

LINE DATA  
BEGIN PROJECT RURAL STA. 1236+00  
SUSPEND RURAL STA. 1342+54.89  
RESUME RURAL STA. 1401+62.63  
END PROJECT RURAL STA. 1424+86.26  
NET PROJECT LENGTH (RURAL) - 12,973.52 LIN. FT. OR 2.453 MILES  
BEGIN URBAN STA. 1342+54.89  
END URBAN STA. 1401+62.63  
NET LENGTH OF PROJECT (URBAN) - 5,907.74 LIN. FT. OR 1.118 MILES  
NO ADDITIONS OR DEDUCTIONS  
TOTAL NET LENGTH OF PROJECT - 18,881.26 LIN. FT. OR 3.571 MILES  
BEGIN WORK STA. 1235+00  
END WORK STA. 1425+00  
ADD FOR WORK (RURAL)  
STA. 1235+00 TO STA. 1236+00 100.00 LIN. FT.  
STA. 1424+86.26 TO STA. 1425+00 13.74 LIN. FT.  
ADD FOR CO. RD. 46 (RURAL)  
STA. 5+36.56 TO STA. 38+28.76 3,292.20 LIN. FT.  
NET LENGTH RURAL - 16,344.6 LIN. FT. OR 3.103 MILES  
ADD FOR ALEXANDER ST. (URBAN)  
STA. 10+84.52 TO STA. 27+69.10 1,684.58 LIN. FT.  
NET LENGTH URBAN - 7,592.32 LIN. FT. OR 1.438 MILES  
TOTAL NET LENGTH OF WORK - 23,936.98 LIN. FT. OR 4.541 MILES

MICROFILMED  
ME 14

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS

JEF-7-23.37

JEFFERSON COUNTY

KNOX & ISLAND CREEK TOWNSHIPS

CITY OF TORONTO

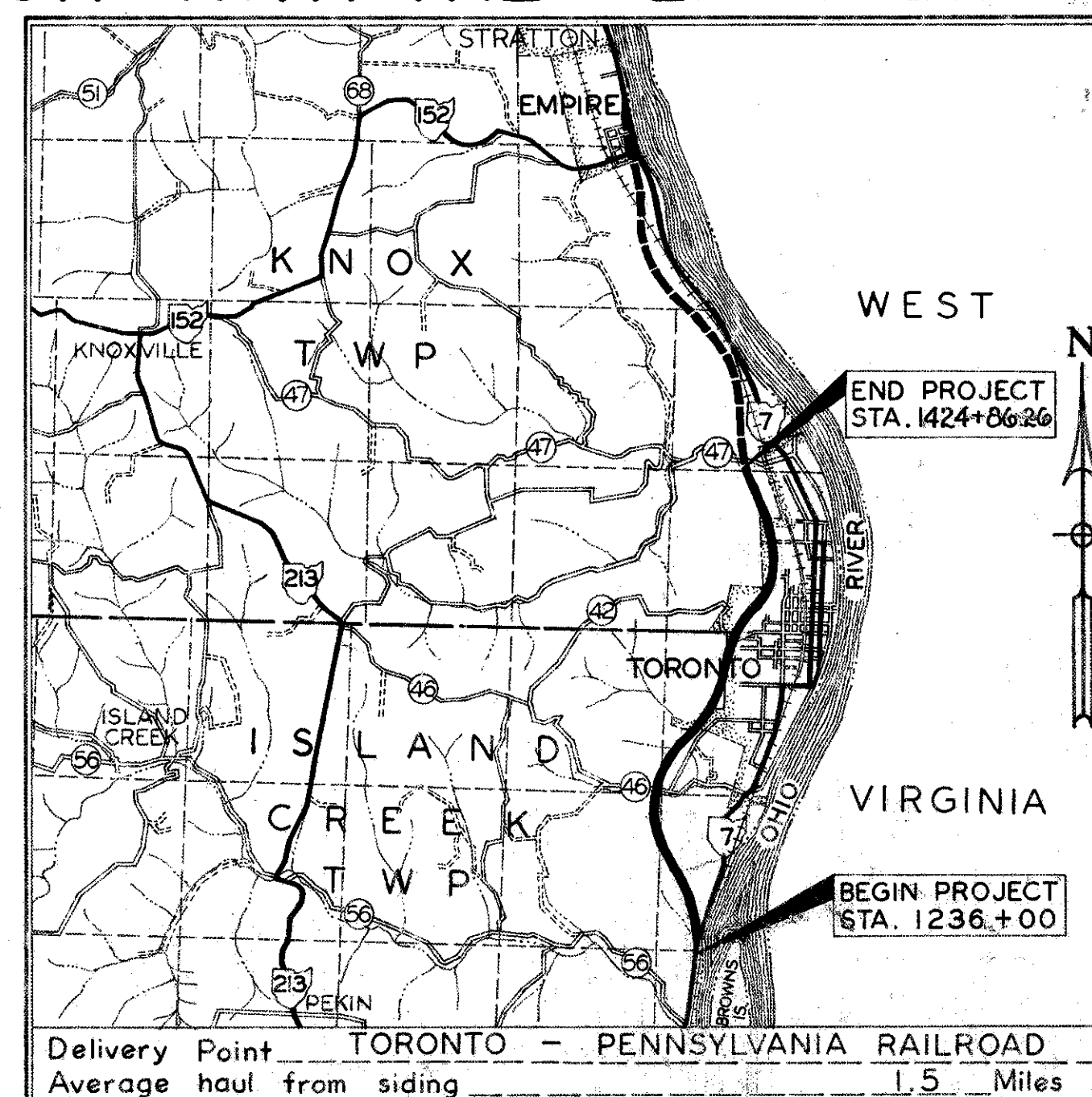
GRADE SEPARATION WITH THE PENNSYLVANIA RAILROAD CO.

CONVENTIONAL SIGNS

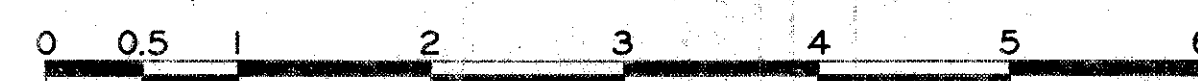
Right of Way Line R W  
Limited Access Line L A  
Right of Way & Limited Access Line LARW  
Township Line  
Section Line  
Center Line  
Corporation Line  
Fence Line  
Guard Rail existing  
Guard Rail proposed  
Railroad Line  
Poles Power & Telephone & Telegraph  
Trees and Stumps Existing To be removed  
Drain Line or Sewer Line New Old  
Property Line  
Existing Right of Way  
Water Line W W  
Gas Line G G

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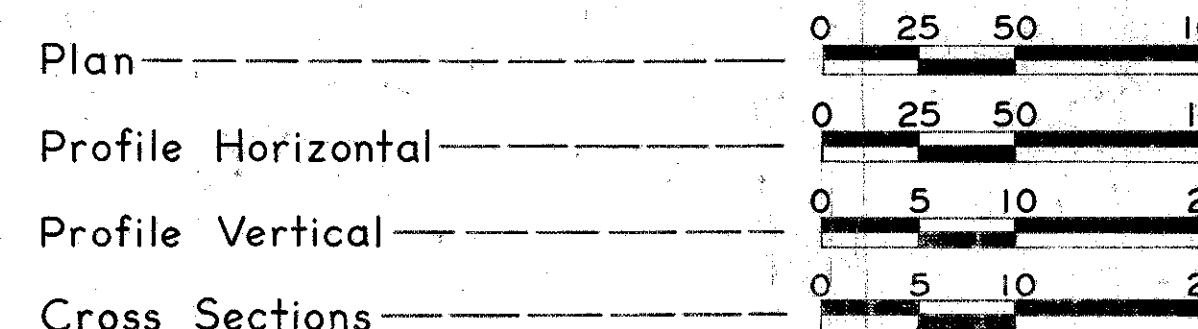


LOCATION MAP  
SCALE IN MILES



Portion to be improved  
State Roads  
Other Roads

SCALE



Rev. 9-5-67  
Revisions on sheets

347  
348  
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Sht. 330 revised 9-14-67 C.E.H.  
Sht. 338 revised 9-13-67 EOL  
Sht. 350, 360, 362 rev. 6-17-68  
Sht. 350, 399 rev. 6-21-68

F-U-431(18)

LIMITED ACCESS - This improvement 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.

1967 SPECIFICATIONS

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

The right of way for this improvement will be provided by the State of Ohio.

I hereby approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway and that provisions for the maintenance and safety of traffic will be as set forth on these plans and estimates.

Approved Earl H. Wilson  
Date 6-9-66 Division Deputy Director

Approved C. H. Delwater  
Date 6-29-67 Engineer of Bridges

Approved R. E. Gathie  
Date 6-29-67 Engineer of Location and Design

Approved W. H. Shultz  
Date 6-29-67 Deputy Director of Design and Construction

Approved T. H. Brand  
Date 7-7-67 Deputy Director of Right of Way

Approved Thomas M. Major  
Date 7-7-67 Deputy Director of Planning and Programming

Approved S. W. Wilson  
Date 7-2-67 First Assistant Director

Approved P. E. Mashiter  
Date 7-2-67 Director of Highways

PREPARED AND RECOMMENDED BY  
W. E. QUICKSALL & ASSOCIATES INC.  
CONSULTING ENGINEERS  
NEW PHILADELPHIA, OHIO

File No. JEFFERSON COUNTY JEF-7-23.37  
Date of Letting 196  
Contract No.

STANDARD DRAWINGS						SUPPLEMENTAL SPECIFICATIONS			
BP-1	6-1-65	CB-5	6-1-65	HW-E	6-1-65	SP-53	6-30-61	808	1-13-67
BP-2	1-10-67	CB-6	6-1-65	I-2	6-1-65	SD-1-65	11-8-65	811	1-1-67
BP-3	1-10-67	F-1	6-1-65	L-1	6-1-65	RB-1-55	2-2-59	814	1-1-67
BP-4	1-10-67	F-3	10-1-66	MC-1	6-1-65	FSB-1-62	1-15-63	816	8-6-65
BP-5	6-1-65	FACI-1	6-1-65	MC-3	5-1-66	BR-1-65	11-24-65	801	1-1-67
BP-6	6-1-65	FACI-2	6-1-65	MC-4	6-1-65	AS-1-54	8-10-65	815	1-1-67
BP-7	1-1-66	GR-1	1-1-67	MC-5	6-1-65	HL-1	11-1-65	825	1-1-67
CB-2-2-A&B	6-1-65	GR-2A	1-1-67	MC-6	6-1-65	HL-2	11-1-65	828	1-1-67
CB-2-3 & 2-4	6-1-65	HW-1	6-1-65	MH-1	6-1-65	HL-3	11-1-65		
CB-3A	6-1-65	MH-2	6-1-65	MH-1A	8-1-66	HL-4	1-1-66		

DEPARTMENT OF TRANSPORTATION  
BUREAU OF PUBLIC ROADS  
APPROVED: \_\_\_\_\_  
DIVISION ENGINEER DATE

Rev. 7-25-67



# SCHEMATIC LAYOUT PLAN

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	JEF-7-23.37

2

DESIGN DESIGNATION	
CURRENT A.D.T. 1969	13700
DESIGN YEAR A.D.T. 1989	27400
D. H. V.	4300
D. (DIRECTIONAL DISTRIBUTION)	2580
T. (PERCENT B & C TRUCKS)	11%
V. (DESIGN SPEED)	60

JEF.-7  
P.I. 1252 + 60.00  
 $\Delta = 41^{\circ}00'38''$  Lt  
Dc = 3'-30'  
Ls = 400'  
Ts = 813.65'  
Lc = 771.73'  
Es = 115.06'  
Rc = 1637.02'

JEF.-7  
P.I. 1272 + 28.78  
 $\Delta = 36^{\circ}43'59''$  Rt.  
Dc = 3'-00'  
Ls = 350'  
Ts = 609.94'  
Lc = 874.44'  
Es = 105.35'  
Rc = 1909.86'

C. R. 46  
P.I. 29 + 22.04  
 $\Delta = 44^{\circ}57'42.5''$  Rt.  
Dc = 5'-00'  
Ls = 400'  
Ts = 676.40'  
Lc = 499.22'  
Es = 100.53'  
Rc = 1145.92'

JEF.-7  
P.I. 1298 + 94.46  
 $\Delta = 31^{\circ}50'59''$  Rt.  
Dc = 114.64'  
Ts = 2171.57'  
Lc = 155.91'  
Rc = 3906.53'

FEDERAL AID CONSTRUCTION IDENTIFICATION SIGN

CENTERLINE MONUMENT ASSEMBLIES				
TO BE SET ON CENTERLINE DURING OR AFTER CONSTRUCTION AT THE FOLLOWING STATIONS				
JEF-7-23.37				
P.O.T. 1240+00	P.O.C. 1297+00	P.O.T. 1360+00	P.O.T. 5+50	P.O.T. 15+00
T.S. 1244+46.35	P.O.C. 1301+00	T.S. 1365+20.79	T.S. 8+33.73	P.O.T. 20+00
S.C. 1248+46.35	P.O.C. 1305+00	S.C. 1368+70.79	S.C. 10+33.73	P.O.T. 25+00
P.O.C. 1252+50	P.T. 1309+51.39	P.O.C. 1375+00	P.O.C. 14+00	
C.S. 1256+18.08	P.O.T. 1315+00	P.O.C. 1380+00	C.S. 17+70.73	
S.T. 1260+18.08	P.O.T. 1320+00	P.O.C. 1385+00	S.T. 19+70.73	
T.S. 1264+18.84	P.O.T. 1326+48.38	P.O.C. 1390+00	T.S. 22+45.64	
S.C. 1267+68.84	P.C. 1328+74.56	C.S. 1394+17.56	S.C. 26+45.64	
P.O.C. 1271+00	P.O.C. 1333+00	P.O.T. 1399+00	C.S. 31+44.86	
P.O.C. 1274+00	P.O.C. 1337+00	P.O.T. 1404+00	S.T. 35+44.86	
C.S. 1276+43.28	P.T. 1341+08.27	T.S. 1408+28.47	P.O.T. 38+00	
S.T. 1279+93.28	T.S. 1342+04.25	S.C. 1412+28.47		
P.O.T. 1284+00	S.C. 1346+04.25	P.O.C. 1417+00		
P.C. 1287+79.82	P.O.C. 1350+50			
P.O.C. 1293+00	S.T. 1356+12.44			

BEGIN WORK  
STA. 1235+00

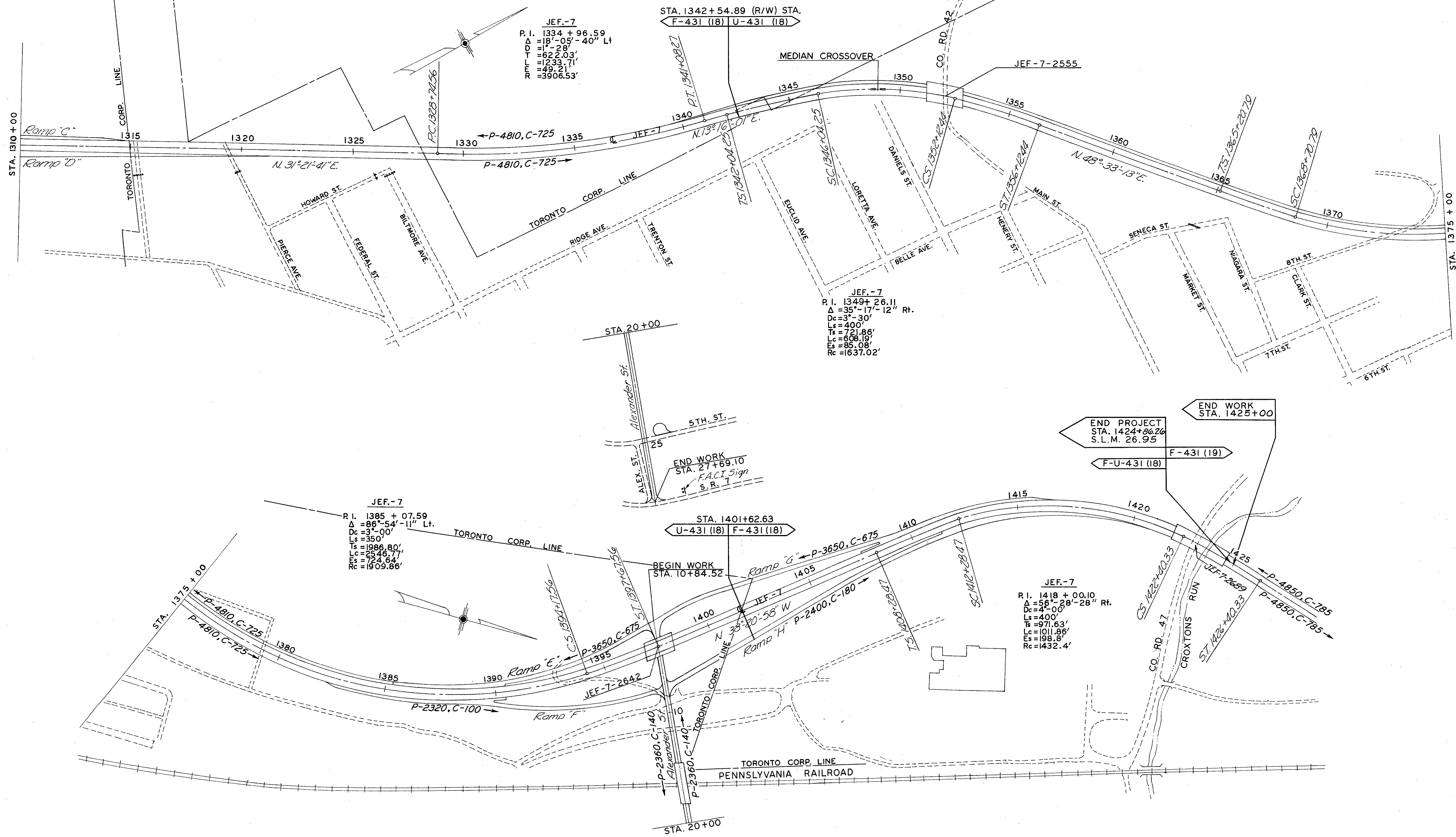
BEGIN PROJECT  
STA. 1236+00  
S.L.M. 23.37

F-U-431 (18)

END WORK  
STA. 38+28.76



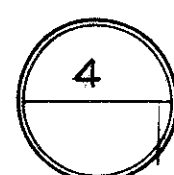
# SCHEMATIC LAYOUT PLAN





GENERAL NOTES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		



JEF-7-23.37

MAINTAINING TRAFFIC - Two way traffic will be maintained at all times on existing S.R. 7, with the exception that one way traffic will be permitted during the paving of the transition between Station 1235+00 and Station 1244+00.

All hauling operations on existing roads and streets shall be subject to load limits as outlined in Chapter 5577 and 5591 of the Revised Code of Ohio and by city regulations.

Two way traffic shall be maintained at all times on Co. Rd. 46 (Knoxville Pike) and Co. Rd. 42 (Main Street).

The Contractor shall be permitted to close Twp.Rd. 615 (Jeddo Rd.) when construction is started on the relocation of Co.Rd. 46.

Traffic within the construction limits on existing S.R. 7 and Co. Rd. 46 shall be maintained on 410 traffic compacted surface stabilized with 616 dust control in a manner satisfactory to the Engineer.

FIELD OFFICE - The Contractor shall, in addition to the requirements of 105.152, provide a suitable field office having a minimum of 400 sq. ft. of floor space. The Contractor shall have a telephone installed and maintained in this field office during the construction of this project. The Contractor shall also provide and maintain sanitary provisions as per 107.06. All the above is included in the lump sum price bid for Field Office.

ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS - The rounded corners shown on Standard Drawing MC-1, as modified by the typical sections, apply to all cross sections, even though otherwise shown on these plans

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.

UTILITIES - The Contractor shall notify, at least 7 working days before breaking ground, all public service corporations having wire, poles, pipes, conduit, manholes or other structures, which may be affected by the operation, including all structures which are affected and not shown on these plans. He shall conduct his operations in such a manner as to avoid damages to any and all utilities. Any and 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.

UTILITY OWNERS -

MANUFACTURERS LIGHT AND HEAT CO. 800 Union Trust Bldg., Pittsburgh, Pennsylvania  
OHIO POWER CO. 301-315 Cleveland Ave.S.W., Canton, Ohio  
OHIO VALLEY GAS CO. Sunset Blvd., Steubenville, Ohio  
OHIO BELL TELEPHONE CO. 223 N. Fifth St., Steubenville, Ohio

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. These items shall not be ordered on the job without the written consent of the Engineer.

CONSTRUCTION LAYOUT STAKES - See note in proposal describing the work included in this lump sum pay item.

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.

CONTRACTOR'S MAINTENANCE RESPONSIBILITY - On this project, the Contractor's responsibility for maintenance of the existing pavement per Item 614 shall be limited to those portions of the existing pavement lying within the proposed work limits.

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 Rt. of Existing S.R. 7 approx. 50' south of Station 1233+50.
2. On the Lt. of Existing S.R. 7 approx. 50' north of it's intersection with Alexander Street.

Sign details shall be as specified on Standard Drawing FACI - 1 Code N-54(1)-96(3). The signs shall be erected in accordance with Standard Drawing FACI - 2. Additional requirements shall be in accordance with notes in the proposal.

REMOVAL OF TREES AND STUMPS - All trees and stumps specifically marked for removal within the construction limits of this project shall be removed under the lump sum price bid for Item 201 Clearing and Grubbing, except that those trees 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	No. TREES	F	U	No. STUMPS	F	U
18"	1286	964	322	62	46	16
30"	34	25	9	8	6	2
48"	3	2	1	0	0	0
60"	0	0	0	0	0	0

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 201 Clearing and Grubbing.

PAVEMENT REMOVAL OUTSIDE NORMAL CONSTRUCTION LIMITS - After the existing pavement as indicated on the plans has been removed, the old roadway shall be graded to the level of the surrounding ground, the old ditches filled and the disturbed areas sloped to drain and left in a neat condition ready for seeding. Seeding shall be measured and paid for in accordance with Item 659 Seeding and Mulching. Payment for all other work required shall be included in the unit price bid for Item 203.

BENCHING OF FOUNDATION SLOPES - The location of the special 30' bench shown on the cross sections at Stations 1330+71-1331+50, 1336+00 - 1341+00 and 1342+50 - 1347+50 are approximate, and shall be raised or lowered as found necessary during construction in order to insure a minimum of 30' of bench in sound bedrock.

Although cross-sections on this plan indicate specific widths and depths of proposed benching of embankment foundation in certain areas, no waiver of specifications is intended and all other slope foundation areas shall be benched as set forth in Item 203.09. No additional payment will be made for benching required by the provisions of Item 203.09.

SEEDING - Quantities for seeding are calculated for the soil areas between lines ten(10) feet outside the work limits, as shown on the cross sections, or to the right-of-way line if such line is less than ten(10) feet from the work limits.

ITEM SPECIAL, CLEANING & DISPOSING OF SEPTIC TANKS - See Note in Proposal governing Description and Basis of Payment of this item. The following estimated quantity has been included in the General Summary:

Item Special-CLEANING & DISPOSING OF SEPTIC TANKS.26 Each

ITEM SPECIAL, DRILLED WELL ABANDONED - The existing concrete or stone slab well cover and pumping equipment shall be removed and disposed of. The casing shall be cut off at least two feet below the proposal finished grade outside proposed pavement areas or at least two feet below the proposed subgrade elevation inside proposed pavement areas and capped with Class "E" Concrete or a standard threaded pipe cap.

The unit price bid for each "Drilled Well Abandoned" shall include payment for all labor, tools, materials, and incidentals necessary to complete this item.

An estimated quantity of 18. Each has been included in the General Summary.

ITEM 203 PROOF ROLLING - An estimated quantity for this item has been provided in the General Summary for use in proof rolling of subgrade for the mainline and ramp pavements, and for paved shoulders, in accordance with Supplemental Specification 801.

"F" 46 Hours

"U" 24 Hours

Total 70 Hours

SCHEDULE OF CONSTRUCTION OPERATIONS - See note in proposal pertaining to schedule of operations.



# GENERAL NOTES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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JEF - 7 - 23.37

CONNECTIONS TO EXISTING PIPE - At places where the plans provide for proposed pipe to be connected to existing pipe, it shall be the responsibility of the Contractor to locate the existing pipe both as to line and grade before he starts to lay the proposed pipe. The cost of this operation shall be included in the unit price bid for the pertinent 603 Conduit Item.

PAVED BITUMINOUS COATED CORRUGATED METAL STRUCTURE - The metal plates that are incorporated into the lower 1/4 of this sectional plate structure shall be shop coated in accordance with Sec. 707.04 and field paved with a bituminous material. The remainder of the plates need not be bituminous coated.

The paving shall consist of a mixture of hot sand and Sec. 702.01 Asphalt Cement or other bituminous mixture acceptable to the Engineer and shall be spread and compacted to the satisfaction of the Engineer. The completed pavement shall be smooth and durable and shall have a minimum average thickness of approximately one inch over the inside crests of the corrugations. After installation of the structure, damaged or worn spots in the bituminous coating on the inside of the structure shall be re-coated using materials and methods recommended by the manufacturer and as directed by the Engineer.

Payment for all of the above shall be included in the unit price bid for the Item 603 Structure.

ITEM 605 AGGREGATE DRAINS - Aggregate drains shall be placed at fifty(50) foot intervals on each side of normal crowned sections and at twenty-five(25) foot intervals on the low side only of superelevated sections, except where Item 605 Pipe Underdrains have been provided.

An aggregate drain shall be placed at the low point of each sag vertical curve.

An estimated quantity of 3500 Lin.Ft. has been included in the General Summary.

SPRINGS DRAINS - Reference is made to the detailed drawing on Sheet No. 15 showing the method of draining any spring that may be shown on the plan or encountered during construction as determined by the Engineer. The following estimated quantities have been included in the General Summary for this purpose:

Item 605 - 6" Unclassified Pipe Underdrain, 707.06 or 707.12, as per plan 1200 L.F.

Item 605 - Aggregate Drains for springs, as per plan 40 L.F.

The Contractor shall not order materials for "Spring Drains" until authorized by the Engineer and in the event no springs are encountered, the item shall be non-performed.

STEPS IN DEEP CATCH BASINS - All catch basins six(6) feet deep or greater shall have steps constructed in accordance with Standard Drawing MH-1. The price of all material and labor for constructing these steps shall be included in the bid price per each of the catch basins

MAINTENANCE OF SEWER FLOWS - The Contractor shall conduct his operations so as to maintain at all times sewer flows through existing facilities to remain in place and through existing facilities to be replaced until new facilities are completed and placed into use.

Payment for any additional costs involved in maintaining these flows by pumping or by any other means approved by the Engineer shall be included in the unit prices bid for the respective items of 603 Conduit.

SEALING OF CONDUIT JOINTS - Where connections are made between rigid and flexible conduit sections or between conduit section of different kind or type of end fabrication, whether required by the plans, or arising from permissible use of optional materials, or encountered in connection to existing facilities, the joint shall be sealed by means of a Class "E" concrete collar having a minimum thickness of 6 inches and a minimum length of 12 inches. Payment for sealing as described above shall be included in the unit price bid for the pertinent 603 conduit item.

EROSION CONTROL - Items 601 and 660 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.

CLOSING OLD MINES - The area in which this project is located has been extensively mined. If during the course of construction old mines are encountered, they shall be backfilled and drained as directed by the Engineer. Payment shall be made at the unit price bid for Item 203 Embankment and 603 Conduit.

The following quantities are included for this purpose.  
Item 603-6" Conduit, Type B, 706.08 with Class "B" Bedding.....100 L.F.  
Item 603-6" Conduit, Type "C", 706.08.....100 L.F.

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

ITEM 310 SUBBASE, GRADING A OR B AS PER PLAN - Material for this item shall meet the requirements of grading A or B of 310.02 except that for either grading, no more than 10% of the material shall pass a No. 200 sieve after all operations of placing and compacting have been completed.

*In order to avoid any conflict with the construction proposed by the Steubenville Metropolitan Housing Authority, adjacent to the 24' conduit crossing mainline sta. 1381+32, the Contractor shall completely construct this culvert to its outlet east of the Pennsylvania Railroad, prior to doing any other work on this project.*

REVIEW OF EXISTING CULVERTS, SEWERS AND DITCHES - Before any work is started on the project, representatives of the State, and the Contractor shall make a visual inspection of the existing highway culverts, sewers and ditches, which are to remain in service and which may be affected by the work. A record of the inspection shall be kept in writing by the State. All new culverts, sewers, ditches, inlets and man-holes constructed as a part of the project shall be free of all foreign matter and in a clean condition before the project will be accepted by the State. All existing culverts, sewers, and ditches inspected initially by the above mentioned parties shall be maintained and left in the same condition as determined by the original inspection. Any change in the condition resulting from the Contractor's operations shall be corrected by the Contractor to the satisfaction of the Engineer. The cost of making inspections and any repairing or correcting of culverts or sewers or ditches, as a result of construction shall be included in the unit price bid for the respective pipe items of the contract.

SUBBASE THICKNESS - In order to prevent frost-heaving the thickness of the subbase from Station 1278+00 to Station 1284+50 will be increased to a total thickness of 18" The cost of this additional material shall be paid for at the unit price bid for Item 310 "Subbase". *The provisions of 203.13 relating to subgrade compaction are waived in the above area.*

ROCK EMBANKMENT - The bottom five(5) feet of the embankment between Station 1419+25 and Station 1421+50 shall be constructed of rock. The cost of this embankment shall be included in the price bid for Item 203 Embankment.

CHANNEL EMBANKMENT - Portions of the existing channel shall be filled and sloped to drain as called for on the plans and included for payment in the price bid for Item 203 Embankment. The Contractor shall use either suitable or unsuitable material to the extent available for channel embankments.

Areas where channel embankments are to be placed shall be cleared of weeds and brush but need not be scalped.

The requirements for moisture, density control, benching, and suitable materials shall be waived.

The depth of layers in which the embankments are placed and their compaction shall, in lieu of the requirements of Item 203, conform with acceptable construction practices as determined by the Engineer.

No provision of the specifications shall be waived for embankments which support any portion of the new pavement, berms, or structural members.

*Estimated Quantity of 240 Cu.Yds. has been provided in the plans for Channel Embankment.*

CUTTING AND PLUGGING WATER LINES The lump sum bid for cutting and plugging water lines shall include all work and material necessary for this item.

451 PAYEMENT REINFORCING ~  
*The 16' maximum length requirement of Standard Drawing BP-2 dated 1-10-67 is hereby waived. All other provisions of BP-2 shall remain in effect.*



# PAVEMENT CALCULATIONS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

6

JEF-7-23.37

## ITEM 451 - 9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT

F 431 (18)  
Sta.1236+00 to 1339+50 = 10,350.00 L.F.  
Deduct for Bridges & 2 Appr. Slabs = 222.53 L.F.  
Net Length = 10,127.47 L.F.  
 $10,127.47 \times 50 \div 9 = 56,263.7$  S.Y.  
Sta.1339+50 to 1342+54.89 = 304.89 L.F.  
 $304.89 \times (50 + 60.45) \frac{1}{2} \div 9 = 1870.8$  S.Y.  
Sta.1401+62.63 to 1421+56.67 = 1994.04x50+9= 11,078.0 S.Y.  
Total Main Line Pavement = 69,212.5 S.Y.  
Ramp "A" (See Sheet No.204 & 205) 3,221.8 S.Y.  
Ramp "B" (See Sheet No.207 & 208) 2,923.1 S.Y.  
Ramp "C" (See Sheet No.210 & 211) 3,439.2 S.Y.  
Ramp "D" (See Sheet No.218 - 220) 4,289.1 S.Y.  
Ramp "G" (See Sheet No.257 & 258) 2,700.1 S.Y.  
Ramp "H" (See Sheet No.271 & 272) 3,046.6 S.Y.  
Reloc.Co.Rd.46 (See Sheet No.183 - 186) 11,995.5 S.Y.  
Add for Median Opening 7.1 S.Y.  
TOTAL F 431 (18) 100,835.0 S.Y.

U 431 (18)  
Sta.1342+54.89 to 1343+00 = 45.11  
 $45.11(60.45 + 62) \frac{1}{2} \div 9 = 306.9$  S.Y.  
Sta.1343+00 to 1385+30 = 4,230 L.F.  
Deduct for Bridge & 2 Appr. Slabs = 174.66 L.F.  
Net Length = 4055.34 L.F.  
 $4055.34 \times 62 \div 9 = 27,936.8$  S.Y.  
Sta.1385+30 to 1401+62.63 = 1632.63 L.F.  
Deduct for Bridges & 2 Appr. Slabs = 168.71 L.F.  
Net Length = 1463.92 L.F.  
 $1463.92 \times 50 \div 9 = 8,132.9$  S.Y.  
Total Main Line Pavement = 36,376.6 S.Y.  
Ramp "E" (See Sheet No.247) 2,471.3 S.Y.  
Ramp "F" (See Sheet No.253 & 254) 2,941.6 S.Y.  
Ramp "G" (See Sheet No.257) 640.9 S.Y.  
Ramp "H" (See Sheet No.271) 972.7 S.Y.  
Alexander Street(See Sheet No.238 & 239) 3,945.0 S.Y.  
Add for Median Opening 7.1 S.Y.  
TOTAL U 431 (18) 47,355.2 S.Y.

## ITEM 310 SUBBASE A OR B

F 431 (18)  
Under Pav't. =  $69,212.5 \times 6 \div 36 = 11,535.4$  C.Y.  
Length of Median =  
 $10,127.47 + 304.89 + 1994.04 - 140 = 12,286.40$  L.F.  
Under Median =  $12,286.40 \times 3 \times 1 \div 27 = 1,365.2$  C.Y.  
Under Approach Slabs Co.Rd. 46 Bridge & Co.Rd. 47 Bridge  
 $626.4 \times 6 \div 36 = 104.4$  C.Y.  
Extra thickness 1278+00 to 1284+50  
 $650 \times 53 \times 1 \div 27 = 1275.9$  C.Y.  
Total Under Pavement 14,280.9 C.Y.  
Add for Median Opening  $20 \times 3 \times \frac{1}{2} \div 27 = 1.1$  C.Y.  
Extra at Ramp Noses = 9.0 C.Y.  
Berm with no Underdrain = 4125.5 L.F.  
 $4125.5 \times .49$  S.F.  $\div 27 = 74.8$  C.Y.  
Berm with Underdrain = 15,372.82 L.F.  
 $15,372.82 \times 1.41 \div 27 = 802.8$  C.Y.

## ITEM 310 SUBBASE A OR B (Continued)

F 431 (18)  
Ramp "A" (See Sheet No.204 & 205) 683.8 C.Y.  
Ramp "B" (See Sheet No.207 & 208) 609.5 C.Y.  
Ramp "C" (See Sheet No.210 & 211) 712.5 C.Y.  
Ramp "D" (See Sheet No.218 - 220) 908.9 C.Y.  
Ramp "G" (See Sheet No.257 & 258) 580.1 C.Y.  
Ramp "H" (See Sheet No.271 - 273) 647.9 C.Y.  
TOTAL F 431 (18) 19,311.0 C.Y.  
U 431 (18) Add for Ramps A & B (Sta.1278+00-1284+50) 459.0 19,770.0 C.Y.  
Pavement Area 1342+54.89 to 1401+62.63 = 36,376.6 S.Y.  
Under Pavement =  $36,376.6 \times 6 \div 36 = 6062.8$  C.Y.  
Length of Median 1342+54.89 to 1401+62.63 = 5907.74 L.F.  
Deduct for Bridges  $174.66 + 168.71 = 343.37$  L.F.  
Net Length of Median =  $5907.74 - 343.37 - 88 = 5476.37$  L.F.  
Under Median  $5476.37 \times 3 \times 1 \div 27 = 608.5$  C.Y.  
Under Approach Slabs  $661.2 \times 6 \div 36 = 110.2$  C.Y.  
Total Under Pavement 6,781.5 C.Y.  
Add for Median Opening  $20 \times 3 \times \frac{1}{2} \div 27 = 1.1$  C.Y.  
Extra at Ramp Noses = 3.5 C.Y.  
Berm with no Underdrain = 3032.11 L.F.  
 $3032.11 \times .49$  S.F.  $\div 27 = 55.0$  C.Y.  
Berm with Underdrain = 6718.41 L.F.  
 $6718.41 \times 1.41$  S.F.  $\div 27 = 350.9$  C.Y.  
Ramp "E" (See Sheet No.247) 496.1 C.Y.  
Ramp "F" (See Sheet No.253 & 254) 606.6 C.Y.  
Ramp "G" (See Sheet No.257) 141.3 C.Y.  
Ramp "H" (See Sheet No.271) 204.0 C.Y.  
TOTAL U 431 (18) 8,640.0 C.Y.

## ITEM 310 SUBBASE

F 431 (18)  
Main Line  
Berm with no Underdrain = 4,125.5 L.F.  
 $4125.5 \times 2.84 \div 27 = 433.9$  C.Y.  
Berm with Underdrain = 15,372.82 L.F.  
 $15,372.82 \times 1.927 \div 27 = 1097.2$  C.Y.  
Extra at Ramp Noses = 115.2 C.Y.  
Ramp "A" (See Sheet No.204 & 205) 84.3 C.Y.  
Ramp "B" (See Sheet No.207 & 208) 64.8 C.Y.  
Ramp "C" (See Sheet No.210 & 211) 78.2 C.Y.  
Ramp "D" (See Sheet No.219 & 220) 84.4 C.Y.  
Ramp "G" (See Sheet No.258) 65.2 C.Y.  
Ramp "H" (See Sheet No.271 & 272) 84.8 C.Y.  
Reloc.Co.Rd. 46 (See Sheet No.183 - 186) 2060.5 C.Y.  
Reloc. Fernwood Dr.(See Sheet No.230) 274.5 C.Y.  
Reloc. Nebo Dr. (See Sheet No.233) 298.9 C.Y.  
Knoxville Pike (See Sheet No.236) 170.0 C.Y.  
TOTAL F 431 (18) 4911.9 C.Y.

## U 431 (18)

Main Line  
Berm with no Underdrain = 3032.11 L.F.  
 $3032.11 \times 2.84 \div 27 = 318.9$  C.Y.  
Berm with Underdrain = 6718.41 L.F.  
 $6718.41 \times 1.927 \div 27 = 479.5$  C.Y.  
Extra at Ramp Noses 31.3 C.Y.  
Ramp "F" (See Sheet No.253) 65.2 C.Y.  
Alexander St.(See Sheet No.238 & 239) 682.2 C.Y.  
TOTAL U 431 (18) 1577.1 C.Y.

## ITEM 304 AGGREGATE BASE

F 431 (18)  
Net Length of Berm Main Line Lt. & Rt. = 18,163.77 L.F.  
 $18,163.77 \times 3.75 \div 27 = 2,522.7$  C.Y.  
Extra at Ramp Noses = 126.9 C.Y.  
Ramp "A" (See Sheet No.204 & 205) 97.9 C.Y. 196  
Ramp "B" (See Sheet No.207 & 208) 79.9 C.Y. 160  
Ramp "C" (See Sheet No.210 & 211) 95.1 C.Y. 190  
Ramp "D" (See Sheet No.218 - 220) 114.8 C.Y. 229  
Ramp "G" (See Sheet No.257 & 258) 75.5 C.Y. 151  
Ramp "H" (See Sheet No.271 - 273) 118.3 C.Y. 237  
Reloc. Fernwood Dr.(See Sheet No.230) 349.9 C.Y.  
Reloc. Nebo Drive (See Sheet No.233) 381.2 C.Y.  
Knoxville Pike (See Sheet No.236) 217.3 C.Y.  
Reloc.Co.Rd. 46 (See Sheet No.183 - 186) 552.7 C.Y.  
Truck Lane 1339+50 to 1342+54.89 = 304.89 L.F.  
 $304.89 \times \frac{8 + 3.64}{2} \times \frac{1}{2} \div 27 = 32.9$  C.Y.  
TOTAL F 431 (18) 4,765.1 C.Y. 5,347

## U 431 (18)

Net Length of Berm Main Line Lt. & Rt. = 5,722.48 L.F.  
 $5,722.48 \times 3.75 \div 27 = 794.8$  C.Y.  
Extra at Ramp Noses 50.6 C.Y.  
Ramp "E"(See Sheet No.247) 17.9 C.Y. 36  
Ramp "F"(See Sheet No.253 & 254) 80.2 C.Y. 161  
Ramp "G"(See Sheet No.257) 10.0 C.Y. 20  
Ramp "H"(See Sheet No.271) 16.9 C.Y. 34  
Alexander St. (See Sheet No.238 & 239) 199.2 C.Y.  
Truck Lane 1342+54.89 to 1385+30 = 4275.11 L.F.  
Deduct for Bridge = 124.66 L.F.  
 $4150.45 \times 1.25 \div 27 = 192.2$  C.Y.  
Total U 431 (18) 1,361.8 C.Y. 1,488

## ITEM 301 BITUMINOUS AGGREGATE BASE

F 431 (18)  
Net Length of 8' Berm Main Line Lt. & Rt. = 18,163.77 L.F.  
 $18,163.77 \times 2.0 \div 27 = 1,345.5$  C.Y.  
Extra at Ramp Noses 60.2 C.Y.  
Ramp "A"(See Sheet No. 204 & 205) 258.8 C.Y. 129  
Ramp "B"(See Sheet No. 207 & 208) 214.6 C.Y. 107  
Ramp "C"(See Sheet No. 210 & 211) 252.4 C.Y. 126  
Ramp "D"(See Sheet No. 218 - 220) 322.3 C.Y. 161  
Ramp "G"(See Sheet No. 257 & 258) 202.1 C.Y. 101  
Ramp "H"(See Sheet No. 271 - 273) 255.9 C.Y. 128  
Truck Lane 304.89  $(8 + 3.64) \times 0.25 \div 27 = 16.4$  C.Y.  
TOTAL F 431 (18) 2,928.2 C.Y. 2,174

## U 431 (18)

Net Length of 8' Berm Main Line Lt. & Rt. = 5,722.48 L.F.  
 $5,722.48 \times 2.0 \div 27 = 423.9$  C.Y.  
Extra at Ramp Noses 25.3 C.Y.  
Ramp "E"(See Sheet No. 247) 102.3 C.Y. 51  
Ramp "F"(See Sheet No. 253 & 254) 215.4 C.Y. 108  
Ramp "G"(See Sheet No. 257) 39.3 C.Y. 20  
Ramp "H"(See Sheet No. 271) 50.2 C.Y. 25  
Truck Lane 1342+54.89 + 1343+00 = 45.11 L.F.  
 $45.11 (3 + 3.64) \frac{1}{2} \times .25 \div 27 = 1.4$  C.Y.  
Truck Lane 1343+00 to 1385+30 = 4230.00 L.F.  
Deduct for Bridge 124.66 L.F.  
 $4105.34 \times 3.0 \times .25 \div 27 = 114.0$  C.Y.  
TOTAL U 431 (18) 971.8 C.Y. 769

# PAVEMENT CALCULATIONS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		7

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## ITEM 402 ASPHALTIC CONCRETE

F 431 (18)

Reloc. Fernwood Dr. (See Sheet No. 230)	52.2 C.Y.
Reloc. Nebo Drive (See Sheet No. 233)	56.9 C.Y.
Knoxville Pike (See Sheet No. 236)	32.5 C.Y.
TOTAL F 431 (18)	141.6 C.Y.

## ITEM 404 ASPHALTIC CONCRETE

F 431 (18)

Reloc. Fernwood Dr. (See Sheet No. 230)	52.2 C.Y.
Reloc. Nebo Drive (See Sheet No. 233)	56.9 C.Y.
Knoxville Pike (See Sheet No. 236)	32.5 C.Y.
TOTAL F 431 (18)	141.6 C.Y.

## ITEM 409 SEAL COAT BITUMINOUS MATERIAL, AS PER PLAN

F 431 (18)

Net length of 8' Berm Main Line Lt. & Rt. 18,163.77 L.F.	
18,163.77 x 8 ÷ 9 = 16,145.6 S.Y.	
Truck Lane 1339+50 to 1342+54.89 = 304.89 L.F.	
304.89 x (8+3.64) x 1/2 ÷ 9 = 197.2 S.Y.	
Total Main Line & Truck Lane = 16,342.8 x .30 = 4,903 Gal.	4,903
Extra at Ramp Noses	246 Gal. 295
Ramp "A" (See Sheet No. 204 & 205)	388 Gal. 465
Ramp "B" (See Sheet No. 207 & 208)	322 Gal. 386
Ramp "C" (See Sheet No. 210 & 211)	378 Gal. 454
Ramp "D" (See Sheet No. 218 - 220)	484 Gal. 581
Ramp "G" (See Sheet No. 257 & 258)	303 Gal. 363
Ramp "H" (See Sheet No. 271 & 272)	384 Gal. 461
TOTAL F 431 (18)	6,591 Gal. 7,908

U 431 (18)

Net Length of 8' Berm Main Line Lt. & Rt. 5722.48 L.F.	
5722.48 x 8 ÷ 9 = 5086.7 S.Y.	
Truck Lane 1342+54.89 to 1343+00 = 45.11 L.F.	
45.11 x (3.64+3) x 1/2 ÷ 9 = 16.6 S.Y.	
Truck Lane 1343+00 to 1385+30 = 4230.00 L.F.	
Deduct for Bridge = 124.66 L.F.	
4105.34 x 3 ÷ 9 = 1368.4 S.Y.	
Main Line and Truck Lane = 6471.7 x .30 = 1,942 Gal.	1,942
Extra at Ramp Noses	76 Gal. 91
Ramp "E" (See Sheet No. 247)	145 Gal. 174
Ramp "F" (See Sheet No. 253 & 254)	323 Gal. 388
Ramp "G" (See Sheet No. 257)	59 Gal. 71
Ramp "H" (See Sheet No. 271)	75 Gal. 90
TOTAL U 431 (18)	2,296 Gal. 2,756

## ITEM SPECIAL DRAINAGE CONNECTION

F 431 (18)

3024 x 1.72 ÷ 27 = 192.6 C.Y.	
26,398 x 1.25 ÷ 27 = 1,222.1 C.Y.	
TOTAL F 431 (18)	1,414.7 C.Y.

U 431 (18)

2593 x 1.72 ÷ 27 = 164.8 C.Y.	
10,251 x 1.25 ÷ 27 = 474.6 C.Y.	
TOTAL U 431 (18)	639.4 C.Y.

## ITEM 409 SEAL COAT COVER AGGREGATE

F 431 (18)

Total Main Line & Truck Lane = 16,342.8 x .008 = 130.7 C.Y.	
Extra at Ramp Noses	7.9 C.Y.
Ramp "A" (See Sheet No. 204 & 205)	12.4 C.Y.
Ramp "B" (See Sheet No. 207 & 208)	10.3 C.Y.
Ramp "C" (See Sheet No. 210 & 211)	12.1 C.Y.
Ramp "D" (See Sheet No. 218 - 220)	15.4 C.Y.
Ramp "G" (See Sheet No. 257 & 258)	9.7 C.Y.
Ramp "H" (See Sheet No. 271 - 273)	12.4 C.Y.
Reloc. Co. Rd. 46 (See Sheet No. 183 - 186)	20.3 C.Y.
TOTAL F 431 (18)	231.2 C.Y.

U 431 (18)

Total Main Line & Truck Lane = 6471.7 x .008 = 51.8 C.Y.	
Extra at Ramp Noses	2.4 C.Y.
Ramp "E" (See Sheet No. 247)	4.6 C.Y.
Ramp "F" (See Sheet No. 253 & 254)	10.4 C.Y.
Ramp "G" (See Sheet No. 257)	1.9 C.Y.
Ramp "H" (See Sheet No. 271)	2.4 C.Y.
Alexander St. (See Sheet No. 238 & 239)	8.0 C.Y.
TOTAL U 431 (18)	81.5 C.Y.

## ITEM 408 BITUMINOUS PRIME COAT

F 431 (18)

Reloc. Fernwood Dr. (See Sheet No. 230)	601.0 Gals.
Reloc. Nebo Drive (See Sheet No. 233)	655.0 Gals.
Knoxville Pike (See Sheet No. 236)	374.0 Gals.
Reloc. Co. Rd. 46 (See Sheet No. 183 - 186)	993.5 Gals.
TOTAL F 431 (18)	2,623.5 Gals.

U 431 (18)

Alexander St. (See Sheet No. 238 & 239)	359.0 Gals.
TOTAL U 431 (18)	359.0 Gals.

## ITEM 203 SUB - GRADE PREPARATION

F 431 (18)

Main Line Pavement =	69,213 S.Y.
Main Line Berms (from 409) =	16,343 S.Y.
Extra at Ramp Noses =	984 S.Y.
Ramp "A" (See Sheet No. 204 & 205)	4,775 S.Y.
Ramp "B" (See Sheet No. 207 & 208)	4,211 S.Y.
Ramp "C" (See Sheet No. 210 & 211)	4,954 S.Y.
Ramp "D" (See Sheet No. 218 - 220)	6,223 S.Y.
Under 2 Approach Slabs	294 S.Y.
Ramp "G" (See Sheet No. 257 & 258)	3,913 S.Y.
Ramp "H" (See Sheet No. 271 & 272)	4,581 S.Y.
Reloc. Fernwood Dr. (See Sheet No. 230)	1,864 S.Y.
Reloc. Nebo Dr. (See Sheet No. 233)	2,027 S.Y.
Knoxville Pike (See Sheet No. 236)	1,163 S.Y.
Reloc. Co. Rd. 46 (See Sheet No. 183-186)	13,463 S.Y.
Deduct for Rock Cuts	20,770 S.Y.
TOTAL F 431 (18)	113,238 S.Y.

U 431 (18) Deduct for extra depth 3/10 (278+00-1284+50) 5,207 S.Y. 108,031 S.Y.

Main Line Pavment =	36,377 S.Y.
Main Line Berms (from 409) =	6,472 S.Y.
Extra at Ramp Noses =	303 S.Y.
Ramp "E" (See Sheet No. 247)	3,049 S.Y.
Ramp "F" (See Sheet No. 253 & 254)	4,235 S.Y.
Ramp "G" (See Sheet No. 257)	877 S.Y.
Ramp "H" (See Sheet No. 271)	1,275 S.Y.
Alexander St. (See Sheet No. 238 & 239)	4,436 S.Y.
Deduct for Rock Cut	4,150 S.Y.
TOTAL U 431 (18)	52,874 S.Y.

## ITEM 612 CONCRETE MEDIAN

F 431 (18)

Sta. 1242+58.06 to 1342+54.89 =	9,996.83 L.F.
Sta. 1401+62.63 to 1421+56.67 =	1,994.04 L.F.
	11,990.87 L.F.
Deduct for Bridge, Inlets & Crossover=	358.53 L.F.
Net Length = 11,632.34 x 3 ÷ 9 =	3877.4 S.Y.
TOTAL F 431 (18)	3877.4 S.Y.

U 431 (18)

Sta. 1342+54.89 to 1401+62.63 =	5,907.74 L.F.
Deduct for Bridges, Inlets & Crossover=	431.37 L.F.
Net Length = 5476.37 x 3 ÷ 9 =	1825.5 S.Y.
TOTAL U 431 (18)	1825.5 S.Y.

## ITEM 452 - 9" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT

F 431 (18)

Sta. 1236+00 to 1242+58.06 = 658.06 L.F.	
658.06 x 3 ÷ 9 =	219.4 S.Y.

## ITEM 410 TRAFFIC COMPACTED SURFACE TYPE A OR B

F 431 (18)

Estimated Length 3800 L.F. x 150 + 100 = 5700 C.Y.	
5700 x 0.25 = 1425 C.Y.	
TOTAL F 431 (18)	1,425 C.Y.

## ITEM 410 TRAFFIC COMPACTED SURFACE TYPE C

F 431 (18)

5700 x 0.75 =	4,275 C.Y.
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## ITEM 616 CALCIUM CHLORIDE

F 431 (18)

5700 + 50 = 114 Ton	
Estimated for Dust Control 20 ton	
TOTAL F 431 (18)	134 Ton

U 431 (18)

Estimated for Dust Control 20 Ton	
TOTAL U 431 (18)	20 Ton

## ITEM 616 WATER

F 431 (18)

Estimated F 431 (18)	75 M-Gal.
Estimated U 431 (18)	75 M-Gal.

## ITEM 409 SEAL COAT BITUMINOUS MATERIAL

F 431 (18)

Reloc. Co. Rd. 46 (See Sheet No. 183 - 186)	
TOTAL F 431 (18)	739.0 Gal.

U 431 (18)

Alexander St. (See Sheet No. 238 & 239)	
TOTAL U 431 (18)	269.0 Gal.



# SUMMARY TABLES

NOTE: • Class B Bedding

≠ or 706.01

## CULVERTS

[illegible]

**NOTE :**  
Fittings and backing concrete included  
in price bid for pertinent water  
line items

# WATER LINES

[illegible]

## DRIVES AND APPROACHES

SHEET NO.	GRAVEL AND CRACKS									
	202	203	304	310	402	404	408	603	CONDUIT	
	Pipe Removed 24" & Under	Subgrade Preparation	Aggregate Base	Subbase	Asphalt Concrete	Asphalt Concrete	Bituminous Prime Coat	12" Type F	15" Type F	18" Type F 707.04
F431 (18)	L.F.	S.Y.	C.Y.	C.Y.	C.Y.	C.Y.	Gal.	L.F.	L.F.	L.F.
27			33							
230	42		49			15	110	110		
233			16			4	29			54
236			78			16	116	42	96	
26						30				
Total	42		176			65	255	152	96	54
U431 (18)										
239		313	65.8	51	10	10	115			



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NOTE: • Class B Bedding

# SUMMARY TABLES

SEWERS																				
SHEET NO.	203	601			602	603 CONDUIT								604						
	Excavation	Dumped Rock Channel Prot.	Riprap 6" Reinf. Concrete Slab	Paved Gutter Modified Type 1-2	Concrete Masonry	•12" Type B	•12" Type C	12" Type F	•15" Type B	•18" Type B	•27" Type C	•30" Type B	30" Type F	Standard Median Inlet					Standard Catch Basin	Modified Catch Basin
																			No. 1	
														No. 2-6	No. 2-8	No. 2-10	No. 2-12	No. 2-14	No. 2-18	No. 2-20
F 431 (18)	C.Y.	C.Y.	S.Y.	L.F.	C.Y.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	Each	Each	Each	Each	Each	Each	Each
27			2	10		120														
29					0.3	138										2				
30		4			0.3	70									1					
31		1			0.3	288								3						
32		2			0.3	56												1		
34						154									1			1		
35						84														
36						50														
186			5		0.3		30												1	
257	121		46		3.9								114							
43					0.3	38		126												
Total	121	7	53	10	5.7	998	30	126					114	3	2	2	1	2	2	1
U 431 (18)																				
36		1			0.3	80		62						1					1	
37		2			0.3	42		42									1			
40						190			152					2						
238			10	40		78				142	246							2		2
254	1			20	0.6						76								1	
Sub-Total	1	3	10	60	1.2	390		104	152	142	246	76		3				1	1	2
★ Total	460	15	28	80	1.6	390		104	152	142	246	76							4	5

Sheet No.	203	601			602	603 CONDUIT				604		202	603	603
	Excavation	Dumped Rock Channel Protection	Riprap 6" Reinf. Concrete Slab	Paved Gutter Mod. Type 1-2	Concrete Masonry	•24" Type "B" 706.02 Class III	•24" Type "B" 706.02 Class II or 706.08 under R.R.	•24" Type "B" 706.02 Class II	24" Type "F"	Modified Catch Basin No. 2-3	STD Manhole No. 1	STD Manhole No. 2	Portions of Exist. Structures Removed	Pipe 24" and Under
U 431 (18)	C.Y.	C.Y.	S.Y.	L.F.	C.Y.	L.F.	L.F.	L.F.	L.F.	Each	Each	Each	Lump Sum	L.F.
39	459	12	18	20	0.4	112	222	52	258	2	3	1	Lump	18
★ Total						112	222	52	258		1		Lump	18
F-431 (18)							TYPE	CODE	Y060					
100% State														
30														200
31														500
TOTAL														500

★ Total includes quantities from Sheet No. 39 as indicated in bottom box.  
† Total in bottom box are those quantities that lacked a column in top box.

PAVEMENT									
SHEET NO.	609					611	612	608	
	Concrete Curb Std. Type 2	Concrete Curb Std. Type 2-A	Concrete Curb Std. Type 6	Concrete Curb Std. Type 7	Concrete Curb Std. Type 8	Reinf. Concrete Approach Slabs	Concrete Median	4" Concrete Walk	
	L.F.	L.F.	L.F.	L.F.	L.F.	S.Y.	S.Y.	S.F.	
F 431 (18)									
31						294.4			
186		551.38							
204					100				
205				152	170				
208			131				28		
211			147				17		
219				118	224				
258			85				46		
272				103	231				
43						332.0			
Total		551.38	363	373	725	626.4	91		
U 431 (18)									
36						180.6			
37						180.6			
41						300			
238						133.4			
239	633.9							190	
247				122	195				
253			145				23		
Total	633.9		145	122	195	794.6	23	190	

EARTHWORK AND SEEDING						
STATION		Exc.	Emb.	Seeding	Fertilizer	Lime
FROM	TO	Cu. Yds.	Cu. Yds.	Sq. Yds.	Tons	Tons
F 431 (18)						
1235+50	1342+54.89	638,652	410,637	148,796	13.39	66.95
1401+62.63	1425+00	276,927	152,883	36,545	3.29	16.45
C.R. 46		39,263	75,909	35,442	3.19	15.95
Ramp "A"		682	3,691	3,026	0.27	1.36
Ramp "B"		289	9,071	2,976	0.27	1.34
Ramp "C"		103,539	54	19,457	1.75	8.76
Ramp "D"		27,500	12,231	12,594	1.13	5.67
Ramp "G"		102,909	0	4,718	0.42	2.12
Ramp "H"		31,060	1,116	7,603	0.68	3.42
Knoxville Pike		4,930	37	2,328	0.21	1.05
Reloc. Fernwood Dr.		607	3,368	4,995	0.45	2.25
Reloc. Nebo Dr.		4,608	7,786	7,991	0.72	3.60
TOTAL F 431 (18)		1,230,966	676,783	286,471	25.77	128.92
U 431 (18)						
1342+54.89	1401+62.63	255,641	423,719	103,102	9.28	46.40
Alexander St.		12,351	50,507	12,620	1.14	5.68
Ramp "E"		84,675	0	10,287	0.93	4.63
Ramp "F"		2,012	2,618	3,602	0.32	1.62
Ramp "G"		92,866	0	10,531	0.95	4.74
Ramp "H"		1,671	2,407	3,546	0.32	1.60
TOTAL U-431 (18)		449,216	479,251	143,688	12.94	64.67
GRAND TOTAL		1,680,182	1,156,034	430,159	38.71	193.59

ADD FOR SODDING AND BERM PROTECTION

	Fertilizer	Liming
F-431 (18)	0.62 Tons	3.1 Tons
U-431 (18)	0.23 Tons	1.15 Tons

TO GENERAL SUMMARY

F-431 (18) —	26.39 Tons	132.02 Tons
U-431 (18) —	13.17 Tons	65.82 Tons



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SUMMARY TABLES

NOTE: • Class B Bedding

UNDERDRAINS						
SHEET NO.	605				603 CONDUIT	
	6" Shallow Pipe Underdrain	6" Unclassified Pipe Underdrain	6" Deep Pipe Underdrain	6" Pipe Underdrain 707.06 or 707.12	6" Type F	• 6" Type B
F431(18)	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.
26			620	572	30	76
27	1101		1096		20	
28	400	100	1713		10	
29	462	855	848		40	120
30	125	217	1820		30	
31	1012	371			30	
32	350	50	1602		30	29
33	1229			808	20	41
34				2170		
35	1205	50	843	66	30	29
36	317.78				20	
41		100	774.74			
42		300	1233			
43	542		434		40	47
205	446	461			36	
208	623	130			26	
210		132	800		10	
211			113			
218	50	290	500		10	
219	633					
257			528		10	
258	164					
271			363		10	
272		175	425			22
Total	8861.78	3231	13,712.74	3616	402	364
U431(18)						
36	1508.22	142			30	
37	1020			1034	20	
38	1404	100	700		10	
39	1724	100	363		20	44
40	465	561	786		60	
41		174	598.26		10	65
247		250	458			
253		100				
254		50	550		10	
257		100	253		10	
271			402		10	
Total	6121.22	1577	4110.26	1034	180	109

EROSION CONTROL					
SHEET NO.	601			660	
	Standard Paved Gutter Type 1-2	Modified Paved Gutter Type 3	Dumped Rock Channel Protection	Sodding	Sodding Special Slope & Berm Protection
F431(18)	L.F.	L.F.	C.Y.	S.Y.	S.Y.
26				135	
27			295		
28			142	406	
31				25	68
32				103	
33			407	401	
34				600	
35				549	
41			72		
43			311		
183				96	
184			239	191	
186			106		
205				307	
207				200	
208				653	
210				1100	
218			13	1065	
219				234	
233				43	
257				258	
271				164	
30	10			235	
Total	10		1585	6785	68
U431(18)					
36		44	175	72	
37			26		33
38		74	229	490	
39	194		24	634	
40	256			85	
247				619	
254				192	
257	106			398	
Total	556	118	454	2490	33

MISCELLANEOUS ROADWAY ITEMS											
SHEET NO.	656	202						606			202
	Roadside Cleanup	Pipe Removed 24" & Under	Pipe Removed Over 24"	Existing Catch Basin Removed	Existing Structure Removed	Existing Curb Removed & Disposed of	Existing Pavement Removed & Disposed of	Guard Rail Type 4	Temp. Guard Rail as per plan	Guard Posts 6' or less per plan	Existing Sidewalk Removed & Disposed of
F-431(18)	M.S.F.	L.F.	L.F.	Each	Lump	L.F.	S.Y.	L.F.	L.F.	Each	S.F.
26								400	600		
27								937.5	600		
28								875			
29								476.91		4	
30								223.09		1	
31								454.6			
32				4				220.4			
33								72.65			
34								86.60			
35								1110.28			
36								154.89			
41	7.9							253.37			
43								425.00			
183					Lump			90.60			
184								1267.20			
185								729.70		4	
186						137		862.50			
204										5	
205								150			
208			14					150			
211								702.35			
218								104.27			
219								897.75			
220								210.48			
230								62.50			
233		106						712.50			
236		60									
271								66.14			
273								387.50			
Total	7.9	166	14	4	Lump	137	270	12,083.78	1200	14	
U-431(18)											
36						118		1348.23			
37								1201.56			
38								1387.13			120
39						19		773.81	393		
40								382.52	457		
41	28.4							589.11			
238								763.92			
239						248	46	849.28		10	500
253								970.48			
254								367.02			
271								458.16			
Total	28.4					248	183	9091.22	850	10	620



SUMMARY TABLES

\* Note: Omit Barbed Wire on Type CL Fence at Stream Crossings

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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F 431 (18) BUILDING REMOVAL				
ITEM	QUANT.	UNIT	PARCEL NO.	DESCRIPTION
202	Lump	Lump	12A-WL	1- Frame Garage
202	Lump	Lump	12-EL	1- Frame Shed
202	Lump	Lump	13-WL	1- Two Sty. Fr. Res., 5- One Sty. Fr. Cobins,
202	Lump	Lump	14-WL	1- Two Sty. Fr. Res., 1- Fr. Garage, 1- Fr. Shed
202	Lump	Lump	15-WL	1- Metal Building
202	Lump	Lump	16-WL	1- One Sty. Fr. Res.
202	Lump	Lump	17-WL	1- One Sty. Fr. Res., 1- Fr. Garage
202	Lump	Lump	18-WL	1- One Sty. Fr. Res., 1- Fr. Garage
202	Lump	Lump	18A-WL	2- One Sty. Fr. Res.
202	Lump	Lump	19-EL	1- One Sty. Fr. Res.
202	Lump	Lump	20-WL	1- One Sty. Fr. Res., 2- Fr. Sheds
202	Lump	Lump	22-EL	1- One Sty. Fr. Res., 1- Fr. Garage
202	Lump	Lump	23-EL	1- Two and One Half Sty. Fr. Res., 1- Fr. Garage, 1- Fr. Shed
202	Lump	Lump	25-EL	
202	Lump	Lump	26-WL	1- Fr. Garage, 1- fr. shed
202	Lump	Lump	30-WL	1- Fr. Shed
202	Lump	Lump	37-WL	1- One Sty. Brick Res.
202	Lump	Lump	38-WL	1- One Sty. Brick Res.
202	Lump	Lump	45-WL	1- Two Sty. Fr. Res.
202	Lump	Lump	46-WL	1- One and One Half Sty. Fr. Res., 1- Fr. Garage
202	Lump	Lump	49-WL	1- Two Sty. Fr. Res.
202	Lump	Lump	50	1- Two Sty. Tile Res., 1- Fr. Garage, 1- Brick Building, 1- Privy
202	Lump	Lump	51-WL	1- Two Sty. Fr. Res.
202	Lump	Lump	52	1- One and One Half Sty. Fr. Res.
202	Lump	Lump	53-WO	1- One Sty. Fr. Res.
202	Lump	Lump	56-WL	1- Two Sty. Fr. Res., 1- Fr. Garage, 3- Fr. Sheds, 1- Privy, 1- Fr. Barn
202	Lump	Lump	59-WL	2- Two Sty. Fr. Res., 1- Two Sty. Fr. Barn, 2- Fr. Sheds, 1- Privy
202	Lump	Lump	60-WL	1- Two Sty. Fr. Res., 1- Two Sty. Tile Res., 1- Fr. Garage, 1- One Sty. Block Building
202	Lump	Lump		2- Fr. Sheds, 1- Privy
202	Lump	Lump	61-WL	1- One Sty. Block Res.
202	Lump	Lump	62-WL	1- One Sty. Fr. Res., 1- Block Garage, 1- Fr. Shed
202	Lump	Lump	63-WL	1- One Sty. Fr. Res.
202	Lump	Lump	70	1- Block Basement Res.
202	Lump	Lump	71-WO	1- One Sty. Fr. Res.
202	Lump	Lump	73-A	1- Fr. Garage, 3- Fr. Sheds
202	Lump	Lump	74	Two 1 story Fr. Res., 3- Fr. Sheds, 1- Privy
202	Lump	Lump	77-WL	one 1 story Fr. Res., 2- Fr. Sheds, 1- Privy
202	Lump	Lump	79-WL	1- One and One Half Sty. Fr. Res.
202	Lump	Lump	80-WL	1- One Sty. Brick Res.
202	Lump	Lump	81-WL	1- One Sty. Brick Res.
202	Lump	Lump	85-WL	1- Two Sty. Brick Res.
202	Lump	Lump	92-WL	1- One Sty. Brick Res.
202	Lump	Lump	93-WL	1- Two Sty. Fr. & Brick Res.
202	Lump	Lump	95-WL	1- One Sty. Block Res.
202	Lump	Lump	96-WL	1- One Sty. Fr. Res.
202	Lump	Lump	100-WL	2- Privies
202	Lump	Lump	100A-WL	1- Fr. Picnic Shed
202	Lump	Lump	101-WL	1- One Sty. Brick Res.
202	Lump	Lump	187-WL	1- One Sty. Block Building

U 431 (18) BUILDING REMOVAL				
ITEM	QUANT.	UNIT	PARCEL NO.	DESCRIPTION
202	Lump	Lump	102-WL	1- Two Sty. Fr. Res.
202	Lump	Lump	103-WL	1- One Sty. Fr. Res.
202	Lump	Lump	104-WL	1- One Sty. Brick Res.
202	Lump	Lump	105-WL	1- Two Sty. Fr. & Brick Res.
202	Lump	Lump	106-WL	1- One Sty. Fr. Res.
202	Lump	Lump	107-WL	1- One Sty. Fr. Res.
202	Lump	Lump	109-WL	1- One Sty. Fr. Res., 1- Fr. Garage
202	Lump	Lump	111-WL	1- Two Sty. Fr. Res., 1- Fr. Shed
202	Lump	Lump	112-WL	1- One Sty. Fr. Res.
202	Lump	Lump	113-WL	1- Two Sty. Fr. Res.
202	Lump	Lump	114-WL	1- One Sty. Fr. Res.
202	Lump	Lump	115-WL	1- Two Sty. Fr. Res., 1- Fr. Garage, 2- Fr. Sheds, 2- Privies
202	Lump	Lump	116-WL	1- One Sty. Fr. Res.
202	Lump	Lump	117-WL	1- One Sty. Fr. Res.
202	Lump	Lump	118-WL	1- Fr. Shed
202	Lump	Lump	119-WL	1- Fr. Shed
202	Lump	Lump	121-WL	1- One Fr. Res.
202	Lump	Lump	122-WL	1- One and One Half Sty. Fr. Res.
202	Lump	Lump	123-WL	1- One Sty. Fr. Res.
202	Lump	Lump	127-WL	1- Fr. Garage
202	Lump	Lump	128B-WL	1- Fr. Shed
202	Lump	Lump	129-WL	1- One and One Half Sty. Fr. Res., 1- Fr. Shed
202	Lump	Lump	130-WL	1- One and One Half Sty. Fr. Res., 1- Fr. Garage
202	Lump	Lump	131-WL	1- Two Sty. Fr. Res., 1- Fr. Garage
202	Lump	Lump	134-WL	1- One and One Half Sty. Fr. Res., 2- Fr. Sheds
202	Lump	Lump	136-WL	1- Fr. Garage
202	Lump	Lump	137-WL	1- Fr. Shed
202	Lump	Lump	138-WL	1- One Sty. Fr. Res., 3- Fr. Sheds
202	Lump	Lump	139-WL	1- One Sty. Fr. Res., 1- Two Sty. Fr. Res., 2- Fr. Sheds
202	Lump	Lump	140-WL	1- One Sty. Fr. Res., 1- Fr. Garage, 1- Fr. Shed
202	Lump	Lump	141-WL	1- One and One Half Sty. Fr. Res., 1- Fr. Garage
202	Lump	Lump	143-WL	1- One Sty. Fr. Res., 1- Fr. Shed, 1- Privy
202	Lump	Lump	146-EL	1- One Sty. Block Res.
202	Lump	Lump	147-EL	1- One Sty. Fr. Res., 1- Fr. Shed
202	Lump	Lump	148-EL	1- Block Garage
202	Lump	Lump	149-EL	1- One Sty. Fr. Res.
202	Lump	Lump	150-EL	1- One Sty. Fr. Res.
202	Lump	Lump	152-EL	1- One Sty. Fr. Res., 1- Privy
202	Lump	Lump	153-EL	1- One Sty. Fr. Res., 1- Privy
202	Lump	Lump	154-EL	1- One Sty. Fr. Res., 3- Fr. Sheds, 1- Privy
202	Lump	Lump	155-EL	2- One Sty. Fr. Res., 1- Privy
202	Lump	Lump	156-WL	1- One Sty. Fr. Res., 1- Privy
202	Lump	Lump	157-WL	1- One Sty. Fr. Res., 2- Fr. Sheds
202	Lump	Lump	158-WL	1- One Sty. Fr. Res., 1- One Sty. Block Res.
202	Lump	Lump	159-WL	1- Fr. Garage, 1- Fr. Shed
202	Lump	Lump	160-WL	1- One Sty. Fr. Res., 1- Fr. Garage, 2- Fr. Sheds, 1- Privy
202	Lump	Lump	161-WL	1- One Sty. Fr. Res.
202	Lump	Lump	163-WL	1- Fr. Shed
202	Lump	Lump	164-WL	1- One Sty. Fr. Res., 1- Privy
202	Lump	Lump	165-WL	1- Privy, 1- Fr. Shed
202	Lump	Lump	166-WL	1- One Sty. Fr. Res., 1- Fr. Garage, 1- Privy
202	Lump	Lump	167-WL	1- One Sty. Fr. & Block Res., 1- Privy
202	Lump	Lump	168-WL	1- One Sty. Fr. Res., 1- Fr. Garage
202	Lump	Lump	169-WL	1- Fr. Shed, 1- Privy
202	Lump	Lump	170-WL	1- One Sty. Fr. Res., 2- Privies
202	Lump	Lump	171-WL	1- Fr. Shed, 1- Privy
202	Lump	Lump	172-WL	1- One Sty. Fr. Res., 1- Fr. Garage, 1- Fr. Shed, 1- Privy
202	Lump	Lump	175-WL	1- One Sty. Fr. Res., 1- Fr. Garage, 1- Fr. Shed
202	Lump	Lump	179-WL	1- Block Garage
202	Lump	Lump	181-WL	1- Block Garage, 1- Fr. Shed, 1- Privy
202	Lump	Lump	182-WL	1- Fr. Shed
202	Lump	Lump	183-WL	1- One Sty. Fr. Res.
202	Lump	Lump	184-WL	1- One Sty. Fr. Res., 1- Fr. Garage, 1- Fr. Shed
202	Lump	Lump	185-WL	1- One Sty. Fr. Res., 1- One Sty. Block Res., 1- Fr. Shed, 1- Privy
202	Lump	Lump	186-WL	1- One Sty. Fr. Res., 2- Fr. Sheds, 1- Privy
202	Lump	Lump	187-WL	6- One Sty. Fr. Res., 2- Fr. Garages, 6- Fr. Sheds, 5- Privies
202	Lump	Lump	190-WL	1- One Sty. Fr. Res., 1- Fr. Garage
202	Lump	Lump	191-WL	1- Two Sty. Brick Res., 1- Fr. Garage

FENCE				
SHEET NO.	601	607		
	Dumped Rock Channel Protection	Fence Type 39	Fence Type CL	Gates Type 39 14' Wide
F-431 (18)	C.V.	L.F.	L.F.	Each
430		908		
434	40	2226		
435	* 237	2273	777	
436	* 50		2523	
437	* 23.3	1270	1230	
438		468		
446		733	578	1
447		278	1088	
451		782		
465	17	980		
468		577		
TOTAL	577	10,495	6196	1
U-431 (18)				
451		413		
452			1152	
453			1458	
454	40	876	798	
465	17	725		
466		416	1815	
TOTAL	57	2430	5223	



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F-431(18)						TYPE CODE Y060		F 431(18)											U 431(18)											CODE TYPE		GRAND TOTAL	UNIT	DESCRIPTION
ITEM	100 % STATE					TOTAL	SHEET NUMBERS					TOTAL	SHEET NUMBERS					TOTAL	ITEM	7221	Y-005													
	9						2	4	5	7	8		9	10	11	2	4					5	7	8	9	10	11							
																																~ ROADWAY ~		
201							Lump							Lump												Lump	Lump	Lump	Lump	Lump	Clearing and Grubbing			
202												Lump		Lump												Lump	Lump	Lump	Lump	Lump	Existing Structures Removed			
202										72		166		238						18						256	256	256	256	Lin.Ft.	Pipe Removed 24" and under			
202												14		14												14	14	14	14	Lin.Ft.	Pipe Removed over 24"			
202													270	270												453	453	453	453	Sq.Yd.	Existing Pavement Removed and Disposed of			
202																										620	620	620	620	Sq.Ft.	Existing Sidewalk Removed and Disposed of			
202													137	137												385	385	385	385	Lin.Ft.	Existing Curb Removed and Disposed of			
203												676,783		676,783												1,156,034	1,156,034	1,156,034	1,156,034	Cu.Yd.	Embankment			
203												1594	1230964	1,232,560												1,684,568	1,684,568	1,684,568	1,684,568	Cu.Yd.	Excavation Not Including Embankment Construction, As Per Plan			
203												108,031		108,031												161,218	161,218	161,218	161,218	Sq.Yd.	Subgrade Preparation			
203							46							46			24									70	70	70	70	Hour	Proof Rolling			
								160						160			80									240	240	240	240	Cu.Yd.	Channel Embankment			
410												1425		1425												1425	1425	1425	1425	Cu.Yd.	Traffic Compacted Surface, Type "A" or "B"			
410												4275		4275												4275	4275	4275	4275	Cu.Yd.	Traffic Compacted Surface, Type "C"			
606												See note in Proposal					11,990.87				See note in Proposal					5,907.74			17,898.61	17,898.61	17,898.61	17,898.61	Lin.Ft.	Guard Rail Type 4, Barrier Design, Modified as per plan
604							42							42	15											57	57	57	57	Each	Standard Monument Assembly			
606													1200													2050	2050	2050	2050	Lin.Ft.	Temporary Guard Rail, as per plan			
606												12083.78		12083.78												21,175	21,175	21,175	21,175	Lin.Ft.	Guard Rail, Type 4, Modified			
606												14		14												24	24	24	24	Each	Guard Posts			
607													10,495	10,495												12,925	12,925	12,925	12,925	Lin.Ft.	Fence, Type "39"			
607													1	1												1	1	1	1	Each	Gate, Type "39" (14' Wide)			
607												6196	6196													11,419	11,419	11,419	11,419	Lin.Ft.	Fence, Type "CL"			
Special							18							18												18	18	18	18	Each	Drilled Well Abandoned			
616										75				75			75									150	150	150	150	M.GAL	Water			
616										134				134			20									154	154	154	154	TON	Calcium Chloride			
656												8		8											28	28	28	28	M.S.F.	Roadside Cleanup				
Special							19							19	7											26	26	26	26	Each	Cleaning and Disposing of Septic Tank			
																																~ EROSION CONTROL ~		
659												26.39		26.39												39.56	39.56	39.56	39.56	TON	Commercial Fertilizer (12-12-12)			
659												132.02		132.02												197.84	197.84	197.84	197.84	TON	Agricultural Liming			
659												286.471		286.471												430,159	430,159	430,159	430,159	Sq.Yd.	Seeding and Mulching			
660													6765	6765												9255	9255	9255	9255	Sq.Yd.	Sodding			
660													68	68												101	101	101	101	Sq.Yd.	Sodding, Special Slope and Berm Protection, As Per Plan			
																																~ DRAINAGE ~		
														70													70	70	70	Cu.Yd.	Unclassified Excavation			
														Lump													Lump	Lump	Lump	Lump	Lump	Coffer dams, Cribbs and Sheeting		
														25													25	25	25	Cu.Yd.	Class "C" Concrete			
														1257													1257	1257	1257	Lbs.	Reinforcing Steel			
																																~ EROSION CONTROL (Continued) ~		
601												699	53														967	967	967	967	Sq.Yd.	Riprap, Using 6" Reinforced Concrete Slab, As Per Plan		
601												376	7	1585	58	2026										2688	2688	2688	2688	Cu.Yd.	Dumped Rock Channel Protection			
601														10													566	566	566	566	Lin.Ft.	Paved Gutter Standard Type 1-2		
601												160	10			170											303	303	303					



GENERAL SUMMARY

JEF -7-23.37

ITEM	F 431 (18)												U 431 (18)												ITEM	CODE TYPE		GRAND TOTAL	UNIT	DESCRIPTION
	SHEET NUMBERS												SHEET NUMBERS													7221	Y-005			
	5	6	7	8	9	10	TOTAL	5	6	7	8	9	10	TOTAL																
~ DRAINAGE ~ (Cont.)																														
603				54			54									603	54		54	Lin.Ft.	18" Conduit, Type F, 707.04									
603													112			112			112	Lin.Ft.	24" Conduit, Type B, 706.02 Class III with Class B Bedding									
603				254			254									603	254		254	Lin.Ft.	24" Conduit, Type A, 706.02 Class IV with Class B Bedding									
603				374			374									603	374		374	Lin.Ft.	24" Conduit, Type A, 706.02 or 706.08 with Class B Bedding									
603				34			34									603	34		34	Lin.Ft.	24" Conduit, Type C, with Class B Bedding									
603				178			178						258			258			436	Lin.Ft.	24" Conduit, Type F									
603													222			222			222	Lin.Ft.	24" Conduit, Type B, 706.02 Class III or 706.08 with Class B Bedding									
603													52			52			52	Lin.Ft.	24" Conduit, Type B, 706.02 Class IV with Class B Bedding under Railroad									
603													246			246			246	Lin.Ft.	27" Conduit, Type C, with Class B Bedding									
603				136			136									603	136		136	Lin.Ft.	30" Conduit, Type A 706.02 or 706.08 with Class B Bedding									
603				108			108									603	108		108	Lin.Ft.	30" Conduit, Type A 706.02 Class III or 706.08 with Class B Bedding									
603				248			248									603	248		248	Lin.Ft.	30" Conduit, Type A 706.02 Class I with Class B Bedding									
603													442			442			442	Lin.Ft.	30" Conduit, Type A 707.05 Gage 8 with Class B Bedding									
603													336			336			336	Lin.Ft.	30" Conduit, Type A 707.05 Gage 10 with Class B Bedding									
603													76			76			76	Lin.Ft.	30" Conduit, Type B with Class B Bedding									
603				92	114		206									603	206		206	Lin.Ft.	30" Conduit, Type F									
603																														
603				202			202									603	202		202	Lin.Ft.	36" Conduit, Type A 706.02 Class I or 707.05 Gage 12 with Class B Bedding									
603				154			154						98			98			252	Lin.Ft.	36" Conduit, Type A 707.05 Gage 12 with Class B Bedding									
603																														
603				98			98						154			154			252	Lin.Ft.	42" Conduit, Type A 706.02 with Class B Bedding									
603				594			594									603	594		594	Lin.Ft.	42" Conduit, Type A 706.02 Class III with Class B Bedding									
603				200			200									603	200		200	Lin.Ft.	42" Conduit, Type C with Class B Bedding									
603				434			434									603	434		434	Lin.Ft.	54" Conduit, Type A 707.05 Gage 8 with Class B Bedding Elongated and Strutted.									
603				286			286									603	286		286	Lin.Ft.	72" Conduit, Type A 706.02 with Class B Bedding									
603				102			102									603	102		102	Lin.Ft.	72" Conduit, Type A 706.02 Class III with Class B Bedding									
603				128			128									603	128		128	Lin.Ft.	72" Conduit, Type A 706.02 Class IV with Class B Bedding									
603				186			186									603	186		186	Lin.Ft.	72" Conduit, Type A 706.02 Class V with Class B Bedding									
603				332			332									603	332		332	Lin.Ft.	72" Conduit, Type A 707.03 Gage 8-5 with Class B Bedding									
604				2			2						5			5			7	Each	Standard No. 1 Manholes									
604													1			1			1	Each	Standard No. 2 Manholes									
604					3		3						3			3			6	Each	Standard No. 2-6 Median Inlet									
604				2			2									604	2		2	Each	Standard No. 2-8 Median Inlet									
604				2			2									604	2		2	Each	Standard No. 2-10 Median Inlet									
604				1			1									604	1		1	Each	Standard No. 2-12 Median Inlet									
604													1			1			1	Each	Standard No. 2-12 Median Inlet, Modified as per plan									
604				2			2									604	2		2	Each	Standard No. 2-14 Median Inlet									
604				2			2						1			604	3		3	Each	Standard No. 2-18 Median Inlet									
604													1			604	1		1	Each	Standard No. 2-20 Median Inlet									
604				3	1		4						2	2		4			8	Each	Standard No. 2-2A Catch Basin									
604				7			7						3	4		7			14	Each	Standard No. 2-3 Catch Basin, Modified as per plan									
604				2			2									604	2		2	Each	Standard No. 2-4 Catch Basin, Modified as per plan									
604					1		1									604	1		1	Each	Standard No. 3A Catch Basin									
604				1			1									604	1		1	Each	Standard No. 5 Catch Basin									
604					1		1						2			2			3	Each	Standard No. 6 Catch Basin									
605							3616									605	4650		4650	Lin.Ft.	6" Pipe Underdrain 707.06 or 707.12									
605							8862									605	14,984		14,984	Lin.Ft.	6" Shallow Pipe Underdrain									
605							3231									605	4,808		4,808	Lin.Ft.	6" Unclassified Pipe Underdrains									
605							13,713									605	17,824		17,824	Lin.Ft.	6" Deep Pipe Underdrains									
605				300			300						900			605	1200		1200	Lin.Ft.	6" Unclassified Pipe Underdrain 707.06 or 707.12, as per plan									
605				3100			3100						400			605	3500		3500	Lin.Ft.	Aggregate Drains									
605				10			10						30			605	40		40	Lin.Ft.	Aggregate Drains for Springs, as per plan									
202													1			1			6	Each	Catch Basins Removed									
202													Lump			Lump			Lump	Lump	Portion of Existing Structures Removed									
Special													2			2			2	Each	Rail Debris Deflector									
~ PAVEMENT ~																														
301				2,174			2,174						769			769			2,943	Cu.Yd.	Bituminous Aggregate Base, 702.01 (85-100) or 702.09 RT-10, as per plan									
304				5,347			5,347						1,488			1,554			7,077	Cu.Yd.	Aggregate Base									











# SPECIAL BERM & SLOPE PROTECTION

Prior to placement of ~~soil~~ 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 direction of flow. Each strand shall be staked securely on top and bottom with stakes spaced at four foot intervals and alternated in rows four feet apart.

Stakes shall be 1"x1"x8" 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.

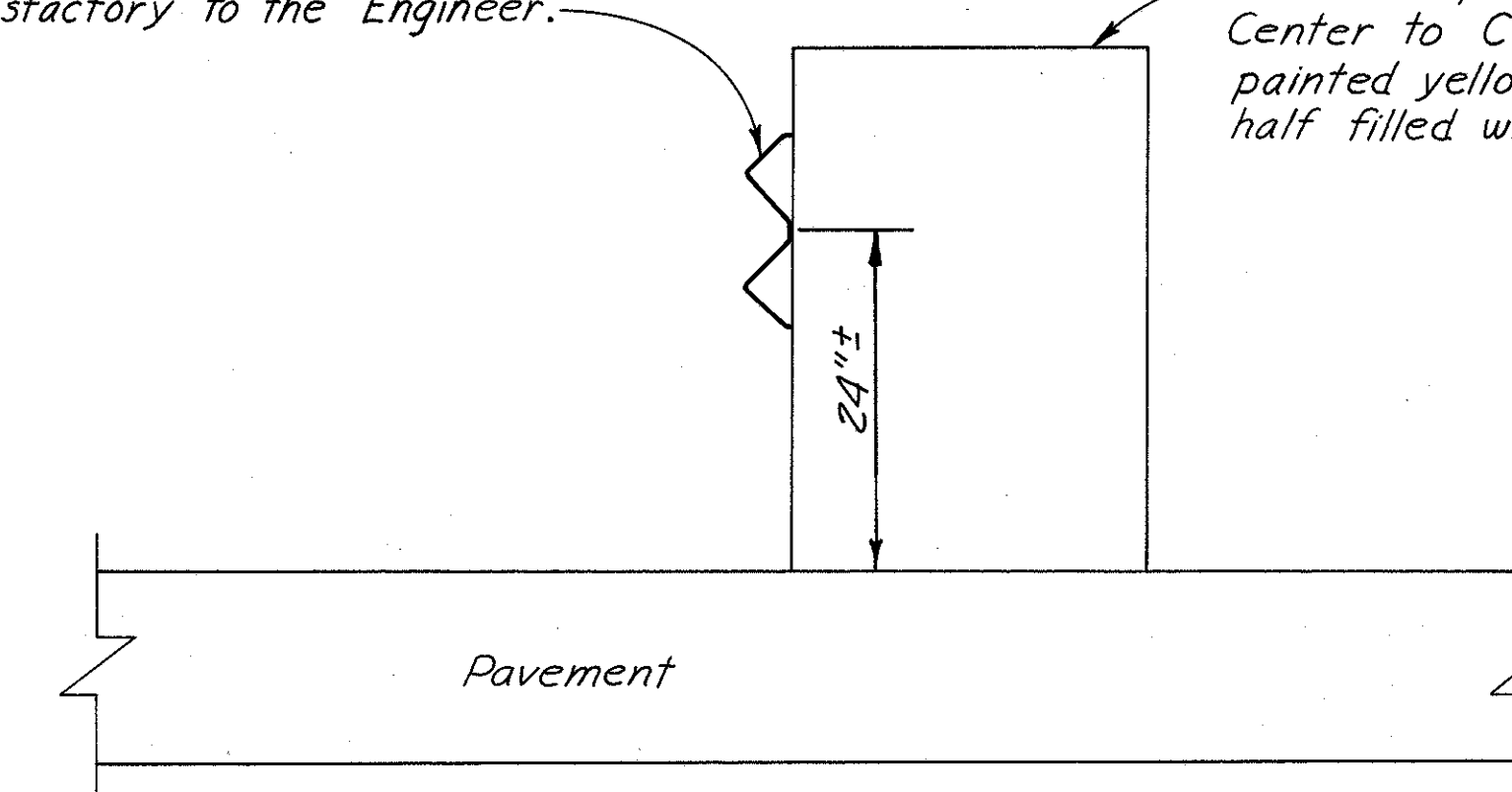
Each strand of fencing shall be fastened together at twelve inch intervals by means of hog rings.

The fence shall be secured to the wood stakes by metal staples.

Soil shall be laid in accordance with Construction and Materials Specifications Section 660.06.

The rail element shall be steel beam type meeting the requirements of either 710.06 (deep) or 710.07 (shallow) securely bolted to the traffic side of the drums in a manner satisfactory to the Engineer.

55 Gal. Oil Drums placed 12.5' Center to Center, painted yellow and half filled with sand.

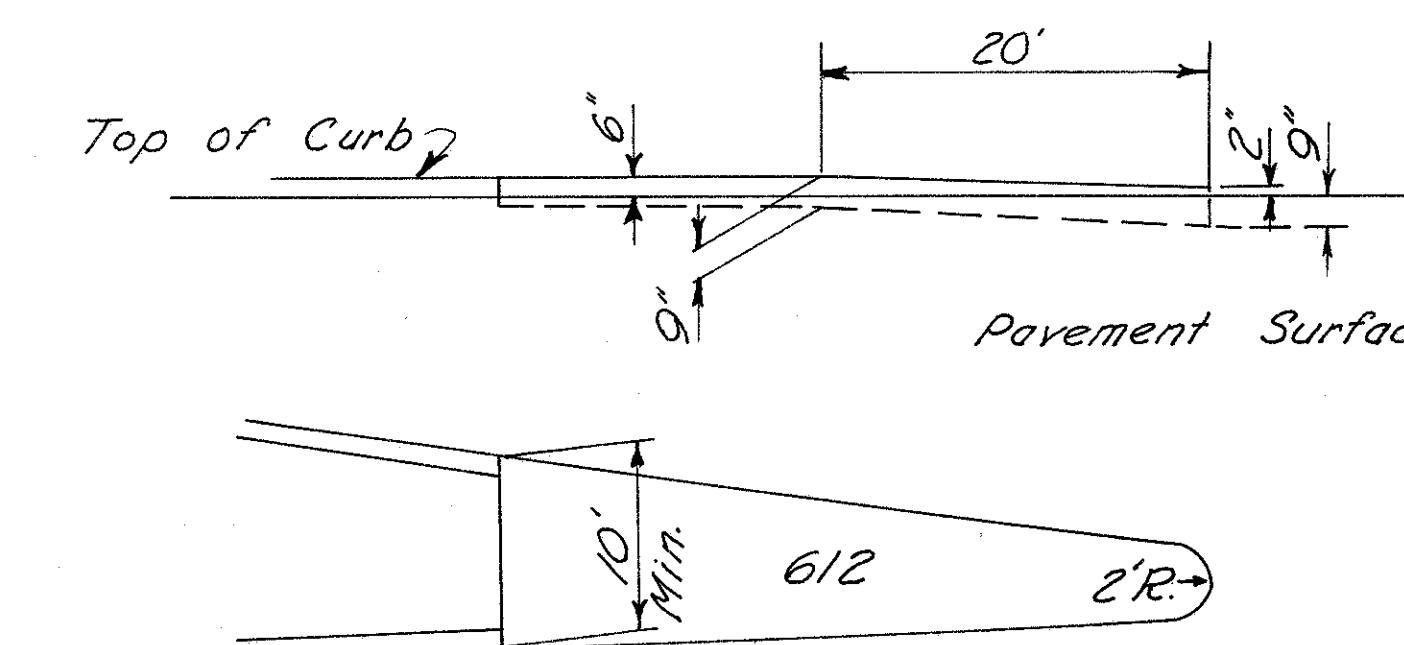


## DETAIL OF TEMPORARY GUARD RAIL

See Note in Proposal.

VOID SEE  
Std. DWG. MC-7

## TYPICAL APPROACH SLAB EROSION CONTROL

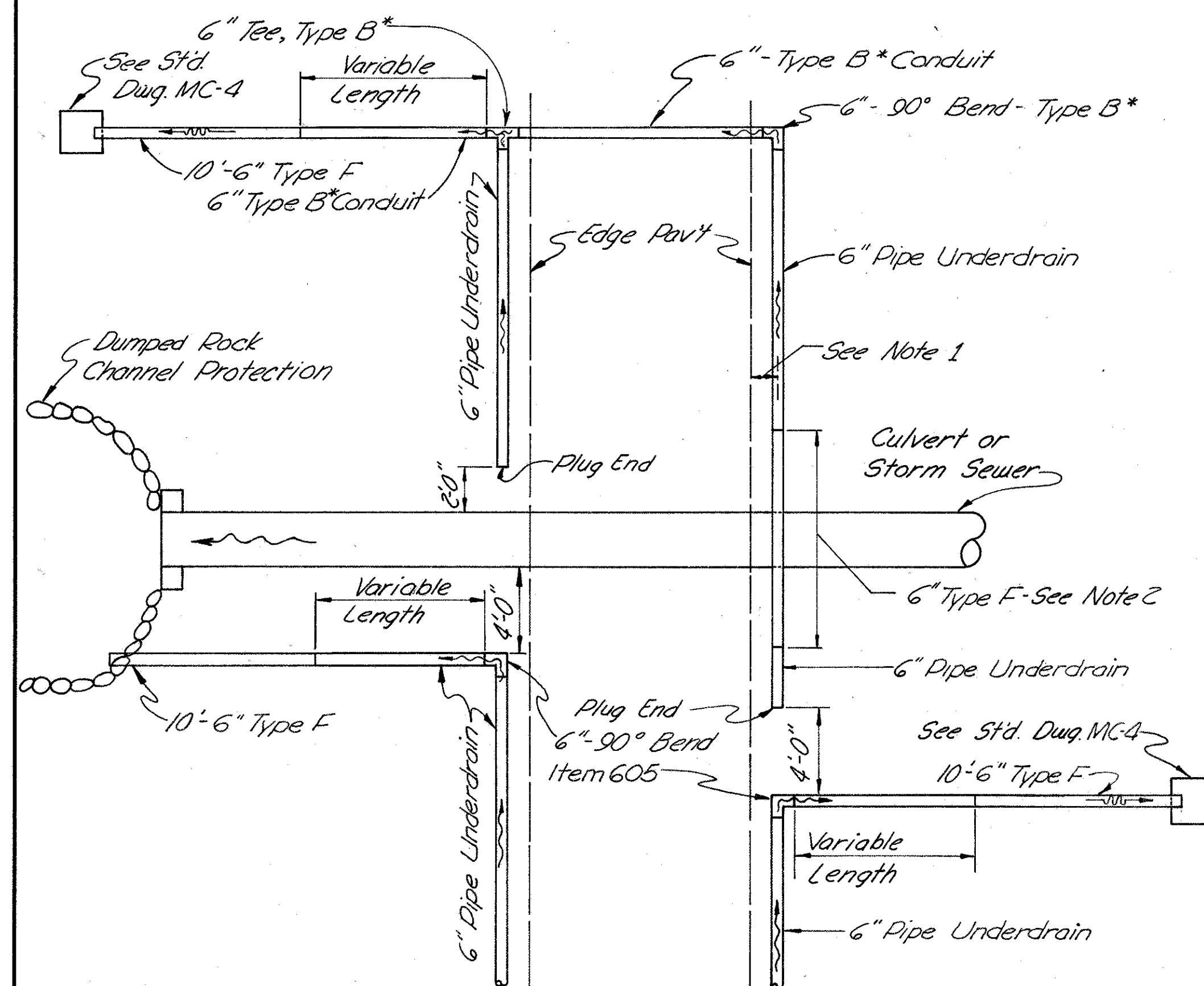


## EXIT NOSE DETAIL

No Scale

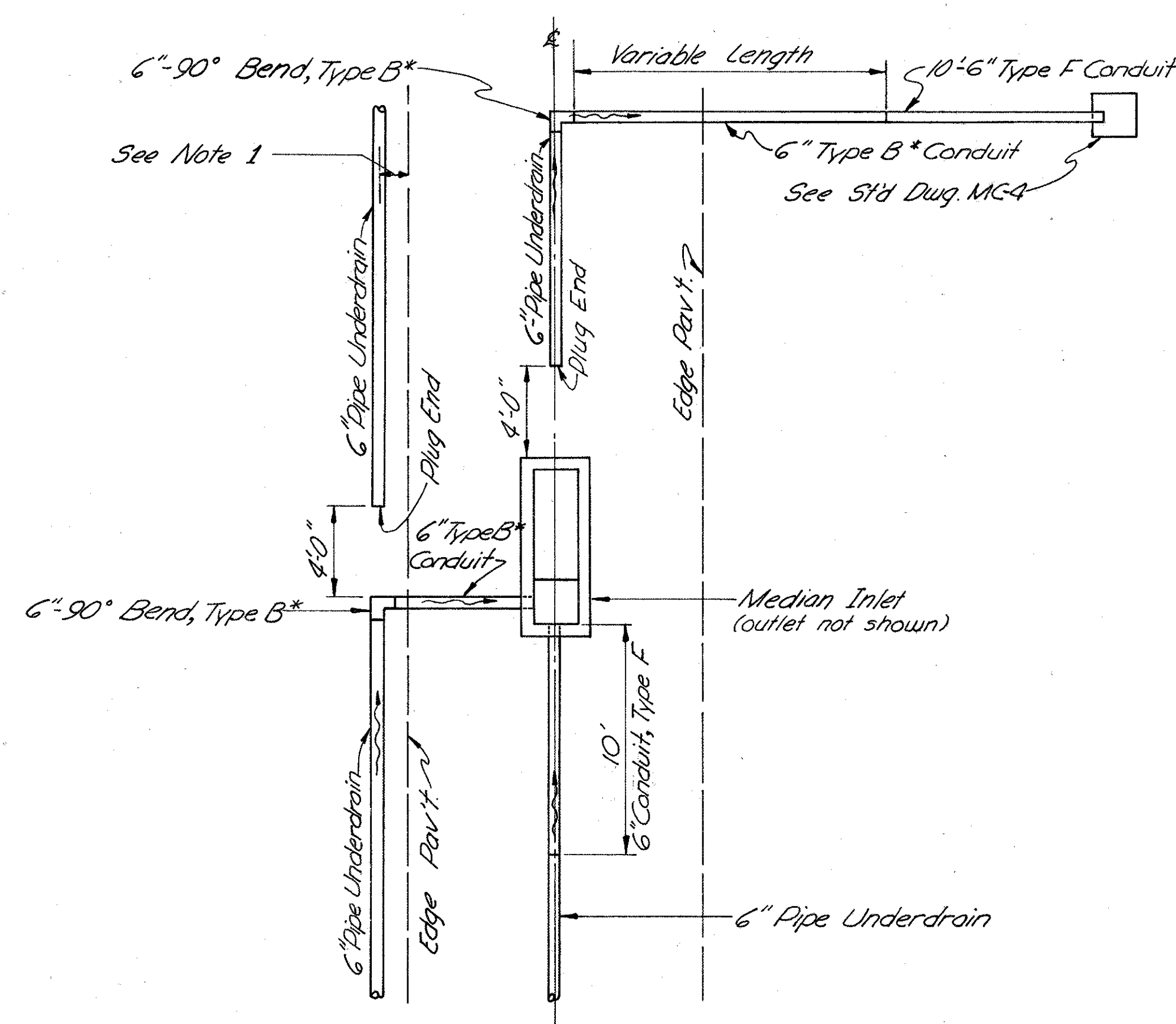


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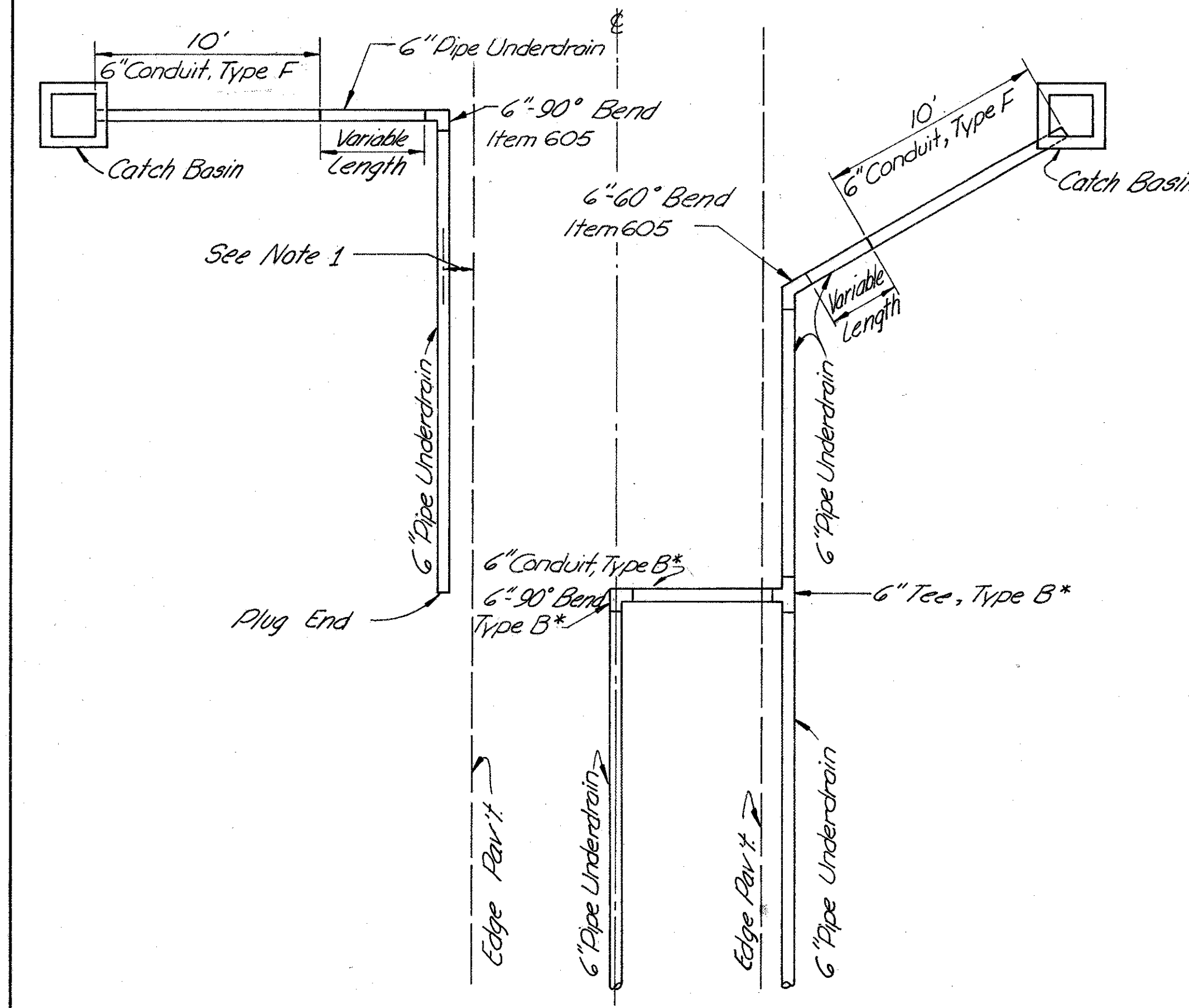
UNDERDRAIN DETAIL "A"

\*Class B Bedding



UNDERDRAIN DETAIL "B"

\*Class B Bedding



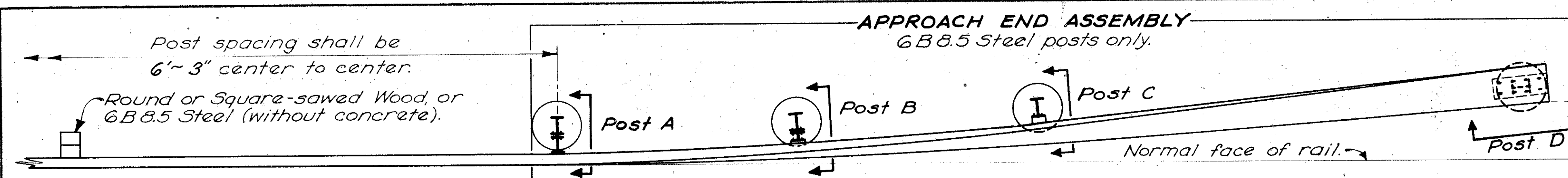
UNDERDRAIN DETAIL "C"

\*Class B Bedding

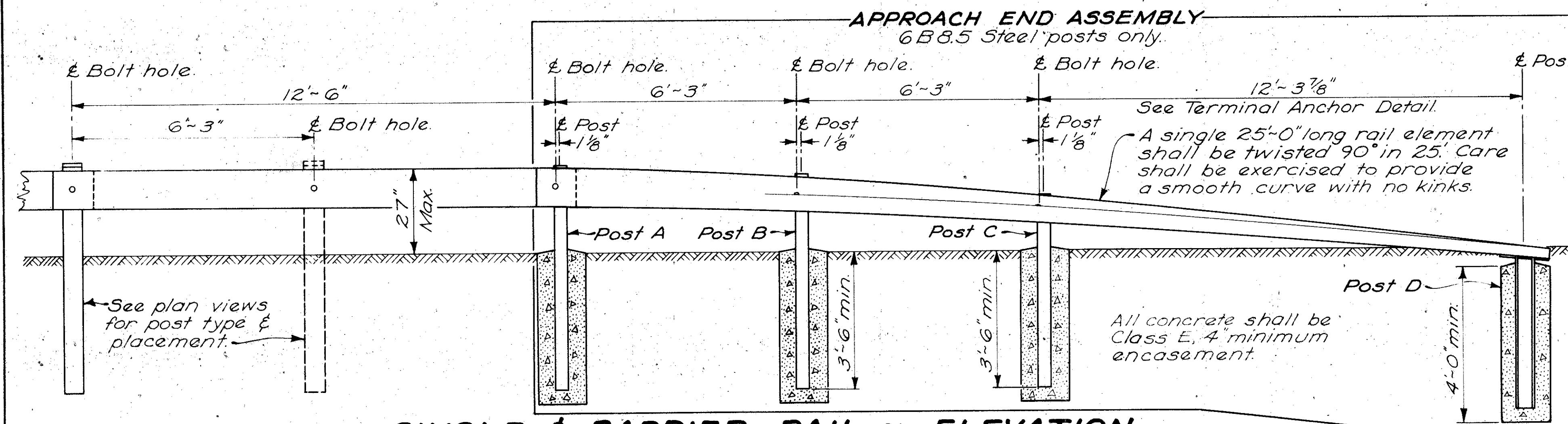
# NOTES

1. The distance of underdrain lines from the edge of the pavement shall be taken from the approved Typical Section.
2. When underdrain is to be continued across a culvert or storm sewer, such as shown in Detail "A", a ten (10) foot minimum length of six (6) inch Type F pipe shall be used to span the trench unless such crossing is above the area of granular backfill.

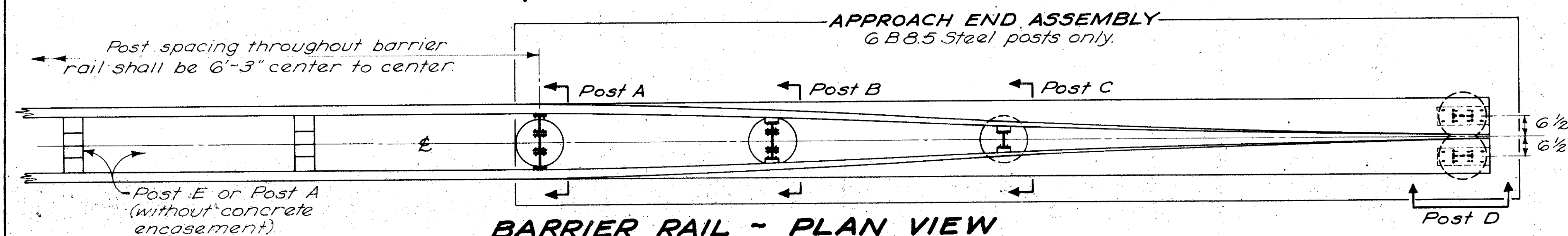




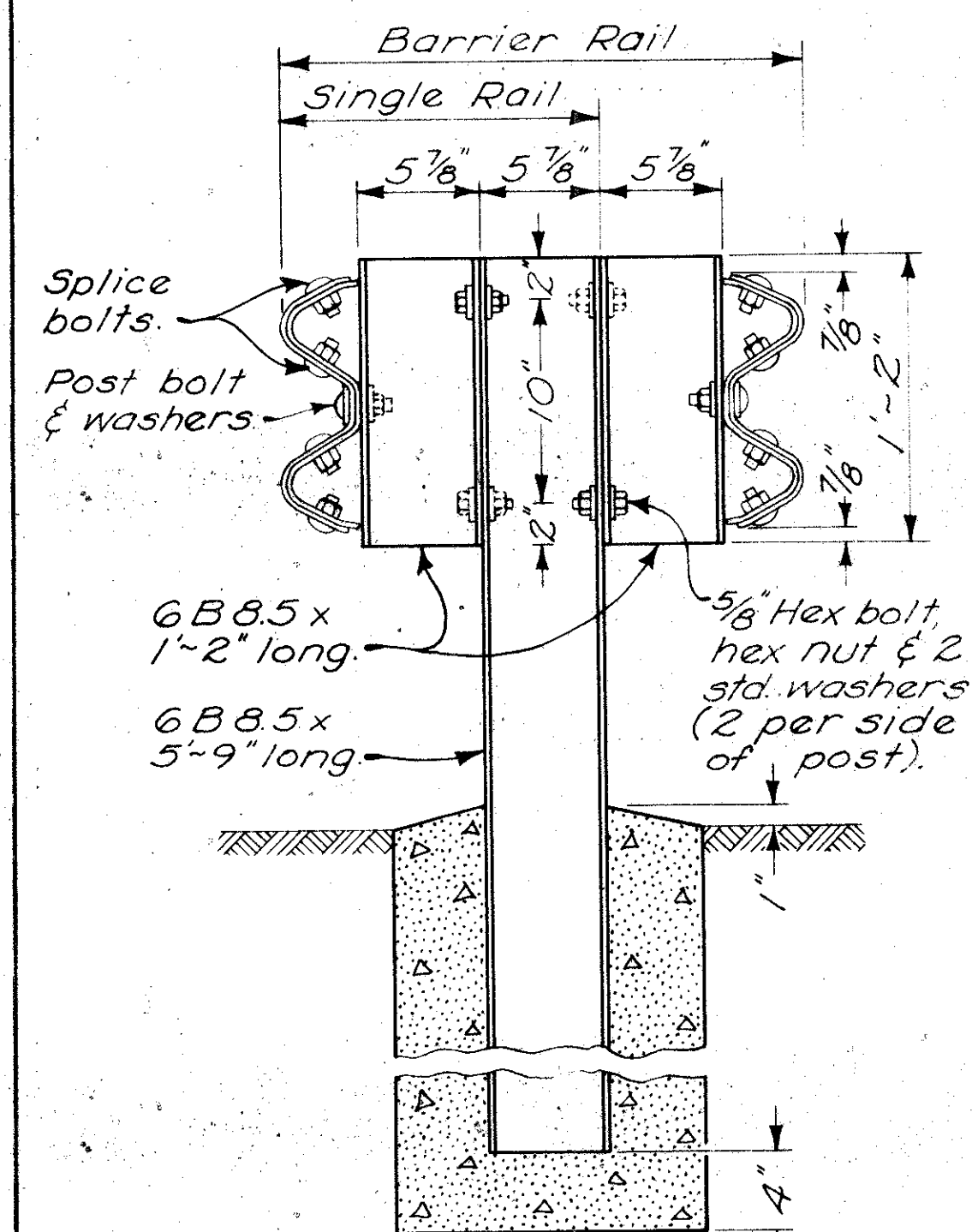
**SINGLE RAIL ~ PLAN VIEW**



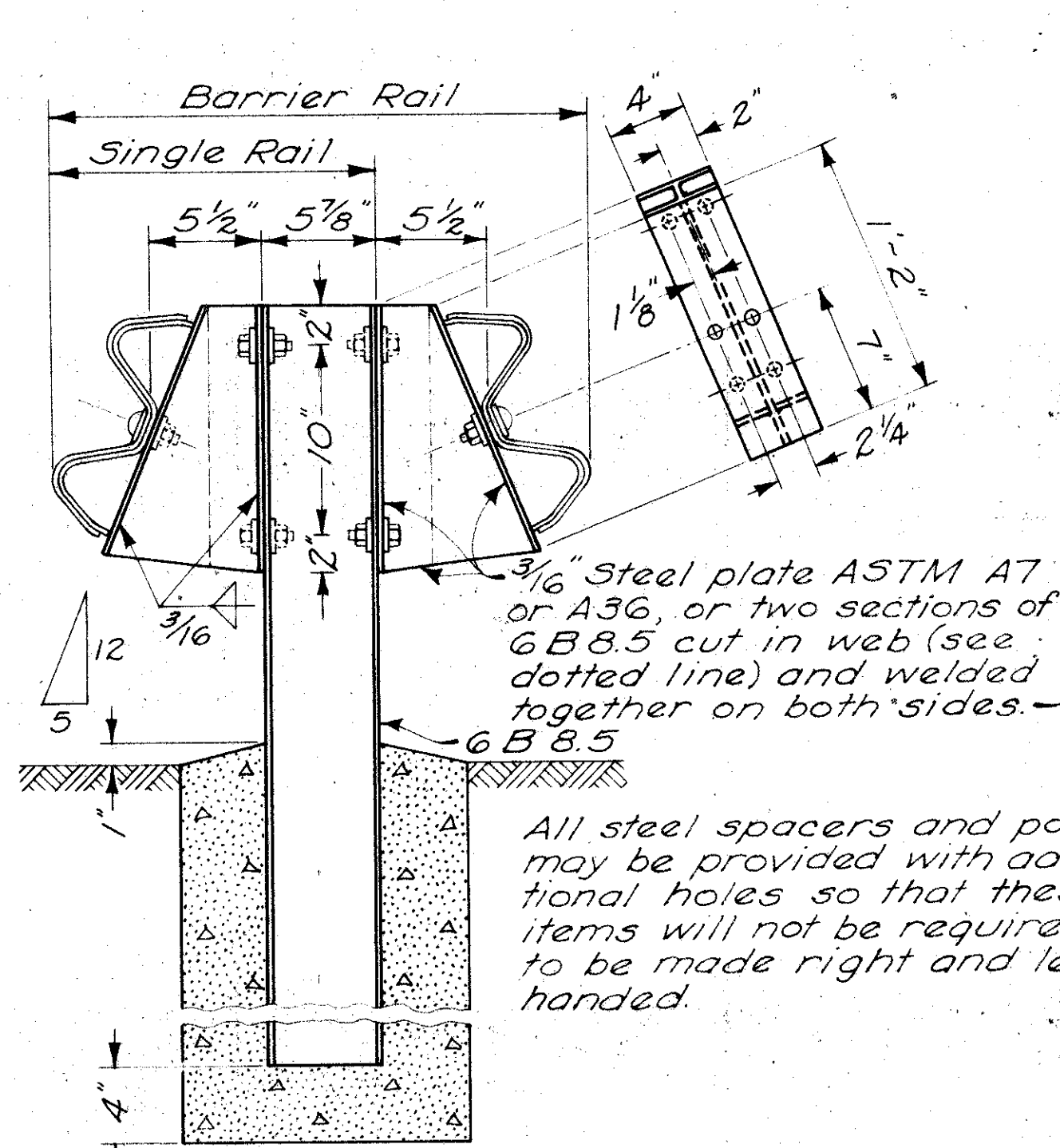
**SINGLE & BARRIER RAIL ~ ELEVATION**



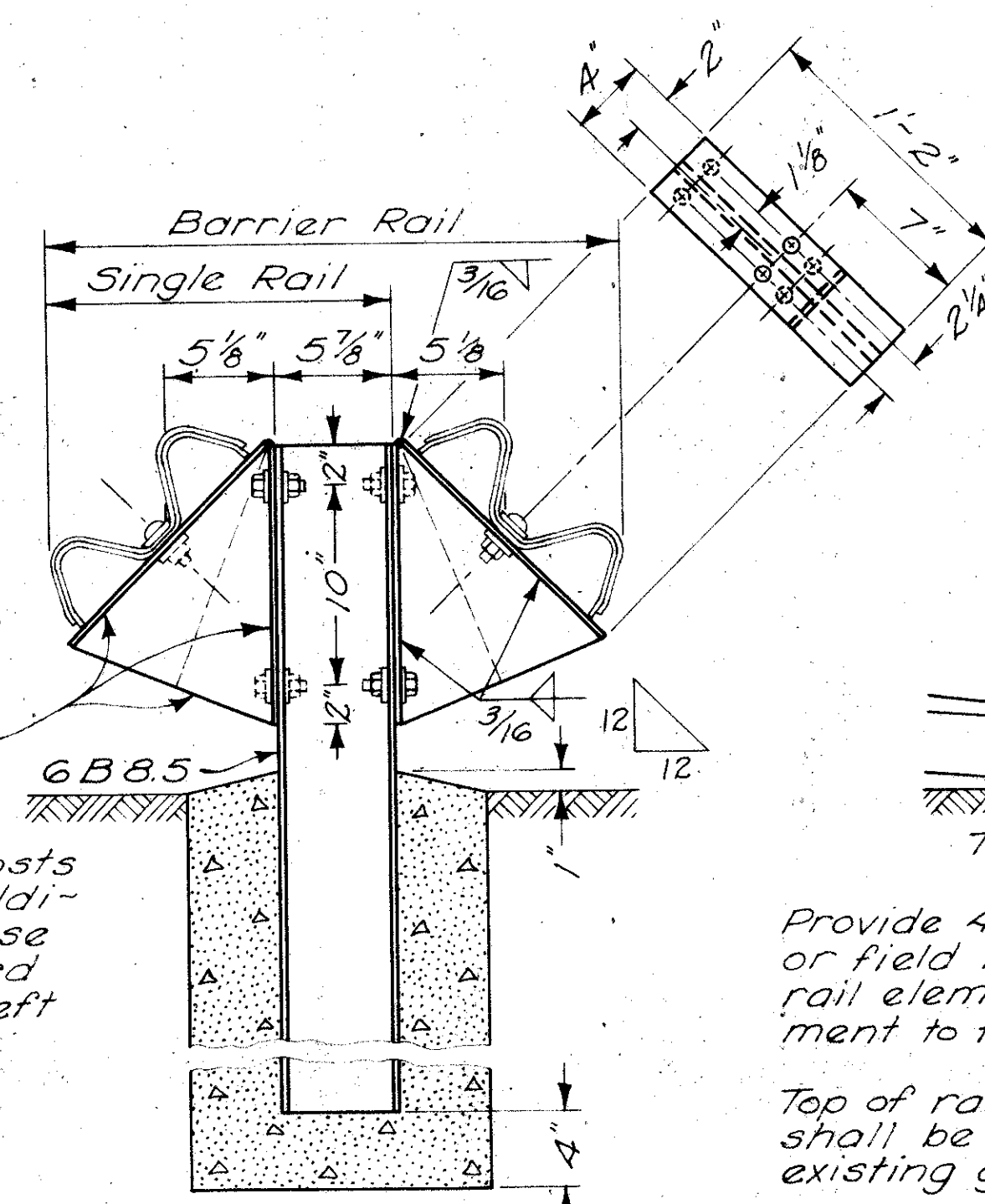
**BARRIER RAIL ~ PLAN VIEW**



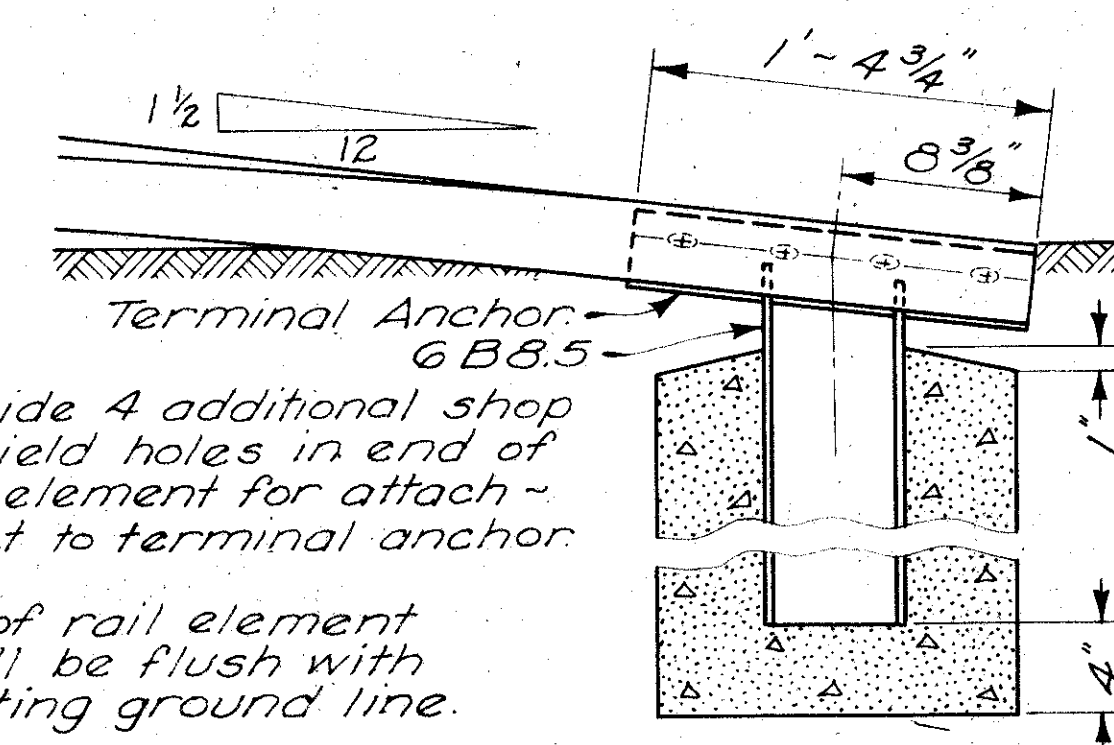
**POST A**



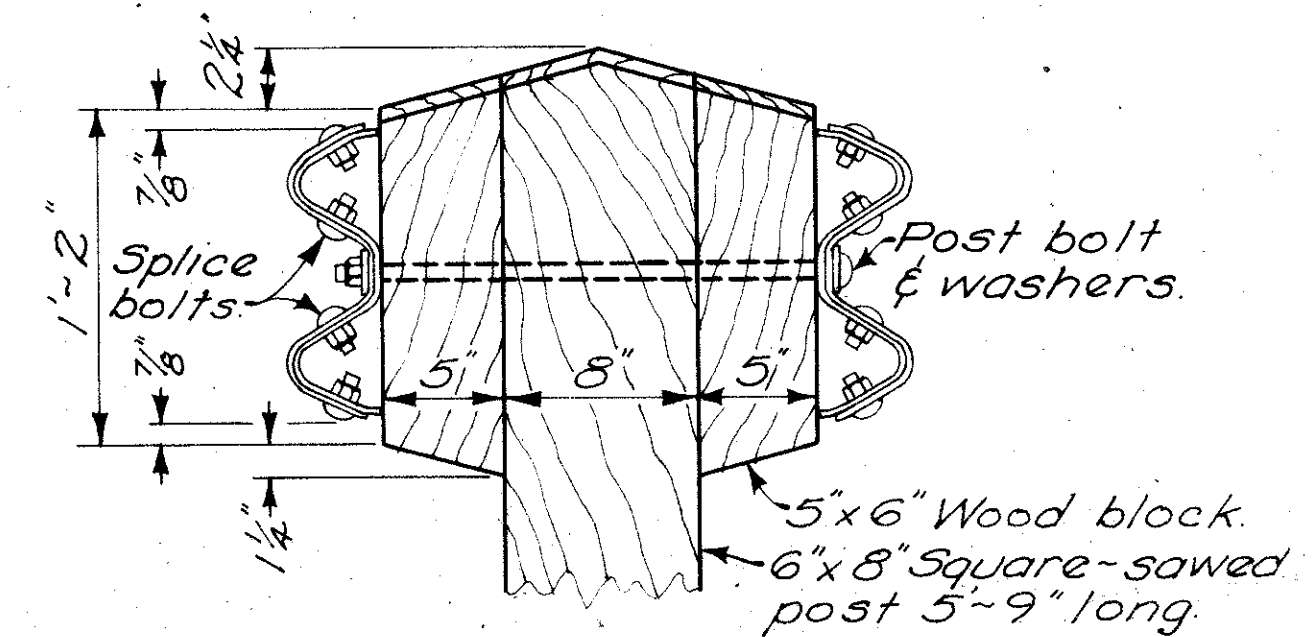
**POST B**



**POST C**



**POST D**



**POST E**

**NOTES**

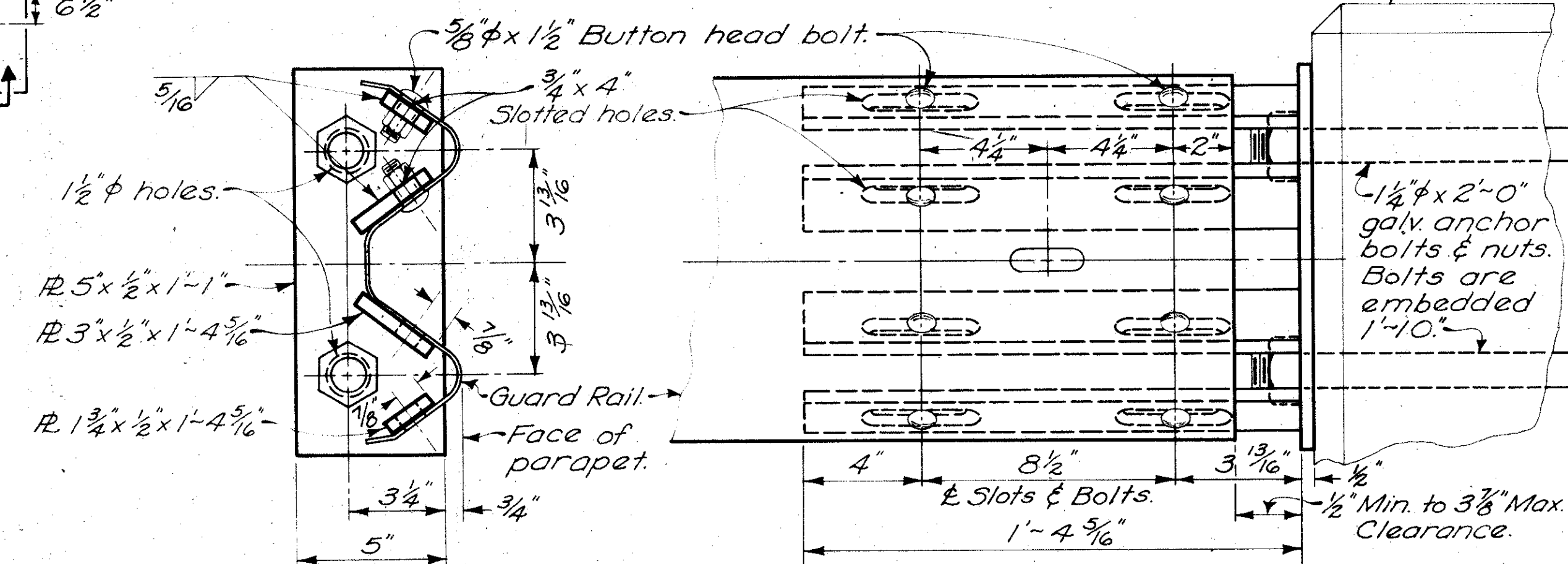
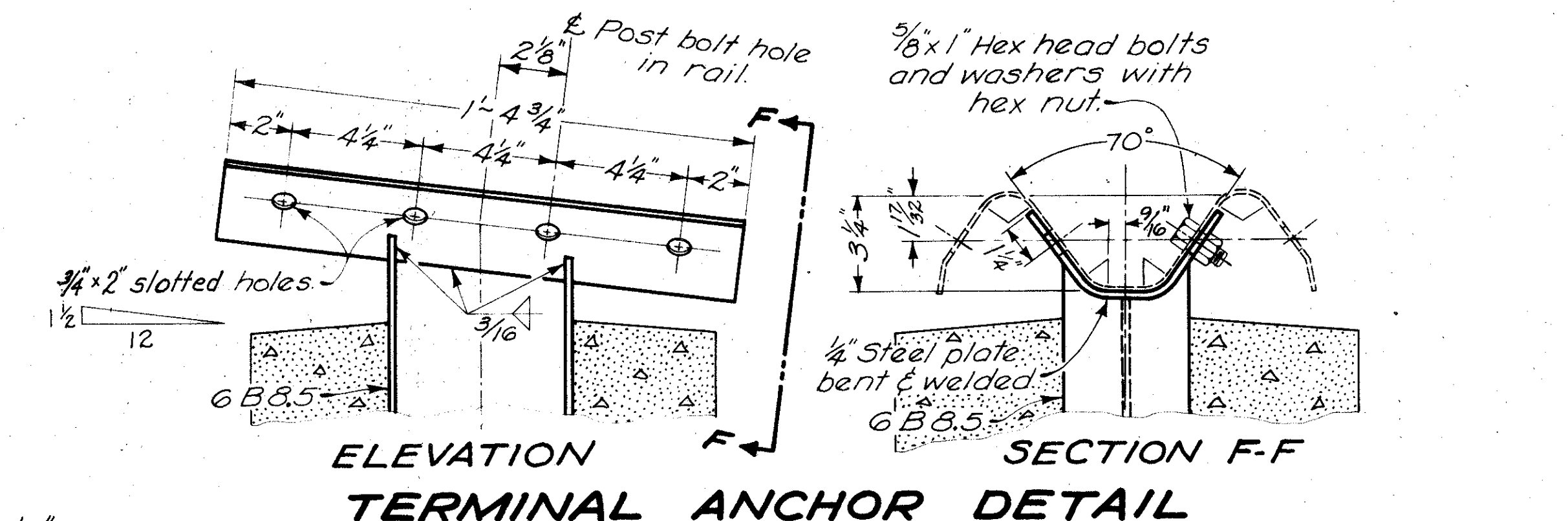
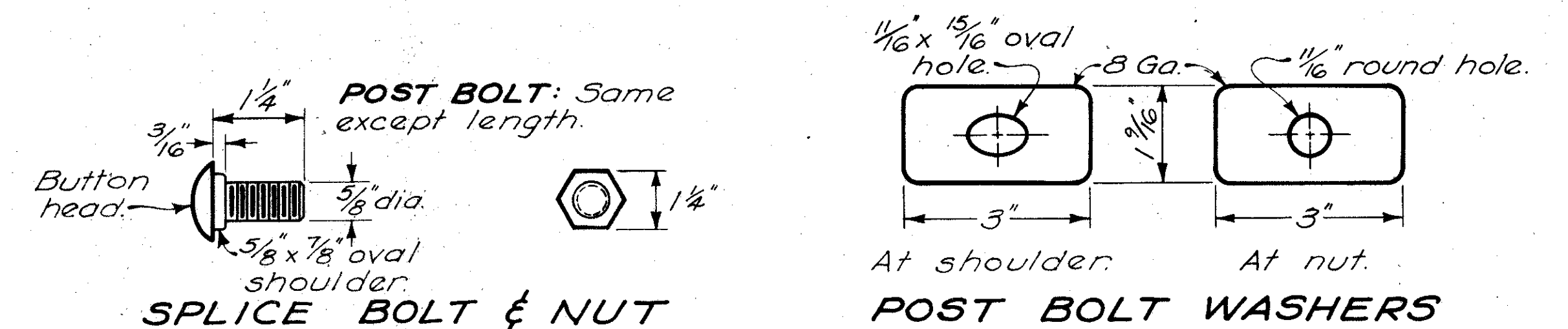
For details not shown, see Standard Drawings GR-1 and GR-2A.

All steel parts shall be galvanized in accordance with ASTM A123, A153 or A525, whichever may apply.

This drawing shall govern where a conflict arises.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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TYPE - 451  
SCALE 3/16"=1'

18

Technical drawing of a SUPERELEVATED SECTION showing cross-sections for cut and fill conditions. The diagram includes dimensions for seeding, joint spacing, profile grades, and various structural components like drop berms and guard rails. Callouts 1 through 9 indicate specific areas of interest.

**Dimensions and Callouts:**

- Seeding:** 659 Seeding
- Joint Spacing:** 8'-0", 10'-0", 12'-0", 24'-0", 5'-0", 24'-0", 12'-0", 10'-0", 8'-0", 2'-0", 2'-0", 2'-0", 10'-0" to R/W Line
- Profile Grades:** Profile Grade +  $\frac{3}{16}$ , Profile Grade +  $\frac{3}{16}$
- Structural Components:** 1" Drop Berm, 18" Min, 4:1, 2:1 or as shown, 12" \* \* (1/2 per ft), 11" \* (1/8 per ft), 4:1-10' and Under, 2:1 or as shown, 10' to R/W Line
- Callouts:** 1, 2, 3, 4, 5, 6, 7, 8, 9

**Notes:**

- Use in Fill Only
- Use in Cut Only
- 12" in Rock, 30" for S (where shown on plans)

[illegible]

1. Item 451 — 9" Reinforced Portland Cement Concrete Pavement.
2. Item 310 — 6" Subbase, Grading "A" or "B", as per plan (See General Note)
3. Item 310 — Subbase
4. Item 304 — Aggregate Base
5. Item 301 — Bituminous Aggregate Base 702.01(85-100); or 702.09 RT-10 (See note in proposal),  
as per plan
6. Item 409 — Sealcoat using 0.008 Cu. Yd. No 8 aggregate per Sq. Yd. and 0.30 Gal.  
bituminous material per Sq. Yd. (See note in proposal).
7. Item 605 — 6" Pipe Underdrain
8. Item Special — Drainage Connection, using No. 8 aggregate (See note in proposal)
9. Item 612 — Concrete Median



TYPE - 451  
SCALE 3/16" = 1'

DEDUCT  
BRIDGE AND APPROACHES

This diagram illustrates the cross-section of a road with a 12-foot wide travel lane and 12-foot shoulders. The total width is 36 feet. Key features include:
 

- Travel Lane:** 12'-0" wide, with a centerline survey point. The profile grade is  $+ \frac{3}{16}$ " per foot.
- Shoulders:** 12'-0" wide on each side. The profile grade is  $+ \frac{3}{16}$ " per foot.
- Drop Berms:** 1" high, located at the edge of the shoulders.
- Standard Long Joint:** Indicated at the centerline and shoulder edges.
- Dimensions:**
  - Overall width: 36'-0"
  - Travel lane width: 12'-0"
  - Shoulder width: 12'-0"
  - Drop berm width: 8'-0"
  - Drop berm height: 1"
  - Drop berm slope: 4:1 (10' and under) or 2:1 (over 10')
- Labels:** "Profile Grade +  $\frac{3}{16}$ " and "Profile Grade" are shown for the travel lane and shoulders respectively.
- Notes:** "10'-0" Where Guard Rail is used" and "659 Seeding" are noted at the top.

[illegible]

1. Item 451 — 9" Reinforced Portland Cement Concrete Pavement.
2. Item 310 — 6" Subbase, Grading "A" or "B", as per plan, (See General Note)
3. Item 310 — Subbase
4. Item 304 — 6" Aggregate Base
5. Item 301 — 3" Bituminous Aggregate Base 702.01(85-100); 702.09 RT-10,  
(See note in proposal), as per plan
6. Item 409 — Sealcoat using 0.008 Cu. Yd. No 8 aggregate per Sq. Yd. and 0.30 Gal.  
bituminous material per Sq. Yd. (See note in proposal)
7. Item 605 — 6" Pipe Underdrain
8. Item Special — Drainage Connection, using No 8 aggregate (See note in proposal)
9. Item 612 — Concrete Median

### SEQUENCE OF OPERATIONS

- (1) Install pipe underdrain on outside shoulder, where required. Installation of shallow underdrain in median may be deferred until pavement is placed.
- (2) Place subbase out to outside edge of underdrain or to one foot beyond edge of pavement where no underdrain is present. Payment shall be made for all subbase placed in this operation.
- (3) Construct pavement
- (4) Remove subbase and any contaminated backfill over drain and replace with No. 8 aggregate as shown by ®.
- (5) Complete shoulder construction.

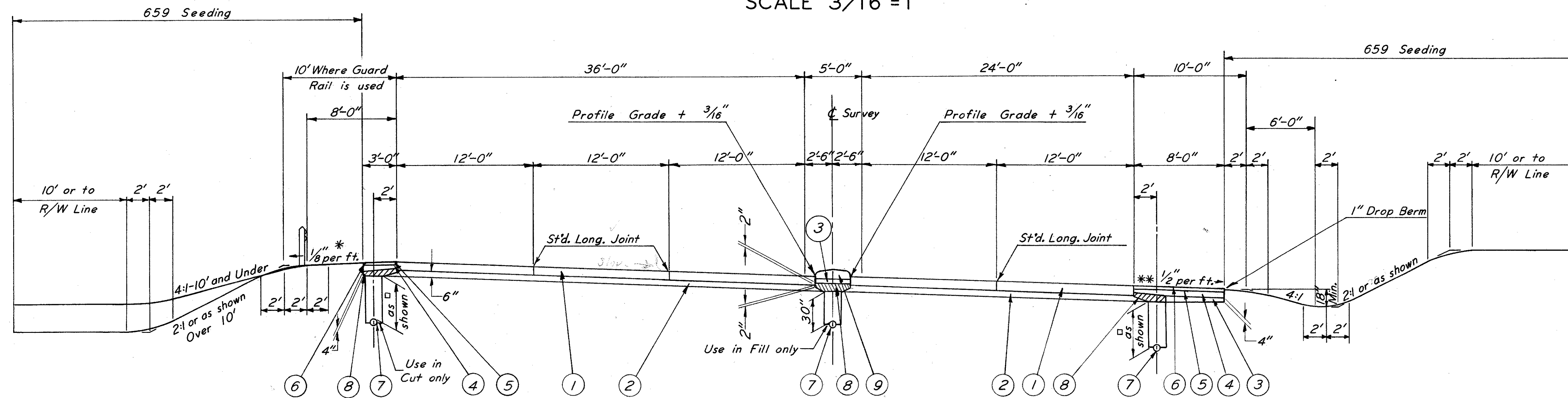


# TYPICAL SECTIONS

TYPE - 451  
SCALE 3/16"=1'

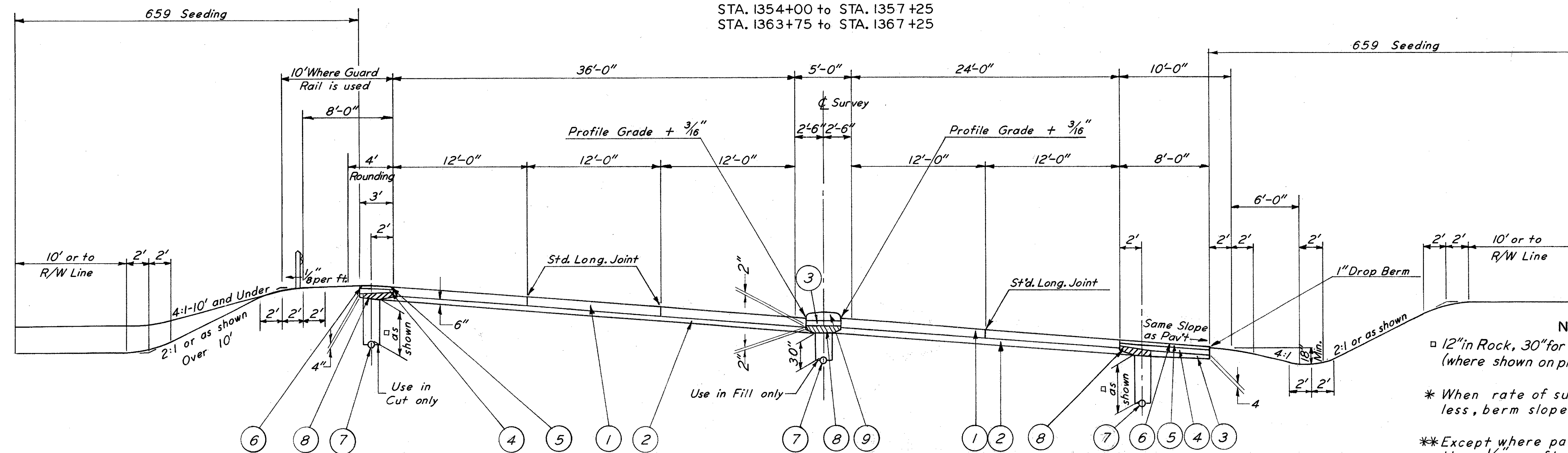
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		20

JEF-7-23.37



## SUPERELEVATED SECTION

Rate of super 0.048 per ft. or less  
STA. 1343+00 to STA. 1344+50  
STA. 1354+00 to STA. 1357+25  
STA. 1363+75 to STA. 1367+25



## SUPERELEVATED SECTION

Rate of super, over 0.048 per ft.  
STA. 1344+50 to STA. 1354+00 & STA. 1367+25 to STA. 1385+30

### LEGEND

- Item 451 - 9" Reinforced Portland Cement Concrete Pavement
- Item 310 - 6" Subbase, Grading "A" or "B" as per plan (see general note)
- Item 310 - Subbase
- Item 304 - 6" Aggregate Base
- Item 301 - 3" Bituminous Aggregate Base 702.01(85-100); or 702.09RT-10, (See Note in Proposal), as per plan

- Item 409 - Sealcoat using 0.008 Cu. Yd. No. 8 Aggregate per Sq. Yd. and 0.30 Gal. bituminous material per Sq. Yd. (See Note in Proposal)
- Item 605 - 6" Pipe Underdrain
- Item Special - Drainage Connection, using No. 8 Aggregate (See note in proposal)
- Item 612 - Concrete Median

## DEDUCT BRIDGE AND APPROACHES

STA. 1350+95.99 to STA. 1352+70.65  
(JEF-7-2555)

### NOTE

12" in Rock, 30" for Shallow, 50" in Earth Cuts (where shown on plans)

\* When rate of super is 0.016 per ft. or less, berm slope will be 1/2 per ft.

\*\* Except where pavement slope is greater than 1/2 per ft., then use pav't slope.

### SEQUENCE OF OPERATIONS

- Install pipe underdrain on outside shoulder, where required. Installation of shallow underdrain in median may be deferred until pavement is placed.
- Place subbase out to outside edge of underdrain or to one foot beyond edge of pavement where no underdrain is present. Payment shall be made for all subbase placed in this operation.
- Construct pavement.
- Remove subbase and any contaminated backfill over drain and replace with No. 8 aggregate as shown by ⑧.
- Complete shoulder construction.



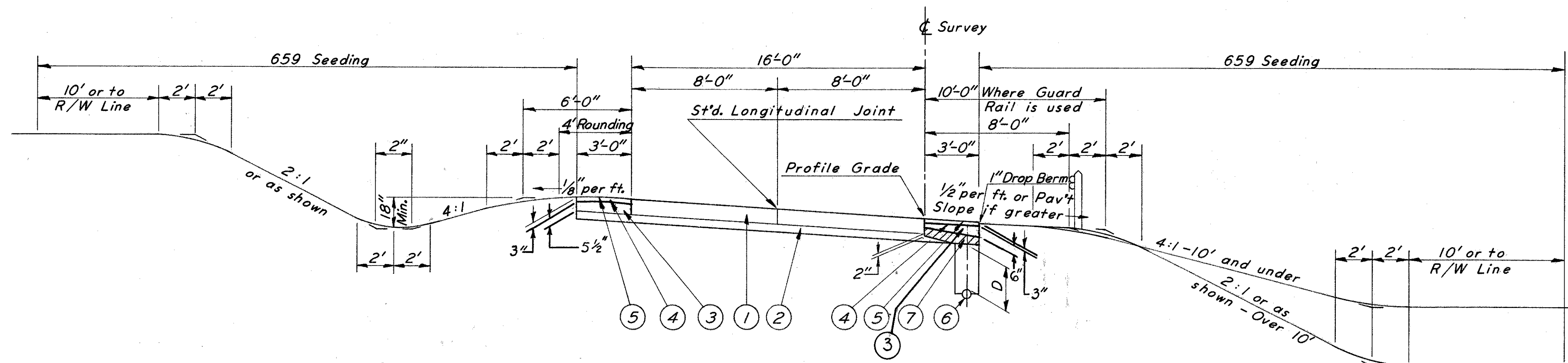
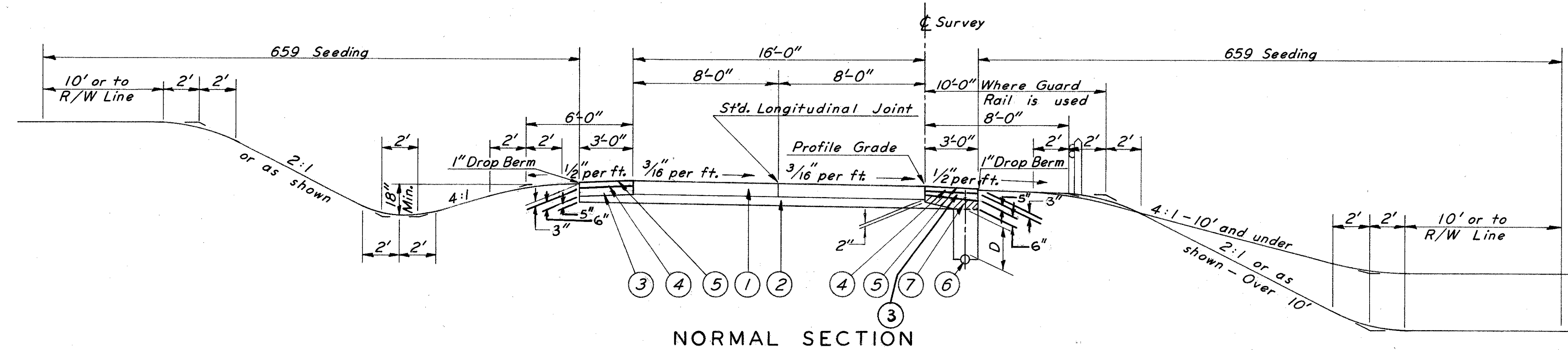
# TYPICAL SECTIONS

TYPE - 451  
SCALE 1/4" = 1'  
RAMPS

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

21

JEF-7-23.37



Note: For stationing of normal and superelevated sections, see sheet no. 204, 205, 207, 208, 210, 211, 218, 219, 247, 253, 254, 257, 258, 271 & 272.

## LEGEND

- Item 451 — 9" Reinforced Portland Cement Concrete Pavement
- Item 310 — 6" Subbase, Grading "A" or "B" as per plan (See Gen. Note)
- Item 304 — 6" Aggregate Base (except as shown)
- Item 301 — 3" Bituminous Aggregate Base, 702.01 (85-100); or 702.09 RT-10 (see note in proposal), as per plan
- Item 409 — Sealcoat using 0.008 Cu. Yd. No. 8 Aggregate per Sq. Yd. and 0.30 Gal. bituminous material per Sq. Yd. (See note in proposal)
- Item 605 — 6" Pipe Underdrains
- Item Special — Drainage Connection, using No. 8 Aggregate (See note in proposal)

## SEQUENCE OF OPERATIONS

(See Note on Sheet No. 20)

Note D: 30" or as shown on Plan & Profile Sheet.



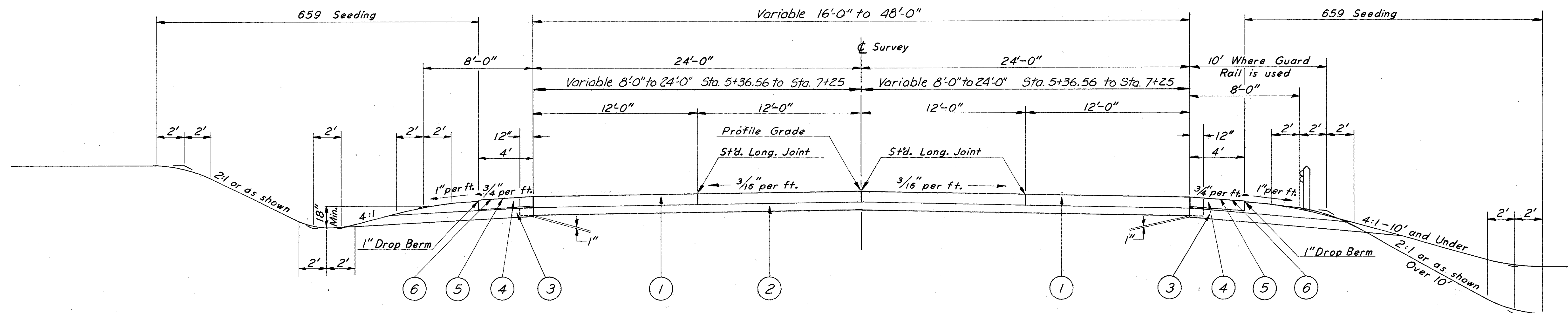
# TYPICAL SECTIONS

TYPE - 451  
SCALE 1/4" = 1'

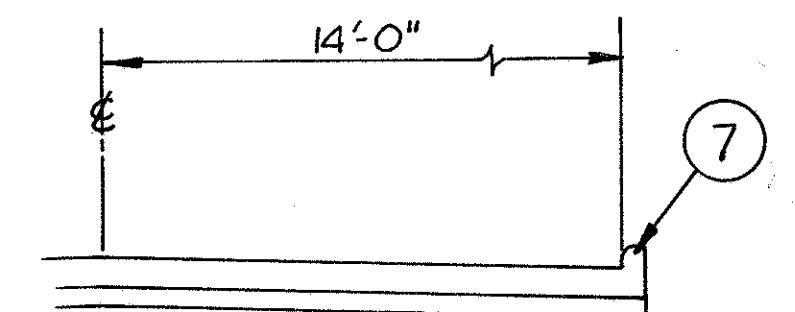
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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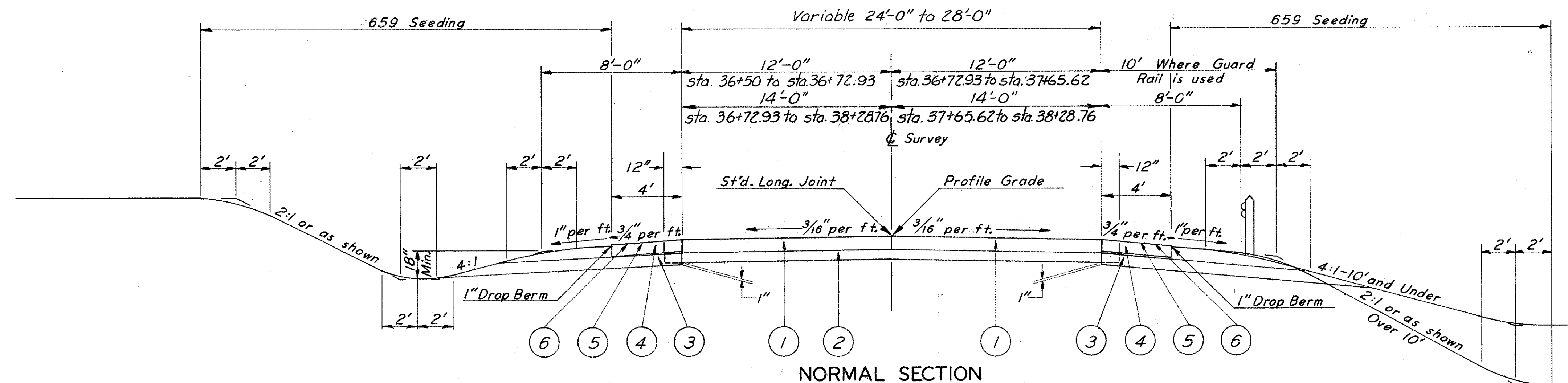
JEF-7-23.37



NORMAL SECTION  
RELOCATED CO. RD. 46  
STA. 7+21.56 TO STA. 7+25



LOCATION OF  
2-A CURB



NORMAL SECTION  
RELOCATED CO. RD. 46  
STA. 20+50 TO STA. 21+25  
STA. 36+50 TO STA. 38+28.76  
ALEXANDER STREET  
STA. 10+84.52 TO STA. 24+75

BRIDGE DEDUCT  
AND APPROACHES  
STA. 17+13.62 TO 19+48.14

- LEGEND
- Item 451 — 9" Reinforced Portland Cement Concrete Pavement
  - Item 310 — 6" Subbase
  - Item 605 — Aggregate Drains
  - Item 304 — 8" Aggregate Base
  - Item 408 — Bituminous Prime Coat, 702.09 RT-2 or RT-3, Applied at the rate of 0.4 Gal. per Sq. Yd.
  - Item 409 — Sealcoat using 0.008 Cu. Yd. No. 8 aggregate per Sq. Yd. and 0.30 Gal. bituminous material per Sq. Yd., 702.09 RT-9 or RT-10; or 702.02 MC-800 or MC-3000
  - Item 609 — Standard Type 2-A Curb

In lieu of 605.05 of the specifications, the aggregate drains shall be placed prior to construction of the paved shoulder.



# TYPICAL SECTIONS

TYPE - 451

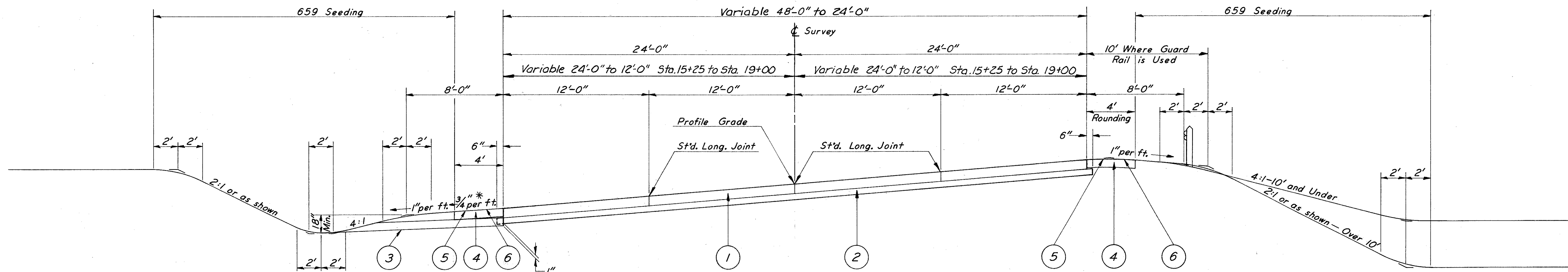
SCALE 1/4" = 1'

RELOCATED CO. RD. 46

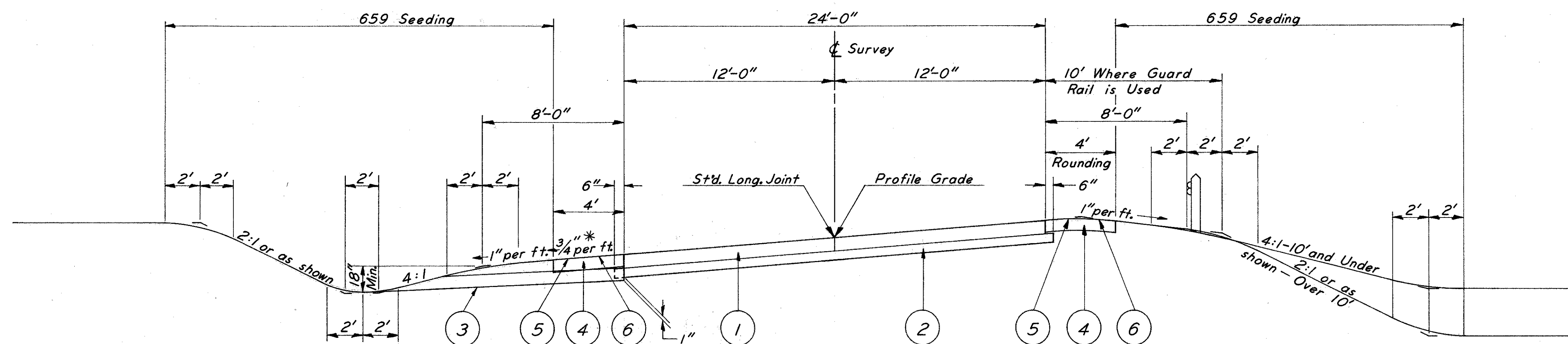
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

23

JEF-7-23.37



**SUPERELEVATED SECTION**  
STA. 7+25 TO STA. 15+25  
Variable STA. 15+25 TO STA. 19+00 (48' to 24')



**SUPERELEVATED SECTION**  
STA. 19+00 TO STA. 20+50  
STA. 21+25 TO STA. 36+50

## LEGEND

- Item 451 — 9" Reinforced Portland Cement Concrete Pavement
- Item 310 — 6" Subbase
- Item 605 — Aggregate Drains
- Item 304 — 8" Aggregate Base
- Item 408 — Bituminous Prime Coat, 702.09 RT-2 or RT-3, Applied at the rate of 0.4 Gal. per Sq. Yd.
- Item 409 — Sealcoat using 0.008 Cu. Yd. No. 8 aggregate per Sq. Yd. and 0.30 Gal. bituminous material 702.09 RT-9 or RT-10; or 702.02 MC-800 or MC-3000 per Sq. Yd.

\* Except where pavement slope is greater than 3/4" per ft., then use pavement slope.



# TYPICAL SECTIONS

TYPE - 451

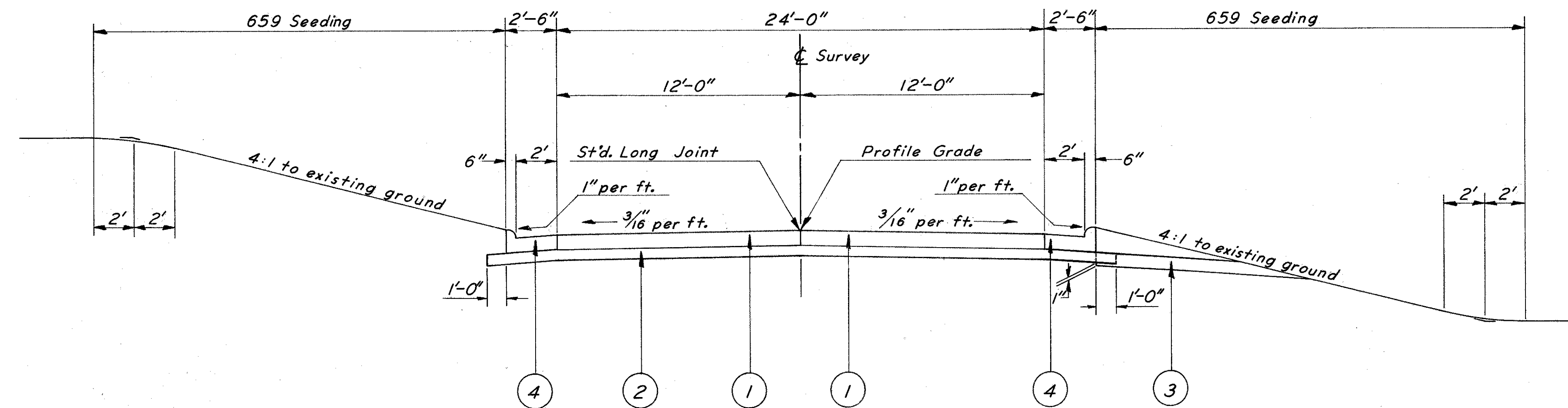
SCALE 1/4" = 1'

ALEXANDER STREET

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

24

JEF-7 23.37



CURB SECTION  
STA. 24 + 75 To STA. 27+69.10

## LEGEND

1. Item 451 — 9" Reinforced Portland Cement Concrete Pavement
2. Item 310 — 6" Subbase
3. Item 605 — Aggregate Drains
4. Item 609 — Combination Curb and Gutter, Standard Type "2"

SCALE  $1/4'' = 1'$

25

[illegible]

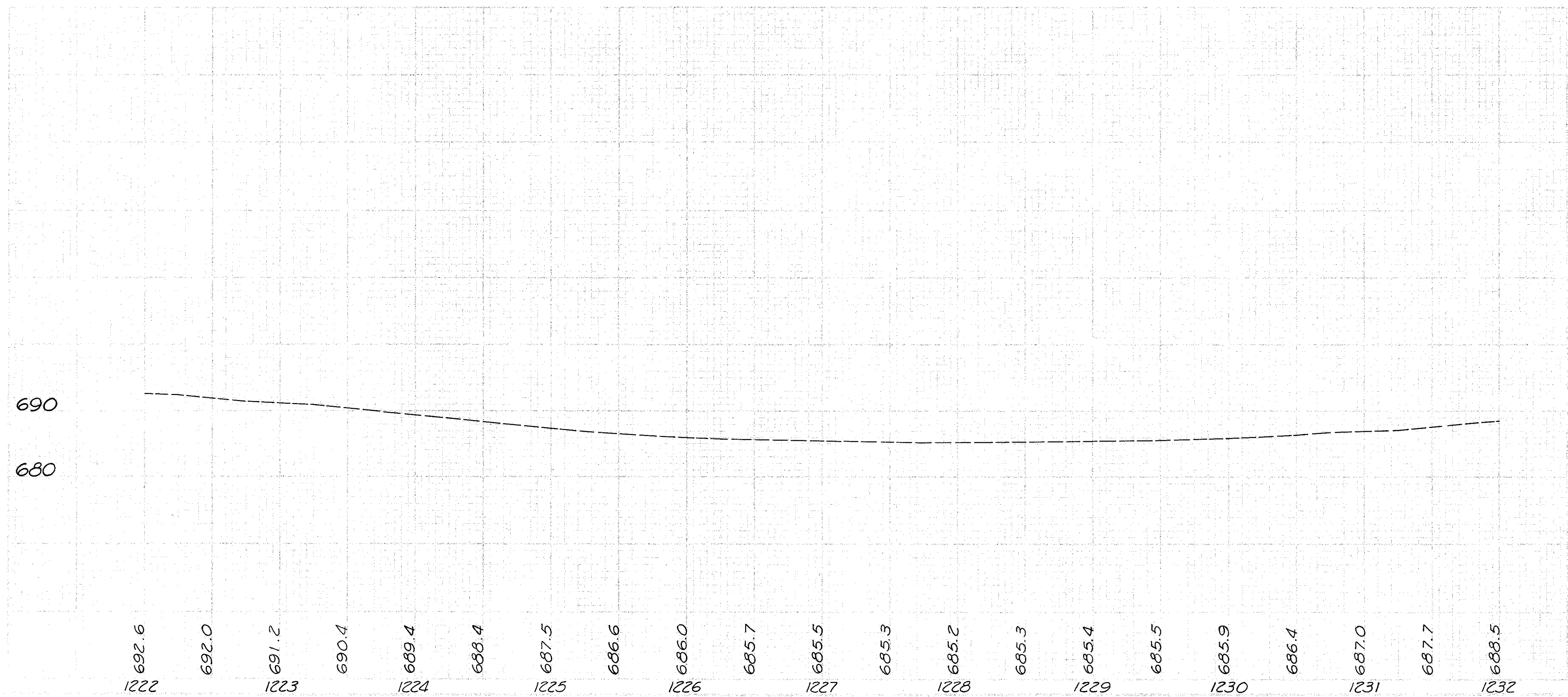
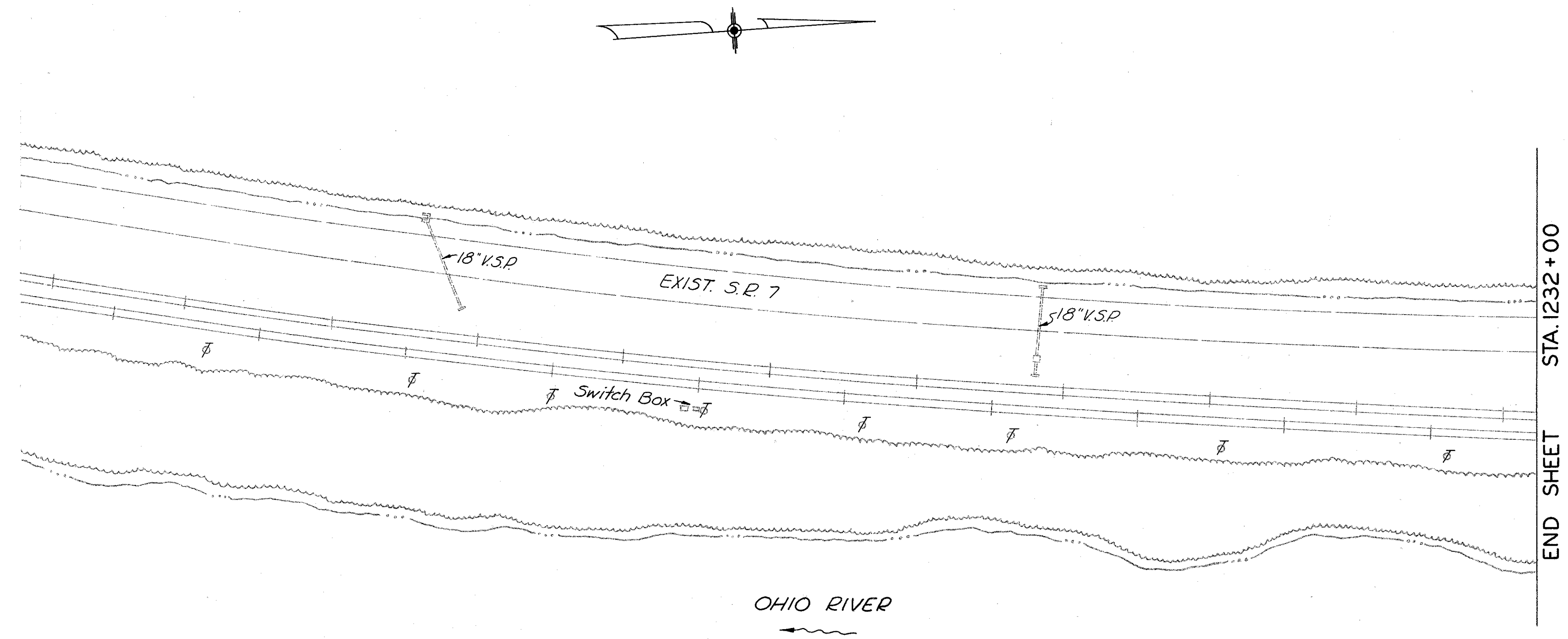
NORMAL SECTION  
RELOCATED FERNWOOD DR.  
RELOCATED NEBO DR.  
KNOXVILLE PIKE

Sta. 0+24 to Sta. 4+06

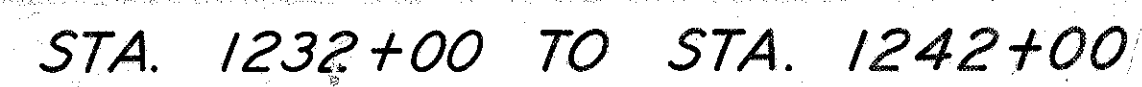
1. Item 404 — 1 1/4" Asphalt Concrete (70-85)
2. Item 402 — 1 1/4" Asphalt Concrete (70-85)
3. Item 408 — Bituminous Prime Coat, 702.09 RT-2 or RT-3,  
Applied at the rate of 0.4 Gal. per Sq. Yd.
4. Item 304 — 8" Aggregate Base.
5. Item 310 — 6" Subbase
6. Item 605 — Aggregate Drains



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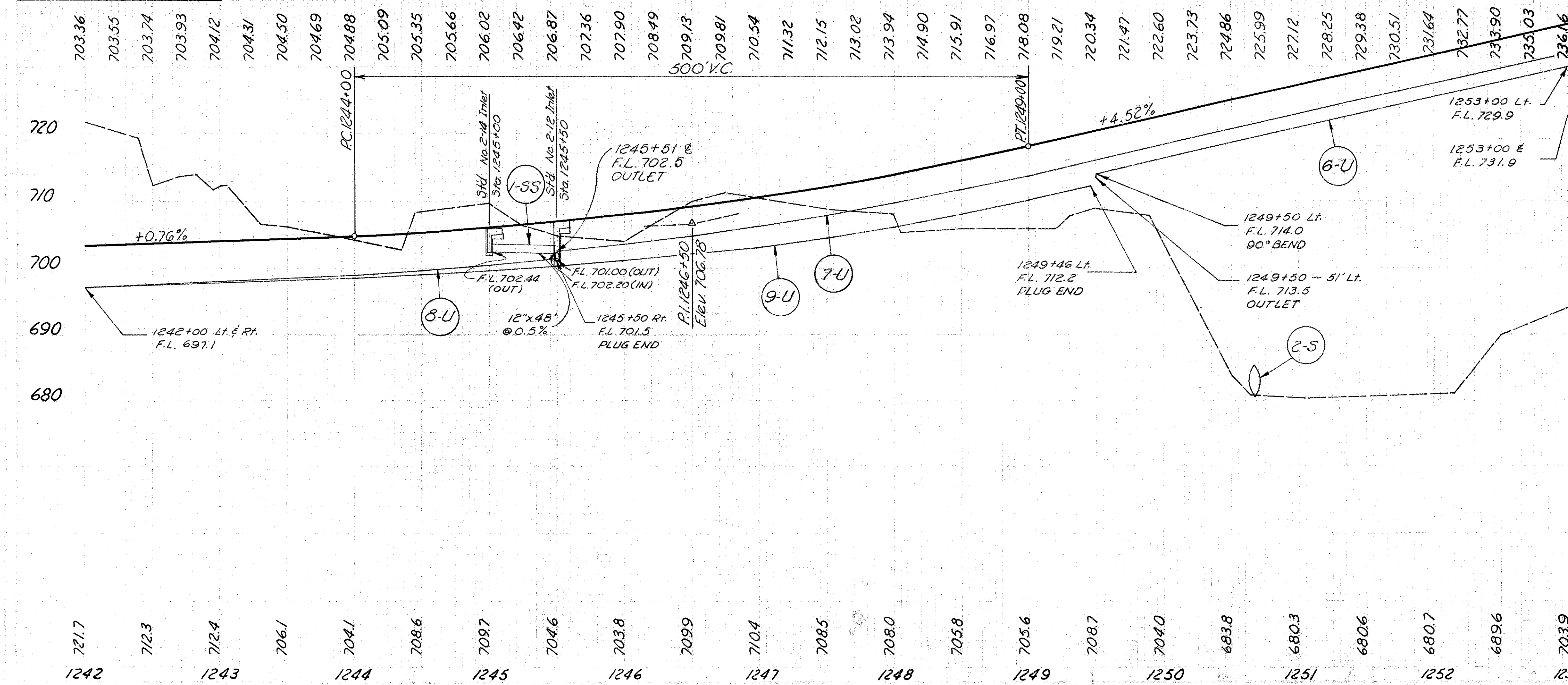
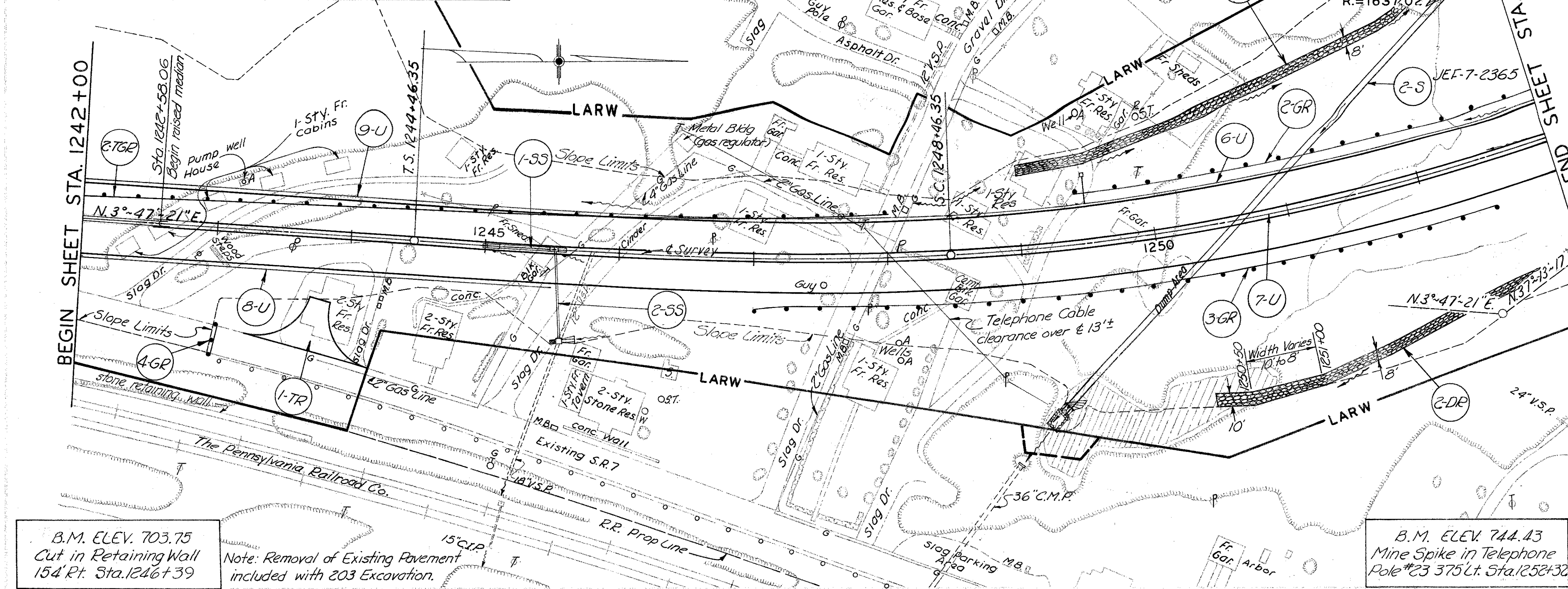
STA. 1222 + 00 TO STA. 1232 + 00



EST. QUANTITIES		Bends & Branches		404		605		606		607		608		609		610		611		612		613		614		615		616		617		618		619		620		621		622		623		624		625		626		627		628		629		630		631		632		633		634		635		636		637		638		639		640		641		642		643		644		645		646		647		648		649		650		651		652		653		654		655		656		657		658		659		660		661		662		663		664		665		666		667		668		669		670		671		672		673		674		675		676		677		678		679		680		681		682		683		684		685		686		687		688		689		690		691		692		693		694		695		696		697		698		699		700		701		702		703		704		705		706		707		708		709		710		711		712		713		714		715		716		717		718		719		720		721		722		723		724		725		726		727		728		729		730		731		732		733		734		735		736		737		738		739		740		741		742		743		744		745		746		747		748		749		750		751		752		753		754		755		756		757		758		759		760		761		762		763		764		765		766		767		768		769		770		771		772		773		774		775		776		777		778		779		780		781		782		783		784		785		786		787		788		789		790		791		792		793		794		795		796		797		798		799		800		801		802		803		804		805		806		807		808		809		810		811		812		813		814		815		816		817		818		819		820		821		822		823		824		825		826		827		828		829		830		831		832		833		834		835		836		837		838		839		840		841		842		843		844		845		846		847		848		849		850		851		852		853		854		855		856		857		858		859		860		861		862		863		864		865		866		867		868		869		870		871		872		873		874		875		876		877		878		879		880		881		882		883		884		885		886		887		888		889		890		891		892		893		894		895		896		897		898		899		900		901		902		903		904		905		906		907		908		909		910		911		912		913		914		915		916		917		918		919		920		921		922		923		924		925		926		927		928		929		930		931		932		933		934		935		936		937		938		939		940		941		942		943		944		945		946		947		948		949		950		951		952		953		954		955		956		957		958		959		960		961		962		963		964		965		966		967		968		969		970		971		972		973		974		975		976		977		978		979		980		981		982		983		984		985		986		987		988		989		990		991		992		993		994		995		996		997		998		999		1000																													
606	Guard Rail Type 4	Temp Guard Rail, as per plan	LF	202	Pipe Removed 24" & Under	6" Pipe Under	LF	605	6" Pipe Under 707.06*	LF	606	6" Under 707.12	LF	607	6" Under 707.12	LF	608	6" Under 707.12	LF	609	6" Under 707.12	LF	610	6" Under 707.12	LF	611	6" Under 707.12	LF	612	6" Under 707.12	LF	613	6" Under 707.12	LF	614	6" Under 707.12	LF	615	6" Under 707.12	LF	616	6" Under 707.12	LF	617	6" Under 707.12	LF	618	6" Under 707.12	LF	619	6" Under 707.12	LF	620	6" Under 707.12	LF	621	6" Under 707.12	LF	622	6" Under 707.12	LF	623	6" Under 707.12	LF	624	6" Under 707.12	LF	625	6" Under 707.12	LF	626	6" Under 707.12	LF	627	6" Under 707.12	LF	628	6" Under 707.12	LF	629	6" Under 707.12	LF	630	6" Under 707.12	LF	631	6" Under 707.12	LF	632	6" Under 707.12	LF	633	6" Under 707.12	LF	634	6" Under 707.12	LF	635	6" Under 707.12	LF	636	6" Under 707.12	LF	637	6" Under 707.12	LF	638	6" Under 707.12	LF	639	6" Under 707.12	LF	640	6" Under 707.12	LF	641	6" Under 707.12	LF	642	6" Under 707.12	LF	643	6" Under 707.12	LF	644	6" Under 707.12	LF	645	6" Under 707.12	LF	646	6" Under 707.12	LF	647	6" Under 707.12	LF	648	6" Under 707.12	LF	649	6" Under 707.12	LF	650	6" Under 707.12	LF	651	6" Under 707.12	LF	652	6" Under 707.12	LF	653	6" Under 707.12	LF	654	6" Under 707.12	LF	655	6" Under 707.12	LF	656	6" Under 707.12	LF	657	6" Under 707.12	LF	658	6" Under 707.12	LF	659	6" Under 707.12	LF	660	6" Under 707.12	LF	661	6" Under 707.12	LF	662	6" Under 707.12	LF	663	6" Under 707.12	LF	664	6" Under 707.12	LF	665	6" Under 707.12	LF	666	6" Under 707.12	LF	667	6" Under 707.12	LF	668	6" Under 707.12	LF	669	6" Under 707.12	LF	670	6" Under 707.12	LF	671	6" Under 707.12	LF	672	6" Under 707.12	LF	673	6" Under 707.12	LF	674	6" Under 707.12	LF	675	6" Under 707.12	LF	676	6" Under 707.12	LF	677	6" Under 707.12	LF	678	6" Under 707.12	LF	679	6" Under 707.12	LF	680	6" Under 707.12	LF	681	6" Under 707.12	LF	682	6" Under 707.12	LF	683	6" Under 707.12	LF	684	6" Under 707.12	LF	685	6" Under 707.12	LF	686	6" Under 707.12	LF	687	6" Under 707.12	LF	688	6" Under 707.12	LF	689	6" Under 707.12	LF	690	6" Under 707.12	LF	691	6" Under 707.12	LF	692	6" Under 707.12	LF	693	6" Under 707.12	LF	694	6" Under 707.12	LF	695	6" Under 707.12	LF	696	6" Under 707.12	LF	697	6" Under 707.12	LF	698	6" Under 707.12	LF	699	6" Under 707.12	LF	700	6" Under 707.12	LF	701	6" Under 707.12	LF	702	6" Under 707.12	LF	703	6" Under 707.12	LF	704	6" Under 707.12	LF	705	6" Under 707.12	LF	706	6" Under 707.12	LF	707	6" Under 707.12	LF	708	6" Under 707.12	LF	709	6" Under 707.12	LF	710	6" Under 707.12	LF	711	6" Under 707.12	LF	712	6" Under 707.12	LF	713	6" Under 707.12	LF	714	6" Under 707.12	LF	715	6" Under 707.12	LF	716	6" Under 707.12	LF	717	6" Under 707.12	LF	718	6" Under 707.12	LF	719	6" Under 707.12	LF	720	6" Under 707.12	LF	721	6" Under 707.12	LF	722	6" Under 707.12	LF	723	6" Under 707.12	LF	724	6" Under 707.12	LF	725	6" Under 707.12	LF	726	6" Under 707.12	LF	727	6" Under 707.12	LF	728	6" Under 707.12	LF	729	6" Under 707.12	LF	730	6" Under 707.12	LF	731	6" Under 707.12	LF	732	6" Under 707.12	LF	733	6" Under 707.12	LF	734	6" Under 707.12	LF	735	6" Under 707.12	LF	736	6" Under 707.12	LF	737	6" Under 707.12	LF	738	6" Under 707.12	LF	739	6" Under 707.12	LF	740	6" Under 707.12	LF	741	6" Under 707.12	LF	742	6" Under 707.12	LF	743	6" Under 707.12	LF	744	6" Under 707.12	LF	745	6" Under 707.12	LF	746	6" Under 707.12	LF	747	6" Under 707.12	LF	748	6" Under 707.12	LF	749	6" Under 707.12	LF	750	6" Under 707.12	LF	751	6" Under 707.12	LF	752	6" Under 707.12	LF	753	6" Under 707.12	LF	754	6" Under 707.12	LF	755	6" Under 707.12	LF	756	6" Under 707.12	LF	757	6" Under 707.12	LF	758	6" Under 707.12	LF	759	6" Under 707.12	LF	760	6" Under 707.12	LF	761	6" Under 707.12	LF	762	6" Under 707.12	LF	763	6" Under 707.12	LF	764	6" Under 707.12	LF	765	6" Under 707.12	LF	766	6" Under 707.12	LF	767	6" Under 707.12	LF	768	6" Under 707.12	LF	769	6" Under 707.12	LF	770	6" Under 707.12	LF	771	6" Under 707.12	LF	772	6" Under 707.12	LF	773	6" Under 707.12	LF	774	6" Under 707.12	LF	775	6" Under 707.12	LF	776	6" Under 707.12	LF	777	6" Under 707.12	LF	778	6" Under 707.12	LF	779	6" Under 707.12	LF	780	6" Under 707.12	LF	781	6" Under 707.12	LF	782	6" Under 707.12	LF	783	6" Under 707.12	LF	784	6" Under 707.12	LF	785	6" Under 707.12	LF	786	6" Under 707.12	LF	787	6" Under 707.12	LF	788	6" Under 707.12	LF	789	6" Under 707.12	LF	790	6" Under 707.12	LF	791	6" Under 707.12	LF	792	6" Under 707.12	LF	793	6" Under 707.12	LF	794	6" Under 707.12	LF	795	6" Under 707.12	LF	796	6" Under 707.12	LF	797	6" Under 707.12	LF	798	6" Under 707.12	LF	799	6" Under 707.12	LF	800	6" Under 707.12	LF	801	6" Under 707.12	LF	802	6" Under 707.12	LF	803	6" Under 707.12	LF	804	6" Under 707.12	LF	805	6" Under 707.12	LF	806	6" Under 707.12	LF	807	6" Under 707.12	LF	808	6" Under 707.12	LF	809	6" Under 707.12	LF	810	6" Under 707.12	LF	811	6" Under 707.12	LF	812	6" Under 707.12	LF	813	6" Under 707.12	LF	814	6" Under 707.12	LF	815	6" Under 707.12	LF	816	6" Under 707.12	LF	817	6" Under 707.12	LF	818	6" Under 707.12	LF	819	6" Under 707.12	LF	820	6" Under 707.12	LF	821	6" Under 707.12	LF	822	6" Under 707.12	LF	823	6" Under 707.12	LF	824	6" Under 707.12	LF	825	6" Under 707.12	LF	826	6" Under 707.12	LF	827	6" Under 707.12	LF	828	6" Under 707.12	LF	829	6" Under 707.12	LF	830	6" Under 707.12	LF	831	6" Under 707.12	LF	832	6" Under 707.12	LF	833	6" Under 707.12	LF	834	6" Under 707.12	LF	835	6" Under 707.12	LF	836	6" Under 707.12	LF	837	6" Under 707.12	LF	838	6" Under 707.12	LF	839	6" Under 707.12	LF	840	6" Under 707.12	LF	841	6" Under 707.12	LF	842	6" Under 707.12	LF	843	6" Under 707.12	LF	844	6" Under 707.12	LF	845	6" Under 707.12	LF	846	6" Under 707.12	LF	847	6" Under 707.12	LF	848	6" Under 707.12	LF	849	6" Under 707.12	LF	850	6" Under 707.12	LF	851	6" Under 707.12	LF	852	6" Under 707.12	LF	853	6" Under 707.12	LF	854	6" Under 707.12	LF	855	6" Under 707.12	LF	856	6" Under 707.12	LF	857	6" Under 707.12	LF	858	6" Under 707.12	LF	859	6" Under 707.12	LF	860	6" Under 707.12	LF	861	6" Under 707.12	LF	862	6" Under 707.12	LF	863	6" Under 707.12	LF	864	6" Under 707.12	LF	865	6" Under 707.12	LF	866	6" Under 707.12	LF	867	6" Under 707.12	LF	868	6" Under 707.12	LF	869	6" Under 707.12	LF	870	6" Under 707.12	LF	871	6" Under 707.12	LF	872	6" Under 707.12	LF	873	6" Under 707.12	LF	874	6" Under 707.12	LF	875	6" Under 707.12	LF	876	6" Under 707.12	LF	877	6" Under 707

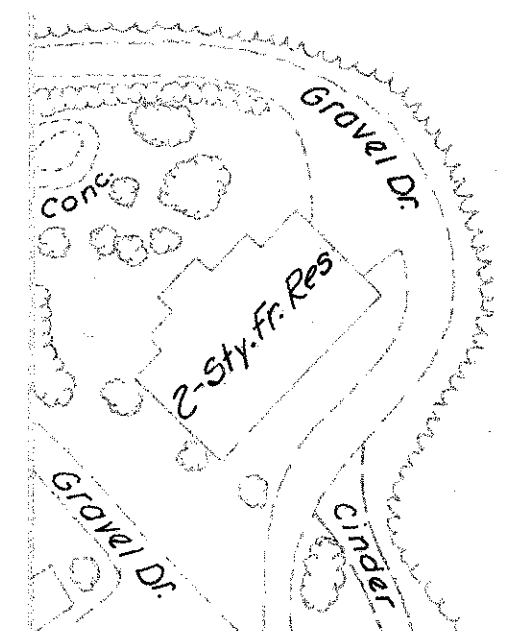


T.S. 1244+46.35 32" Elm 6' post Nails & Caps in References Apple	S.C. 1248+46.35 Window Nails & Caps in References Garage	P.I. 1252+60 20" Cherry 35' Locust Nails & Caps in References 5" Locust
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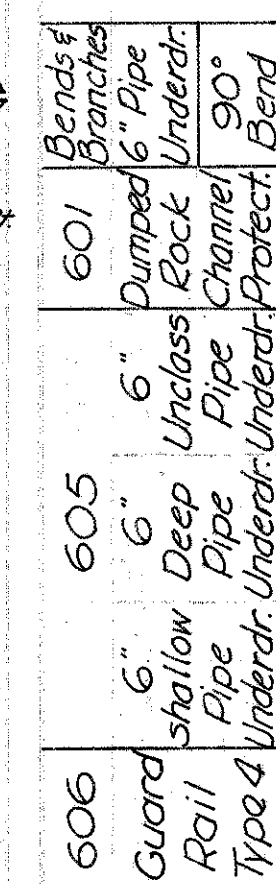


ESTIMATED QUANTITIES									
606	606	203	605	604	603	602	601	600	599
Guard	Bends & Branches		6" Deep	Standard	54"*	54"*	Dumped & Spread	54"*	54"*
Rail	6" Pipe	Temp.	Pipe	Medion	Type A	Type A	Rock & Sand	Catch	Type A
Type	Underdr.	Guard	Shallow	Basin	Type F	Type B	Conc. Trench	Inlets	107.05
4	90°	Rail as	Underdr.	2EA	2EA	2EA	Prof. Slab	Each	2EA
L.F.	Bend	per plan	L.F.	L.F.	L.F.	L.F.	C.Y.	L.F.	L.F.
		L.F.	L.F.	L.F.	L.F.	L.F.	10	20	434
		?							283





Note: 67-GR is provided for sign protection.



660	Sodding	603 Conduit	6" Type F
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10-U 1253+00 to 1256+50 LT  
11-U 1256+50 to 1257+50 LT  
12-U 1257+50 to 1264+00 LT  
13-U 1253+50 to 1264+00 RT  
14-U 1253+00 to 1253+50 E

256 1256+00 to 1262+00 RT  
3-DRI 1253+00 to 1256+00 RT  
676P 1260+58 to 1261+53 RT  
56R 1253+00 to 1264+157 LT

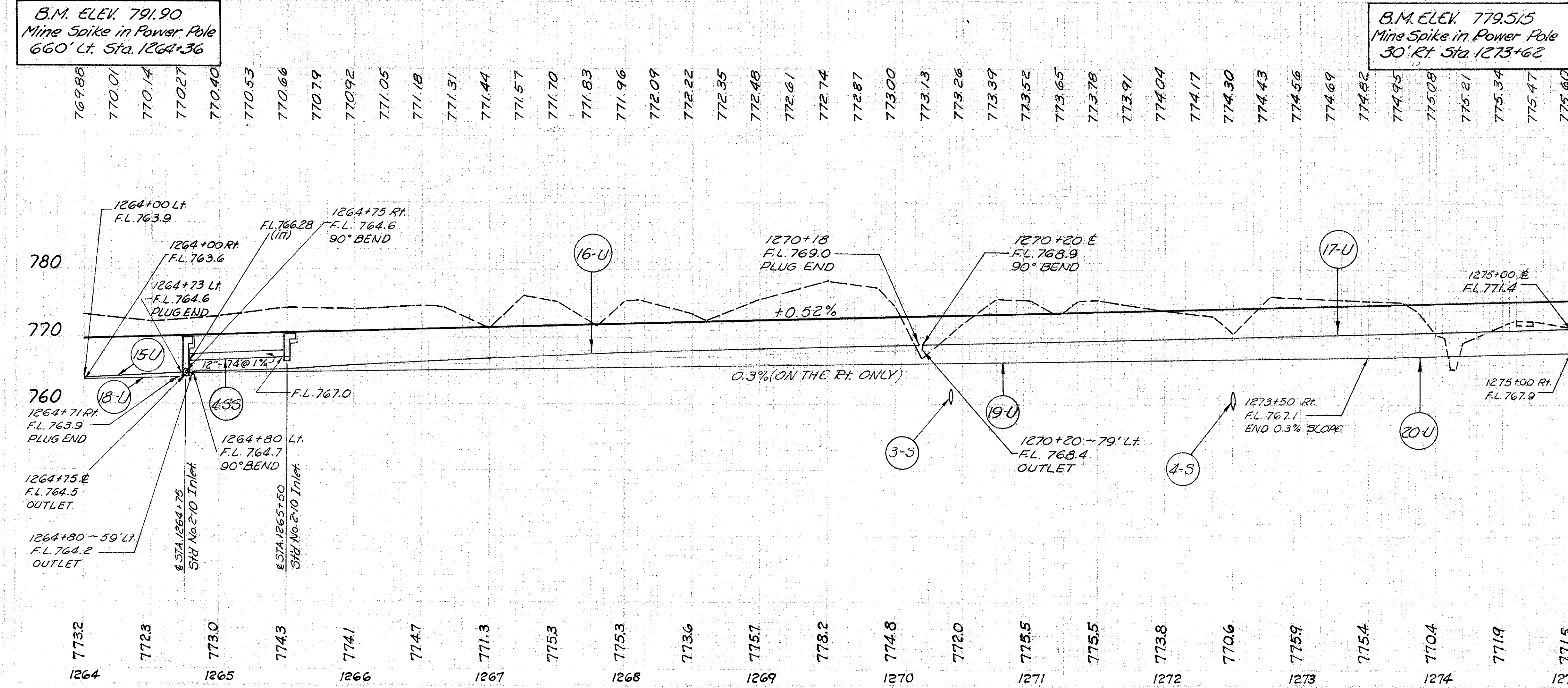
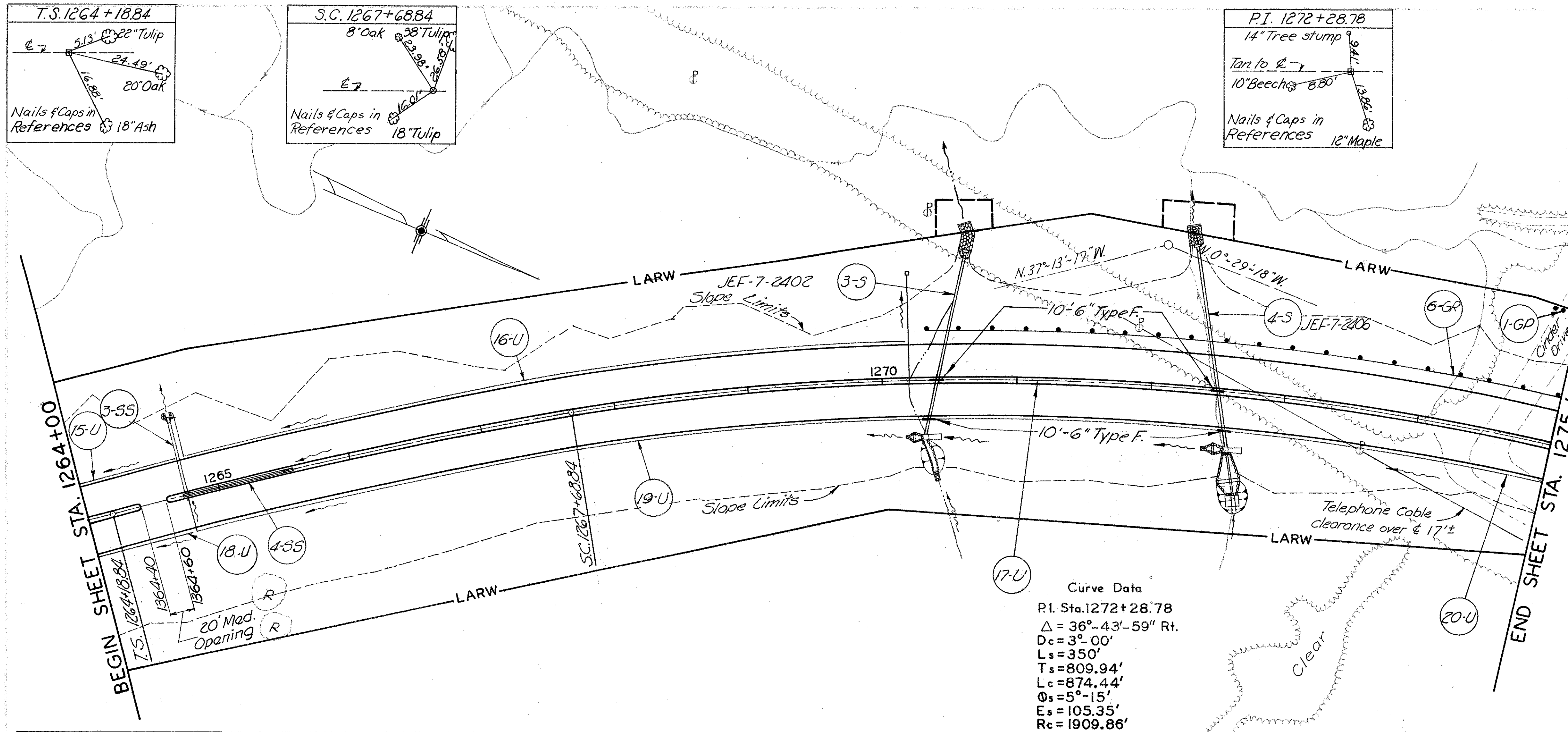
STA. 1253+00 TO STA. 1264+00

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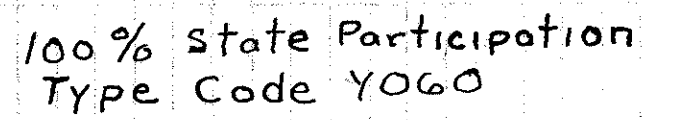


JEF -7-23.37



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606	Guard Rail Type 4	601	Pumped Rock Channel/ Protect.	6"	Shallow Pipe Underdrain	605	6" Deep Pipe Underdrain	606	Guard Posts Underdrain 16" x 3"
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21-U	1275+00	to 1276+25	£
22-U	1275+00	to 1277+15	Rt
23-U	1276+29	to 1277+25	Lt
24-U	1277+25	to 1285+75	Lt
25-U	1285+75	to 1286+00	Lt
26-U	1277+19	to 1278+75	Rt
27-U	1278+75	to 1286+00	Rt
3-55	1279+50		Lt
2555	1275+56		44Rt
7-50	1275+00	to 1276+08.5	Lt
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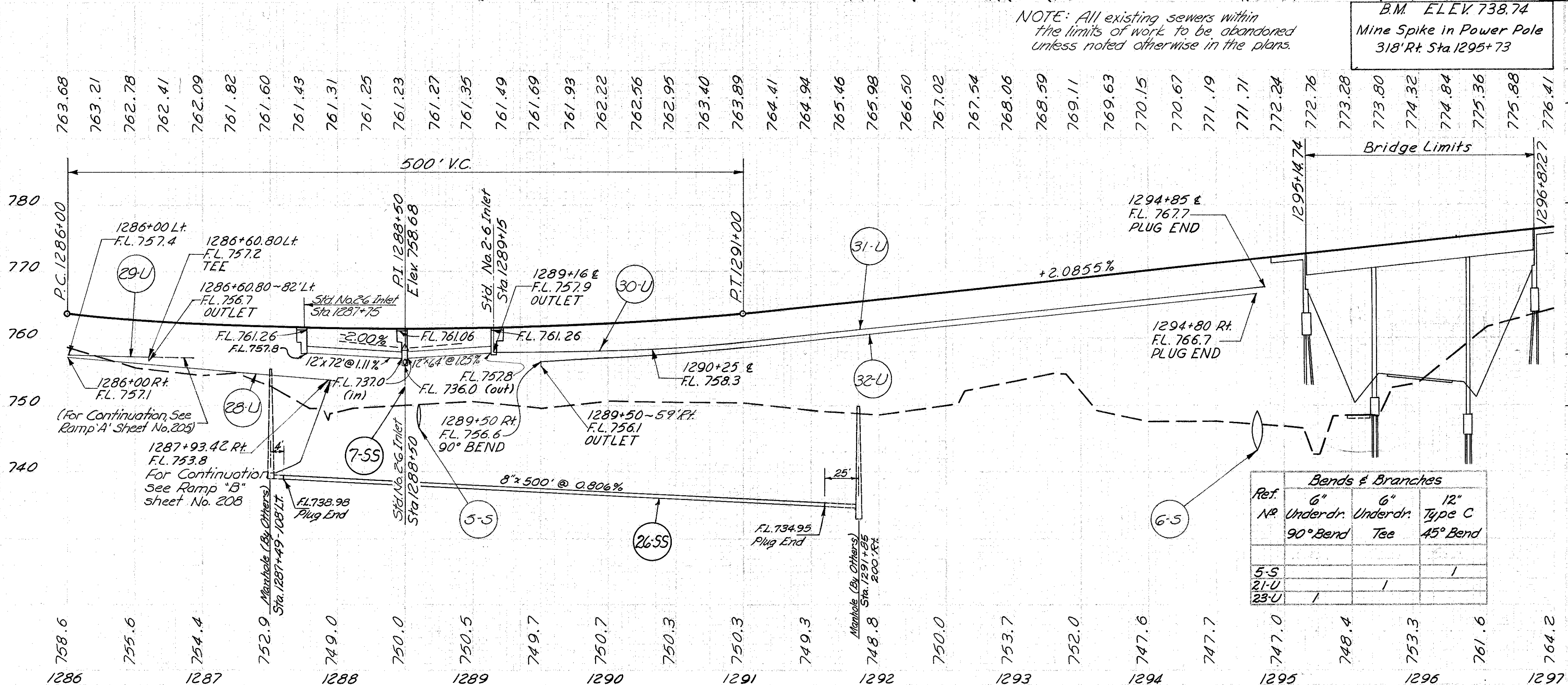
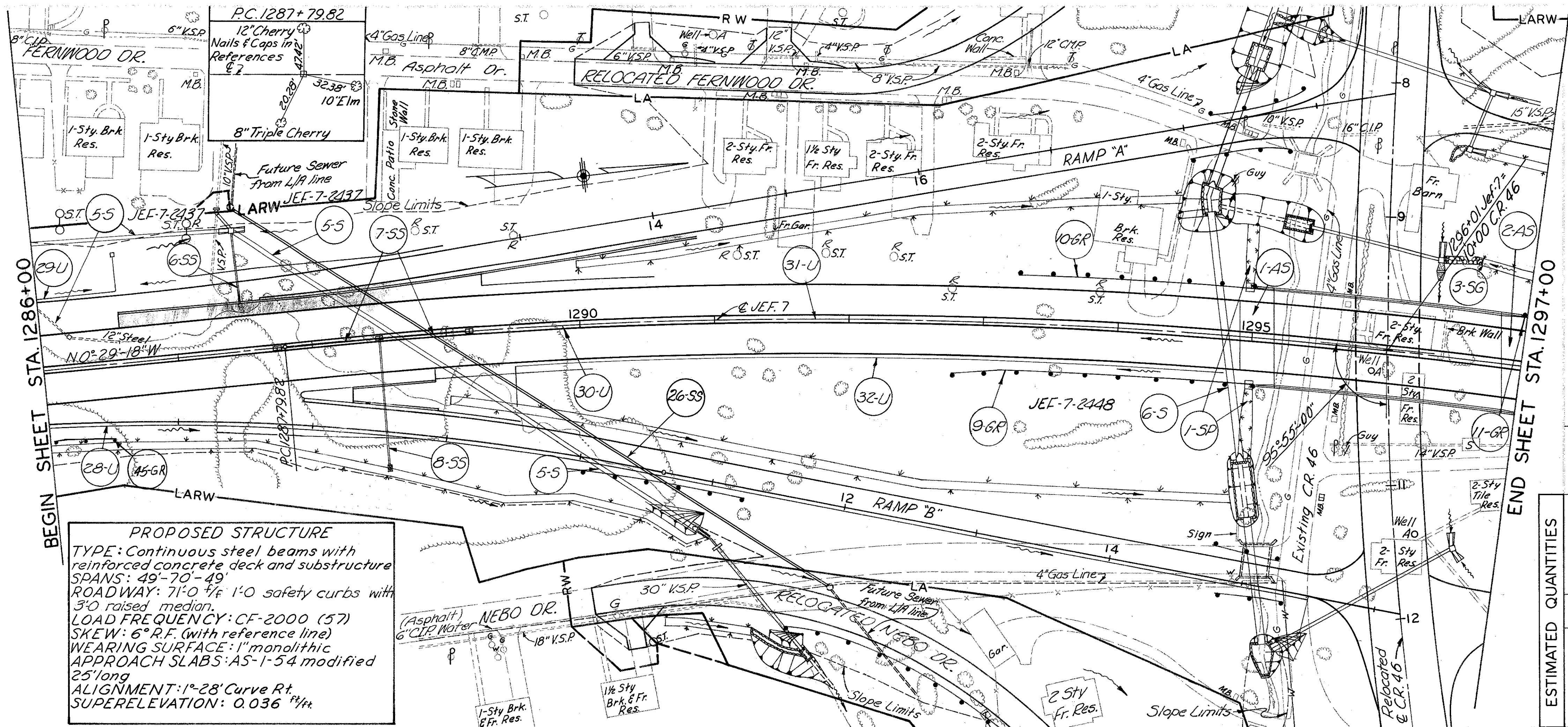
See Sheet No 322 for Quantities and Details

8-GR	1275+94 to 1276+29	R4	37.5
68GR	1279+28 to 1280+03	R4	75
20-55	1281+07 to 1284+50	L4	
6-46	1280+97 to 1281+07	L4	



JEF-7-23.37

343  
343



ESTIMATED QUANTITIES	
603	Conduit * Class B Bedding
604	42" 12" Type A Type A
605	42" 12" Type B Type C
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STA.1286+00 TO STA.1297+00

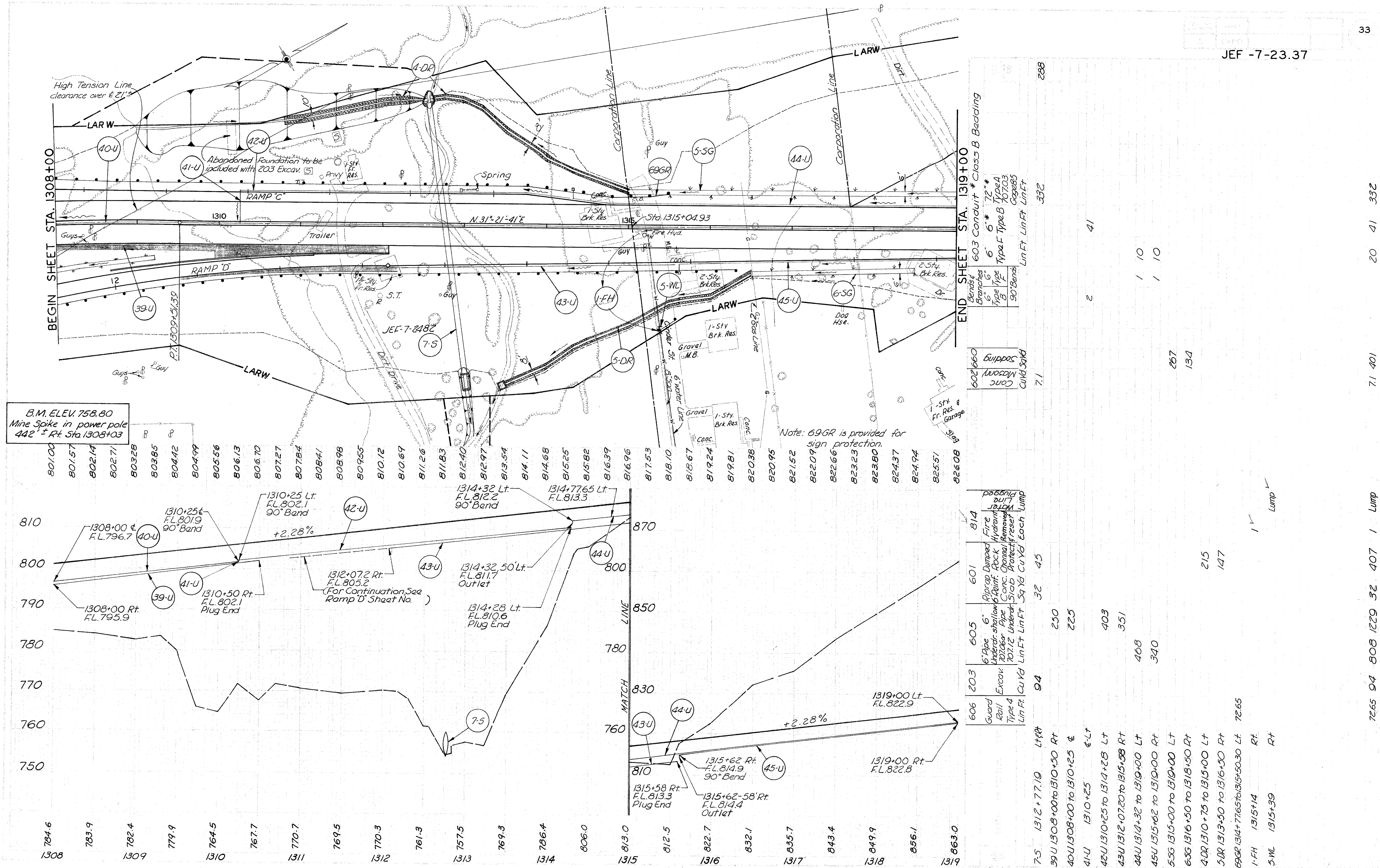
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4546 2944 10 1 1 1012 371 500

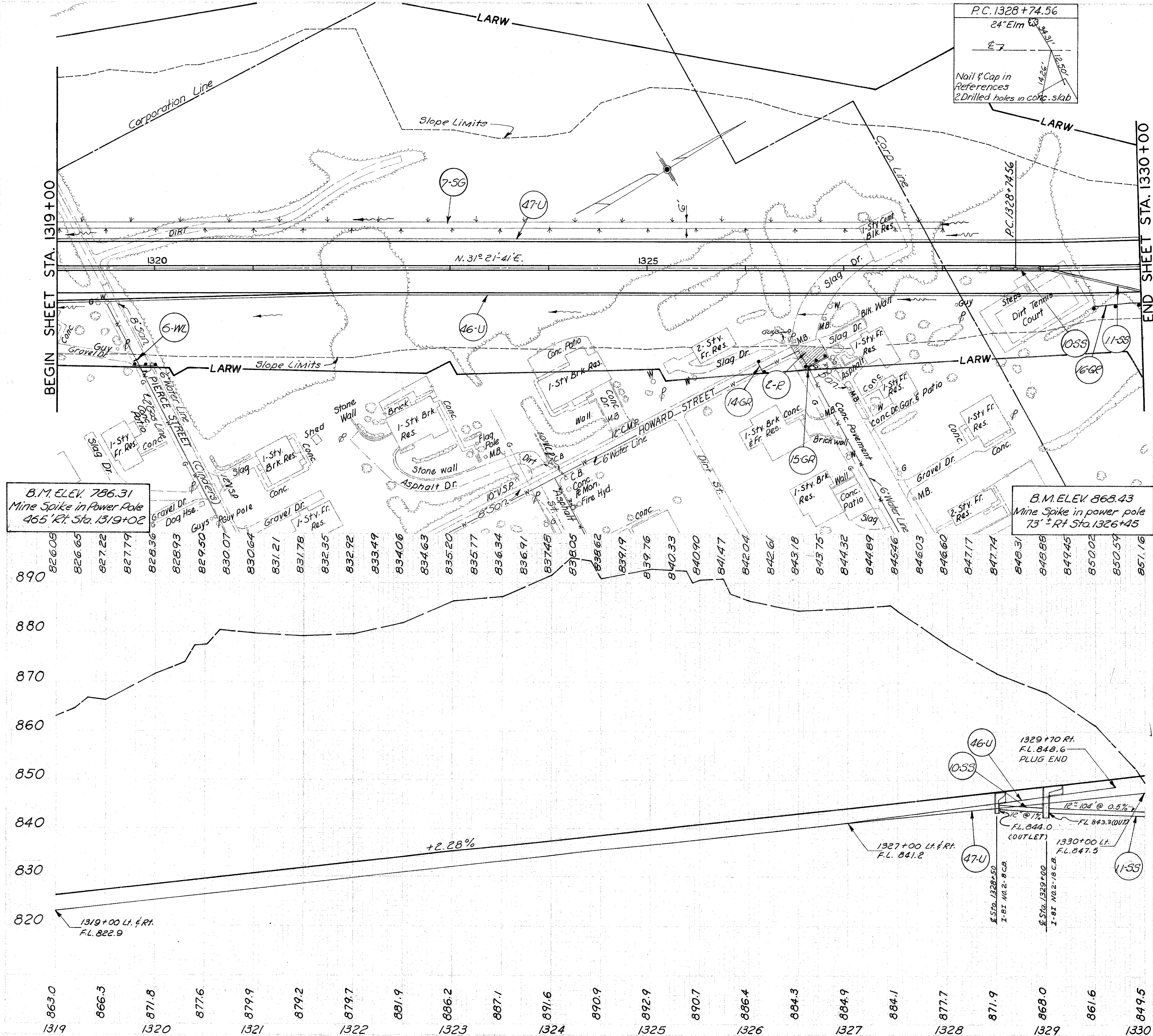










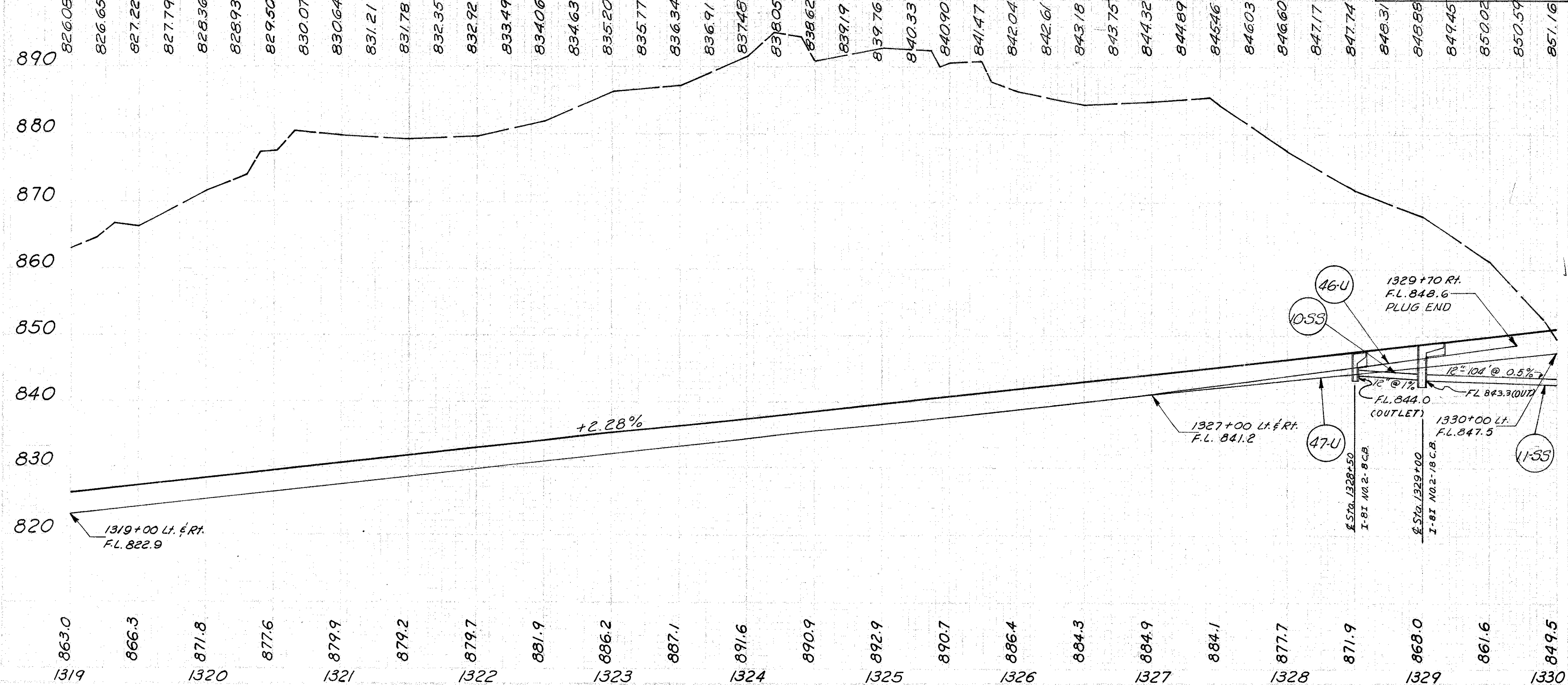


BEGIN SHEET STA. 1319+00

END SHEET STA. 1330+00

B.M. ELEV. 786.31  
Mine Spike in Power Pole  
465' RT. Sta. 1319+02

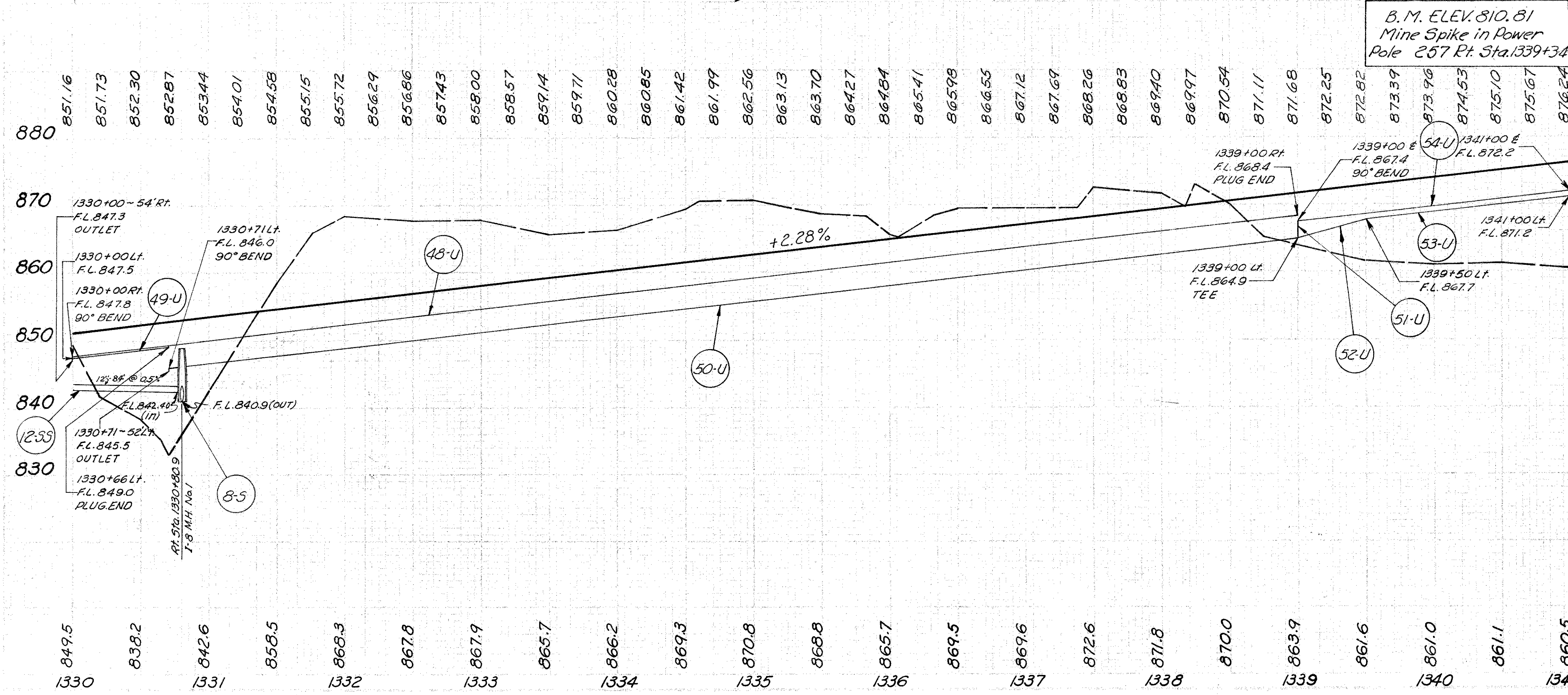
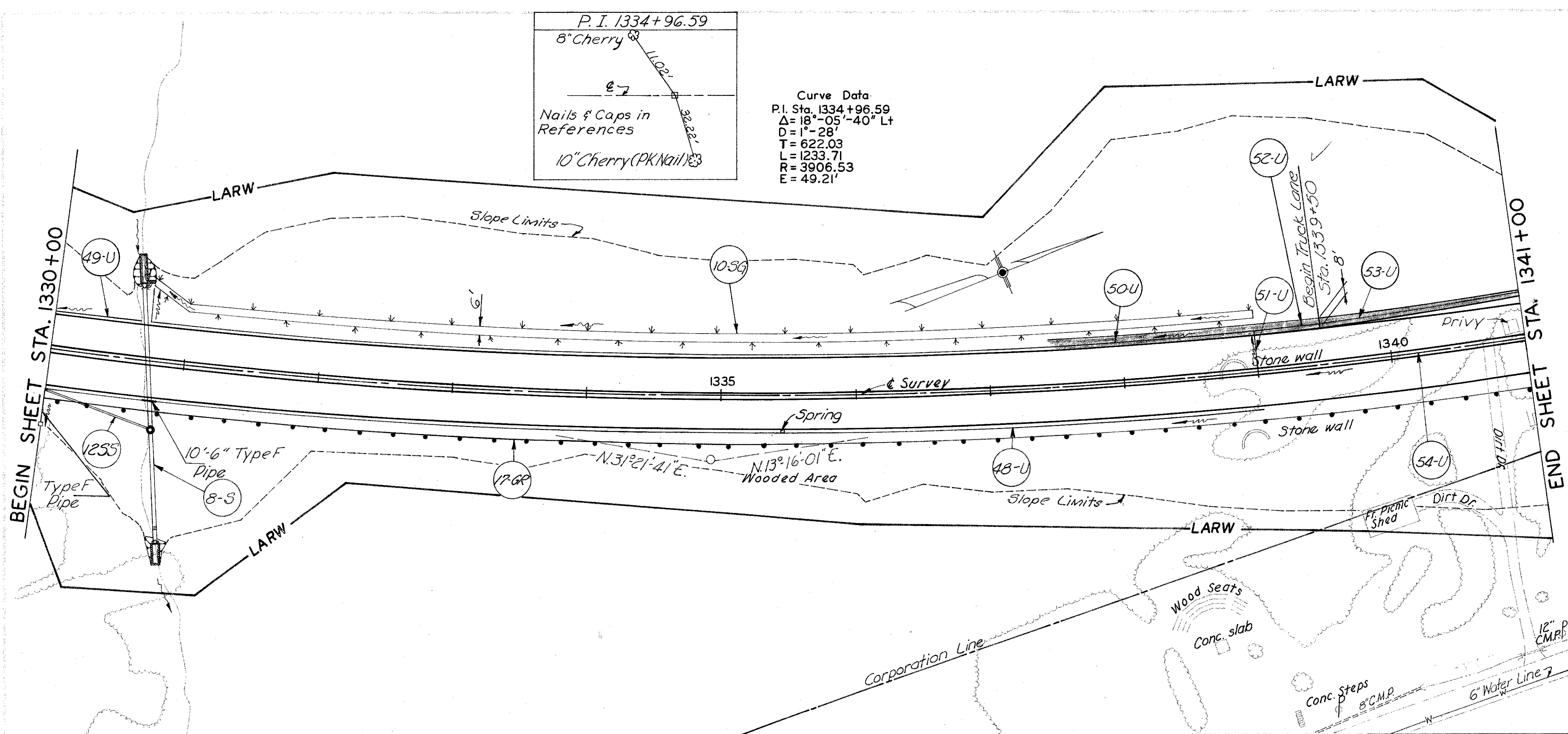
B.M. ELEV. 868.43  
Mine Spike in power pole  
73' RT. Sta. 1326+45



202	605	606	814	
Exist. 6" Pipe	Underdrain	Guard Rail	Water Line	
Removed	207.12	207.12	207.12	
S.Y.	L.F.	L.F.	L.F.	Lump

1055	1328+50 to 1329+00	RT	
1155	1329+00 to 1330+00	RT	
46-U	1319+00 to 1329+70	RT	
47-U	1319+00 to 1330+00	LT	
73	1326+47 to 1326+92	RT	
16-GR	1329+51.35 to 1330+00	RT	
14-GR	1326+12 to 1326+18	RT	
15-GR	1326+61 to 1326+82	RT	
6-WL	1319+80	RT	

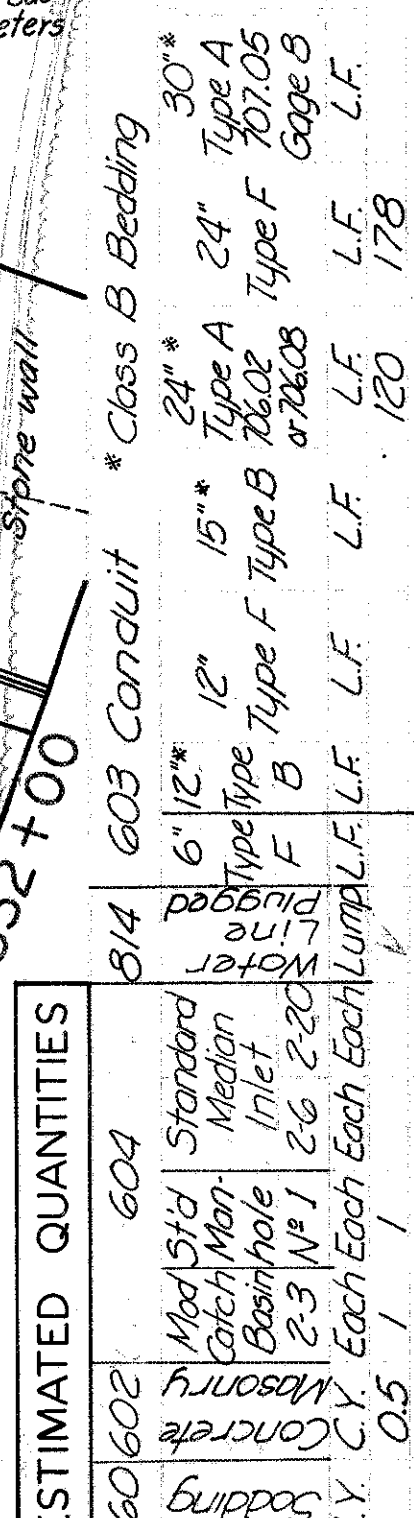




ESTIMATED QUANTITIES		Bends & Branches		601		602		603		604		605	
606	20.3	Guard Rail Type 4	L.F.	6"	30' Bends	30" Type F	25' Branch	30" Type F	25' Branch	30" Type F	25' Branch	30" Type F	25' Branch
606	20.3	Excav. Under	C.Y.	6"	30' Bends	30" Type F	25' Branch	30" Type F	25' Branch	30" Type F	25' Branch	30" Type F	25' Branch
606	20.3	Excav. Under	C.Y.	6"	30' Bends	30" Type F	25' Branch	30" Type F	25' Branch	30" Type F	25' Branch	30" Type F	25' Branch
606	20.3	Excav. Under	C.Y.	6"	30' Bends	30" Type F	25' Branch	30" Type F	25' Branch	30" Type F	25' Branch	30" Type F	25' Branch

8-S	1330+73	48Rt	17										
12SS	1330+00 to 1330+80.9	Rt											
48-U	1330+00 to 1339+00	Rt											
49-U	1330+00 to 1330+66	Lt											
50-U	1330+71 to 1330+00	Lt											
51-U	1339+00	48Lt											
52-U	1339+00 to 1339+50	Lt											
53-U	1339+50 to 1341+00	Lt											
54-U	1339+00 to 1341+00	48											
8-S	1330+71 to 1339+00	Lt											
176R	1330+00 to 1341+00	Rt	110.28										





606	611	Item	605	601	202	203
Guard Rail	Reinf. concr	Special Rail	6" shallow Underdr. Pipe	Dumped Rock 3' Rainf.	Exist. Pavt	Exist. Pavt
Type 4	Appr. slabs (7'-13')	Debris Deflector	Underdr. Pipe	Type 1-2 Type 3	Re-Mod	Re-Mod
L.F.	5X	Each	L.F.	5'1d L.F.	5X	5X
				29	10	5
				CV	CV	CV
				19	19	19

869.4  
1352

[illegible]

10-5	1349+75-8	£4R	1	106	33	2035	0.6	2	82	442	291
13-55	1342+13.8 to 1342+75	££Rt									
14-55	1350+83	££Lt	1				0.3	1	58	62	317
56 U	1342+54.89 to 1342+68	£									
57 U	1342+75 to 1348+75	£							10		
58 U	1342+54.89 to 1348+75	Rt									
59 U	1348+79 to 1349+50	£									
				13.11							
				590							
				620.11	71						

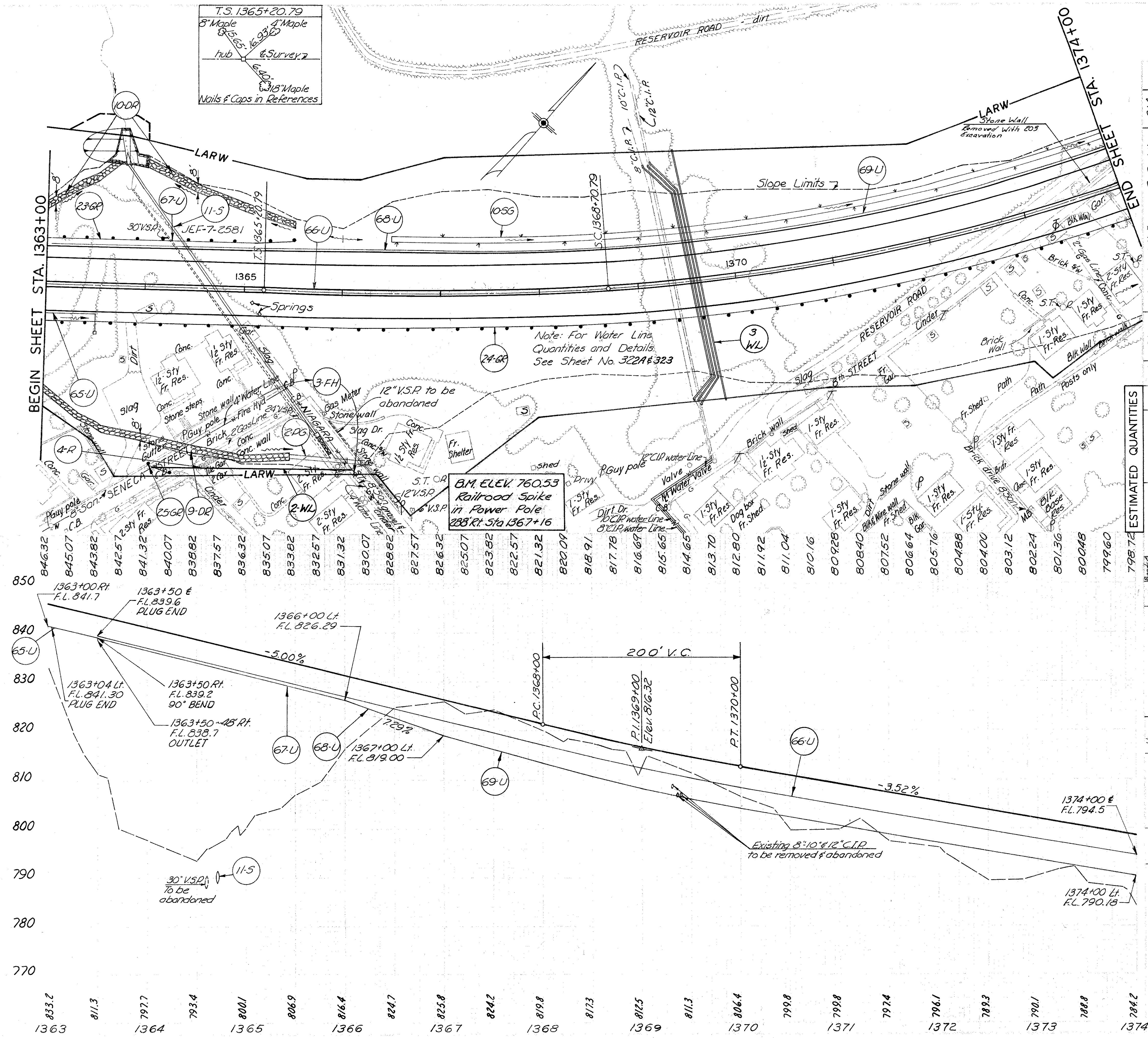
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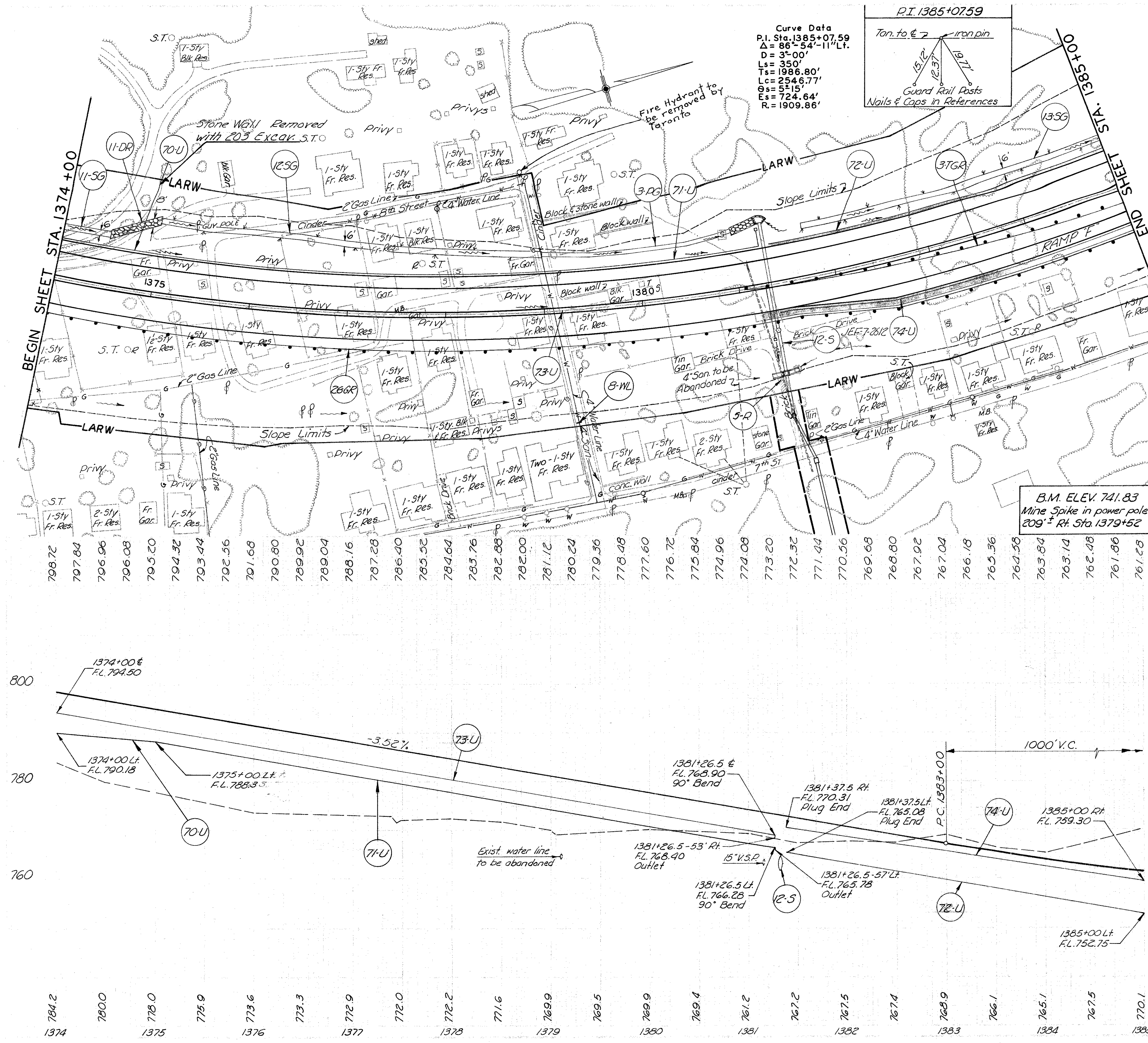


ESTIMATED QUANTITIES		ESTIMATED QUANTITIES	
11-S	1364+71.64	606	Guard Rail Type 4 L.F.
65-U	1363+00 to 1363+50	202	Catch Basins with Re-Removed Debris Each
66-U	1363+50 to 1374+00	605	6\"/>
67-U	1363+04 to 1366+00	203	Excavation 6\"/>
68-U	1366+00 to 1367+00	606	6\"/>
69-U	1367+00 to 1374+00	204	Excavation 6\"/>
2-DG	1365+50 to 1366+22	607	6\"/>
0-SG	1366+50 to 1374+00	205	Excavation 6\"/>
9-DR	1363+00 to 1365+50	608	6\"/>
10-DR	1363+00 to 1365+50	206	Excavation 6\"/>
25GR	1363+00 to 1365+50	609	6\"/>
24GR	1363+00 to 1374+00	207	Excavation 6\"/>
4-R	1364+56 to 1364+80	610	6\"/>
2-WL	1364+12.8 to 1366+23.6	208	Excavation 6\"/>
25GR	1366+08 to 1366+30	611	6\"/>
3-FH	1365+20	209	Excavation 6\"/>
3-WL	1369+53.5 to 1369+62.5	612	6\"/>

11-S	1364+71.64	606	Guard Rail Type 4 L.F.
65-U	1363+00 to 1363+50	202	Catch Basins with Re-Removed Debris Each
66-U	1363+50 to 1374+00	605	6\"/>
67-U	1363+04 to 1366+00	203	Excavation 6\"/>
68-U	1366+00 to 1367+00	606	6\"/>
69-U	1367+00 to 1374+00	204	Excavation 6\"/>
2-DG	1365+50 to 1366+22	607	6\"/>
0-SG	1366+50 to 1374+00	205	Excavation 6\"/>
9-DR	1363+00 to 1365+50	608	6\"/>
10-DR	1363+00 to 1365+50	206	Excavation 6\"/>
25GR	1363+00 to 1365+50	609	6\"/>
24GR	1363+00 to 1374+00	207	Excavation 6\"/>
4-R	1364+56 to 1364+80	610	6\"/>
2-WL	1364+12.8 to 1366+23.6	208	Excavation 6\"/>
25GR	1366+08 to 1366+30	611	6\"/>
3-FH	1365+20	209	Excavation 6\"/>
3-WL	1369+53.5 to 1369+62.5	612	6\"/>



JEF -7-23.37



Station	Notes	Quantity	Unit
1374+00	Begin Sheet	1	Station
1375+00	Station 1375+00	1	Station
1376+00	Station 1376+00	1	Station
1377+00	Station 1377+00	1	Station
1378+00	Station 1378+00	1	Station
1379+00	Station 1379+00	1	Station
1380+00	Station 1380+00	1	Station
1381+00	Station 1381+00	1	Station
1382+00	Station 1382+00	1	Station
1383+00	Station 1383+00	1	Station
1384+00	Station 1384+00	1	Station
1385+00	End Sheet	1	Station

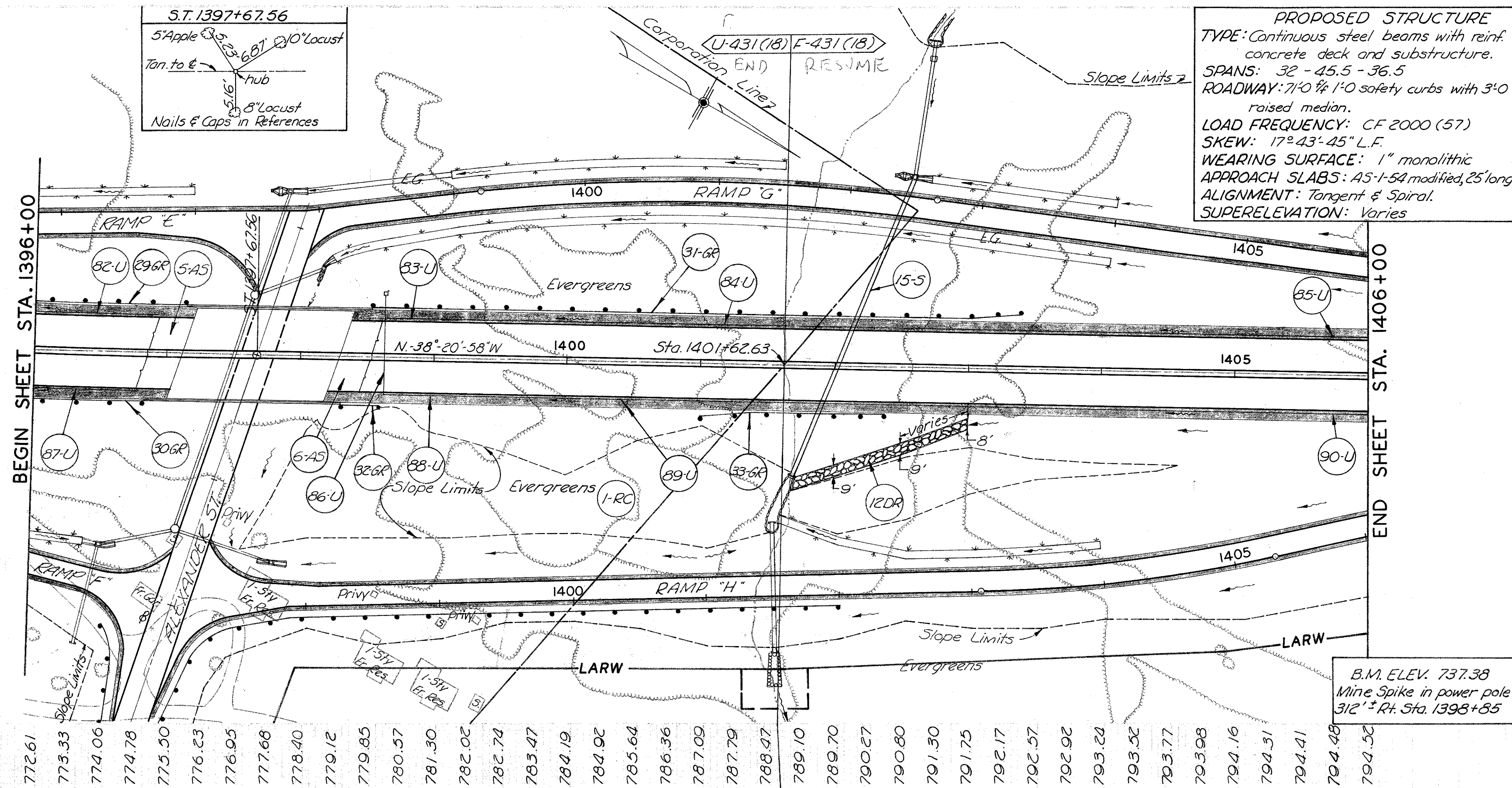
STA. 1374+00 TO STA. 1385+00



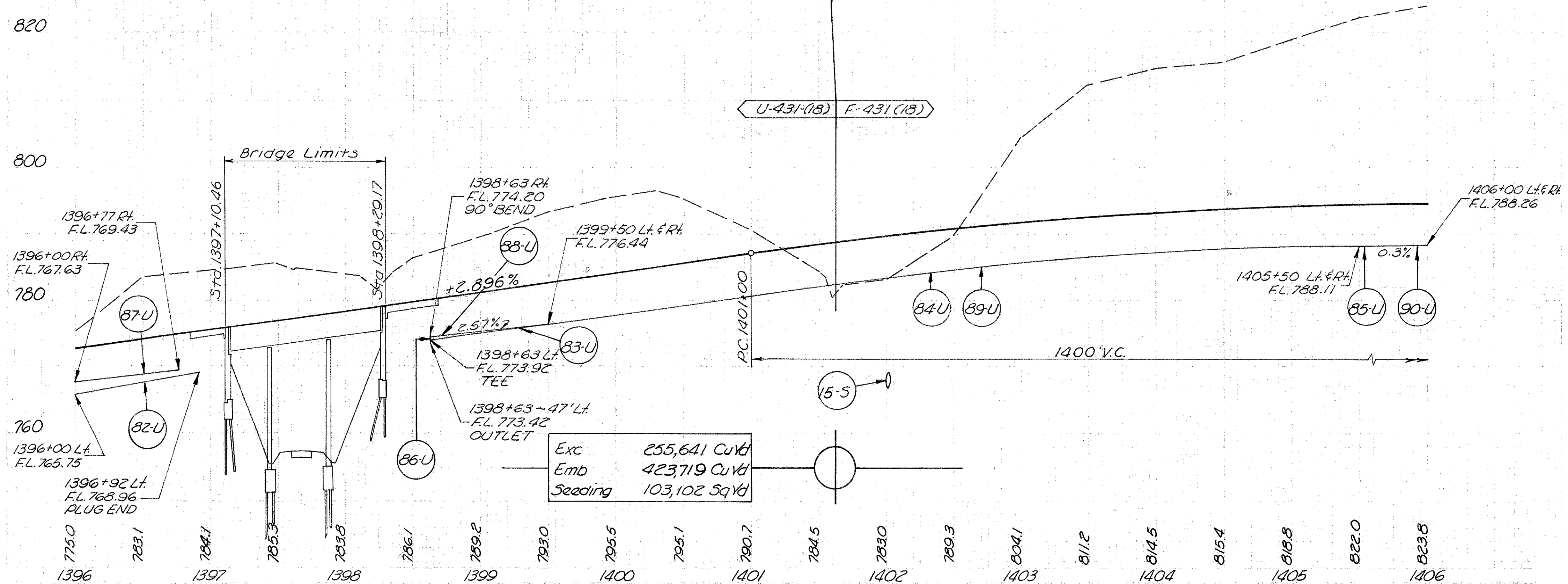




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602	Concrete Masonry	345	345
603	Conduit	30	30
604	Reinf. concrete	150.0	150.0
605	Class B Bedding	10	10
606	6" Type A	65	65
607	6" Type B	10	10
608	6" Type C	10	10
609	6" Type D	10	10
610	6" Type E	10	10
611	6" Type F	10	10
612	6" Type G	10	10
613	6" Type H	10	10
614	6" Type I	10	10
615	6" Type J	10	10
616	6" Type K	10	10
617	6" Type L	10	10
618	6" Type M	10	10
619	6" Type N	10	10
620	6" Type O	10	10
621	6" Type P	10	10
622	6" Type Q	10	10
623	6" Type R	10	10
624	6" Type S	10	10
625	6" Type T	10	10
626	6" Type U	10	10
627	6" Type V	10	10
628	6" Type W	10	10
629	6" Type X	10	10
630	6" Type Y	10	10
631	6" Type Z	10	10

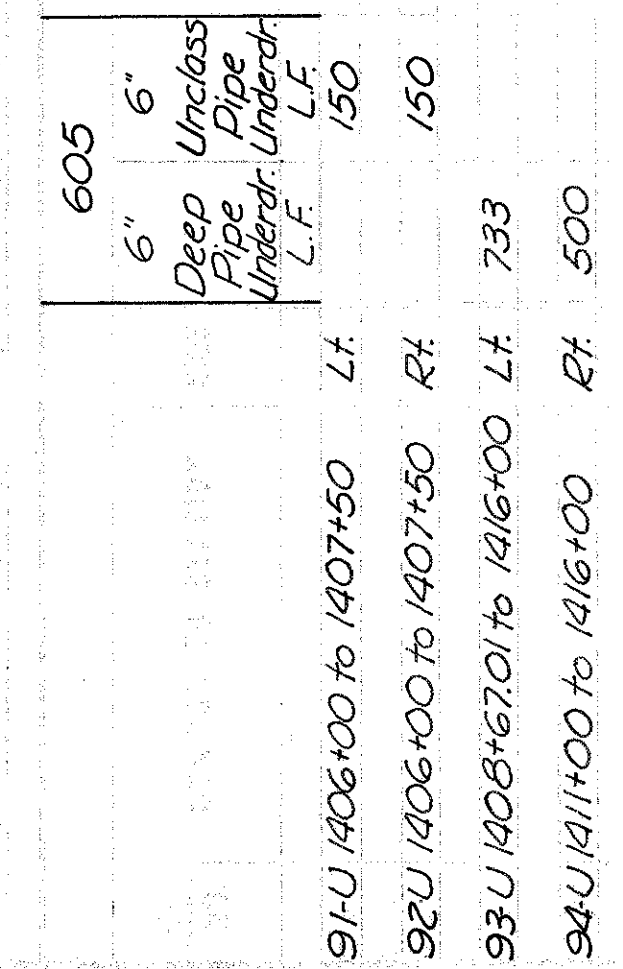
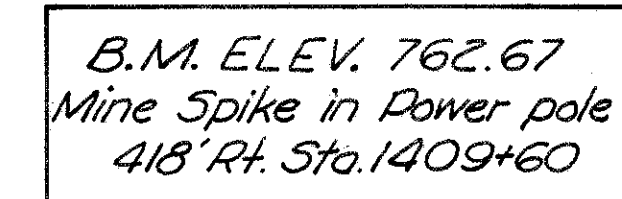


606	605	601
Guard Pipe	6" Deep 6" Underside	Paved Gutter Rock
Rail	Underdrain	Channel Conc.
Type 4	L.F.	Type 2 Protect Slab
L.F.	L.F.	C.Y.

5-A5 1396+84.82 to 1397+10.46	€	
6-A5 1398+23.17 to 1399+54.81	€	
82-U 1396+00 to 1396+92	L.F.	92
83-U 1398+63 to 1399+50	L.F.	87
84-U 1399+50 to 1401+62.63	L.F.	216.63
86-U 1398+63	L.F.	
87-U 1396+00 to 1396+77	R.F.	77
88-U 1398+63 to 1399+50	R.F.	87
89-U 1399+50 to 1401+62.63	R.F.	216.63
29-2 1396+00 to 1397+11.08	L.F.	110.31
30-2 1396+00 to 1396+81.27	R.F.	81.27
31-2 1398+53.63 to 1401+62.63	L.F.	309.0
32-2 1398+34.23 to 1398+59.23	R.F.	25
33-2 1401+00 to 1401+62.63	R.F.	62.63
1-RC 1397+72 to 1401+62.63	R.F.	
TOTAL - U 589.11 598.26 174		

15-5	1402+01.48	L.F.	10	8
84-U	1401+62.63 to 1405+50	L.F.		
85-U	1405+50 to 1406+00	L.F.	387.37	50
89-U	1401+62.63 to 1405+50	R.F.	387.37	50
90-U	1405+50 to 1406+00	R.F.		
31-2	1401+62.63 to 1403+41.13	L.F.		
33-2	1401+62.63 to 1403+37.5	R.F.		
12-2	1401+69 to 1403+00	R.F.		
1-RC	1401+62.63 to 1404+58	R.F.		
TOTAL - F 253.37 774.74 100 10 72 8				











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## CURVE TABLES

T.S. 1244+46.35 S.C. 1248+46.35			D = 3°-30' Lt.		C.S. 1256+18.08 S.T. 1260+18.08			
Left Lanes			STATION	Profile Grade +0.02	Super Elevation	Right Lanes		
Outside Edge	¢	Inside Edge				Inside Edge	¢	Outside Edge
Elevation						Elevation		
703.55	703.74	703.93	1242+75	703.95	Obtained Graphically	703.93	703.74	703.55
703.74	703.93	704.12	1243+00	704.14		704.13	703.95	703.77
703.93	704.12	704.31	+25	704.33		704.32	704.17	704.02
704.12	704.31	704.50	+50	704.52		704.51	704.40	704.28
704.31	704.50	704.69	+75	704.71		704.70	704.63	704.56
704.50	704.69	704.88	1244+00	704.90		704.90	704.87	704.83
704.72	704.90	705.09	+25	705.11		705.11	705.10	705.09
704.94	705.13	705.31	T.S.1244+46.35	705.33		705.33	705.34	705.35
704.98	705.17	705.35	+50	705.37		705.37	705.39	705.40
705.29	705.48	705.66	+75	705.68		705.69	705.75	705.81
705.65	705.84	706.02	1245+00	706.04		706.05	706.18	706.30
706.05	706.24	706.42	+25	706.44		706.46	706.65	706.83
706.46	706.67	706.87	+50	706.89		706.91	707.16	707.41
706.85	707.11	707.36	+75	707.38		707.41	707.72	708.03
707.25	707.57	707.89	1246+00	707.92		707.95	708.33	708.70
707.70	708.09	708.48	+25	708.51		708.55	708.99	709.42
708.20	708.66	709.11	+50	709.15		709.19	709.69	710.19
708.74	709.27	709.79	+75	709.83		709.88	710.44	711.00
709.33	709.92	710.51	1247+00	710.56		710.61	711.24	711.86
709.98	710.64	711.29	+25	711.34		711.40	712.09	712.77
710.66	711.39	712.11	+50	712.17		712.23	712.98	713.73
711.39	712.18	712.97	+75	713.04		713.11	713.92	714.73
712.17	713.03	713.89	1248+00	713.96		714.03	714.91	715.78
712.99	713.92	714.84	+25	714.92		715.00	715.94	716.87
713.76	714.74	715.71	S.C.1248+46.35	715.79		715.87	716.85	717.83
713.89	714.87	715.85	+50	715.93		716.01	716.99	717.97
714.91	715.91	716.91	+75	716.99		717.07	718.07	719.07
716.04	717.03	718.02	1249+00	718.10		718.18	719.18	720.18
717.15	718.15	719.15	+25	719.23		208 719.31	720.31	721.31
718.28	719.28	720.28	+50	720.36		720.44	721.44	722.44
719.41	720.41	721.41	+75	721.49		721.57	722.57	723.57
720.54	721.54	722.54	1250+00	722.62		722.70	723.70	724.70
721.67	722.67	723.67	+25	723.75		723.83	724.83	725.83
722.80	723.80	724.80	+50	724.88		724.96	725.96	726.96
723.93	724.93	725.93	+75	726.01		726.09	727.09	728.09
725.06	726.06	727.06	1251+00	727.14		727.22	728.22	729.22
726.19	727.19	728.19	+25	728.27		728.35	729.35	730.35
727.32	728.32	729.32	+50	729.40		729.48	730.48	731.48
728.45	729.45	730.45	+75	730.53		730.61	731.61	732.61
729.58	730.58	731.58	1252+00	731.66		731.74	732.74	733.74
730.71	731.71	732.71	+25	732.79		732.87	733.87	734.87
731.84	732.84	733.84	+50	733.92		734.00	735.00	736.00
732.97	733.97	734.97	+75	735.05		735.13	736.13	737.13
734.10	735.10	736.10	1253+00	736.18		736.26	737.26	738.26
735.23	736.23	737.23	+25	737.31		737.39	738.39	739.39
736.36	737.36	738.36	+50	738.44		738.52	739.52	740.52
737.49	738.49	739.49	+75	739.57		739.65	740.65	741.65
738.62	739.62	740.62	1254+00	740.70		740.78	741.78	742.78
739.75	740.75	741.75	+25	741.83		741.91	742.91	743.91
740.88	741.88	742.88	+50	742.96		743.04	744.04	745.04
742.01	743.01	744.01	+75	744.09		744.17	745.17	746.17
743.14	744.14	745.14	1255+00	745.22		745.30	746.30	747.30
744.27	745.27	746.27	+25	746.35		746.43	747.43	748.43
745.40	746.40	747.40	+50	747.48		747.56	748.56	749.56
746.53	747.53	748.53	+75	748.61		748.69	749.69	750.69
747.66	748.66	749.66	1256+00	749.74		208 749.82	750.82	751.82
748.79	749.79	750.79	C.S.1256+18.08	750.86		750.94	751.94	752.94
748.80	749.80	750.79	+25	750.87		750.95	751.95	752.94
750.05	750.99	751.92	+50	752.00		752.08	753.02	753.96
751.29	752.17	753.04	+75	753.11		753.18	754.06	754.93
752.50	753.31	754.12	1257+00	754.19		754.26	755.07	755.88
753.67	754.42	755.17	+25	755.23		755.29	756.04	756.79
754.80	755.49	756.17	+50	756.23		756.29	756.98	757.66
755.90	756.53	757.15	+75	757.20		757.25	757.88	758.50

3°-30' Curve to Lt. Continued								
Left Lanes			STATION	Profile Grade +0.02	Super Elevation	Right Lanes		
Outside Edge	¢	Inside Edge				Inside Edge	¢	Outside Edge
Elevation						Elevation		
756.97	757.53	758.09	1258+00	758.14	Obtained Graphically	758.19	758.75	759.30
757.99	758.49	758.99	+25	759.03		759.07	759.57	760.07
758.99	759.43	759.86	+50	759.90		759.94	760.38	760.81
759.94	760.31	760.69	+75	760.72		760.75	761.12	761.50
760.86	761.17	761.48	1259+00	761.51		761.54	761.85	762.16
761.75	762.00	762.25	+25	762.27		762.29	762.54	762.79
762.56	762.77	762.97	+50	762.99		763.01	763.20	763.38
763.28	763.47	763.65	+75	763.67		763.68	763.81	763.93
763.93	764.12	764.30	1260+00	764.32		764.32	764.38	764.44
764.37	764.56	764.74	S.T. 1260+18.08	764.76		764.76	764.78	764.79
764.54	764.73	764.91	+25	764.93		764.93	764.94	764.94
765.12	765.31	765.49	+50	765.51		765.51	765.48	765.44
765.66	765.85	766.03	+75	766.05		766.04	765.98	765.91
766.15	766.34	766.53	1261+00	766.55		766.54	766.45	766.35
766.62	766.81	767.00	+25	767.02		767.01	766.88	766.75
767.06	767.25	767.44	+50	767.46		767.45	767.29	767.13
767.45	767.64	767.83	+75	767.85		767.84	767.67	767.49
767.82	768.01	768.20	1262+00	768.22		768.20	768.01	767.82

T.S. 1264+18.84 S.C. 1267+68.84			D=3°00 Rt.			C.S. 1276+43.28 S.T. 1279+93.28		
Left Lanes			STATION	Profile Grade +0.02	Super Elevation	Right Lanes		
Outside Edge	¢	Inside Edge				Inside Edge	¢	Outside Edge
Elevation						Elevation		
768.43	768.62	768.81	1262+50	768.83	Obtained Graphically	768.81	768.62	768.43
768.70	768.89	769.07	+75	769.09		769.07	768.88	768.69
768.94	769.12	769.30	1263+00	769.31		769.29	769.10	768.91
769.15	769.32	769.48	+25	769.49		769.47	769.28	769.09
769.36	769.50	769.63	+50	769.64		769.62	769.43	769.24
769.57	769.67	769.76	+75	769.77		769.75	769.56	769.37
769.79	769.84	769.90	1264+00	769.90		769.88	769.69	769.50
769.98	769.99	770.00	T.S. 1264+18.84	770.00		769.98	769.79	769.60
770.05	770.04	770.03	+25	770.03		770.01	769.82	769.62
770.30	770.24	770.17	+50	770.16		770.14	769.94	769.74
770.56	770.43	770.30	+75	770.29		770.27	770.05	769.84
770.82	770.63	770.44	1265+00	770.42		770.40	770.16	769.92
771.08	770.82	770.57	+25	770.55		770.53	770.25	769.97
771.34	771.03	770.71	+50	770.68		770.65	770.33	770.00
771.60	771.22	770.84	+75	770.81		770.78	770.40	770.01
771.85	771.42	770.98	1266+00	770.94		770.90	770.46	770.02
772.11	771.61	771.11	+25	771.07		771.03	770.53	770.02
772.37	771.81	771.25	+50	771.20		771.15	770.59	770.02
772.63	772.00	771.38	+75	771.33		771.28	770.65	770.02
772.89	772.20	771.52	1267+00	771.46		771.40	770.71	770.02
773.15	772.40	771.65	+25	771.59		771.53	770.78	770.03
773.38	772.59	771.79	+50	771.72		771.65	770.86	770.07
773.54	772.72	771.89	S.C. 1267+68.84	771.82		771.75	770.93	770.11
773.59	772.76	771.92	+75	771.85		771.78	770.96	770.13
773.75	772.90	772.05	1268+00	771.98		771.91	771.07	770.23
773.89	773.04	772.18	+25	772.11		1.78 772.04	771.19	770.33
774.02	773.17	772.31	+50	772.24		772.17	771.32	770.46
774.15	773.30	772.44	+75	772.37	772.30	771.45	770.59	
774.28	773.43	772.57	1269+00	772.50	772.43	771.58	770.72	
774.41	773.56	772.70	+25	772.63	772.56	771.71	770.85	
774.54	773.69	772.83	+50	772.76	772.69	771.84	770.98	
774.67	773.82	772.96	+75	772.89	772.82	771.97	771.11	
774.80	773.95	773.09	1270+00	773.02	772.95	772.10	771.24	
774.93	774.08	773.22	+25	773.15	773.08	772.23	771.37	
775.06	774.21	773.35	+50	773.28	773.21	772.36	771.50	



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CURVE TABLES

P.C. 1287+79.82			D=1°-28' Rt.			P.T. 1309+51.39		
Left Lanes			STATION	Profile Grade +0.02	Super Elevation	Right Lanes		
Outside Edge	℄	Inside Edge				Inside Edge	℄	Outside Edge
Elevation						Elevation		
762.46	762.63	762.79	1286+50	762.80	↑	762.78	762.59	762.40
762.18	762.30	762.42	+75	762.43		762.41	762.22	762.03
762.00	762.05	762.11	1287+00	762.11	Obtained Graphically	762.09	761.90	761.71
761.89	761.87	761.84	+25	761.84		761.82	761.62	761.41
761.85	761.74	761.63	+50	761.62		761.60	761.37	761.13
761.86	761.67	761.47	+75	761.45		761.43	761.15	760.87
761.86	761.65	761.44	P.C. 1287+79.82	761.42		761.40	761.12	760.83
761.90	761.63	761.35	1288+00	761.33		761.30	760.98	760.66
761.97	761.64	761.30	+25	761.27		761.24	760.88	760.51
762.05	761.67	761.28	+50	761.25		761.22	760.82	760.42
762.14	761.73	761.32	+75	761.29		761.25	760.83	760.40
762.26	761.84	761.41	1289+00	761.37		761.33	760.90	760.47
762.41	761.98	761.55	+25	761.51	0.90	761.47	761.04	760.61
762.61	762.18	761.75	+50	761.71	↑	761.67	761.24	760.81
762.85	762.42	761.99	+75	761.95		761.91	761.48	761.05
763.14	762.71	762.28	1290+00	762.24		762.20	761.77	761.34
763.48	763.05	762.62	+25	762.58		762.54	762.11	761.68
763.87	763.44	763.01	+50	762.97		762.93	762.50	762.07
764.32	763.89	763.46	+75	763.42		763.38	762.95	762.52
764.81	764.38	763.95	1291+00	763.91		763.87	763.44	763.01
765.33	764.90	764.47	+25	764.43		764.39	763.96	763.53
765.86	765.43	765.00	+50	764.96		764.92	764.49	764.06
766.38	765.95	765.52	+75	765.48		765.44	765.01	764.58
766.90	766.47	766.04	1292+00	766.00		765.96	765.53	765.10
767.42	766.99	766.56	+25	766.52		766.48	766.05	765.62
767.94	767.51	767.08	+50	767.04		767.00	766.57	766.14
768.46	768.03	767.60	+75	767.56		767.52	767.09	766.66
768.98	768.55	768.12	1293+00	768.08		768.04	767.61	767.18
769.51	769.08	768.65	+25	768.61		768.57	768.14	767.71
770.03	769.60	769.17	+50	769.13		769.09	768.66	768.23
770.55	770.12	769.69	+75	769.65		769.61	769.18	768.75
771.07	770.64	770.21	1294+00	770.17		770.13	769.70	769.27
771.59	771.16	770.73	+25	770.69		770.65	770.22	769.79
772.11	771.68	771.25	+50	771.21		771.17	770.74	770.31
772.63	772.20	771.77	+75	771.73		771.69	771.26	770.83
773.16	772.73	772.30	1295+00	772.26		772.22	771.79	771.36
773.68	773.25	772.82	+25	772.78		772.74	772.31	771.88
774.20	773.77	773.34	+50	773.30		773.26	772.83	772.40
774.72	774.29	773.86	+75	773.82		773.78	773.35	772.92
775.24	774.81	774.38	1296+00	774.34		774.30	773.87	773.44
775.76	775.33	774.90	+25	774.86		774.82	774.39	773.96
776.28	775.85	775.42	+50	775.38		775.34	774.91	774.48
776.80	776.37	775.94	+75	775.90		775.86	775.43	775.00
777.33	776.90	776.47	1297+00	776.43		776.39	775.96	775.53
777.85	777.42	776.99	+25	776.95		776.91	776.48	776.05
778.37	777.94	777.51	+50	777.47		777.43	777.00	776.57
778.89	778.46	778.03	+75	777.99		777.95	777.52	777.09
779.41	778.98	778.55	1298+00	778.51		778.47	778.04	777.61
779.93	779.50	779.07	+25	779.03		778.99	778.56	778.13
780.45	780.02	779.59	+50	779.55		779.51	779.08	778.65
780.98	780.55	780.12	+75	780.08		780.04	779.61	779.18
781.51	781.08	780.65	1299+00	780.61		780.57	780.14	779.71
782.05	781.62	781.19	+25	781.15		781.11	780.68	780.25
782.59	782.16	781.73	+50	781.69		781.65	781.22	780.79
783.14	782.71	782.28	+75	782.24		782.20	781.77	781.34
783.69	783.26	782.83	1300+00	782.79		782.75	782.32	781.89
784.25	783.82	783.39	+25	783.35		783.31	782.88	782.45
784.82	784.39	783.96	+50	783.92		783.88	783.45	783.02
785.39	784.96	784.53	+75	784.49		784.45	784.02	783.59
785.96	785.53	785.10	1301+00	785.06		785.02	784.59	784.16
786.53	786.10	785.67	+25	785.63		785.59	785.16	784.73
787.10	786.67	786.24	+50	786.20		786.16	785.73	785.30
787.67	787.24	786.81	+75	786.77		786.73	786.30	785.87
788.24	787.81	787.38	1302+00	787.34	↓	787.30	786.87	786.44

1°28' Curve Rt. Continued								
Left Lanes			STATION	Profile Grade +0.02	Super Elevation	Right Lanes		
Outside Edge	℄	Inside Edge				Inside Edge	℄	Outside Edge
Elevation						Elevation		
788.81	788.38	787.95	1302+25	787.91	↑	787.87	787.44	787.01
789.38	788.95	788.52	+50	788.48		788.44	788.01	787.58
789.95	789.52	789.09	+75	789.05		789.01	788.58	788.15
790.52	790.09	789.66	1303+00	789.62		789.58	789.15	788.72
791.09	790.66	790.23	+25	790.19		790.15	789.72	789.29
791.66	791.23	790.80	+50	790.76		790.72	790.29	789.86
792.23	791.80	791.37	+75	791.33		791.29	790.86	790.43
792.80	792.37	791.94	1304+00	791.90		791.86	791.43	791.00
793.37	792.94	792.51	+25	792.47		792.43	792.00	791.57
793.94	793.51	793.08	+50	793.04		793.00	792.57	792.14
794.51	794.08	793.65	+75	793.61		793.57	793.14	792.71
795.08	794.65	794.22	1305+00	794.18		794.14	793.71	793.28
795.65	795.22	794.79	+25	794.75		794.71	794.28	793.85
796.22	795.79	795.36	+50	795.32		795.28	794.85	794.42
796.79	796.36	795.93	+75	795.89		795.85	795.42	794.99
797.36	796.93	796.50	1306+00	796.46		796.42	795.99	795.56
797.93	797.50	797.07	+25	797.03		796.99	796.56	796.13
798.50	798.07	797.64	+50	797.60		797.56	797.13	796.70
799.07	798.64	798.21	+75	798.17		798.13	797.70	797.27
799.64	799.21	798.78	1307+00	798.74		798.70	798.27	797.84
800.21	799.78	799.35	+25	799.31		799.27	798.84	798.41
800.78	800.35	799.92	+50	799.88		799.84	799.41	798.98
801.35	800.92	800.49	+75	800.45		800.41	799.98	799.55
801.92	801.49	801.06	1308+00	801.02	↓	800.98	800.55	800.12
802.49	802.06	801.63	+25	801.59	0.90	801.55	801.12	800.69
803.05	802.63	802.20	+50	802.16	↑	802.12	801.69	801.25
803.55	803.16	802.76	+75	802.73		802.70	802.28	801.86
804.02	803.68	803.33	1309+00	803.30	↓	803.27	802.88	802.48
804.47	804.18	803.89	+25	803.87	↑	803.84	803.50	803.15
804.92	804.69	804.46	+50	804.44	↓	804.42	804.12	803.82
804.95	804.72	804.49	P.T. 1309+51.39	804.47	0.90	804.45	804.15	803.85
805.37	805.20	805.02	+75	805.01	↓	804.99	804.73	804.47
805.80	805.70	805.59	1310+00	805.58	0.90	805.56	805.34	805.11
806.25	806.20	806.15	+25	806.15	↓	806.13	805.94	805.74
806.68	806.70	806.72	+50	806.72	↑	806.70	806.51	806.32
807.12	807.20	807.28	+75	807.29	↓	807.27	807.08	806.89
807.58	807.72	807.85	1311+00	807.86	0.90	807.84	807.65	807.46
808.10	808.26	808.42	+25	808.43	↓	808.41	808.22	808.03
808.63	808.81	808.99	+50	809.00		808.98	808.79	808.60
809.17	809.36	809.55	+75	809.57	↓	809.55	809.36	809.17
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P.C. 1328+74.56				D=1°-28' Lt.			P.T. 1341+08.27			
Left Lanes				STATION	Profile Grade +0.02		Right Lanes			
Truck Lane *	Outside Edge	℄	Inside Edge				Inside Edge	℄	Outside Edge	
										Elevation
	843.94	844.13	844.32	1327+00	844.34	↑	844.32	844.13	843.94	
	844.51	844.70	844.89	+25	844.91		844.89	844.71	844.52	
	845.08	845.27	845.46	+50	845.48		845.47	845.32	845.16	
	845.65	845.84	846.03	+75	846.05		846.04	845.94	845.83	
	846.22	846.41	846.60	1328+00	846.62		846.62	846.58	846.54	
	846.76	846.97	847.17	+25	847.19	Obtained Graphically	847.19	847.24	847.29	
	847.27	847.51	847.74	+50	847.76		847.77	847.90	848.02	
	847.72	848.01	848.30	P.C.1328+74.56	848.32		848.34	848.55	848.76	
	847.73	848.02	848.31	+75	848.33		848.35	848.56	848.77	
	848.18	848.53	848.87	1329+00	848.90		848.92	849.21	849.49	
	848.65	849.05	849.44	+25	849.47		849.50	849.85	850.19	
	849.15	849.58	850.00	+50	850.04		850.07	850.47	850.86	
	849.71	850.14	850.57	+75	850.61		850.63	851.07	851.49	
	850.28	850.71	851.14	1330+00	851.18		0.90	851.22	851.65	852.08
	850.85	851.28	851.71	+25	851.75		↑	851.79	852.22	852.65
	851.42	851.85	852.28	+50	852.32		852.36	852.79	853.22	
	851.99	852.42	852.85	+75	852.89		852.93	853.36	853.79	
	852.56	852.99	853.42	1331+00	853.46		853.50	853.93	854.36	
	853.13	853.56	853.99	+25	854.03		854.07	854.50	854.93	
	853.70	854.13	854.56	+50	854.60		854.64	855.07	855.50	
	854.27	854.70	855.13	+75	855.17		855.21	855.64	856.07	
	854.84	855.27	855.70	1332+00	855.74		855.78	856.21	856.64	
	855.41	855.84	856.27	+25	856.31		856.35	856.78	857.21	
	855.98	856.41	856.84	+50	856.88		856.92	857.35	857.78	
	856.55	856.98	857.41	+75	857.45		857.49	857.92	858.35	
	857.12	857.55	857.98	1333+00	858.02		858.06	858.49	858.92	
	857.69	858.12	858.55	+25	858.59		858.63	859.06	859.49	
	858.26	858.69	859.12	+50	859.16		859.20	859.63	860.06	
	858.83	859.26	859.69	+75	859.73		859.77	860.20	860.63	
	859.40	859.83	860.26	1334+00	860.30		860.34	860.77	861.20	
	859.97	860.40	860.83	+25	860.87		860.91	861.34	861.77	
	860.54	860.97	861.40	+50	861.44		861.48	861.91	862.34	
	861.11	861.54	862.97	+75	862.01		862.05	862.48	862.91	
	861.68	862.11	862.54	1335+00	862.58		862.62	863.05	863.48	
	862.25	862.68	863.11	+25	863.15		863.19	863.62	864.05	
	862.82	863.25	863.68	+50	863.72		863.76	864.19	864.62	
	863.39	863.82	864.25	+75	864.29		864.33	864.76	865.19	
	863.96	864.39	864.82	1336+00	864.86		864.90	865.33	865.76	
	864.53	864.96	865.39	+25	865.43		865.47	865.90	866.33	
	865.10	865.53	865.96	+50	866.00		866.04	866.47	866.90	
	865.67	866.10	866.53	+75	866.57		866.61	867.04	867.47	
	866.24	866.67	867.10	1337+00	867.14		867.18	867.61	868.04	
	866.81	867.24	867.67	+25	867.71		867.75	868.18	868.61	
	867.38	867.81	868.24	+50	868.28		868.32	868.75	869.18	
	867.95	868.38	868.81	+75	868.85		868.89	869.32	869.75	
	868.52	868.95	869.38	1338+00	869.42		869.46	869.89	870.32	
	869.09	869.52	869.95	+25	869.99		870.03	870.46	870.89	
	869.66	870.09	870.52	+50	870.56		870.60	871.03	871.46	
	870.23	870.66	871.09	+75	871.13		871.17	871.60	872.03	
	870.80	871.23	871.66	1339+00	871.70		871.74	872.17	872.60	
	871.37	871.80	872.23	+25	872.27	↓	872.31	872.74	873.17	
871.94	871.94	872.37	872.80	+50	872.84	0.90	872.88	873.31	873.74	
872.48	872.51	872.94	873.37	+75	873.41	↑	873.45	873.88	874.31	
873.02	873.08	873.51	873.94	1340+00	873.98		874.01	874.43	874.84	
873.56	873.65	874.08	874.51	+25	874.55	Obtained Graphically	874.58	874.97	875.36	
874.13	874.25	874.67	875.09	+50	875.12		875.15	875.49	875.83	
874.74	874.88	875.27	875.66	+75	875.69		875.71	876.00	876.29	
875.43	875.57	875.90	876.23	1341+00	876.26		876.28	876.50	876.72	
875.67	875.81	876.12	876.42	P.T.1341+08.27	876.45		876.47	876.68	876.88	
876.16	876.29	876.55	876.81	+25	876.83		876.84	877.01	877.17	
876.93	877.03	877.21	877.39	+50	877.40		↓	877.41	877.51	877.60



# CURVE TABLES

JEF-7-23.37

T.S. 1342+04.25 S.C. 1346+04.25				D=3°-30'Rt.		C.S. 1352+12.44 S.T. 1356+12.44			
Left Lanes				STATION	Profile Grade +0.02	Super Elevation	Right Lanes		
Truck Lane	Outside Edge	¢	Inside Edge				Inside Edge	¢	Outside Edge
Elevation				Elevation					
877.68	877.75	877.86	877.96	1341+75	877.97	Obtained Graphically	877.97	878.01	878.05
878.45	878.48	878.51	878.54	1342+00	878.54		878.54	878.52	878.49
878.61	878.62	878.63	878.64	TS 1342+04.25	878.64		878.64	878.61	878.57
879.25	879.21	879.16	879.11	+25	879.11		879.10	879.02	878.94
880.06	879.95	879.82	879.69	+50	879.68		879.67	879.53	879.30
880.86	880.67	880.47	880.27	+75	880.25		880.23	880.04	879.84
881.65	881.38	881.11	880.84	1343+00	880.82		880.80	880.54	880.28
882.43	882.09	881.76	881.42	+25	881.39		881.36	881.05	880.73
883.17	882.78	882.39	881.99	+50	881.96		881.93	881.55	881.17
883.92	883.47	883.02	882.57	+75	882.53		882.49	882.04	881.59
884.64	884.14	883.64	883.14	1344+00	883.10	883.06	882.54	882.02	
885.35	884.80	884.25	883.71	+25	883.66	883.61	883.03	882.44	
886.04	885.44	884.84	884.23	+50	884.18	884.13	883.49	882.85	
886.72	886.06	885.40	884.74	+75	884.68	884.62	883.93	883.24	
887.35	886.64	885.93	885.21	1345+00	885.15	885.09	884.36	883.62	
888.00	887.22	886.44	885.66	+25	885.59	885.53	884.76	883.98	
888.61	887.77	886.93	886.08	+50	886.01	885.94	885.13	884.32	
889.19	888.28	887.37	886.47	+75	886.39	886.32	885.46	884.60	
889.69	888.74	887.79	886.83	1346+00	886.75	886.67	885.76	884.85	
889.77	888.81	887.85	886.89	SC 1346+04.25	886.81	886.73	885.81	884.89	
890.11	889.13	888.15	887.16	+25	887.08	887.00	886.05	885.09	
890.44	889.45	888.46	887.46	+50	887.38	887.30	886.32	885.33	
890.73	889.73	888.73	887.73	+75	887.65	208	887.57	886.57	885.57
890.97	889.97	888.97	887.97	1347+00	887.89	887.81	886.81	885.81	
891.19	890.19	889.19	888.19	+25	888.11	888.03	887.03	886.03	
891.37	890.37	889.37	888.37	+50	888.29	888.21	887.21	886.21	
891.53	890.53	889.53	888.53	+75	888.45	888.37	887.37	886.37	
891.66	890.66	889.66	888.66	1348+00	888.58	888.50	887.50	886.50	
891.76	890.76	889.76	888.76	+25	888.68	888.60	887.60	886.60	
891.83	890.83	889.83	888.83	+50	888.75	888.67	887.67	886.67	
891.88	890.88	889.88	888.88	+75	888.80	888.72	887.72	886.72	
891.89	890.89	889.89	888.89	1349+00	888.81	888.73	887.73	886.73	
891.88	890.88	889.88	888.88	+25	888.80	888.72	887.72	886.72	
891.84	890.84	889.84	888.84	+50	888.76	888.68	887.68	886.68	
891.77	890.77	889.77	888.77	+75	888.69	888.61	887.61	886.61	
891.67	890.67	889.67	888.67	1350+00	888.59	888.51	887.51	886.51	
891.54	890.54	889.54	888.54	+25	888.46	888.38	887.38	886.38	
891.39	890.39	889.39	888.39	+50	888.31	888.23	887.23	886.23	
891.20	890.20	889.20	888.20	+75	888.12	888.04	887.04	886.04	
890.99	889.99	888.99	887.99	1351+00	887.91	208	887.83	886.83	885.83
890.75	889.75	888.75	887.75	+25	887.67	887.59	886.59	885.59	
890.48	889.48	888.48	887.48	+50	887.40	887.32	886.32	885.32	
890.14	889.16	888.18	887.19	+75	887.11	887.03	886.07	885.10	
889.74	888.78	887.82	886.86	1352+00	886.78	886.70	885.77	884.84	
889.54	888.59	887.64	886.69	C.S. 1352+12.44	886.61	886.53	885.63	884.72	
889.32	888.38	887.45	886.51	+25	886.43	886.36	885.48	884.59	
888.84	887.93	887.03	886.12	+50	886.04	885.97	885.14	884.30	
888.50	887.43	886.57	885.70	+75	885.63	885.56	884.77	883.97	
887.71	886.89	886.08	885.26	1353+00	885.19	885.13	884.37	883.61	
887.07	886.31	885.54	884.78	+25	884.72	884.66	883.94	883.22	
886.41	885.70	885.00	884.29	+50	884.23	884.17	883.49	882.81	
885.71	885.06	884.40	883.75	+75	883.70	883.65	883.00	882.36	
884.97	884.38	883.79	883.20	1354+00	883.15	883.10	882.50	881.90	
884.20	883.67	883.14	882.61	+25	882.57	882.52	881.96	881.40	
883.40	882.93	882.47	882.00	+50	881.96	881.92	881.40	880.88	
882.55	882.15	881.75	881.35	+75	881.32	881.28	880.81	880.34	
881.69	881.35	881.02	880.68	1355+00	880.65	880.61	880.18	879.76	
880.76	880.50	880.24	879.98	+25	879.96	879.93	879.53	879.16	
879.82	879.63	879.44	879.25	+50	879.23	879.20	878.86	878.52	
878.82	878.71	878.60	878.49	+75	878.48	878.45	878.15	877.84	
877.79	877.76	877.73	877.70	1356+00	877.70	877.68	877.41	877.13	
877.27	877.28	877.29	877.30	ST 1356+12.44	877.30	877.28	877.02	876.76	
876.74	876.79	876.84	876.89	+25	876.89	876.87	876.62	876.37	
875.72	875.83	875.94	876.04	+50	876.05	876.03	875.81	875.58	
874.72	874.87	875.03	875.18	+75	875.19	875.17	874.96	874.75	
873.74	873.92	874.10	874.28	1357+00	874.29	874.27	874.07	873.87	
872.78	872.97	873.16	873.35	+25	873.37	873.35	873.16	872.97	

T.S. 1365+20.79 S.C. 1368+70.79				D=3°-00' Lt.		C.S. 1394+17.56 S.T. 1397+67.56			
Left Lanes				STATION	Profile Grade +0.02	Super Elevation	Right Lanes		
Truck Lane	Outside Edge	¢	Inside Edge				Inside Edge	¢	Outside Edge
Elevation							Elevation		
842.00	842.19	842.38	842.57	1363+75	842.59	Obtained Graphically	842.57	842.38	842.19
840.75	840.94	841.13	841.32	1364+00	841.34		841.32	841.14	840.95
839.50	839.69	839.88	840.07	+25	840.09		840.08	839.91	839.73
838.25	838.44	838.63	838.82	+50	838.84		838.83	838.69	838.54
837.00	837.19	837.38	837.57	+75	837.50		837.58	837.48	837.38
835.75	835.94	836.13	836.32	1365+00	836.34		836.33	836.27	836.21
834.71	834.90	835.09	835.28	T.S. 1365+20.79	835.30		835.30	835.29	835.28
834.50	834.69	834.88	835.07	+25	835.00		835.00	835.00	835.00
833.20	833.41	833.61	833.82	+50	833.84		833.85	833.92	833.98
831.89	832.12	832.35	832.57	+75	832.59		832.60	832.74	832.87
830.54	830.80	831.06	831.32	1366+00	831.34	831.36	831.56	831.75	
829.14	829.45	829.76	830.06	+25	830.09	830.11	830.38	830.65	
827.76	828.11	828.46	828.81	+50	828.84	828.87	829.21	829.54	
826.33	826.74	827.15	827.56	+75	827.50	827.62	828.03	828.43	
824.92	825.38	825.84	826.30	1367+00	826.34	826.38	826.85	827.32	
823.49	824.01	824.53	825.05	+25	825.09	825.14	825.68	826.22	
822.08	822.65	823.22	823.79	+50	823.84	823.89	824.50	825.11	
820.65	821.28	821.91	822.54	+75	822.59	822.65	823.33	824.00	
819.24	819.92	820.60	821.28	1368+00	821.34	821.40	822.15	822.89	
817.84	818.58	819.32	820.05	+25	820.11	820.18	820.99	821.79	
816.49	817.28	818.07	818.86	+50	818.93	819.00	819.84	820.68	
815.44	816.27	817.10	817.92	S.C. 1368+70.79	817.99	818.06	818.92	819.77	
815.24	816.07	816.90	817.73	+75	817.80	817.87	818.73	819.58	
814.07	814.93	815.79	816.64	1369+00	816.71	816.78	817.64	818.49	
813.03	813.89	814.75	815.60	+25	815.67	815.74	816.60	817.45	
812.03	812.89	813.75	814.60	+50	814.67	814.74	815.60	816.45	
811.08	811.94	812.80	813.65	+75	813.72	813.79	814.65	815.50	
810.18	811.04	811.90	812.75	1370+00	812.82	812.89	813.75	814.60	
809.30	810.16	811.02	811.87	+25	811.94	812.01	812.87	813.72	
808.42	809.28	810.14	810.99	+50	811.06	811.13	811.99	812.84	
807.54	808.40	809.26	810.11	+75	810.18	810.25	811.11	811.96	
806.66	807.52	808.38	809.23	1371+00	809.30	809.37	810.23	811.08	
805.78	806.64	807.50	808.35	+25	808.42	808.49	809.35	810.20	
804.90	805.76	806.62	807.47	+50	807.54	807.61	808.47	809.32	
804.02	804.88	805.74	806.59	+75	806.66	806.73	807.59	808.44	
803.14	804.00	804.86	805.71	1372+00	805.78	805.85	806.71	807.56	
802.26	803.12	803.98	804.83	+25	804.90	804.97	805.83	806.68	
801.38	802.24	803.10	803.95	+50	804.02	804.09	804.95	805.80	
800.50	801.36	802.22	803.07	+75	803.14	803.21	804.07	804.92	
799.62	800.48	801.34	802.19	1373+00	802.26	802.33	803.19	804.04	
798.74	799.60	800.46	801.31	+25	801.38	801.45	802.31	803.16	
797.86	798.72	799.58	800.43	+50	800.50	800.57	801.43	802.28	
796.98	797.84	798.70	799.55	+75	799.62	799.69	800.55	801.40	
796.10	796.96	797.82	798.67	1374+00	798.74	798.81	799.67	800.52	
795.22	796.08	796.94	797.79	+25	797.86	797.93	798.79	799.64	
794.34	795.20	796.06	796.91	+50	796.08	797.05	797.91	798.76	
793.46	794.32	795.18	796.03	+75	795.10	796.17	797.03	797.88	
792.58	793.44	794.30	795.15	1375+00	795.22	795.29	796.15	797.00	
791.70	792.56	793.42	794.27	+25	794.34	794.41	795.27	796.12	
790.82	791.68	792.54	793.39	+50	793.46	793.53	794.39	795.24	
789.94	790.80	791.66	792.51	+75	792.58	792.65	793.51	794.36	
789.06	789.92	790.78	791.63	1376+00	791.70	791.77	792.63	793.48	
788.18	789.04	789.90	790.75	+25	790.82	790.89	791.75	792.60	
787.30	788.16	789.02	790.87	+50	789.94	790.01	790.87	791.72	
786.42	787.28	788.14	788.99	+75	789.06	789.13	789.99	790.84	
785.54	786.40	787.26	788.11	1377+00	788.18	788.25	789.11	789.96	
784.66	785.52	786.38	787.23	+25	787.30	787.37	788.23	789.08	
783.78	784.64	785.50	786.35	+50	786.42	786.49	787.35	788.20	
782.90	783.76	784.62	785.47	+75	785.54	785.61	786.47	787.32	
782.02	782.88	783.74	784.59	1378+00	784.66	784.73	785.59	786.44	
781.14	782.00	782.86	783.71	+25	783.78	783.85	784.71	785.56	
780.26	781.12	781.98	782.83	+50	782.90	782.97	783.83	784.68	
779.38	780.24	781.10	781.95	+75	782.02	782.09	782.95	783.80	
778.50	779.36	780.22	781.07	1379+00	781.14	781.21	782.07	782.92	
777.62	778.48	779.34	780.19	+25	780.26	780.33	781.19	782.04	
776.74	777.60	778.46	779.31	+50	779.38	779.45	780.31	781.16	
775.86	776.72	777.58	778.43	+75	778.50	778.57	779.43	780.28	
774.98	775.84	776.70	777.55	1380+00	777.62	777.69	778.55	779.40	
774.10	774.96	775.82	776.67	+25	776.74	776.81	777.67	778.52	
773.22	774.08	774.94	775.79	+50	775.86	775.93	776.79	777.64	
772.34	773.20	774.06	774.91	+75	774.98	775.05	775.91	776.76	
771.46	772.32	773.18	774.03	1381+00	774.10	774.17	775.03	775.88	
770.58	771.44	772.30	773.15	+25	773.22	773.29	774.15	775.00	
769.70	770.56	771.42	772.27	+50	772.34	772.41	773.27	774.12	



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CURVE TABLES

T.S. 1408+28.47 S.C. 1412+28.47			D = 4°00 Rt.		C.S. 1422+40.33 S.T. 1426+40.33			
Left Lanes			STATION	Profile Grade +0.02	Super Elevation	Right Lanes		
Outside Edge	℄	Inside Edge				Inside Edge	℄	Outside Edge
Elevation						Elevation		
794.04	794.23	794.42	1406+75	794.44	Obtained Graphically	794.42	794.23	794.04
793.96	794.14	794.32	1407+00	794.33		794.31	794.12	793.93
793.87	794.03	794.18	+25	794.19		794.17	793.98	793.79
793.76	793.89	794.01	+50	794.02		794.00	793.81	793.62
793.63	793.72	793.80	+75	793.81		793.79	793.60	793.41
793.45	793.51	793.56	1408+00	793.56		793.54	793.35	793.16
793.24	793.26	793.28	+25	793.28		793.26	793.07	792.88
793.24	793.25	793.26	T.S. 1408+28.47	793.26		793.24	793.05	792.86
793.01	792.99	792.97	+50	792.97		792.95	792.74	792.53
792.76	792.69	792.62	+75	792.61		792.59	792.35	792.10
792.50	792.37	792.24	1409+00	792.23	Obtained Graphically	792.21	791.92	791.62
792.20	792.02	791.83	+25	791.81		791.78	791.44	791.09
791.92	791.65	791.37	+50	791.35		791.32	790.93	790.53
791.59	791.24	790.89	+75	790.86		790.82	790.38	789.93
791.21	790.79	790.37	1410+00	790.33		790.29	789.79	789.28
790.78	790.30	789.81	+25	789.77		789.72	789.17	788.61
790.34	789.78	789.22	+50	789.17		789.12	788.50	787.88
789.88	789.24	788.59	+75	788.54		788.48	787.80	787.12
789.38	788.66	787.93	1411+00	787.87		787.81	787.06	786.31
788.82	788.03	787.23	+25	787.16		787.09	786.27	785.45
788.21	787.36	786.50	+50	786.43	Obtained Graphically	786.36	785.47	784.57
787.54	786.64	785.73	+75	785.65		785.57	784.63	783.68
786.82	785.87	784.92	1412+00	784.84		784.76	783.78	782.80
786.04	785.06	784.08	+25	784.00		783.92	782.92	781.92
785.91	784.94	783.96	S.C. 1412+28.47	783.88		783.80	782.80	781.80
785.19	784.20	783.20	+50	783.12		783.04	782.04	781.04
784.28	783.28	782.28	+75	782.20		782.12	781.12	780.12
783.33	782.33	781.33	1413+00	781.25		781.17	780.17	779.17
782.35	781.35	780.35	+25	780.27		780.19	779.19	778.19
781.33	780.33	779.33	+50	779.25		779.17	778.17	777.17
780.27	779.27	778.27	+75	778.19	Obtained Graphically	778.11	777.11	776.11
779.18	778.18	777.18	1414+00	777.10		777.02	776.02	775.02
778.05	777.05	776.05	+25	775.97		775.89	774.89	773.89
776.89	775.89	774.89	+50	774.81		774.73	773.73	772.73
775.69	774.69	773.69	+75	773.61		773.53	772.53	771.53
774.46	773.46	772.46	1415+00	772.38		772.30	771.30	770.30
773.21	772.21	771.21	+25	771.13		771.05	770.05	769.05
771.96	770.96	769.96	+50	769.88		769.80	768.80	767.80
770.71	769.71	768.71	+75	768.63		768.55	767.55	766.55
769.46	768.46	767.46	1416+00	767.38		767.30	766.30	765.30
768.21	767.21	766.21	+25	766.13	Obtained Graphically	766.05	765.05	764.05
766.96	765.96	764.96	+50	764.88		764.80	763.80	762.80
765.71	764.71	763.71	+75	763.63		763.55	762.55	761.55
764.46	763.46	762.46	1417+00	762.38		762.30	761.30	760.30
763.21	762.21	761.21	+25	761.13		761.05	760.05	759.05
761.96	760.96	759.96	+50	759.88		759.80	758.80	757.80
760.71	759.71	758.71	+75	758.63		758.55	757.55	756.55
759.46	758.46	757.46	1418+00	757.38		757.30	756.30	755.30
758.21	757.21	756.21	+25	756.13		756.05	755.05	754.05
756.96	755.96	754.96	+50	754.88		754.80	753.80	752.80
755.71	754.71	753.71	+75	753.63	Obtained Graphically	753.55	752.55	751.55
754.46	753.46	752.46	1419+00	752.38		752.30	751.30	750.30
753.21	752.21	751.21	+25	751.13		751.05	750.05	749.05
751.96	750.96	749.96	+50	749.88		749.80	748.80	747.80
750.71	749.71	748.71	+75	748.63		748.55	747.55	746.55
749.46	748.46	747.46	1420+00	747.38		747.30	746.30	745.30
748.24	747.24	746.24	+25	746.16		746.08	745.08	744.08
747.06	746.06	745.06	+50	744.98		744.90	743.90	742.90
745.94	744.94	743.94	+75	743.86		743.78	742.78	741.78
744.86	743.86	742.86	1421+00	742.78		742.70	741.70	740.70
743.84	742.84	741.84	+25	741.76	Obtained Graphically	741.68	740.68	739.68
742.86	741.86	740.86	+50	740.78		740.70	739.70	738.70
741.94	740.94	739.94	+75	739.86		739.78	738.78	737.78
741.05	740.06	739.06	1422+00	738.98		738.90	737.91	736.92
740.18	739.20	738.24	+25	738.16	Obtained Graphically	738.08	737.12	736.14

4°00 Curve to Rt. Continued									
Left Lanes			STATION	Profile Grade +0.02	Super Elevation ↑	Right Lanes			Obtained Graphically ↓
Outside Edge	℄	Inside Edge				Inside Edge	℄	Outside Edge	
Elevation						Elevation			
739.64	738.68	737.75	C.S. 1422+40.33	737.67		737.59	736.64	735.69	
739.30	738.39	737.46	+50	737.38		737.30	736.37	735.44	
738.44	737.58	736.73	+75	736.66		736.59	735.69	734.79	
737.64	736.84	736.05	1423+00	735.98		735.91	735.06	734.20	
736.90	736.17	735.42	+25	735.36		735.29	734.48	733.66	
736.23	735.53	734.84	+50	734.78		734.72	733.95	733.19	
735.60	734.96	734.31	+75	734.26		734.20	733.49	732.78	
735.03	734.43	733.83	1424+00	733.78		733.73	733.08	732.43	
734.49	733.95	733.41	+25	733.36		733.31	732.72	732.12	
734.00	733.50	733.02	+50	732.98		732.93	732.39	731.85	
733.55	733.12	732.07	+75	732.66		732.62	732.13	731.63	
733.14	732.77	732.41	1425+00	732.38		732.34	731.91	731.46	
732.77	732.47	732.18	+25	732.16		732.13	731.47	731.34	
732.44	732.21	732.00	+50	731.98		731.95	731.74	731.26	
732.16	732.02	731.87	+75	731.86		731.83	731.62	731.23	
731.96	731.87	731.79	1426+00	731.78		731.76	731.53	731.23	
731.82	731.79	731.76	+25	731.76		731.74	731.51	731.28	
731.74	731.75	731.76	S.T. 1426+40.33	731.76		731.74	731.54	731.33	
731.71	731.75	731.78	+50	731.78		731.76	731.57	731.36	
731.66	731.76	731.85	+75	731.86		731.84	731.76	731.46	
731.68	731.82	731.97	1427+00	731.98		731.96	731.67	731.58	
731.80	731.98	731.15	+25	732.16		732.14	731.85	731.76	
732.00	732.18	732.36	+50	732.38		732.36	732.17	731.98	



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## RELOCATED CO. RD. 46

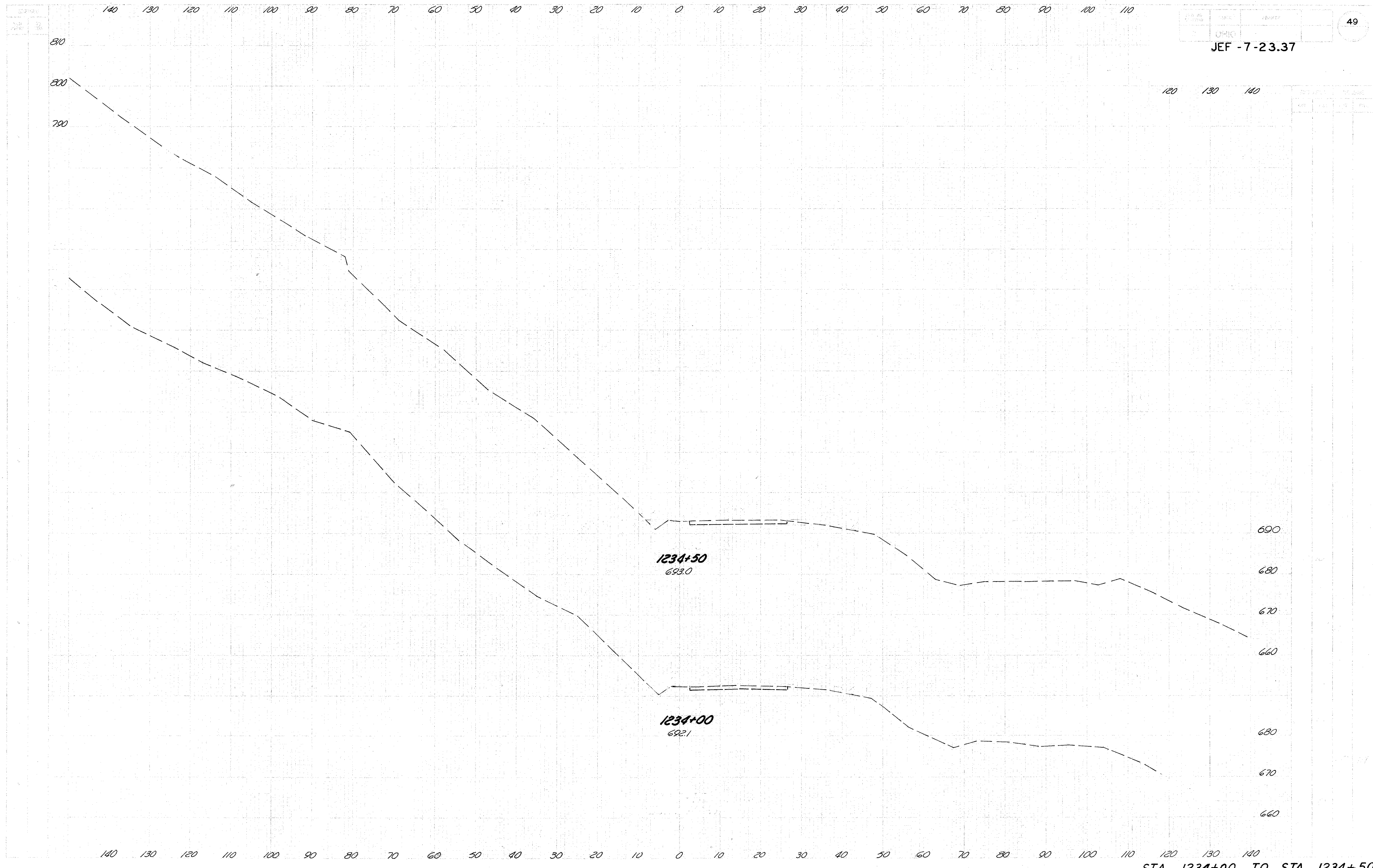
T.S. = 8+33.73 S.C. = 10+33.73			D=3°00'Lt.		C.S. = 17+70.73 S.T. = 19+70.73		
Left Lane			STATION	Profile Grade	Right Lane		
Left Edge	Center	Width			Center	Right Edge	
Elevation							Elevation
760.60	760.79	24' 0	7+50	760.98	24.0	760.80	760.62
759.87	760.06		+75	760.25		760.11	759.96
759.14	759.33		8+00	759.52		759.43	759.34
758.41	758.60		+25	758.79		758.77	758.75
758.16	758.35		T.S. 8+33.73	758.54		758.54	758.54
757.68	757.87		+50	758.06		758.10	758.14
756.93	757.13		+75	757.33		757.45	757.56
756.14	756.37		9+00	756.60		756.79	756.97
755.28	755.58		+25	755.87		756.13	756.39
754.35	754.75		+50	755.14		755.48	755.81
753.47	753.94		+75	754.41		754.82	755.22
752.65	753.17		10+00	753.68		754.16	754.63
751.85	752.40		+25	752.95		753.48	754.00
751.57	752.14		S.C. 10+33.73	752.70		753.24	753.78
751.06	751.64		+50	752.22		752.78	753.34
750.30	750.90		+75	751.49		752.07	752.65
749.58	750.17		11+00	750.76		751.35	751.94
748.85	749.44		+25	750.03		750.62	751.21
748.12	748.71		+50	749.30		749.89	750.48
747.39	747.98		+75	748.57		749.16	749.75
746.66	747.25		12+00	747.84		748.43	749.02
745.93	746.52		+25	747.11		747.70	748.29
745.20	745.79		+50	746.38		746.97	747.56
744.47	745.06		+75	745.65		746.24	746.83
743.74	744.33		13+00	744.92		745.51	746.10
743.01	743.60		+25	744.19		744.78	745.37
742.28	742.87		+50	743.46		744.05	744.64
741.55	742.14		+75	742.73		743.32	743.91
740.82	741.41		14+00	742.00		742.59	743.18
740.09	740.68		+25	741.27		741.86	742.45
739.36	739.95		+50	740.54		741.13	741.72
738.63	739.22		+75	739.81		740.40	740.99
737.90	738.49		15+00	739.08		739.67	740.26
737.17	737.76	24.0	+25	738.35	24.0	738.94	739.53
736.48	737.05	23.2	+50	737.62	23.2	738.19	738.76
735.79	736.34	22.4	+75	736.89	22.4	737.44	737.99
735.10	735.63	21.6	16+00	736.16	21.6	736.69	737.22
734.41	734.92	20.8	+25	735.43	20.8	735.94	736.45
733.72	734.21	20.0	+50	734.70	20.0	735.19	735.68
733.03	733.50	19.2	+75	733.97	19.2	734.44	734.91
732.34	732.79	18.4	17+00	733.24	18.4	733.69	734.14
731.65	732.08	17.6	+25	732.51	17.6	732.94	733.37
730.96	731.37	16.8	+50	731.78	16.8	732.19	732.60
730.38	730.78	16.14	C.S. 17+70.73	731.17	16.14	731.56	731.94
730.27	730.66	16.0	+75	731.05	16.0	731.43	731.81
729.61	729.97	15.2	18+00	730.32	15.2	730.65	730.97
728.96	729.28	14.4	+25	729.59	14.4	729.88	730.16
728.30	728.58	13.6	+50	728.86	13.6	729.09	729.32
727.65	727.89	12.8	+75	728.13	12.8	728.32	728.50
727.00		12.0	19+00	727.40	12.0		727.68
726.34			+25	726.67			726.85
725.69			+50	725.94			726.02
725.14			S.T. 19+70.73	725.33			725.33
725.02			+75	725.21			725.19
724.29			20+00	724.48			724.37
723.56			+25	723.75			723.58
722.83			+50	723.02			722.83
722.10		12.0	+75	722.29	12.0		722.10

CURVE TABLES  
RELOCATED CO. RD. 46

T.S.=22+45.64 S.C.=26+45.64		D=5°00'Rt.		C.S.=31+44.86 S.T.=35+44.86	
Left Edge		STATION	Profile Grade	Right Edge	
Part Elevation	Width			Width	Part Elevation
721.37	12.0	21+00	721.56	12.0	721.37
720.68	↑	+25	720.87	↑	720.68
720.07		+50	720.25		720.06
719.53		+75	719.70		719.51
719.10		22+00	719.22		719.03
718.76		+25	718.82		718.63
718.54		T.S.22+45.64	718.54		718.35
718.51		+50	718.49		718.30
718.32		+75	718.23		718.03
718.19		23+00	718.04		717.80
718.14		+25	717.93		717.64
718.16		+50	717.89		717.55
718.25		+75	717.92		717.54
718.37		24+00	718.02		717.55
718.53		+25	718.16		717.61
718.72		+50	718.30		717.69
718.90		+75	718.44		717.80
719.08		25+00	718.58		717.91
719.27		+25	718.72		718.02
719.45		+50	718.86		718.13
719.64		+75	718.97		718.20
719.77		26+00	719.03		718.23
719.85		+25	719.03		718.20
719.87		S.C.26+45.64	718.99		718.13
719.87		+50	718.97		718.08
719.81		+75	718.86		717.92
719.68		27+00	718.70		717.72
719.46		+25	718.48		717.50
719.18		+50	718.20		717.22
718.85		+75	717.87		716.89
718.46		28+00	717.48		716.50
718.01		+25	717.03		716.05
717.51		+50	716.53		715.55
716.96		+75	715.98		715.00
716.35		29+00	715.37		714.39
715.68		+25	714.70		713.72
714.96		+50	713.98		713.00
714.21		+75	713.23		712.25
713.46		30+00	712.48		711.50
712.71		+25	711.73		710.75
711.96		+50	710.98		710.00
711.21		+75	710.23		709.25
710.46		31+00	709.48		708.50
709.67		+25	708.73		707.78
709.02		C.S.31+44.86	708.13		707.20
708.86		+50	707.98		707.05
708.05		+75	707.23		706.35
707.24		32+00	706.48		705.63
706.43		+25	705.73		704.92
705.62		+50	704.98		704.21
704.80		+75	704.23		703.50
703.99		33+00	703.48		702.79
703.18		+25	702.73		702.09
702.37		+50	701.98		701.39
701.59		+75	701.25		700.73
700.88		34+00	700.57		700.12
700.20		+25	699.94		699.54
699.51		+50	699.35		699.01
698.97		+75	698.81		698.52
698.42		35+00	698.32		698.08
697.92		+25	697.87		697.67
697.55		S.T.35+44.86	697.55		697.36
697.45		+50	697.47		697.28
697.04		+75	697.12		696.93
696.66		36+00	696.80		696.61
696.36		+25	696.54		696.35
696.14	12.0	+50	696.33	12.0	696.14



JEF - 7-23.37



STA. 1234+00 TO STA. 1234+50



170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90

DATE	DATE	TIME	
2	0:10		

50

JEF -7-23.37

100 110 120

DATE	DATE	TIME	

820

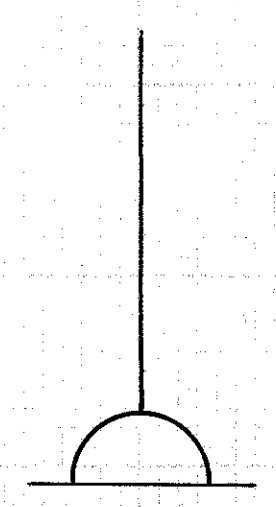
810

820

810

1235+50  
695.0 Zero Earthwork

1235+00  
694.0



690

0 0

680

670

700

690

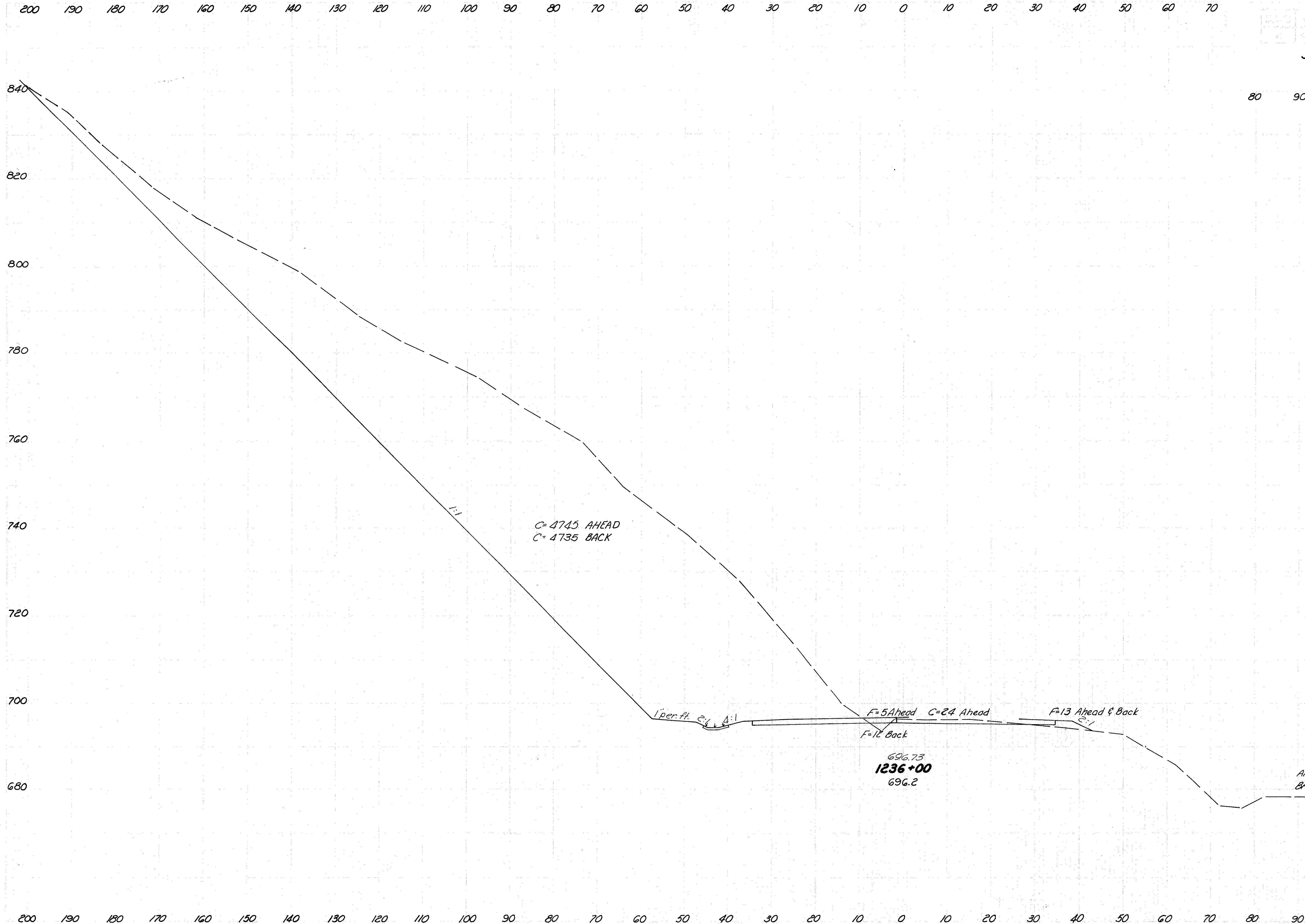
680

170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

STA. 1235+00 TO STA. 1235+50



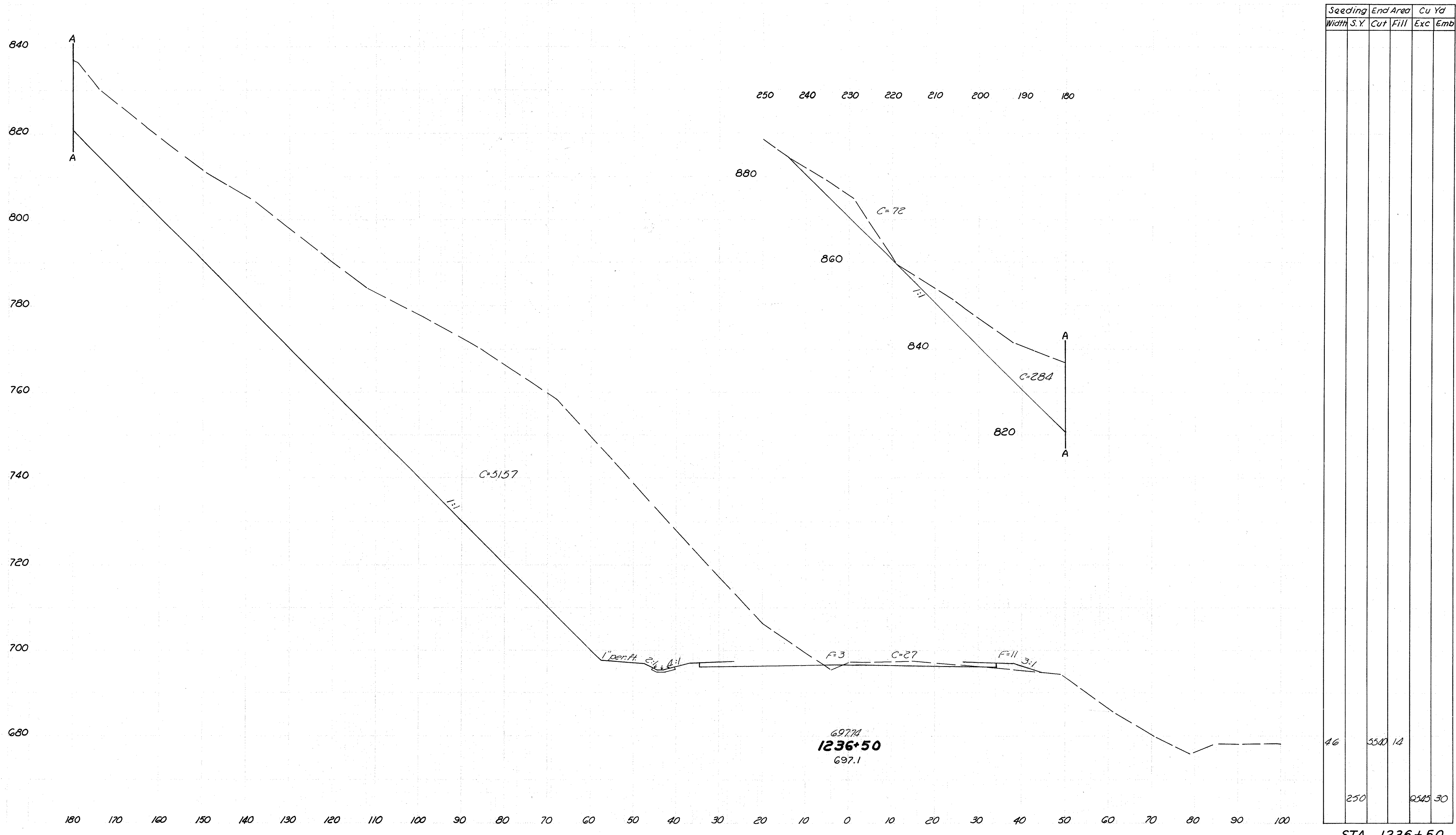
JEF - 7 - 23.37



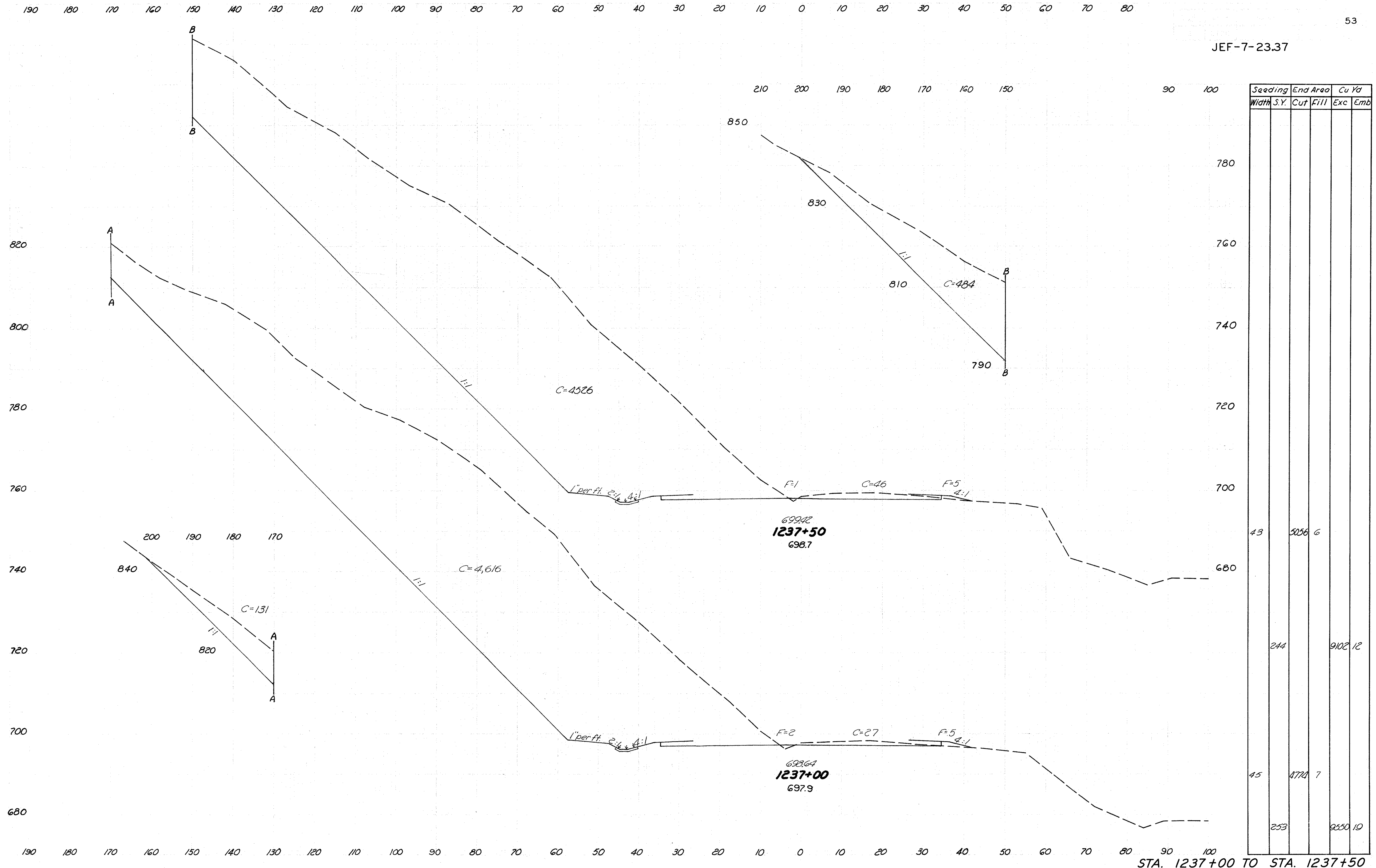
Seeding		End Area		Cu Yd	
Width	S.Y.	Cut	Fill	Exc	Emb
44	77	4769	18		
		4735	25		
214			4384	23	
STA 1236+00					



