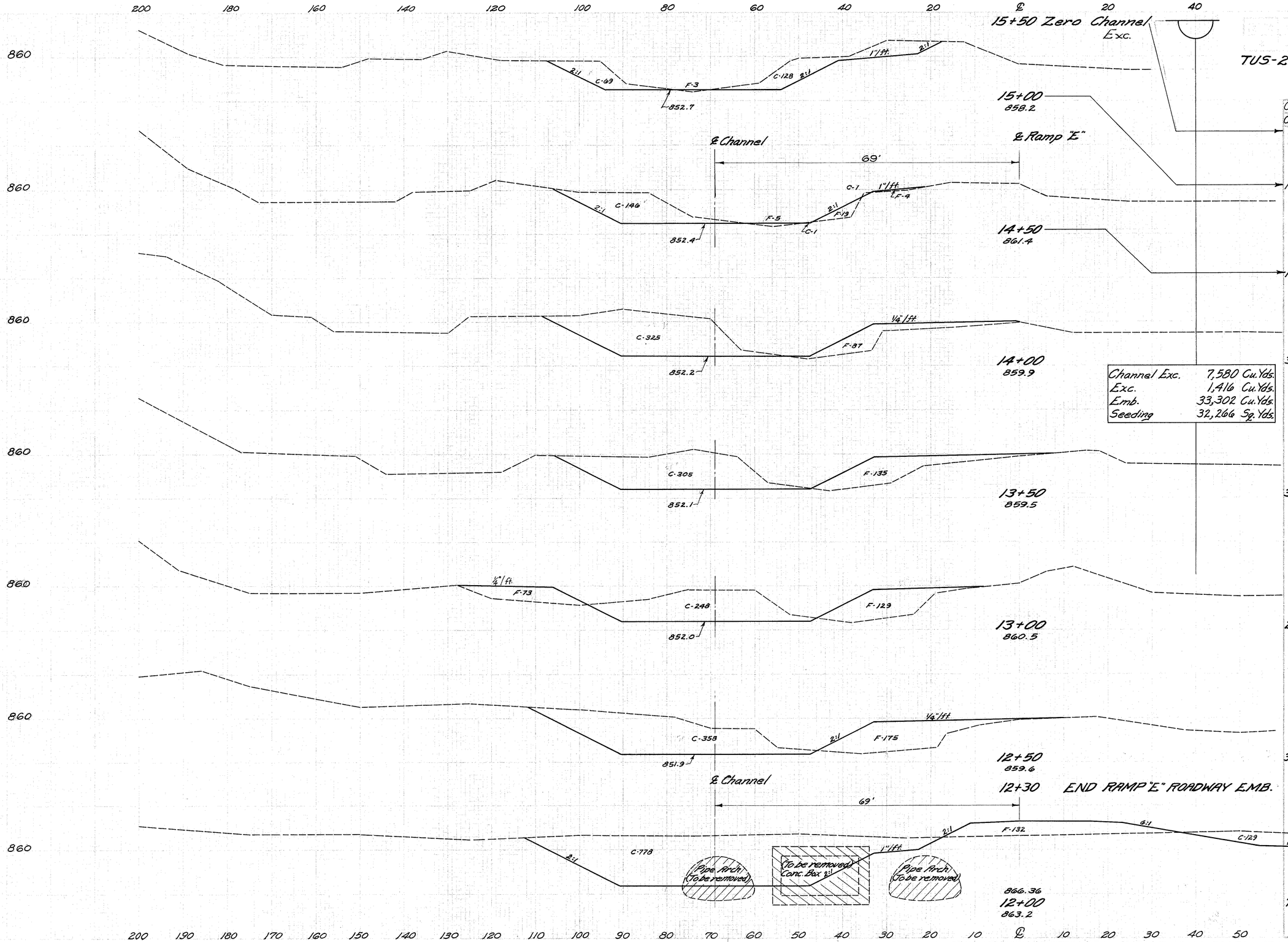


Chan. Exc. Cut	Exc.	Seeding Width	S.Y.	End Area Cu. Yds. Cut	Fill	Exc.	Emb.
	1566		1278		630	181	
913		274		551	64		
	947		1339		537	352	
110		208		29	316		
	221		1328		27	944	
129		270		0	703		
	444		1475		0	1515	
350		261		0	933		
	764		1422		0	1882	
475		251		0	1100		
			903		0	1479	

RAMP "E" & STONE CREEK CHANNEL - STA. 9+50 to STA. 11+50

107
235

TUS-21~26.33~TUS-250~11.60



Chan. Exc. Cut	Exc.	Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
0		0		0	0		
	182		206			0	3
197		74		0	3		
	319		386			0	29
148		65		0	28		
	438		431			0	106
325		90		0	87		
	565		508			0	206
305		93		0	135		
	512		539			0	312
248		101		0	202		
	561		567			0	349
358		103		0	175		
	1061		803			119	284
778		186		129	132		

Channel Exc.	7,580 Cu. Yds.
Exc.	1,416 Cu. Yds.
Emb.	33,302 Cu. Yds.
Seeding	32,266 Sq. Yds.

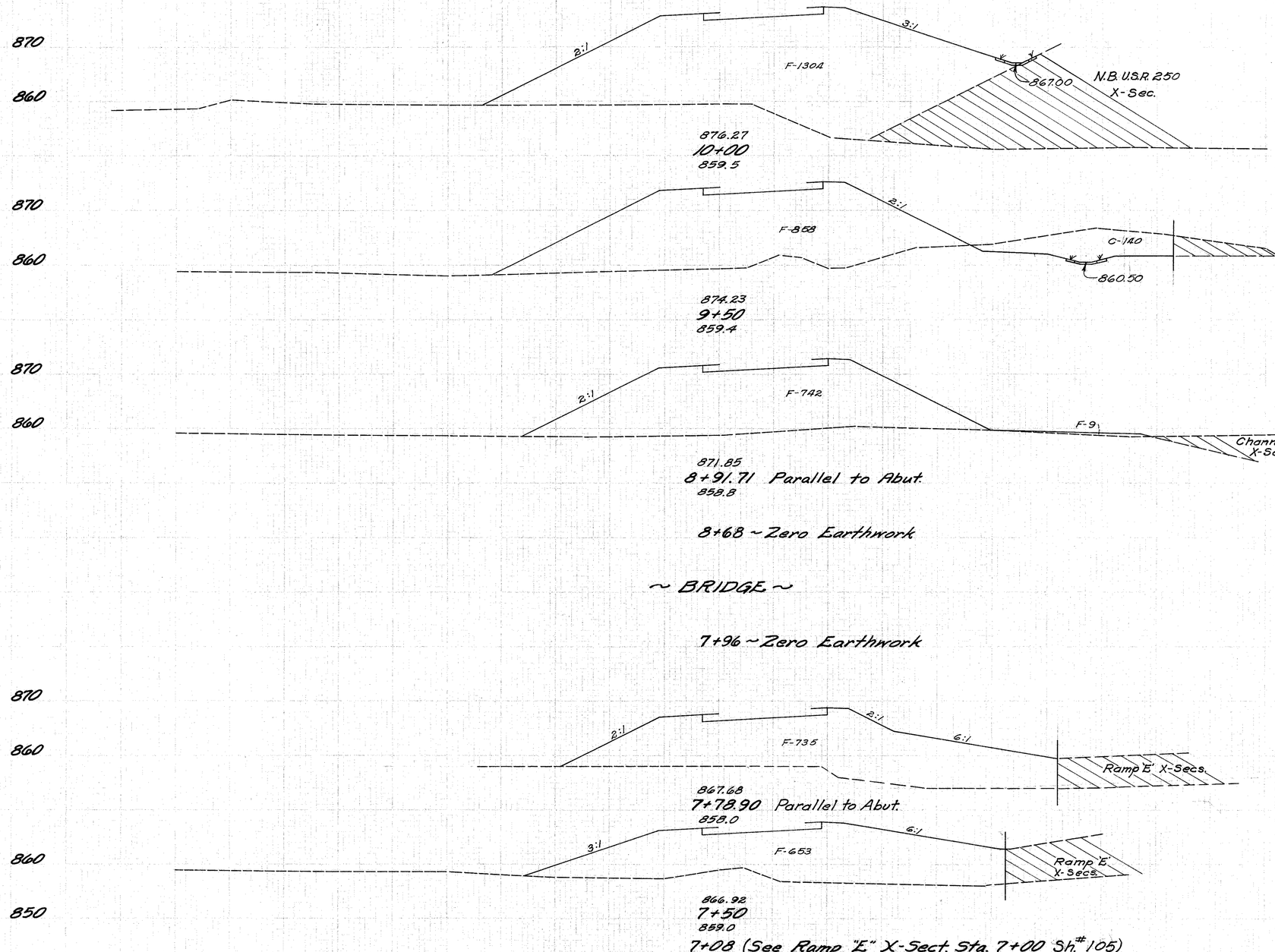
RAMP "E" & STONE CREEK CHANNEL ~ STA. 12+00 to STA. 15+50

100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90

108
235

TUS-21-26.33-TUS-250-11.60

10+31 (See N.B. X-Sect. 632+00 Sh.#43)



Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
107		0	1470		
				0	1592
	379				
113		0	1304		
				130	2002
	714				
144		140	858		
				151	1737
	916				
139		0	751		
	183			0	330
0		0	0		
0		0	0		
				0	233
	109				
115		0	735		
	371			0	743
116		0	653		
	527			0	863
110		0	457		

Exc. 281 Cu. Yds.
Emb. 7500 Cu. Yds.
Seeding 3199 Sq. Yds.

100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100

RAMP "F" STA. 7+08 to STA. 10+31

TUS-21-26.33
TUS-250-11.60

P.T. STA. 56+32.76 | P.C. STA. 59+51.18 | P.T. STA. 62+84.51

N.85°-13'-30"E

Existing U.S.R. 21 (To be removed)

Existing U.S.R. 21

S.83°-06'-30"E.

Survey ℄ U.S.R. 250 South Bound

Survey ℄ U.S.R. 21 (T.R. 77)

Survey ℄ U.S.R. 250 North Bound

Ramp "A" | Ramp "B" | Ramps "C" & "D" | Ramps "E" & "F"

Horse-shoe Court | Greenfield 1 St. Brick Cont. | Drive | Signs | Prop. Slope Limits | LA

12'x8' Exist Stone & Conc. Arch (To be removed)

Existing Bridge U.S.R. 21 over Tusc. River

Tuscarawas River

100% State Funds

G.R. 52+80.68 | G.R. 51+02.3

P.I. 53+97.69
Δ = 64°-02' Rt.
D = 12°
T = 298.54'
L = 533.61'
E = 85.65'
R = 477.46'

P.C. 50+99.15

P.I. 61+18.42
Δ = 1°-40' Rt.
D = 3°-30'
T = 167.24'
L = 333.33'
E = 8.52'
R = 1637.02'

For Cont of 34-U See Ramp "D" Plan Sheet.

For Cont of 18-U See Ramp "B" Plan Sheet.

For Cont of 30-U See Ramp "F" Plan Sheet.

Anchor of Pole

B.M. ELEV. 880.76
□ on Gasoline Island at Green Gables Restaur.

B.M. ELEV. 872.70
□ on South west corner of River Bridge

END WORK
STA. 65+42.8

BEGIN WORK
STA. 50+00

QUANTITIES TO PAV'T. CALCULATIONS

STA. 50+00 to STA. 54+50

100% STATE	I-22	396.9 Cu. Yds.
	B-21	356.0 Cu. Yds.
	I-21 (Type 2)	90.6 Sq. Yds.
	B-35	67.1 Cu. Yds.
	T-35	44.7 Cu. Yds.
	I-18	39.0 Cu. Yds.
	E-1	1700.0 Sq. Yds.

STA. 54+50 to STA. 65+42.8

I-77-3(9)83	I-22	1141.8 Cu. Yds.
	B-21	1015.2 Cu. Yds.
	I-21 (Type 2)	614.1 Sq. Yds.
	B-35	179.8 Cu. Yds.
	T-35	121.1 Cu. Yds.
	I-18	96.5 Cu. Yds.
	E-1 Comp. Subgrade	4945.1 Sq. Yds.

REMOVALS

STATION From	STATION To	Removal of Exist. Rigid Pav't. Sq. Yds.
* 50+00	54+50	900
54+50	59+00	900
Totals		1800

PIPE FOR DRAINS

REF. Nº	STATION From	STATION To	Side	6" Class I-3 D=18" Lin. Ft.	8" Class F-1 Sec. M-6.4 (c) Lin. Ft.	6" Specials Class I-3 60° WYE Each	6" Specials Class I-3 45° WYE Each
18-U	64+93	65+28	LT.	45			
30-U	65+04	65+28	RT.	24			
* 34-U	50+00	54+20	RT.	420			
44-U	55+60	58+45	RT.	298	10		1
45-U	58+38	63+70	RT.	548	10	1	
	TOTALS	I-77-3(9)83		915	20		2
	TOTALS	100% State		420			

GUARDRAIL

REF Nº	STATION From	STATION To	Side	New LIN. FT.	Remove & Storage LIN. FT.	Remove & STORE LIN. FT.	Remove & Rebuild LIN. FT.
* 1-GR	51+02.9	52+80.68	LT.	187.5			
* 2-GR	51+04	2+50 (Appr.)	LT.			425	
3-GR	53+00	55+17	RT.		380		
4-GR	54+20	55+03	LT.		95		
5-GR	55+12	56+45	LT.		140		
6-GR	56+85	57+65	LT.		80		
7-GR	56+74	57+67	RT.		95		
8-GR	65+16	65+41	LT.				25
9-GR	65+16	65+41	RT.				25
TOTALS				* 187.5	790	* 425	50

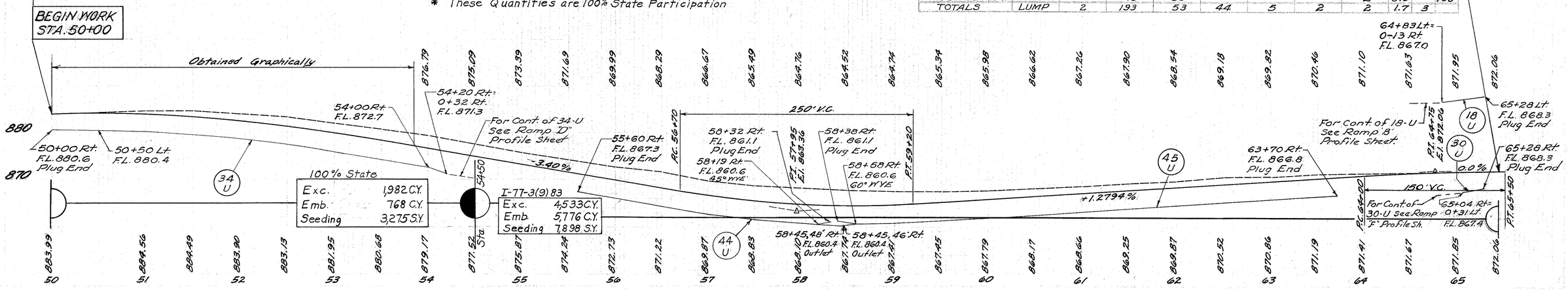
APPROACHES

REF. Nº	STATION	SIDE	Removal Exist. Flexible Pav't. Sq. Yd.	Conc. Curb TYPE 6 LIN. FT.	Guardrail Strn. Conc. LIN. FT.	Traffic Island Pav't. Sq. YD.	T-35 CU. YD.	B-35 Leveling CU. YD.	B-21 CU. YD.	I-22 CU. YD.	I-18 CU. YD.	E-1 Comp. Subgde Sq. Yds.	See Sh. Nº
* 1-A	53+22	LT.	312	132	50 & 25	95.6	26.1	36.5	173	200.9	38.2	875	122
TOTALS			312	132	362.5	95.6	26.1	36.5	173	200.9	38.2	875	

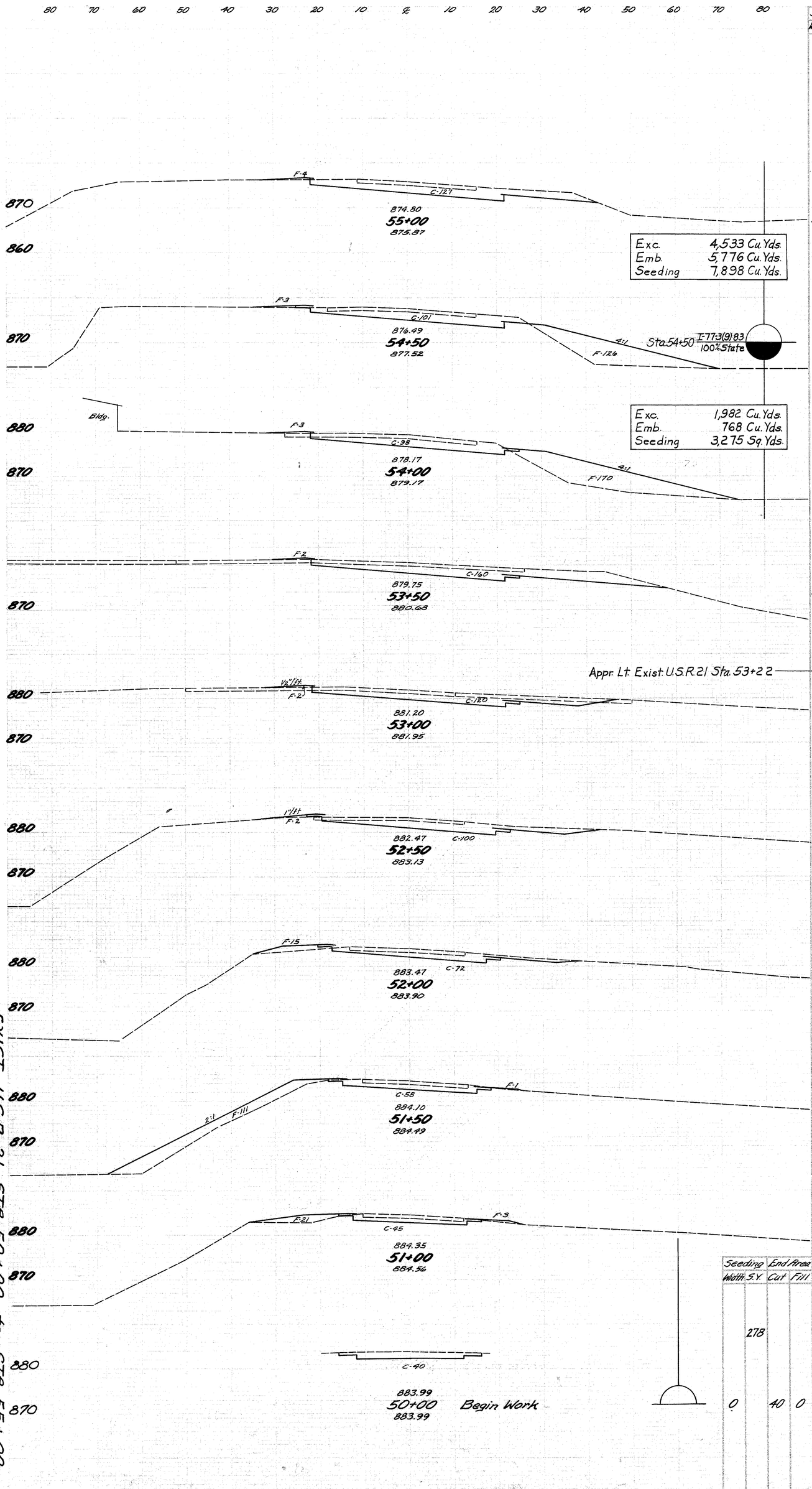
* These Quantities are 100% State Participation

DRAINAGE

REF NO.	STATION	Side	Removal of Exist. Struc. LUMP	Removal of Pav't. & Exist. Struc. - CU.YD.	12" Pipe Cl. A-1 M-6.6(b) or M-6.8(b) LIN. FT.	15" Pipe Cl. A-1 M-6.6(b) or M-6.8(b) LIN. FT.	24" Pipe Class A-1 LIN. FT.	Channel Excav. CU. YD.	Std. Nº 2-6 Inlet EACH	Std. Nº 2-8 Inlet EACH	Masonry CU.YD.	Dowel Holes LIN. FT.	Sh. Nº
3-S	54+84	Rt.		2			44	5			1.2	3	136
4-S	57+30	Rt & Lt.	LUMP										
14-SS	55+05	Rt & Lt.			118				2		0.2		132
15-SS	58+25	Rt & Lt.			75	53				2	0.3		133
TOTALS			LUMP	2	193	53	44	5	2	2	1.7	3	



EXIST. U.S.R. 21 PLAN & PROFILE STA. 50+00 to STA. 65+42.8



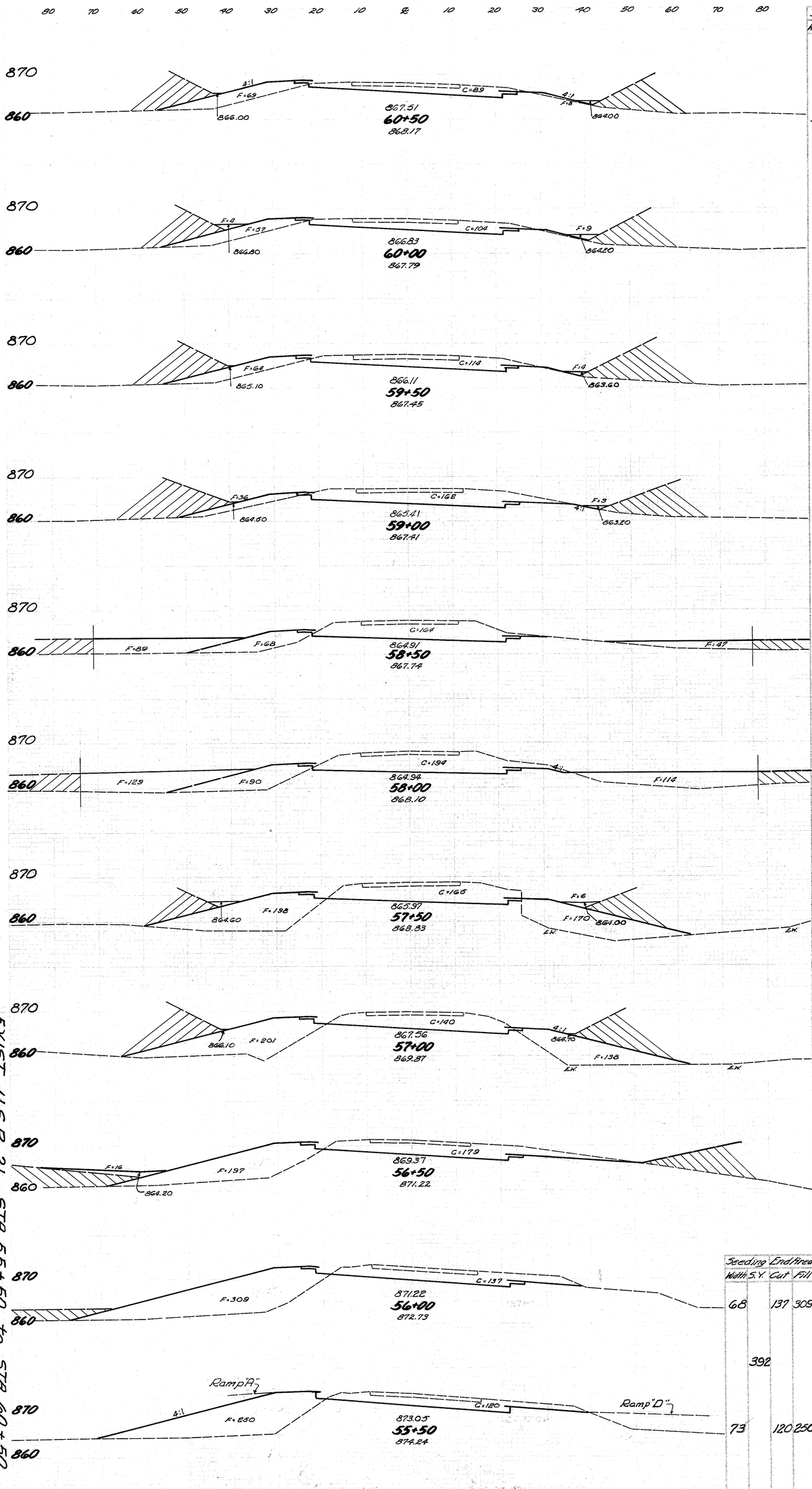
Exc.	4,533 Cu. Yds.
Emb.	5,776 Cu. Yds.
Seeding	7,898 Cu. Yds.

Exc.	1,982 Cu. Yds.
Emb.	768 Cu. Yds.
Seeding	3,275 Sq. Yds.

Seeding Width	Seeding S.Y.	End Area Cut	End Area Fill	Cu. Yds. Exc.	Cu. Yds. Emb.
	333			229	235
47		127	4		
	336			211	123
74		101	129		
	422			184	280
78		98	173		
	383			239	162
60		160	2		
	297			259	4
	603			565	14
47		120	2		
	267			204	4
49		100	2		
	283			159	16
53		72	15		
	375			120	118
82		58	112		
	367			95	126
50		45	24		

Seeding Width	Seeding S.Y.	End Area Cut	End Area Fill	Cu. Yds. Exc.	Cu. Yds. Emb.
	278			157	44
0		40	0		

TUS-21-26.33
TUS-250-11.60

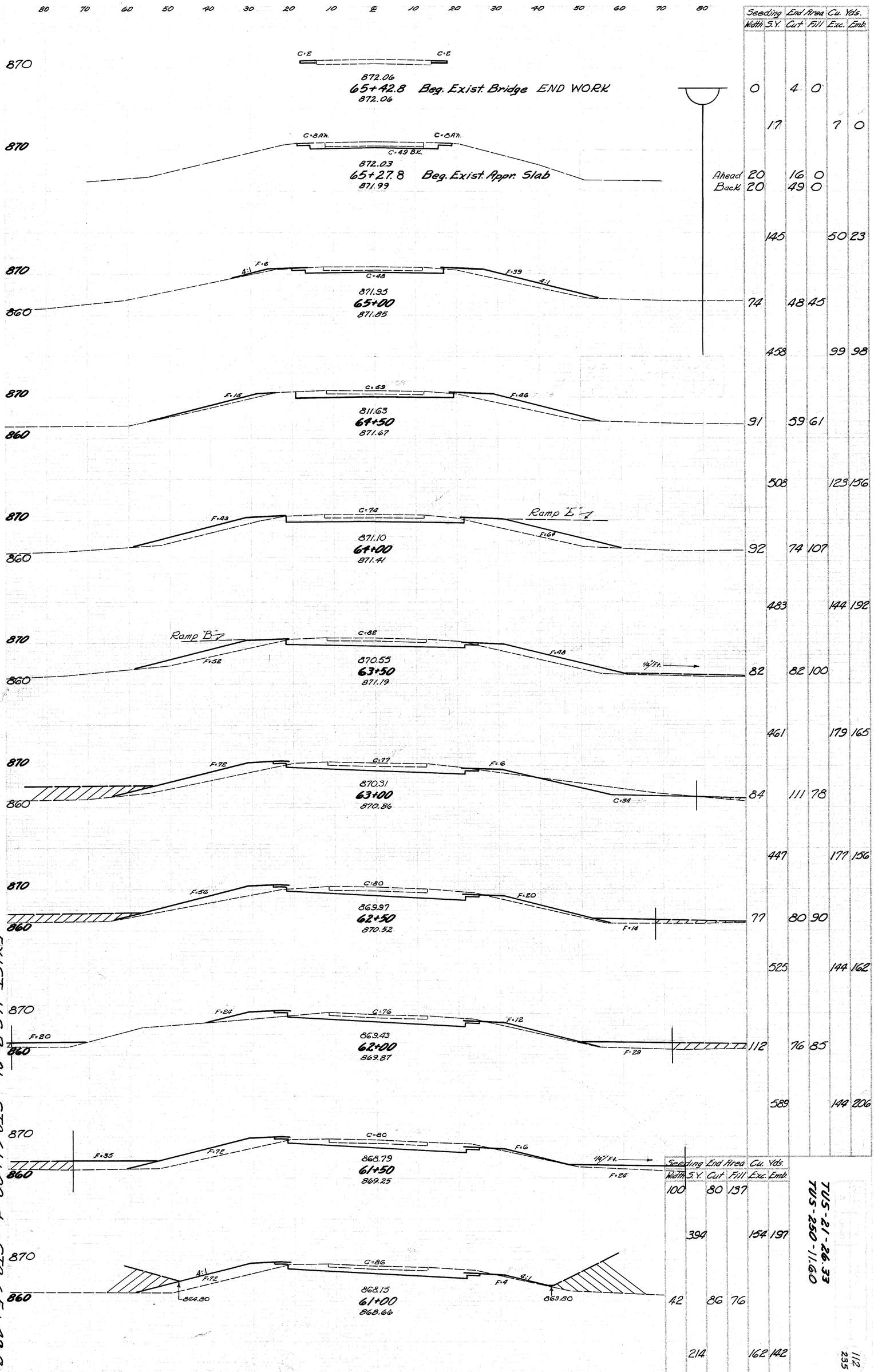


Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
35		89	77		
	172			179	137
27		104	71		
	156			202	129
29		114	68		
	169			256	99
32		162	39		
	361			302	225
98		164	204		
	558			331	497
103		194	333		
	375			332	658
32		165	378		
	172			282	664
30		140	339		
	264			295	511
65		179	213		
	369			293	483

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
68		137	309		
	392			238	518
73		120	250		

EXIST. U.S.R. 21 STA. 55+50 to STA. 60+50

TUS-21-26.33
TUS-250-11.60



	Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
	0		4	0		
		17			7	0
Ahead	20		16	0		
Back	20		49	0		
		145			50	23
	74		48	45		
		458			99	98
	91		59	61		
		508			123	156
	92		74	107		
		483			144	192
	82		82	100		
		461			179	165
	84		111	78		
		447			177	156
	77		80	90		
		525			144	162
	112		76	85		
		589			144	206

	Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
	100		80	137		
		394			154	197
	42		86	76		
		214			162	142

EXIST. U.S.R. 21 STA. 61+00 to STA. 65+42.8

TUS-21-26.33
TUS-250-11.60

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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TUS-21-26.33
TUS-250-11.60

FOR DETAILS of S.R.211 APPR. SEE SH.#122

FOR DETAILS of RAMP "A" SEE SH.#86

MATCH LINE P.C. 50+99.15

BEGIN WORK 50+00

Exist. U.S.R.21

Exist. S.R. 211 To Dover

Exist. S.R. 211 (To be Removed)

85'R.

60'R.

Green Gables (Restaurant Tavern, etc.)

Gas Pump

Traffic Island

RAMP "A"

RAMP "D"

P.C. 0+95.45

0+68.50 55'R. 876.25

0+66.71 876.20 50'R.

55+88.95 51.0 Lt.

Sta. 53+22

Sta. 55+14.0

Tang. at Sta. 55+14.0

Sta. 54+41.64

Sta. 54+19.75

P.I. = 53+97.69
Δ = 64°-02' Rt.
D = 12°-00'
T = 238.54'
L = 533.61'
E = 85.65'
R = 477.46'

R=75' 872.80
1+03.45

P.C. 1+17.93
873.20
873.48
1+25

873.45
873.76
1+25

P.T. 56+32.76

S.C. 618+49.61

Survey South bound U.S.R. 250

R=400'
Arc 63.31'
N. 85°-13'-30" E.

88°-37'-30" Tang. to Survey

STA. 58+50

MATCH LINE

FOR TYPICAL SECTIONS SEE SH.#6

FOR DETAILS of RAMP "D" SEE SH.#96 & 97

PAVEMENT ELEVATIONS

LEFT EDGE PAV'T.	LEFT WIDTH	STA.	& Pav't Elev.	RIGHT WIDTH	RIGHT EDGE PAV'T.
883.80	12.0	50+00		12.0	883.80
884.15	"	+25	884.11	"	883.92
884.48	"	+50	884.23	"	883.98
884.71	"	+75	884.34	"	883.96
884.88	"	P.C.+99.15	884.35	"	883.82
884.88	12.0	51+00	884.35	12.0	883.82
884.97	13.1	+25	884.26	13.1	883.54
885.00	14.2	+50	884.10	14.2	883.19
884.94	15.4	+75	883.83	15.4	882.71
884.78	16.5	52+00	883.47	16.5	882.15
884.46	17.6	+25	883.01	17.6	881.55
884.02	18.8	+50	882.47	18.8	880.92
883.48	19.9	+75	881.86	19.9	880.24
			(cont'd)		

882.85	21.0	53+00	881.20	21.0	879.55
882.19		+25	880.50		878.80
881.47		+50	879.75		878.02
880.70		+75	878.96		877.21
879.92		54+00	878.17		876.42
879.08		+25	877.34		875.60
878.22		+50	876.49		874.76
877.38		+75	875.64		873.90
876.54		55+00	874.80		873.06
875.66		+25	873.94		872.21
874.73		+50	873.05		871.36
873.77		+75	872.14		870.51
872.77		56+00	871.22		869.66
871.77		+25	870.29		868.81
871.46		P.T.+32.76	870.21		868.55
870.77		+50	869.37		867.96
869.77		+75	868.45		867.13
868.78		57+00	867.54		866.34
867.77		+25	866.73		865.69
866.78		+50	865.97		865.16
865.91		+75	865.33		864.71
865.45		58+00	864.94		864.43
865.41		+25	864.83		864.25
865.62		+50	864.91		864.19
865.98		+75	865.11		864.24
866.40		59+00	865.41		864.41
866.80		+25	865.75		864.69
867.20		+50	866.11		865.01
867.21		P.C.+51.18	866.12		865.03
867.61	21.0	+75	866.47	21.0	865.33

868.00	21.0	60+00	866.83	21.0	865.65
868.38		+25	867.18		865.97
868.73		+50	867.51		866.29
869.04		+75	867.83		866.61
869.37		61+00	868.15		866.93
869.69		+25	868.47		867.25
870.01		+50	868.79		867.57
870.33		+75	869.11		867.89
870.65		62+00	869.43		868.21
870.90		+25	869.72		868.53
871.08		+50	869.97		868.85
871.14		+75	870.16		869.17
871.16		P.T.+84.51	870.23		869.30
871.12		63+00	870.31		869.49
871.02		+25	870.42		869.81
870.96		+50	870.55		870.13
870.93		+75	870.78		870.45
871.00	21.0	64+00	871.10	21.0	870.77
871.13	19.8	+25	871.39	19.8	871.09
871.36	18.6	+50	871.63	18.6	871.36
871.58	17.5	+75	871.82	17.5	871.58
871.72	16.1	65+00	871.95	16.1	871.72
871.81	15.0	+25	872.03	15.0	871.81
871.86	14.0	+42.8	872.06	14.0	871.88

EXISTING U.S.R. 21 REARRANGEMENTS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

114
235

TUS-21-26.33
TUS-250-11.60

FOR TYPICAL SECTIONS
SEE SH. #6

MATCH LINE - STA. 58+50

El. 865.15
El. 865.40
El. 865.74
El. 866.10 +25
El. 866.47 +50
El. 866.83 +75
El. 867.22
El. 867.58 +25
El. 867.92 +50
El. 868.24 +75
El. 868.56
El. 868.88 +25
El. 869.20 +50
El. 869.52 +75
El. 869.84
El. 870.12 +25
El. 870.34 +50
El. 870.49 +75
El. 870.57
El. 870.13
El. 870.30

R=400'
Arc 63.31'
59
R=400'
Arc 63.31'
60
61
62
63
64
65

0+49.17
22.76' Rt.
3.86' Rt. El. 864.95
22.6' Rt. 0+68.13
0.30' Rt. El. 865.40
2.14' Lt. El. 865.86
3.00' Lt. El. 866.27
3.00' Lt. El. 866.63
59+90.83
=93+25.01

P.C. 59+51.18

N. 06°-36'-30" W.

86°-46'-45" Tang. to Curve

82°-41' Tang. to Curve

Survey ℄
U.S.R. 21 (I.R. 77)

Survey ℄
North Bound U.S.R. 250

620 + 03.50 = 60 + 44.10

P.I. 61+18.42
Δ = 11°-40' Rt.
D = 3°-30'
T = 167.24'
L = 333.33'
E = 8.52'
R = 1637.02'

P.T. 62+84.51

S. 83°-06'-30" E.

63+31.76
51.0'

50' R.
870.40
870.39
0+43.28
870.37
0+50
El. 870.35
0+75
El. 870.29
1+00
870.20

RAMPS "E" & "F"

℄ Survey ℄ Ramp "E"
℄ Survey ℄ Ramp "F"

℄ 100.00'
0°00'

83°

870.78
870.56
870.34
870.12
55' R
0+87.12
1+00
863.95

63+92.0'
0+00 "B" ℄

+71.76
+19.24
25.0 Lt.
+00
71.0
El. 871.07
4.83' Lt.
El. 871.33
2.67' Lt.
El. 871.39
+31.72
El. 871.63
+83.60
76.90' Lt.
0+46.09
15.30'

FOR DETAILS
of RAMP "B"
SEE SH.# 89,90 & 91

RAMP "B"

1+31.92
871.12
871.10
871.09
871.08
871.06
871.05
871.04
871.01
871.00
0+81.92
23.50' Lt.
871.18
871.11
871.22
871.21
871.14
871.11
871.07
0+61.49
8.55' Lt.
+23.69
+36.28
27.0 Lt.
1+00
871.00
870.95
870.90
870.87
870.88
871.00
871.21
871.49
El. 871.04
1+22.83
R=150'
55' R
2' Rad.
2' R.
2' R.
2' R.
El. 871.63
El. 871.39
El. 871.33
El. 871.29
El. 871.07
El. 870.30
El. 870.13
El. 869.89
El. 869.84
El. 869.52
El. 869.20
El. 868.88
El. 868.56
El. 868.32
El. 868.00
El. 867.68
El. 867.35
El. 867.00
El. 866.63
El. 866.27
El. 865.86
El. 865.40
El. 865.15

FOR DETAILS
of RAMPS "E" & "F"
SEE SH.'S #101 & 102

65+27.8
Beg. Appr. Slab
65+42.8
Beg. of Bridge
Appr. Slab
BRIDGE
14' 14' 3'
END WORK
Riser

EXISTING U.S.R. 21 REARRANGEMENTS

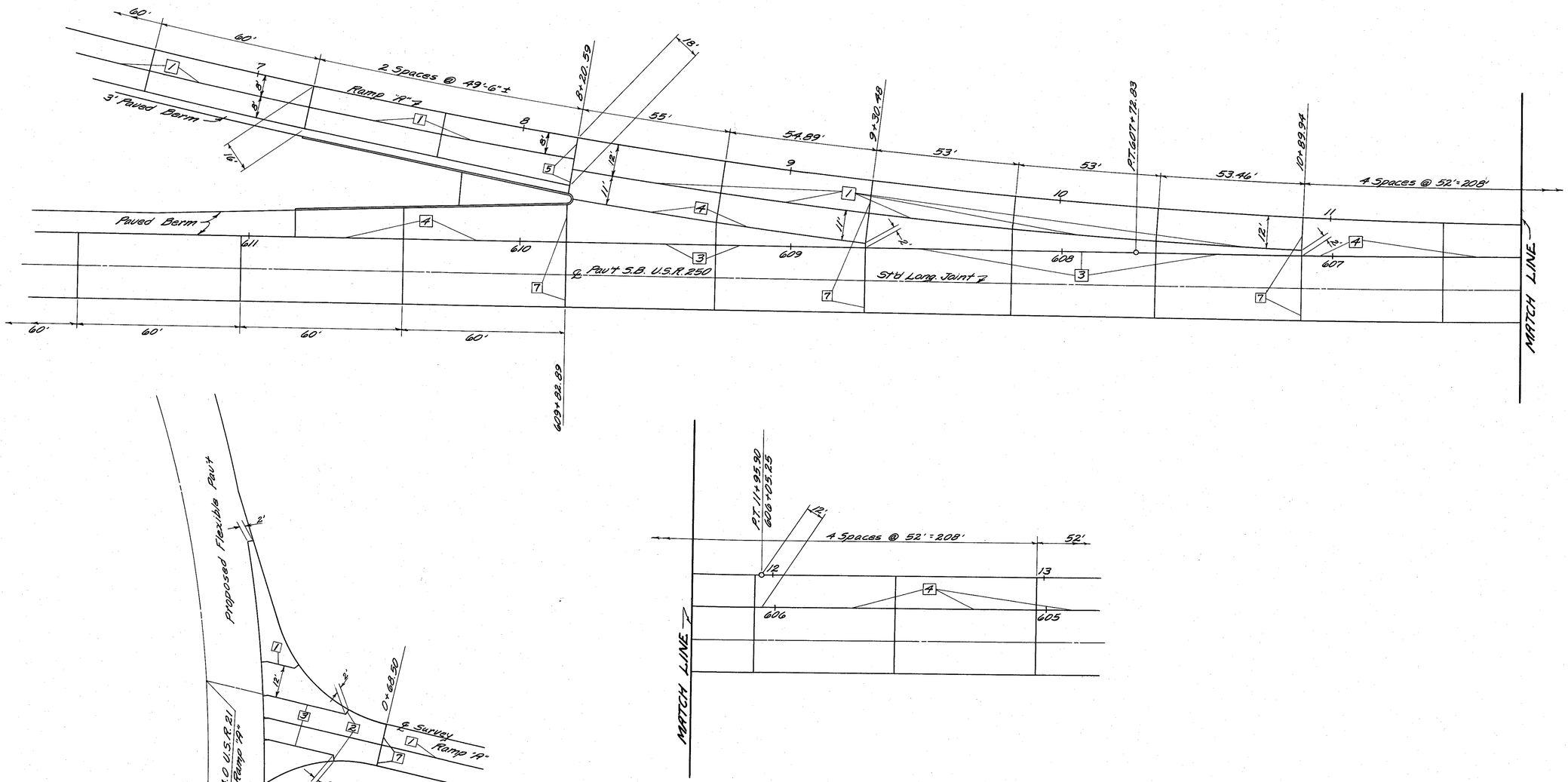
PAVEMENT JOINT DETAILS

SCALE : 1" = 20'

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

115
235

TUS - 21 - 26.33
TUS - 250 - 11.60



KEY

1. St'd Longitudinal Joint
2. Expansion Joint without dowels
3. St'd Key Joint without tie bars
4. St'd Longitudinal Key Joint
5. St'd Expansion Joint
7. St'd Contraction Joint

PAVT JOINTS RAMP "A" EXIT TERMINAL

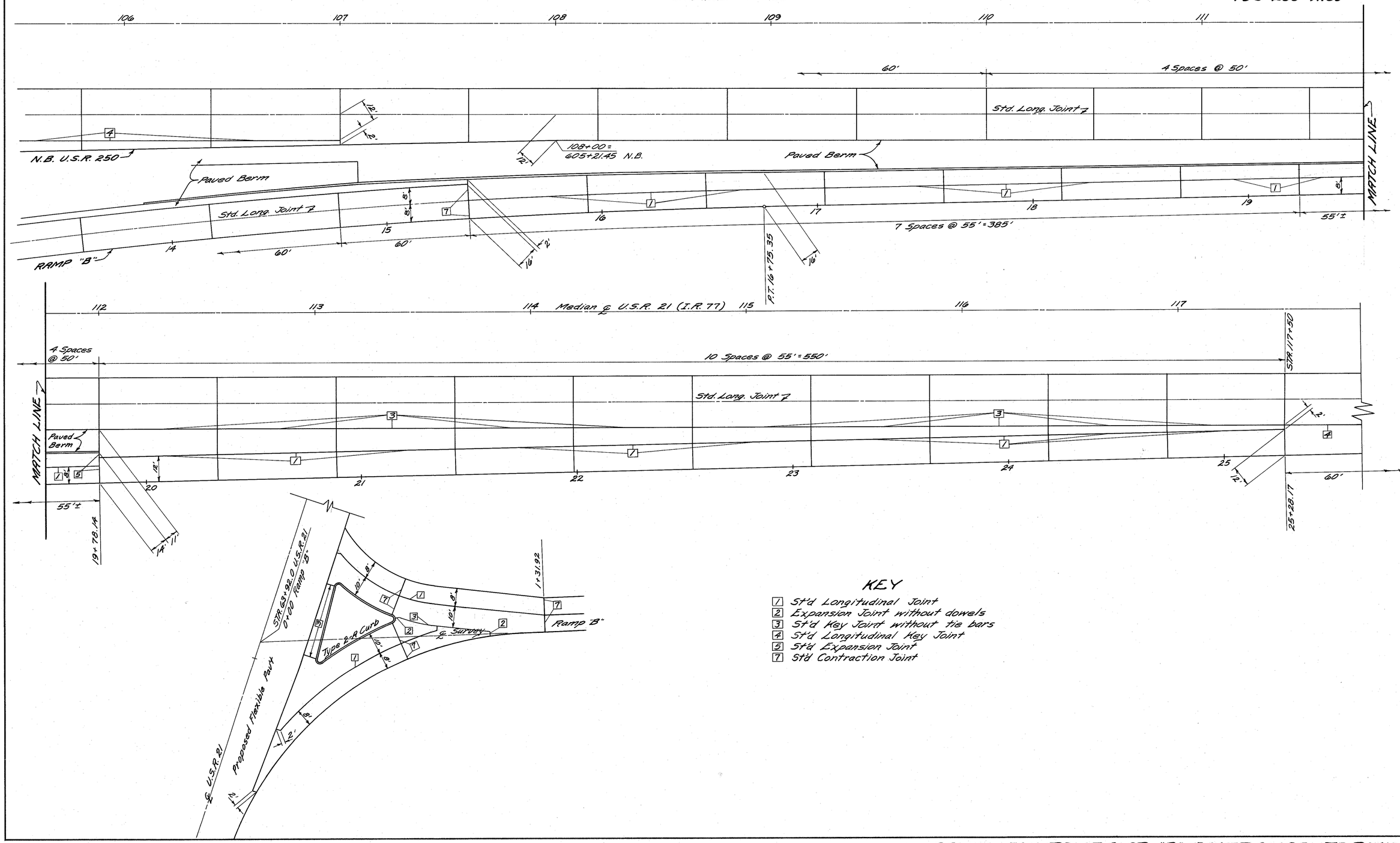
PAVEMENT JOINT DETAILS

SCALE : 1" = 20'

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

116
235

TUS-21-26.33
TUS-250-11.60



KEY

- 1 St'd Longitudinal Joint
- 2 Expansion Joint without dowels
- 3 St'd Key Joint without tie bars
- 4 St'd Longitudinal Key Joint
- 5 St'd Expansion Joint
- 7 St'd Contraction Joint

PAV'T JOINTS - RAMP "B" ENTRANCE TERMINAL

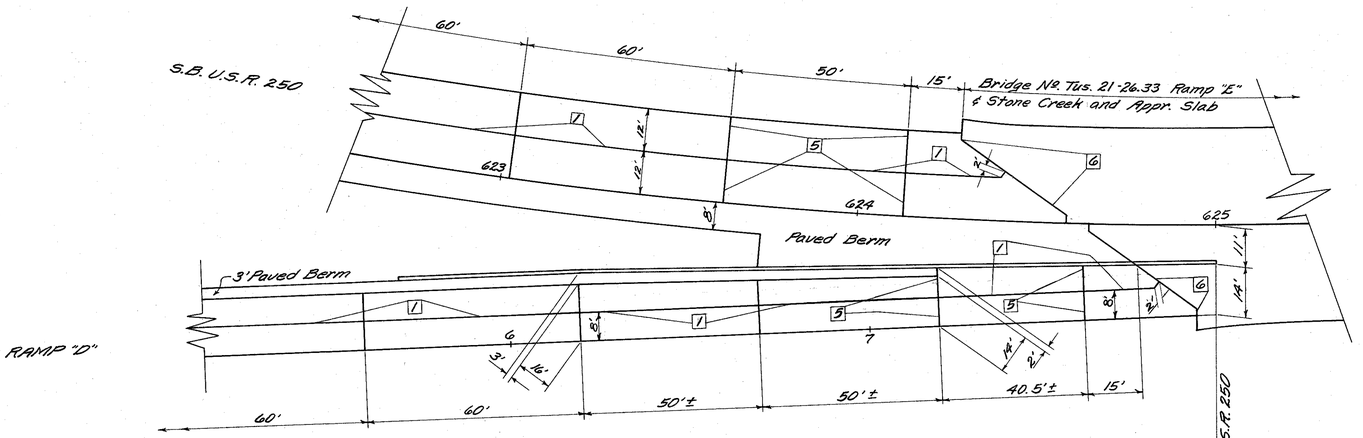
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

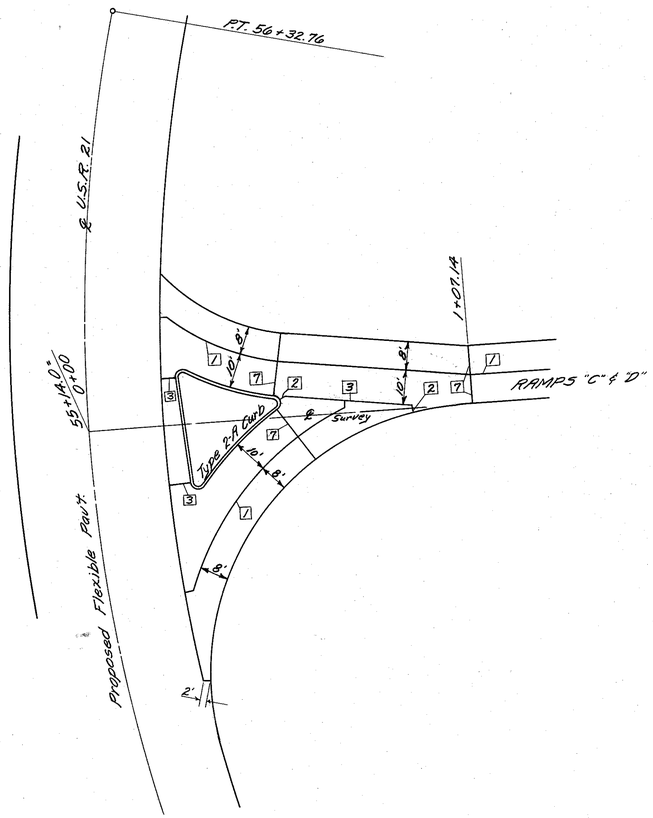
117
235

TUS-21-26.33
TUS-250-11.60

PAVEMENT JOINT DETAILS

SCALE : 1" = 20'





KEY

- 1 Std Longitudinal Joint
- 2 Expansion Joint without dowels
- 3 Std Key Joint without tie bars
- 4 Std Longitudinal Key Joint
- 5 Std Expansion Joint
- 6 Construction Joint with 1" ϕ x 18" dowels (See 95-1-5A)
- 7 Std Contraction Joint

PAV'T JOINTS RAMP "D" ENTRANCE TERMINAL

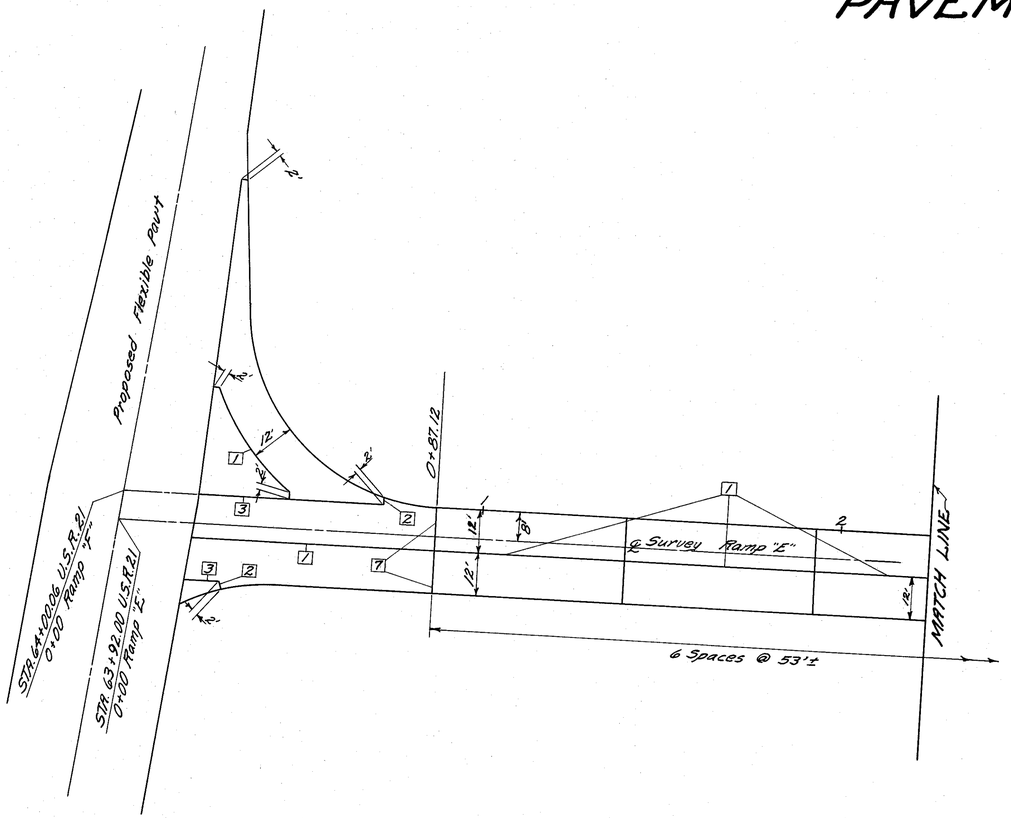
PAVEMENT JOINT DETAILS

SCALE : 1"=20'

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

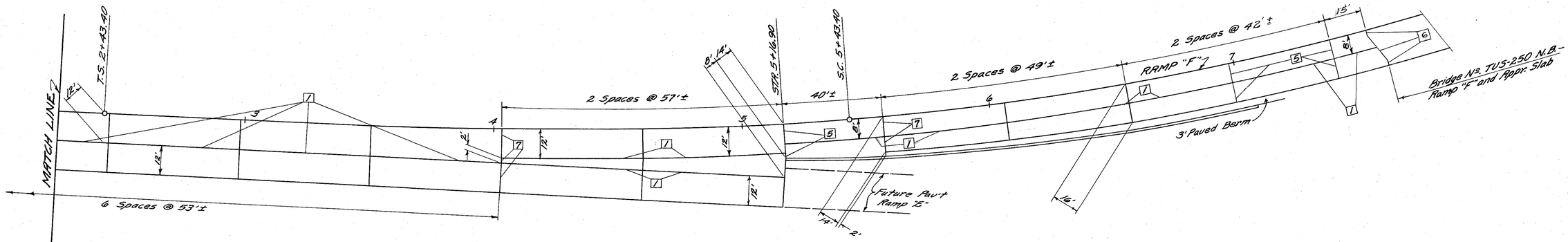
118
235

TUS-21-26.33
TUS-250-11.60



KEY

1. Std Longitudinal Joint
2. Expansion Joint without dowels
3. Std Key Joint without tie bars
4. Std Longitudinal Key Joint
5. Std Expansion Joint
6. Construction Joint with 1" ϕ x 18" dowels (See AS-1-54)
7. Std Contraction Joint



PAV'T JOINTS RAMP "F" ENTRANCE TO RAMP "E"

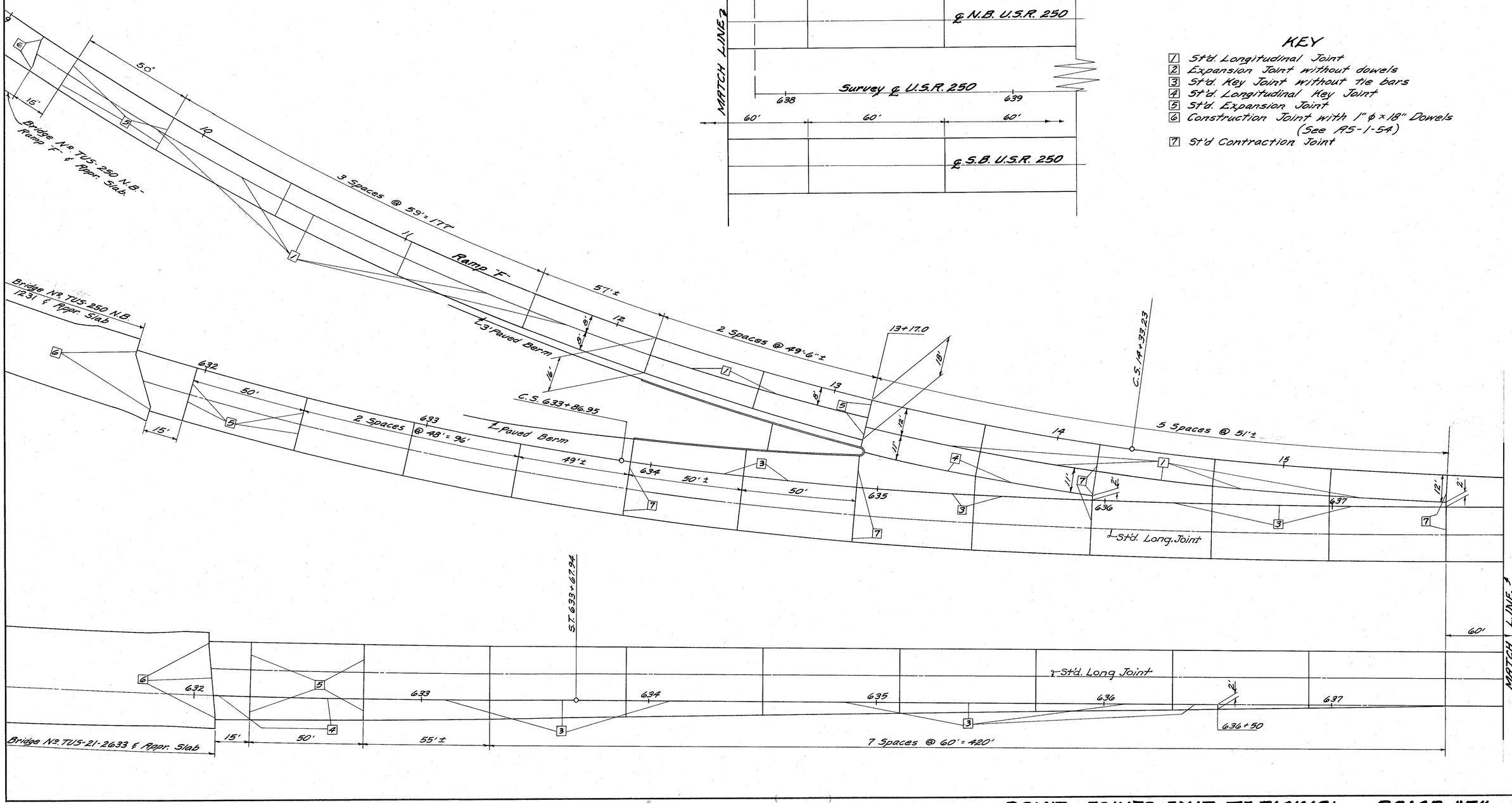
PAVEMENT JOINT DETAILS

SCALE : 1" = 20'

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

119
235

TUS-21-26.33
TUS-250-11.60



KEY

1. Std. Longitudinal Joint
2. Expansion Joint without dowels
3. Std. Key Joint without tie bars
4. Std. Longitudinal Key Joint
5. Std. Expansion Joint
6. Construction Joint with 1" ϕ x 18" Dowels (See RS-1-54)
7. Std Contraction Joint

PAV'T JOINTS-EXIT TERMINAL - RAMP "F"

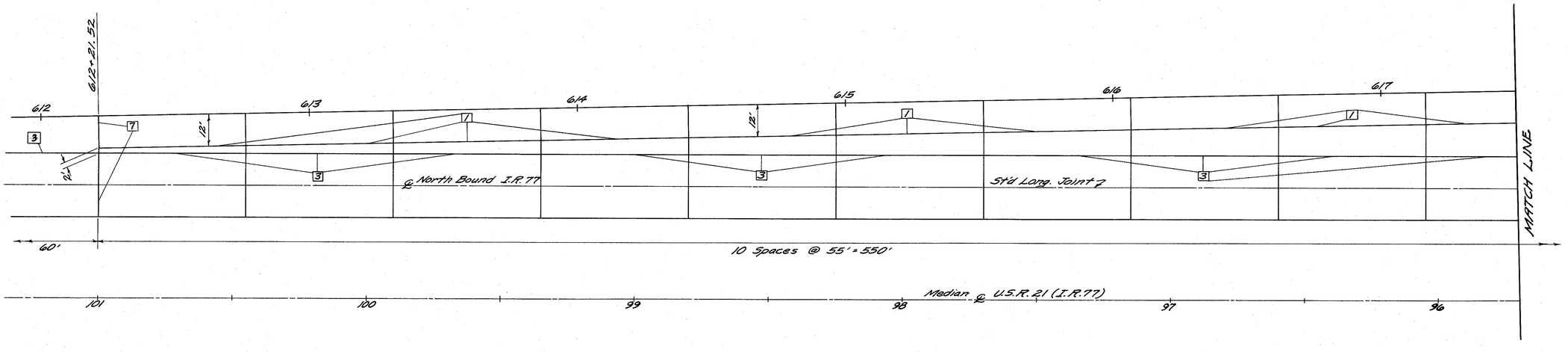
PAVEMENT JOINT DETAILS

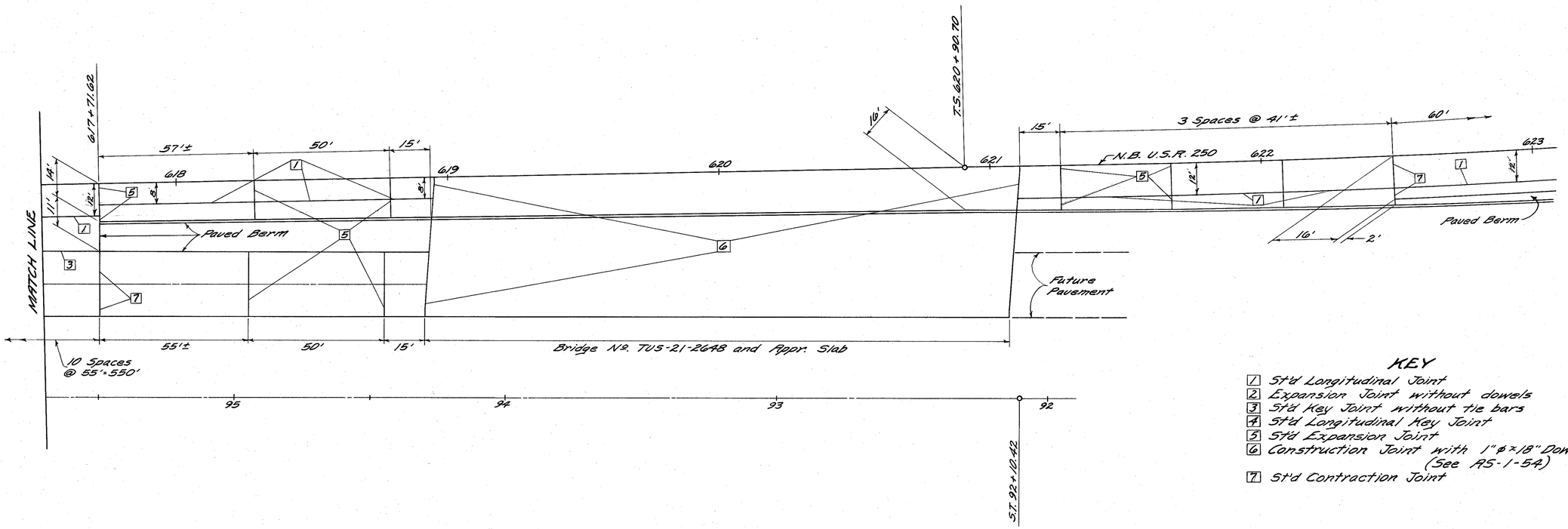
SCALE : 1" = 20'

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

120
235

TUS-21-26.33
TUS-250-11.60





KEY

1. Std Longitudinal Joint
2. Expansion Joint without dowels
3. Std Key Joint without tie bars
4. Std Longitudinal Key Joint
5. Std Expansion Joint
6. Construction Joint with 1" ø x 18" Dowels (See AS-1-54)
7. Std Contraction Joint

PAV'T JOINTS N.B. U.S.R. 250 ENTRANCE TERMINAL

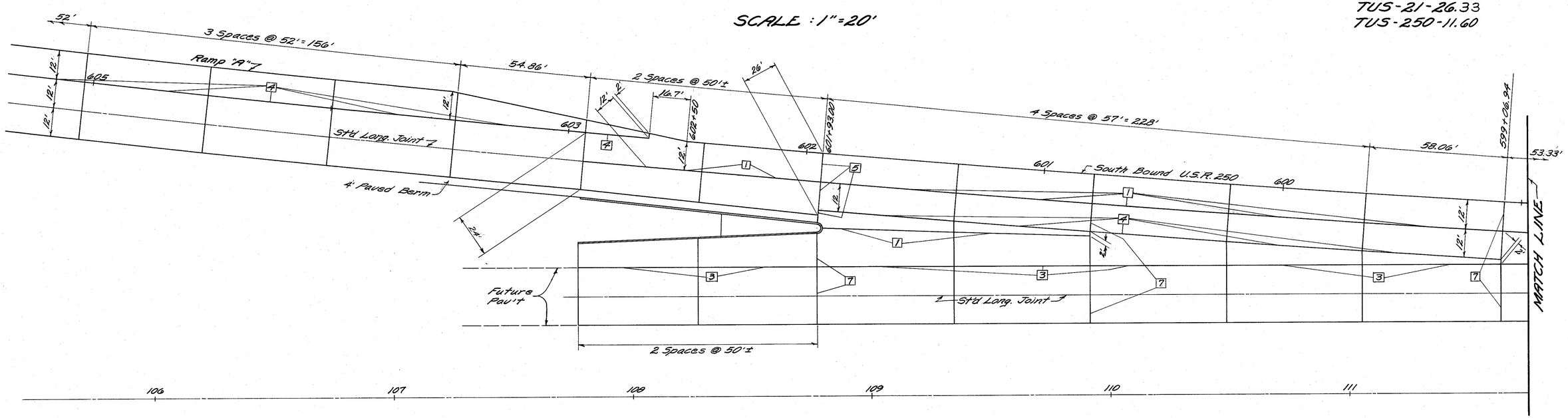
PAVEMENT JOINT DETAILS

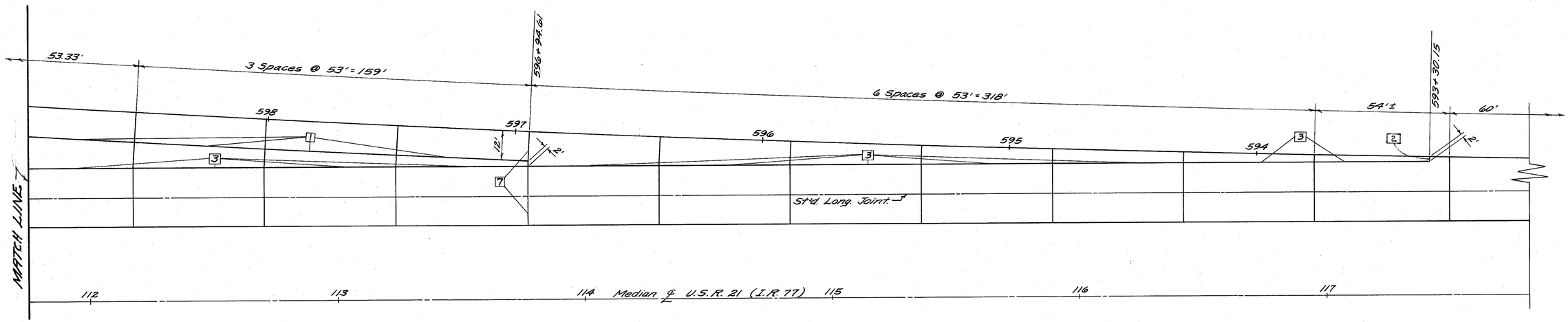
SCALE : 1" = 20'

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

TUS-21-26.33
TUS-250-11.60

121
235





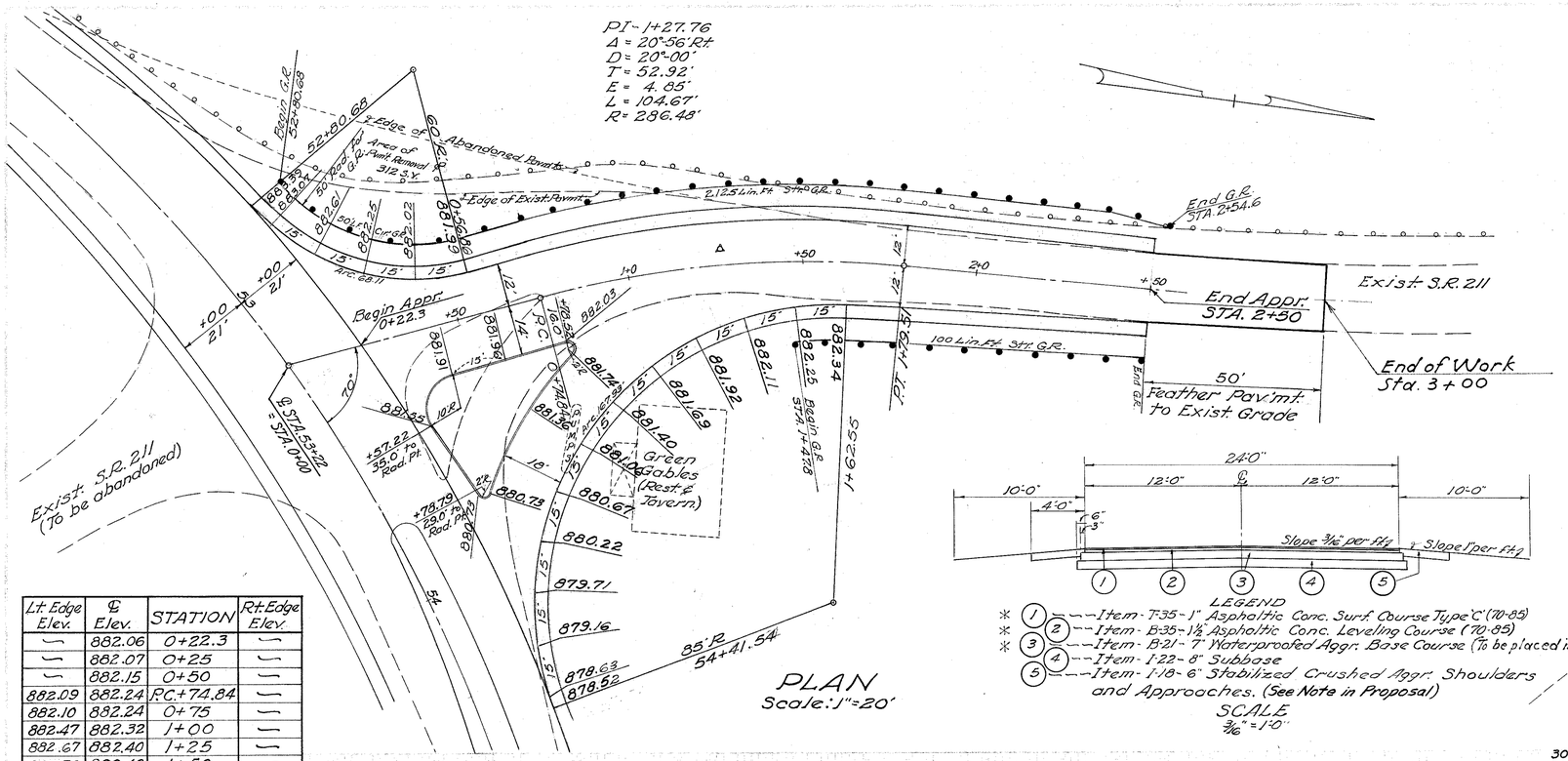
KEY

1. Std Longitudinal Joint
2. Expansion Joint without dowels
3. Std Key Joint without tie bars
4. Std Longitudinal Key Joint
5. Std Expansion Joint
7. Std Contraction Joint

PAV'T JOINTS - S.B. U.S.R. 250 EXIT TERMINAL

TUS-21-26.33-TUS-250-11.60

PI ~ 1+27.76
Δ = 20°-56' Rt.
D = 20°-00'
T = 52.92'
E = 4.85'
L = 104.67'
R = 286.48'



Lt. Edge Elev.	℄ Elev.	STATION	Rt. Edge Elev.
~	882.06	0+22.3	~
~	882.07	0+25	~
~	882.15	0+50	~
882.09	882.24	P.C.+74.84	~
882.10	882.24	0+75	~
882.47	882.32	1+00	~
882.67	882.40	1+25	~
882.76	882.49	1+50	~
882.78	882.57	1+75	882.40
882.77	882.58	P.T.+79.51	882.42
882.73	882.65	2+00	882.53
882.62	882.74	2+25	882.64
882.51	882.82	2+50	882.77
882.33	~	2+75	882.89

LEGEND

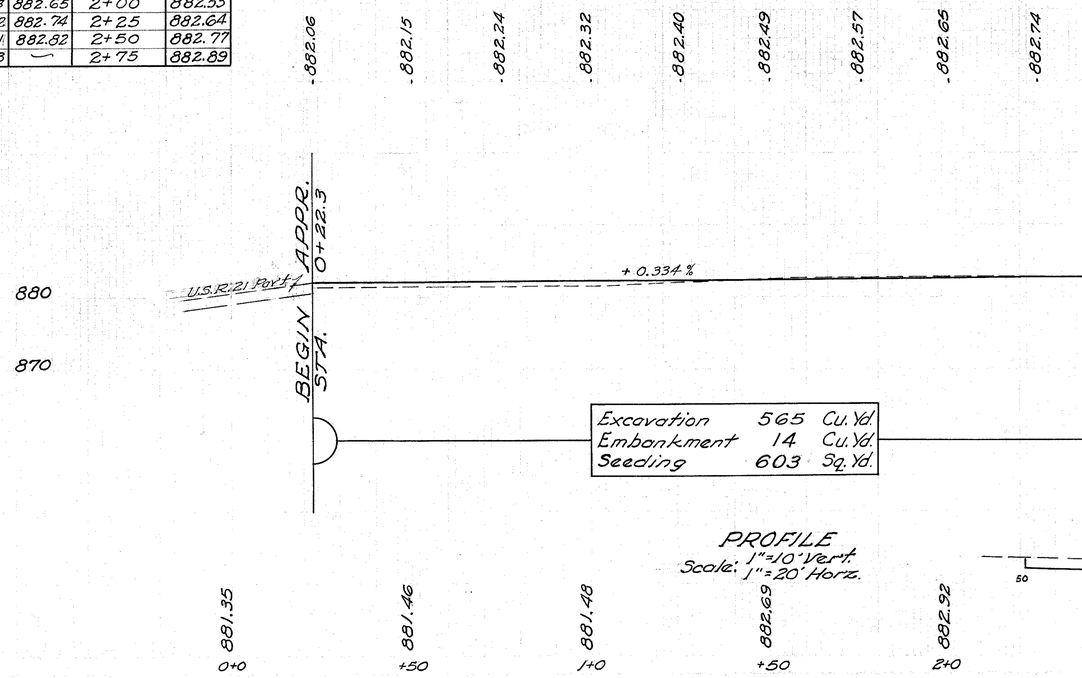
* (1) (2) ---Item · T-35 - 1" Aspholtic Conc. Surf. Course Type 'C' (70-85)
* (2) ---Item · B-35 - 1½" Aspholtic Conc. Leveling Course (70-85)
* (3) (4) ---Item · B-21 - 7" Waterproofed Aggr. Base Course (To be placed in Two Courses)
(4) (5) ---Item · I-22 - 8" Subbase
(5) ---Item · I-18 - 6" Stabilized Crushed Aggr. Shoulders and Approaches. (See Note in Proposal)

SCALE 3/16" = 1'-0"

* Thicknesses shown are design thicknesses as described in Sections T-35.01, B-35.01 & B-21.01.

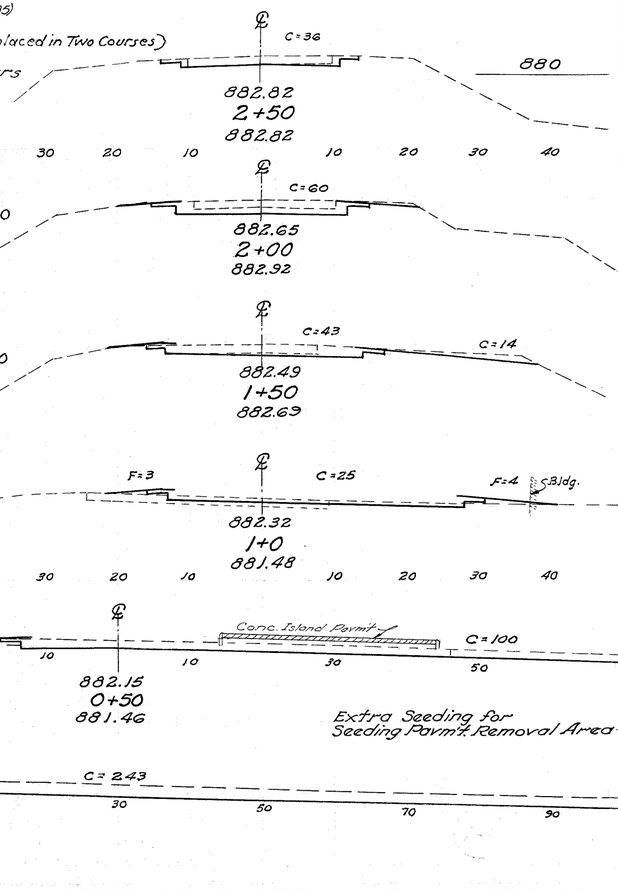
ESTIMATED QUANTITIES

T-35 - Asph. Conc. Surf. Course	26.1	Cu. Yds.
B-35 - Asph. Conc. Leveling Course	36.5	Cu. Yds.
B-21 - Waterproofed Aggr. Base Course	173.0	Cu. Yds.
I-22 - Subbase	200.9	Cu. Yds.
I-21 - Portland Cement Conc. Traffic Isle. (n-4)	95.6	Sq. Yds.
I-18 - Stabilized Crushed Aggr.	38.2	Cu. Yds
I-15 - Guard Rail	362.5	Lin. Ft.
I-12 - Conc. Curb Std. Type 6	132	Lin. Ft.
E-8 - Removal and Disposal of Exist. Pavmt.	312	Sq. Yds.
E-1 - Compacted Subgrade	875	Sq. Yds.



Excavation	565	Cu. Yd.
Embankment	14	Cu. Yd.
Seeding	603	Sq. Yd.

PROFILE
Scale: 1"=10' Vert.
Scale: 1"=20' Horiz.

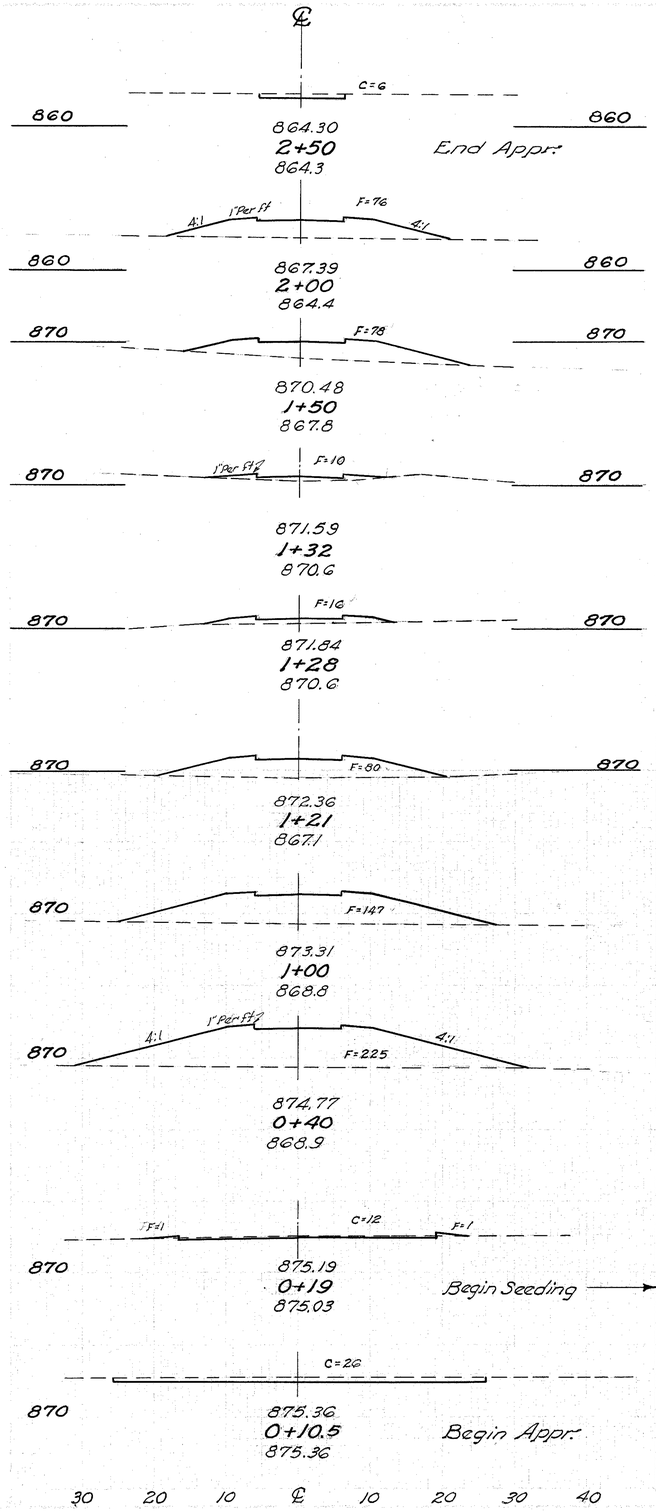


	Seeding Width	Seeding S.Y.	End Area Cut	End Area Fill	Cu. Yds. Exc.	Cu. Yds. Emb.
	0		36	0		
		36			89	0
	13		60	0		
		117			108	0
	29		57	0		
		117			76	6
	13		25	7		
		75			116	7
	14		100	1		
Extra Seeding for Seeding Pavmt. Removal Area		236				
		22			176	1
	0		243	0		

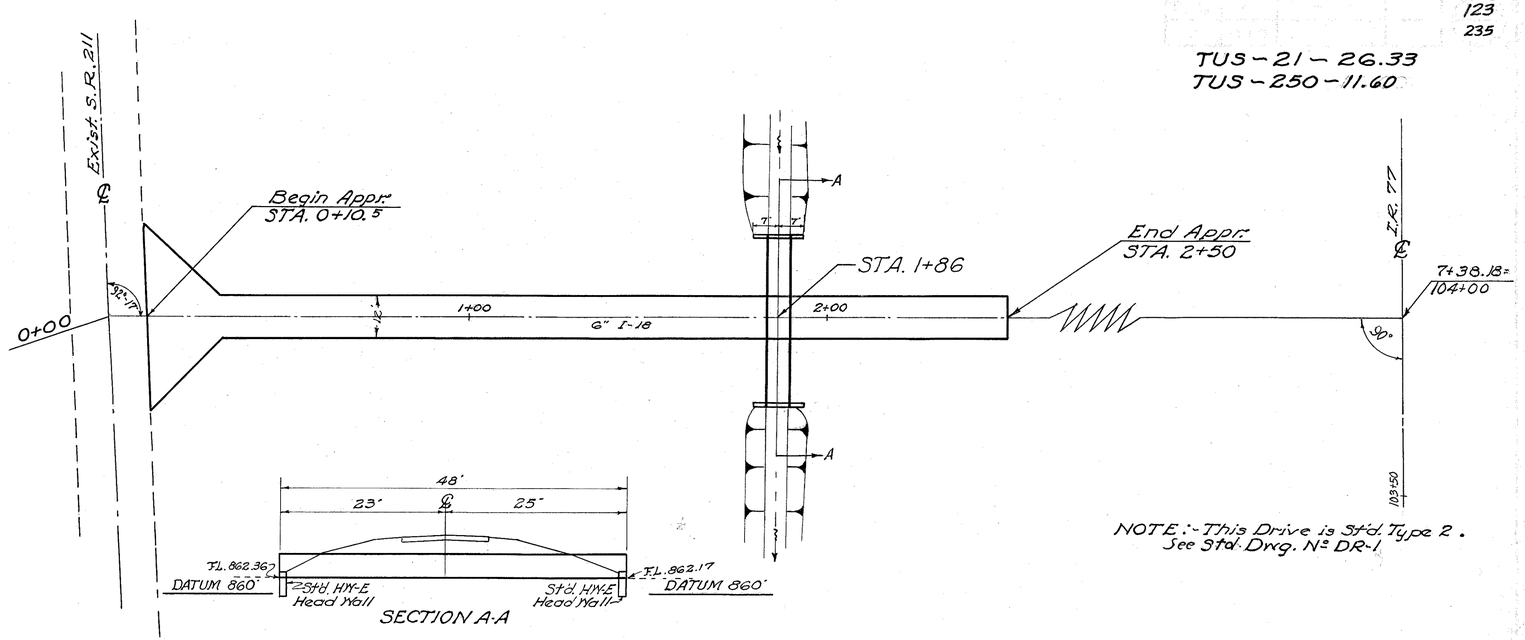
1-A

APPR. Lt. EXIST. U.S.R. 21 STA. 53+22 to S.R. 211

TUS-21-26.33
TUS-250-11.60



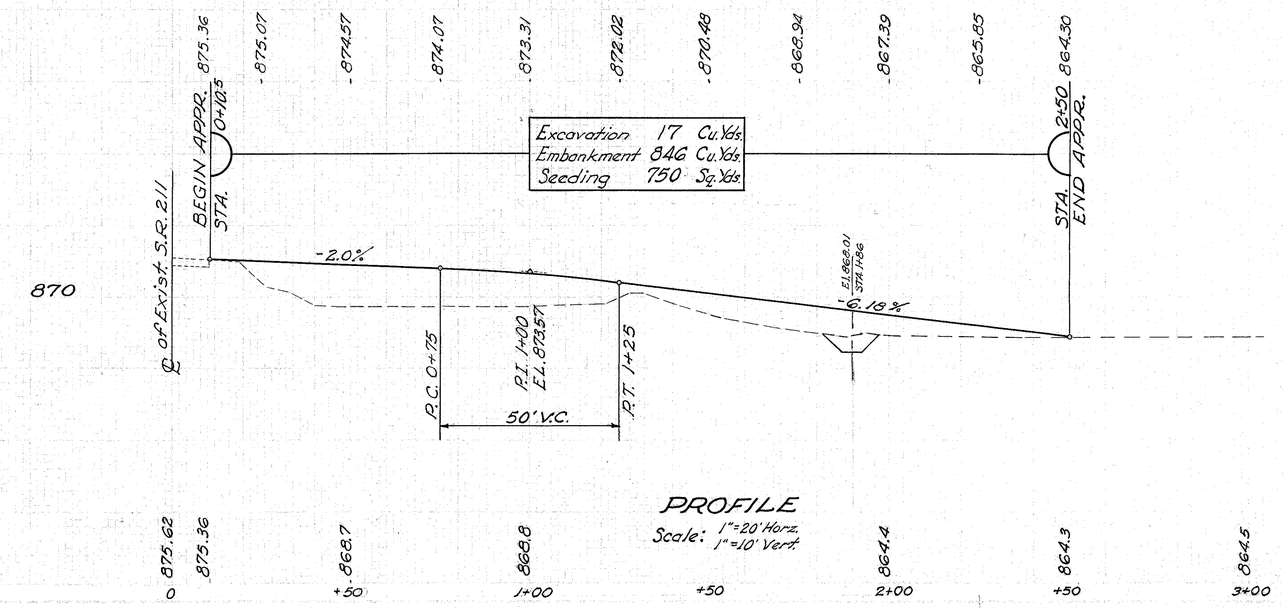
SEEDING Width	SEEDING S.Y.	END AREA Cut	END AREA Fill	CU. YDS. Exc.	CU. YDS. Emb.
0		6	0		
	78			6	70
28		0	76		
	153			0	143
27		0	78		
	39			0	29
12		0	10		
	6			0	2
13		0	16		
	16			0	12
28		0	80		
	79			0	88
40		0	147		
	307			0	413
52		0	225		
	72			5	88
10		12	2		
				6	1
		26	0		



NOTE:- This Drive is Std. Type 2.
See Std. Dwg. No. D.R-1

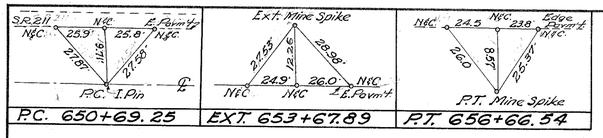
ESTIMATED QUANTITIES

I-18 - 6" Crushed Aggregate	60.6 Cu. Yds.
I-1 - 68"x43" Ellip. Pipe Sec. M-6.7(a) or 72"x44" Corr. Metal Arch, Sec. M-6.4(1)(c) Class G-1	48 Lin. Ft.
I-2 - Masonry,	3.2 Cu. Yds.



2-A

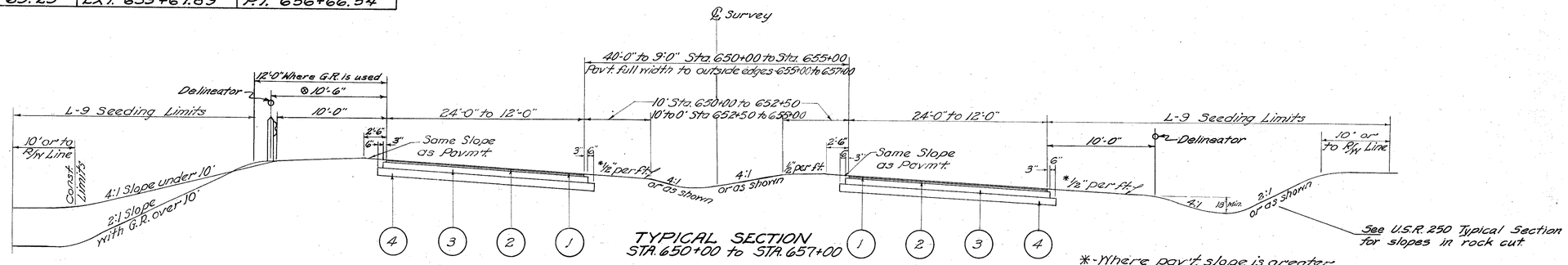
APPR. Lt. STA. 104+00



P.C. 650+69.25

EXT. 653+67.89

P.T. 656+66.54



TYPICAL SECTION
STA. 650+00 to STA. 657+00

LEGEND

* (1)------Item T-35-1"-Asphaltic Concrete Surface Course Type 'C' (70-85)
* (2)---Item B-35-1½"-Asphaltic Concrete Leveling Course (70-85)
* (3)------Item B-21-7"-Waterproofed Aggregate Base Course #
(4)---Item I-22-8"-Subbase

* Thicknesses shown are design thicknesses as described in Sections T-35.01, B-35.01 & B.21.01.

* - Where pav't. slope is greater than ½" per ft. make slope the same as pavement slope.

(All rounding in four feet)

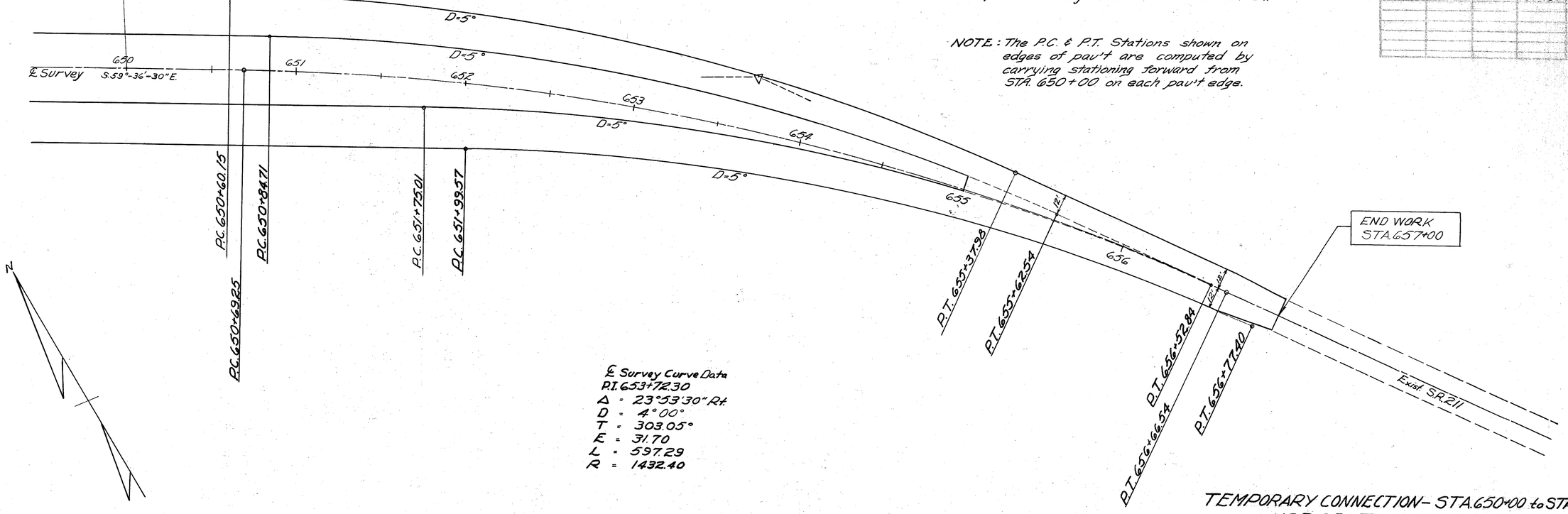
⊗ Except where Guard Rail is not used then delineator is 10'-0" from edge of pavement.

To be placed in two courses

ESTIMATED QUANTITIES

T-35 - Asph. Conc. Surf. Course	81.9 C.Y.
B-35 - Asph. Conc. Lev. Course	122.9 C.Y.
B-21 - Waterproofed Aggr. Base Course	586.4 C.Y.
I-22 - Subbase	699.8 C.Y.
E-1 - Compacted Subgrade	2948 S.Y.

NOTE: The P.C. & P.T. Stations shown on edges of pav't are computed by carrying stationing forward from STA. 650+00 on each pav't edge.



℄ Survey Curve Data
P.I. 653+72.30
Δ = 23°53'30" Rt.
D = 4°00'
T = 303.05'
E = 31.70
L = 597.29
R = 1432.40

TEMPORARY CONNECTION - STA. 650+00 to STA. 657+00
U.S.R. 250 TO EXISTING S.R. 211
Scale 1" = 30'

3-A

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

124
235

TUS-21-26.33
TUS-250-11.60

PAVEMENT ELEVATION

LEFT		℄	RIGHT	
Outside Edge	Inside Edge	Survey Station	Inside Edge	Outside Edge
878.88	878.88	650+00	878.88	878.88
878.48	878.38	+25	878.38	878.38
878.14	877.88	+50	877.88	877.88
878.92	877.49	PC+69.25	877.49	877.49
877.86	877.38	+75	877.38	877.36
877.61	876.88	651	876.88	876.80
877.39	876.40	+25	876.40	876.21
877.17	875.95	+50	875.95	875.58
876.95	875.54	+75	875.54	874.95
876.71	875.17	652	875.17	874.30
876.46	874.83	+25	874.83	873.63
876.18	874.52	+50	874.52	873.08
875.87	874.25	+75	874.25	872.60
875.60	874.02	653	874.02	872.26
875.33	873.82	+25	873.82	872.09
875.11	873.66	+50	873.66	871.98
874.93	873.54	+75	873.54	871.91
874.78	873.45	654	873.45	871.87
874.65	873.39	+25	873.29	871.96
874.55	873.40	+50	873.16	871.89
874.45	873.47	+75	873.08	871.93
874.38	873.56	655	873.06	872.03
874.30		+25		872.20
874.23		+50		872.43
874.16		+75		872.69
874.09		656		872.98
874.02		+25		873.28
873.97		+50	℄	873.49
873.95		P.T.+66.54	873.85	873.58
873.93		+75	873.89	873.60
873.91		657	873.97	873.66

APPROACH SLABS
Bridge Nº TUS-21-2648

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

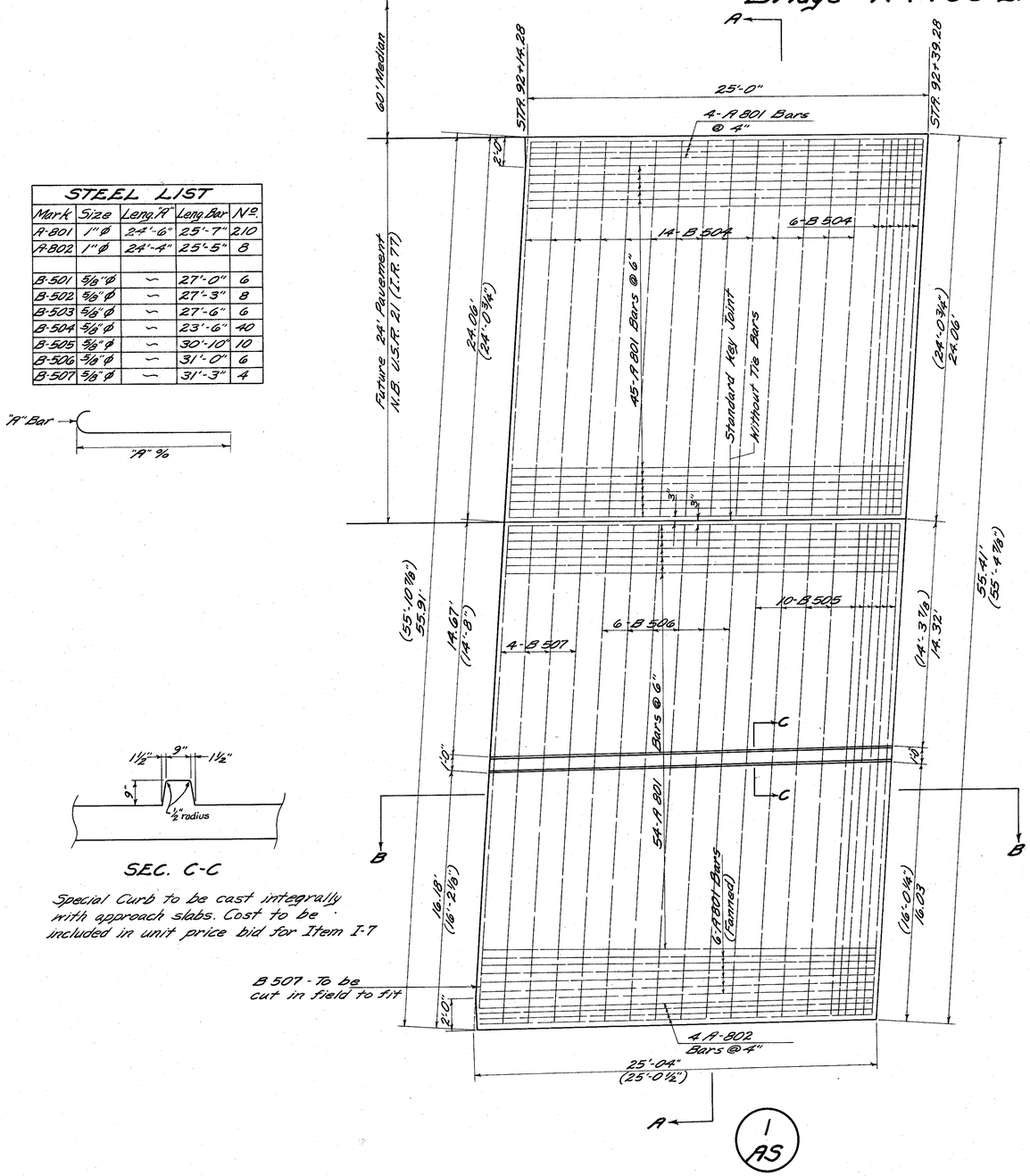
125/235

TUS-21-26.33
TUS-250-11.60

STEEL LIST				
Mark	Size	Leng. "A" Bar	Leng. Bar	Nº.
A-801	1" ø	24'-6"	25'-7"	210
A-802	1" ø	24'-4"	25'-5"	8
B-501	5/8" ø	—	27'-0"	6
B-502	5/8" ø	—	27'-3"	8
B-503	5/8" ø	—	27'-6"	6
B-504	5/8" ø	—	23'-6"	40
B-505	5/8" ø	—	30'-10"	10
B-506	5/8" ø	—	31'-0"	6
B-507	5/8" ø	—	31'-3"	4

"A" Bar

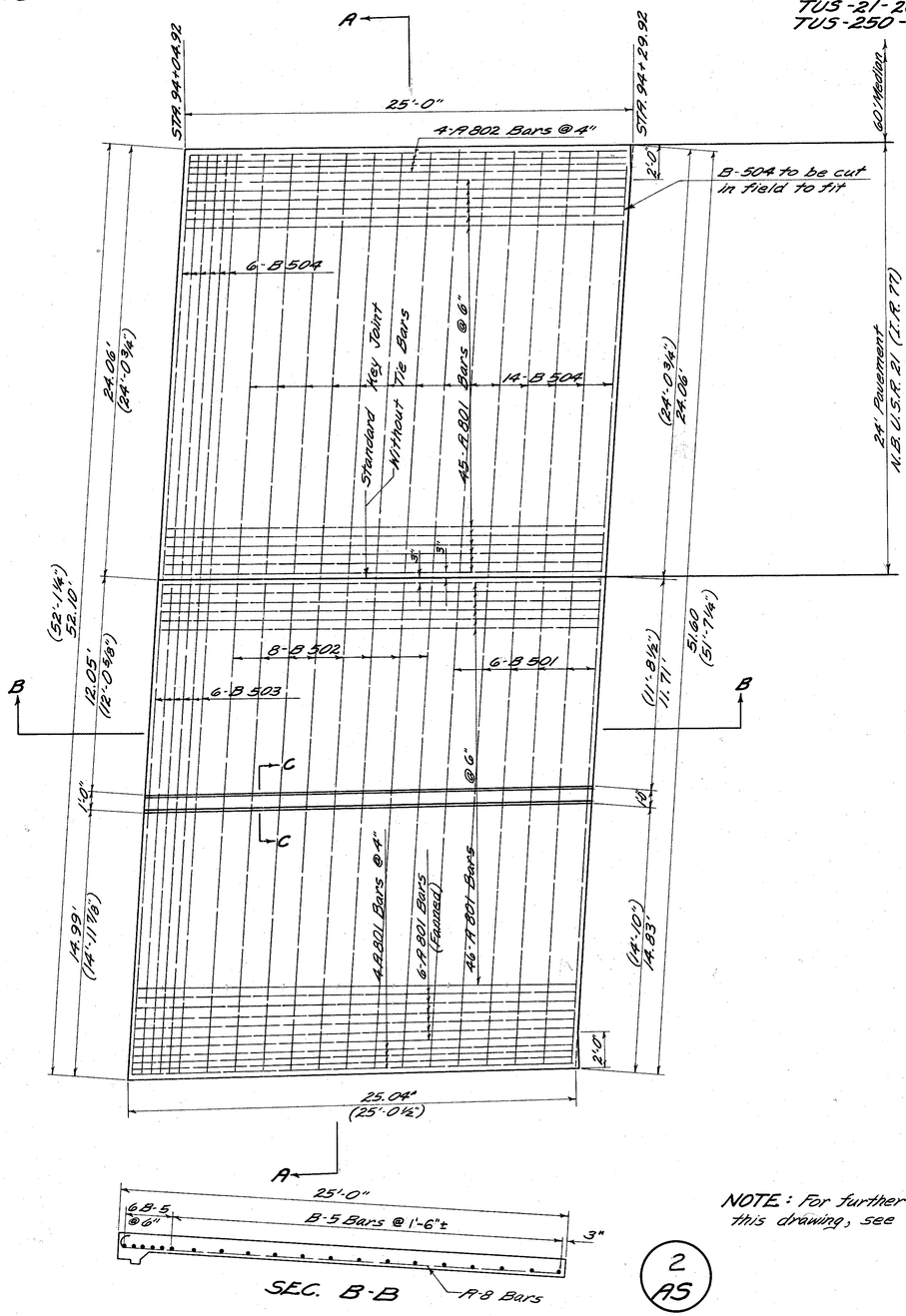
"A" %



SEC. C-C

Special Curb to be cast integrally with approach slabs. Cost to be included in unit price bid for Item I-7

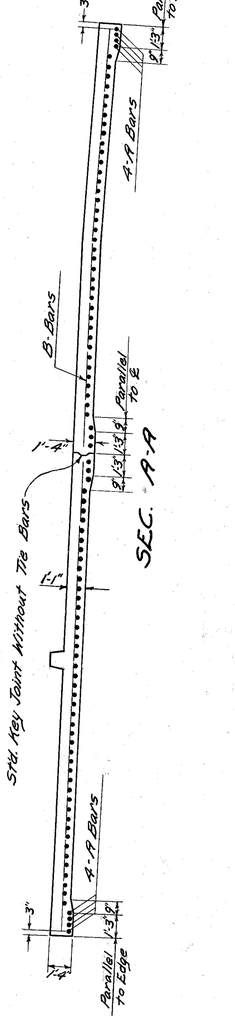
NORTH BOUND LANE
Right of STA. 92+14.28 to STA. 92+39.28
Class "C" Concrete = 154.2 Sq. Yds.



SEC. B-B

2/AS

NORTH BOUND LANE
Right of STA. 94+04.92 to STA. 94+29.92
Class "C" Concrete = 143.7 Sq. Yds.



SEC. A-A

NOTE: For further details not shown on this drawing, see St'd Dwg. AS-1-54

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

APPROACH SLABS

APPROACH SLABS

Bridge Nº. TUS-21-26.33

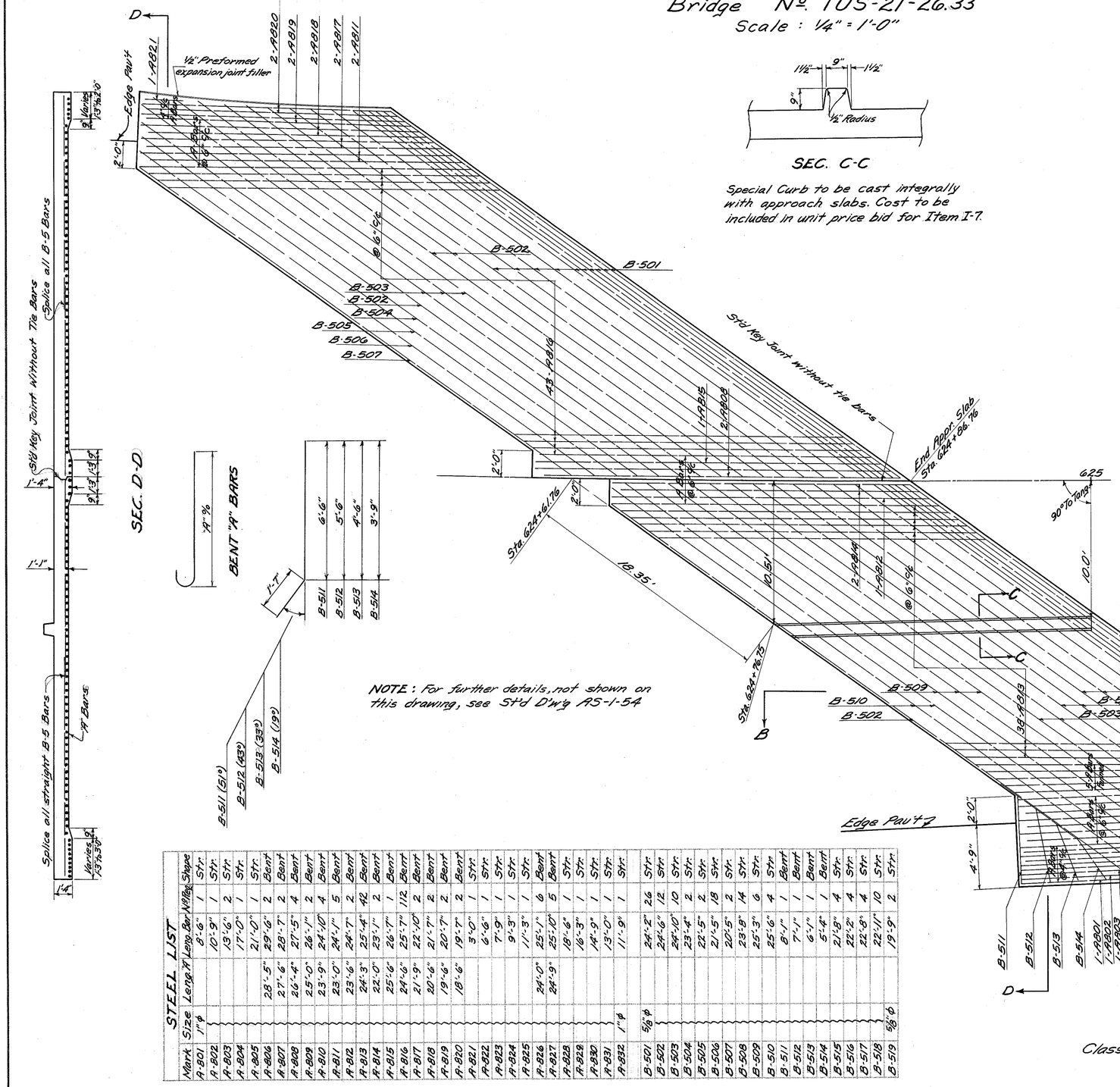
Scale : 1/4" = 1'-0"

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

126/235

TUS-21-26.33

TUS-250-11.60



STEEL LIST

Mark	Size	Length	"A"	Bar Nº's	Shape
A-801	1" ø	8'-6"		1	Str.
A-802		10'-3"		1	Str.
A-803		13'-6"		2	Str.
A-804		17'-0"		1	Str.
A-805		21'-0"		1	Str.
A-806		28'-5"		2	Str.
A-807		29'-6"		2	Bent
A-808		28'-7"		2	Bent
A-809		27'-5"		4	Bent
A-810		26'-1"		2	Bent
A-811		24'-10"		4	Bent
A-812		24'-1"		5	Bent
A-813		23'-6"		2	Bent
A-814		24'-7"		2	Bent
A-815		25'-3"		42	Bent
A-816		25'-6"		2	Bent
A-817		24'-6"		1	Bent
A-818		25'-7"		112	Bent
A-819		22'-10"		2	Bent
A-820		21'-7"		2	Bent
A-821		20'-7"		2	Bent
A-822		19'-7"		1	Bent
A-823		3'-0"		1	Str.
A-824		6'-6"		1	Str.
A-825		7'-9"		1	Str.
A-826		9'-3"		1	Str.
A-827		11'-3"		1	Str.
A-828		24'-0"		6	Bent
A-829		25'-10"		5	Bent
A-830		18'-6"		1	Str.
A-831		16'-3"		1	Str.
A-832	1" ø	14'-9"		1	Str.
B-501	5/8" ø	24'-2"		26	Str.
B-502		24'-6"		12	Str.
B-503		24'-10"		10	Str.
B-504		23'-4"		2	Str.
B-505		22'-5"		2	Str.
B-506		21'-5"		18	Str.
B-507		20'-5"		2	Str.
B-508		23'-8"		14	Str.
B-509		25'-3"		6	Str.
B-510		25'-6"		4	Str.
B-511		8'-1"		1	Bent
B-512		7'-1"		1	Bent
B-513		6'-1"		1	Bent
B-514		5'-4"		1	Bent
B-515		21'-8"		4	Str.
B-516		22'-2"		4	Str.
B-517		22'-8"		4	Str.
B-518		22'-11"		10	Str.
B-519	5/8" ø	19'-9"		2	Str.