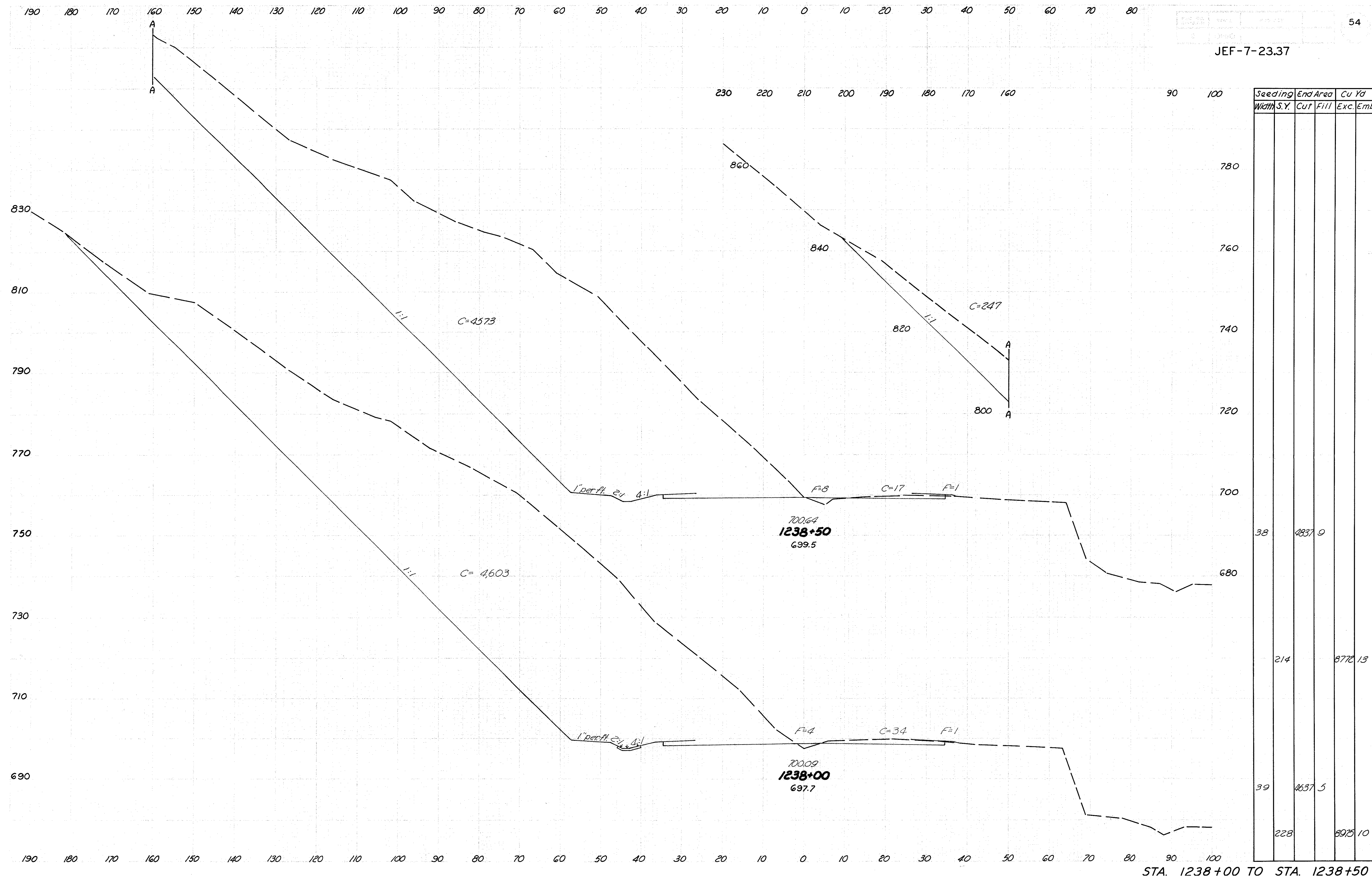
JEF - 7 - 23.37









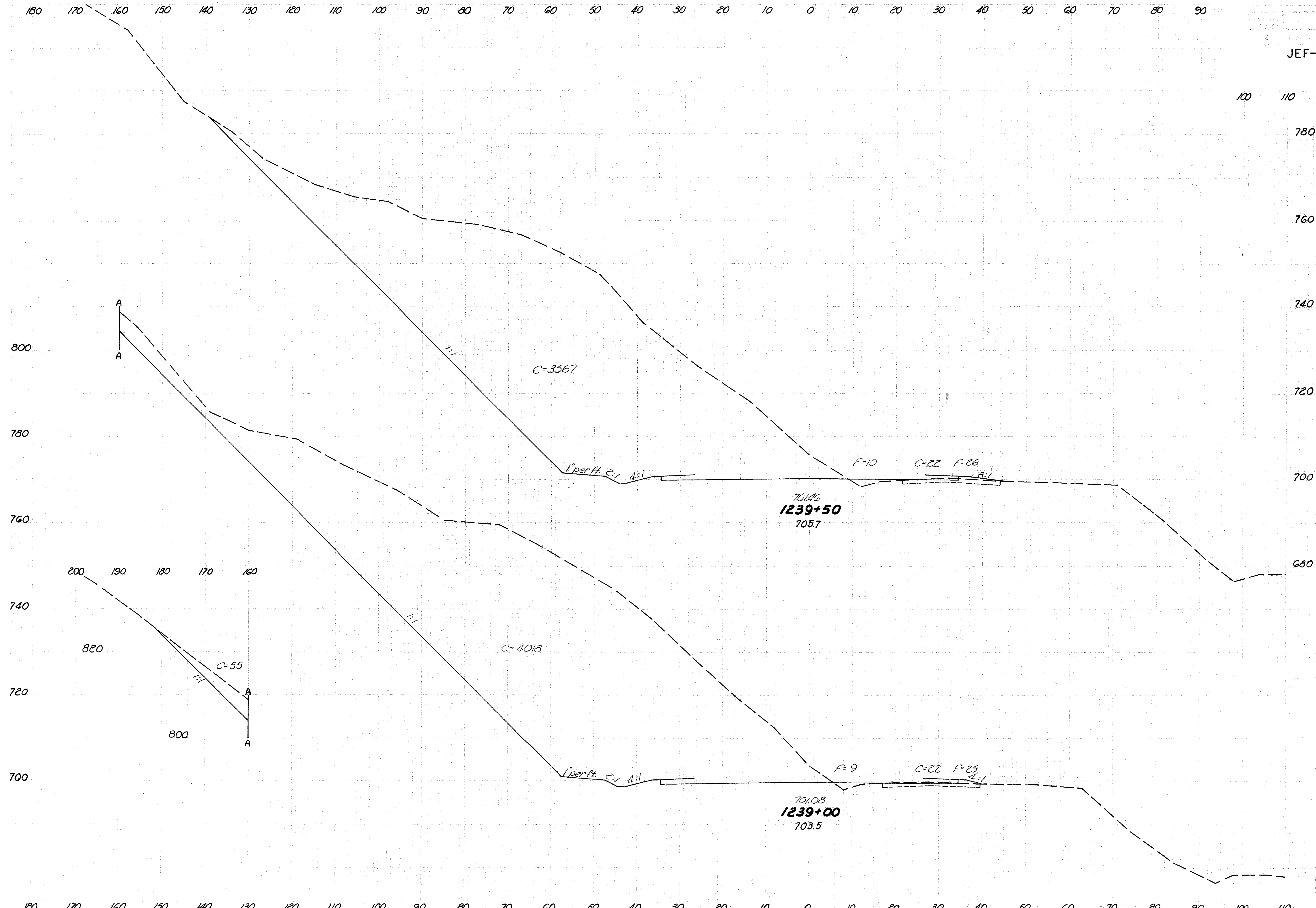


54
JEF-7-23.37
Seeding Width S.Y.
End Area Cut Fill
Cu Yd Exc. Emb

38	214	39	228
4837.9		4637.5	
	8772.13		8975.10



JEF-7-23.37

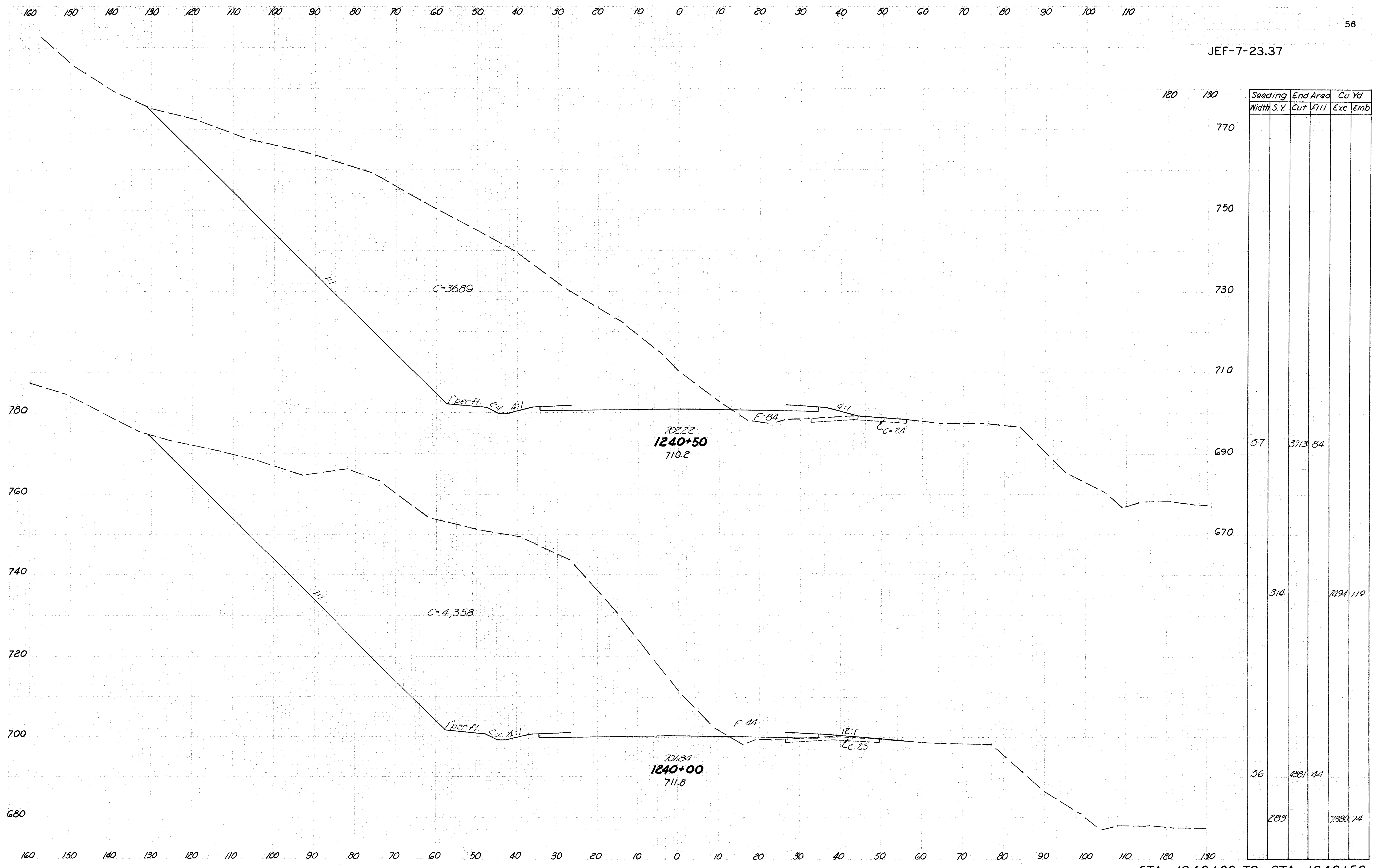


Seeding Width S. Y.	End Area		Cu Yd	
	Cut	Fill	Exc	Emb
46	3589	36		
242			7115	65
41	4095	34		
219			8270	40

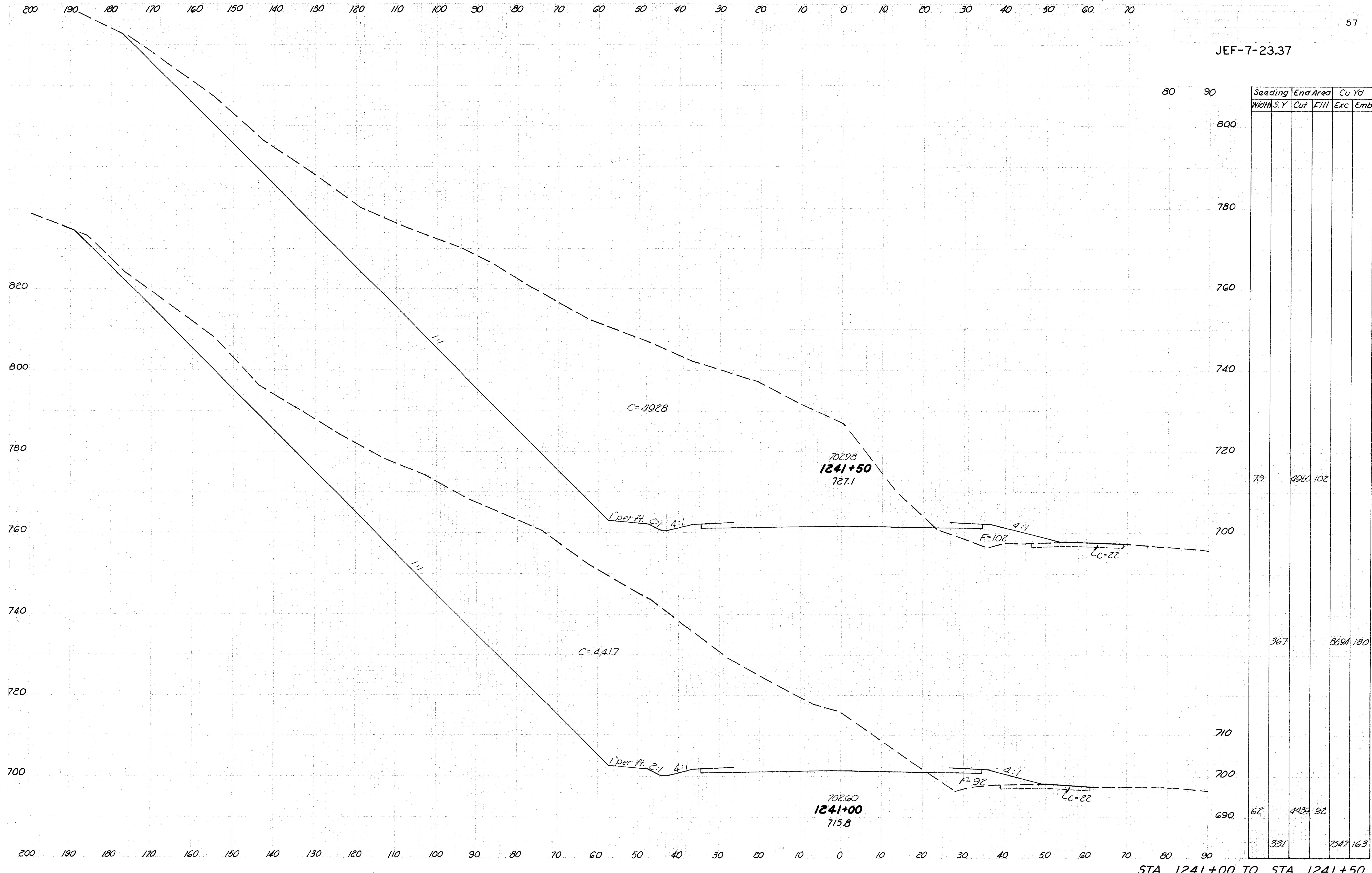
STA. 1239+00 TO STA. 1239+50



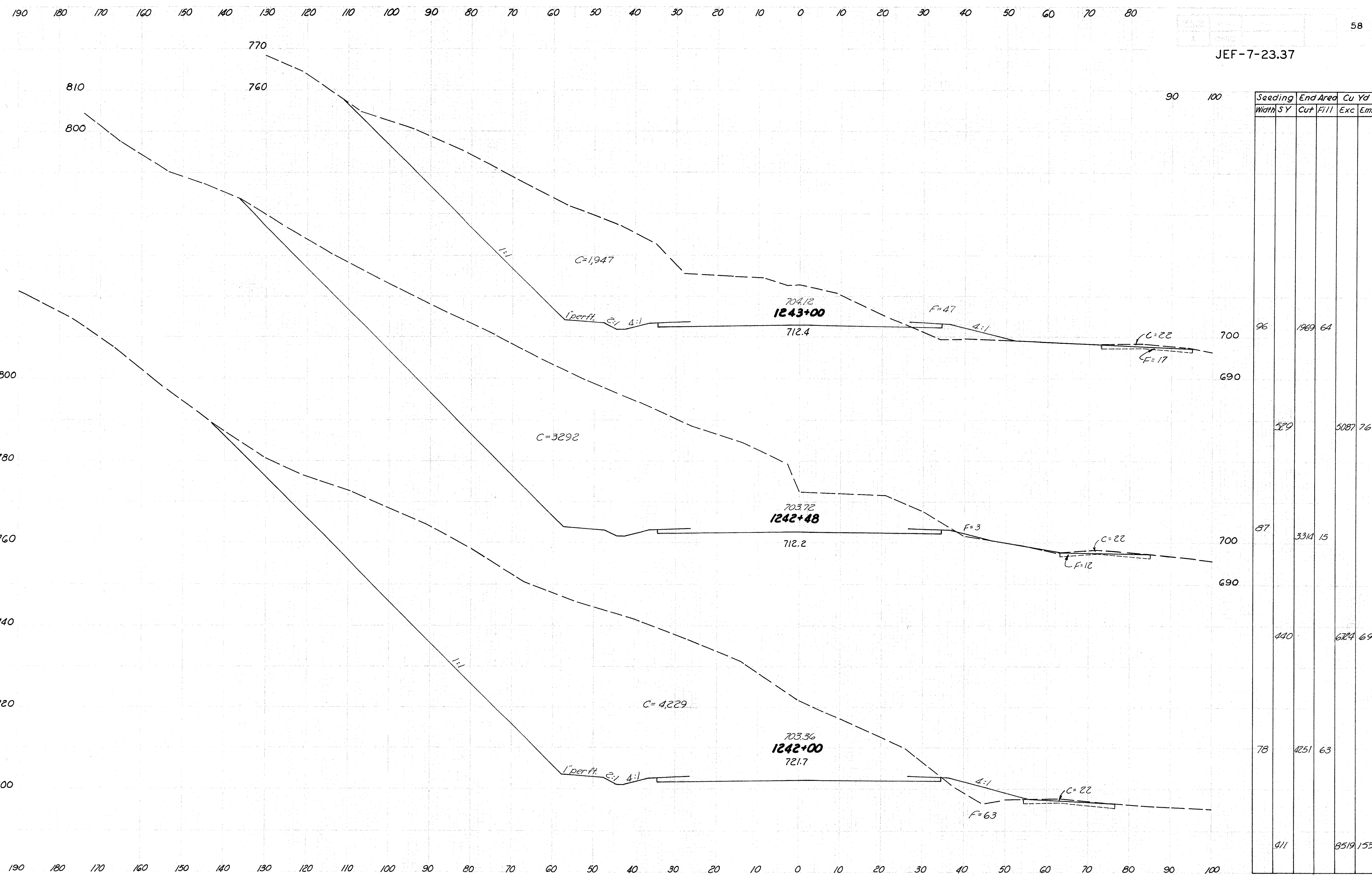
JEF-7-23.37











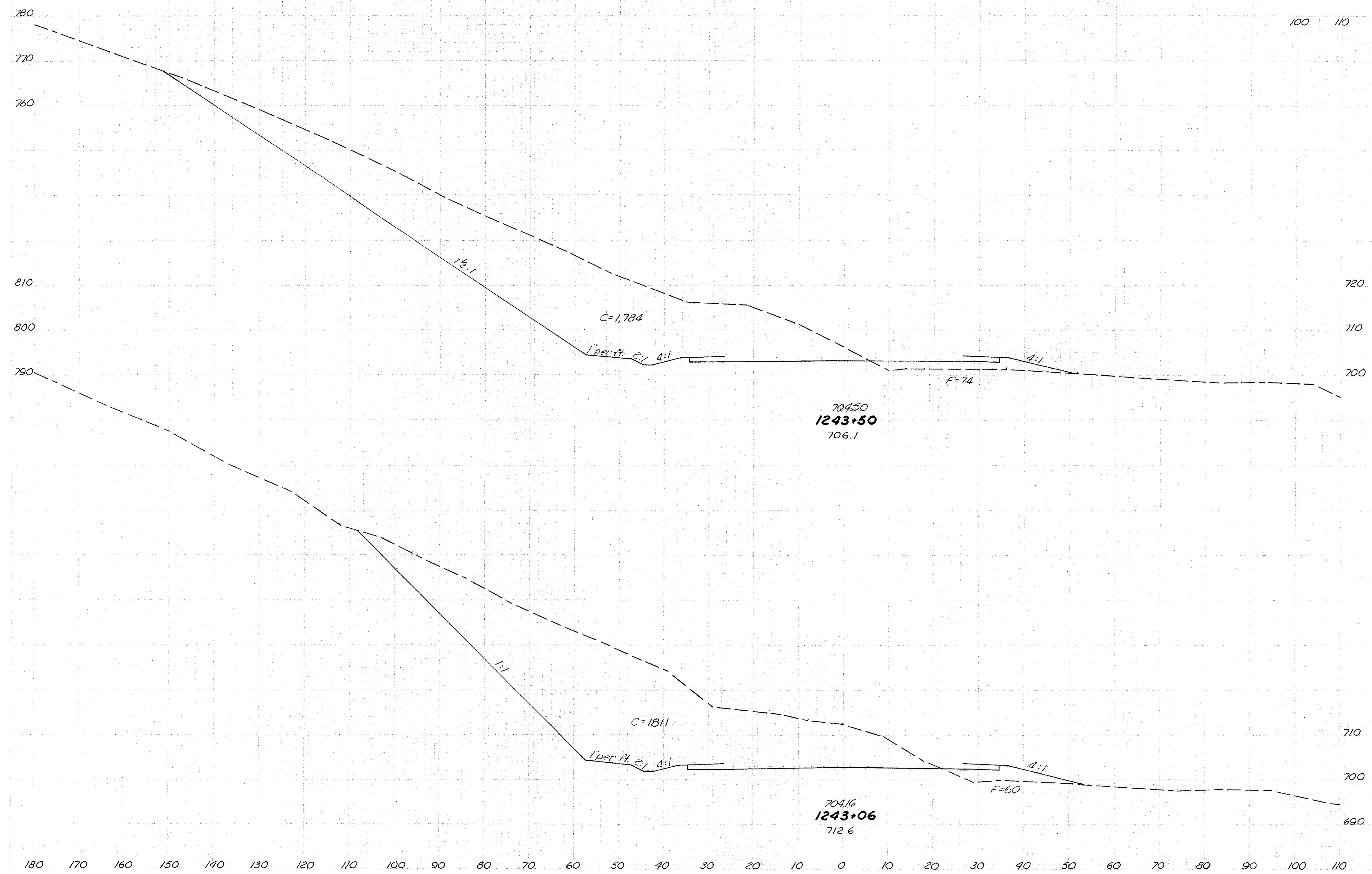
JEF-7-23.37

Seeding Width SY	End Area Cut Fill	Cu Yd	
		Exc	Emb
96	1969	64	
589		5087	76
87	3314	15	
440		6224	69
78	4251	63	
411		8519	153

STA 1242+00 TO STA 1243+00



JEF-7-23.37

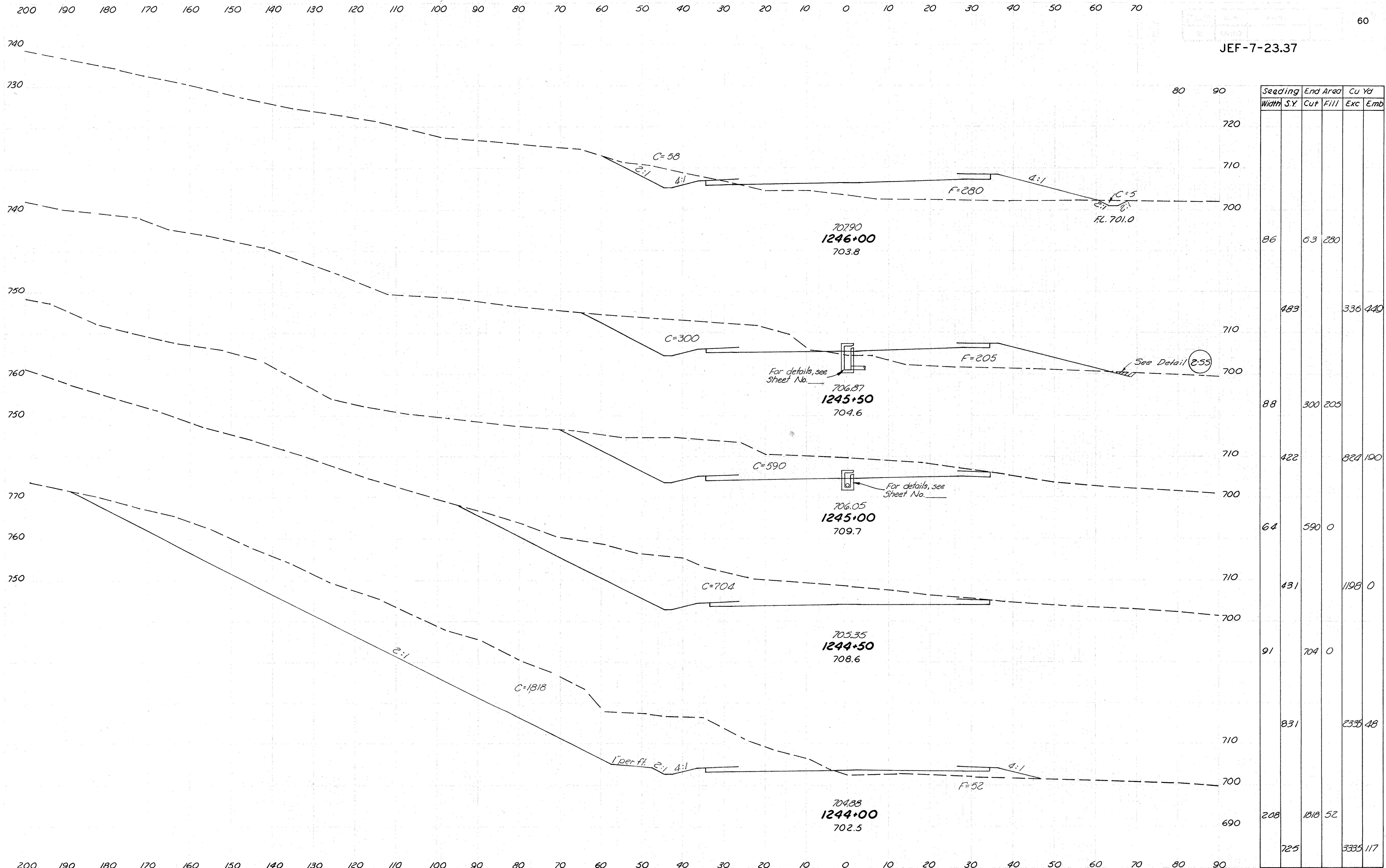


Seeding Width	S.Y.	End Area		Cu Yd	
		Cut	Fill	Exc	Emb
53		1784	74		
264				2020	109
55		1811	60		
50				689	14

STA 1243+06 TO STA 1243+50



JEF-7-23.37

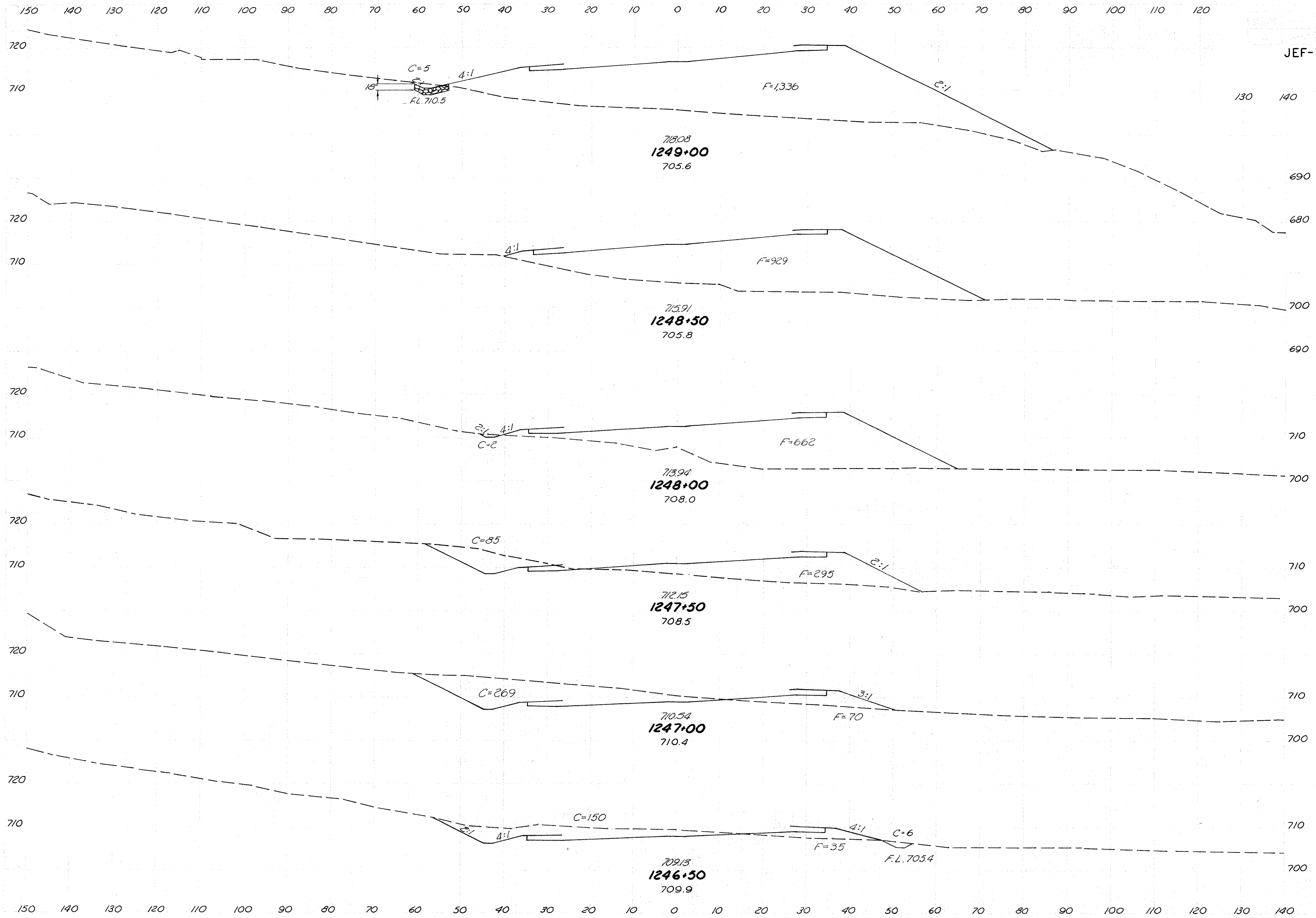


Seeding Width	S.Y.	End Area		Cu Yd	
		Cut	Fill	Exc	Emb
86		63	280		
483				336	440
88		300	205		
422				821	190
64		590	0		
431				1198	0
91		704	0		
831				2335	48
208		1818	52		
725				3335	117

STA. 1244+00 TO STA. 1246+00



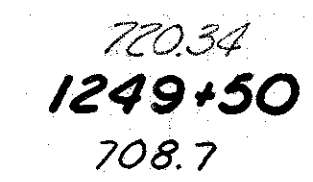
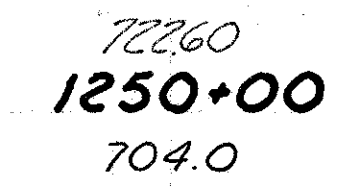
JEF-7-23.37



Seeding Width	S. Y.	End Area		Cu Yd	
		Cut	Fill	Exc	Emb
110		5	1336		
503				5	2097
71	0	929			
389				2	1473
69	2	662			
397				81	886
74	85	295			
339				328	338
68	269	70			
378				394	97
68	156	35			
428				203	292

STA 1246+50 TO STA 1249+00

150      160

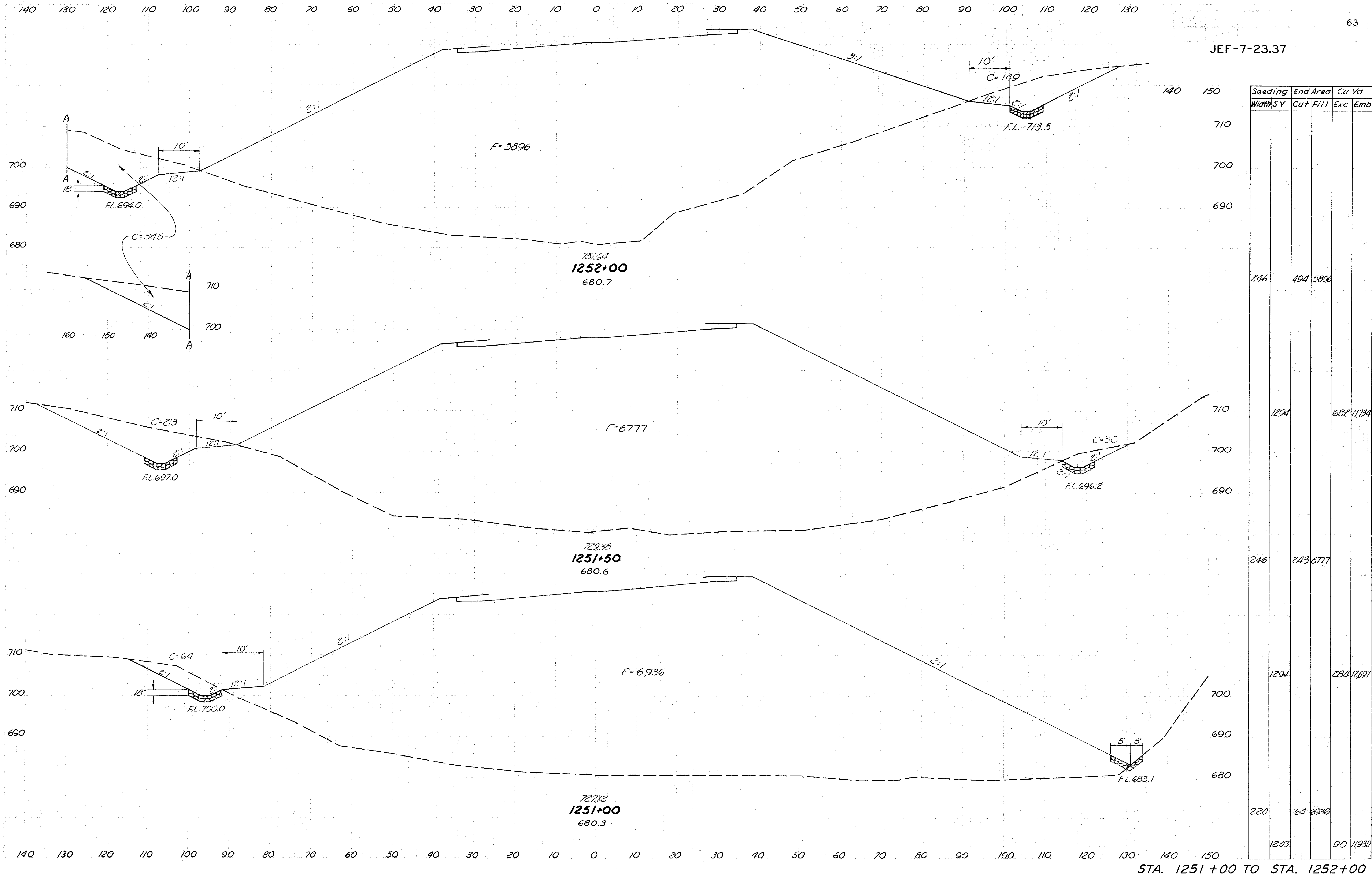


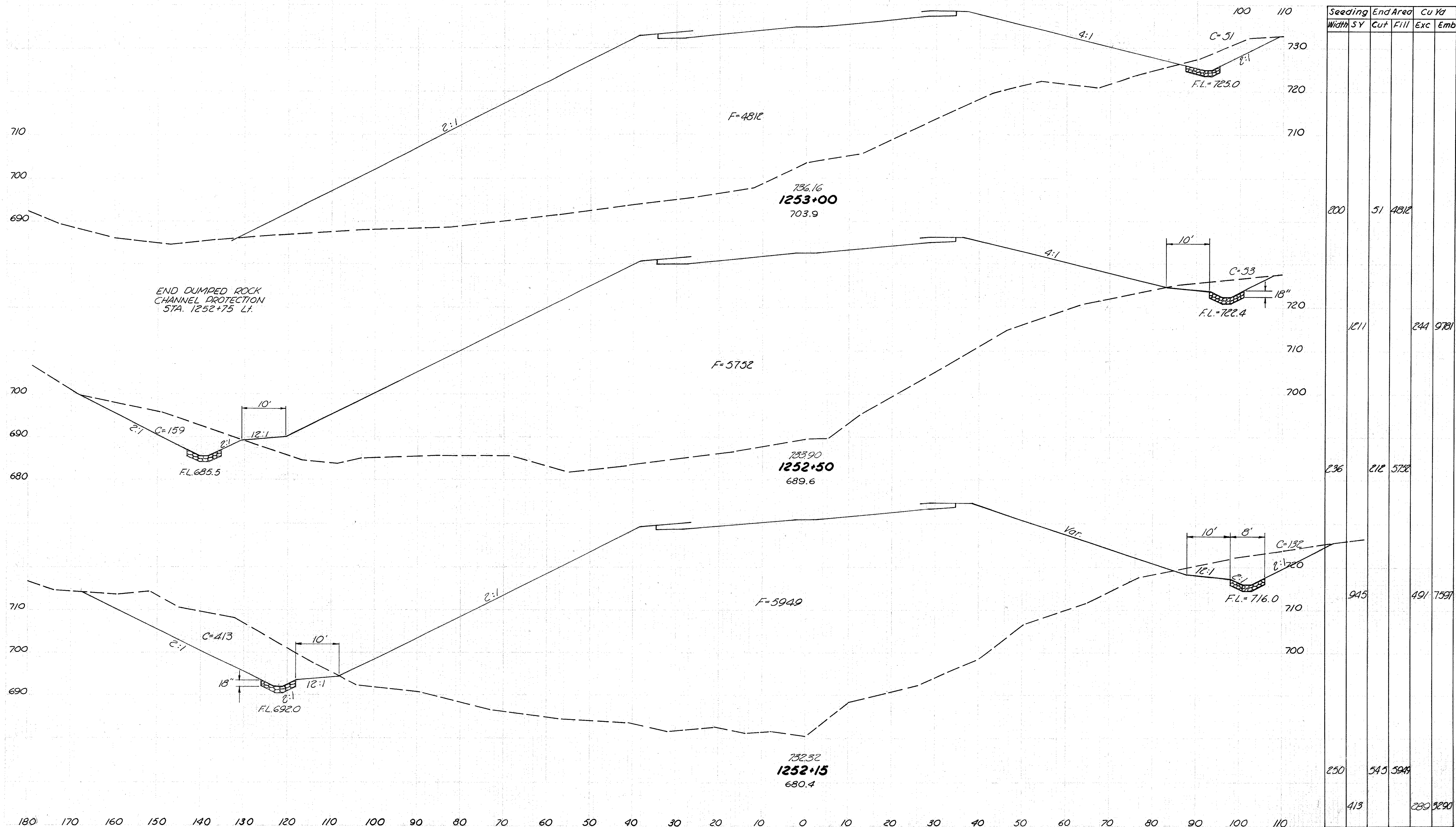
Seeding Width	S.Y.	End Area		Cu Yd	
		Cut	Fill	Exc	Emb
213		33	5925		
	1111			78	9092
187		51	3871		
	983			61	5103
167		15	1964		
	769			19	3056

STA. 1249+50 TO STA. 1250+50



JEF-7-23.37

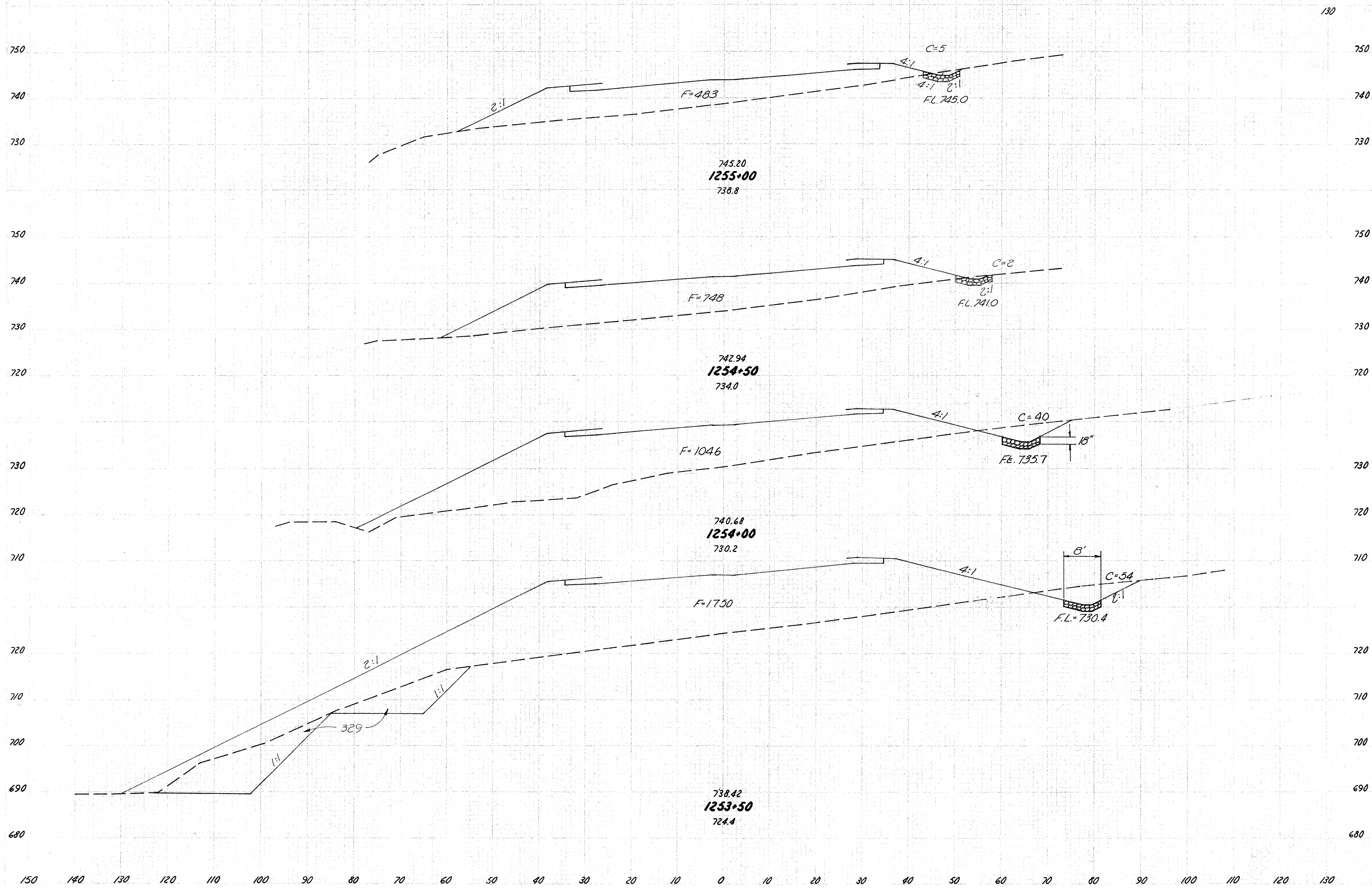






150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

JEF -7-23.37



Seeding Width S.Y.	End Area		Cu. Yds.	
	Cut	Fill	Exc.	Emb.
70	5	483		
408			6	1140
77	2	748		
503			39	1661
104	40	1046		
781			392	3477
177	383	2079		
1047			402	6964

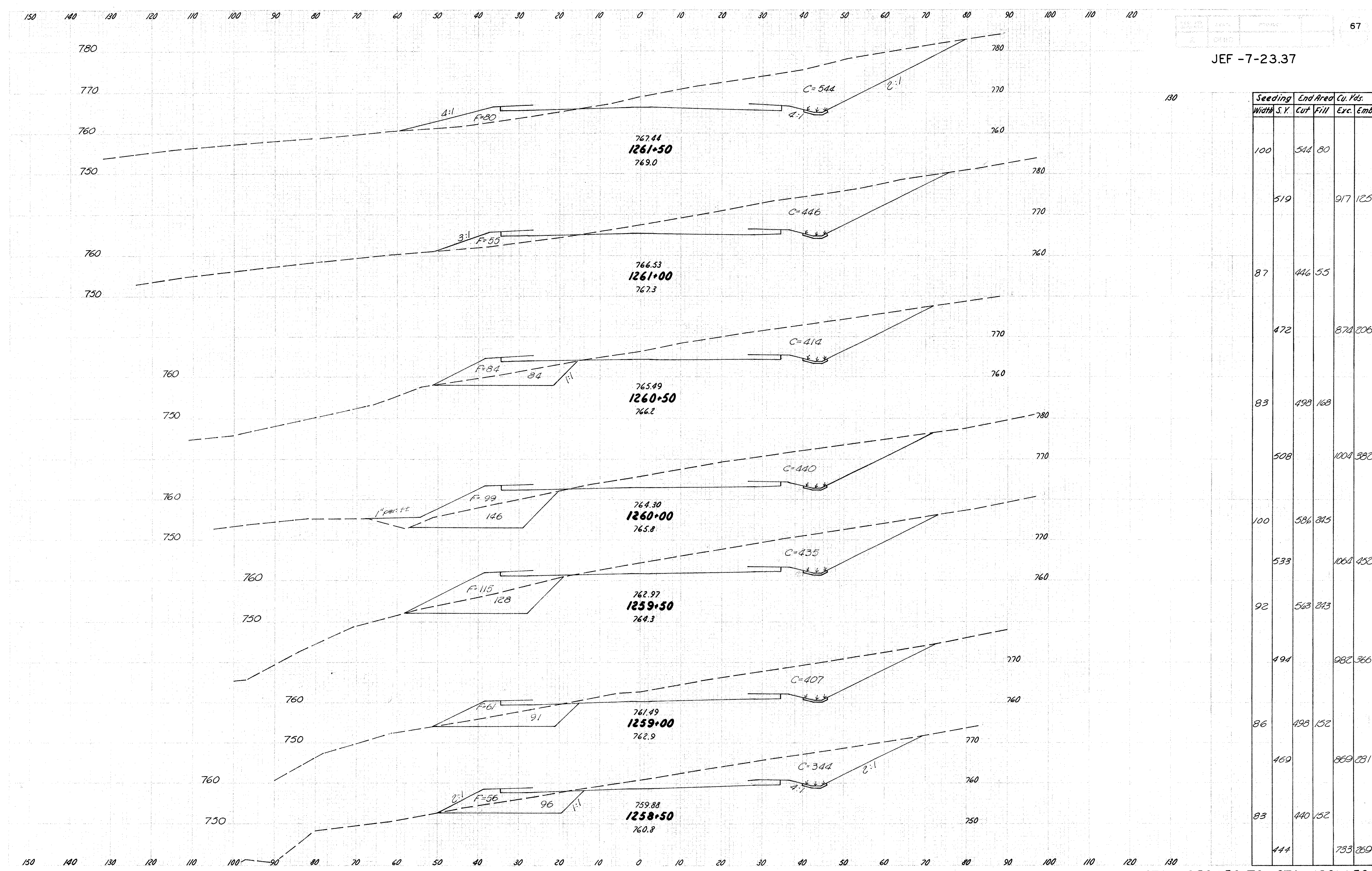
STA. 1253+50 TO STA. 1255+00

130



Seeding		End Area		Cu. Yds.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
77		352	139		
	556			799	844
123		511	773		
	819			1076	1002
172		651	1231		
	761			884	1506
102		304	346		
	267			601	1266
165		345	1021		
	897			531	2081
158		222	1221		
	633			217	1583



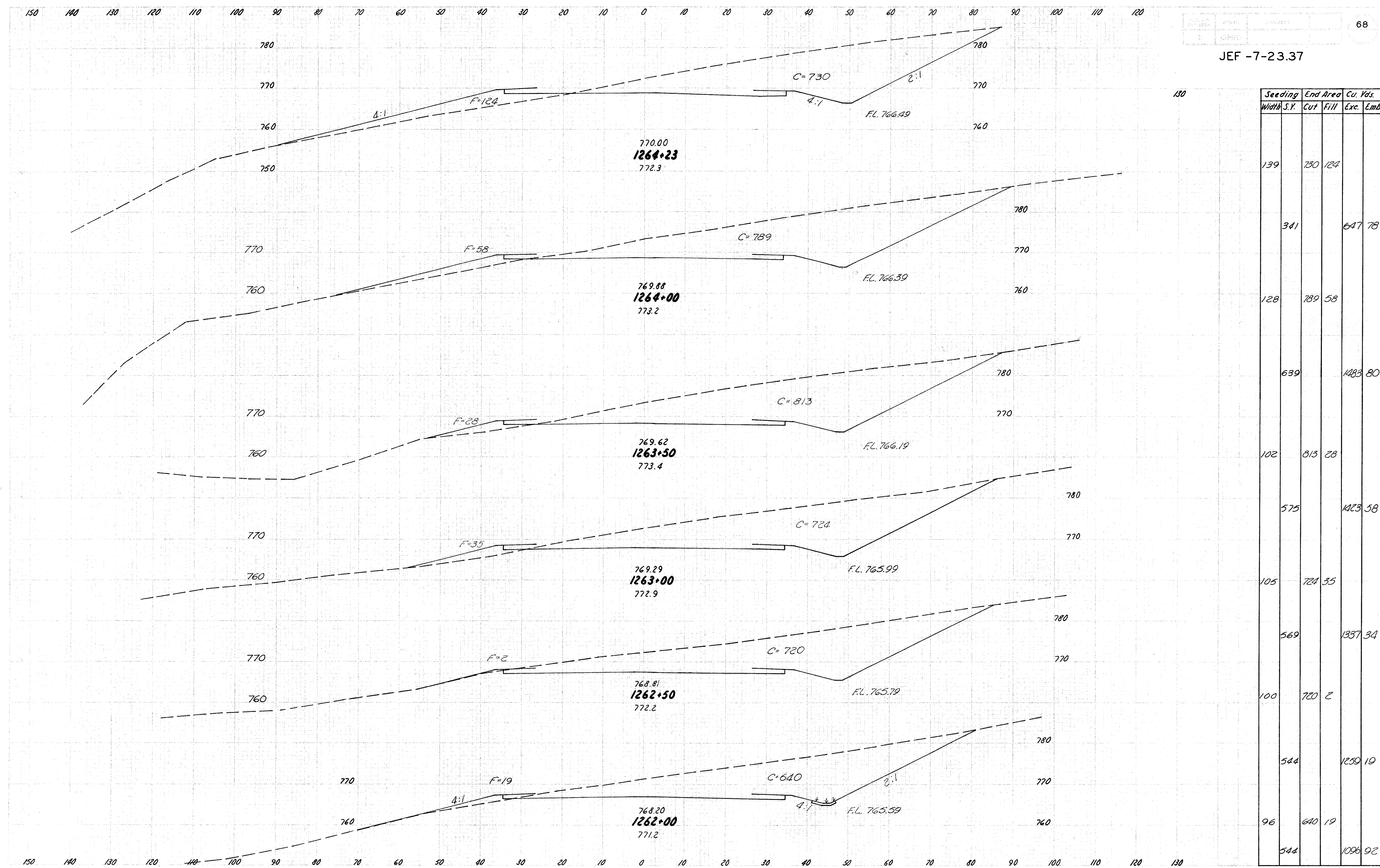


JEF -7-23.37

Seeding		End Area		Cu. Yds.	
Width	S. Y.	Cut	Fill	Exc.	Emb.
100		544	80		
		519		917	125
87		446	55		
		472		874	206
83		498	168		
		508		1004	382
100		586	245		
		533		1060	452
92		563	243		
		494		982	366
86		498	152		
		469		869	281
83		440	152		
		444		733	269

STA. 1258+50 TO STA. 1261+50

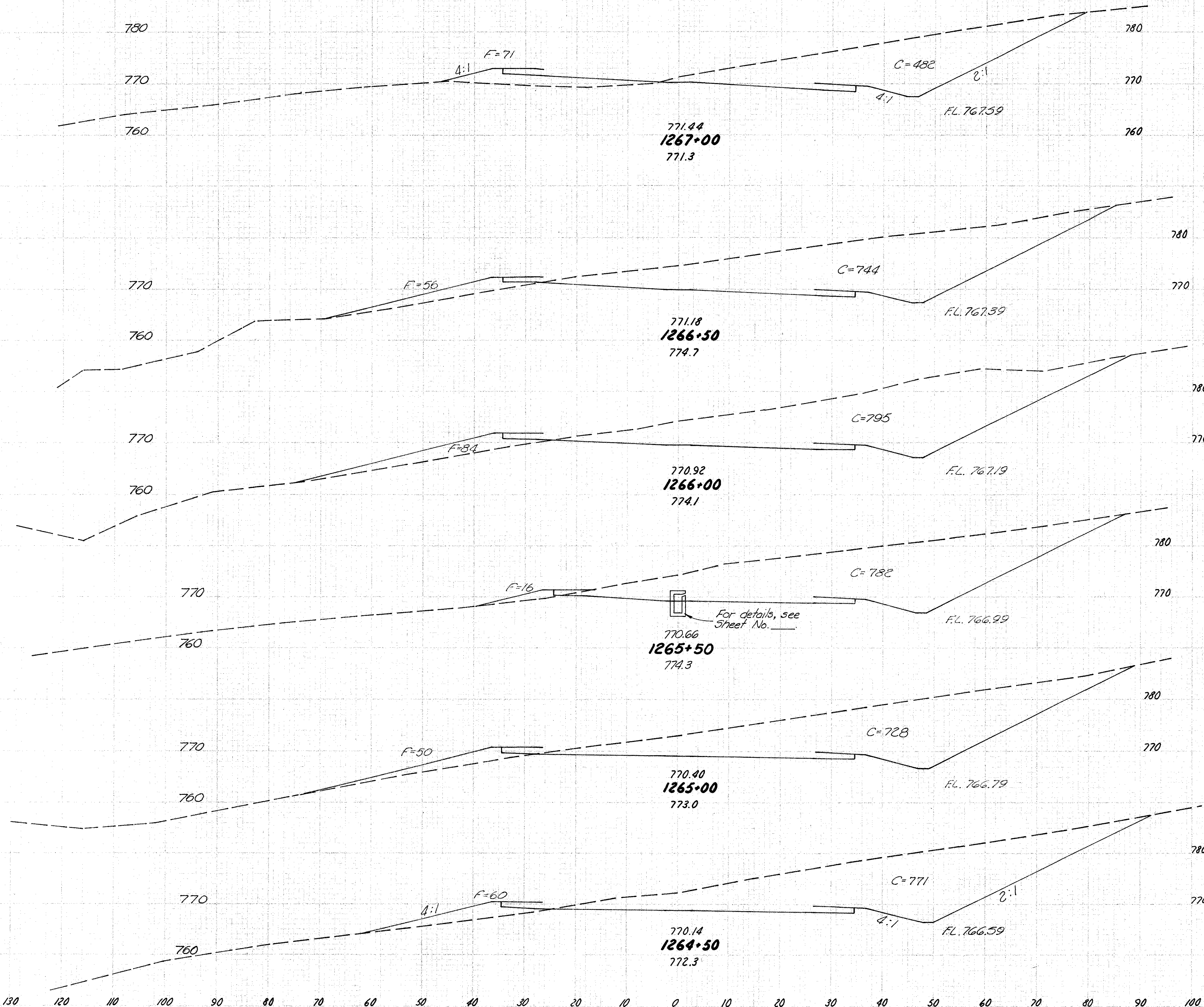






150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

JEF -7-23.37



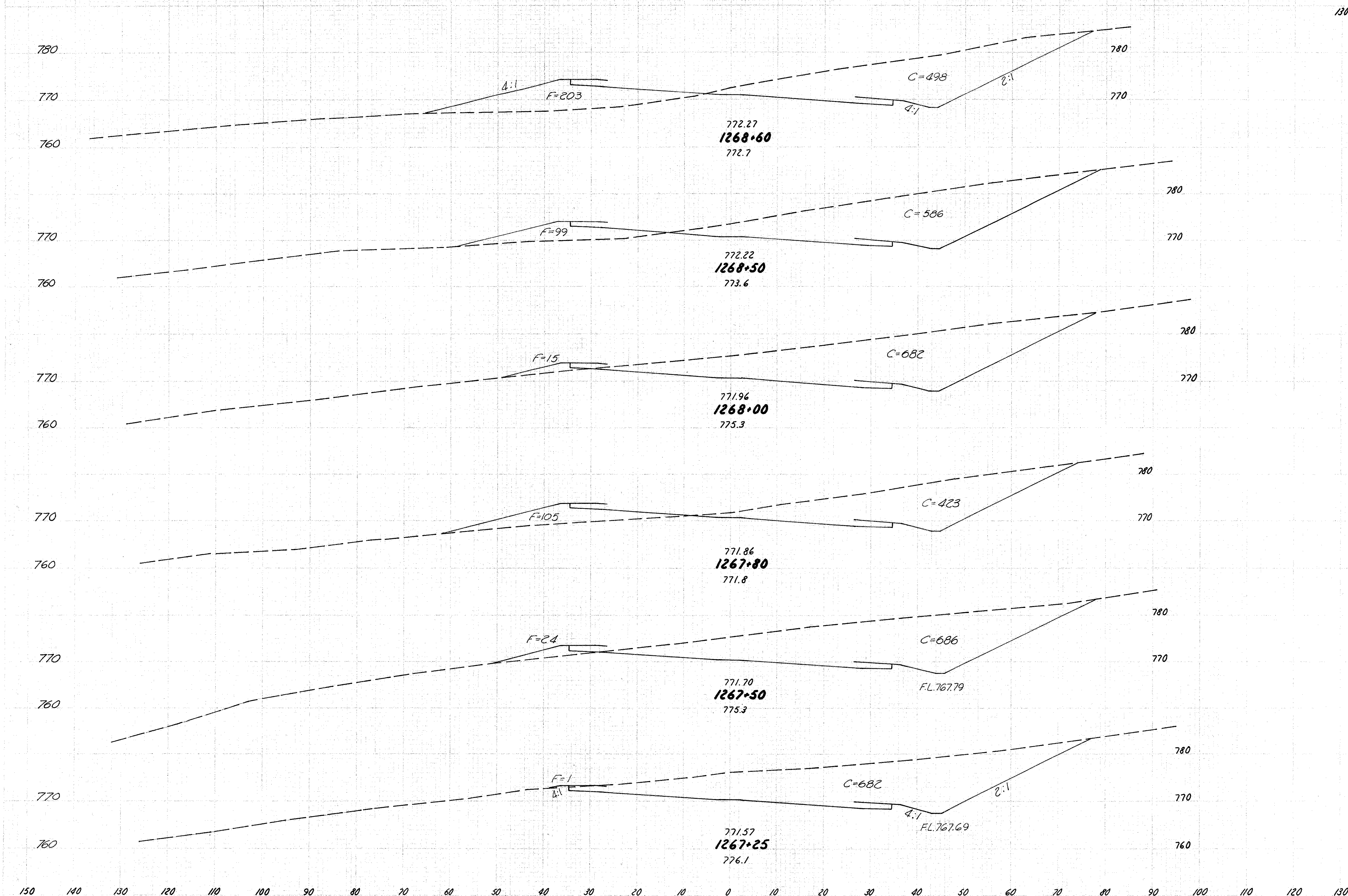
130

Seeding	End Area		Cu. Yds.	
	Width S.Y.	Cut	Fill	Exc. Emb.
85		482	71	
553				1135 118
114		744	56	
667				1425 130
126		795	84	
619				1460 93
97		782	16	
611				1308 61
123		728	50	
639				1388 102
116		771	60	
383				751 92

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

STA 1264+50 TO STA 1267+00

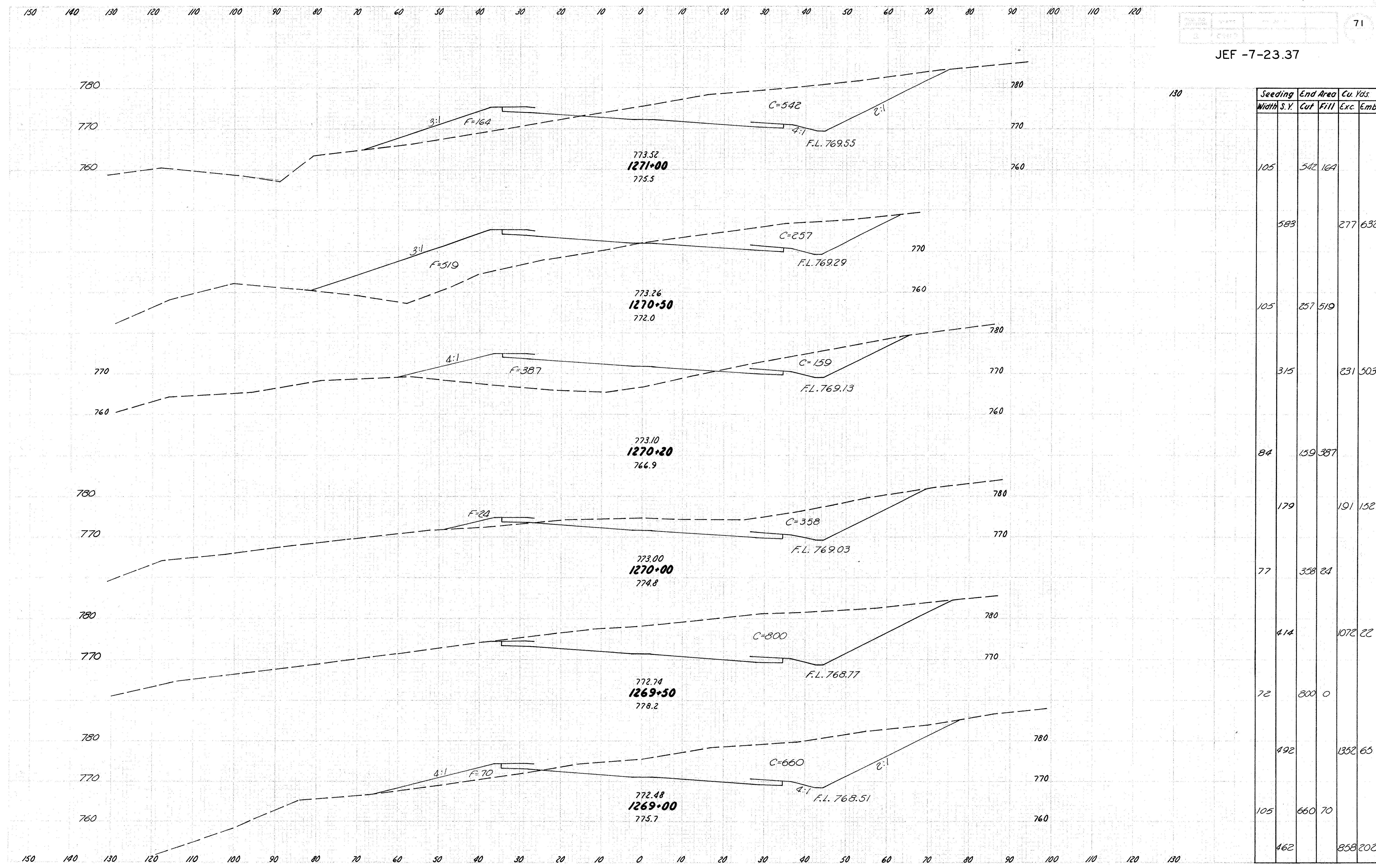
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120



Seeding	End Area		Cu. Yds.	
	Width S.Y.	Cut	Fill	Exc. Emb.
103		498	203	
1111				201 56
97		586	99	
511				1774 106
87		682	15	
202				409 44
95		423	105	
308				616 72
90		686	24	
229				633 12
75		682	1	
222				539 33

STA. 1267+25 TO STA. 1268+60





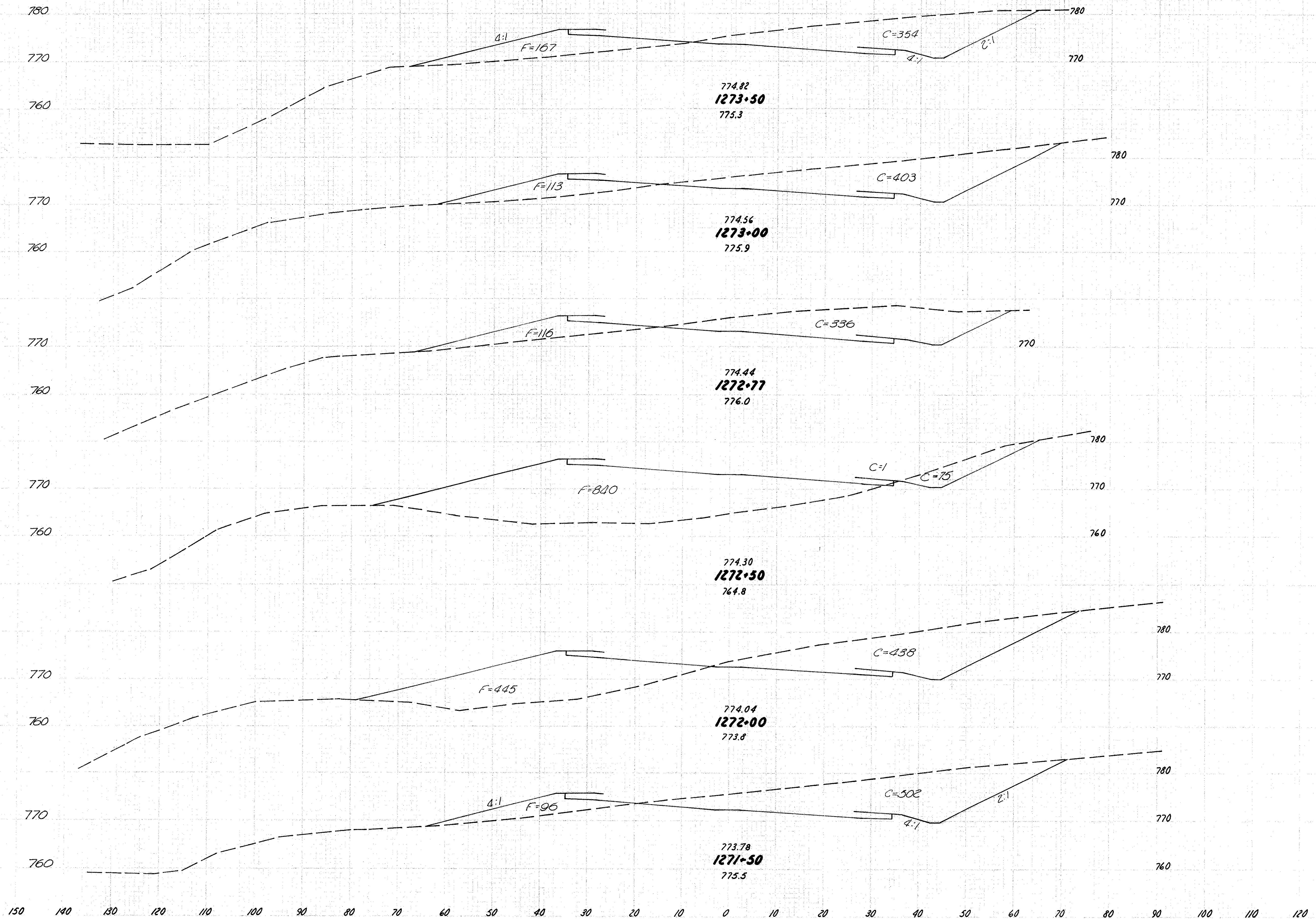
JEF -7-23.37

Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
105		542	164		
	583			277	632
105		257	519		
	315			231	503
84		159	387		
	179			191	152
77		358	24		
	414			1072	22
72		800	0		
	492			1352	65
105		660	70		
	462			858	202

STA 1269+00 TO STA 1271+00

JEF -7-23.37

72

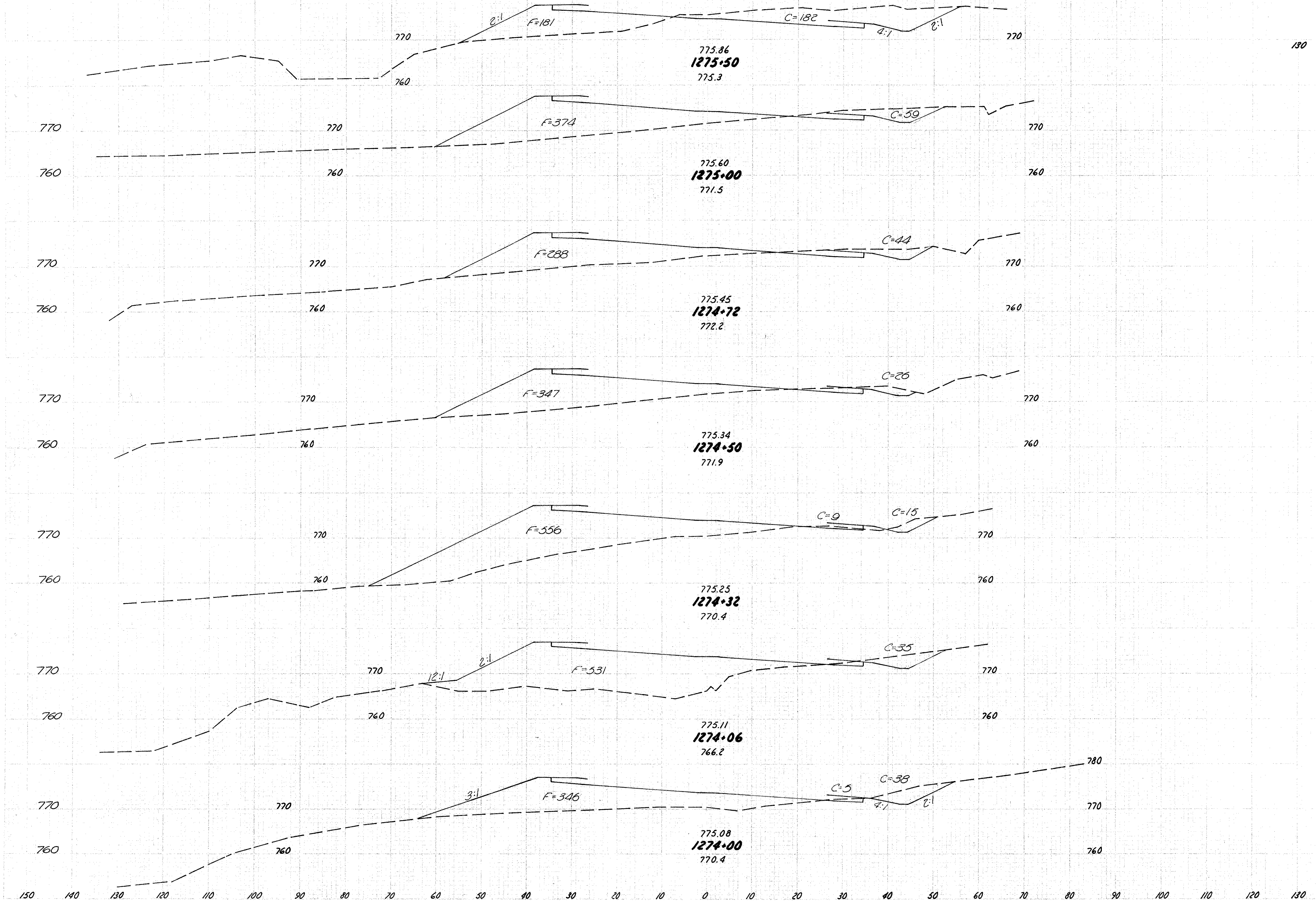


Seeding Width S.Y.	End Area		Cu. Yds.	
	Cut	Fill	Exc.	Emb.
91	354	167		
	503		701	259
90	403	113		
	217		999	309
80	336	116		
	269		206	478
99	76	840		
	586		476	1190
112	438	445		
	572		870	501
94	502	96		
	553		967	210

STA 1271+50 TO STA 1273+50



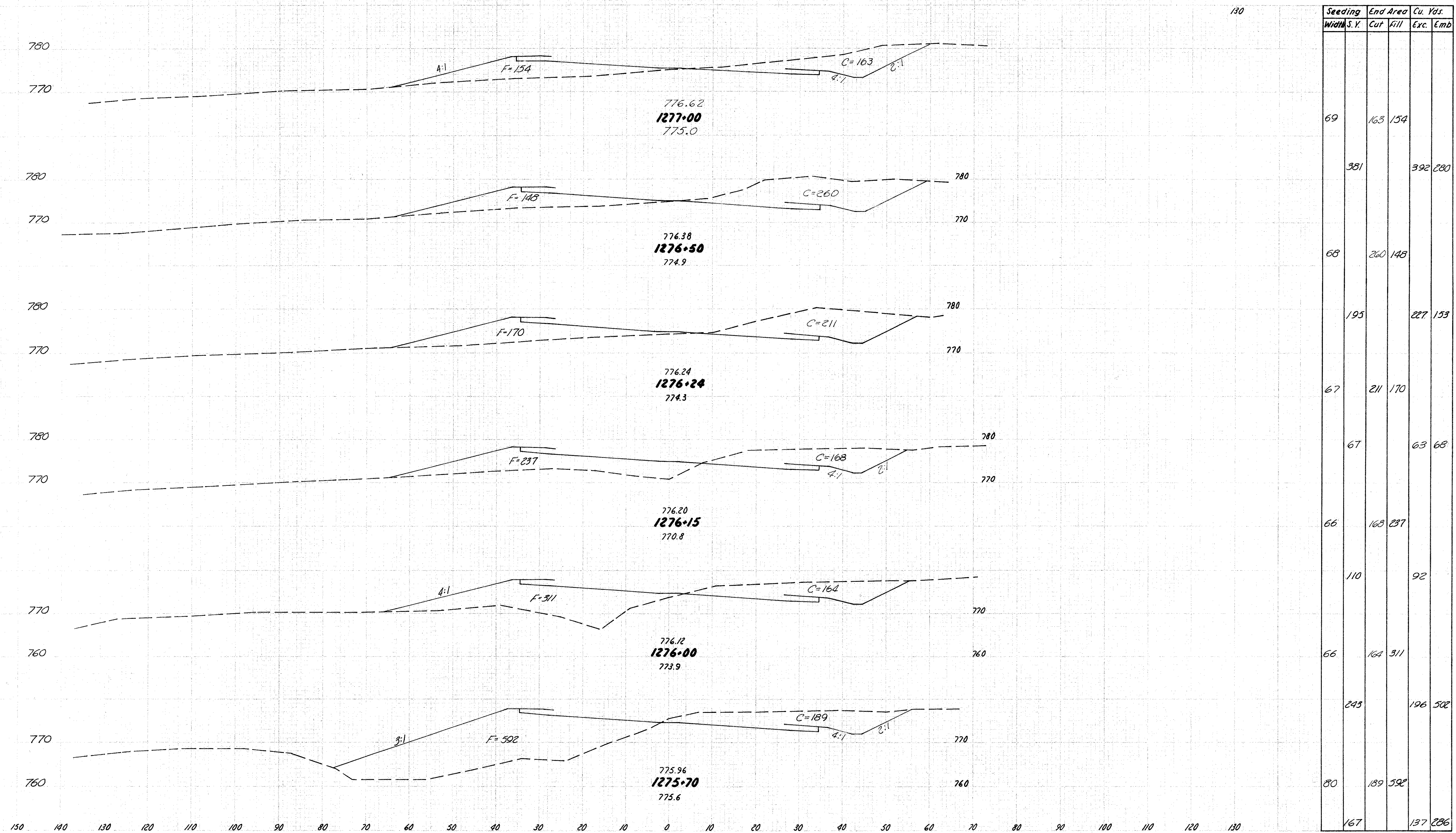
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120



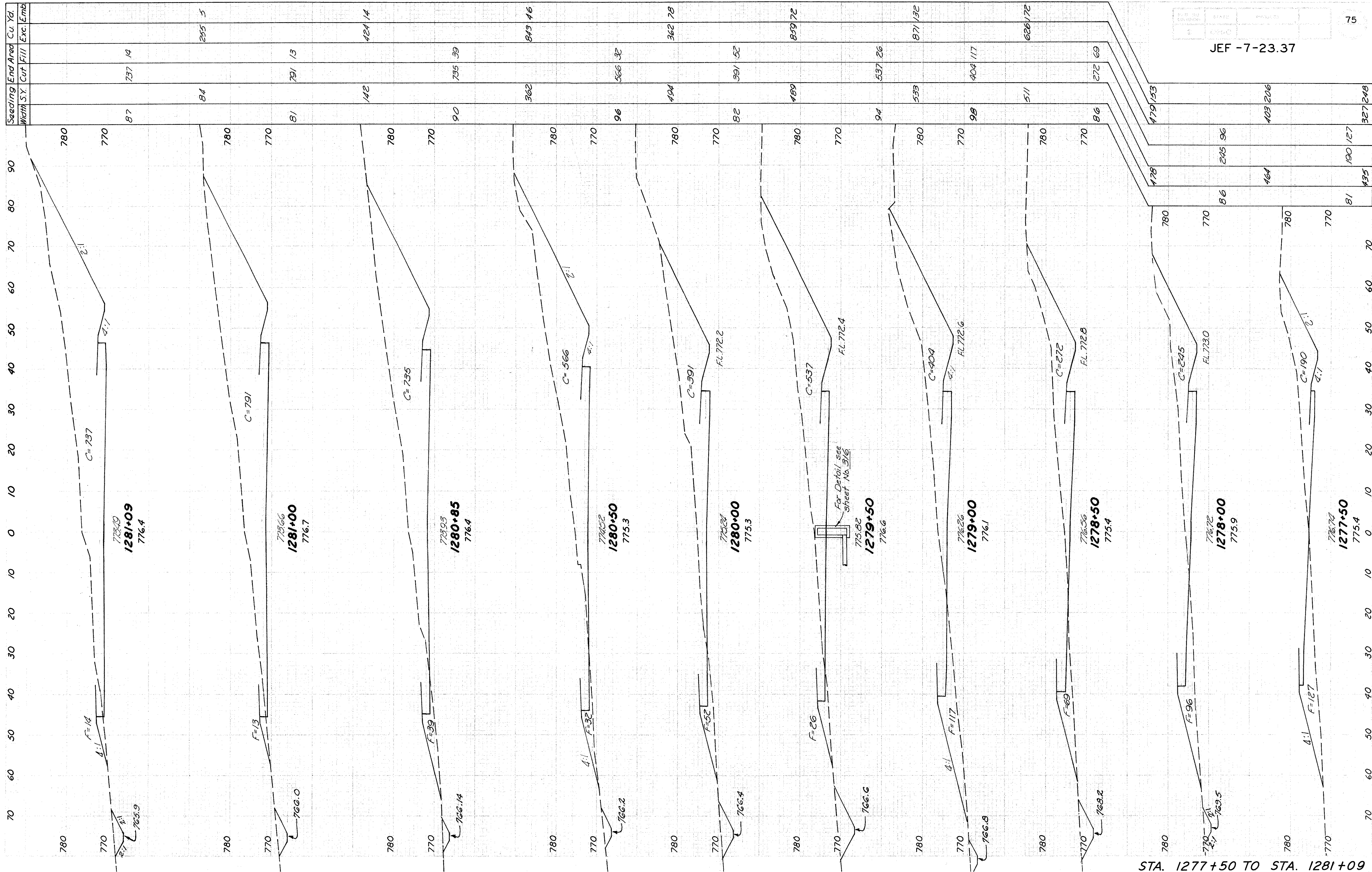
Seeding Width S.Y.	End Area		Cu. Yds.	
	Cut	Fill	Exc.	Emb.
70	182	181		
339			223	514
52	59	374		
184			53	343
66	44	288		
159			29	259
64	26	347		
150			17	301
86	24	556		
233			28	523
75	35	531		
51			9	97
77	43	346		
467			368	475

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

JEF -7-23.37





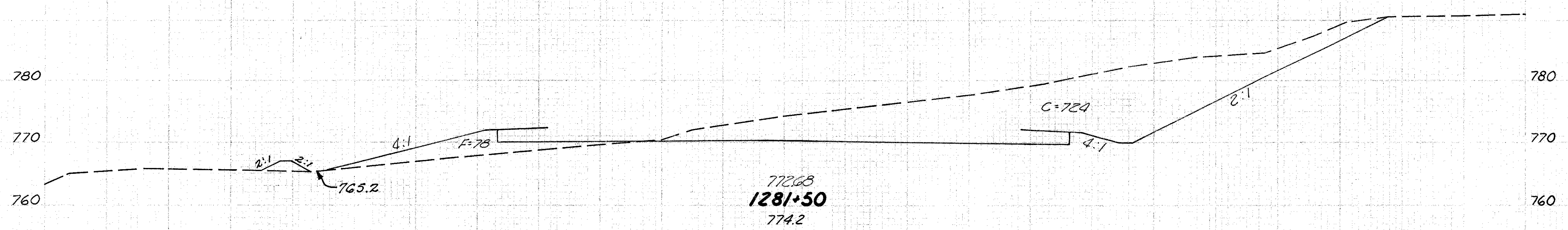


STA. 1277+50 TO STA. 1281+09

JEF -7-23.37



130 140



Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
69		428	6		
	431			1040	38
86		695	35		
	522			1333	93
102		705	65		
	564			1369	113
101		733	57		
	581			1349	125
108		724	78		
	444			1109	70

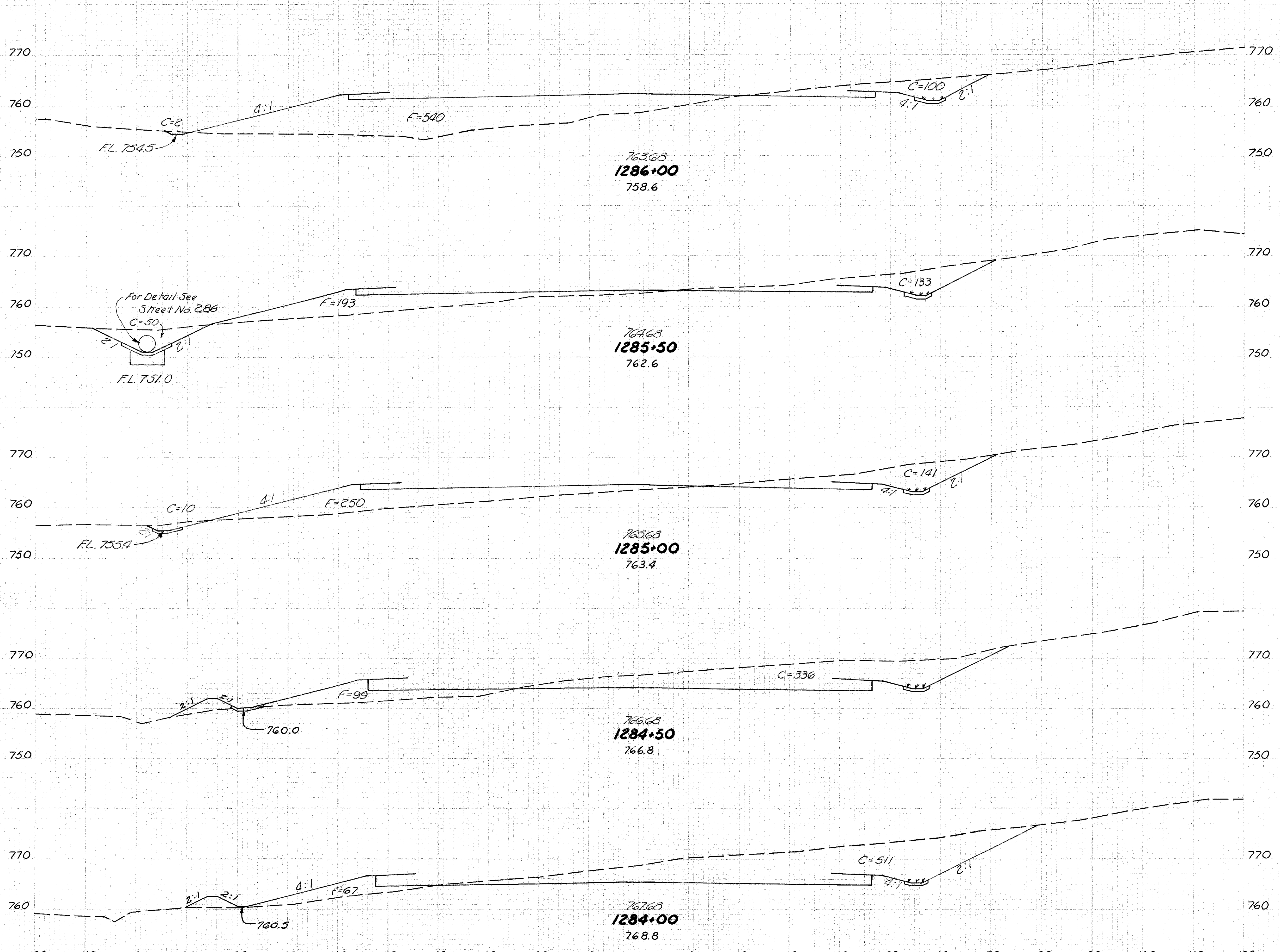
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

STA. 1281+50 TO STA. 1283+50



150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

JEF -7-23.37



Seeding Width	S. Y.	End Area		Cu. Yd.	
		Cut	Fill	Exc.	Emb.
87		102	540		
	533			264	679
105		183	193		
	556			309	410
95		151	250		
	181			451	323
78		336	99		
	461			784	154
88		511	67		
436				869	68

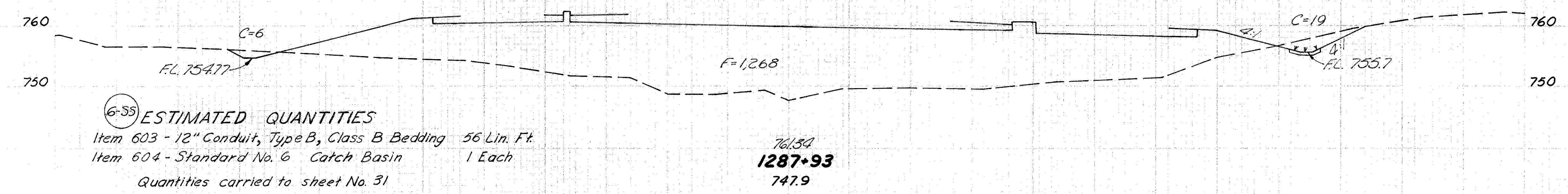
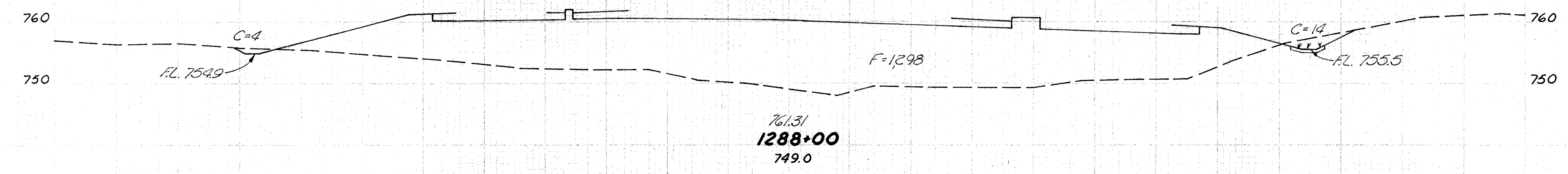
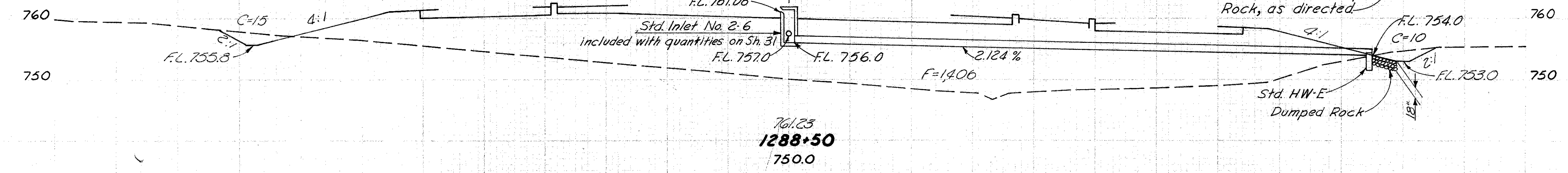
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 1284+00 TO STA. 1286+00

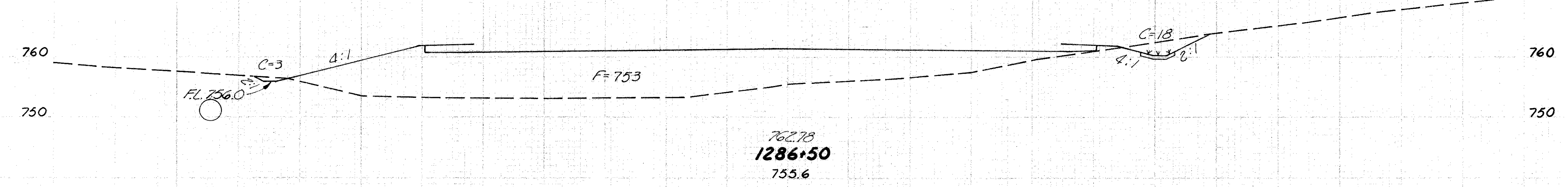
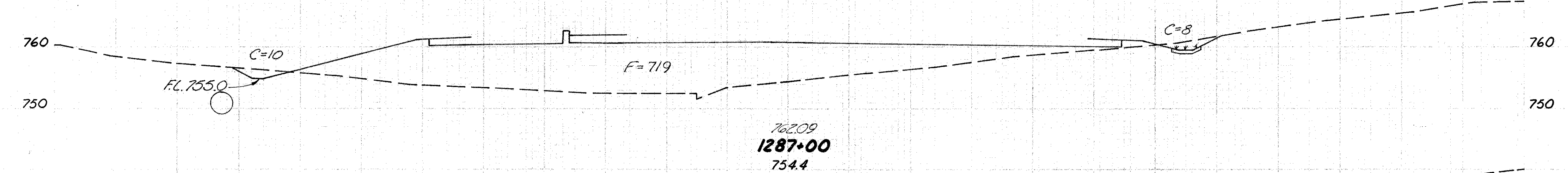
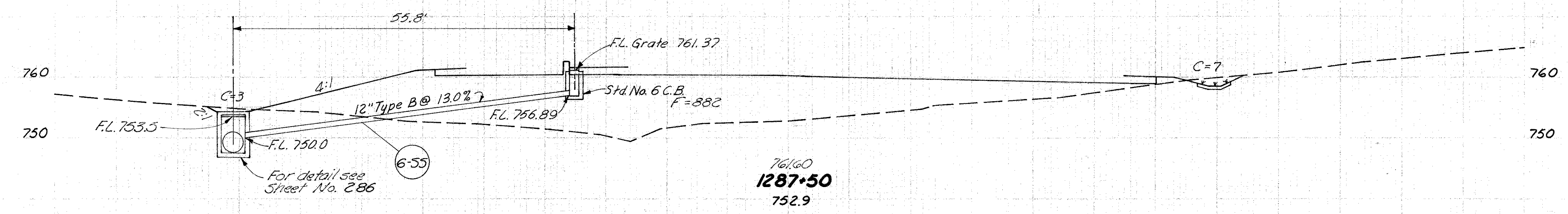
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

JEF-7-23.37

**ESTIMATED QUANTITIES**  
item 603-12" Conduit, Type B, Class B bedding 96 Lin. Ft.  
item 602-Concrete Masonry 0.3 Cu. Yd.  
item 601-Dumped Rock Channel Protection 1 Cu. Yd.  
Quantities carried to Sheet No. 31



**ESTIMATED QUANTITIES**  
Item 603 - 12" Conduit, Type B, Class B Bedding 56 Lin. Ft.  
Item 604 - Standard No. 6 Catch Basin 1 Each  
Quantities carried to sheet No. 31



Seeding	End Area		Cu. Yd.	
	Width S. Y.	Cut	Fill	Exc. Emb.
91	25	1406		
483			40	2504
83	18	1298		
67			6	333
88	25	1268		
397			28	1712
78	10	834		
428			26	1482
76	18	719		
411			36	1363
72	21	753		
142			114	1197

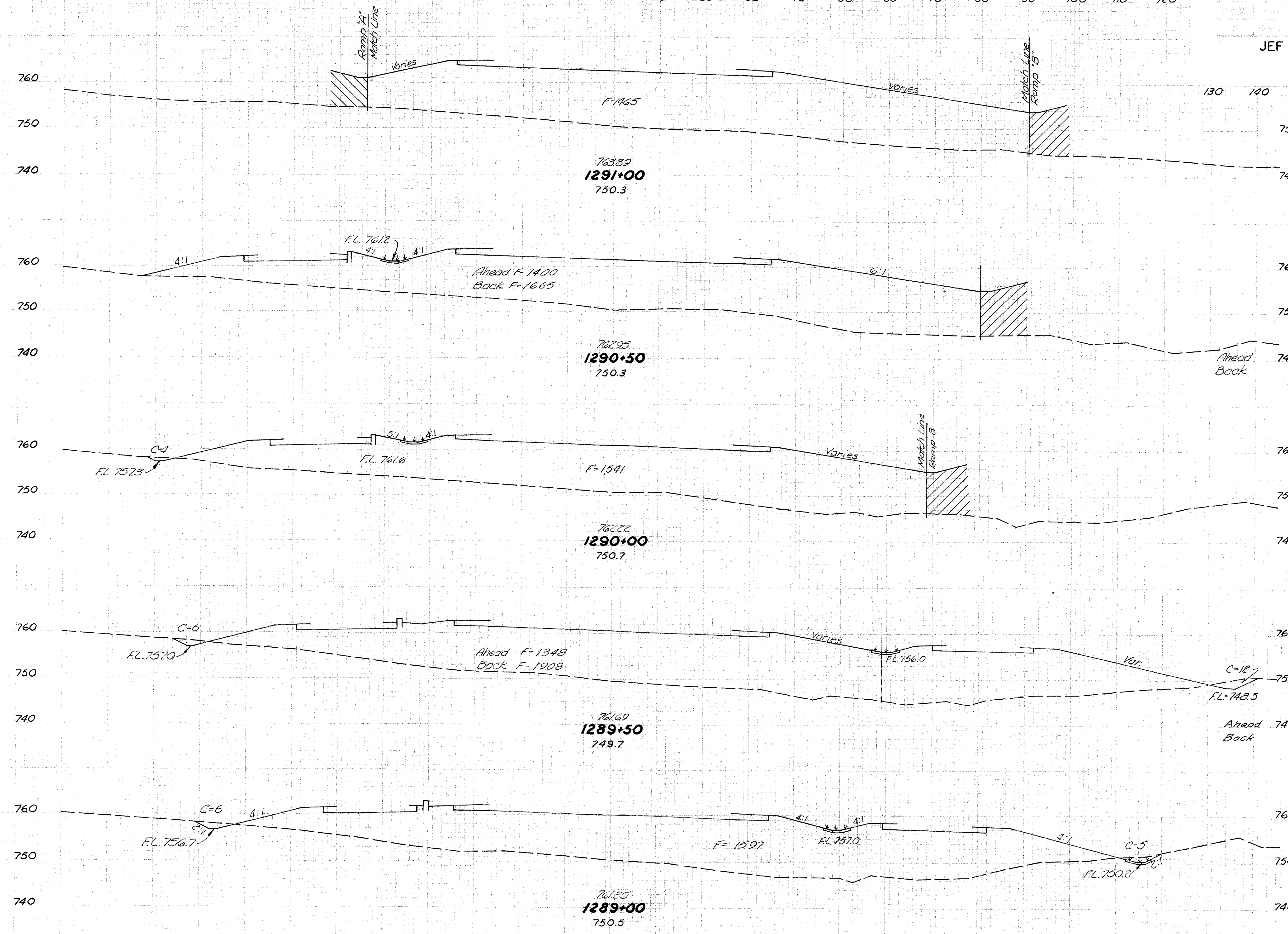
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA 1286+50 TO STA 1288+50



150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

JEF - 7-23.37



	Seeding	End Area		Cu Yd		
	Width	S.Y.	Cut	Fill	Exc	Emb
50						
10	77		0	1465		
		408			0	2653
60						
50						
10	70		0	1400		
	104		0	1665		
0		547			4	2969
0						
0						
0	93		4	1541		
		506			9	2675
0						
0						
0	89		6	1348		
	128		18	2032		
0		697			27	3360
0						
0						
0	123		11	1597		
		594			33	2781

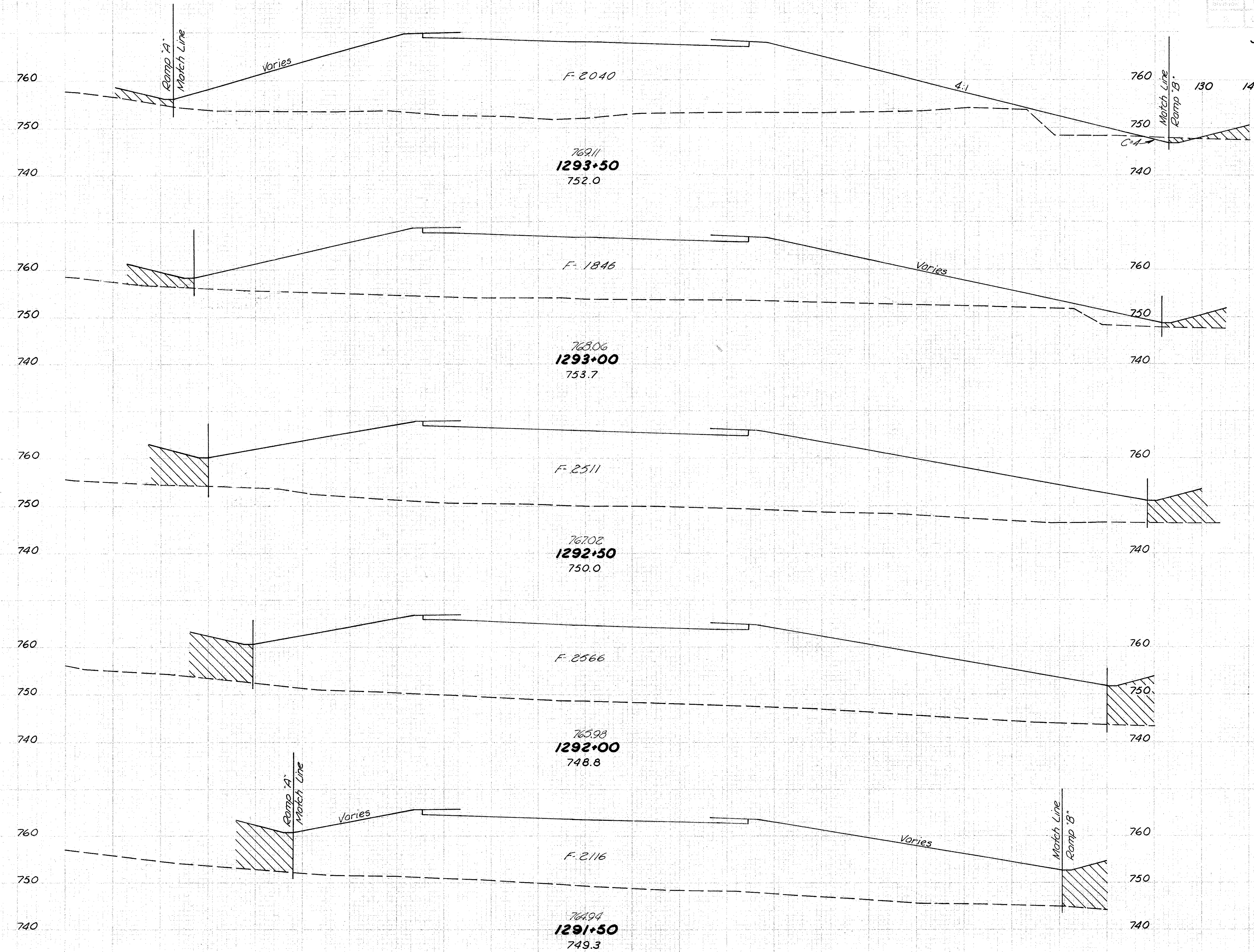
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA 1289+00 TO STA 1291+00



150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

JEF - 7-23.37



Seeding	Width S.Y.	End Area		Cu Yd	
		Cut	Fill	Exc	Emb
	146	4	2040		
	792			4	3398
	139	0	1846		
	753			0	4034
	132	0	2511		
	683			0	4701
	114	0	2566		
	581			0	4335
	95	0	2116		
	478			0	3316

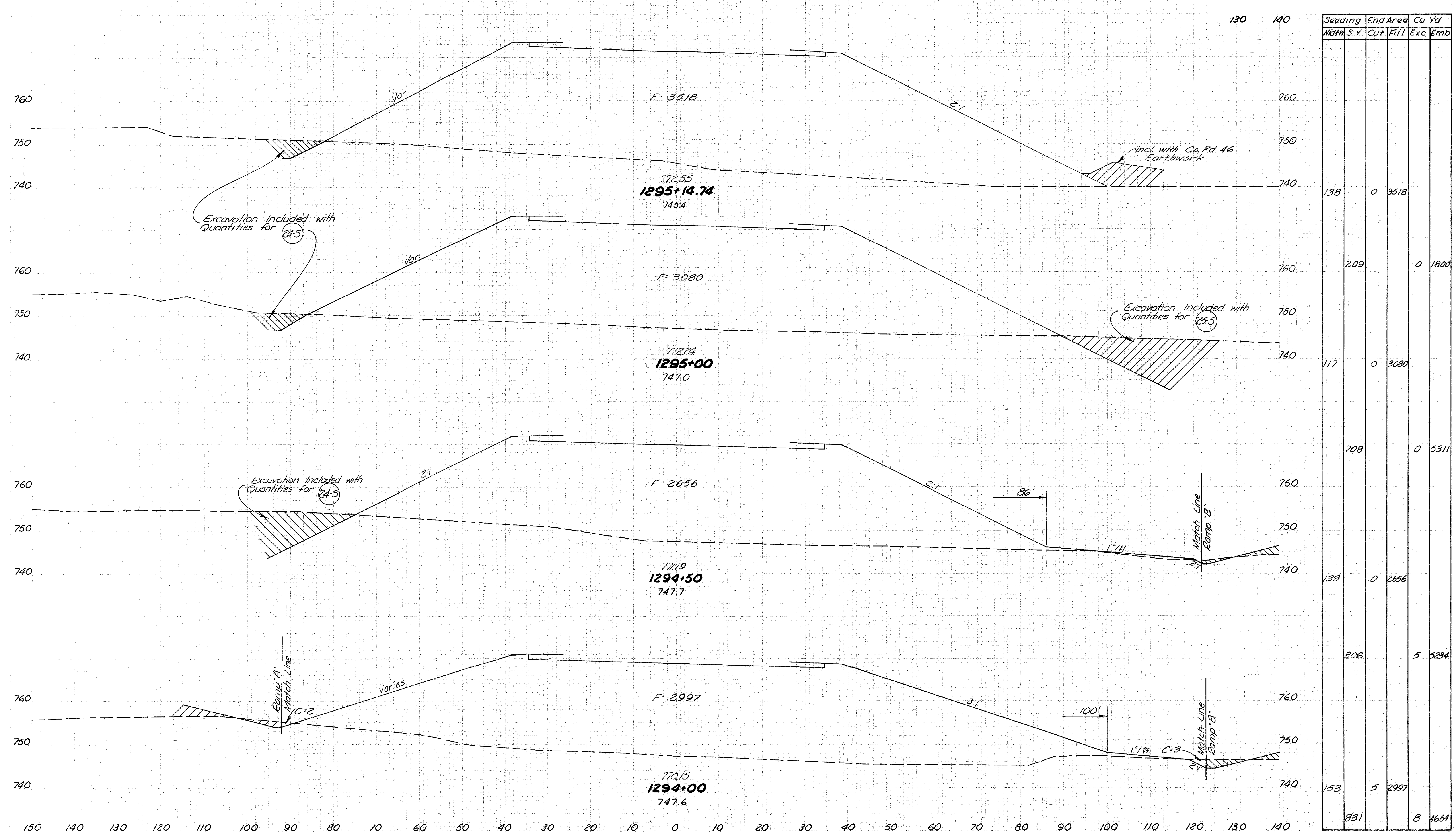
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA 1291+50 TO STA 1293+50



150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

JEF-7-23.37

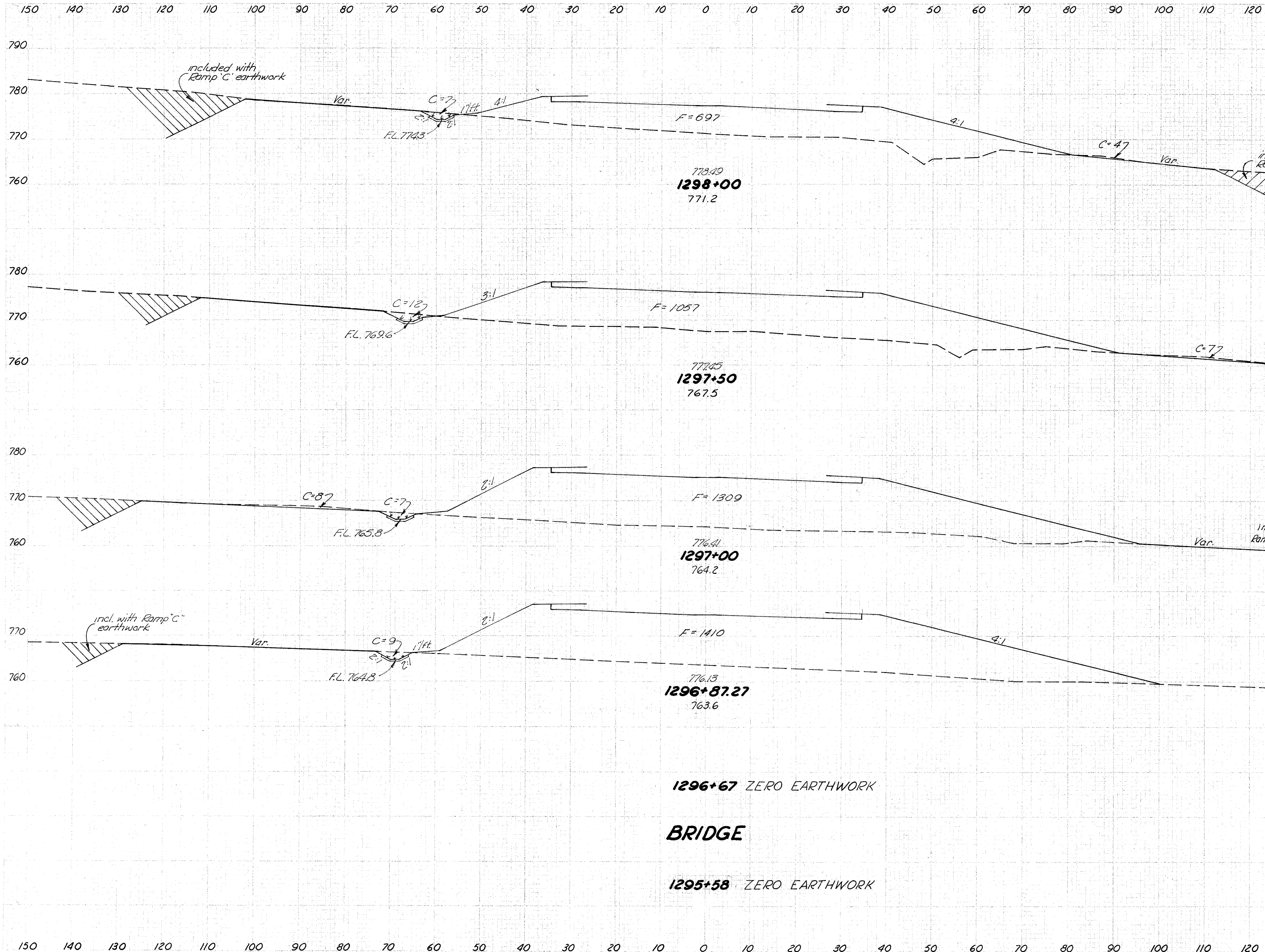


Stationing	End Area		Cu Yd	
	Width S. Y.	Cut Fill	Exc	Emb
138	0	3518		
209			0	1800
117	0	3080		
708			0	5311
138	0	2656		
808			5	5234
153	5	2997		
831			8	4664

STA. 1294+00 TO STA. 1295+14.7



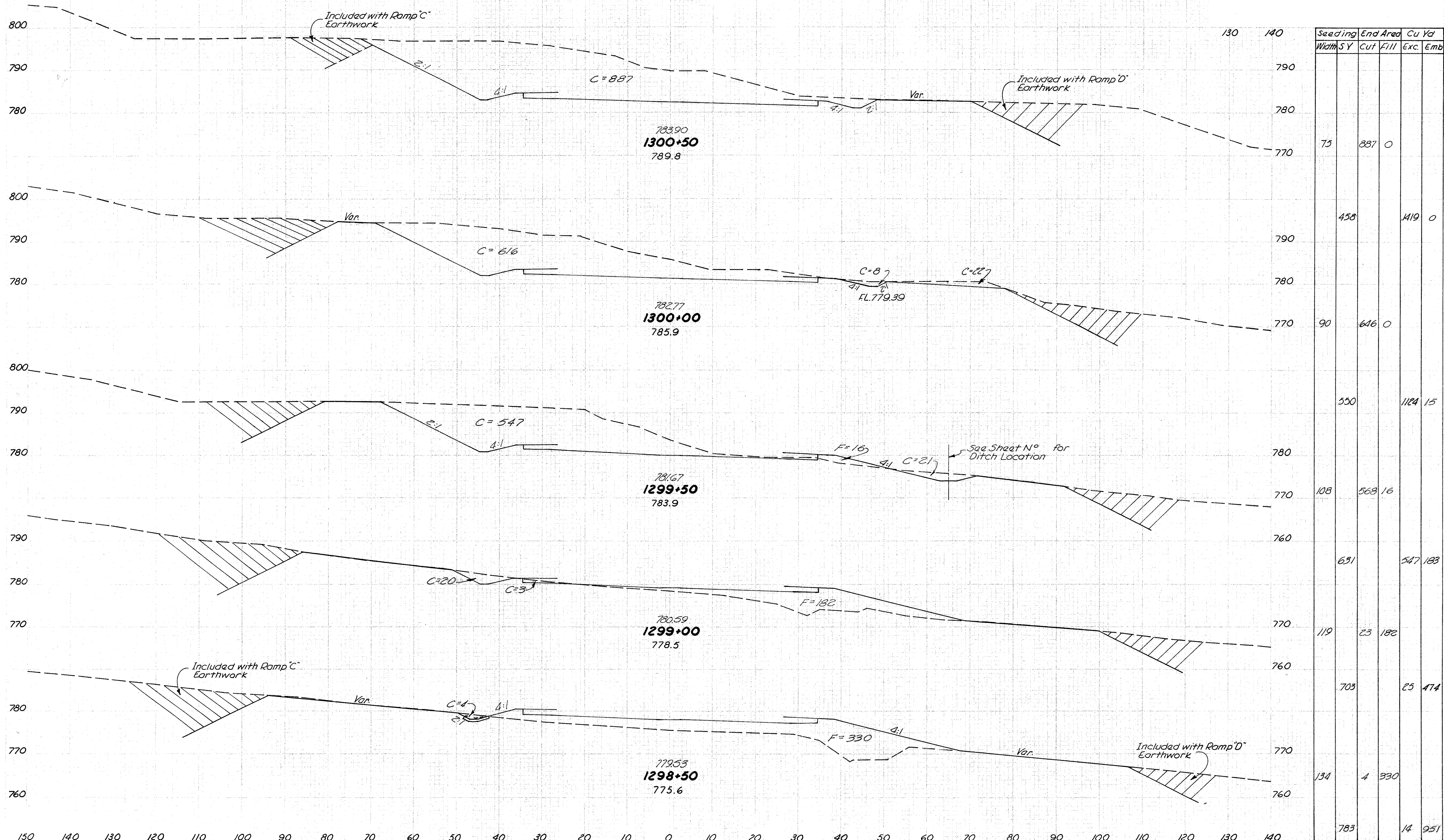
130	140	Seeding		End Area		Cu Yd	
		Width	S. Y.	Cut	Fill	Exc.	Emb.
	770						
ended with 10" D" earthwork	760	148		11	697		
	780		883			28	1624
	770						
	760	170		19	1057		
	780		1000			31	2191
	770						
ended with 10" earthwork	760	190		15	1309		
	770		269			24	641
	760	191		9	1410		
			277			3	530
		55		0	0		
		0		0	0		
			332			0	2818
130	140						





150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

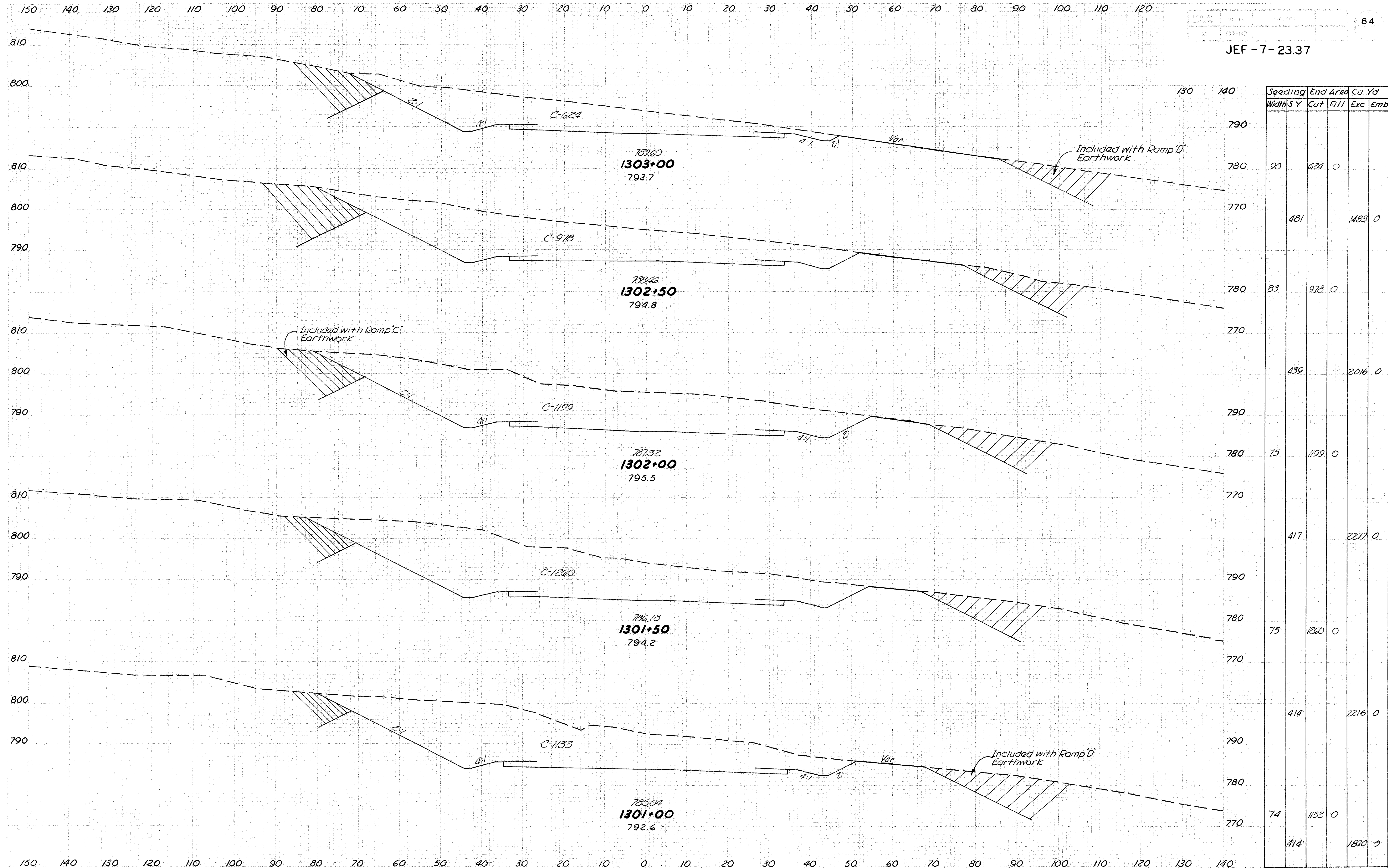
JEF-7-23.37



STA. 1298+50 TO STA. 1300+50



130 140



STA. 1301+00 TO STA. 1303+00



80 90

Seeding End Area Cu. Yd.  
Width S.Y. Cut Fill Exc. Emb.

830  
820  
810

Included with Ramp "C"  
Earthwork

C=146  
2:1 4:1

794.16  
**1305+00**  
792.8

F=319

830  
820  
810

800  
790  
780

Match Line Ramp "D"

96 146 319

800  
790

C=508

F=91

4:1

793.02  
**1304+50**  
795.4

C=18  
780  
Var.

92 521 91

800  
790

C=784

1/2" per ft.

Var.

F=37

791.88  
**1304+00**  
796.4

800  
790

800  
790

C=634

2:1 4:1

1/2" per ft.

Var.

790.74  
**1303+50**  
794.1

790  
780

included with  
Ramp "D" earthwork

85 784 3

800  
790

472 634 0

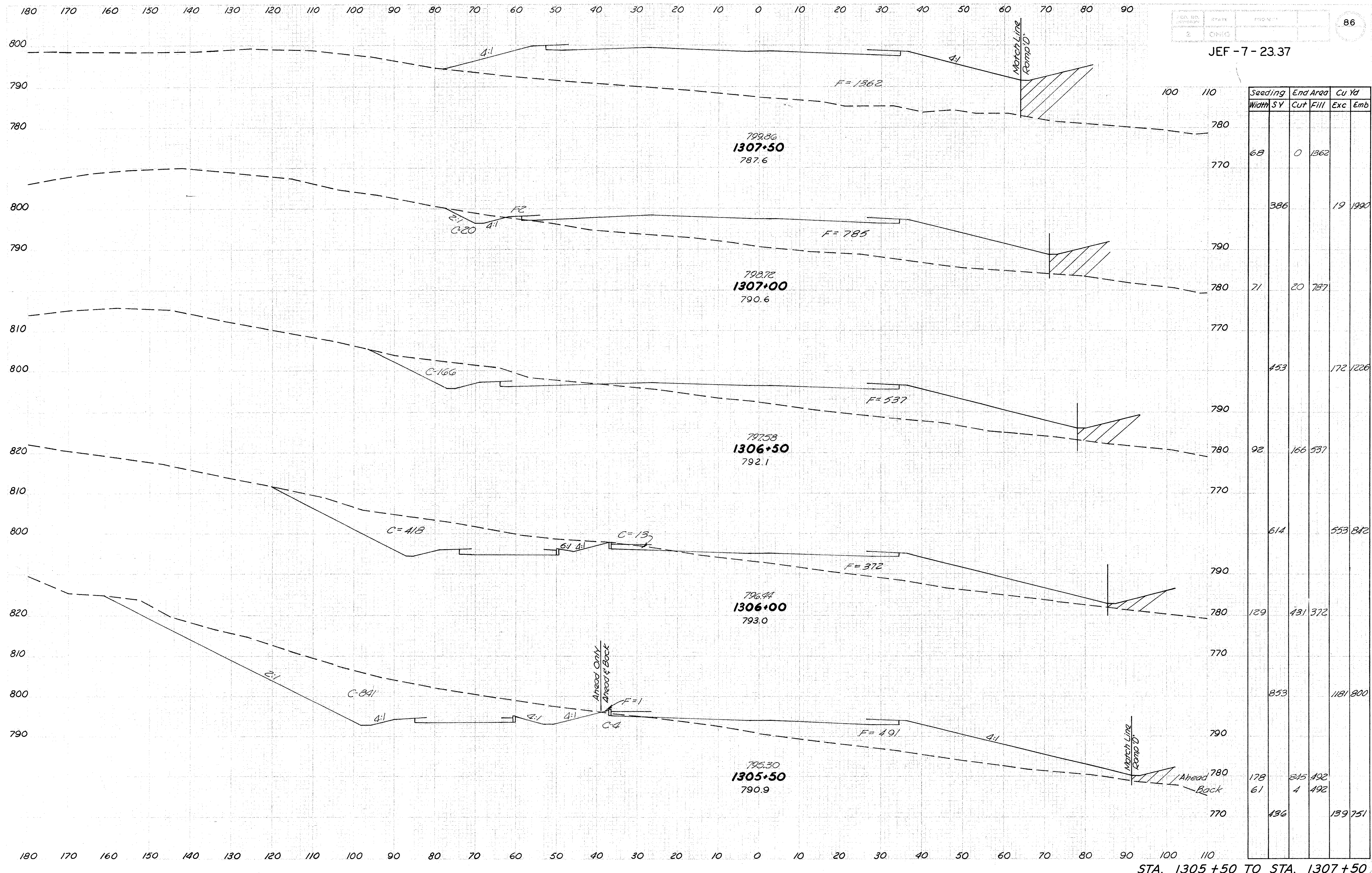
85 780

200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90

486 1165 0

STA. 1303+50 TO STA. 1305+00



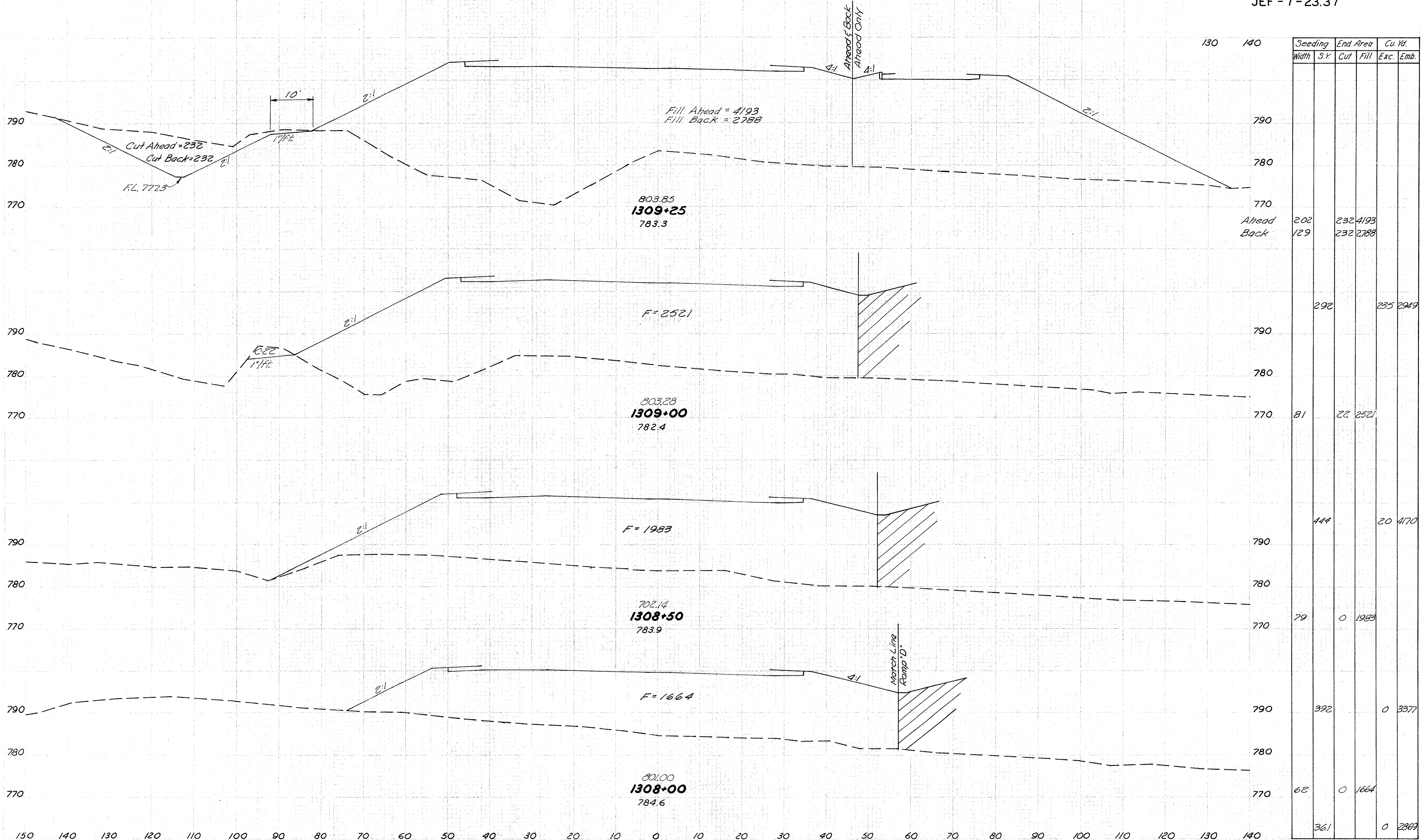




150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

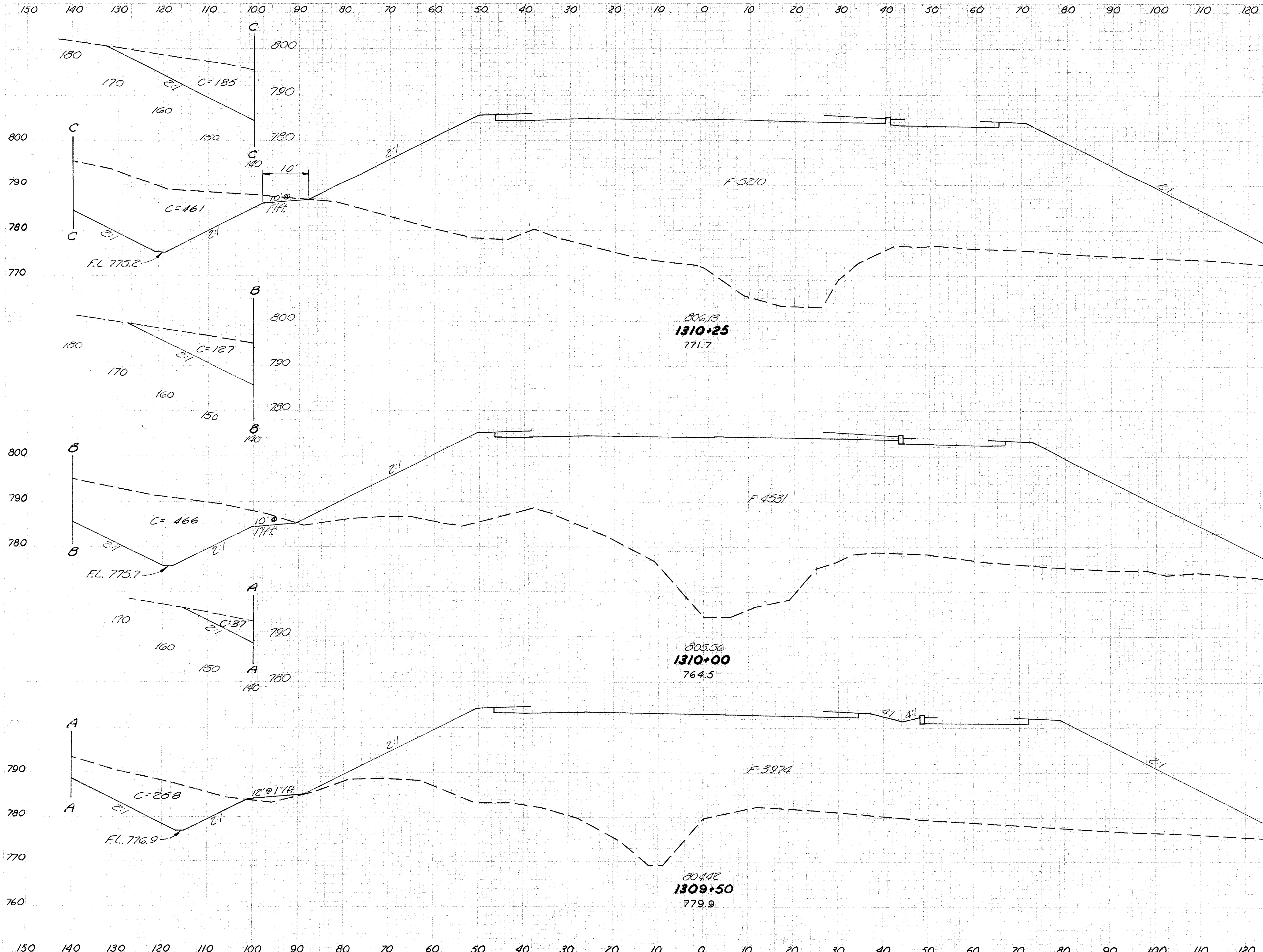
NO. 10	STATE	PROJECT
2	OHIO	

JEF - 7 - 23.37

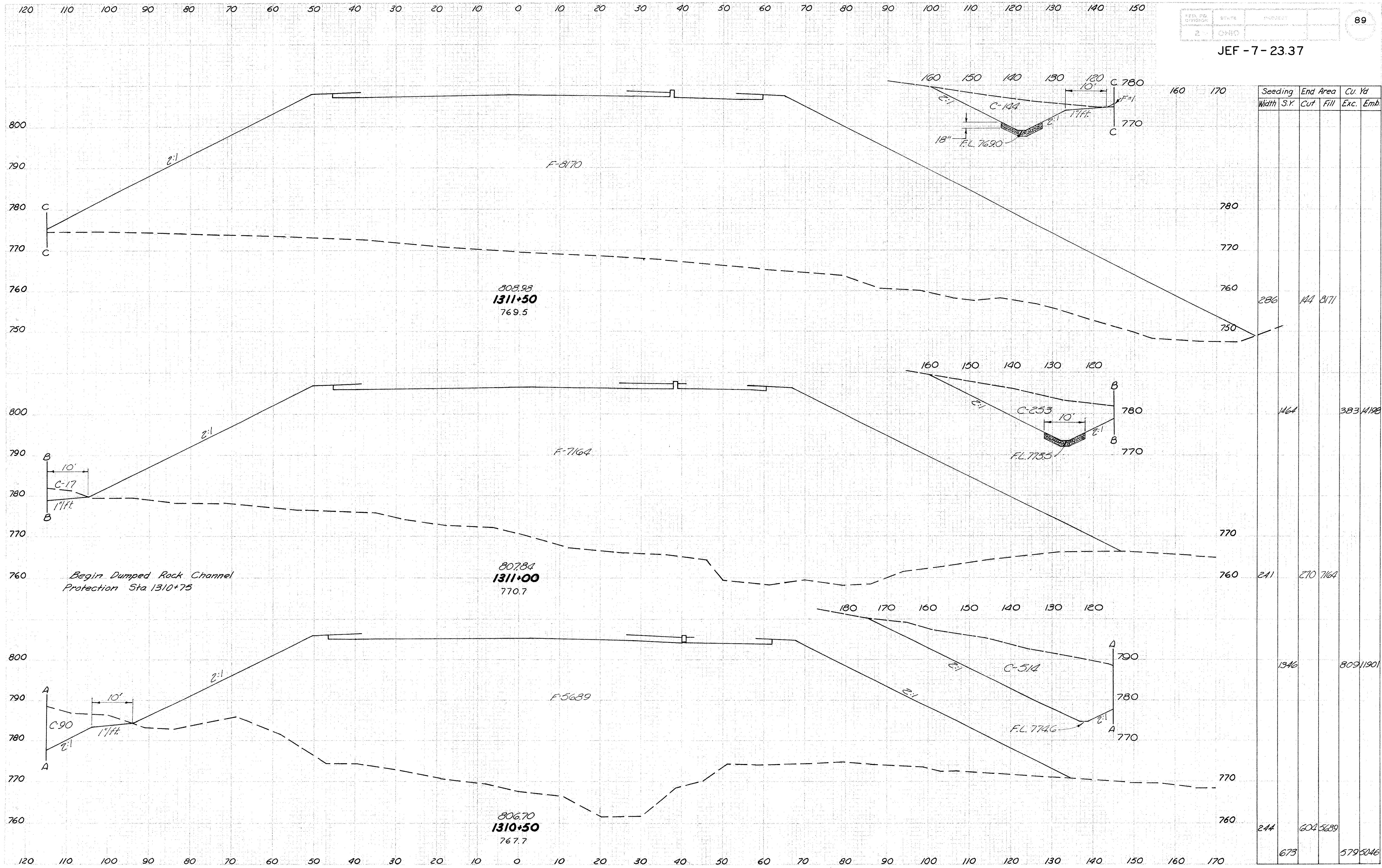




130	140	Seeding		End Area		Cu. Yd.	
		Width	S. Y.	Cut	Fill	Exc.	Emb.
	800						
	790						
	780						
	770						
	760	240		646	520		
	800						
	790		658			574	4510
	780						
	770						
	760	234		593	451		
	800						
	790		1236			822	7875
	780						
	770						
	760	211		295	3974		
	800		574			195	3028

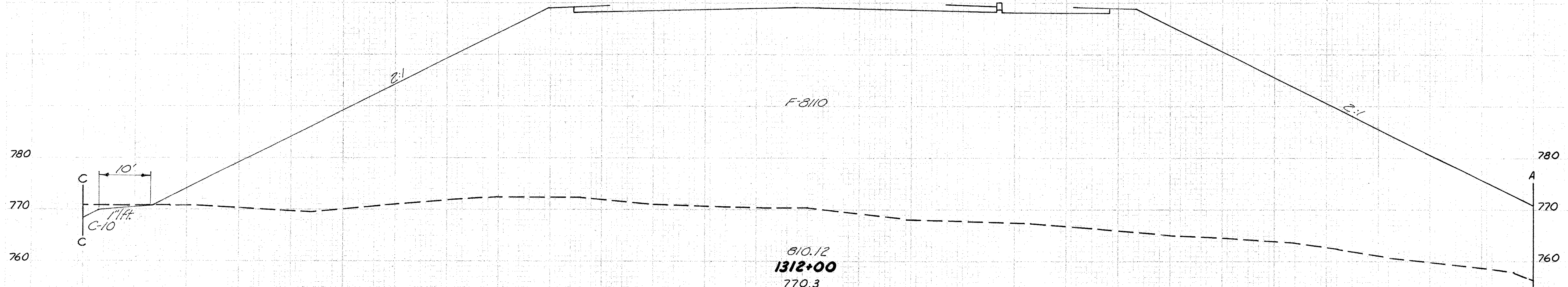
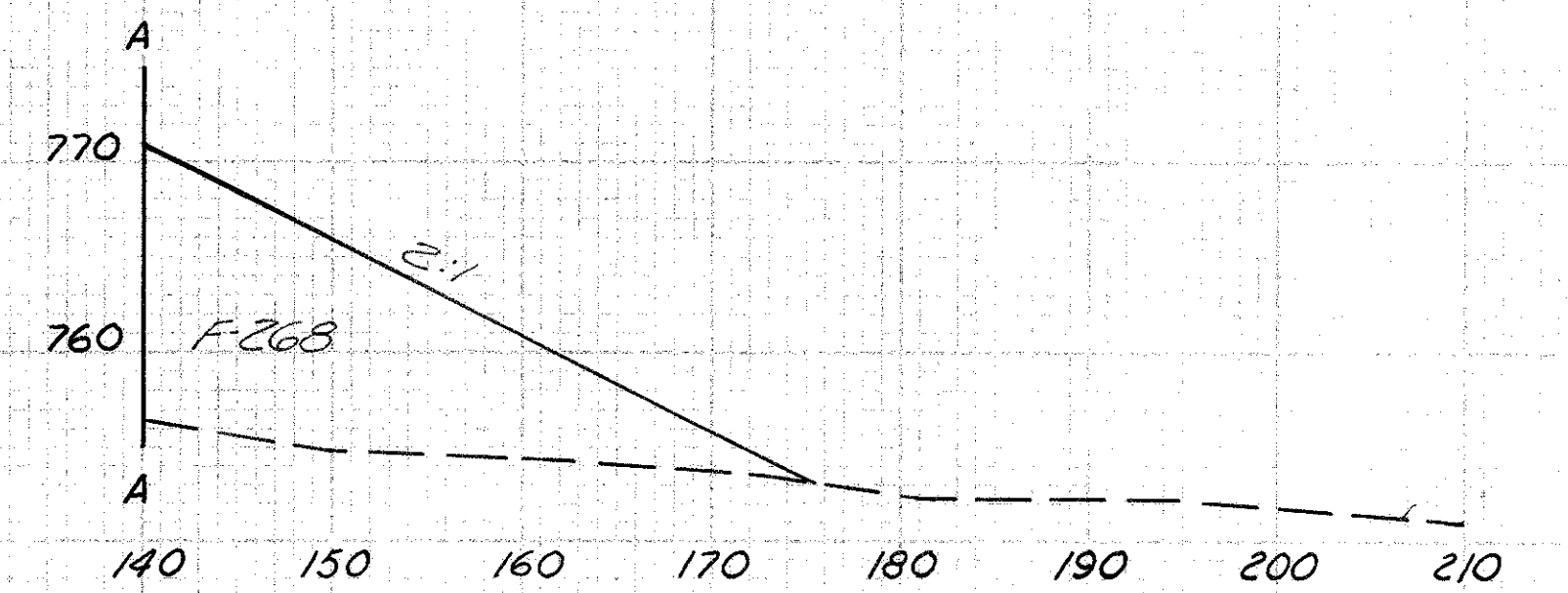
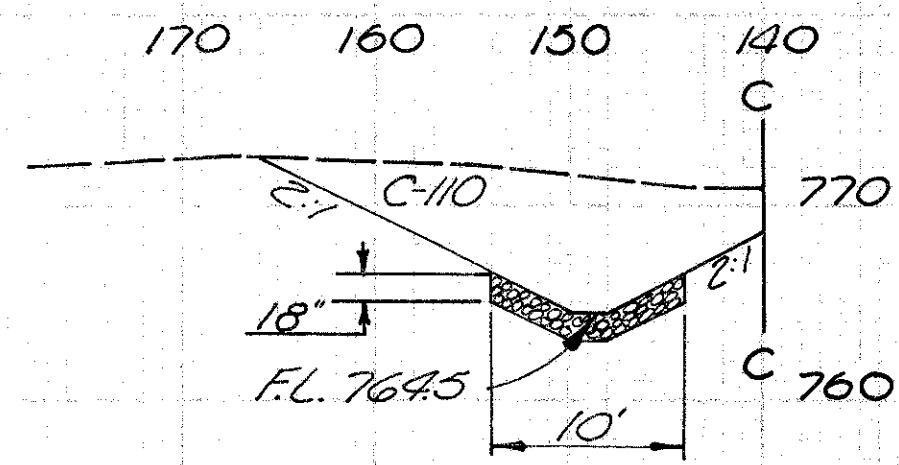
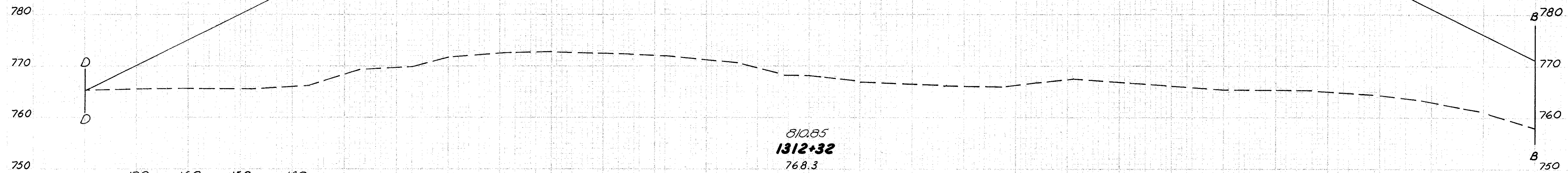
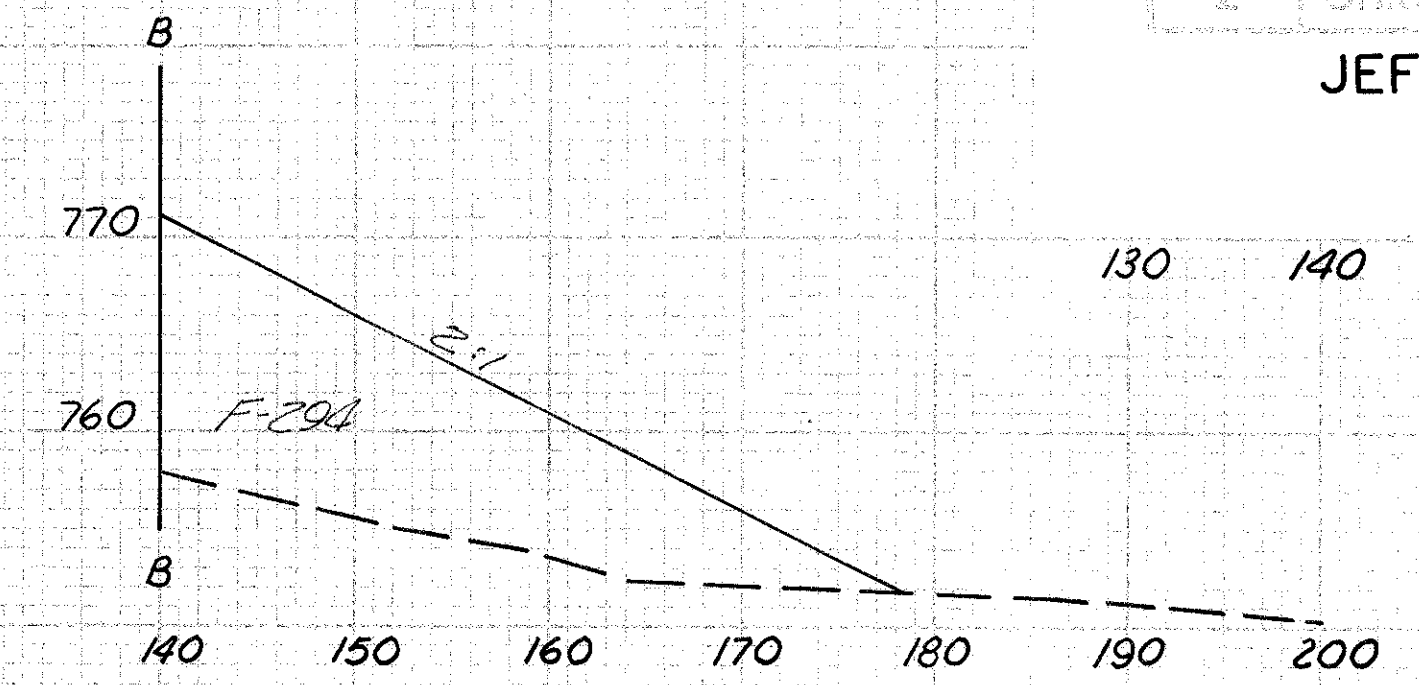
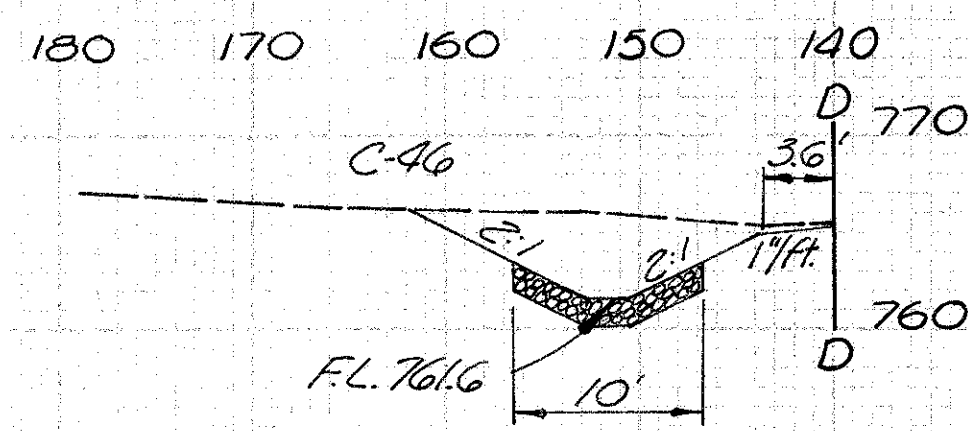








150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

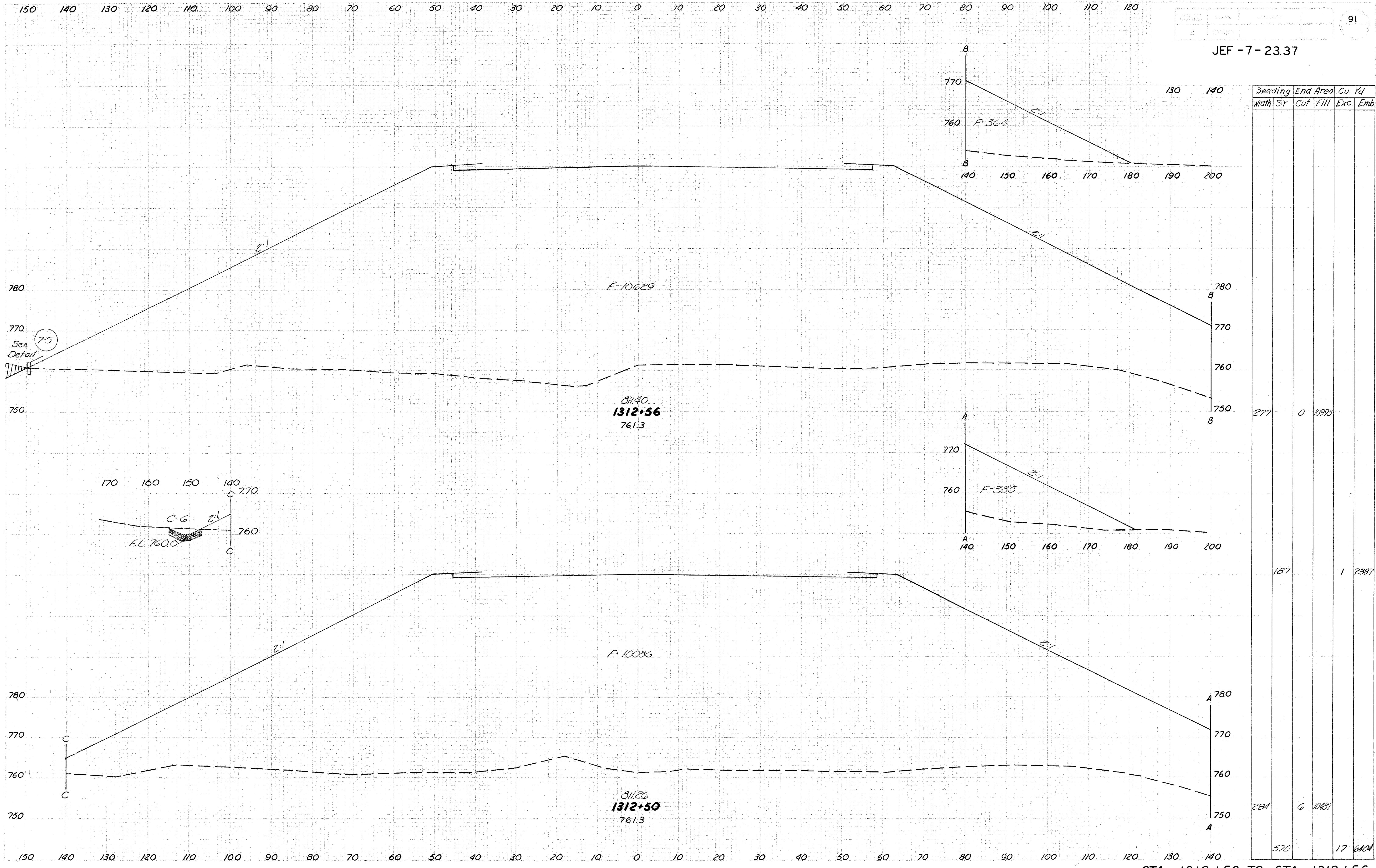


Seeding Width	SY	End Area		Cu Yd	
		Cut	Fill	Exc.	Emb.
286	46	8726			
1018			98	10136	
287	120	8378			
1592			244	15322	

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 1312+00 TO STA. 1312+32



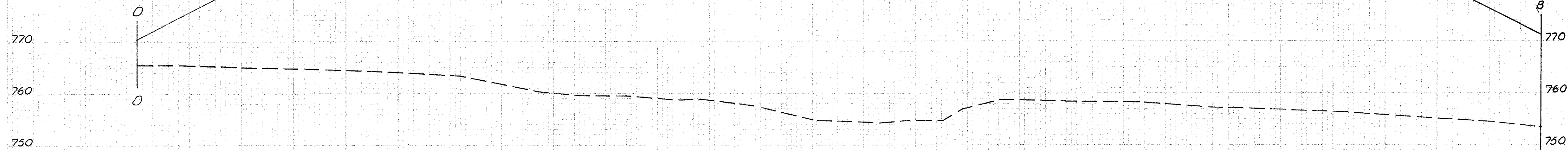
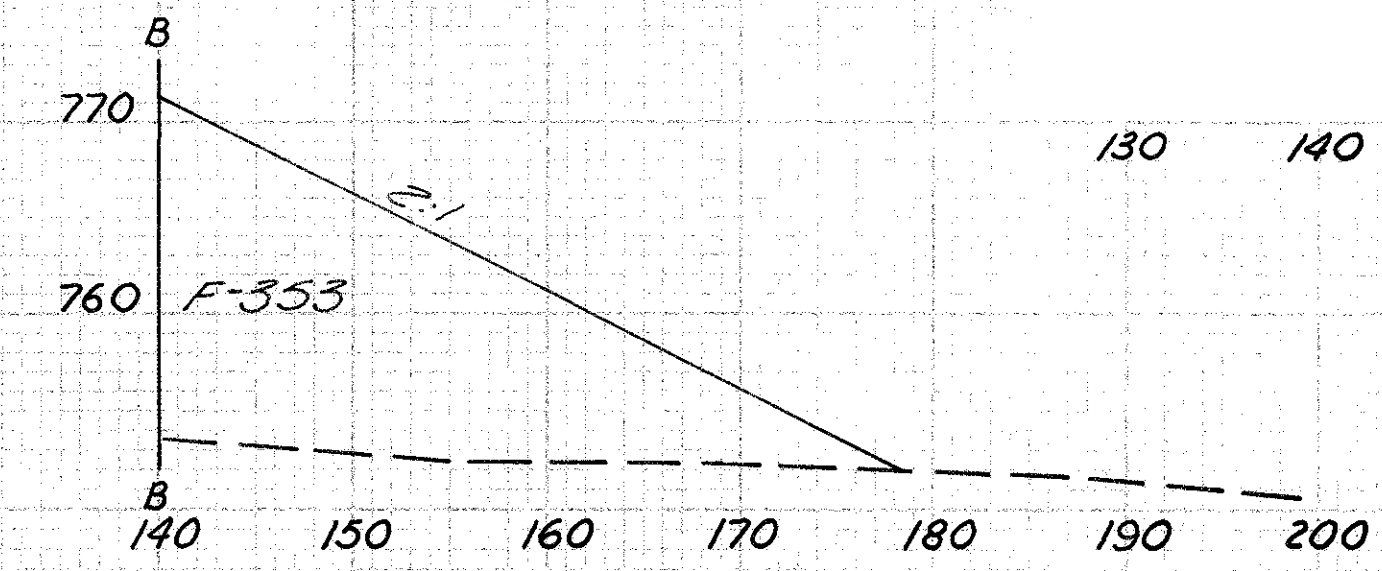
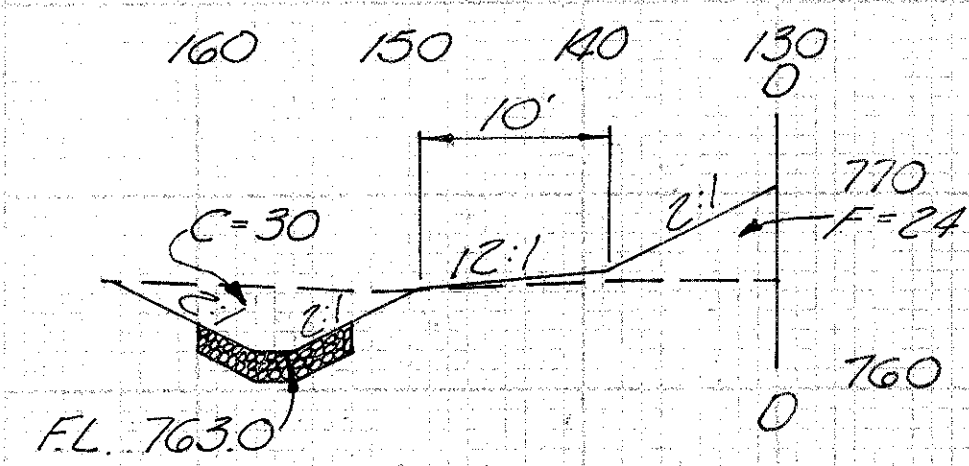




150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

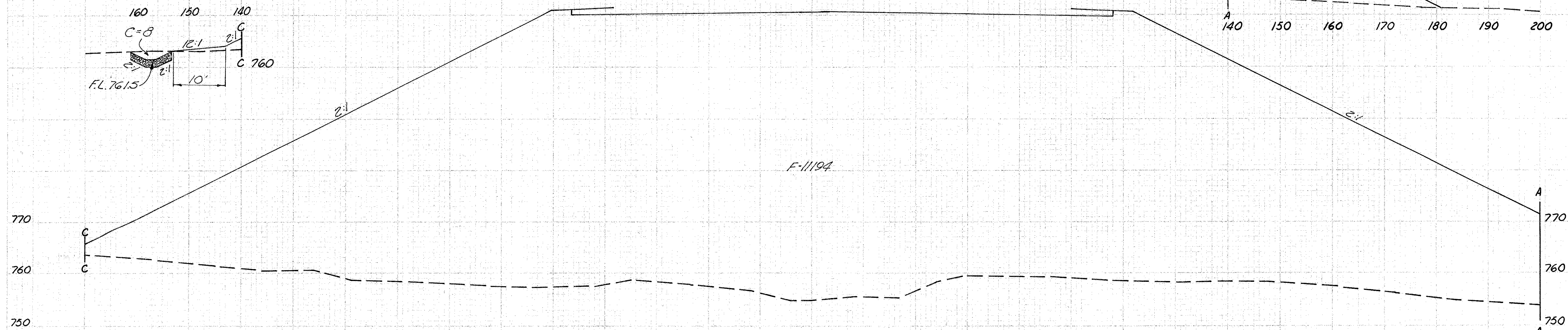
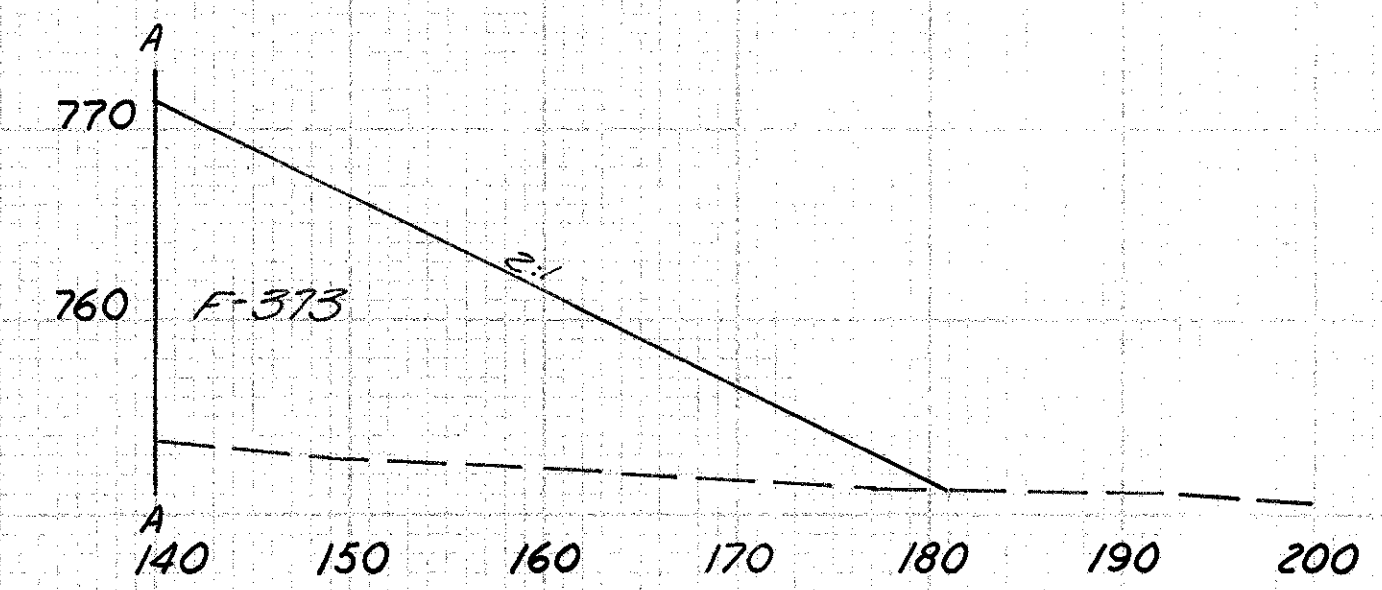
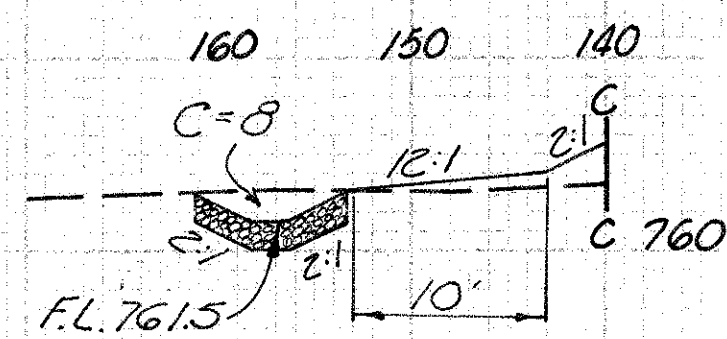
PL. 30	STATION	PROJECT
2	OHIO	

JEF - 7 - 23.37



81204  
1312+84  
754.9

Seeding	End Area	Cu. Yd.
Width S. Y.	Cut	Fill Exc Emb
291	30	11214
299	6	3797
307	8	11567
6/7	3	7938



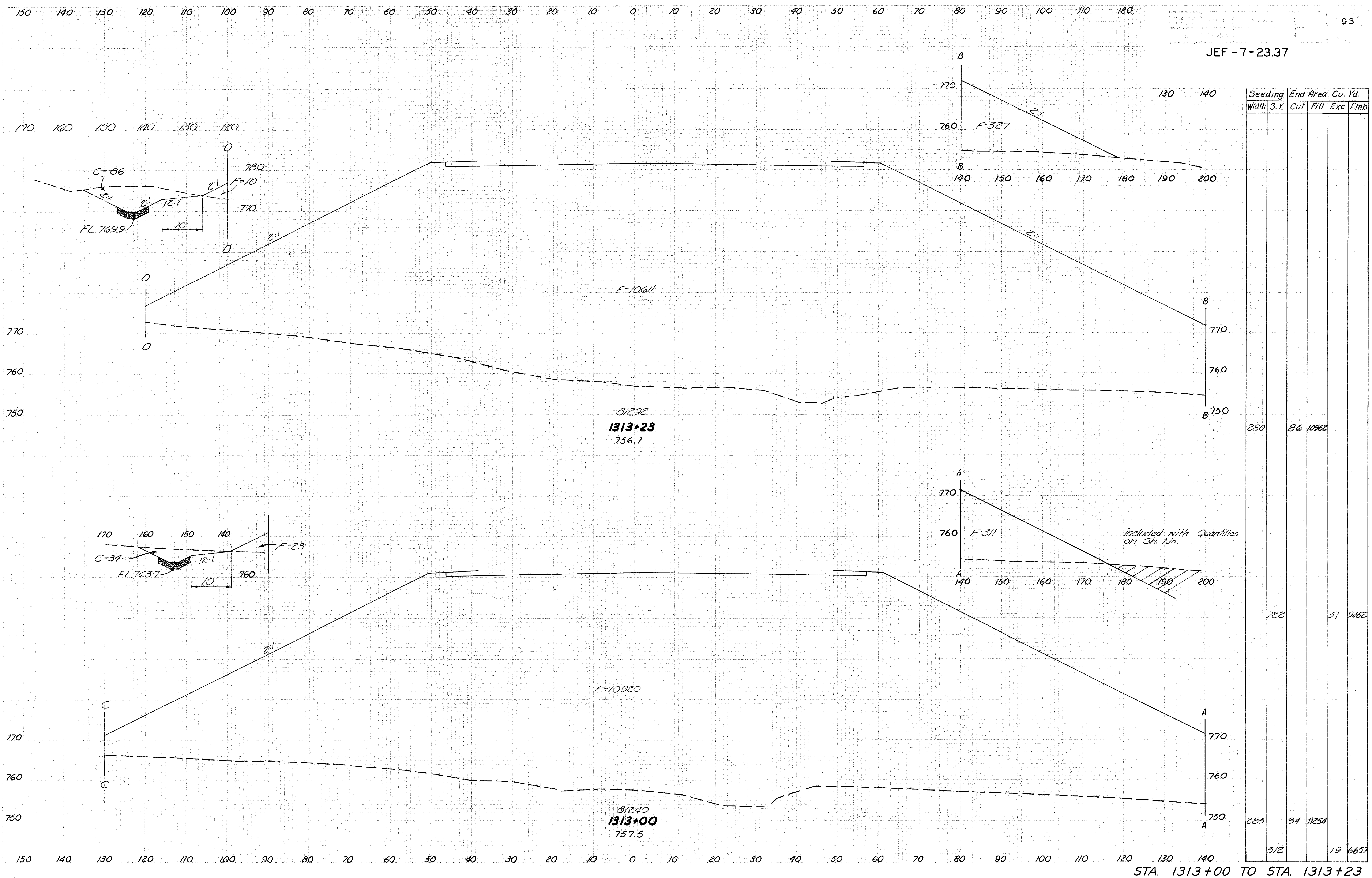
81185  
1312+75  
754.9

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA. 1312+75 TO STA. 1312+84



JEF - 7-23.37

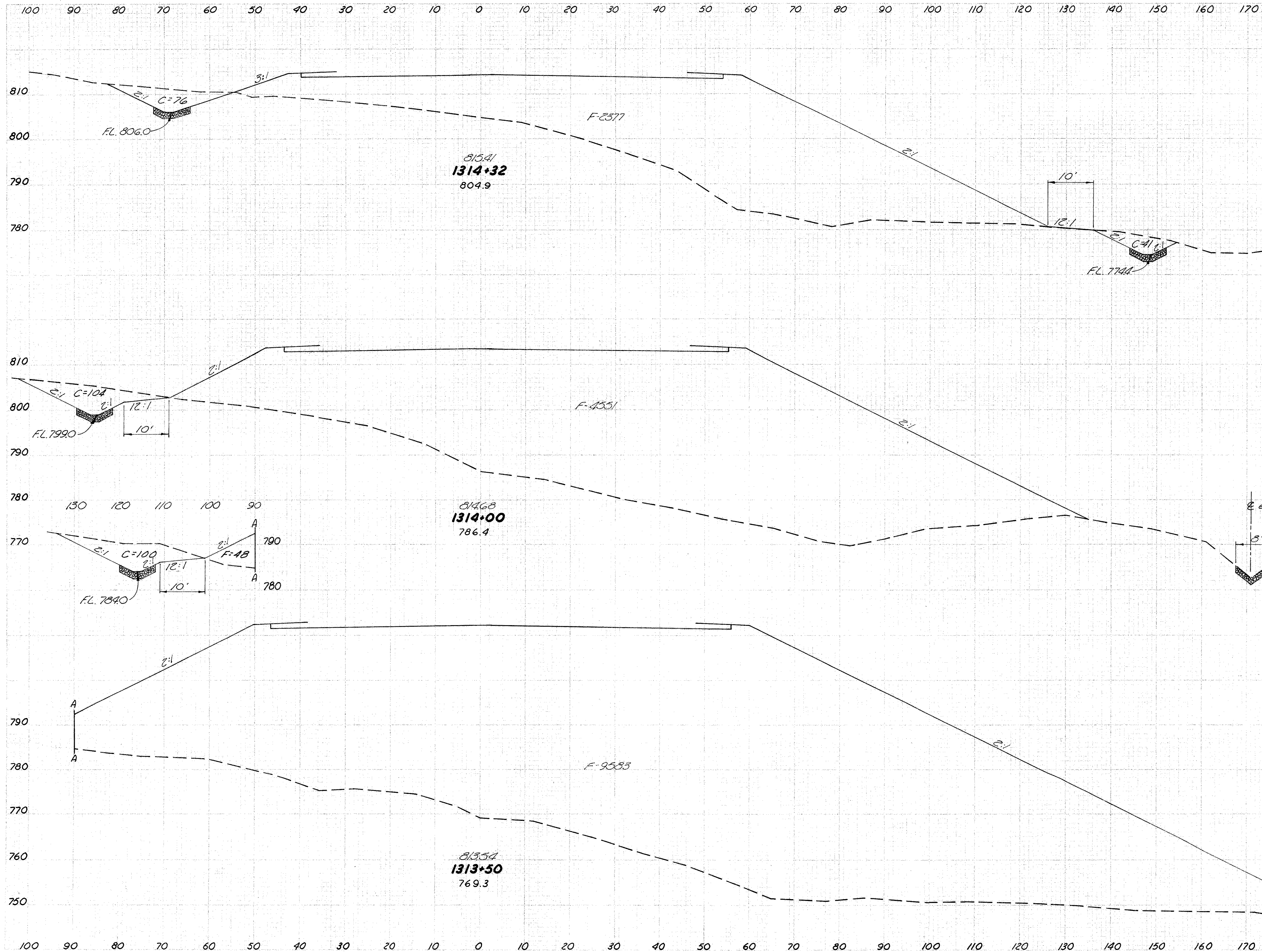


Seeding		End Area		Cu. Yd.	
Width	S. Y.	Cut	Fill	Exc	Emb
280		86	10962		
722				51	9462
285		34	11254		
512				19	6657

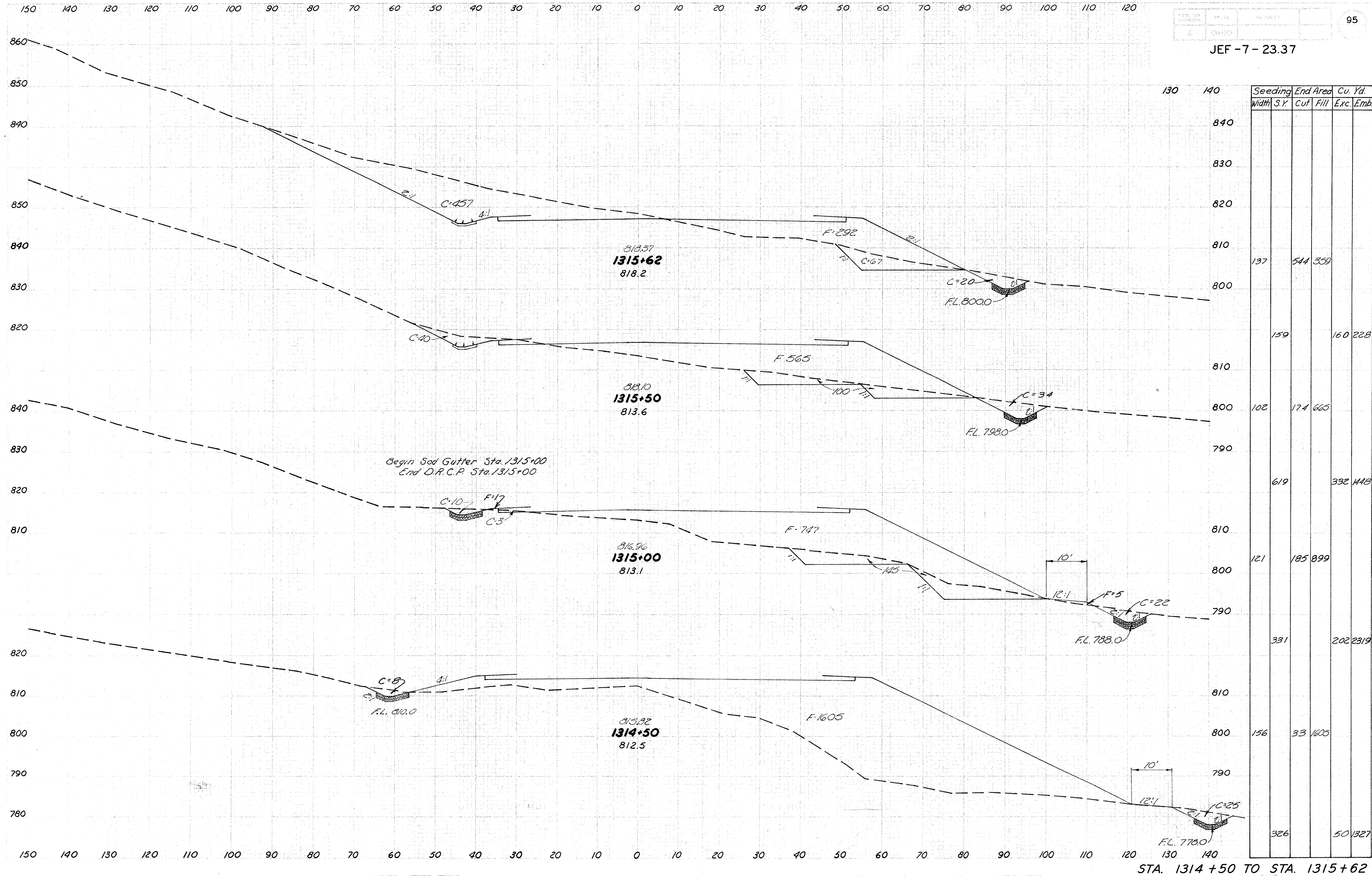
STA. 1313+00 TO STA. 1313+23



		Seeding		End Area		Cu. Yd.	
180	190	Width	S.Y.	Cut	Fill	Exc.	Emb.
	800						
	790	170		117	2377		
	780						
	810						
	800						
	790						
	780						
st. swale		178		104	4551		
	770						
Note: Place DRCP to same elev. each side of & exist. Swale.							
				1258		194	13131
	790						
	780						
	770						
	760						
		275		106	9631		
	750						
<p>C=6 FL. 746.0 180 190 C=1</p>							
		833				96	10297

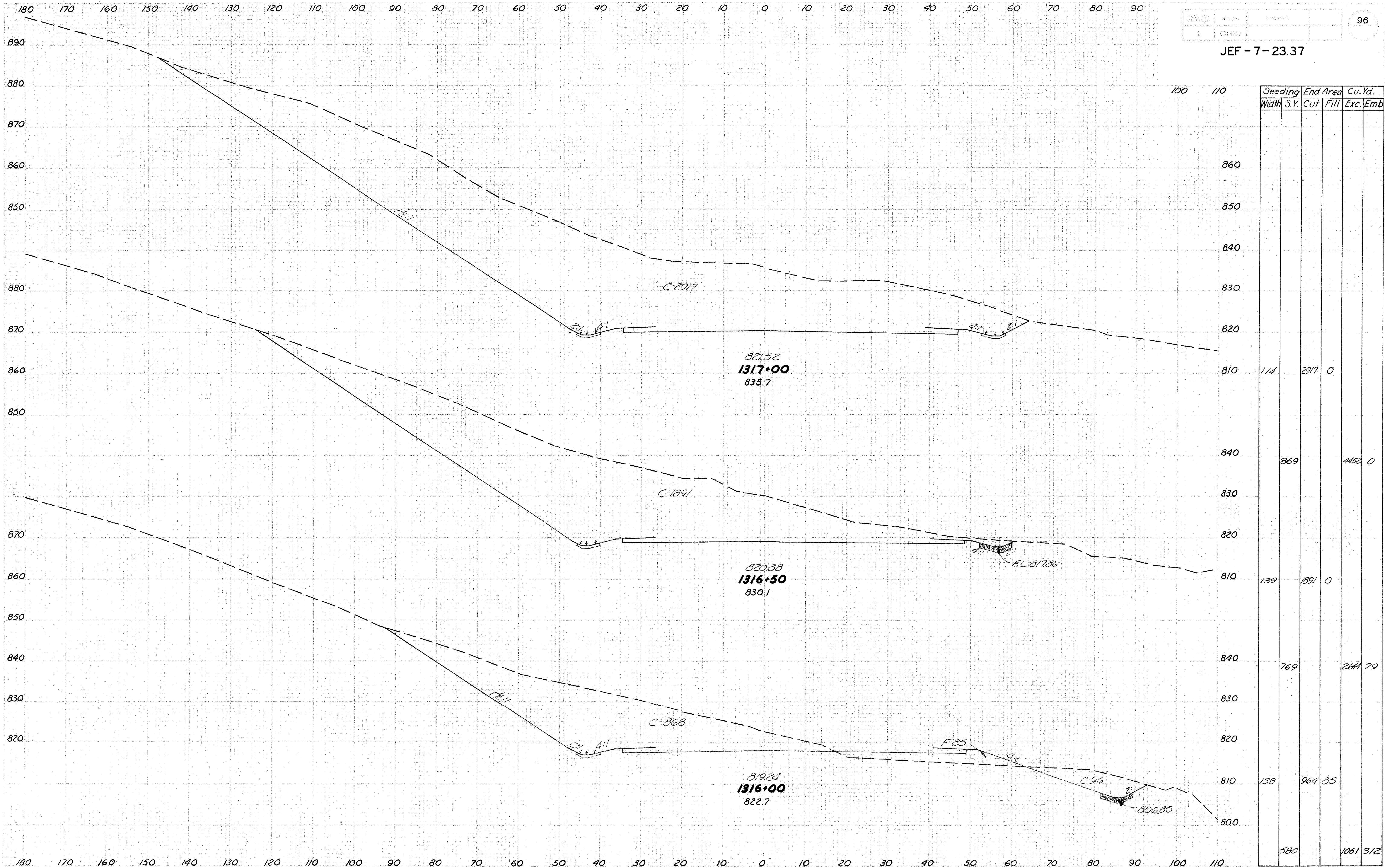








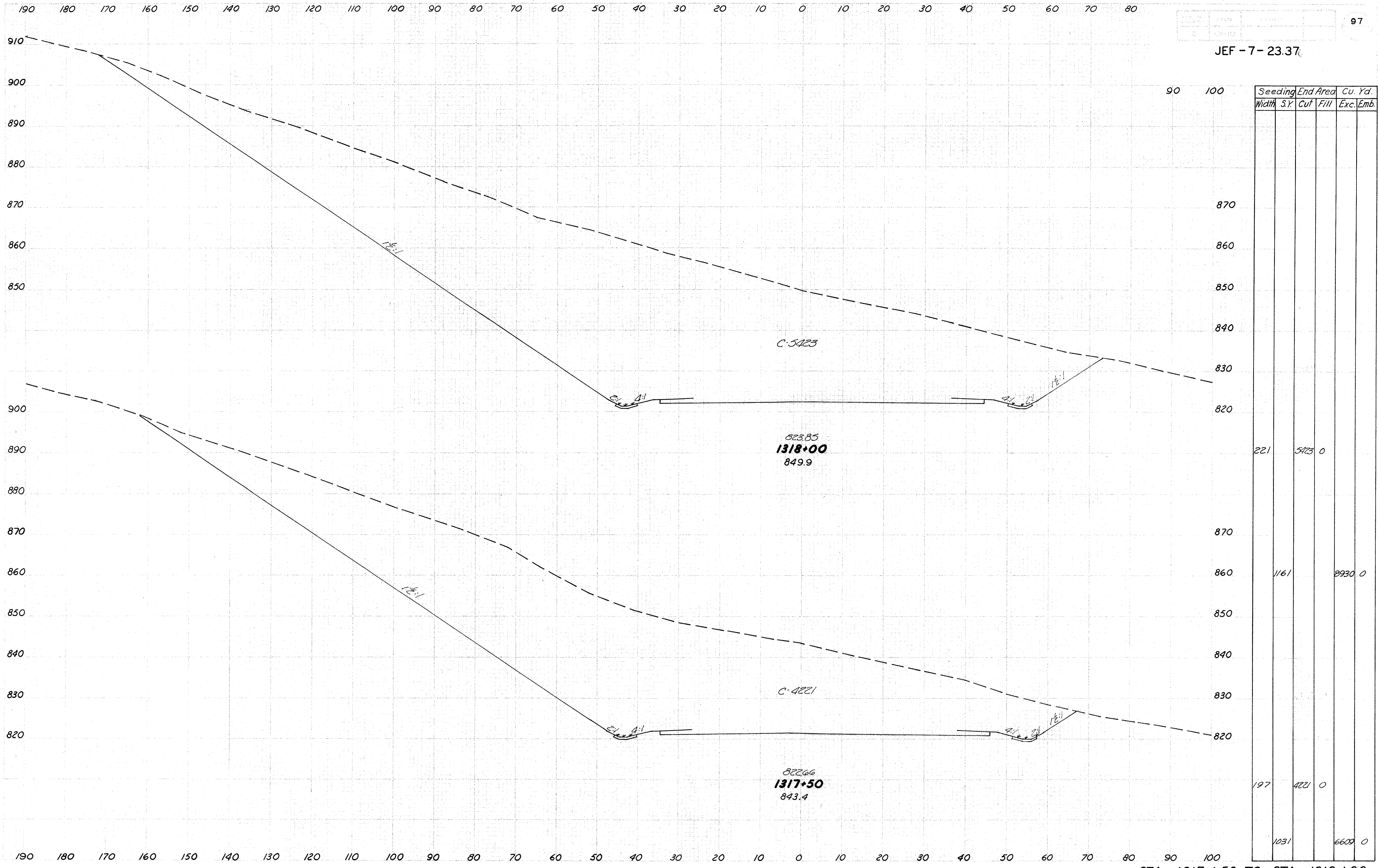
JEF - 7-23.37



STA. 1316+00 TO STA. 1317+00

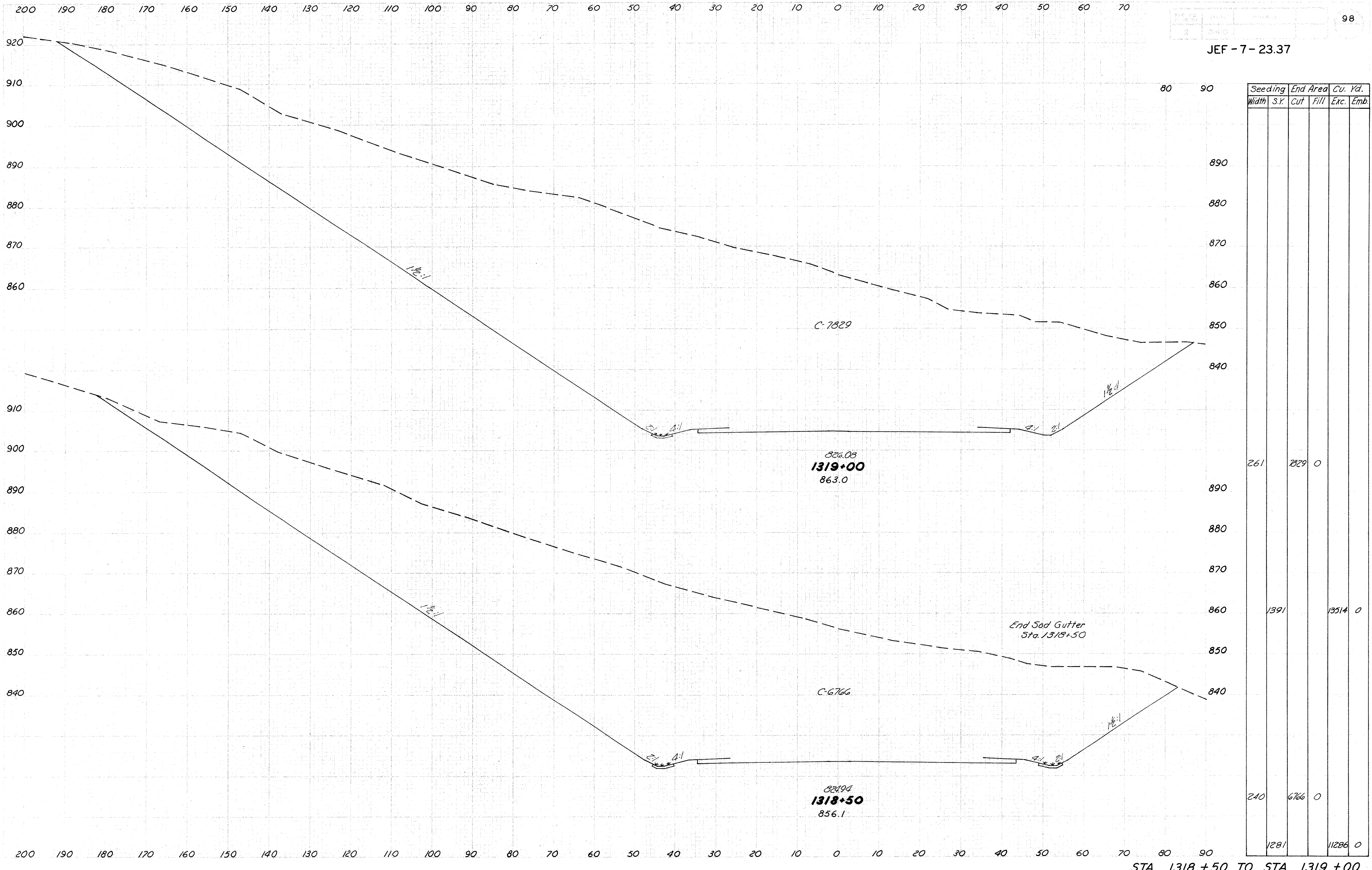


JEF - 7 - 23.37



STA 1317 + 50 TO STA 1318 + 00

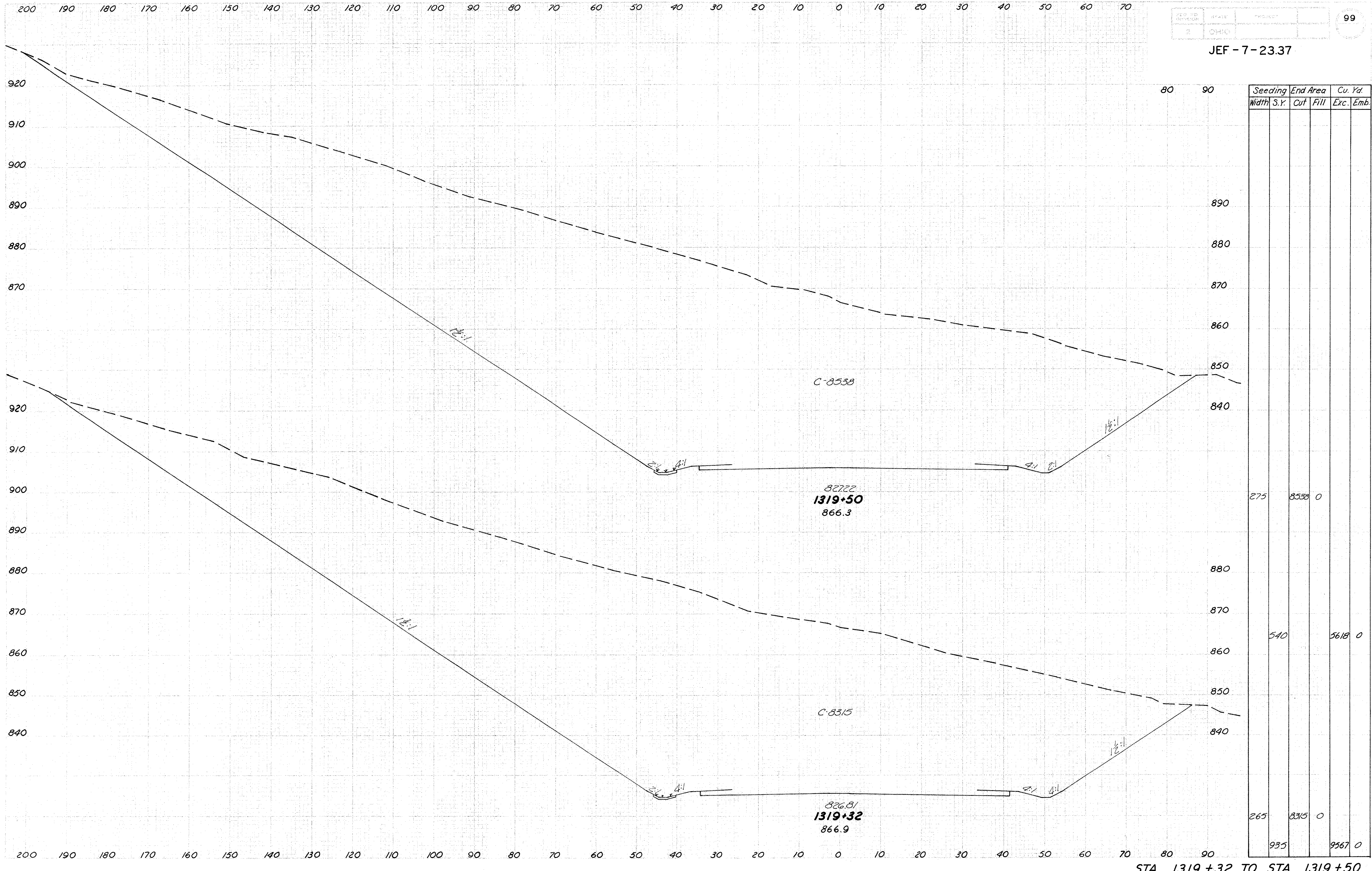
JEF - 7 - 23.37



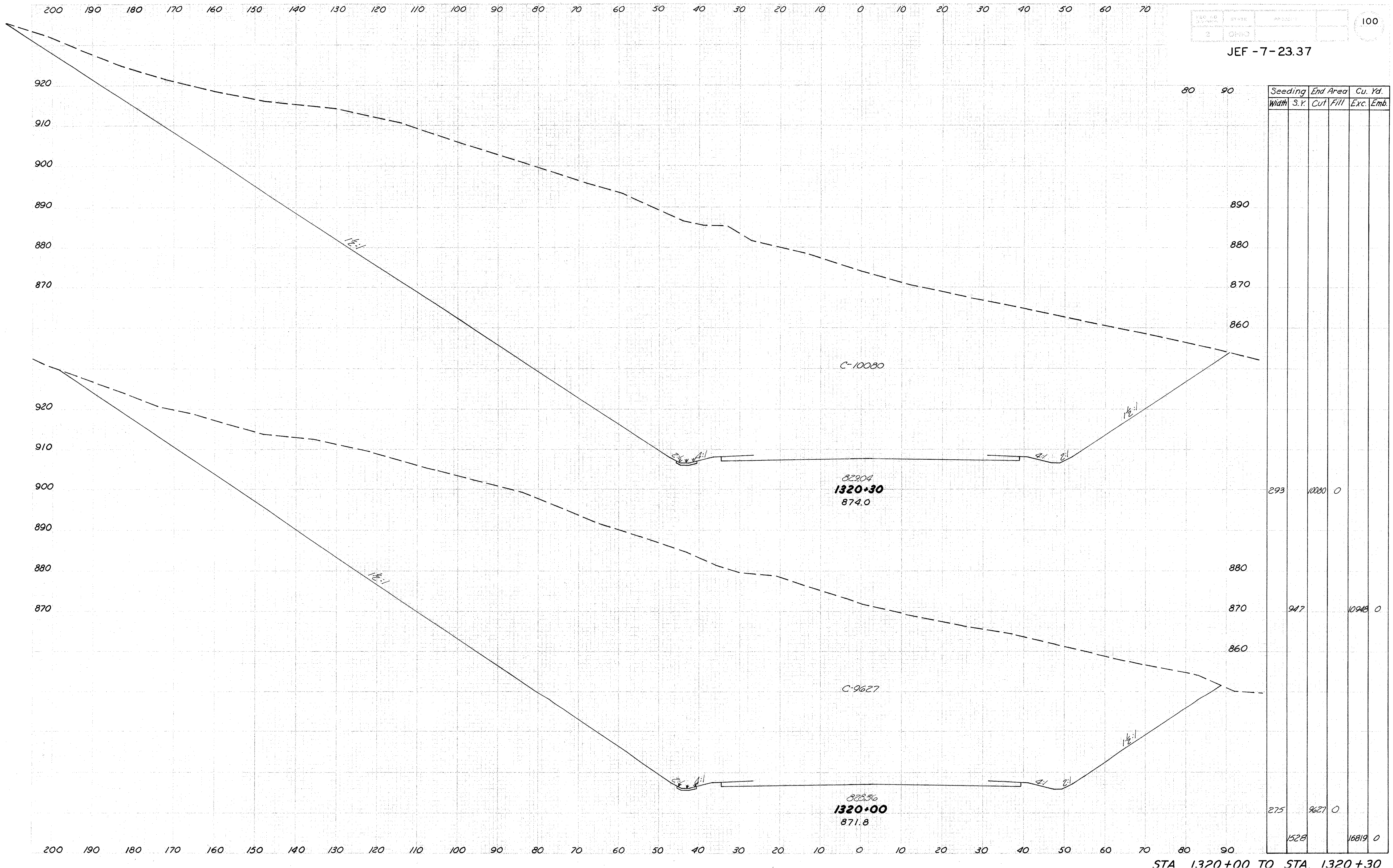
Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
261		2829	0		
1391				13514	0
240		6766	0		
1281				11286	0



80 90







JEF - 7 - 23.37

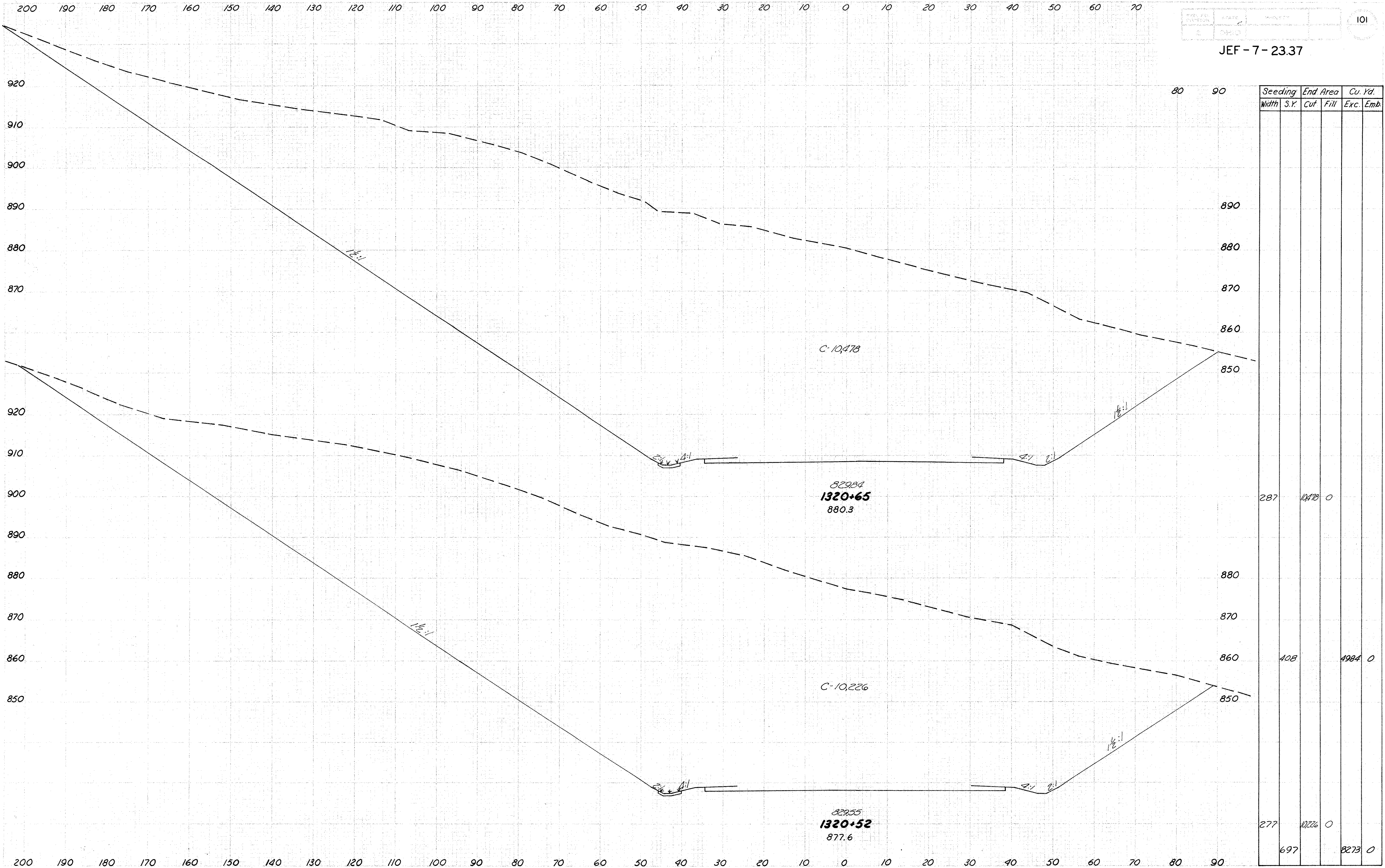
80 90

Seeding Width	S.Y.	End Area		Cu. Yd.	
		Cut	Fill	Exc.	Emb.
293		10080	0		
947				10243	0
275		9627	0		
1528				16819	0

STA 1320+00 TO STA 1320+30

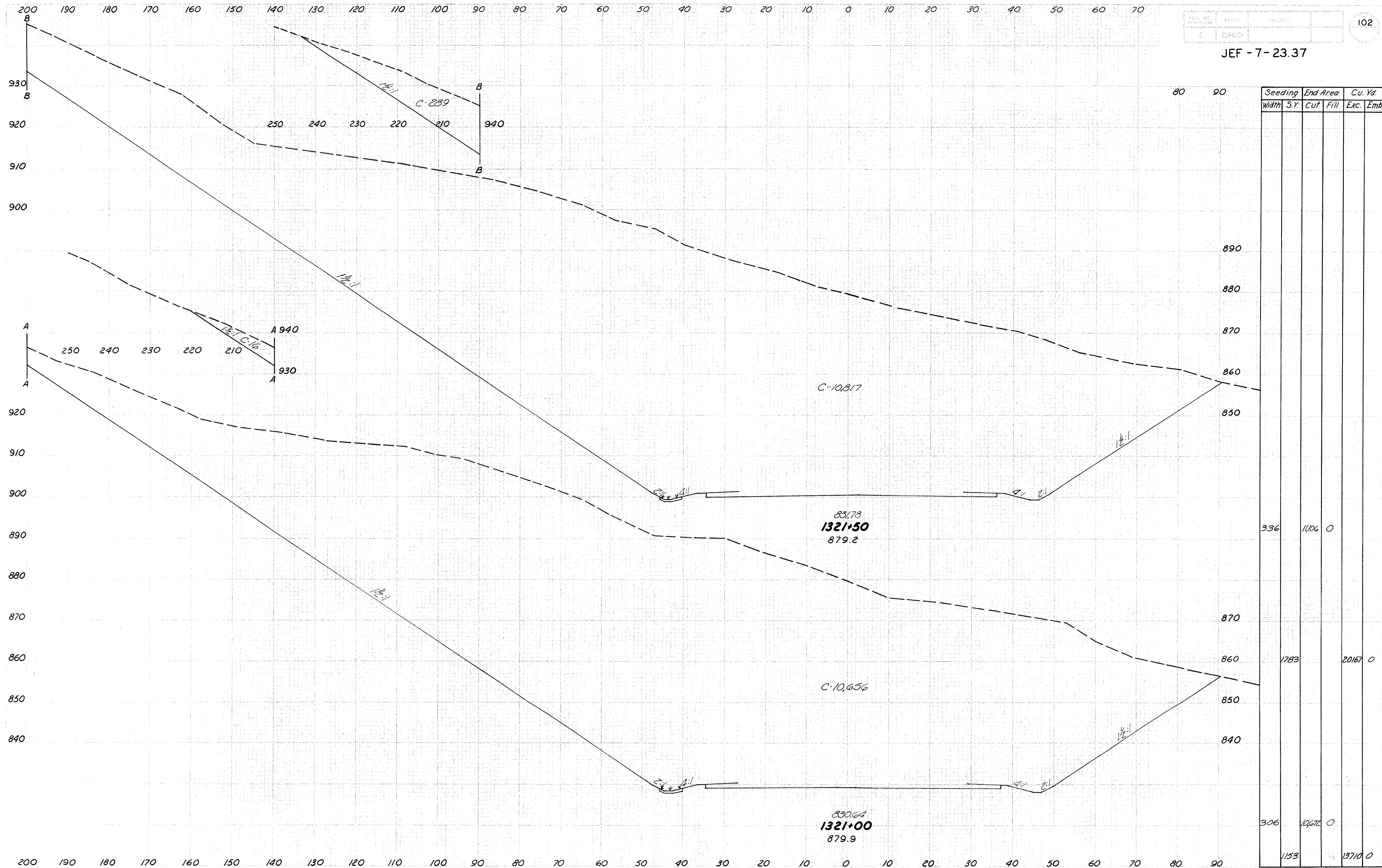


JEF-7-23.37



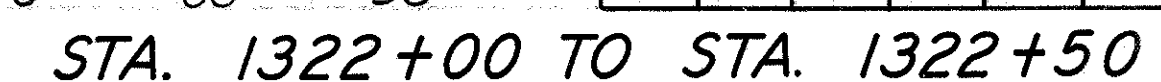


JEF - 7-23.37

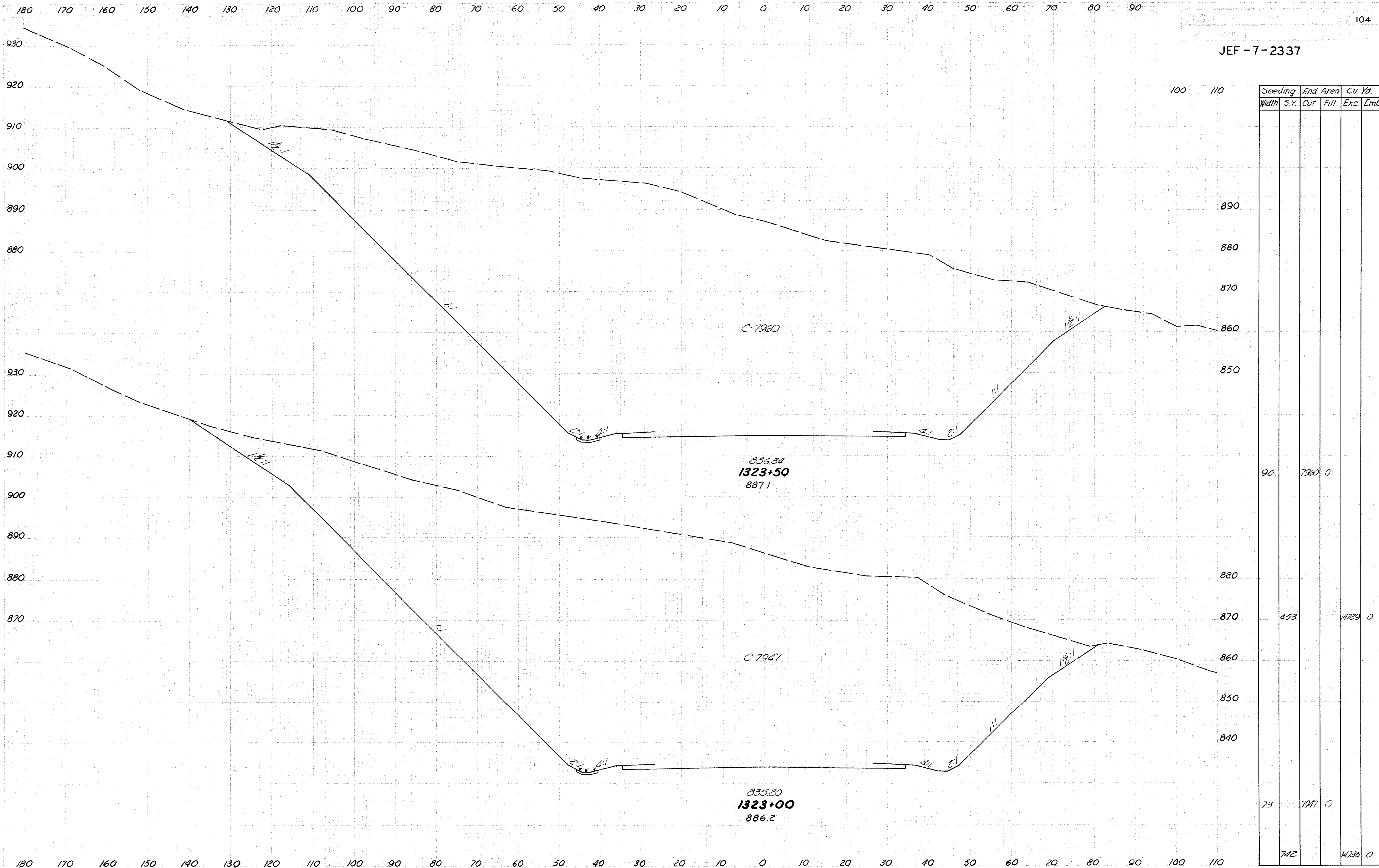




80 90



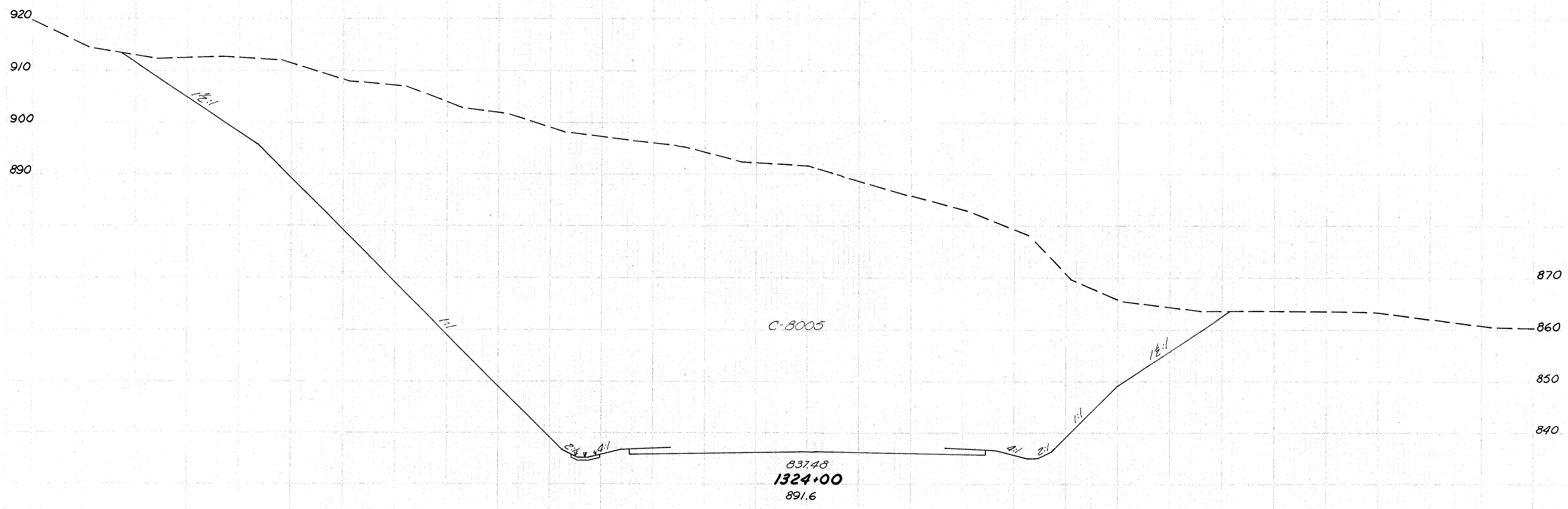
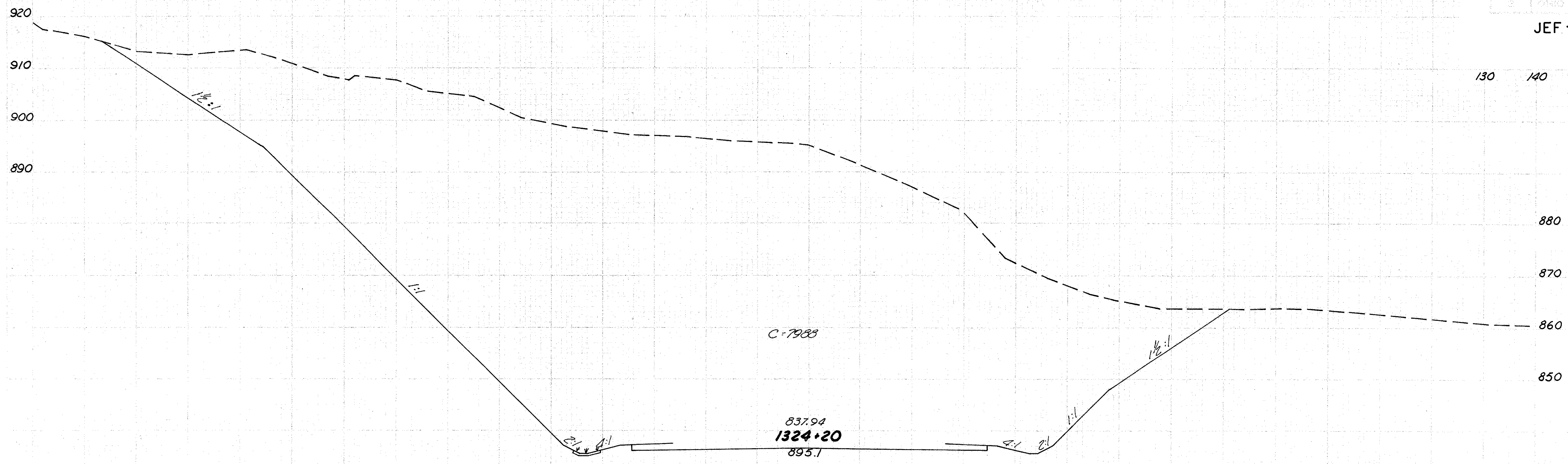
JEF - 7 - 2337



STA. 1323+00 TO STA. 1323+50



150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

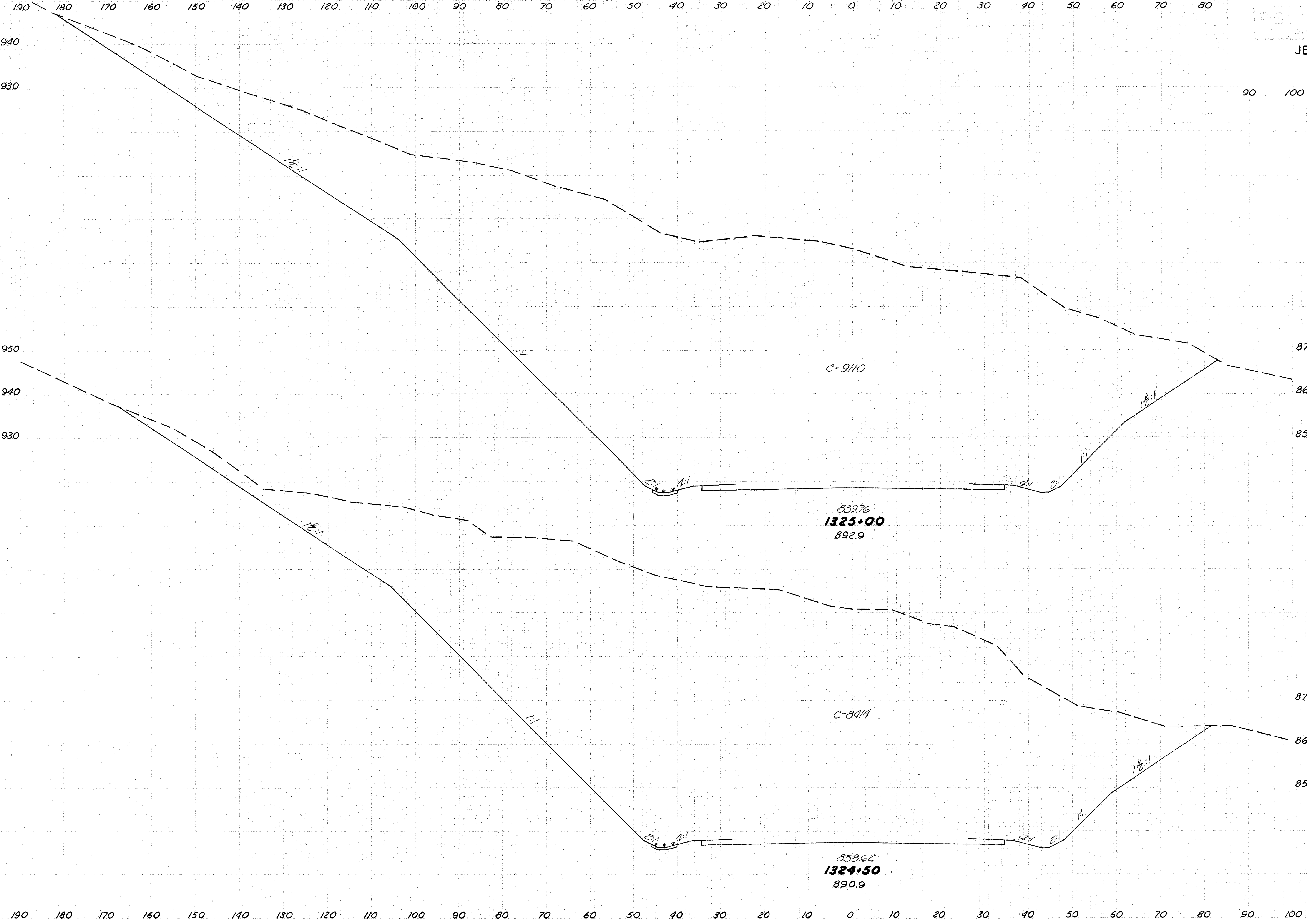


150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

STA 1324+00 TO STA 1324+20

Seeding	End Area	Cu. Yd.			
Width	S.Y.	Cut	Fill	Exc.	Emb.
115	7988	0			
247				5923	0
107	8003	0			
547				14782	0

JEF - 7 - 23.37



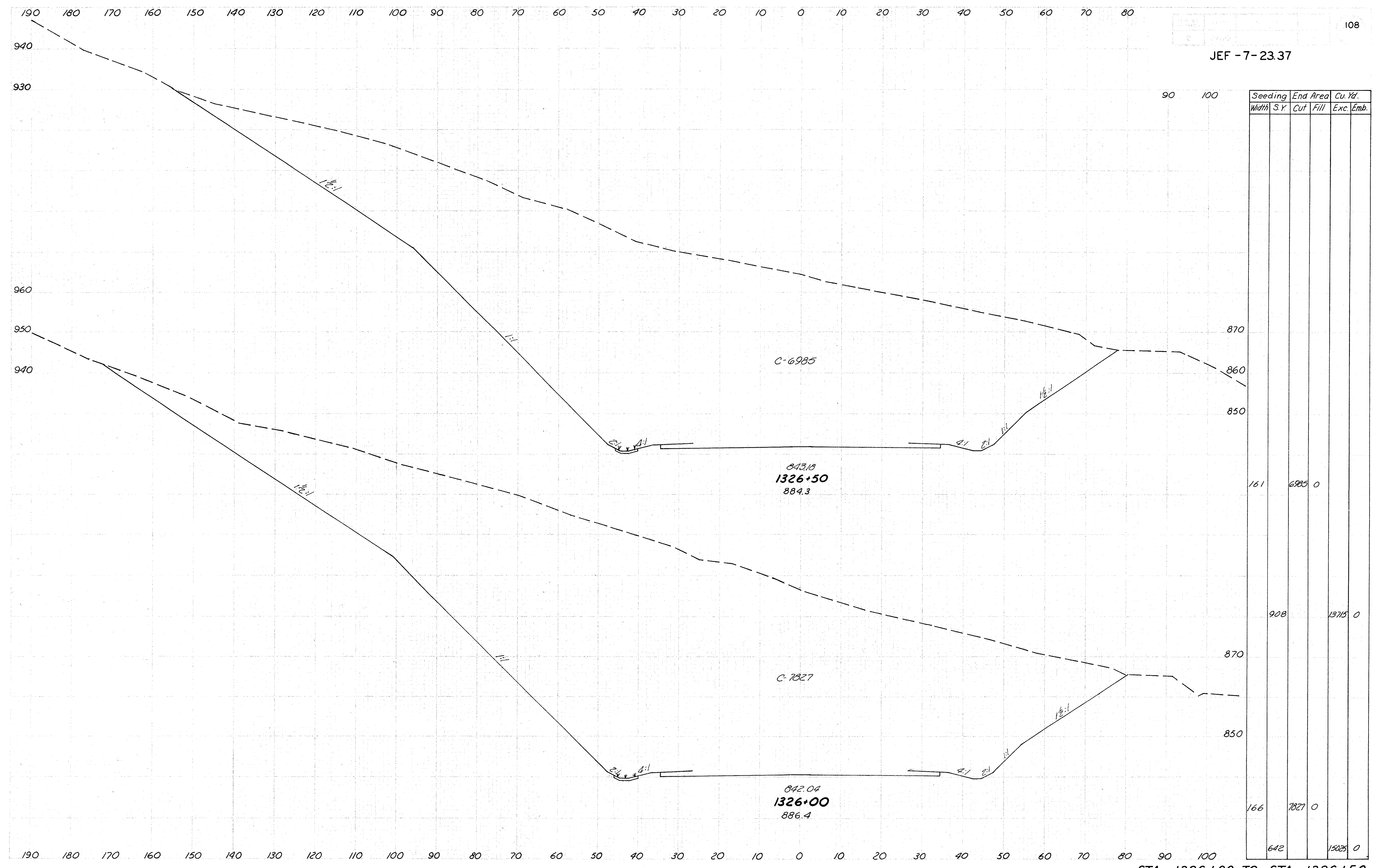
Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
164	9110	0			
878			16226	0	
152	8414	0			
445			9112	0	

STA. 1324+50 TO STA. 1325+00

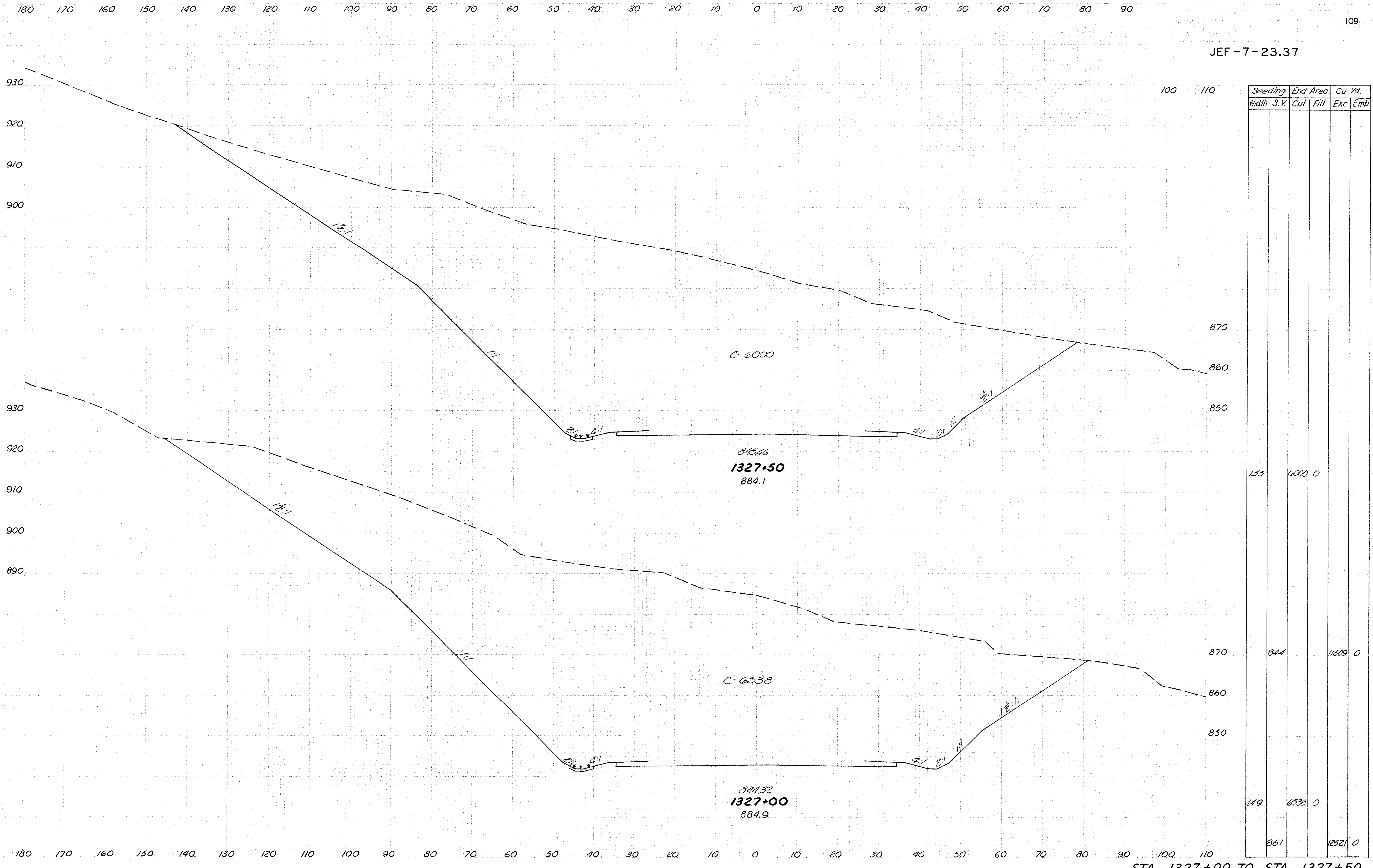




JEF -7- 23.37



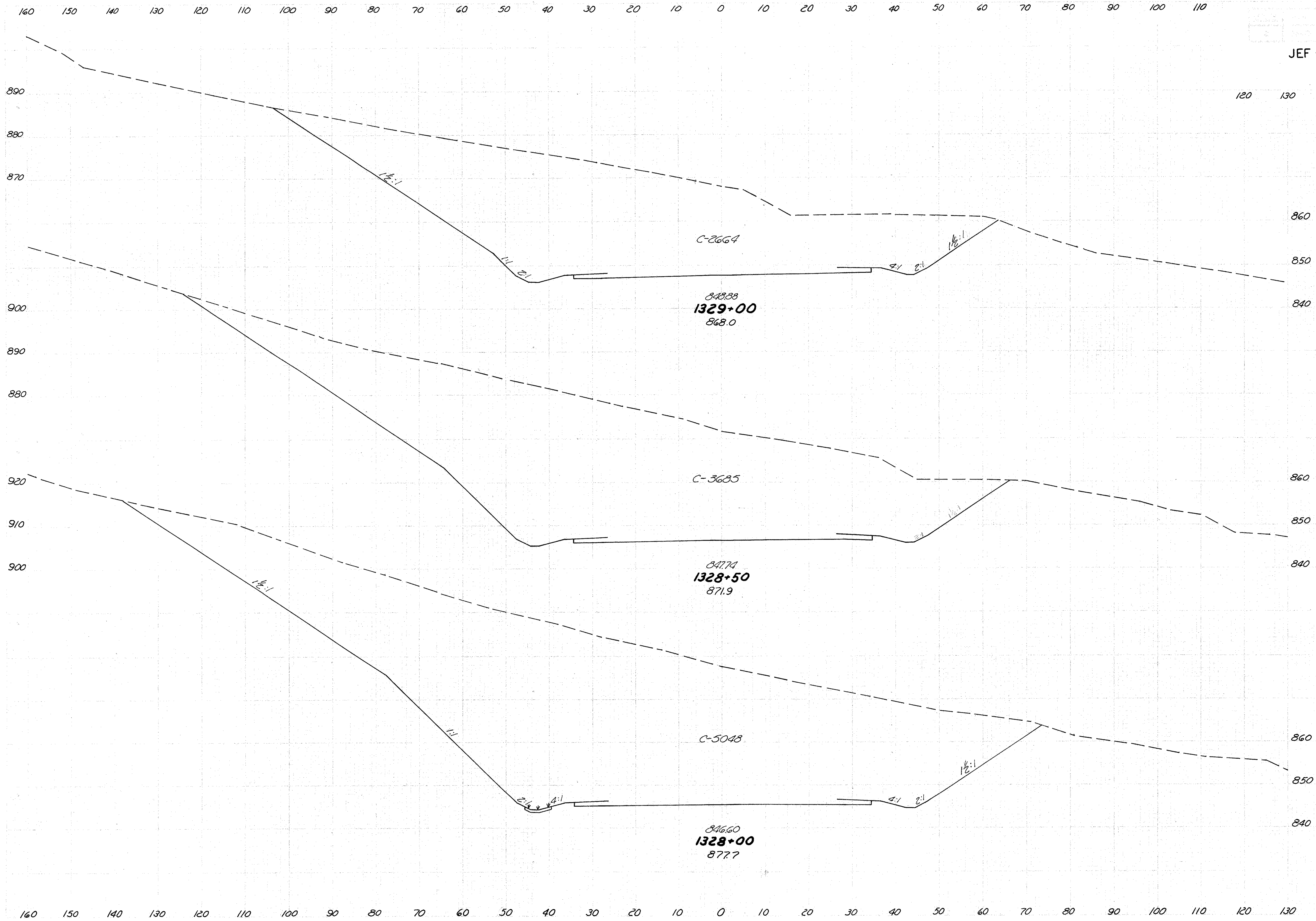




JEF-7-23.37

Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
155		6000	0		
844				11609	0
149		6538	0		
861				12521	0

JEF - 7-23.37

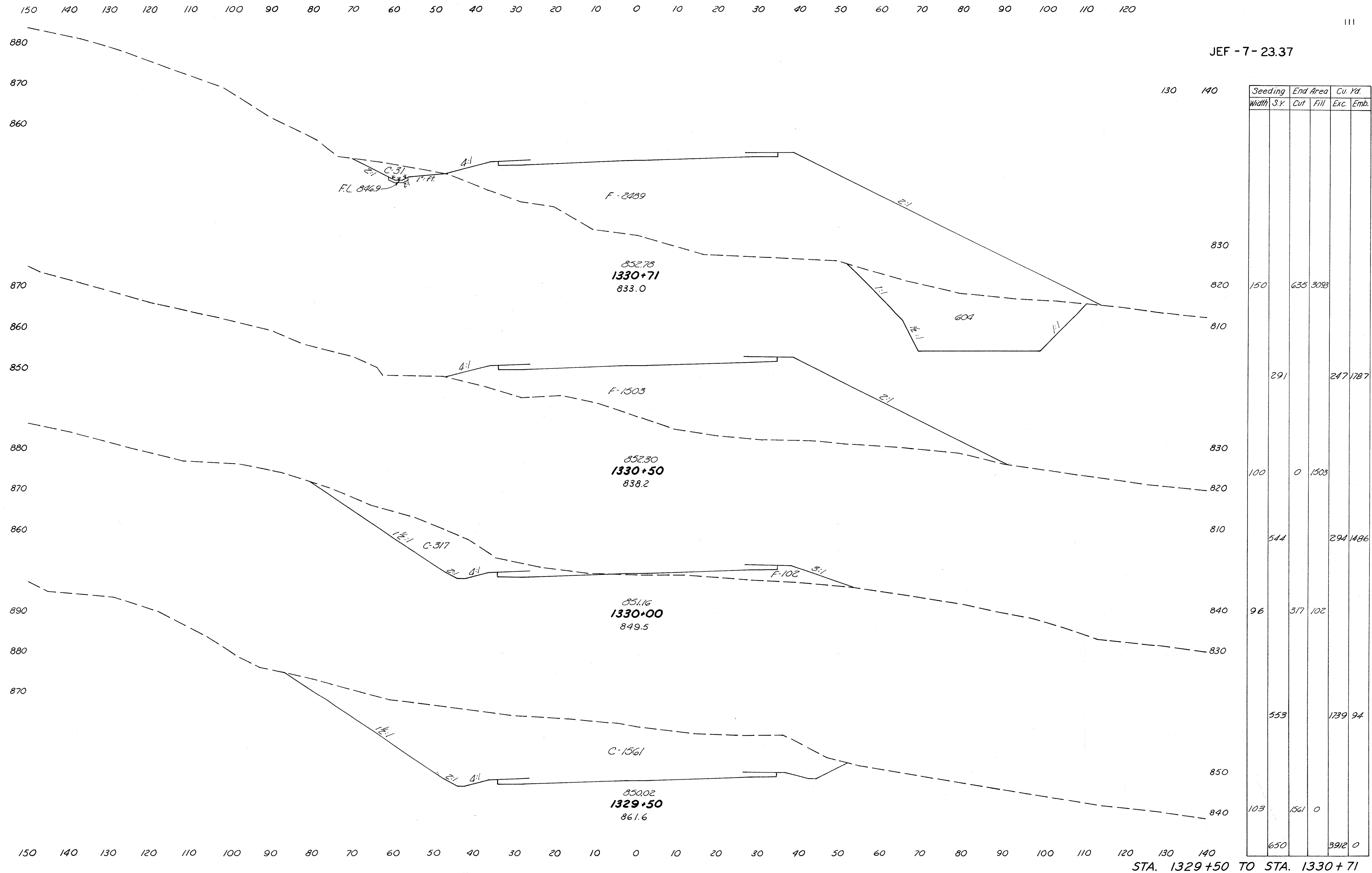


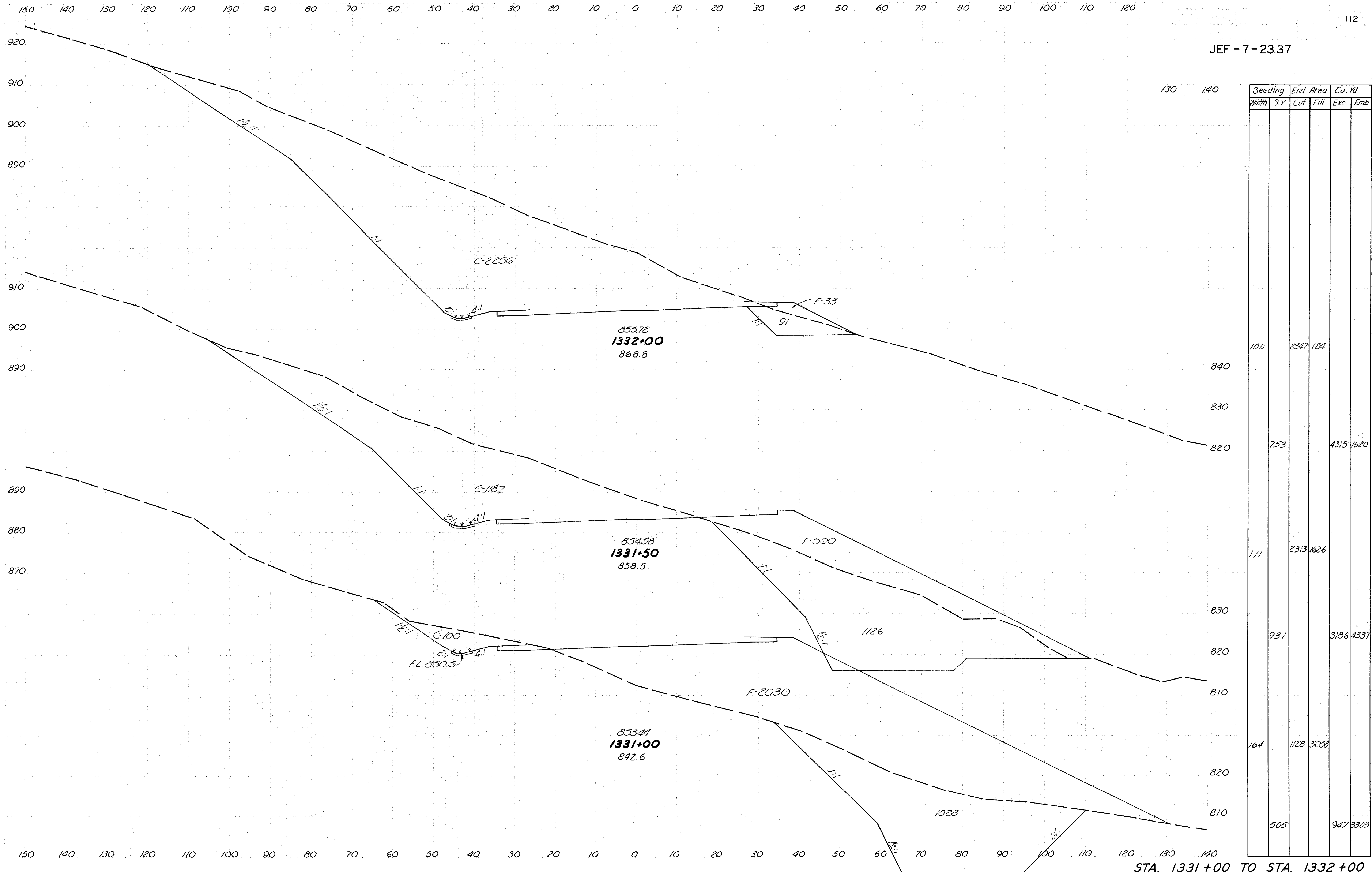
Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
131		2664	0		
769				5879	0
146		3685	0		
836				8086	0
155		5048	0		
861				10230	0

STA. 1328+00 TO STA. 1329+00



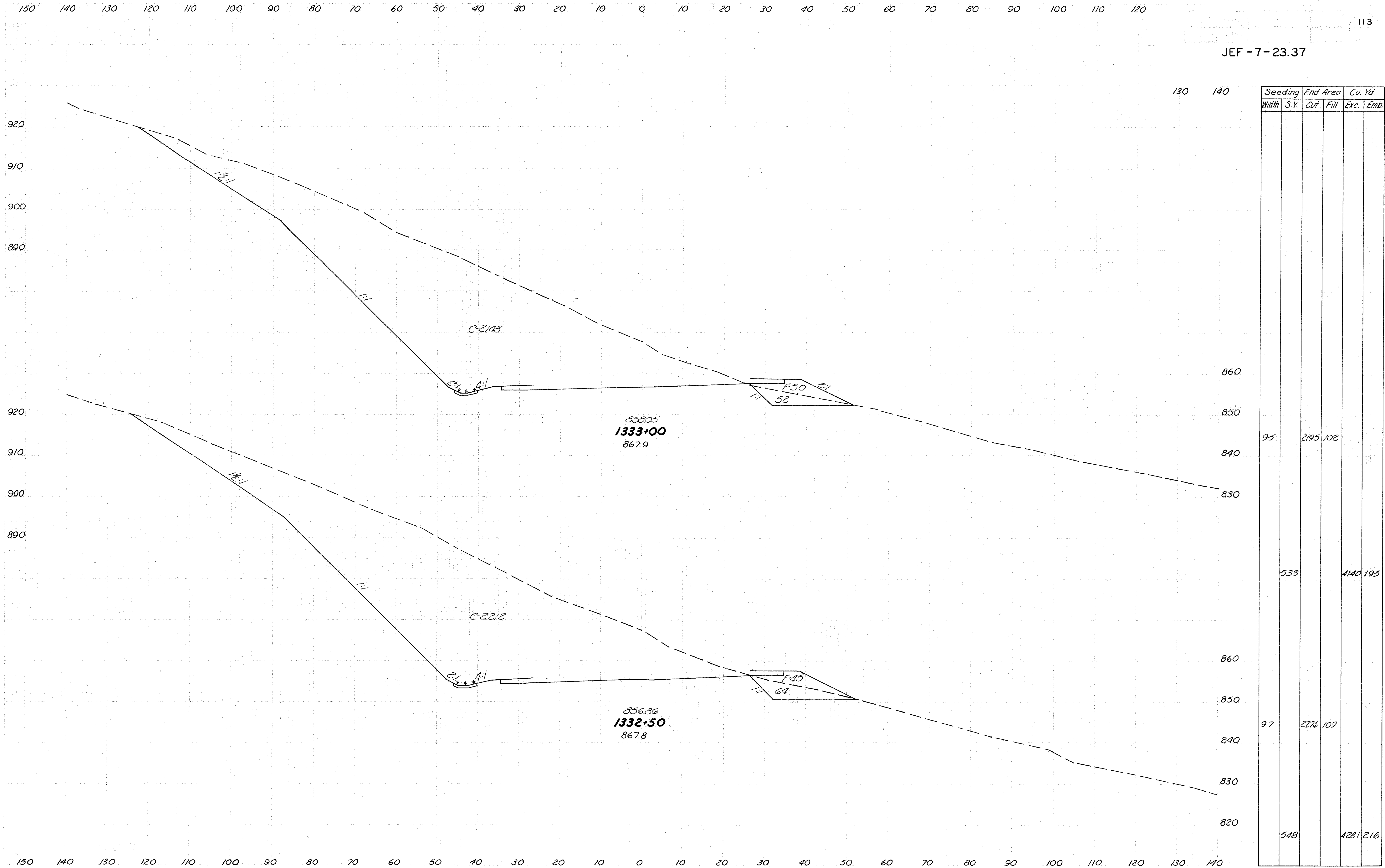
JEF - 7 - 23.37





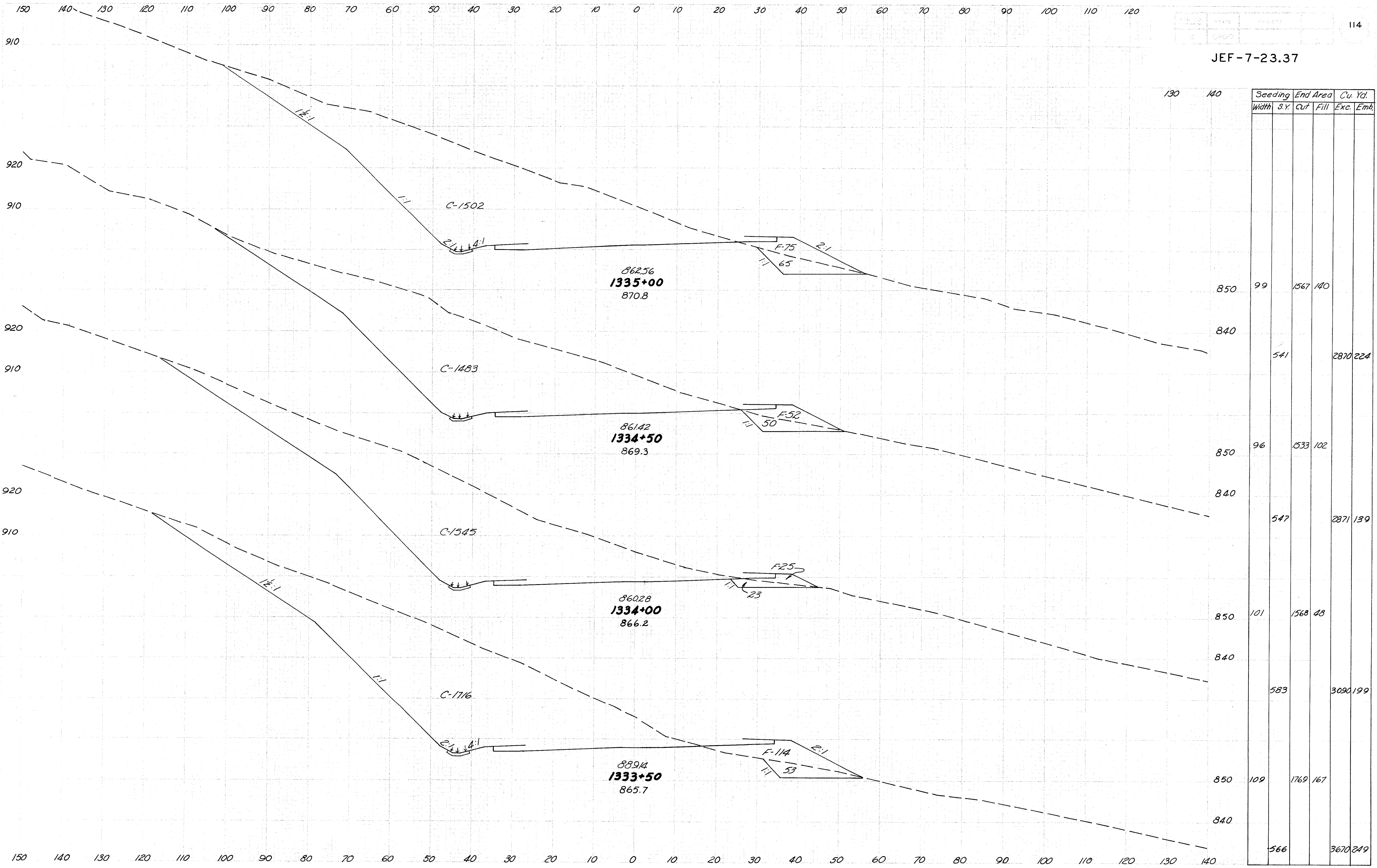


JEF - 7 - 23.37



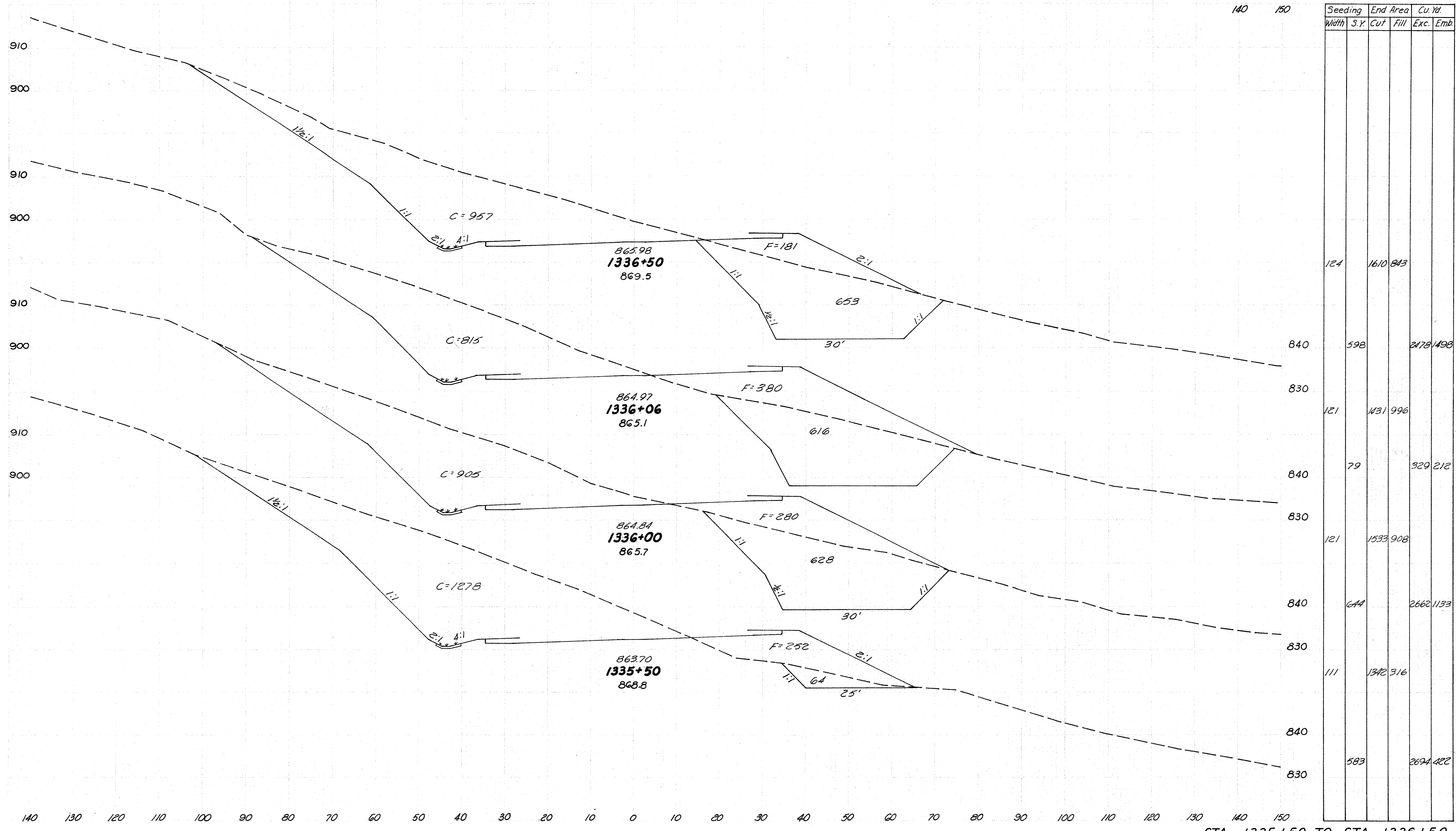
STA. 1332+50 TO STA. 1333+00

JEF-7-23.37

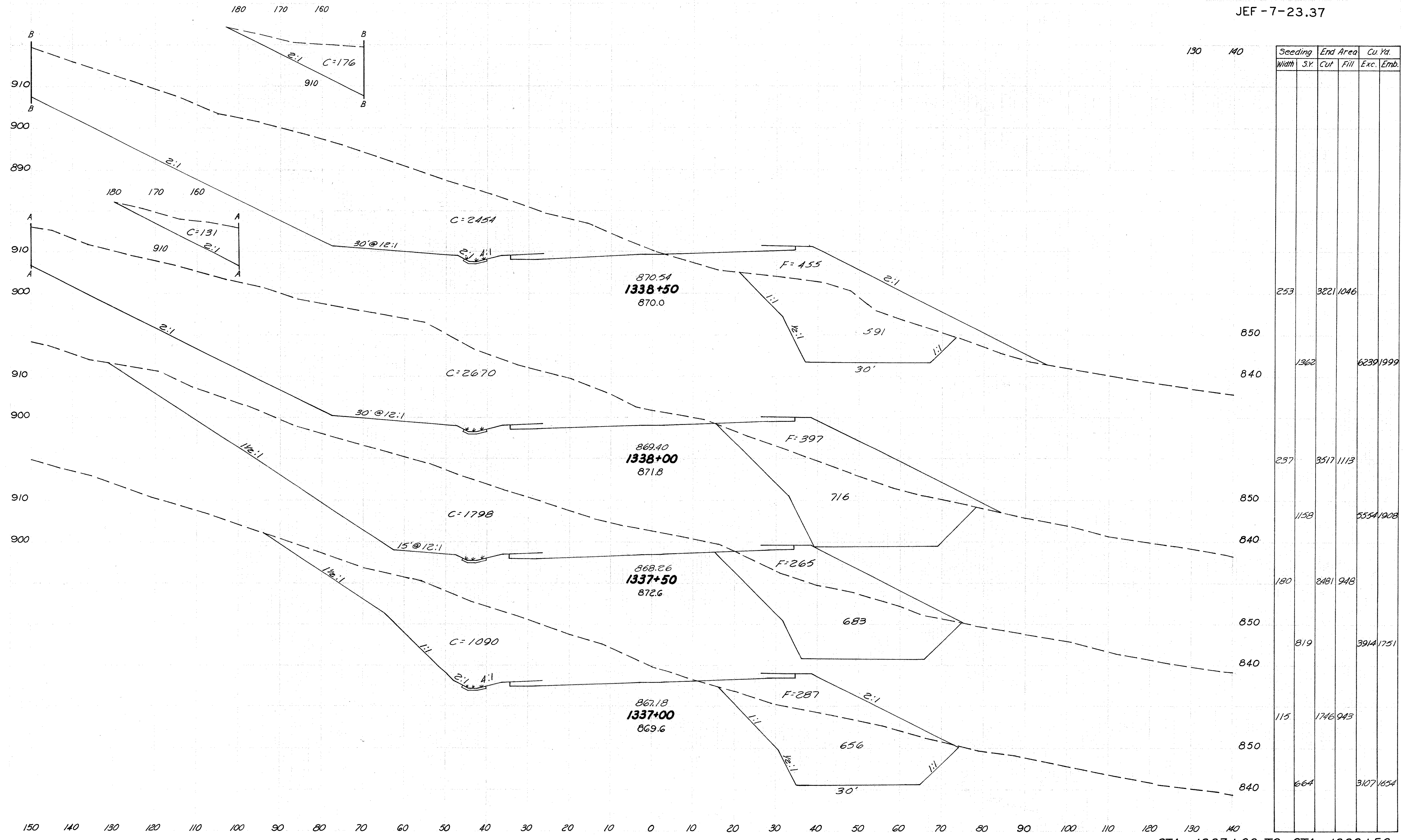




140 150



150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120



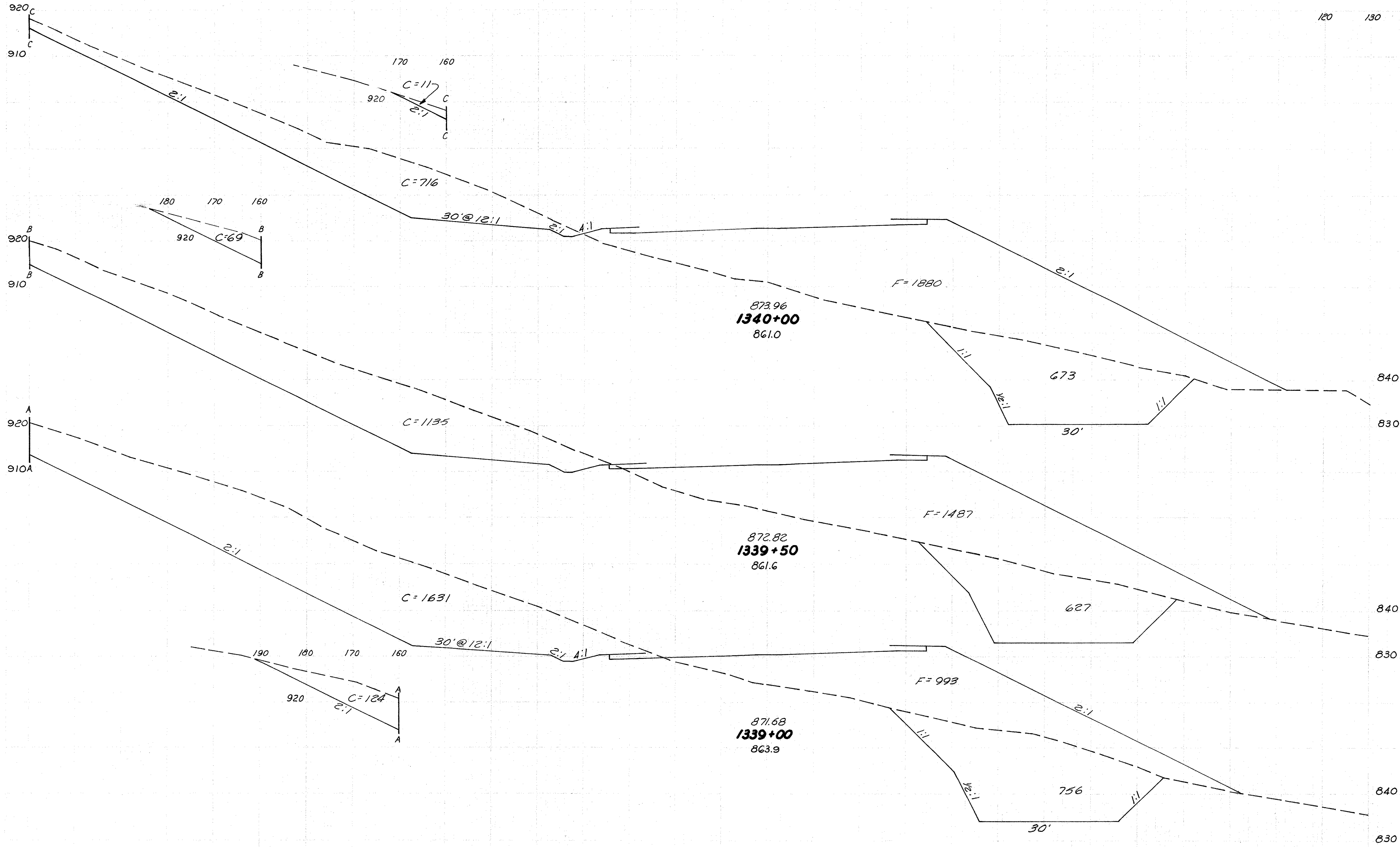
Seeding	End Area		Cu. Yd.	
	Width	S.Y.	Cut	Fill
253	3221	1046		
1362				6239/999
237	3517	1113		
1138				5554/908
180	2481	948		
819				3914/1751
115	1746	943		
664				3107/654

STA 1337+00 TO STA 1338+50



160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

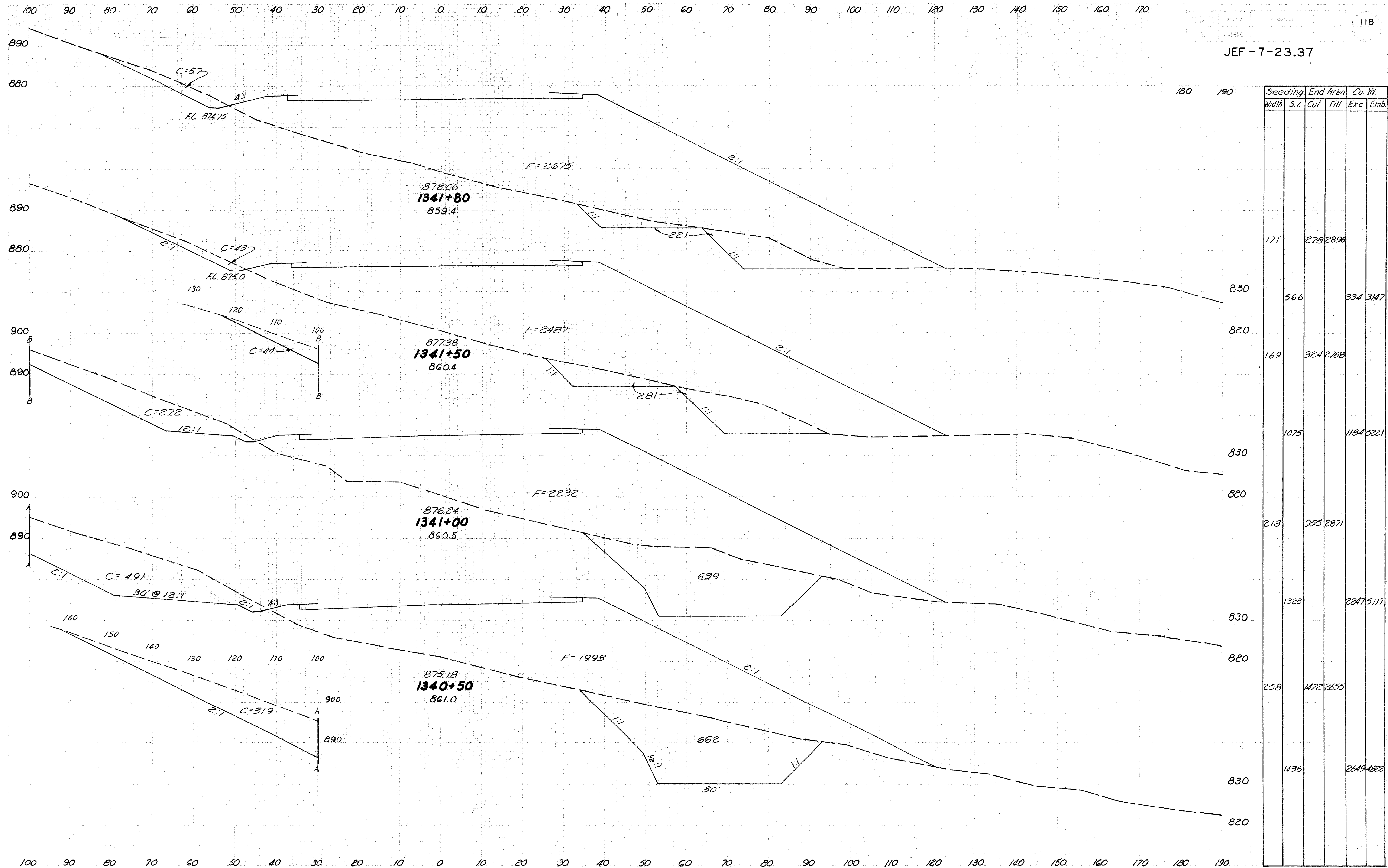
JEF-7-23.37



Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
259		1389	2553		
1473				2981	1321
271		1831	2114		
1508				4020	3577
272		2511	1749		
1458				5307	2588

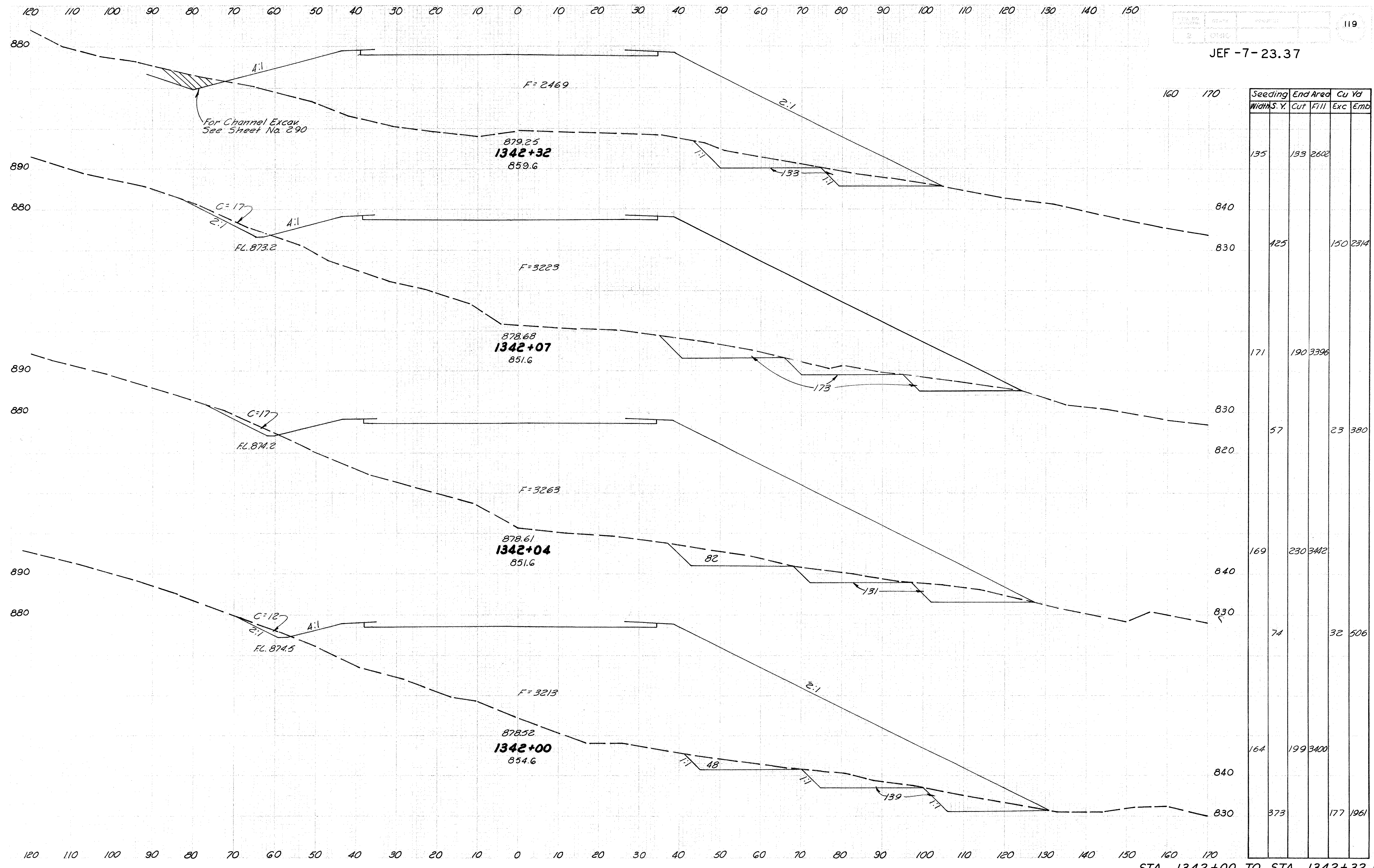
STA 1339+00 TO STA 1340+00

180 190



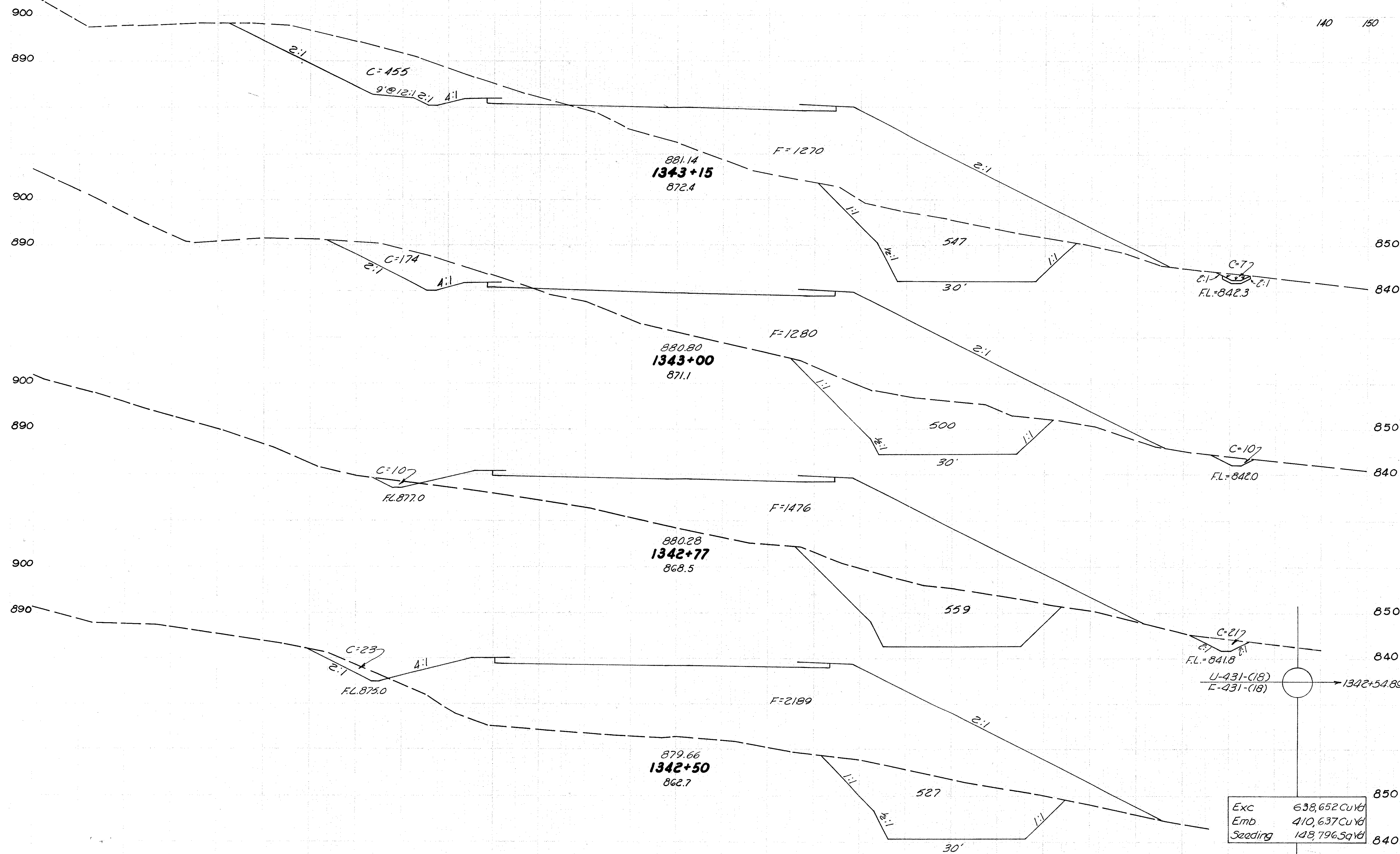
STA. 1340+50 TO STA. 1341+80





JEF -7- 23.37

JEF-7-23.37



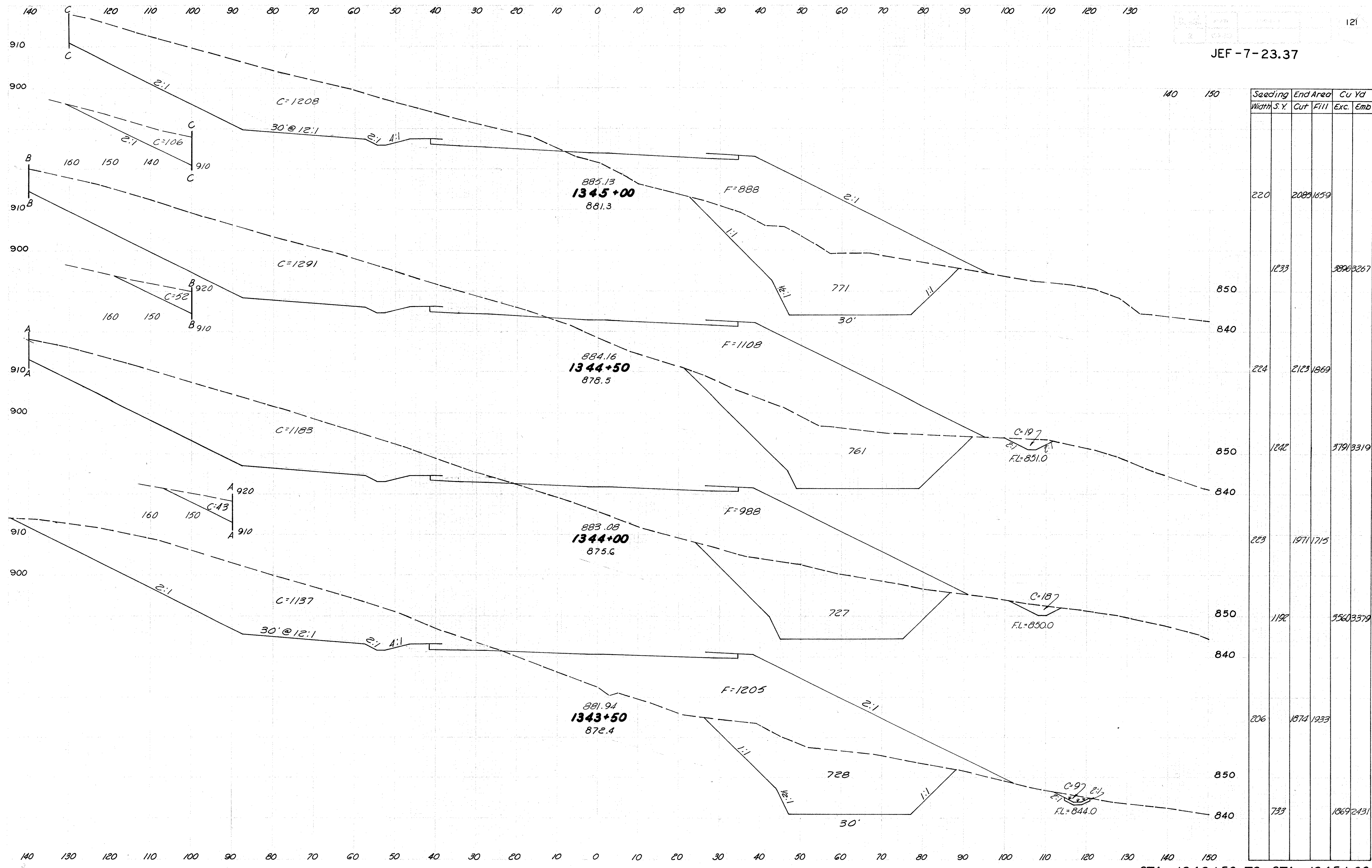
Exc	638,652 Cu Yd
Emb	410,637 Cu Yd
Seeding	148,796 Sq Yd

Seeding Width S.Y.	End Area		Cu Yd	
	Cut	Fill	Exc.	Emb.
171	1009	1817		
267			470	999
150	684	1780		
369			543	1625
139	590	2035		
339			471	1806
137	560	2375		
77			101	461
147	550	2716		
282			228	1773

STA 1342+50 TO STA 1343+15

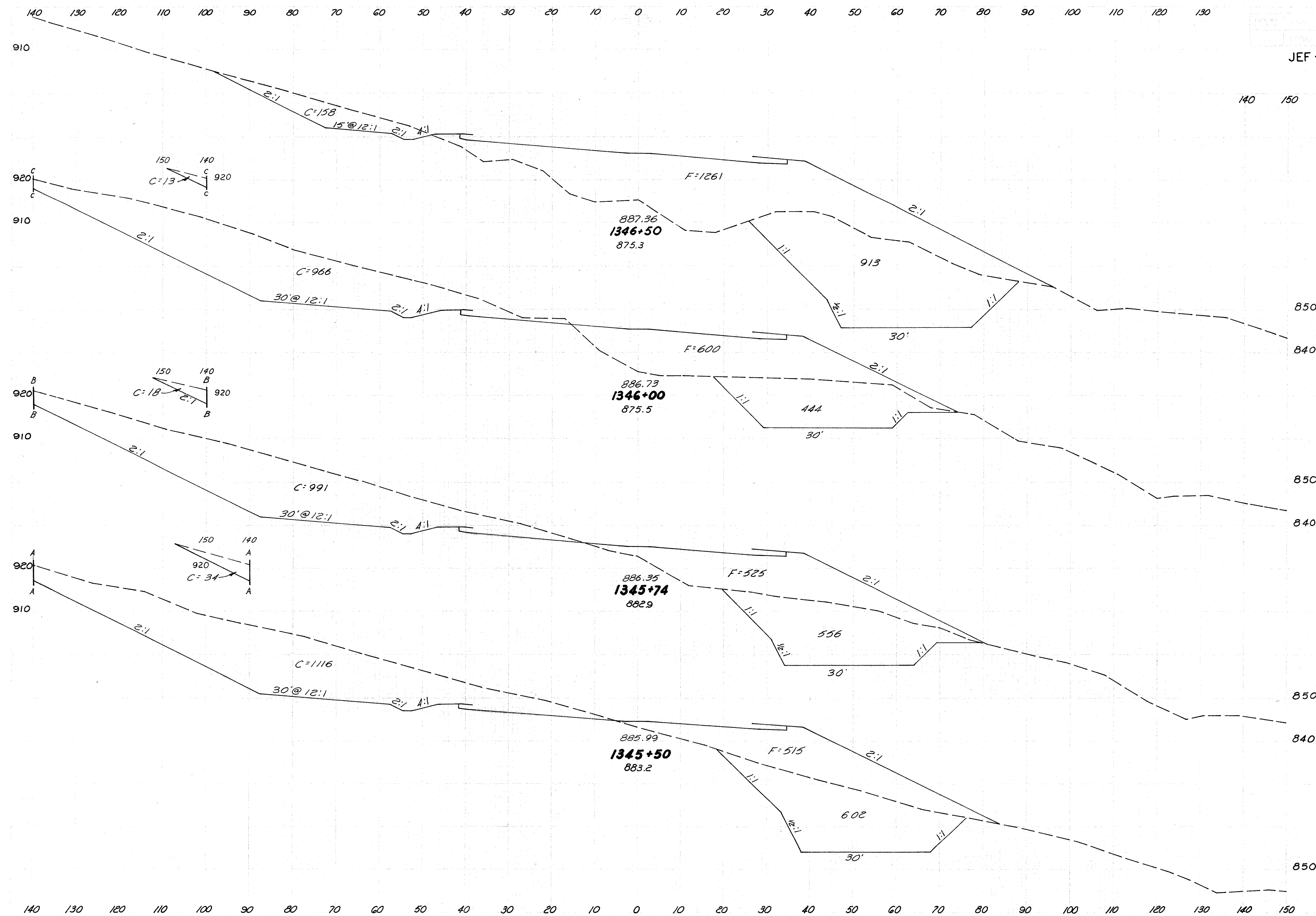


JEF-7-23.37



STA. 1343+50 TO STA. 1345+00

JEF-7-23.37

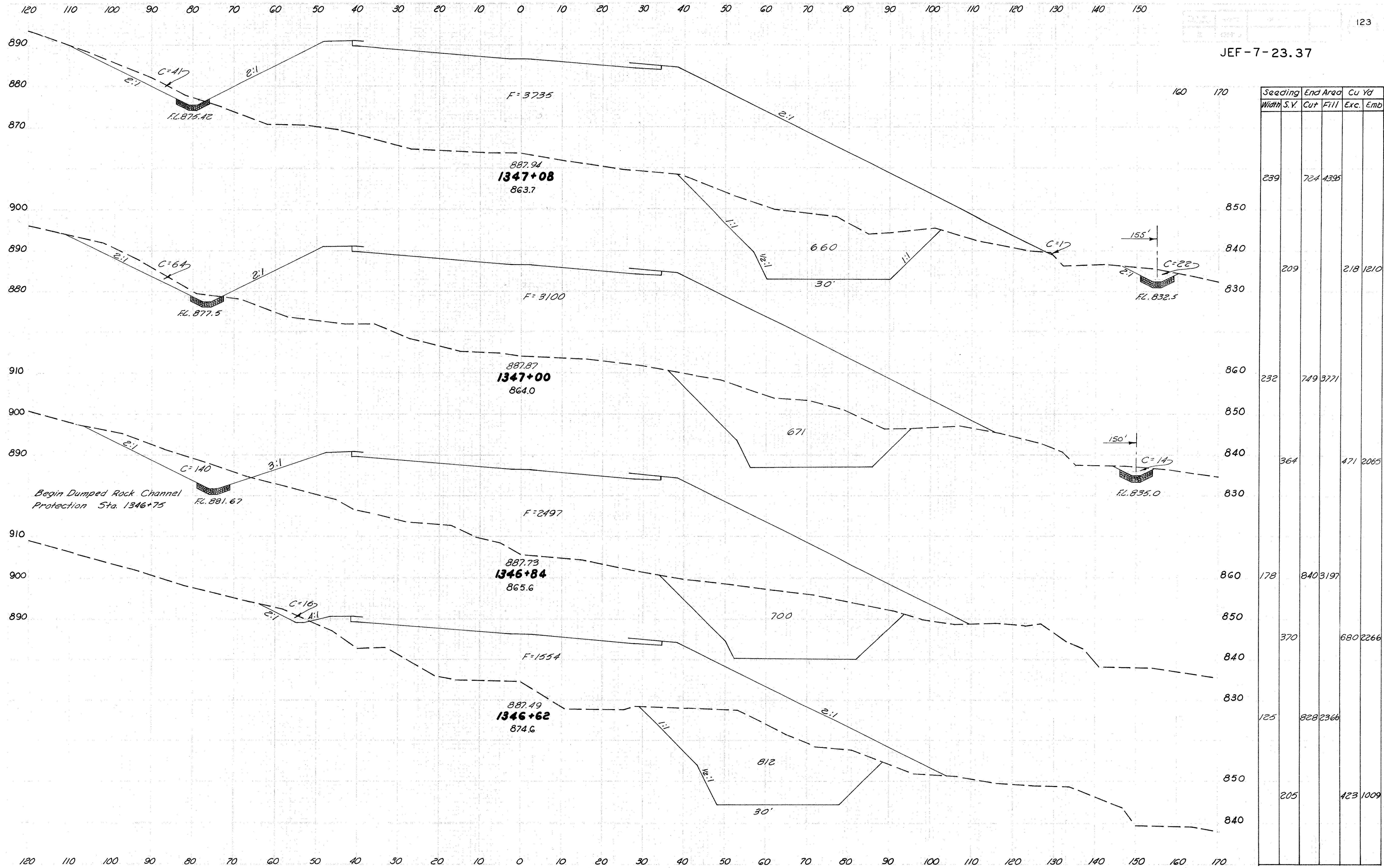


Seeding	End Area		Cu. Yd.	
	Width	S.Y.	Cut	Fill
			Exc.	Emb.
	152		1071	2174
	931		2298	2969
	183		1411	1032
	544		1433	1017
	194		1565	1081
	528		1474	977
	202		1252	1117
	1172		3553	2570

STA. 1345+50 TO STA. 1346+50

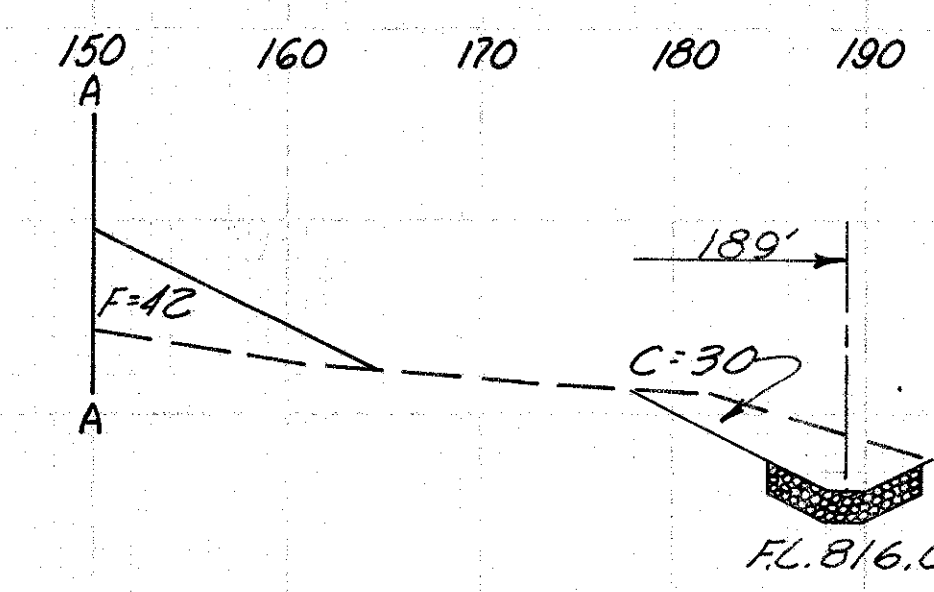
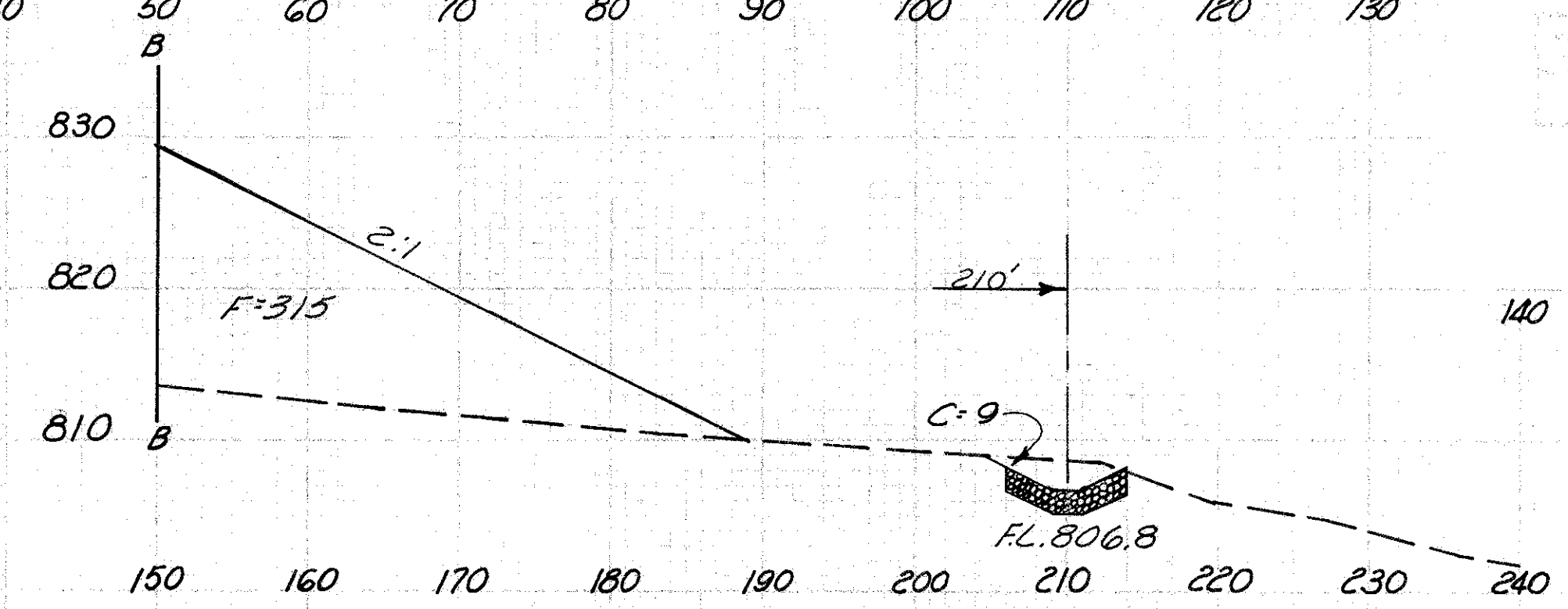
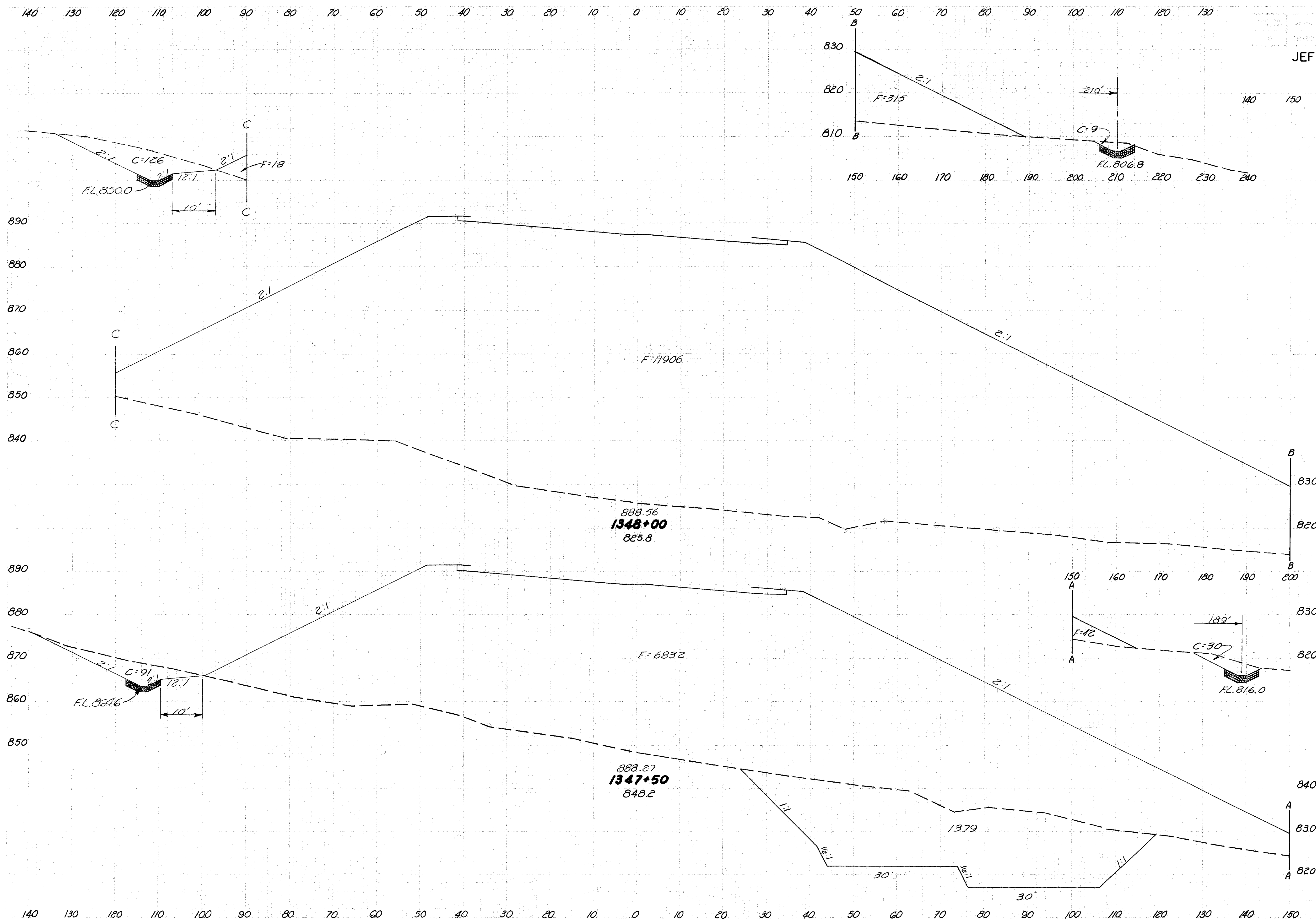


JEF-7-23.37



STA. 1346+62 TO STA. 1347+08

JEF-7-23.37

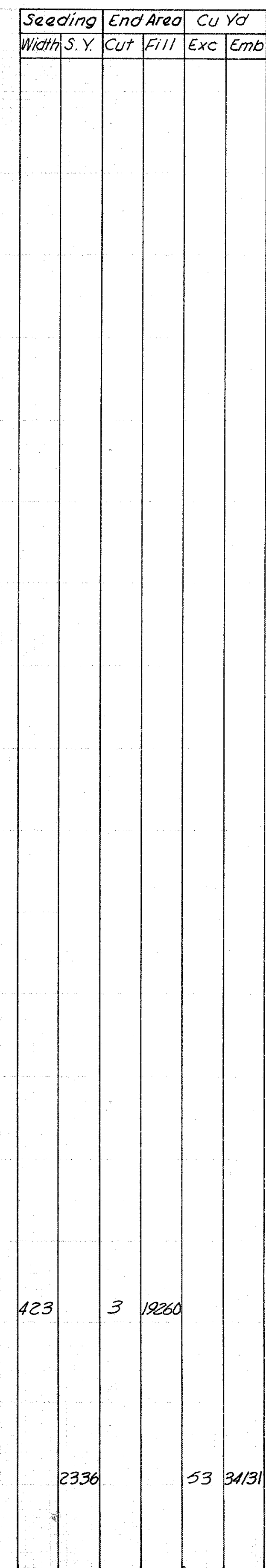
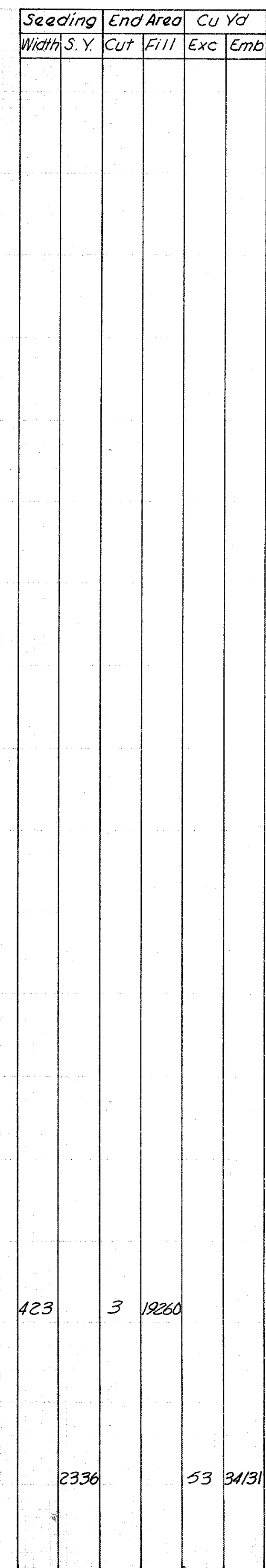


Seeding	End Area	Cu Yd	
		Exc	Emb
Width	S.Y.	Cut	Fill
357	135	12239	
1842		1514	18974
306	1500	8253	
1272		1730	9993

STA. 1347+50 TO STA. 1348+00

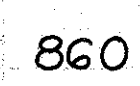




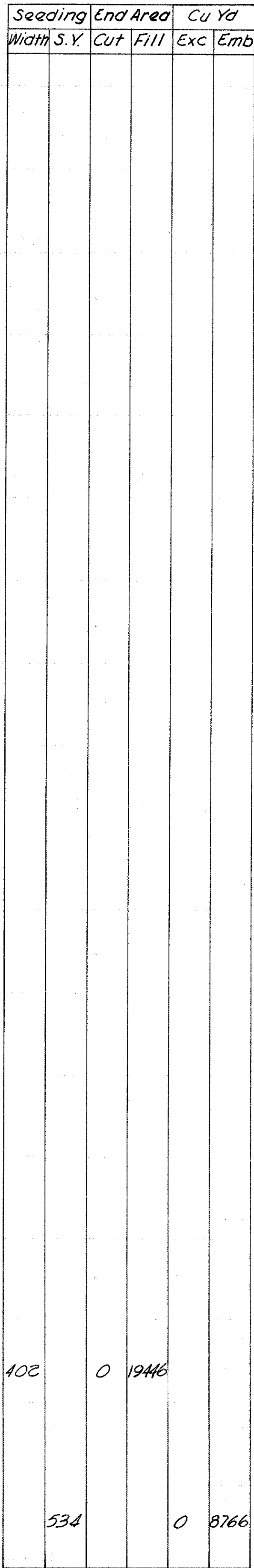




50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260
----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



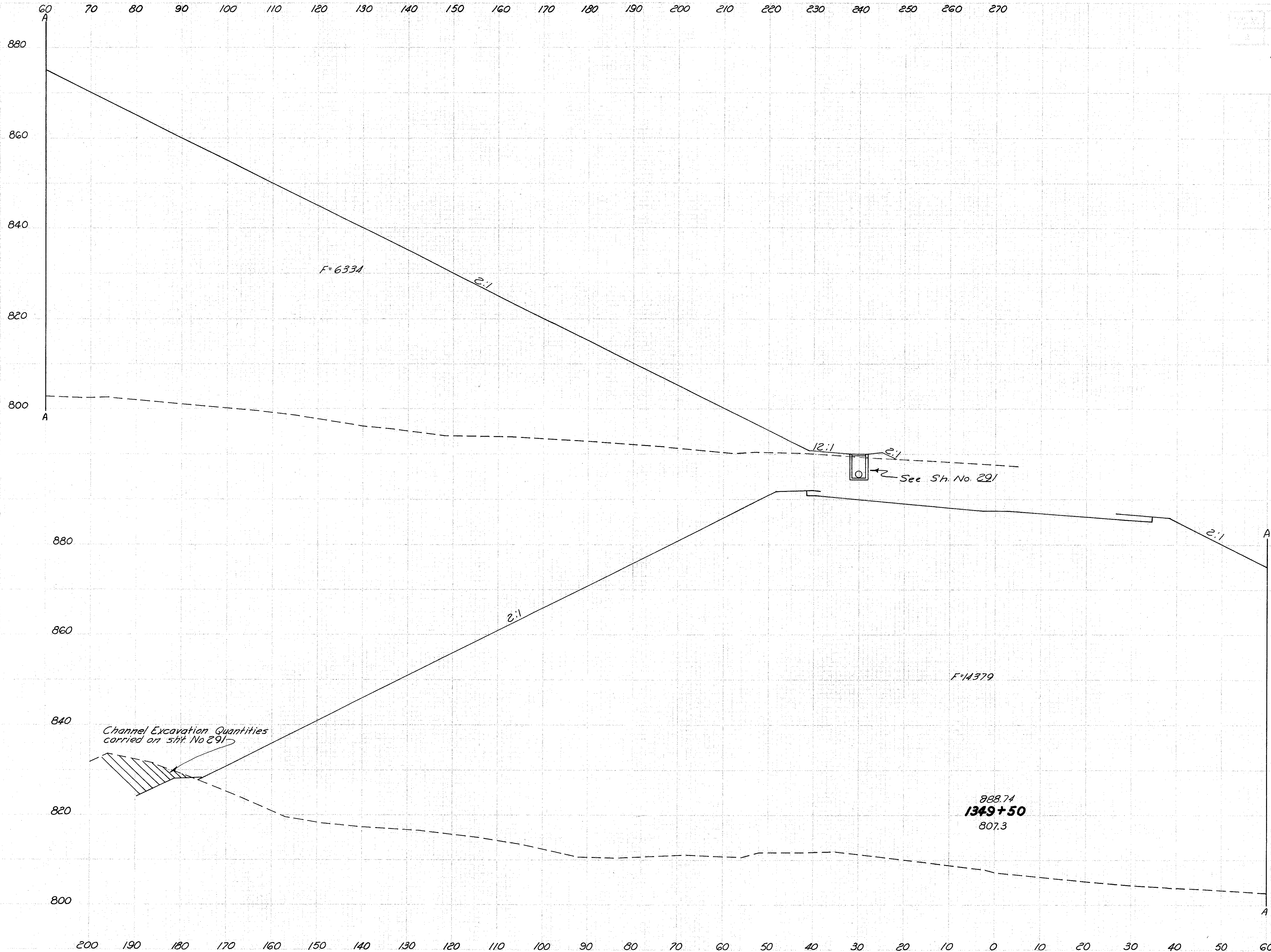
STA. 1349+25



STA 1.349+.37

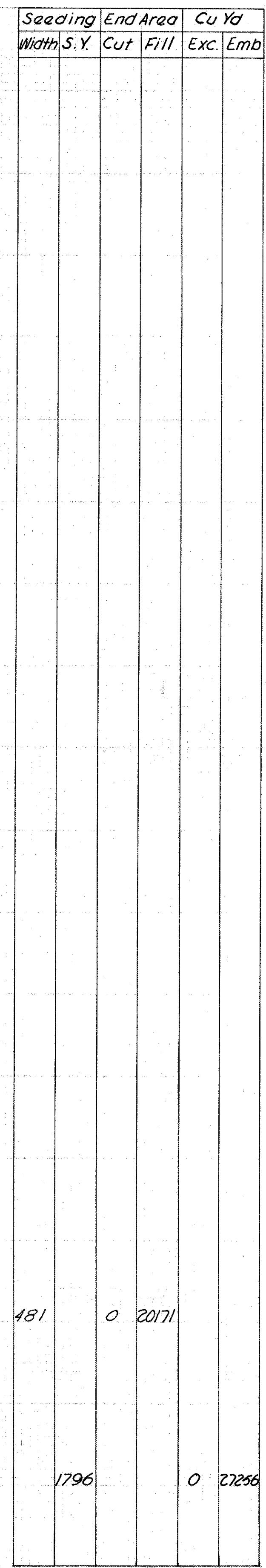


JEF - 7-23.37



Seeding Width	S.Y.	End Area		Cu Yd	
		Cut	Fill	Exc	Emb
399		0	20713		
578				0	9668
STA 1349+50					

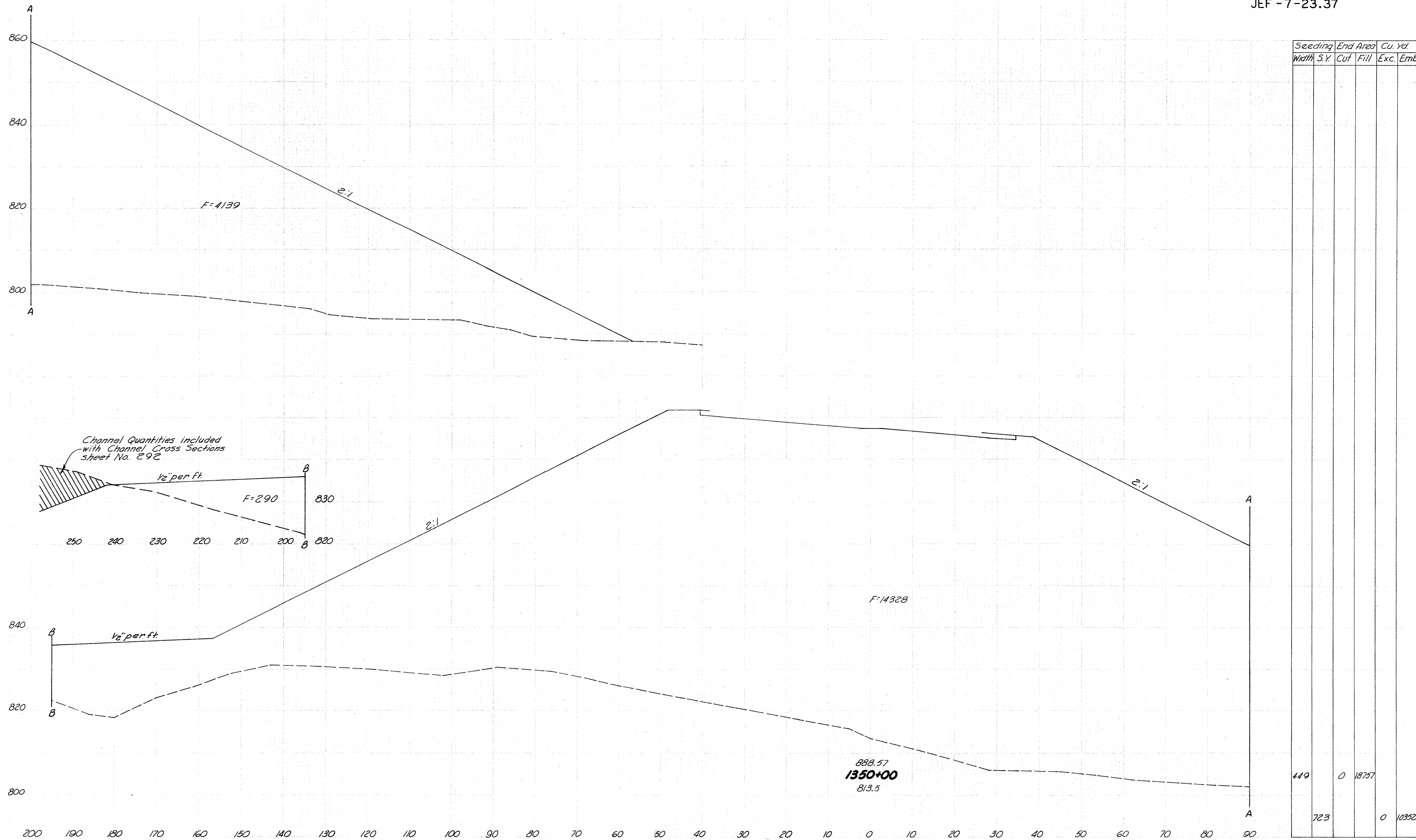
STA 1.349+86



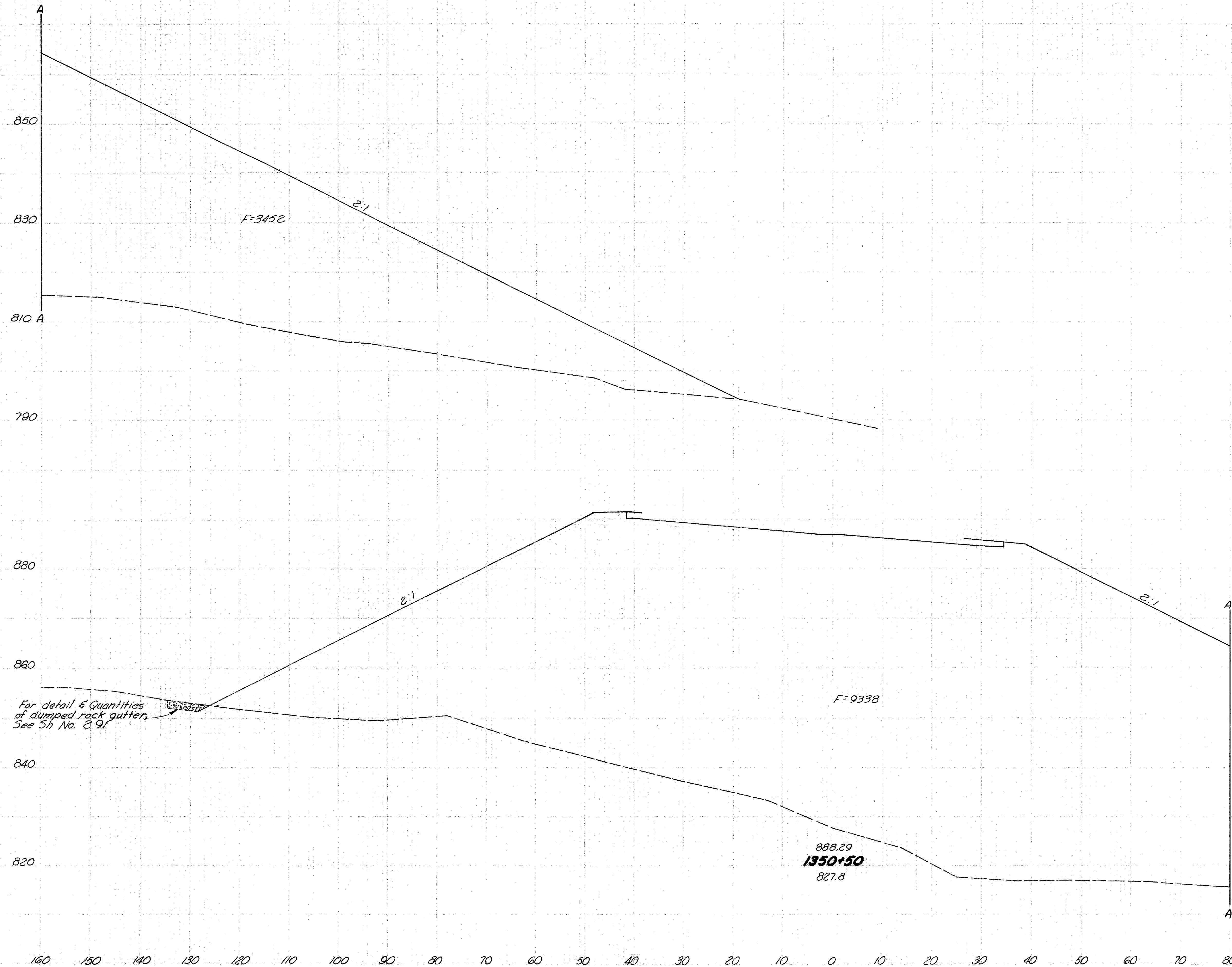


90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250

JEF - 7-23.37



80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250

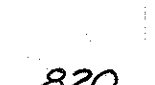


Seeding		End Area		Cu Yds	
Width	S.Y.	Cut	Fill	Exc.	Emb
325		0	12790		
	2150			0	29210

STA. 1350+50

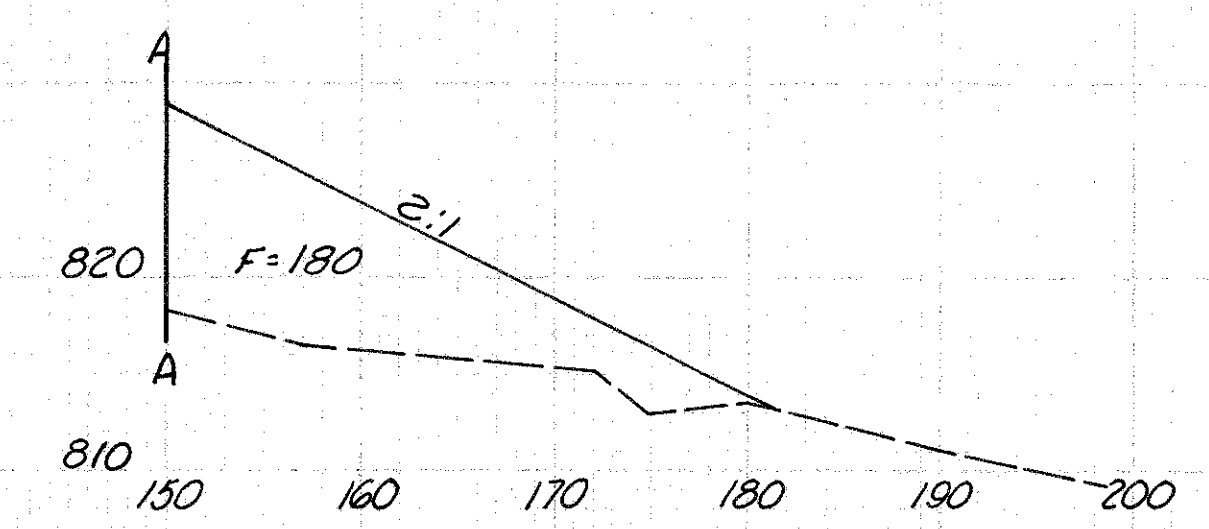


150 160



887.89  
**1351+00**  
847.8

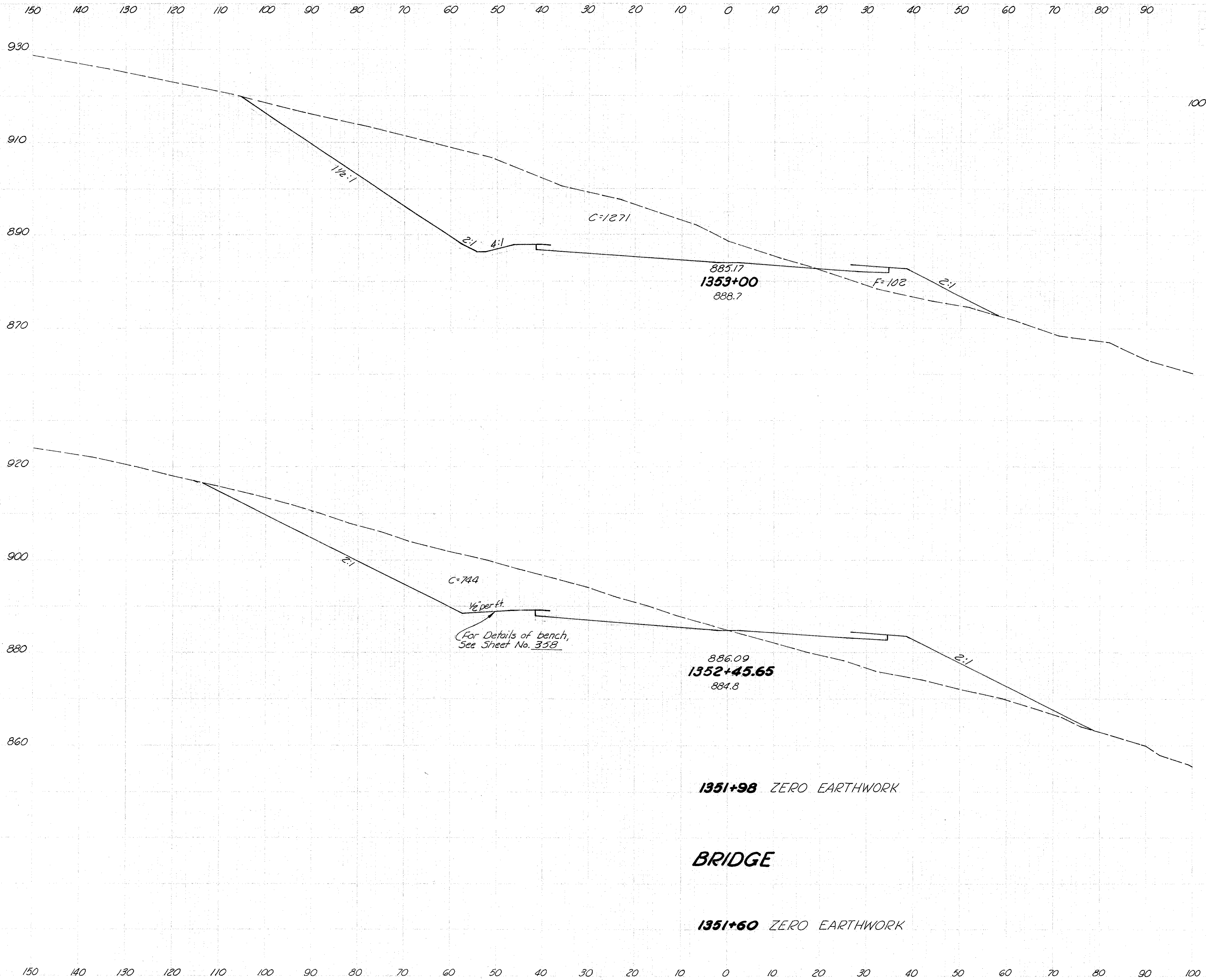
2.



Seeding Width	S. Y.	End Area Cut	Fill	Cu. Yd. Exc.	Yd. Emb
231		0	5710		
	566			0	5117
259		0	7455		
	1622			0	18675

STA. 1351+00 TO STA. 1351+20.99

JEF -7-23.37



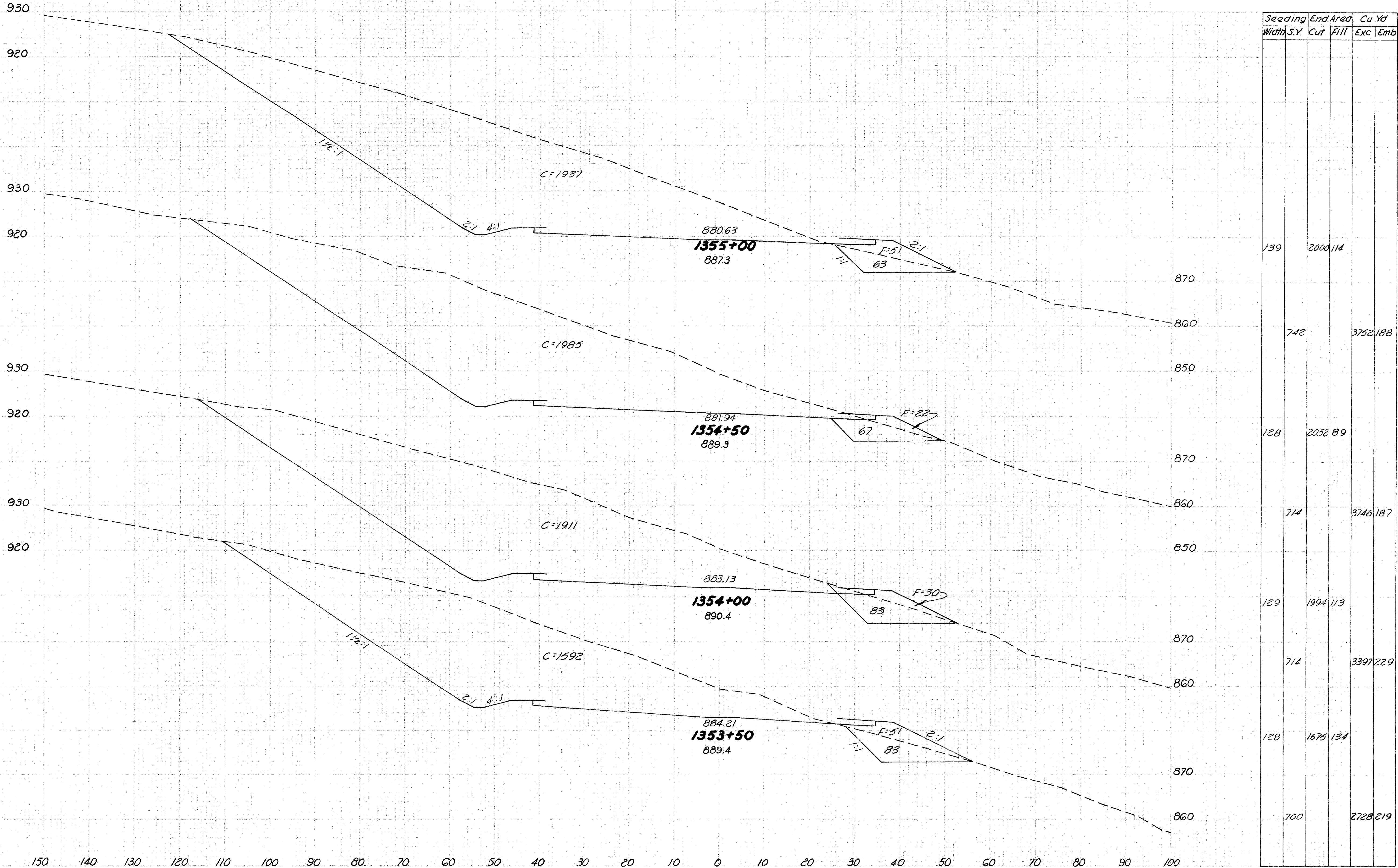
1351+98 ZERO EARTHWORK

BRIDGE

1351+60 ZERO EARTHWORK

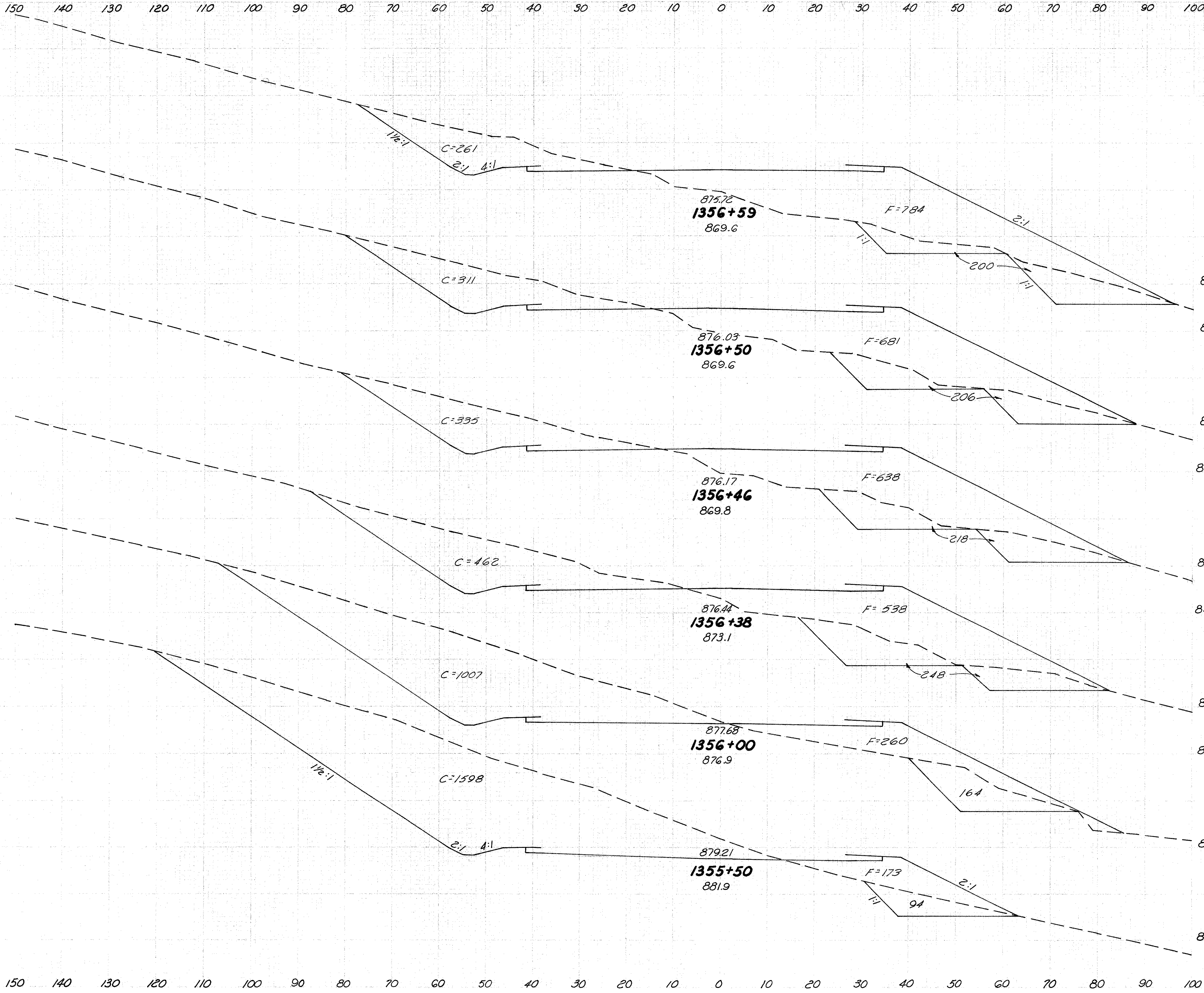


JEF - 7 - 23.37



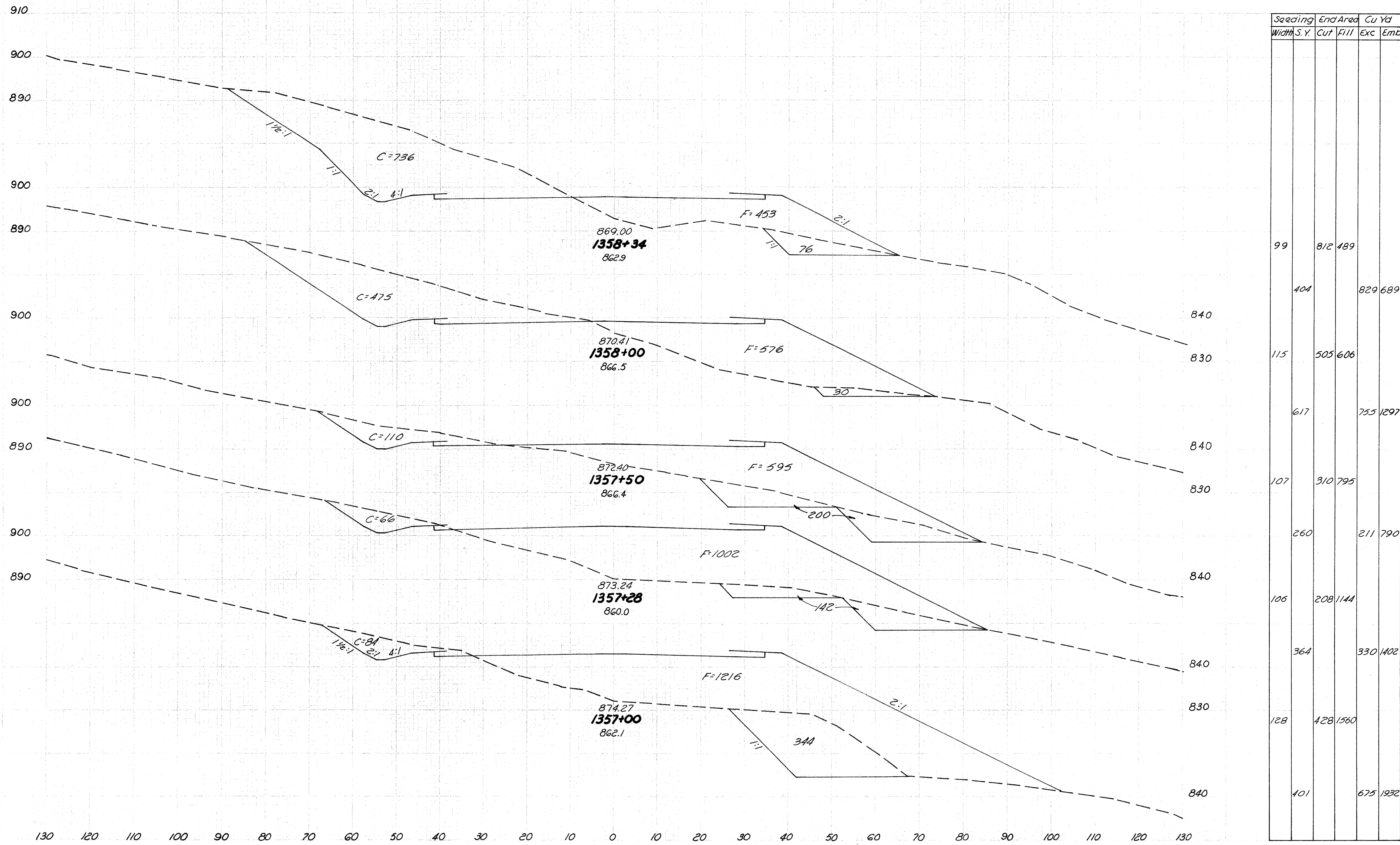
STA. 1353+50 TO STA. 1355+00

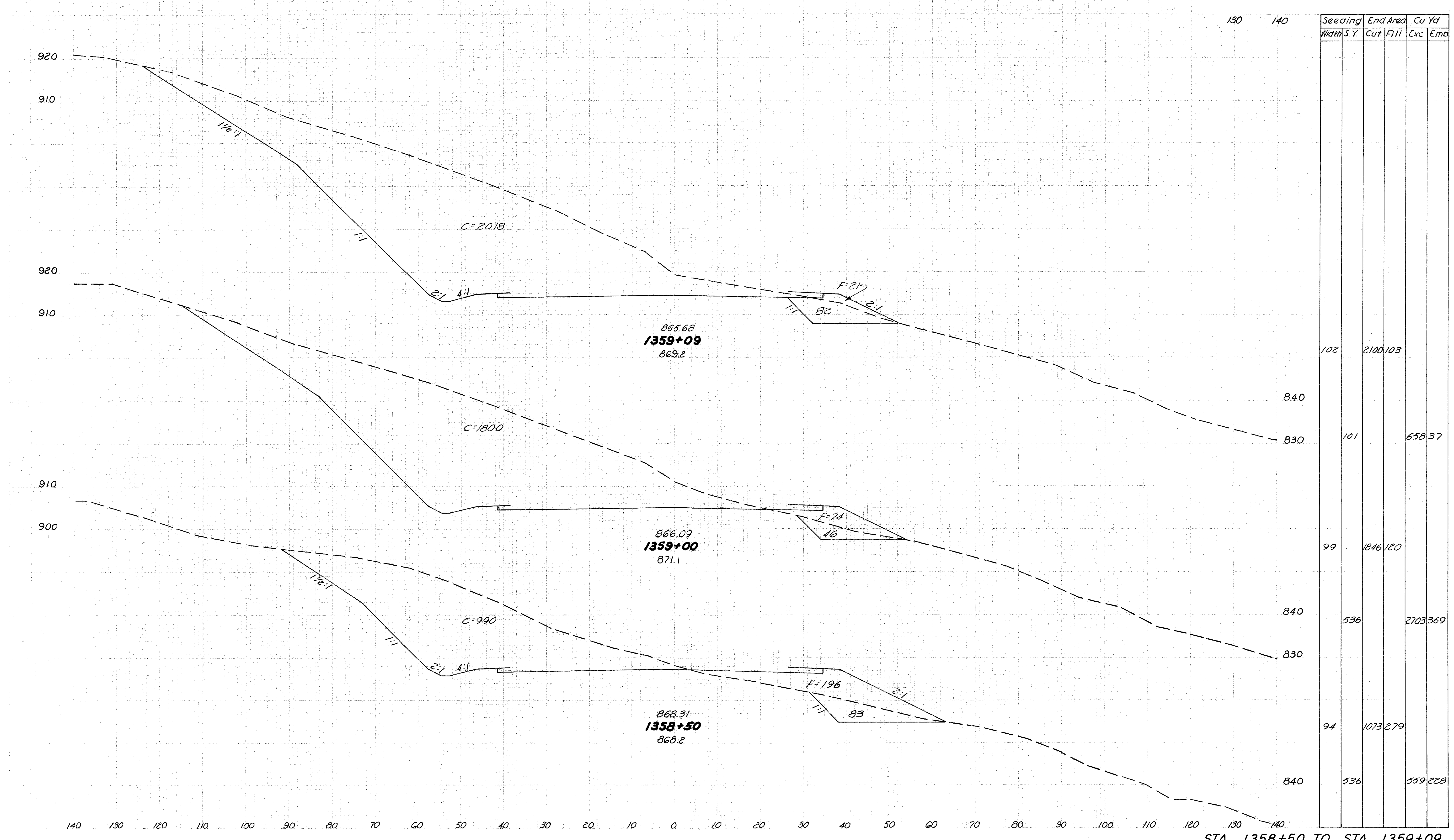
JEF - 7 - 23.37



STA. 1355+50 TO STA. 1356+59









160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

JEF-7-23.37

110 120

930  
920  
910  
930  
920  
910  
930  
920  
910  
930  
920  
910

Seeding		End Area		Cu Yd	
Width	S.Y.	Cut	Fill	Exc	Emb
87		2720	0		
514				4742	74
98		2401	80		
341				2667	113
100		2245	116		
112				805	41

C=2720

861.32  
1360+00  
873.1

C=2333

863.76  
1359+50  
873.7

C=2162

865.22  
1359+19  
872.5

1/2:1

1:1

2:1 4:1

1/2:1

1:1

2:1 4:1

F=12

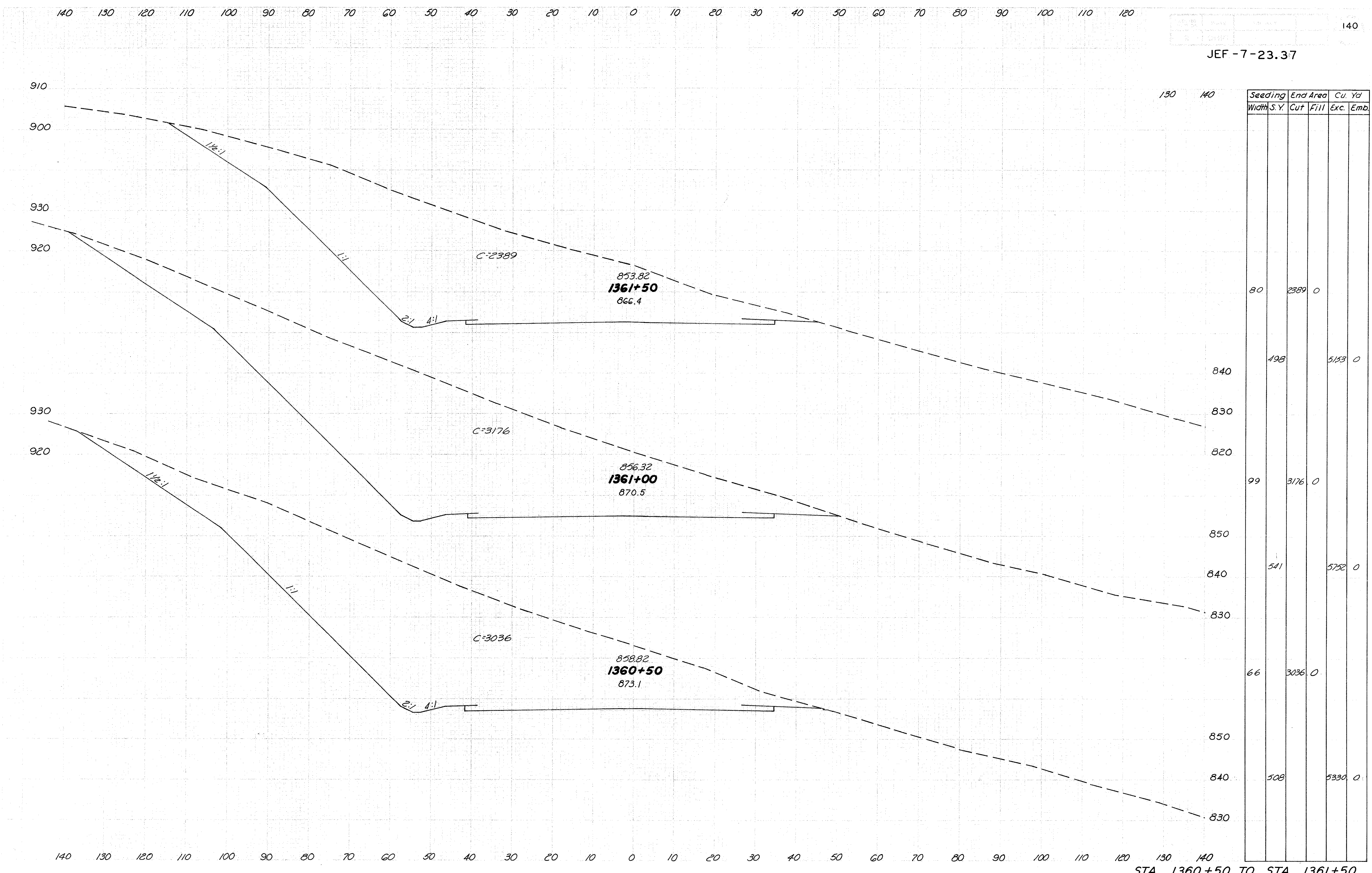
68

F=33

83

STA 1359+19 TO STA 1360+00

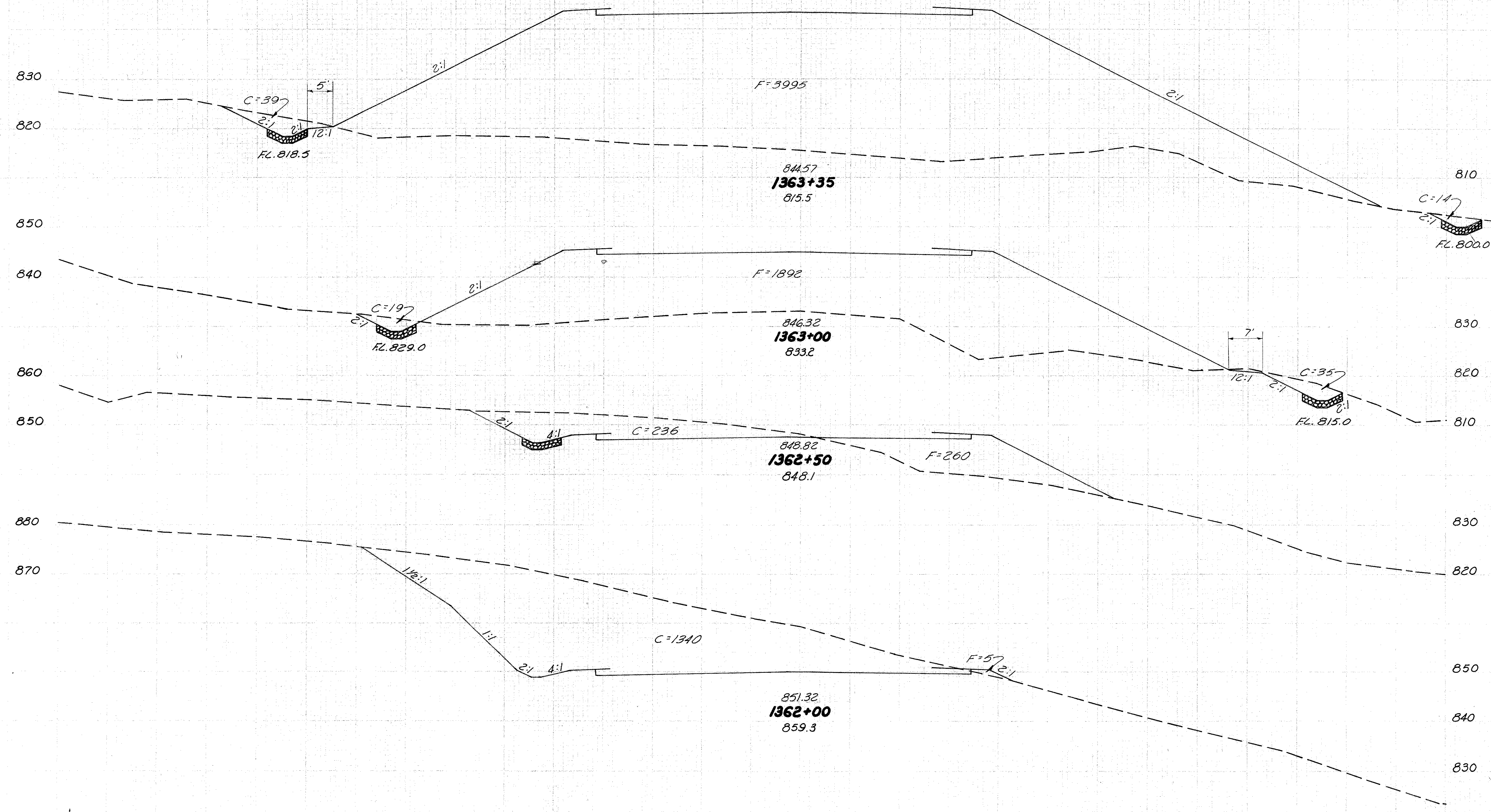
JEF-7-23.37





150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

120 130



150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

STA 1362+00 TO STA 1363+35

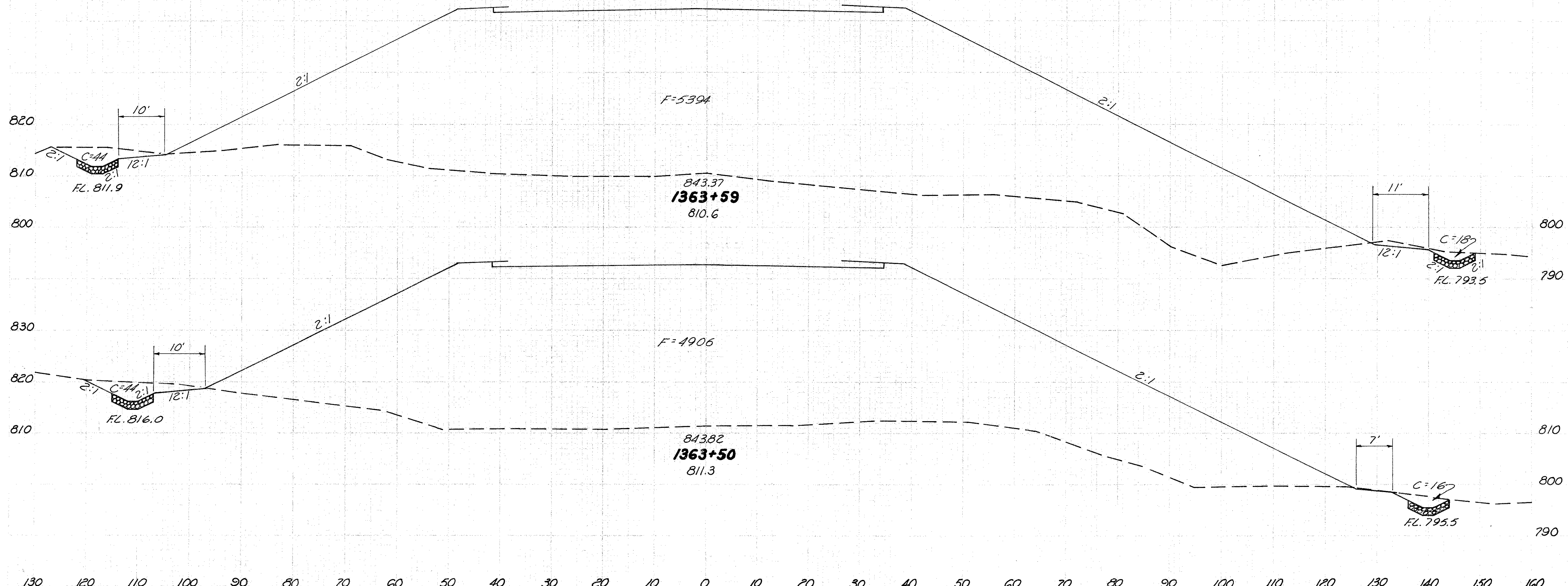
Seeding Width S.Y.	End Area		Cu Yd	
	Cut	Fill	Exc	Emb
220	53	3995		
739			73	3816
160	54	1892		
675			269	1993
83	236	260		
428			1459	245
850				
840	71	1340	5	
830	419		3453	5

130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

JEF-7-23.37

150 160

Seeding Width S. Y.	End Area		Cu Yd	
	Cut	Fill	Exc	Emb
245	62	5394		
240			20	1717
234	60	4906		
378			31	2473

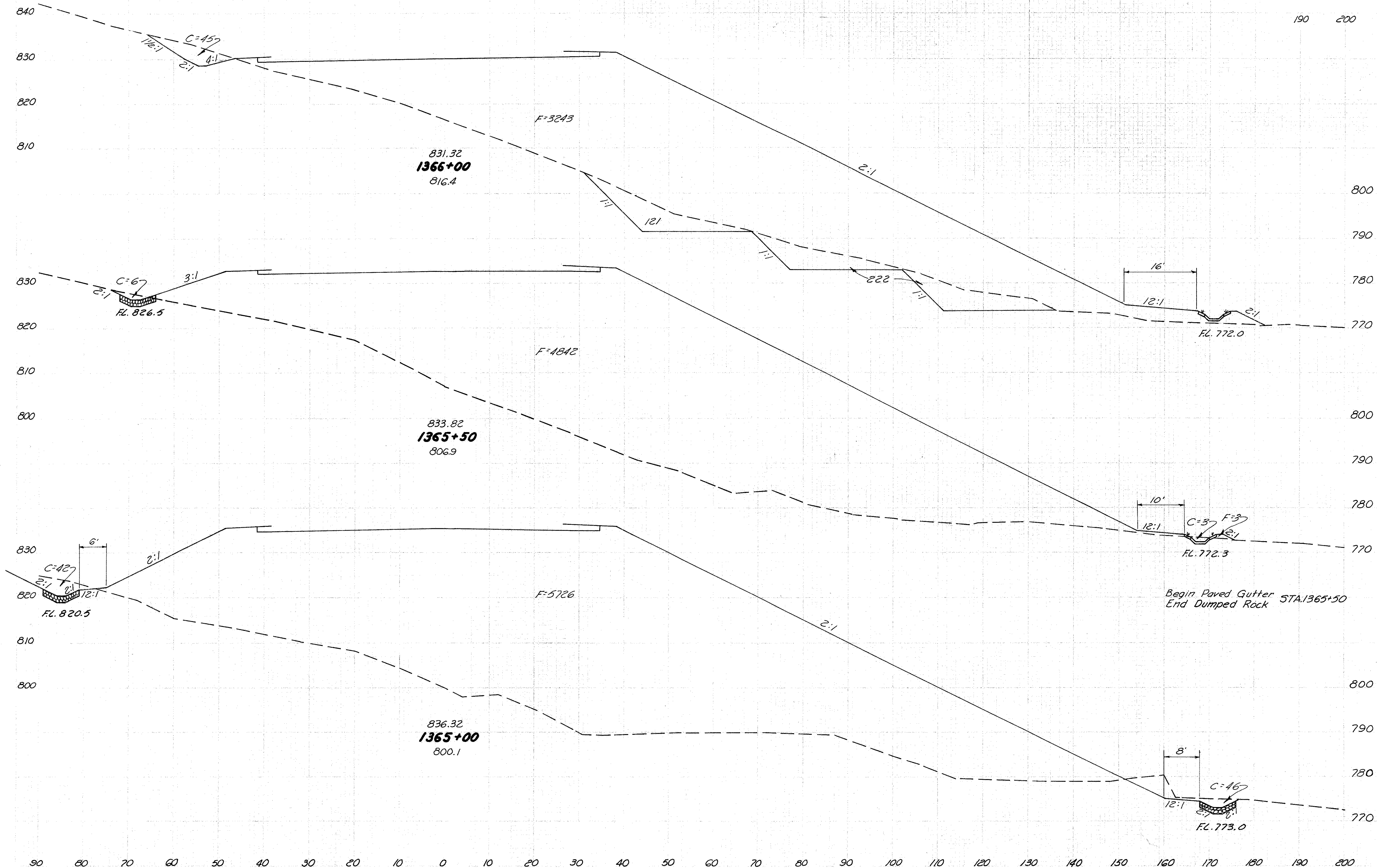


130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

STA. 1363+50 TO STA. 1363+59

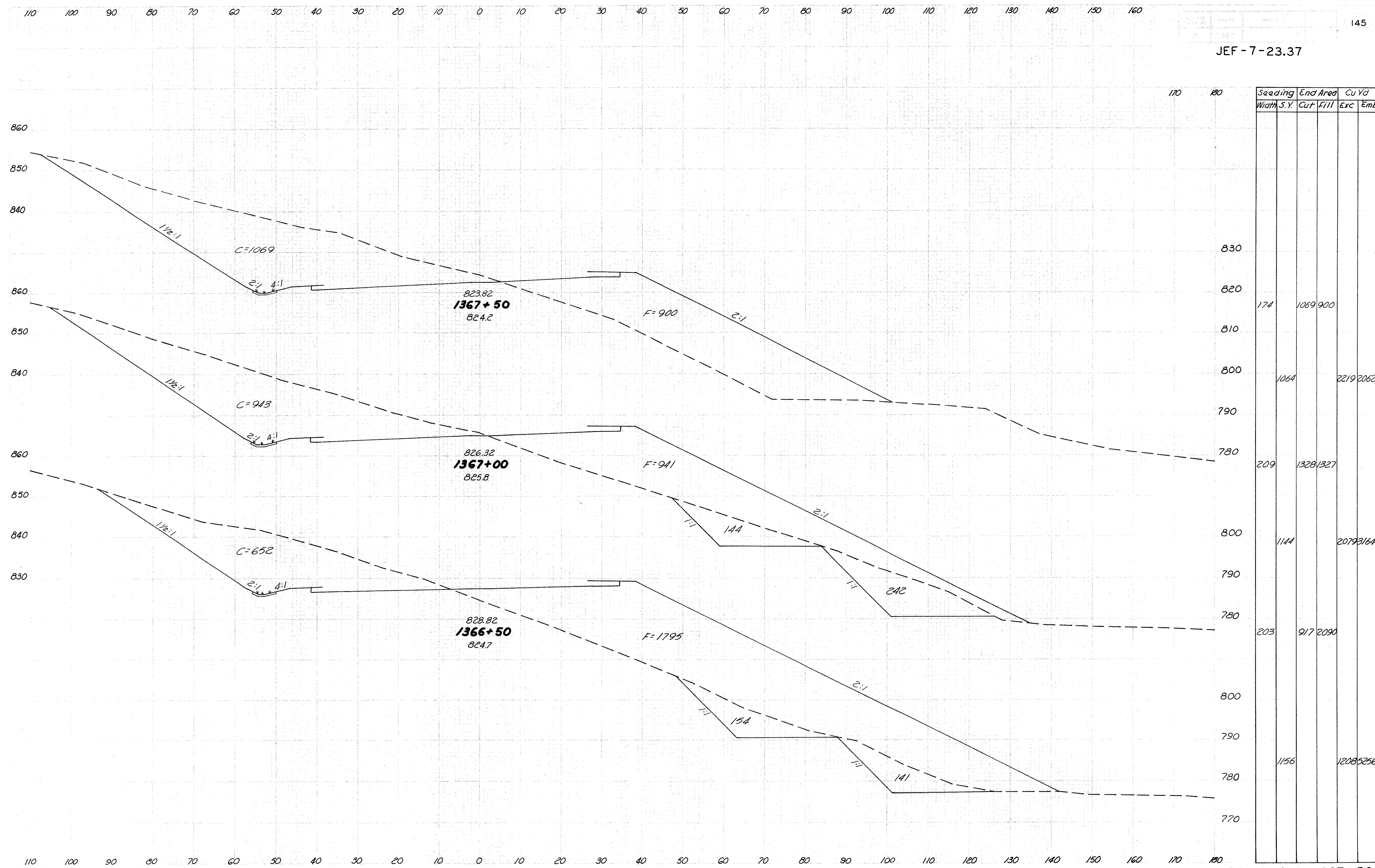






Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
213		388	3586		
214	9	4645			
215		28	1709		
238	88	5726			
1256		90	9788		



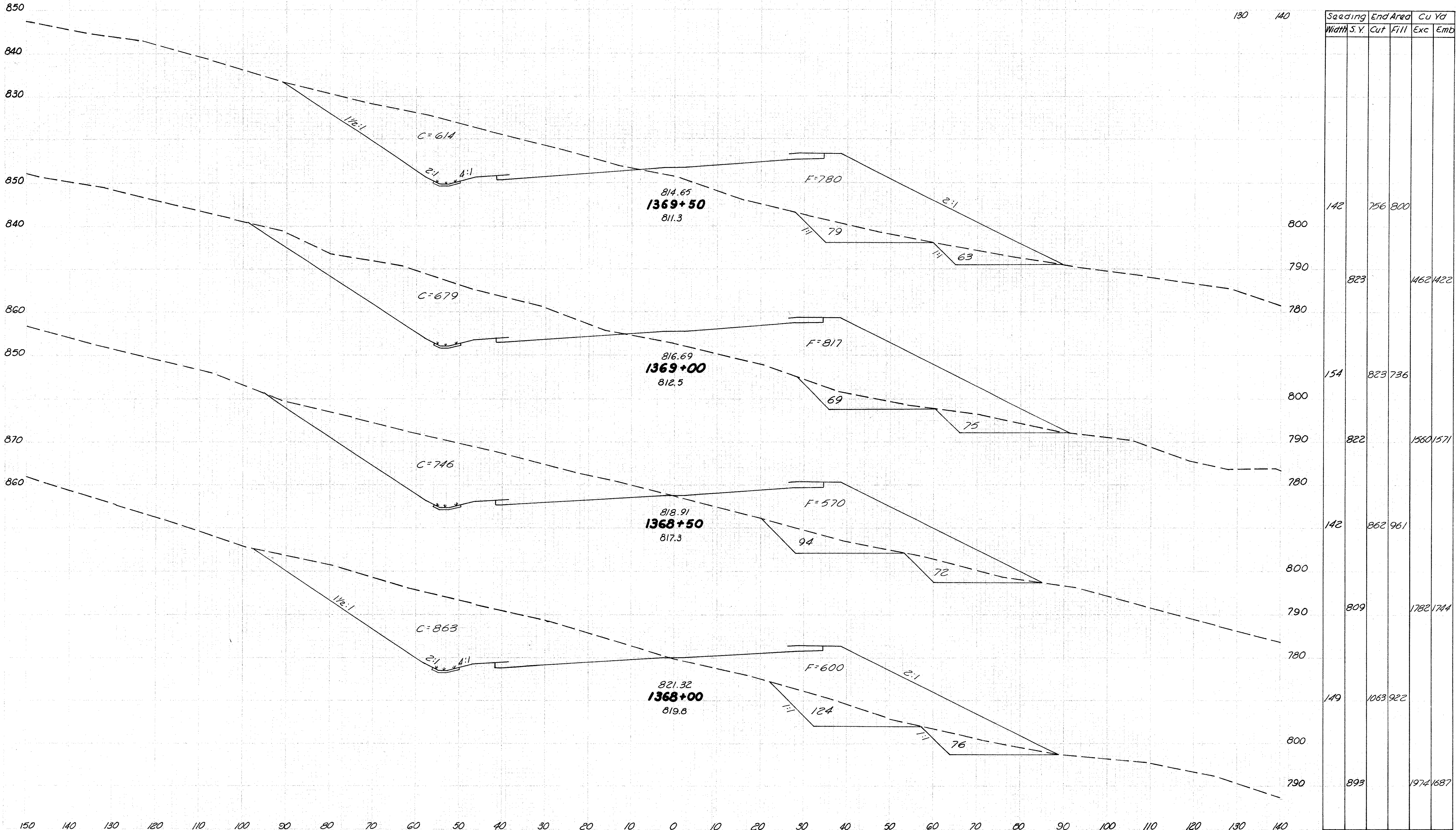


JEF-7-23.37

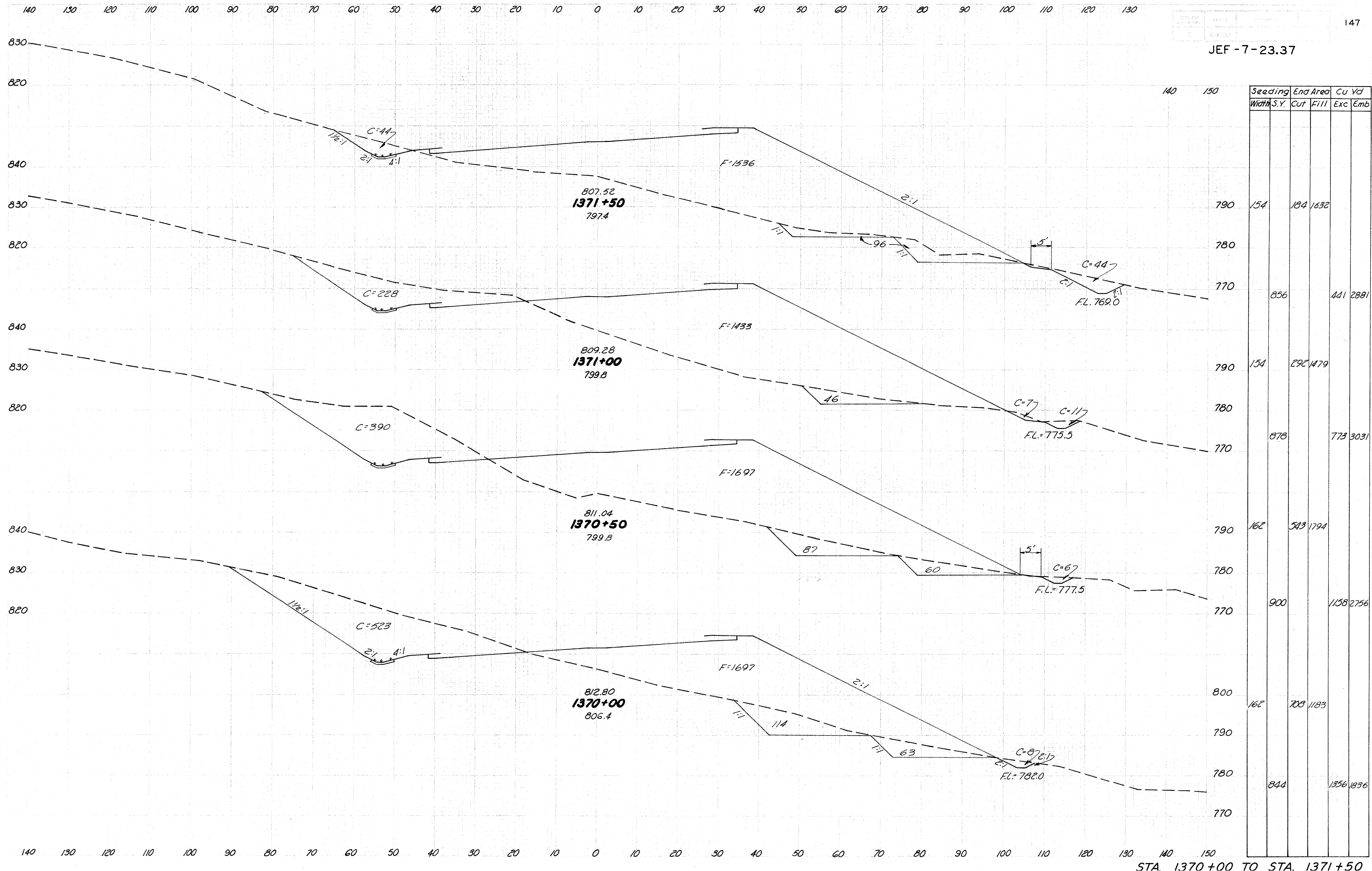
Seeding	End Area	Cu Yd	
		Exc	Emb
Width	S.Y.	Cut	Fill
174	1069	900	
1064			2219
209	1328	1327	
1144			2079
203	917	2090	
1156			1208

STA. 1366+50 TO STA. 1367+50

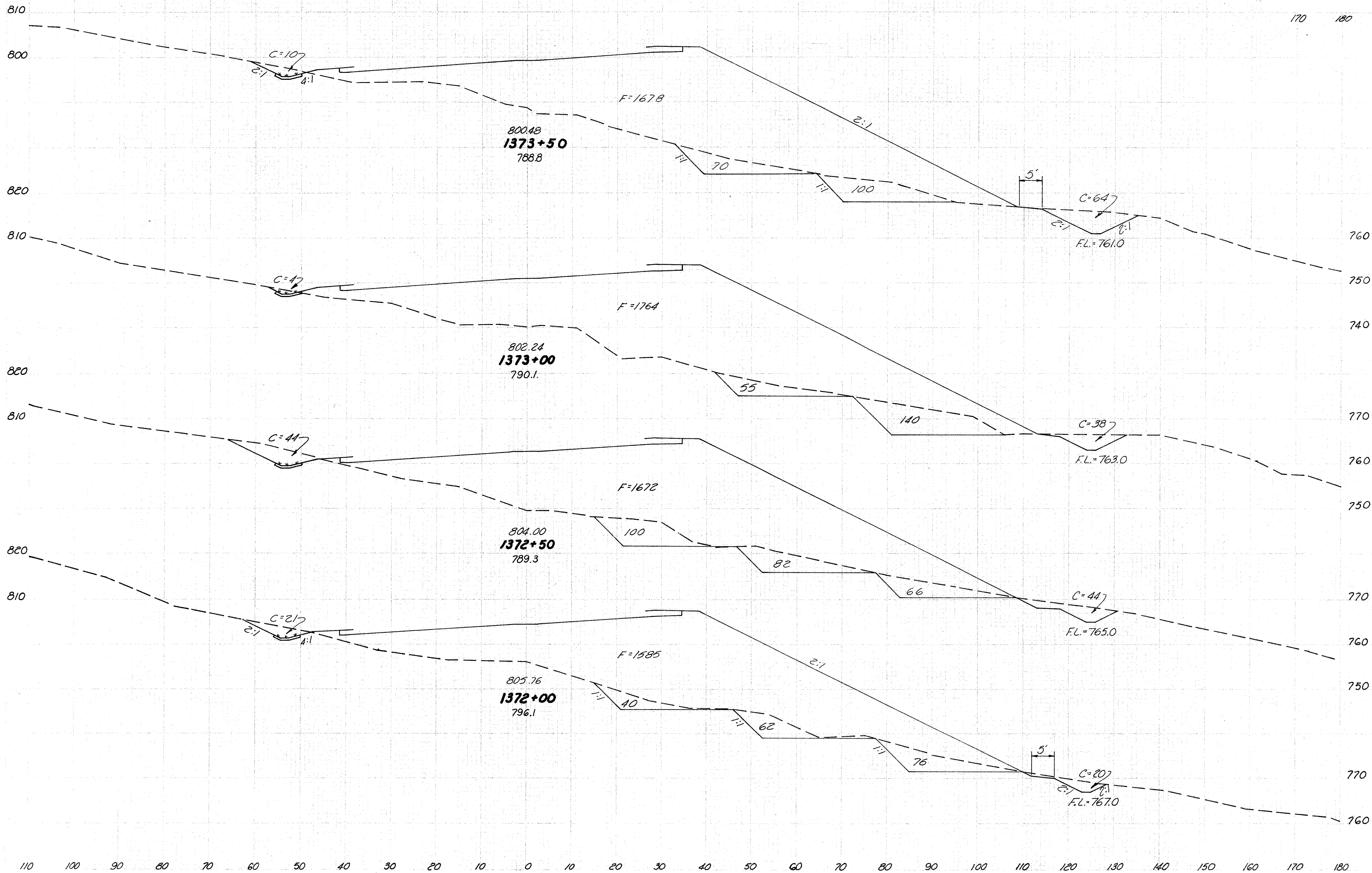
JEF-7-23.37







JEF - 7 - 23.37

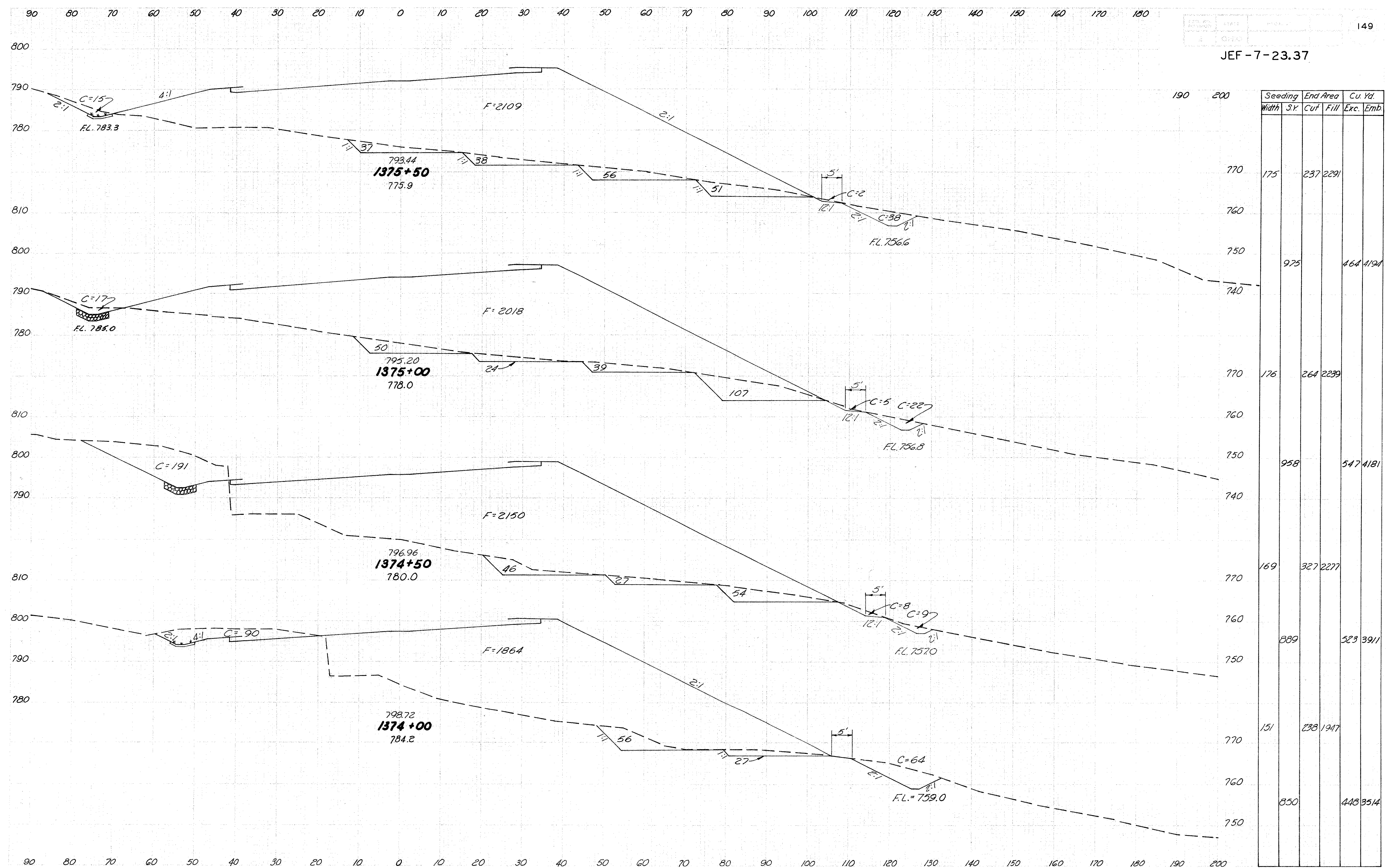


Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
155		246	1848		
	847			447	3525
150		237	1959		
	858			531	2666
159		336	1920		
	864			514	3373
152		219	1723		
	850			373	3106

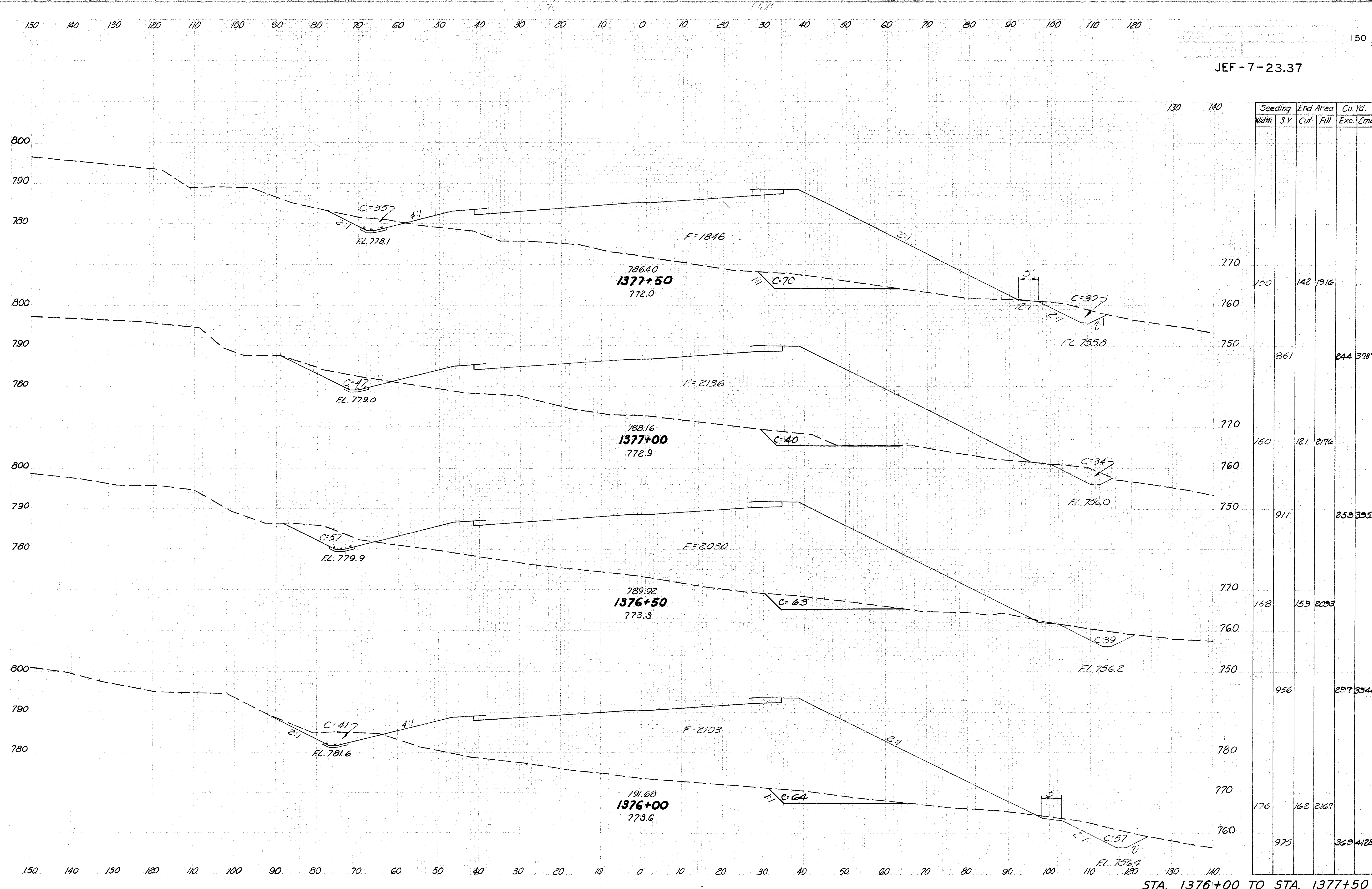
STA 1372+00 TO STA 1373+50



JEF-7-23.37



STA. 1374+00 TO STA. 1375+50

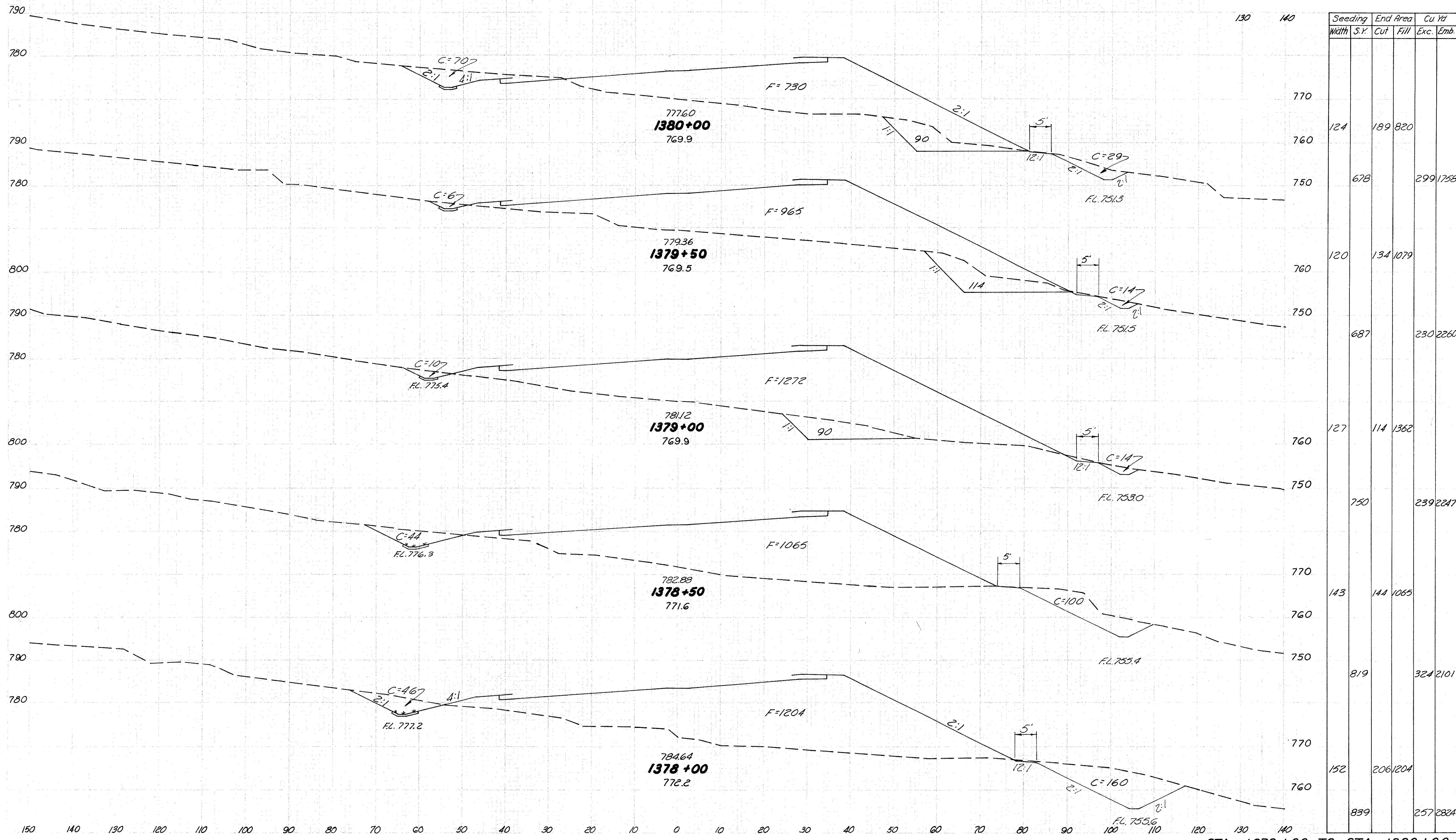


Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
150		142	1916		
	861			244	3787
160		121	2176		
	911			258	3533
168		159	2093		
	956			297	3944
176		162	2167		
	975			369	4128



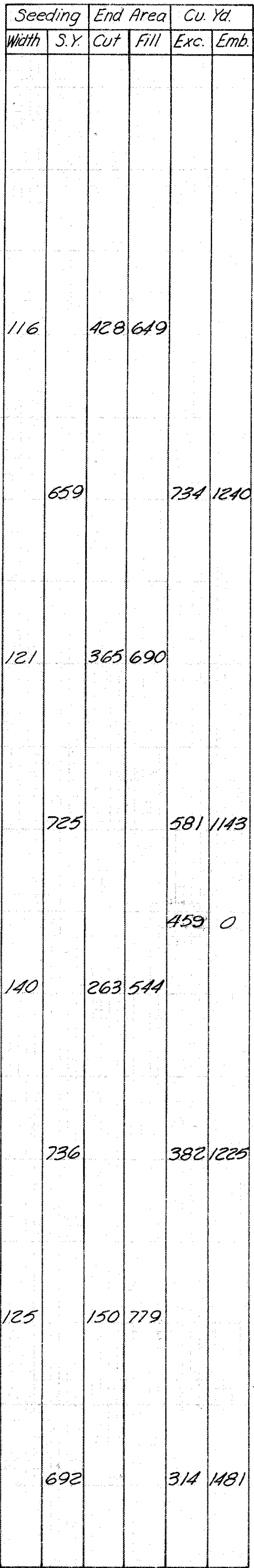
JEF - 7-23.37

151



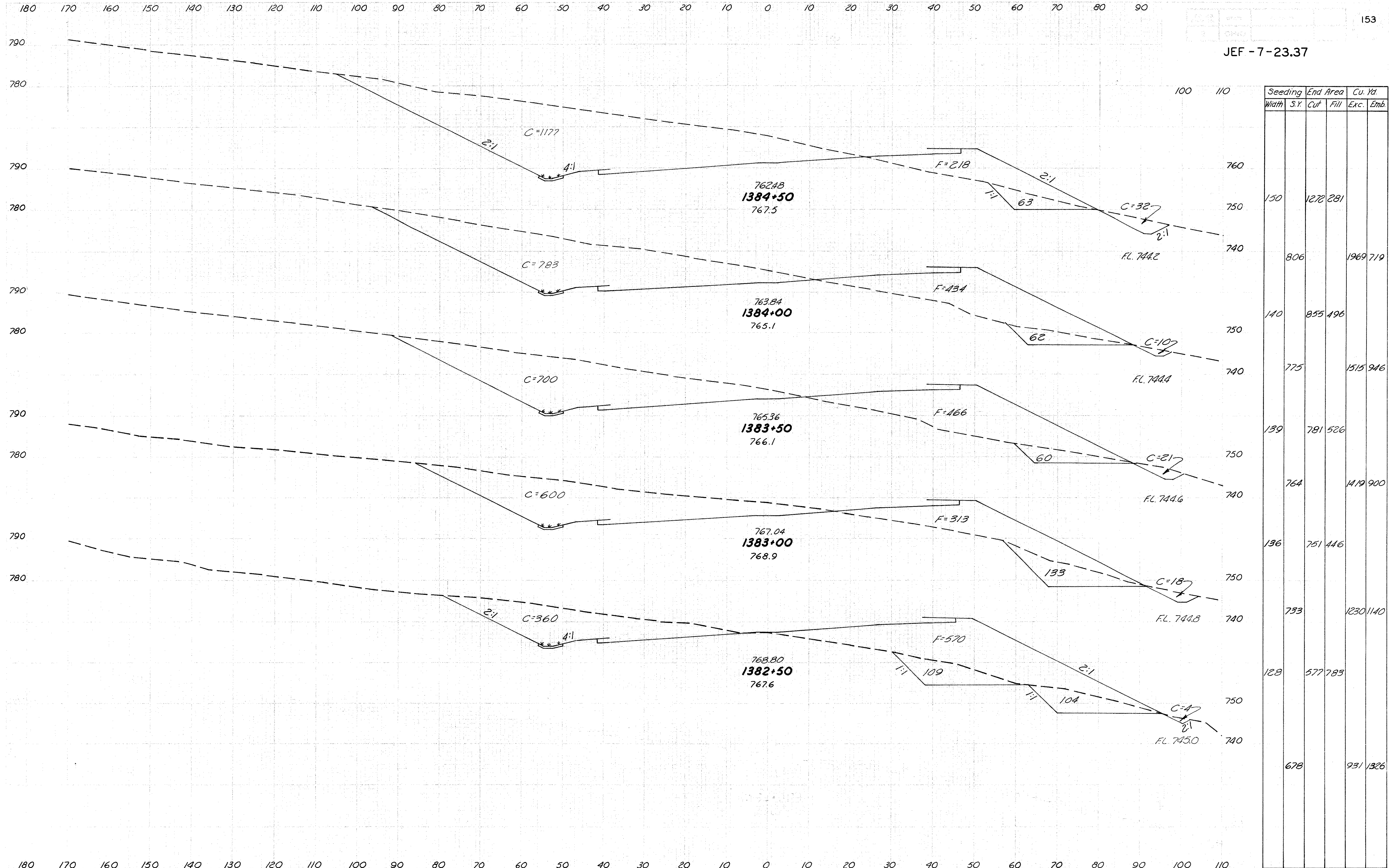
STA. 1378+00 TO STA. 1380+00

130 140





JEF - 7-23.37

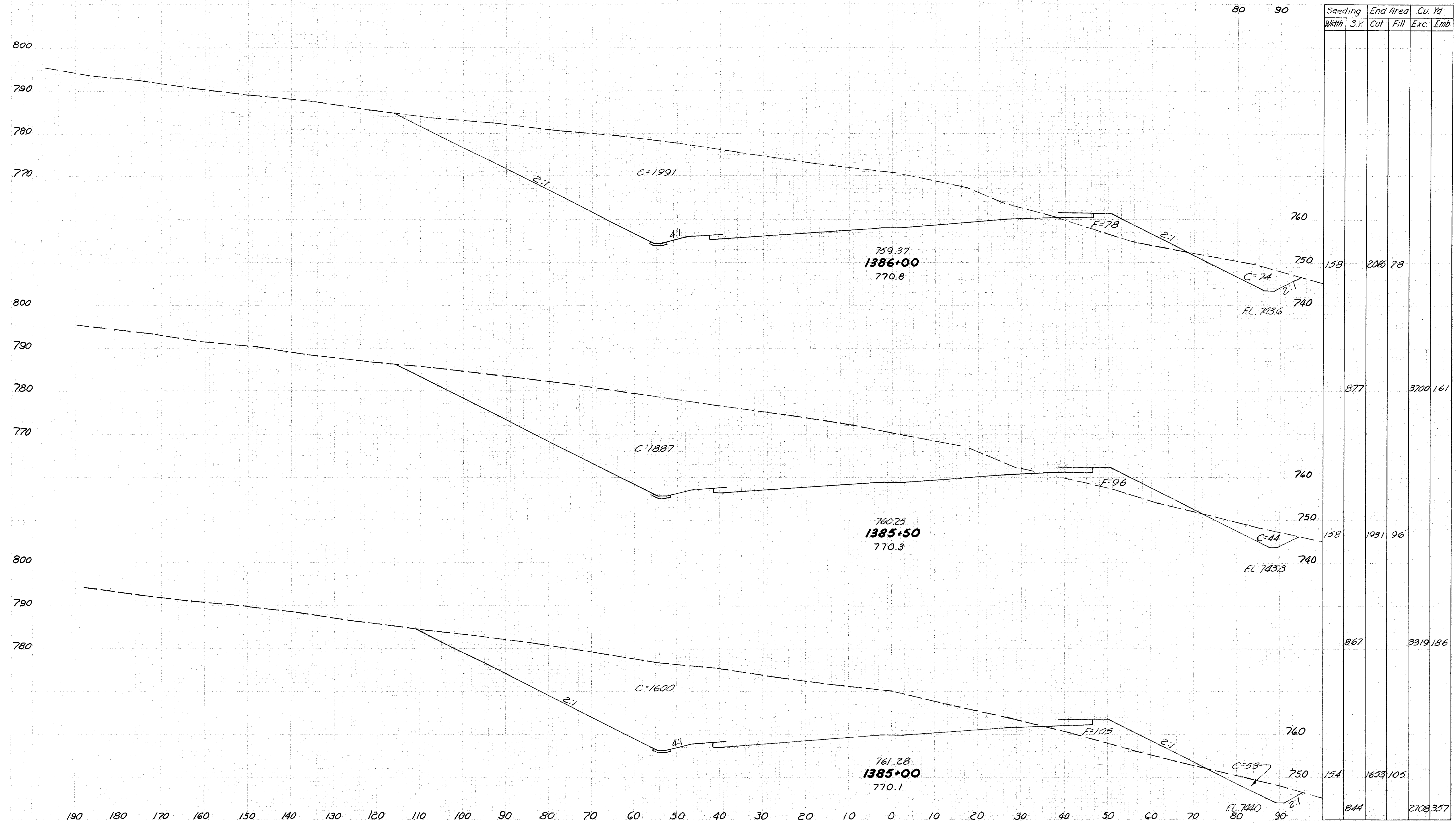


Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
150		1270	281		
		806		1969	719
140		855	496		
		775		1515	946
139		781	526		
		764		1419	900
136		751	446		
		733		1230	1140
128		577	783		
		678		931	1326

STA 1382+50 TO STA 1384+50

190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

JEF - 7 - 23.37

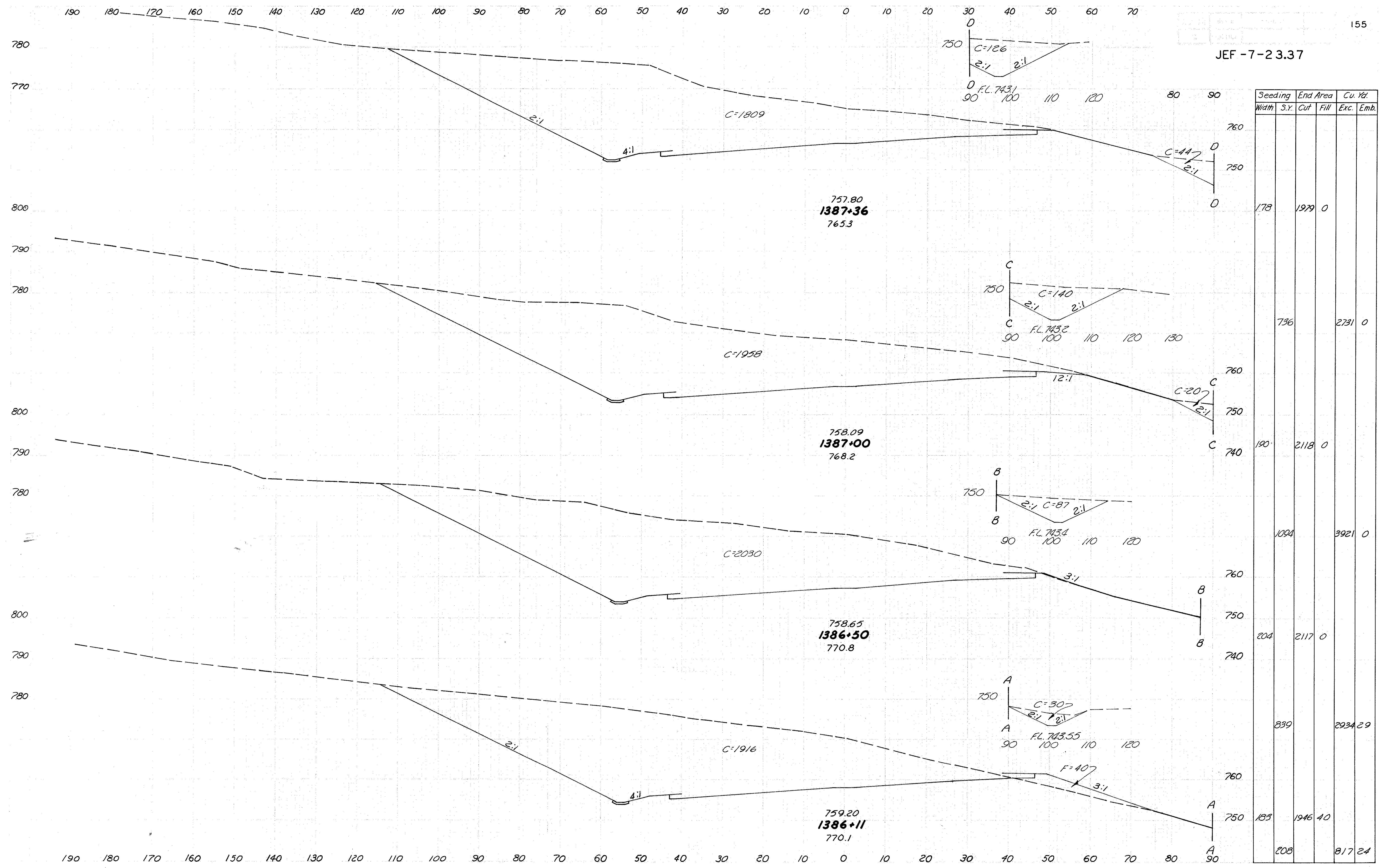


Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
158		2065	78		
877				3700	161
158		1931	96		
867				3319	186
154		1633	105		
844				2708	357

STA. 1385+00 TO STA. 1386+00



JEF -7-23.37



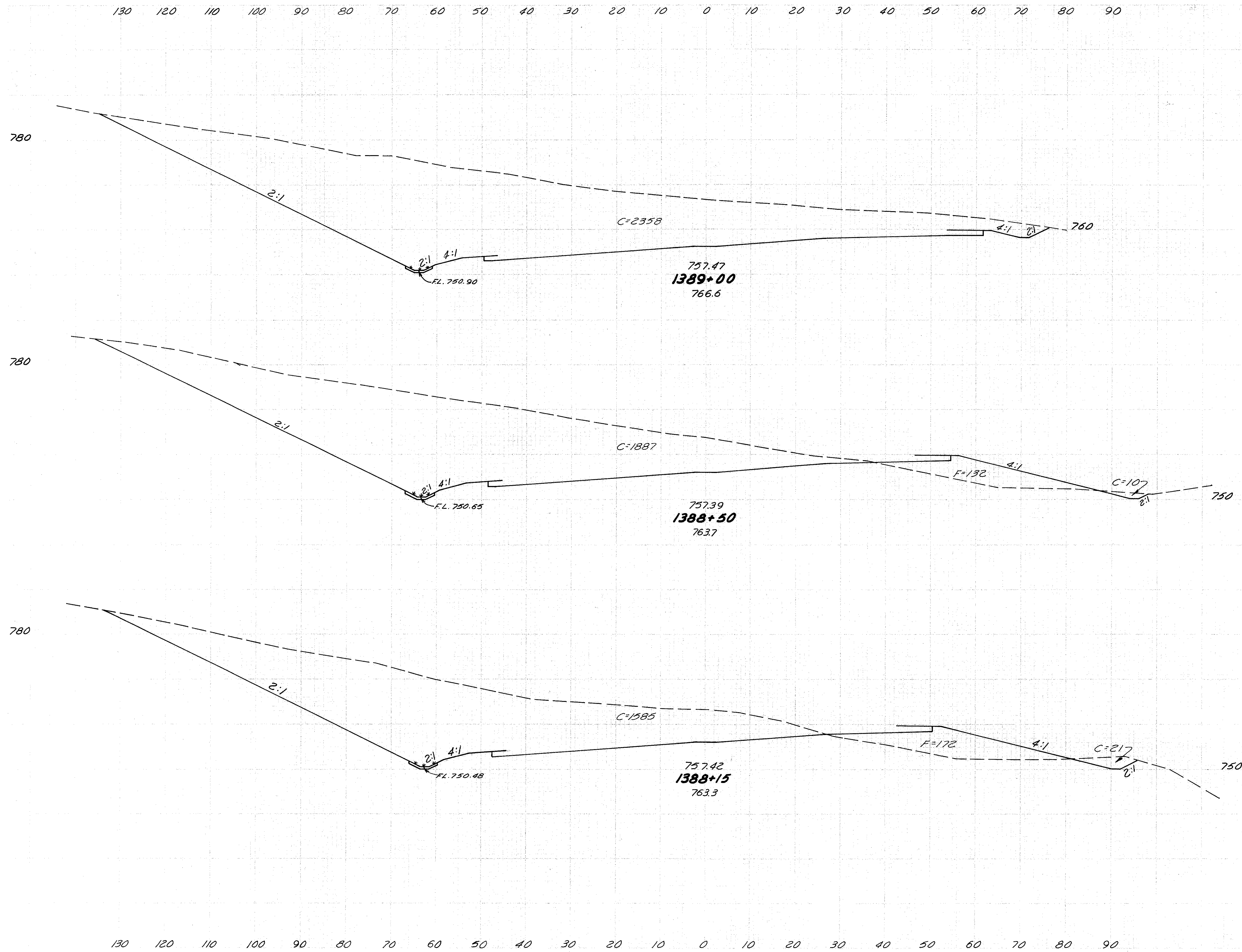
STA. 1386+11 TO STA. 1387+36

JEF - 7-23.37





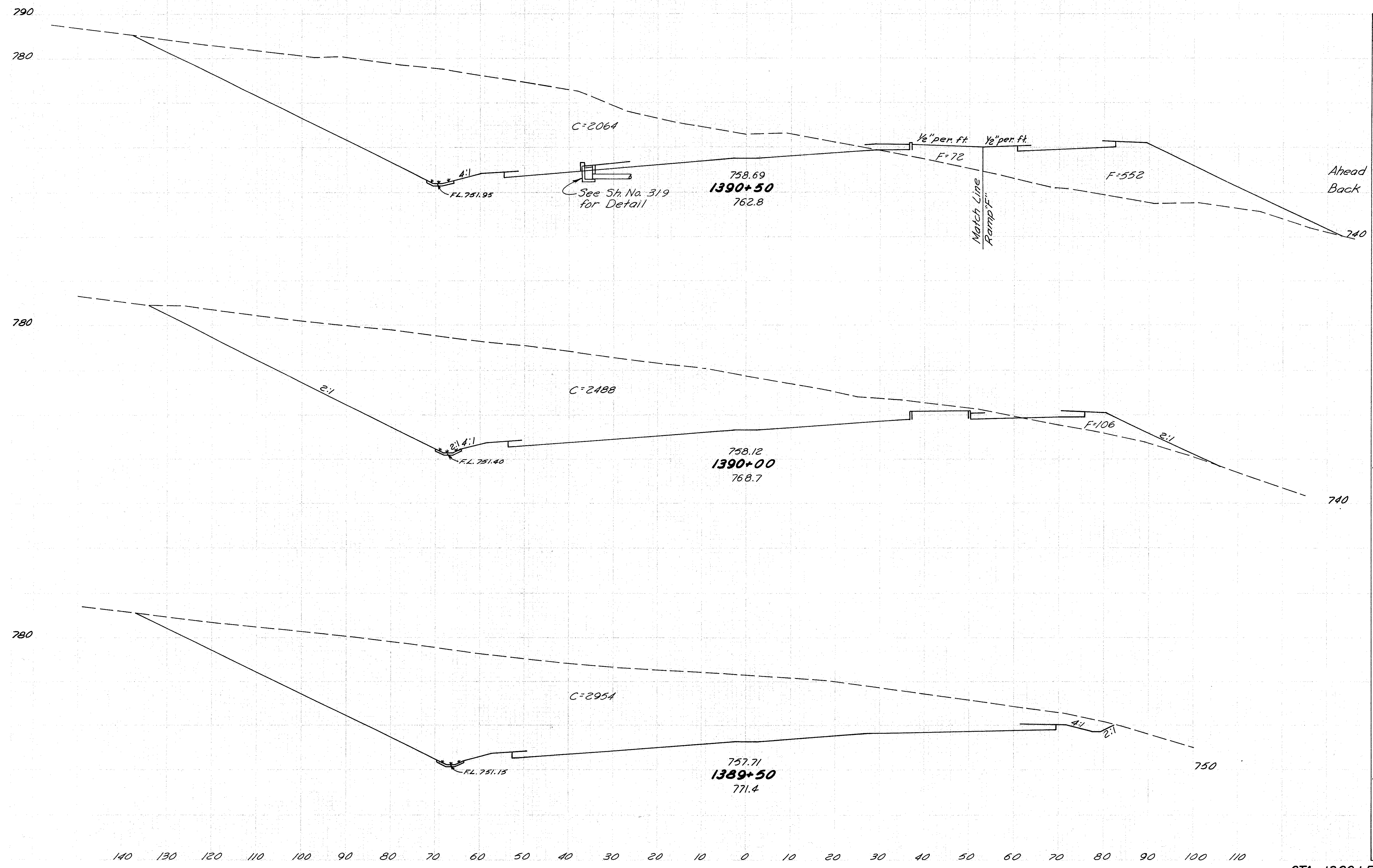
JEF-7-23.37



Seeding Width	SY.	End Area Cut	Area Fill	Cu. Yd. Exc.	Yd. Emb.
133		2358	0		
	827			3847	122
165		1897	132		
	642			2270	197
165		1606	172		
	274			776	109

STA. 1388+15 TO STA. 1389+00

JEF-7-23.37

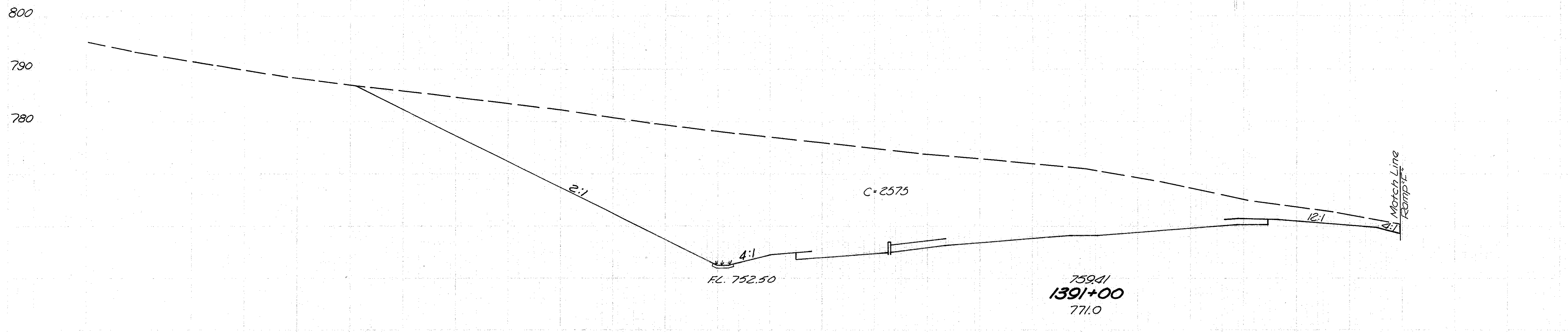
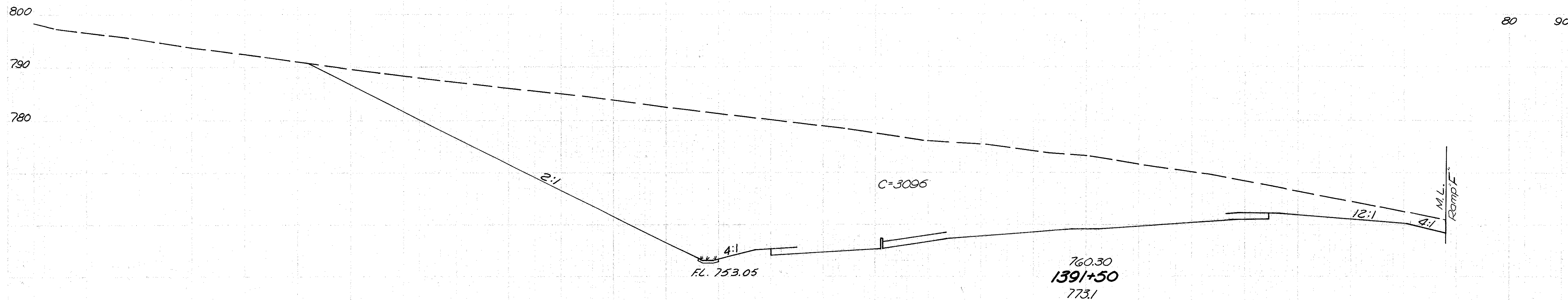


Seeding	Width	SY	End Area		Cu. Yd.	
			Cut	Fill	Exc.	Emb.
Ahead	119		2064	72		
Back	195		2064	624		
	948				4215	676
	146		2488	106		
	769				5039	98
	131		2954	0		
	433				4919	0

STA. 1389+50 TO STA. 1390+50



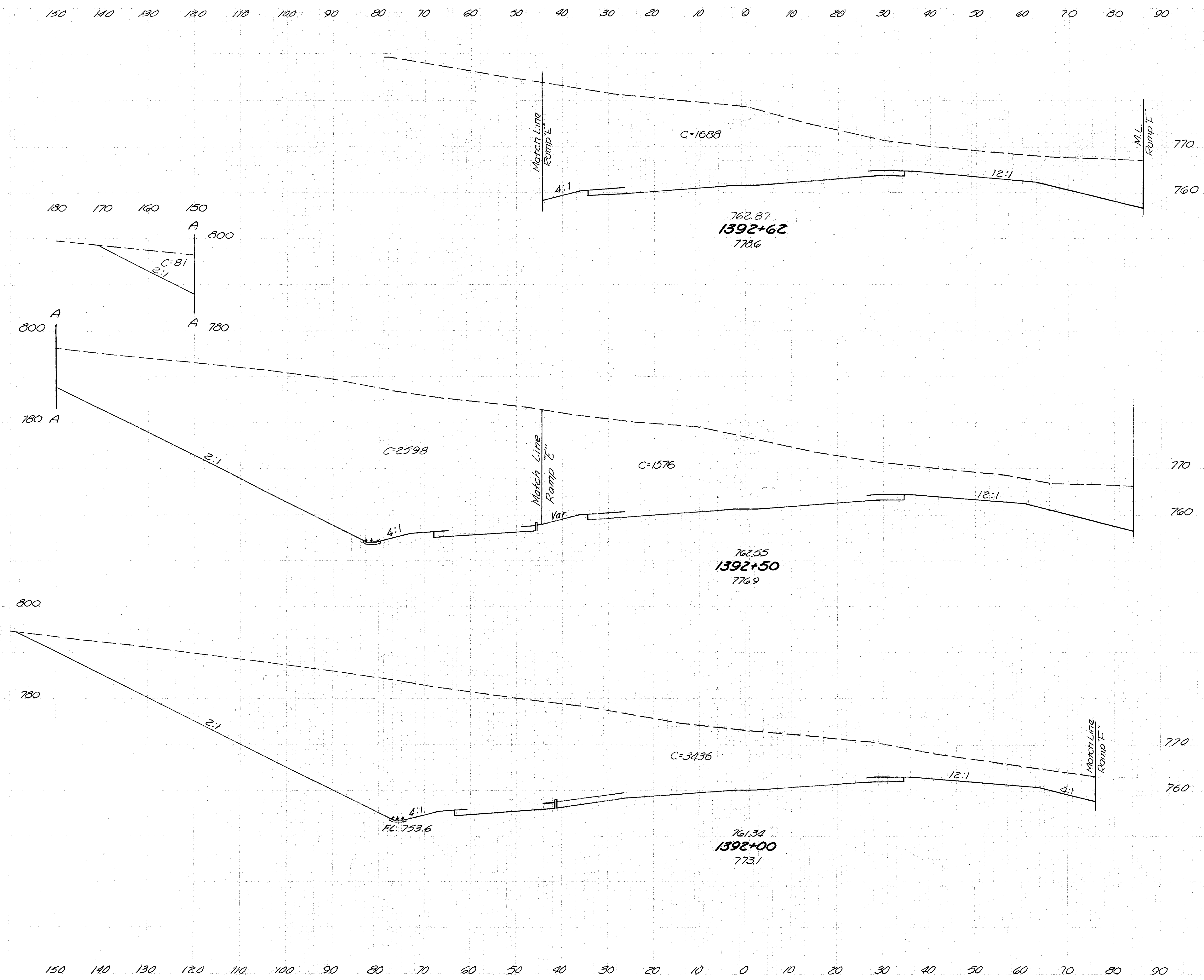
JEF-7-23.37



Seeding Width	S.Y.	End Area		Cu. Yd.	
		Cut	Fill	Exc.	Emb.
143		3096	0		
756				5251	0
129		2575	0		
411				4295	67

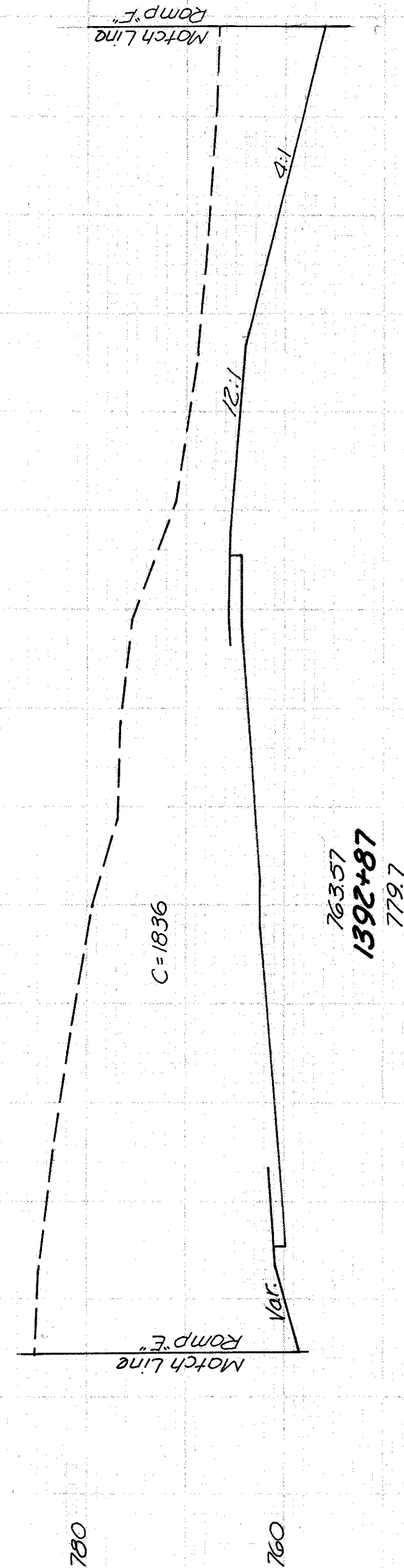
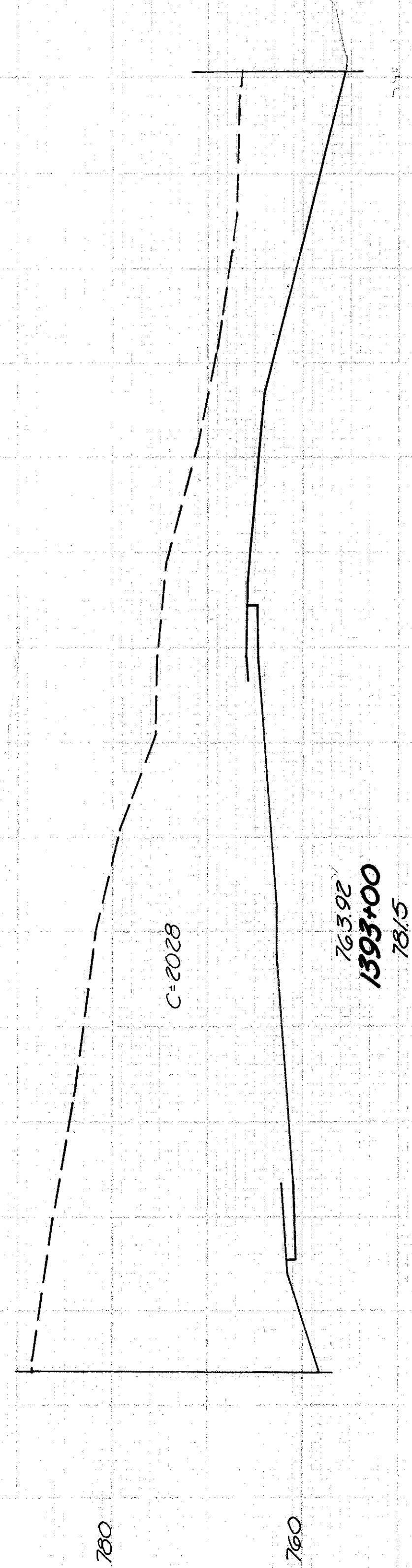
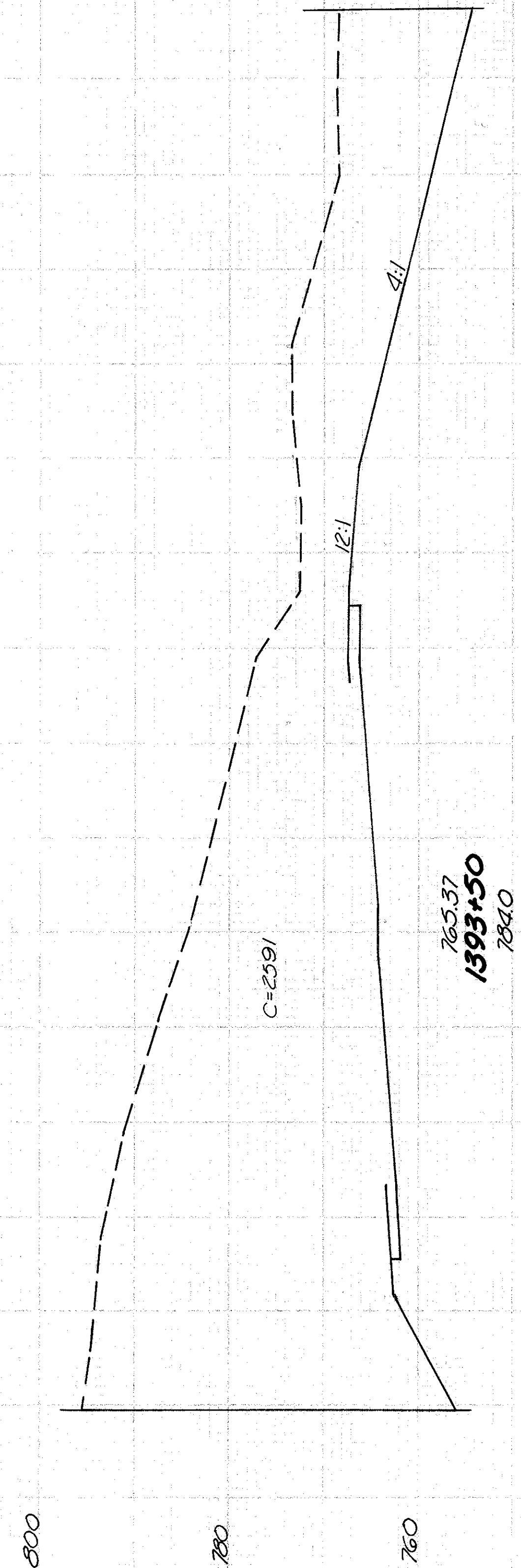
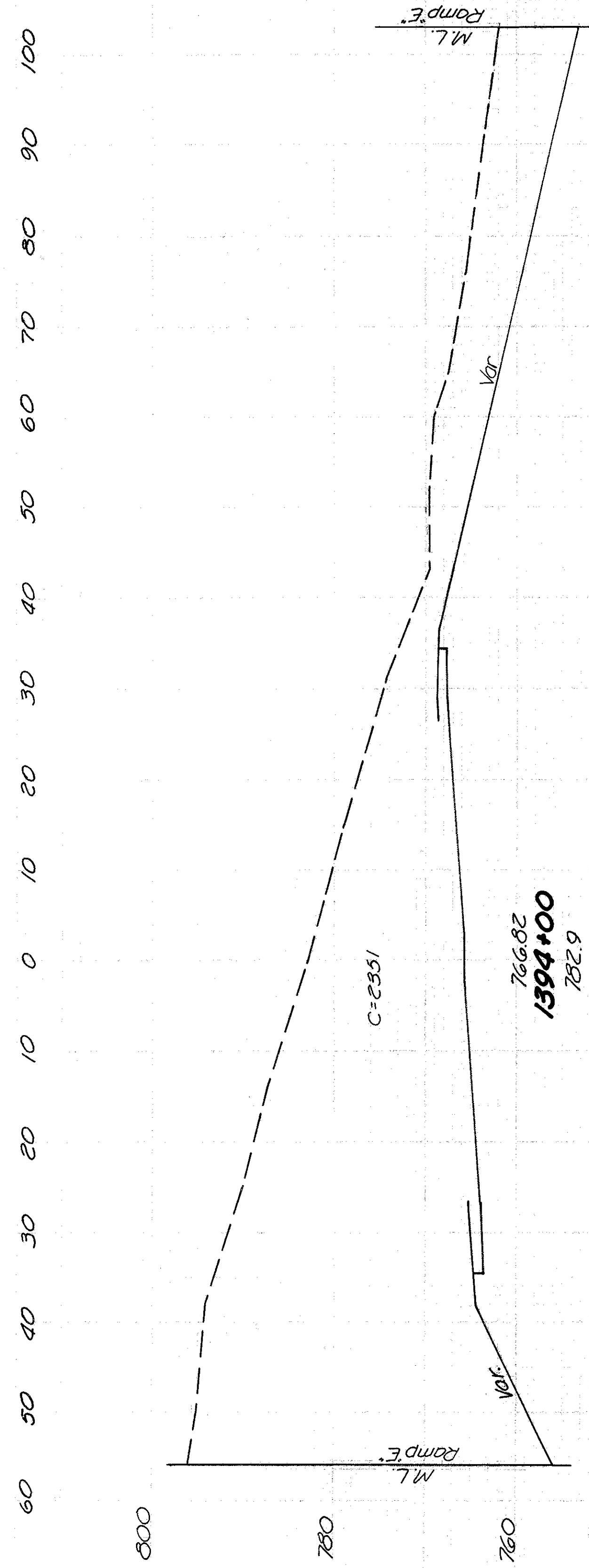
STA. 1391+00 TO STA. 1391+50

JEF -7-23.37

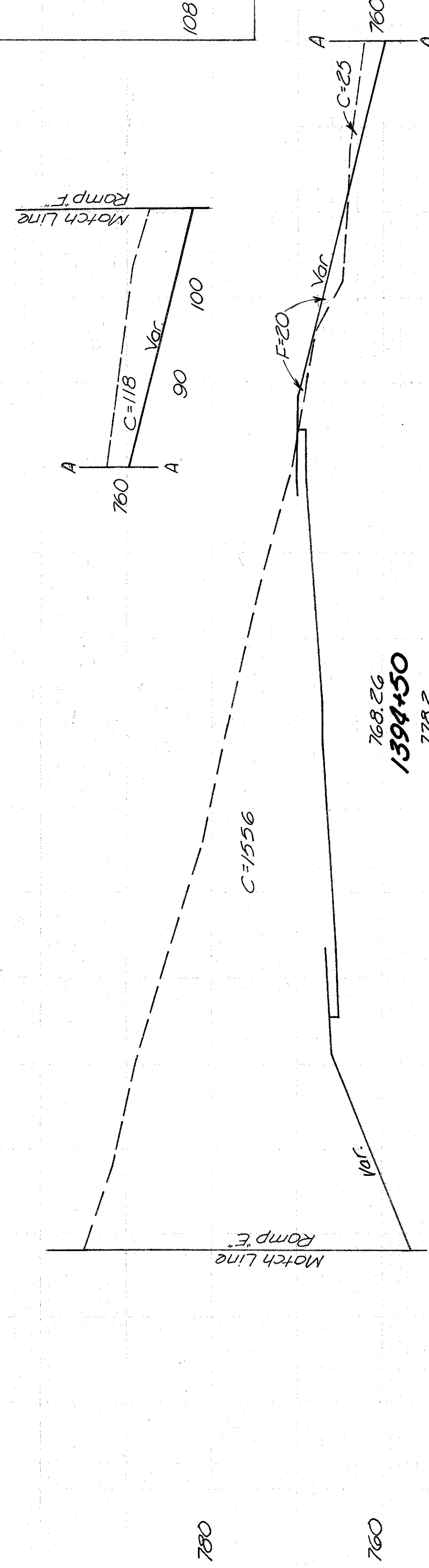
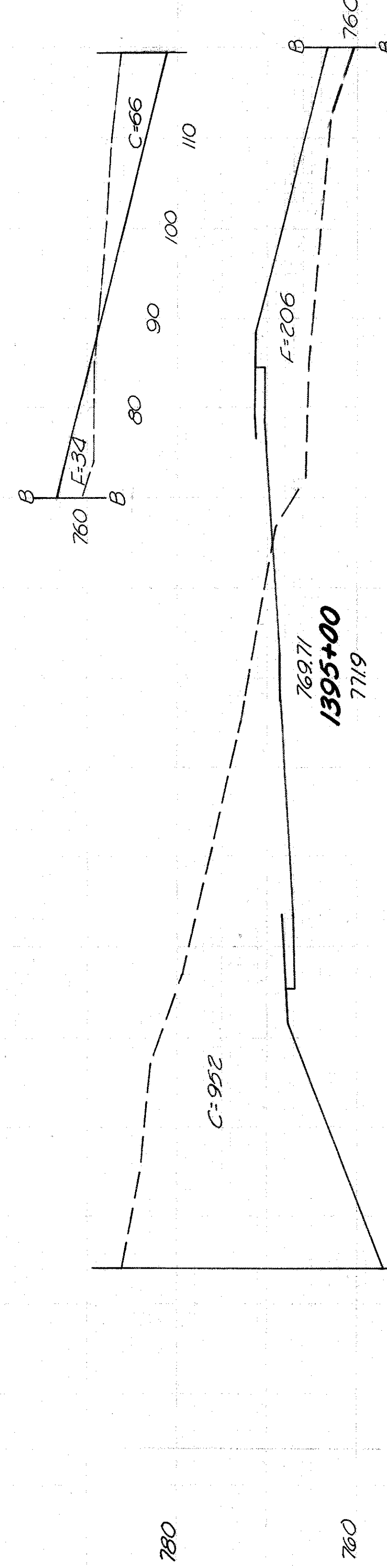
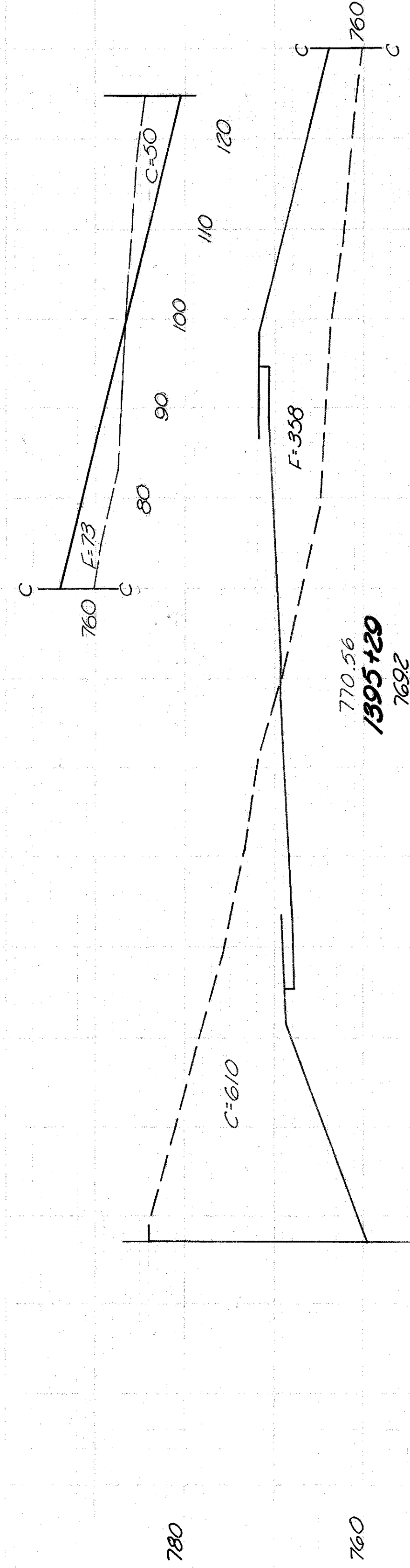
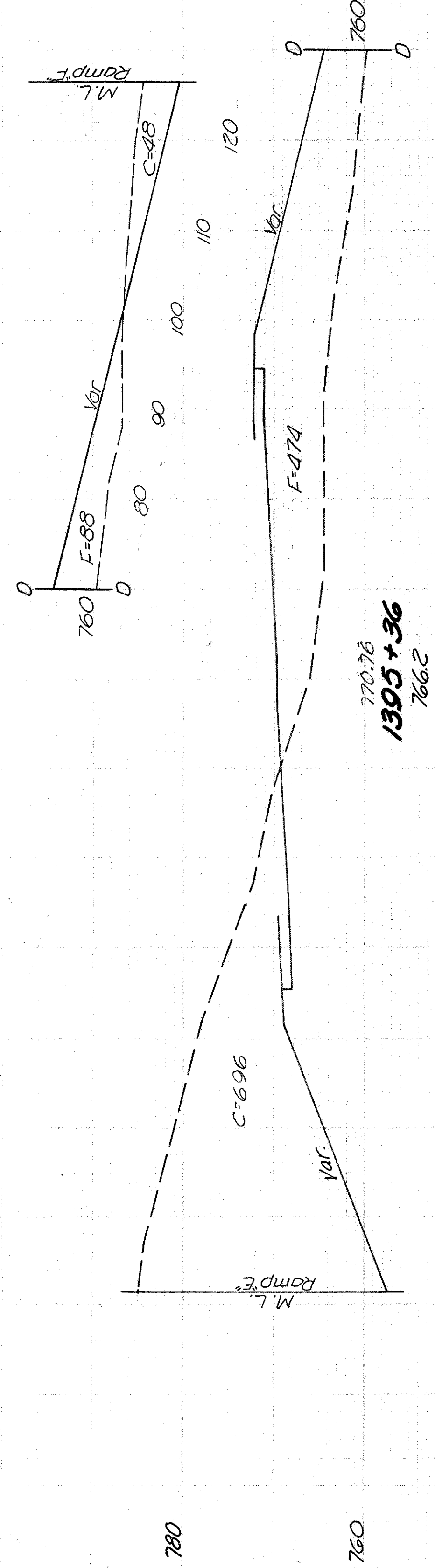


Seeding	Width	S.Y.	End Area		Cu Yd	
			Cut	Fill	Exc	Emb
	63		1688	0		
	83				725	0
	61		1576	0		
	188		4235	0		
	967				7121	0
	160		3436	0		
	842				6048	0





Seeding Width S.Y.	End Area Cut Fill	Cu. Yd. Exc. Emb.
94	2301 0	
498		4476 0
83	2391 0	
424		4277 0
70	2208 0	
98		930 0
66	1836 0	
179		1631 0



Seeding	End Area	Cu Yd
Width S.Y.	Cut	Exc
131	744 562	
99		182 129
123	660 231	
393		901 360
121	1018 240	
639		2516 241
108	6599 20	
561		3790 19

JEF-7-23.37

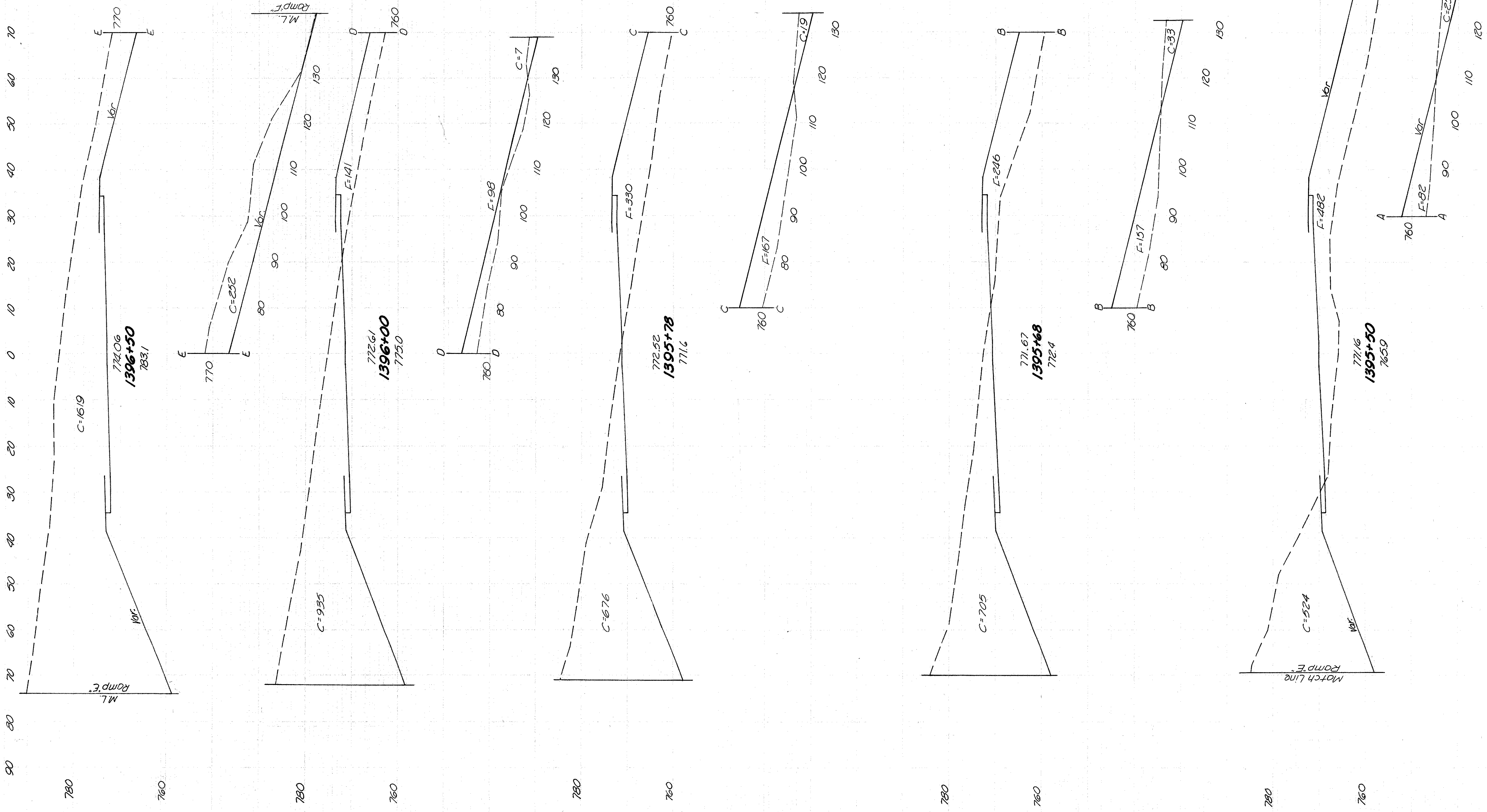
162

STA. 1394+50 TO STA. 1395+36

[illegible]



Seeding	End Area	Cu. Yd.
Width S.Y.	Cut Fill	Exc Emb
156	1871 0	
844		2600 221
148	902 239	
334		667 300
142	605 497	
157		265 167
140	738 403	
275		429 322
135	519 564	
207		335 292



STA. 1395 + 50 TO STA. 1396 + 50

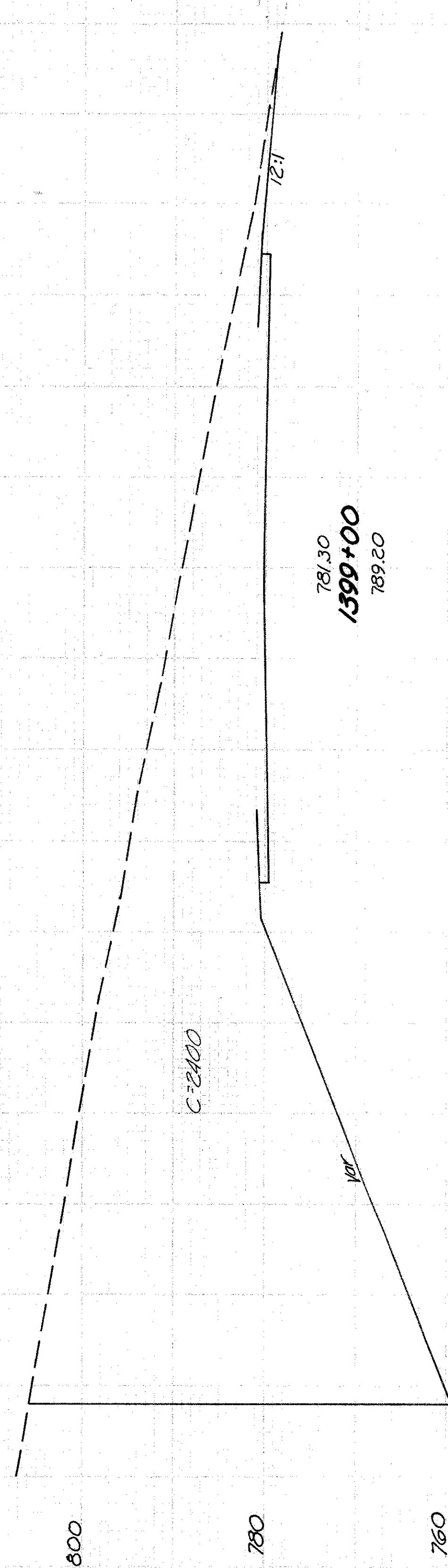
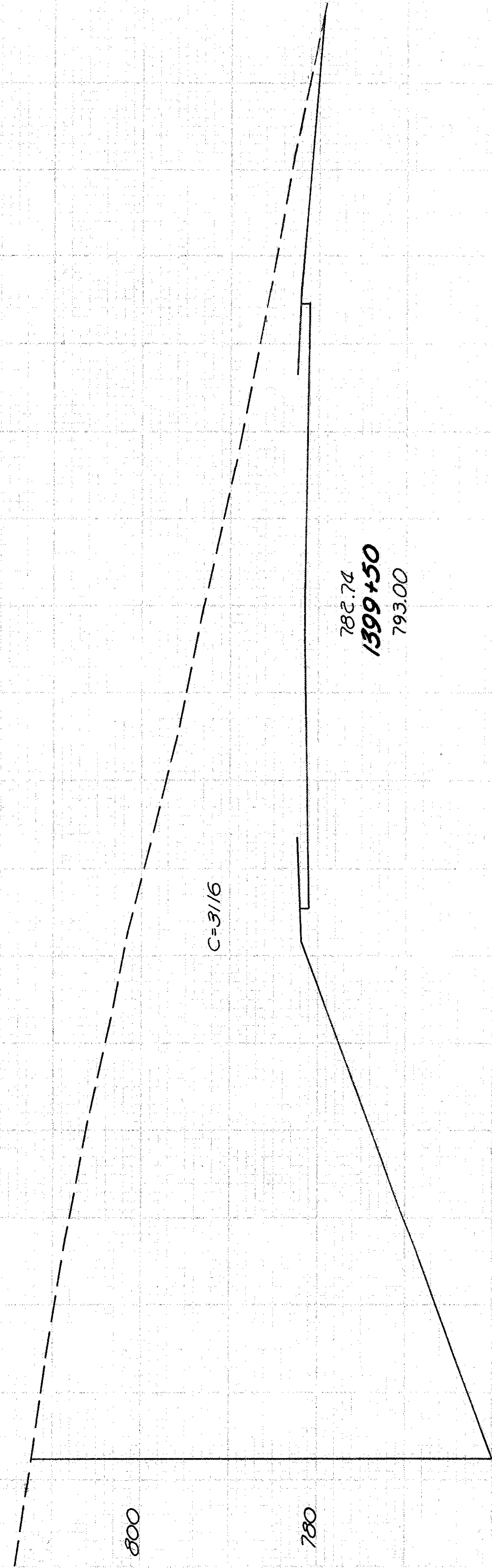
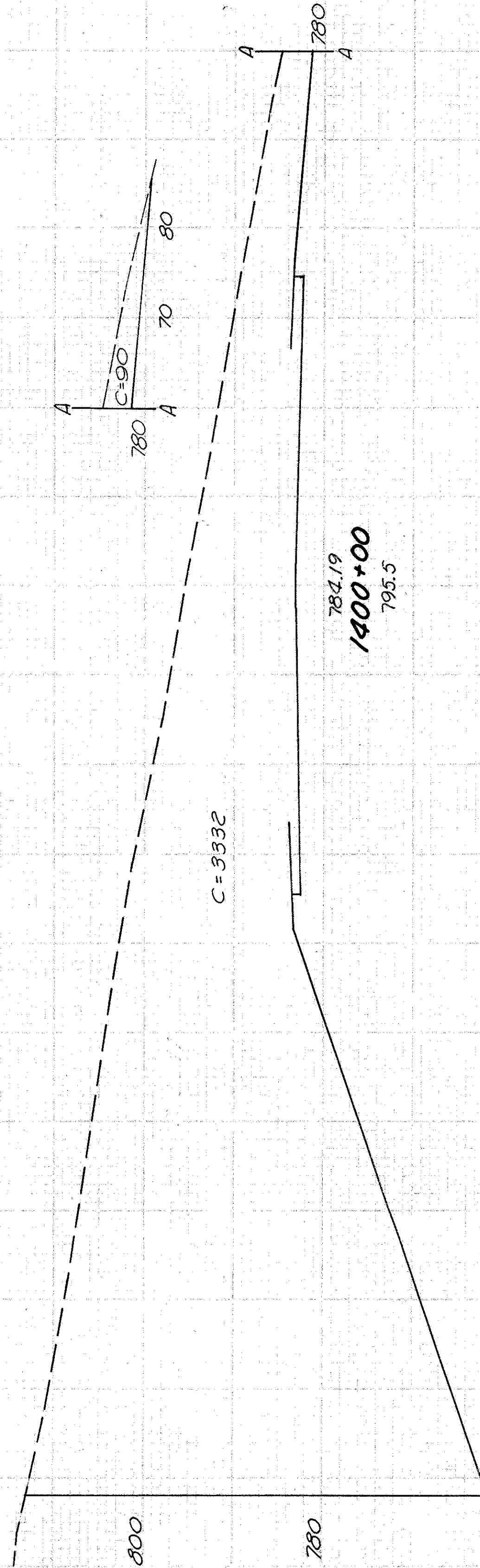
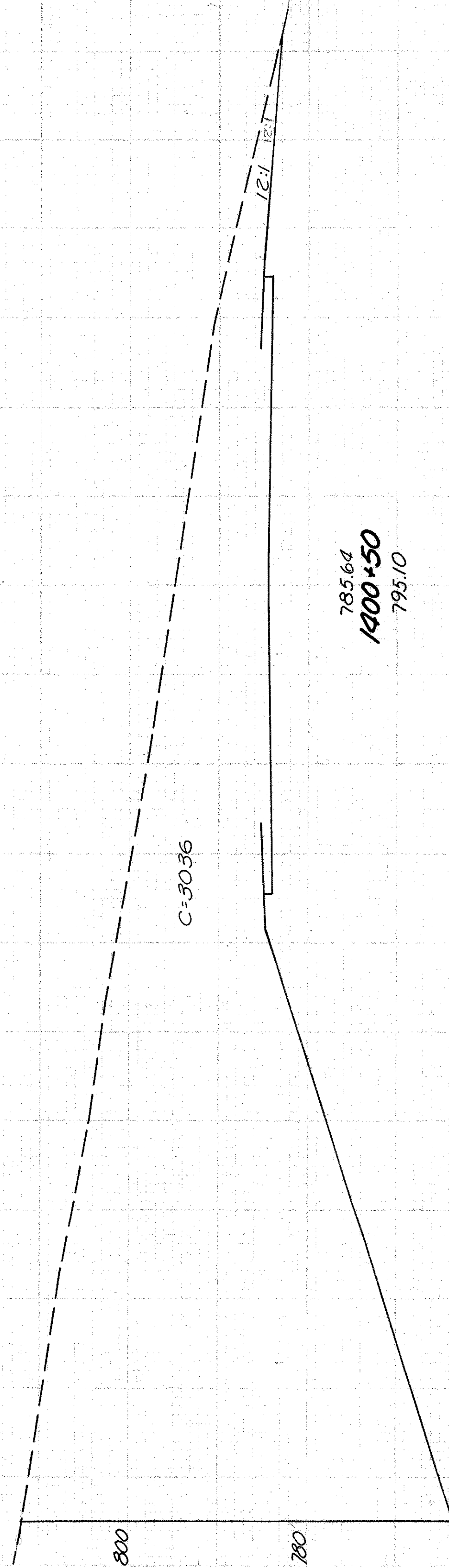
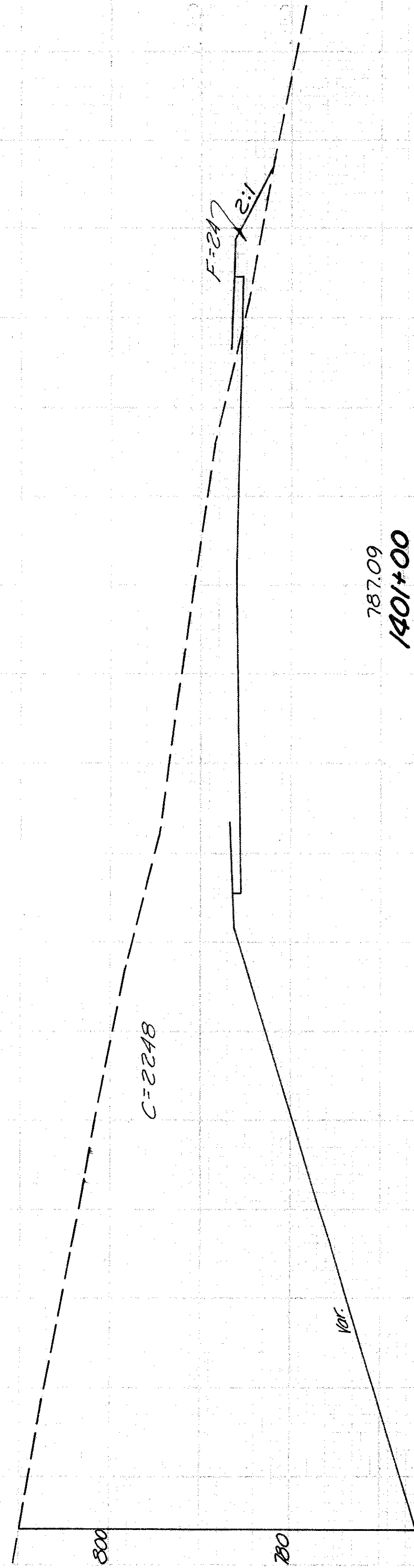
JEF-7-23.37





Seeding	End Area	Cu. Yd.
Width S.Y.	Cut Fill	Exc Emb
100	2248 24	
394		4893 22
114	3036 0	
692		5979 0
135	3102 0	
686		6053 0
112	3116 0	5107 0
96	3400 0	
478		5935 9

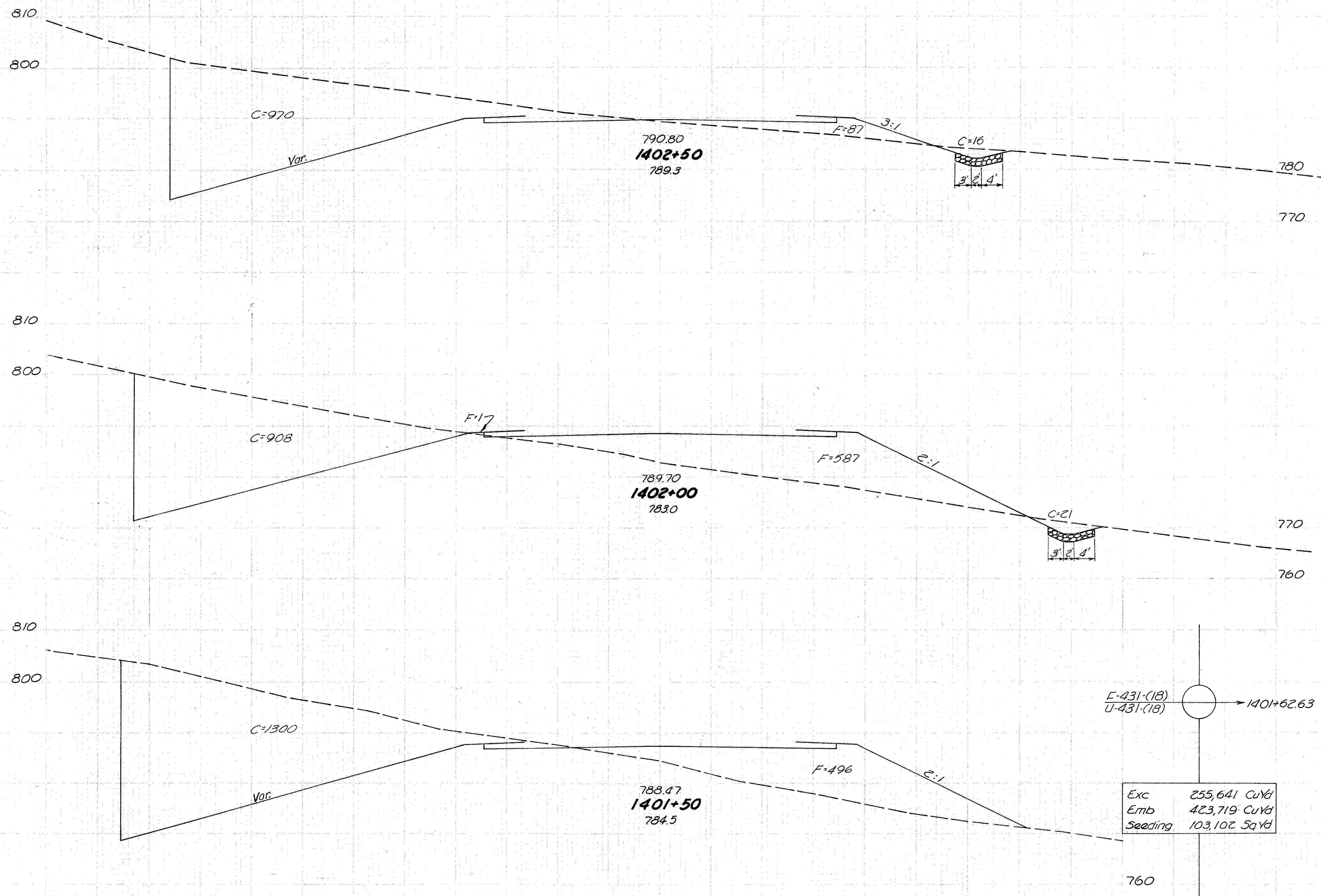
100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60



STA 1399+00 TO STA 1401+00

JEF-7-23.37

JEF -7- 23.37

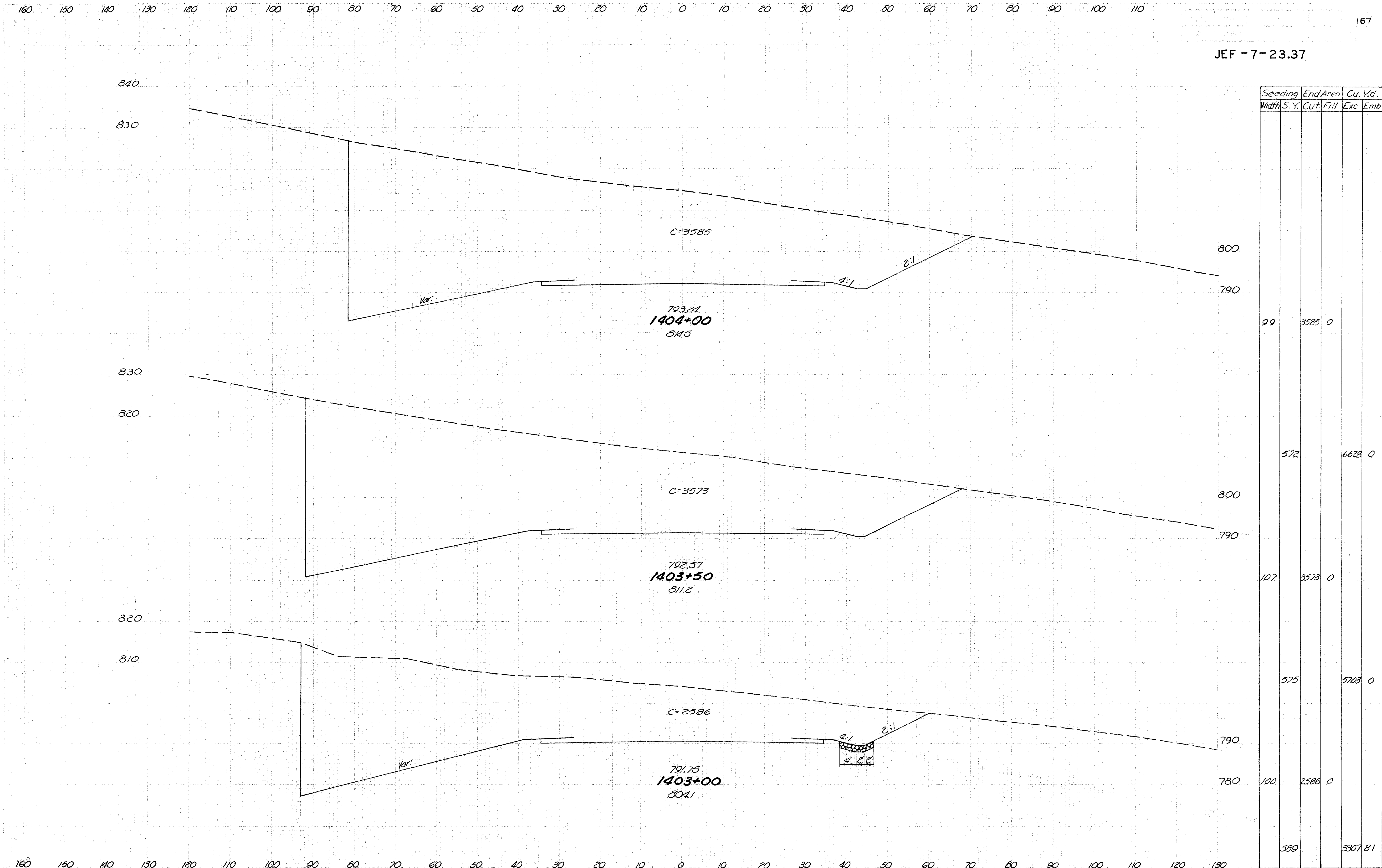


Exc	255,641	Cu Yd
Emb	423,719	Cu Yd
Seeding	103,102	Sq Yd

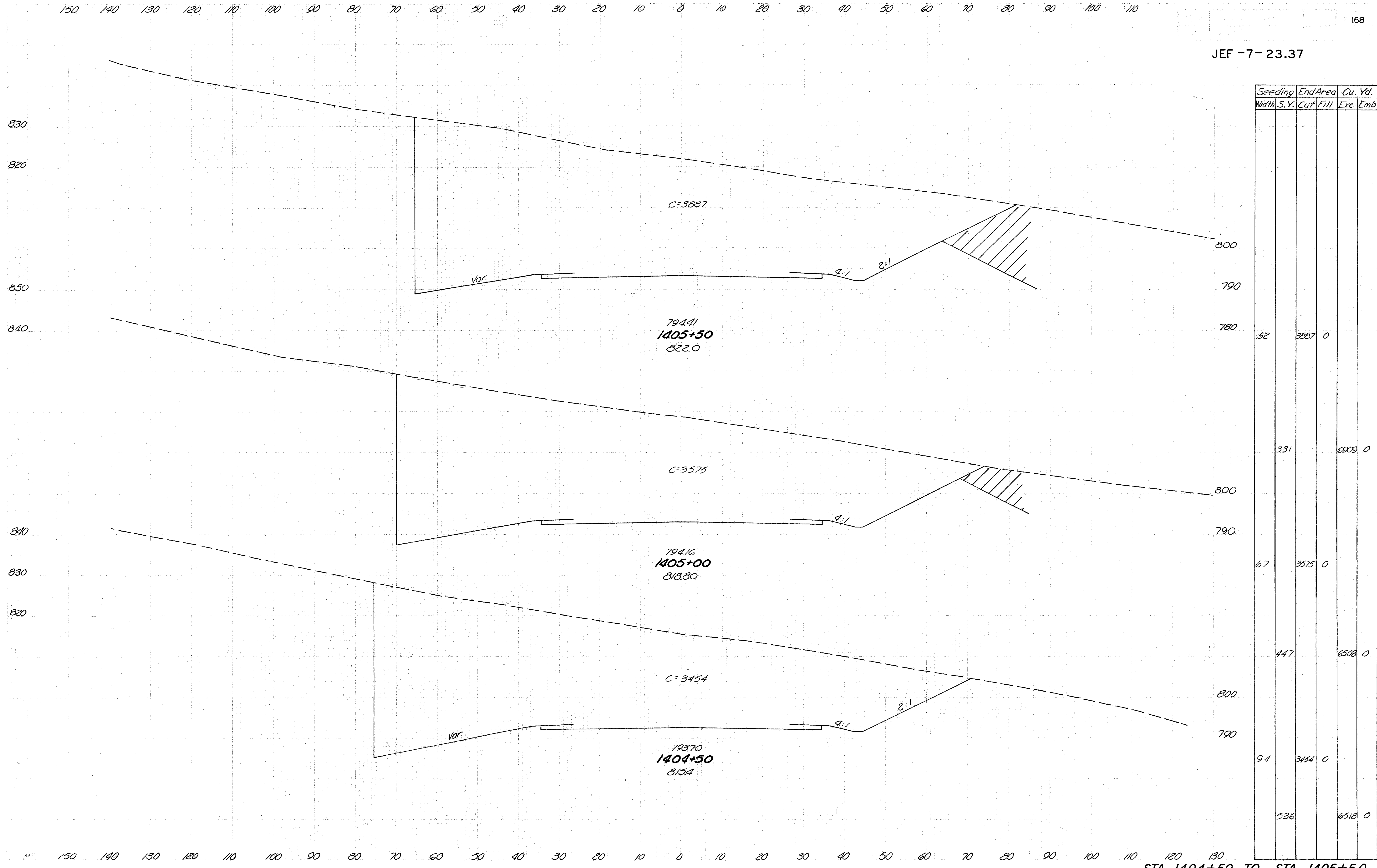
Seeding Width S. Y.	End Area		Cu. Yd.	
	Cut	Fill	Exc	Emb
112	986	87		
700			1773	624
140	929	587		
567			1414	781
133	1114	541		
182			565	243
127	1300	496		
631			3285	481

STA. 1401+50 TO STA. 1402+50

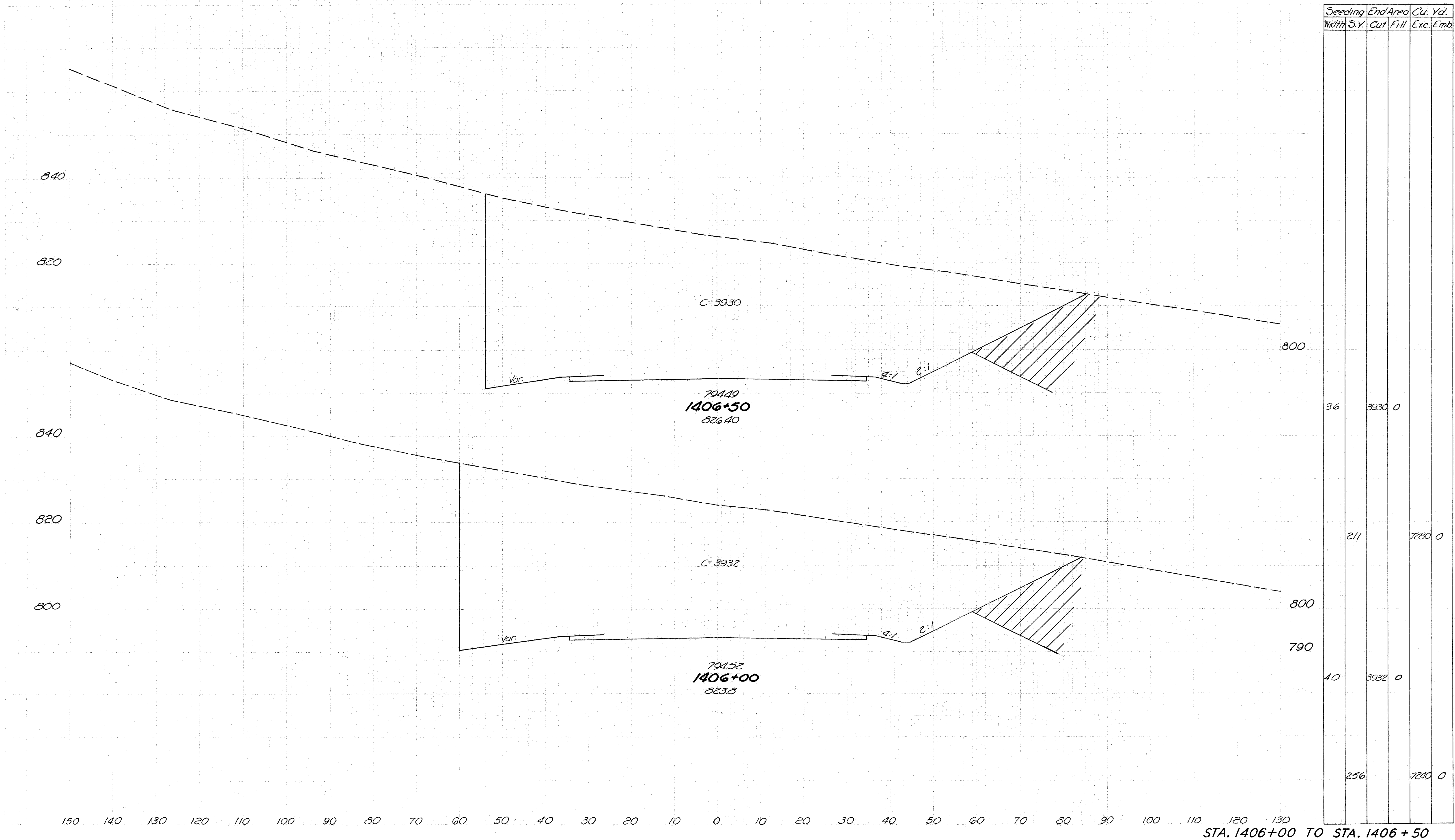




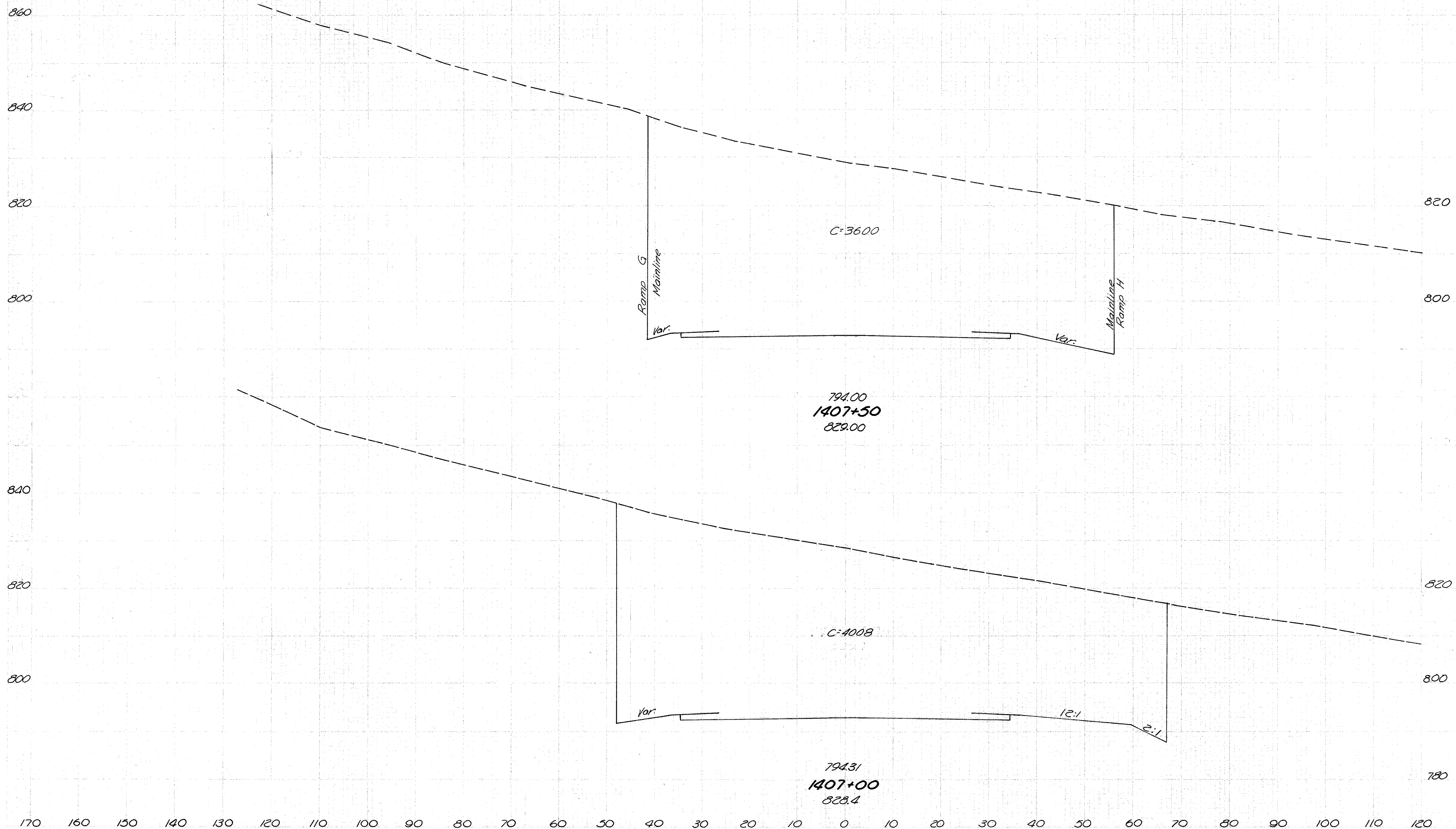
JEF -7- 23.37







JEF-7-23.37



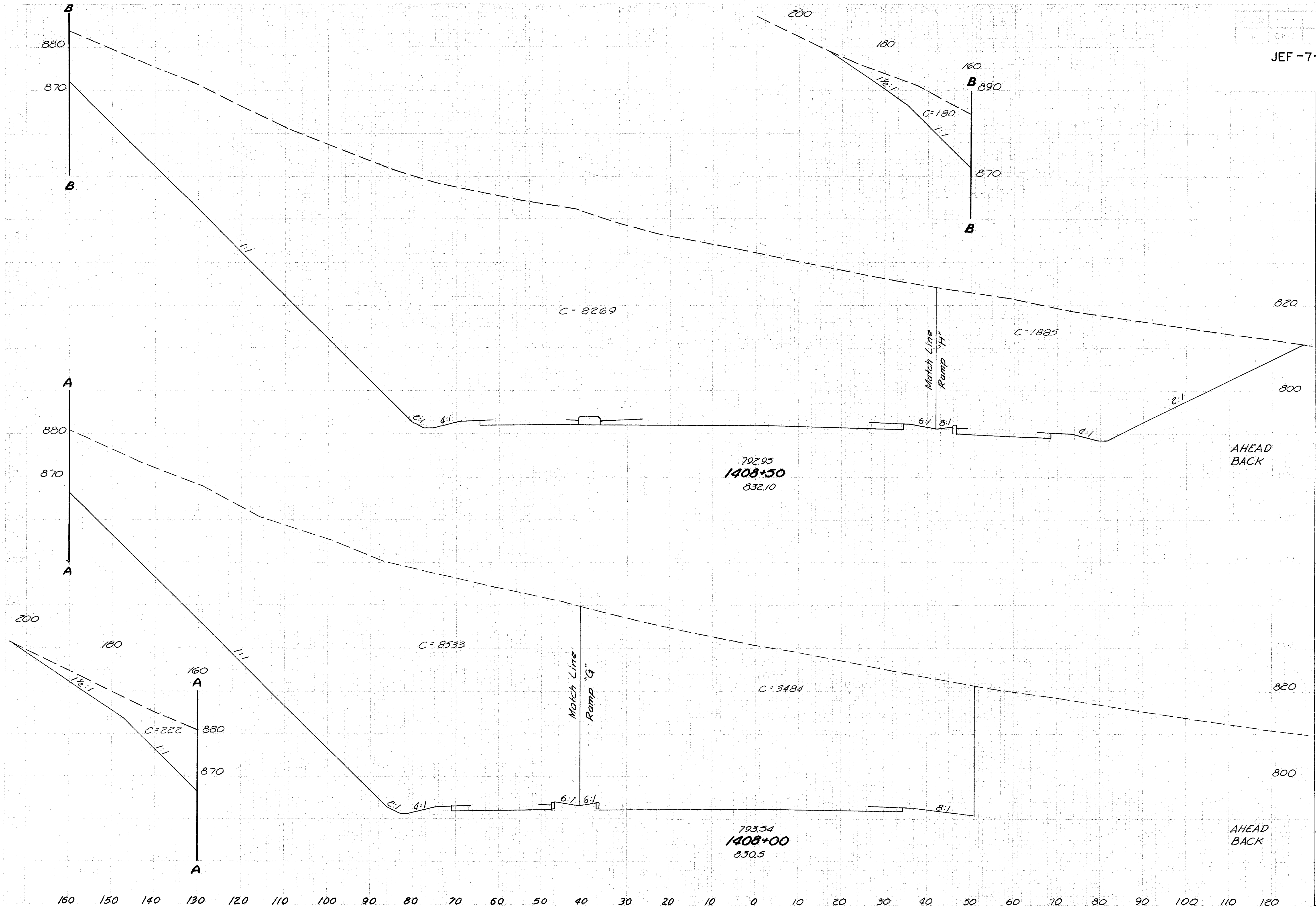
Seeding Width	sq Yd	End Area		Cu Yd	
		Cut	Fill	Exc	Emb
29	3600	0			
211				2044	0
47	4008	0			
231				2350	0

STA. 1407+00 TO STA. 1407+50



JEF -7- 23.37

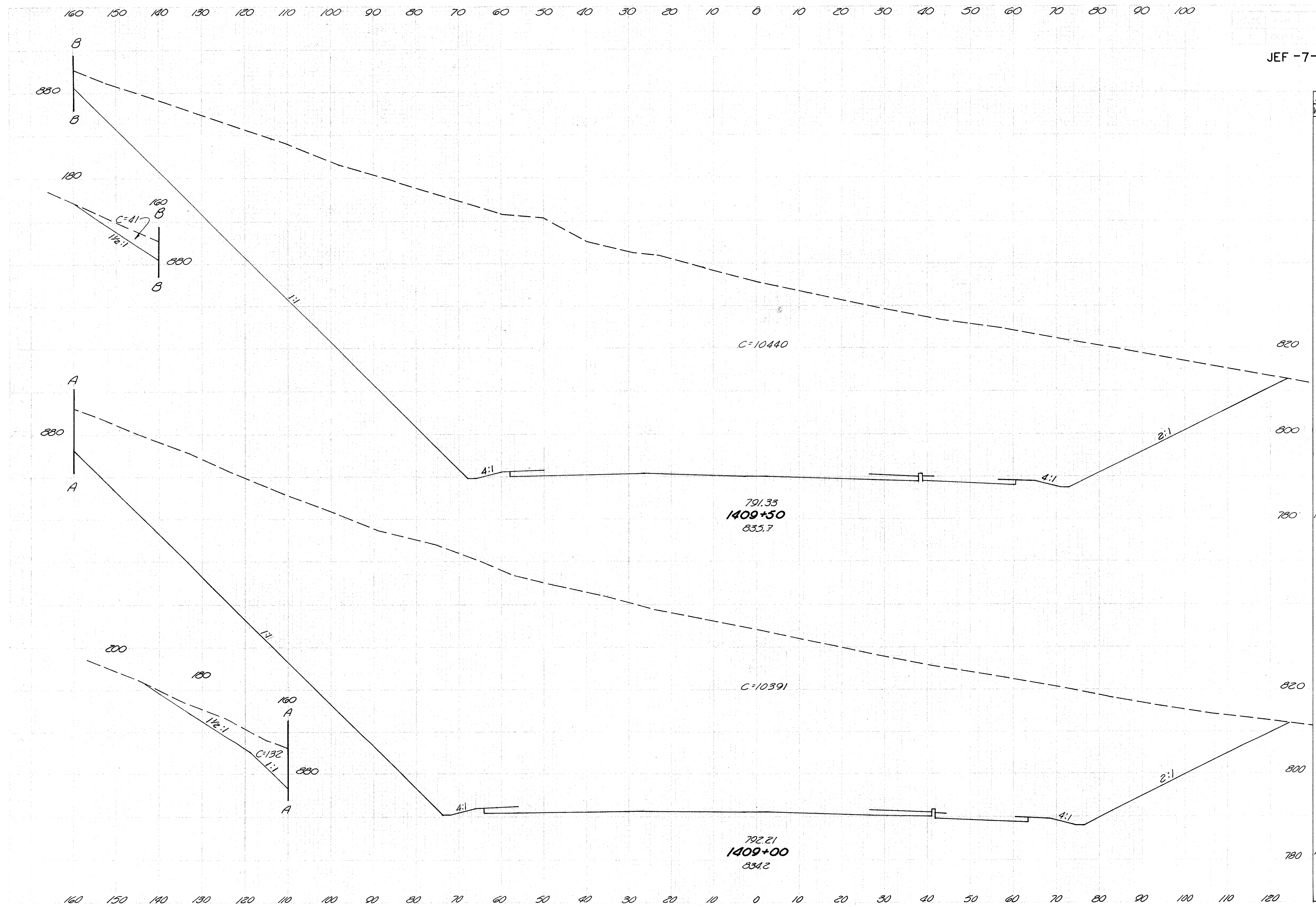
171



Seeding Width	S.Y.	End Area		Cu. Yd.	
		Cut	Fill	Exc	Emb
138	58	10334	0		
		8449	0		
397				15930	0
85	21	8755	0		
		3484	0		
139				6559	0

STA. 1408+00 TO STA. 1408+50

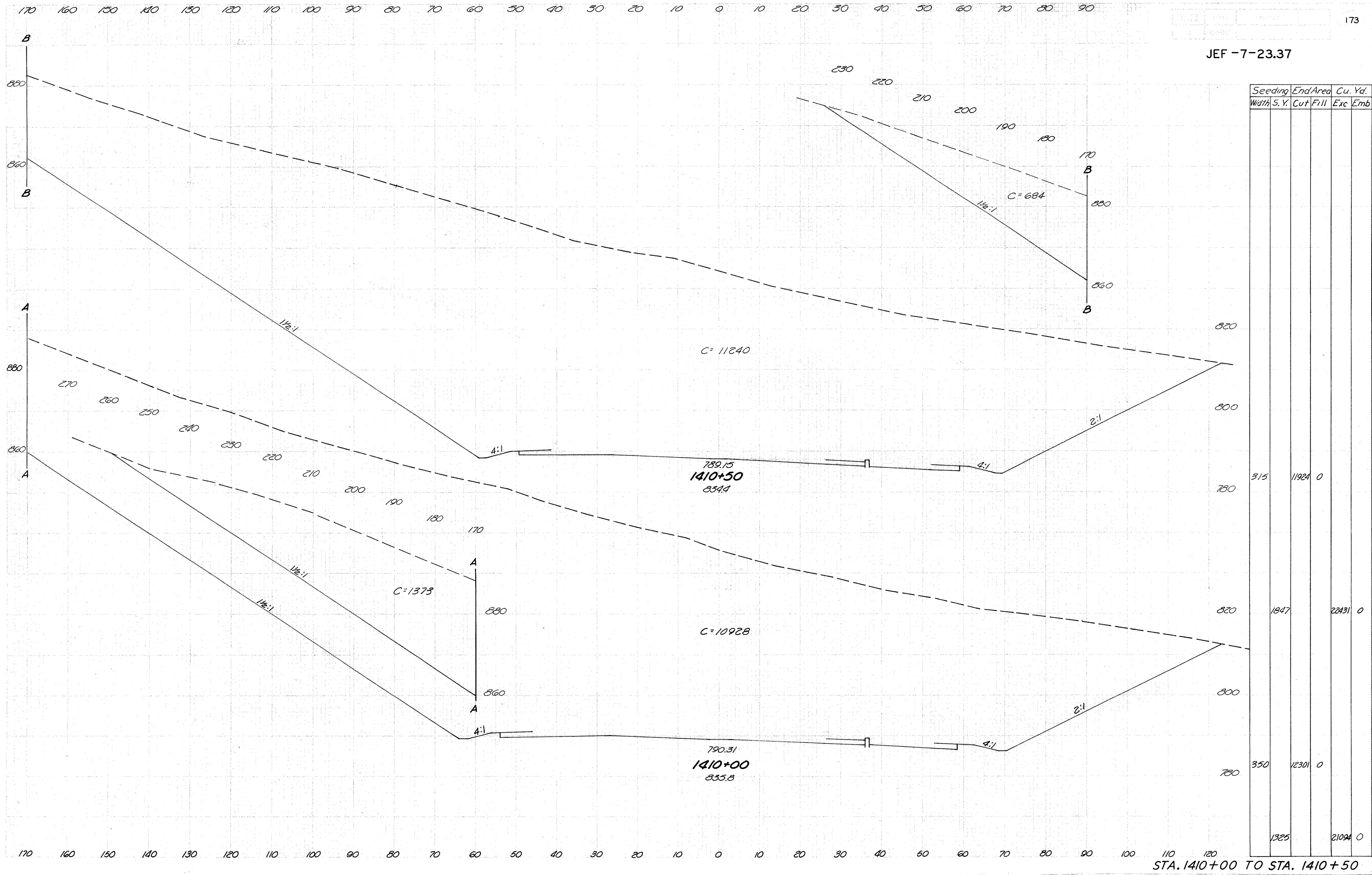
JEF -7-23.37



Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
127		10481	0		
717				19448	0
131		10523	0		
747				19312	0

STA. 1409+00 TO STA. 1409+50

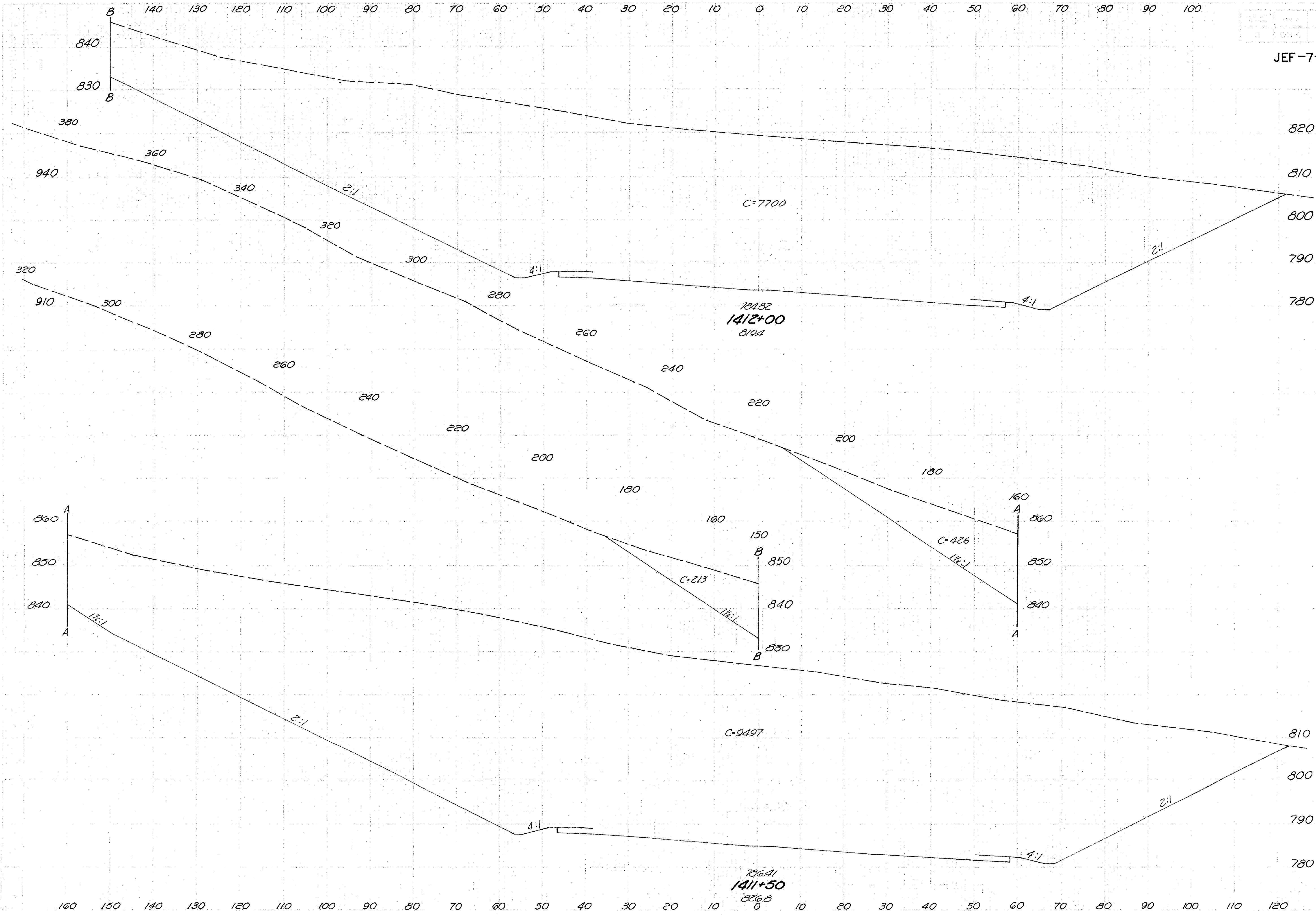




STA. 1411 + 00

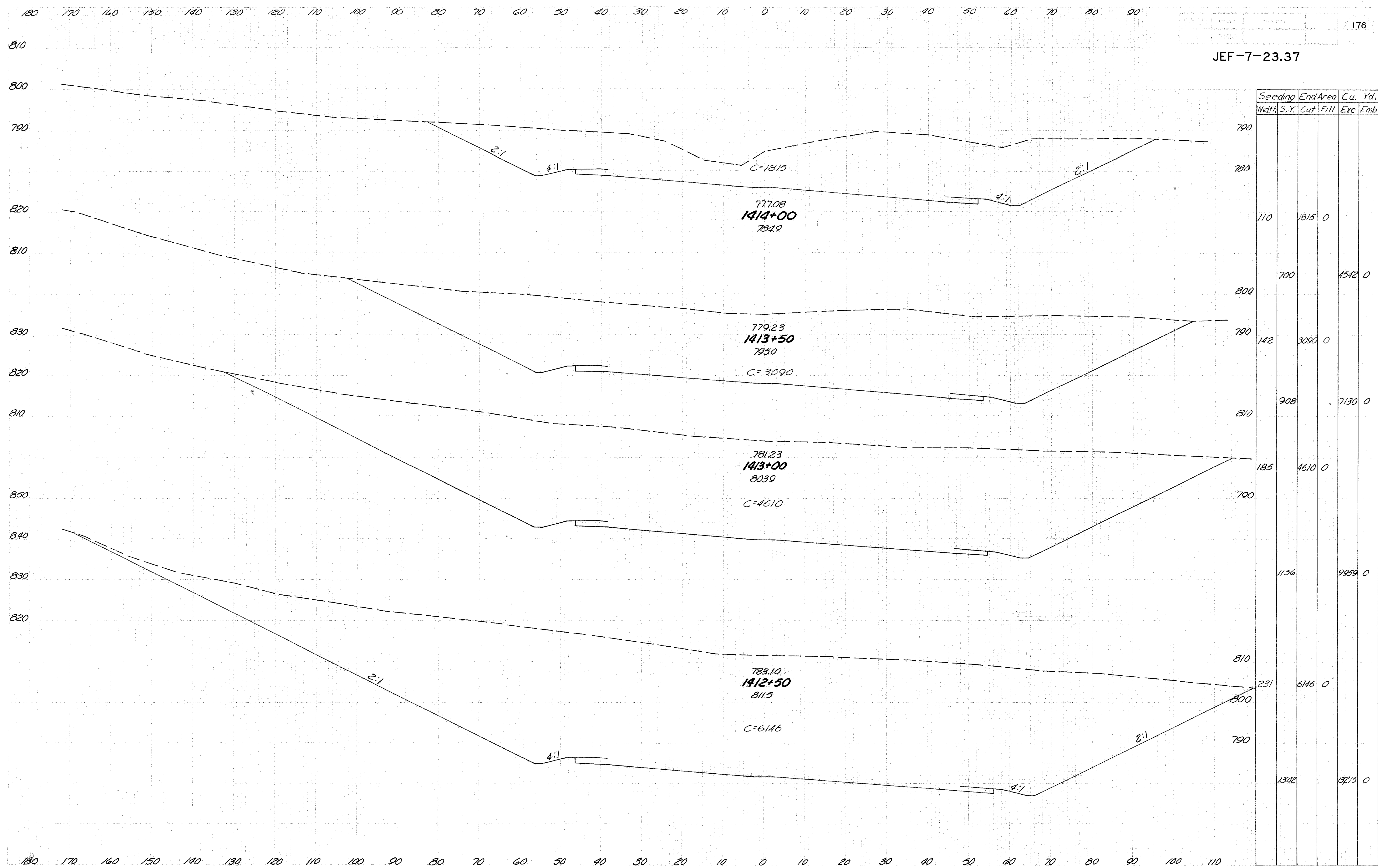


JEF-7-23.37



Seeding		End Area		Cu. Yds.	
Width	S. Y.	Cut	Fill	Exc.	Emb.
252		8126	0		
1500				16710	0
288		9923	0		
1739				20381	0

STA. 1411 + 50 TO STA. 1412 + 00

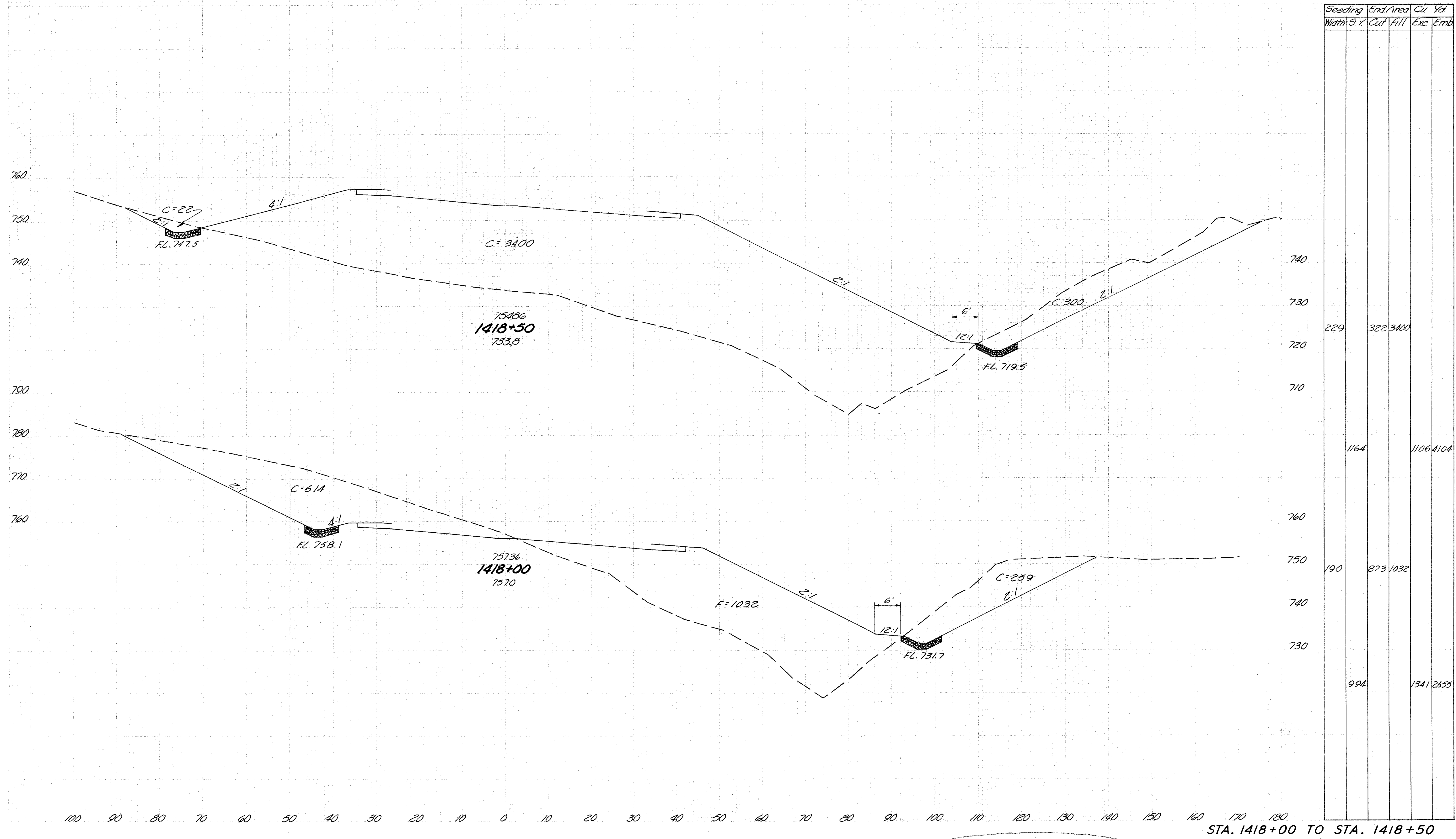


JEF-7-23.37

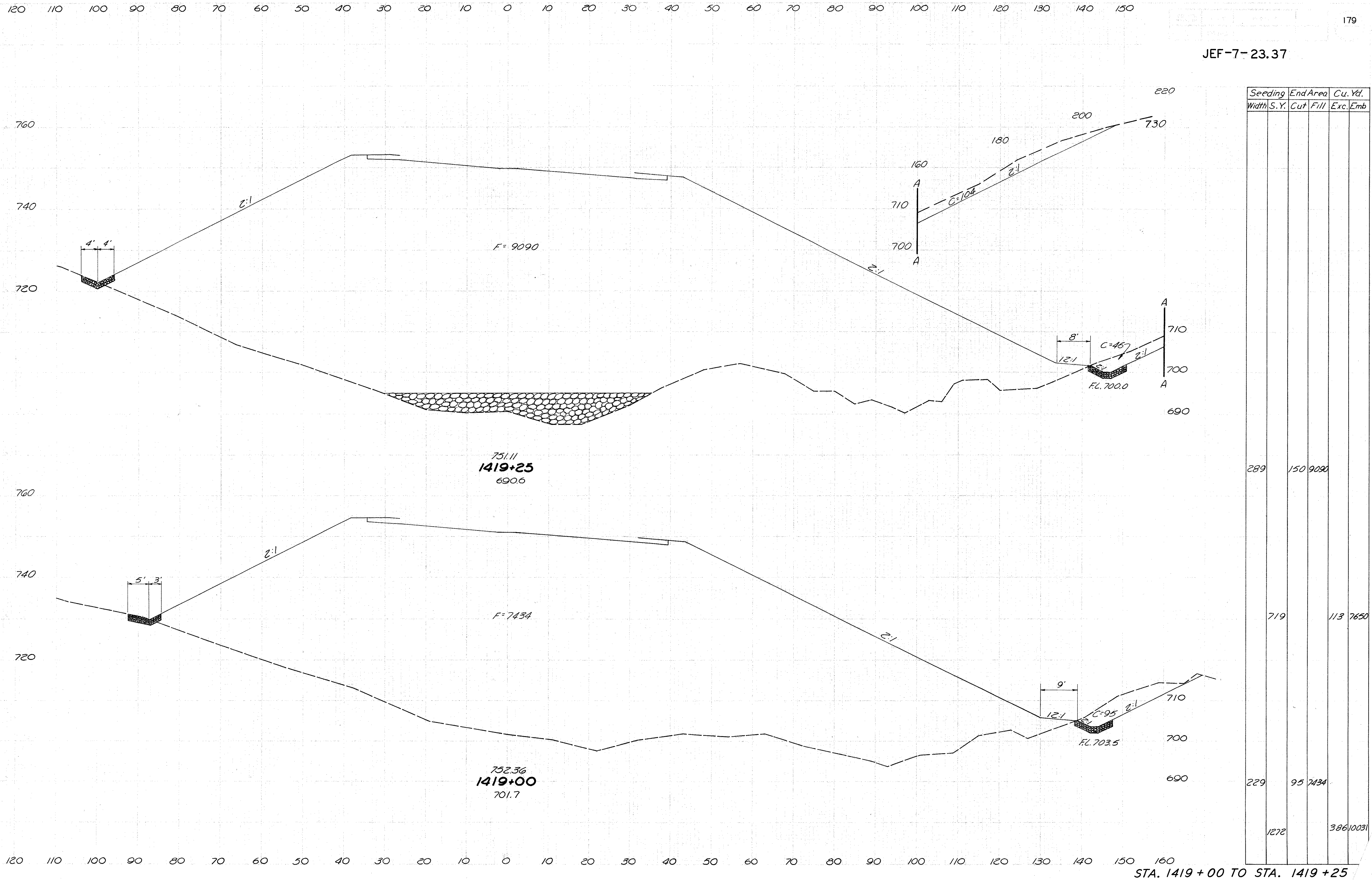
STA. 1412+50 TO STA. 1414+00



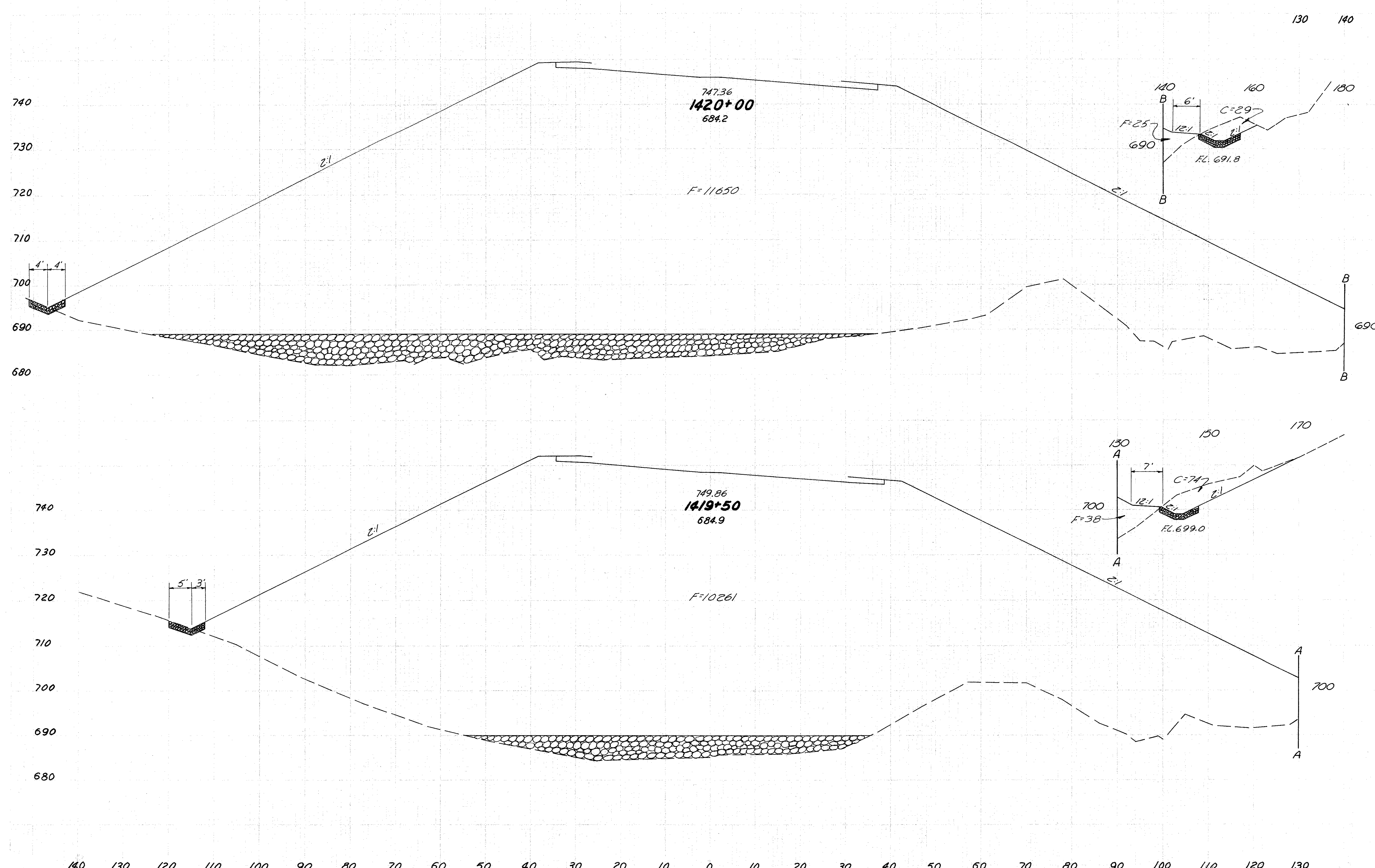








JEF-7-23.37

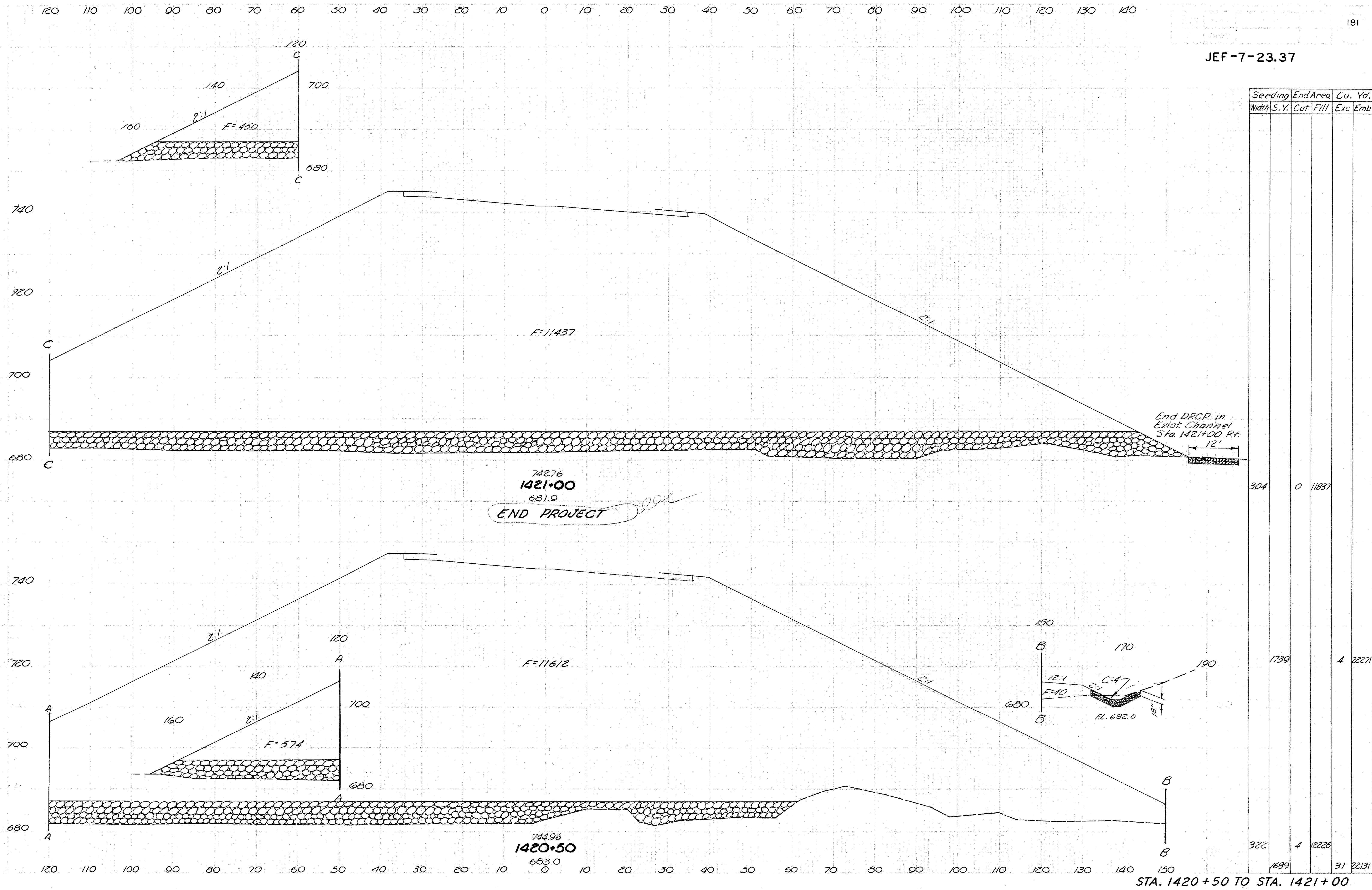


Seeding Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
286		29	11675		
1531				95	20346
265		74	10299		
769				104	8976

STA. 1419 + 50 TO STA. 1420 + 00



JEF-7-23.37



130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130

JEF.-7-23.37

BRIDGE

ZERO EARTHWORK  
1422+85

739.60  
1421+81.67 PARALLEL TO ABUTMENT  
683.4

Back: F-9,384

Ahead: F-8,922

740.76  
1421+50  
682.4

F=10549

Exc 276,927 Cu Yd  
Emb 152,883 Cu Yd  
Seeding 36,545 Sq Yd

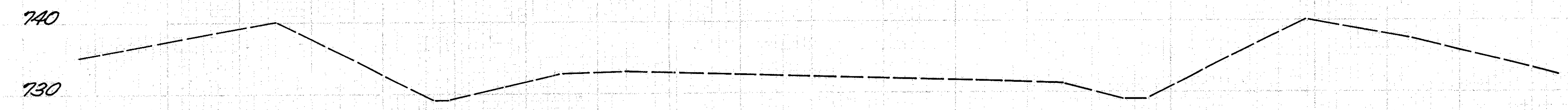
Ahead 221 0 8992  
Back 221 0 9454

Seeding Width	End Area		Cu. Yd.	
	S. Y.	Cut	Fill	Exc Emb
0	0	0	0	0
1269	0	17206		
720				
700				
906	0	11835		
294	0	10725		
1661	0	20891		
690				

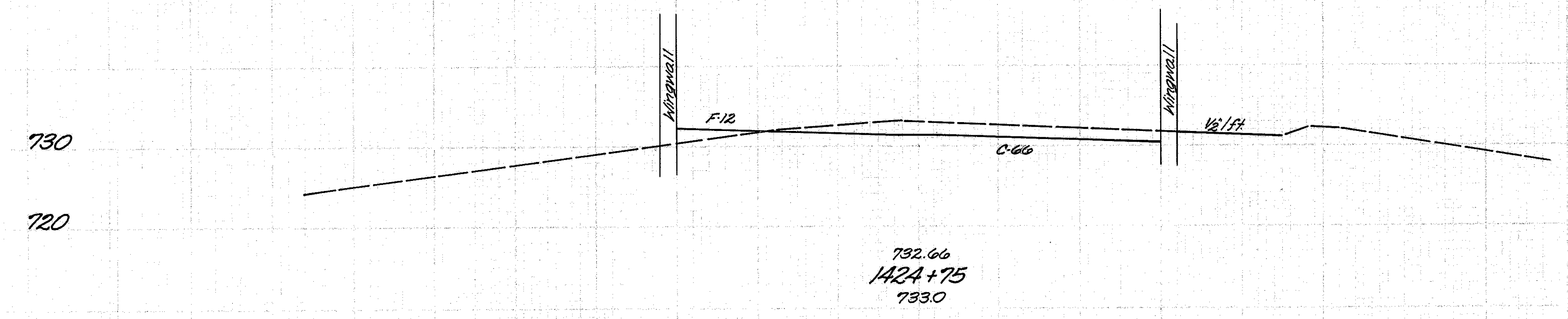
STA. 1421 + 50 TO STA. 1422 + 85



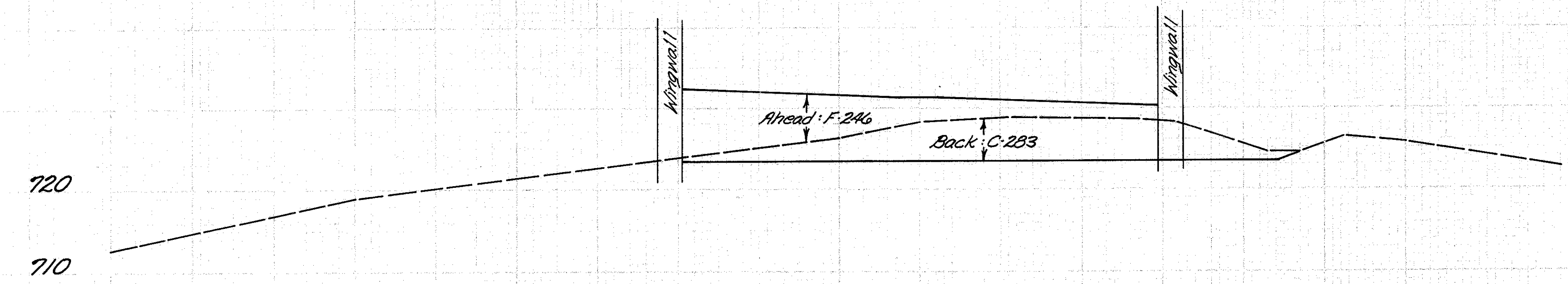
JEF-7-23.37



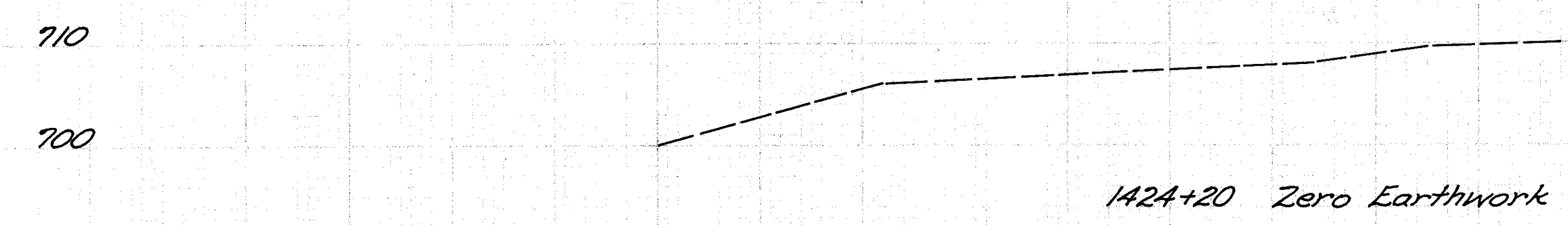
1425+00 Zero Earthwork  
732.36  
1424+86.26 END PROJECT



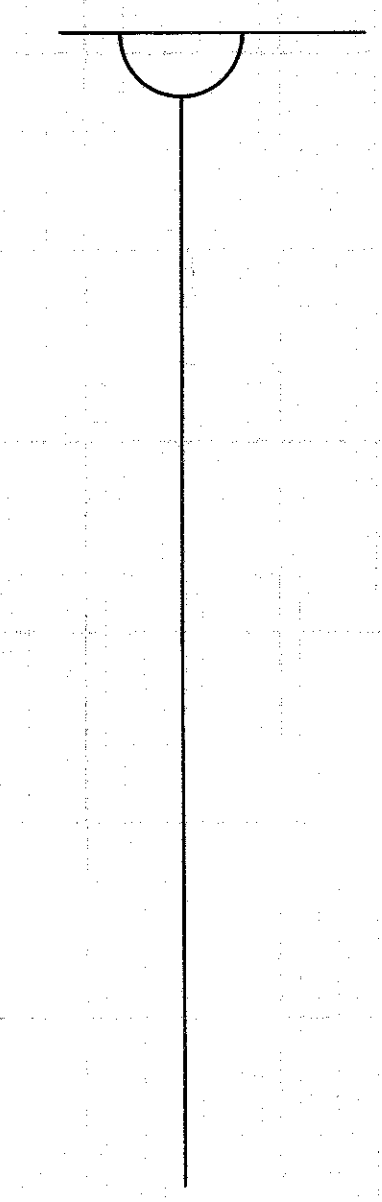
732.66  
1424+75  
733.0



732.81  
1424+61.26 PARALLEL TO ABUTMENT  
728.2



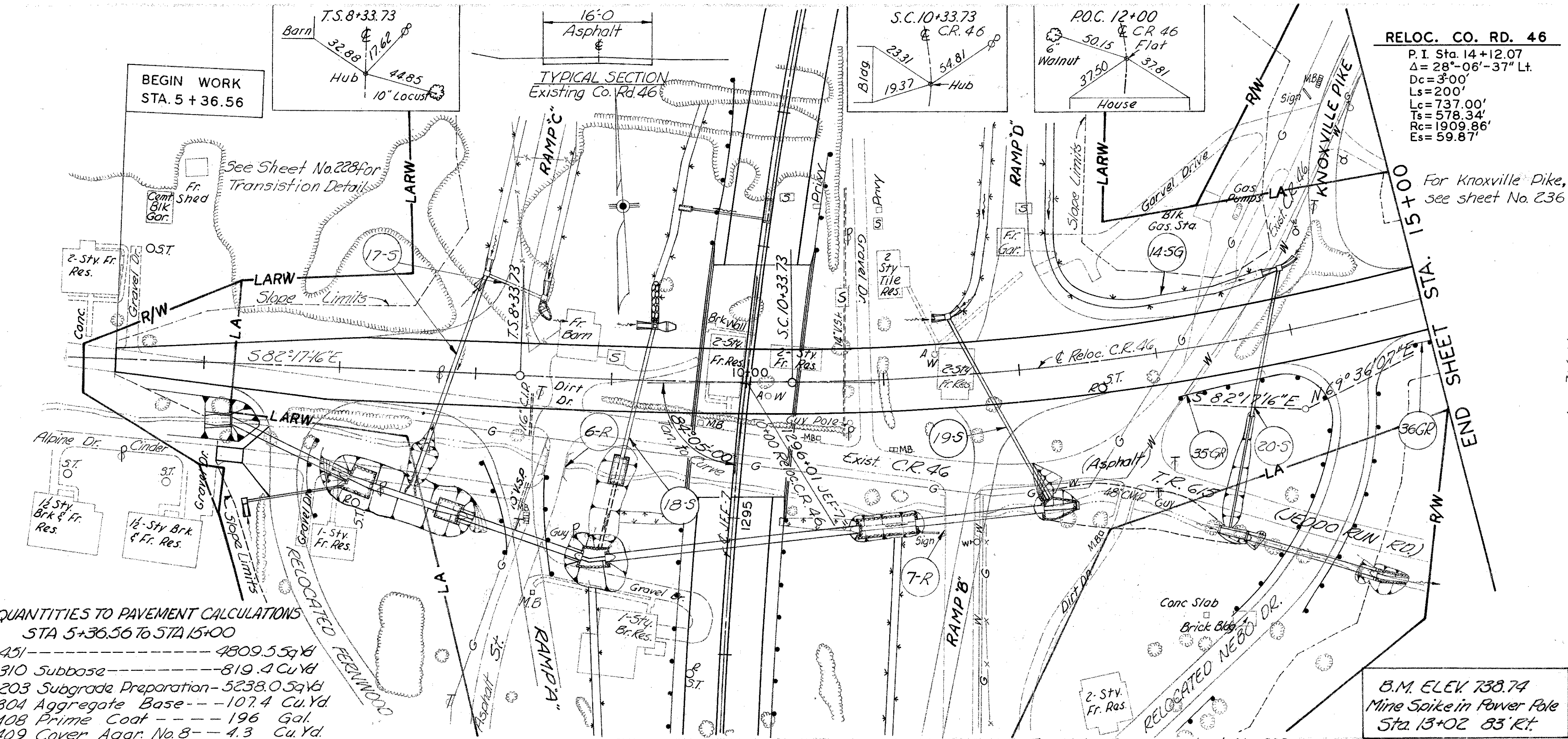
1424+20 Zero Earthwork



Seedling Width	End S.Y.	Area		Cu. Vols.	
		Cut	Fill	Exc.	Emb.
0		0	0		
32				31	6
23		66	12		
37				17	66
Ahead Back		25 25	0 283	246 0	
57				216	0
0		0	0		

STA. 1424+20 to STA. 1425+00

JEF -7-23.37

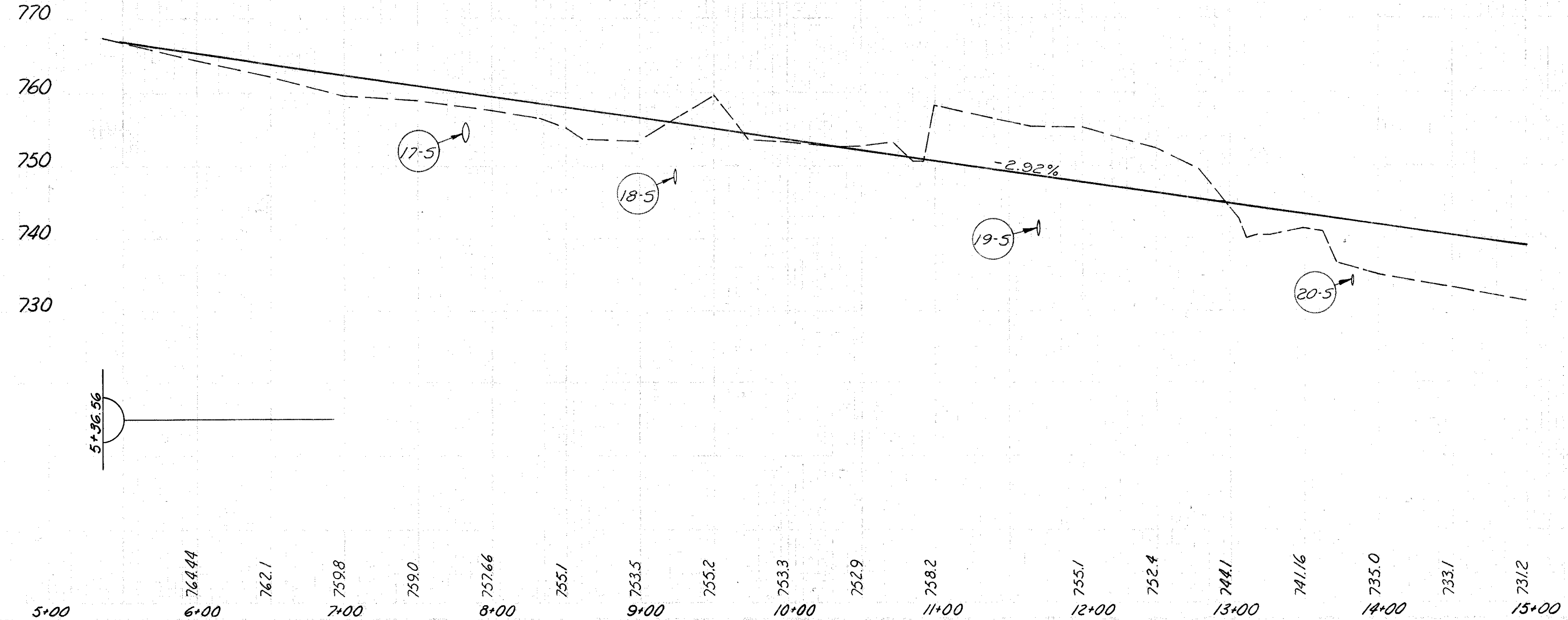


RELOC. CO. RD. 46  
P.I. Sta. 14+12.07  
 $\Delta = 28^{\circ}06'37''$  Lt.  
Dc = 300'  
Ls = 200'  
Tc = 737.00'  
Ts = 578.34'  
Rc = 1909.86'  
Es = 59.87'

QUANTITIES TO PAVEMENT CALCULATIONS  
STA 5+36.56 TO STA 15+00

451	Subbase	4809.55	Yd
203	Subgrade Preparation	5238.05	Yd
304	Aggregate Base	1074	Cu. Yd
408	Prime Coat	196	Gal.
409	Cover Aggr. No. 8	4.3	Cu. Yd.
409	Seal Coat	1472	Gal.

For Fernwood Drive, see sheet No. 230



603 Conduit \* Class B Bedding  
15' \* 18" \* 24" \* 30" \*  
Type A Type A Type A Type A  
700.00 700.00 700.00 700.00  
700.00 700.00 700.00 700.00  
L.F. L.F. L.F. L.F.

602	Conc	0.6	1	1	44
604	Mod	0.5	1	1	100
604	Stl	0.5	1	1	154
604	Basin	0.3	1	1	110
604	Basin				96

606	Guard	19	7	4	30
203	Excav	143	44	9	10
601	Riprap	19	7	4	30
202	Exist				

17-5	7+83	LT	750
18-5	9+24	LT	156
19-5	11+70	LT	
20-5	13+82	LT	
145G	12+40 to 13+88	LT	
36GR	13+11.92 to 13+85.68	RT	
36GR	12+84.70 to 15+00	RT	
6-R	8+65	RT	
7-R	11+50	RT	

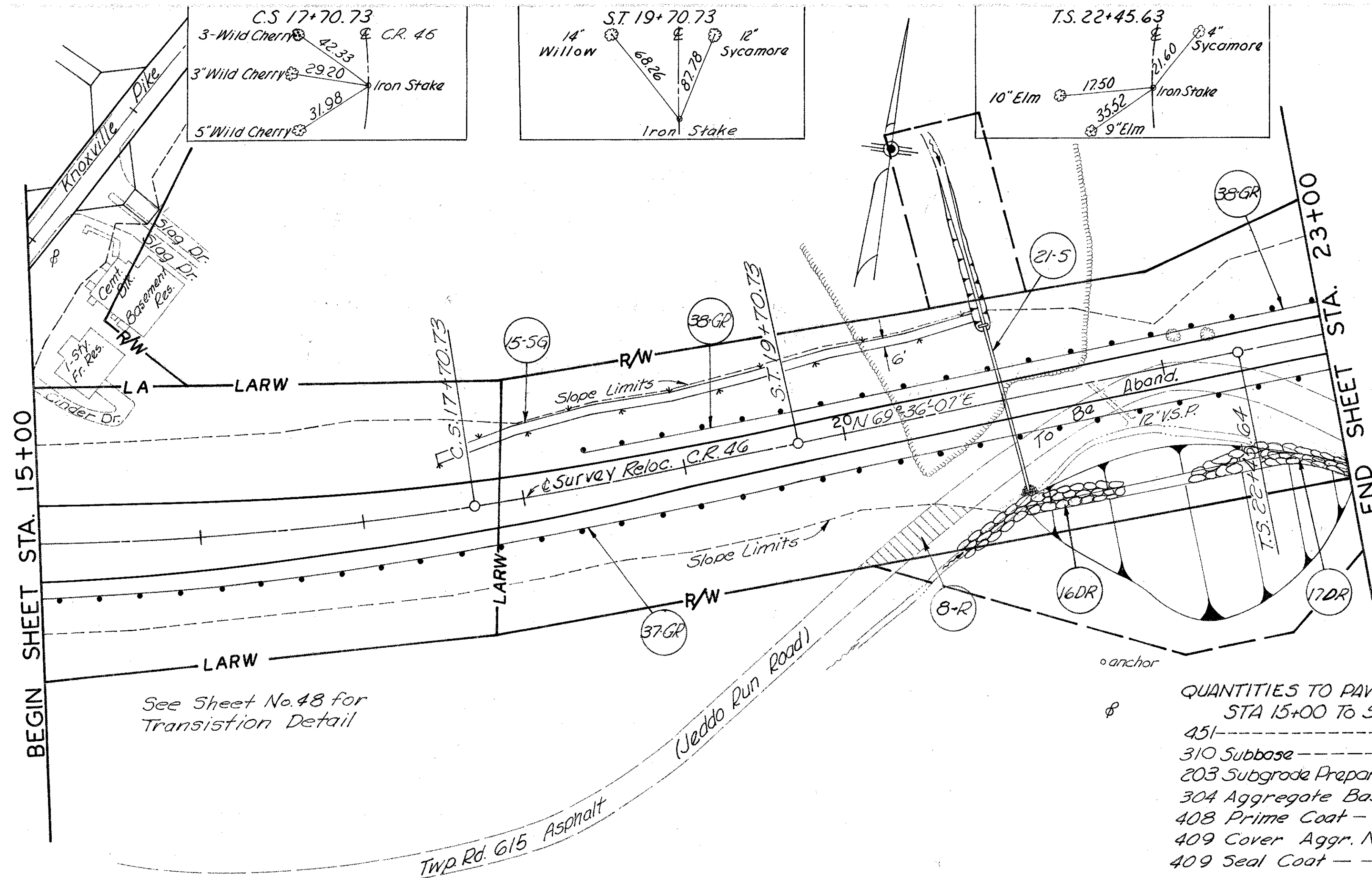
RELOCATED COUNTY ROAD 46 STA. 5+36.56 TO STA. 15+00

906 212 51 13 80 Lump

1.9 2 3 96

44 110 254 136

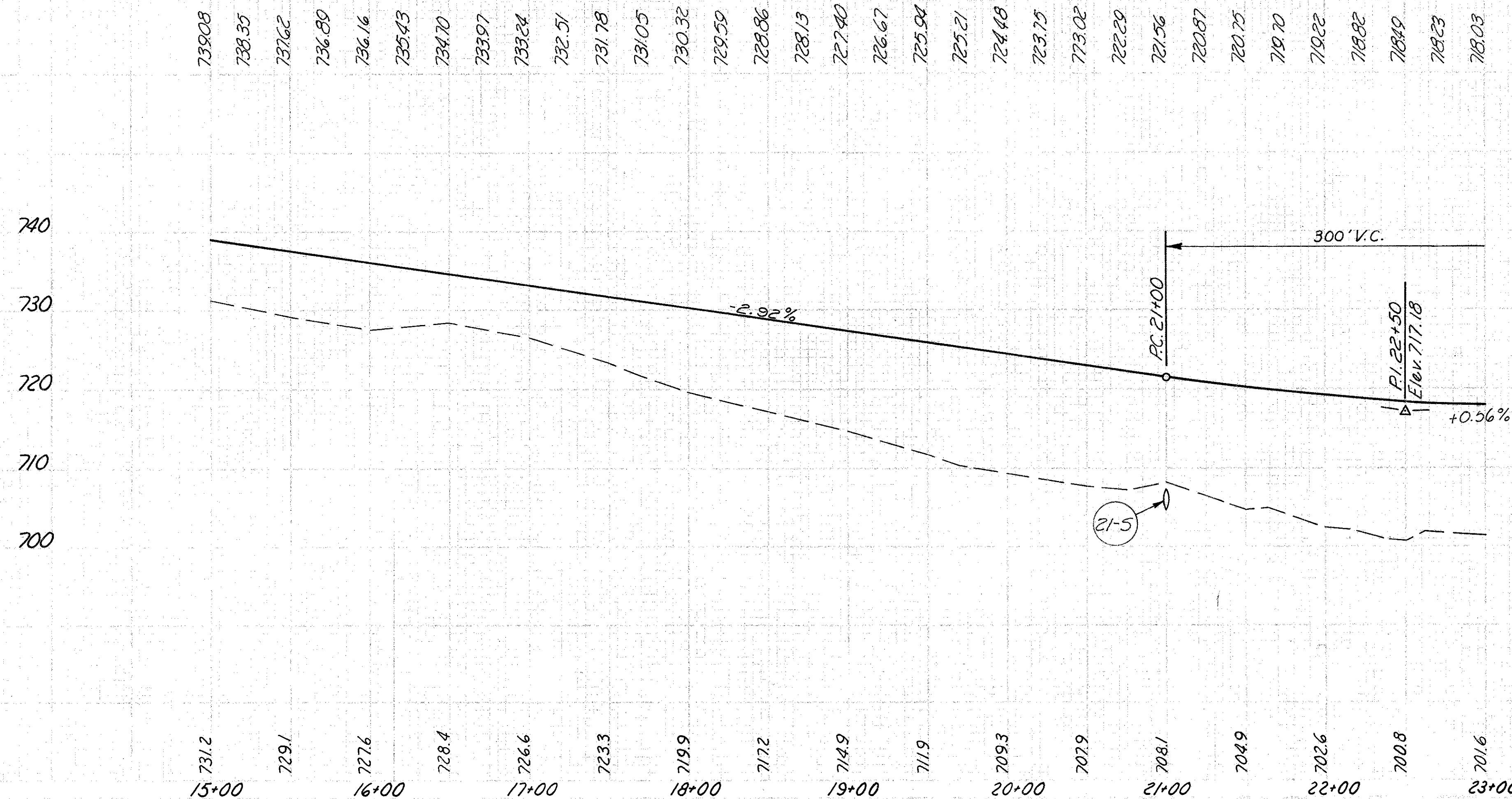




QUANTITIES TO PAVEMENT CALCULATIONS  
STA 15+00 TO STA 23+00

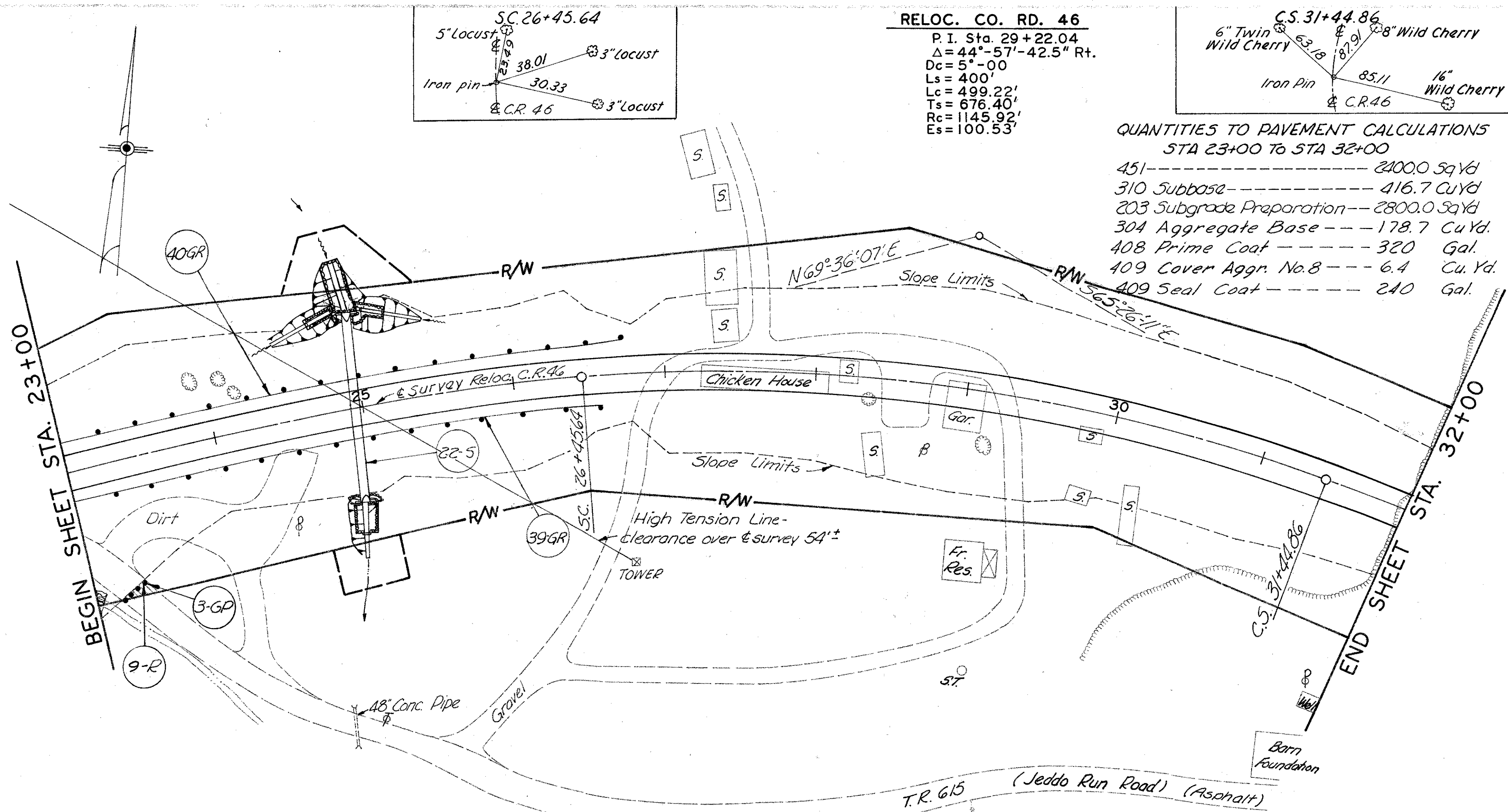
451	-----	2700.0 Sq.Yd.
310 Subbase	-----	464.8 Cu.Yd.
203 Subgrade Preparation	-----	505.6 Sq.Yd.
304 Aggregate Base	-----	158.8 Cu.Yd.
408 Prime Coat	-----	284.4 Gal.
409 Cover Aggr. No. 8	-----	5.7 Cu.Yd.
409 Seal Coat	-----	213.3 Gal.

B.M. ELEV. 714.50  
Mine Spike in 48" Sycamore  
Sta. 15+90 225' Rt.



ESTIMATED QUANTITIES		ESTIMATED QUANTITIES	
606	Guard Rail Type 4 Removed L.F.	601	Pit and Dump Rock Channel Protect. 5 Y. C.Y.
202	Exist Pav't Removed 5 Y. C.Y.	203	Excav. Conc. Slab 5 Y. C.Y.
21-5	21+00	601	Pit and Dump Rock Channel Protect. 5 Y. C.Y.
1555	17+50 to 20+93 Lt.	123	
16DR	20+55 to 21+60 Rt.	116	
17DR	22+00 to 23+00 Rt.		
8R	19+90 to 20+80 Rt.	181	
376R	15+00 to 23+00 Rt. 8072		
386R	18+40 to 23+00 Lt. 460		

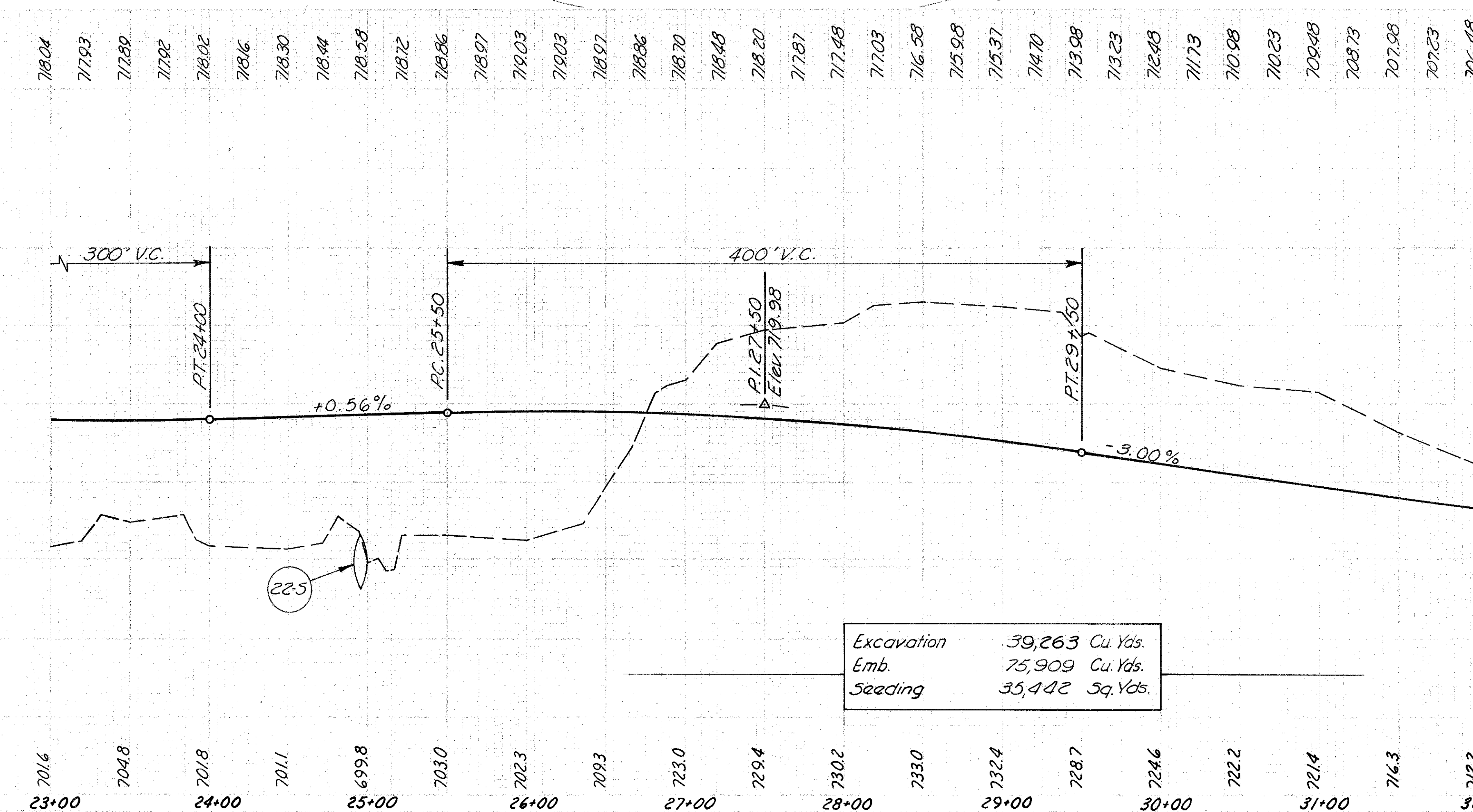
JEF -7-23.37



RELOC. CO. RD. 46  
P.I. Sta. 29+22.04  
 $\Delta = 44^\circ - 57' - 42.5''$  R+.  
Dc = 5'-00'  
Ls = 400'  
Lc = 499.22'  
Ts = 676.46'  
Rc = 1145.92'  
Es = 100.53'

QUANTITIES TO PAVEMENT CALCULATIONS  
STA 23+00 TO STA 32+00

- 451 Subbase --- 2400.0 Sq Yd
- 310 Subbase --- 416.7 Cu Yd
- 203 Subgrade Preparation --- 2800.0 Sq Yd
- 304 Aggregate Base --- 178.7 Cu Yd
- 408 Prime Coat --- 320 Gal.
- 409 Cover Aggr. No. 8 --- 6.4 Cu Yd
- 409 Seal Coat --- 240 Gal.



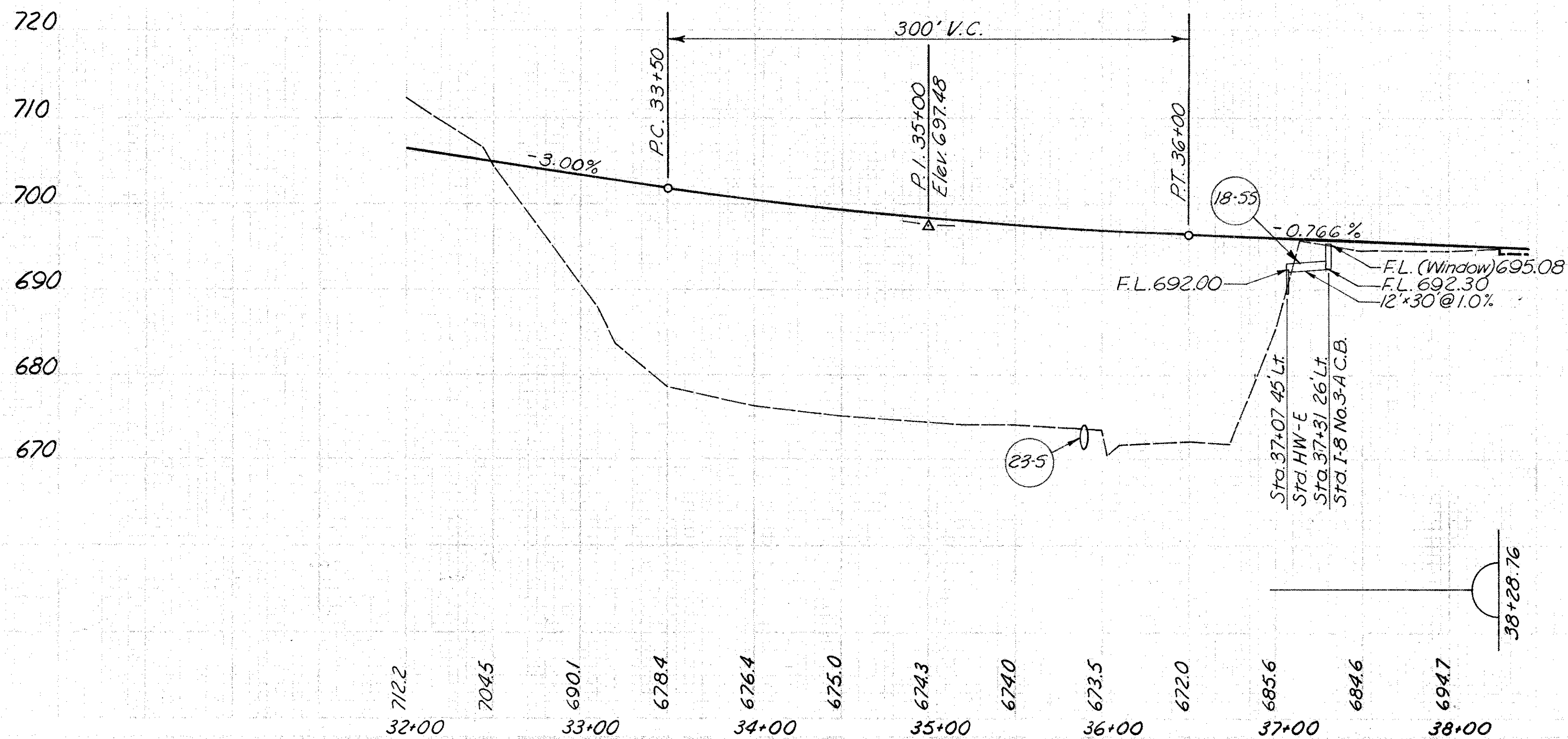
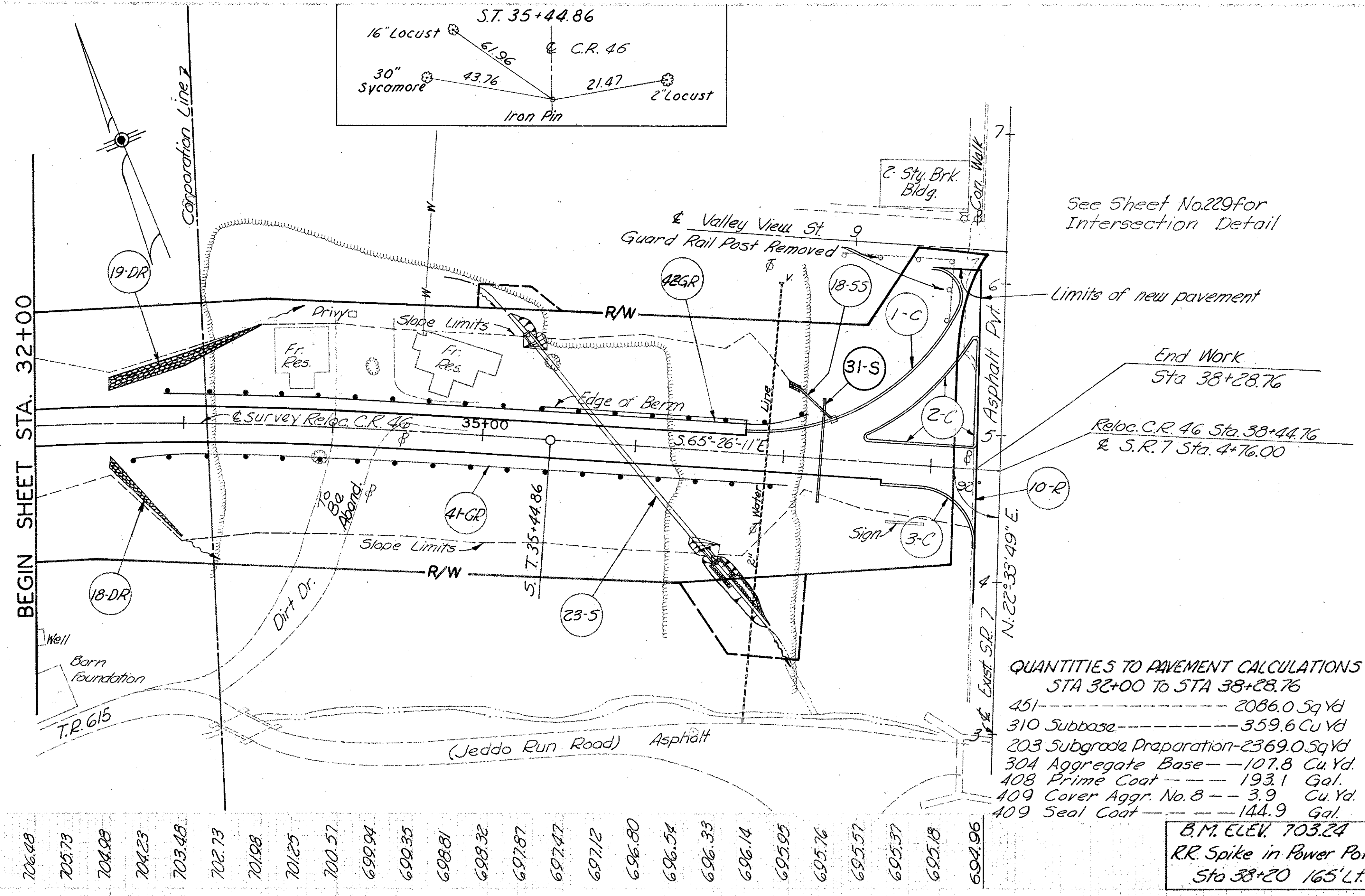
Excavation 39,263 Cu. Yds.  
Emb. 75,909 Cu. Yds.  
Seeding 35,442 Sq. Yds.

B.M. ELEV. 693.45  
Mine Spike in 14" Willow  
Sta. 25+00 250' Rt.

ESTIMATED QUANTITIES		603 Conduit * Class B Bedding		602 Conc Masonry		606 Guard Rail		601 Slope Protection		606 Guard Posts	
22-5	24+95	4484'	Lt	80	C.Y.	16	Rt	5-Y	101	29	Each
9-R								5-Y	101	29	
39GR	23+00 to 26+57.23	352.2	Rt					5-Y	101	29	
40GR	23+00 to 26+73.6	377.5	Lt					5-Y	101	29	
3GP	23+16 to 23+33		Lt					5-Y	101	29	

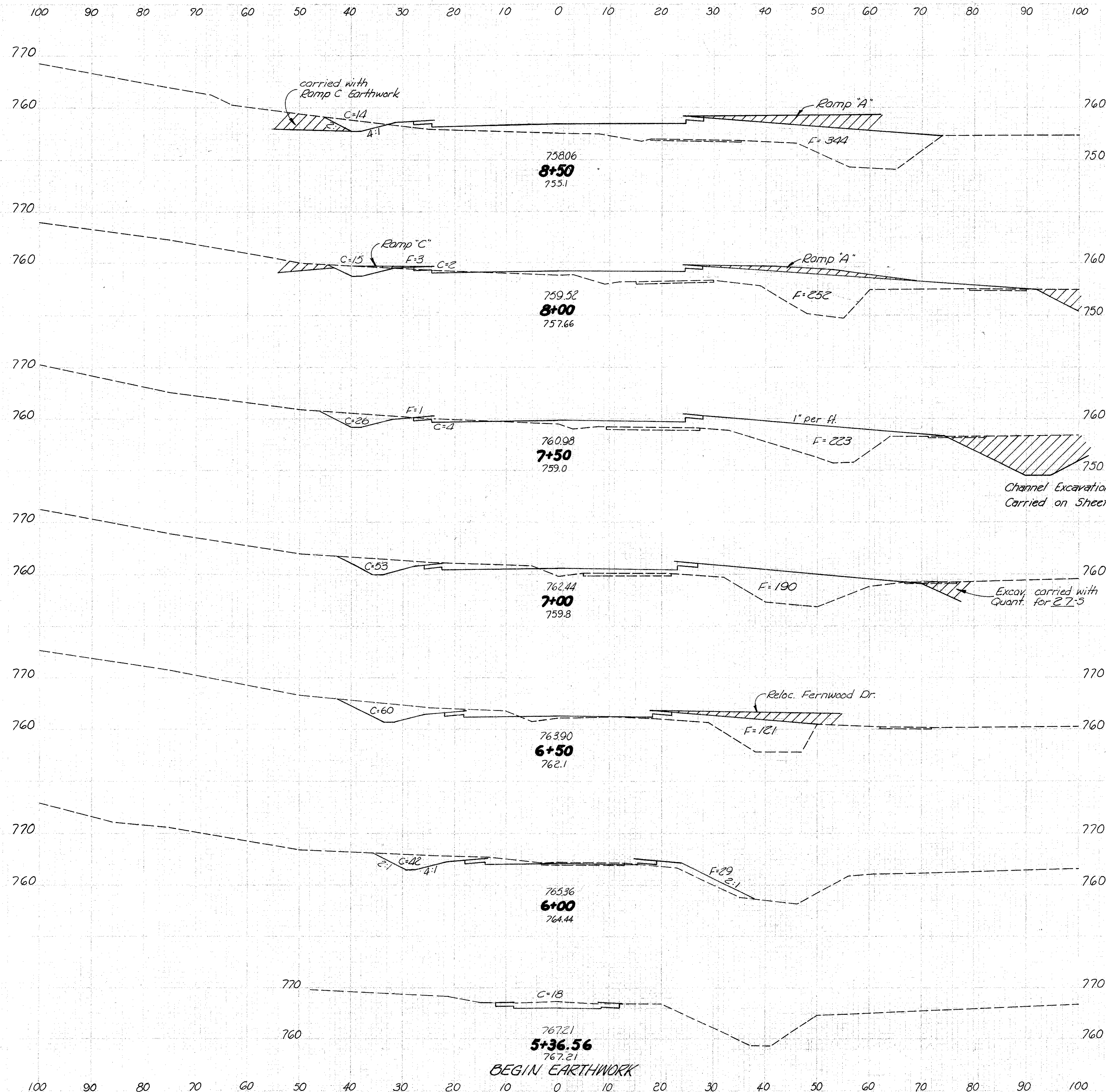


JEF -7-23.37



STATION	ITEM	QUANTITY	UNIT
32+00	23-5	1	Lt
33+00	18-55	1	Lt
33+00	18-DR	1	Rt
33+00	19-DR	1	Rt
33+00	1-C	1	Lt
33+00	2-C	1	Lt
33+00	3-C	1	Lt
33+00	4-GR	1	Lt
33+00	5	1	Lt
33+00	6	1	Lt
33+00	7	1	Lt
33+00	8	1	Lt
33+00	9	1	Lt
33+00	10-R	1	Lt
33+00	11	1	Lt
33+00	12	1	Lt
33+00	13	1	Lt
33+00	14	1	Lt
33+00	15	1	Lt
33+00	16	1	Lt
33+00	17	1	Lt
33+00	18	1	Lt
33+00	19	1	Lt
33+00	20	1	Lt
33+00	21	1	Lt
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33+00	23	1	Lt
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33+00	37	1	Lt
33+00	38	1	Lt
33+00	39	1	Lt
33+00	40	1	Lt
33+00	41	1	Lt
33+00	42	1	Lt
33+00	43	1	Lt
33+00	44	1	Lt
33+00	45	1	Lt
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33+00	47	1	Lt
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33+00	95	1	Lt
33+00	96	1	Lt
33+00	97	1	Lt
33+00	98	1	Lt
33+00	99	1	Lt
33+00	100	1	Lt

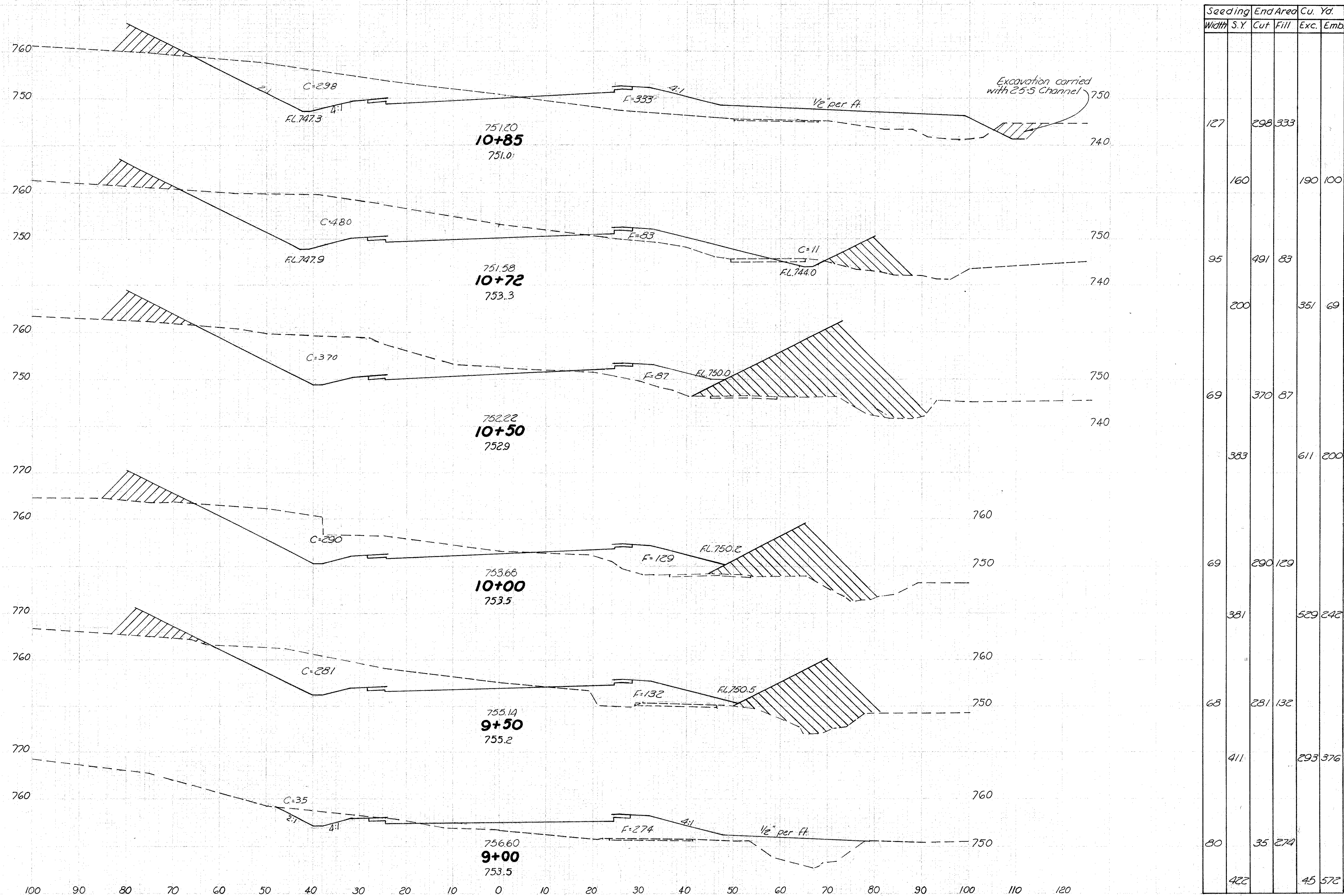
JEF -7-23.37



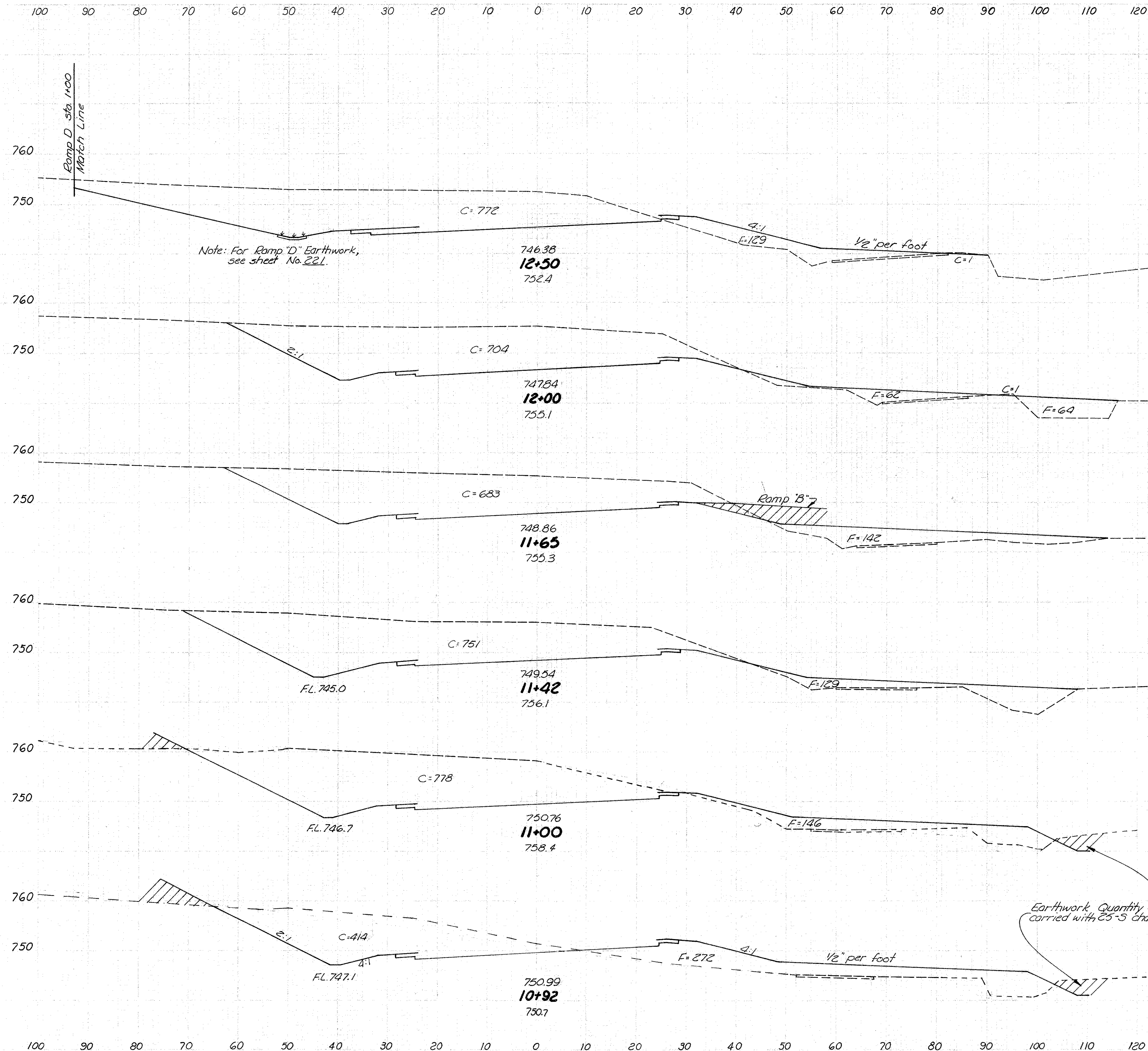
Width	S.Y.	End Area		Cu. Yd.	
		Cut	Fill	Exc.	Emb.
72		14	344		
	383			29	555
66		17	255		
	394			44	449
76		30	224		
	411			77	383
72		53	190		
	375			105	288
63		60	121		
	322			94	139
53		42	29		
	187			70	34
0		18	0		



JEF -7-23.37

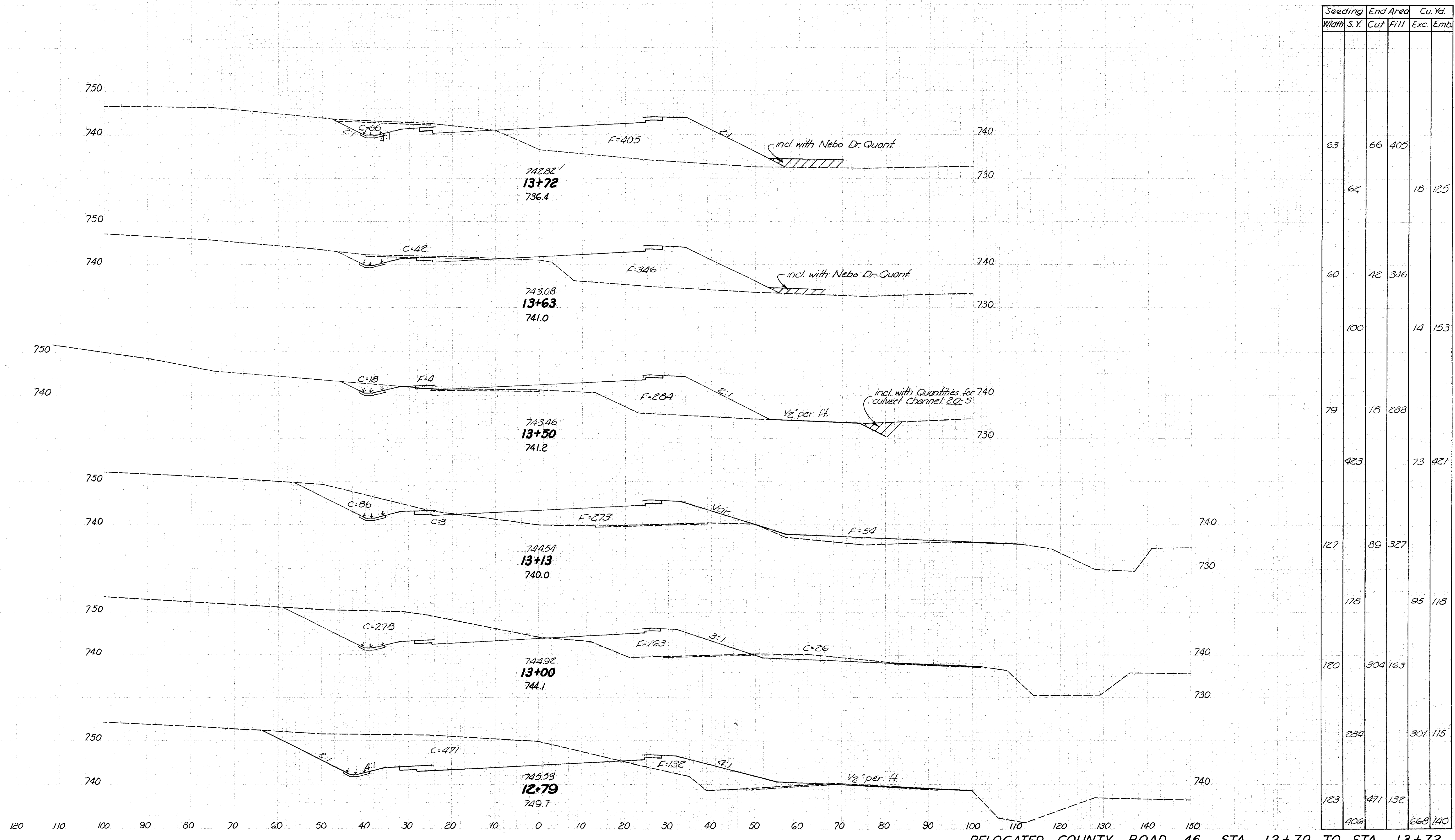


RELOCATED COUNTY ROAD 46 STA. 9+00 TO STA. 10+85

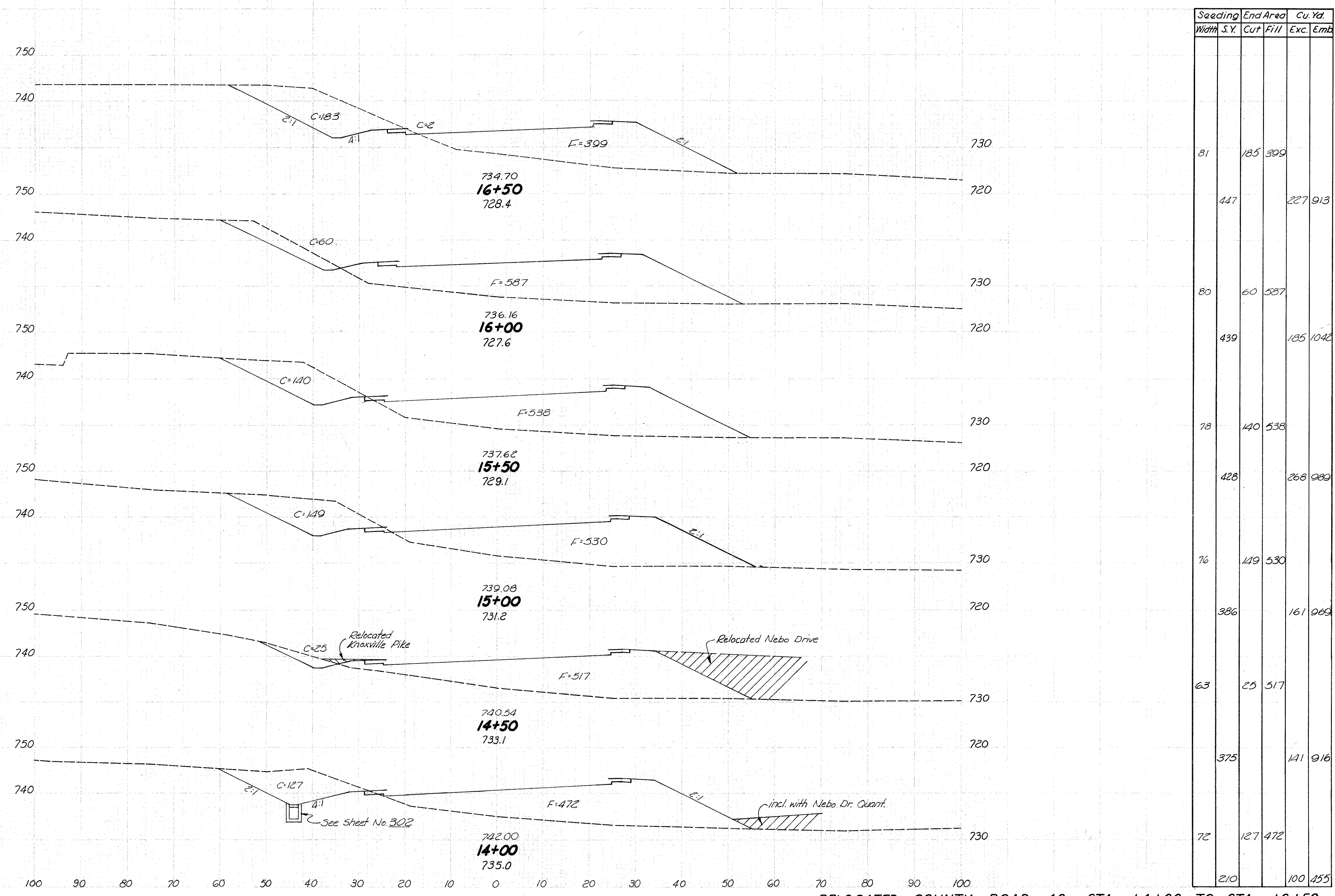


Seeding Width	S.Y.	End Area		Cu. Yd.	
		Cut	Fill	Exc.	Emb.
129		773	129		
733				1369	236
135		705	126		
521				900	174
133		683	142		
342				611	115
135		751	129		
621				1189	214
131		778	146		
113				177	62
124		414	272		
98				92	78



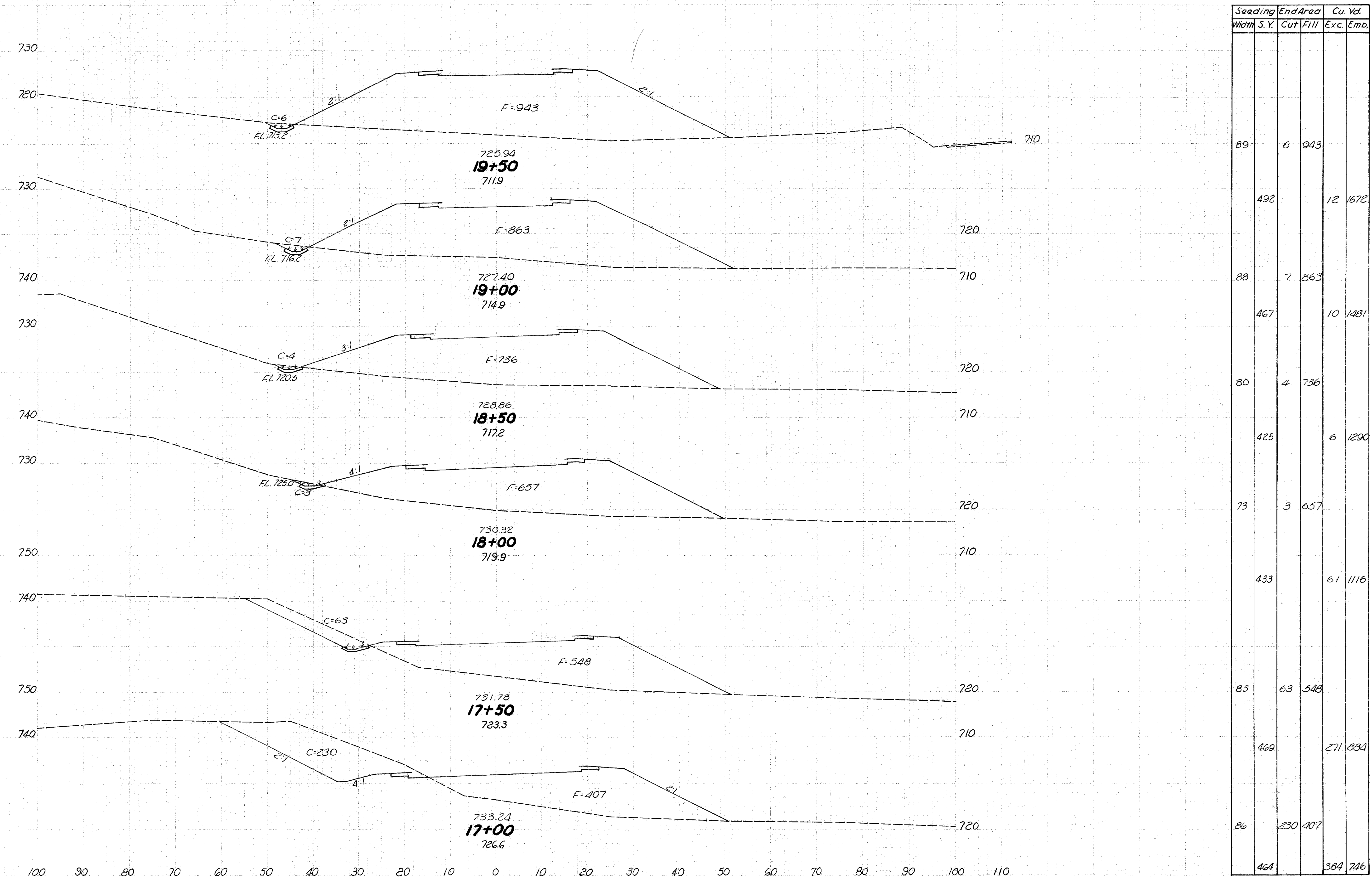


Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
63		66	405		
60		42	346	18	125
79		18	288	14	153
127		89	327	73	421
120		304	163	95	118
123		471	132	301	115



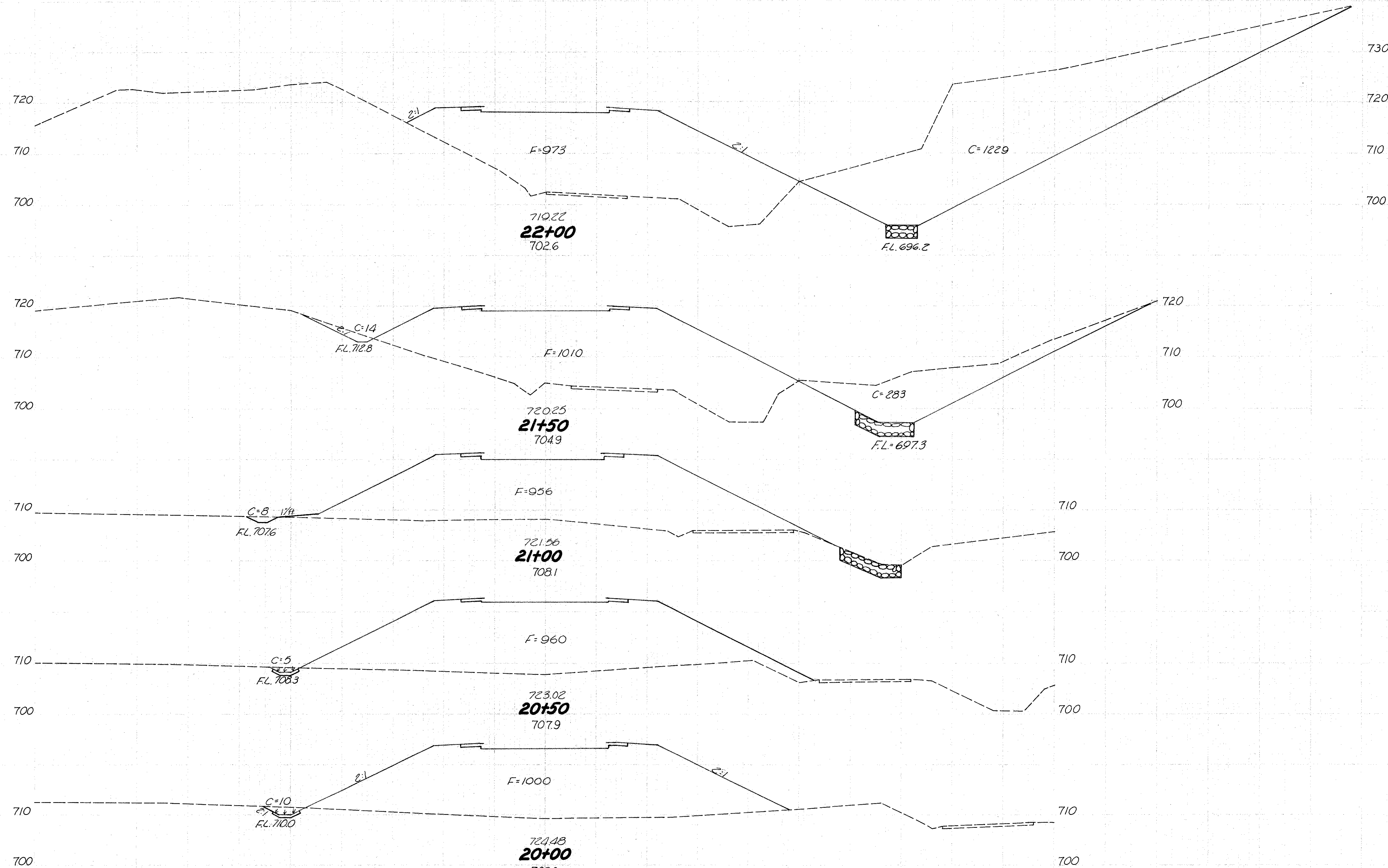


100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110



Seeding		End Area		Cu. Yd.	
Width	S. Y.	Cut	Fill	Exc.	Emb.
89	6	943			
492				12	1672
88	7	863			
467				10	1481
80	4	736			
425				6	1290
73	3	657			
433				61	1116
83	63	548			
469				271	881
86	230	407			
464				384	746

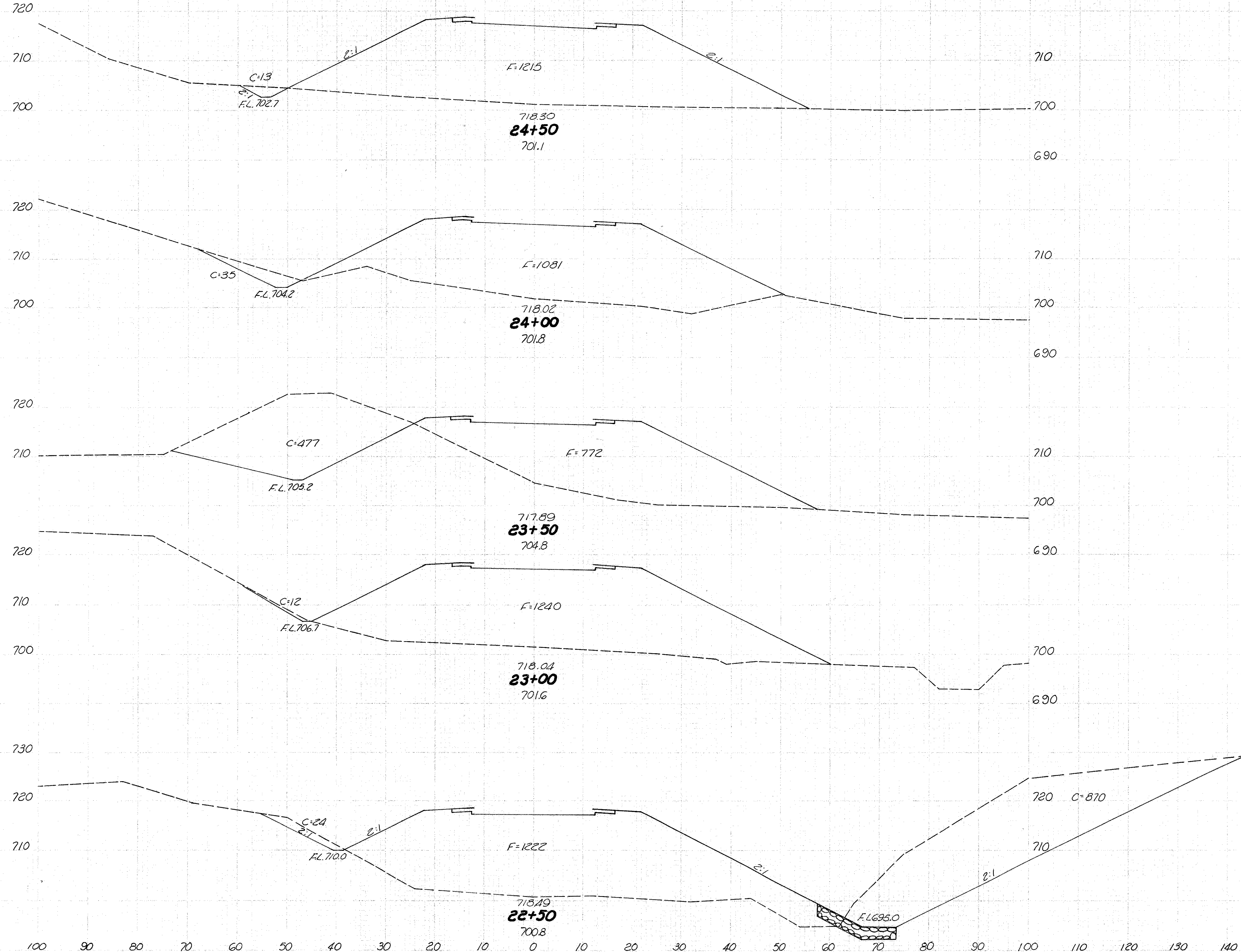
100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160



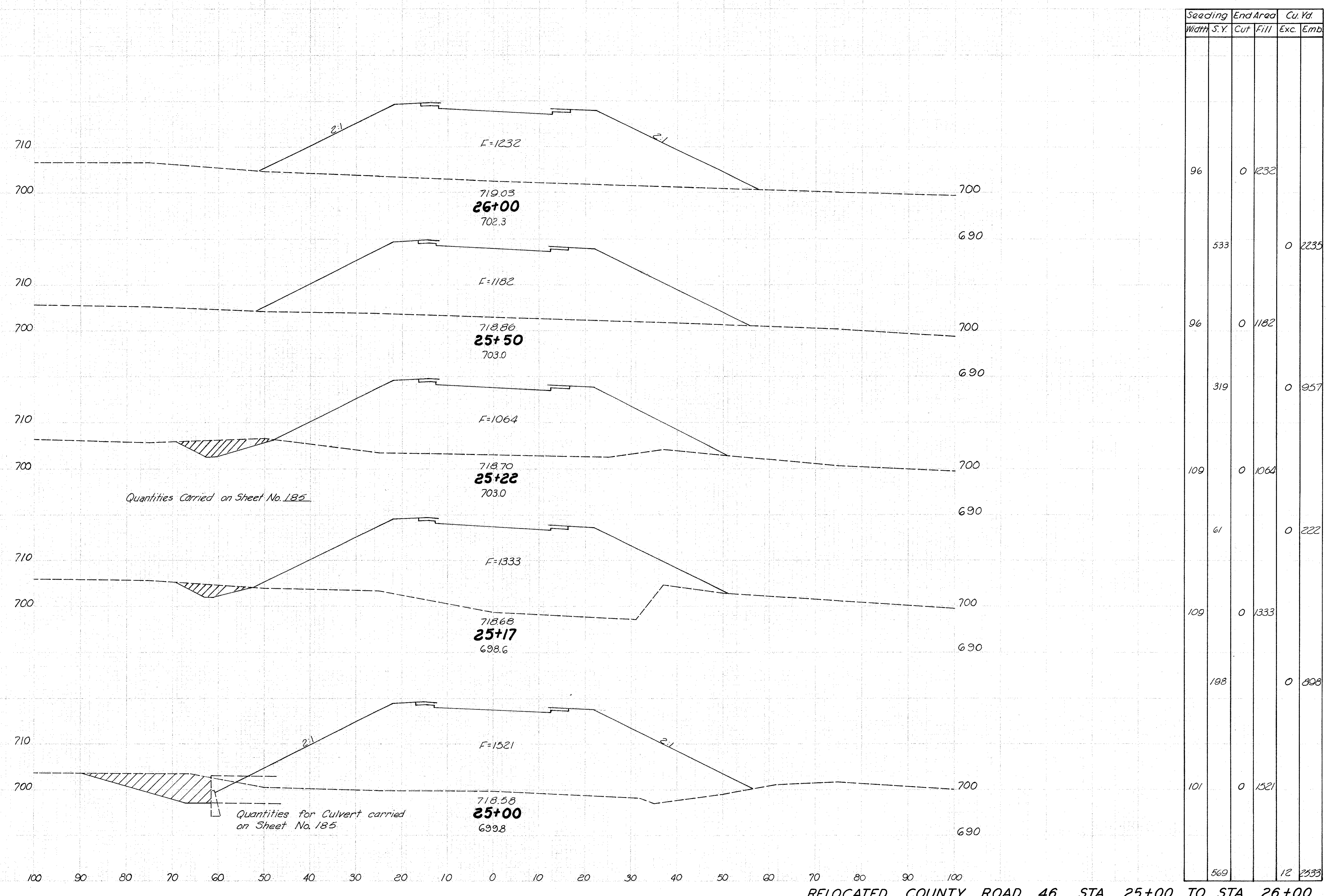
Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
182		1526	973		
950				1413	1836
160		297	1010		
719				282	1820
99		8	956		
539				12	1774
95		5	960		
517				14	1815
91		10	1000		
500				15	1799



JEF -7-23.37

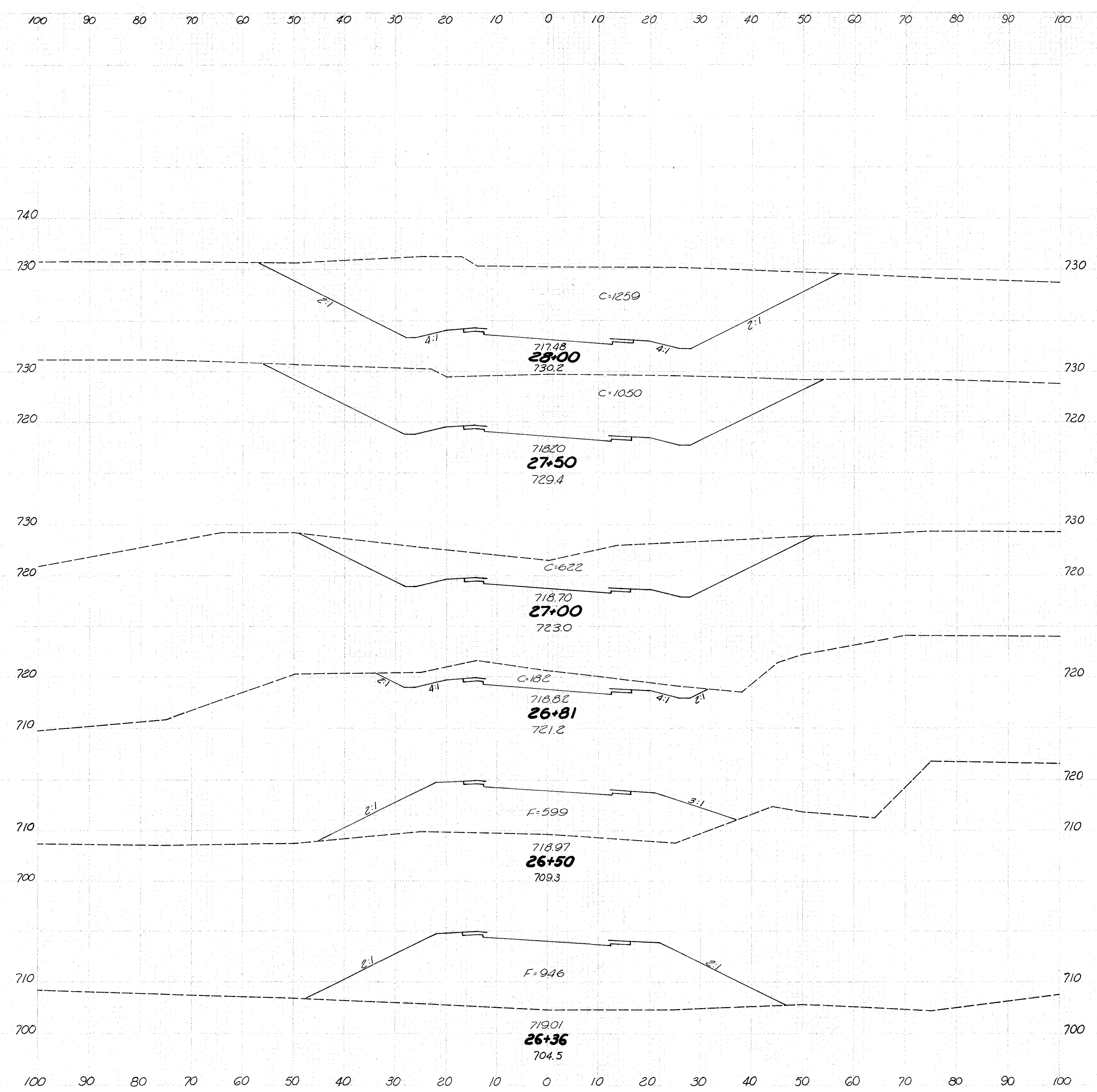


Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
104		13	1215		
	589			44	2126
108		35	1081		
	631			474	1716
119		477	772		
	636			453	1863
110		12	1240		
	856			839	2280
198		894	1222		
	1056			1966	2032

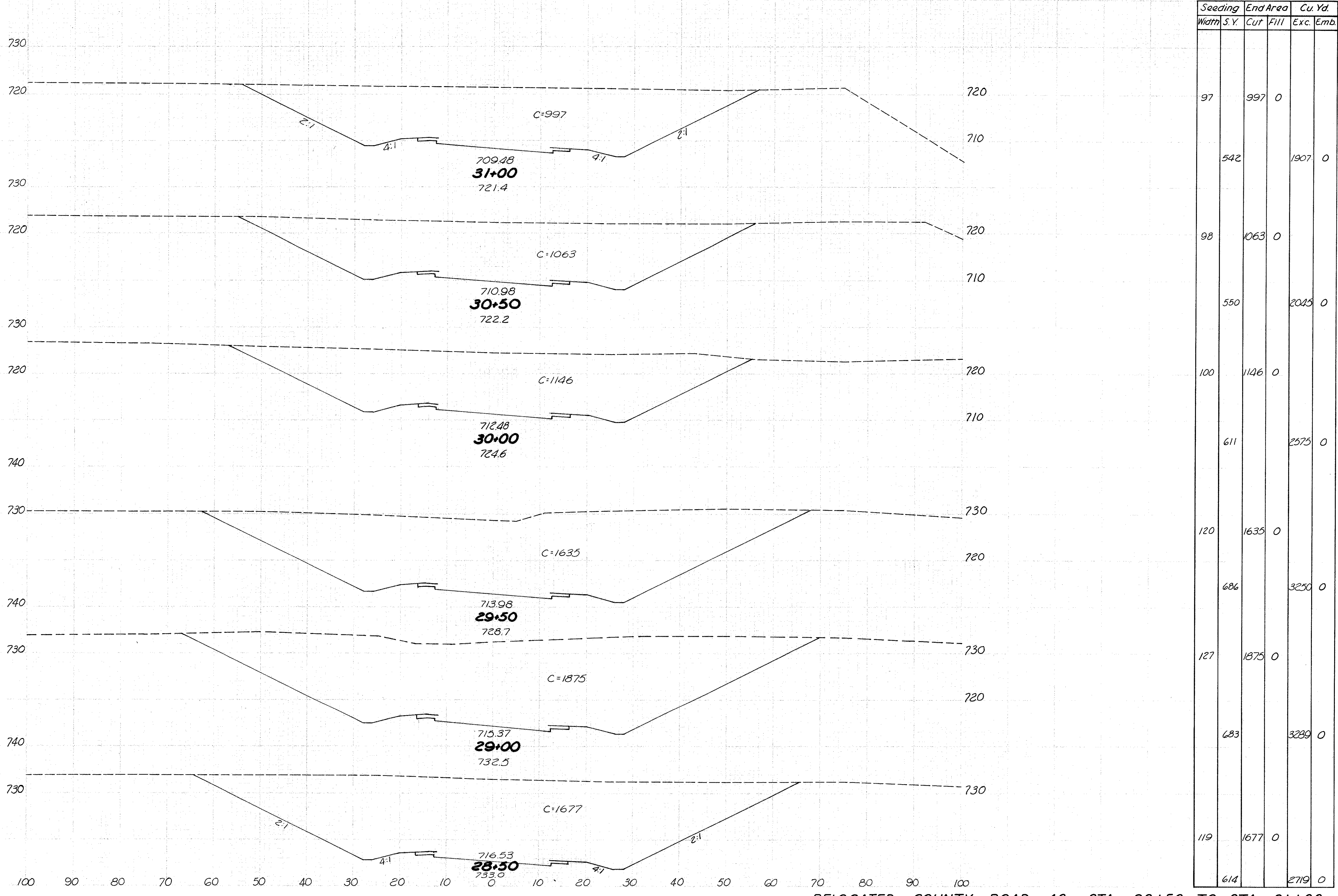


RELOCATED COUNTY ROAD 46 STA. 25+00 TO STA. 26+00





Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
102		1259	0		
	553			2138	0
97		1050	0		
	511			1548	0
87		622	0		
	141			283	0
47		182	0		
	195			104	344
66		0	599		
	114			0	401
81		0	946		
	354			0	1452



RELOCATED COUNTY ROAD 46 STA 28+50 TO STA 31+00

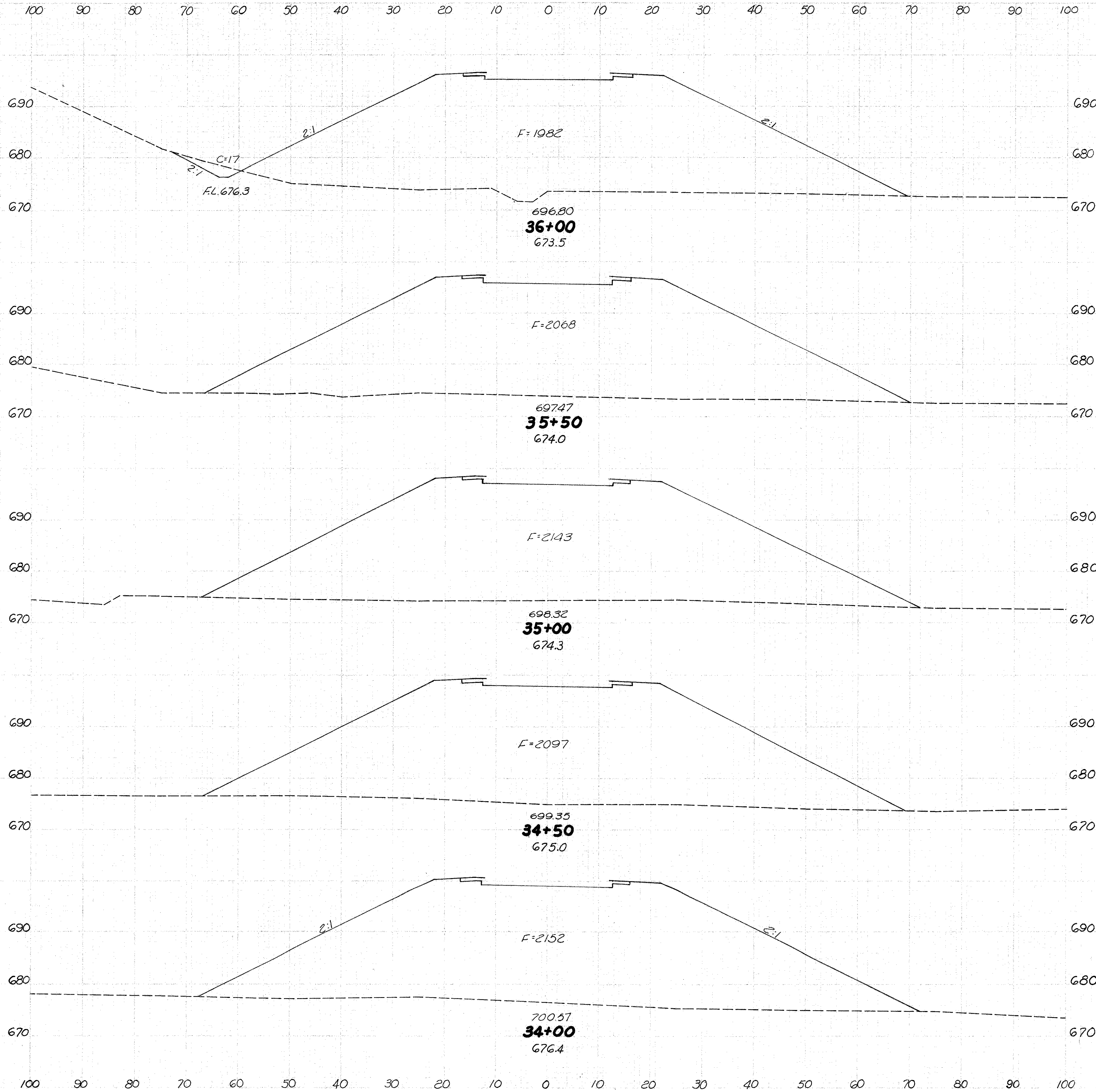


100	90	80	70	60	50	40	30	20	10	0	10	20	30	40	50	60	70	80	90	100
-----	----	----	----	----	----	----	----	----	----	---	----	----	----	----	----	----	----	----	----	-----



Seeding		End Area		Cu. Yd.	
Width	S. Y.	Cut	Fill	Exc.	Emb.
130		0	2079		
	681			15	2790
115		16	934		
	461			91	866
51		82	1		
	353			586	1
76		551	0		
	453			1232	0
87		780	0		
	511			1645	0

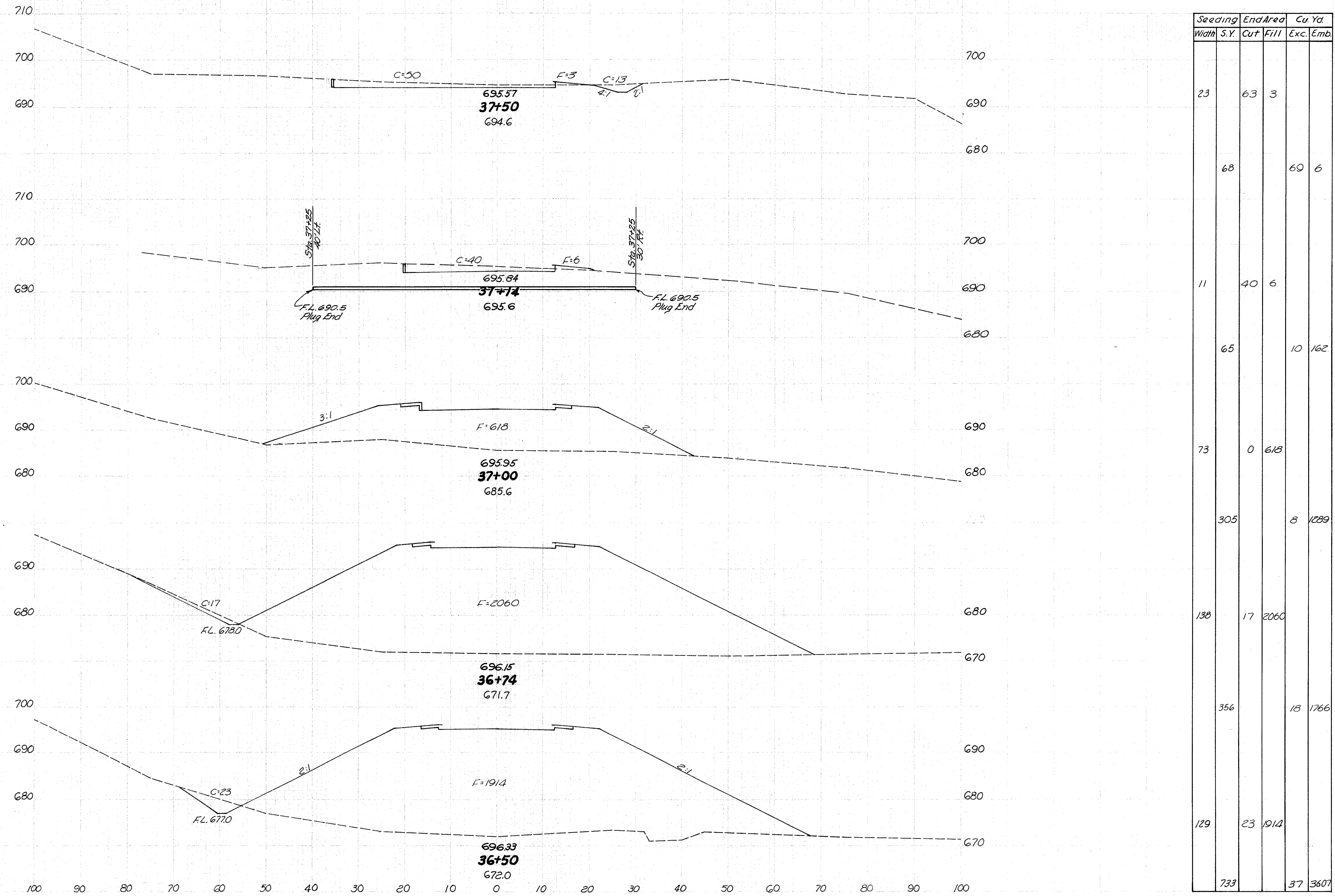
RELOCATED COUNTY ROAD 46 STA. 31+50 TO STA. 33+50



Seeding Width	S.Y.	End Area		Cu. Yd.	
		Cut	Fill	Exc.	Emb.
135		17	1982		
733				16	3750
129		0	2068		
722				0	3899
131		0	2143		
719				0	3926
128		0	2097		
719				0	3934
131		0	2152		
725				0	3948

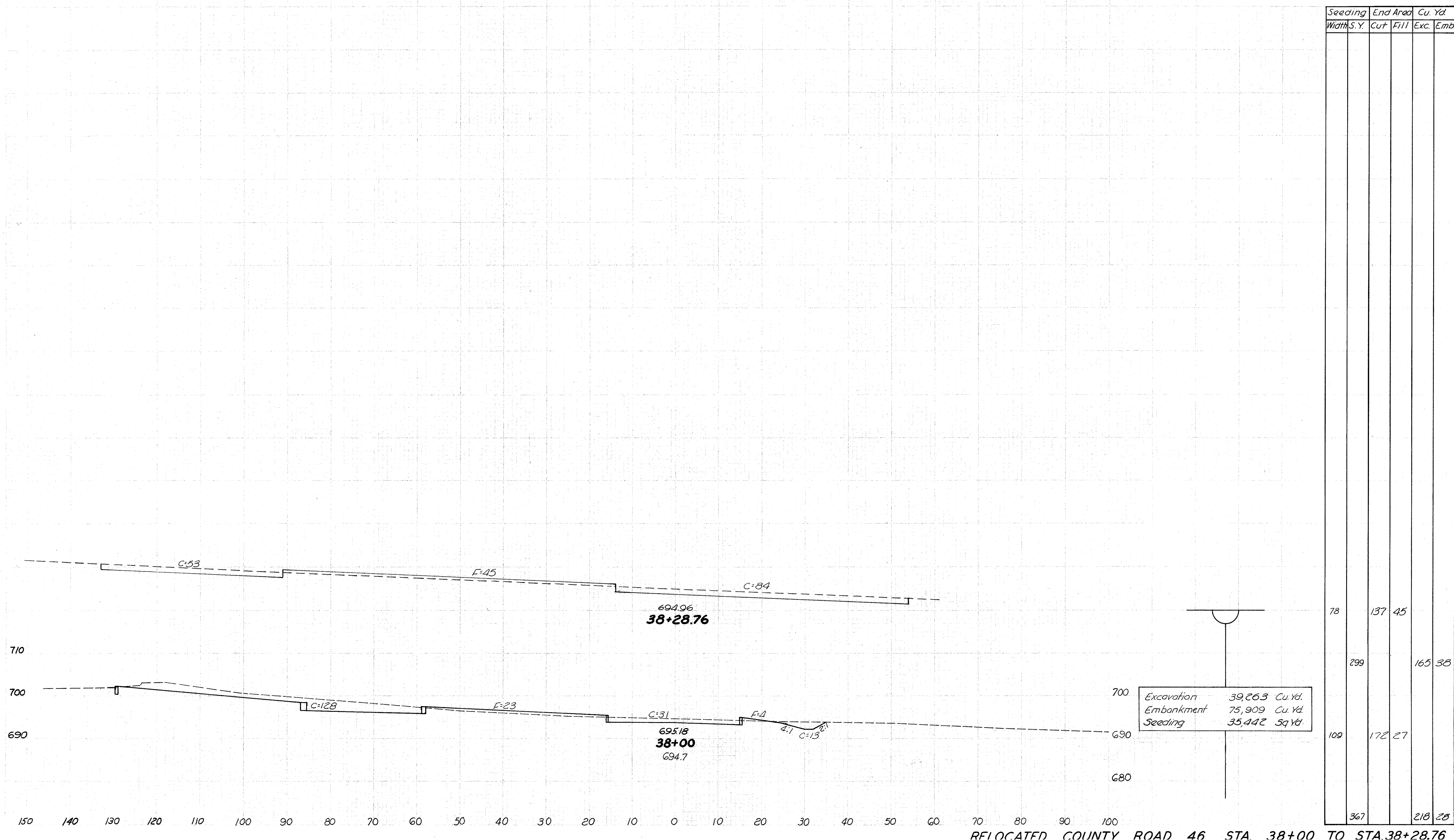


JEF -7-23.37

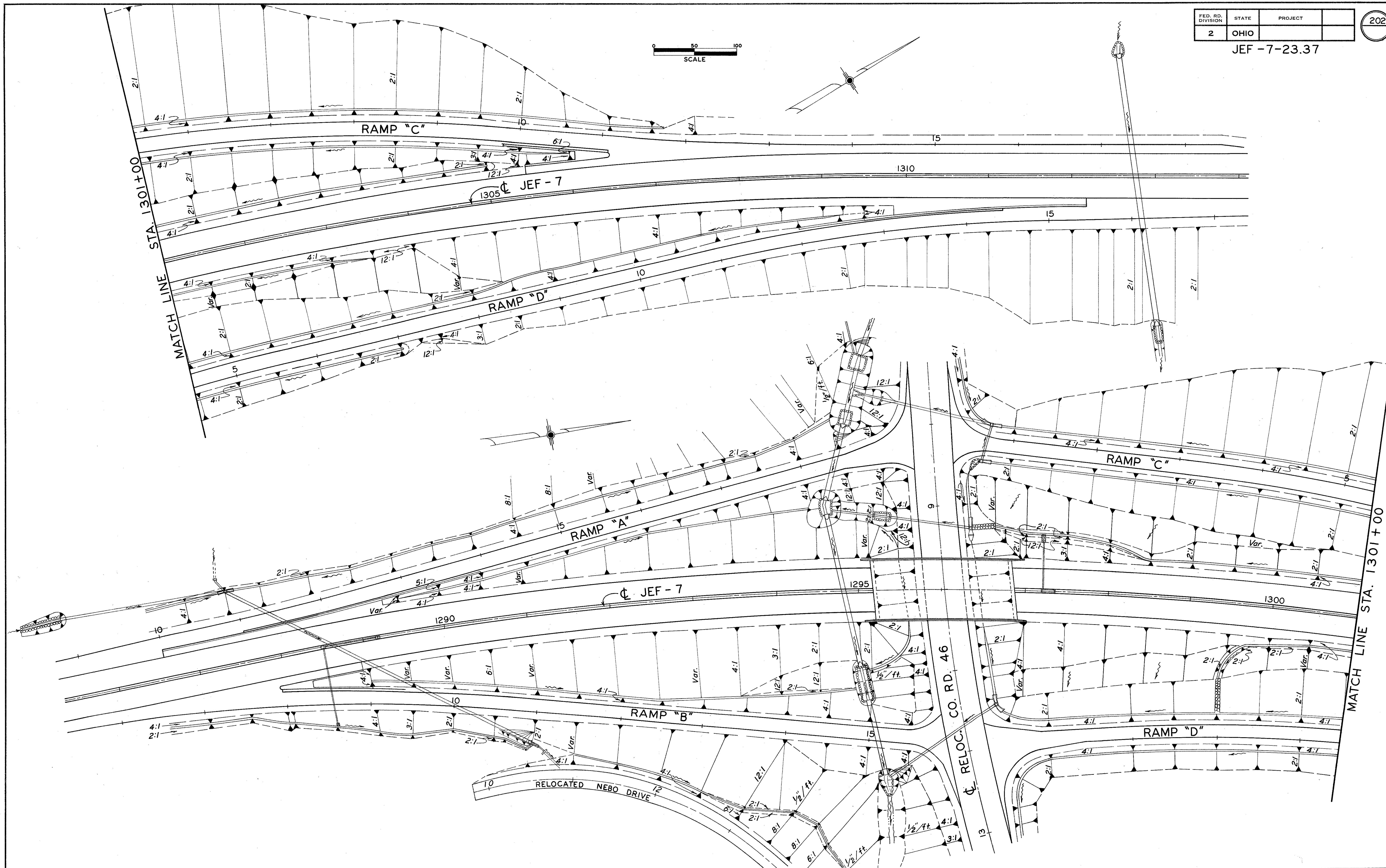
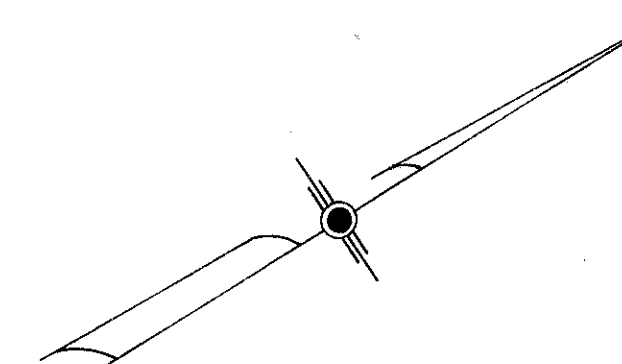


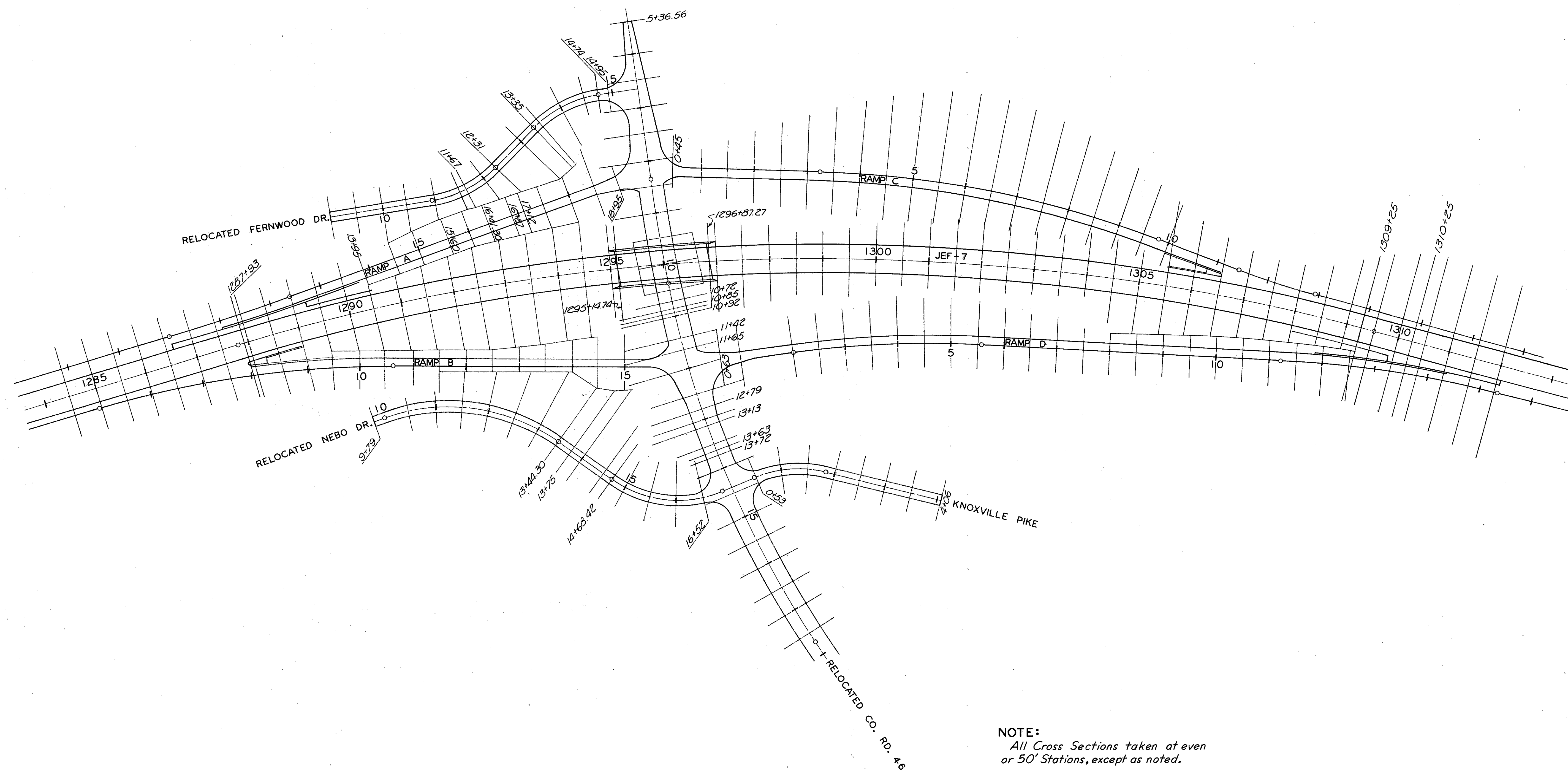
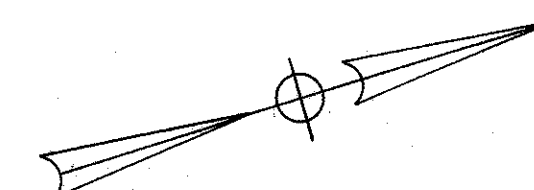
Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
23		63	3		
		68		69	6
11		40	6		
		65		10	162
73		0	613		
		305		8	1289
138		17	2060		
		356		13	1766
129		23	1914		
733				37	3607

RELOCATED COUNTY ROAD 46 STA. 36+50 TO STA. 37+50









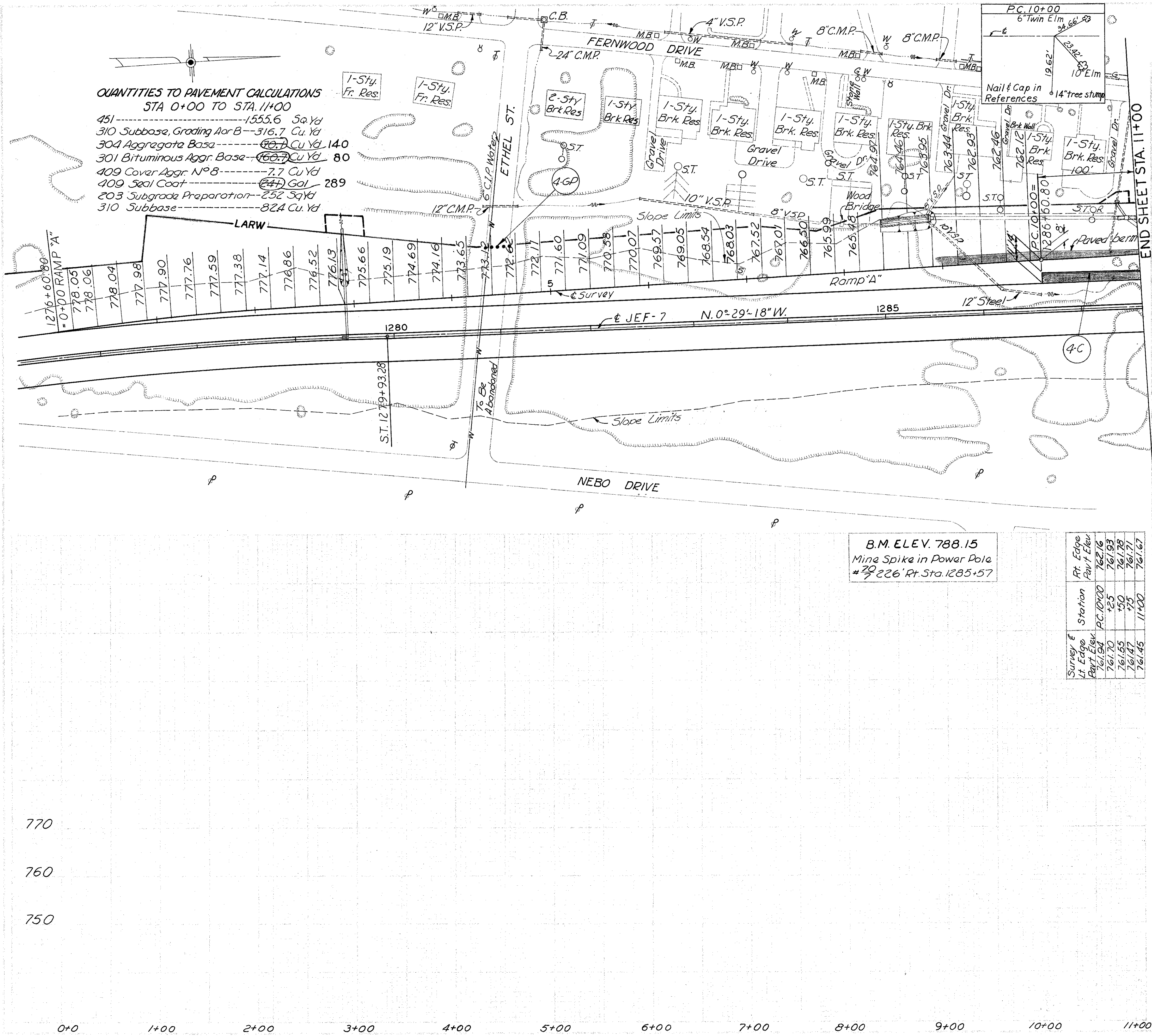
NOTE:  
All Cross Sections taken at even  
or 50' Stations, except as noted.



JEF -7-23.37

QUANTITIES TO PAVEMENT CALCULATIONS  
STA 0+00 TO STA. 11+00

- 451 Subbase, Grading Aor B-----1555.6 Sq. Yd
- 310 Aggregate Base-----316.7 Cu. Yd
- 304 Bituminous Aggr. Base-----80.7 Cu. Yd 140
- 409 Cover Aggr. No 8-----7.7 Cu. Yd 80
- 409 Seal Coat-----289 Gal 289
- 203 Subgrade Preparation-----252 Sq. Yd
- 310 Subbase-----824 Cu. Yd



B.M. ELEV. 788.15  
Mine Spike in Power Pole  
#29 226' Rt. Sta. 1285+57

Survey E	Station	Rt. Edge	Left Edge
761.94	PC 10+00	762.16	761.93
761.70	4+25	761.93	761.79
761.55	4+50	761.79	761.71
761.47	4+75	761.71	761.67
761.45	11+00	761.67	

Guard Posts	Curb	Type	L.F.
606	609	6-3"	5

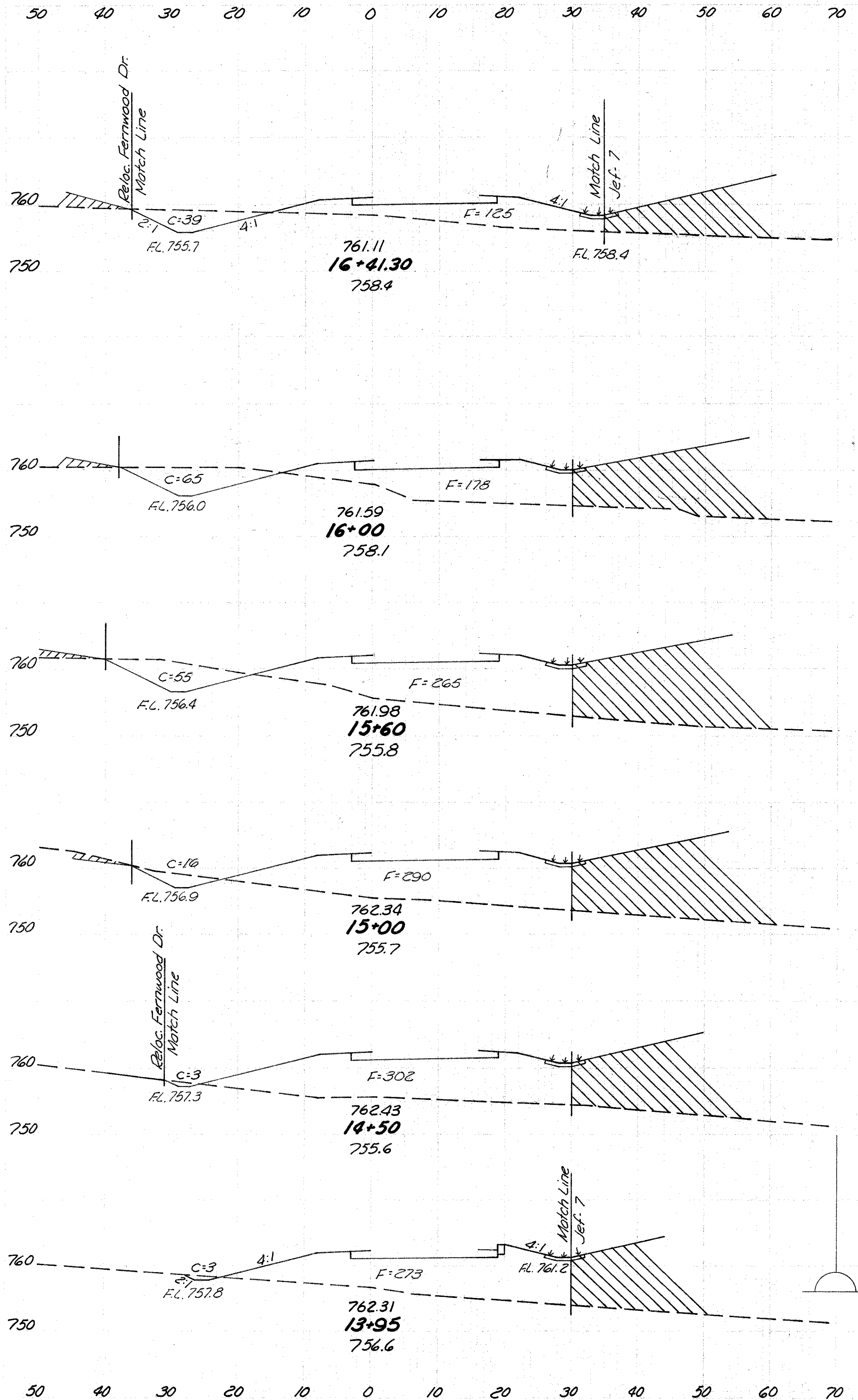
4-C 10+00 to 11+00 Rt. 100  
4-GP 4+37 to 4+61 Lt. 5



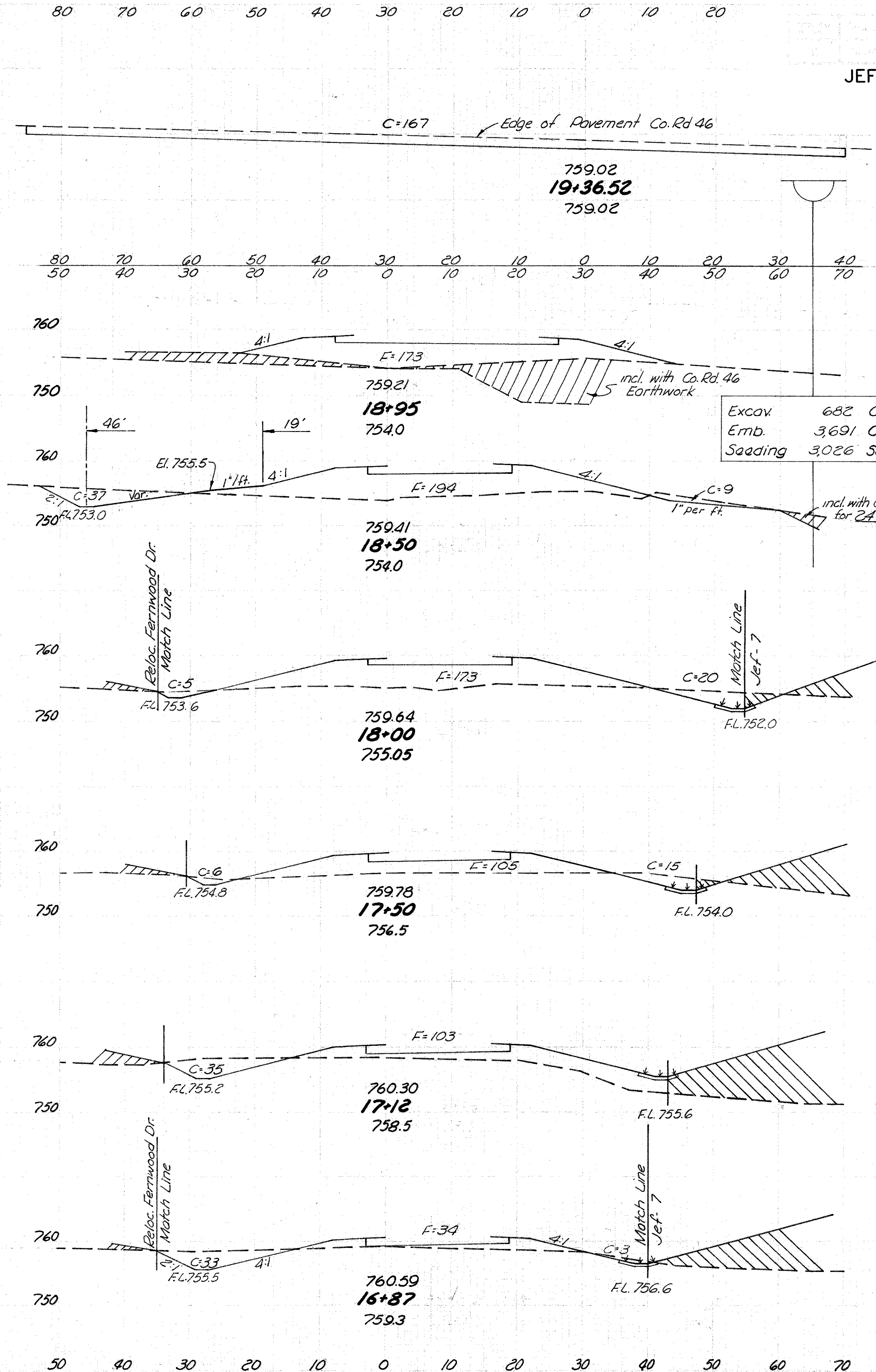




JEF-7-23.37



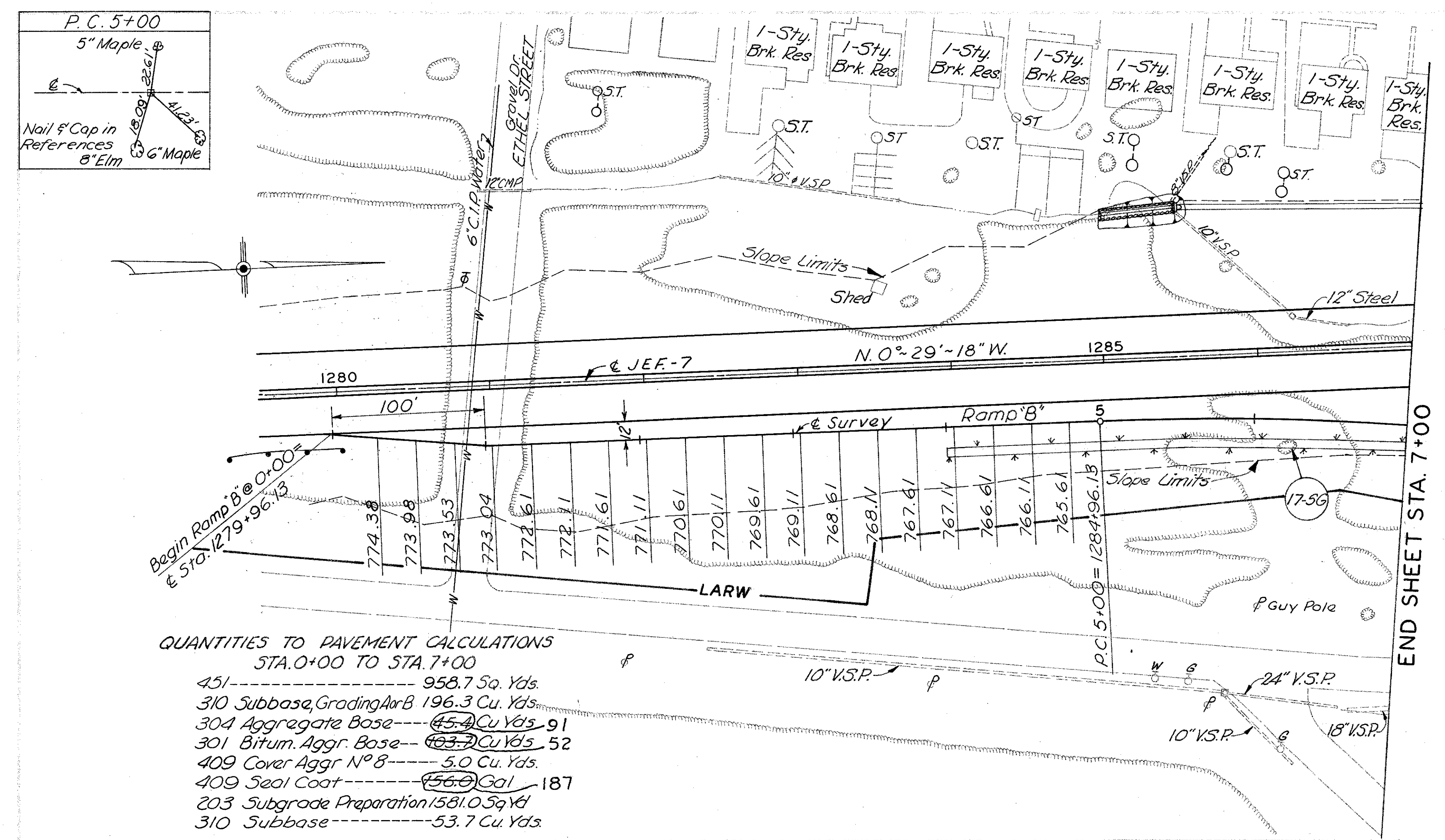
Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
51	39	125			
227			80	232	
48	65	178			
216			89	328	
49	55	265			
313			79	617	
45	16	290			
236			18	548	
40	3	302			
266			6	586	
47	3	273			



Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
0	167	0			
0			128	133	
0	0	173			
263			38	306	
105	46	194			
483			66	340	
69	25	173			
353			43	257	
58	21	105			
243			39	146	
57	35	103			
154			33	63	
54	36	34			
267			63	135	

RAMP "A" STA. 13+95 TO STA. 19+36.52

JEF -7-23.37



QUANTITIES TO PAVEMENT CALCULATIONS  
STA. 0+00 TO STA. 7+00

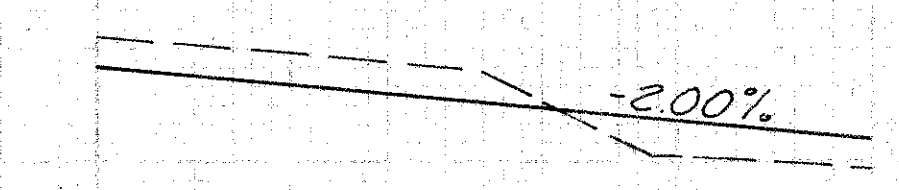
451	-----	958.7	Sq. Yds.
310	Subbase, Grading	196.3	Cu. Yds.
304	Aggregate Base	<del>45.4</del> 91	Cu. Yds.
301	Bitum. Aggr. Base	<del>63.2</del> 52	Cu. Yds.
409	Cover Aggr. N° 8	5.0	Cu. Yds.
409	Seal Coat	<del>56.0</del> 187	Gal.
203	Subgrade Preparation	1581.0	Sq. Yd.
310	Subbase	53.7	Cu. Yds.

Survey Station	Rt Edge	Left Edge
PC 5+00	765.19	765.19
1+50	764.69	764.69
2+50	764.19	764.19
3+50	763.69	763.69
4+50	763.19	763.19
5+50	762.60	762.60
6+50	762.10	762.10
7+00	761.65	761.22

B.M. ELEV. 788.15  
Mina Spike in Power Pole  
# 226 Rt Sta 1285+57

760  
750  
740

0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00

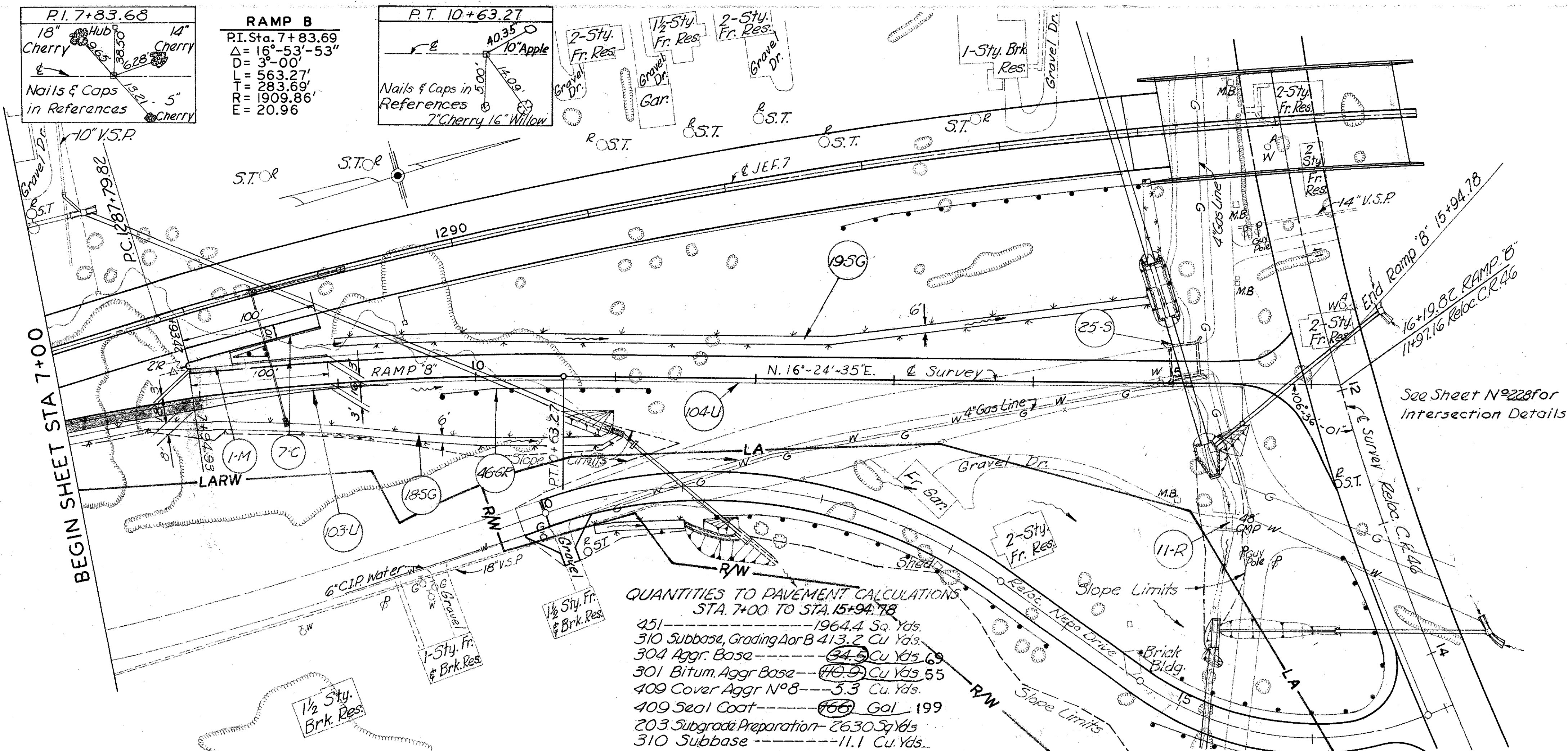


660	Stationing	5. Y
1755	4+00 to 7+00	Rt
200		

RAMP B STA. 0+00 TO STA. 7+00



JEF -7-23.37

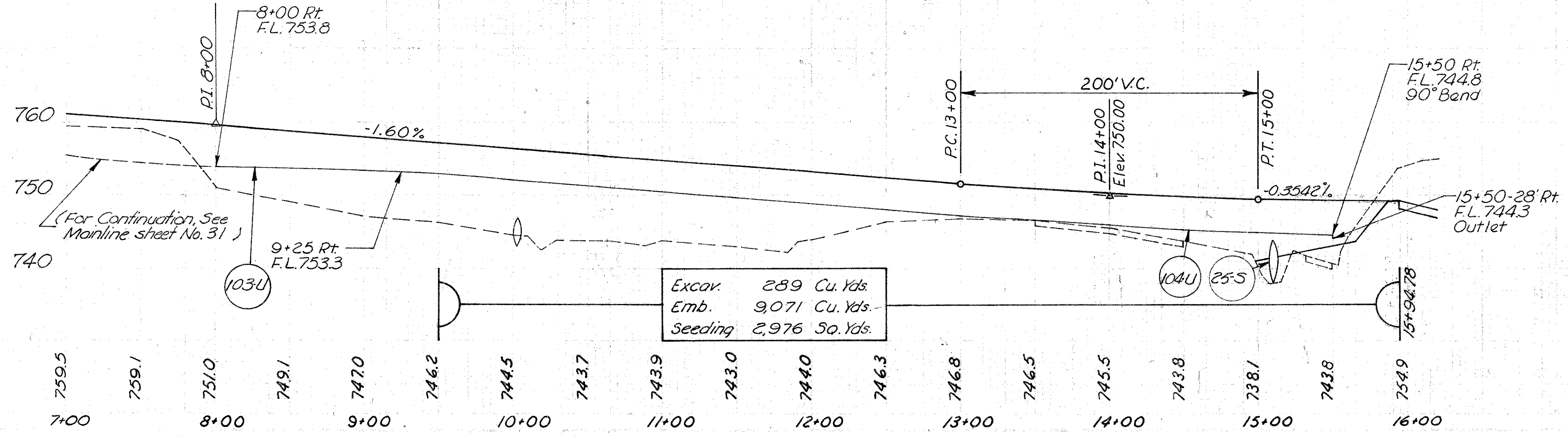


QUANTITIES TO PAVEMENT CALCULATIONS  
STA. 7+00 TO STA. 15+94.78

451 Subbase Grading 408 B 413.2 Cu Yds.  
310 Subbase Grading 408 B 413.2 Cu Yds.  
304 Aggr. Base 34.5 Cu Yds.  
301 Bitum. Aggr. Base 10.9 Cu Yds.  
409 Cover Aggr. N°8 3.3 Cu Yds.  
409 Seal Coat 166 Gal.  
203 Subgrade Preparation 2630 Sq Yds.  
310 Subbase 11.1 Cu Yds.

B.M. ELEV. 738.74  
Mine Spike in Power Pole  
#20 318' Rt. Sta. 1295+73

Station	Survey & Profile Elev.	Station	Survey & Profile Elev.
7+25	760.80	11+00	754.80
7+50	760.59	11+25	754.20
7+75	760.00	11+50	754.00
8+00	759.20	12+00	753.60
8+25	759.20	12+25	753.20
8+50	758.80	12+50	752.80
8+75	758.40	13+00	752.40
9+00	758.00	13+25	752.00
9+25	757.60	13+50	751.60
9+50	757.20	14+00	751.22
9+75	756.80	14+25	750.87
10+00	756.40	14+50	750.51
10+25	756.00	15+00	750.09
10+50	755.60	15+25	749.89
10+75	755.20	15+50	749.75
11+00	754.80	15+75	749.65
11+25	754.20	16+00	749.56
11+50	754.00		
11+75	753.60		
12+00	753.20		
12+25	752.80		
12+50	752.40		
12+75	752.00		
13+00	751.60		
13+25	751.22		
13+50	750.87		
14+00	750.51		
14+25	750.09		
14+50	749.89		
14+75	749.75		
15+00	749.65		
15+25	749.56		
15+50	749.47		
15+75	749.38		
16+00	749.31		

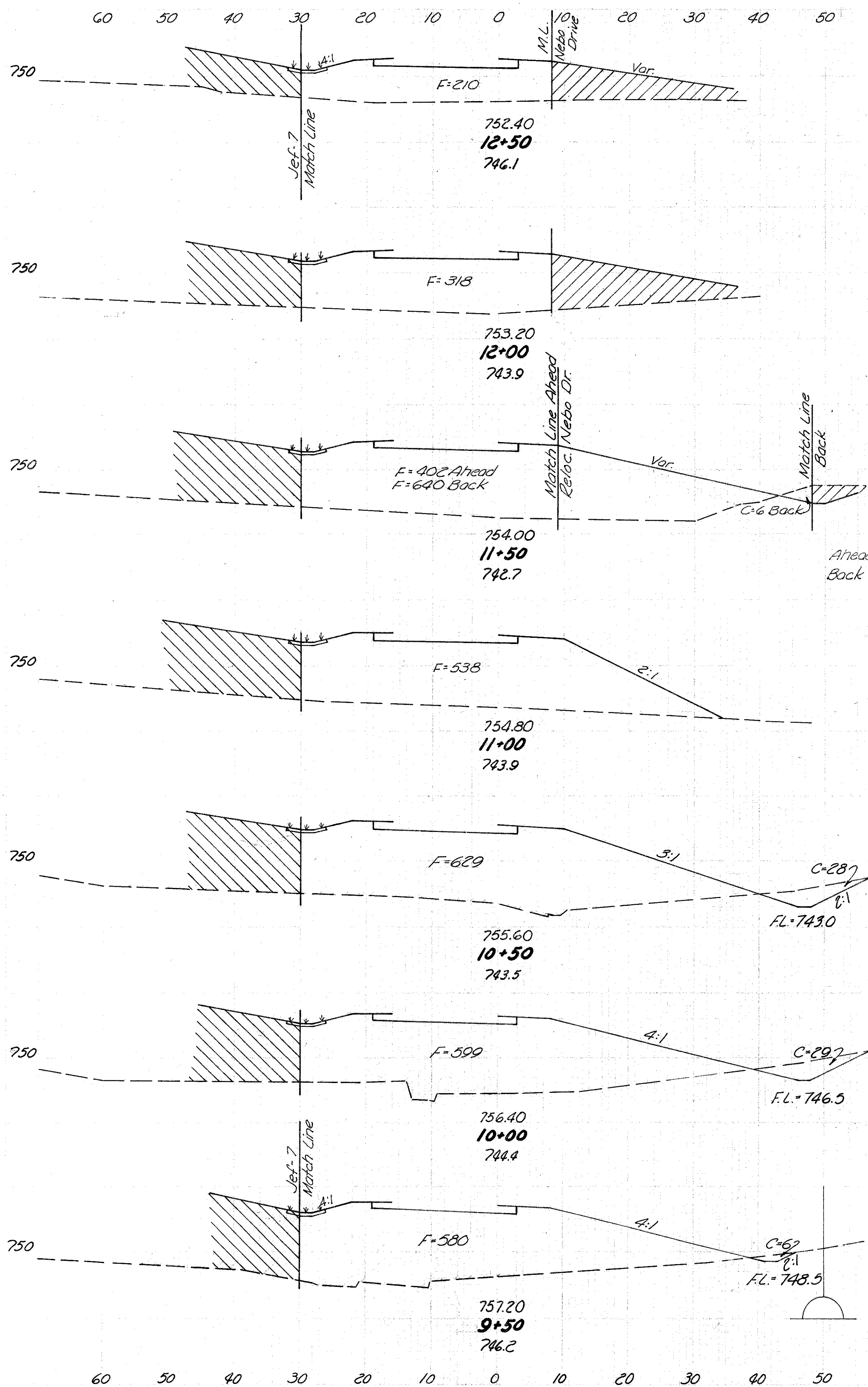


Excav. 289 Cu Yds.  
Emb. 9,071 Cu Yds.  
Seeding 2,976 Sq Yds.

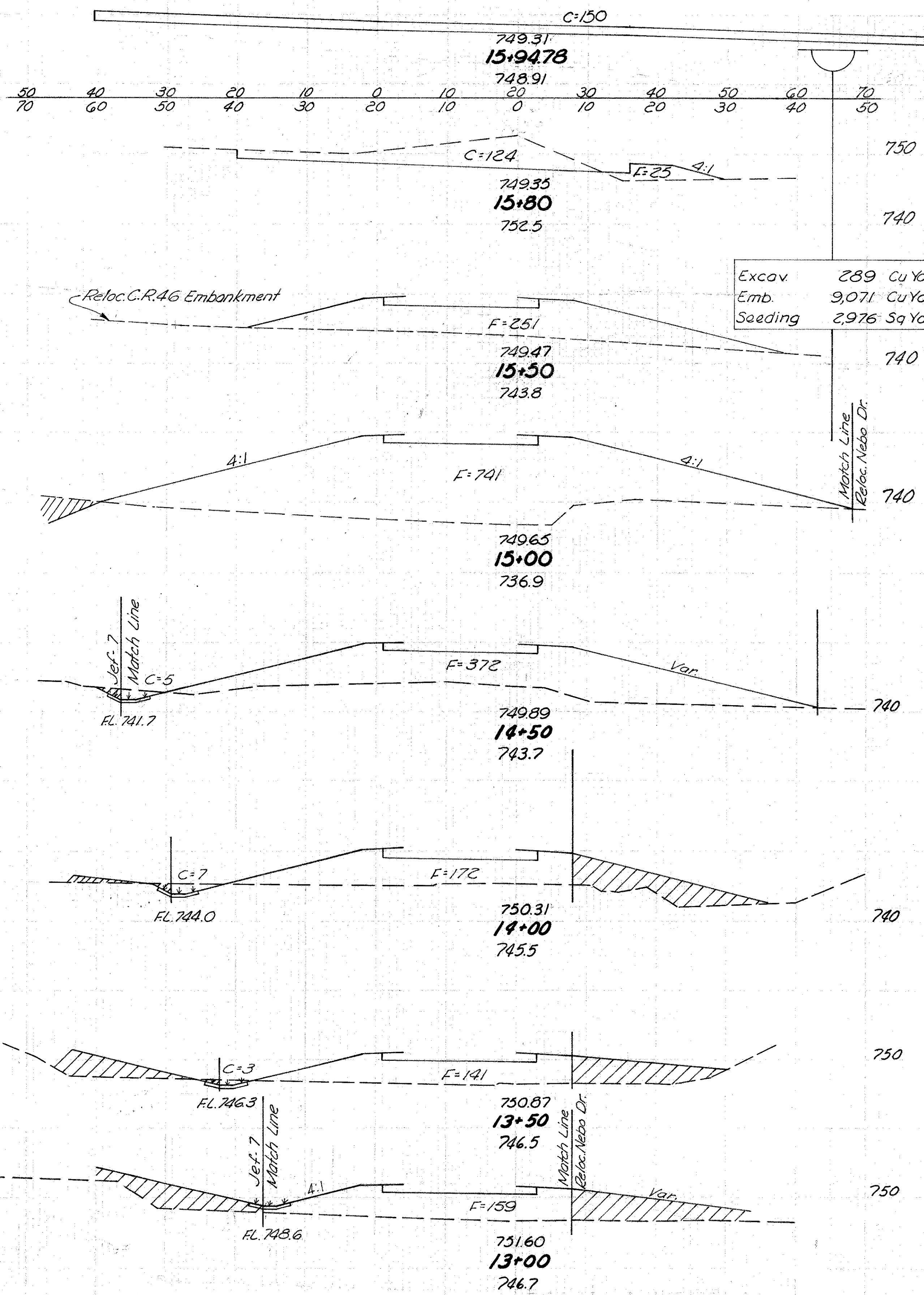
Station	Quantity	Unit	Station	Quantity	Unit
25-S	15+09.3	Lt	103U	7+04.93 to 9+25	Rt
103U	9+25 to 15+50	Rt	104U	9+25 to 15+50	Rt
185G	7+00 to 11+00	Rt	195G	9+00 to 14+81	Lt
11-R	15+42	Rt	7-C	8+29 to 8+94.93	Lt
1-M	7+92.93 to 8+29	Lt	46GR	9+75 to 11+25.37	Rt

RAMP B STA. 7+00 TO STA. 16+19.82

JEF-7-23.37



Seeding	End Area		Cu. Yd.	
	Width S.Y.	Cut	Fill	Exc. Emb.
16	0	210		
89	0		489	
16	0	318		
94	0		667	
18	0	402		
58	6	640		
319			1091	
57	0	538		
381			1081	
80	28	629		
442			1137	
79	29	599		
406			1092	
67	6	580		

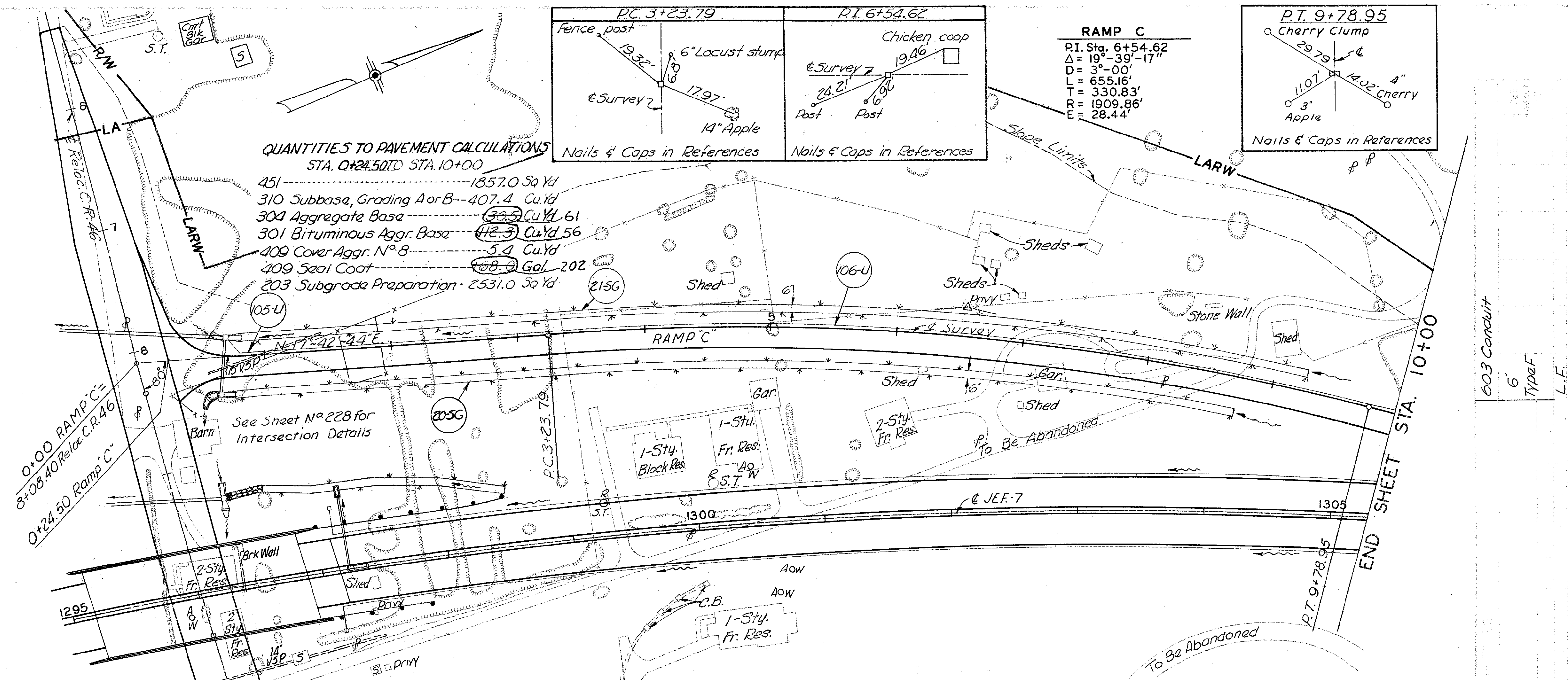


Seeding	End Area		Cu. Yd.	
	Width S.Y.	Cut	Fill	Exc. Emb.
0	150	0		
0			75	7
0	124	25		
0			69	153
0	0	251		
0			919	
100	0	741		
500			5	1031
80	5	372		
322			11	504
36	7	172		
178			9	290
28	3	141		
139			3	273
22	0	154		
106	0		337	

RAMP "B" STA. 9+50 TO STA. 15+9478

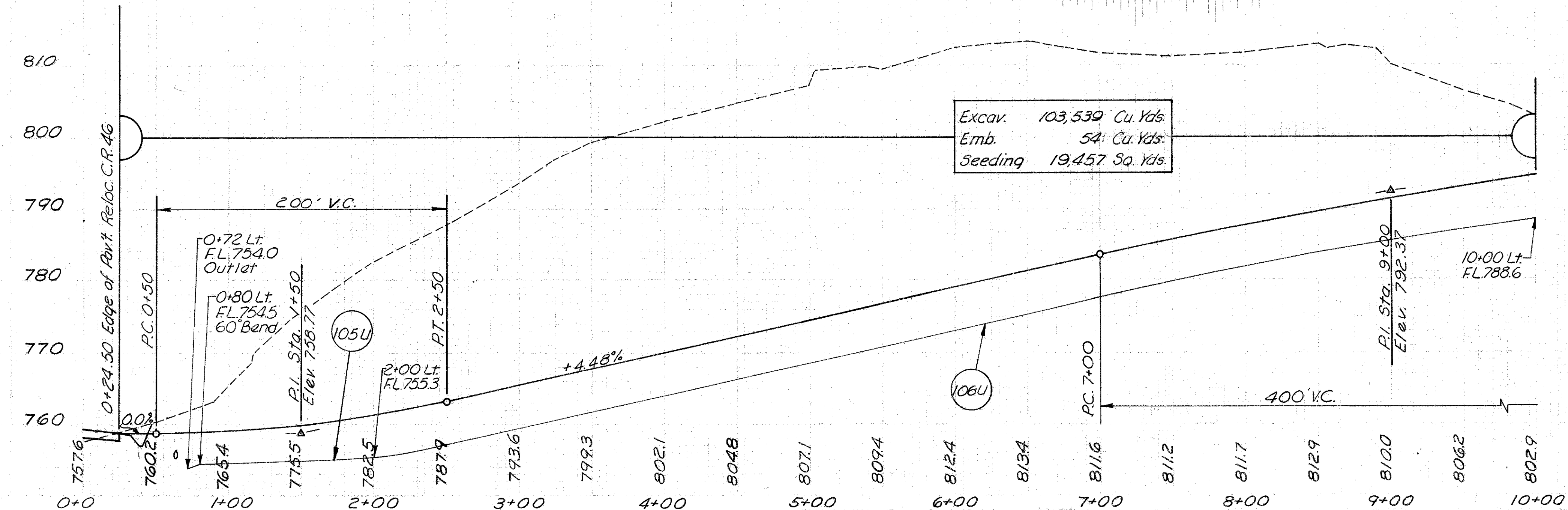


JEF -7-23.37



Station	Survey Lt. Edge Part Elev.	Rt. Edge Part Elev.
0+24.50	758.77	759.02
+50	758.77	759.02
+75	758.84	759.09
+100	759.05	759.10
+125	759.40	759.65
+150	759.89	760.14
+175	760.32	760.77
+200	761.29	761.54
+225	762.20	762.44
+250	763.25	763.42
+275	764.57	764.58
+300	765.49	765.32
PC+23.79	766.19	766.19
+25	766.61	766.23
+50	767.13	767.14
+75	768.53	768.13
+100	769.97	769.19
+125	771.09	770.31
+150	772.21	771.43
+175	773.33	772.55
+200	774.45	773.67
+225	775.57	774.79
+250	776.69	775.91
+275	777.81	777.03
+300	778.93	778.15
+325	780.05	779.27
+350	781.17	780.39
+375	782.29	781.51
+400	783.41	782.63
+425	784.53	783.75
+450	785.65	784.87
+475	786.77	785.99
+500	787.89	787.11
+525	789.01	788.23
+550	790.13	789.35
+575	791.25	790.47
+600	792.37	791.59
+625	793.49	792.71
+650	794.61	793.83
PT+78.95	795.73	794.95
10+00	796.85	796.07

B.M. ELEV. 738.74  
Mine Spike in Power Pole  
# 318 Rt. Sta. 1295+73

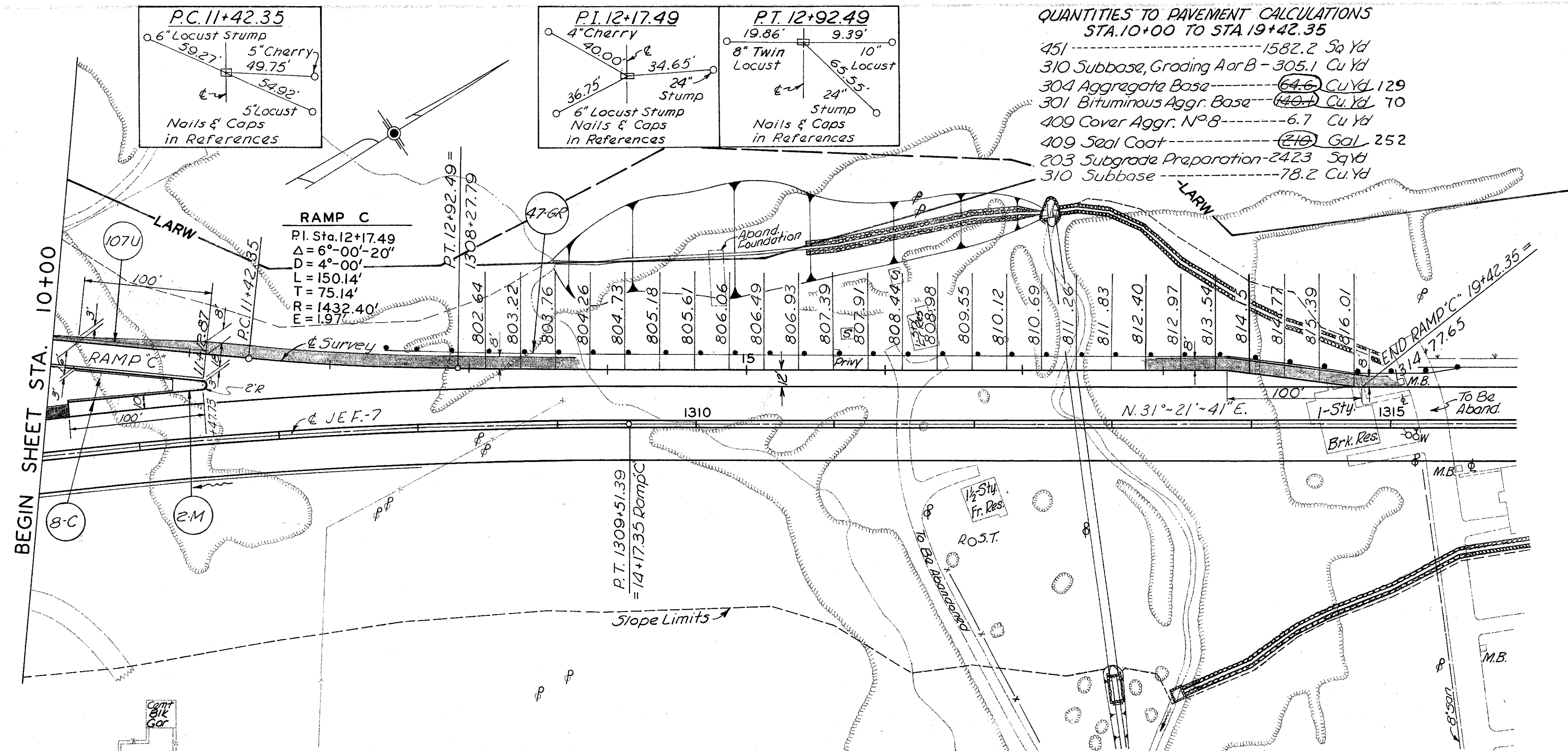


Station	Survey Lt. Edge Part Elev.	Rt. Edge Part Elev.
0+24.50	758.77	759.02
+50	758.77	759.02
+75	758.84	759.09
+100	759.05	759.10
+125	759.40	759.65
+150	759.89	760.14
+175	760.32	760.77
+200	761.29	761.54
+225	762.20	762.44
+250	763.25	763.42
+275	764.57	764.58
+300	765.49	765.32
PC+23.79	766.19	766.19
+25	766.61	766.23
+50	767.13	767.14
+75	768.53	768.13
+100	769.97	769.19
+125	771.09	770.31
+150	772.21	771.43
+175	773.33	772.55
+200	774.45	773.67
+225	775.57	774.79
+250	776.69	775.91
+275	777.81	777.03
+300	778.93	778.15
+325	780.05	779.27
+350	781.17	780.39
+375	782.29	781.51
+400	783.41	782.63
+425	784.53	783.75
+450	785.65	784.87
+475	786.77	785.99
+500	787.89	787.11
+525	789.01	788.23
+550	790.13	789.35
+575	791.25	790.47
+600	792.37	791.59
+625	793.49	792.71
+650	794.61	793.83
PT+78.95	795.73	794.95
10+00	796.85	796.07

RAMP C STA. 0+00 TO STA. 10+00



JEF -7-23.37

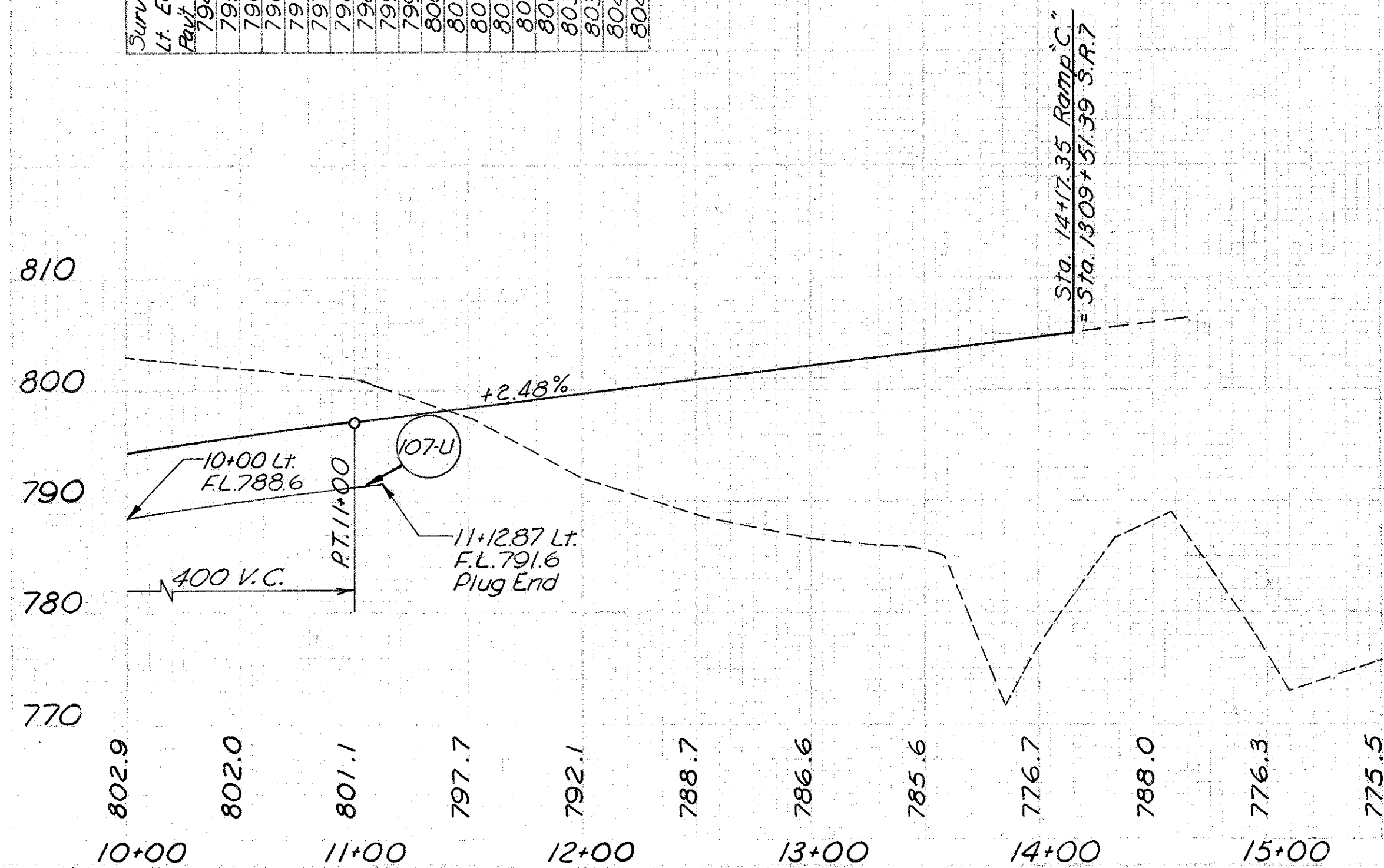


QUANTITIES TO PAVEMENT CALCULATIONS  
STA. 10+00 TO STA. 19+42.35

451	Subbase, Grading A or B	1582.2	Sq. Yd.
310	Aggregate Base	305.1	Cu. Yd.
301	Bituminous Aggr. Base	64.6	Cu. Yd.
409	Cover Aggr. No. 8	6.7	Cu. Yd.
409	Seal Coat	216	Gal.
203	Subgrade Preparation	2423	Sq. Yd.
310	Subbase	78.2	Cu. Yd.