APPROACH SLABS

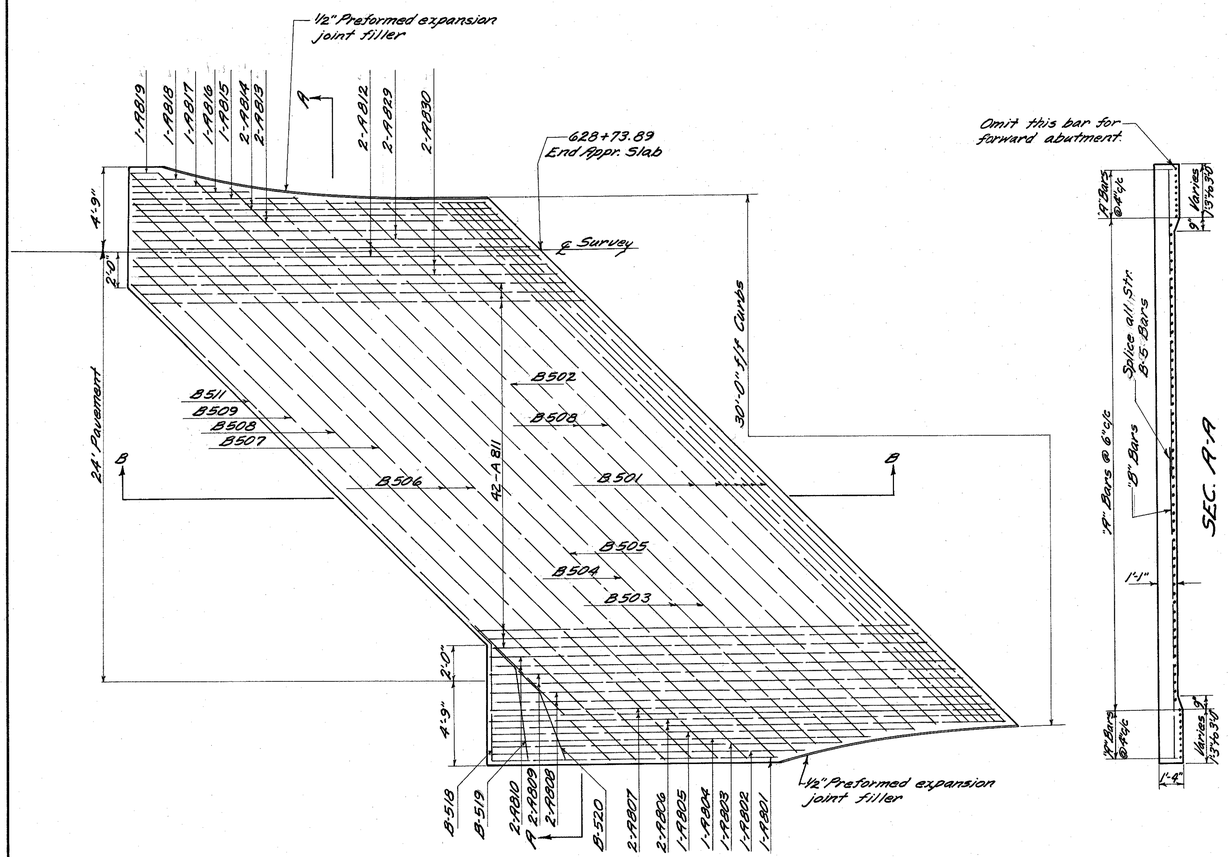
BRIDGE Nº TUS-250-N.B.-1231
OVER RAMP "E" & STONE CREEK

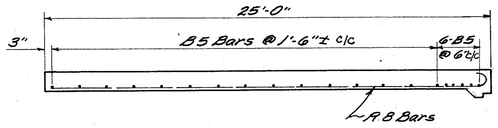
Scale : 1/4" = 1'-0"

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

127/235

TUS-21-26.33
TUS-250-11.60

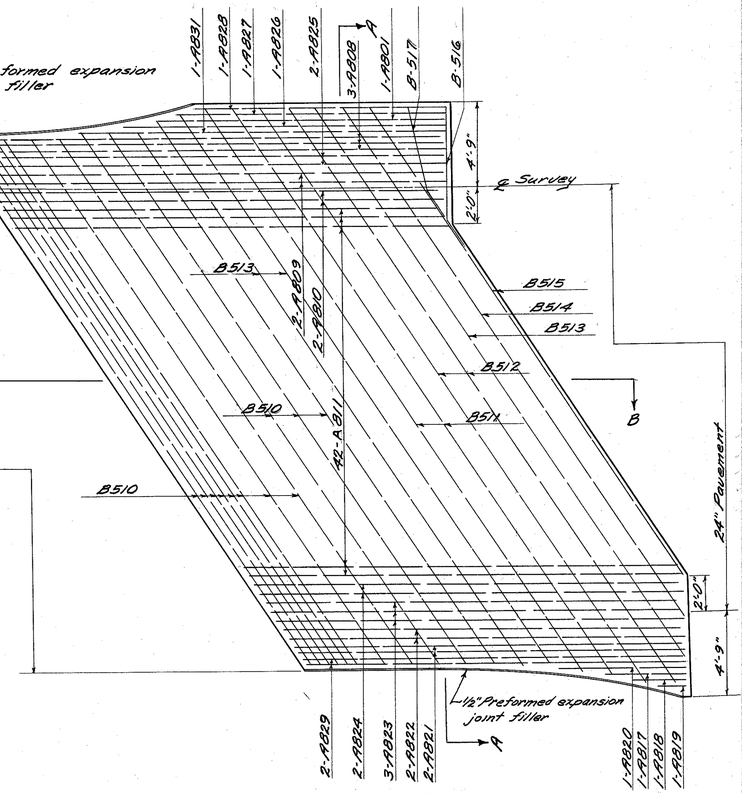




SEC. B-B

7 AS

Class "C" Concrete = 88.2 Sq. Yds.



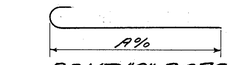
8 AS

Class "C" Concrete = 87.4 Sq. Yds.

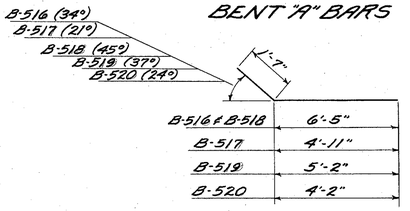
NOTE: For further details not shown on this drawing, see Std Dwg AS-1-54.

STEEL LIST

Mark	Size	Len. A	Len. Bar	Nº Req.	Shape
RB01	1" ø		16'-0"	2	Str.
RB02			17'-6"	1	Str.
RB03			19'-6"	1	Str.
RB04			21'-2"	1	Str.
RB05			23'-6"	1	Str.
RB06		28'-6"	29'-7"	2	Bent
RB07		27'-11"	29'-0"	2	Bent
RB08		27'-0"	28'-1"	5	Bent
RB09		26'-0"	27'-1"	4	Bent
RB10		25'-0"	26'-1"	4	Bent
RB11		24'-6"	25'-7"	84	Bent
RB12		22'-4"	23'-5"	2	Bent
RB13		20'-6"	21'-7"	2	Bent
RB14		19'-10"	20'-11"	2	Bent
RB15			9'-3"	1	Str.
RB16			6'-6"	1	Str.
RB17			4'-7"	2	Str.
RB18			2'-11"	2	Str.
RB19			1'-6"	2	Str.
RB20			7'-2"	1	Str.
RB21		21'-7"	22'-8"	2	Bent
RB22		22'-1"	23'-2"	2	Bent
RB23		22'-10"	23'-11"	3	Bent
RB24		23'-9"	24'-10"	2	Bent
RB25		26'-7"	27'-8"	2	Bent
RB26			18'-0"	1	Str.
RB27			15'-0"	1	Str.
RB28			14'-0"	1	Str.
RB29		21'-2"	22'-3"	4	Bent
RB30		23'-4"	24'-5"	2	Bent
RB31	1" ø		20'-6"	1	Str.
B501	5/8" ø		21'-5"	14	Str.
B502			22'-1"	2	Str.
B503			22'-5"	4	Str.
B504			23'-2"	2	Str.
B505			23'-7"	2	Str.
B506			24'-0"	4	Str.
B507			22'-11"	2	Str.
B508			21'-10"	6	Str.
B509			20'-8"	2	Str.
B510			18'-8"	22	Str.
B511			19'-10"	6	Str.
B512			20'-2"	4	Str.
B-513			19'-4"	6	Str.
B514			17'-11"	2	Str.
B515			16'-7"	2	Str.
B516			8'-0"	1	Bent
B517			6'-6"	1	Bent
B518			8'-0"	1	Bent
B519			6'-9"	1	Bent
B520	5/8" ø		5'-9"	1	Bent



BENT "A" BARS



APPROACH SLABS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

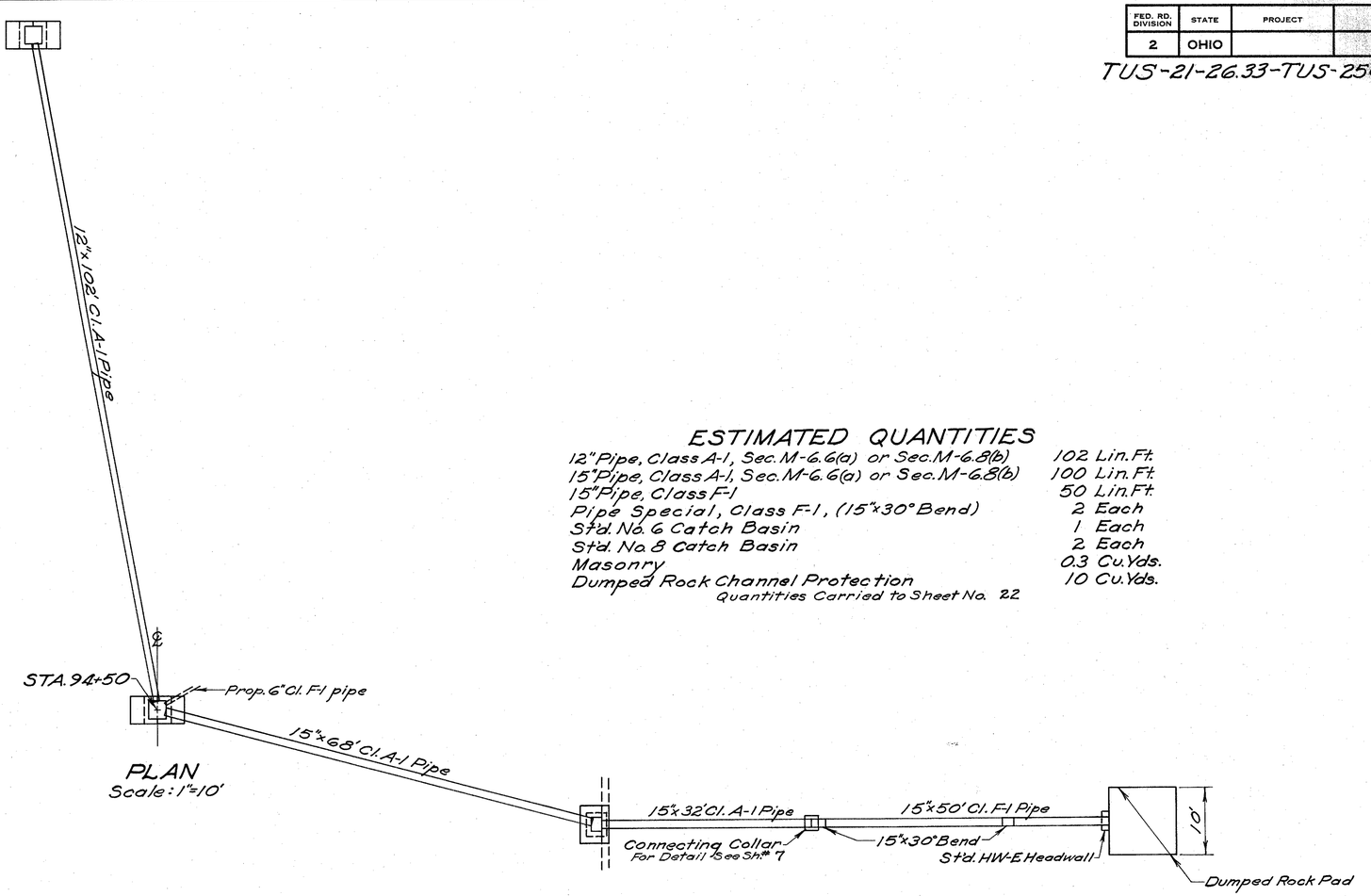
128
235

TUS-21-26.33-TUS-250-11.60

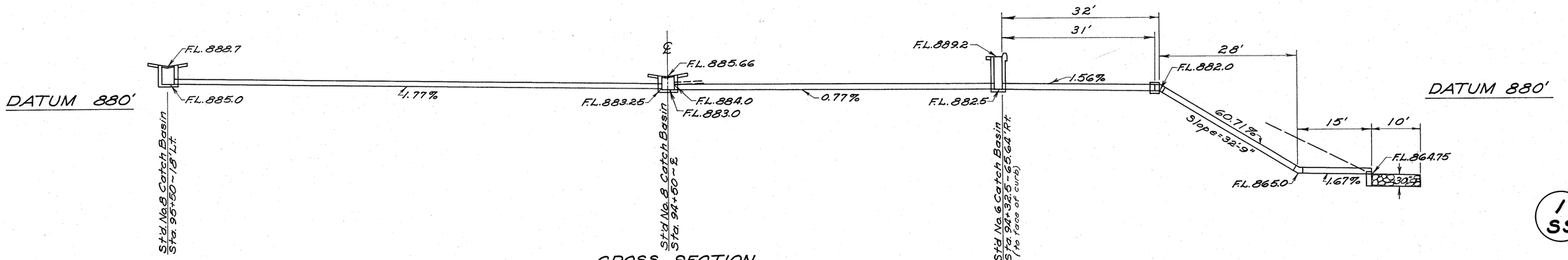
ESTIMATED QUANTITIES

12" Pipe, Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)	102 Lin. Ft.
15" Pipe, Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)	100 Lin. Ft.
15" Pipe, Class F-1	50 Lin. Ft.
Pipe Special, Class F-1, (15"x30° Bend)	2 Each
Std. No. 6 Catch Basin	1 Each
Std. No. 8 Catch Basin	2 Each
Masonry	0.3 Cu. Yds.
Dumped Rock Channel Protection	10 Cu. Yds.

Quantities Carried to Sheet No. 22



PLAN
Scale: 1"=10'



CROSS SECTION
Scale: 1"=10'

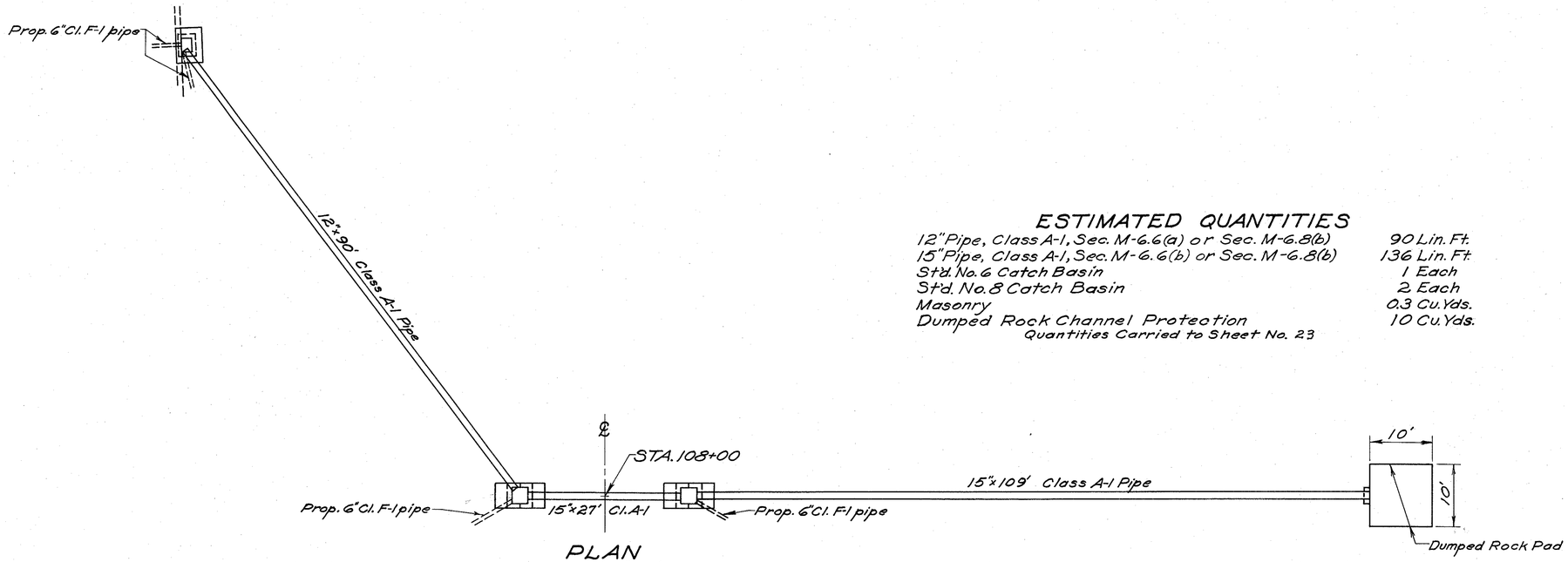
1 SS

DETAIL OF 1 SS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

129
235

TUS-21-26.33-TUS-250-11.60

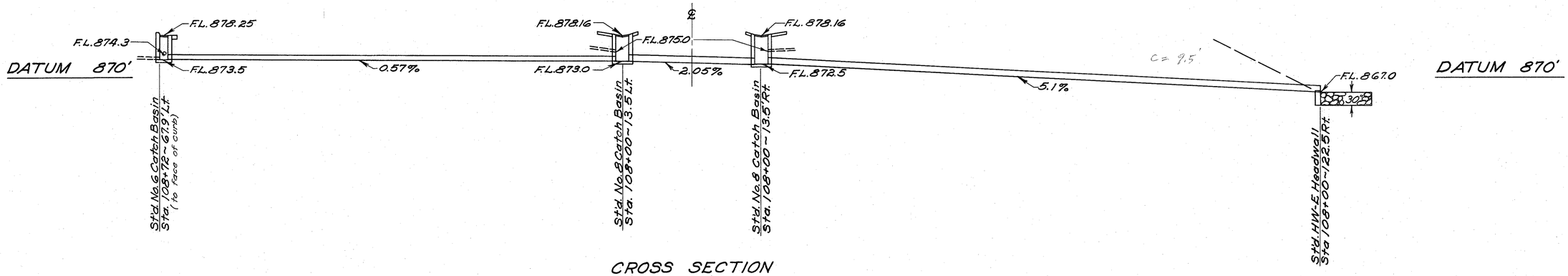


PLAN
Scale: 1"=10'

ESTIMATED QUANTITIES

12" Pipe, Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)	90 Lin. Ft.
15" Pipe, Class A-1, Sec. M-6.6(b) or Sec. M-6.8(b)	136 Lin. Ft.
Std. No. 6 Catch Basin	1 Each
Std. No. 8 Catch Basin	2 Each
Masonry	0.3 Cu. Yds.
Dumped Rock Channel Protection	10 Cu. Yds.

Quantities Carried to Sheet No. 23



CROSS SECTION
Scale: 1"=10'

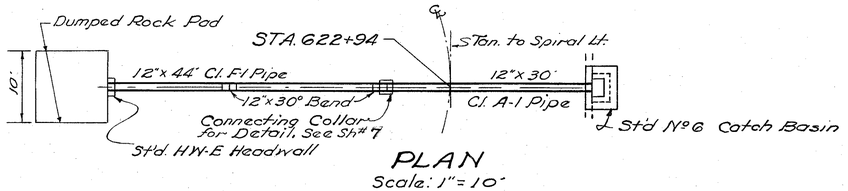
2
SS

DETAIL OF 2-SS

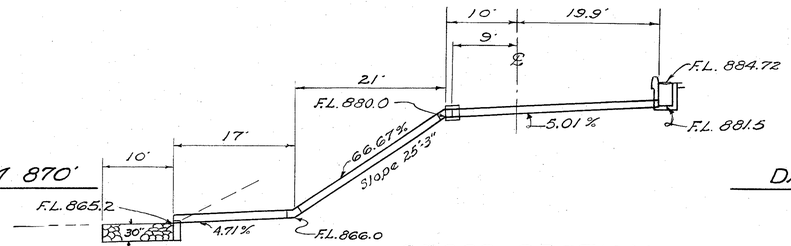
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

130
235

TUS-21-26.33 - TUS-250-11.60



PLAN
Scale: 1" = 10'



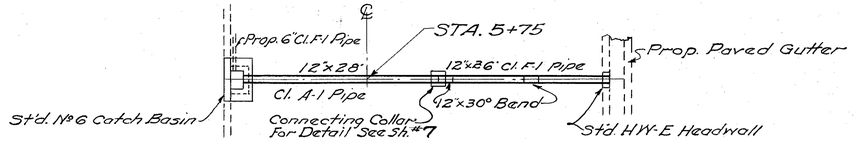
CROSS SECTION
Scale: 1" = 10'

DETAIL OF 9-SS "N.B. U.S.R. 250"

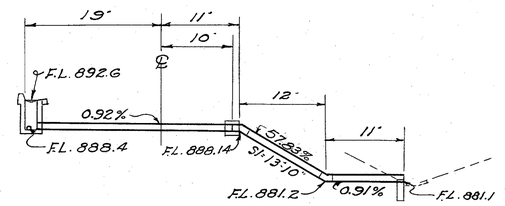
ESTIMATED QUANTITIES

12" Pipe, Class A-1, Sec. M-6.6 (a) or Sec. M-6.8 (b)	30 Lin. Ft.
12" Pipe, Class F-1	44 Lin. Ft.
12" Pipe Specials, Class F-1, 12"x30° Bend	2 Each
Std. No 6 Catch Basin	1 Each
Masonry	0.3 Cu. Yds.
Dumped Rock Channel Protection	10 Cu. Yds.

(Quantities carried to Sh# 39)



PLAN
Scale: 1" = 10'



CROSS SECTION

DETAIL OF 10-SS "RAMP "D"

ESTIMATED QUANTITIES

12" Pipe, Class A-1, Sec. M-6.6 (a) or Sec. M-6.8 (b)	28 Lin. Ft.
12" Pipe, Class F-1	26 Lin. Ft.
12" Pipe Specials, Class F-1, 12"x30° Bend	2 Each
Std. No 6 Catch Basin	1 Each
Masonry	0.3 Cu. Yds.

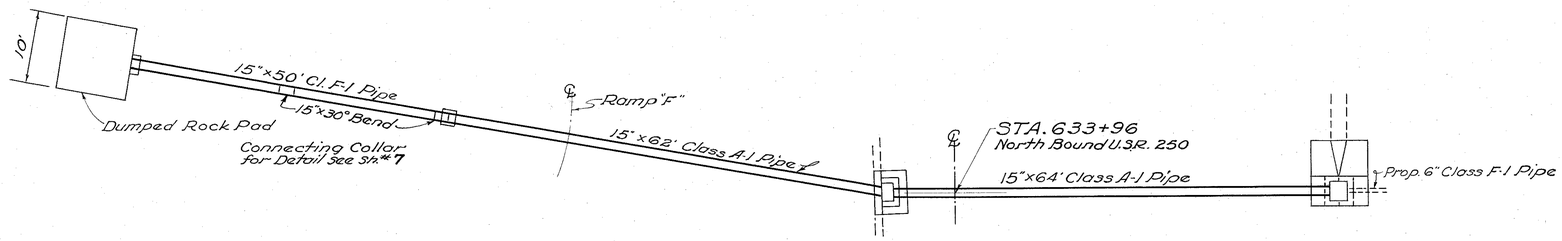
(Quantities Carried to Sh# 96)

DETAILS OF 9-SS and 10-SS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

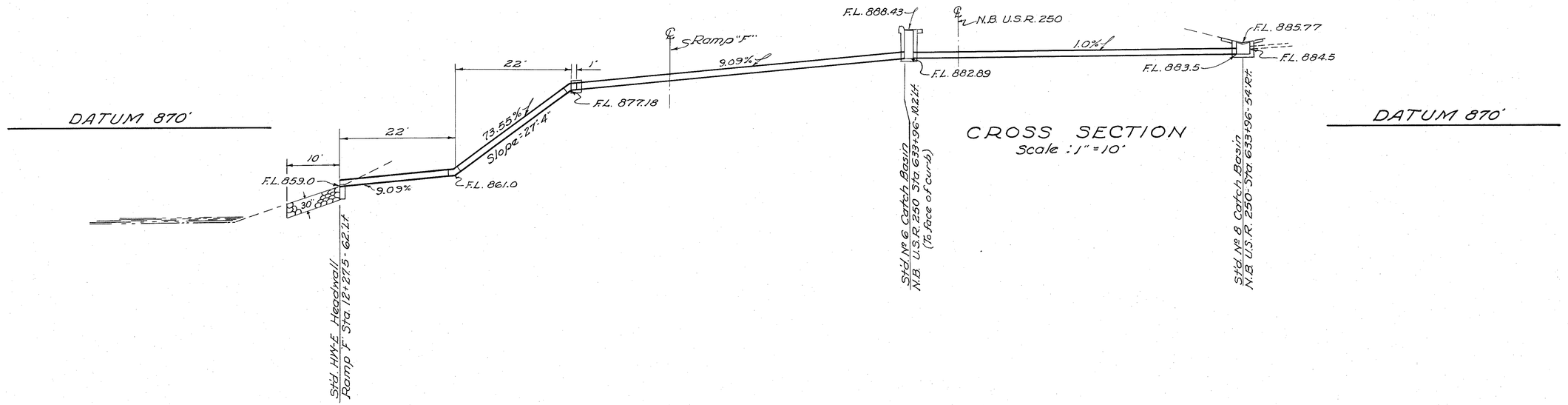
131
235

TUS-21-26.33-TUS-250-11.60



ESTIMATED QUANTITIES

Std. Nº 6 Catch Basin	1 Each
Std. Nº 8 Catch Basin	1 Each
15" PIPE, Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)	126 Lin. Ft.
15" PIPE, Class F-1	50 Lin. Ft.
Masonry	0.3 Cu. Yds.
Pipe Special, Class F-1 (15"×30° Bend)	2 Each
Dumped Rock Channel Protection (Quantities carried to Sh.# 40)	10 Cu. Yds.



CROSS SECTION
Scale: 1" = 10'

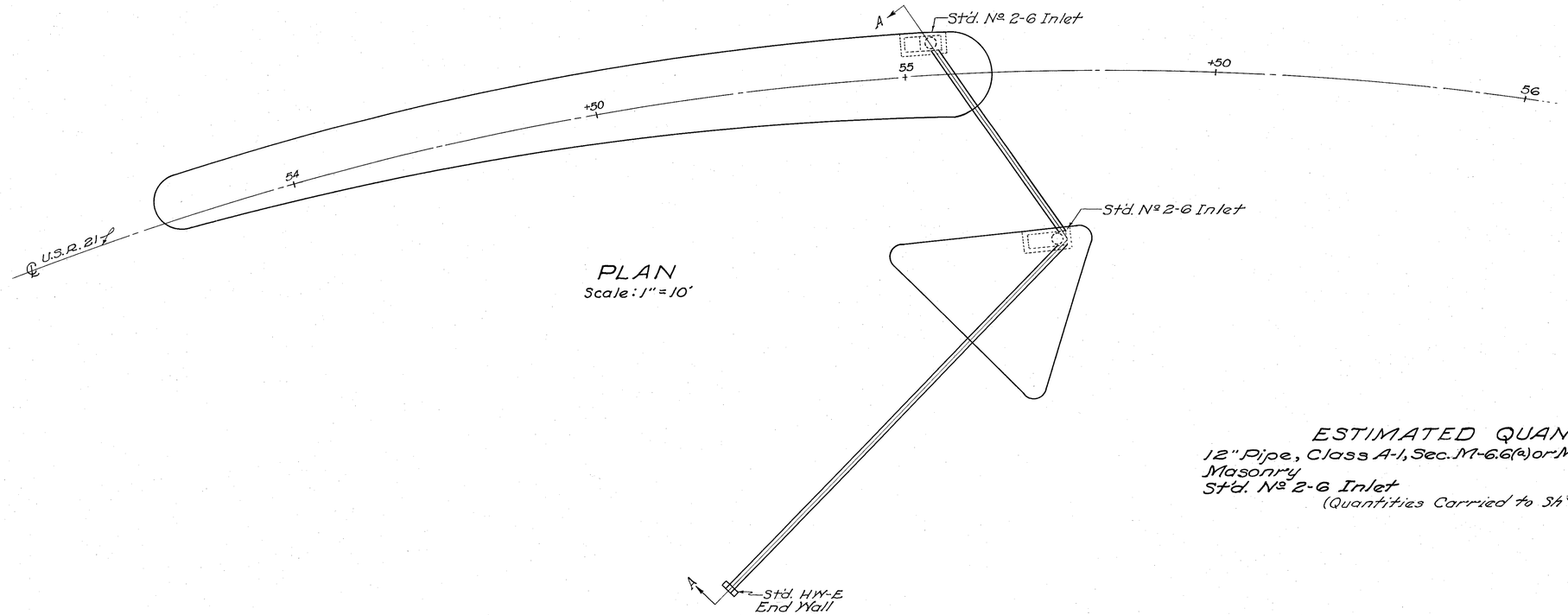
11-SS

DETAIL OF 11-SS
NORTH BOUND U.S.R. 250

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

132
235

TUS-21-26.33
TUS-250-11.60

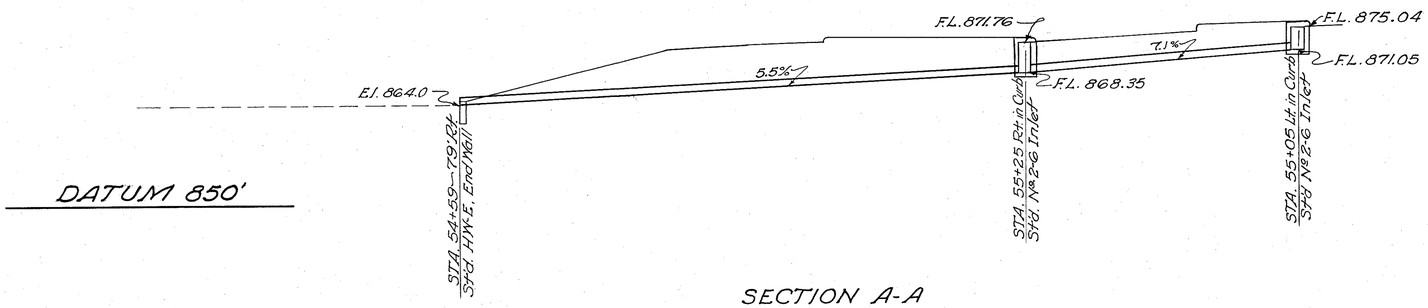


PLAN
Scale: 1" = 10'

ESTIMATED QUANTITIES

12" Pipe, Class A-1, Sec. M-6.6(a) or M-6.8(b)	118 Lin. Ft.
Masonry	0.2 Cu. Yds.
Std. No 2-6 Inlet	2 Each

(Quantities Carried to Sh #109)



SECTION A-A
Scale: 1" = 10'

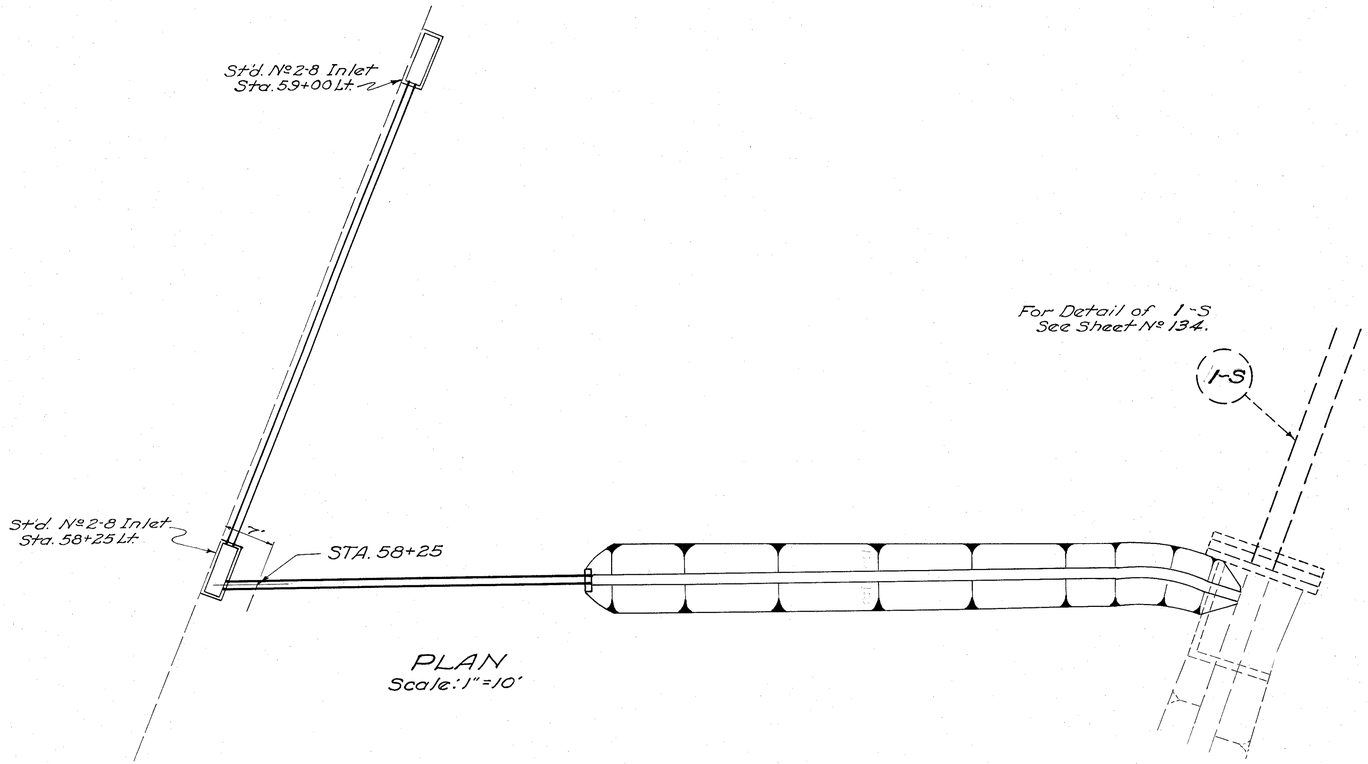
14
S S

MEDIAN INLET DETAIL
EXIST. U.S.R. 21

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

133
235

TUS-21-26.33-TUS-250-11.60

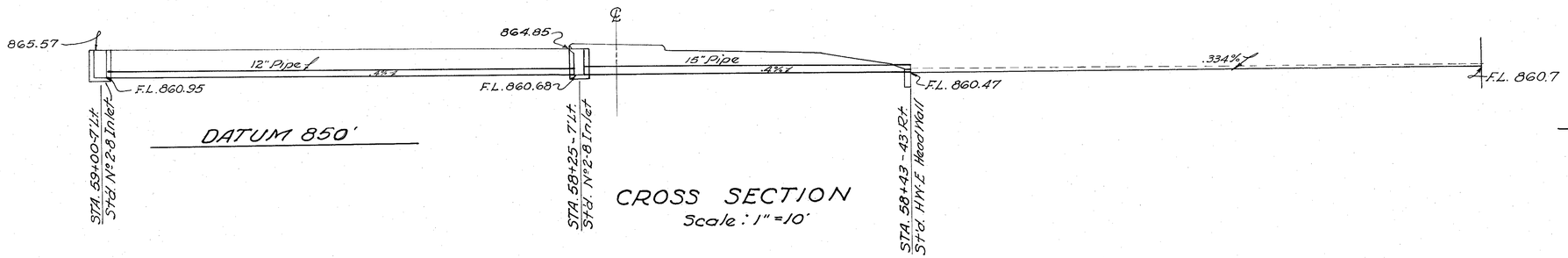


PLAN
Scale: 1" = 10'

ESTIMATED QUANTITIES

Std. Nº 2-8 Inlet	2 Each
12" Pipe, Class A-1, Sec. M-6.6(a) or M-6.8(b)	75 Lin. Ft.
15" Pipe, Class A-1, Sec. M-6.6(a) or M-6.8(b)	53 Lin. Ft.
Masonry	0.3 Cu. Yds.

(Quantities carried to Sh# 109



CROSS SECTION
Scale: 1" = 10'

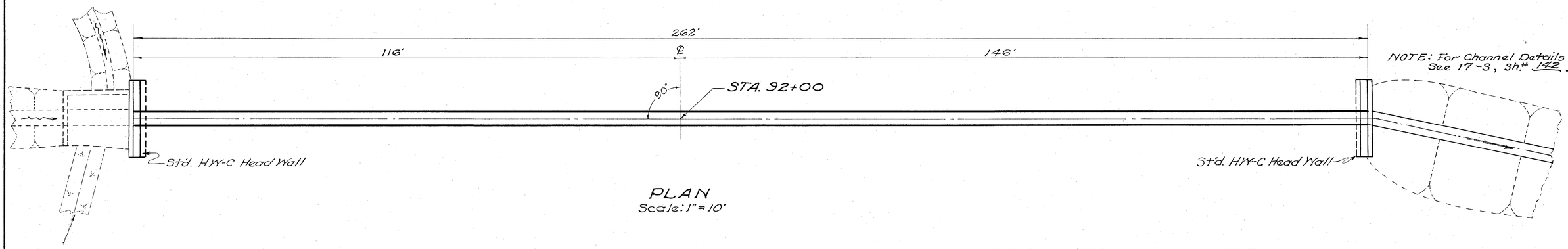
15-55

MEDIAN INLET DETAIL
EXIST. S.R. 21

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

134
235

TUS-21-26.33-TUS-250-11.60

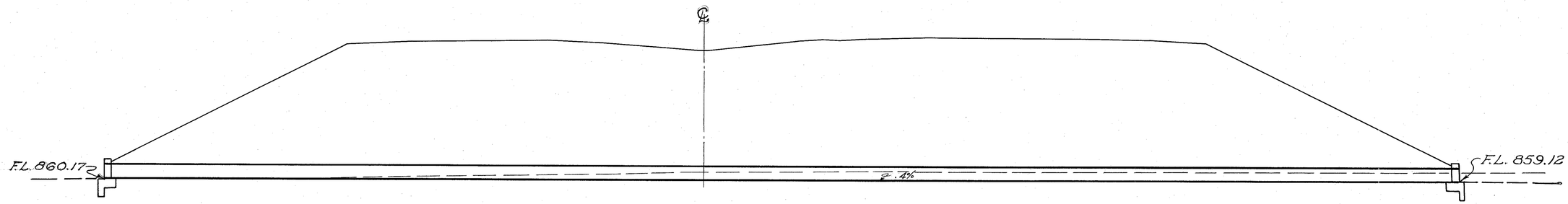


PLAN
Scale: 1"=10'

ESTIMATED QUANTITIES

36" Pipe, Class A-1, Sec. M-6.6(d)	262 Lin. Ft.
Masonry,	16.2 Cu. Yds.

Area: 6 acres
Q50 : 23 C.F.S.



CROSS SECTION
Scale : 1"=10'

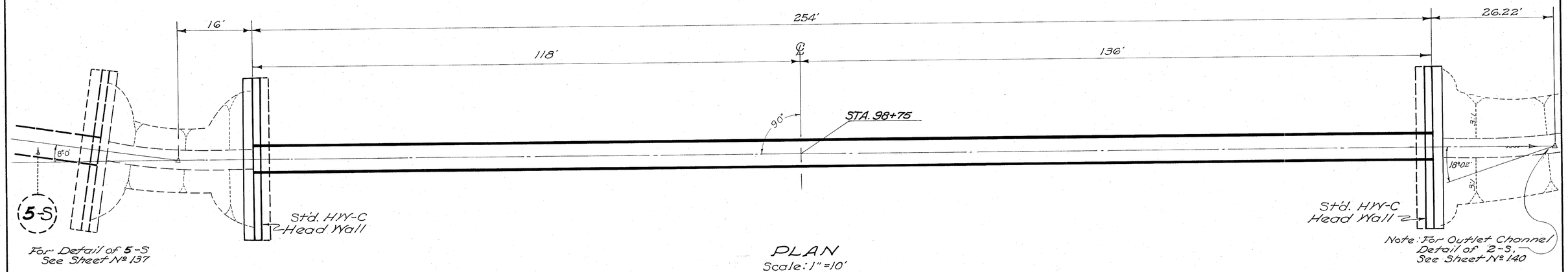
1-S

STA. 92+00 'I.R. 77'
36"×262' PIPE CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

135
235

TUS-21-26.33
TUS-250-11.60



For Detail of 5-S
See Sheet No 137

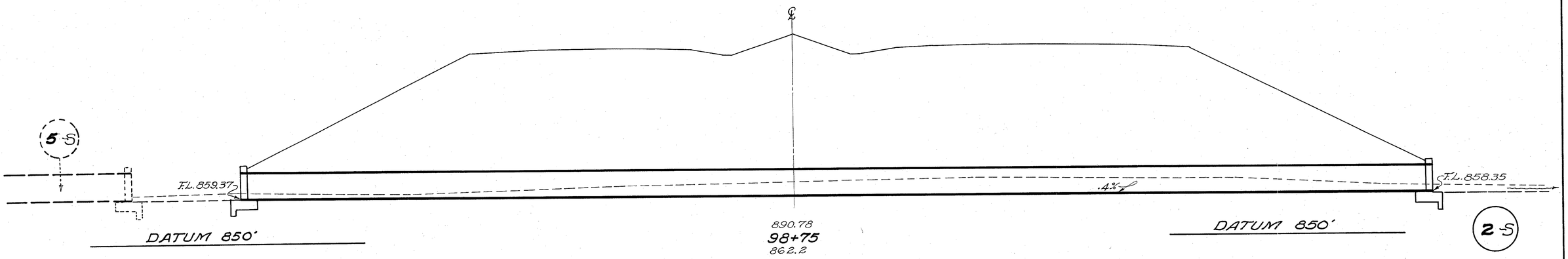
PLAN
Scale: 1" = 10'

Note: For Outlet Channel
Detail of 2-S,
See Sheet No 140

ESTIMATED QUANTITIES

72" Pipe, Class A-1, Sec. M-6.6 (d)	254 Lin. Ft.
Masonry	57.0 Cu. Yds.

Area: 155 acres
Q_{50} : 157 c.f.s.



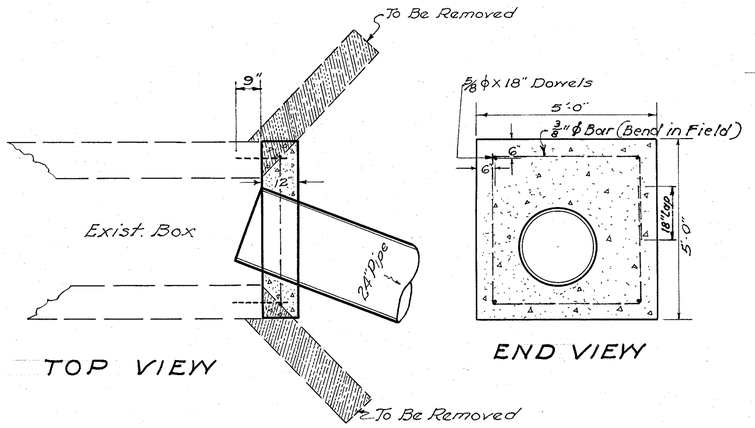
CROSS SECTION
Scale: 1" = 10'

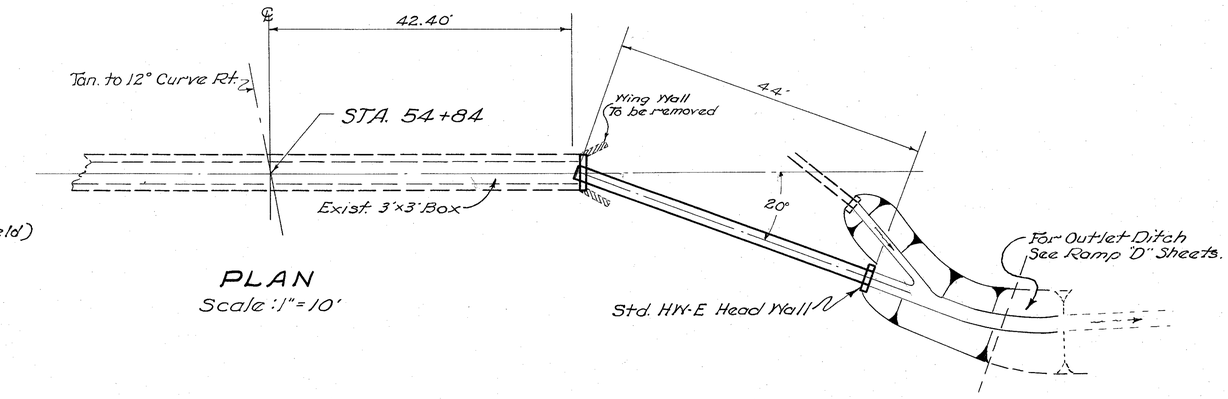
STA. 98+75, IR 77
72"x254' PIPE CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

136
235

TUS-21-26.33-TUS-250-11.60





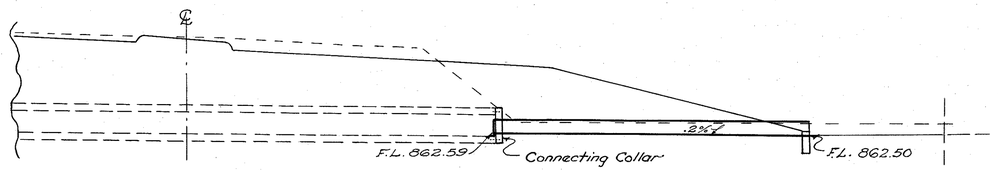
PLAN
Scale: 1"=10'

ESTIMATED QUANTITIES

24" Pipe, Class A-1	44 Lin. Ft.
Masonry	1.2 Cu. Yds.
Removal of Portions of Existing Structures	2 Cu. Yds.
Dowel Holes	3 Lin. Ft.
Channel Excavation	5 Cu. Yds.

DETAIL OF CONNECTING COLLAR

Scale: ½"=1'-0"



DATUM 850'

876.2
54+84
876.50

CROSS SECTION
Scale: 1"=10'

DATUM 850'

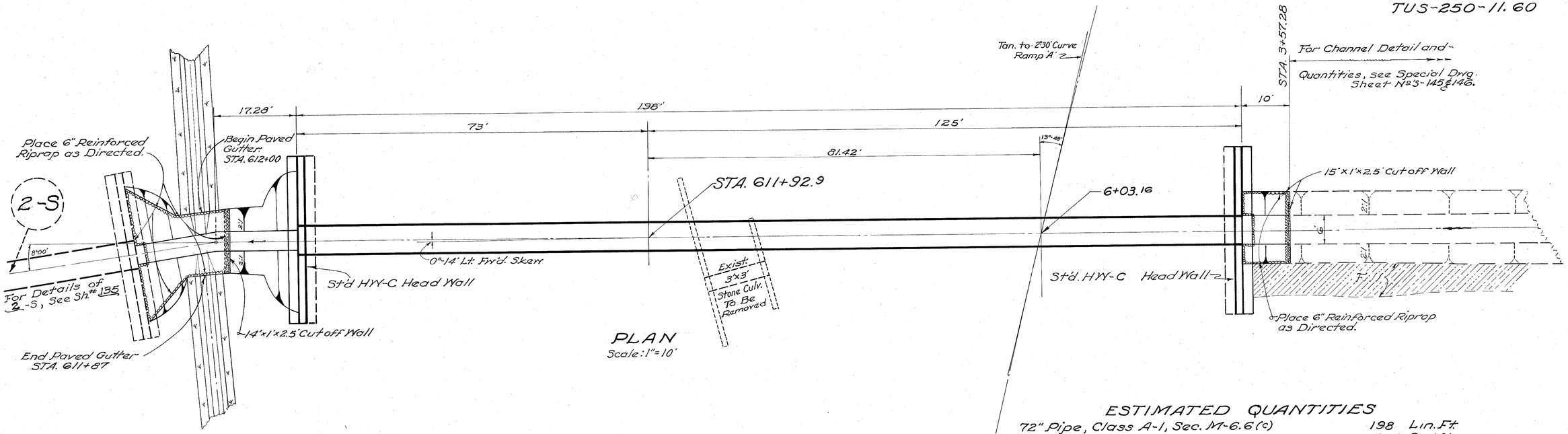
3-S

(S.R. 21) STA. 54+84
24"x44' PIPE EXTENSION

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

137
235

TUS-21-26.33
TUS-250-11.60

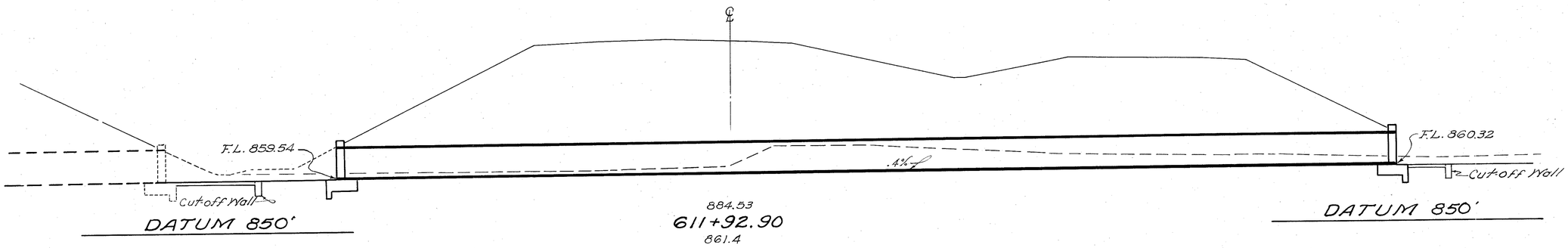


PLAN
Scale: 1"=10'

ESTIMATED QUANTITIES

72" Pipe, Class A-1, Sec. M-6.6(c)	198	Lin. Ft.
Masonry	57.0	Cu. Yds.
Riprap, 6" Reinforced Concrete	60	Sq. Yds.
Channel Excavation	50	Cu. Yds.
Removal of Portions of Exist. Structures	20	Cu. Yds.

Area: 150 acres
Q 50 : 154 c.f.s.



CROSS SECTION
Scale: 1"=10'

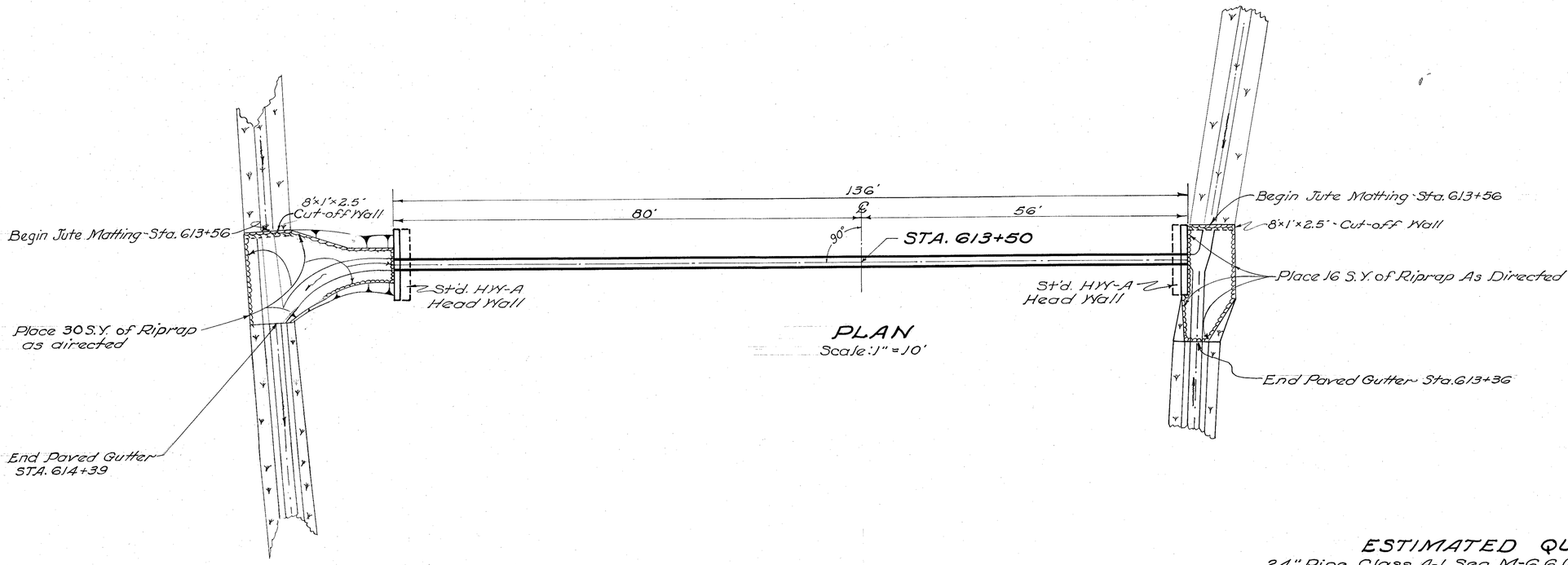
5-S

STA. 611+92.90
SOUTH BOUND U.S.R. 250
72"x198' PIPE CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

138
235

TUS-21-26.33
TUS-250-11.60

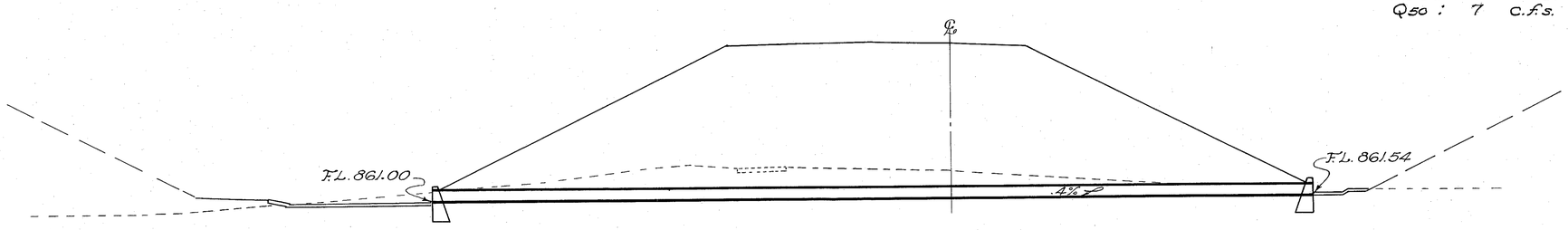


PLAN
Scale: 1" = 10'

ESTIMATED QUANTITIES

24" Pipe, Class A-1, Sec. M-6.6 (d)	136	Lin. Ft.
Masonry	10.2	Cu. Yds.
Riprap, 6" Reinforced Concrete	46	Sq. Yds.
Channel Excavation	5	Cu. Yds.

Area: 2 acres
Q50 : 7 c.f.s.



CROSS SECTION
Scale: 1"=10'

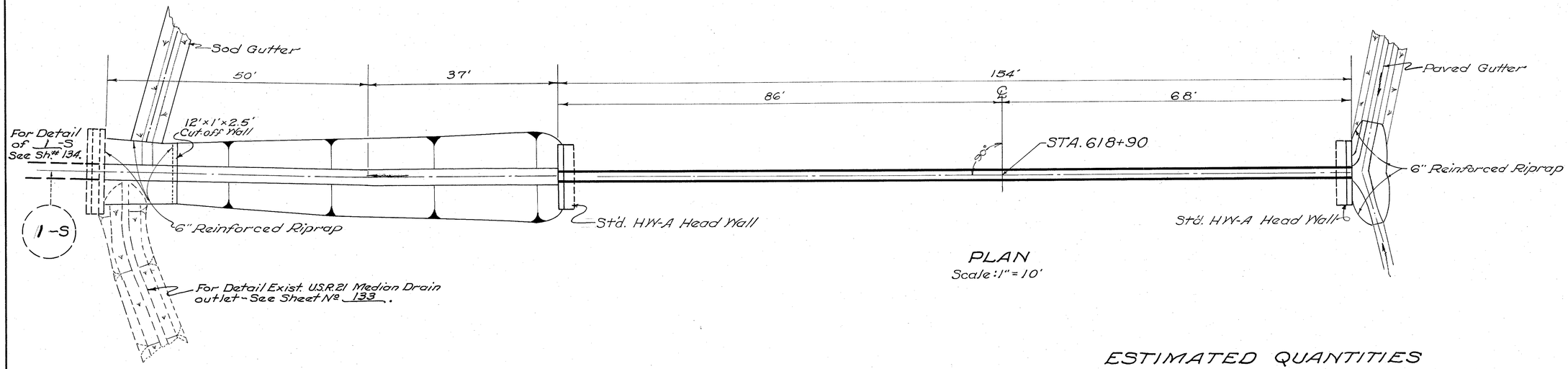
6-S

STA. 613+50 "S.B." U.S.R. 250
24"x136' PIPE CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

139
235

TUS-21-26.33-TUS-250-11.60

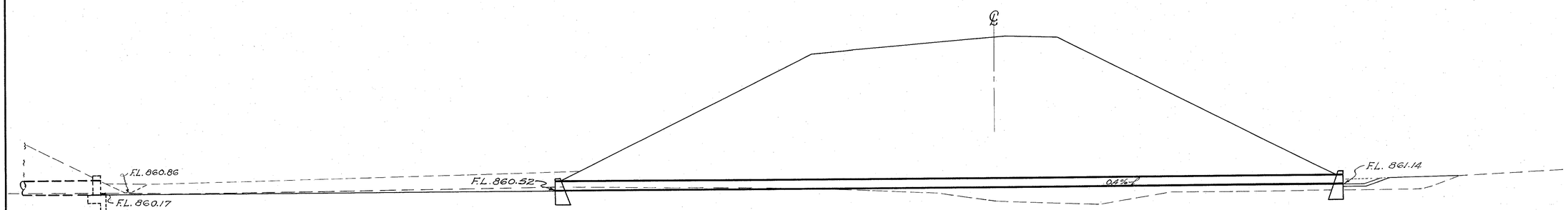


PLAN
Scale: 1" = 10'

ESTIMATED QUANTITIES

24" Pipe, Class A-1, Sec. M-6.6 (d)	154 Lin. Ft.
Masonry	10.2 Cu. Yds.
Channel Excavation	8 Cu. Yds.
Riprap, 6" Reinforced Concrete	37 Sq. Yds.

Area: 1.4 acres
Q50 : 7 c.f.s.



CROSS SECTION
Scale: 1" = 10'

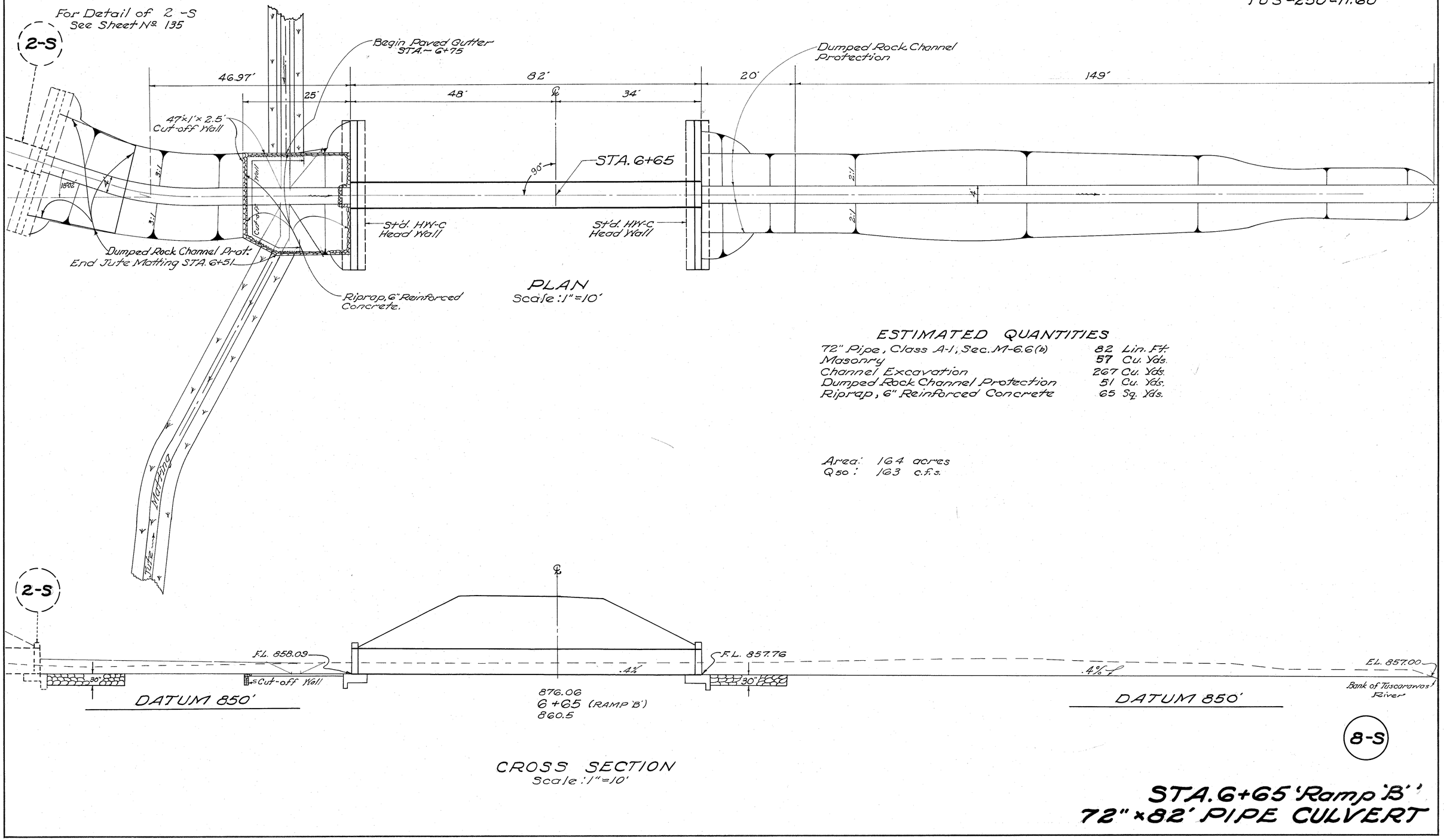
7-S

STA. 618+90
SOUTH BOUND U.S.R. 250
24"x154' PIPE CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

140
235

TUS-21-26.33
TUS-250-11.60



ESTIMATED QUANTITIES

72" Pipe, Class A-1, Sec. M-6.6(b)	82 Lin. Ft.
Masonry	57 Cu. Yds.
Channel Excavation	267 Cu. Yds.
Dumped Rock Channel Protection	51 Cu. Yds.
Riprap, 6" Reinforced Concrete	65 Sq. Yds.

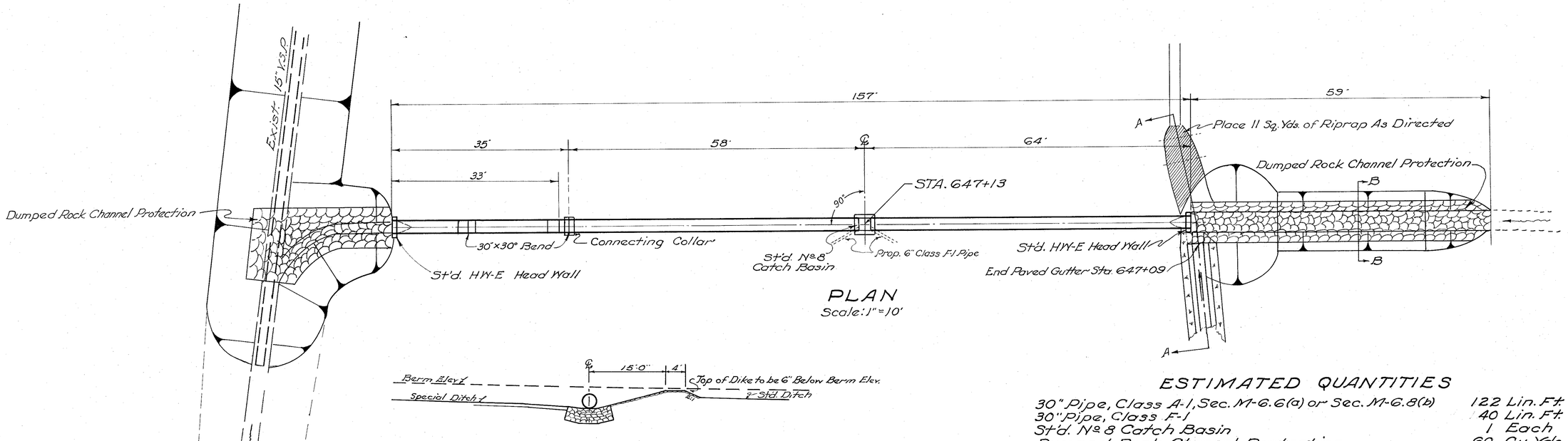
Area: 164 acres
Q50: 163 c.f.s.

STA. 6+65 'Ramp 'B'' 72" x 82' PIPE CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

141
235

TUS-21-26.33-TUS-250-11.60

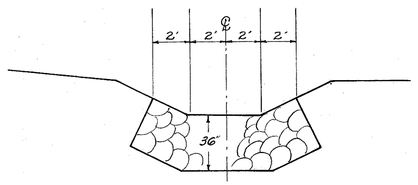


PLAN
Scale: 1" = 10'

DATUM 860'

SECTION A-A (DIKE DETAIL)
Scale: 1" = 10'

DATUM 860'

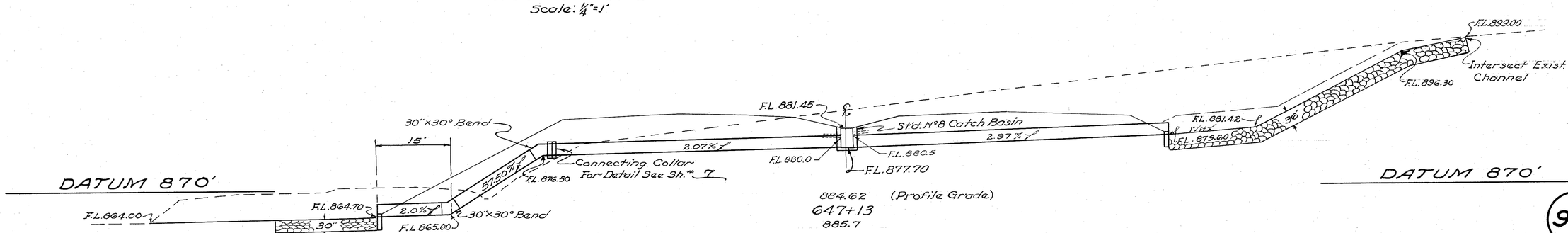


SECTION B-B
Scale: ¼" = 1'

ESTIMATED QUANTITIES

30" Pipe, Class A-1, Sec. M-6.6(a) or Sec. M-6.8(b)	122 Lin. Ft.
30" Pipe, Class F-1	40 Lin. Ft.
St'd. No 8 Catch Basin	1 Each
Dumped Rock Channel Protection	60 Cu. Yds.
Masonry	1.0 Cu. Yd.
Riprap, 6" Reinforced Concrete	11 Sq. Yds.
Pipe Special, 30"x30° Bend for F-1 Pipe	2 Each

Area : 12 acres
Q 25 : 30 c.f.s.



CROSS SECTION
Scale: 1" = 10'

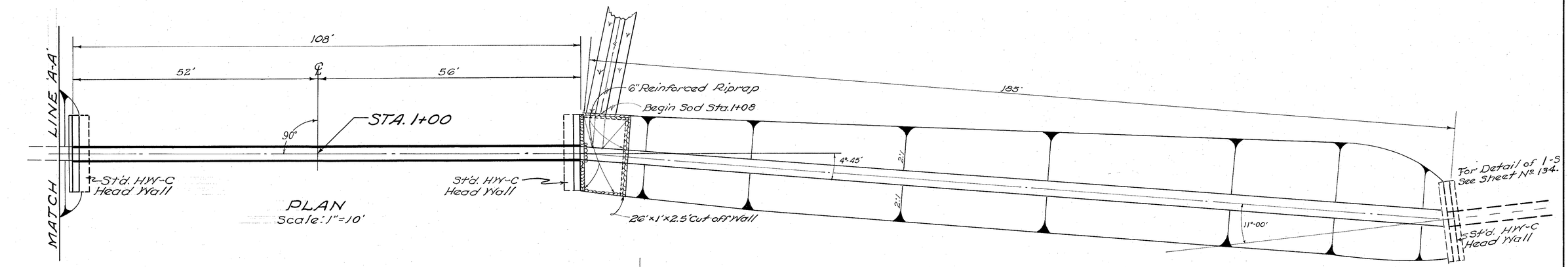
9-S

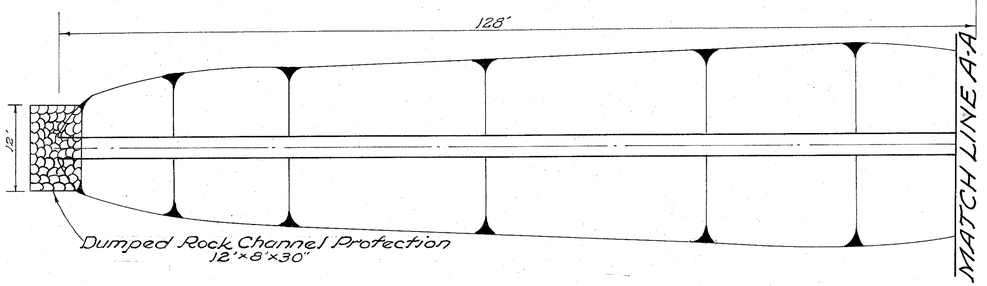
STA. 647+13 (U.S.R. 250)
30" x 157' PIPE CULVERT

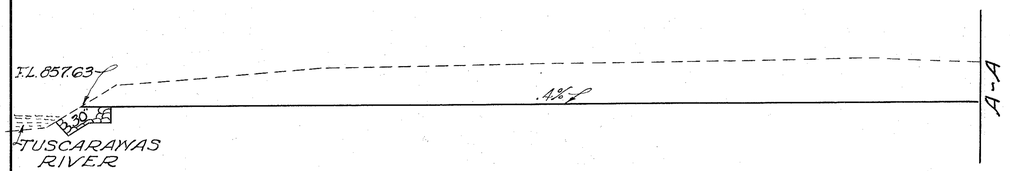
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

142
235

TUS-21-26.33
TUS-250-11.60







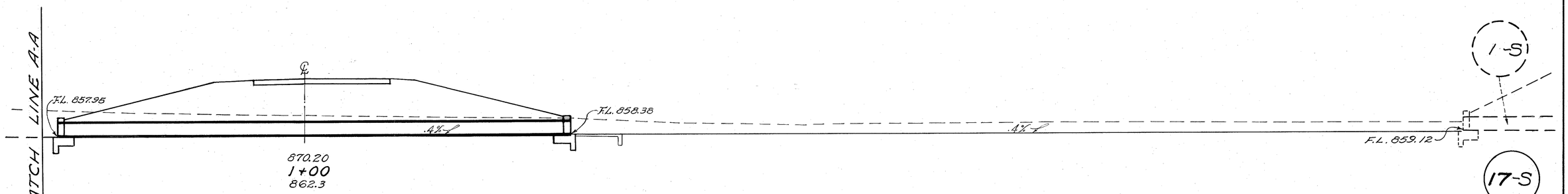
DATUM 840'

DATUM 840'

ESTIMATED QUANTITIES

36" Pipe, Class A-1, SEC. M-6.8 (b) or SEC. M-6.8 (b)	108	Lin. Ft.
Channel Excavation	450	Cu. Yds.
Riprap, 6" Reinforced Concrete	24	Sq. Yds.
Dumped Rock Channel Protection	9	Cu. Yds.
Masonry	16.2	Cu. Yds.

Area: 11 acres
Q50 : 34 C.f.s.



DATUM 840'

CROSS SECTION
Scale: 1"=10'

DATUM 840'

STA. 1+00 (Ramp 'E')
36"x108' PIPE CULVERT

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

143
235

TUS-21-26.33
TUS-250-11.60

PI-16+81.56
Δ = 7°01'30"Lt.
D = 1°-30'
T = 234.46
L = 468.33
E = 7.19
R = 3819.72

STA. 15+50 End of Work

PC 14+47.10

Ramp 'E' ℄ Survey

Transition

Ex. St. S.R. 11 (To be removed)

PT 11+54.77

PI-8+80.10
Δ = 28°-02' Rt.
D = 5°-00'
T = 286.06'
L = 560.67'
E = 35.17'
R = 1145.92

74'± x 16'-7" x 10'-1" (To be removed) C.M.P.

18.0'± 9.0'± 9.0' Conc. Box Culv. (To be removed)

82'-1" x 16'-7" x 10'-1" (To be removed) C.M.P.

9+25 ℄ Tan.

90° To Tang.

Bench Width Varies

Dumped Rock

℄ of Channel Relocation

Dumped Rock

Dumped Rock

Existing Stone Creek Channel

Edge Water

Edge Water

PC 10+29.50

PI-11+69.64
Δ = 56°-45' Rt.
D = 21°-37'-16"
T = 143.14'
L = 262.49'
R = 265.00'

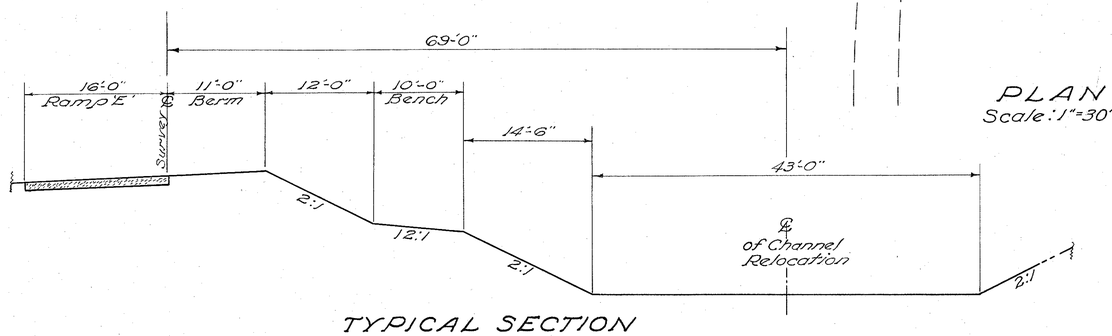
PT 12+88.92

RIVER

Edge Water

TUSCARAWAS

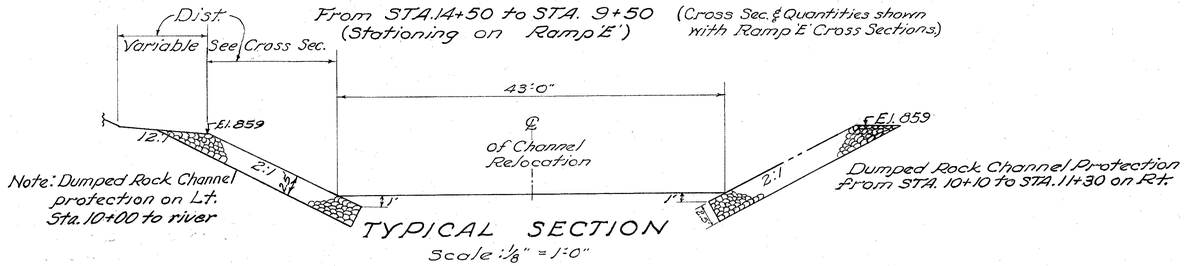
PLAN
Scale: 1"=30'



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

From STA. 14+50 to STA. 9+50 (Stationing on Ramp 'E')

(Cross Sec. & Quantities shown with Ramp 'E' Cross Sections.)



Note: Dumped Rock Channel protection on Lt. Sta. 10+00 to river

Dumped Rock Channel Protection From STA. 10+10 to STA. 11+30 on Rt.

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

From STA. 10+00 To STA. 13+20.5
(Stationing on ℄ of Channel)

ESTIMATED QUANTITIES

* Dumped Rock Channel Protection	893	Cu. Yds.
* Channel Excavation	4047	Cu. Yds.
Seeding	780	Sq. Yds.
Embankment	255	Cu. Yds.

* Quantities carried with Bridge No. TUS-250 NB-RAMP "F"

STONE CREEK CHANNEL RELOCATION

TUS-21-26.33-TUS-250-11.60

80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80

13+50 ZERO EARTHWORK

Dumped Rock 669 C.Y. Lt.
+224 C.Y. Rt.
Total 893 C.Y.

Dumped Rock	893	Cu. Yds.
Channel Exc.	4047	Cu. Yds.
Seeding	780	Sq. Yds.
Embankment	255	Cu. Yds.

850

C=235 2:1
851.6
13+20.5
857.2

1/4" per ft. F=36
C=350 2:1
851.6
13+00
856.8

Slope 1/4" per ft. F=64.
C=296 2:1
851.6
12+50
855.9

Ramp 'F' F=22.
C=171
851.6
12+00
854.0

Ramp 'F'
Ramp 'F'
C=308
851.6
11+50
856.9

Ramp 'E' X-Sec. 12:1 F=19
Ramp 'F'
C=382
851.6
11+00
857.9

Ramp 'E' X-Sec. 12:1 F=7
℄
C=412
851.6
10+50
859.0

℄ Survey Ramp 'E'
6.9'
℄
N.B.-U.S.R. 250
C=505 2:1 2:1
851.6
10+00
859.0

224 Cu. Yds. Dumped Rock Channel Protection From 10+10 to 11+30 on Rt.

Ramp 'F' X-sec.

Dumped Rock E.A.	Dumped Rock C.Y.	Channel E.A.	Channel C.Y.	Seeding Width	Seeding S.Y.	End Area Cut	End Area Fill	Cu. Yds. Exc.	Cu. Yds. Emb.
0		0		0		0	0		
	29		128		0			0	0
54		235		0		0	0		
	41		222		63			0	14
53		350		55		0	36		
	99		598		242			0	93
54		296		32		0	64		
	98		432		156			0	80
52		171		24		0	22		
	98		444		111			0	20
53		308		16		0	0		
	101		639		83			0	18
55		382		14		0	19		
	102		735		50			0	24
55		412		4		0	7		
	101		849		75			0	6
54		505		23		0	0		

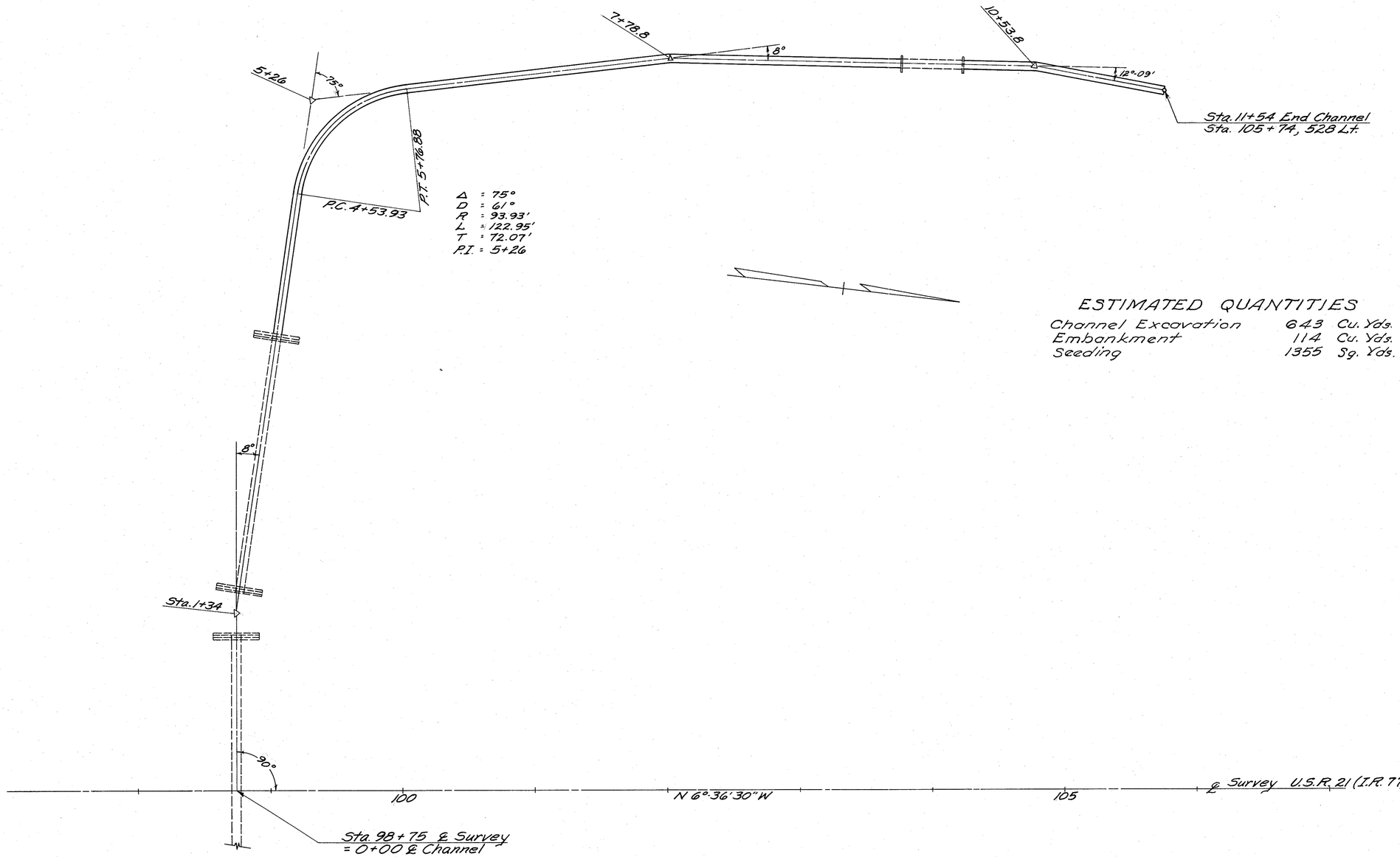
80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80

CROSS SECTIONS OF STONE CREEK CHANNEL-STA.10+00 TO STA.13+20.5

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

145/235

TUS-21-26.33
TUS-250-11.60



ESTIMATED QUANTITIES

Channel Excavation	643	Cu. Yds.
Embankment	114	Cu. Yds.
Seeding	1355	Sq. Yds.

CHANNEL LOCATION PLAN
LT. STA. 98+75 TO STA. 105+74
U.S.R. 21 (I.R. 77)
Scale: 1"=40'

TUS-21-26.33
TUS-250-11.60

40 30 20 10 ℄ 10 20 30

860
850

C-10 F-4 2:1 2:1 6'
860.99
5+68
862.1

F-7 C-7
860.86
5+26
861.8

C-21 F-8
860.71
4+75
862.7

C-10 F-10
860.56
4+24
862.0

C-16 F-18
860.40
3+72
862.0

C-15 F-19 2:1 2:1 6'
860.36
3+57.28
862.0

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
	95			23	8
17		10	4		
	70			13	9
13		7	7		
	85			26	14
17		21	8		
	93			35	17
16		16	10		
	104			31	27
20		16	18		
	38			8	10
26		15	19		

30 20 10 ℄ 10 20 30

860
850

C-28 2:1 2:1 6'
861.94
8+72
864.7

C-23
861.79
8+22
863.8

F-6 C-12
861.64
7+73
861.3

C-19
861.49
7+23
863.30

F-4 C-9
861.31
6+74
861.8

C-13 F-4 2:1 2:1 6'
861.16
6+23
862.4

Chan. Exc. 6,643 Cu. Yds.
End Cu. Yds. 114
Seeding Sq. Yds. 1,355

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
	76			60	0
13		28	0		
	69			47	0
12		23	0		
	73			32	5
15		12	6		
	72			27	6
11		17	0		
	63			24	4
12		9	4		
	74			21	8
14		13	4		

30 20 10 ℄ 10

860
850

C-18 2:1 2:1 6'
863.00
11+54
863.0

C-32
862.62
11+00
864.3

C-44
862.47
10+50
864.8

C-42
862.32
10+00
865.5

C-27
862.17
9+50
864.20

C-36 2:1 2:1 6'
862.09
9+23
864.7

20 30

Seeding Width	S.Y.	End Area Cut	Fill	Cu. Yds. Exc.	Emb.
15		18	0		
	96			50	0
17		32	0		
	97			70	0
18		44	0		
	94			80	0
16		42	0		
	103			64	4
21		27	4		
	53			32	2
14		36	0		

CHANNEL SECTIONS ~ Lt. Sta. 98+75 to Sta. 105+74

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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TUS. 21 - 26.33
TUS. 250 - 11.60
0.7 Mile W. New Philadelphia

D N.W. Corner Conc. Box
Culvert S.R. 211
ELEV. 865.55

Curve Data U.S.R. 250 S.B.
P.I. 624+91.47
Δ = 60°-44' Lt.
D = 4°
Ls = 400'
θs = 3°
Ts = 1041.86'
Es = 233.15'
R = 1432.40'
Lc = 1118.33'

Vertical Curve
Data - U.S.R. 250 S.B.
P.V.I. = Sta. 628+25
G_1 = +1.102 %
G_2 = -1.916 %
L = 600'

Proposed U.S.R. 21 (U.R.77)

Variable

14'-0" Min.
(14.59' Actual)

Critical clearance pt. "A"

Survey ℄ South Bound U.S.R. 250

End Appr. Slab
Sta. 624+86.76

Survey line-Ramp "D"

Sta. 7+96.80-Ramp "D"
25' right Sta. 625+00
S.B. U.S.R. 250

Curve Data U.S.R. 21 (U.R.77)
P.I. 82+11.36
Δ = 27°-31' Lt.
D = 1°-30'
Ls = 200'
θs = 1°-30'
Ts = 1035.38'
Es = 113.29'
R = 3819.72'
Lc = 1634.44'

S.L.M. 12.28 626+78.04 "
84+50.08

43°-17" Tang. to Curves

Line 629+00

Match Line Sta. 627+00

See Sheet 148

Varies

24'

24.0'

30.0'

Zero Earthwork

Exist. S.R. 211 (To be vacated)

Bridge Limits

300'

PVI - 425
Elev. = 900.30

+1.102 %
-1.916 %

PROPOSED STRUCTURE
TYPE: Cont. steel girders with reinf. conc. deck & reinf. conc. substr.
SPANS: 77'-110'-2@107.5'-94.5'-107.5'-86'.
RDWY: Varies 55' to 41' f/f 2'-3" s. curbs
LOAD FREQ.: CF = 2000 (57).

SKEW: Variable R.F.
WEARING SURFACE: 1" mono. conc.
APPR. SLABS: AS-1-54 (Mod.) 25' long
ALIGNMENT: 4°-00' curve and 4.00' spiral left.
SUPERELEVATION: Curve = 0.083 ft/ft
Spiral = Variable

Sta. 624+86.76
895.34 895.61 895.89 896.16 896.44 896.72 896.99 897.25 Pier No. 1 897.48 897.68 897.84 897.98 898.07 Pier No. 2 898.15 898.19 898.20 898.18 Pier No. 3 898.12 898.04 897.92 897.77 Pier No. 4 897.39 897.37

Top of slope
El. 887.2±

Elev. 879.80

Elev. 865.30

16.5' Design O.L.
16.34 Actual @ Pt. "A"

12" cast-in-place reinforced concrete piles. Estimated average pay length = 65'

12" cast-in-place reinforced concrete piles.
Estimated average pay length = 55'

Elev. 866.50

Elev. 862.40

600' V. C.

Steel piles 10 BP42
Estimated average pay length = 25'

Elev. Varies
853.00 to 857.50

890 880 870 860 850
624 625 626 627 628 629

PROFILE ON PROPOSED CENTER LINE

SITE PLAN

BRIDGE NO. TUS-21-2633
U.S.R. 21, RAMP "E" & STONE CREEK
UNDER SOUTHBOUND U.S.R. 250

TUSCARAWAS COUNTY STA. 626 + 78.04

Existing Topo	PROPOSED WORK			
Survey	Drawn	Design	Drawn	Check	Review
Div. Office	Div. Office	E.J.S.	E.J.S.	D.G.M.	P.E.S.

BFG 9-26-62

21/1215(2)

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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TUS-21-26.33
TUS-250-11.60
0.7 Mile W. New Phildelphia

Curve Data U.S.R. 250 S.B.
P.I. 624+91.47
Δ = 60°-44' Lt.
D = 4°
L_s = 400'
θ_s = 8°
T_s = 1041.86'
E_s = 233.15'
R = 1432.40'
L_c = 1118.33'

FOUNDATION SOUNDINGS: 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.

□ on Northwest Corner of Concrete Box S.R. 211
E.L.E.V. 865.55

Survey P.I. Ramp "E" 628+91.47
16.0'
10'
2:1
6:1
Stone Creek Channel relocation
STONE CREEK
Point of Soundings
Line 629+00
C.S. 629+67.94
627 Survey ℄ Southbound U.S.R. 250 628
See sheet no. 147
Curve Data Ramp "E"
P.I. 8+80.10
Δ = 28°-02' Rt.
D = 5°
T = 286.06'
L = 560.67'
E = 35.17'
R = 1145.92'
Match Station
P.T. 11+54.71
18'Conc. Box
16'-7"×10'-1" Sec. C.M.P.
Begin Appr. Slab Sta. 631+83.31
Exist. S.R. 211 (To be vacated)
S.T. 634+21.94
24.0'
633
632
631
630
629
627
Match Line Sta. 629+00
P.V.I. +25
El. = 900.30

898.15 898.19 898.20 898.18 898.12 898.04 897.92 897.77 897.59 897.37 897.13 896.85 Pier No. 5 896.55 896.21 895.85 895.45 Pier No. 6 895.01 894.55 894.07 893.59 Sta. 631+83.31 893.11 892.65 892.24

600'V.C.
Steel piles 108P42 Estimated average pay length = 13'
Elev. 857.50
15'-0" Min. 22.88' Actual Pt. "B"
5 to 10 year high water = elev. 858.0
Est. 50 yr. H.W. El. 862
Normal Water = Elev. 853.1
Top of slope = Elev. 855.7±
Excavate channel thru structure to Elev. 852.0
Elev. 847.00
P.V.C.
400'V.C.
Elev. 879.62
Steel piles 12BP53 Estimated average pay length = 30'.

SITE PLAN

BRIDGE NO. TUS-21-2633
U.S.R. 21, RAMP "E" & STONE CREEK
UNDER SOUTHBOUND USR 250

TUSCARAWAS COUNTY STA. 626+78.04

Existing Topo Survey	PROPOSED WORK Drawn	Design	Drawn	Check	Review
Div. Office	Div. Office	E.J.S.	E.J.S.	DGM	P.E.S.

BFG 9-26-62

PROFILE ON PROPOSED CENTER LINE

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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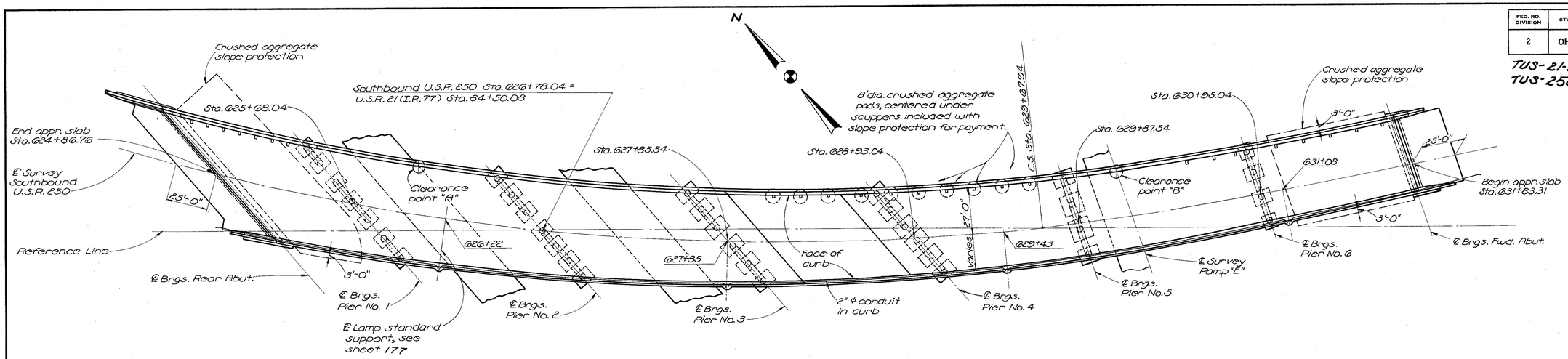
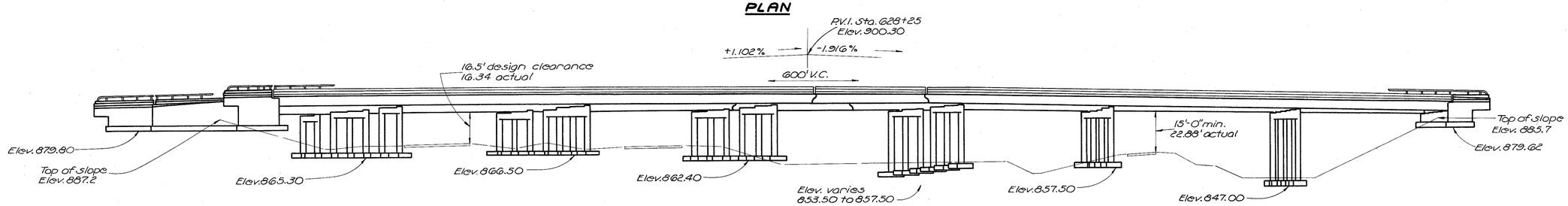
235

TUS-21-26.33
TUS-250-11.60



PLAN



ELEVATION

Piling not shown. See substructure details for type, size and length.

* See Proposal Note.

** For estimated quantities see Lighting Plan, Sheet No. 217

ESTIMATED QUANTITIES

	Item	Total	Unit	Description	Super	REAR ABUT.	Pier 1	Pier 2	Pier 3	Pier 4	Pier 5	Pier 6	FWD. ABUT.	General		
	E-2	Lump	Sum	Cofferdams, cribs and sheeting										Lump		
	E-2	1457	Cu. Yds.	Unclassified excavation including rock		400	161	188	176	169	117	100	146			
	S-1	1246	Cu. Yds.	Class "C" concrete, superstructure	1246											
	S-1	466	Cu. Yds.	Class "C" concrete, pier caps and columns			60	64	79	91	79	93				
	S-1	284	Cu. Yds.	Class "E" concrete, pier footings			41	46	45	54	56	42				
	S-1	153	Cu. Yds.	Class "E" concrete, abutment footings		110							43			
	S-1	259	Cu. Yds.	Class "E" concrete, abutments above footings		190							69			
	S-3	13	Lin. Ft.	Premolded sealing strip		13										
	S-4	578,875	Lbs.	Reinforcing steel	388,872	14677	23981	29145	22104	33100	22850	37144	6982			
	S-7	1,416,100	Lbs.	Structural steel	1,416,100											
	S-8	1,416,100	Lbs.	Field painting of structural steel	1,416,100											
	S-14	1472.4	Lin. Ft.	Railing (concrete parapet with aluminum rail	1382.8	55.1							34.5			
				and supports)												
	S-16	Lump	Sum	First test pile (concrete)										Lump		
	S-18	7390	Lin. Ft.	12" Cast-in-place, reinforced concrete piles			2280	2800	2310							
	S-18	1930	Lin. Ft.	Steel piles 10BP42						1200	730					
	S-18	390	Lin. Ft.	Steel piles 12BP53									390			
**	S-25															
	S-29	115	Cu. Yds.	Porous backfill		84							31			
	S-29	25	Each	Scuppers, including supports	25											
	I-10	1057	Sq. Yds.	Crushed aggregate slope protection		540							461	56		
*	Special	1246	Each	Water-reducing, set-retarding admixture	1246											

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

GENERAL PLAN, ELEVATION AND ESTIMATED QUANTITIES

BRIDGE NO. TUS-21-2633
U.S.R. 21, RAMP "E" & STONE CREEK
UNDER SOUTHBOUND U.S.R. 250
TUSCARAWAS COUNTY STA. 626+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
I.N.N.E.S	N.J.B	M.K.H	J.D.R	B.F.G	9-26-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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TUS-21-26.33
TUS-250-11.60

GENERAL NOTES

REFERENCE shall be made to Standard Drawings AR-1-57, dated 4-2-62, CSB-2-56, Sheets 2 and 3, dated 2-2-59 and FSB-1-62, dated 4-19-62 and to Supplemental Specifications S-207.10, dated 4-25-61 and S-307, dated 8-23-60.

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.

EXCAVATION QUANTITY includes the removal of fill material required for the construction of the abutments and piers No.1, No.2 and No.3.

CONSTRUCTION PROCEDURE: Before any construction is started on the rear abutment, Piers No.1, No.2 and No.3, the roadway embankments shall be placed to the respective subgrade elevations between Stations 623+00 and 628+00. Upon completion of this portion of the embankments, excavation may be made for the pier footings, piles driven, and construction may proceed on the piers. Excavation for the construction of the rear abutment shall not begin for a minimum of 90 days after completion of the above noted embankments. The approach embankment in the vicinity of the forward abutment shall be completed to subgrade elevation, for a distance of 200 feet back of the abutment, after which excavation shall be made for the abutment and piles driven.

FOUNDATION BEARING PRESSURE: Rear abutment footing is designed for a maximum bearing pressure of 2.2 tons per square foot and pier No. 6 footings for 6.0 tons per square foot.

PILES shall be driven in accordance with the notes on the substructure sheets.

PLATE GIRDERS: The Contractor shall submit to the Director, for approval, 3 sets of prints showing his erection procedure for the plate girders.

WELDING of structural steel shall be Class "A" except as otherwise shown. Welds shown as field welds may, at the option of the Contractor, be made in the shop.

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.

SHEET LEAD shall conform to the requirements of ASTM Designation B 29 without restriction to the Common Desilverized type.

CONCRETE DECK PLACING: 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.

SURFACE FINISH OF CONCRETE: The requirements of Sec. S-1.22, Rubbed Finish, shall apply to all exposed concrete surfaces on the superstructure except the top and bottom surfaces of sidewalks and roadway, and on the piers and abutments except bridge seats, backwalls and the face of spill-through abutments between outside girders.

ELECTRICAL GROUNDS: A No.0 gauge, 7 strand, bare, soft-annealed, copper wire electrical ground shall be embedded in the right (south) column, cap and footing of Pier No.2. The lower end of the the wire shall be attached to the steel shell of one of the cast-in-place reinforced concrete piles and the upper end shall extend sufficiently above the top of the pier concrete to provide for a suitable attachment to the superstructure Girder G. At the base of the lamp standards there shall be a No.0 gauge copper wire attached to one anchor bolt and the other end attached to the top flange of Girder G. No.0 gauge copper wire as above shall be attached to the flanges of Girder G as jumper wires at the hinges and shall be of sufficient length to allow complete movement of the hinges. All attachments shall be made by brazing or exothermic welding. Payment for electrical grounds is included in Item S-25, electrical lighting system. See sht. 222 for grounding of conduit.

LAMP STANDARD ANCHOR BOLTS shall be placed using an 11"ϕ bolt circle.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

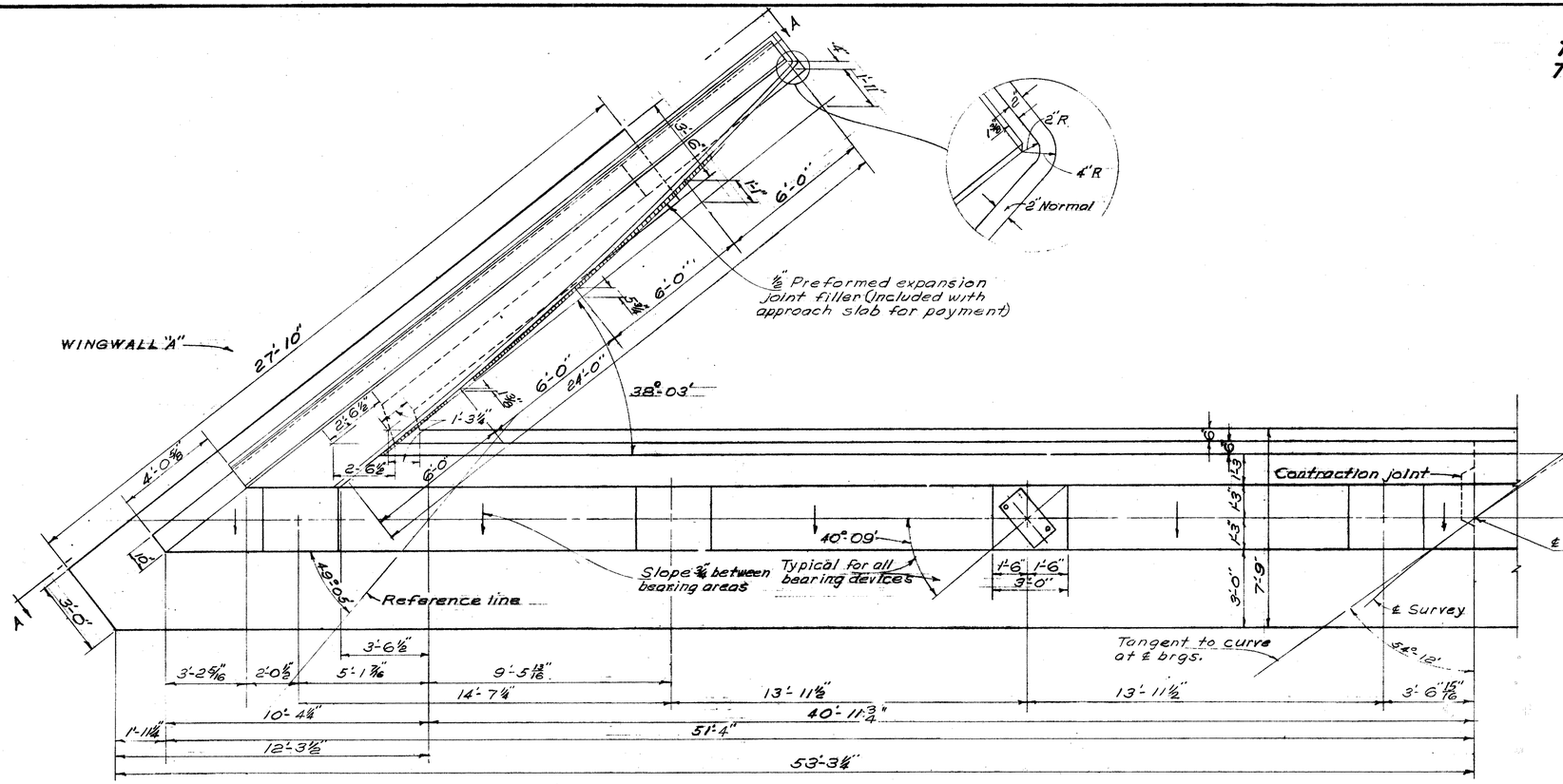
GENERAL NOTES
BRIDGE NO. TUS-21-26.33
U.S.R. 21, RAMP "E" & STONE CREEK
UNDER SOUTHBOUND U.S.R. 250
TUSCARAWAS COUNTY STA. 626+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES		WD		BFG	9-26-62	

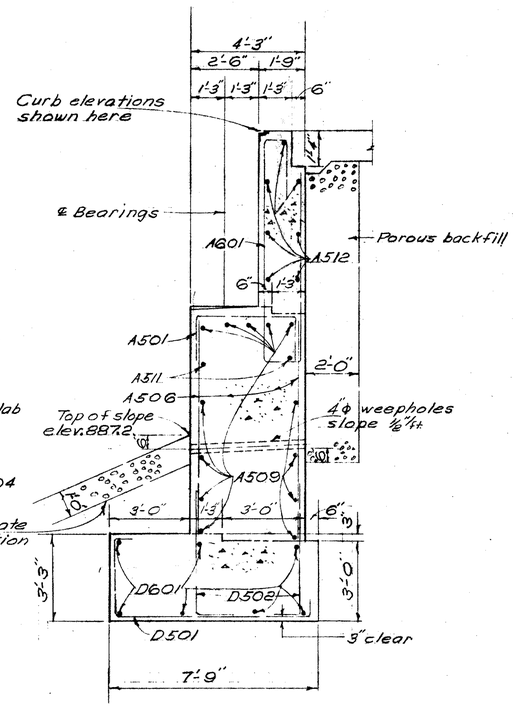
FED. RD DIVISION	STATE	PROJECT	
2	OHIO		

151/235

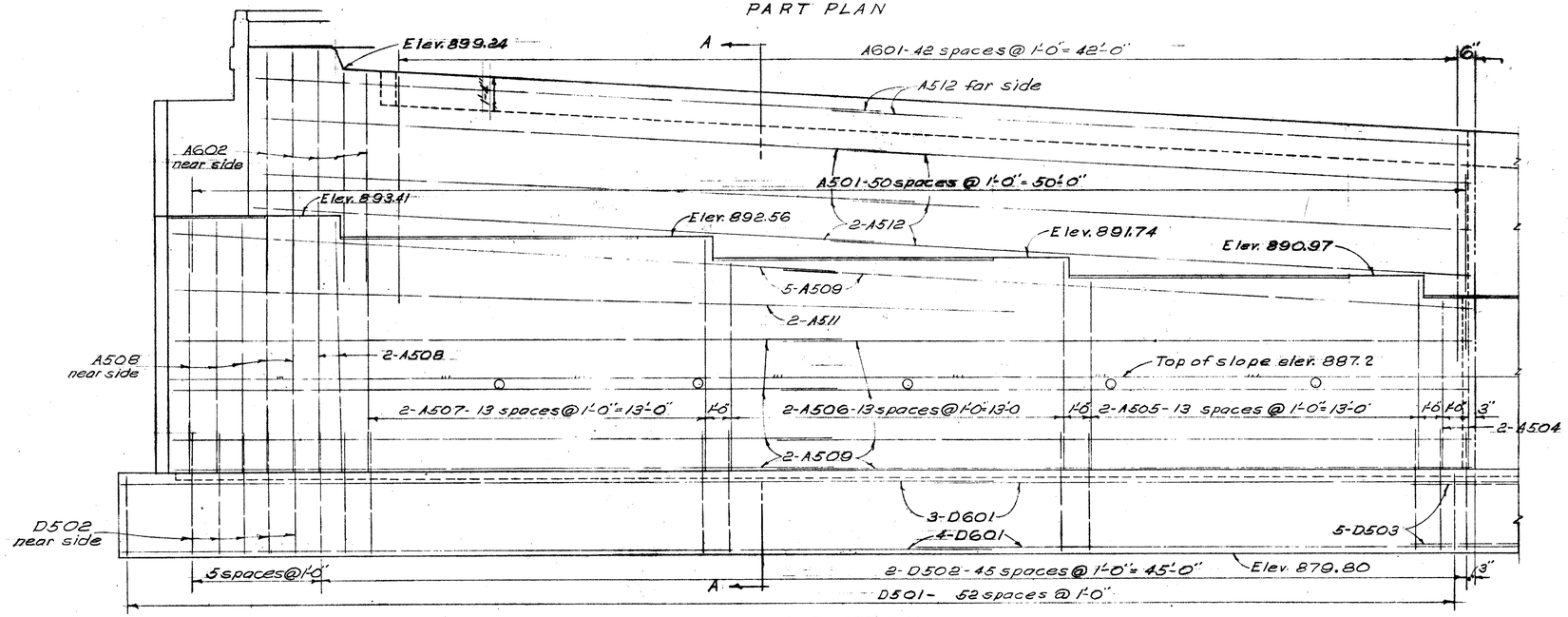
TUS-21-26.33
TUS-250-11.60



PART PLAN



SECTION A-A



ELEVATION

POROUS BACKFILL, 2'-0" thick, full length of abutment and wings, shall extend up to the underside of the approach slab.