Station	Survey E	At Edge	Point Elev
10+00	794.60	794.38	794.38
10+25	795.33	795.30	795.30
10+50	796.03	796.24	796.24
10+75	796.69	797.16	797.16
11+00	797.33	798.00	798.00
11+25	797.95	798.38	798.38
11+50	798.57	798.57	798.57
11+75	799.10	799.10	799.10
12+00	799.81	799.81	799.81
12+25	800.43	800.43	800.43
12+50	801.05	801.05	801.05
12+75	801.67	801.67	801.67
13+00	802.29	802.29	802.29
13+25	802.90	802.90	802.90
13+50	803.51	803.51	803.51
13+75	803.98	803.98	803.98
14+00	804.46	804.46	804.46
14+25	804.76	804.76	804.76

B.M. ELEV. 758.80  
Mina Spike in Power Pole  
#70-133 442' R+ Sta. 1308+03



606	Guard Rail Type 4	L.F.	113
609	Curb Type 6	L.F.	147
612	Conc Median	S.Y.	17
605	6" Deep Pipe Underdr.	L.F.	113

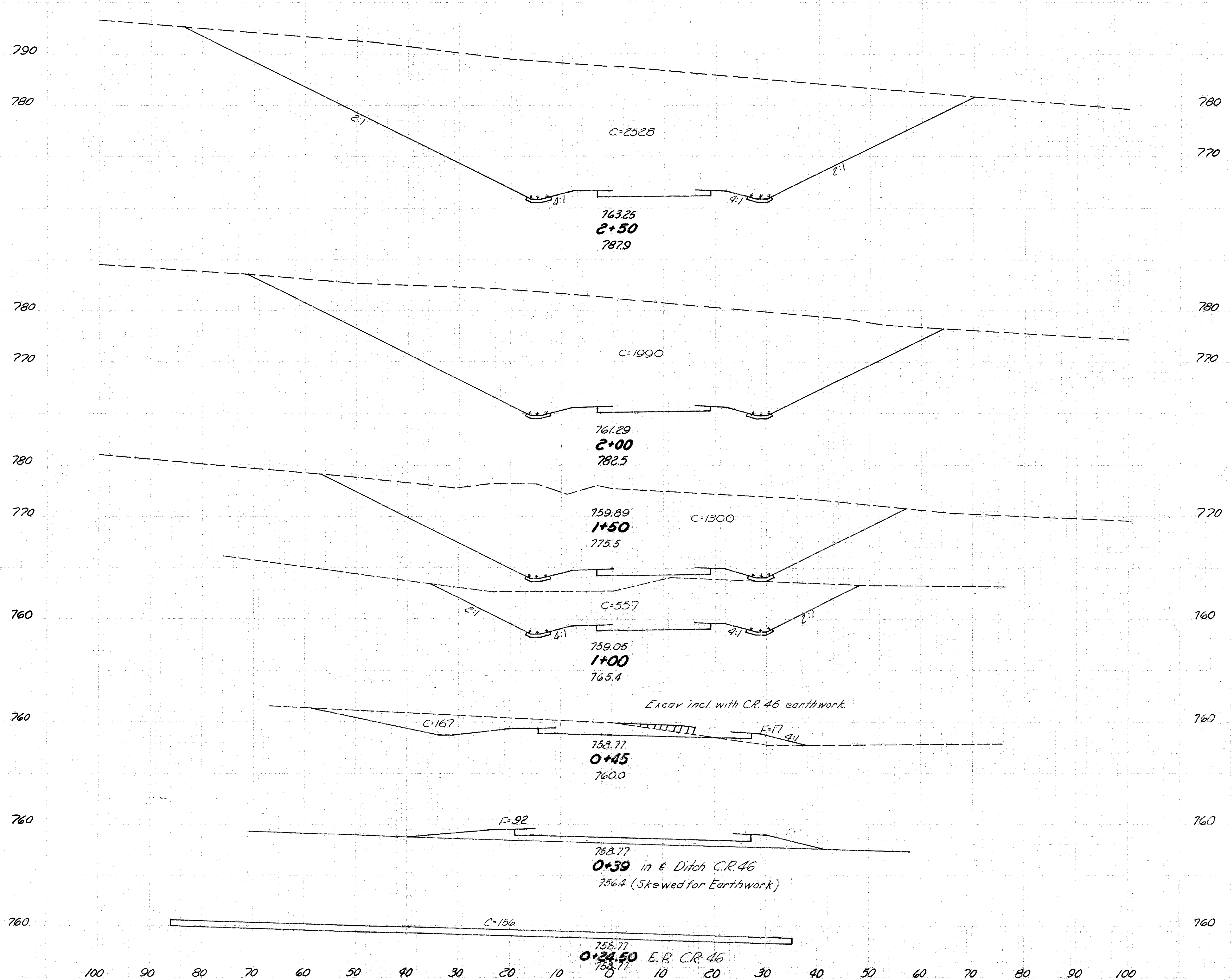
107U 10+00 to 11+12.87 Lt  
B-C 10+12.87 to 11+12.87  
Z-M 10+71.60 to 11+11.60

47GR 12+39.82 to 19+42.35 Lt 702.35

RAMP C STA. 10+00 TO STA. 19+42.35

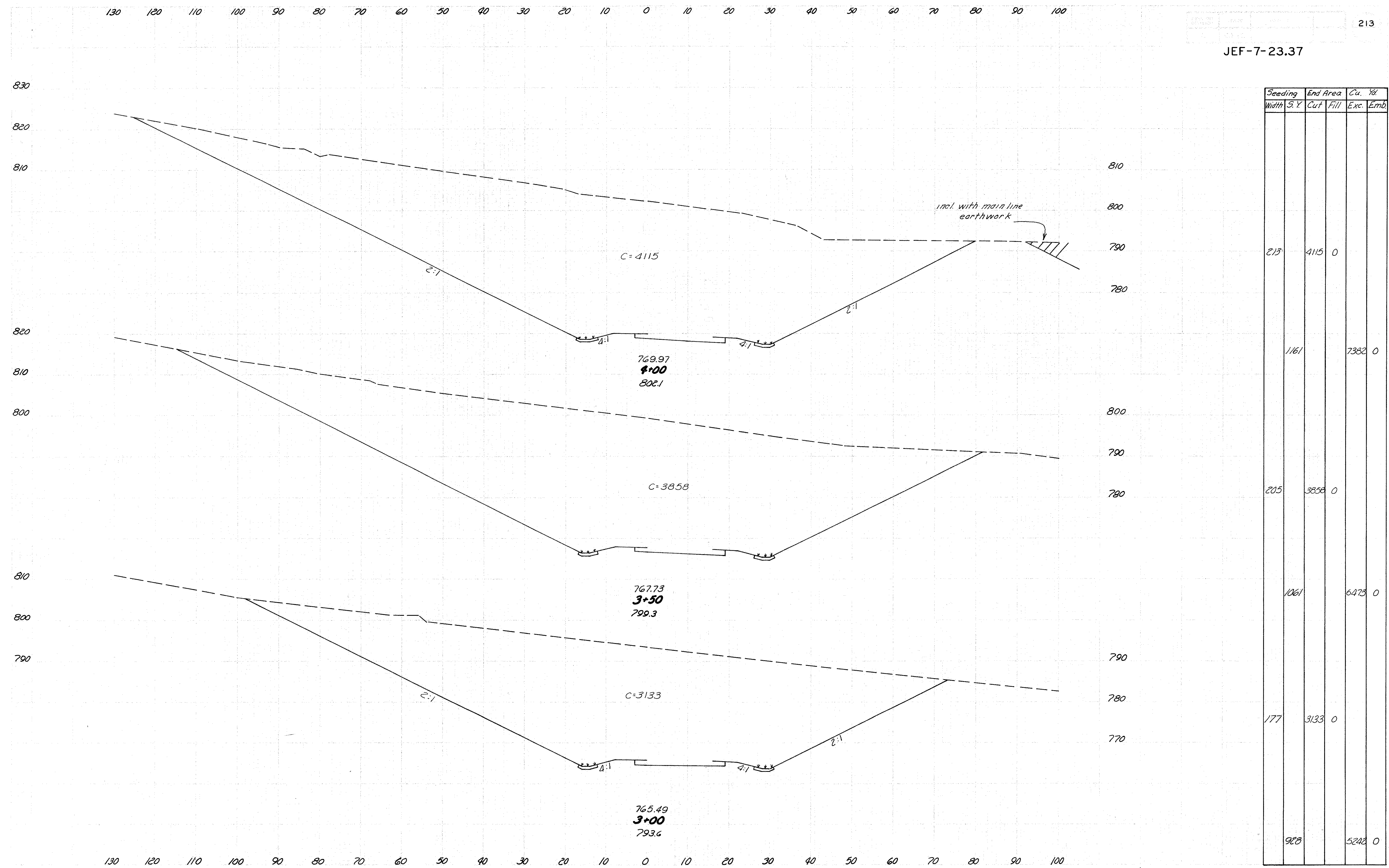


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Seeding	End Area	Cu. Yd.
Width S.Y.	Cut	Fill
Exc.	Exc.	Emb.
157	2528	0
814	4183	0
136	1990	0
689	3046	0
112	1300	0
528	1719	0
78	557	0
398	737	17
81	167	17
0	19	12
0	92	
0	42	25
0	156	0

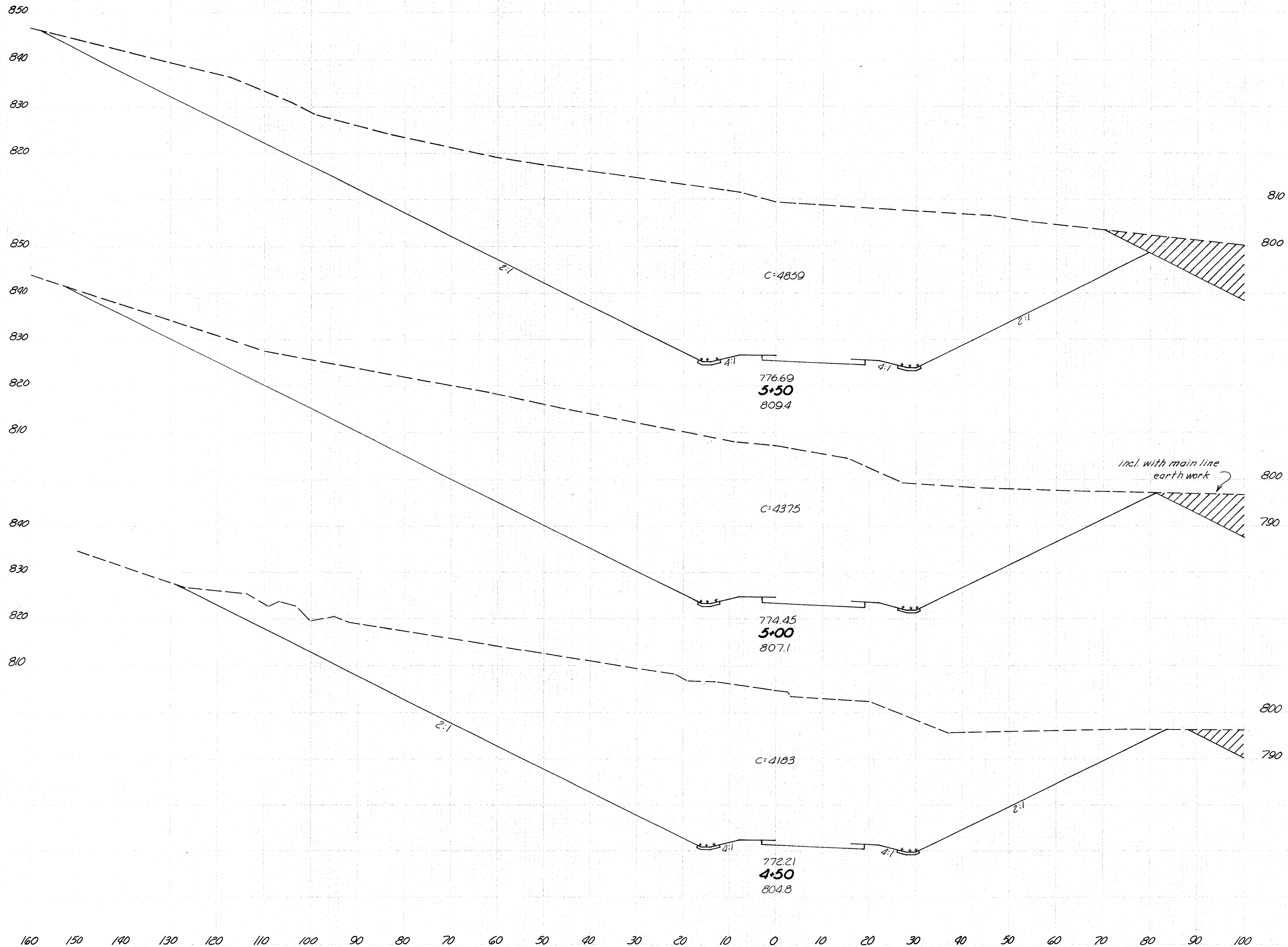
RAMP "C" STA. 0+24.50 TO STA. 2+50



RAMP "C" STA. 3+00 TO STA. 4+00



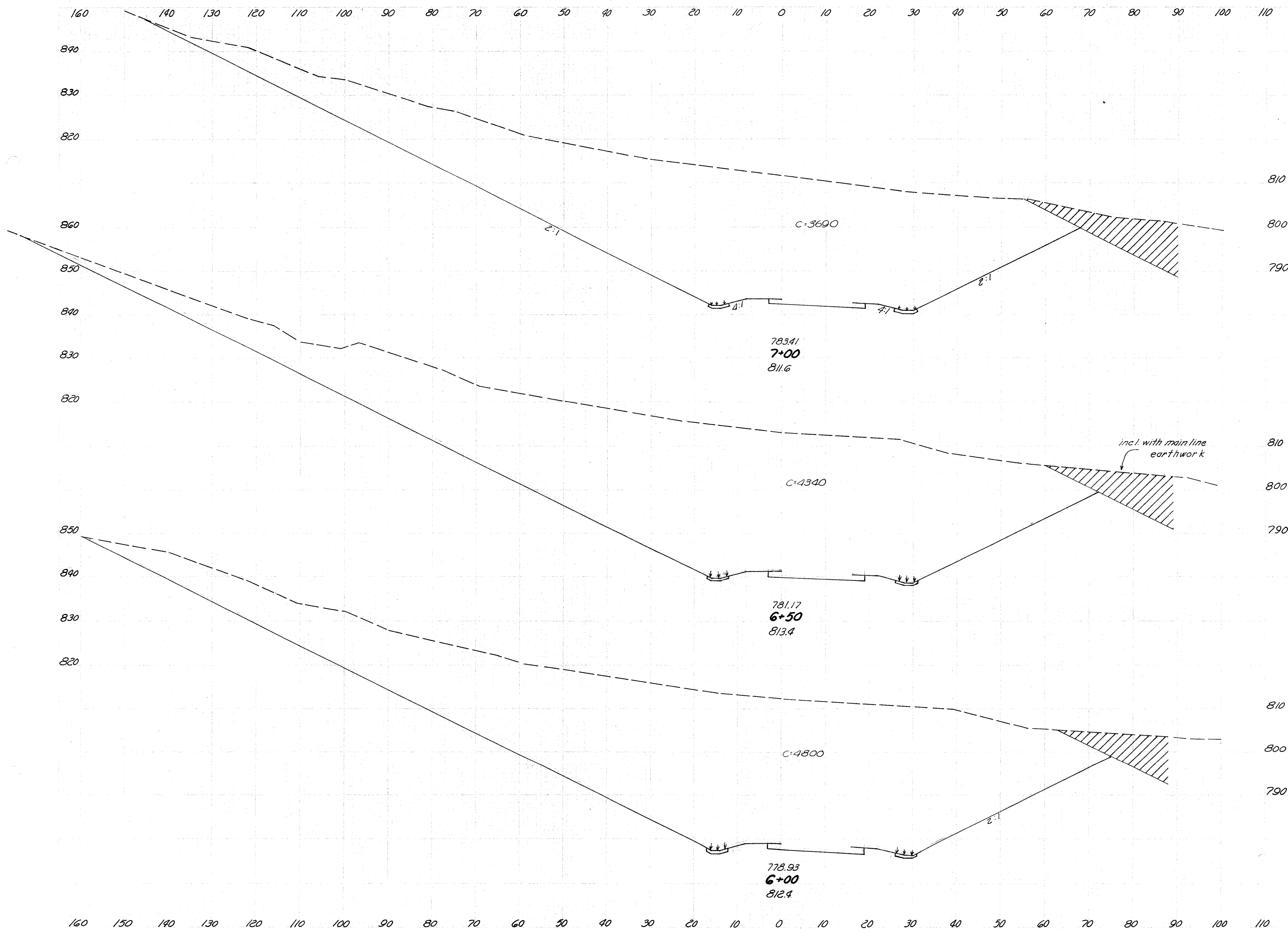
160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100



Seeding		End Area		Cu. Yds.	
Width	S. Y.	Cut	Fill	Exc.	Emb.
251		4859	0		
1383			8550	0	
247		4375	0		
1311			7924	0	
225		4183	0		
1217			7683	0	

RAMP "C" STA. 4+50 TO STA. 5+50

JEF-7-23.37

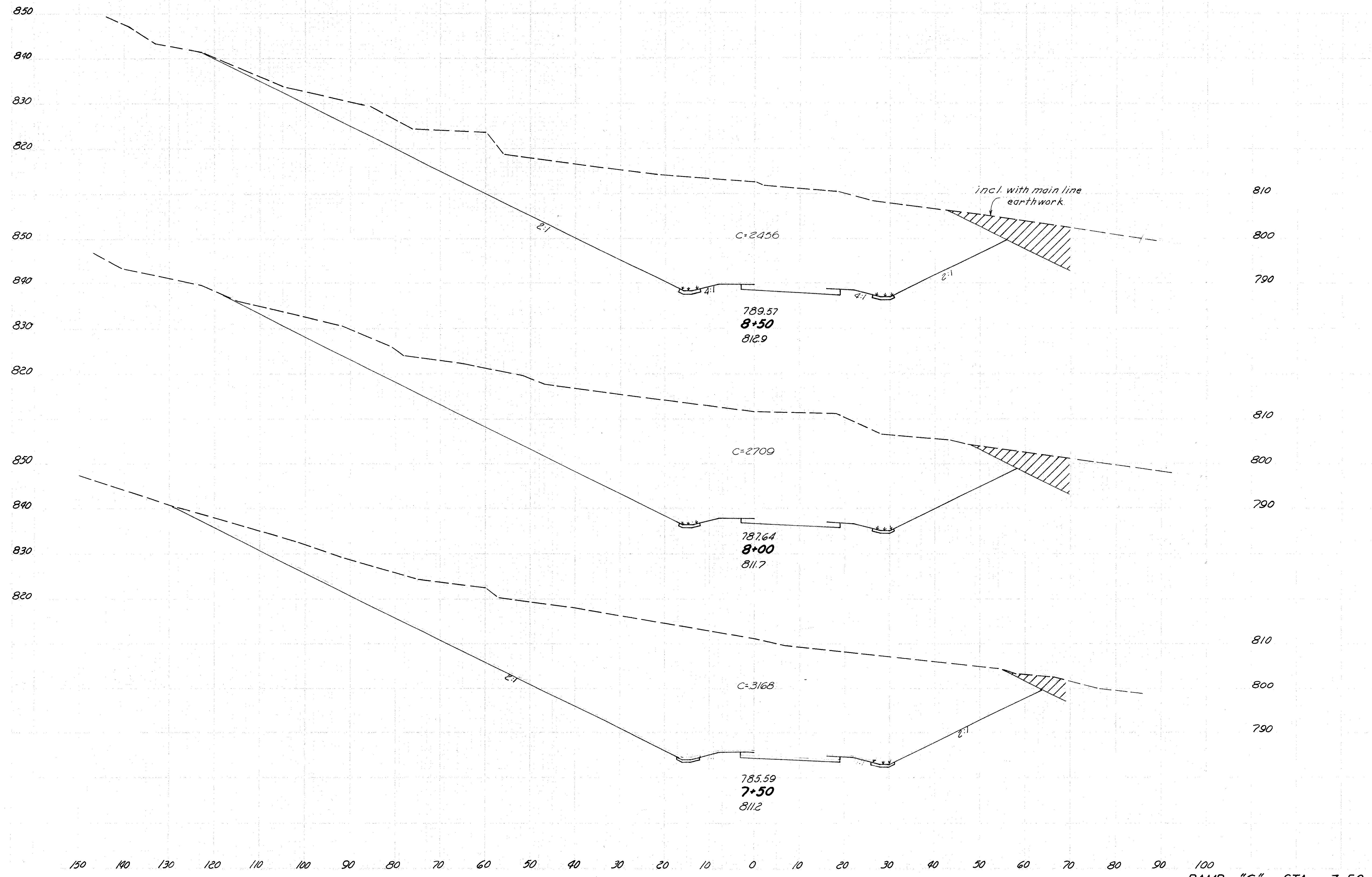


Seeding Width	S.Y.	End Area		C'u. Yd.	
		Cut	Fill	Exc.	Emb.
224		3690	0		
1342		7435	0		
259		4340	0		
1408		8463	0		
248		4800	0		
1386		8944	0		

RAMP "C" STA 6+00 TO STA 7+00



JEF-7-23.37

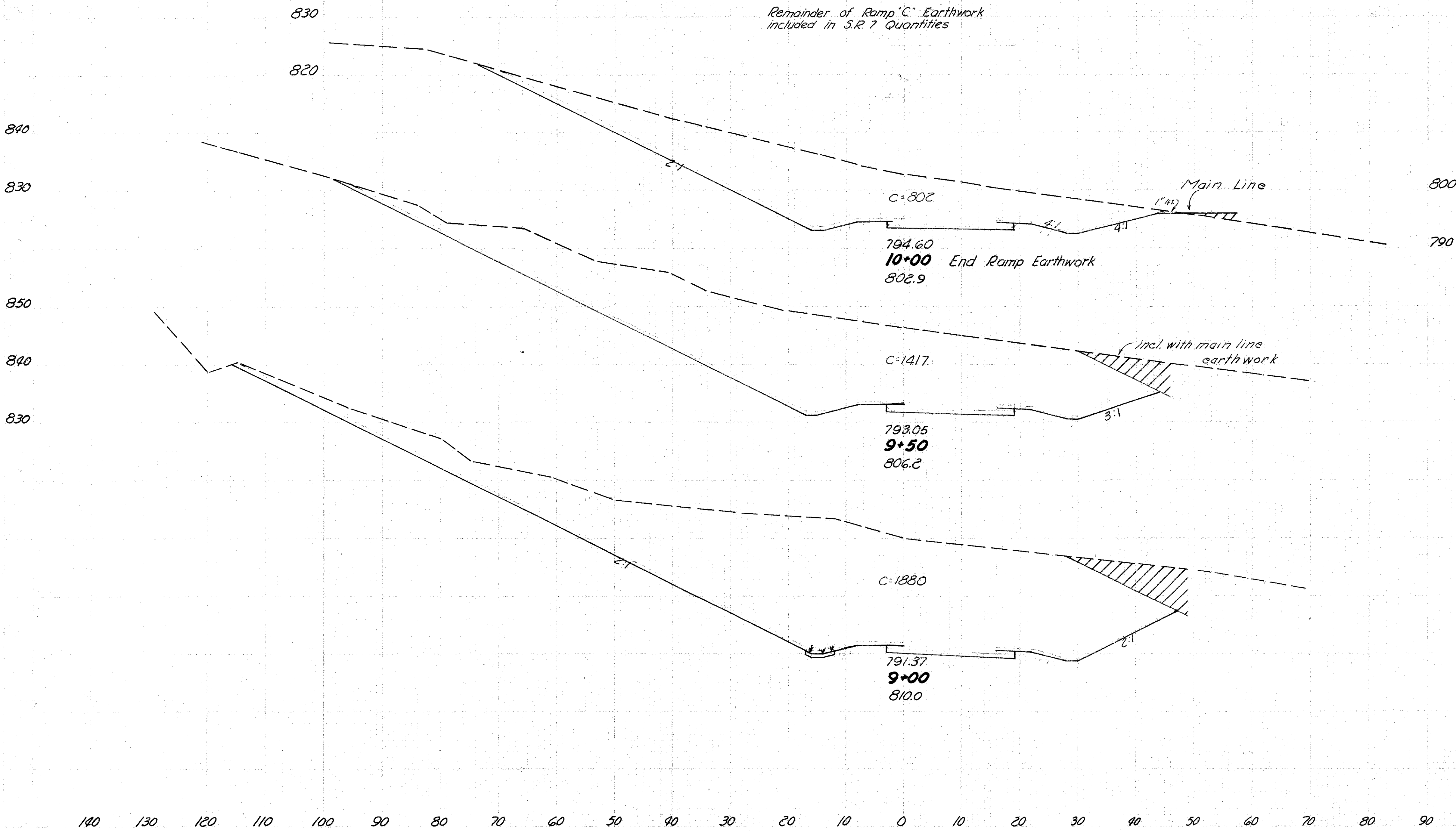


Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
185		2456	0		
1019				4782	0
182		2709	0		
1064				5442	0
201		3168	0		
1181				6350	0

RAMP "C" STA 7+50 TO STA 8+50

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

JEF-7-23.37



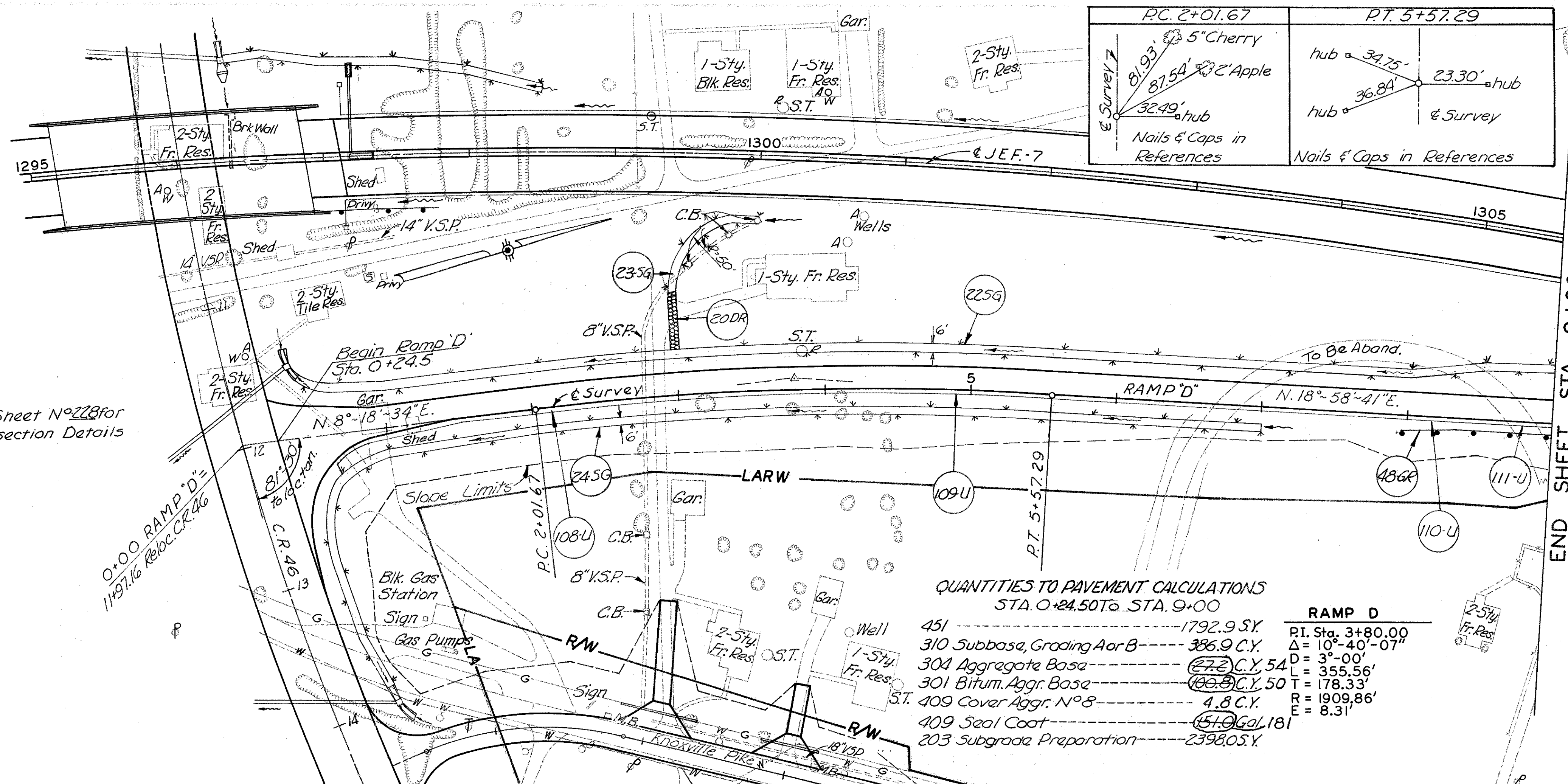
Seeding Width	S.Y.	End Area		Cu. Yd.	
		Cut	Fill	Exc.	Emb.
119		802	0		
728				2055	0
143		1417	0		
861				3083	0
167		1880	0		
978				4015	0

RAMP "C" STA. 9+00 TO STA. 10+00



JEF -7-23.37

See Sheet No. 228 for  
Intersection Details



QUANTITIES TO PAVEMENT CALCULATIONS  
STA. 0+24.50 TO STA. 9+00

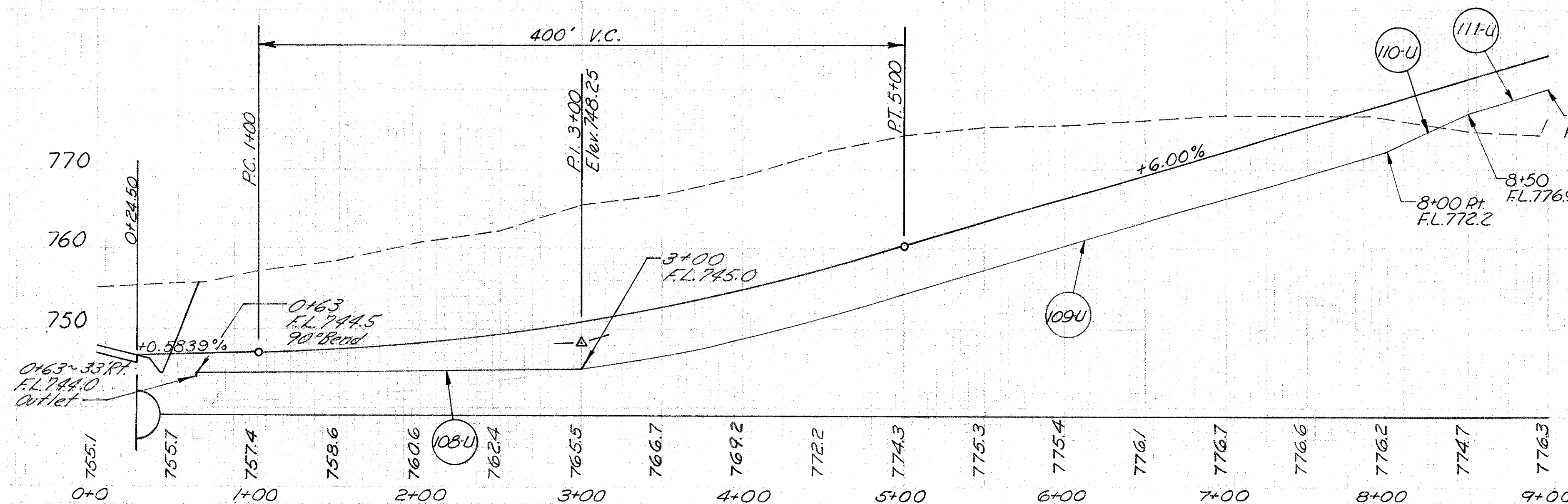
451	1792.9 S.Y.
310	Subbase, Grading A or B-----
304	Aggregate Base-----
301	Bitum. Aggr. Base-----
409	Cover Aggr. N° 8-----
409	Seal Coat-----
203	Subgrade Preparation-----

RAMP D

PT. Sta. 3+80.00
$\Delta = 10^{\circ} 40' - 07''$
D = 3'-00'
T = 355.56'
E = 178.33'
R = 1909.86'
E = 8.31'

Station	Lt. Edge Rt. Elev.	Survey Rt. Elev.	Station	Lt. Edge Rt. Elev.	Survey Rt. Elev.
0+24.27	746.89	746.64	4+00	760.63	760.35
1+00	747.24	746.79	5+00	762.10	761.75
2+00	747.33	746.94	6+00	763.57	763.25
3+00	747.52	747.27	7+00	765.02	764.75
4+00	747.80	747.54	8+00	766.51	766.25
5+00	748.19	747.93	9+00	768.00	767.75
6+00	748.66	748.40		769.50	769.25
7+00	749.23	748.97		771.00	770.75
8+00	749.86	749.60		772.50	772.25
9+00	750.55	750.27		774.00	773.75
	751.34	751.06		775.50	775.25
	752.20	751.92		777.00	776.75
	753.15	752.87		778.50	778.25
	754.19	753.91		780.00	779.75
	755.31	755.03		781.50	781.25
	756.51	756.23		783.00	782.75
	757.80	757.52		784.50	784.25
	759.17	758.89			
	760.63	760.35			
	762.10	761.75			
	763.57	763.25			
	765.02	764.75			
	766.51	766.25			
	768.00	767.75			
	769.50	769.25			
	771.00	770.75			
	772.50	772.25			
	774.00	773.75			
	775.50	775.25			
	777.00	776.75			
	778.50	778.25			
	780.00	779.75			
	781.50	781.25			
	783.00	782.75			
	784.50	784.25			

BM. ELEV. 738.74  
Mina Spika in Power Pole  
#20  
80 318 Rt. Sta. 1295+73



0+4	605	6" Underdrain	6" Pipe	500
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
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		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50
		6" Underdrain	6" Pipe	50

0+34	0+6.3 to 3+00	Rt
0+94	3+00 to 8+00	Rt
1+04	8+00 to 8+50	Rt
1+11-4	8+50 to 9+00	Rt
2+35	0+44 to 9+00	Lt
2+55	3+00 to 3+60	Lt
2+55	0+6.3 to 7+00	Rt
2+00R	3+00	Lt
2+55	3+05 to 3+00	Rt

RAMP D STA. 0+00 TO STA. 9+00

104.27

10

1065

13

50

290

500

13

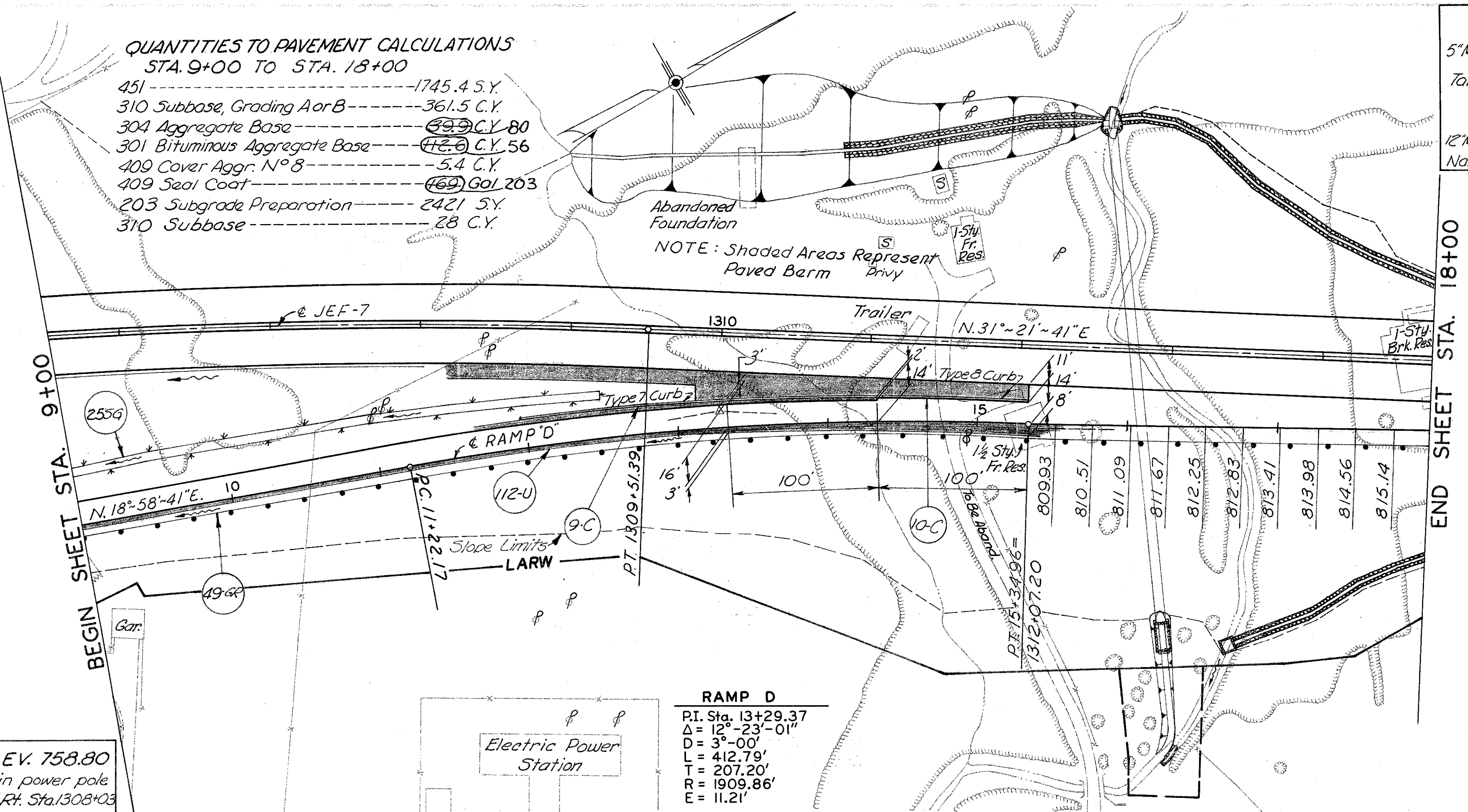
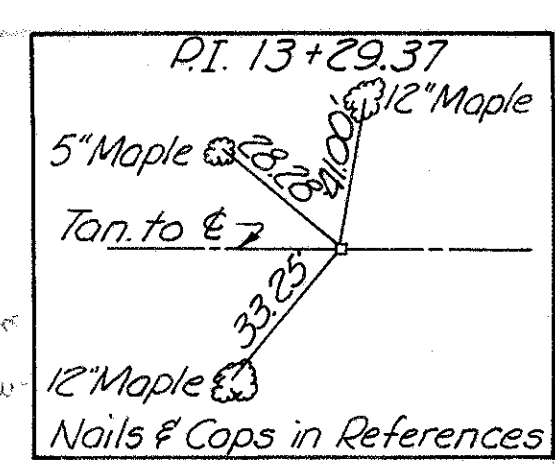


JEF -7-23.37

QUANTITIES TO PAVEMENT CALCULATIONS  
STA. 9+00 TO STA. 18+00

- 451 Subbase, Grading A or B-----1745.4 S.Y.
- 310 Aggregate Base-----361.5 C.Y.
- 304 Aggregate Base-----39.3 C.Y. 80
- 301 Bituminous Aggregate Base-----15.8 C.Y. 56
- 409 Cover Aggr. N° 8-----5.4 C.Y.
- 409 Seal Coat-----16.9 Gal. 203
- 203 Subgrade Preparation-----2421 S.Y.
- 310 Subbase-----28 C.Y.

Abandoned Foundation  
NOTE: Shaded Areas Represent Paved Barm  
1-5th Fr. Res.  
Trailer  
N. 31°-21'-41"E

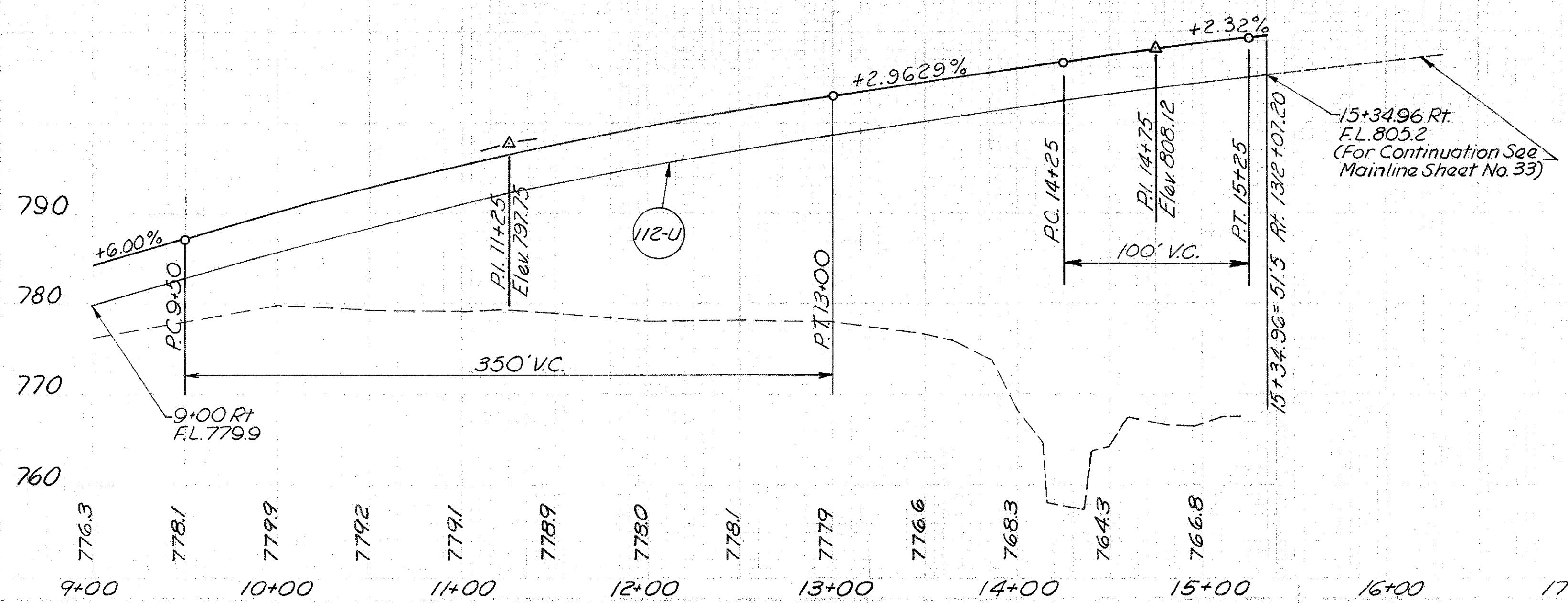


B.M. ELEV. 758.80  
Mine Spike in power pole  
#70 442 Rt. Sta. 1308+03  
#71-133

RAMP D  
P.I. Sta. 13+29.37  
Δ = 12°-23'-01"  
D = 3°-00'  
L = 412.79'  
T = 207.20'  
R = 1909.86'  
E = 11.21'

Excav 27,500 CuYd  
Emb. 12,231 CuYd  
Seeding 12,594 SqYd

Lt. Edge	Station	Survey E
784.00	9+00	784.75
786.00	9+25	785.95
787.50	9+50	787.75
788.97	9+75	788.72
790.39	10+00	790.14
791.76	10+25	791.51
793.07	10+50	792.82
794.32	10+75	794.07
795.55	11+00	795.27
796.67	PC+122.17	796.29
797.75	11+25	797.42
798.82	11+50	798.55
799.92	12+00	799.54
800.85	12+25	800.47
801.72	12+50	801.34
802.54	12+75	802.16
803.31	13+00	802.93
804.06	13+25	803.68
804.80	13+50	804.42
805.53	14+00	805.16
806.26	14+25	805.90
806.97	14+50	806.64
807.72	15+00	807.36
808.34	15+25	808.04
808.93	15+50	808.69
809.51	16+00	809.28
809.73	16+25	809.96



Station	Description	Quantity
606	Guard Rail Type 4	L.F.
609	Curb Type 7	L.F.
605	6" Shallow Pipe Underdrain	L.F.
660	Sodding	S.Y.
112U	9+00 to 15+34.96 Rt	635
255G	9+00 to 12+50 Lt	234
9-C	12+60 to 13+13.5 Lt	118
10-C	13+13.5 to 15+34.96 Lt	224
496R	9+00 to 18+00 Rt	897.75

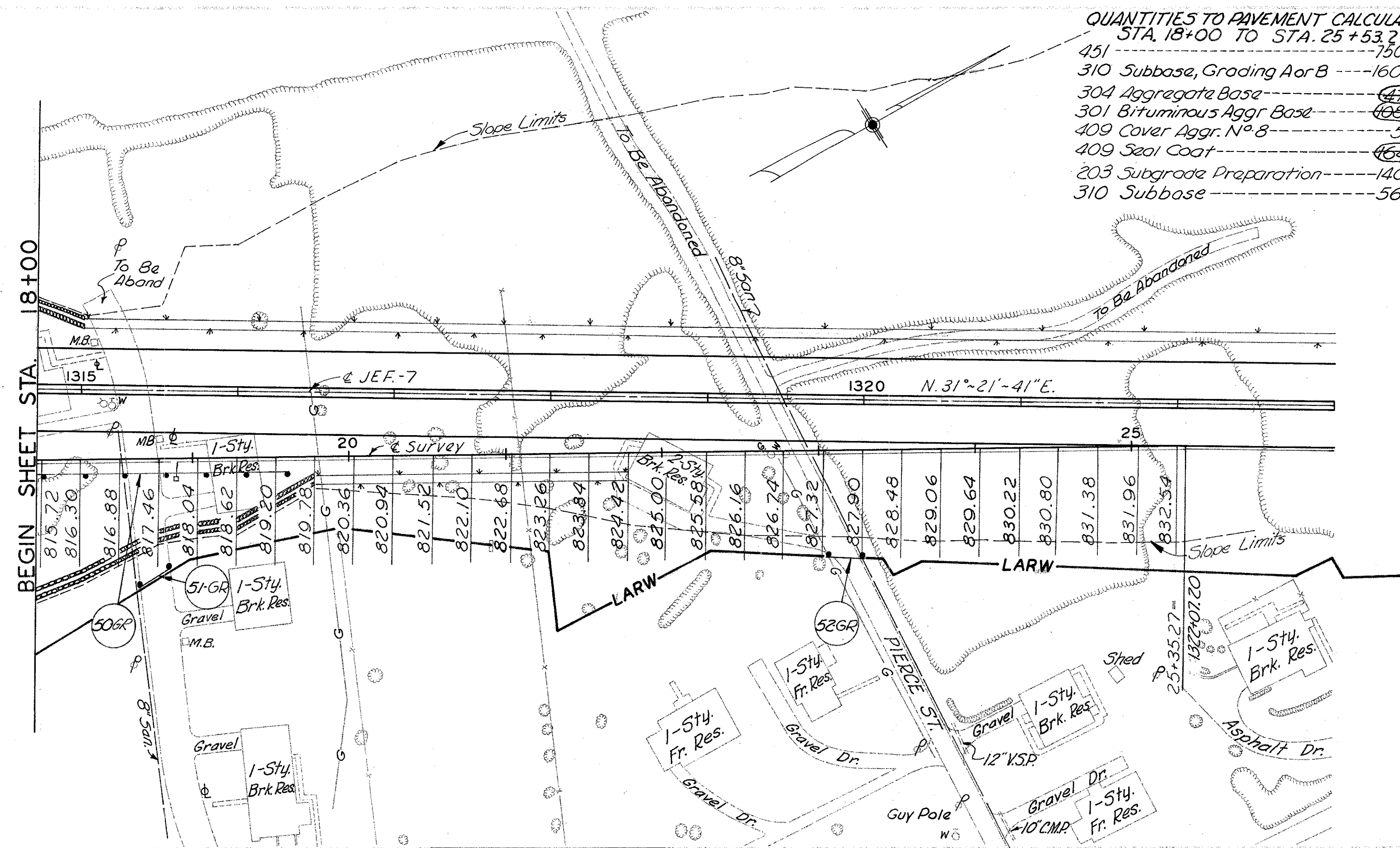
RAMP D STA. 9+00 TO STA. 18+00

897.75 118 224 635 234



JEF -7-23.37

- QUANTITIES TO PAVEMENT CALCULATIONS  
STA. 18+00 TO STA. 25+35.27
- 451 Subbase, Grading A or B ----- 750.85 Y.
  - 310 Subbase, Grading A or B ----- 160.5 C.Y.
  - 304 Aggregate Base ----- 47.7 C.Y. 95
  - 301 Bituminous Aggr Base ----- 108.9 C.Y. 55
  - 409 Cover Aggr. No 8 ----- 5.2 C.Y.
  - 409 Seal Coat ----- 16.40 Gal. 197
  - 203 Subgrade Preparation ----- 1404.5 Y.
  - 310 Subbase ----- 56.4 C.Y.



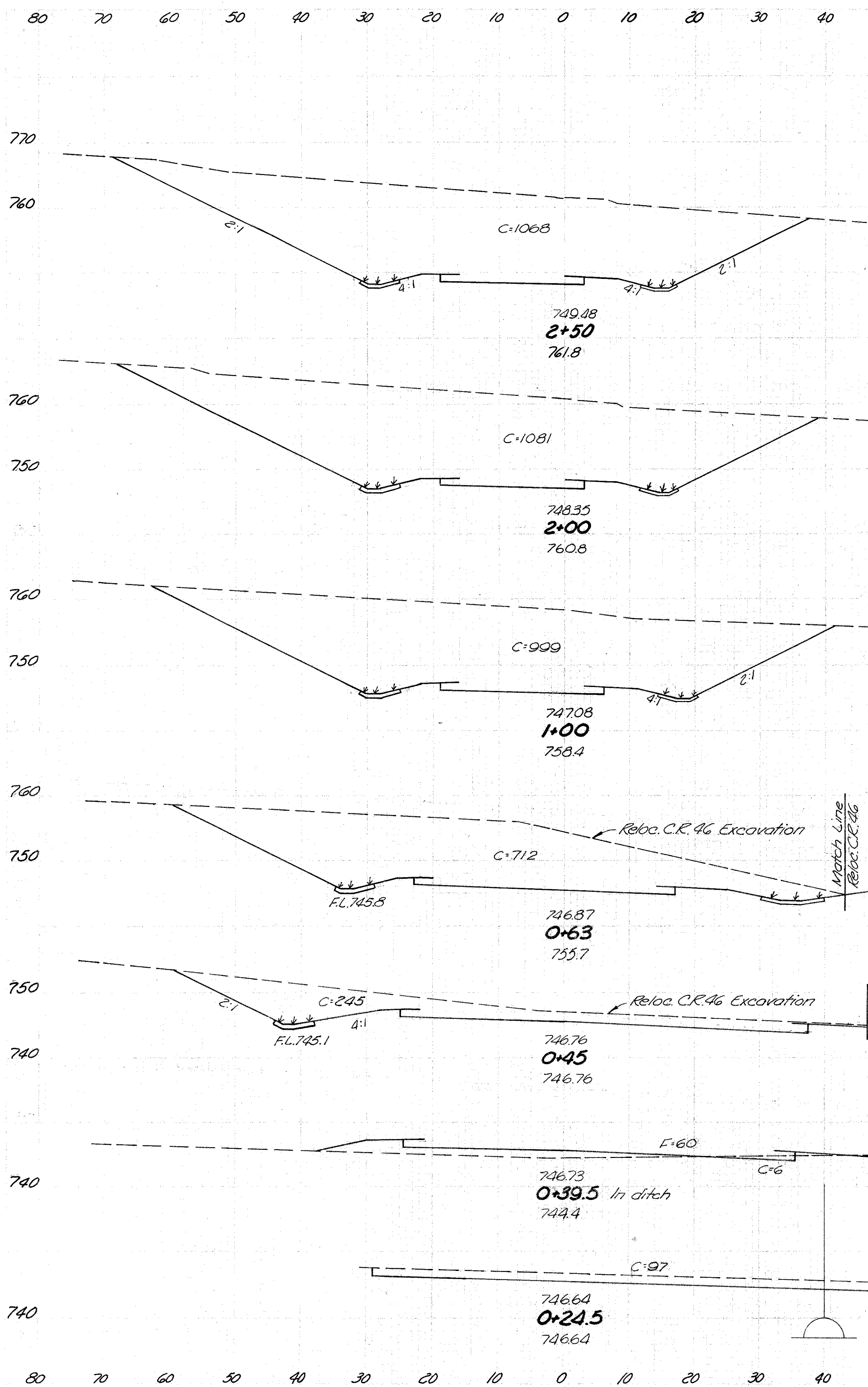
B.M. ELEV. 786.31  
Mine Spike in power pole  
465' ± Rt. Sta. 1319+02

18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00

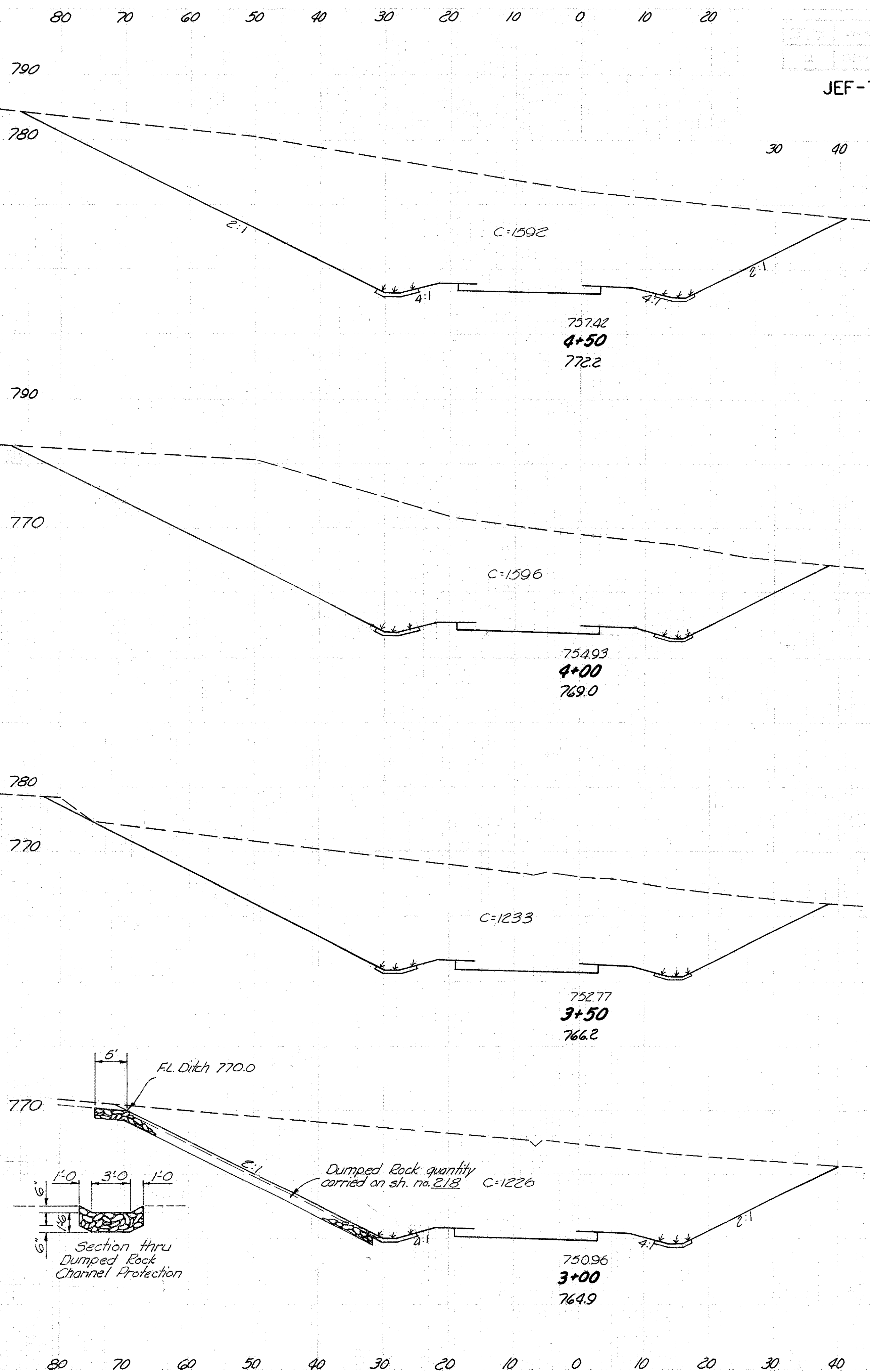
606	Guard	Rail	Type 4	L.F.
50' GR	18+00 to 19+60.48	Rt.	160.48	25
51' GR	18+64 to 18+85	Rt.	21	25
52' GR	23+04 to 23+28	Rt.	24	25

RAMP D STA. 18+00 TO STA. 25+35.27

JEF-7-23.37



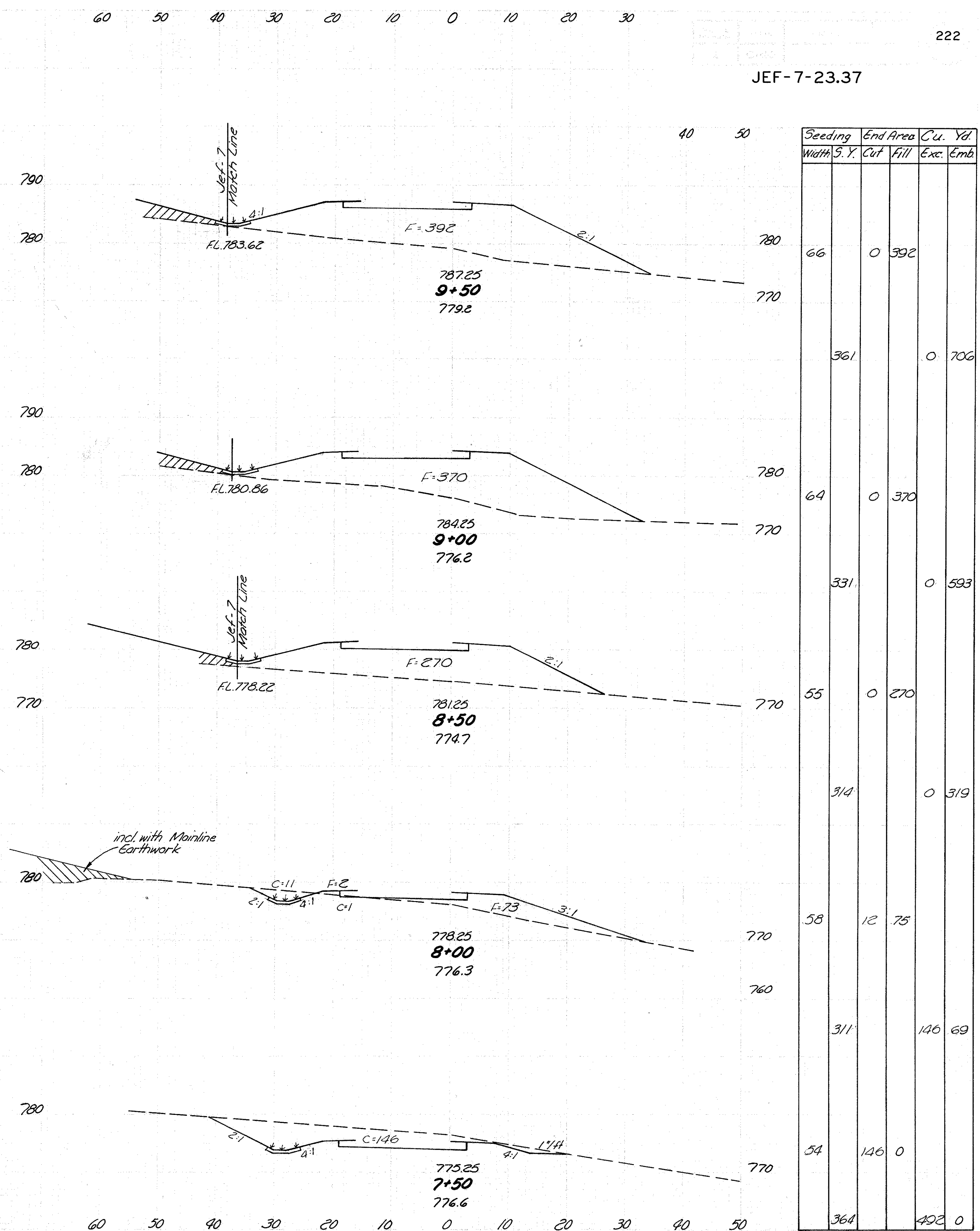
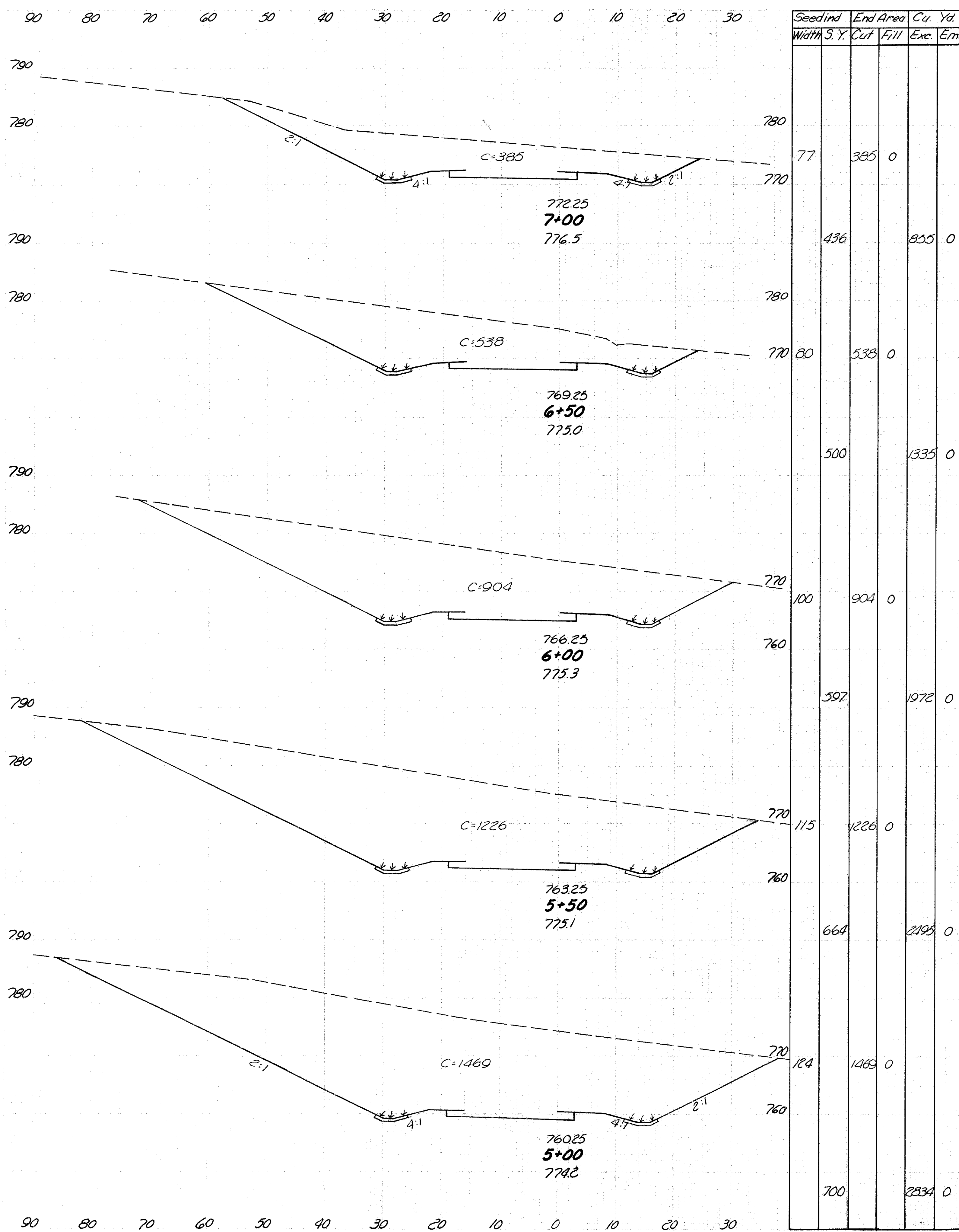
Seeding		End Area		Cu. Yds.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
104		1068	0		
583			1990	0	
106		1081	0		
1133			3852	0	
98		999	0		
329			1172	0	
62		712	0		
0			319	0	
0		245	0		
0			26	6	
0		6	60		
0			29	17	
0		97	0		



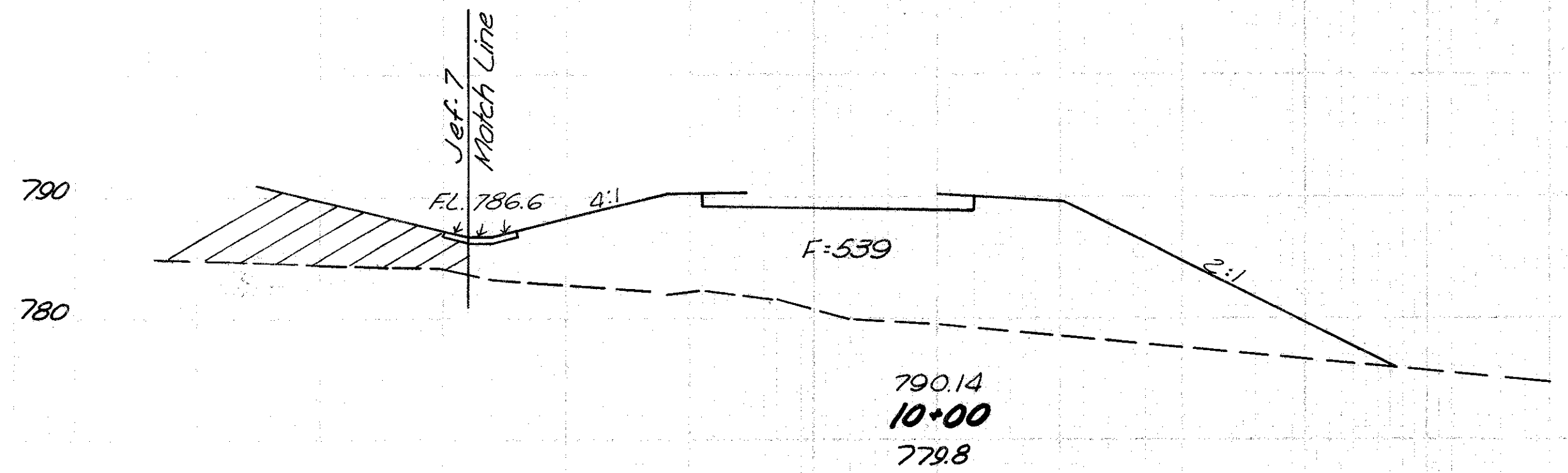
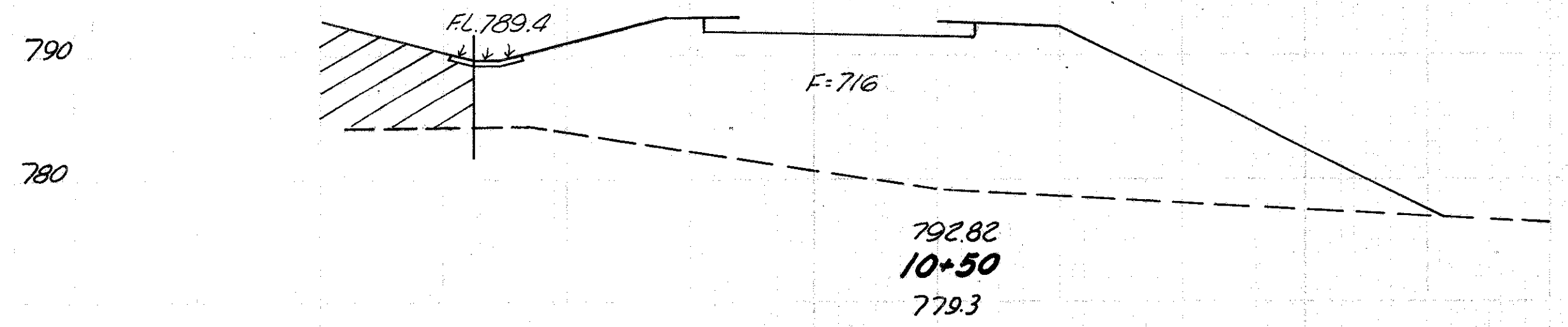
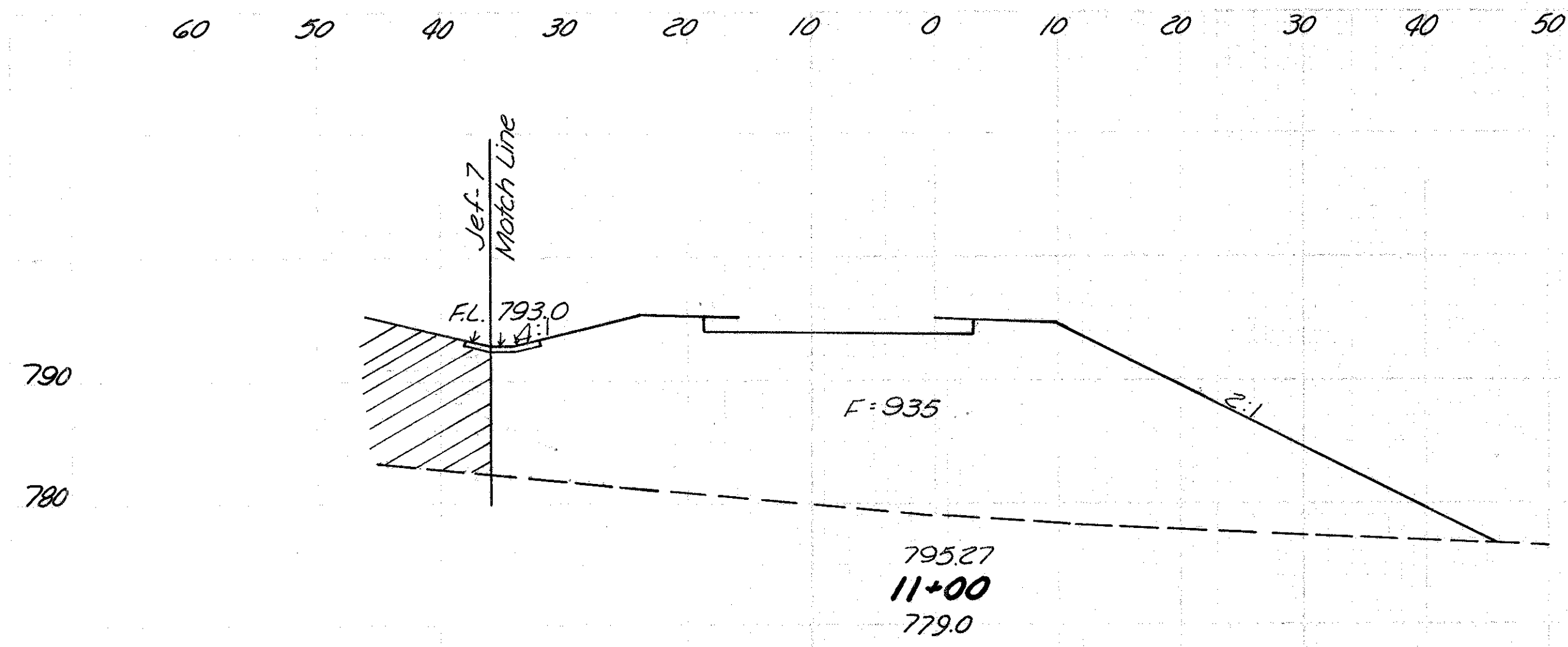
Seeding		End Area		Cu. Yds.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
128		1592	0		
708			2952	0	
127		1596	0		
609			2619	0	
121		1233	0		
644			2271	0	
111		1226	0		
597			2124	0	

RAMP "D" STA. 0+24.50 TO STA. 4+50

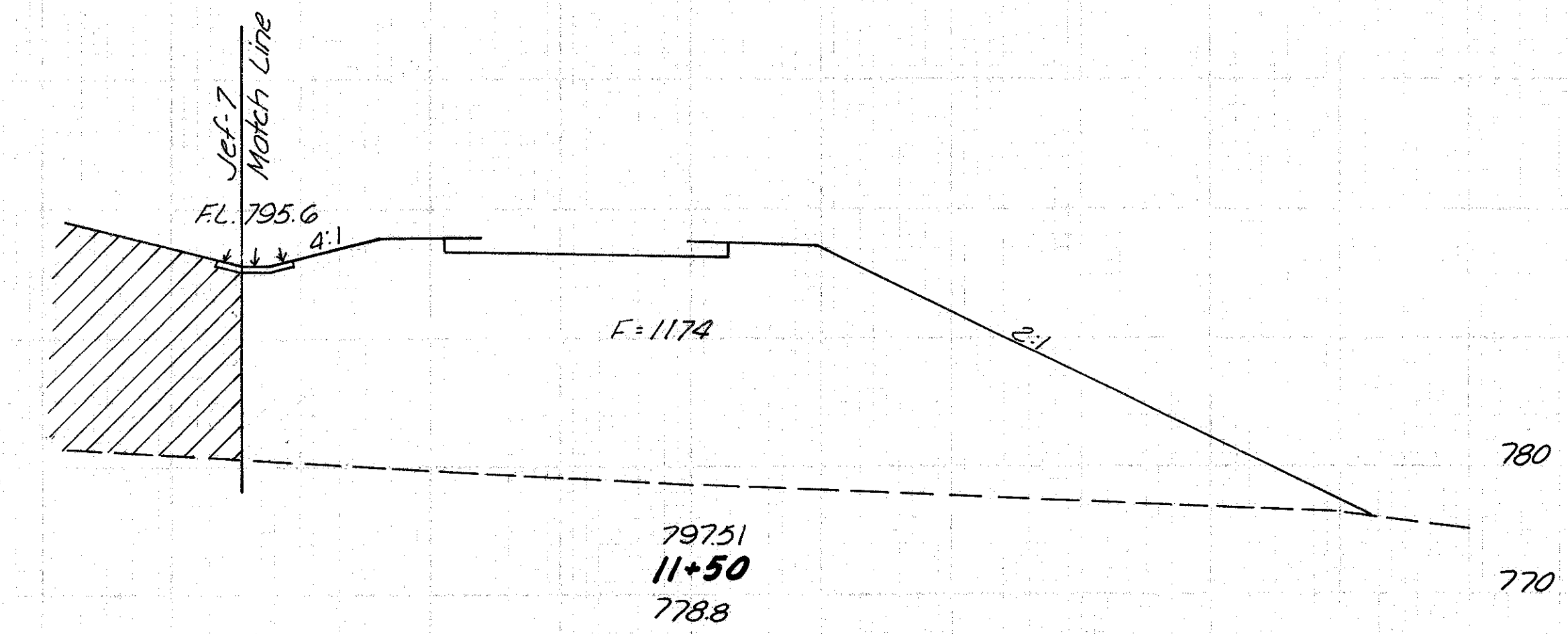
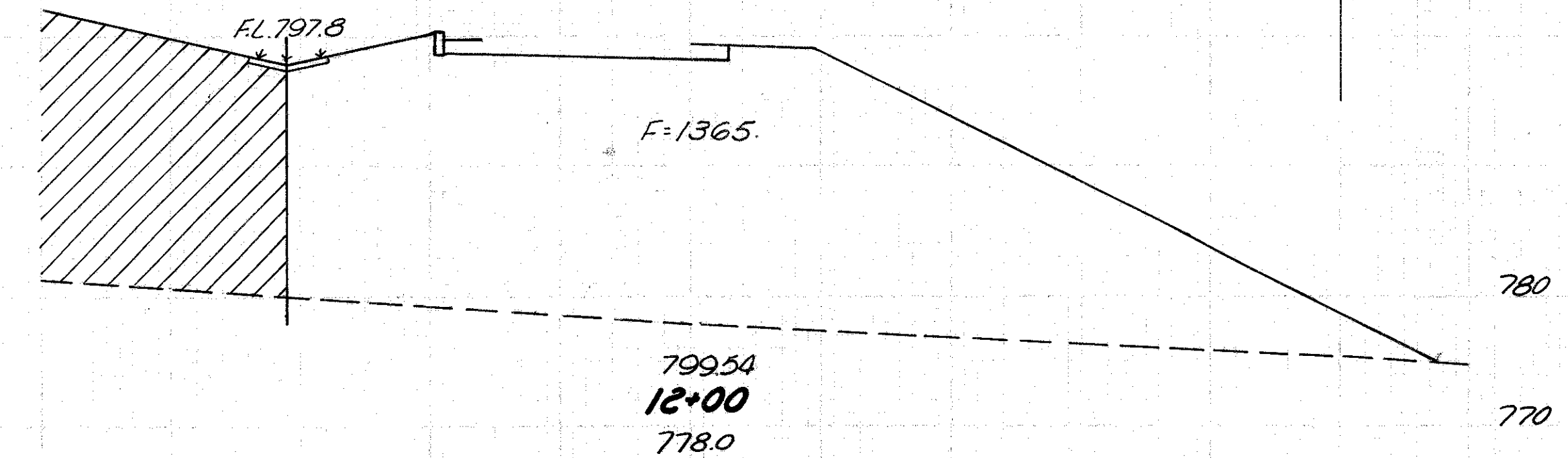
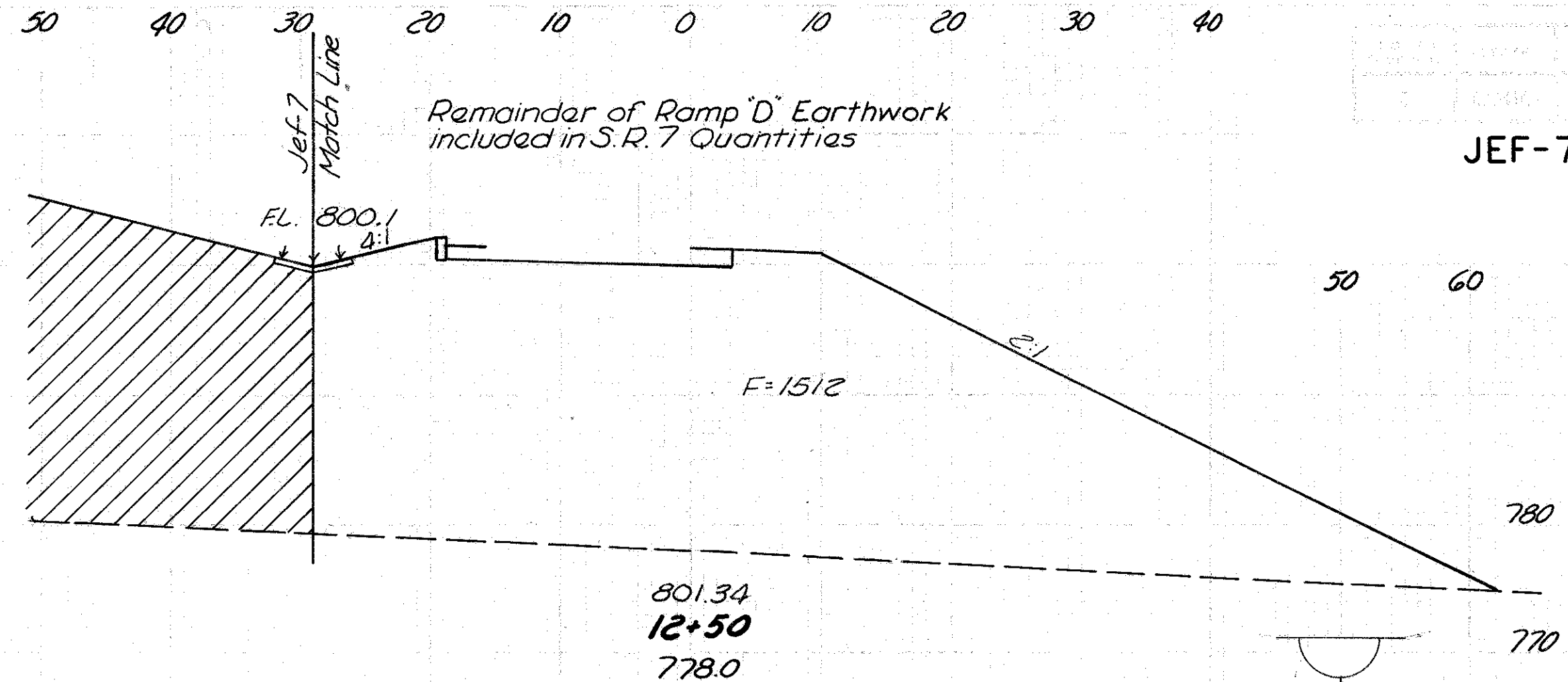




JEF-7-23.37



Seeding Width	S. Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
77	0	935			
417	0	1529			
73	0	716			
394	0	1162			
69	0	539			
375	0	862			



Excav. 27,500 Cu Yd  
Emb 12,231 Cu Yd  
Seeding 12,594 Sq Yd

Seeding Width	S. Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
88	0	1512			
1036	0	2664			
85	0	1365			
467	0	2351			
83	0	1174			
444	0	1953			

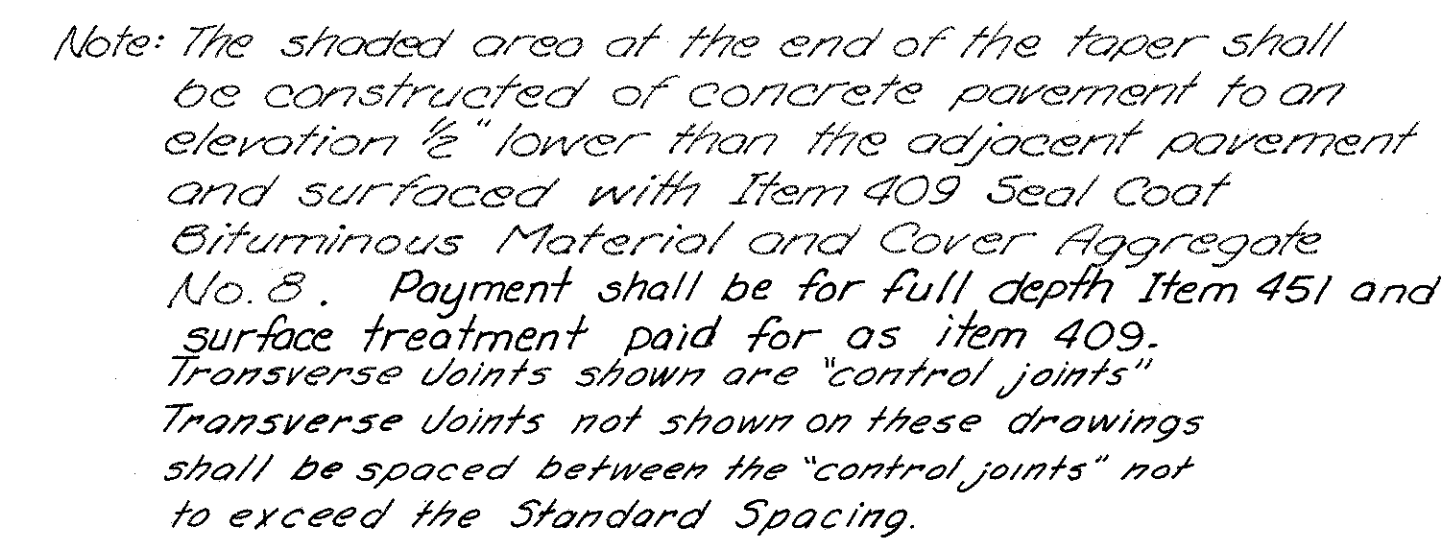
RAMP "D" STA. 10+00 TO STA. 12+50



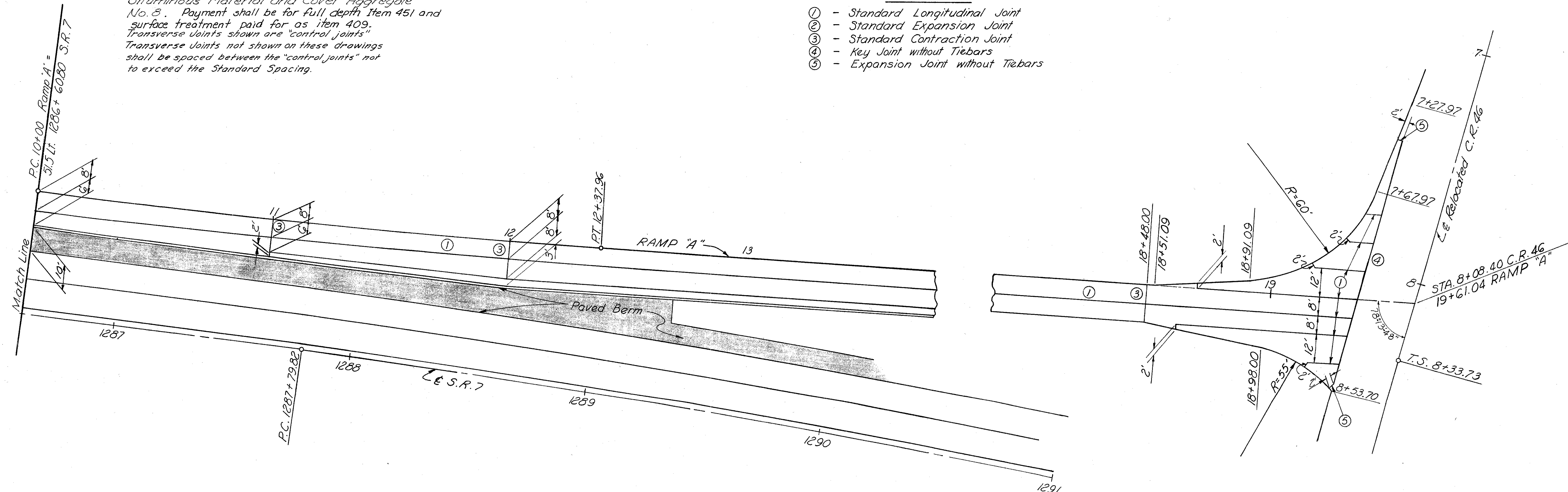
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

22

JEF -7-23.37



- ① - Standard Longitudinal Joint
- ② - Standard Expansion Joint
- ③ - Standard Contraction Joint
- ④ - Key Joint without Tiebars
- ⑤ - Expansion Joint without Tiebars

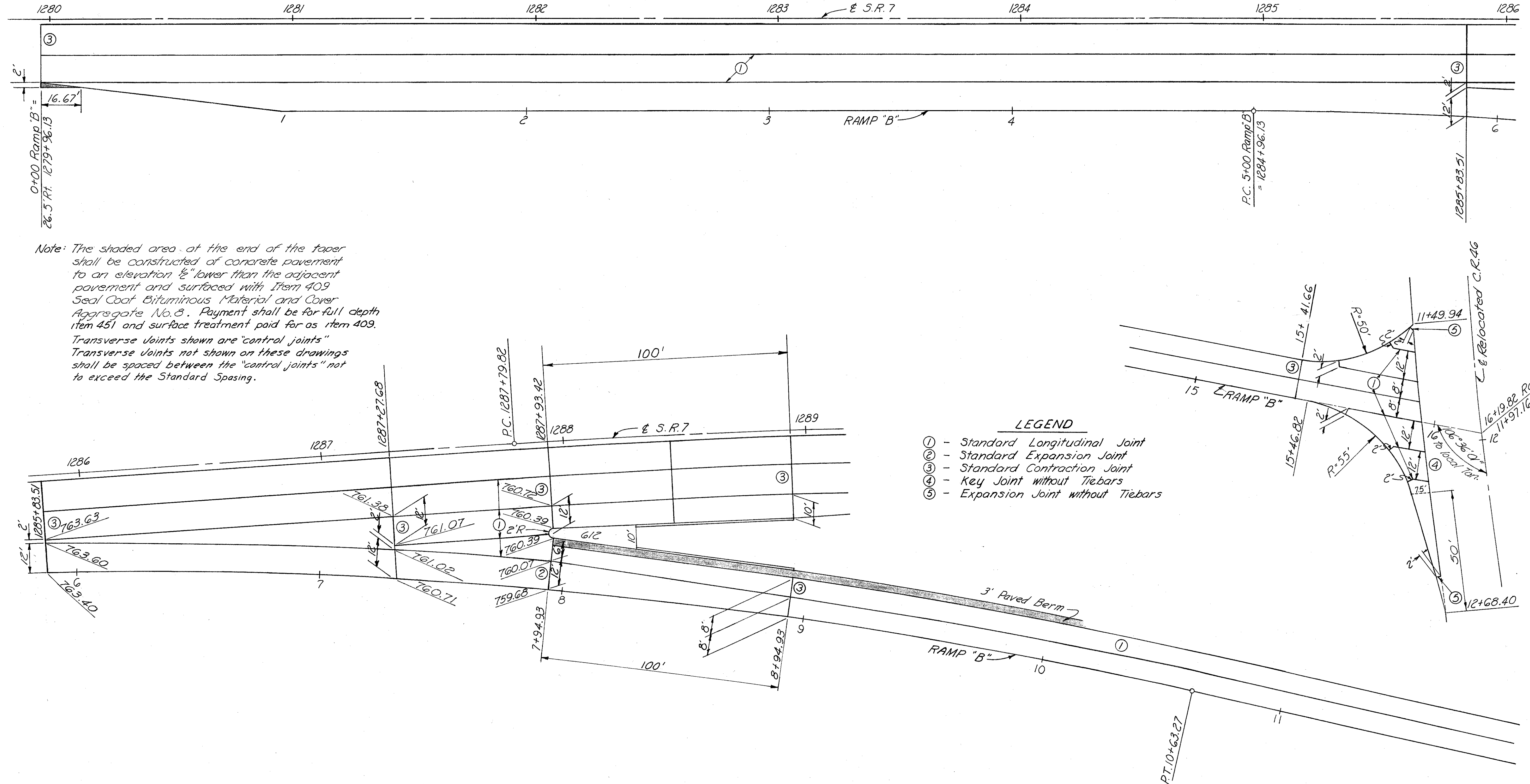


# PAVEMENT JOINT DETAILS

SCALE 1"=20'

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		225

JEF -7-23.37





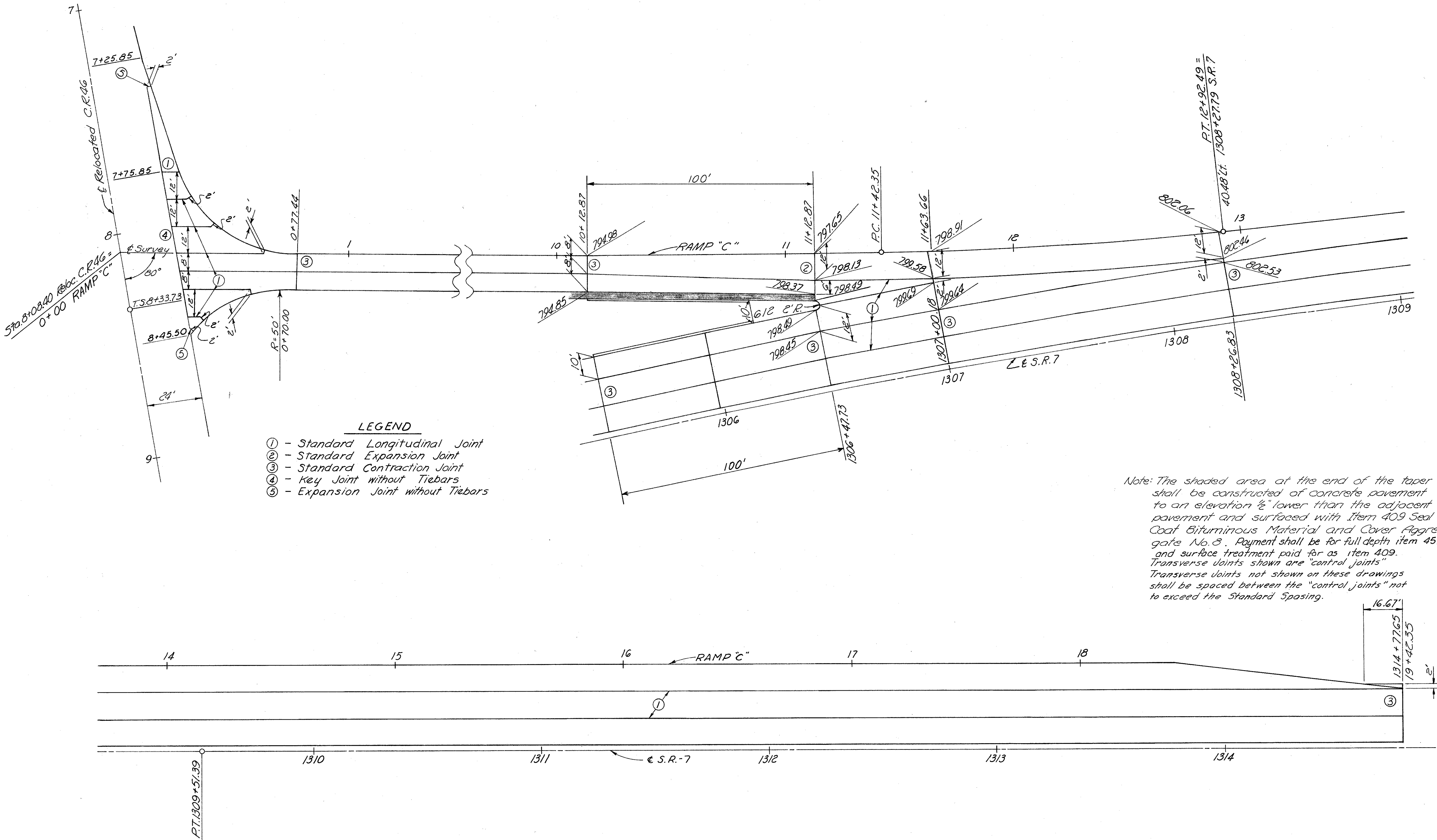
# PAVEMENT JOINT DETAILS

SCALE 1"=20'

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

226

JEF -7-23.37

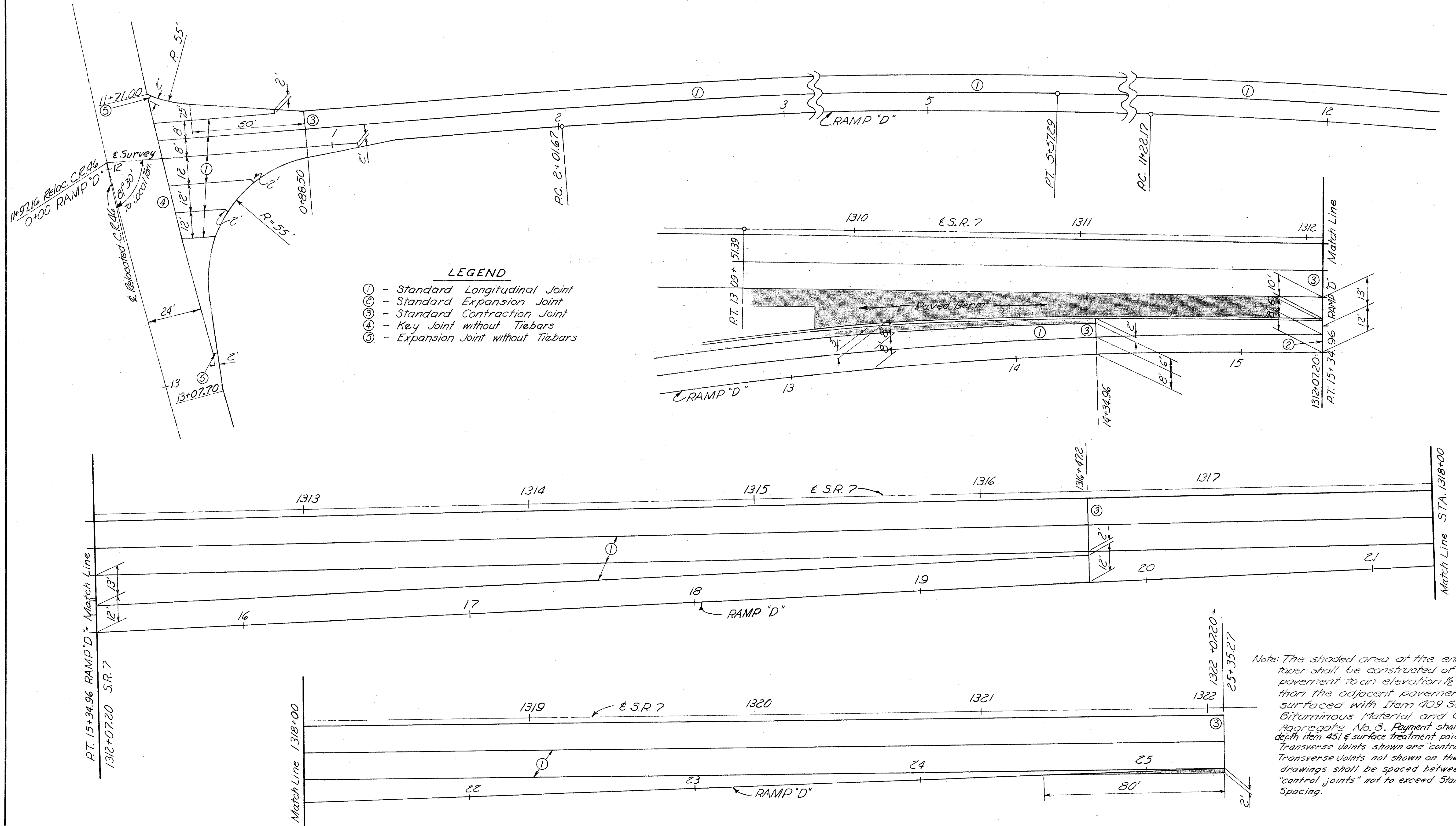


# PAVEMENT JOINT DETAILS

SCALE 1"=20'

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		227

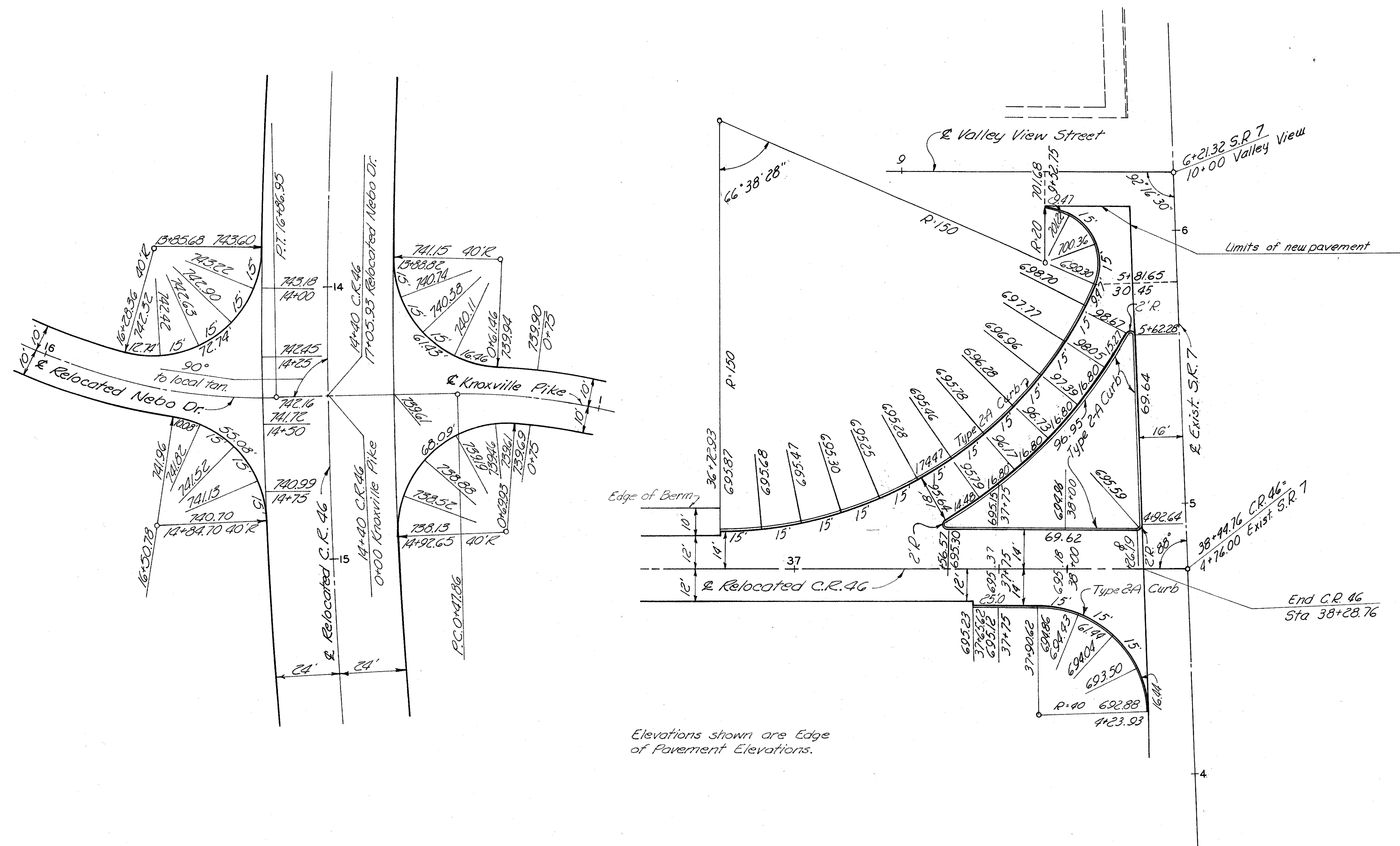
JEF -7-23.37







SCALE 1" = 20'



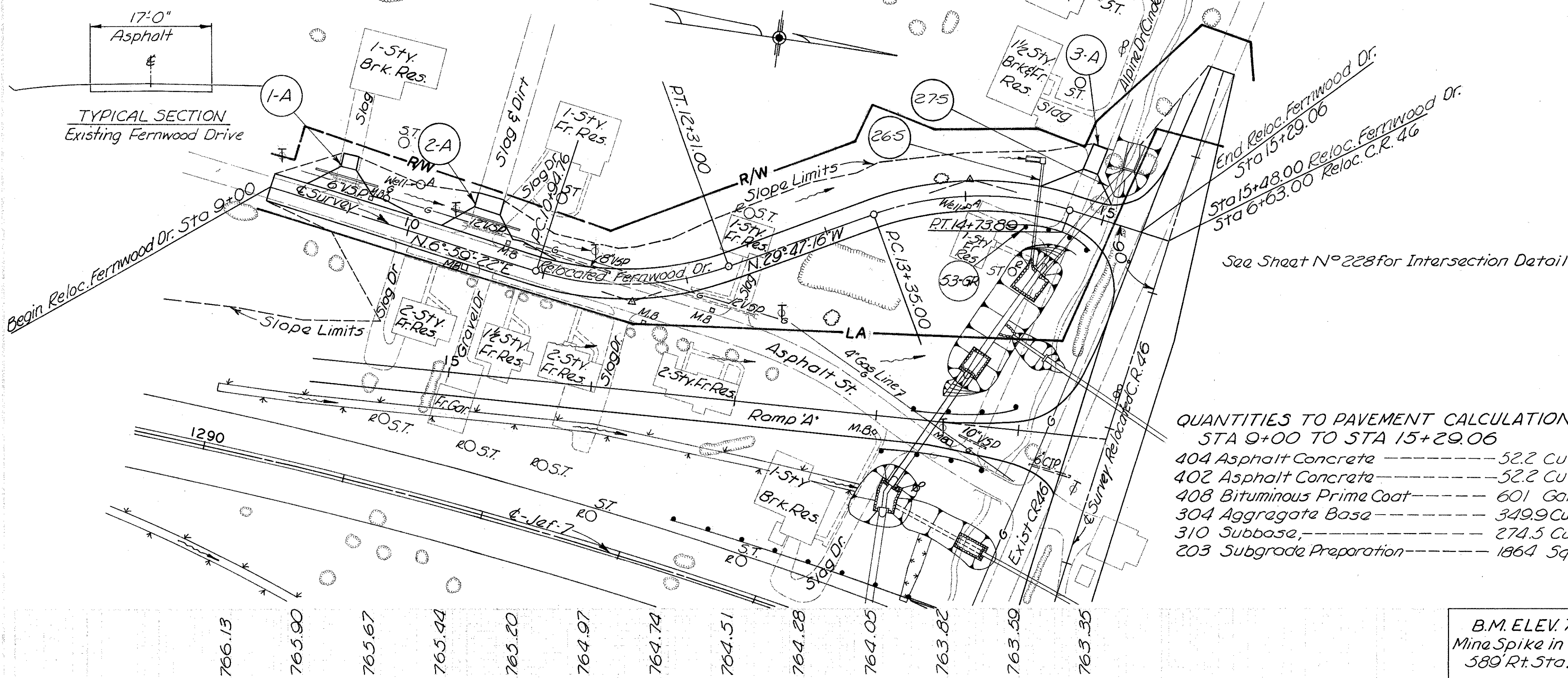


JEF - 7-23.37

PC. 10+04.76	PI. 11+65.32	PT. 12+31.00
Nail & Cap Survey Drilled Holes Conc. Wall	Conc. Wall Nail & Cap Survey Drilled Hole Conc. Wall	Conc. Wall Survey Drilled Holes in References

RELOC. FERNWOOD DR.	RELOC. FERNWOOD DR.
PI. Sta. 11+65.32 Δ = 36° 47' D = 27° 00' T = 136.24' L = 70.56' R = 212.21' E = 11.42'	PI. Sta. 14+07.04 Δ = 37° 30' D = 27° 00' T = 138.89' L = 72.04' R = 212.21' E = 11.89'

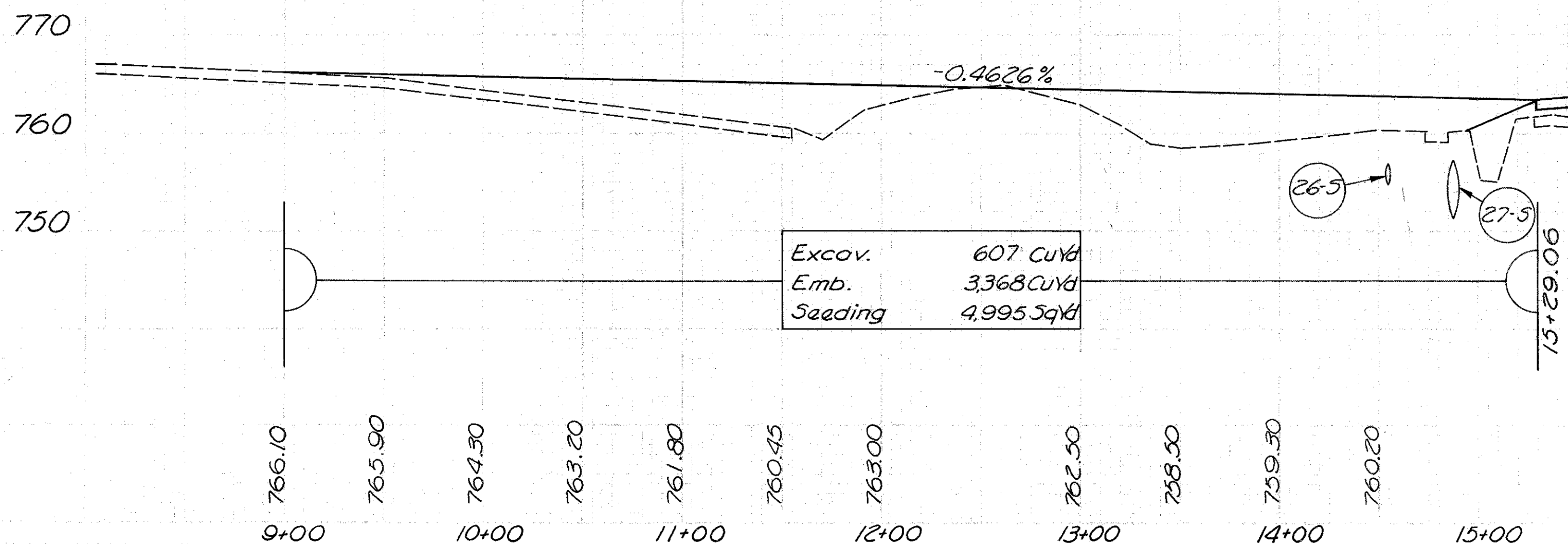
PC. 13+35.00	PI. 14+07.04	PT. 14+73.89
7' Locust Survey Hub Nail & Cap in References 4' Cherry 4' Elm	Nail & Cap Survey Conc. Slab	Lamp Post Survey R.R. Spike Nail & Cap in References 10' Elm



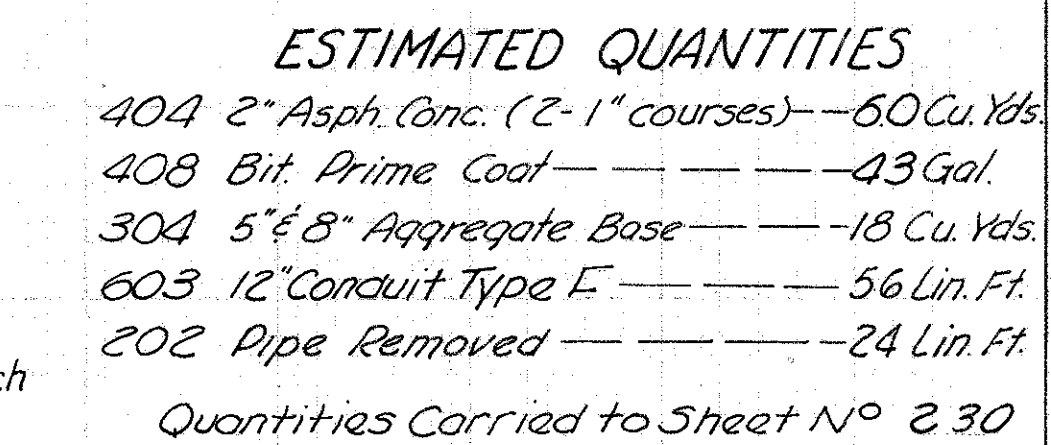
QUANTITIES TO PAVEMENT CALCULATIONS  
STA 9+00 TO STA 15+29.06

404 Asphalt Concrete	52.2 Cu Yd
402 Asphalt Concrete	52.2 Cu Yd
408 Bituminous Prime Coat	601 Gal
304 Aggregate Base	349.9 Cu Yd
310 Subbase	274.5 Cu Yd
203 Subgrade Preparation	1864 Sq Yd

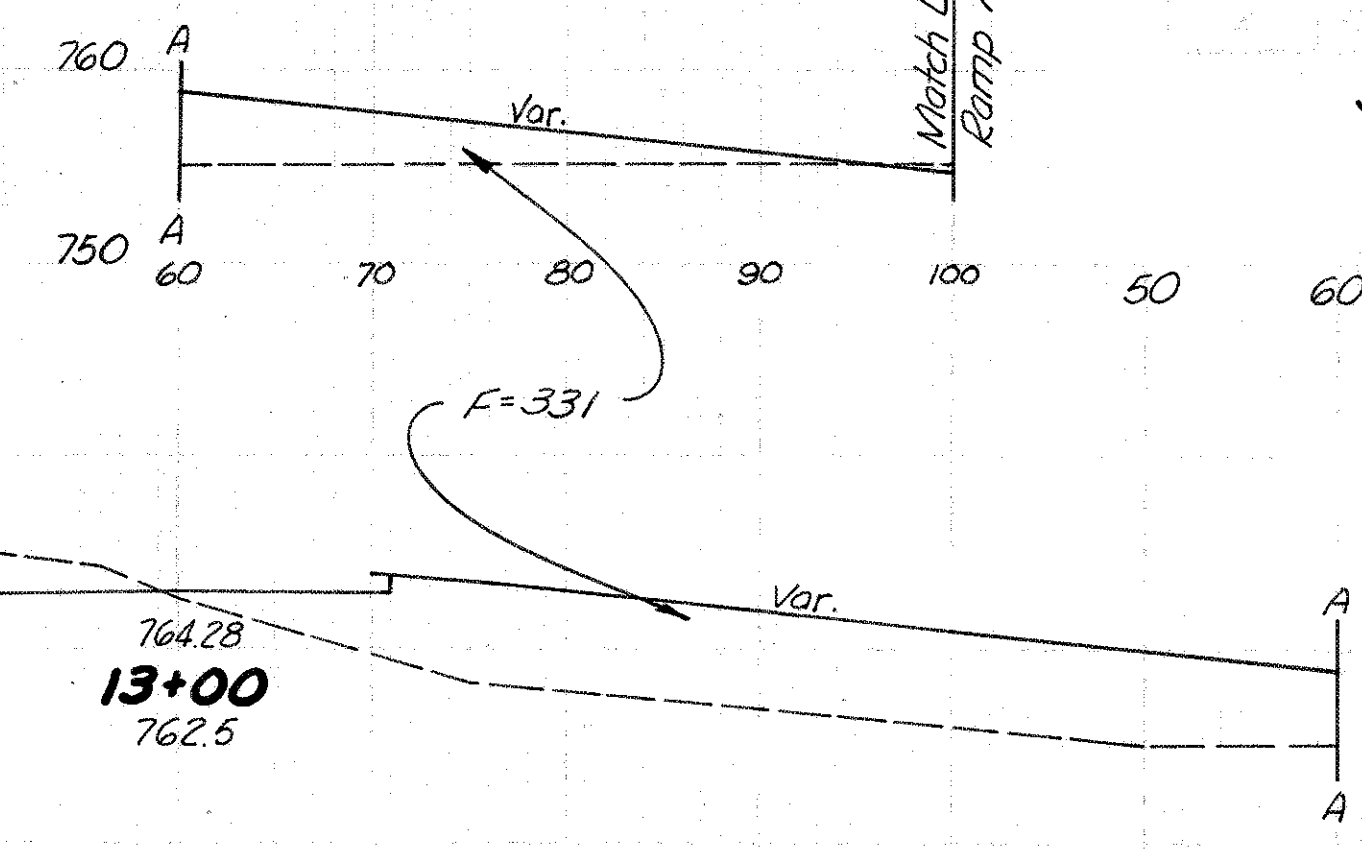
B.M. ELEV. 738.74  
Mine Spike in Power Pole  
589' Rt. Sta. 11+96



603 Conduit *Class B Bedding		601 602 604		606		408		404		304		203		202		265		275		1-A		2-A		3-A		585R	
12" 18" 72" *	Conduit Type A Type A Type F 706.02 706.02 706.02	Unpaved Rock Surface Channel Masonry Paved Road	5'rd Catch Basin 2-2A	Guard Rail Type 4	Bitum. Prime Coat	Asphalt Conc.	Aggr. Base	Excav.	Dipe Removed 24' & Under	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt
L.F.	L.F.	C.Y. L.F. C.Y. Each	L.F.	Gal	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt	Lt Rt
72	94	10 0.3 1	62.5	34	5.0	15	18	16	18	16	18	16	18	16	18	16	18	16	18	16	18	16	18	16	18	16	18
308	309	37 4.5	54 56	607	62.5	607	607	607	607	607	607	607	607	607	607	607	607	607	607	607	607	607	607	607	607	607	607



Std. Type 2 Dr. & Mailbox Approach Lt. **9:50** (1-A)

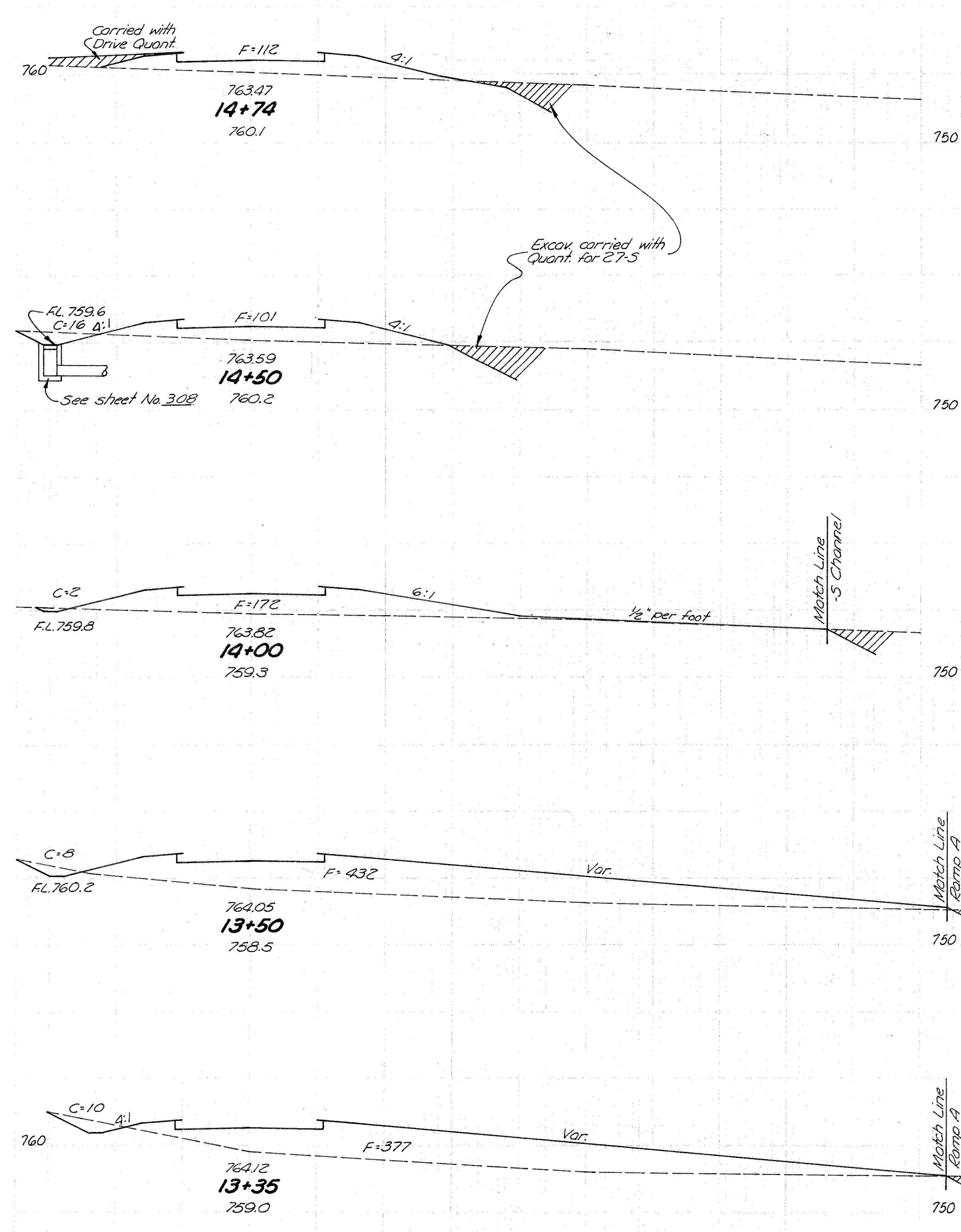


Seeding		End Area		Cu. Yds.	
Width	S.Y.	Cut	Fill	Exc.	Embl.
128		88	331		
	843			216	541
92		81	92		
	231			57	124
71		19	124		
	233			13	169
56		3	153		
	102			1	97
52		1	155		
	297			4	257
55		3	123		
	347			6	182

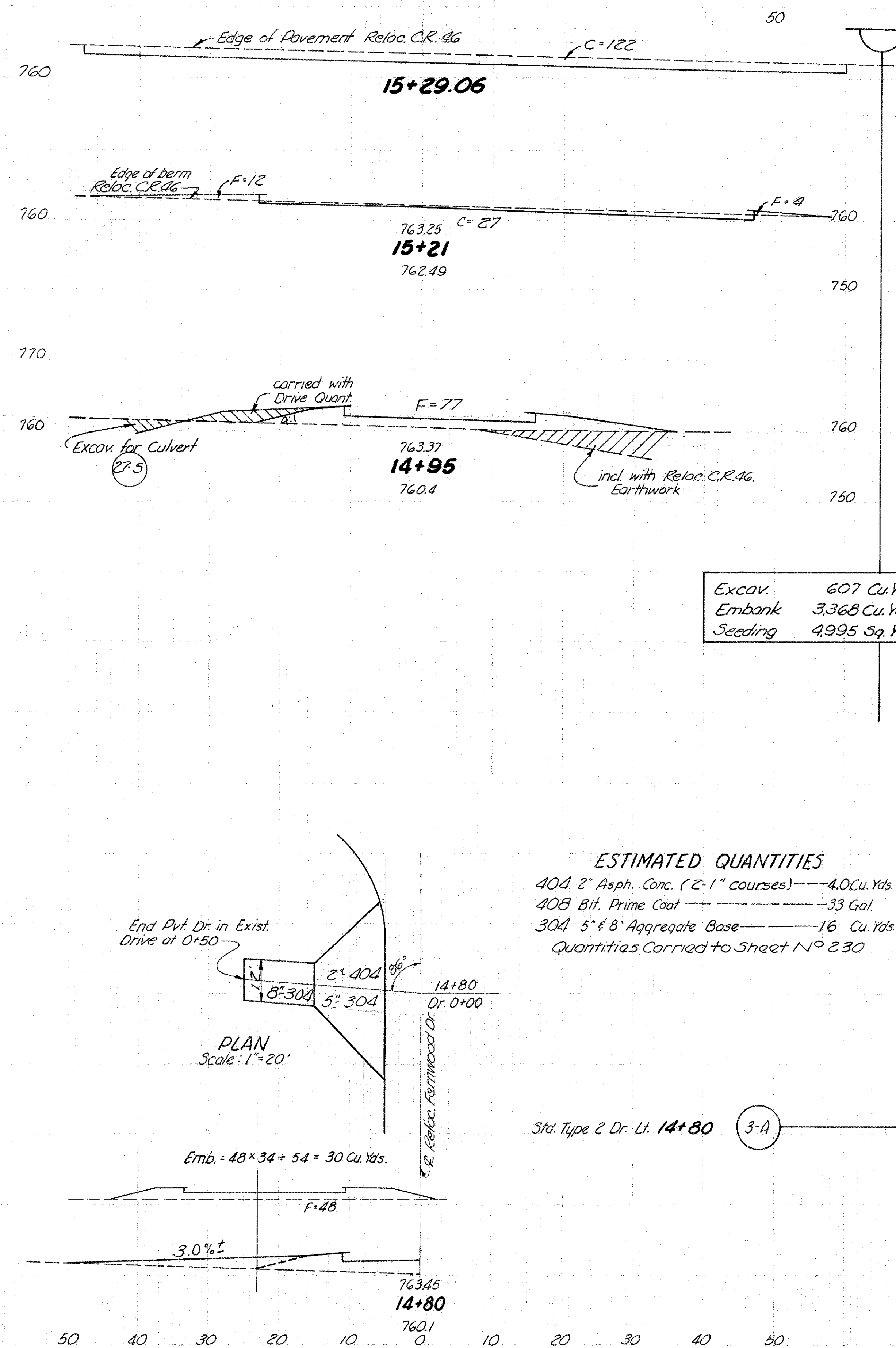
RELOCATED FERNWOOD DR. STA. 9+00 TO STA. 13+00



JEF - 7 - 23.37



Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
45	0	112			
135			7	95	
56	16	101			
458			17	253	
109	2	172			
667			9	559	
131	8	432			
213			5	225	
125	10	377			
492			64	459	



Width	S.Y.	End Area		Cu. Yds.	
		Cut	Fill	Exc.	Emb.
0		122	0		
0				22	2
0	27	16			
0				13	45
0	0	77			
0				0	74

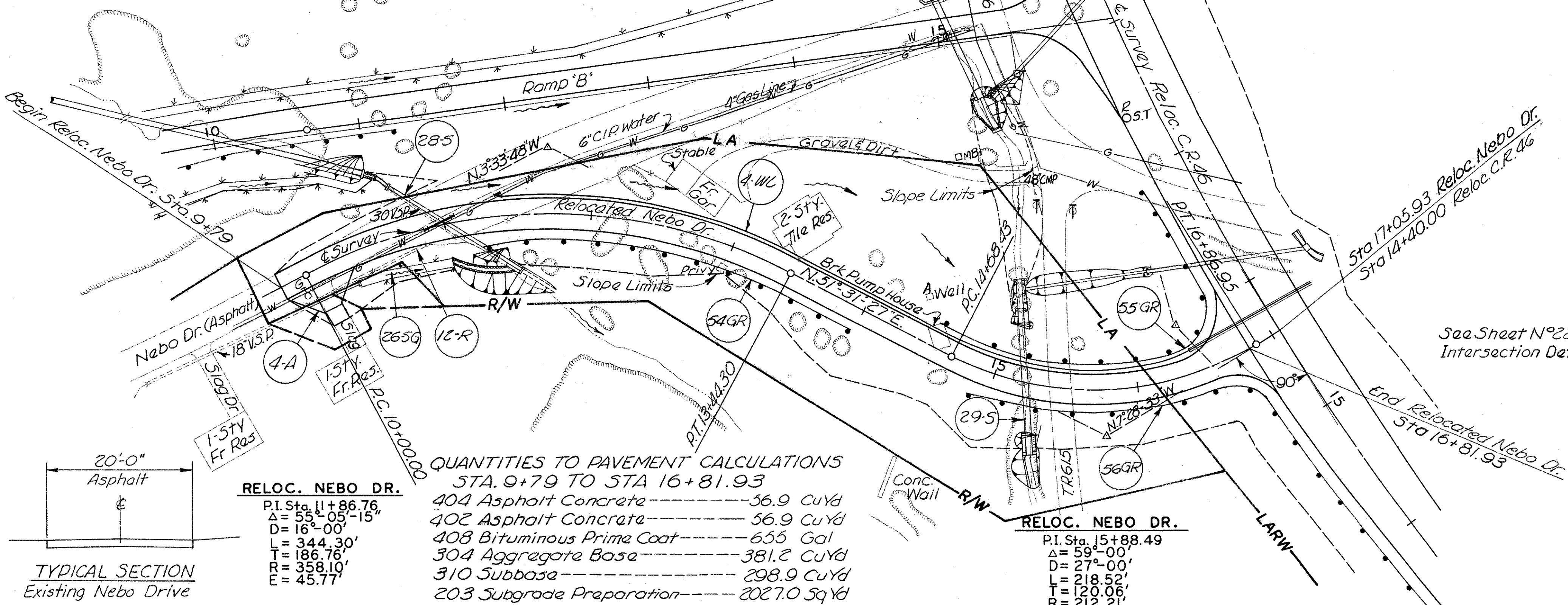
Excav. 607 Cu. Yd.  
Embank 3,368 Cu. Yd.  
Seeding 4,995 Sq. Yd.

**ESTIMATED QUANTITIES**  
404 2" Asph. Conc. (2-1" courses) — 4.0 Cu. Yds.  
408 Bit. Prime Coat — 33 Gal.  
304 5" & 8" Aggregate Base — 16 Cu. Yds.  
Quantities Carried to Sheet N° 230

Std. Type 2 Dr. Lt. 14+80 (3-A)

PC 10+00.00	PI 11+86.76	PT 13+44.30
Edge Pav't	Edge Pav't	Corner of Steps
Survey	Survey	Survey
Nail & Cap in References	Nail & Cap in References	Nail & Cap in References
Edge Pav't	Edge Pav't	Edge Pav't

PC 14+68.43	PI 15+88.49	PT 16+86.95
Nail & Cap in Window	20' Locust	20' Locust
Survey	Survey	Survey
Hub	Hub	Hub
Edge Pav't	Edge Pav't	Edge Pav't



B.M. ELEV. 738.74  
Mina Spika in Power Pole  
119' Lt Sta 15+96

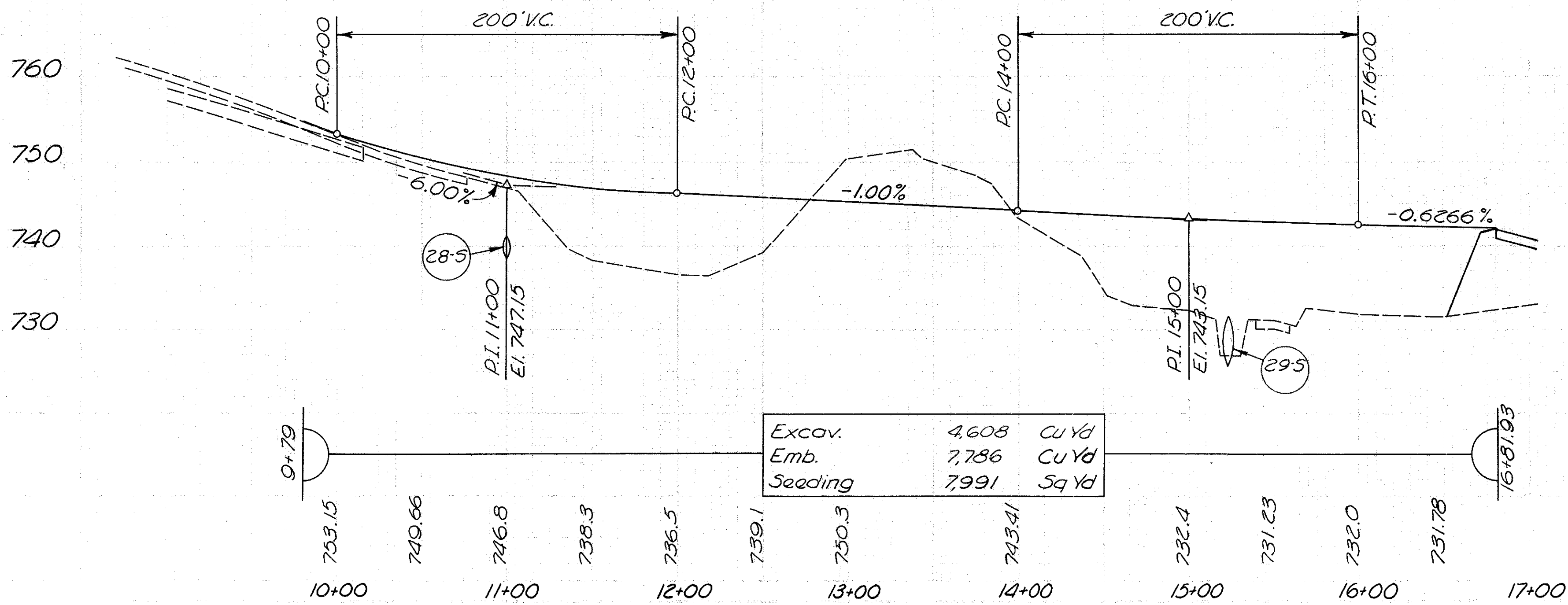
**RELOC. NEBO DR.**

PI Sta 11+86.76	
Δ = 55° 05' 15"	
D = 16° 00'	
L = 344.30'	
T = 186.76'	
R = 358.10'	
E = 45.77'	

**QUANTITIES TO PAVEMENT CALCULATIONS**

STA. 9+79 TO STA 16+81.93	
404 Asphalt Concrete	56.9 Cu Yd
402 Asphalt Concrete	56.9 Cu Yd
408 Bituminous Prime Coat	655 Gal
304 Aggregate Base	381.2 Cu Yd
310 Subbase	298.9 Cu Yd
203 Subgrade Preparation	2027.0 Sq Yd

753.15	751.73	750.46	749.35	748.40	747.60	746.96	746.48	746.15	745.90	745.65	745.40	745.15	744.90	744.65	744.40	744.15	743.91	743.67	743.45	743.21	742.94	742.86	742.69	742.52	742.37	742.21	742.05
--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------



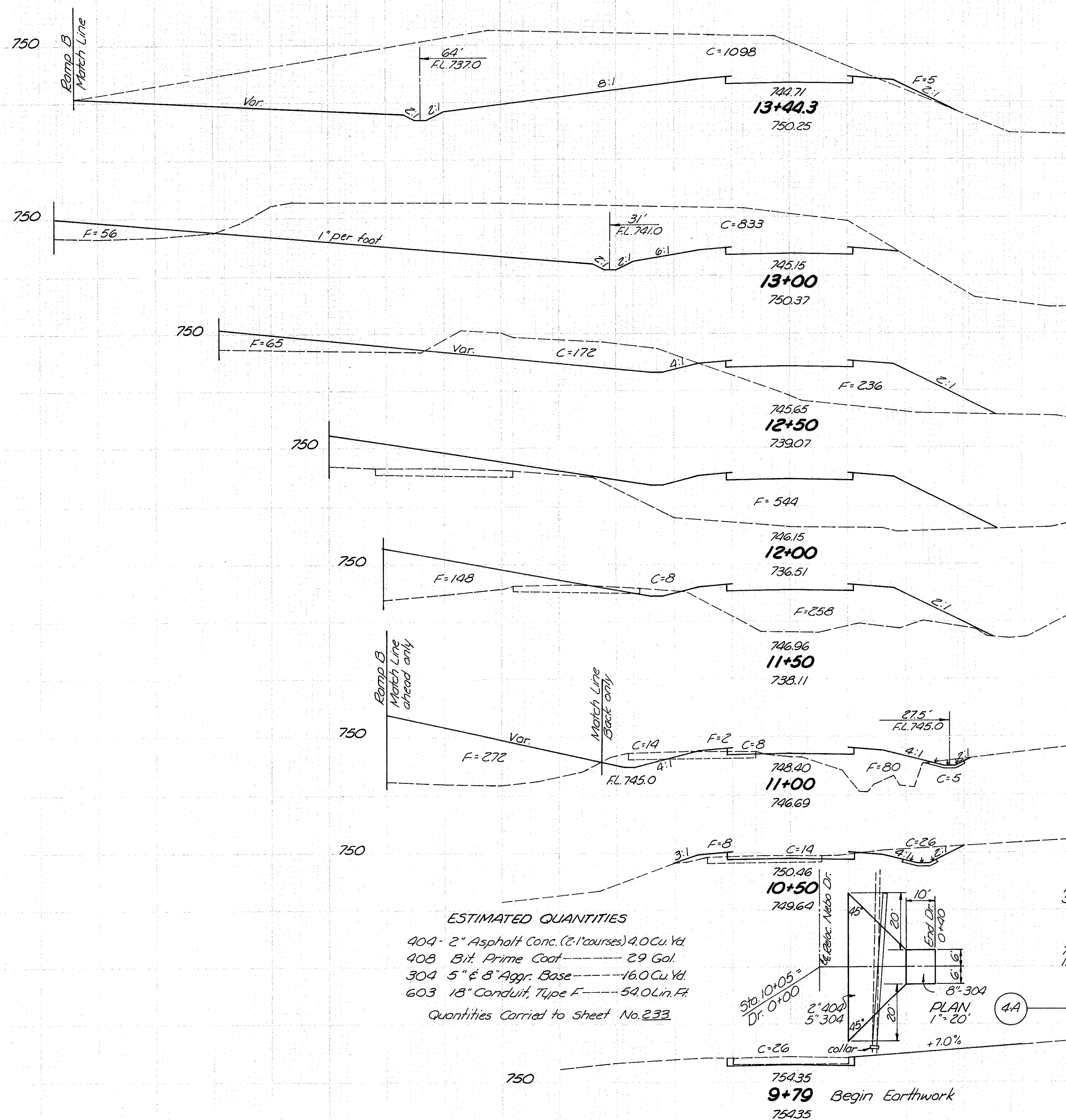
Excav.	4,608	Cu Yd
Emb.	7,786	Cu Yd
Seeding	7,991	Sq Yd

Station	Excav.	Emb.	Seeding	Other
28.5	11+00.30	1484		
29.5	15+23.43	1484		
30.5	10+32 to 11+00	106		
31.5	9+77 to 10+85			
32.5	10+05	16	40	29
33.5	11+25 to 13+97.30	262.5		
34.5	13+13 to 13+55.68	22.5		
35.5	14+55.09 to 14+84.70	22.5		
36.5	14+84.70 to 14+84.70			

See Sheet No. 324 For Quantities & Details

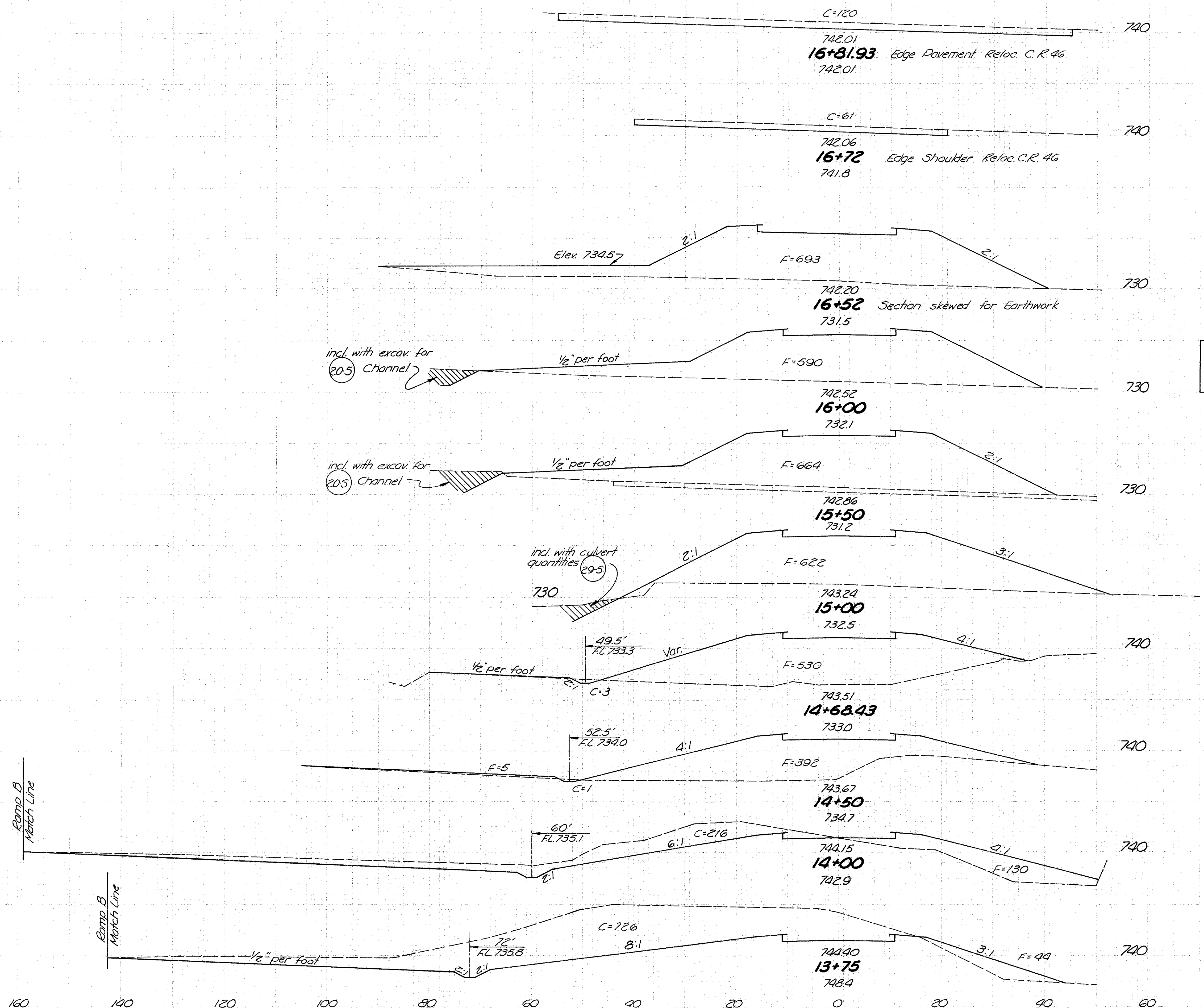


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Seedling		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
145		1098	5		
	694			1584	50
137		833	56		
	733			931	331
127		172	301		
	653			159	782
108		0	544		
	572			7	880
98		8	406		
	531			32	704
93		27	354		
50		27	82		
	253			62	83
41		40	8		
	162			87	11
				13	0
0		87	0		

JEF-7-23.37



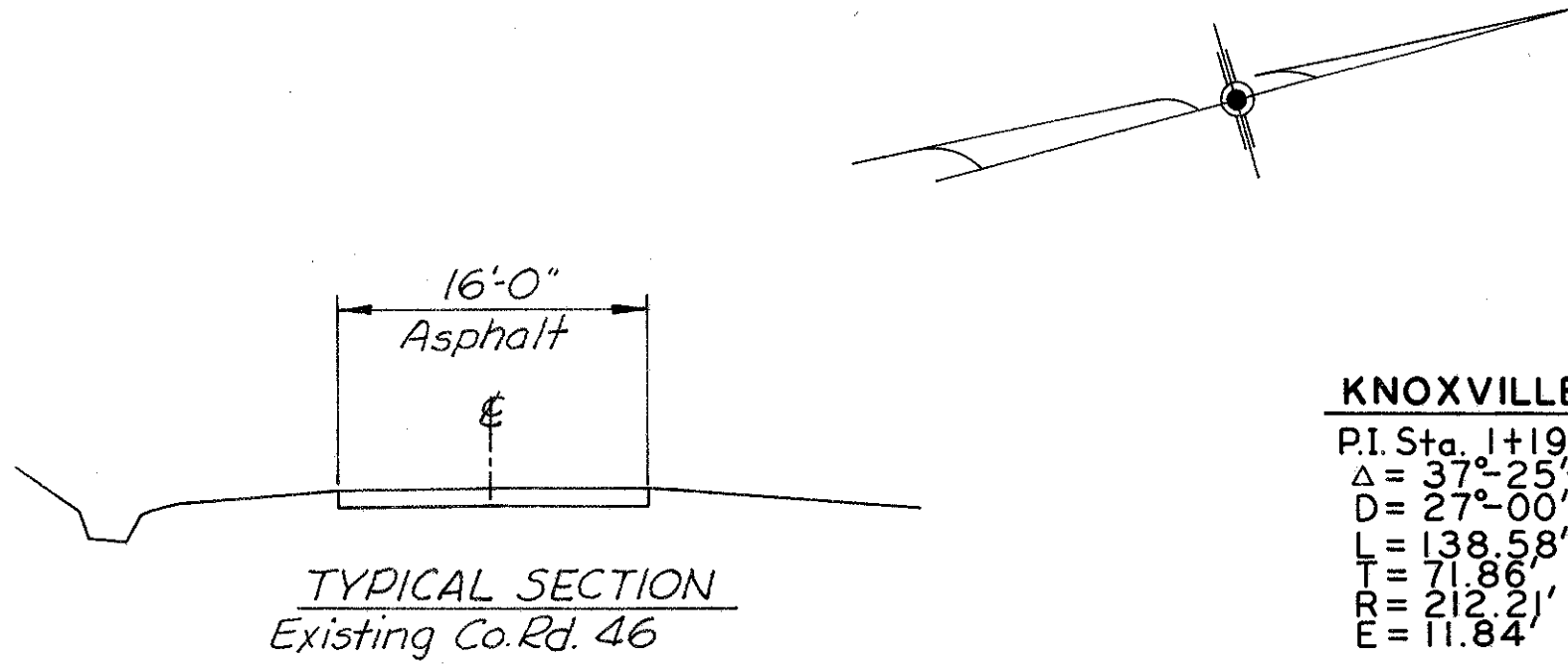
Excav. 4,608 Cu. Yd.  
Embank. 7,736 Cu. Yd.  
Seeding 7,991 Sq. Yd.

Seeding Width	S.Y.	End Area		Cu. Yd.	
		Cut	Fill	Exc.	Emb.
0		120	0		
0	0			33	0
0	61	0			
0				23	257
121	0	693			
650				0	750
104	0	590			
578				0	1161
102	0	664			
533				0	1191
90	0	622			
351				2	673
110	3	530			
253				1	316
137	1	397			
944				201	488
203	216	130			
531				436	81
179	726	44			
553				1037	28

RELOCATED NEBO DR. STA. 13+75 TO STA. 16+81.93



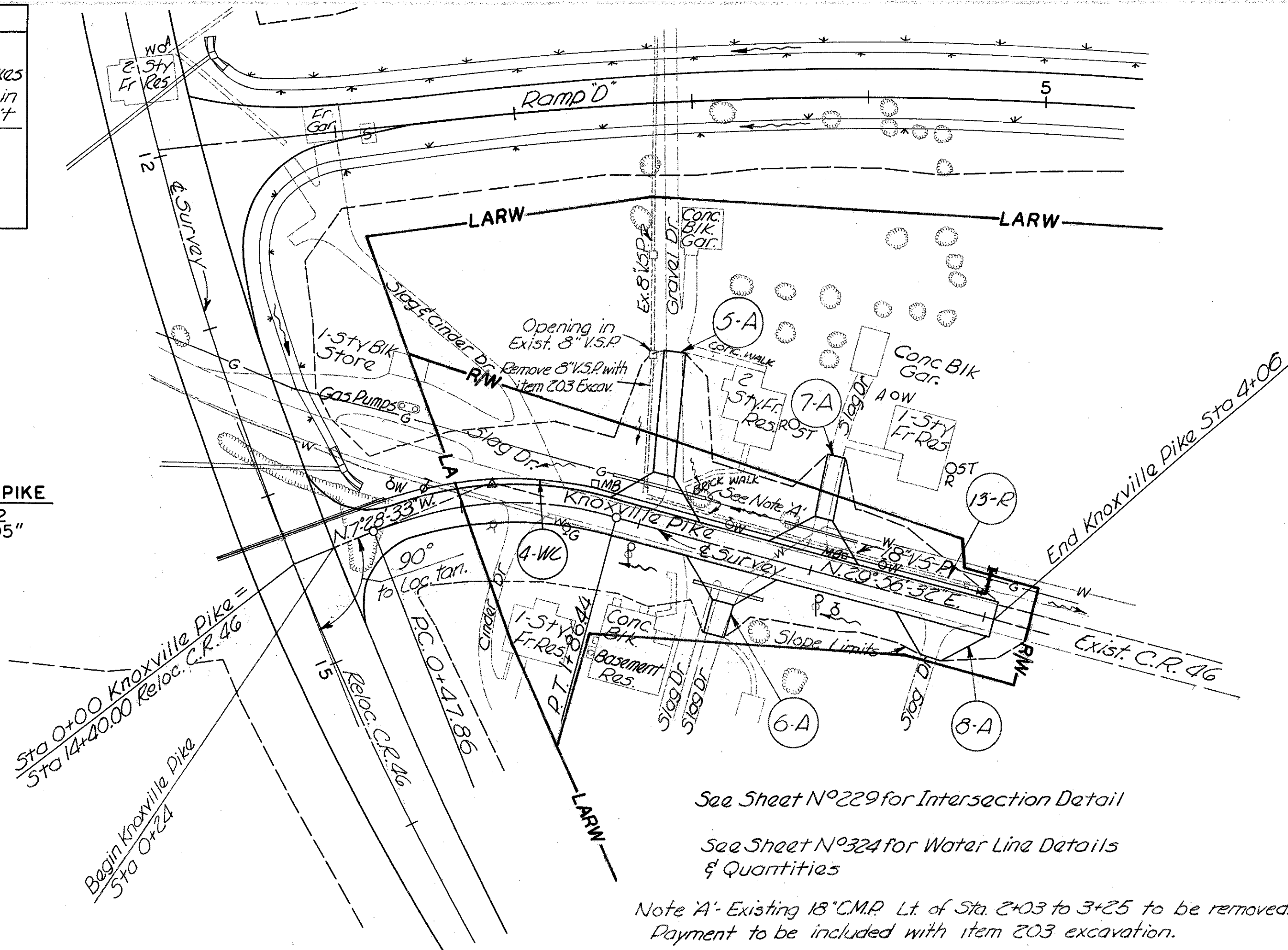
PC. 0+47.86	P.I. 1+19.72	P.T. 1+86.44
4" Elm Nails & Caps in References 4" Locust 4" Cherry	Sign Post Nail in Pav't. Nails & Caps in References 12" Tree Stub	Sign Post Nail in Pav't Nails & Caps in References Mailboxes Nail in Pav't



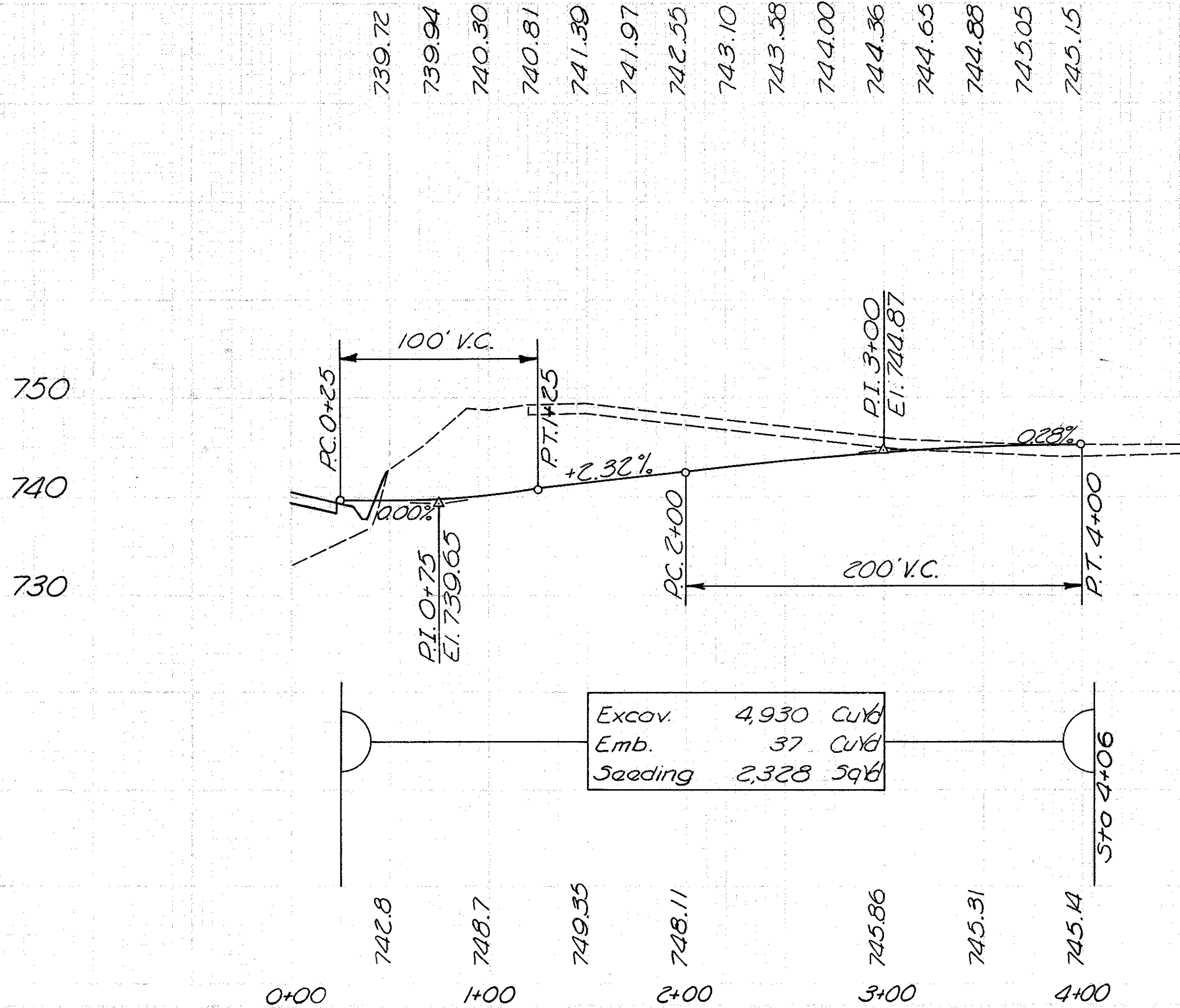
**KNOXVILLE PIKE**  
P.I. Sta. 1+19.72  
Δ = 37° 25' 05"  
D = 27° 00'  
L = 138.88'  
T = 71.88'  
R = 212.81'  
E = 11.84'

QUANTITIES TO PAVEMENT CALCULATIONS  
STA 0+24 TO STA 4+06

401 Asphalt Concrete	32.5 Cu Yd
402 Asphalt Concrete	32.5 Cu Yd
403 Bituminous Prime Coat	374 Gal
304 Aggregate Base	217.3 Cu Yd
310 Subbase	170.0 Cu Yd
203 Subgrade Preparation	1163.0 Sq Yd



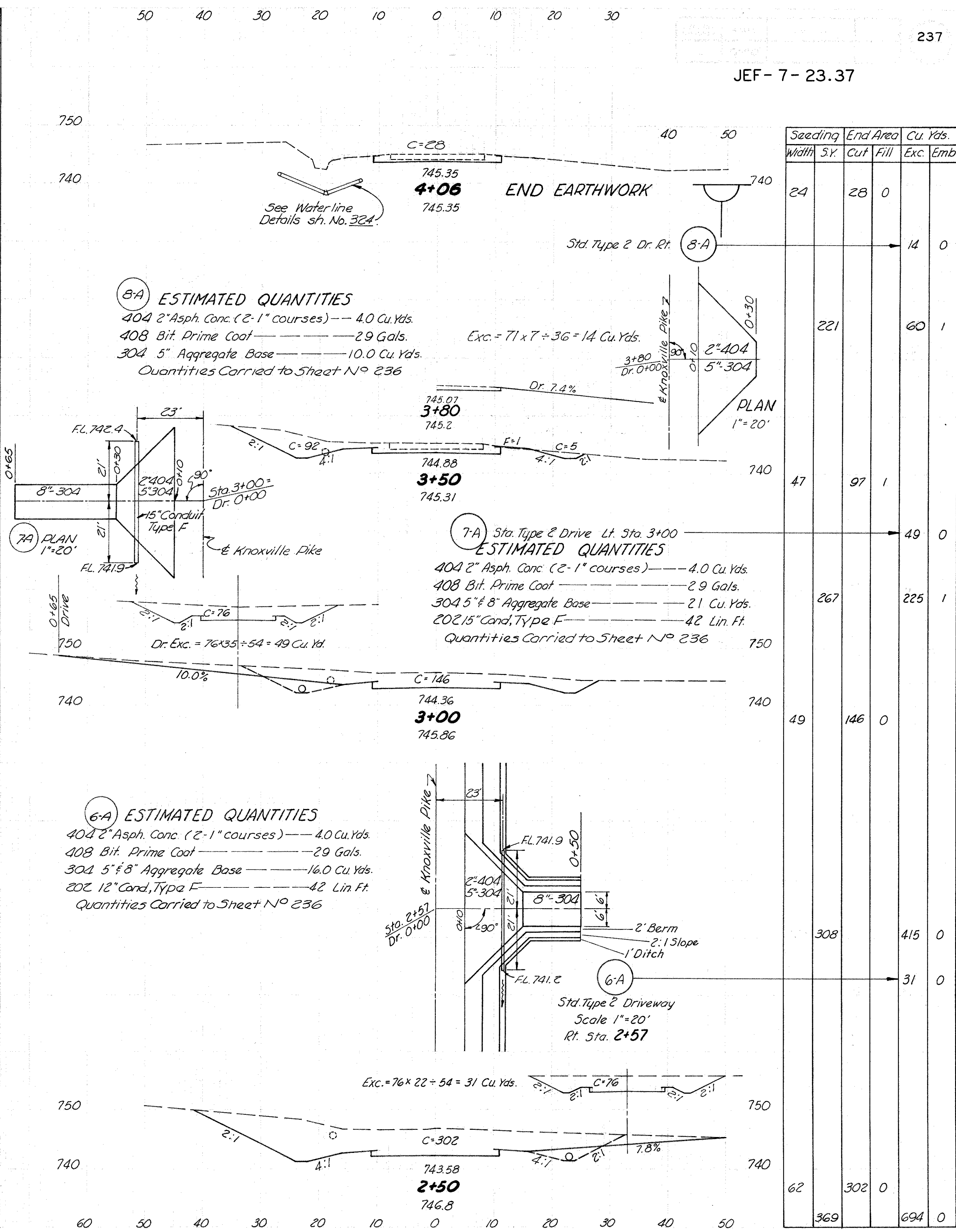
See Sheet No 229 for Intersection Detail  
See Sheet No 324 for Water Line Details  
& Quantities  
Note 'A' Existing 18" C.M.P. Lt. of Sta. 2+03 to 3+25 to be removed.  
Payment to be included with item 203 excavation.



202	304	401	408
Pipe Under	Aggr Base	Asphalt Conc.	Bitum. Prime Coat
L.F.	C.Y.	C.Y.	Gal.
60	31	40	29

13-R	3+25 to 3+85	Lt	60
5-A	2+07	Lt	
6-A	2+57	Rt	
7-A	3+00	Lt	
8-A	3+80	Rt	

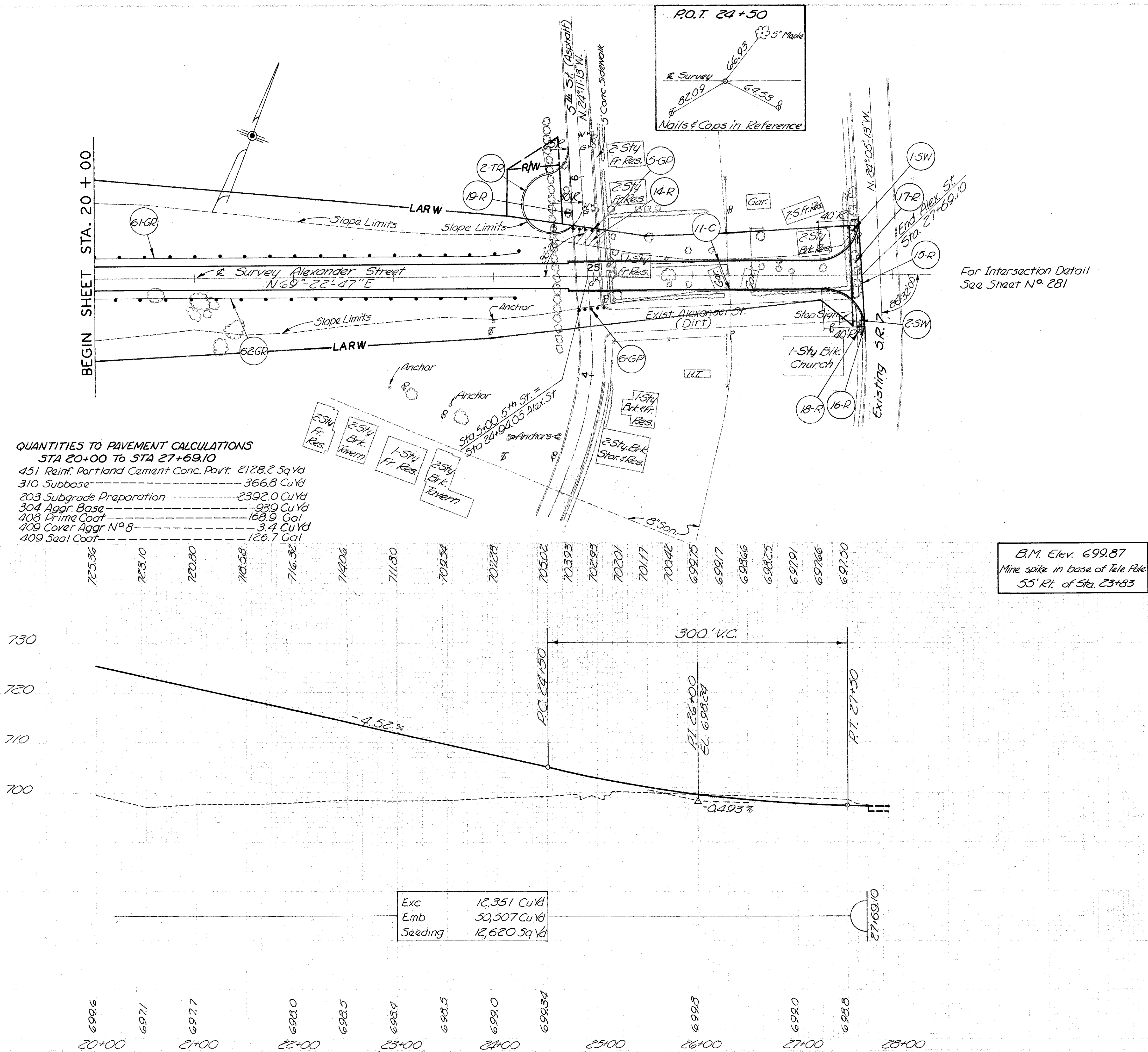
4-WL 11+93 Reloc. NEBO DR to Lt. 4+00 Reloc. KNOXVILLE PIKE See Sheet No 324 For Quantities & Details







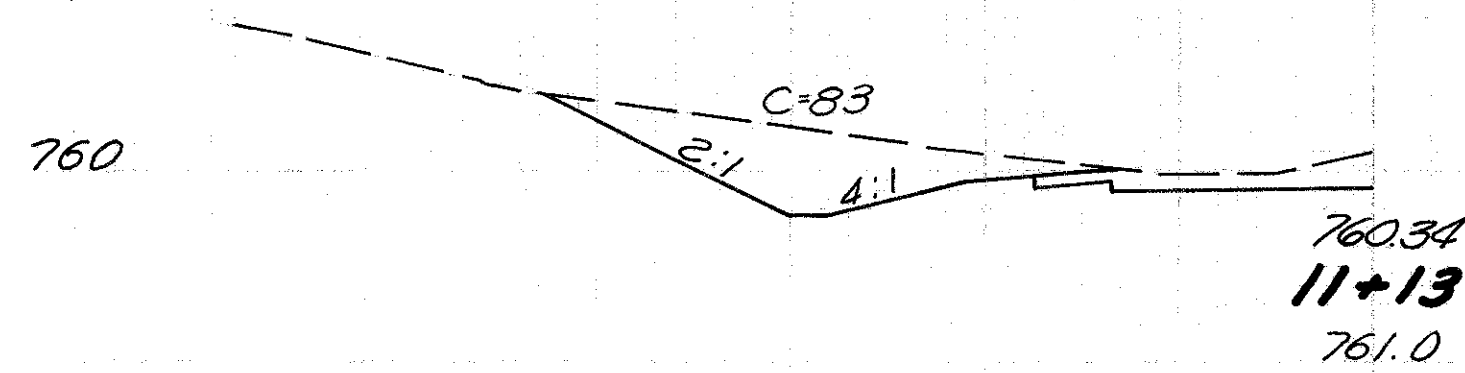
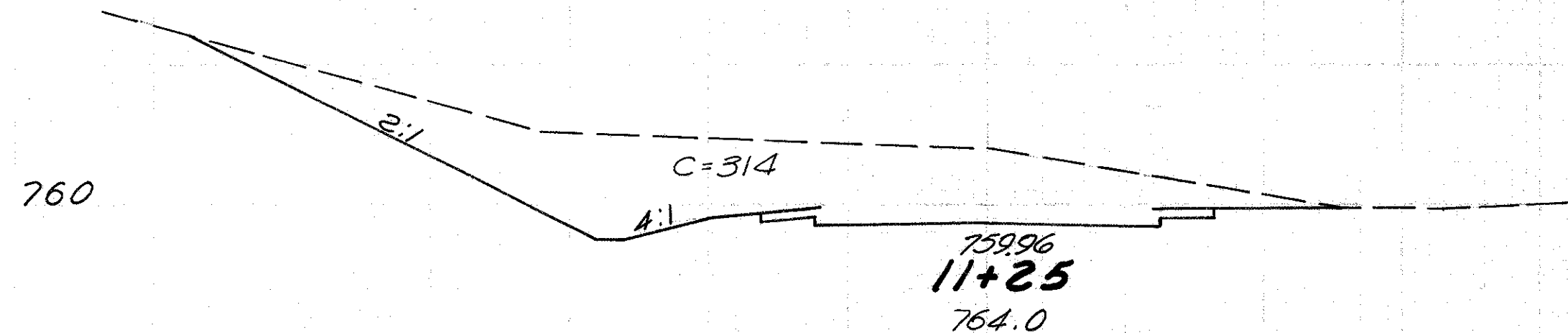
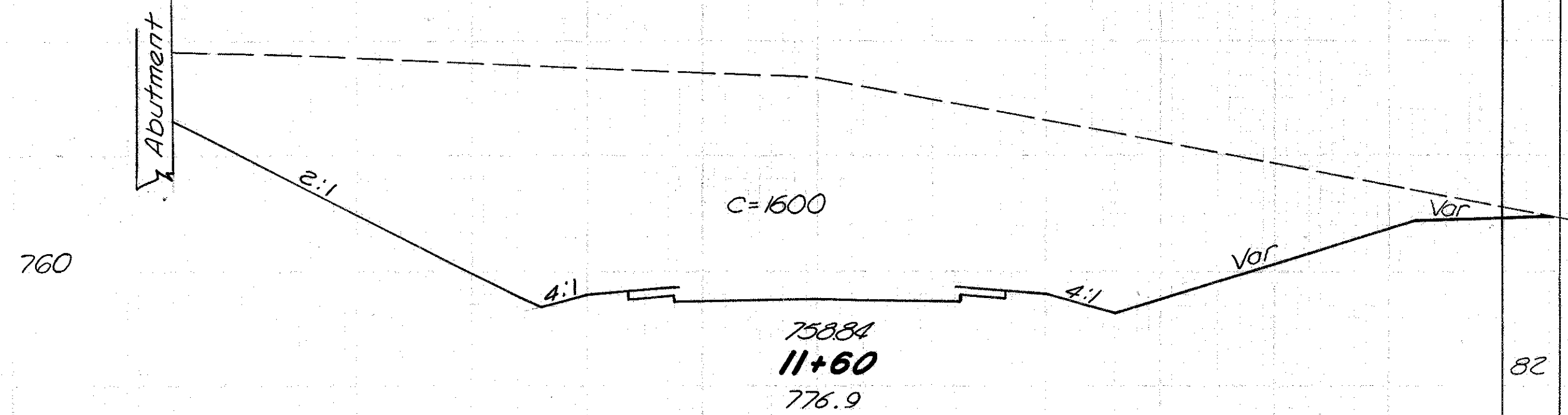
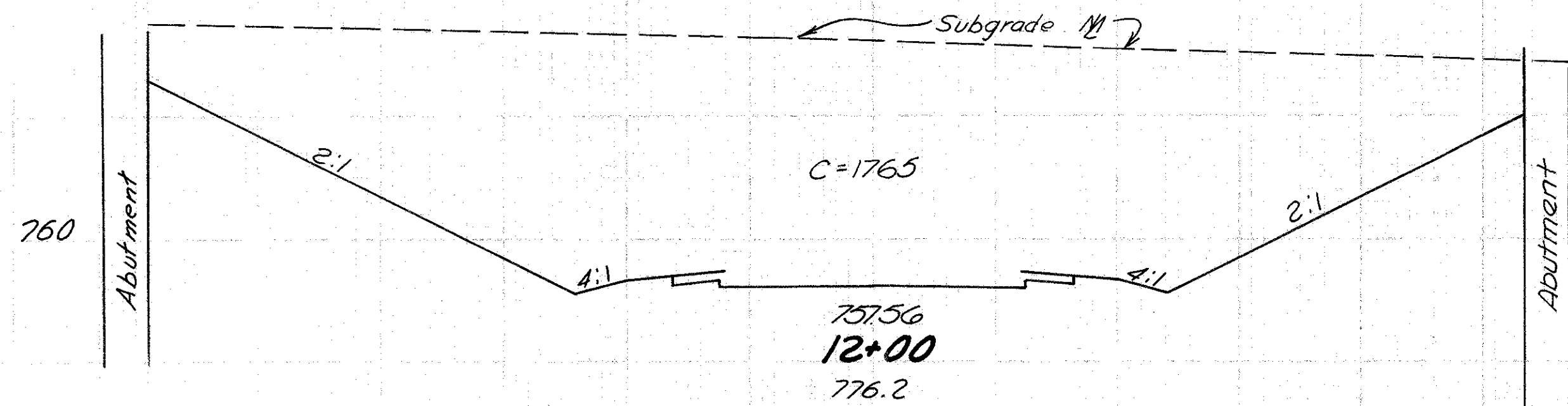
JEF-7-23.37

[illegible][illegible][illegible]



60 50 40 30 20 10 0 10 20 30 40 50

Seeding		End Area		Cu. Yd.	
Width	SY.	Cut	Fill	Exc.	Emb.



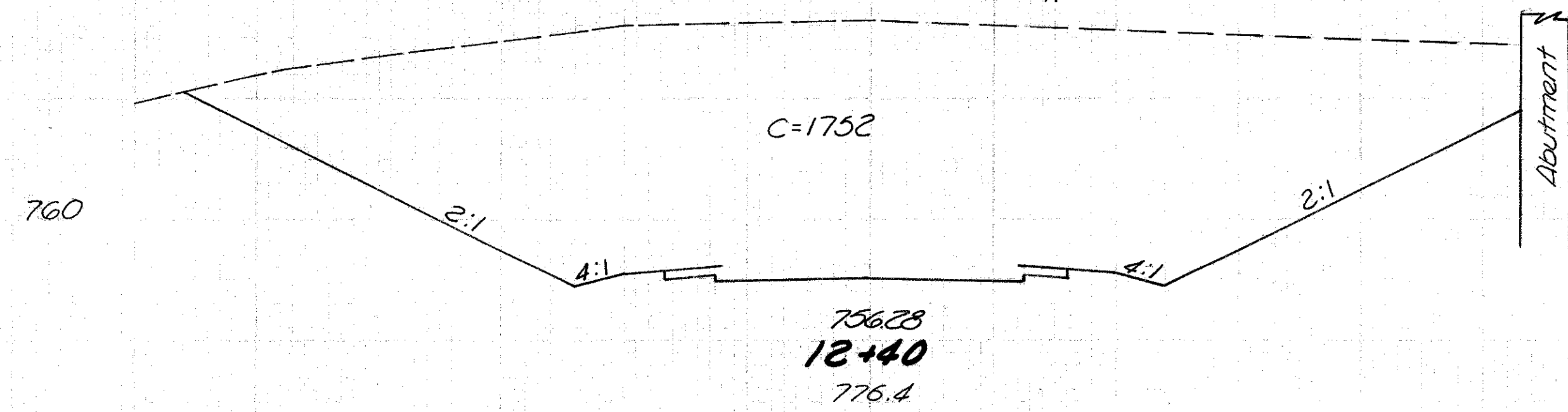
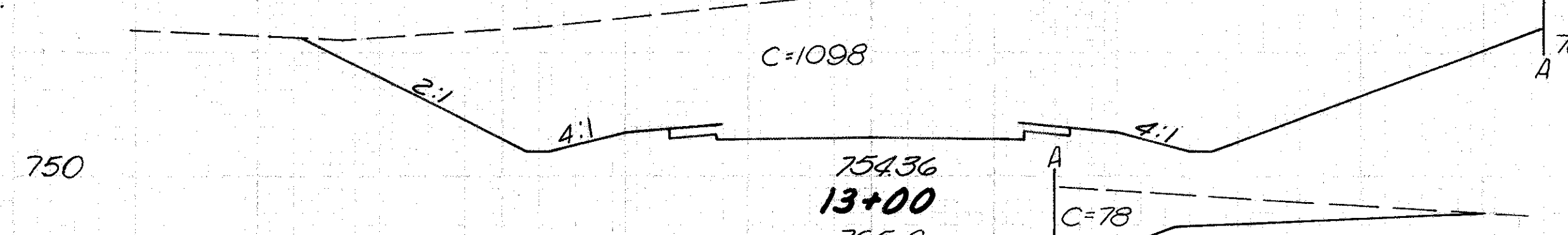
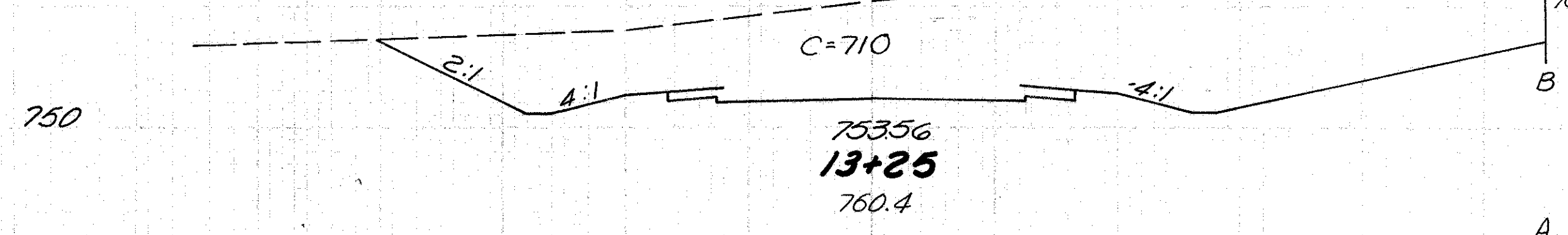
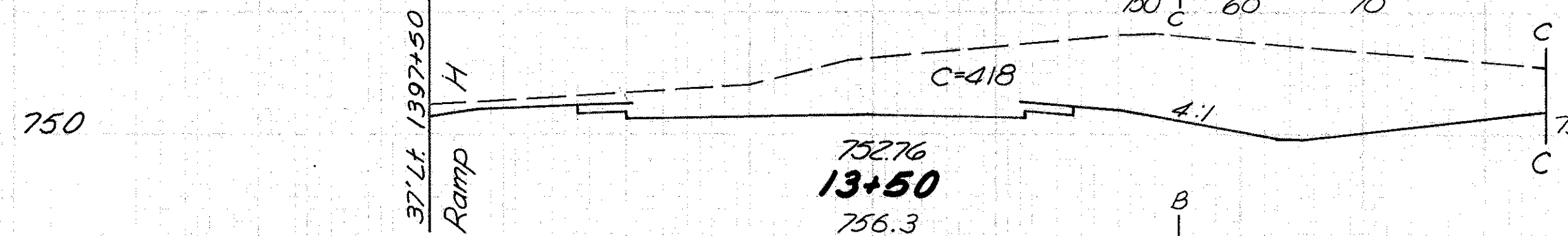
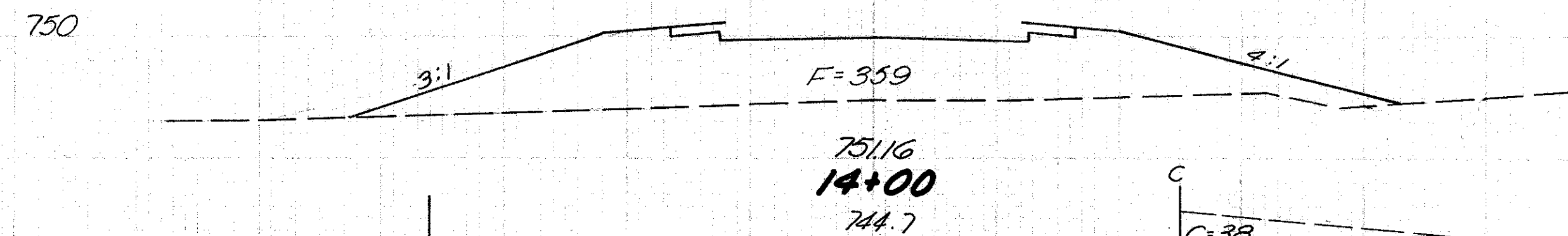
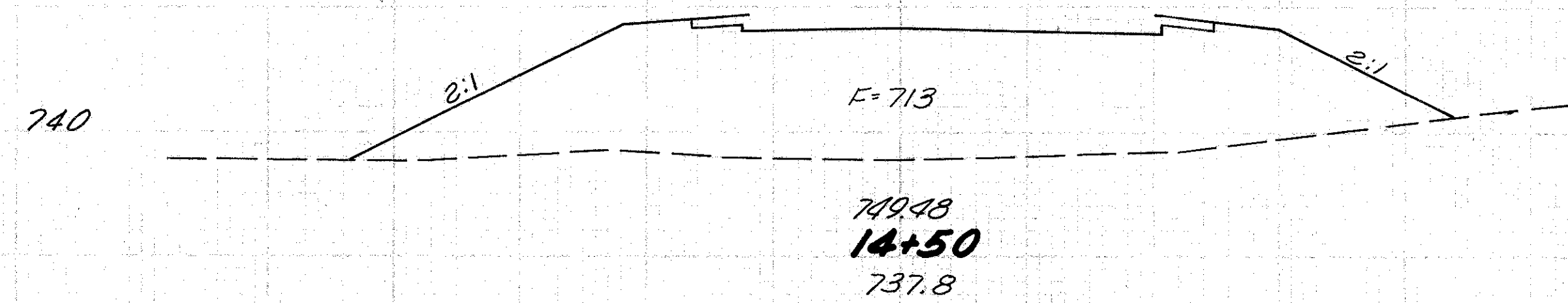
BEGIN EARTHWORK

50 40 30 20 10 0 10 20 30 40 50

88	1765	0			
378		2493	0		
82	1600	0			
264		1241	0		
34	314	0			
54		184	0		
27	83	0			

50 40 30 20 10 0 10 20 30

S.R.-7-23.37



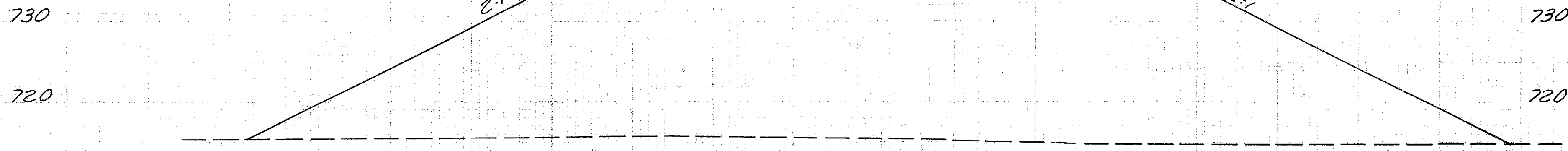
ALEXANDER STREET STA. 11+13 TO STA. 14+50

Seeding		End Area		Cu. Yd.	
Width	SY.	Cut	Fill	Exc.	Emb.

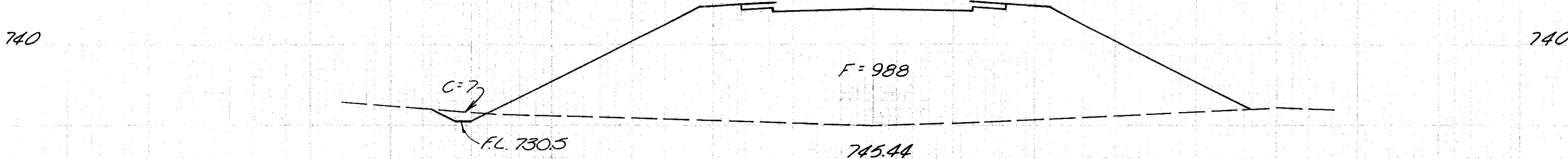
55	0	713			
306			0	993	
55	0	359			
356			422	332	
73	456	0			
235			563	0	
96	760	0			
286			896	0	
110	1176	0			
645			3253	0	
84	1752	0			
382			2605	0	

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120

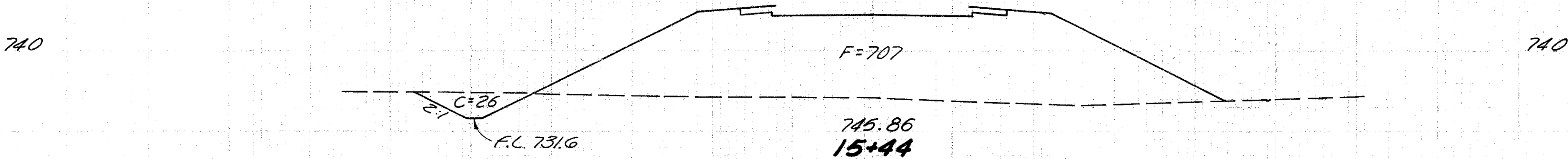
JEF-7-23.37



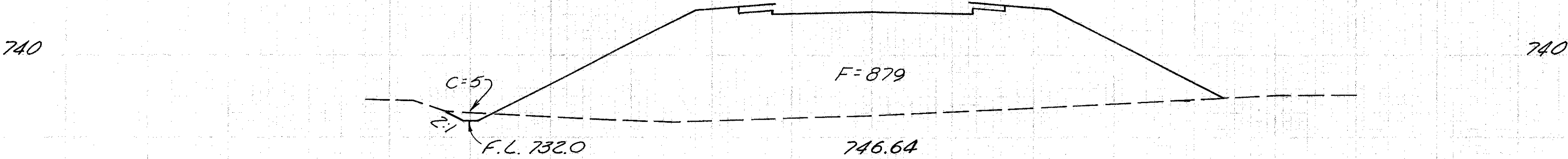
744.20  
**15+83**  
715.3



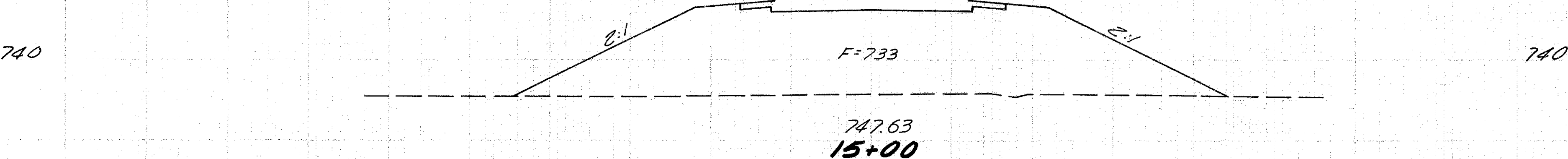
745.44  
**15+54**  
729.9



745.86  
**15+44**  
734.2



746.64  
**15+25**  
732.6



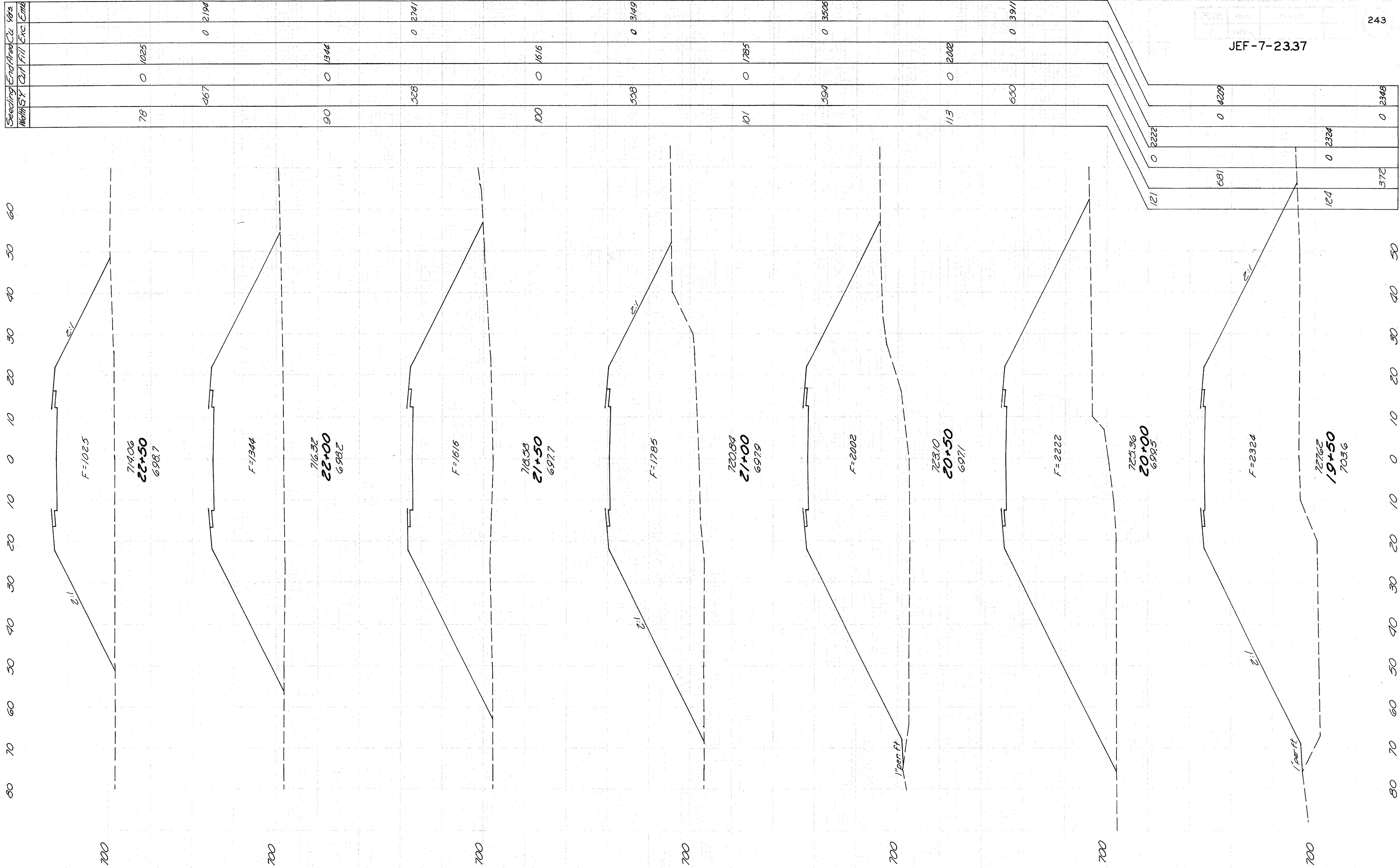
747.63  
**15+00**  
735.7

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

Seeding Width SY	End Area		Cu. Yd.	
	Cut	Fill	Exc.	Emb.
141	0	2808		
354			4	2039
79	7	988		
87			6	3/4
78	26	707		
160			11	558
74	5	879		
193			2	746
65	0	733		
333			0	1339





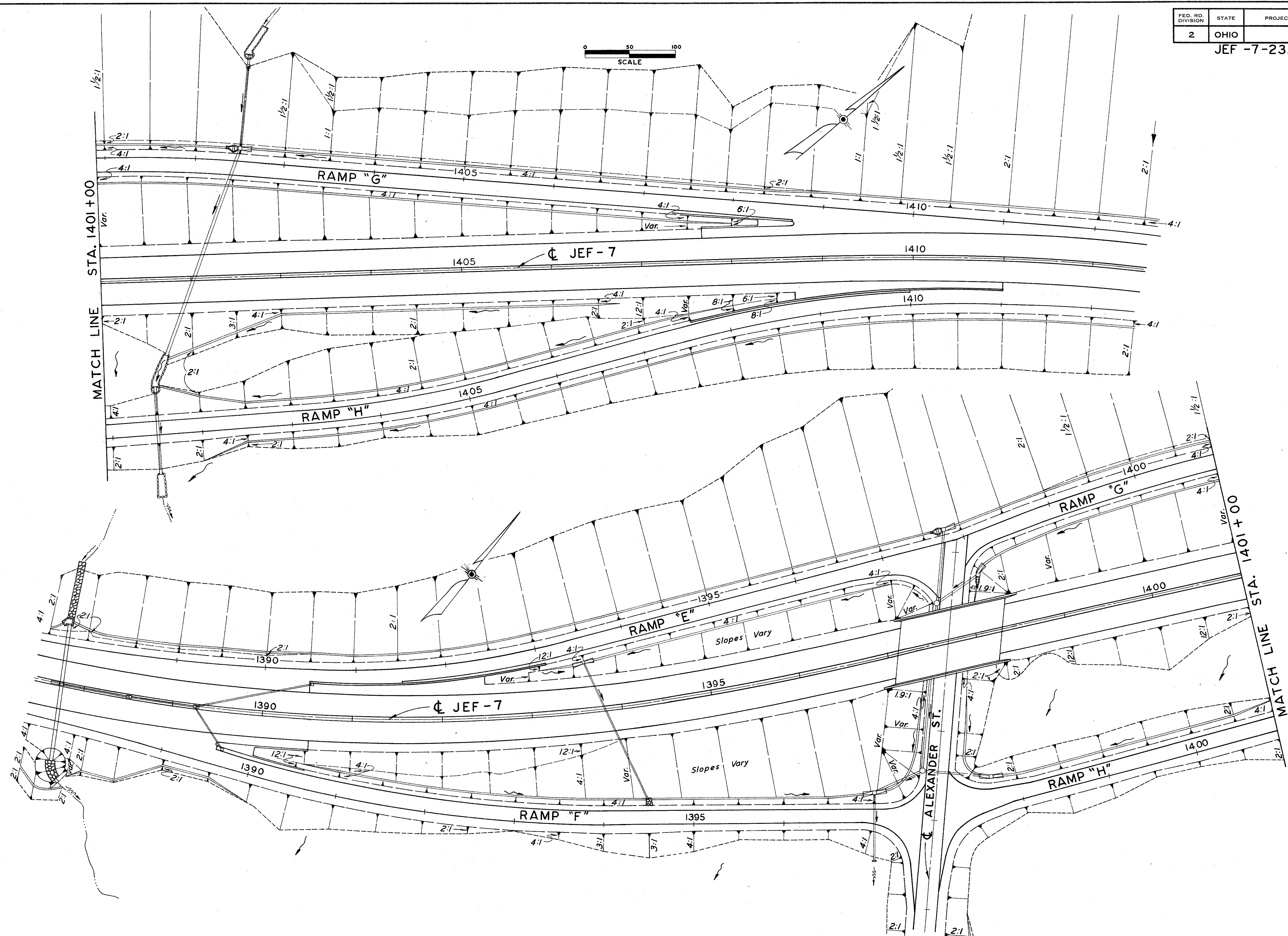


ALEXANDER ST. STA. 19+50 TO STA. 22+50

JEF-7-2337







INTERCHANGE AT ALEXANDER ST. - GRADING PLAN





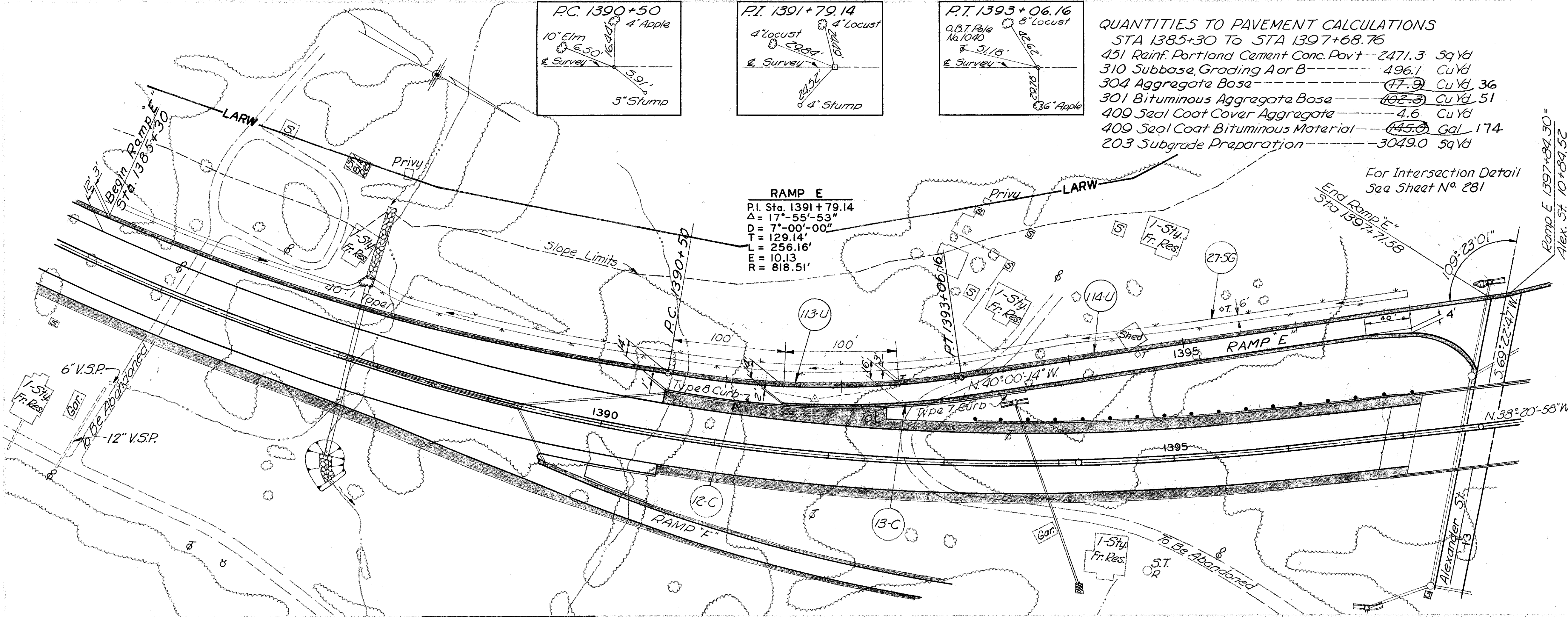
JEF-7-23.37

QUANTITIES TO PAVEMENT CALCULATIONS

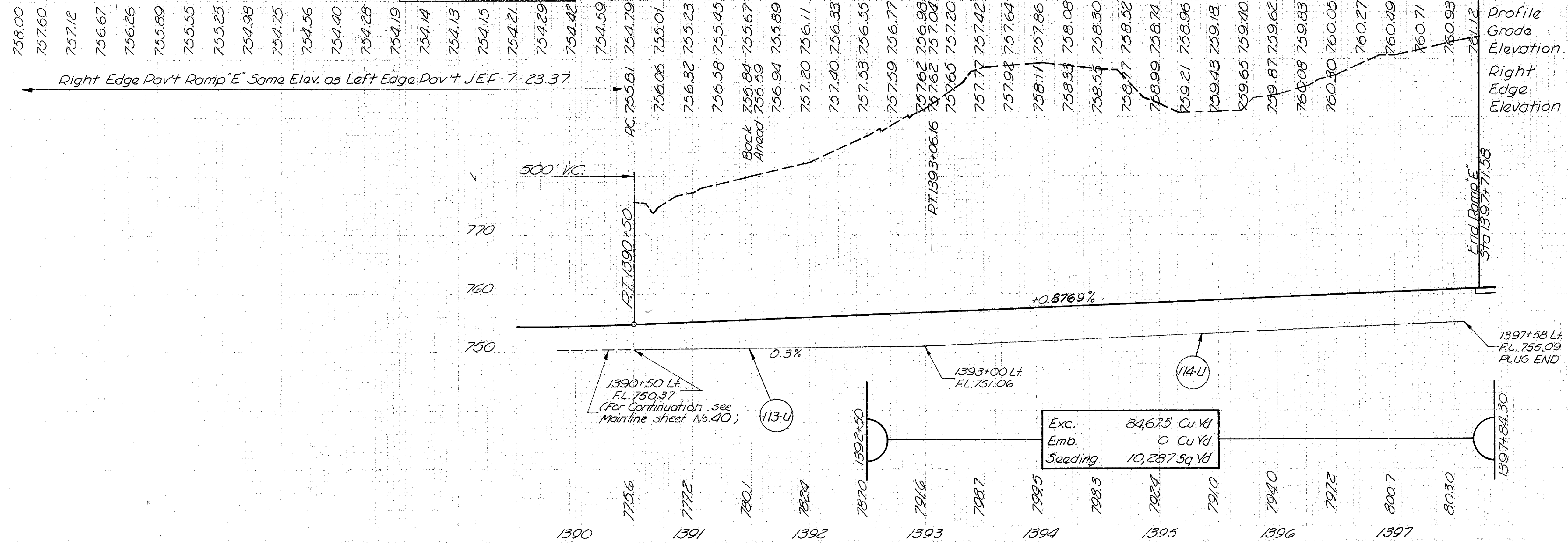
STA 1385+30 TO STA 1397+68.76

451 Reinf. Portland Cement Conc. Pav't	2471.3	Sq Yd
310 Subbase, Grading A or B	496.1	Cu Yd
304 Aggregate Base	17.9	Cu Yd
301 Bituminous Aggregate Base	162.3	Cu Yd
409 Seal Coat Cover Aggregate	4.6	Cu Yd
409 Seal Coat Bituminous Material	45.0	Gal
203 Subgrade Preparation	3049.0	Sq Yd

For Intersection Detail See Sheet No 281



B.M. ELEV. 703.51  
Mine Spike in Telephone pole  
553' ± Rt. Sta. 1391+13



ESTIMATED QUANTITIES

REF. NO	STATION TO STATION	SIDE	609	605	660	TOTALS
12C	1390+50 to 1392+38	Rt.	195			
13C	1392+38 to 1393+59	Rt.				
113-U	1390+50 to 1393+00	Lt.		250		
114-U	1393+00 to 1397+58	Lt.		458		
275G	1387+72 to 1397+00	Lt.			619	
TOTALS			195	458	619	



JEF-7-23.37

800

780

800

780

800

780

140

120

100

80

60

40

20

0

20

40

60

80

140

120

100

80

60

40

20

0

20

40

60

80

2:1  
F.L. 755.3  
4:1  
756.0

C=4152

757.42  
1393+50  
798.7

F.L. 754.7

C=3333

756.98  
1393+00  
791.4

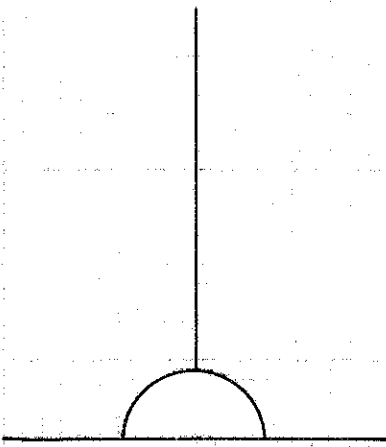
F.L. 754.2

C=2755

756.55  
1392+50  
787.0

M.L.

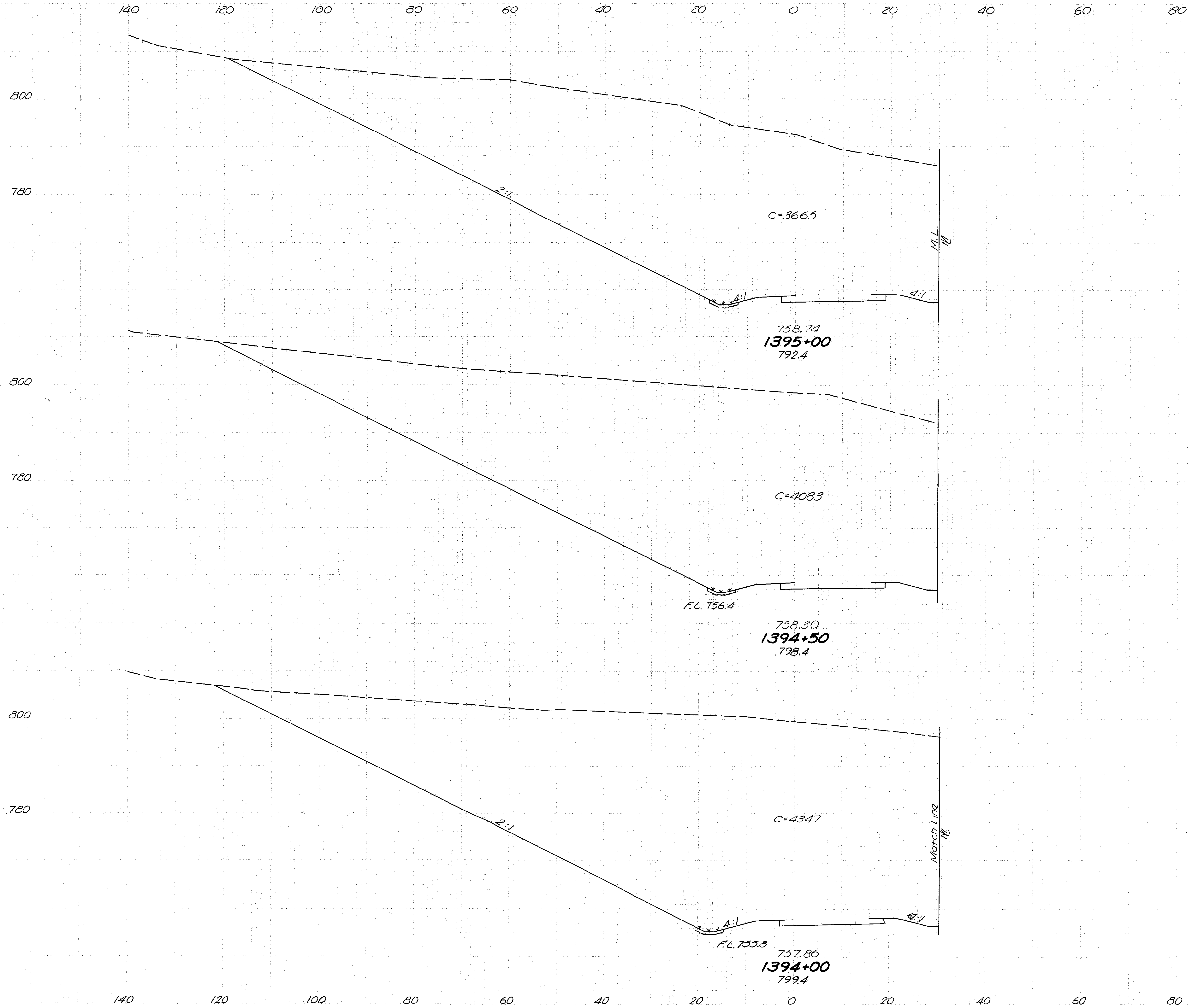
Match Line



Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
132		4152	0		
797				6931	0
135		3333	0		
733				5637	0
129		2755	0		

RAMP "F" STA 1392+50 TO STA 1393+50

JEF-7-23.37



Seeding Width	S. Y.	End Area		Cu. Yd.	
		Cut	Fill	Exc.	Emb.
154		3663	0		
864				7174	0
157		4083	0		
875				7806	0
158		4347	0		
861				7860	0

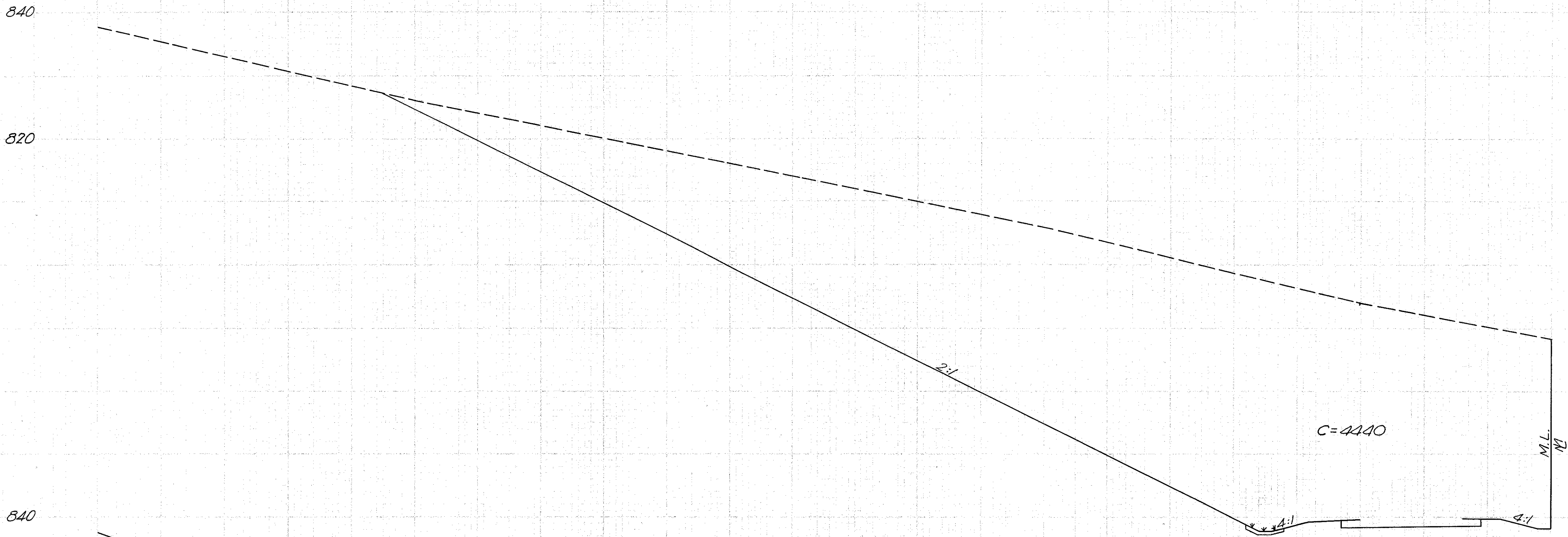
RAMP "F" STA 1394+00 TO STA 1395+00



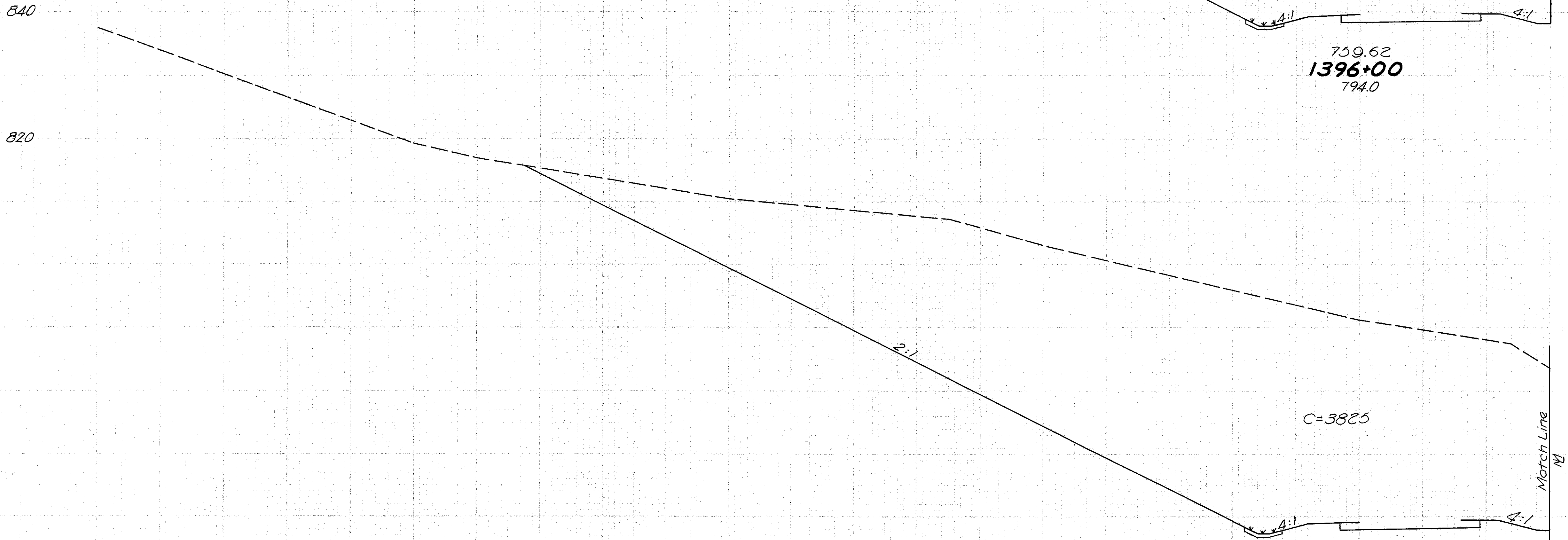
JEF-7-23.37

60

Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
		192	4440	0	
		997		7653	0
		167	3825	0	
		892		6935	0



759.62  
1396+00  
794.0



759.18  
1395+50  
791.1

RAMP "F" STA. 1395+50 TO STA. 1396+00

JEF-7-23.37

60

Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
224		5167	0		
1181				9234	0
201		4806	0		
1092				8561	0

840

820

840

820

200

180

160

140

120

100

80

60

40

20

0

20

40

200

180

160

140

120

100

80

60

40

20

0

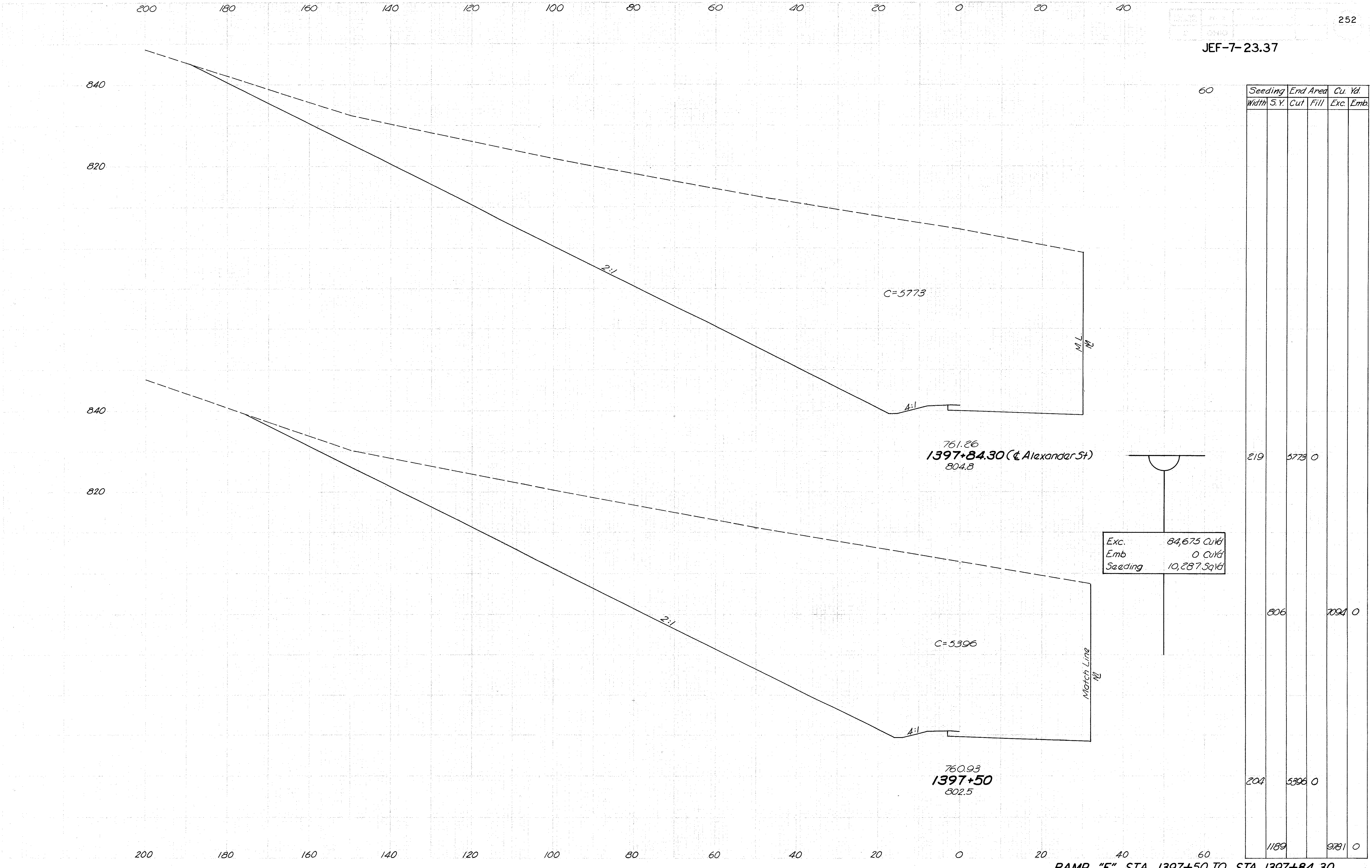
20

40

60

RAMP "E" STA. 1396+50 TO STA. 1397+00

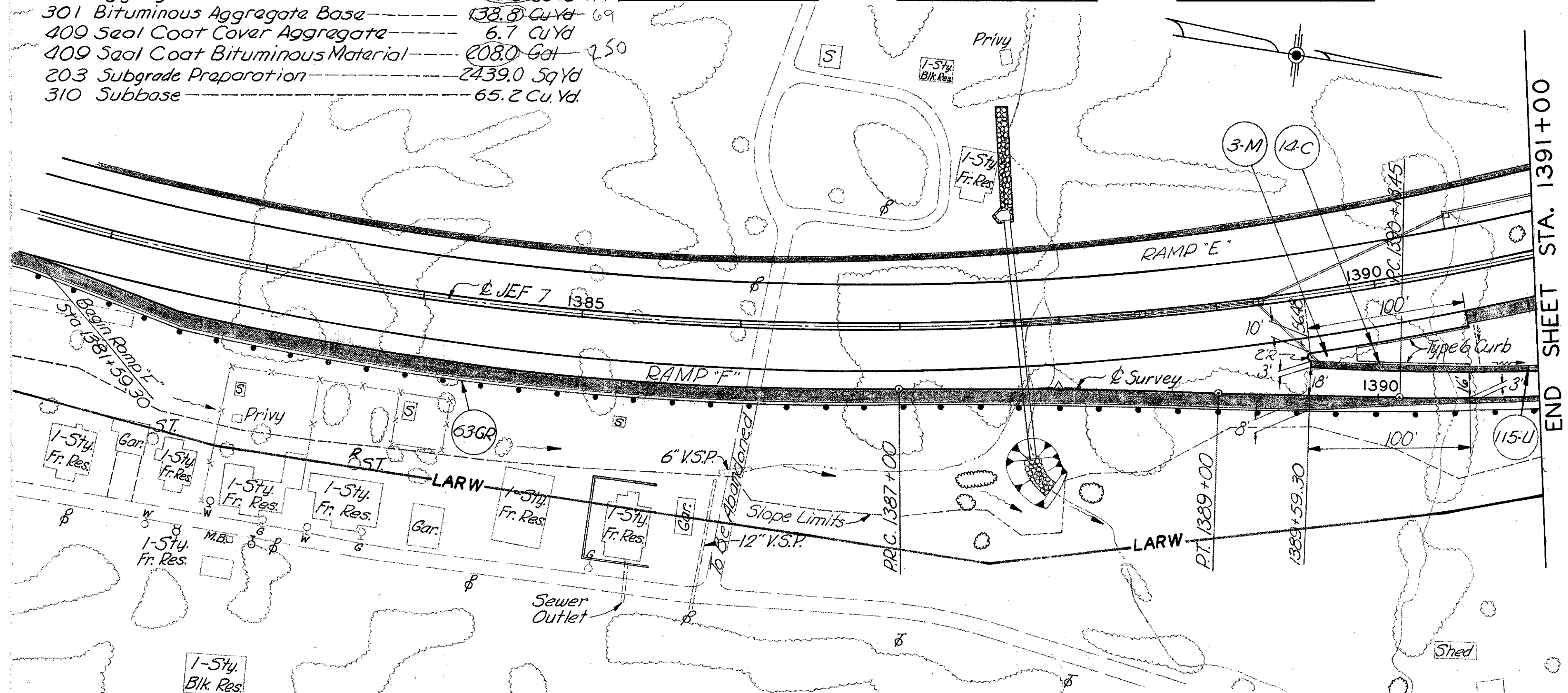
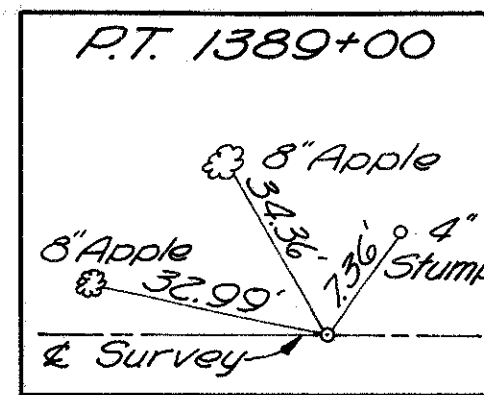
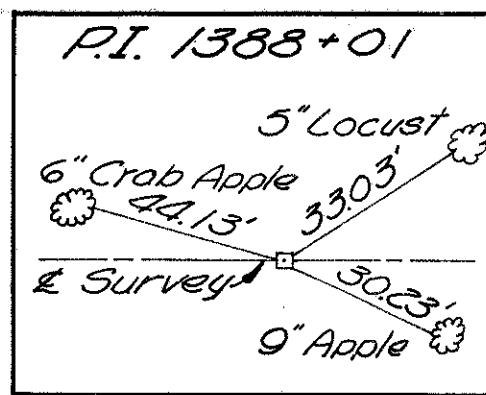
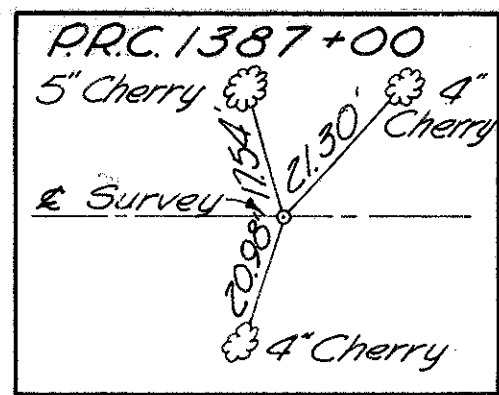




JEF-7-23.37

QUANTITIES TO PAVEMENT CALCULATIONS  
STA 1381+59.30 TO STA 1391+00

451 Reinf Portland Cement Conc. Pavt	--1605.7 Sq Yd
310 Subbase, Grading A or B	317.0 Cu Yd
304 Aggregate Base	58.3 Cu Yd 117
301 Bituminous Aggregate Base	138.8 Cu Yd 69
409 Seal Coat Cover Aggregate	6.7 Cu Yd
409 Seal Coat Bituminous Material	208.0 Gal 250
203 Subgrade Preparation	2439.0 Sq Yd
310 Subbase	65.2 Cu Yd

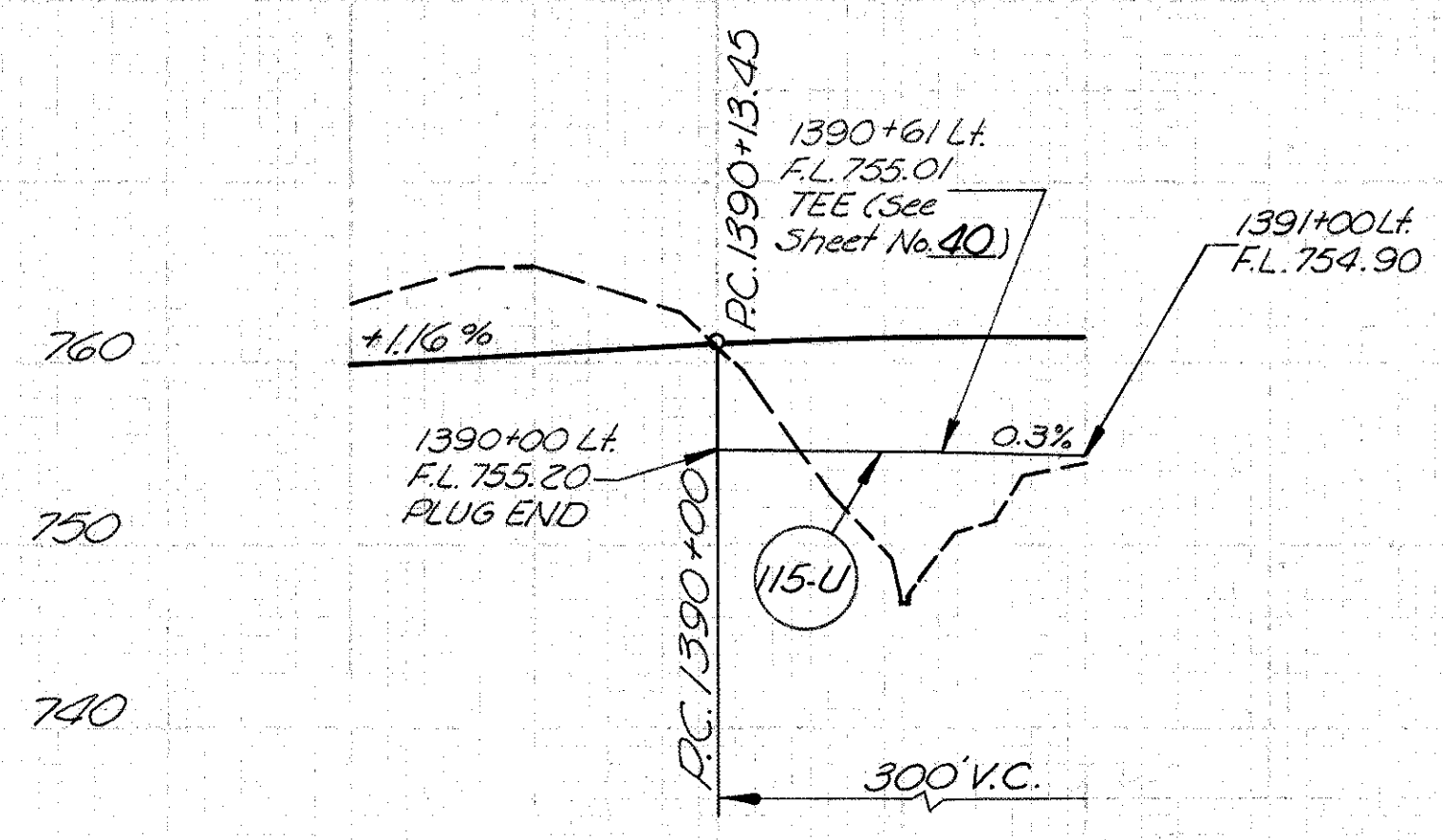


RAMP F  
P.I. Sta. 1388+01  
 $\Delta = 2^{\circ}-00'-00''$   
 $D = 1^{\circ}-00'-00''$   
 $T = 100.01'$   
 $E = 200.01'$   
 $E = 0.87$   
 $R = 5729.58'$

Left Edge Pav't Ramp 'F' Same Elev. as Right Edge Pav't JEF-7-23.37

Left Edge Pav't Rmp'F Same Elev. as Right Edge Pav't JEF. 7- 23.37																																								
773.31	772.59	771.83	771.03	770.19	769.31	768.45	767.63	766.85	766.11	765.41	764.75	764.13	763.55	763.01	762.52	762.06	761.64	761.26	760.92	760.62	760.36	760.14	759.96	759.84	759.78	759.75	759.76	759.79	759.89	760.04	760.28	760.57	760.87	761.01	761.11	761.28	761.38	761.71	761.39	760.72
																									Left Edge Elev.															
																									Profile Grade Elev.															

B.M. ELEV. 703.14  
Mine Spike in Telephone pole  
321' ± Rt. Sta. 1390+86



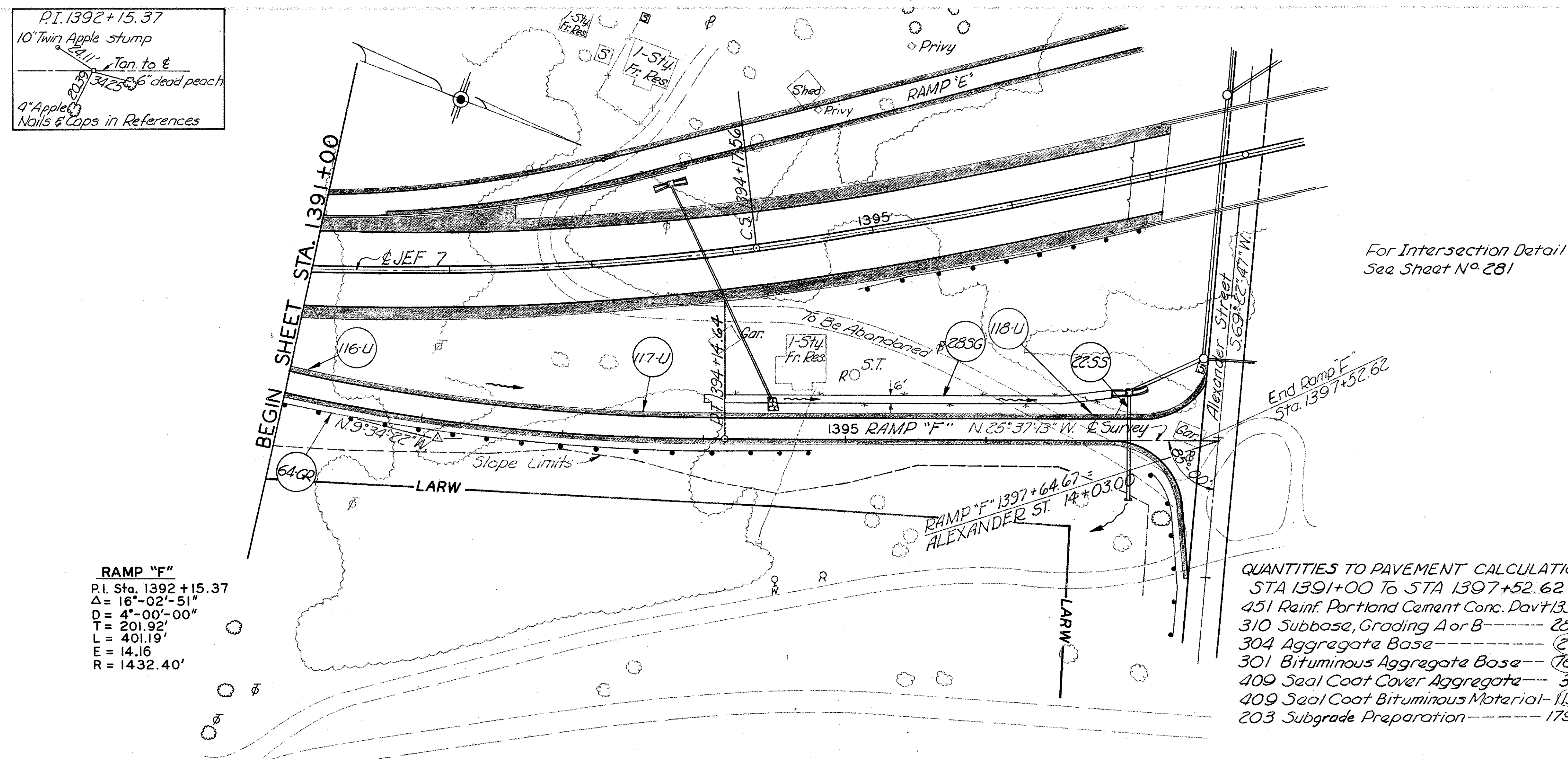
606	Guard Rail Type 4	L.F.	145
609	Curb Median Type 6	L.F.	145
612	Concr. Median Pipe Underdrain	L.F.	145
605	6" Uncl. Underdrain Tee	L.F.	145
605	Branch Tee	L.F.	145

14-C	1389+86 to 1390+59.3	Lt.	
3-M	1389+57.30 to 1389+88.30	Lt.	
115-U	1390+00 to 1391+00	Lt.	
606	1389+86 to 1390+59.30 to 1391+00	Rt.	970.48

RAMP 'F' STA. STA. 1381+59.30 TO STA. 1391+00



JEF-7-23.37



RAMP "F"  
P.I. Sta. 1392 + 15.37  
 $\Delta = 16^{\circ}-02'-51''$   
 $D = 4^{\circ}-00'-00''$   
 $T = 201.92'$   
 $L = 401.19'$   
 $E = 14.16$   
 $R = 1432.40'$

QUANTITIES TO PAVEMENT CALCULATIONS

STA 1391+00 To STA 1397+52.62

451 Reinf. Portland Cement Conc. Pavt 1335.9 SqYd

310 Subbase, Grading A or B----- 2896 CuYd

304 Aggregate Base----- (21.9) CuYd 44

301 Bituminous Aggregate Base----- (76.6) CuYd 38

409 Seal Coat Cover Aggregate----- 3.7 CuYd

409 Seal Coat Bituminous Material----- (15.0) Gal 138

203 Subgrade Preparation----- 1796 CuYd

Station	Left Edge Elevation	Profile Grade Elevation	Right Edge Elevation
1391	761.39	761.39	760.72
1392	761.33	761.33	760.66
1393	761.19	761.19	760.52
1394	760.97	760.97	760.30
1395	760.66	760.66	759.99
1396	760.29	760.29	759.62
1397	759.83	759.83	759.16
1398	759.29	759.29	758.62
1399	758.68	758.68	758.01
1400	758.03	758.03	757.36
1401	757.37	757.37	756.70
1402	756.72	756.72	756.10
1403	756.07	756.07	755.58
1404	755.68	755.68	755.34
1405	755.21	755.21	755.17
1406	754.76	754.76	754.72
1407	754.11	754.11	754.21
1408	753.45	753.45	753.67
1409	752.84	752.84	753.09
1410	752.31	752.31	752.56
1411	751.86	751.86	752.11
1412	751.49	751.49	751.74
1413	751.21	751.21	751.46
1414	751.00	751.00	751.25
1415	750.88	750.88	751.13
1416	750.84	750.84	751.09
1417	750.84	750.84	751.09
1418	750.84	750.84	751.09

Exc 2012 CuYd  
Emb 2618 CuYd  
Seeding 3602 SqYd

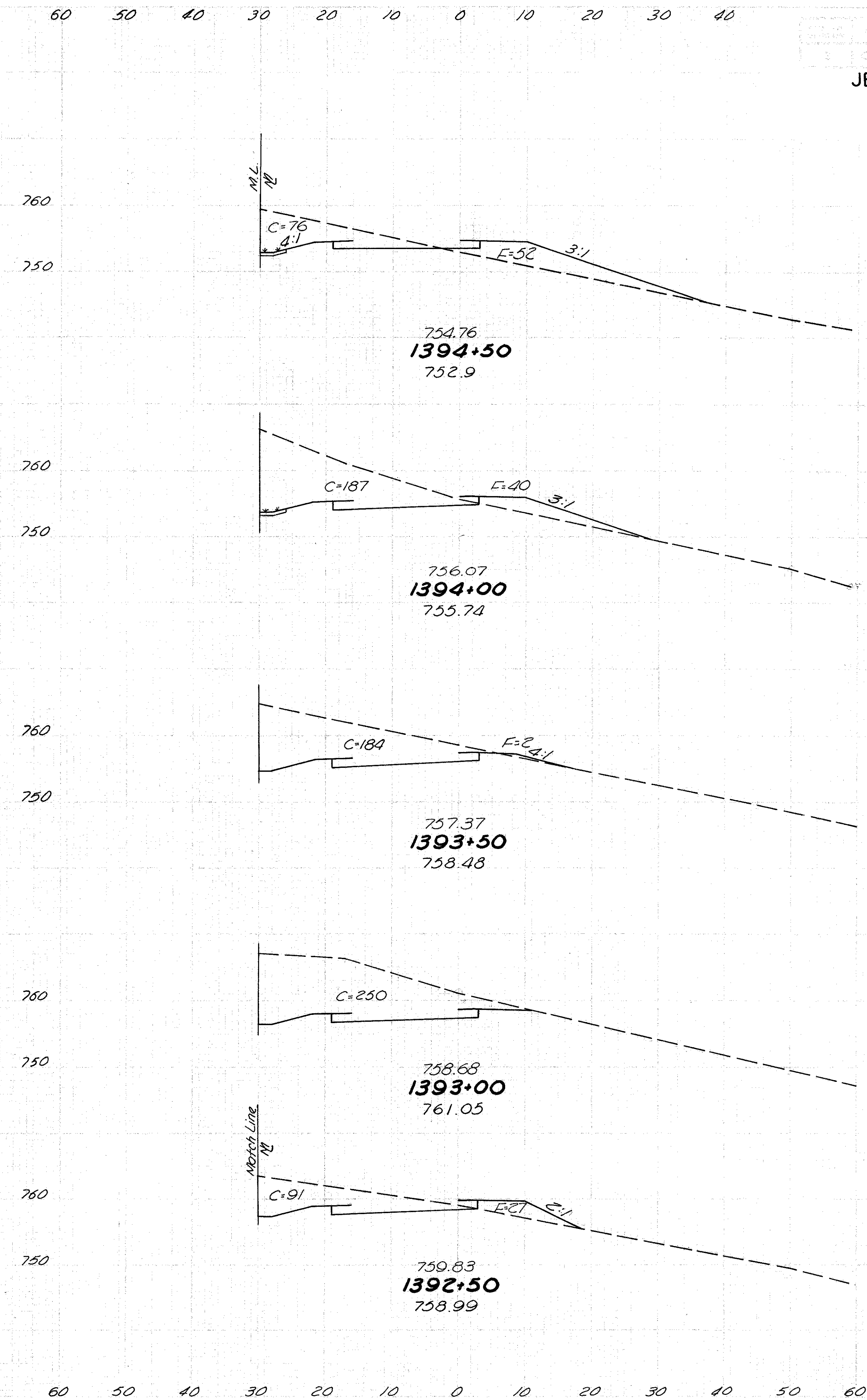
B.M. ELEV. 703.51  
Mine Spike in Telephone pole  
399' ± Rt. Sta. 1392+00

[illegible]

Guard Rail Type 4	6"	6"	6"	601	602	Concrete X Masonry
	Deep Pipe	Unclass Pipe	Paved Gutter Mod.	Each	Each	
	Underdr.	Underdr.	Type 1/2	No 2-3		

RAMP "F" STA. 1391+00 TO STA. 1397+64.67

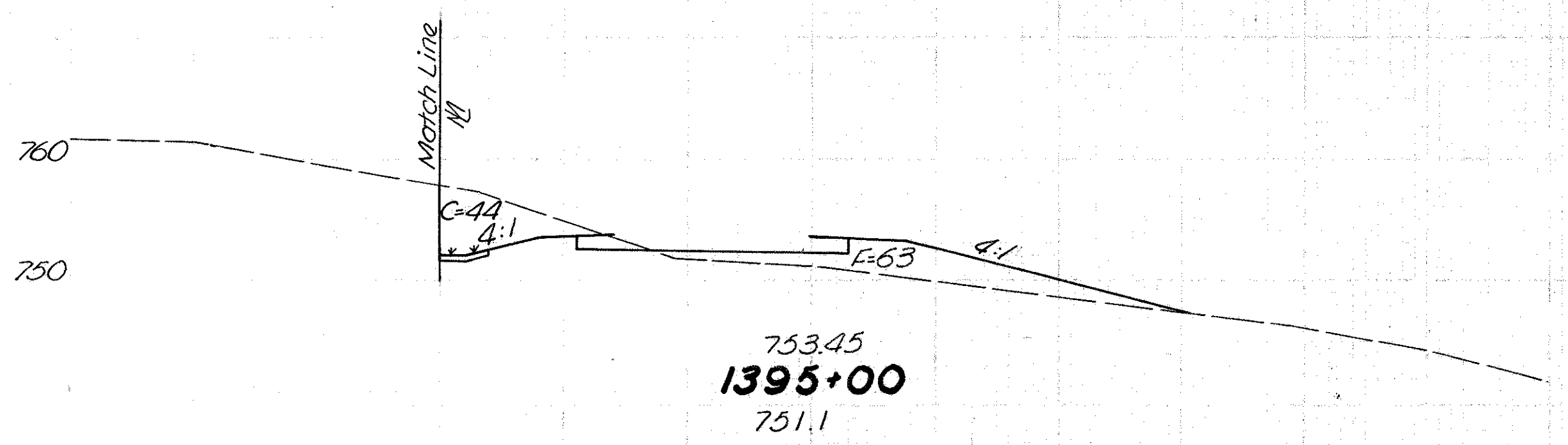
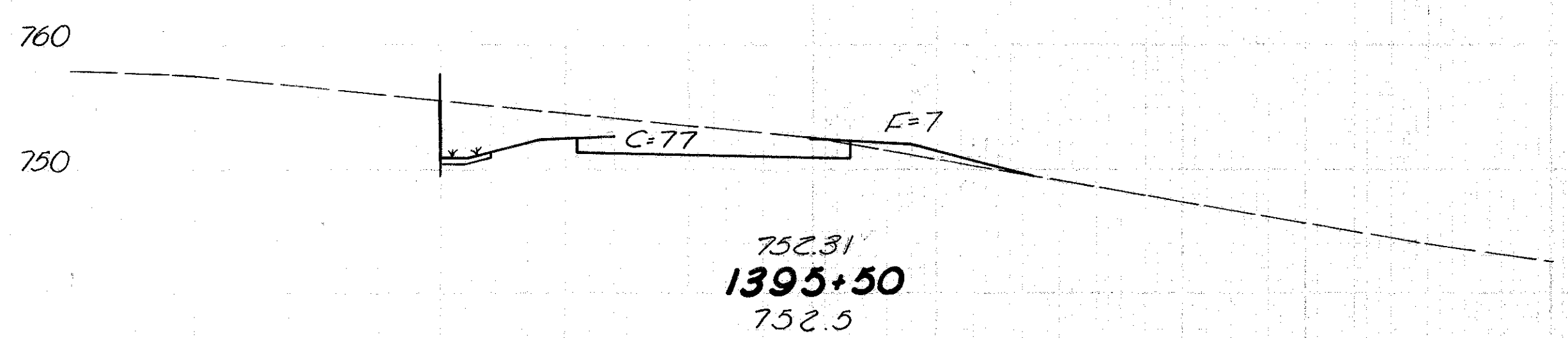
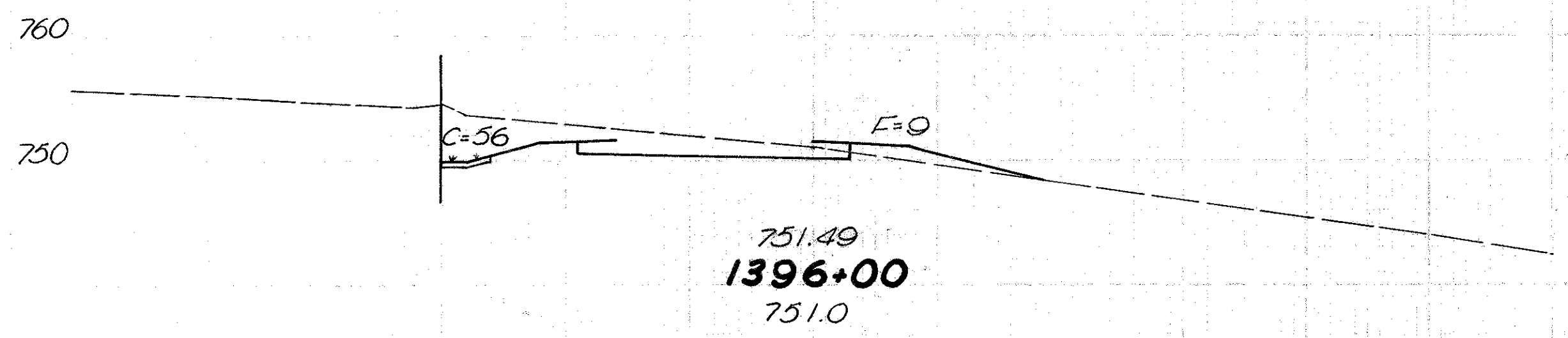
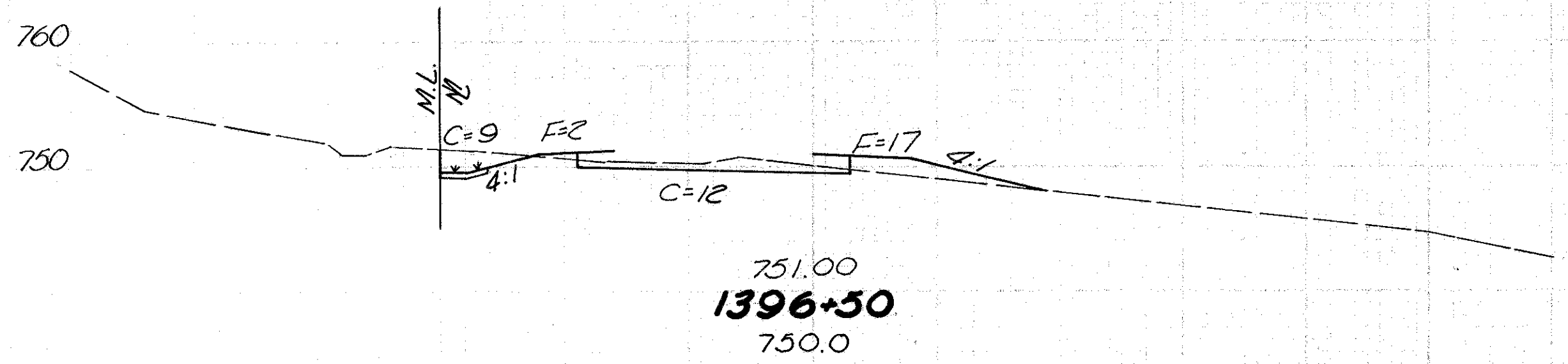
**RAMP "F" STA. 1390+50 TO STA. 1394+50**



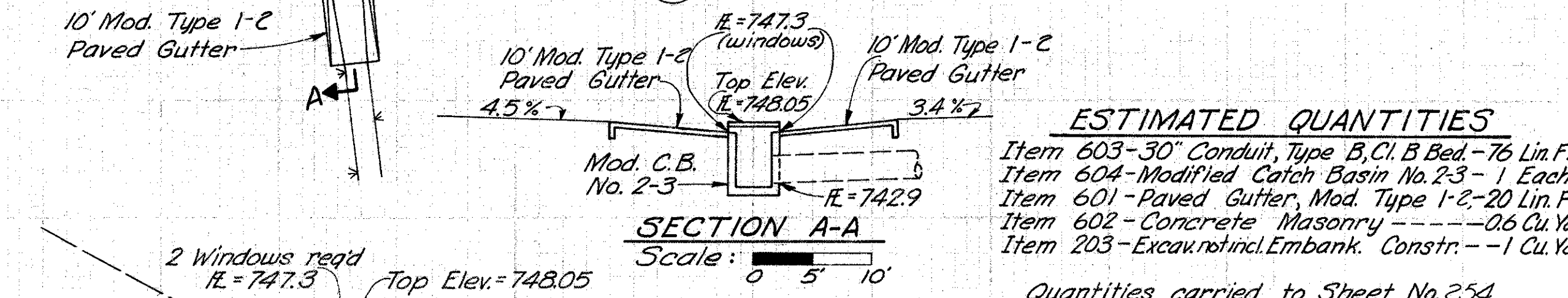
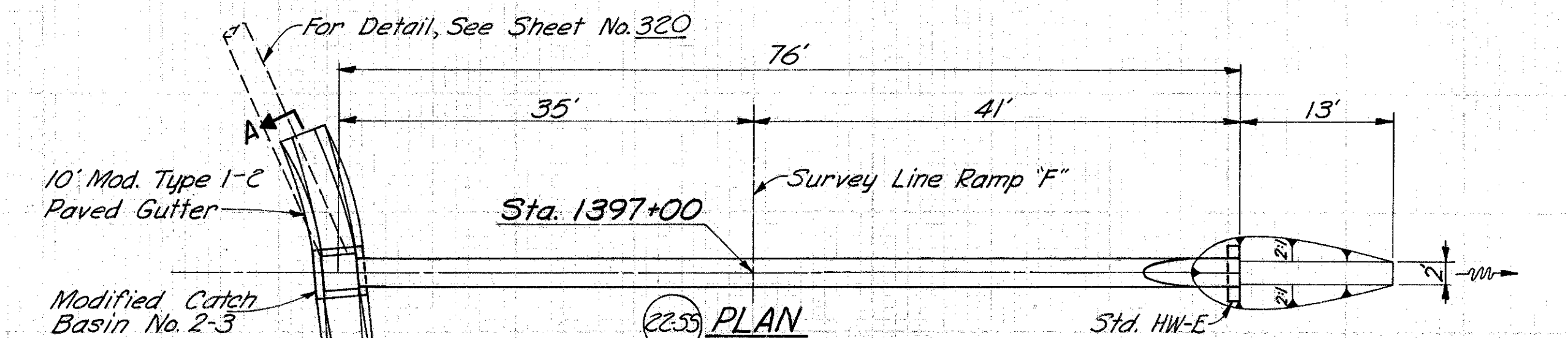
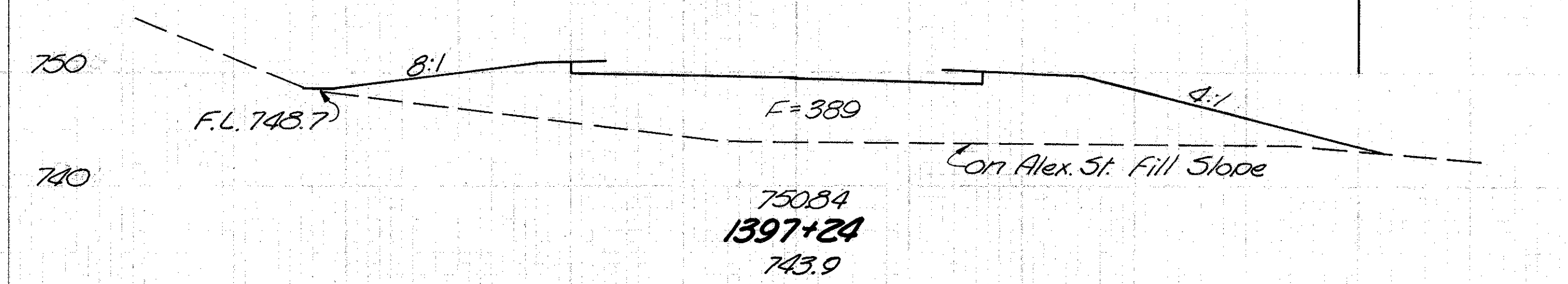
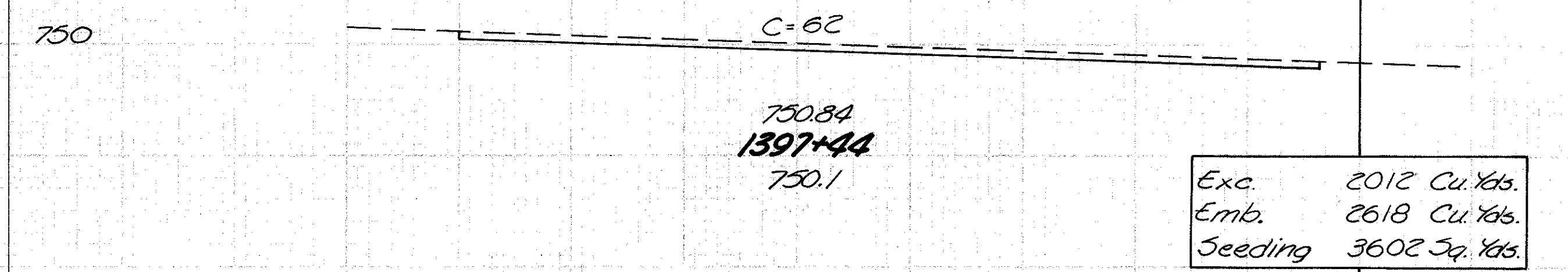
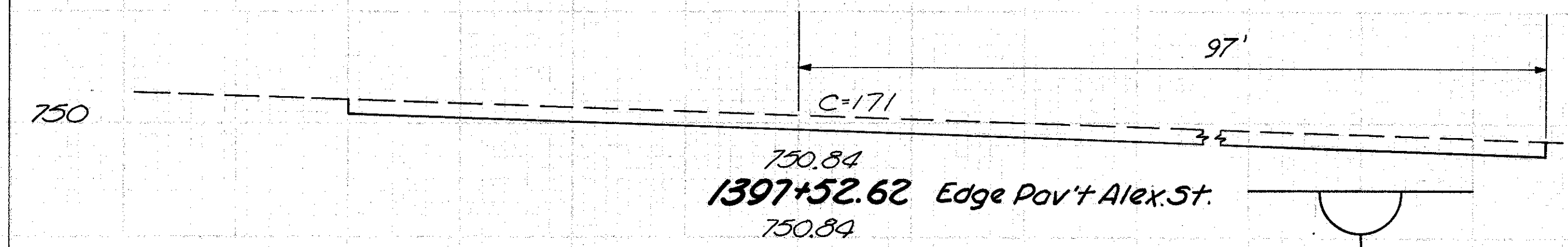
Seeding		End Area		Cu Yd	
Width	Sq Yd	Cut	Fill	Exc.	Emb
44		76	52		
	261			244	85
50		187	40		
	244			314	39
38		184	2		
	192			402	2
31		250	0		
	197			316	25
40		91	27		
	242			118	106



JEF-7-23.37



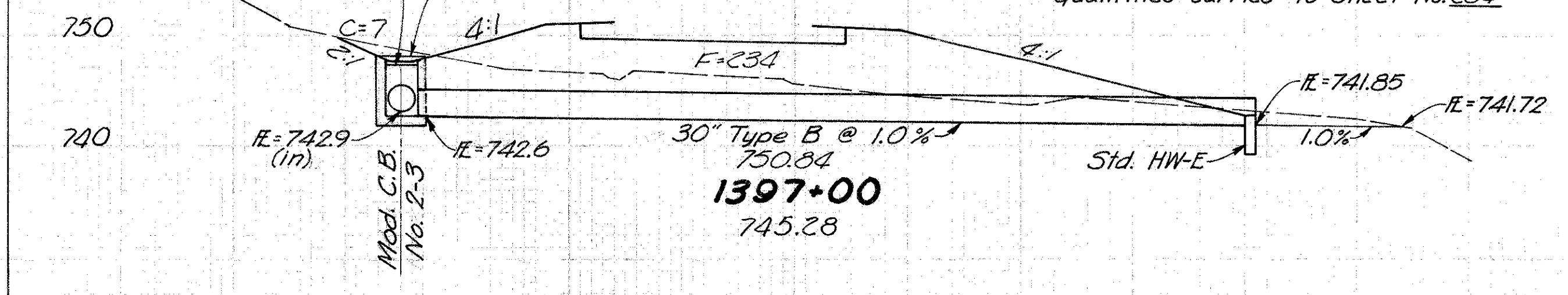
Seeding	End Area	Cu Yd
Width Sq Yd	Cut Fill	Exc. Emb.
39	21 19	
217	71 26	
39	56 9	
214	123 15	
38	77 7	
250	112 65	
52	44 63	
267	111 106	



**ESTIMATED QUANTITIES**

Item 603-30" Conduit, Type B, C, B Bed - 76 Lin. Ft.
Item 604-Modified Catch Basin No. 2-3 - 1 Each
Item 601-Paved Gutter, Mod. Type 1-C, 20 Lin. Ft.
Item 602-Concrete Masonry - 26 Cu. Yd.
Item 203-Excavation, incl. Embank. Constr. - 1 Cu. Yd.

Quantities carried to Sheet No. 254



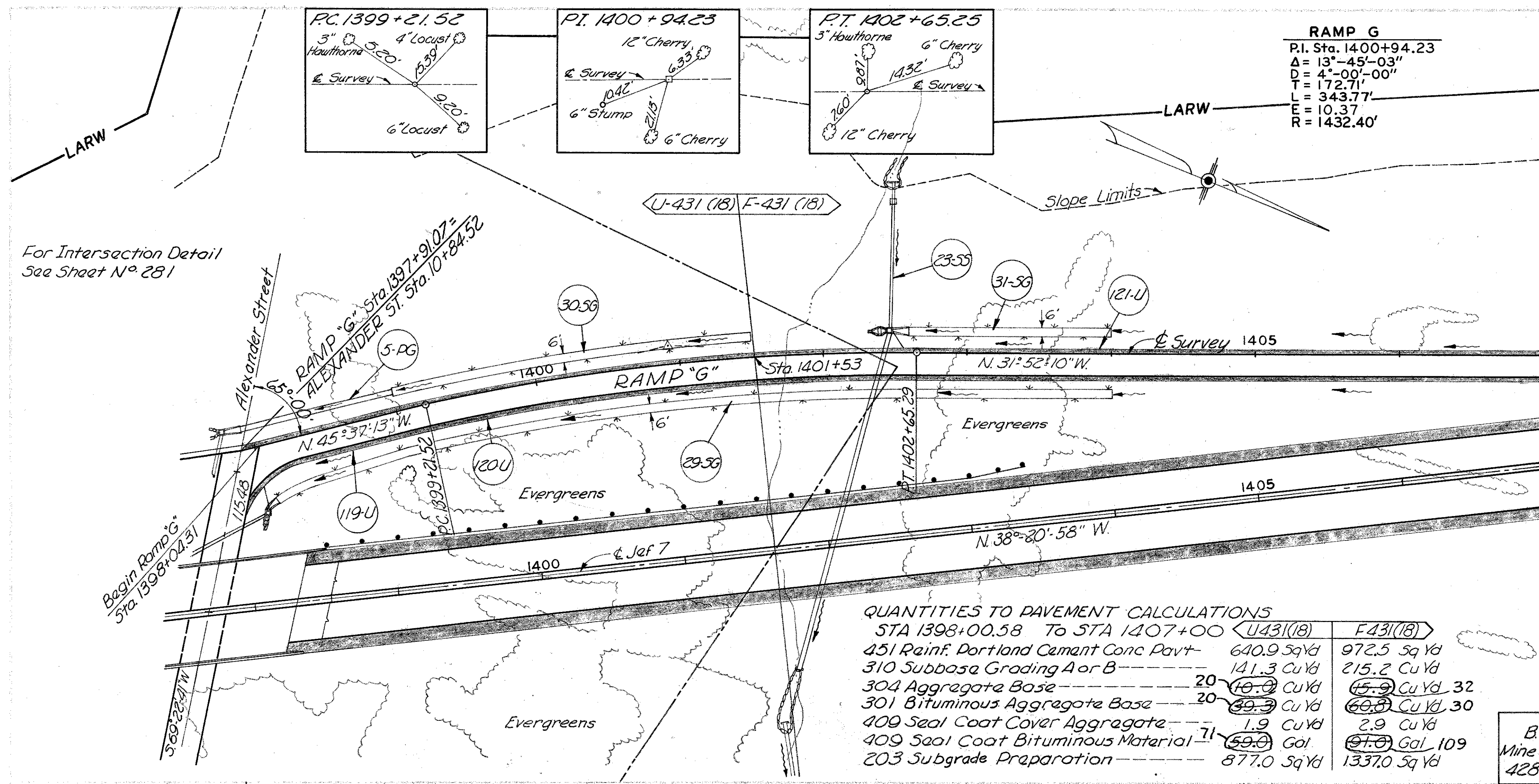
22.55 30" x 76' STORM SEWER

RAMP "F" STA. 1395+00 TO STA. 1397+52.62

Seeding	End Area	Cu Yd
Width Sq Yd	Cut Fill	Exc. Emb.
0	171 0	
0	37 0	
0	62 0	
68	23 144	
61	0 389	
175	3 277	
70	7 234	
303	26 234	



JEF-7-23.37

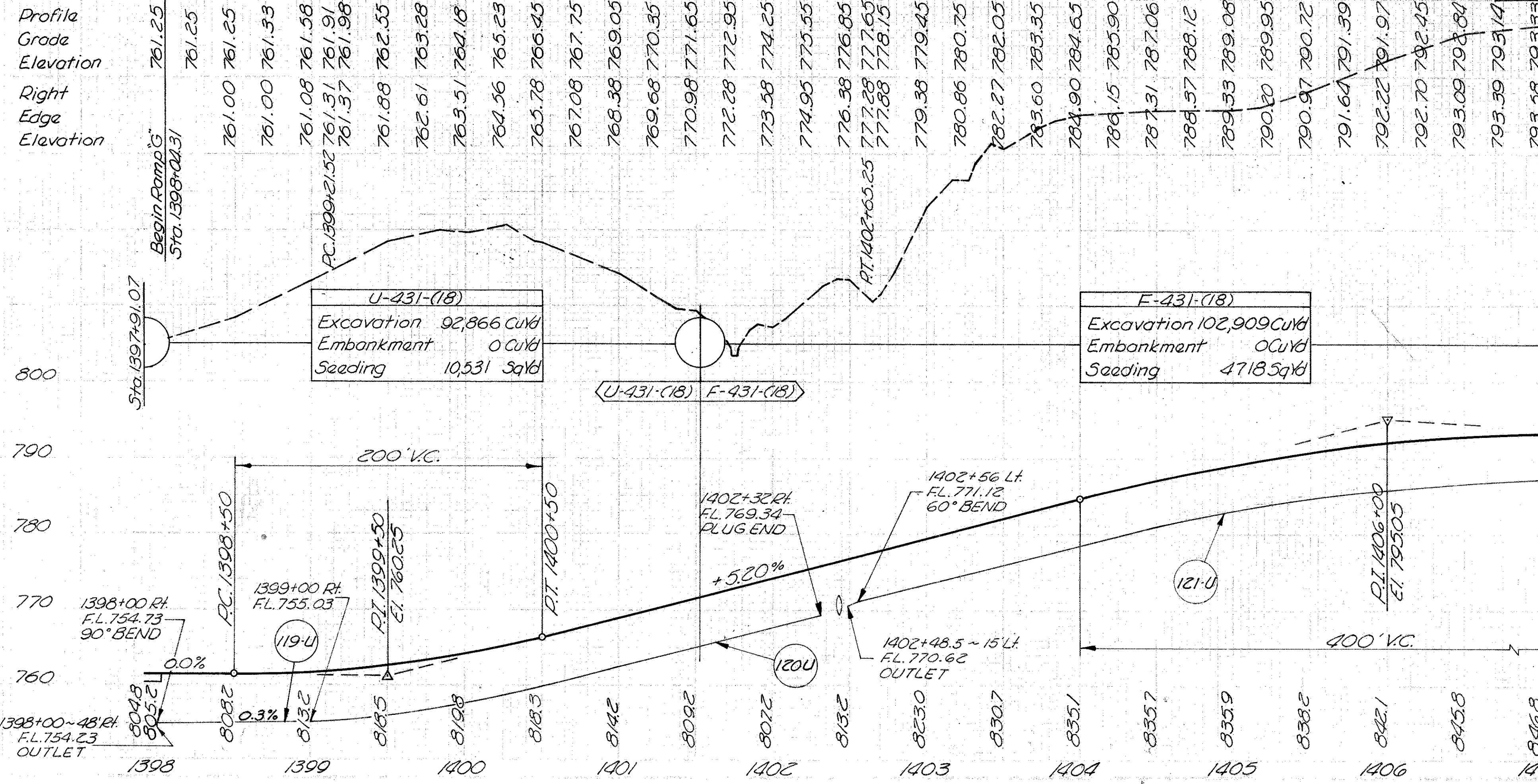


QUANTITIES TO PAVEMENT CALCULATIONS

STA 1398+00.58 To STA 1407+00

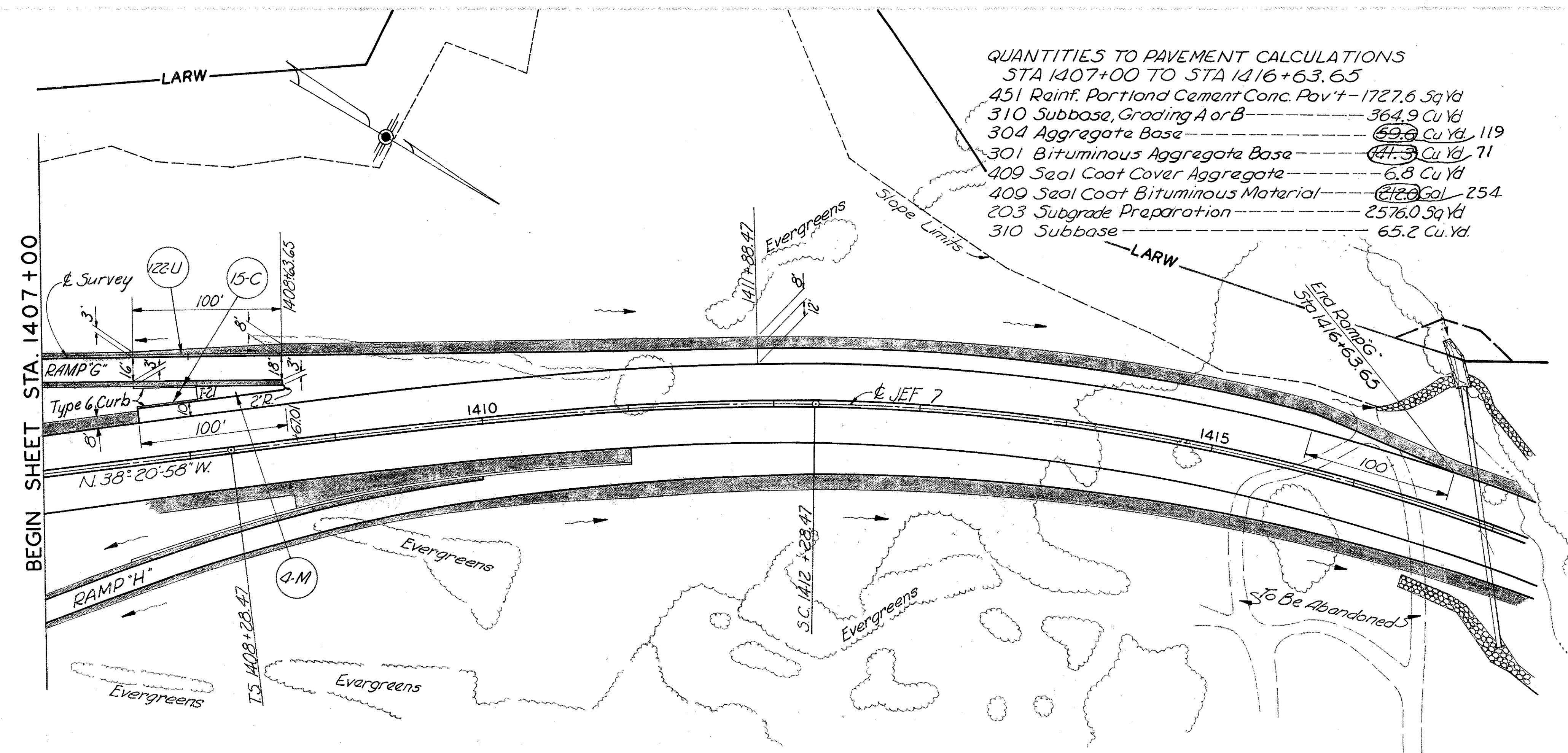
	U431(18)	F431(18)
451 Rainf. Portland Cement Conc Pavt-	640.9 Sq Yd	972.5 Sq Yd
310 Subbase Grading A or B	141.3 Cu Yd	215.2 Cu Yd
304 Aggregate Base	20 (10.9) Cu Yd	5.9 Cu Yd 32
301 Bituminous Aggregate Base	20 (9.9) Cu Yd	60.8 Cu Yd 30
409 Seal Coat Cover Aggregate	1.9 Cu Yd	2.9 Cu Yd
409 Seal Coat Bituminous Material	71 (59.0) Gal	61.0 Gal 109
203 Subgrade Preparation	877.0 Sq Yd	1337.0 Sq Yd

B.M. ELEV. 737.38  
Mine Spike in power pole  
428' ± Rt. Sta. 1398+17



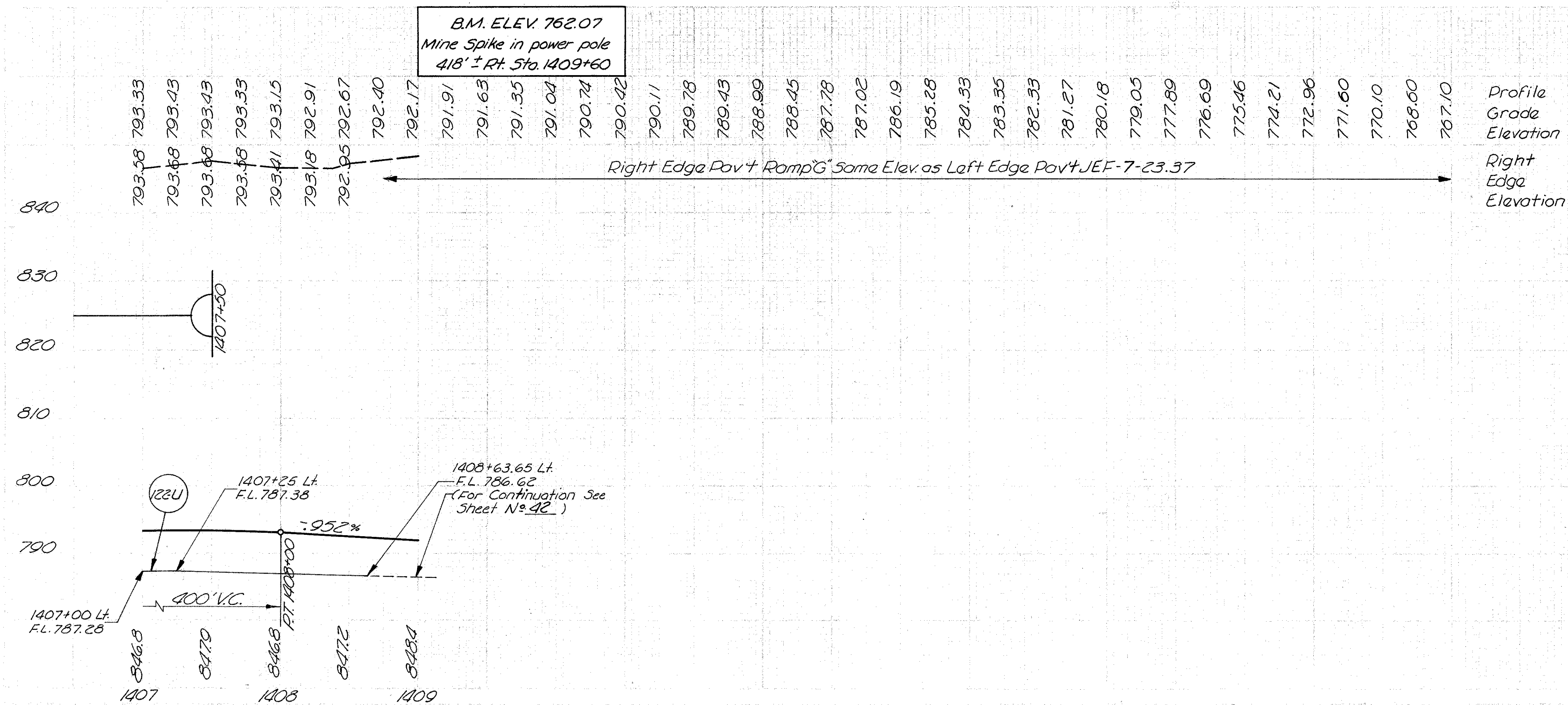


JEF-7-23.37



QUANTITIES TO PAVEMENT CALCULATIONS  
STA 1407+00 TO STA 1416+63.65

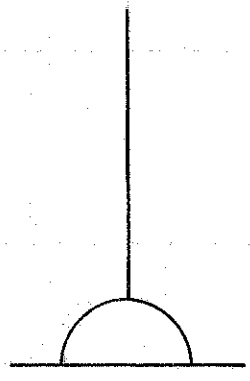
451 Rainf. Portland Cement Conc. Pav't	1727.6 Sq Yd
310 Subbase, Grading A or B	364.9 Cu Yd
304 Aggregate Base	69.8 Cu Yd 119
301 Bituminous Aggregate Base	47.3 Cu Yd 71
409 Seal Coat Cover Aggregate	6.8 Cu Yd
409 Seal Coat Bituminous Material	212.0 Gal 254
203 Subgrade Preparation	2576.0 Sq Yd
310 Subbase	65.2 Cu Yd



605	609	612	
6" Shallow Underdrain	609 Curb Type 6	612 Conc. Median	
LF	LF	Sq. Yd.	
164	85	46	
15-C 1407+62 to 1408+04	Rt		
4-M 1407+05 to 1408+65	Rt		
122U 1407+00 to 1408+63.65	Lt		

RAMP "G" STA. 1407+00 TO STA. 1416+63.65

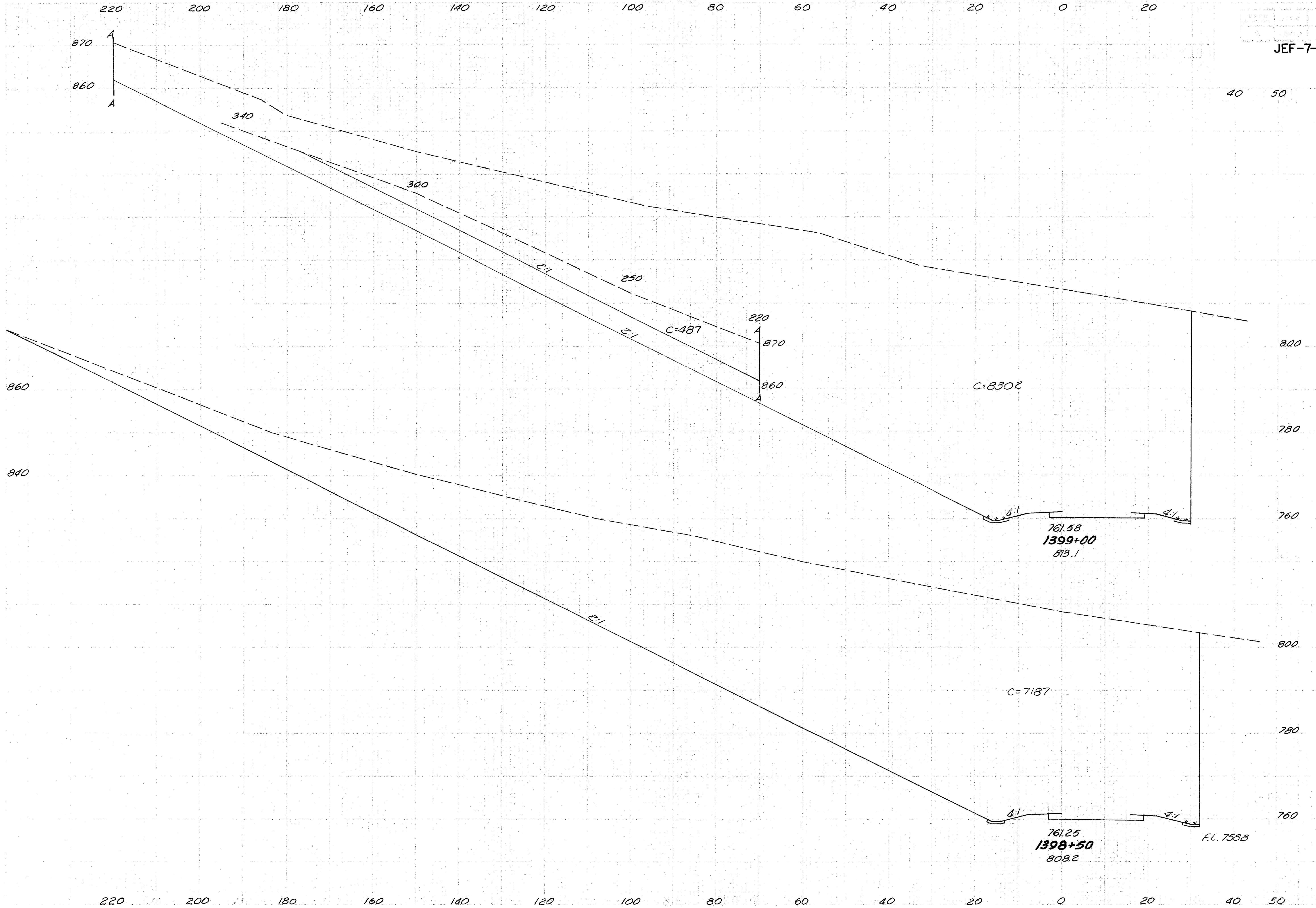
JEF-7-23 37



Seeding	End Area	Cu. Yds.
Width	Cut	Exc.
262	7078	0
905		3109
219	5828	0



JEF-7-23.37



Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
384		8789	0		
1883				4793	0
294		7187	0		
800				6604	0

JEF-7-23.37

50

Seeding		End Area		Cu. Yd.	
Width	S.Y.	Cut	Fill	Exc.	Emb.
220		6977	0		
1678				14598	0

880

860

820

800

780

760

C=6977

12:1

12:1

4:1

762.55  
1399+50  
818.5

200

180

160

140

120

100

80

60

40

20

0

20

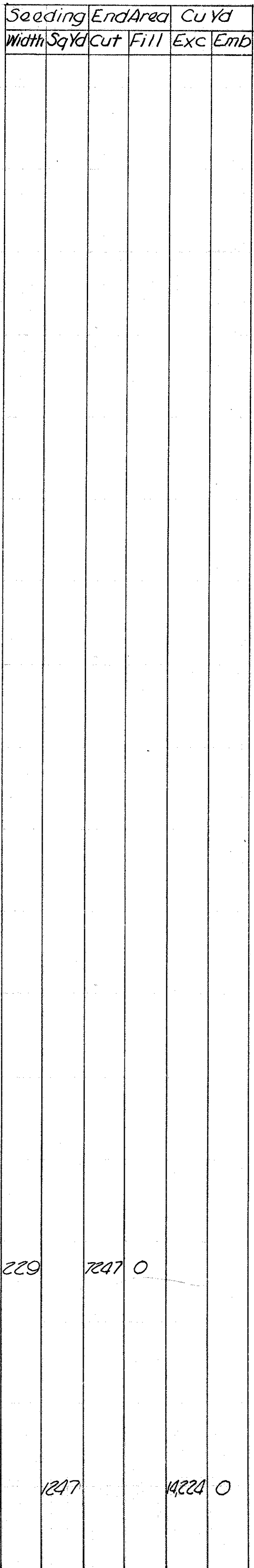
40

50

RAMP "G" STA. 1399+50

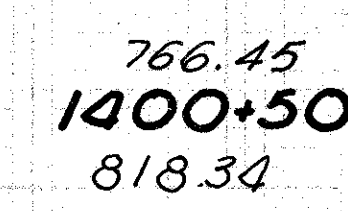


70



RAMP "G" STA. 1400+00

60

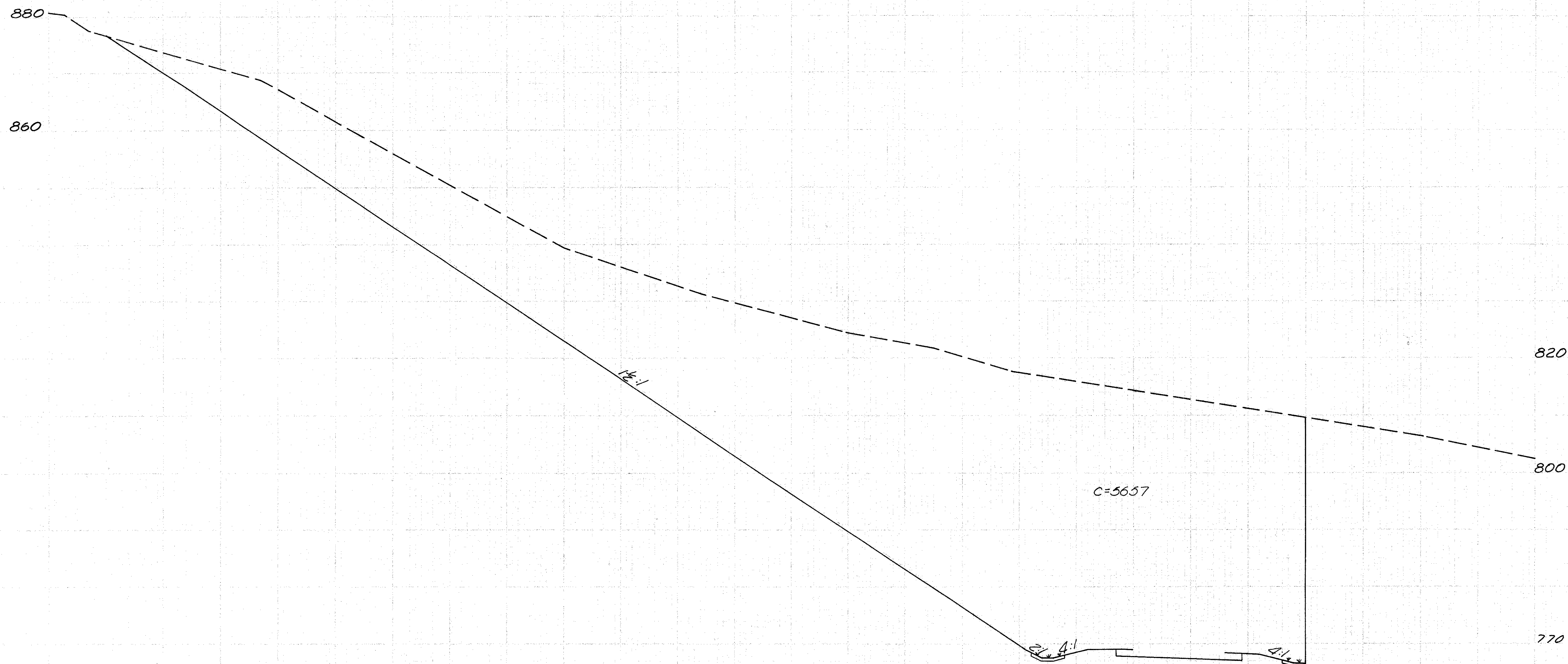


Seeding		End Area		Cu Yd	
Width	Sq Yd	Cut	Fill	Exc.	Emb.
245	6785	0			
	1317			16995	0

**RAMP "G" STA. 1400+50**



**JEF-7-23.37**

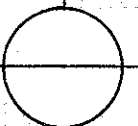


Seeding	End Area	Cu Yd
Width Sq Yd	Cut	Fill Exc Emb
231	5657	0
1322		11520 0

890

870

F-431-(18) Ahead  
U-431-(18) Back



Sta 1401+53

Exc 102,909 Cu Yd  
Emb 0 Cu Yd  
Seeding 4718 Sq Yd

Exc 92,866 Cu Yd  
Emb 0 Cu Yd  
Seeding 10,531 Sq Yd

810

790

770

C=5631

771.65  
1401+50  
809.20

1 1/2 : 1

4:1

4:1

Seeding Width	Sq Yd	End Area		Cu Yd	
		Cut	Fill	Exc.	Emb.
		237	5631	0	
		79		627	0
		237	5631	0	
1300				10452	0

RAMP "G" STA. 1401+50



JEF-7-23.37

880

860

12:1

C=3928

810

790

770

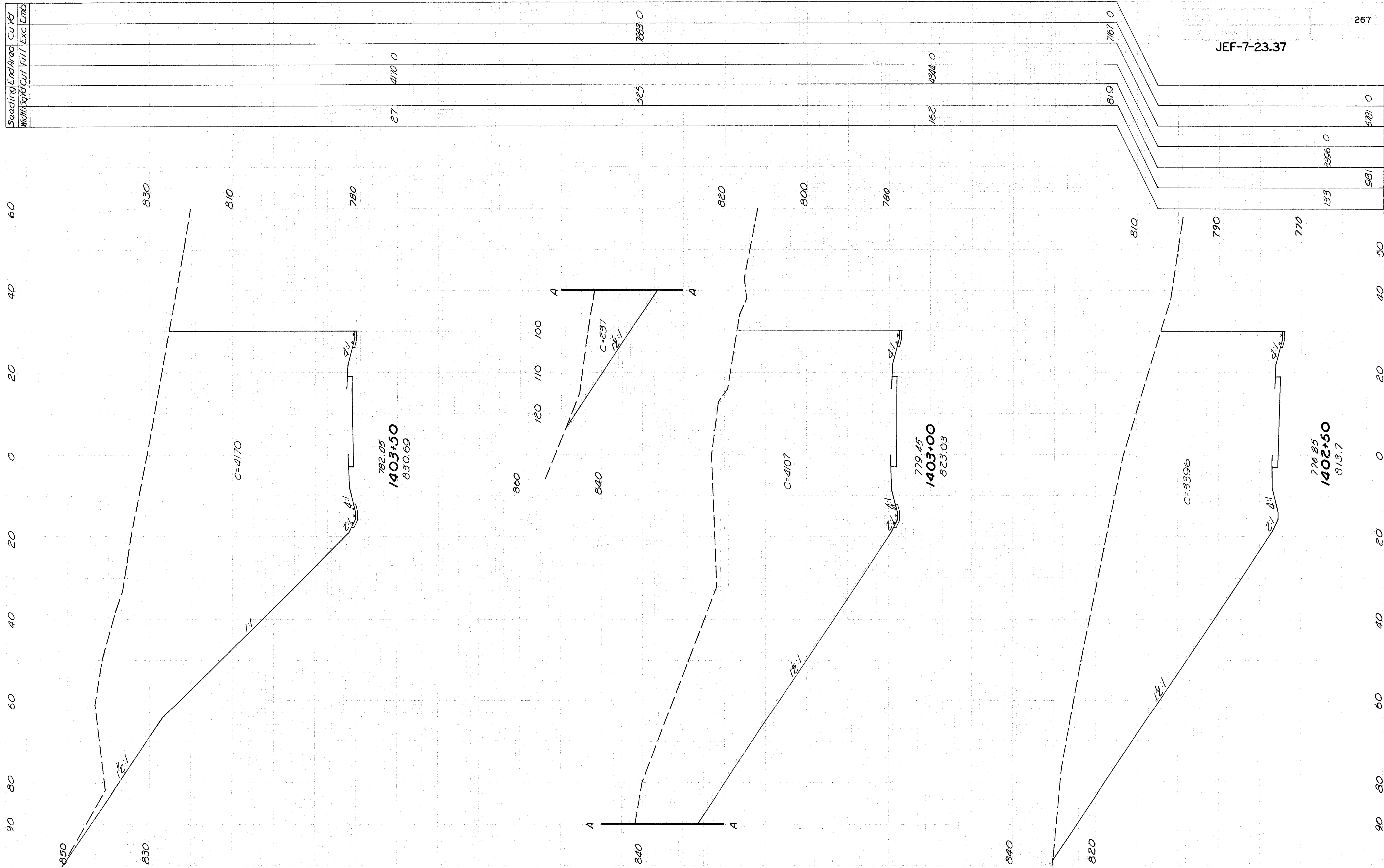
2:1 4:1

4:1

774.25  
1402+00  
807.16

Seeding Width	End Area Sq Yd	End Area		Cu Yd	
		Cut	Fill	Exc	Emb
220	3928	0			
1193				8320	0

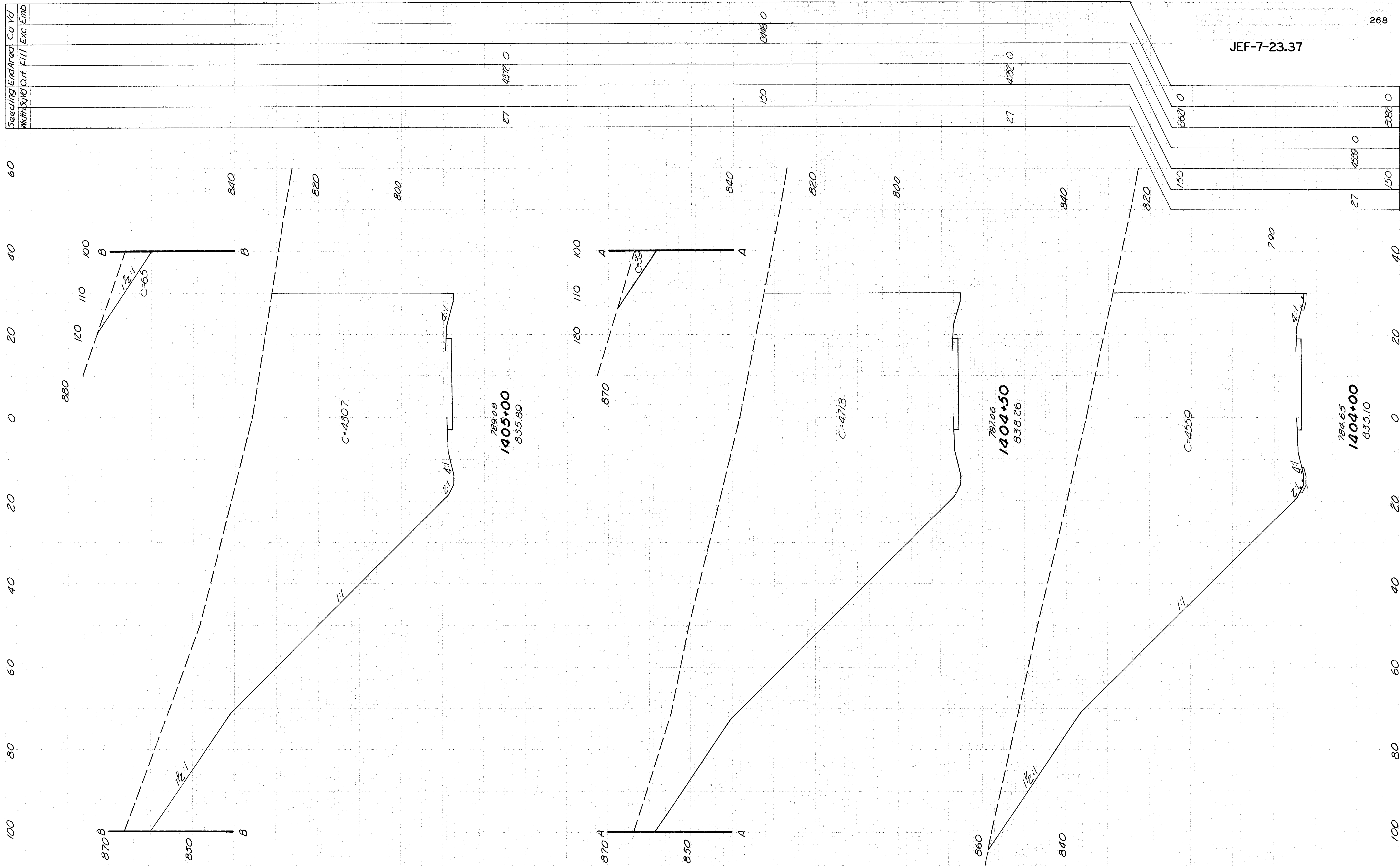
RAMP "G" STA. 1402+00



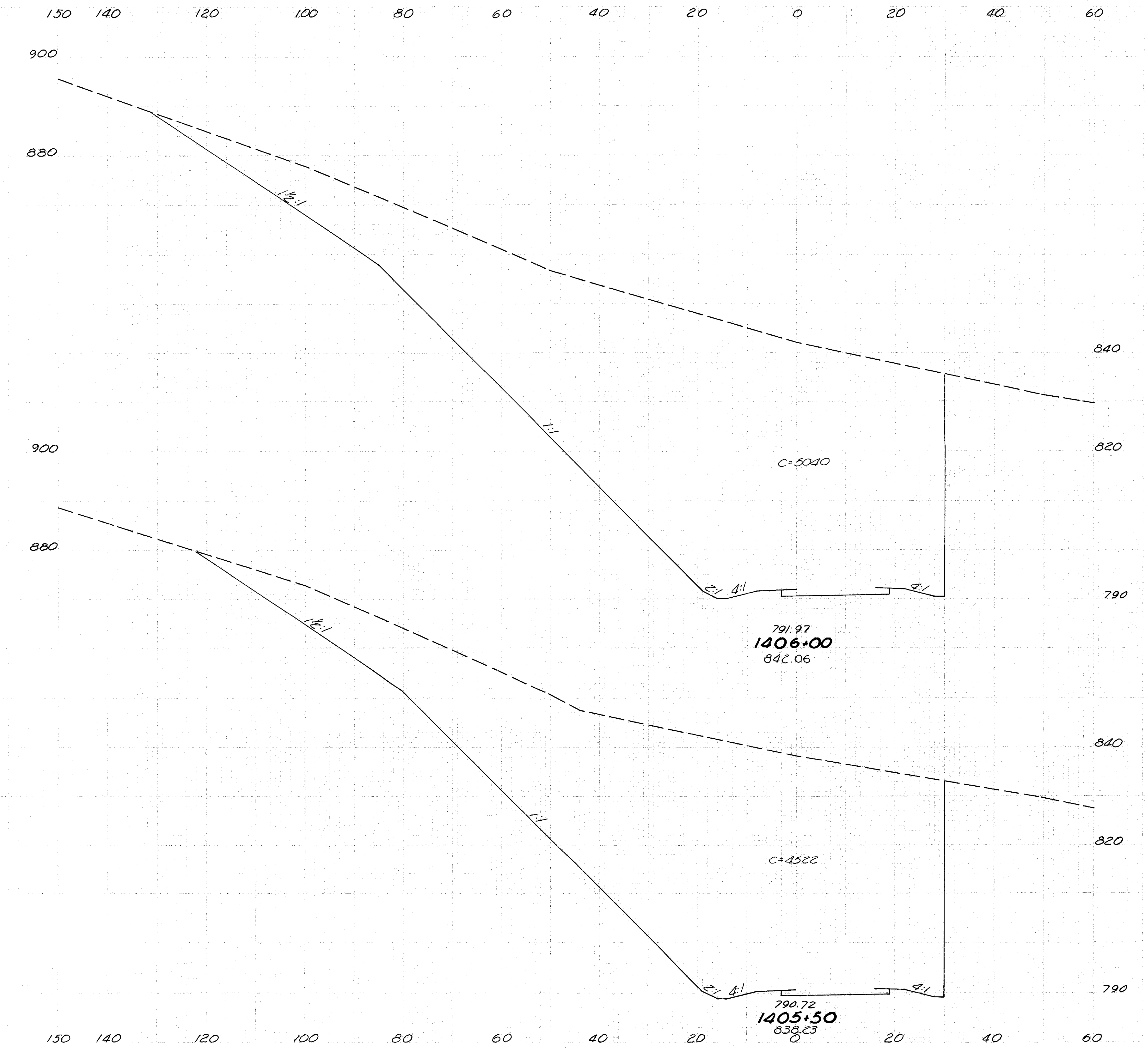
RAMP "G" STA. 1402+50 TO STA. 1403+50

JEF-7-23.37





JEF-7-23.37

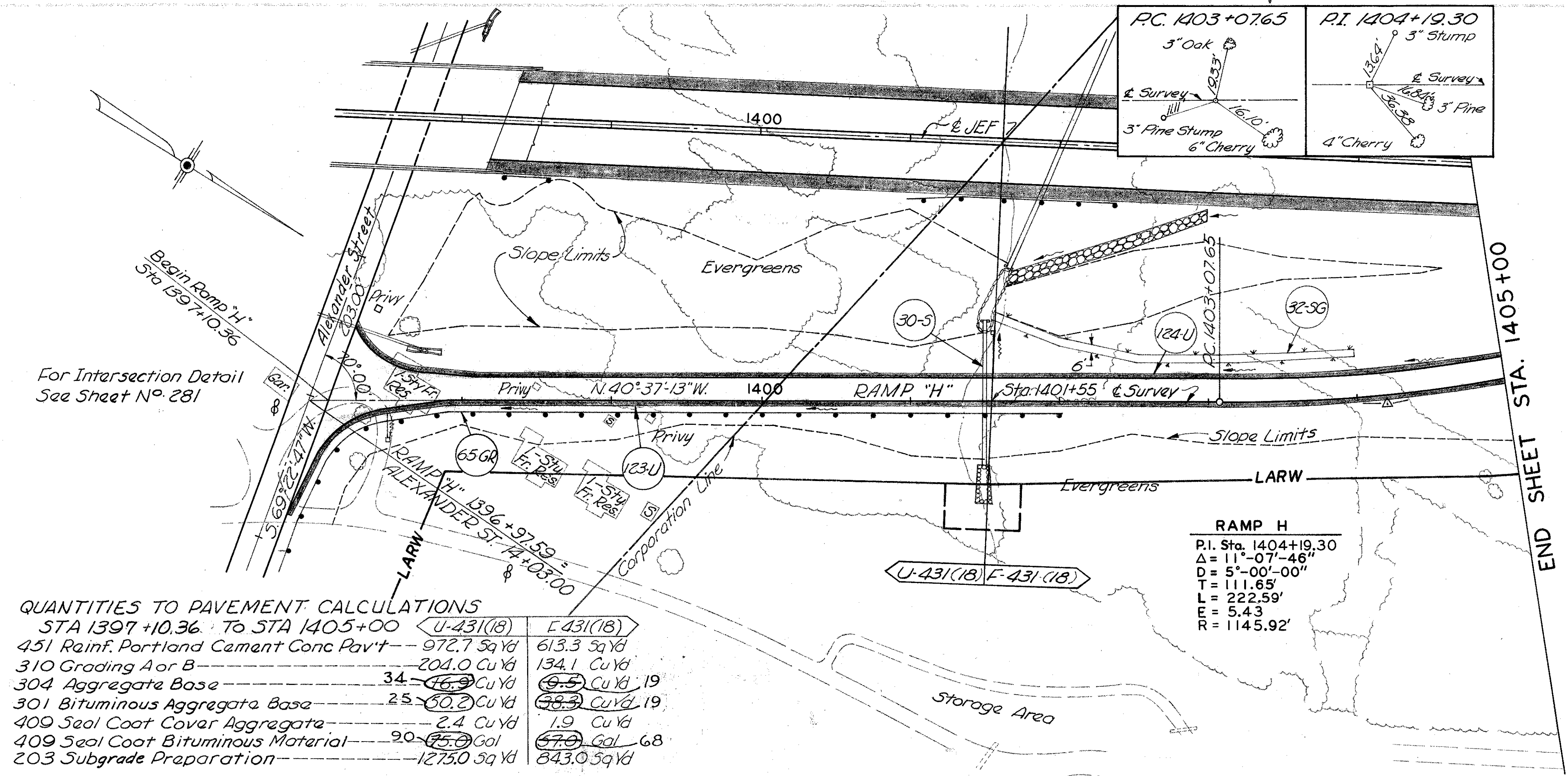


RAMP "G" STA. 1405+50 TO STA. 1406+00

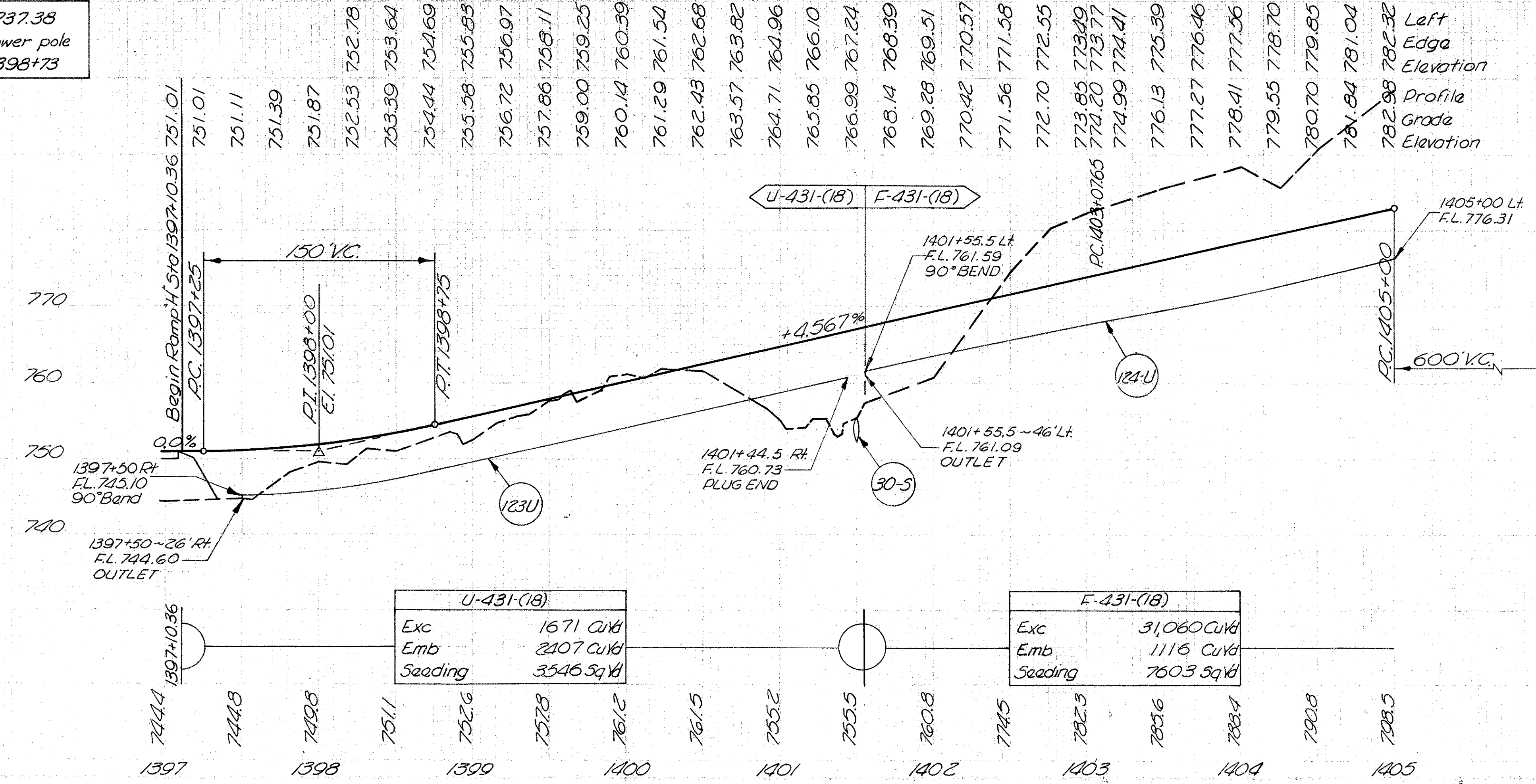




JEF-7-23.37



B.M. ELEV. 737.38  
Mine Spike in power pole  
127' ± Rt. Sta. 1398+73



606	Guard Rail Type 4	L.F.	402
605	6\" Deep Pipe Underdrain	L.F.	402
203	Excav. Channel Concrete	C.Y.	79
601	Dumped Riprap Rock 6\" Radius	C.Y.	21
602	Concrete Masonry	C.Y.	52

123U 1397+50 to 1401+44.5 Rt.  
30-S 1401+50 L&R  
65GR 14+37.26 Alex. St. to 1401+55 Ramp 'H' Rt. 453.16

TOTAL - U 453.16 402 79 21 52 1.2  
124U 1401+55.5 to 1405+00 Lt. 363  
3236 1401+54 to 1404+00 Lt.  
65GR 1401+55 to 1402+21.14 Rt. 66.14

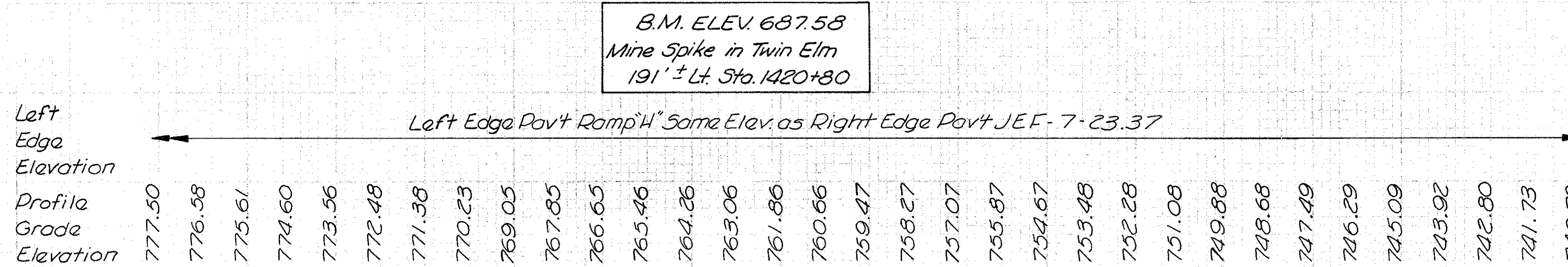
RAMP 'H' STA. 1396+97.59 TO STA. 1405+00





QUANTITIES TO PAVEMENT CALCULATIONS  
STA 1413+00 TO STA 1421+00

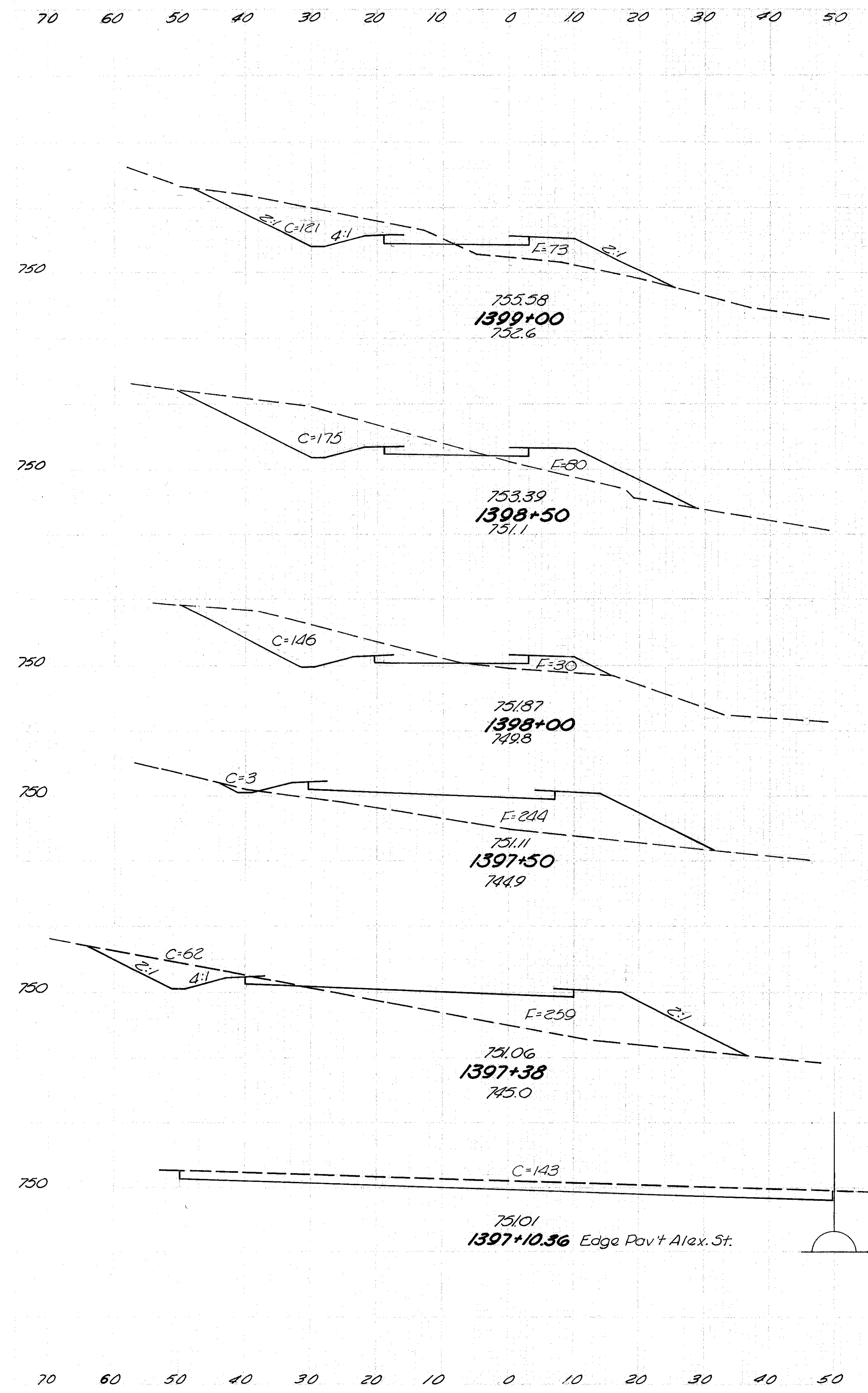
451 Reinf. Portland Cement Conc Pavt -	888.9	Sq Yd	
310 Subbase, Grading A or B -	192.6	Cu Yd	
304 Aggregate Base -	<del>192.6</del>	Cu Yd	119
301 Bituminous Aggregate Base -	<del>118.6</del>	Cu Yd	59
409 Seal Coat Cover Aggregate -	3.7	Cu Yd	
409 Seal Coat Bituminous Material -	<del>178</del>	Gal	214
203 Subgrade Preparation -	1600	Cu Yd	
310 Subbase -	61.7	Cu Yd	



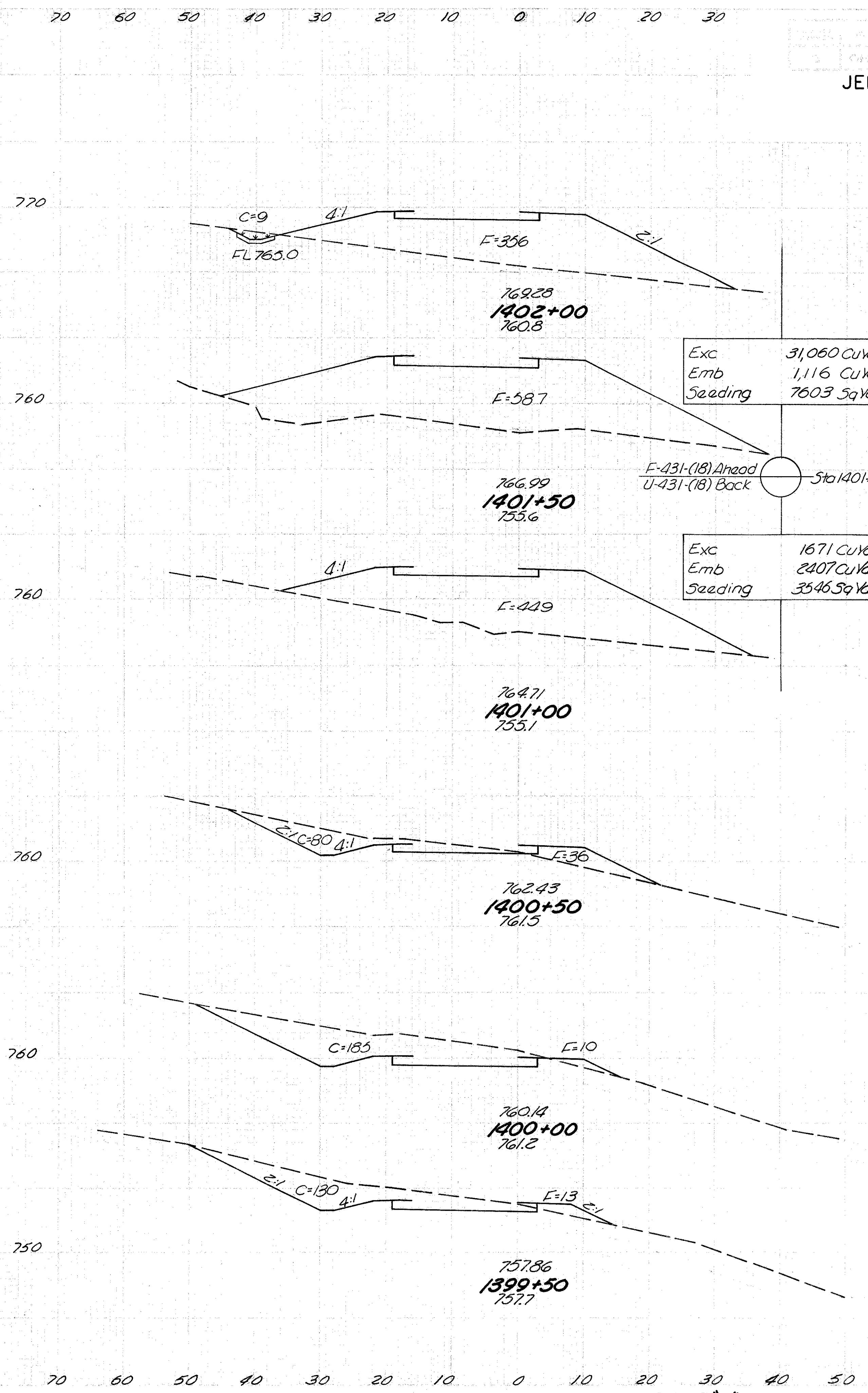
606	Guard Rail Type 4	LF
660R	1417+02 to 1421+00.66	R# 387.5

**RAMP "H" STA. 1413+00 TO STA. 1421+00**





Seeding Width S.Y.	End Area		Cu. Yds.	
	Cut	Fill	Exc.	Emb.
80	121	73		
461		278	142	
86	175	80		
433		297	102	
70	146	30		
344		138	251	
54	3	244		
81		14	112	
68	62	259		
104		105	133	
0	143	0		



Exc 31,060 CuYd  
Emb 1,116 CuYd  
Seeding 7603 SqYd

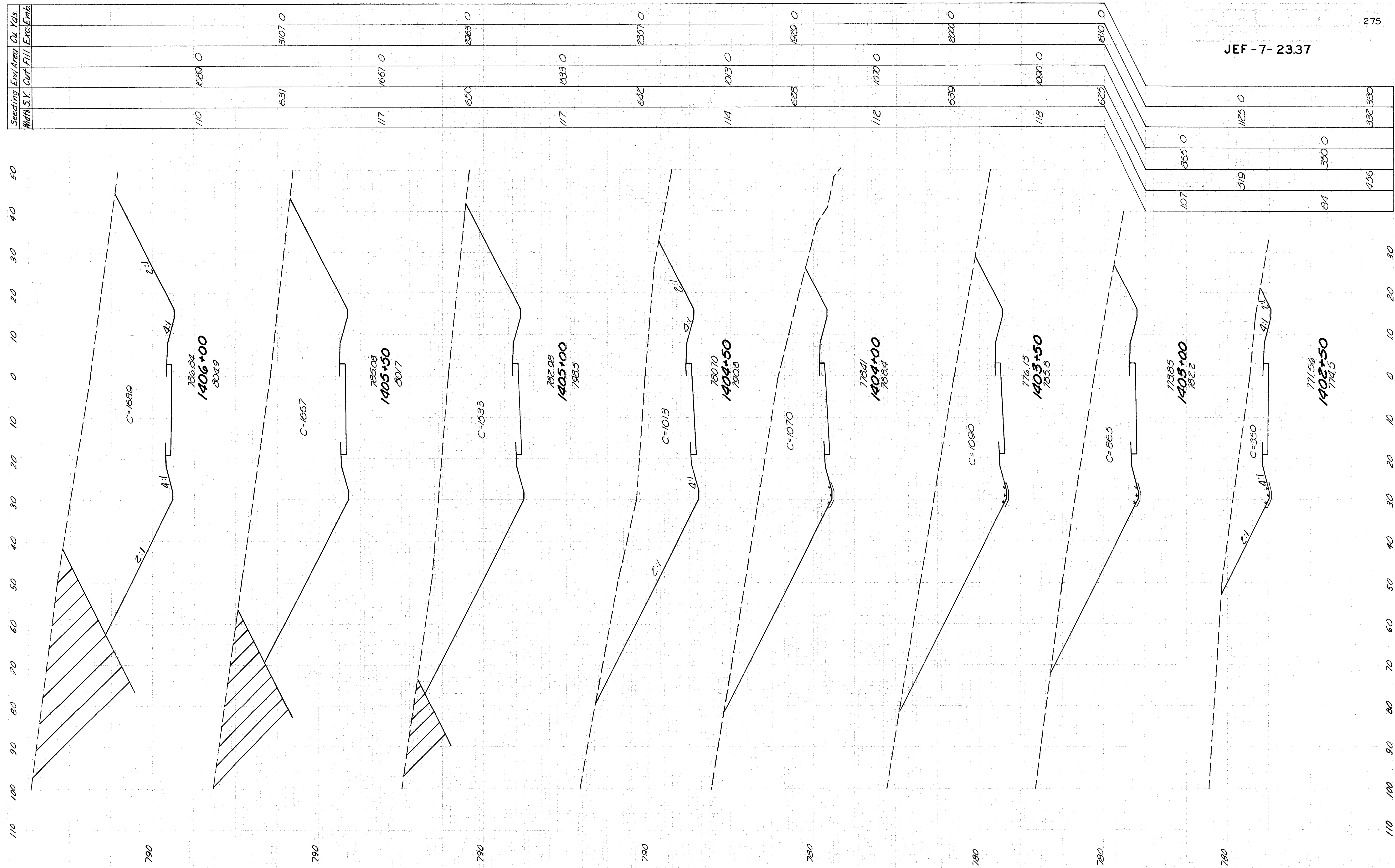
F-431-(18) Ahead  
U-431-(18) Back

Exc 1671 CuYd  
Emb 2407 CuYd  
Seeding 3546 SqYd

Seeding Width S.Y.	End Area		Cu. Yds.	
	Cut	Fill	Exc.	Emb.
84	9	356		
435			7	786
90	50	0	587	0
90		0	587	109
467			0	939
78	0	449		
411			74	449
70	80	36		
389			215	43
70	185	10		
389			292	21
70	130	13		
417			232	83

RAMP "H" STA. 1397+1036 TO STA. 1402+00

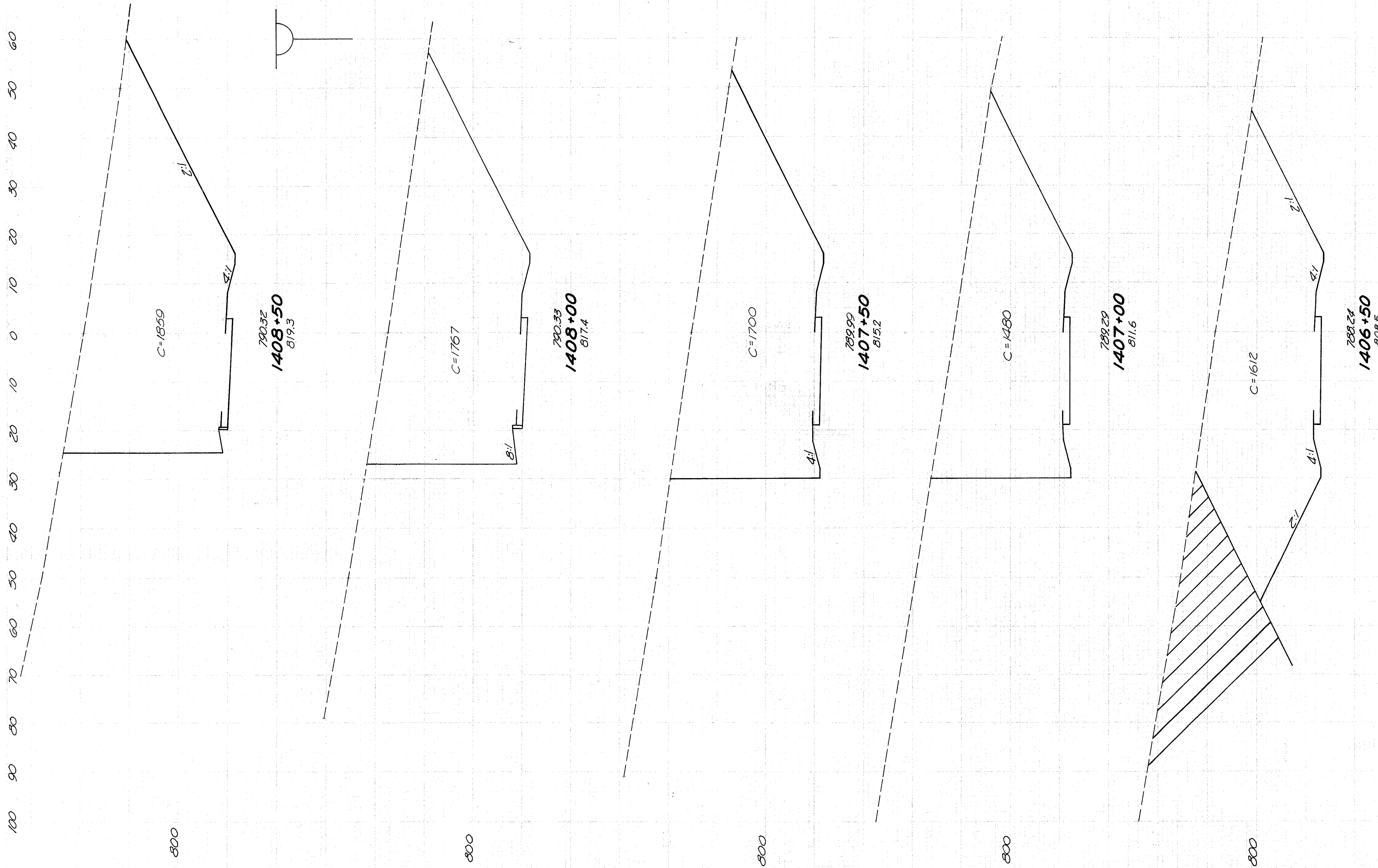
JEF-7-2337





Seeding	End Area	Cu. Yd.
Width S.Y.	Cut	Fill
80	1859 0	
442		3351 0
79	1767 0	
439		3210 0
79	1700 0	
425		3204 0
74	1480 0	
416		2863 0
101	1612 0	
		3006 0

JEF-7-23.37



RAMP "H" STA.1406+50 TO STA.1408+50

# PAVEMENT JOINT DETAILS

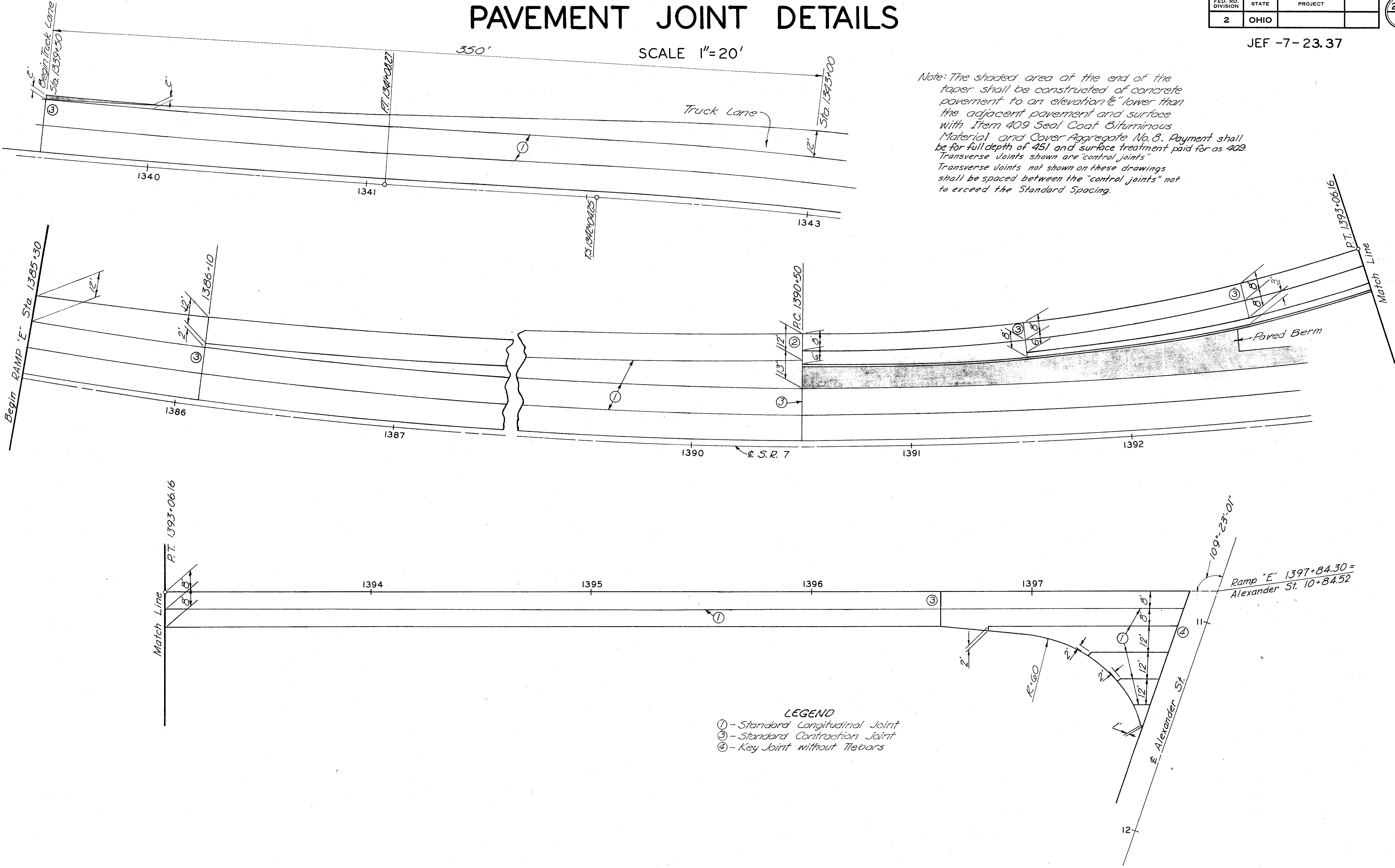
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

277

JEF -7- 23.37

SCALE 1"=20'

Note: The shaded area at the end of the taper shall be constructed of concrete pavement to an elevation 6" lower than the adjacent pavement and surface with Item 409 Seal Coat Bituminous Material and Cover Aggregate No. 8. Payment shall be for full depth of 451 and surface treatment paid for as 409. Transverse Joints shown are "control joints". Transverse Joints not shown on these drawings shall be spaced between the "control joints" not to exceed the Standard Spacing.