FOR EMBANKMENT construction procedure prior to the construction of abutment see GENERAL NOTES

BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bar holes.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

REAR ABUTMENT PORTION "A"

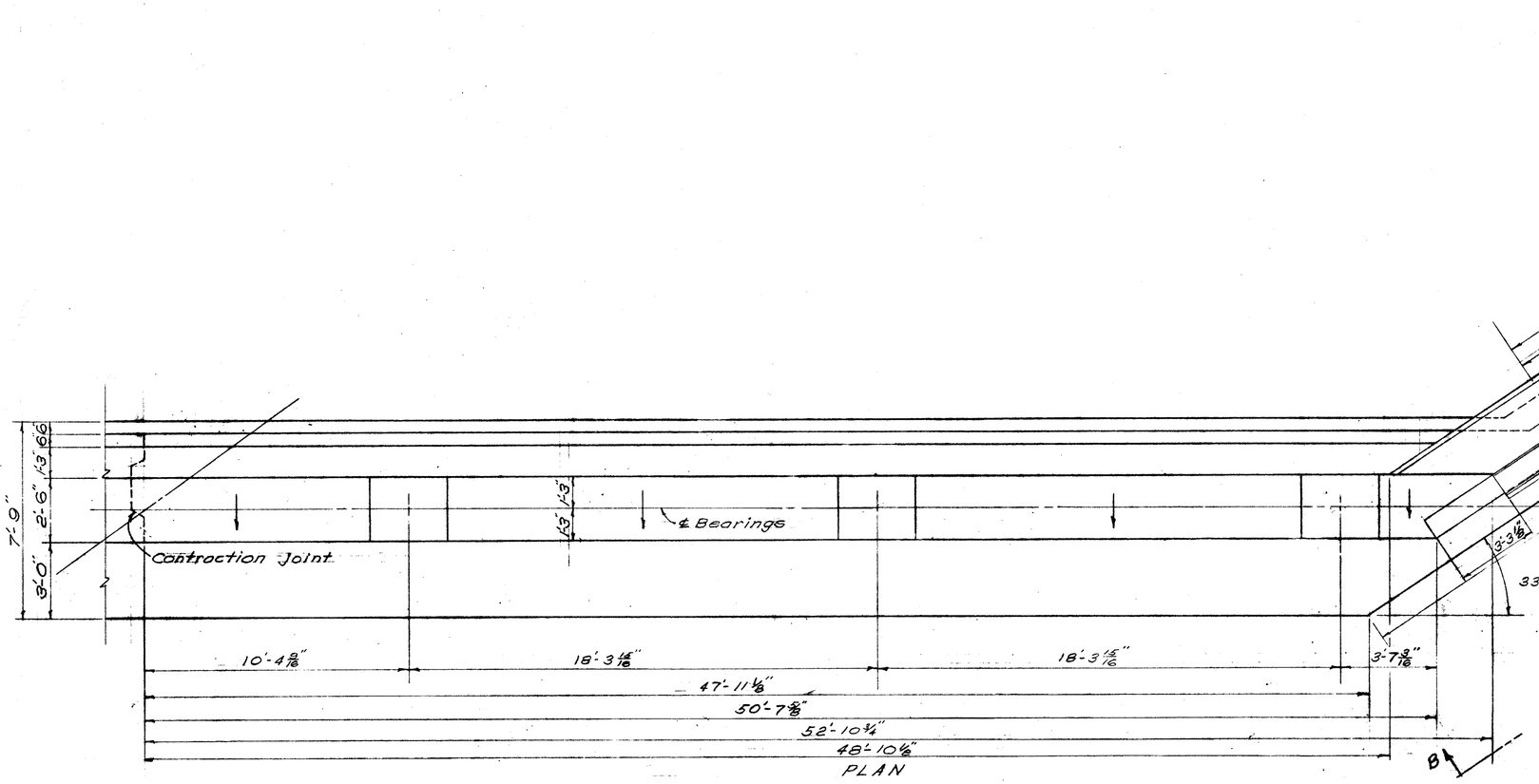
BRIDGE No. TUS-21-2633
U.S.R. 21, RAMP "E" AND STONE CREEK
UNDER SOUTHBOUND U.S.R. 250
TUSCARAWAS COUNTY Sta. 626+78.04

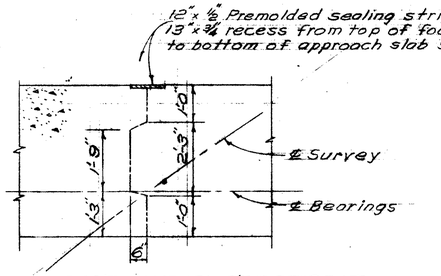
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
KLH	KLH		JAR	BFG	9-26-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

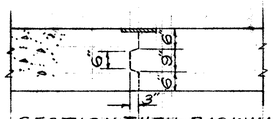
152
235

TUS-21-26.33
TUS-250-11.60



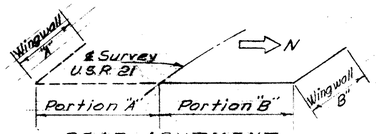


SECTION THRU BRIDGE SEAT

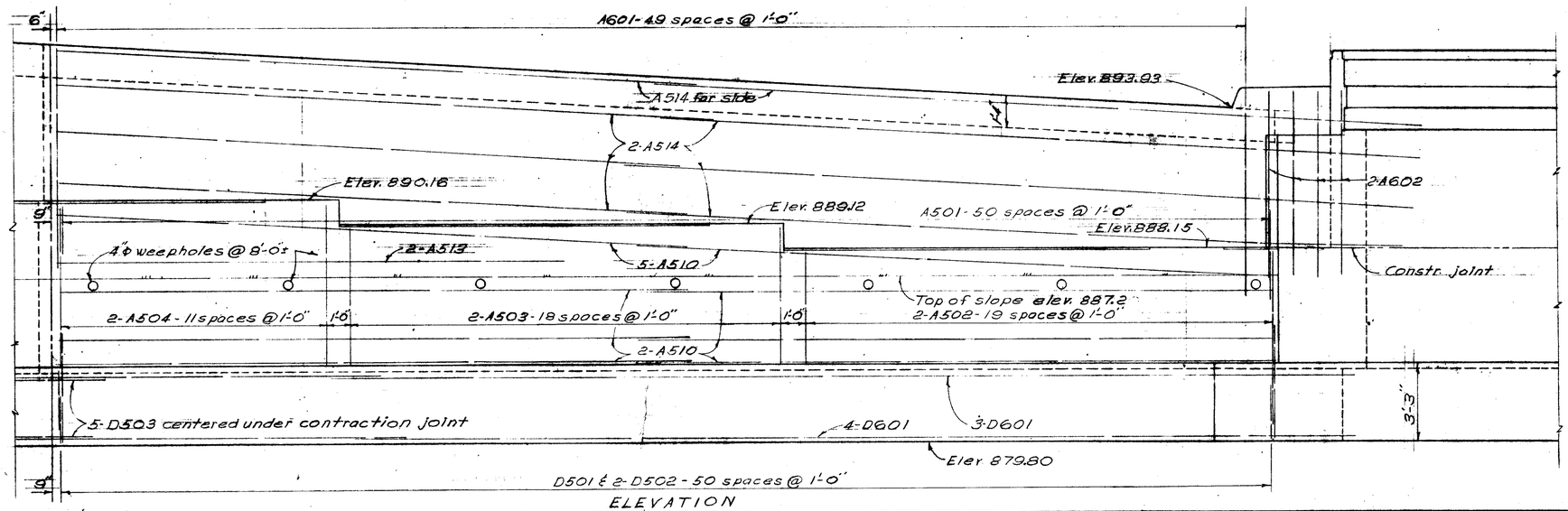


SECTION THRU BACKWALL

CONTRACTION JOINT DETAILS



REAR ABUTMENT



ELEVATION

FOR ADDITIONAL DETAILS see Sheets 151 and 153.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

REAR ABUTMENT PORTION "B"

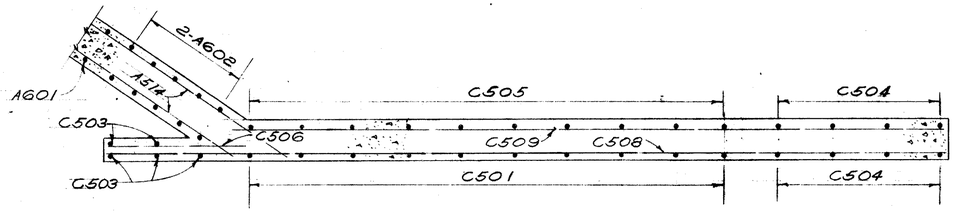
BRIDGE No. TUS-21-2633
USR 21, RAMP "E" AND STONE CREEK UNDER SOUTHBOUND USR 250
TUSCARAWAS COUNTY Sta. 626+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
KLH	KLH		J.D.P.	BFG	9-26-62	

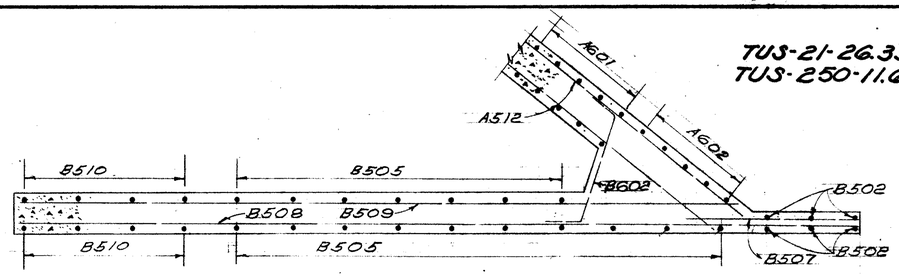
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

153
235

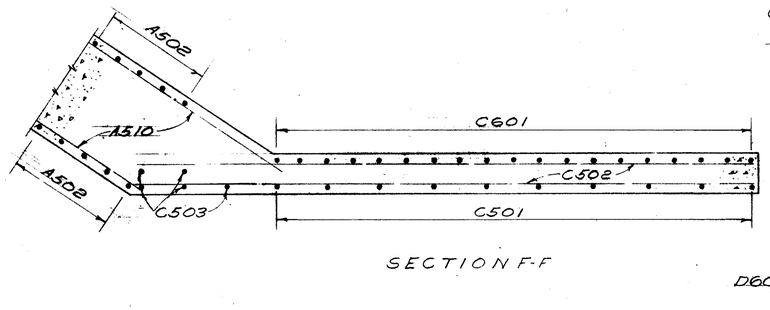
TUS-21-26.33
TUS-250-11.60



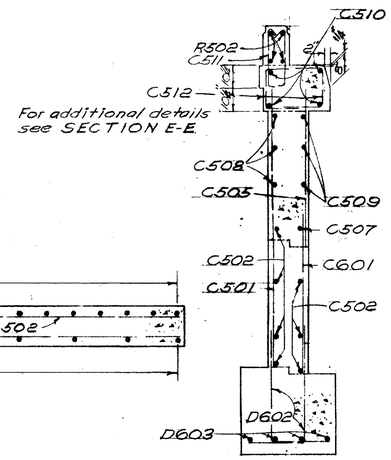
SECTION G-G



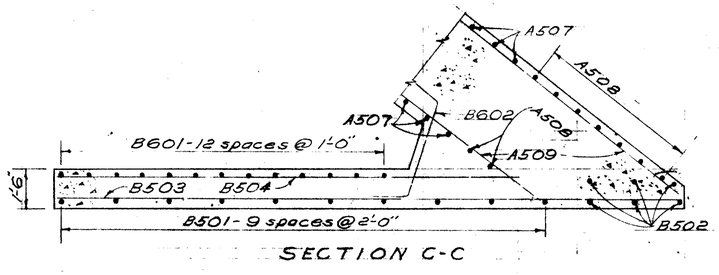
SECTION D-D



SECTION F-F

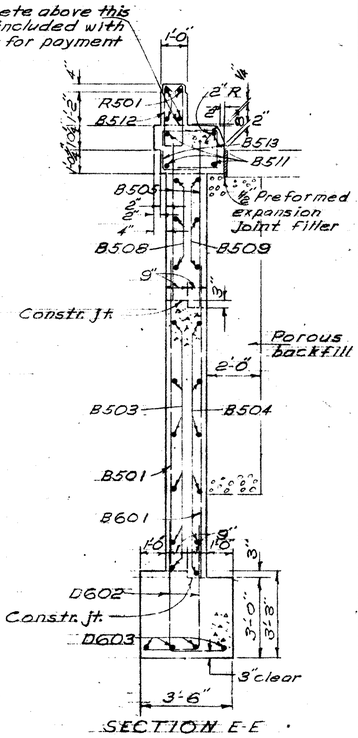


SECTION H-H

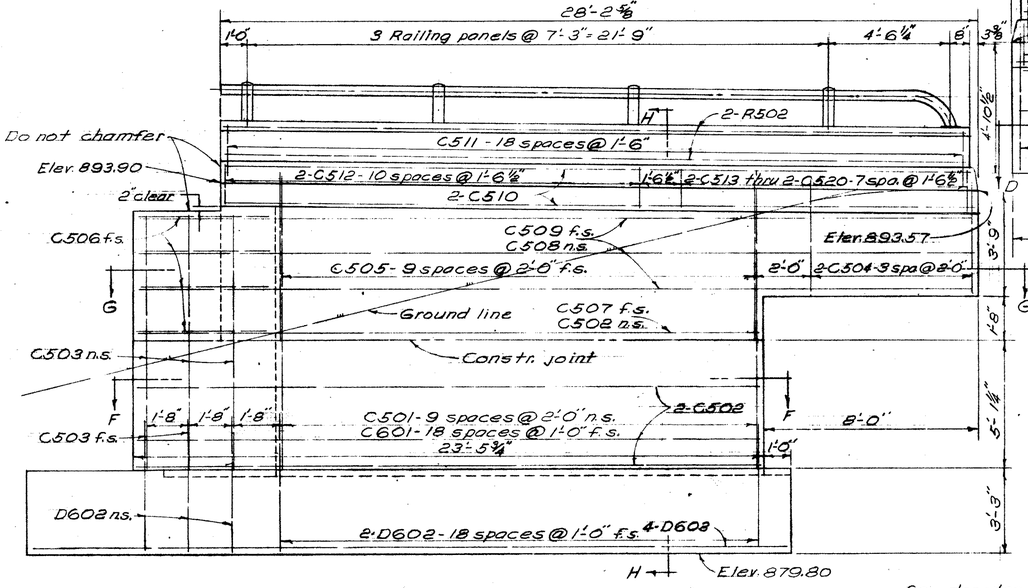


SECTION C-C

"B511 and C510 bars to be bent to fit in field. Payment for bending to be included in Item S-4

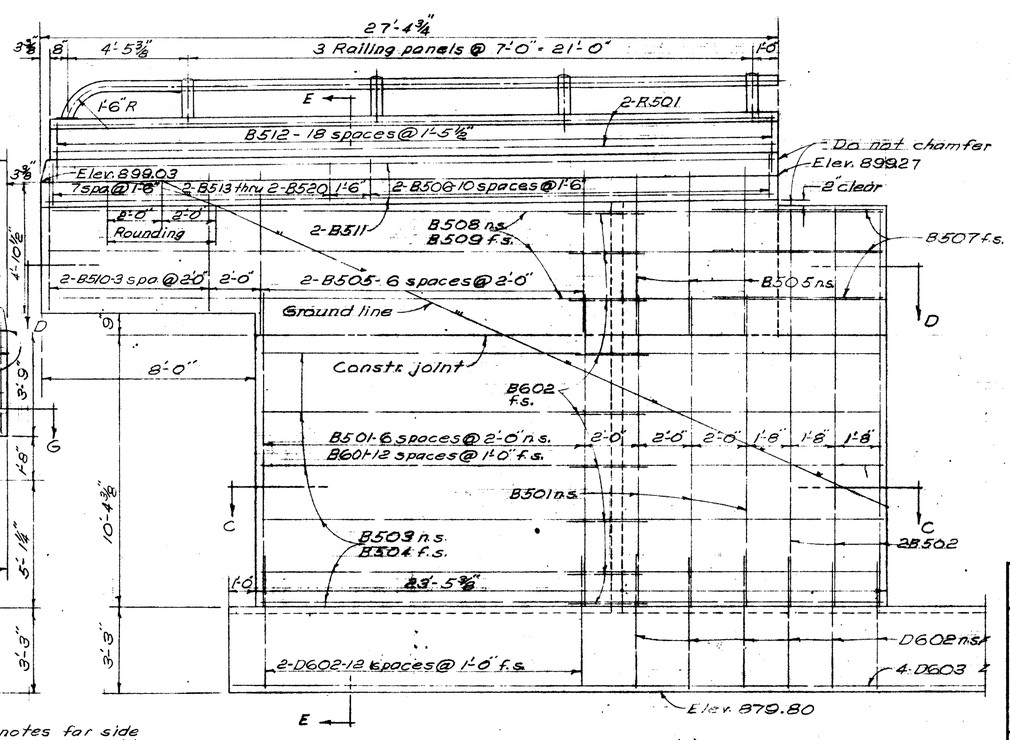


SECTION E-E



VIEW B-B (WINGWALL "B")

f.s. denotes far side
n.s. denotes near side



VIEW A-A (WINGWALL "A")

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

REAR ABUTMENT WINGWALLS

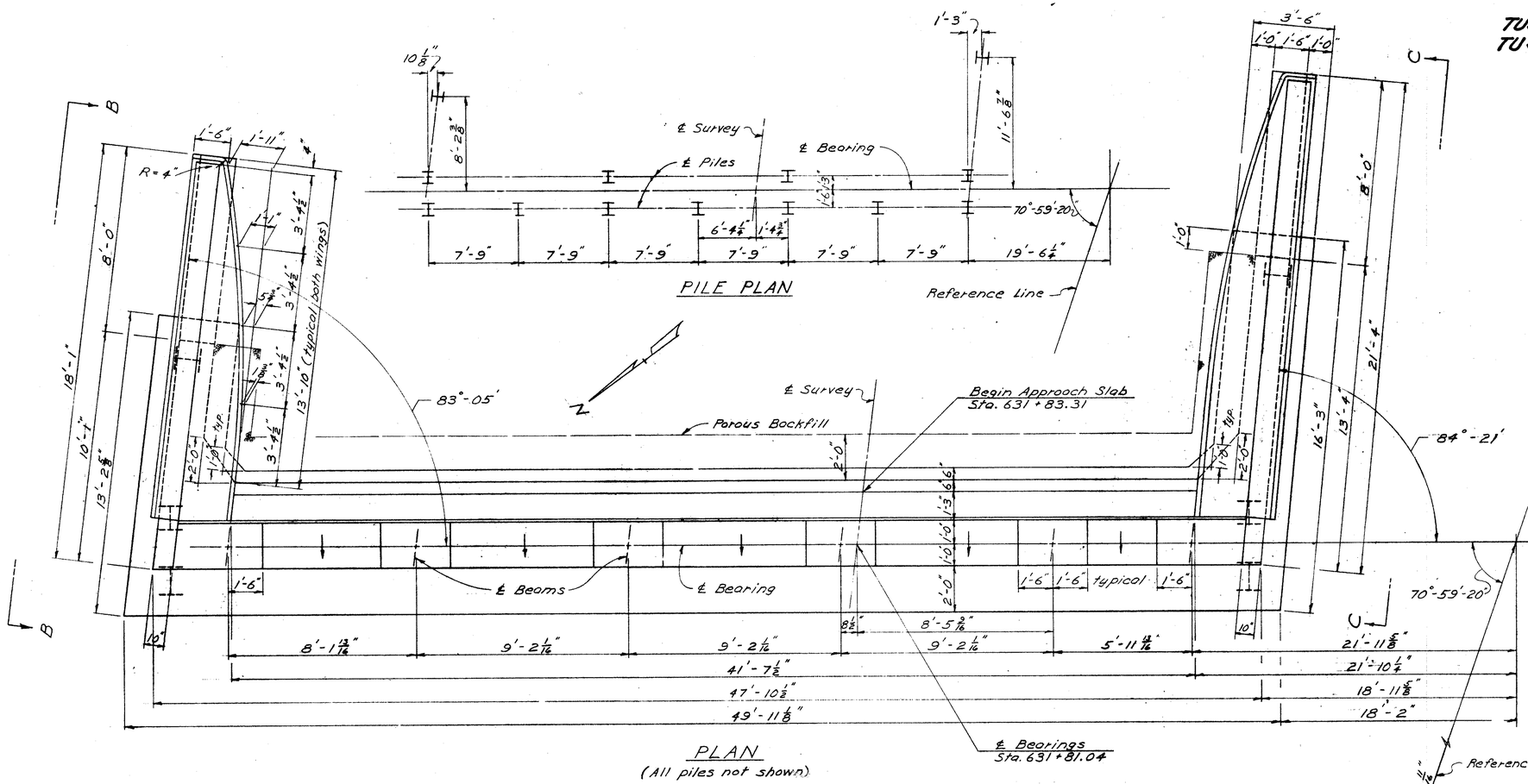
BRIDGE No. TUS-21-26.33
USR 21, RAMP "E" AND STONE CREEK UNDER SOUTHBOUND USR 250
TUSCARAWAS COUNTY Sta. 626+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
KLH	KLH		J.D.R.	BFG	9-26-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

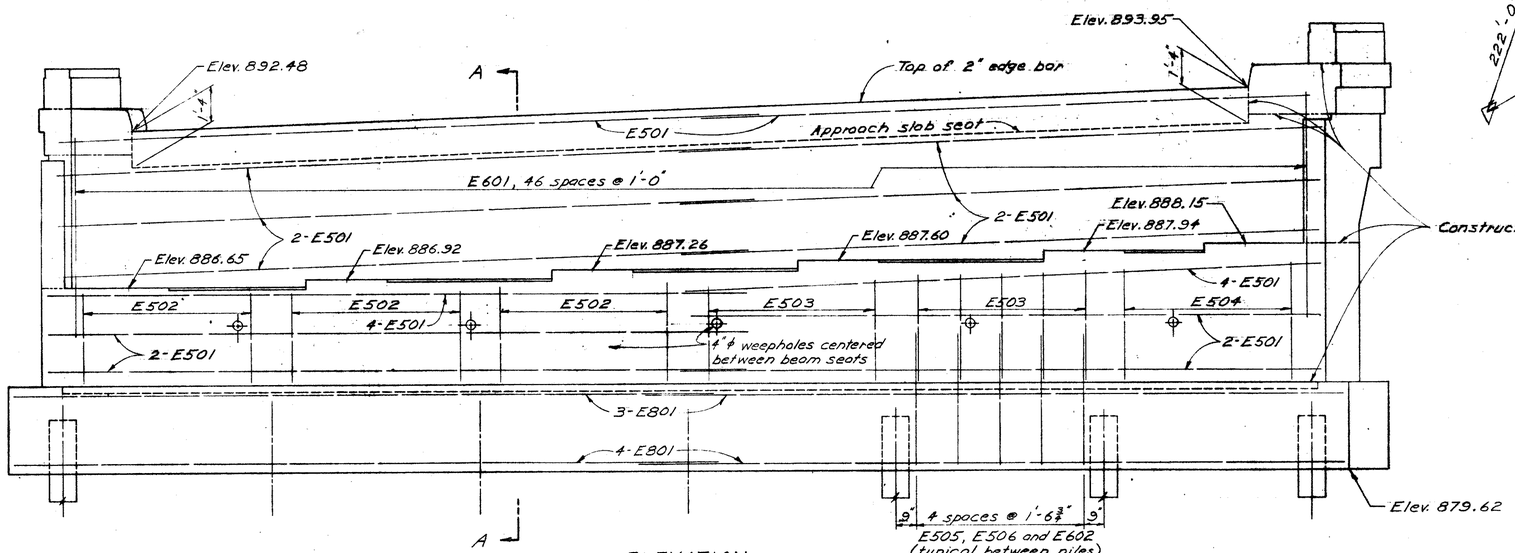
154
235

TUS-21-26.33
TUS-250-11.60

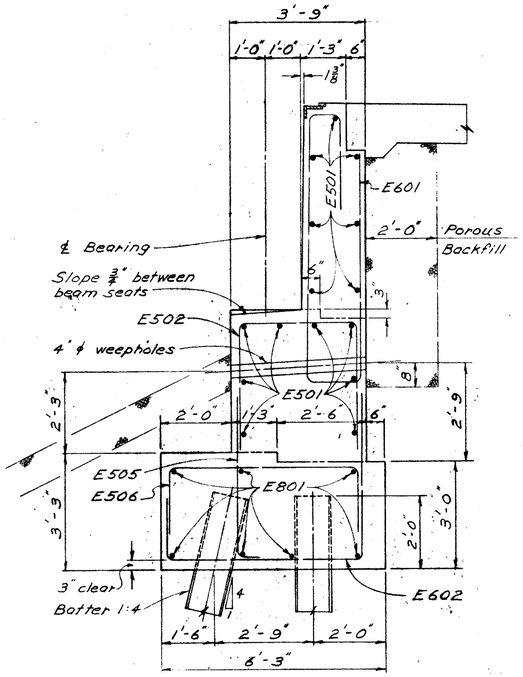


PILE PLAN

PLAN
(All piles not shown)



ELEVATION



SECTION A-A

NOTES

PILING shall be 12 BP53 steel piles.

PILES shall be driven with a hammer of not less than 11,000 ft. lbs. per blow 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 Sec. S-18.05 is not less than the following value for a pile hammer of the indicated energy rating:

55 tons per pile using an 11,000 ft. lb. hammer
50 tons per pile using an 15,000 ft. lb. or greater hammer.

If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 40 tons per pile.

FOR EMBANKMENT construction procedure prior to the construction of abutment see General Notes.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

FORWARD ABUTMENT

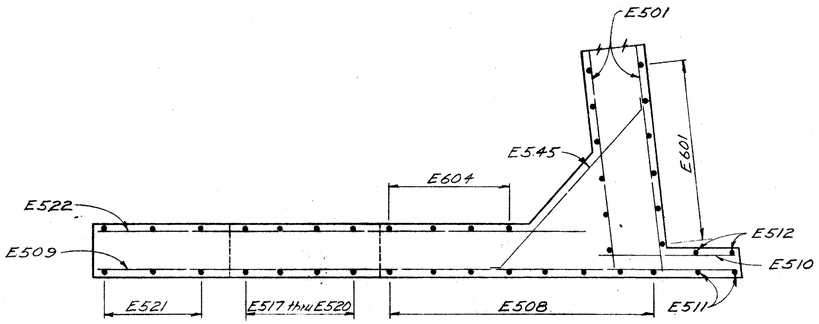
BRIDGE NO. TUS-21-2633
U.S.R. 21, RAMP "E" AND STONE CREEK
UNDER SOUTHBOUND U.S.R. 250
TUSCARAWAS COUNTY STA. 626+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
EBL	EBL		J.D.R.	BFG	9-26-62	

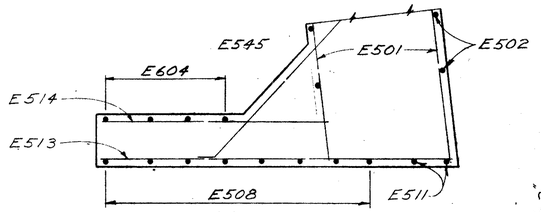
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

166
235

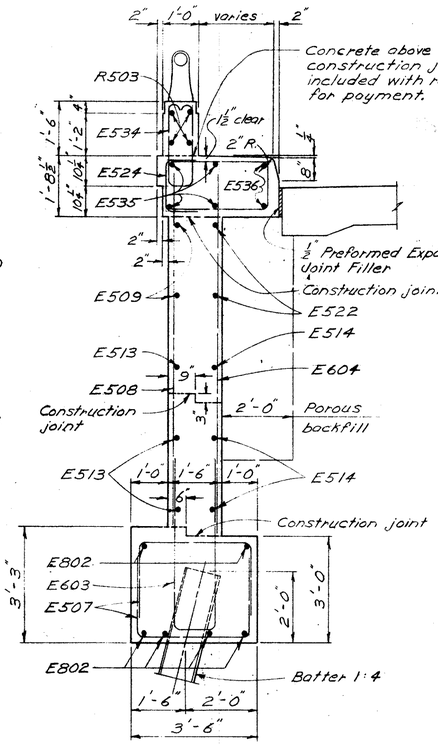
TUS-21-26.33
TUS-250-11.60



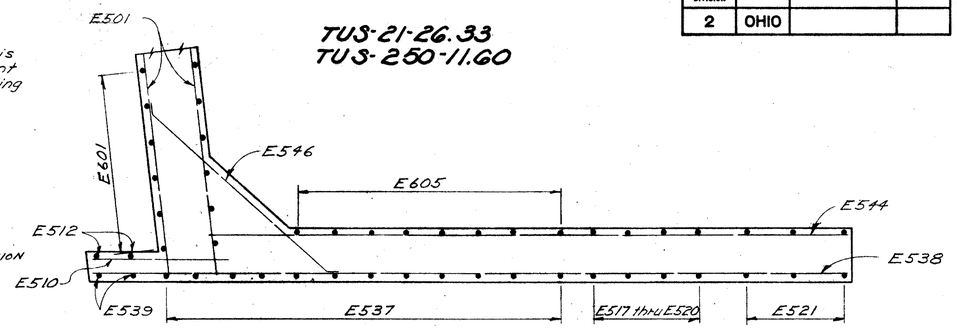
SECTION D-D



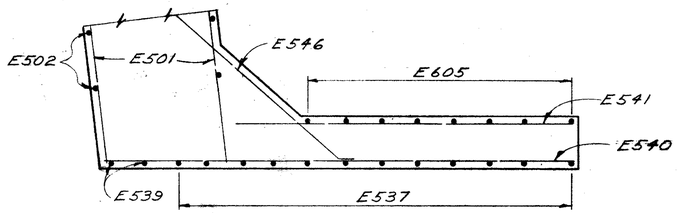
SECTION E-E



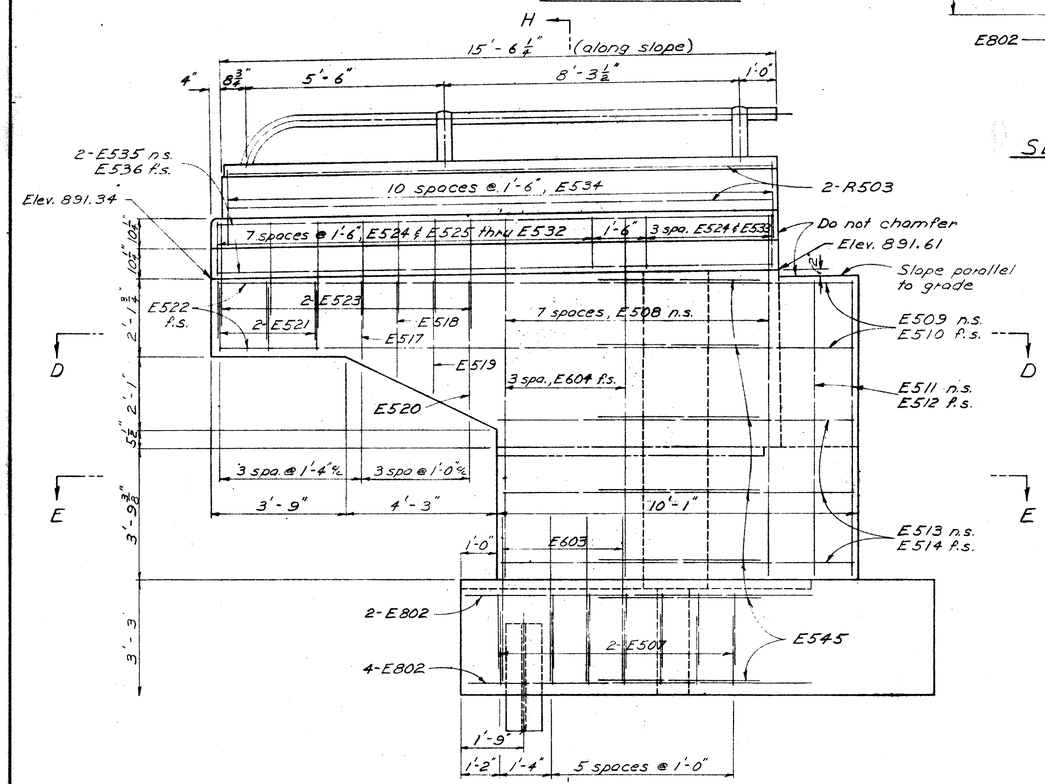
SECTION H-H



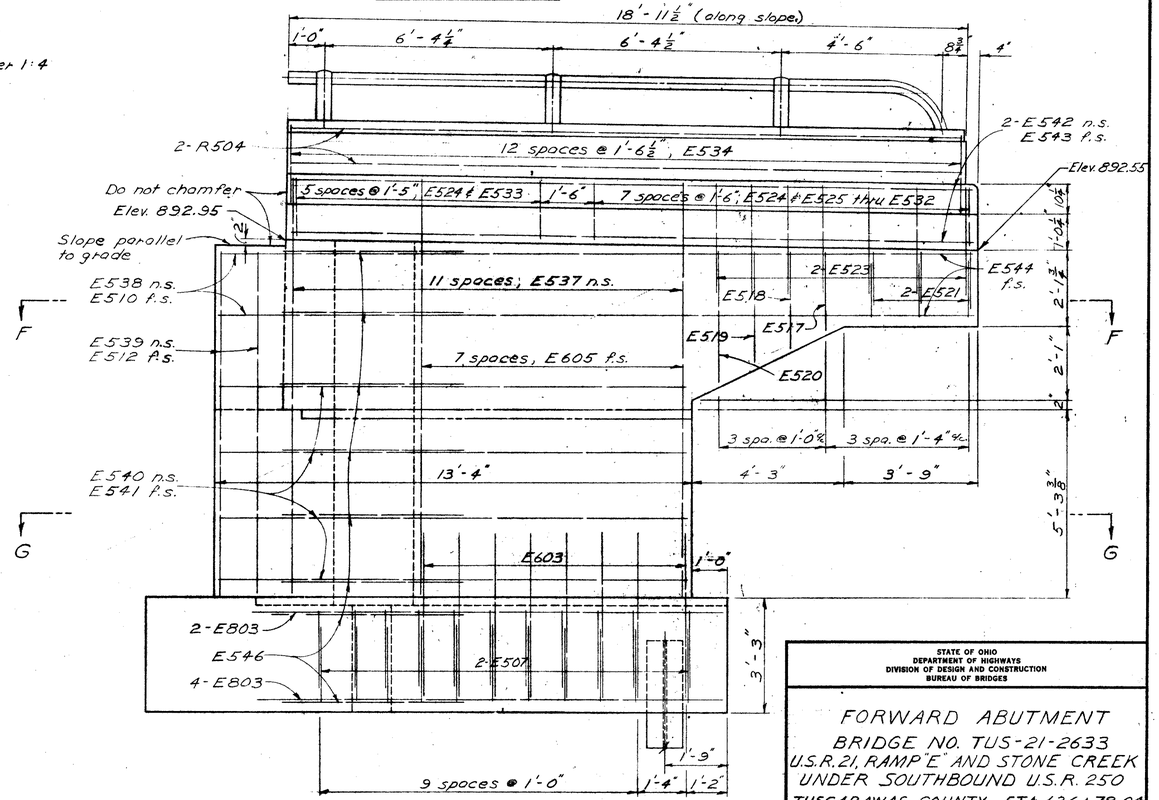
SECTION F-F



SECTION G-G



VIEW B-B



VIEW C-C

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

FORWARD ABUTMENT

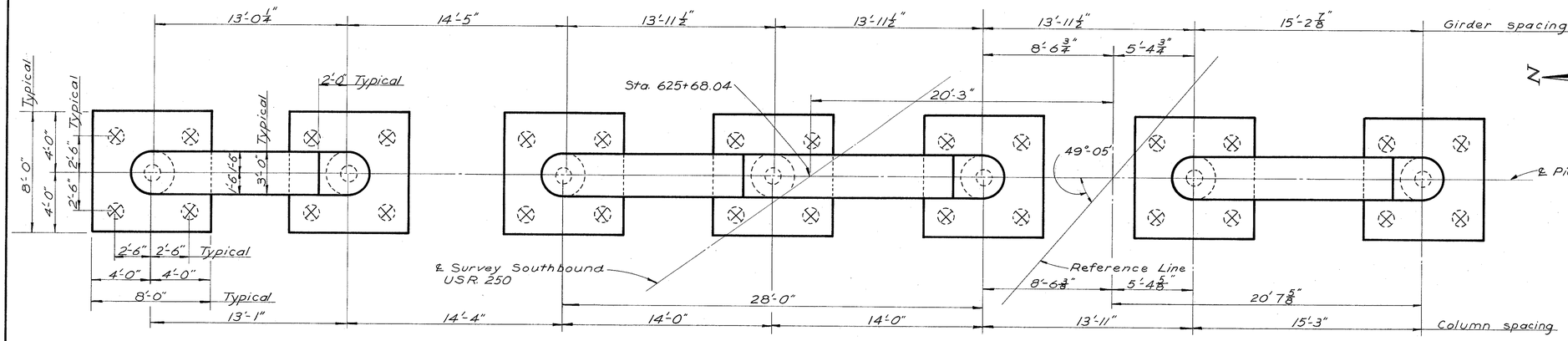
BRIDGE NO. TUS-21-2633
U.S.R. 21, RAMP "E" AND STONE CREEK
UNDER SOUTHBOUND U.S.R. 250
TUSCARAWAS COUNTY STA. 626+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
EBL	EBL		J.D.R.	BFG	9-26-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

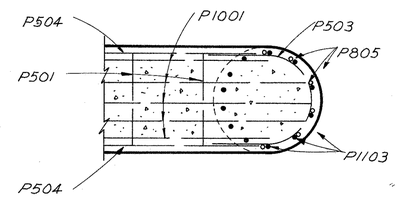
156
235

TUS-21-26.33
TUS-250-11.60

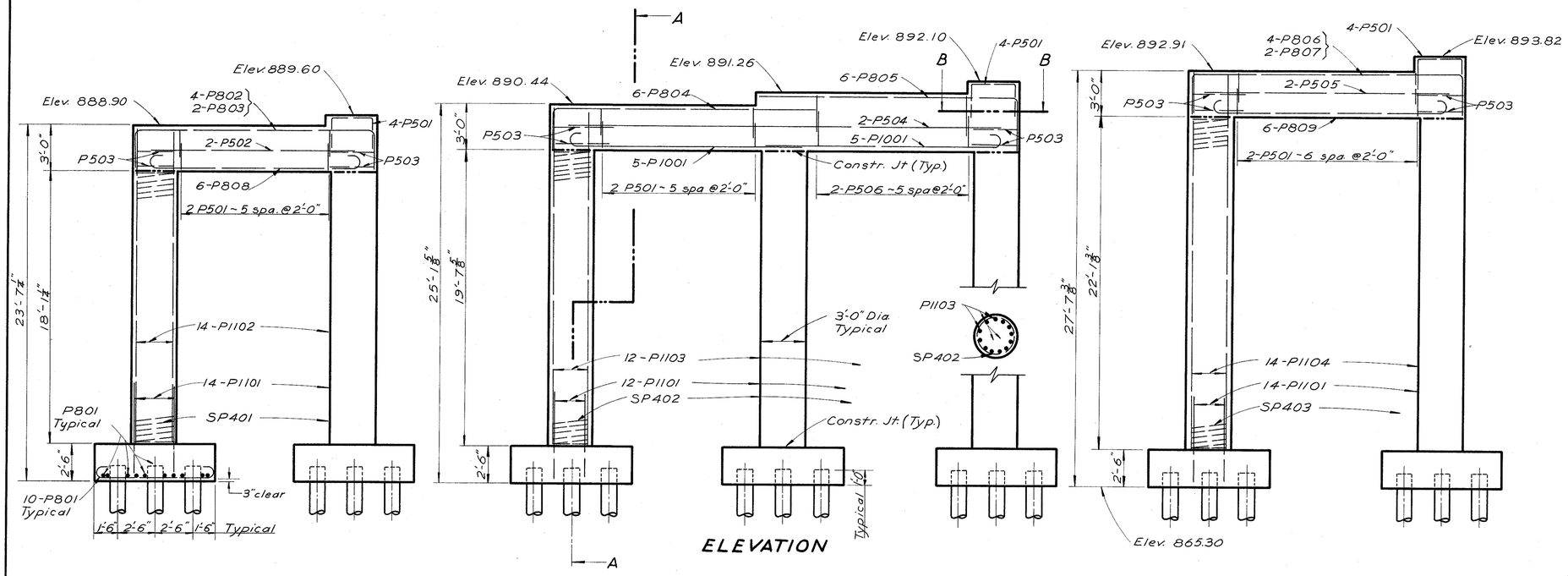


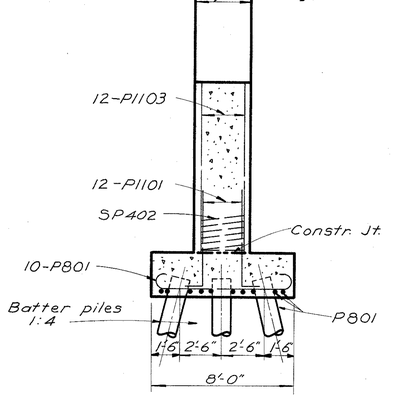
PLAN

⊗ Batter piles 1:4
○ Vertical piles



SECTION B-B





SECTION A-A

For EMBANKMENT construction procedure prior to the construction of the pier see GENERAL NOTES.

Piling shall be 12" cast-in-place reinforced concrete driven to a minimum bearing capacity of 45 tons per pile.

BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bar holes.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

DETAILS PIER Nº 1

BRIDGE NO. TUS-21-2633
U.S.R. 21, RAMP "E" & STONE CREEK UNDER SOUTHBOUND U.S.R. 250

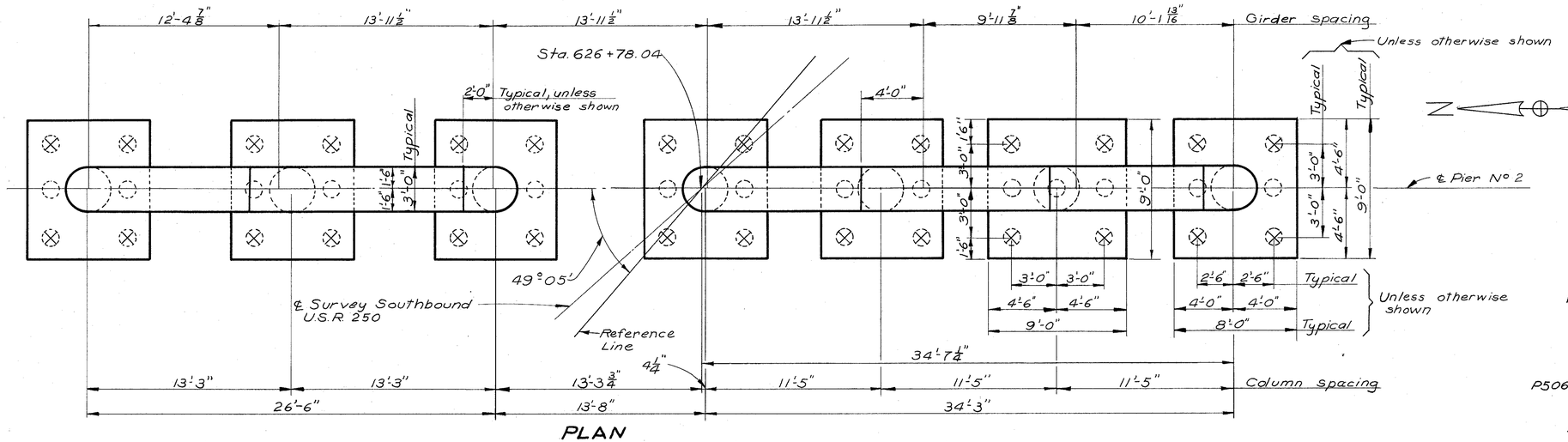
TUSCARAWAS COUNTY STA. 626 + 78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
NJB	NJB	JLK.	J.D.R.	BFG	9-26-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

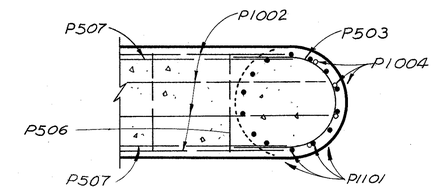
157
235

TUS-21-26.33
TUS-250-11.60

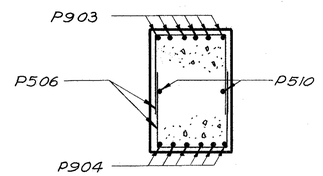


PLAN

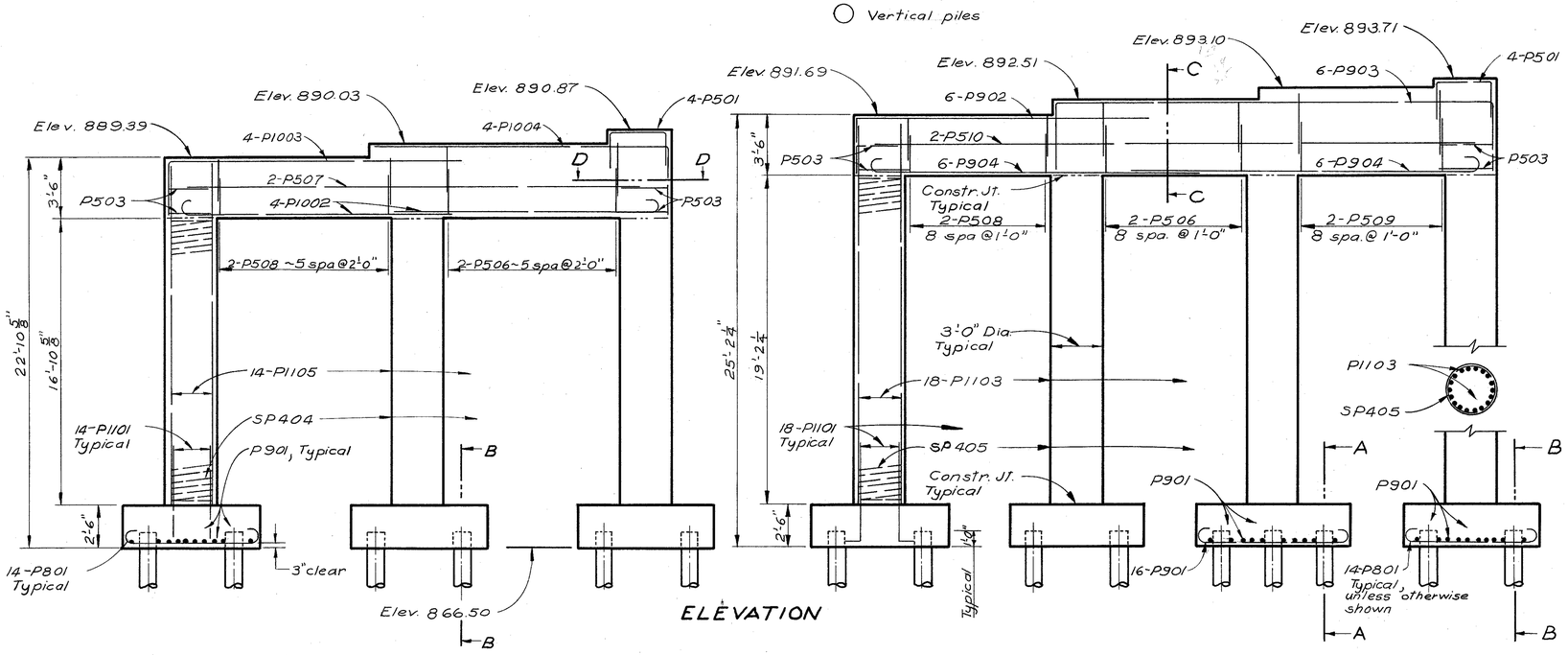
⊗ Batter piles 1:4
○ Vertical piles



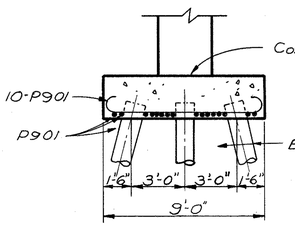
SECTION D-D



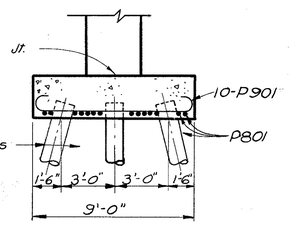
SECTION C-C



ELEVATION



SECTION A-A



SECTION B-B

An **ELECTRICAL GROUND** shall be provided in the south column of This pier as described on sheet 150.

For **EMBANKMENT** construction procedure prior to the construction of the pier see **GENERAL NOTES**.

Piling shall be 12" cast-in-place reinforced concrete driven to a minimum bearing capacity of 45 tons per pile.

BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bar holes.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

DETAILS PIER N° 2

BRIDGE NO. TUS-21-2633
U.S.R. 21, RAMP "E" & STONE CREEK
UNDER SOUTHBOUND U.S.R. 250

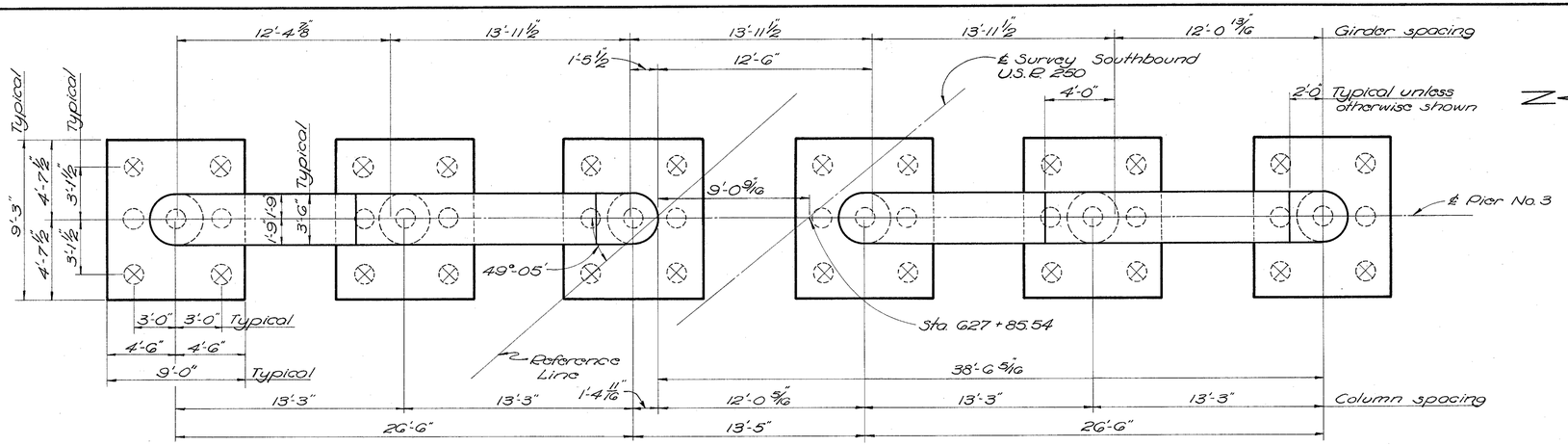
TUSCARAWAS COUNTY STA. 626 + 78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
NJB	NJB	C.A.M.	J.D.R.	BFG	9-26-62	

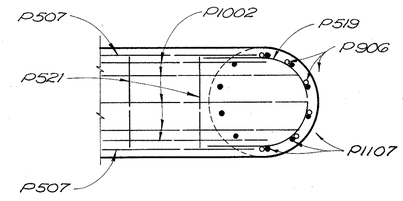
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

158
235

TUS-21-26.33
TUS-250-11.60

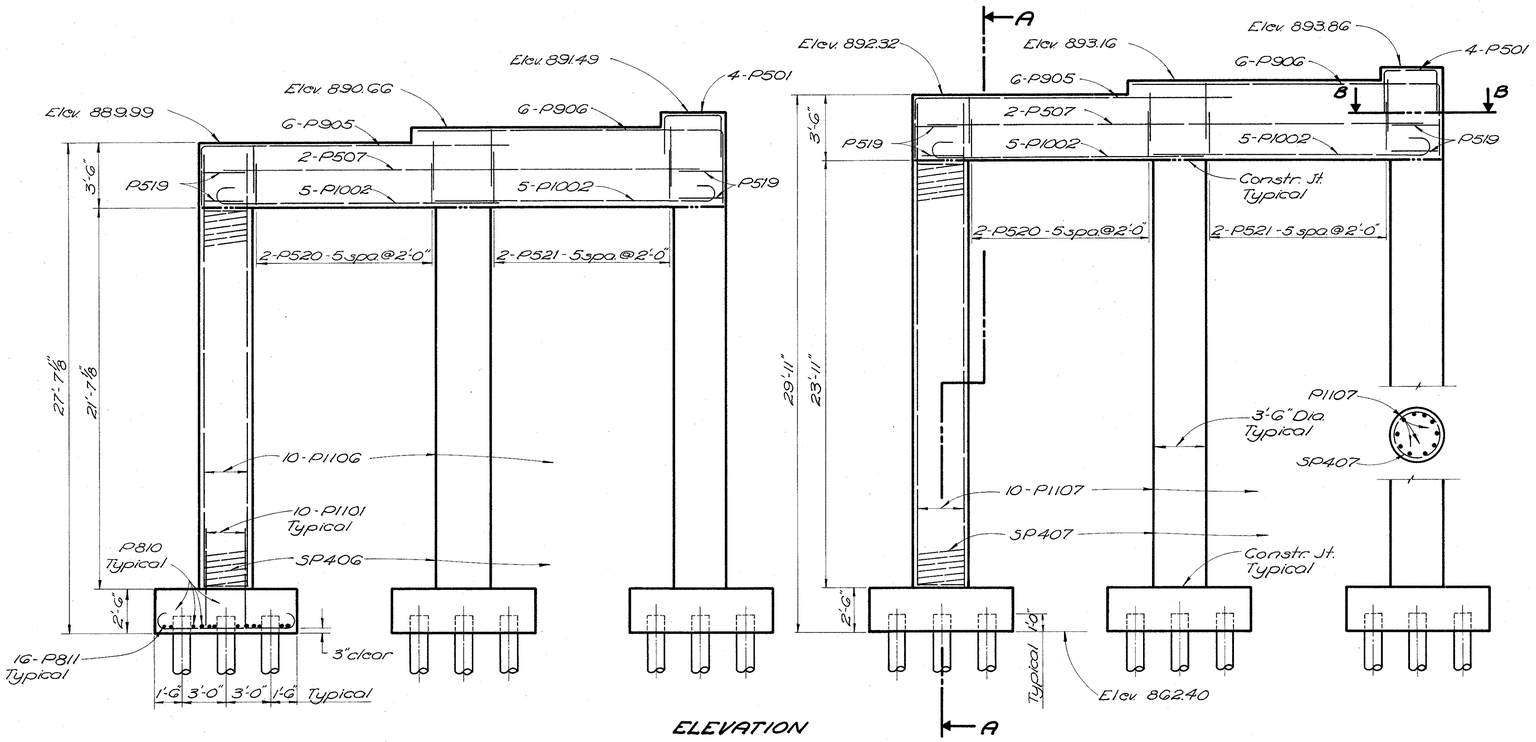


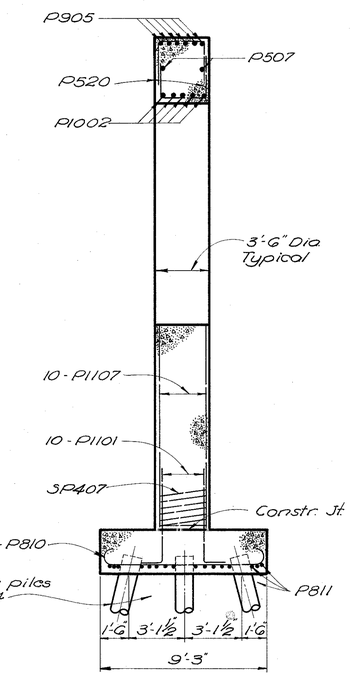
PLAN



SECTION B-B

⊗ Batter piles 1:4
○ Vertical piles





SECTION A-A

FOR EMBANKMENT construction procedure prior to the construction of the pier see GENERAL NOTES.

PILING shall be 12" cast-in-place reinforced concrete driven to a minimum bearing capacity of 45 tons per pile.

BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bar holes.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

DETAILS PIER Nº3

BRIDGE NO. TUS-21-2633
U.S.R. 21, RAMP "E" AND STONE CREEK
UNDER SOUTHBOUND U.S.R. 250

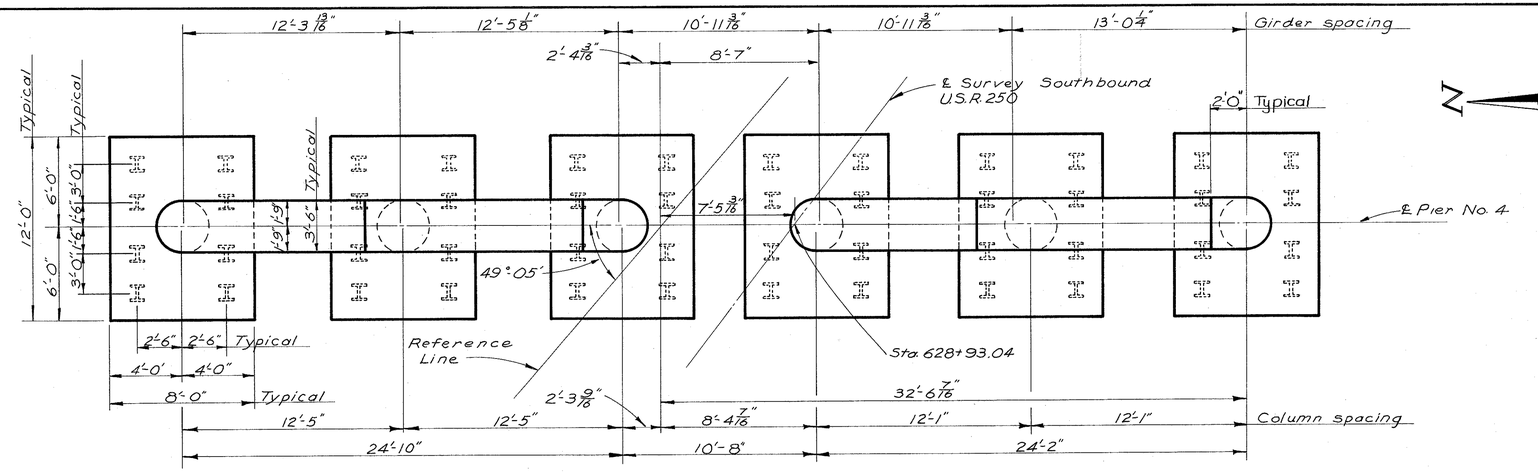
TUSCARAWAS COUNTY STA. 622+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
NJB	NJB	Mathy	J.D.R.	BFG	9-26-62	

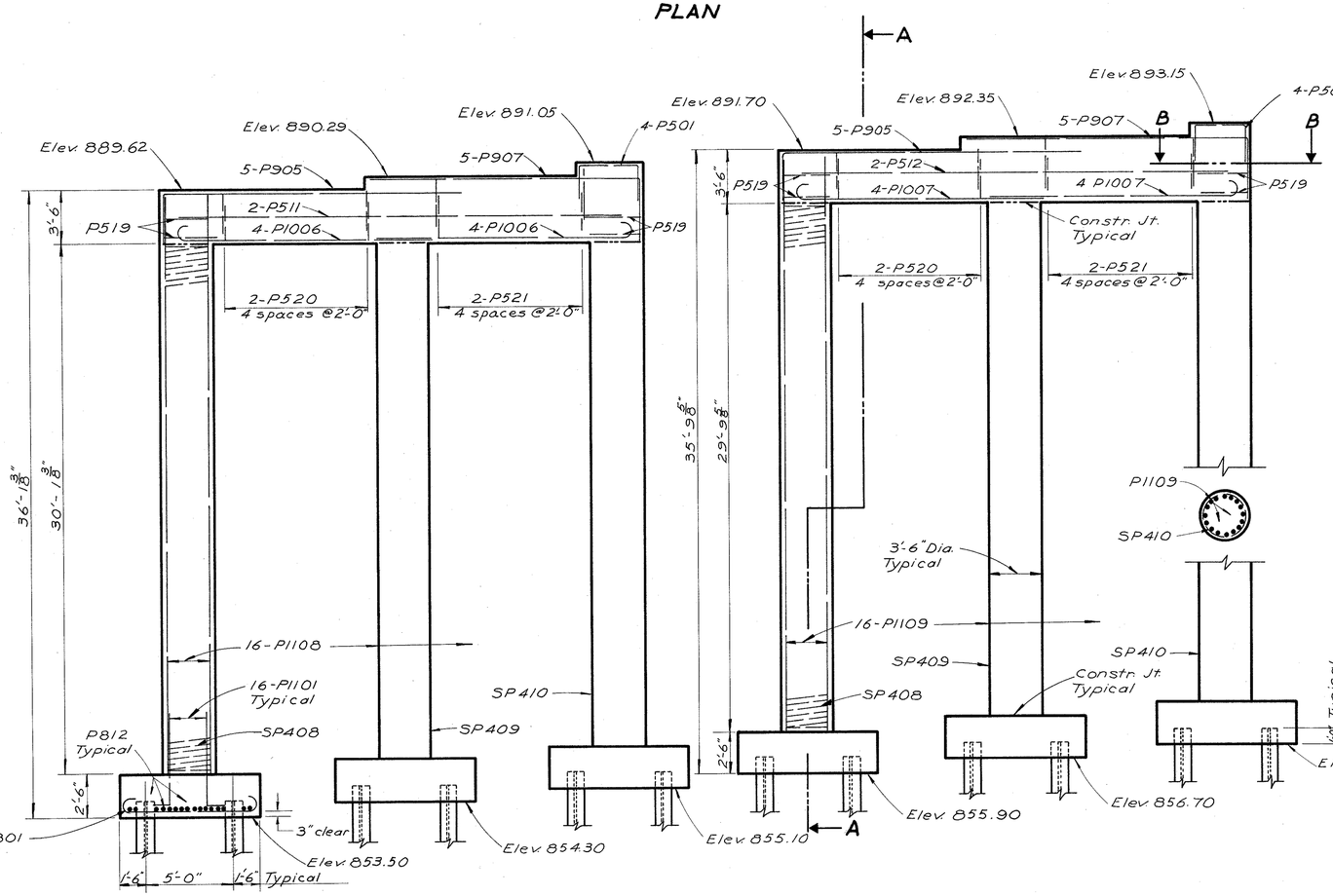
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

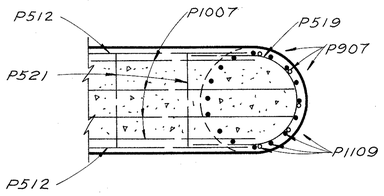
15.9
235

TUS-21-26.33
TUS-250-11.60

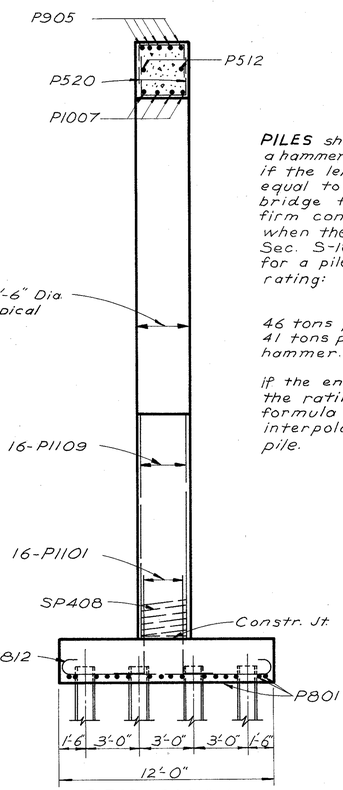


PLAN





SECTION B-B



SECTION A-A

PILES shall be driven to firm contact with rock with a hammer of not less than 11,000 ft lbs. per blow. 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 Sec. S-18.05 is not less than the following value for a pile hammer of the indicated energy rating:

46 tons per pile using a 11000 ft lb. hammer
41 tons per pile using a 15000 ft lb or greater hammer.

If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 35 tons per pile.

Piling shall be 10 BP 42 steel piles.

BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bar holes.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

DETAILS PIER No. 4

BRIDGE NO. TUS-21-2633
U.S.R. 21, RAMP "E" & STONE CREEK
UNDER SOUTHBOUND U.S.R. 250

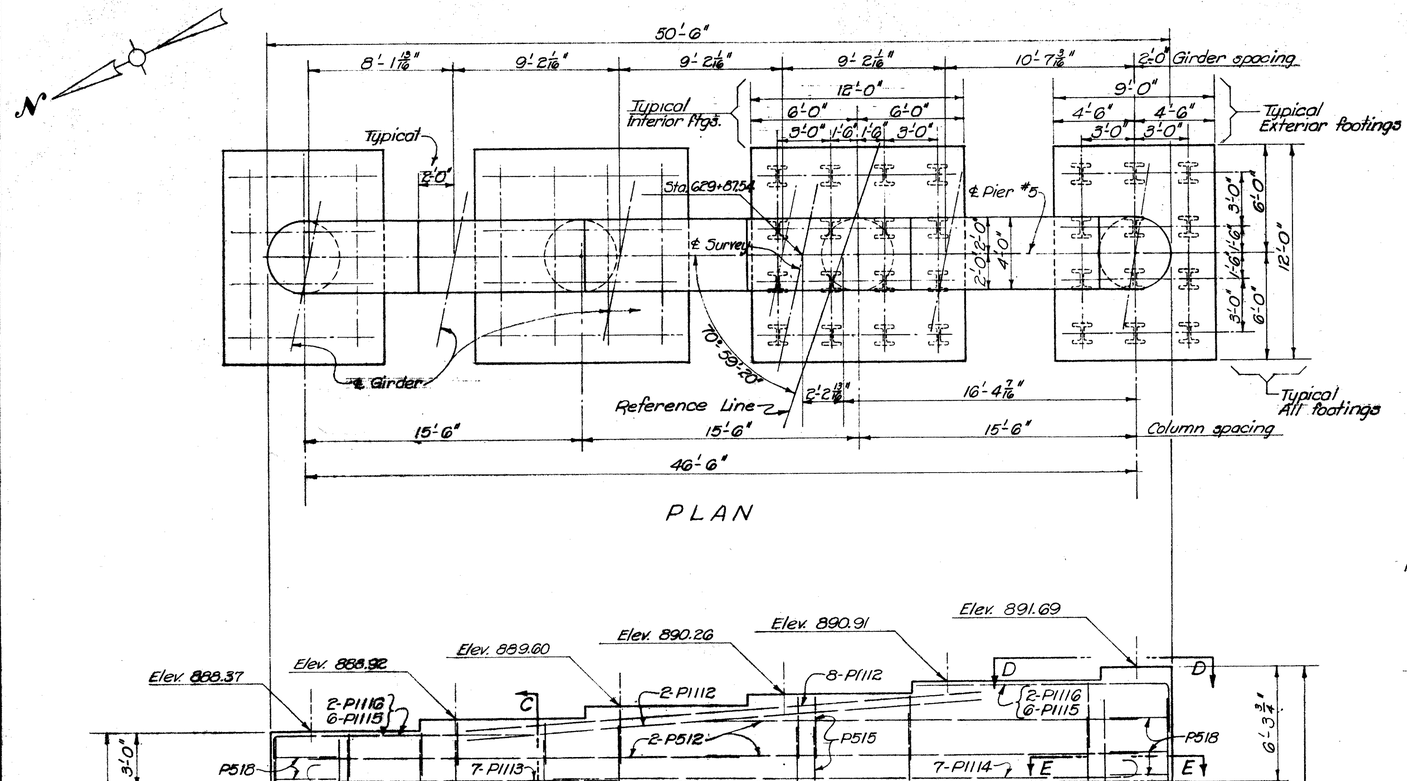
TUSCARAWAS COUNTY STA. 626 + 78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
NJB	NJB	JLK	J.D.R.	BFG	9-26-62	

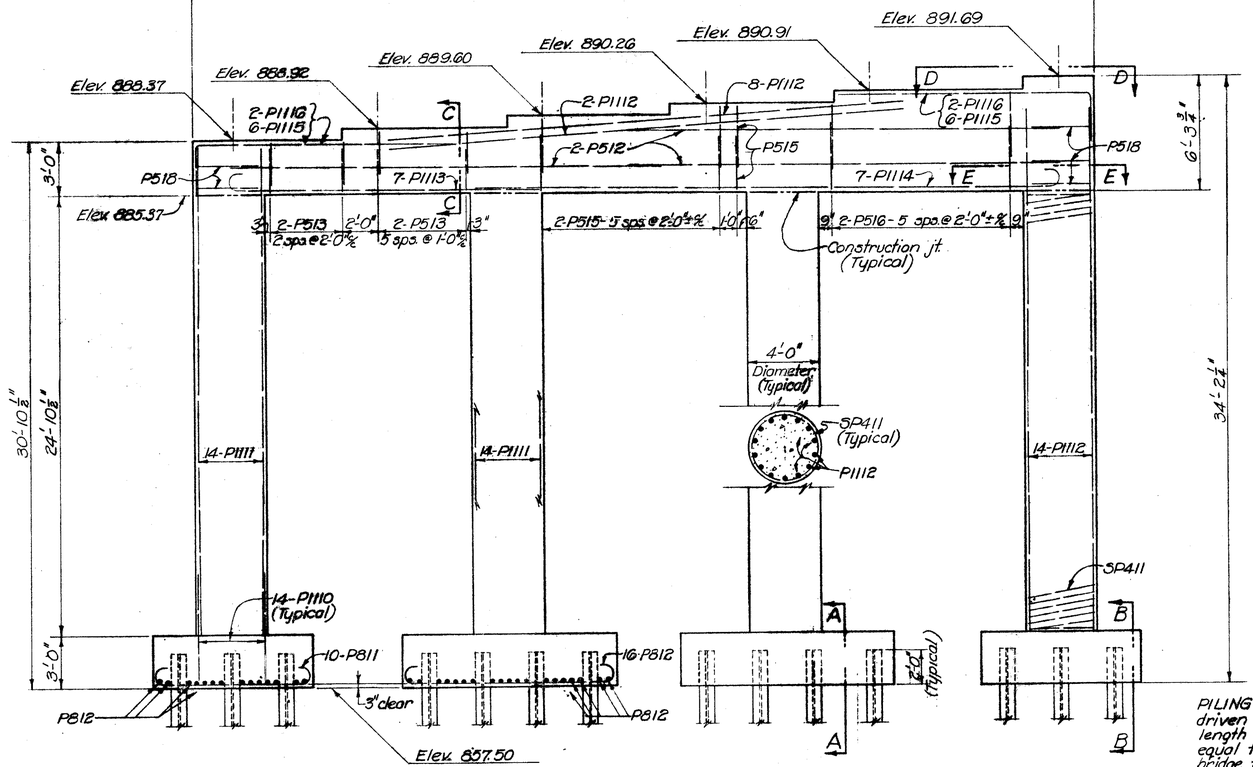
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

160/235

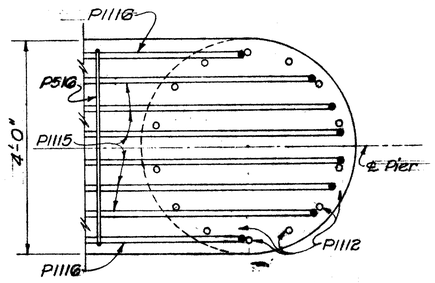
TUS-21-26.33
TUS-250-11.60



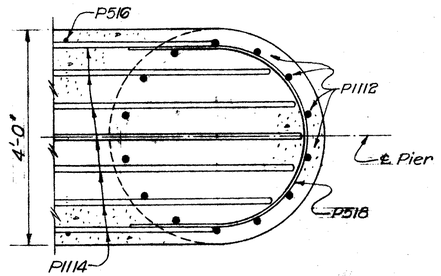
PLAN



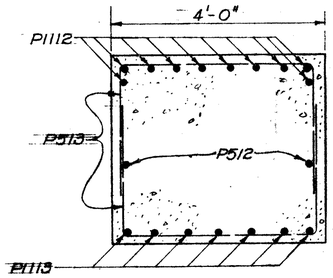
ELEVATION



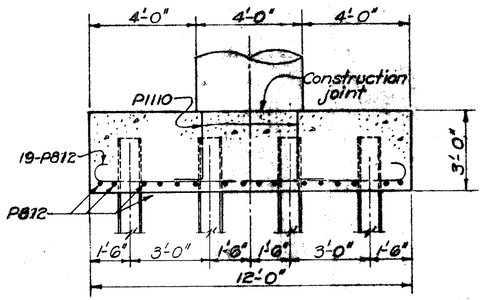
VIEW D-D



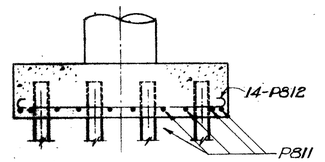
SECTION E-E



SECTION C-C



SECTION A-A



SECTION B-B
For details not shown see SECTION A-A

PILING shall be 10BP42. 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 report, the firm contact shall be considered as attained when the capacity according to the formula in Sec. 5-18.05 is not less than 45 tons per pile using an 11000 ft. lb. hammer or 40 tons per pile using a 13000 ft lb. or greater hammer. If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 30 tons per pile.

BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bolt holes.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

DETAILS PIER No 5

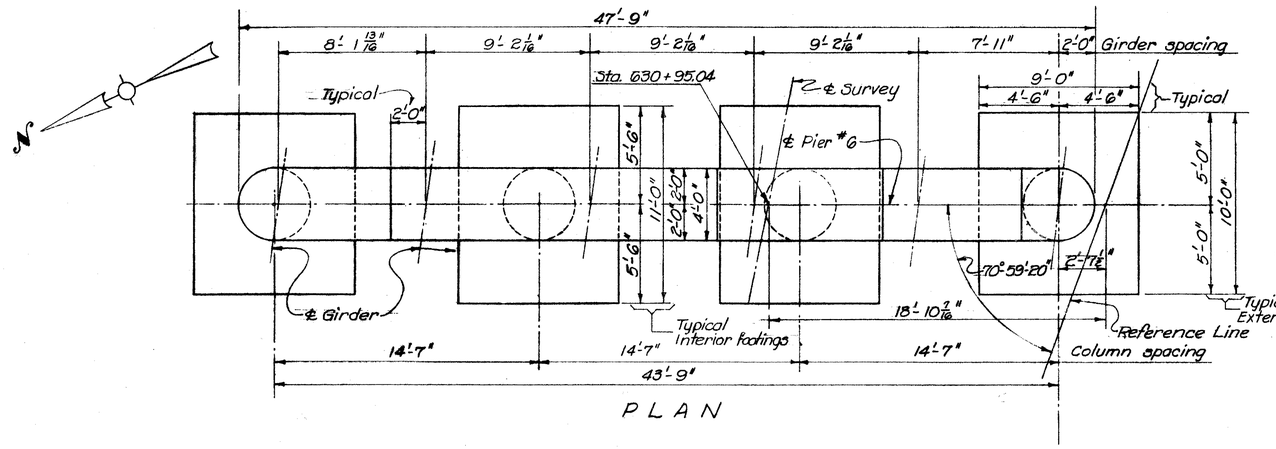
BRIDGE NO. TUS-21-2633
U.S.R. 21, RAMP "E" AND STONE CREEK UNDER SOUTHBOUND U.S.R. 250
TUSCARAWAS COUNTY STA. 626+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISE
NEY	NEY		J.D.R.	DFG	9-26-62	

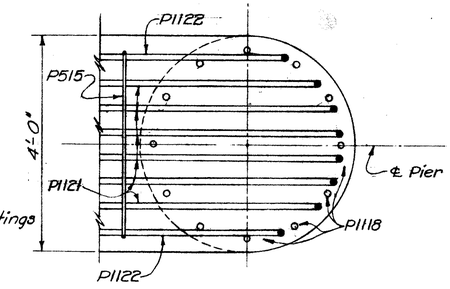
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

161/235

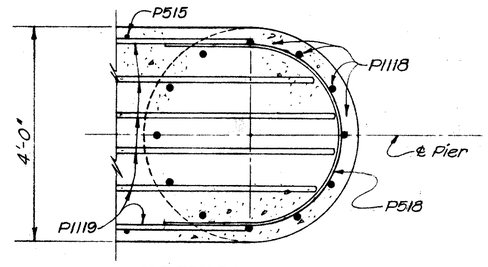
TUS-21-26.33
TUS-250-11.60



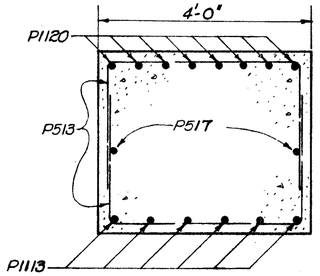
PLAN



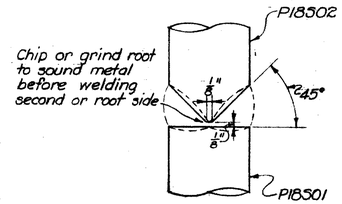
VIEW D-D



SECTION E-E

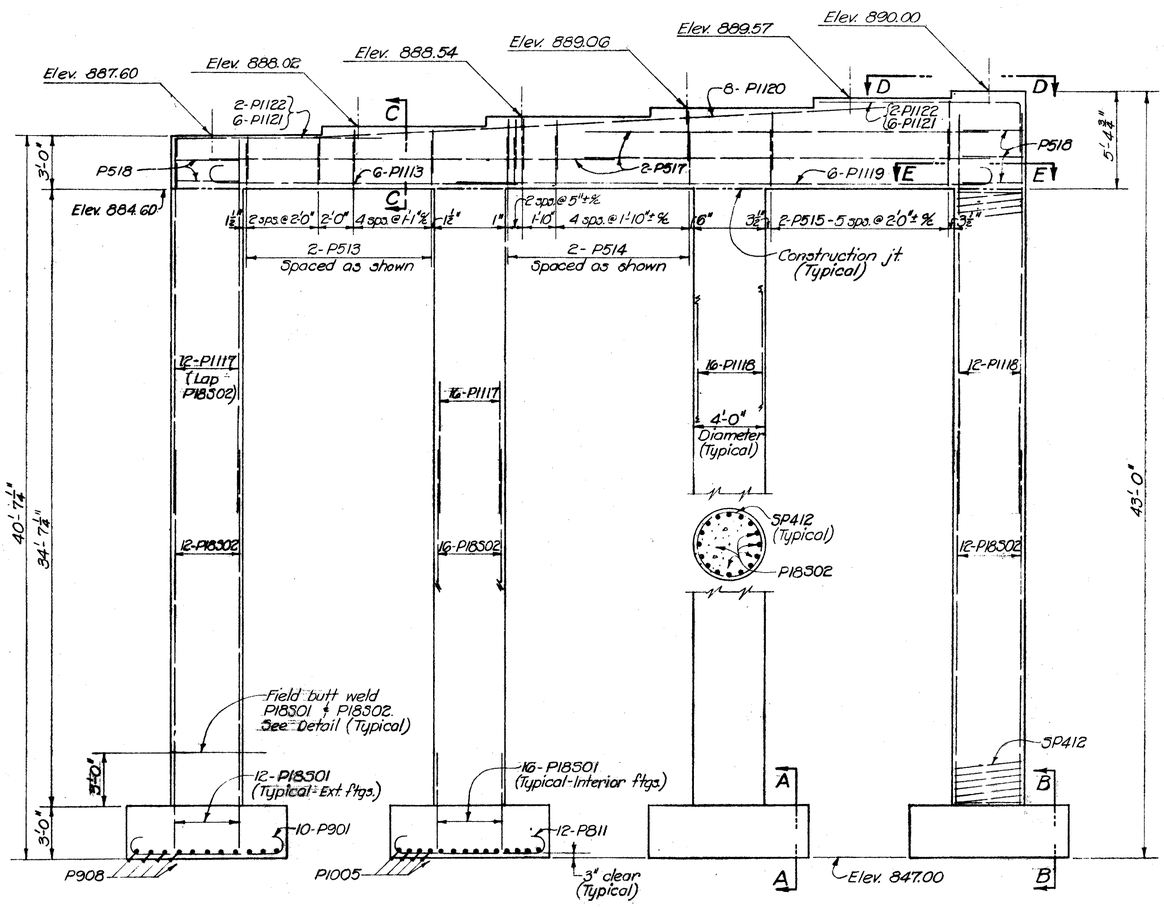


SECTION C-C

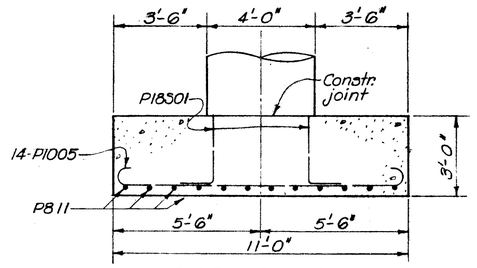


WELDS shall be Class "A" and shall conform to Item 5.7 of the specifications.

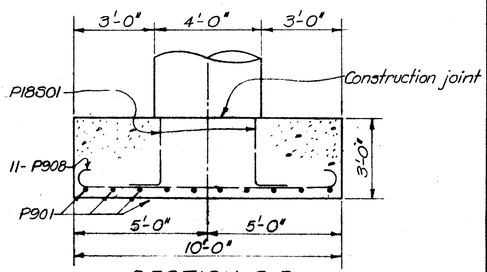
FIELD BUTT WELD DETAIL



ELEVATION



SECTION A-A



SECTION B-B

FOOTINGS shall extend a minimum of 3' into undisturbed rock or to the elevation shown, whichever is lower.

BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bolt holes.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

DETAILS PIER No. 6

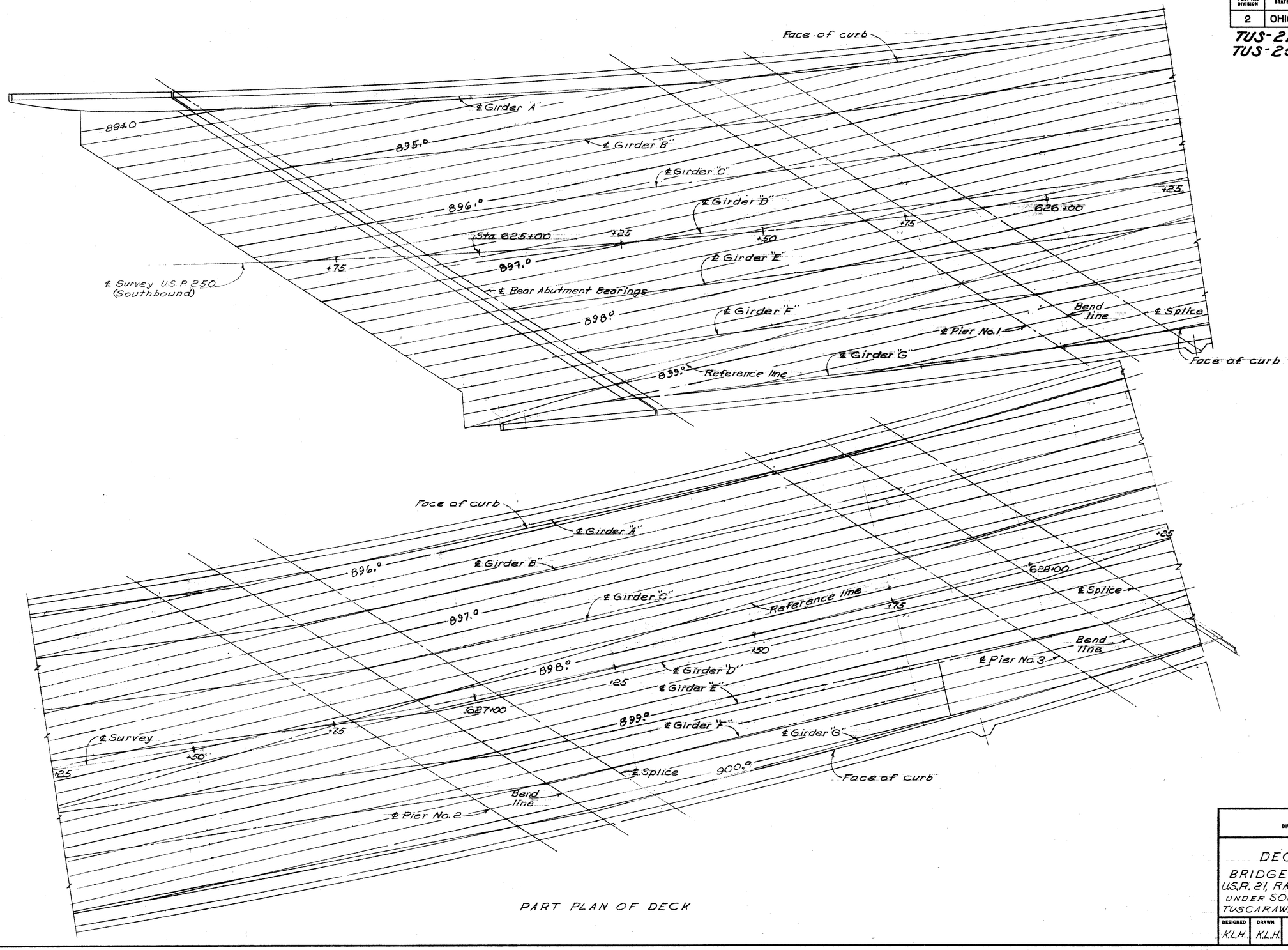
BRIDGE NO. TUS-21-26.33
U.S.R. 21, RAMP "E" AND STONE CREEK UNDER SOUTHBOUND U.S.R. 250
TUSCARAWAS COUNTY STA. 626+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
NEY	NEY		J.D.R.	BFG	9-26-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

162
235

TUS-21-26.33
TUS-250-11.60



PART PLAN OF DECK

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

DECK CONTOURS

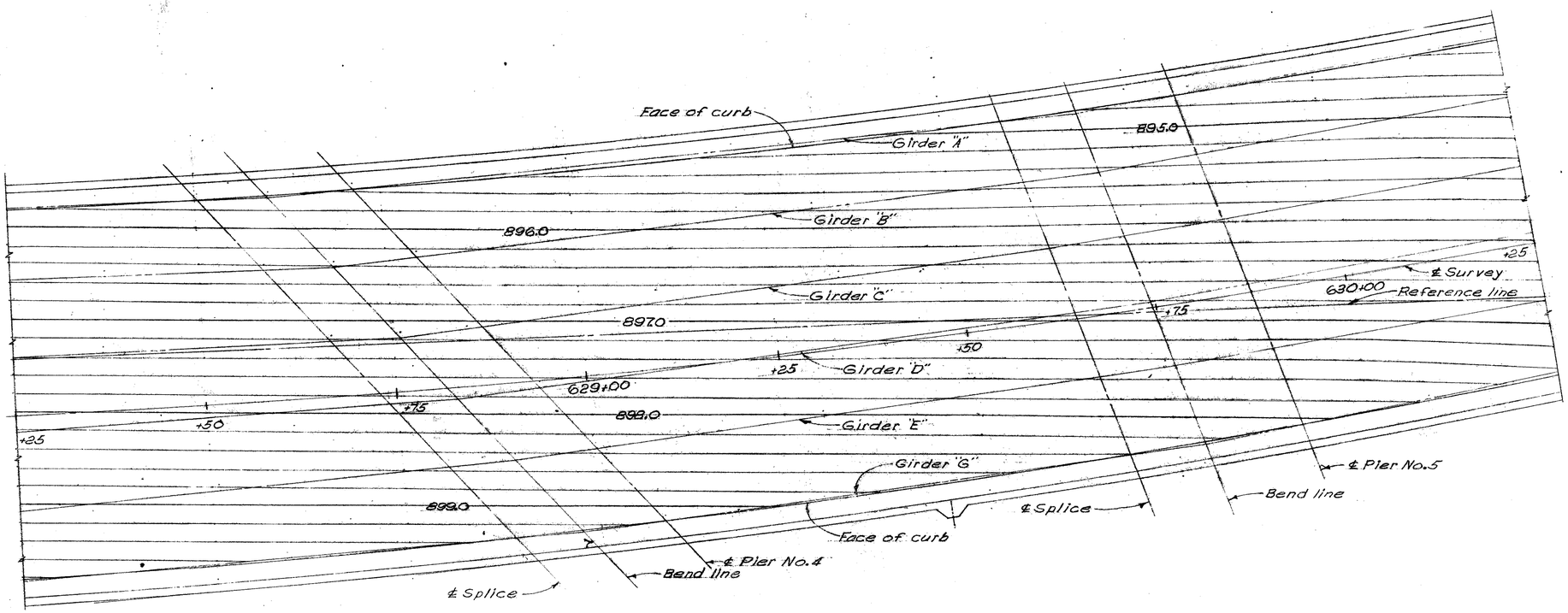
BRIDGE No. TUS-21-2633
U.S.R. 21, RAMP "E", AND STONE CREEK
UNDER SOUTHBOUND U.S.R. 250
TUSCARAWAS COUNTY Sta. 626+78.04

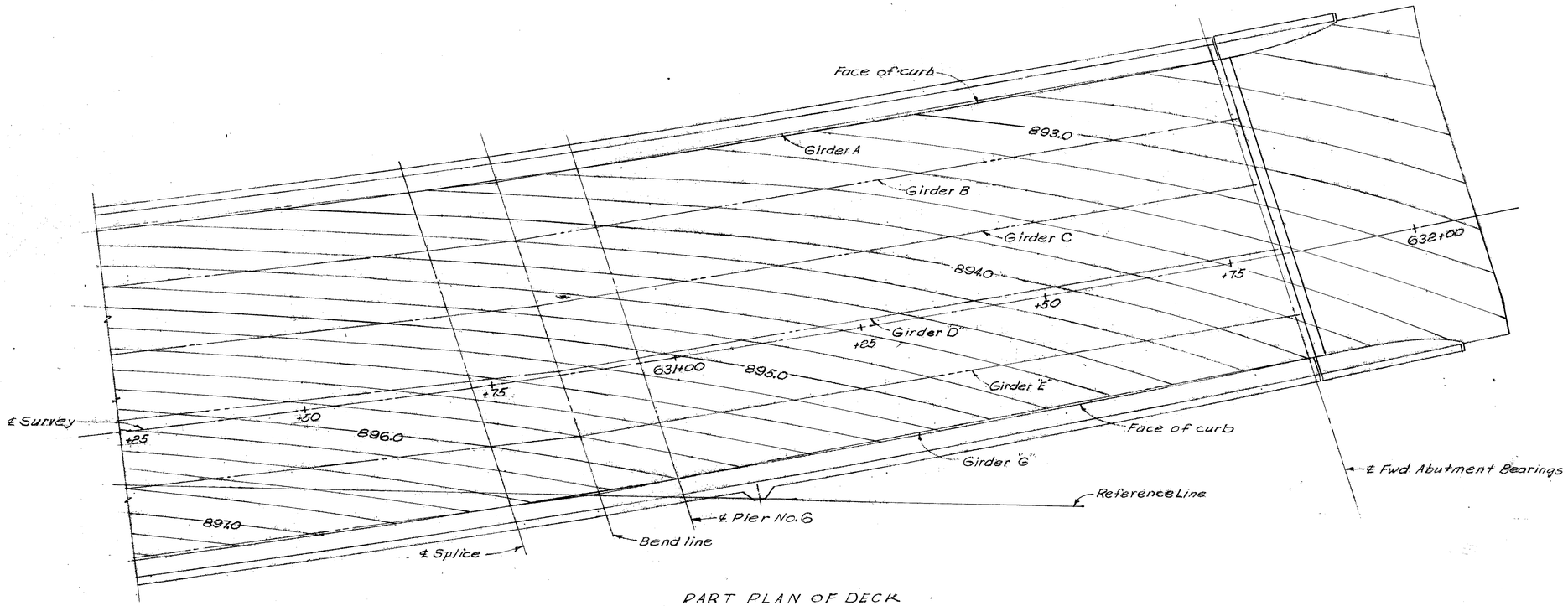
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
K.L.H.	K.L.H.		J.D.R.	BFG	9-26-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

163
235

TUS-21-26.33
TUS-250-11.60





PART PLAN OF DECK

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

DECK CONTOURS

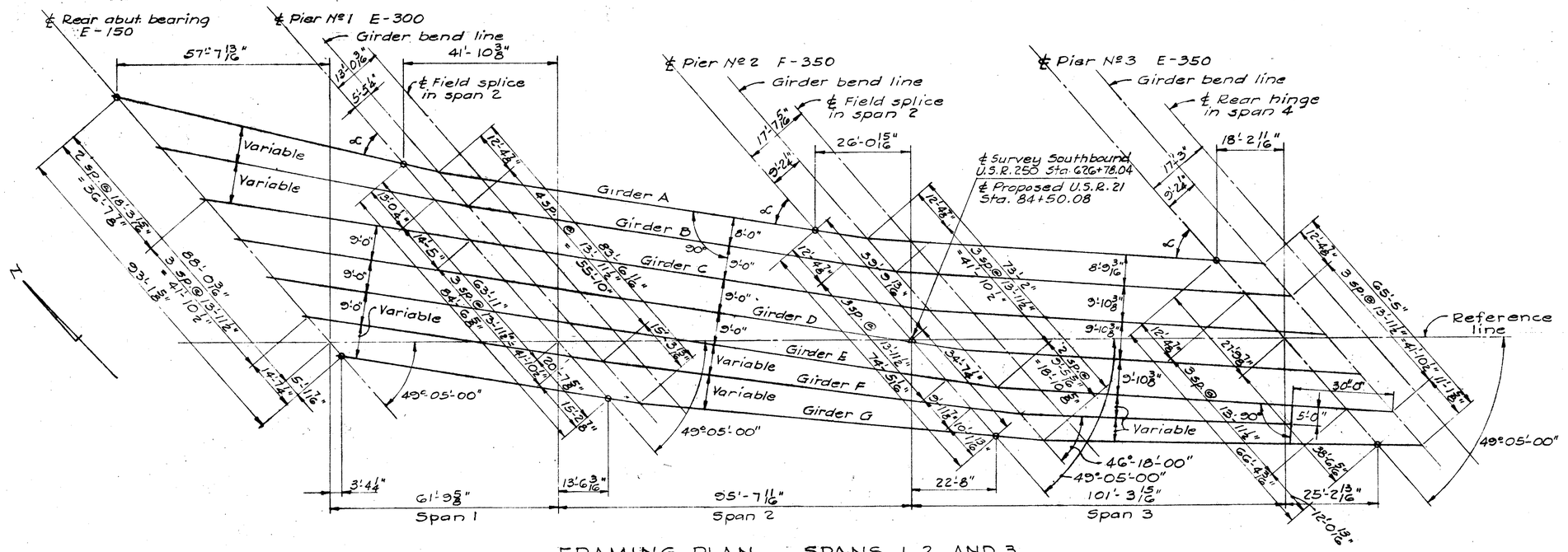
BRIDGE No. TUS-21-2633
U.S.R. 21, RAMP "E" AND STONE CREEK
UNDER SOUTHBOUND U.S.R. 250
TUSCARAWAS COUNTY Sta 626+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
KLH	KLH		J.D.R.	BFG	9-26-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

164 235

TUS-21-26.33
TUS-250-11.60

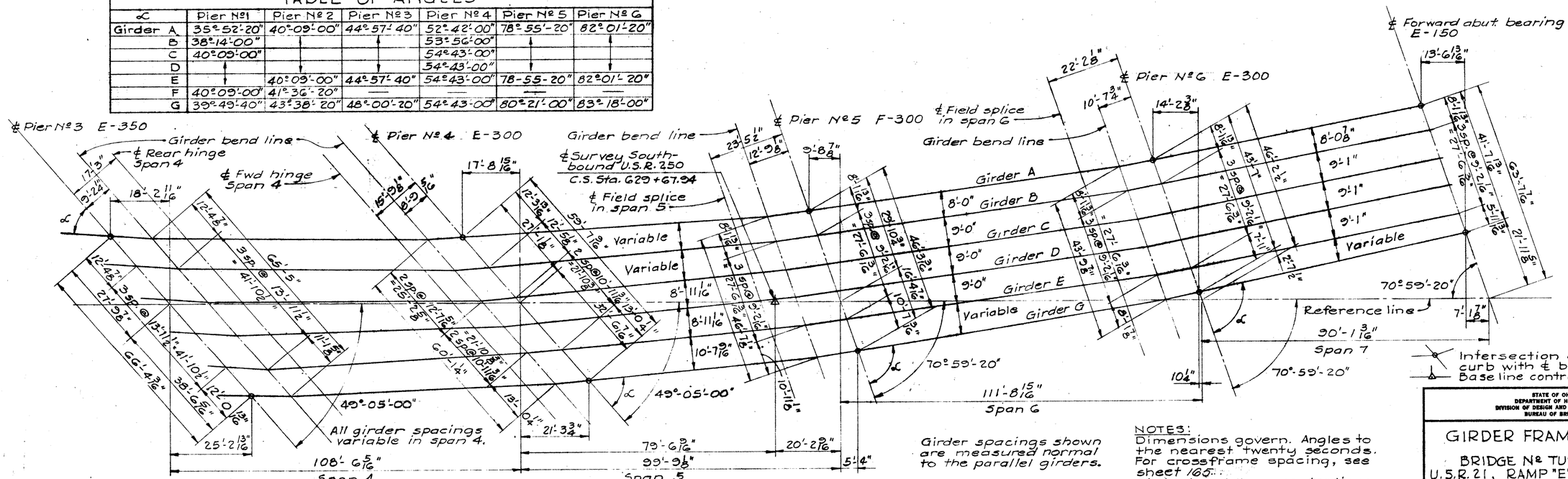


FRAMING PLAN SPANS 1, 2, AND 3

FIELD LOCATION
The reference line is defined as a straight line extending thru the intersection of the centerline of survey of the southbound U.S.R. 250 (Sta. 626+78.04) and the centerline of proposed U.S.R. 21 (Sta. 84+50.08) as the first control point and thru the C.S. point on the centerline of survey of the southbound U.S.R. 250 (Sta. 629+67.94) as the second control point.
The distance along the base line between these control points is 289'-4⅞" (289.406').

TABLE OF ANGLES

∝	Pier Nº1	Pier Nº2	Pier Nº3	Pier Nº4	Pier Nº5	Pier Nº6
Girder A	35°-52'-20"	40°-09'-00"	44°-57'-40"	52°-42'-00"	78°-55'-20"	82°-01'-20"
B	38°-14'-00"			53°-56'-00"		
C	40°-09'-00"			54°-43'-00"		
D				54°-43'-00"		
E		40°-09'-00"	44°-57'-40"	54°-43'-00"	78-55-20"	82°-01'-20"
F	40°-09'-00"	41°-36'-20"	—	—	—	—
G	39°-49'-40"	43°-38'-20"	48°-00'-20"	54°-43'-00"	80°-21'-00"	83°-18'-00"



FRAMING PLAN SPANS 4 THRU 7

Intersection of face of curb with ℄ bearing.
Base line control point.

Girder spacings shown are measured normal to the parallel girders.

NOTES:
Dimensions govern. Angles to the nearest twenty seconds.
For crossframe spacing, see sheet 165.
Girder bend lines, center lines of field splices and hinges are parallel to the centerlines of adjacent piers.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

GIRDER FRAMING PLAN

BRIDGE Nº TUS-21-2633
U.S.R.21, RAMP "E" AND STONE CREEK UNDER SOUTHBOUND U.S.R.250
TUSCARAWAS COUNTY STA. 626+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES		J.D.R.	BFG	9-26-62	

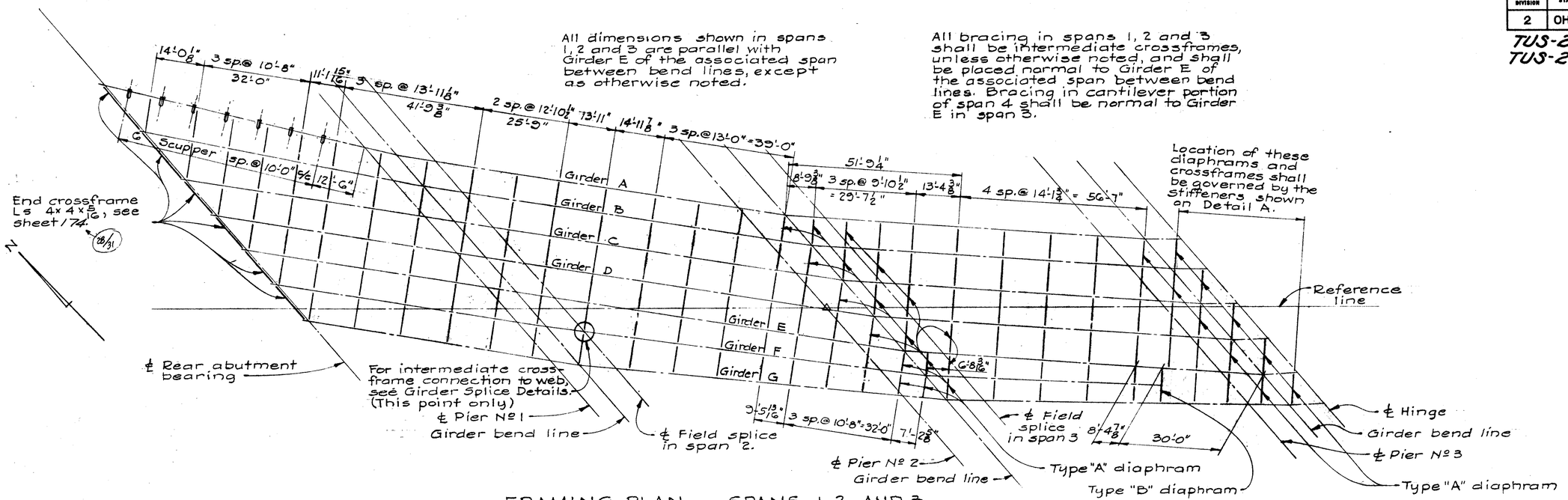
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

165
235

TUS-21-26.33
TUS-250-11.60

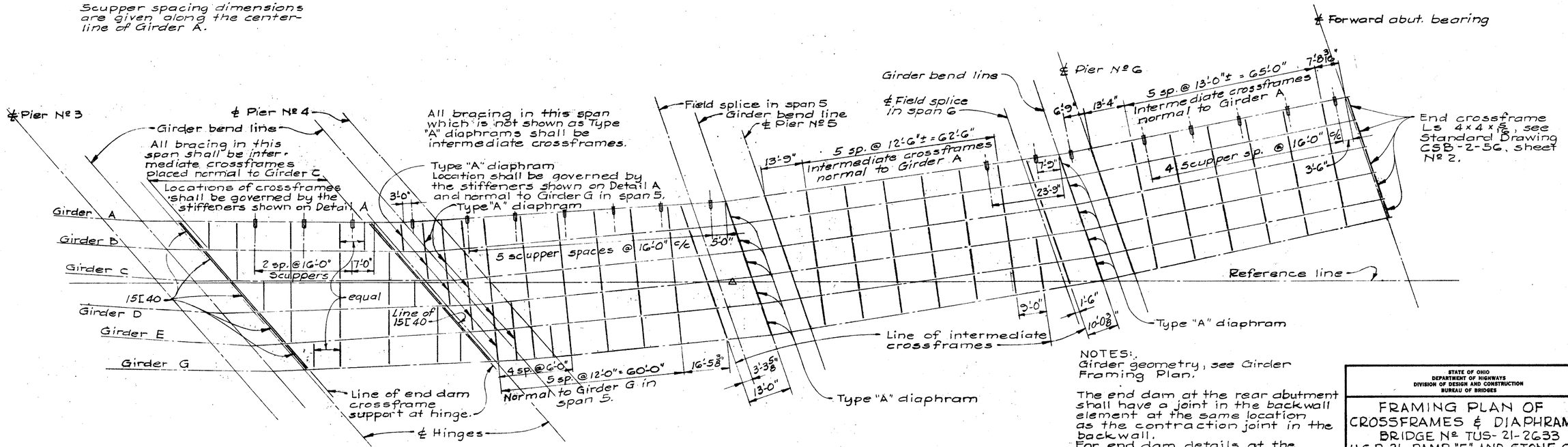
All dimensions shown in spans 1, 2 and 3 are parallel with Girder E of the associated span between bend lines, except as otherwise noted.

All bracing in spans 1, 2 and 3 shall be intermediate crossframes, unless otherwise noted, and shall be placed normal to Girder E of the associated span between bend lines. Bracing in cantilever portion of span 4 shall be normal to Girder E in span 3.



FRAMING PLAN SPANS 1, 2, AND 3

Scupper spacing dimensions are given along the centerline of Girder A.



FRAMING PLAN SPANS 4 THRU 7

NOTES:
Girder geometry, see Girder Framing Plan.

The end dam at the rear abutment shall have a joint in the backwall element at the same location as the contraction joint in the backwall.
For end dam details at the abutments, see Standard Drawing CSB-2-56, sheet Nº 2, Section C, and sheet Nº 3, Curb Plate Details.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

FRAMING PLAN OF CROSSFRAMES & DIAPHRAMS

BRIDGE Nº TUS-21-26.33
U.S.R. 21, RAMP "E" AND STONE CR. UNDER SOUTHBOUND U.S.R. 250
TUSCARAWAS COUNTY STA. 626+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES		J.D.R.	BFG	9-26-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

166
235

TUS-21-26.33
TUS-250-11.60

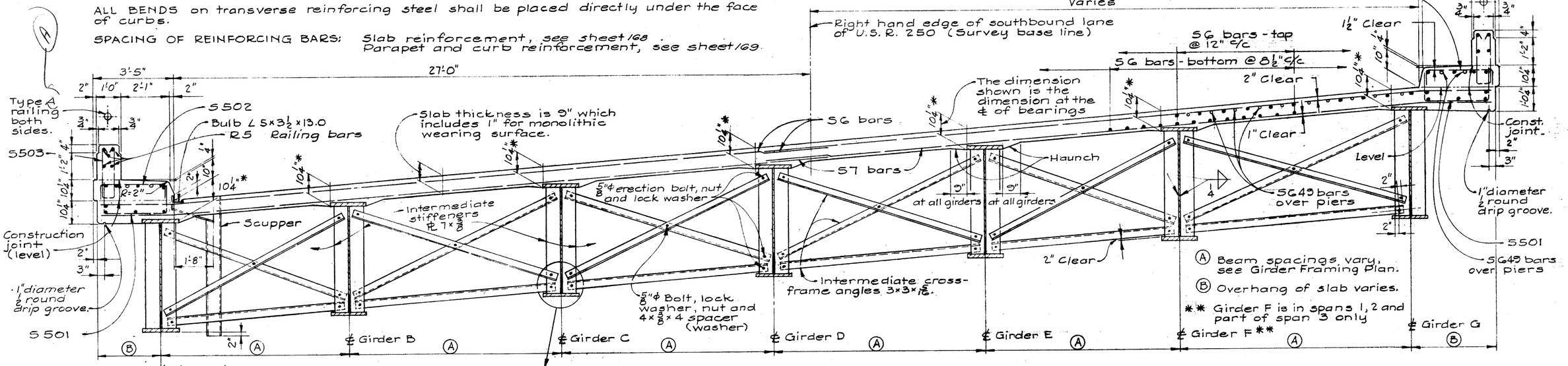
ALL LONGITUDINAL AND TRANSVERSE REINFORCING STEEL IN THE SLAB shall lap 1'-11" min., except the S7 bars in the bottom of the slab which shall be lapped 2'-3" min.

DECK SLAB HAUNCH: The haunches in the deck slab adjacent to the top of the steel girders, which are shown as 9" wide, may vary from this dimension between the limits of 6" and 12" on the low side and between 9" and 12" on the high side. The maximum slope shall not exceed 3" per foot, except on the high side. Payment for deck slab concrete shall be based on the 9" width.

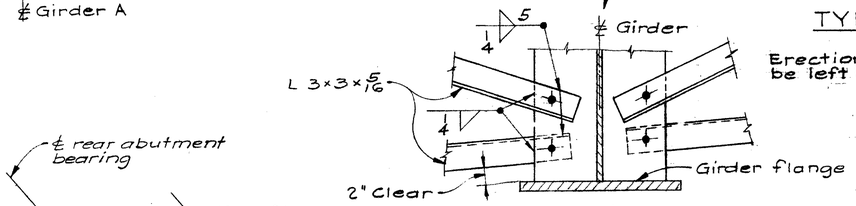
ALL BENDS on transverse reinforcing steel shall be placed directly under the face of curbs.

SPACING OF REINFORCING BARS: Slab reinforcement, see sheet 168.
Parapet and curb reinforcement, see sheet 169.

* This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it will be necessary because the top flange will not have the exact camber or conformation required to place it parallel to the finished grade.



TYPICAL SECTION

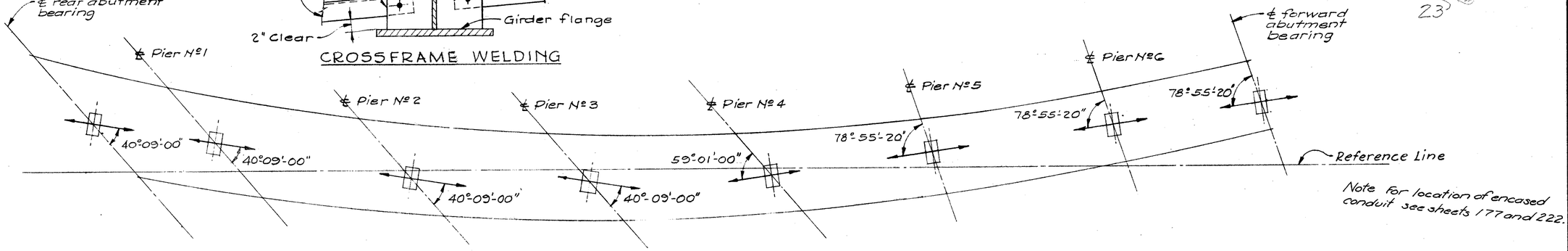


Erection bolts shall be left in place after welding.

CROSSFRAME WELDING

All of the longitudinal bars under the curbs, including those in the slab, and shown thus, •, shall be known as curb bars and reference shall be made to sheet 169. for further information.

23



Note for location of encased conduit see sheets 177 and 222.

All bearing devices under the girders at the rear abutment and at piers Nº1, Nº2 and Nº3 shall be aligned such that expansion will be parallel with the direction of Girder D in spans 1 and 2. The angular relation between the position of the bearing and the ℄ of the substructure unit is noted above.

All bearing devices under the girders at the forward abutment and at piers Nº4, Nº5 and Nº6 shall be aligned such that expansion will be parallel with the direction of Girder D in span 6. The angular relation between the position of the bearing and the ℄ of the substructure unit is noted above.

BEARING DEVICE ALIGNMENT

See Standard Drawing FSB-1-62

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

TYPICAL SECTION ℄ BEARING DEVICE ALIGNMENT

BRIDGE Nº TUS-21-2633
U.S.R. 21, RAMP "E" AND STONE CR. UNDER SOUTHBOUND U.S.R. 250
TUSCARAWAS COUNTY STA. 626+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES		J.D.R.	BFG	9-26-62	

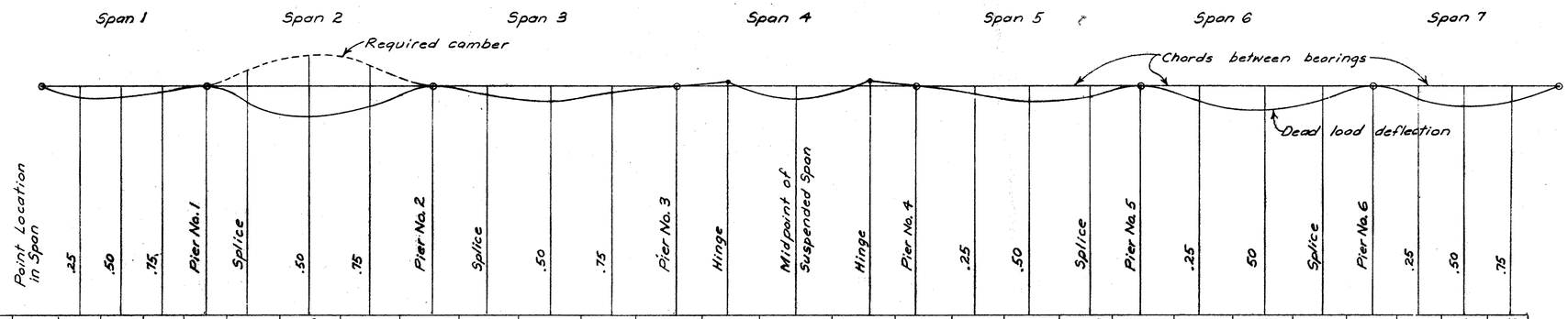
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

167
235

TUS-21-26.33
TUS-250-11.60

DEFLECTION AND CAMBER

CAMBERING of girders is required in accordance with the following table:



$\Delta_{STL.}$ = Deflection due to weight of steel

$\Delta_{R.D.L.}$ = Deflection due to remaining dead load

Total = Total dead load deflection

"C" = Required camber

SIGN CONVENTION: Downward deflection is positive. Upward camber is positive.

BASE LINE for Span 3 portion of Girder F shall be a chord midway between chords for Girders E and G.

DEFLECTIONS for suspended portion of Span 4, as listed in the table, include the deflection of the cantilever portions of the span.

		Span 1				Span 2				Span 3				Span 4				Span 5				Span 6				Span 7		
		.25	.50	.75	Pier No. 1	Splice	.50	.75	Pier No. 2	Splice	.50	.75	Pier No. 3	Hinge	Midpoint of Suspended Span	Hinge	Pier No. 4	.25	.50	Splice	Pier No. 5	.25	50	Splice	Pier No. 6	.25	.50	.75
Girder A	$\Delta_{STL.}$	1/16"	1/16"	0"		1/16"	3/16"	1/8"		1/16"	1/16"	0"		0"	0"	-1/16"		1/16"	1/16"	1/16"		1/16"	1/8"	1/16"		1/16"	1/8"	1/8"
	$\Delta_{R.D.L.}$	1/4"	1/4"	1/16"		3/8"	7/16"	1/2"		1/8"	5/16"	1/16"		-1/16"	5/16"	-1/8"		3/16"	7/16"	1/4"		5/16"	1/2"	1/4"		3/16"	1/2"	3/8"
	Total	5/16"	5/16"	1/16"		7/16"	15/16"	5/8"		3/16"	3/8"	1/16"		-1/16"	5/16"	-3/16"		1/4"	1/2"	5/16"		3/8"	5/8"	5/16"		1/4"	5/8"	1/2"
	"C"	0"	0"	0"		1/2"	15/16"	5/8"		0"	0"	0"		0"	0"	0"		0"	0"	0"		0"	0"	0"		0"	0"	0"
Girder B	$\Delta_{STL.}$	1/16"	1/16"	0"		1/8"	3/16"	1/8"		1/16"	1/16"	0"		0"	1/16"	-1/16"		1/16"	1/8"	1/16"		1/16"	1/8"	1/16"		1/16"	1/8"	1/8"
	$\Delta_{R.D.L.}$	1/4"	1/4"	1/16"		3/8"	3/4"	1/2"		3/16"	3/8"	1/8"		-1/8	5/16	-1/8"		3/16"	7/16	1/4"		3/8"	9/16"	1/4"		1/4"	1/2"	3/8"
	Total	5/16"	5/16"	1/16"		1/2"	15/16"	5/8"		1/4"	7/16"	1/8"		-1/8"	3/8"	-3/16"		1/4"	9/16"	5/16"		7/16"	11/16"	5/16"		5/16"	5/8"	1/2"
	"C"	0"	0"	0"		1/2"	15/16"	5/8"		0"	0"	0"		0"	0"	0"		0"	0"	0"		0"	0"	0"		0"	0"	0"
Girder C	$\Delta_{STL.}$	1/16"	1/16"	0"		1/8"	3/16"	1/8"		1/16"	1/16"	0"		0"	1/16"	-1/16"		1/16"	1/8"	1/16"		1/16"	1/8"	1/16"		1/16"	1/8"	1/8"
	$\Delta_{R.D.L.}$	1/4"	5/16"	1/8"		3/8"	3/4"	1/2"		1/4"	1/2"	3/16"		0"	3/8"	-1/8"		0"	1/8"	1/16"		3/8"	9/16"	1/4"		1/4"	1/2"	7/16"
	Total	5/16"	3/8"	1/8"		1/2"	15/16"	5/8"		5/16"	9/16"	3/16"		0"	5/16"	-3/16"		1/16"	1/4"	1/8"		7/16"	11/16"	5/16"		5/16"	5/8"	9/16"
	"C"	0"	0"	0"		1/2"	15/16"	5/8"		0"	0"	0"		0"	0"	0"		0"	0"	0"		0"	0"	0"		0"	0"	0"
Girder D	$\Delta_{STL.}$	1/16"	1/16"	0"		1/8"	3/16"	1/8"		1/16"	1/16"	1/16"		0"	0"	-1/16"		1/16"	1/8"	1/16"		1/16"	1/8"	1/16"		1/16"	1/8"	1/8"
	$\Delta_{R.D.L.}$	1/4"	1/4"	1/16"		3/8"	3/4"	1/2"		1/4"	1/2"	3/16"		0"	5/16"	-1/8"		0"	1/8"	1/16"		3/8"	9/16"	1/4"		1/4"	1/2"	7/16"
	Total	5/16"	5/16"	1/16"		1/2"	15/16"	5/8"		5/16"	9/16"	1/4"		0"	5/16"	-3/16"		1/16"	1/4"	1/8"		7/16"	11/16"	5/16"		5/16"	5/8"	9/16"
	"C"	0"	0"	0"		1/2"	15/16"	5/8"		0"	0"	0"		0"	0"	0"		0"	0"	0"		0"	0"	0"		0"	0"	0"
Girder E	$\Delta_{STL.}$	1/16"	1/16"	0"		1/8"	3/16"	1/8"		1/16"	1/16"	1/16"		0"	0"	-1/16"		1/8"	3/16"	1/8"		1/16"	1/8"	1/16"		1/16"	1/8"	1/8"
	$\Delta_{R.D.L.}$	1/4"	1/4"	1/16"		3/8"	3/4"	1/2"		1/4"	1/2"	1/4"		0"	1/4"	-5/16"		-1/16"	0"	0"		5/16"	9/16"	5/16"		3/16"	7/16"	3/8"
	Total	5/16"	5/16"	1/16"		1/2"	15/16"	5/8"		5/16"	9/16"	5/16"		0"	1/4"	-3/8"		1/16"	3/16"	1/8"		3/8"	11/16"	3/8"		1/4"	9/16"	1/2"
	"C"	0"	0"	0"		1/2"	15/16"	5/8"		0"	0"	0"		0"	0"	0"		0"	0"	0"		0"	0"	0"		0"	0"	0"
Girder F	$\Delta_{STL.}$	1/16"	1/16"	0"		1/8"	3/16"	1/8"		1/16"	1/16"	1/16"																
	$\Delta_{R.D.L.}$	1/4"	1/4"	1/16"		3/8"	13/16"	9/16"		1/8"	5/16"	1/16"																
	Total	5/16"	5/16"	1/16"		1/2"	1"	11/16"		3/16"	3/8"	1/8"																
	"C"	0"	0"	0"		1/2"	1"	11/16"		0"	0"	0"																
Girder G	$\Delta_{STL.}$	1/16"	1/16"	0"		1/8"	3/16"	1/8"		1/16"	1/16"	1/16"		0"	1/16"	0"		1/8"	3/16"	1/8"		1/16"	1/8"	1/16"		1/16"	1/8"	1/8"
	$\Delta_{R.D.L.}$	1/4"	1/4"	1/16"		3/8"	7/8"	5/8"		0"	1/16"	-1/16"		-1/4"	1/8"	-1/4"		-1/16"	1/16"	0"		5/16"	1/2"	1/4"		1/4"	1/2"	7/16"
	Total	5/16"	5/16"	1/16"		7/16"	1 1/16"	3/4"		1/16"	1/8"	0"		-1/4"	5/16"	-1/4"		1/16"	1/4"	1/8"		3/8"	5/8"	5/16"		5/16"	5/8"	9/16"
	"C"	0"	0"	0"		1/2"	1"	3/4"		0"	0"	0"		0"	0"	0"		0"	0"	0"		0"	0"	0"		0"	0"	0"

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

DEFLECTIONS AND CAMBER
BRIDGE NO. TUS-21-2633
U.S.R. 21, RAMP "E" AND STONE CREEK UNDER SOUTHBOUND U.S.R.250
TUSCARAWAS COUNTY STA. 626+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WJJ	WJJ		J.D.R.	BFG	9-26-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

168
235

TUS-21-26.33
TUS-250-11.60

FIELD CUTTING of SG17 bars will be permitted where interference with scuppers in span 1 occurs. Payment for field cutting shall be included with item 5-4 for payment.

SPACING DIMENSION of all longitudinal bars is the perpendicular distance center to center of bars.

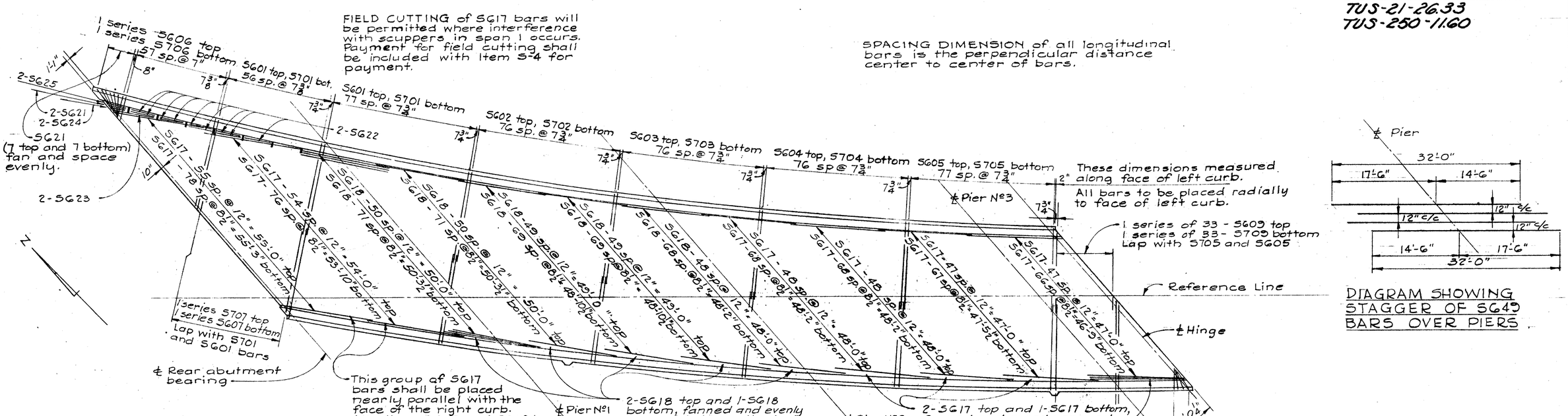
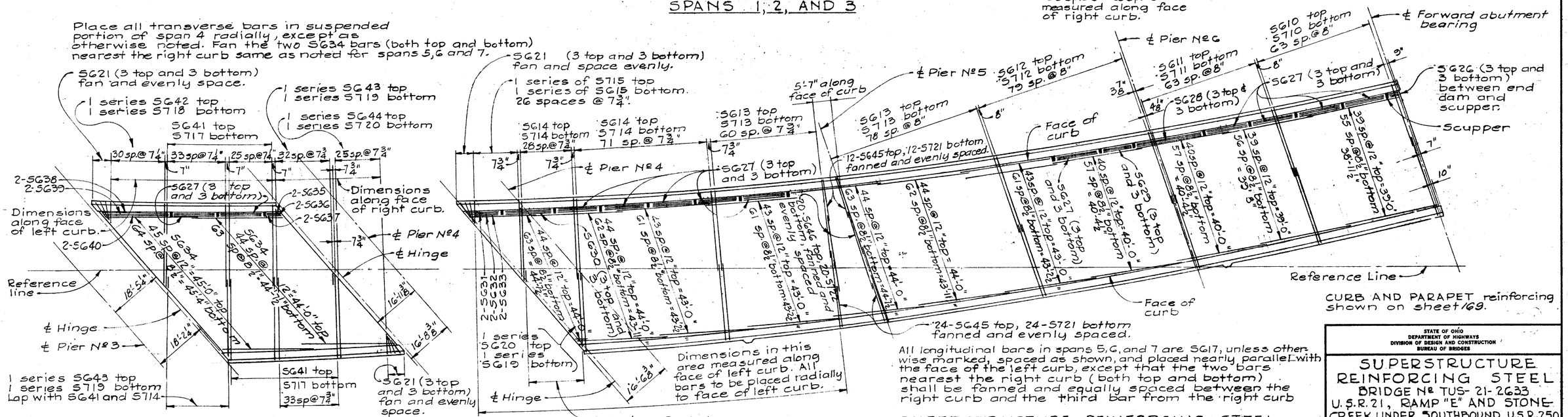


DIAGRAM SHOWING STAGGER OF SG49 BARS OVER PIERS

SUPERSTRUCTURE REINFORCING STEEL
SPANS 1, 2, AND 3



CURB AND PARAPET reinforcing shown on sheet 169.

SUPERSTRUCTURE REINFORCING STEEL
SPANS 5, 6, AND 7

All longitudinal bars in spans 5, 6, and 7 are SG17, unless otherwise marked, spaced as shown, and placed nearly parallel with the face of the left curb, except that the two bars nearest the right curb (both top and bottom) shall be fanned and equally spaced between the right curb and the third bar from the right curb

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

SUPERSTRUCTURE REINFORCING STEEL

BRIDGE Nº TUS-21-2633
U.S.R.21, RAMP "E" AND STONE CREEK UNDER SOUTHBOUND U.S.R.250
TUSCARAWAS COUNTY STA. G26+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES		NEY	BFG	9-26-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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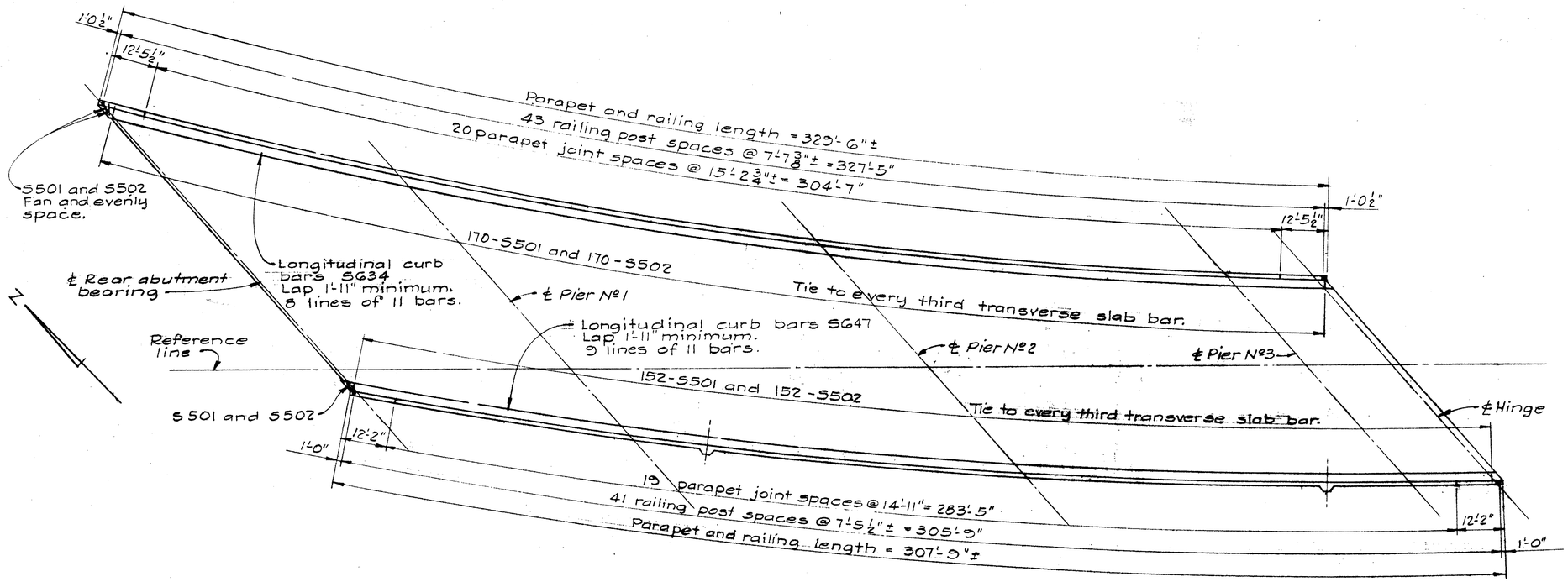
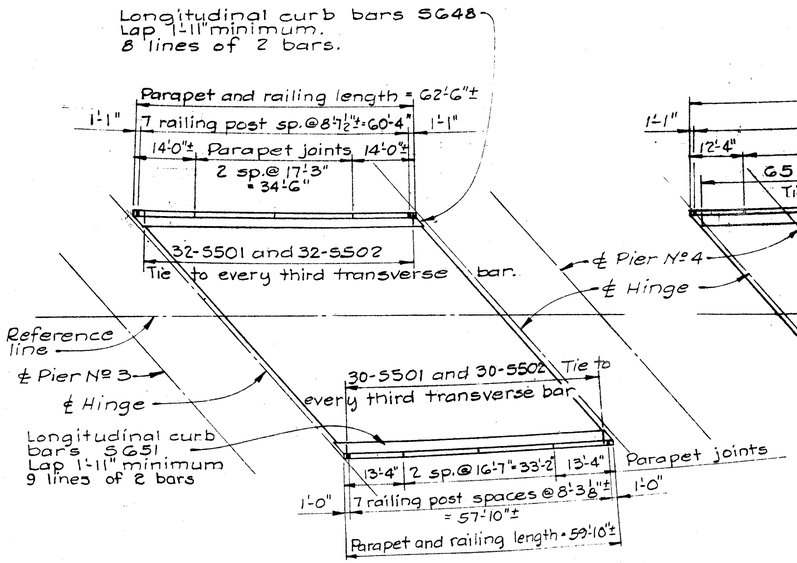
TUS-21-26.33
TUS-250-11.60



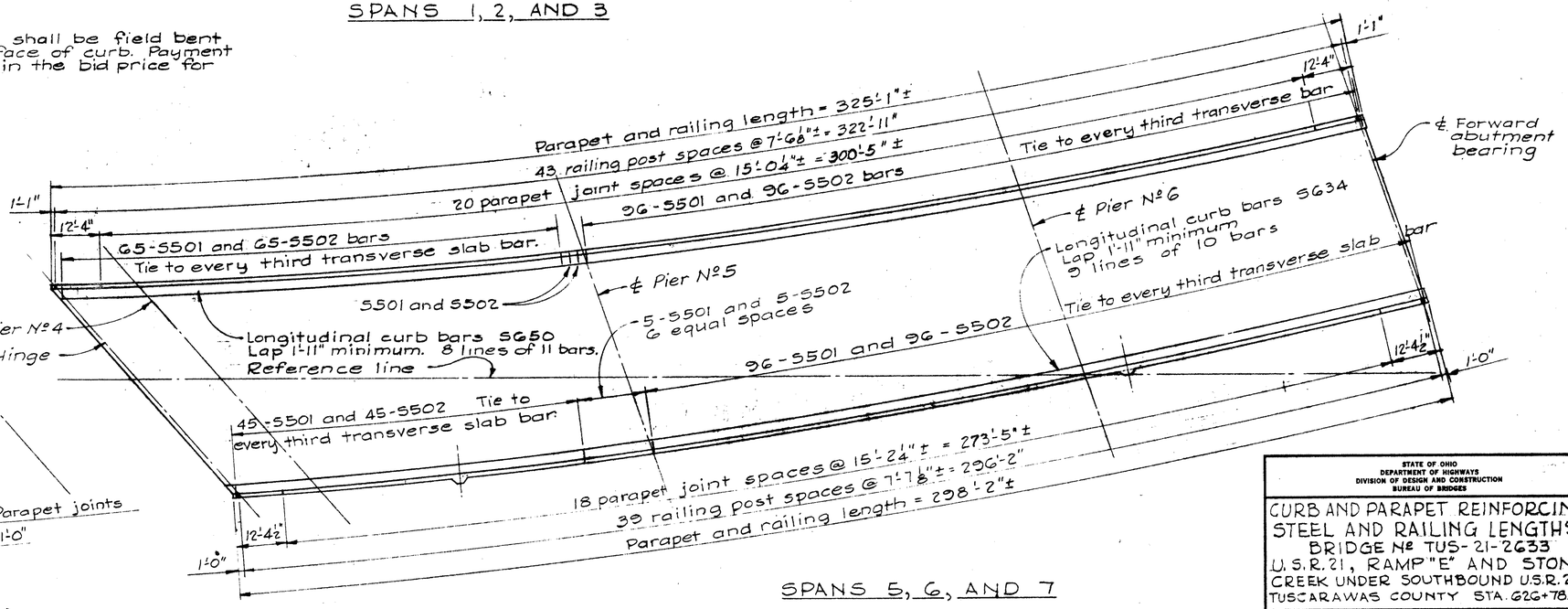
SPANS 1, 2, AND 3

PARAPET BAR DATA		
Panel Length	Bar Nº	Spacing of 5503 bars
12'-2" 12'-4" 12'-4½" 12'-5½"	R505	8 sp. @ 1'-5½"
13'-4"	R506	9 sp. @ 1'-5¼"
14'-0"	R507	9 sp. @ 1'-6¼"
14'-11"	R508	10 sp. @ 1'-5½"
15'-0¼"		
15'-2¼"	R509	10 sp. @ 1'-5¾"
15'-2⅜"		
16'-7"	R510	11 sp. @ 1'-5¾"
17'-3"	R511	11 sp. @ 1'-6⅜"

LONGITUDINAL CURB BARS shall be field bent and placed parallel with the face of curb. Payment for field bending is included in the bid price for Item 5-4, Reinforcing steel.



SUSPENDED PORTION OF SPAN 4



SPANS 5, 6, AND 7

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

CURB AND PARAPET REINFORCING STEEL AND RAILING LENGTHS
BRIDGE Nº TUS-21-2633
U.S.R. 21, RAMP "E" AND STONE CREEK UNDER SOUTHBOUND U.S.R. 250
TUSCARAWAS COUNTY STA. 626+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES		NEY	BFG	9-26-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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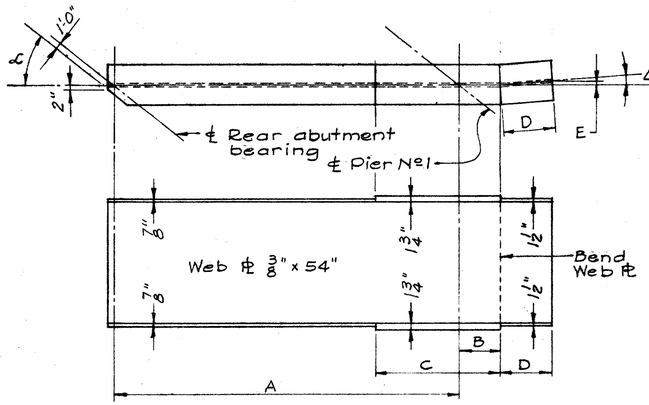
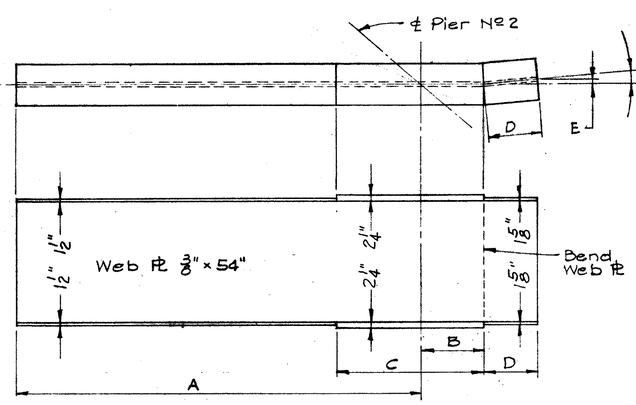
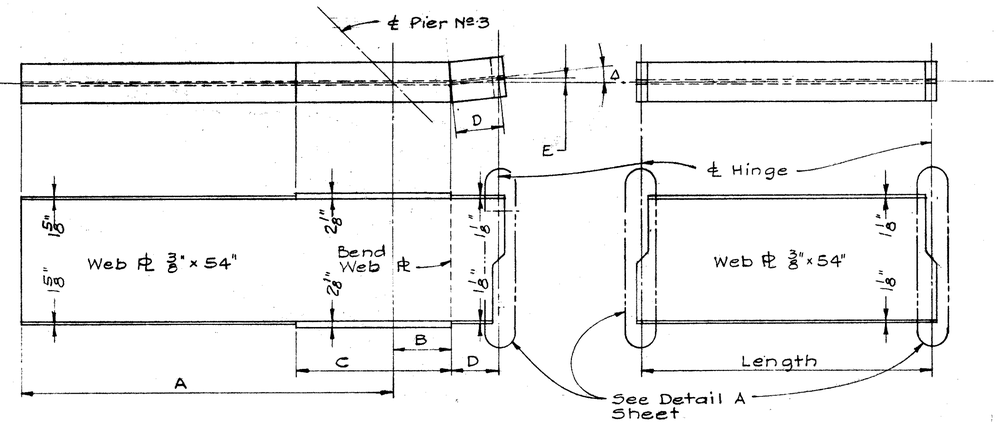
TUS-21-26.33
TUS-250-11.60



GIRDER	DIMENSIONS						
	A	B	C	D	E	Δ	α
A	79'-8 3/8"	9'-3 3/8"	28'-4"	11'-9"	10 1/2"	4°16'-40"	35°52'-20"
B	75'-5 5/16"	8'-9 1/16"	27'-8"	do	4 3/4"	1°55'-00"	38°14'-00"
C	72'-5 1/8"	8'-5 3/16"	27'-3"	do	0	0	40°09'-00"
D	do	do	do	do	0	0	do
E	do	do	do	11'-9"	0	0	do
F	72'-5 1/8"	8'-5 3/16"	27'-3"	11'-4 15/16"	3 1/2"	1°27'20"	40°09'-00"
G	72'-11"	8'-5 7/8"	27'-3"	10'-11 3/4"	8 3/4"	3°48'-40"	39°49'-40"

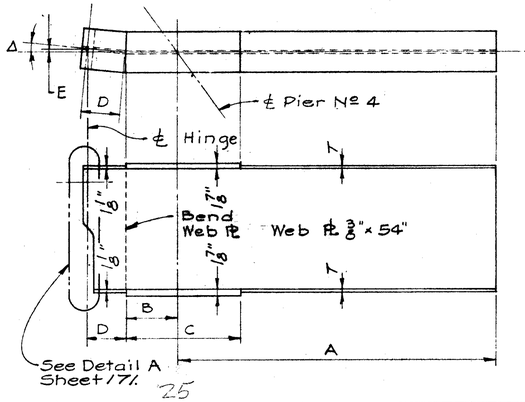


GIRDER	DIMENSIONS					
	A	B	C	D	E	Δ
A	91'-10 3/4"	14'-3"	33'-3"	11'-11"	12"	4°48'-40"
B	do	do	32'-3"	do	do	do
C	do	do	31'-3"	do	do	do
D	do	do	31'-0"	do	do	do
E	91'-10 3/4"	14'-3"	30'-8"	11'-11"	12"	4°48'-40"
F	89'-2 13/16"	13'-3 13/16"	30'-4"	11'-7 3/4"	11 7/16"	4°41'20"
G	85'-10 3/8"	13'-3 1/4"	30'-0"	11'-3 15/16"	10 5/16"	4°22'-00"

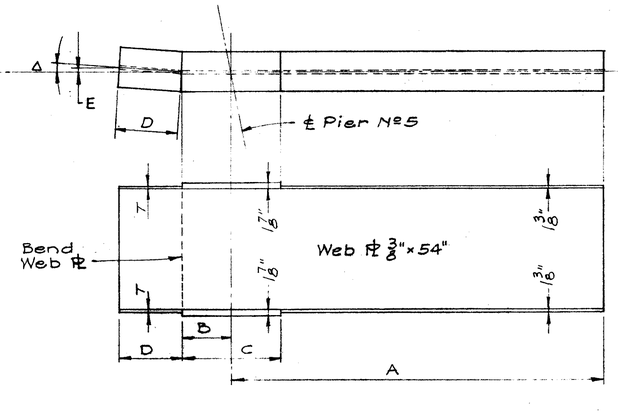


GIRDER	DIMENSIONS					
	A	B	C	D	E	Δ
A	83'-5 1/4"	13'-0"	35'-9"	10'-8 1/2"	8 3/4"	3°54'-40"
B	do	do	do	10'-8 11/16"	8 7/16"	3°48'-20"
C	do	do	do	10'-7 15/16"	10"	4°29'40"
D	do	do	do	10'-4 1/16"	13 7/16"	6°06'00"
E	83'-5 1/4"	13'-0"	35'-9"	10'-1 5/16"	16 1/16"	7°46'-20"
F	See sketch of girder F - span 3, below.					
G	79'-3 15/16"	12'-4 5/16"	34'-0"	10'-3 5/16"	7 3/8"	3°40'-20"

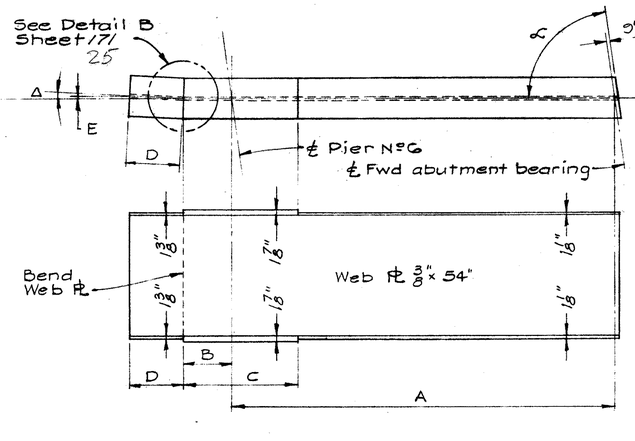
GIRDER	LENGTH
A	65'-0 5/16"
B	65'-1 1/8"
C	64'-5 3/4"
D	63'-0"
E	61'-6 13/16"
G	62'-5 1/16"



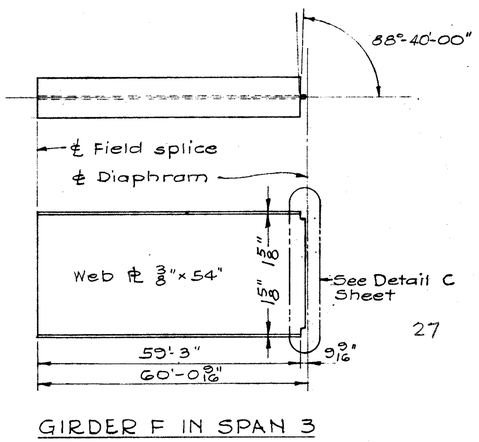
GIRDER	DIMENSIONS						
	A	B	C	D	E	T	Δ
A	83'-11 3/4"	11'-0 3/8"	33'-6"	9'-3 1/4"	7 1/16"	1 3/8"	3°43'-40"
B	78'-9 1/16"	10'-10 1/4"	33'-6"	9'-3 1/16"	10 1/16"	1 3/8"	5°10'-00"
C	73'-8 7/16"	10'-9"	34'-9"	9'-2 1/4"	10 5/8"	1 1/4"	5°15'-40"
D	69'-6 9/16"	do	35'-9"	8'-11 3/4"	6 1/8"	1 1/4"	3°39'20"
E	65'-4 1/4"	do	36'-6"	8'-9 5/16"	3 5/8"	1 1/8"	1°58'40"
G	60'-4 5/16"	10'-9"	37'-3"	8'-10 13/16"	5 5/8"	1 1/8"	3°02'-00"



GIRDER	DIMENSIONS						
	A	B	C	D	E	T	Δ
A	85'-0 1/16"	13'-0"	30'-6"	11'-1 13/16"	10"	1 3/8"	4°19'-00"
B	do	do	28'-3"	11'-0 1/16"	7 1/8"	1 3/8"	3°04'-40"
C	do	do	26'-0"	11'-0"	5 5/16"	1 1/4"	2°18'-00"
D	do	do	23'-9"	do	do	1 1/4"	do
E	85'-0 1/16"	13'-0"	22'-6"	do	5 5/16"	1 0"	2°18'-00"
G	84'-8 1/16"	12'-11 5/16"	21'-3"	11'-0"	8 1/16"	1 0"	3°43'-40"



GIRDER	DIMENSIONS						
	A	B	C	D	E	Δ	α
A	86'-0 3/16"	10'-9"	25'-9"	11'-9"	7 5/8"	3°06'-00"	82°01'-20"
B	do	do	do	do	do	do	do
C	do	do	do	do	do	do	do
D	do	do	do	do	do	do	do
E	86'-0 3/16"	10'-9"	25'-9"	11'-9"	7 5/8"	3°06'-00"	82°01'-20"
G	85'-5 3/16"	10'-8 5/8"	25'-9"	11'-8 3/8"	7 1/4"	2°57'-00"	83°18'-00"



GIRDER F IN SPAN 3

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NOTES:
DISTANCE "D" is the distance along the centerline of the web from the bend line to the centerline of the splice or hinge.
DISTANCE "A" is the distance from the centerline of the pier to the centerline of the splice, unless otherwise noted.

GIRDER END CUTS shall be fabricated with allowances made for splicing and variations in beam slopes and camber.

GIRDER FLANGE PLATES: All flange plates shall be 18" wide and of thicknesses as shown in the sketches above.

ADDITIONAL DETAILS — SEE SHEET

Beam deflection and camber	17
Welding details	173
Stiffener locations	174
Splice details	175
Hinge details (Detail A)	175

ALL DIMENSIONS are horizontal distances and do not take into account changes in elevations from support to support.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

GIRDER DETAIL SKETCHES

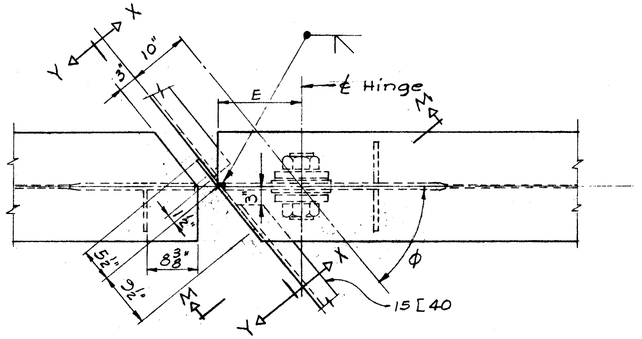
BRIDGE Nº TUS-21-2633
U.S.R. 21, RAMP "E" & STONE CR. UNDER SOUTHBOUND U.S.R.250
TUSCARAWAS COUNTY STA. 626+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES		J.D.R.	BFG	9-26-62	.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

171/235

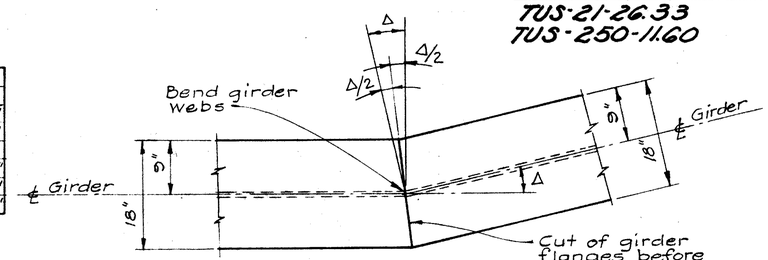
TUS-21-26.33
TUS-250-11.60



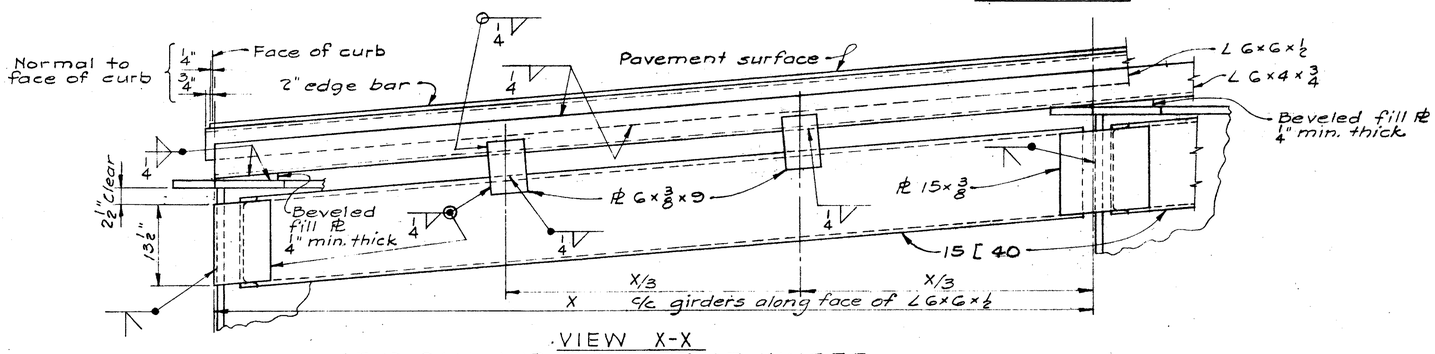
PLAN

HINGE DATA

Girder	DIMENSION						
	A	B	C	D	E	F	Φ
A	1'-0 3/8"	1'-2 1/8"	1'-5 5/8"	7 3/4"	1'-1 5/8"	1'-7 15/16"	48° 52' 20"
B	1'-0 1/16"	1'-2 1/16"	1'-5 1/16"	7 1/16"	1'-1 1/16"	1'-7 15/16"	48° 46' 00"
C	1'-0 15/16"	1'-2 3/16"	1'-5 3/16"	7 15/16"	1'-1 3/16"	1'-7 3/4"	49° 27' 20"
D	1'-0 1/2"	1'-2 1/2"	1'-5 1/4"	8 1/8"	1'-1 1/4"	1'-7 1/4"	51° 03' 40"
E	1'-0 3/16"	1'-2 1/16"	1'-4 15/16"	8 1/16"	1'-0 15/16"	1'-6 7/8"	52° 44' 00"
G	1'-0 3/8"	1'-2 5/8"	1'-5 3/8"	8 1/4"	1'-1 3/8"	1'-7 1/8"	51° 41' 00"

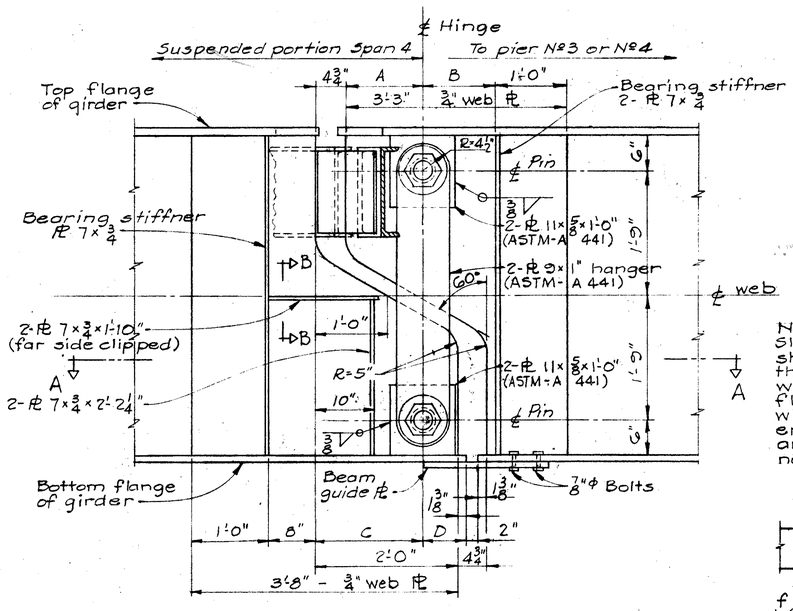


DETAIL B



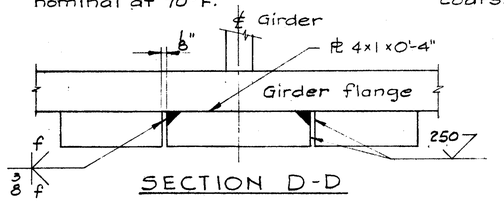
VIEW X-X

END DAM AND SUPPORT AT HINGES



DETAIL A - ELEVATION - HINGE DETAIL

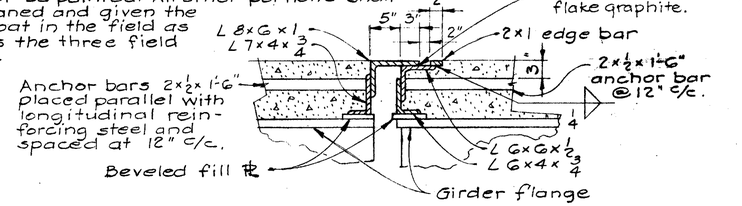
NOTE (DETAIL A):
Slope of girders is not shown. The cuts at the ends of the girder webs adjacent to the flanges shall be parallel with the ℄ hinge after erection. The end clearance dimensions are nominal at 70° F.



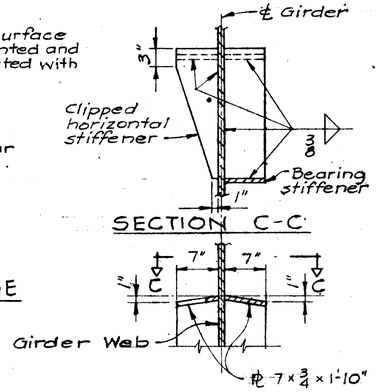
SECTION D-D

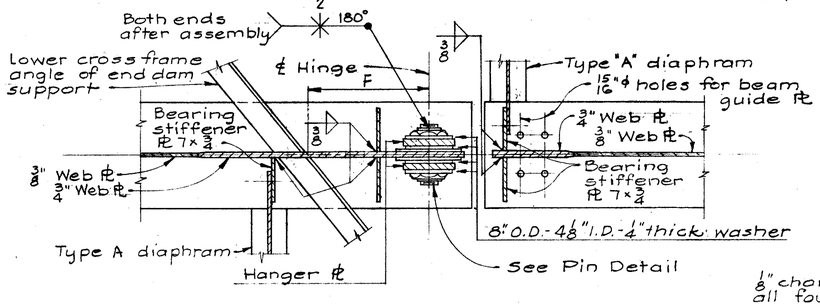
Omit shop coat of paint on all portions of end dam. Portions in contact with steel or concrete shall not be painted. All other portions shall be cleaned and given the shop coat in the field as well as the three field coats.

This contact surface shall not be painted and shall be lubricated with flake graphite.

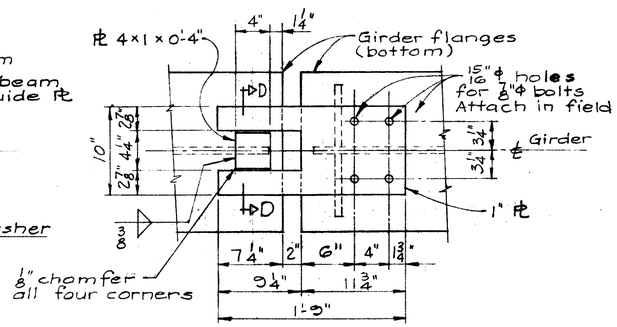


SECTION M-M END DAM DETAIL AT HINGE

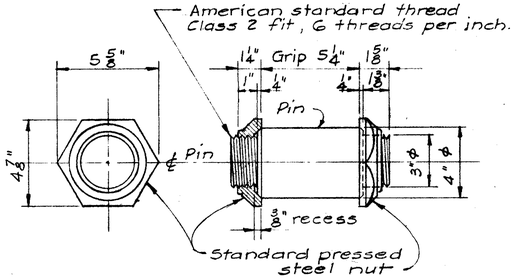




SECTION A-A



BEAM GUIDE DEVICE DETAIL



Pin shall be made of stainless steel meeting the requirements of ASTM Designation A276, Type 303; minimum yield point = 40,000 p.s.i.

HANGER PIN AND NUT DETAIL

For VIEW Y-Y see sheet 172

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

SUPERSTRUCTURE DETAILS

BRIDGE Nº TUS-21-26.33
U.S.R. 21, RAMP "E" AND STONE CR
UNDER SOUTHBOUND U.S.R. 250
TUSCARAWAS COUNTY STA. 626+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES		J.D.P.	BFG.	9-26-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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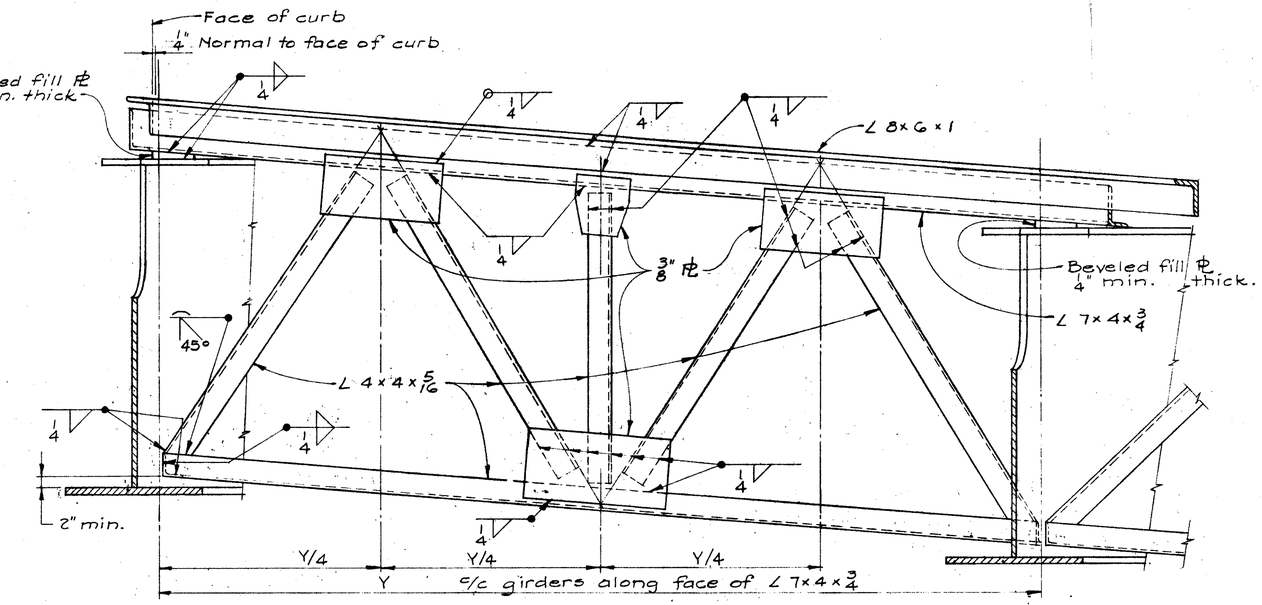
TUS-21-26.33
TUS-250-11.60



VIEW Y-Y

For location see sheet 171

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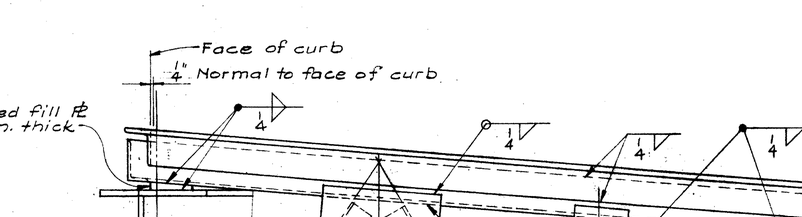
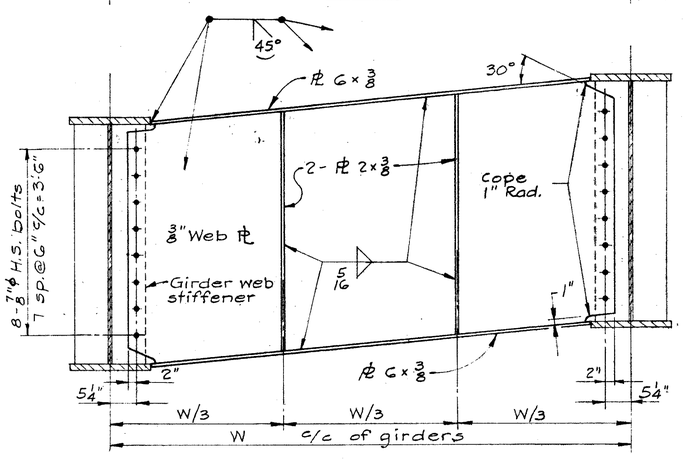
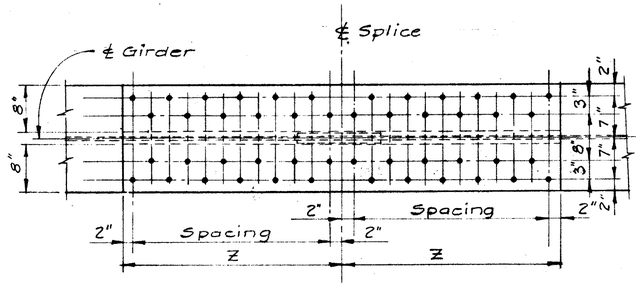


PLAN

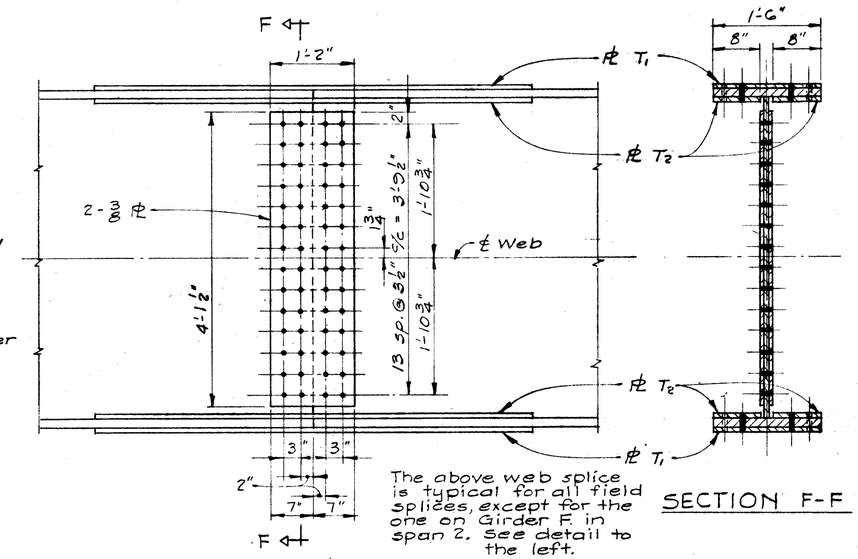


ELEVATION
TYPE "A" DIAPHRAM



PLAN

FIELD SPLICES
All field splices shall be made with the use of 8 "ϕ high strength bolts in accordance with Supplemental Specification № S-207.10.
Flange plates shall be shop bent, if necessary, to match the slopes of the girders.

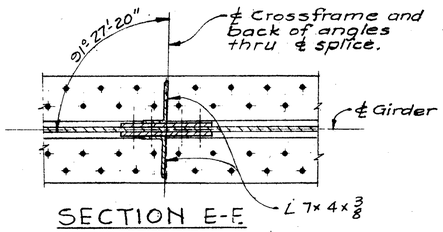


The above web splice is typical for all field splices, except for the one on Girder F in span 2. See detail to the left.

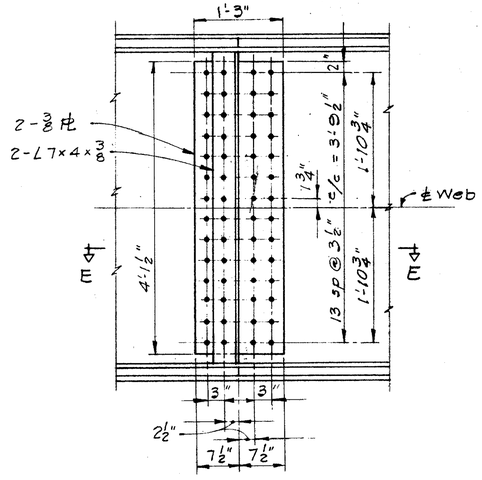
SECTION F-F

ELEVATION

GIRDER FIELD SPLICE DETAILS
See table below for dimensions and spacings



SECTION E-E



WEB SPLICE
AT GIRDER F IN SPAN 2 ONLY

GIRDER FLANGE SPLICE DATA

	Span in which splice occurs					
	2	3	5			6
Girder	All	All	A & B	C & D	E & G	All
℄ T_1	18 x 3/4	18 x 3/4	18 x 5/8	18 x 5/8	18 x 5/8	18 x 5/8
℄ T_2	8 x 3/4	8 x 3/4	8 x 5/8	8 x 5/8	8 x 5/8	8 x 5/8
Length (T_1 & T_2)	6'-2"	6'-8"	5'-8"	5'-2"	4'-8"	5'-8"
Dim. Z	3'-1"	3'-4"	2'-10"	2'-7"	2'-4"	2'-10"
Spacing	11@3" = 2'-9"	12@3" = 3'-0"	10@3" = 2'-6"	5@3" = 2'-3"	8@3" = 2'-0"	10@3" = 2'-6"

STATE OF OHIO
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DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

SUPERSTRUCTURE DETAILS

BRIDGE № TUS-21-2633
U.S.R. 21, RAMP "E" & STONE CR.
UNDER SOUTHBOUND U.S.R. 250
TUSCARAWAS COUNTY STA. 622+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES		J.D.R.	BFG	9-26-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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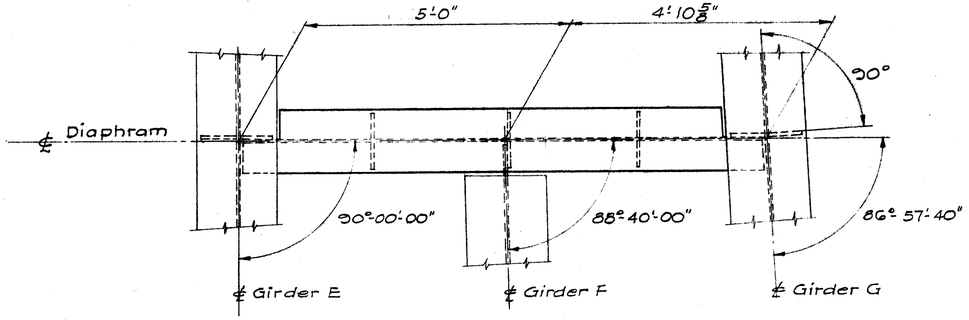
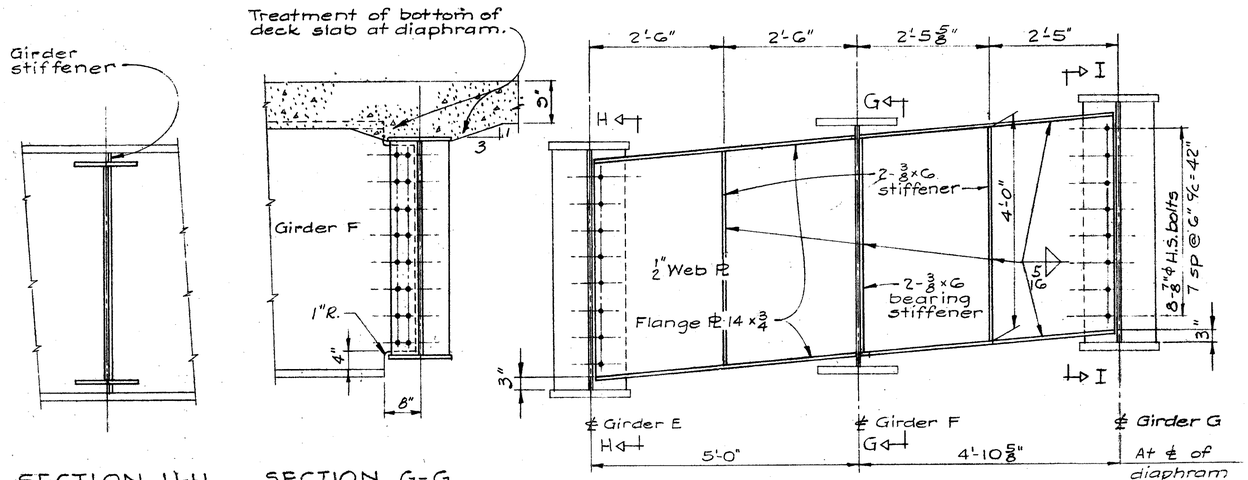
TUS-21-26.33
TUS-250-11.60

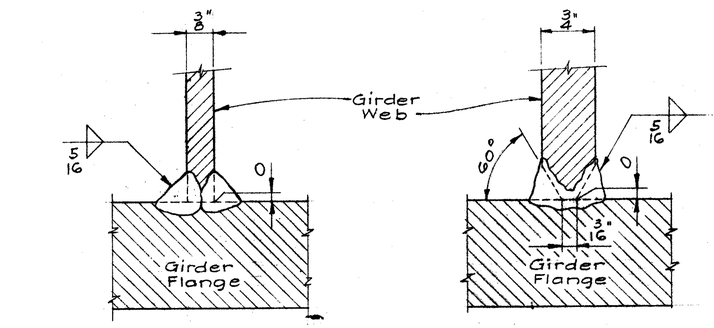
RADIOGRAPHING of girder splices is required in accordance with Supplemental Specification S-307.



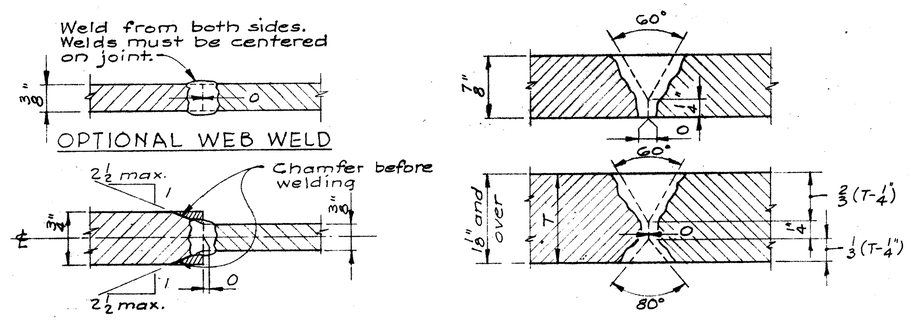
PLAN

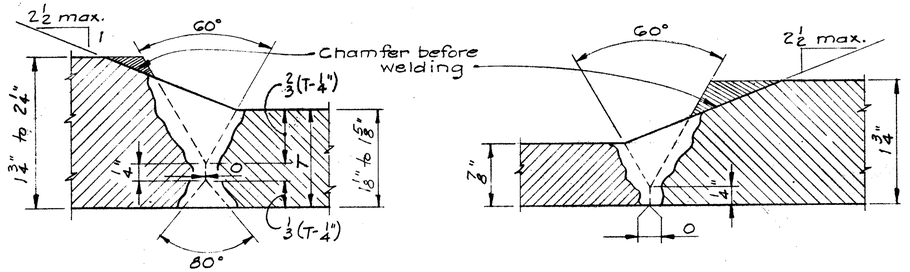


ELEVATION - TYPE "B" DIAPHRAM



GIRDER FLANGE TO WEB WELDS





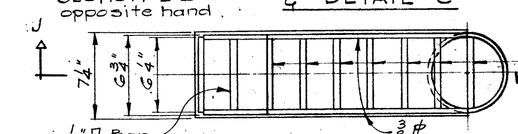
GIRDER FLANGE BUTT WELDS
All flange butt welds shall be ground flush.

BUILT-UP WELDS shall not be completed until after at least one pass has been made on each side of the joint. OPTIONAL SHOP SPLICES will be permitted in the webs and flanges of the girders, but their locations shall be submitted to the Director for approval prior to ordering of material.

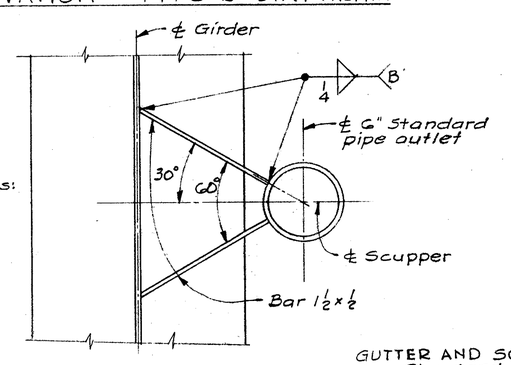
GIRDER WELDING DETAILS

SECTION H-H
SECTION I-I opposite hand

SECTION G-G
℄ DETAIL C



SECTION J-J



SECTION K-K

SCUPPER DETAILS

GUTTER AND SCUPPER SUPPORTS, see Standard Drawing CSB-2-56, sheet No 3, except for spacing of 8" bolts.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

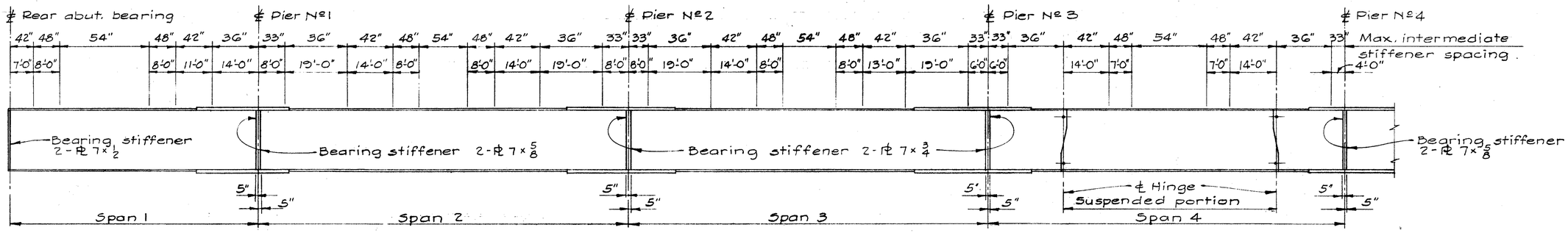
SUPERSTRUCTURE DETAILS

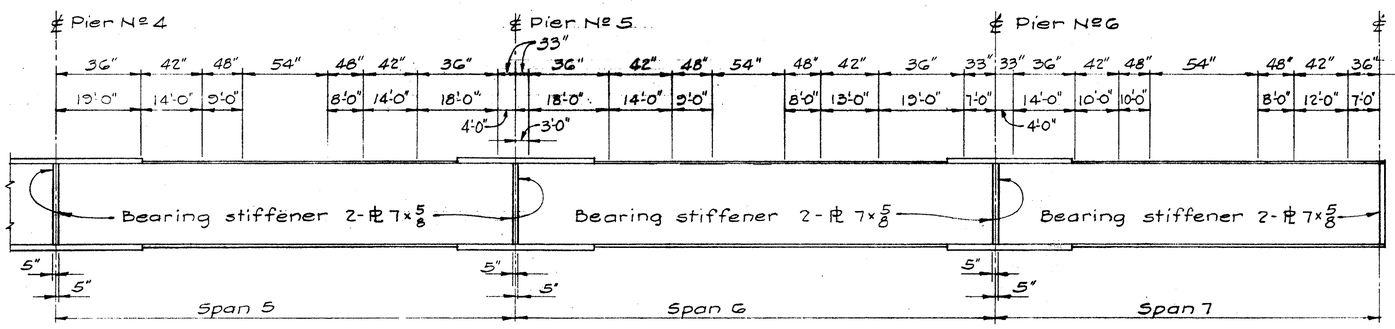
BRIDGE No TUS-21-2633
U.S.R. 21, RAMP "E" & STONE CREEK
UNDER SOUTHBOUND U.S.R. 250
TUSCARAWAS COUNTY STA. 626+78.04

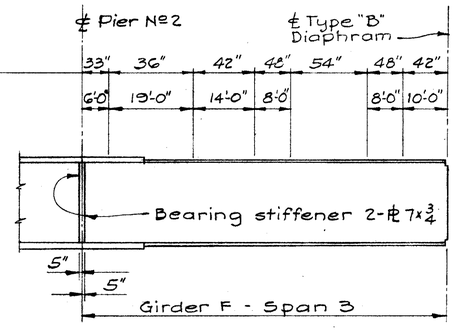
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES		J.D.R.	BFG	9-26-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

TUS-21-26.33
TUS-250-11.60

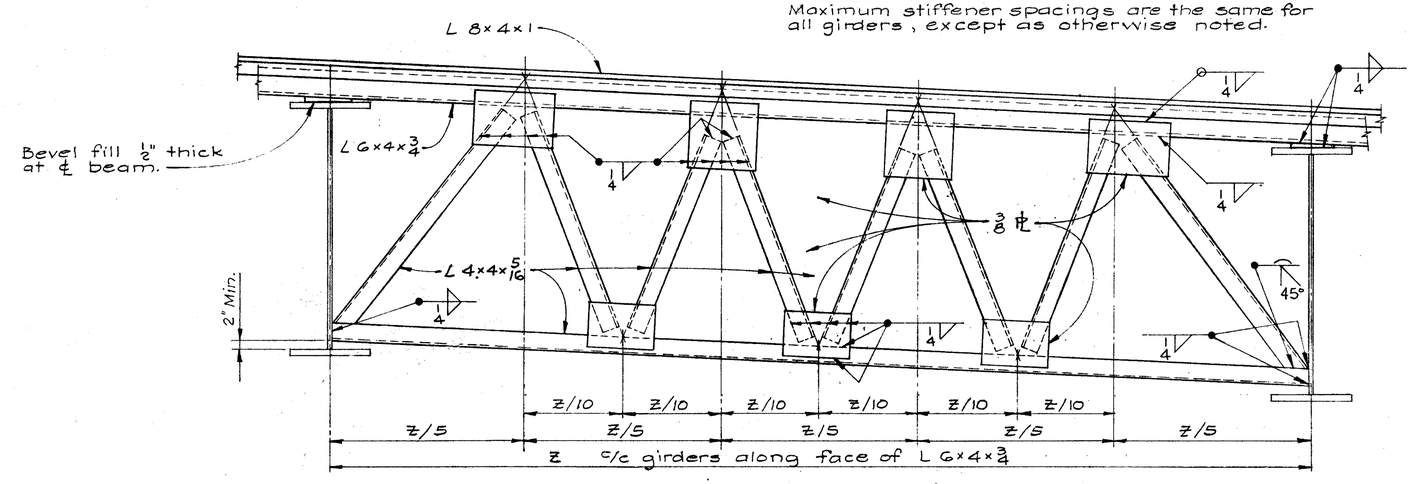




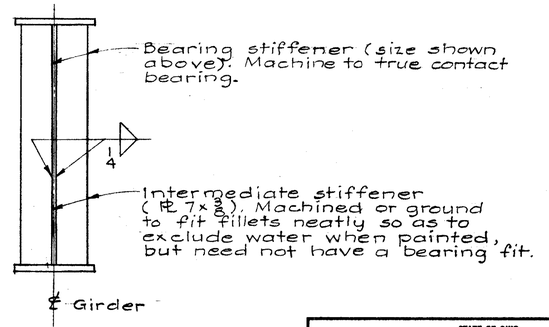


MAXIMUM STIFFENER SPACINGS

Maximum stiffener spacings are the same for all girders, except as otherwise noted.



END CROSSFRAMES AT REAR ABUTMENT



INTERMEDIATE & BEARING STIFFENER DETAILS

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

SUPERSTRUCTURE DETAILS

BRIDGE Nº TUS-21-2633
U.S.R. 21, RAMP "E", & STONE CREEK
UNDER SOUTHBOUND U.S.R. 250
TUSCARAWAS COUNTY STA. 626+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES		J.D.R.	BFG	9-26-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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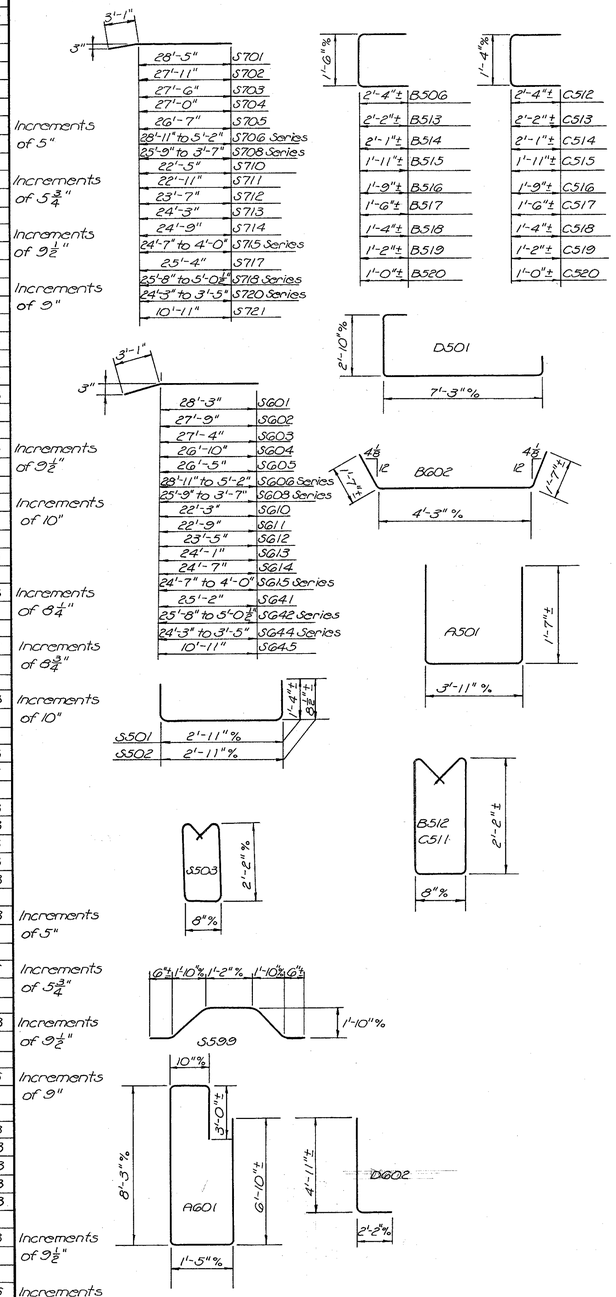
TUS-21-26.33
TUS-250-11.60

REINFORCING STEEL LIST

Superstructure

MARK	No.	LENGTH	WEIGHT	SHP.
S701	213	31'-6"	13,714	B
S702	154	31'-0"	9,758	B
S703	154	30'-7"	9,627	B
S704	154	30'-1"	9,470	B
S705	190	29'-8"	11,521	B
S706	1 Series of 58	32'-0" TO 8'-3"	2386	B
S707	1 Series of 56	30'-4" TO 3'-11¾"	1964	S
S708	1 Series of 29	28'-10" TO 6'-8"	1052	B
S709	2 Series of 33	27'-9" TO 3'-9"	1062	S
S710	128	25'-6"	6672	B
S711	128	26'-0"	6802	B
S712	160	26'-8"	8721	B
S713	280	27'-4"	15643	B
S714	173	27'-10"	9842	B
S715	1 Series of 27	27'-8" TO 7'-1"	959	B
S716	1 Series of 28	26'-8" TO 4'-2"	882	S
S717	120	28'-5"	6970	B
S718	1 Series of 31	28'-9" TO 8'-1½"	1168	B
S719	2 Series of 33	27'-3" TO 3'-11"	2102	S
S720	1 Series of 26	27'-4" TO 6'-6"	899	B
S721	36	14'-0"	1030	B
S722	20	28'-10"	1179	S
SG01	213	31'-4"	10,024	B
SG02	154	30'-10"	7,132	B
SG03	154	30'-5"	7036	B
SG04	154	29'-11"	6920	B
SG05	190	29'-6"	8419	B
SG06	1 Series of 58	32'-0" TO 8'-3"	1753	B
SG07	1 Series of 56	30'-4" TO 3'-11¾"	1443	S
SG08	1 Series of 29	28'-10" TO 6'-8"	773	B
SG09	1 Series of 33	27'-9" TO 3'-9"	781	S
SG10	128	25'-4"	4870	B
SG11	128	25'-10"	4967	B
SG12	160	26'-6"	6368	B
SG13	280	27'-2"	11425	B
SG14	173	27'-8"	7189	B
SG15	1 Series of 27	27'-8" TO 7'-1"	705	B
SG16	1 Series of 26	26'-8" TO 4'-2"	648	S
SG17	1780	32'-0"	85,554	S
SG18	619	30'-0"	27,892	S

Bending Diagrams



Superstructure (continued)

MARK	No.	LENGTH	WEIGHT	SHP.
SG19	2 Series of 64	23'-6" TO 3'-0¾"	1313	S
SG20	1 Series of 45	23'-6" TO 4'-3"	938	S
SG21	40	7'-0"	421	S
SG22	18	9'-3"	250	S
SG23	2	15'-0"	45	S
SG24	2	6'-0"	18	S
SG25	2	8'-0"	24	S
SG26	6	3'-8"	33	S
SG27	72	15'-3"	1649	S
SG28	6	24'-6"	221	S
SG29	6	11'-0"	99	S
SG30	6	17'-4"	156	S
SG31	2	12'-8"	38	S
SG32	2	11'-10"	36	S
SG33	2	11'-0"	33	S
SG34	398	31'-8"	13,930	S
SG35	2	5'-6"	17	S
SG36	2	6'-0"	18	S
SG37	2	6'-6"	20	S
SG38	2	23'-6"	71	S
SG39	2	23'-0"	69	S
SG40	2	22'-6"	68	S
SG41	120	28'-3"	5092	B
SG42	1 Series of 31	28'-9" TO 8'-1½"	858	B
SG43	2 Series of 33	27'-3" TO 3'-11"	1545	S
SG44	1 Series of 26	27'-4" TO 6'-6"	661	B
SG45	36	14'-0"	757	B
SG46	20	28'-10"	866	S
SG47	99	29'-8"	4411	S
SG48	16	32'-1"	771	S
SG49	297	32'-0"	14275	S
SG50	88	31'-4"	4142	S
SG51	18	30'-10"	834	S
S501	696	5'-4"	3872	B
S502	696	4'-1"	2964	B
S503	1007	5'-6"	5777	B
S597	8	2'-10"	24	S
S598	40	2'-0"	83	S
S599	20	7'-3"	151	B

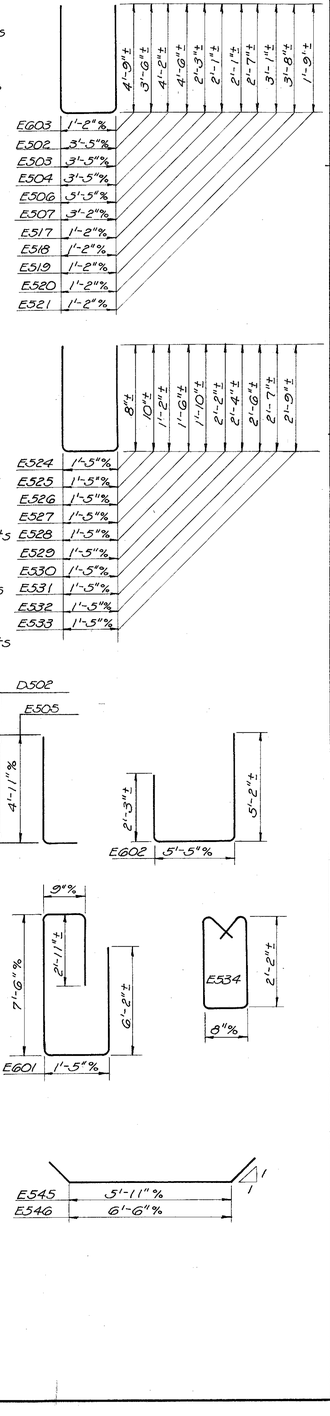
Railing

R501	4	26'-9"	Included with Railing for payment	S
R502	4	27'-7"		S
R503	4	15'-2"		S
R504	4	18'-7"		S
R505	32	11'-10"		S
R506	8	13'-0"		S
R507	8	13'-8"		S
R508	156	14'-7"		S
R509	152	14'-10"		S
R510	8	16'-3"		S
R511	8	16'-11"		S

Rear Abutment

AG01	93	19'-8"	2747	B
AG02	13	8'-4"	163	S
BG01	13	12'-0"	234	S
BG02	9	7'-1"	96	B
CG01	19	6'-8"	190	S
DG01	21	36'-6"	1151	S
DG02	73	6'-11"	758	B
DG03	8	27'-6"	330	S
A501	102	6'-10"	727	B

Bending Diagrams



Rear Abutment (continued)

MARK	No.	LENGTH	WEIGHT	SHP.
A502	40	4'-8"	195	S
A503	38	5'-8"	225	S
A504	28	6'-9"	197	S
A505	28	7'-6"	219	S
A506	28	8'-2"	239	S
A507	28	9'-1"	265	S
A508	9	10'-0"	94	S
A509	26	26'-6"	719	S
A510	22	27'-7"	633	S
A511	2	33'-0"	69	S
A512	14	24'-10"	363	S
A513	2	21'-0"	44	S
A514	14	27'-2"	397	S
B501	10	12'-0"	125	S
B502	6	15'-8"	98	S
B503	6	23'-0"	144	S
B504	6	17'-0"	106	S
B505	17	6'-0"	106	S
B506	22	5'-11"	136	B
B507	3	5'-7"	17	S
B508	3	31'-0"	97	S
B509	3	26'-9"	84	S
B510	8	5'-3"	44	S
B511	4	26'-11"	112	S
B512	19	5'-7"	111	B
B513	2	5'-7"	12	B
B514	2	5'-5"	11	B
B515	2	5'-1"	11	B
B516	2	4'-9"	10	B
B517	2	4'-3"	9	B
B518	2	3'-11"	8	B
B519	2	3'-7"	7	B
B520	2	3'-3"	7	B
C501	10	11'-0"	115	S
C502	7	23'-0"	168	S
C503	5	9'-5"	49	S
C504	8	4'-2"	35	S
C505	10	6'-0"	63	S
C506	4	5'-0"	21	S
C507	1	19'-6"	20	S
C508	3	31'-2"	98	S
C509	3	27'-10"	87	S
C510	4	27'-8"	115	S
C511	19	5'-7"	111	B
C512	22	5'-9"	132	B
C513	2	5'-5"	11	B
C514	2	5'-3"	11	B
C515	2	4'-11"	10	B
C516	2	4'-7"	10	B
C517	2	4'-1"	9	B
C518	2	3'-9"	8	B
C519	2	3'-5"	7	B
C520	2	3'-1"	6	B
D501	104	10'-11"	1184	B
D502	199	5'-1"	1055	B
D503	10	4'-0"	42	S

Forward Abutment

EB01	14	26'-0"	972	S
EB02	6	12'-6"	200	S
EB03	6	15'-10"	254	S
EG01	47	18'-1"	1277	B
EG02	30	12'-6"	563	B
EG03	12	10'-4"	186	B
EG04	4	10'-3"	62	S
EG05	8	11'-7"	139	S
E501	30	24'-7"	769	S
E502	15	10'-2"	159	B
E503	10	11'-6"	120	B
E504	5	12'-2"	63	B
E505	30	5'-5"	169	B
E506	30	9'-8"	302	B
E507	36	7'-1"	266	B
E508	8	10'-0"	83	S
E509	2	17'-9"	37	S
E510	4	3'-3"	14	S
E511	2	8'-2"	17	S

Forward Abut. (continued)

MARK	No.	LENGTH	WEIGHT	SHP.	
E512	4	6'-3"	26	S	
E513	3	9'-9"	31	S	
E514	3	5'-4"	17	S	
E517	2	5'-1"	11	B	
E518	2	6'-1"	13	B	
E519	2	7'-1"	15	B	
E520	2	8'-3"	17	B	
E521	12	4'-5"	55	B	
E522	2	13'-8"	29	S	
E523	28	3'-2"	92	S	
E524	26	2'-6"	68	B	
E525	2	2'-10"	6	B	
E526	2	3'-6"	7	B	
E527	2	4'-2"	9	B	
E528	2	4'-10"	10	B	
E529	2	5'-6"	11	B	
E530	2	5'-10"	12	B	
E531	2	6'-2"	13	B	
E532	2	6'-4"	13	B	
E533	10	6'-8"	70	B	
E534	24	5'-7"	140	B	
E535	4	15'-5"	64	S	
E536	2	15'-4"	32	B	*
E537	12	11'-7"	145	S	
E538	2	21'-0"	44	S	
E539	2	9'-8"	20	S	
E540	4	13'-0"	54	S	
E541	4	9'-2"	38	S	
E542	4	18'-11"	79	S	
E543	2	19'-3"	40	B	*
E544	2	17'-2"	36	S	
E545	7	6'-11"	30	B	
E546	8	7'-6"	63	B	

* Bend in field (included with Item S-4 for payment)

Note: Reinforcing Steel List continued on Sheet No. 176

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

REINFORCING STEEL LIST

BRIDGE NO. TUS-21-26.33
U.S.R. 21, RAMP "E" & STONE CREEK
UNDER SOUTHBOUND U.S.R. 250
TUSCARAWAS COUNTY STA. 626+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES		MKH	J.D.R.	BFG	9-26-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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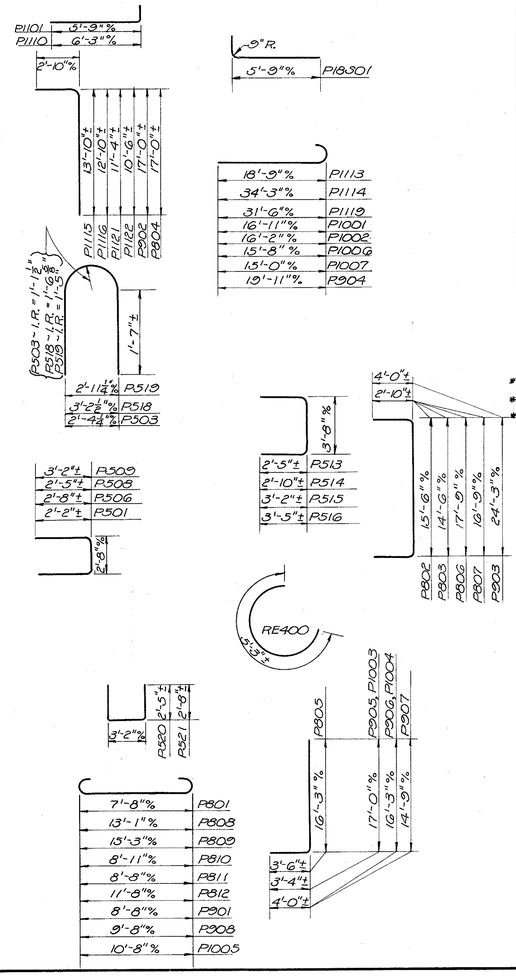
TUS-21-26.33
TUS-250-11.60

REINFORCING STEEL LIST

MARK	No.	LENGTH	WEIGHT	SHP	No. Bars in Pier Number 1	2	3	4	5	6
Piers										
P1101	362	6'-11"	13,303	B	92	114	60	96		
P1102	28	20'-11"	3,112	S	28					
P1103	108	22'-5"	12,863	S	36	72				
P1104	28	24'-11"	3,707	S	28					
P1105	42	20'-2"	4,500	S		42				
P1106	30	24'-11"	3,971	S			30			
P1107	30	27'-3"	4,343	S			30			
P1108	48	33'-1"	8,437	S				48		
P1109	48	32'-10"	8,373	S				48		
P1110	56	7'-5"	2,207	B					56	
P1111	28	27'-6"	4,091	S					28	
P1112	38	29'-3"	5,905	S					38	
P1113	13	20'-4"	1,404	B					7	6
P1114	7	35'-10"	1,333	B					7	
P1115	12	16'-4"	1,041	B					12	
P1116	4	15'-4"	326	B					4	
P1117	28	20'-9"	3,087	S						28
P1118	28	22'-3"	3,310	S						28
P1119	6	33'-1"	1,055	B						6
P1120	8	32'-0"	1,360	S						8
P1121	12	13'-10"	882	B						12
P1122	4	13'-0"	276	B						4
P1001	10	18'-4"	789	B	10					
P1002	28	17'-7"	2,119	B		8	20			
P1003	4	20'-0"	344	B		4				
P1004	4	19'-11"	343	B		4				
P1005	28	13'-6"	1627	B						28
P1006	8	17'-1"	588	B				8		
P1007	8	16'-5"	565	B				8		
P901	106	11'-2"	4024	B		86				20
P902	6	19'-7"	399	B		6				
P903	6	31'-9"	648	B		6				
P904	12	21'-2"	864	B		12				
P905	22	20'-1"	1302	B			12	10		
P906	12	20'-0"	816	B			12			
P907	10	18'-6"	629	B				10		
P908	22	12'-2"	910	B						22
P801	320	9'-10"	8402	B	140	84		96		
P802	4	20'-10"	222	B	4					
P803	2	19'-10"	106	B	2					
P804	6	19'-8"	315	B	6					
P805	6	19'-7"	314	B	6					
P806	4	23'-0"	246	B	4					
P807	2	22'-0"	117	B	2					
P808	6	15'-3"	244	B	6					
P809	6	17'-5"	279	B	6					
P810	72	11'-1"	2131	B			72			
P811	140	10'-10"	4049	B			96		20	24
P812	194	13'-10"	7165	B				96	98	

Bending Diagrams



MARK	No.	LENGTH	WEIGHT	SHP	No. Bars in Pier Number 1	2	3	4	5	6
Piers (continued)										
P501	74	6'-9"	521	B	50	8	8	8		
P502	2	13'-0"	27	S	2					
P503	20	6'-11"	144	B	12	8				
P504	2	28'-0"	58	S	2					
P505	2	15'-3"	32	S	2					
P506	42	7'-9"	339	B	12	30				
P507	6	26'-6"	166	S		2	4			
P508	30	7'-3"	227	B		30				
P509	18	8'-9"	164	B		18				
P510	2	34'-3"	71	S		2				
P511	2	24'-10"	52	S				2		
P512	8	24'-2"	202	S				2	6	
P513	34	8'-3"	293	B					18	16
P514	16	9'-1"	152	B						16
P515	26	9'-9"	264	B					14	12
P516	12	10'-3"	128	B					12	
P517	6	23'-5"	147	S						6
P518	10	8'-1"	84	B					5	5
P519	16	7'-11"	132	B			8	8		
P520	44	7'-9"	356	B			24	20		
P521	44	8'-3"	379	B			24	20		
* P18301	56	7'-6"	5712	B						56
* P18302	56	17'-0"	12,947	S						56

REINFORCING BARS No. 18S shall be of intermediate or hard grade conforming to ASTM A-408 and to applicable portions of Item S-4 of the Specifications. Bars shall be of a composition suitable for welding and the contractor shall obtain information on the chemical composition to aid in the development of a satisfactory welding procedure.

Replacement Bars					
RE18300	1	4'-0"	-	S	Intermediate or hard grade
RE1100	5	7'-6"	-	S	
RE1000	1	7'-2"	-	S	
RE900	1	6'-10"	-	S	
RE800	2	6'-6"	-	S	
RE700	7	6'-2"	-	S	
RE600	14	5'-11"	-	S	
RE500	2	5'-7"	-	S	
RE400	1	5'-3"	-	B	

SPIRAL REINFORCING STEEL

MARK	No.	Core Dia. & Spiral	LENGTH	Pitch	No. of Turns	WEIGHT
SP401	2	32"@	18'-1"	4½"	51	660
SP402	3	32"@	19'-8"	4½"	55	1068
SP403	2	32"@	22'-2"	4½"	62	804
SP404	3	32"@	16'-11"	4½"	48	933
SP405	4	32"@	19'-2"	4½"	54	1400
SP406	3	38"@	21'-7"	4½"	61	1380
SP407	3	38"@	23'-11"	4½"	67	1515
SP408	2	38"@	30'-1"	4½"	83	1254
SP409	2	38"@	29'-4"	4½"	81	1224
SP410	2	38"@	28'-6"	4½"	79	1194
SP411	4	44"@	24'-10"	4½"	69	2376
SP412	4	44"@	34'-7"	4½"	95	3276

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, indicate the bar size number. For example, P301 is a No. 9 size bar and P1001 is a No. 10 size.

SPIRAL REINFORCING BARS: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.

The "No. of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item S-4. 1½ closed coils shall be provided at the ends of each spiral unit. Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lb. per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

REINFORCING STEEL LIST

BRIDGE NO. TUS-21-2633
U.S.R. 21, RAMP "E" & STONE CREEK
UNDER SOUTHBOUND U.S.R. 250
TUSCARAWAS COUNTY STA. 62G+78.04

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES		MKH	J.D.R.	BFG	9-26-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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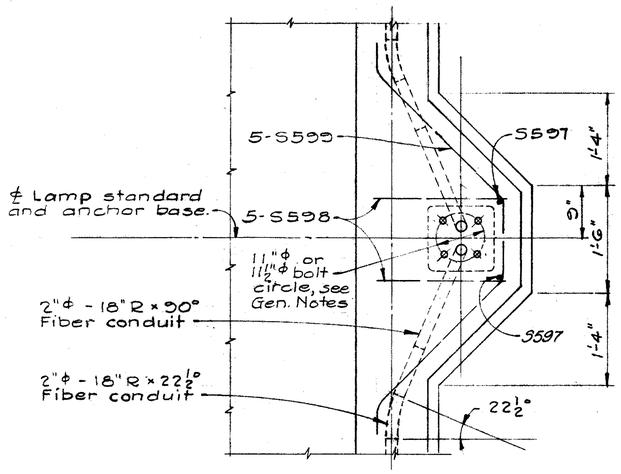
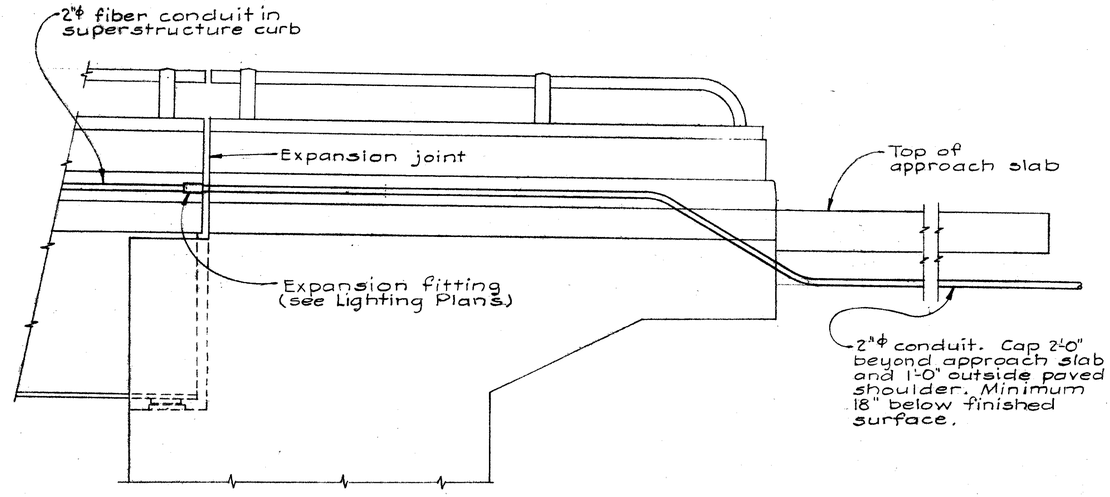
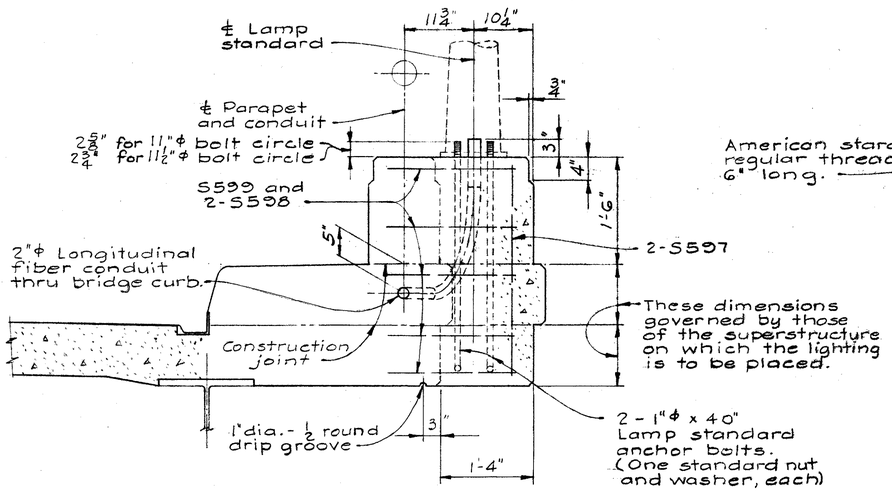
TUS-21-26.33
TUS-250-11.60



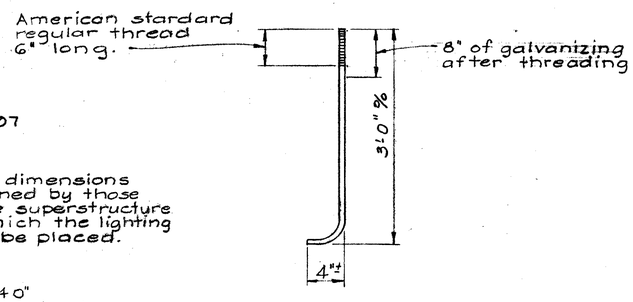
PLAN



TREATMENT OF CONDUIT AT ABUTMENTS



TYPICAL SECTION
LAMP STANDARD SUPPORT



ANCHOR BOLT DETAIL

See Lighting Plans for material specifications for anchor bolts.

NOTES:

DETAILS NOT SHOWN: Refer to Lighting Plans.

ESTIMATED QUANTITIES: Except as otherwise noted, all electrical items, including fiber conduit and electrical grounds are listed on the Lighting Plans.

ANCHOR BOLTS for the lamp standards are included with Item S-7, structural steel, for payment.

CONCRETE for lamp standard support is included with Item S-1, concrete class "C", superstructure, for payment.

REINFORCING BARS in the lamp standard support are included with Item S-4, reinforcing steel, for payment.

ELECTRICAL GROUNDS: See general notes of the structure on which the lighting is to be placed.

See Sheet 222 for treatment of conduit on TUS-250 N.B. - Ramp F and span 4 of TUS-21-26.33.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

LAMP STANDARD SUPPORTS AND CONDUIT LOCATIONS

FOR BRIDGES:
TUS-21-2633, TUS-21-2648 R.,
TUS-250-1298 S.B., TUS-250-1321 N.B.,
TUS-250 N.B. RAMP "F"
TUSCARAWAS COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	INNES			BFG	9-26-62	

B.M. S.W. Corner River Bridge Exist. U.S.R. 21 ELEV. 872.70

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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TUS-21-26.33
TUS-250-11.60
.8± Mi. West of New Philadelphia

Curve Data Prop. U.S.R. 21
P.I. 88+41.36
Δ = 27°-31' Lt.
D = 1°-30'
Ls = 200'
Θs = 1°-30'
Ts = 1035.38'
Es = 113.29'
R = 3819.72'
Lc = 1674.44'

Exist. U.S.R. 21

24.0' 27.0'

2:1

10' (min. c.l.) 16' (actual)

Not to be built with this project

24'

18'

Future Pav't
Not part of this contract (Grading only)

P.T. 89+51.18

End Appr. Slab
Sta. 92+41.33

33° 54' Skew

57.92+10.42

93+25.01 = 5.11 Ahd. = 89+90.90

86° 46' 45" Tang. to Curve

Begin Appr. Slab
Sta. 94+06.97

12" Pipe

Proposed U.S.R. 21 (I.R. 77)

N 6°-36'-30" W

Southbound Lanes
Edge Pav't.

24.0'
30.0'
+50
30.0'
24.0'
79.0'

15" pipe

Northbound Lanes
Edge Pav't.

Northbound U.S.R. 250
10'
1'
Edge Pav't.
14'

Survey North Bound
℄ U.S.R. 250

Curve Data U.S.R. 250 N.B.
P.I. 622+89.14
Δ = 51°-51' Lt.
D = 4°
Ls = 400'
Θs = 8°
Ts = 898.44'
Es = 165.45'
R = 1432.40'
Lc = 896.25'

Curve Data Exist. U.S.R. 21
P.I. 621+18.42
Δ = 11°-40' Rt.
D = 3°-30'
T = 167.24'
L = 333.33'
ℓ = 8.52° 92+41.33

P.T. 620+90.10

Critical Clearance Pt. "A"

15" Pipe

21.6' 21.0'

Edge Pav't.

BRIDGE LIMITS

Sta. 92+41.33

Sta. 94+06.97

FOUNDATION SOUNDINGS: 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.

PROPOSED STRUCTURE

TYPE: Continuous steel beams with reinf. conc. deck and substructure.
SPAN: 47'-67.12'-47' ℄ brg's..
ROADWAY: Variable width (N.B.)
LOAD FREQUENCY: CF=2000(57) (Adequate for AASHO Alternate Loading)
SKEW: 3°-54' L.F.
WEARING SURFACE: 1" Mono. Conc.
APPR. SLAB: A5-1-54 (25' long) (Special)
ALIGNMENT: Tangent

R.I. 96+00
El. 901.51

+2.60% -1.80%

885.38 885.76 886.13 886.48 886.82 887.15 887.46 887.76 888.05 888.32 888.58 888.82 889.05 889.27 889.47 889.66 889.84 890.00 890.15 890.28 890.40 890.51

Top of Slope Elev. {882.7± S.B. 882.1± N.B.

Top of Slope Elev. {884.3± S.B. 883.8± N.B.

Pt. "A"

Elev. 875.5 S.B.
Elev. 874.9 N.B.

2:1 (Normal)

15' (min.) 15.28 (actual)

2:1 (Normal)

Elev. 877.1 S.B.
Elev. 876.6 N.B.

2000' V.C.

Elev. 852.0

Elev. 852.0

890
880
870
860
850

91 92 93 94 95 96

PROFILE ON PROPOSED CENTER LINE

SITE PLAN
BRIDGE No. TUS-21-2648 ℄ R
OVER EXISTING U.S.R. 21
TUSCARAWAS CO. U.S.R. 21
SEC. TUS-21-26.33 STA. 92+41.33
STA. 94+06.97

EXISTING TOPO. PROPOSED WORK
SURVEY DRAWN DESIGN DRAWN CHECK REVIEW
DIV. OFFICE DIV. OFFICE B.D.H. B.D.H. E.J.S. C.E.L.

BFG 8-1-62

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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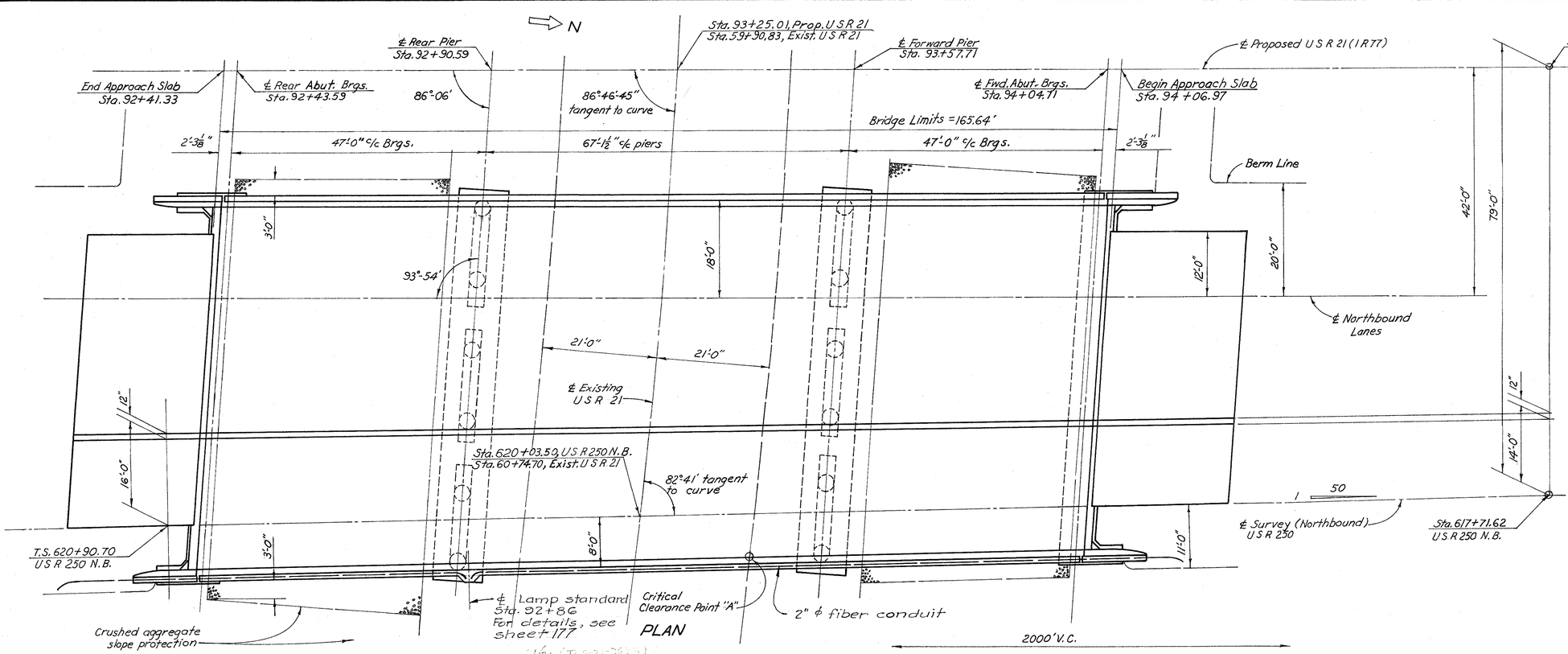
Tus-21-26.33
Tus-250-11.60



EAST ELEVATION

GENERAL NOTES

ELECTRICAL GROUNDS: A N°0 gage, 7 standard, bare, soft annealed, copper wire electrical ground shall be embedded in the right (East) column, cap and footing of the rear pier. The lower end of the wire shall terminate in a 25 foot length coil under the footing and separated from the concrete by two layers of tar paper and the upper end shall extend sufficiently above the top of the pier concrete to provide for a suitable attachment to the superstructure beam flange. At the base of the lamp standard there shall be a N°0 gage copper wire as above attached to one anchor bolt and the other end attached to the top flange of the superstructure beam. All attachments shall be made by brazing or exothermic welding. Payment for electrical grounds is included in Item 3-25, electrical lighting system.

LAMP STANDARD ANCHOR BOLTS shall be placed using an 11½"ϕ bolt circle.

GENERAL NOTES

REFERENCE shall be made to Standard Drawings CSB-2-56 Sheets 1, 2 and 3 revised 2-2-59, and AR-1-57 revised 4-2-62.

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.

EXCAVATION QUANTITY includes the removal of fill material required for construction of the abutments and piers.

FOUNDATION BEARING PRESSURE: Pier and abutment footings are designed for a maximum bearing pressure of 2.5 tons per sq.ft.

CONTINUOUS BEAM SPLICES: If beams having depths differing by more than ⅜" are to be spliced by butt welding, the depth of the smaller-depth beam shall be increased by splitting the web longitudinally at a distance of 1½" below the bottom of the top flange and for a distance sufficient to allow the flange to be bent up at a slope of not more than ⅜" per foot, after which the split in the web shall be completely welded with full depth penetration and ground flush.

SHOP PAINTING STEEL: The surface penetration 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.

SHEET LEAD shall conform to the requirements of ASTM Designation B 29 without restriction to the Common Desilverized type.

SURFACE FINISH OF CONCRETE: The requirements of Sec. S-1.22, Rubbed Finish, shall apply to all the exposed concrete surfaces on the superstructure except the top and bottom surfaces of sidewalks and roadways, and on the piers and abutments except bridge seats and backwalls.

MACHINE FINISH: At the Contractor's option, the concrete deck may be finished by the use of a finishing machine.

MAINTENANCE AND PROTECTION OF TRAFFIC: Two lanes of traffic with a minimum horizontal width of 26'-0" shall be maintained on U.S.R. 21 at all times. The Contractor shall safeguard the traveling public by providing platforms, nets or other suitable protection above the traveled lanes. A minimum vertical clearance of 12'-9" shall be provided at all times.

ESTIMATE OF QUANTITIES
is on sheet 183

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

GENERAL PLAN & ELEVATION, & GENERAL NOTES

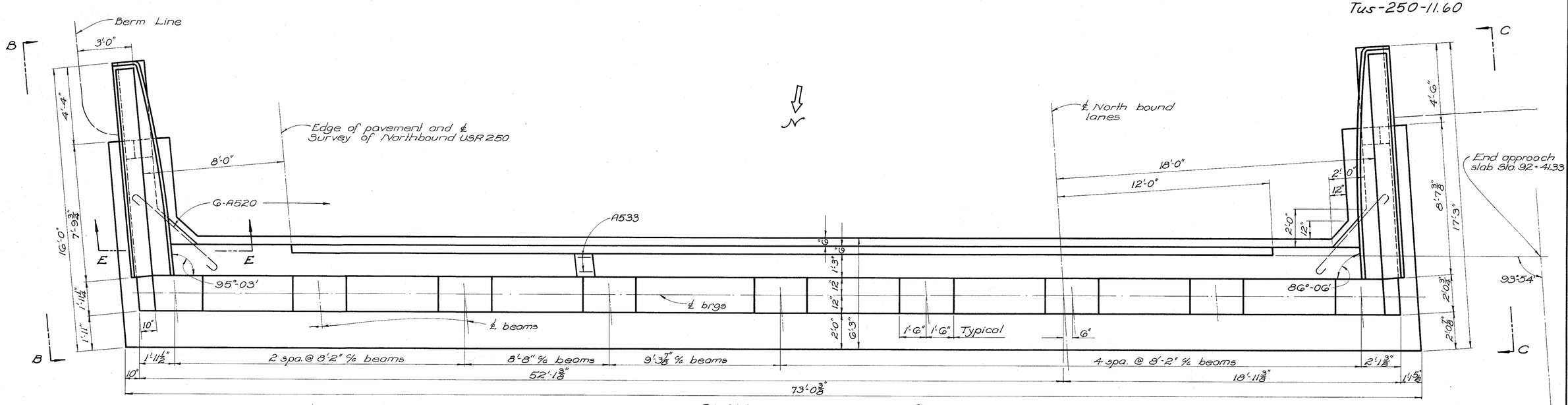
BRIDGE NO. TUS-21-2648 R
OVER EXISTING U.S.R. 21 STA. 92+41.33
TUSCARAWAS COUNTY STA. 94+06.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Ray		ND	WCK	BFG	8-1-62	

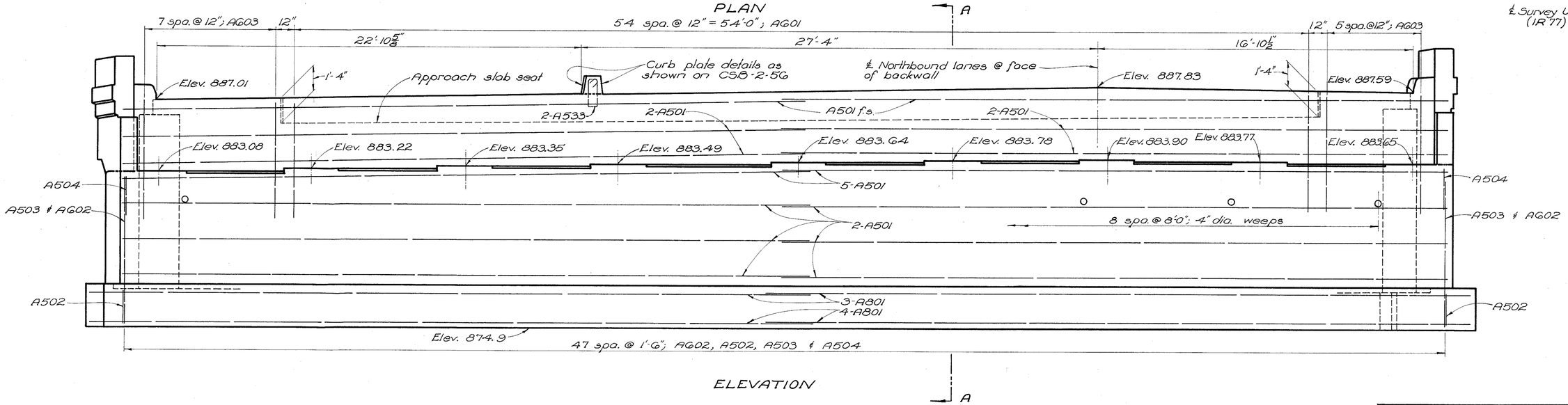
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

180
235

Tus-21-26.33
Tus-250-11.60



PLAN



ELEVATION

PROCEDURE: The embankment shall be placed and compacted up to the finished spill-thru slope and to the level of the sub-grade for a distance of 200 feet back of the abutments, after which excavation shall be made for the abutments and piers.

POROUS BACKFILL, 2 feet thick, full length of the abutment shall extend up to the underside of the approach slab or to the surface of the shoulders.