- LEGEND
- ① - Standard Longitudinal Joint
  - ③ - Standard Contraction Joint
  - ④ - Key Joint without Tiebars

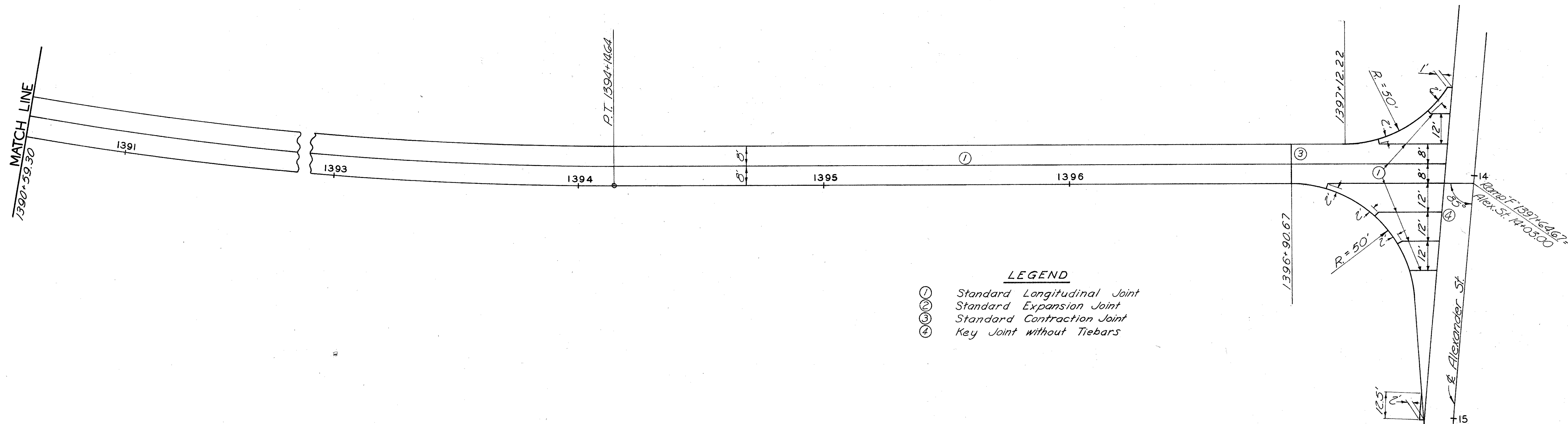
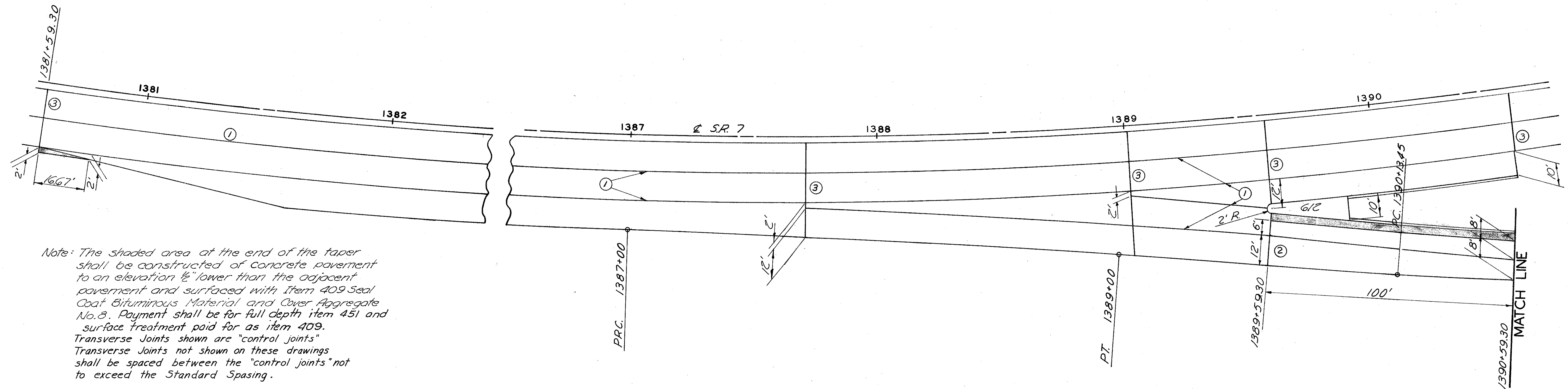


# PAVEMENT JOINT DETAILS

SCALE 1"=20'

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		278

JEF -7-23.37



## LEGEND

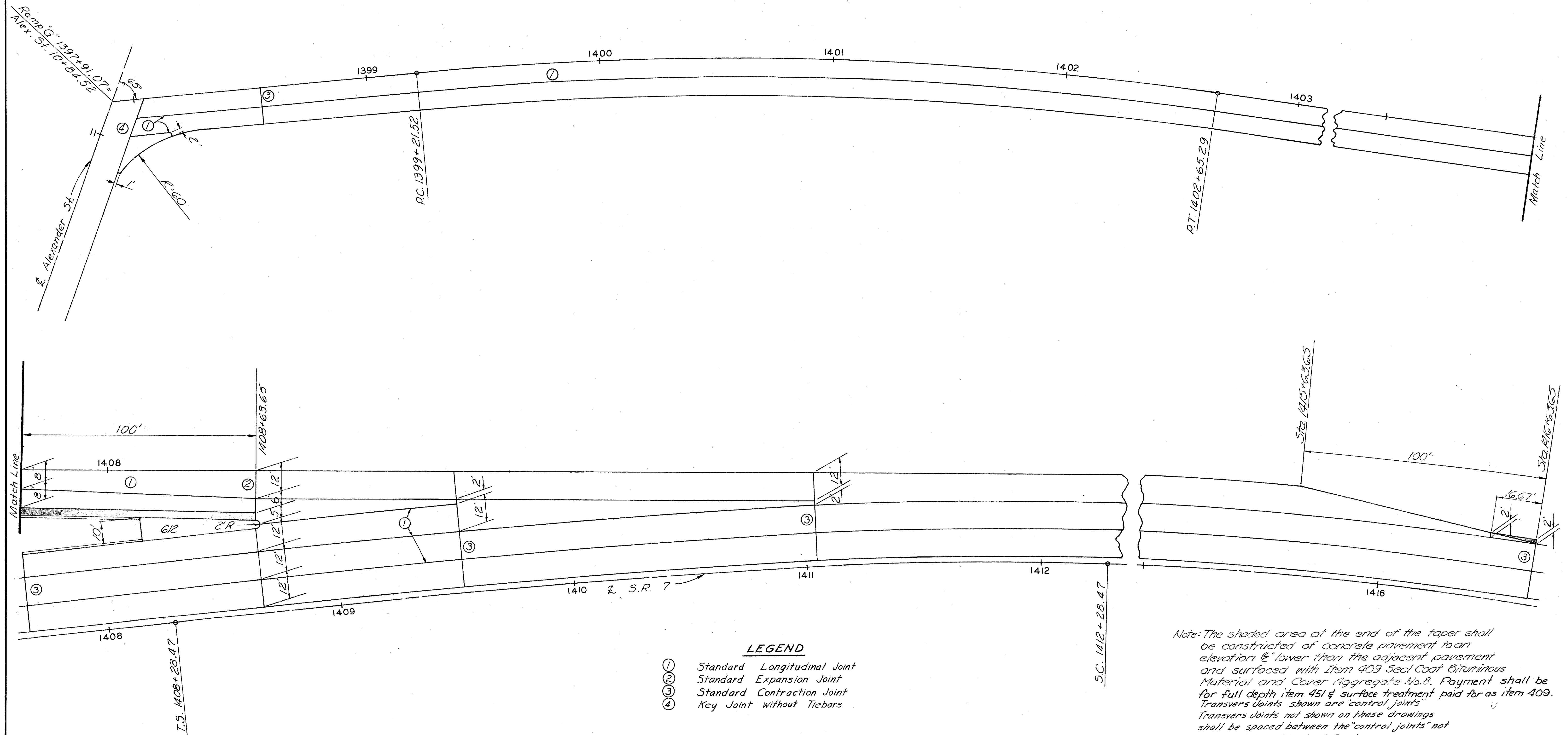
- ① Standard Longitudinal Joint
- ② Standard Expansion Joint
- ③ Standard Contraction Joint
- ④ Key Joint without Tiebars

# PAVEMENT JOINT DETAILS

SCALE 1"=20'

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		279

JEF -7-23.37



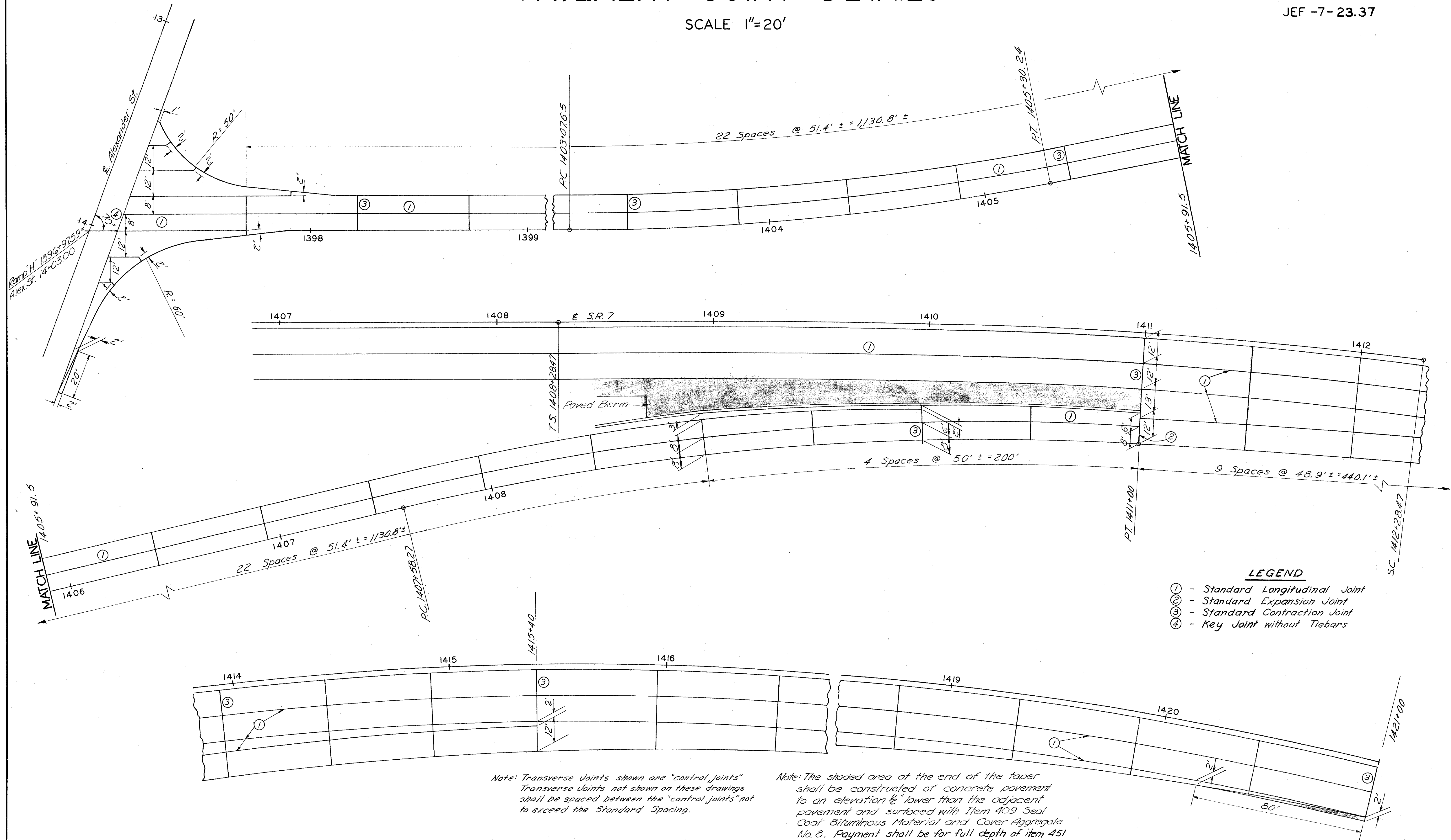


# PAVEMENT JOINT DETAILS

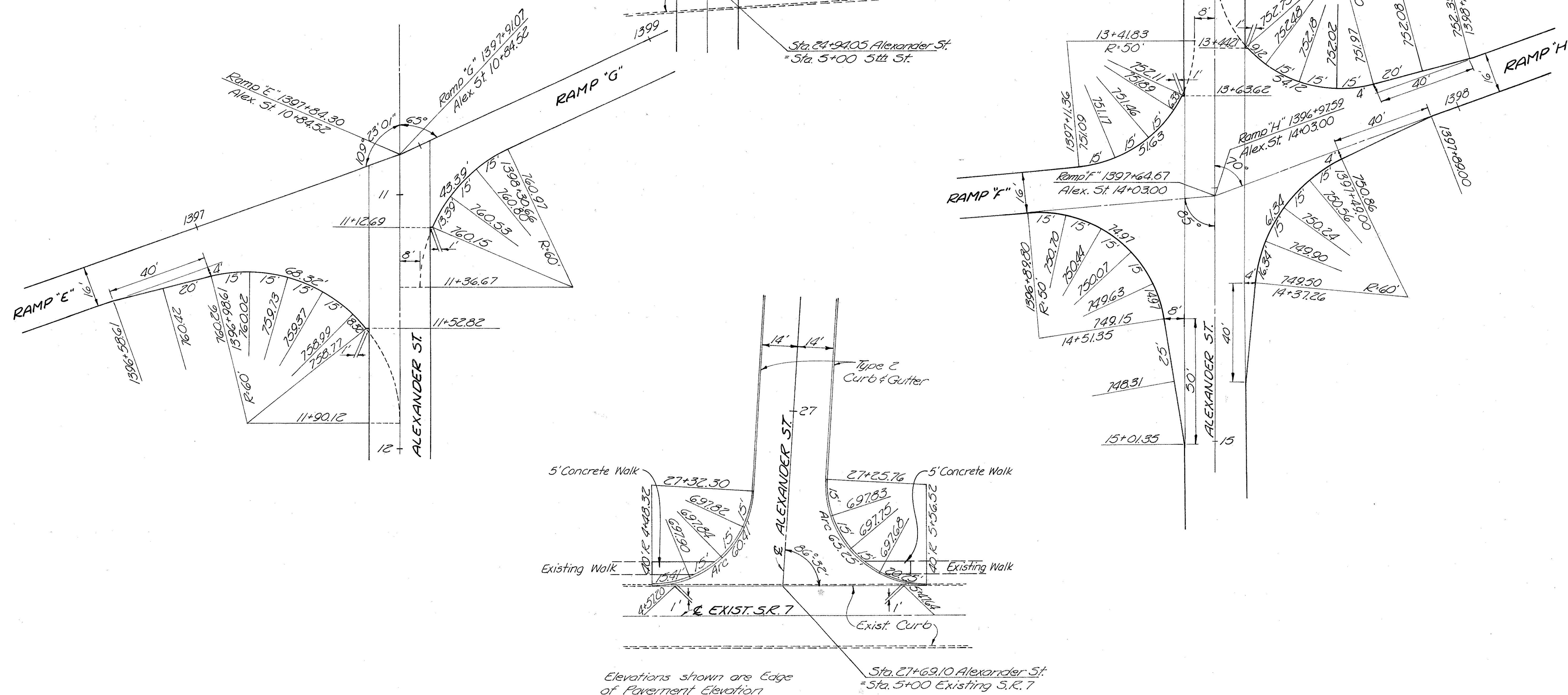
SCALE 1"=20'

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

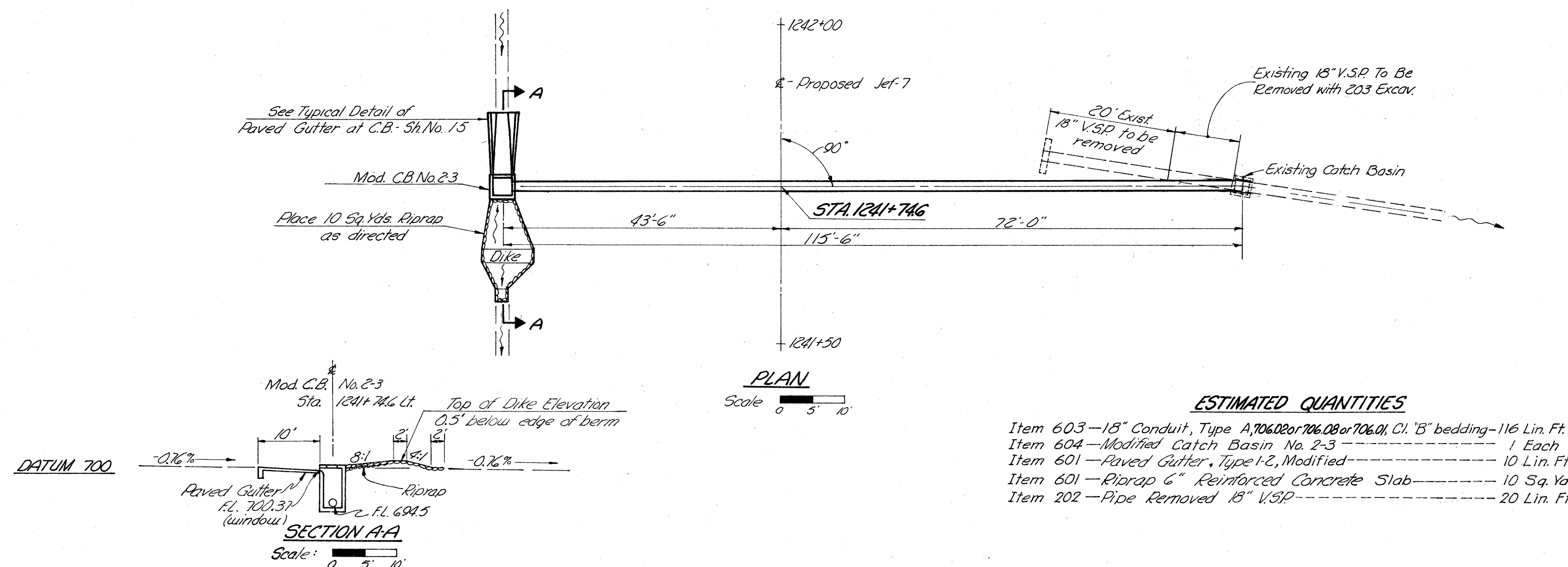
JEF -7- 23.37



SCALE 1" = 20'







# ESTIMATED QUANTITIES

Item 603—18" Conduit, Type A, 706.02 or 706.08 or 706.01 Cl. "B" bedding—116 Lin. Ft.	
Item 604—Modified Catch Basin No. 2-3	1 Each
Item 601—Paved Gutter, Type 1-2, Modified	10 Lin. Ft.
Item 601—Riprap 6" Reinforced Concrete Slab	10 Sq. Yd.
Item 202—Pipe Removed 18" V.S.P.	20 Lin. Ft.

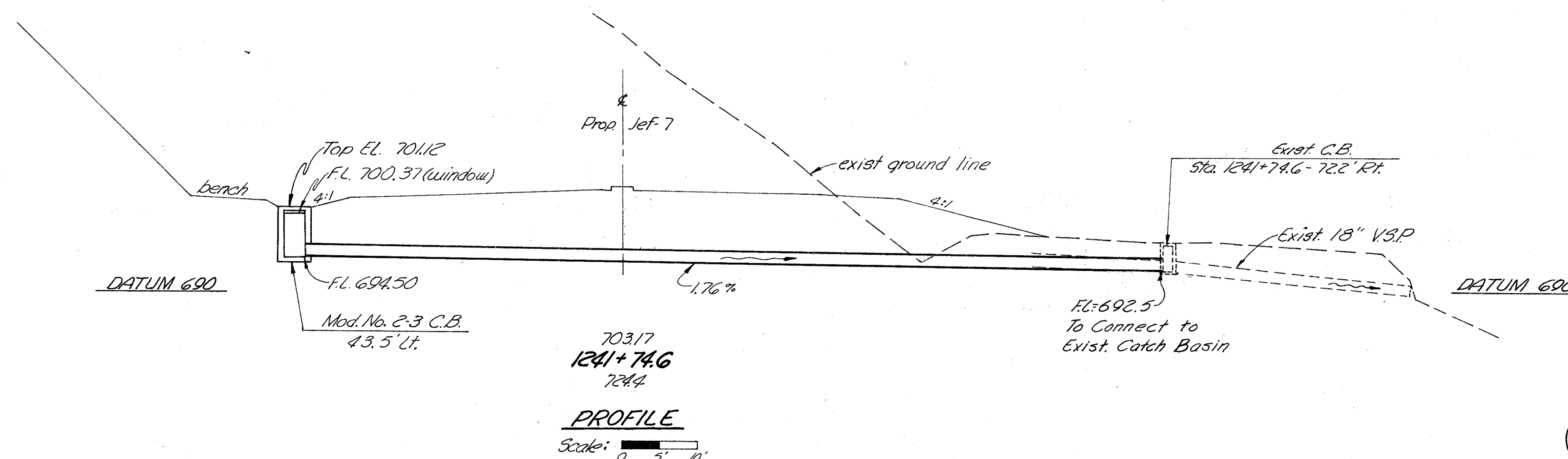
NOTE:

Provide Catch Basin with steps as per Std. Dwg. C.B. 2-3

Quantities Carried to Sheet No. 26

Drainage Area = 8.2 Acres

Q<sub>25</sub> = 19.5 cfs.

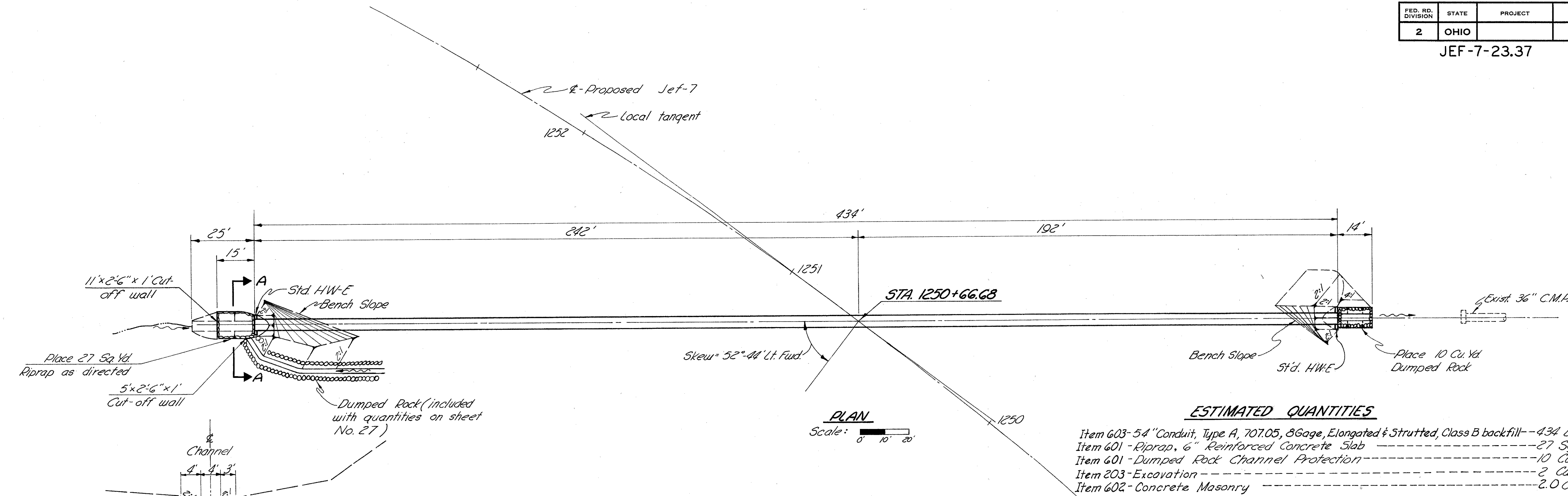


JEF-7-2348

1-S STA. 1241+74.6

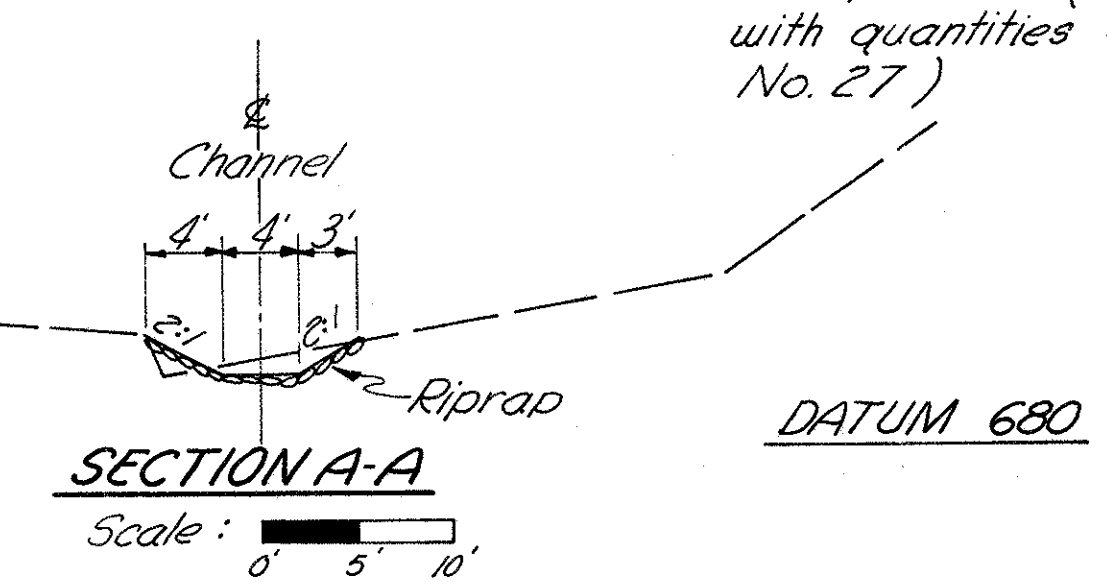
18"x116' PIPE CULVERT

JEF-7-23.37



### ESTIMATED QUANTITIES

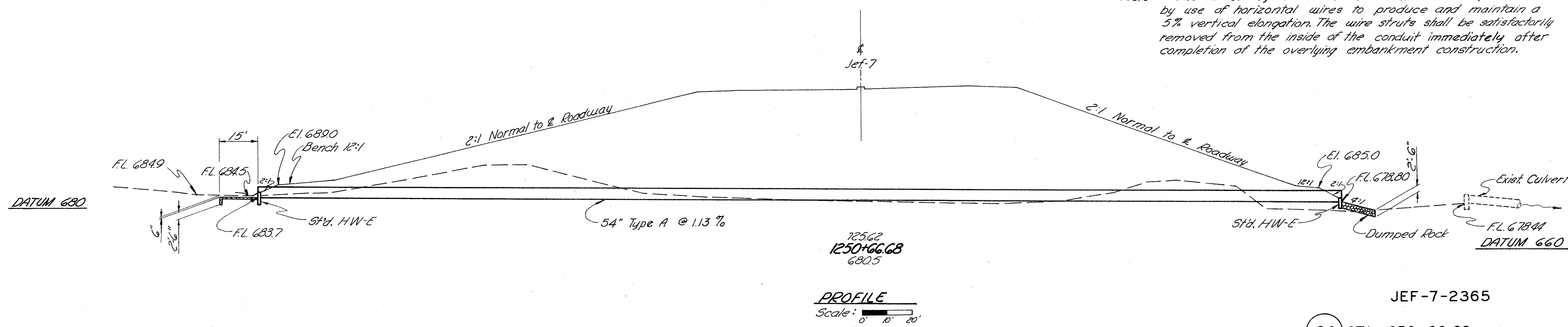
Item 603- 54" Conduit, Type A, 707.05, 8Gage, Elongated & Strutted, Class B backfill--	434 Lin. Ft.
Item 601- Riprap, 6" Reinforced Concrete Slab	27 Sq. Yd.
Item 601- Dumped Rock Channel Protection	10 Cu. Yd.
Item 203- Excavation	2 Cu. Yd.
Item 602- Concrete Masonry	2.0 Cu. Yd.



Quantities carried to Sheet No. 27

Drainage Area = 166 Acres  
Q<sub>25</sub> = 86 c.f.s.

Note: The 54" corrugated metal conduit shall be shop strutted by use of horizontal wires to produce and maintain a 5% vertical elongation. The wire struts shall be satisfactorily removed from the inside of the conduit immediately after completion of the overlying embankment construction.

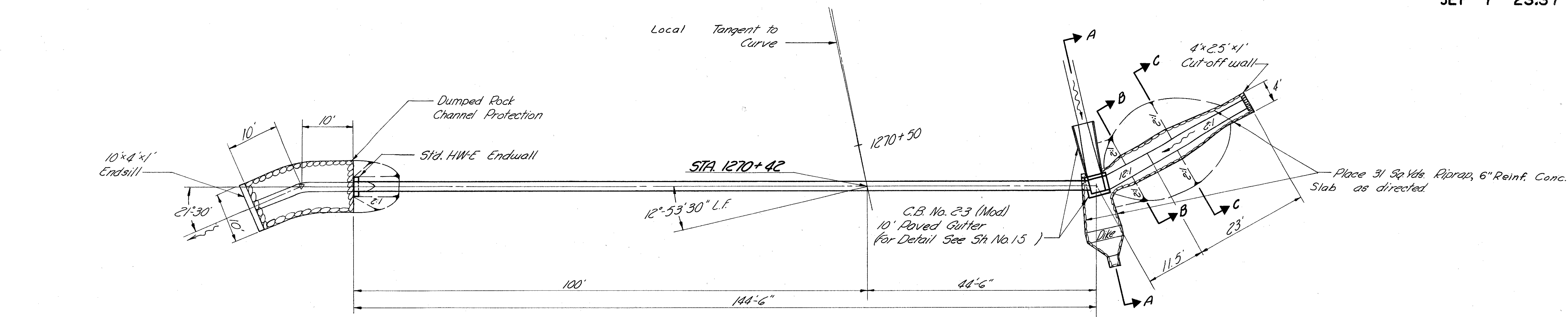


JEF-7-2365

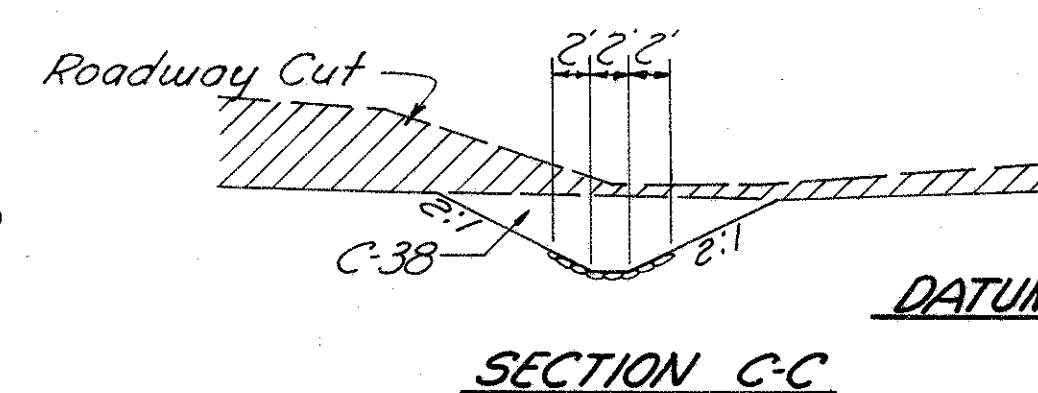
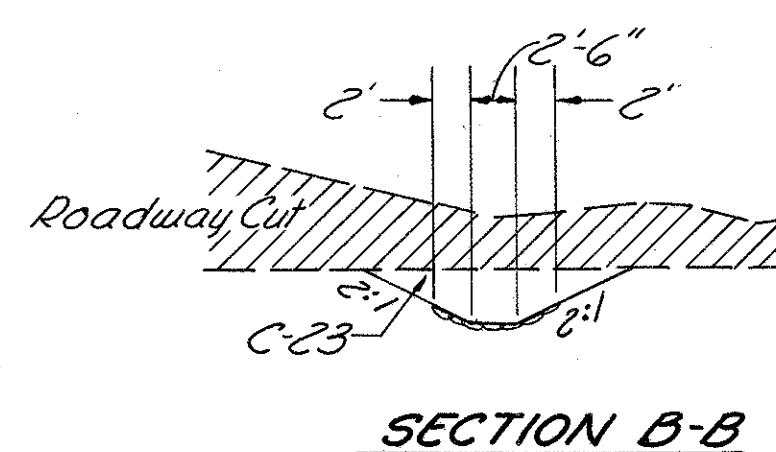
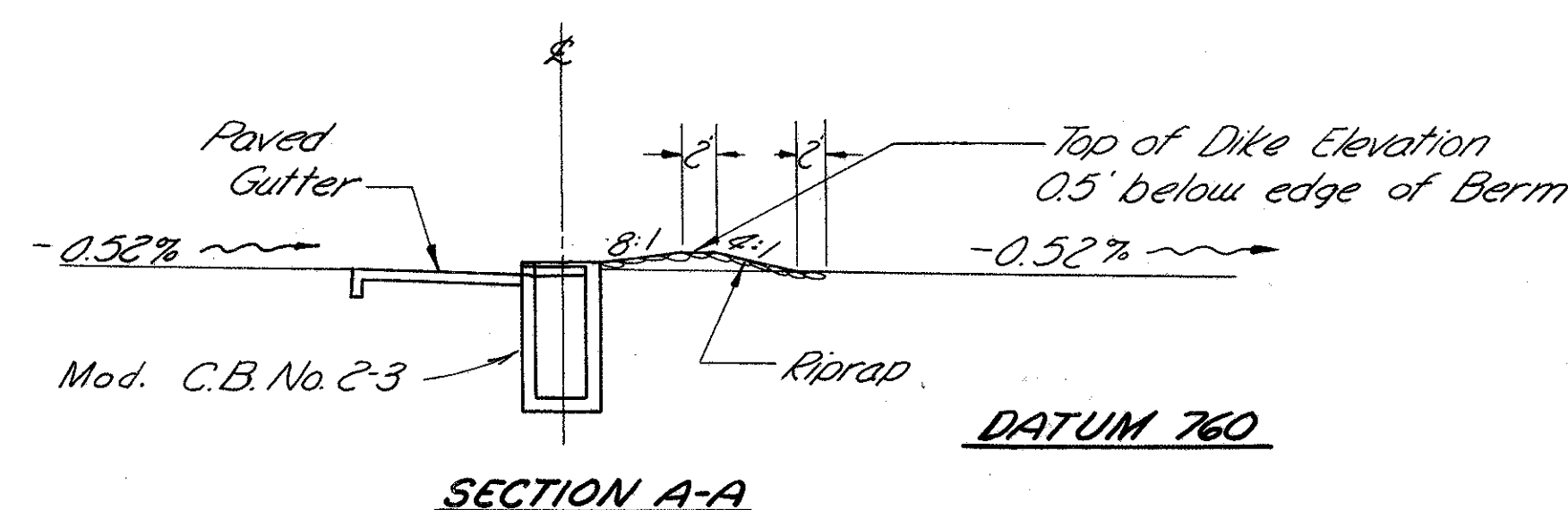
2S STA. 1250+66.68  
54" x 434' PIPE CULVERT



JEF-7-23.37



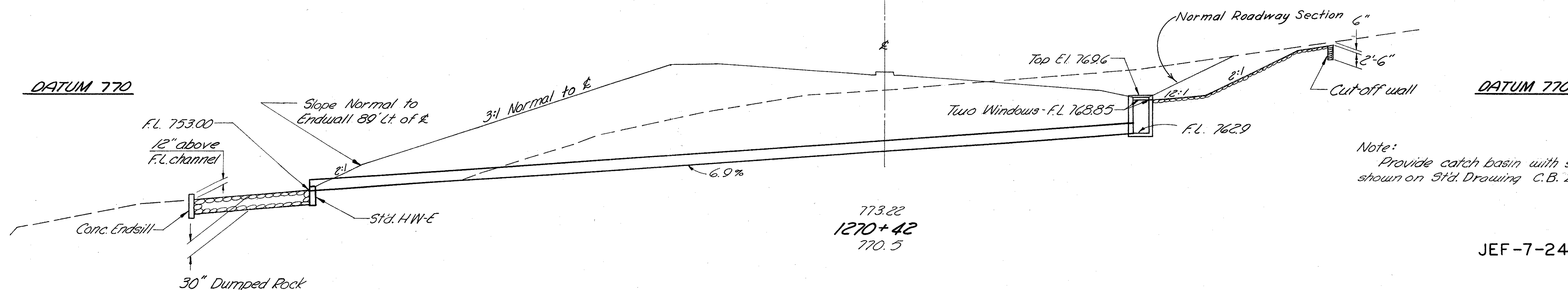
PLAN  
Scale 0 5 10'



**ESTIMATED QUANTITIES**

Item 603 - 24" Conduit, Type A, 706.02 C.I.II, Class B bedding	146 Lin. Ft.
Item 604 - No. 2-3 Catch Basin (Modified)	1 Each
Item 602 - Concrete Masonry	19 Cu. Yds.
Item 203 - Excavation	23 Cu. Yds.
Item 601 - Dumped Rock Channel Protection	19 Cu. Yds.
Item 601 - Riprap, 6" Reinforced Concrete Slab	31 Sq. Yds.
Item 601 - Paved Gutter, Type I-C, Modified	10 Lin. Ft.

Quantities Carried to Sheet No. 29  
Drainage Area = 7.1 Acres  
Qes 23 c.f.s.

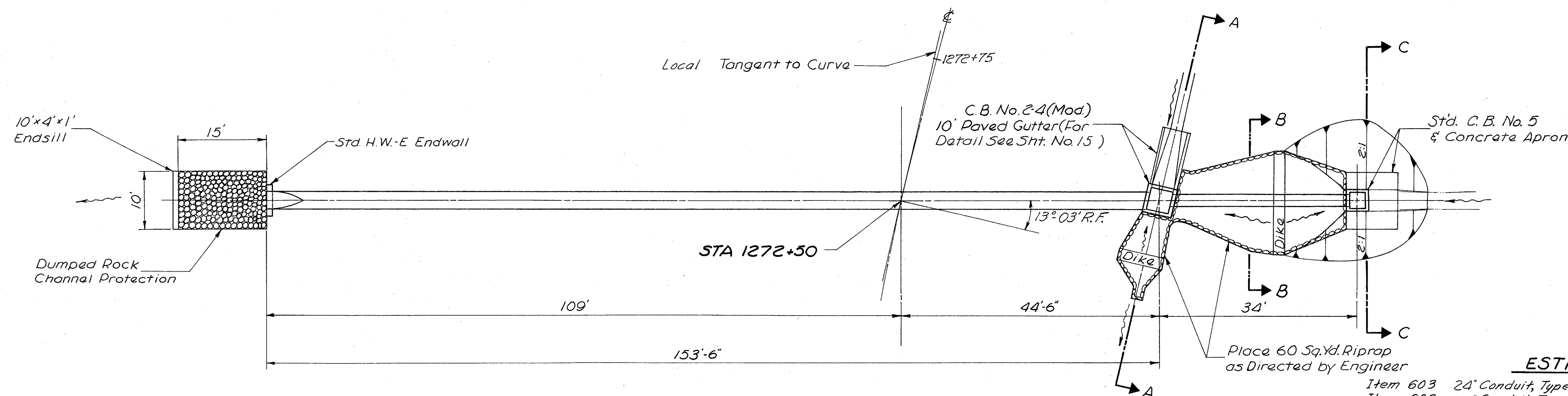


Note:  
Provide catch basin with steps as shown on Std. Drawing C.B. 2-3

JEF-7-2402

3-S STATION 1270+42  
24"X 146' PIPE CULVERT

JEF-7-23.37



PLAN

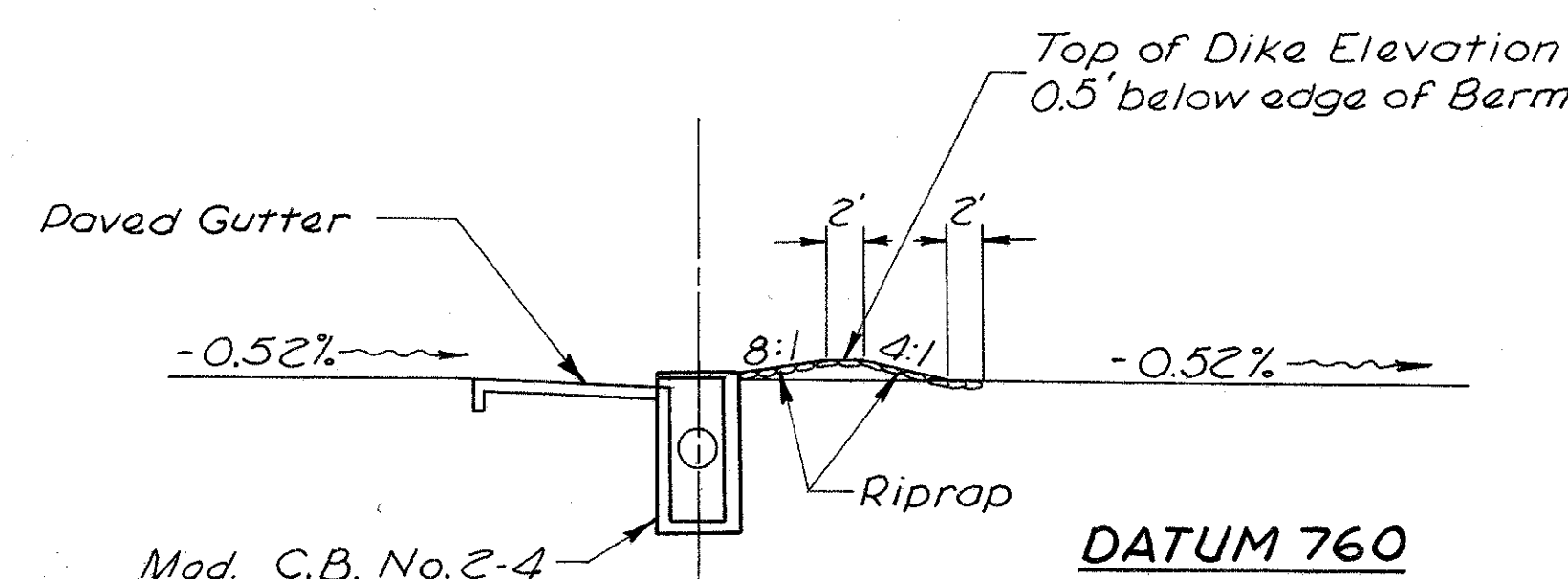
Scale 0 5 10

Excavation Quantities			
Station	Area	Dist	Vol.
Begin Cut	0	11	3
Sec. C-C	14	14	4
End Cut	0	14	4
Total			7 C.Y.

# ESTIMATED QUANTITIES

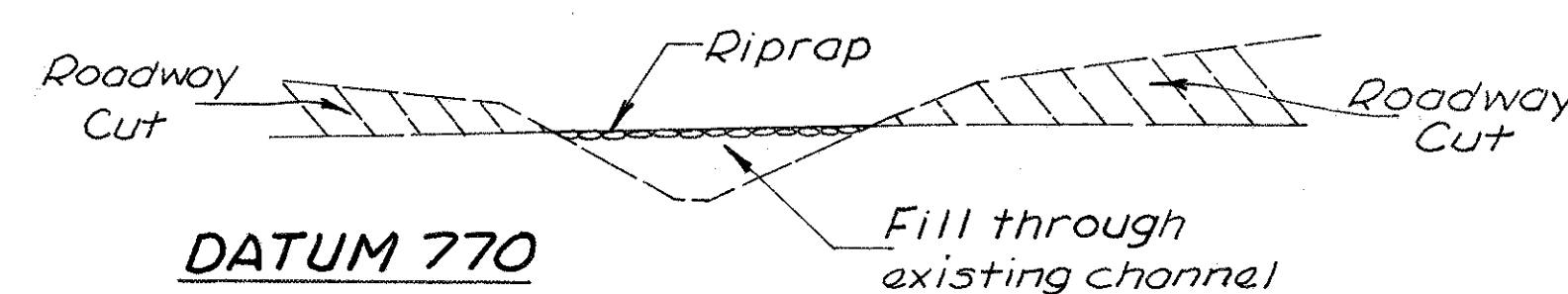
Item 603	24" Conduit, Type C, Class B bedding	34	Lin. Ft.
Item 603	36" Conduit, Type A, 70705, 12 Gage, Cl. B bedding	154	Lin. Ft.
Item 604	No. 2-4 Catch Basin (Modified)	1	Each
Item 604	Std. No. 5 Catch Basin	1	Each
Item 602	Concrete Masonry	2.1	Cu. Yd.
Item 203	Excavation	7	Cu. Yd.
Item 601	Dumped Rock Channel Protection	14	Cu. Yd.
Item 601	Riprap; 6" Reinforced Conc. Slab	60	Sq. Yd.
Item 601	Paved Gutter, Type I-E, Modified	10	Lin. Ft.

Quantities Carried to Sheet No. 29  
Drainage Area = 17.7 Ac.  
 $Q_{25} = 58 \text{ c.f.s.}$



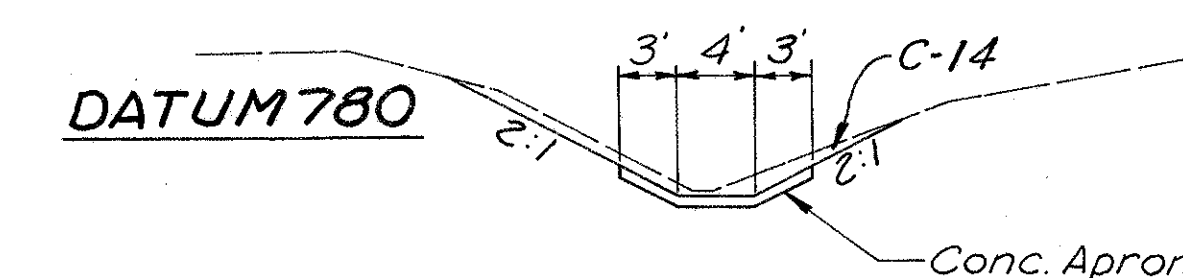
SECTION A-A

Scale 0 5 10



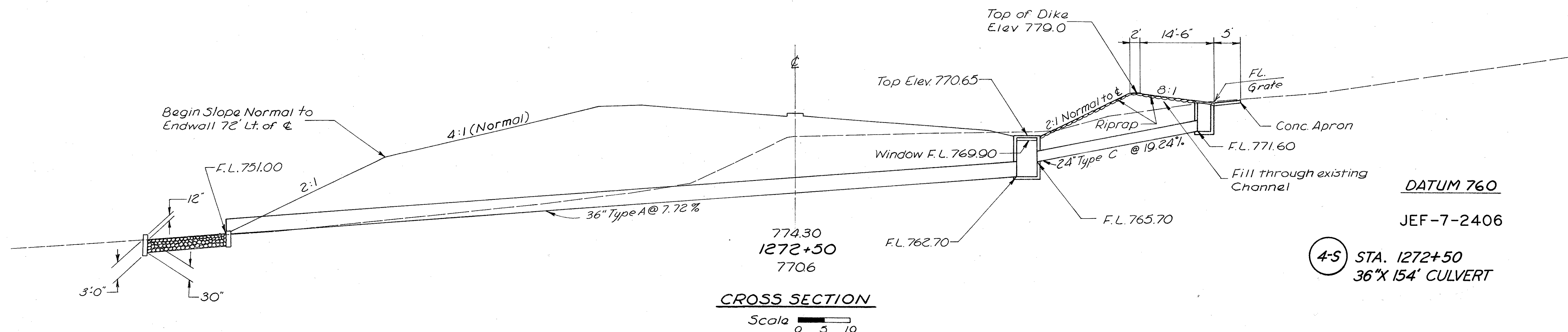
SECTION B-B

Scale 0 5 10



SECTION C-C

Scale 0 5 10



CROSS SECTION

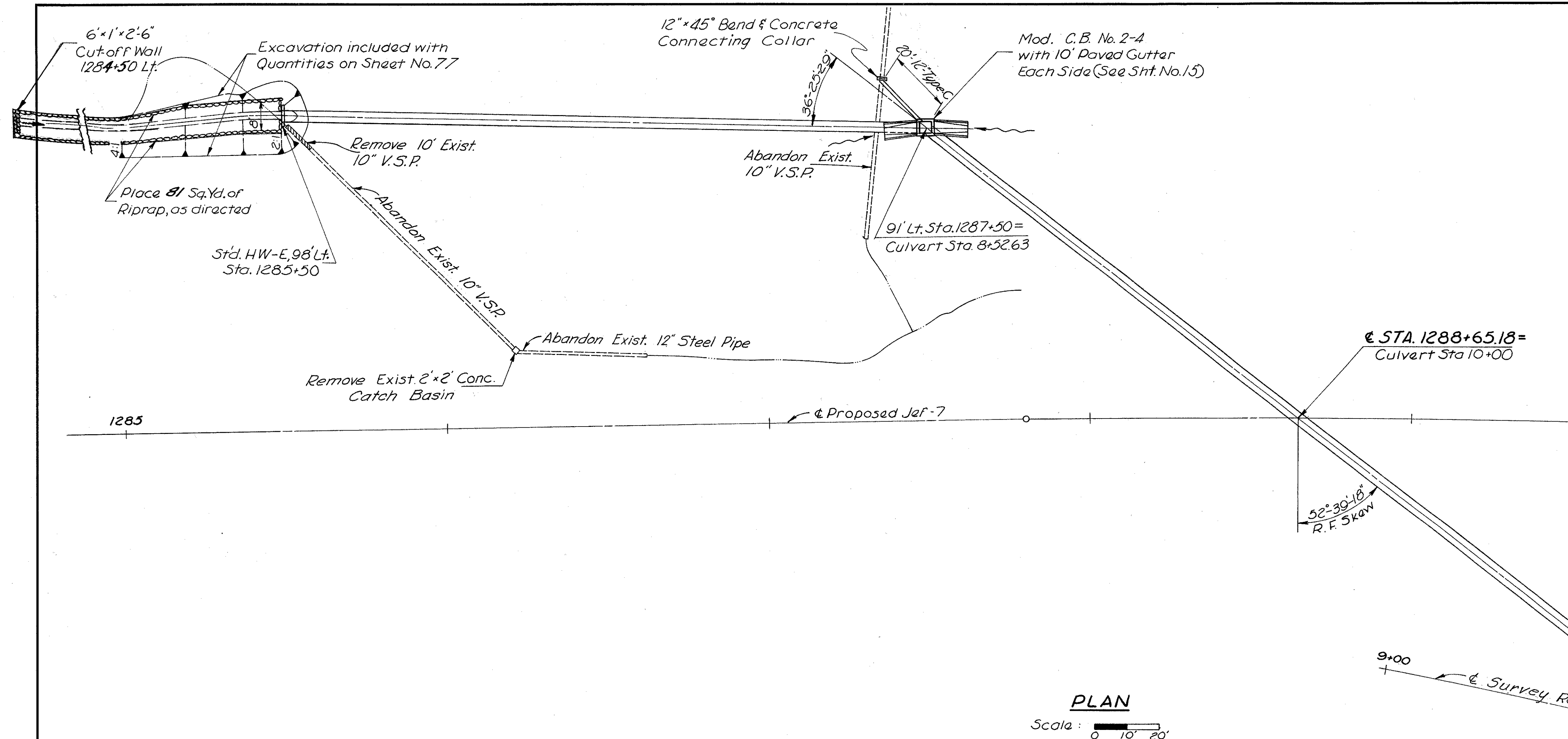
Scale 0 5 10

DATUM 760

JEF-7-2406

4-S STA. 1272+50  
36"X 154' CULVERT



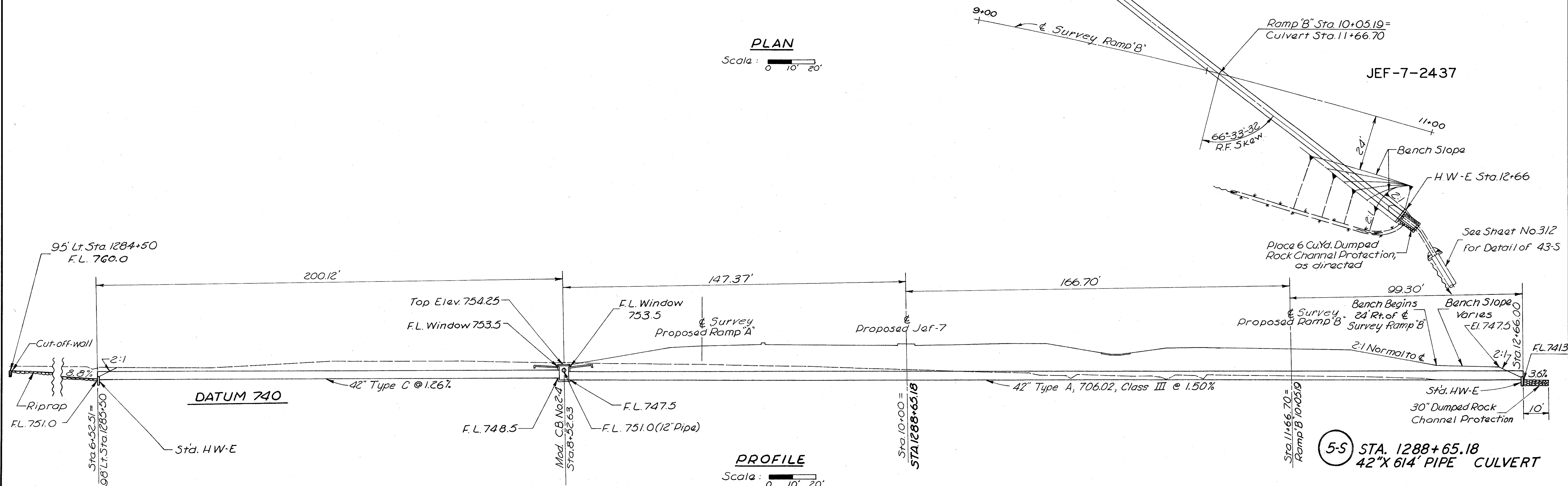


**ESTIMATED QUANTITIES**

Item 603-42" Conduit, Type C, Class "B" bedding	200 Lin. Ft.
Item 603-42" Conduit, Type A, 706.02, Class III, Cl. "B" bedding	414 Lin. Ft.
Item 603-12" Conduit, Type C, Class "B" bedding	30 Lin. Ft.
Item 604-Modified Catch Basin No. 2-4	1 Each
Item 601-Paved Gutter, Type I-2, Modified	20 Lin. Ft.
Item 602-Concrete Masonry	1.6 Cu. Yd.
Item 601-Dumped Rock Channel Protection	6 Cu. Yd.
Item 203-Excavation	1 Cu. Yd.
Item 601-Riprap, 6" Reinforced Concrete Slab	81 Sq. Yd.
Item 202-Pipe Removed, 10" V.S.P.	10 Lin. Ft.
Item 202-Catch Basin Removed	1 Each

Quantities carried to Sheet No. 30  
Drainage Area = 34.5 Acres  
 $Q_{25} = 86$  cfs

**BENDS & BRANCHES**  
12" Type C, 45° Bend ----- 1 Each

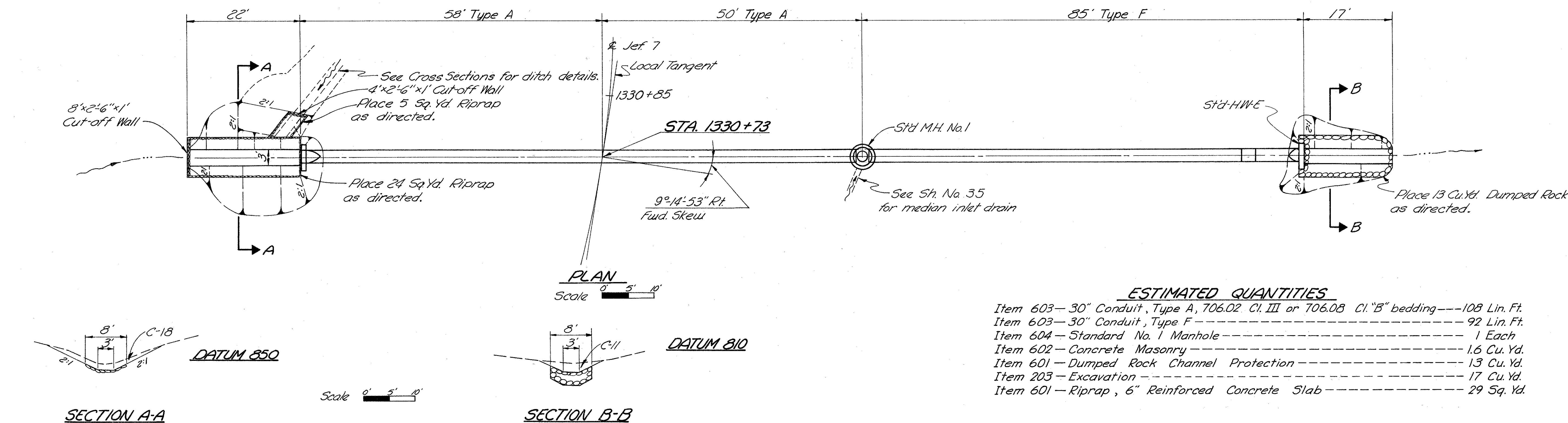


5-S STA. 1288+65.18  
42"X 614' PIPE CULVERT





JEF -7- 23.37

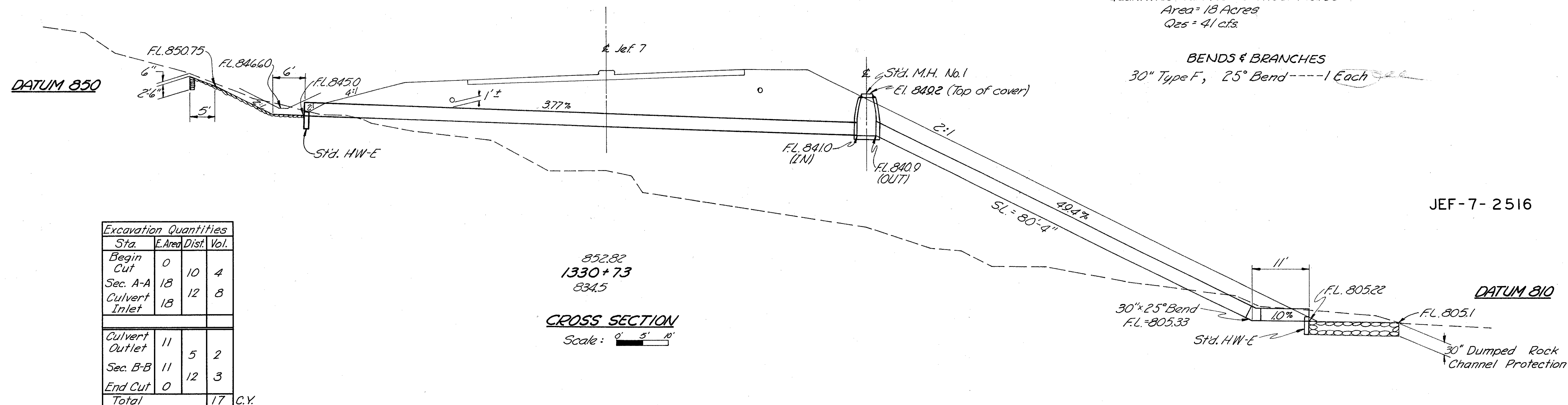


**ESTIMATED QUANTITIES**

Item 603— 30" Conduit, Type A, 706.02 Cl. III or 706.08 Cl. "B" bedding	108 Lin. Ft.
Item 603— 30" Conduit, Type F	92 Lin. Ft.
Item 604— Standard No. 1 Manhole	1 Each
Item 602— Concrete Masonry	1.6 Cu. Yd.
Item 601— Dumped Rock Channel Protection	13 Cu. Yd.
Item 203— Excavation	17 Cu. Yd.
Item 601— Riprap, 6" Reinforced Concrete Slab	29 Sq. Yd.

Quantities carried to Sheet No. 35  
Area = 13 Acres  
Qes = 41 cfs.

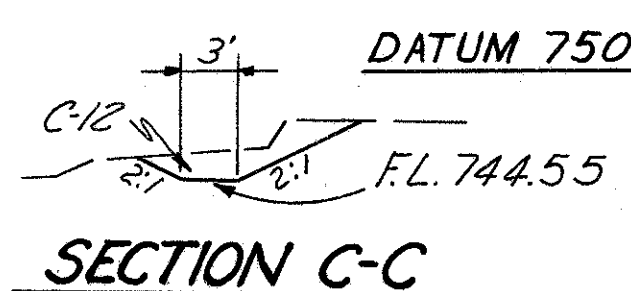
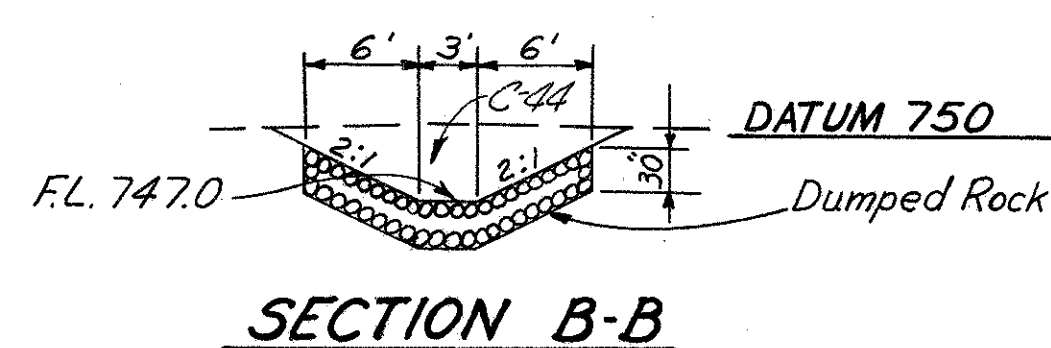
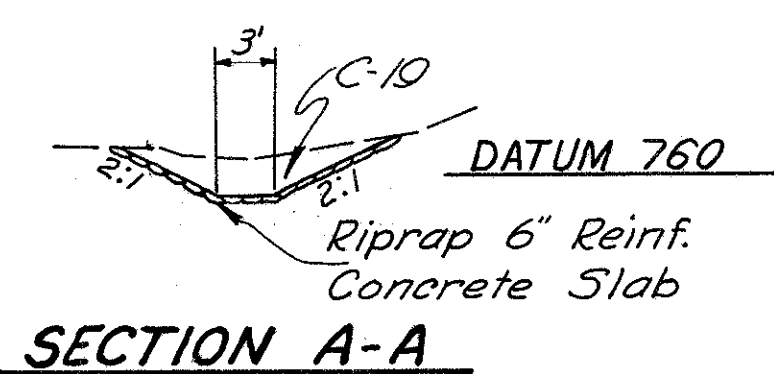
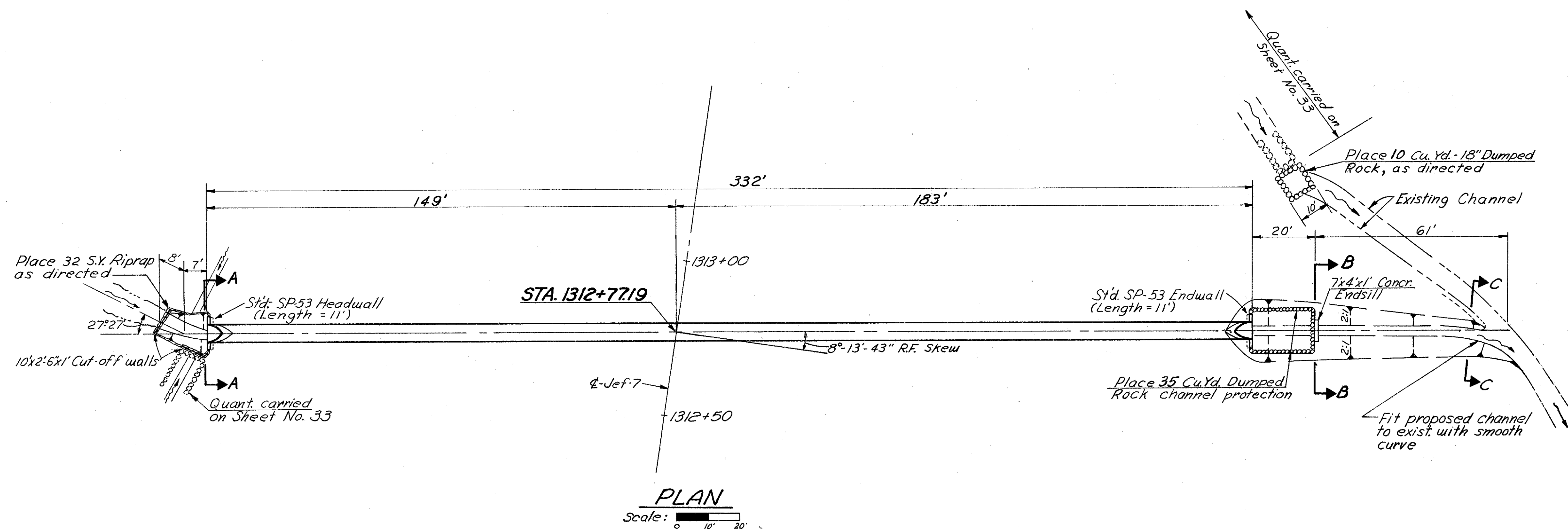
**BENDS & BRANCHES**  
30" Type F, 25° Bend-----1 Each



JEF-7- 2516

8-5 STATION 1330 + 73  
30"X200' PIPE CULVERT

JEF-7- 23.37

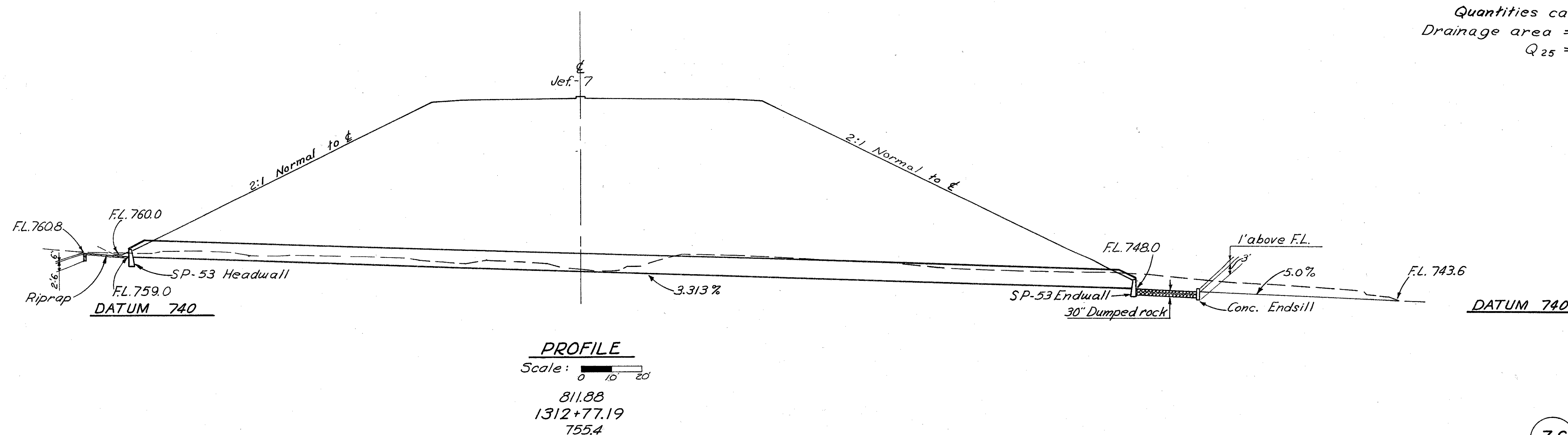


Excavation Quantities			
Sta.	E.Ared	Dist.	Vol.
Sec. A-A	19		
End Cut	0	15	6
Culvert Outlet	44		
Sec. B-B	44	20	33
Sec. C-C	12	49	51
End Cut	0	19	4
Total			94 C.Y.

# ESTIMATED QUANTITIES

Item 603 — 72" Conduit, Type A, 707.03 Gage B-5, Cl. "B" bedding	— 332 Lin. Ft.
Item 602 — Concrete Masonry	— 7.1 Cu.Yd.
Item 601 — Dumped Rock Channel Protection	— 45 Cu.Yd.
Item 203 — Excavation	— 94 Cu.Yd.
Item 601 — Riprap, 6" Reinforced Concrete Slab	— 32 Sq.Yd.

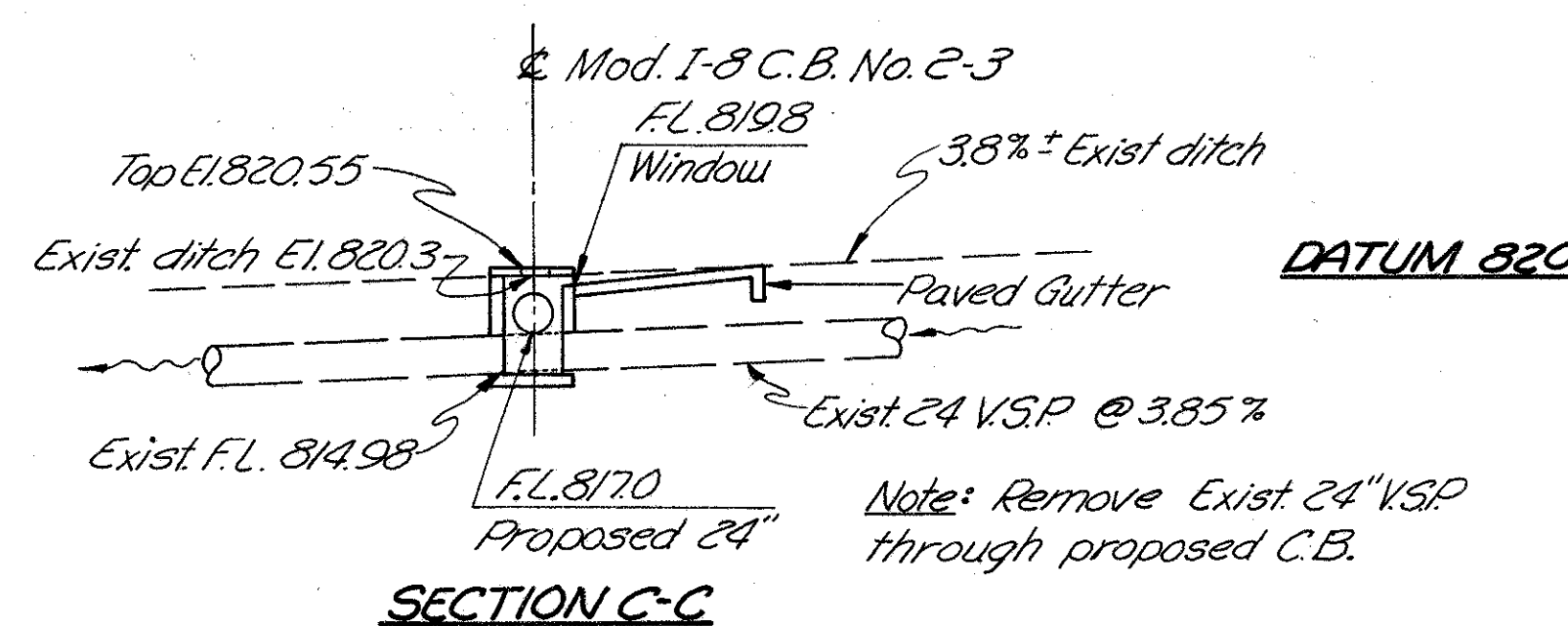
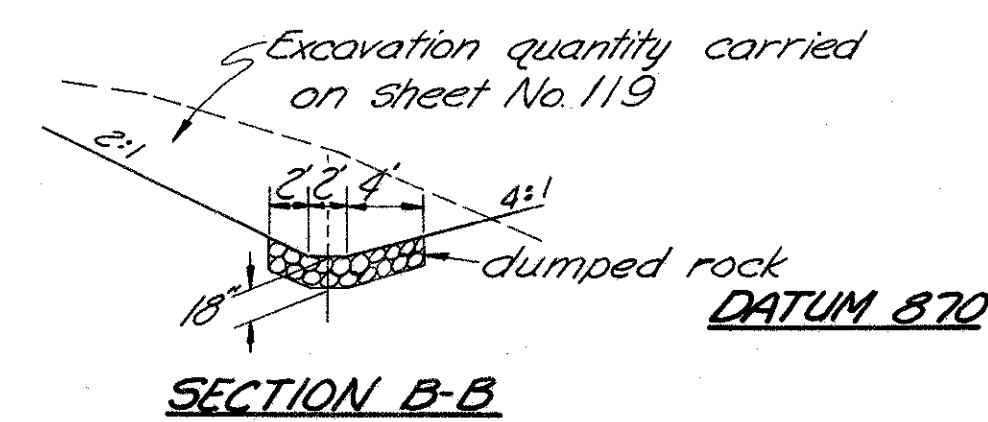
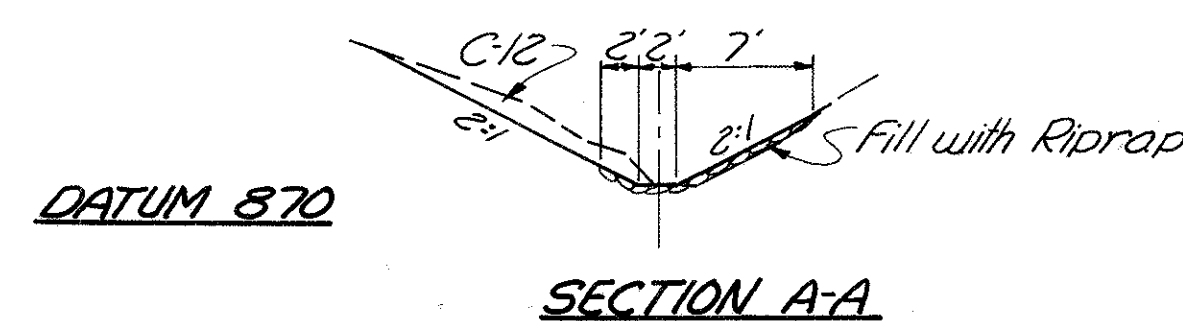
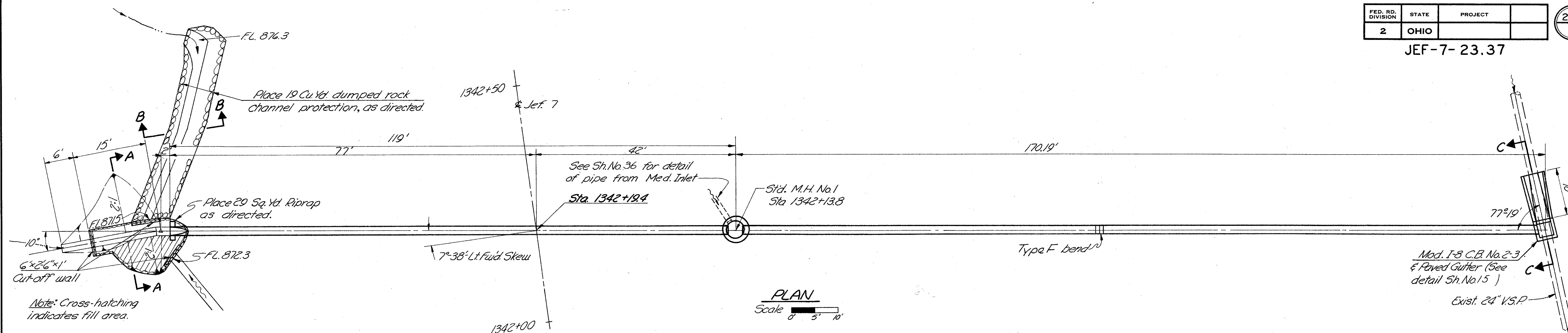
Quantities carried to Sheet No. 33  
 Drainage area = 416 Acres  
 $Q_{25} = 3/9$  cfs



JEF-7-2482

7-S STA. 1312+77.19  
 72"x332' PIPE CULVERT



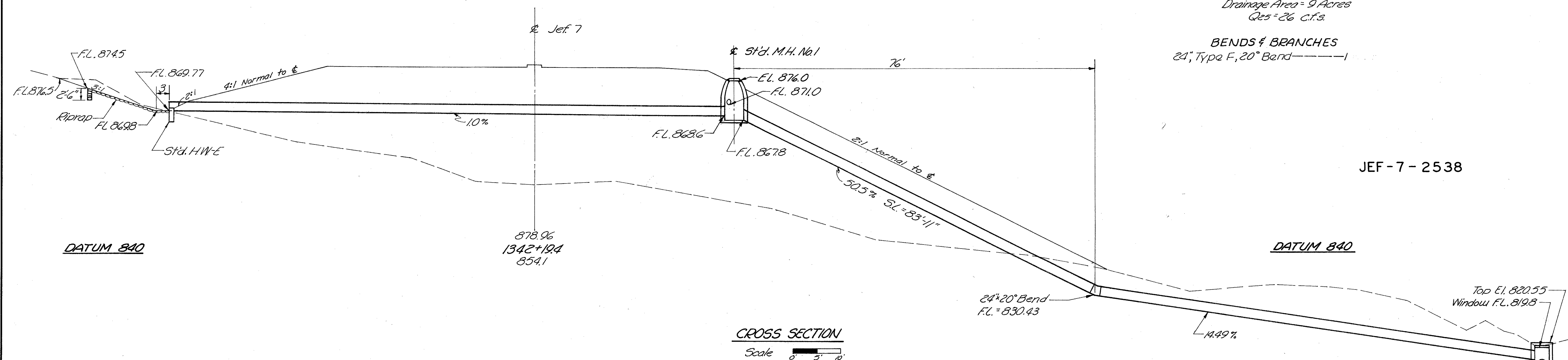


### ESTIMATED QUANTITIES

603 24" Conduit Type A Sec. 706.02, Class II or 706.08	120 Lin. Ft.
603 24" Conduit Type F	178 Lin. Ft.
604 Standard No. 1 Manhole	1 Each
604 Modified Catch Basin No. 2-3	1 Each
602 Concrete Masonry	0.5 Cu. Yd.
601 Paved Gutter Type I-C, Modified	10 Lin. Ft.
601 Dumped Rock Channel Protection	19 Cu. Yd.
601 Riprap 6" Rainf. Conc. Slab	29 Sq. Yd.
203 Excavation	5 Cu. Yd.

Quantities carried to Sheet No. 36  
Drainage Area = 9 Acres  
Qes = 26 C.F.S.

BENDS & BRANCHES  
24", Type F, 20° Bend — 1



JEF-7-2538

9-5

STATION 1342 + 19.4  
24" X 298' PIPE CULVERT

JEF-7-23.37

# ESTIMATED QUANTITIES

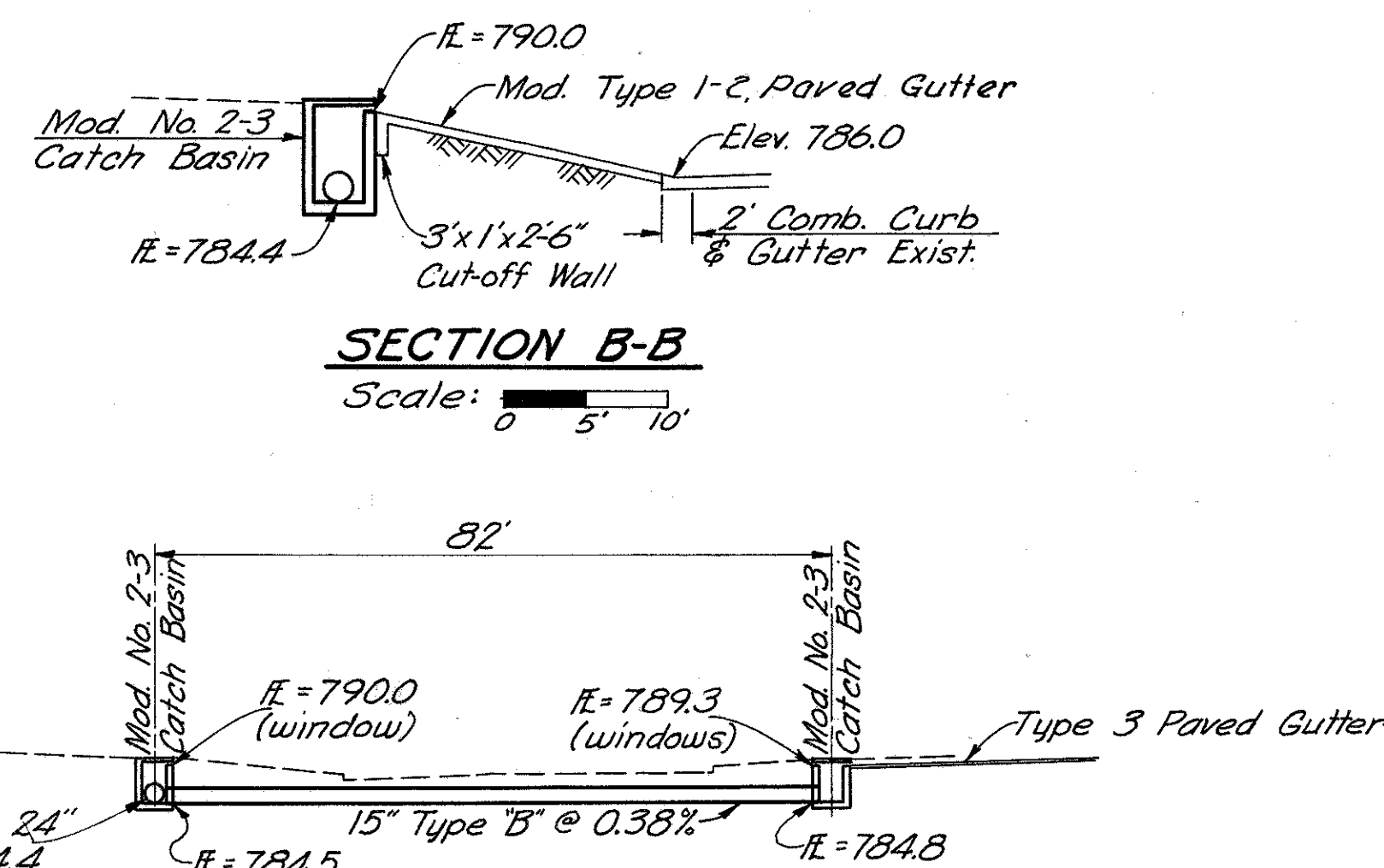
Item 603 - 15" Conduit, Type B, with Class "B" Bedding	82 Lin. Ft.
Item 603 - 30" Conduit, Type A, Sec. 707.05, Gage B, with Cl. "B" Bedding	442 Lin. Ft.
Item 602 - Concrete Masonry	06 Cu. Yd.
Item 203 - Excavation	1951 Cu. Yd.
Item 604 - Mod. No. 2-3 Catch Basin	2 Each
Item 601 - Paved Gutter, Type 1-2, Modified	33 Lin. Ft.
Item 601 - Dumped Rock Channel Protection	83 Cu. Yd.
Item Special - Rail Debris Deflector	1 Each

Quantities Carried to Sheet No. 36

Drainage Area = 52 Acres  
Q<sub>10</sub> = 67 c.f.s.

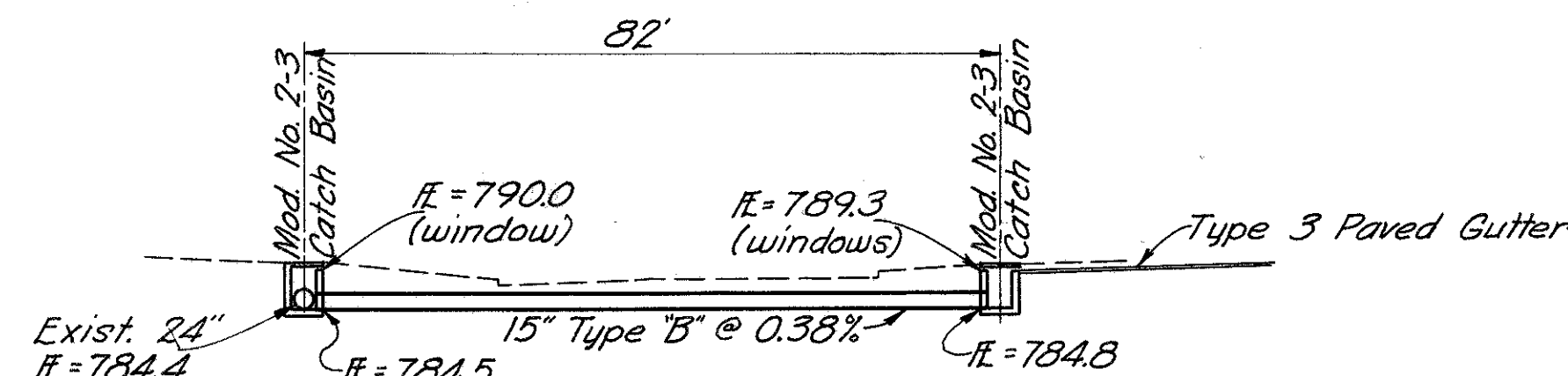
## SECTION B-B

Scale: 0 5' 10'



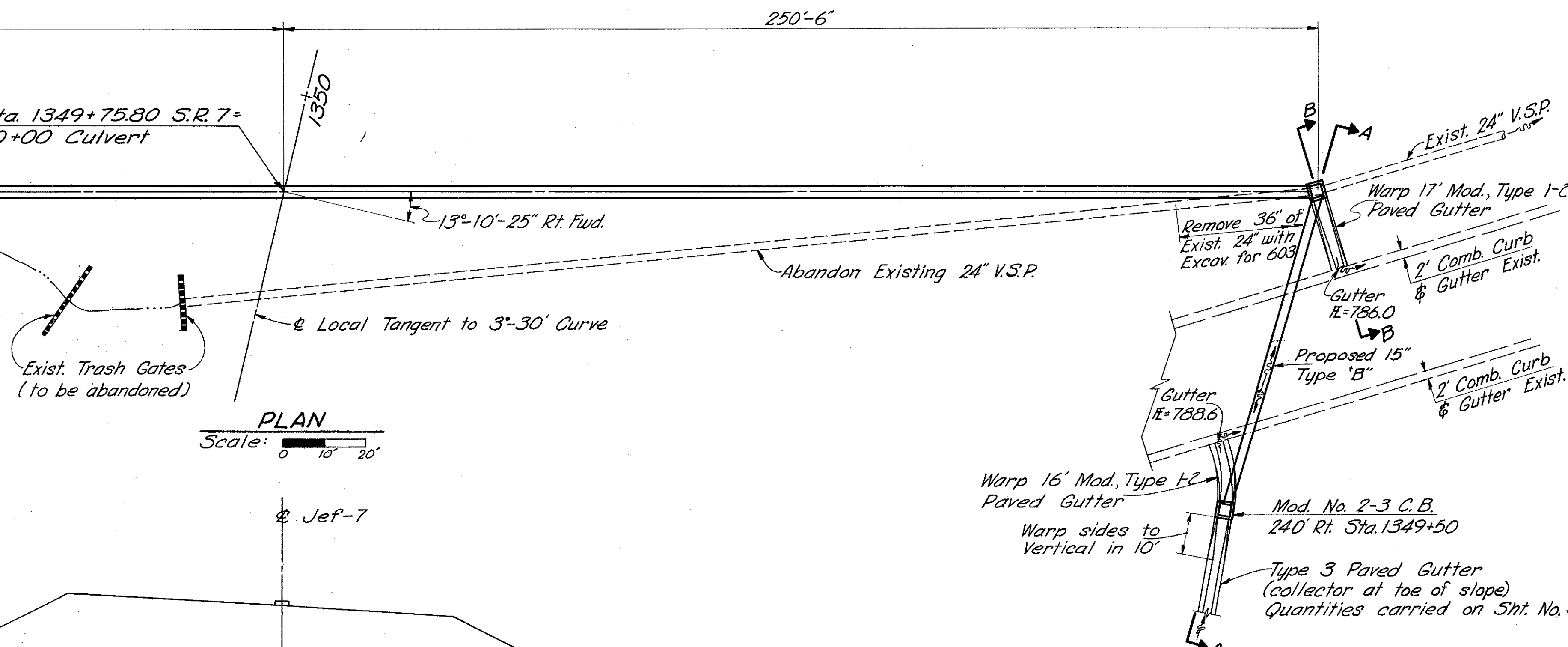
## SECTION A-A

Scale: 0 10' 20'



## PLAN

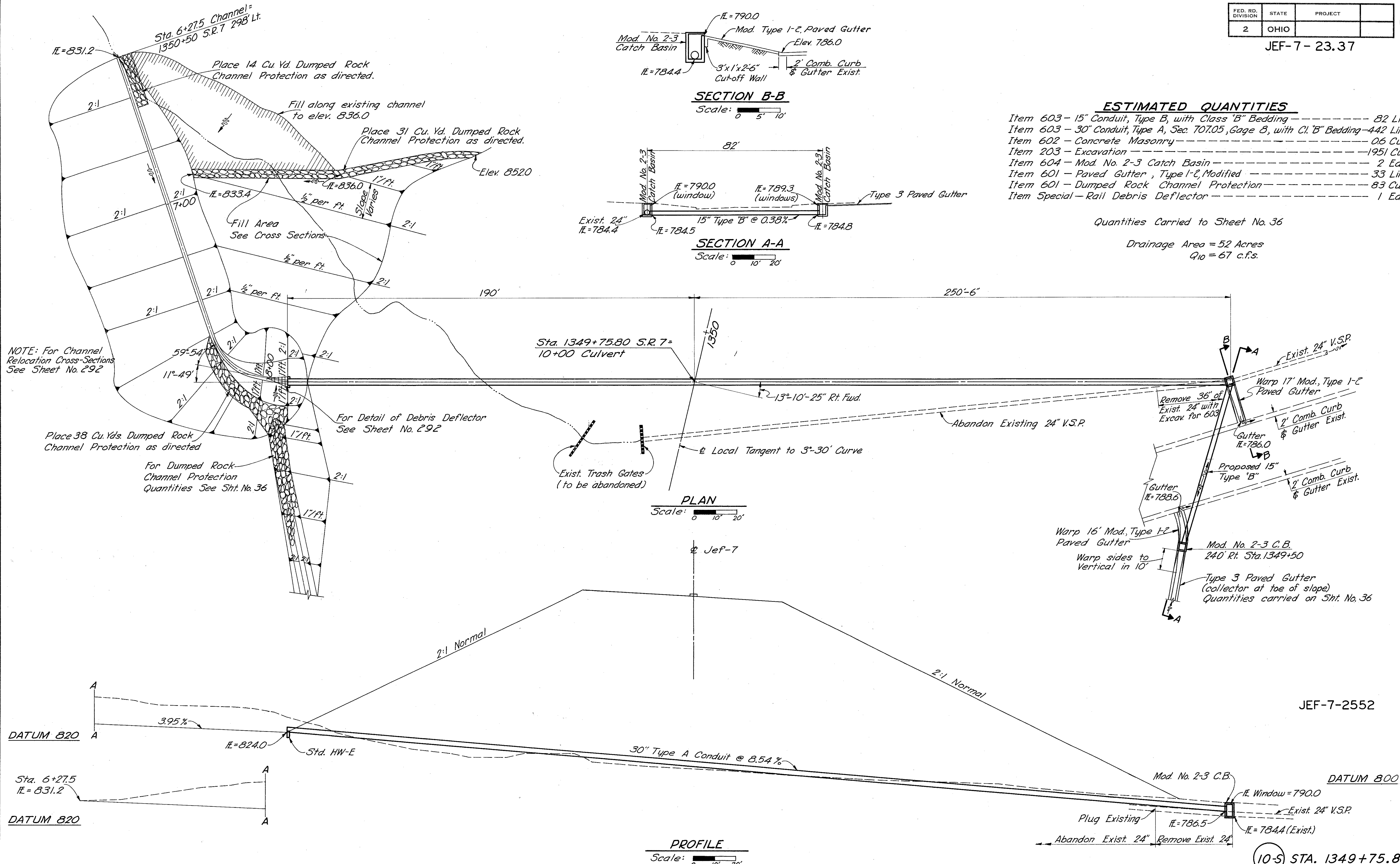
Scale: 0 10' 20'



Jef-7

## PROFILE

Scale: 0 10' 20'



JEF-7-2552

DATUM 800

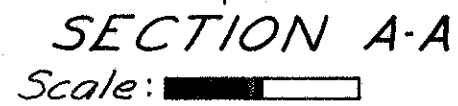
10-S STA. 1349+75.8  
30" X 442' CULVERT



292


(10-5) CHANNEL CROSS SECTIONS  
AND  
RAIL DEBRIS DEFLECTOR DETAILS

JEF-7- 23.37




Scale:  0 5' 10'



Scale:  0 5' 10'



Scale:   
0 5' 10'



Scale:  0 5' 10'



Scale: 

[illegible]

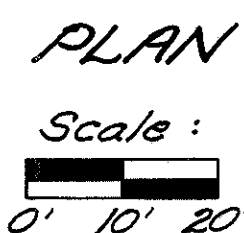
Scale: 

- |              |  |              |
|--------------|--|--------------|
| Item 603     | - 30" Conduit, Type A, Sec. 707.05 Gage 10 |              |
|              | Class "B" Bedding                          | 336 Lin. Ft. |
| Item 603     | - 12" Conduit Type C, Class "B" Bedding    | 30 Lin. Ft.  |
| Item 602     | - Concrete Masonry                         | 08 Cu. Yd.   |
| Item 604     | - Standard Catch Basin No. 2-2A            | 1 Each       |
| Item 604     | - Modified Catch Basin No. 2-3             | 1 Each.      |
| Item 601     | - Riprap, 6" Reinforced Concrete Slab      | 1175 Sq. Yd. |
| Item 601     | - Paved Gutter, Modified Type 3            | 5 Lin. Ft.   |
| Item 601     | - Dumped Rock Channel Protection           | 5 Cu. Yd.    |
| Item 203     | - Excavation                               | 135 Cu. Yd.  |
| Item 202     | - Catch Basins Removed                     | 1 Each       |
| Item Special | - Rail Debris Deflector                    | 1 Each       |

Drainage Area = 35 Acres  
Q<sub>10</sub> = 53 cfs.  
Quantities carried to sheet No. 38



*JEF-7-23.37*

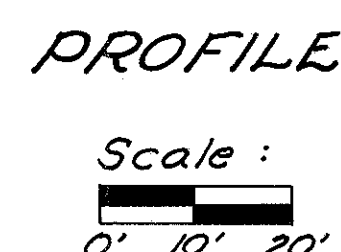


Mod. N<sup>o</sup> 2-3 Catch Basin - For details of catch basin at Sta. 1+17, see Sheet N<sup>o</sup> 15. The catch basin at Sta. 5+96.5 shall have walls and bottom 12" thick. Windows shall be omitted and in place of the grate a one inch solid steel plate with a handle firmly attached shall be used.

Item 603	24" Conduit, Type "B" Sec. 706.02 Class III with Class "B" Bedding	112 Lin. Ft.
Item 603	24" Conduit, Type "F"	258 Lin. Ft.
Item 603	24" Conduit, Type "B" Sec. 706.02 Class III or 706.08 with Class "B" Bedding	222 Lin. Ft.
Item 603	24" Conduit, Type "B" Sec. 706.02 Class II with Class "B" Bedding, under R.R.	52 Lin. Ft.
Item 602	Concrete Masonry	0.4 Cu. Yd.
Item 601	Dumped Rock Channel Protection	12 Cu. Yds.
Item 601	Riprap, 6" Reinforced Concrete Slab	18 Sq. Yds.
Item 601	Paved Gutter, Mod. Type 1-2	20 Lin. Ft.
Item 202	Pipe Removed, 24" and Under	18 Lin. Ft.
Item 604	St# No. 1 Manhole	3 Each
Item 604	St# No. 2 Manhole	1 Each
Item 604	Catch Basin No. 2-3, Modified	2 Each
Item 202	Portions of Existing Structures Removed	Lump Sum

Area : 26 acres

JEF-7-2612

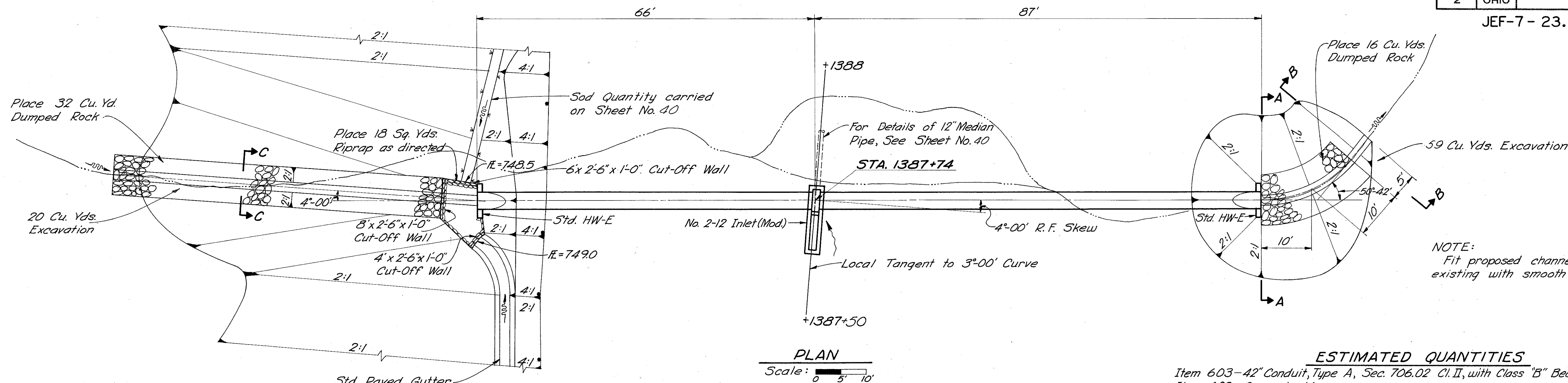


Station	End Area	Vol. Cu. Yds.
1381+00	0	294
1381+32	496	165
1381+50	0	
<b>TOTAL</b>		<b>459</b>

**STATION 1381+32**  
**24" x 644' CONDUIT**

(12-5)

JEF-7 - 23.37

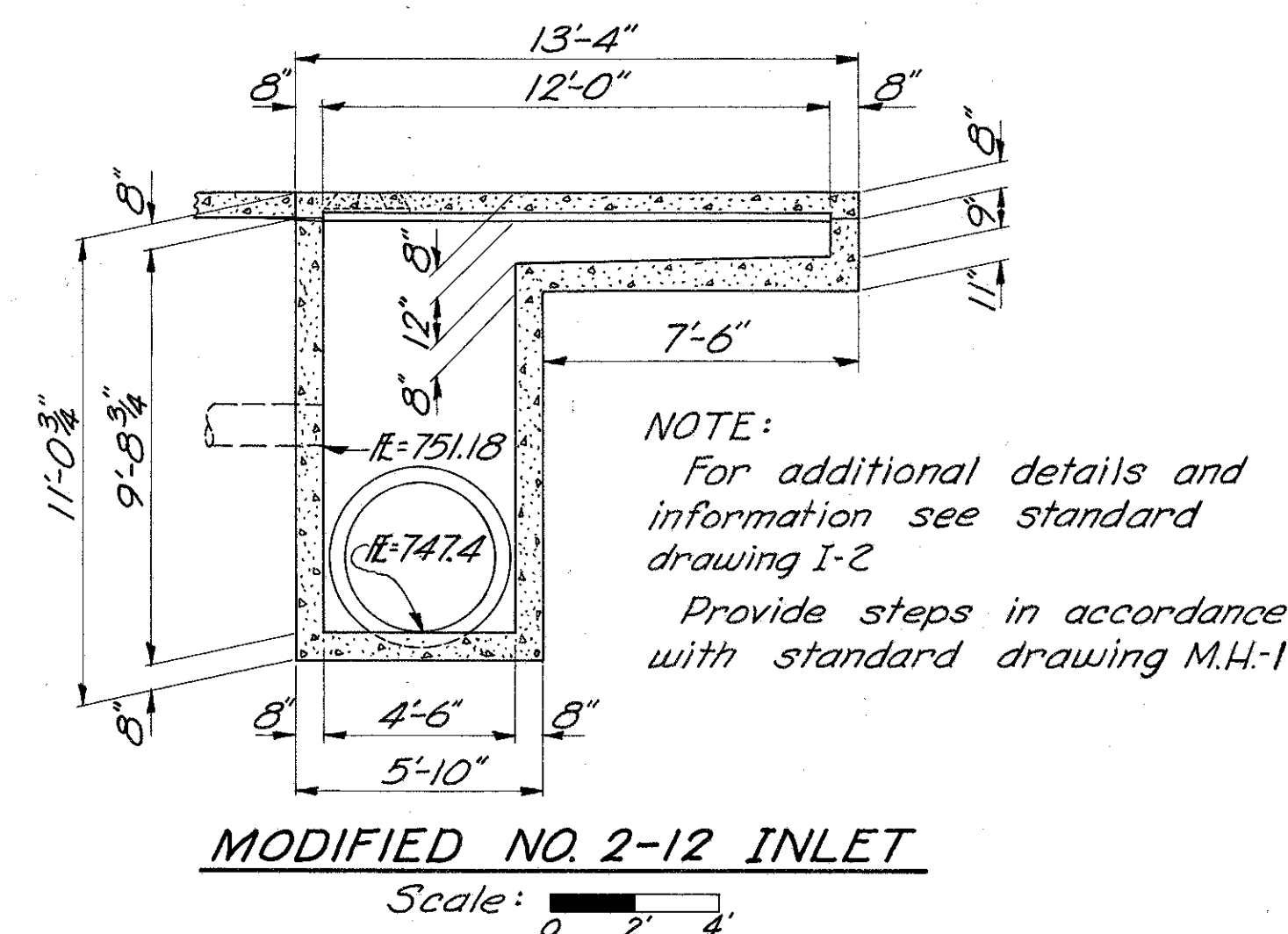
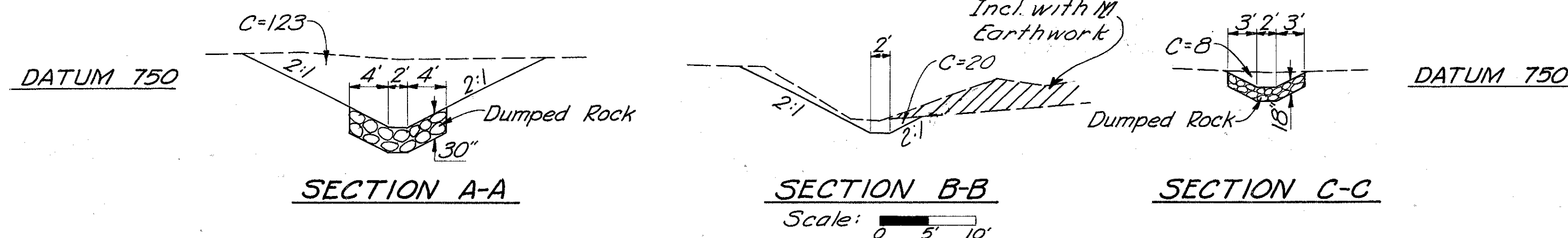


### ESTIMATED QUANTITIES

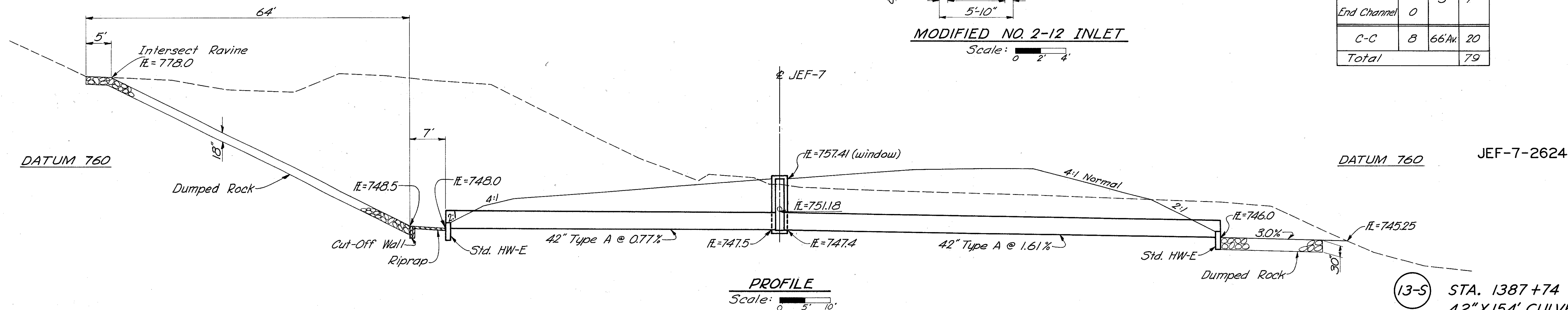
Item 603-42" Conduit, Type A, Sec. 706.02 Cl. II, with Class "B" Bedding--154 Lin. Ft.	
Item 602-Concrete Masonry-----	1.6 Cu. Yd.
Item 601-Dumped Rock Channel Protection-----	51 Cu. Yd.
Item 601-Riprap, 6" Reinforced Concrete Slab-----	18 Sq. Yd.
Item 604-Modified Median Inlet No. 2-12-----	1 Each
Item 203-Excavation-----	79 Cu. Yd.

Quantities carried to Sheet No. 40

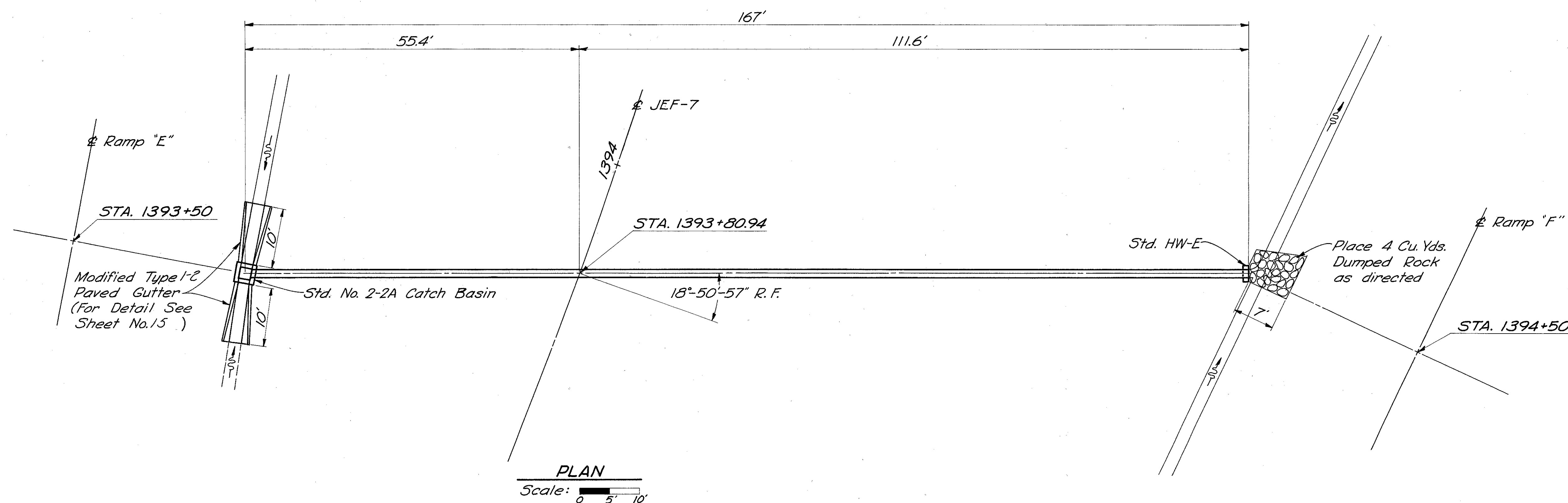
Drainage Area = 33 Acres  
Q<sub>50</sub> = 85 c.f.s.



Excavation Table			
Section	End Area	Dist.	Vol. Cu. Yd.
A-A	123	22'	58
B-B	20	3'	1
End Channel	0		
C-C	8	66' Av.	20
Total			79





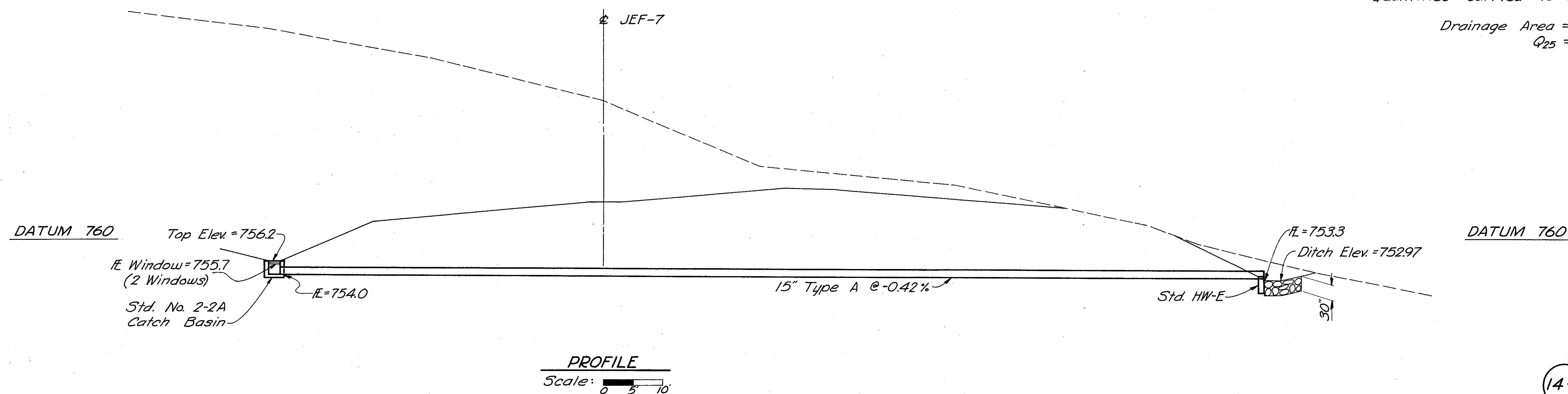


# ESTIMATED QUANTITIES

Item 603 - 15" Conduit, Type A, Sec. 706.08, 706.09 or Sec. 706.02 Cl. III, Class "B" Bedding	168 Lin. Ft.
Item 604 - Std. No. 2-2A Catch Basin	1 Each
Item 602 - Concrete Masonry	0.3 Cu. Yd.
Item 601 - Dumped Rock Channel Protection	4 Cu. Yd.
Item 601 - Paved Gutter, Type I-2, Modified	20 Lin. Ft.

Quantities carried to Sheet No. 40

Drainage Area = 1 Acre  
Q<sub>25</sub> = 4 c.f.s.



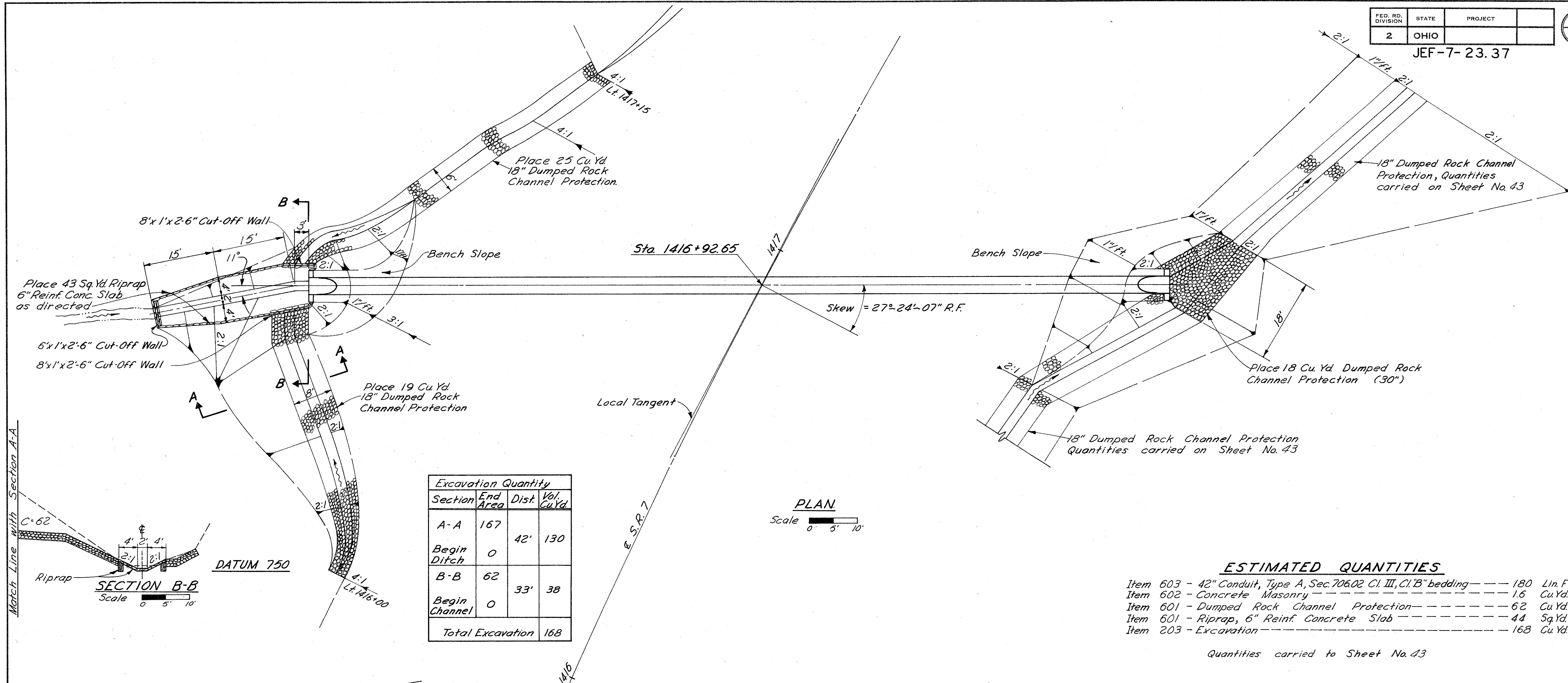
JEF-7-2636

14-S STA. 1393+80.94  
15" X 168' CULVERT





JEF-7- 23.37



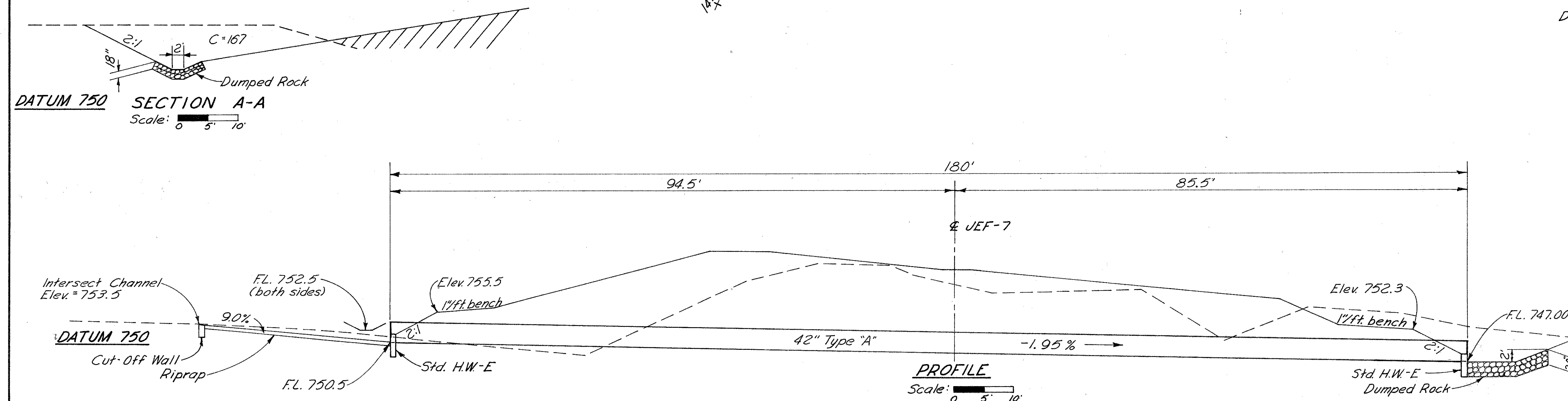
# ESTIMATED QUANTITIES

Item 603 - 42" Conduit, Type A, Sec. 706.02 Cl. III, Cl. "B" bedding	180	Lin. Ft.
Item 602 - Concrete Masonry	1.6	Cu. Yd.
Item 601 - Dumped Rock Channel Protection	62	Cu. Yd.
Item 601 - Riprap, 6" Reinf. Concrete Slab	44	Sq. Yd.
Item 203 - Excavation	168	Cu. Yd.

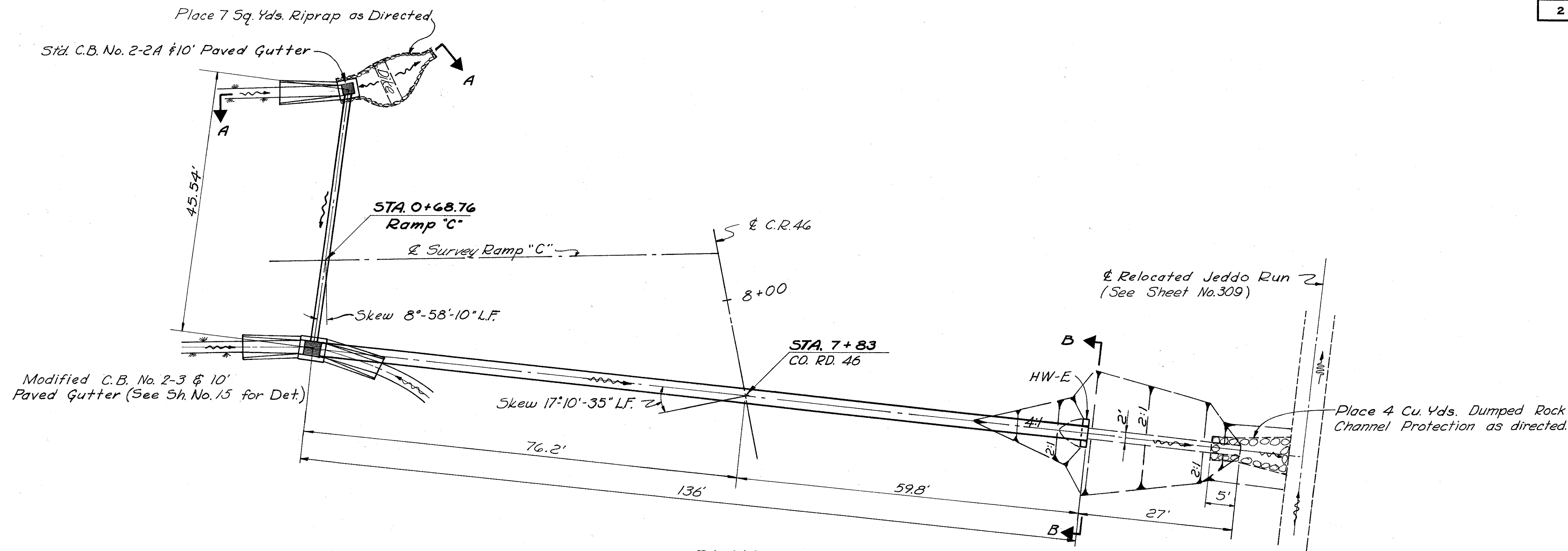
Quantities carried to Sheet No. 43

Drainage Area = 90 AC.  
Q<sub>25</sub> = 114 cfs

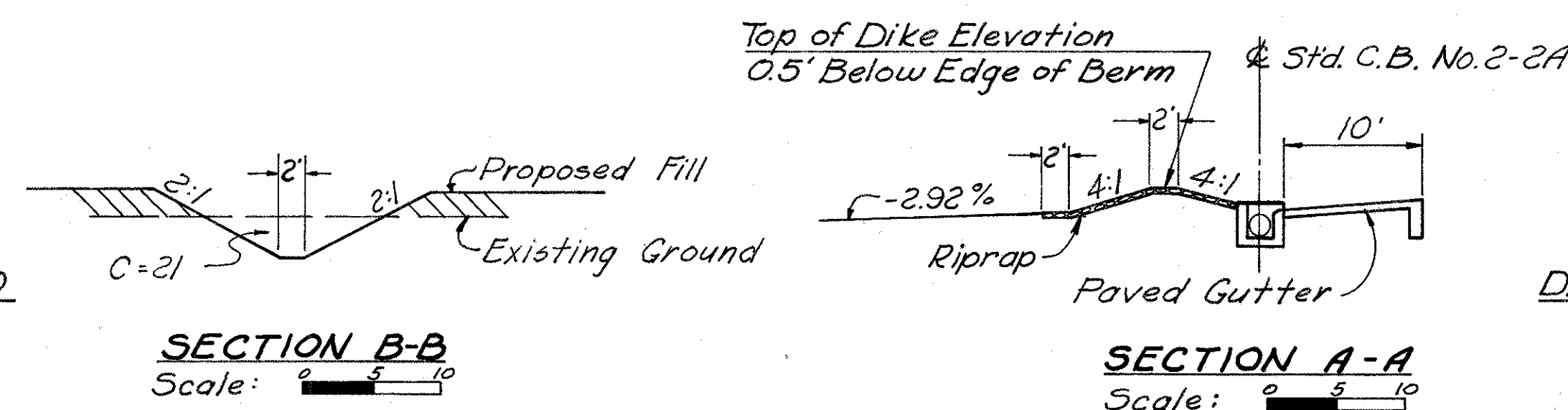
JEF-7-2680



16-S STATION 1416+92.65  
42"x180' CULVERT



PLAN  
Scale: 1" = 10'



### ESTIMATED QUANTITIES

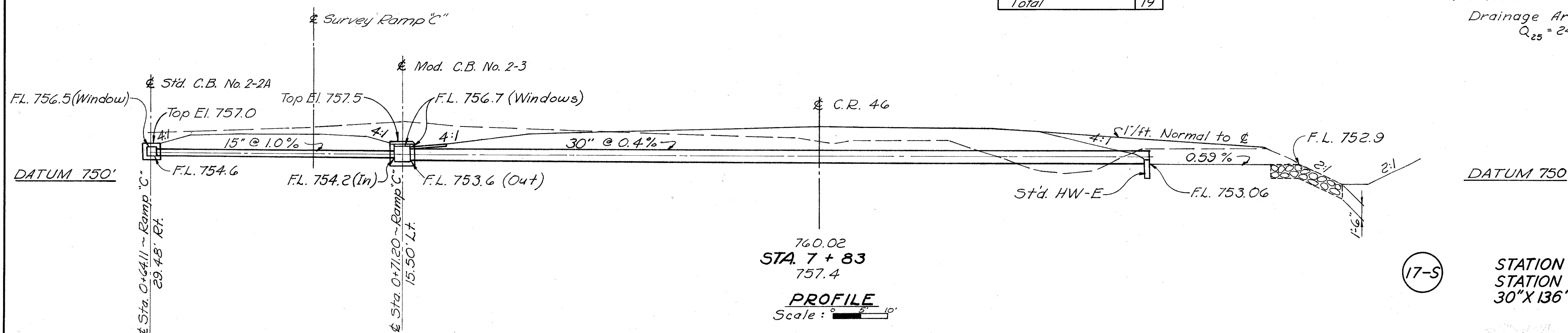
Excavation Quantities			
Station	Area	Dist.	Vol.
Sec. B-B	21	22	17
Sec. B-B+22	21	5	2
End Excav.	0		
Total			19

Item 603—30" Conduit, Type A, 706.02 or 706.08, Class "B" bedding	136 Lin. Ft.
Item 603—15" Conduit, Type A, 706.02 or 706.08, Class "B" bedding	44 Lin. Ft.
Item 602—Concrete Masonry	0.6 Cu. Yds.
Item 604—No. 2-3 Catch Basin (Modified)	1 Each
Item 604—Std. No. 2-2A Catch Basin	1 Each
Item 601—Paved Gutter, Type 1-2 Modified	30 Lin. Ft.
Item 601—Riprap, 6" Reinforced Concrete Slab	7 Sq. Yds.
Item 601—Dumped Rock Channel Protection	4 Cu. Yds.
Item 203—Excavation	19 Cu. Yds.

Quantities Carried to Sh. 183

Drainage Area = 8.7 Acres

$Q_{25} = 24.5$  cfs.



760.02  
STA. 7+83  
757.4  
PROFILE  
Scale: 1" = 10'

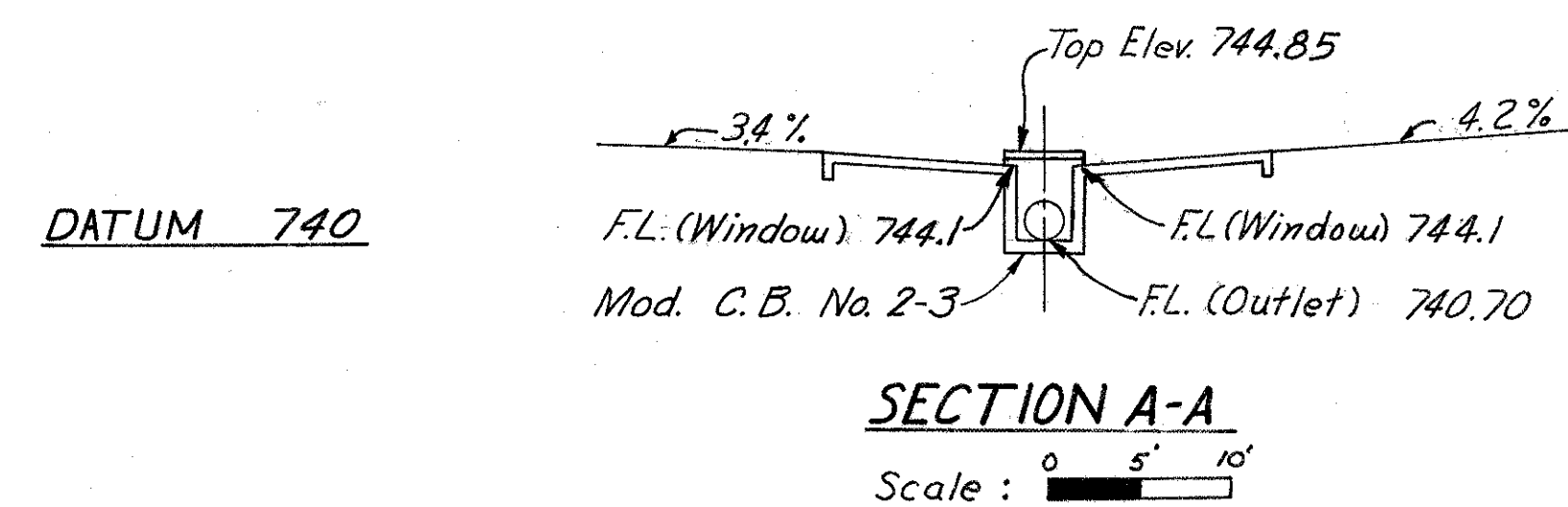
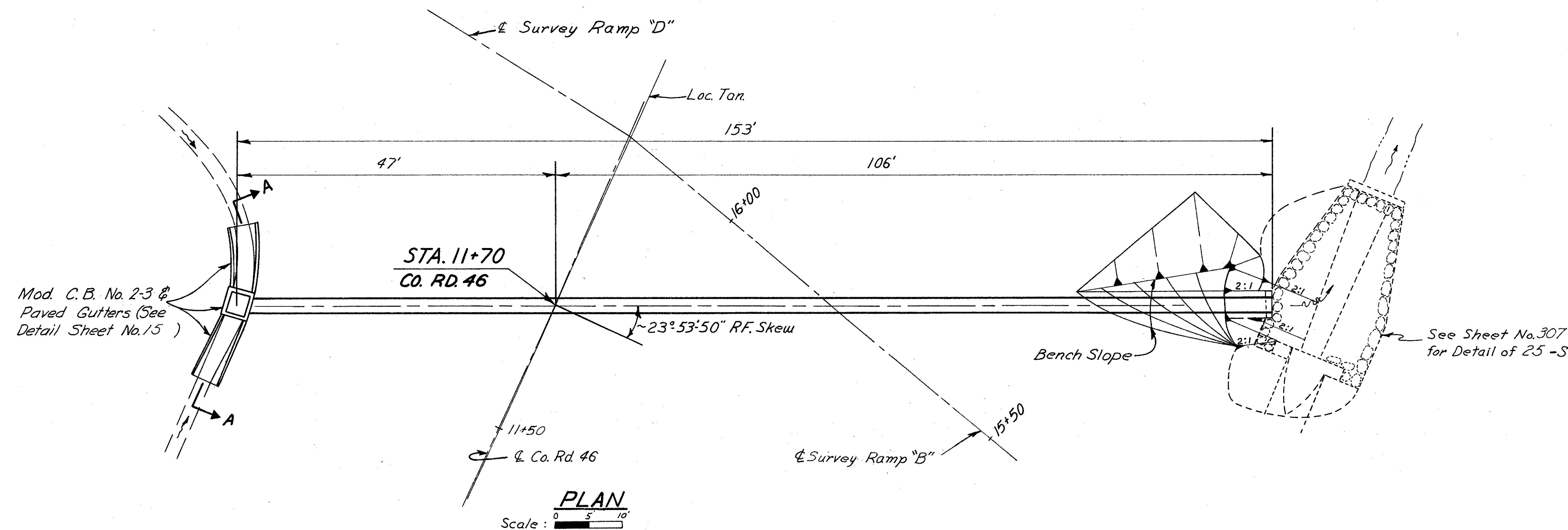
17-S

STATION 7+83 - C.R. 46  
STATION 0+68.76 - RAMP "C"  
30"X 136' & 15"X 46' PIPE CULVERTS





JEF-7 - 23.37

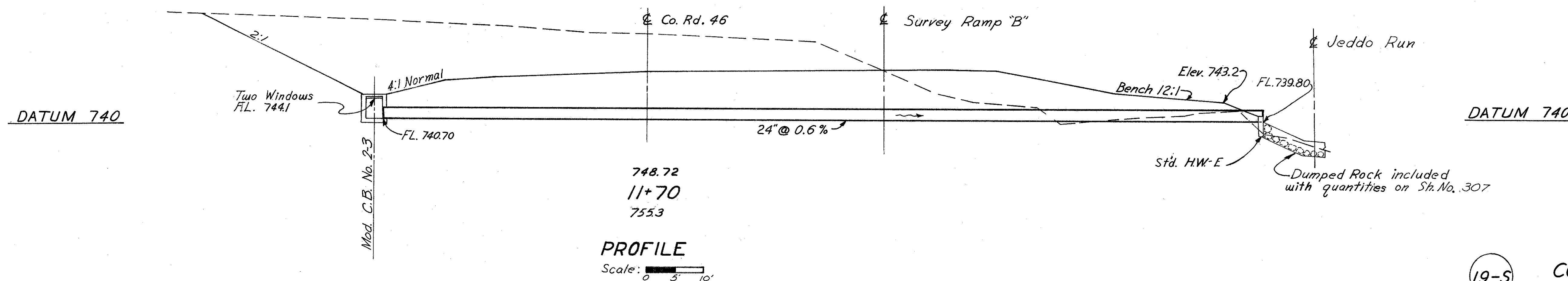


### ESTIMATED QUANTITIES

Item 603	24" Conduit, Type A, 706.02 or 706.08, Cl. "B" bedding	154 Lin. Ft.
Item 601	Paved Gutter, Type 1-2 Modified	20 Lin. Ft.
Item 604	Catch Basin, No. 2-3 (Modified)	1 Each
Item 602	Concrete Masonry	0.5 Cu. Yd.

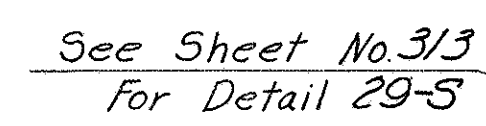
Quantities Carried to Sheet No. 183

Drainage Area = 3.8 Acres  
Q<sub>25</sub> = 15.3 c.f.s.




CO. RD. 46 STA. 11+70  
24" x 153' PIPE CULVERT





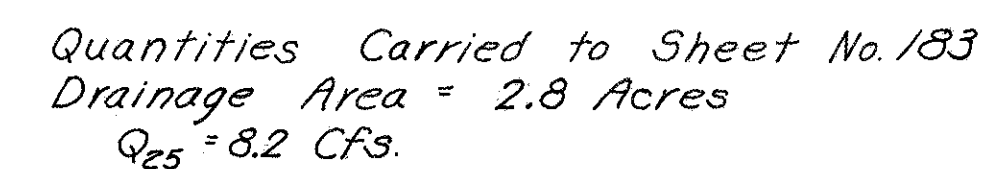
Scale:   
0' .5' 10'



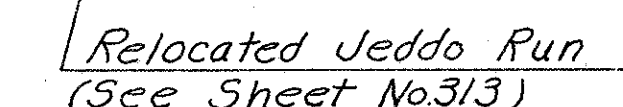
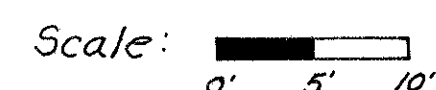
Scale:  0' 5' 10'




DATUM 730



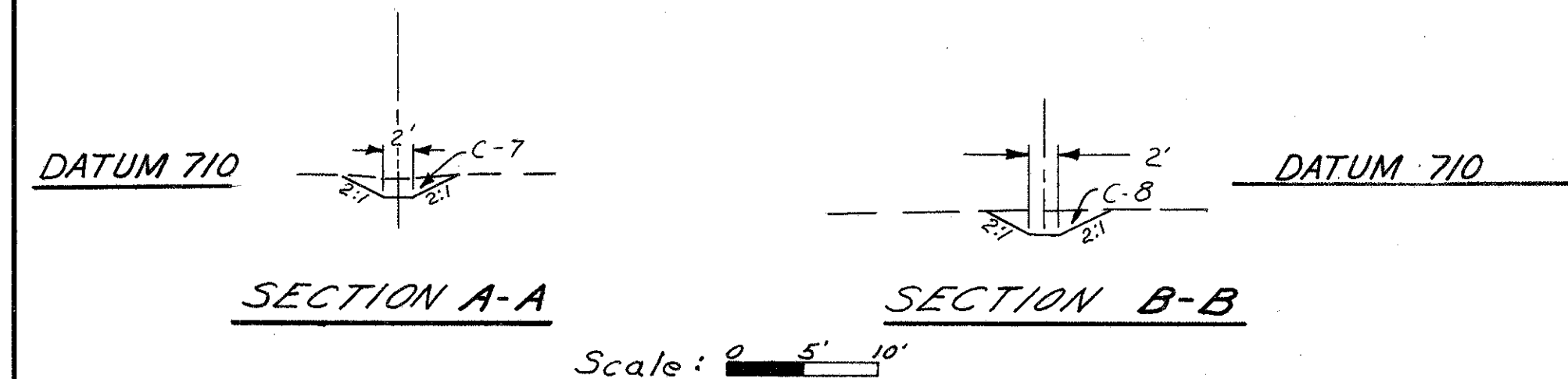
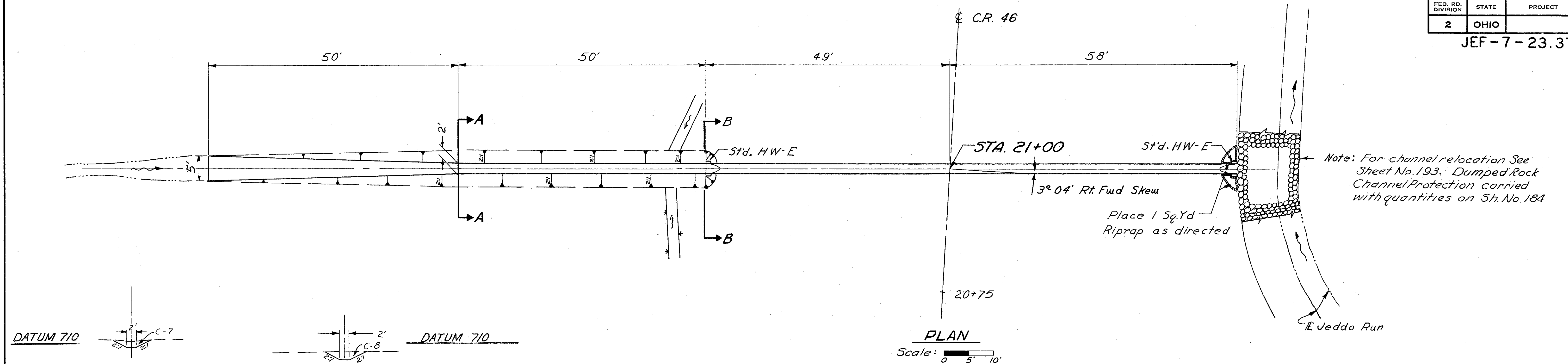
Excavation Quantities			
Sta.	E.Ared.	Dist.	Vol.
Culvert Outlet	11		
Sec. A-A	11	14	9
Sec. A-A+24'	22	24	15
Sec. B-B	22	21	17
Sec. B-B+20'	22	20	16
End Excav.	0	5	2
Total			59



Scale: 

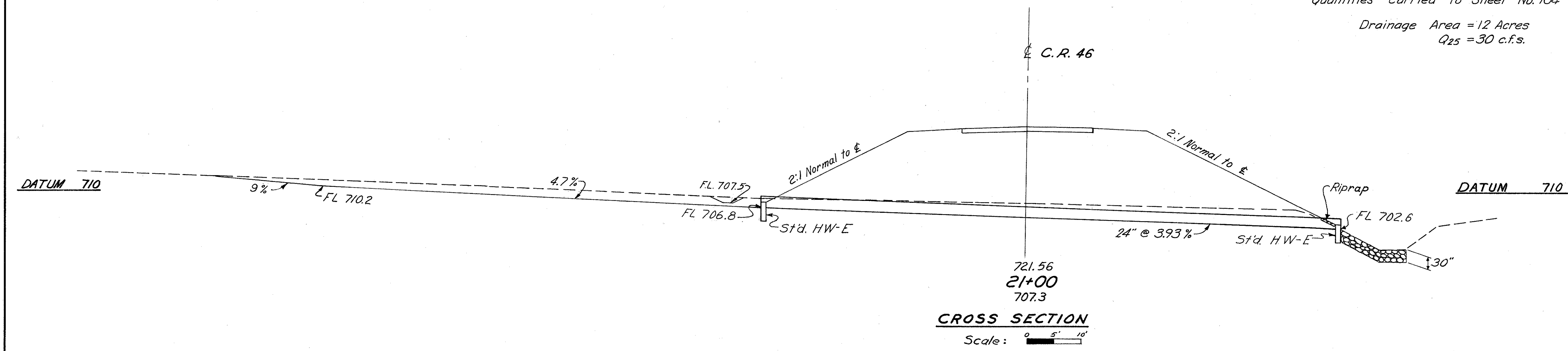
20-5 COUNTY ROAD 46  
STATION 13+82  
18"x109' PIPE CULVERT

JEF-7-23.37



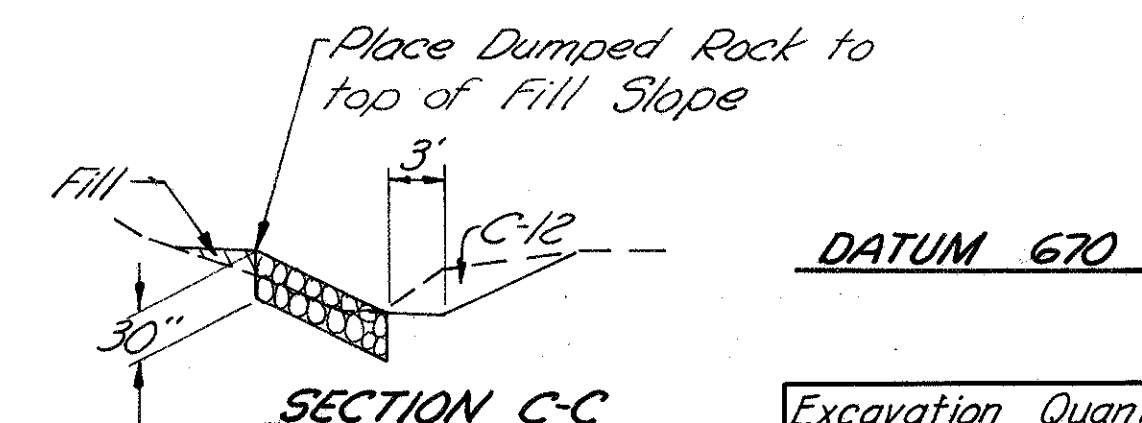
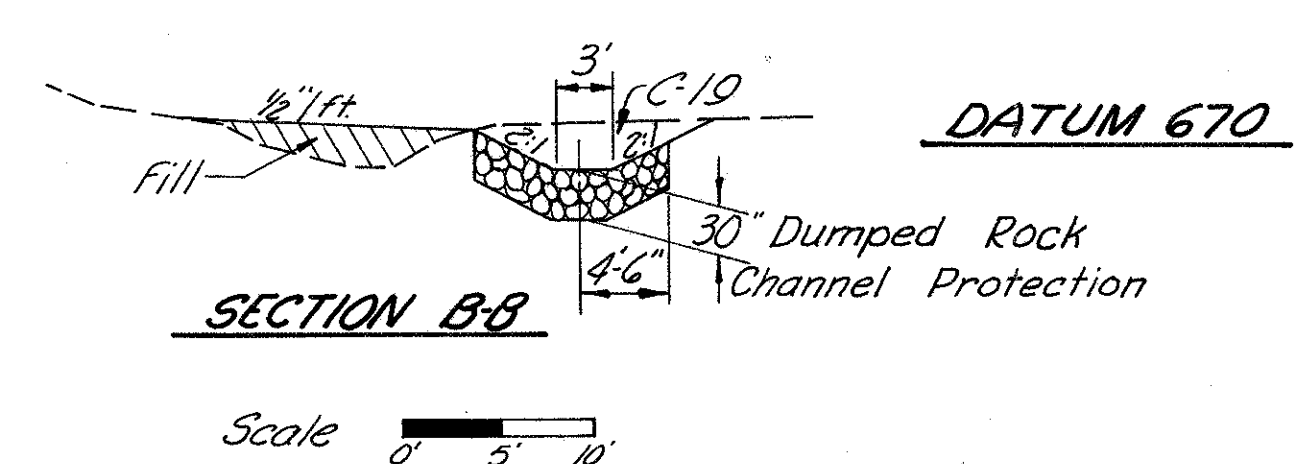
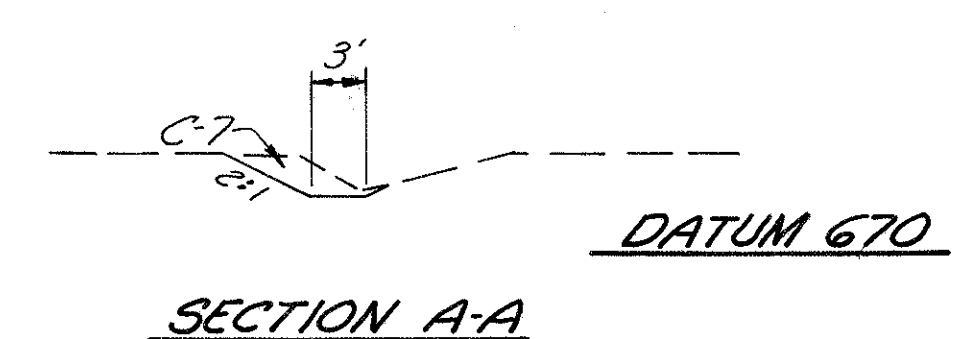
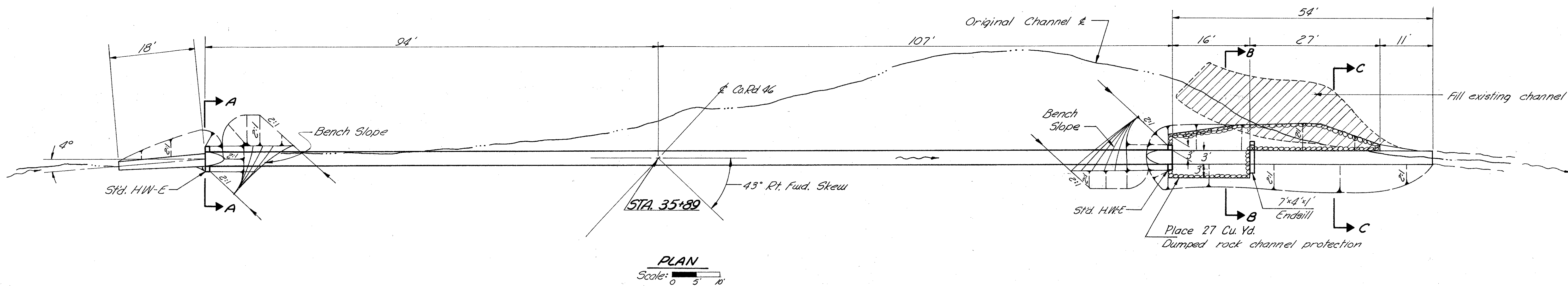
Excavation Quantities			
Sta.	E. Area	Dist.	Vol.
Begin Cut	0		
		50	7
Sec. A-A	7	50	14
Sec. B-B	8		
Total			21 C.Y.

- ESTIMATED QUANTITIES**
- Item 603—24" Conduit, Type A, 706.02 Cl. IV, Class "B" bedding—108 Lin. Ft.
  - Item 602—Concrete Masonry—0.9 Cu. Yd.
  - Item 203—Excavation—21 Cu. Yd.
  - Item 601—Riprap, 6" Reinforced Concrete Slab—1 Sq. Yd.
- Quantities Carried to Sheet No. 184
- Drainage Area = 12 Acres  
Q<sub>25</sub> = 30 c.f.s.









**ESTIMATED QUANTITIES**

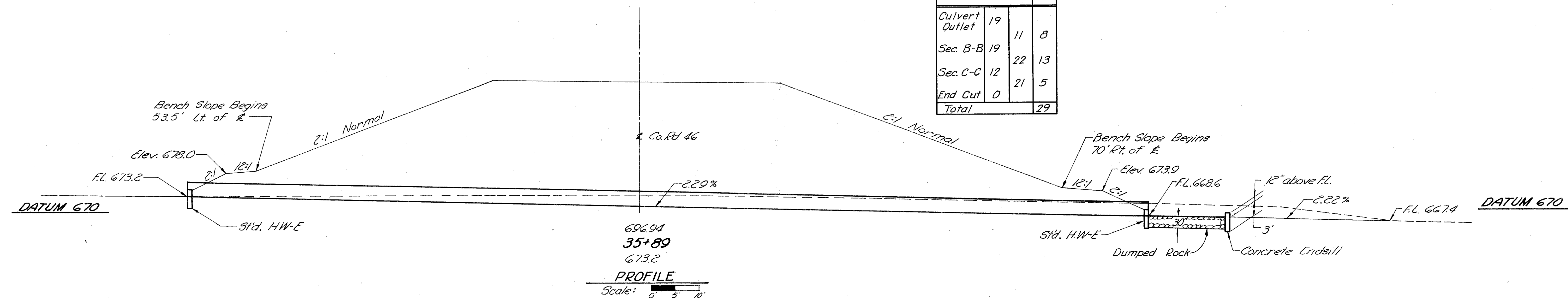
Item 603—36" Conduit, Type A, 706.02 C.I. or 707.05 126", Cl. B bedding—202 Lin. Ft.
Item 602—Concrete Masonry—2.2 Cu. Yd.
Item 203—Excavation—29 Cu. Yd.
Item 601—Dumped Rock Channel Protection—27 Cu. Yd.

Quantities carried to Sheet No. 186  
Drainage Area = 41 Acres  
Q<sub>25</sub> = 67 cfs.

Note:  
Omit concrete endsill if 707.05 Conduit is used in lieu of 706.02 Conduit.

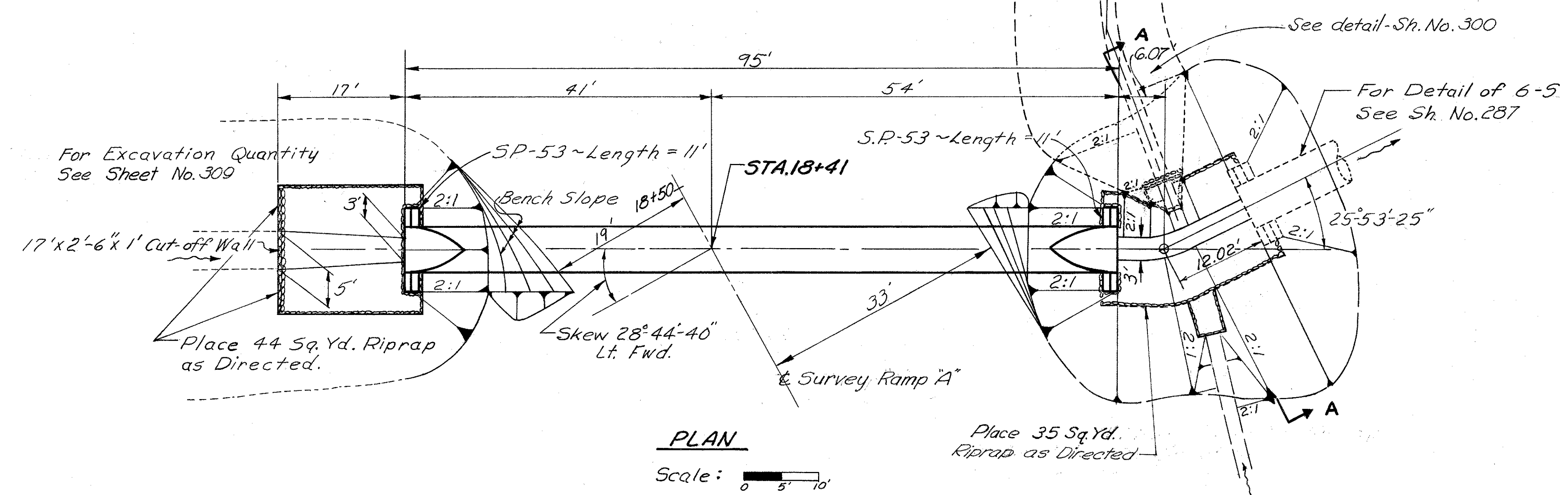
**Excavation Quantities**

Sta.	E. Area	Dist.	Vol.
Begin Cut	0	18	3
Sec. A-A	7		
Culvert Outlet	19	11	8
Sec. B-B	19	22	13
Sec. C-C	12	21	5
End Cut	0		
Total			29



23-5 COUNTY ROAD 46  
STATION 35+89  
36"X201' PIPE CULVERT



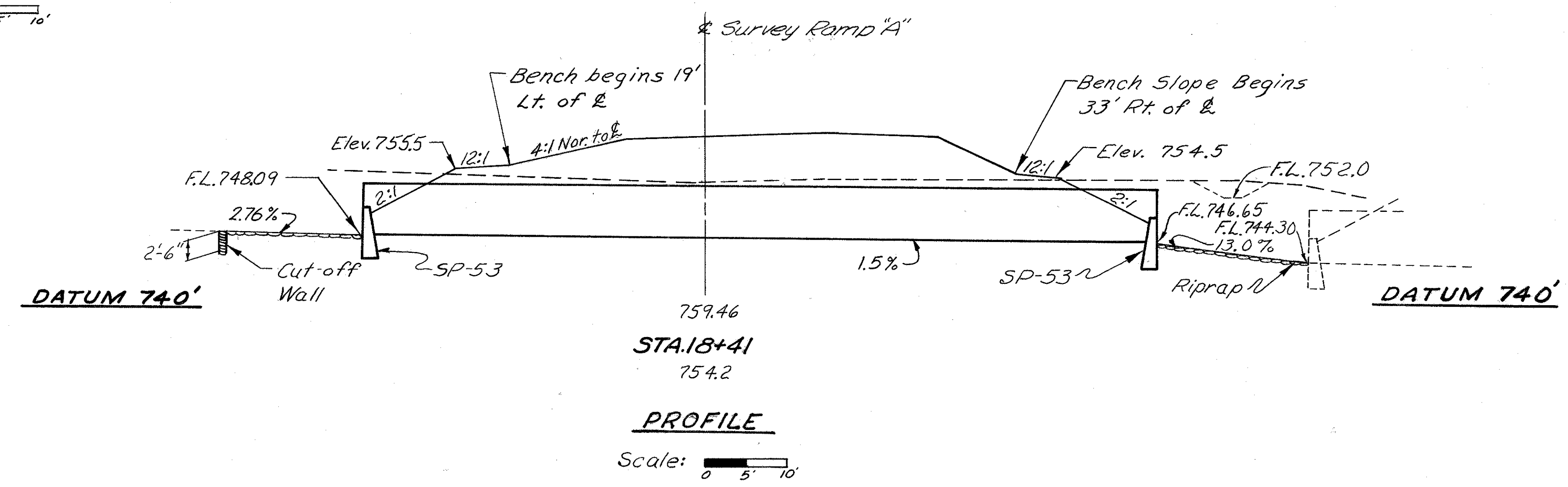
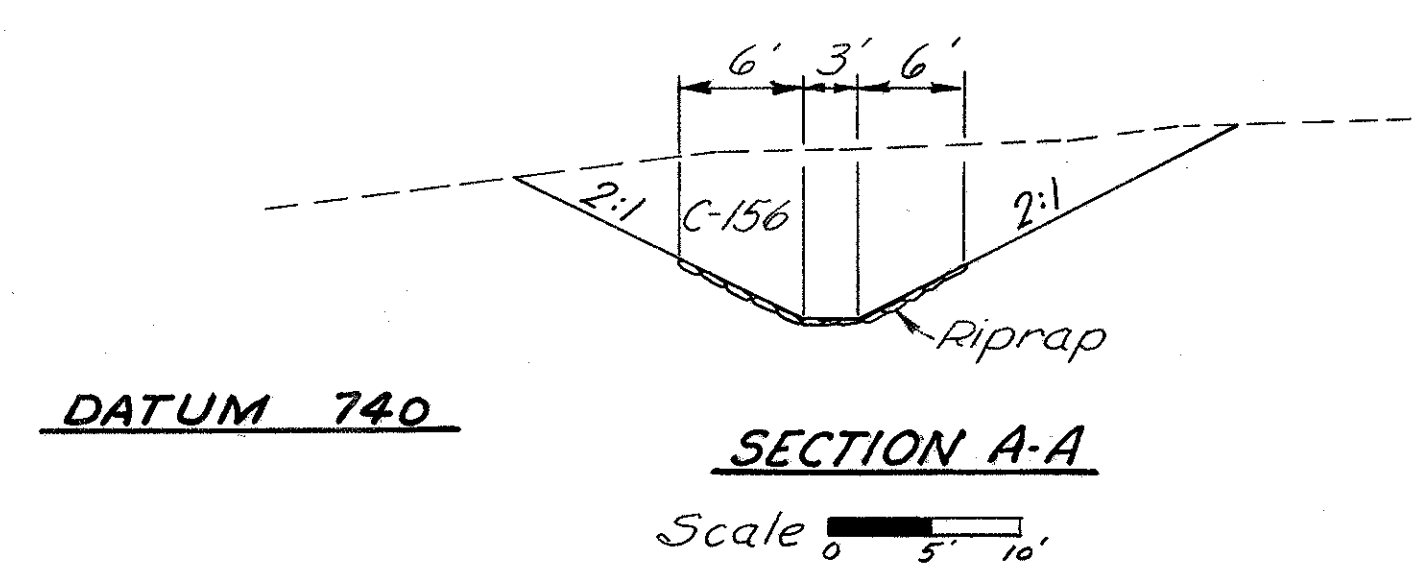


Excavation Quantities			
Sta.	E Area	Dist	Vol.
Culvert Outlet	156		
		11	64
Sec. A-A	156		
		8	46
Culvert Inlet	156		
Total			110 C.Y.

# ESTIMATED QUANTITIES

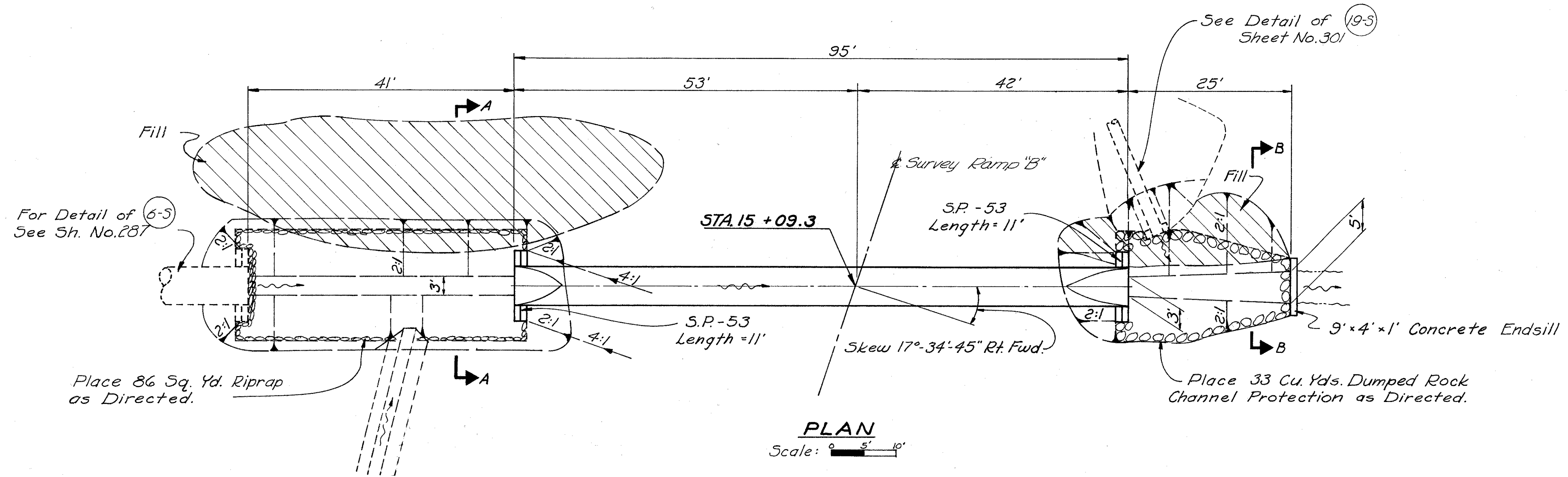
- Item 603—72" Conduit, Type A, 706.02, Class II, Class "B" bedding-----96 Lin.Ft.
- Item 602—Concrete Masonry Class "E"-----6.1 Cu. Yd.
- Item 203—Excavation-----110 Cu. Yd.
- Item 601—Riprap, 6" Reinforced Concrete Slab-----77 Sq. Yd.

Quantities carried to Sheet No. 205  
Drainage Area = 355 Acres  
Q<sub>25</sub> = 280 cfs



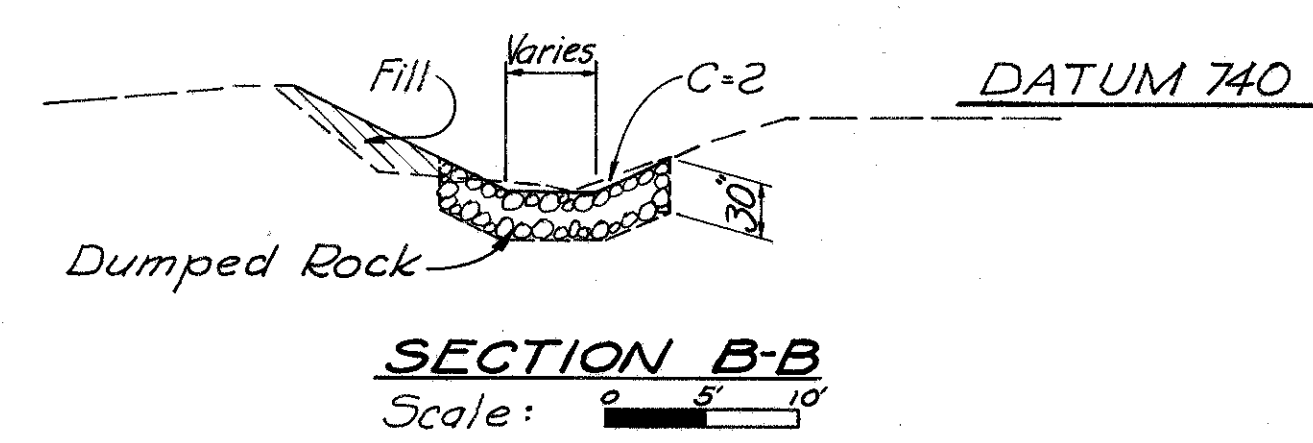
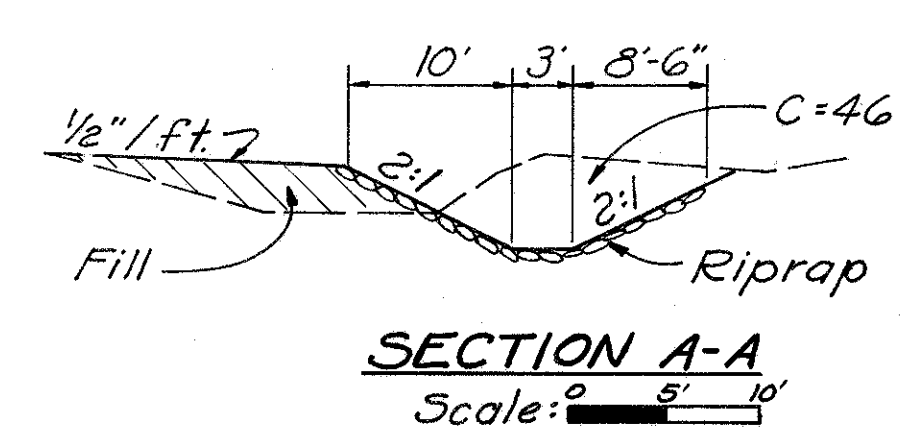
24-5 RAMP "A"  
STATION 18+41  
72"X95' PIPE CULVERT

JEF-7-23.37



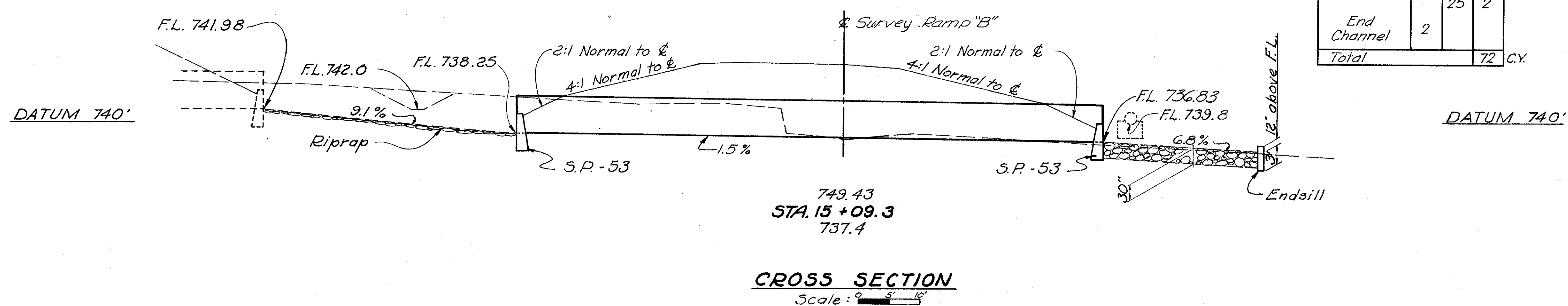
### ESTIMATED QUANTITIES

Item 603—72" Conduit, Type A, 706.02, Class "B" bedding-----96 Lin. Ft.  
 Item 602—Concrete Masonry Class "E"-----7.4 Cu. Yds.  
 Item 203—Excavation-----72 Cu. Yds.  
 Item 601—Dumped Rock Channel Protection-----33 Cu. Yds.  
 Item 601—Riprap, 6" Reinforced Concrete Slab-----86 Sq. Yds.



Excavation Table			
Station	E. Area	Dist.	Vol.
Begin Channel	46		
		41	70
Culvert Inlet	46		
Culvert Outlet	2		
		25	2
End Channel	2		
Total			72 C.Y.

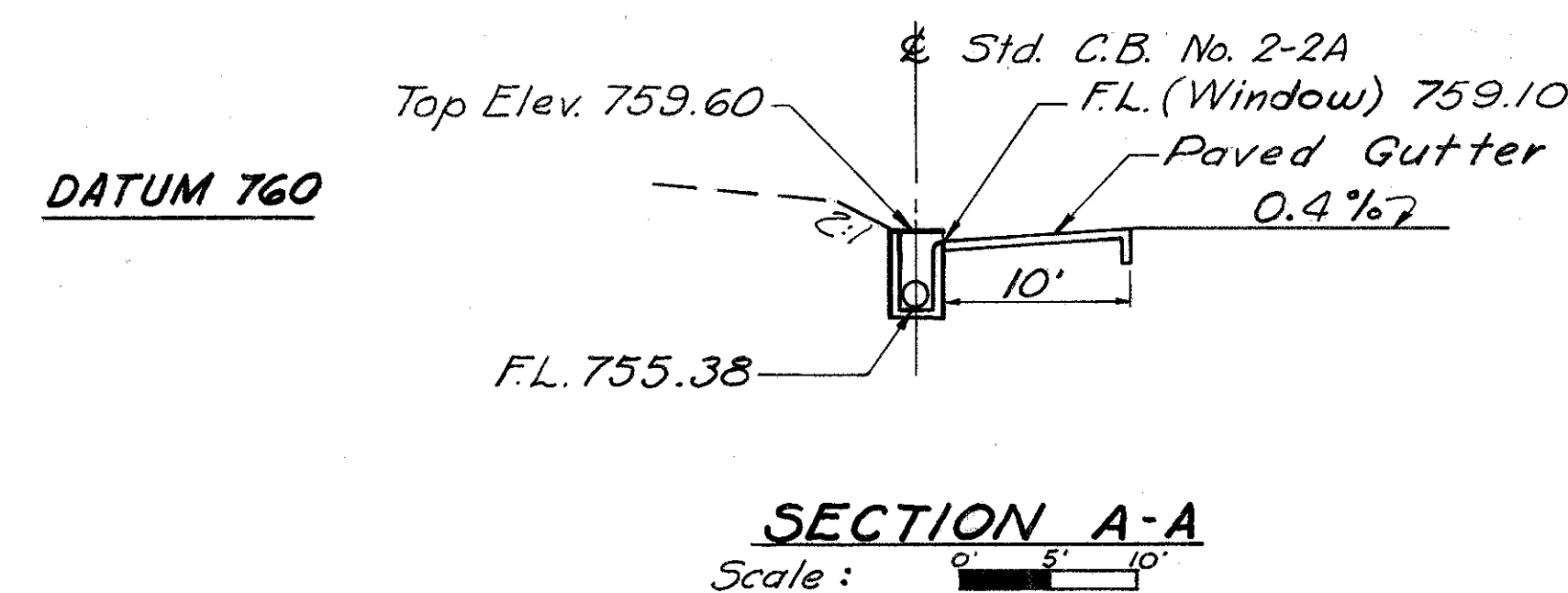
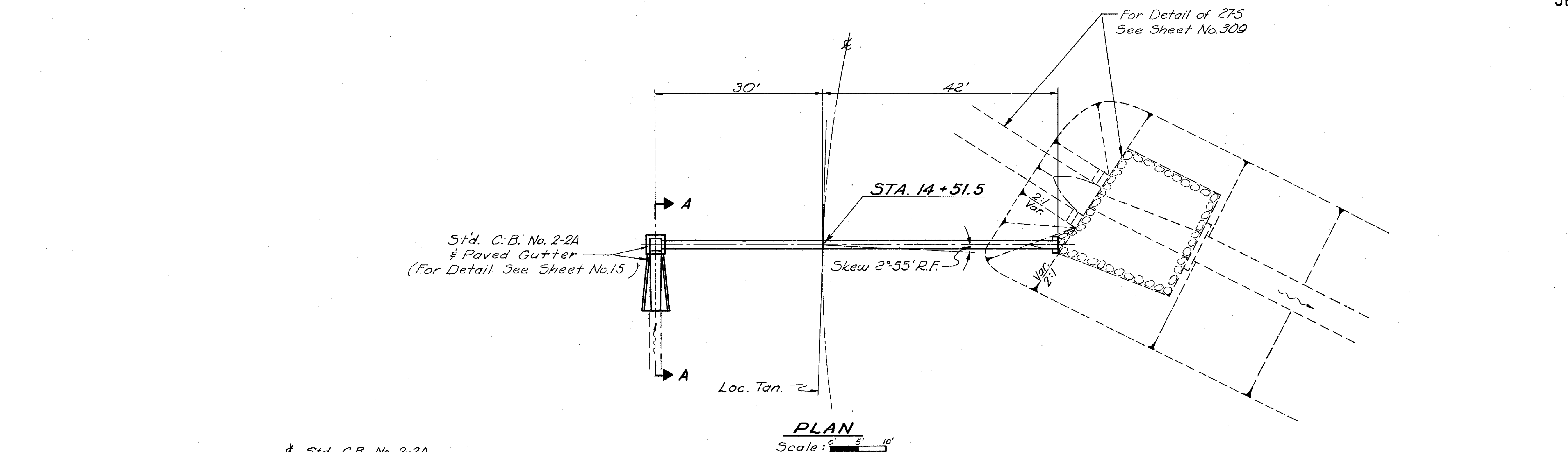
Quantities Carried to Sheet No. 208  
 Drainage Area = 360 Acres  
 $Q_{25} = 280$  cfs.



(25-5) RAMP "B" STATION 15+09.3  
 72"x95' PIPE CULVERT



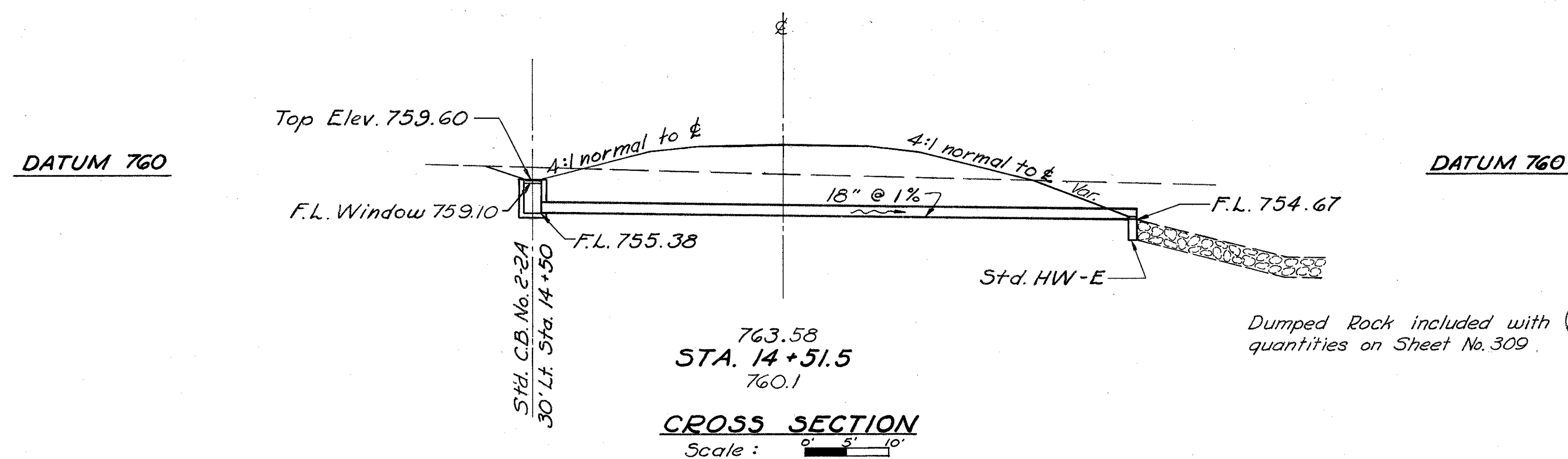
JEF-7- 23.37



# **ESTIMATED QUANTITIES**

Item 603-18" Conduit, Type A, 706.02 or 706.08, Class "B" bedding 72 Lin. Ft.  
 Item 601-Paved Gutter, Type 1-2, Modified 10 Lin. Ft.  
 Item 602-Concrete Masonry 0.3 Cu Yds.  
 Item 604-Std. No. 2-2A Catch Basin 1 Each

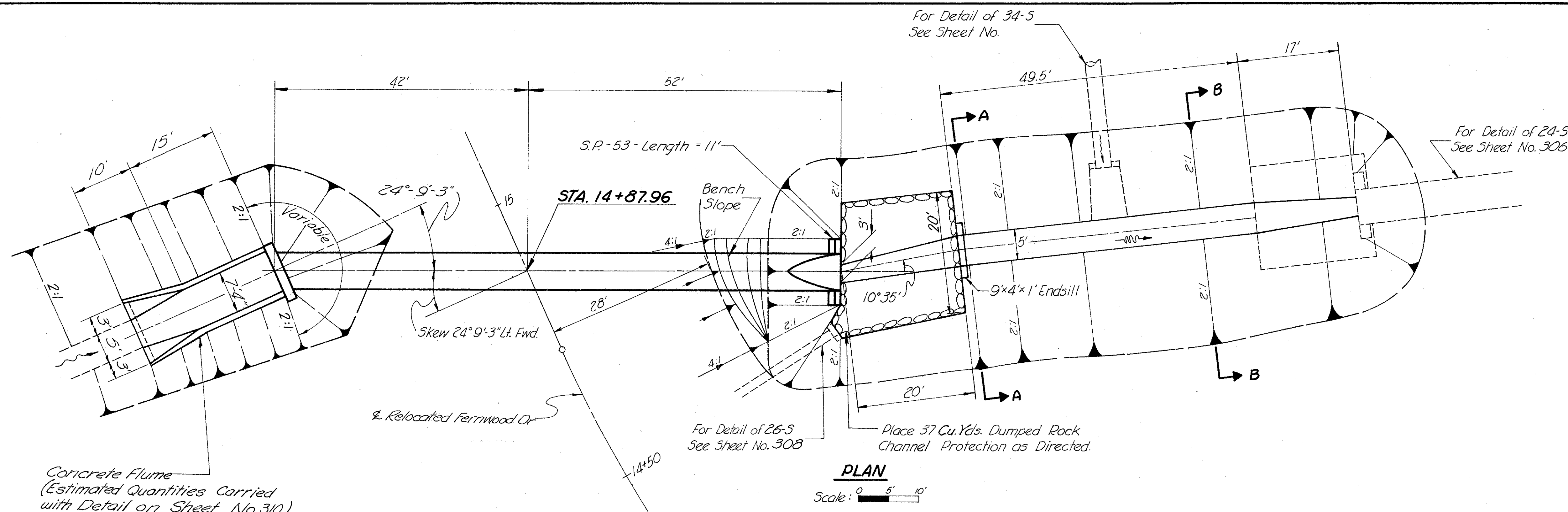
Quantities carried to Sheet No. 230  
 Drainage Area = 3 Acres  
 $Q_{25} = 13$  cfs.



Dumped Rock included with quantities on Sheet No. 309.

RELOCATED FERNWOOD DR.  
 STATION 14+ 51.5  
 18"X 72' PIPE CULVERT

JEF-7-23.37

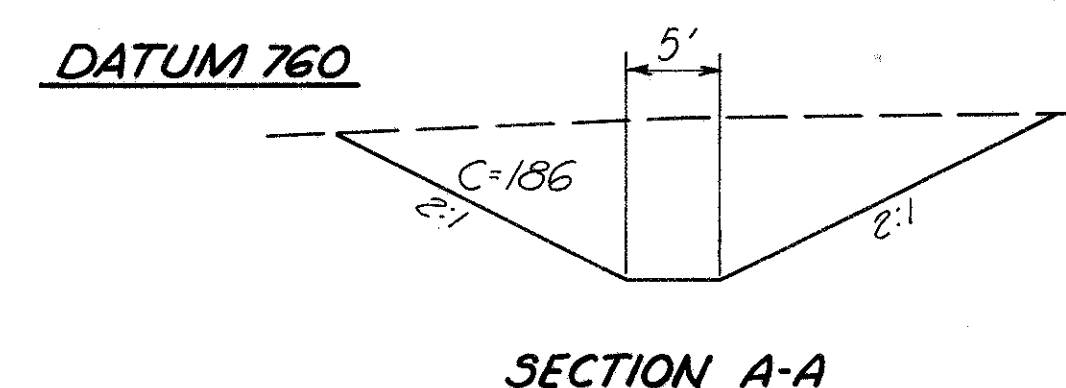


### ESTIMATED QUANTITIES

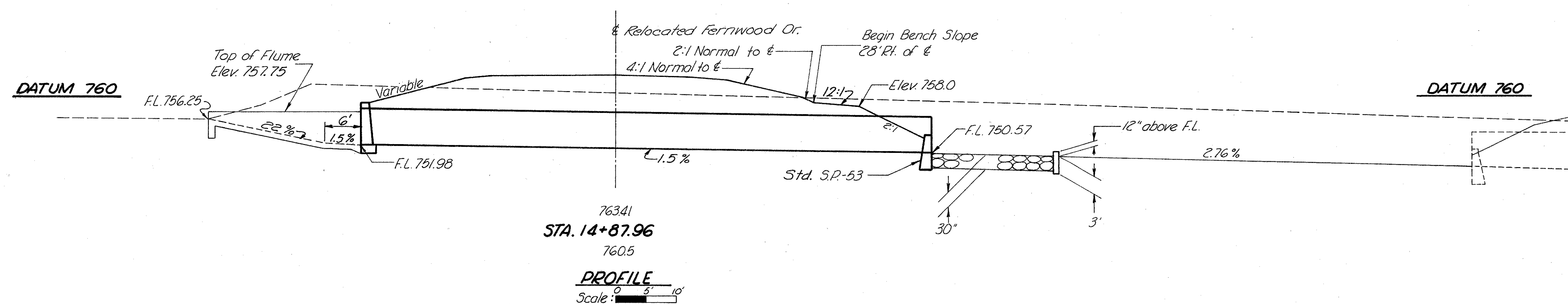
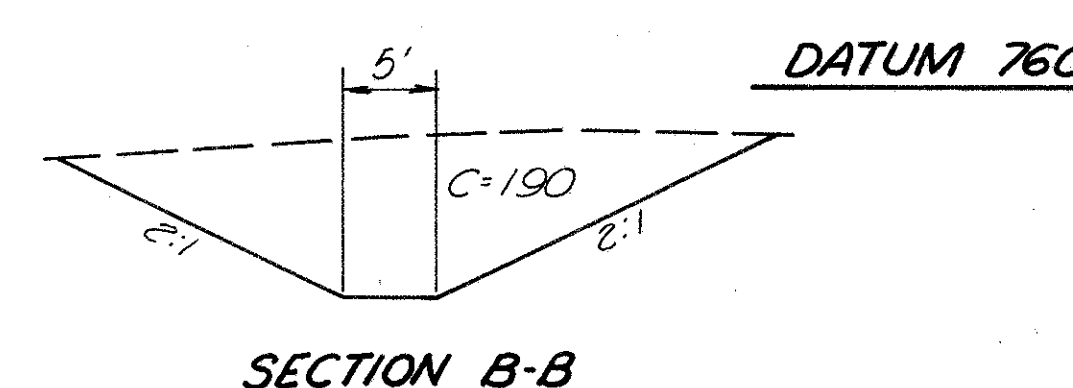
Item 603-72" Conduit, Type A, 706.02, with Class "B" bedding	94 Lin. Ft.
Item 602-Concrete Masonry, Class "E"	4.5 Cu. Yds.
Item 203-Excavation	607 Cu. Yds.
Item 601-Dumped Rock Channel Protection	37 Cu. Yds.

Quantities carried to sheet No. 230

Area = 345 Acres  
Q25 = 280 cfs.



Scale: 0 5' 10'

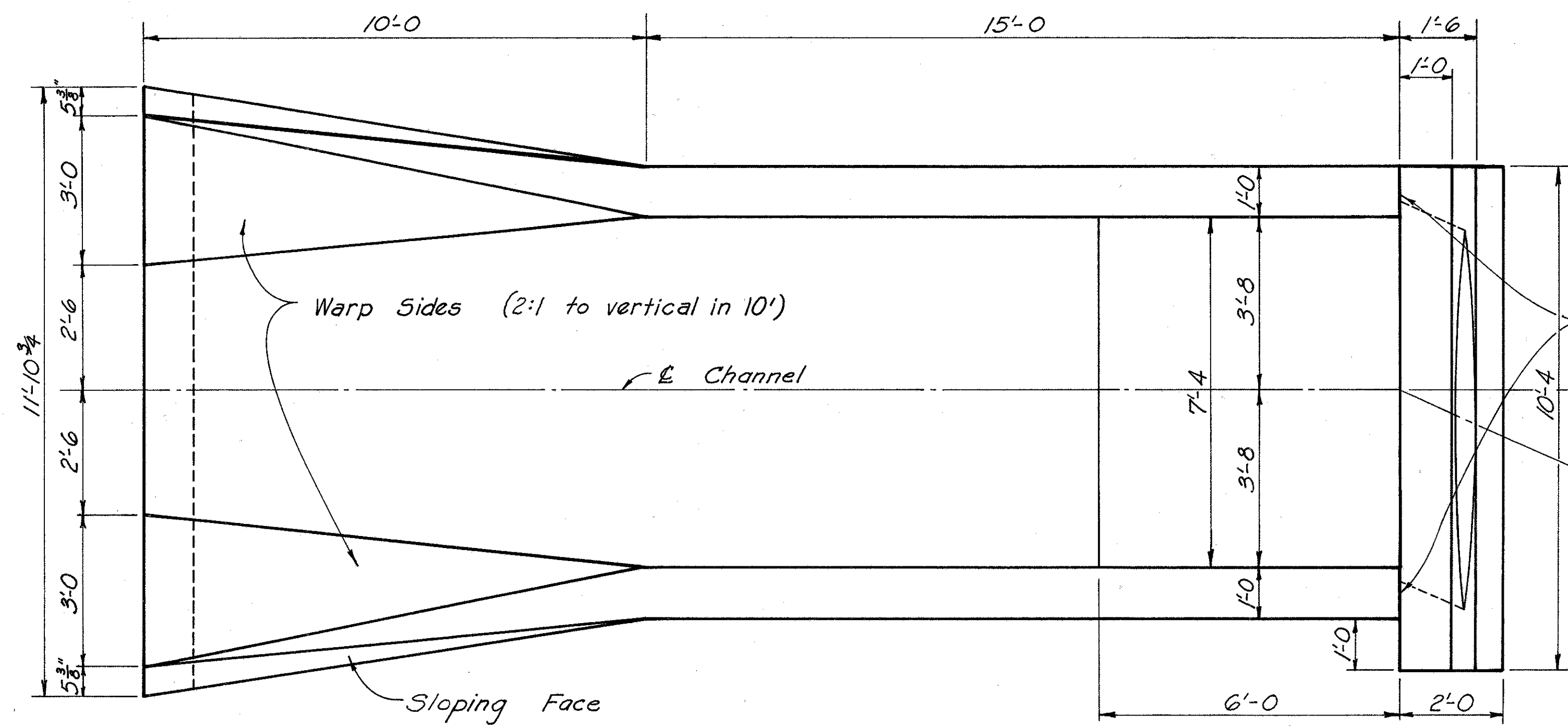


Excavation Quantities			
Sta.	E. Area	Dist.	Vol.
Culvert Outlet	186	22	152
Sec. A-A	186	39	272
Sec. B-B	190	26	183
Culvert Inlet	190		
Total			607

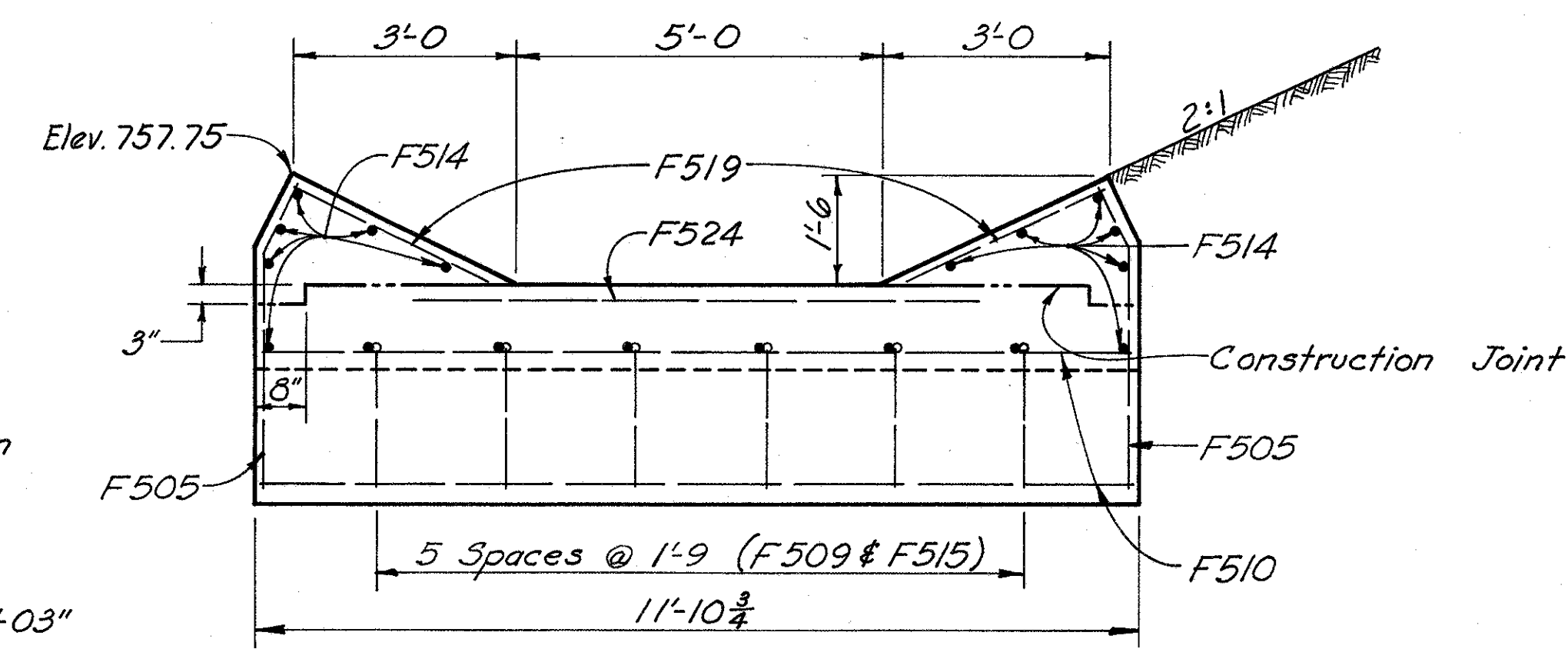
27-S RELOCATED FERNWOOD DR.  
STATION 14+87.96  
72"X94' PIPE CULVERT



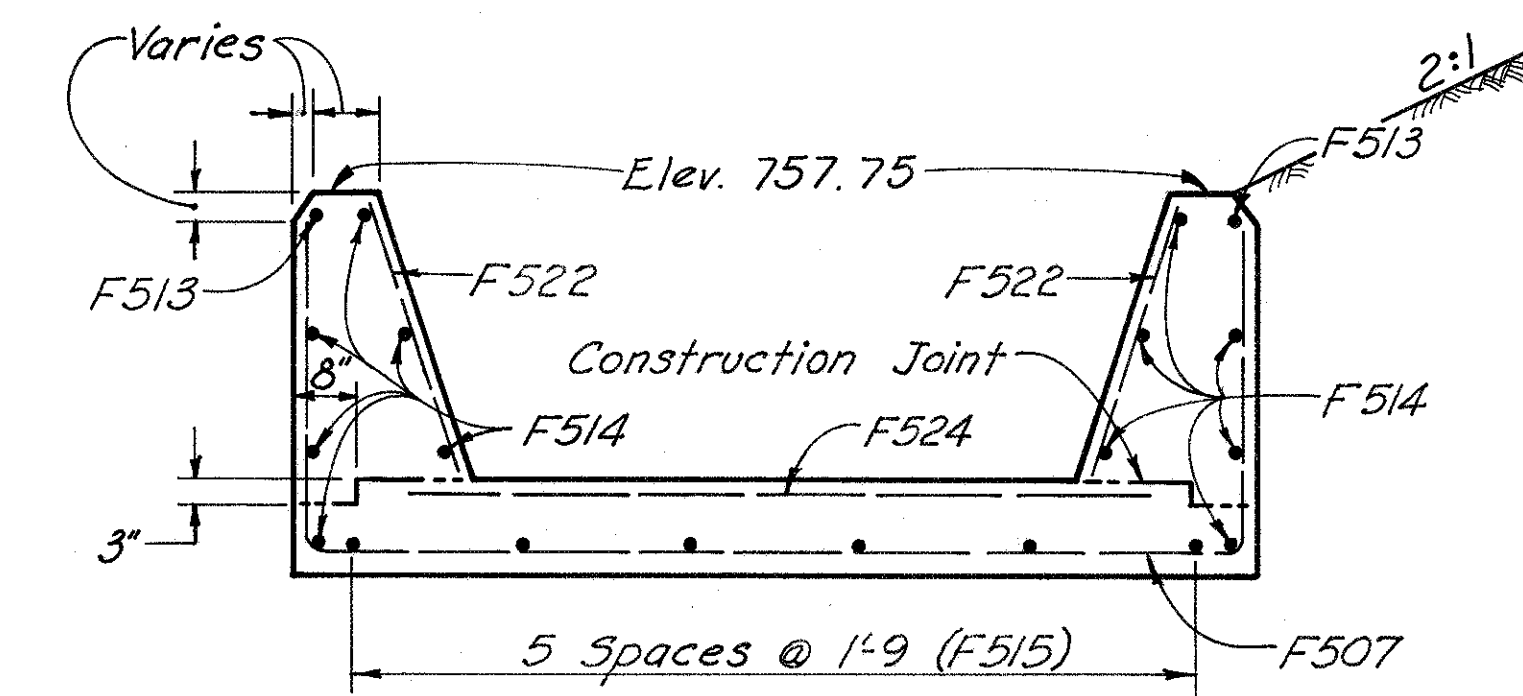
JEF-7-23.37



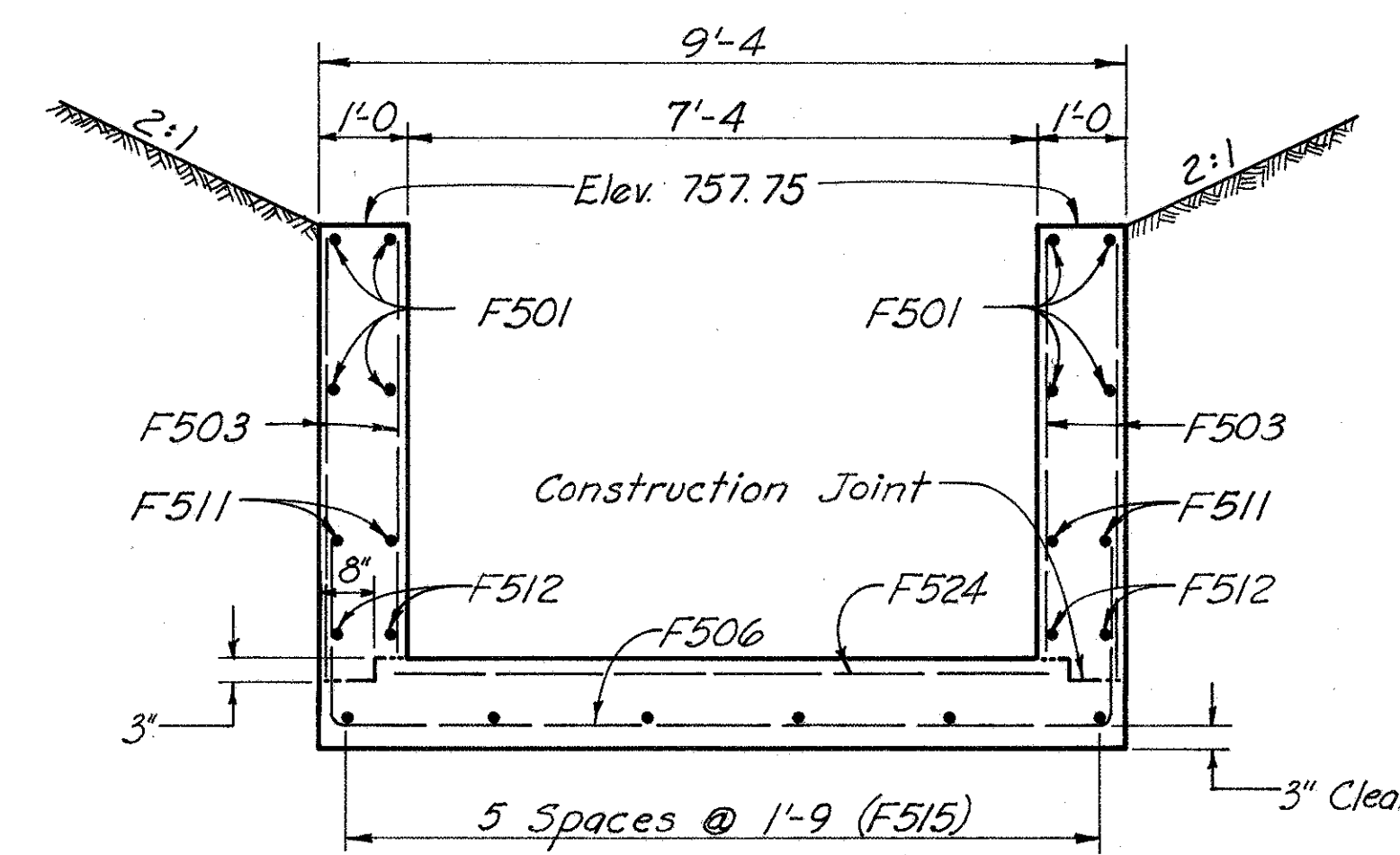
PLAN



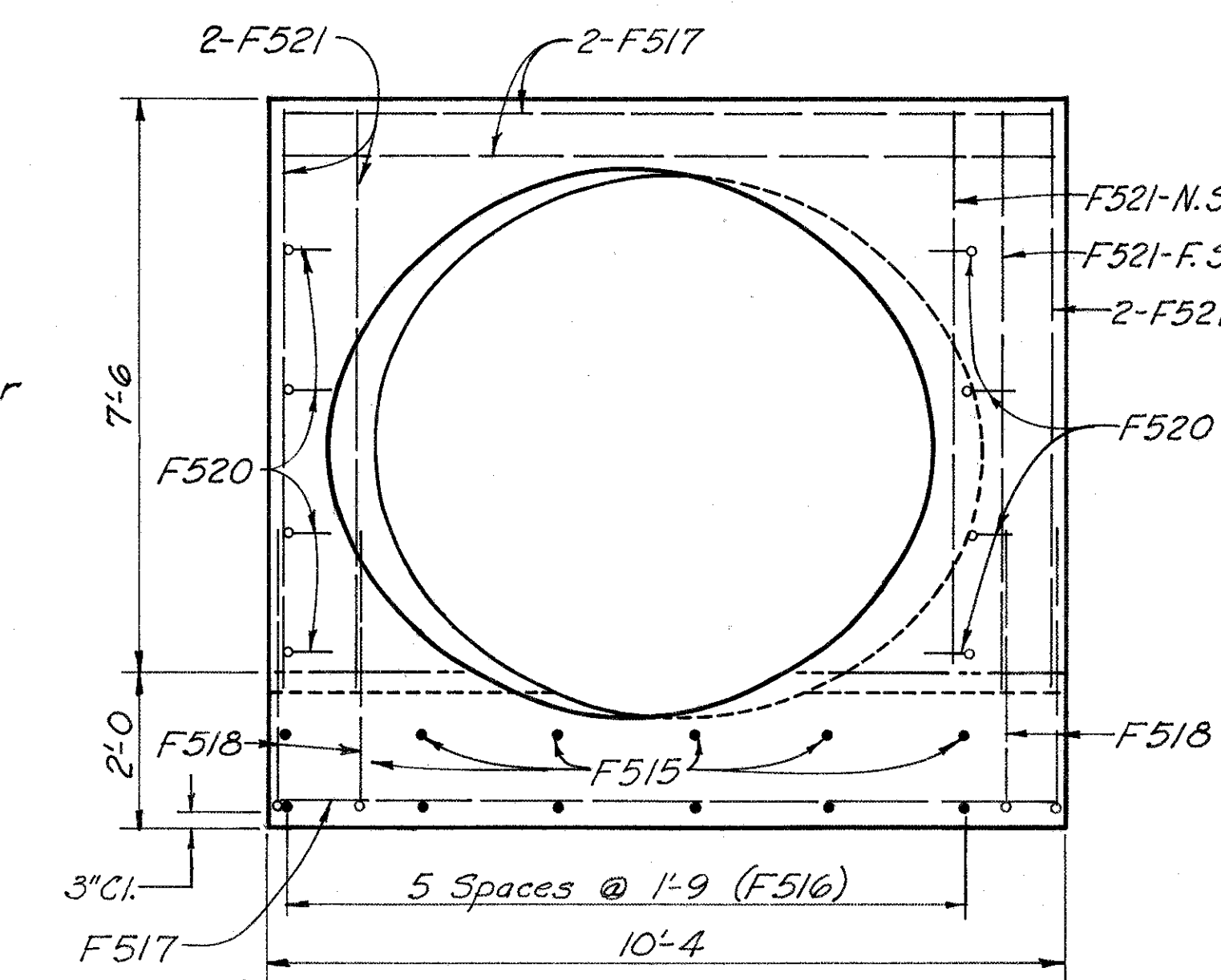
SECTION A-A



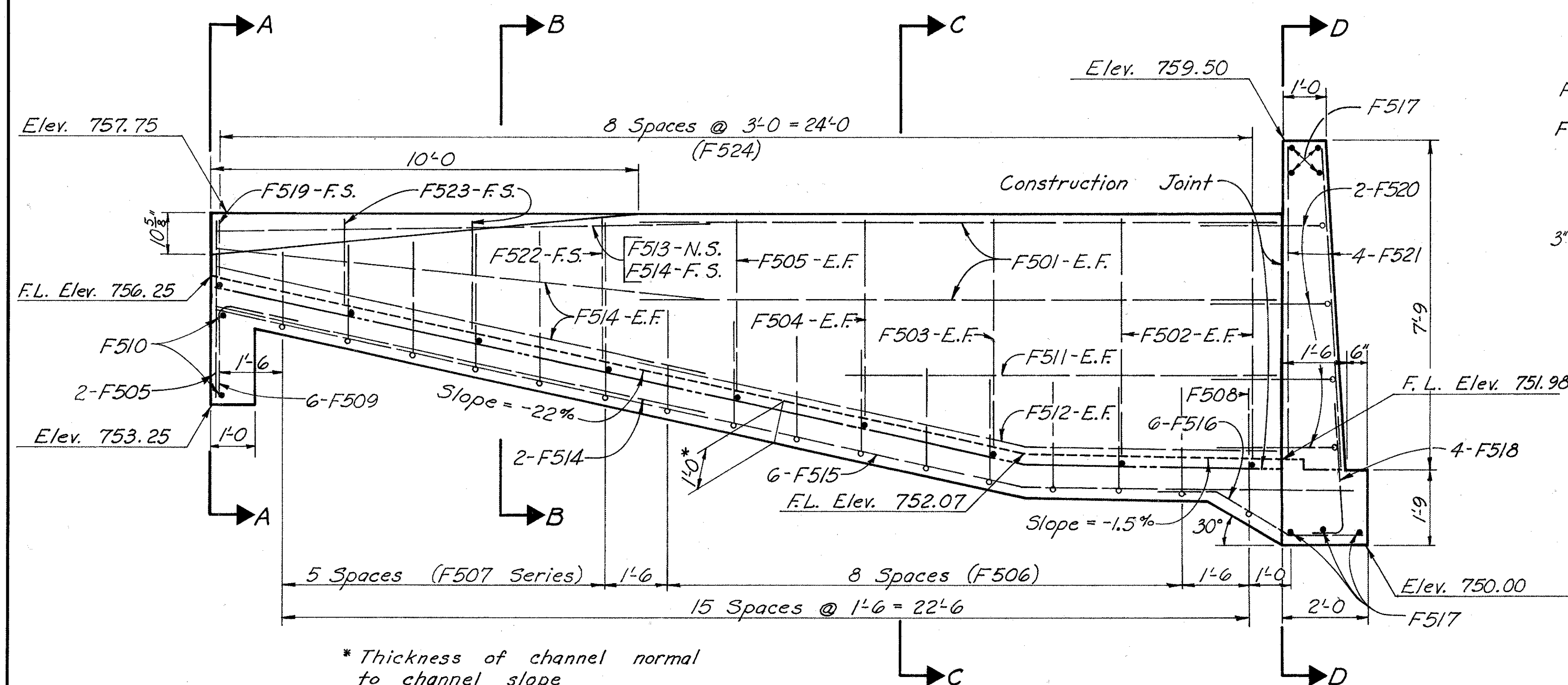
SECTION B-B



SECTION C-C



SECTION D-D



ELEVATION

### ESTIMATED QUANTITIES

511 Class "C" concrete	25 cu. yds.
509 Reinforcing steel	1257 lbs.
503 Excavation, Unclassified	70 cu. yds.
503 Cofferdams, Cribbs & Sheeting	Lump Sum
Quantities carried to Sheet No. 12	

Note: For Reinforcing Bar Schedule, see Sheet No. 311

Note: Steel shown for near wall; far wall quantities the same.

E.F. = Each Face of Wall  
N.S. = Near Side of Wall  
F.S. = Far Side of Wall

Scale 0 1' 2'

Note: Turn F520 bars so they do not interfere with pipe.

CONCRETE FLUME DETAILS  
STATION 14+87.96  
RELOCATED FERNWOOD DRIVE

JEF-7-23.37

[illegible]

Note: All dimensions out-to-out.

\*Str. = Straight

27-S

REINFORCING BAR SCHEDULE  
Concrete Flume at Station 14 + 87.96  
Relocated Fernwood Drive



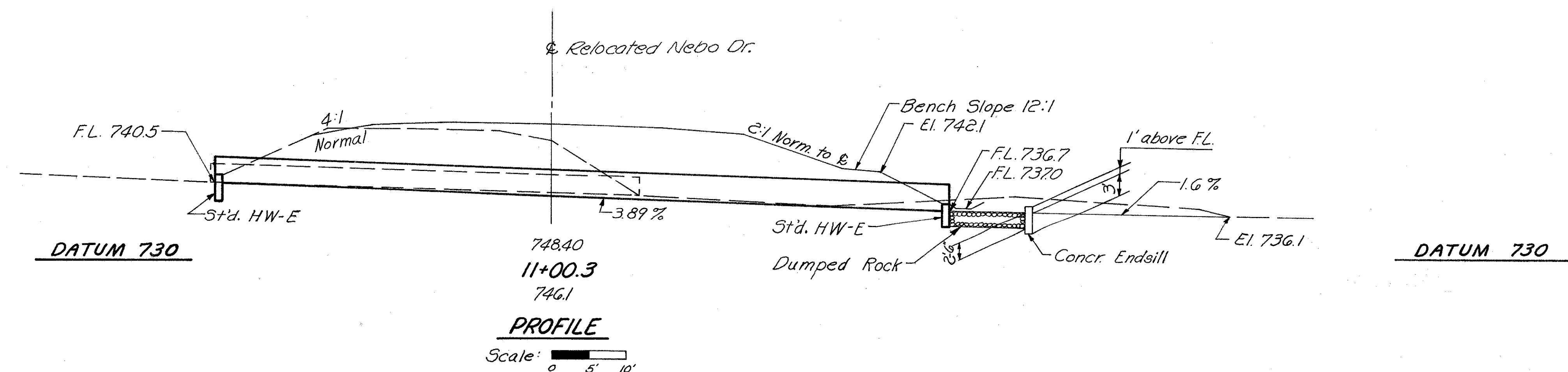
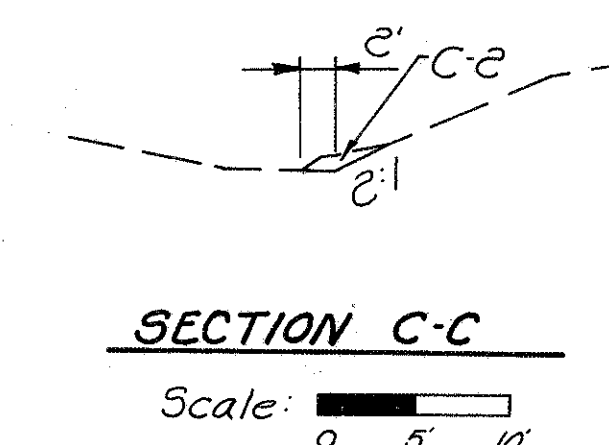
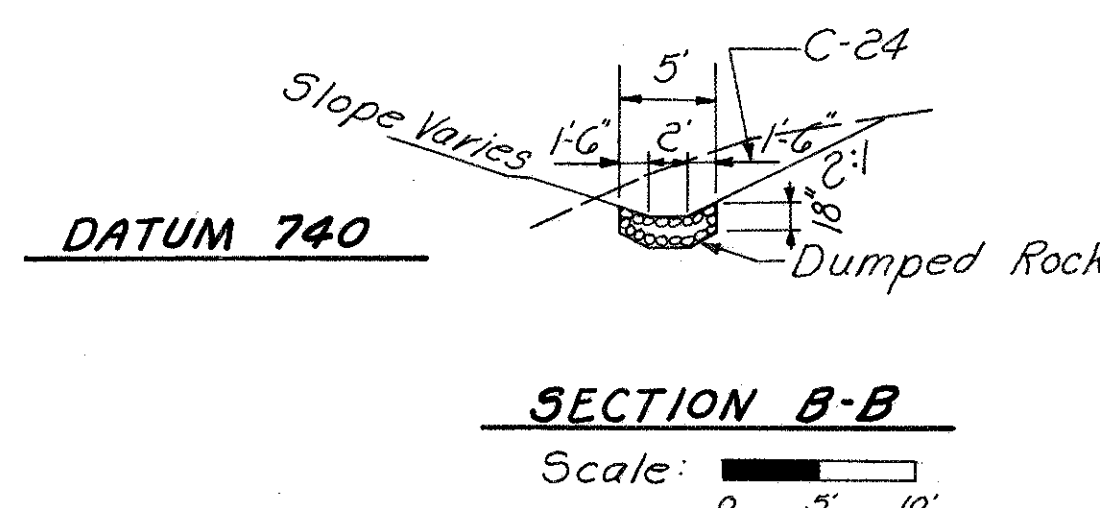
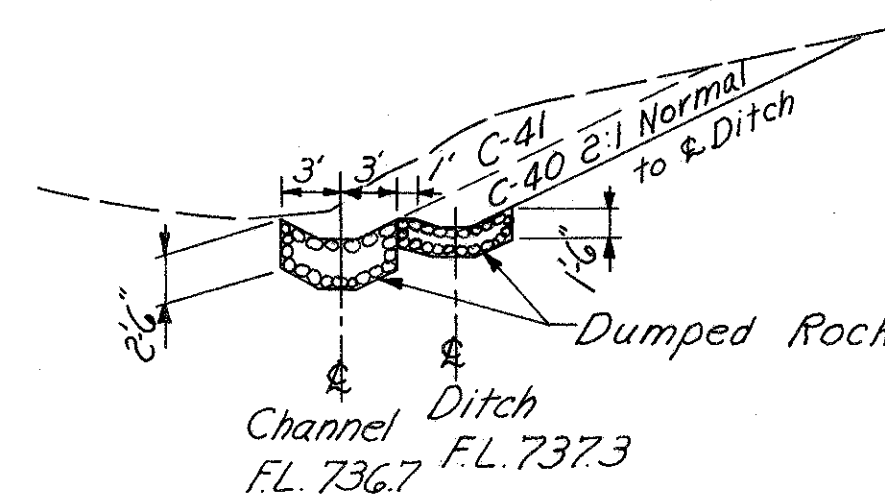
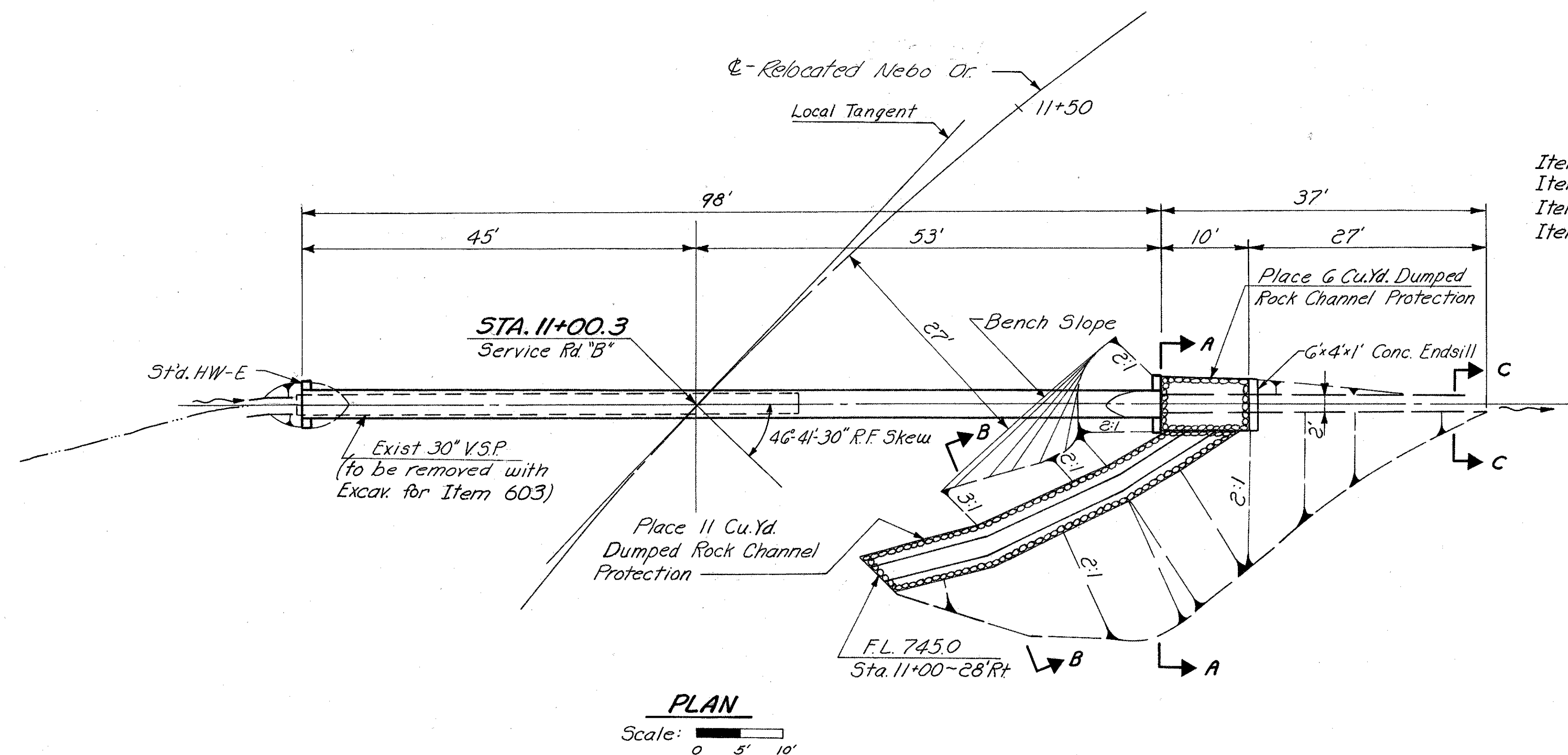
JEF - 7 - 23.37

### ESTIMATED QUANTITIES

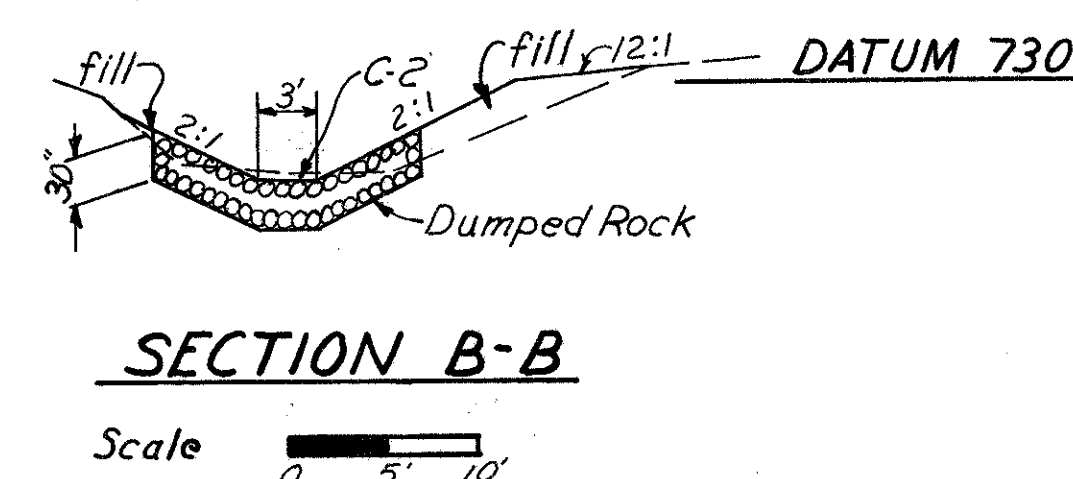
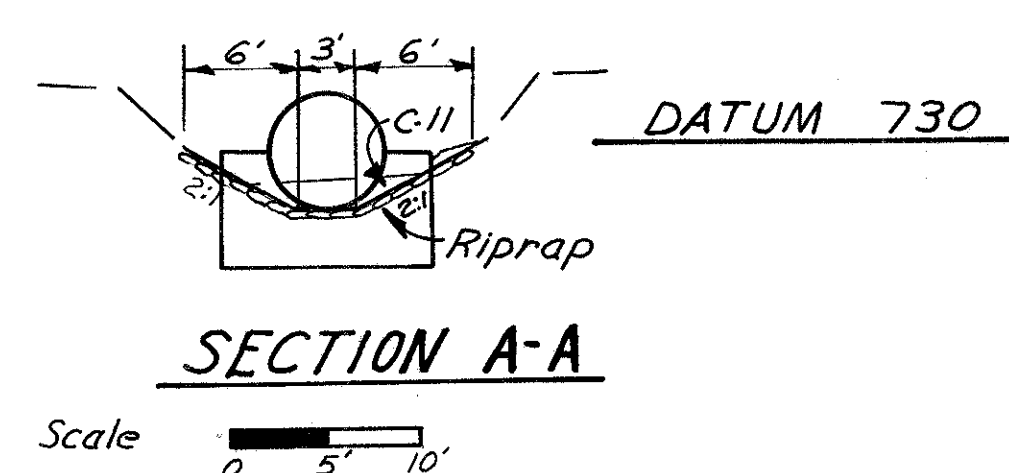
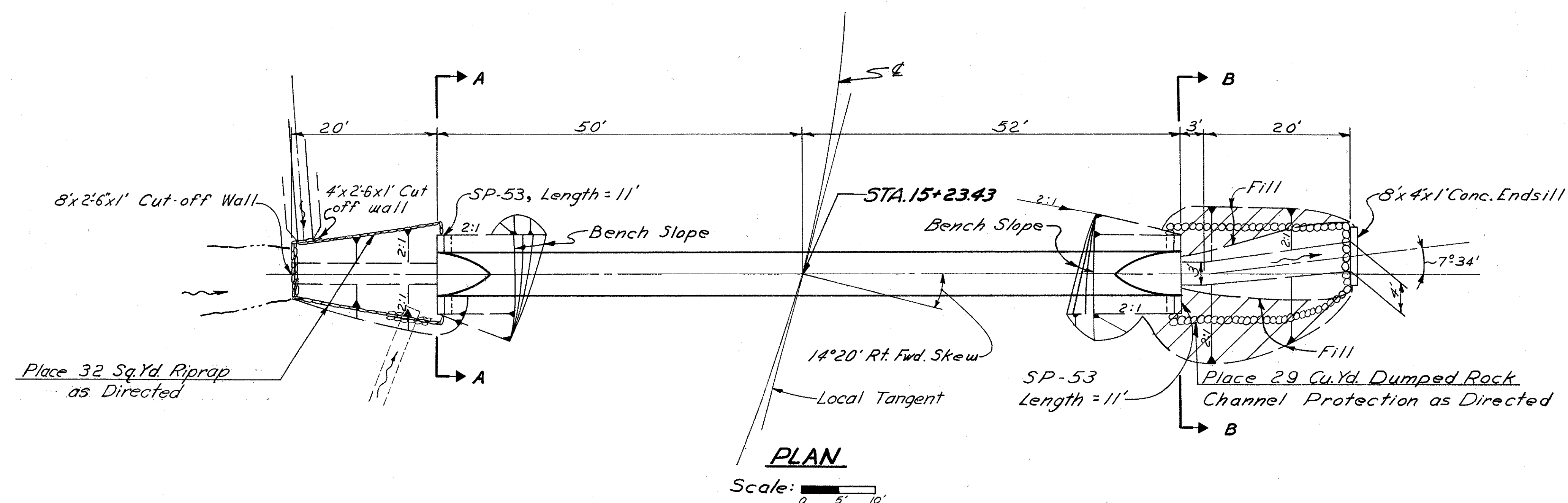
Item 603-42" Conduit, Type A, 706.02, Class "B" bedding \_\_\_\_\_ 98 Lin. Ft.  
Item 601-Dumped Rock Channel Protection \_\_\_\_\_ 17 Cu. Yd.  
Item 602-Concrete Masonry \_\_\_\_\_ 2.4 Cu. Yd.  
Item 203-Excavation \_\_\_\_\_ 83 Cu. Yd.

Quantities Carried to Sheet No. 233  
Drainage Area = 39 Acres  
Q<sub>des</sub> = 98 c.f.s.

Excavation Quantities			
Station	E Area	Dist	Vol.
Begin Excav.	0		
		13	6
Sec. B-B	24		
		20	39
Sec. A-A	81		
		24	37
Sec. C-C	2		
		4	1
End Excav.	0		
Total			83 C.Y.



28-S  
RELOCATED NEBO DR.  
STATION 11+00.3  
42"X98' PIPE CULVERT



Excavation Quantities				
Station	E. Area	Dist.	Vol.	
Begin Cut	0			
Sec. A-A	11	20	4	
Sec. B-B	2	23	1	
End Cut	0			
Total			5	

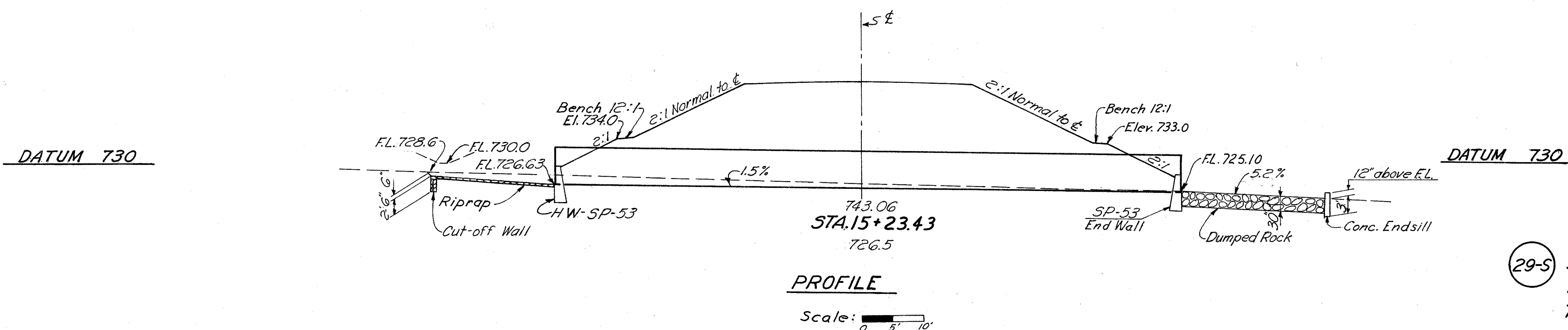
### ESTIMATED QUANTITIES

Item 603—72" Conduit, Type A, 706.02, Class III, Class "B" bedding—102 Lin. Ft.  
 Item 602—Concrete Masonry, Class "E"—7.2 Cu. Yd.  
 Item 203—Excavation—5 Cu. Yd.  
 Item 601—Dumped Rock Channel Protection—29 Cu. Yd.  
 Item 601—Riprap, 6" Reinforced Concrete Slab—32 Sq. Yd.

Quantities Carried to Sheet No. 233

Drainage Area = 365 Acres

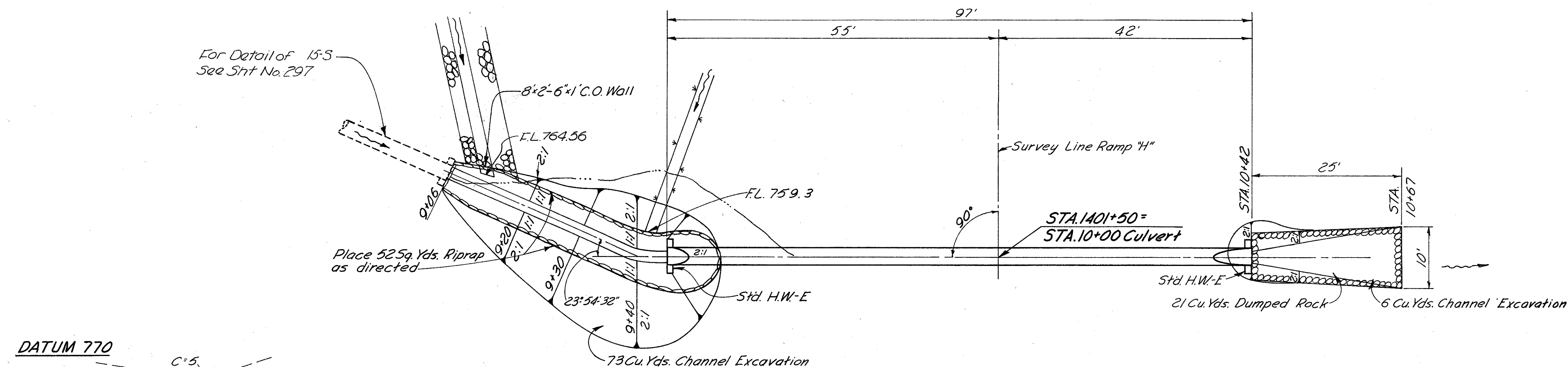
Q<sub>25</sub> = 286 c.f.s.



29-S STATION 15+23.43  
RELOCATED NEBO DR.  
72"x102' PIPE CULVERT



JEF-7 - 23.37



PLAN  
Scale: 0' 5' 10'

DATUM 770  
C=5  
STA. 9+06

DATUM 760  
C=30  
STA. 9+20  
Riprap

DATUM 760  
3' 2' 3' C=59  
STA. 9+30

DATUM 760  
C=100  
STA. 9+40

DATUM 750  
3' 2' 3' C=12  
STA. 10+42

DATUM 750  
10'  
STA. 10+67

CHANNEL CROSS SECTIONS  
Scale: 0' 5' 10'

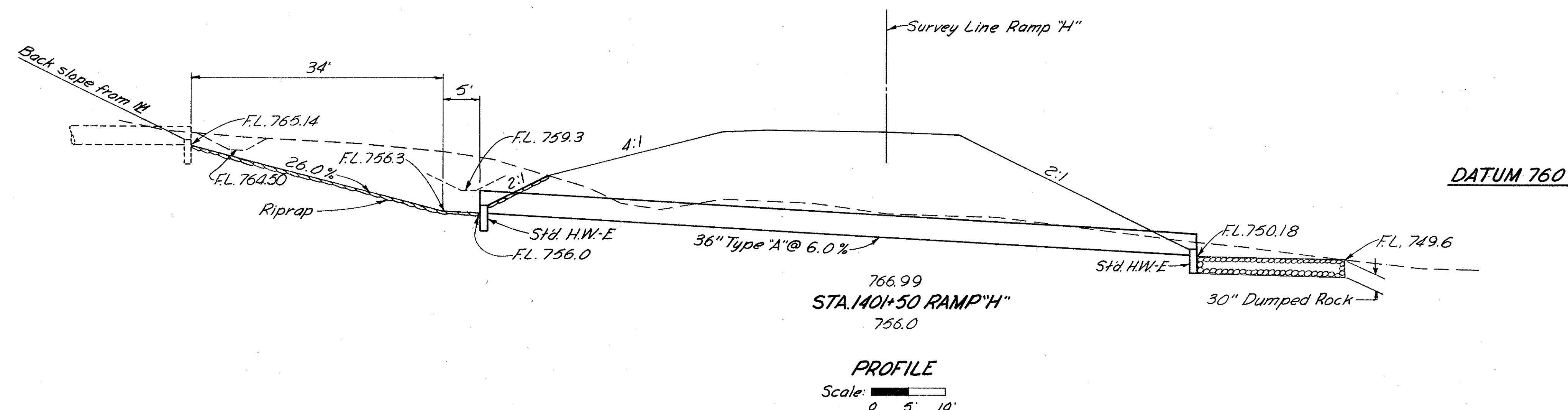
EXCAVATION TABLE		
Station	Area	Volume
9+06	5	9
9+20	30	16
9+30	59	29
9+40	100	19
9+45	100	
10+42	12	6
10+67	0	
Total		79

# ESTIMATED QUANTITIES

Item 603 36" Conduit Type A, Sec. 707.05 Cl. B" bedding — 98 Lin. Ft.  
Item 602 Concrete Masonry — 1.2 Cu. Yd.  
Item 601 Dumped Rock Channel Protection — 21 Cu. Yd.  
Item 203 Excavation — 79 Cu. Yd.  
Item 601 Riprap, 6" Reinforced concrete slab — 52 Sq. Yd.

Drainage Area = 20 Acres  
Q<sub>25</sub> = 50 cfs.

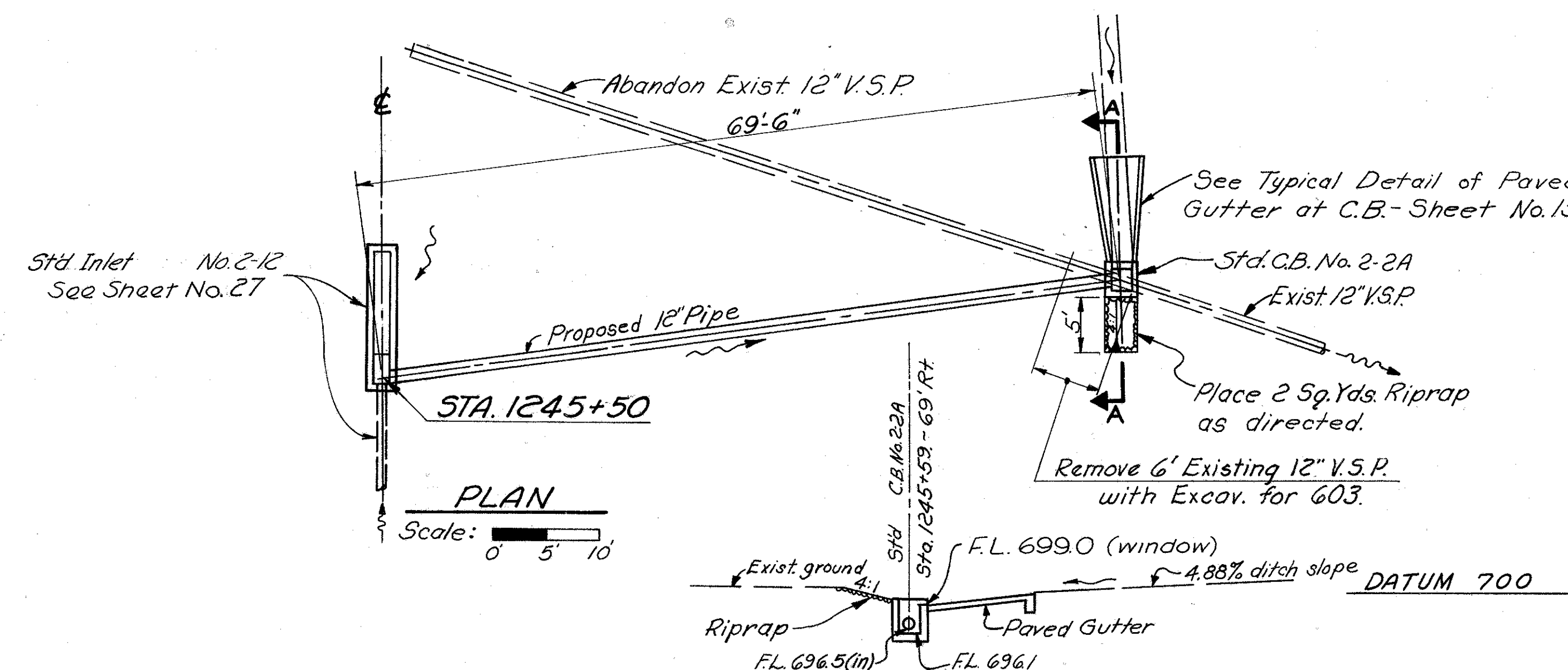
Quantities carried to Sheet No. 271



PROFILE  
Scale: 0' 5' 10'

30-S STA. 1401+50 RAMP "H"  
36" X 98' CULVERT

JEF-7-23.37

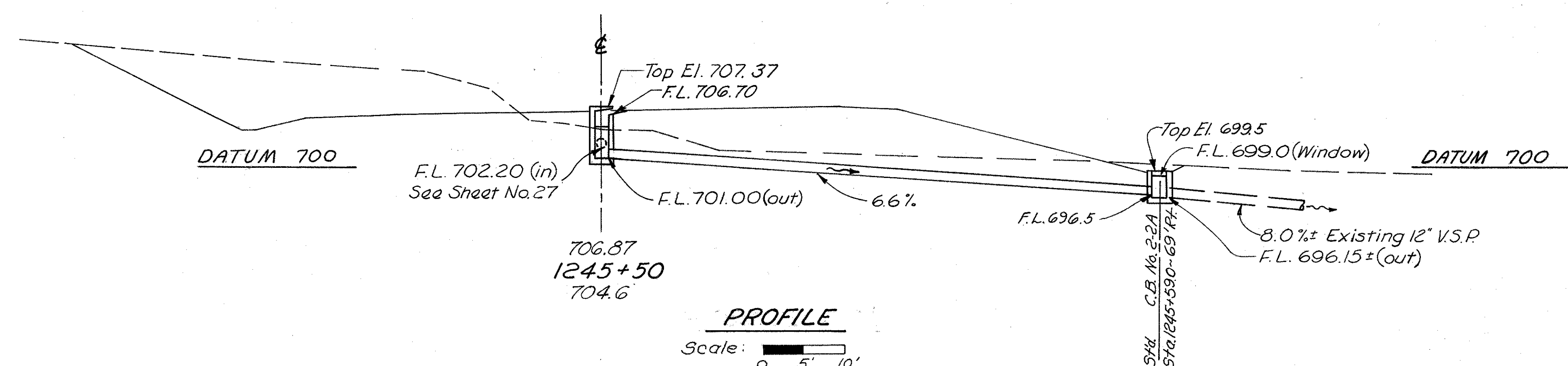


**SECTION A-A**  
Scale: 0 5' 10'

# ESTIMATED QUANTITIES

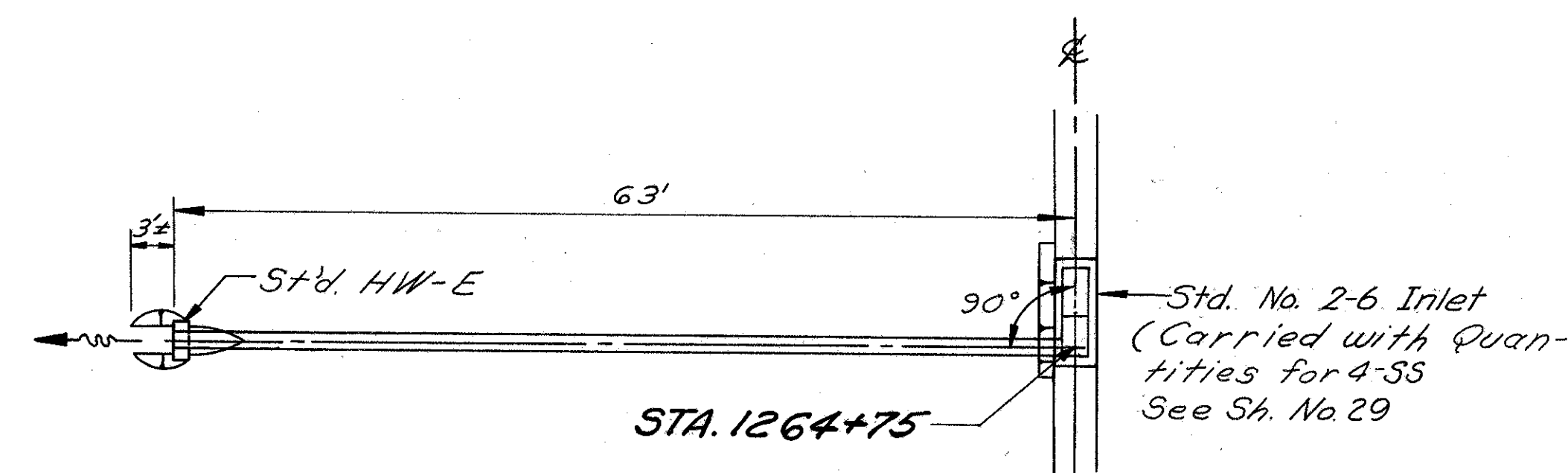
Item 603	- 12" Conduit, Type B, Class B bedding	70 Lin. Ft.
Item 601	- Riprap, 6" Reinforced Concrete Slab	2 Sq. Yd.
Item 601	- Paved Gutter, Type I-C, Mod.	10 Lin. Ft.
Item 604	- Standard C.B. No. 2-2A	1 Each

Quantities carried to Sheet No. 27





JEF-7-23.37



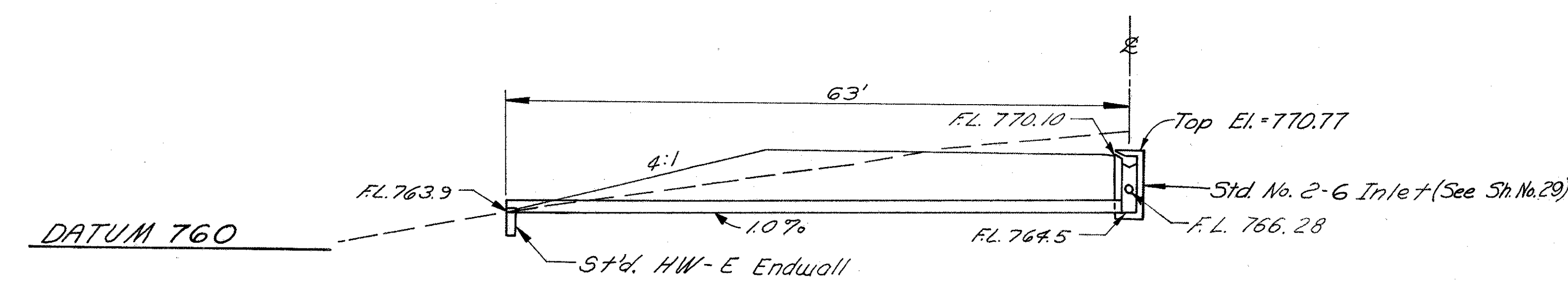
PLAN

**ESTIMATED QUANTITIES**

- Item 603 - 12" Conduit, Type B, Class "B" bedding — 64 Lin. Ft.  
 Item 602 - Concrete Masonry — 0.23 Cu. Yd.

Scale: 0 5' 10'

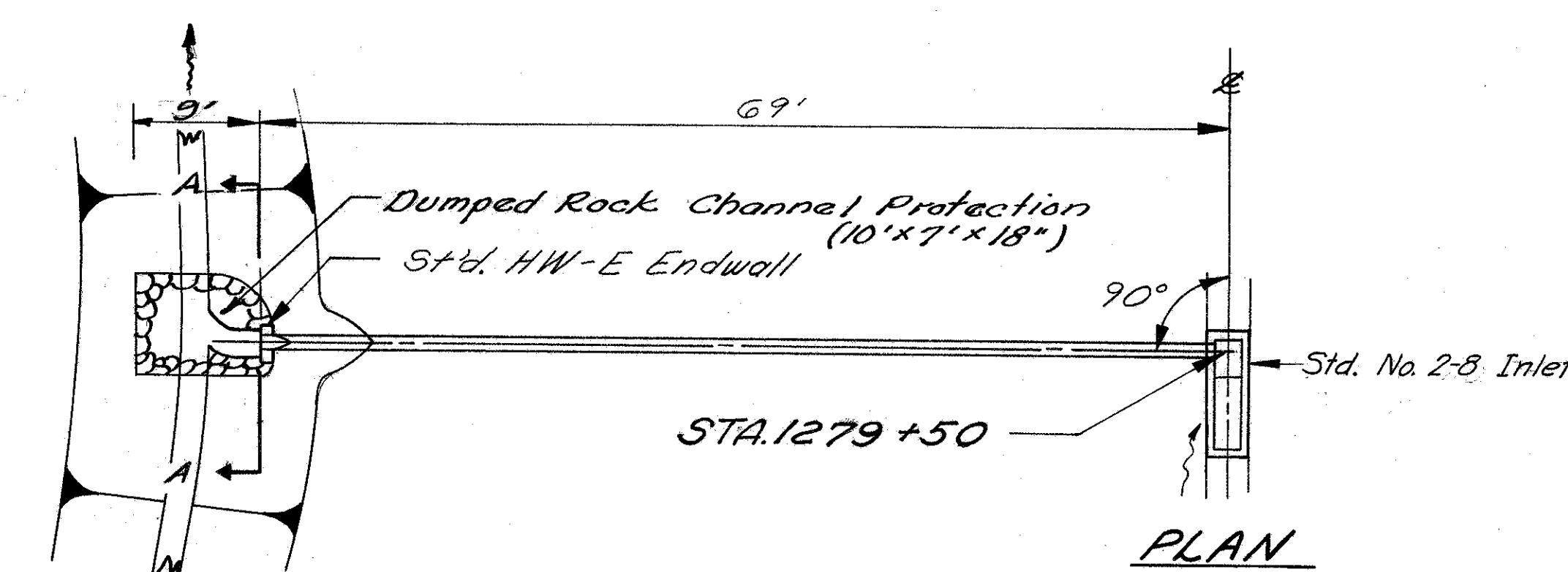
Quantities Carried to Sheet No. 29



CROSS SECTION

Scale: 0 5' 10'

3-SS STA. 1264+75



PLAN

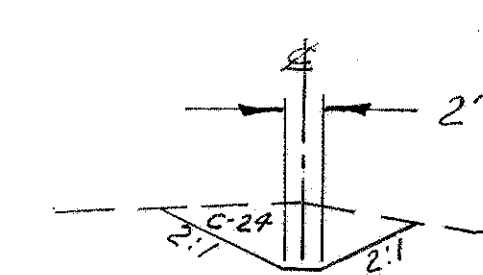
**ESTIMATED QUANTITIES**

- Item 603 - 12" Conduit, Type B, Class "B" bedding — 70 Lin. Ft.  
 Item 602 - Concrete Masonry — 0.23 Cu. Yd.  
 Item 601 - Dumped Rock Channel Protection — 4 Cu. Yd.  
 Item 604 - Std. Inlet No. 2-8 — 1 Each

Scale: 0 5' 10'

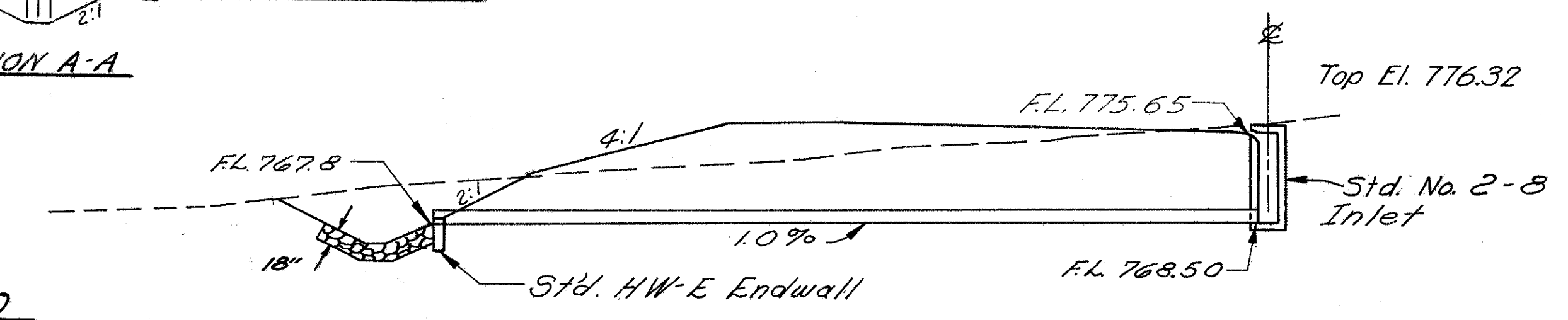
Quantities carried to Sheet No. 30

Excavation Quantities			
Sta.	E. Area	Dist.	Vol.
Sec. A-A	24		19
End Cut	0		
Total			19 C.Y.



SECTION A-A

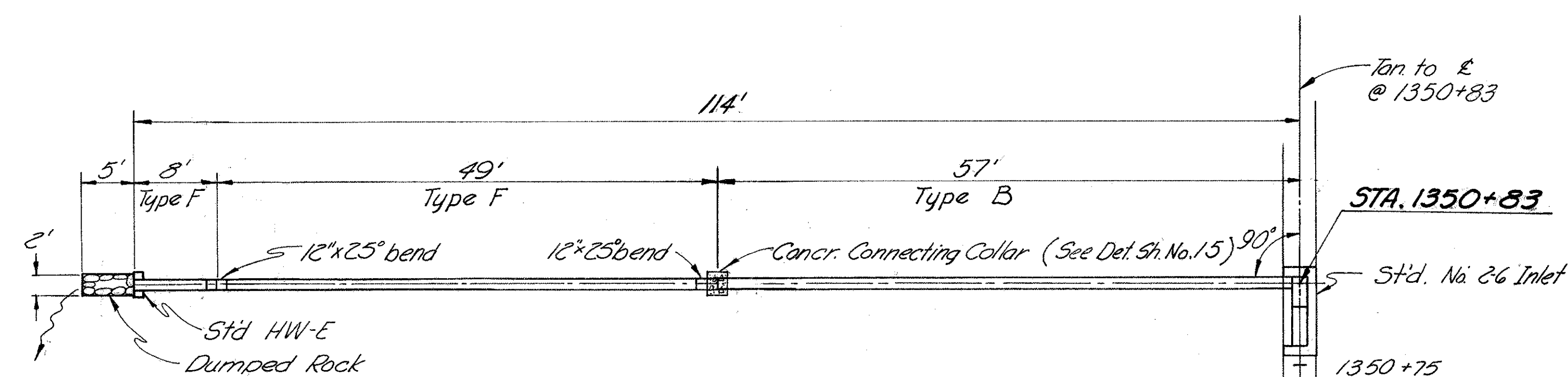
DATUM 760



CROSS SECTION

Scale: 0 5' 10'

5-SS STA. 1279+50

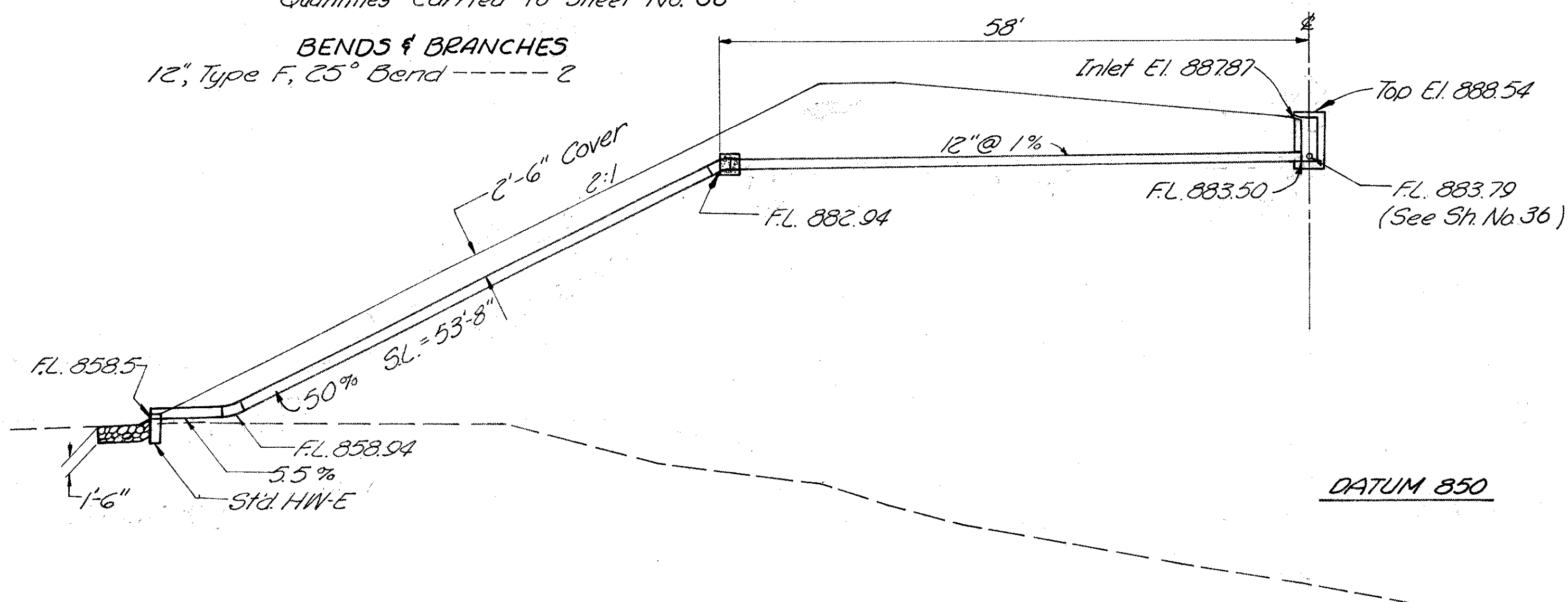


**ESTIMATED QUANTITIES**

- Item 603 - 12" Conduit, Type B, Class B bedding — 58 Lin. Ft.  
 Item 603 - 12" Conduit, Type F — 62 Lin. Ft.  
 Item 602 - Concrete Masonry — 0.2 Cu. Yd.  
 Item 604 - Std. No. 2-18 Inlet — 1 Each  
 Item 601 - Dumped Rock Channel Protection — 1 Cu. Yd.

Quantities Carried to Sheet No. 36

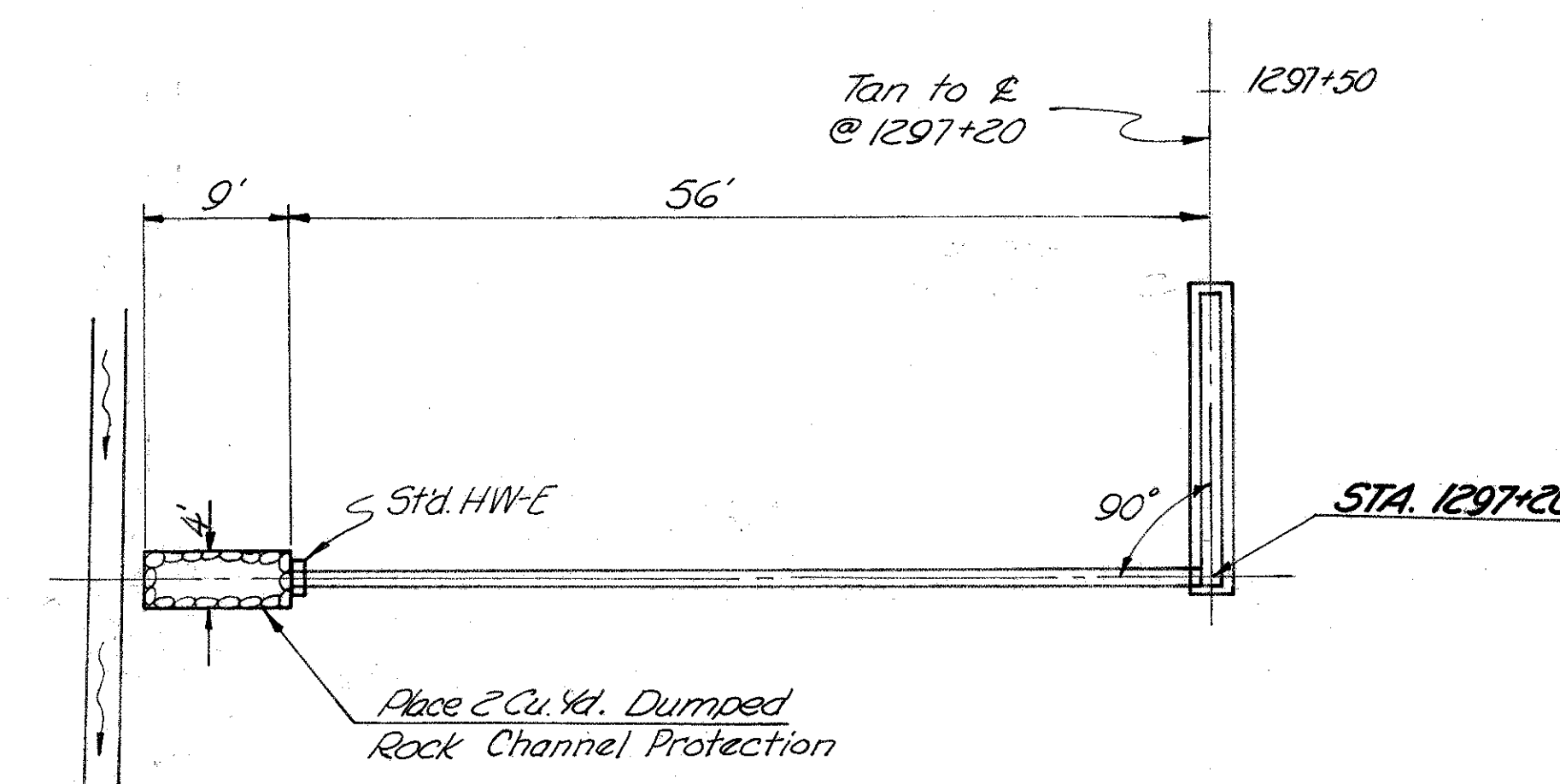
**BENDS & BRANCHES**  
 12", Type F, 25° Bend — 2



**CROSS-SECTION**

Scale

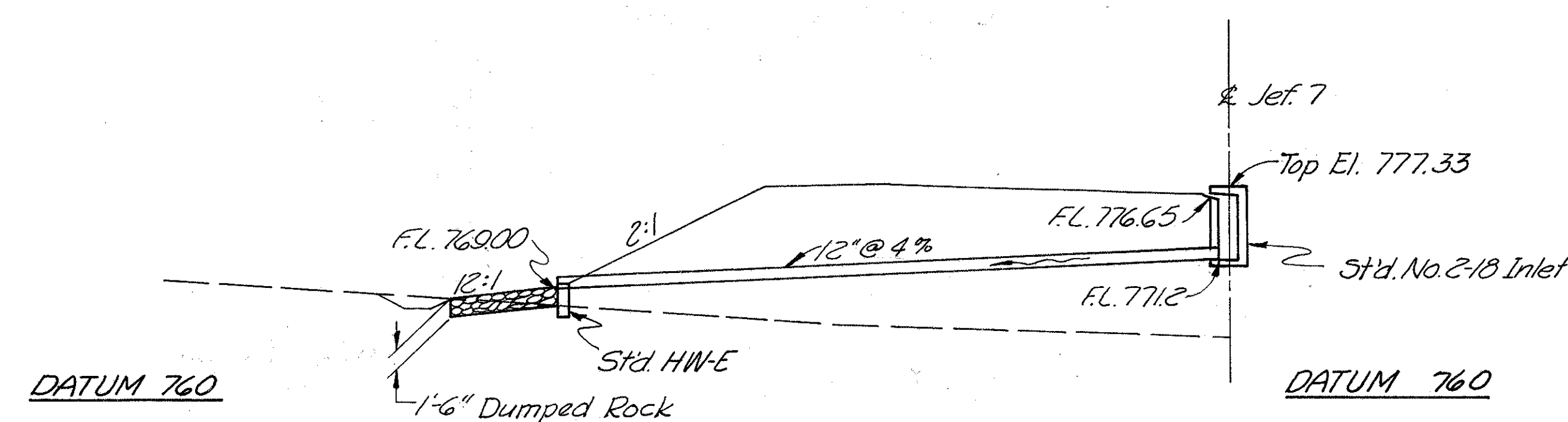
14-SS STA. 1350 + 83



**ESTIMATED QUANTITIES**

- Item 603 - 12" Conduit, Type B, Class B bedding — 56 Lin. Ft.  
 Item 604 - Std. No. 2-18 Inlet — 1 Each  
 Item 601 - Dumped Rock Channel Protection — 2 Cu. Yd.  
 Item 602 - Concrete Masonry — 0.3 Cu. Yd.

Quantities carried to Sheet No. 32



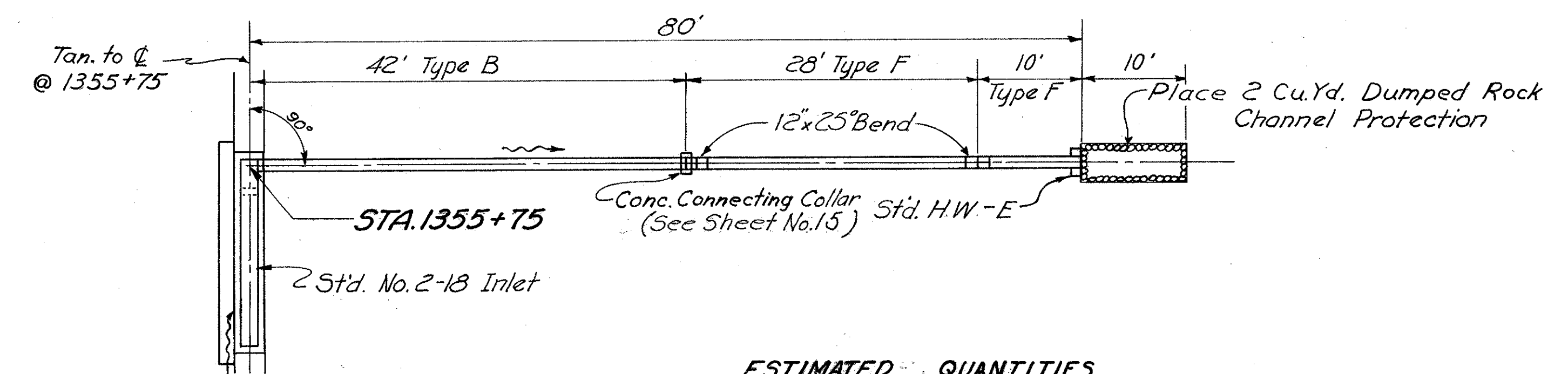
**CROSS-SECTION**

Scale

9-SS STA. 1297 + 20



JEF - 7- 23.37



PLAN

Scale: 0 5' 10'

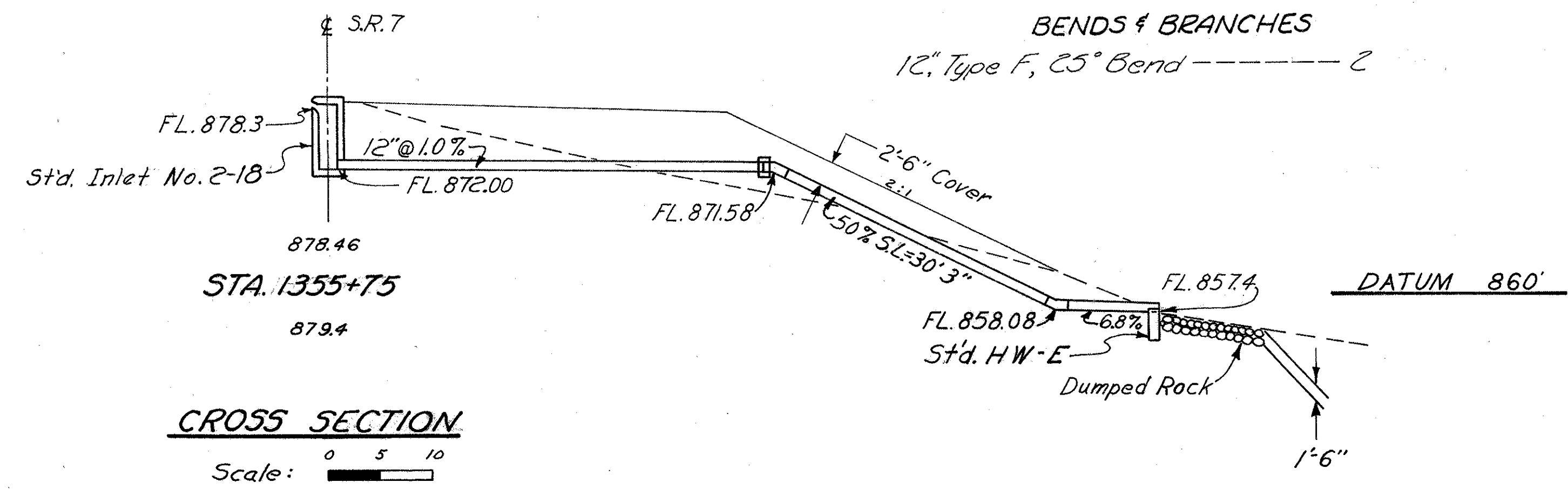
ESTIMATED QUANTITIES

Item 603 - 12" Conduit, Type B, Class B bedding	42 Lin. Ft.
Item 603 - 12" Conduit, Type F	42 Lin. Ft.
Item 602 - Concrete Masonry	0.3 Cu. Yd.
Item 604 - Std. No. 2-18 Inlet	1 Each
Item 601 - Dumped Rock Channel Protection	2 Cu. Yd.

Estimated Quantities Carried to Sheet No. 37

BENDS & BRANCHES

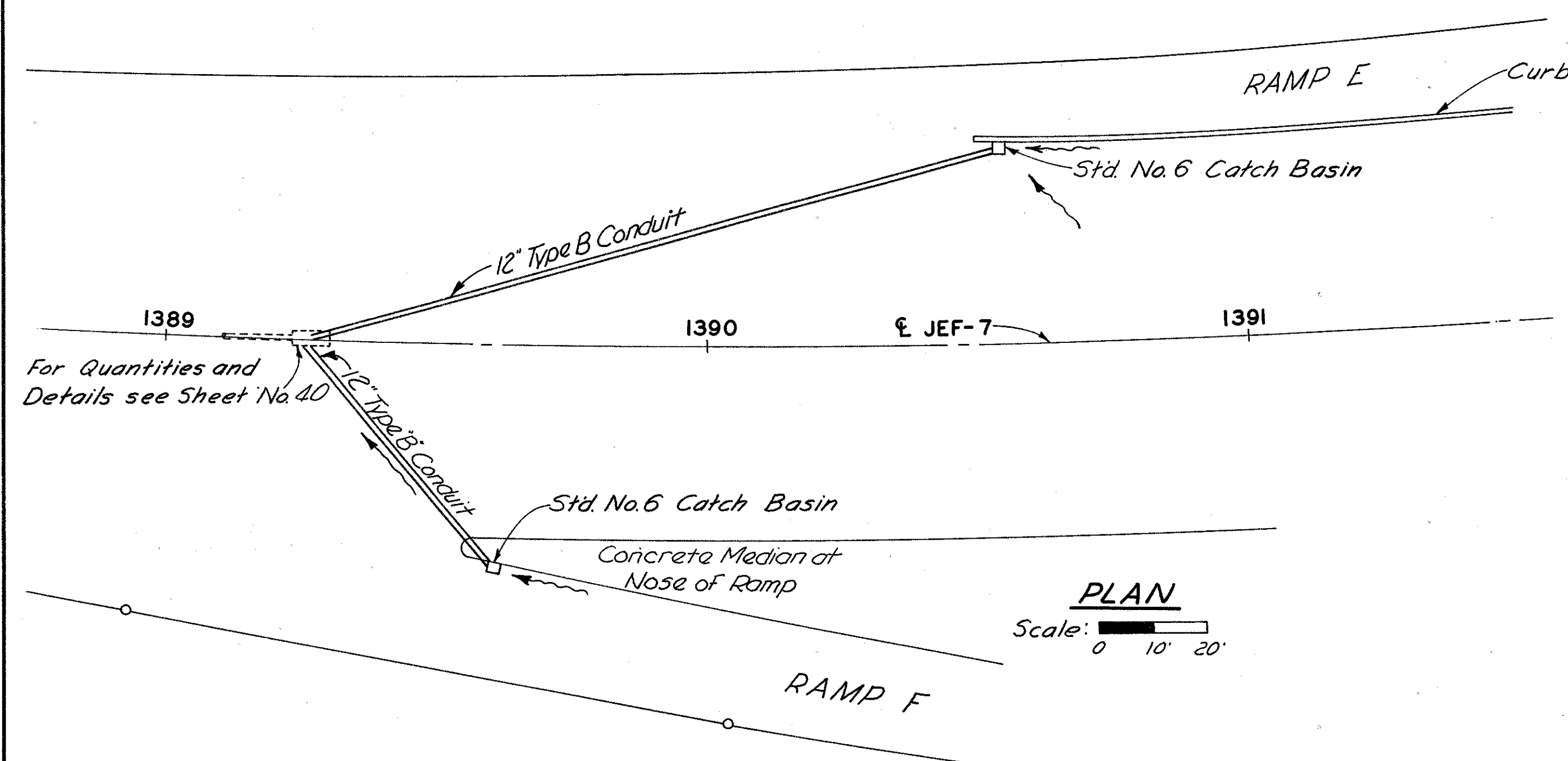
12" Type F, 25° Bend ----- 2



CROSS SECTION

Scale: 0 5' 10'

JEF-7-23.37

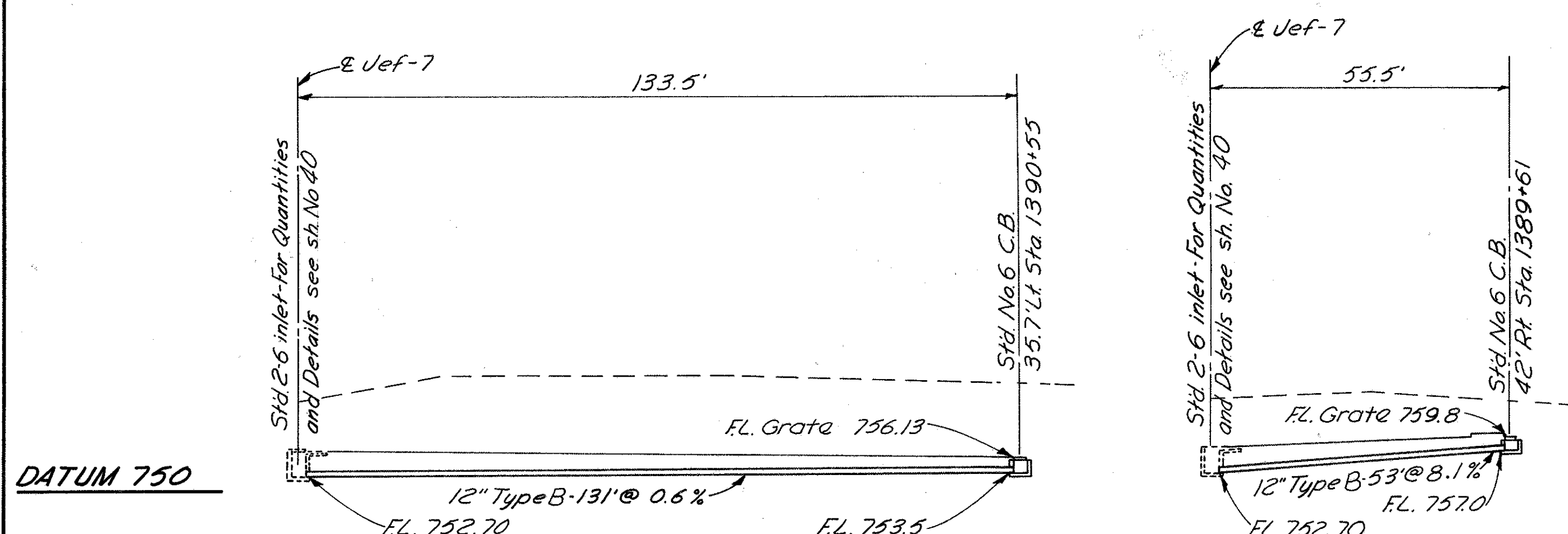


### ESTIMATED QUANTITIES

- Item 603 - 12" Conduit, Type B with Class B bedding ----- 190 Lin. Ft.  
Item 604 - Std. No. 6 Catch Basin, modified as per plan ----- 2 Each

Quantities carried to sheet No. 40

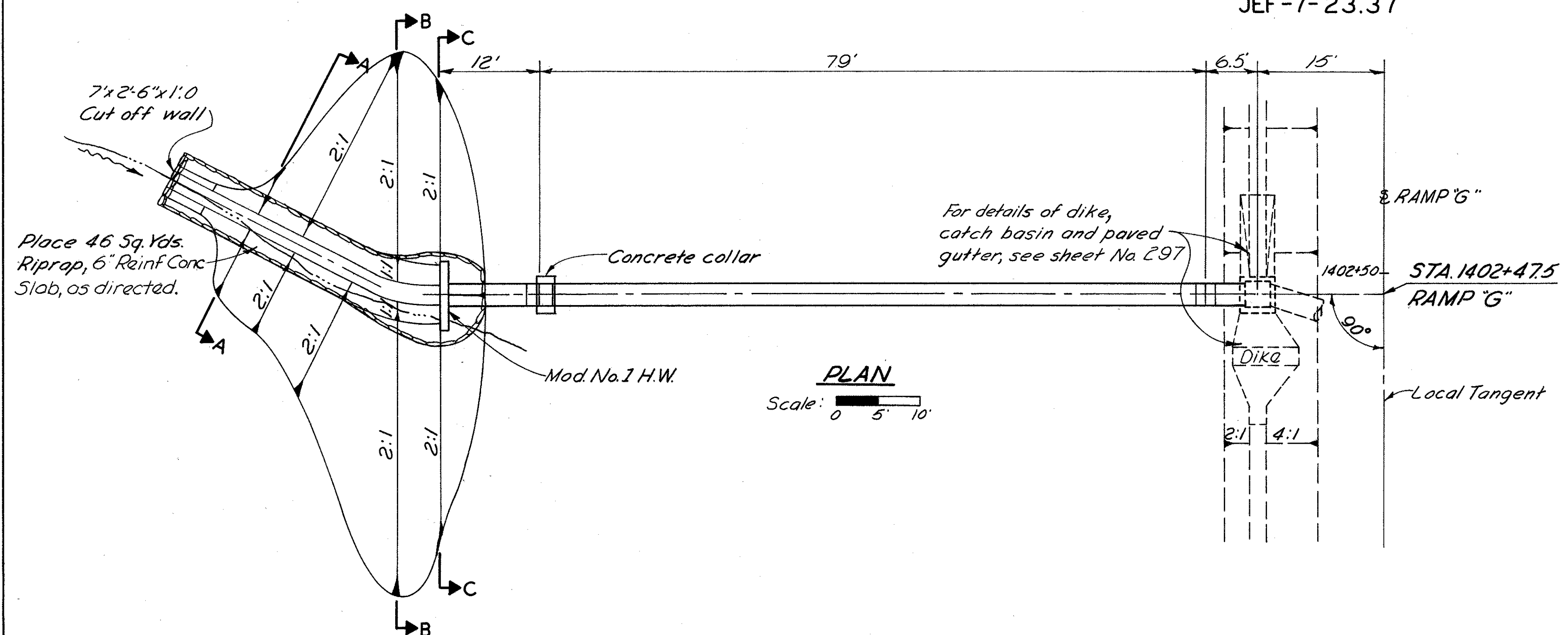
Note: Std. No. 6 Catch Basins shall be depressed 2" in lieu of the 1" depression shown on Standard Dwg CB-6



### PROFILES

Scale: 0 10' 20'

1755 STA. 1389+25  
TO STA. 1390+55 Lt. & Rt.



### ESTIMATED QUANTITIES

- Item 603 - 30" Conduit, Type F with Class C bedding ----- 114 Lin. Ft.  
Item 602 - Concrete Masonry ----- 3.9 Cu. Yds.  
Item 601 - Riprap, 6" Reinforced Concrete Slab ----- 46 Sq. Yds.  
Item 203 - Excavation ----- 121 Cu. Yds.

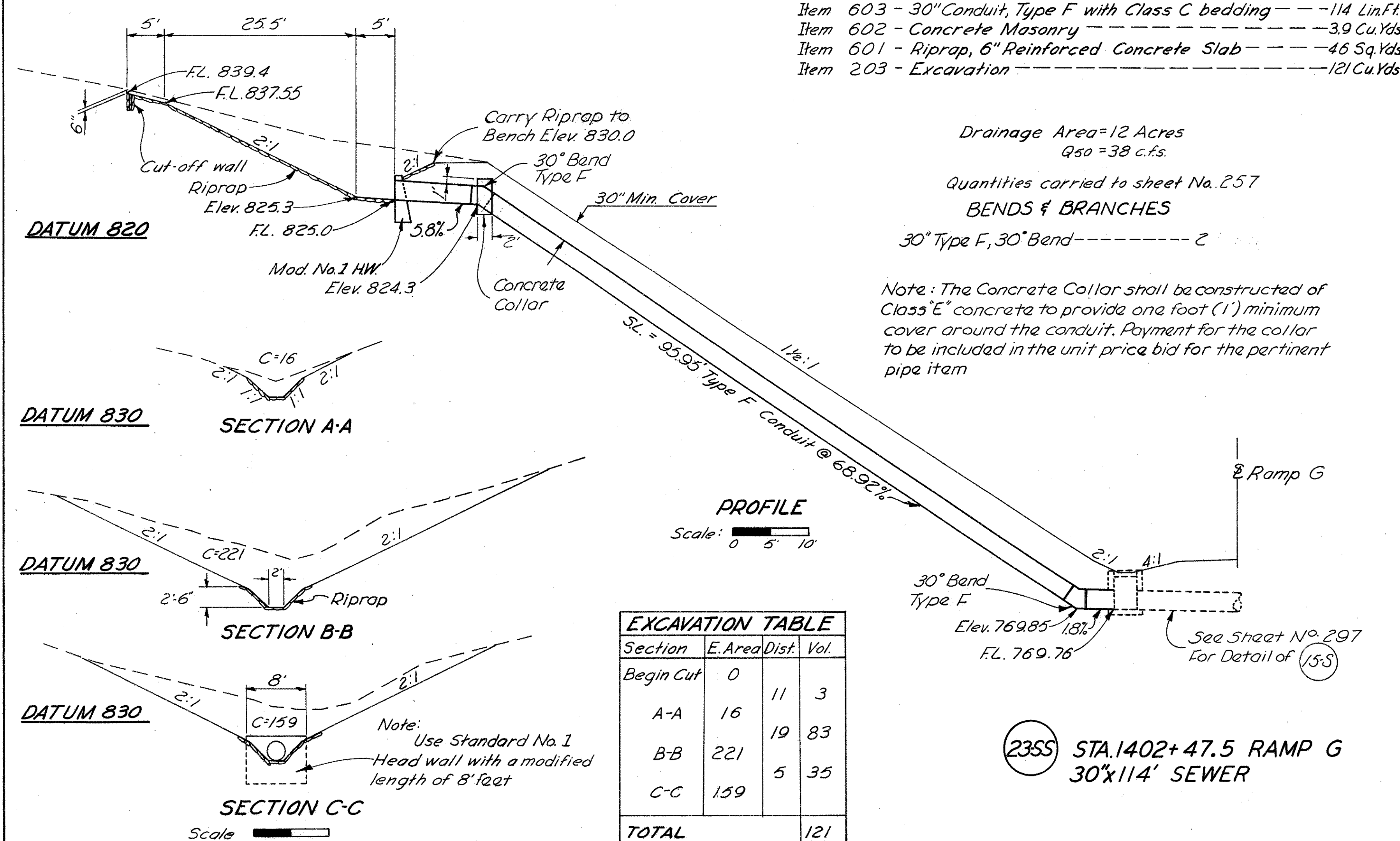
Drainage Area = 12 Acres  
 $Q_{50} = 38$  c.f.s.

Quantities carried to sheet No. 257

### BENDS & BRANCHES

30" Type F, 30° Bend ----- 2

Note: The Concrete Collar shall be constructed of Class E concrete to provide one foot (1') minimum cover around the conduit. Payment for the collar to be included in the unit price bid for the pertinent pipe item



### DATUM 820

### DATUM 830

### DATUM 830

### DATUM 830

### SECTION A-A

### SECTION B-B

### SECTION C-C

### PROFILE

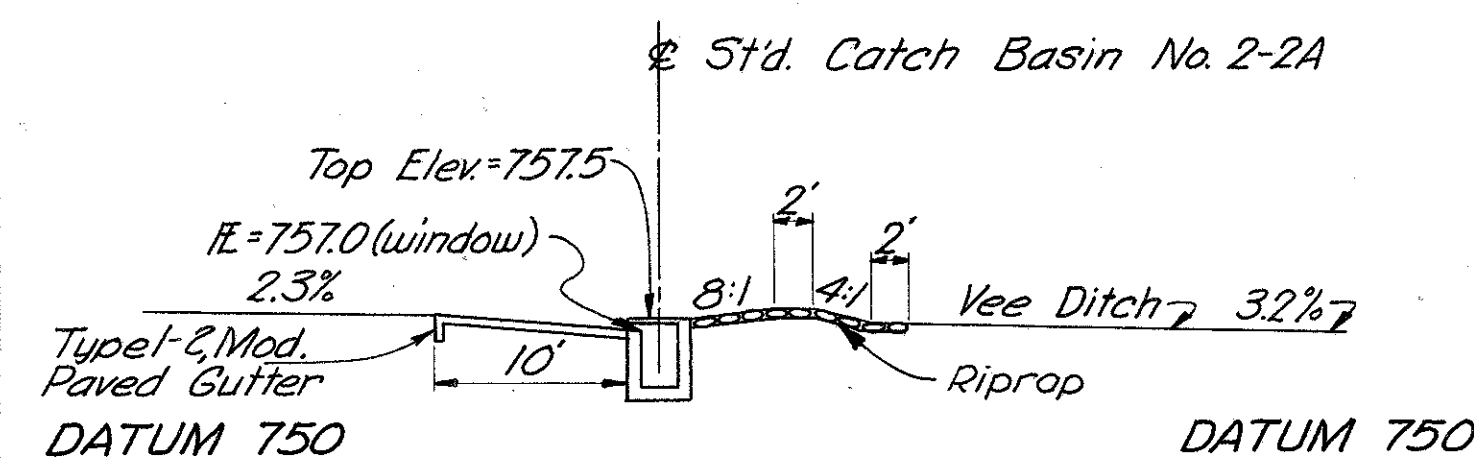
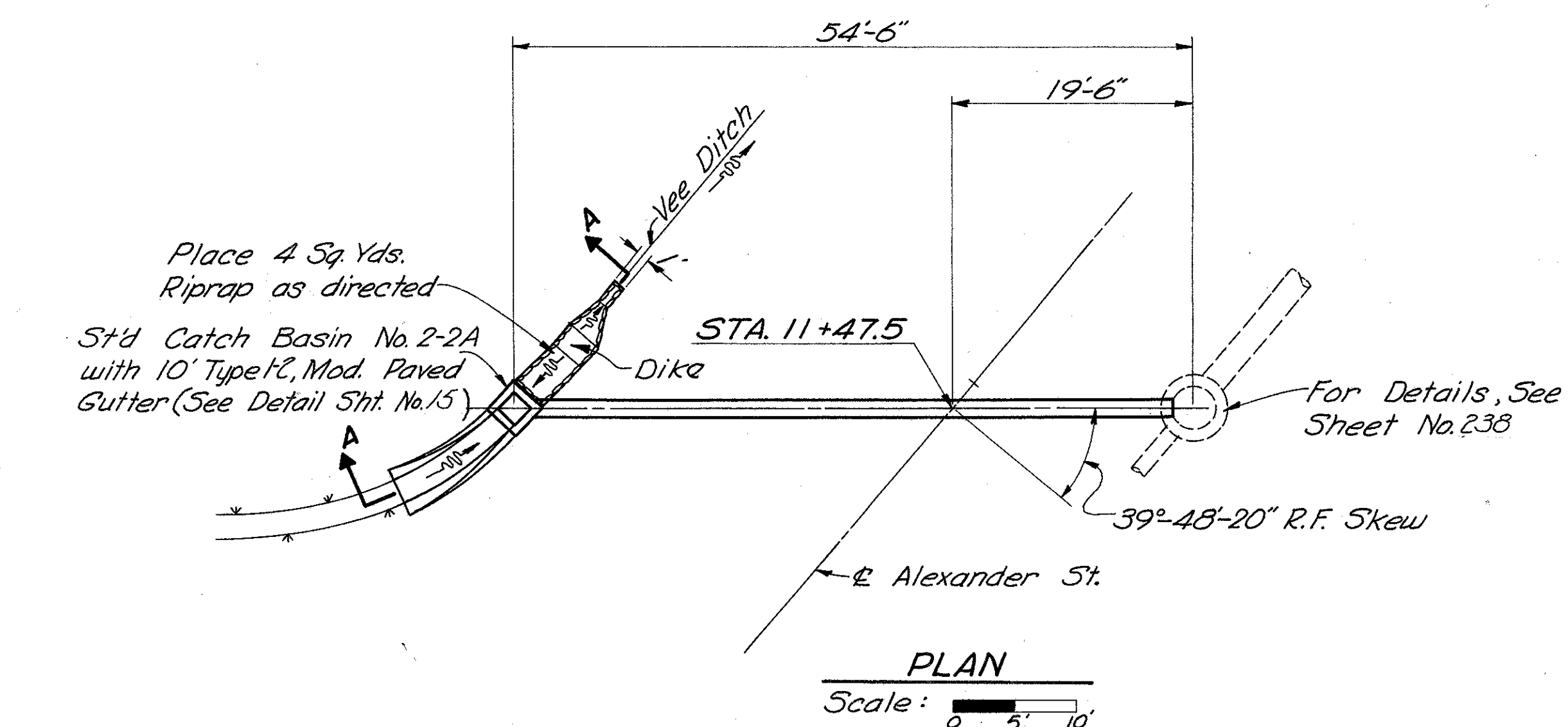
Scale: 0 5' 10'

Section	E. Area	Dist.	Vol.
Begin Cut	0		3
A-A	16	11	83
B-B	221	5	35
C-C	159		
TOTAL			121

2355 STA. 1402+47.5 RAMP G  
30"x114' SEWER



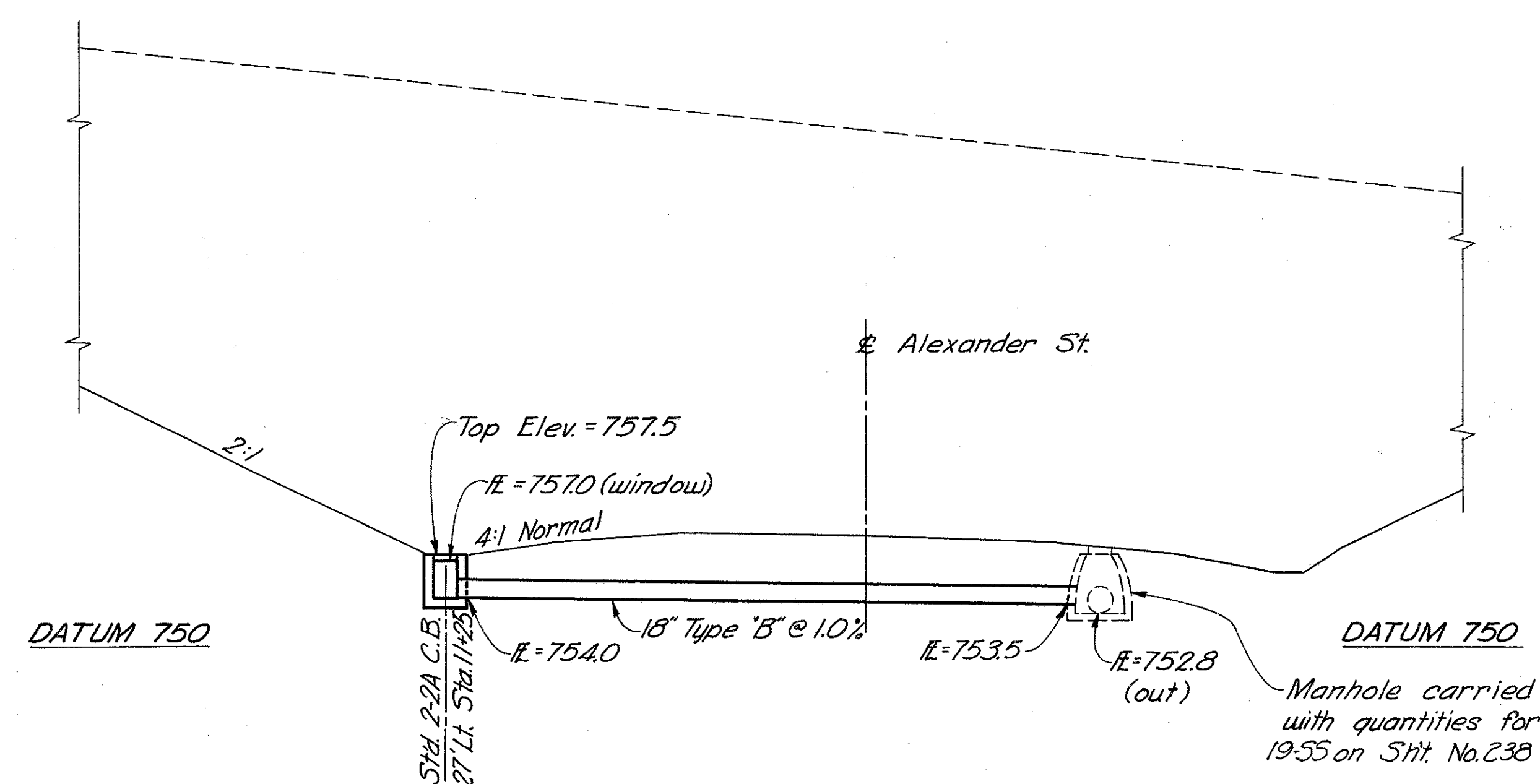
JEF-7 - 23.37



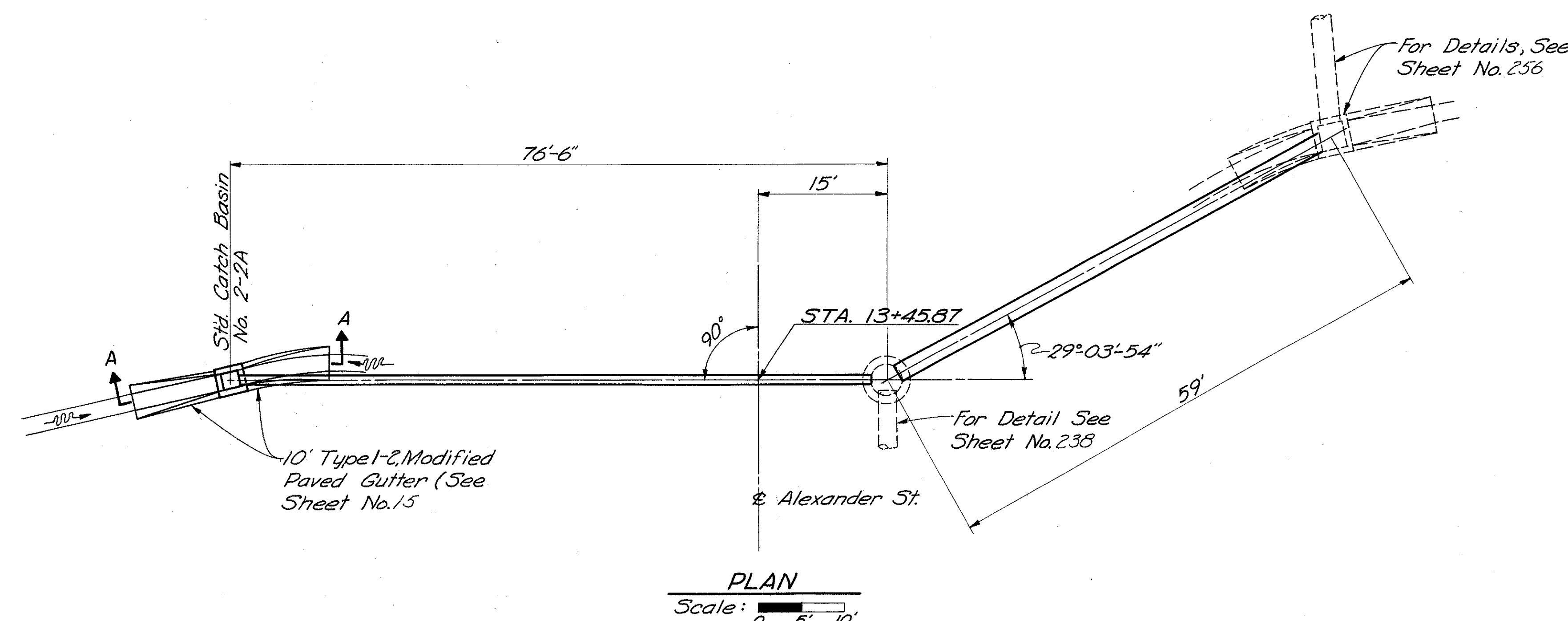
# ESTIMATED QUANTITIES

Item 603-18" Conduit, Type B, Class "B" Bedding---56 Lin. Ft.  
Item 604-Std. Catch Basin No. 2-2A-----1 Each  
Item 601-Modified Paved Gutter, Type I-2---10 Lin. Ft.  
Item 601-Riprap, 6" Reinforced Concrete Slab- 2 Sq. Yds.

Quantities carried to Sheet No. 238



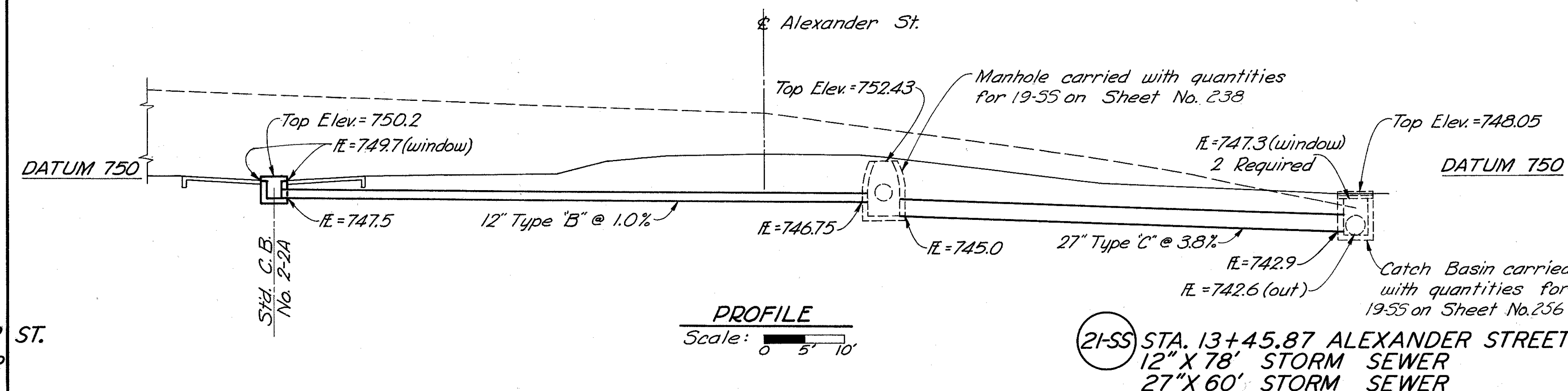
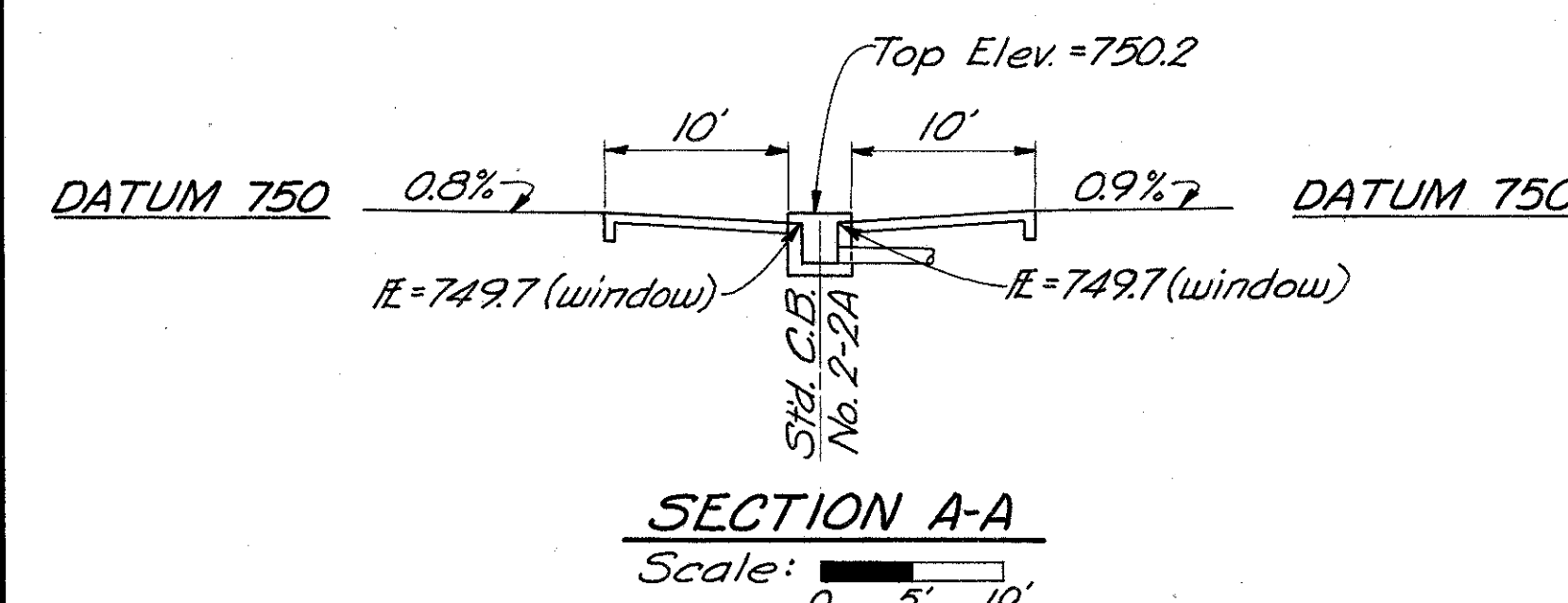
20+SS STA. 11+47.5 ALEXANDER ST.  
18" X 56' STORM SEWER



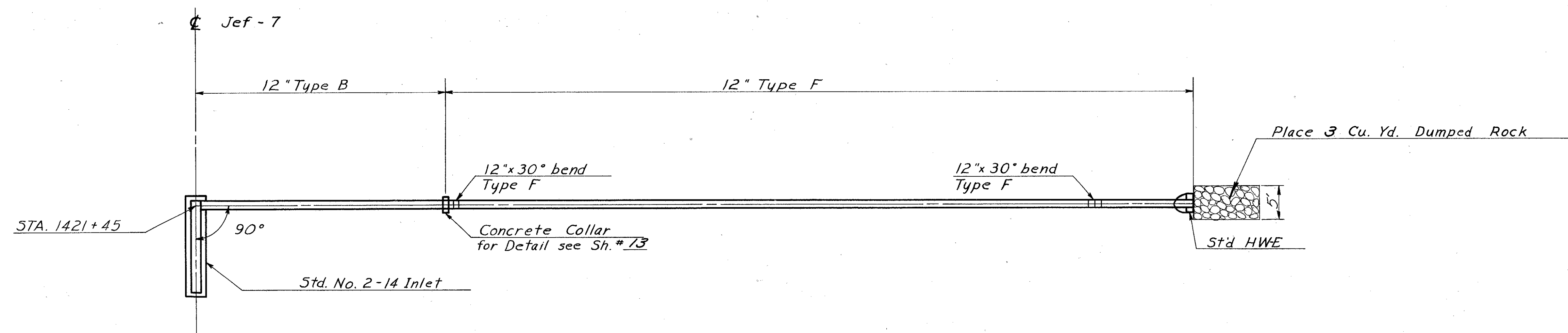
# ESTIMATED QUANTITIES

Item 603-12" Conduit, Type B, Class "B" Bedding---78 Lin. Ft.  
Item 603-27" Conduit, Type C, Class "B" Bedding---60 Lin. Ft.  
Item 604-Std. Catch Basin No. 2-2A-----1 Each  
Item 601-Paved Gutter, Modified Type I-2---20 Lin. Ft.

Quantities carried to Sheet No. 238

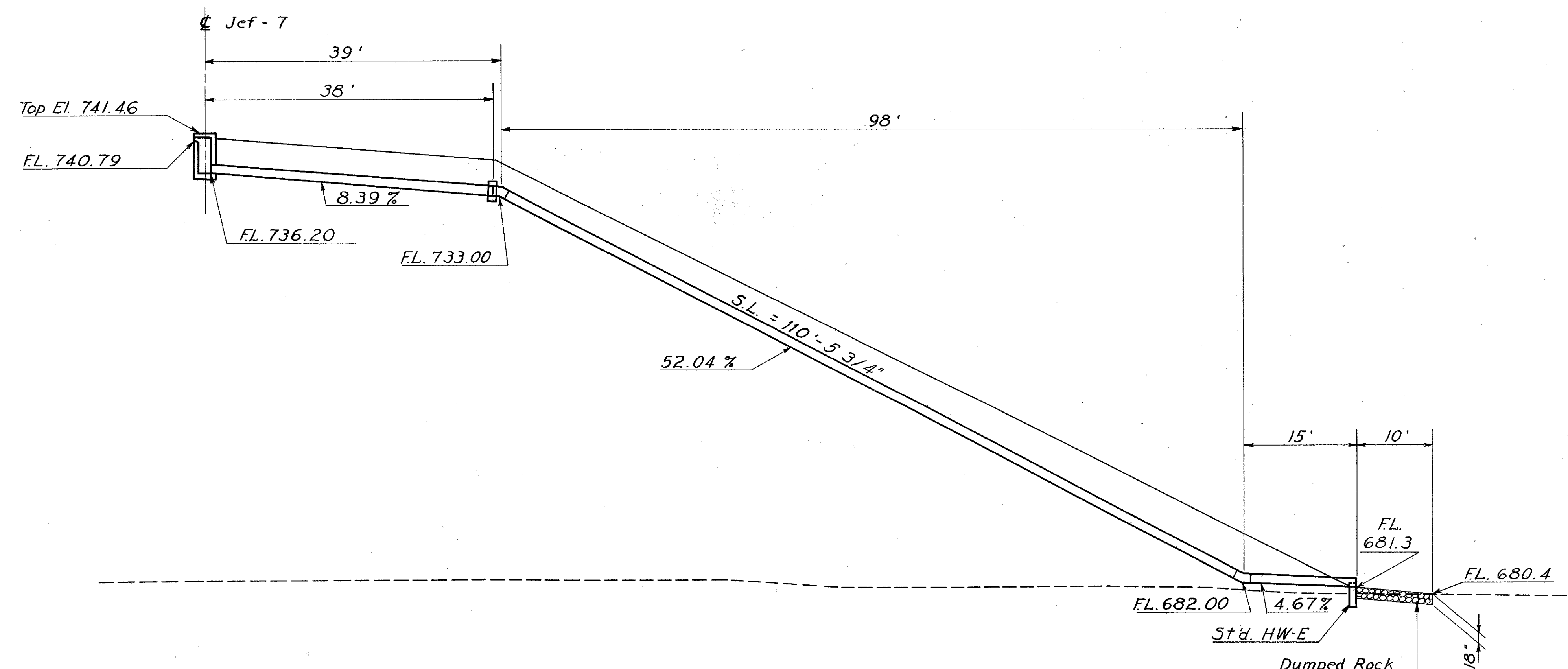


21+SS STA. 13+45.87 ALEXANDER STREET  
12" X 78' STORM SEWER  
27" X 60' STORM SEWER



# PLAN

Scale : 0' 5' 10'



740.96  
STA. 1421+45  
682.4

# CROSS SECTION

Scale : 0' 5' 10'

# ESTIMATED QUANTITIES

Item 603-12" Conduit, Type B, Class B bedding	38	Lin. Ft.
Item 603-12" Conduit, Type F	126	Lin. Ft.
Item 604-Std. No. 2-14 Inlet	1	Each
Item 602-Concrete Masonry	0.3	Cu. Yd.
Item 601-Dumped Rock Channel Protection	3	Cu. Yd.