LEGEND
n.s. = Near Side
f.s. = Far Side

For SECTIONAL VIEWS see sheet 181

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

REAR ABUTMENT

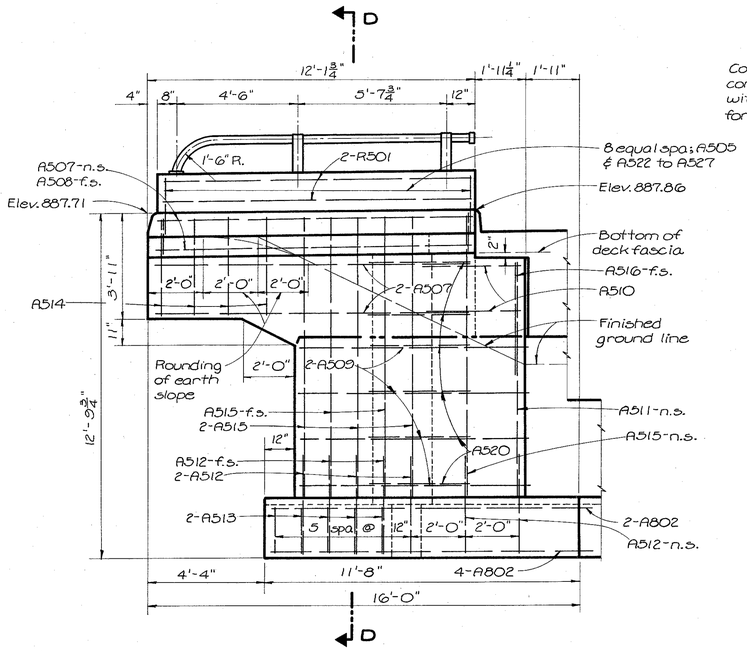
BRIDGE NO. TUS-21-2648R
OVER EXISTING USR 21
STA 92+41.33
TUSCARAWAS COUNTY 94+06.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Ray		Q.Q.	W.C.K.	BFG	8-1-62	

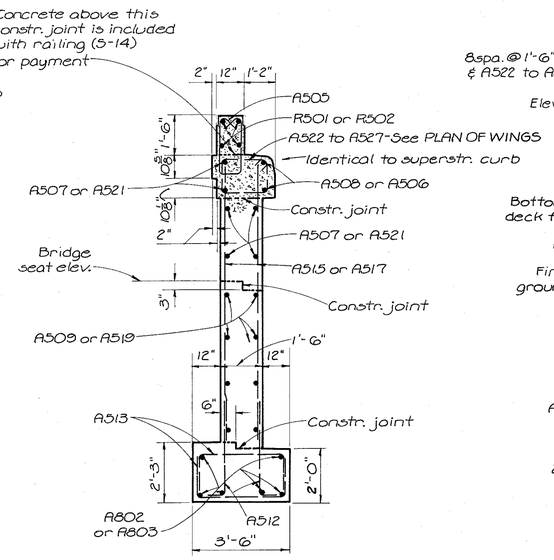
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

181/235

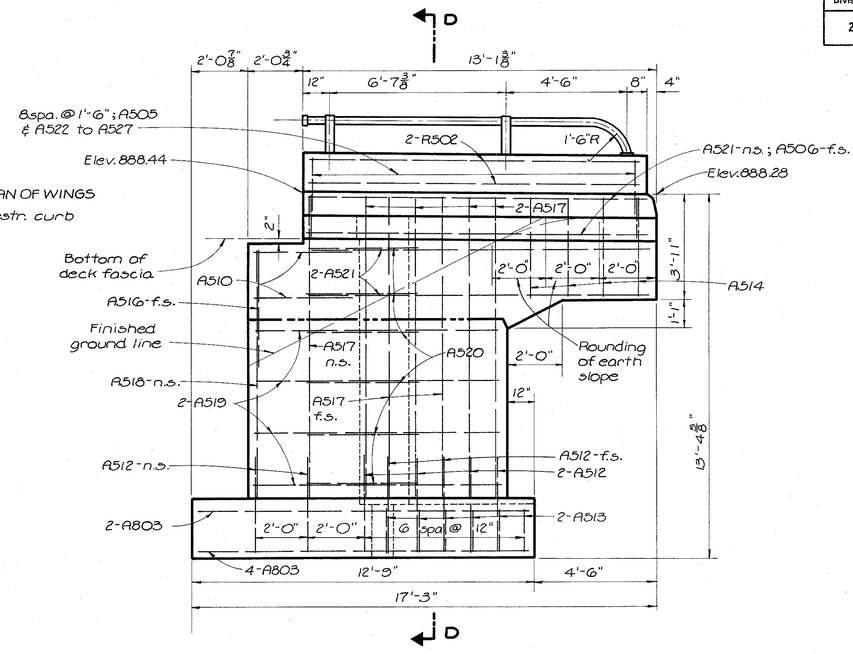
Tus-21-26.33
Tus-250-11.60



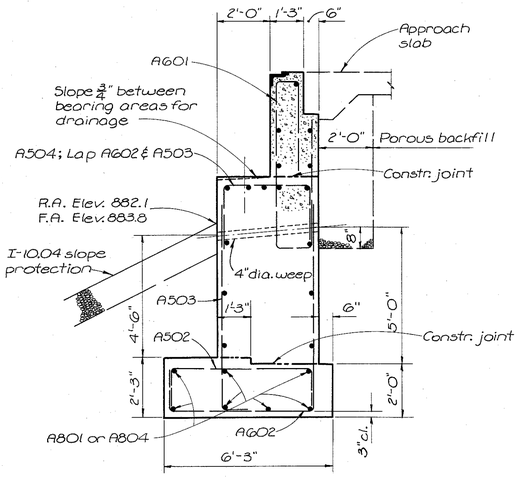
VIEW B-B



SECTION D-D

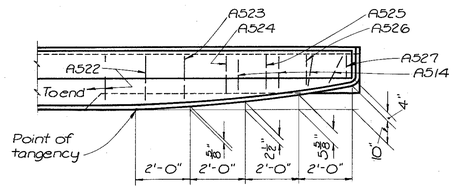


VIEW C-C

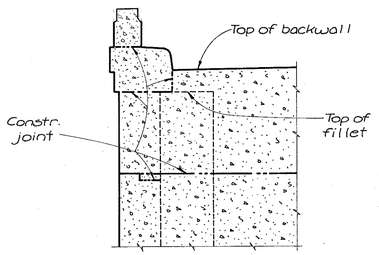


SECTION A-A

All bars normal to section are A501 or A528 unless otherwise marked.



PLAN OF WINGS



SECTION E-E

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

REAR ABUTMENT

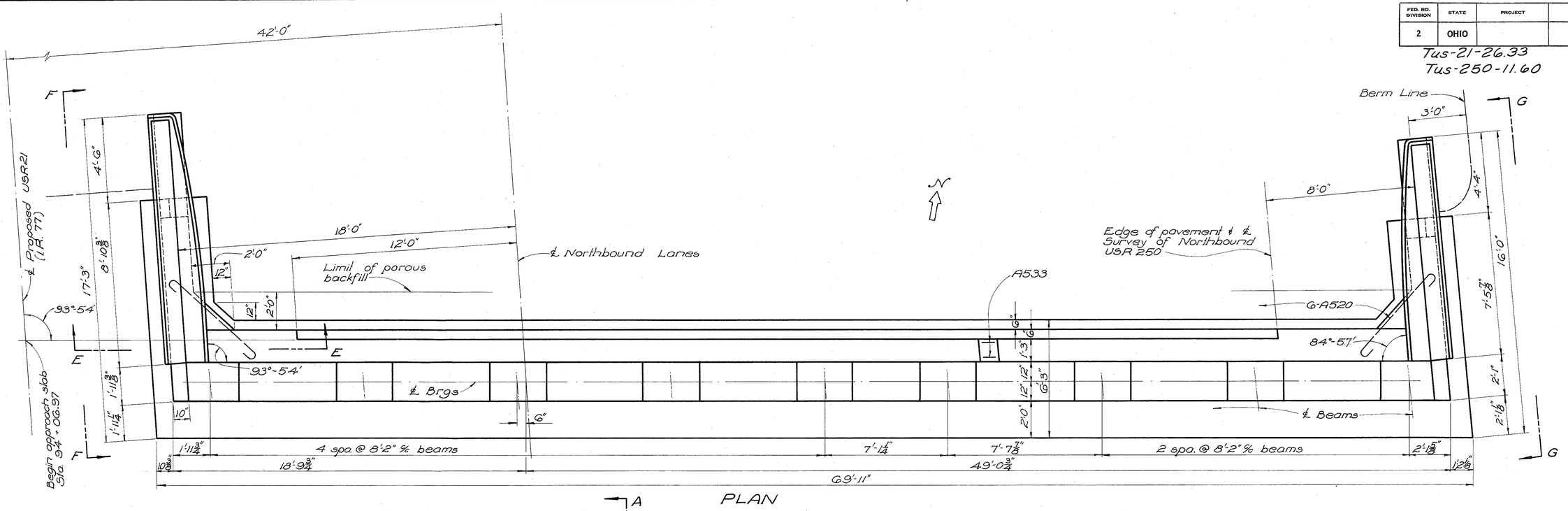
BRIDGE NO. TUS-21-2648 R
OVER EXISTING USR 21
STA. 92+41.33
TUSCARAWAS COUNTY 94+06.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Ray		MKH	WCK	BFG	8-1-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

182/235

Tus-21-26.33
Tus-250-11.60



SECTIONS A-A & E-E are shown on sheet 181
SECTIONS F-F & G-G are shown on sheet 183
NOTES are shown on sheet 180

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

FORWARD ABUTMENT

BRIDGE NO TUS-21-2G48 R
OVER EXISTING USR 21

TUSCARAWAS COUNTY

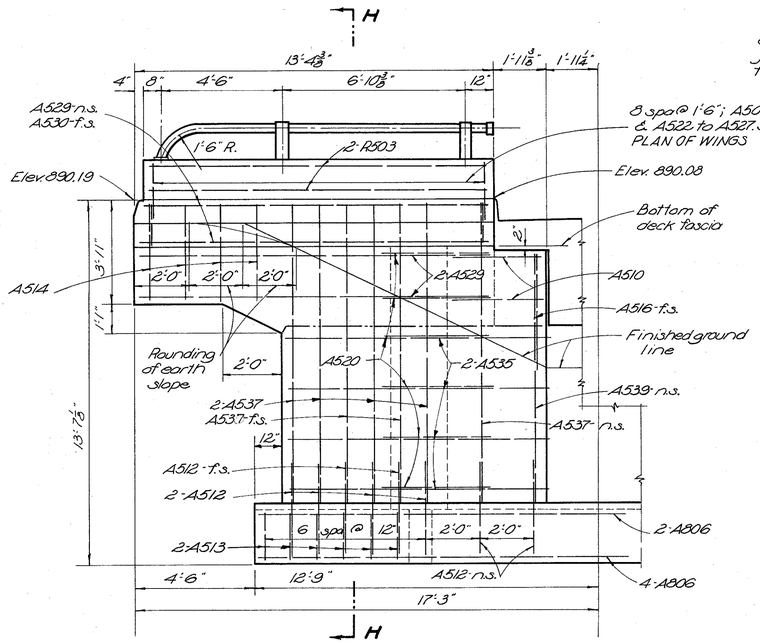
STA 92+41.33
94+06.97

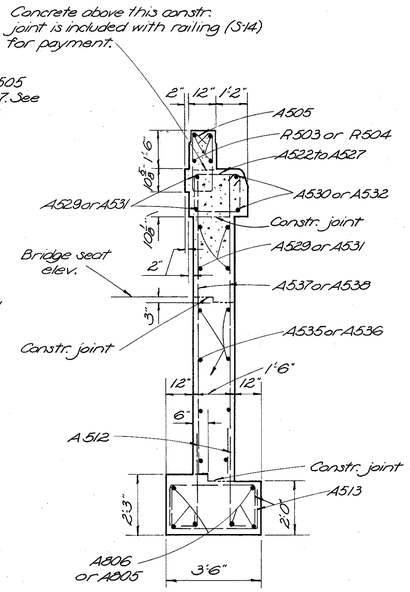
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Ray		G.G.	WCK	BFG	8-1-62	

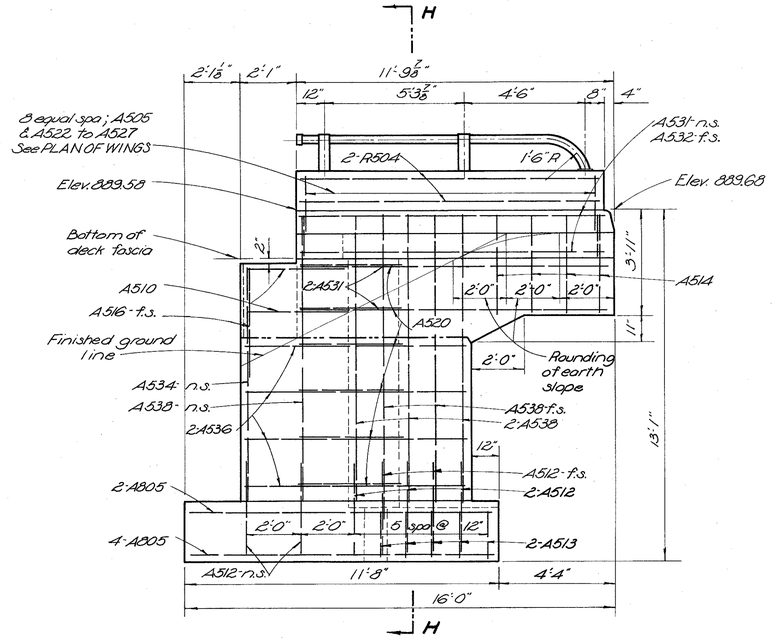
FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			

183
235

Tus-21-26.33
Tus-250-11.60







◊ See Lighting Plans for estimated quantities.

✸ See proposal note

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Superst.	Abut.	Piers	Gen'l		
E-2	Lump	Sum	Cofferdams, cribs & sheeting				Lump		
E-2	1230	Cu.yd.	Unclassified excavation		410	820			
S-1	344	Cu.yd.	Class "C" concrete, Superstructure	344					
S-1	127	Cu.yd.	Class "C" concrete, pier caps & columns			127			
S-1	134	Cu.yd.	Class "E" concrete, pier footings			134			
S-1	261	Cu.yd.	Class "E" concrete, abutments		261				
S-4	164,501	Lb.	Reinforcing steel	104,644	16,083	43,774			
S-7	278,000	Lb.	Structural steel	278,000					
S-8	278,000	Lb.	Field painting of structural steel	278,000					
S-14	375.61	Lin.ft.	Railing (Aluminum railing and supports on concrete parapet)	326.50	49.11				
S29	50	Cu.yd.	Porous backfill		50				
S29	24	Each	Scuppers, including supports	24					
I-10	770	Sq.yd.	Crushed aggregate slope protection				770		
✸ Special	344	Each	Water-reducing, set-retarding admixture	344					
◊ S-25									
I-127	1	Each	Delineator Type A-1, Bracket mounted				1		

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

FORWARD ABUTMENT & ESTIMATE OF QUANTITIES

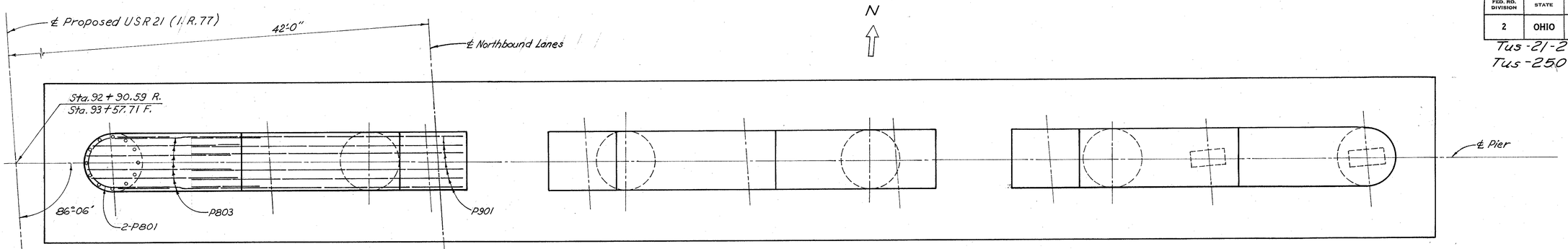
BRIDGE NO. TUS-21-2648.R
OVER EXISTING USR 21
STA 92+41.33
TUSCARAWAS COUNTY 94+06.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Ray		T.K.	WCK	BFG	8-1-62	

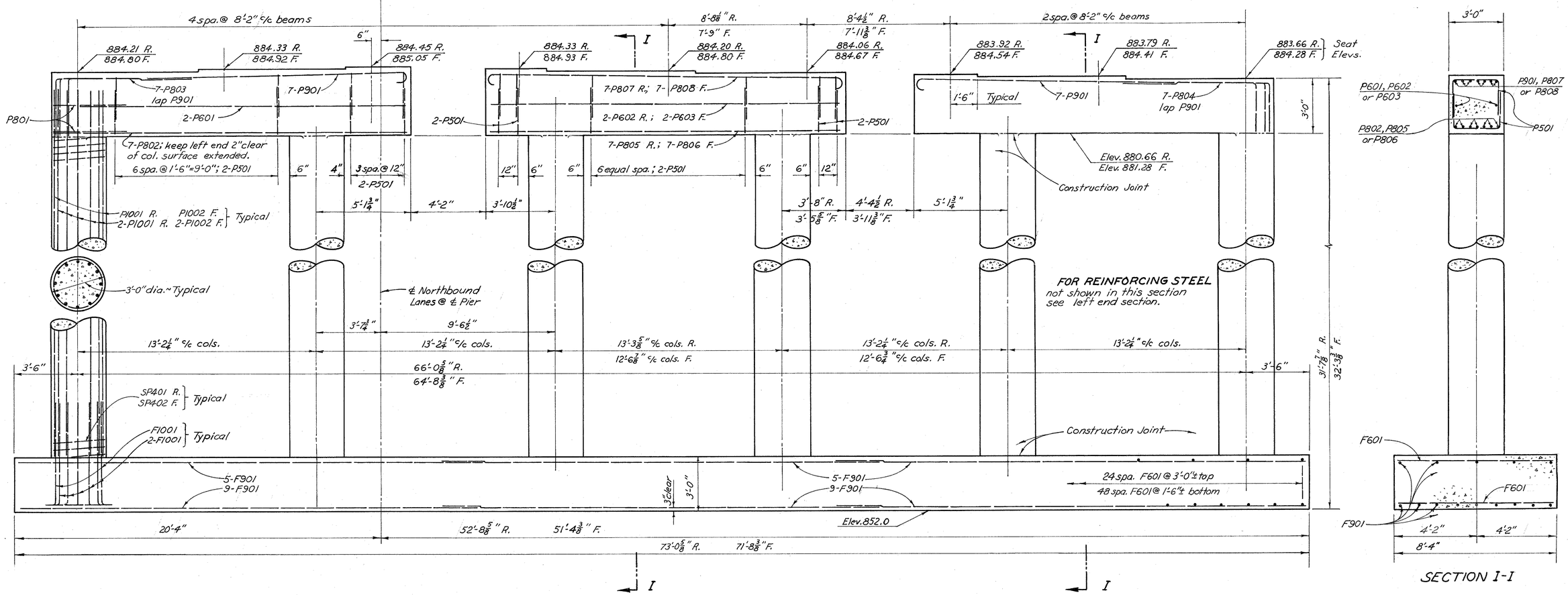
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

184
235

Tus-21-26.33
Tus-250-11.60



PLAN



ELEVATION

SECTION I-I

SPECIAL CARE shall be exercised in placing reinforcing steel in bridge seat to avoid interference with anchor bars.

R.- Rear pier
F.- Forward pier

See PROCEDURE note on Sheet No. 180

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

PIERS

BRIDGE NO. TUS-21-2648R
OVER EXISTING USR 21
STA. 92+41.33
TUSCARAWAS COUNTY 94+06.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Ray		WLD	WCK	BFG	8-1-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

185/235

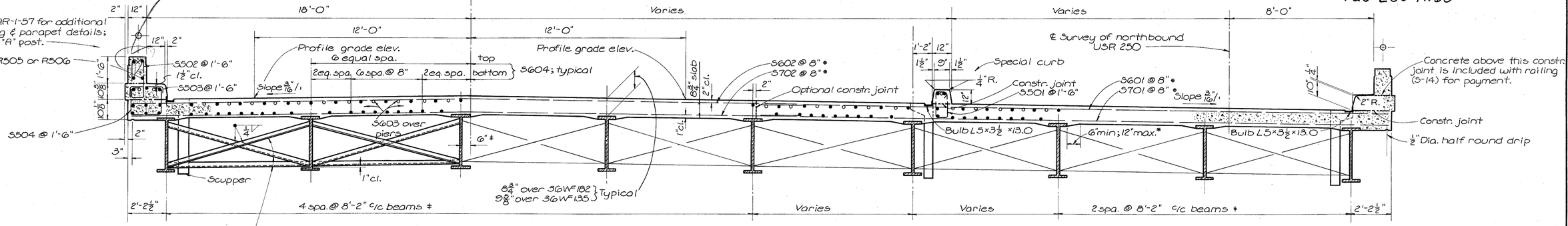
Tus-21-26.33
Tus-250-11.60

* Measured parallel to substructure units.
* Pay quantities will be based on 9".
• Place parallel to substructure units.

All longitudinal bars are S604 unless otherwise marked.

℄ Northbound Lanes

Slab thickness shown includes 1" for monolithic wear surface.

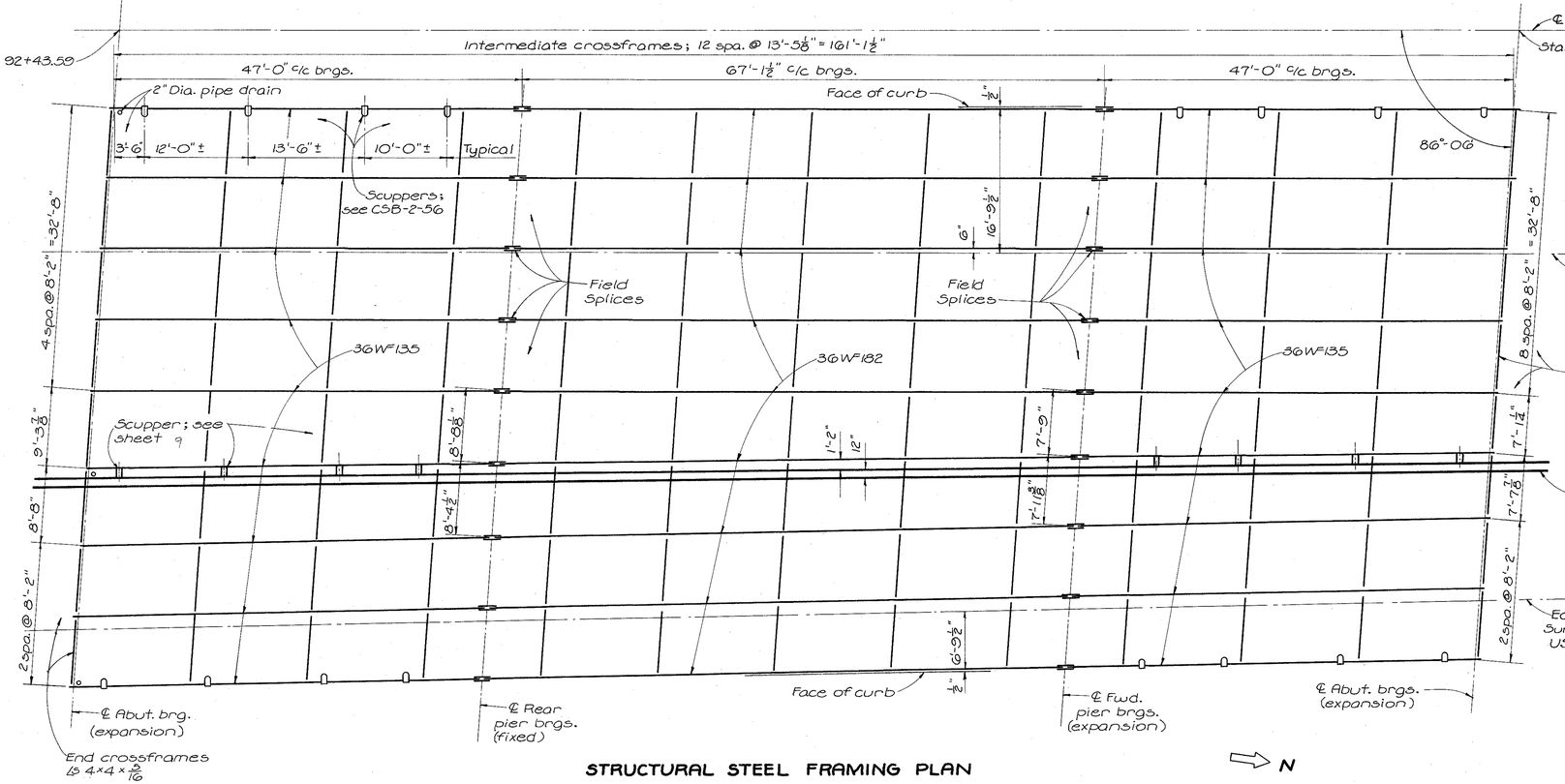


Intermediate crossframe L 3×3×5/16
Weld both sides of vertical leg and top side of horizontal leg to beam. Use ¼" continuous fillet weld.

8¾" over 36WF182 } Typical
9⅝" over 36WF135 }

(For location of encased conduit see sheets 177 and 179)

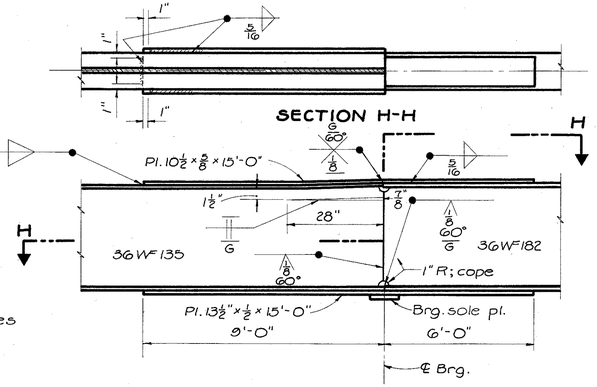
TRANSVERSE SECTION THRU SUPERSTRUCTURE



STRUCTURAL STEEL FRAMING PLAN

N

SECTION H-H



BEAM SPLICE DETAILS

Use BEAM SPLICE WELDING PROCEDURE shown on C5B-2-56. R equals 0.

ADDITIONAL superstructure details are shown on C5B-2-56 and on sheet 186

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

SUPERSTRUCTURE

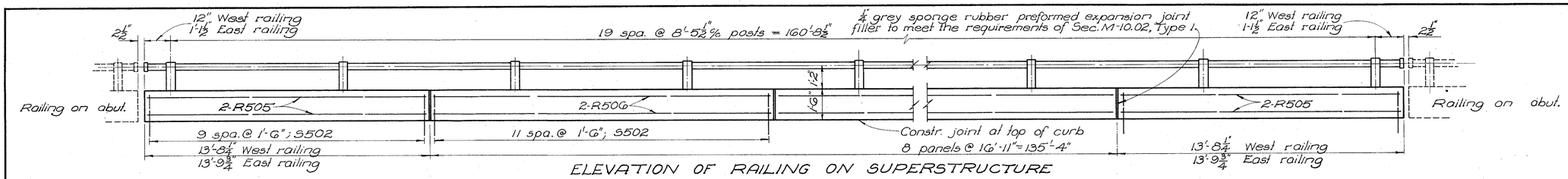
BRIDGE NO. TUS-21-2648 R
OVER EXISTING USR 21
STA 92+41.33
TUSCARAWAS COUNTY 94+06.97

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Ray		MKH	WCK	BFG	8-1-62	

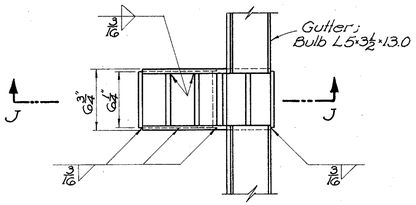
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

186
235

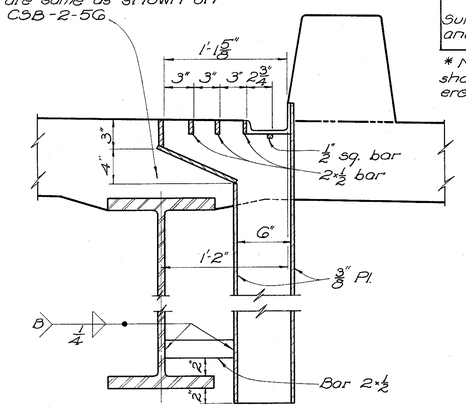
Tus-21-26.33
Tus-250-11.60



ELEVATION OF RAILING ON SUPERSTRUCTURE



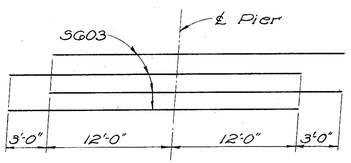
Gutter and scupper support are same as shown on CSB-2-5G.



SECTION JJ

SCUPPER FOR SPECIAL CURB

(Scuppers for outside curbs are shown on CSB-2-5G)

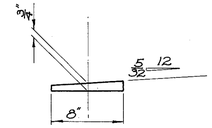


PLAN OF S603 BARS

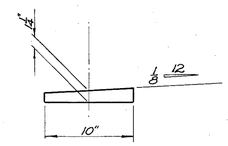
DEFLECTION & CAMBER *

Location	Outside Beams		Inside Beams	
	End Span	Middle Span	End Span	Middle Span
Deflection due to weight of steel	.01"	.09"	.01"	.09"
Deflection due to remaining D.L.	.15"	.45"	.12"	.37"
Convexity required for vertical curve	.07"	.15"	.07"	.15"
Sum of deflection and convexity	.23"	.69"	.20"	.61"

* No shop camber is required, but beams should be fabricated so that they will be erected with the convex flange upward.



Rear Abutment Brg. Sole Plates



Rear Pier Brg. Plates

Forward pier and abut. brgs. are not beveled

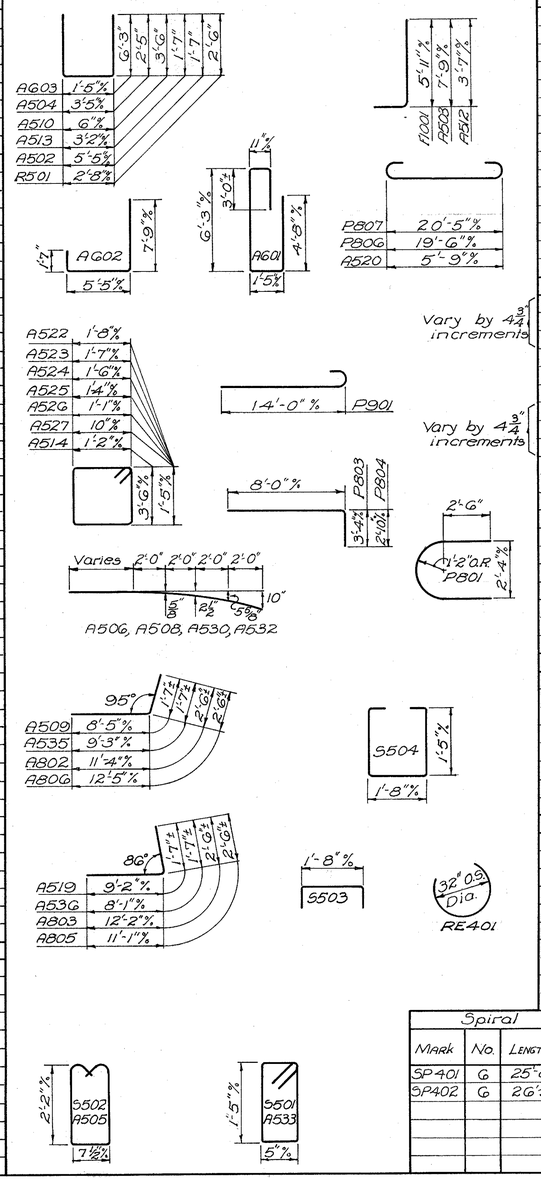
BEARING PLATES

Other brg. plate details are on CSB-2-5G

REINFORCING STEEL LIST

Mark	No.	Length	Weight	Shp
Abutments				
A801	14	37'-8"	1408	S
A802	6	13'-8"	219	B
A803	6	14'-6"	232	B
A804	14	36'-1"	1349	S
A805	6	13'-5"	215	B
A806	6	14'-9"	236	B
AG01	107	15'-7"	2504	B
AG02	94	14'-6"	2047	B
AG03	26	13'-7"	530	B
A501	32	36'-4"	1213	S
A502	94	8'-4"	817	B
A503	94	8'-3"	809	B
A504	94	8'-0"	784	B
A505	36	5'-6"	207	B
A506	2	12'-7"	26	B
A507	6	11'-7"	72	S
A508	2	11'-8"	24	B
A509	8	9'-11"	83	B
A510	8	7'-3"	60	B
A511	1	8'-8"	9	S
A512	44	4'-1"	187	B
A513	44	6'-1"	279	B
A514	16	9'-10"	164	B
A515	9	10'-5"	98	S
A516	4	4'-7"	19	S
A517	11	11'-0"	126	S
A518	1	9'-2"	10	S
A519	8	10'-7"	88	B
A520	24	6'-11"	173	B
A521	6	12'-7"	79	S
A522	16	6'-7"	110	B
A523	4	6'-5"	27	B
A524	4	6'-3"	26	B
A525	4	5'-11"	25	B
A526	4	5'-5"	23	B
A527	4	4'-11"	21	B
A528	32	34'-7"	1154	S
A529	6	12'-10"	80	S
A530	2	12'-11"	27	B
A531	6	11'-3"	70	S
A532	2	11'-3"	23	B
A533	4	4'-1"	17	B
A534	1	8'-8"	9	S
A535	8	10'-9"	90	B
A536	8	9'-7"	80	B
A537	11	11'-0"	126	S
A538	9	10'-5"	98	S
A539	1	9'-2"	10	S
Piers				
F1001	144	7'-0"	4337	B
F901	84	26'-2"	7473	S
FG01	148	8'-0"	1778	S
P1001	72	28'-6"	8830	S
P1002	72	29'-1"	9010	S
P901	28	15'-3"	1452	B
P801	8	8'-7"	183	B

BENDING DIAGRAMS



Vary by 4¾ increments

Vary by 4¾ increments

Mark	No.	Length	Weight	Shp
Piers (con'd)				
P802	28	18'-2"	1358	S
P803	14	11'-1"	414	B
P804	14	10'-7"	396	B
P805	7	20'-5"	382	S
P806	7	19'-6"	364	S
P807	7	22'-7"	422	B
P808	7	21'-8"	405	B
PG01	8	18'-2"	218	S
PG02	2	20'-5"	61	S
PG03	2	19'-6"	59	S
P501	132	7'-5"	1021	B
Superstructure				
S701	9 series of 27	35'-6" to 32'-4"	16,846	S
S702	243	37'-8"	18,709	S
SG01	9 series of 27	35'-6" to 32'-4"	12,379	S
SG02	243	37'-4"	13,626	S
SG03	100	27'-0"	4055	S
SG04	695	34'-0"	35,492	S
S501	108	4'-1"	460	B
S502	232	5'-6"	1331	B
S503	216	2'-8"	601	B
S504	216	5'-1"	1145	B
Railing				
R501	4	11'-5"	included with railing for payment	S
R502	4	12'-4"		S
R503	4	12'-8"		S
R504	4	11'-1"		S
R505	16	13'-4"		S
R506	64	16'-7"		S
Replacement Bars				
RE1001	2	7'-2"	–	S
RE901	1	6'-10"	–	S
RE801	1	6'-6"	–	S
RE701	2	6'-2"	–	S
RE601	4	5'-11"	–	S
RE501	1	5'-7"	–	S
RE401	1	5'-3"	–	B

Spiral Reinforcing

Mark	No.	Length	Core Dia.	No. of Turns	Pitch	Weight
SP401	6	25'-8"	32"	71	4½"	2768
SP402	6	26'-3"	32"	73	4½"	2843

REINFORCING STEEL NOTES

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, indicate the bar size number. For example, S701 is a No. 7 size bar and F1001 is a No. 10 size.

SPIRAL REINFORCING BARS: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.

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

Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item 3-4.

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

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

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

SUPERSTRUCTURE & REINFORCING STEEL LIST

BRIDGE NO. TUS-21-2648R
OVER EXISTING USR-21

STA. 92 + 41.33
94 + 06.97

TUSCARAWAS COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Ray		G.G.	WCK	BFG	8-1-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

187/235

TUS-21-26.33
TUS-250-11.60
at New Philadelphia

□ on end conc. gas island at Green Gables
ELEV. 880.76

Curve Data U.S.R. 250 S.B.
P.I. 624+91.47
Δ : 60°-44'Lt.
D : 4°
Ls : 400'
θs : 5°
Ts : 1041.86'
Ls : 233.15'
R : 1432.40'
Lc : 1118.33'

End Appr. Slab ~ Sta. 616 + 69.75

Begin Appr. Slab ~ Sta. 618 +30.25

Critical Clearance Point "A"

12'-5" Horiz. Clr.

21.0' 21.0'

(To be Removed)

12' Storm Arch

10.0' (Min. & Oct.)

22'-30"

T.S. 614+49.61

S.C. 618+49.35

Edge Pav't.

Survey ℄ Southbound U.S.R. 250

24.0'

300'

Trans. Flare

Slope of Berm

P.T. 56+32.76

Curve Data Exist. U.S.R. 21
P.I. 55+97.69
Δ : 64°-02' Rt.
D : 12°
T : 298.54'
L : 533.61'
E : 85.65'
R : 477.46'

FOUNDATION SOUNDINGS: 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.

PROPOSED STRUCTURE

TYPE: Continuous steel beams with reinf. conc. deck and substructure
SPAN: 45.5'-65'-45.5' % brgs.
ROADWAY: 40'-0" f/f conc. parapets
LOAD FREQUENCY: CF-2000 (57)
SKEW: 1°-22'-30" R.F.
WEARING SURFACE: 1" Monolithic conc.
APPROACH SLABS: AS-1-54 (25' long)
ALIGNMENT: Spiral
SUPERELEVATION: Varies

BRIDGE LIMITS

Sta. 616 + 69.75 — Sta. 618 + 30.25

885.54 885.71 885.90 886.10 886.32 886.55 886.81 887.07 887.35 887.62 887.90 888.18 888.45 888.73 889.00 889.28 889.55 889.83 890.10 890.38 890.65 890.93

Top of Slope varies El. 881.2 to El. 882.4

15.0' min. @ Pt. "A"
15.04' actual

Top of Slope varies El. 881.9 to El. 884.10

+0.318% +1.102% +1.102%

PVI ~ Sta. 614 + 75
Elev. 885.42

300' V.C.

Ftg. El. 874.00

Ftg. El. 860.70

Ftg. El. 875.00

Ftg. El. 858.60

2:1 (Norm)

℄ Exist. USR 21

Baller 1:4

PIER PILES ~ 12"ϕ Cast-in-place reinforced concrete
Estimated Average Pay Length ~ 50 ft.

615 616 617 618 619

PROFILE ON PROPOSED CENTER LINE

SITE PLAN

BRIDGE No. TUS-250-1208 S.B.
SOUTH BOUND OVER EXIST. U.S.R. 21
TUSCARAWAS CO. U.S.R. 250
SEC. TUS-250-11.60
STA. 616 + 69.75
STA. 618 + 30.25

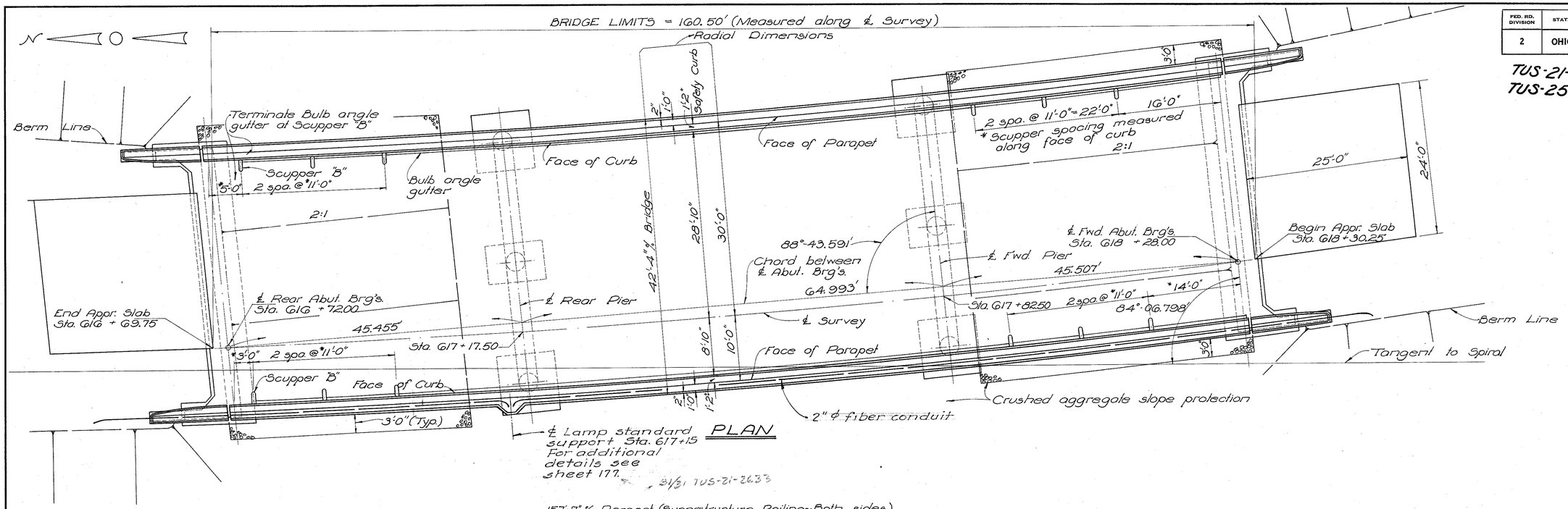
Existing Topo		PROPOSED WORK			
Survey	Drawn	Design	Drawn	Check	Review
Div. Office	Div. Office	DGM	DGM	E.J.S.	G.E.S.

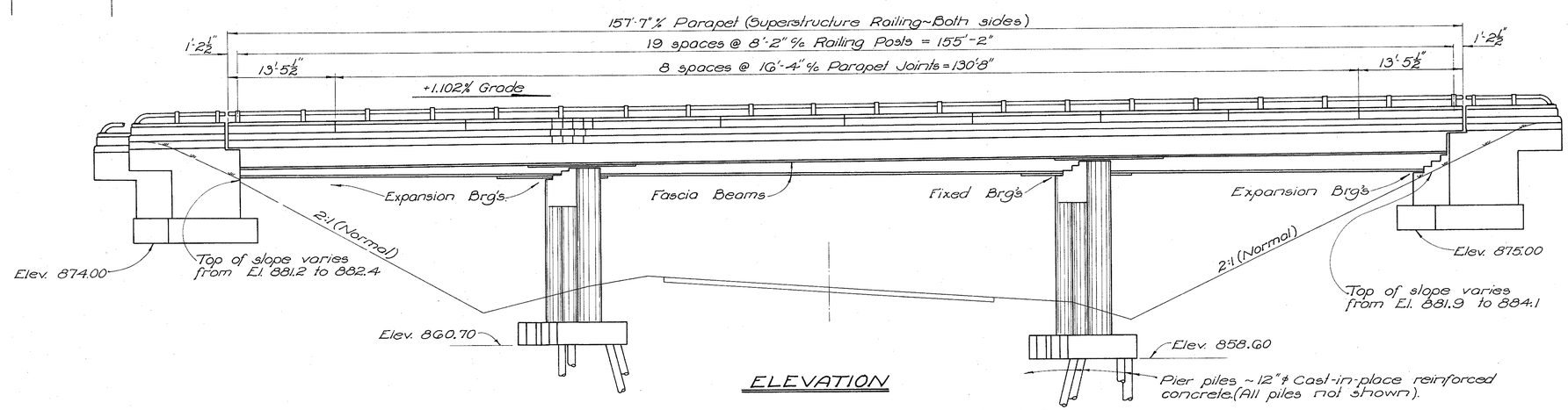
BFG 7-30-62

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

188/236

TUS-21-26.33
TUS-250-11.60





ELEVATION

GENERAL NOTES

REFERENCE shall be made to Standard Drawings CSB-2-56, Sheets 2 and 3 revised 2-2-59 and AR-1-57 revised 4-2-62.

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.

PILES shall be driven to a minimum bearing capacity of 40 tons per pile.

FOUNDATION BEARING PRESSURE: Abutment footings are designed for a maximum bearing pressure of 2.5 tons per sq. ft.

CONTINUOUS BEAM SPLICES: If beams having depths differing by more than ⅛" are to be spliced by butt welding, the depth of the smaller-depth beam shall be increased by splitting the web longitudinally at a distance of 1½ below the bottom of the top flange and for a distance sufficient to allow the flange to be bent up at a slope of not more than ⅜" per foot, after which the split in the web shall be completely welded with full depth penetration and ground flush.

WELDING of structural steel shall be Class "A" except as otherwise shown. Welds shown as field welds may, at the option of the Contractor, be made in the shop.

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.

SHEET LEAD shall conform to the requirements of ASTM Designation B29 without restriction to the Common Desilverized type.

CONCRETE DECK PLACING: In order to facilitate water curing of the concrete of the deck slab, the placing of Concrete 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.

SURFACE FINISH OF CONCRETE: The requirements of Sec. S-1.22, Rubbed Finish, shall apply to the following exposed concrete surfaces:
(a) Face of curbs, fascia of deck and curbs, and all surfaces of parapets.
(b) The entire surface of piers and abutments except bridge seats, backwalls and the face of spill-thru abutments between outside beams.

MACHINE FINISH: At the Contractor's option, the concrete deck may be finished by the use of a finishing machine.

GENERAL NOTES

ELECTRICAL GROUNDS: A N°0 gage, 7 strand, bare, soft annealed, copper wire electrical ground shall be embedded in the right (west) column, cap and footing of the forward pier. The lower end of the wire shall be attached to the steel shell of one of the cast-in-place reinforced concrete piles and the upper end shall extend sufficiently above the top of the pier concrete to provide for a suitable attachment to the superstructure beam. At the base of the lamp standards there shall be a N°0 gage copper wire attached to one anchor bolt and the other end attached to the top flange of the superstructure beam. All attachments shall be made by brazing or exothermic welding. Payment for electrical grounds is included in Item S-25, electrical lighting system.

LAMP STANDARD ANCHOR BOLTS shall be placed using an 11½" ϕ bolt circle.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

GENERAL PLAN & ELEVATION GENERAL NOTES

BRIDGE NO. TUS-250-1208 S.B
OVER EXISTING USR-21
Sta. 616 + 69.75
Sta. 618 + 30.25
TUSCARAWAS COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.C.H.	D.C.H.	G.G.	K.E.D.	BFG	7/30/62	

REINFORCING STEEL LIST

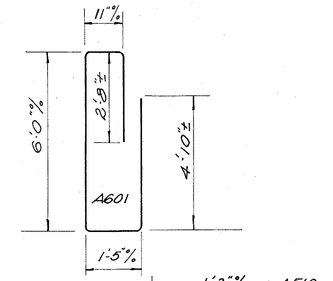
Mark	No.	Length	Weight	Shp.
Superstructure				
S701	458	22'-0"	20,595	S
S601	458	17'-8"	12,153	B
S602	458	27'-6"	18,918	B
S603	70	26'-0"	2,734	S
S501	230	5'-3"	1259	B
S502	230	1'-10"	440	S
S503	248	4'-11"	1272	B

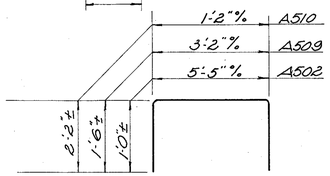
Mark	No.	Length	Weight	Shp.	Rear	Fwd.
Abutment						
A801	32	22'-11"	1958	S	16	16
A802	32	10'-9"	918	S	16	16
A803	10	9'-0"	240	S	10	–
A804	20	7'-10"	418	S	10	10
A805	10	9'-9"	260	S	–	10
A806	40	10'-4"	1104	B	20	20
A807	8	14'-2"	303	B	4	4
A808	24	10'-0"	641	B	10	12
A601	50	15'-2"	1139	B	25	25
A602	56	14'-4"	1206	B	28	28
A603	32	13'-1"	629	B	16	16
A501	56	8'-0"	467	B	28	28
A502	56	7'-2"	419	B	28	28
A503	26	7'-10"	212	B	13	13
A504	15	9'-8"	151	B	15	–
A505	56	21'-6"	1256	S	28	28
A506	2	27'-4"	57	S	1	1
A507	4	10'-4"	43	S	2	2
A508	4	6'-6"	27	S	2	2
A509	40	5'-11"	247	B	20	20
A510	40	5'-3"	219	B	20	20
A511	32	3'-6"	117	B	16	16
A512	32	8'-4"	278	S	16	16
A513	32	11'-9"	392	S	16	16
A514	40	4'-11"	205	B	20	20
A515	16	4'-3"	71	S	8	8
A516	24	3'-9"	94	S	12	12
A517	15	10'-10"	169	B		15
A518	36	4'-11"	185	B	18	18

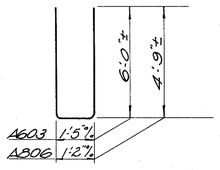
Mark	No.	Length	Weight	Shp.
Piers				
P1101	14	18'-11"	1407	B
P1102	14	29'-10"	2219	B
P1001	14	37'-4"	2249	S
P1002	8	10'-1"	347	B
P901	72	6'-7"	1612	B
P902	12	18'-5"	751	S
P903	12	20'-11"	854	S
P904	12	19'-5"	792	S
P905	12	22'-2"	905	S
P906	12	19'-11"	812	S
P907	12	22'-10"	932	S
P801	82	10'-10"	2372	B
P802	16	7'-10"	335	B
P501	40	7'-9"	323	B
P502	40	9'-5"	393	B
P503	4	37'-4"	156	S
P504	4	20'-0"	83+	S
P505	6	6'-11"	43	B

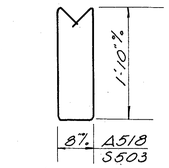
Mark	No.	Core Dia.	% Spiral	Length	Pitch	No. Turns	Weight
SP401	3	32		15'-2"	4½	43	841
SP402	3	32		17'-8"	4½	50	972

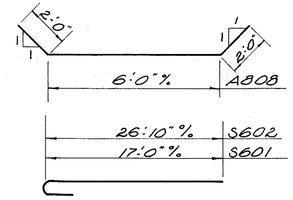
Bending Diagrams

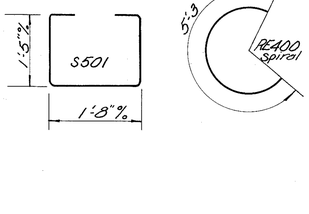




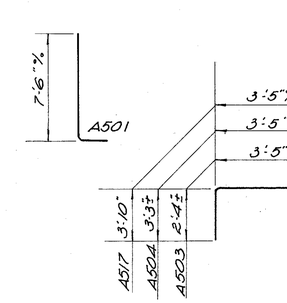


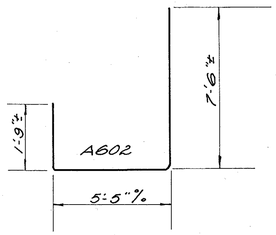


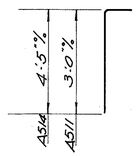


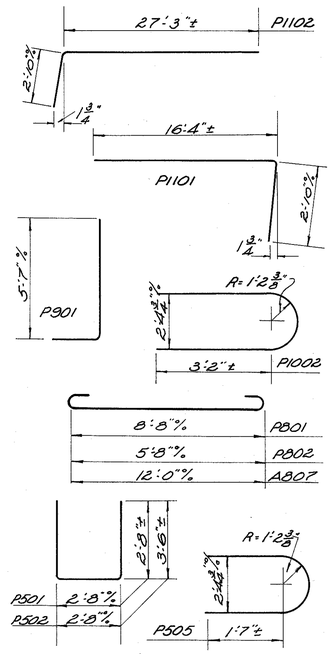


Mark	No.	Length	Weight	Shp.
Railing				
R501	16	13'-0"	*	S
R502	64	16'-0"	*	S
R503	16	11'-8"	*	S
Replacement Bars				
RE1100	1	7'-6"	——	S
RE1000	1	7'-2"	——	S
RE900	1	6'-10"	——	S
RE800	1	6'-6"	——	S
RE700	2	6'-2"	——	S
RE600	2	5'-11"	——	S
RE500	1	5'-7"	——	S
RE400	1	5'-3"	——	B









* Included with railing for payment

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, indicate the bar size number. For example, A801 is a No.8 size bar and P1001 is a No.10 size.

SPIRAL REINFORCING BARS: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.

The "No. of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item S-4. 1½ closed coils shall be provided at the ends of each spiral unit. Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft., of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lb. per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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TUS-21-26.33
TUS-250-11.60

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Superstr.	Abuts.	Piers	Gen'l		
E-2	440	Cu. Yds.	Unclassified excavation		280	160			
S-1	211	Cu. Yds.	Class "C" concrete, superstructure	211					
S-1	65	Cu. Yds.	Class "C" concrete, pier caps and columns			65			
S-1	47	Cu. Yds.	Class "E" concrete, pier footings			47			
S-1	178	Cu. Yds.	Class "E" concrete, abutments		178				
S-4	89,194	lbs.	Reinforcing steel	57,371	13,425	18,398			
S-7	174,700	lbs.	Structural steel	174,700					
S-8	174,700	lbs.	Field painting of structural steel	174,700					
S-14	363.17	Lin. ft.	Railing (aluminum rail and supports, and concrete parapets)	315.17	48.0				
S-16	Lump	Sum	First test pile				Lump		
S-18	1,400	Lin. ft.	12" ϕ cast-in-place reinforced concrete piles			1400			
S-29	35	Cu. Yds.	Porous backfill		35				
S-29	12	Each	Scuppers, including supports	12					
I-10	444	Sq. Yds.	Crushed aggregate slope protection				444		
* Special	211	each	Water-reducing, set-retarding admixture	211					
◇ S-25									
I-127	1	Each	Delineator Type A-1, Bracket Mounted				1		

* See Proposal Note.

◇ See Lighting Plans for estimated quantities.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

REINFORCING STEEL LIST & ESTIMATED QUANTITIES

BRIDGE No. TUS-250-1208 S.B.
over EXISTING USR-21
Sta. 616 +69.75
TUSCARAWAS COUNTY 618 +30.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.C.A.	D.C.A.	J.T.K.	K.E.D.	BFG	7-30-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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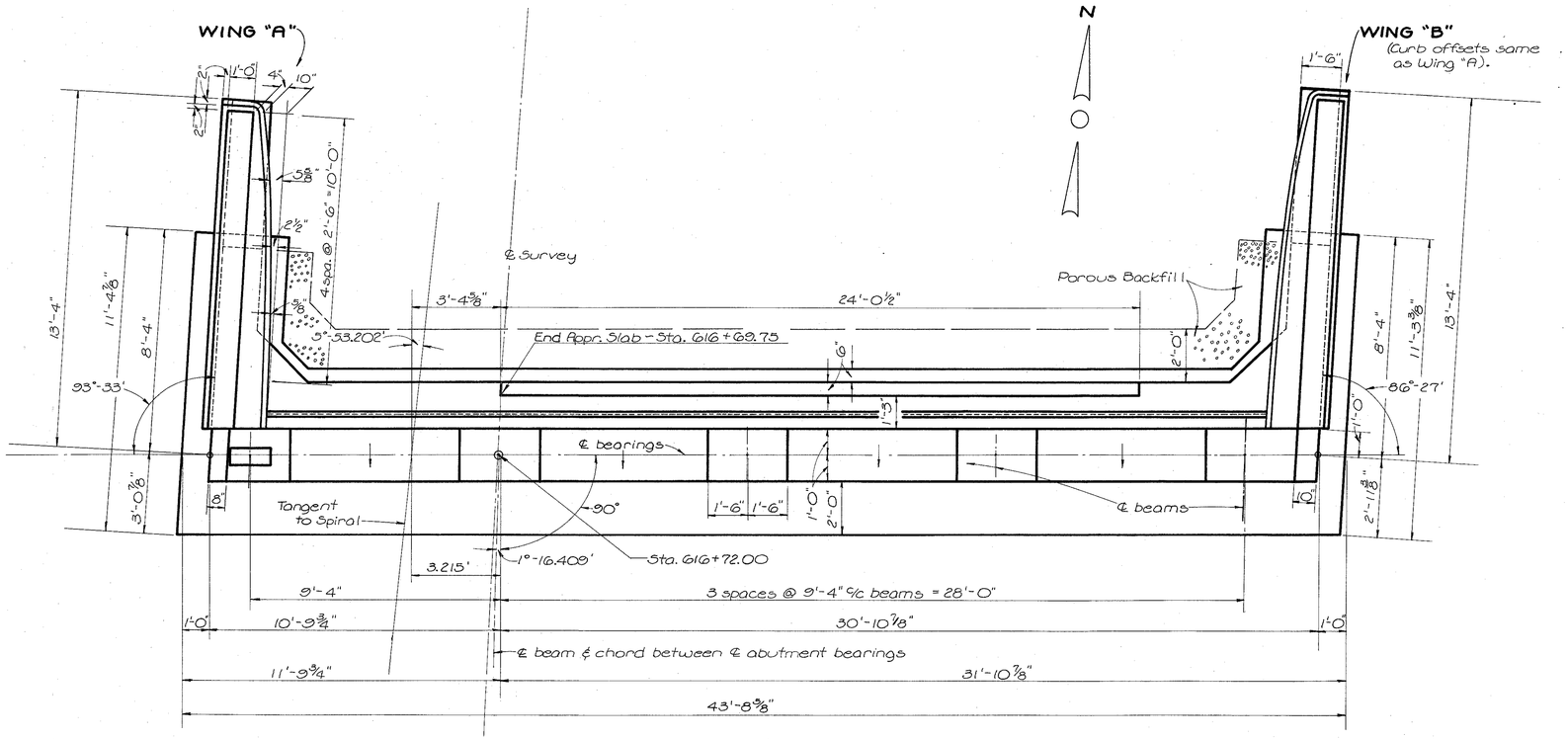
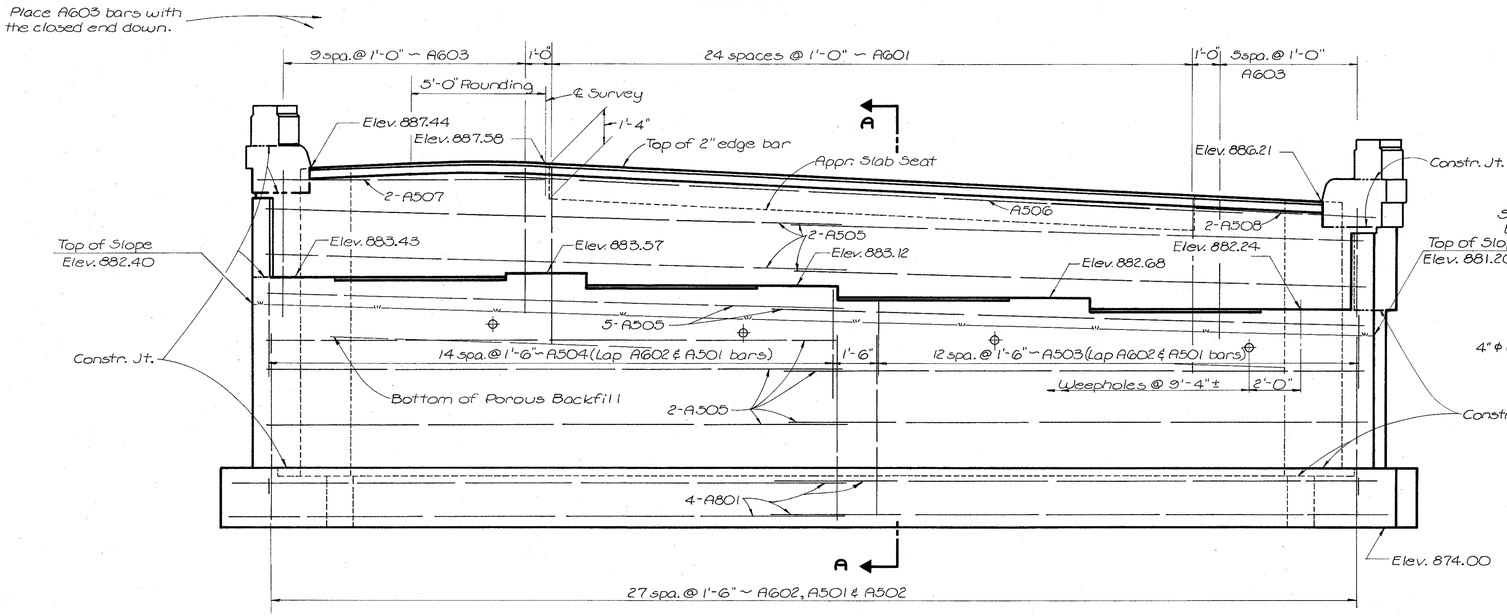
TUS-21-26.33
TUS-250-11.60



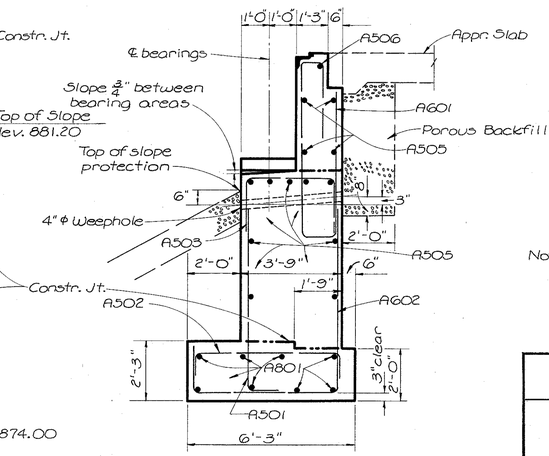
PLAN



ELEVATION

(Aluminum Railing not shown)

SPECIAL CARE shall be taken in placing reinforcing steel in the bridge seat so that it will not interfere with the drilling of anchor bolt holes.



SECTION A-A

Note: For additional details of Wings, see Sht. No. 192

NOTES

PROCEDURE : The embankment shall be placed and compacted up to the finished spill-thru slope and to the level of the subgrade for a distance of 200 feet back of the abutments, after which excavation shall be made for the abutments and piers that are set in the filled area.

EXCAVATION QUANTITY includes the removal of fill material required for construction of the abutments.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

REAR ABUTMENT DETAILS

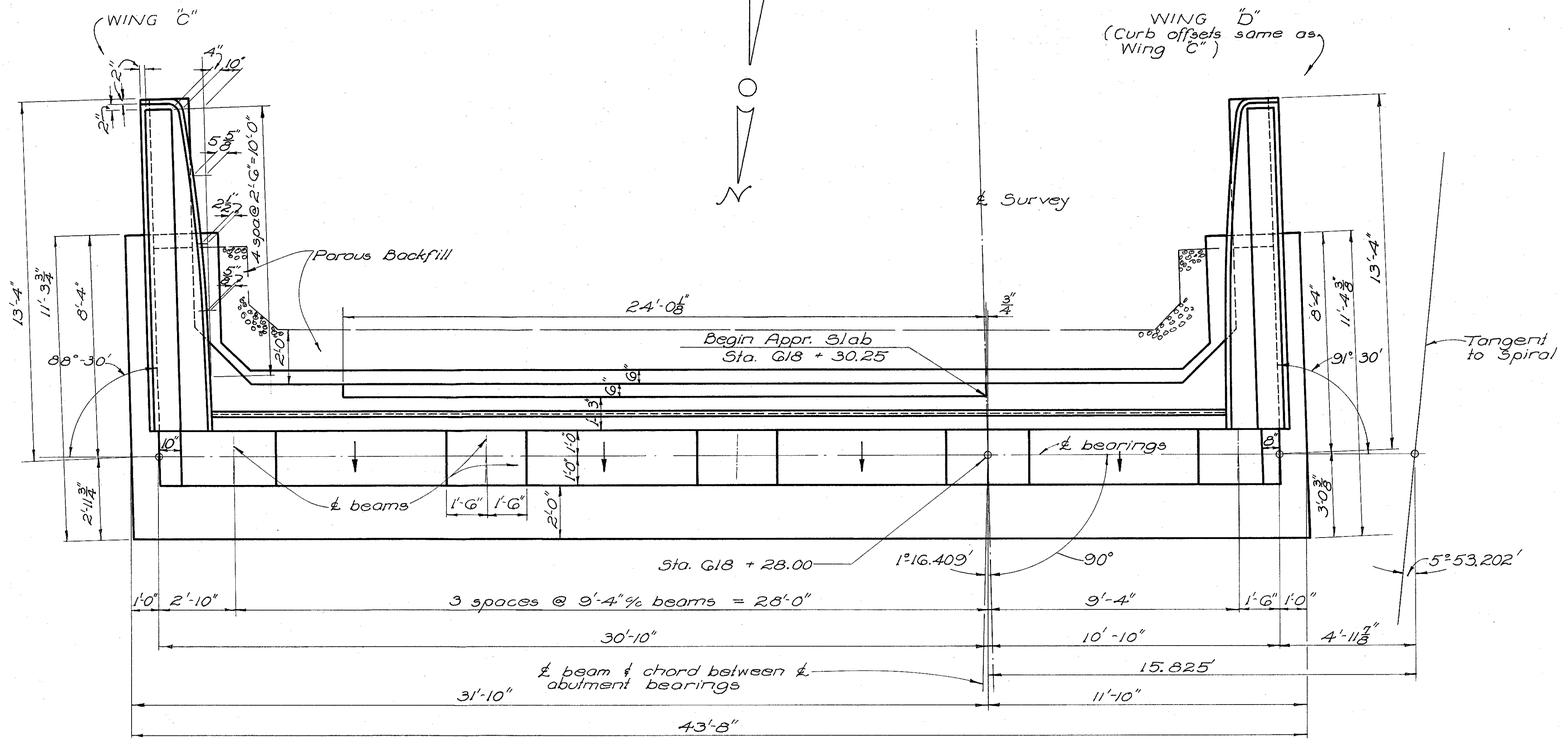
BRIDGE NO. TUS-250-1208 S.B.
OVER EXISTING USR-21
STA. 616+69.75
TUSCARAWAS COUNTY STA. 618+30.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.G.H.	D.G.H.	MKH	K.E.D.	BFG	7-30-62	

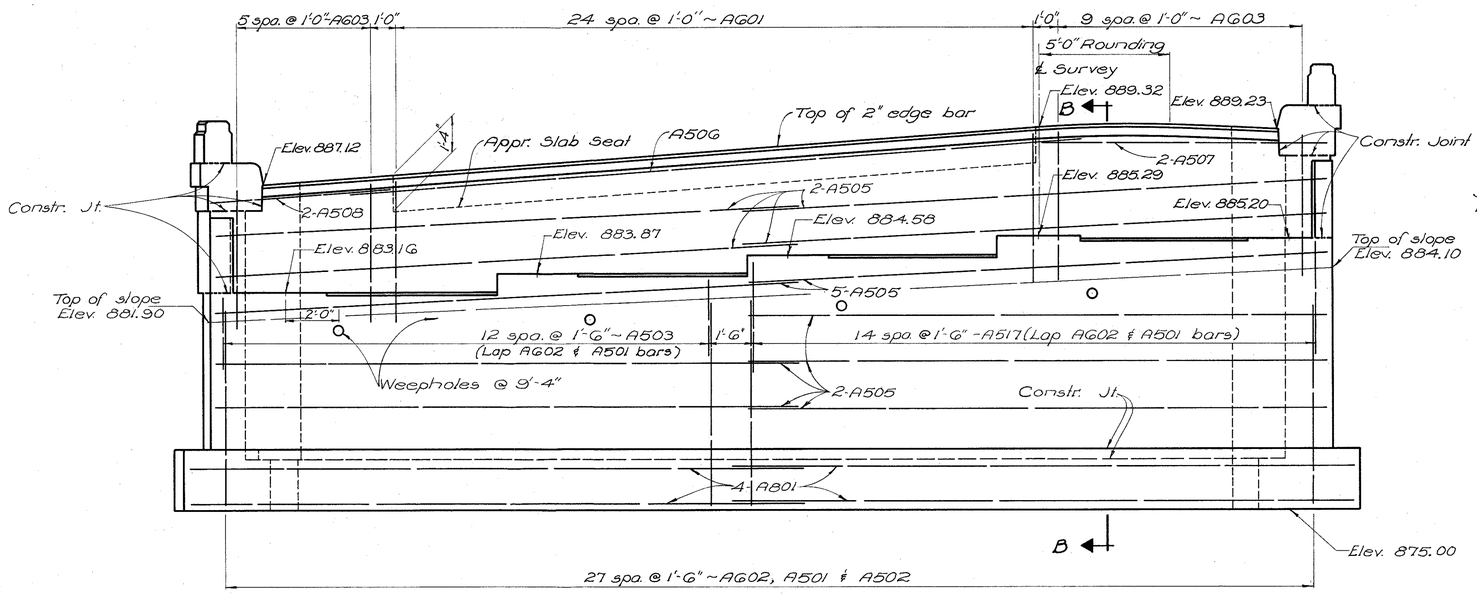
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

191
235

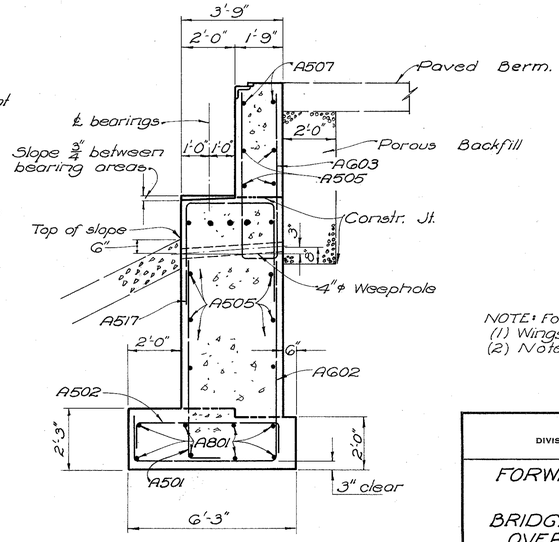
TUS-21-26.33
TUS-250-11.60



PLAN



ELEVATION
(Aluminum Railing not shown)



SECTION B-B

NOTE: For additional details of:
(1) Wings, see Sht. No. 192
(2) Notes see Sht. No. 190

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

FORWARD ABUTMENT DETAILS

BRIDGE NO. TUS-250-12085.B OVER EXISTING USR-21

Sta. G16 + 69.75
Sta. G18 + 30.25

TUSCARAWAS COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.G.A.	D.G.A.	G.G.	K.E.D.	BFG	7-30-62	

TUS-21-26.33
TUS-250-11.60

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

192
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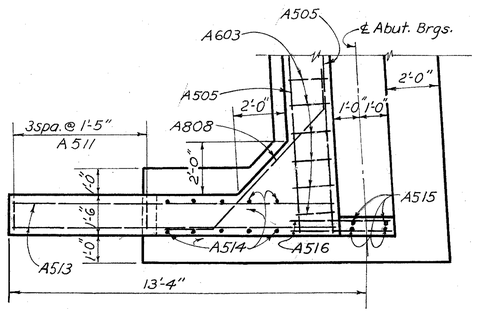
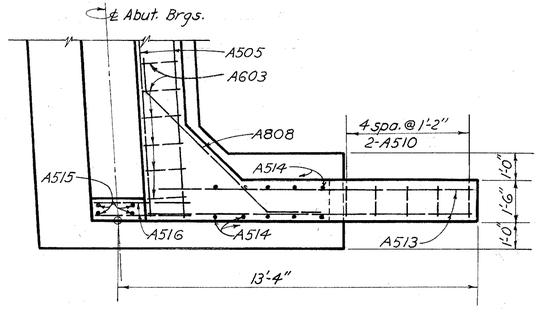
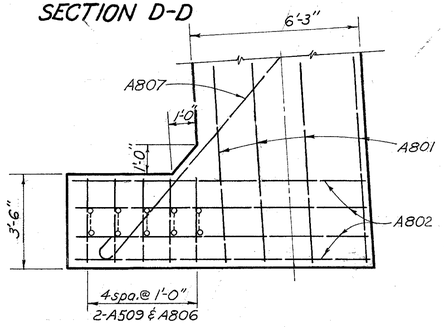


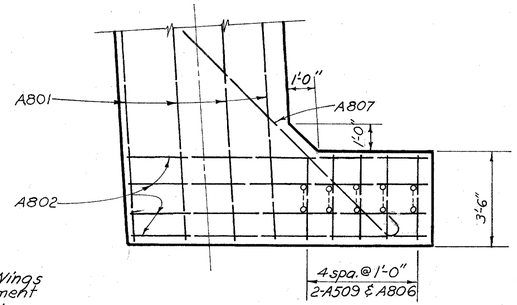
SECTION D-D



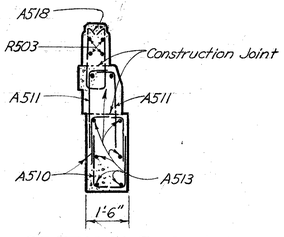
SECTION H-H



SECTION C-C



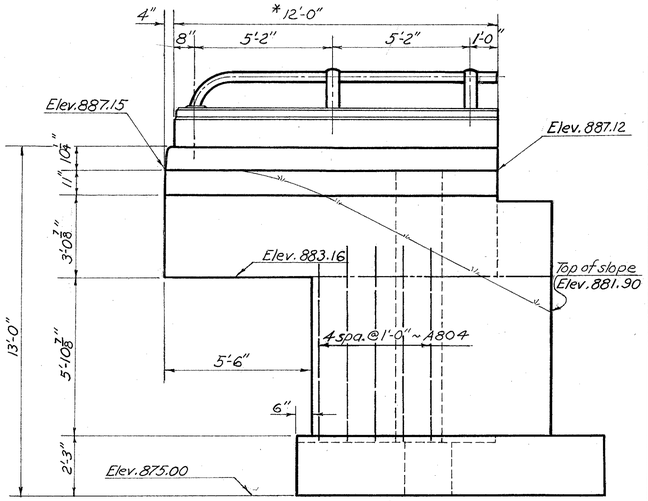
SECTION G-G



SECTION E-E

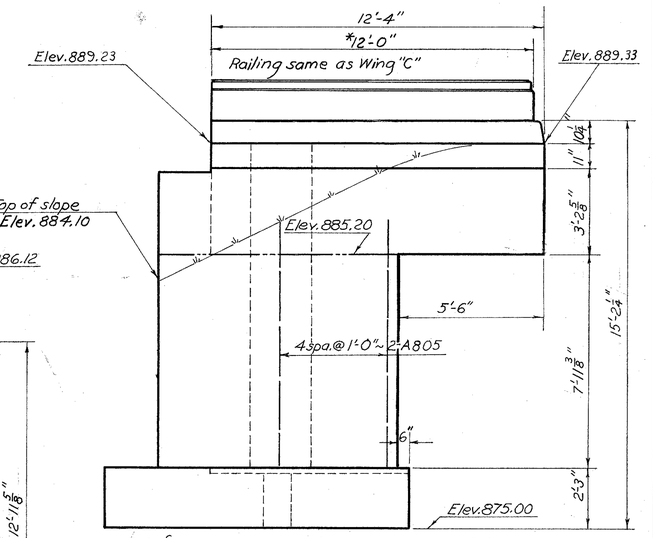
For additional details of Wings see Rear and Forward Abutment Details, Sht. Nos. 190 & 191

For Railing Details not shown see STD. DWG. AR-1-57.



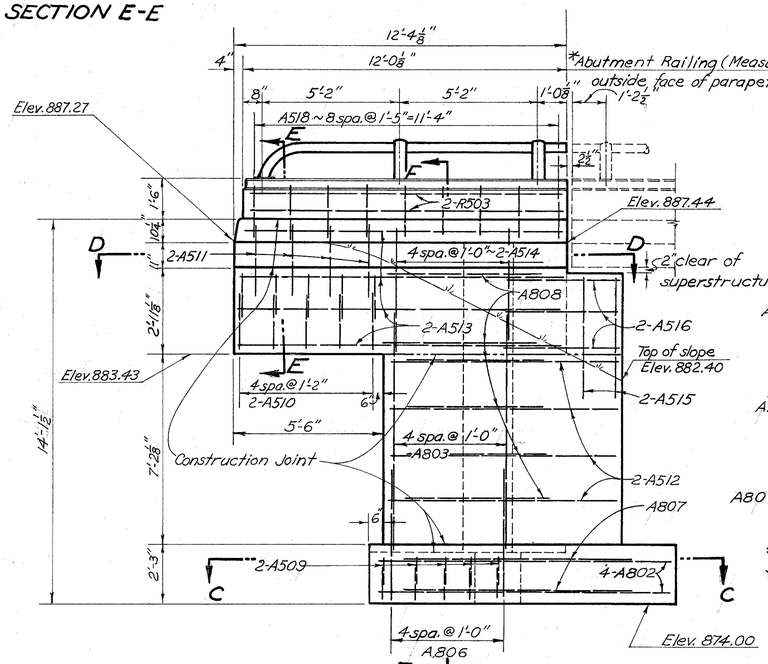
Reinforcing not shown is similar to Wing "A"

ELEVATION OF WING "C"

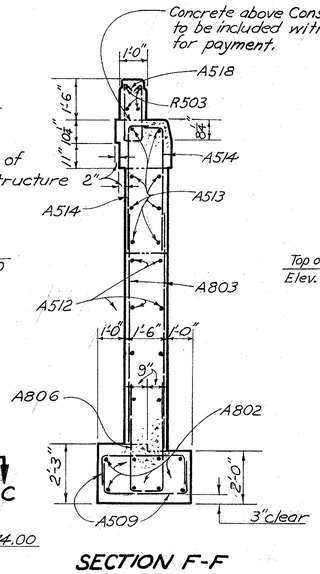


Reinforcing not shown is similar to Wing "A"

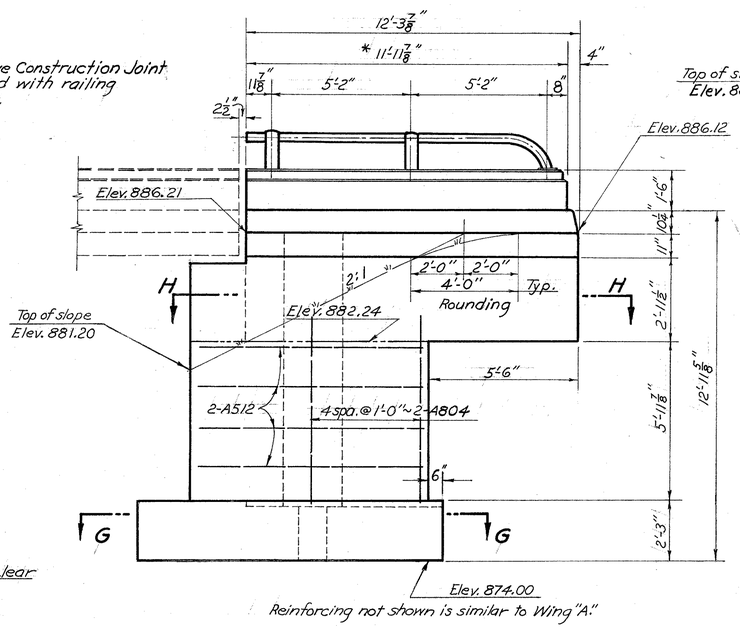
ELEVATION OF WING "D"



ELEVATION OF WING "A"



SECTION F-F



Reinforcing not shown is similar to Wing "A."

ELEVATION OF WING "B"

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

ABUTMENT DETAILS

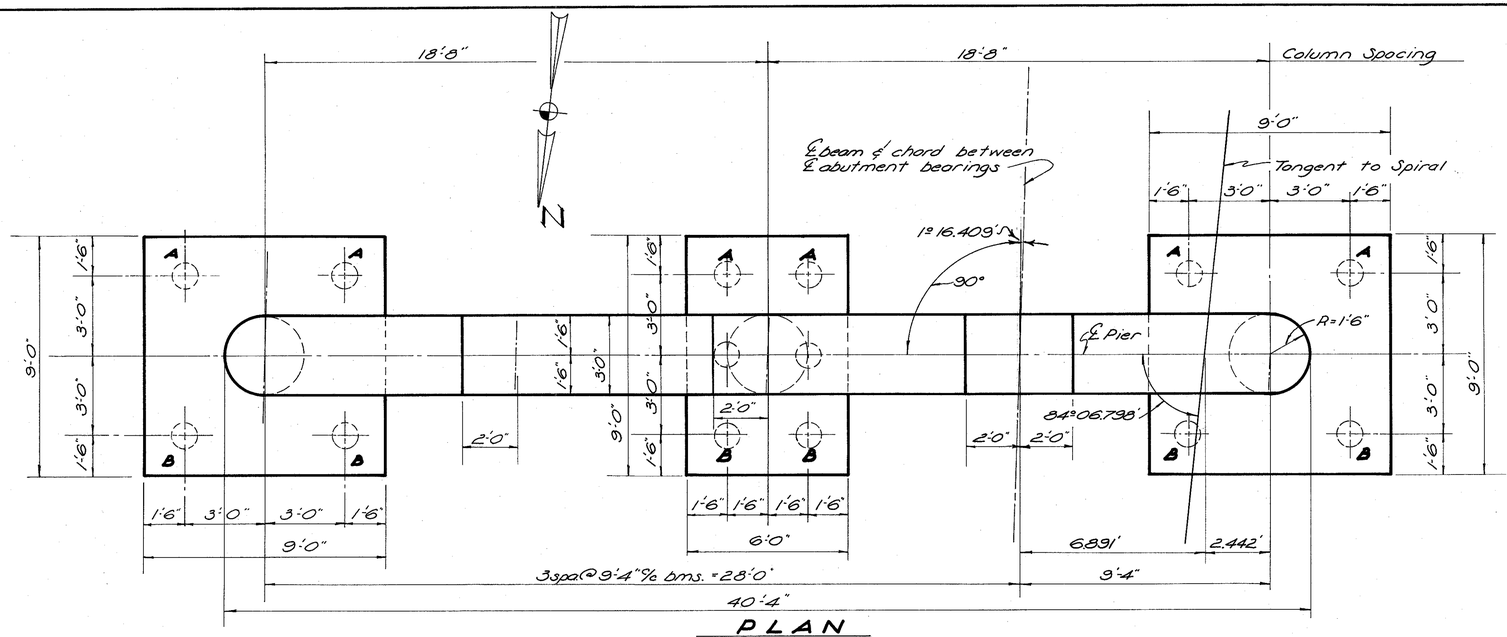
BRIDGE NO. TUS-250-1208 S.B.
OVER EXISTING U.S.R.-21
STA. 616+69.75
618+30.25
TUSCARAWAS COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.C.H.	D.C.H.	W.D.	K.E.D	BFG	7-30-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

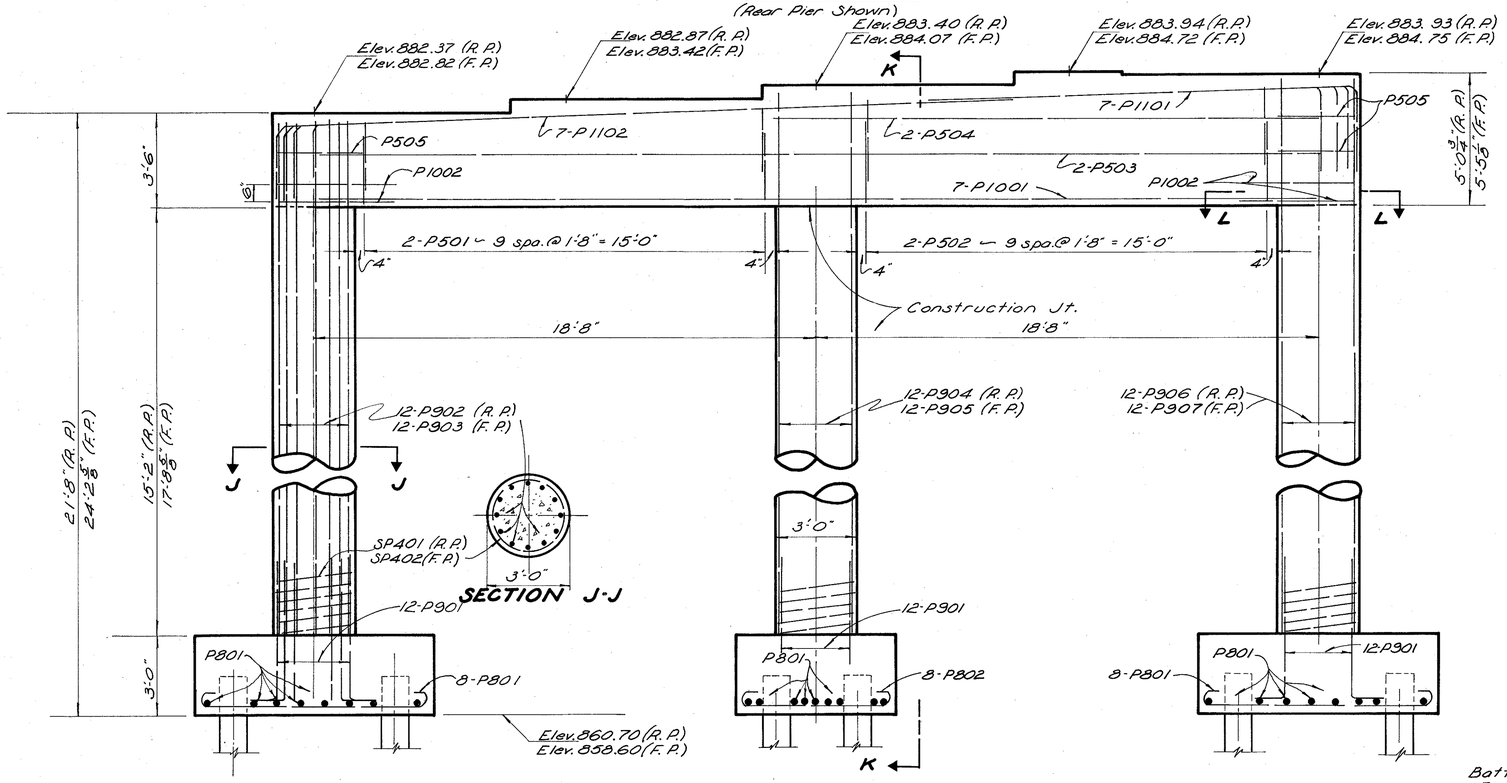
193/235

TUS-21-26.33
TUS-250-11.60

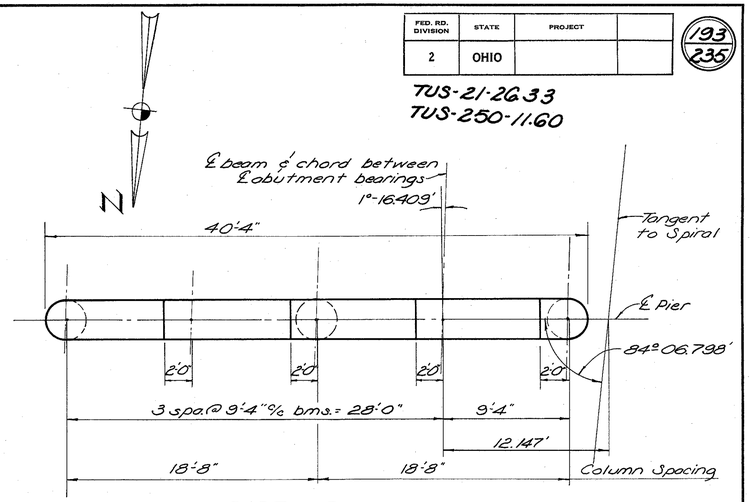


PLAN

(Rear Pier Shown)



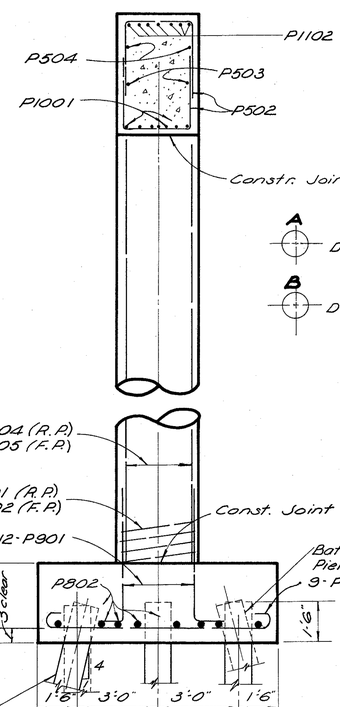
ELEVATION



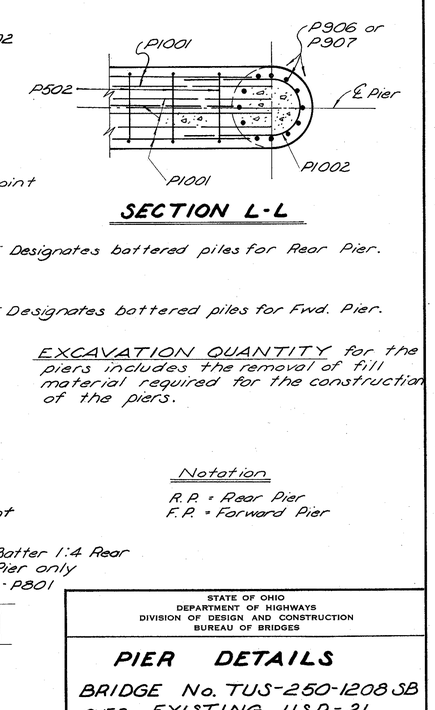
PART PLAN OF FORWARD PIER

(For details not shown see Rear Pier details.)

SPECIAL CARE shall be taken in placing reinforcing steel in the bridge seat so that it will not interfere with the drilling of anchor bolt holes.



SECTION K-K



SECTION L-L

A — Designates battered piles for Rear Pier.

B — Designates battered piles for Fwd. Pier.

EXCAVATION QUANTITY for the piers includes the removal of fill material required for the construction of the piers.

Notation

R.P. = Rear Pier
F.P. = Forward Pier

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

PIER DETAILS

BRIDGE No. TUS-250-1208 SB
over EXISTING USR-21
Sta. 616+69.75
TUSCARAWAS COUNTY 618+30.25

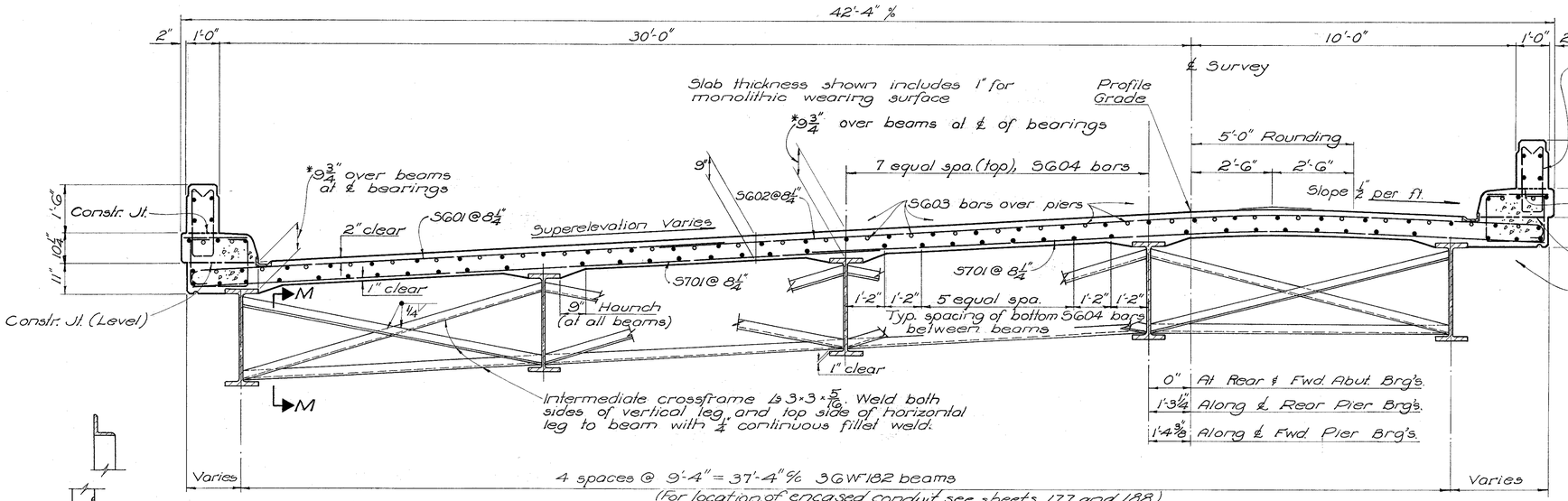
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.C.H.	D.C.H.	J.T.K.	K.E.D.	BFG	7-30-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

194
235

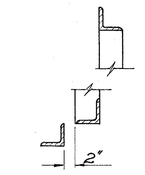
TUS-21-26.33
TUS-250-11.60

All longitudinal bars SG04 except as otherwise shown. Lap SG04 bars 1'-11" minimum.

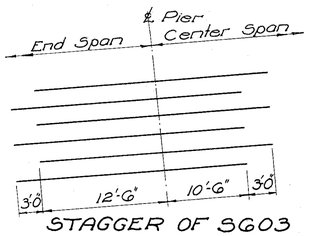


TRANSVERSE SECTION

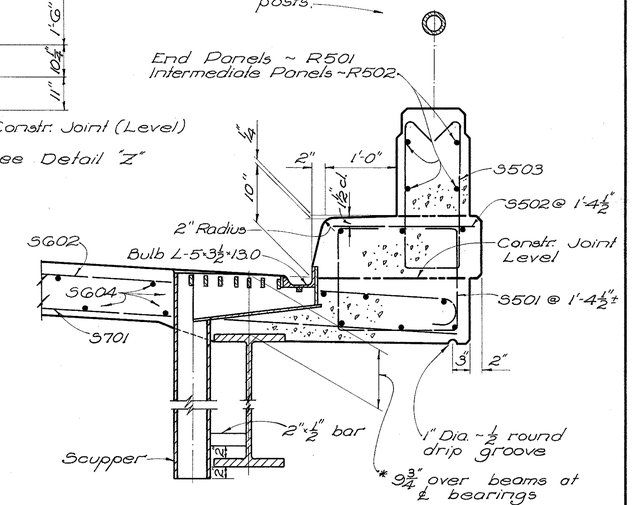
SG01, SG01 and SG02 bars shall be placed parallel to the substructure units.



SECTION M-M



STAGGER OF SG03 BARS OVER PIERS



DETAIL "Z"

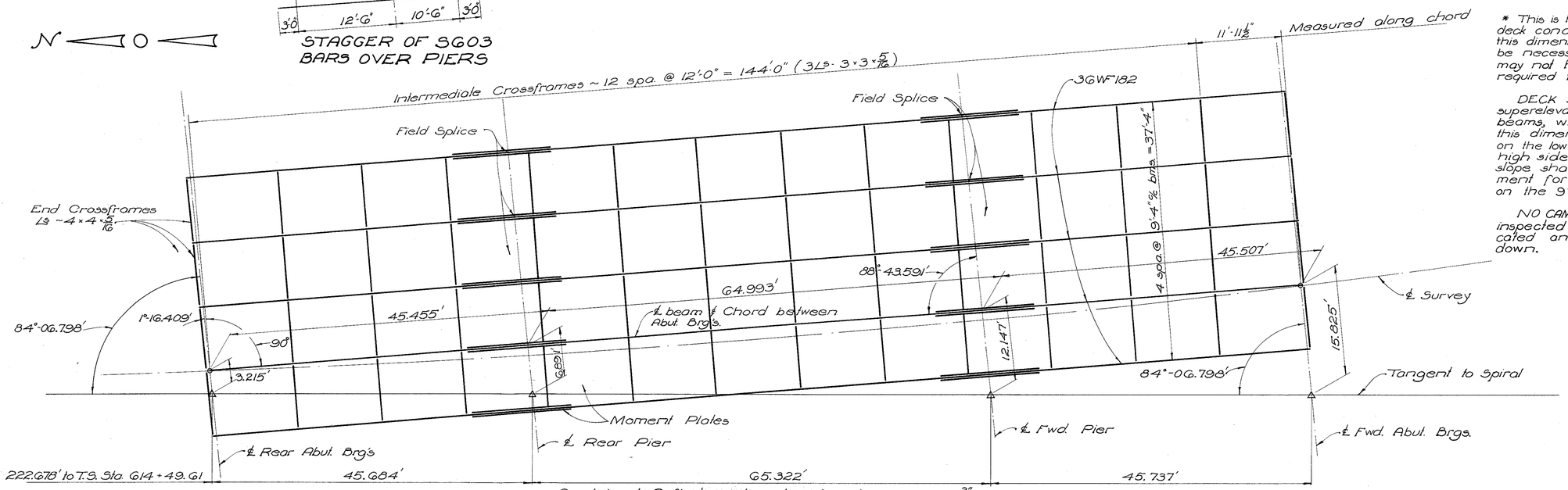
SG03 bars over piers not shown

* This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.

DECK SLAB HAUNCH: The haunch in the superelevated deck slab adjacent to the top of steel beams, which is shown as 9" wide, may vary from this dimension between the limits of 6" and 12" on the low side and between 9" and 12" on the high side. Except on the high side, the maximum slope shall not exceed 3 inches per foot. Payment for deck slab concrete shall be based on the 9" width.

NO CAMBER required, but beams shall be inspected for actual camber and shall be fabricated and erected with the convex flange down.

N ◁ O ◁



Dead Load Deflection at center of center span = 3/8"

STEEL FRAMING PLAN

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

SUPERSTRUCTURE DETAILS

BRIDGE NO. TUS-250-1208 S.B. over EXISTING USR-21

TUSCARAWAS COUNTY

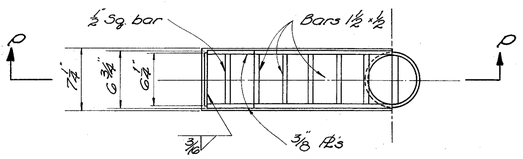
Sta. 616 + 69.75
616 + 30.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.C.H.	B.C.H.	G.G.	K.E.D.	BFG	7-30-62	

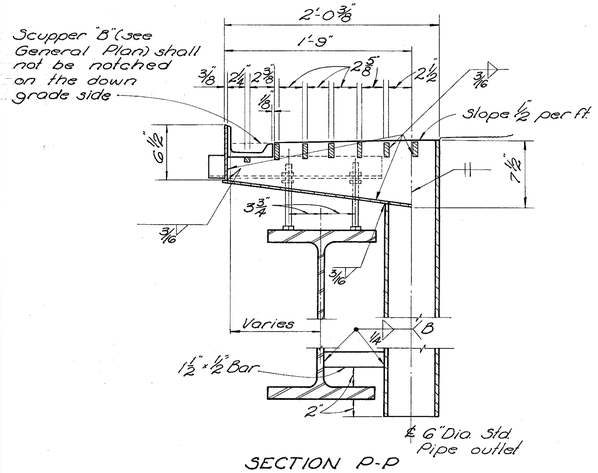
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

195/235

TUS-21-26.33
TUS-250-11.60

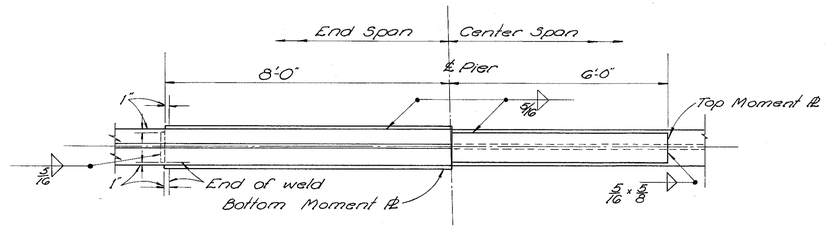


SCUPPER PLAN

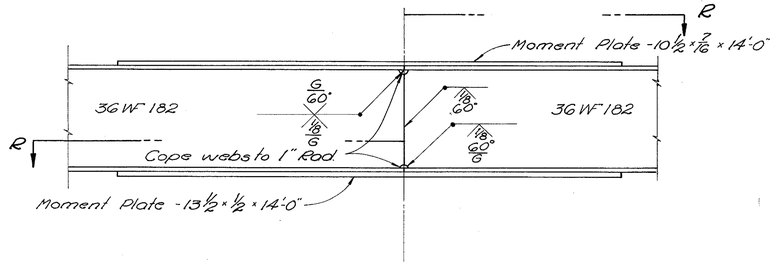


SECTION P-P
SCUPPER DETAILS

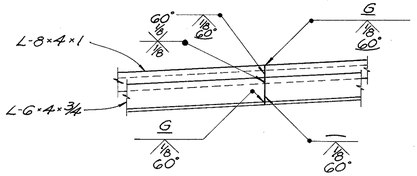
Note: For additional details of gutter support not shown hereon, see STD. DWG. CSB-2-56 sheet No. 3.



SECTION R-R



BEAM SPLICE DETAILS



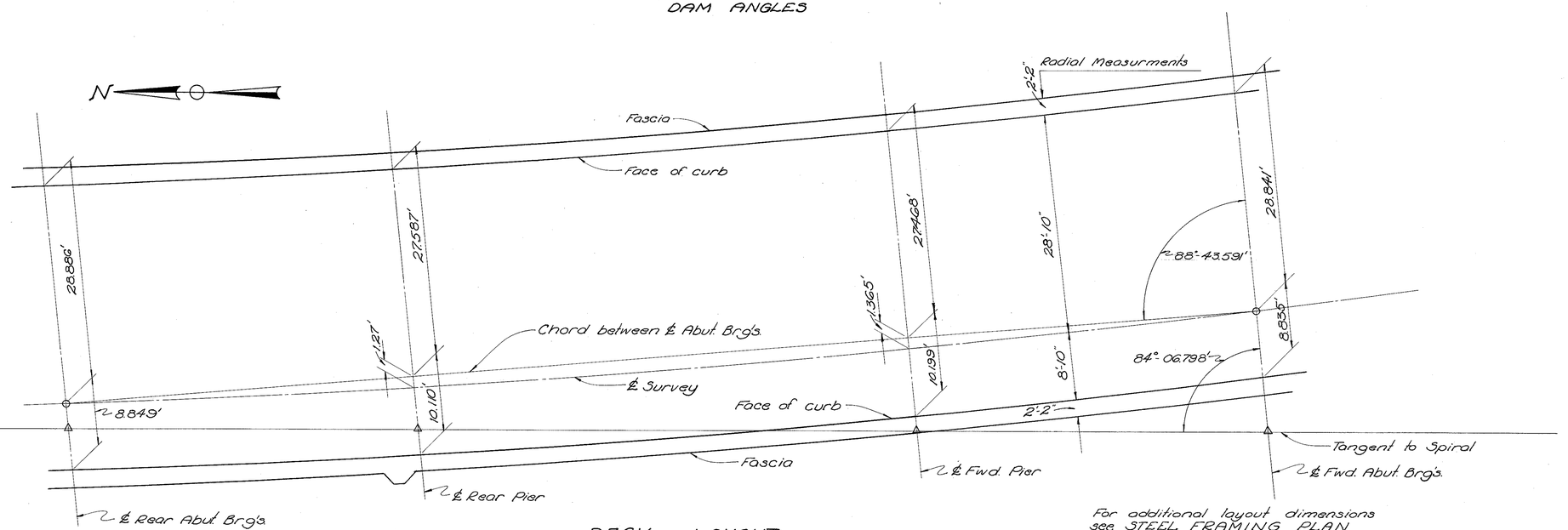
WELDED BUTT JOINT IN SUPERSTRUCTURE END DAM ANGLES

BEAM SPLICE WELDING PROCEDURE

1. With the beam ends resting on the bearings, butt-weld the beam flanges and web, using the following sequence: make one pass on each flange, then two on the web; repeat, using one pass at each location, until welds are completed.
2. Weld the bottom and top moment plates.

SEE STD. DWG. CSB-2-56 FOR THE FOLLOWING DETAILS:

1. Pier and abutment bearing plates, sht. No. 3.
2. Curb plate details, sht. No. 3.
3. SECTION B-B, end crossframes, sht. No. 2, except that the ½ thick bevel fill plate at ℄ of beam shall be 1".
4. SECTION C-C, Roadway End Dam, Sht. No. 2.
5. SECTION D-D, Sht. No. 2.



DECK LAYOUT

For additional layout dimensions see STEEL FRAMING PLAN Sheet No. 1.94 8

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

SUPERSTRUCTURE DETAILS

BRIDGE No. TUS-250-1208 S.B.
over EXISTING USR-21

TUSCARAWAS COUNTY STA. 616+69.75 Ahd 618+30.25

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
B.G.H.	B.G.H.	mdhy	KED	BFG	7-30-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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235

TUS-21-26.33
TUS-250-11.60
0.7 Miles W. New Philadelphia

□ on Northwest Corner of concrete box S.R. 211
ELEV. 865.55

Curve Data U.S.R. 250 N.B.
P.I. 629 + 89.14
Δ = 51°-51' Lt.
D = 4°
Ls = 400'
Θs = 8°
Ts = 898.44'
Es = 165.45'
R = 1432.40'
Lc = 896.25'

Survey ℄ Northbound U.S. 250

Ramp "F"

Edge Berm
Edge Pav't.
Edge Berm
7.0'
16.0'
1.0'
6:1
5:1
2:1
8.00
Transition
25' Dumped Rock Channel Protection
Flow
Stone Creek
40' min. clear
41°-19'
4.20 actual
629+59.05 = S.L.M. 12.33
79.78
Critical Pt. "A"
Tang. 48°-44' Curve
9+50
P.C. 10+
90°
10'
R.C.
27'
10:1
End Appr. Slab
Sta. 628+73.89
Begin Appr. Slab
Sta. 631+42.27
L.S. 633+86.95
Edge Pav't.
24.0'
21.77'
22.89'
24.0'
STONE CREEK
43'
Survey ℄ Ramp "E"
16.0'
11.0'
7.0'
Existing S.R. 211 (To be vacated)
Survey ℄ Southbound U.S.R. 250

Curve Data Ramp "E"
P.I. 8+80.10
Δ = 28°-02' Rt.
D = 5°
T = 286.06'
L = 560.67'
E = 35.17'
R = 1145.92'

FOUNDATION SOUNDINGS: 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.

Clears 5-10 Yr. H.W. Approx. 22'

BRIDGE LIMITS

Sta. 628+73.89 — Sta. 631+42.27

883.56 | 883.78 | 884.00 | 884.22 | 884.44 | 884.66 | 884.88 | 885.10 | 885.32 | 885.54 | 885.76 | 885.98 | 886.20 | 886.42 | 886.64 | 886.86 | 887.08 | 887.30 | 887.52 | 887.74 | 887.96 | 888.18

890 / 880 / 870 / 860 / 850

+0.88% | Top of slope El. 878.7± | Ftg. El. 872.70 | 10BP42 piles | 2:1 (Normal) | (15.0' Minimum Clear. 15.56' Actual Cl. @ Pt. "A") | 5-10 yr. H.W. El. 857.7± | Est. 50 Yr. H.W. El. 862 | Normal Water El. 853.2± | Excavate channel thru struct. to El. 852.0± | Ftg. El. 845.00 | Ftg. El. 847.00 | 2 10BP42 piles | Ftg. El. 875.00 | Top of slope El. 881.0 | +0.88%

Estimated average pay length for piles: Ftg. El. 859.10
628 Rear Abutment 50'
Pier No. 1 25' to 30'
Fwd. Abutment 28'
629 12BP53 piles

630 | 631 | 632

DRAINAGE AREA: 39.0 sq. mi.

PROPOSED STRUCTURE

TYPE: Cont. steel beam with reinf. concrete deck & substructure
SPANS: 525'-75'-75'-60' ℄ brgs.
RDWY: 30'-0" t/f, 2'-3" safety curbs.
LOAD FREQ.: CF = 2000(57).
SKEW: 41°19' R.F.
WEARING SURFACE: 1" monolithic con.
APPR. SLABS: AS-1-54 (Mod.) 25' long.
ALIGNMENT: 4° curve left.
SUPERELEVATION: 0.083 ft/ft.

SITE PLAN

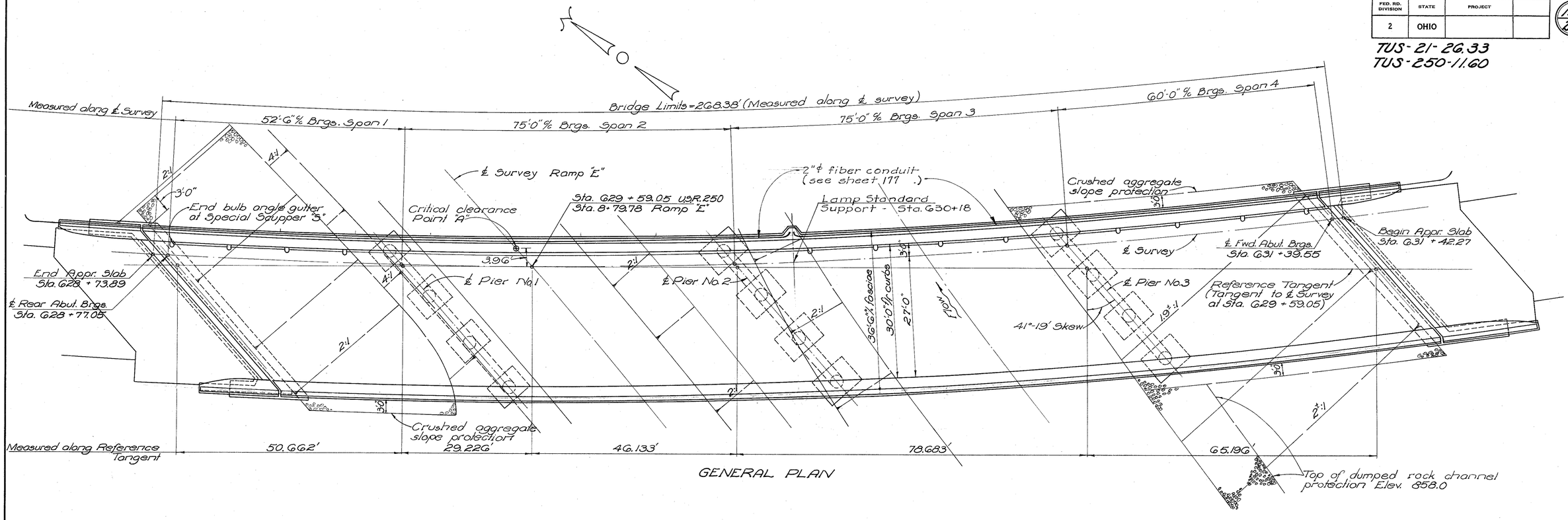
BRIDGE No. TUS-250-1231 N.B.
OVER RAMP "E" & STONE CREEK
TUSCARAWAS CO. U.S.R. 250
SEC. TUS-250-11.60
STA. 628+73.89
STA. 631+42.27
SCALE: 1" = ---

Existing Topo	PROPOSED WORK				
Survey	Drawn	Design	Drawn	Check	Review
Div. Office	Div. Office	E.J.S.	E.J.S.	E.J.S.	G.E.S.
		DGM	DGM	BFG	8-20-62

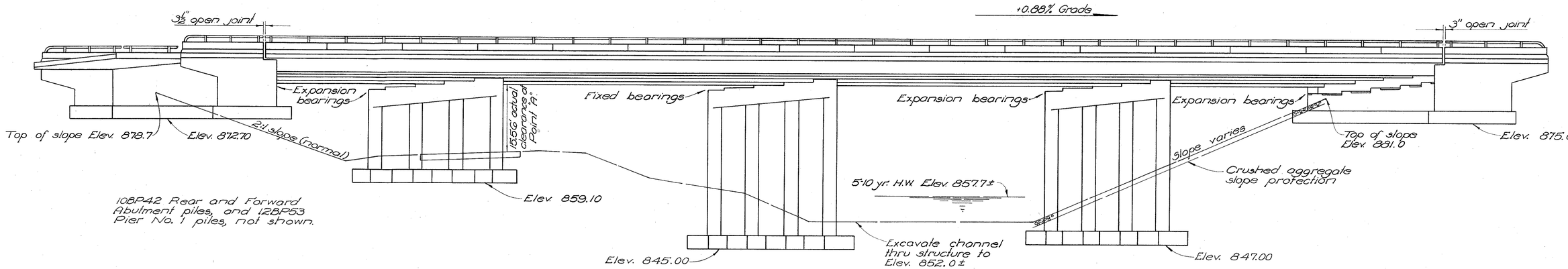
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

197
235

TUS-21-26.33
TUS-250-11.60



GENERAL PLAN



ELEVATION
(For additional Railing Details see Sheet No. 122)

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

GENERAL PLAN & ELEVATION

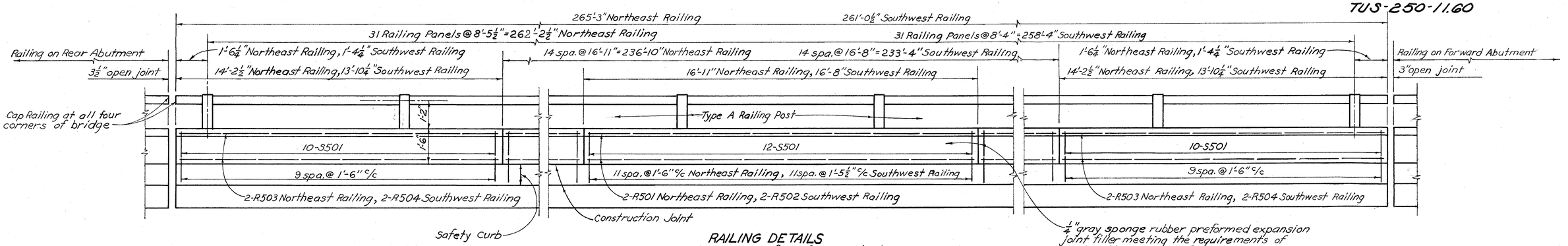
BRIDGE NO. TUS-250-12.31 NB
OVER RAMP "E" & STONE CREEK
STA. 628 + 73.89
TUSCARAWAS COUNTY STA. 631 + 42.27

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.L.D.	R.L.D.	G.G.	K.E.D.	BFG	8-20-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

198
235

TUS-21-26.33
TUS-250-11.60



RAILING DETAILS

Measurements are along face of parapet where R=1427.14' for Northeast Railing and R=1461.64' for Southwest Railing.
For additional details see Standard Drawing AR-1-57.

GENERAL NOTES

ELECTRICAL GROUNDS: A No. 0 gauge, 7 stranded, bare, soft annealed, copper wire electrical ground shall be embedded in the left (north) column, cap and footing of Pier No. 2. The lower end of the wire shall terminate in a 25 foot length coil under the footing and separated from the concrete by two layers of tar paper and the upper end shall extend sufficiently above the top of the pier concrete to provide for a suitable attachment to the superstructure beam flange. At the base of the lamp standard there shall be a No. 0 gauge copper wire as above attached to one anchor bolt and the other end attached to the top flange of the superstructure beam. All attachments shall be made by brazing or exothermic welding. Payment for electrical grounds is included in Item S-25, electrical lighting system.

LAMP STANDARD ANCHOR BOLTS shall be placed using an 11" ϕ bolt circle.

** For estimated quantities see Lighting Plan, Sheet Nº 217 .
* See Proposal Note.

ESTIMATED QUANTITIES

	Item	Total	Unit	Description	Super.	Abuts.	Piers	Gen'l.
	E-2	Lump	Sum	Cofferdams, cribs and sheeting				Lump
	E-2	667	Cu. yds.	Unclassified excavation including shale		282	385	
	S-1	337	Cu. yds.	Class "C" concrete, superstructure	337			
	S-1	130	Cu. yds.	Class "C" concrete, pier caps and columns			130	
	S-1	223	Cu. yds.	Class "E" concrete, abutments		223		
	S-1	78	Cu. yds.	Class "E" concrete, pier footings			78	
	S-4	147,469	Lbs.	Reinforcing steel	92,326	14,890	40,253	
	S-7	299,000	Lbs.	Structural steel	299,000			
	S-8	299,000	Lbs.	Field painting of structural steel	299,000			
	S-14	600.93	Lin. ft.	Railing (aluminum rail and supports, and concrete parapet)	526.29	74.64		
	S-16	Lump	Sum	First test pile				Lump
	S-18	540	Lin. ft.	Steel piles, 12BP53			540	
	S-18	1050	Lin. ft.	Steel piles, 10BP42		1050		
	S-29	45	Cu. yds.	Porous backfill		45		
	S-29	12	Each	Scuppers, including supports	12			
	I-10	630	Sq. yds.	Crushed aggregate slope protection				630
*	Special	336	Each	Water-reducing, set-retarding admixture	336			
	627	2	Each	Delineators Type A-1, Bracket Mounted				2
**	S-25							

REFERENCE shall be made to Standard Drawings CSB-2-56, sheets 2 and 3, and RB-1-55 both revised 2-2-59, and AR-1-57 revised 4-2-62.

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.

PROCEDURE: The approach embankment behind the Rear Abutment and the embankment for Ramp "E" shall be in place to subgrade elevation before any construction is started on the Abutment, Pier No. 1, and Pier No. 2. Likewise, the forward approach embankment shall be placed to subgrade elevation before construction is begun on this abutment and Pier No. 3.

EXCAVATION QUANTITY includes the removal of fill material required for construction of the abutments and piers.

PILES shall be driven with a hammer of not less than 11000 ft. lbs. per blow 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 Sec. S-18.05 is not less than the following value for a pile hammer of the indicated energy rating:

For the abutment piles:

Rear	Fwd.	
33	42	tons per pile using an 11000 ft. lb. hammer
33	38	tons per pile using a 15000 ft. lb. or greater hammer

For Pier No. 1 piles:

51 tons per pile using an 11000 ft. lb. hammer
47 tons per pile using a 15000 ft. lb. or greater hammer

If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 33 tons per pile for the abutment piles and 38 tons per pile for Pier No. 1 piles.

FOUNDATION BEARING PRESSURE: Pier No. 2 and Pier No. 3 footings are designed for a maximum bearing pressure of 5 tons per sq. ft.

WELDING of structural steel shall be Class "A" except as otherwise shown. Welds shown as field welds may, at the option of the Contractor, be made in the shop.

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.

SHEET LEAD shall conform to the requirements of ASTM Designation B 29 without restriction to the Common Desilverized type.

CONCRETE DECK PLACING: In order to facilitate water curing of the concrete of the deck slab, the placing of concrete 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.

SURFACE FINISH OF CONCRETE: The requirements of Sec. S-1.22, Rubbed Finish, shall apply to all exposed concrete surfaces on the superstructure except the top and bottom surfaces of safety curbs and roadway, and on the piers and abutments except bridge seats, backwalls and the face of spill-through abutments between outside beams.

MACHINE FINISH: At the Contractor's option, the concrete deck may be finished by the use of a finishing machine.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

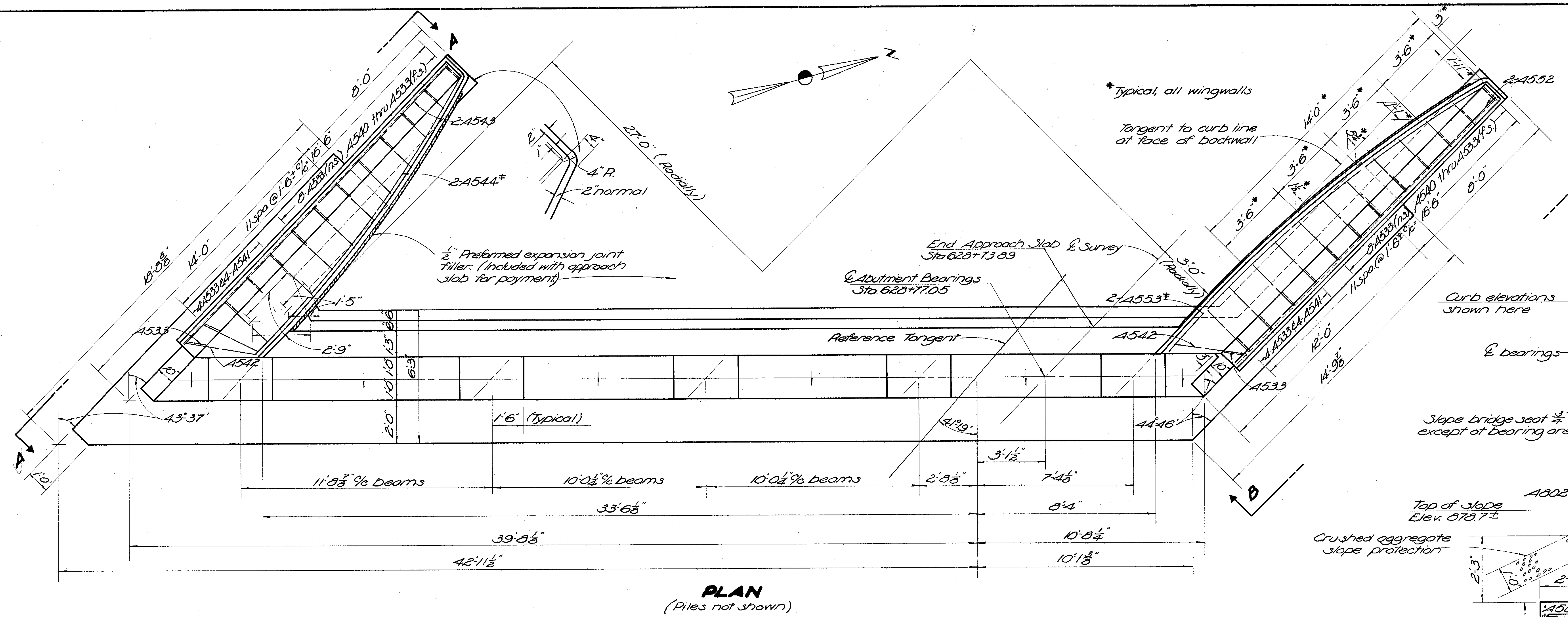
RAILING DETAILS, GENERAL NOTES, & ESTIMATED QUANTITIES
BRIDGE NO. TUS-250-1231 N.B.
OVER RAMP "E" & STONE CREEK
STA. 628+73.89
TUSCARAWAS COUNTY 631+42.27

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.L.D.	R.L.D.	W.D.	D.C.K.	BFG	8-20-62	

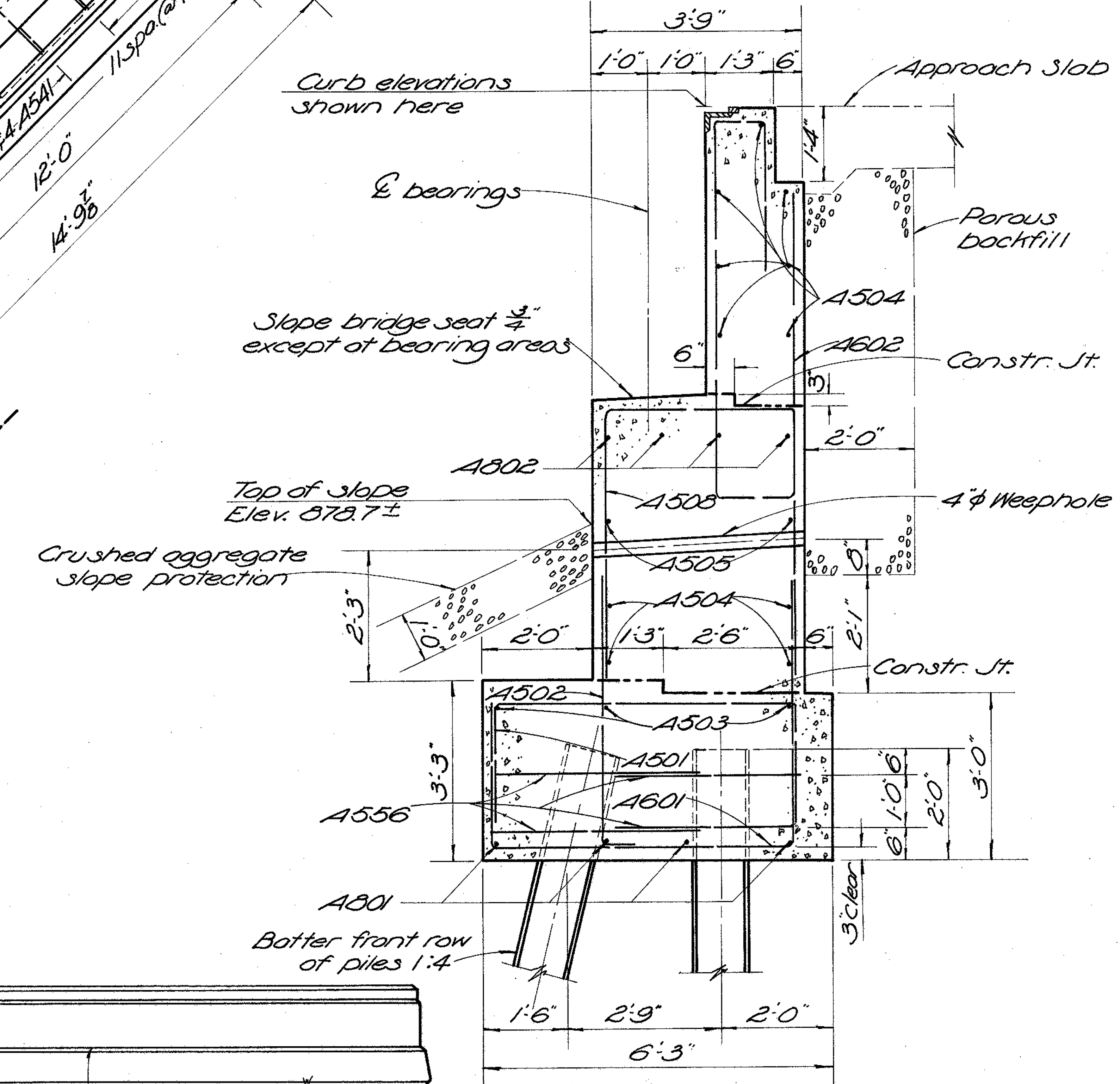
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

199/235

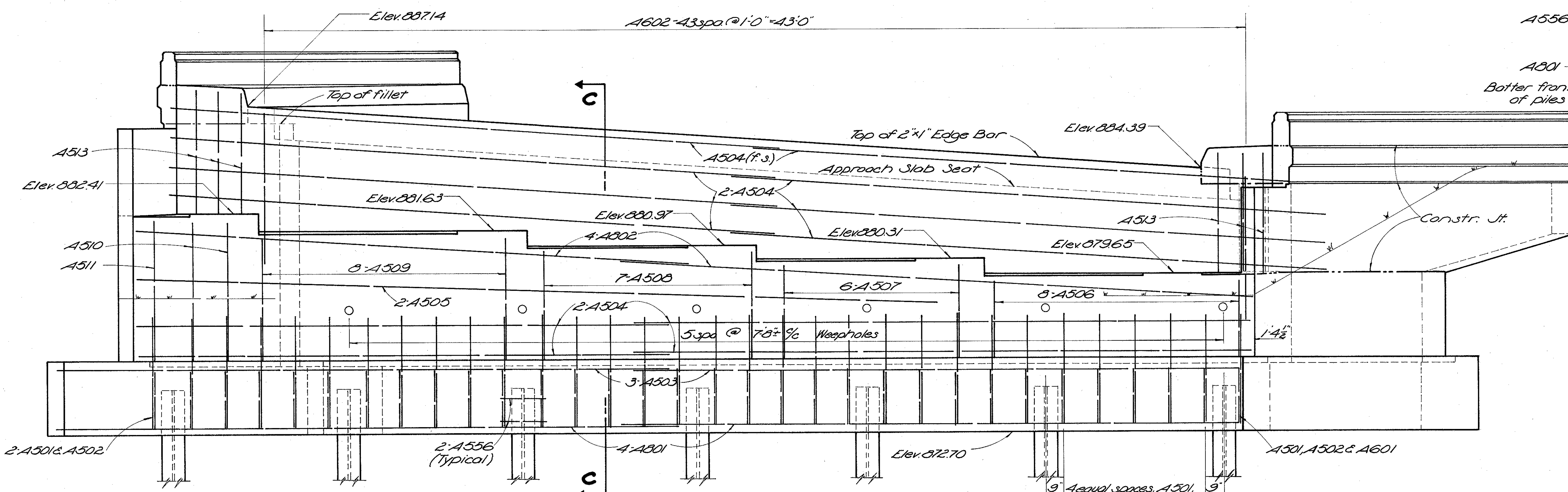
TUS-21-26.33
TUS-250-11.60



PLAN
(Piles not shown)



SECTION C-C



ELEVATION
(Piles under Wingwalls not shown)

‡A544 & A553 bars shall be bent in the field to fit. Payment for bending shall be considered as included with Item S-4.

POROUS BACKFILL shall extend upward to the approach slab and outward to the wingwalls. Excavation therefor, in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cu. yd. paid for porous backfill.

n.s. denotes near side
f.s. denotes far side

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

REAR ABUTMENT DETAILS

BRIDGE NO. TUS-250-1231 N.B.
OVER RAMP "E" AND STONE CREEK

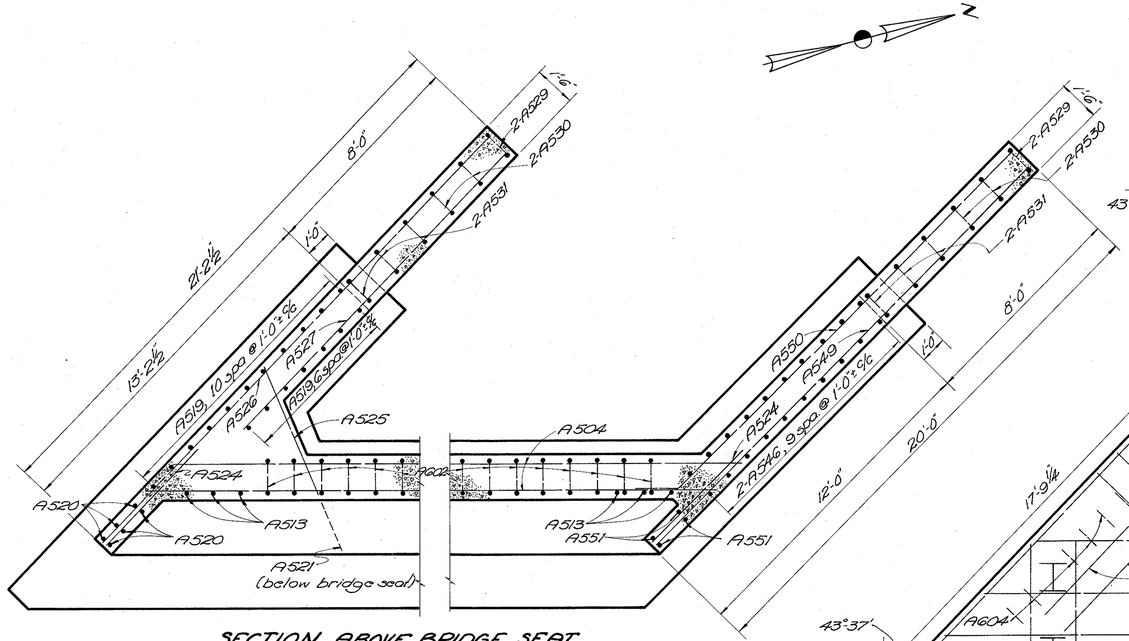
TUSCARAWAS COUNTY STA. 628+73.89 STA. 631+42.27

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.L.D.	R.L.D.	J.T.K.	KED	BFG	8-20-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

200
235

TUS-21-26.33
TUS-250-11.60



STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

REAR ABUTMENT DETAILS

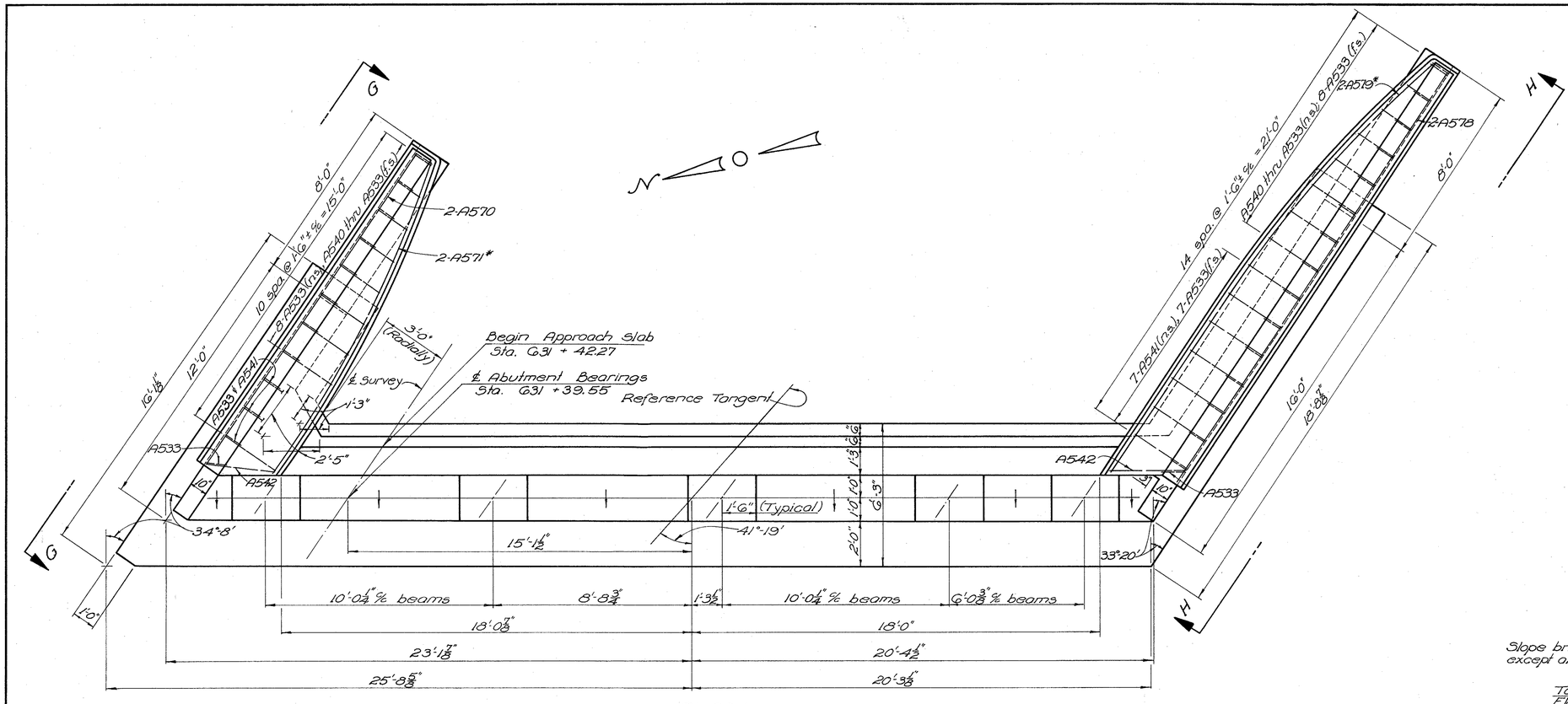
BRIDGE NO. TUS-250-12.31 N.B.
OVER RAMP "E" & STONE CREEK
TUSCARAWAS COUNTY
STA. 628+73.89
STA. 631+42.27

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.L.D.	R.L.D.	Mathis	KED	BFG	8-20-62	

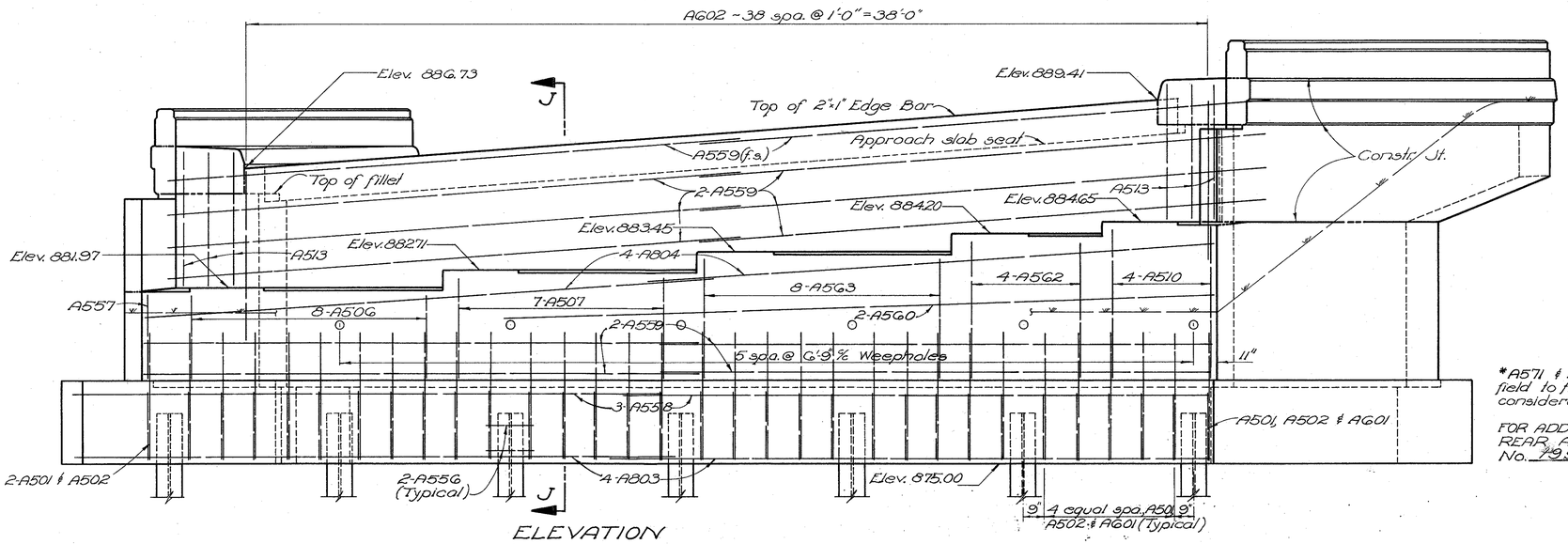
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

201

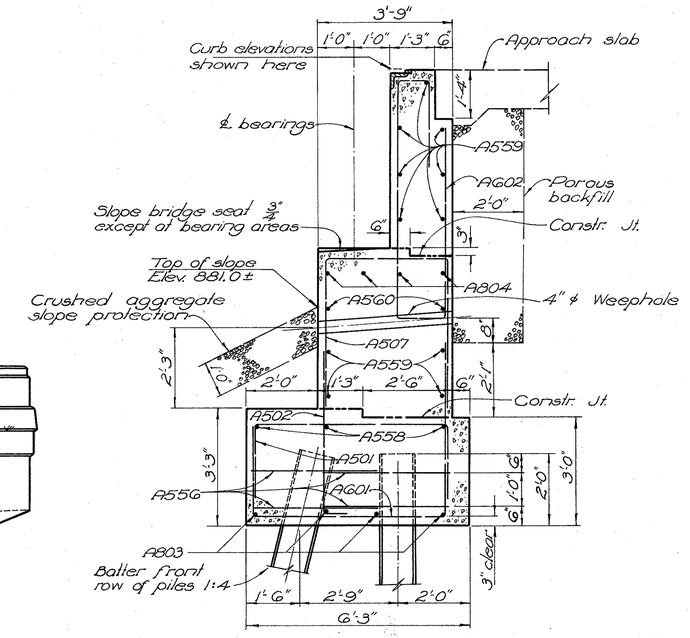
TUS-21-26.33
TUS-250-11.60



PLAN
(Piles not shown)



ELEVATION



SECTION J-J

*A571 & A579 bars shall be bent in the field to fit. Payment for bending shall be considered as included with Item 5-4.

FOR ADDITIONAL NOTES & DETAILS see REAR ABUTMENT DETAILS, Sheet No. 7 of 9

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

FORWARD ABUTMENT DETAILS

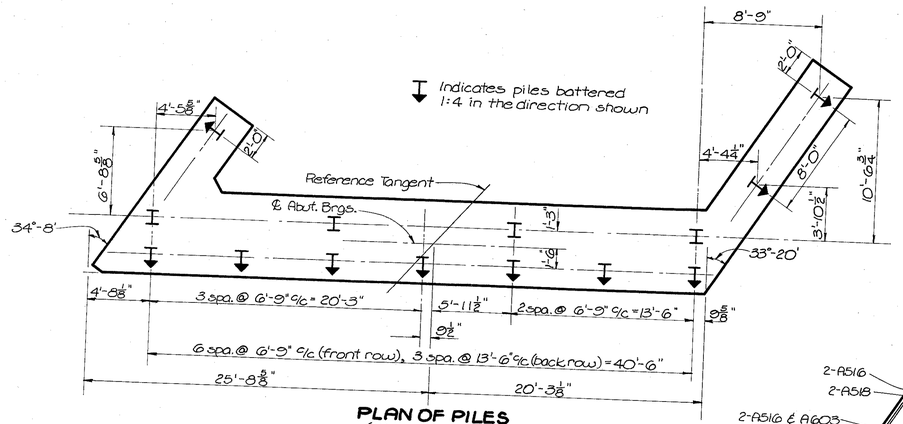
BRIDGE NO. TUS-250-12.31 N.B
OVER RAMP "E" AND STONE CREEK
STA. G28 + 73.89
TUSCARAWAS COUNTY STA. G31 + 42.27

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.L.D.	R.L.D.	G.G.	K.E.D.	BFG	8-20-62	

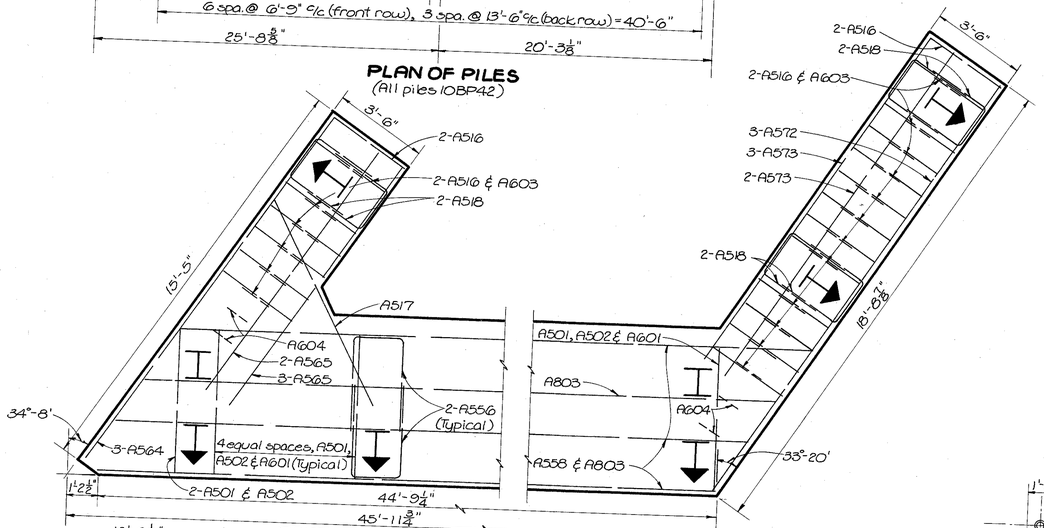
FED. RD. DIVISION | 2 |

Tus-2
Tus-25

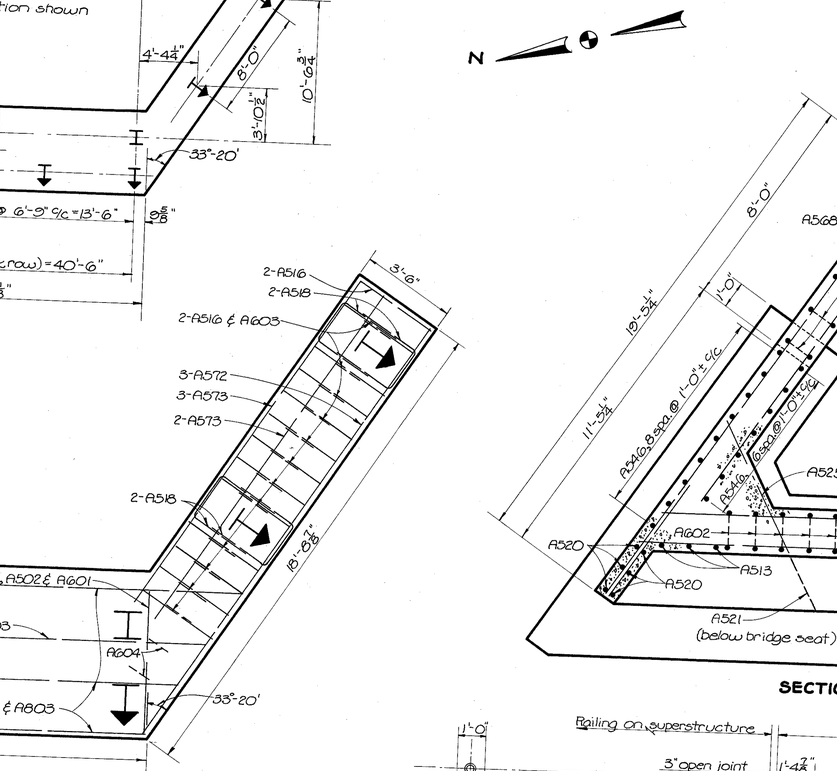
Indicates piles battered 1:4 in the direction shown



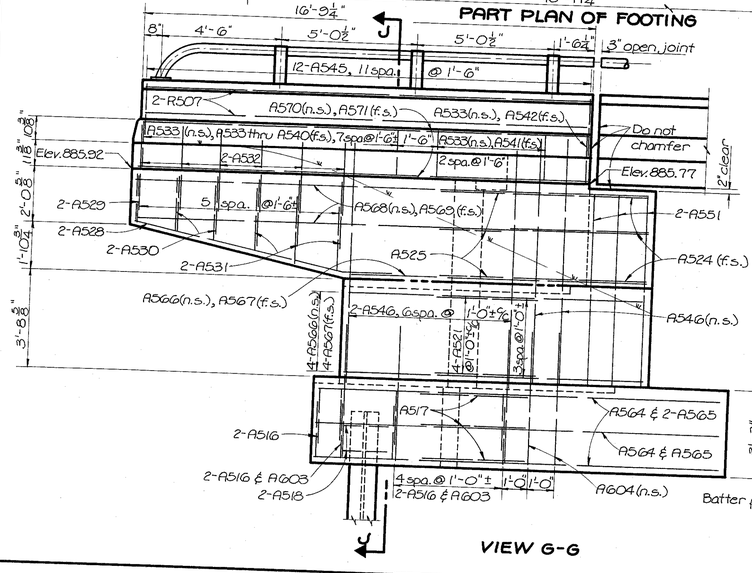
PLAN OF PILES
(All piles 10BP42)



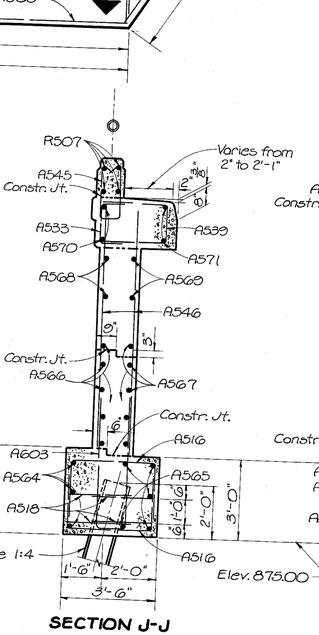
PART PLAN OF FOOTING



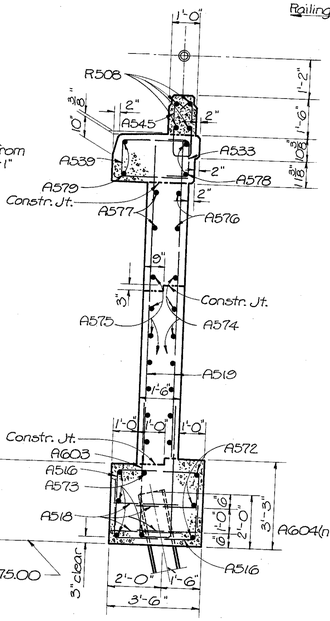
SECTION ABOVE BRIDGE SEAT



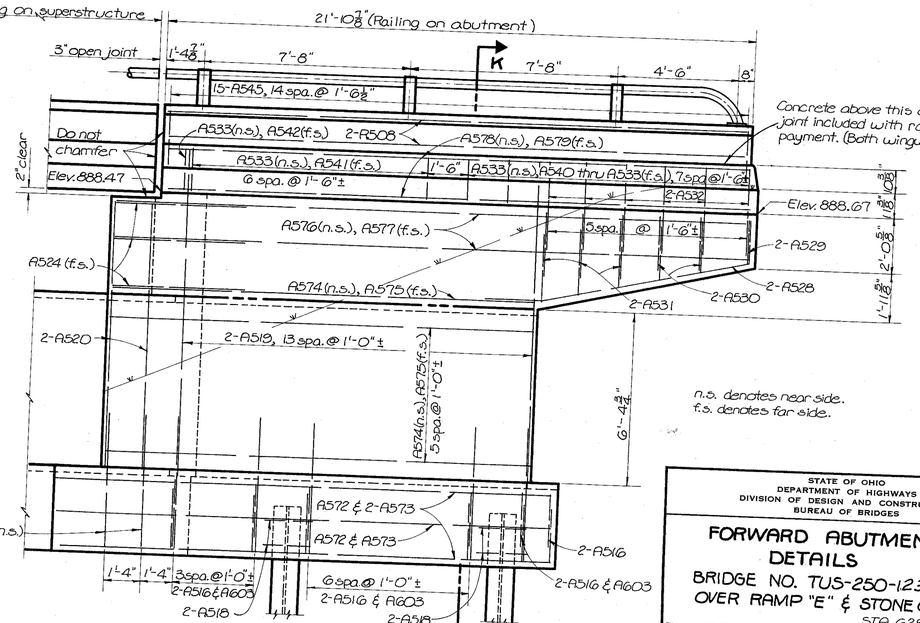
VIEW G-G



SECTION J-J



SECTION K-K



VIEW H-H

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

FORWARD ABUTMENT DETAILS

BRIDGE NO. TUS-250-1231 N.B.
OVER RAMP "E" & STONE CREEK

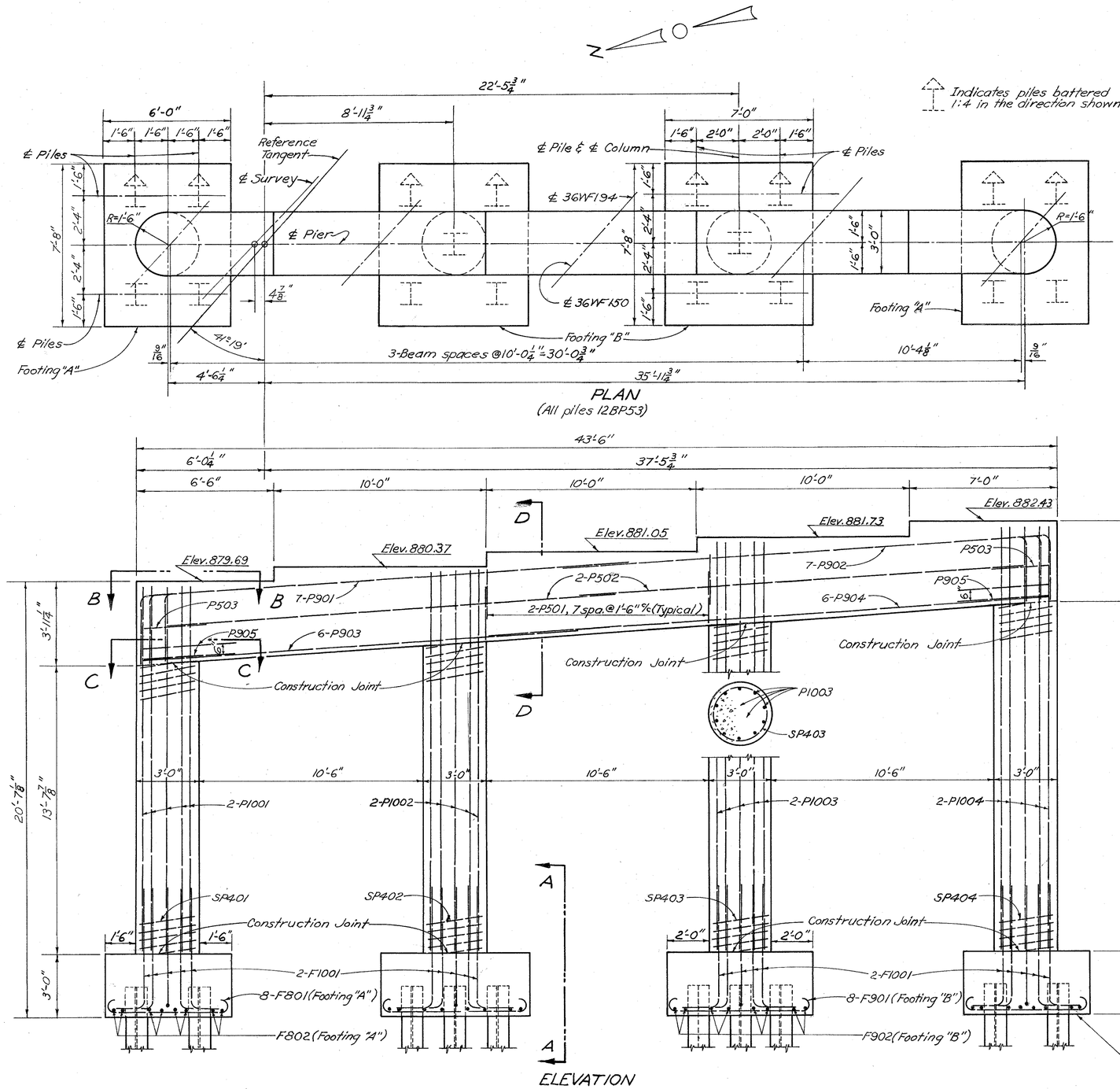
TUSCARAWAS COUNTY
STA. 628+73.89
STA. 631+42.27

DESIGNED	DRAWN	TRACED	CHECKED

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

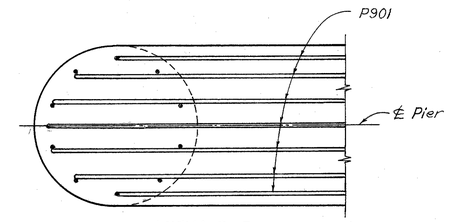
203
235

Tus-21-26.33
Tus-250-11.60

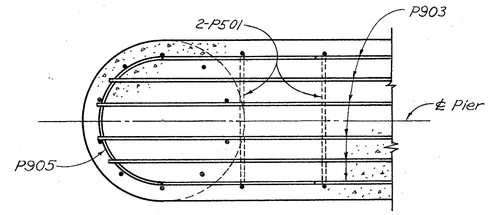


PLAN
(All piles 12BP53)

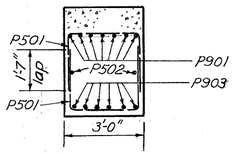
ELEVATION



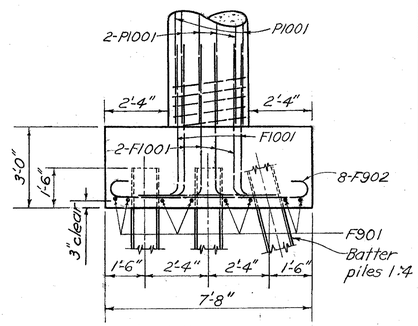
VIEW B-B
(P501 bars not shown)



SECTION C-C



SECTION D-D



VIEW A-A

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

PIER NO. 1 DETAILS

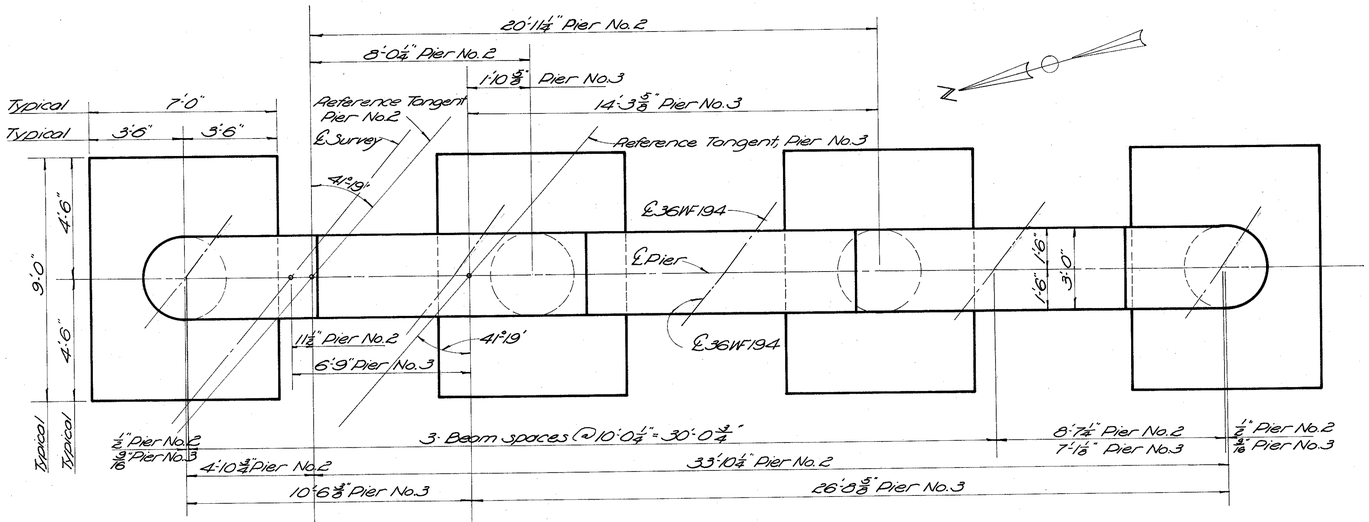
BRIDGE NO. TUS-250-1231 N.B.
OVER RAMP "E" & STONE CREEK
STA. 628+73.89
631+42.27
TUSCARAWAS COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.L.D.	R.L.D.	WD	KED	BFG	8-20-62	

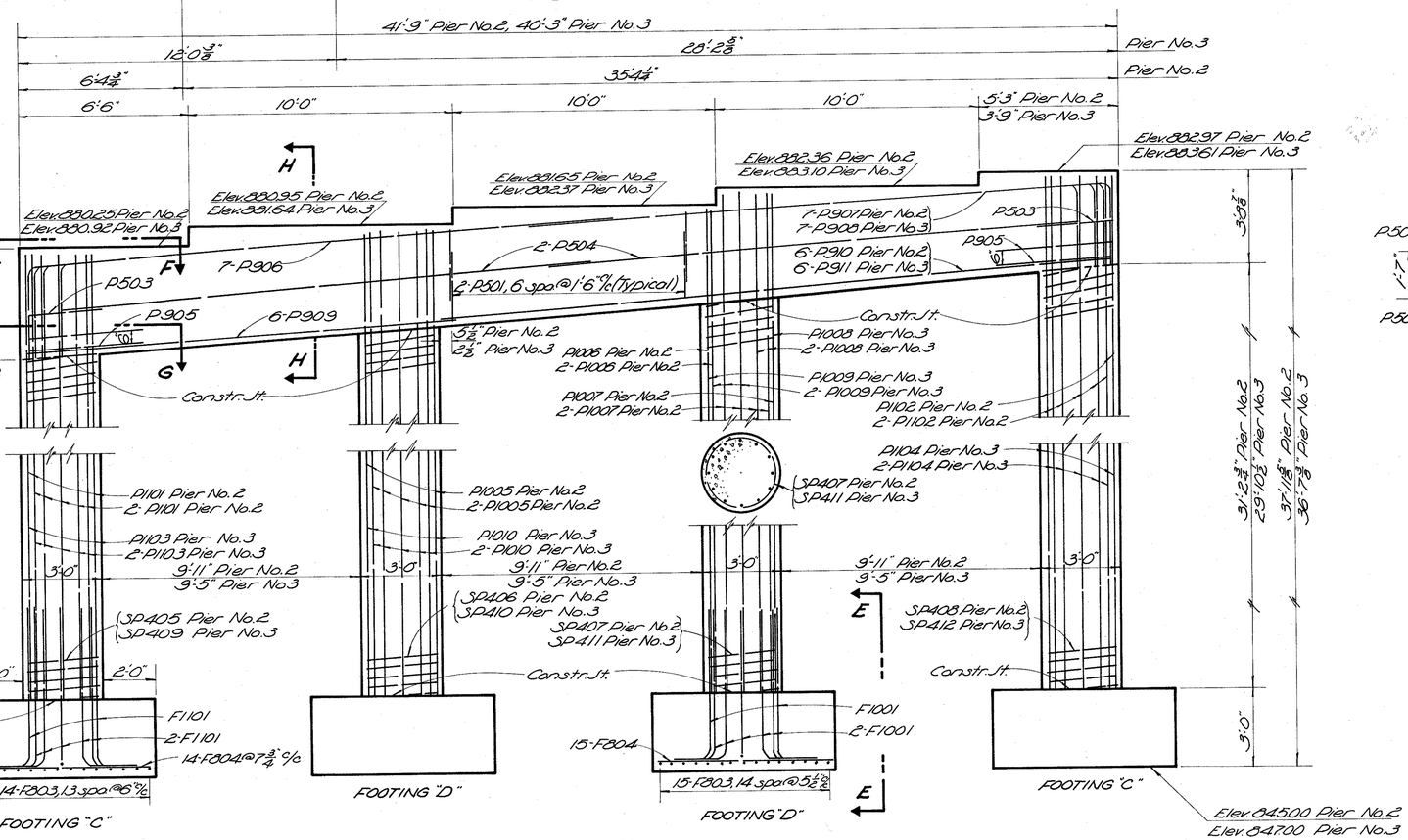
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

204
235

Tus-21-26.33
Tus-250-11.60

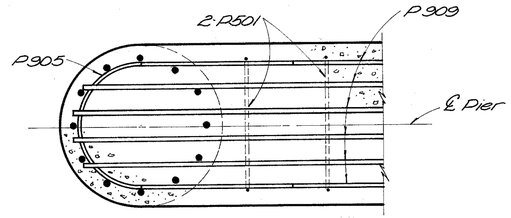


PLAN

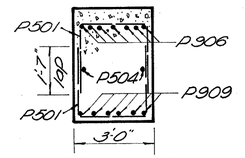


ELEVATION

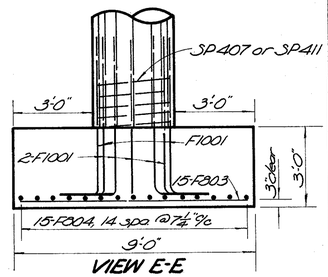
VIEW F-F
(P501 bars not shown)



SECTION G-G



SECTION H-H



VIEW E-E

SPECIAL CARE shall be taken in placing reinforcing in the cap of Pier No.2 so that it will not interfere with the drilling of holes for swedge anchor bolts.

FOOTINGS shall extend a minimum of 3" into shale or to the elevation shown, whichever is lower.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

PIER No.2 & PIER No.3 DETAILS
BRIDGE NO. TUS-250-1231 N.B.
OVER RAMP "E" & STONE CREEK

TUSCARAWAS COUNTY

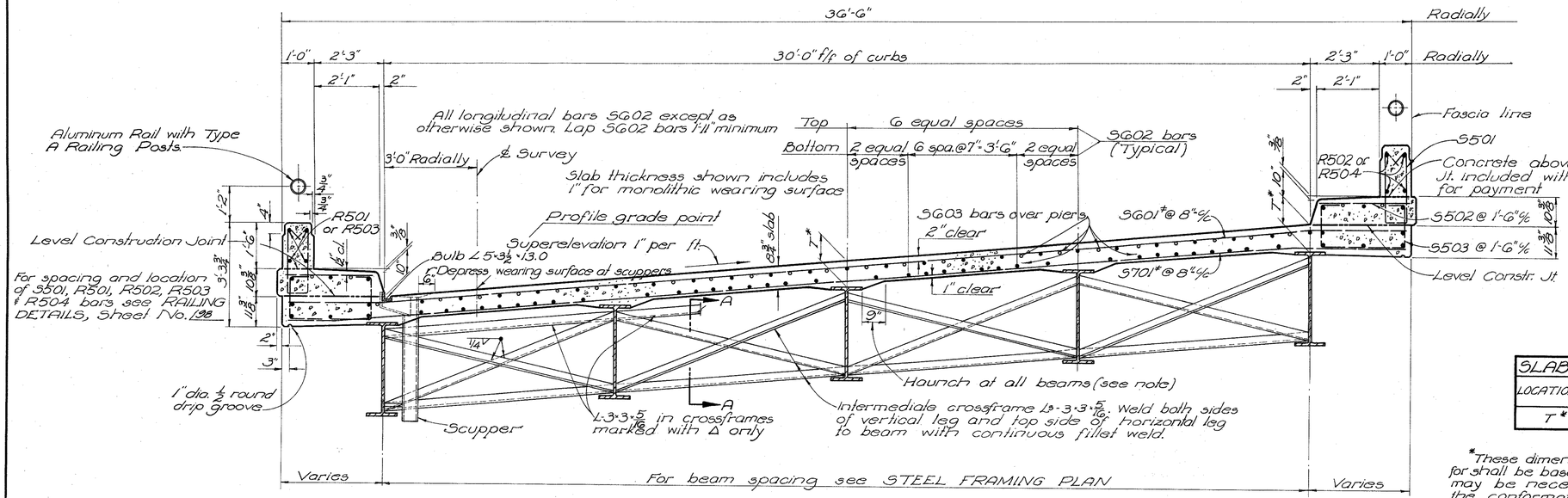
STA 628+73.89
STA 631+42.27

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.L.D.	R.L.D.	J.T.K.	K.E.D.	B.F.G.	8-20-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

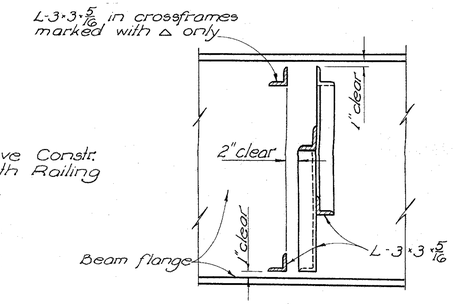
205
235

Tus-21-26.33
Tus-250-11.60



TYPICAL TRANSVERSE SECTION
(Looking Forward)

(For location of encased conduit see sheets 177 & 197.)



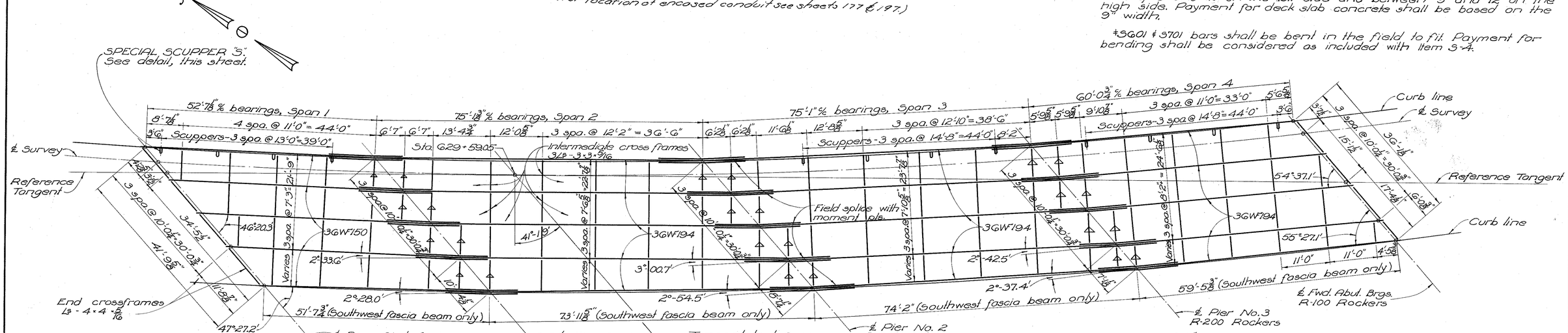
SECTION A-A

SLAB THICKNESS OVER BEAMS			
LOCATION	℄ Rear Abut Brgs.	℄ Pier Brgs	℄ Fwd Abut Brgs.
T*	10 3/8"	9 3/4"	9 3/4"

*These dimensions are nominal. The quantity of deck concrete to be paid for shall be based on these dimensions even though deviation from them may be necessary because the top flange of the beam may not have the conformation required to place it parallel to the finished grade.

DECK SLAB HAUNCH: The haunch in the superelevated deck slab adjacent to the top of beams, which is shown as 9" wide, may vary between the limits of 6" and 12" on the low side and between 9" and 12" on the high side. Payment for deck slab concrete shall be based on the 9" width.

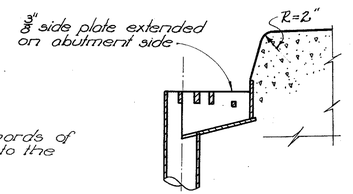
‡SG01 & S701 bars shall be bent in the field to fit. Payment for bending shall be considered as included with Item S-4.



STRUCTURAL STEEL FRAMING PLAN

DEFLECTION AND CAMBER								
	INSIDE BEAMS				OUTSIDE BEAMS			
	℄ Span 1	℄ Span 2	℄ Span 3	℄ Span 4	℄ Span 1	℄ Span 2	℄ Span 3	℄ Span 4
Deflection due to weight of steel	0	1/8"	1/16"	1/16"	0	1/8"	1/16"	1/16"
Deflection due to remaining dead load	3/16"	3/8"	3/8"	5/16"	1/4"	1/2"	7/16"	3/8"
Total deflection	3/16"	1/2"	7/16"	5/16"	1/4"	5/8"	1/2"	7/16"
REQUIRED CAMBER	0	0	0	0	0	0	0	0

NOTE: Fascia beams are centered on chords of curb lines. Interior beams are parallel to the Northeast fascia beams.



SECTION THRU SPECIAL SCUPPER "S"

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

SUPERSTRUCTURE DETAILS
BRIDGE NO. TUS-250-1231 N.B.
OVER RAMP "E" AND STONE CREEK

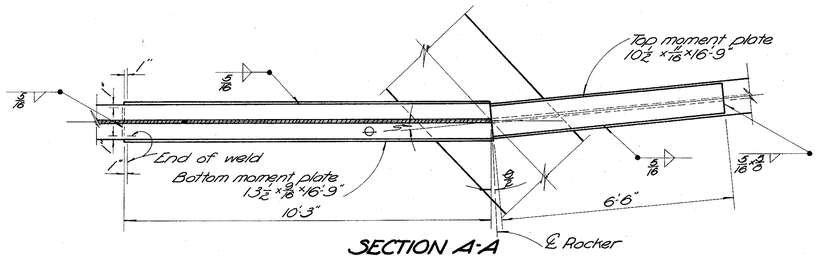
TUSCARAWAS COUNTY STA. 628 + 73.89
STA. 631 + 42.27

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.L.D.	R.L.D.	G.C.	A.C.P.	BFG	8-20-62	

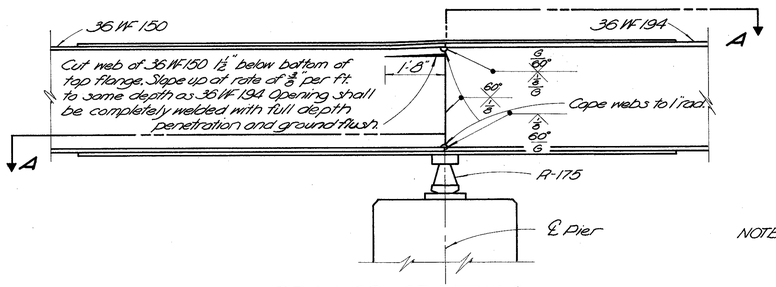
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

206
235

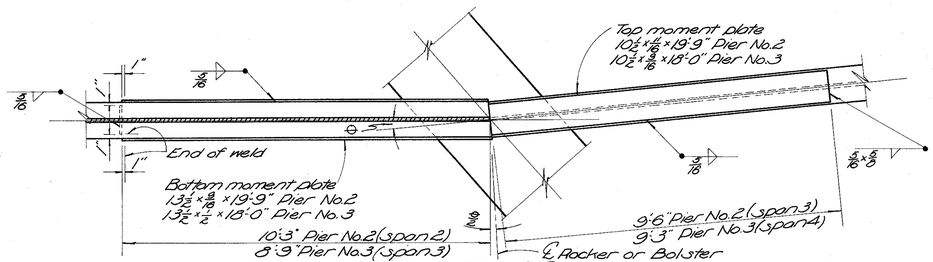
Tus-21-26.33
Tus-250-11.60



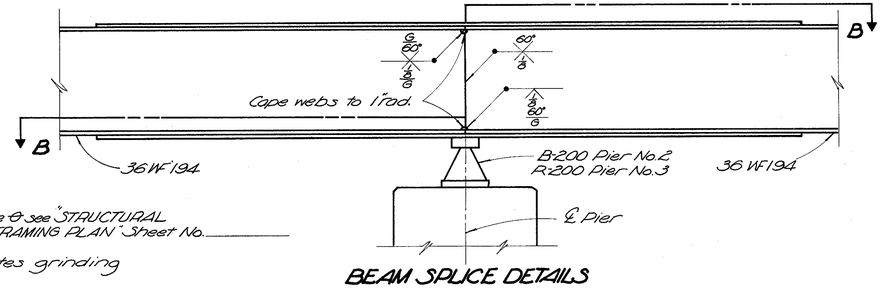
SECTION A-A



BEAM SPLICE DETAILS
PIER No. 1



SECTION B-B



BEAM SPLICE DETAILS
AT PIERS No.2 AND No.3

NOTE: For angle Θ see "STRUCTURAL STEEL FRAMING PLAN" Sheet No._____

G indicates grinding

BEAM SPLICE WELDING PROCEDURE

1. Raise end of beam at Pier No. 2 - 1½".
2. Butt-weld beam flanges and web at Pier No.1 using the following sequence: make one pass on each flange, then two on the web; repeat, using one pass at each location, until welds are completed.
3. Weld top and bottom moment plates at Pier No.1
4. Weld crossframes marked 4 into place at Pier No.1
5. Lower end of beam at Pier No.2.
6. Make splice at Pier No.2 and Pier No.3 in the same manner, raising the ends of the beams 2" at Pier No.3 and 1" at the Forward Abutment, and in each case, welding crossframes marked 4 into place before lowering ends of beams.

REFERENCE SHALL BE MADE TO STANDARD DRAWING No. CSB-2-56 FOR THE FOLLOWING DETAILS:

	Sheet No.
1. END DAM DETAILS	2
2. END CROSSFRAMES (except that bevel fill plate shall be 1½" thick at ℄ beam, Rear Abutment, and 1¼" thick at ℄ beam, Fwd. Abutment)	2
3. GUTTER AND SCUPPER DETAILS	3
4. CURB PLATE DETAILS	3

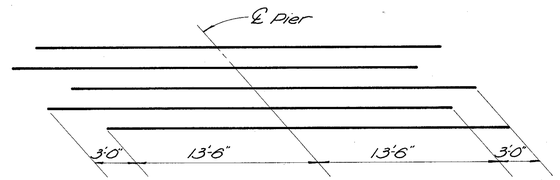
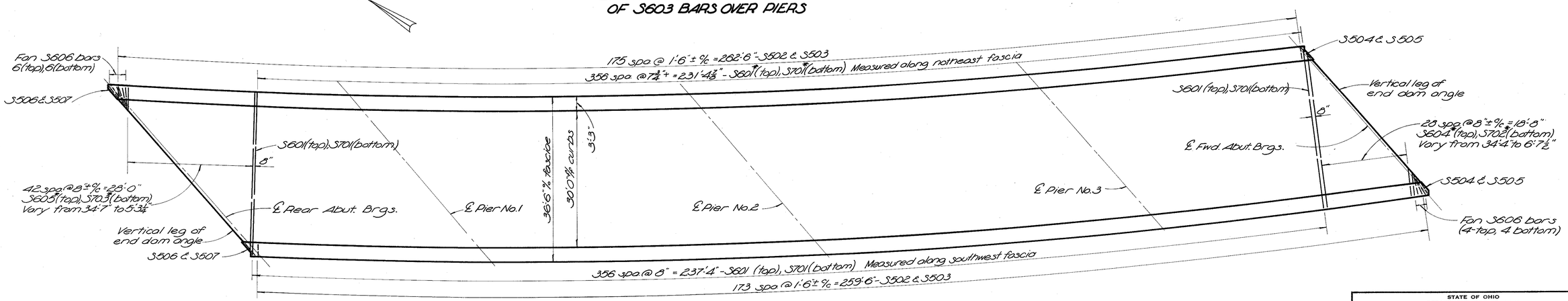


DIAGRAM SHOWING STAGGER
OF S603 BARS OVER PIERS

NOTE:
CONTINUOUS BEAM SPLICE: If 36 WF 194 beams have depths differing by more than ⅛", the depth of the smaller depth beam shall be increased as described by note in BEAM SPLICE DETAILS PIER No.1



LAYOUT OF TRANSVERSE DECK REINFORCING
(S601 & S701 bars placed radially)

*Bend in field to fit. Payment for bending shall be considered as included with Item S-4.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

SUPERSTRUCTURE DETAILS
BRIDGE NO. TUS-250-123.31/N.B.
OVER RAMP "E" AND STONE CREEK

TUSCARAWAS COUNTY — STA. 628+73.89, STA. 631+42.27

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.L.D.	R.L.D.	J.T.K.	B.F.G.	BFG	8-20-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

207
235

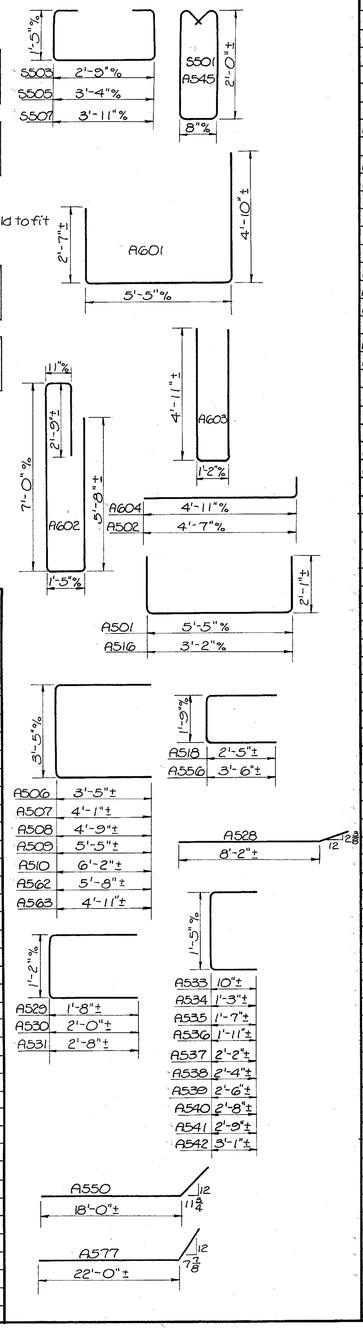
Tus-21-26.33
Tus-250-11.60

REINFORCING STEEL LIST

MARK	NO.	LENGTH	WEIGHT	SHP
Superstructure				
S701	357	36'-2"	26,391	*
S702	I-Series of 43 bars	34'-4" to 6'-7½"	1,214	*
S703	I-Series of 43 bars	34'-7" to 5'-3¼"	1,751	*
S601	357	36'-2"	19,393	*
S602	608	35'-0"	31,963	S
S603	84	30'-0"	3,785	S
S604	I-Series of 29 bars	34'-4" to 6'-7½"	892	*
S605	I-Series of 43 bars	34'-7" to 5'-3¼"	1,287	*
S606	20	5'-6"	165	S
S501	376	5'-3"	2,059	B
S502	350	2'-9"	1,004	S
S503	350	6'-4"	2,312	B
S504	2	3'-4"	7	S
S505	2	6'-11"	14	B
S506	2	3'-11"	8	S
S507	2	7'-6"	16	B

MARK	NO.	LENGTH	WEIGHT	SHP	REAR	FWD.
Abutments						
A801	8	27'-8"	591	S	8	-
A802	8	26'-4"	562	S	8	-
A803	8	24'-1"	514	S	-	8
A804	8	22'-10"	488	S	-	8
A601	62	12'-6"	1,164	B	31	31
A602	83	17'-1"	2,130	B	44	39
A603	33	10'-8"	529	B	15	18
A604	11	5'-7"	92	B	7	4
A501	66	9'-4"	642	B	33	33
A502	64	5'-1"	339	B	32	32
A503	6	27'-2"	170	S	6	-
A504	22	25'-10"	593	S	22	-
A505	2	35'-0"	73	S	2	-
A506	16	10'-0"	167	B	8	8
A507	13	11'-4"	154	B	6	7
A508	7	12'-8"	92	B	7	-
A509	8	14'-0"	117	B	8	-
A510	6	15'-6"	97	B	2	4
A511	1	6'-2"	6	S	1	-
A513	12	5'-5"	68	S	6	6
A514	3	17'-5"	54	S	3	-
A515	5	12'-0"	63	S	5	-
A516	74	7'-1"	547	B	34	40
A517	6	8'-6"	53	S	3	3
A518	20	6'-4"	132	B	8	12
A519	46	11'-10"	568	S	18	28
A520	10	9'-10"	103	S	6	4
A521	10	7'-3"	76	S	6	4
A522	7	12'-10"	94	S	7	-
A523	7	6'-3"	46	S	7	-
A524	12	4'-6"	56	S	6	6
A525	6	5'-0"	31	S	3	3
A526	2	20'-10"	43	S	2	-
A527	2	14'-3"	30	S	2	-
A528	8	9'-9"	81	B	4	4
A529	8	4'-3"	35	B	4	4
A530	16	4'-11"	82	B	8	8

BENDING DIAGRAMS



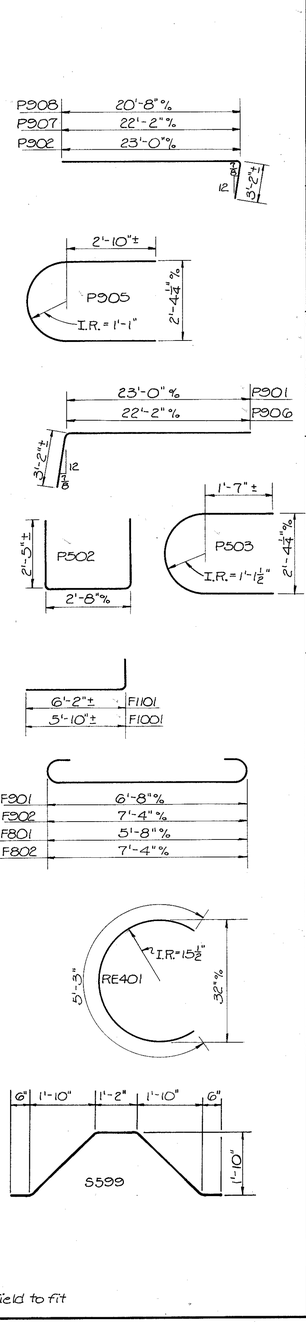
MARK	NO.	LENGTH	WEIGHT	SHP	REAR	FWD.
Abutments (continued)						
A531	24	6'-3"	156	B	12	12
A532	48	3'-3"	163	S	24	24
A533	58	2'-10"	171	B	28	30
A534	4	3'-8"	15	B	2	2
A535	4	4'-4"	18	B	2	2
A536	4	5'-0"	21	B	2	2
A537	4	5'-6"	23	B	2	2
A538	4	5'-10"	24	B	2	2
A539	4	6'-2"	26	B	2	2
A540	4	6'-6"	27	B	2	2
A541	18	6'-8"	125	B	8	10
A542	4	7'-4"	31	B	2	2
A543	2	17'-11"	37	S	2	-
A544	2	16'-3"	34	*	2	-
A545	52	5'-3"	285	B	25	27
A546	36	9'-2"	344	S	20	16
A547	5	11'-8"	61	S	5	-
A548	5	10'-0"	52	S	5	-
A549	2	19'-8"	41	S	2	-
A550	2	19'-7"	41	B	2	-
A551	10	7'-1"	74	S	4	6
A552	2	17'-6"	37	S	2	-
A553	2	19'-1"	40	*	2	-
A554	3	14'-6"	45	S	3	-
A555	5	11'-3"	59	S	5	-
A556	56	8'-6"	496	B	28	28
A557	1	3'-6"	4	S	-	1
A558	6	23'-8"	148	S	-	6
A559	22	22'-5"	514	S	-	22
A560	2	28'-0"	58	S	-	2
A562	4	14'-6"	60	B	-	4
A563	8	13'-0"	108	B	-	8
A564	3	15'-1"	47	S	-	3
A565	5	11'-0"	57	S	-	5
A566	5	11'-1"	58	S	-	5
A567	5	6'-0"	31	S	-	5
A568	2	19'-1"	40	S	-	2
A569	2	14'-0"	29	S	-	2
A570	2	16'-6"	34	S	-	2
A571	2	15'-3"	32	*	-	2
A572	3	18'-5"	58	S	-	3
A573	5	14'-9"	77	S	-	5
A574	7	15'-8"	114	S	-	7
A575	7	14'-0"	102	S	-	7
A576	2	23'-8"	49	S	-	2
A577	2	23'-7"	49	B	-	2
A578	2	21'-7"	45	S	-	2
A579	2	23'-0"	48	*	-	2

MARK	NO.	LENGTH	WEIGHT	SHP	FWD.
Railing					
R501	56	16'-7"	Included with Railing for Payment	S	5
R502	56	16'-4"		S	5
R503	8	13'-10"		S	5
R504	8	13'-6"		S	5
R505	4	17'-10"		S	5
R506	4	17'-5"		S	5
R507	4	16'-5"		S	5
R508	4	21'-6"		S	5

MARK	NO.	LENGTH	WEIGHT	SHP	FWD.
Piers					
P1101	12	32'-1"	2046	S	
P1102	12	34'-9"	2216	S	
P1103	12	30'-9"	1960	S	
P1104	12	33'-5"	2131	S	
P1001	10	17'-5"	749	S	
P1002	10	18'-1"	778	S	
P1003	10	19'-5"	836	S	
P1004	10	20'-2"	868	S	
P1005	12	32'-9"	1,691	S	
P1006	3	33'-5"	431	S	

*Bend in field to fit

BENDING DIAGRAMS



MARK	NO.	LENGTH	WEIGHT	SHP
Piers (continued)				
P1007	9	34'-2"	1,323	S
P1008	5	32'-11"	708	S
P1009	7	32'-2"	969	S
P1010	12	31'-5"	1,622	S
P901	7	25'-11"	617	B
P902	7	25'-11"	617	B
P903	6	20'-6"	418	S
P904	6	25'-6"	520	S
P905	12	9'-3"	377	B
P906	14	25'-1"	1,194	B
P907	7	25'-1"	597	B
P908	7	23'-7"	561	B
P909	12	19'-11"	813	S
P910	6	24'-4"	496	S
P911	6	23'-0"	469	S
P501	132	7'-3"	998	B
P502	4	21'-1"	88	S
P503	6	6'-10"	43	B
P504	8	20'-2"	168	S
F1101	48	7'-4"	1870	B
F1001	88	6'-11"	2619	B
F901	16	9'-2"	499	B
F902	16	9'-10"	535	B
F801	16	7'-10"	335	B
F802	16	9'-6"	406	B
F803	58	8'-8"	1,342	S
F804	58	6'-8"	1,032	S

SPIRAL REINFORCING

MARK	NO.	CORE DIA. % SPIRAL	LENGTH	PITCH	NO. OF TURNS	WEIGHT
SP401	1	32"	13'-9"	4½"	40	258
SP402	1	32"	14'-8"	4½"	42	271
SP403	1	32"	15'-7"	4½"	45	290
SP404	1	32"	16'-6"	4½"	47	304
SP405	1	32"	28'-5"	4½"	79	513
SP406	1	32"	29'-4"	4½"	81	526
SP407	1	32"	30'-3"	4½"	84	545
SP408	1	32"	31'-2"	4½"	86	559
SP409	1	32"	27'-1"	4½"	75	487
SP410	1	32"	28'-0"	4½"	78	506
SP411	1	32"	28'-10"	4½"	80	519
SP412	1	32"	29'-9"	4½"	82	533

MARK	NO.	LENGTH	WEIGHT	SHP
Replacement Bars				
RE1101	1	7'-6"	-	S
RE1001	1	7'-2"	-	S
RE901	1	6'-10"	-	S
RE801	1	6'-6"	-	S
RE701	2	6'-2"	-	S
RE601	4	5'-11"	-	S
RE501	1	5'-7"	-	S
RE401	1	5'-3"	-	B

MARK	NO.	LENGTH	WEIGHT	SHP
Superstructure Lamp Standard Supports				
S597	2	2'-10"	6	S
S598	10	2'-0"	21	S
S599	5	7'-3"	38	B

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, indicate the bar size number. For example, A501 is a No. 5 size bar and P1001 is a No. 10 size.

SPIRAL REINFORCING BARS: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap.

The "No. of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item S-4. 1½ closed coils shall be provided at the ends of each spiral unit.
Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lb. per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

REINFORCING STEEL LIST

BRIDGE NO. TUS-250-1231 N.B.
OVER RAMP "E" AND STONE CREEK
STA. 628 + 73.89
TUSCARAWAS COUNTY 631 + 42.27

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.L.D.	R.L.D.	MKH	K.E.D.	BFG	8-20-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

206/235

TUS-21-26.33
TUS-250-11.60
0.7 Mi. W. of New Philadelphia

□ on N.W. Corner of Concrete Culvert at S.R. 211 over Stone Creek
ELEV. 865.55

TUSCARAWAS RIVER

S.R. Channel Relocation

Curve Data Ramp "F"
P.I. 10+50.02
Δ = 59°-29'-30" Lt.
D = 5°
Ls = 300'
θs = 7°-30'
Ts = 806.62'
Es = 177.67'
Lc = 889.83'
R = 1145.92

Clears 5-10 year H.W. 6.9' ±

Curve Data Channel "E"
P.I. Sta. 11+69.64
Δ = 86°-45'-12"
D = 21°-37'-16"
T = 143.14'
R = 265.00'
L = 282.48'

End Appr. Slab Sta. 7+78.90

Begin Appr. Slab Sta. 8+91.71

Survey ℄ Ramp "F"

Transition

Survey line Ramp "E"

8+29.98 Ramp "F" 11+69.35 ℄ Channel

Transition

Varies

Dumped Rock

Long to Curves

Ramp "E" PC - 10+20.50

PRC - 10+82.98

Ramp "E" 9+25

Survey line U.S.R. 250 (N.B.)

STONE CREEK

FOUNDATION SOUNDINGS: 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.

PROFILE ON PROPOSED CENTER LINE

300' V.C.

Sta. 7+78.90 Normal Water El. 853.2

5 to 10 yr. H.W. El. 857.6

Est. 50 yr. H.W. El. 862.0

Sta. 8+91.71

-1.00%

+4.08%

All piles 12BP53

Estimated average pay length of piles:
Rear Abut. 47'
Rear Pier 39'-46'
Fwd Pier 25'-36'
Fwd Abut. 17'-22'

Top of slope elev. 863.3±

Elev. 857.3

Elev. 859.0

Dumped Rock

Top of slope 867.3±

Elev. 861.3

Excavate channel thru structure to elev. 852.0±

Drainage Area = 39.0 Sq. Miles

PROPOSED STRUCTURE

TYPE: Cont. steel beams with reinf. conc. deck & substructure
SPANS: 30'-43'-35' @ brgs.
ROWY: 28'-0" ℄ guardrail
LOAD FREQ: CF = 400 (57)
SKEW: 20°-28' RF
WEARING SURF: 1" mono. conc.
APPR. SLABS: AS-1-54-25' long
ALIGNMENT: 5° curve left
SUPERELEVATION: 0.053 ft/ft

SITE PLAN

BRIDGE NO. TUS-250NB RAMP "F" OVER STONE CREEK
STA 7+78.90
TUSCARAWAS COUNTY 8+91.71

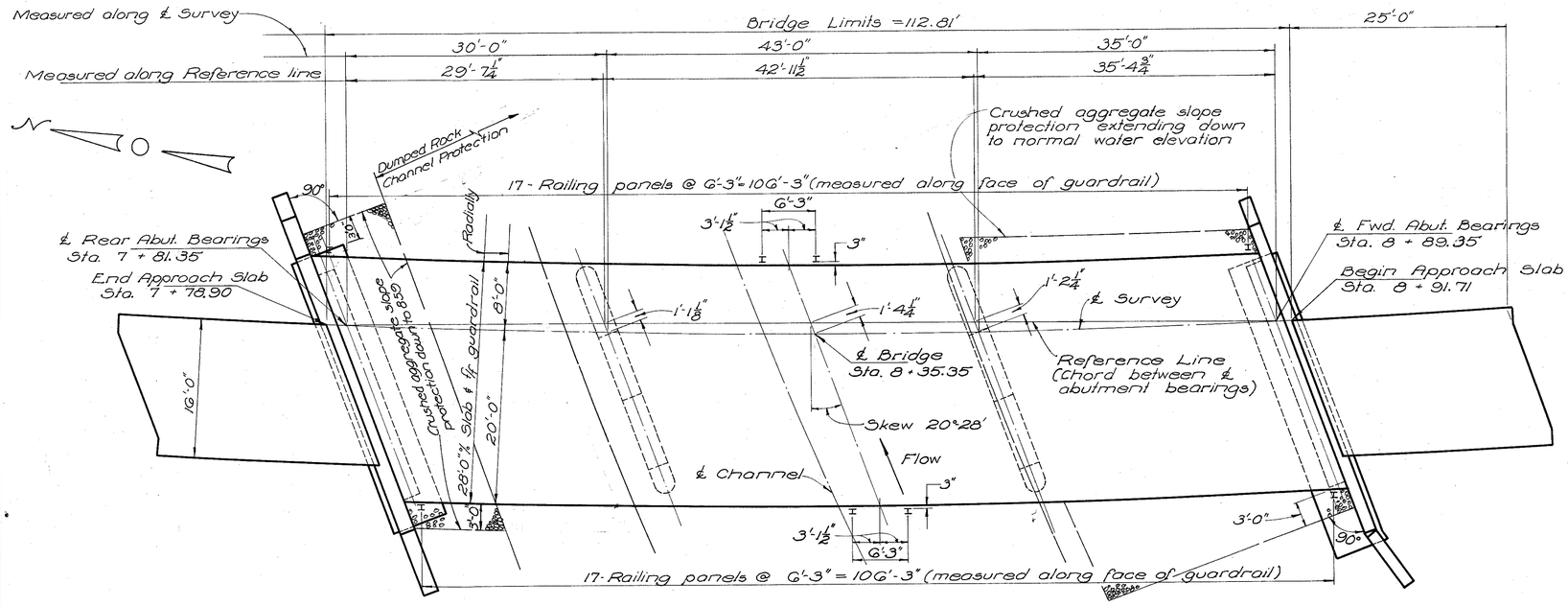
Existing Topo		PROPOSED WORK			
Survey	Drawn	Design	Drawn	Check	Review
Div. Office	Div. Office	E.J.S.	E.J.S.	D.G.M.	B.E.S.

BFG 7-9-62

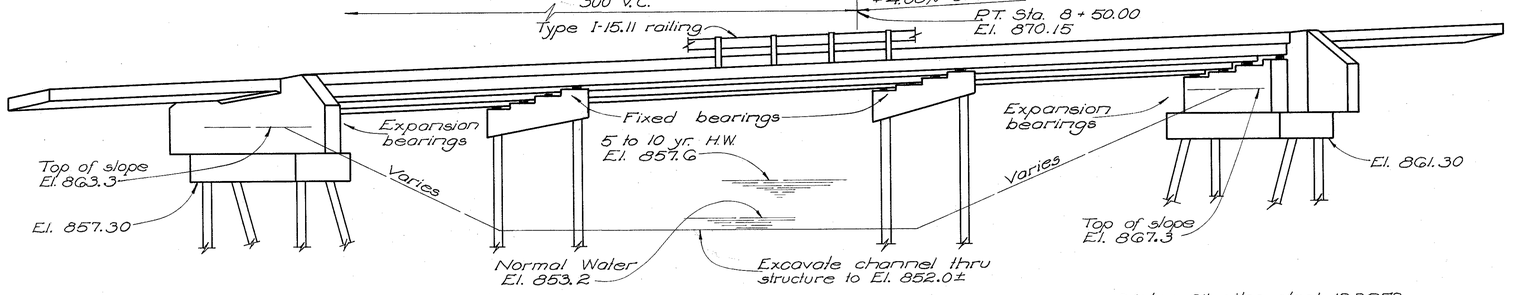
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

202/235

TUS-21-26.33
TUS-250-11.60



GENERAL PLAN



ELEVATION

Note: All piles steel 12BP53
All piles not shown

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Super.	Abut.	Piers	Gen'l		
E-2	140	Cu. Yds.	Unclassified excavation		140				
E-3	4047	Cu. Yds.	Channel Excavation				4047		
S-1	18	Cu. Yds.	Class "C" concrete, pier caps			18			
S-1	89	Cu. Yds.	Class "C" concrete, superstructure	89					
S-1	118	Cu. Yds.	Class "E" concrete, abutments		118				
S-4	31,070	Lbs.	Reinforcing steel	22,646	6,158	2,266			
S-7	53,500	Lbs.	Structural steel	53,500					
S-8	53,500	Lbs.	Field painting of structural steel	53,500					
S-14	2254G	Lin. Ft.	Railing (Type 1-15.11 with galvanized steel posts and bolts)	2254G					
S-16	Lump	Sum	First test pile				Lump		
S-18	970	Lin. Ft.	Steel piles, 12BP53		530	440			
S-29	29	Cu. Yds.	Porous backfill		29				
I-10	893	Cu. Yds.	Dumped Rock Channel Protection				893		
I-10	180	Sq. Yds.	Crushed aggregate slope protection				180		
I-127	2	Each	Delineators Type C-2, bracket mounted				2		
Special	89	Each	Water-reducing, set-retarding admixture	89					
**	S-25								

*See Proposal Note
**For estimated quantities see Lighting Plan, Sheet No. 217.

GENERAL NOTES

REFERENCE shall be made to Standard Drawing CSB-1-55, Sheets No. 1 and 2, revised 2-2-59.

DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.

EXCAVATION QUANTITY includes the removal of fill material required for construction of the abutments.

PILES shall be driven with a hammer of not less than 11,000 ft. lbs. per blow 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 Sec. S-18.05 is not less than the following value for a pile hammer of the indicated energy rating:

For the rear abutment piles:
35 tons per pile using an 11,000 ft. lb. hammer
33 tons per pile using a 15,000 ft. lb. or greater hammer
For the forward abutment piles:
52 tons per pile using an 11,000 ft. lb. hammer
46 tons per pile using a 15,000 ft. lb. or greater hammer
For the rear pier piles:
35 tons per pile using an 11,000 ft. lb. hammer
31 tons per pile using a 15,000 ft. lb. or greater hammer
For the forward pier piles:
44 tons per pile using an 11,000 ft. lb. hammer
40 tons per pile using a 15,000 ft. lb or greater hammer

If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 33 tons per pile for the abutment piles and 30 tons per pile for the pier piles.

PAINTING OF THE PIER PILES shall extend to low water elevation or, if the proposed surface of the ground is above low water, it shall extend to at least one foot below the proposed surface of the ground.

CONTINUOUS BEAM SPLICES: If beams having depths differing by more than ¼" are to be spliced by butt welding, the depth of the smaller-depth beam shall be increased by splitting the web longitudinally at a distance of 1½" below the bottom of the top flange and for a distance sufficient to allow the flange to be bent up at a slope of not more than ⅜" per foot, after which the split in the web shall be completely welded with full depth penetration and ground flush.

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.

SHEET LEAD shall conform to the requirements of ASTM Designation B29 without restriction to the Common Desilverized type.

CONCRETE DECK PLACING: In order to facilitate watercuring of the concrete of the deck slab, the placing of concrete 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.

SURFACE FINISH OF CONCRETE: The requirements of Sec. S-1.22, Rubbed Finish, shall apply to all exposed concrete surfaces on the superstructure except the top and bottom surface of roadway.

ELECTRICAL GROUNDS: A No. "0", 7-strand, bare, soft annealed, copper wire electrical ground shall be embedded in the concrete of the rear pier cap above the left (easterly) outside pile. The lower end of the wire shall be attached to top of the above mentioned pile and the upper end shall protrude from the upper surface of the concrete inside the outer beam and extend sufficiently to provide for a suitable attachment to the exposed 2" rigid conduit under the slab and have enough length to allow for movement of the superstructure. All attachments shall be made by brazing or exothermic welding. Payment for electrical grounds is included in Item S-25, electrical lighting system.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

GENERAL PLAN, ELEVATION NOTES & ESTIMATED QUANTITIES

BRIDGE NO. TUS-250NB RAMP "F" OVER STONE CREEK
STA. 7 + 78.90
TUSCARAWAS COUNTY STA. 8 + 91.71

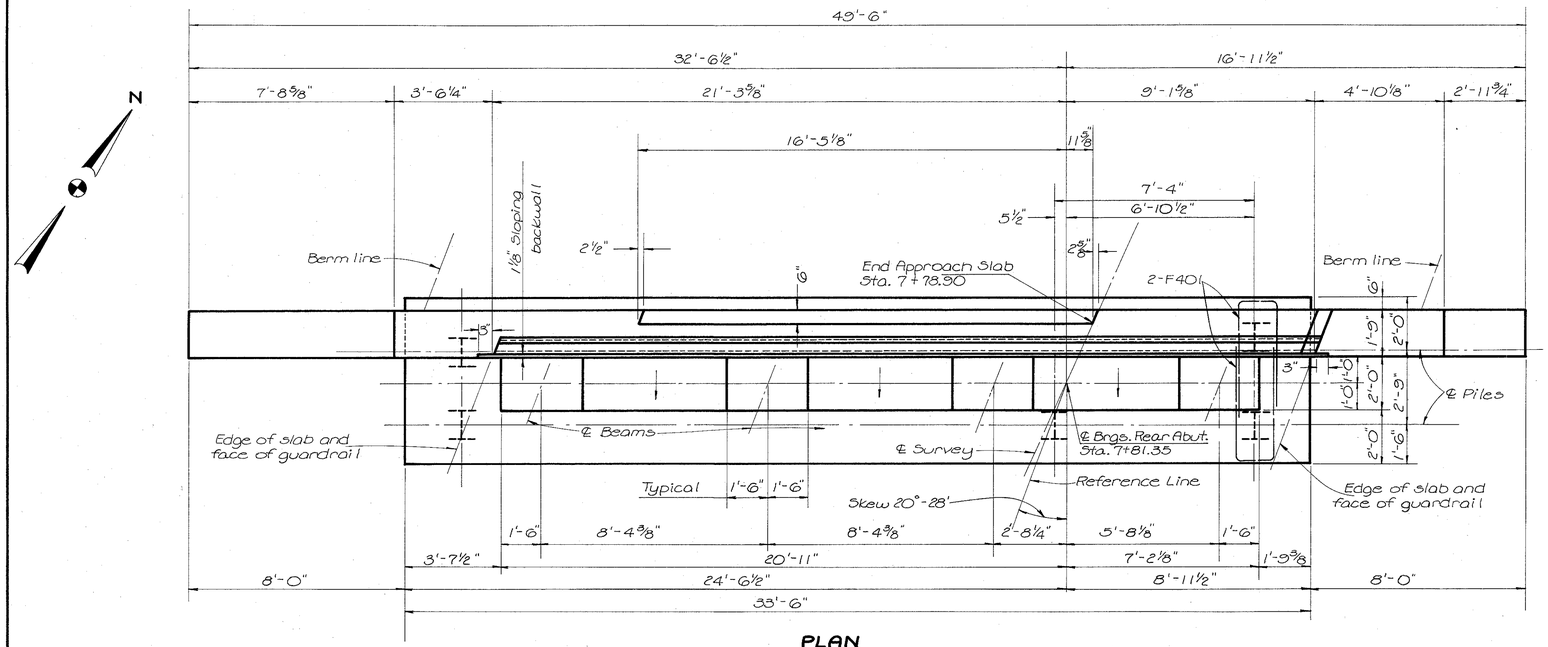
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
K.L.H.	K.L.H.	G.P.E.	Ray	BFG	7-9-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

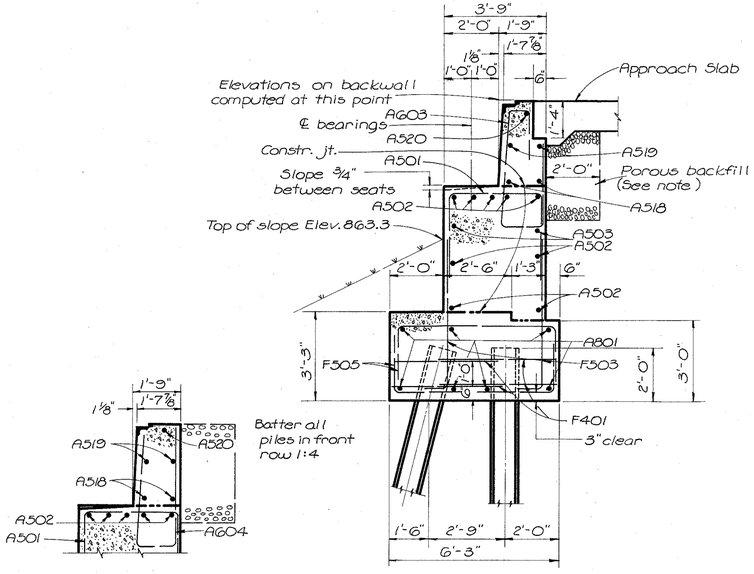
210
235

TUS-21-26.33
TUS-250-11.60

POROUS BACKFILL shall extend upward to the approach slab and to the surface of the earth shoulders and outward to the surface of the embankment slopes. Excavation therefor, in excess of that required for the construction of the abutment, shall be considered as paid for in the price per cu. yd. paid for porous backfill.

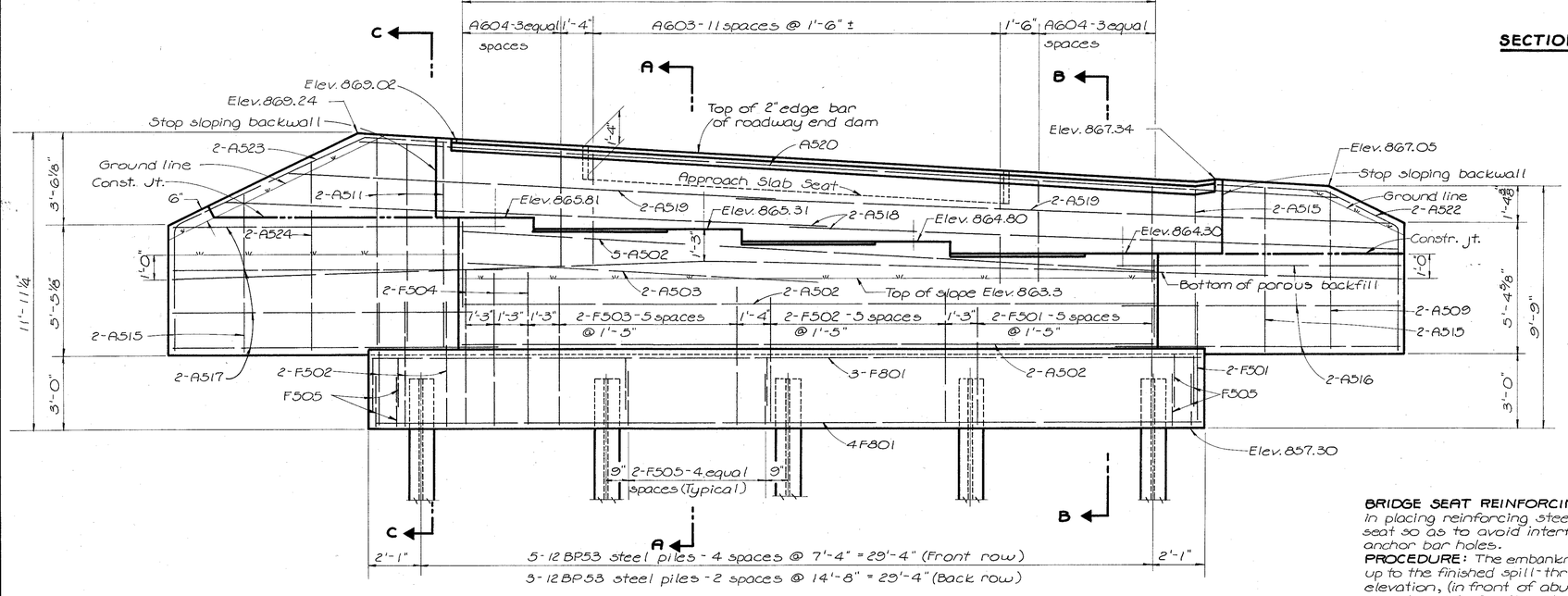


PLAN

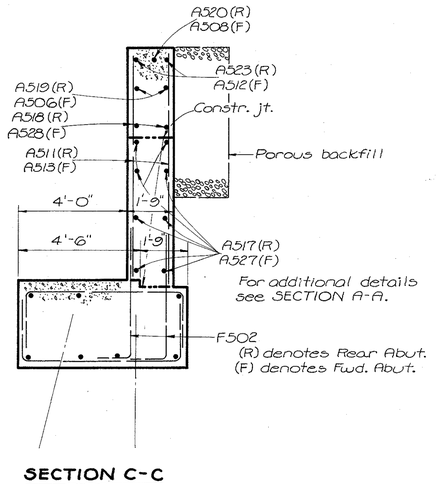


SECTION A-A

SECTION B-B



ELEVATION



SECTION C-C

BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bar holes.
PROCEDURE: The embankment shall be placed and compacted up to the finished spill-thru slope and to the top of slope elevation, (in front of abutment) after which excavation shall be made for the abutment and piles driven.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

REAR ABUTMENT DETAILS

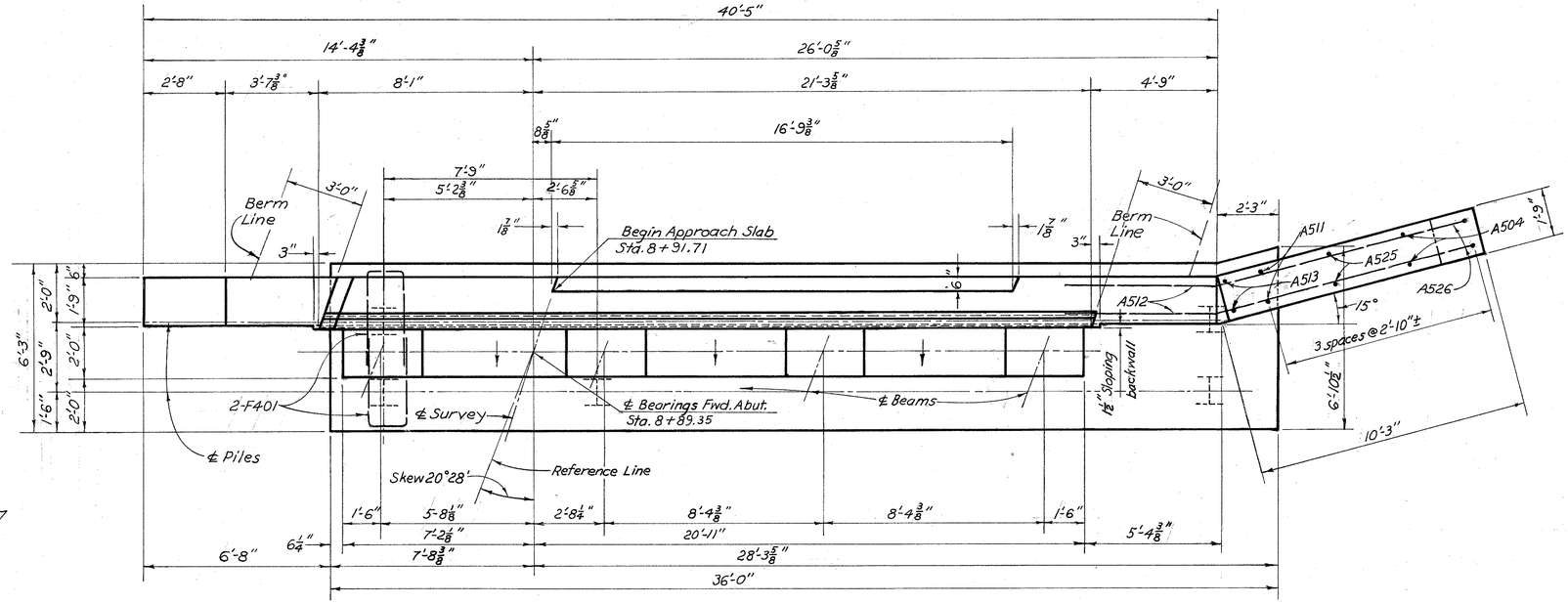
BRIDGE NO. TUS-250 N.B. RAMP "F"
OVER STONE CREEK
TUSCARAWAS COUNTY
Sta. 7+78.90
8+91.71

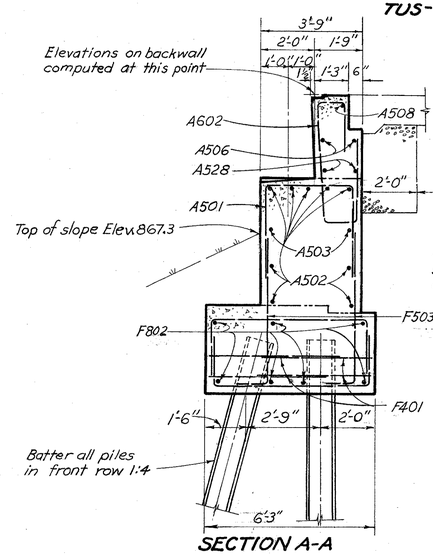
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
K.L.H	K.L.H.	MKH	Kay	BFG	7-9-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

211
235

TUS-21-26.33
TUS-250-11.60

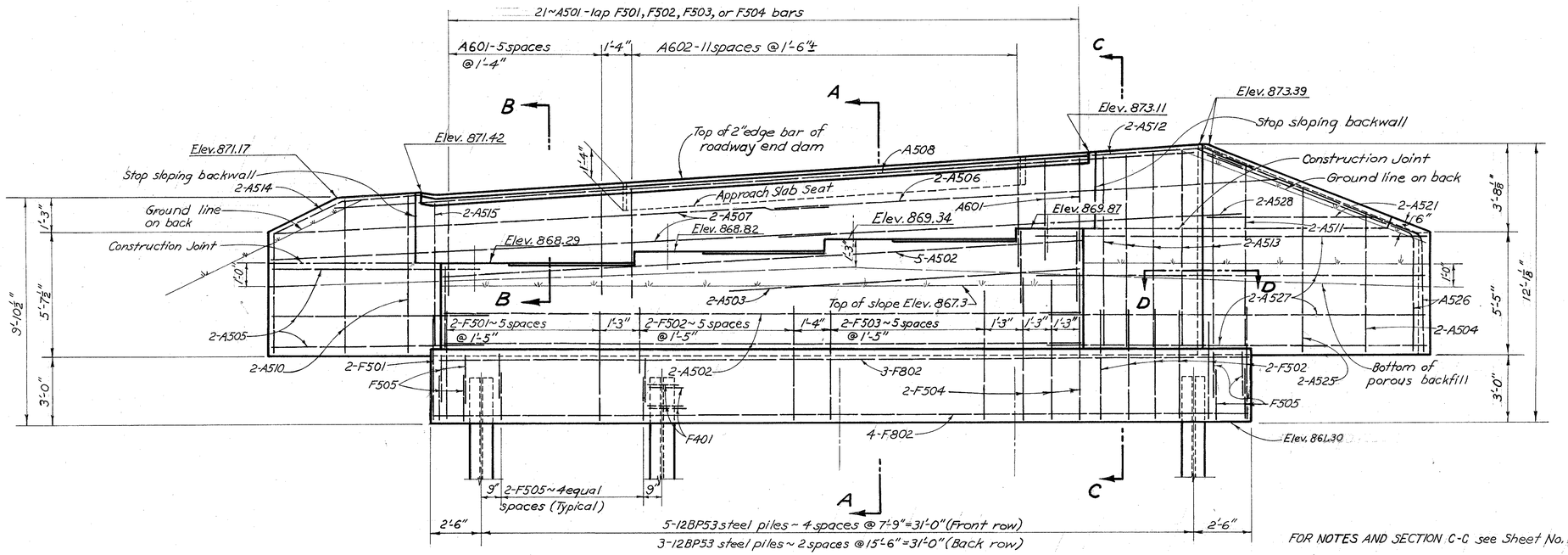




SECTION A-A

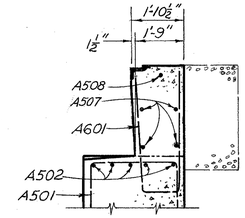
N

PLAN

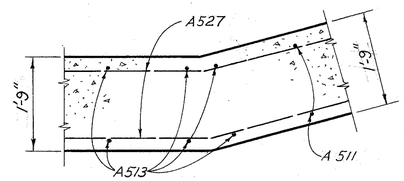


ELEVATION

FOR NOTES AND SECTION C-C see Sheet No. 210



SECTION B-B



SECTION D-D

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

FORWARD ABUTMENT DETAILS

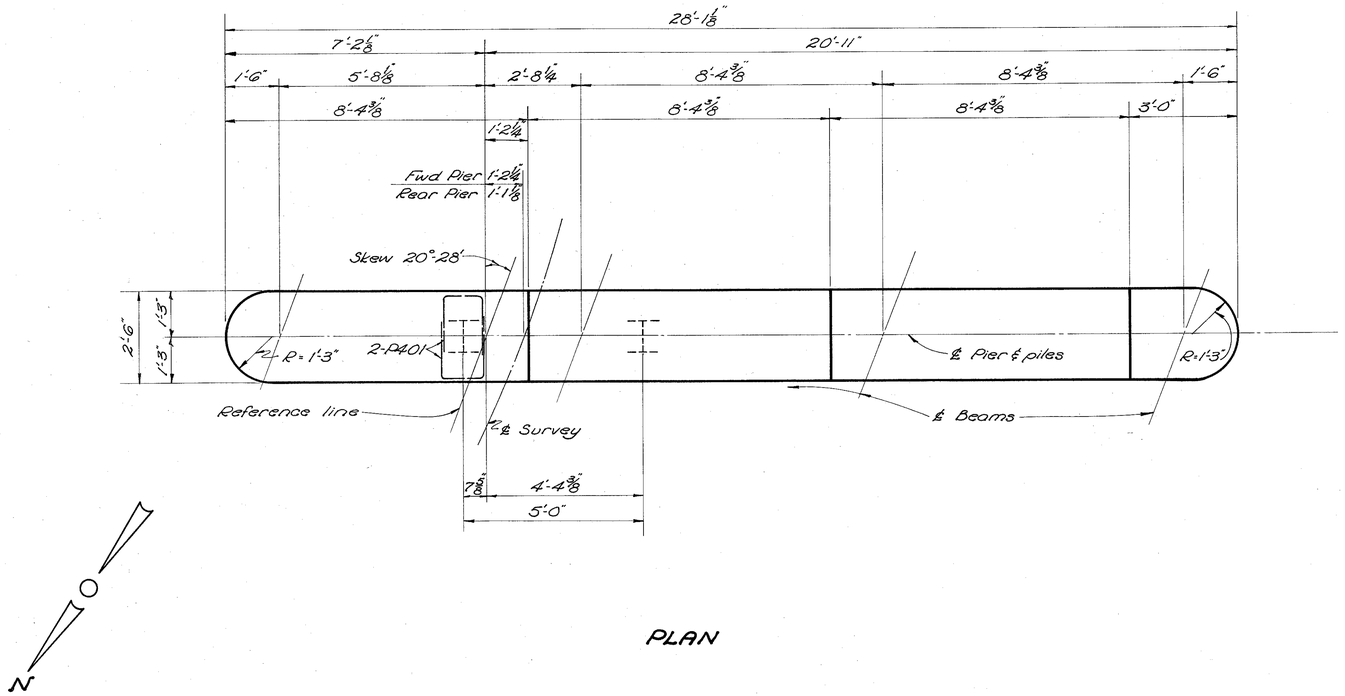
BRIDGE NO. TUS-250NB RAMP "F" OVER STONE CREEK
STA. 7+78.90
8+91.71
TUSCARAWAS COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
K.L.H.	K.L.H.	N.D.	Kay	BFG	7-9-62	

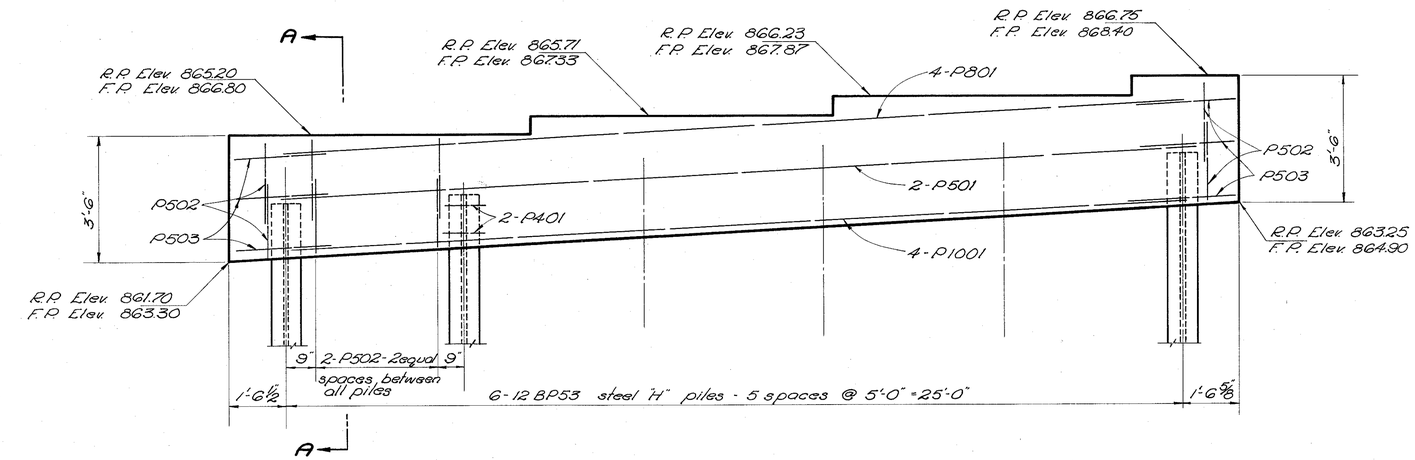
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

212
235

TUS-21-26.33
TUS-250-11.60

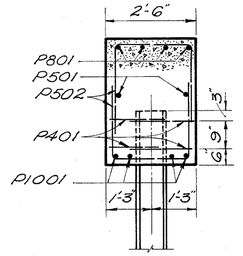


PLAN



R.P. denotes Rear Pier
F.P. denotes Forward Pier

ELEVATION



SECTION A-A

BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bar holes.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

PIER DETAILS

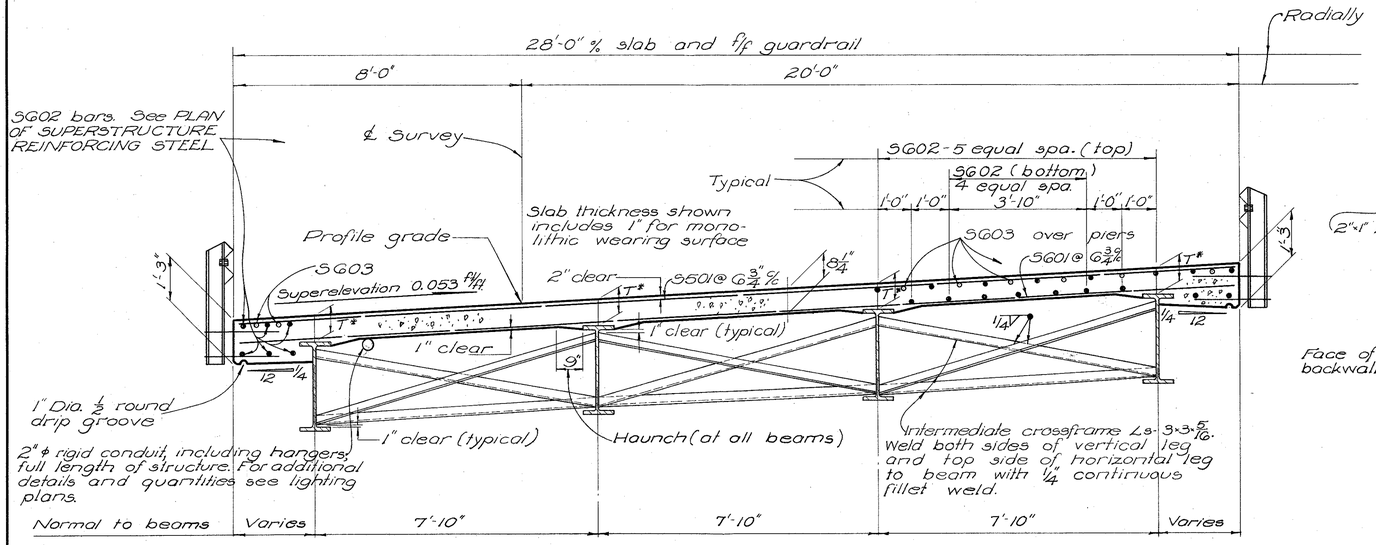
BRIDGE NO. TUS-250 NB RAMP "F"
STONE CREEK
TUSCARAWAS COUNTY
STA. 7+78.90
8+91.71

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
K.L.H.	K.L.H.	Wathy B	R.W.	BFG	7-9-62	

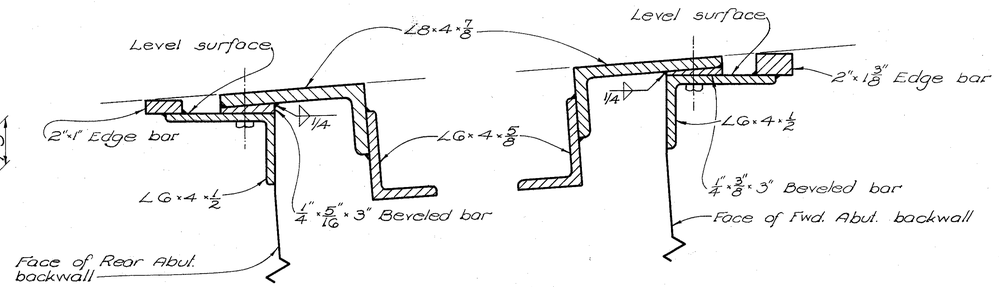
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

213
235

TUS-21-26.33
TUS-250-11.60



RADIAL TRANSVERSE SECTION



MODIFICATION OF END DAM
For additional details see Section D-D Sheet No. 2 of C5B-1-55

DIMENSION T*	
Location	T*
℄ Abutment brgs.	8 1/4"
℄ Piers	8 3/4"
Center Middle Span	8 1/4"

DECK SLAB HAUNCH: The haunch in the deck slab adjacent to the top of the steel beams, which is shown as 9" wide, may vary from this dimension between the limits of 6" and 12" on the low side and between 9" and 12" on the high side. Except on the high side the maximum slope shall not exceed 3" per foot. Payment for deck slab concrete shall be based on the 9" width.