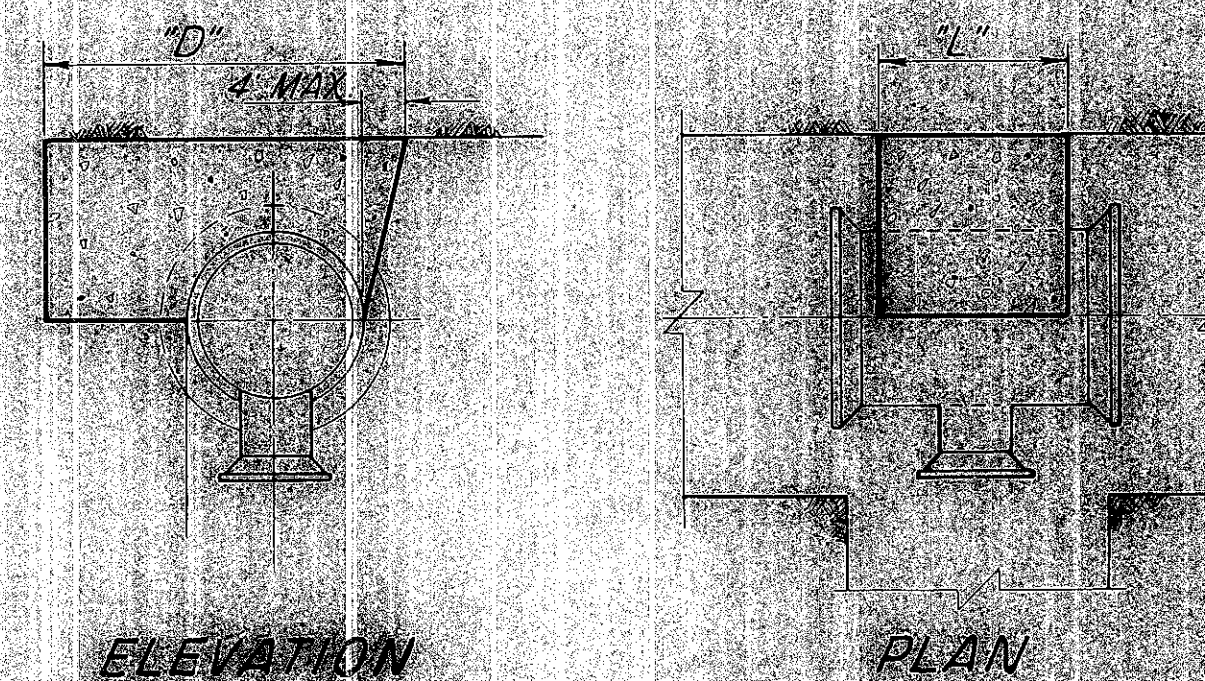
Quantities carried to Sheet No. 19

PIPE SPECIALS  
12"x30° Bend, Type F--2

DATUM 680



JEF-7-2337



ELEVATION

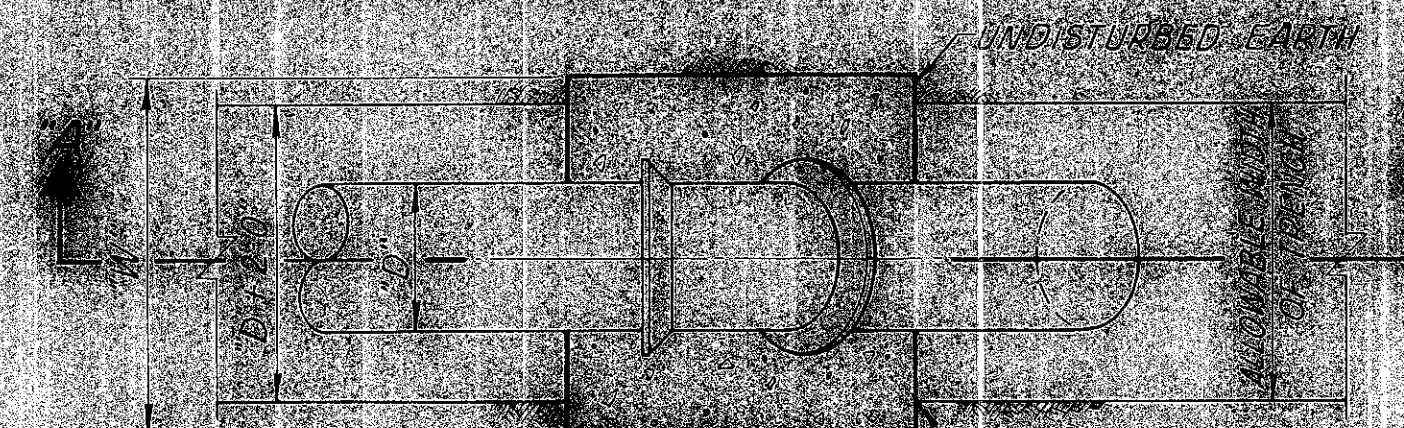
PLAN

SIZE OF TEE	6"	8"	10"	12"	14"	16"	18"	20"
BACKER L	10	12	14	16	18	20	22	24
BACKER W	10	12	14	16	18	20	22	24
BACKER H	10	12	14	16	18	20	22	24
BACKER D	10	12	14	16	18	20	22	24

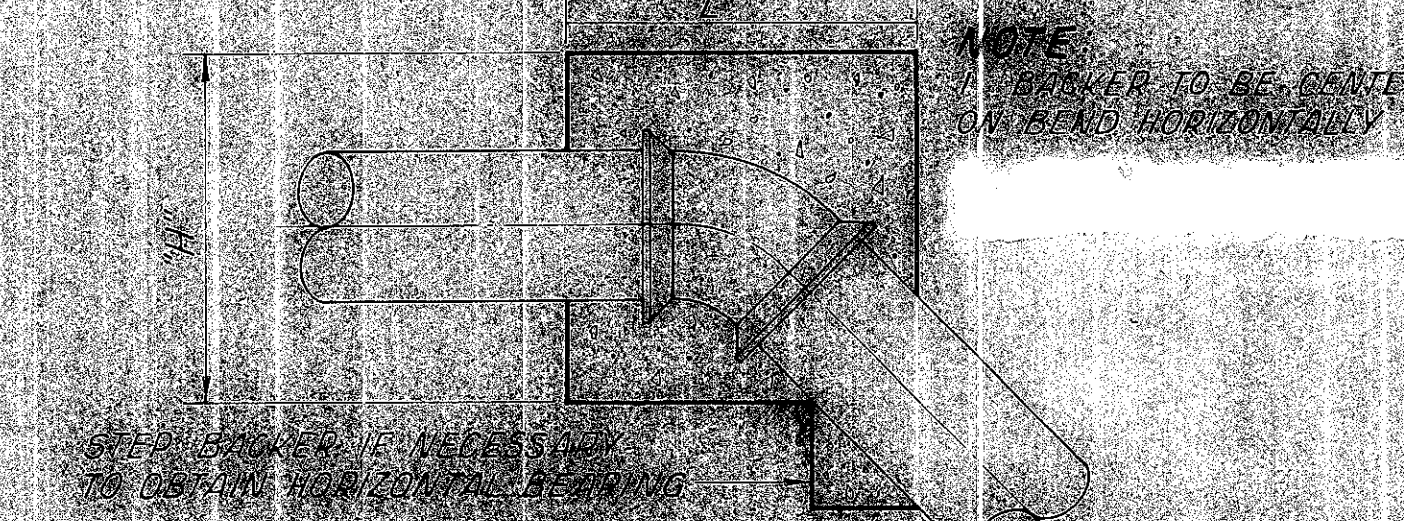
NOTE: BACKERS FOR 10" TEES (RUN OR BR) TO BE BACKED AS FOR 12" TEE DIMENSIONS LISTED ABOVE

TEES

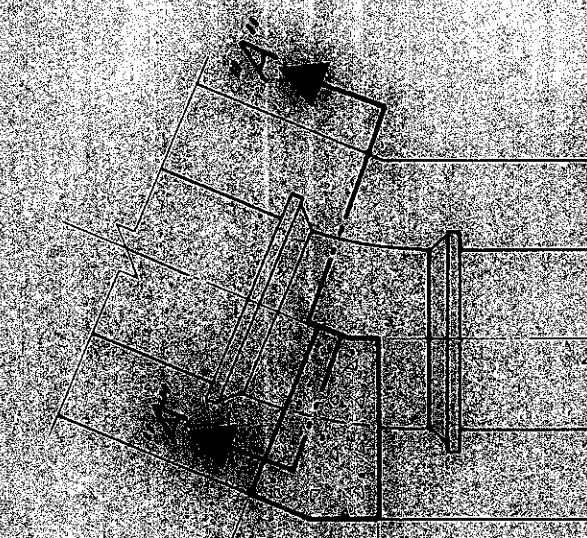
SIZE OF TEE	6"	8"	10"	12"	14"	16"	18"	20"
BACKER L	10	12	14	16	18	20	22	24
BACKER W	10	12	14	16	18	20	22	24
BACKER H	10	12	14	16	18	20	22	24
BACKER D	10	12	14	16	18	20	22	24



NOTE: BACKERS TO BE CENTERED ON BEND HORIZONTALLY



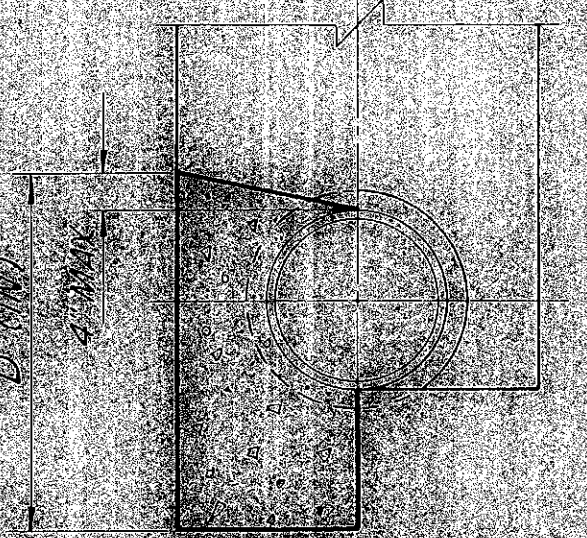
STANDARD BACKING DETAILS



PLAN



ELEVATION



NOTE: BACKERS FOR 10" BENDS TO BE BACKED AS FOR 12" BEND DIMENSIONS LISTED ABOVE

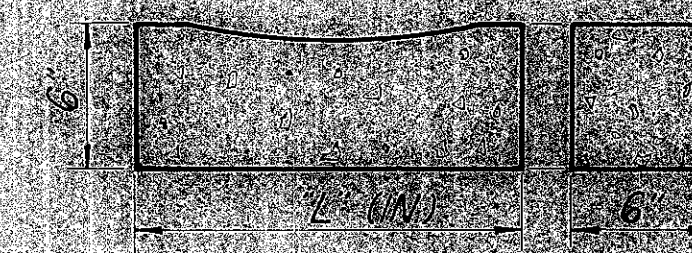
SECTION 1-1

BENDS LESS THAN 90°

SIZE OF BEND	6"	8"	10"	12"	14"	16"	18"	20"
BACKER L	10	12	14	16	18	20	22	24
BACKER W	10	12	14	16	18	20	22	24
BACKER H	10	12	14	16	18	20	22	24
BACKER D	10	12	14	16	18	20	22	24

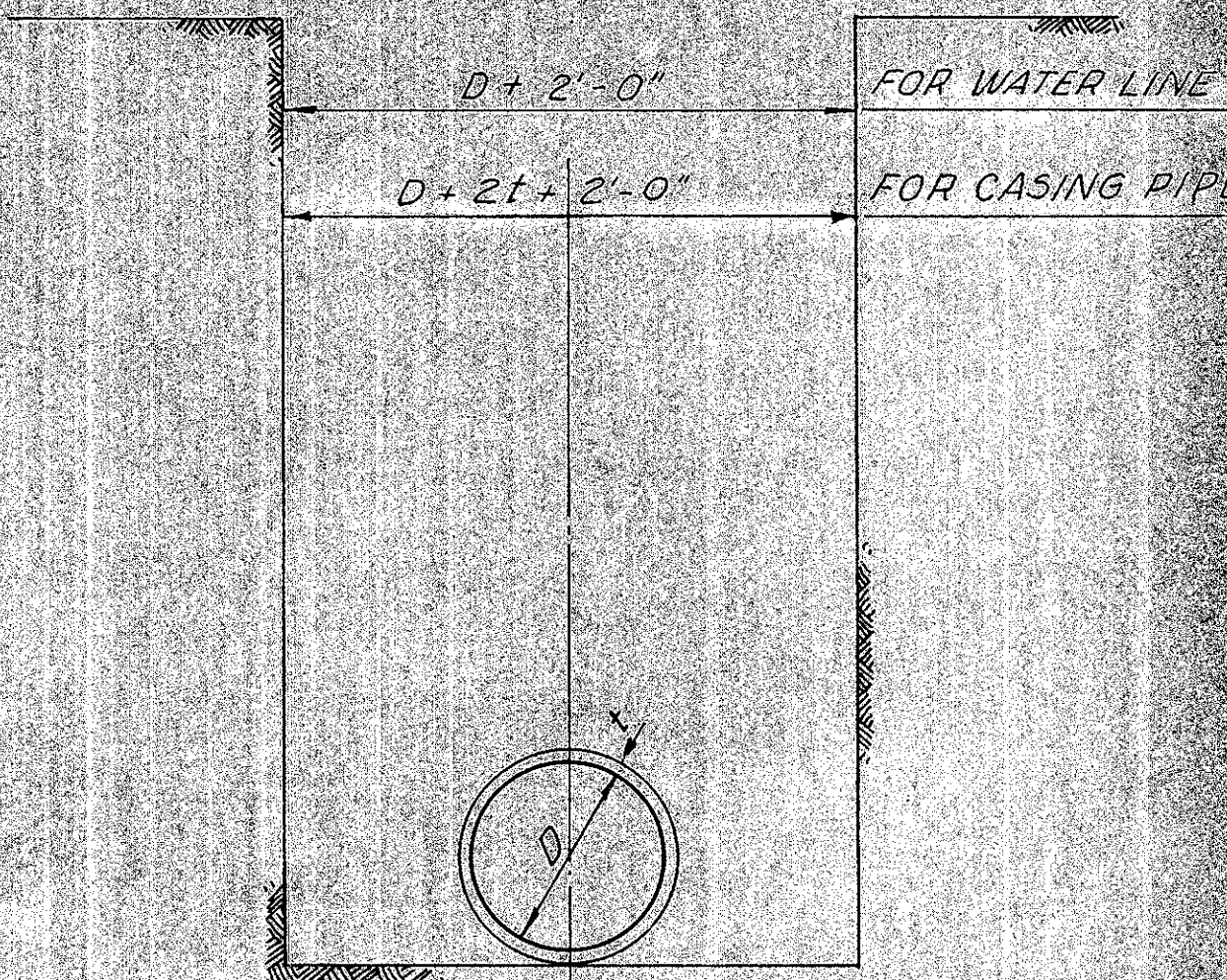
NOTE: BACKERS FOR 10" BENDS TO BE BACKED AS FOR 12" BEND DIMENSIONS LISTED ABOVE

HORIZONTAL BENDS



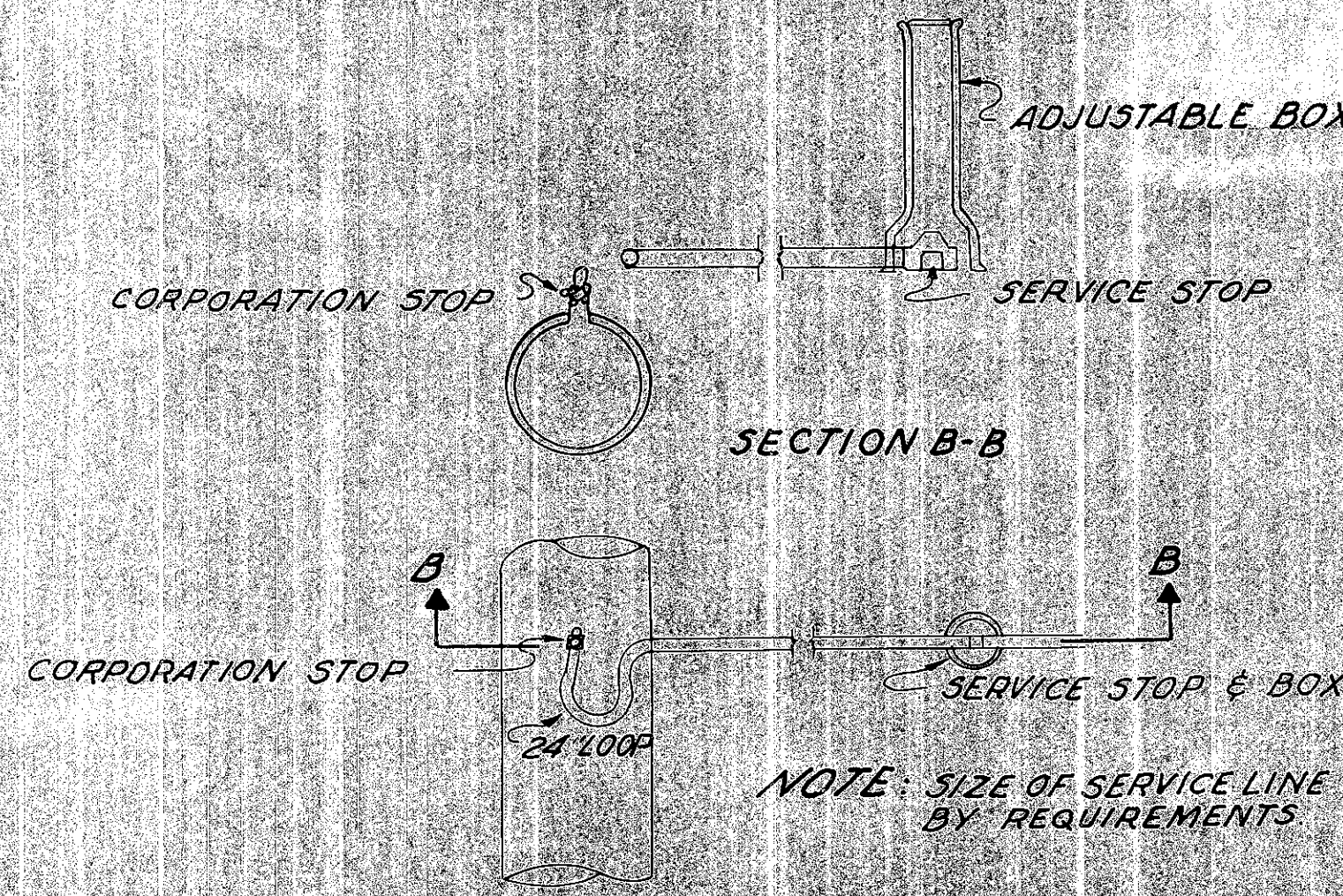
SIZE OF VALVE	6"	8"	10"	12"	14"	16"	18"	20"
BACKER L	10	12	14	16	18	20	22	24
BACKER W	10	12	14	16	18	20	22	24
BACKER H	10	12	14	16	18	20	22	24
BACKER D	10	12	14	16	18	20	22	24

VALVE SUPPORT



NOTE: BACKFILLING TO BE DONE IN CONFORMANCE WITH SUPPLEMENTAL SPECIFICATION 814 FOR WATER LINE, AND 603.06 FOR CASING PIPE EXCEPT AS NOTED PER PLAN

TYPICAL TRENCH DETAIL

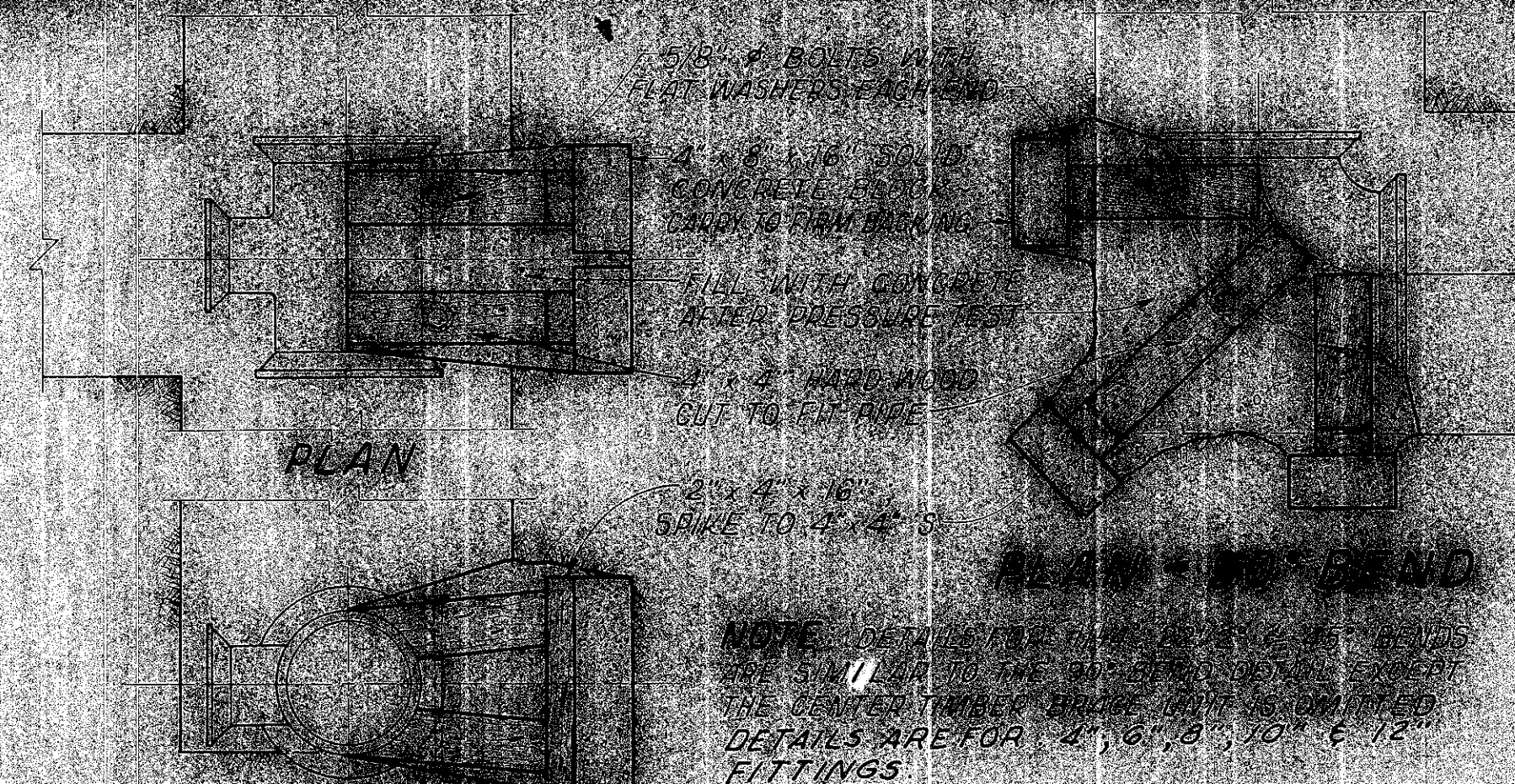


SECTION B-B

NOTE: SIZE OF SERVICE LINE DETERMINED BY REQUIREMENTS

SERVICE BRANCH DETAIL

NO SCALE



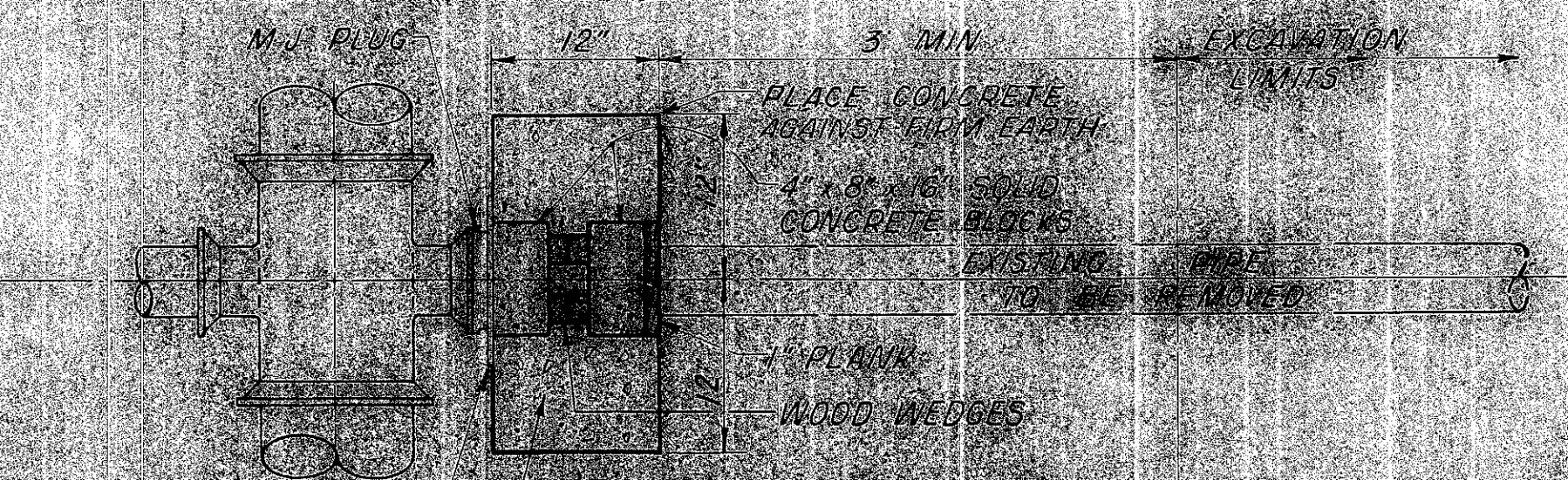
PLAN

ELEVATION

TEE

DEAD-END PIPE

SPECIAL BACKING DETAILS



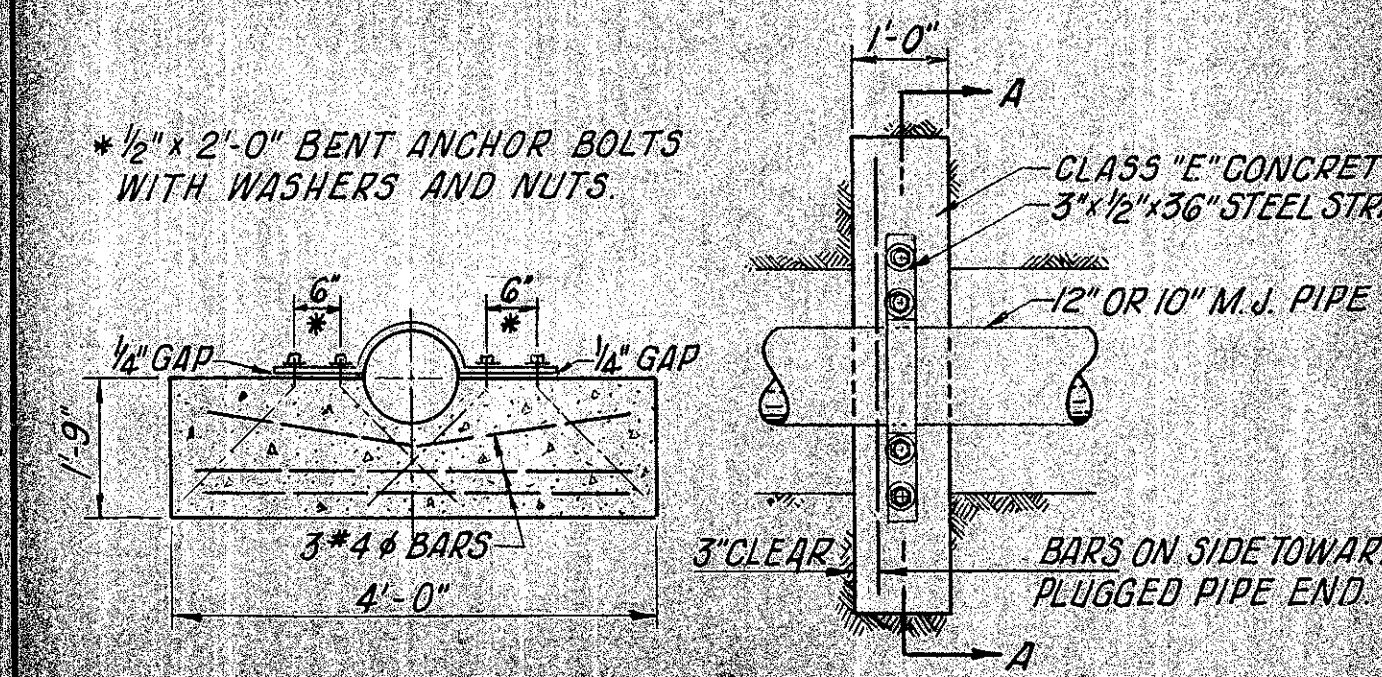
PLAN

ELEVATION

TEE

DEAD-END PIPE

SPECIAL BACKING DETAILS



SECTION A-A

PLAN

ANCHOR BLOCK DETAIL

ANCHOR BLOCK TO BE LOCATED AT THE MIDDLE OF THE LAST LENGTH OF PIPE

WATER MAIN DETAILS



# GENERAL NOTES - WATER

## WATER LINE RELOCATION SPECIFICATIONS

ALL WATER LINE RELOCATIONS SHALL BE MADE IN ACCORDANCE WITH DEPARTMENT OF HIGHWAYS SPECIFICATIONS NO. 814 ENTITLED "WATER MAINS AND SERVICE BRANCHES". THIS SPECIFICATION IS MODIFIED BY THE FOLLOWING SPECIAL PROVISIONS WHICH CONSIST OF THESE NOTES. IN ALL CASES OF CONFLICT WITH SUPPLEMENTAL SPECIFICATIONS 814, THESE NOTES SHALL GOVERN. THE FIGURES IN PARENTHESIS IN THESE NOTES REFER TO THE SECTION OF SUPPLEMENTAL SPECIFICATION 814 WHICH IS BEING MODIFIED. PAY ITEM 88-814 REFERS TO SUPPLEMENTAL SPECIFICATION 814

## NEW WATER MAINS ( 814. 02 )

ALL NEW WATER LINES AND FITTINGS SHALL BE A. W. W. A. CL-22 MECHANICAL JOINT CAST IRON WITH A THIN BITUMINOUS COATED 1/16" THICK CEMENT LINING ( ENAMELINE OR APPROVED EQUAL ) COMPLYING WITH A. S. A. A 21-4-1964 EXCEPT AS TO THICKNESS AND WITH AN OUTSIDE COATING OF BITUMASTIC ENAMEL OR APPROVED EQUAL UNLESS OTHERWISE SHOWN ON THE PLANS.

## GATE VALVES ( 814. 02 )

ALL VALVES TO HAVE DOUBLE "O" RING STEM SEALS WITH SEPARATE, BOLTED SEAT PLATE. NON-RISING STEM TO OPEN VALVE BY COUNTER-CLOCKWISE ROTATION. VALVE SIZES 12" AND SMALLER DESIGNED FOR VERTICAL DISC MOVEMENT AND STEM OPERATION. STEM OPERATOR TO BE STANDARD 2" X 2" NUT. VALVE TO BE DESIGNED FOR 200 P. S. I. WORKING PRESSURE AND 300 P. S. I. HYDROSTATIC TEST PRESSURE.

THE CONTRACTOR SHALL MAKE SUCH INVESTIGATIONS AS ARE NECESSARY TO DETERMINE THE EXTENT TO WHICH EXISTING SURFACE, SUB-SURFACE, OR OVERHEAD STRUCTURES MAY INTERFERE WITH THE PROSECUTION OF THE WORKS.

## CONNECTIONS TO EXISTING PIPE

AT PLACES WHERE THE PLANS PROVIDE FOR PROPOSED PIPE TO BE CONNECTED TO EXISTING PIPE, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE BEFORE HE STARTS TO LAY THE PROPOSED PIPE. THE COST OF THIS OPERATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT PIPE ITEM.

## LINE TO BE ABANDONED

WATER LINES TO BE ABANDONED NEED ONLY BE REMOVED TO THE LIMITS NECESSARY FOR THE CONTRACTOR TO COMPLETE HIS WORK.

## PIPE REMOVAL

PAYMENT FOR THE REMOVAL OF ANY EXISTING WATER LINE SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR " NEW WATER MAIN "

## CASING PIPE FOR WATER MAINS

CASING PIPE INSTALLATION SHALL BE AS DETAILED ON THE DRAWINGS, THE PRICE BID PER LIN. FT. SHALL CONSTITUTE FULL COMPENSATION FOR ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED FOR EXCAVATION, INSTALLATION AND BACKFILLING AND TO INCLUDE MASONRY BULKHEADING PLACED AT ENDS OF CASING PIPE AND BRACING. THE CARRIER PIPE WHICH IS TO BE INSTALLED IN THE CASING PIPE SHALL BE PAID FOR UNDER ITEM 814.10 " NEW WATER MAIN ", CASING PIPE SHALL BE PAID FOR UNDER ITEM 603, PIPE CULVERTS, SEWERS AND DRAINS.

## WATER MAIN PIPE COVER

PIPE COVER FOR NEW WATER MAINS SHALL BE A MINIMUM OF 3 FEET BETWEEN TOP OF PIPE AND EXISTING GROUND OR FINISHED GRADE, WHICHEVER IS LOWER, OR AS CALLED FOR ON DRAWINGS. PIPE 2" AND UNDER SHALL BE LAID A MINIMUM OF 3'-6" BELOW FINAL GRADE.

## ALTERATION OF PROPOSED WATER LINE ELEVATIONS

IN THE EVENT AN ADJUSTMENT OF PROPOSED WATER LINE ELEVATIONS IS ORDERED DURING CONSTRUCTION OF THIS PROJECT, A SUPPLEMENTAL AGREEMENT WILL BE MADE, AS CONTEMPLATED IN 603. 03, WHERE THE PROPOSED WATER LINE IS RAISED OR LOWERED MORE THAN 1 FOOT.

## VALVE BOXES

VALVE BOXES SHALL BE GOVERNED BY SPECIFICATION 814, VALVE BOXES SHALL MEET THE REQUIREMENTS OF 711. 12.

## DEPARTMENT OF WATER APPROVAL

THE CITY OF TORONTO WATER DEPARTMENT WILL OBSERVE THE WATER LINE RELOCATION WORK. CONSTRUCTION AND MATERIALS MUST MEET THE APPROVAL OF THE WATER DEPARTMENT AND THE ENGINEER.

## BLOCKING AND BACKING ( 814. 05 )

NO SEPARATE PAYMENTS WILL BE MADE FOR REINFORCING STEEL, STEEL PIPE STRAPS, STEEL BACKING PLATES, CONCRETE BACKING OR TIMBER BLOCKING, AS CALLED FOR IN DETAILS. COST SHALL BE INCLUDED WITH THE UNIT PRICE BID FOR ITEM 814. 02 NEW WATER MAINS AS PER PLAN. CONCRETE BACKING SHALL CONSIST OF CLASS "E" CONCRETE.

## PAINTING

ALL PIPE ACCESSORIES SUCH AS STEEL, BOLTS, STRAPS, ETC., WHICH ARE NOT ENCASED IN CONCRETE, SHALL BE PAINTED WITH A BITUMASTIC PAINT SUCH AS KOPPERS' NO 50, GILSONITE, OR APPROVED EQUAL, AFTER ASSEMBLY IN THE WORK.

## HYDROSTATIC TEST ( 814. 07 )

THE HYDROSTATIC TEST SHALL BE MADE AS SPECIFIED UNDER ALTERNATE "B" AT 150 P. S. I. THE COST OF ANY TEST PLUGS OR CAPS AND BLOCKING ON PIPE TESTED PRIOR TO CONNECTION TO EXISTING MAINS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR " NEW WATER MAINS "

## CUTTING AND PLUGGING ( OR CAPPING ) EXISTING MAINS

WATER MAINS CALLED OUT TO BE CUT AND PLUGGED ( OR CAPPED ) AT POINTS ON EXISTING MAINS SHALL HAVE THE ABANDONED WATER MAINS CUT AND REMOVED AS REQUIRED TO ATTACH THE NEW FITTINGS AND PLACE BACKING. BLOCKING SHALL BE USED TO BRACE BETWEEN THE NEW PLUG ( OR CAP ) AND END OF ABANDONED PIPE. CONCRETE BACKING SHALL BE USED TO ENCASE BLOCKING AND SHALL BE AS SHOWN ON A WATER MAIN DETAIL SHEET FOR " DEAD END PIPE AND TEE BACKING ". THE COST OF FURNISHING ALL LABOR, MATERIALS & TOOLS AND EQUIPMENT REQUIRED TO COMPLETE THE EXCAVATING, CUTTING, REMOVING AND DISPOSING OF PORTIONS OF WATER MAIN, ATTACHING THE NEW FITTINGS, PLACING CLASS E BACKING & WOOD BACKING, BACKFILLING AND RESTORING THE GROUND GRADE TO ITS ORIGINAL CONDITION SHALL BE PAID FOR AT THE UNIT PRICE BID FOR EACH " ITEM 814.05 PLUGGED " COMPLETE AND ACCEPTED IN PLACE. EXISTING UTILITIES

ALL EXISTING SURFACE, SUBSURFACE, OR OVERHEAD STRUCTURES ARE NOT NECESSARILY SHOWN ON THE WATER LINE DRAWINGS. THE STATE OF OHIO MAKES NO GUARANTEES AS TO THEIR ACCURACY OR COMPLETENESS.

## INSERTING VALVES

INSERTING VALVES SHALL BE I. B. S. M. A. W. W. A. 300 POUND TEST PRESSURE, 175 POUND WORKING PRESSURE, AS MANUFACTURED BY A. P. SMITH MFG. CO. OR MUELLER OR APPROVED EQUAL. THE CONTRACTOR SHALL OBTAIN AND PAY FOR THE SERVICES OF A MANUFACTURER'S REPRESENTATIVE TO SUPERVISE ALL INSERTING VALVE INSTALLATIONS. THE INSERTING VALVES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. AFTER THE VALVE BODY HAS BEEN INSTALLED, BUT BEFORE ANY CUTTING IS MADE, THE UNIT SHALL BE TESTED UNDER 175 P. S. I. WATER PRESSURE TO CHECK FOR LEAKS. THE PRICE BID FOR EACH SHALL CONSTITUTE FULL COMPENSATION FOR MATERIAL, INCLUDING HIGH PRESSURE ANCHOR CLAMPS, LABOR, MANUFACTURER'S REPRESENTATIVE CHARGES, EQUIPMENT RENTALS, AND TESTING; ALL AS REQUIRED FOR EXCAVATION, INSTALLATION AND BACKFILLING AT EACH LOCATION SHOWN ON THE DRAWINGS. \* IRON BODY, BRONZE MOUNTED

## NIGHT AND WEEK-END CONNECTIONS

IT WILL BE NECESSARY THAT CERTAIN MAINLINE CONNECTIONS BE MADE AT NIGHT AND/OR ON WEEK ENDS. THE WATER DEPARTMENT SHALL DETERMINE THE TIME AND PLACE OF SUCH CONNECTIONS AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING THESE CONNECTIONS IN THE TIME ALLOTTED. NO EXTRA PAYMENT WILL BE MADE FOR ANY WORK REQUIRED UNDER THIS NOTE.

NIGHT AND/OR WEEK END WORK WILL BE ORDERED ONLY WHEN SUCH WORK MUST BE DONE AT THESE TIMES IN ORDER TO PROTECT THE WATER SUPPLY OF THE CITY OF TORONTO.

## BACKFILLING TRENCHES

TRENCHES SHALL BE BACKFILLED IN ACCORDANCE WITH 814. 08. TRENCHES FOR CASING PIPES, WHICH WILL BE UNDER ROADWAYS OR PAVED AREAS SHALL BE BACKFILLED WITH GRANULAR MATERIAL IN THE SAME MANNER AS SPECIFIED IN 603. 08 BACKFILLING.

IN LIEU OF PERFORMING THE TAMPING REQUIREMENTS OF SEC. 814. 08, THE CONTRACTOR MAY BACKFILL THE WATER LINE TRENCHES WITH GRAVEL GRITS BACKFILL AND CRUSHED STONE OR GRAVEL, "46D", IN ACCORDANCE WITH THE TYPICAL TRENCH DETAIL. NO ADDITIONAL PAYMENT WILL BE MADE FOR GRAVEL GRITS BACKFILL OR CRUSHED STONE, OR GRAVEL "46D" SINCE ALL BACKFILLING IS INCLUDED IN THE PRICE BID FOR NEW WATER MAIN.

IN THE EVENT GRAVEL GRITS OR CRUSHED STONE OR GRAVEL, "46D" ARE USED, THE MATERIAL SHALL MEET THE FOLLOWING SPECIFICATIONS:

GRAVEL GRITS SHALL CONSIST OF CLEAN, WASHING, UNCRUSHED GRAVEL, 80 GRADED THAT 99.5% WILL PASS A 1/4 - INCH SCREEN, AND NOT MORE THAN 2.5% WILL PASS A NO. 16 SCREEN.

THE "46D" SHALL BE 100% CRUSHED STONE OR GRAVEL MEETING THE FOLLOWING GRADING:

SCREEN	PASSING	SCREEN	PASSING
1"	100%	No. 4	20-50%
1/4"	95-100%	No. 200	5 - 20%
1/2"	75-95%		

IT IS THE INTENT OF THIS NOTE TO DIRECT THE CONTRACTORS OPERATIONS IN SUCH A MANNER SO AS TO PROVIDE A MINIMUM DOWNTIME FOR THE EXISTING 12-INCH MAIN, AND TO ESTABLISH A NEW LINE UNDER THE HIGHWAY FOR A FUTURE CONNECTION FOR ADDITIONAL PROGRAMMED STORAGE.

## CONSTRUCTION SEQUENCE:

INSTALL 2-12", 1-10" & 1-8" WATER MAINS IN VICINITY OF CROSS-SECTION STA. 1369+50 WITH DIAGONAL PIPING TOWARD EXISTING MAINS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER THREE (3) DAYS IN ADVANCE OF HIS INTENDED TIME FOR MAKING ALL CONNECTIONS TO EXISTING MAINS. THE ENGINEER SHALL THEREAFTER CONVEY TO THE CITY OF TORONTO THE CONTRACTOR'S INTENDED SCHEDULE FOR THEIR APPROVAL. THE CONTRACTOR SHALL MAKE THE TWO (2) CONNECTIONS TO THE EXISTING 12-INCH MAIN ONLY AFTER ALL PIPING, FITTINGS AND VALVES AND CONCRETE BACKING HAVE BEEN PLACED IN ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF HIGHWAYS SUPPLEMENTAL SPECIFICATION 814. EXCEPT FOR THE MODIFICATIONS CONTAINED HEREIN, AND THE SERVICE MAIN HAS BEEN TESTED AND STERILIZED IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF S. 8. 814. THE EXISTING 12-INCH MAIN SHALL NOT BE OUT OF SERVICE FOR A PERIOD LONGER THAN THREE (3) CONTINUOUS HOURS.

AFTER THE EXISTING 12-INCH MAIN HAS BEEN CONNECTED TO THE NEW 12 - INCH MAIN , THE CONTRACTOR SHALL PROCEED WITH COMPLETING THE 10-INCH CONNECTIONS OF THE NEW 10-INCH MAIN.

CONNECTION OF THE NEW 10-INCH MAIN SHALL BE COMPLETED WITHIN TWENTY-FOUR (24) HOURS OF THE TIME OF BEGINNING THE CONNECTIONS.

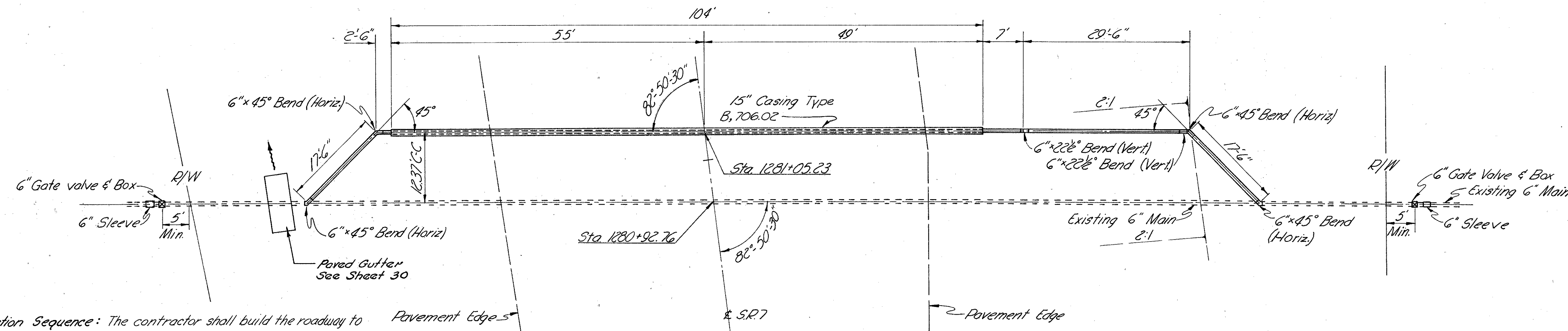
INSTALL THE 8-INCH CONNECTIONS FOR THE NEW RELOCATED DRAIN LINE TO THE EXISTING DRAIN LINE AS SOON AS PRACTICABLE.

## WATER LINES IN ENCASEMENT CONDUIT:

WHEREVER WATER LINES ARE PLACED IN ENCASEMENT CONDUIT, THEY SHALL BE SUPPORTED WITHIN THE ENCASEMENT CONDUIT BY BLOCKING OR BRACING APPROVED BY THE ENGINEER AND THE CITY OF TORONTO. AFTER THE WATER LINE IS IN PLACE IN THE ENCASEMENT CONDUIT, A BULKHEAD CONSISTING OF BRICK OR CONCRETE MASONRY, NOT LESS THAN 4 INCHES IN THICKNESS, SHALL BE PLACED AT THE TERMINALS OF THE ENCASEMENT CONDUIT. PAYMENT FOR THE ABOVE WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ENCASEMENT CONDUIT.

IT IS NOT THE INTENT OF THE ABOVE PARAGRAPHS TO PROHIBIT THE CONTRACTOR FROM MAKING ALL TEMPORARY CONNECTIONS (10-INCH AND 12-INCH) AT ONE TIME, BUT RATHER TO ESTABLISH A REASONABLE WORKING SCHEDULE. IF THE CONTRACTOR ELECTS HE MAY MAKE ALL TEMPORARY CONNECTIONS AT ONE TIME, HOWEVER, HE SHALL RESTORE SERVICE WITHIN THE THREE (3) HOUR MAXIMUM DOWNTIME ON THE 12-INCH MAIN.





**Construction Sequence:** The contractor shall build the roadway to the vicinity of the proposed relocation of the water line, and completely install, test, and sterilize the proposed water line before cutting-in on existing main or otherwise disrupting water service.

The City shall be notified 48 hours in advance of cutting-in on existing main and service shall be interrupted for no longer than 2 hour intervals.

All cast iron pipe and fittings shall be thickness class 22, Mechanical Joint.

For additional details of waterline construction, see sheet No. 321.

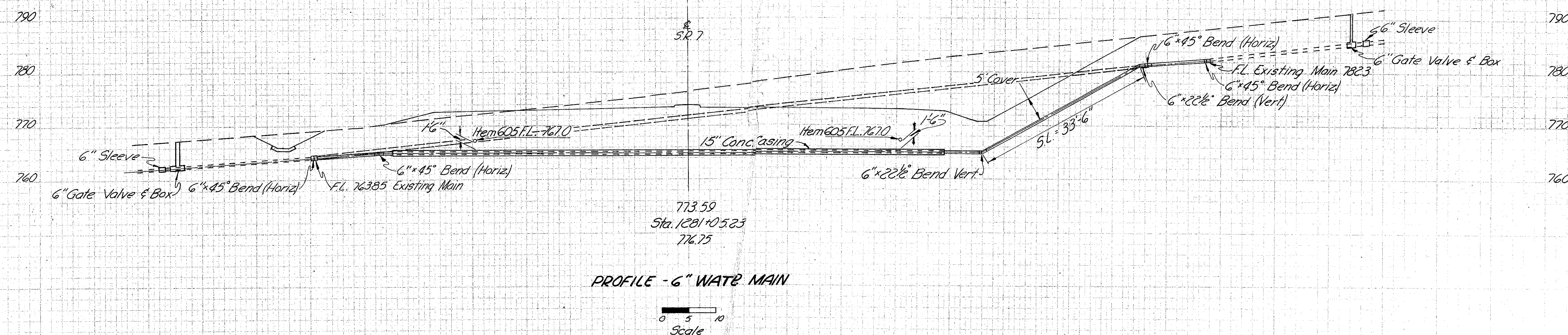
PLAN

0 5 10  
Scale

# ESTIMATED QUANTITIES

Item 603 - 15" Conduit, Type B 706.02, C.I. B Bedding (for water line casing)	104	Lin. Ft.
814 - 6" Cast Iron, Mechanical Joint Pipe, thickness class 22	176	Lin. Ft.
814 - 6" x 22 1/2° Bend, Mechanical Joint	2	
814 - 6" x 45° Bend, Mechanical Joint	4	
814 - 6" Gate Valves and Valve Boxes, Mechanical Joint	2	
814 - 6" Sleeves, Mechanical Joint	2	
(backing as directed)	1	Cu. Yd.

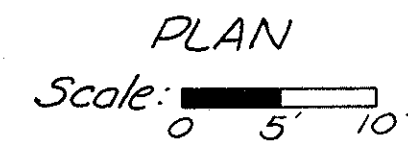
Quantities Carried to Summary Sheet No. 8



PROFILE - 6" WATER MAIN

0 5 10  
Scale





- The contractor shall completely install, test, and sterilize the proposed water line before cutting in on existing main or otherwise disrupting water service. The city shall be notified 48 hours in advance of cutting-in on existing main and service shall be interrupted for no longer than 2 hour intervals.
- All cast iron pipe and fittings shall be Class 22 Mechanical Joint.
- For additional details of water line construction, see sheet No. 321

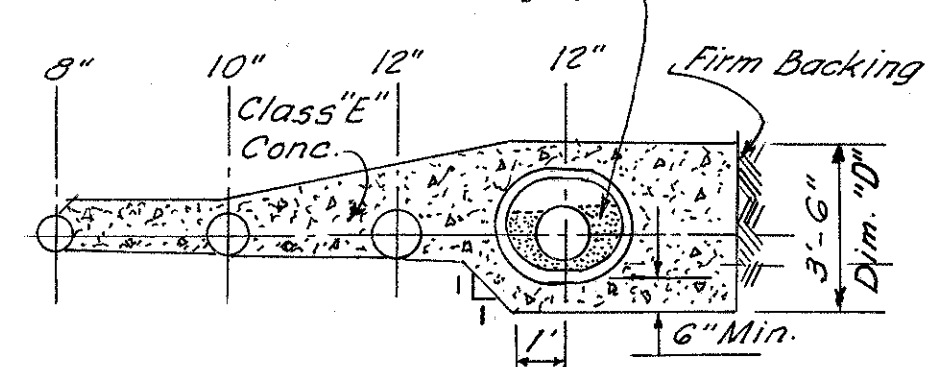
Item 814 - 4" Cast Iron, Mechanical Joint Pipe, Class 22	_____	214 Lin. Ft.
Item 814 - 4"x 1 1/2" Bend, Mechanical Joint	_____	1
Item 814 - 4"x 22 1/2" Bend, Mechanical Joint	_____	1
Item 814 - 4"x 45° Bend, Mechanical Joint	_____	1
Item 814 - 4" to 2" Reducer, Plain End	_____	1
(backing as directed)		1 Cu. Yd.

Hand-drawn profile view of a sewer line on grid paper. The vertical axis shows elevations 760, 770, and 780. The horizontal axis shows stationing from 186.5 to 193.6. The profile shows a sewer line with a 4-inch C.I.P. pipe, a 4x11 1/4 inch bend, a 4x22 1/2 inch bend, a 4-inch minimum cover, a 24-inch V.S.P. (vertical sewer pipe), a 4x45 inch bend, a 4-inch reducer, and a 4-inch steel pipe. The sewer line is shown in solid black, and the cover is shown in dashed black.

4" WATER MAIN RELOCATION  
SENeca & NIAGARA STREET STA. 1364+12.8 TO STA. 1366+23.6



Fill 21" Conduit with Sand to Top of Carrier Pipe.(Entire Length).



← Portion to be 100% State (Future)

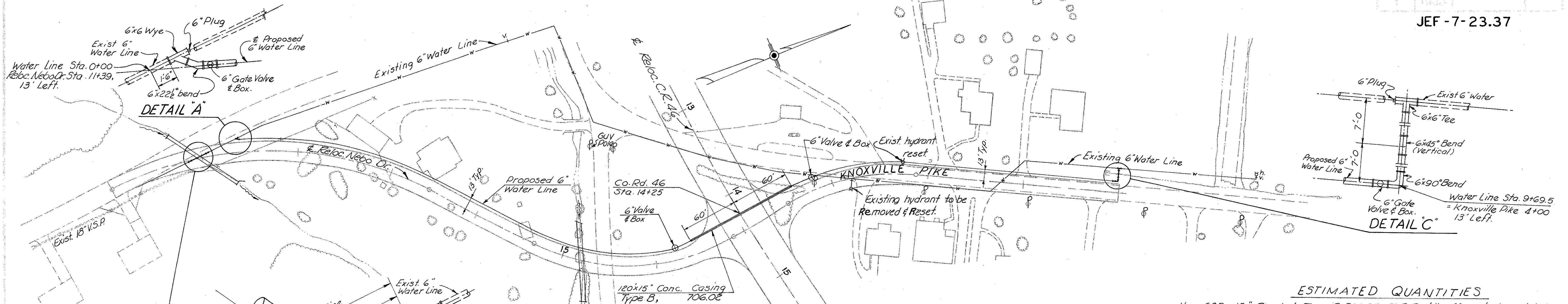
DESCRIPTION	PLOTTED		INDEXED		CHECKED	
	BY	DATE	BY	DATE	BY	DATE
EXISTING GROUND						
PROFILE GRADE						
DRAINAGE						
BENCH MARKS						



**WATER MAIN RELOCATIONS AT STA. 1369+50**



JEF-7-23.37

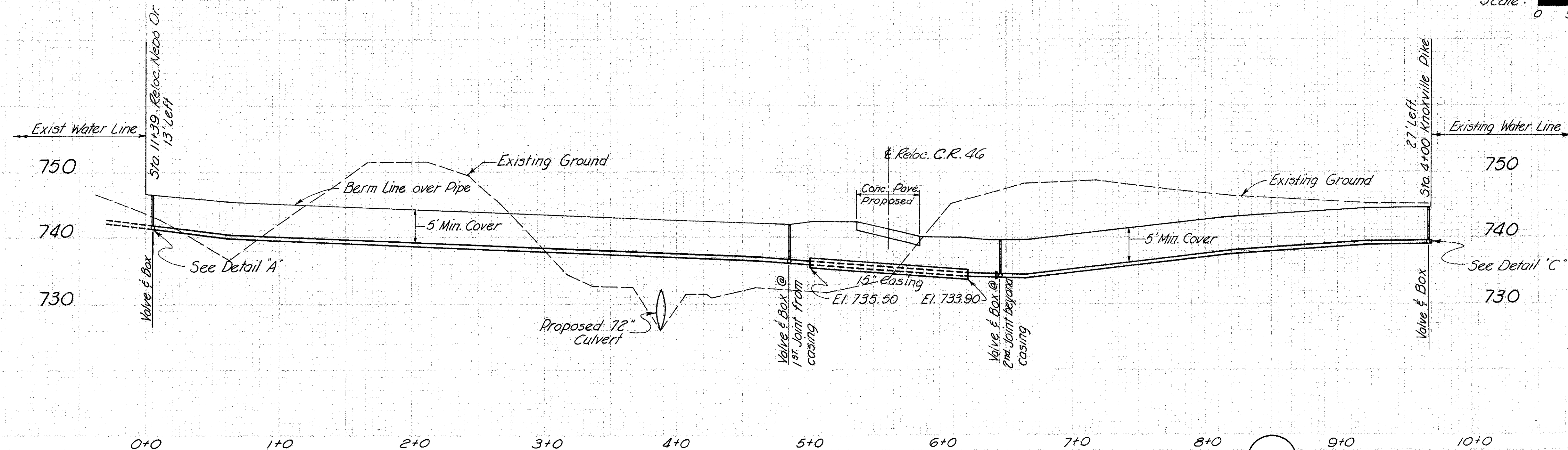
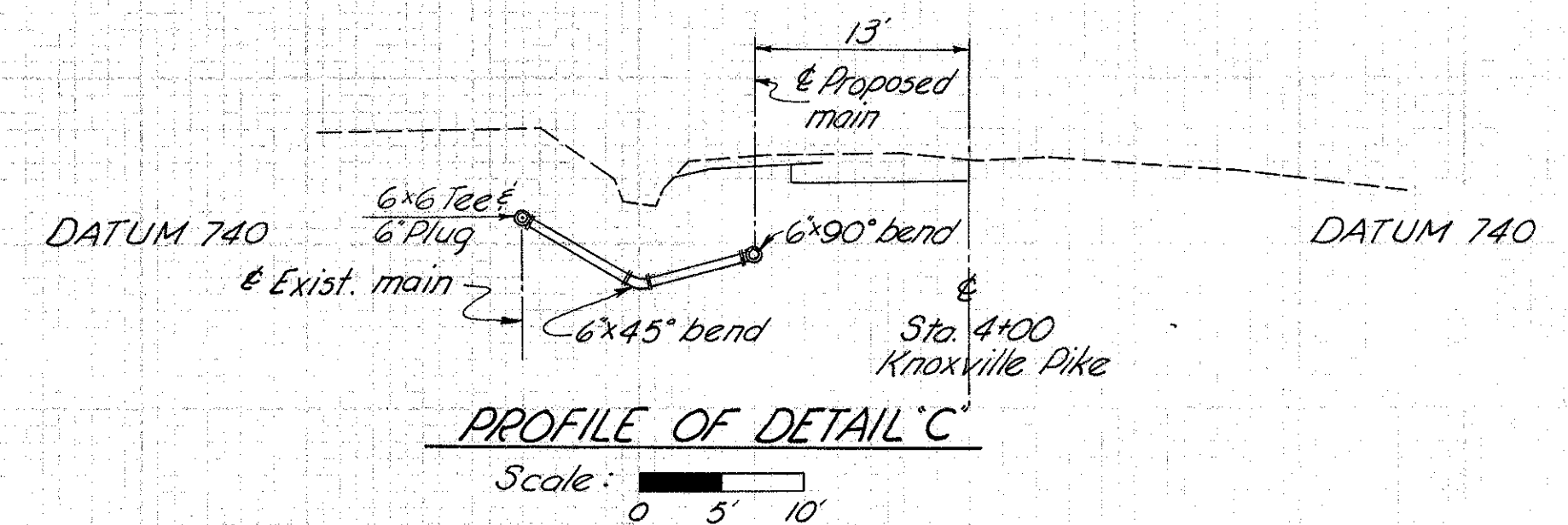
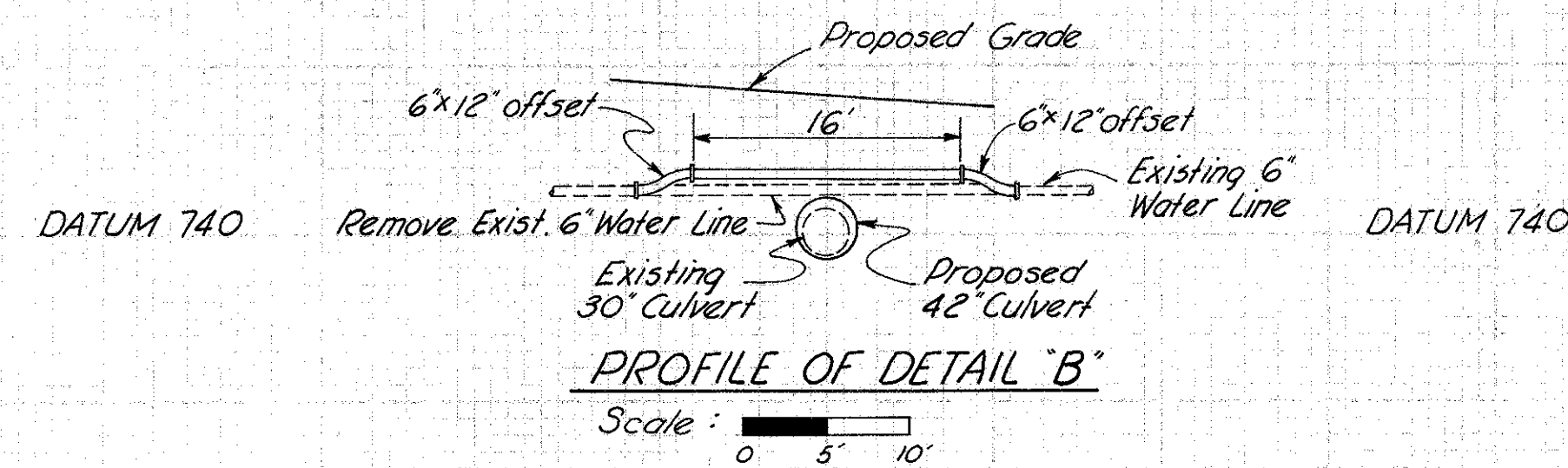


## NOTES:

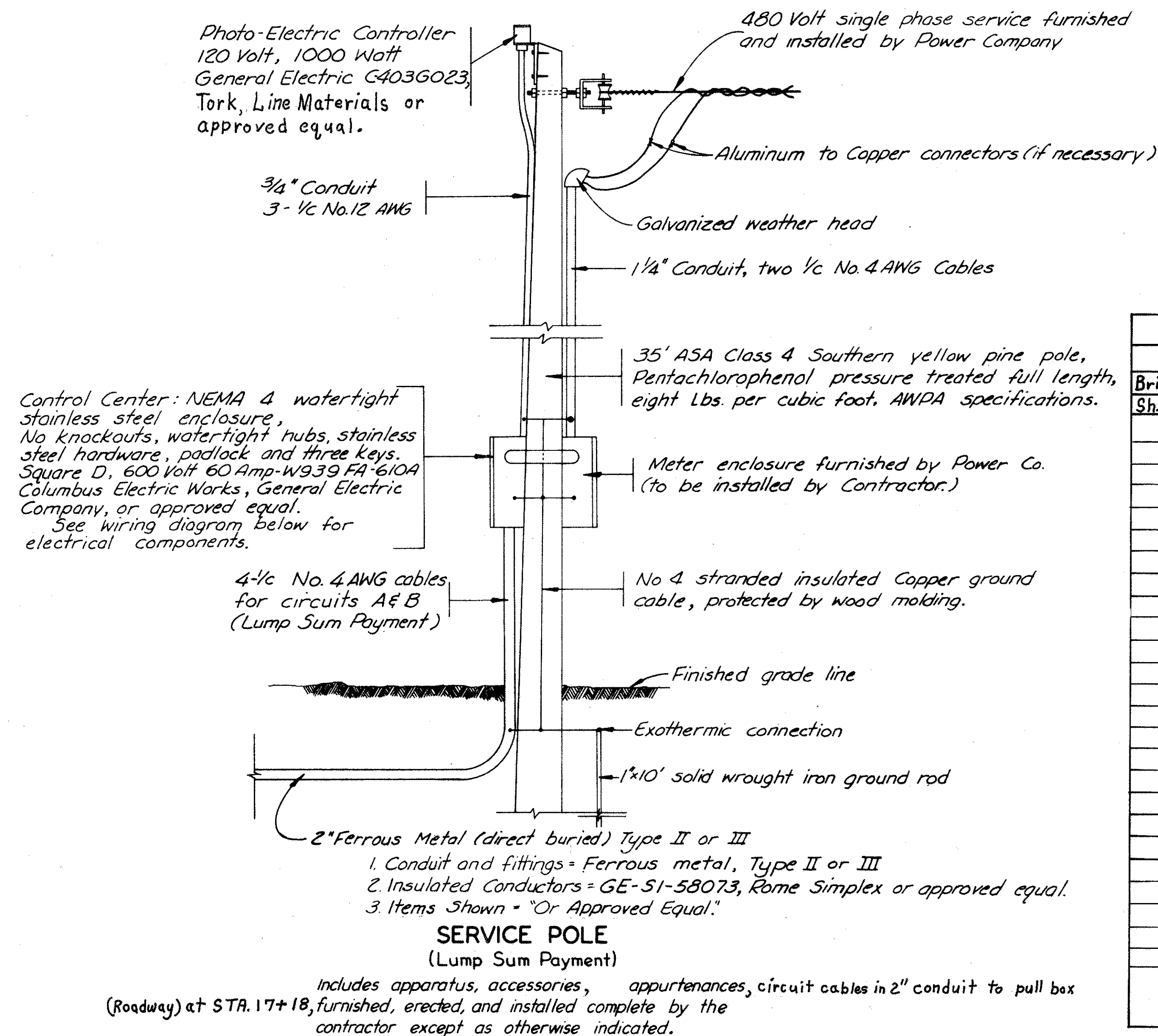
- The Contractor shall completely install, test, and sterilize the proposed water line before cutting-in on existing main or otherwise disrupting water service. The City shall be notified 48 hours in advance of cutting-in on existing main and service shall be interrupted for no longer than 2 hour intervals.
- For Reloc. Nebo Dr. Curve Data, see Sheet No. 233
- For Knoxville Pike Curve Data, see Sheet No. 236
- All cast iron pipe and fittings shall be Class 22, Mechanical Joint.
- For additional details of water line construction, see Sheet No. 321

## ESTIMATED QUANTITIES

Item 603 - 15" Conduit, Type B 706.02, C.I.B Bedding (for water line casing) 20 Lin. Ft.	
814 - 6" Cast Iron, Mechanical Joint Pipe, Class 22	1,012 Lin. Ft.
814 - 6" Plug	2 each
814 - 6"x12" Offset, Mechanical Joint	2 each
814 - 6"x6"x6" Tee, Mechanical Joint	1 each
814 - 6"x6"x6" Wye, Mechanical Joint	1 each
814 - 6"x22 1/2" bend, Mechanical Joint	1 each
814 - 6"x45" bend, Mechanical Joint	1 each
814 - 6"x90" bend, Mechanical Joint	1 each
814 - 6" Gate Valves and Valve boxes, Mechanical Joint	4 each
814 - Fire Hydrant Removed and Reset	1 each
814 - New Service Branches, 3/4" to 1 1/2"	100 Lin. Ft.
814 - Existing Hydrant Reset	1 Each
Quantities carried to Summary Sheet No. 8	







## Light Pole Design Number - KEY

11AT15B34.2 (9"x4.87"x29'6") Light Pole

11 = Pole Shaft Gauge

AT = Aluminum Transformer Base

15B = Length of Bracket Arm

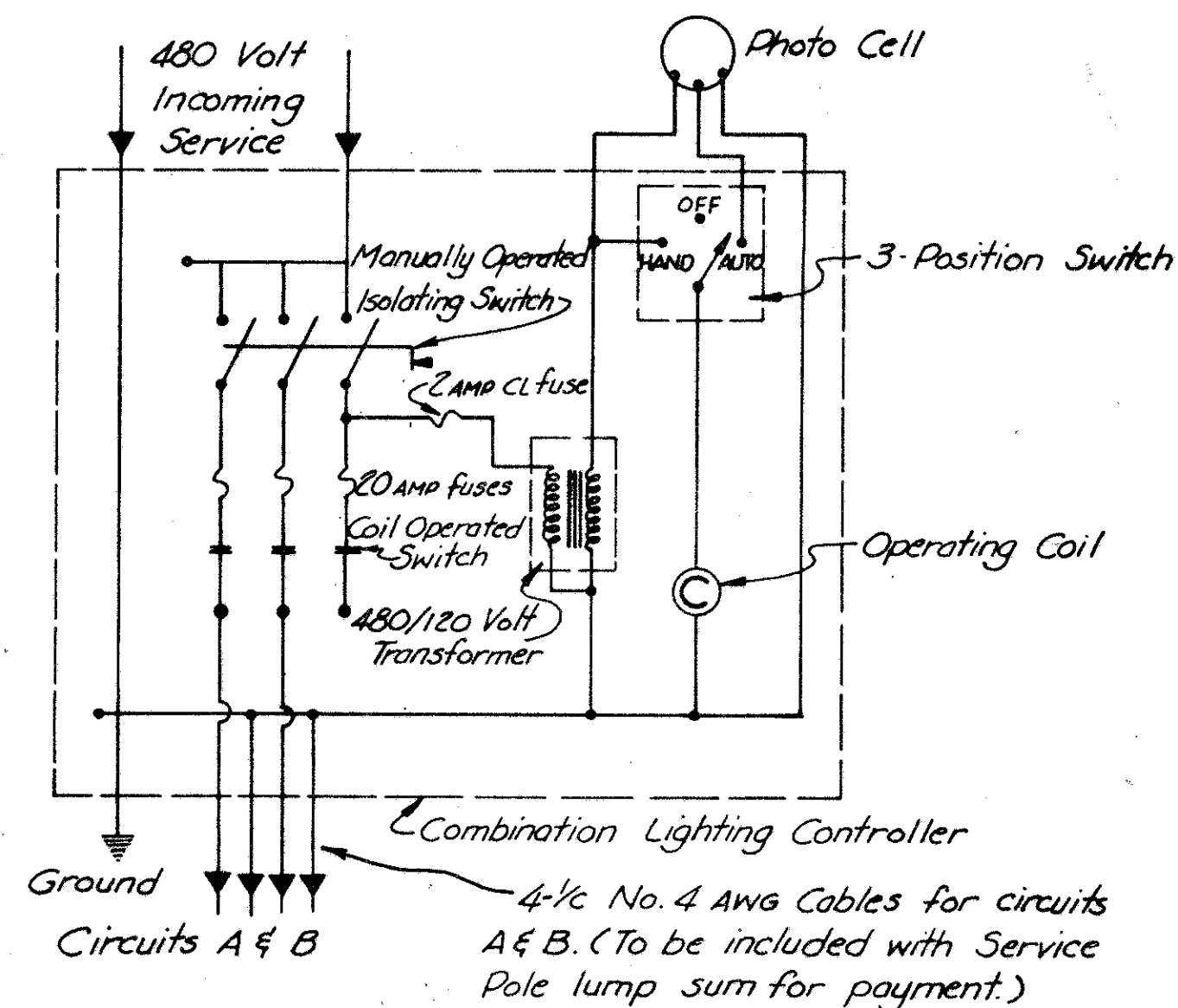
34.2 = Mounting Height - Vertical distance from  
top of foundation to luminaire end of  
bracket arm.

(9"x4.87"x29'6") = Shaft Dimension

## GENERAL LIGHTING QUANTITIES

TYPE CODE 7221

F- 431-(18)				U- 431-(18)				GRAND TOTAL	ITEM	UNIT	DESCRIPTION
Bridge over Co. Rd. #6		Roadway		Roadway		Roadway					
Sh. No. 326	Total	Sh. #326	Sh. #328	Total	Sh. #328	Total					
		6		6			6	625	Each		Light Pole with 10'0" Bracket Arm, Design No. 11AT10B34.2
		12		12			12	625	Each		Light Pole with 15'0" Bracket Arm, Design No. 11AT15B34.2
		18		18			18	625	Each		Light Pole Foundation 24"x24"x6' deep
		2		2			2	625	Each		Luminaire, Type II 400 watt Mercury with 400 watt Ballast.
		16		16			16	625	Each		Luminaire, Type III 400 watt Mercury with 400 watt Ballast.
		18		18			18	625	Each		Mercury Vapor Lamp, 400 Watt (H-33-1CD)
		18		18			18	625	Each		Ground Rod Unit.
		15		15			15	625	Each		Pull Box, round fiber 18" I.D.
		4	5	9	13	13	22	625	Each		Marker
		6325		6325			6325	625	Lin. Ft		Trench, 24" deep
		520	168	688	312	312	1000	625	Lin. Ft		Conduit, 3" 713.04 Type II or III
		1700		1700			1700	625	Lin. Ft.		Pole and Bracket Cable, 600 Volt 1/2 No. 10
		6500		6500			6500	625	Lin. Ft.		Duct-Cable 600 Volt, two insulated 1/2 No. 4
		1320		1320			1320	625	Lin. Ft.		Circuit Cable 600 Volt insulated 1/2 No. 4
		16		16			16	625	Each		Connector Kits, Type I
		18		18			18	625	Each		Connector Kits, Type II
		18		18			18	625	Each		Connector Kits, Type III
		16		16			16	625	Each		Connector Kits, Type IV
		Lump		Lump			Lump	625	Lump		Service Pole & Control Center
		Lump		Lump			Lump	625	Lump		Circuit and Light Pole Identification
420	420						420	625	Lin. Ft		Conduit, 2" 713.04 Type II or III
1 Set	1 Set						1 Set	625	Set of 4		Anchor Bolts - 1"x40" L Bolts
Lump	Lump						Lump	625	Lump		Structure Grounding System



POWER &amp; CONTROL WIRING DIAGRAM

## DESIGN NO. 11AT10B34.2

## MECHANICAL PROPERTIES FOR 11 GAUGE ANCHOR BASE LIGHT POLE WITH 10'-0" ARM AND ALUMINUM TRANSFORMER BASE

Light pole size is 8.0" x 3.87" x 29'-6" (diameters are minimum outside diameters). Anchor bolts shall have a diameter bolt circle of 15 inches and project above foundation 3-1/2 inches. The Mounting height shall be 34.2' above foundation with a single 10'-0" bracket arm. Elastic deflection rate in inches per hundred (100) lbs. is 3.32.

At 2/3 of yield strength, the load is 517 lbs, total deflection is 17.66 inches, Permanent set is .50 inches. At yield stress, the load is 776 lbs, total deflection is 28.84 inches, the permanent set is 3.08 inches.

## DESIGN NO. 11AT15B34.2

## MECHANICAL PROPERTIES FOR 11 GAUGE ANCHOR BASE LIGHT POLE WITH 15'-0" ARM AND ALUMINUM TRANSFORMER BASE

Light pole size is 9.0" x 4.87" x 29'-6" (diameters are minimum outside diameters). Anchor bolts shall have a diameter bolt circle of 15 inches and project above foundation 3-1/2 inches. The Mounting height shall be 34.2' above foundation with a single 15'-0" bracket arm. Elastic deflection rate in inches per hundred (100) lbs. is 2.16.

At 2/3 of yield strength, the load is 659 lbs, total deflection is 14.73 inches, Permanent set is .50 inches. At yield stress, the load is 989 lbs, total deflection is 24.0 inches, the permanent set is 2.64 inches.

# LIGHTING NOTES

## 625.03 GENERAL

The Contractor shall comply with the rules and regulations of the Ohio Power Co., Steubenville, Ohio.

These Specifications supplement the State of Ohio Construction and Material Specifications, dated January 1, 1967.

## 625.05 AND 713.01 LIGHTING POLES AND ANCHOR BOLTS 713.01(5)

The term "Lighting Standards" or "Light Standards" when used in the 1967 Construction and Materials Specifications as a support for luminaires is hereby modified for this project to read "Lighting Poles" or "Light Poles".

All metal shims used for plumbing light poles shall be galvanized steel shims.

All light pole hardware shall be either stainless steel, galvanized steel or Everdur.

Bracket Arms, 713.01-6(a), shall conform to ASTM A-53 Schedule 40 or Alternate ASTM A-36.

Estimated costs for supplying and installing Anchor Bolts shall be included with the costs bid for "Light Pole Foundations".

## ALUMINUM TRANSFORMER BASE

Each ground mounted light pole shall be furnished and installed with a frangible aluminum transformer base in accordance with the details and specifications contained herein.

## 625.07 AND 713.11 LUMINAIRES

Pole-Bracket-Arm mounted luminaires for this project shall be mercury vapor type w/400 watt integral regulator ballast which is dual voltage rated for 240/480 volt operation designed to furnish light distribution patterns equivalent to IES-ASA types called for on plans. These luminaires shall be G.E. M-400, Westinghouse OV-25, Line Material Unistyle or approved equal, with integral regulator type ballasts, dual voltage rated for 240/480 volt operation.

## 625.08 AND 713.14 LAMPS

All lamps for this project shall be First Line Mercury Vapor type and shall be General Electric Bonus Line, Westinghouse Lifeguard, Sylvania Banner Line or approved equal. Lamps for Pole-Bracket-Arm mounted luminaires shall be clear 400 watt, H-33 ICD ASA type.

## 625.11 AND 713.08 PULL BOXES - 713.09 COVERS

Pull Boxes shall be 18" diameter 0.37 min. wall thickness (circular bituminous fiber) with 19" diameter x 0.375" minimum thickness cast iron cover. Cover shall be checkered, rib-reinforced, asphaltum paint finish with the word "ELECTRIC" cast in 1" to 2" high letters.

Note: Sign structure pull boxes to be located approx. 10'-0" away from structure foundation, with direction of traffic flow.

## EXPANSION JOINTS in BRIDGE CONDUIT

Expansion Joints shall be OZ Company #AX 200 with internal or external grounding, Spring City, Appleton or approved equal.

Expansion Joints shall be included with bridge conduit for payment.

## 625.13, 713.04, 713.05, & 713.06 CONDUIT

Bridge conduit, crossover conduit, exposed conduit and conduit buried in earth shall be Type II or Type III rigid ferrous metal electrical conduit (Section 713.04).

Lighting Pole Foundation conduit shall be 2-1/2" Type II or Type III rigid ferrous metal electrical conduit (Section 713.04), 3" Type I rigid asbestos cement electrical conduit (Section 713.05), or 3" Type I bituminous fiber electrical conduit (713.06).

"Terminal points of all conduits containing conductor wire or cable, shall be completely sealed in an approved manner with a removable sealing compound which is compatible with the cable jacket, the insulation, and the conduit material". The sealing material must be installed immediately upon the completion of the duct cable installation, also, all empty conduits shall be immediately capped until pull wires or cable is installed. Light pole hand holes shall have their covers installed immediately upon erection of pole. All cable connector kits and exposed cable ends shall be adequately protected by enclosing in plastic bags or by taping or by other approved means until such time as the cable connection shall have been completed.

## 625.14 AND 713.02 ELECTRICAL CABLE

The specification for cable is hereby amended for this project to read: All circuit cable in conduit and duct-cable shall be stranded and be 1/C #4 copper 600 V, General Electric Co. Cable No. SI-58073 or approved equivalents as manufactured by Rome, Simplex, Phelps-Dodge, Kaiser or other approved manufacturers.

Cable shall be in continuous lengths without splices except in pull boxes and lighting poles. Pole and Bracket Cable shall be stranded copper insulated 600 volt nylon jacketed U.L. approved Type THHN or THHN/THWN.

## WIRE-CABLE-DUCT-CABLE IDENTIFICATION

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

## 625.15 AND 713.03 UNIT TYPE DUCT-CABLE SYSTEMS

The minimum inside diameter of the duct for the duct-cable shall not be less than 1-1/2" in lieu of 1-1/4" as stated in the Construction and Material Specifications.

## 625.17 AND 713.15 CONNECTOR KITS

Each light pole shall be equipped with one Type II fused "Y" connector kit with 6 amp. current-limiting high-interrupting 600 volt fuse and one Type III unfused "Y" connector kit. Pull boxes shall be equipped with Type I inline or Type IX unfused "Y" connector kit. Sufficient slack shall be provided in the cable to allow connector kits to be removed through the handhole for testing, refusing and maintenance.

## 625.18 SERVICE POLE 625.19 CONTROL CENTER

The Service Pole shall be a 35'-0" Class 4 full length penta-treated Southern Yellow Pine or Western Red Cedar.

The lighting contactor shall be a combination fused disconnect type, Nema 4 stainless steel enclosure, 60 amp., 600 volt, equal to Sq."D", Class 8903-#W939FA610A complete with control transformer and H.O.A. switch, Columbus Electric Works, G.E., or approved equal.

Photoelectric controller shall be 120 volt, 1000 watt, conduit mounted type, G.E. C-403G023 receptacle w/o mounting bracket, ON-3F.C., OFF-5F.C., Fisher-Pierce, Tork or approved equal.



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# NOTES

**FOUNDATION:** Foundations for light poles shall be poured-in-place concrete (vibrated and spaded 511.09). Each foundation must meet minimum depths as specified, but additional depth may be required by the Engineer because of existing soil conditions. The 30" foundation (detailed hereon) shall be used for light poles having a bottom shaft diameter of more than 9.2" through 11". The 24" foundation (detailed on Standard Drawing HL-1) shall be used for all light poles having a bottom shaft diameter of 6.0" through 9.2".

Rotate reinforcing bars to clear conduit.

Drainage grooves on foundation top, as detailed hereon, shall be required on all foundations even though they do not appear on Standard Drawing HL-1.

**ALUMINUM TRANSFORMER BASES:** All bases shall be cast from ASTM B-26 or B-108 Alloy SG 70A-T6.

Base AT-A shall be used with anchor base poles of 6" through 9.2" diameter inclusive. Base AT-B shall be used for anchor base poles above 9.2" through 11" diameter. A pole with 37'-6" shaft and 18' arm is max. size for use with Base AT-B.

The transformer bases shall be capable of resisting the following moments in foot pounds applied to the top of the base without collapsing or rupturing.

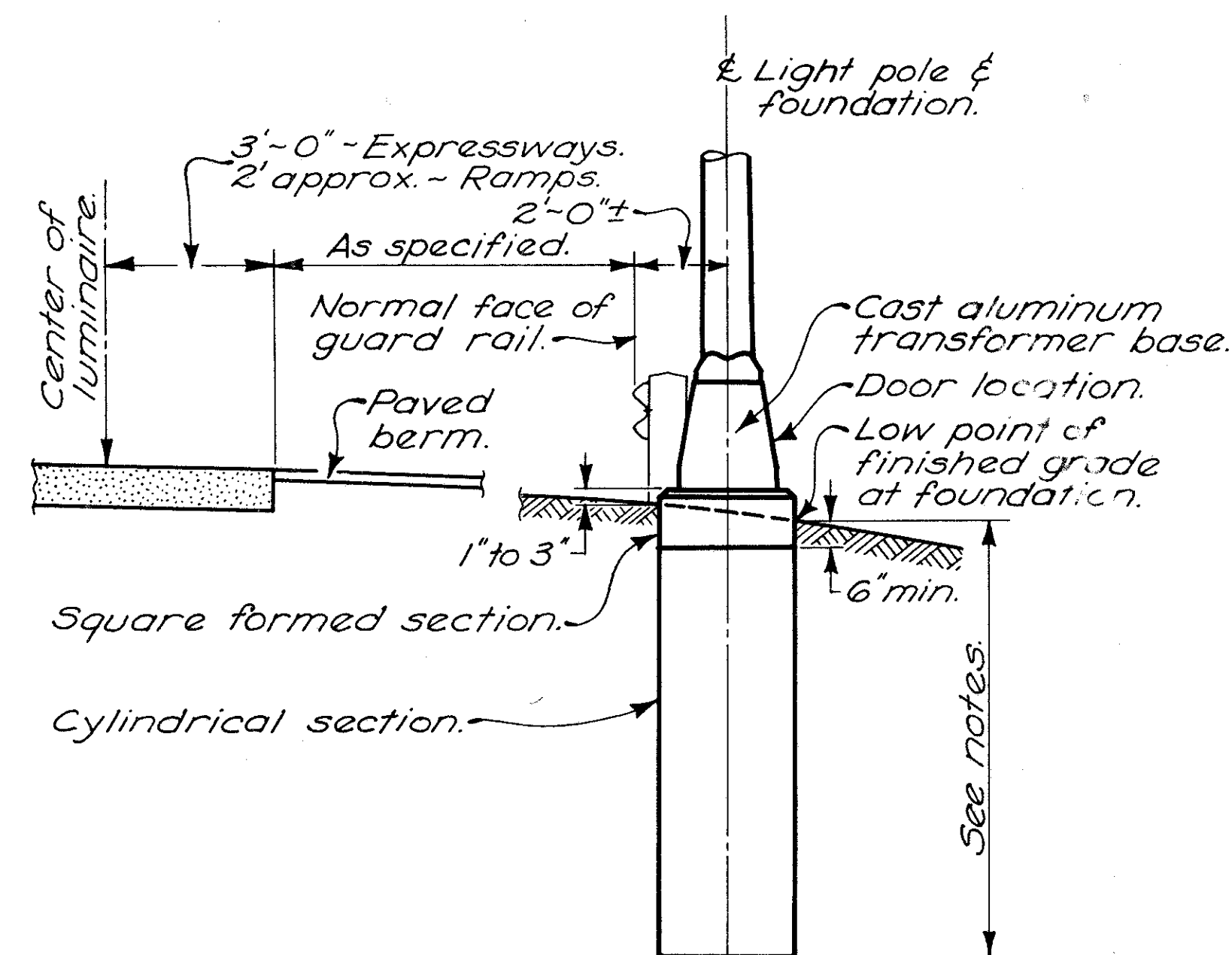
Base Height	Moment-Foot Pounds
20"	40,000
24"	52,000

Both the bottom of the cast steel pole base and the top of the aluminum transformer base shall be coated or painted with a heavy film of zinc rich paint (Federal Specification TT-P-641-Type II) to reduce galvanic action between the two dissimilar metals.

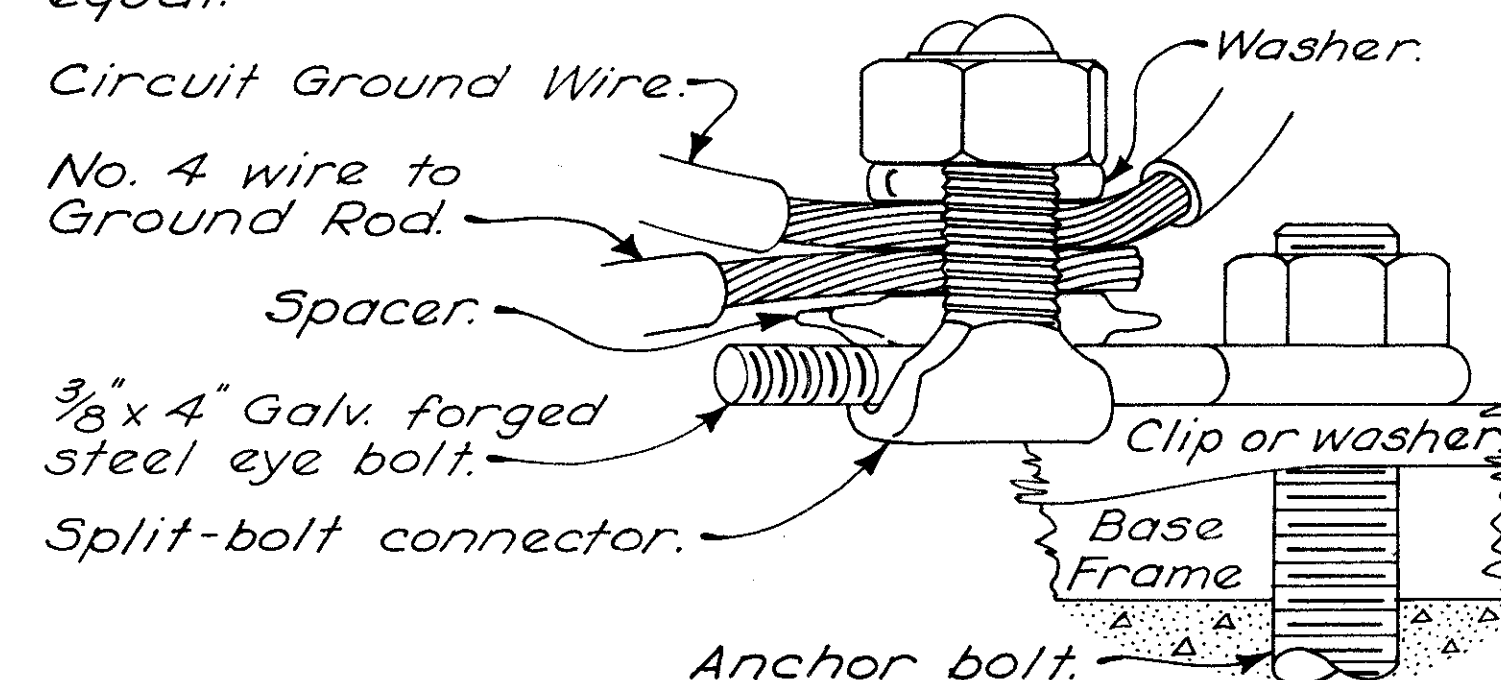
**PAYMENT:** 30" Light Pole Foundations shall be paid for at the unit price bid per each foundation.

Aluminum base complete with hardware, eye bolt and connector, zinc rich paint, and installation shall be included with ground-mounted poles for payment.

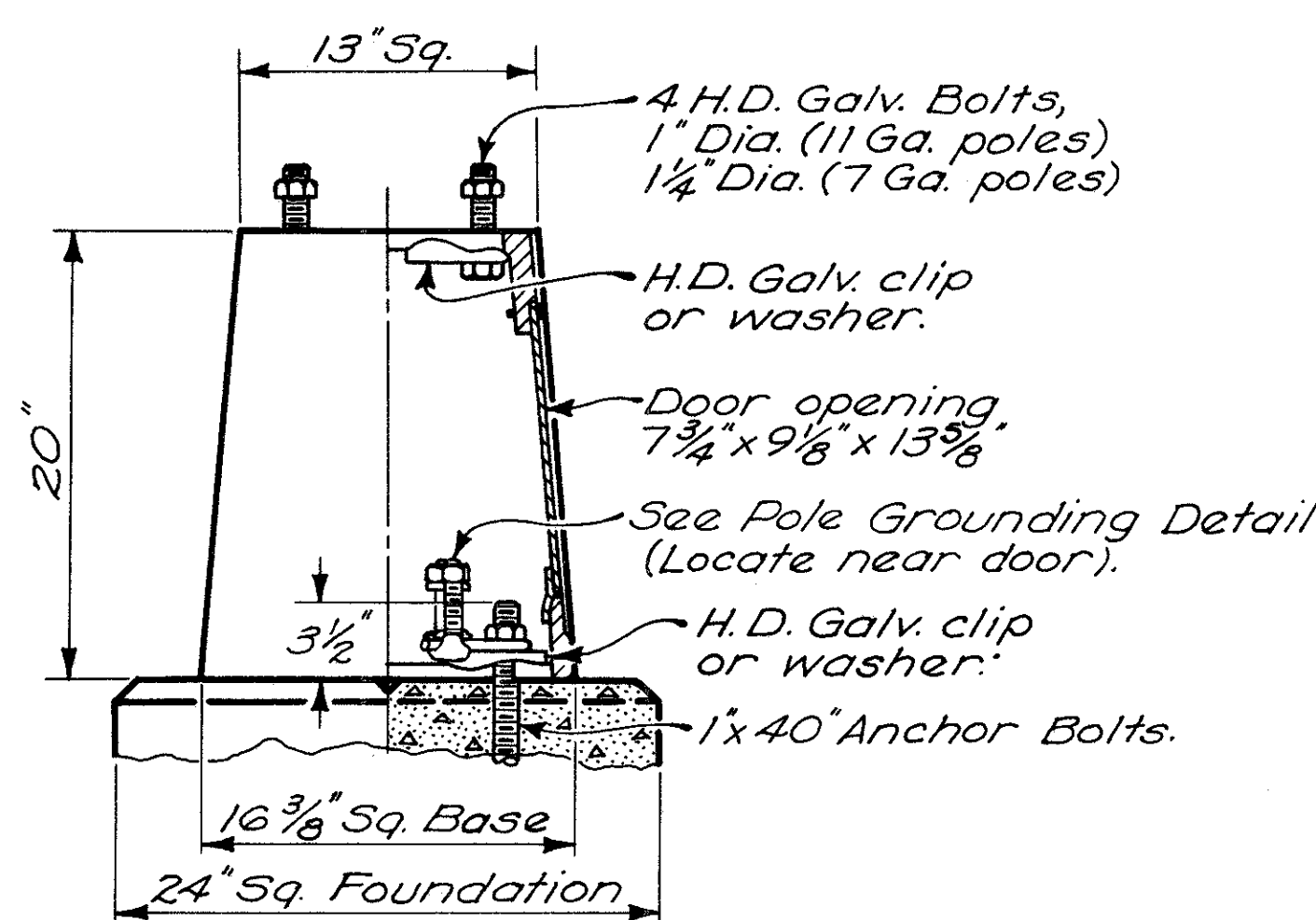
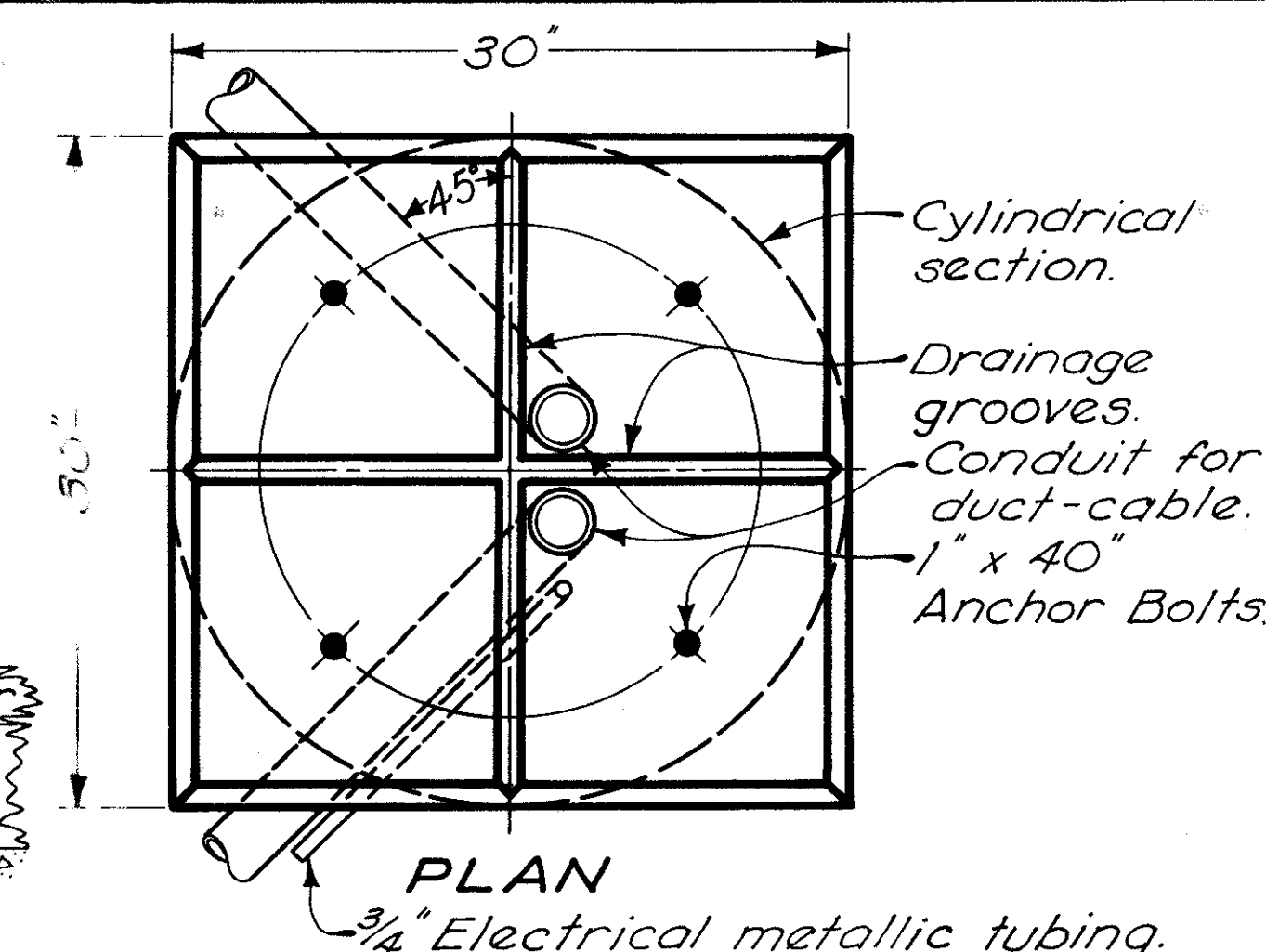
## LOCATION OF POLES WITH AND WITHOUT ALUMINUM TRANSFORMER BASES



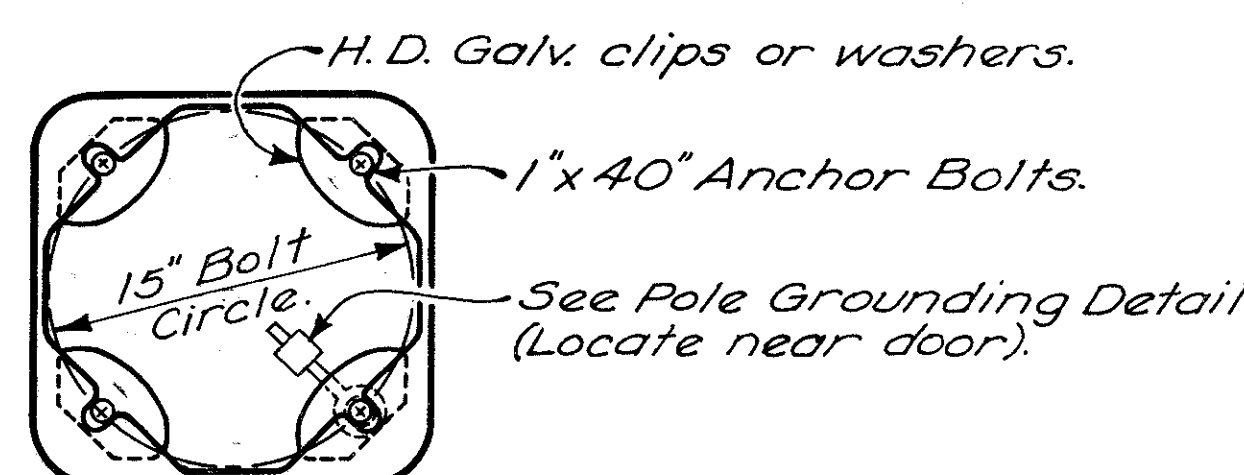
NOTE: Split-bolt Connector shall be made of tin plated copper alloy with tin plated spacer. Acceptable models are: Blackburn #10HP5, Burndy #KSU-25, Line Material #DK-5B-10, Kearney #118109-02 or an approved equal.



## POLE GROUNDING DETAIL

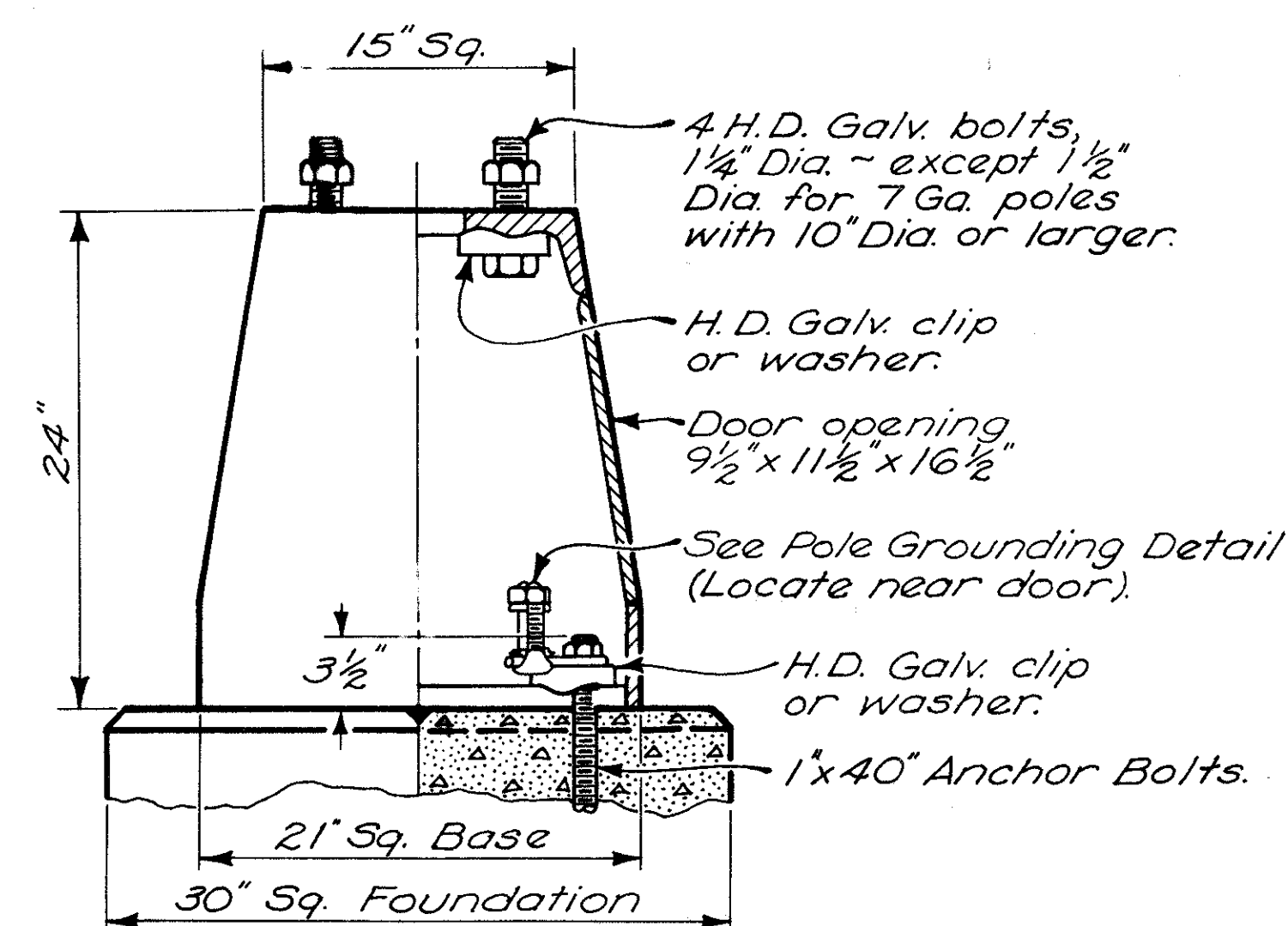


## ELEVATION

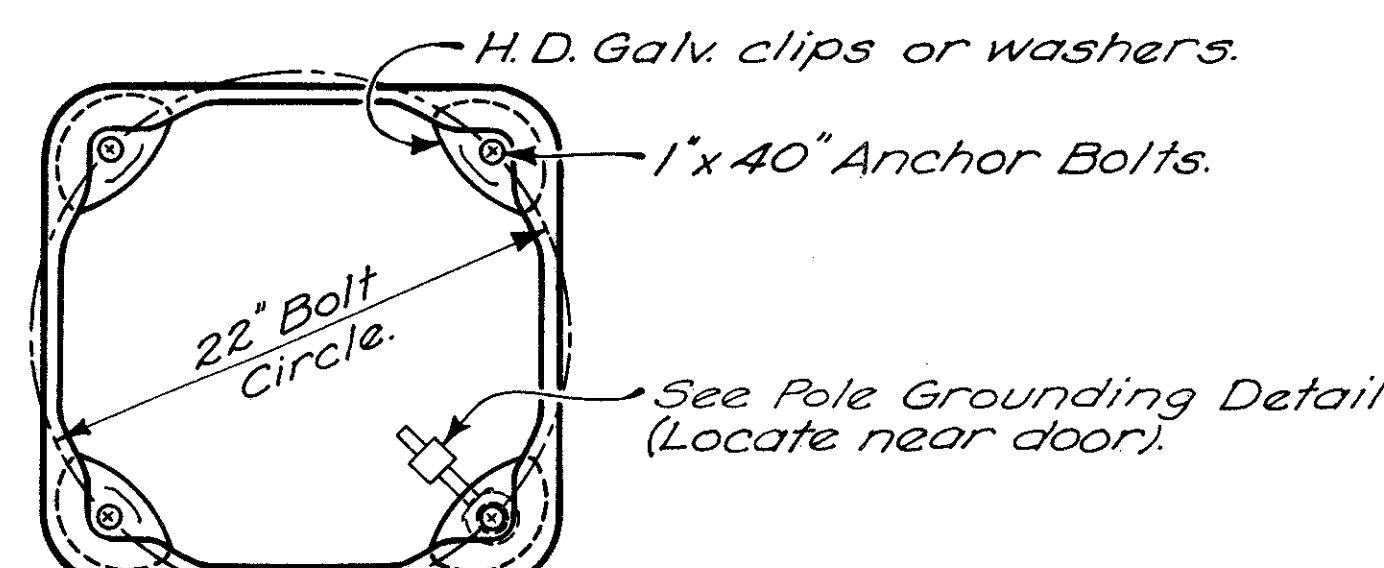


## BASE FRAME

## BASE AT-A



## ELEVATION



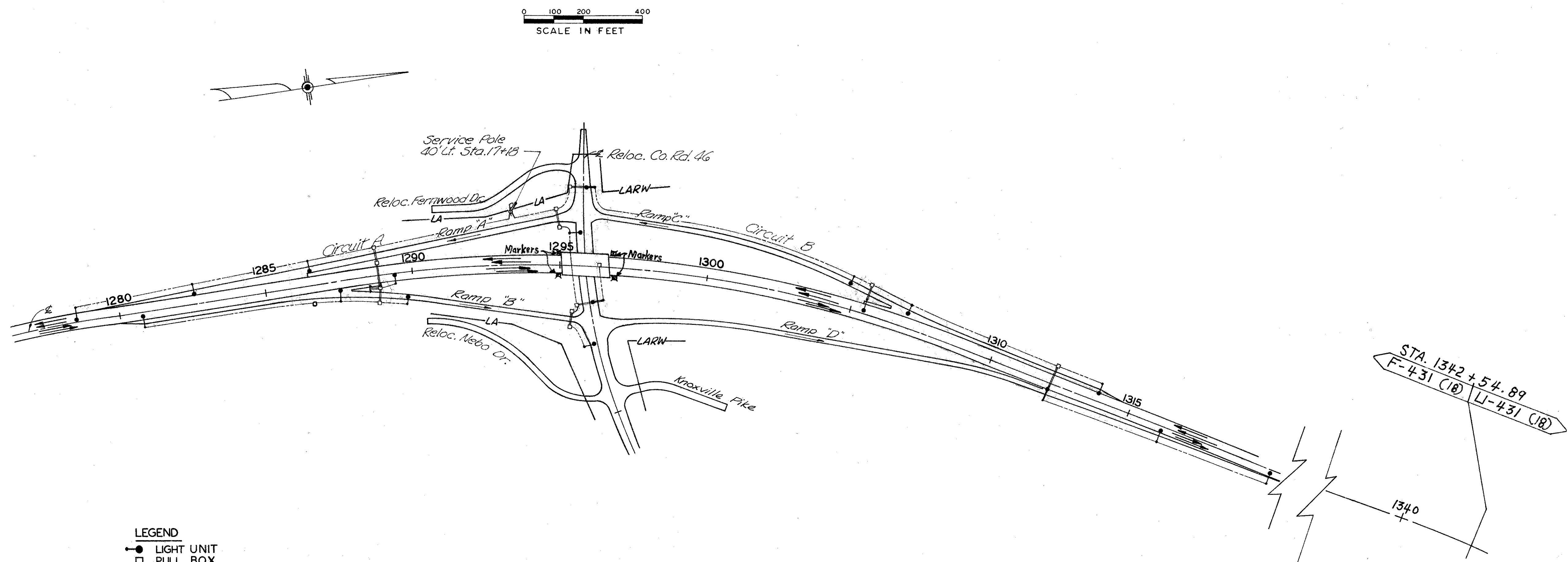
## BASE FRAME

## BASE AT-B

## CAST ALUMINUM TRANSFORMER BASES

## ELEVATION 30" FOUNDATION

## ALUMINUM TRANSFORMER BASE DETAILS



- LEGEND
- LIGHT UNIT
  - PULL BOX
  - CROSSOVER CONDUIT (CIRCUIT CABLE)
  - LIGHT CIRCUIT (DUCT-CABLE)
  - ✕ MARKER
  - FUTURE LIGHT UNIT
  - 2" BRIDGE CONDUIT
  - Future Duct-Cable

NOTE: For Bridge Quantities see General Lighting Quantities sheet 325.

•CIRCULAR SHAFT

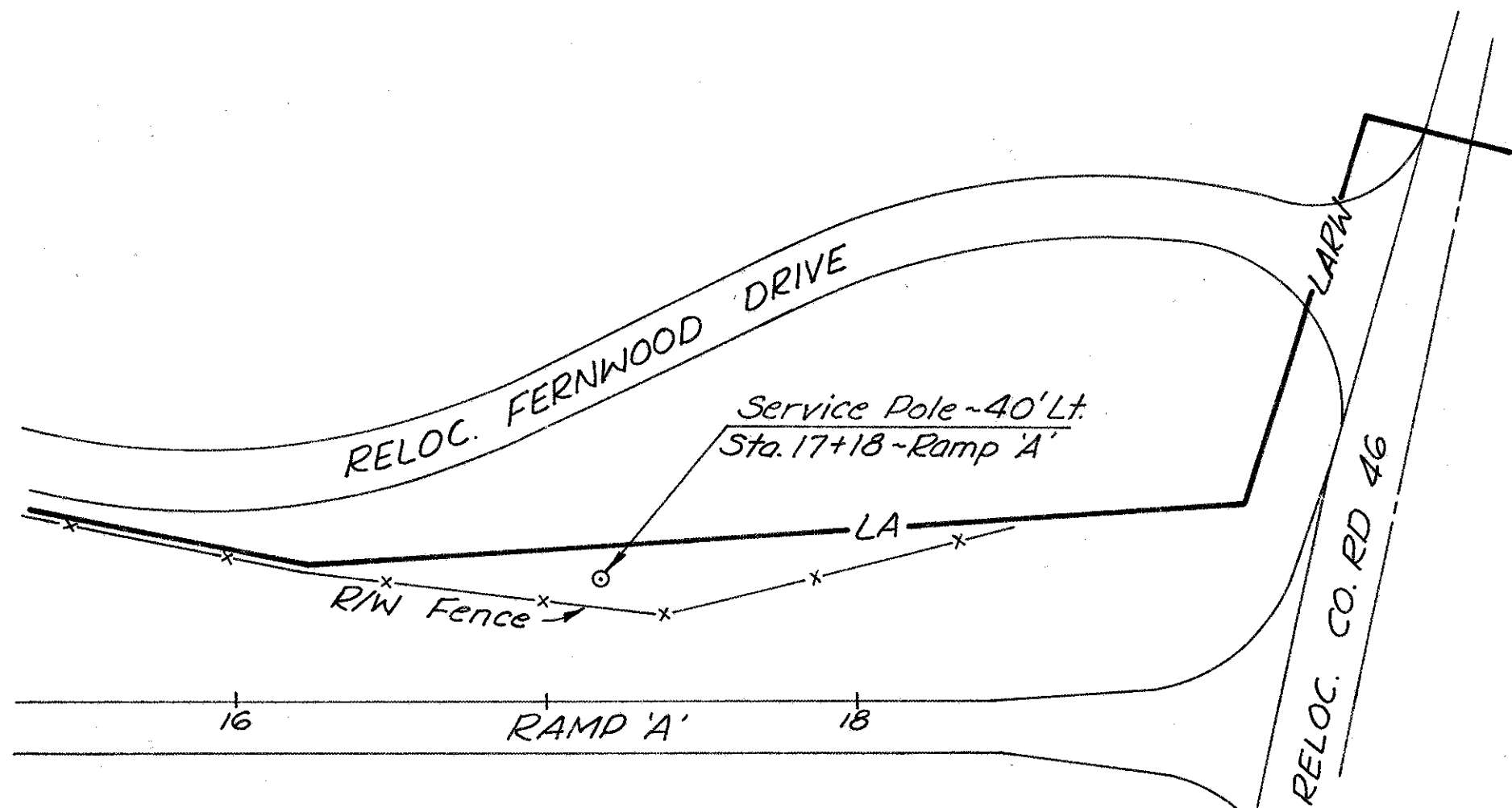
ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	SHEET NO. 327 F-431 (18)	ROADWAY-TOTAL
625	400 WATT TYPE II MERCURY LUMINAIRE	EACH	2	2
625	400 WATT TYPE III MERCURY LUMINAIRE	EACH	16	16
625	400 WATT MERCURY VAPOR H-33-ICD LAMP	EACH	18	18
625	LIGHT POLE W/10' ARM, DESIGN 11AT10B34.2	EACH	6	6
625	LIGHT POLE W/15' ARM, DESIGN 11AT15B34.2	EACH	12	12
625	LIGHTING STANDARD FOUNDATION 24" x 24" x 6'-0"	EACH	18	18
625	GROUND ROD UNIT	EACH	18	18
625	18" FIBER PULL BOXES (2" Letters On Cover)	EACH	15	14
625	CONNECTOR KIT TYPE I	EACH	16	16
625	CONNECTOR KIT TYPE II	EACH	18	18
625	CONNECTOR KIT TYPE III	EACH	18	18
625	CONNECTOR KIT TYPE IV	EACH	16	16
625	3" CONDUIT, SEC. 713.04, TYPE II OR III	LIN. FT.	520	520
625	NO. #10 POLE AND BRACKET CABLE	LIN. FT.	1700	1700
625	DUCT CABLE 600V TWO 1/C NO. 4	LIN. FT.	6500	6500
625	SERVICE POLE & CONTROL CENTER	LUMP	LUMP	LUMP
625	CIRCUIT CABLE IN CONDUIT	LIN. FT.	1320	1280
625	TRENCH - 2 1/2" DEEP	LIN. FT.	6325	6325
625	CIRCUIT & LIGHT POLE IDENT.	LUMP	LUMP	LUMP
625	MARKER	Each	4	4
625	2" CONDUIT, SEC. 713.04 Type II or III	LIN. FT.	420	
625	ANCHOR BOLTS	SET/4	1	
625	STRUCTURE GROUND SYSTEM	Lump	Lump	

BRIDGE OVER Co. RD. 46

QUANTITIES CARRIED TO SHEET NO. 325

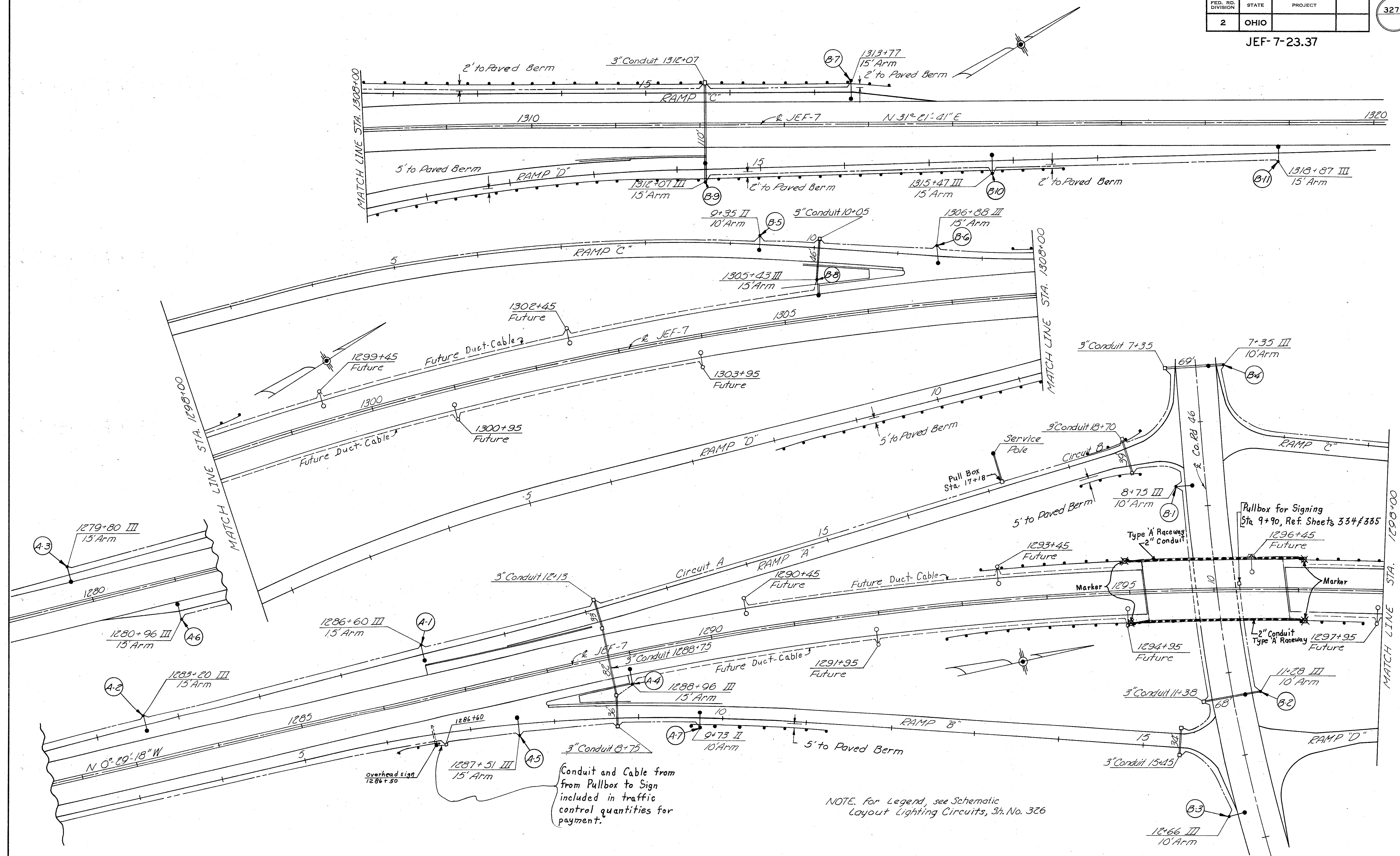
LOCATION OF SERVICE POLE DETAIL

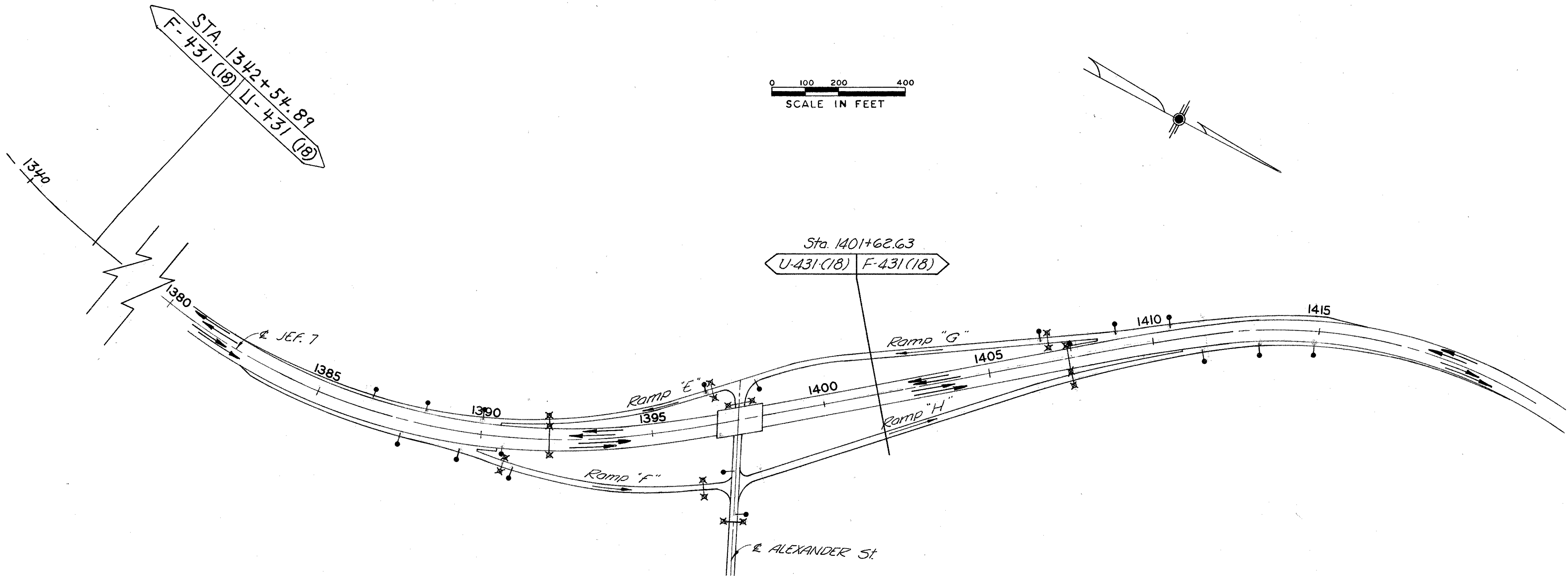


Note: Access to Service pole will be from Reloc. Fernwood Dr.



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LEGEND  
✕ MARKERS  
— CONDUIT (SEE INDIVIDUAL SHEETS FOR SIZE AND NUMBER.)  
● FUTURE LIGHT LOCATION.

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	SHEET NO. 329		ROADWAY-TOTAL
			F-431 (18)	U-431 (18)	
625	MARKERS	EACH	5	13	18
625	3" CONDUIT, SEC. 713.04, TYPE II OR III	LIN. FT.	168	312	480

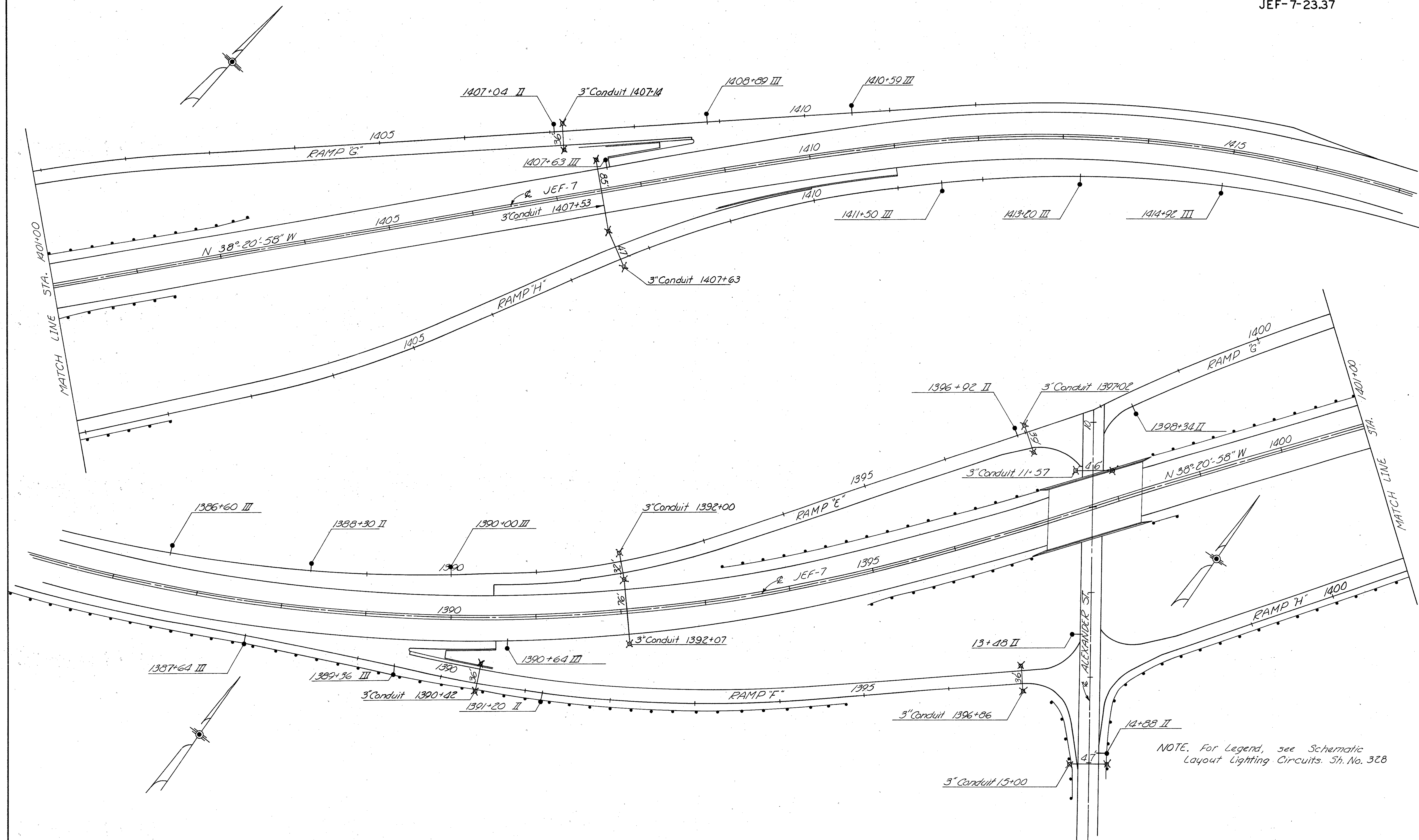
Quantities carried to Sheet No. 325



FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

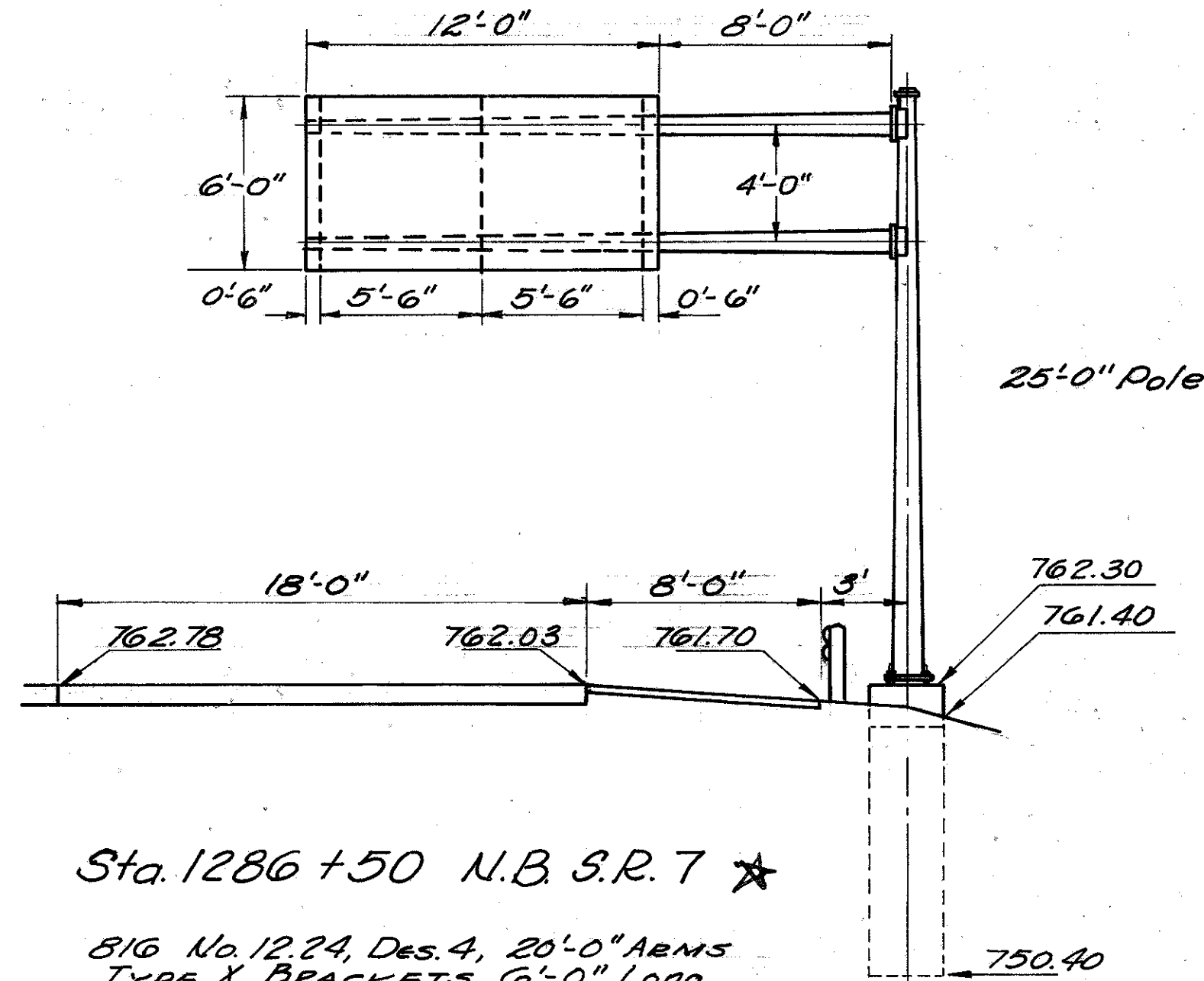
32

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INTERCHANGE AT ALEXANDER ST. & JEF-7- LIGHTING PLAN

TRAFFIC CONTROL NOTES



ELECTRICAL SERVICES FOR OVERHEAD SIGNS - Directional guide signs which carry Item 625 Quantities in the Sub-Summary of Quantities for overhead signs shall be externally illuminated. The electrical service for these signs will be provided by the roadway lighting circuits in a pull box located approximately ten feet beyond the sign support in the direction of traffic. This pull box and cable connectors for sign wiring connections are included in the Roadway Lighting Quantities.

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

CERTIFICATION AND APPROVAL OF SIGN SUPPORTS AND LIGHTING ITEMS - The Contractor shall submit through proper channels the drawings, information or samples as required below.

- (A) Six (6) copies of the following:
  - Shop drawings and material lists for approval for
  - 1. Overhead sign supports.
  - 2. Sign lighting details.
  - 3. Catalog cuts, descriptions or samples of fabricator's standard items as shown in the plans or their equal for approval.
- (B) Certifications or samples for all materials which have been approved above under item (A) shall be in possession of the contractor prior to any purchase or installation.

816 CONCRETE FOR SIGN SUPPORT FOUNDATION, BY TYPE, AS PER PLAN - Payment for this item shall be per cubic yard based on approved plan dimensions or dimensions as modified by the Engineer in lieu of plan quantities as specified in supplemental specification no. 816.

Payment for furnishing and installing reinforcing steel shall be included in the unit price bid per cubic yard of concrete for overhead sign support foundation in lieu of being a separate pay item as called for in supplemental specification No. 816.

Payment for installation only of the 2 inch galvanized steel conduit and the 1/2 inch EMT ground wire conduit will be included in this item. Payment for furnishing this conduit is included under signs wired complete.

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

816 SIGN ERECTION, BY TYPE

The contractor shall erect sign panels furnished by others as noted on the schematic signing layout sheets No. 332 & 333. The panels shall be mounted on the brackets or beam supports provided in the plans.

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

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

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

816 ALTERNATE DESIGNS FOR OVERHEAD SIGN SUPPORTS

If the contractor desires to furnish an alternate design for overhead sign supports, the alternate designs must be submitted to the State at least 21 days prior to opening of bids. The bidder will be notified as to acceptance or rejection of alternate design at least 7 days before bids are to be opened. Alternate designs must utilize tubular structural members. Submissions shall be made to Ohio Department of Highways, Bureau of Traffic, 450 East Town Street, Columbus, Ohio 43216.

ESTIMATED TRAFFIC CONTROL QUANTITIES

F-431(18)		U-431(18)		GRAND TOTAL	ITEM	UNIT	DESCRIPTION
Sheet No. 330	No. 331	TOTAL	Sh. No. 331	TOTAL			
11.9	11.9	5.3	5.3	17.2	621	Miles	4" Edge Line
.1	.1	.3	.3	.4	621	Miles	4" Lane Line
1.8	1.8	.8	.8	2.6	621	Miles	6" Lane Line
1654	1654	486	486	2140	621	L.F.	8" Channelizing Line
Lump	Lump	Lump	Lump	Lump	621	Lump	Broad Transverse Stripes
Lump	Lump	Lump	Lump	Lump	621	Lump	Island Marking
1480	1480	455	455	1935	621	L.F.	Curb Painting, Yellow
32	32	12	12	44	620	Each	Mono-Directional Delineators, Type A-1, Post Mounted
161	161	73	73	234	620	Each	Mono-Directional Delineators, Type C-2, Post Mounted
4	4			4	620	Each	Mono-Directional Delineators, Type C-3, Post Mounted
547	547	318	318	865	816	L.F.	Structure Support, 8" Beam
259	259	233	233	492	816	L.F.	Structure Support Steel Beam 10B11.5
		39	39	39	816	L.F.	Structure Support Steel Beam 10B17
47	47	49	49	96	816	L.F.	Structure Support Steel Beam 12B22
59	59	29	29	88	816	L.F.	Steel Drive Post 4" per ft.
49	49			49	816	L.F.	Structural Support 6" Beam
12.9	12.9	18.3	18.3	38.2	816	Cu.Yd.	Concrete for Ground Mounted Sign Support Foundation, as per plan.
1 *	1 *			1	816	Each	Overhead Sign Support No. 12.24; Design No. 4, 20' ARM.
2	2			2	816	Each	Bridge Mounted Structural Support
3.6 *	3.6 *			3.6	816	Cu.Yd.	Concrete for Overhead Sign Support Foundation, as per plan.
2	2			2	625	Each	Sign Ballast, Type A
1 *	1 *			1	625	Each	Sign Ballast, Type B
2 *	2 *			2	625	Each	72" Light Fixture with HO Lamps
2	2			2	625	Each	96" Light Fixture with HO Lamps
2 31 *	2 31 *			3	625	Each	Transformer, Type II, 0.50 KVA
1 *	1 *			1	625	Each	Ground Rod Unit, as per plan
1 *	1 *			1	625	Each	Overhead Sign Wired, Complete
2	2			2	625	Each	Structure Mounted Sign Wiring, Complete
2	2			2	625	Each	Switch Enclosure Bracket
2 31 *	2 31 *			3	625	Each	Disconnect Switch with Y-Enclosure
456	456	384	384	840	815	Sq.Ft.	Sign Erection, Extru-Sheet Type
546	546	298	298	844	815	Sq.Ft.	Sign Erection, Flat Sheet Type

\* 100% State

LIGHTED SIGN QUANTITIES

816 SIGN SUPPORT QUANTITIES					625 ELECTRIC QUANTITIES										
SIGN SUPPORT NO.	STATION LOCATION	No. 12.24 Design 4 20' Arms Structural Support 89L	Foundation Concrete & Overhead Sign Support	Ballast Rating Type & No.		Fixture & Lamp Size, Type & No.		Transformer Rating, Type & No.		Sign Support Ground Rods Wire Connection	Overhead Sign Wiring Complete	Structural Mounted Sign Wiring Complete	Switch Enclosure Bracket	Disconnect Switch with Y-Enclosure	
				Wattage Rating	Type A	Type B	72" Fixture Ho. Lamp	96" Fixture Ho. Lamp	Rating K.V.A.						Type II
	1286+50	Ea.	Ea.	Cu.Yd.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.	
7	1286+53 NB	1 ★	3.6 ★	250	1 ★	2 ★		0.5	1 ★	1 ★	1 ★			1 ★	
13	Jef-7-2454 W	1		190	1			1	0.5	1		1	1	1	
12	Jef-7-2454 E	1		190	1			1	0.5	1		1	1	1	
	TOTAL	1	2	3.6		2	1	2	2	3	1	1	2	2	3



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SIDE	621 PAVEMENT MARKING									
	STATION		4" EDGE LINE L.F.	4" LANE LINE L.F.	6" LANE LINE L.F.	8" CHAN. LINE L.F.	DIAG. STRIPS LUMP	ISLAND MARKING LUMP	CURB PAINTING YELLOW L.F.	
	FROM	TO								
F 431(18)										
SOUTH BOUND S.R.-7	Rt.	1236+00	1342+54.89	10654.89						
	Rt.	1401+62.63	1421+00	1937.37						
	Lt.	1236+00	1342+54.89			10654.89				
	Lt.	1401+62.63	1421+00			1937.37				
	Lt.	1236+00	1276+00	4060						
	Lt.	1283+00	1305+48	2248						
	Lt.	1305+48	1308+00				252			
	Lt.	1306+48	1308+00					Lump		
	Lt.	1308+00	1310+88		288					
	Lt.	1314+78	1342+54.89	2776.68						
	Lt.	1401+62.63	1407+67	604.37						
	Lt.	1408+67	1410+50					Lump		
NORTH BOUND S.R.-7	Lt.	1410+50	1413+07		257					
	Lt.	1407+67	1410+05				238			
	Lt.	1416+64	1421+00	436						
	Lt.	1236+00	1342+54.89	10654.89						
	Lt.	1401+62.63	1421+00	1937.37						
	Lt.	1236+00	1279+96	4396						
	Rt.	1283+75	1286+50		275					
	Rt.	1286+50	1288+94				244			
	Rt.	1288+94	1315+67	2673						
	Rt.	1322+07	1342+54.89	2047.89						
	Rt.	1401+62.63	1414+60	1297.37						
	RAMP "A"	Lt.	0+00	19+36	1936					
Rt.		6+40	8+80		240					
Rt.		8+80	10+00				120			
Rt.		10+00	14+40						440	
RAMP "B"	Rt.	11+00	19+36	836						
	Rt.	0+00	16+00	1600						
	Lt.	6+50	7+95				145			
	Lt.	8+25	8+95						136	
RAMP "C"	Lt.	7+95	16+00	805						
	Lt.	7+95	8+25					Lump		
	Lt.	0+00	19+42	1942						
	Rt.	0+00	11+13	1113						
RAMP "D"	Rt.	10+90	11+13							
	Rt.	10+13	10+90					Lump		
	Rt.	11+13	13+42						145	
	Rt.	0+12	25+35	2523			229			
RAMP "E"	Lt.	0+12	14+35	1423						
	Lt.	11+95	15+35						340	
	Lt.	15+35	16+35				120			
	Lt.	16+35	18+95		240					
RAMP "F"	Lt.	1401+53	1416+64	1511						
	Rt.	1401+53	1407+64	611						
	Rt.	1407+64	1408+06							
	Rt.	1408+64	1410+50				186	Lump	85	
RAMP "G"	Lt.	1401+55	1411+00	945						
	Rt.	1401+55	1421+00	1945						
	Lt.	1407+66	1411+00						334	
	Lt.	1411+00	1412+20				120			
RAMP "H"	Lt.	1412+20	1414+60		240					
	SUB - TOTAL F 431(18)			6293.83	1540	25,184.52	1654	Lump	Lump	1480
	TOTAL F 483(18)			1191 mi	11 mi	1.80 MI	1654	Lump	Lump	1480
	U 431(18)									
SOUTH BOUND S.R.-7	Rt.	1342+54.89	1401+62.63	3907.74						
	Lt.	1342+54.89	1401+62.63			5907.74				
	Lt.	1342+54.89	1381+60	3905.11						
	Lt.	1352+60	1386+90		3430					
NORTH BOUND S.R.-7	Lt.	1386+90	1401+62.63	1472.63						
	Lt.	1342+54.89	1401+62.63	3907.74						
	Lt.	1342+54.89	1401+62.63			5907.74				
	Rt.	1342+54.89	1381+59	3904.11						
RAMP "I"	Rt.	1385+42	1388+25		283					
	Rt.	1388+25	1390+57				232			
	Rt.	1390+56	1401+62.63	1106.63						
	Lt.	1385+30	1397+85	1235						
RAMP "J"	Lt.	1386+90	1389+30		240					
	Rt.	1389+30	1390+50				120			
	Rt.	1390+50	1393+60						310	
	Rt.	1391+50	1397+85	635						
RAMP "K"	Rt.	1381+60	1397+65	1605						
	Lt.	1389+59	1397+65	806						
	Lt.	1388+25	1389+59				134	Lump		
	Lt.	1389+85	1390+59					Lump	145	
RAMP "L"	Lt.	1397+91	1401+53	362						
	Rt.	1397+91	1401+53	362						
	Lt.	1397+10	1401+55	445						
	Rt.	1396+98	1401+55	457						
SUB - TOTAL U 431(18)			28,130.96	3953	11,815.48	486	Lump	Lump	455	
TOTAL U 431(18)			5.30 MI	.28 mi	.80 mi	2140	Lump	Lump	1935	
GRAND TOTAL F 431(18) & U 431(18)			17.2 mi.	0.4 mi.	2.6 mi.	2140	Lump	Lump	Lump	

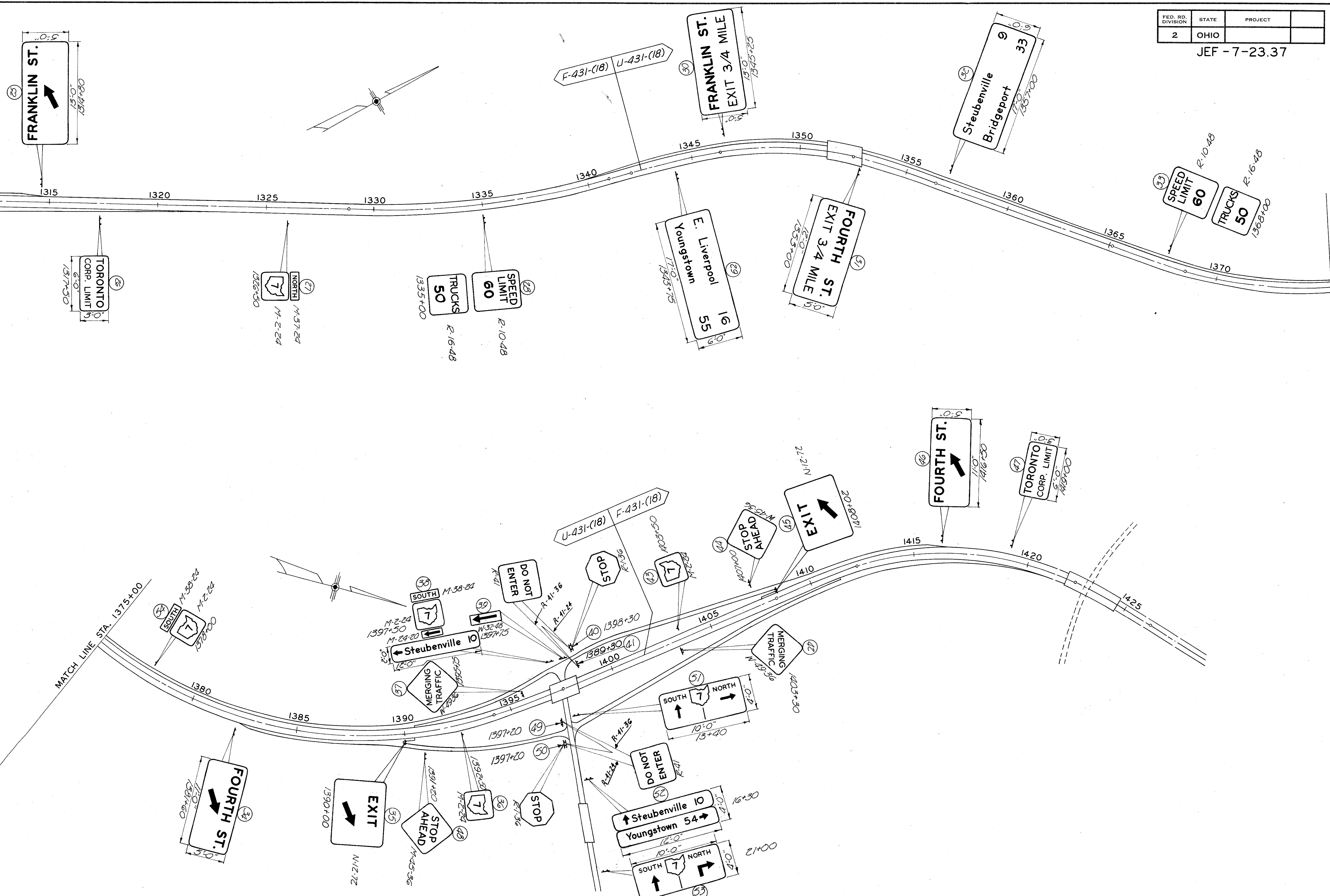






MATCH LINE STA. 1310+00

MATCH LINE STA. 1375+00



JEF-7-23.37

# NOTES

For additional details refer to Standard Drawings EI-1, EI-2, and ES-3A.

All structural shapes to be aluminium except as noted.

Actual Sign Height includes 12" Glare Shield.

The pay items of work required for the construction of these illuminated signs mounted on Structure No. JEF-7-2454 are listed separately under the Traffic Control Items. These pay items are described as follows:

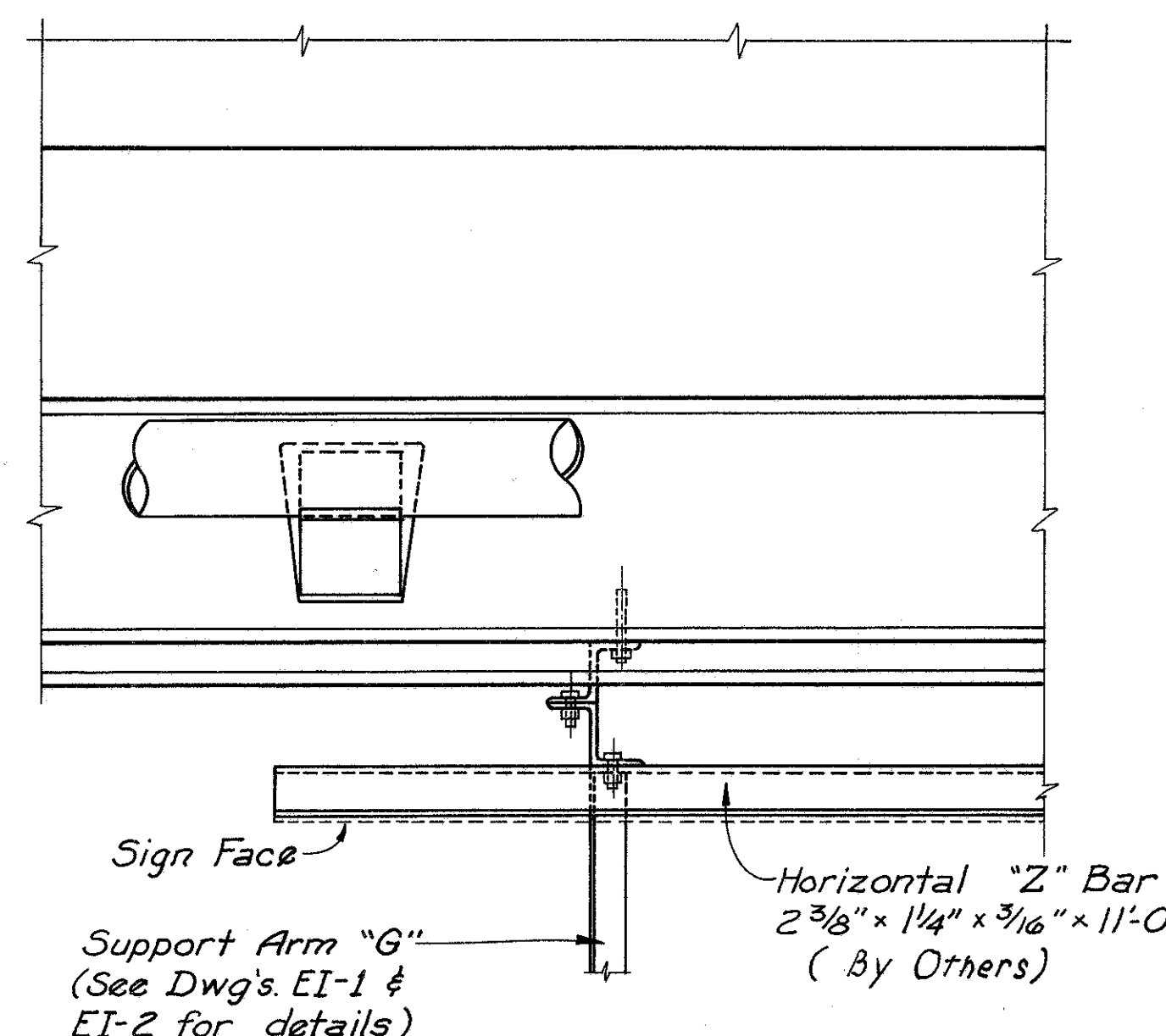
1. Sign Support Brackets and Fixture Support Arms as shown on the plans. Payment for this item shall be made on a per each basis which price and payment shall constitute full compensation for furnishing and installing the steel fixture support arms, aluminium "Z" bar sign brackets, "Z" bar structure connections, aluminium and steel angle connections to the structure, together with the required anchor bolts and bolted and welded connections.
2. 30 ampere Fused Disconnect Switch with Type "Y" Enclosure as per plan.
3. Structure Mounted Sign Wiring, Type I, Complete as per plan. This item shall consist of the furnishing and/or installing the electrical sign lighting system components from the connectors in the pull box (included in the Lighting Quantities) to the light fixtures.

Work shall include installation of light fixtures and ballast, and the furnishing and installation (including trenching and backfilling) of the 1/4" Type II or III metal conduit and fittings from the pull box to the structure foundation, the 1/4" Type I metal conduit and fittings leading from the structure foundation to the disconnect switch, the 1/2" EMT conduit and #4 ground wire leading from the disconnect switch to the structure beam, the #12, 600-volt, direct burial cable from the connectors to the disconnect switch, the furnishing and installation of all other items beyond the switch enclosure including rigid and flexible conduit, condulets, junction boxes, pull boxes, wire, fasteners, hardware and all other items required to energize the sign lighting system.

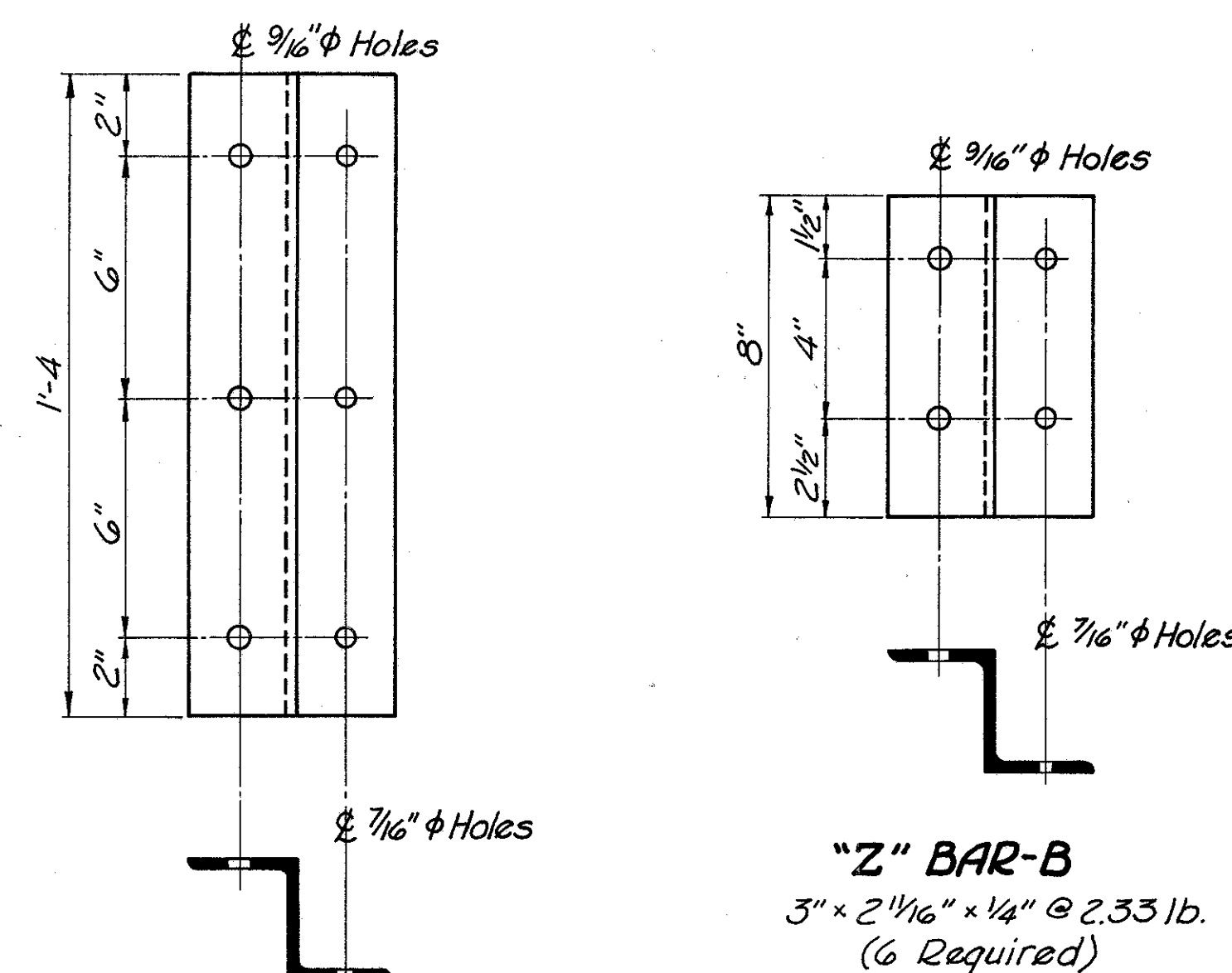
Basis of payment shall be at the contract unit price per each type sign wired, which price shall include all labor, materials, tools, equipment and other incidentals to provide a complete and accepted item of work.

4. Special Switch Enclosure Mounting Bracket, as per plan. This item of work shall consist of furnishing and installing the special bracket as detailed.

Basis of payment shall be at the contract unit price per each which shall be full compensation for all labor, material, and equipment required for this complete item of work.

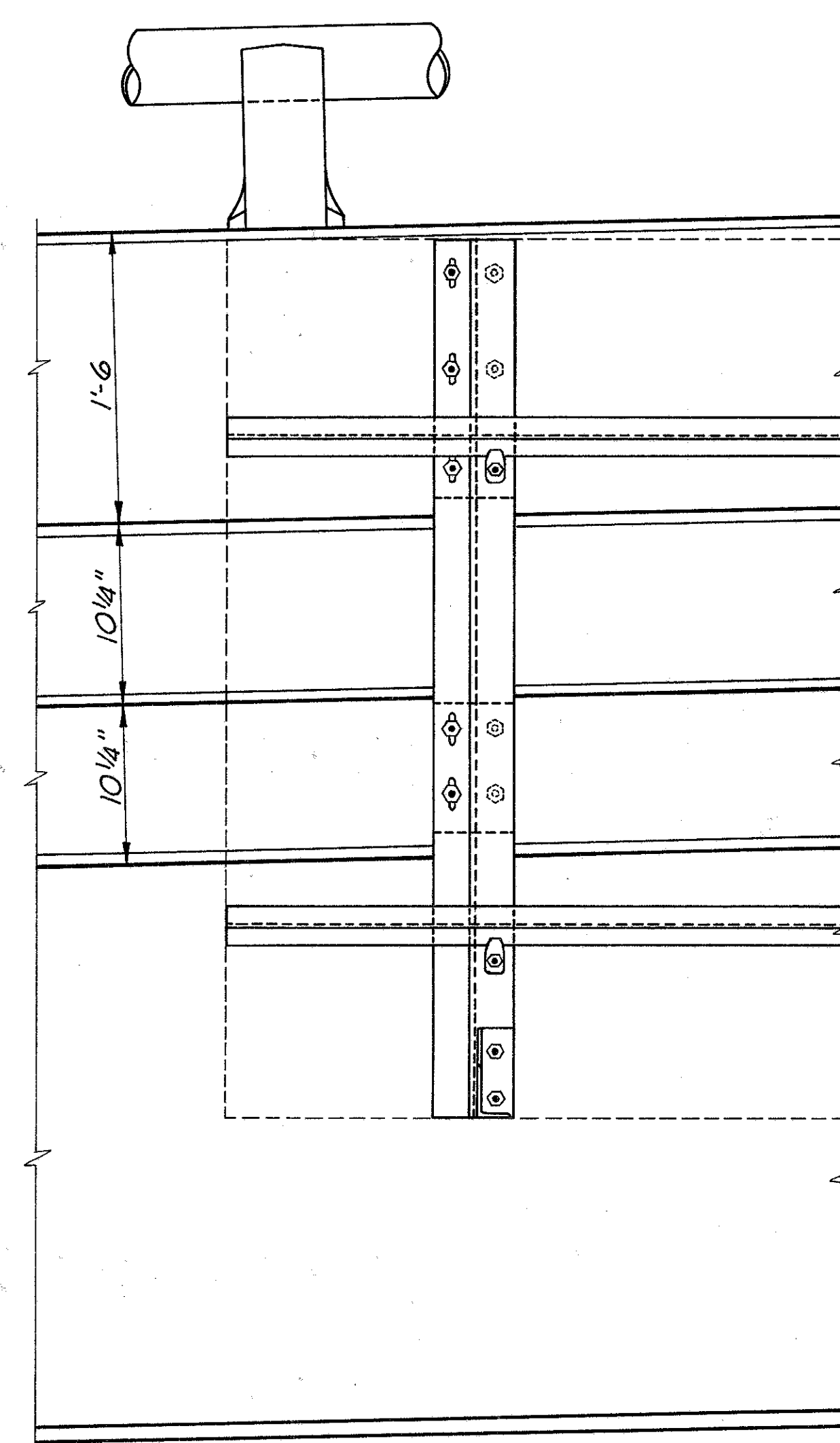


PART PLAN

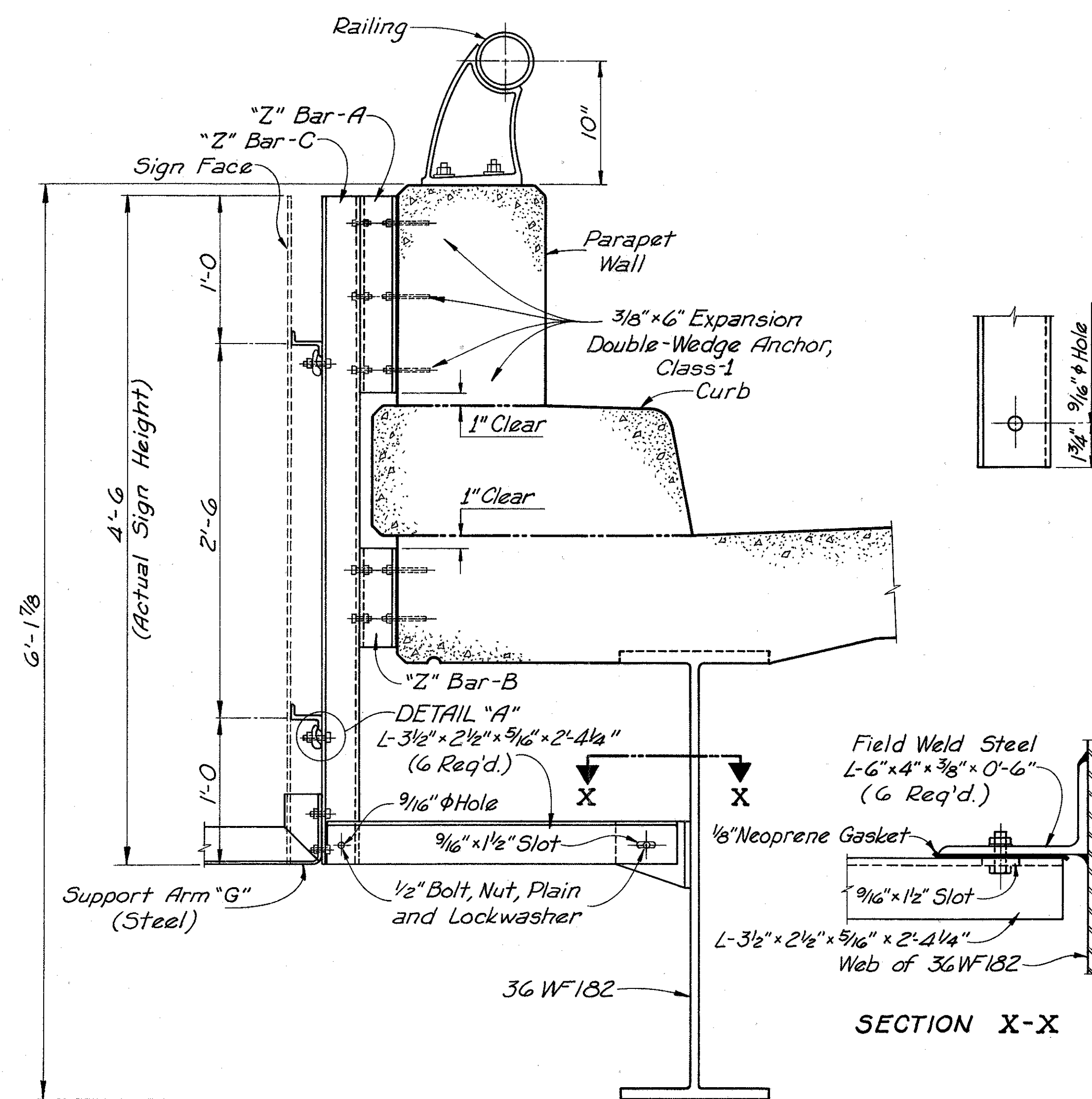


**"Z" BAR-A**  
3" x 2 1/16" x 1/4" @ 2.33 lb.  
(6 Required)

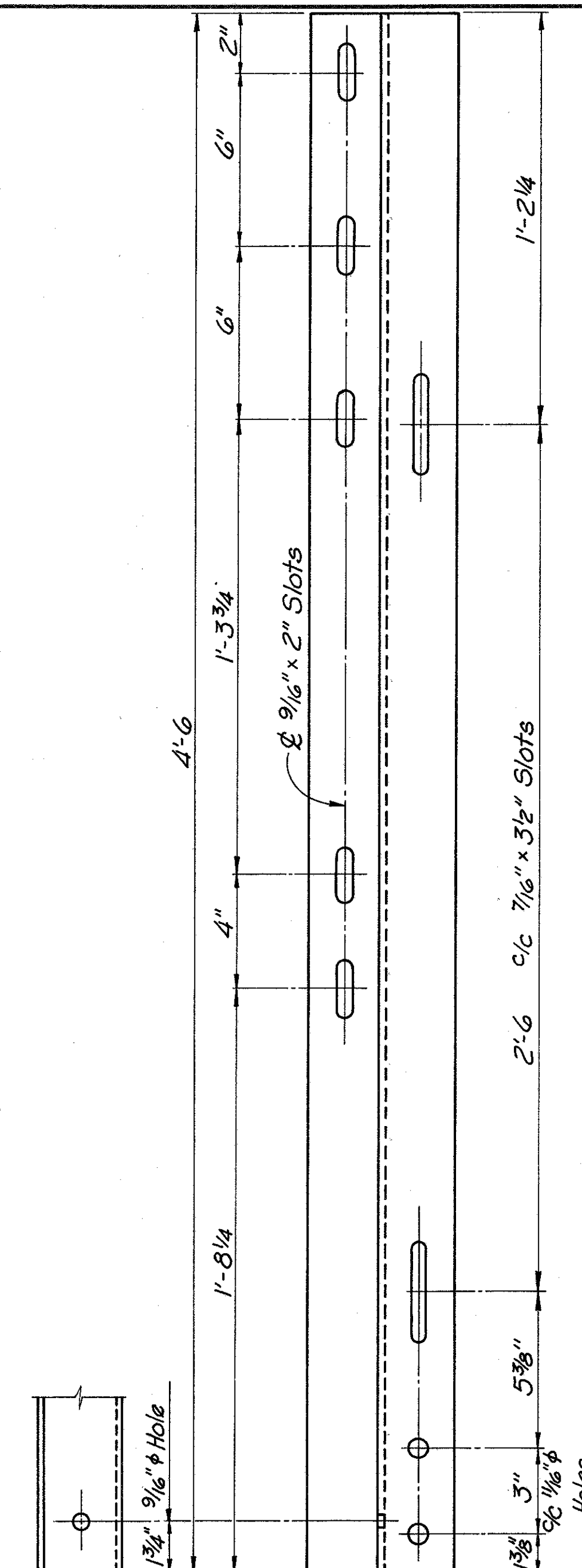
**"Z" BAR-B**  
3" x 2 1/16" x 1/4" @ 2.33 lb.  
(6 Required)



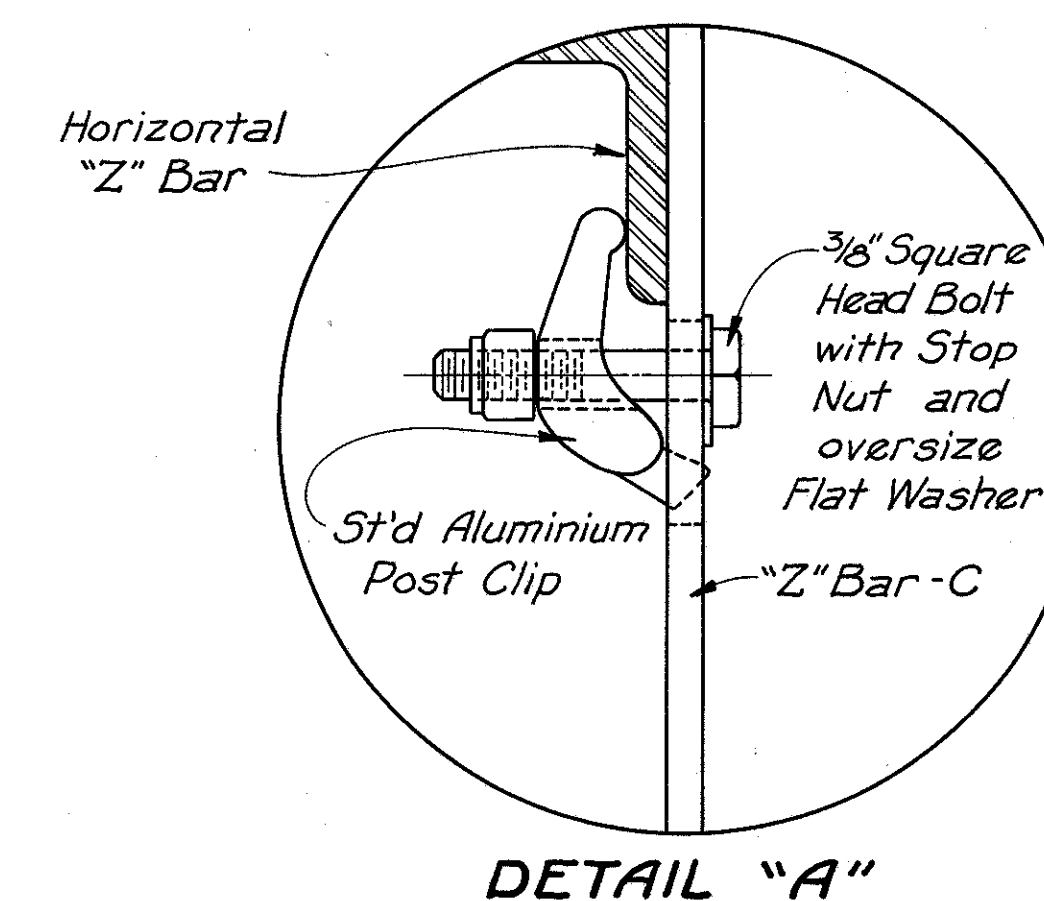
PART ELEVATION



SECTION

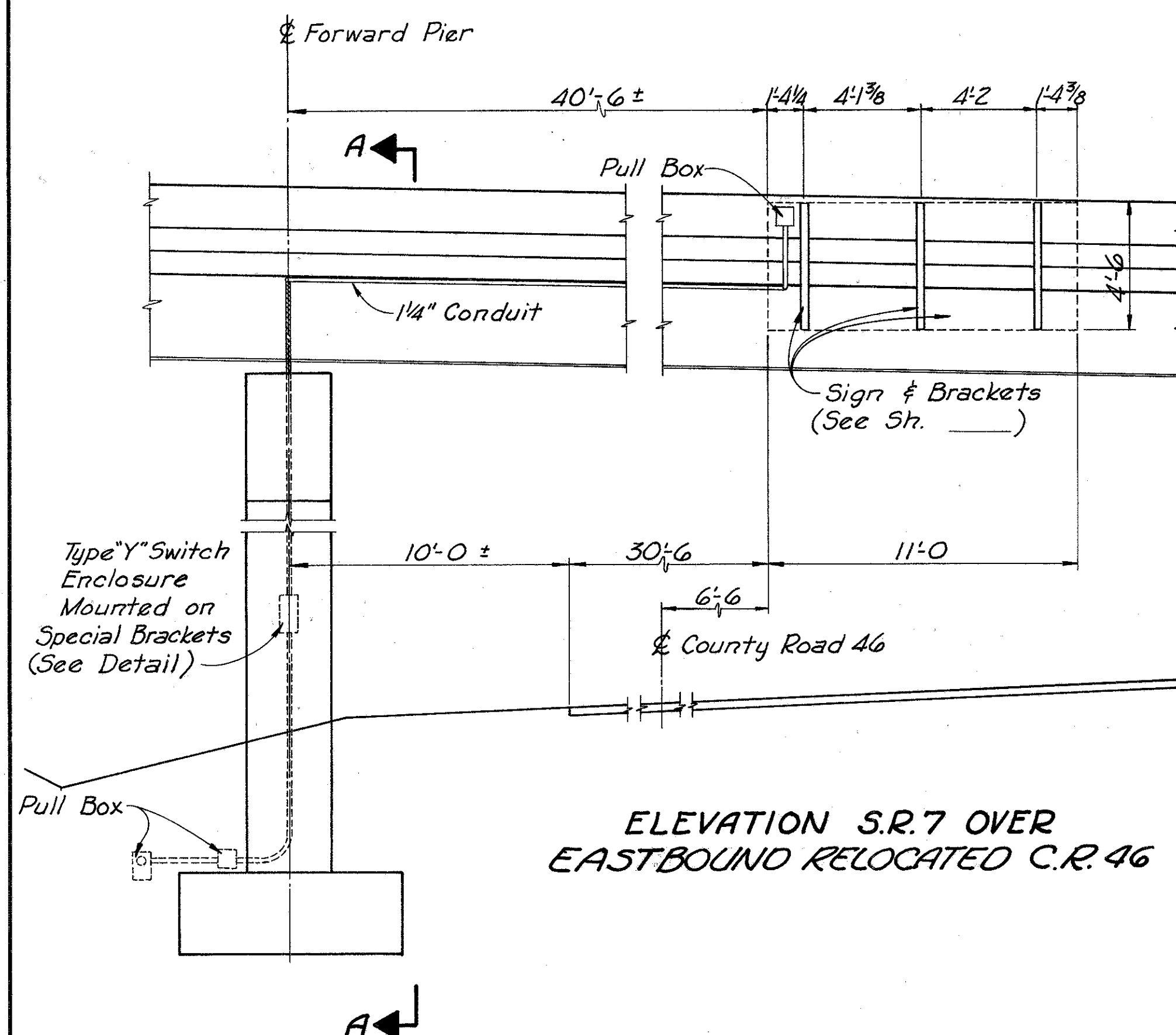


**"Z" BAR-C**  
3" x 2 1/16" x 1/4" @ 2.33 lb.  
(6 Required)

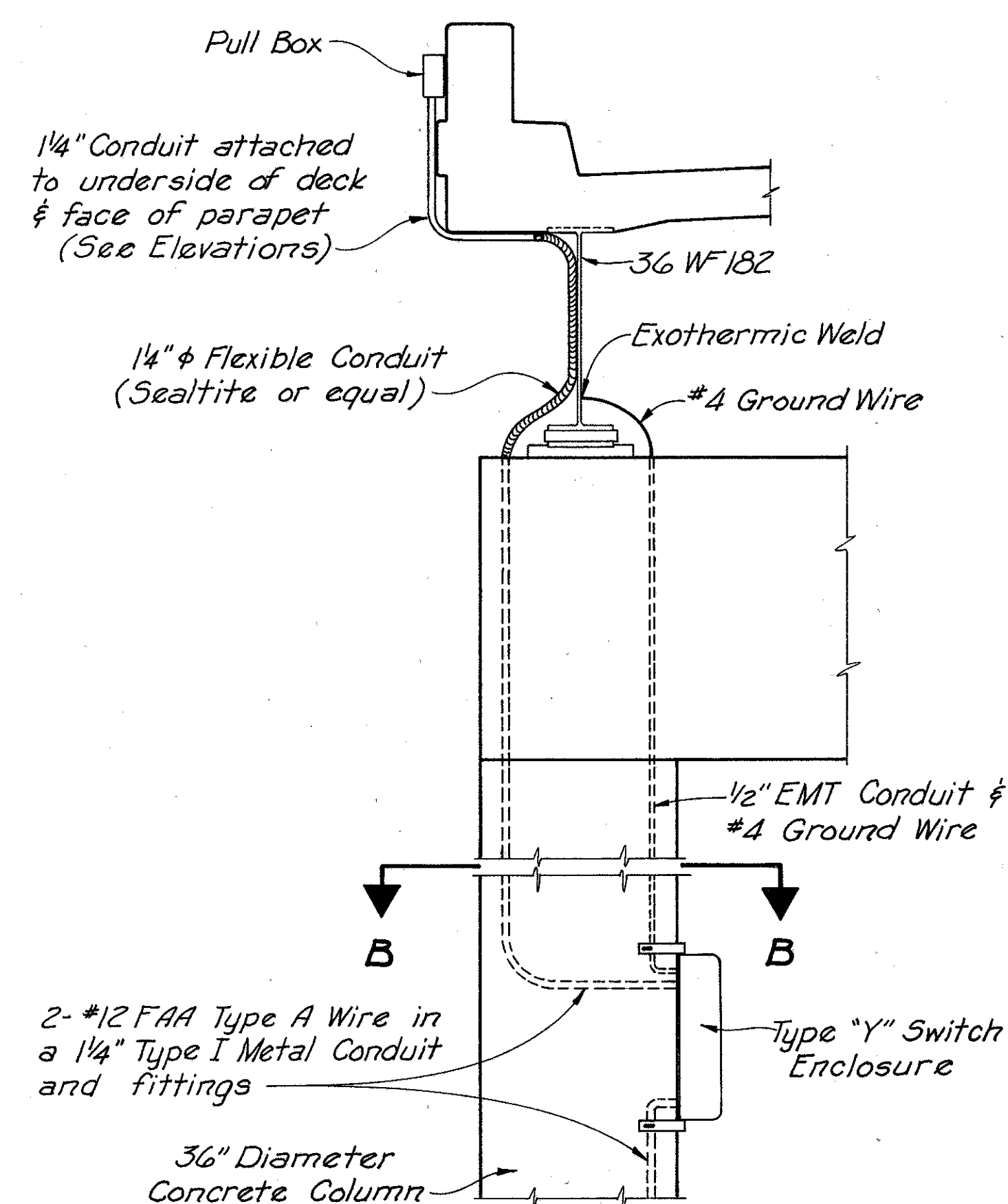


DETAIL "A"

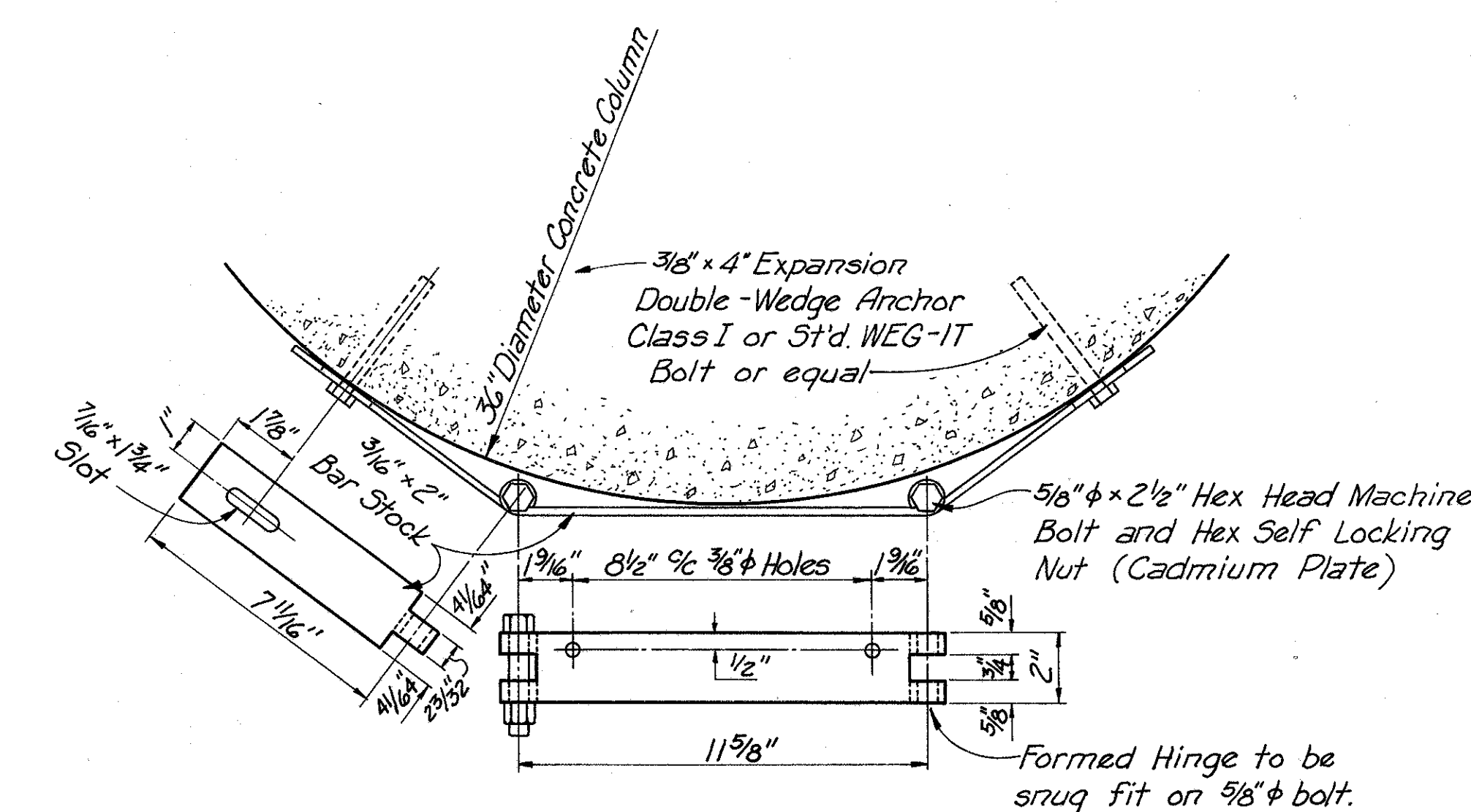




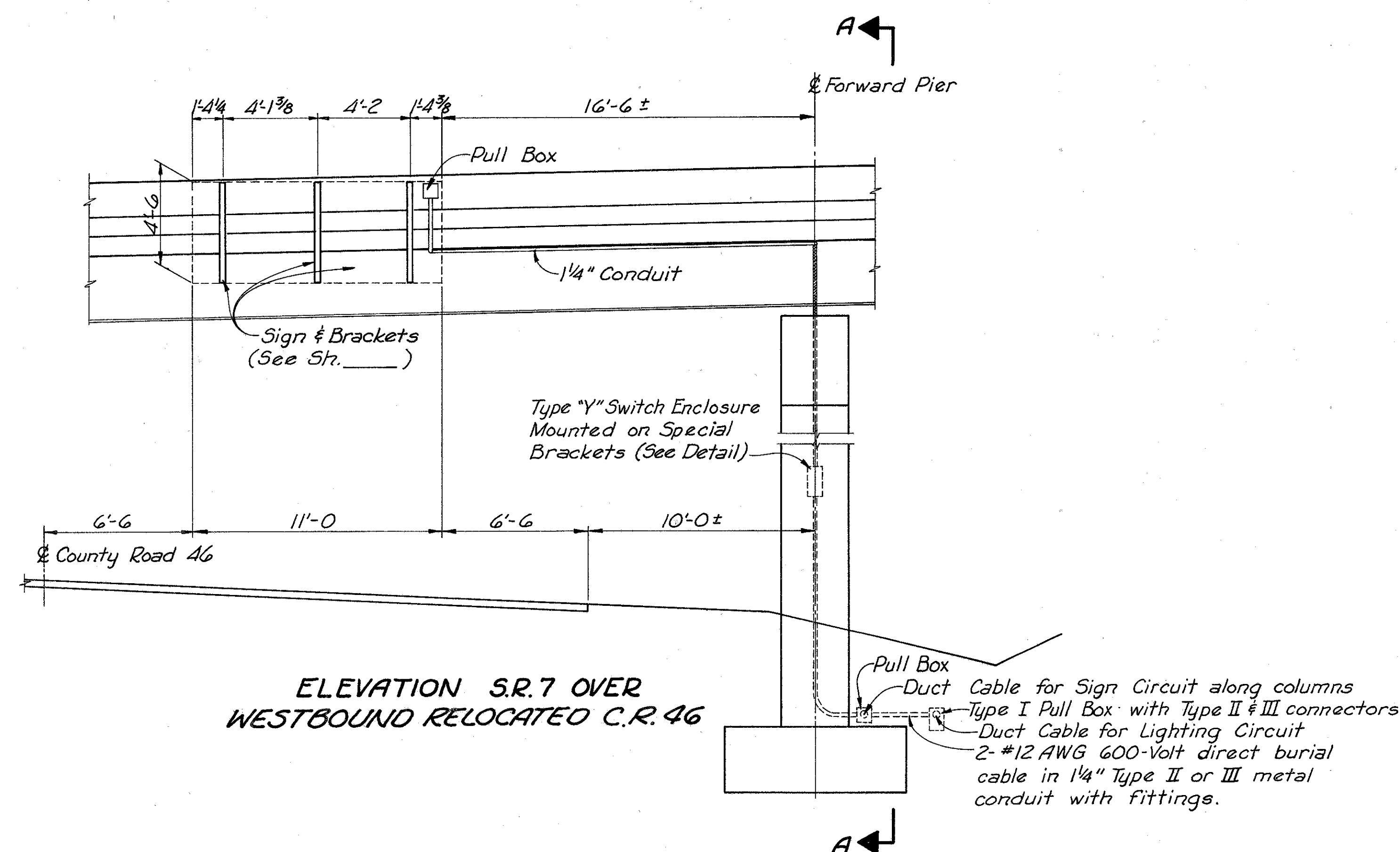
ELEVATION S.R.7 OVER  
EASTBOUND RELOCATED C.R. 46



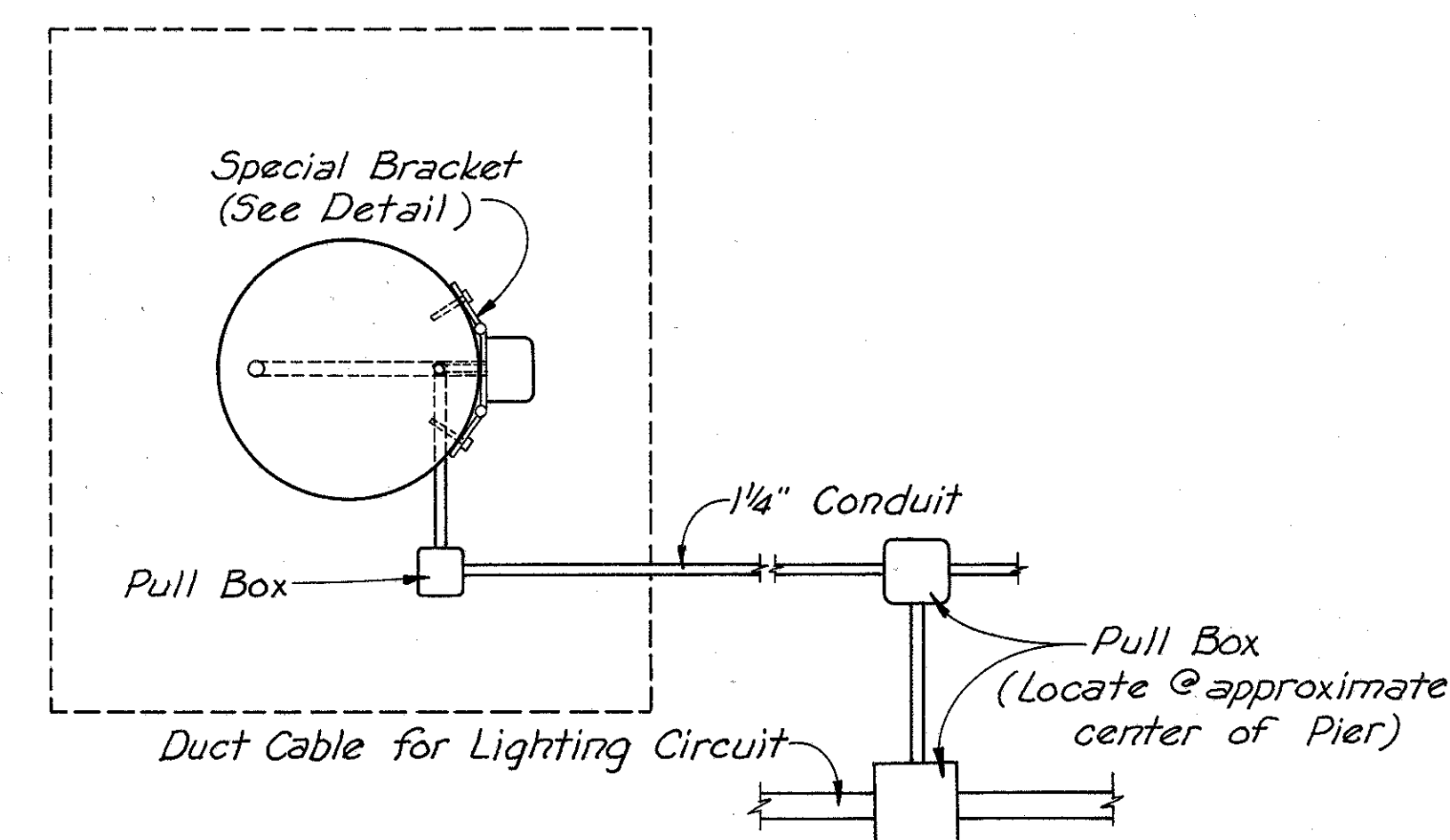
SECTION A-A



SPECIAL BRACKET DETAIL  
(4 Required)



ELEVATION S.R.7 OVER  
WESTBOUND RELOCATED C.R. 46



SECTION B-B  
(Typical at End Columns of Forward Pier)

JEF-7-2337

## NOTES

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

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

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

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

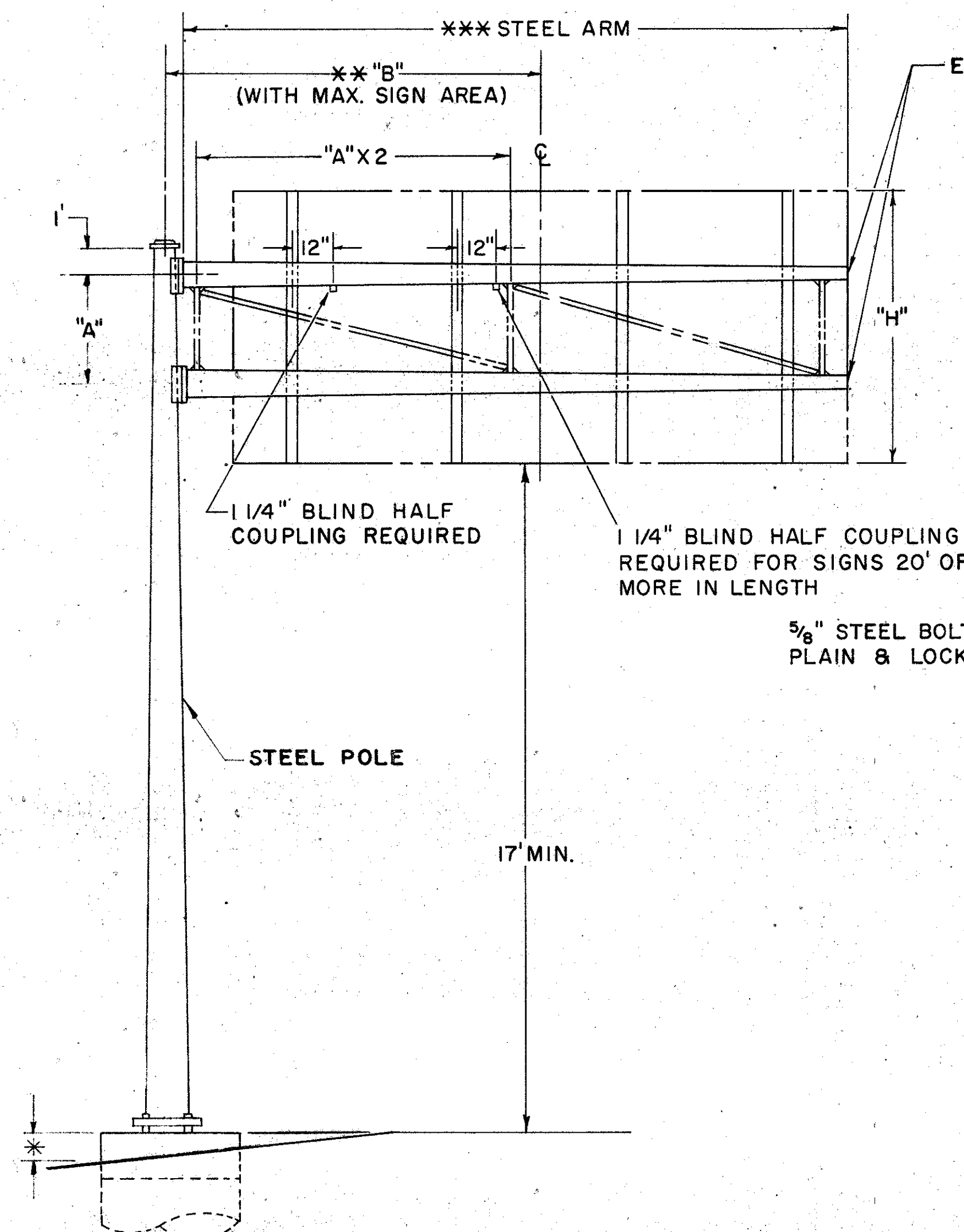
MATERIAL - STEEL POLE BASES, FLANGES, AND END CAPS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A 30 GRADE B. HIGH STRENGTH STEEL BOLTS SHALL CONFORM TO ASTM SPECIFICATION A193 GRADE B7 AFTER FABRICATION TAPERED POLES AND ARMS SHALL HAVE A MINIMUM YIELD STRENGTH OF 48,000 PSI.

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

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

## DESIGN

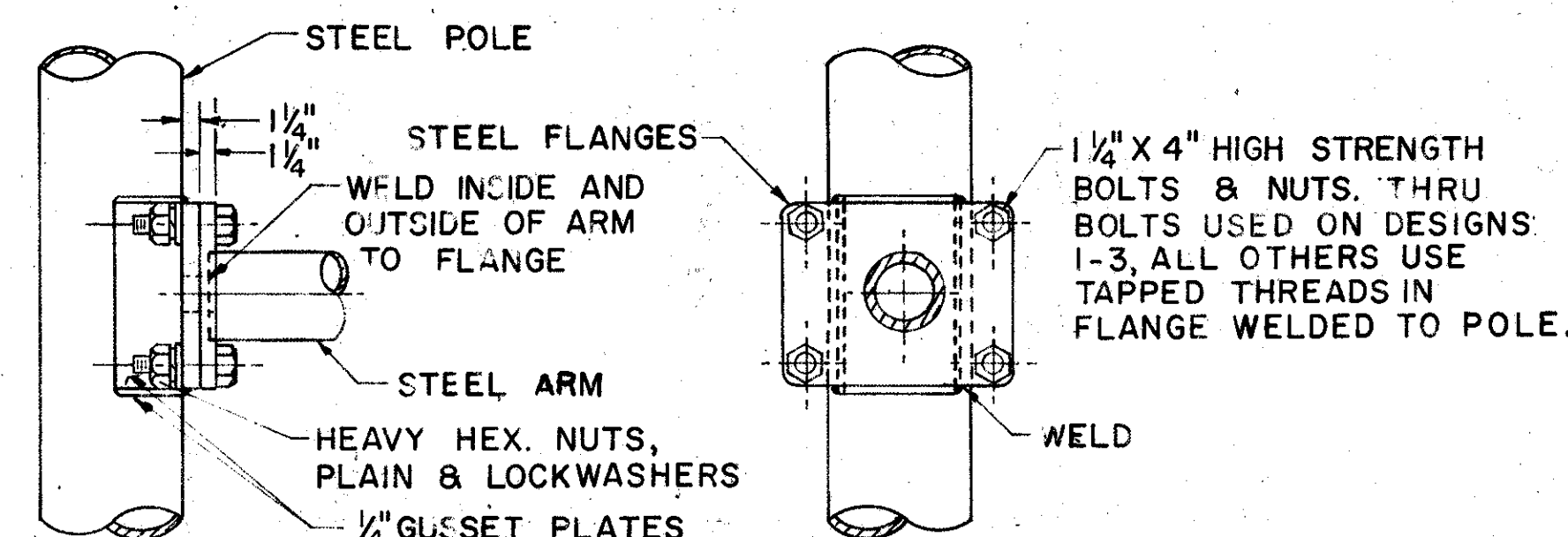
THE DESIGN OF OVERHEAD SUPPORTS IS IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, ADOPTED JUNE 12, 1961.



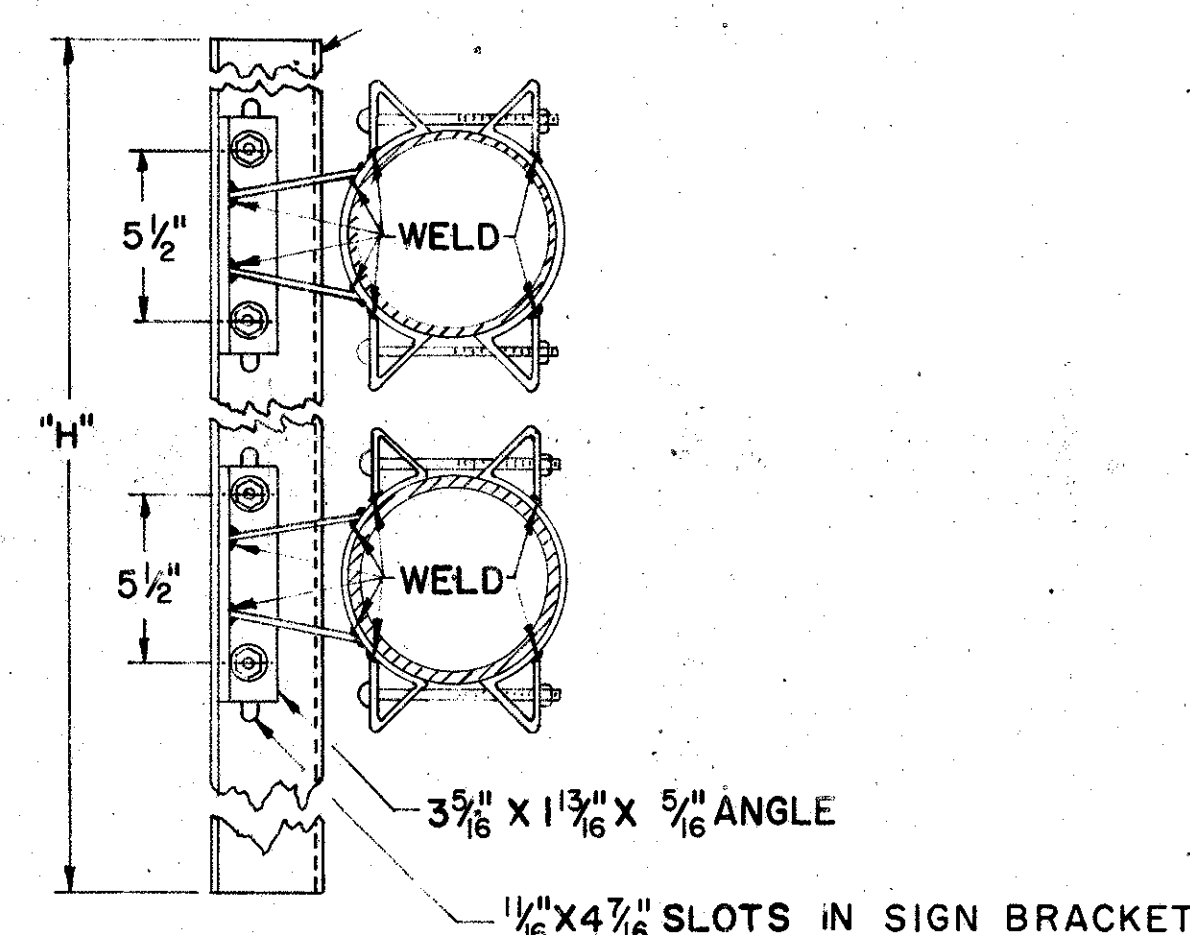
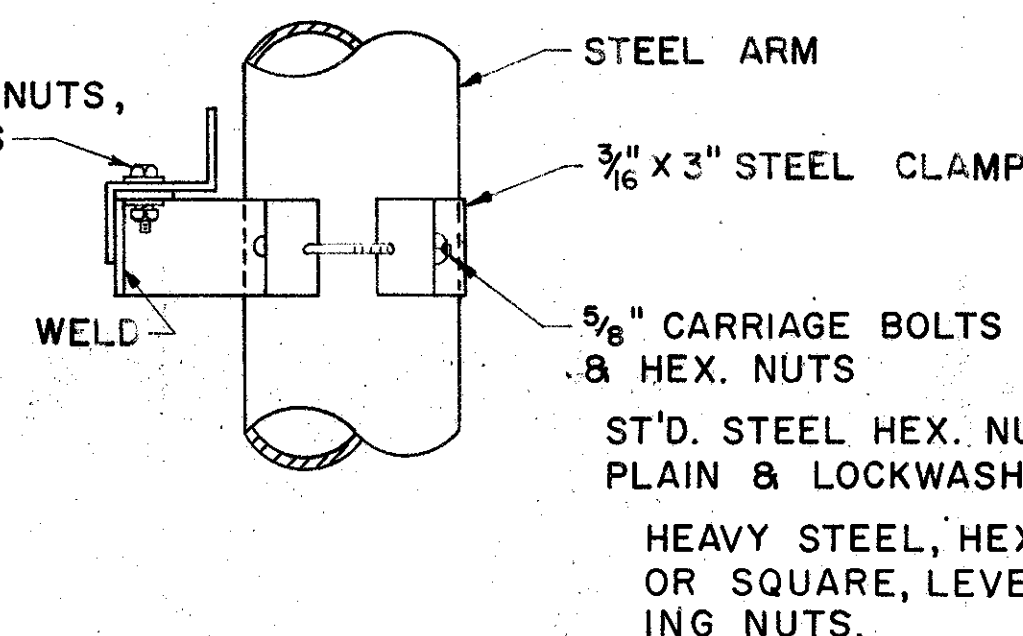
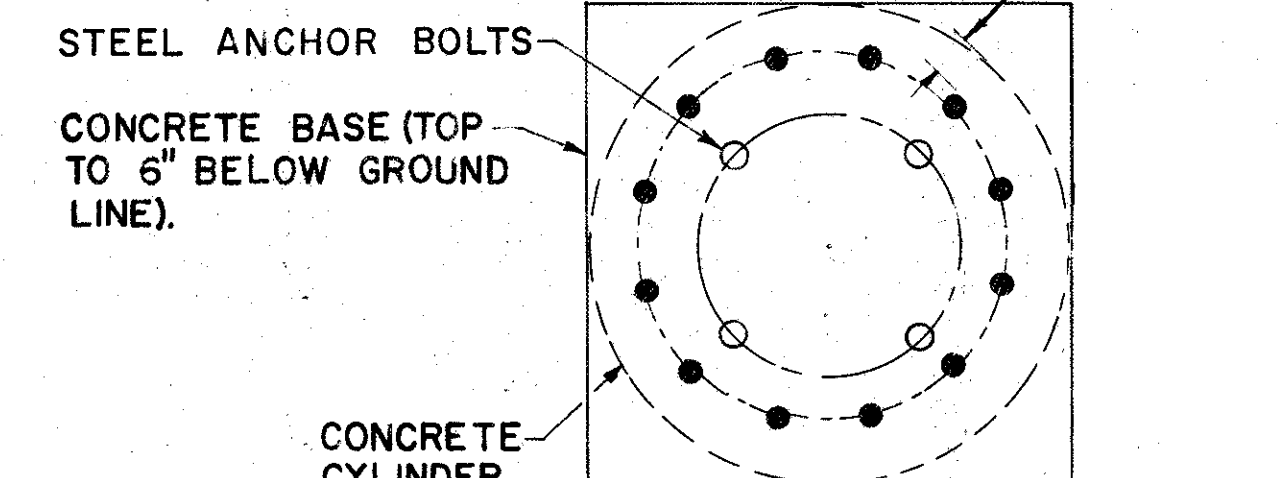
## NOTE:

THE 12" DIMENSION SHOWN FOR BLIND HALF COUPLINGS MAY BE INCREASED OR DECREASED WHEN NECESSARY TO PREVENT INTERFERENCE WITH OTHER MEMBERS.

END CAP OPEN FOR GALVANIZING



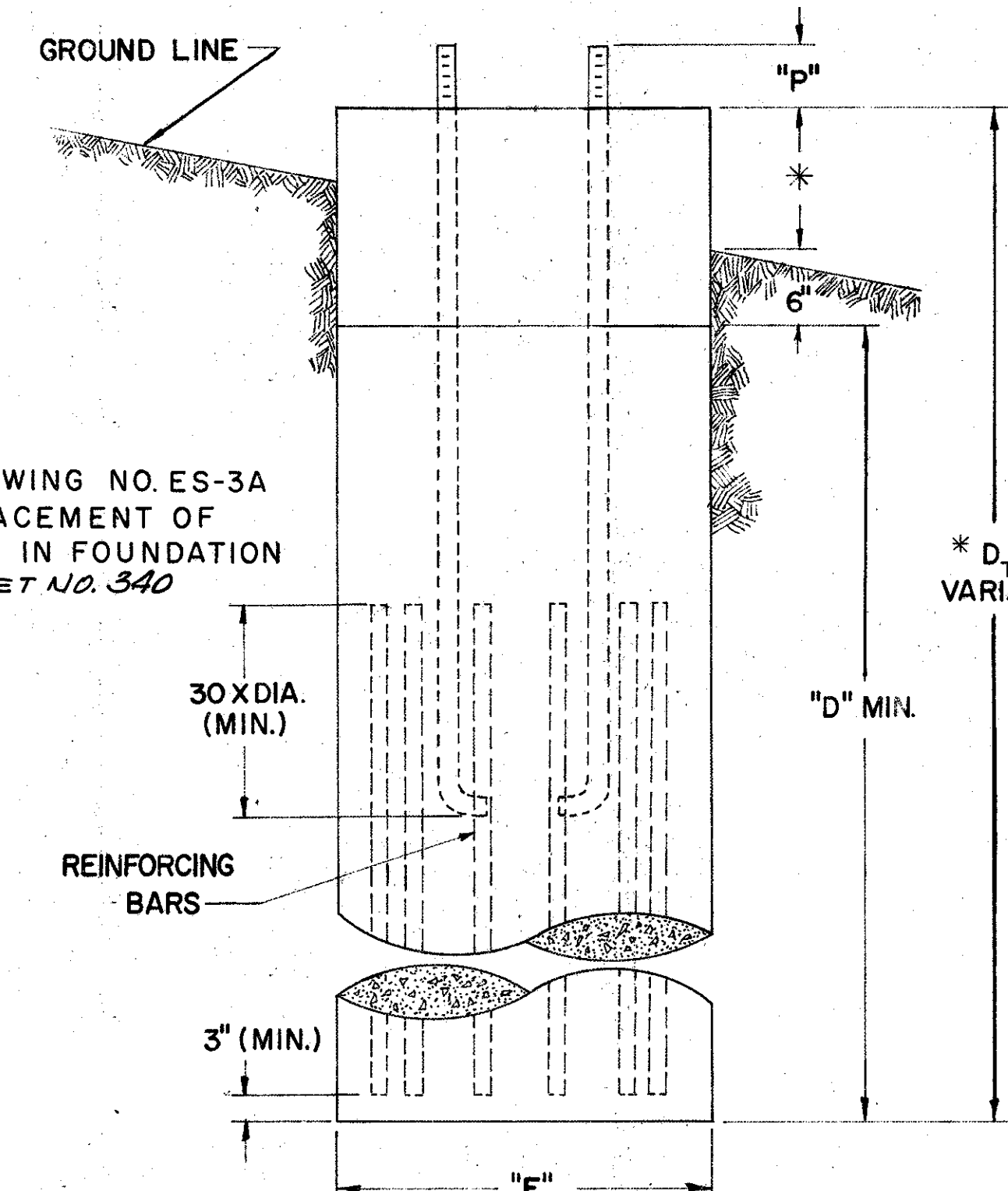
## ARM ATTACHMENT



## POLE BASE DETAIL

## SIGN ATTACHMENT DETAIL

DESIGN NO.	POLE SIZE	*** ARM SIZE	DIM A	DIM **B	DIM "D" MIN.	DIM E	DIM F	DIM P	DIM "S"	DIM T	BOLT CIRCLE	ANCHOR BOLT SIZE	MAX SIGN AREA	REINF BARS SIZE	# REQ'D
1	3 Ga, 12" X 8.78" X 23'-0"	7 Ga, 6.9" X 4.66" X 16'-0"	4'	12'	9'	3'-0"	11 5/16"	7 3/4"	17"	2"	16"	1 3/4" X 90"	80	3/4"	12
2	3 Ga, 12" X 8.78" X 23'-0"	7 Ga, 8" X 5.2" X 20'-0"	4'	16'	9'	3'-0"	11 5/16"	7 3/4"	17"	2"	16"	1 3/4" X 90"	80	3/4"	12
3	3 Ga, 15" X 11.5" X 25'-0"	7 Ga, 8.3" X 6.06" X 16'-0"	4'	12'	11'	3'-0"	15 1/2"	8 3/8"	23"	2"	22"	2" X 96"	120	1"	12
4	3 Ga, 16" X 12.5" X 25'-0"	3 Ga, 9.2" X 6.40" X 20'-0"	4'	16'	11'	3'-0"	16 5/16"	8 3/8"	24 1/2"	2"	23 1/2"	2" X 96"	120	1"	12
5	0 Ga, 18" X 14.36" X 26'-0"	7 Ga, 11" X 7.92" X 22'-0"	6'	14'	13'	3'-0"	18"	9 3/8"	26 1/2"	2 1/2"	25 1/2"	2 1/4" X 120"	180	1 1/8"	12
6	0 Ga, 18" X 14.36" X 26'-0"	7 Ga, 12.5" X 8.86" X 26'-0"	6'	18'	13'	3'-0"	18"	9 3/8"	26 1/2"	2 1/2"	25 1/2"	2 1/4" X 120"	180	1 1/8"	12
7	2 PLY 7 Ga, 18" X 14.36" X 26'-0"	7 Ga, 12.5" X 9.14" X 24'-0"	6'	14'	15'	3'-0"	18"	9 3/4"	26 1/2"	2 1/2"	25 1/2"	2 1/2" X 144"	240	1 1/4"	12
8	2 PLY 1/4", 18" X 14.36" X 26'-0"	3 Ga, 12.5" X 8.58" X 28'-0"	6'	18'	15'	3'-0"	18"	11 1/4"	26 1/2"	3"	25 1/2"	3" X 144"	240	1 1/4"	12



## FOUNDATION DETAIL

BUREAU OF TRAFFIC  
OHIO DEPARTMENT OF HIGHWAYS

OVERHEAD  
SIGN SUPPORT

816  
No. 12.24

DATE  
8-18-61  
4-11-62  
4-18-67

APPROVED *Robert E. Comer*  
ENGINEER OF TRAFFIC

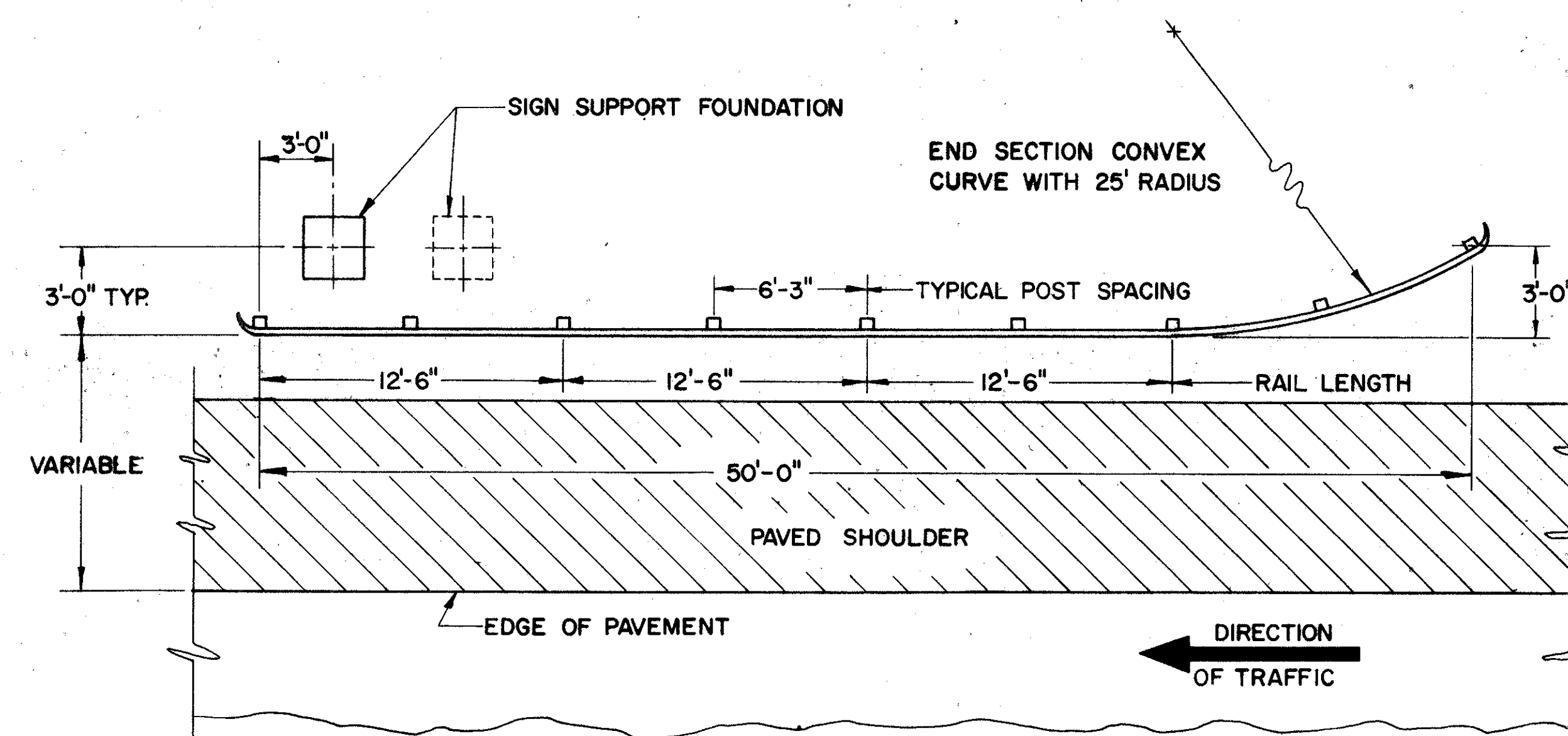


JEF-7-23.37

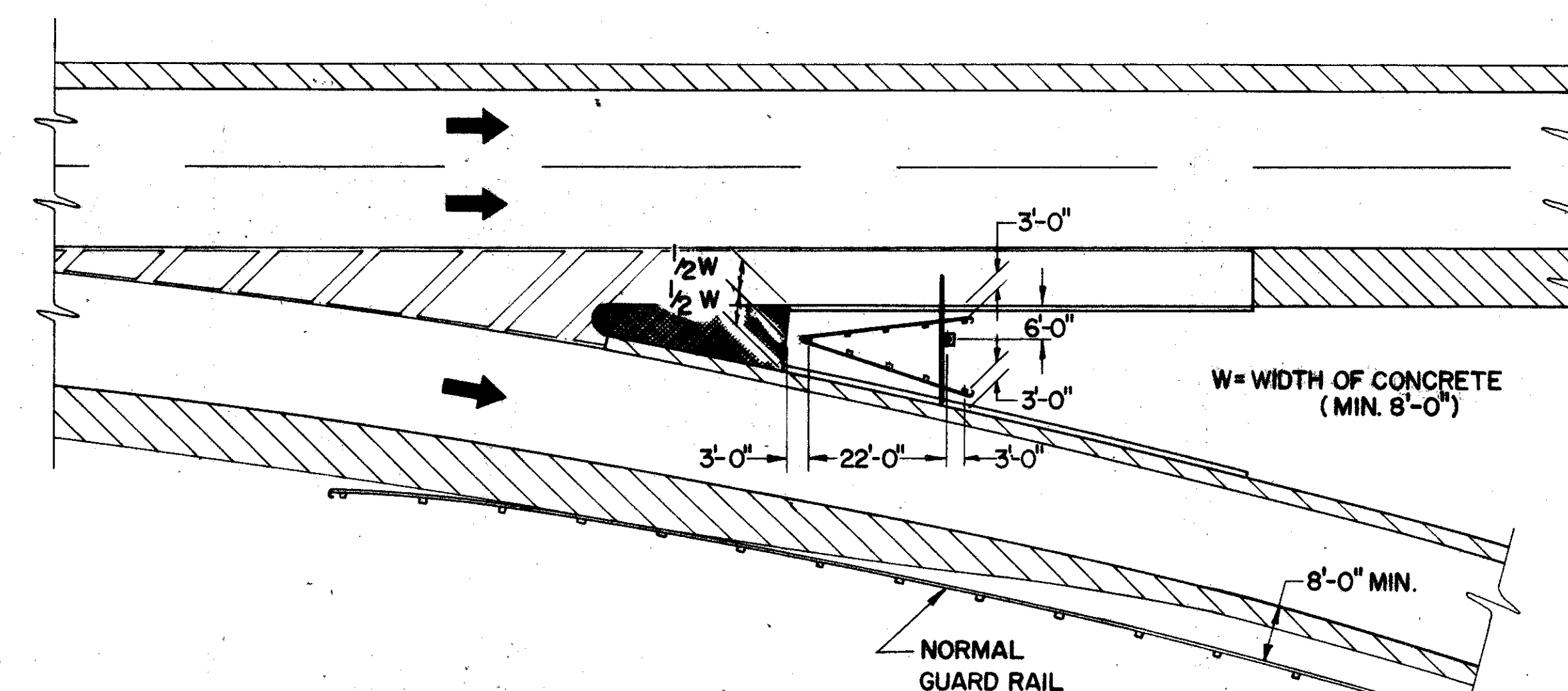
# NOTES

**GENERAL**  
PROTECTIVE GUARD RAIL FOR OVERHEAD SIGN STRUCTURES SHALL CONFORM TO ITEM 606 AND STANDARD CONSTRUCTION DRAWING GR-1 and GR-2A.

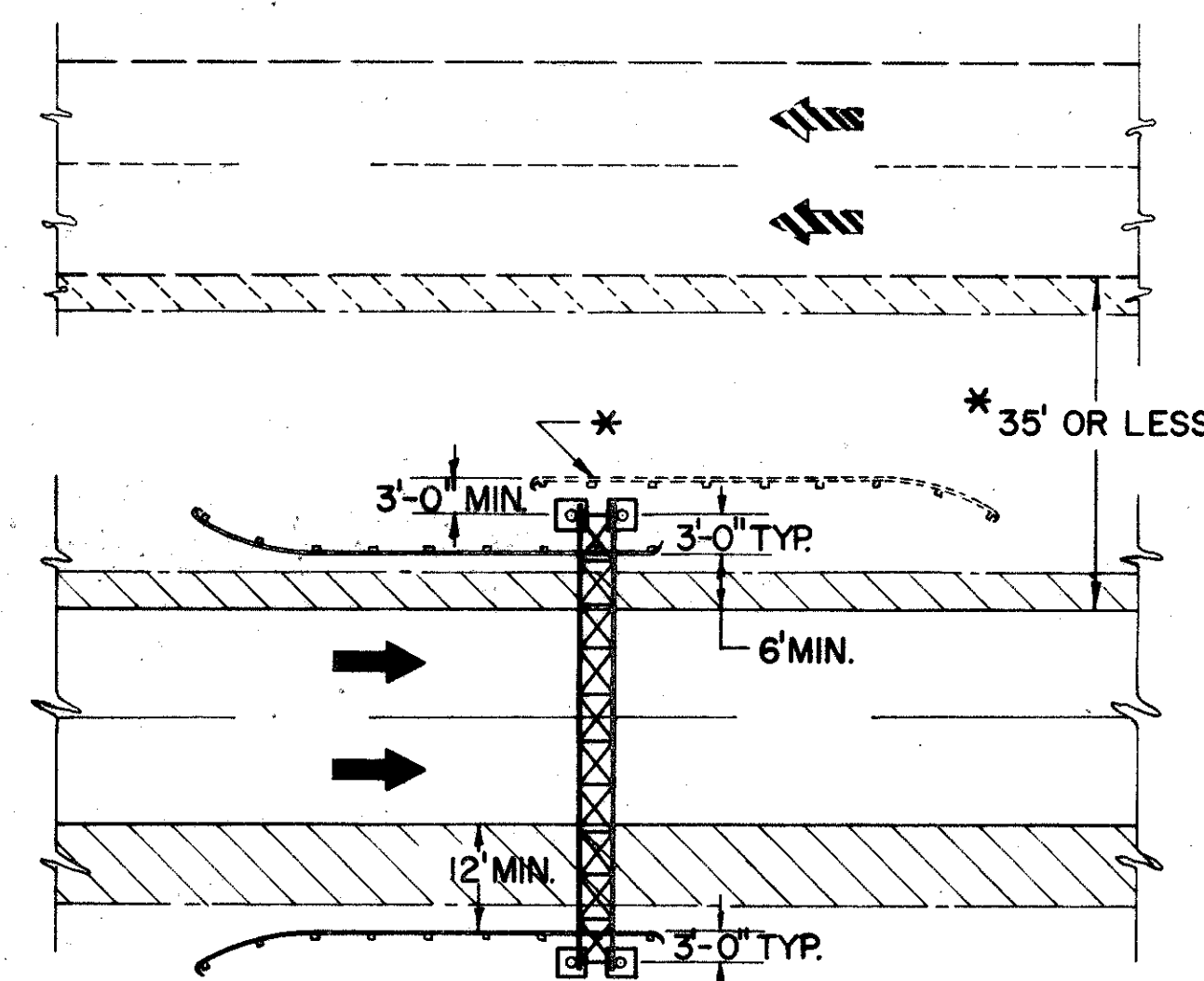
*All guard rail shall have appropriate terminal sections. For details see GR-2A. The gore installations nose section shall be a barrier terminal type mounted on a single post.*



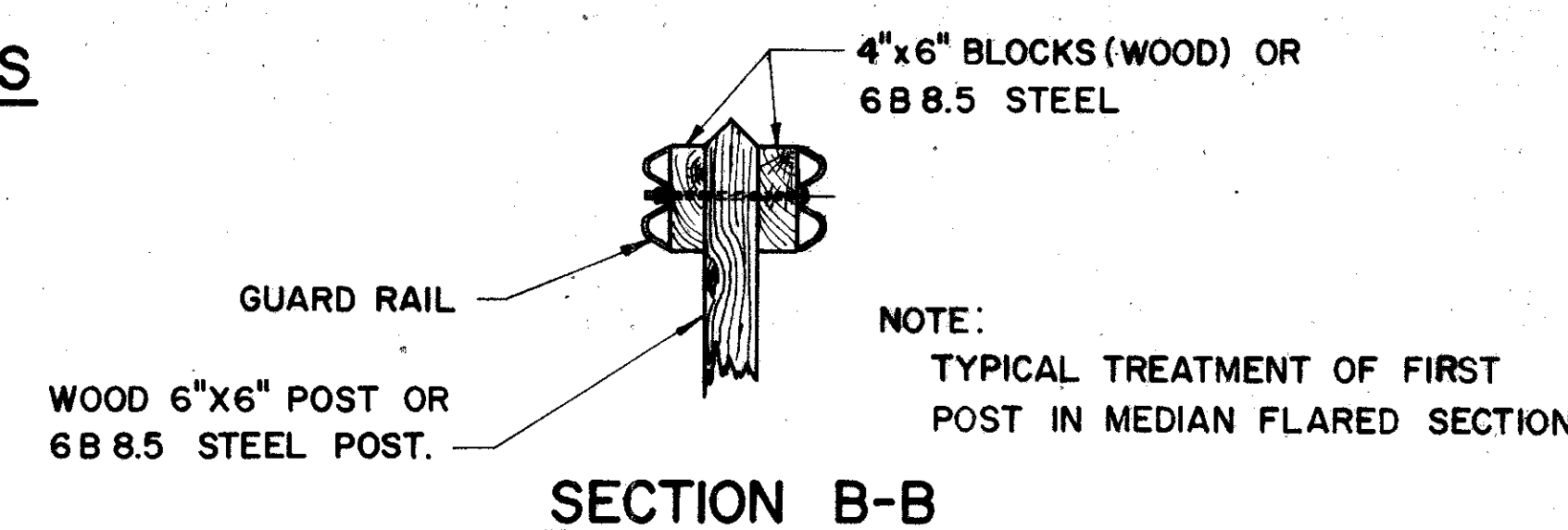
## GUARD RAIL DETAILS



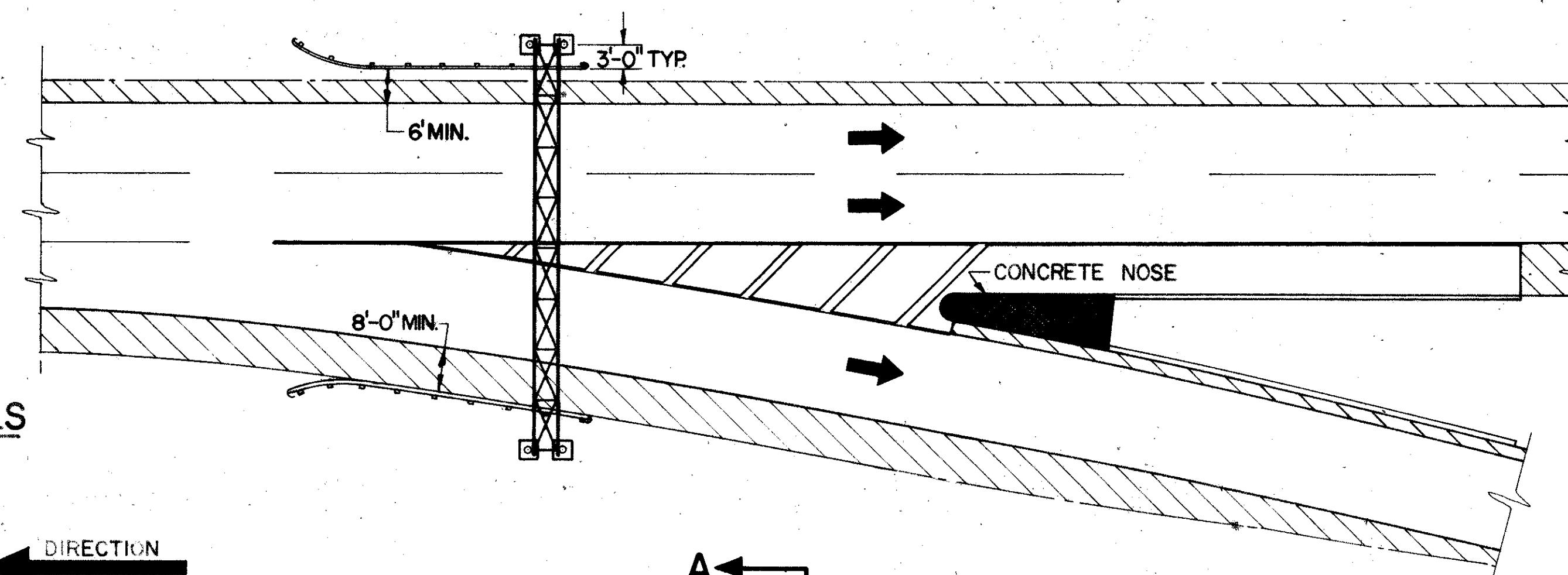
## GORE INSTALLATION (TYPICAL)



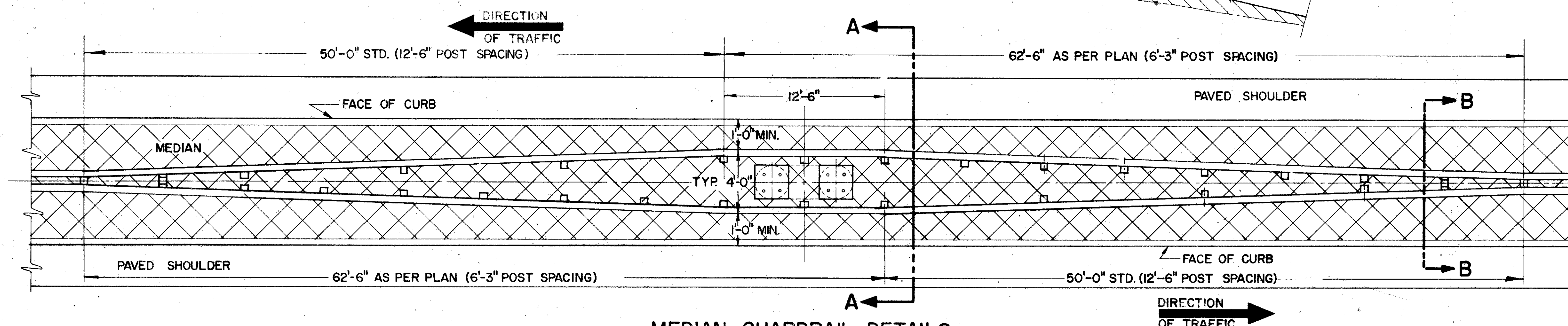
## GUARD RAIL DETAILS (SPAN TYPE)



## SECTION B-B



## SECTION A-A



## MEDIAN GUARDRAIL DETAILS

**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

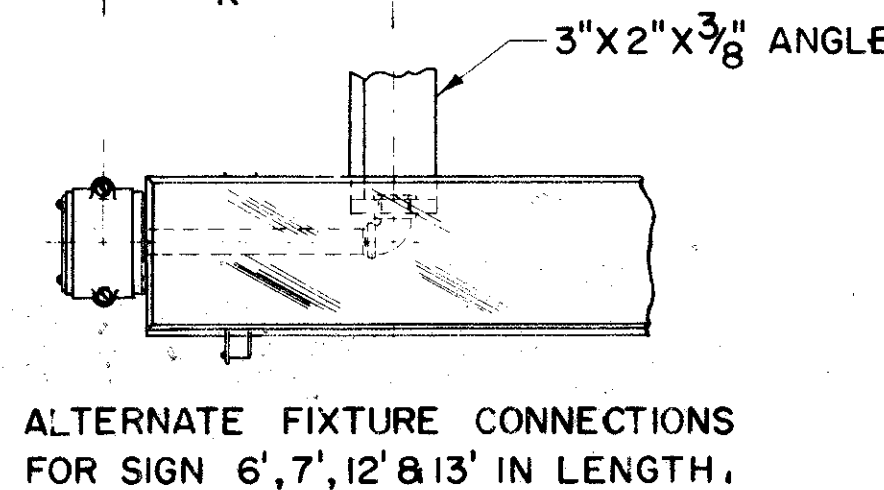
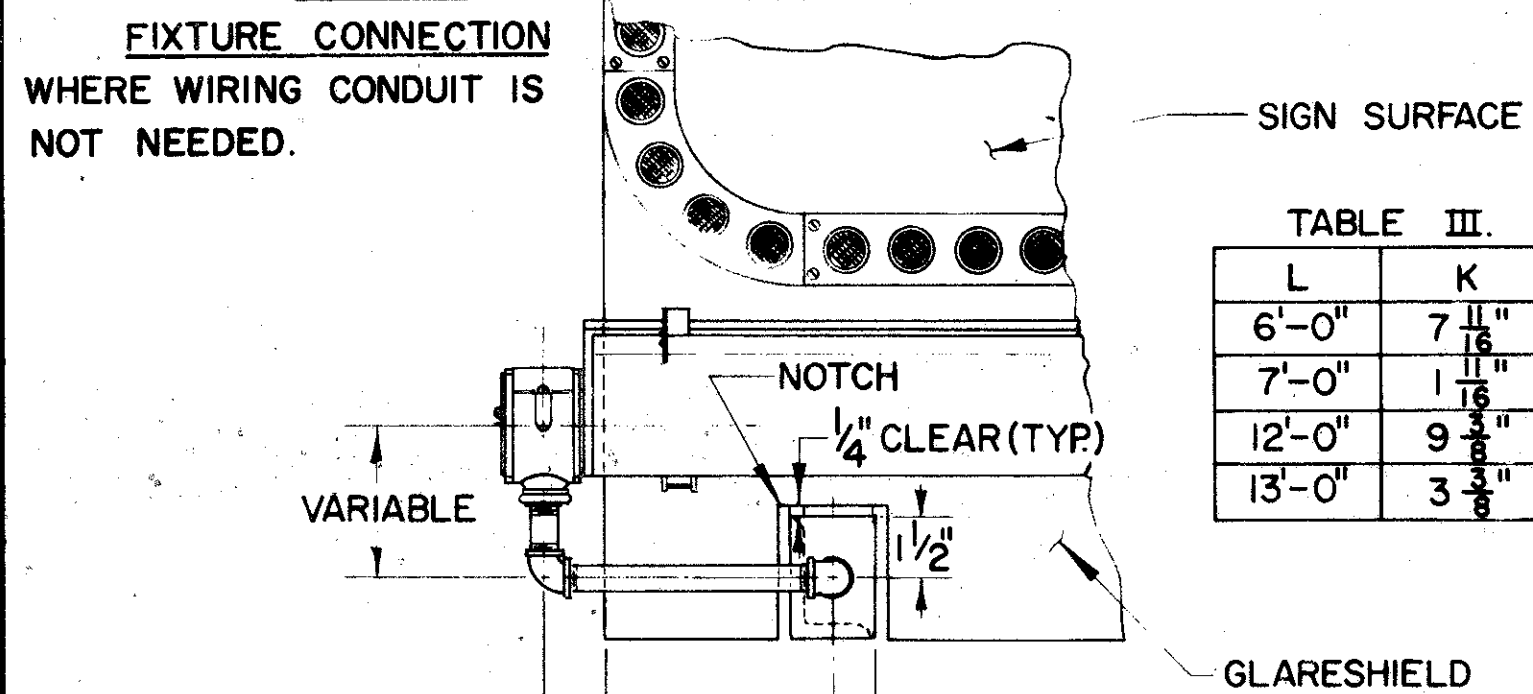
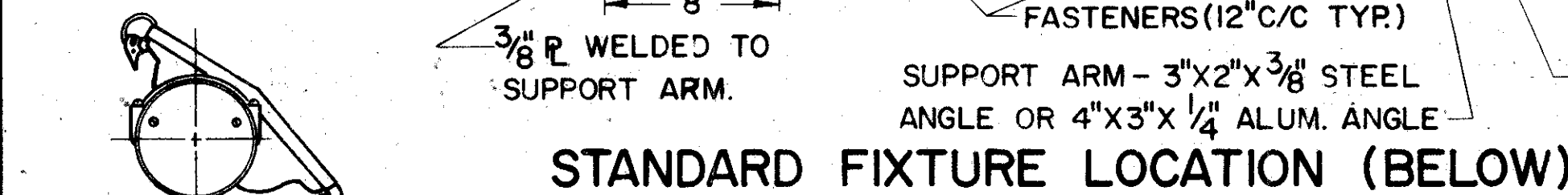
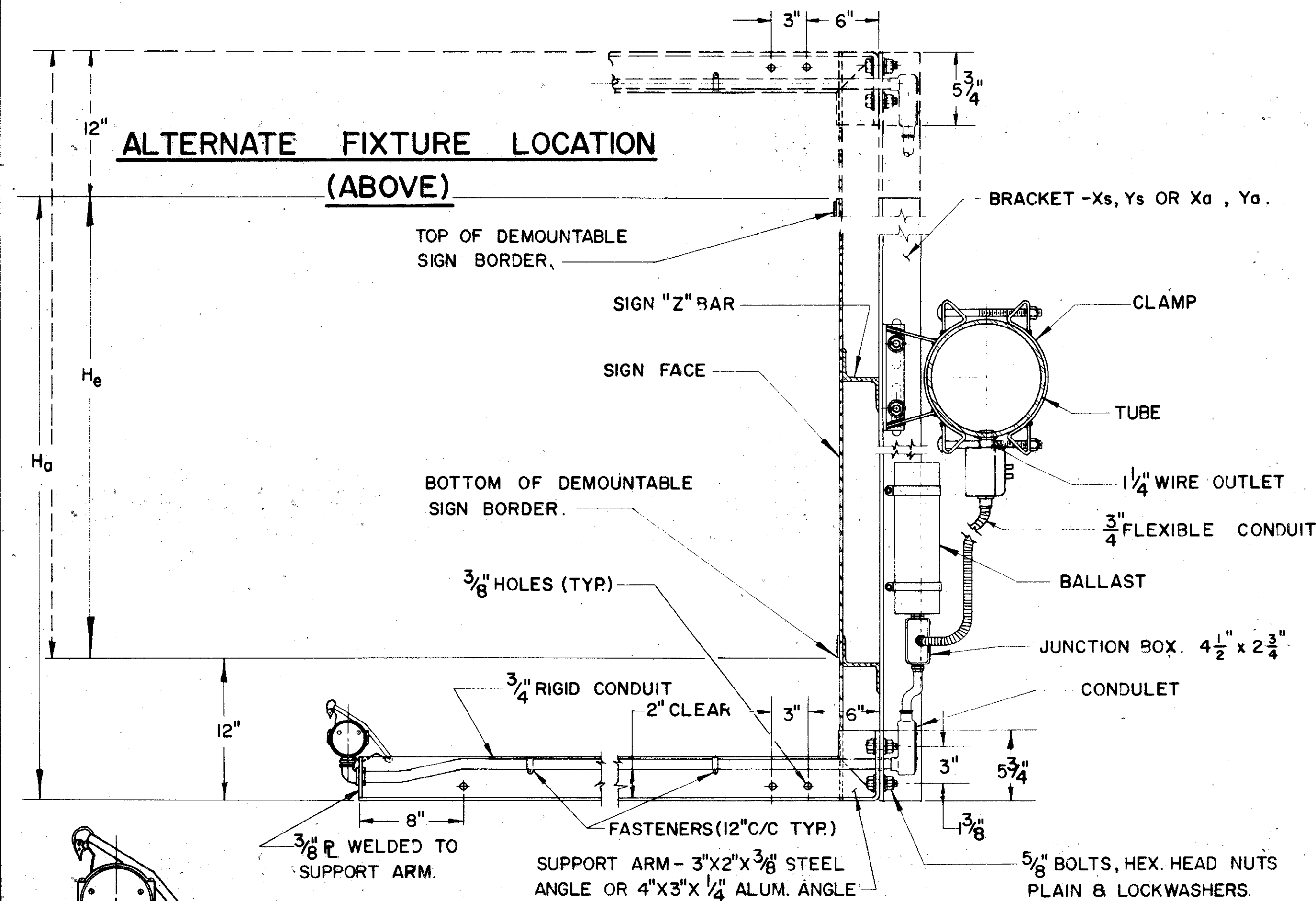
GUARD RAIL DETAILS  
FOR  
OVERHEAD SIGN SUPPORTS

GR.  
NO. 7

DATE  
3-10-65  
6-1-65

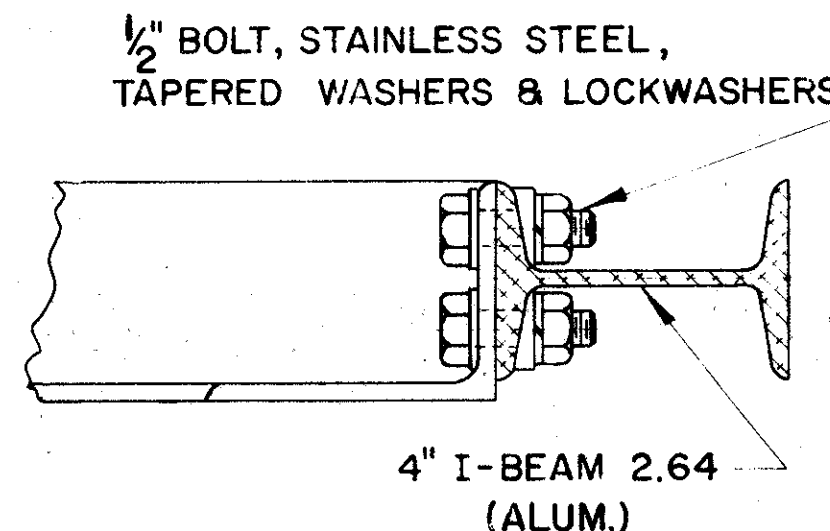
APPROVED *Ed C. Taylor*  
ENGINEER OF TRAFFIC

JEF -7-23.37

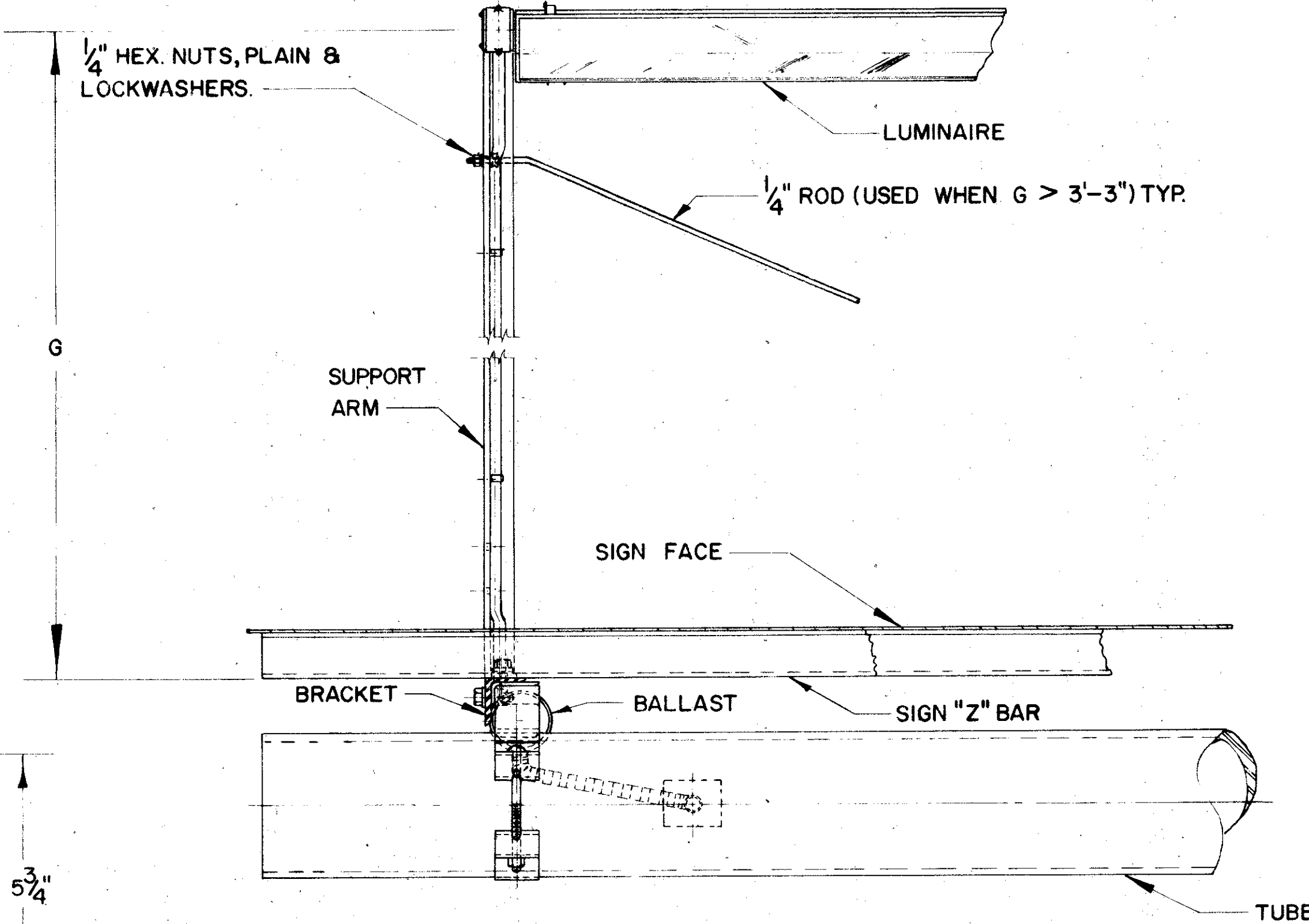
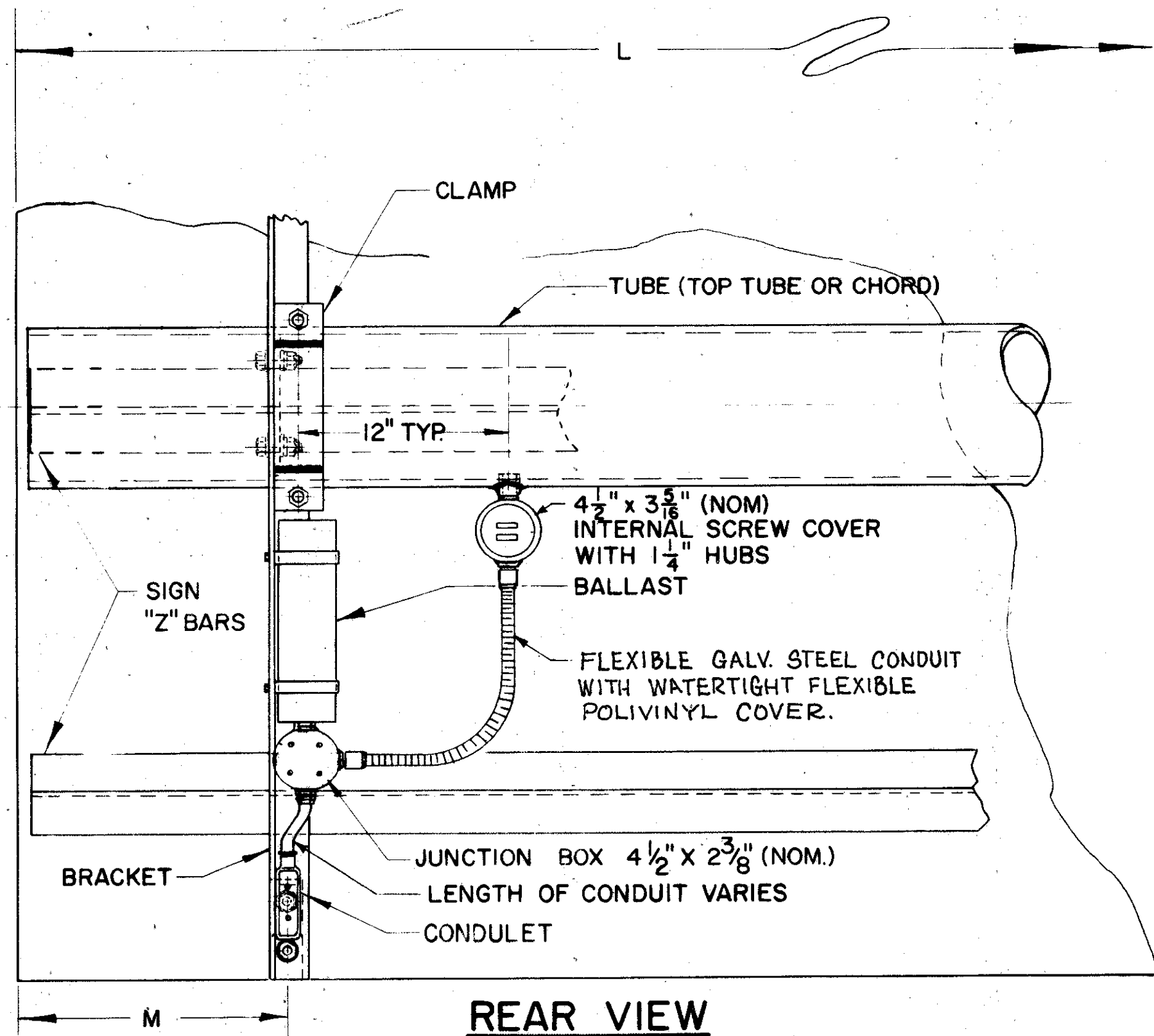


DETAIL A.

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



DETAIL B.



TOP VIEW

FABRICATION — ALL STRUCTURAL COMPONENTS SHOWN ON THIS SHEET SHALL CONFORM TO SUPPLEMENT SPECIFICATIONS 8/6.  
MATERIALS — THE MATERIALS USED IN THE COMPONENTS SHOWN ON THIS SHEET SHALL BE IN CONFORMANCE WITH THE MATERIALS USED IN THE SIGN SUPPORT.

TABLE I.									
"L" SIGN LENGTH		FIXTURES OF 99 3/8"	NUMBER OF 75 3/8"	"M" EDGE DISTANCE				NO. BALLAST	Sn=Nominal Fixture Length, 72" & 96" respectively. Sa=Actual Fixture Length, 75 3/8" and 99 3/8" for mounting purposes, respectively. (Slight variation for different manufacturers.)  M= Distance from edge of sign to center of notch, min. 6". When the length of the sign minus 1'-0" is less than the sum of the actual fixture lengths, an offset "K" is used. For additional details see detail A and table III.
				A		B			
A	B			LT.	RT.	LT.	RT.		
6'-0"	7'-0"	1		6"	6"	6"	6"	1	
8'-0"	9'-0"	1		10 3/8"	10 3/8"	16 3/8"	16 1/4"	1	
10'-0"	11'-0"		1	10 3/8"	10 1/4"	16 3/8"	16 1/4"	1	
12'-0"	13'-0"	2		6"	6"	6"	6"	1	
14'-0"	15'-0"	2		8 5/8"	8 5/8"	14 5/8"	14 5/8"	1	
16'-0"	17'-0"	1	1	8 5/8"	8 5/8"	14 5/8"	14 5/8"	1	
18'-0"	19'-0"		2	8 5/8"	8 5/8"	14 5/8"	14 5/8"	1	
20'-0"	21'-0"	3		7"	6 7/8"	13"	12 7/8"	2	
22'-0"	23'-0"	2	1	7"	6 7/8"	13"	12 7/8"	2	
24'-0"	25'-0"	1	2	7"	6 7/8"	13"	12 7/8"	2	
26'-0"	27'-0"		3	7"	6 7/8"	13"	12 7/8"	2	

ACTUAL SIGN HEIGHT "Ha"	SUPPORT TYPES			
	9,12, 11,08, 13,2, 7,2	9,24,10,48,12,24,14,5,15,8,7,2 to 7,6	DOUBLE TUBE	
	SINGLE TUBE	DOUBLE TUBE LESS 36" C/C	C/C 36"-42"	C/C 48"-54" C/C 60"-72"
MAXIMUM BRACKET SPACING				
to 5'-0"	6'-4" with X 8'-4" with Y	8'-4" with X	8'-4" with X	8'-4" with X
5'-6" to 8'-0"	6'-4" with Y	4'-2" with X 6'-4" with Y	6'-4" with X 8'-4" with Y	8'-4" with X
8'-6" to 10'-0"	3'-2" with X 4'-2" with Y	6'-4" with Y	6'-4" with Y	8'-4" with Y
10'-6" to 12'-0"		4'-2" with Y	6'-4" with Y	6'-4" with Y
12'-6" to 14'-0"		3'-2" with Y	3'-2" with Y	4'-2" with Y

Ha = ACTUAL SIGN HEIGHT  
He = EFFECTIVE SIGN HEIGHT  
BRACKET SIZE: Xs = 3 1/2" x 2 1/2" x 5/16" - L @ 6.1 LB. STEEL } 9,12,10,48,11,08,  
Ys = 4" x 3 1/4" x 1/4" - Z @ 8.2 LB. STEEL } 12,24,14,5 & 15,8  
Xa = 3" x 2 1/16" x 1/4" - Z @ 2.33 LB. ALUM. } 7,2 Thru 7,6  
Ya = 4" x 2 1/2" x 3/16" - I @ 2.64 LB. ALUM. }

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

SUPPORTS 7.2 THROUGH 7.6 SHALL HAVE AN ALUMINUM FIXTURE ARM, 4" x 3" x 1/4" ANGLE. SEE DETAIL B. BOLTS AND ACCESSORIES SHALL BE STAINLESS STEEL.

BUREAU OF TRAFFIC  
OHIO DEPARTMENT OF HIGHWAYS

STRUCTURAL DETAILS  
FOR EXTERNALLY  
ILLUMINATED SIGNS

APPROVED *Jack C. Taylor*  
ENGINEER OF TRAFFIC

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

EI-1



JEF-7-23.37

# SIGN LIGHTING NOTES

## SIGN ILLUMINATION

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

## LAMPS

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

## LAMP FIXTURES

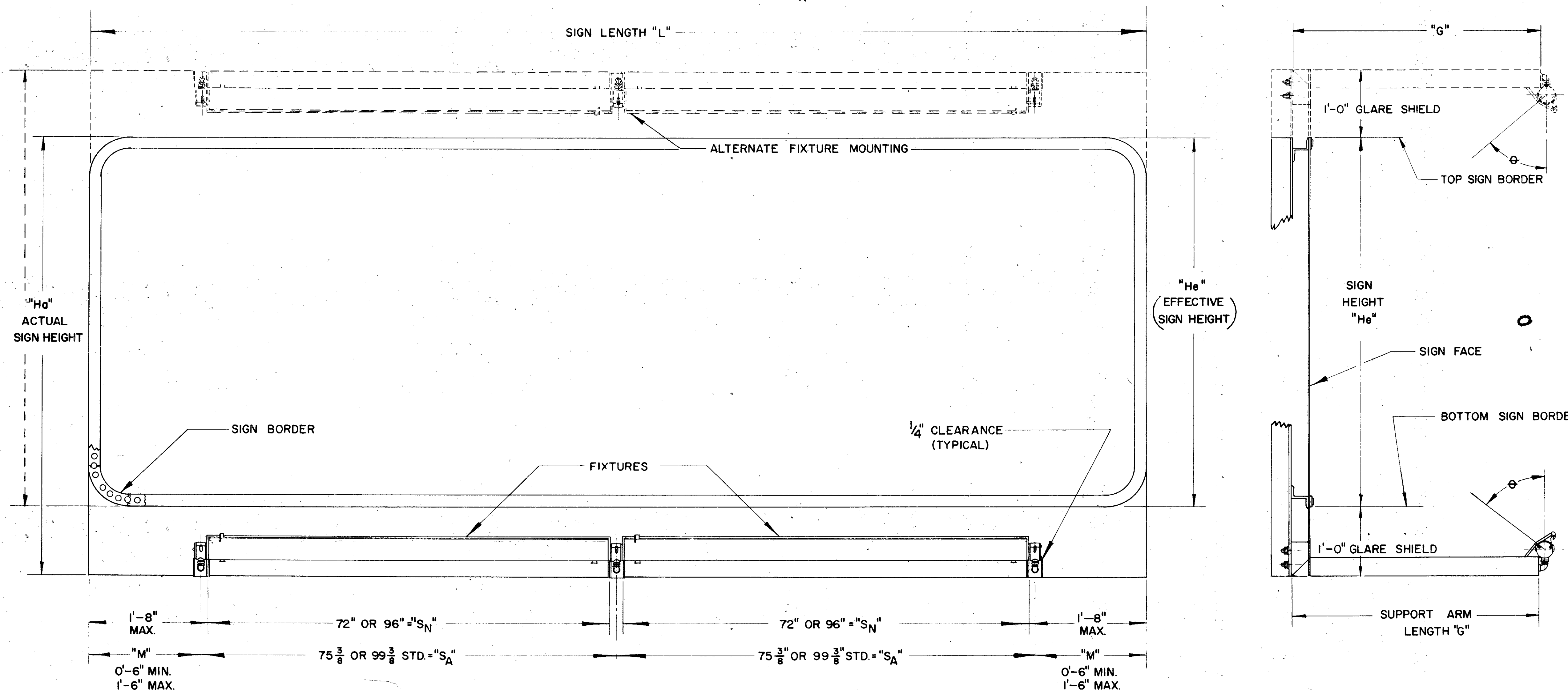
LIGHTING FIXTURES SHALL BE CONSTRUCTED OF CORROSION RESISTANT MATERIALS OR WITH HIGH QUALITY CORROSION RESISTANT FINISH. ALL FIXTURES SHALL BE SPECIFICALLY DESIGNED FOR OUTDOOR SIGN LIGHTING SERVICE. MAJOR COMPONENTS SHALL INCLUDE WEATHERPROOF CAST ALUMINUM MOUNTING HUBS DESIGNED TO SECURELY LOCK THE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

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

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

## BALLASTS

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



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

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

## BALLASTS

TYPE	MANUFACTURERS		WATTAGE
	G.E.	JEFFERSON	
A	GG 3583	257-151	190
B	GG 3535	257-171	250
C	GG 3585	257-231	250
D	GG 3588	257-181	425

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

BUREAU OF TRAFFIC  
OHIO DEPARTMENT OF HIGHWAYS

ELECTRICAL DETAILS  
FOR EXTERNALLY  
ILLUMINATED SIGNS

EI-2

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

APPROVED *John C. Taylor*  
ENGINEER OF TRAFFIC

# NOTES

## GENERAL

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

## SERVICE

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

SERVICE CONDUCTORS SHALL BE THE SIZE AND TYPE AS SPECIFIED.

## COMBINATION SWITCH AND TRANSFORMER

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

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

## TRANSFORMER

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

## ENCLOSURE

THE ENCLOSURE SHALL BE NEMA #4 WATER TIGHT .063 GAGE STAINLESS STEEL ASTA 302-303. A DISCONNECT HANDLE SHALL BE FLANGE MOUNTED AND CAPABLE OF BEING LOCKED IN EITHER POSITION. THE ENCLOSURE SHALL BE EQUIPPED WITH A DOOR LOCKING MECHANISM WITH A DEFEATER THAT NECESSITATES TWO HANDS TO OPERATE. MECHANISM WITH THE SWITCH IN OFF POSITION. SPACE FOR A 2" INSULATED CHASE NIPPLE SHALL BE PROVIDED APPROXIMATELY 2 1/4" ABOVE THE CENTER LINE OF THE LOWER MOUNTING SLOT. THIS ENCLOSURE AND STRUCTURE SHALL BE FIELD DRILLED AND TAPPED FOR THE REQUIRED NIPPLE AS SHOWN ON THE DETAIL ON THIS SHEET.

THIS ENCLOSURE SHALL BE FLANGE MOUNTED ON BRACKETS WITH 5/16-18x3/4 HEX HEAD CADMIUM PLATED MACHINE BOLTS. ENCLOSURES SHALL BE TYPE Y OR Z AS SPECIFIED AND DIMENSIONED ON THIS SHEET.

## ENCLOSURE MOUNTING BRACKET

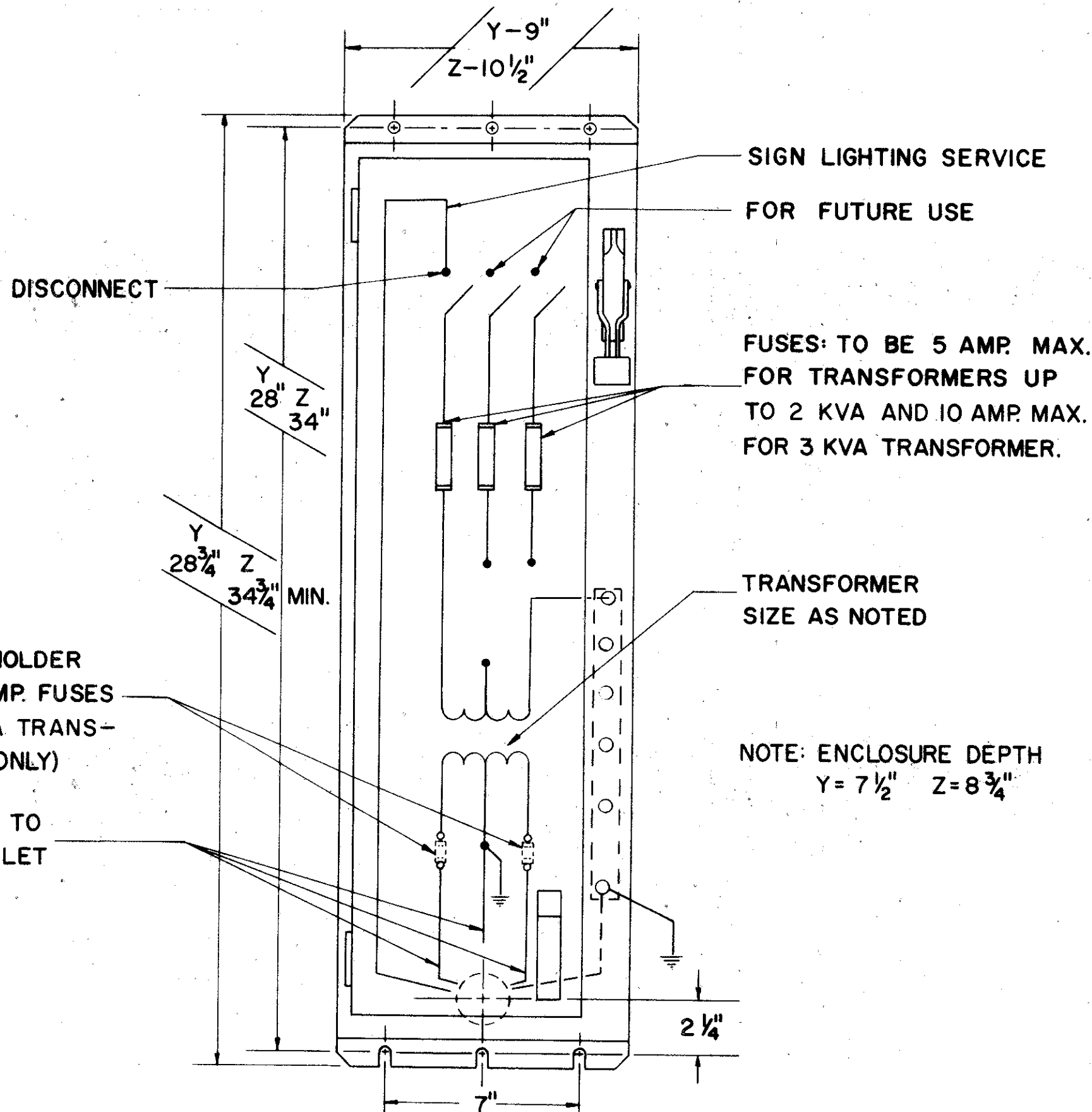
THE ENCLOSURE MOUNTING BRACKET SHALL BE FABRICATED THEN GALVANIZED BEFORE ASSEMBLY. THE BRACKET SHALL BE FIELD MOUNTED WITH 5/16 HEX HEAD SELF TAPPING CADMIUM PLATED SCREWS. THE SIGN SUPPORT SHALL BE FIELD DRILLED, AS PER DETAIL.

## WIRE AND CABLE

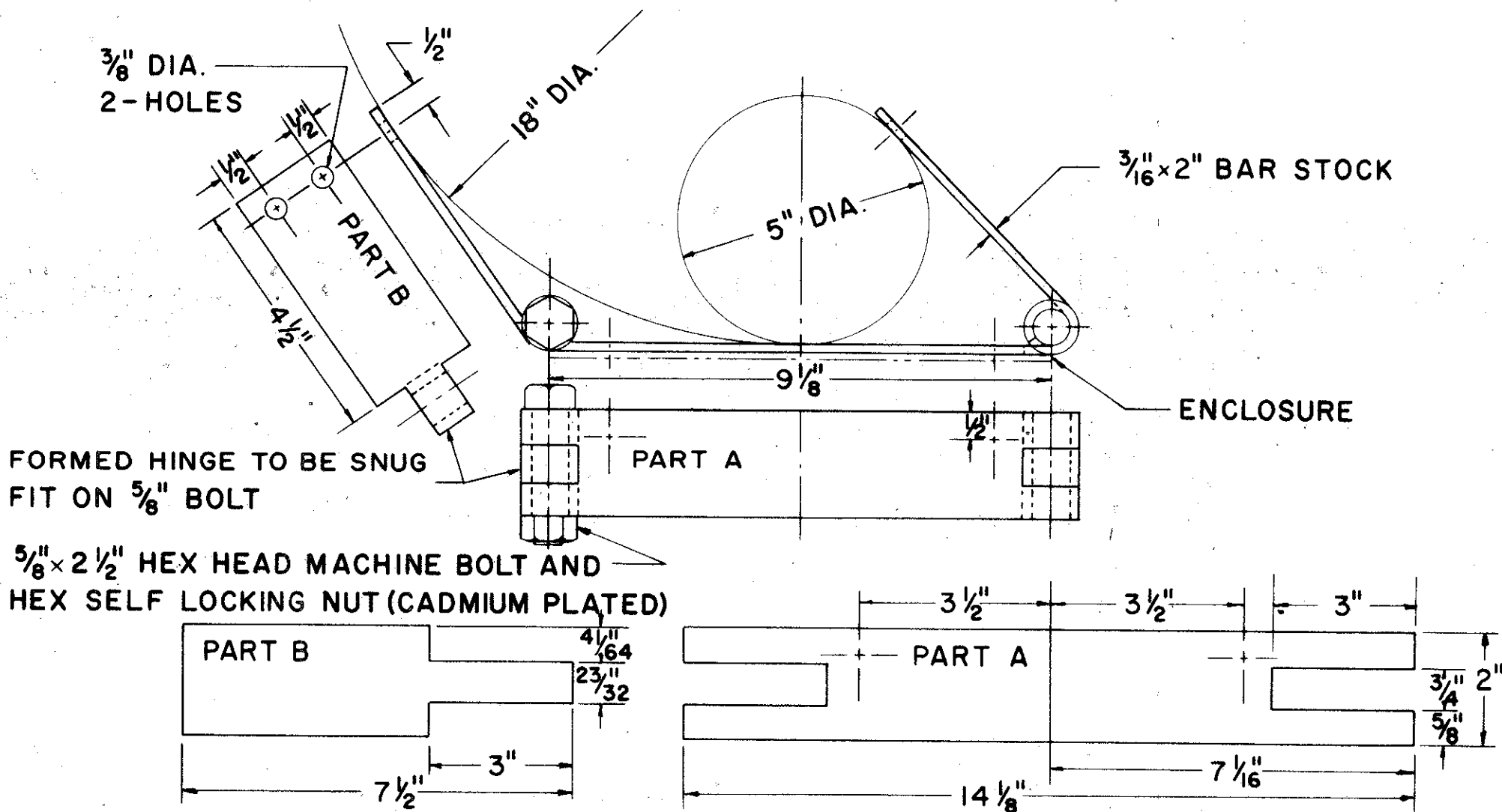
ALL WIRE AND CABLE UP TO AND INCLUDING #4 SHALL COMPLY WITH FAA TYPE A SPECIFICATIONS. #2 OR LARGER WIRE OR CABLE SHALL BE G. E. 58006 OR ANACONDA AP-10711, OR EQUAL. ALL WIRE AND CABLE SHALL BE 600 VOLT.

## GROUNDING

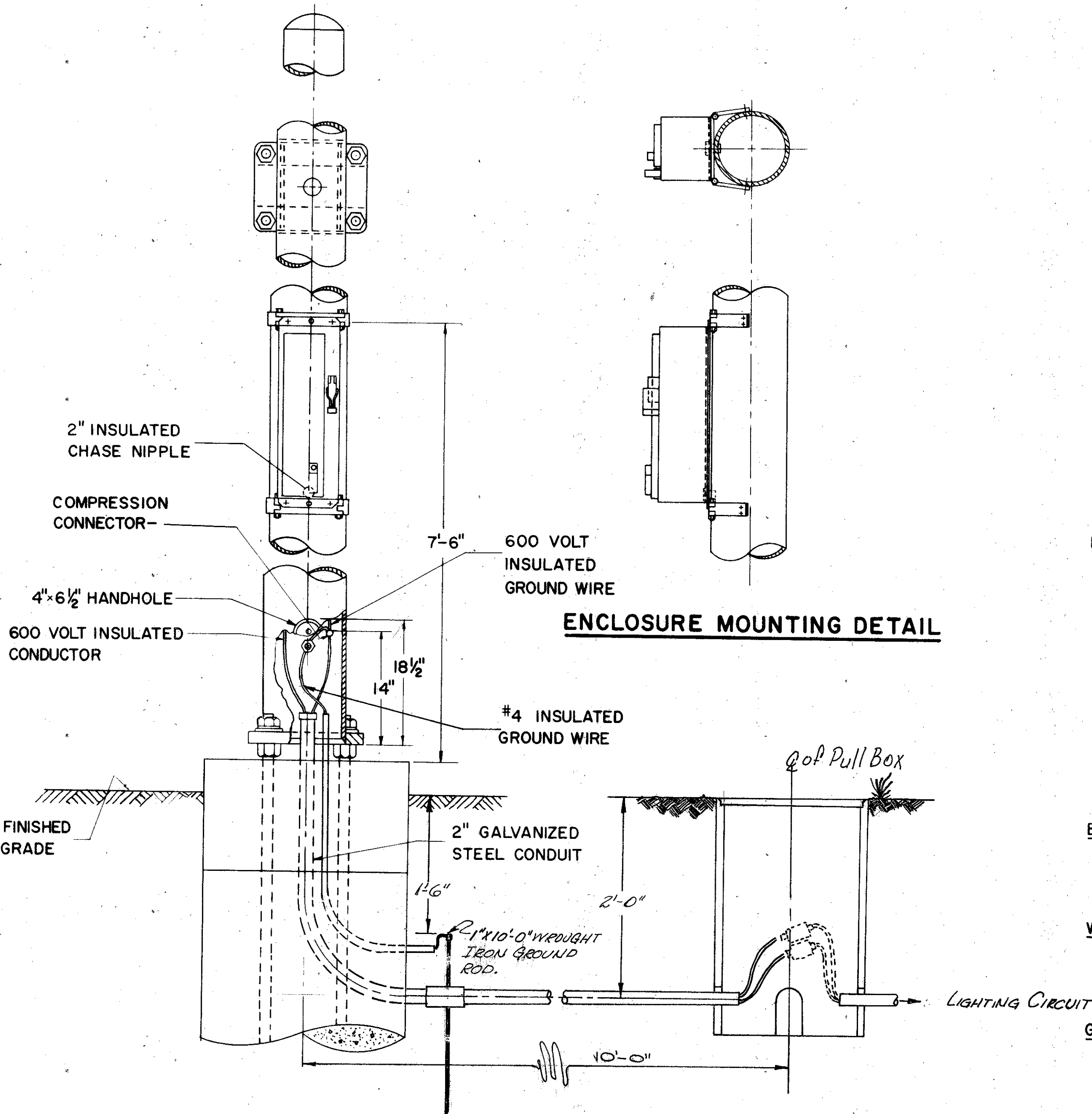
EACH SIGN SUPPORT OR STRUCTURE SHALL BE GROUNDED WITH A #4 RUBBER INSULATION AND NEOPRENE JACKETED CONDUCTOR. THE GROUNDING CONDUCTOR SHALL BE CONNECTED TO THE SWITCH THEN TO THE COMPRESSION CONNECTOR IN THE SIGN SUPPORT THEN TO A 1"x10" WROUGHT IRON GROUND ROD. GROUND CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO GROUND ROD AND THEN TAPED WITH PLASTIC ELECTRICAL TAPE AT EACH EXPOSED PORTION OF CONDUCTOR. THE WELDED CONNECTION AND TAPED PORTION SHALL BE PAINTED 2 COATS OF INSULATING ENAMEL.



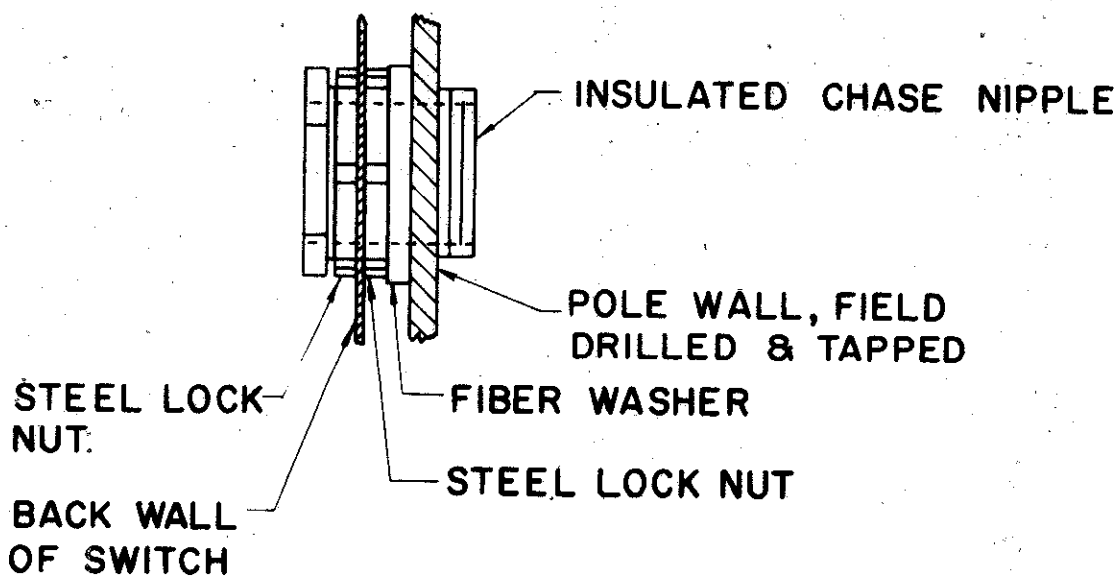
TYPICAL ENCLOSURE DETAIL  
480 VOLT SIGN LIGHTING SERVICE



ENCLOSURE MOUNTING BRACKET



SIGN SUPPORT DETAIL FOR ILLUMINATED SIGNS



NIPPLE ASSEMBLY DETAIL

## TRANSFORMERS

TYPE	MANUFACTURERS	OUTPUT K.V.A.	SWITCH TRANSFORMER ENCLOSURE
I	9T5IY7	244-241	.25 Y
II	9T5IY8	244-251	.50 Y
III	9T5IY9	244-261	.75 Y
IV	9T5IY10	244-401	1.00 Z
V	9T5IY11	244-411	1.50 Z
VI	9T5IY12	244-421	2.00 Z
VII	9T5IY13	244-431	3.00 Z

BUREAU OF TRAFFIC  
OHIO DEPARTMENT OF HIGHWAYS

ELECTRICAL SIGN  
SERVICE DETAILS  
480 VOLT SYSTEM

ES-3A

DATE  
6-18-64  
6-19-67

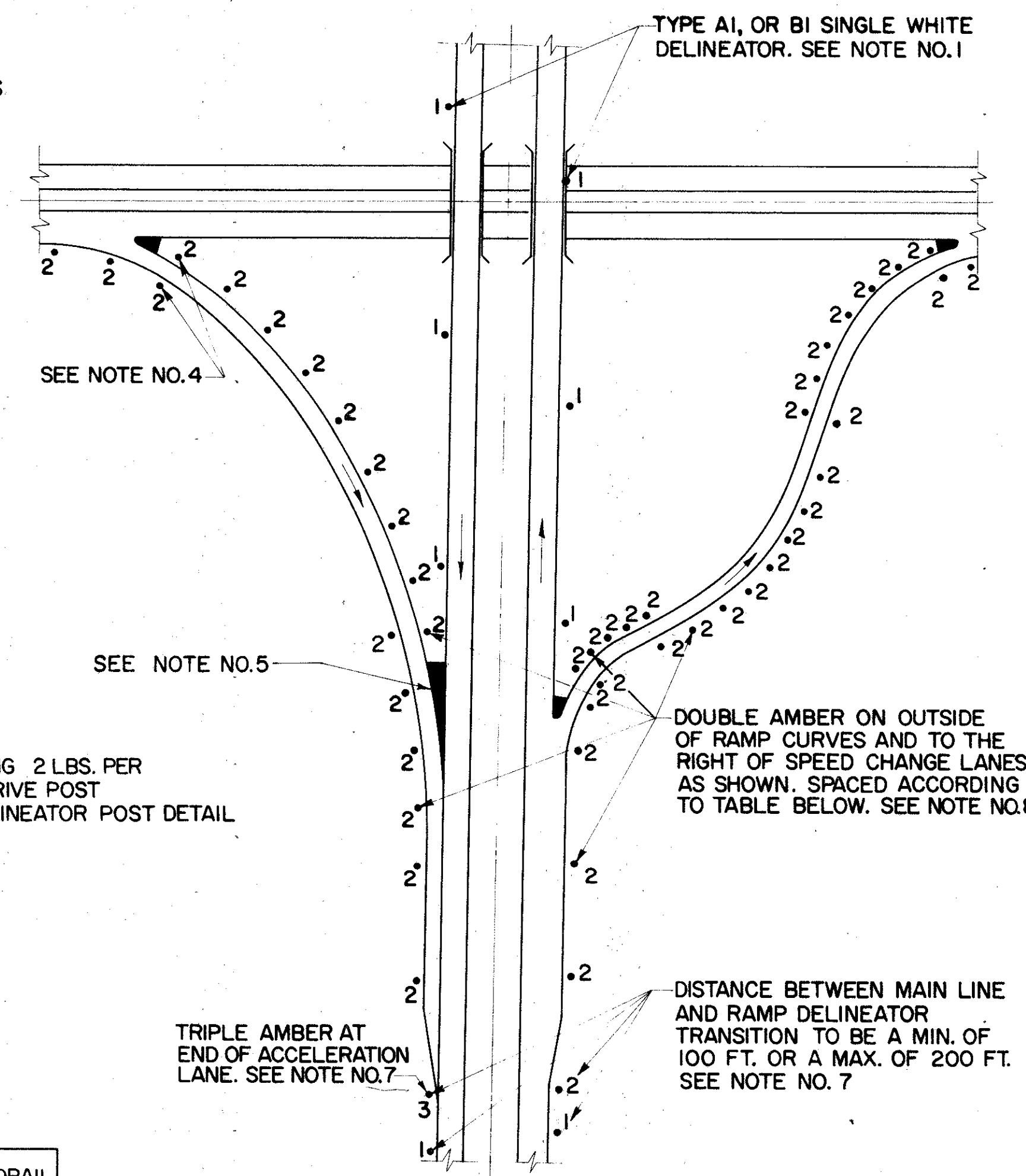
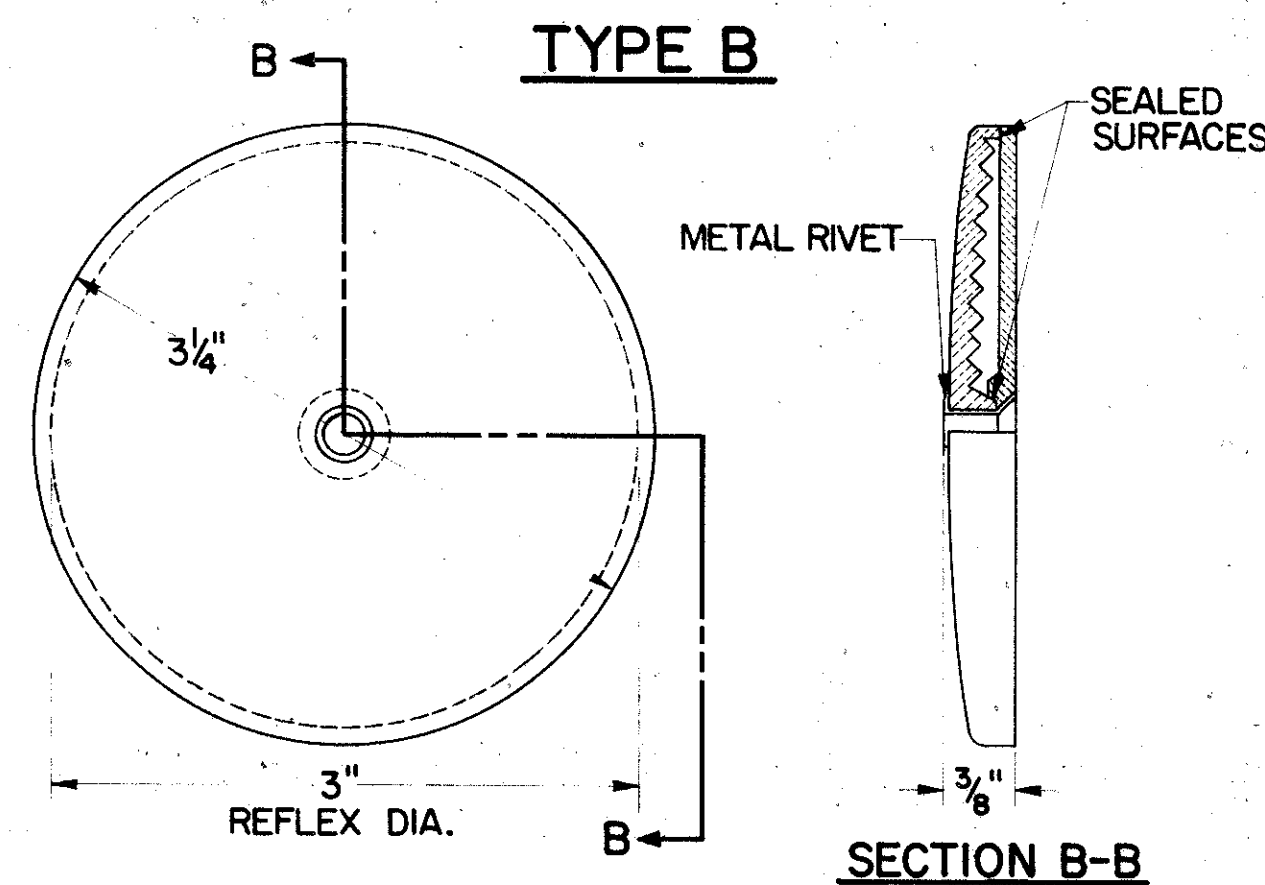
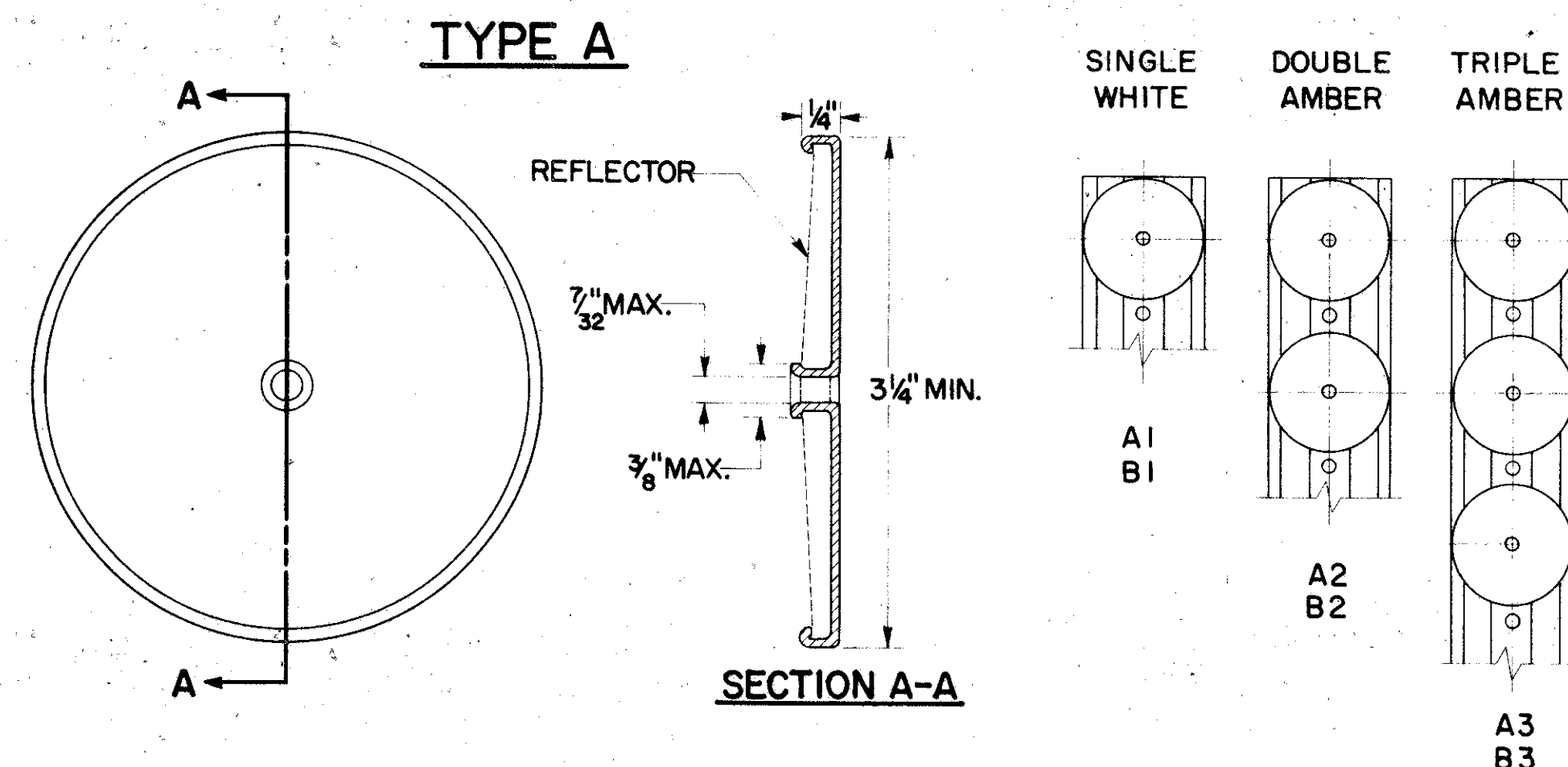
APPROVED  
ENGINEER OF TRAFFIC



JEF-7-23.37

# NOTES

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

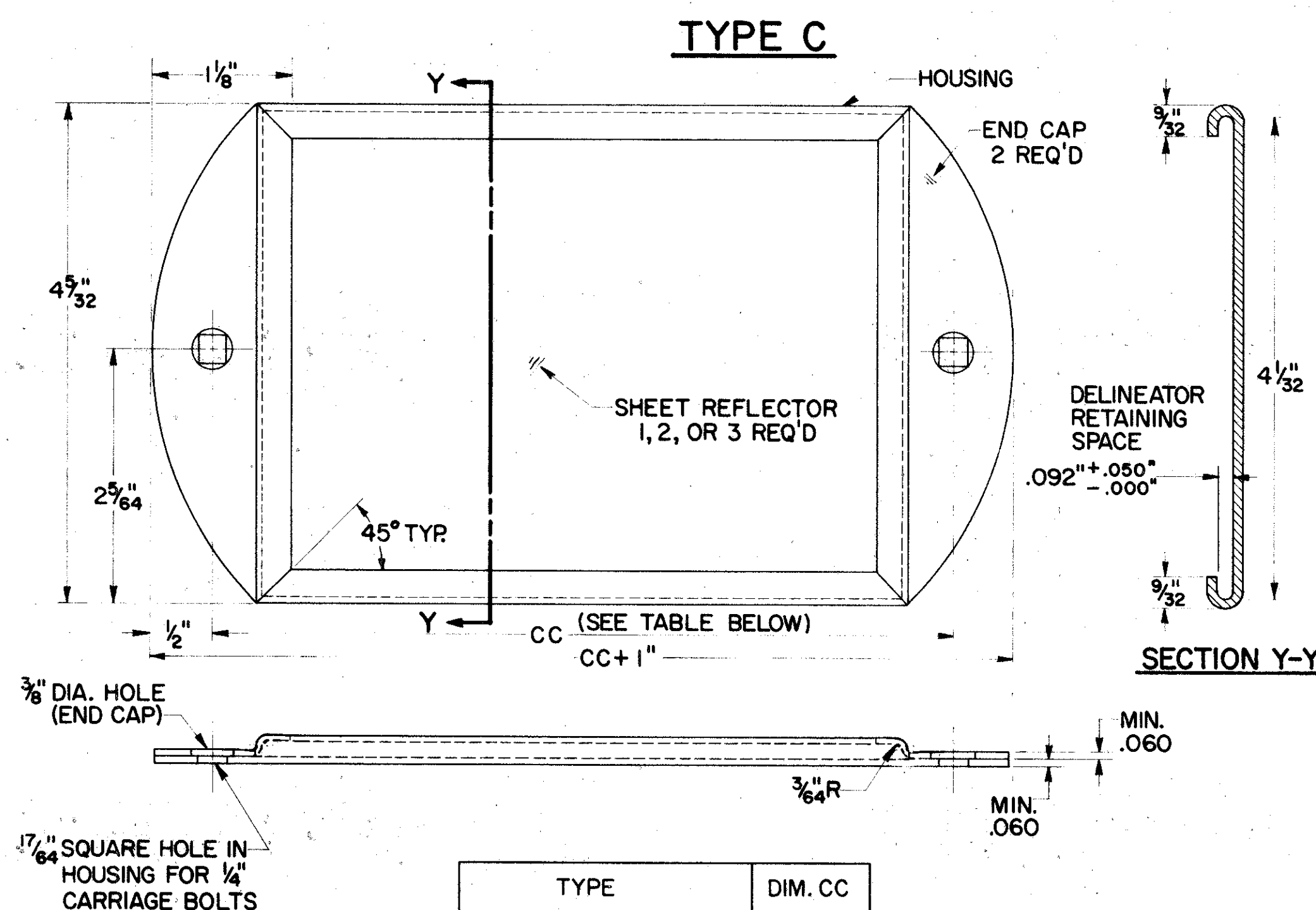


# TYPICAL DELINEATOR PLACEMENT

DELINEATOR SPACING ON RAMP HORIZONTAL CURVES

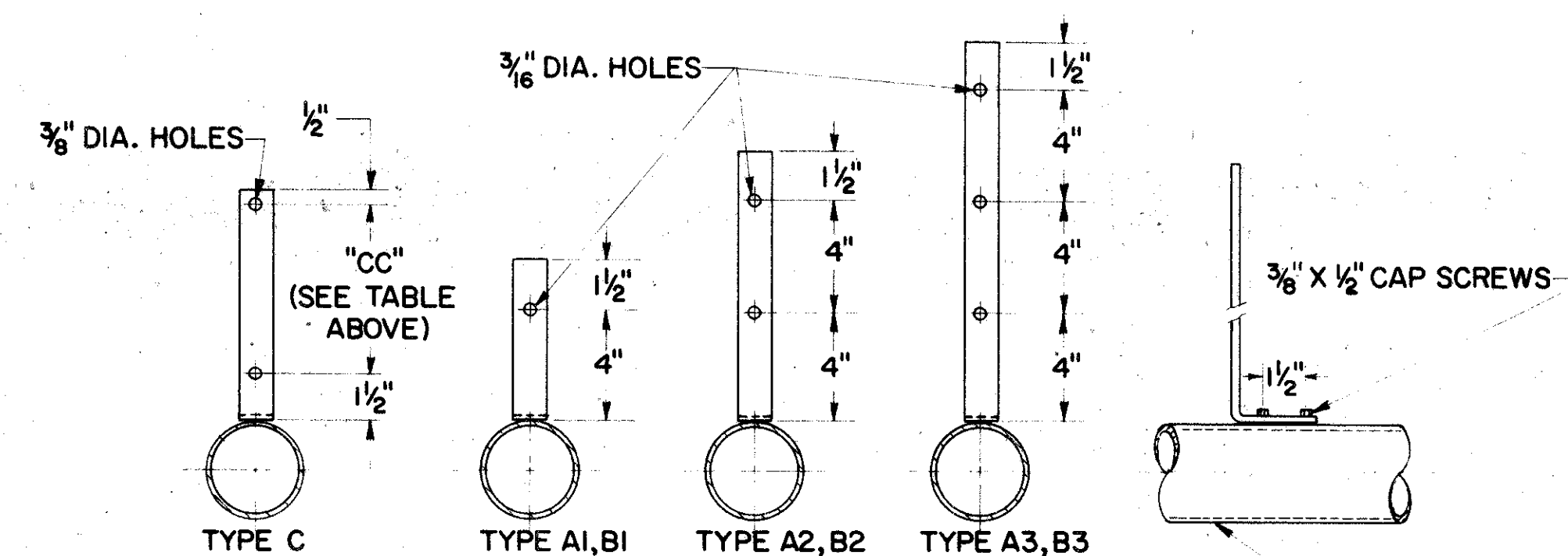
RADIUS, FT.	FROM	TO	SPACING ON CURVE	* TRANSITION SPACING	
TANGENT	1,801		100'	100'	100'
1,800	1,401		80'	100'	100'
1,400	1,001		70'	100'	100'
1,000	751		60'	100'	100'
750	551		50'	80'	100'
550	326		40'	70'	100'
325			30'	60'	100'

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



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

ALL BRACKETS 1/4" X 1/4" STAINLESS STEEL



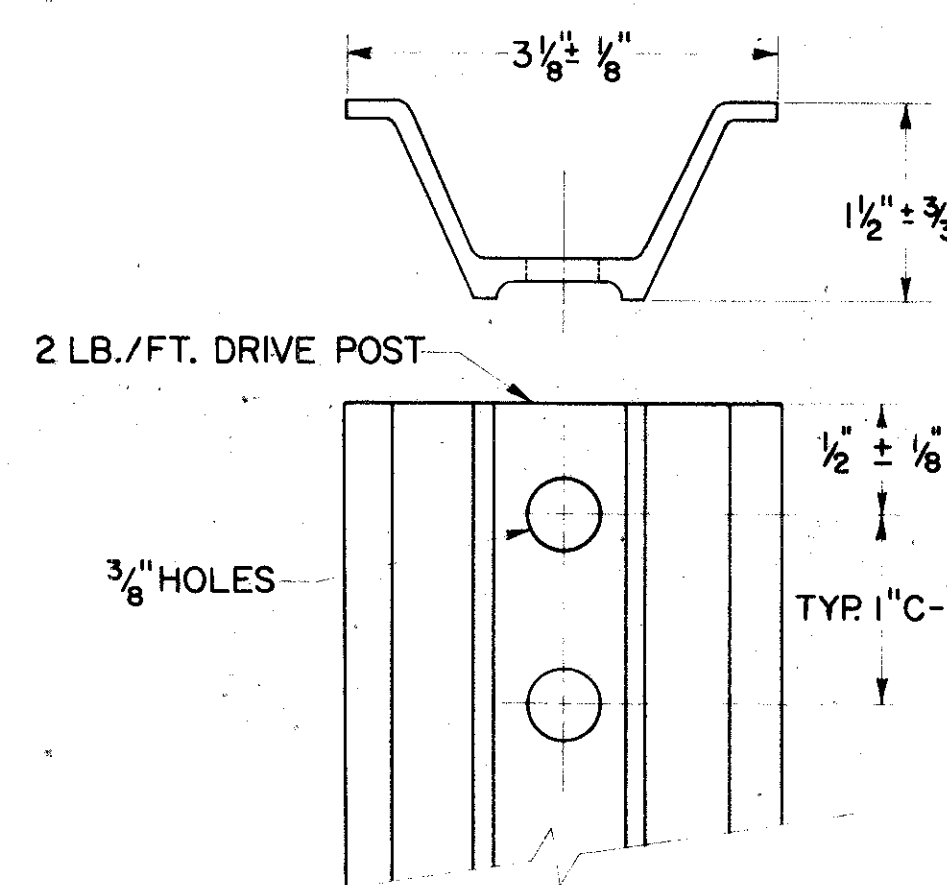
# BRIDGE RAIL BRACKET

# LATERAL PLACEMENT OF DELINEATORS

\* TABLE

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

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

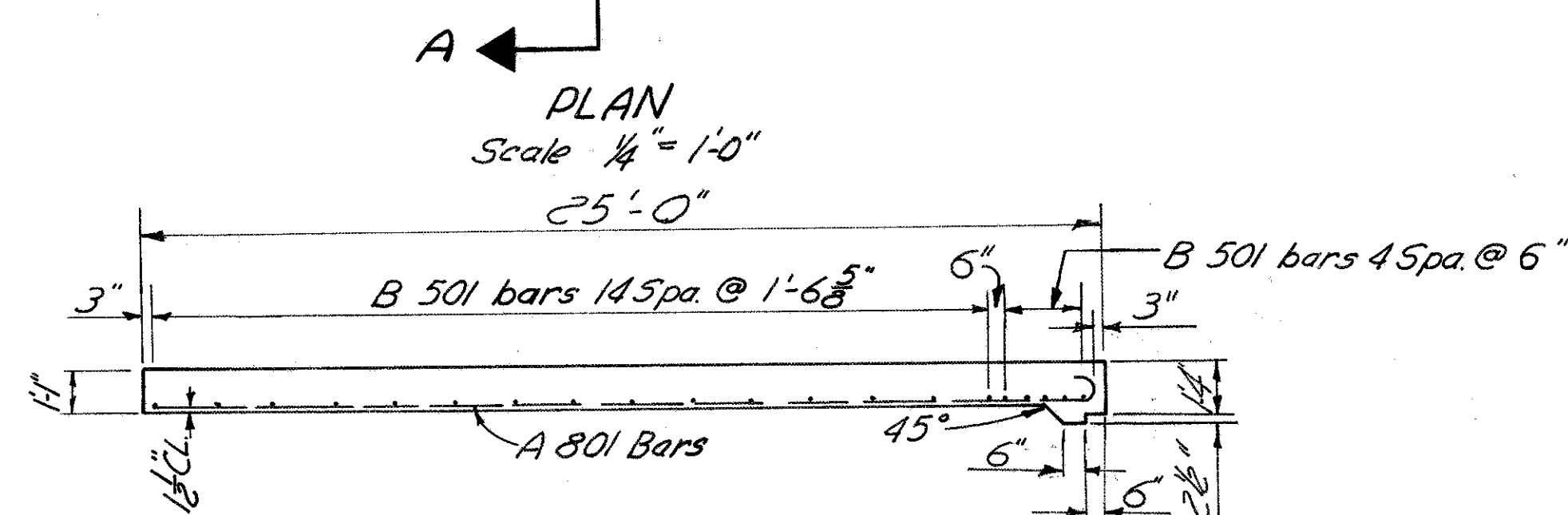
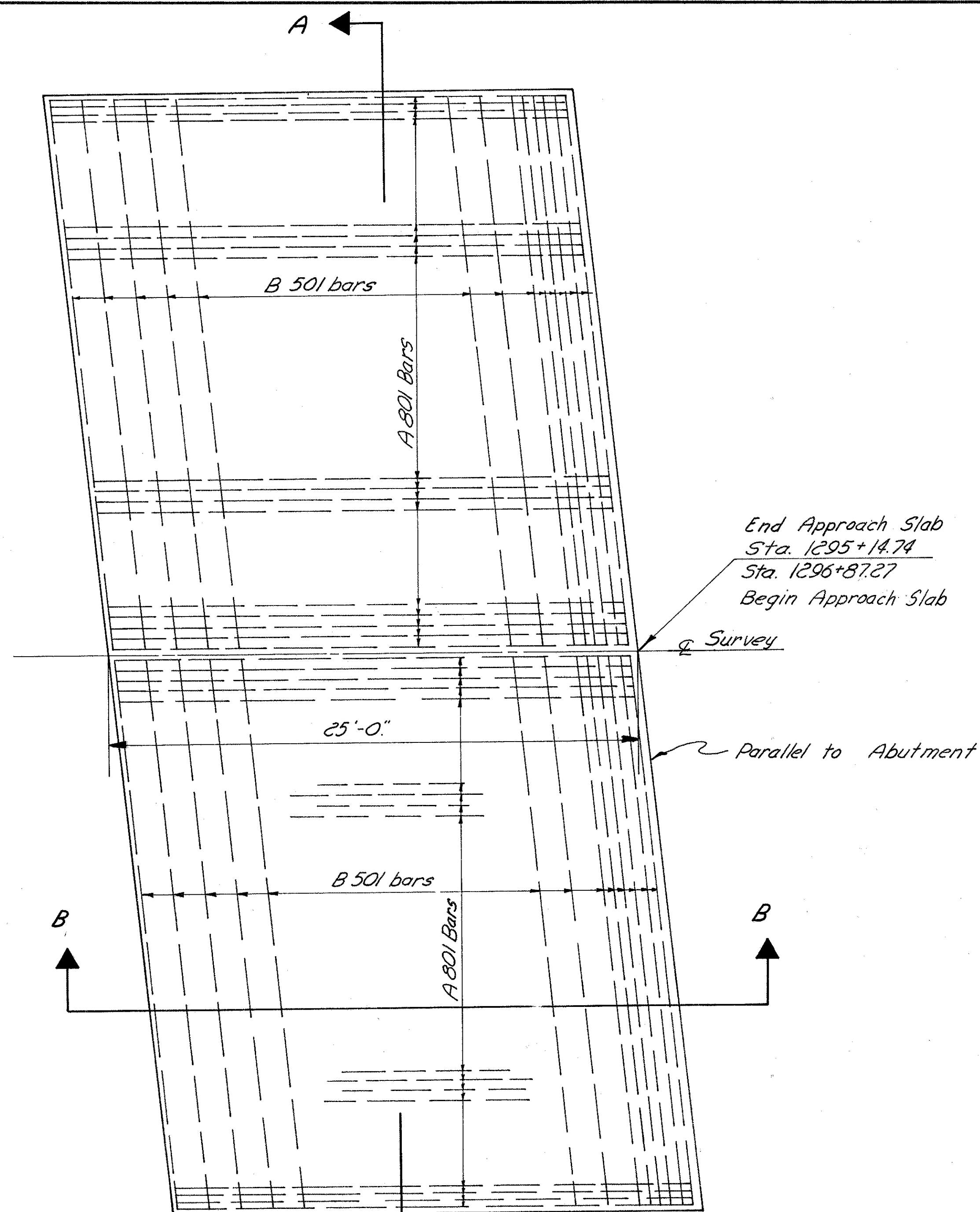


# DELINEATOR POST

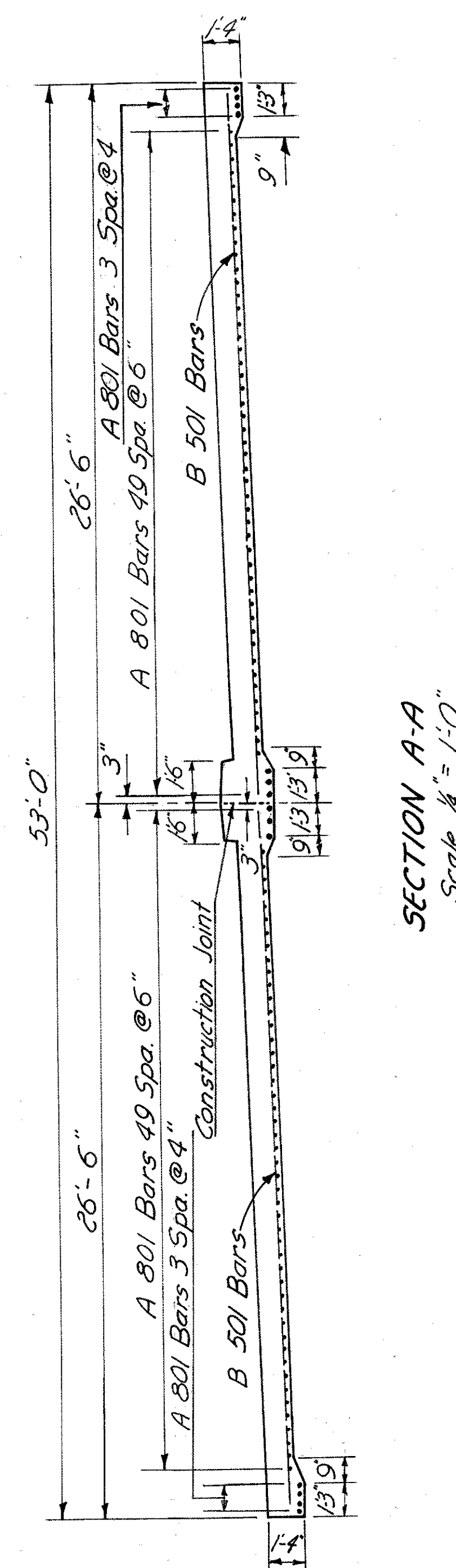




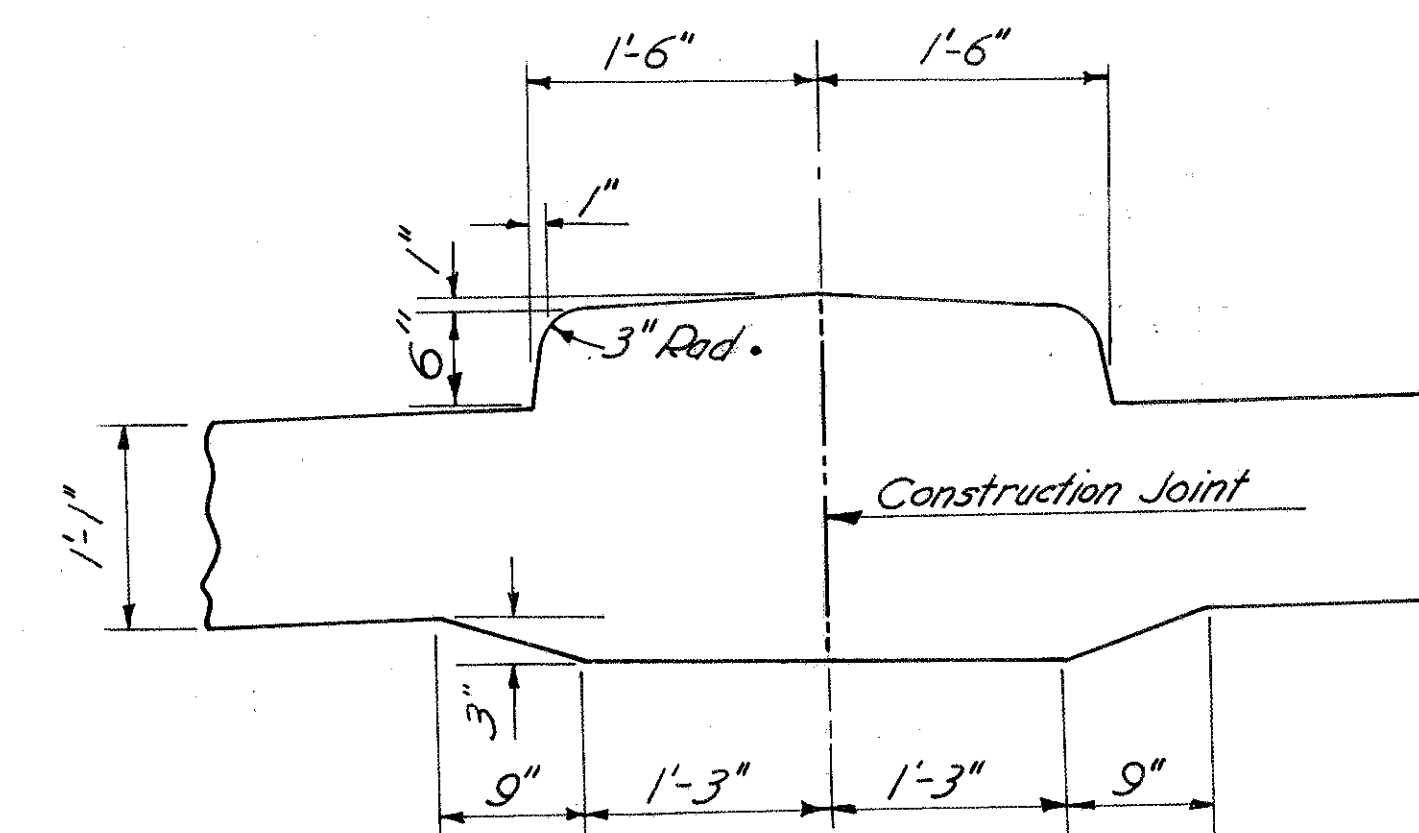
JEF-7-23.37



SECTION B-B  
Scale 1/4" = 1'-0"



SECTION A-A  
Scale 1/4" = 1'-0"



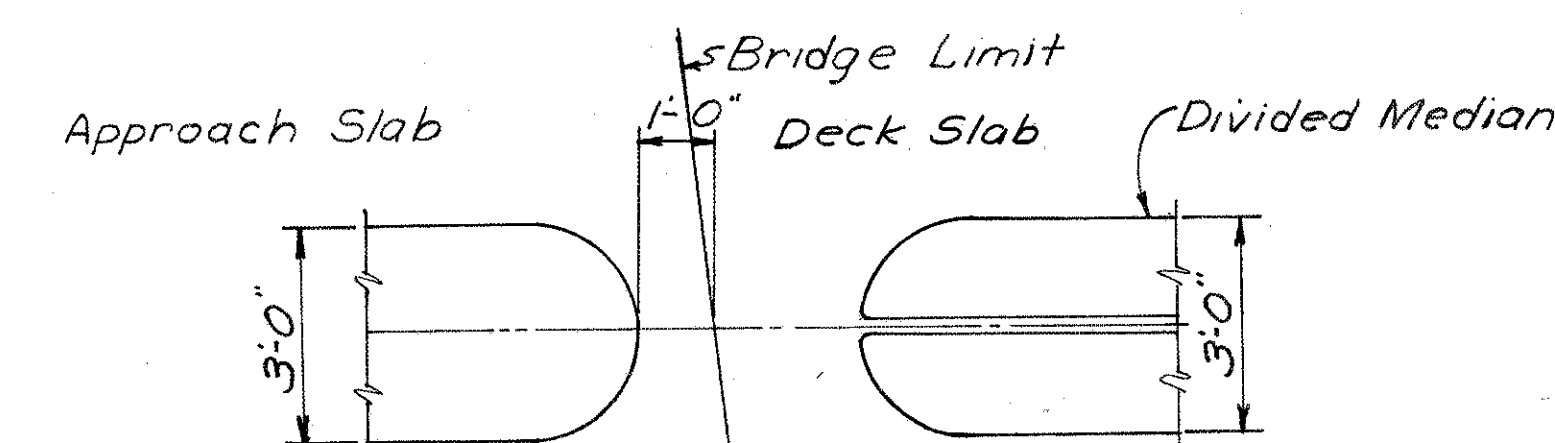
DETAIL OF RAISED MEDIAN  
Scale 1" = 1'-0"

STEEL LIST				
Mark	Size	Length	Dimension	No.
A 801	1" $\phi$	25'7"	24'-6"	108
B 501	3/8" $\phi$	26'0"		40

Note: Steel list is for one Approach Slab.

#### QUANTITIES

Sta. 1294+89.74 to Sta. 1295+14.74 147.2 Sq. Yds.  
Sta. 1296+87.27 to Sta. 1297+12.27 147.2 Sq. Yds.



PLAN OF MEDIAN ENDINGS

AS 1

&amp;

AS 2

#### NOTES

- Details shown are for Approach Slab Sta. 1294+89.74 to Sta. 1295+14.74. Approach Slab Sta. 1296+87.27 to Sta. 1297+12.27 is opposite and details are similar.
- For other typical details not shown see Standard Drawing No. AS-1-54.
- Payment for thickened part of Median shall be included in price bid per Sq. Yd. of Approach Slab.

BRIDGE NO. JEF-7-2449

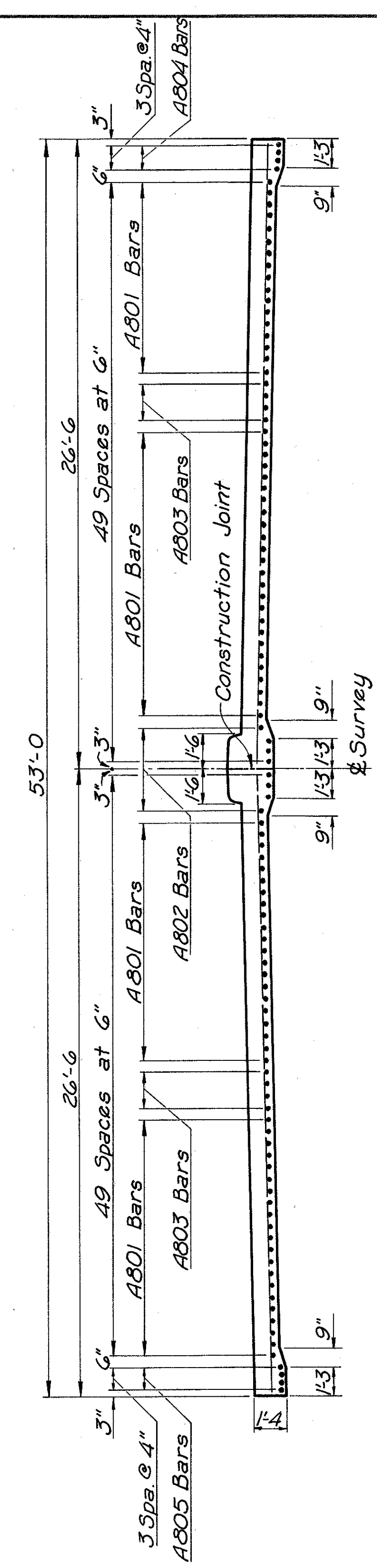
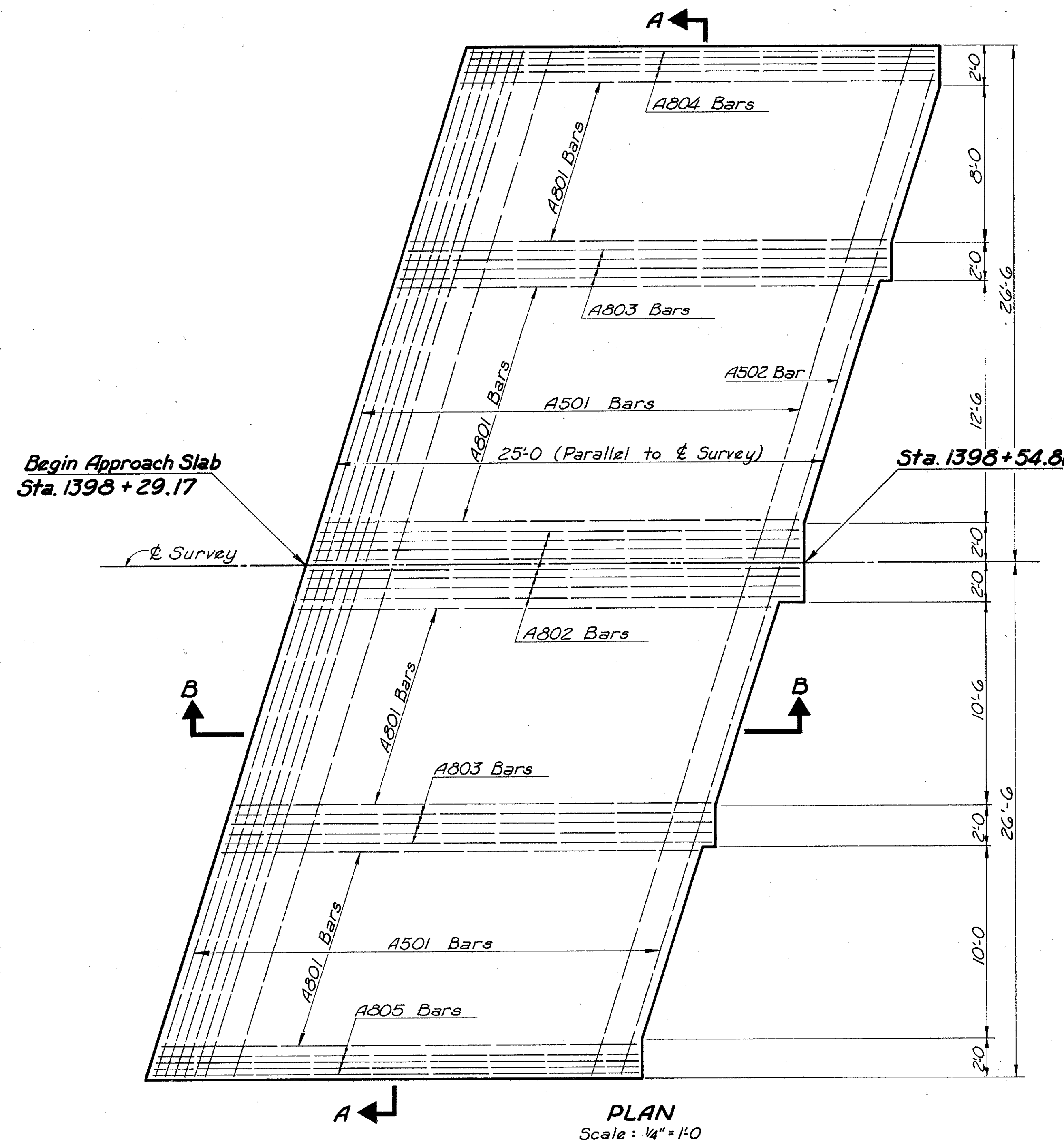
### APPROACH SLAB DETAILS

Sta. 1294+89.74 to Sta. 1295+14.74  
Sta. 1296+87.27 to Sta. 1297+12.27





JEF - 7-23.37



REINFORCING STEEL					Series
Mark	Dia.	Dim "A"	Length	No.	Increments
A801	1"φ	24'-6"	25'-7"	84	
A802	1"φ	24'-7" to 25'-9"	25'-8" to 26'-10"	1 Series of 8	2"
A803	1"φ	24'-7" to 25'-1"	25'-8" to 26'-2"	2 Series of 4	2"
A804	1"φ	24'-0" to 24'-3"	25'-1" to 25'-4"	1 Series of 4	1"
A805	1"φ	24'-9" to 25'-0"	25'-10" to 26'-1"	1 Series of 4	1"
A501	5/8"φ		27'-4"	39	
A502	5/8"φ		25'-4"	1	



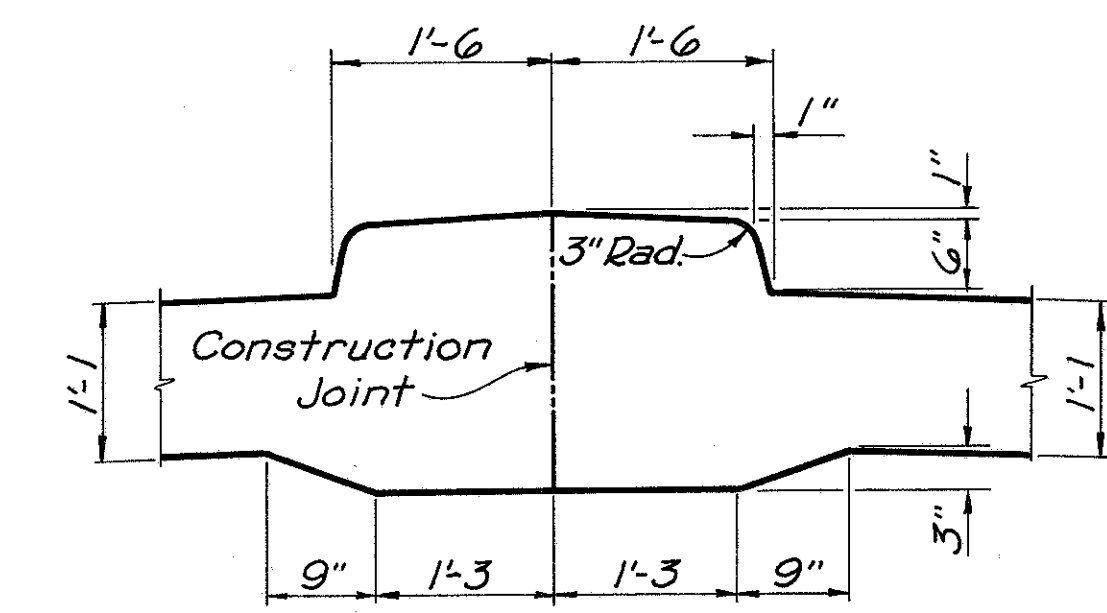
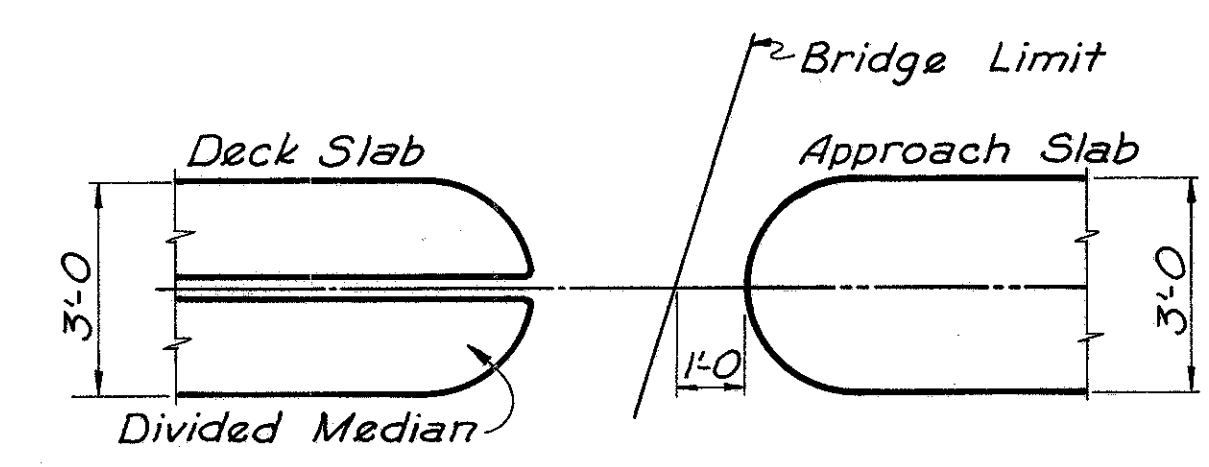
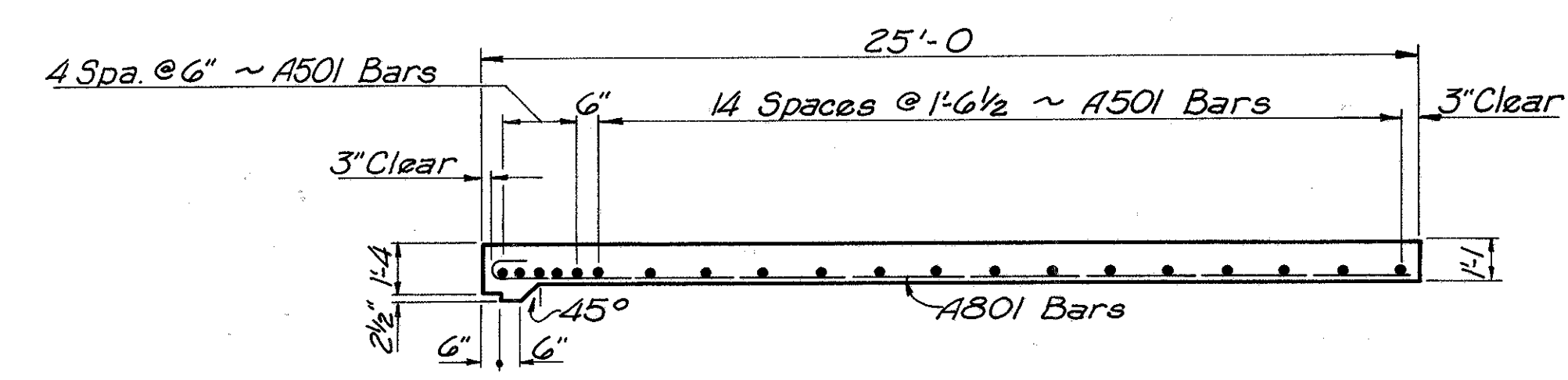
Note: Steel List is for one Approach Slab only.