BEAM WEB WELDS: Butt welds in webs of beams may have convex reinforcement in accordance with Sec. 3-7.22. Finishing flush by grinding is not required.

* These are the nominal dimensions. The quantity of deck concrete to be paid for shall be based on these dimensions even though deviation from them may be necessary because the top flange of the beam may not have the exact conformation required to place it parallel to the finished grade.

ADDITIONAL SUPERSTRUCTURE DETAILS are shown on Std. Dwg. C5B-1-55 sheets 1 and 2.

IF SPLICE IS NOT USED, the beam segments shall be cambered as shown by the diagram to the right.

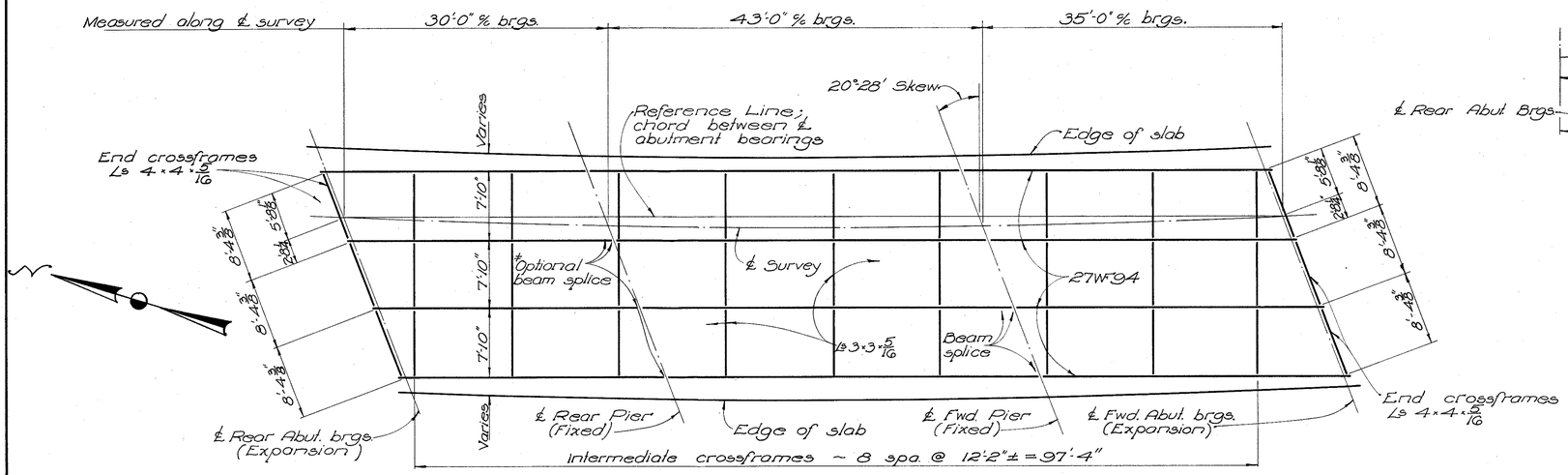
DEFLECTION AND CAMBER			
Location	All beams		
Span	30'	43'	35'
Deflection due to weight of steel	.01"	.02"	.02"
Deflection due to remaining dead load	.05"	.18"	.13"
Convexity required for vertical curve	-.23"	-.42"	0
Sum of deflection and convexity	-.17"	-.22"	+.15"
Required camber	0#	0#	0

BEAM SPLICE WELDING PROCEDURE

1. Do not raise the abutment ends of the beams
2. Butt-weld the beam flanges and web using the following sequence: make one pass on each flange, then two on the web; repeat using one pass at each location, until welds are completed.

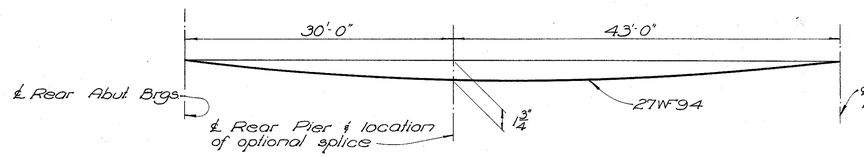
OPTIONAL BEAM SEGMENTS

Beams may be supplied in two lengths requiring a splice at the Fwd. Pier or they may be supplied in three lengths requiring a splice at both piers



All beams are parallel to Reference Line

STEEL FRAMING PLAN



CAMBER DIAGRAM
(For rear spans when optional splice is NOT used)

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

SUPERSTRUCTURE DETAILS

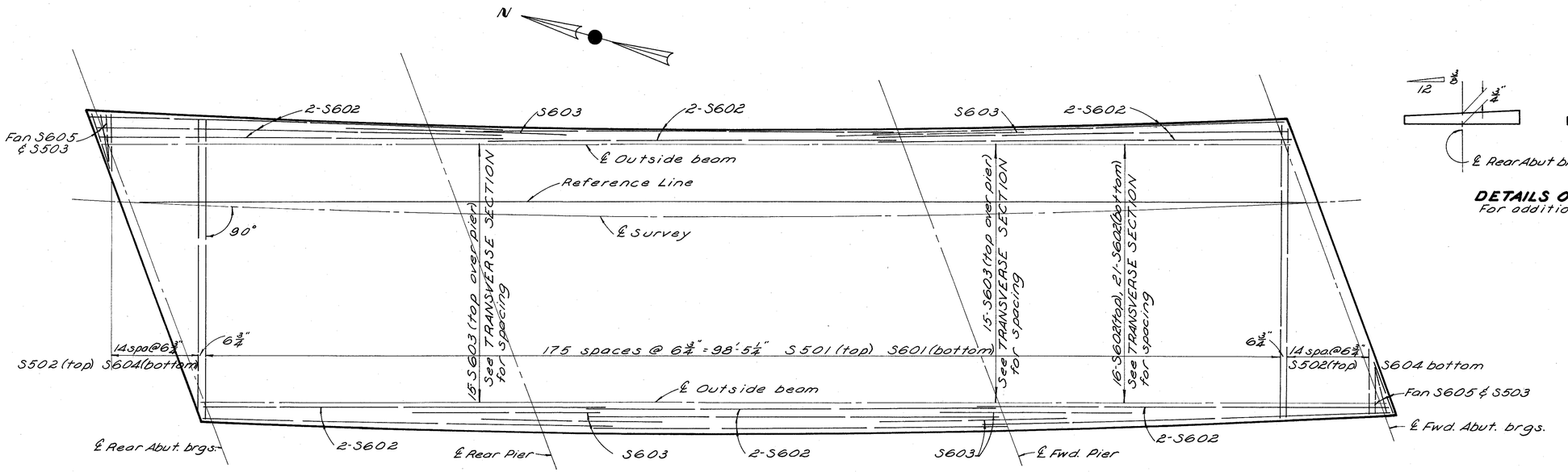
BRIDGE NO. TUS-250NB RAMP "F" OVER STONE CREEK
STA. 7 + 78.90
TUSCARAWAS COUNTY 8 + 91.71

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
K.L.H.	K.L.H.	G. G.	Kay	BFG	7-9-62	

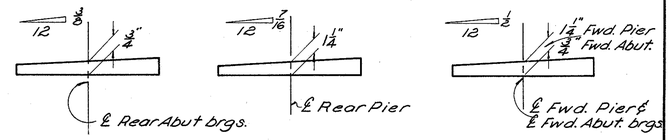
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

214
235

TUS-21-26.33
TUS-250-11.60



PLAN OF SUPERSTRUCTURE REINFORCING STEEL



DETAILS OF BEVELED SOLE PLATES
For additional details see sheet No. 1 of CSB-1-55

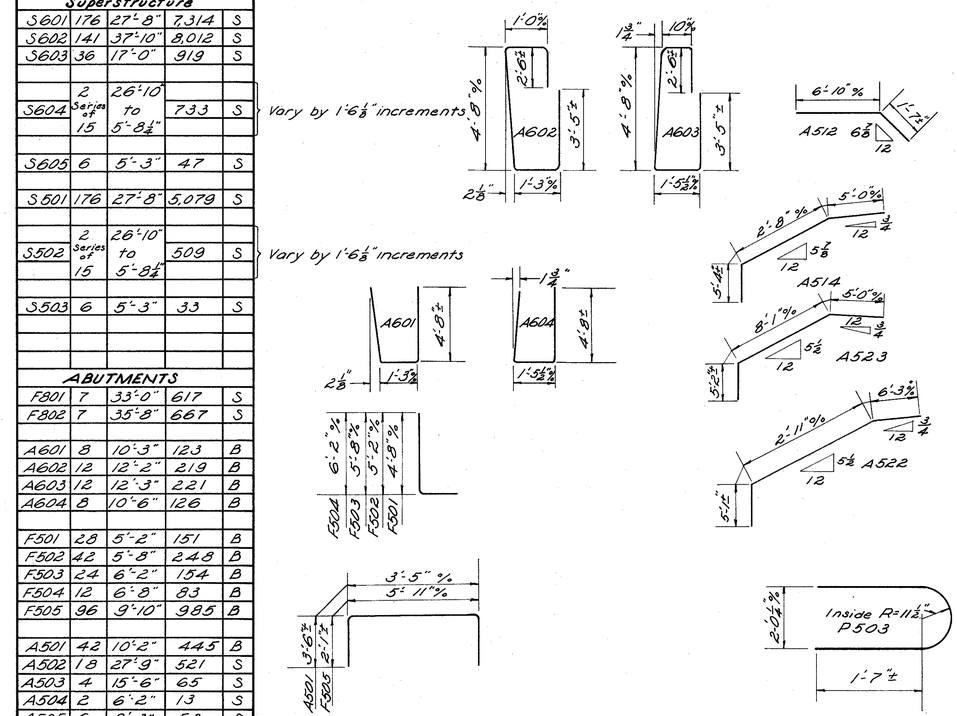
REINFORCING STEEL LIST

MARK	NO.	LENGTH	WEIGHT	SHR.
Superstructure				
S601	176	27'-8"	7,314	S
S602	141	37'-10"	8,012	S
S603	36	17'-0"	919	S
S604	2 Series of 15	26'-10" to 5'-8½"	733	S
S605	6	5'-3"	47	S
S501	176	27'-8"	5,079	S
S502	2 Series of 15	26'-10" to 5'-8¼"	509	S
S503	6	5'-3"	33	S
ABUTMENTS				
F801	7	33'-0"	617	S
F802	7	35'-8"	667	S
A601	8	10'-3"	123	B
A602	12	12'-2"	219	B
A603	12	12'-3"	221	B
A604	8	10'-6"	126	B
F501	28	5'-2"	151	B
F502	42	5'-8"	248	B
F503	24	6'-2"	154	B
F504	12	6'-8"	83	B
F505	96	9'-10"	985	B
A501	42	10'-2"	445	B
A502	18	27'-9"	521	S
A503	4	15'-6"	65	S
A504	2	6'-2"	13	S
A505	6	8'-3"	52	S

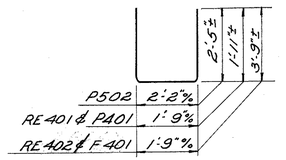
Vary by 1'-6½" increments

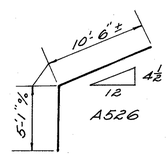
Vary by 1'-6¼" increments

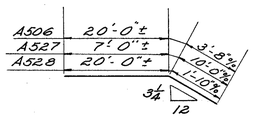
BENDING DIAGRAMS



MARK	NO.	LENGTH	WEIGHT	SHR.
A506	2	23'-8"	49	B
A507	4	22'-8"	95	S
A508	1	37'-9"	39	S
A509	2	6'-2"	13	S
A510	4	6'-9"	28	S
A511	8	8'-0"	67	S
A512	2	8'-4"	17	B
A513	10	8'-1"	84	S
A514	2	12'-10"	27	B
A515	8	6'-6"	54	S
A516	6	11'-5"	71	S
A517	8	13'-3"	111	S
A518	4	24'-6"	102	S
A519	4	23'-3"	97	S
A520	1	38'-5"	40	S
A521	2	7'-6"	16	S
A522	2	14'-1"	29	B
A523	2	18'-1"	38	B
A524	2	7'-8"	16	S
A525	2	7'-2"	15	S
A526	2	15'-5"	32	B
A527	8	17'-0"	142	B
A528	2	21'-10"	46	B
F401	40	9'-0"	240	B
Piers				
P1001	8	25'-7"	881	S
P801	8	25'-7"	546	S
P501	4	25'-7"	107	S
P502	68	6'-9"	479	B
P503	12	6'-4"	79	B
P401	48	5'-5"	174	B
Replacement Bars				
RE1001	1	7'-2"	—	S
RE801	1	6'-6"	—	S
RE601	1	5'-11"	—	S
RE501	1	5'-7"	—	S
RE401	1	5'-5"	—	B
RE402	1	9'-0"	—	B







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, indicate the bar size number. For example, P1001 is a No.10 size bar and A501 is a No. 5 size.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

SUPERSTRUCTURE DETAILS & REINFORCING STEEL LIST

BRIDGE No. TUS-250NB RAMP "F" OVER STONE CREEK
TUSCARAWAS COUNTY
Sta. 7+78.90
8+91.71

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
K.L.H.	K.L.H.	J.T.K.	Ray	BFG	7-9-62	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

219

TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-11.60

NOTE: for LEGEND, see Schematic Layout Lighting Circuits, Sheet No. 217

TUSCARAWAS RIVER

BEGIN SHEET STA. 635+20

635+45 II 15' Arm

SB USR 250

633+55

632+75 II 15' Arm

633+68 II 15' Arm

633+58

1-3" conduit 2-1/c No. 4 cable N.B. USR 250

11+75

11+65 II 10' Arm

RAMP "F"

1-3" conduit (2-1/c No. 4 cable)

631+98 II

2" Fiber Conduit

630+18 II BC.-10 Arm

9+75 II

2" Steel Conduit

BR. NO. TUS-250-NB Ramp F

STONE CREEK

NOTE: 1-2" Steel Conduit Only Across This Bridge, TUS-250 NB Ramp "F"

8+35 II

7+85 II

1-3" Conduit 6+80

6+73 II

6+50 II

5+15 II

END SHEET 4+00

RELOCATED

Center between Bridges 9+95 II

BR. NO. TUS-250-NB-12.31

630

628+38 II

626+89 II

FUTURE RAMP "E"

NOTE: 2-1/c No. 4 Cables in 2" Fiber Duct across Structure. (Circuit No.1)

631+08 II 11' BC.-12' ARM

11+40 II

639+43 II 11' BC.-12' Arm

BR. NO. TUS-21-26.33

627+85 II 11' BC.-12' Arm

85+04 II

86+84 II

87+69 II

END SHEET STA. 625+00

END SHEET STA. 88+00

16+33

77+01

16+38

15+00 II

78+80 II

11+30 II

80+30 II

80

79+25 II

77+52 II

15+14 II

13+32 II

80+98 II

11+50 II

I.R. 77 (US-21)

83+34 RT II

82+71 II

84+20 II

626+22 II 11' BC.-12' Arm

85+90 II

624+52 II 15' Arm

623+69 II

RAMP "D"

END SHEET STA. 623+27.5

RAMP "C"

FUTURE

9+69 II

7+87 II

6+06 II

END SHEET 5+96

PROP. INTERCHANGE AT EXISTING USR-21

N.B. USR-250 STA. 635+20 to STA. 625+00

S.B. USR-250 STA. 635+20 to STA. 623+27.5

I.R.-77 STA. 78+30 to STA. 88+00

LIGHTING PLANS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

220

TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-11.60

BEGIN SHEET 4+00 | BEGIN SHEET 625+00 | BEGIN SHEET STA. 88+00 | BEGIN SHEET 623+27.5 | BEGIN SHEET 5+96

TUSCARAWAS RIVER

Exist. Bridge U.S.R. 21 over Tuse. River

END SHEET 6 + 09 | END SHEET STA. 98+09 | END SHEET 613+07 | END SHEET 4 + 48

NOTE: for LEGEND, see Schematic Layout Lighting Circuits, Sheet No. 217

PROP. INTERCHANGE AT EXISTING U.S.R. 21 & I.R. 77 STA. 88+00 to 98+09 LIGHTING PLANS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

221

TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-11.60

NOTE: for LEGEND, see Schematic Layout Lighting Circuits, Sheet No. 217

BEGIN SHEET 6+09

BEGIN SHEET STA. 98+09

BEGIN SHEET 613+07

BEGIN SHEET 4+48

MATCH LINE STA. 108+00

MATCH LINE STA. 117+82

END SHEET STA. 125+00

RAMP "B"

RAMP "A"

I.R.-77

USR 250 SB

FUTURE

N 5°-36'-30"W

Underground Cable Ohio Bell Telephone Co.

2-3" Conduits (1-Spare)

1-3" Conduit (1-Spare)

2-3" Conduits (1-Spare) Twin 15' Arms (See Illumination C 2 West of Freeway Curb)

602+50

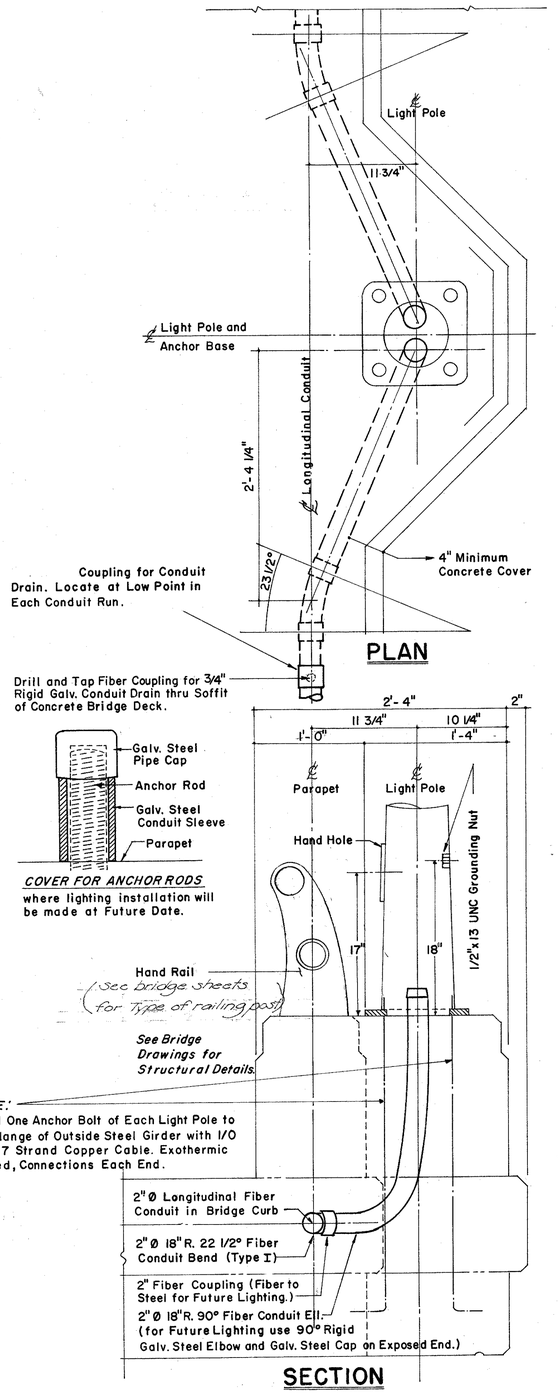
BEGIN TUS-21-26.33
END TUS-250-11.60
STA. 125+00

PROP. INTERCHANGE AT EXISTING U.S.R. 21 & I.R.-77 STA. 98+06 to 117+82 LIGHTING PLANS

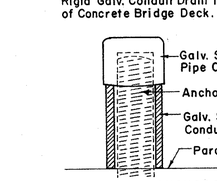
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

222

TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-11.60



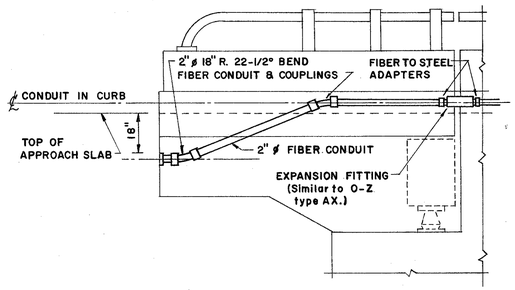
PLAN



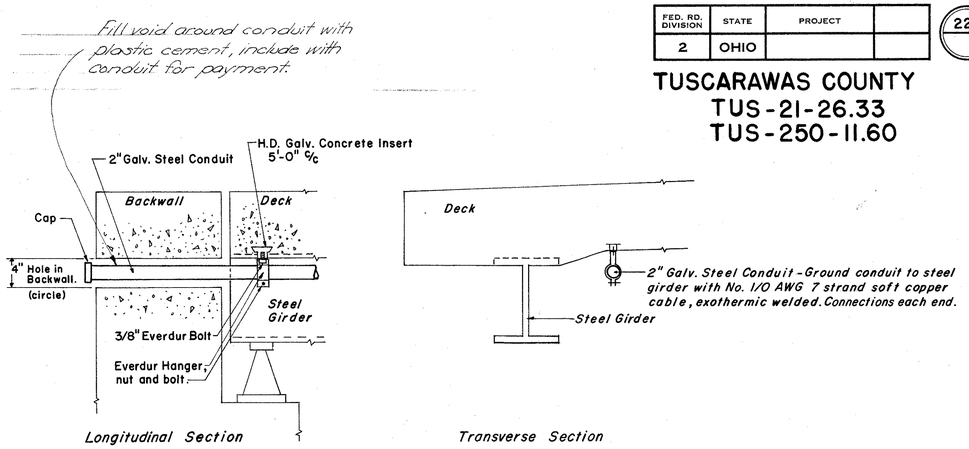
COVER FOR ANCHOR RODS
where lighting installation will be made at Future Date.

SECTION

For All Bridges Except TUS-250-NB on Ramp "F"



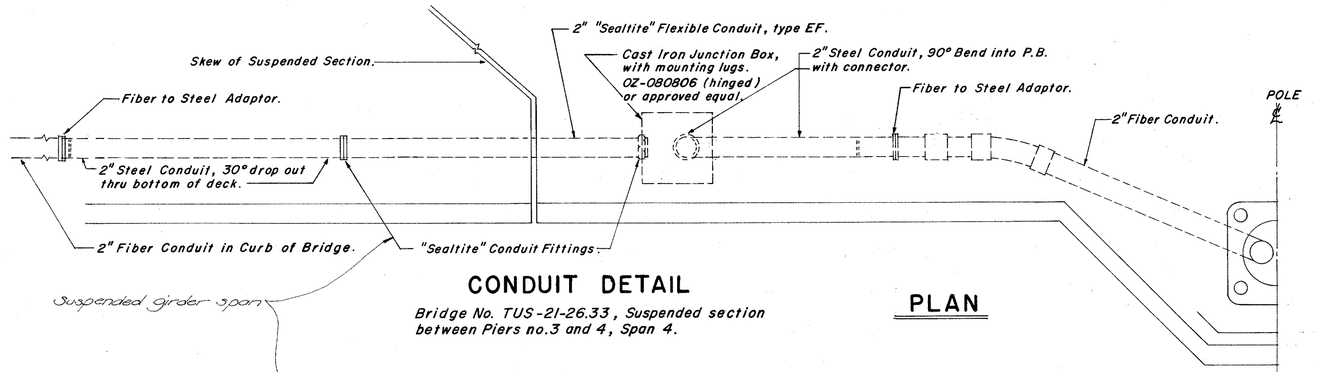
CONDUIT DETAIL
Typical Wing Wall



Longitudinal Section

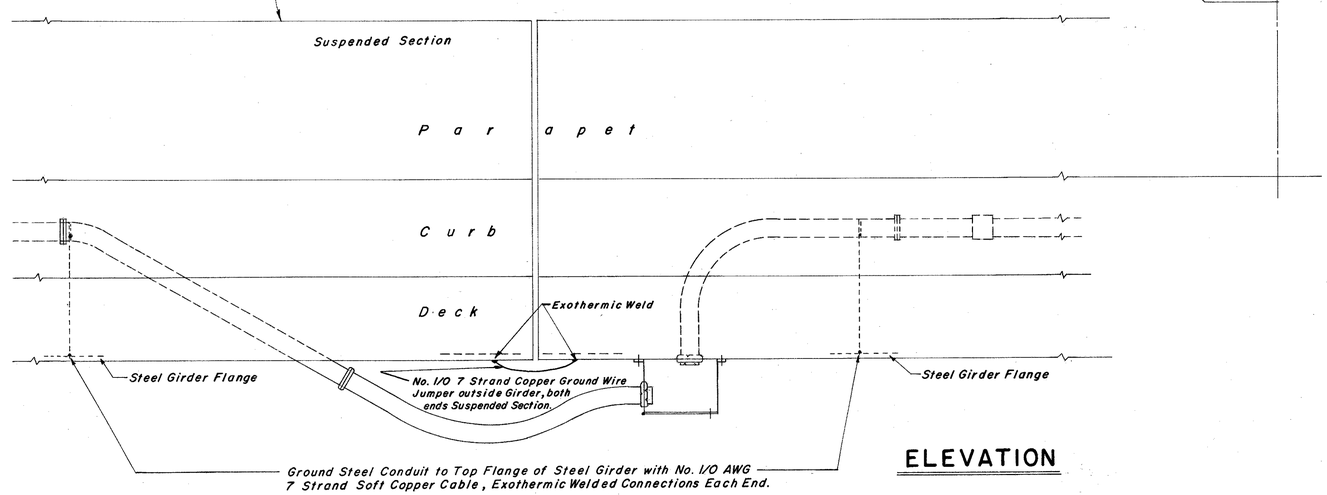
Transverse Section

CONDUIT DETAIL
Bridge No. TUS-250 NB, Ramp "F" (East Side)



CONDUIT DETAIL
Bridge No. TUS-21-26.33, Suspended section between Piers no.3 and 4, Span 4.

PLAN



ELEVATION

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

223

TUS-21-26.33
TUS-250-11.60

15' For Freeway 10' For Ramp
Bracket Span

Light Center

Mercury Luminaire

32 1/2' (± 6") to top of Pavement

13' For Freeway & 9' For Ramp

10' For Freeway & 6' For Ramp

2'

12"

Face of Guard Rail

Mounting Height above pavement governs. (See General Notes.)

Pavement

Paved Berm

3" min.

1 M.H.

2'-0"

1'-0" min.

Back-Fill and Compact as per specification note at right.

5/8" x 8'-0" copper-clad ground rod in cable trench outside light pole foundation.

1/2"x13 U.N.C. Grounding Nut, opposite center of Hand Hole.

Hand Hole 4"x6 1/2"

Pole Diameter + 3-1/4", except 11-1/4" Min.

1-1/2" Bevel

4:1

2:1

6' Min. to Finish Grade

2'-0"

"J" Hook welded to inside of Pole.

Top of Pole.

1/2"

3"

Bronze service cable grip - Kellams No. EB-3 or equal.

Pole & Bracket Cable.

CABLE SUPPORT

CONDUIT

18"

18"

4"

CONCRETE MARKER

1" = 2"

SECTION A-A

A A

1" 2" 3"

2"

TYPICAL SYMBOL

Dimensions shown are for all symbols impressed in concrete marker or pull box cover.

NOTE:
Impress the Word:
"CONDUIT" - to locate Conduit, Initial and Future.
"CABLE" - to locate Direct Burial Cable, Change in Direction.
"LIGHT" - to locate Direct Burial Cable Coil, Future Light.

MARKER DETAILS

Face of trench to be at least 1'-0" from edge of paved Berm or back face of curb.

Finish Ground

Paved Berm

2'-0"

3"

4"

5"

Direct Burial Cable (Cables to be 2" apart.)

6" min.

TYPICAL CABLE TRENCH & BACKFILLING SPECIFICATIONS

BACK FILLING and COMPACTING

Bed 3" and Back Fill to 5" above top of cable with unwashed sand meeting the following grading requirements.

Sieve No.	Percent Passing
4	100 %
8	70 - 100 %
50	5 - 60 %
200	0 - 20 %

Back Fill remainder of trench in accordance with Sec. I-1.07 Class I except that the material in the first 4" above the sand back fill shall contain no pieces larger than 2 inches.

480 Volt Single Phase Incoming Line.

Control Enclosure

2 Pole Main Breaker -600 Volt. EF Frame 70 Amp. Trip (G.E. TEF 136070 WL) (I-T-E ET-2706)

480/120 Volt Control Transformer.

Hand

Off

Auto

2 Amp. CL Fuse

C

A

4 Pole Contactor 600 Volt 60 Amp. 120 Volt Coil (G.E. CR160L-41302AA)

Spares

2 Pole Circuit Breakers 600 Volt EF Frame 20 Amp. Trip (I-T-E ET-2702) (G.E. TF 126020)

CIRCUITS= No.1 No.2 No.3

CONTROL CENTER

PHOTO ELECTRIC CONTROL

POWER & CONTROL WIRING DIAGRAM

Photo-Electric Control 120 V Fisher-Pierce Tubeless Model 6601A-EE1-NEMA Specification. Orient to North.

480 Volt Single Phase Service furnished & installed by Power Co.

Aluminum to Copper Connectors. (if necessary)

3/4" Conduit 3-1/C No. 14 AWG

Galv. Weather Head.

1-1/4" Conduit 2 1/C No. 4 AWG Cables.

CONTROL CENTER
Nema 4 Watertight
Galv. Steel Enclosure, 14 ga.
No Knockouts
Water-tight Hubs
Stainless Steel Hardware
Padlock and 3 Keys (Hoffman Eng. Corp.)
See Wiring Diagram for Electrical Components.

35 ft. ASA Class 4 Southern Yellow Pine Pole. Pentachlorophenol pressure treated, full length, eight lbs. per cubic ft. AWPA specification.

Meter Enclosure furnished by Power Co. (Installed by Contractor.)

3" Conduit 6-1/C No. 4 AWG Cables. Circuits No. 1, 2, 3

No. 6 AWG Stranded Bare Copper Ground Cable.

4'

Standard Concrete Pull Box

Finished Grade Line

Exothermic Connection

5/8" X 8'-0" Copper Clad Ground Rod.

Concrete Enclosure

3-3" Type I Fiber Conduits, concrete encased, to nearest Roadway Pull Box.

1. CONDUIT and FITTINGS = Heavy Wall Galvanized Steel.
2. INSULATED CONDUCTORS = FAA-L824 type A G.E. SI-58089
3. ITEMS SHOWN = "Or Approved Equal".

SERVICE POLE (Lump Sum Payment)

Includes Apparatus, Accessories and Appurtenances furnished, erected and installed complete by Contractor except as otherwise indicated.

Brass Plate - 16 Ga. Stamp Circuit & Pole Number as shown on Lighting Plan Sheets.

No. 6 x 1/2" Self-tapping Stainless Steel Screws.

Pole Number
Circuit Number

B 26

5/8"
3/4"
5/8"
2"
3"

Locate 7 feet above Pole Base, Roadway Side.

LIGHT POLE NUMBER PLATE

Anchor Base Bolt Circle

Cable Trench

2'-0"

2" Conduit

8" min.

2'-0"

ANCHOR BASE TYPE for MULTIPLE CIRCUITS.

LIGHT POLE & FOUNDATION DETAILS

Impress the word "CONDUIT" in cover. (See "Marker Details" for symbol dimensions.)

No 4 Galv. Wire Loop

Sym. about ℄

4 x 4 / 6 Steel Mesh (or equiv.)

Edge of Pavement

10'-0" For Freeway

5'-0"

3'-0"

Paved Berm

Face Guard Rail

Pavement

Fill to Pass 3" Sieve

Class "E" Concrete

3" Conduit

3" 3" Varies

Varies

24" Min.

2' min.

3" Conduit slope to drain

min. 12"

4:1

2:1

Gravel 6" Min. Depth

℄ Pull Box

TYPICAL CONDUIT CROSSOVER DETAIL

1-3/8" 1-3/8"

20"

2-1/8"

1/8"

19 3/4"

1/8" 1/8"

2'-6"

10"

5"x10" Slots (3 Sides) Grout unused slots

5"

18"

23"

STD. PULL BOX DETAILS

10'-0" from nearest std.

Pull Box

Light Std.

Face of guard rail

Edge of paved berm

Cable Trench

Edge of pavement

Conduit Crossover

PLAN VIEW

CABLE AND PULL BOX LOCATION

LIGHTING NOTES

DESCRIPTION

THIS ITEM SHALL CONSIST OF FURNISHING ALL MATERIALS AND LABOR REQUIRED FOR THE COMPLETE INSTALLATION OF THE ROADWAY LIGHTING AND CONTROL SYSTEM AND ASSOCIATED ELECTRICAL AND MECHANICAL FACILITIES IN ACCORDANCE WITH THE DESIGNS, DIMENSIONS AND DETAILS SHOWN IN THE PLANS AND DESCRIBED IN THE SPECIFICATIONS AND AS SET FORTH IN THE SPECIAL PROVISIONS AND PROPOSALS.

ALL MATERIAL, WORKMANSHIP AND CONSTRUCTION METHODS OF THIS PROJECT, EXCEPT AS MODIFIED HEREIN, OR ON THE DRAWINGS, SHALL CONFORM TO THE GENERAL REQUIREMENTS OF STATE OF OHIO, DEPARTMENT OF HIGHWAYS, CONSTRUCTION AND MATERIAL SPECIFICATIONS, JANUARY 1, 1961, ATTENTION IS DIRECTED TO ITEM S-25, ELECTRICAL EQUIPMENT. OTHER ITEMS WHICH APPLY ARE INCLUDED BELOW WITH MODIFICATIONS OF THE SPECIFICATIONS WHICH SHALL BE COMPLIED WITH BY THE CONTRACTOR.

MATERIALS

1. GENERAL

   CERTIFIED STATEMENTS REGARDING COMPLIANCE OF MATERIALS WITH SPECIFICATIONS LISTED SHALL BE FURNISHED UPON REQUEST. MATERIALS OTHER THAN THOSE LISTED HERE SHALL BE OF THE SIZE AND QUALITY INDICATED ON THE PLANS OR IN THE SPECIFICATIONS.

2. CONDUIT

   (a) STEEL CONDUIT AND FITTINGS SHALL BE HEAVY WALL, THREADED, GALVANIZED TYPE CONFORMING TO THE FEDERAL SPECIFICATION WW-C-581 C.

   (b) FIBER CONDUIT AND FITTINGS SHALL CONFORM TO THE REQUIREMENTS OF FEDERAL SPECIFICATION W-C 581 C AND SHALL BE TYPE I FOR CONCRETE ENCASEMENT.

   (c) CONDUIT BUSHINGS SHALL BE EQUIVALENT TO O. Z. COMPANY, TYPE B, OR APPROVED EQUAL.

3. WIRE AND CABLE

   (a) INSULATED COPPER CABLE FOR DIRECT BURIAL IN THE GROUND AND INSTALLATION IN CONDUIT SHALL BE 600 VOLT FEDERAL AVIATION AGENCY SPECIFICATION T-824 TYPE A (G.E. S1-58089).

   CIRCUIT CABLE, NO. 4 AWG.

   POLE AND BRACKET CABLE, - NO. 10 AWG.

   CONTROL CABLE - NO. 14 AWG.

   (b) ELECTRODE GROUND CONDUCTORS SHALL BE NO. 6 AWG SEVEN STRAND SOFT ANNEALED BARE COPPER CABLE.

4. SPLICING MATERIALS

   (a) INSULATING TAPE - OKONITE COMPANY - OKOWELD NO.92-512.

   (b) SHEATHING TAPE - OKONITE COMPANY - OKOPRENE NO. 92-42.

   (c) CABLE CONNECTORS FOR ALL CABLE SPLICES SHALL BE DOUBLE CRIMP TYPE TIN PLATED COPPER OF ONE PIECE TUBULAR CONSTRUCTION. EACH CONNECTOR SHALL BE THE EXACT SIZE FOR THE CABLES CONNECTED.

   CABLE END TO END CONNECTORS - BURNDY CORP. TYPE YS.

   CABLE TAP TEE CONNECTORS - BURNDY CORP. TYPE YST.

5. GROUND RODS

   (a) GROUND RODS SHALL BE COPPER CLAD STEEL 5/8 INCH DIAMETER, 8'-0" LONG.

6. REINFORCING STEEL

   REINFORCING STEEL SHALL BE PLAIN INTERMEDIATE GRADE CONFORMING TO THE REQUIREMENTS OF ITEM M-7.1.

7. EQUIPMENT CABINETS

   SERVICE EQUIPMENT CABINETS SHALL CONFORM TO THE REQUIREMENTS ON THE PLAN.

8. SERVICE EQUIPMENT

   SERVICE EQUIPMENT CONSISTING OF CONTROL DEVICES, CIRCUIT BREAKERS, AND MISCELLANEOUS DEVICES SHALL CONFORM TO THE RATING, SIZES AND SPECIAL FEATURES AS SPECIFIED ON THE PLANS AND APPLICABLE EEI AND NEMA STANDARDS.

9. WOOD POLES

   WOOD POLES SHALL CONFORM TO THE REQUIREMENTS OF AMERICAN STANDARDS SPECIFICATION 05.1 - 1948, AND AS SHOWN ON THE PLANS.

10. LUMINAIRES

   (a) LUMINAIRES SHALL BE MERCURY VAPOR TYPE SUITABLE FOR USE ON MULTIPLE CIRCUITS AND DESIGNED TO FURNISH LIGHT DISTRIBUTION PATTERNS EQUIVALENT TO A.S.A.-I.E.S. TYPES NOTED ON PLANS.

   (b) LUMINAIRES SHALL HAVE INTERNAL BALLAST.

   (c) LUMINAIRES SHALL BE EQUIVALENT TO GENERAL ELECTRIC CO. M-400, LINE MATERIAL IND. "UNISTYLE" OR WESTINGHOUSE CORP. OV-25.

MATERIALS - (Continued)

11. BALLASTS

   (a) BALLASTS SHALL BE INTEGRAL WITH LUMINAIRES.

   (b) BALLASTS SHALL BE REGULATOR TYPE, RATED 400 WATTS, 240 x 480 VOLTS, FOR USE WITH 20,500 LUMEN MERCURY VAPOR LAMP AND SHALL PROVIDE +/- 2 PER CENT REGULATION IN LAMP WATTS WITH +/- 13 PER CENT VARIATION IN PRIMARY VOLTS FROM THE BALLAST VOLTAGE DESIGN CENTER. POWER FACTOR OF THE BALLAST SHALL BE APPROX. 96 PER CENT.

12. LAMPS

   LAMPS SHALL BE MERCURY VAPOR BONUS LINE TYPE, 400 WATT, 20500 LUMEN INITIAL, ASA TYPE, H33-1CD MINIMUM RATED LIFE SHALL BE 12,000 HOURS AT FIVE TO TEN HOURS OPERATION PER START.

13. PULL BOX FRAME AND COVER

   (a) PULL BOX FRAME AND COVER SHALL BE CONSTRUCTED OF CENTRIFUGALLY CAST CONCRETE IN ACCORDANCE TO DIMENSIONS AND DETAILS SHOWN ON THE PLANS.

   (b) COVERS SHALL BE GROUND TO FIT WITHOUT ROCKING AND SHALL HAVE TOP PLUSH WITH TOP OF BOX.

14. CONCRETE

   CONCRETE MATERIALS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF ITEM M-1, M-2, AND M-3.

15. LIGHT POLES AND ARMS

   (a) LIGHT POLES SHALL BE ROUND TAPERED TUBULAR STEEL COMPLYING WITH SECTION S-25 AND THIS SPECIFICATION.

   1. MATERIAL; MANUFACTURER'S STANDARD 11 GAUGE (0.1196 in.) HOT ROLLED OPEN HEARTH STEEL.

   2. FABRICATION; CUT FROM ONE STEEL SHEET AND FORMED TO CIRCULAR SHAPE WITH UNIFORM TAPER OF 0.14 INCH PER FOOT OF LENGTH.

      AUTOMATIC ELECTRICALLY WELDED LONGITUDINAL JOINT.

      COLD ROLLED AFTER WELDING WITH SUFFICIENT PRESSURE TO DEVELOP A MINIMUM YIELD STRENGTH OF 48000 POUNDS PER SQUARE INCH AND TO FLATTEN THE WELD TO A TRUE FINISHED SURFACE, CIRCULAR CROSS SECTION, TAPERED TUBE OF UNIFORM THICKNESS WITHOUT FLAT SPOTS AND WITHOUT FINISH GRINDING.

   3. LIGHT POLES SHALL BE CAPABLE OF WITHSTANDING LOADING AS TABULATED BELOW:

POLE SIZE ROUND 11 GA.	ELASTIC DEFLEC. RATE IN. PER 100 LBS.	LOAD 18" DOWN FROM TOP 2/3 YIELD LBS.	2/3 YIELD LBS.	TOTAL DEFLECTION 2/3 YIELD INCHES	YIELD INCHES	PERMANENT SET IN INCHES 500# LOAD 18" DOWN FROM TOP	YIELD
9.0"X4.87"X29'-6"	2.16	459	989	14.73	24.00	0.5	2.64
8.0"X3.87"X29'-6"	3.32	517	776	17.66	28.84	0.5	3.08
8.0"X4.22"X27'-0"	2.37	568	852	13.96	22.71	0.5	2.52

   4. EACH POLE SHALL BE FITTED WITH "J" HOOK, GROUNDING NUT, 4X4⅜" REINFORCED HAND HOLE, LOCKING STEEL COVER, METAL POLE TOP, ASTM A27 GRADE 65-35 CAST STEEL BASE AND ORNAMENTAL ANCHOR BOLT COVERS.

   5. ARMS SHALL BE TRUSS TYPE MANUFACTURED FROM SCHEDULE 40 PIPE WITH END FOR TWO INCH SLIP FITTER LUMINAIRE.

   6. POLES AND ARMS DESIGNED TO SUPPORT A LUMINAIRE WEIGHT OF 75 POUNDS, PROJECTED AREA OF 3.3 SQUARE FEET AND WIND LOAD OF 23 POUNDS PER SQUARE FOOT WITH SAFETY FACTOR OF 1.82 MINIMUM OF YIELD STRENGTH FOR WEIGHT AND WIND LOAD.

   7. UNION METAL MFG. CO. DESIGN 440A, CATALOGUE NUMBER:

      K-296-F2, 15' ARM - 32.5' MOUNTING HEIGHT - FREEWAY
      K-296-FF2, 15' TWIN ARM - 32.5' MOUNTING HEIGHT - FREEWAY
      H-296-D2, 10' ARM - 32.5' MOUNTING HEIGHT - RAMP
      H-270-F2, 12' ARM - (30' MOUNTING HEIGHT TO TOP OF PARAPET) - BRIDGE (32.5' TO ROADWAY SURFACE)

   8. FREEWAY LIGHT POLES ARE IDENTIFIED BY FREEWAY CENTERLINE STATIONS WITH BRACKET ARMS NORMAL TO FREEWAY CENTERLINE.

      RAMP LIGHT POLES ARE IDENTIFIED BY RAMP CENTERLINE STATIONS WITH BRACKET ARMS NORMAL TO RAMP CENTERLINE.

      ORIENT FOUNDATION ANCHOR BOLTS ACCORDINGLY.

   9. TOP ELEVATION OF POLE FOUNDATIONS SHALL BE SET TO PROVIDE THE SPECIFIED MOUNTING HEIGHT OF LUMINAIRES ABOVE TOP OF PAVEMENT.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

TUS-21-26.33
TUS-250-11.60

INSTALLATION

1. GENERAL

   INSTALLATION OF ROADWAY LIGHTING SYSTEM SHALL BE PERFORMED IN ACCORDANCE TO THE REQUIREMENTS OF ITEM S-25 ELECTRICAL EQUIPMENT.

2. EXCAVATION AND BACKFILL

   EXCAVATION AND BACKFILL FOR LIGHTING STANDARD FOUNDATIONS, CONTROL CENTER FOUNDATIONS, DUCT AND PULL BOXES SHALL CONFORM TO THE REQUIREMENTS OF ITEM E-2, EXCAVATION AND BACKFILL.

3. CONCRETE

   (a) CONCRETE FOR LIGHTING STANDARD FOUNDATIONS AND DUCTS SHALL BE PLACED, CURED AND PROPORTIONED IN ACCORDANCE TO THE APPLICABLE PROVISIONS OF ITEM S-1, CONCRETE FOR STRUCTURES.

   (b) CONCRETE SHALL BE CLASS C OR CLASS E AS INDICATED ON THE PLANS.

   (c) CONCRETE FOR PULL BOXES SHALL BE IN ACCORDANCE TO THE APPLICABLE PROVISIONS OF SEC. M-6.6, REINFORCED CONCRETE PIPE.

4. METHOD AND MATERIALS

   (a) CONTRACTOR SHALL CONTACT THE SERVICING UTILITY COMPANY AT THE OUTSET OF THE PROJECT TO COORDINATE THE SEPARATE PARTS OF THE WORK NECESSARY FOR THE SYSTEM.

   (b) CONTRACTOR SHALL APPLY FOR DETAILED INFORMATION REGARDING THE POSITION OF ALL EQUIPMENT, WHERE THE FINAL OR REQUIRED LOCATION MAY DIFFER FROM THOSE INDICATED ON THE DRAWINGS.

   (c) UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL LEAVE ALL LUMINAIRES, POLES, CONTROL CENTERS, AND OTHER EQUIPMENT IN FIRST CLASS CONDITION, FREE FROM DIRT, DUST AND FOREIGN MATERIALS. GLASSWARE SHALL BE CLEANED WITH SOAP AND WATER.

   (d) SCHEDULE WORK FOR LIGHTING SYSTEM TO COORDINATE WITH GENERAL ROADWAY CONSTRUCTION SO THAT ALL WORK MAY BE INSTALLED IN MOST DIRECT MANNER SO THAT INTERFERENCE WILL BE AVOIDED.

5. SYMBOLS

   IN GENERAL, THE ELECTRICAL WORK IS SHOWN ON THE DRAWINGS BY SYMBOLS AND NUMERICAL DESIGNATIONS, A KEY TO WHICH IS INDICATED ON THE PLANS.

6. LIGHTING STANDARD FOUNDATIONS

   (a) FOUNDATIONS SHALL CONFORM TO THE DESIGN AND DETAILS SHOWN ON THE PLANS AND AS SPECIFIED HEREIN.

   (b) LOCATION OF LIGHTING UNIT FOUNDATION IS REFERENCED BY A STATION ON THE ROADWAY CENTER LINE AND OFFSET DISTANCE FROM THE ROADWAY PAVEMENT. CONTRACTOR SHALL CHECK THE OFFSET DISTANCES IN FIELD TO PREVENT IMPROPER PLACEMENTS, STAKE OUT LOCATIONS AND OBTAIN ENGINEER APPROVAL PRIOR TO EXCAVATION. FINAL POSITION SHALL BE ADJUSTED TO MEET FIELD CONDITIONS.

   (c) UNIT PRICE BID FOR STANDARD FOUNDATIONS SHALL INCLUDE FURNISHING AND PLACING OF CONCRETE, ANCHOR BOLTS, CONDUIT ELLS, ETC., AND THE COST OF EXCAVATION, BACKFILL, AND DISPOSAL OF SURPLUS MATERIAL.

7. PULL BOXES

   (a) PULL BOXES SHALL BE INSTALLED IN ACCORDANCE TO ITEM S-25, SECTION 25.12 BUT CONCRETE SHALL BE AS PER NOTE 3 ABOVE.

   (b) A PULL BOX SHALL BE INSTALLED AT THE END OF CONDUIT CROSSING UNDER THE ROADWAY WHERE SHOWN ON THE PLANS AND AT OTHER LOCATIONS AS INDICATED.

8. UNDERGROUND CONDUIT

   (a) UNDERGROUND CONDUIT FOR ROADWAY CROSSINGS, SERVICE CABLE EXTENSION AND OTHER USES SHALL BE FURNISHED AND INSTALLED AT THE LOCATIONS AND IN CONFORMITY TO THE DESIGN. DETAILS AND DIMENSIONS SHOWN ON THE PLANS.

   (b) CONDUIT INSTALLATION SHALL CONFORM WITH REQUIREMENTS OF ITEM S-25, SECTION S-25.08. CONDUIT SHALL BE OF THE SIZE, MATERIAL AND TYPE INDICATED ON THE PLANS.

   (c) DUCT SHALL BE LAID WITH POSITIVE SLOPE TOWARD PULL BOXES AND DUCT ENDS FOR DRAINAGE. DUCTS SHALL CROSS ROADWAYS AT RIGHT ANGLES AND FOLLOW ROADWAY CONTOUR CROSS SECTION AT A UNIFORM DEPTH AND ALIGNMENT. CONDUIT SHALL BE TERMINATED WITH END BELL OR BUSHING AS NOTED. DUCT SLOPE SHALL BE 5" PER 100 FT. MIN.

   (d) DUCTS SHALL BE MANDRELLED WITH IRON SHOD MANDREL 1/4" SMALLER THAN BORE OF CONDUIT AND SHALL BE PUSHED THROUGH BY MEANS OF JOINTED CONDUIT RODS. MANDREL SHALL HAVE LEATHER OR RUBBER GASKET SLIGHTLY LARGER THAN CONDUIT BORE.

   (e) DUCTS SHALL BE PLUGGED OR CAPPED TO PREVENT SEEPAGE OR GROUNDWATER OR DIRT IN THEM. CAP DUCTS WITH TAPERED PLUG UNTIL WIRING IS INSTALLED.

   (f) DUCT TRENCHES SHALL HAVE ESSENTIALLY VERTICAL WALLS SO THAT A MINIMUM OF SHOULDER SURFACE IS DISTRUBED. ALL DUCTS SHALL BE PROVIDED WITH A NUMBER 10 GAUGE GALVANIZED STEEL DRAG WIRE FOR PULLING THE PERMANENT WIRING. BEND SUFFICIENT WIRE IN PULL BOX TO PREVENT IT SLIPPING BACK INTO DUCT.

LIGHTING NOTES
(Continued)

INSTALLATION - (Continued)

8. UNDERGROUND CONDUIT - (Continued)

(g) MINIMUM DEPTH TO TOP OF DUCT ENCASEMENT SHALL BE 24 INCHES. EXTEND DUCT INTO PULL BOXES.

(h) DUCTS SHALL BE EXTENDED TO SERVICE POLES AND ATTACHED TO VERTICAL RISERS AS DETAILED. ADAPTER COUPLINGS FOR STEEL TO NON-METALLIC CONDUIT SHALL BE MANUFACTURED UNITS SPECIFICALLY DESIGNED FOR CONDUIT FURNISHED.

(i) PAYMENT FOR UNDERGROUND DUCT SHALL BE MADE AT THE CONTRACT UNIT PRICE AND FOR EACH TYPE AND SIZE OF SINGLE-WAY OR MULTI-WAY DUCT COMPLETED OR ACCEPTED, WHICH PRICE SHALL BE FULL COMPENSATION FOR FOR FURNISHING AND INSTALLING ALL MATERIALS, INCLUDING, CONCRETE CONDUIT, EXCAVATION, BACKFILL FOR ALL PREPARATION, ASSEMBLY, RESTORATION, SURPLUS MATERIAL DISPOSAL AND FOR ALL LABOR, EQUIPMENT TOOLS AND INCIDENTALS REQUIRED TO COMPLETE THE WORK.

9. TRENCH

(a) TRENCH SHALL BE PROVIDED FOR ALL UNDERGROUND CABLE AT THE LOCATIONS AND IN CONFORMITY TO THE DESIGN, DETAILS AND DIMENSIONS SHOWN ON THE PLANS.

(b) TRENCH FOR CABLE MAY BE EXCAVATED MANUALLY OR WITH MECHANICAL TRENCHING EQUIPMENT. TRENCH WALLS SHALL BE ESSENTIALLY VERTICAL SO THAT A MINIMUM OF SHOULDER SURFACE IS DISTURBED. GRADERS SHALL NOT BE USED TO EXCAVATE TRENCHES.

(c) TRENCH BOTTOM SHALL BE SMOOTH AND FREE OF COARSE AGGREGATE. MINIMUM WIDTH OF THE TRENCH BOTTOM SHALL BE EIGHT INCHES FOR TWO CABLES. MINIMUM DEPTH SHALL BE 24 INCHES. THE TRENCH SHALL BE WIDENED WHERE MORE THAN TWO CABLES ARE TO BE INSTALLED PARALLEL IN THE SAME TRENCH.

(d) BACK FILLING AND COMPACTION SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS SHOWN ON THE LIGHTING DETAIL DRAWING.

(e) CABLE TRENCH SHALL BE LOCATED WITH RESPECT TO PAVED SHOULDER AS SHOWN ON THE PLANS. IN AREAS WHERE GUARD RAIL IS LOCATED THE CONTRACTOR SHALL EXCAVATE THE TRENCH MANUALLY OR EMPLOY MECHANICAL EQUIPMENT THAT WILL NOT DISTURB OR DAMAGE THE EXISTING GUARD RAIL. GUARD RAIL THAT IS REMOVED SHALL BE REPLACED IN ACCORDANCE WITH ITEM I-15, SECTION I-15.08, GUARD RAIL REMOVED AND REBUILT.

(f) TRENCHES SHALL NOT BE EXCESSIVELY WET OR CONTAIN POOLS OF WATER DURING BACK FILLING OPERATIONS.

(g) PAYMENT FOR TRENCH SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR TRENCHING. PRICE SHALL INCLUDE EXCAVATION, BACKFILL, DISPOSAL OF SURPLUS MATERIAL, REMOVAL OF ROCK AND FOR ALL PREPARATION, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK. NO SEPARATE PAYMENT SHALL BE MADE FOR TRENCHES OF DIFFERENT WIDTHS.

10. WIRE AND CABLE

(a) CONTRACTOR SHALL INSTALL SPECIFIED WIRE AND CABLE AT THE LOCATIONS INDICATED AND IN CONFORMITY TO THE DETAILS ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING CABLE IN CONTINUOUS LENGTHS FOR HOME RUNS OR OTHER LONG RUNS WITHOUT SPLICES.

(b) CABLE INSTALLED IN CONDUIT SHALL CONFORM TO ITEM S-25, SECTION S-25.29. CABLE LUBRICANT, WHERE USED, SHALL BE SUITABLE FOR CABLE TYPE BEING INSTALLED.

(c) CABLE PLOW SHALL NOT BE PERMITTED FOR INSTALLING CABLE IN TRENCH. CABLES SHALL BE UNREELED IN PLACE ALONGSIDE OR IN THE TRENCH AND SHALL BE CAREFULLY PLACED ALONG THE BOTTOM OF THE TRENCH AFTER PHYSICAL INSPECTION. CABLE SHALL NOT BE UNREELED AND PULLED IN FROM ONE END. SHARP BENDS OR KINKS SHALL NOT BE PERMITTED.

(d) LATERAL SPACING BETWEEN CABLES IN TRENCH SHALL BE TWO INCHES. MINIMUM DISTANCE BETWEEN CABLE AND TRENCH WALL SHALL BE THREE INCHES. CABLES CROSSING OVER EACH OTHER SHALL HAVE A MINIMUM VERTICAL DISPACEMENT OF THREE INCHES WITH TOP CABLE KEPT AT 18 INCHES BELOW GRADE.

(e) THREE FEET OF SLACK CABLE SHALL BE PROVIDED IN EACH STANDARD FOUNDATION AND IN PULL BOX AT THE END OF THE DUCT WHERE A SPLICE IS PERFORMED. SLACK CABLE SHALL BE USED AT CONDUIT USED TO BRING CABLE ABOVE GRADE AT POLES OR CONTROL CENTERS.

(f) CABLE SPLICES SHALL BE PERFORMED ONLY IN PULL BOXES, BASE OF STANDARD OR EQUIPMENT-CABINETS. NO BURIED SPLICES OR SPLICES BETWEEN LIGHTING UNITS SHALL BE PERMITTED UNLESS OTHERWISE DESIGNATED ON THE PLANS. STRAIGHT SPLICES OR TEE SPLICES SHALL BE PERFORMED WITH SPECIFIED MATERIALS. WRAPPED SPLICE SHALL BE USED IN STANDARD FOR EXTENSION OF CONDUCTORS TO LUMINAIRE BALLAST.

(g) WRAPPED SPLICE SHALL EMPLOY SPECIFIED TAPES AND CONNECTORS WITH SPLICE PERFORMED IN ACCORDANCE TO MANUFACTURER'S INSTRUCTIONS BY EXPERIENCED CABLE SPLICERS REGULARLY ENGAGED IN THIS TYPE OF WORK.

(h) THE ENDS OF CABLE EXPOSED TO WEATHER, AT SERVICE CONNECTIONS AND AT CONTROL CENTERS SHALL BE TERMINATED AND FINISHED ACCORDING TO THE CABLE MANUFACTURER'S RECOMMENDATION.

(i) TWELVE (12) FEET OF SLACK IN EACH CIRCUIT CABLE IN THE FORM OF A SMALL COIL SHALL BE PLACED AT EACH STATION FOR FUTURE LIGHT POLES WHERE DESIGNATED BY THE WORD "COIL" ON THE PLANS.

A CONCRETE "LIGHT" MARKER SHALL BE ACCURATELY PLACED DIRECTLY ON TOP OF EACH CABLE COIL.

INSTALLATION - (Continued)

10. WIRE AND CABLE - (Continued)

(j) FIVE (5) FEET OF SLACK IN EACH CIRCUIT CABLE IN THE FORM OF A COIL SHALL BE PLACED IN EACH PULL BOX WHERE DESIGNATED BY THE WORD "COIL" ON THE PLANS.

(k) PAYMENT SHALL BE MADE AT CONTRACT UNIT PRICE FOR EACH TYPE OF CABLE OR WIRE INSTALLED IN TRENCH, CONDUIT, CONTROL CENTERS OR LIGHTING STANDARDS. THIS PRICE WILL BE FULL COMPENSATION FOR ALL FURNISHING, TESTING, SPLICING, AND INSTALLATION OF THE MATERIALS AND FOR ALL LABOR. EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM. NO SEPARATE MEASUREMENT SHALL BE MADE FOR CABLE INSTALLED IN DUCT, TRENCH, OR LIGHTING STANDARDS.

11. LIGHTING UNITS

(a) ROADWAY LIGHTING UNITS SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THIS SPECIFICATION AT THE LOCATIONS AND IN CONFORMITY WITH THE DIMENSIONS, DESIGNS AND DETAILS SHOWN ON THE PLANS.

(b) LIGHTING UNITS SHALL BE ARRANGED IN THE DISTRIBUTION SYSTEM AS DETAILED AND ARE DESIGNATED BY A LETTER NUMBER SEQUENCE WHICH INDICATES ITS ENERGIZING CIRCUIT AND POSITION OF THE UNIT IN THE CIRCUIT.

(c) STANDARD AND BRACKET SHALL BE AS DESIGNATED ON THE PLANS AND SPECIFIED IN THE PROPOSAL. INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF ITEM S-25, SECTION S-25.10 STANDARDS. STANDARD SHALL BE SET VERTICAL WITHIN TWO DEGREES. BRACKETS SHALL BE PERPENDICULAR TO CENTERLINE OF ROADWAY OR RAMP AT POINT OF INSTALLATION.

(d) LUMINAIRE TYPE DESIGNATED ON PLANS SHALL BE INSTALLED ON BRACKET AND BE FURNISHED WITH SPECIFIED LAMP. WIRING SHALL CONFORM TO MANUFACTURER'S INSTRUCTIONS. SPECIFIED BALLAST WITH DESIGN CHARACTERISTICS TO SUIT SYSTEM VOLTAGE SHALL BE BUILT IN THE LUMINAIRE.

(e) SEPARATE PAYMENT SHALL BE MADE FOR EACH TYPE OF LIGHTING STANDARD, LUMINAIRE AND LAMP.

(f) PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH TYPE OF LIGHTING STANDARD. LUMINAIRE AND LAMP INSTALLED IN PLACE AND ACCEPTED WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS, FOR ALL PREPARATION, ASSEMBLY AND INSTALLATION OF THESE MATERIALS AND FOR THE LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE ITEMS.

12. SERVICE POLE

(a) SERVICE POLE SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THIS SPECIFICATION, AT THE LOCATION AND IN CONFORMITY WITH THE DIMENSIONS, DESIGN AND DETAILS SHOWN ON THE PLANS.

(b) POLE SHALL BE FURNISHED AS SPECIFIED ON THE PLANS. ELECTRICAL EQUIPMENT, GROUNDING, WIRING, CABINETS AND MISCELLANEOUS EQUIPMENT SHALL BE FURNISHED AND INSTALLED ON THE POLE AS DETAILED ON THE PLANS. EQUIPMENT RATING. SIZE AND DESIGN AND WIRING SHALL BE AS SPECIFIED HEREIN AND DESIGNATED ON THE PLANS.

(c) FINAL LOCATION OF SERVICE POLE SHALL BE DETERMINED IN THE FIELD SUBJECT TO ENGINEER AND UTILITY COMPANY APPROVAL. ADJUSTMENTS SHALL BE MADE AS REQUIRED WITHOUT INCREASE IN CONTRACT PRICE.

(d) PAYMENT FOR SERVICE POLE SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR THE POLE COMPLETED AND ACCEPTED. THIS PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS, FOR ALL PREPARATION, ASSEMBLY AND INSTALLATION OF THESE MATERIALS, AND FOR ALL LABOR, EQUIPMENT AND TOOLS NECESSARY TO COMPLETE THIS ITEM.

13. GROUNDING

(a) GROUND RESISTANCE SHALL NOT BE GREATER THAN 20 OHMS. WHERE RESISTANCE IS GREATER THAN 20 OHMS, ADDITIONAL RODS SHALL BE DRIVEN FOUR TO FIVE FEET APART UNTIL 20 OHMS OR LESS IS SECURED. WHERE ROCK IS ENCOUNTERED A COUNTERPOISE SHALL BE INSTALLED USING NOT LESS THAN NO. 4 BARE COPPER. THIS SHALL BE CARRIED UNDERGROUND TO A LOCATION WHERE GOOD GROUND CONDITION IS FOUND.

(b) NO SEPARATE PAYMENT SHALL BE MADE FOR GROUNDING. GROUNDING SHALL BE CONSIDERED AS SUBSIDARY WORK AND COST SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEMS WHERE GROUNDING IS SPECIFIED OR REQUIRED.

14. CONCRETE MARKERS.

(a) CONTRACTOR SHALL FURNISH AND INSTALL CONCRETE MARKERS, WITH APPROPRIATE INFORMATION IMPRESSED ON THE TOP, FOR THE RESPECTIVE LOCATIONS AS SHOWN ON THE PLANS.

(b) EACH CABLE THAT DEVIATES FROM THE NORMAL TRENCH PARALLEL TO THE ROADWAY SHALL BE MARKED AT EACH END AND APPROXIMATELY EVERY 150 FEET OF THE CABLE RUN.

(c) EACH CHANGE IN CABLE DIRECTION SHALL BE MARKED.

(d) ENDS OF ALL CONDUITS, EXCEPT WHERE THEY TERMINATE IN A PULL BOX SHALL BE MARKED.

(e) EACH CABLE COIL FOR FUTURE LIGHTS SHALL BE MARKED.

(f) PAYMENT FOR MARKERS SHALL BE MADE AT THE CONTRACT UNIT PRICE INSTALLED AND ACCEPTED.

15. TESTING

(a) CONTRACTOR SHALL FURNISH ALL NECESSARY EQUIPMENT AND APPLIANCES FOR TESTING THE UNDERGROUND CABLE CIRCUITS AFTER INSTALLATION. THE CONTRACTOR SHALL TEST AND DEMONSTRATE TO THE SATISFACTION OF THE ENGINEER THE FOLLOWING:

1. THAT ALL LIGHTING, POWER AND CONTROL CIRCUITS ARE CONTINUOUS AND FREE FROM SHORT CIRCUITS.
2. THAT ALL CIRCUITS ARE FREE FROM UNSPECIFIED GROUNDS.
3. THAT THE RESISTANCE TO GROUND OF ALL NON-GROUNDED MULTIPLE CIRCUIT CONDUCTORS IS NOT LESS THAN 10 MEGOHMS.
4. THAT ALL CIRCUITS ARE PROPERLY CONNECTED AND OPERABLE.

(b) RESISTANCE MEASUREMENTS SHALL BE MADE WITH BALLAST CONNECTED IN THE CIRCUITS. TESTS SHALL BE MADE WITH A 500 VOLT MEGGAR IN THE PRESENCE OF THE ENGINEER. RECORD OF ALL TESTS SHALL BE FURNISHED IN TRIPLICATE TO THE ENGINEER.

(c) TESTING SHALL BE CONSIDERED A SUBSIDARY WORK ITEM PERTAINING TO CABLE AND COSTS SHALL BE INCLUDED IN UNIT PRICE BID FOR CABLE.

INSTALLATION - (Continued)

16. COMPLETION, INSPECTION AND PERFORMANCE TEST

(a) EXCLUSIVE OF EQUIPMENT FURNISHED BY THE UTILITY COMPANY, THE ROADWAY LIGHTING SYSTEM UNDER THIS CONTRACT SHALL BE COMPLETE IN EVERY DETAIL AND FREE FROM ALL SHORT OR OPEN CIRCUITS, IMPROPER CONNECTIONS, INFERIOR WORKMANSHIP, DAMAGED OR INFERIOR MATERIALS.

(b) PRIOR TO COMPLETION THE SERVICE CONNECTIONS, THE SYSTEM SHALL BE SUBJECT TO SUCH INSPECTION AS MAY BE PRESCRIBED BY THE RESPONSIBLE STATE OR LOCAL INSPECTION AUTHORITIES. ALL SYSTEM DEFICIENCIES SHALL BE CORRECTED.

(c) AFTER THE SERVICE CONNECTIONS HAVE BEEN COMPLETED, THE ENTIRE LIGHTING SYSTEM SHALL BE OPERATED FROM SUNSET TO SUNRISE EACH NIGHT FOR A PERIOD OF ONE WEEK PRIOR TO ACCEPTANCE. DURING THIS TEST OPERATION, THE CONTRACTOR SHALL, AT NO EXTRA COST TO THE STATE, CORRECT ALL DEFECTS WHICH MAY DEVELOP.

(d) THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ELECTRICAL ENERGY COSTS FOR OPERATION OF THIS LIGHTING SYSTEM DURING THIS ABOVE SPECIFIED TEST PERIOD.

(e) PERFORMANCE TESTS SHALL BE CONSIDERED AS A SUBSIDARY WORK ITEM PERTAINING TO THE LIGHTING UNIT COMPONENTS AND COSTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THESE ITEMS.

17. CABLE CODE

ALL CABLES AND WIRES SHALL BE FULLY CODED FOR FUTURE MAINTENANCE AND TESTING BY COLOR BANDING OR OTHER SUITABLE MEANS.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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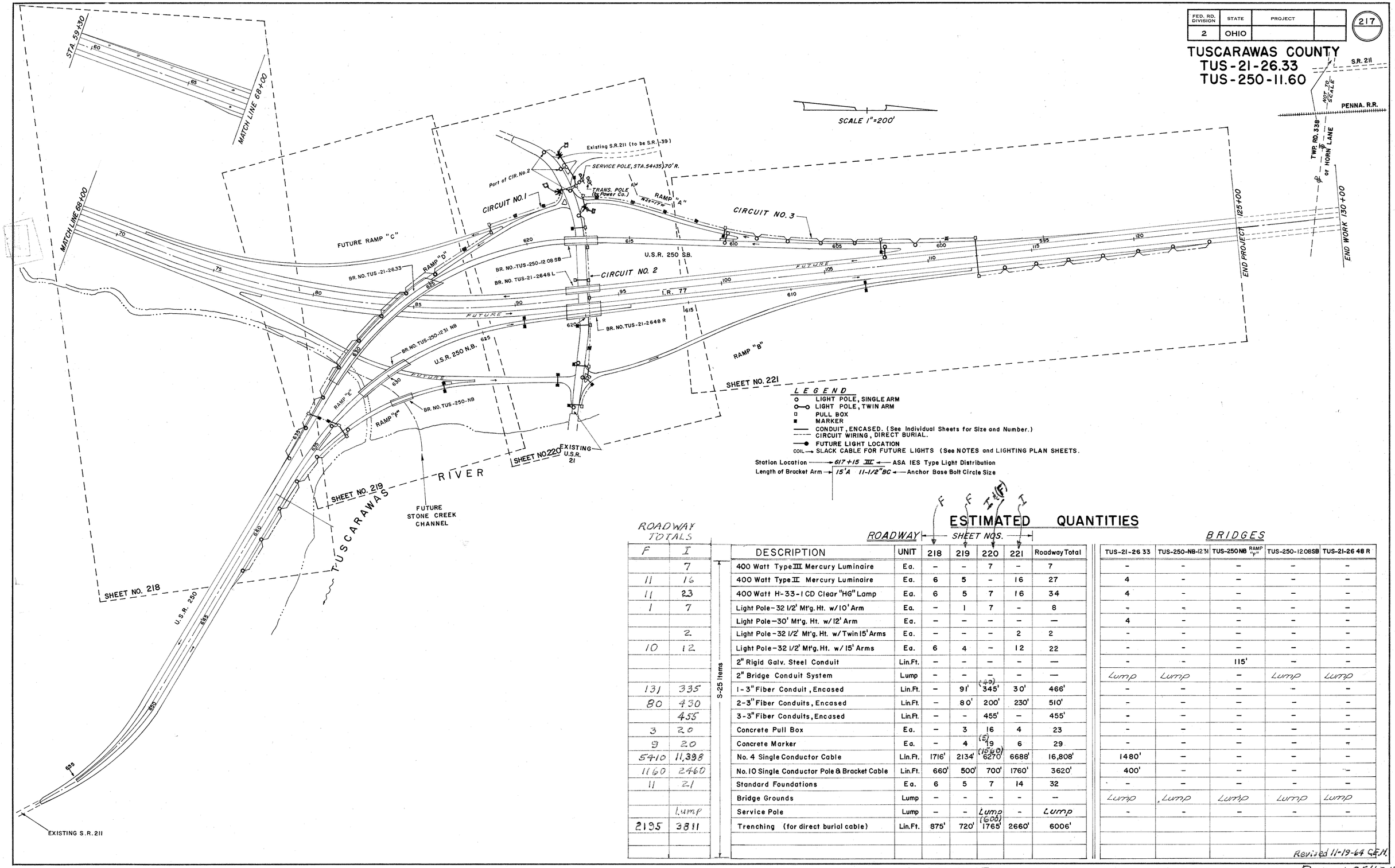
TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-11.60



LEGEND

- LIGHT POLE, SINGLE ARM
- LIGHT POLE, TWIN ARM
- PULL BOX
- MARKER
- CONDUIT, ENCASED. (See Individual Sheets for Size and Number.)
- CIRCUIT WIRING, DIRECT BURIAL.
- FUTURE LIGHT LOCATION
- COIL → SLACK CABLE FOR FUTURE LIGHTS (See NOTES and LIGHTING PLAN SHEETS.

Station Location → 617+15 III ← ASA IES Type Light Distribution
Length of Bracket Arm → 15'A 11-1/2"BC ← Anchor Base Bolt Circle Size

ESTIMATED QUANTITIES

ROADWAY TOTALS F	ROADWAY TOTALS I	DESCRIPTION	UNIT	ROADWAY SHEET NOS. 218	219	220 (F)	221 (I)	Roadway Total	BRIDGES TUS-21-26 33	TUS-250-NB-12 31	TUS-250 NB RAMP "F"	TUS-250-12 06 SB	TUS-21-26 48 R
	7	400 Watt Type III Mercury Luminaire	Ea.	–	–	7	–	7	–	–	–	–	–
11	16	400 Watt Type II Mercury Luminaire	Ea.	6	5	–	16	27	4	–	–	–	–
11	23	400 Watt H-33-1 CD Clear "HG" Lamp	Ea.	6	5	7	16	34	4	–	–	–	–
1	7	Light Pole-32 1/2' Mt'g. Ht. w/10' Arm	Ea.	–	1	7	–	8	–	–	–	–	–
		Light Pole-30' Mt'g. Ht. w/12' Arm	Ea.	–	–	–	–	—	4	–	–	–	–
	2	Light Pole-32 1/2' Mt'g. Ht. w/Twin 15' Arms	Ea.	–	–	–	2	2	–	–	–	–	–
10	12	Light Pole-32 1/2' Mt'g. Ht. w/15' Arms	Ea.	6	4	–	12	22	–	–	–	–	–
		2" Rigid Galv. Steel Conduit	Lin.Ft.	–	–	–	–	—	–	–	115'	–	–
		2" Bridge Conduit System	Lump	–	–	–	–	—	Lump	Lump	–	Lump	Lump
131	335	1-3" Fiber Conduit, Encased	Lin.Ft.	–	91'	345' (42)	30'	466'	–	–	–	–	–
80	430	2-3" Fiber Conduits, Encased	Lin.Ft.	–	80'	200'	230'	510'	–	–	–	–	–
	455	3-3" Fiber Conduits, Encased	Lin.Ft.	–	–	455'	–	455'	–	–	–	–	–
3	20	Concrete Pull Box	Ea.	–	3	16	4	23	–	–	–	–	–
9	20	Concrete Marker	Ea.	–	4	19 (5)	6	29	–	–	–	–	–
5410	11,398	No. 4 Single Conductor Cable	Lin.Ft.	1716'	2134'	6270' (1560)	6688'	16,808'	1480'	–	–	–	–
1160	2460	No. 10 Single Conductor Pole & Bracket Cable	Lin.Ft.	660'	500'	700'	1760'	3620'	400'	–	–	–	–
11	21	Standard Foundations	Ea.	6	5	7	14	32	–	–	–	–	–
	Lump	Bridge Grounds	Lump	–	–	–	–	—	Lump	Lump	Lump	Lump	Lump
	Lump	Service Pole	Lump	–	–	Lump (600)	–	Lump	–	–	–	–	–
2195	3811	Trenching (for direct burial cable)	Lin.Ft.	875'	720'	1765'	2660'	6006'					

S-25 Items

Revised 11-19-64 C.E.H.

SCHEMATIC LAYOUT — LIGHTING CIRCUITS Revised C.E.H. 7-11-6

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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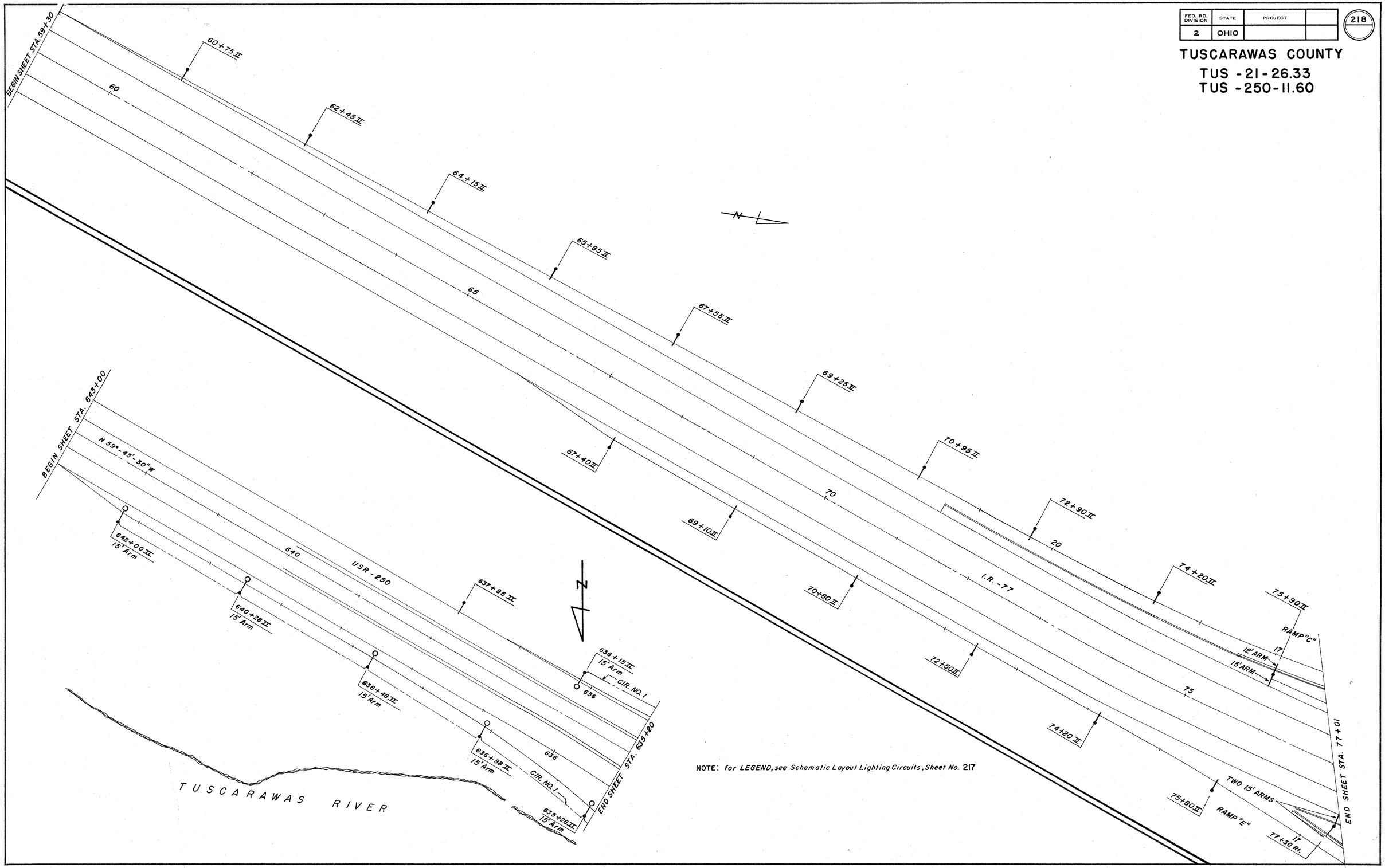
TUSCARAWAS COUNTY

TUS - 21 - 26.33

TUS - 250 - 11.60



NOTE: for LEGEND, see Schematic Layout Lighting Circuits, Sheet No. 217

PROP. INTERCHANGE (USR 21 and IR 77) USR 250 STA. 643+00 to 635+20 IR-77 STA. 59+30 to 77+01 LIGHTING PLANS

LOCATION PLAN

U.S. ROUTE-21, (I.R. 77) SEC. 26.33
U.S. ROUTE-250, SEC. 11.60
TUSCARAWAS COUNTY, OHIO

DOVER & GOSHEN TWP. T.8N., R.2W. U.S. MILITARY LANDS

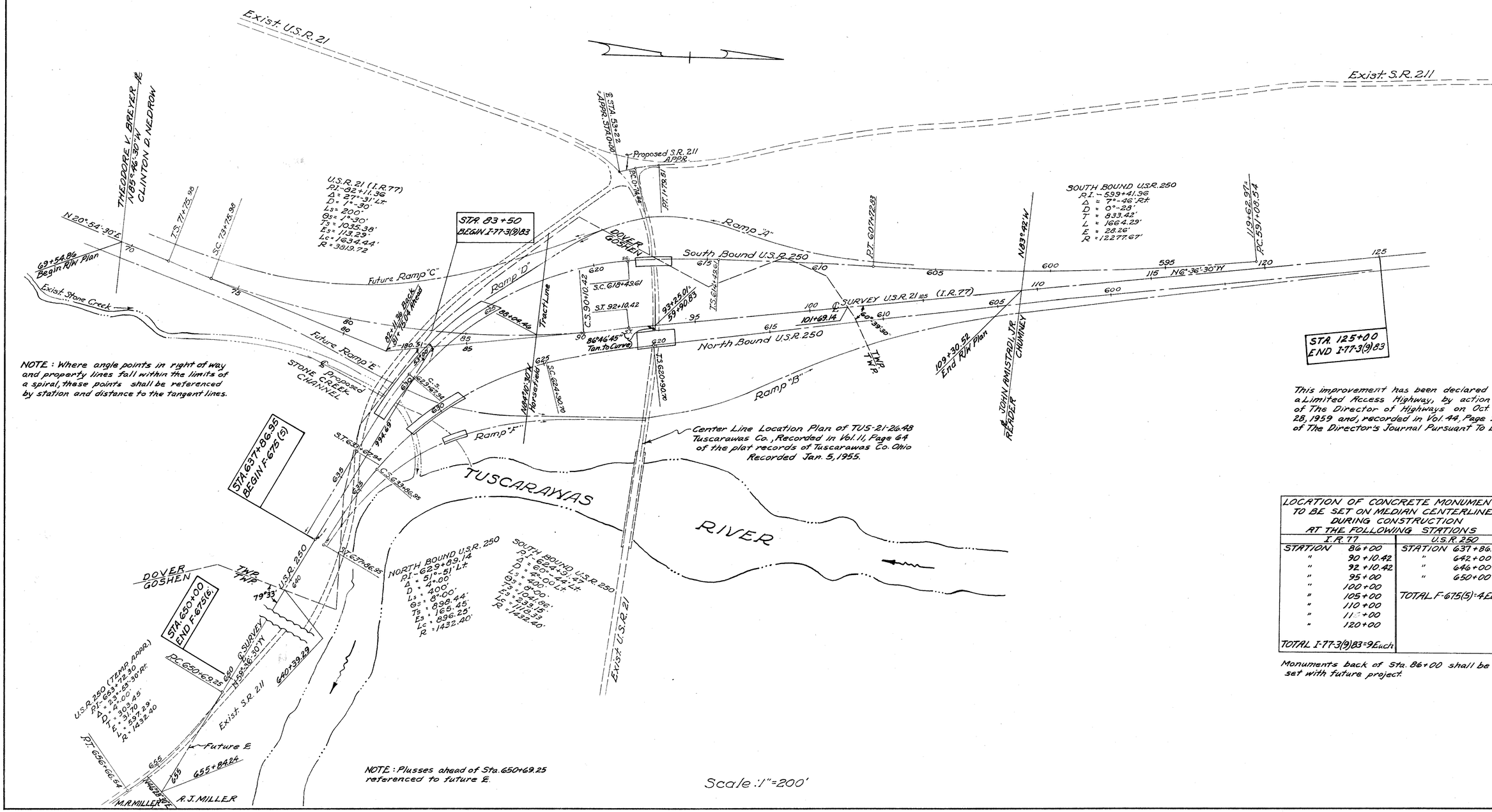
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

224 / 235

TUS-21-26.33-TUS-250-11.60

RIGHT OF WAY PLAN

2 / 13



This improvement has been declared a Limited Access Highway, by action of The Director of Highways on Oct 28, 1959 and, recorded in Vol. 44, Page 915 of The Director's Journal Pursuant To Law.

LOCATION OF CONCRETE MONUMENTS TO BE SET ON MEDIAN CENTERLINE DURING CONSTRUCTION AT THE FOLLOWING STATIONS

I.R. 77		U.S.R. 250	
STATION	86+00	STATION	637+86.95
"	90+10.42	"	642+00
"	92+10.42	"	646+00
"	95+00	"	650+00
"	100+00		
"	105+00	TOTAL F-675(5)=4 Each	
"	110+00		
"	115+00		
"	120+00		
TOTAL I-77-3(9)83=9 Each			

Monuments back of Sta. 86+00 shall be set with future project.

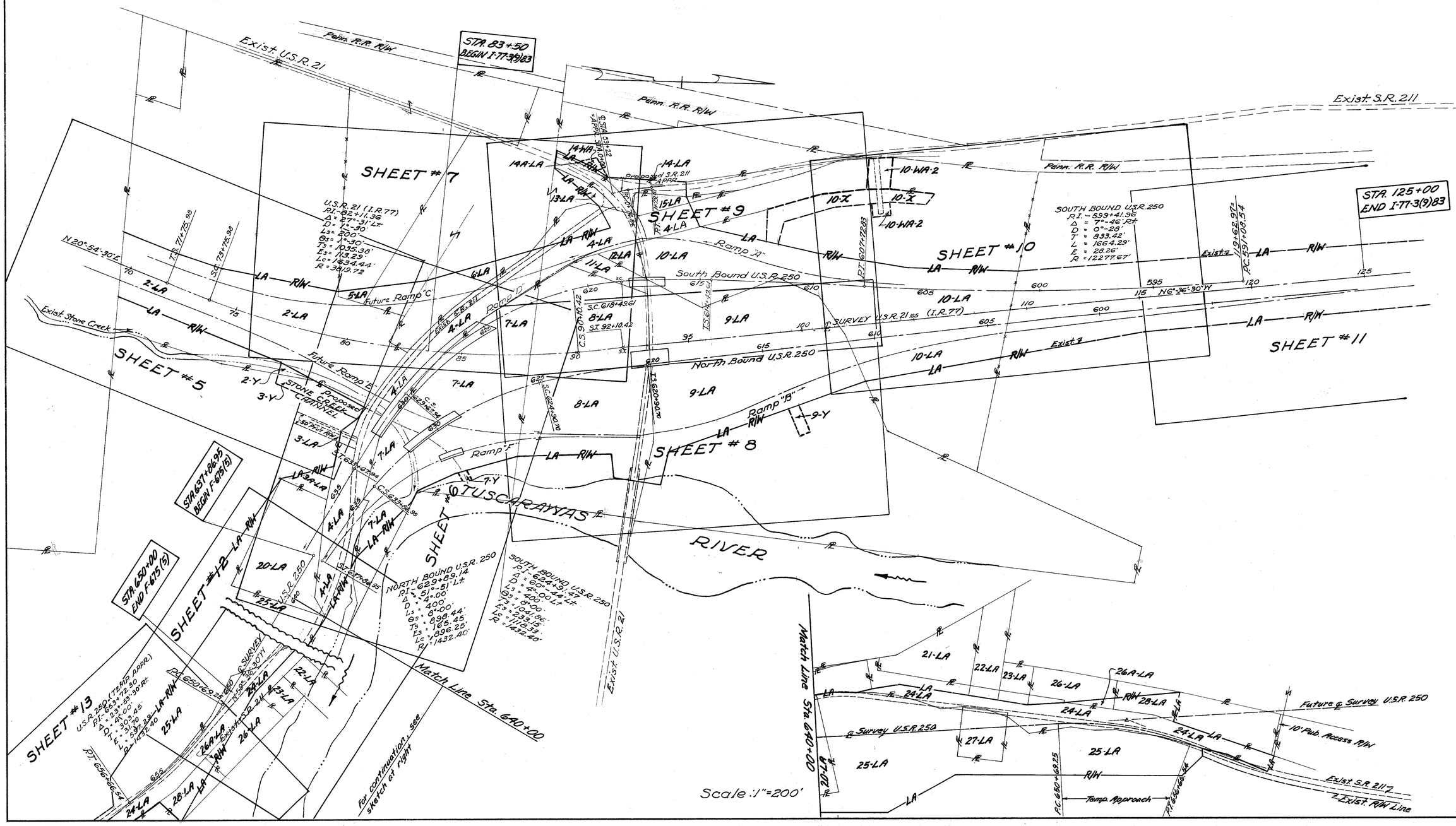
SCHEMATIC LAYOUT AND PROPERTY PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

225/235

TUS-21-26.33-TUS-250-11.60

RIGHT OF WAY PLAN 3/13



SUMMARY OF ADDITIONAL RIGHT OF WAY REQUIRED

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

226
235

TUS-21-26.33-TUS-250-11.60
RIGHT OF WAY PLAN

4
13

PARCEL Nº.	OWNER TUS-21-26.33 (I.R.-77	DEED RECORD BOOK	DEED RECORD PAGE	DEED AREA	LIMITED ACCESS TO BE ACQUIRED LAND	LIMITED ACCESS TO BE ACQUIRED BLDG'S	UNLIMITED ACCESS TO BE ACQUIRED LAND	UNLIMITED ACCESS TO BE ACQUIRED BLDG'S	RESIDUE LEFT	RESIDUE RIGHT	SHEET Nº.	REMARKS
1-LA	(NOT USED)											
2-LA	CLINTON D. NEDROW	377	322	30.32	9.57				18.25	2.0	5-6-7	0.50 in Canal
2-Y	" " "						0.11				5-6	Channel Agreement Only
3A-LA	THEODORE V. BREYER	336	519	18.16	0.39					16.68	6	1.09 in Canal
3-Y	" " "	336	522				0.63				5&6	Channel Agreement Only
3-LA	THEODORE V. BREYER ET AL.	336	524								6	LIMITED ACCESS ONLY
		336	526									
		336	529									
4-LA	STATE OF OHIO (Abandoned Ohio Canal)				7.60						6-7-9	
5-LA	R.B. COLLINS	399	384	13.18	0.16				13.02		7	
6-LA	THEODORE V. BREYER	398	296	3.95	2.21						7-9	0.98 Ac in Canal
		335	247	6.15					7.51			0.01 P.R.O
		322	95	1.58							9	0.03 P.R.O
13-LA	THEODORE V. BREYER				0.15						9	0.89 Ac in Canal
7-LA	HECTOR H. & ROSE E. LANG	339	352	12.50	9.41					1.93	6-7-8-9	1.16 Ac. in Canal
7-Y	" " " " "						0.29				6	
8-LA	ROBERT C. & RACHEL SHONTZ	241	321	13.24	8.31					3.33	8-9	1.60 P.R.O
9-LA	AVERIL K. McILVAINE	377	95	38.32	11.73					26.59	8-9-10	
9-Y	" " "						0.15				8	Channel Agreement Only
10-LA	JOHN AMISTADI, JR.	302	463	24.70	12.41				7.72	4.57	9-10	
10-X	" " "						1.16				10	Channel Agreement Only
10-WA-1	" " "						0.11				10	Work Agreement Only
10-WA-2	" " "						0.318				10	
11-LA	NORMAN WINKLER	258	101	0.40	0.35				0	0	9	0.05 P.R.O.
12-LA	ROBERT C. SHONTZ & HELEN J. UHRICH	241	321	0.30	0.26				0	0	9	.04 P.R.O.
14A-LA	CROSS CREEK COAL CO.	393	18	5.20	0.06				5.14			
14-WA	CROSS CREEK COAL CO.						0.08				9	Work Agreement Only
14-LA	" " "										9	LIMITED ACCESS ONLY
15-LA	CHARLES O. & MARGARET C. PAULUS	225	386	0.695	0.31	Yes			0.08		9	0.27 in Canal 0.04 P.R.O.
	~ TUS-250-11.60 (U.S.R. 250) ~											
20-LA	GEORGE S. MATHIAS	308	331	5.12	3.57				0	0	6-12	1.53 Ac in Canal .02 P.R.O.
21-LA	OLLIE J. & NETTIE J. MALTERER	306	140	2.45							12	LIMITED ACCESS ONLY
22-LA	GLENN & LOVERA MALTERER	346	221	1.34							12	LIMITED ACCESS ONLY
23-LA	LAWRENCE E. & HALLIE M. EVERETT	296	398	0.50							12	LIMITED ACCESS ONLY
24-LA	STATE OF OHIO (Abandoned Ohio Canal)				3.26						12-13	
25-LA	THEODORE V. BREYER	361	31	66.85	9.92					53.24	6-12-13	1.91 Ac. in Canal 0.78 P.R.O.
26A-LA	JACK E. & GLORIA J. EVERETT	333	272	1.00	0.10				0.97		12-13	0.43 Ac in Canal
26-LA	" " " " "	312	280	0.50							12	LIMITED ACCESS ONLY
27-LA	THEODORE V. BREYER Et Al	406	54	1.00	0.86				0	0	12	P.R.O. = 0.14
28-LA	ALBERT J. MILLER	322 402	231 692	1.25	0.51	Yes			0.30		13	0.44 in Canal

PLAN COMPLETED	6-1-62
Revision ~ Parcel 1-LA, not used; Added 3-LA as ET AL.	6-7-62
" ~ Parcel 13-WL & 6-WL Canal Ac. divided	7-9-62
" ~ Parcel 5-WL Changed ownership	7-17-62
Changed WL to LA	8-23-62

DOVER TWP. T.8 N. R.2 W.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

227 / 235

TUS-21-26.33
TUS-250-11.60
RIGHT OF WAY PLAN

5 / 13

Curve Data U.S.R. 21 (I.R.77)
P.I. - 82+11.36
Δ = 27°-31' Lt
D = 1°-30'
Ls = 200'
θs = 1°-30'
Ts = 1035.38'
Es = 113.29'
Lc = 1634.44'
R = 3819.72'

Clinton D. Nedrow

69+12.90
140' Lt.
N 20°-54'-30"E
263.08'
LA
ST. 71+07.49
T.S. 71+75.98
140 Lt.
N17°-29'-38"E
196.40'
S.C. 73+75.98
150' Lt.
C.S. 78+07.49
R/W Line ℄
LA
N 9°-49'-12"E
515.56
Proposed Slope Limits ℄
Proposed Survey ℄ Ramp "C"
2-LA
20
15
STA. 79+00 (See Sheet #17)
END SHEET
261.86'
69+54.86
70
N 20°-54'-30"E
75
Proposed Survey ℄ U.S.R. 21 (I.R.77)
STA. 69+54.86
BEGIN RIGHT OF WAY
For I-77-3(9)83
2-LA
25
20
Proposed Survey ℄ Ramp "E"
15
Proposed Slope Limits ℄
776.25'
N 20°-54'-30"E
R/W Line ℄
LA
412.57'
N 27°-29'-30"E
P.T. 19+15.43
69+32.82
130'
N 85°-46'-30"E
77+50.29
161.20 Rt.
2 Y
Clinton D. Nedrow
STONE CREEK
3 Y
Theodore Breyer
75+12.53
248.22 Rt.
77+50.29
218.39' Rt.
77+50.29
260' Rt.
Theodore V. Breyer
25'
25'
℄ 50' PVt R/W
Warren & Katheryn Welz

PLAN COMPLETED	6-1-62
Revisions - Added R/W to LA Line	7-13-62
" - Added bearings & distances to R & R/W Lines	8-10-62
Changed WL to LA	8-23-62

U.S.R. 21 (I.R. 77) R/W PLAN STA. 69+54.86 to STA. 79+00

DOVER & GOSHEN TWP. T.8N. R.2W.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

228 / 235

TUS-21-26.33
TUS-250-11.60
RIGHT OF WAY PLAN

G / 13

END SHEET STA. 88+00 (See Sheet #8)

Robert C. & Rachel Shontz

S 84°-10'-30" E 772.78'

℄ Survey North Bound U.S.R. 250

℄ Survey Ramp "F"

Proposed ℄ Survey Ramp "E"

P.C. 5+94.04

8-LA

S.C. 5+

Int. Post 4.25' Rt.

Type "D" Fence

Cor. Post 4.25' Rt.

12" ℄ Proposed Stone Channel 13

Ramp "F" 8+22.98 ℄ Channel 11+69.37

Theodore V. Breyer ETAL.
Parcel No. — Area
3-LA - Limited Access Only
from Sta. 630+80 to Sta. 633+83
on Rt. (South Bound U.S.R. 250)

Theodore V. Breyer
Parcel No. — Area
3A-LA — 0.39 Ac
3-Y — 0.63 Ac
Residue Rt. of ℄ 16.68 Ac

Hector H. & Rose E. Lang
Parcel No. — Area
7-LA — 9.41 Ac
7-Y — 0.29 Ac
Residue Rt. of ℄ 1.93 Ac

Hector H. & Rose E. Lang

7-LA

℄ Survey U.S.R. 21 (I.R. 77) (See Sheet # 7)

Found Top of Line U.S.R. 21 (I.R. 77)

Curve Data U.S.R. 21 (I.R. 77)
P.I. 82+11.36
Δ = 27°-31' Lt.
D = 1°-30'
Ls = 200'
θs = 1°-30'
Ts = 1035.38'
Es = 113.29'
Lc = 1634.44'
R = 3819.72'

MATCH LINE

4-LA

GOSHEN / DOVER TWP.

P.T. 11+54.17

Clinton D. Nedrow

2-LA

3-Y

STATE OF OHIO (Abandoned Ohio Canal)
Parcel No. — Area
4-LA — 7.60 Ac.

STATE OF OHIO (Abandoned Ohio Canal)

Tuscarawas River

Zeno Guy Hank

Stone Creek

℄ Drive 30' R/W

3 LA

3A-LA

Theodore V. Breyer (ET AL.)

7-LA

Hector H. & Rose E. Lang

R/W Line 7

Prop. Slope Limits

George S. Mathias

20-LA

Exist. S.R. 211 (To be Abandoned)

Type "D" Fence

Lohio Canal Mon. Line

U.S.R. 250 Median ℄ Produced to Intersect Fnd. Tangent of I.R. 77

℄ Survey South Bound U.S.R. 250

End Sheet STA. 638+00 (See Sheet #12)

BEGIN SHEET STA. 79+00 (See Sheet # 5)

PLAN COMPLETED	6-1-62
Revision - Added Parcel 3-LA	6-7-62
Added R/W to LA Line & showed edges of pavement with pavement area shaded.	7-13-62
Bearings & distances added to all ℄ & R/W Lines	8-10-62
Changed WL to LA	8-23-62

U.S.R. 21 (I.R. 77) R/W PLAN STA. 79+00 to STA. 88+00 Rt.

DOVER & GOSHEN TWP. T.8N. R.2W.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

229/235

TUS-21-26.33
TUS-250-11.60
RIGHT OF WAY PLAN

7/13

R. B. Collins

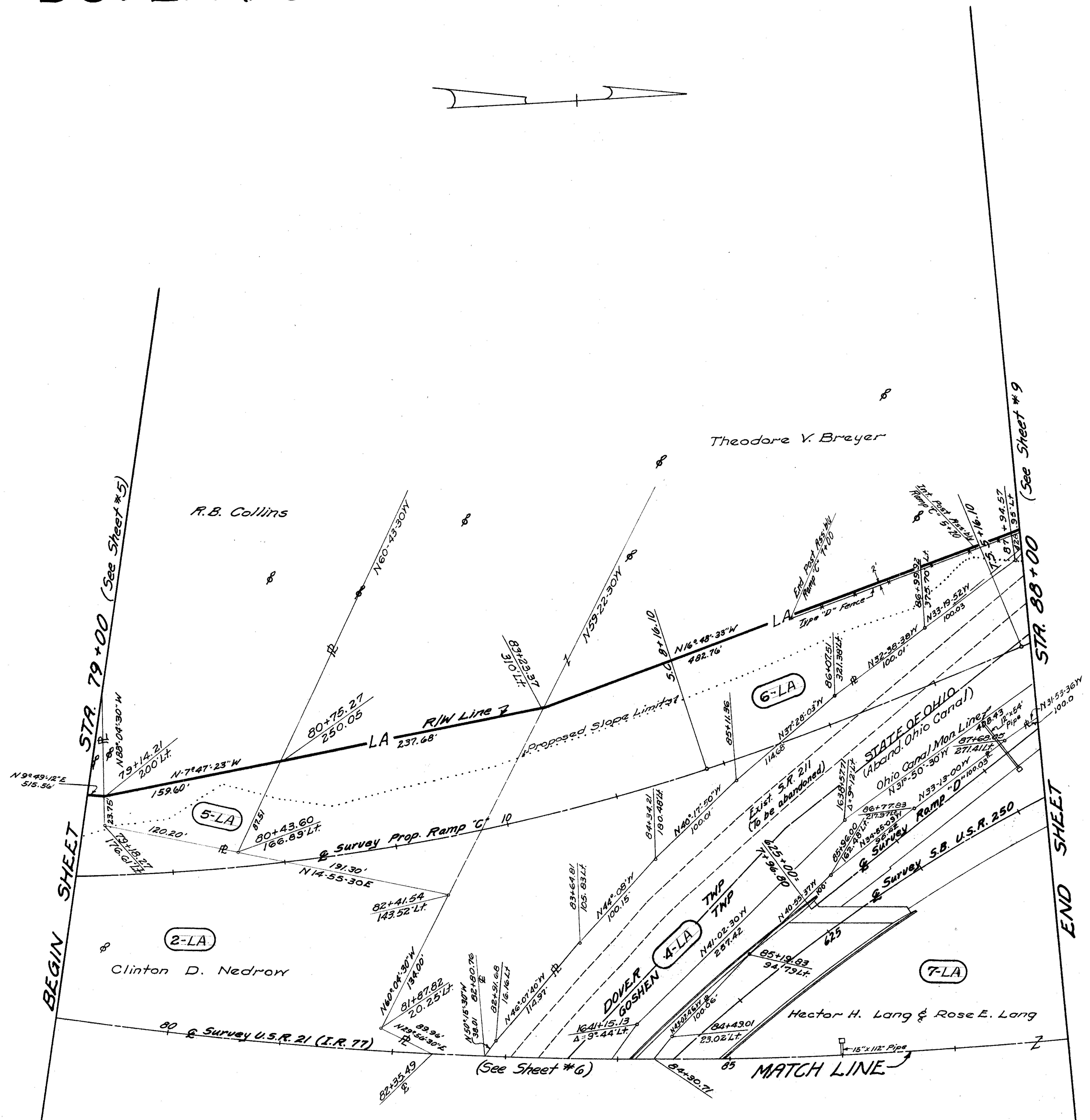
Parcel No.	Area
5-LA	0.16 Ac.
Residue Lt. of ℄	13.02 Ac.

Theodore V. Breyer

Parcel No.	Area
6-LA	2.21 Ac.

Clinton D. Nedrow

Parcel No.	Area
2-LA	9.57 Ac.
2-Y	0.11 Ac.
Residue Rt. of ℄	2.00 Ac.
Residue Lt. of ℄	18.25 Ac.



PLAN COMPLETED	6-1-62
Revisions - Added R/W to LA Line & showed edges of pavement with pavement area shaded.	7-13-62
Revision ~ Parcel 5-WL changed ownership	7-17-62
" - Added bearings & distances to ℄ & R/W Lines	8-10-62
Changed WL to LA	8-23-62

U.S.R. 21 (I.R. 77) R/W PLAN STA. 79+00 to STA. 88+00 Lt.

DOVER & GOSHEN TWP. T.8N. R.2W.

Curve Data U.S.R. 21 (I.R. 77)
P.I.- 62+11.36
Δ = 27°-31' Lt.
D = 1°-30'
Ls = 200'
Gs = 1°-30'
Ts = 1035.38'
Es = 119.29'
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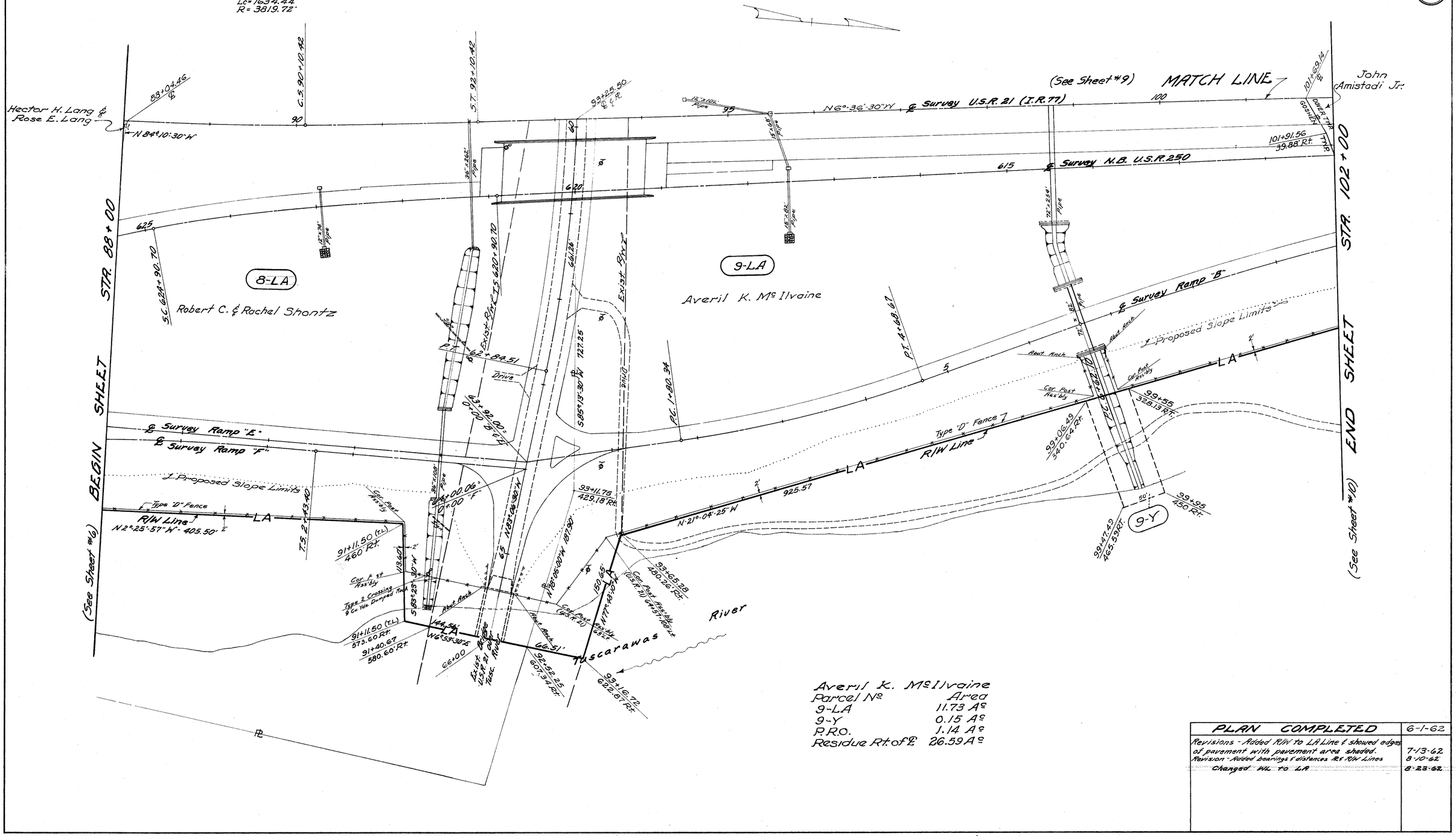
R = 3819.72'

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

230
235

TUS-21-26.33
TUS-250-11.60
RIGHT OF WAY PLAN

8
13



Averil K. McIlvaine

Parcel No.	Area
9-LA	11.73 Ac.
9-Y	0.15 Ac.
R.R.O.	1.14 Ac.
Residue Rt. of ℄	26.59 Ac.