### NOTES

- Details shown are for Approach Slab Sta. 1398+29.17 to Sta. 1398+54.81. Approach Slab Sta. 1396+84.82 to Sta. 1397+10.46 is opposite and details are similar.
- For other typical details not shown, see Std. Dwg. AS-1-54.
- Payment for thickened part of median shall be included in price bid per Sq. Yd. of Approach Slab.
- Sawed Joints shall be provided between all lanes for all Approach Slabs as per Std. Dwg. BP-3.

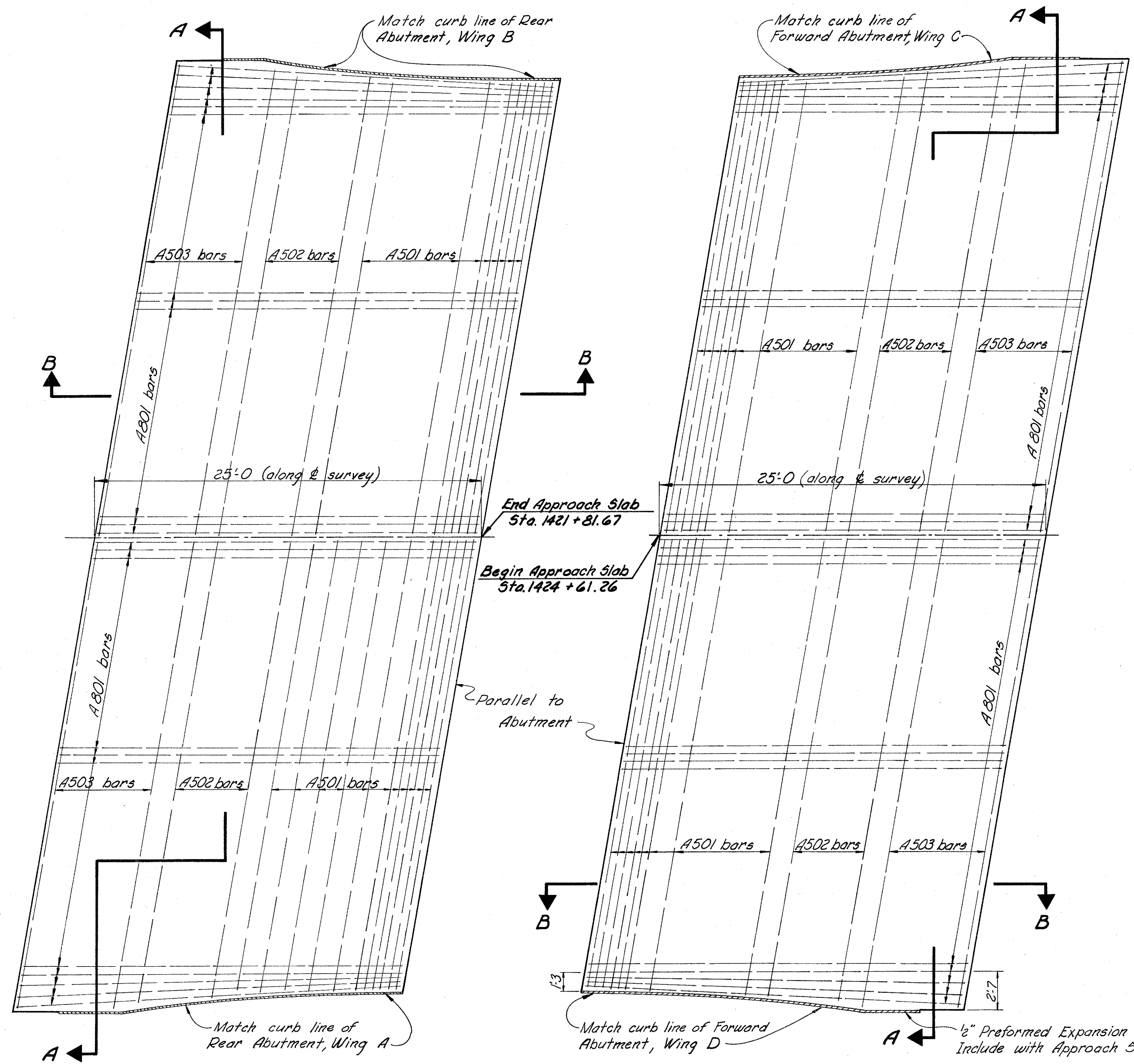
### QUANTITIES

Sta. 1396+84.82 to Sta. 1397+10.46 ..... 150.0 Sq. Yds.  
Sta. 1398+29.17 to Sta. 1398+54.81 ..... 150.0 Sq. Yds.



AS 5 & AS 6

**BRIDGE NO. JEF-7-2642**  
**APPROACH SLAB DETAILS**  
Sta. 1396+84.82 to Sta. 1397+10.46  
Sta. 1398+29.17 to Sta. 1398+54.81

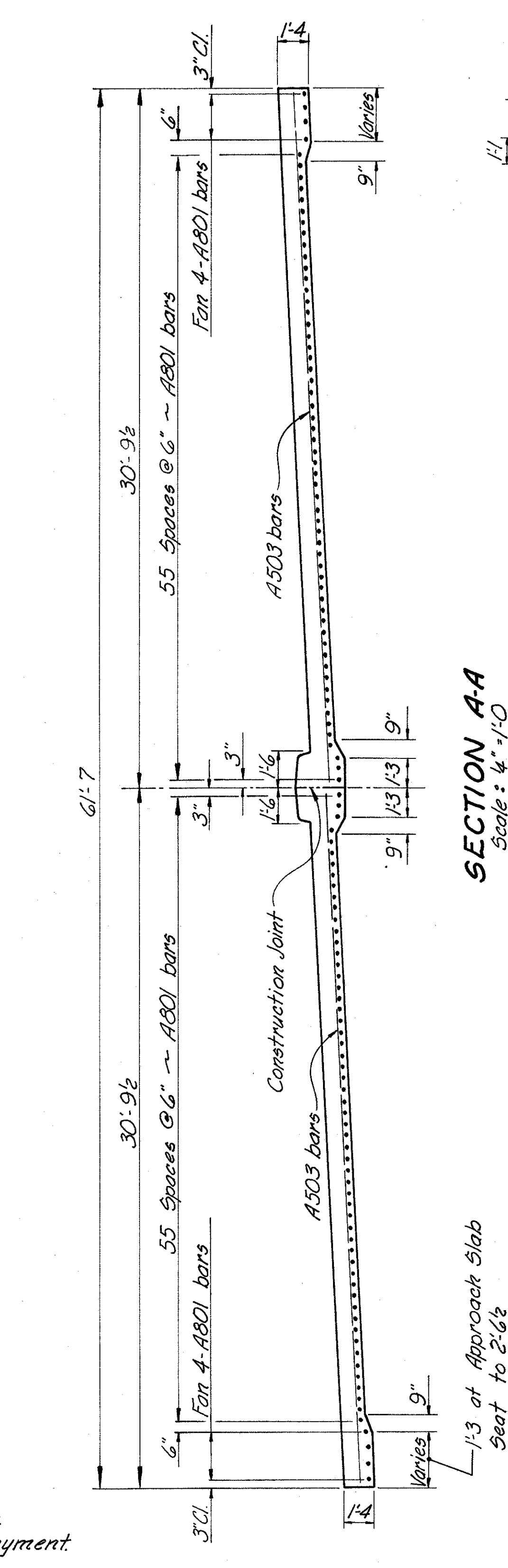


PLAN  
Scale: 4"=1'-0"

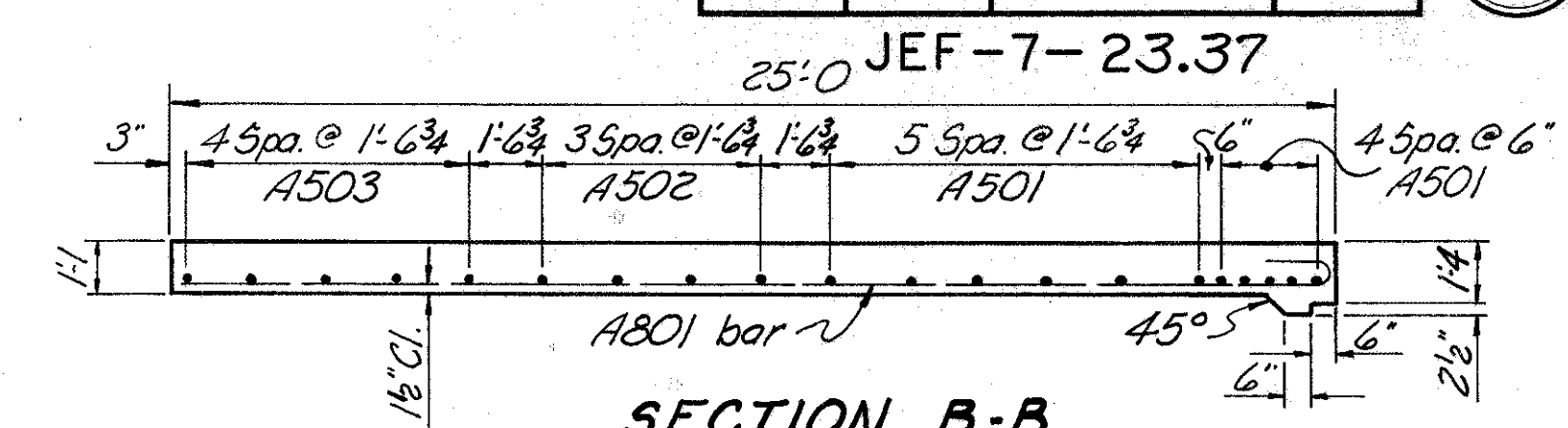
AS  
9

PLAN  
Scale: 4"=1'-0"

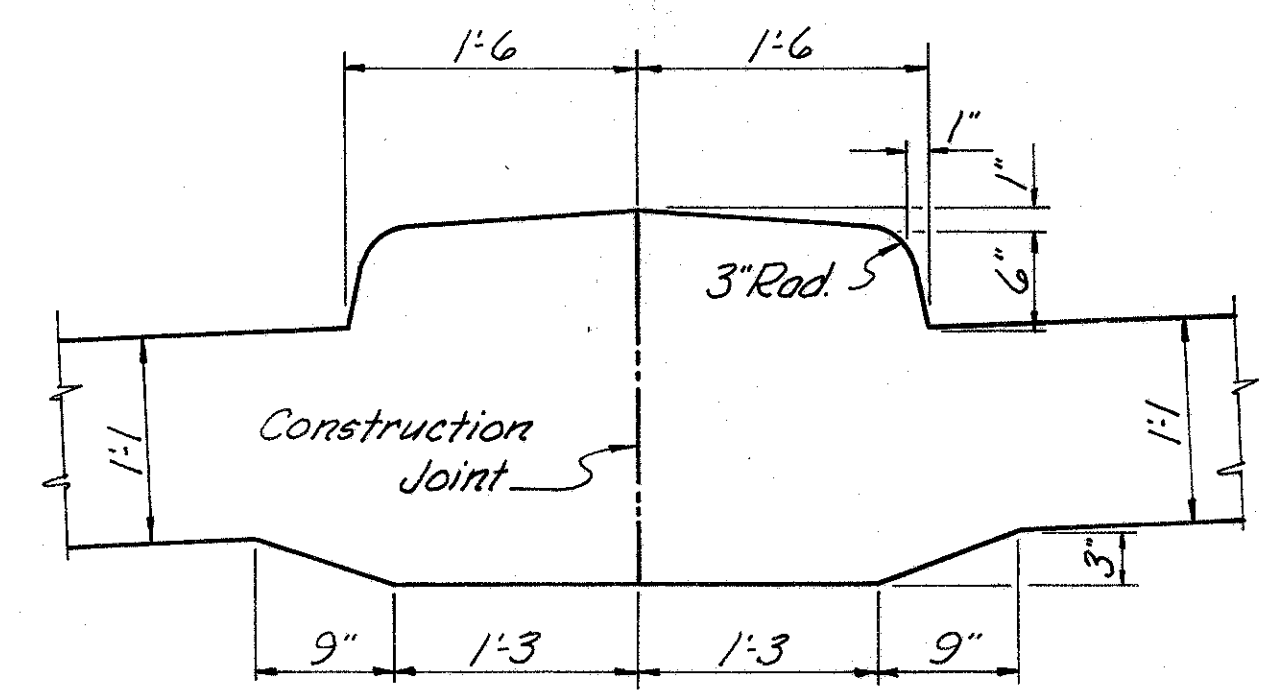
AS  
10



SECTION A-A  
Scale: 4"=1'-0"



SECTION B-B  
Scale: 4"=1'-0"



DETAIL OF RAISED MEDIAN  
Scale: 1"=1'-0"

STEEL LIST				
Mark	Size	Length	Dim. "A"	No.
A801	1" $\phi$	25'-7"	24'-6"	240
A501	5/8" $\phi$	29'-6"	—	44
A502	5/8" $\phi$	30'-0"	—	16
A503	5/8" $\phi$	30'-9"	—	20

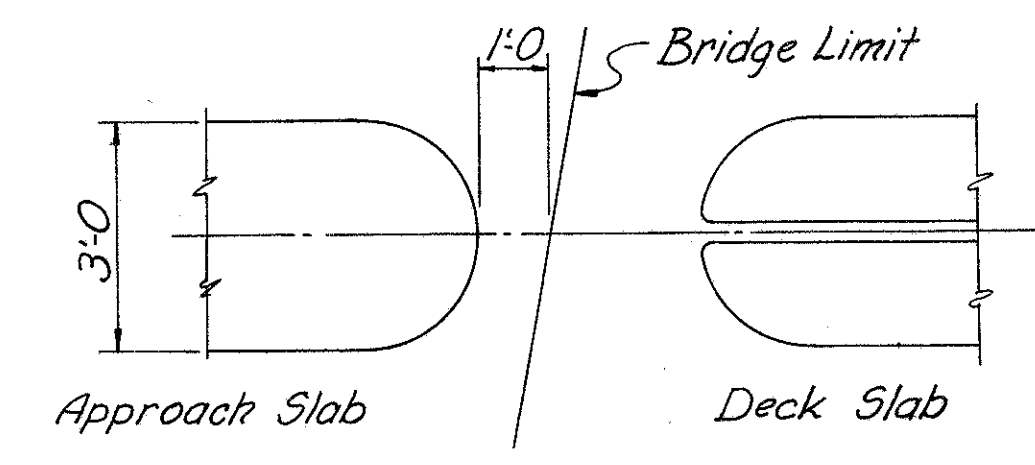
Dimension "A" %

### NOTES

- For other typical details not shown, see Standard Drawing No. AS-1-54.
- Payment for thickened part of Median shall be included in bid price per Sq. Yd. of Approach Slab.
- Sawed joints shall be provided between all lanes for all approach slabs as per Std. Dwg. BP-3.

### QUANTITIES

Sta. 1421+56.67 to Sta. 1421+81.67 = 166.0 Sq. Yds.  
Sta. 1424+61.26 to Sta. 1424+86.26 = 166.0 Sq. Yds.



PLAN OF MEDIAN ENDINGS

AS  
9

&

AS  
10

BRIDGE NO. JEF-7-2689

## APPROACH SLAB DETAILS

Sta. 1421+56.67 to Sta. 1421+81.67  
Sta. 1424+61.26 to Sta. 1424+86.26



JEFFERSON COUNTY  
JEF-7-23.37  
0.53± Mile West of Toronto

CURVE DATA SR 7  
 $\Delta = 31^{\circ}50'59''$  Rt  
 $D_c = 1^{\circ}28'$   
 $L_c = 2171.57'$   
 $R = 3906.53'$   
 $T = 1114.64'$   
 P.I. Sta. 1298 + 94.46

B.M.: Mine spike in power pole, Ohio Power Co. No. 7080, intersection Jeddo Run Rd and CR 46, ELEV. 738.74

CURVE DATA CR 46  
 $\Delta = 28^{\circ}06'37''$  Lt  
 $D_c = 3^{\circ}00'$   
 $L_c = 737.00'$   
 $T = 578.34'$   
 $R = 1909.86'$   
 $L_s = 200'$

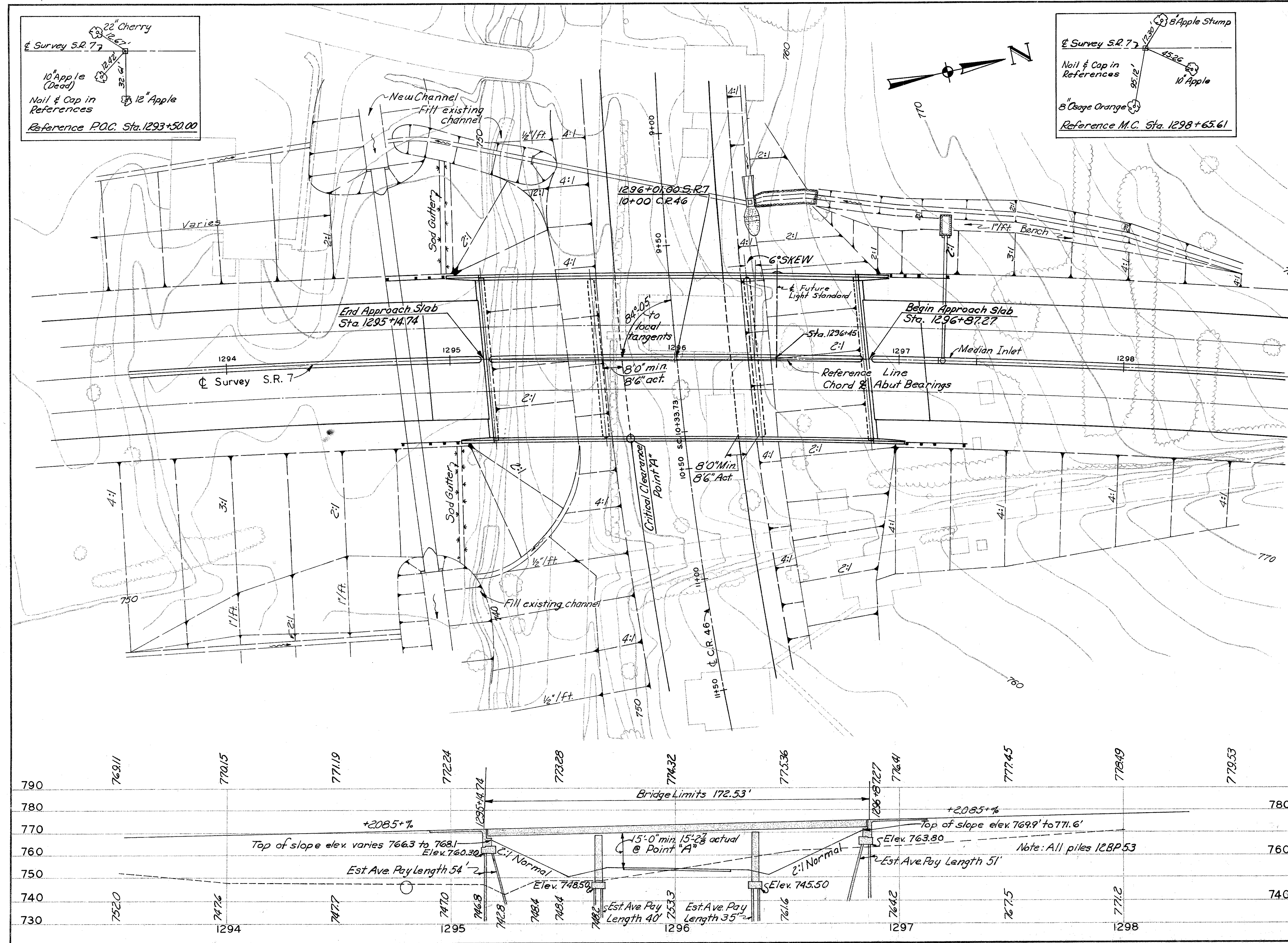
SR 7-1980 ADT 9520  
CR 46-1980 ADT 5640

**PROPOSED STRUCTURE**  
 TYPE: Continuous steel beams with reinforced concrete deck and substructure.  
 SPANS: 49'-70'-49'  
 ROADWAY: 71'-0" f/f 1-0 safety curbs with 3'-0 raised median.  
 LOAD FREQUENCY: CF-2000 (57)  
 SKEW: 6° R.F. (with reference line)  
 WEARING SURFACE: 1" monolithic  
 APPROACH SLABS: AS-1-54 modified, 25' long  
 ALIGNMENT: 1°-28' Curve Rt  
 SUPERELEVATION: 0.036 f/f

W.E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

**SITE PLAN**  
**BRIDGE NO. JEF-7-2449**  
 S.R. 7 OVER C.R. 46  
 JEFFERSON COUNTY STA. 1295 + 14.74  
 " 1296 + 87.27

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
Kucera	D.D.M.	D.L.M.	W.D.A.	W.D.A.	D.L.M.



22" Cherry  
 10" Apple (Dead)  
 Nail & Cap in References  
 Reference P.O.C. Sta. 1293 + 50.00

Survey S.R. 7  
 Nail & Cap in References  
 8" Orange  
 Reference M.C. Sta. 1298 + 65.61





JEFFERSON COUNTY  
JEF-7-23.37

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Abuts.	Piers	Super	Gen'l.		
503	545	Cu. yds.	Unclassified excavation	395	150				
511	405	Cu. yds.	Class "C" concrete, superstructure			405			
511	128	Cu. yds.	Class "C" concrete, pier caps and columns		128				
511	285	Cu. yds.	Class "E" concrete, abutments	285					
511	82	Cu. yds.	Class "E" concrete, pier footings		82				
509	67,072	Lbs.	Reinforcing steel	18,135	38,718	110,917			
513	321,100	Lbs.	Structural steel			321,100			
514	321,100	Lbs.	Field painting of structural steel			321,100			
517	390.31	Lin. ft.	Aluminum Railing, Type I	50.29		340.02			
505	Lump	Sum	First test pile				Lump		
507	3945	Lin. ft.	Steel piles, 12BP53	1995	1950				
518	65	Cu. yds.	Porous backfill	65					
518	18	Each	Scuppers, including supports			18			
518	136	Lin. ft.	6" perforated helical C.M.P. including specials (707.06)	136					
518	100	Lin. ft.	6" non-perforated helical C.M.P. (707.06)	100					
512	16	Lin. ft.	Waterproofing, premolded sealing strip	16					
625			Lighting details & quantities, see sheets						
601	794	Sq. yds.	Crushed aggregate slope protection	794					
825	1614	Sq. yds.	Concrete surface treatment				1614		
828	142	Lin. ft.	Joint sealer (end dams)			142			
808	405	Units	Water-reducing, set-retarding admixture			405			

GENERAL NOTES

REFERENCE shall be made to Standard Drawings SD-1-65, dated 11-8-65, FSB-1-62, revised 1-15-63, and BR-1-65, revised 11-24-65, and to Supplemental Specifications 808, dated 1-13-67, and 811, 825 & 828 dated 1-1-67 and to Std. Dwg. AS-1-54, revised 8-10-65.

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 embankment for the Rear Abutment 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 abutment, after which excavation shall be made for the abutment and piles driven.

The embankment for the Forward Abutment shall be placed and compacted up to the top of the finished spill-thru slope after which excavation shall be made for the abutment and piles driven.

EXCAVATION QUANTITY includes the removal of fill material required for the 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 of rock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Item 507.05 is not less than the following value for a pile hammer of the indicated energy rating:

For the abutment piles:  
48 tons per pile using an 11,000 ft. lb. hammer  
42 tons per pile using a 15,000 ft. lb hammer

For the pier piles:  
50 tons per pile using an 11,000 ft. lb. hammer  
45 tons per pile using a 15,000 ft. lb. 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 37 tons per pile for the abutment piles and 40 tons per pile for the pier piles.

DESIGN INFORMATION:

Design Loading----- CF 2000 (57)  
Concrete Class "C"----- Basic unit stress, 1,333 p.s.i.  
Concrete Class "E"----- Basic unit stress, 1,133 p.s.i.  
Structural Steel ----- ASTM A36 - Basic unit stress 20,000 p.s.i.  
Reinforcing Steel ----- ASTM A15, A16, and A160 - Deformed, Intermediate or Hard Grade. Basic unit stress 20,000 p.s.i. except spiral reinforcement may be plain Structural Grade with a basic unit stress of 18,000 p.s.i.

MACHINE FINISH: At the Contractor's option, the concrete deck may be finished by the use of a finishing machine.

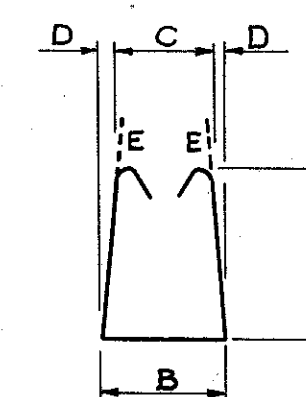
MAINTENANCE AND PROTECTION OF TRAFFIC: Two lanes of traffic with a minimum horizontal width of 26'-0" shall be maintained on C.R. 46 at all times. The Contractor shall safeguard the traveling public by providing platforms, nets or other suitable protection above the traveled lanes. A minimum vertical clearance of 12'-9" shall be provided at all times.

UTILITY LINES: All expense involved in relocating the affected utility lines shall be borne by the owners. The Contractor and the Owners are requested to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum.

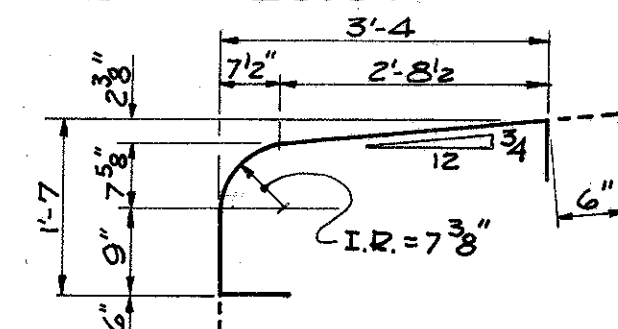
ELEVATIONS - TOP OF DECK SLAB

Station	Profile Grade	C Rounding	Median Curb Line		Curb Line	
			Lt.	Rt.	Lt.	Rt.
1295 + 13.07	772.51	—	—	—	773.25	—
1295 + 13.51	772.52	773.48	—	—	—	—
1295 + 15.89	772.57	—	772.59	—	—	—
1295 + 16.12	772.58	—	—	772.60	—	—
1295 + 18.98	772.63	—	—	—	—	771.43
1295 + 25	772.76	773.72	772.78	772.78	773.50	771.56
1295 + 50	773.28	774.24	773.30	773.30	774.02	772.08
1295 + 75	773.80	774.76	773.82	773.82	774.54	772.60
1296 + 00	774.32	775.28	774.34	774.34	775.06	773.12
1296 + 25	774.84	775.80	774.86	774.86	775.58	773.64
1296 + 50	775.36	776.32	775.38	775.38	776.10	774.16
1296 + 75	775.88	776.84	775.90	775.90	776.62	774.68
1296 + 81.54	776.03	—	—	—	776.76	—
1296 + 82.35	776.04	777.00	—	—	—	—
1296 + 85.82	776.11	—	776.13	—	—	—
1296 + 86.20	776.11	—	—	776.13	—	—
1296 + 90.56	776.20	—	—	—	—	775.00



JEFFERSON COUNTY  
JEF-7-23.37


TYPE 17



TYPE 18

## 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, A700 is a No. 7 size bar and A1014 is a No. 10 size.

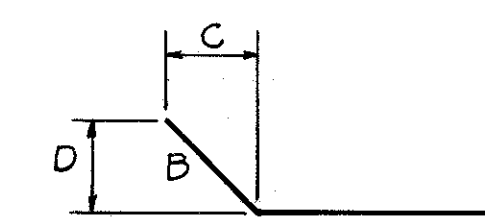
SPIRAL REINFORCING BARS: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap. The "No. of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item 509 1 1/2 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 equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

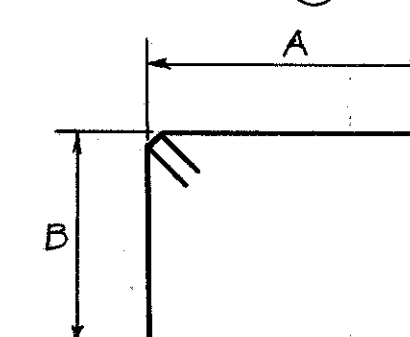
All dimensions are out-to-out.

Str. in the "TYPE" column indicates straight bars.

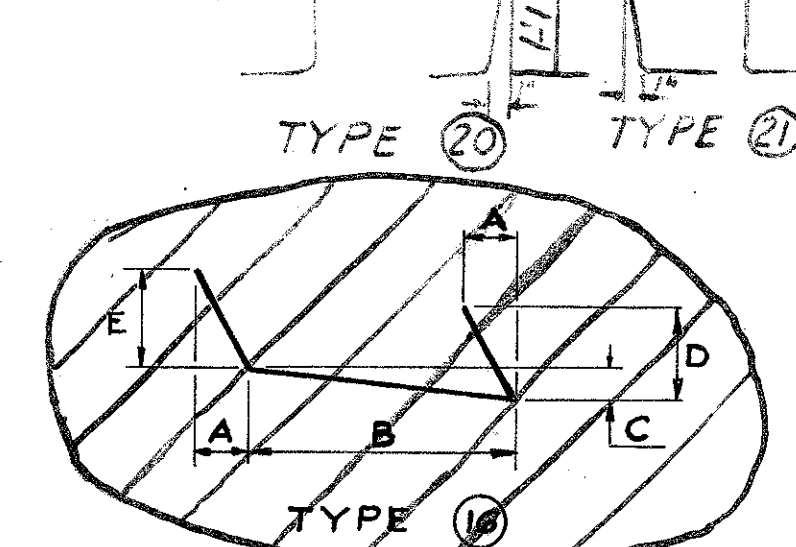
\* Include with railing for payment.



TYPE 14



TYPE 15



TYPE 16

19555

14370

19036

13487

1098

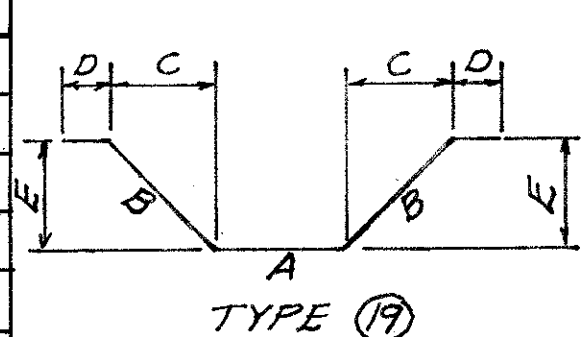
14

11

585

453

REPLACEMENT BARS			
MARK	TYPE	NO.	LENGTH
RE 1101	Str.	2	7'-6"
RE 1001	Str.	1	7'-2"
RE 901	Str.	1	6'-10"
RE 801	Str.	1	6'-6"
RE 701	Str.	2	6'-2"
RE 601	Str.	4	5'-11"
RE 501	Str.	1	5'-7"
RE 401	Str.	1	5'-3"



TYPE 19

W. E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

## REINFORCING BAR SCHEDULE

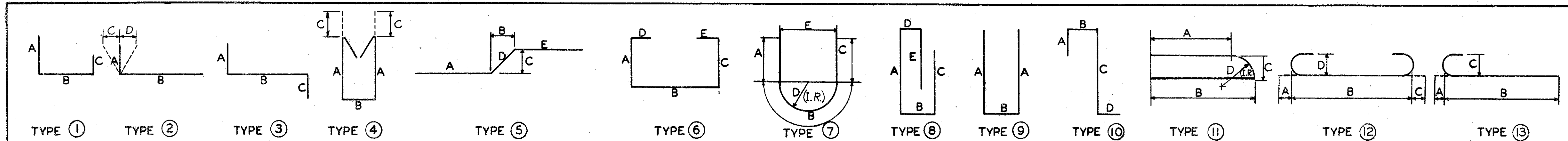
BRIDGE NO. JEF-7-2449

S. R. 7 OVER C. R. 46

STA. 1295+14.74

JEFFERSON COUNTY 1296+87.27

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
		RWL	W.D.A.	DLM	6-20-65	9-5-67



MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
REAR ABUTMENT									
A801	Str.						14	39'-6"	1477
A802	Str.						6	10'-3"	164
A803	9	5'-6"	1'-2"				10	11'-10"	316
A804	14	9'-0"	2'-6"	1'-9 1/4"	1'-9 1/4"		2	14'-0"	75
A805	14	5'-6"	1'-0"	8 1/2"	8 1/2"		6	7'-6"	120
A806	Str.						5	6'-0"	80
A807	Str.						6	10'-2"	163
A808	14	6'-6"	1'-0"	8 1/2"	8 1/2"		6	8'-6"	136
A809	Str.						5	8'-0"	107
A810	14	11'-0"	2'-6"	1'-9 1/4"	1'-9 1/4"		2	16'-0"	85
A601	1	6'-6"	5'-5"	2'-6"			17	14'-1"	360
A602	1	7'-4"	5'-5"	2'-6"			16	14'-11"	358
A603	1	8'-0"	5'-5"	2'-6"			20	15'-7"	468
A604	8	5'-9"	1'-5"	4'-3"	11"	3'-3"	53	14'-11"	1187
A605	9	5'-9"	1'-5"				20	12'-7"	378
A501	9	1'-9"	5'-5"				53	8'-8"	479
A502	2	7 1/2"	6'-6"	-	-		18	7'-0"	131
A503	2	7 1/2"	7'-4"	-	-		16	7'-10"	131
A504	2	7 1/2"	8'-0"	-	-		20	8'-6"	177
A505	9	1'-9"	3'-5"				53	6'-8"	369
A506	Str.						17	36'-10"	653
A507	Str.						17	36'-4"	644
A508	15	3'-0"	2'-6"				10	7'-4"	120
A509	Str.						16	7'-4"	122
A510	Str.						2	7'-0"	15
A511	Str.						16	12'-5"	209
A512	Str.						12	3'-9"	47
A513	Str.						4	6'-6"	27
A514	Str.						4	8'-0"	33
A515	9	5'-4"	1'-2"				4	11'-7"	48
A516	9	4'-8"	1'-2"				8	10'-3"	86
A517	2	7 1/2"	3'-4"	-	-		16	3'-10"	64
A518	9	1'-7"	1'-2"				8	4'-1"	34
A519	4	2'-2"	8"	5"			18	5'-7"	105
FORWARD ABUTMENT									
B801	Str.						14	39'-6"	1477
B802	Str.						6	10'-1"	162
B803	9	5'-6"	1'-2"				10	11'-10"	316
B804	14	9'-0"	1'-9"	1'-1 7/8"	1'-3 3/4"		2	12'-6"	67
B805	12	1'-1"	13'-6"	1'-1"	7"		2	15'-8"	84
B806	14	6'-2"	1'-9"	1'-1 7/8"	1'-3 3/4"		5	9'-8"	129
B807	14	6'-6"	1'-9"	1'-3 3/4"	1'-1 7/8"		4	9'-8"	103
B808	Str.						6	10'-10"	174
B809	Str.						10	7'-3"	194
B810	Str.						10	5'-8"	151

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
B601	1	8'-3"	5'-5"	2'-6"			14	15'-9"	331
B602	1	7'-8"	5'-5"	2'-6"			14	15'-2"	319
B603	1	7'-2"	5'-5"	2'-6"			12	14'-8"	264
B604	1	6'-6"	5'-5"	2'-6"			14	14'-0"	294
B605	8	5'-9"	1'-5"	4'-3"	11"	3'-3"	53	14'-11"	1187
B606	9	5'-9"	1'-5"				18	12'-7"	340
B501	9	1'-9"	5'-5"				54	8'-8"	488
B502	2	7 1/2"	8'-3"	-	-		14	8'-9"	128
B503	2	7 1/2"	7'-8"	-	-		14	8'-2"	119
B504	2	7 1/2"	7'-2"	-	-		12	7'-8"	96
B505	2	7 1/2"	6'-6"	-	-		14	7'-0"	102
B506	9	1'-8"	3'-5"				54	6'-6"	366
B507	Str.						17	36'-4"	644
B508	Str.						17	37'-0"	656
B509	2	7 1/2"	3'-4"				18	3'-10"	72
B510	4	2'-2"	8"	5"			18	5'-7"	105
B511	15	3'-0"	2'-6"				10	11'-6"	120
B512	Str.						6	7'-7"	47
B513	Str.						4	8'-2"	34
B514	Str.						2	7'-0"	15
B515	9	5'-4"	1'-2"				4	11'-7"	48
B516	9	4'-8"	1'-2"				18	10'-3"	192
B517	Str.						12	12'-6"	156
B518	9	1'-9"	1'-2"				16	4'-5"	74
B519	Str.						12	4'-3"	53
B520	Str.						4	8'-0"	33
B521	Str.						4	6'-6"	27
PIERS									
P1101	2	1'-5 1/2"	6'-3"	-	-		144	7'-5"	5674
P1102	Str.						12	17'-11"	1142
P1103	Str.						12	22'-8"	1445
P1104	Str.						12	18'-1"	1153
P1105	Str.						12	22'-10"	1456
P1106	Str.						12	17'-6"	1116
P1107	Str.						12	22'-3"	1419
P1108	Str.						12	17'-2"	1094
P1109	Str.						12	21'-11"	1397
P1110	Str.						12	16'-10"	1073
P1111	Str.						12	21'-6"	1371
P1112	Str.						12	16'-4"	1041
P1113	Str.						12	21'-1"	1344
P1001	2	3'-6"	35'-6"	-	1/2"		4	38'-9"	667
P1002	2	3'-6"	36'-2"	-	1/2"		4	39'-5"	678
P1003	2	3'-6"	36'-7"	-	1/2"		4	39'-10"	686
P1004	2	3'-6"	35'-6"	1 1/4"	-		4	38'-9"	667

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
P1005	2	3'-6"	36'-2"	1 1/4"	—		4	39'-5"	678
P1006	2	3'-6"	36'-7"	1 1/4"	—		4	39'-10"	686
P1007	Str.						8	14'-0"	482
P901	12	1'-3"	6'-6"	1'-3"	9"		128	9'-0"	3917
P902	12	1'-3"	7'-6"	1'-3"	9"		64	10'-0"	2176
P801	Str.						8	35'-3"	753
P802	Str.						16	36'-0"	1538
P803	7	2'-6"	3'-6"	2'-6"	1'-1 1/8"	2'-4 1/4"	4	8'-6"	91
P501	9	2'-11"	2'-8"				128	8'-3"	1101
P502	Str.						8	35'-4"	295
P401	7	1'-3"	4'-1"	1'-3"	1'-3 1/2"	2'-8"	16	6'-7"	70
RAILING									
R501	Str.						80	14'-2"	*
R502	Str.						16	11'-10"	*
R503	Str.						16	12'-2"	*
R504	17	1'-6"	8"	6 1/2"	3 1/4"	5"	12	4'-2"	*
R505	18	See Detail					8	5'-4"	*
SUPERSTRUCTURE									
S701	Str.						500	37'-8"	37,592
S601	Str.						500	37'-8"	37,592
S602	Str.						635	35'-4"	33,700
S603	Str.						116	28'-0"	4,878
<del>S502 Str.</del>							<del>254</del>	<del>36'-8"</del>	
<del>S604 Str.</del>							<del>254</del>	<del>36'-8"</del>	
S501	G	1'-4"	1'-6"	1'-4"	7 1/2"	7 1/2"	228	4'-11"	1169
S502	9	7 1/2"	1'-6"				228	2'-6"	595
S503	4	2'-2"	8"	5"			228	5'-7"	1328
S504	Str.						<del>30</del>	35'-1"	<del>732</del>
S505	11	1'-7"	<del>2-9</del>	1'-5"	1'-2 1/2"		<del>4</del>	<del>36'-8"</del>	<del>226</del>
S506	Str.						4	1'-0"	4
<del>S507</del>							<del>2</del>	<del>5'-6"</del>	
L601	15	2'-10"	2'-1"	5"	1'-2 1/2"		3	10'-4"	47
<del>S401</del>	<del>16</del>	<del>1'-1"</del>	<del>1'-0"</del>	<del>—</del>	<del>1'-0"</del>	<del>1'-0"</del>	<del>254</del>	<del>2'-8"</del>	<del>452</del>
<del>S402</del>	<del>16</del>	<del>1'-1"</del>	<del>1'-0"</del>	<del>—</del>	<del>1'-0"</del>	<del>1'-0"</del>	<del>254</del>	<del>1'-6"</del>	<del>255</del>
L602	19	1'-1"	2'-11"	2'-1"	1'-0"	2'-1"	2	8'-8"	26
L603	13	8"	4'-6"				3	5'-2"	23
L604	14	1'-1"	3'-6"	2'-5 1/2"	2'-5 1/2"		3	7'-11"	36
S508	20	See Detail					127	4'-3"	
S509	21	See Detail					127	3'-5"	
SPIRAL REINFORCING									
MARK	CORE DIA.	PITCH	NO. TURNS	NO.	LENGTH	WEIGHT			
SP401	32"	4 1/2"	39	3	13'-8"	771			
SP402	32"	4 1/2"	52	3	18'-5"	1021			
SP403	32"	4 1/2"	39	1	13'-5"	253			
SP404	32"	4 1/2"	52	1	18'-2"	336			
SP405	32"	4 1/2"	38	1	12'-11"	244			
SP406	32"	4 1/2"	50	1	17'-8"	327			
SP407	32"	4 1/2"	37	1	12'-6"	236			
SP408	32"	4 1/2"	49	1	17'-3"	320			











JEF-7-23.37

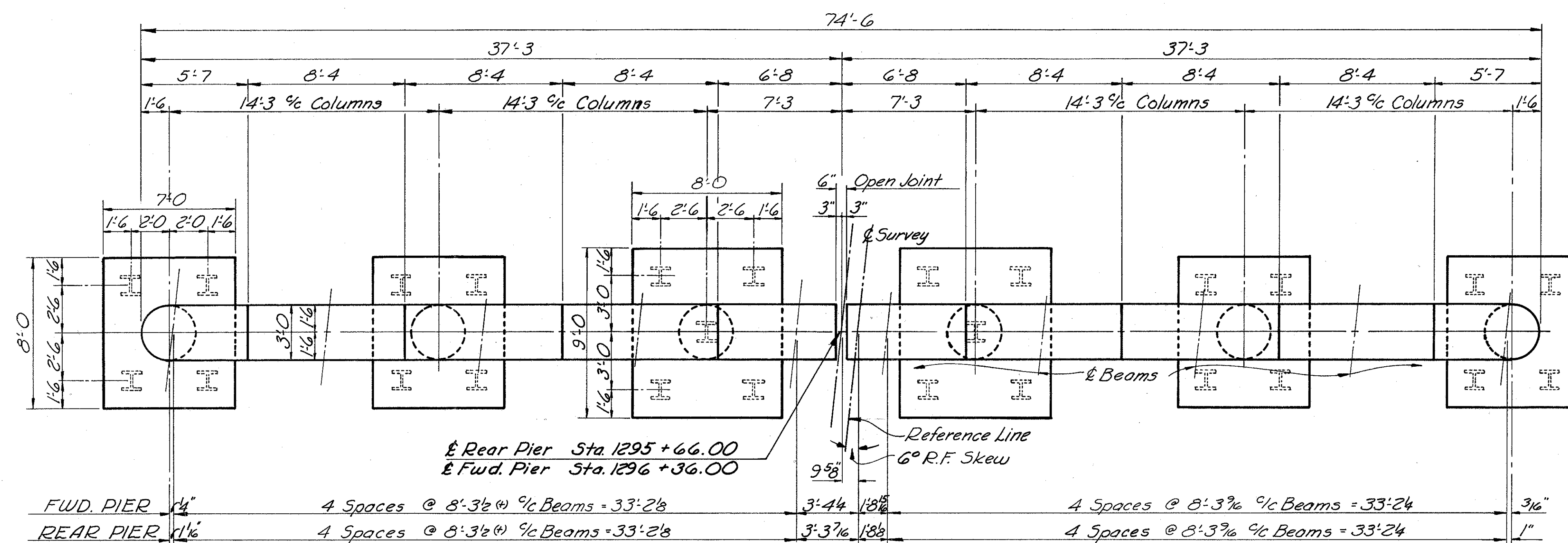


DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISION
	HGM	WCP	W.D.A.	DLM	6-20-65	

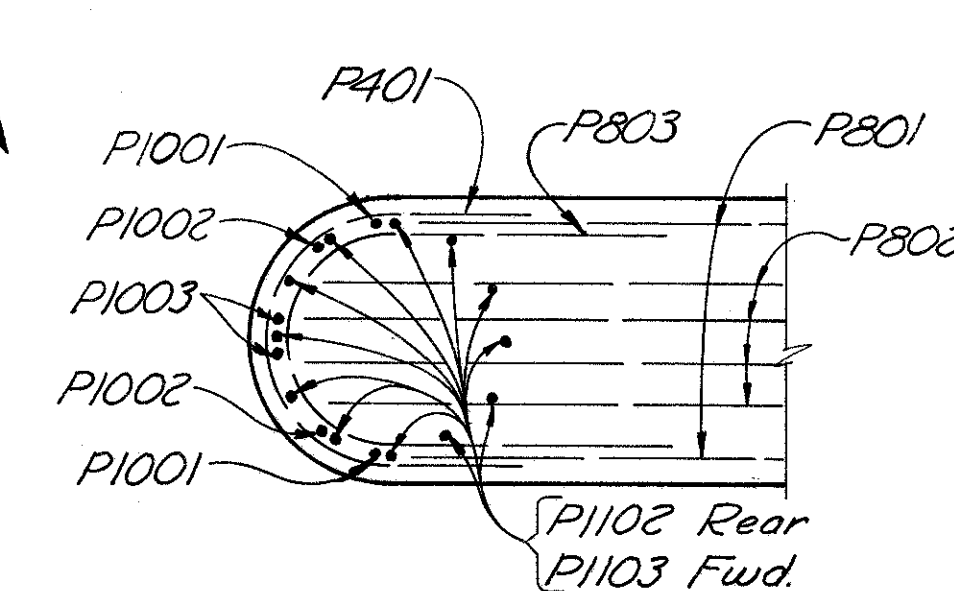




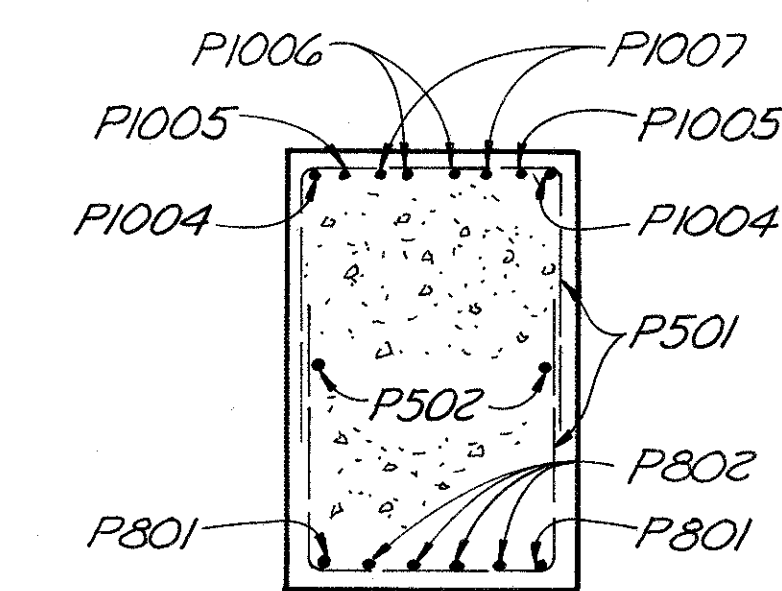
JEFFERSON COUNTY  
JEF-7-23.37



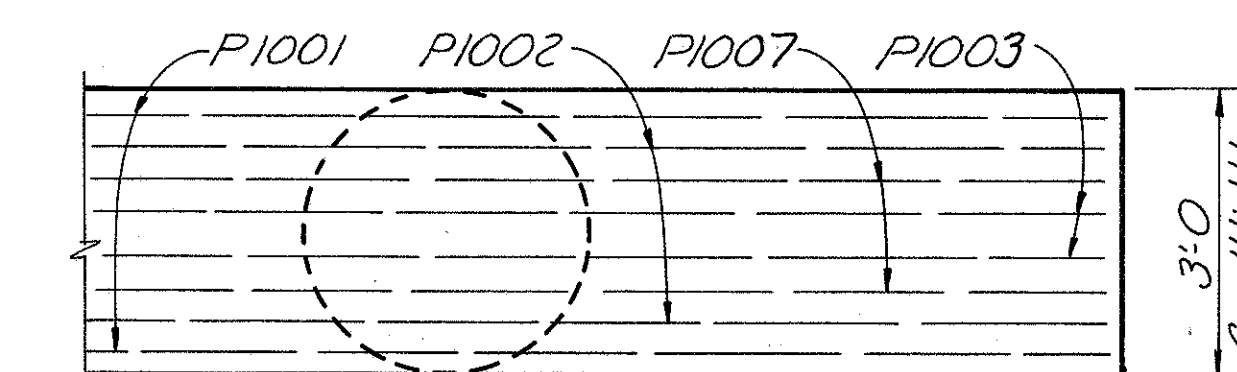
## PLAN



SECTION B-B

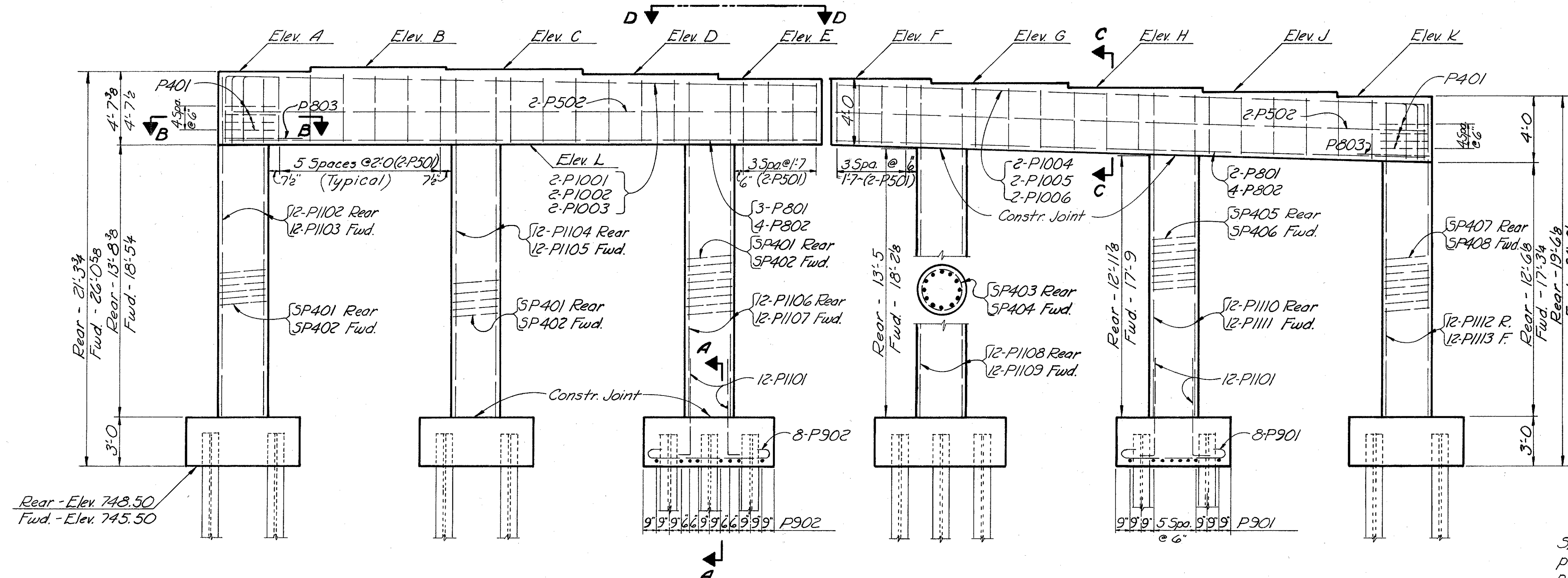


SECTION C-C

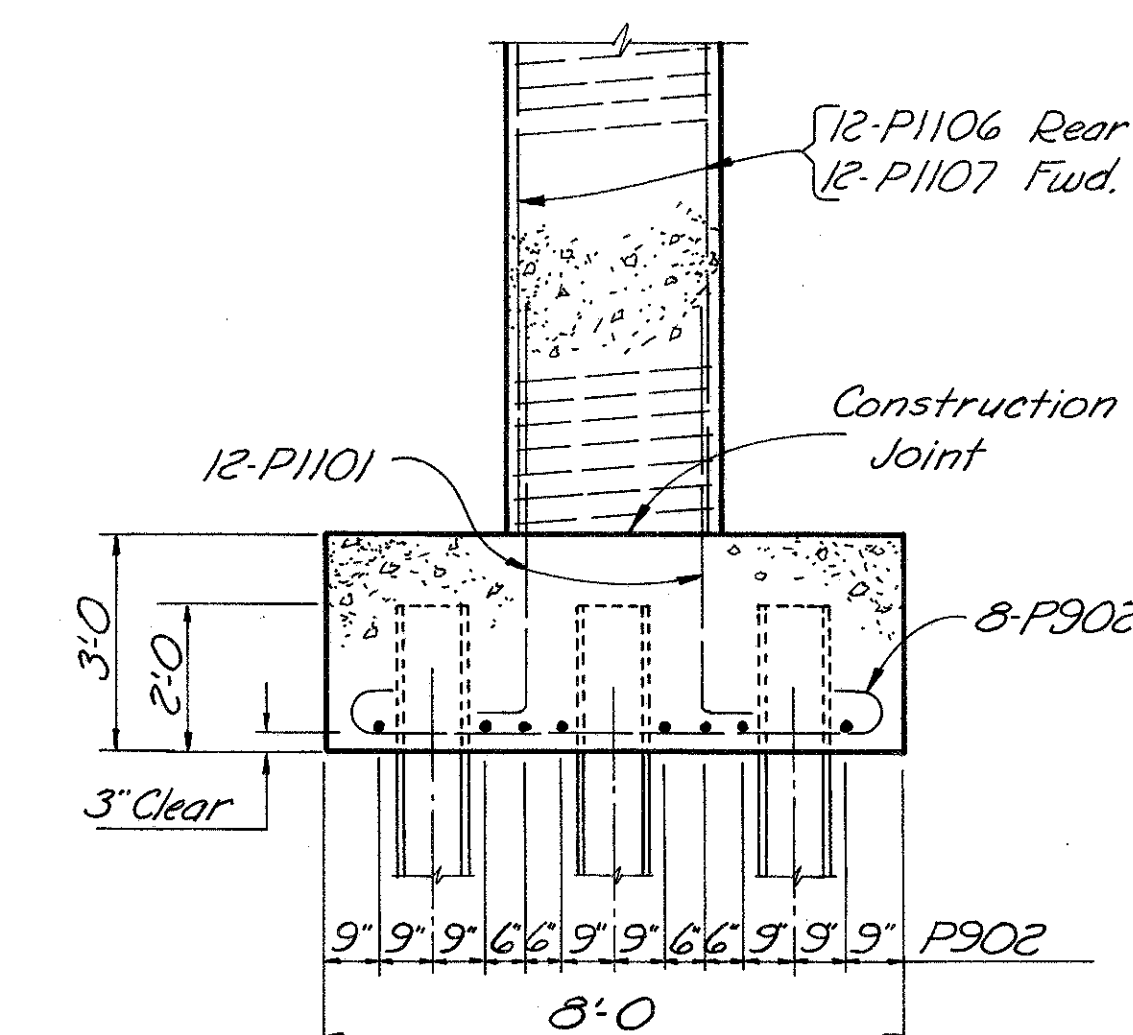


VIEW D-D

	ELEVATIONS										
	A	B	C	D	E	F	G	H	J	K	L
Forward Pier	771.55	771.77	771.50	771.22	770.94	770.88	770.60	770.33	770.05	769.77	766.94
Rear Pier	769.81	770.03	769.75	769.47	769.19	769.13	768.85	768.57	768.29	768.01	765.19



ELEVATION



SECTION A-A

Special care shall be taken in placing reinforcing steel in the pier cap so that it will not interfere with the anchor bolts.

Lighting system to be grounded  
at rear pier.

W. E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

PIER DETAILS  
BRIDGE NO. JEF-7-2449  
S.R. 7 OVER C.R. 46

JEFFERSON COUNTY Sta. 1295+14.74  
" 1296+87.27

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
		R	WDA	DLM	6-20-65	



JEFFERSON COUNTY  
JEF-7-23.37

# SUPERSTRUCTURE NOTES

ADDITIONAL DETAILS: Refer to Std. Dwg's. 5D-1-65, and BR-1-65.

SCUPPERS: All scuppers as per Std. Dwg. 5D-1-65 (Type I) except "SPECIALS" along median. See Sheet 357 for Special Scupper details.

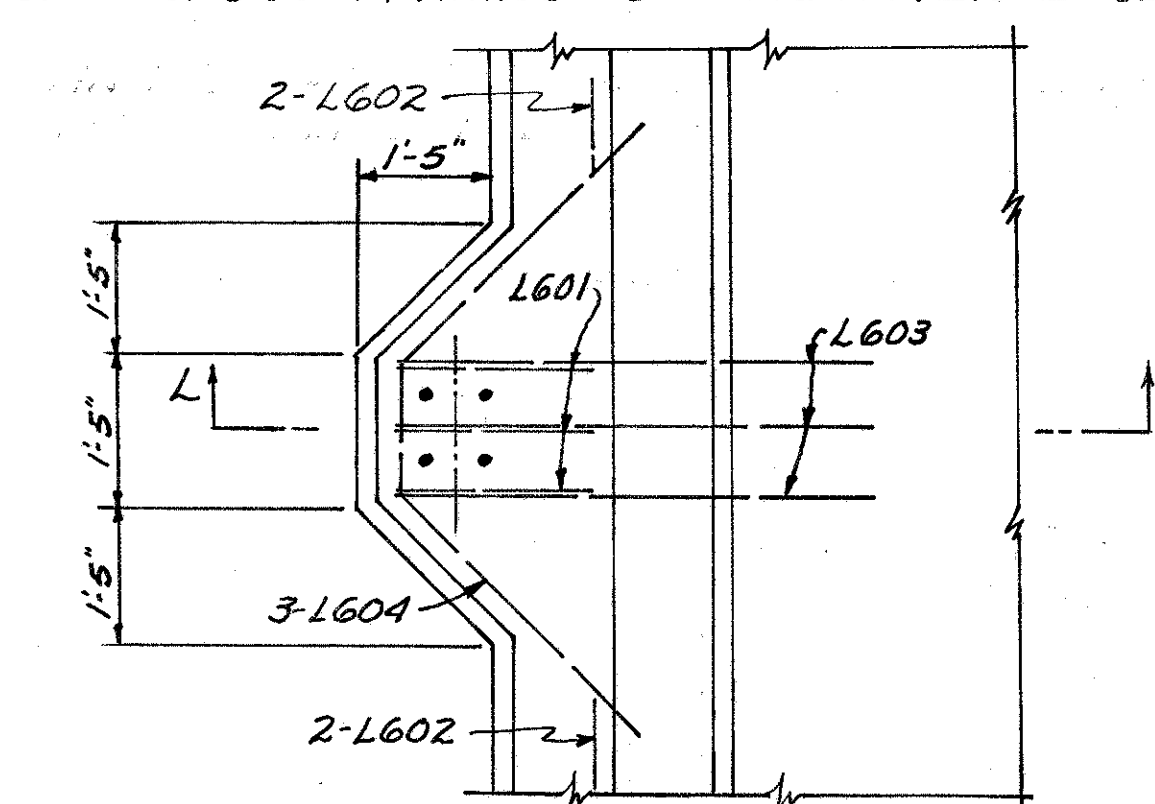
MEDIAN DETAILS: See Sheet 357 & 350

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

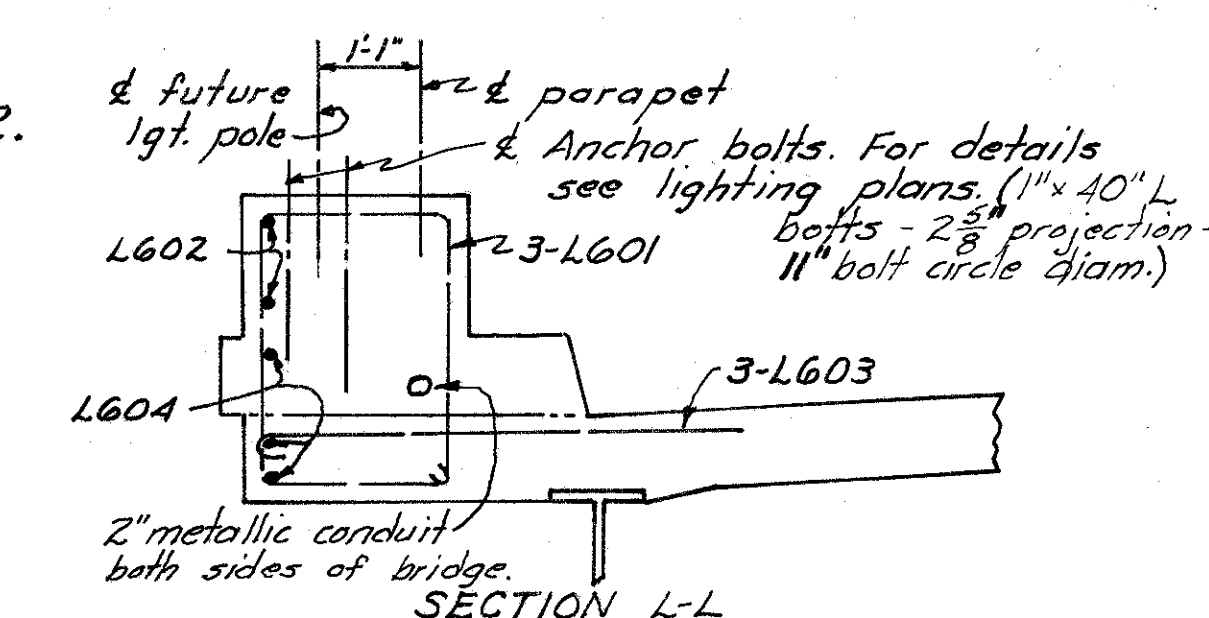
BEARINGS shall be placed normal to a line that bisects the deflection angle at the piers.

SLAB THICKNESS shown includes 1" for monolithic wearing surface.

\* SPECIAL CROSS FRAMES: See "TRANSVERSE SECTION".



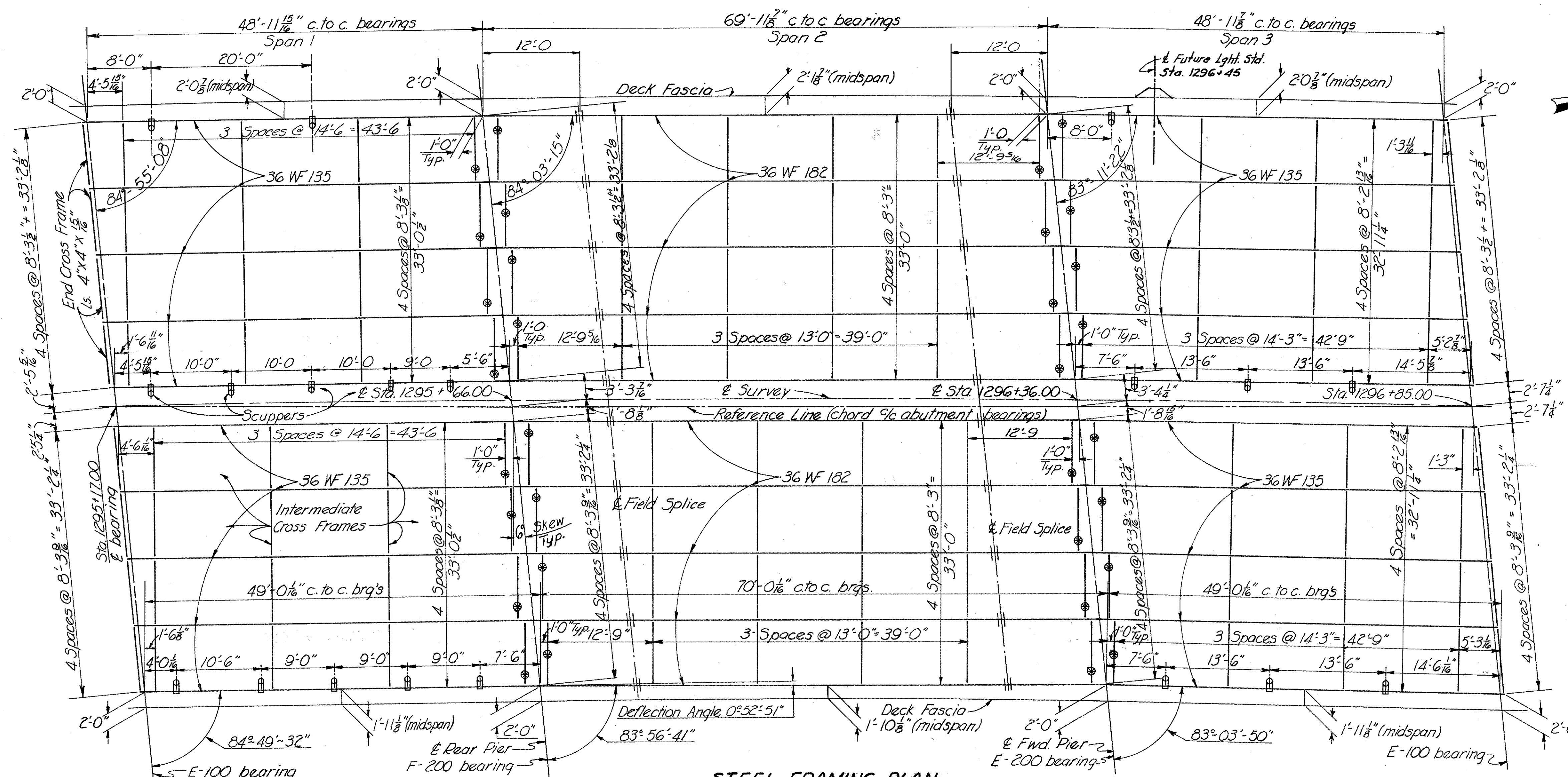
PLAN  
LIGHT STANDARD SUPPORT



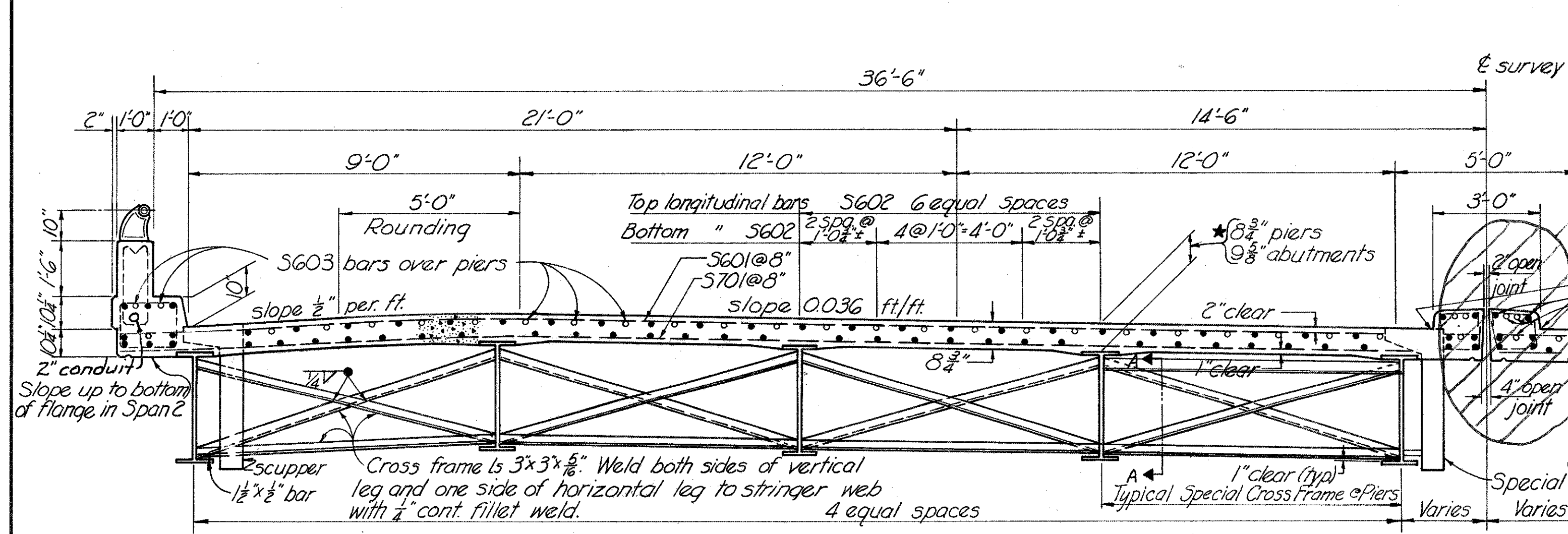
W.E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS  
BRIDGE No. JEF-7-2449  
S.R. 7 OVER C.R. 46  
JEFFERSON COUNTY Sta. 1295+14.74  
1296+87.27

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Hqm	Hqm	RCP	W.D.A.	DLM	6-20-65	9-5-67



STEEL FRAMING PLAN



HALF TRANSVERSE SECTION

All longitudinal steel S602 unless otherwise shown.  
Lap S602 bars 1'-11" minimum.

★ 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.

SECTION "A-A"

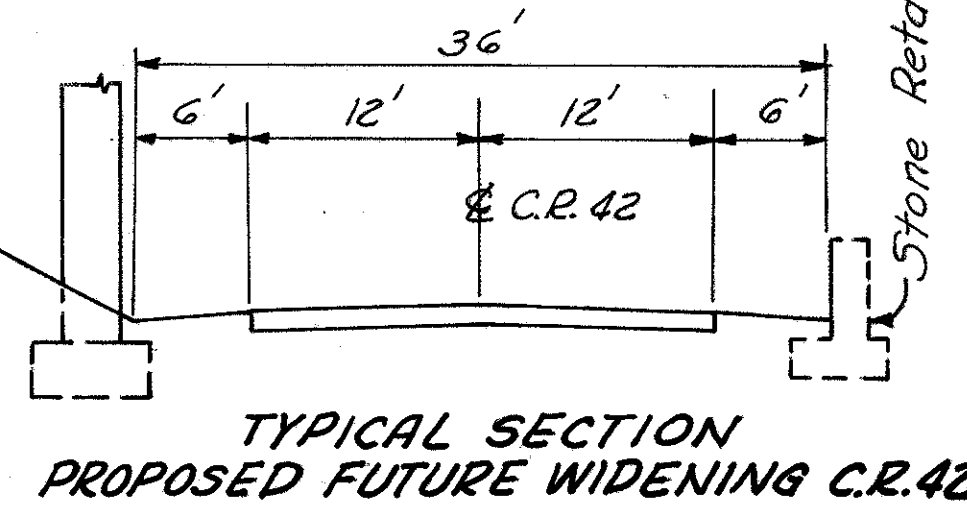
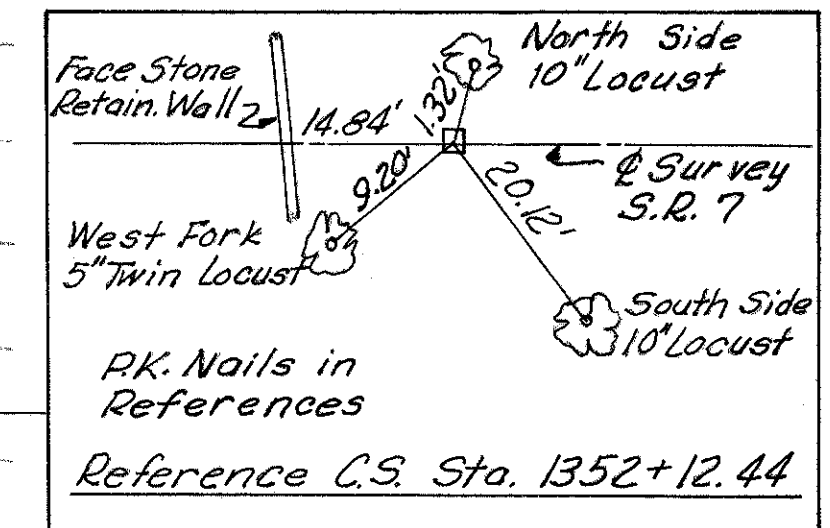
DEFLECTION AND CAMBER			
LOCATION	Span 1/3 c.c.	Span 2 c.c.	Span 2 c.c. Splice
Deflection due to weight of steel	0	1/8"	1/16"
Deflection due to remaining dead load	1/8"	7/16"	3/16"
Total deflection	1/8"	7/8"	1/4"
Required camber	0	0	0







JEFFERSON COUNTY  
JEF-7-23.37  
At Toronto



**CURVE DATA S.R. 7**  
 $\Delta = 35^\circ 17' 12''$  R.  
 $D_c = 3^\circ 30'$   
 $L_c = 608.19'$   
 $R = 1637.02'$   
 $L_s = 400'$   
 P.I. Sta. 1349 + 26.11

S.R. 7 1980 A.D.T. 11070  
C.R. 42 1980 A.D.T. 500

# **PROPOSED STRUCTURE**

TYPE: Continuous steel beams with reinforced concrete deck and substructure.  
 SPANS: 35'-50'-35'  
 ROADWAY: 81'-0" w/ 1'-0" safety curbs with 3'-0" median and 12'-0" truck lane  
 LOAD FREQUENCY: CF 2000 (57)  
 SKEW: 15° R.F. (with reference line)  
 WEARING SURFACE: 1" monolithic  
 APPROACH SLABS: AS-1-54, modified, 25' long  
 ALIGNMENT: 3°-30' Curve R.  
 SUPERELEVATION: Varies

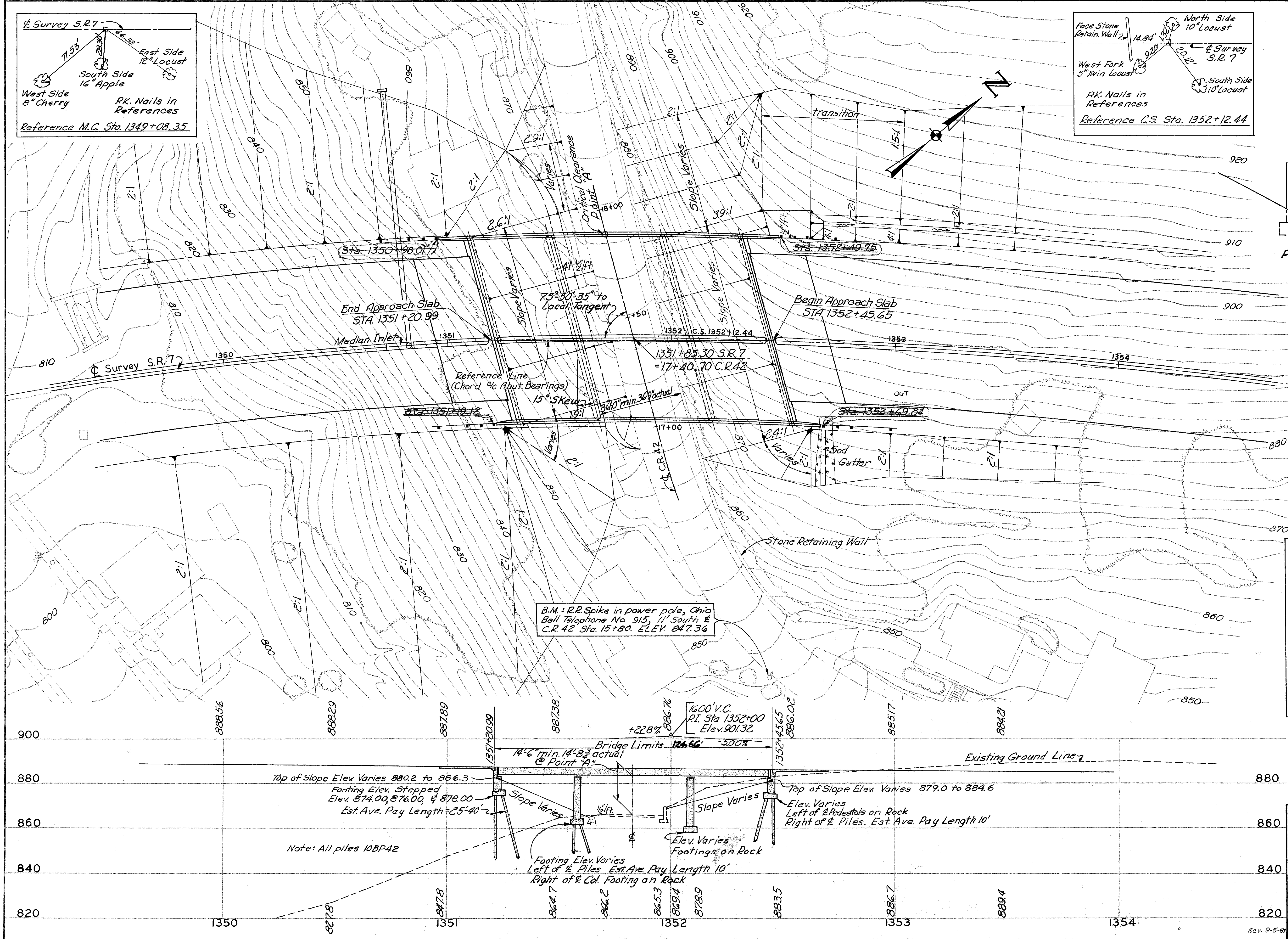
W.E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

## **SITE PLAN** **BRIDGE NO. JEF-7-2555**

S.R. 7 over C.R. 42 (Main St.)  
 STA 1351 + 20.99  
 1352 + 45.65

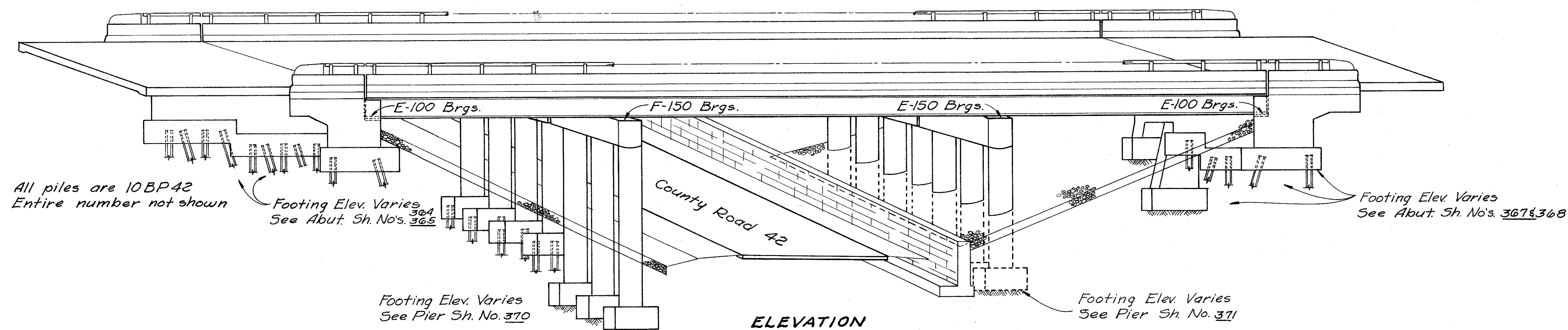
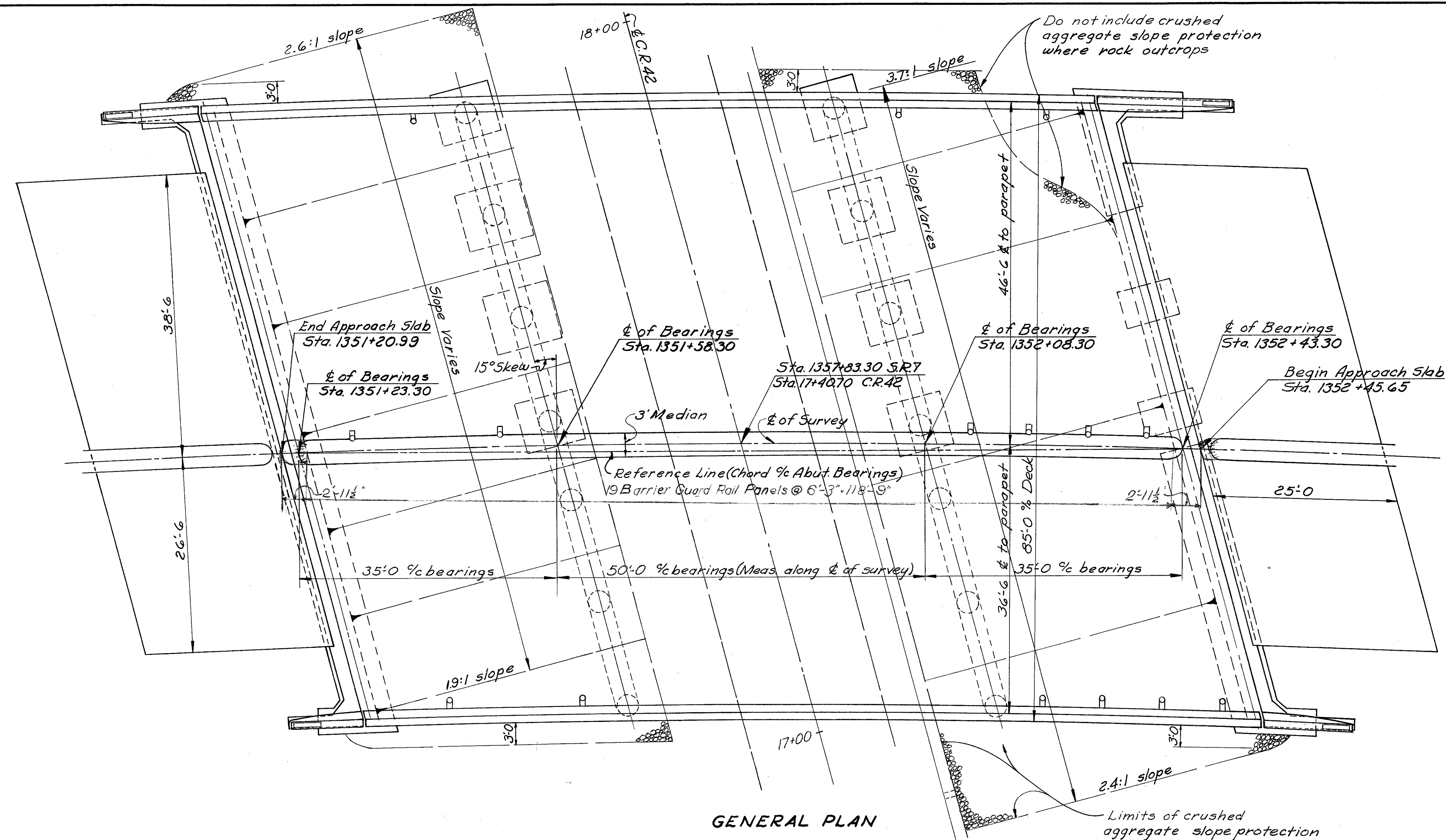
JEFFERSON COUNTY		PRESENT TOPOGRAPHY		PROPOSED WORK	
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
Kucera	DDM	DLM	HGM	WDA	HPQ

Rev. 9-5-67





JEFFERSON COUNTY  
JEF-7-23.37



W.E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS - NEW PHILADELPHIA, OHIO

GENERAL PLAN & ELEVATION  
BRIDGE NO. JEF-7-2555  
S.R.7 OVER C.R.42 (MAIN ST.)

JEFFERSON COUNTY Sta. 1351+20.99  
Sta. 1352+45.65

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED



JEFFERSON COUNTY  
JEF-7-23.37

ESTIMATED QUANTITIES

151,992

Item	Total	Unit	Description	Abut.	Pier	Super	Gen'l.		
503	934	Cu.Yds.	Unclassified excavation	427	507				
503	28	Cu.Yds.	Rock excavation	22	6				
503	Lump	Sum	Coffer dams, cribs and sheeting				Lump		
511	320	Cu.Yds.	Class "C" concrete, superstructure			320			
511	146	Cu.Yds.	Class "C" concrete, pier caps and columns		146				
511	306	Cu.Yds.	Class "E" concrete, abutments	306					
511	102	Cu.Yds.	Class "E" concrete, pier footings		102				
512	14	Lin.ft.	Waterproofing, premolded sealing strip	14					
509	150,511	Lbs.	Reinforcing steel	20,746	38,857				
513	205,800	Lbs.	Structural steel			205,800			
514	205,800	Lbs.	Field painting of structural steel			205,800			
517	296.26	Lin.ft.	Aluminum Railing Type I	53.33		242.93			
505	Lump	Sum	First test pile				Lump		
507	1015	Lin.ft.	Steel piles, 10BP42	835	180				
518	70	Cu.yds.	Porous backfill	70					
518	15	Each	Scuppers, including supports			15			
518	160	Lin.ft.	6" Perforated helical C.M.P., including specials (707.06)	160					
518	110	Lin.ft.	6" Non-perforated helical C.M.P. (707.06)	110					
825	1352	Sq.yds.	Concrete surface treatment				1352		
828	170	Lin.ft.	Joint sealer (end dam)			170			
601	912	Sq.yds.	Crushed aggregate slope protection	912					
808	320	Each	Water-reducing, set-retarding admixture			320			

GENERAL NOTES

REFERENCE shall be made to Standard Drawings SD-1-65, dated 11-8-65, FSB-1-62, revised 1-15-63, BR-1-65, dated 11-24-65, and to Supplemental Specifications 808, dated 1-13-67, and 811, 825 & 828 dated 1-1-67, and to Std. Drwg. AS-1-54, revised 8-10-65.

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 embankment for the Rear Abutment 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 abutment, after which excavation shall be made for the abutment and Rear Pier and piles driven.

After the pedestals have been constructed for the Left Half of the Forward Abutment, backfill shall be placed to Elev. 874.5, excavation made for the Right Half of the Abutment and the piles driven. The Right Half of the Abutment shall then be constructed to the elevation of the bridge seat. Backfill for the Left Half shall then be continued up to the top of the spill-thru slope, after which excavation shall be made for the crossbeam and the abutment completed.

EXCAVATION QUANTITY includes the removal of fill material required for construction of the Rear Abutment and Rear Pier.

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 Item 507.05 is not less than the following value for a pile hammer of the indicated energy rating:

For the abutment piles:  
38 tons per pile using an 11,000 ft. lb. hammer  
34 tons per pile using a 15,000 ft. lb. hammer

For the pier piles:  
51 tons per pile using an 11,000 ft. lb. hammer  
45 tons per pile using a 15,000 ft. lb. 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 31 tons per pile for the rear abutment, 26 tons per pile for the forward abutment, and 30 tons per pile for the pier piles.

MAINTENANCE AND PROTECTION OF TRAFFIC: Two lanes of traffic with a minimum horizontal width of 26'-0" shall be maintained on C.R. 42 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.

FOOTINGS which are not on piles shall extend a minimum of 3" into undisturbed rock or to the elevation shown, whichever is lower.

FOUNDATION BEARING PRESSURE: Footings which are not on piles are designed for a maximum bearing pressure of 4 tons per sq. ft..

MACHINE FINISH: At the Contractor's option, the concrete deck may be finished by the use of a finishing machine.

DESIGN INFORMATION:  
Design Loading-----CF 2000 (57)  
Concrete Class "C"---Basic unit stress 1,333 p.s.i.  
Concrete Class "E"---Basic unit stress 1,133 p.s.i.  
Structural Steel---ASTM A36, basic unit stress 20,000 p.s.i.  
Reinforcing Steel---ASTM A15, A16, and A160, deformed, Intermediate or Hard Grade. Basic unit stress 20,000 p.s.i. except spiral reinforcement may be plain, Structural Grade with basic unit stress of 18,000 p.s.i.

UTILITY LINES: All expense involved in relocating the affected utility lines shall be borne by the owners. The Contractor and the Owners are requested to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum.

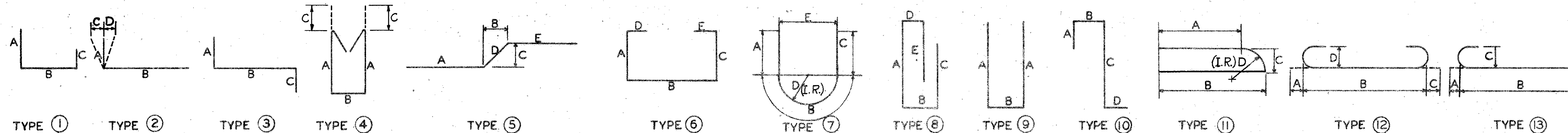
ELEVATIONS- TOP OF DECK SLAB						
STATION	Profile Grade	C Rounding	Median Curb Line		Curb Line	
			Lt.	Rt.	Lt.	Rt.
1351 + 12.17	887.78	---	---	---	890.89	---
1351 + 13.14	887.77	890.99	---	---	---	---
1351 + 21.93	887.68	---	887.70	---	---	---
1351 + 22.62	887.68	---	---	887.70	---	---
1351 + 30.57	887.59	---	---	---	---	884.80
1351 + 50	887.38	890.60	887.40	887.40	890.49	884.61
1351 + 75	887.09	890.27	887.11	887.11	890.16	884.38
1352 + 00	886.76	889.86	886.78	886.78	889.75	884.14
1352 + 25	886.41	889.24	886.43	886.43	889.32	883.93
1352 + 30.72	886.32	---	---	---	889.22	---
1352 + 32.04	886.30	889.30	---	---	---	---
1352 + 43.88	886.12	---	886.13	---	---	---
1352 + 44.81	886.11	---	---	886.12	---	---
1352 + 55.49	885.94	---	---	---	---	883.60

W.E. QUICKSALL AND ASSOCIATES, INC. CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO						
ESTIMATED QUANTITIES, GENERAL NOTES AND SLAB ELEVATIONS BRIDGE NO. JEF-7-2555 S.R. 7 OVER C.R. 42 (MAIN ST.) STA. 1351+20.99 JEFFERSON COUNTY 1352+45.65						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
		RWL	WDA	DLM	7-1-64	9-5-67

REV 6/17/68



JEFFERSON COUNTY  
JEF-7-23.37



MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
REAR ABUTMENT									
A-801	Str.						4	34'-1	364
A-802	Str.						7	32'-6	607
A-803	Str.						7	29'-0	542
A-804	Str.						3	27'-6	220
A-805	Str.						6	9'-6	152
A-806	14	9'-0	2'-0	1'-3	1'-6 3/4		2	13'-0	69
A-807	9	5'-6	1'-2				8	11'-10	253
A-808	Str.						6	5'-9	92
A-809	14	5'-9	2'-0	1'-3	1'-6 3/4		5	9'-9	130
A-810	14	7'-1	2'-0	1'-6 3/4	1'-3		6	11'-1	178
A-811	Str.						6	10'-10	174
A-812	14	11'-2	2'-0	1'-6 3/4	1'-3		2	15'-2	81
A-813	Str.						5	7'-10	105
A-601	1	6'-7	5'-5	2'-6			6	14'-2	128
A-602	1	7'-3	5'-5	2'-6			6	14'-10	134
A-603	1	8'-0	5'-5	2'-6			6	15'-7	140
A-604	1	8'-9	5'-5	2'-6			6	16'-4	147
A-605	1	7'-5	5'-5	2'-6			10	15'-0	226
A-606	1	8'-4	5'-5	2'-6			6	15'-11	144
A-607	1	9'-1	5'-5	2'-6			4	16'-8	100
A-608	1	7'-1	5'-5	2'-6			3	14'-8	66
A-609	1	7'-10	5'-5	2'-6			6	15'-5	139
A-610	1	8'-7	5'-5	2'-6			8	16'-2	194
A-611	8	5'-9	1'-5	4'-3	11"	3'-3	66	14'-11	1479
A-612	9	5'-9	1'-5				18	12'-7	340
A-501	9	1'-7	5'-5				61	8'-4	530
A-502	2	7 1/2"	6'-7				6	7'-1	44
A-503	2	7 1/2"	7'-3				6	7'-9	48
A-504	2	7 1/2"	8'-0				6	8'-6	53
A-505	2	7 1/2"	8'-9				6	9'-3	58
A-506	2	7 1/2"	7'-5				10	7'-11	83
A-507	2	7 1/2"	8'-4				6	8'-10	55
A-508	2	7 1/2"	9'-1				4	9'-7	40
A-509	2	7 1/2"	7'-1				3	7'-7	24
A-510	2	7 1/2"	7'-10				6	8'-4	52
A-511	2	7 1/2"	8'-7				8	9'-1	76
A-512	9	1'-7	3'-5				61	6'-8	424
A-513	Str.						2	30'-1	63
A-514	Str.						15	36'-8	575
A-515	Str.						2	9'-9	20
A-516	Str.						2	20'-3	42
A-517	Str.						30	24'-9	775
A-518	Str.						2	30'-0	63
A-519	15	3'-0	2'-6				10	11'-6	120
A-520	Str.						6	6'-11	43

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
FORWARD ABUTMENT									
A-521	Str.						8	4'-0	33
A-522	Str.						4	3'-9	16
A-523	2	7 1/2"	4'-3				16	4'-9	79
A-524	4	2'-2	8"	5"			17	5'-7	99
A-525	2	7 1/2"	3'-4				16	3'-10	64
A-526	9	2'-1	1'-2				24	5'-1	127
A-527	Str.						6	9'-7	60
A-528	Str.						6	12'-9	80
A-529	Str.						8	8'-0	67
A-530	Str.						2	8'-6	18
A-531	Str.						2	6'-4	13
B-801	Str.						14	20'-7	769
B-802	Str.						6	25'-8	411
B-803	Str.						4	20'-9	222
B-804	Str.						12	25'-2	806
B-805	2	1'-1	7'-3				14	8'-2	305
B-806	Str.						11	11'-3	330
B-807	2	1'-1	5'-3				16	6'-2	263
B-808	Str.						14	5'-0	187
B-809	9	4'-6	1'-2				7	9'-10	184
B-810	14	5'-5	1'-7	11 5/16"	1'-3 1/4		5	8'-7	115
B-811	Str.						2	13'-3	71
B-812	14	10'-3	2'-6	1'-5 3/8	2'-0 1/8		1	15'-3	41
B-813	Str.						10	6'-0	160
B-814	9	5'-6	1'-2				5	11'-10	158
B-815	Str.						6	10'-6	168
B-816	14	12'-0	2'-6	2'-0 3/16	1'-5 3/8		2	17'-0	91
B-817	14	6'-11	1'-7	1'-3 3/8	11 1/4"		5	10'-1	134
B-818	Str.						5	11'-7	155
B-601	1	7'-5	5'-5	2'-6			3	15'-0	68
B-602	1	6'-10	5'-5	2'-6			6	14'-5	130
B-603	1	6'-2	5'-5	2'-6			3	13'-9	62
B-604	1	7'-10	5'-5	2'-6			6	15'-5	139
B-605	1	7'-2	5'-5	2'-6			6	14'-9	133
B-606	8	5'-9	1'-5	4'-3	11"	3'-3	67	14'-11	1501
B-607	9	5'-9	1'-5				19	12'-7	359
B-608	2	3'-10	4'-11				8	8'-7	103
B-609	2	3'-10	4'-3				3	7'-11	36
B-610	1	8'-5	5'-5	2'-6			2	16'-0	48
B-501	9	1'-7	5'-5				26	8'-4	226
B-502	2	7 1/2"	7'-5				3	7'-11	25
B-503	9	1'-7	3'-5				37	6'-4	244

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
REPLACEMENT BARS									
RE1101	Str.						1	7'-6	
RE1001	Str.						1	7'-2	
RE901	Str.						1	6'-10	
RE801	Str.						1	6'-6	
RE701	Str.						3	6'-2	
RE601	Str.						4	5'-11	
RE501	Str.						1	5'-7	
RE401	Str.						1	5'-3	
B-504	2	7 1/2"	6'-10				6	7'-4	46
B-505	2	7 1/2"	6'-2				3	6'-8	21
B-506	2	7 1/2"	7'-8				6	8'-2	51
B-507	2	7 1/2"	7'-2				6	7'-8	48
B-508	Str.						2	2'-6	45
B-509	Str.						2	17'-3	36
B-510	Str.						15	38'-3	598
B-511	Str.						16	24'-10	414
B-512	2	7 1/2"	4'-11				8	5'-5	45
B-513	2	7 1/2"	4'-3				3	4'-9	15
B-514	9	3'-0	3'-5				30	9'-2	287
B-515	9	2'-5	3'-5				14	8'-0	117
B-516	Str.						24	4'-6	113
B-517	Str.						12	7'-6	94
B-518	9	2'-8	2'-6				6	7'-7	47
B-519	9	3'-6	2'-6				12	9'-3	116
B-520	Str.						12	6'-9	84
B-521	2	7 1/2"	8'-5				2	8'-11	19
B-522	4	2'-2	8"	5"			20	5'-7	116
B-523	2	7 1/2"	3'-4				18	3'-10	72
B-524	9	2'-4	1'-2				12	5'-7	70
B-525	Str.						2	5'-10	12
B-526	Str.						4	3'-9	16
B-527	Str.						8	18'-1	151
B-528	Str.						4	12'-1	50
B-529	Str.						10	4'-0	42
B-530	2	7 1/2"	4'-3				24	4'-9	119
B-531	15	3'-0	2'-6				6	11'-6	72
B-532	Str.						6	12'-2	76
B-533	Str.						6	7'-9	48
B-534	Str.						2	6'-10	14
RE1101	Str.						1	7'-6	
RE1001	Str.						1	7'-2	
RE901	Str.						1	6'-10	
RE801	Str.						1	6'-6	
RE701	Str.						3	6'-2	
RE601	Str.						4	5'-11	
RE501	Str.						1	5'-7	
RE401	Str.						1	5'-3	

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, A700 is a No. 7 size bar and A1014 is a No. 10 size.

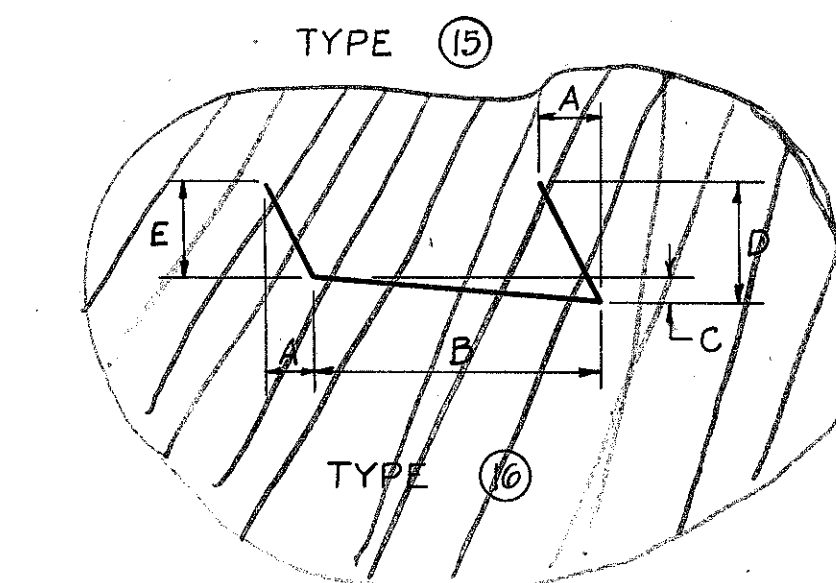
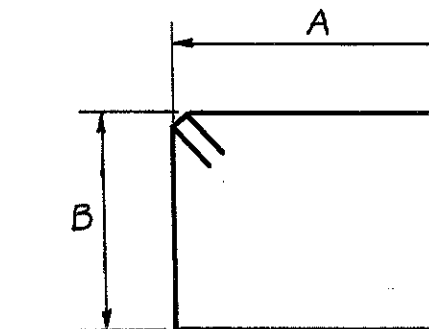
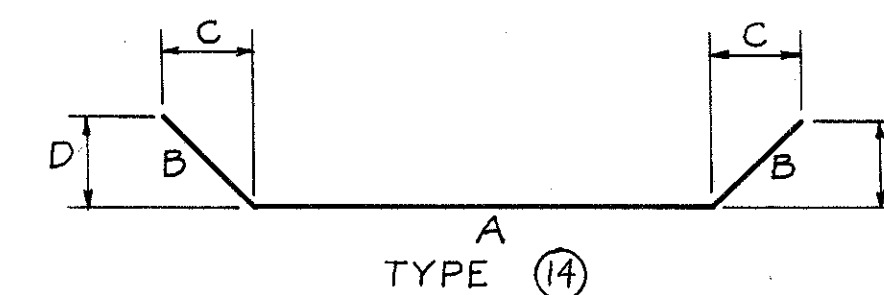
SPIRAL REINFORCING BARS: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap. The "No." of Turns shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item 509 1 1/2 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 equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

All dimensions are out-to-out.

Str. in the "TYPE" column indicates straight bars.

\* Include with railing for payment.



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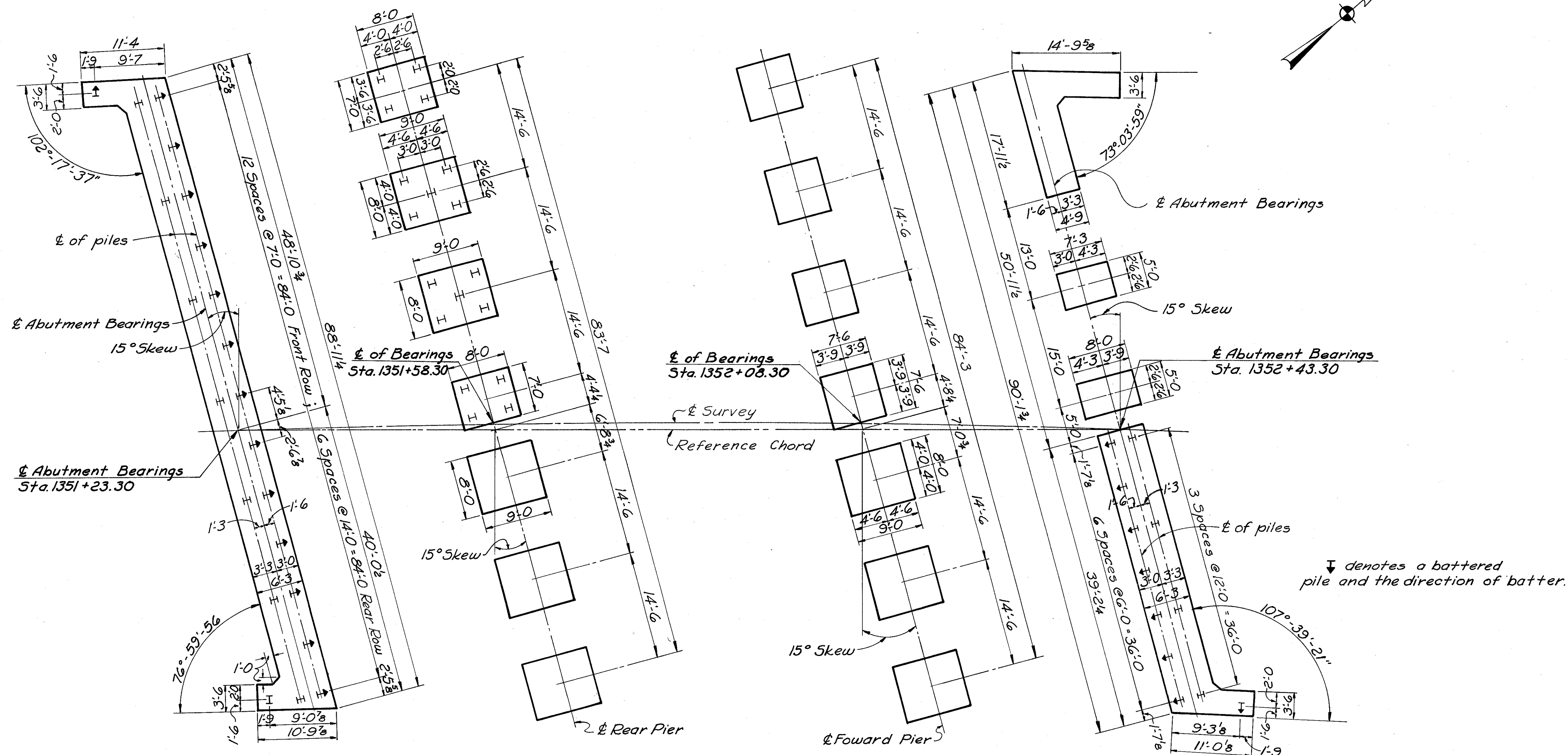
REINFORCING BAR SCHEDULE  
BRIDGE NO. JEF-7-2555  
S.R. 7 OVER C.R. 42 (MAIN ST.)  
STA. 1351+ 20.99  
JEFFERSON COUNTY 1352+ 45.65

DESIGNED DRAWN TRACED CHECKED REVIEWED DATE REVISED  
RWL WDA DLM 7-1-64 7-5-67





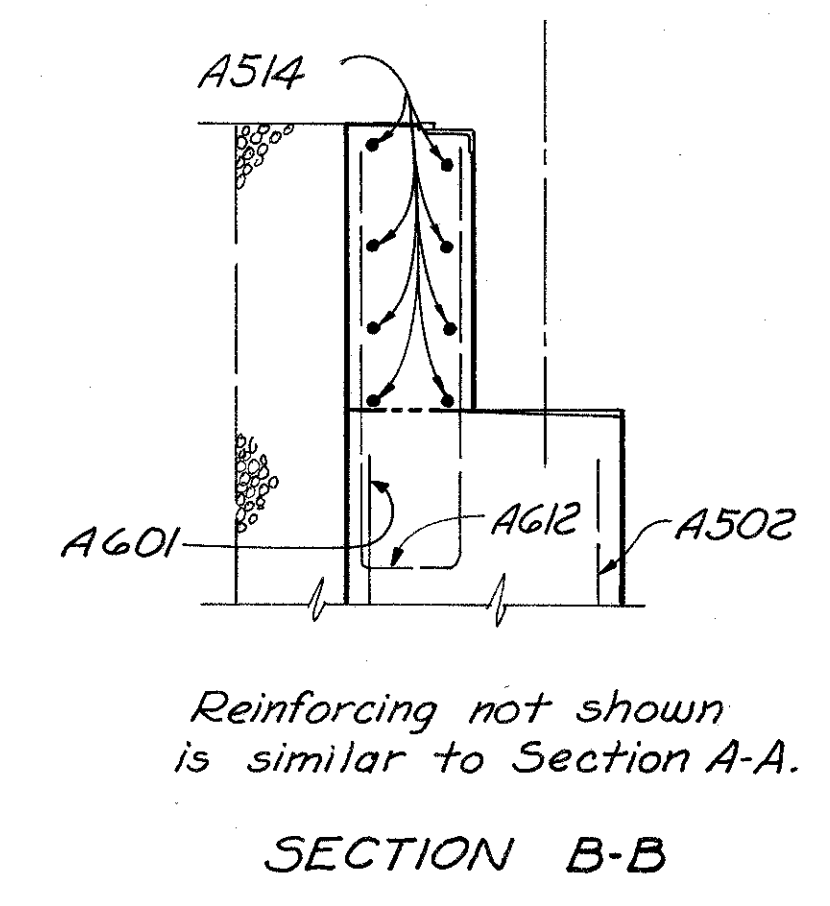
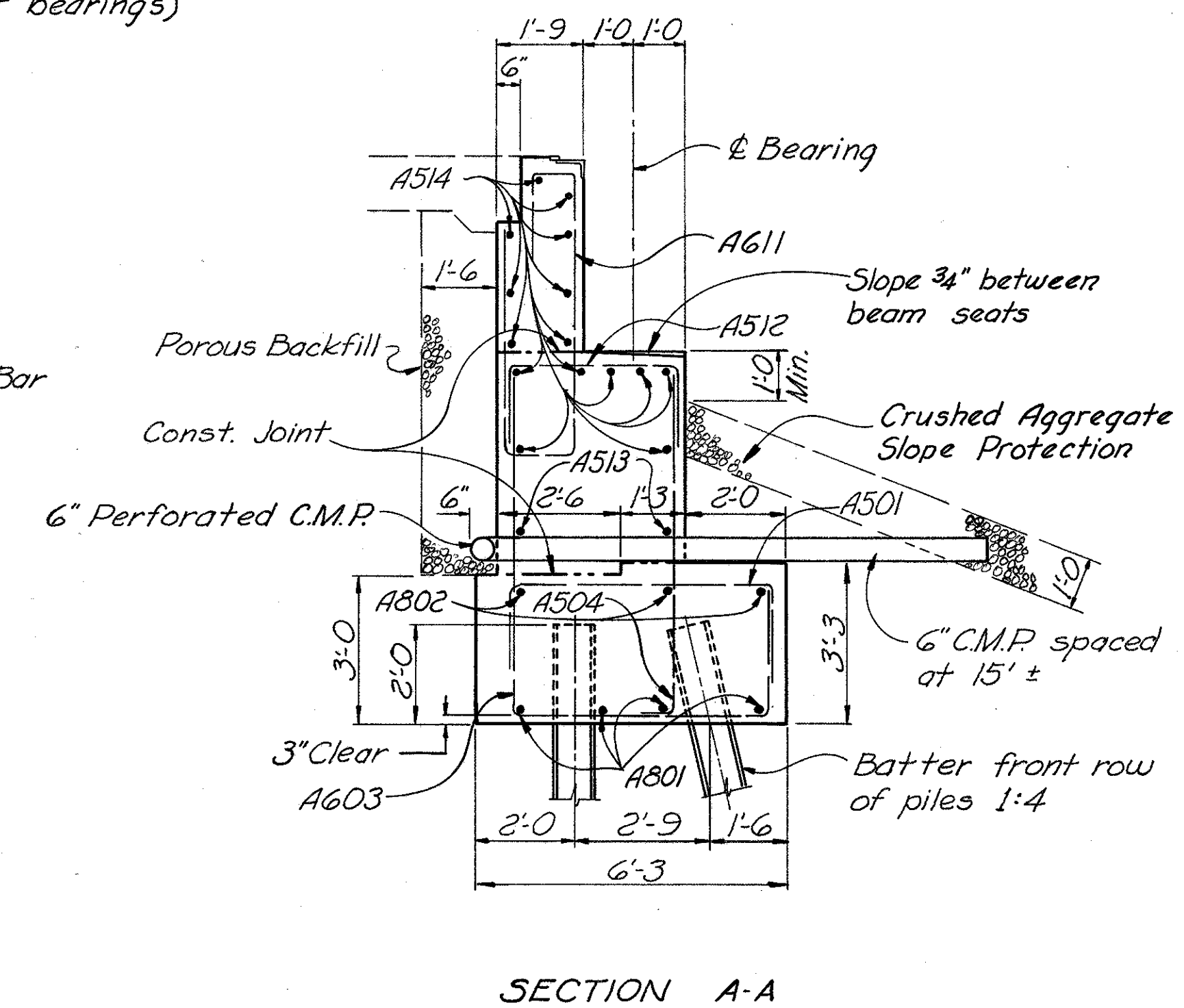
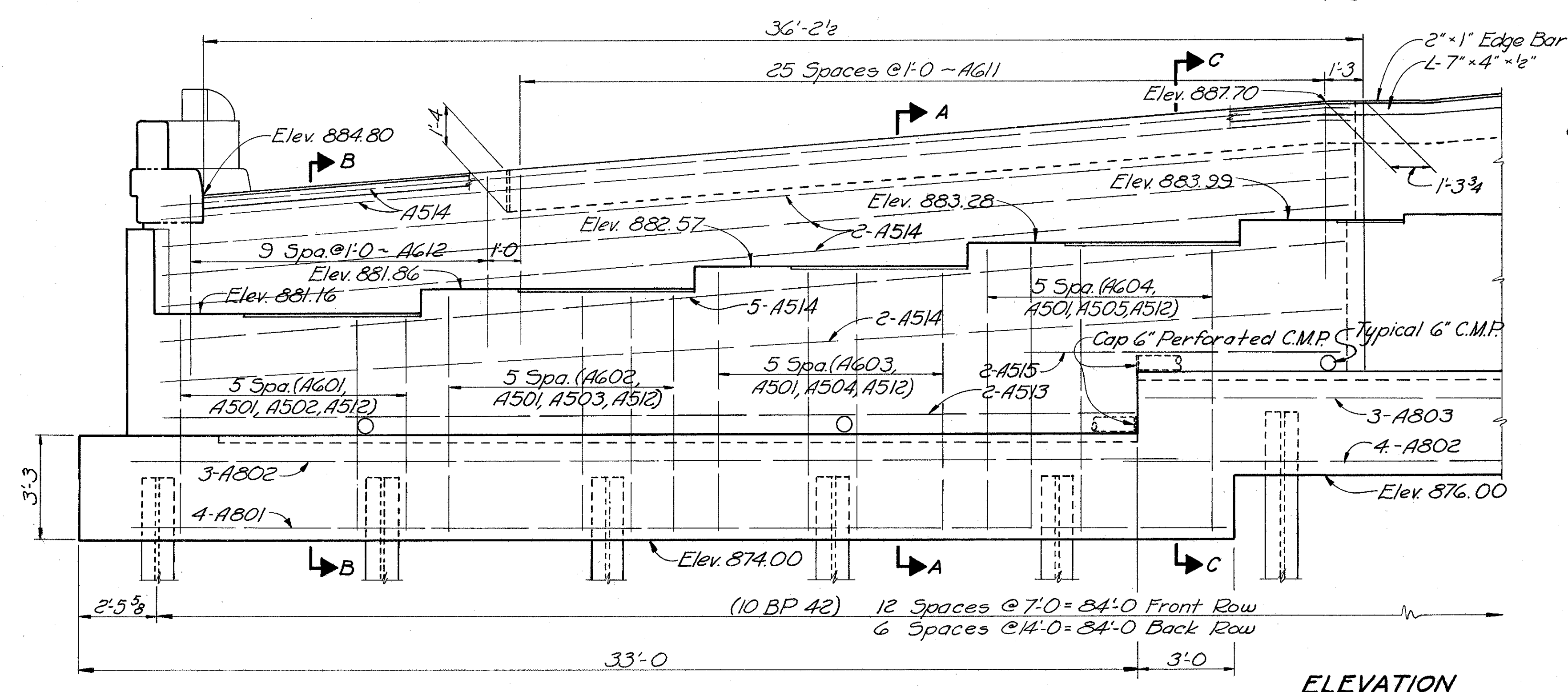
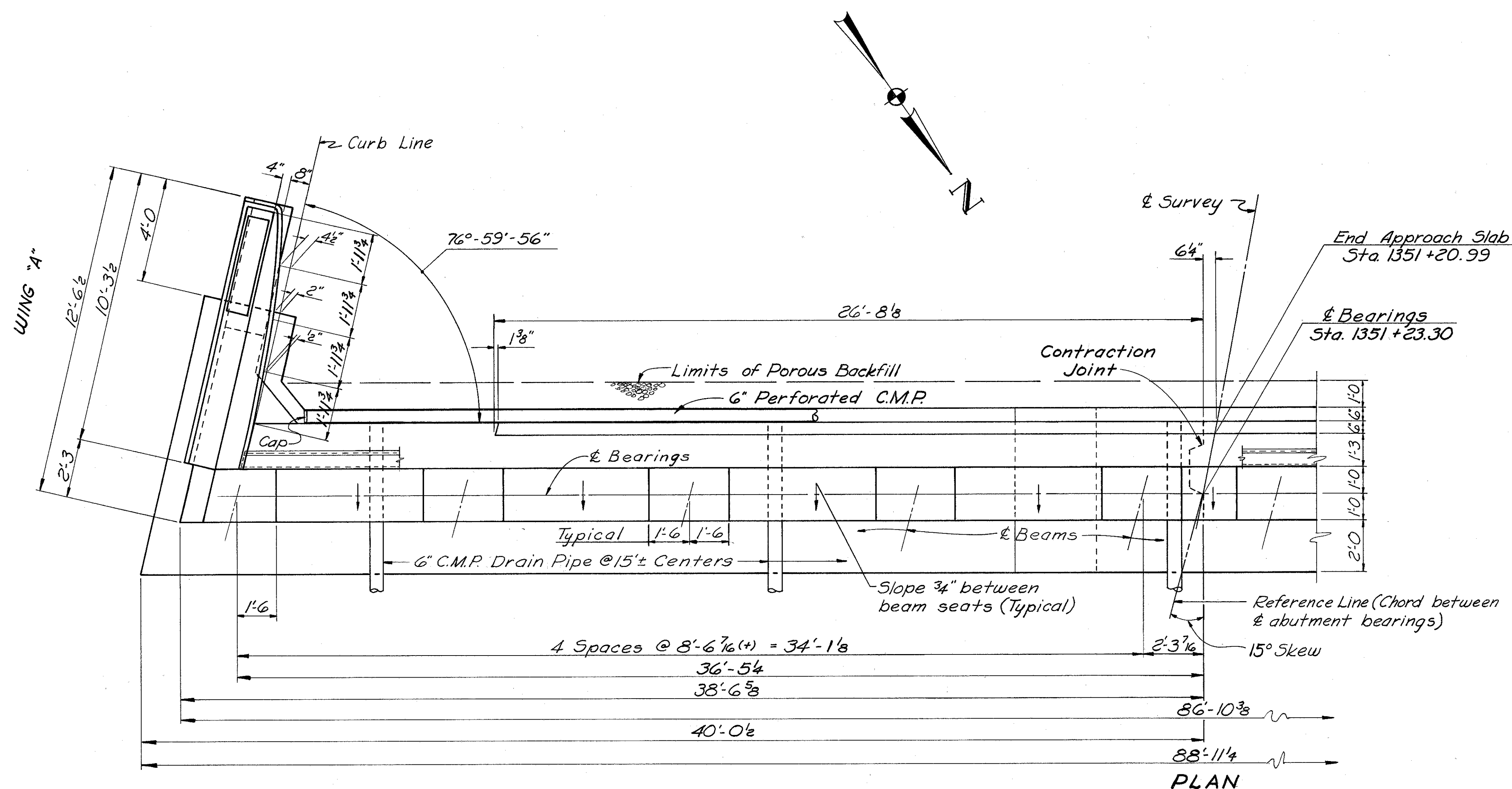
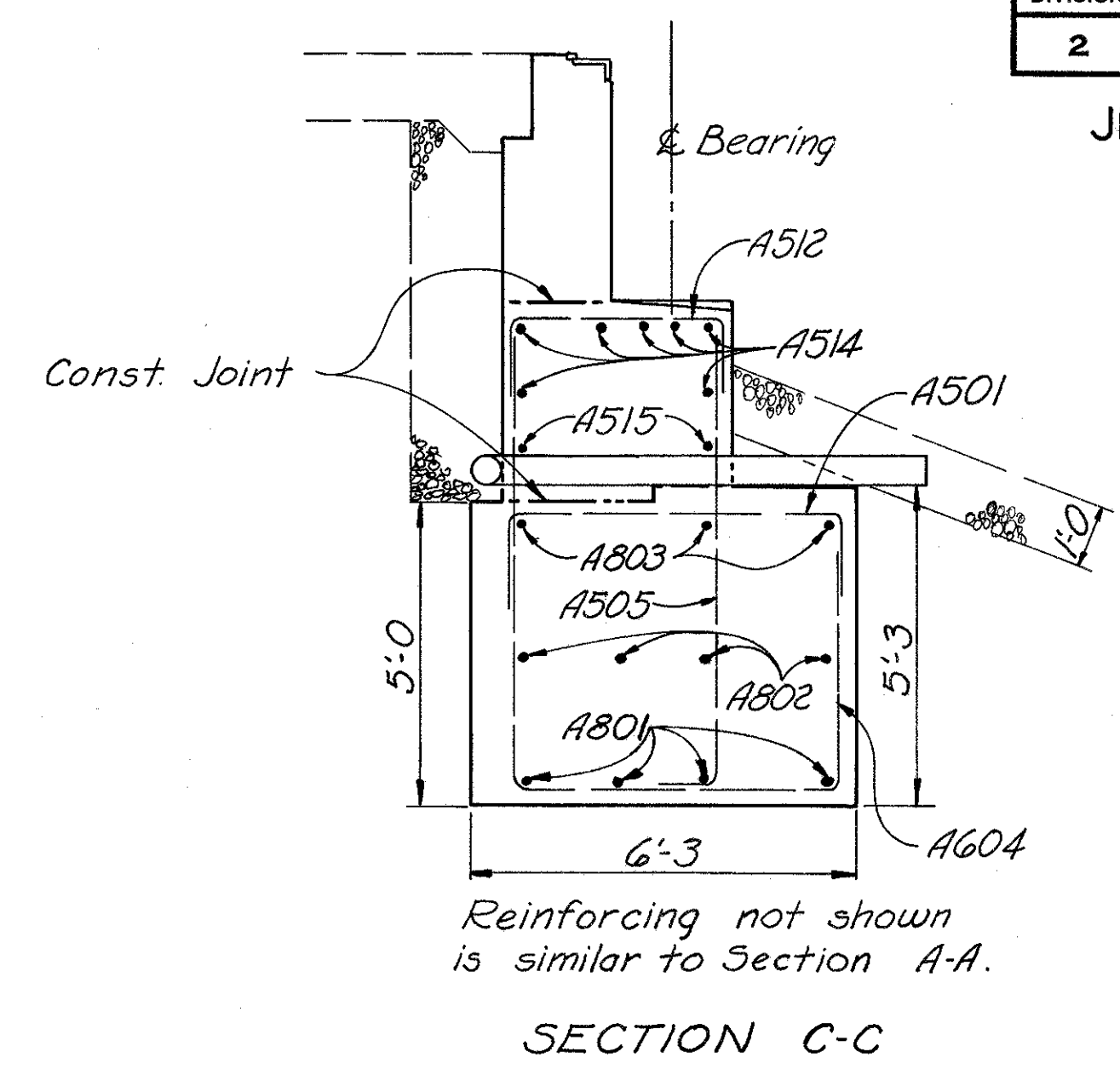
JEFFERSON COUNTY  
JEF-7-23.37



FOOTING PLAN & PILE LAYOUT



JEFFERSON COUNTY  
JEF-7-23.37



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CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

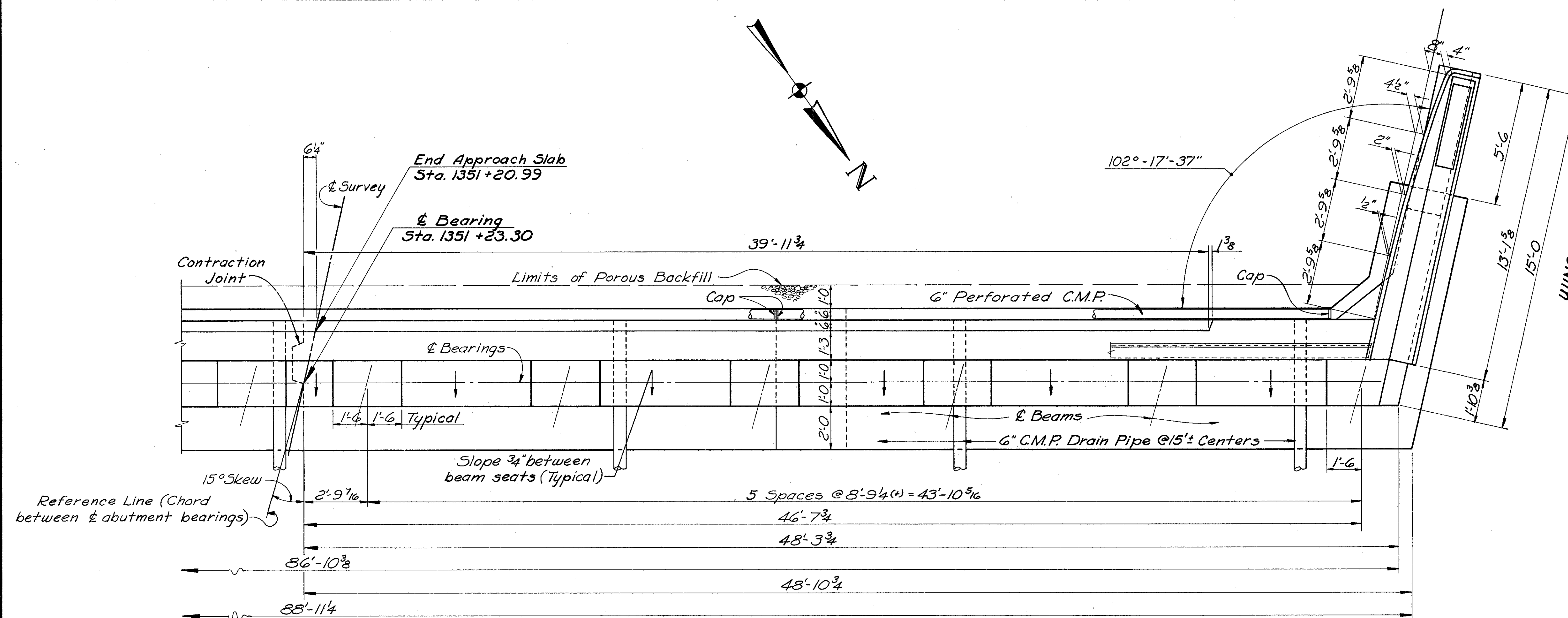
REAR ABUTMENT ~ RT. SIDE  
BRIDGE NO. JEF-7-2555  
SR. 7 OVER C.R. 42 (MAIN ST.)

JEFFERSON COUNTY Sta. 1351+20.99  
" 1352+45.65

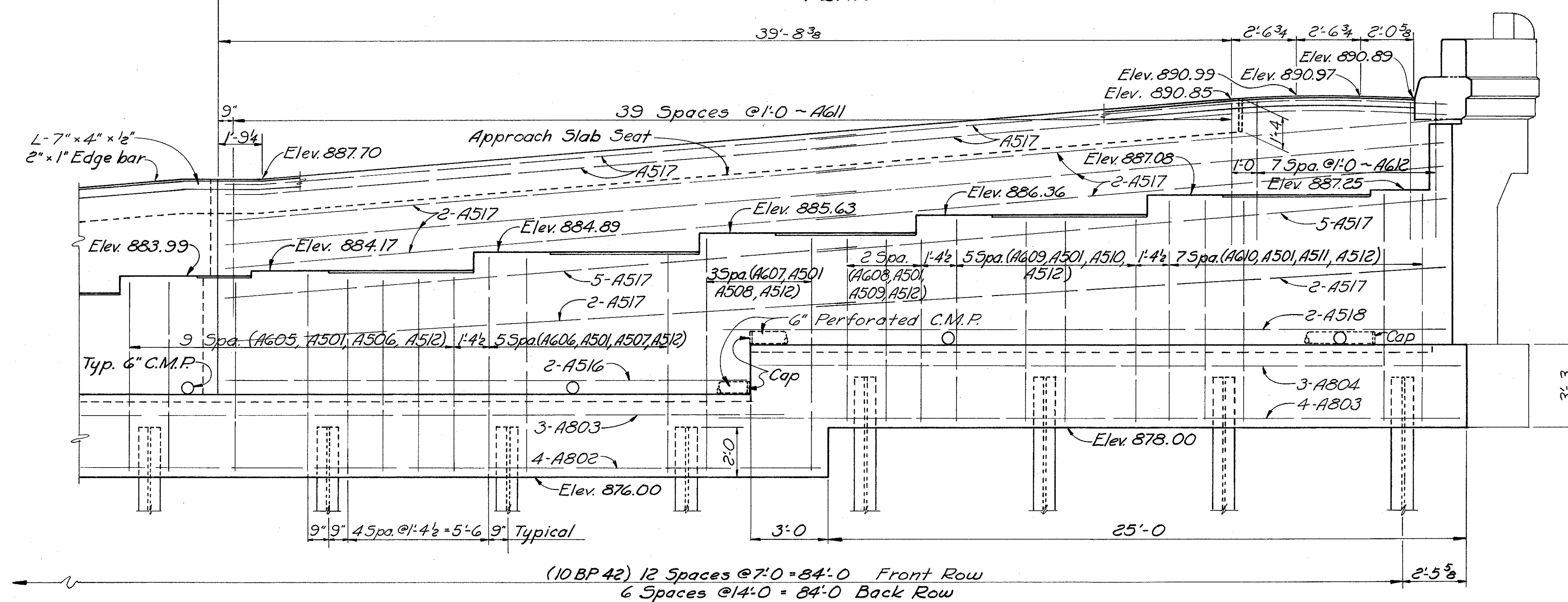
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED

WDA DLM 12-1-64

JEFFERSON COUNTY  
JEF-7-23.37



## PLAN



### ELEVATION

W.E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

REAR ABUTMENT~LT. SIDE  
BRIDGE NO. JEF-7-2555  
S.R. 7 OVER C.R. 42 (MAIN ST.)

JEFFERSON COUNTY Sta. 1351 + 20.99  
" 1352 + 45.65

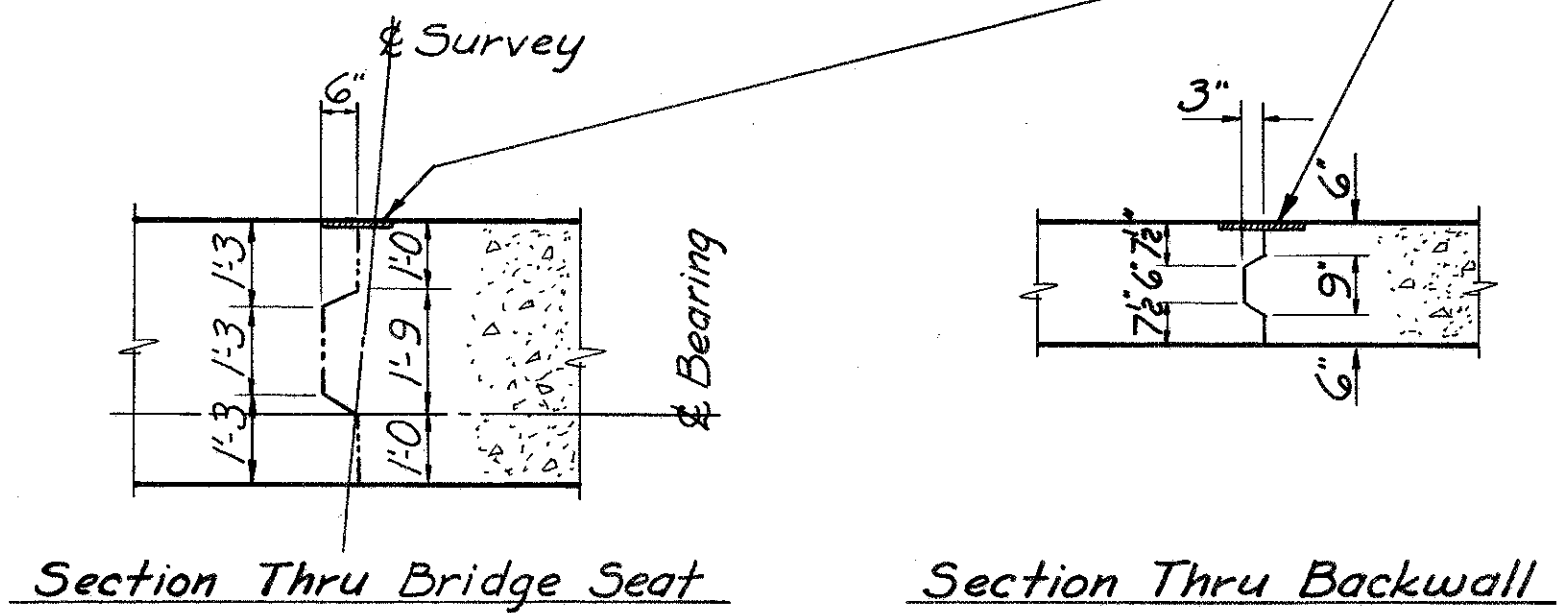
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
		R	WDA	DLM	12-1-64	



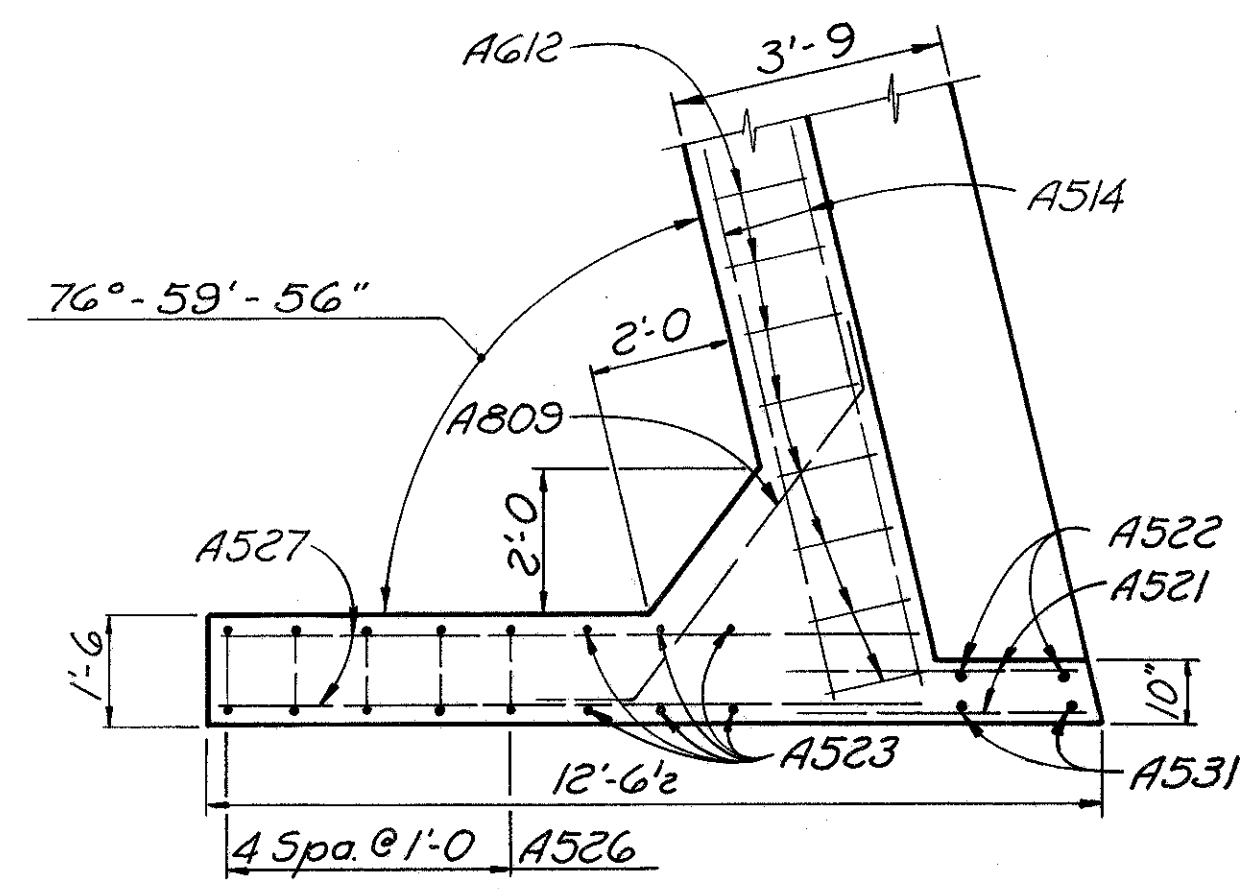
JEFFERSON COUNTY

JEF-7-23.37

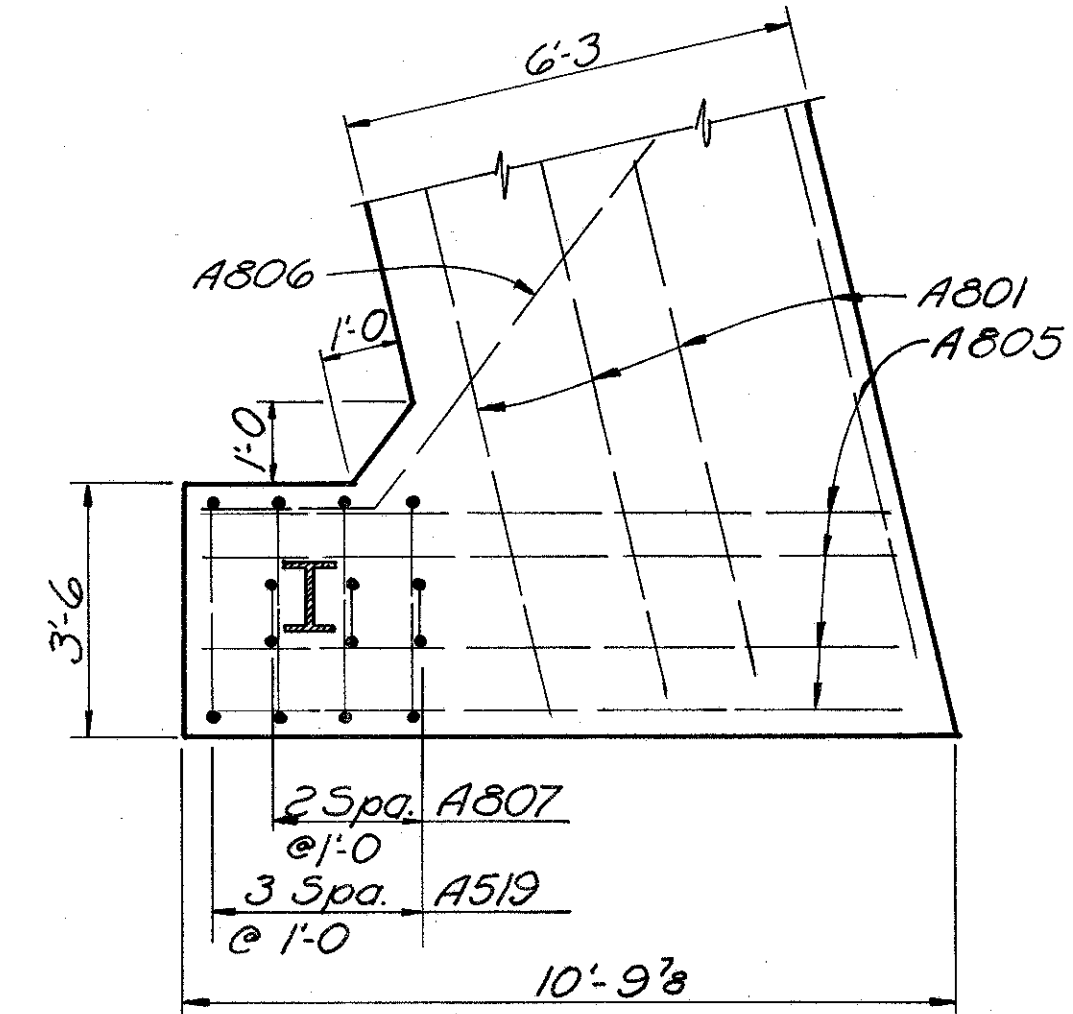
12" x 1/2" Premolded Sealing Strip in 13" x 3/4" recess from top of footing to bottom of approach slab seat.



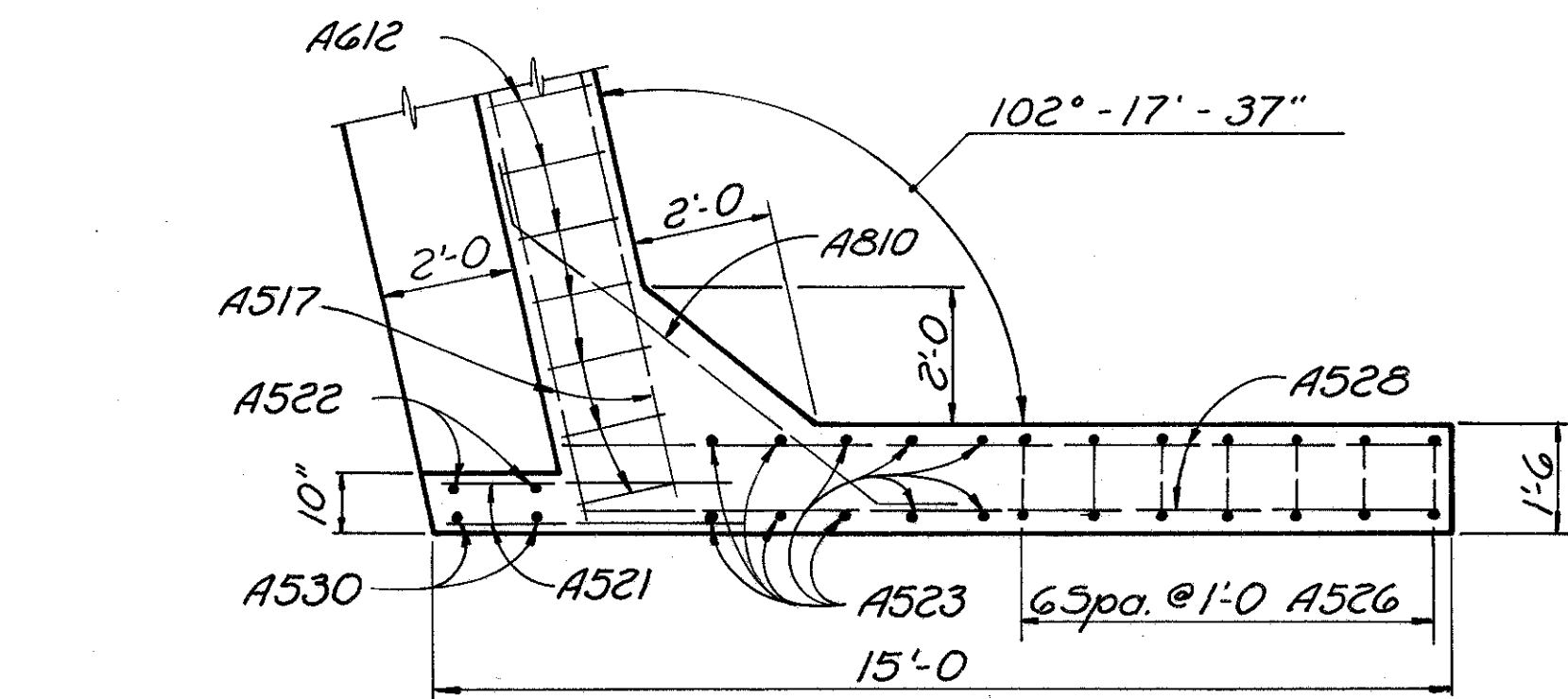
CONTRACTION JOINT DETAILS



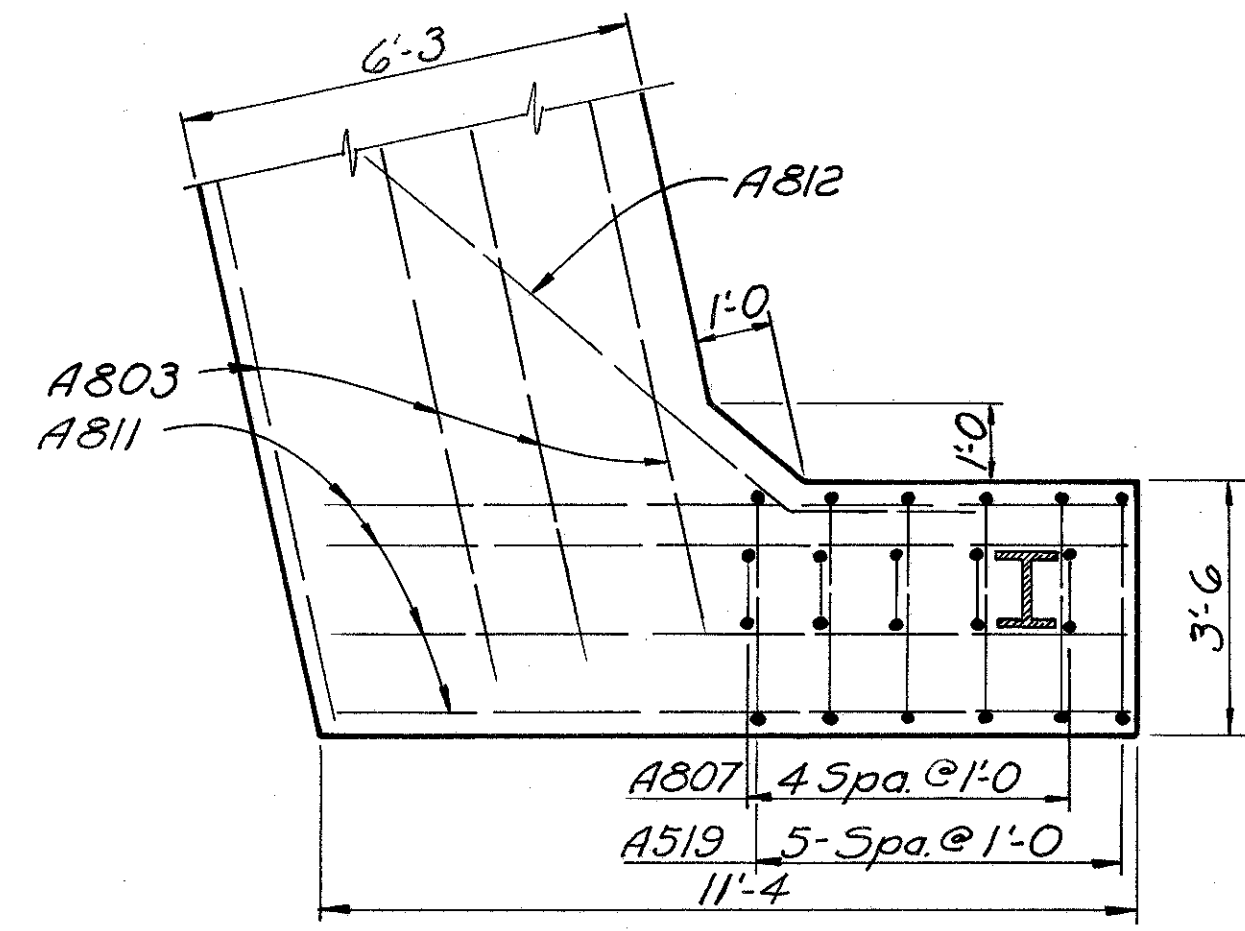
SECTION E-E



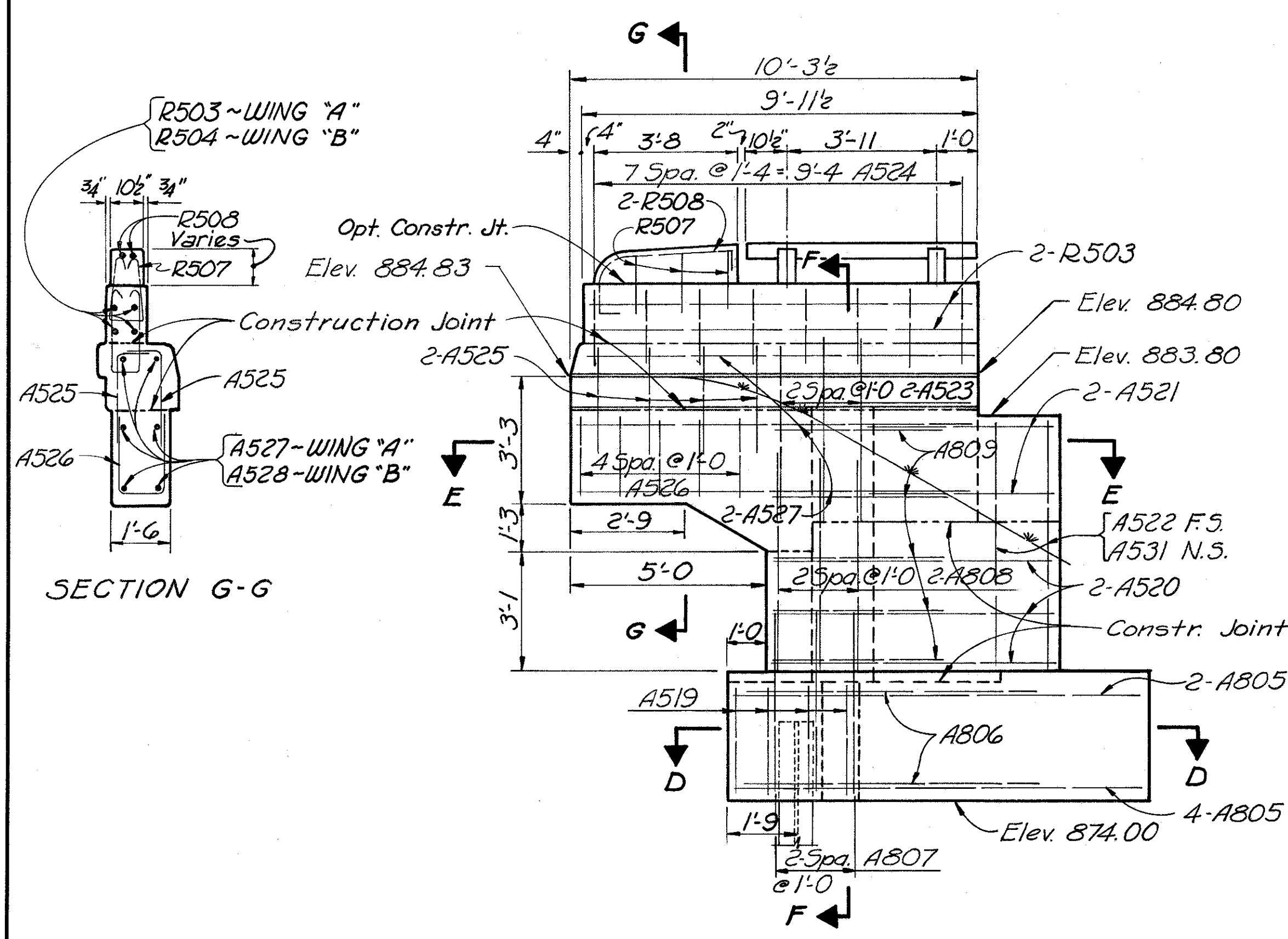
SECTION D-D



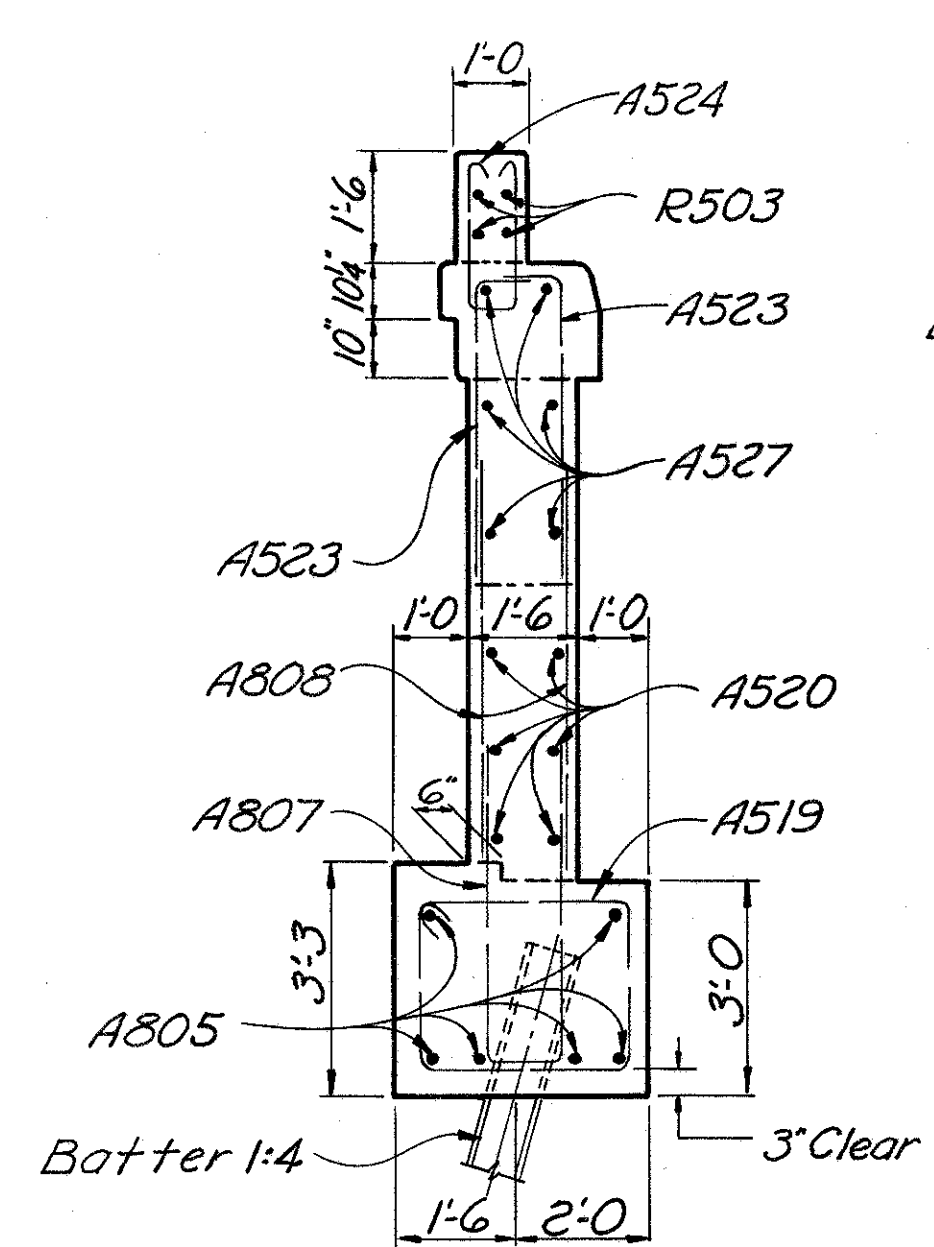
SECTION J-J



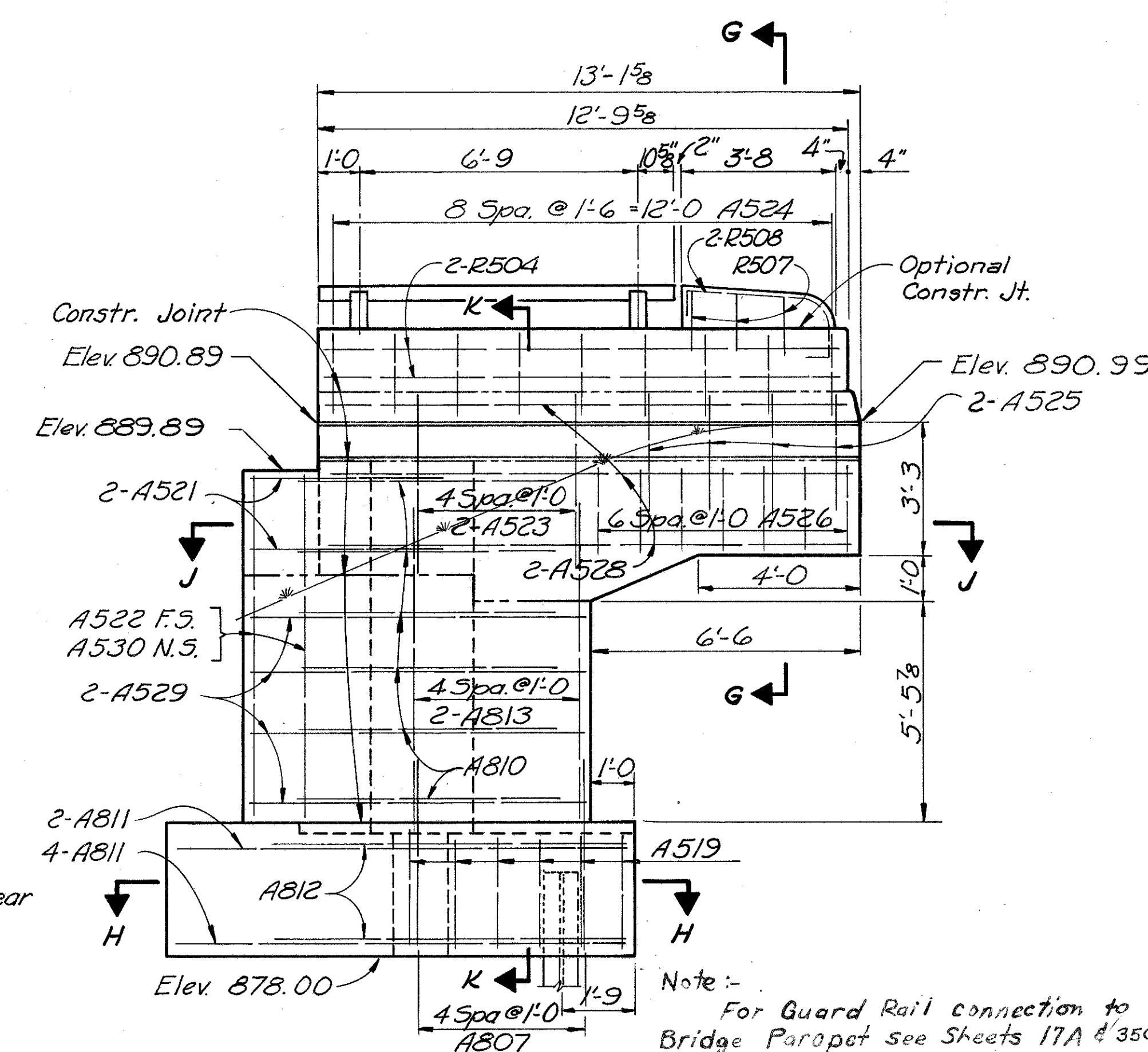
SECTION H-H



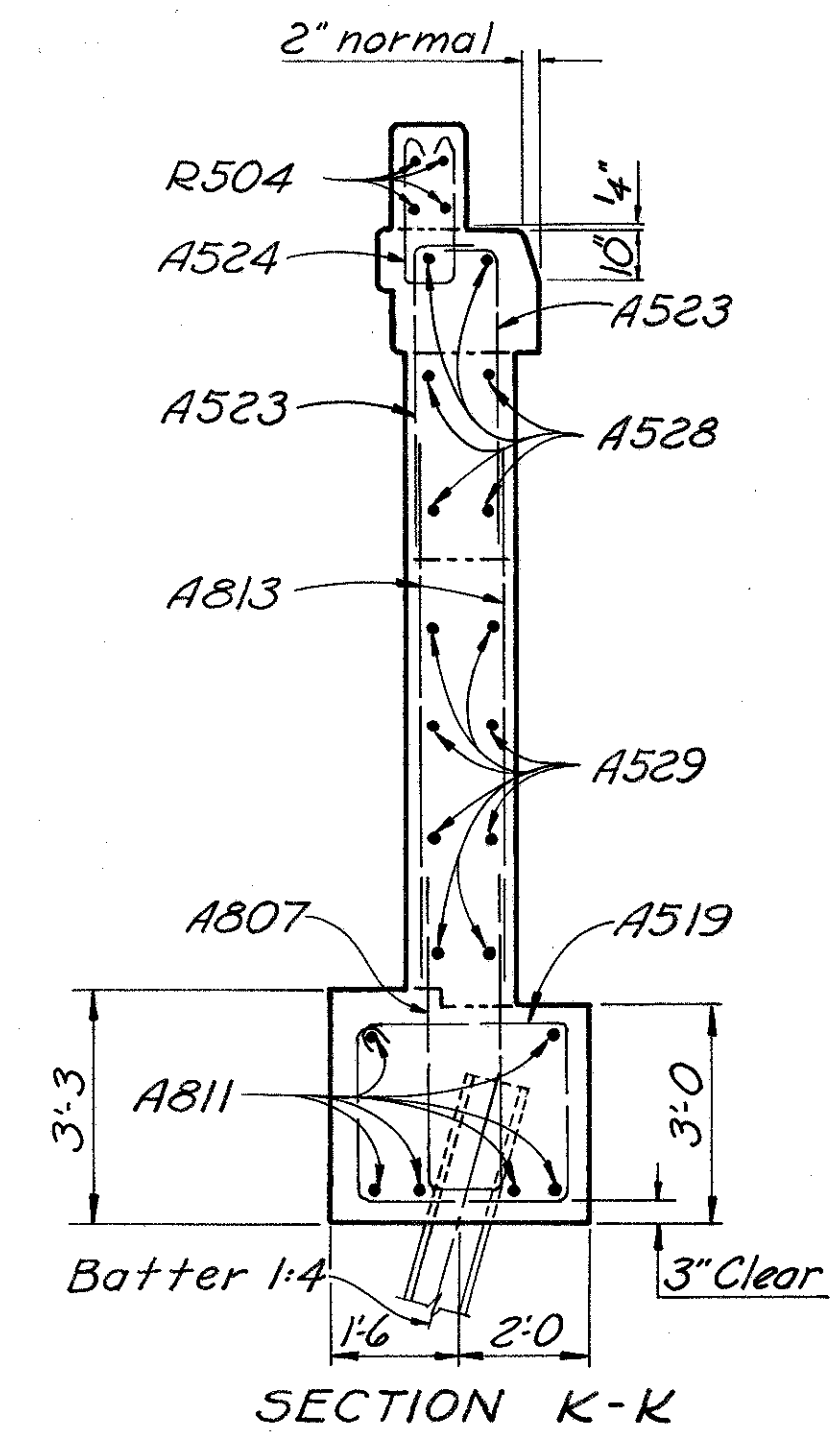
ELEVATION OF WING "A"



SECTION F-F



ELEVATION OF WING "B"



SECTION K-K

Note:- For Guard Rail connection to Bridge Parapet see Sheets 17A & 350.

W.E. QUICKSALL AND ASSOCIATES, INC.

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REAR ABUTMENT DETAILS

BRIDGE NO. JEF-7-2555

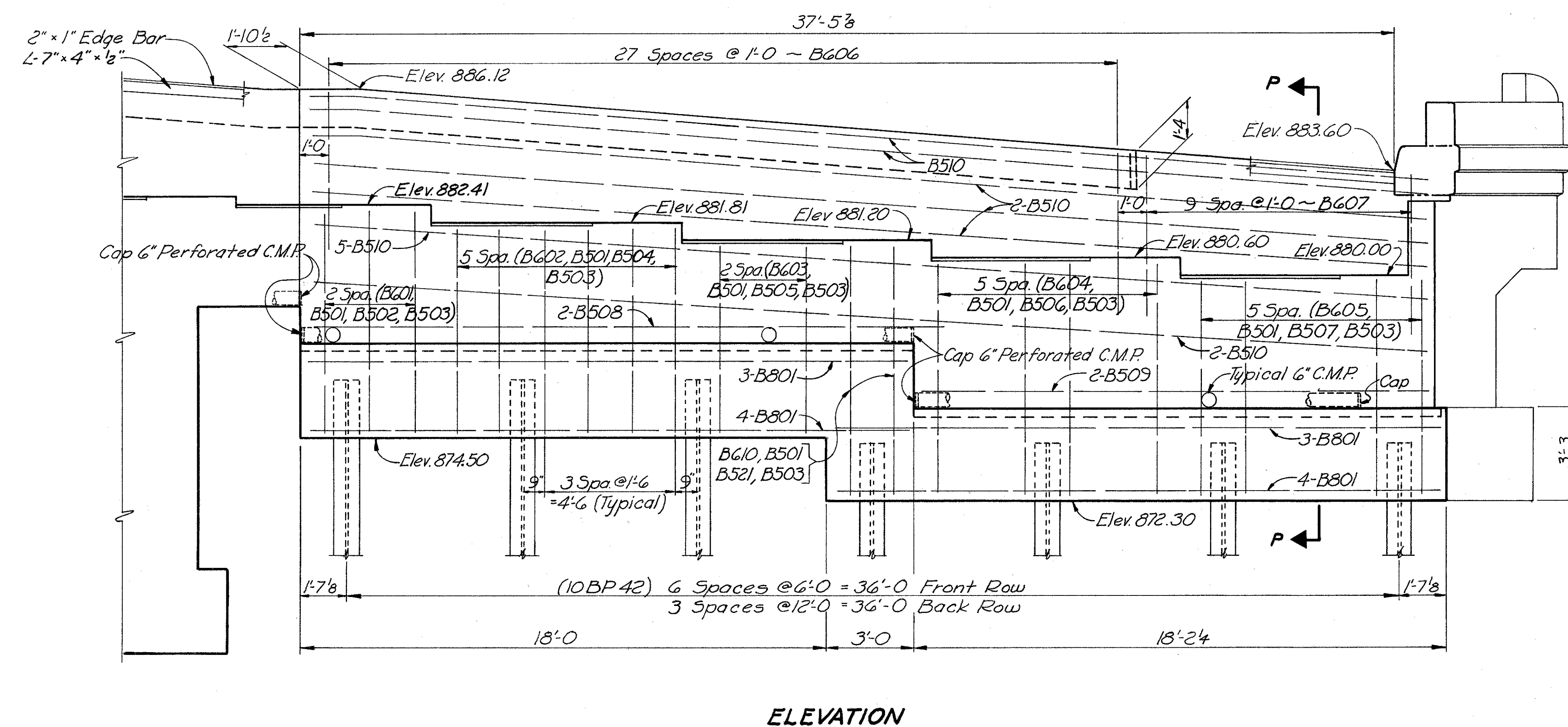
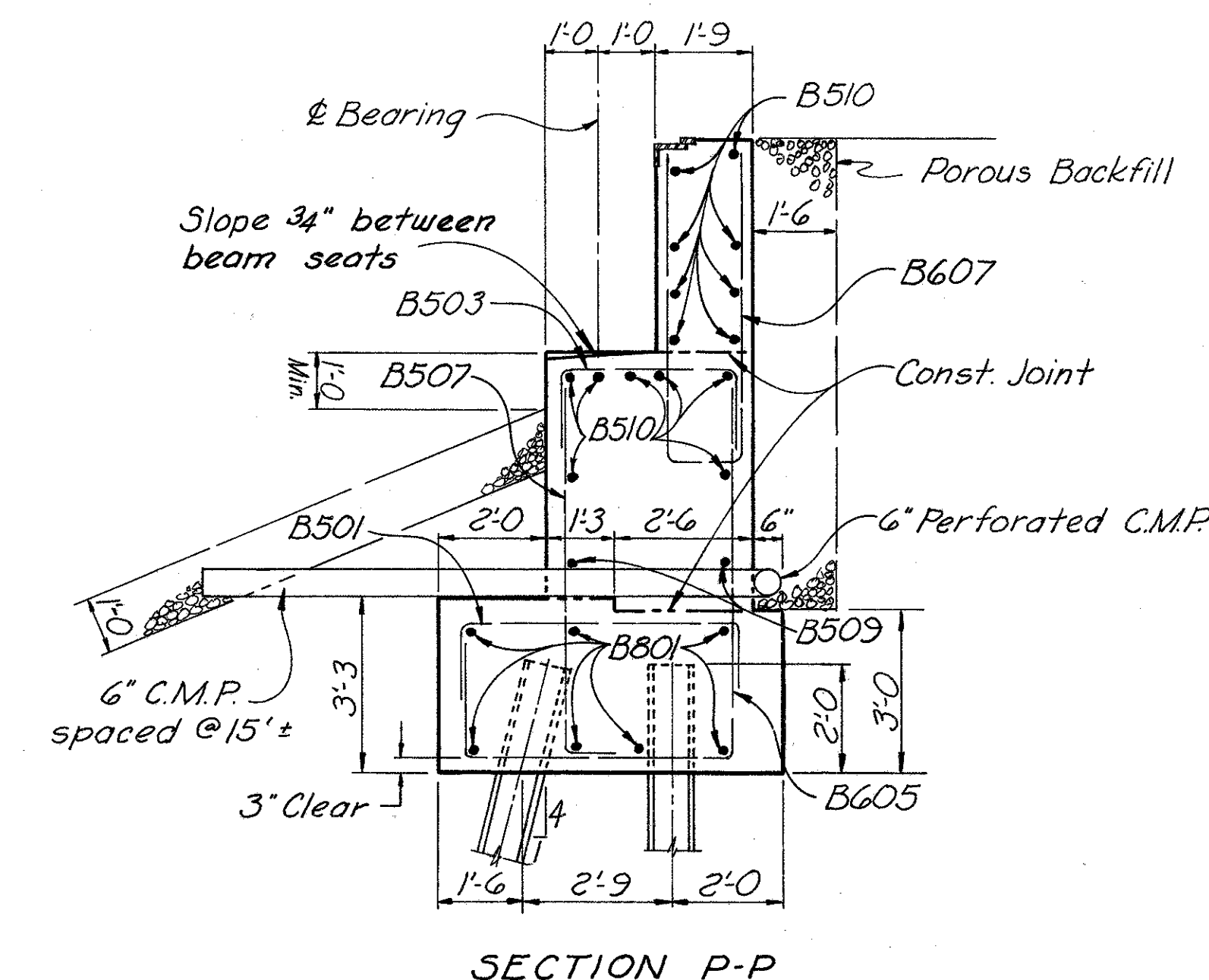
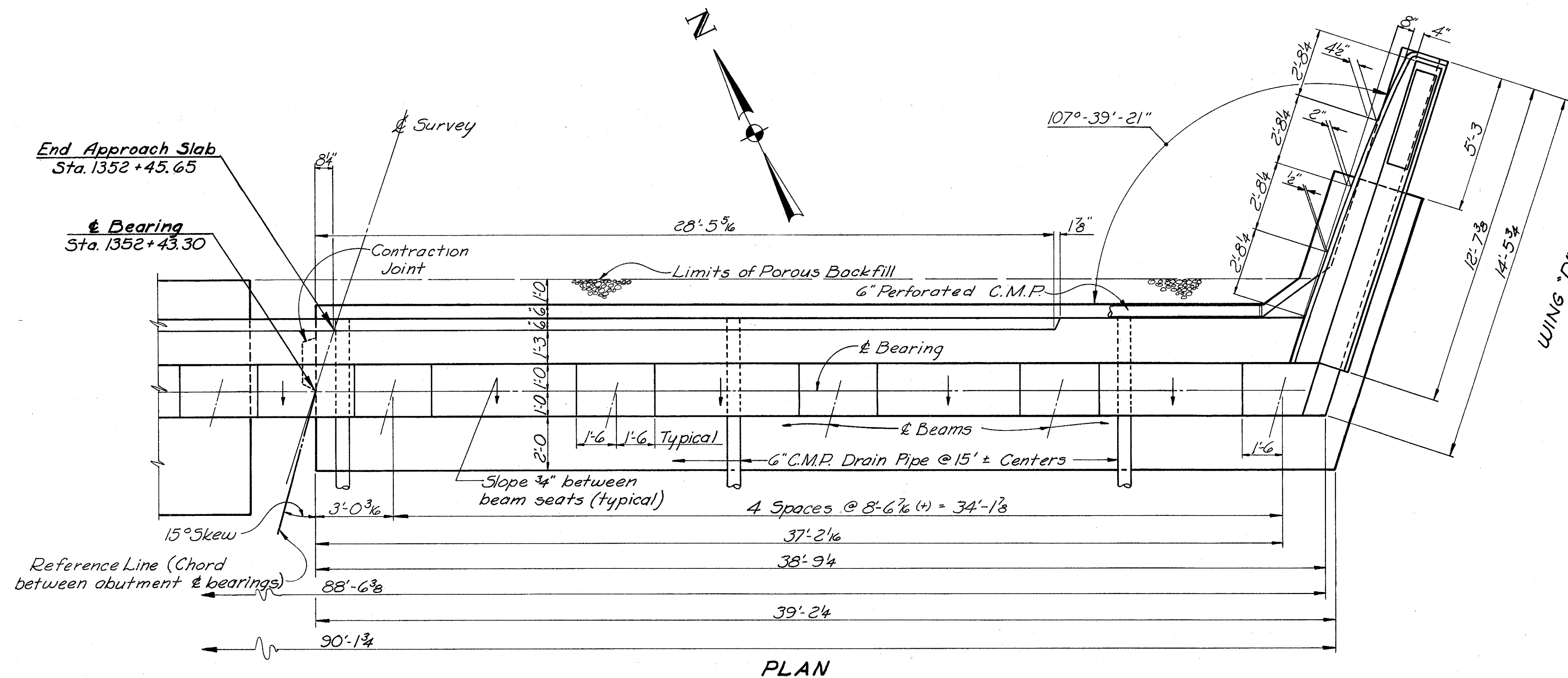
S.R. 7 OVER C.R. 42 (MAIN ST.)

JEFFERSON COUNTY STA. 1351+20.99

" 1352+45.65

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISION
					12-1-64	9-5-67

JEFFERSON COUNTY  
JEF-7-23.37





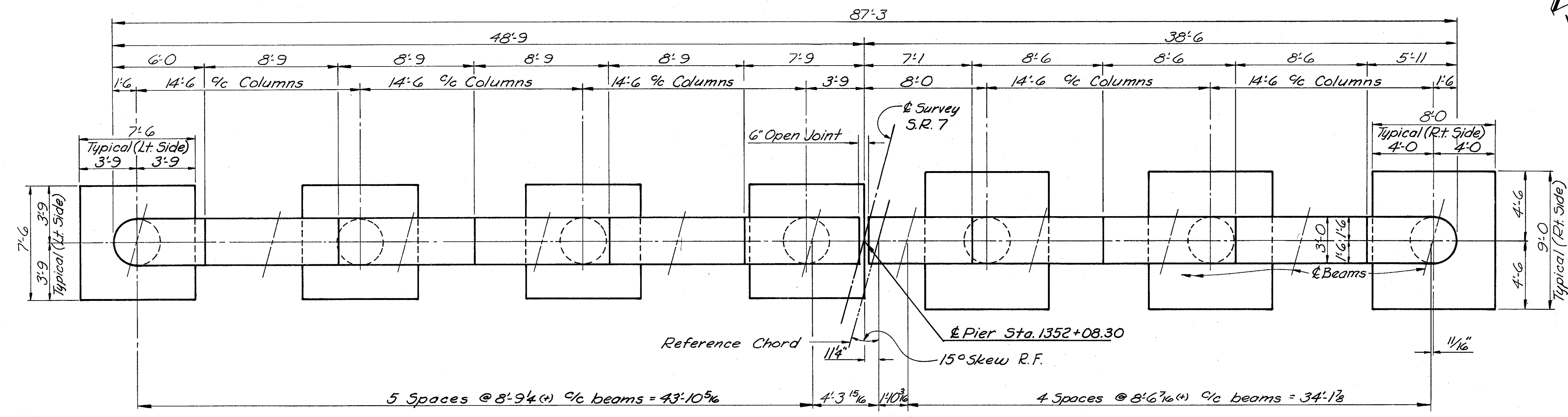
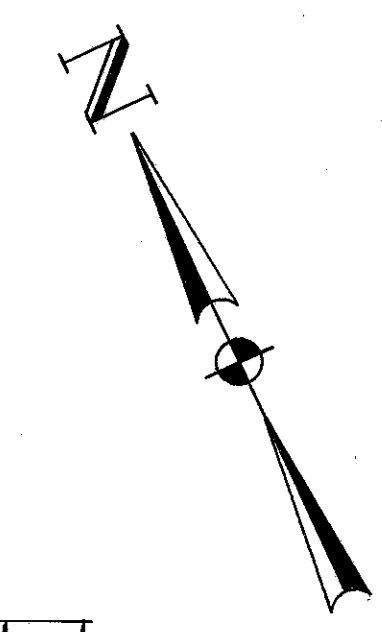




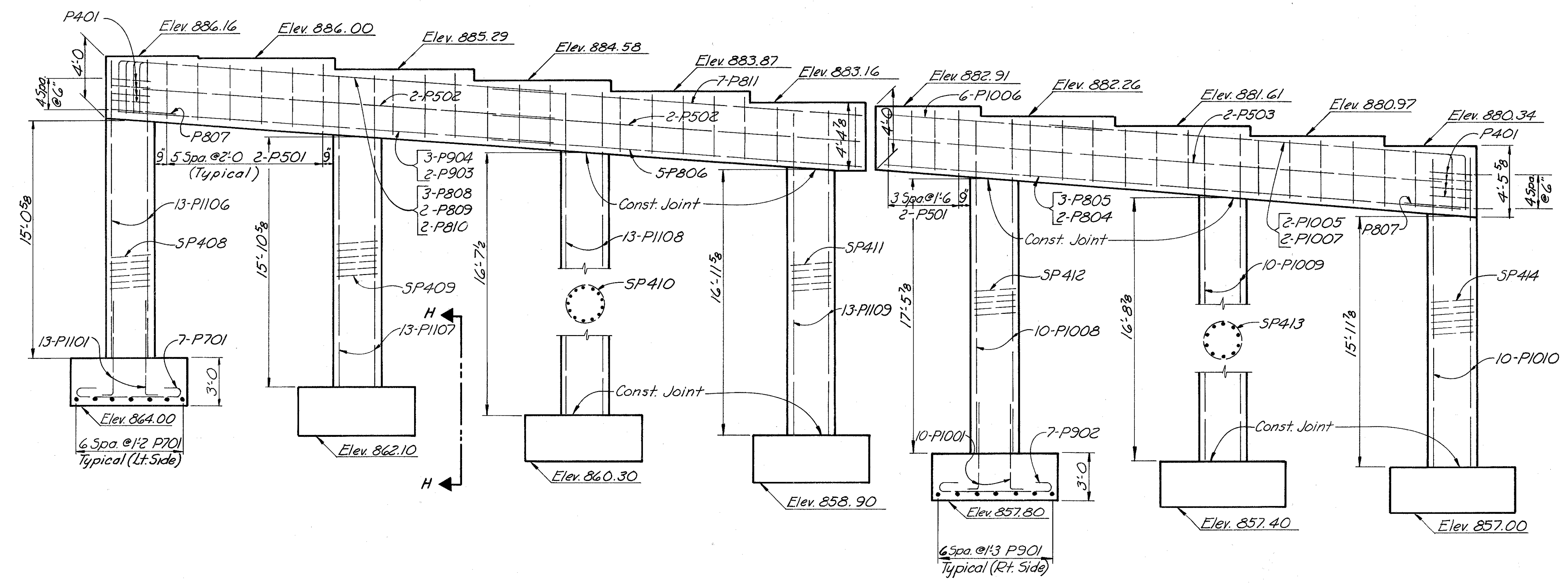




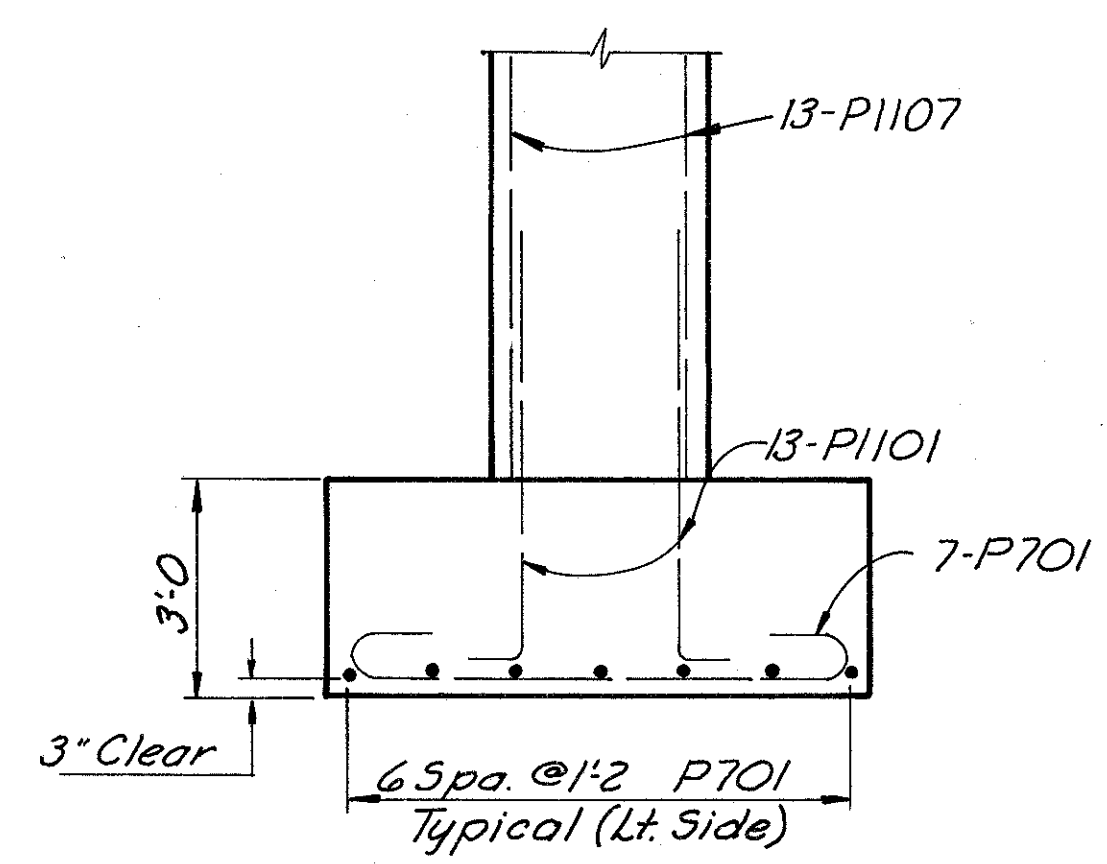
JEFFERSON COUNTY  
JEF-7-23.37



PLAN



ELEVATION



SECTION H-H

For additional pier details,  
see Rear Pier Details Sh. No. 370

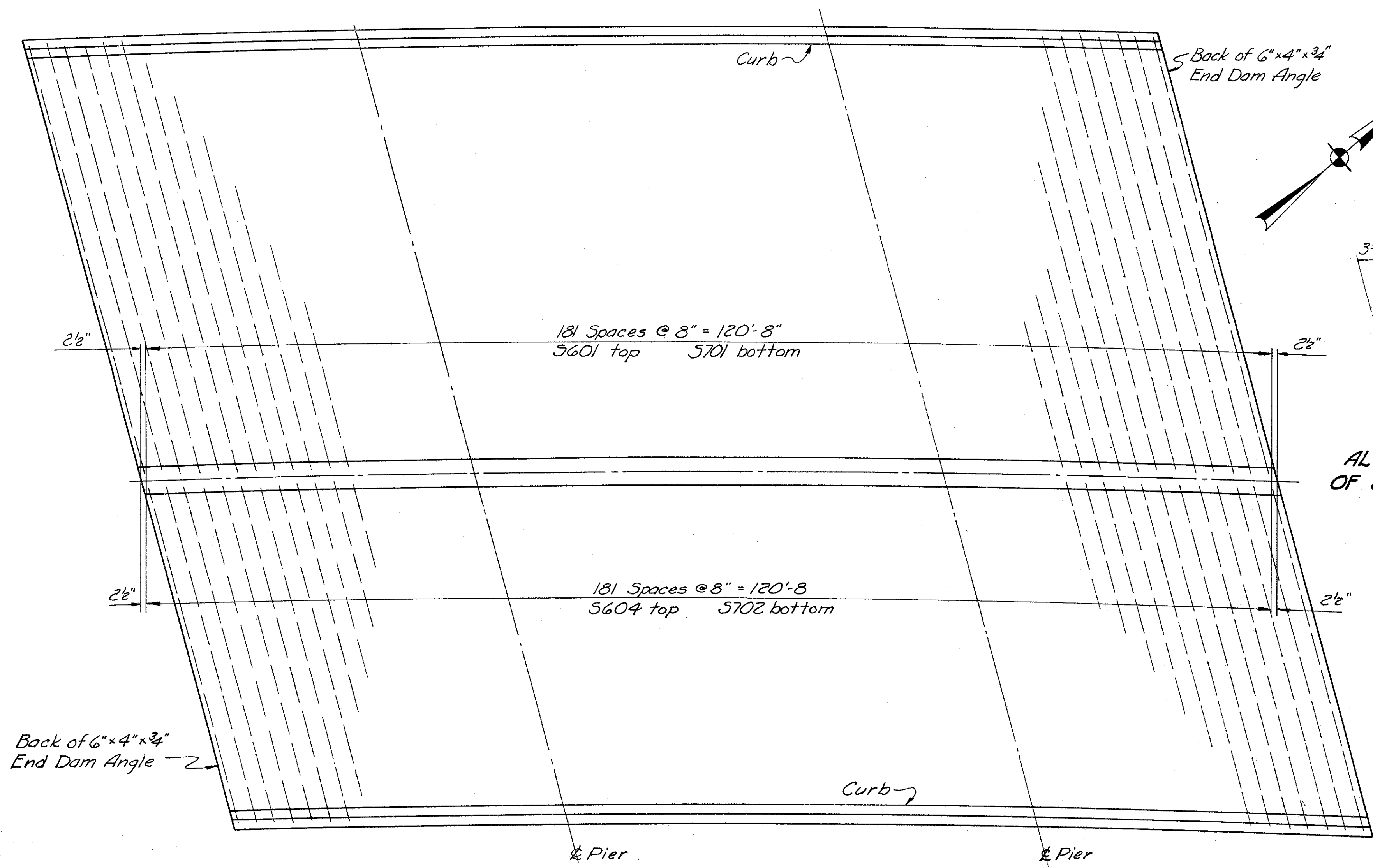
W.E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

**FORWARD PIER DETAILS**  
BRIDGE NO. JEF-7-2555  
S.R. 7 OVER C.R. 42 (MAIN ST.)  
JEFFERSON COUNTY Sta. 1351 + 20.99  
" 1352 + 45.65

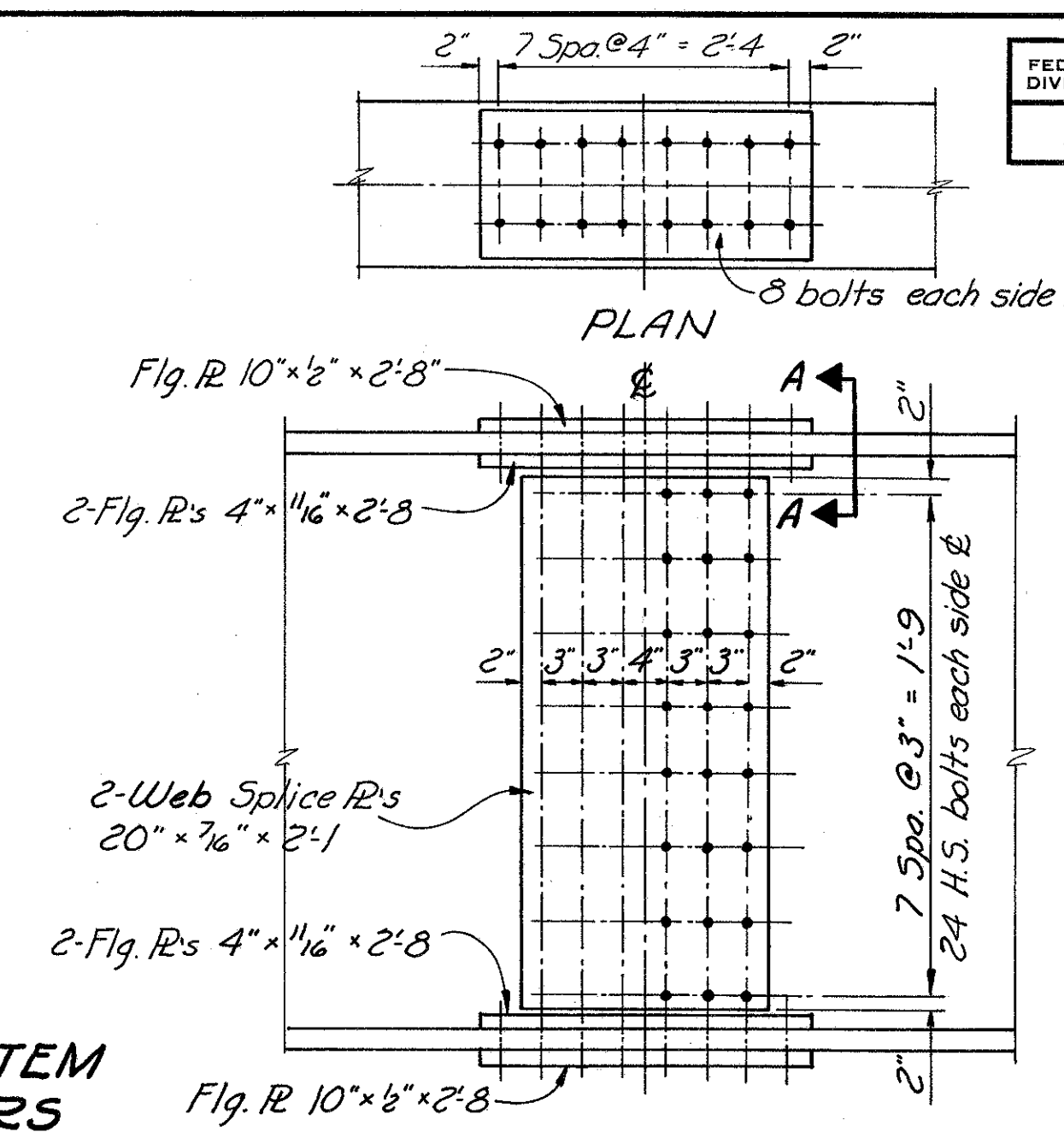
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED



JEFFERSON COUNTY  
JEF-7-23.37

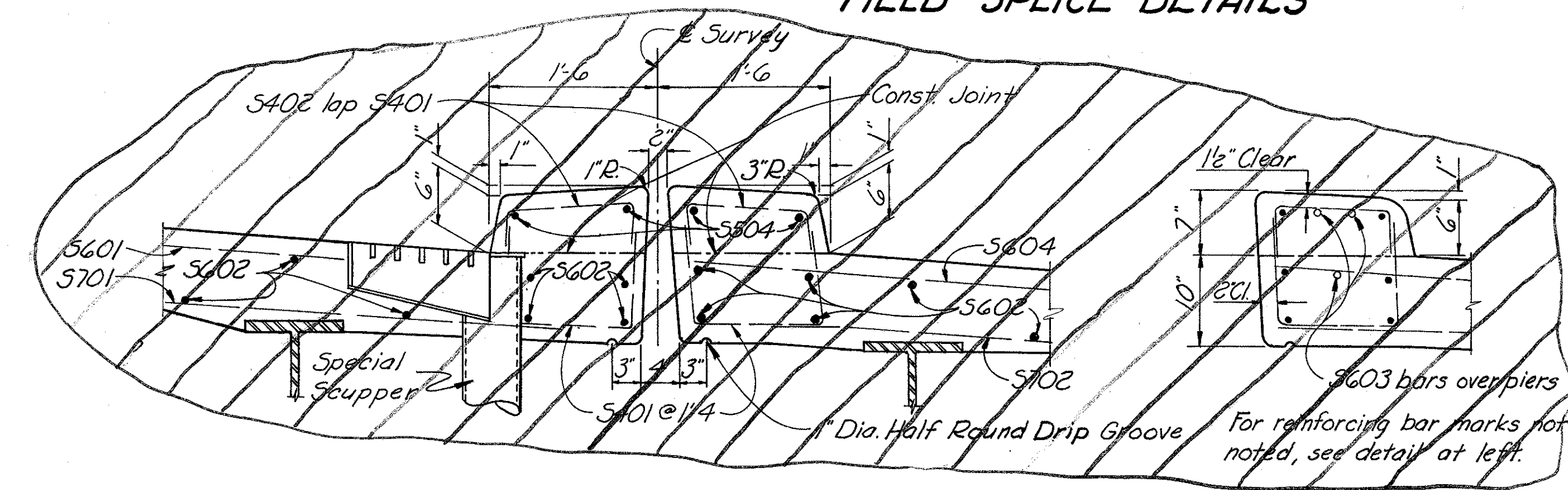


ALTERNATE STAGGER SYSTEM  
OF S603 BARS OVER PIERS



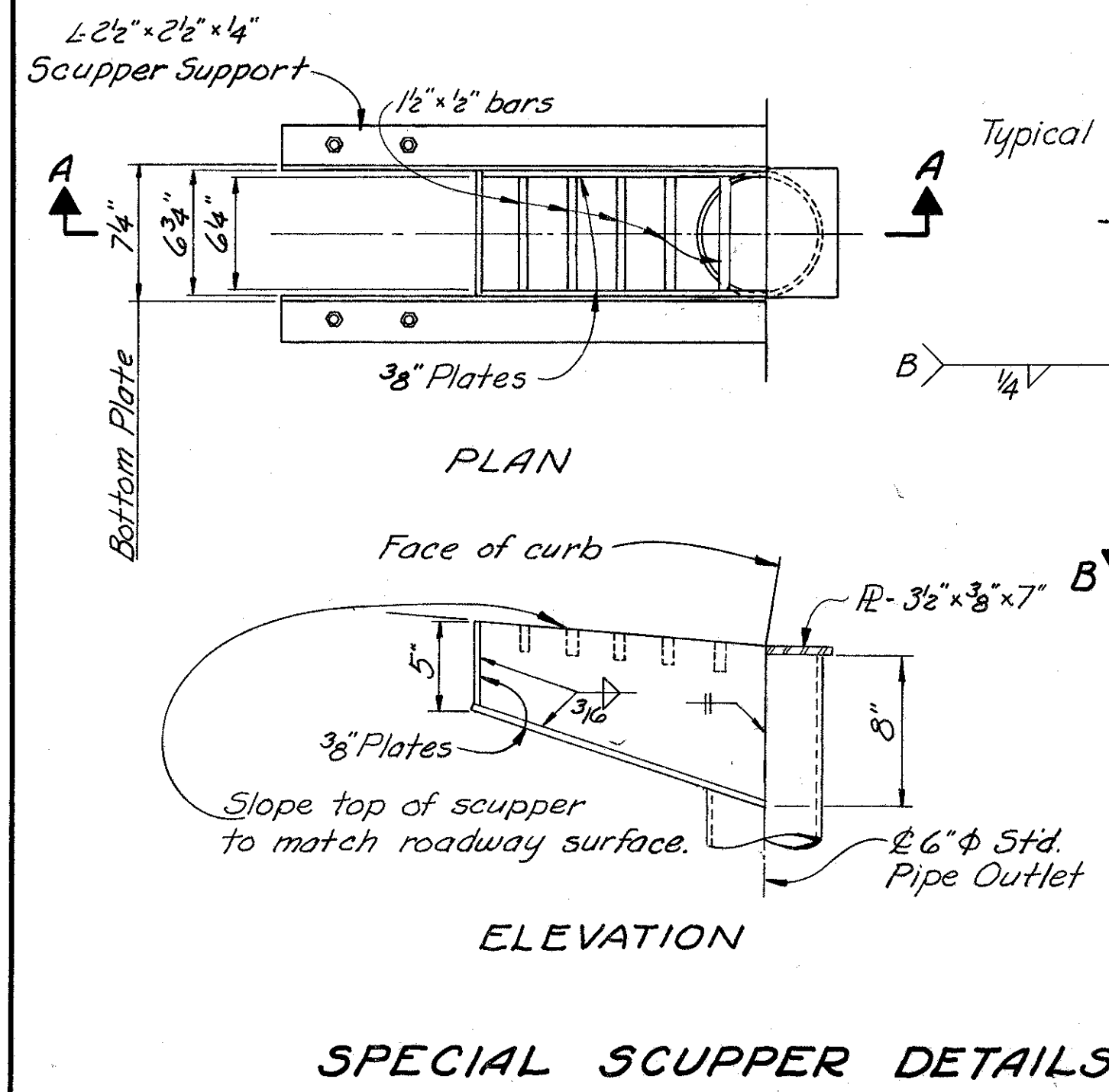
FIELD SPLICE DETAILS

Note: Place web splice bolts with heads on exterior side of fascia beams and lower flange splice bolts with heads on bottom side of all beams.  
All bolts 1" dia. high strength steel.

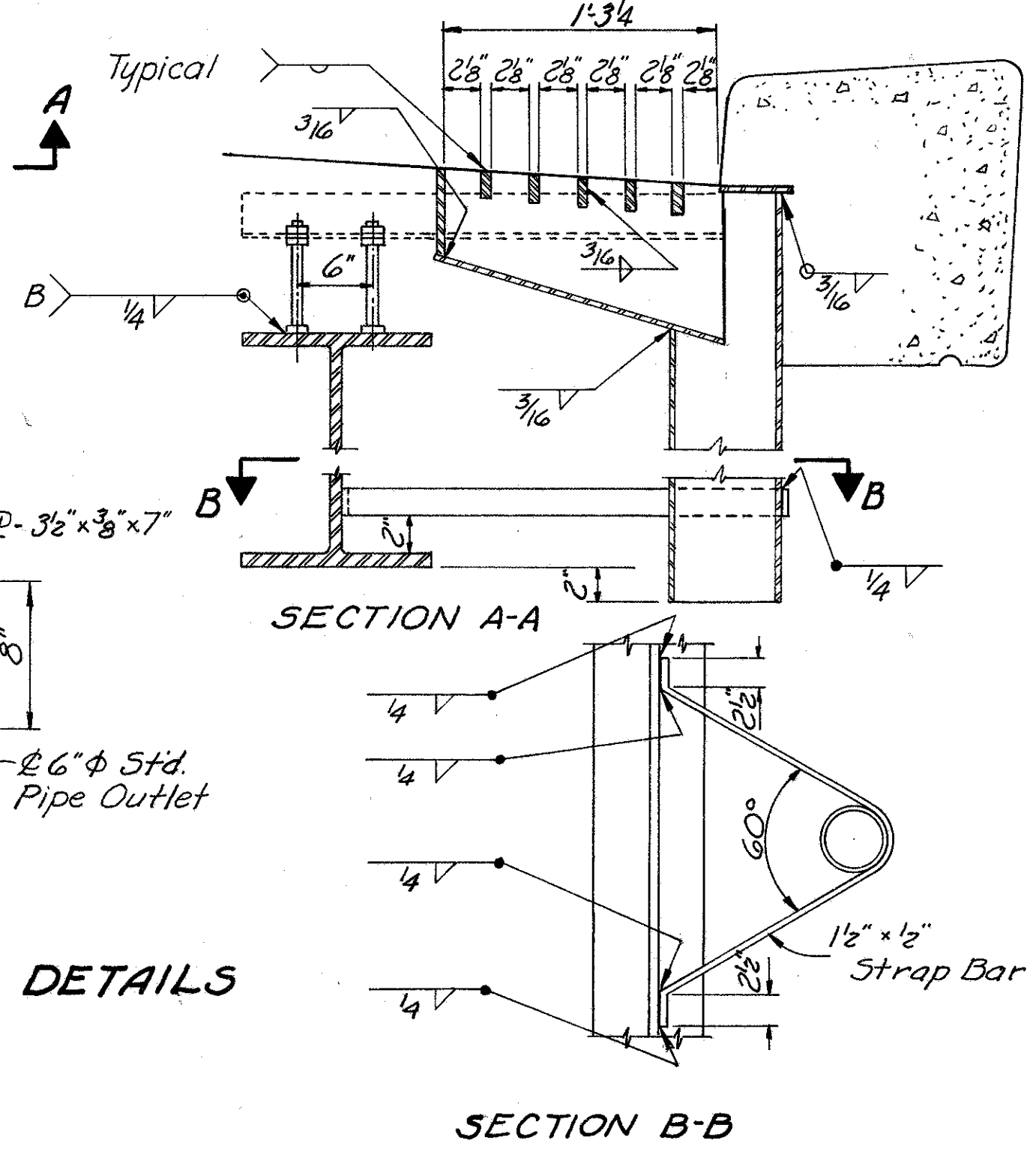


MEDIAN DETAILS

(See Sheet 350 for Details)

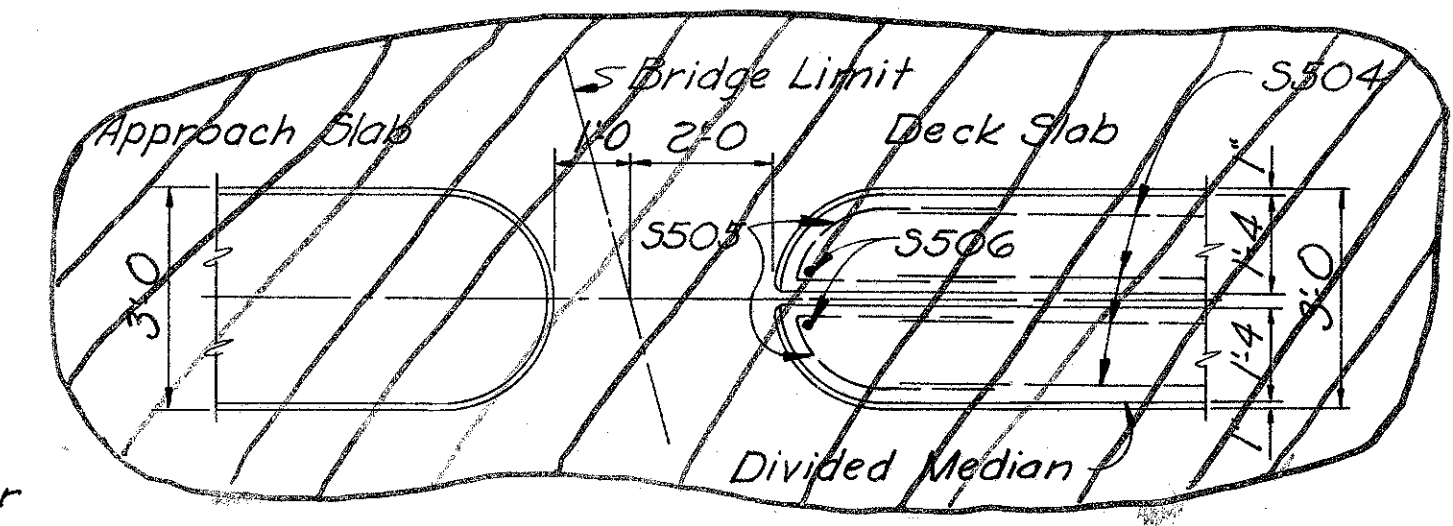


PLAN OF TRANSVERSE REINFORCING STEEL



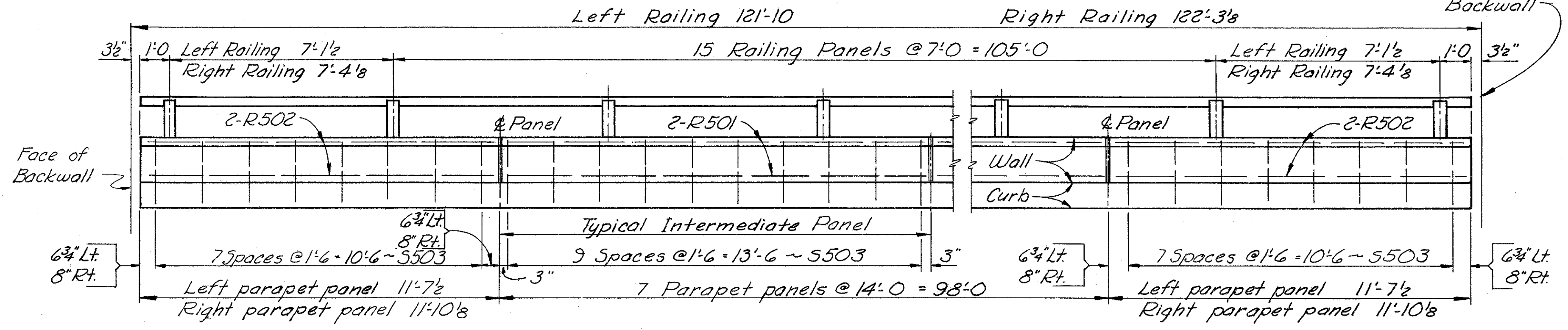
PLAN OF MEDIAN ENDING

(See Sheet 350 for Details)

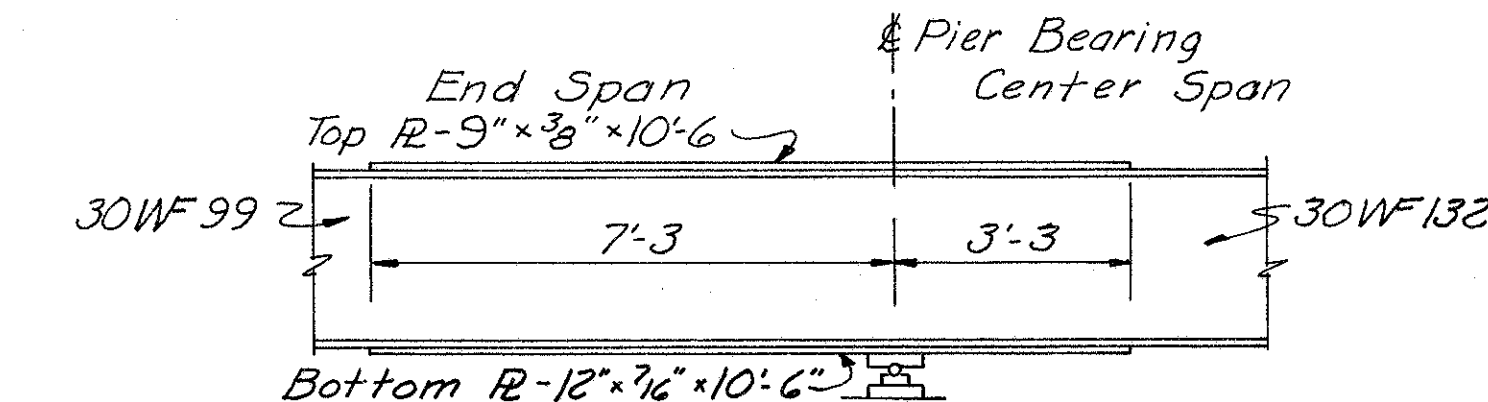


PLAN OF MEDIAN ENDING

(See Sheet 350 for Details)



RAILINGS ELEVATION



MOMENT PLATE DETAIL

See sheet 373 for additional details.

W.E. QUICKSALL AND ASSOCIATES, INC. CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO							
<b>SUPERSTRUCTURE DETAILS</b>							
BRIDGE NO. JEF-7-2555							
S.R. 7 OVER C.R. 42 (MAIN ST.)							
JEFFERSON COUNTY Sta. 1351+20.99							
" 1352+45.65							
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISION	
					12-1-64	9-5-67	







JEFFERSON COUNTY  
JEF.-7-23.37  
At Toronto

CURVE DATA S.R. 7  
 $\Delta = 86^{\circ} - 54' - 11''$  Lt.  
 $D_c = 3^{\circ} 00'$   
 $R = 1909.86'$   
 $L_c = 2546.77$   
 $L_s = 350'$   
 $P.I. = Sta. 1385 + 07.59$

B.M. Mine Spike  $\phi$  320 B.T.,  
Intersection of Myers St. and  
7<sup>th</sup> St., S.W. Penna. R.R., El. 703.14

PROPOSED STRUCTURE  
TYPE: Continuous steel beams  
with reinforced concrete deck  
and substructure  
SPANS: 32'-45.5'-36.5'  
ROADWAY: 71'-0"  $\frac{1}{4}$  110 safety curbs  
with 3'-0" raised median  
LOAD FREQUENCY: CF-2000 (57)  
SKEW: 17°-43'-45" L.F.  
WEARING SURFACE: 1" monolithic  
APPROACH SLABS: AS-1-54  
modified, 25' long  
ALIGNMENT: Tangent and Spiral  
SUPERELEVATION: Varies

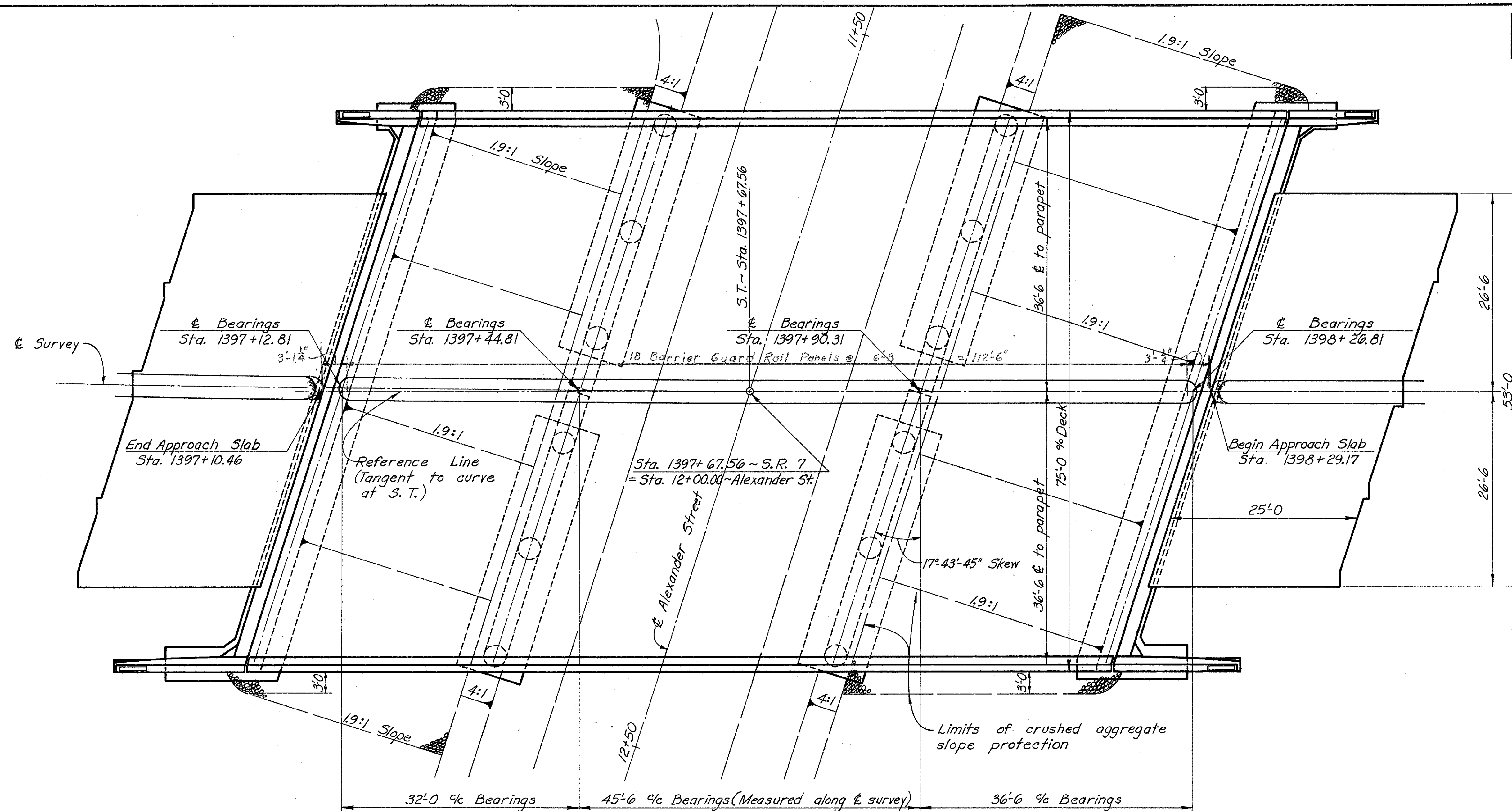
S.R. 7 1980 A.D.T. = 8650  
Alexander St. 1980 A.D.T. = 2500

W.E. QUICKSALL AND ASSOCIATES, INC.  
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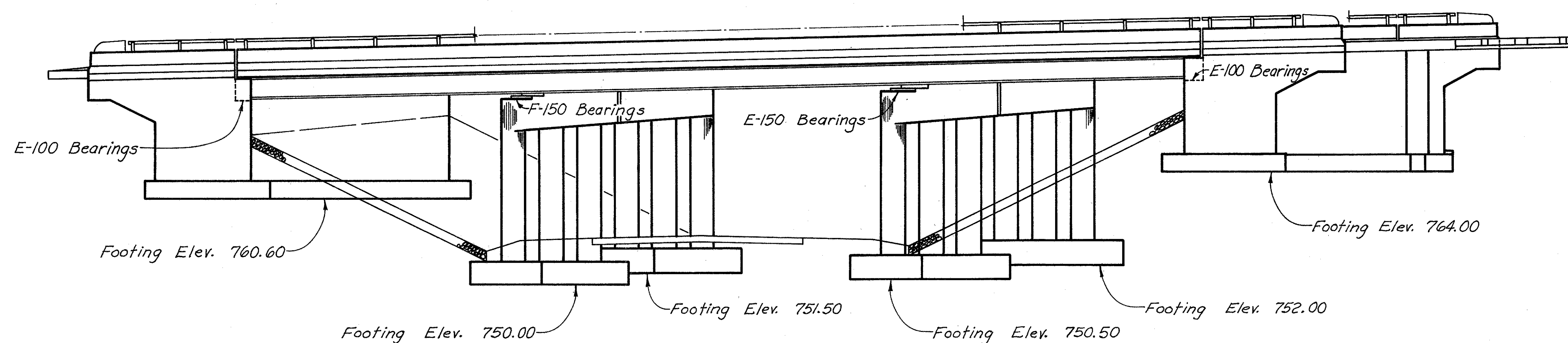
**SITE PLAN**  
BRIDGE NO. JEF-7-2642  
S.R. 7 OVER ALEXANDER ST.  
STA. 1397+10.46  
JEFFERSON COUNTY 1398+29.17

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED <i>Kucera</i>	DRAWN <i>B</i>	DESIGNED	DRAWN	CHECKED <i>DLM</i>	REVIEWED <i>12-9-6</i>

JEFFERSON COUNTY  
JEF-7-23.37



GENERAL PLAN



ELEVATION

W. E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

GENERAL PLAN AND ELEVATION  
BRIDGE NO. JEF-7-2642  
S. R. 7 OVER ALEXANDER ST.  
STA. 1397+10.46  
JEFFERSON COUNTY 1398+29.17

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	RWL	R	DLM		6-20-65	9-5-67



JEFFERSON COUNTY  
JEF-7-23.37

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Abut.	Pier	Super.	Gen'l.		
503	904	Cu. Yd.	Unclassified excavation	586	318				
511	258	Cu. Yd.	Class "C" concrete, superstructure			258			
511	118	Cu. Yd.	Class "C" concrete, pier caps and columns		118				
511	368	Cu. Yd.	Class "E" concrete, abutments	368					
511	140	Cu. Yd.	Class "E" concrete, pier footings		140				
512	24	Lin. Ft.	Waterproofing, premolded sealing strip	24		74535			
509	123,753	Lbs.	Reinforcing steel	15,518	33,157	75,080			
513	165,600	Lbs.	Structural steel			165,600			
514	165,600	Lbs.	Field painting of structural steel			165,600			
517	289.52	Lin. Ft.	Aluminum Railing (Type I)	57.29		232.23			
518	97	Cu. Yd.	Porous backfill	97					
518	9	Each	Scuppers, including supports			9			
518	140	Lin. Ft.	6" perforated helical C.M.P., including specials (707.06)	140					
518	118	Lin. Ft.	6" non-perforated helical C.M.P. (707.06)	118					
601	740	Sq. Yd.	Crushed aggregate slope protection	740					
808	258	Units	Water-reducing, set-retarding admixture			258			
825	1157	Sq. yds.	Concrete surface treatment				1157		
828	149	Lin. ft.	Joint sealer (end dam)			149			

GENERAL NOTES

REFERENCE shall be made to Standard Drawings SD-1-65, dated 11-8-65, FSB-1-62, revised 1-15-63, BR-1-65, dated 11-24-65, and to Supplemental Specifications 808, dated 1-13-67, and 811, 825 & 828 dated 1-1-67 and to Standard Drawing AS-1-54, revised 8-10-65.  
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.

MACHINE FINISH : At the Contractor's option, the concrete deck may be finished by the use of a finishing machine.

DESIGN INFORMATION :

Design Loading-----CF 2000 (57)  
Concrete Class "C"-----Basic unit stress 1,333 p.s.i.  
Concrete Class "E"-----Basic unit stress 1,133 p.s.i.  
Structural Steel-----ASTM A36 Basic unit stress 20,000 p.s.i.  
Reinforcing Steel-----ASTM A15, A16, A160, Deformed Intermediate or Hard Grade. Basic unit stress 20,000 p.s.i.  
Spiral Reinforcement may be plain, Structural Grade with basic unit stress of 18,000 p.s.i.

FOUNDATION BEARING PRESSURE : Abutment and pier footings are designed for a maximum bearing pressure of 2 tons per sq. ft..

DECK SLAB ELEVATIONS

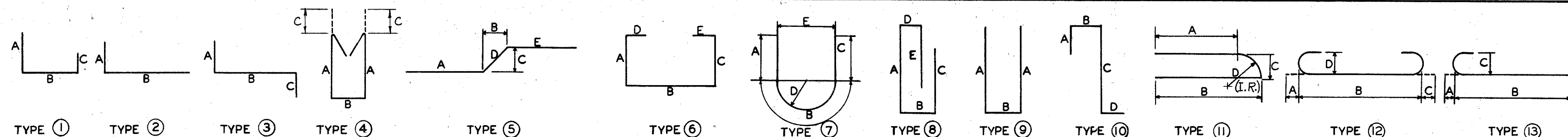
Station	Profile Grade	Median Elev.		Curb Elev.	
		Lt.	Rt.	Lt.	Rt.
1397+01.69	775.55	---	---	---	776.04
1397+12.21	775.85	---	775.87	---	---
1397+13.29	775.88	775.90	---	---	---
1397+23.97	776.20	---	---	775.58	---
1397+25.00	776.23	776.25	776.25	775.62	776.55
1397+33.61	776.48	---	---	---	776.73
1397+44.33	776.79	---	776.81	---	---
1397+45.29	776.82	776.84	---	---	---
1397+50.00	776.95	776.97	776.98	776.41	777.09
1397+56.03	777.12	---	---	776.58	---
1397+75.00	777.68	777.70	777.71	777.16	777.61
1397+79.09	777.80	---	---	---	777.70
1397+89.83	778.11	---	778.12	---	---
1397+90.79	778.14	778.16	---	---	---
1398+00.00	778.40	778.42	778.43	777.88	778.17
1398+01.53	778.44	---	---	777.92	---
1398+15.59	778.85	---	---	---	778.53
1398+25.00	779.12	779.14	779.14	778.60	---
1398+26.33	779.16	---	779.17	---	---
1398+27.29	779.19	779.21	---	---	---
1398+38.03	779.50	---	---	778.98	---

Note:  
Elevations tabulated are face of curb at E of all bearings and even 25 ft. stations.  
Elevations are those required before deck concrete is placed to allow for dead load deflections caused by the weight of the concrete.





JEFFERSON COUNTY  
JEF-7-23.37



SUPERSTRUCTURE									
MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
3701	Str.					155	870	36'-4"	23,339
3702	Str.	Vary by 2'-1" increments					Series of 16	to 35'-0"	-2633
3703	Str.					2	4	4'-0"	-37
3704	Str.					155	870	37'-4"	(11828)
3705	Str.	Vary by 2'-1" increments					Series of 16	to 35'-0"	(346)
3706	Str.					2	4	5'-0"	(20)
3601	Str.					155	870	36'-10"	17,150
3602	Str.					516		30'-3"	23,445
3603	Str.					120		18'-0"	3244
3604	Str.	Vary by 2'-1" increments					Series of 16	to 35'-0"	-1935
3605	Str.					2	4	4'-0"	27
3606	Str.					155	870	37'-4"	(8692)
3607	Str.	Vary by 2'-1" increments					Series of 16	to 35'-0"	(989)
3608	Str.					2	4	5'-0"	(15)
3501	6	1'-4"	1'-6"	1'-4"	7'-2"	7'-2"	168	4'-11"	862
3502	9	7'-2"	1'-6"				168	2'-6"	438
3503	4	2'-2"	8"	5"			168	5'-7"	978
3504	Str.					24	10	29'-4"	-490
3505	Str.	1'-7"	2'-9"	1'-5"	1'-2 1/2"	2	4	6'-8"	-4
3506	Str.	1'-7"	2'-10"	1'-0"	1'-2 1/2"	4	4	6'-11"	25
3507	11	1'-7"	2'-7"	5"	1'-2 1/2"	2	4	5'-8"	(12)
3508	20	See Detail					85	4'-5"	(392)
3509	21	See Detail					85	3'-5"	(301)
3401	15	1"	1'-0"	1'-0"	11"		170	2'-8"	303
3402	15	1/2"	1'-0"	4"	5"	1"	170	1'-6"	170

[illegible][illegible]

## 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, A700 is a No. 7 size bar and A1014 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 509.

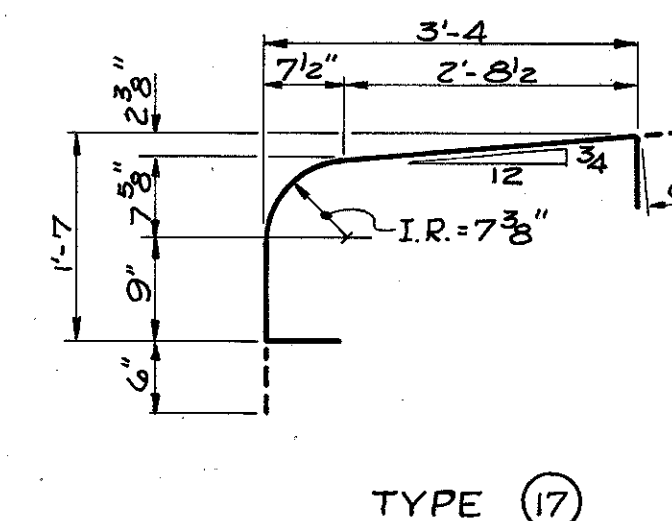
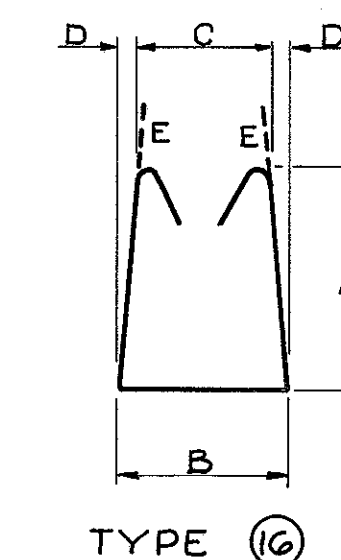
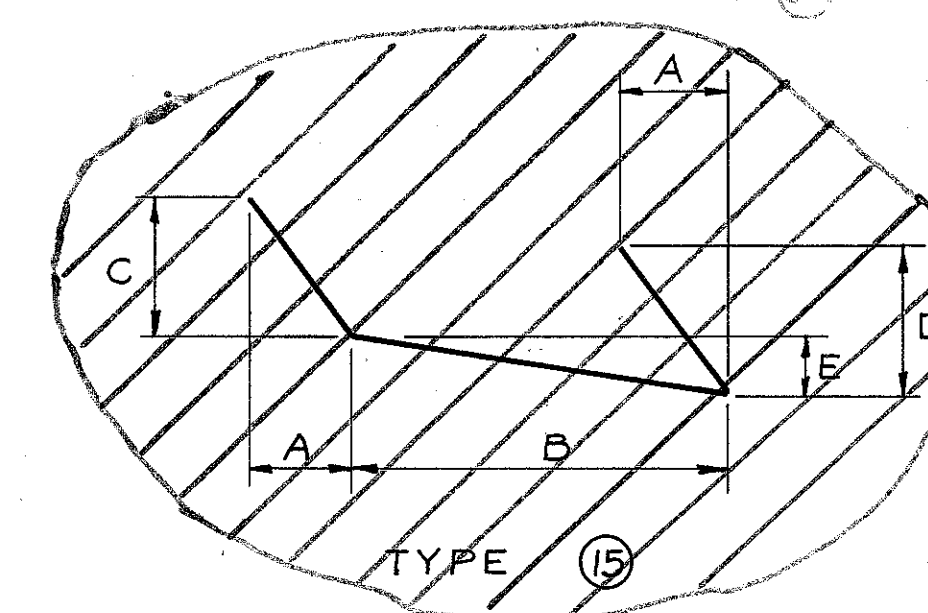
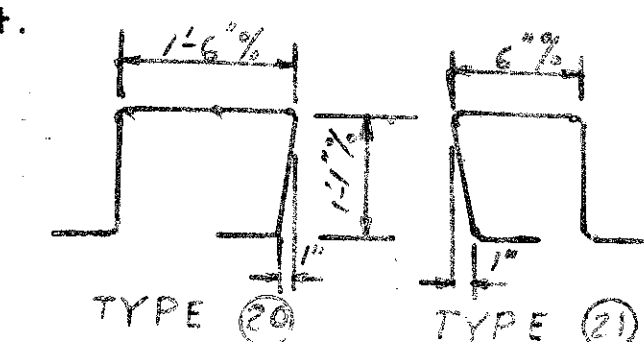
1 1/2 closed coils shall be provided at the ends of each spiral unit.

Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

All dimensions are out-to-out.

Str. in the "TYPE" column indicates straight bars

\* Include with railing for payment.



**W. E. QUICKSALL AND ASSOCIATES, INC.**  
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### REINFORCING BAR SCHEDULE

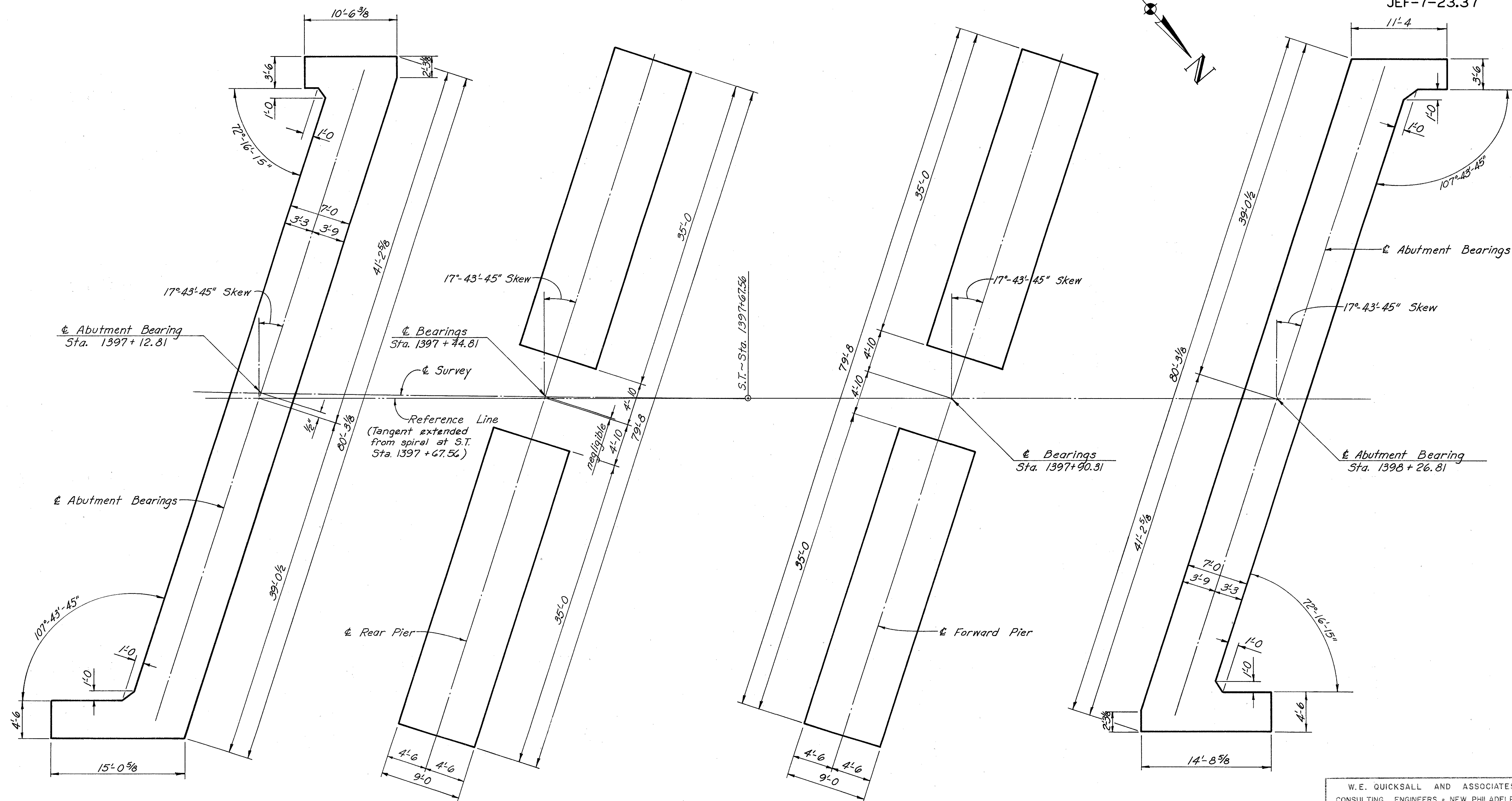
BRIDGE NO. JEF-7-2642

S. R. 7 OVER ALEXANDER ST.

STA. 1397 + 10.46  
JEFFERSON COUNTY 1398 + 29.17

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
		RWL	R	DLM	6-20-65	9-6-65

JEFFERSON COUNTY  
JEF-7-23.37



FOOTING PLAN

W.E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

## FOOTING PLAN

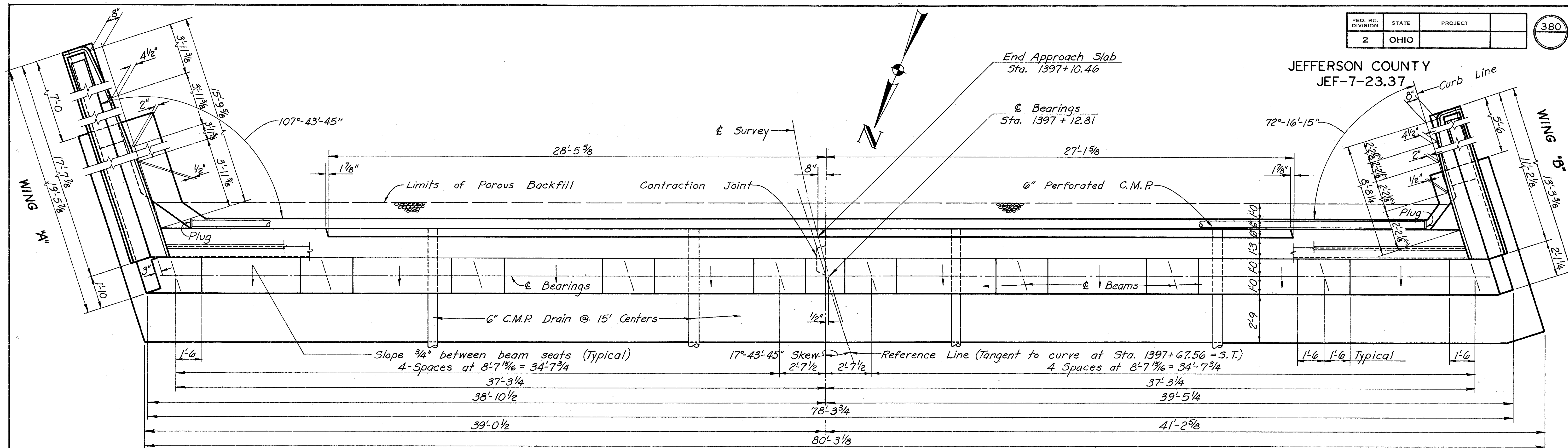
BRIDGE No. JEF-7-2642  
S.R. 7 OVER ALEXANDER ST.  
STA. 1397+10.46  
JEFFERSON COUNTY 1398+26.17

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISION
		RWL	RG	DLM	6-20-65	

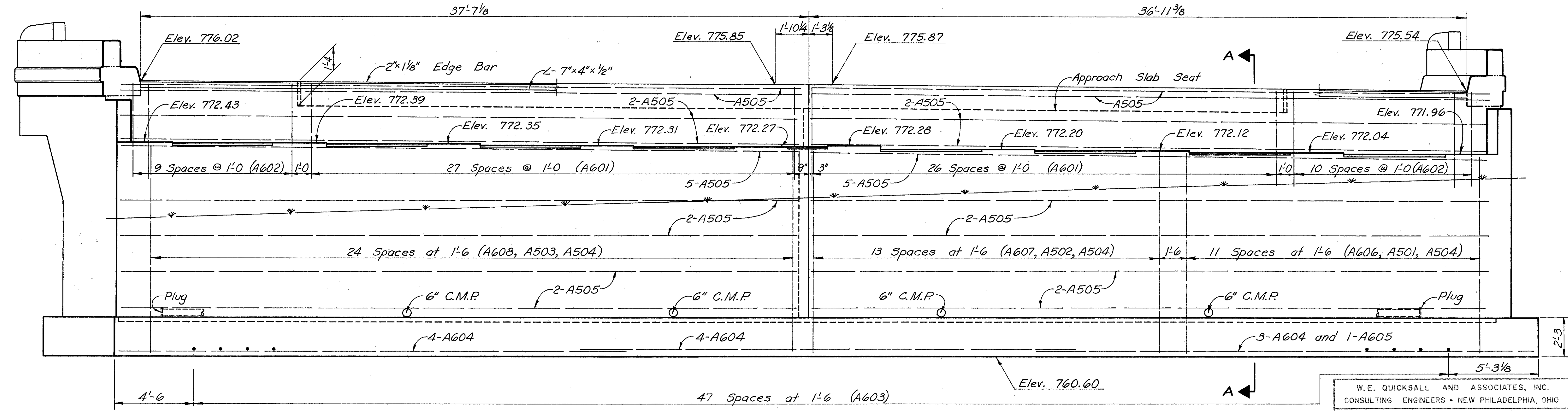
TRACED	CHECKED	REVIEWED	DATE
RWL	RG	DLM	6-20-65



JEFFERSON COUNTY  
JEF-7-23.37



PLAN



ELEVATION

For additional details  
See Sheet No. 381

W.E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

**REAR ABUTMENT DETAILS**  
BRIDGE NO. JEF-7-2642  
S.R. 7 OVER ALEXANDER ST.  
STA. 1397+10.46  
JEFFERSON COUNTY 1398+29.17

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
		RWL	D	DLM	6-20-65	



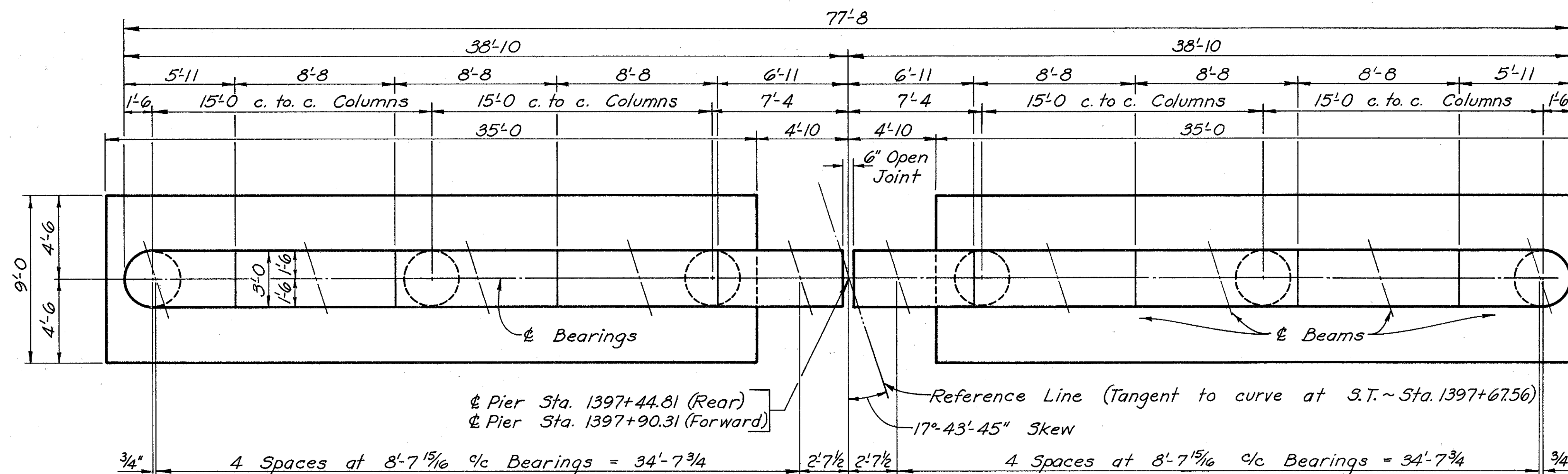






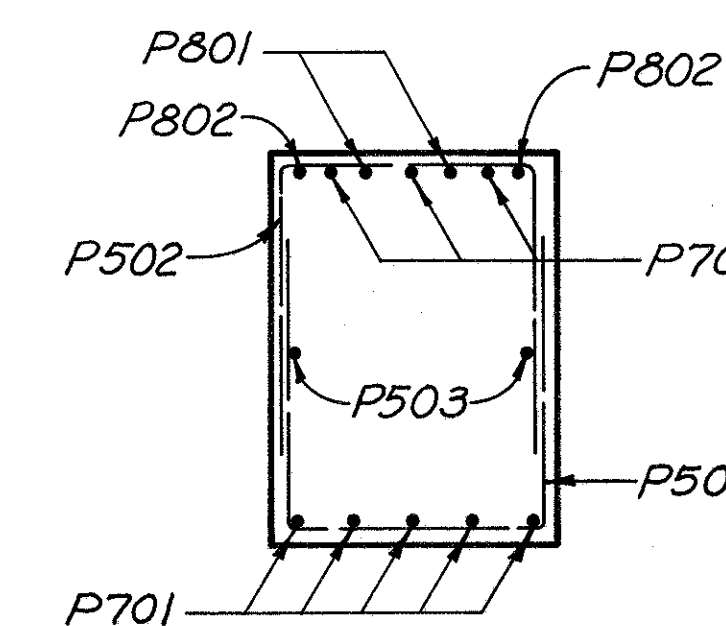


JEFFERSON COUNTY  
JEF-7-23.37

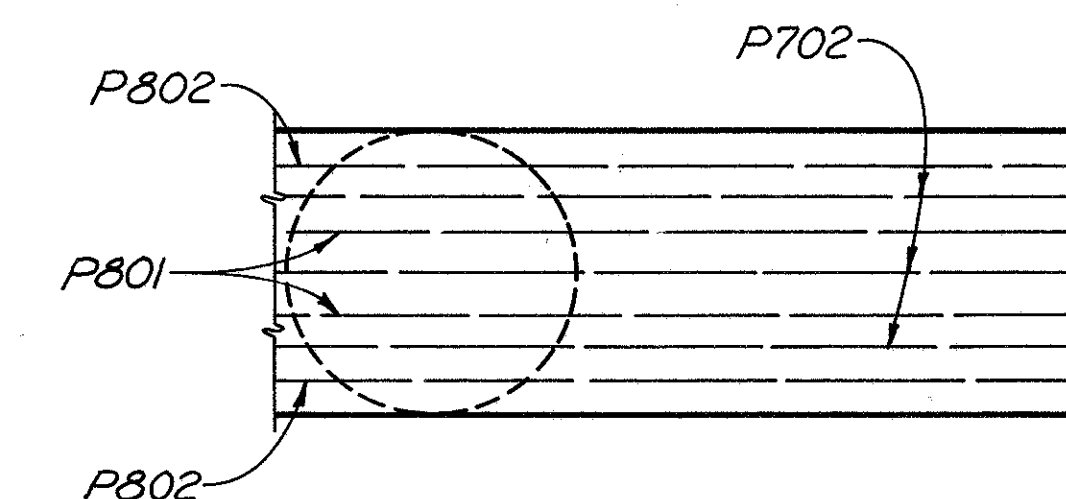


PLAN

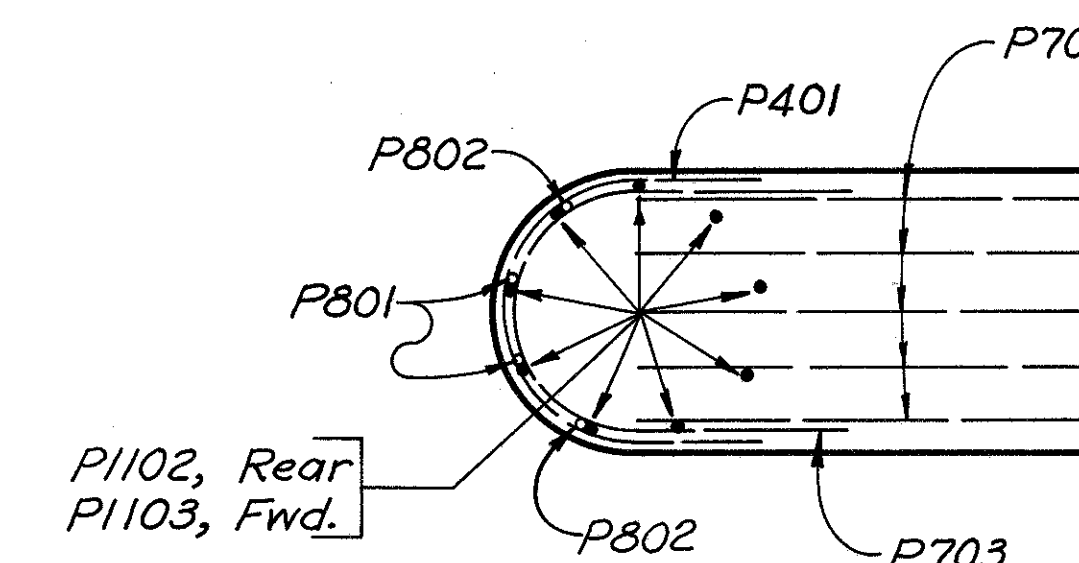
	ELEVATIONS											
	A	B	C	D	E	F	G	H	J	K	L	M
REAR PIER	772.77	772.82	772.88	772.95	773.01	772.99	772.97	772.95	772.93	772.92	750.0	751.5
FORWARD PIER	774.33	774.37	774.43	774.48	774.53	774.50	774.38	774.28	774.18	774.09	750.5	752.0



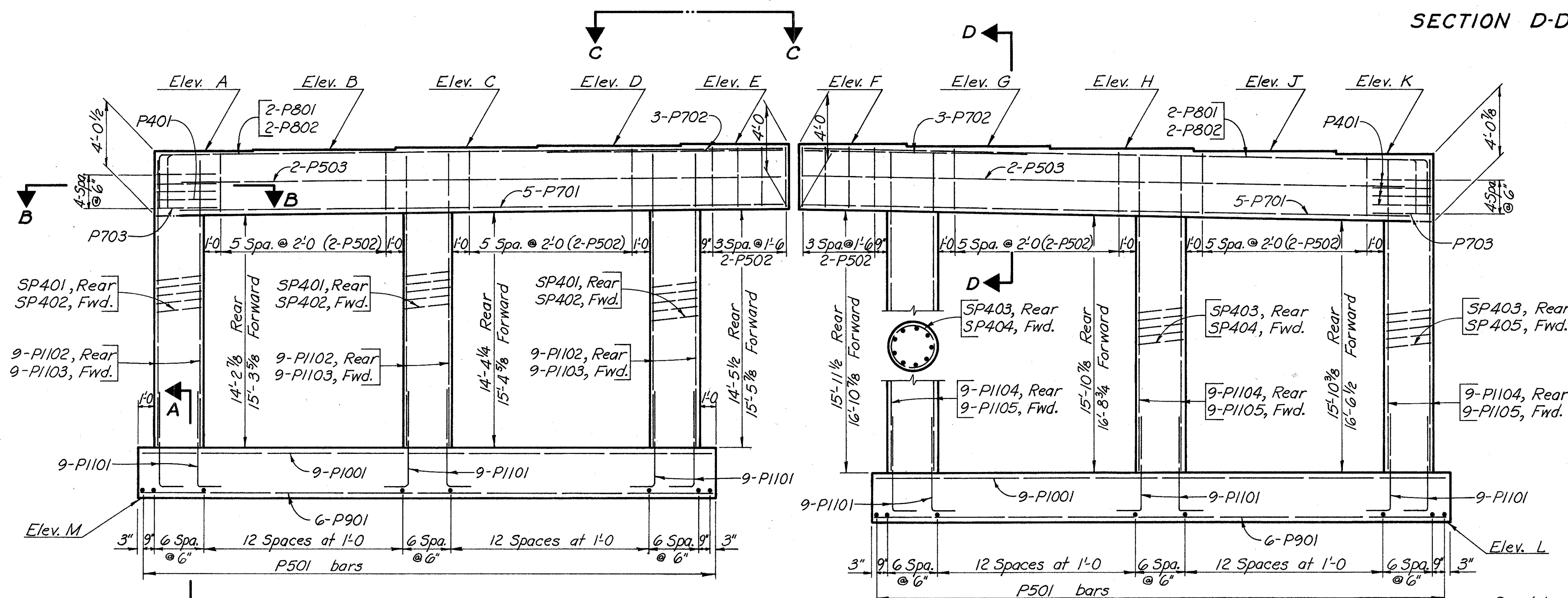
SECTION D-D



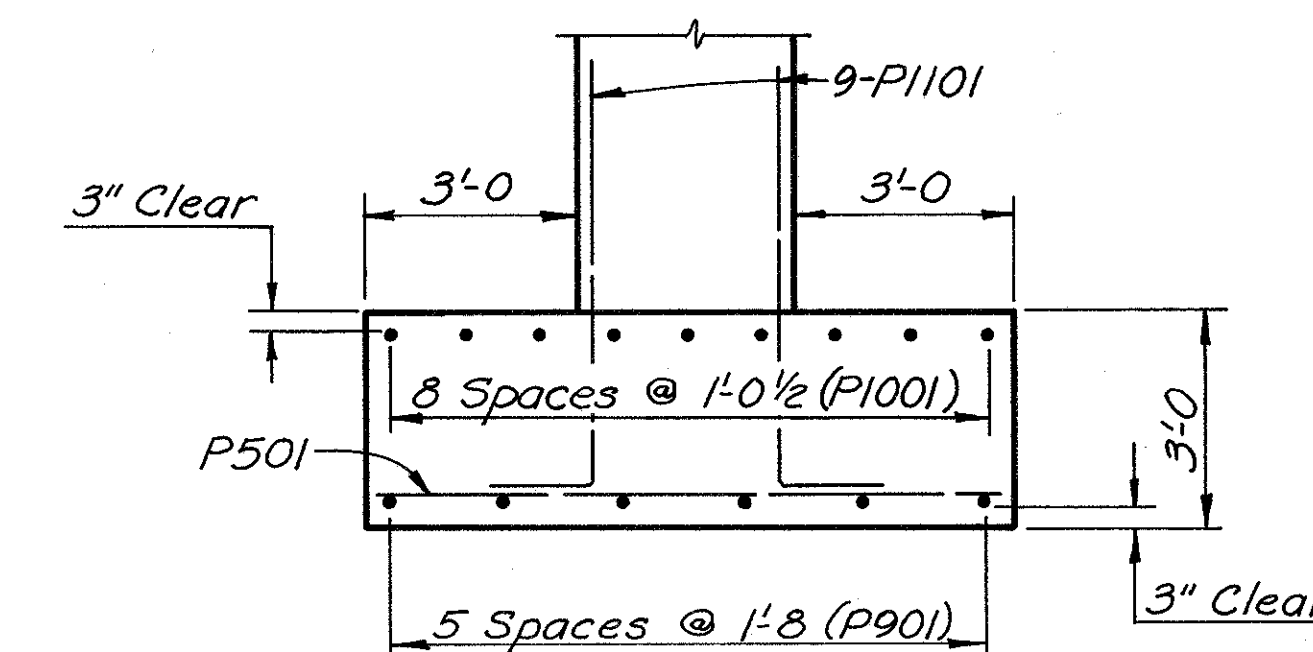
VIEW C-C



SECTION B-B



ELEVATION



SECTION A-A

W.E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

**PIER DETAILS**  
BRIDGE NO. JEF-7-2642  
S.R. 7 OVER ALEXANDER ST.  
STA. 1397+10.46  
JEFFERSON COUNTY 1398+29.17

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED

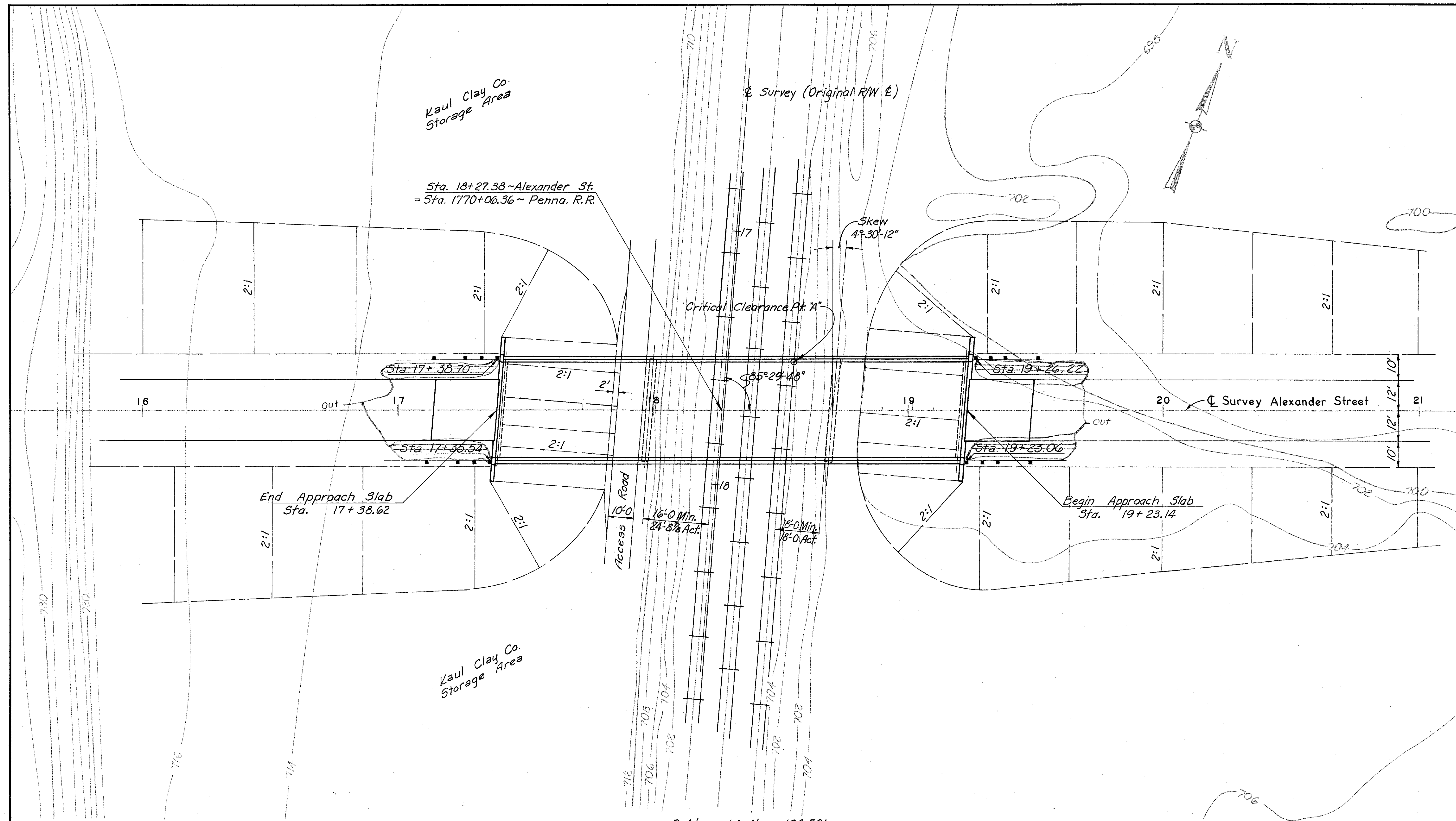
Special care shall be taken in placing reinforcing steel in the pier cap so that it will not interfere with the bearing anchor bolts.







JEFFERSON COUNTY  
JEF.-7-23.37  
At Toronto



B.M.: Mine Spike  $\phi$  320 B.T., Intersection Meyers St. and 7th St. S.W. Penna. Railroad, Elev. 703.14.

**PROPOSED STRUCTURE**

TYPE: Continuous steel beams with reinforced concrete deck and superstructure.

SPANS: 58'-72'-50'

ROADWAY: 38'-0" f/f 1'-0" safety curbs

LOAD FREQUENCY: CF400 (57)

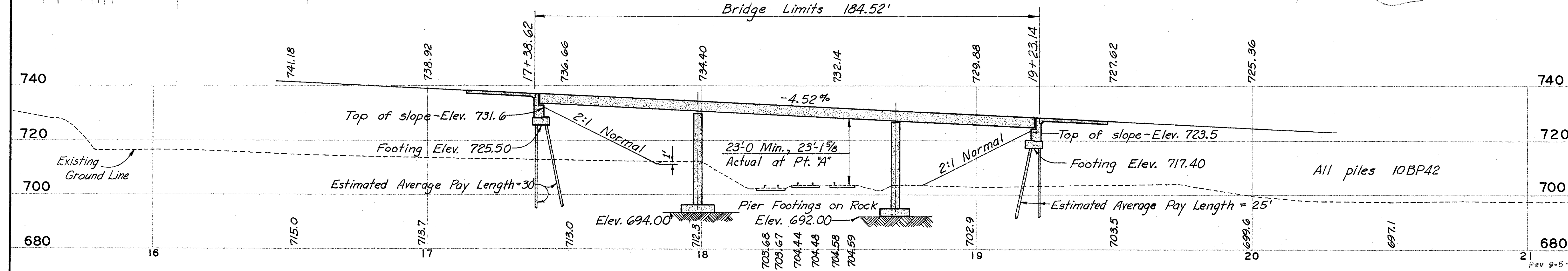
SKEW: 4°30'12" Left forward

WEARING SURFACE: 1" monolithic

APPROACH SLABS: A5-1-54, 25' long

ALIGNMENT: Tangent

Average Daily Railroad Traffic = 36 trains  
Alexander Street 1980 A.D.T. = 5000



W.E. QUICKSALL AND ASSOCIATES, INC. CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO					
<b>SITE PLAN</b>					
<b>BRIDGE NO. JEF-7-(ALEXANDER STREET OVER PENNA. R.R.)</b>					
STA. 17+38.62					
JEFFERSON COUNTY 19+23.14					
PRESENT TOPOGRAPHY			PROPOSED WORK		
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
RJ	IG	W.D.A.	W.D.A.	DLM	V2-9-64





GENERAL NOTES

REFERENCE shall be made to Standard Drawings SD-1-65, dated 11-8-65, FSB-1-62, revised 1-15-63, AS-1-54, revised 8-10-65, BR-1-65, dated 11-24-65 and to Supplemental Specifications 808, dated 1-13-67, and 811, 825 & 828 dated 1-1-67.

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.

PROCEEDURE: The approach embankment shall be placed and compacted up to the finished spill-thru slope and to the level of the subgrade for a minimum distance of 200 feet back of the abutments after which excavation shall be made for the abutments and piles driven.

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 of 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. 507.05 is not less than the following for a pile hammer of the indicated energy rating:

40 tons per pile using an 11,000 ft. lb. hammer  
35 tons per pile using a 15,000 ft. lb. 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 32 tons per pile.

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

PIER FOOTINGS shall extend a minimum of 3" into undisturbed rock or to the elevation shown, whichever is lower.

PIER FOUNDATION BEARING PRESSURE: Pier footings are designed for a minimum bearing pressure of 6 tons per sq. ft.

CONSTRUCTION CLEARANCE of 20 feet vertically above the top of the railroad rails and 8 feet horizontally from the center of the tracks shall be maintained at all times.

RAILROAD AERIAL LINES will be relocated by the railroad. The Contractor shall use all precautions necessary to see that the lines are not disturbed during the construction stage and shall cooperate with the railroad in the relocation of these lines. The cost of the relocation shall be included in the railroad force account work.

SHEETING AND BRACING: Before construction is started, eight sets of prints showing details of the sheeting and bracing to be used for excavation adjacent to the railroad tracks shall be submitted to the Director for approval by the Department of Highways and the Railroad Company.

ALIGNING RAILROAD TRACKS: After the Contractor has completed all excavation and backfill adjacent to the railroad tracks in compliance with Sec. 503.04 and 503.09 of the Construction and Material Specifications, subject to the Supervision of the Railroad Company, nothing in Sec. 503.04, 503.09 or 108.04 of the specifications shall be construed to hold the Contractor liable for aligning and resurfacing the railroad tracks.

DESIGN INFORMATION:

Design Loading-----CF 400 (57)  
Concrete Class "C"-----Basic unit stress 1,333 p.s.i.  
Concrete Class "E"-----Basic unit stress 1,133 p.s.i.  
Structural Steel-----ASTM A36--Basic unit stress 20,000 p.s.i.  
  
Reinforcing Steel-----ASTM A16, A15, A160, Deformed--Intermediate  
or Hard Grade. Basic unit stress 20,000 p.s.i.



JEFFERSON COUNTY  
JEF-7-23.37

ESTIMATED QUANTITIES									
Item	Total	Unit	Description	Abut.	Pier	Super.	Gen'l.		
503	588	Cu. Yd.	Unclassified excavation	260	328				
503	17	Cu. Yd.	Rock excavation		17				
511	228	Cu. Yd.	Class "C" concrete, superstructure			228			
511	159	Cu. Yd.	Class "C" concrete, piers above footing		159				
511	148	Cu. Yd.	Class "E" concrete, abutments	148					
511	55	Cu. Yd.	Class "E" concrete, pier footings		55				
503	Lump	Sum	Cofferdams, cribs and sheeting						
509	97,434	Lbs.	Reinforcing Steel	8263	23,584	65,587			
513	203,500	Lbs.	Structural Steel			203,500			
514	203,500	Lbs.	Field painting of structural steel			203,500			
517	369.67	Lin. Ft.	Aluminum Railing (Type I)			369.67			
505	Lump	Sum	First test pile				Lump		
507	605	Lin. Ft.	Steel piles, 10BP42	605					
518	35	Cu. Yd.	Porous backfill	35					
518	10	Each	Scuppers, including supports			10			
518	85	Lin. Ft.	6" Perforated helical C.M.P., including specials (707.06)	85					
518	53	Lin. Ft.	6" Non-perforated helical C.M.P. (707.06)	53					
825	982	Sq. yds.	Concrete surface treatment				982		
601	975	Sq. Yd.	Crushed aggregate slope protection	975					
828	76	Lin. ft.	Joint sealer (end dam)			76			
808	228	Units	Water-reducing, set-retarding admixture			228			

* DECK SLAB ELEVATIONS			
Station	Profile Grade	Left	Right
17 + 39.38	737.14		736.85
17 + 42.38	737.00	736.71	
17 + 50	736.66	736.38	736.38
17 + 75	735.53	735.26	735.26
17 + 97.38	734.52		734.23
18 + 00.38	734.38	734.09	
18 + 25	733.27	733.01	733.01
18 + 50	732.14	731.87	731.87
18 + 69.38	731.26		730.97
18 + 72.38	731.13	730.84	
18 + 75	731.01	730.72	730.72
19 + 00	729.88	729.60	729.60
19 + 19.38	729.00		728.71
19 + 22.38	728.87	728.58	

\*NOTE: Elevations tabulated are face of curb at  $\frac{1}{2}$  of all bearings and even 25 feet stations.  
Elevations are those required before deck concrete is placed to allow for dead load deflections caused by the weight of the concrete.

JEFFERSON COUNTY  
JEF-7-23.37

## 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, A700 is a No. 7 size bar and A1014 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 509.

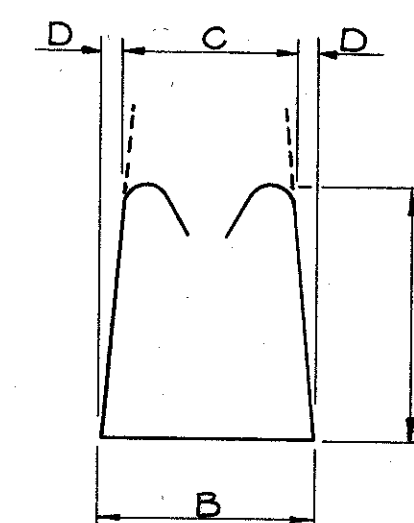
1 1/2 closed coils shall be provided at the ends of each spiral unit.

Four steel channel, tee or angle spacers, weighing approximately 0.68 lb. per lin. ft. of spacer, shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

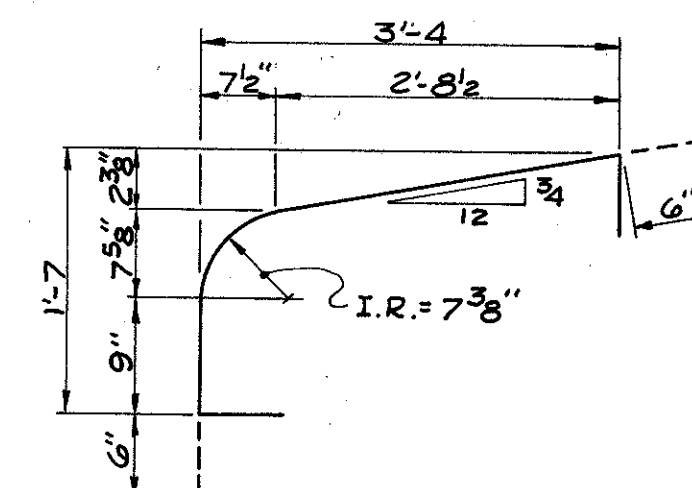
All dimensions are out-to-out.

Str. in the "TYPE" column indicates straight bars.

\* Include with railing for payment.



TYPE ⑭



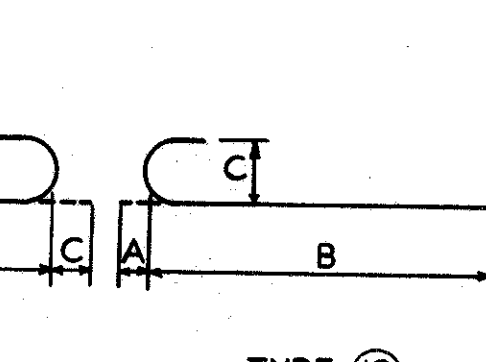
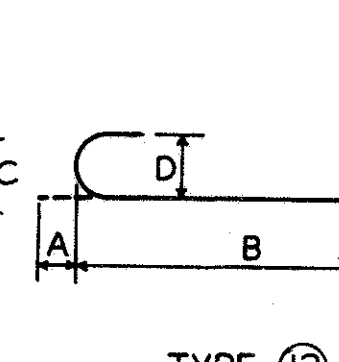
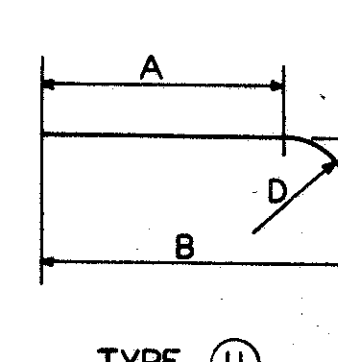
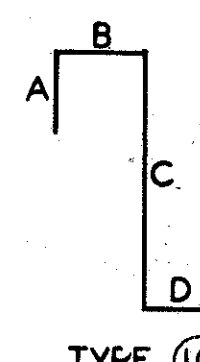
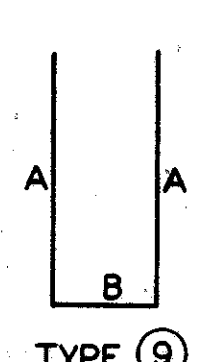
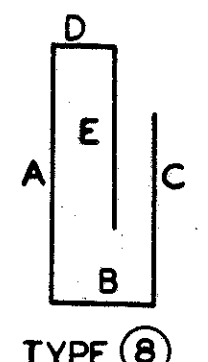
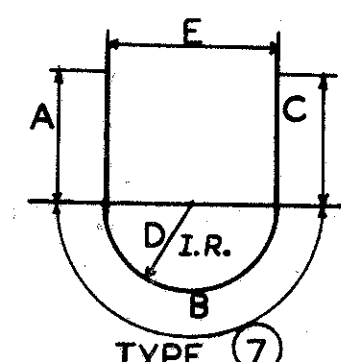
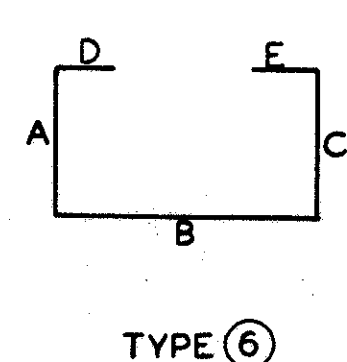
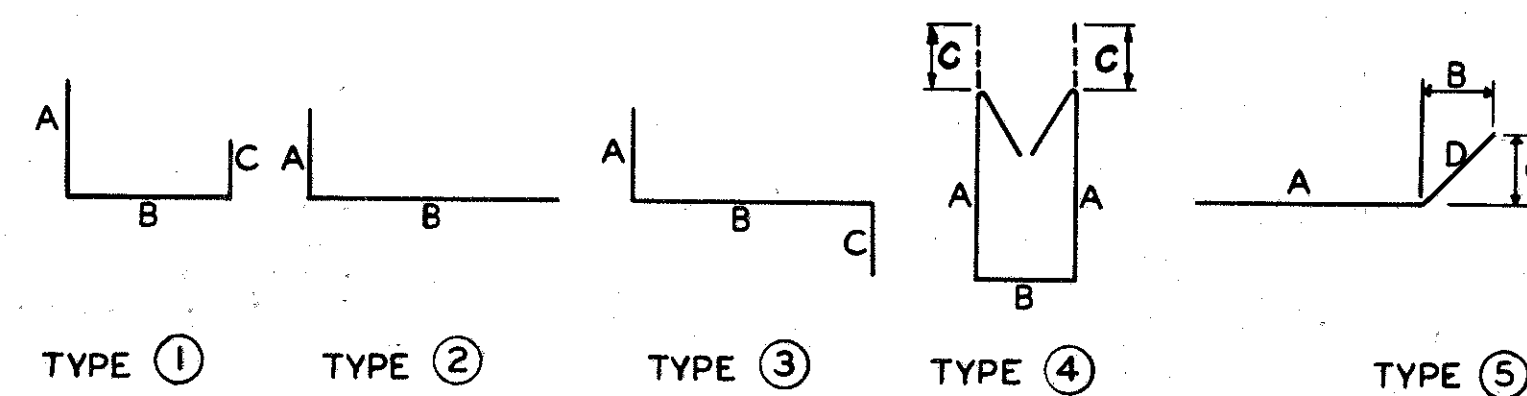
TYPE <sup>15</sup> (15)

**W.E. QUICKSALL AND ASSOCIATES, INC.**  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

REINFORCING BAR SCHEDULE  
BRIDGE NO. JEF-7-(ALEXANDER  
STREET OVER PENNA. R.R.)

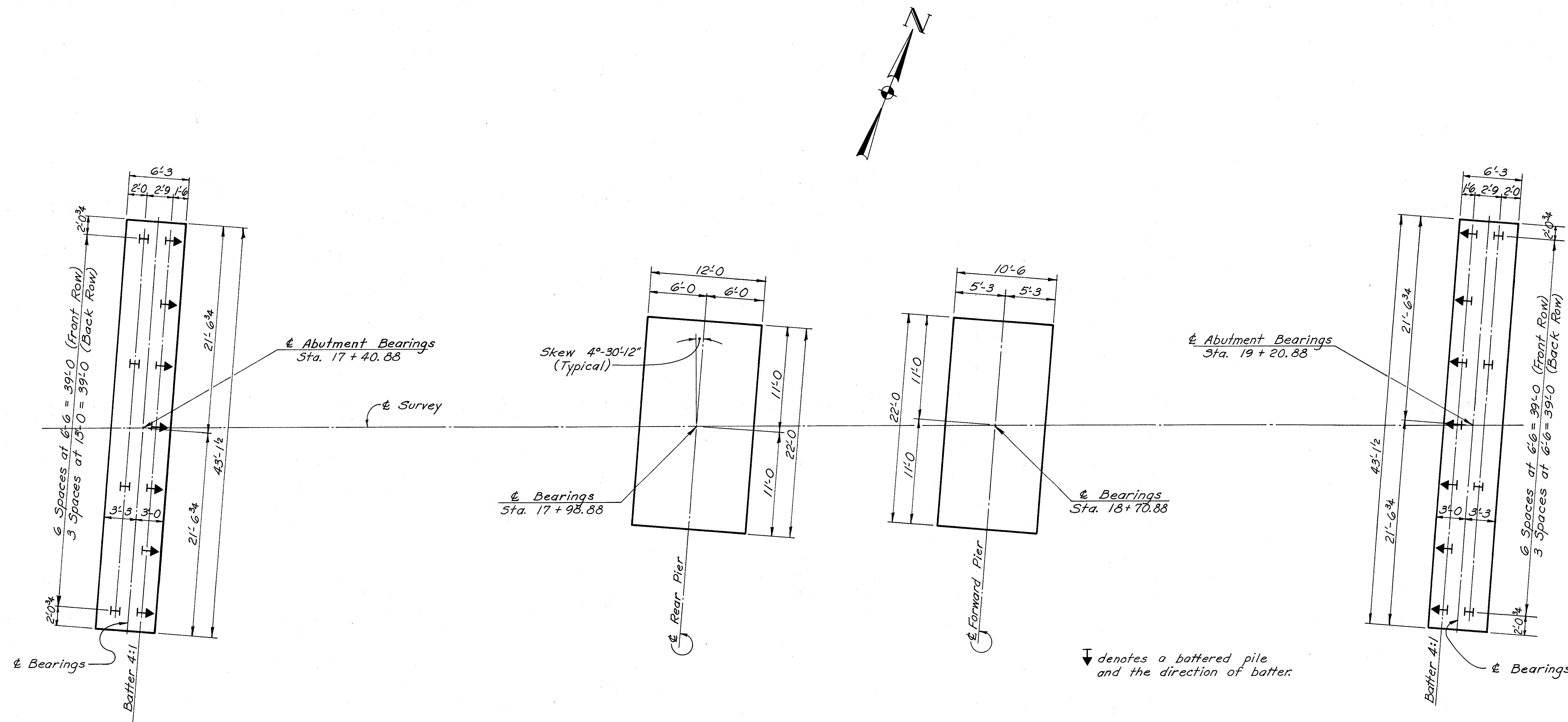
JEFFERSON COUNTY Sta. 17 + 38.62  
" 19 + 23.14

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
		B	PLM		6-20-65	

[illegible][illegible][illegible]



JEFFERSON COUNTY  
JEF-7-23.37



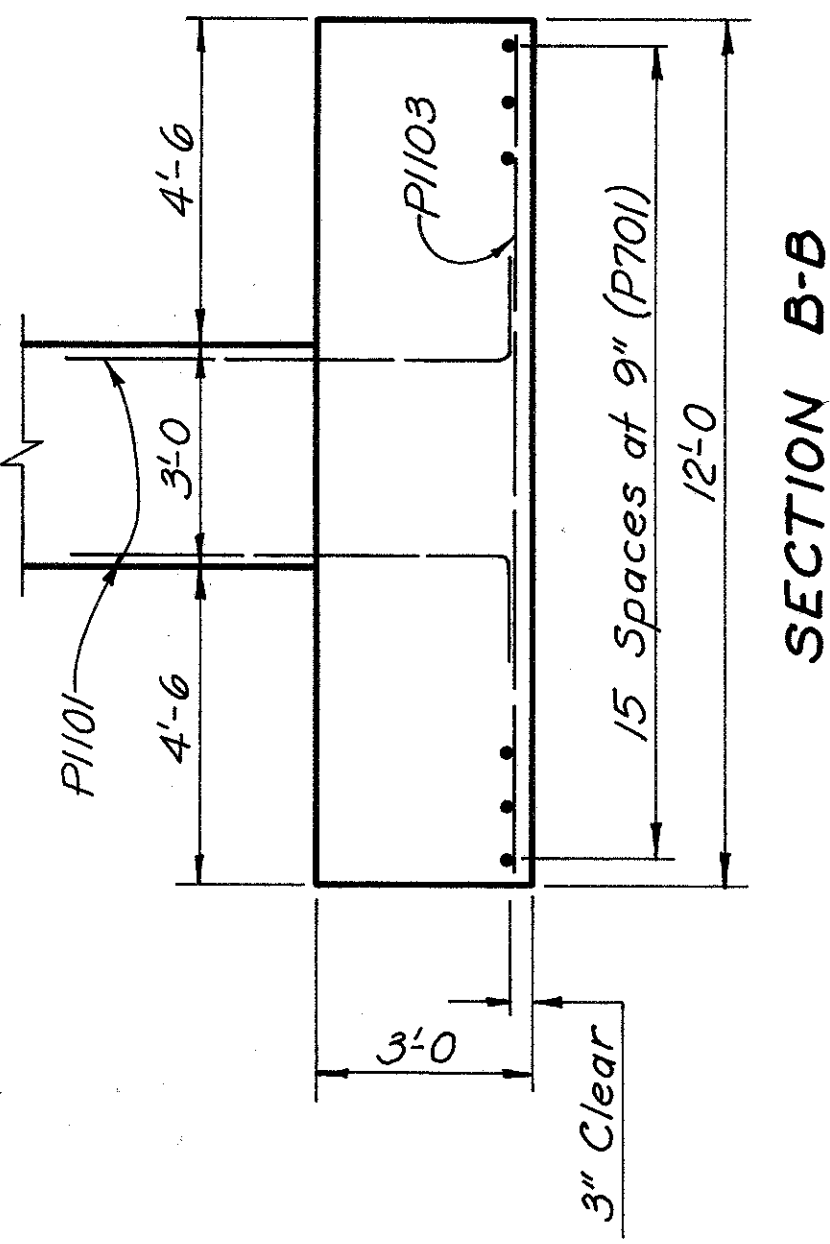
FOOTING PLAN AND PILE LAYOUT





JEFFERSON COUNTY  
JEF-7-23.37

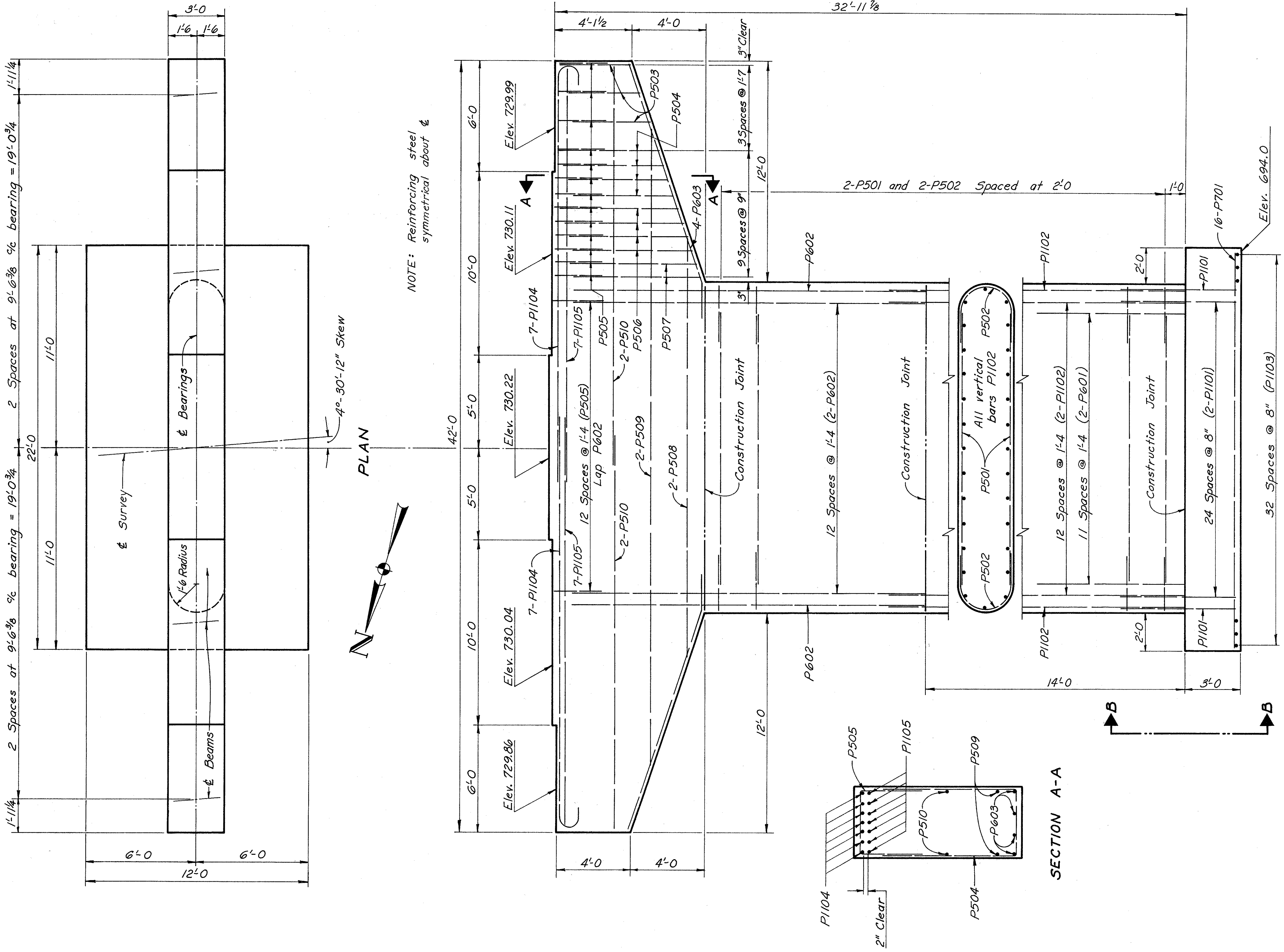
NOTE:  
Special care shall be taken in placing reinforcing steel in the pier cap so that it will not interfere with the bearing anchor bolts.



SECTION B-B

ELEVATION

W.E. QUICKSALL AND ASSOCIATES, INC. CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO					
<b>REAR PIER DETAILS</b> <b>BRIDGE NO. JEF-7-(ALEXANDER STREET OVER PENNA. R.R.)</b> STA. 17+38.62 JEFFERSON COUNTY 19+23.14					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
		RWL	R <sub>2</sub>	DLM	6-20-65

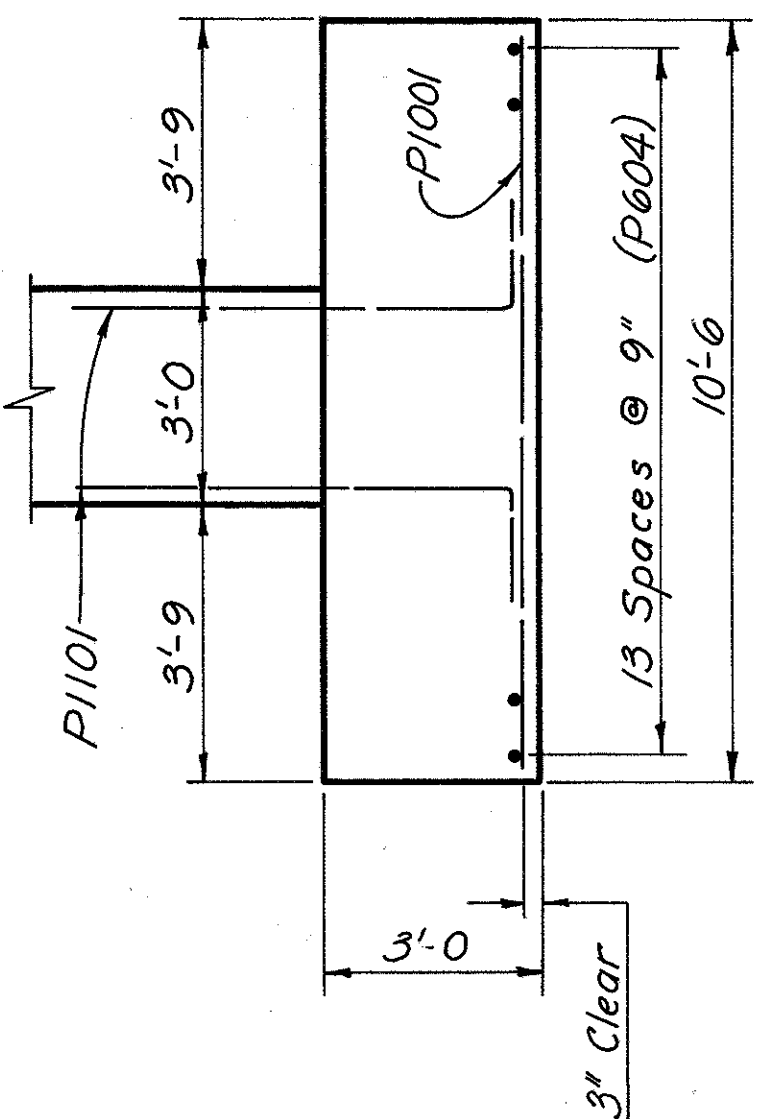


NOTE: Reinforcing steel symmetrical about &

JEFFERSON COUNTY  
JEF-7-23.37

NOTE:  
Special care shall be taken in placing reinforcing steel in the pier cap so that it will not interfere with the bearing anchor bolts.

ELEVATION



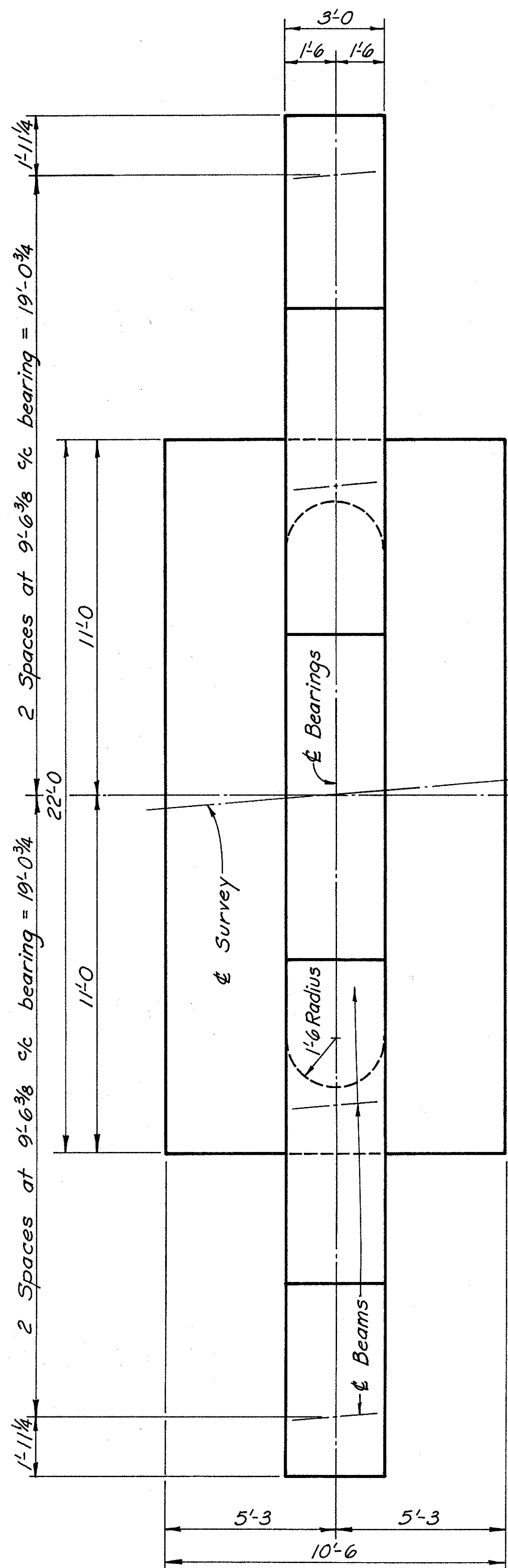
SECTION B-B

W.E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

FORWARD PIER DETAILS  
BRIDGE NO. JEF-7(ALEXANDER STREET OVER PENNA. R.R.)

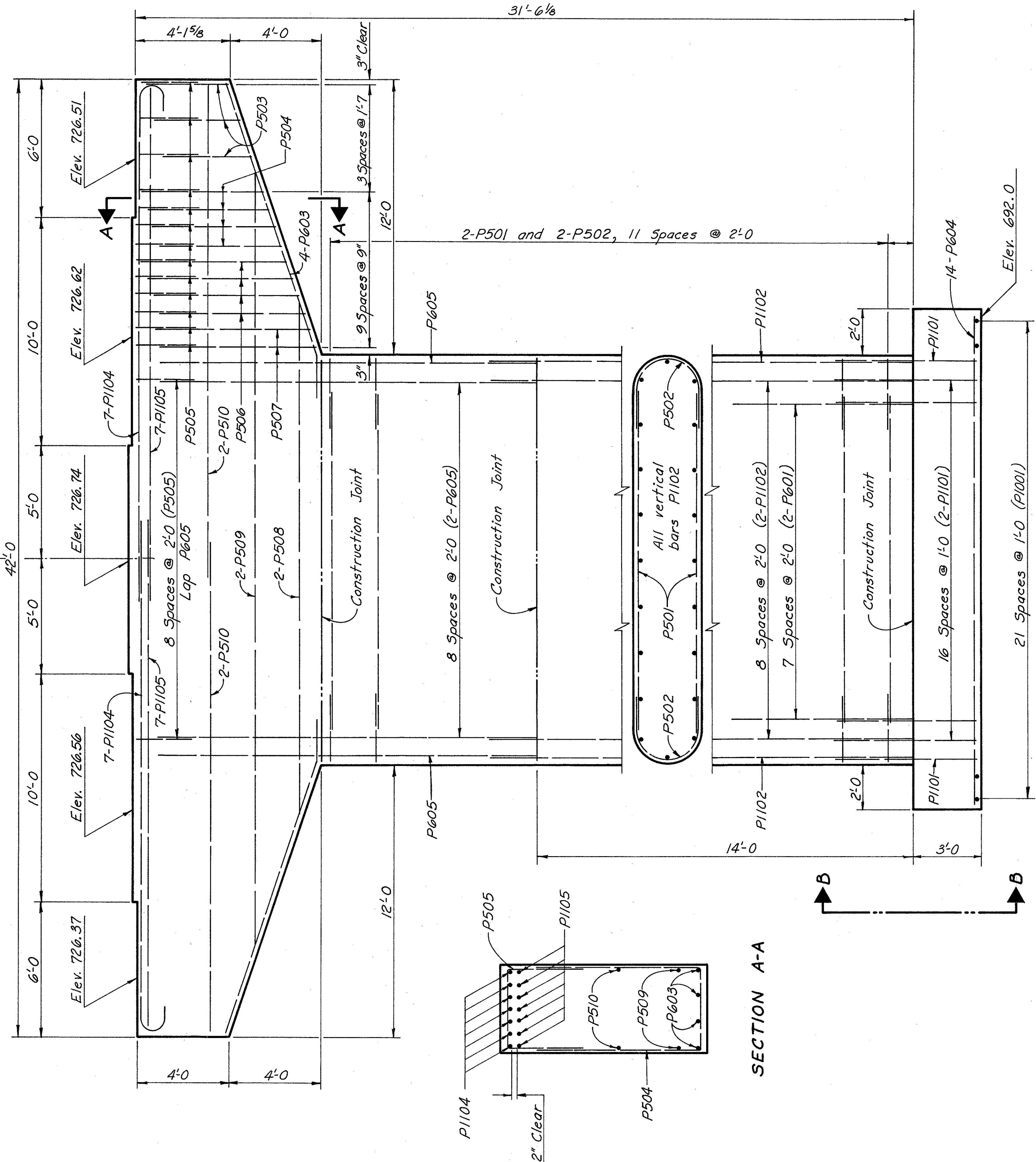
STA. 17+38.62  
JEFFERSON COUNTY 19+23.14

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
		RWL	R <sub>2</sub>	DLM	6-20-65	



PLAN

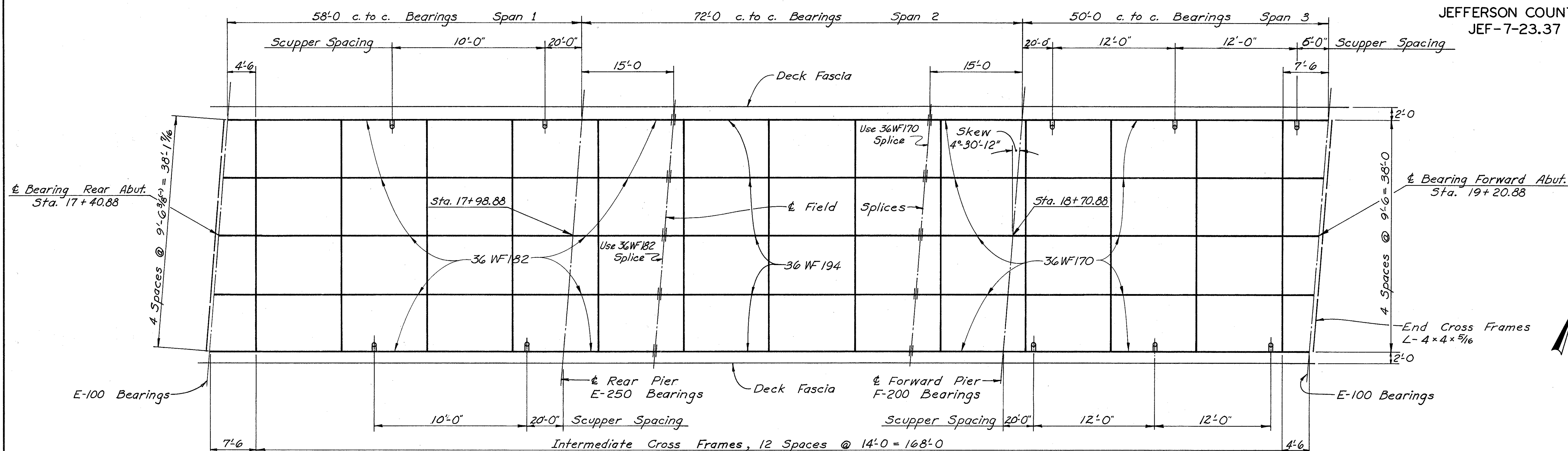
NOTE: Reinforcing steel symmetrical about &



SECTION A-A



JEFFERSON COUNTY  
JEF-7-23.37



STEEL FRAMING PLAN

SUPERSTRUCTURE NOTES

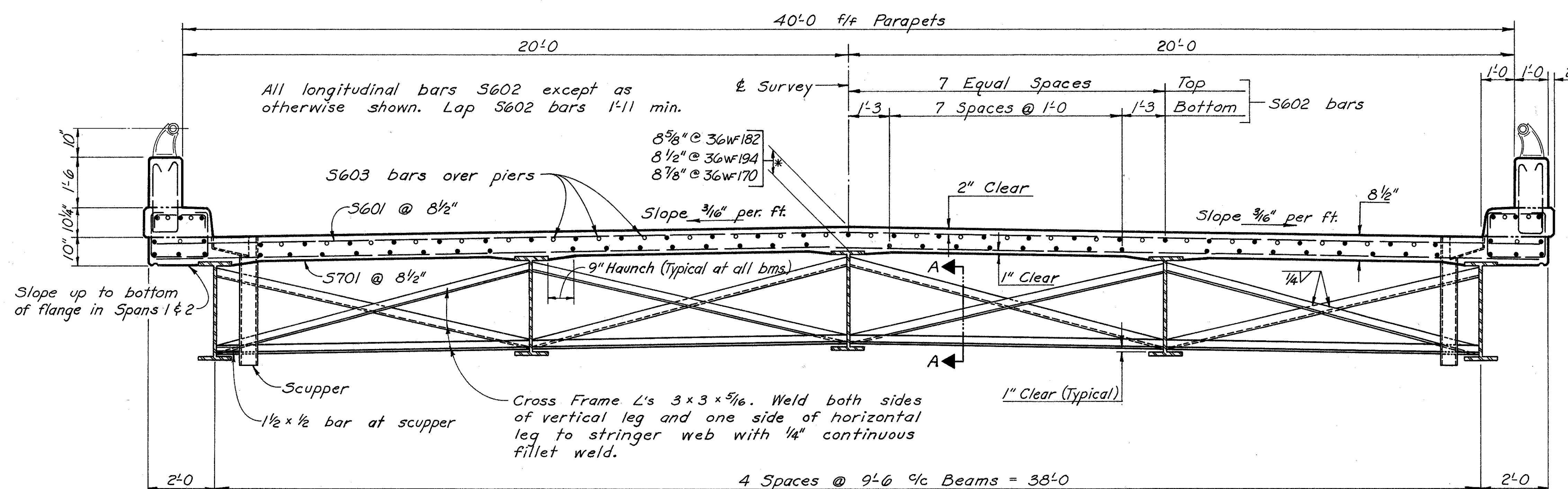
ADDITIONAL DETAILS: Refer to Standard Drawings SD-1-65, BR-1-65, and FSB-1-62 for details not shown.

ALL SCUPPERS are per Standard Drawing SD-1-65 (Type I).

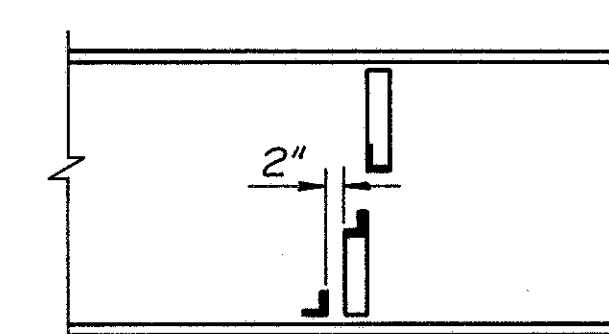
DECK SLAB HAUNCH: A typical haunch width of 9" shall be used for computing quantities of concrete. However, the haunch width may vary between 6" and 12" provided that the slope shall not be greater than 1:4 for a haunch less than 9" in width.

SLAB THICKNESS shown includes 1" for monolithic wearing surface.

\*THIS DIMENSION 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.



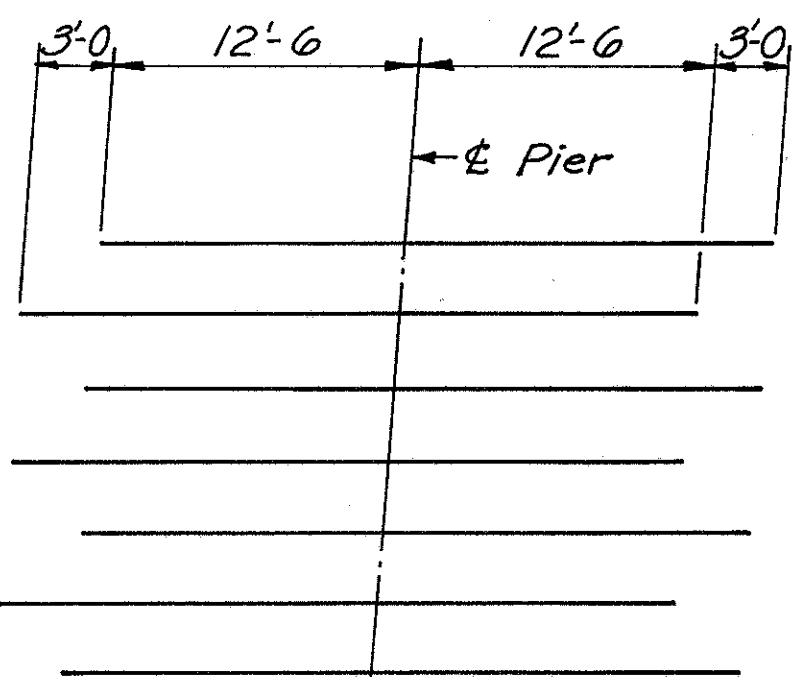
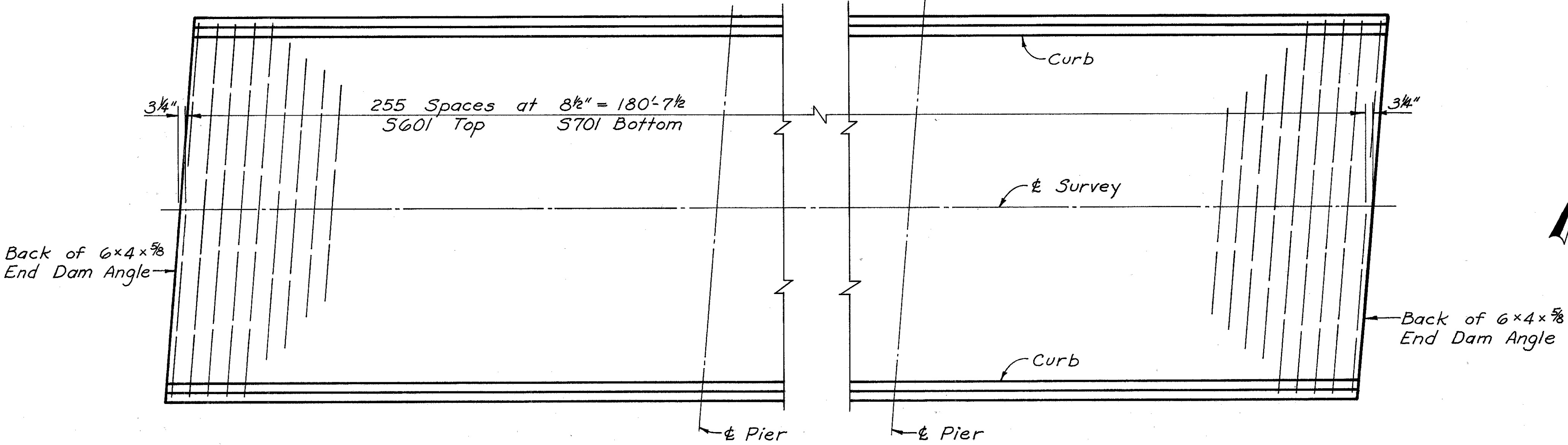
TRANSVERSE SECTION



SECTION A-A

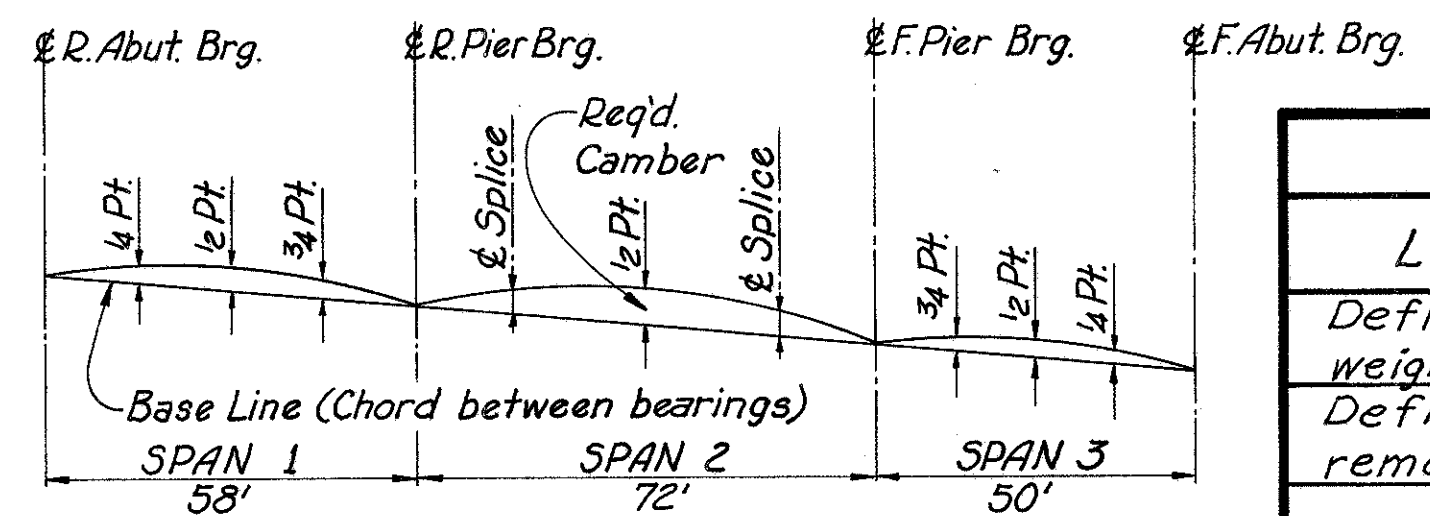
W.E. QUICKSALL AND ASSOCIATES, INC.		CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO	
SUPERSTRUCTURE DETAILS		BRIDGE NO. JEF-7-(ALEXANDER STREET OVER PENNA. R.R.)	
STA. 17+38.62		19+23.14	
JEFFERSON COUNTY			
DESIGNED	DRAWN	TRACED	CHECKED
		RWL	R
		DATE	
		DLM 6-20-65	

JEFFERSON COUNTY  
JEF-7-23.37



ALTERNATE STAGGER SYSTEM  
OF S603 BARS OVER PIERS

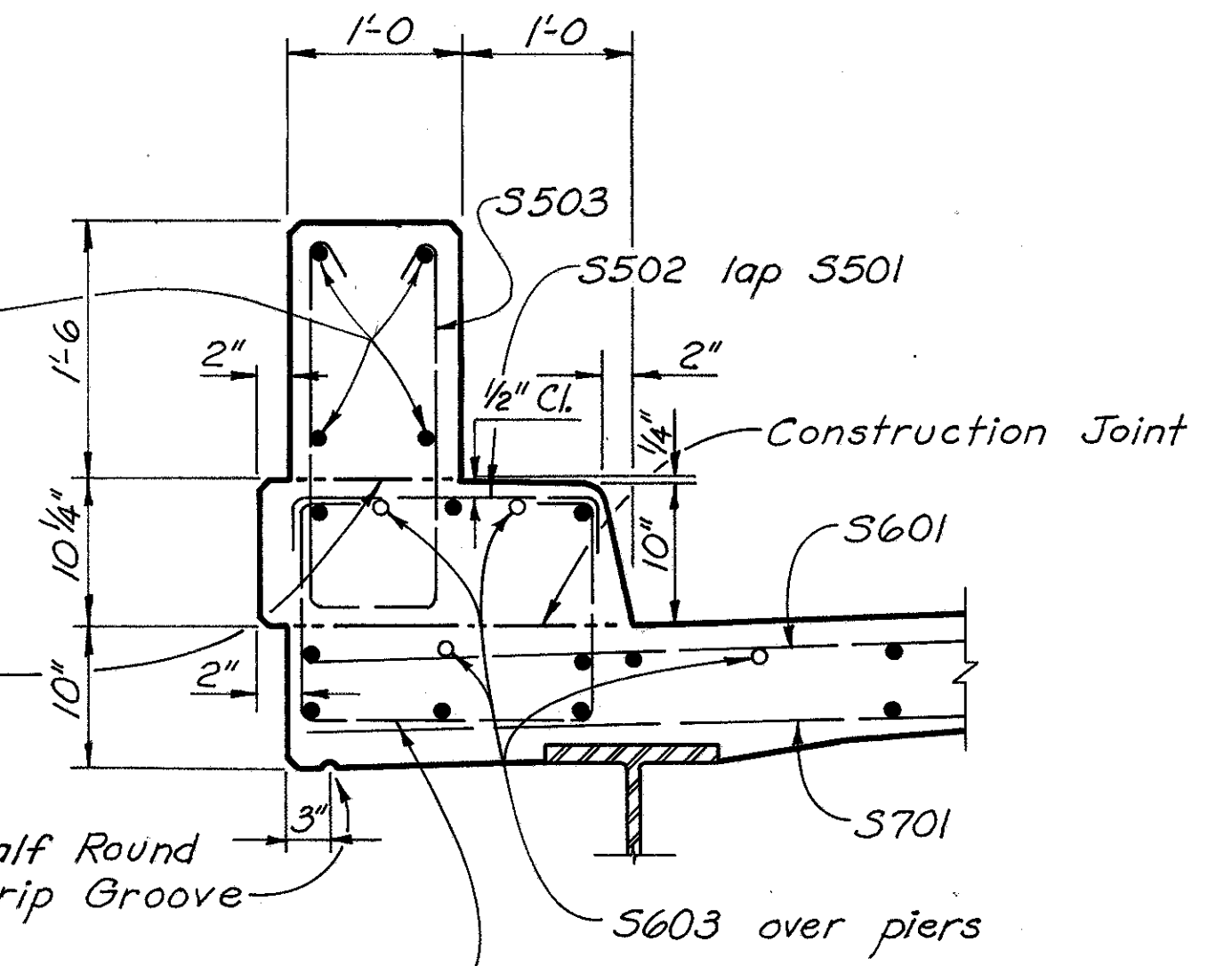
PLAN OF TRANSVERSE REINFORCING STEEL



DEFLECTION & CAMBER DIAGRAM

LOCATION	SPAN 1			SPAN 2			SPAN 3		
	1/4 Pt.	1/2 Pt.	3/4 Pt.	SPLICE 1	1/2 Pt.	SPLICE 2	1/4 Pt.	1/2 Pt.	3/4 Pt.
Deflection due to weight of steel	0	1/16	0	0	1/16	0	0	0	0
Deflection due to remaining dead load	1/4	5/16	1/8	3/16	7/16	3/16	0	1/8	1/8
Required Camber	1/4	3/8	1/8	3/16	1/2	3/16	0	1/8	1/8

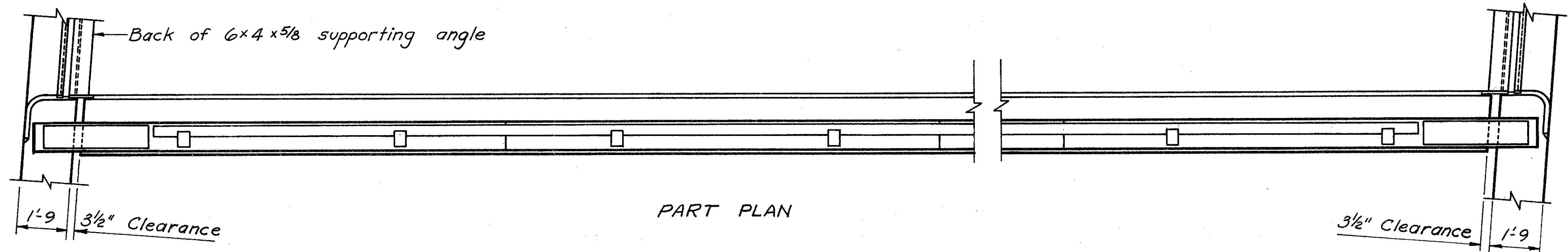
R501 Intermediate parapet panels included with railing for payment  
R502 End parapet panels



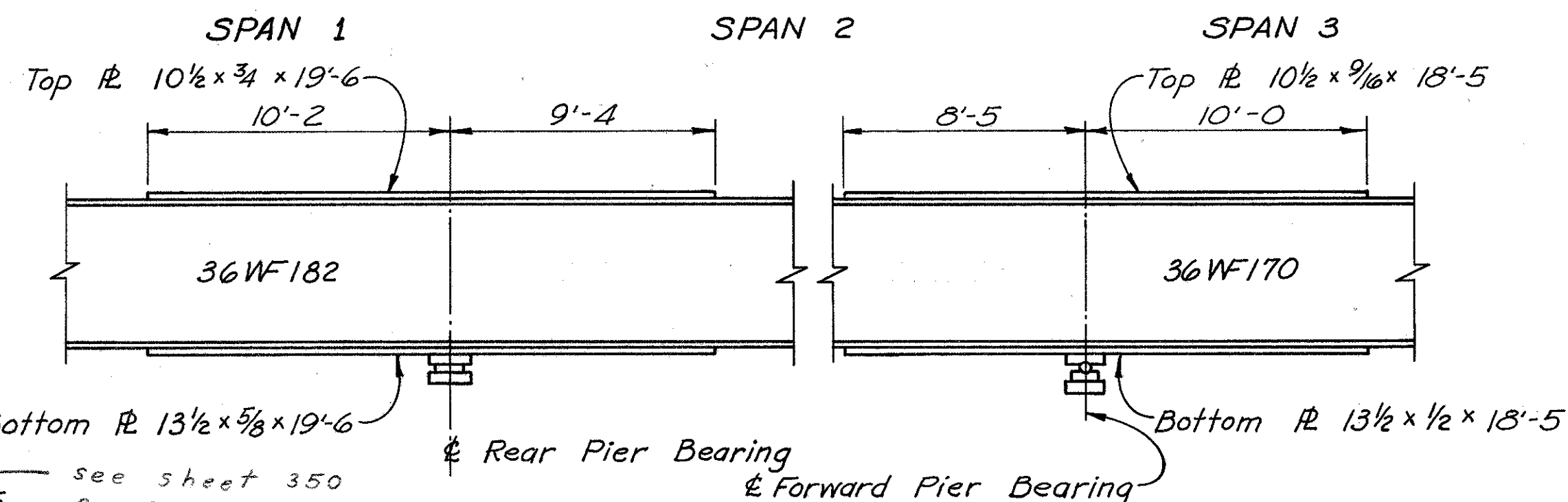
Class "C" concrete for parapets above this construction joint is included with railing for payment

S501 @ 1'-6", End panels  
@ 1'-5 1/2", Intermediate panels

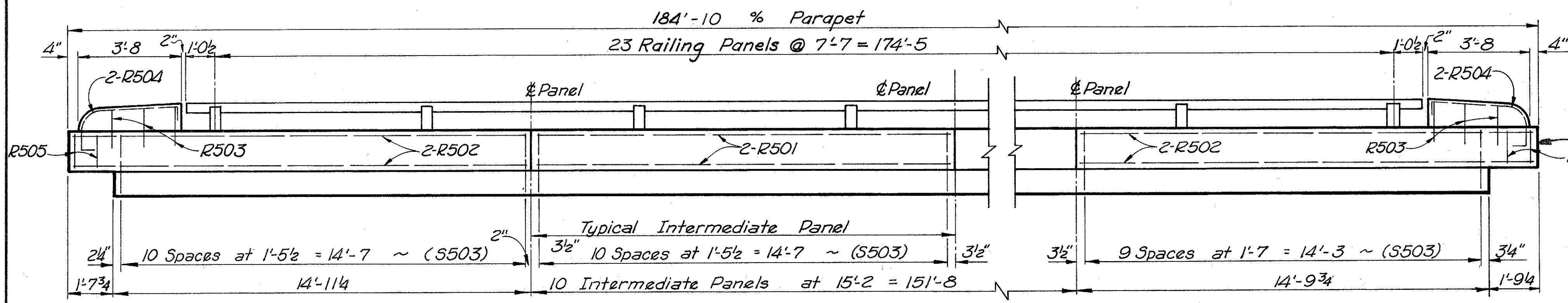
CURB DETAILS



PART PLAN



MOMENT PLATE DETAILS



ELEVATION

CURB AND PARAPET DETAILS

W.E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

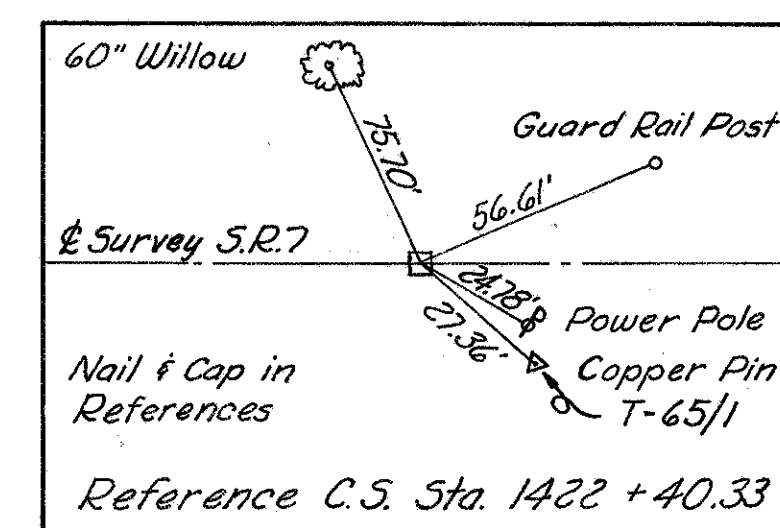
**SUPERSTRUCTURE DETAILS**  
**BRIDGE NO. JEF-7-(ALEXANDER STREET OVER PENNA. R.R.)**  
STA. 17+38.62  
JEFFERSON COUNTY 19+23.14

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	RWL	RL	DLM	6-20-65	9-5-67	



JEFFERSON COUNTY  
JEF-7-23.37  
0.19 ± Mile West of Toronto

**CURVE DATA S.R. 7**  
 $\Delta = 56^{\circ}28'28''$  Rt.  
 $D_c = 4^{\circ}00'$   
 $L_c = 1011.86'$   
 $R = 1432.39'$   
 $L_s = 400'$   
 $P.I. = Sta. 1418 + 00.10$



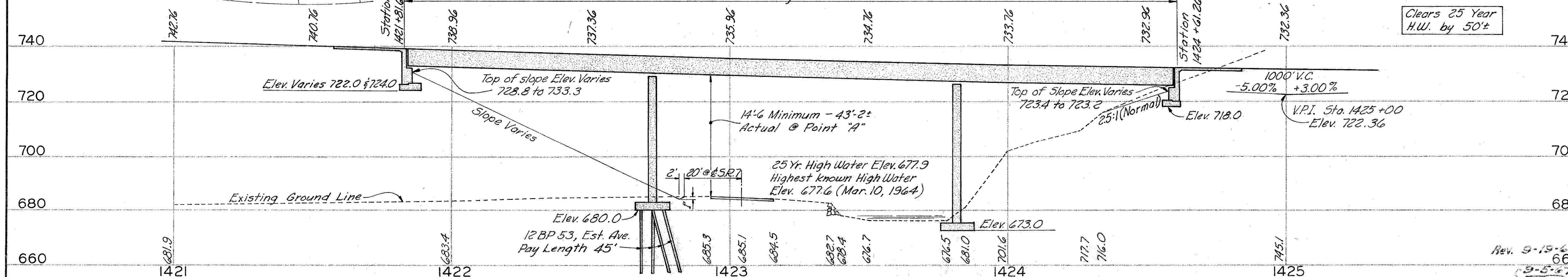
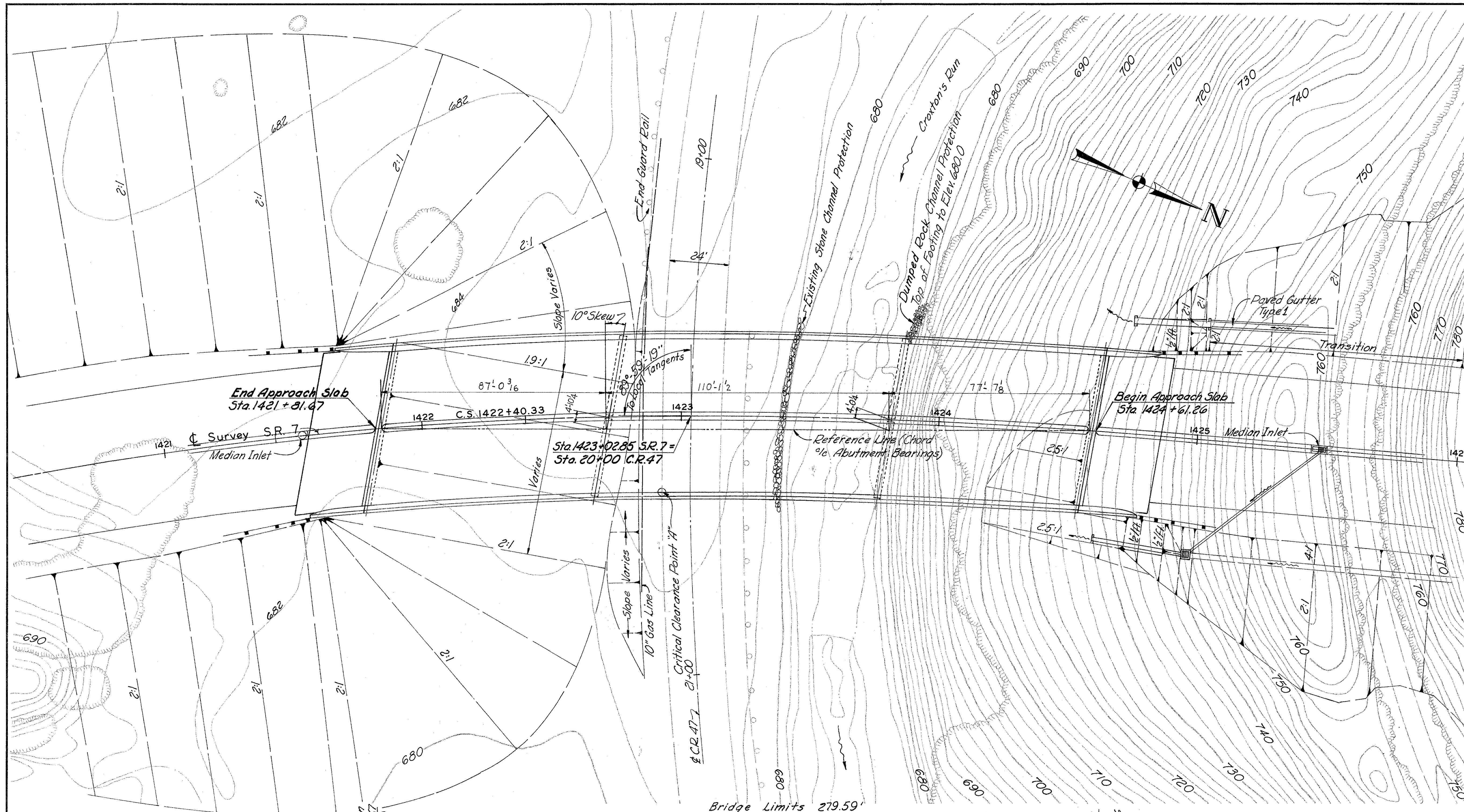
B.M.:  $\square$  Chisel Mk. Concrete Head Wall  
South West Spring St. (C.R. 47) and  
Penna. R.R. Crossing. Elev. 698.15

C.R. 47 1980 A.D.T. = 2020  
S.R. 7 1980 A.D.T. = 11,230

**PROPOSED STRUCTURE**

**TYPE:** Continuous steel girder with reinforced concrete deck and substructure.  
**SPANS:** 88'-110' - 77'-6"  
**ROADWAY:** 55'-0" ± 2-0' safety curbs with 3'-0" raised median.  
**LOAD FREQUENCY:** C.F. 2000 (57).  
**SKEW:** 10° L.F. (with reference line).  
**WEARING SURFACE:** 1" monolithic.  
**APPROACH SLABS:** 45'-1-54 modified, 25' long.  
**ALIGNMENT:** 4° 00' Curve Rt. & Spiral.  
**SUPERELEVATION:** Varies.