PLAN COMPLETED	6-1-62
Revisions - Added R/W to LA Line & showed edges of pavement with pavement area shaded.	7-13-62
Revision - Added bearings & distances Rt. & R/W Lines	8-10-62
Changed WL to LA	8-23-62

U.S.R. 21 (I.R. 77) R/W PLAN STA. 88+00 to STA. 102+00 Rt.

DOVER & GOSHEN TWP. T.8 N. R.2 W

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

231
235

TUS-21-26.33
TUS-250-11.60
RIGHT OF WAY PLAN

9
13

STA. 88+00 (See Sheet #7)

BEGIN SHEET

END SHEET STA. 102+00 (See Sheet #10)

Charles O. & Margaret C. Paulus

Parcel No.	Area
15-LA	0.31 Ac.
P.R.O.	0.04 Ac.
Residue Lt of ℄	0.08 Ac.

Cross Creek Coal Co.

Parcel No.	AREA
14A-LA	0.06 Ac.
14-WA	.0.08 Ac.

14-LA Limited Access only from Sta. 92+16.56 to Sta. 95+55.41 R/W Line

Theodore V. Breyer

Cross Creek Coal Co. Office

Bldg.

Coal Tipple

Water Tower

Well

Exist. R/W ℄

Exist. U.S. 21

Exist. S.R. 211

℄ S.R. 211 Rpp.

Charles O. & Margaret C. Paulus

Horseshoe Court

STATE OF OHIO (Abandoned Ohio Canal)

Ohio Canal Mon. Line

Exist. R/W Line ℄ Exist. S.R. 211 to be abandoned

R/W Line ℄ Exist. S.R. 211 to be abandoned

STATE OF OHIO (Aban. Ohio Canal)

DOVER TWP. GOSHEN TWP

Prop. ℄ Survey Ramp "C"

Cross Creek Coal Co.

Robert C. Shontz & Helen J. Uhrich

Norman Winkler

Robert C. & Rachel Shontz

Hector H. & Rose E. Long

Dover Goshen Drive

Averil K. McIlvoine

John Amistadi Jr.

Dover Goshen Township

℄ Survey S.R. 211

℄ Survey Ramp "A"

℄ Survey S.R. 250

℄ Survey U.S.R. 21 (I.R. 77)

Proposed Slope Limits

Type "D" Fence

Exist. R/W

Exist. Ubbs

Exist. Pipe

Stone Wall

Concrete Wall

Slope Limits

Ohio Canal

Ditch

Frame Bldg.

Brick Bldg.

Concrete Bldg.

Stone Bldg.

Tank

Gate Post

End Post

Ditch Inlet

Catch Basin

Manhole

Culvert

Pipe

Box

Tile

Stone

Concrete

Wood

Iron

Robert C. & Rachel Shontz

Parcel No.	Area
8-LA	8.31 Ac.
P.R.O.	1.60 Ac.
Residue Lt of ℄	3.33 Ac.

Robert C. Shontz & Helen J. Uhrich

Parcel No.	Area
12-LA	0.26 Ac.
P.R.O.	0.04 Ac.
Residue	0.0 Ac.

Norman Winkler

Parcel No.	Area
11-LA	0.35 Ac.
P.R.O.	0.05 Ac.
Residue	0.00 Ac.

Theodore V. Breyer

Parcel No.	Area
13-LA	0.15 Ac.
P.R.O.	0.03 Ac.
Residue Lt of ℄	7.51 Ac. (See Parcel 6-LA)

MATCH LINE (See Sheet #8)

PLAN COMPLETED	6-1-62
Parcel 13-WL Revised	7-9-62
Added R/W to LH Line & shown edges of pavement with pavement area shaded	7-13-62
Bearings & distances added to all R/W Lines	8-10-62
Changed WL to LA	8-23-62

U.S.R. 21 (I.R. 77) R/W PLAN STA. 88+00 to STA. 102+00 Lt.

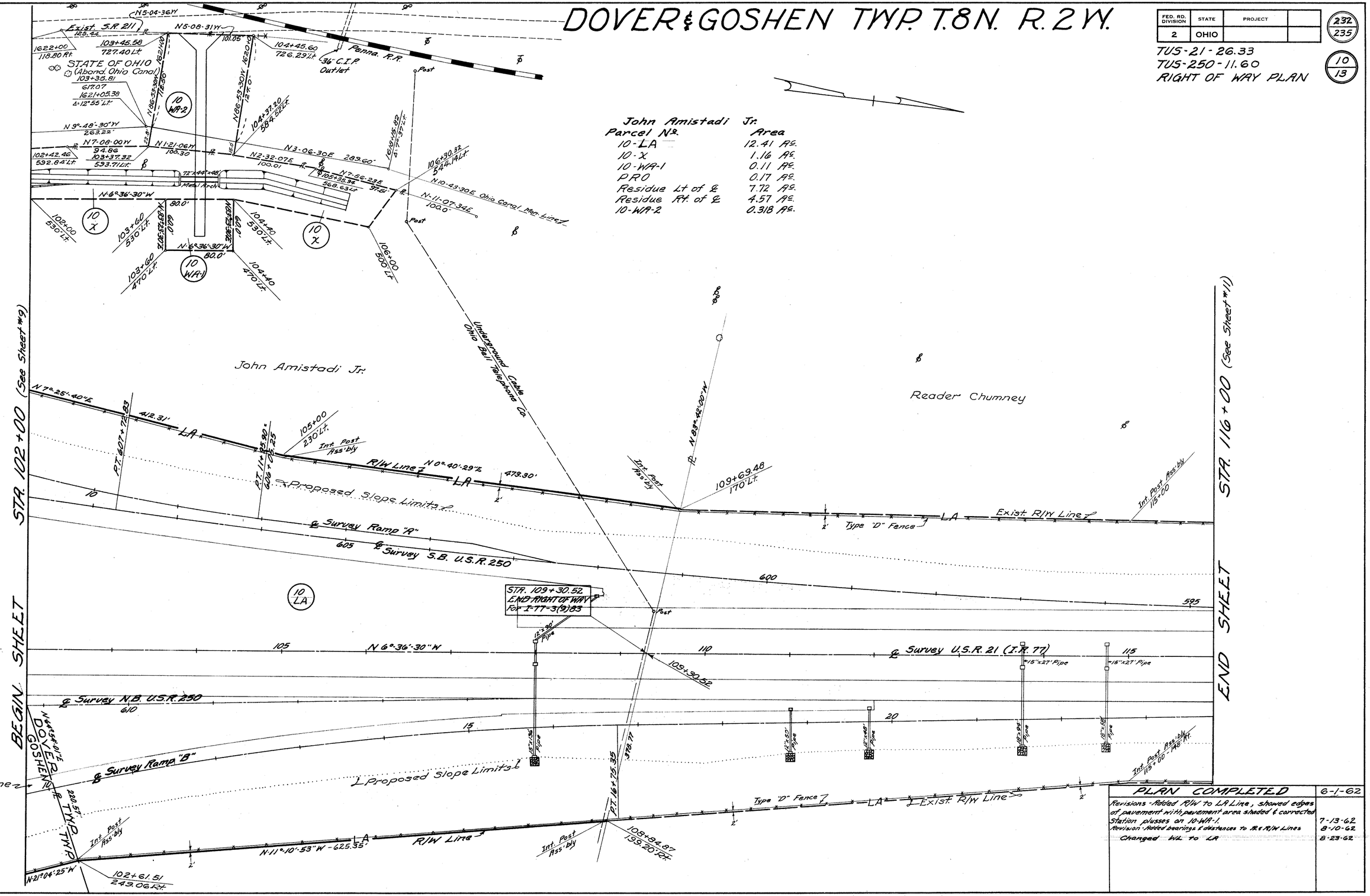
DOVER & GOSHEN TWP. T.8N. R.2W.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

232 / 235

TUS-21-26.33
TUS-250-11.60
RIGHT OF WAY PLAN

10 / 13



John Amistadi Jr. Parcel No.	Area
10-LA	12.41 Ac.
10-X	1.16 Ac.
10-WA-1	0.11 Ac.
PRO	0.17 Ac.
Residue Lt of ℄	7.72 Ac.
Residue Rt. of ℄	4.57 Ac.
10-WA-2	0.318 Ac.

PLAN COMPLETED	6-1-62
Revisions - Added R/W to LA Line, showed edges of pavement with pavement area shaded & corrected	
Station plusses on 10-WA-1.	7-13-62
Revision - Added bearings & distances to RE & R/W Lines	8-10-62
Changed WL to LA	8-23-62

U.S.R. 21 (I.R. 77) R/W PLAN STA. 102+00 to STA. 116+00

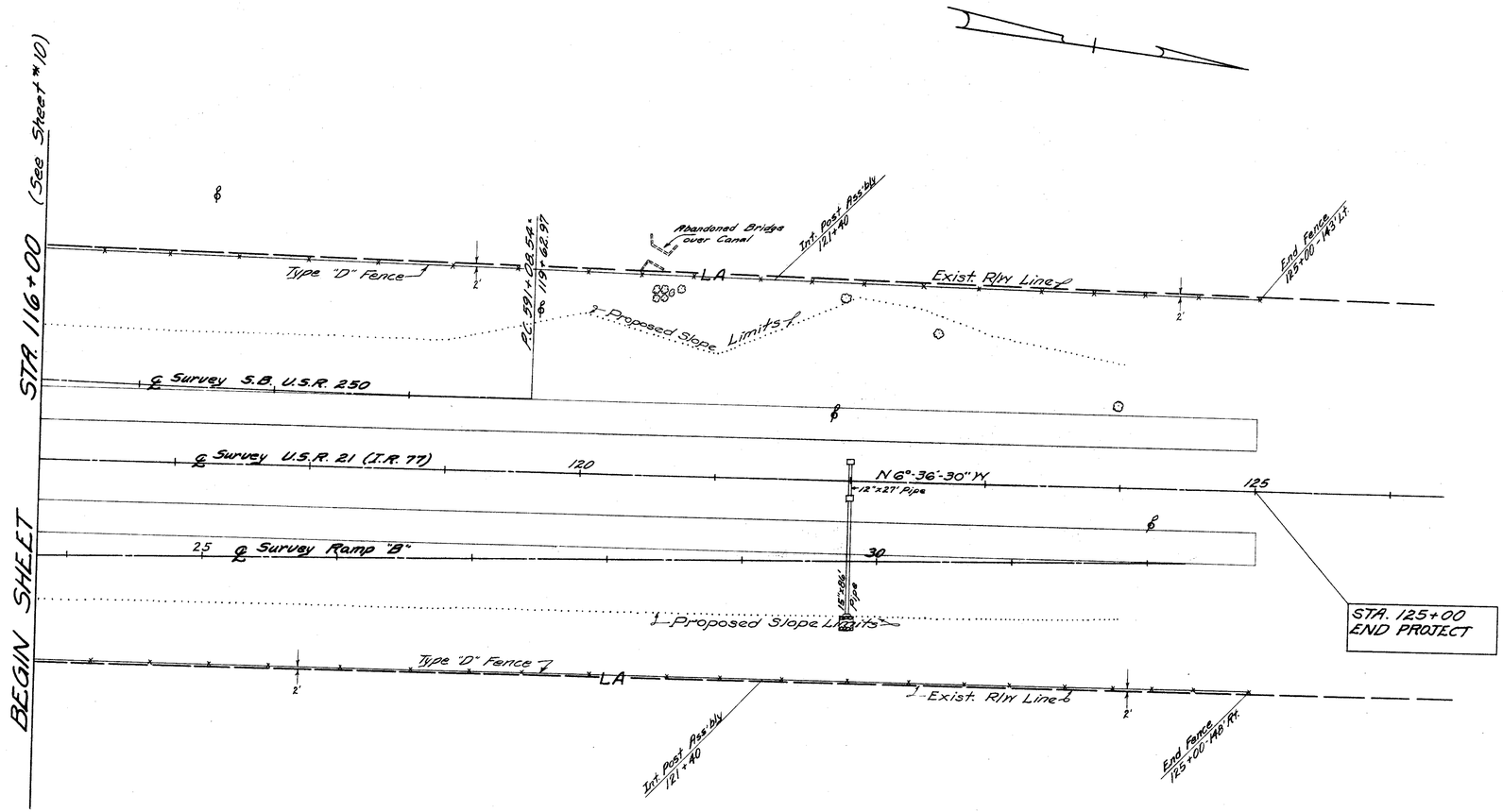
DOVER TWP. T.8N. R.2W.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

233 / 235

TUS-21-26.33
TUS-250-11.60
RIGHT OF WAY PLAN

11 / 13



PLAN COMPLETED	6-1-62
Revisions ~ Showed edges of pavement with pavement area shaded	7-13-62

USR 21 (TR 77) R/W PLAN — STA. 116+00 to STA. 125+00

DOVER & GOSHEN TWP. T.8N. R.2W.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

234
235

12
13

TUS-21-26.33
TUS-250-11.60
RIGHT OF WAY PLAN

George S. Mathias

Parcel No.	Area
20-LA	3.57 Ac
P.R.O.	0.02 Ac
Residue Lt. & Rt. ℄	0.00 Ac

Glenn & LoVera Malterer
22-LA - Limited Access Only
from Sta. 646+85.16 To Sta. 648+12.35

Jack E. & Gloria J. Everett

Parcel No.	Area
26A-LA	0.10 Ac
Residue Lt. of ℄	0.97 Ac

26-LA - Limited Access Only
from Sta. 649+37.56 to Sta. 651+02.47

NOTE: Sta's & offsets are calculated from future ℄ of U.S.R. 250 from Sta. 650+00 to Sta. 661+00

Ollie J. & Nettie J. Malterer
21-LA - Limited Access Only
from Sta. 642+55.02 To Sta. 646+85.16

Tuscarawas River

Hector H. & Rose E. Lang

Ollie J. & Nettie J. Malterer

20ft. Width Easement for Access Road
Lawrence E. & Hallie M. Everett
Jack E. & Gloria J. Everett

Glen & LoVera Malterer

Lawrence E. & Hallie M. Everett

STATE OF OHIO
(Abon. Ohio Canal)
Type 2 Crossing
9 Cu. Yds. Dumped Rock

Exist. S.R. 211 (To be abandoned)

Exist. R/W Line

Type "D" Fence

Exist. 15" U.S.P.

Prop. Slope Limits

Future Slope Limits

Survey Ramp "F"

Survey U.S.R. 250

Theodore V. Breyer et al
Land Contract to
Paul E. & Madge J. Maurer
1.00 Ac.

Theodore V. Breyer

George S. Mathias
20-LA

Theodore V. Breyer
25-LA

27-LA

22 LA

23 LA

24-LA

26 LA

26A-LA

4-LA

BEGIN SHEET

END SHEET

MATCH LINE

STA. 638+00 (See Sheet #6)

STA. 652+00 (See Sheet #13)

GOSHEN DOVER

TWP. LINE

R/W Line 7

Anchor Pole

Shed

Well

Conc. Fish Pond

Brick & Oven

Propane Gas Tank

Canal St. Alg. 1666+30 21.3 Lft.

Theodore V. Breyer
Parcel No. | Area
25-LA | 9.92 Ac
P.R.O. | 0.78 Ac
Residue Rt. of ℄ | 53.24 Ac

Theodore V. Breyer et al
Parcel No. | Area
27-LA | 0.86 Ac
P.R.O. | 0.14 Ac

Lawrence E & Hallie M. Everett
23-LA - Limited Access Only
from Sta 648+12.35 to Sta 649+37.56

PLAN COMPLETED	6-1-62
Revisions - Added R/W to LA Line, showed edges of pavement with pavement area shaded & added 20' easement on parcels 22-LA, 23-LA, 26-LA & 28-WL, said easement recorded in Vol 415, p. 331 on June 26, 1962	7-13-62
Revision - Added plusses to 27-WL	7-13-62
Bearings & distances added to all R & R/W Lines	8-10-62
Changed WL to LA	8-23-62

U.S.R. 250 R/W PLAN STA. 638+00 to STA. 652+00

GOSHEN TWP. T.8N. R.2W.

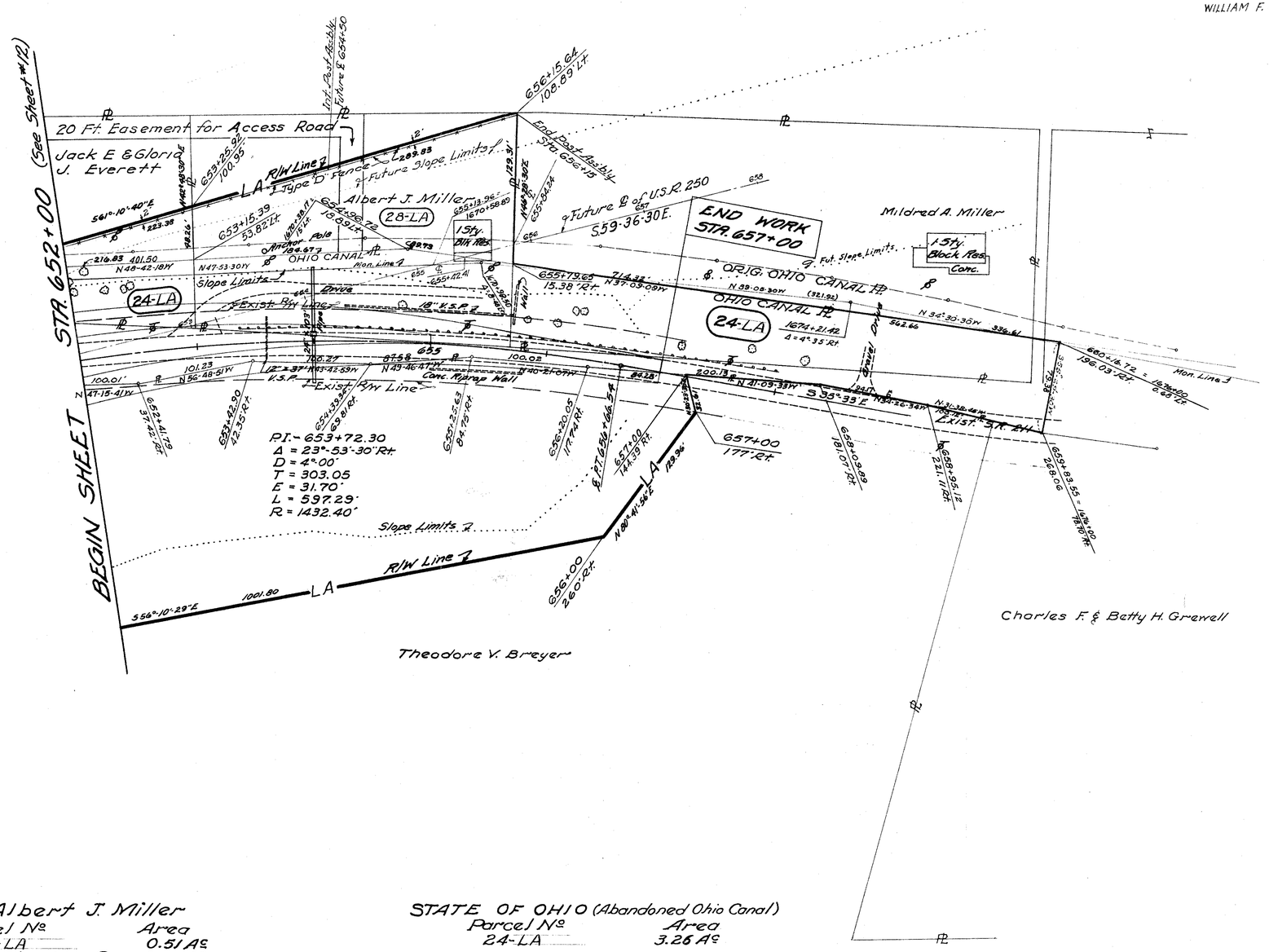
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

235
235

13
13

TUS-21-26.33
TUS-250-11.60
RIGHT OF WAY PLAN

Note: Sta's. and offsets are calculated from future ℄ of U.S. 250 from Sta. 650+00 to Sta. 661+00



PLAN COMPLETED	6-1-62
Revisions - Added R/W to LA Line, showed edges of pavement with pavement area shaded & added 20' easement on parcels 22-LA, 23-LA, 26-LA & 28-WL, said easement recorded in Vol. 415, p. 331 on June 26, 1962.	7-13-62
Bearings & distances added to all ℄ & R/W Lines	8-10-62
Changed WL to LA	8-23-62

Albert J. Miller

Parcel No.	Area
28-LA	0.51 Ac
Residue Lt. of ℄	0.30 Ac

STATE OF OHIO (Abandoned Ohio Canal)

Parcel No.	Area
24-LA	3.26 Ac

U.S.R. 250 R/W PLAN STA. 652+00 to STA. 657+00

TE.54-A
200-4-60

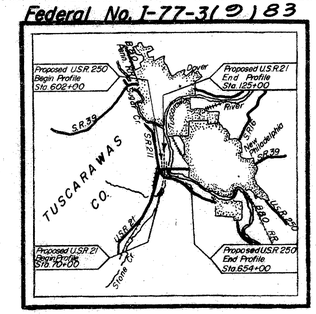
Revised 3/8/62

SOIL PROFILE
TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-12.50
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

1/17

NOTE: INFORMATION SHOWN BY THIS SUBGRADE PROFILE WAS OBTAINED SOLELY FOR USE IN ESTABLISHING DESIGN CONTROLS FOR THE PROJECT. THE STATE OF OHIO DOES NOT GUARANTEE THE ACCURACY OF THIS DATA AND IT IS NOT TO BE CONSTRUED AS A PART OF THE PLANS GOVERNING CONSTRUCTION OF THE PROJECT.

Federal No. I-77-3(9)183



LOCATION MAP

Recon. J.T.B. & F.L.R. 10-26-61
Drilling Auger-J.A.G., T.R.S. 11-7-61 to 11-15-61
B.D.L. 12-14-61
Core-J.M.M., J.R.V. 11-9-61 to 11-29-61
Drafting C.L.I., D.H.A. 1-8-62

Supplement

Recon-F.L.R.-1/24/62
Drilling-K.D.E.-2/20/62 to 2/22/62
Drafting-W.E.J.-3/8/62

GENERAL INFORMATION

INTRODUCTION

The project consists of a proposed interchange involving relocated USR 21 and USR 250, to be located west of New Philadelphia, in the vicinity of the existing USR 21-SR 211 intersection. This portion of Relocated USR 21 begins approximately 0.5 mile south of the USR 21-SR 211 intersection, and extends northward one mile. The portion of Relocated USR 250 commences 1300 feet north of the intersection and extends one mile southward and southeastward, crossing Stone Creek, terminating along existing SR 211.

The proposed grades indicate:

USR 21

Fill embankment, ranging from 3 feet to 32 feet in height.

USR 250

Northbound Lanes (Station 606+00 to 637+00) - cut, maximum 17 feet in depth; fill embankment, maximum 34 feet in height.

Southbound Lanes (Station 602+00 to 637+00) - cut, maximum 50 feet in depth at centerline, maximum 70 feet at right ditchline; fill embankment, maximum 40 feet in height.

Survey Centerline (Station 637+00 to 657+00) - cut, maximum 50 feet in depth at centerline, maximum 95 feet at right ditchline; fill embankment, maximum 15 feet in height.

Ramp "A" - fill embankment, maximum 20 feet in height.

Ramp "B" - fill embankment, maximum 10 feet in height.

Ramp "C" - fill embankment, maximum 27 feet in height.

Ramp "D" - fill embankment, maximum 36 feet in height.

Ramp "E" - fill embankment, maximum 30 feet in height.

Ramp "F" - fill embankment, maximum 13 feet in height.

GEOLOGY OF THE PROJECT

The project is situated within an unglaciated portion of the Allegheny Plateau, where local bedrock consists predominantly of shales and sandstone, of Pennsylvanian age.

USR 21

The alignment is situated on the broad flood plain of the Tuscarawas River, overlying a buried valley, where alluvium attains a thickness of as much as 70 feet or more.

USR 250

The alignment commences on the broad flood plain of the deeply-filled valley of the Tuscarawas River, crosses Stone Creek, and then traverses the base of the west valley wall of the Tuscarawas River. Alluvium ranges from 13 to at least 70 feet in thickness; residual soil cover ranges from 0 to at least 20 feet thick.

EXPLORATION

Exploratory roadway profile borings were made by means of truck mounted mechanical earth auger, hand auger and peat sampler (in areas of difficult access), and rotary type drill rig, between November 7 and 29, and on December 14, 1961, and supplemented by borings made in conjunction with the various proposed USR 21 and USR 250 grade separation structures. Supplemental roadway profile borings were made between February 20 and 22, 1962.

INVESTIGATIONAL DISCLOSURES

USR 21

In the embankment foundation, soils consist predominantly of sandy silt, silt clay, and elastic clay, in the A-4a, A-6a, and A-7-5 classifications. Wet, compressible soils, predominantly sandy silts and elastic clays, containing various amounts of organic materials, ranging in thickness from 1.5 to at least 10 feet, were encountered between stations 71+00 and 94+00, extending to at least 160 feet right and left of centerline, occurring generally within 11 feet of ground surface.

USR 250

Northbound Lanes - it is anticipated bedrock will be encountered in the excavations at the following locations:

Stations 636+00 to 636+50 - sandstone at right shoulder.

Stations 636+50 to 637+00 - sandstone at grade (right lane).

Stations 637+00 to 637+50 - sandstone at grade.

In the embankment foundation, materials consist predominantly of silt clay, in the A-6a classification. Wet soils (predominantly slightly compressible silts), underlain by gravels, were encountered between stations 615+20 and 631+75, between ground surface and 11-foot depth, and range from 2.5 to 8 feet in thickness. Moist, compressible elastic clay, in the A-7-5 classification, 5 feet in thickness, was noted at station 629+00, between 4 and 9-foot depth.

Southbound Lanes - it is anticipated bedrock will be encountered in the excavations at the following locations:

Stations 635+00 to 635+25 - sandstone at right ditchline; argillaceous shale, and indurated clay in the right backslope.

Stations 635+25 to 637+07 - sandstone at grade and both ditches; arenaceous and argillaceous shale, sandstone, indurated clay, and coal in right backslope.

In the embankment foundation, soils consist predominantly of silts and silt clays, in the A-4 and A-6a classifications. Wet, slightly compressible silts, silt clays and compressible elastic clays, generally organic-contaminated, were encountered at station 618+50, and between stations 621+00 and 630+70, generally within 13 feet of ground surface and ranging from 4 to 10 feet in thickness, underlain by sands and gravels. At station 626+00, the wet, organic materials extend to a depth of as much as 21 feet.

LEGEND FOR PROJECT-AVERAGE RESULTS OF TESTS-249 SAMPLES TESTED

DESCRIPTION	H. R. B. CLASS	OHIO CLASS	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	SAMPLES TESTED
Gravel and/or stone fragments	A-1-a(0)	A-1-a	67	16	10	- 7 -		23	0	11	53
Gravel with sand	A-1-a(0)	A-1-b	43	21	23	6	7	27	0	17	19
Fine sand	A-3(0)	A-3	0	25	66	- 9 -		NP	NP	25	1
Coarse and fine sand	------	A-3a	8	10	51	12	11	NP	NP	10	19
Gravel with sand and silt	A-2-4(0)	A-2-4	20	20	27	6	10	NP	NP	11	1
Gravel with sand, silt and clay	A-2-6(0)	A-2-6	80	7	3	5	5	30	13	6	1
Sandy silt	A-4(5)	A-4a	2	5	35	32	26	26	2	25	24
Silt	A-4(8)	A-4b	1	1	12	52	34	30	6	30	22
Plastic clay with organic material	A-5(5)	A-5	0	10	22	16	52	43	10	51	1
Silt and clay	A-6(8)	A-6a	6	4	12	30	48	35	11	23	40
Silty clay	A-6(11)	A-6b	2	4	10	51	33	33	17	26	-
Plastic clay without organic material unless otherwise noted	A-7-5(15)	A-7-5	2	2	7	37	52	50	17	45	18
Clay	A-7-6(20)	A-7-6	4	1	12	44	39	45	17	31	12
Various other materials			VISUAL CLASSIFICATION								7
Under clay			VISUAL CLASSIFICATION								
Coal			VISUAL CLASSIFICATION								
Clay bedrock			VISUAL CLASSIFICATION								
Weathered shale			VISUAL CLASSIFICATION								
Indurated clay			VISUAL CLASSIFICATION								
Shale			VISUAL CLASSIFICATION								
Sandstone			VISUAL CLASSIFICATION								
Limestone			VISUAL CLASSIFICATION								

Sod and/or Topsoil =Approximate depth.

Peat material.

Auger boring - plan view.

Drive sample and/or core boring - plan view.

Auger boring plotted to vertical scale only.

Drive sample and/or core boring plotted to vertical scale only.

Number of blows for "Standard Penetration" test.
N=number of blows for the first 6 inches.
N=number of blows for the second 6 inches.

Water content nearly equal to or greater than liquid limit.

Indicates a non-plastic material with high water content.

w Free water.

B- Indicates broken rock interval.

NOTE: Figures beside borings indicate water content in percent - e.g. 45

Survey Centerline - it is anticipated bedrock will be encountered in the excavations at the following locations:

Stations 637+07 to 638+00 - sandstone at grade, both ditches, and left backslope; arenaceous and argillaceous shale, sandstone, indurated clay and coal in right backslope between stations 637+[illegible] and 643+00; sandstone in lower portion of right backslope, shale in upper portion, between stations 643+00 and 645+00.

Stations 645+00 to 646+00 - shale and coal at grade and right ditchline; sandstone in lower portion of right backslope, shale in upper portion.

Stations 646+00 to 646+75 - shale and some coal at grade (right lane), right ditchline, and lower portion of right backslope; sandstone in upper portion of right backslope.

Stations 647+50 to 656+00 - shale and some coal at right ditchline and lower portion of right backslope; sandstone and some shale in upper portion of right backslope.

In the embankment foundation, soils consist of sandy silt, silt clay, and elastic clay, and clay, in the A-1-a, A-6a, A-7-5 and A-7-6 classifications. Wet silt and silt clay, 10 feet in thickness, was encountered at station 652+00, in the vicinity of the filled channel of the Ohio Canal.

Ramp "A" - in the embankment foundation, soils consist of sand, sandy silt, and silt clay, in the A-3a, A-4a, and A-6a classifications.

Ramp "B" - in the embankment foundation, soils consist predominantly of sandy silt, in the A-4a classification.

Ramp "C" - in the embankment foundation, soils consist of gravel, sandy silt, silt clay, and elastic clay, in the A-2-6, A-4a, A-6a, and A-7-5 classifications. Wet, slightly compressible silts and silt clays and compressible elastic clay (1.5 to 6 feet in thickness), underlain by gravels, were encountered between ground surface and 9-foot depths at station 1+00 and between stations 8+00 and 15+60.

Ramp "D" - in the embankment foundation area, soils are comprised of gravel, silt [illegible] and elastic clay, in the A-2-6, A-6a, and A-7-5 classifications. The compressible elastic clay was encountered at ground surface at station 1+00.

Ramp "E" - in the embankment foundation area, soils are comprised of silts, silt clays, and elastic clays, in the A-4, A-6a, and A-7-5 classifications. Wet, slightly compressible silt clays and compressible elastic clays, containing various amounts of organic material, up to 5 feet in thickness, were encountered within 7 feet of ground surface between stations 1+00 and 8+50, and between stations 15+00 and 23+00.

Ramp "F" - in the embankment foundation, soils consist of sandy silt, silt clay, and elastic clay, in the A-4a, A-6a and A-7-5 classifications. Wet, slightly compressible, generally organic-contaminated sandy silt and compressible elastic clay, found within 5 feet below ground surface, were encountered between stations 8+20 and 10+50, extending from at least 35 feet right to 40 feet left of centerline.

USR 250
Survey Centerline

SUMMARY OF SOIL TEST DATA

STATION	& OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SOIL CLASS.
618+00	110'Rt	0.3-5.0	29	1	9	31	30	31	11	17	A-6a
		5.0-9.0	Brown Broken Sandstone							8	Visual
		9.0-10.0	Brown Broken Sandstone							5	Visual
618+00	130'Rt	0.2-7.0	0	1	7	52	40	29	9	15	A-4b
		7.0-10.0	Brown Broken Sandstone							9	Visual
		10.0-13.0	Brown Broken Sandstone							7	Visual
651+00	63'Rt	0.2-3.0	10	6	3	35	46	30	12	26	A-6a
		3.0-5.0	11	7	16	23	30	121	12	27	A-7-5
		5.0-8.0	0	3	6	22	69	51	25	25	A-7-6
656+00	30'Lt	0.2-4.0	0	4	6	33	57	45	19	21	A-7-6

TE 54 B
1500 10 60

SOIL PROFILE
TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-12.50
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS OHIO

2/17

SUMMARY OF SOIL TEST DATA

NOTE: NP shown in Liquid Limit and Plasticity Index columns indicates that the material is non-plastic.
*Denotes sample taken at or near grade.

USR 21

STATION	OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
71+00	CL	0.0-3.0	0	2	26	47	25	NP	NP	31	A-4a
		3.0-6.0	0	16	60	11	13	NP	NP	25	A-3a
		6.0-8.0	0	19	64	9	8	NP	NP	30	A-3a
76+00	50'Lt	0.5-4.0	0	1	14	35	50	47	17	53	A-7-5
		4.0-11.0	(Gray Silty Sand							25)	Visual
76+00	CL	0.8-3.0	Brown & Gray Clayey Silt, Trace of Organic							38	Visual
		3.0-10.0	Brownish-Gray Sandy Clayey Silt, Slightly Organic							34	Visual
		10.0-11.0	Gray Silty Sand							25	Visual
77+20	160'Lt	0.6-2.5	0	0	12	43	45	35	11	41	A-6a
		2.5-5.0	0	1	52	24	23	NP	NP	31	A-4a
		5.0-6.0	0	0	55	24	21	NP	NP	33	A-4a
		6.0-10.0	0	0	29	46	25	NP	NP	44	A-4a
77+20	100'Lt	0.6-3.5	0	1	3	54	42	30	11	52	A-6a
		3.5-4.5	0	1	12	52	35	31	4	41	A-4b
		4.5-8.5	0	0	14	55	31	20	4	28	A-4b
		8.5-9.5	43	35	19	- 3 -		NP	NP	26	A-1-b
77+20	50'Lt	0.5-3.0	0	0	2	41	57	47	12	29	A-7-5
		3.0-4.0	0	2	8	50	40	36	10	34	A-4b
		4.0-6.0	0	1	22	40	37	34	13	34	A-6a
		6.0-7.0	0	12	73	-15 -		NP	NP	22	A-3a
		7.0-8.5	39	16	37	- 8 -		NP	NP	20	A-1-b
77+20	CL	0.5-4.0	(0	1	14	35	50	47	17	53)	A-7-5)
77+20	50'Rt	0.5-3.0	(0	1	14	35	50	47	17	53)	A-7-5)
		3.0-7.0	(Gray Silty Sand							25)	Visual
77+20	100'Rt	0.5-4.5	(0	1	14	35	50	47	17	53)	A-7-5)
		4.5-7.0	Gray Silty Sand W/Gravel, Trace of Organic							31	Visual
77+20	120'Rt	0.5-3.0	(0	1	14	35	50	47	17	53)	A-7-5)
		3.0-8.0	(Gray Silty Sand							25)	Visual
77+20	140'Rt	0.5-5.0	(0	1	14	35	50	47	17	53)	A-7-5)
		5.0-8.0	(Gray Silty Sand							25)	Visual
79+00	50'Rt	0.5-3.0	0	0	2	29	69	58	21	43	A-7-5
		3.0-4.0	0	1	2	40	57	47	15	56	A-7-5
		4.0-10.0	0	1	2	52	45	43	17	44	A-7-6
		10.0-12.0	Brown & Gray Silty Sandy Gravel							7	Visual
82+35	50'Lt	0.5-3.0	0	1	6	41	52	40	12	36	A-6a
		3.0-5.0	0	0	13	52	35	33	7	35	A-4b
		5.0-8.5	2	4	18	57	19	NP	NP	42	A-4b
		8.5-10.0	0	23	31	26	20	31	-	34	A-4a
		10.0-14.0	82	11	5	- 2 -		NP	NP	12	A-1-a
84+80	38'Rt	0.0-3.0	0	1	1	37	61	54	19	50	A-7-5
		3.0-8.0	0	6	24	36	34	NP	NP	42	A-4a
		8.0-13.0	66	10	13	4	7	NP	NP	14	A-1-a
		13.0-17.0	68	16	8	- 8 -		NP	NP	9	A-1-a
88+00	50'Lt	0.5-3.5	0	0	4	47	49	40	11	28	A-6a
		3.5-5.0	0	6	28	35	31	20	5	27	A-4a
		5.0-6.0	46	29	20	- 5 -		NP	NP	17	A-1-b
88+00	50'Rt	0.5-3.5	0	1	8	47	44	42	14	29	A-7-6
		3.5-4.5	0	8	35	31	26	NP	NP	24	A-4a
		4.5-6.0	1	11	27	34	27	27	6	29	A-4a
		6.0-7.0	0	2	19	49	30	51	16	38	A-7-5
		7.0-8.0	60	29	7	- 4 -		NP	NP	19	A-1-a
92+56	CL	0.0-6.0	0	7	32	32	29	NP	NP	25	A-4a
		6.0-10.0	0	2	37	36	25	45	17	39	A-7-6
		10.0-16.0	84	8	5	- 3 -		NP	NP	14	A-1-a
94+00	CL	0.0-5.0	0	2	37	29	32	22	3	24	A-4a
		5.0-10.0	70	22	5	- 3 -		NP	NP	13	A-1-a
		10.0-16.0	88	5	4	- 3 -		NP	NP	10	A-1-a
98+00	50'Lt	0.0-6.0	0	5	10	48	37	32	11	27	A-6a
		6.0-11.0	61	27	7	- 5 -		NP	NP	15	A-1-a
		11.0-16.0	77	10	8	- 5 -		NP	NP	13	A-1-a
102+00	55'Rt	0.0-5.0	47	16	18	8	11	NP	NP	7	A-1-b
		5.0-10.0	59	25	8	2	6	23	5	10	A-1-a
		10.0-16.0	64	20	6	3	7	NP	NP	15	A-1-a
106+00	50'Lt	0.0-5.0	17	34	41	- 8 -		NP	NP	4	A-3a
		5.0-10.0	54	22	12	3	9	NP	NP	29	A-1-a
		10.0-15.0	68	14	12	- 6 -		NP	NP	14	A-1-a
111+00	50'Rt	0.7-3.0	0	16	30	30	24	25	8	12	A-4a
		3.0-7.0	12	28	48	-12 -		NP	NP	5	A-3a
		7.0-10.0	55	19	19	- 7 -		NP	NP	11	A-1-a
		10.0-12.0	64	19	11	- 6 -		NP	NP	10	A-1-a
116+00	40'Lt	0.7-3.5	3	5	24	38	30	27	9	15	A-4a
		3.5-6.0	73	11	8	4	4	NP	NP	8	A-1-a
		6.0-16.0	64	18	14	- 4 -		NP	NP	9	A-1-a

USR 21 (Cont'd)

STATION	OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
120+00	50'Rt	0.5-4.5	0	1	5	40	54	40	15	24	A-6a
		4.5-9.0	48	24	18	2	8	NP	NP	14	A-1-b
		9.0-15.0	67	22	6	- 5 -		NP	NP	16	A-1-a
124+00	CL	0.5-3.0	0	3	5	51	41	29	3	21	A-4b
		3.0-5.0	0	1	3	54	42	46	23	24	A-7-6
		5.0-8.0	0	1	10	56	33	25	7	20	A-4b
		8.0-11.0	10	17	50	9	14	NP	NP	18	A-3a
		11.0-20.0	62	20	9	4	5	NP	NP	14	A-1-a

USR 250 — Northbound

STATION	OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
615+20	CL	0.5-2.0	0	0	6	44	50	40	12	27	A-6a
		2.0-3.0	0	1	28	39	32	NP	NP	17	A-4a
		3.0-4.0	0	2	10	44	44	41	12	30	A-7-6
		4.0-7.0	0	1	16	51	32	31	6	26	A-4b
		7.0-8.0	0	1	16	45	38	38	11	31	A-6a
		8.0-11.0	0	1	38	35	26	38	13	40	A-6a
		11.0-12.0	81	7	7	- 5 -		NP	NP	16	A-1-a
619+50	CL	0.5-2.0	0	1	5	41	53	39	13	27	A-6a
		2.0-4.0	0	0	11	53	36	30	5	28	A-4b
		4.0-6.0	7	1	37	31	24	NP	NP	23	A-4a
		6.0-13.0	64	23	10	- 3 -		NP	NP	13	A-1-a
620+80	CL	0.5-3.0	0	1	10	50	39	NP	NP	28	A-4b
		3.0-6.0	0	2	39	39	20	NP	NP	20	A-4a
		6.0-8.0	16	37	42	- 5 -		NP	NP	21	A-1-b
		8.0-15.0	62	19	14	- 5 -		NP	NP	12	A-1-a
629+00	16'Rt	0.0-4.0	0	0	4	47	49	37	12	32	A-6a
		4.0-10.0	7	4	22	35	32	50	20	45	A-7-5
		10.0-14.0	13	45	26	-16 -		NP	NP	24	A-1-b
		14.0-20.0	69	12	11	- 8 -		NP	NP	10	A-1-a
		20.0-22.0	16	9	11	29	35	29	11	19	A-6a
631+75	CL	0.0-4.0	66	11	7	9	7	NP	NP	9	A-1-b
		4.0-7.0	0	2	26	41	31	NP	NP	31	A-4a
		7.0-10.0	80	4	7	4	5	NP	NP	12	A-1-a
		10.0-11.0	4	5	58	13	20	NP	NP	16	A-3a
635+00	10'Rt	0.3-3.0	26	9	15	20	30	30	11	11	A-6a
		3.0-6.0	7	11	10	26	46	39	13	16	A-6a
		6.0-9.0	41	6	9	21	23	36	11	8	A-6a

USR 250 — Southbound

STATION	OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
602+00	16'Lt	0.0-5.0	19	27	26	19	9	NP	NP	7	A-3a
		5.0-9.0	44	11	43	1	1	NP	NP	9	A-1-b
		9.0-16.0	68	18	10	- 4 -		NP	NP	14	A-1-a
		16.0-23.0	76	14	4	- 6 -		NP	NP	11	A-1-a
606+00	CL	0.0-5.0	18	24	37	9	12	NP	NP	9	A-3a
		5.0-11.0	71	20	7	- 2 -		NP	NP	18	A-1-a
		11.0-18.0	59	19	12	3	7	21	4	16	A-1-a
610+50	16'Lt	0.0-5.0	15	13	24	17	31	32	10	15	A-4a
		5.0-10.0	68	13	11	- 8 -		NP	NP	15	A-1-a
		10.0-16.0	67	15	10	- 8 -		NP	NP	17	A-1-a
614+00	CL	0.5-3.5	0	3	14	38	45	34	11	16	A-6a
		3.5-6.0	24	14	36	16	10	NP	NP	7	A-3a
		6.0-8.0	28	24	32	5	11	NP	NP	5	A-1-b
		8.0-14.0	69	16	8	- 7 -		NP	NP	11	A-1-a
618+50	15'Rt	0.4-2.0	7	11	9	25	48	48	17	54	A-7-5
		2.0-4.0	0	2	5	36	57	69	33	-	A-7-5
		4.0-7.0	17	8	13	36	26	37	11	59	A-6a
		7.0-14.0	74	13	6	- 7 -		NP	NP	15	A-1-b
621+00	CL	0.0-4.0	80	10	4	- 6 -		NP	NP	12	A-1-a
		4.0-11.0	36	24	20	7	13	NP	NP	14	A-1-b
		11.0-12.0	84	7	5	- 4 -		NP	NP	14	A-1-a
624+00	16'Lt	0.0-4.0	0	3	28	30	39	32	11	30	A-6a
		4.0-10.0	41	29	22	- 8 -		NP	NP	17	A-1-b
		10.0-15.0	Brown Silty Sand and Gravel							9	Visual
629+65	16'Lt	0.0-5.0	0	1	17	50	32	NP	NP	26	A-4b
		5.0-10.0	7	5	45	25	18	NP	NP	28	A-4a
		10.0-12.0	10	3	56	18	13	NP	NP	16	A-3a
631+50	16'Lt	0.5-2.0	0	1	9	50	40	33	7	30	A-4b
		2.0-4.0	2	2	13	35	48	43	13	31	A-7-5
		4.0-7.0	0	1	30	39	30	NP	NP	27	A-4a
		7.0-10.0	0	1	42	35	22	NP	NP	28	A-4a
		10.0-13.0	13	5	24	35	23	NP	NP	10	A-4a
633+70	CL	0.3-4.0	10	7	30	26	27	25	7	20	A-4a
		4.0-5.0	2	6	14	26	52	38	11	30	A-6a
		5.0-8.0	11	11	15	25	38	32	11	19	A-6a
		8.0-10.0	0	1	35	38	26	NP	NP	25	A-4a
		10.0-13.0	0	1	26	47	26	25	6	20	A-4a

USR 250 — Survey Centerline

STATION	OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
646+00	66'Lt	0.5-2.5	20	7	11	18	44	43	13	20	A-7-5
		2.5-6.0	22	10	11	19	38	36	11	21	A-6a
		6.0-10.0	13	14	14	23	36	33	11	19	A-6a
*648+70	CL	0.5-4.0	27	5	15	25	28	33	5	17	A-4a
		4.0-8.0	2	4	11	39	44	36	14	24	A-6a
		8.0-13.0	0	1	9	51	39	34	12	24	A-6a
		13.0-17.5	1	1	19	50	29	26	6	27	A-4b
		17.5-20.0	32	0	3	42	23	28	11	9	A-6a
*650+00	15'Lt	0.3-4.0	12	7	11	29	41	34	11	20	A-6a
		4.0-6.0	0	1	4	34	61	40	12	30	A-6a
		6.0-9.0	0	1	14	50	35	26	6	20	A-4b
		9.0-16.0	0	1	14	53	32	30	9	27	A-4b
		16.0-17.0	9	2	9	50	30	27	8	11	A-4b

* USR 21 & 250 Interchange

Ramp "A"

STATION	OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
1+00	20'Rt	0.0-2.0	0	11	5	32	52	30	11	24	A-6a
		2.0-3.0	0	2	6	42	50	38	13	22	A-6a
		3.0-6.0	0	3	30	37	30	27	9	22	A-4a
		6.0-11.0	0	4	50	27	19	NP	NP	19	A-4a
		11.0-16.0	60	14	13	6	7	NP	NP	16	A-1-a
5+00	10'Lt	0.5-4.0	0	3	34	37	26	NP	NP	18	A-4a
		4.0-9.0	63	20	10	- 7 -		NP	NP	19	A-1-a
		9.0-15.0	70	17	7	- 6 -		NP	NP	12	A-1-a
9+00	10'Lt	0.0-6.0	0	8	50	21	21	NP	NP	17	A-4a
		6.0-8.0	0	15	53	15	17	NP	NP	19	A-3a
		8.0-13.0	65	21	8	- 6 -		NP	NP	5	A-1-a
		13.0-19.0	72	16	6	- 6 -		NP	NP	10	A-1-a

Ramp "B"

STATION	OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
1+00	10'Rt	0.0-6.0	0	2	56	23	19	NP	NP	16	A-4a
		6.0-11.0	46	16	24	6	8	NP	NP	13	A-1-b
		11.0-15.0	53	24	21	- 2 -		NP	NP	18	A-1-a
5+00	10'Lt	0.0-5.0	0	0	33	41	26	NP	NP	23	A-4a
		5.0-9.0	0	0	9	50	41	30	10	25	A-4b
		9.0-13.0	56	13	18	6	7	NP	NP	15	A-1-b
		13.0-16.0	62	21	7	-10 -		NP	NP	11	A-1-a
9+00	10'Rt	0.0-6.0	28	20	27	6	19	NP	NP	11	A-2-4
		6.0-11.0	57	15	16	5	7	NP	NP	15	A-1-a
		11.0-15.0	58	22	11	- 9 -		NP	NP	10	A-1-a
14+00	10'Lt	0.0-6.0	0	2	31	38	29	NP	NP	19	A-4a
		6.0-11.0	67	15	10	- 8 -		NP	NP	14	A-1-a
		11.0-16.0	56	20	12	-12 -		NP	NP	12	A-1-a

Ramp "C"

STATION	OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
1+00	15'Rt	0.5-2.0	0	1	1	29	69	52	17	36	A-7-5
		2.0-3.0	Brown Silty Sandy Gravel							5	Visual
4+00	BL	0.4-1.5	80	7	3	5	5	30	13	6	A-2-6
8+00	BL	0.0-2.0	41	1	14	18	26	-	-	25	A-4a
		2.0-5.0	0	1	2	60	37	30	9	30	A-4b
		5.0-7.0	3	14	46	22	15	NP	NP	20	A-4a
10+80	BL	0.0-3.0	0	1	4	40	55	45	13	31	A-7-5
		3.0-5.0	0	2	5	56	37	35	8	43	A-4b
		5.0-6.5	0	18	22	16	44	43	10	54	A-5
		6.5-8.0	86	5	3	- 6 -		NP	NP	14	A-1-a

Ramp "D"

STATION	OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
7+00	BL	0.0-6.0	9	13	18	27	33	32	11	13	A-6a
		6.0-12.0	55	6	16	11	12	27	NP	34	A-1-b
		12.0-18.0	74	12	6	- 8 -		NP	NP	12	A-1-a

Ramp "E"

STATION	OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
0+80	10'Lt	0.6-1.5	0	4	13	43	40	35	11	23	A-6a
		1.5-7.0	0	6	50	27	17	NP	NP	11	A-4a
		7.0-9.0	0	1	65	19	15	NP	NP	20	A-3a
		9.0-11.0	61	10	22	4	3	NP	NP	17	A-1-a
		11.0-15.0	66	10	13	9	2	NP	NP	16	A-1-a
4+00	50'Lt	0.5-3.0	0	15	37	22	26	NP	NP	19	A-4a
		3.0-5.0	0	2	28	33	37	31	11	30	A-6a
		5.0-6.0	0	2	15	30	44	34	11	37	A-6a
		6.0-7.0	0	4	26	43	27	28	5	30	A-4a
		7.0-9.0	19	12	37	19	13	NP	NP	20	A-3a
		9.0-15.0	65	22	8	- 5 -		NP	NP	11	A-1-a
8+50	BL	0.5-3.0	0	1	2	48	40	52	19	57	A-7-5
		3.0-4.5	34	0	21	27	18	41	15	41	A-7-6
		4.5-5.0	65	6	14	8	7	24	4	16	A-1-a
11+00	BL	0.3-5.0	6	1	9	46	38	35	15	20	A-6a*
		5.0-10.0	25	7	11	27	30	31	11	19	A-6a

Ramp "E" (Cont'd)

STATION	OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
15+00	BL	0.3-2.0	0	0	4	50	46	37	8	45	A-4b
		2.0-3.0	0	2	4	28	66	48	15	78	A-7-5
		3.0-5.0	0	0	23	55	22	NP	NP	41	A-4b
		5.0-8.0	41	25	18	5	11	NP	NP	21	A-1-b
20+30	BL	0.5-2.5	0	2	17	42	39	34	11	27	A-6a
		2.5-5.5	0	1	48	22	29	NP	NP	32	A-4a
		5.5-7.0	0	2	66	20	12	NP	NP	19	A-3a
		7.0-13.0	0	10	77	4	9	NP	NP	42	A-3a
		13.0-15.0	62	23	8	- 7 -		NP	NP	19	A-1-a
		15.0-18.0	10	61	16	5	8	NP	NP	20	A-3a
		18.0-21.0	67	12	13	- 8 -		NP	NP	15	A-1-a

Ramp "F"

STATION	OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
8+20	40'Lt	0.0-4.0	0	0	6	51	43	50	19	50	A-7-5
		4.0-7.0	0	31	56	-13 -		NP	NP	30	A-3a
8+20	15'Lt	0.0-4.0	0	1	8	42	49	58	29	72	A-7-6
8+20	BL	0.0-4.0	0	1	4	49	46	44	12	70	A-7-5
		4.0-5.0	Brown & Gray Silty Sand W/Gravel								Visual
8+20	12'Rt	0.0-4.0	0	0	5	52	43	51	23	66	A-7-6
8+20	35'Rt	0.0-4.0	0	1	14	46	39	42	15	58	A-7-6
		4.0-7.0	0	25	66	- 9 -		NP	NP	25	A-3
10+50	BL	0.0-3.0	0	10	27	26	37	31	9	27	A-4a
		3.0-5.0	0	1	28	36	35	32	10	35	A-4a
		5.0-10.0	31	21	24	14	10	NP	NP	20	A-1-b
		10.0-11.0	7	9	51	18	15	NP	NP	19	A-3a
11+50	16'Rt	0.0-6.0	1	3	17	28	51	36	11	28	A-6a
		6.0-10.0	44	7	24	10	15	NP	NP	23	A-1-b
		10.0-11.0	Brown & Gray Silty Sand W/Stone Fragments							7	Visual

DRIVE SAMPLE SOIL TEST DATA

USR 21

STATION	OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
93+00	85'Rt	5.0-6.0	0	2	35	43	20	NP	NP	29	A-4a
		7.5-8.5	13	13	34	22	18	NP	NP	27	A-4a
		10.0-11.0	70	17	8	- 5 -		NP	NP	15	A-1-a
		12.5-13.5	64	14	16	- 6 -		NP	NP	12	A-1-a
		15.0-16.0	75	14	6	- 5 -		NP	NP	9	A-1-a
		17.5-18.5	61	20	10	- 9 -		NP	NP	8	A-1-a
		20.0-21.0	76	13	7	- 4 -		NP	NP	13	A-1-a
		22.5-23.5	59	15	14	-12 -		NP	NP	10	A-1-a
		25.0-26.0	38	52	7	- 3 -		NP	NP	23	A-1-b
		30.0-31.0	80	14	4	- 2 -		NP	NP	16	A-1-a
		35.0-36.0	46	48	5	- 1 -		NP	NP	23	A-1-b
		40.0-41.0	11	70	16	- 3 -		NP	NP	22	A-1-b
		45.0-46.0	0	77	21	- 2 -		NP	NP	22	A-1-b
		50.0-51.0	0	73	23	- 4 -		NP	NP	23	A-1-b

USR 250 Southbound

STATION	OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL CLASS.
617+18	CL	5.0-6.0	71	14	8	4	3	NP	NP	10	A-1-a
		7.5-8.5	88	5	4	2	1	NP	NP	10	A-1-a
		10.0-11.0	78	13	6	2	1	NP	NP	13	A-1-a
		12.5-13.5	64	16	12	4	4	NP	NP	14	A-1-a
		15.0-16.0	80	11	6	2	1	NP	NP	14	A-1-a
		17.5-18.5	72	18	4	3	3	NP	NP	14	A-1-a
		20.0-21.0	Brown Sandy Gravel							9	Visual
		22.5-23.5	57	18	20	3	2	NP	NP	17	A-1-b
		25.0-26.0	18	54	25	2	1	NP	NP	18	A-3a
		30.0-31.0	38	33	20	5	4	NP	NP	11	A-3a
		35.0-36.0	55	23	19	2	1	NP	NP	15	A-3a
		40.0-41.0	19	33	43	- 5 -		NP	NP	19	A-3a
		45.0-46.0	19	57	22	1	1	NP	NP	21	A-3a
		50.0-51.0	59	21	9	6	5	NP	NP	11	A-1-a
		55.0-56.0	73	18	6	2	1	NP	NP	14	A-1-a
		60.0-61.0	5	67	23	3	2	NP	NP	20	A-3a
626+00	23'Lt	5.0-6.0	17	6	6	47	24	35	19	17	A-6b
		7.5-8.5	0	2	6	58	34	33	10	39	A-4b
		10.0-11.0	66	17	10	- 7 -		NP	NP	8	A-1-b
		12.5-13.5	74	15	7	- 4 -		NP	NP	11	A-1-b
		15.0-15.5	Gray Sand W/Gravel								Visual
		17.5-18.5	Brown Silty Sand W/Gravel								Visual
		20.0-21.0	Brown Silty Sand, Trace of Gravel								Visual
		22.5-23.5	Brown Silty Sand W/Gravel							13	Visual
		25.0-25.4	8	3	77	-12 -		NP	NP	24	A-3a
		30.0-31.0	0	1	30	56	13	NP	NP	23	A-4b
		35.0-36.0	10	6	54	22	8	NP	NP	24	A-3a
		40.0-41.0	5	8	64	17	6	NP	NP	23	A-3a
		45.0-46.0	0	5	82	-13 -		NP	NP	23	A-3a
		50.0-51.0	4	11	50	27	8	NP	NP	22	A-3a
		55.0-56.0	8	8	71	-13 -		NP	NP	24	A-3a
		60.0-61.0	2	14	67	- 17 -		NP	NP	22	A-3a
		65.0-65.5	3	11	7	42	37	36	16	25	A-6b
		70.0-70.2	Gray Sandy Clayey Silt W/Shale Fragments							15	Visual

NOTE: Classification characteristics in parentheses indicate test data for a sample determined by visual examination to have characteristics essentially the same as the sample obtained as representative of the given interval.

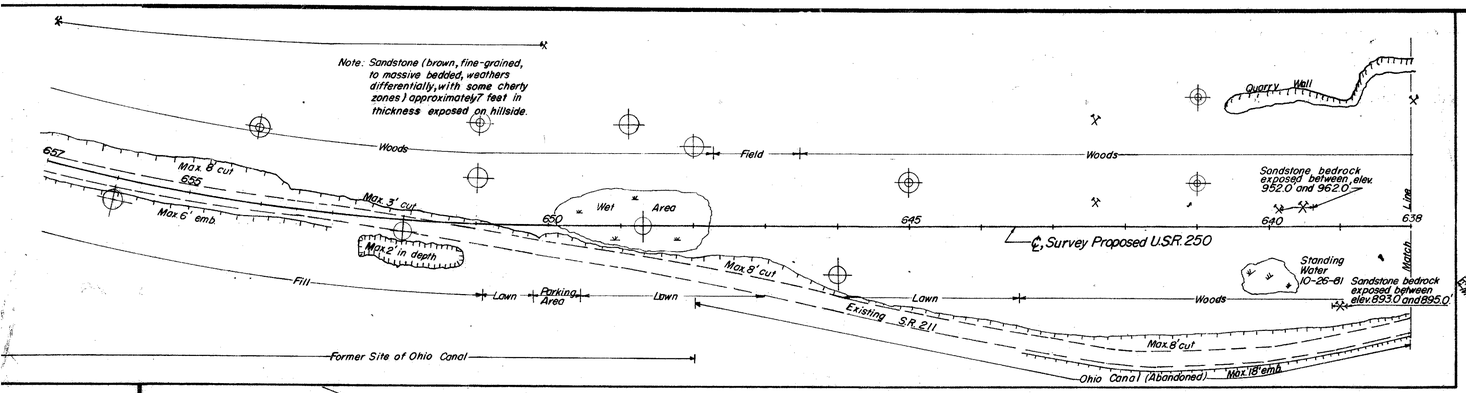
* For summary of soil test data of stations 648+00 110'Lt., 648+90- 140'Rt, 651+00-63' Rt. and 656+00 30'Lt., see sheet No.1

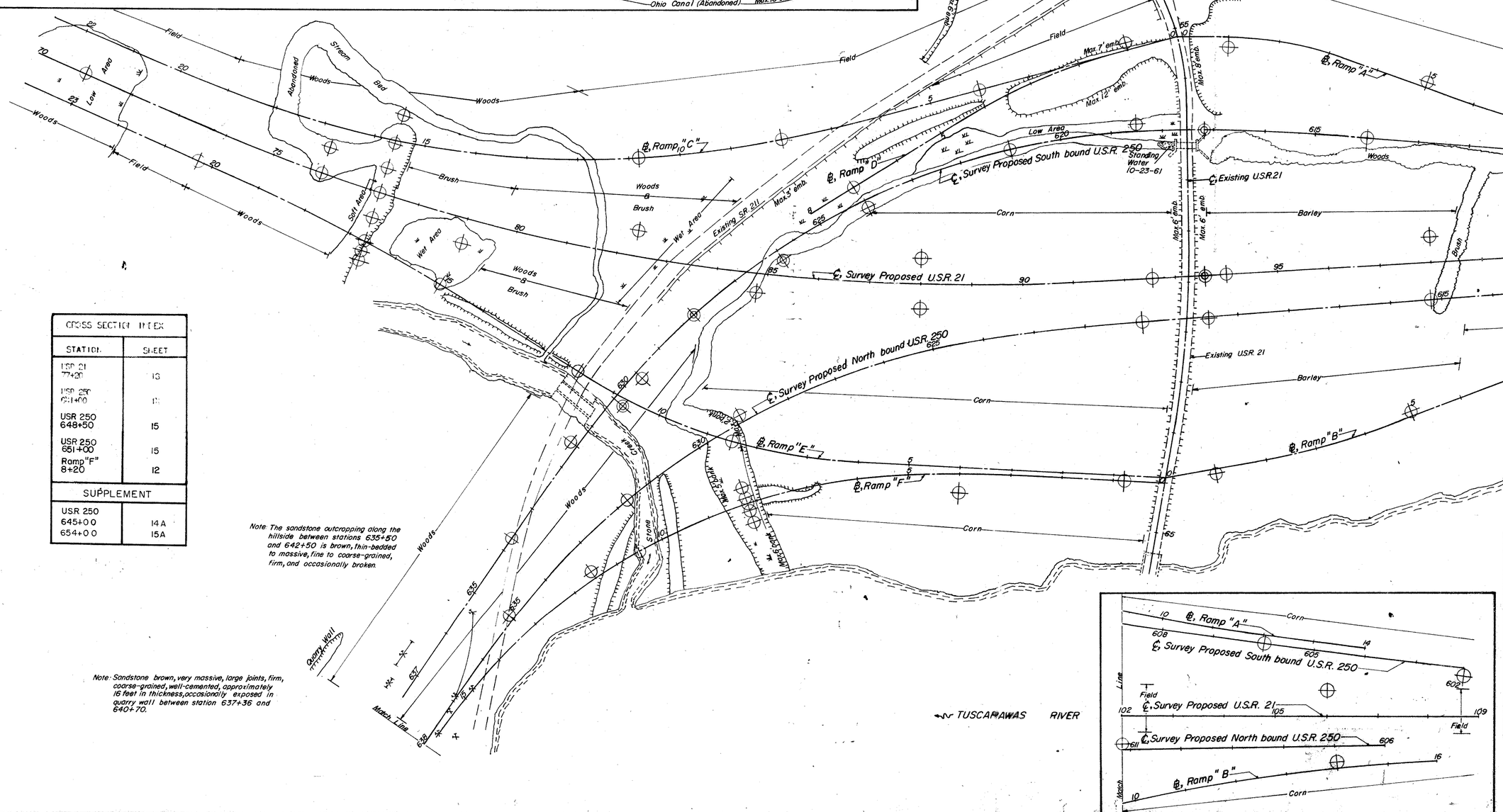
SOIL PROFILE

TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-12.50
OHIO STATE HIGHWAY TESTING LABORATORY
COLUMBUS, OHIO

3/17

Revised 3/8/62





CROSS SECTION INDEX	
STATION	SHEET
USR 21 77+20	13
USR 250 621+00	15
USR 250 648+50	15
USR 250 651+00	15
Ramp "F" 8+20	12
SUPPLEMENT	
USR 250 645+00	14A
654+00	15A

Note: The sandstone outcropping along the hillside between stations 635+50 and 642+50 is brown, thin-bedded to massive, fine to coarse-grained, firm, and occasionally broken.

Note: Sandstone brown, very massive, large joints, firm, coarse-grained, well-cemented, approximately 16 feet in thickness, occasionally exposed in quarry wall between station 637+36 and 640+70.

PROFILE INDEX	
STATION	SHEET
USR 21 70+00 to 102+00	1
102+00 to 125+00	5
USR 250 CL Survey 624+00 to 638+00	8 & 9
Northbound Lane 637+00 to 622+00	6
622+00 to 602+00	7
Southbound Lane 637+00 to 622+00	8
622+00 to 606+00	9
Ramps "A" & "B"	10
Ramps "C" & "D"	11
Ramps "E" & "F"	12

TE.54.B
1500.10 60

SOIL PROFILE

TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-12.50

OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

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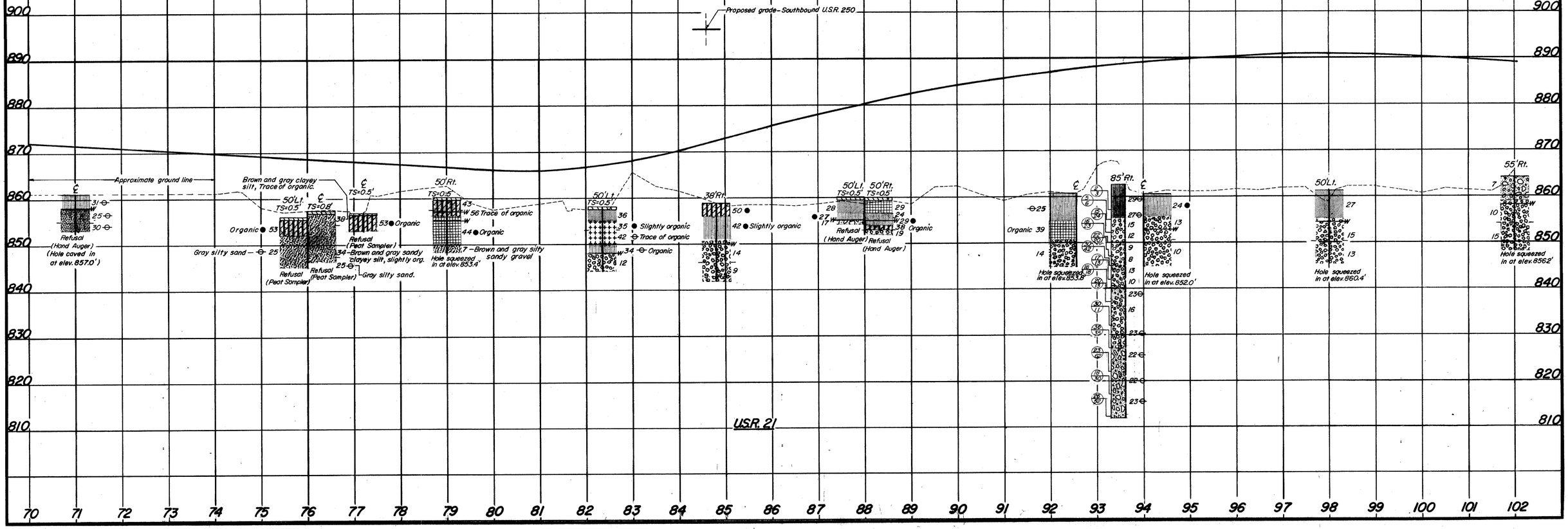

TE 54.8
1500-10-60

SOIL PROFILE

TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-12.50

OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

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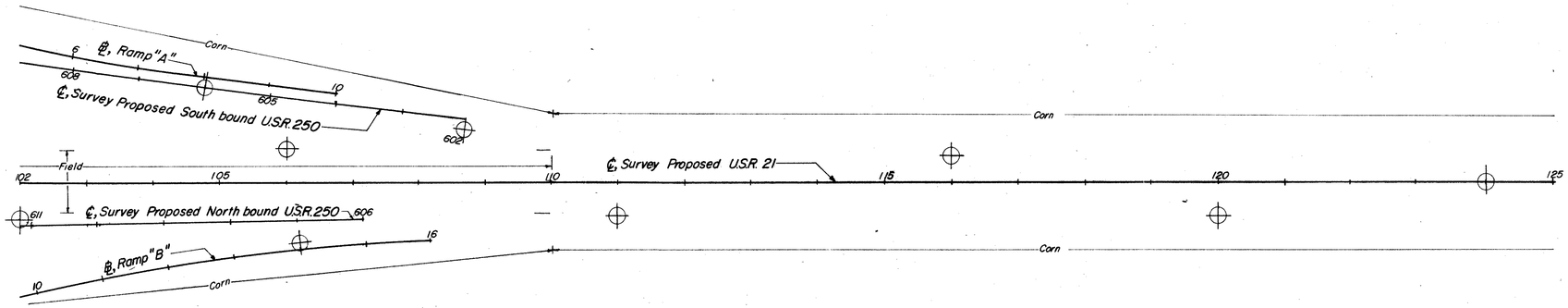

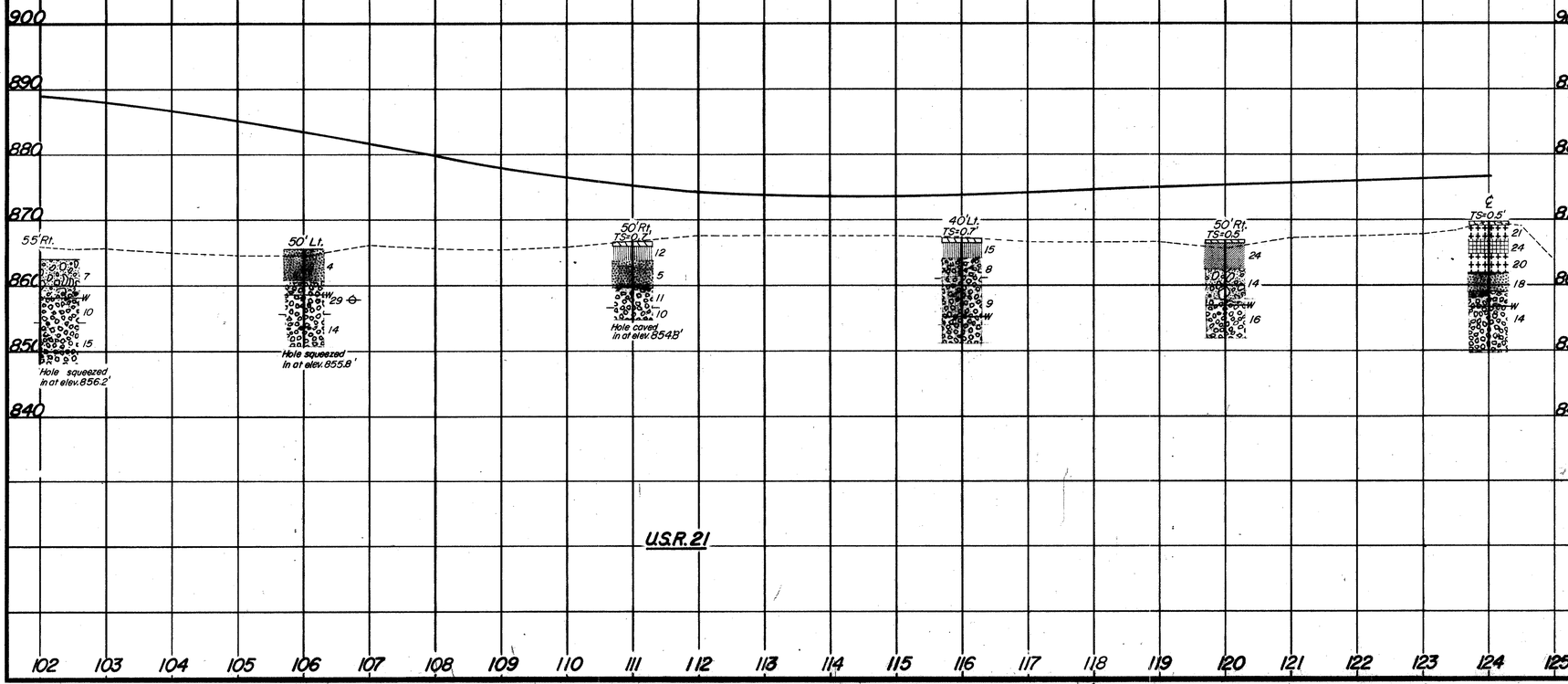

TE.54.B
1500-10-60

SOIL PROFILE

TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-12.50
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

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870 860 950 940 930 920 910 900 890 880 870 860 850 840 830

657 656 655 654

30' Lt. Sod BTS=0.2' W 44

Refusal (Hand Auger)

℄ Survey

Note: For complete description of core boring, see cross section, sheet 14.

60' Rt.

61' Rt.

6/6 28
10/12 23

Top of Rock-In-Place

NOTE: For description of cored intervals, see sheet 14A.

A
B
C
D
E

Shale, gray, argillaceous, micaceous, arenaceous, carbonaceous, fissile, hard, broken, badly broken from 943.6' to 939.7'; vertically jointed at irregular intervals to 922.2'; with a clay seam from 923.1' to 920.0'; and with a limestone (gray, hard, dense, broken) interbed from 919.8' to 918.2'. Core loss, 2%.

Coal, black, blocky, very broken. No core loss.

Indurated clay, gray, micaceous, arenaceous, slickensided, hard, broken, vertically jointed from 908.7' to 908.0' with a clay seam from 903.0 to 902.8'. No core loss.

Shale, gray, micaceous, argillaceous, fissile, hard, broken. No core loss.

Sandstone, gray, medium-grained, micaceous, hard, broken. No core loss.

Rock Section 5' Lt.

Sandstone, brown, ferruginous, fine-grained, thin to medium-bedded, firm, broken, jointed, with shaly zones.

20' Lt.
20
39 ● 26 ● Trace of organic
27 ●
11
Refusal

Note: For continuation of profile, see upper portion of this sheet.

℄
TS=0.5'
17
24
24
27 ● Trace of organic
9

66' Lt.
TS=0.5'
20
21
19

10' Rt.
11
16
8
Refusal

℄
9
31
12
16
Refusal

Proposed grade-Ramp "E"

15' Rt.
32
45 Organic
W
24
10
19
Refusal

(Sta. 88+00 - 50' Rt. proposed USR. 21)

84' Rt.
TS=0.5'
29
24
W 29 ● 38 Organic
Refusal
(Hand Auger)

USR 250
℄ Survey

U.S.R. 250
(North bound)

654 653 652 651 650 649 648 647 646 645 644 643 642 641 640 639 638 637 636 635 634 633 632 631 630 629 628 627 626 625 624 623 622

TE-54-B
1500-10-60

SOIL PROFILE

TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-12.50

OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

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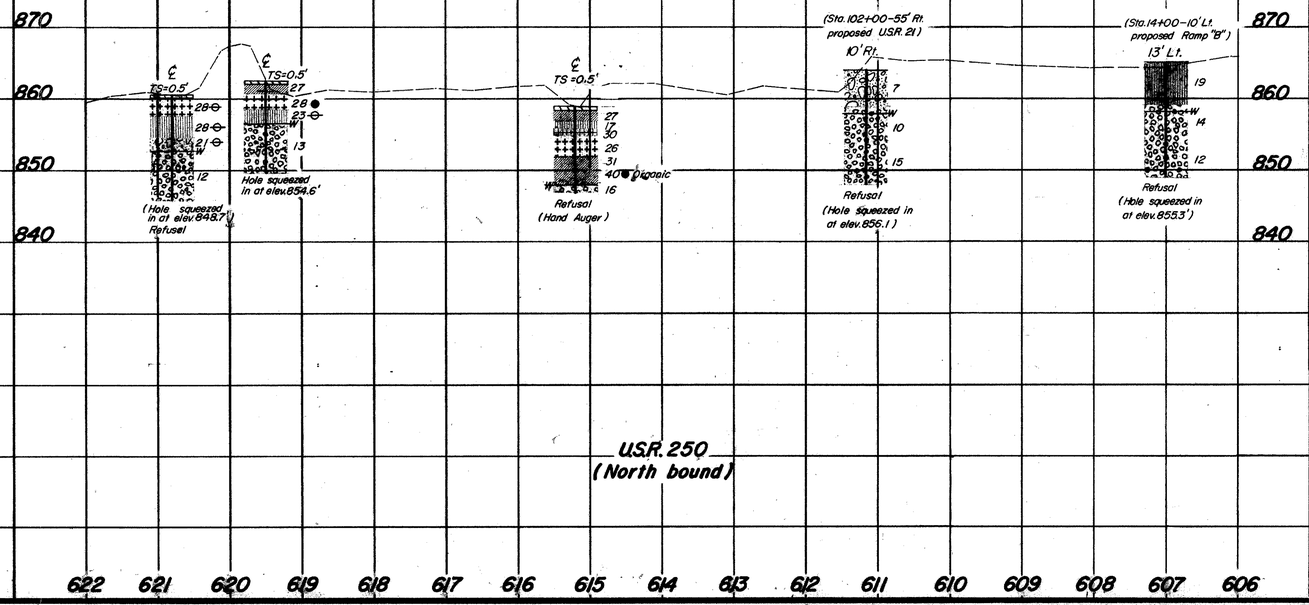

TE-54-B
1500-10-60

SOIL PROFILE
TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-12.50
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

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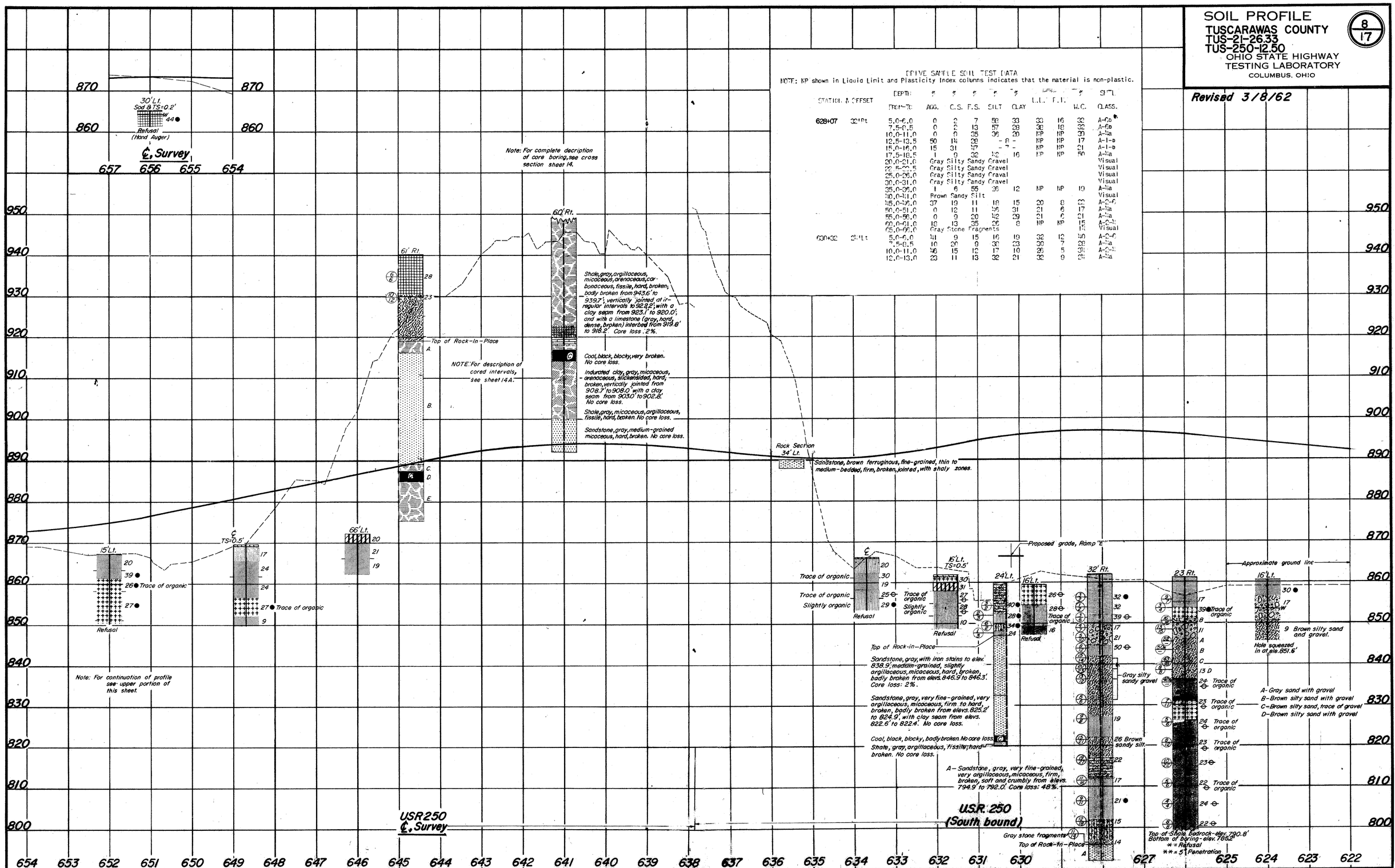
Revised 3/8/62

DRIVE SAMPLE SOIL TEST DATA

NOTE: NP shown in Liquid Limit and Plasticity Index columns indicates that the material is non-plastic.

STATION & OFFSET		DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	W.C.	SHTL CLASS.
628+07	32'Rt	5.0-6.0	0	2	7	58	33	63	16	33	A-6b
		7.5-8.5	0	2	13	57	28	38	9	33	A-6a
		10.0-11.0	0	5	35	36	24	NP	NP	35	A-4a
		12.5-13.5	50	14	28	- 8 -		NP	NP	17	A-1-b
		15.0-16.0	15	31	47	- 7 -		NP	NP	21	A-1-b
		17.5-18.5	1	9	62	12	16	NP	NP	30	A-4a
		20.0-21.0	Gray Silty Sandy Gravel								Visual
		22.5-23.5	Gray Silty Sandy Gravel								Visual
		25.0-26.0	Gray Silty Sandy Gravel								Visual
		30.0-31.0	Gray Silty Sandy Gravel								Visual
		35.0-36.0	1	6	55	36	12	NP	NP	19	A-4a
		40.0-41.0	Brown Sandy Silt								Visual
		45.0-46.0	37	19	11	18	15	28	8	[illegible]	A-2-6
		50.0-51.0	0	12	11	35	31	31	8	[illegible]	A-4a
		55.0-56.0	0	9	20	45	29	31	9	[illegible]	A-4a
		60.0-61.0	10	13	35	26	8	NP	NP	[illegible]	A-2-4
		65.0-66.0	Gray Stone Fragments								Visual
630+32	24'Lt	5.0-6.0	14	9	15	16	15	36	13	[illegible]	A-2-6
		7.5-8.5	16	26	9	33	23	38	7	[illegible]	A-4a
		10.0-11.0	36	15	12	17	10	28	5	[illegible]	A-2-4
		12.0-13.0	23	11	13	32	21	32	9	[illegible]	A-4a



TE-54.8
1500.10 60

SOIL PROFILE

TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-12.50
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

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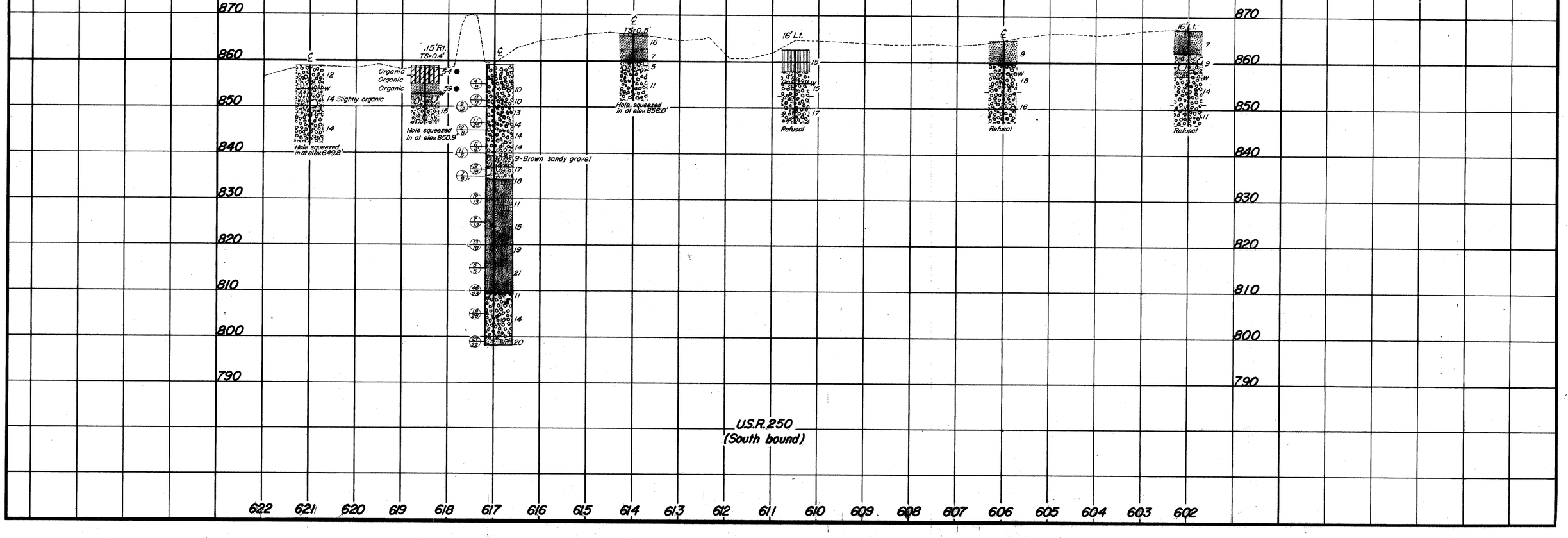

TE-54.8
1500-10-60

SOIL PROFILE

TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-12.50
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

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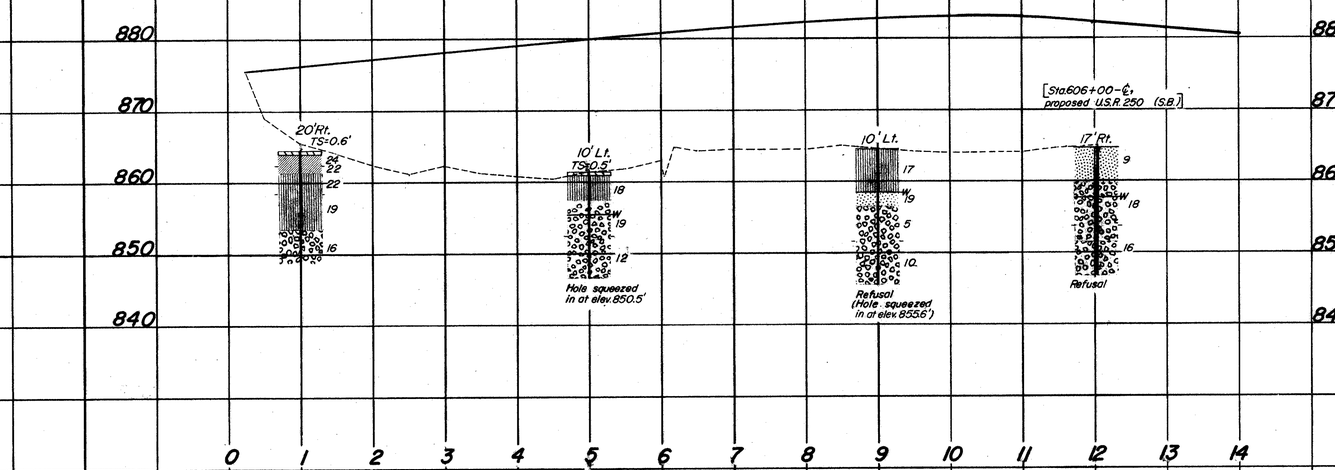

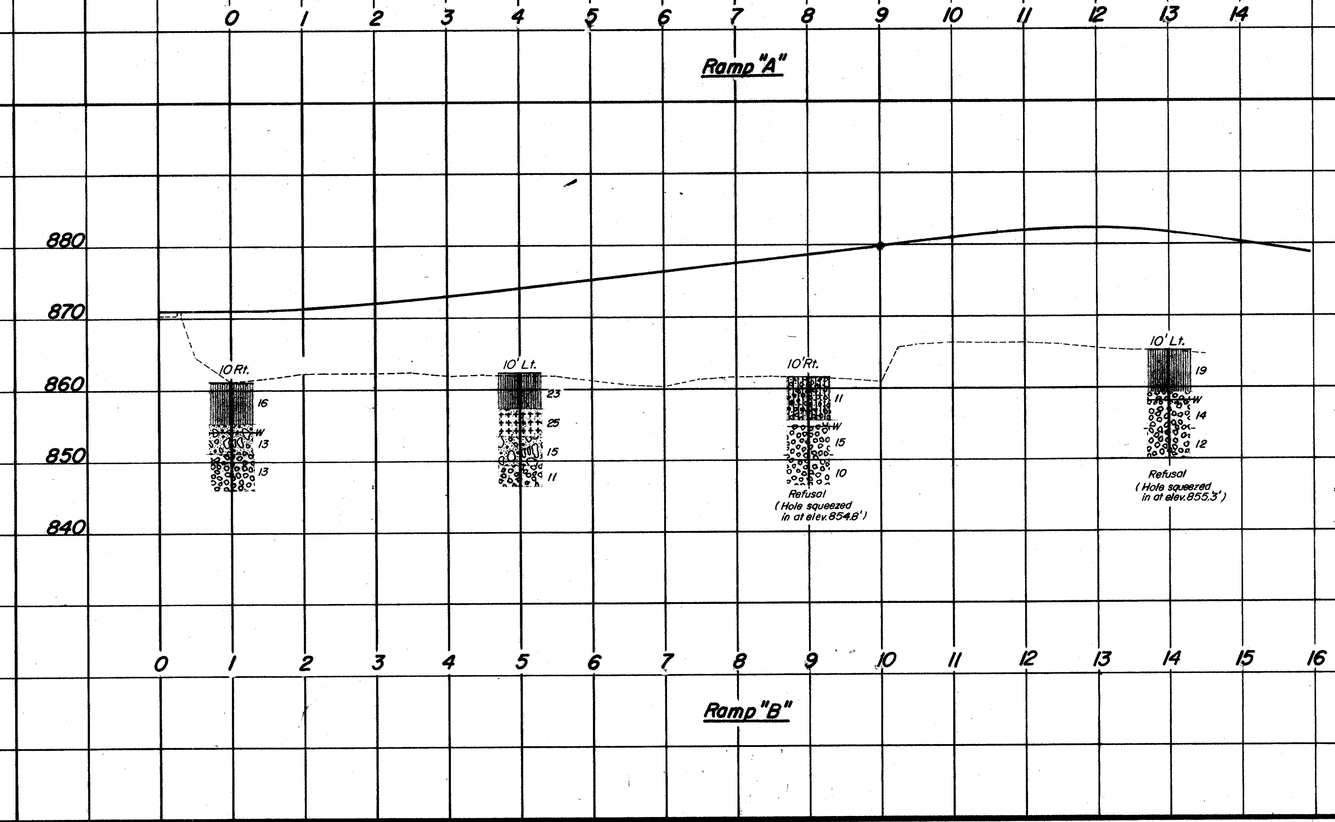

TE-54.8
1500-10-60

SOIL PROFILE
TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-12.50
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

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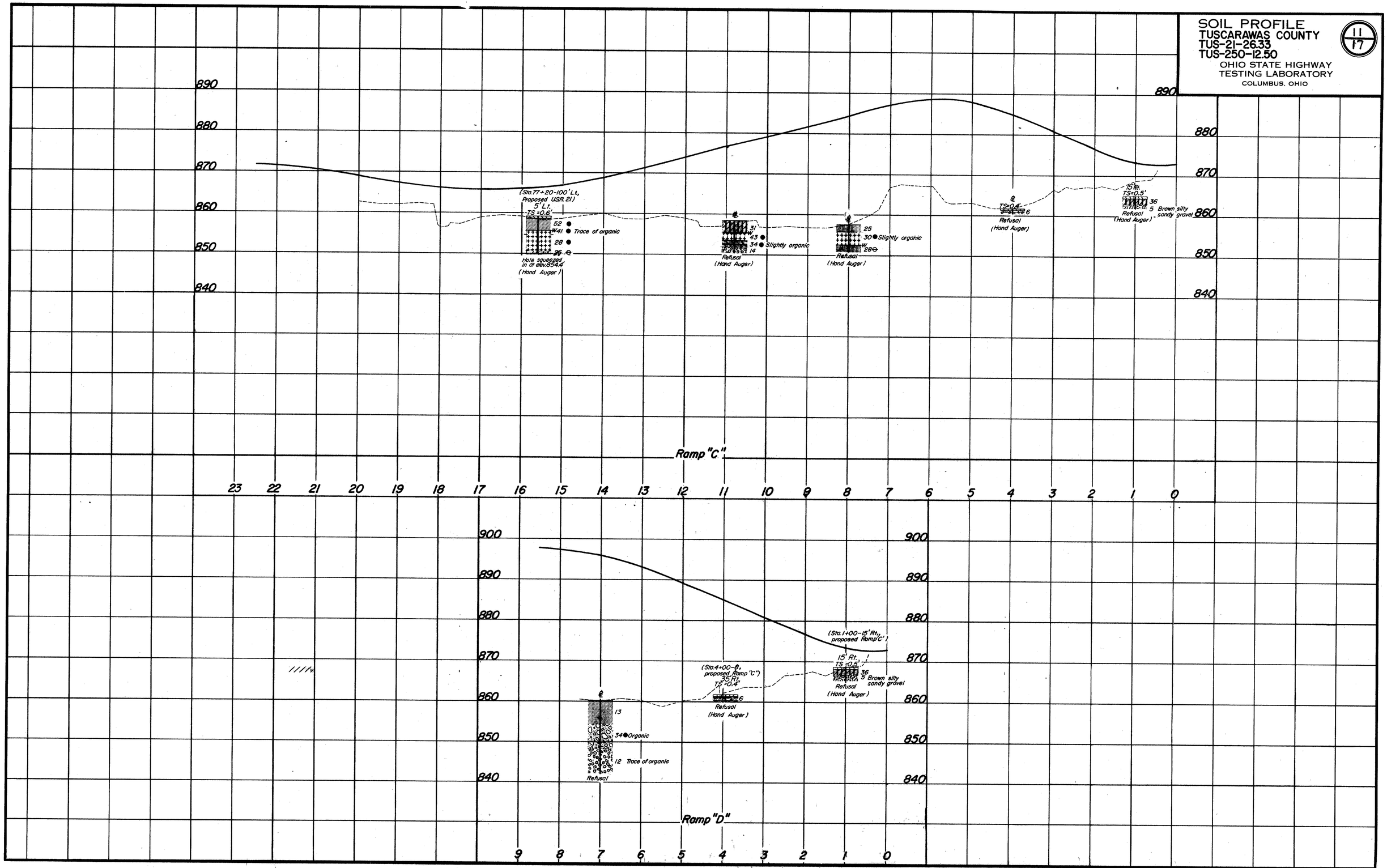

14.8
10 60

SOIL PROFILE

TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-12.50
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

12
17

Cross Section Sta 8+20 Ramp "F"

Proposed grade

Approximate ground line

50 Organic W 30 Slightly Organic
Refusal (Hand Auger)

72 Organic W
Refusal (Peat Sampler)

70 Organic W
Refusal (Peat Sampler)
Brown and gray silty sand w/gravel

66 Organic W
Refusal (Peat Sampler)

58 Organic W 25
Refusal (Hand Auger)

16' Rt.
28
23
7
Refusal
Brown and gray silty sand w/stone fragments

27
35 W
20 Trace of organic
19
Refusal

70 Organic W
Brown and gray silty sand w/gravel
Refusal (Peat Sampler)

Ramp "F"
40 30 20 10 ℄ 10 20 30 40
14 13 12 11 10 9 8 7 6 5

Proposed grade North bound U.S.R. 250

Proposed grade Northbound U.S.R. 250

(Sta. 71+00-℄ proposed U.S.R. 21)
65' Rt.
31
25
30
Refusal (Hole caved in at elev. 857.2') (Hand Auger)

Approximate ground line

℄ TS=0.5'
27
32
19
42 Trace of organic
19
20
15

(Sta. 77+20-100' Rt, proposed U.S.R. 21)
℄ TS=0.5'
53 Organic
31
Refusal (Peat Sampler)
Gray silty sand W/ Gravel, trace of organic

℄ Sod=0.3'
45 Slightly organic
76 Slightly organic
41 Trace of organic
50/0.3'
21
Refusal (Hand Auger)

℄
20
19
Refusal (Boulders)

℄ TS=0.5'
57 Organic W
41 Organic
16
Refusal (Hand Auger)
Slightly organic

50' Lt. TS=0.5'
19
30
30
20 Slightly organic
11

Sod & TS=0.6'
10' Lt.
23
11
29
17 Trace of organic
16

Ramp "E"
24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0

890 880 870 860 850 840 830

TE-54.8
1500-10-60

SOIL PROFILE
TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-12.50
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

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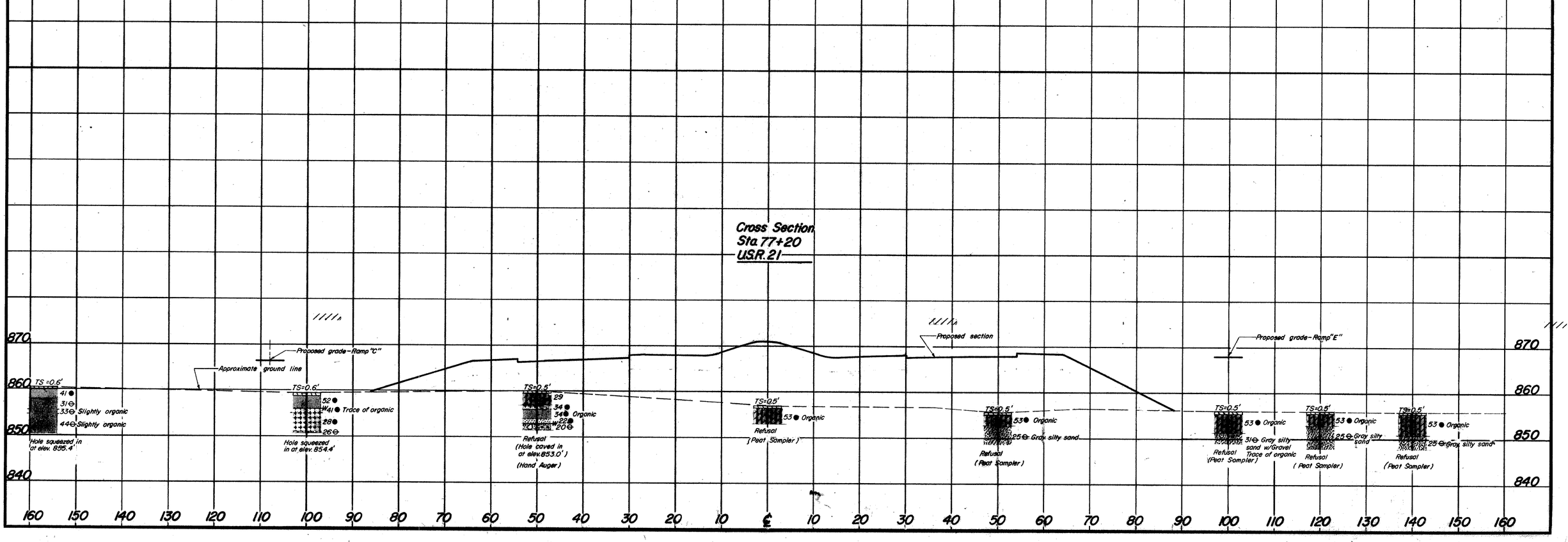
Cross Section
Sta 77+20
U.S.R. 21

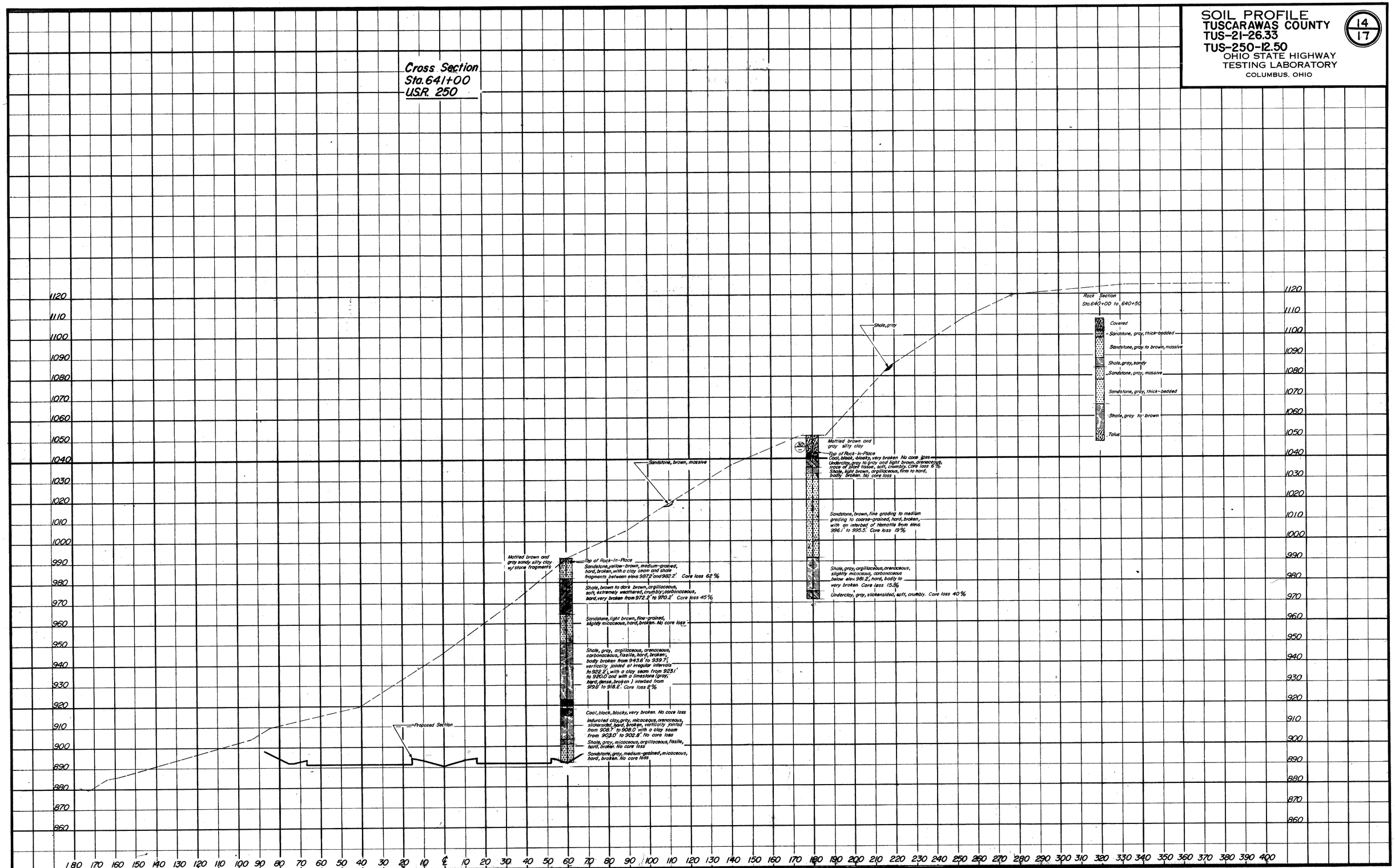


TE-54.8
1500-10-60

SOIL PROFILE
TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-12.50
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

14
17

Cross Section
Sta. 641+00
U.S.R. 250



TE 54 B
1500-10 60

SOIL PROFILE

TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-12.50

OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

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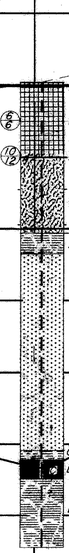
Supplement 3/8/62

Cross Section
Sta. 645+00

980
970
960
950
940
930
920
910
900
890
880
870
860

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

Proposed section



Shale cobbles and fragments.

Shale fragments and a shale block.

Brown silty clay with shale fragments.

Top of Rock-In-Place

A. Shale, brownish-gray, argillaceous, arenaceous, micaceous hard, broken. No Core Loss.

B. Sandstone, light gray, fine-grained, micaceous, hard, broken; with very small shale partings from elev. 900.1' to 895.1'; with shale (gray, micaceous, argillaceous, arenaceous, fissile, hard) lense from elev. 894.1' to 893.7'. No Core Loss.

C. Shale, gray, argillaceous, arenaceous, micaceous, fossiliferous, fissile, hard, broken. No Core Loss.

D. Coal, black, blocky, badly broken. No Core Loss.

E. Shale, gray, argillaceous, arenaceous, micaceous, hard, broken. No Core Loss.

DRIVE SAMPLE SOIL TEST DATA

STATION & OFFSET	DEPTH FROM-TO	% AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTI CLASS.
645+00 ' 6'Rt	5.0-6.0	0	4	4	34	58	44	19	28	A-7-6
	10.0-11.0	62	2	2	13	21	-	-	23	A-1-a

TE 54-B
1500-10 60

SOIL PROFILE
TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-12.50
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

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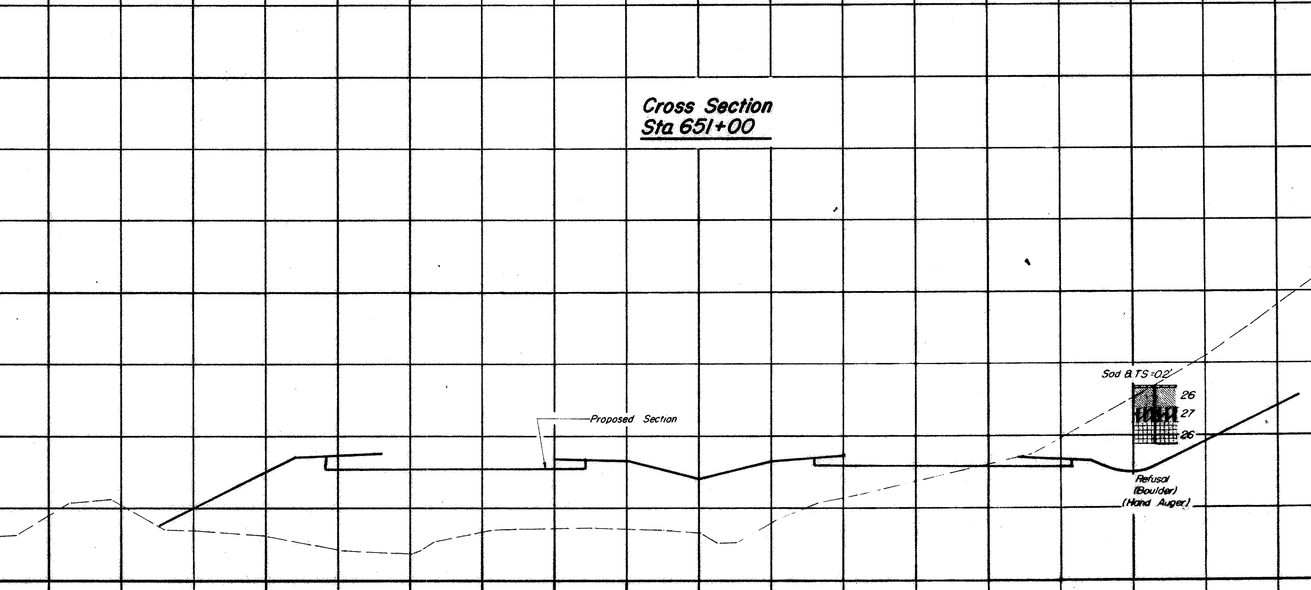
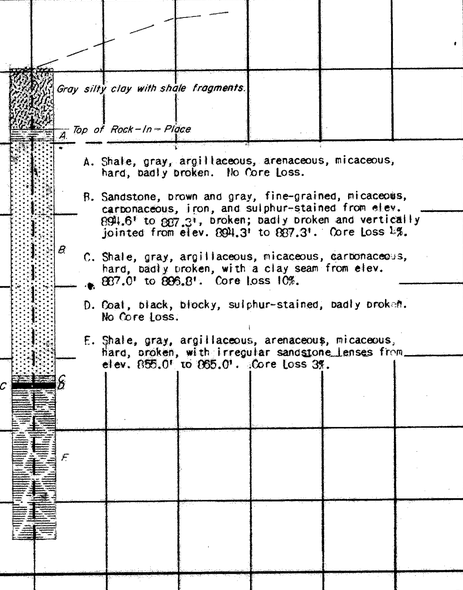
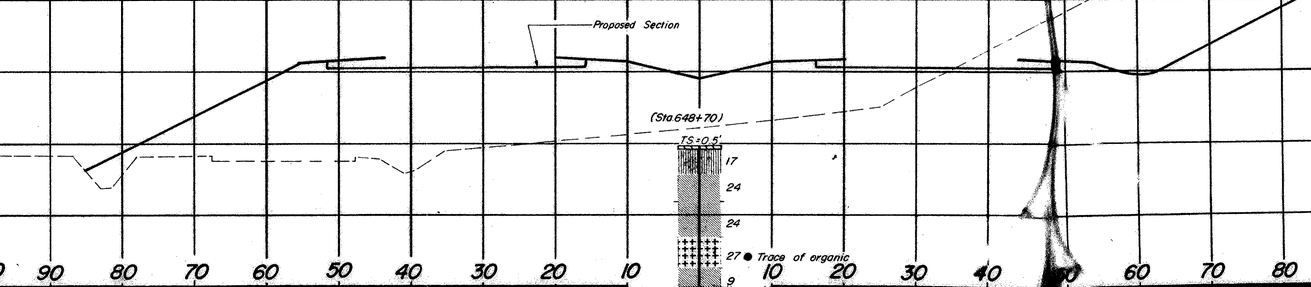
Revised 3/8/62

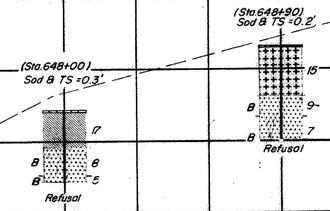
Cross Section Sta 651+00





Cross Section Sta. 648+50





TE.54 B
1500-10-60

SOIL PROFILE
TUSCARAWAS COUNTY
TUS-21-26.33
TUS-250-12.50
OHIO STATE HIGHWAY
TESTING LABORATORY
COLUMBUS, OHIO

17
17

Supplement – 3/8/ 62

Cross Section
Sta. 654+00

940
930
920
910
900
890
880
870
860

Proposed section

(Sta 654+20)

Sandstone cobbles and fragments

Top of Rock – In – Place

A. Sandstone, brown and gray, fine to medium-grained, micaceous, hard, broken; badly broken to elev. 895.7'. Core Loss 2%.

B. Shale, gray, argillaceous, fossiliferous, arenaceous, slickensided, firm, badly broken. No Core Loss.

C. Coal, black, sulphur stained, blocky, badly broken No Core Loss.

D. Shale, gray, argillaceous, highly arenaceous, micaceous, firm to hard, broken; with a clay seam from elev. 883.2' to 882.7'. Core Loss 5%

160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160