Drainage Area: 8.4 Sq. Miles.



W.E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

**SITE PLAN**

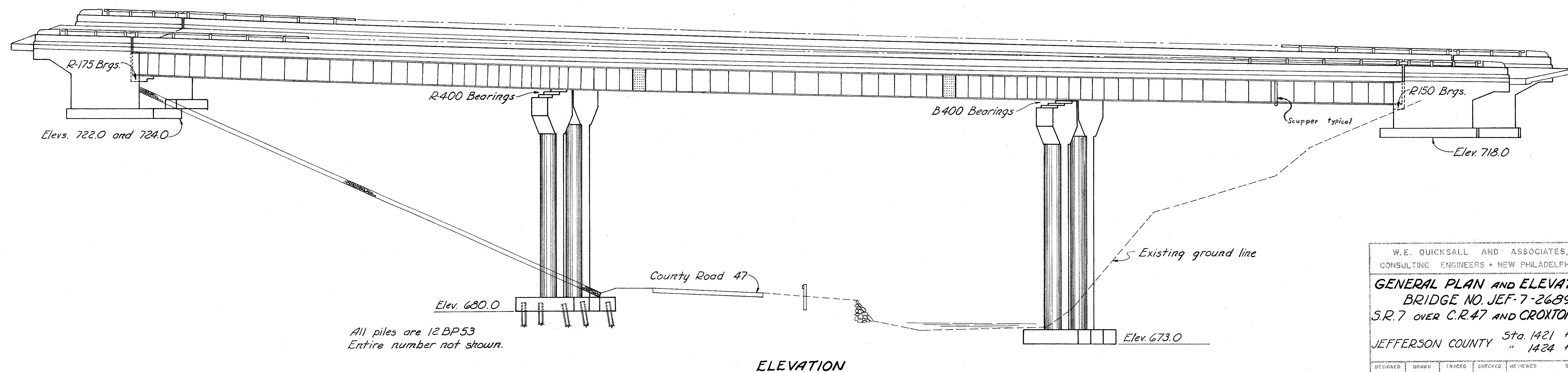
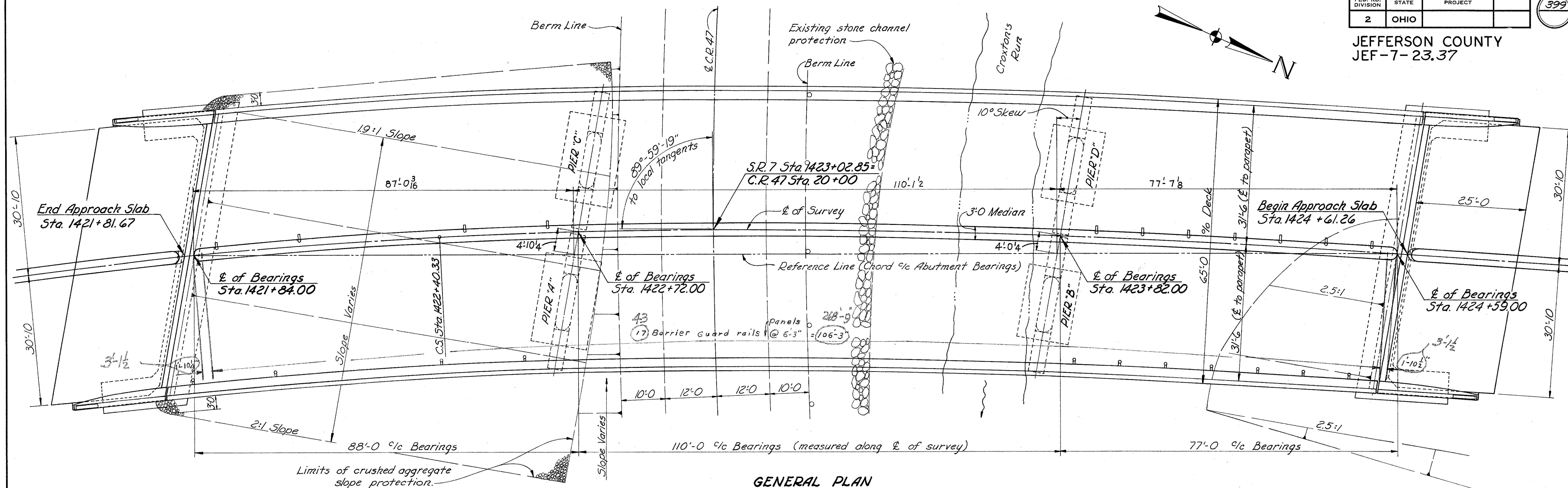
**BRIDGE NO. JEF-7-2689**  
S.R. 7 over C.R. 47 and CROXTON'S RUN  
JEFFERSON COUNTY Sta. 1421 + 81.67  
" 1424 + 61.26

PRESENT TOPOGRAPHY		PROPOSED WORK	
SURVEYED	D.M.	DESIGNED	D.M.
D.M.	D.M.	DRAWN	D.M.
		CHECKED	D.M.
		REVIEWED	D.M.

Rev. 9-15-67  
Rev. 5-9-67



JEFFERSON COUNTY  
JEF-7-23.37





JEFFERSON COUNTY  
JEF-7-23.37

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Abut.	Pier	Super	Gen'l.		
503	447	Cu. yds.	Unclassified excavation	303	144				
503	324	Cu. yds.	Rock excavation	229	95				
503	Lump	Sum	Cofferdams, Cribbs and Sheeting						
511	599	Cu. yds.	Class "C" concrete, superstructure			599			
511	374	Cu. yds.	Class "C" concrete, piers above footings		374				
511	337	Cu. yds.	Class "E" concrete, abutments	337					
511	105	Cu. yds.	Class "E" concrete, pier footings		105				
512	24	Lin. ft.	Waterproofing, premolded sealing strip	24					
509	208,462	Lbs.	Reinforcing steel	23,265	37,702	147,498			
513	665,200	Lbs.	Structural steel			665,200			
514	665,200	Lbs.	Field painting of structural steel			665,200			
517	633.57	Lin. ft.	Aluminum Railing (Type I)	84.63		548.94			
505	LUMP	SUM	First test pile				Lump		
507	2,160	Lin. ft.	Steel piles (12 BP 53)		2,160				
518	81	Cu. yds.	Porous backfill	81					
518	22	Each	Scuppers, including supports			22			
518	118	Lin. ft.	6" perforated helical C.M.P., including specials (707.06)	118					
518	89	Lin. ft.	6" Non-perforated helical C.M.P. (707.06)	89					
601	890	Sq. yds.	Crushed aggregate slope protection	890					
825	2505	Sq. yds.	Concrete surface treatment				2505		
828	121	Lin. ft.	Joint sealer (end dams)			121			
808	599	Units	Water-reducing, set-retarding admixture			599			

GENERAL NOTES

REFERENCE shall be made to Standard Drawings SD-1-65, sheets 1,2 & 3, dated 11-8-65, RB-1-55, revised 2-2-59 and BR-1-65, revised 11-24-65, and to Supplemental Specifications 808, dated 1-13-67, and 811, 825 & 828 dated 1-1-67 and to Std. Drwg. AS-1-54 revised 8-10-65.

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 at the Rear Abutment shall be placed and compacted up to the finished spill-thru slope and to the level of the subgrade for a minimum distance of 200 feet back of the abutment and for a minimum period of 90 days (unless settlement hubs indicate that all settlement has ceased) before construction is begun on the Rear Abutment and the Rear Piers.

EXCAVATION QUANTITY includes the removal of fill material required for construction of the Rear Abutment and Rear Piers.

PILES at the Rear Piers 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 Item 507.05 is not less than the following for a pile hammer of the indicated energy rating:

59 tons per pile using an 11,000 ft. lb. hammer  
53 tons per pile using a 15,000 ft. lb. 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 45 tons per pile.

FOOTINGS at the Forward Abutment and Forward Piers shall extend a minimum of 3" into undisturbed rock or to the elevation shown, whichever is lower.

FOUNDATION BEARING PRESSURE: Footings are designed for a maximum bearing pressure of 2.3 tons per sq. ft. at the Rear Abutment, 5.0 tons per sq. ft. at the Forward Piers and 4.0 tons per sq. ft. at the Forward Abutment.

MACHINE FINISH: At the Contractor's option, the concrete deck may be finished by the use of a finishing machine.

ERECTION PROCEDURE: The Contractor shall submit to the Director for approval, three prints showing his proposed erection procedure for the plate girders.

MAINTENANCE AND PROTECTION OF TRAFFIC: Two lanes of traffic with a minimum horizontal width of 26'-0" shall be maintained on C.R.47 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.

DESIGN INFORMATION:  
Design Loading-----CF 2000 (57)  
Concrete Class "C"-----Basic unit stress 1,333 p.s.i.  
Concrete Class "E"-----Basic unit stress 1,133 p.s.i.  
Structural Steel-----ASTM A36 Basic unit stress 20,000 p.s.i.  
Reinforcing Steel-----ASTM A15, A16, A160, Deformed, Intermediate or Hard Grade. Basic unit stress 20,000 p.s.i.

UTILITY LINES: All expense involved in relocating the affected utility lines shall be borne by the owners. The Contractor and the Owners are requested to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum.

W.E. QUICKSALL AND ASSOCIATES, INC.  
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ESTIMATED QUANTITIES, GENERAL  
NOTES AND SLAB ELEVATIONS  
BRIDGE No. JEF-7-2689  
S.R. 7 OVER C.R.47 AND CROXTON'S RUN  
STA. 1421+81.67  
JEFFERSON COUNTY 1424+61.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
		RWL	WDA	DLM	5/12/65	9-5-67

ELEVATIONS - TOP OF DECK SLAB

STATION	Profile Grade	Median Curb Line		Curb Line	
		Lt.	Rt.	Lt.	Rt.
1421 + 74.94	739.84	---	---	---	737.53
1421 + 82.56	739.57	---	739.58	---	---
1421 + 83.36	739.54	739.55	---	---	---
1421 + 90.65	739.28	---	---	741.62	---
1422 + 00	738.96	738.98	738.98	741.50	736.67 <sup>55</sup>
1422 + 25	738.14	738.16	738.16	740.42 <sup>54</sup>	735.90 <sup>78</sup>
1422 + 50	737.36	737.38	737.38	739.53 <sup>65</sup>	735.21 <sup>09</sup>
1422 + 75	736.64	736.66	736.66	738.65 <sup>15</sup>	734.57 <sup>46</sup>
1423 + 00	735.96	735.98	735.98	737.84 <sup>74</sup>	733.99 <sup>89</sup>
1423 + 25	735.34	735.36	735.36	737.08 <sup>17</sup>	733.46 <sup>35</sup>
1423 + 50	734.76	734.78	734.78	736.40 <sup>49</sup>	733.06 <sup>81</sup>
1423 + 75	734.24	734.26	734.26	735.76 <sup>84</sup>	732.60 <sup>51</sup>
1424 + 00	733.76	733.78	733.78	735.18 <sup>26</sup>	732.27 <sup>19</sup>
1424 + 25	733.34	733.36	733.36	734.63 <sup>56</sup>	731.97 <sup>89</sup>
1424 + 50	732.96	732.98	732.98	734.12 <sup>18</sup>	731.71 <sup>64</sup>
1424 + 56.75	732.87	---	---	---	731.65 <sup>58</sup>
1424 + 59.84	732.83	---	732.85	---	---
1424 + 60.17	732.82	732.84	---	---	---
1424 + 63.20	732.78	---	---	733.86	---



## NOTES

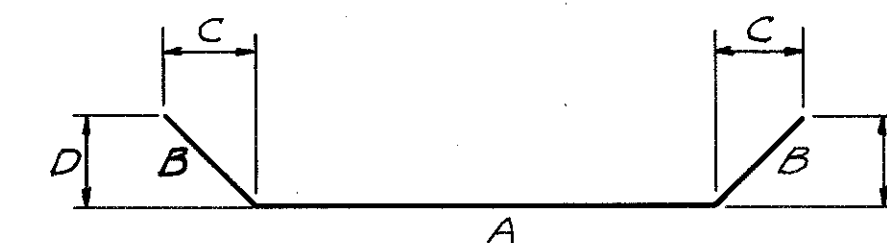
BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A700 is a No. 7 size bar and A1014 is a No. 10 size.

**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 509 1 1/2 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 equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

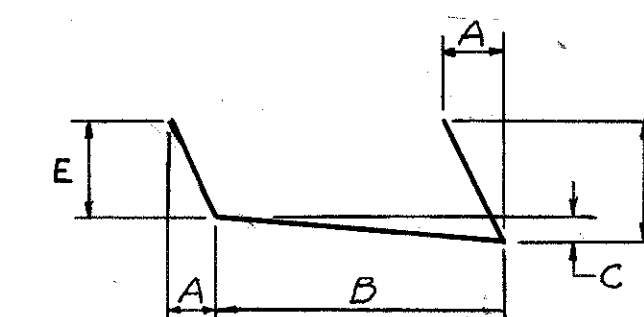
All dimensions are out-to-out.

Str. in the "TYPE" column indicates straight bars.

\* Include with railing for payment.



TYPE 14



TYPE 15

W.E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

### REINFORCING BAR SCHEDULE

BRIDGE No. JEF-7-2689

S.R. 7 OVER C.R. 47 AND CROXTON'S RUN  
STA. 1421+81.67  
JEFFERSON COUNTY 1424+61.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
		RWL	W.D.A.	DLM	5/12/65	9-5-67

MARK	TYPE	A	B	C	D	E	NO.	LENGTH	WEIGHT
REAR ABUTMENT									
A1001	Str.						37	7'-6	1194
A801	Str.						12	6'-6	208
A802	14	7'-3	1'-3	1'-0	9"		9	9'-9	234
A803	14	5'-9	1'-3	9"	1'-0		9	8'-3	198
A804	2	1'-1	13'-6				22	14'-5	847
A805	2	1'-1	9'-10				4	10'-9	115
A806	2	1'-1	12'-0				26	12'-11	897
A701	8	9'-9	1'-5	8'-5	11"	3'-4	60	23'-2	2841
A601	2	10"	9'-7				5	10'-3	77
A602	2	10"	8'-11				12	9'-7	173
A603	2	10"	8'-3				12	8'-11	161
A604	2	10"	7'-8				15	8'-4	188
A605	Str.						6	35'-0	315
A606	Str.						6	36'-3	327
A607	Str.						3	20'-9	93
A608	Str.						2	19'-11	60
A609	Str.						2	19'-8	59
A610	Str.						3	18'-6	83
A611	Str.						10	8'-0	120
A612	Str.						20	6'-6	195
A613	Str.						6	5'-6	50
A614	Str.						22	6'-8	220
A501	2	10"	9'-7				5	10'-4	54
A502	2	10"	8'-11				12	9'-8	121
A503	2	10"	8'-3				12	8'-11	112
A504	2	10"	7'-8				15	8'-4	130
A505	Str.						23	32'-4	776
A506	Str.						21	32'-9	717
A507	Str.						8	20'-9	173
A508	Str.						2	14'-6	30
A509	Str.						2	12'-3	38
A510	Str.						2	8'-11	19
A511	9	2'-0	1'-2				8	4'-11	41
A512	Str.						2	12'-0	25
A513	Str.						20	4'-0	83
A514	Str.						4	6'-0	25
A515	Str.						8	22'-6	188
A516	Str.						2	14'-0	29
A517	Str.						10	14'-4	149
A518	2	7'-2	3'-8				16	4'-2	70
A519	4	2'-2	8"	5"			28	5'-7	163
FORWARD ABUTMENT									
B901	Str.						45	5'-9	880
B801	Str.						14	5'-6	206
B802	2	1'-1	11'-5				20	12'-4	659
B803	2	1'-1	10'-5				4	11'-4	121
B804	2	1'-1	8'-2				6	9'-1	146
B805	2	1'-1	10'-3				22	11'-2	656
B806	14	6'-6	1'-3	11"	10"		7	9'-0	163
B807	14	6'-0	1'-3	10"	11"		6	8'-6	136
B701	8	9'-9	1'-5	8'-5	11"	3'-4	60	23'-2	2825
B601	2	10"	7'-10				9	8'-6	115
B602	2	10"	7'-1				16	7'-9	186
B603	2	10"	6'-4				12	7'-0	126
B604	2	10"	5'-11				7	6'-7	69
B605	Str.						8	35'-0	420
B606	Str.						22	5'-6	182
B607	Str.						4	17'-9	107
B608	Str.						4	19'-0	114
B609	Str.						20	6'-6	195
B610	Str.						10	7'-8	115
B501	9	2'-0	3'-5				44	7'-2	329
B502	2	7'-2	7'-10				9	8'-4	78
B503	2	7'-2	7'-1				16	7'-7	127
B504	2	7'-2	6'-4				12	6'-10	86
B505	2	7'-2	5'-11				7	6'-5	47
B506	Str.						16	32'-1	533
B507	Str.						21	31'-10	694
B508	Str.						5	31'-7	165
B509	Str.						17	15'-0	171
B510	Str.						2	9'-7	20
SPIRAL REINFORCING									
MARK	CORE DIA.	PITCH	NO. TURNS	NO.	LENGTH	WEIGHT			
B511	Str.						32	13'-4	4228
B512	Str.						2	16'-3	34
B513	Str.						8	21'-0	175
B514	9	1'-0	1'-5				24	3'-2	79
B515	Str.						10	16'-5	171
B516	Str.						2	10'-7	22
B517	15	-	1'-5	2"	1'-2	1'-0	24	3'-4	83
B518	Str.						8	22'-7	188
B519	4	2'-2	8"	5"			29	5'-7	169
B520	Str.						16	3'-7	60
B521	Str.						16	3'-5	57
B522	Str.						4	5'-5	23
B523	Str.						4	5'-10	24
B524	Str.						2	12'-3	26
B525	Str.						2	10'-1	21
B526	Str.						4	4'-8	19
B527	9	7'-2	1'-10	(Vary by 1" increments)	Two	2'-10	59		
B528	9	1'-9	1'-2				8	4'-5	37

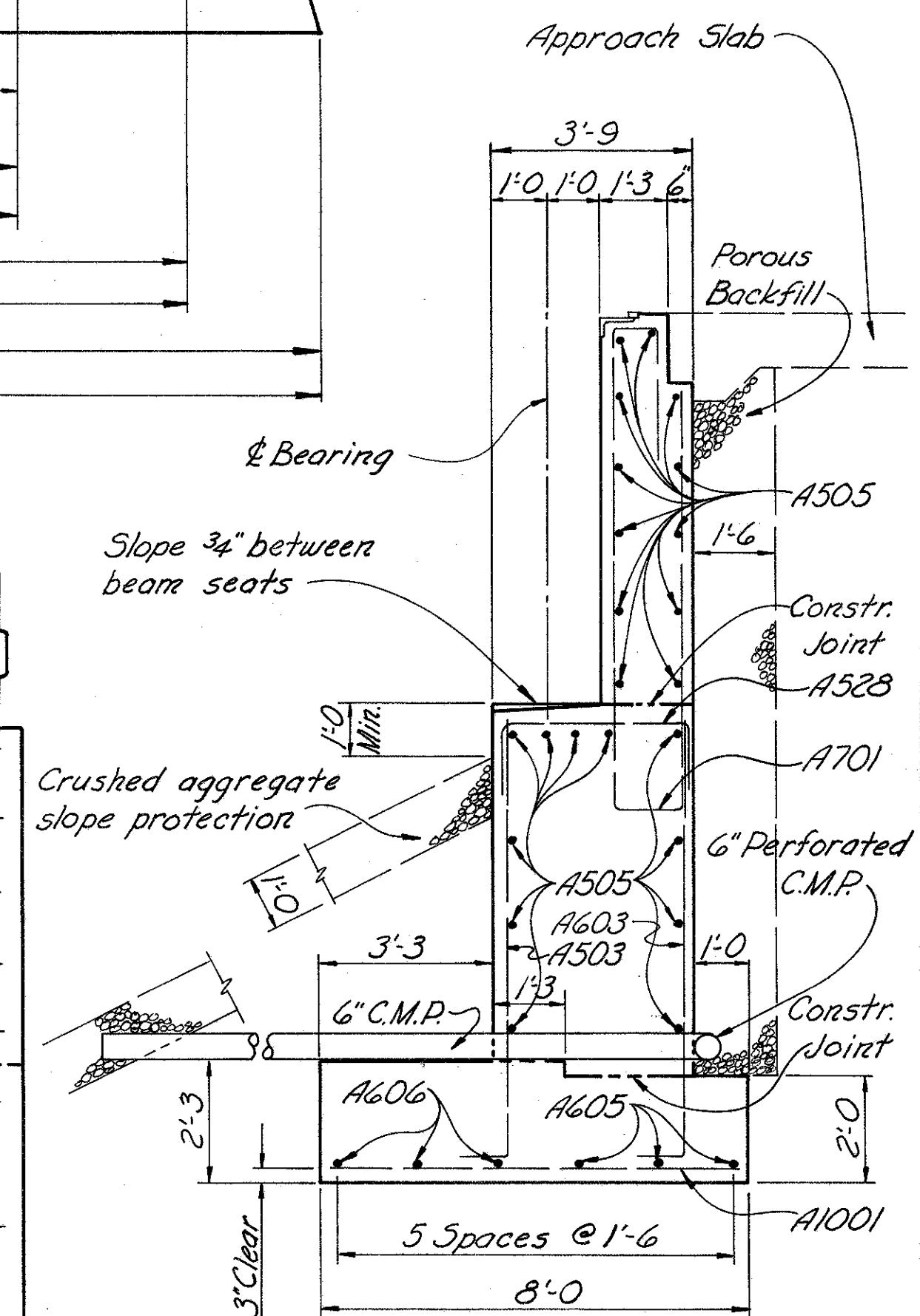
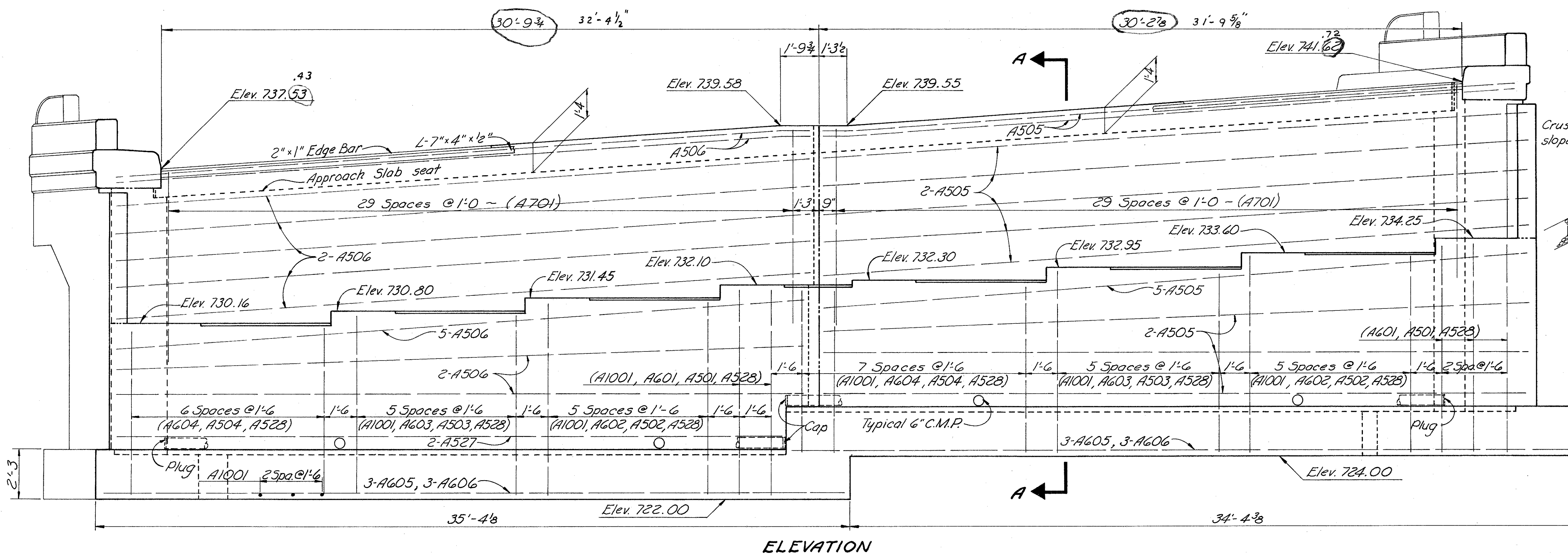
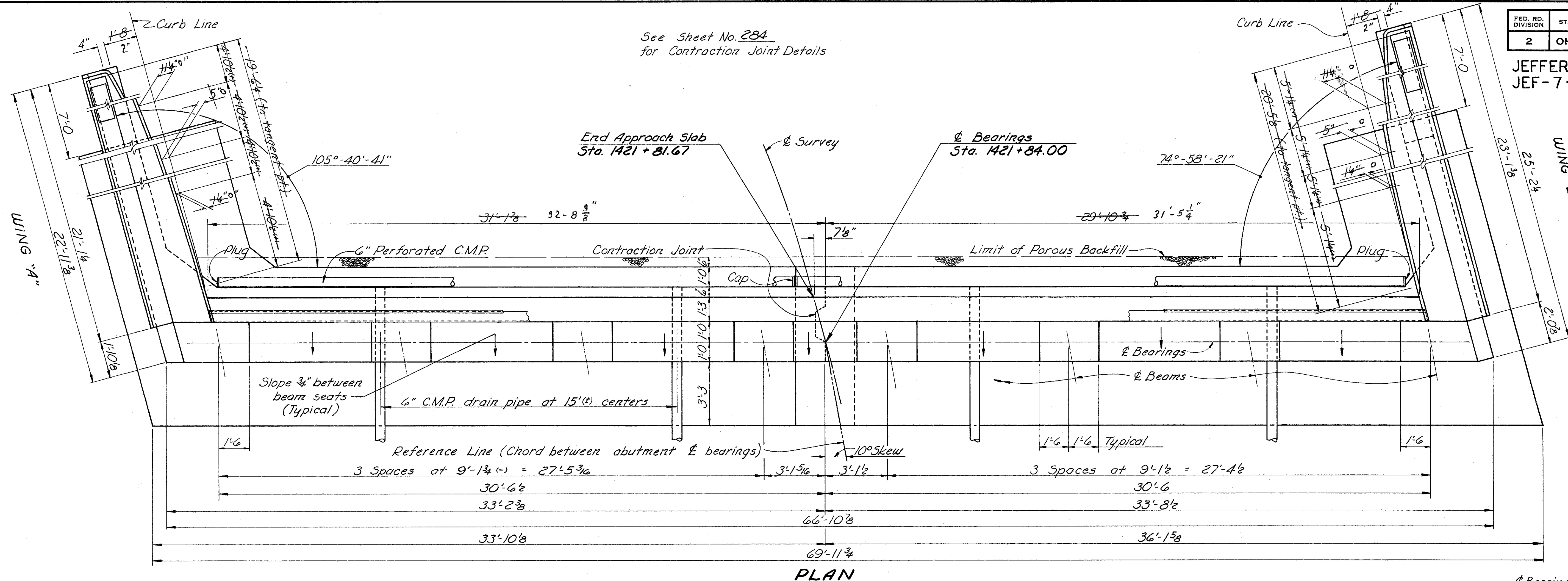
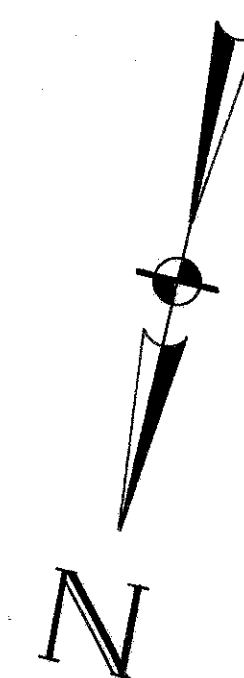








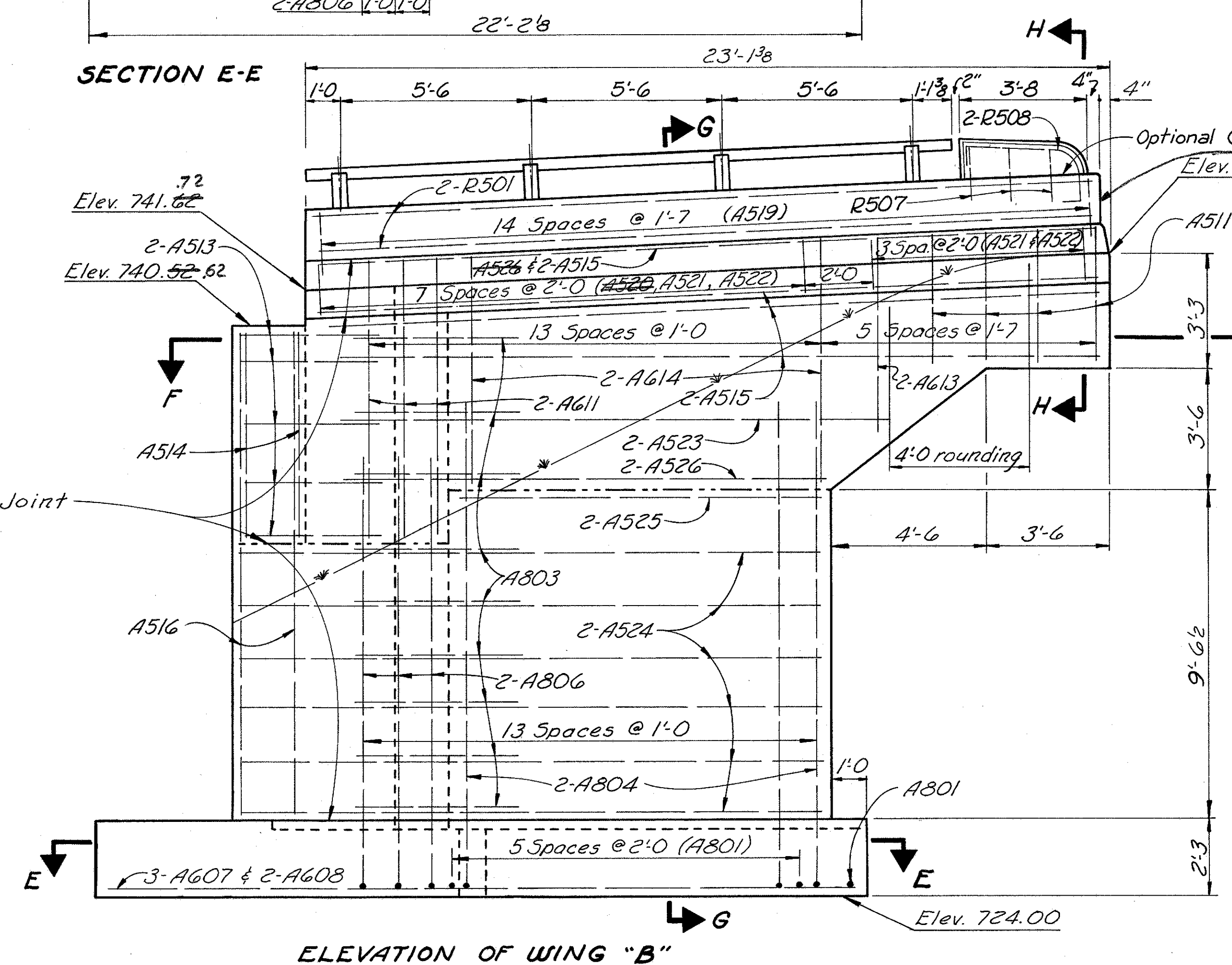
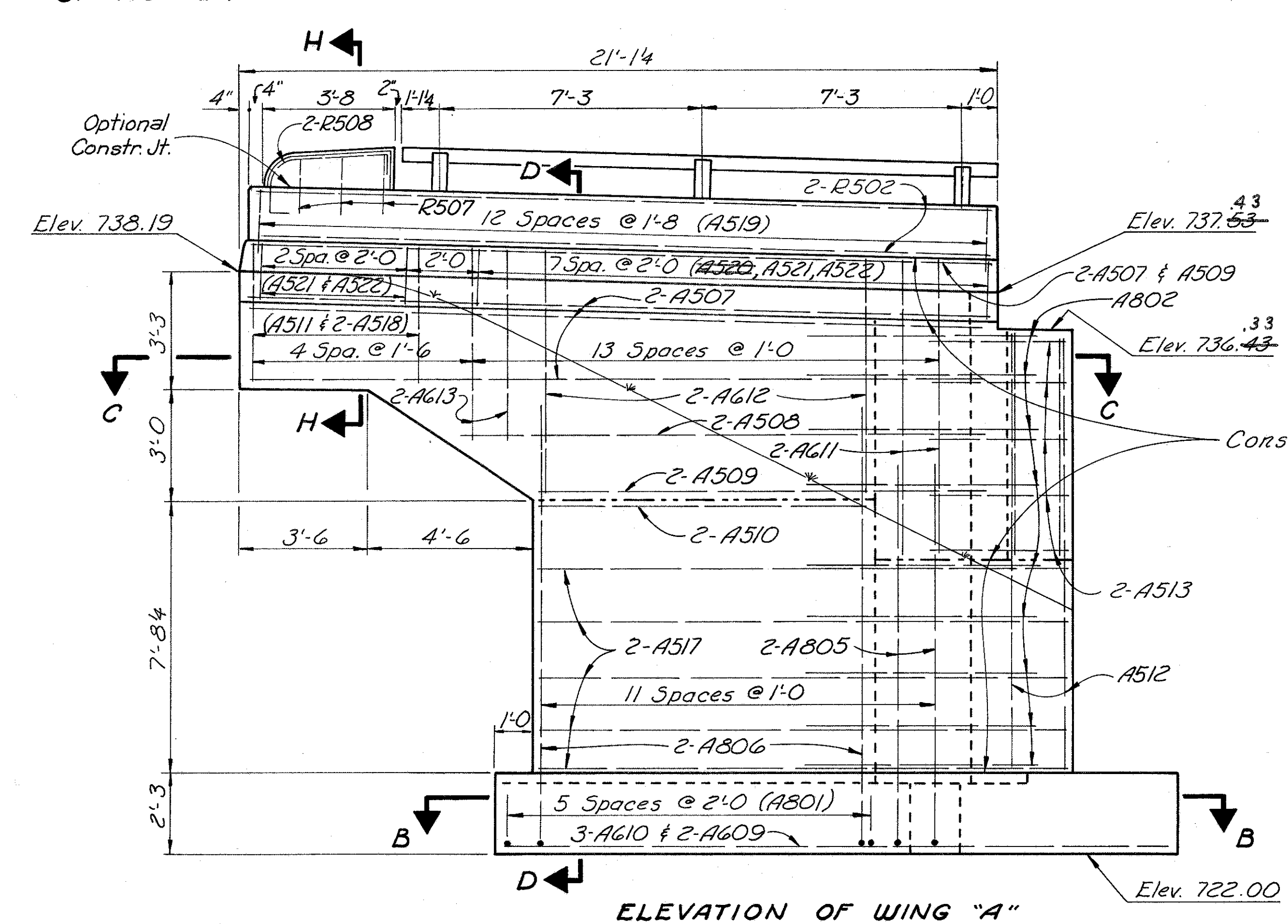
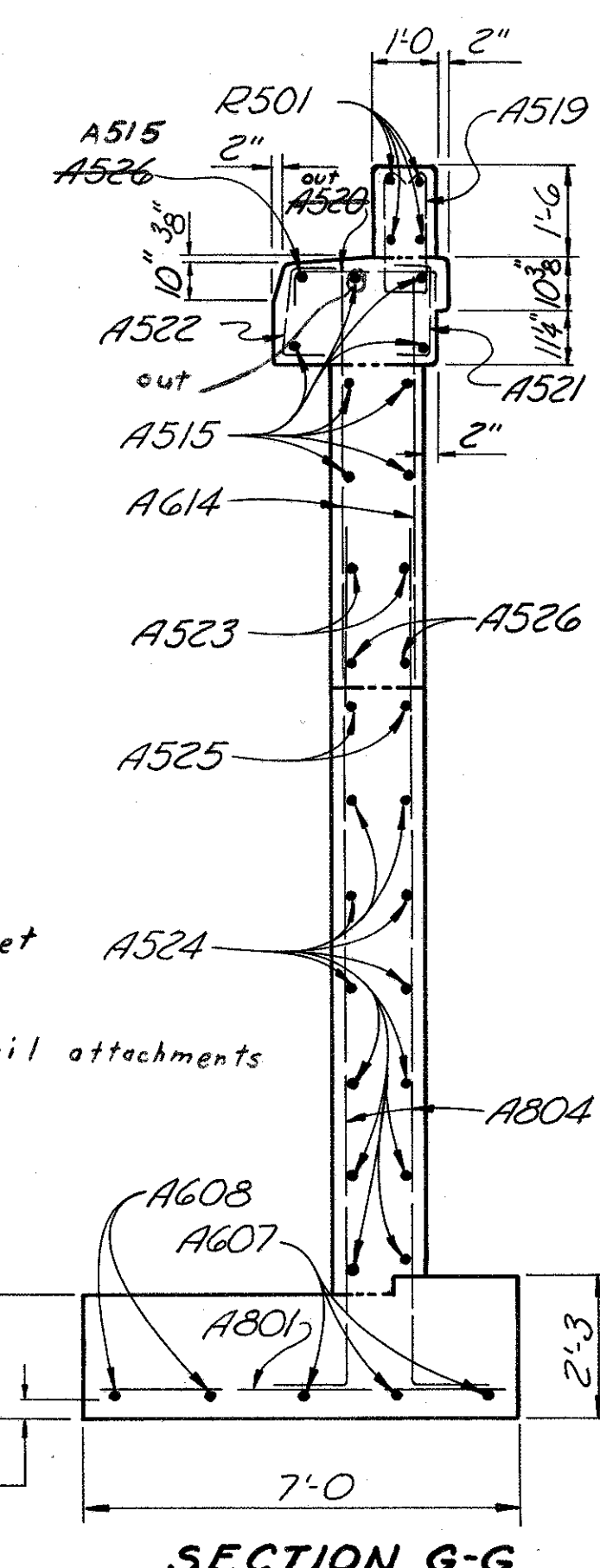
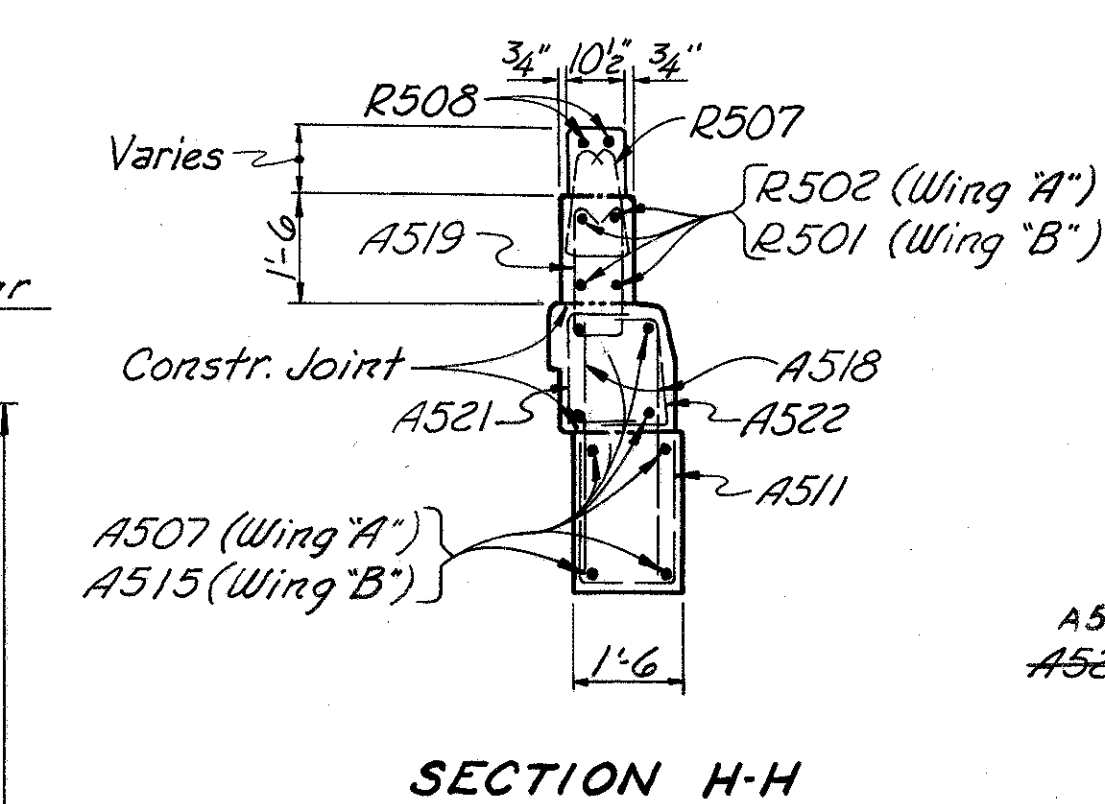
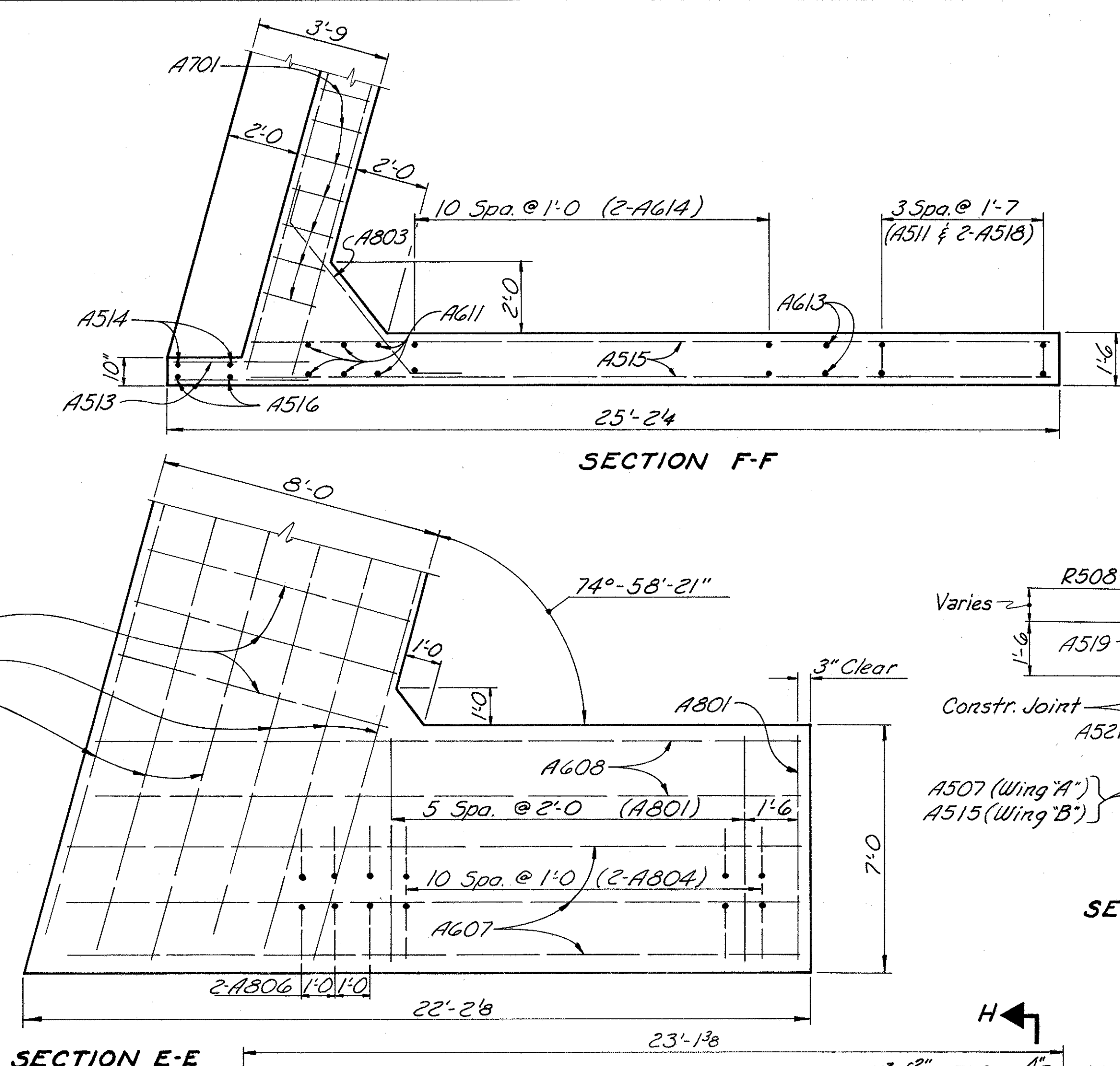
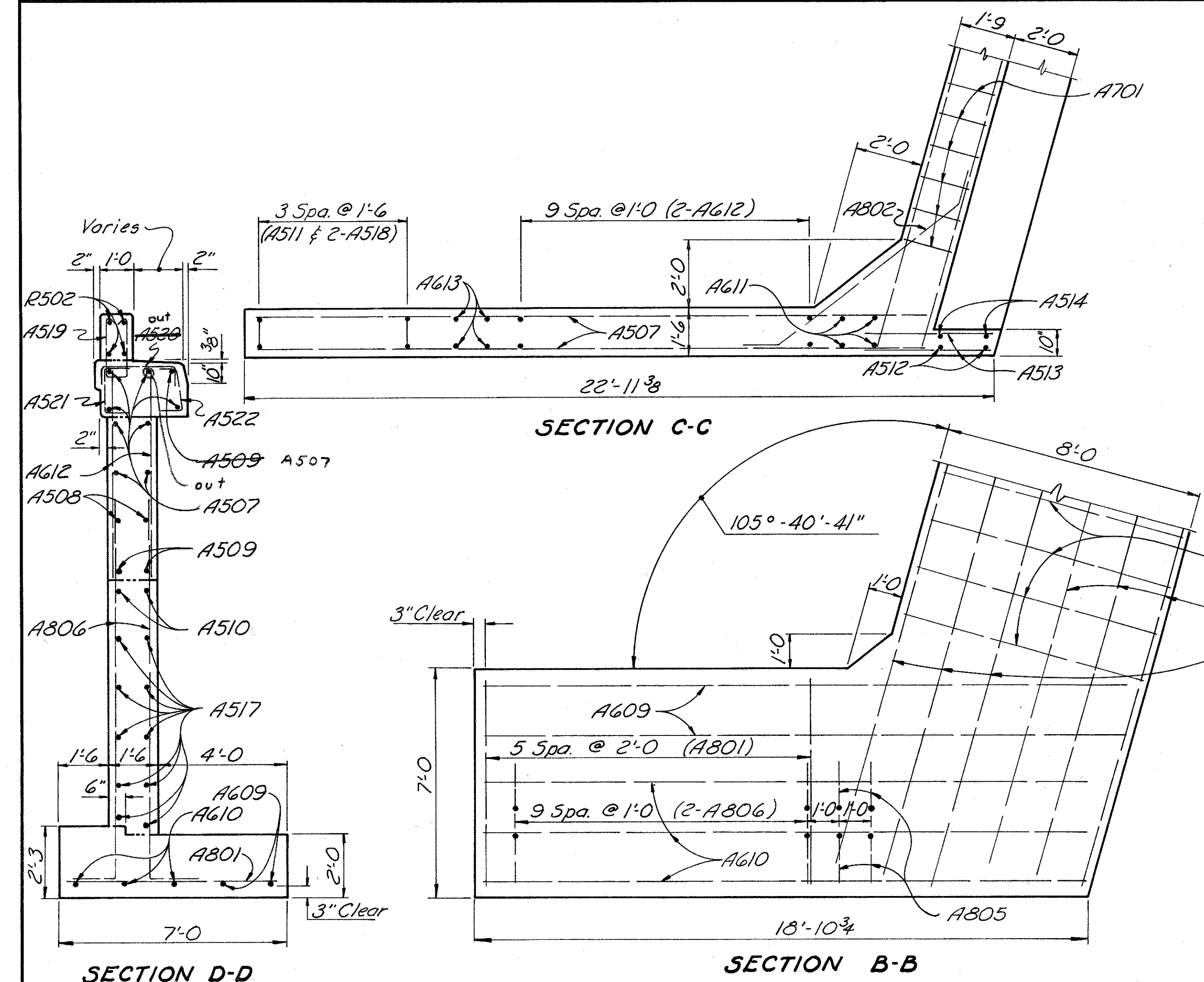
JEFFERSON COUNTY  
JEF-7-23.37



SECTION A-A

W.E. QUICKSALL AND ASSOCIATES, INC. CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO							
REAR ABUTMENT DETAILS BRIDGE NO. JEF-7-2689 S.R.7 OVER C.R.47 AND CROXTON'S RUN							
JEFFERSON COUNTY Sta. 1421+81.67 " 1424+61.26							
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED	
R	R	WDA	DLM	5/12/65	9-5-65		

JEFFERSON COUNTY  
JEF-7-23.37



W.E. QUICKSALL AND ASSOCIATES, INC.  
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

**REAR ABUTMENT DETAILS**  
**BRIDGE NO. JEF-7-2689**  
**S.R. 7 OVER C.R. 47 & CROXTON'S RUN**

JEFFERSON COUNTY Sta. 1421+81.67  
" 1424+61.26

DESIGNED	DRAWN	TRACED	CHECKED	APPROVED	DATE	REVISION
R	R	WDA	DLM	5/12/65	9-557	



JEFFERSON COUNTY Sta. 1421 + 81.67  
" 1424 + 61.26



**FORWARD ABUTMENT DETAILS**  
BRIDGE NO. JEF-7-2689  
S.R. 7 OVER C.R. 47 AND CROXTON'S RUN

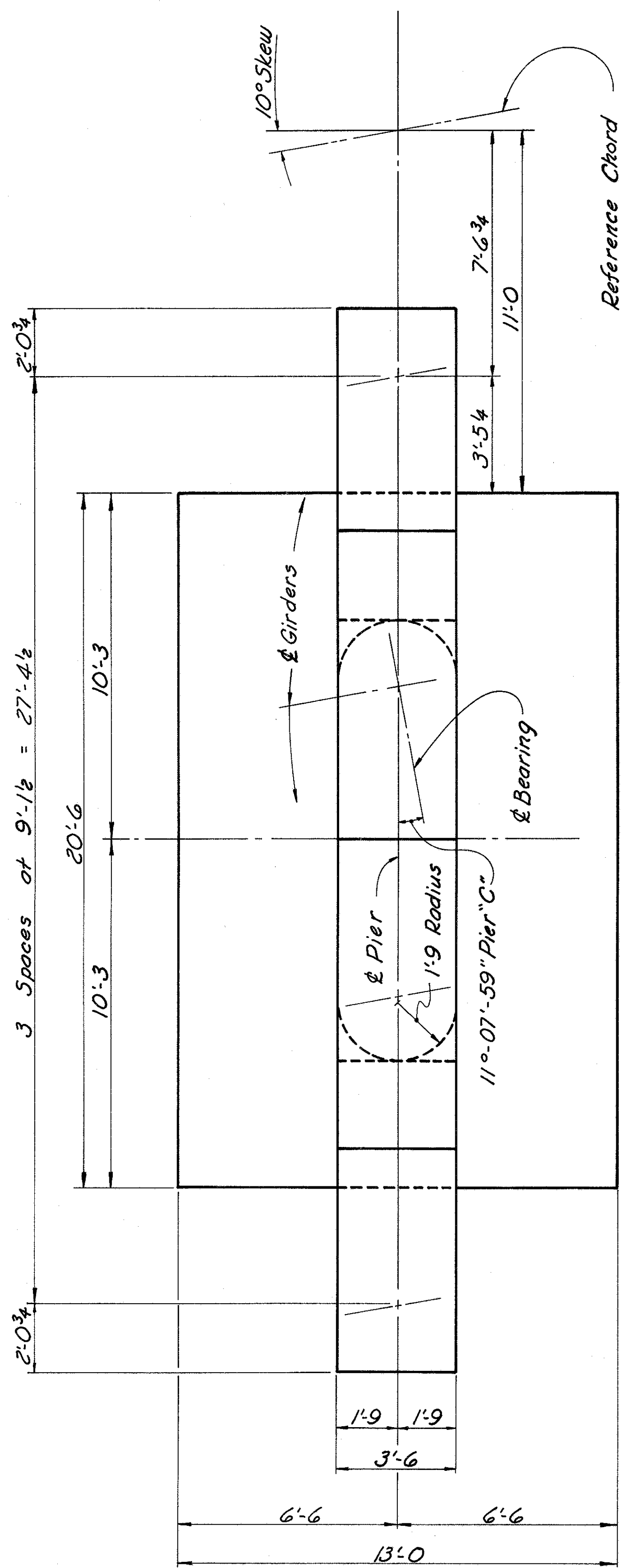
JEFFERSON COUNTY Sta. 1421 + 81.67  
" 1424 + 61.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	RWL	R	R	DLM	5/12/65	9-5-67



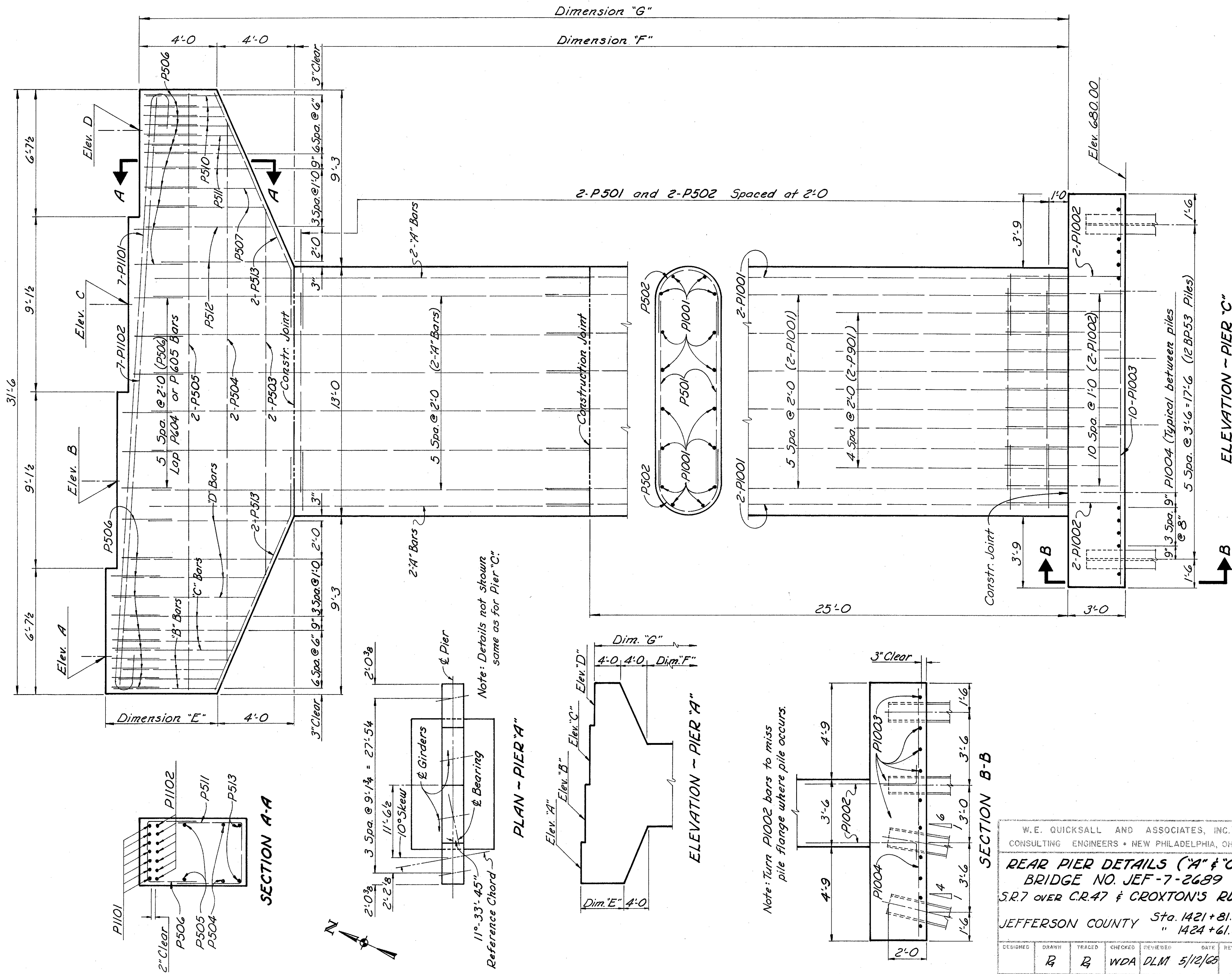


JEFFERSON COUNTY  
JEF-7-23.37



PLAN - PIER 'C'

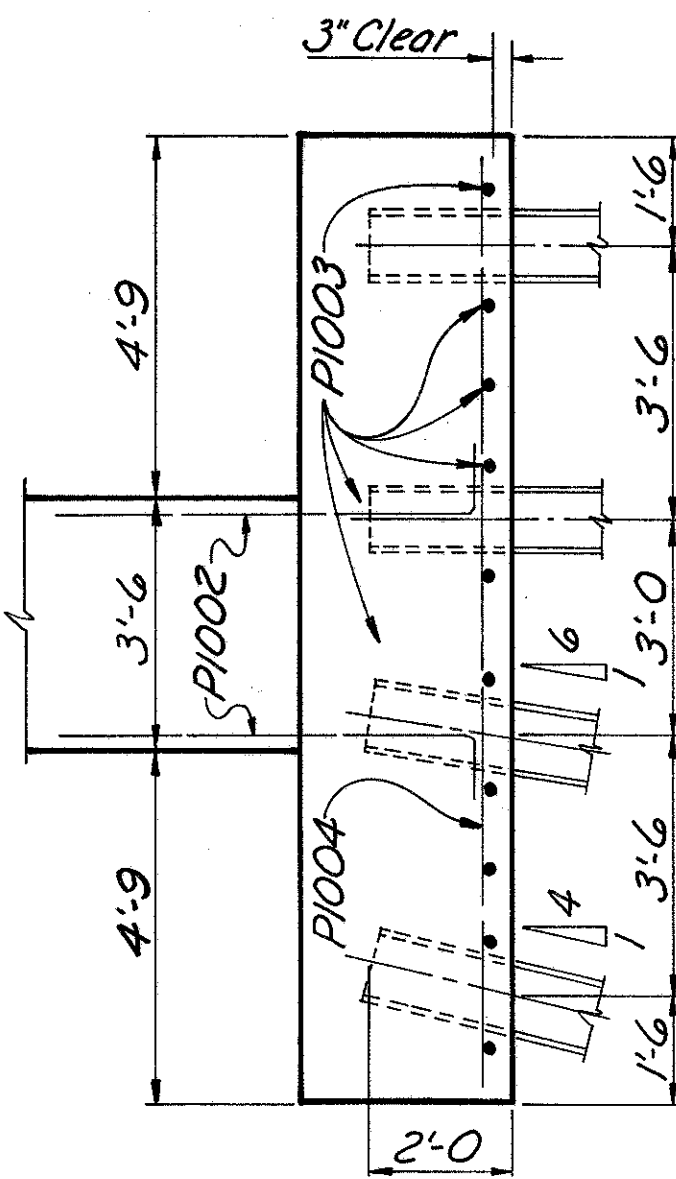
	ELEVATIONS			DIMENSIONS			REINFORCING STEEL		
	A	B	C	D	E	F	G	H	I
PIER 'A'	728.71	728.09	727.46	726.82	5'-10 5/8	35'-9 3/8	43'-9 3/8	P 602	P 507
PIER 'C'	730.61	730.03	729.45	728.86	5'-9	37'-10 3/8	45'-10 3/8	P 604	P 515



PLAN - PIER 'A'

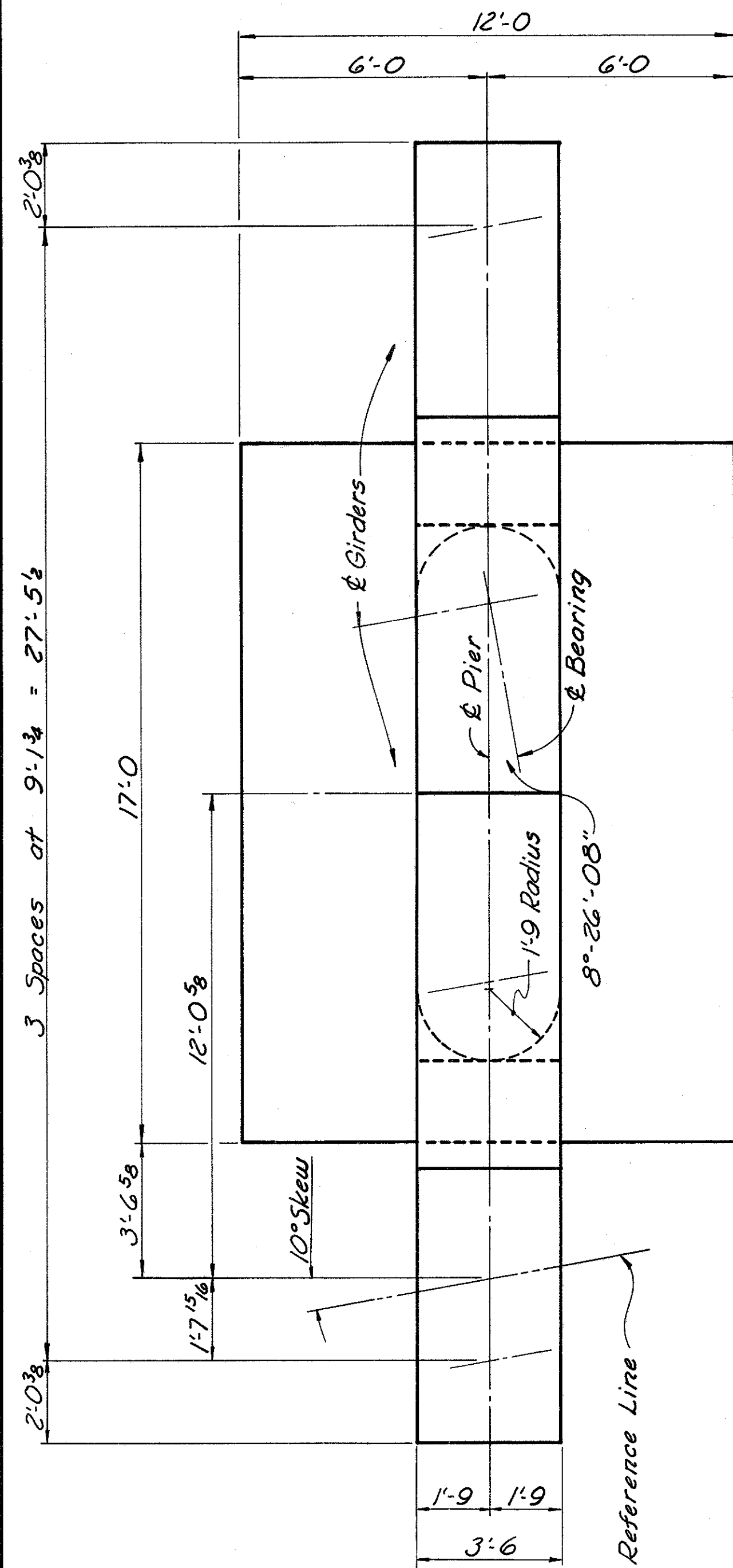
ELEVATION - PIER 'A'

Note: Turn P1002 bars to miss pile flange where pile occurs.



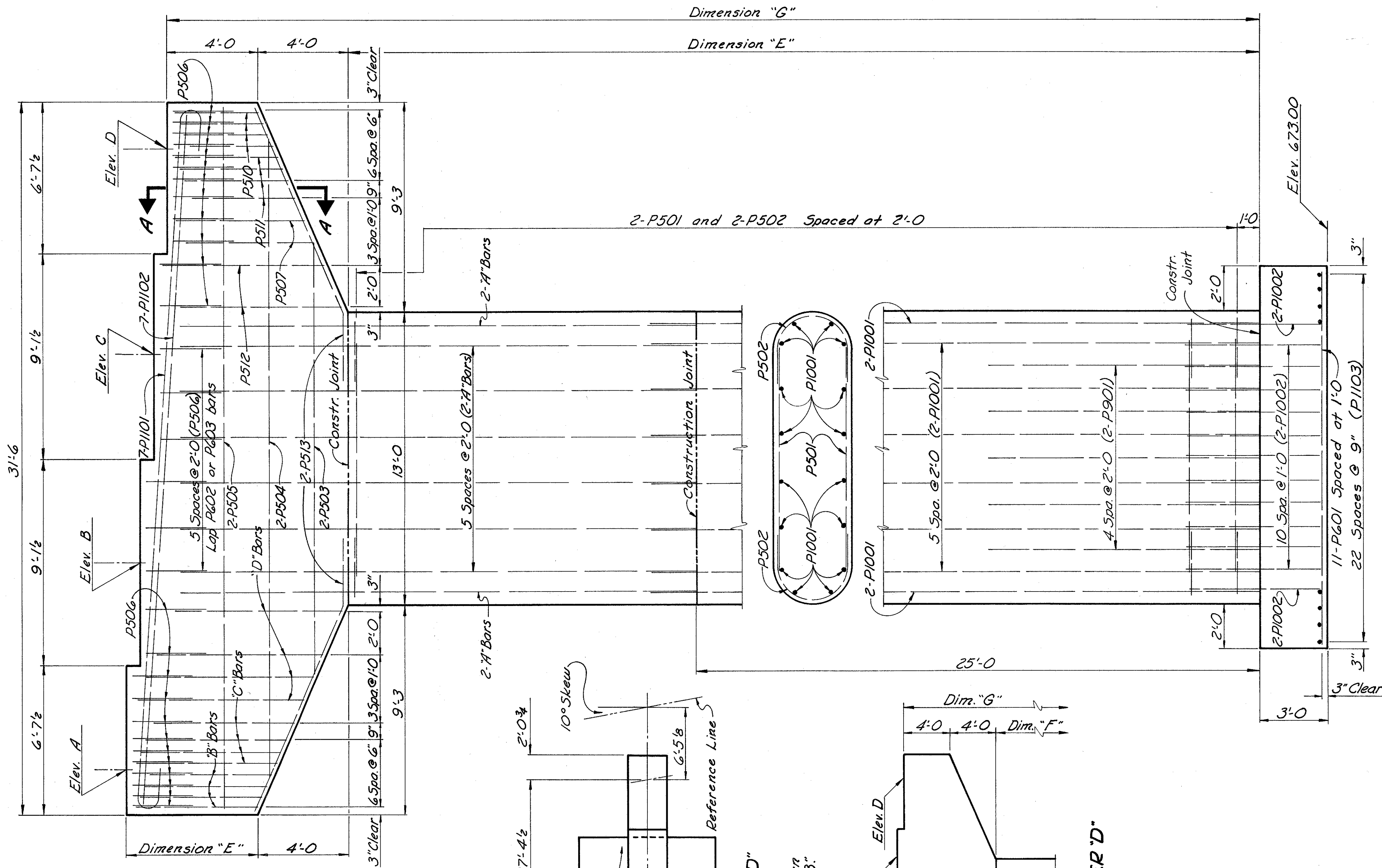
SECTION B-B

JEFFERSON COUNTY  
JEF-7-23.37

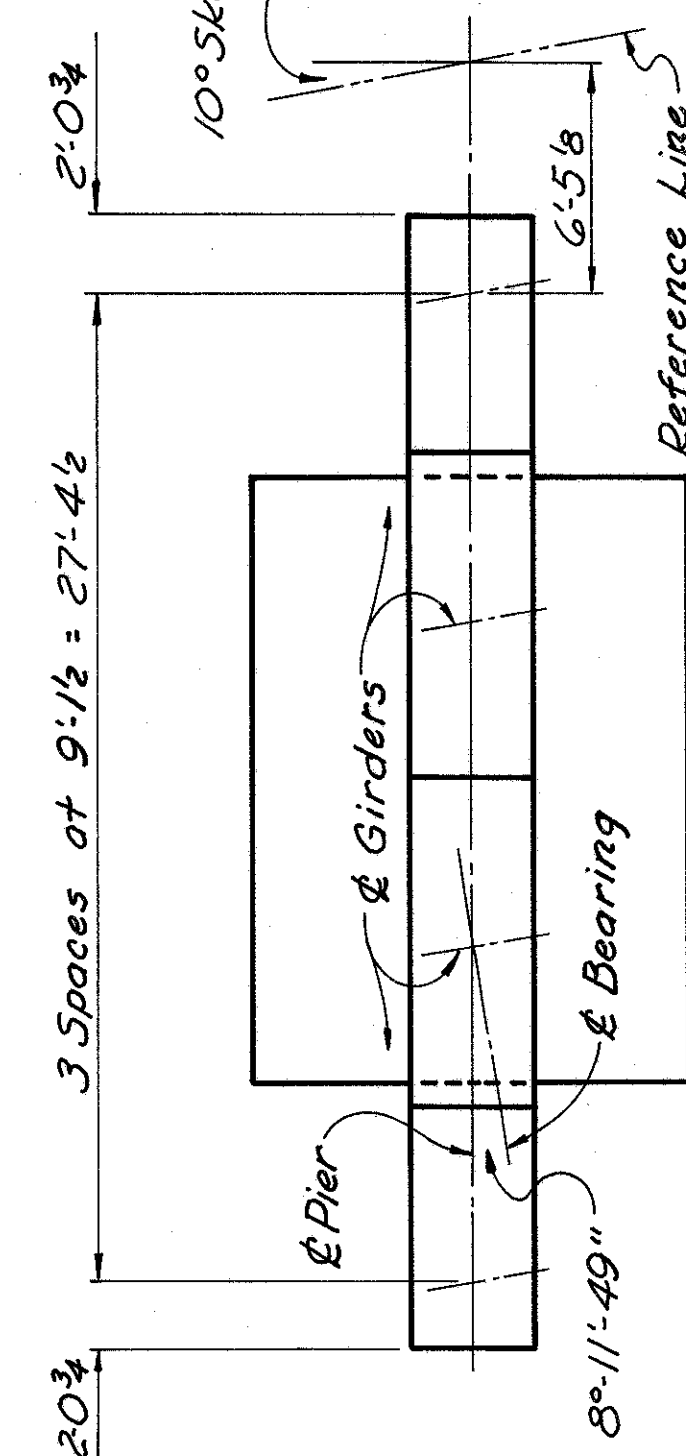


PLAN - PIER "B"

	ELEVATIONS		DIMENSIONS			REINFORCING STEEL					
	A	B	C	D	E	F	G	A Bars	B Bars	C Bars	D Bars
PIER "B"	726.13	725.63	725.13	724.62	5'-6 1/8	40'-7 1/2	48'-7 1/2	P603	P507	P508	P509
PIER "D"	727.52	727.11	726.67	726.22	5'-4	42'-2 3/8	50'-2 3/8	P603	P514	P515	P516

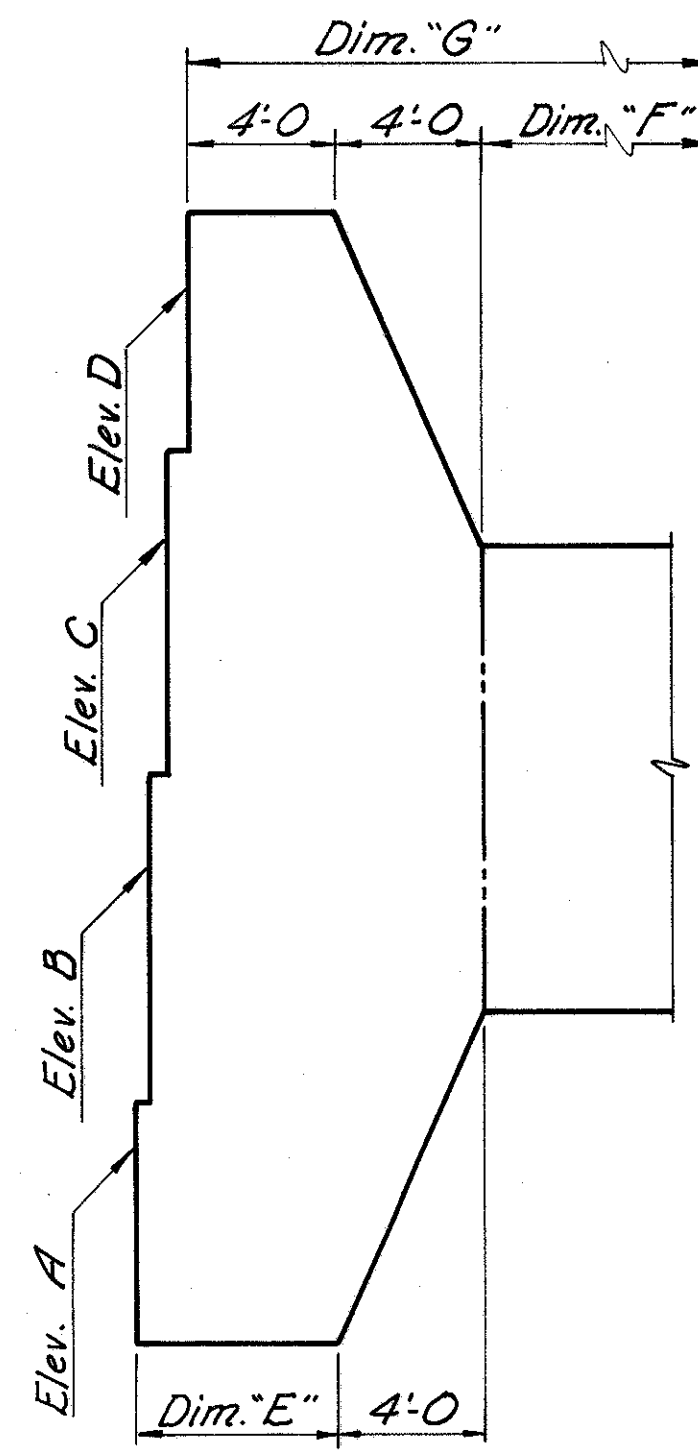


ELEVATION - PIER "B"



PLAN - PIER "D"

Note: Details not shown  
same as for Pier "B."



ELEVATION - PIER "D"

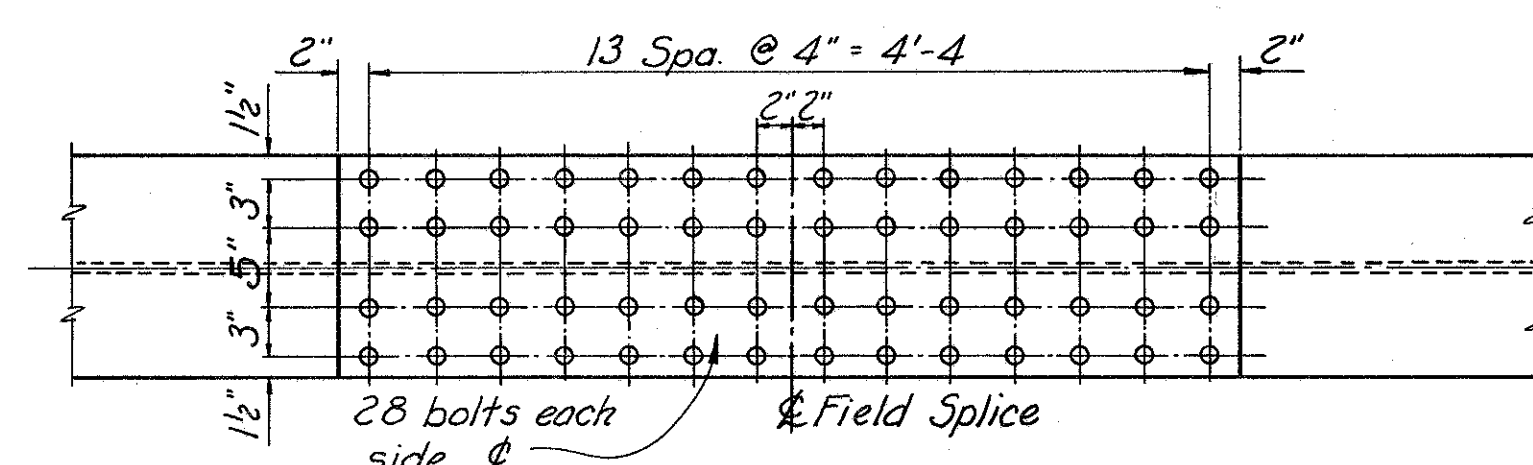
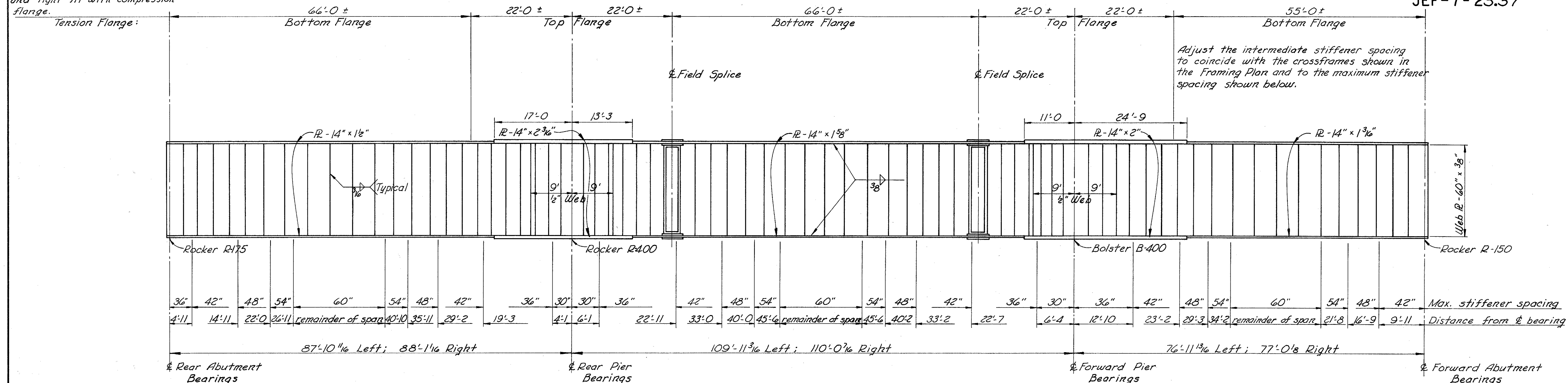
W. E. QUICKSALL AND ASSOCIATES, INC. CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO					
FORWARD PIER DETAILS ("B" & "D") BRIDGE NO. JEF-7-2689 S.R.7 OVER C.R. 47 & CROXTON'S RUN					
JEFFERSON COUNTY Sta 1421 + 81.67 " 1424 + 61.26					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
R	R	WDA	DLM	5/2/65	



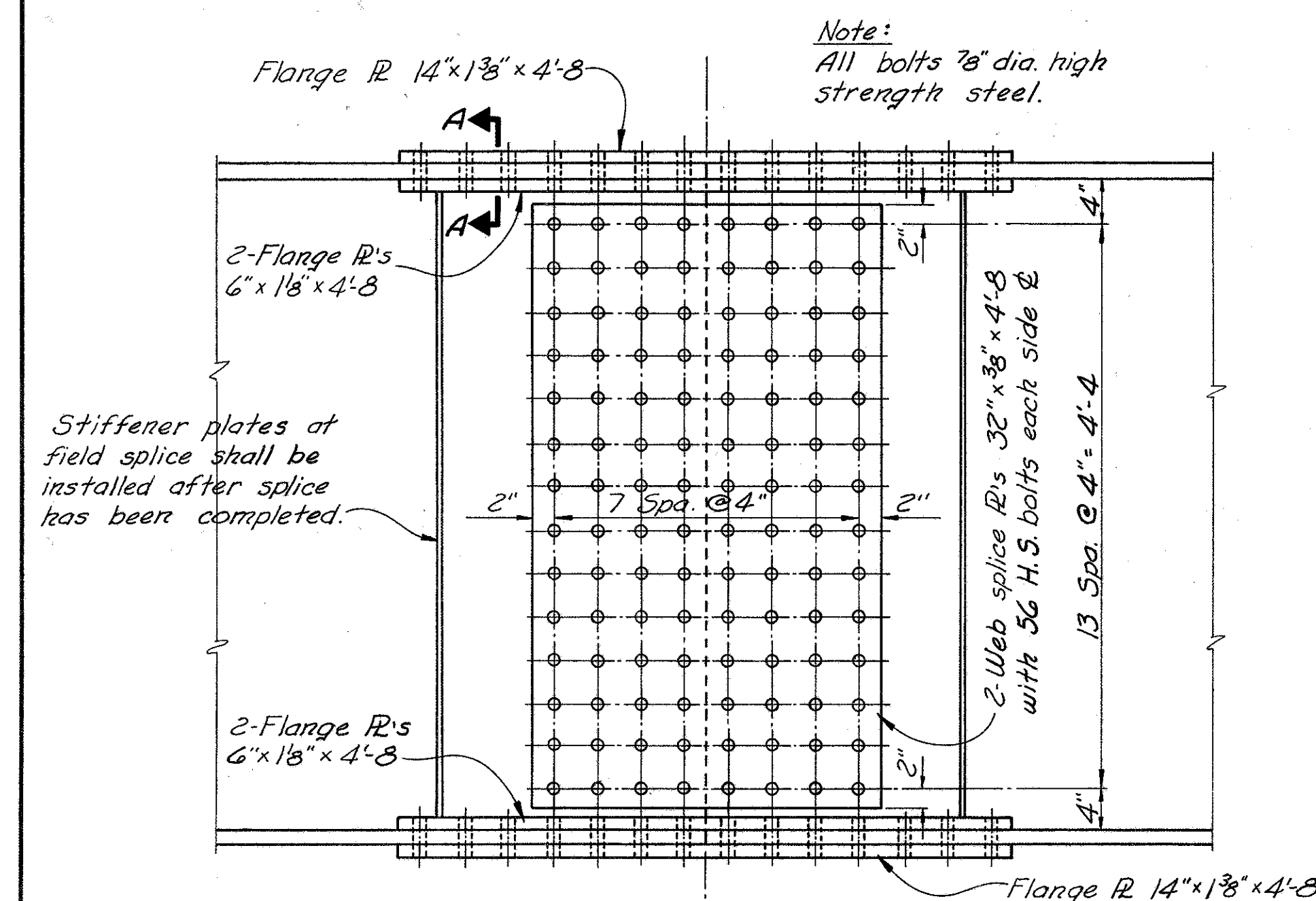


JEFFERSON COUNTY  
JEF-7-23.37

1/8" allowable clearance between stiffeners and tension flange, and tight fit with compression flange.

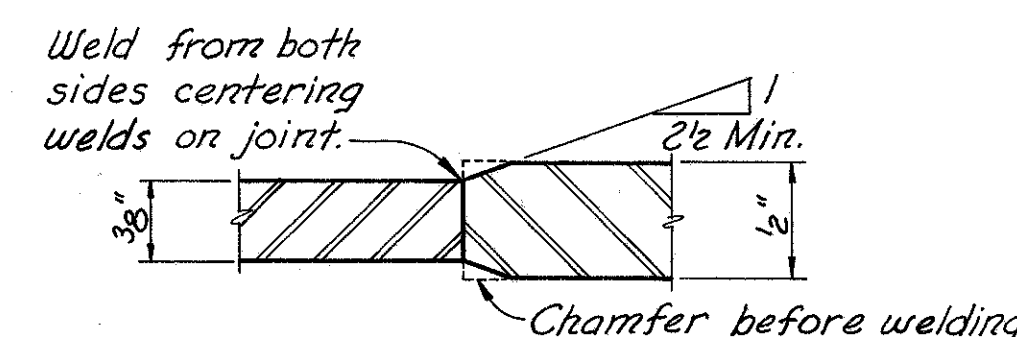


PLAN



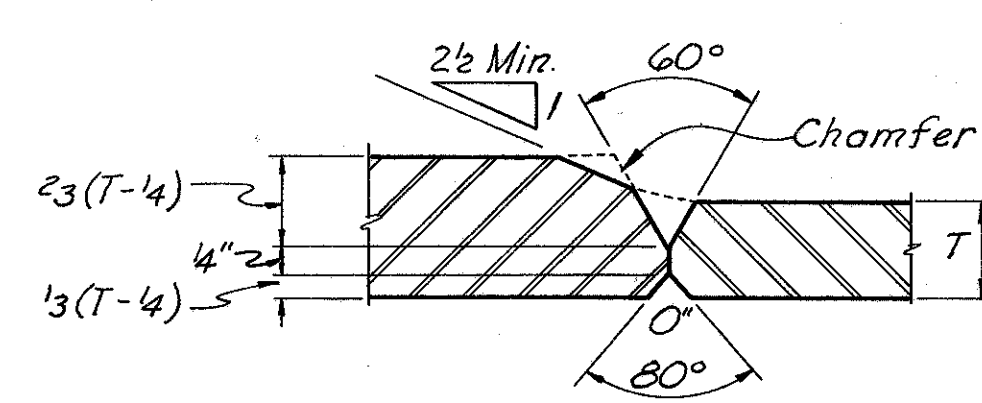
ELEVATION  
GIRDER FIELD SPLICE

GIRDER ELEVATION  
(Bearing stiffeners not shown)

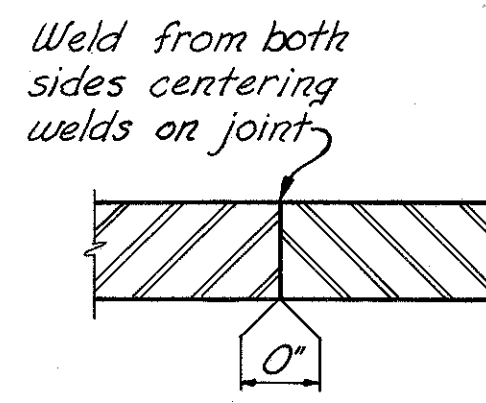


WEB SPLICE

Note:  
Butt welds on girder flange plates shall be ground flush, the finish grinding being parallel to the direction of stress.  
All of the full penetration welds shall be back-gouged and welded after welding far side.

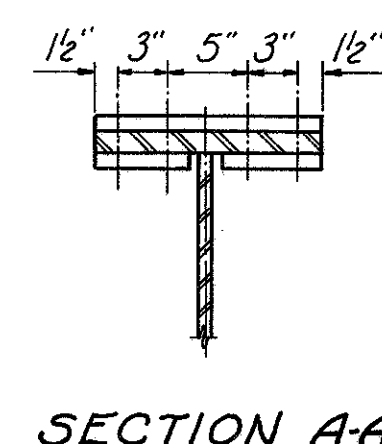


FLANGE SPLICE

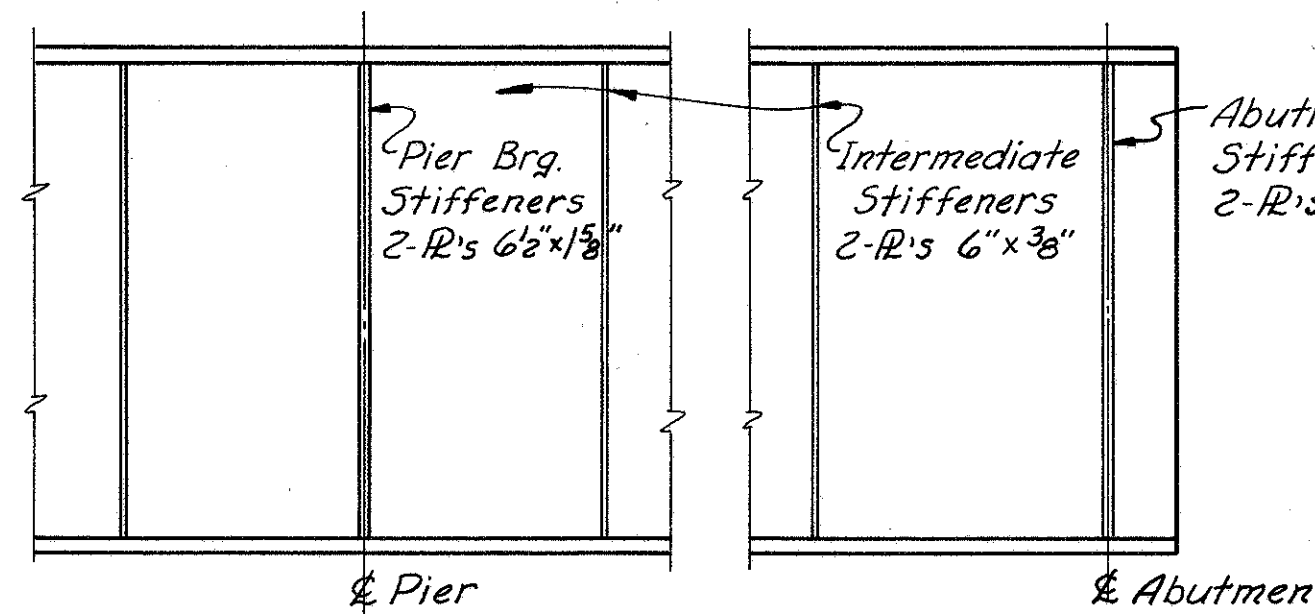


WEB SPLICE  
(Optional)

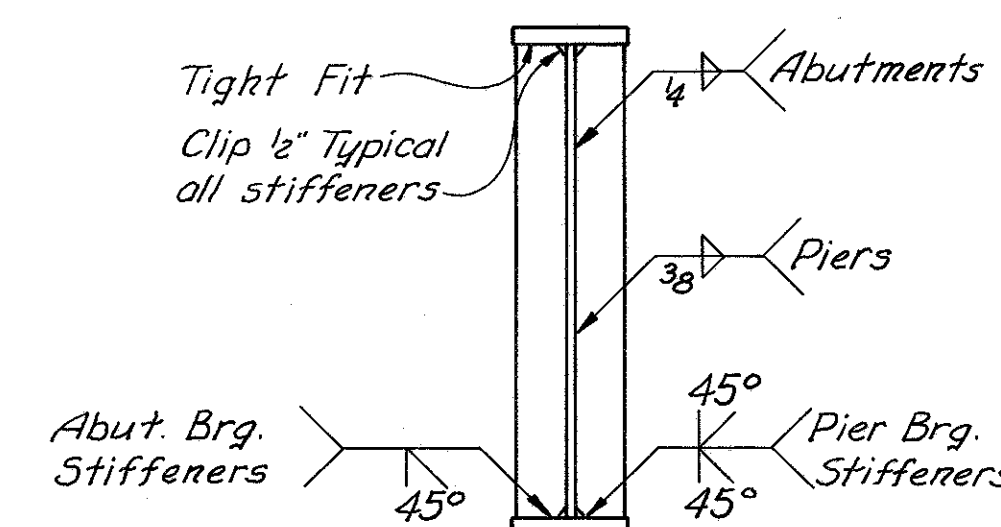
SHOP SPLICES  
(Automatic Submerged Arc)



SECTION A-A



GIRDER DETAILS



BEARING STIFFENERS

GIRDER DEFLECTION & CAMBER (INCHES)									
DESCRIPTION	SPAN 1			SPAN 2			SPAN 3		
LOCATION	1/4	1/2	3/4	1/4	1/2	3/4	1/4	1/2	3/4
Deflection due to steel weight	1/8	1/8	1/16	1/8	3/16	1/8	0	1/16	1/16
Deflection from remaining D.L.	3/8	7/16	3/16	3/8	5/8	7/16	1/16	4	3/16
Total Deflection	1/2	9/16	4	1/2	13/16	9/16	1/16	5/16	4
Required Shop Camber	1/2	9/16	4	1/2	13/16	9/16	1/16	5/16	4





## GENERAL INFORMATION

### INTRODUCTION

The project consists of the construction of 2.5 miles of SR 7 (Toronto Bypass), beginning on SR 7, 0.5 mile north of Costonia, extending northward to the west of Toronto, and terminating 500 feet north of Myers Street, and 500 feet west of the Pennsylvania Railroad. Included in the report are profiles of the Co. Rd. 46 Interchange, including Co. Rd. 46, and Ramps A, B, C, and D.

Proposed grades indicate the following maximum cuts and fill embankments:

	CUTS ('MAX.)	FILL EMBANKMENTS ('MAX.)
SR 7	11'	25'
Co. Rd. 46 Interchange		
Co. Rd. 46	12'	20'
Ramp A	1'	11'
Ramp B	15'	20'
Ramp C		
Ramp D		

### GEOLOGY AND OBSERVATIONS OF THE PROJECT

The alignment traverses a portion of the Ohio River Valley, beginning on the west valley wall, passing to the west of an isolated hill, then emerging onto the broad valley floor, following its western edge, and traversing portions of the base of the valley wall. Thin to moderately deep residual soils and valley fill, overlie coals, clays, shales, sandstones, and limestones of the Conemaugh and Allegheny series, Pennsylvanian age.

Exposed bedrock was observed in the valley wall at the beginning of the project, and a measured section of this outcropping was made.

Due to the incompetent nature and extreme weathering of some of this rock, an accurate determination of bedrock surface was somewhat difficult to impossible in many areas.

### EXPLORATION

The exploration consisted of borings made by means of truck-mounted mechanical soil auger, hand auger (in areas of difficult access), and rotary type drill rig, and electrical resistivity probes, made between September, 1962 and February, 1964, and during July, August, October, and December, 1964, and January, 1965.

### INVESTIGATIONAL FINDINGS

Materials occurring immediately below proposed grade are predominantly comprised of the following:

#### SR 7

Stations 1234+00 to 1239+00 - silts (A-4a and A-4b) and occasional silt clays (A-6a), having moisture contents generally in the lower portion of, or below the plastic range, as well as a variety of bedrock types.

Stations 1299+00 to 1408+00 - silt clays (A-6a), with occasional sandy silts and clays, having moisture contents generally below the plastic range, as well as a variety of bedrock types.

Bedrock is anticipated in the excavations at the following stations:

Stations 1234+00 to 1239+00 - indurated clay, shale, and limestone in the left ditch, and with sandstone in the left backslope.

Stations 1234+50 to 1242+50 - indurated clay and shale at grade and in left ditch, and with sandstone and limestone in the left backslope.

Stations 1242+50 to 1247+25 - indurated clay and shale in the left ditch, and with sandstone and limestone in the left backslope.

Stations 1247+50 to 1247+50 - shale and indurated clay in the left ditch and lower portions of the left backslope, and with sandstone in the upper portions of the left backslope.

Stations 1247+50 to 1247+50 - indurated clay and shale at grade and in the left ditch and lower portions of the left backslope, and with sandstone in the upper portions of the left backslope.

Stations 1247+50 to 1247+50 - shale and indurated clay at grade and in the left ditch and lower portions of the left backslope, with sandstone in the upper portions of the left backslope.

Stations 1247+50 to 1247+50 - shale and indurated clay at grade and in the left ditch and lower portions of the left backslope, with sandstone in the upper portions of the left backslope.

Stations 1247+50 to 1247+50 - shale and indurated clay at grade and in the left ditch and lower portions of the left backslope, with sandstone in the upper portions of the left backslope.

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Stations 1247+50 to 1247+50 - shale and indurated clay at grade and in the left ditch and lower portions of the left backslope, with sandstone in the upper portions of the left backslope.

Stations 1408+00 to 1414+00 - shale, indurated clay, and some coal at grade, in the left ditch and in the left backslope.

## LEGEND FOR PROJECT AVERAGE RESULTS OF TESTS— 488 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 or stone fragments	A-1-a(0)	A-1-a	64	9	14	-	13	NP	NP	9	2
Gravel and/or stone fragments with sand	A-1-b(0)	A-1-b	56	8	16	10	10	11	2	12	28
Fine sand	A-2(0)	A-2	23	26	44	-	7	NP	NP	13	1
Coarse and fine sand	A-3	A-3a	0	5	84	3	8	NF	NP	7	1
Gravel and/or stone fragments with sand and silt	A-2-4(0)	A-2-4	49	6	16	14	15	20	5	15	62
Stone fragments with sand, silt and clay	A-2-6(1)	A-2-6	56	6	10	11	15	33	12	13	9
Sandy silt	A-4(3)	A-4a	25	6	17	28	24	24	6	15	156
Silt	A-4(8)	A-4b	1	3	9	59	28	18	4	20	11
Silt and clay	A-6(6)	A-6a	25	4	10	30	31	31	12	16	155
Silty clay	A-6(10)	A-6b	16	3	7	35	39	34	15	20	28
Clay	A-7-6(14)	A-7-6	13	3	5	28	51	46	23	12	15
Random fill											
Underclay											
Coal											
Clay bedrock											
Indurated clay											
Weathered indurated clay											
Shale											
Weathered shale											
Sandstone											
Limestone											
Various other materials											
Sod and/or Topsoil X' = Approximate depth.											
Term material.											
Auger boring - plan view.											
Drive sample and/or core boring - plan view.											
Electrical resistivity probe - plan view.											
Auger boring plotted to vertical scale only.											
Drive sample and/or core boring plotted to vertical scale only.											

NOTE: Figures beside borings indicate water content in percent. e.g. 15

## SOIL PROFILE

JEFFERSON COUNTY

JEF-7- 23.37

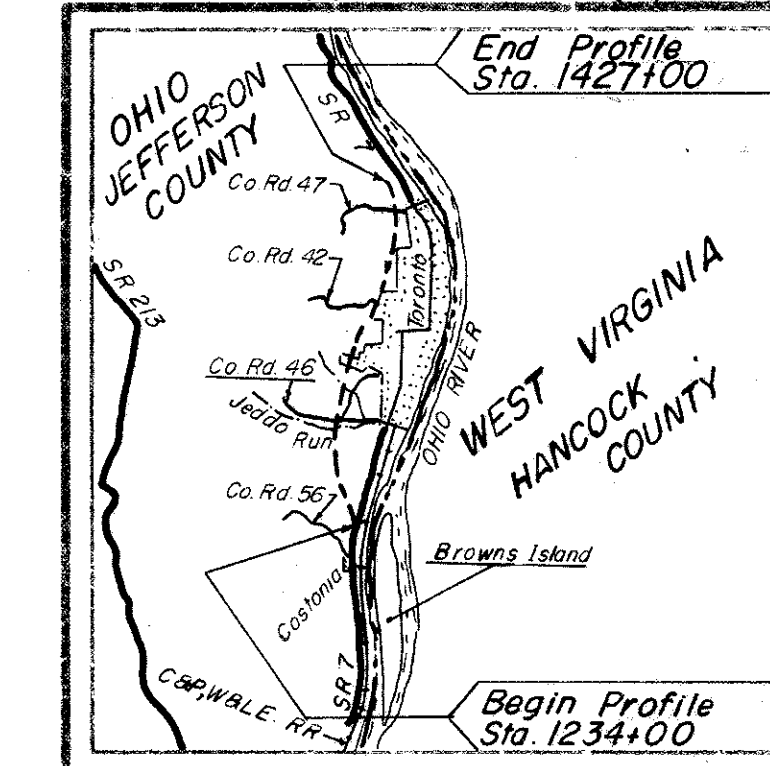
OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

REVISED 11/20/64

REVISED 2/2/65

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.

FED. NO. F-U-431(8)



LOCATION MAP

Additional Drilling -  
Core - D.W.B. - 12/30/64 to 1/22/65  
K.J.F. - 12/23/64 to 12/31/64, 1/12/65 to 1/14/65  
Recon - J.S.M. - 9/9/63  
Drilling - Auger - B.E.L. - 9/24/63 to 10/9/63  
A.J.P. - 7/23/64 - 7/28/64  
Core - J.S. - 11/5/63 to 1/28/64  
A.V. - 11/6/63 to 1/18/64  
H.P. - 8/20/64 - 8/26/64, 10/4/64, 10/15/64  
Resistivity - W.E.S. - 10/20/63 to 12/6/63  
Drafting - R.C.B., A.F., G.W.P. 4/10/64  
Revised Drafting - R.C.B. - 11/20/64

Frost susceptible silts were encountered within three feet below proposed grade at the following stations:

1242+90 1277+00  
1244+00 1279+00  
1246+40 1281+50  
1272+00 1285+00

Co. Rd. 46 Interchange

Co. Rd. 46 - sandy gravels (A-2-4) having low moisture contents, and moisture contents below the plastic range. Random fill, comprised of sand, slag, brickbats, and glass was encountered immediately below proposed grade at station 37+50.

Ramps A, C, and D - silt clays (A-6a) and few sandy silts, having moisture contents generally below the plastic range.

In the embankment foundation areas, materials are predominantly comprised of the following:

SR 7 - sandy gravels (A-2-4) silts (A-4a and A-4b), and silt clays (A-6a), having fairly low moisture contents, and moisture contents in the lower portions of the plastic range.

Wet materials were encountered at stations 1244+00, 1246+00, 1256+00, 1277+00, 1288+00, 1290+50, and 1313+20. Organic materials were encountered at stations 1256+00, 1275+00, and 1421+00.

Co. Rd. 46 Interchange - sandy gravels (A-1-b and A-2-4), sandy silts (A-4a), and few silt clays (A-6a), having a wide range of moisture contents.

Wet materials were encountered at Co. Rd. 46, stations 14+00, 16+00 and 22+50, and Ramp B station 8+00.

Embankment foundation comprises shallow to moderately deep soil cover overlying sloping bedrock surface in several areas along the project.



# SOIL PROFILE

## JEFFERSON COUNTY

### JEF-7-23.37

OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

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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.

STATION & OFFSET	DEPTH	Agg.	C.S.	F.S.	SILT	CLAY	L.L.	P.I.	W.C.	SHTL	CLASS.	STATION & OFFSET	DEPTH	Agg.	C.S.	F.S.	SILT	CLAY	L.L.	P.I.	W.C.	SHTL	CLASS.	STATION & OFFSET	DEPTH	Agg.	C.S.	F.S.	SILT	CLAY	L.L.	P.I.	W.C.	SHTL	CLASS.										
1234+00	CL	0.3-4.0	41	7	21	22	32	7	22	A-4a *		1275+00	50' Lt	0.3-5.0	0	1	4	60	37	32	9	24	A-4b		1317+50	CL	0.3-3.0	Brown Sandy	Silt with Stone Fragments	-	Visual	1360+00	CL	0.3-6.0	Brown Sandy Silt with Stone Fragments	-	Visual								
1238+00	CL	0.3-4.0	40	10	7	22	21	29	8	A-4a *		1275+00	CL	0.3-5.0	0	1	4	60	37	32	9	24	A-4b		1319+50	CL	0.3-5.0	30	5	12	32	21	25	5	9	A-4a									
1241+50	18' Lt	0.3-6.0	34	6	10	22	27	33	11	9	A-6a		1275+00	CL	0.3-5.0	0	1	4	60	37	32	9	24	A-4b		1319+50	CL	0.3-5.0	30	5	12	32	21	25	5	9	A-4a								
1241+30	105' Lt	0.3-6.0	46	3	3	20	28	35	14	13	A-6a		1277+00	CL	0.4-6.0	0	1	1	74	24	NP	NP	21	A-4b *		1321+00	CL	0.4-5.0	18	5	21	22	24	26	7	5	A-4a								
1242+00	21' Rt	0.3-6.0	45	7	6	24	18	32	7	12	A-4a *		1279+00	CL	0.3-5.0	0	1	3	64	32	NP	NP	19	A-4b *		1323+00	CL	0.3-6.0	31	3	14	25	27	31	11	10	A-6a								
1244+00	CL	0.3-6.0	0	3	14	33	20	27	NP	20	A-4b *		1279+00	CL	0.3-5.0	0	1	3	64	32	NP	NP	19	A-4b *		1323+00	CL	0.3-6.0	31	3	14	25	27	31	11	10	A-6a								
1246+00	CL	0.3-2.0	0	0	15	61	3	NP	NP	17	A-4b *		1281+50	CL	0.4-5.0	0	4	1	71	27	27	7	22	A-4b *		1325+50	CL	0.3-7.0	21	5	26	25	26	24	6	3	A-4a								
1248+00	CL	0.3-3.0	23	4	11	38	24	30	11	24	A-6a		1281+50	55' Rt	0.3-5.0	36	5	10	19	30	34	11	19	A-6a		1327+00	23' Rt	0.4-6.0	46	4	11	20	19	23	12	18	A-6a								
1249+00	CL	0.4-2.0	0	0	7	65	12	NP	NP	16	A-4a		1283+50	CL	0.3-4.0	24	4	9	49	19	25	35	17	13	A-4a *		1329+35	CL	0.4-7.0	Brown Sandy Silt with Stone Fragments	-	Visual	1370+00	CL	0.3-4.0	29	5	17	17	22	25	5	11	A-4a	
1250+50	50' Rt	2.0-4.0	53	10	13	12	10	32	10	21	A-2-4		1285+00	CL	0.3-5.0	0	2	3	63	32	28	6	21	A-4b *		1330+70	CL	0.3-6.0	52	0	12	16	14	29	6	10	A-2-4								
1252+00	CL	0.4-2.0	21	0	25	20	25	31	11	25	A-6a		1288+00	15' Rt	0.3-6.0	0	1	6	46	47	39	20	23	A-4b		1330+70	35' Rt	0.4-4.0	Brown Silty Clay with Stone Fragments	-	Visual	1371+00	CL	0.3-5.0	20	6	20	30	24	25	4	10	A-4a		
1254+00	CL	0.3-5.0	23	5	3	38	26	25	NP	10	A-6a		1290+50	CL	0.3-4.0	0	0	1	62	33	30	9	24	A-4b		1331+60	CL	0.3-7.0	Brown Silty Clay with Stone Fragments	-	Visual	1373+00	38' Lt	0.3-6.0	44	3	9	23	21	28	11	10	A-6a		
1256+00	125' Lt	0.3-3.0	0	0	35	29	30	NP	NP	28	A-4a		1290+50	CL	0.3-4.0	13	5	13	40	23	26	5	19	A-4a		1331+70	25' Lt	0.3-8.0	Brown Silty Clay with Stone Fragments	-	Visual	1375+00	CL	0.3-4.0	40	0	9	32	40	32	12	15	A-6a		
1256+00	CL	0.4-5.0	24	6	3	32	30	29	11	13	A-6a *		1293+00	CL	0.3-4.0	0	1	11	52	36	32	11	17	A-6a		1333+00	CL	0.3-7.0	13	7	16	32	32	20	9	9	A-4a								
1257+13	100' Lt	0.3-5.0	33	6	13	28	25	NP	NP	10	A-2-4		1295+00	CL	0.3-7.0	44	9	22	12	13	22	5	11	A-1-b		1333+00	CL	0.3-7.0	13	7	16	32	32	20	9	9	A-6a								
1258+10	CL	0.4-6.0	54	4	8	16	18	26	9	10	A-2-4 *		1297+50	CL	0.3-5.0	20	4	10	40	26	27	5	14	A-4a		1338+00	CL	0.3-6.0	26	4	9	30	31	34	13	11	A-6a *								
1261+00	CL	0.4-5.0	32	5	13	24	26	28	9	11	A-4a *		1299+00	CL	0.3-5.0	30	5	14	21	30	25	11	12	A-6a *		1340+75	CL	0.4-8.0	0	7	10	31	52	41	20	19	A-7-6								
1261+00	43' Rt	0.4-5.0	43	6	7	22	22	30	11	12	A-6a		1301+00	CL	0.3-7.0	43	8	16	13	24	22	5	12	A-2-4 *		1340+75	CL	0.4-8.0	0	7	10	31	52	41	20	19	A-7-6								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5	4	25	60	49	26	19	A-7-6 *		1342+00	CL	0.3-5.0	29	4	7	24	36	33	13	16	A-6a								
1263+00	CL	0.3-5.0	38	6	10	23	23	28	11	9	A-6a *		1303+00	CL	0.3-5.0	0	5																												



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OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

REVISED 11/20/64

REVISED 2/2/65

NOTE: NP shown in Liquid Limit and Plasticity Index columns indicates that the material is non-plastic.  
\*Denotes sample taken at or near grade.

SUMMARY OF SOIL TEST DATA (Cont'd)

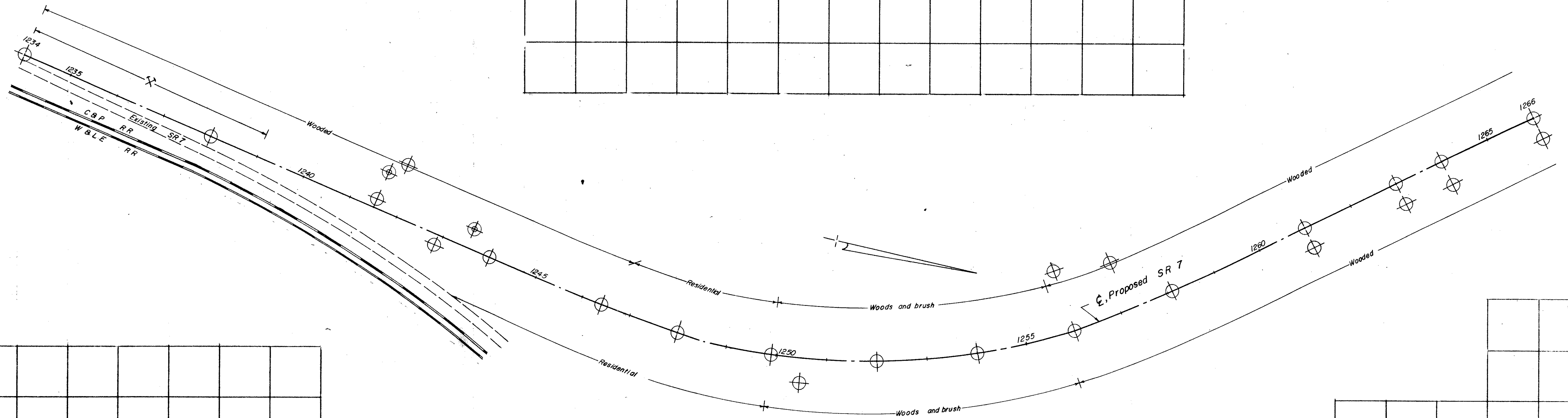
COUNTY ROAD 46 INTERCHANGE												
STATION & OFFSET	DEPTH	FROM-TO	AGG.	C.S.	F.S.	SILT	CLAY	L.L.	P.I.	W.C.	SHTL	CLASS.
1397+00 CL	0.3-6.0	30	6	5	31	23	34	12	12	17	A-Ea	
	6.0-10.0	40	6	5	22	23	34	12	12	17	A-Ea*	
	10.0-15.0	45	2	10	19	24	31	11	16	16	A-Ea*	
	15.0-20.0	31	2	6	30	31	31	11	17	17	A-Ea	
	20.0-23.0	39	2	6	26	26	34	11	32	18	A-Ea	
	23.0-25.0	39	2	1	18	39	40	21	20	19	A-Eb	
	25.0-30.0	32	2	7	34	36	31	11	9		A-Ea	
1397+00 150'Rt	0.8-5.0	0	0	12	46	42	34	11	20		A-Ea	
	5.0-9.0	47	1	8	20	44	31	12	18		A-Ea	
	9.0-12.0	0	2	5	46	47	35	14	20		A-Ea	
	12.0-15.0	0	2	10	42	46	34	14	18		A-Ea	
	15.0-19.0	0	1	12	41	45	35	13	18		A-Ea	
	19.0-24.0	0	0	7	46	47	33	12	19		A-Ea	
	24.0-28.0	0	0	0	47	47	33	12	19		A-Ea	
	28.0-30.0	26	2	9	34	30	32	11	14		A-Ea	
1397+00 225'Rt	0.8-4.0	35	6	5	27	27	34	12	21		A-Ea	
	4.0-7.0	24	3	3	34	36	45	24	18		A-7-6	
	7.0-12.0	25	1	4	29	41	50	29	21		A-7-6	
	12.0-15.0	40	4	5	24	44	23	20	17		A-7-6	
	15.0-20.0	30	2	13	29	27	31	13	14		A-Ea	
1399+00 CL	0.4-6.0	37	4	7	29	23	35	12	17		A-Ea	
	6.0-12.0	48	4	16	32	24	29	10	16		A-Ea*	
	12.0-18.0	48	4	11	21	16	30	10	16		A-Ea	
	18.0-23.0	32	9	10	27	22	32	10	17		A-Ea	
	23.0-28.0	47	2	8	33	33	34	17	17		A-Ea	
	28.0-30.0	47	2	8	33	33	34	15	19		A-Ea	
1401+00 CL	0.5-4.0	0	11	10	42	37	33	11	13		A-Ea	
	4.0-7.0	26	9	9	37	29	33	12	18		A-Ea	
	7.0-14.0	24	5	18	27	24	33	11	10		A-Ea	
1406+00 CL	0.5-4.0	18	4	7	46	25	18	17	17		A-Ea	
	4.0-10.0	25	7	7	23	22	36	17	15		A-Eb	
	10.0-16.0	35	2	8	35	20	31	11	17		A-Ea	
	16.0-22.0	33	2	4	35	20	28	11	17		A-Ea	
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	27.0-30.0	39	5	6	24	26	36	14	19		A-Ea	
1410+00 39'Rt	0.5-6.0	35	3	9	23	24	38	11	13		A-Ea	
	6.0-11.0	18	12	13	23	24	31	11	12		A-Ea	
	11.0-12.0	28	6	10	32	24	30	14	16		A-Ea	
1416+00 CL	0.0-4.0										Visual	
	4.0-10.0										Visual	
1421+00 CL	0.0-5.0										Visual	
	5.0-7.0										Visual	
COUNTY ROAD 46 INTERCHANGE												
COUNTY ROAD NO. 46												
6+15 CL	0.3-5.0	65	7	12	6	10	26	9	14		A-2-4	
	5.0-10.0	56	6	14	13	11	24	7	15		A-2-4	
	10.0-15.0	54	7	16	12	11	22	3	15		A-1-b	
8+20 10'Lt	0.3-5.0	51	9	13	9	18	23	11	6		A-2-6	
	5.0-12.0	60	5	12	11	12	23	7	16		A-2-4	
12+45 CL	0.3-6.0										Visual	
	6.0-12.0	48	6	17	18	11	21	3	11		A-2-4	
	12.0-13.0	40	2	11	28	10	NP	NP	11		A-Ea	
	18.0-22.0	35	0	1	45	19	23	5	19		A-Ea	
13+25 30'Rt	0.3-5.0	59	4	12	13	12	26	6	16		A-1-b	
	5.0-10.0	59	4	16	10	11	26	NP	16		A-1-b	
	10.0-15.0	46	6	19	16	13	20	4	17		A-2-4	
	15.0-20.0	46	10	27	24	21	21	6	20		A-Ea	
	20.0-24.0	0	10	27	24	21	21	6	20		A-Ea	
	24.0-30.0	43	11	22	34	16	NP	NP	15		A-1-b	
14+00 CL	0.4-6.0	50	6	16	14	14	NP	NP	8		A-2-4	
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	12.0-16.0	36	2	9	32	21	NP	11	28		A-Ea	
	16.0-20.0	33	5	12	29	21	26	7	20		A-Ea	
	20.0-25.0	38	6	17	21	18	24	7	18		A-Ea	
	25.0-30.0	38	5	13	20	20	24	7	20		A-Ea	
16+00 CL	0.3-5.0	39	4	13	21	23	29	8	12		A-Ea	
	5.0-8.0	59	6	15	10	10	24	5	22		A-1-b	
	8.0-15.0	32	1	11	34	22	25	5	21		A-Ea	
	15.0-20.0	38	2	12	18	30	25	14	17		A-Ea	
19+00 CL	0.3-2.0										Visual	
	2.0-9.0	64	6	11	6	13	22	11	14		A-2-6	
	9.0-15.0	66	4	13	8	9	NP	NP	16		A-1-b	
	15.0-20.0	14	1	37	29	13	NP	NP	19		A-Ea	
22+50 CL	0.3-7.0	53	7	15	12	13	25	6	24		A-1-b	
	7.0-15.0	63	5	14	8	9	NP	NP	20		A-1-b	
	15.0-18.0	46	7	22	12	13	NP	NP	15		A-1-b	
25+00 CL	0.0-5.0	72	4	9	6	8	27	7	15		A-2-4	
	5.0-10.0	69	3	11	8	9	23	6	14		A-1-b	
	10.0-14.0	62	8	12	8	10	NP	NP	13		A-1-b	
	14.0-20.0	47	9	13	13	13	22	5	12		A-2-4	
27+10 CL	0.3-2.0										A-2-4	
	2.0-10.0	65	5	12	13	10	NP	NP	10		A-1-b	
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	22.0-30.0	48	9	17	13	13	NP	NP	11		A-2-4	
32+00 CL	0.3-6.0	45	9	17	20	9	NP	NP	5		A-2-4	
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34+00 CL	0.3-5.0	57	6	11	7	9	NP	NP	3		A-1-b	
	5.0-10.0	69	8	11	6	6	NP	NP	3		A-1-b	
	10.0-15.0	59	7	10	9	9	NP	NP	3		A-1-b	
	1											



SOIL PROFILE  
JEFFERSON COUNTY  
JEF-7-23.37

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OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

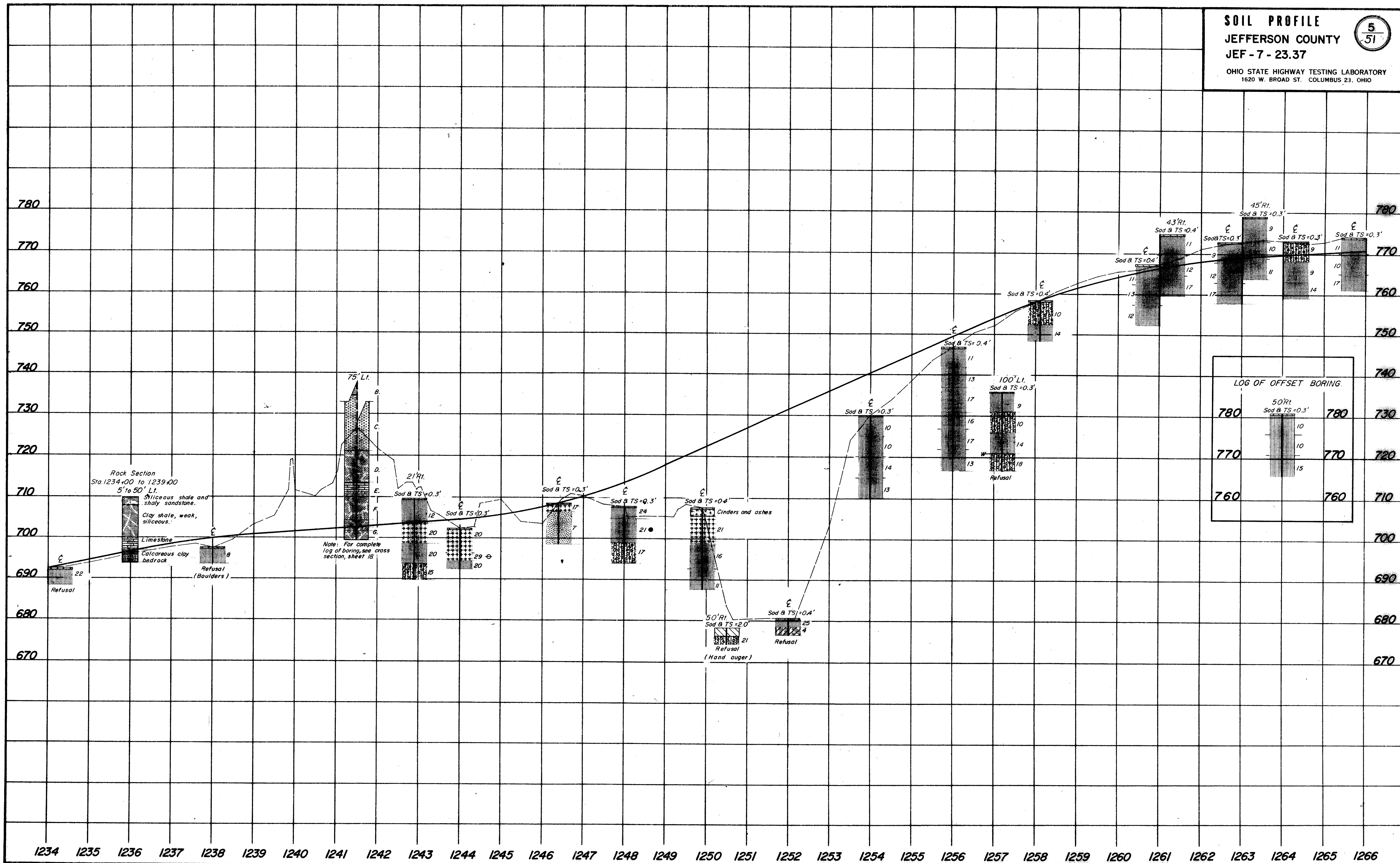


CROSS SECTION INDEX	
STATION	SHEET
1236+00	17
1241+50	18
1243+50	18
1256+00	19

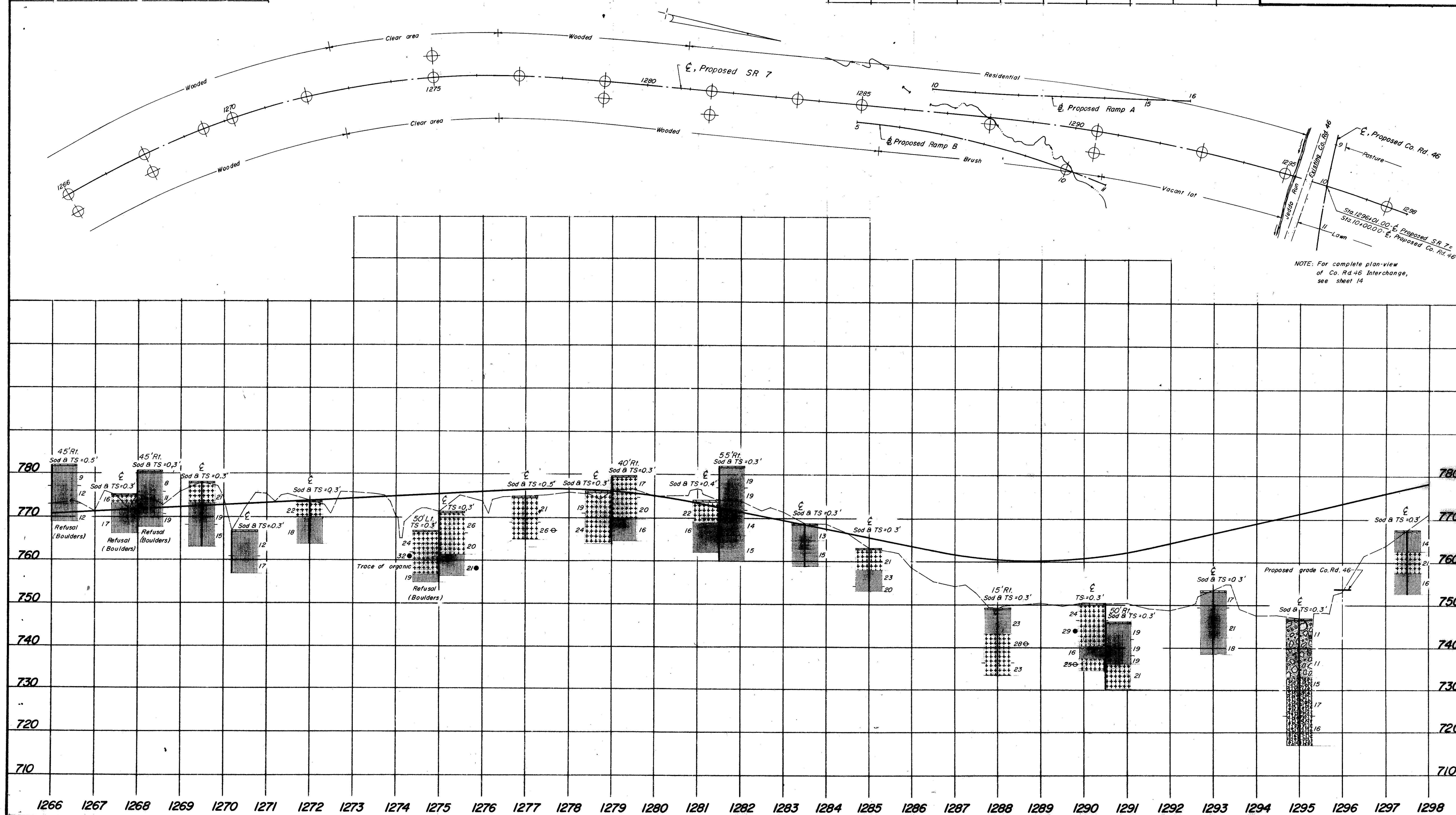
SOIL PROFILE  
JEFFERSON COUNTY  
JEF - 7 - 23.37

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OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO



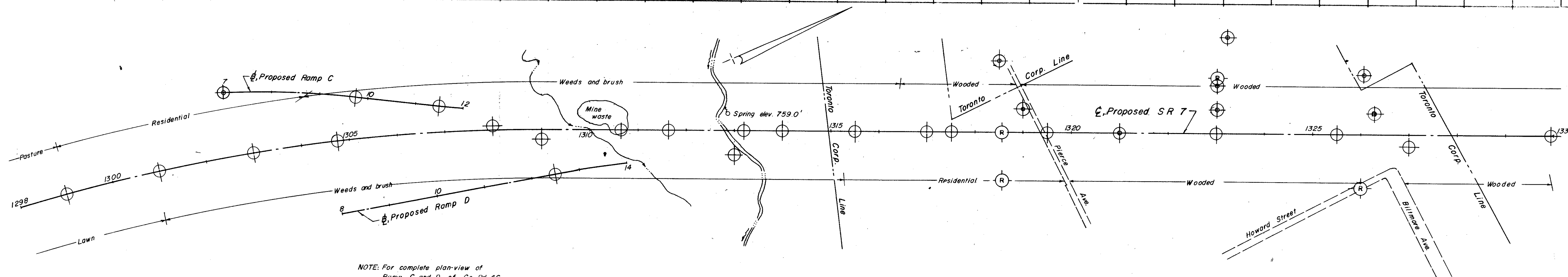




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JEFFERSON COUNTY  
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OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO



NOTE: For complete plan-view of  
Ramp C and D of Co. Rd 46  
Interchange, see sheet 14

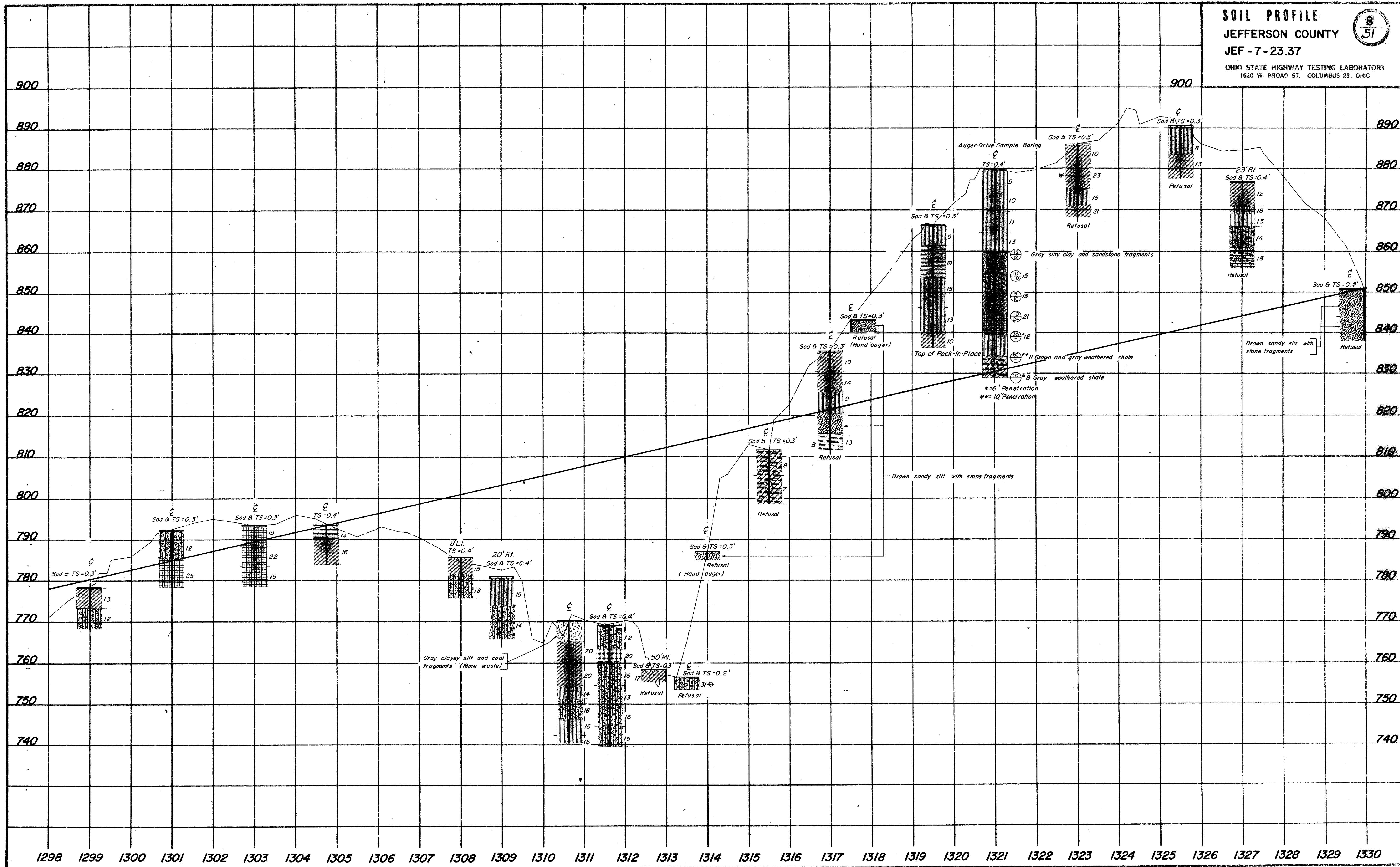
CROSS SECTION INDEX	
STATION	SHEET
1302+50	20
1318+50	20
1323+00	21
1326+00	22



SOIL PROFILE  
JEFFERSON COUNTY  
JEF - 7-23.37

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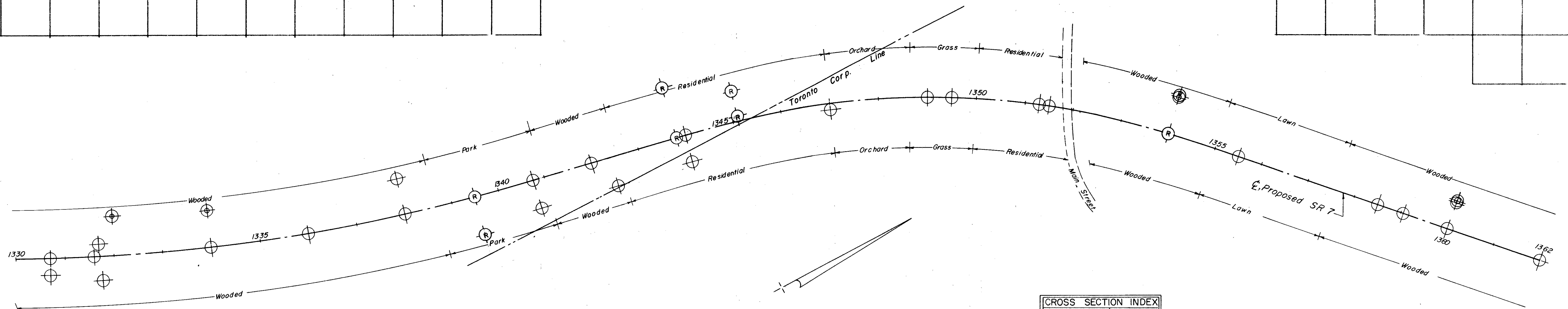
OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W BROAD ST. COLUMBUS 23, OHIO



SOIL PROFILE  
JEFFERSON COUNTY  
JEF - 7-23.37

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OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO



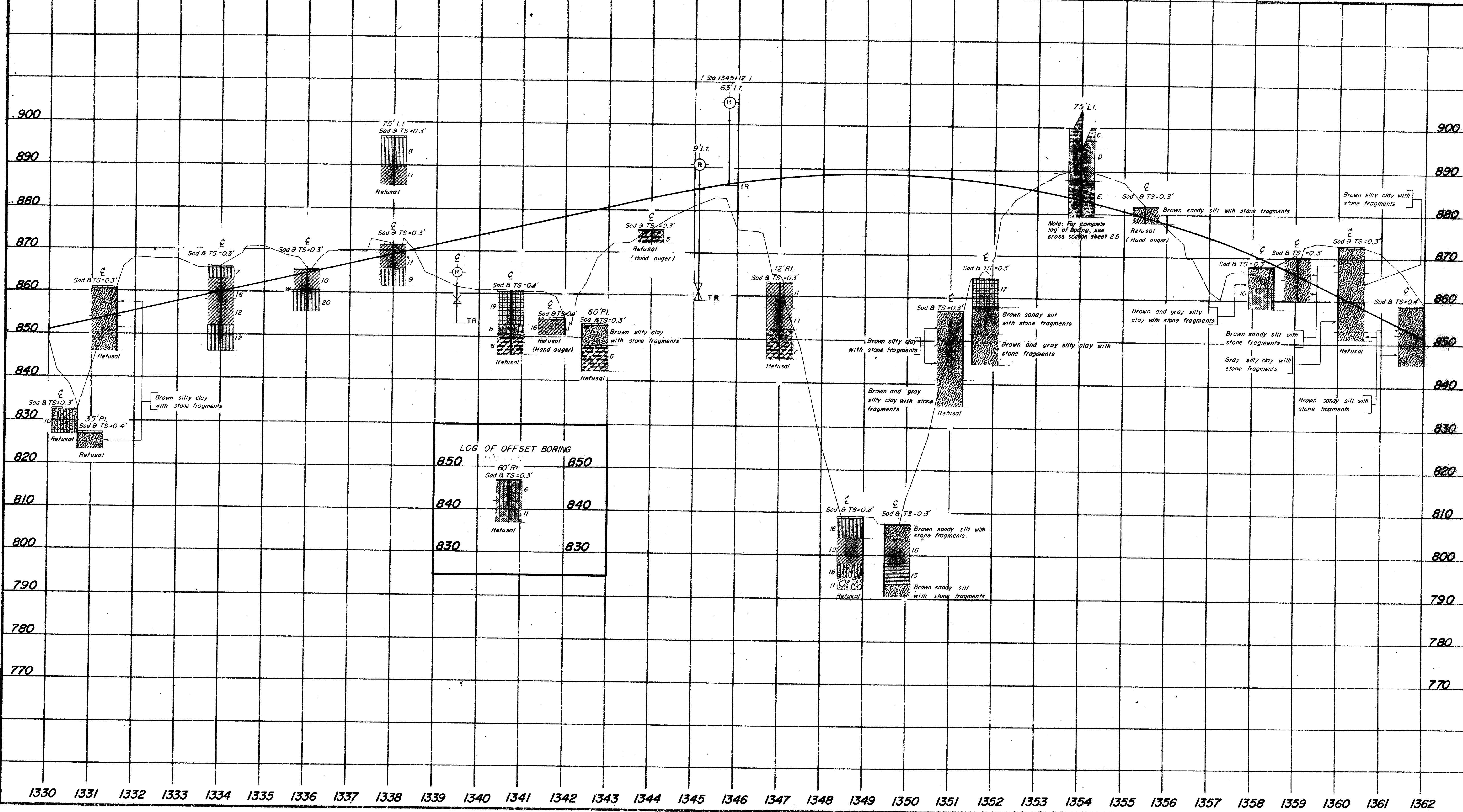
CROSS SECTION INDEX	
STATION	SHEET
1332+00	22
1334+00	23
1338+00	23
1339+50	24
1344+00	24
1354+00	25
1360+00	25



SOIL PROFILE  
JEFFERSON COUNTY  
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OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

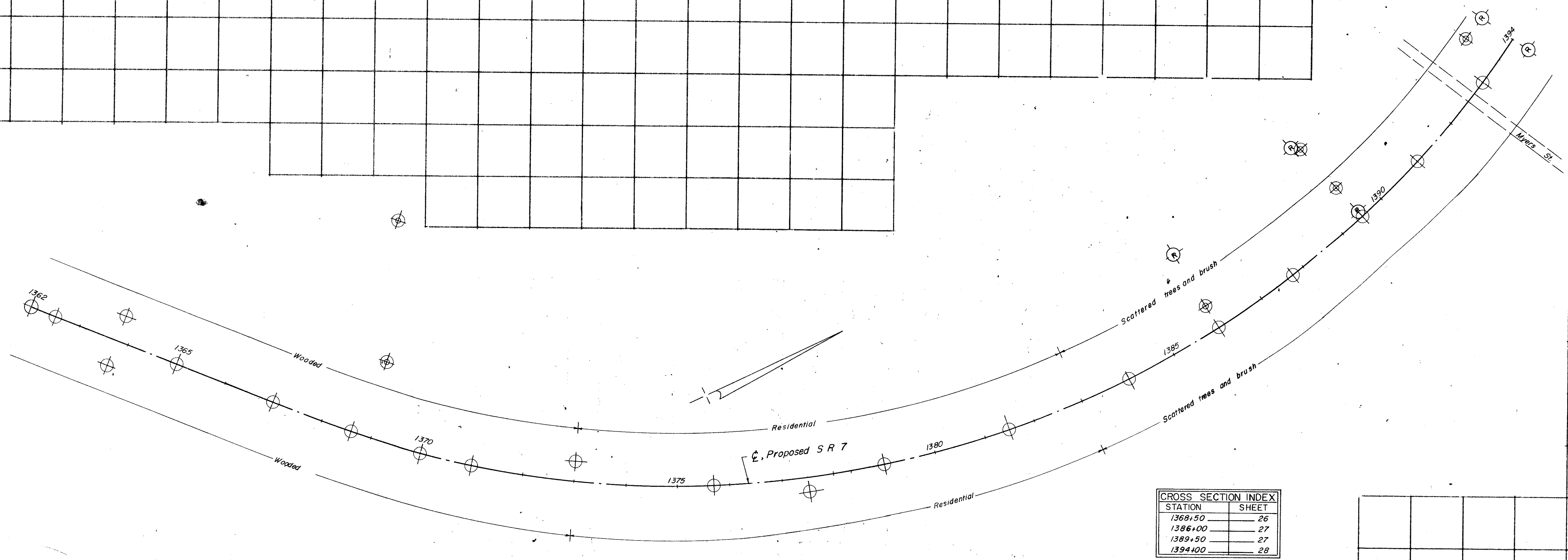


SOIL PROFILE  
JEFFERSON COUNTY  
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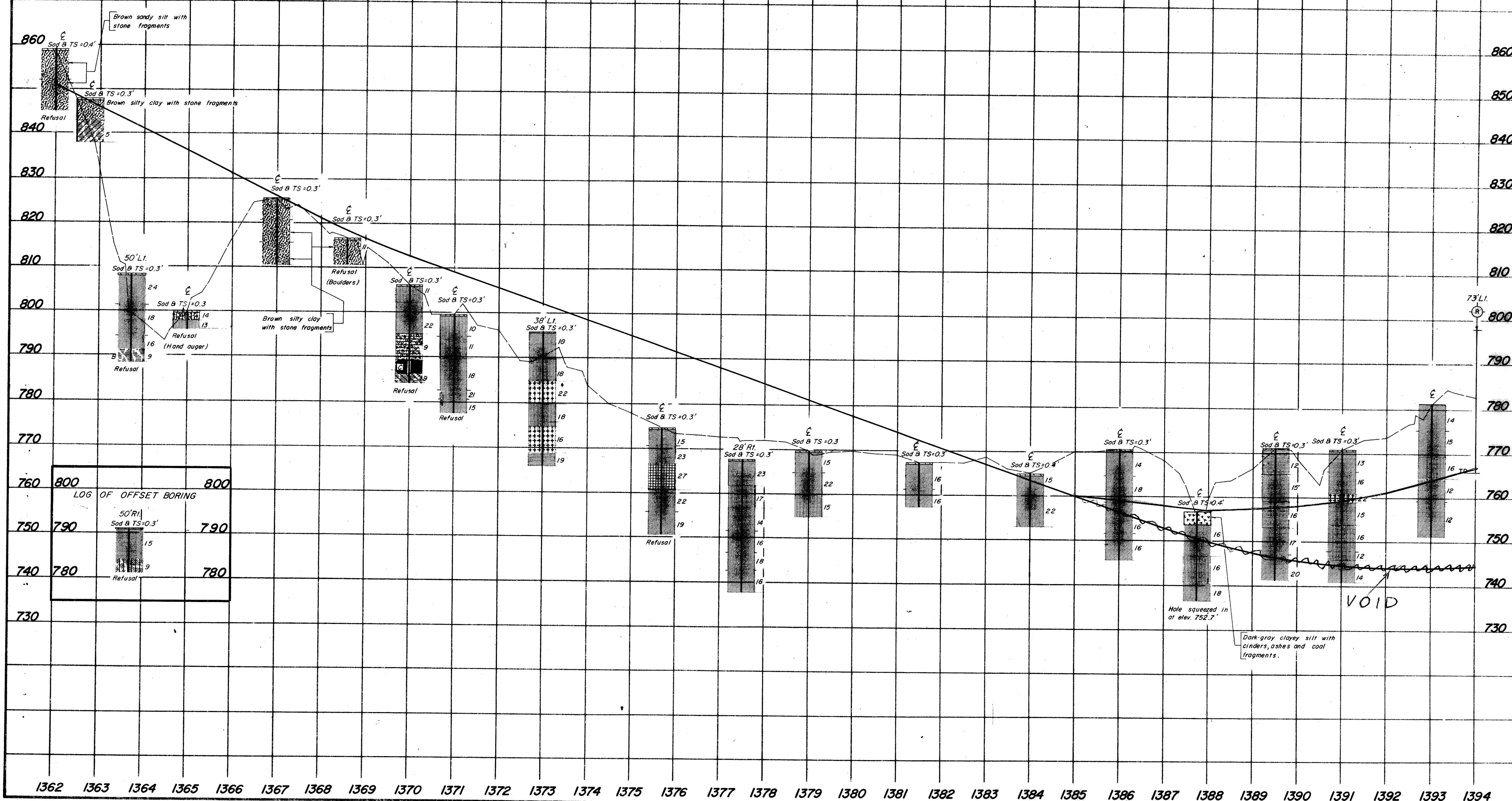
OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

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CROSS SECTION INDEX	
STATION	SHEET
1368+50	26
1386+00	27
1389+50	27
1394+00	28



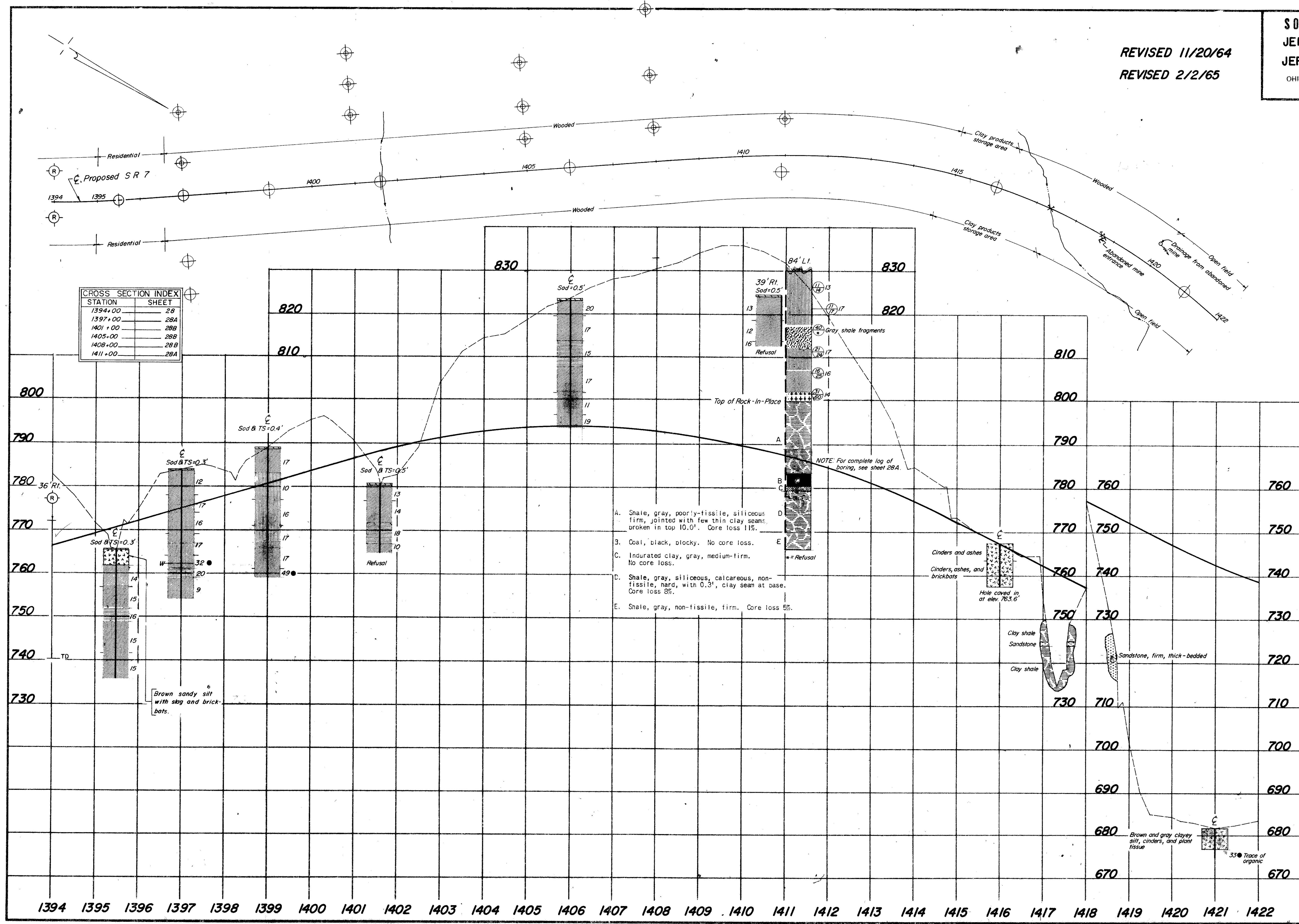




REVISED 11/20/64  
REVISED 2/2/65

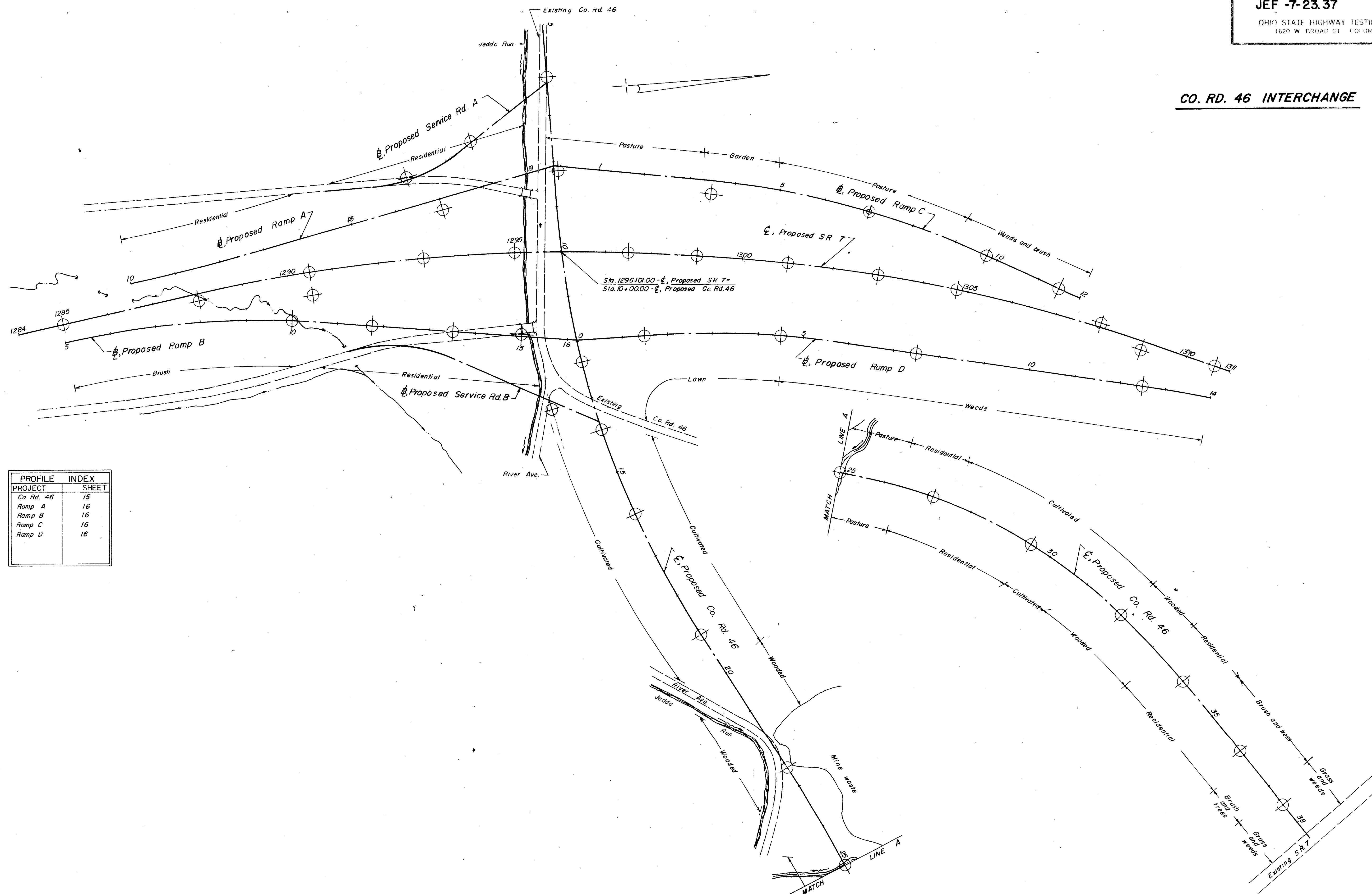
SOIL PROFILE  
JEFFERSON COUNTY  
JEF-7-23.37  
OHIO STATE HIGHWAY TESTING LABORATORY  
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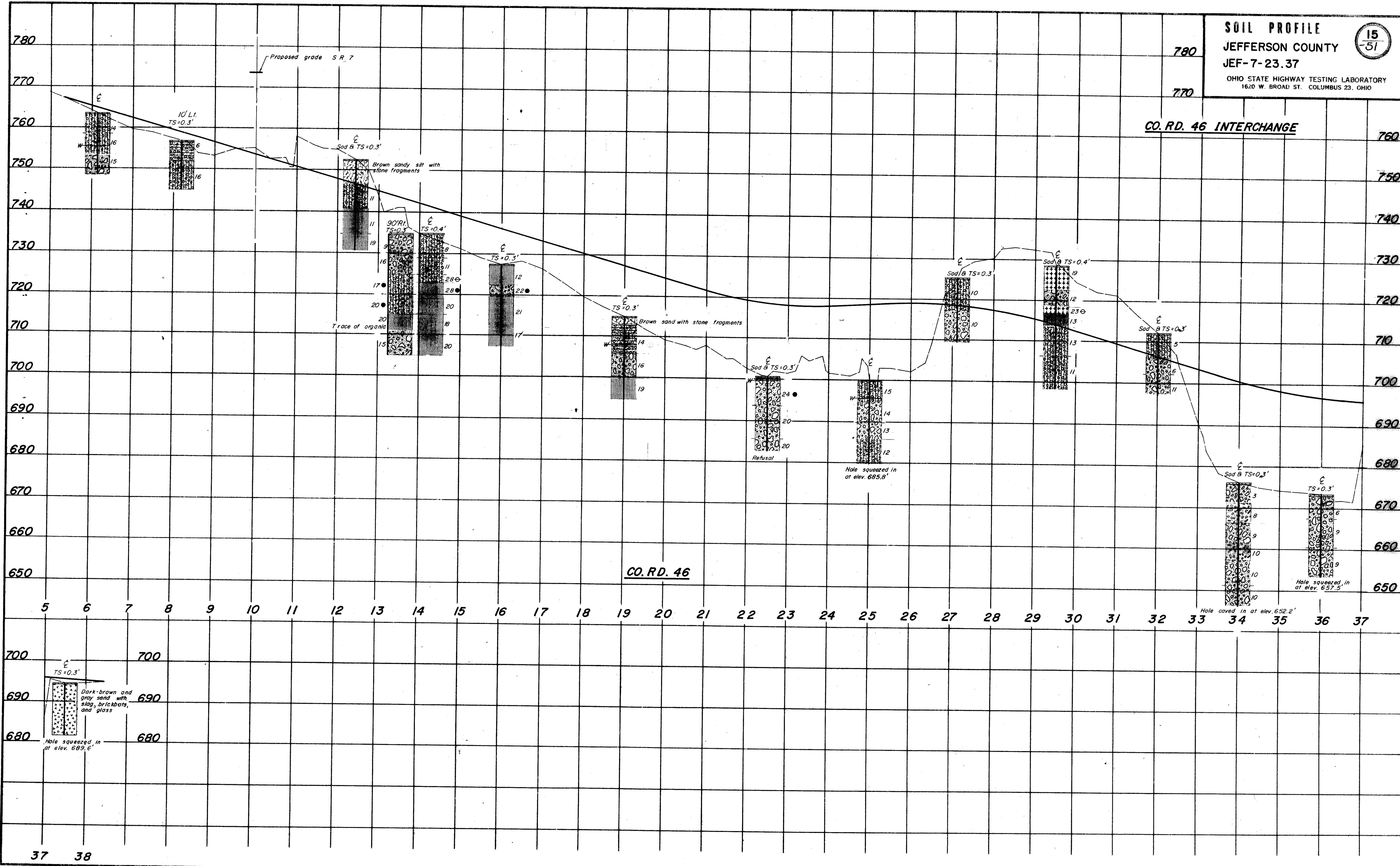




CO. RD. 46 INTERCHANGE

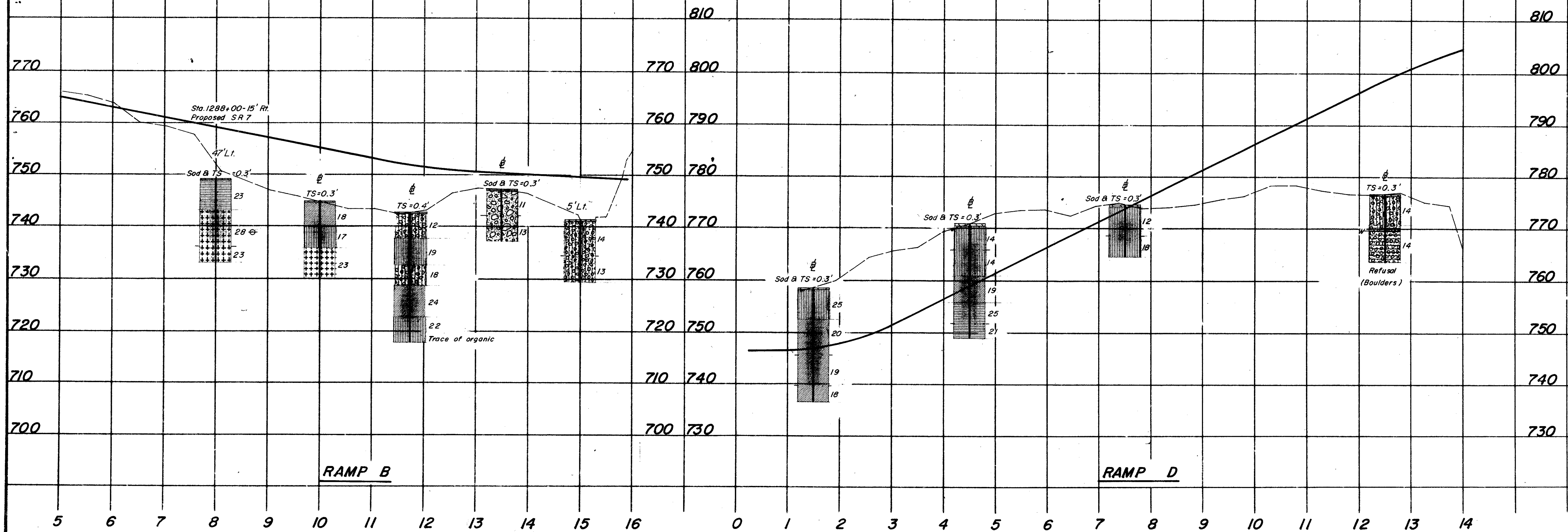
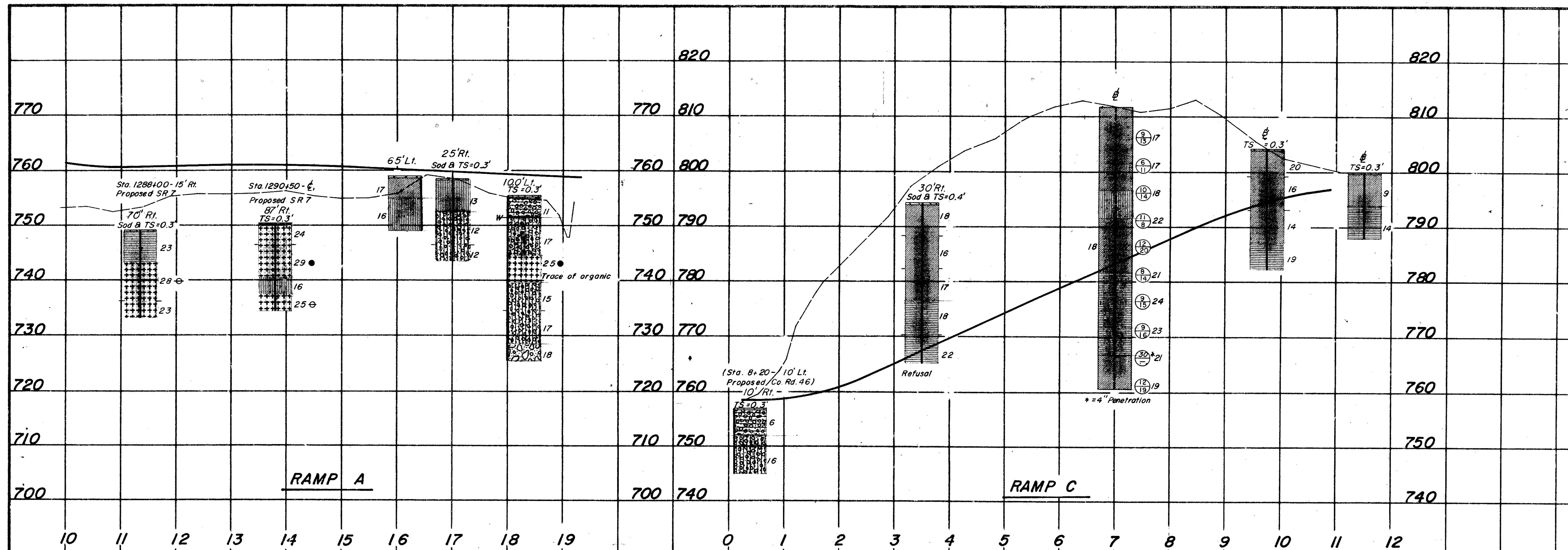


PROJECT	SHEET
Co. Rd. 46	15
Ramp A	16
Ramp B	16
Ramp C	16
Ramp D	16





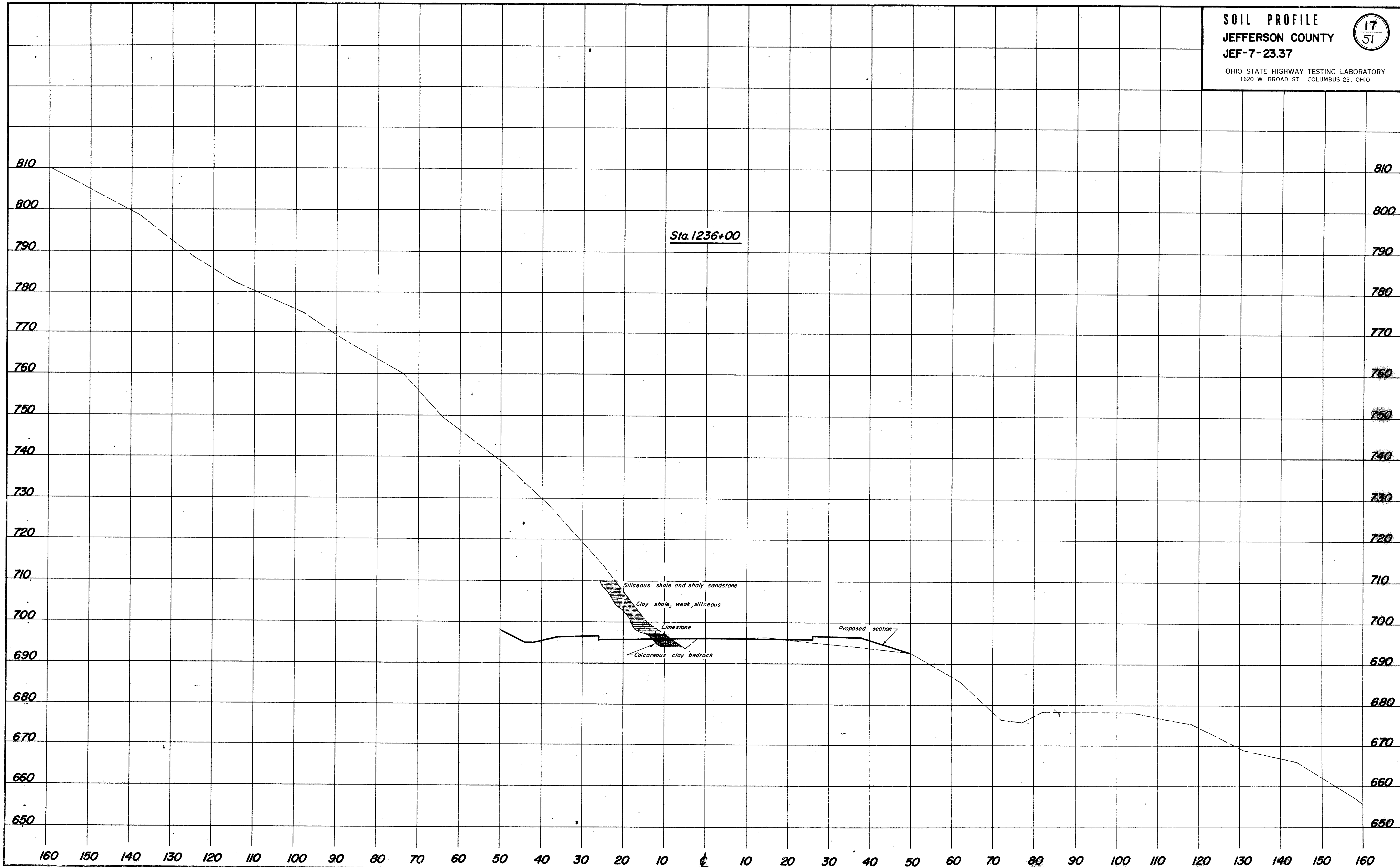
CO. RD. 46 INTERCHANGE



SOIL PROFILE  
JEFFERSON COUNTY  
JEF-7-23.37

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OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

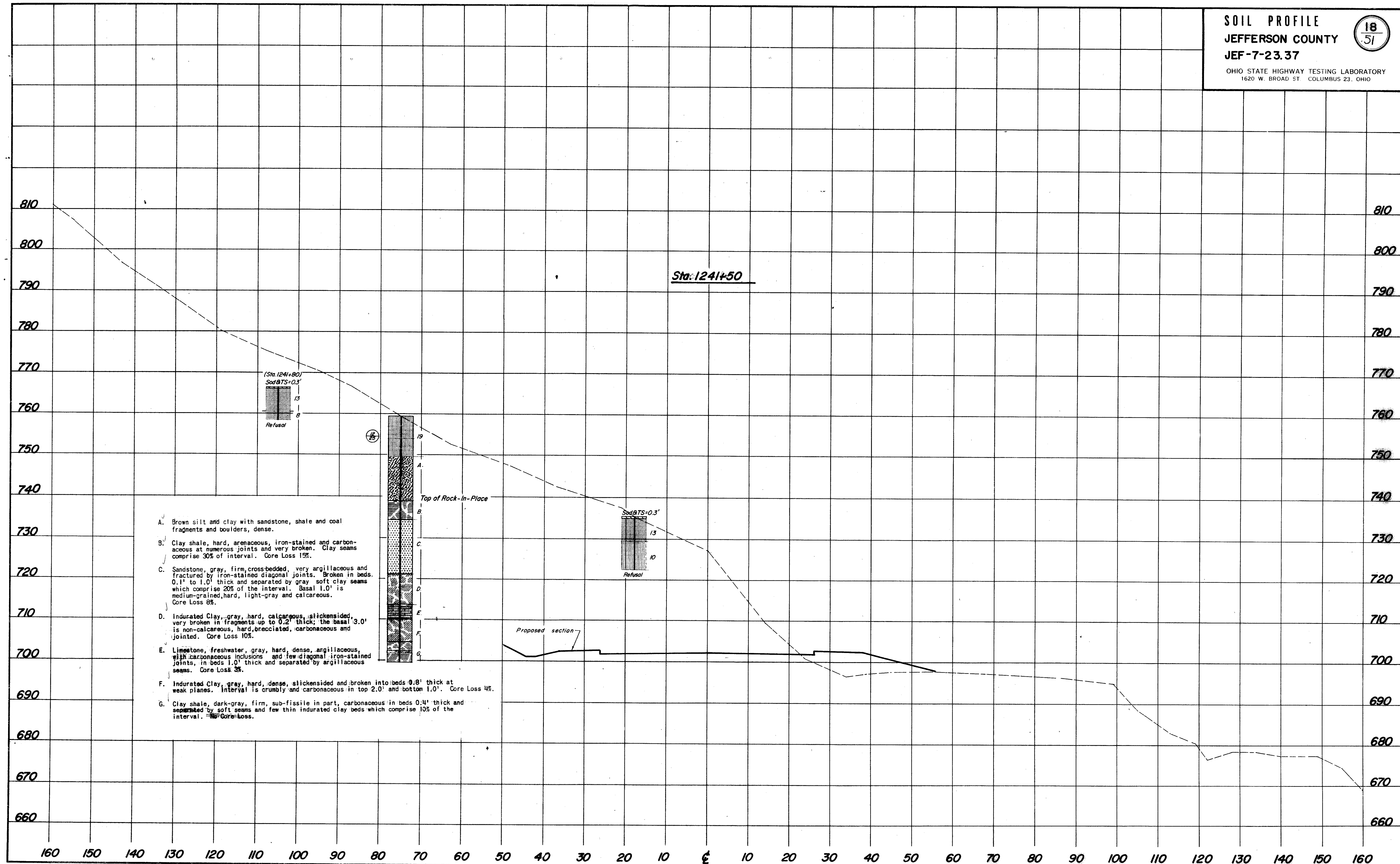


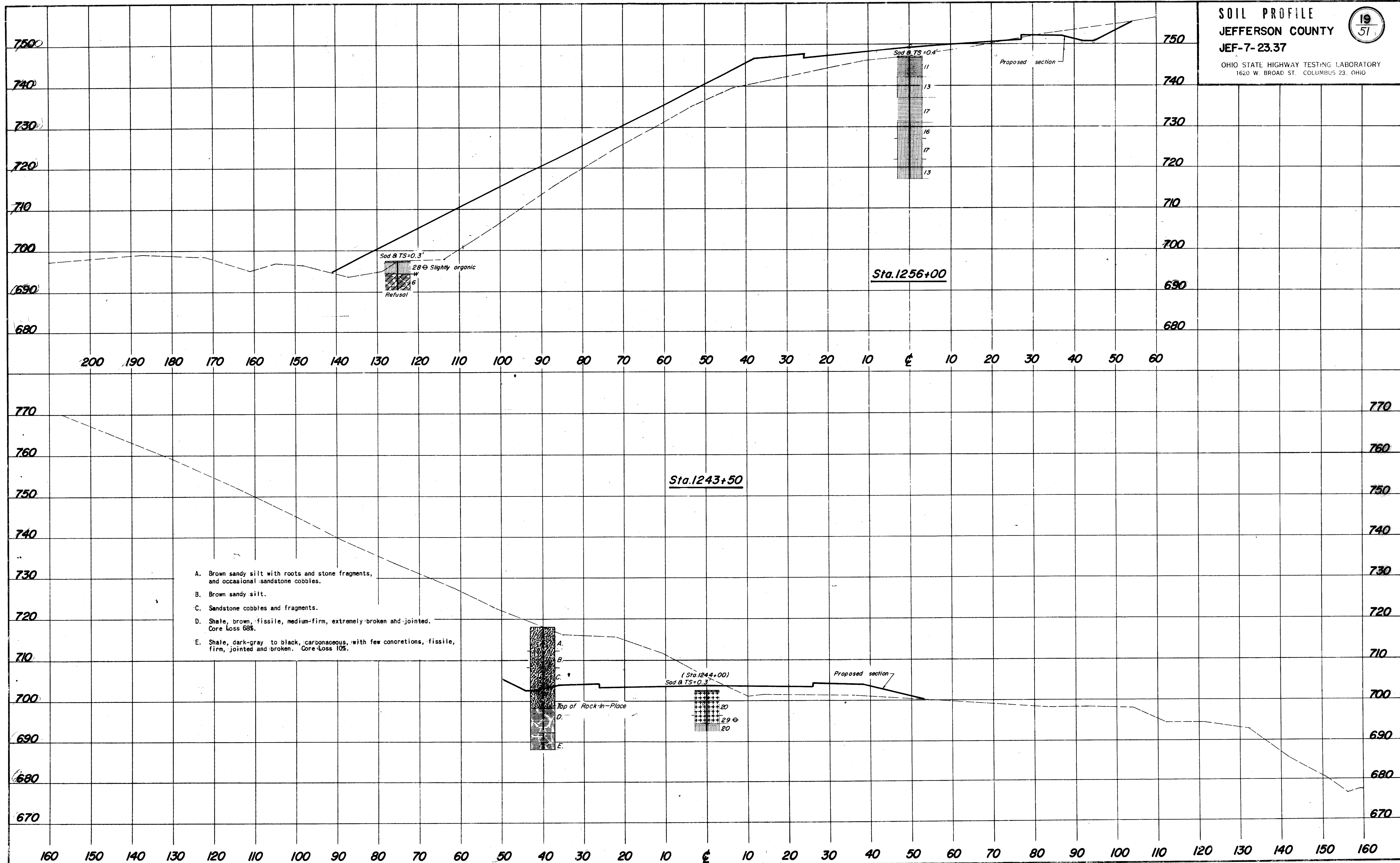


SOIL PROFILE  
JEFFERSON COUNTY  
JEF-7-23.37

OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

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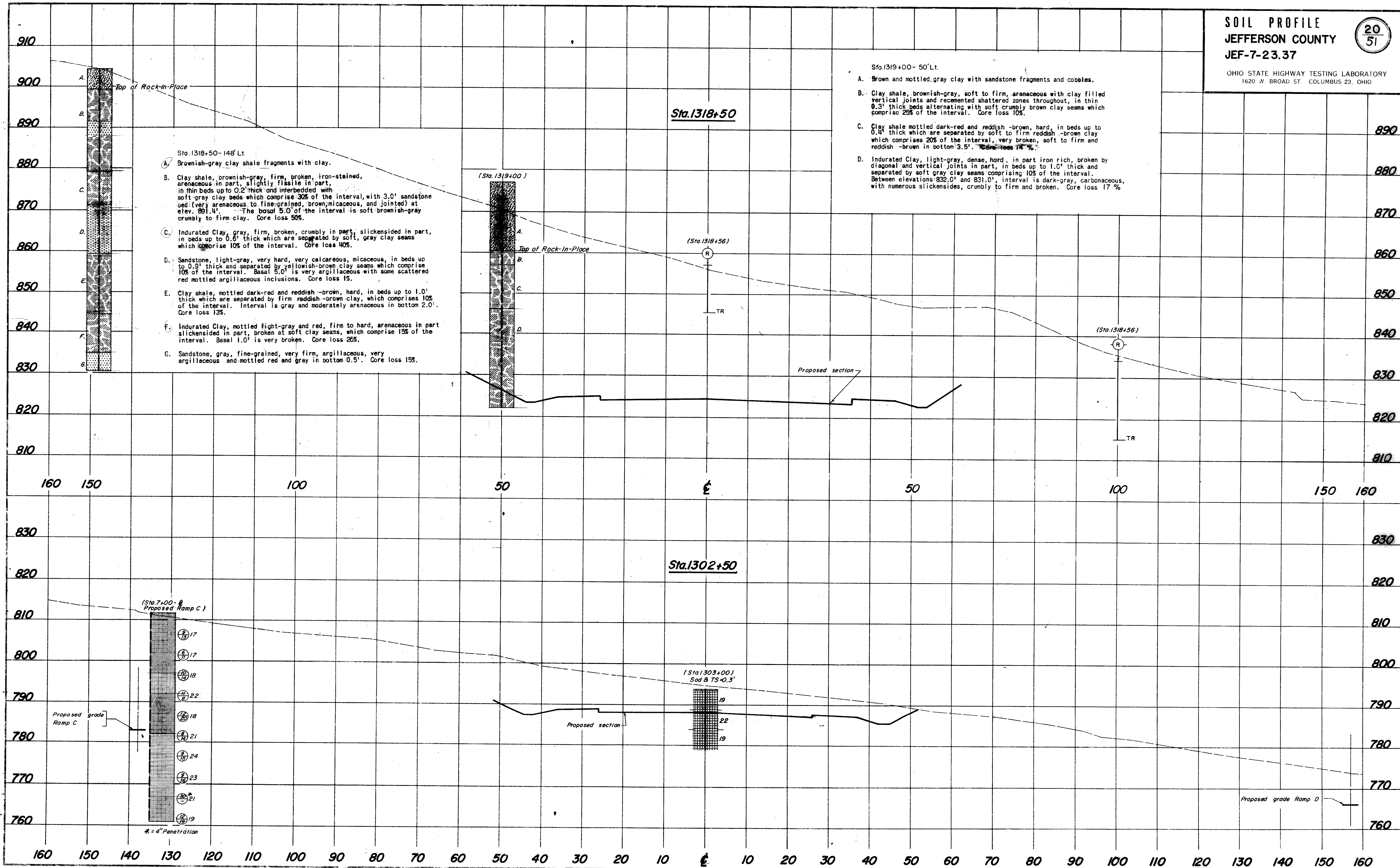




SOIL PROFILE  
JEFFERSON COUNTY  
JEF-7-23.37

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OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO



Sta 1323+00 - 100'Lt

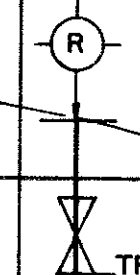
- A. Indurated Clay, mottled red and brown, soft to firm, crumbly, arenaceous in basal 0.4'. Core loss 72%.
- B. Sandstone, brown, firm, medium-grained. Above elevation 888.7' interval is very argillaceous and medium to fine-grained in 0.2' thick beds separated by soft clay shale which comprises 40% of the interval. Below elevation 888.7', sandstone in beds 0.5' thick and separated by argillaceous seams which comprises 20% of interval. Basal 6.0' of interval is very argillaceous and in thin beds 0.1' thick separated by soft clay which comprises 50% of interval. Core loss 58%.
- C. Indurated Clay, dark-gray, firm to soft in part, slickensided, carbonaceous. Core loss 86%.
- D. Clay shale, gray, firm, arenaceous in part, sub-fissile in part in beds 0.1' to 0.4' thick and separated by soft seams which comprise 10% of interval. Core loss 7%.
- E. Sandstone, gray, hard, fine-grained, calcareous, argillaceous, fractured by vertical joints in part, ferruginous in part, with few very argillaceous thin beds. Below elevation 861.7' interval is very fractured by vertical and diagonal joints. Below elevation 856.7' interval is broken at high angle cross-bedded planes. Below elevation 851.7', interval is very argillaceous and very jointed and broken to base. Entire interval is in beds 0.1' to 1.0' thick and separated by friable argillaceous seams which comprise 15% of interval. Core loss 10%.
- F. Clay shale, gray, firm to hard with very arenaceous thin beds and seams, sub-fissile, in beds 0.4' thick and separated at soft seams which comprise 15% of interval. Interval is very carbonaceous firm from elevation 835.7' to 834.7' and elevation 819.3' to elevation 818.3'. Core loss 12%.

Sta 1323+00 - 50'Lt

- A. Mottled brown and brownish-gray silty clay with stone fragments and few cobbles.
- B. Sandstone, brown, medium-fine-grained, slightly calcareous, firm, broken. No core loss.
- C. Shale, brown and brownish-gray, siliceous, poorly fissile, firm, badly jointed and broken, interbedded with sandstone (brown, fine-grained, very argillaceous, thin and irregularly bedded, firm, very badly broken and jointed comprising about 30% of the interval) Core loss 22%.
- D. Indurated Clay, mottled reddish-yellow and gray, firm, badly jointed and broken. Core loss 10%.
- E. Shale, gray, siliceous, poorly fissile, firm, broken. No core loss.
- F. Indurated Clay, gray, siliceous in part, generally firm, with medium-firm crumbly interval between elevations 842.4' and 840.4', broken and jointed, interbedded with shale (gray, siliceous in part, poorly to non-fissile, broken and jointed, comprising about 50% of the interval). Core loss 26%.

(Sta 1323+21)

Sta. 1323+00



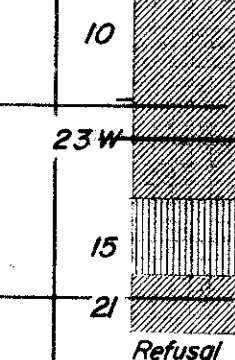
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Top of Rock-In-Place

Sta 1323+21 - 200'Lt

- A. Brown sandstone slabs, 0.1' thick, with sandy gray soft damp clay which comprises 75% of the interval.
- B. Gray shale slabs, 0.2' thick, and broken, with firm gray clay which comprises 60% of interval.
- C. Shale, dark-gray, firm, sub-fissile to blocky, numerous diagonal joints, in beds 0.4' thick, and interbedded with crumbly gray clay which comprises 5% of the interval. Core loss 21%.
- D. Coal, black, hard, brittle, vitreous luster and laminated. No core loss.
- E. Clay shale, gray, medium-firm, in beds 0.4' thick and separated by soft gray clay seams which comprise 4% of the interval. Above elevation 800.9' interval is firm under clay with slickensides. Below elevation 900.9', 30% of interval is moderately arenaceous remainder is sub-fissile. No core loss.

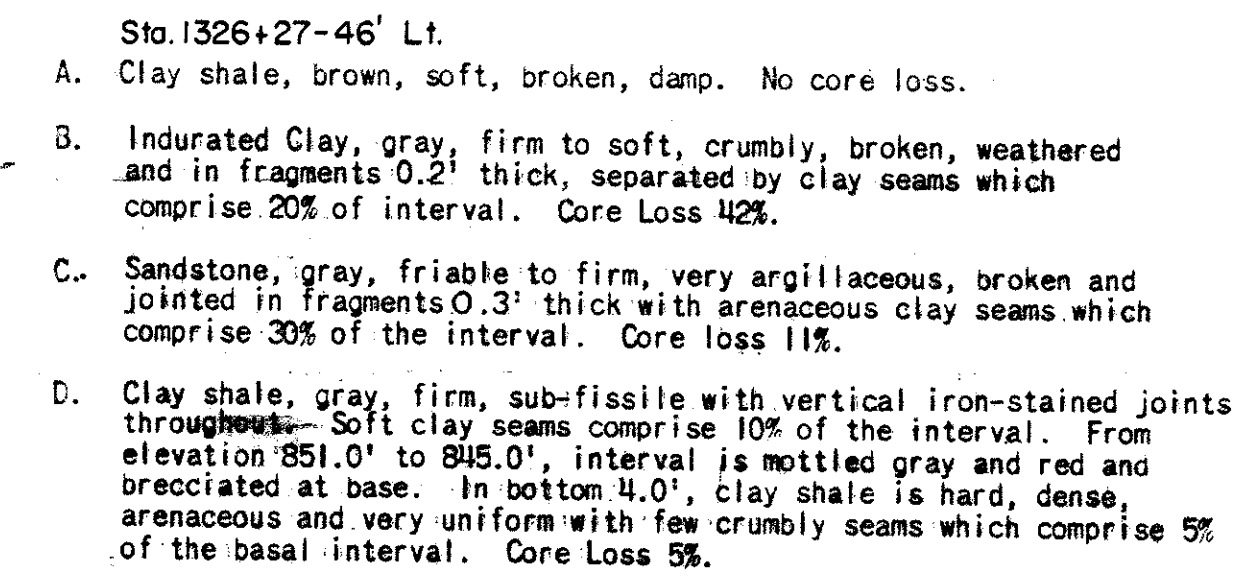
Soil 875-03



Top of Rock-In-Place

Proposed section



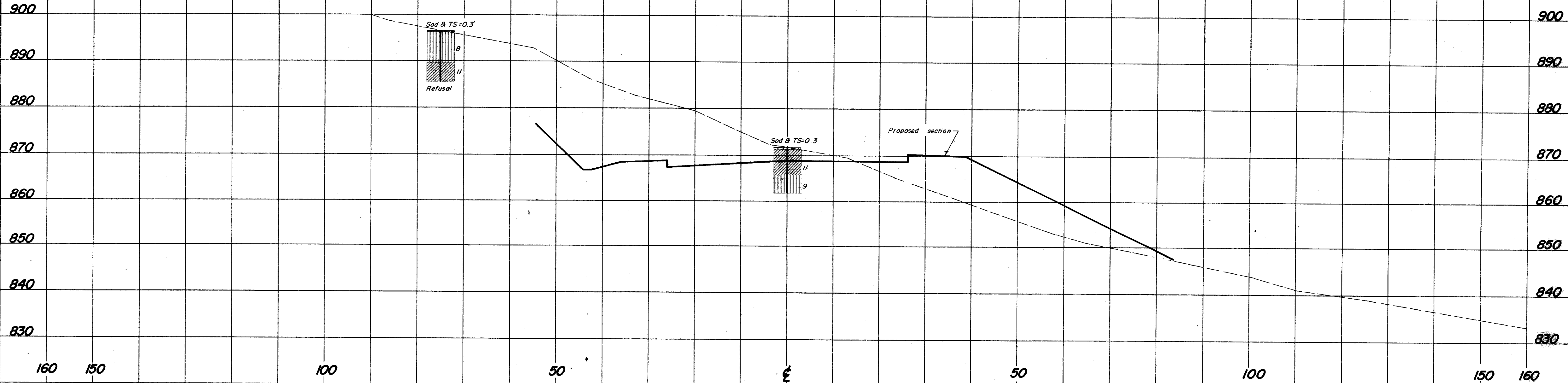


SOIL PROFILE  
JEFFERSON COUNTY  
JEF-7-23.37

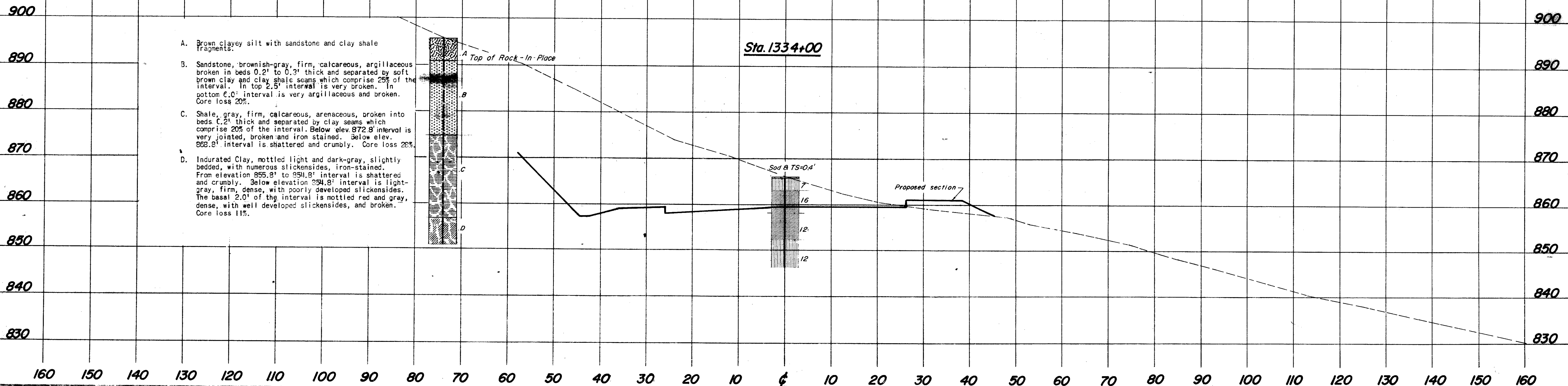
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OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

Sta. 1338+00



Sta. 1334+00





SOIL PROFILE  
JEFFERSON COUNTY  
JEF-7-23.37

OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

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Sta. 1344+00

(Sta. 1343+81,  $\frac{1}{2}$ )

Sod BTS=0.3'

5

Refusal  
(Hand auger)

TFR

Sod BTS=0.3'

18

Brown sandy silt  
stone fragments

8

Refusal

Sta. 1339+50

Proposed section

R

X

TR

R

TR

SOIL PROFILE  
JEFFERSON COUNTY  
JEF-7-23.37

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OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

Sta. 1360+00

Sta. 1360+00 - 60' Lt.

A. Sandstone, brown, firm, micaceous, argillaceous in beds 0.5' thick and separated by arenaceous clay seams which comprise 15% of the interval. Above elevation 881.8' interval is fractured by numerous diagonal joints. Below elevation 881.8' sandstone is medium-grained, porous, calcareous, cross-bedded in part, in beds up to 1.0' thick and separated by arenaceous clay seams which comprise 10% of the interval. Core loss 15%.

B. Clay shale, gray, firm to soft, sub-fissile in part, with carbonaceous inclusions, in beds 0.2' thick separated by soft gray clay seams and thin beds which comprise 40% of the interval. Core loss 74%.

C. Indurated Clay, gray, soft to firm, waxy, with numerous slickensides, and broken in 0.3' fragments. Core loss 64%.

\*High core loss due to mechanical difficulties.

910

900

890

880

870

860

850

840

100

50

5

50

100

Sta. 1354+00

Sta. 1354+00 - 75' Lt.

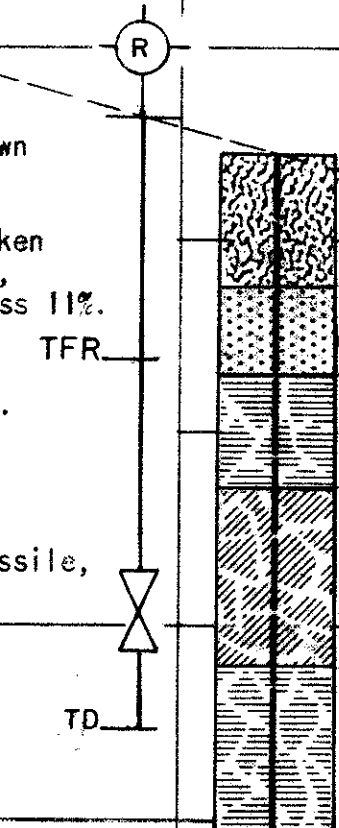
A. Sandstone and shale boulders, cobbles, and fragments, with brown clayey silt

B. Sandstone, brownish-gray, medium-fine-grained, firm, badly broken and jointed, interbedded with shale (brown, siliceous, fissile, firm, crumbly in part, very badly broken and jointed). Core loss 11%.

C. Shale, mottled brown and greenish-brown, medium-firm to firm, poorly to non-fissile, very broken and jointed. Core loss 14%.

D. Indurated Clay, brownish-gray to gray, medium-firm, with iron-stained joints, broken, crumbly in part. Core loss 9%.

E. Shale, greenish-brown and gray, argillaceous, poorly to non-fissile, firm, badly broken and jointed. Core loss 6%.



Proposed section

940

930

920

910

900

890

880

870

860

850

840

160

150

140

130

120

110

100

90

80

70

60

50

40

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80

90

100

110

120

130

140

150

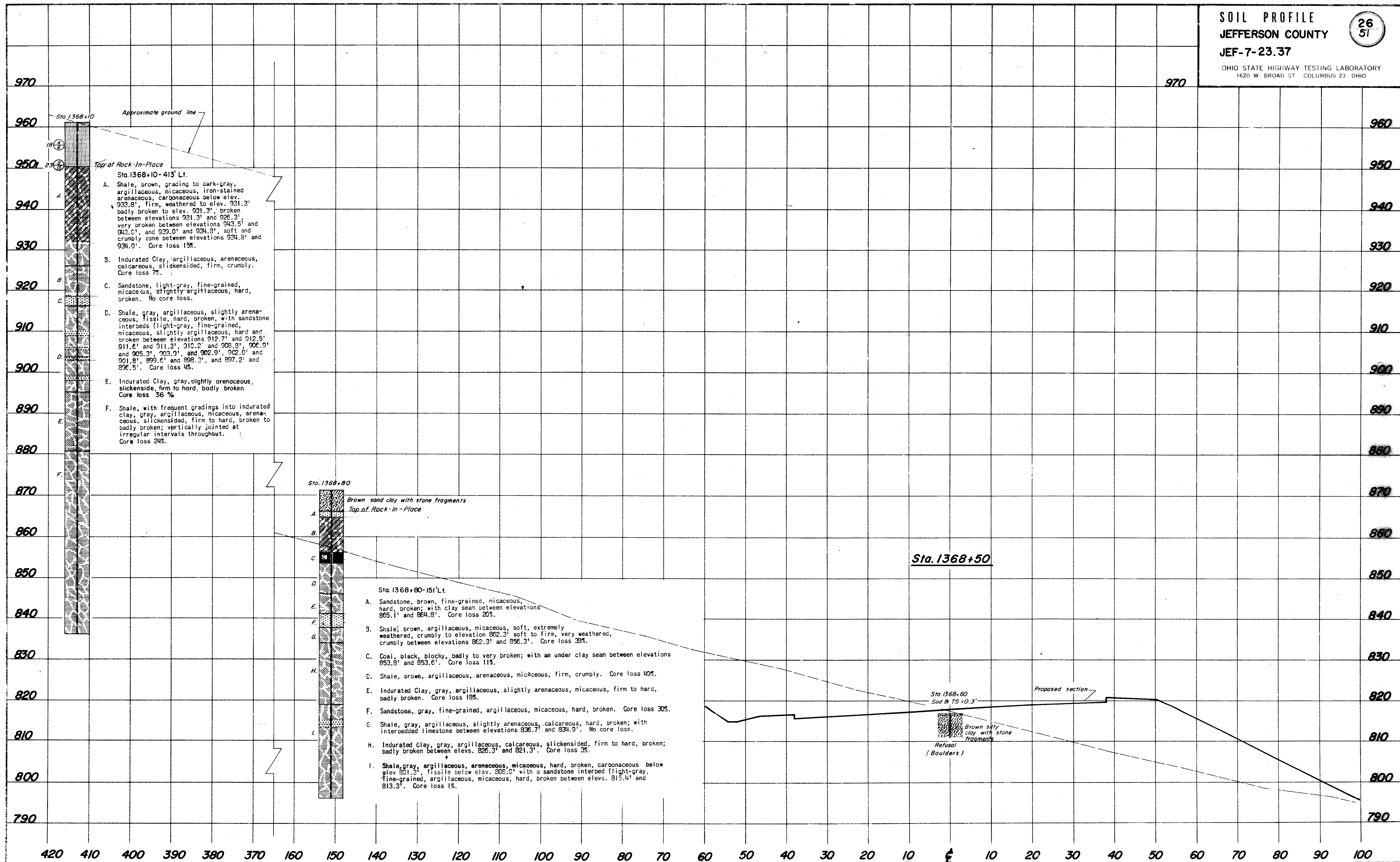
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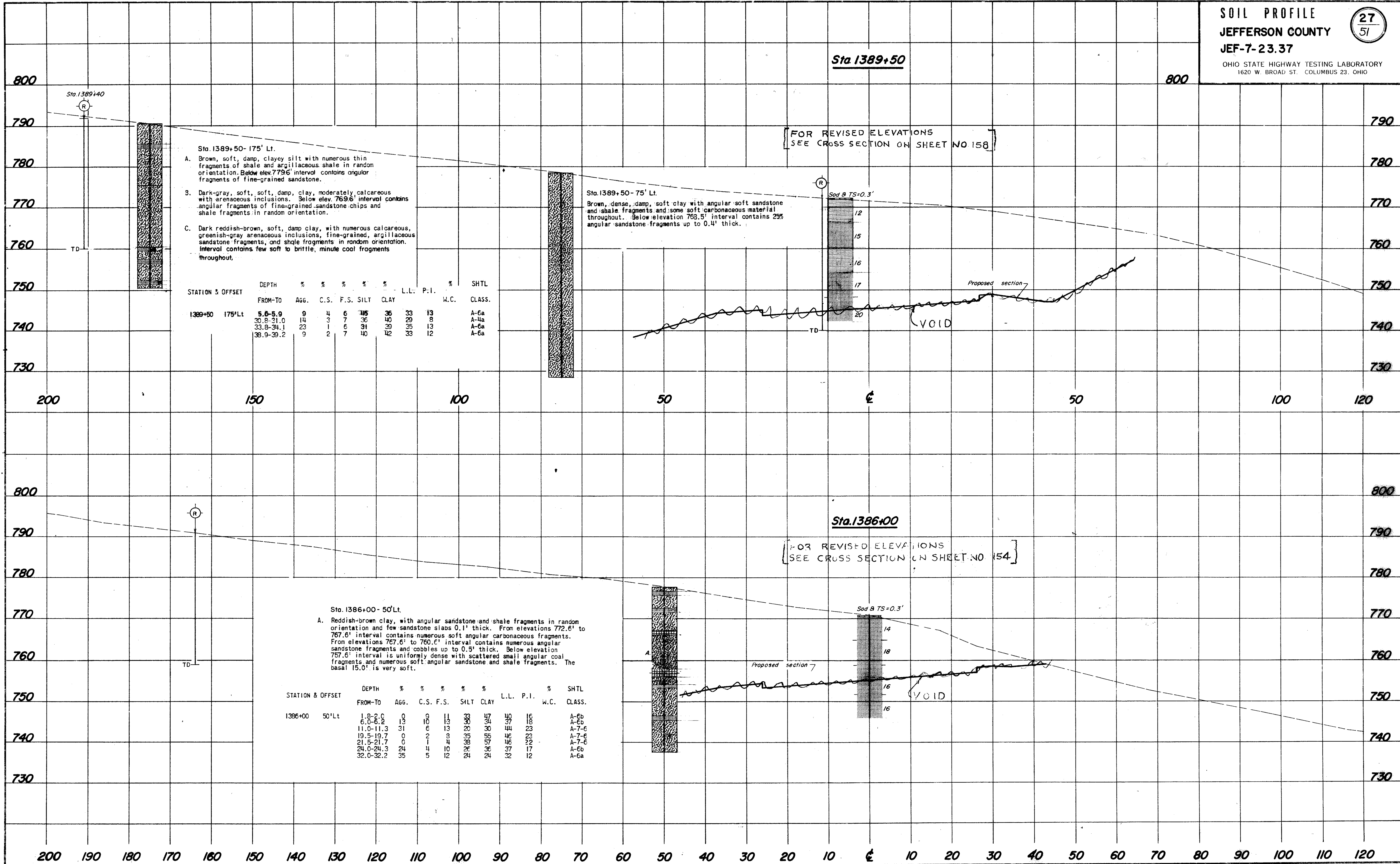


SOIL PROFILE  
JEFFERSON COUNTY  
JEF-7-23.37

26  
51

OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO







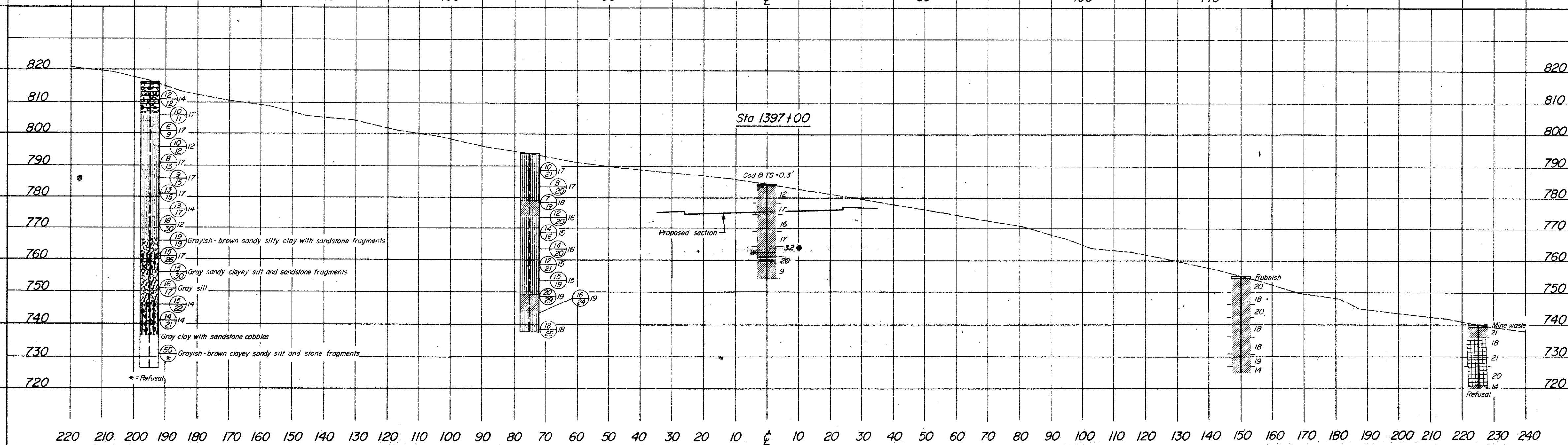
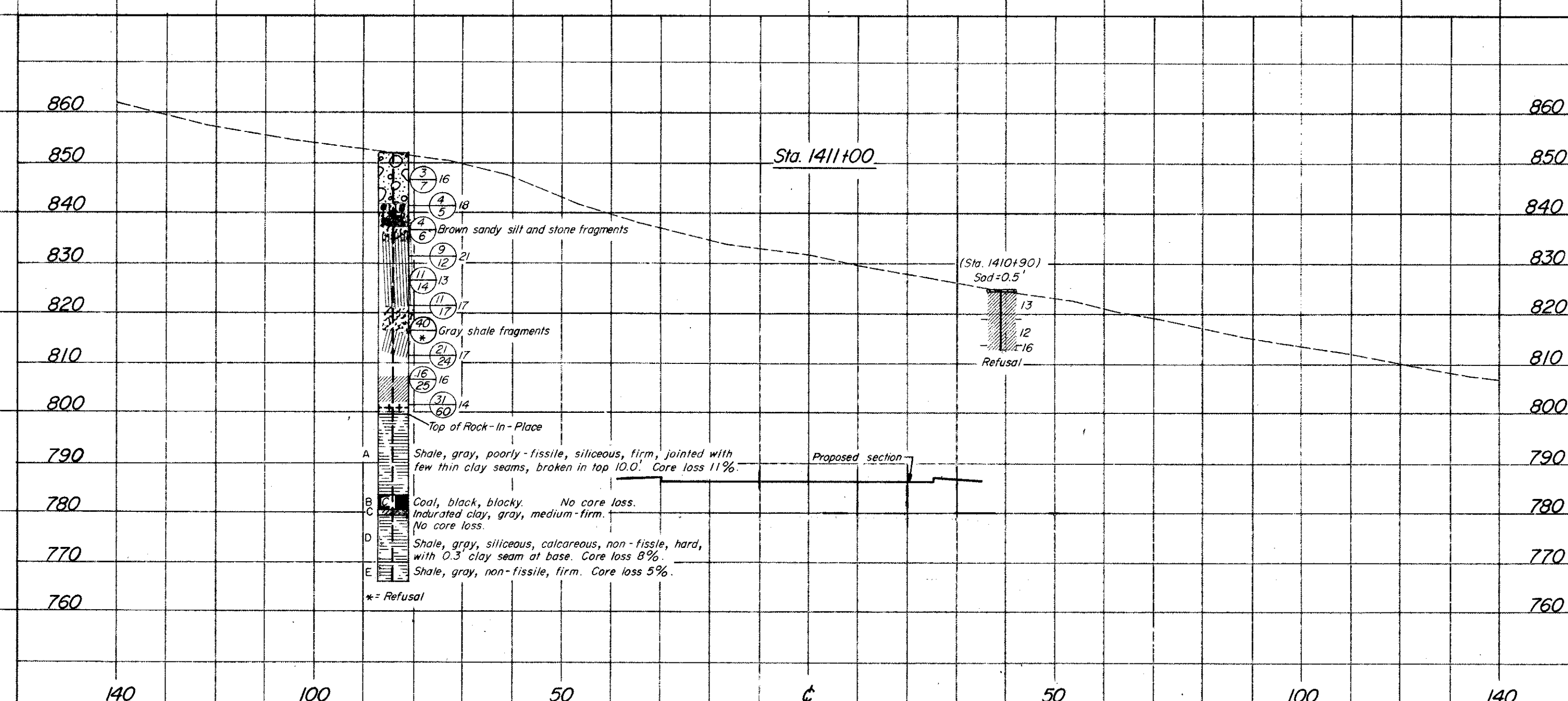
SOIL PROFILE  
JEFFERSON COUNTY  
JEF - 7 - 23.37

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OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

SUPPLEMENT 11/20/64

REVISED 2/2/65



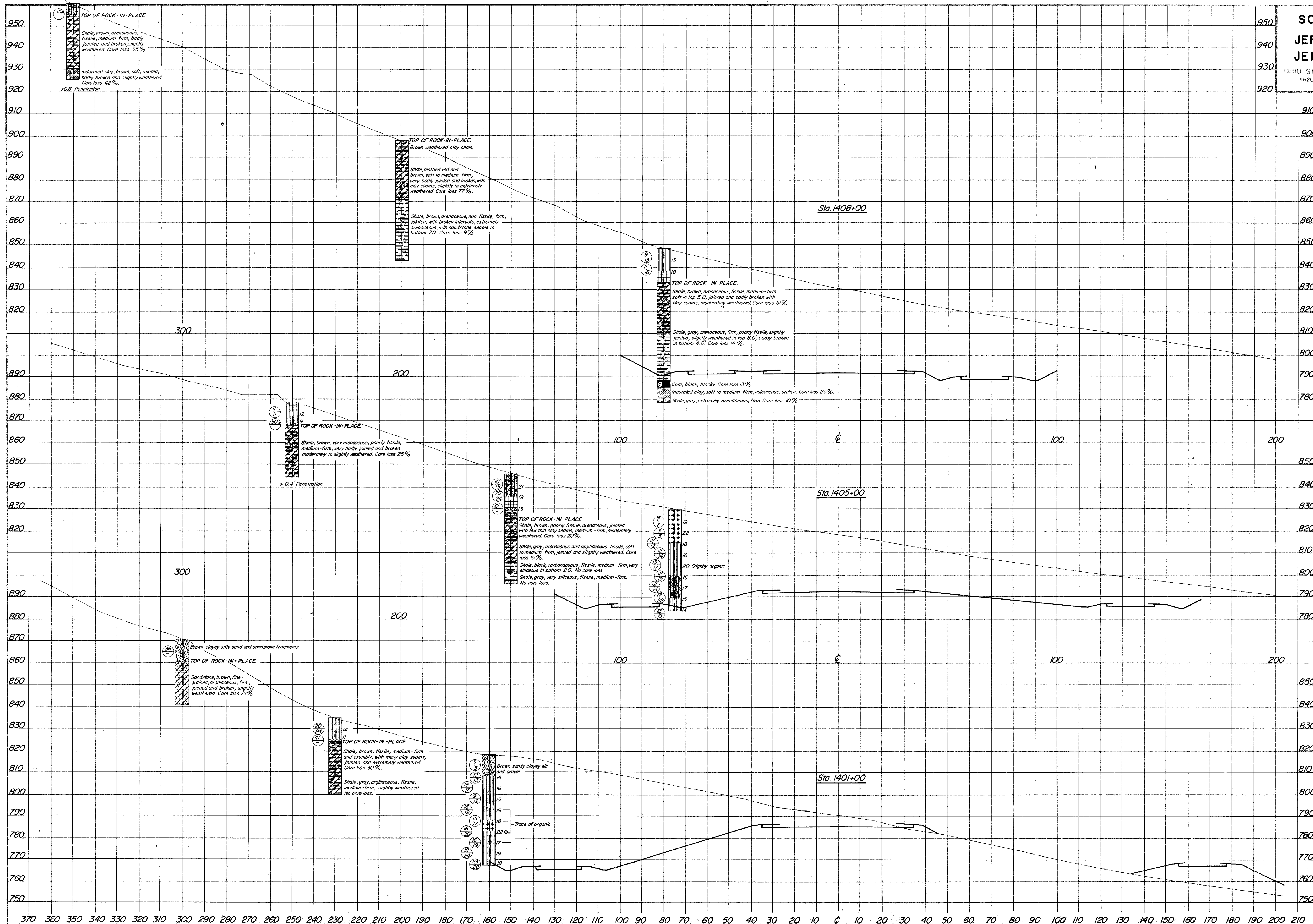


SOIL PROFILE  
JEFFERSON COUNTY  
JEF-7-23.37

OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

29  
51

SUPPLEMENT 2/2/65





GENERAL INFORMATION

INTRODUCTION

The project consists of 2.7 miles of the relocation of SR 7, beginning at the north edge of Toronto, at Co. Rd. 47, extending northward, ending on SR 7 in the town of Empire.

The proposed grade indicates cuts, maximum 155 feet at ditchline; and fill embankments, maximum 55 feet in height.

GEOLOGY AND OBSERVATIONS OF THE PROJECT

The alignment begins in the valley of Croxton Run, traverses the west valley wall of the Ohio River for approximately two thirds of the project, descends onto the floodplain of the Ohio River and terminates. Thin residual soils, in the uplands, and deep valley fill, in the valleys, overlies shale, sandstone, indurated clay, limestone and associated coal bedrock, of Pennsylvanian age. Stratigraphic rock sections were noted and measured along the project. An extensive area of fly ash and cinder fill was observed between stations 1508+00 and 1532+00.

EXPLORATION

Exploratory borings were made by means of truck-mounted mechanical soil auger on July 22 and 23, 1964, and rotary-type drill rig, between August 13 and October 9, and December 15 and 30, 1964.

INVESTIGATIONAL FINDINGS

Borings disclose the predominant materials occurring at proposed grade to consist of various types of bedrock.

Bedrock is anticipated to be encountered in the excavations in the following areas:

Stations 1424+75 to 1429+00 - sandstone at both grades and in both ditches; coal in the lower portion of both backslopes; shale, limestone and coal in the remainder of the backslopes with sandstone in the upper portion of the left backslope.

Stations 1429+00 to 1430+50 - coal at both grades and in the ditches; shale in the right backslope and lower half of the left backslope; limestone, coal, shale, and sandstone in the upper half of the left backslope.

Stations 1430+50 to 1434+50 - shale at both grades and in the ditches and right backslope and lower half of the left backslope; and shale, limestone, and some coal in the upper half of the left backslope.

Stations 1434+50 to 1436+00 - shale at both grades and in the left ditch and backslope.

Stations 1436+00 to 1436+50 - shale at left grade and in the left ditch and backslope.

Stations 1436+50 to 1438+00 - shale in the left ditch and lower portion of the left backslope.

Stations 1446+00 to 1448+00 - sandstone in the left ditch and backslope.

Stations 1448+00 to 1450+00 - sandstone at both grades and in the ditches and lower portion of the left backslope; shale and some sandstone and underclay in the upper portion of the left backslope.

Stations 1450+00 to 1460+00 - sandstone at both grades and in the ditches and right backslope and lower portion of the left backslope; shale, coal, limestone, sandstone, and underclay in the upper portion of the left backslope.

Stations 1460+00 to 1477+00 - shale or sandstone at both grades and in the ditches, right backslope, and lower portion of the left backslope; shale, limestone and sandstone in the upper portion of the left backslope. Some coal may be encountered at grade in the vicinity of stations 1464+00 to 1466+00.

Stations 1477+00 to 1485+00 - mined interval occurs in the vicinity of proposed grades; both ditches and lower portion of the left backslope; sandstone in the right backslope between stations 1477+00 and 1482+00; sandstone in the lower portion of the left backslope; sandstone, shale, and little limestone and indurated clay in the upper portion of the left backslope.

Stations 1485+00 to 1485+50 - shale or sandstone at both grades and in the left ditch; sandstone in the lower portion of the left backslope; shale and some coal in the upper portion of the left backslope.

Stations 1485+50 to 1486+00 - shale or sandstone in the left ditch; sandstone in the left backslope.

Stations 1486+00 to 1488+50 - sandstone at both grades and in the left ditch and lower portion of the left backslope; shale, coal, and sandstone in the upper portion of the left backslope.

Stations 1488+50 to 1494+00 - sandstone at both grades and in the ditches, right backslope and lower portion of the left backslope; sandstone, shale, coal, and indurated clay in the upper portion of the left backslope.

Stations 1494+00 to 1499+00 - shale at both grades and in the ditches and lower portion of both backslopes; sandstone in the upper portion of the right backslope and mid-portion of the left backslope; shale, coal, sandstone, and indurated clay in the upper portion of the left backslope.

Stations 1499+00 to 1504+00 - sandstone at both grades and in the ditches and lower portions of the backslopes; shale, sandstone, and indurated clay in the upper portions of the backslope.

Stations 1504+00 to 1505+00 - sandstone at both grades and in the ditches and lower portion of the left backslope; shale, sandstone, and indurated clay in the upper portion of the left backslope.

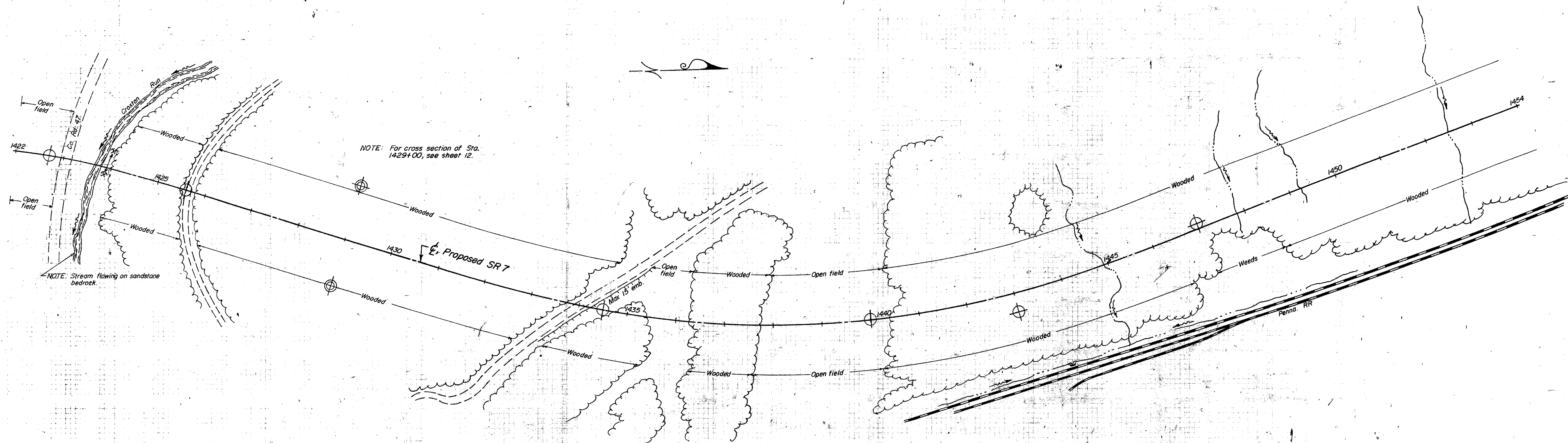
Stations 1505+00 to 1505+50 - sandstone at left grade and in the left ditch and lower portion of the left backslope; sandstone, shale, and indurated clay in the upper portion of the left backslope.

Stations 1505+50 to 1506+00 - sandstone in the left ditch and backslope.

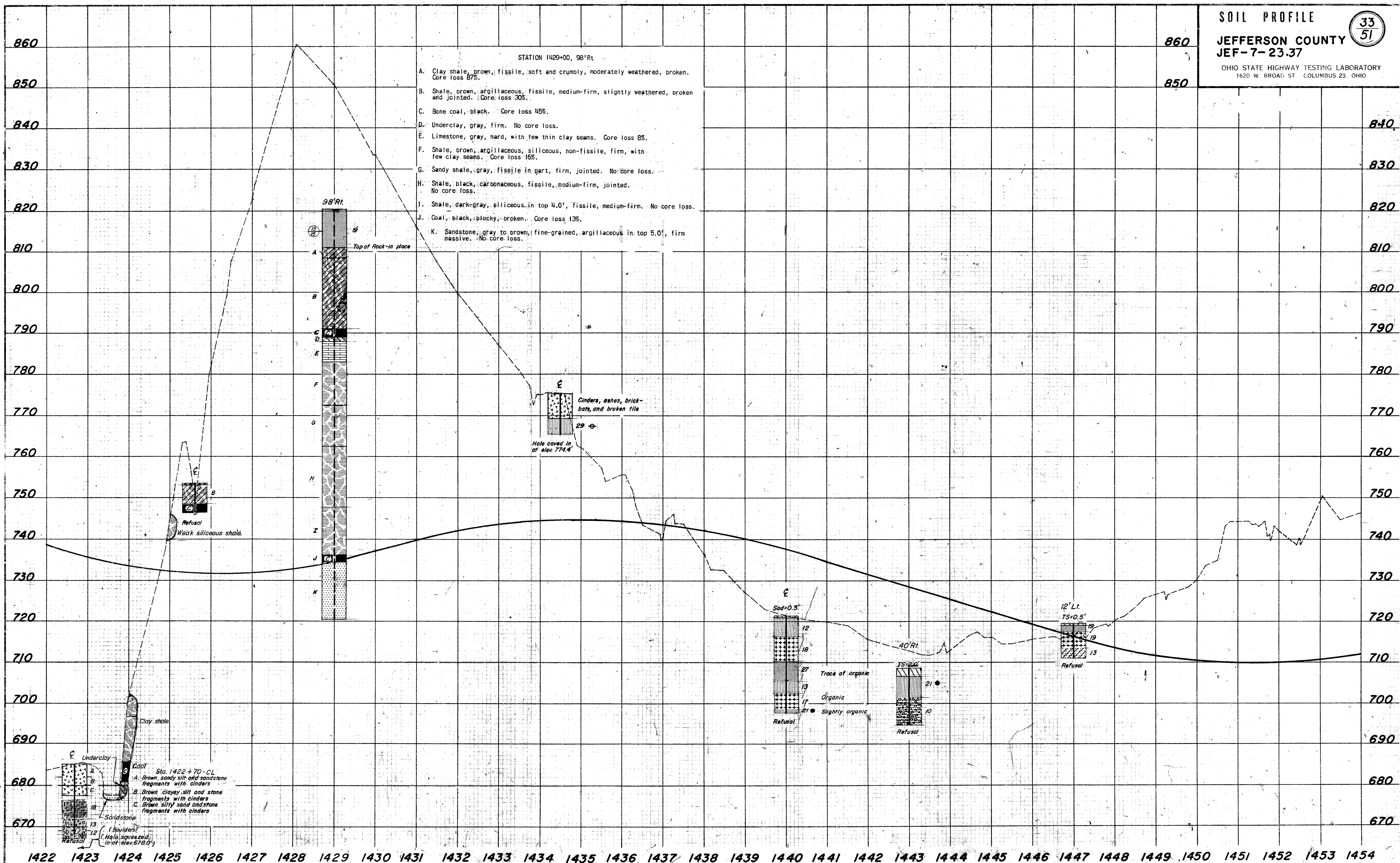
Embankment foundation materials consist predominantly of sandy silts and silts (A-4), silty clays (A-6), and man-made fill. Soil and cinder fill was encountered at stations 1422+70, 1508+55, 1525+00, 1530+50, and 1534+15. A maximum 30-foot thick fill, comprised of fly ash and cinders, generally 25 to 30 feet thick, was encountered between stations 1509+00 and approximately station 1530+00. Wet soils with occasional organic materials were encountered between stations 1510+30 and 1544+90.



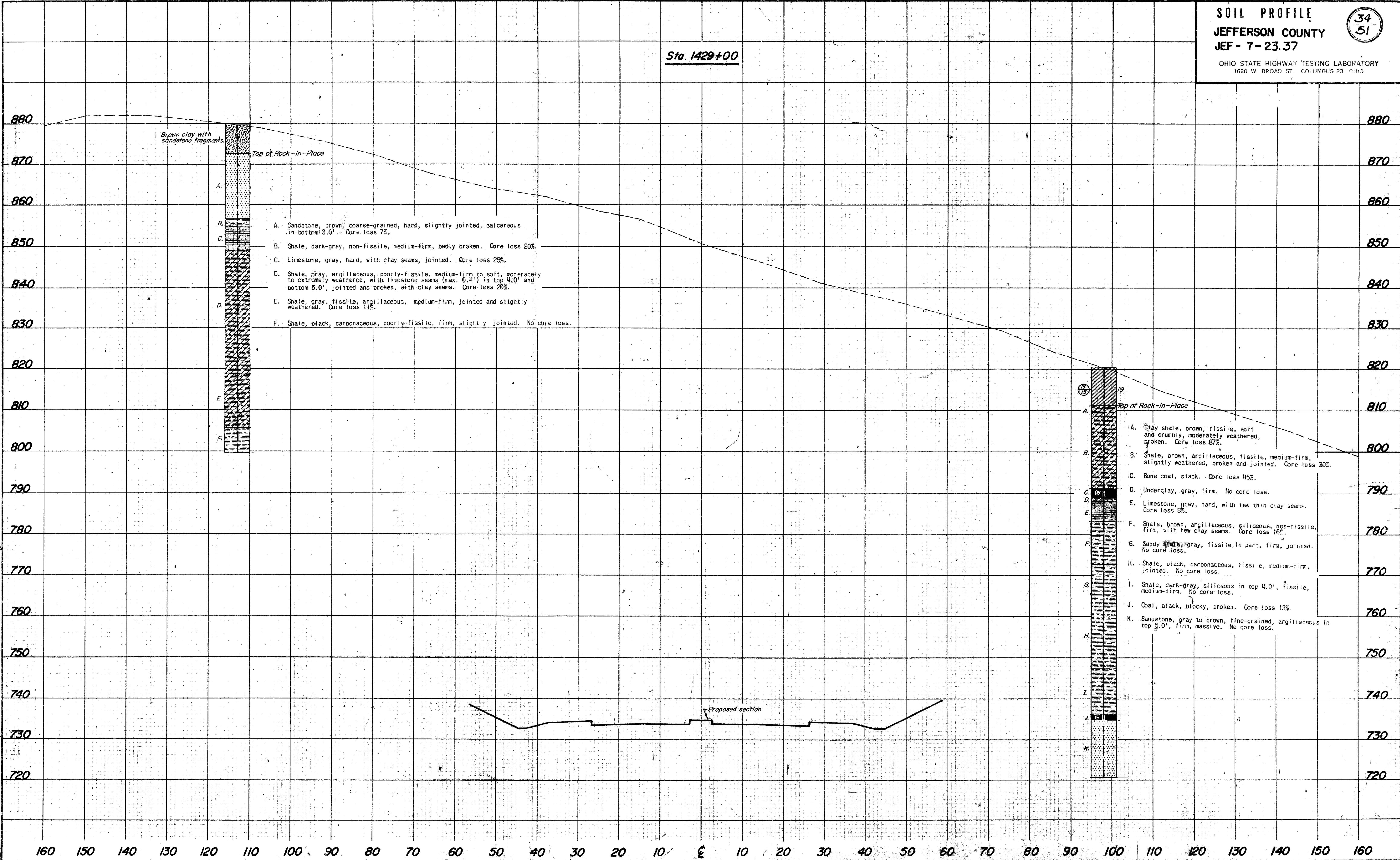












GEOLOGY OF THE SITE

The structure site is located near the base of the unglaciated west wall of the Ohio River valley, at the intersection with a tributary valley. Moderately deep valley fill and alluvium overlies shale and sandstone bedrock, of Pennsylvanian age.

EXPLORATION

The exploration consisted of two drive sample-core borings made on December 11, 12, and 13, 1963, and six drive rod penetration tests made between January 22 and February 4, 1964.

INVESTIGATIONAL FINDINGS

Borings disclosed medium-dense sands, silts, and gravels, with occasional clay intervals, to bedrock surface, encountered at 41 and 49-foot depths, elevations 711 and 713 feet.

The rod soundings encountered generally medium-high resistance to penetration with increase in depth and were terminated due to refusal or near refusal at 32 to 52-foot depths, elevations 731 to 702 feet, with exception of the sounding at test location number 12, considered to be on or slightly below bedrock surface, as revealed by the borings.

On the basis of tests, bedrock surface is considered to slope downward from forward to rear between elevations 712 and 706 feet.

Free water was observed in rod sounding hole number 8 at elevation 733 feet.

LEGEND

- Aspirated Sample and/or Core Boring - Plan View
- Press and/or Drive Sample and/or Core Boring - Plan View
- Drive Rod Penetration Resistance Test - Plan View
- Electrical Resistivity Probe - Plan View
- Indicates Drive Boring
- Indicates Press and/or Drive Sample and/or Core Boring
- Electrical Resistivity Probe - Plotted to vertical scale only
- Top of Rock
- Water saturated zone
- Total Depth
- Horizontal boring log indicates the depth the sample was taken
- Figures to the right of boring log in profile view indicate the number of blows for "Standard Penetration" test  
X = First 6 inches  
Y = Second 6 inches
- Casing
- Resistance "R" < 10,000 lbs.
- Resistance "R" > 10,000 lbs.
- Indicates final measurement of penetration in inches
- Indicates Free Water elevation
- Indicates Static Water elevation
- Footing
- Footing on pile

SYMBOLS OF ROCK TYPES

- Coal
- Weathered Indurated Clay
- Indurated Clay
- Weathered Shale
- Shale
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone

GENERAL INFORMATION

Drive Rod Penetration Tests

Drive rod penetration resistance tests consist of driving a 2 1/2 inch diameter rod, with a 45° cone point into the ground, using a 35 pound drop hammer with a free fall of five feet. At one or two foot depth intervals, blows were taken to determine the amount of penetration achieved in three hammer drops. This reading is plotted to an empirical value for capacity (R) on the basis of charts which are prepared from the penetration resistance and final resistance of the rod using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation of graphs prepared by plotting the value "R" against the depth at which the reading was taken and correlating the plotted points, the curve so obtained reflects the best fit of test materials in a manner that can be readily compared with data from similar test locations of the structure site. From the comparison, the overall capacity of the subsurface conditions may be evaluated.

Drive Sample Borings - Drive Press Sample Borings

Drive sample borings are by means of a rotary type drilling employing a 2 1/2 inch, 1-3/8 I.D. sampler, at 2-1/2 and/or 5-foot depth intervals, driven by means of a 40 pound drop hammer, with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive press sample borings are made by means of a rotary type drilling employing a 2 1/2 O.D., 1-3/8 I.D. drive sampler, and 3 O.D. thin wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drilling.

The Boring Log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two foot increments, depths of press samples, field sample number, sample description based on laboratory test results and the Casagrande-AU classification system and liquidity, plasticity, and moisture content determinations. Results of strength and consolidation testing appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

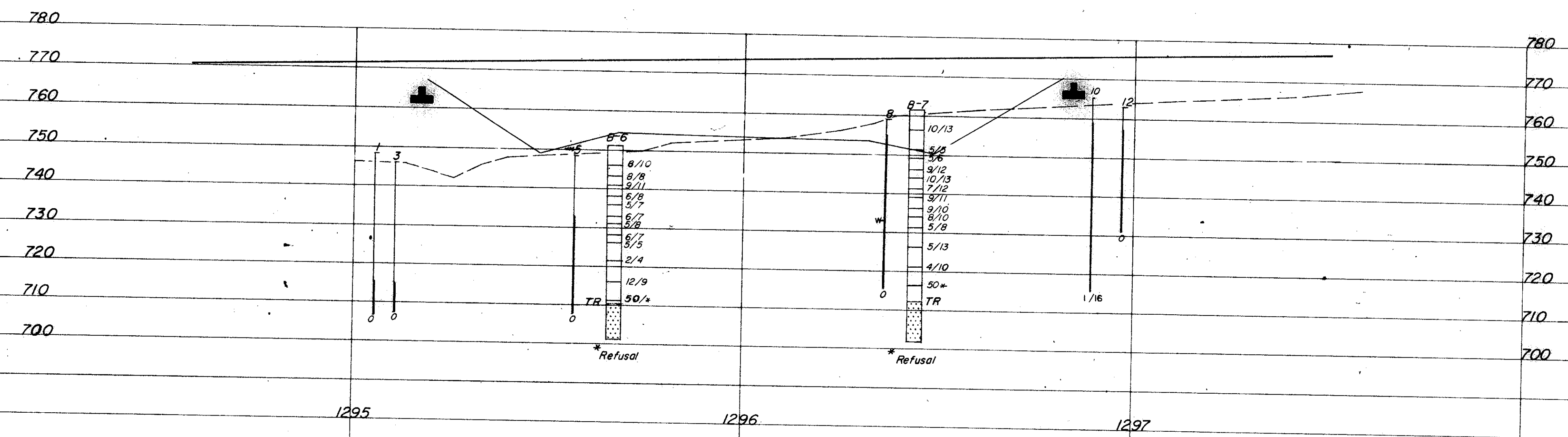
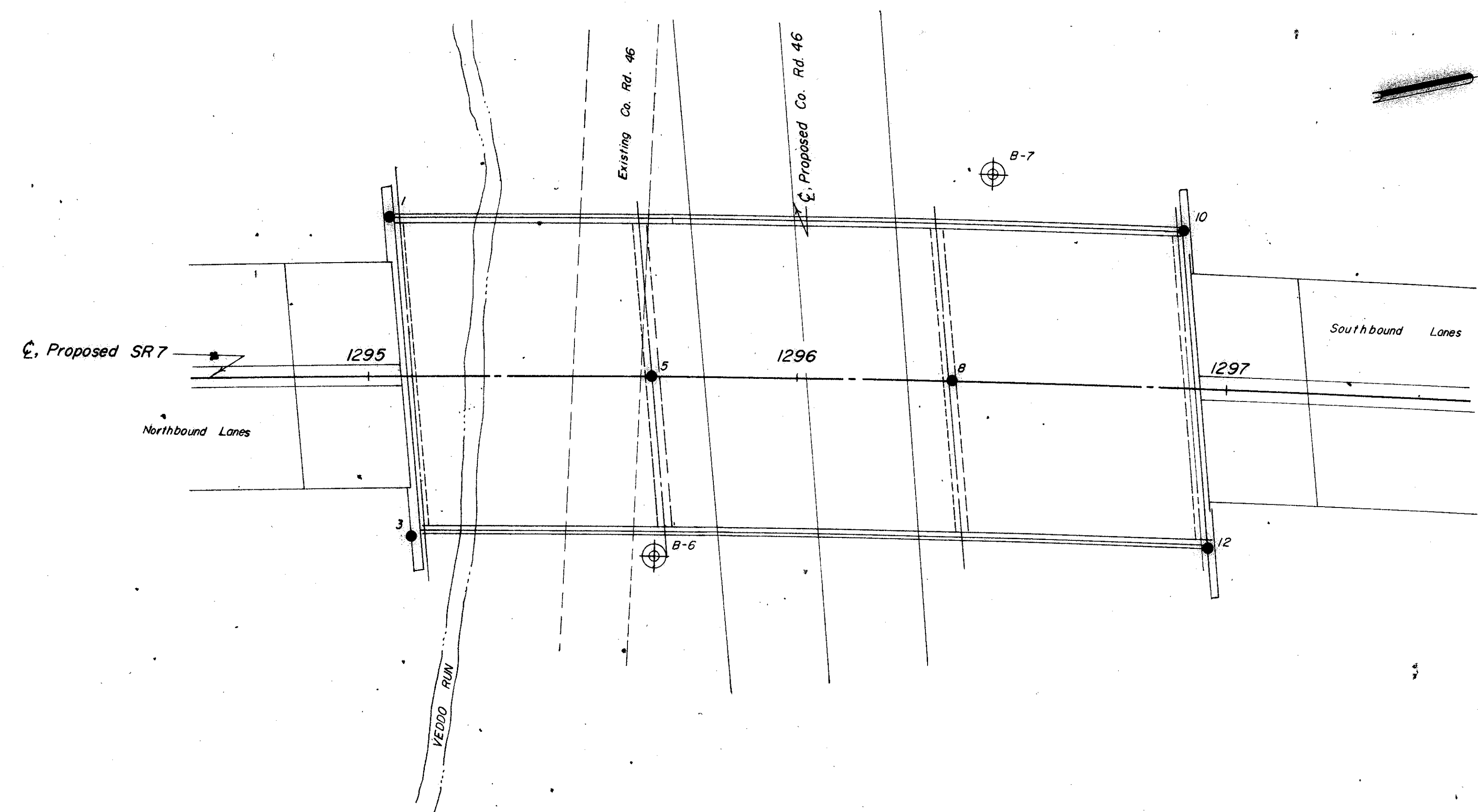
Particle Size Definitions

8"	3"	20mm	6.4mm	0.075mm	0.075mm
Boulders	Cobbles	Gravel	Coarse sand	Fine sand	Silt Clay
		No. 10 sieve	No. 40 sieve	No. 200 sieve	

NOTE: Information shown by this Submittal Investigation was obtained solely from the data and descriptions furnished for the project. The State of Ohio does not guarantee the accuracy of the information furnished, construed as part of the plans governing construction of the project.

OHIO STATE HIGHWAY TESTING LABORATORY 621 WEST BRIDGE STREET, COLUMBUS 22, OHIO		
STRUCTURE FOUNDATION INVESTIGATION		
PROJECT	JEF-7-2449	
SR	SR 7 OVER CO. RD. 46	
SHEET	JEF-7-23.37	
DESIGNED BY R.D.R.	REVIEWED BY G.P.H.	DATE 2/13/64





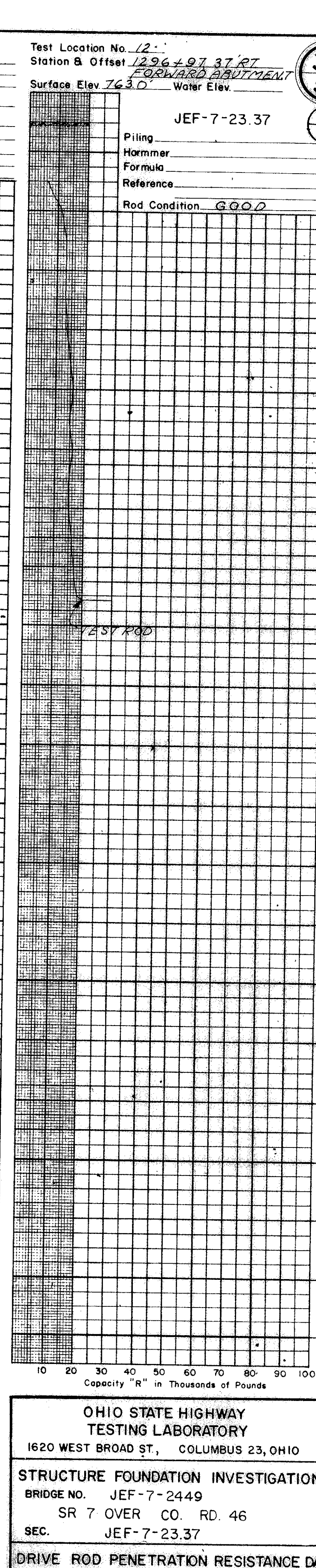
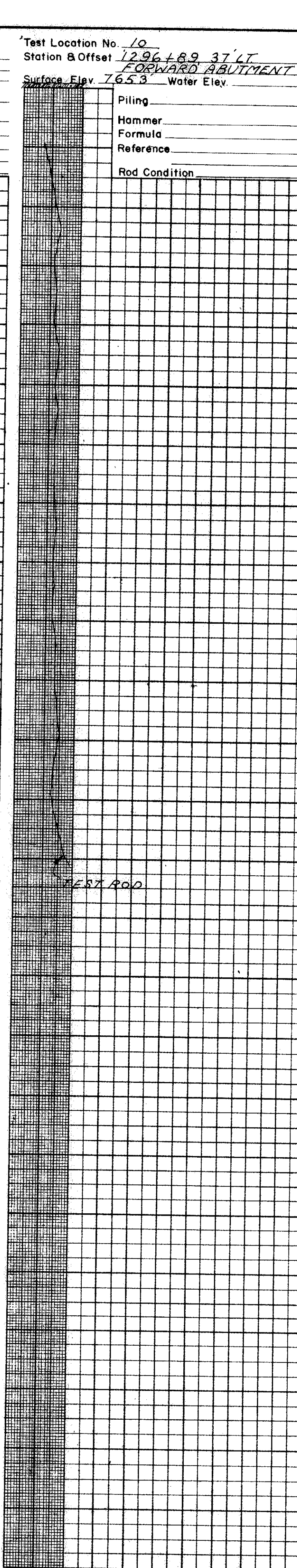
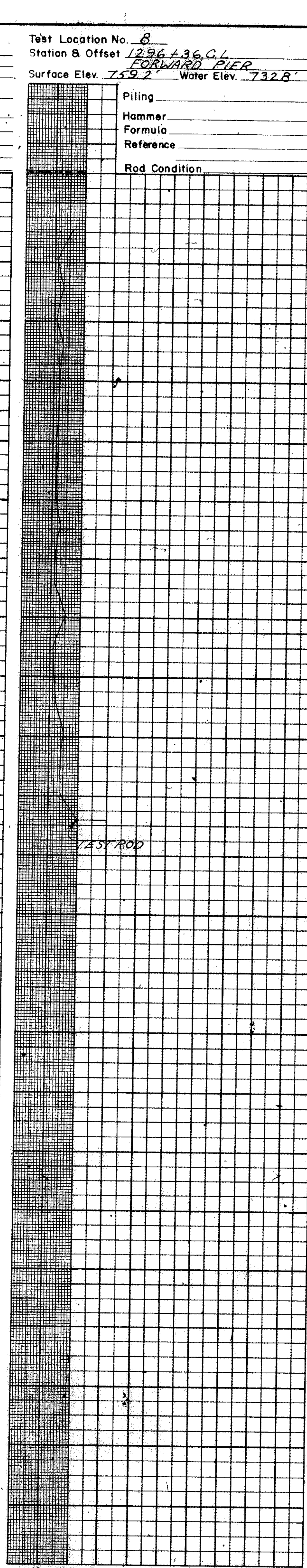
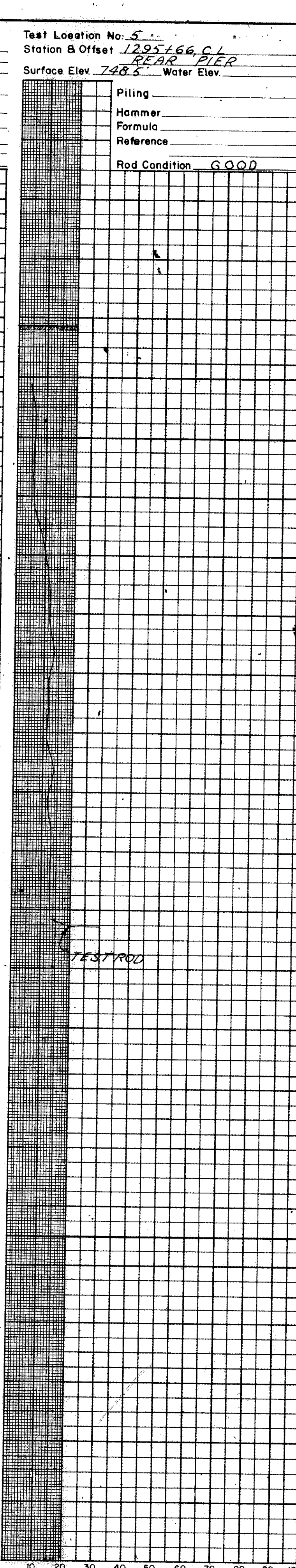
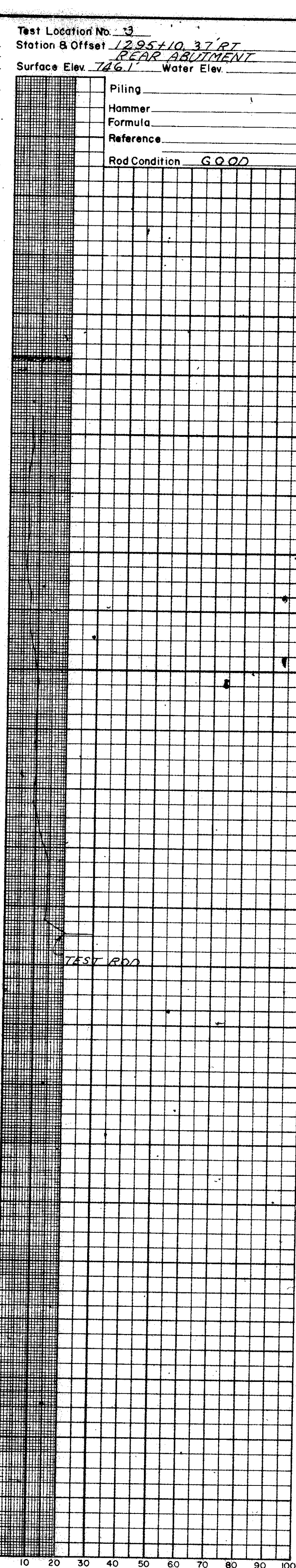
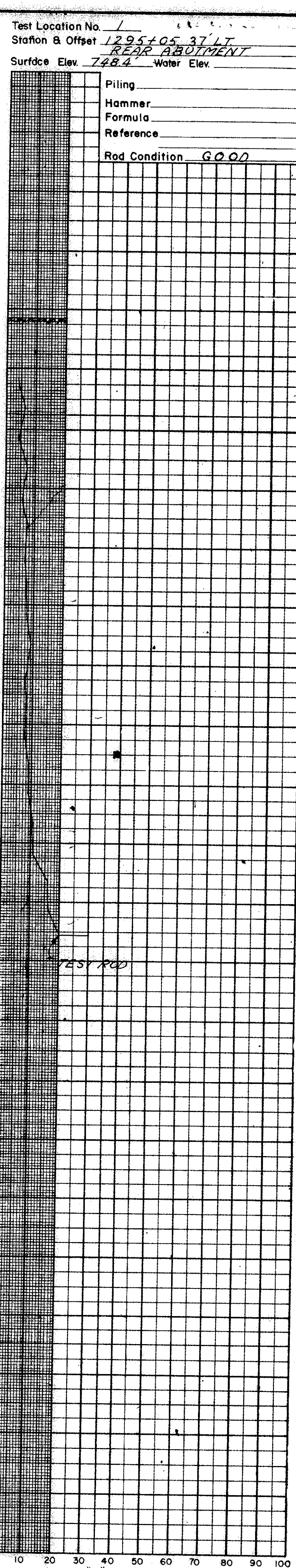
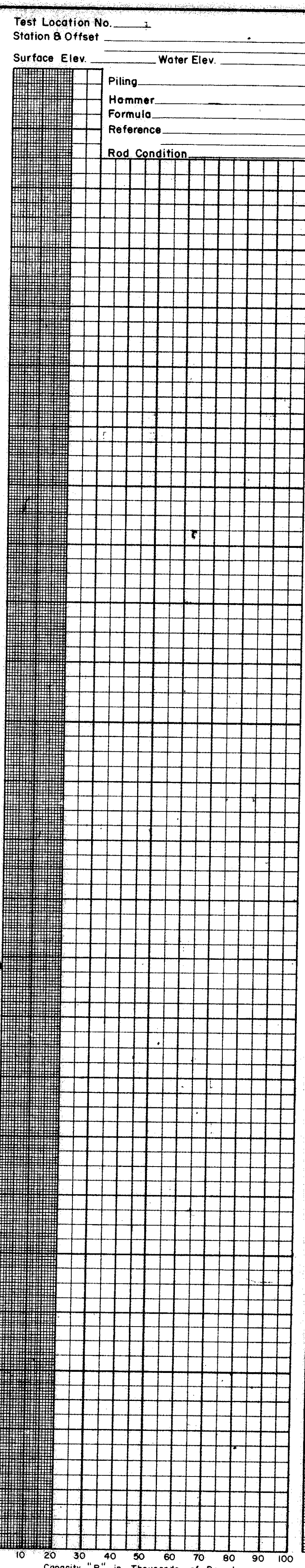
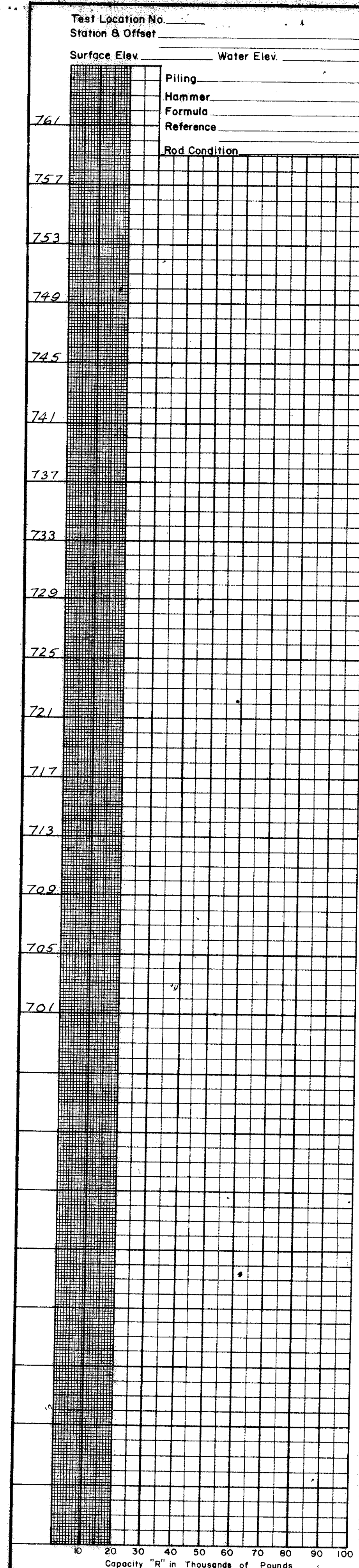
OHIO STATE HIGHWAY TESTING LABORATORY 1620 WEST BROAD ST., COLUMBUS 23, OHIO			
STRUCTURE FOUNDATION INVESTIGATION			
BRIDGE NO. JEF-7-2449			
SEC. SR 7 OVER CO. RD. 46			
JEF-7-23.37			
PLAN AND PROFILE			
DRAWN BY R.L.F.	CHECKED BY R.D.R.	REVIEWED BY G.P.H.	DATE 2/13/64

SCALE: 1" = 20'

LOG OF BORING															
Date Started 12-11-63			Sampler Type SS			Dia. 1 3/8"			Water Elev. _____						
Date Completed 12-11-63			Casing Length 10'			Dia. 3 1/2"									
Boring No. B-6			Station & Offset 1295+67, 42' RE (R&R PI 12)			Surface Elev. 751.1'									
Elev.	Depth	Std. Pen.	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% G.S.	% F.S.	% Silt	% Clay	LL	PI	W.C.	SHTL Class.
751.1	0														
	2														
	4														
746.1	6	8/10			Brown Silty Sandy Gravel	1	47	6	10	14	15	23	9	17	
743.6	8	8/8			Brown Silty Sandy Gravel	2			V	I	S	U	A	L	16
741.1	10	9/11			Brown Silty Gravelly Sand	3	35	15	25	-25-		NI	NI	15	
739.6	12	6/8			Brown Silty Gravelly Sand	4	29	6	26	20	19	24	8	16	
736.1	14	5/7			Brown Sandy Clay	5	0	2	27	27	44	30	12	19	
733.6	16	6/7			Brown Sandy Silt	6	0	2	30	23	36	26	9	20	
731.1	18	5/8			Gray Sandy Silt	7	12	3	23	32	30	22	6	14	
728.6	20	6/7			Gray Gravelly Sandy Silt	8	20	4	23	29	25	22	6	17	
726.1	22	5/5			Gray Silty Sandy Gravel	9			V	I	S	U	A	L	10
	24														
721.1	26	2/4			Brown Sandy Silt	10	0	1	47	30	22	NI	NI	20	
	28														
716.1	30	12/9			Brown Silty Gravelly Sand	11	29	3	32	20	16	NI	NI	21	
	32														
	34														
	36														
	38														
711.1	40														
710.6	42	50*			TOP OF ROCK										
	44		4.1	0.4	Sandstone, gray, firm, medium-grained, micaceous, calcareous, moderately cross-bedded in part, in beds 0.1' to .5' thick with friable and argillaceous seams. Core Loss 15%.										
	46														
	48		4.0	1.0											
701.1	50														
* REFUSAL															
BOTTOM OF BORING															

LOG OF BORING															
Date Started 12-12-63			Sampler Type SS			Dia. 1 3/8"			Water Elev.						
Date Completed 12-12-63			Casing Length 45'			Dia. 3 1/2"									
Boring No. B-7			Station & Offset 1296+44, 48' Lt (FORWARD PIER)			Surface Elev. 761.7'									
Elev.	Depth	Std. Pen.	Rec.	Loss	Description					Physical Characteristics					SHTL
	(ft.)	(lb./ft.)	ft.	ft.	Sample No.	% Agg.	% G.S.	% F.S.	% Silt	% Clay	LL	PI	W.C.	Class.	
761.7	0														
	2														
	4														
756.7	6	10/13			1	40	2	19	14	20	28	10	16		
	8														
751.7	10	5/5			2	19	5	21	24	31	29	10	22		
749.2	12	5/6			3	0	5	19	27	47	33	13	17		
746.7	14	9/12			4	38	4	19	15	24	33	11	16		
744.2	16	10/13			5	26	5	25	14	30	32	10	10		
741.7	18	7/12			6	34	3	28	17	22	23	5	15		
739.2	20	9/11			7	21	3	23	21	32	26	8	12		
736.7	22	9/10			8	VI	5	U	A	L	27	9	14		
734.2	24	8/10			9	0	5	29	30	32	26	9	10		
731.7	26	5/8			10	6	2	32	28	27	24	5	20		
	28														
726.7	30	5/13			11	0	1	37	32	40	NI	NI	21		
	32														
	34														
721.7	36	4/10			12	74	10	10	-4-		NI	NI	15		
	38														
	40														
716.7	42	50* (0.7')			13	22	40	23	-15-		NI	NI	15		
	44														
	46														
	48														
712.7	50				TOP OF ROCK										
	52				Sandstone, gray, firm, medium-grained, calcareous, micaceous, with abundant mica at cross-bedded laminae, in beds 0.1' to 0.3' thick with friable argillaceous seams (comprising 3% of the interval). No core loss.										
	54														
	56														
	58														
701.7	60				BOTTOM OF BORING										
* REFUSAL															





OHIO STATE HIGHWAY  
TESTING LABORATORY  
1620 WEST BROAD ST., COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. JEF-7-2449  
SR 7 OVER CO. RD. 46  
SEC. JEF-7-23.37

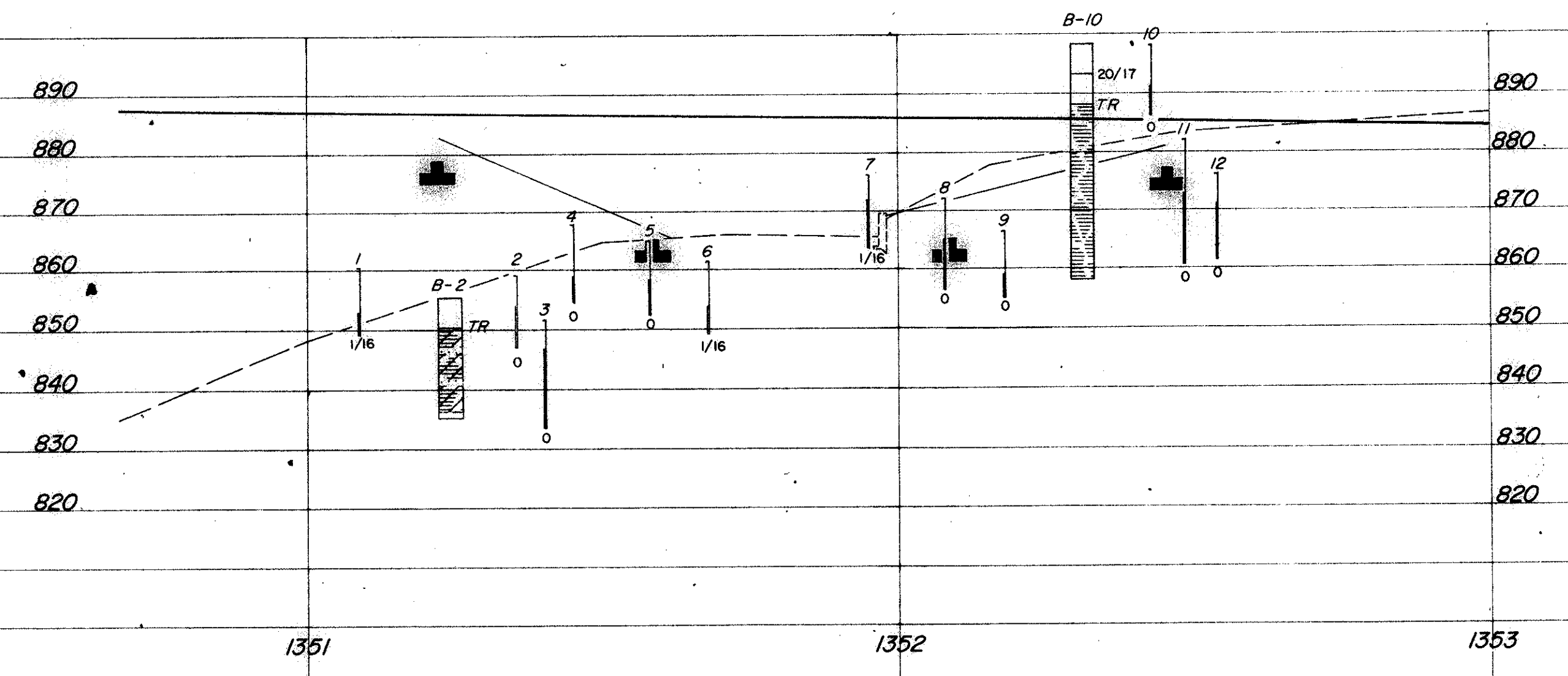
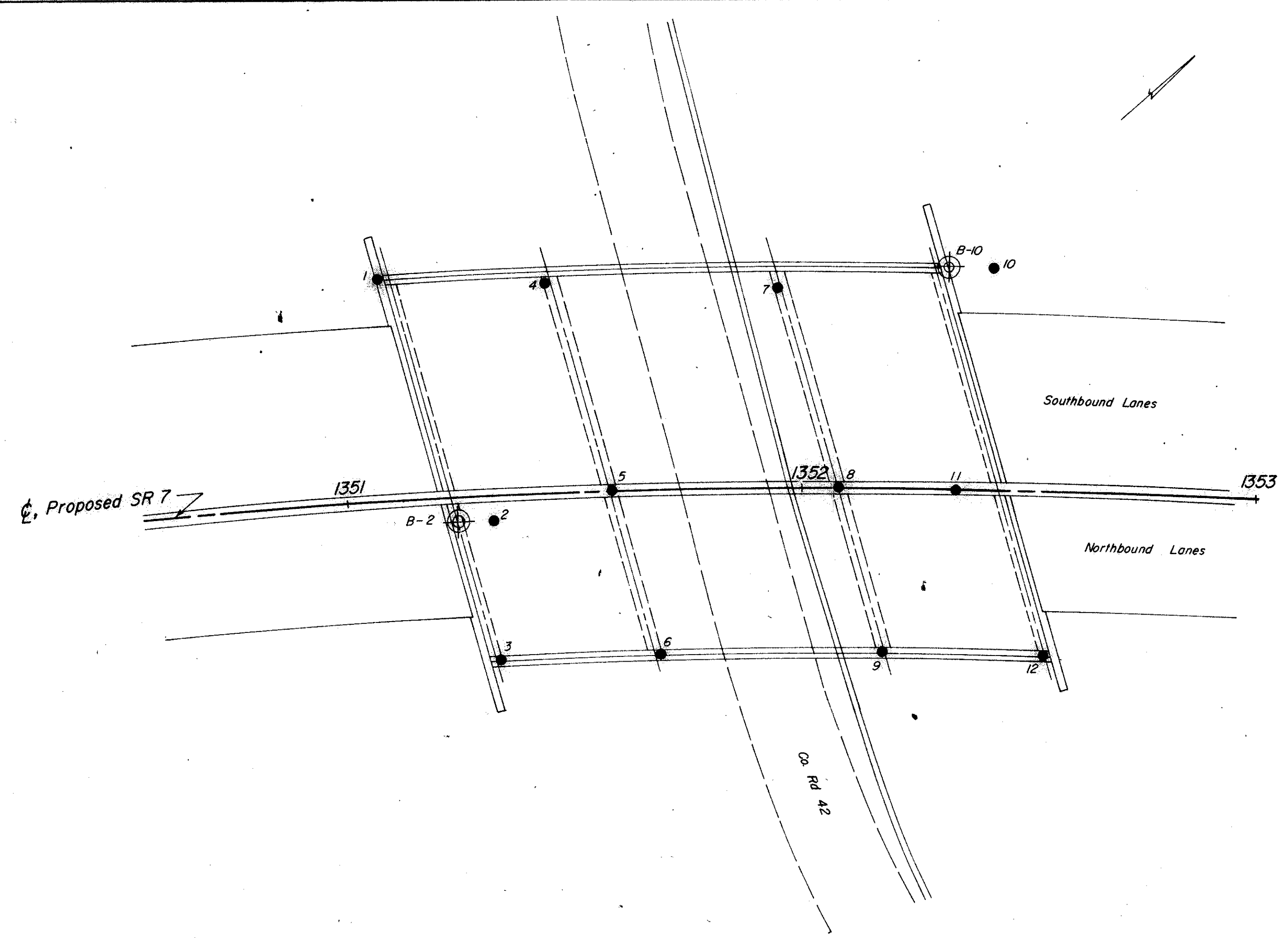
DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY R.C.	CHECKED BY R.D.R.	REVIEWED BY G.P.H.	DATE 2/13/64
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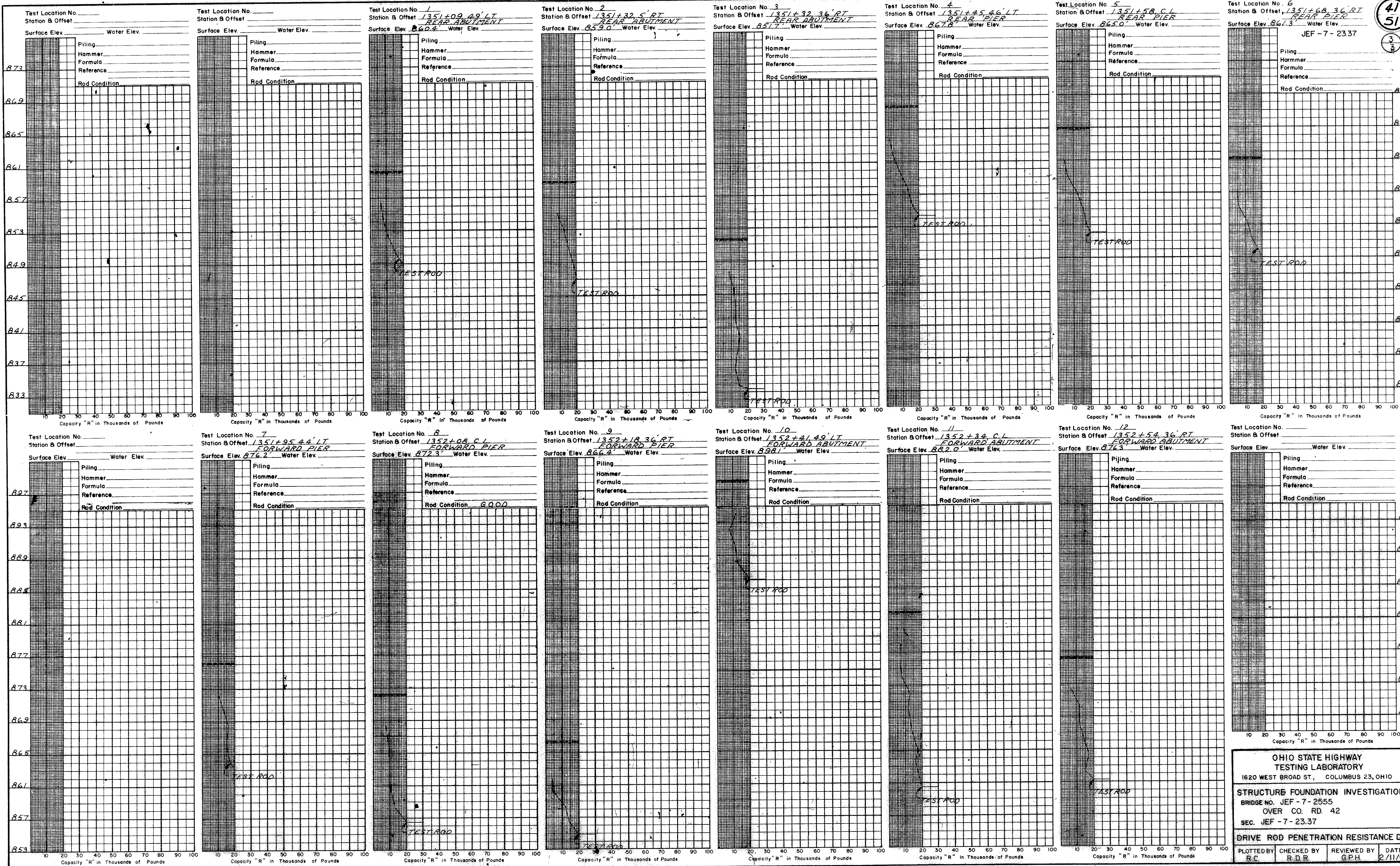




OHIO STATE HIGHWAY TESTING LABORATORY 1620 WEST BROAD ST., COLUMBUS 23, OHIO			
STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. JEF-7-2555 OVER CO. RD. 42 SEC. JEF-7-2337			
PLAN AND PROFILE			
DRAWN BY R.P.W.	CHECKED BY R.D.R.	REVIEWED BY G.P.H.	DATE 2/11/64

SCALE: 1"=20'







**GEOLOGY OF THE SITE**

The structure site is located on the edge of the Ohio River flood plain, adjacent to the west valley wall. Moderately deep valley fill overlies sandstone, shale, and indurated clay bedrock, of Pennsylvanian age.

**EXPLORATION**

The exploration consisted of one drive sample boring, made on January 20 and 21, 1965. Also included in this report are the logs of borings and drive rod penetration curves made for the original structure investigation between August 11 and September 1, 1964, as well as the logs of borings, made by means of rotary type drill rig and mechanical soil auger, in conjunction with the roadway foundation investigation.

**INVESTIGATIONAL FINDINGS**

The borings encountered dense to very dense, stiff to very stiff, gravels, sands, silts, and clays. The mechanical soil auger boring was terminated at a predetermined depth of 30 feet, elevation 755 feet. The drive sample borings were terminated at 56 and 61-foot depths, elevations 738 to 723 feet, after penetrating in excess of 30 feet of material requiring in excess of 30 blows per foot in the standard penetration test.

The rod soundings met with increasing resistance to penetration with increasing depth, and were terminated due to near-refusal to penetration at 9 to 46-foot depths, elevations 774 to 740 feet, on the basis of the borings, considered to be in very dense gravelly silts.

No free water was encountered in any of the rod sounding holes.

**LEGEND**

- Auger Boring Location - Plan View.
- Press and / or Drive Sample and / or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- Capped Pile
- Footing
- Footing on Pile
- Top of Rock
- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.  
X = Number of Blows for First 6 inches.  
Y = Number of Blows for Second 6 inches.
- Drive Rod Penetration Resistance Sounding Log - Profile
- Casing
- Resistance "R" < 10,000 lbs.
- Resistance "R" > 10,000 lbs.
- Z Indicates Final Measurement of Penetration, in Inches.
- W Indicates Free Water Elevation.
- Indicates Static Water Elevation.

**SYMBOLS OF ROCK TYPES**

- Coal
- Weathered Indurated Clay
- Indurated Clay
- Weathered Shale
- Shale
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone

**GENERAL INFORMATION**

**Drive Rod Penetration Sounding Tests**

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

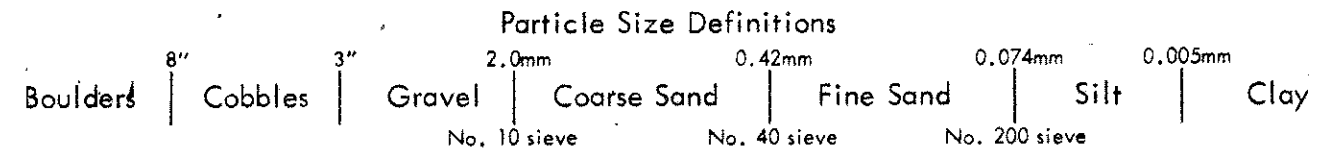
**Drive Sample Borings - Drive-Press Sample Borings**

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and / or 5-foot depth intervals, driven by means of a 140 - pound drop-hammer with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing, if performed, appear on separate enclosures.

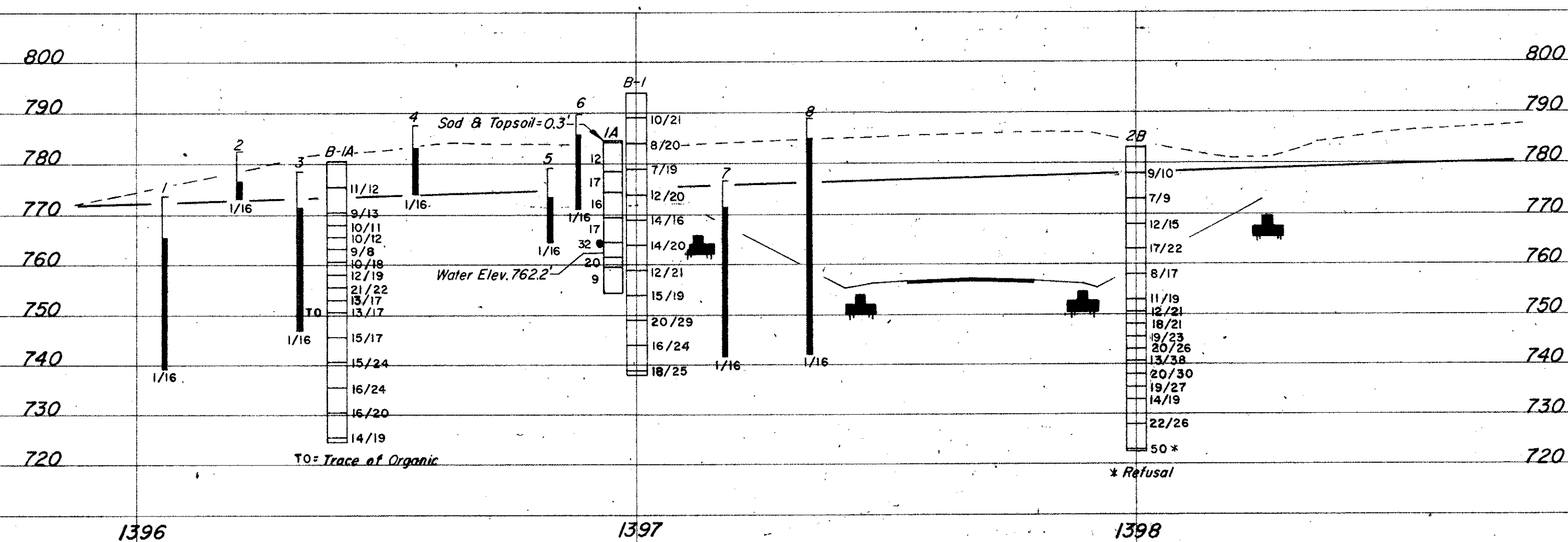
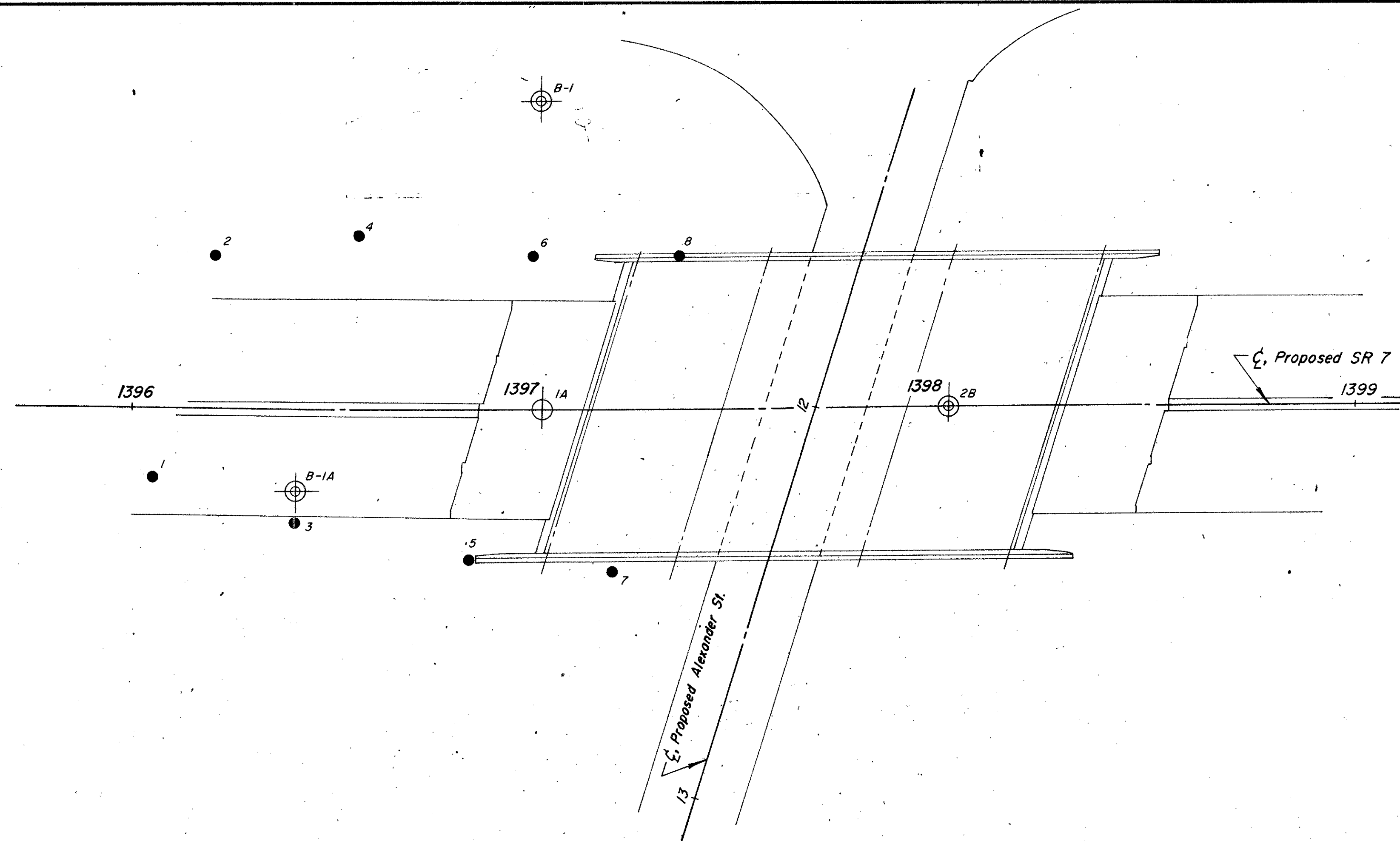
At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.



REVISED - 4 - 1 - 65

NOTE: Information shown by this subsurface investigation was obtained solely for the 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.

OHIO DEPARTMENT OF HIGHWAYS TESTING LABORATORY 1620 WEST BROAD STREET, COLUMBUS 23, OHIO		
STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. JEF-7-2642 SUPPLEMENT SR 7 OVER RELOC. ALEXANDER ST. SEC. JEF-7-2337		
CHECKED BY R.H.P.	REVIEWED BY R.D.R.	DATE 2-9-65



REVISED - 4 - 1 - 65

OHIO DEPARTMENT OF HIGHWAYS  
TESTING LABORATORY  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. JEF-7-2642 SUPPLEMENT  
SR 7 OVER RELOC. ALEXANDER ST  
SEC. JEF-7-23.37

PLAN AND PROFILE

DRAWN BY R.L.C.	CHECKED BY R.H.P.	REVIEWED BY R.D.R.	DATE 2/9/65
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SCALE: 1" = 20'



LOG OF BORING																					
Date Started <u>8-11-64</u>		Sampler Type <u>SS</u>		Dia. <u>1 3/8"</u>		Water Elev. _____															
Date Completed <u>8-26-64</u>		Casing Length <u>20'</u>		Dia. <u>3 1/2"</u>																	
Boring No. <u>1A</u>		Station & Offset <u>1395+46, 20' (REAR ABUTMENT)</u>		Surface Elev. <u>780.5'</u>																	
Elev.	Depth	Std. Pen. (N)	Rec. Loss	Description								Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL. Class.
780.5	0																				
	2																				
775.5	4																				
	6	11/12		Brown Gravelly Sandy Silt								1	26	12	16	23	21	26	5	27	
	8																				
770.5	10	9/13		Brownish-Gray Sandy Silt								2	0	6	17	38	39	31	6	24	
768.0	12																				
	14	10/11		Brown and Gray Sandy Gravelly Silt								3	24	8	8	34	26	30	8	11	
765.5	16	10/12		Brown Gravelly Silt								4	38	4	8	28	22	26	5	16	
763.0	18	9/8		Brown Gravelly Silt								5	36	6	8	30	20	27	3	18	
760.5	20	10/18		Brownish-Gray Silt								6	0	3	8	72	17	28	5	22	
758.0	22																				
	24	12/19		Brownish-Gray Silt								7	0	7	11	43	39	26	3	21	
755.5	26	21/22		Brown Sandy Gravelly Silt								8	20	7	9	40	24	27	4	18	
753.0	28	13/17		Gray Sandy Gravelly Silt								9	18	5	11	40	26	27	6	19	
750.5	30	13/17		Dark Gray Silt and Clay, Trace of Organic								10	0	3	8	48	41	31	11	18	
	32																				
745.5	34																				
	36	15/17		Gray Sandy Silt								11	0	6	19	17	58	26	6	19	
	38																				
	40																				
	42																				
735.5	44																				
	46	16/24		Gray Sandy Clay								13	0	8	15	41	36	32	13	16	
	48																				
730.5	50	16/20		Gray Gravelly Sandy Silt								14	17	4	14	37	28	28	9	18	
	52																				
725.5	54																				
720.5	56	16/18		Dark Gray								15	0	1	12	25	34	28	10	18	

LOG OF BORING															
Date Started <u>11-13-63</u>		Sampler Type <u>SS</u>		Dia. <u>1 3/8"</u>		Water Elev. _____									
Date Completed <u>11-13-63</u>		Casing Length _____		Dia. _____											
Boring No. <u>B-1</u>		Station & Offset <u>1397+00, 75' L.A. (REAR ABUTMENT)</u>		Surface Elev. <u>794.0'</u>											
Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
794.0	0														
	2														
	4														
789.0	6	10/21			Brown Sandy Gravelly Silt	1	27	9	11	29	24	28	8	17	
	8														
784.0	10	8/20			Brown and Gray Sandy Silt	2	12	8	9	42	29	31	10	17	
	12														
	14														
779.0	16	7/19			Brown and Gray Sandy Clay	3	9	6	11	42	32	30	11	18	
	18														
774.0	20	12/20			Brown Gravelly Sandy Silt	4	20	10	17	31	22	29	9	16	
	22														
	24														
769.0	26	14/16			Brown Sandy Gravelly Silt	5	34	6	15	26	19	27	6	15	
	28														
764.0	30	14/20			Brown Sandy Gravelly Silt	6	32	9	12	26	21	29	8	16	
	32														
	34														
759.0	36	12/21			Gray Sandy Silt	7	14	6	15	40	25	27	7	15	
	38														
	40														
	42	15/23			Gray Sandy Gravelly Silt	8	34	7	10	26	23	27	8	15	
	44														
749.0	46	20/29			Gray Gravelly Clay	9	38	3	6	29	24	31	11	19	
	48														
744.0	50	16/24			Gray Gravelly Sandy Silt	10	19	9	18	29	25	28	9	19	
	52														
	54														
739.0	56	18/25			Gray Gravelly Sandy Silt	11	23	11	21	21	24	27	8	18	
734.0	58														
					BOTTOM OF BORING										

LOG OF BORING															
Date Started <u>1-28-65</u>		Sampler Type <u>SS</u>		Dia. <u>1 3/8"</u>		Water Elev. _____									
Date Completed <u>1-21-65</u>		Casing Length _____		Dia. _____											
Boring No. <u>28</u>		Station & Offset <u>1398+00, CL (FORWARD PIER)</u>		Surface Elev. <u>783.0'</u>											
Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics								SHTL Class.
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
783.0	0														
	2														
	4														
778.0	6	9/10			Brown and Gray Silt and Clay	1	0	4	14	45	37	29	11	17	
	8														
773.0	10	7/9			Brown and Gray Silt and Clay	2	0	4	11	46	39	33	13	20	
	12														
	14														
768.0	16	12/15			Brown and Gray Gravelly Clay	3	21	3	9	37	30	31	11	17	
	18														
763.0	20	17/22			Gray Silt and Clay	4	0	2	13	47	38	31	11	18	
	22														
	24														
758.0	26	8/17			Gray Sandy Gravelly Silt	5	20	3	14	38	25	27	7	18	
	28														
753.0	30	11/19			Gray Silt and Clay	6	0	1	13	43	43	30	11	17	
	32														
750.5	34	12/21			Gray Sandy Silt	7	14	4	15	36	31	27	6	19	
	36														
748.0	38	18/21			Gray Gravelly Sandy Silt	8	15	3	15	39	28	29	7	23	
	40	19/23			Gray Gravelly Clay	9	23	2	10	32	33	32	11	19	
	42	20/24			Gray Gravelly Sandy Silt	10	17	3	10	38	26	29	8	22	
746.5	44	13/38			Gray and Brown Gravelly Clay	11	13	2	10	35	40	32	11	15	
	46														
738.0	48	20/30			Brown and Gray Silt and Clay	12	0	2	9	42	47	29	11	18	
	50														
735.5	52	19/27			Brown and Gray Silt and Clay	13	0	2	16	38	44	29	11	20	
	54														
733.0	56	14/19			Gray Silt and Clay	14	0	1	7	47	45	30	11	21	
	58														
	60	22/26			Greenish-Brown Silty Sandy Gravel	15			V	I	S	U	A	L	17
	62														
728.0	64	50*			Greenish-Brown Sandy Gravel	16	75	4	16	8	7	MP	MP	11	
	66	(S.L.)													

State of Ohio  
Department of Highways  
Testing Laboratory

### LOG OF BORING

Date Started \_\_\_\_\_ Sampler Type WILLIAMS AUGER Water Elev. Immediate 762.2'  
Date Completed \_\_\_\_\_ After \_\_\_\_\_ Hours \_\_\_\_\_

Project Identification: \_\_\_\_\_

Boring No. 1A Station & Offset 1397+00, CL (REAR ABUTMENT) Surface Elev. 784.5'

Elev.	Depth	Description	Field No.	Lab. Nos.	Physical Characteristics										SHTL. Class.
					% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.			
784.5	0														
784.2	2														
	4	Brown Gravelly Clay	318		30	6	5	31	28	34	12	12			
778.5	6														
	8	Brown Gravelly Clay	319		40	4	5	22	29	34	15	17			
774.5	10														
	12	Brown Gravelly Clay	320		45	2	10	19	24	31	11	16			
769.5	14														
	16	Brown Gravelly Clay	321		31	2	6	30	31	31	13	17			
764.5	20														
	22	Brown Gravelly Clay	322		39	3	6	26	26	34	11	32			
761.5	24														
	26	Brown Gravelly Clay	323		39	2	2	18	39	40	21	20			
759.5	28														
	30	Gray Gravelly Clay	324		32	1	7	34	26	31	11	9			
754.5															

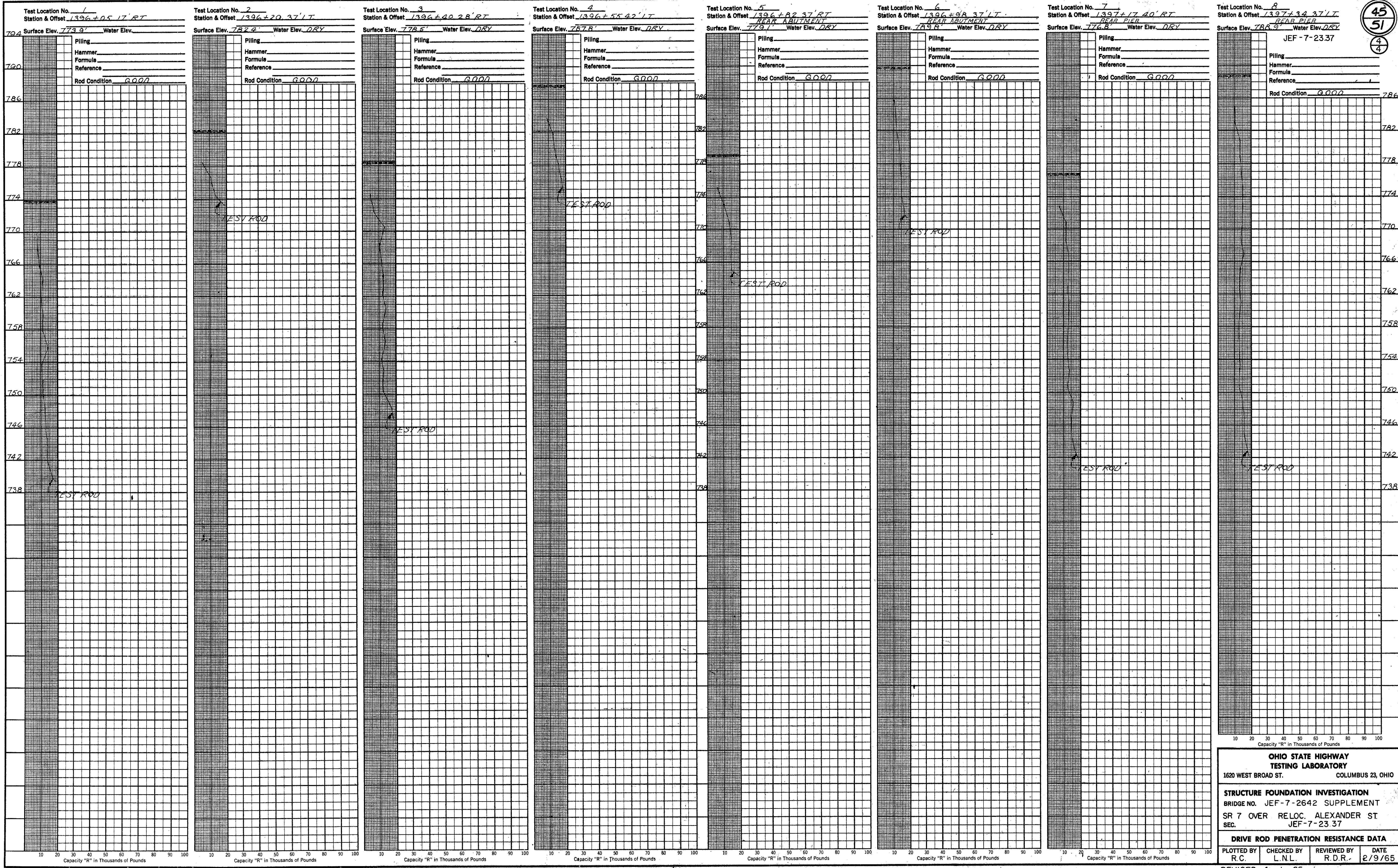
BOTTOM OF BORING

Sheet and Logbook

REVISED-4-1-65

OHIO DEPARTMENT OF HIGHWAYS TESTING LABORATORY 1620 WEST BROAD STREET, COLUMBUS 23, OHIO			
STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. JEF-7-2642 SUPPLEMENT SR 7 OVER RELOC. ALEXANDER ST. SEC. JEF-7-23.37			
BORING DATA			
TYPED BY B. J. R.	CHECKED BY R. H. P.	REVIEWED BY R. D. R.	DATE 2-9-65





45  
51  
4  
4

**OHIO STATE HIGHWAY TESTING LABORATORY**  
1620 WEST BROAD ST. COLUMBUS 23, OHIO

**STRUCTURE FOUNDATION INVESTIGATION**  
BRIDGE NO. JEF-7-2642 SUPPLEMENT  
SR 7 OVER RELOC. ALEXANDER ST.  
SEC. JEF-7-23 37

**DRIVE ROD PENETRATION RESISTANCE DATA**

PLOTTED BY R.C.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 2/9/65
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REVISED-4-1-65



#### SYNOPSIS OF THE SITE

The structure site is located on the edge of the Ohio River flood plain, at the base of the west valley wall. Thin valley fill and man-made fill overlies sandstone, shale, and indurated clay bedrock, of Pennsylvanian age.

#### EXPLANATION

The exploration consisted of two drive sample-core borings and eight drive rod penetration tests, made between August 13 and 27, 1964.








#### INVESTIGATIONAL FINDINGS






The borings disclosed 7 to 10 feet of cinder-ashes-brick fill overlies stiff clay and gravelly clay and medium-dense to very dense silts, sands, and gravels to bedrock surface, encountered at 13 and 18-foot depths, elevations 695 and 698 feet. Boring B-3 was terminated at 30-foot depth, elevation 683 feet, after penetrating 12 feet of sandstone bedrock. Boring B-8 was terminated at 45-foot depth, elevation 640 feet after penetrating 32 feet of sandstone, indurated clay, and shale bedrock.

The rod soundings met with increasing resistance to penetration with increasing depth, and were terminated due to refusal or near-refusal to penetration at 15 to 27-foot depths, elevations 697 to 677 feet, on the basis of the borings, considered to be on or as much as 15 feet below bedrock surface.










If it is the intention to found the pier substructure walls on bedrock, it is considered advisable that the open excavation be inspected in the field in order to insure that the excavations have been extended to rock throughout the entire founding area.

No free water was encountered in any of the rod sounding holes.






-  Auger Boring Location - Plan View.
-  Press and / or Drive Sample and / or Core Boring Location - Plan View.
-  Drive Rod Penetration Resistance Sounding Location - Plan View.
-  Capped Pile
-  Footing
-  Footing on Pile
-  Top of Rock

-  Coal
-  Weathered Indurated Clay
-  Indurated Clay
-  Weathered Shale
-  Shale

#### LEGEND

-  Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
-  Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.  
X = Number of Blows for First 6 inches.  
Y = Number of Blows for Second 6 inches.
-  Drive Rod Penetration Resistance Sounding Log - Profile
-  Casing
-  Resistance "R" < 10,000 lbs.
-  Resistance "R" > 10,000 lbs.
-  Indicates Final Measurement of Penetration, in Inches.
-  Indicates Free Water Elevation.
-  Indicates Static Water Elevation.

#### SYMBOLS OF ROCK TYPES

-  Weathered Sandstone
-  Sandstone
-  Leached Dolomite
-  Dolomite
-  Leached Limestone

#### GENERAL INFORMATION

##### Drive Rod Penetration Sounding Tests

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

##### Drive Sample Borings - Drive-Press Sample Borings

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and / or 5-foot depth intervals, driven by means of a 140 - pound drop-hammer with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

Date Started	8-13-64	Sampler Type	SS	Dia.	1 3/8"	Water Elev.	
Date Completed	8-18-64	Casing Length	15'	Dia.	1 1/2"		
Boring No.	B-3	Station & Offset	17+82.4	13' RT (NEAR PIER)		Surface Elev.	712.9'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% F.S.	% Silt	% Clay	LL	PI	W.C.	SHTL Class
712.9	0													
707.9	4	4/5			Gray Cinder Ashes & Brickbats (Fill Material)	1	V	I	S	U	A	L		
702.9	10	7/6			Red Clayey Gravel	2	50	6	7	19	18	35	13	26
697.9	14	5/6			Brown Silty Sandy Gravel	3	41	9	26	17	7	NP	NP	9
694.2	18		1.6	1.4	TOP OF ROCK									
	22		4.5	0.5	Sandstone, brown to gray, coarse-grained, firm, slightly jointed and weathered. Core loss 6%.									
	26													
	28		4.9	0.1										

Date Started	8-18-64	Sampler Type	SS	Dia.	1 3/8"	Water Elev.	
Date Completed	8-18-64	Casing Length	30'	Dia.	1 1/2"		
Boring No.	B-8	Station & Offset	19+30.4	13' RT (NEAR APPROACH)		Surface Elev.	704.7'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% F.S.	% Silt	% Clay	LL	PI	W.C.	SHTL Class
704.7	0													
699.7	4	2/5			Darkish-Gray Cinder Ashes Slag & Brickbats (Fill Material)	1	V	I	S	U	A	L		
697.2	8	3/6			Brown and Gray Clay	2	0	2	4	47	47	44	25	39
694.7	10	4/7			Gray and Brown Clayey Silt	3	0	2	6	51	41	30	9	25
692.2	12													
	14		0.5	2.0	TOP OF ROCK									
	16		0.0	2.5	Sandstone, brown, medium-grained, firm, slightly weathered and broken. Core loss 20%.									
	18													
	20		1.0	1.5										
683.7	22													
	24		0.6	1.9	Indurated Clay, gray, soft, very badly broken, with coal seams, with 3' very soft and crumbly interval at 31.0', slightly weathered. Core loss 72%.									
	26													
	28		2.0	3.0										
	30													
	32													
	34		2.0	3.0										
668.7	36													
	38		2.8	2.2										
	40													
	42		3.5	1.5	Shale, gray, non-indurated, very silty, clay, badly broken, slightly weathered, with gray clay seams, 1.0' very soft and extremely weathered interval at 39.0'. Core loss 32%.									
658.6	44													

Particle Size Definitions					
Boulders	8"	Cobbles	3"	Gravel	2.0mm
				Coarse Sand	0.42mm
				Fine Sand	0.074mm
				Silt	0.005mm
				Clay	

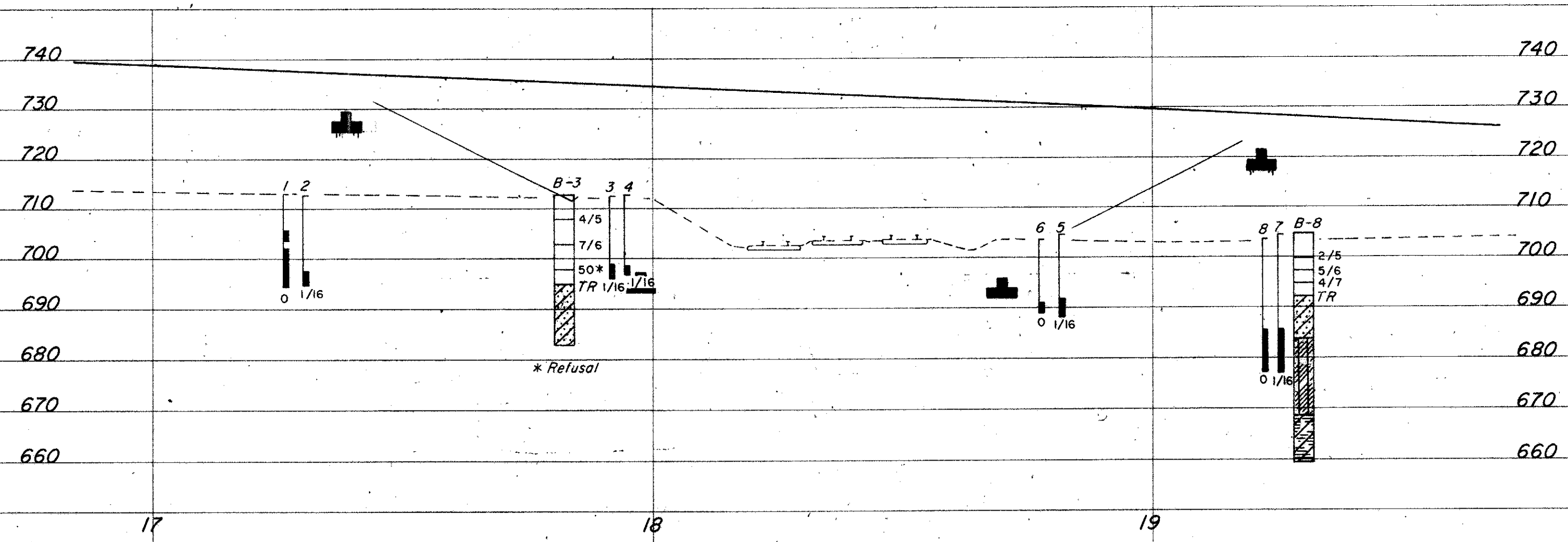
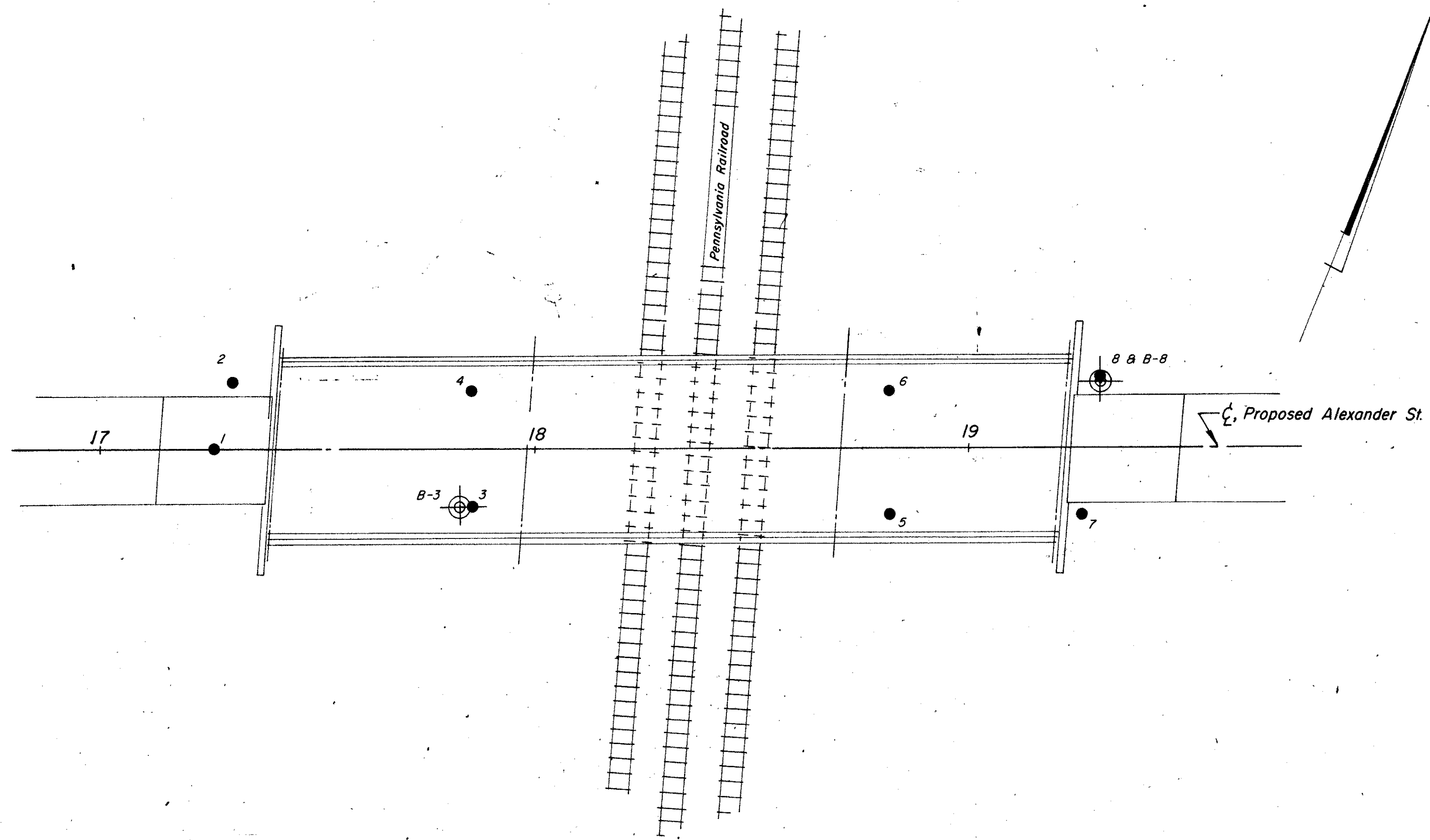
REVISED-4-1-65

NOTE: Information shown by this subsurface investigation was obtained solely for the 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.

OHIO DEPARTMENT OF HIGHWAYS  
TESTING LABORATORY  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. JEF-7-  
ALEXANDER STREET OVER PENNA. R.R.  
SEC. JEF-7-23.37

CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 9/10/64
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REVISED-4-1-65

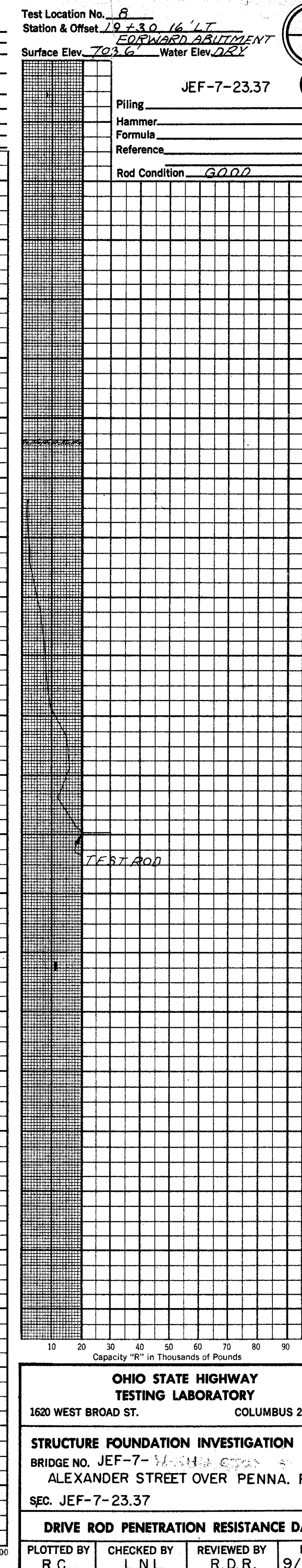
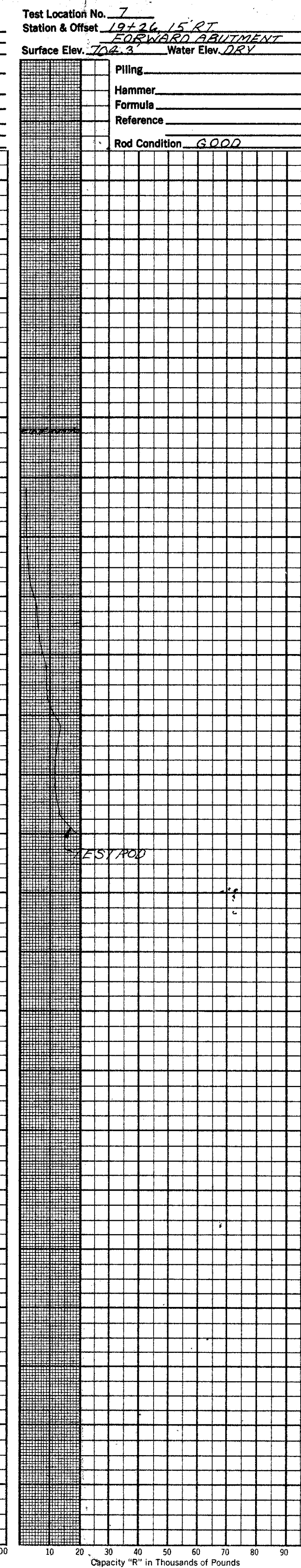
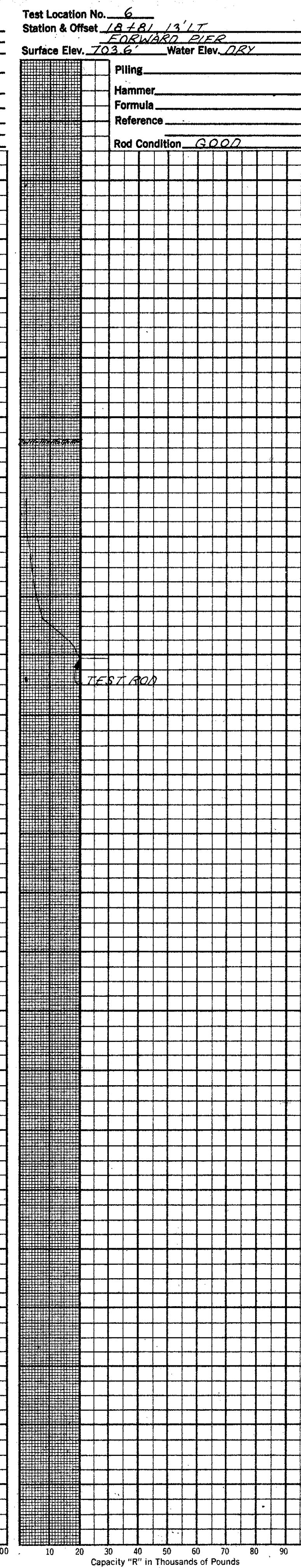
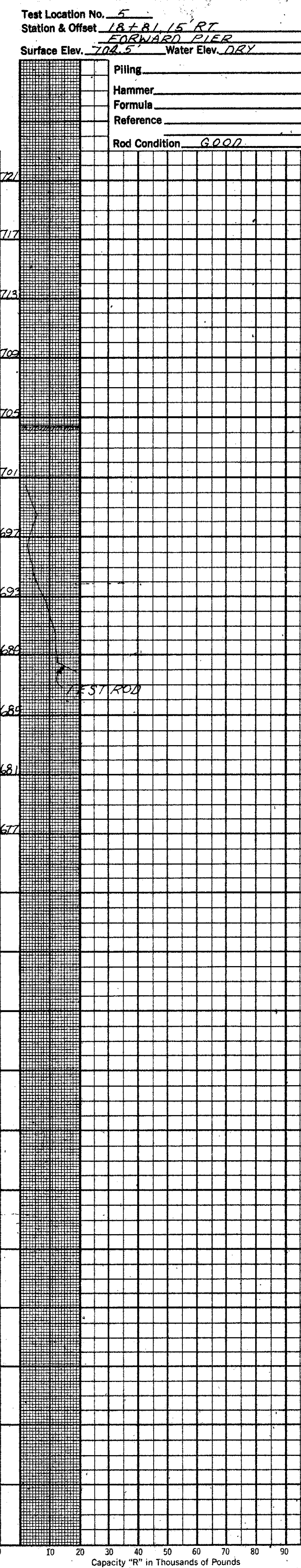
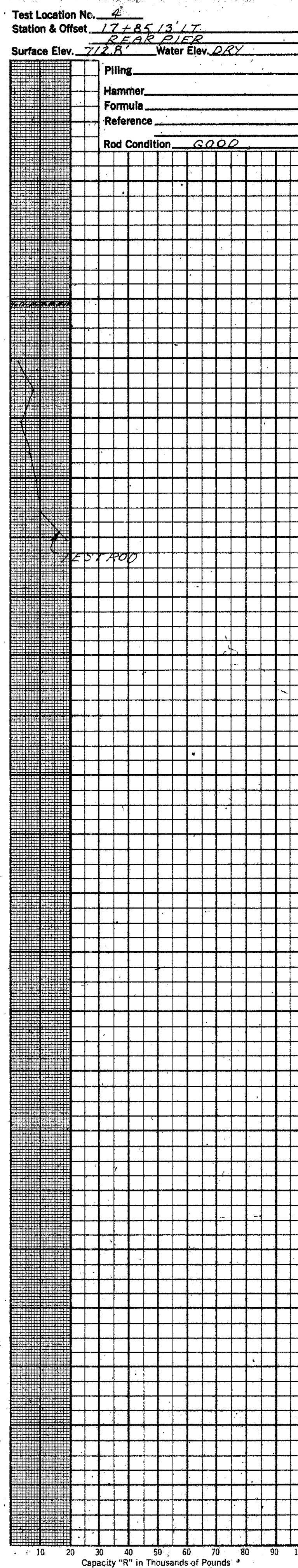
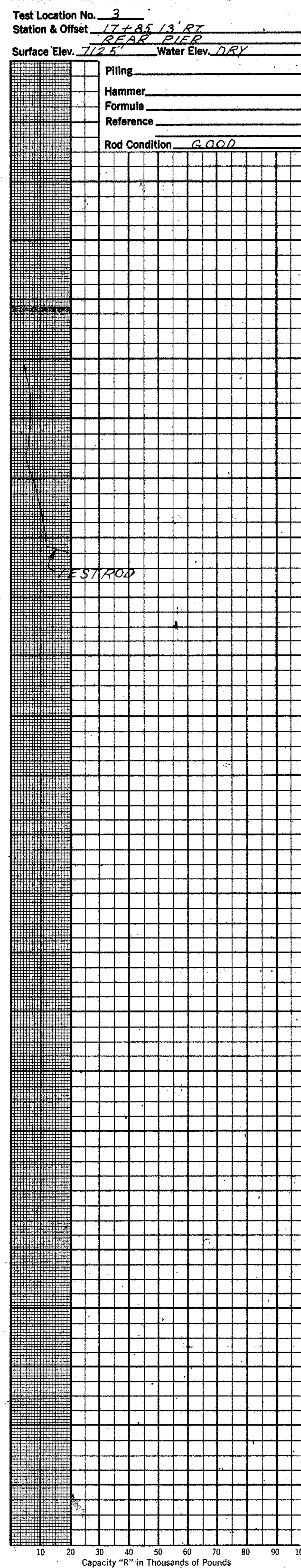
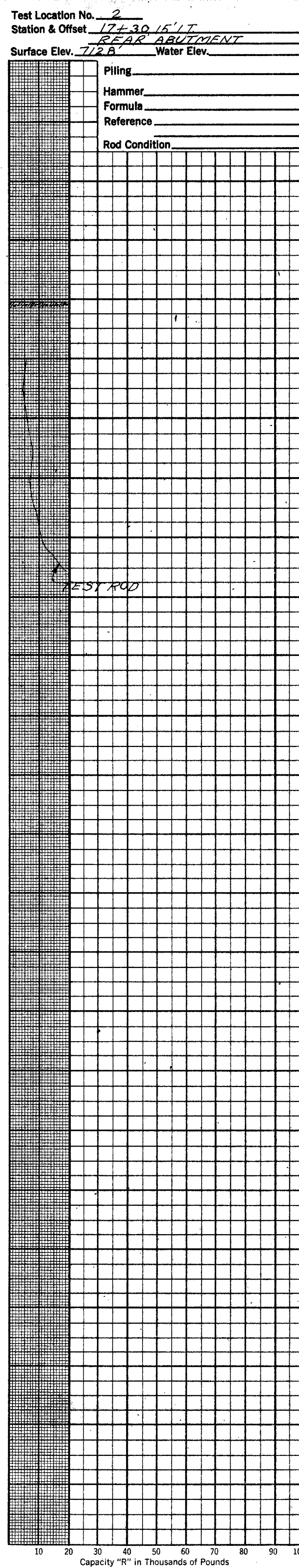
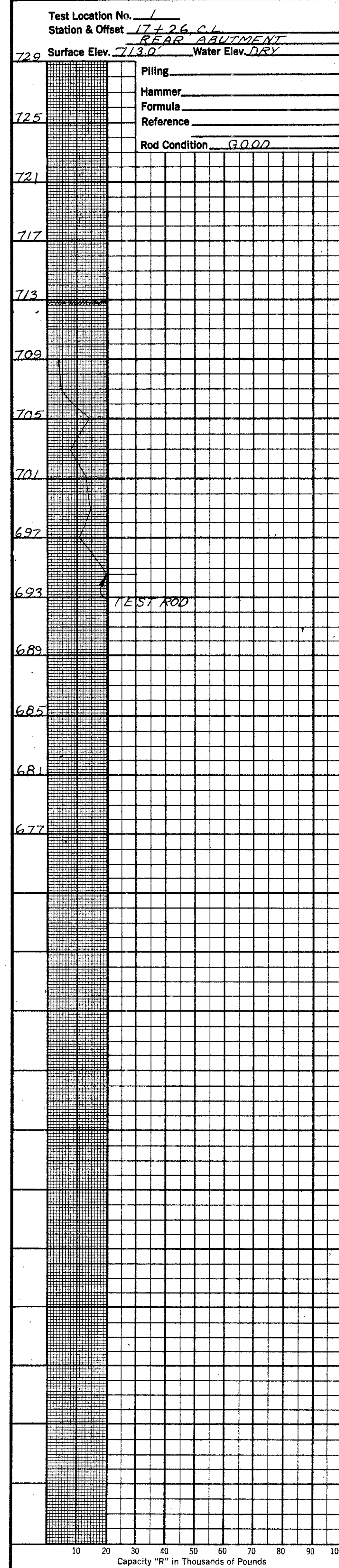
OHIO DEPARTMENT OF HIGHWAYS  
TESTING LABORATORY  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. JEF-7- WASHINGTON S  
ALEXANDER STREET OVER PENNA. R.R.  
SEC. JEF-7-23.37

PLAN AND PROFILE			
DRAWN BY R.L.C.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 9/10/64

SCALE: 1" = 20'





48  
51  
3  
3

JEF-7-23.37

**OHIO STATE HIGHWAY  
TESTING LABORATORY**  
1620 WEST BROAD ST. COLUMBUS 23, OHIO

**STRUCTURE FOUNDATION INVESTIGATION**  
BRIDGE NO. JEF-7-WASHITA ST.  
ALEXANDER STREET OVER PENNA. R.R.  
SEC. JEF-7-23.37

**DRIVE ROD PENETRATION RESISTANCE DATA**

PLOTTED BY R.C.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 9/10/64
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REVISED - 4 - 1 - 65



## GENERAL INFORMATION

## Drive Rod Penetration Sounding Tests

Drive rod penetration resistance tests constitute driving a 1 3/8-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

## Drive Sample Borings - Drive-Press Sample Borings

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and/or 5-foot depth intervals, driven by means of a 140-pound drop-hammer, with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

## LEGEND

- Auger Boring Location - Plan View.
- Press and/or Drive Sample and/or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- Electrical Resistivity Probe Location - Plan View.
- Footings Capped Pile
- Footings on Pile
- Electrical Resistivity Probe - Profile.
- Top of Rock
- Interval of Relatively High Moisture
- Total Depth

- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- Figures Beside the Boring Log in Profile Indicate the Number of Blows For Standard Penetration Test.  
X = Number of Blows for First 6 Inches.  
Y = Number of Blows for Second 6 Inches.
- Drive Rod Penetration Resistance Sounding Log - Profile.
- Casing
- Resistance "R" < 10,000 lbs.
- Resistance "R" > 10,000 lbs.
- Z Indicates Final Measurement of Penetration, in Inches.
- W Indicates Free Water Elevation.
- V Indicates Static Water Elevation.

## SYMBOLS OF ROCK TYPES

- Coal
- Weathered Indurated Clay
- Indurated Clay
- Weathered Shale
- Shale

- Weathered Sandstone
- Sandstone

## GEOLOGY OF THE SITE

The structure site is on the west wall of the buried valley of the Ohio River, in an area where moderately deep to deep valley fill and thin residual soils overlie shale and sandstone bedrock, of Pennsylvanian age.

## EXPLORATION

The exploration consisted of eight drive rod penetration tests, one core boring, and one drive sample-core boring, made on July 2, 3, 21, 22, and 23, 1964.

## INVESTIGATIONAL FINDINGS

The borings disclosed that bedrock surface is overlain by loose to dense gravels and silts, containing stone fragments, and some ashes, in the rear portion of the structure site. Borings encountered bedrock surface at 5-foot depth, elevation 725 feet, in the forward portion of the structure site, and at 50-foot depth, elevation 635 feet in the rear portion of the structure site. The borings were terminated 10 and 15 feet below bedrock surface, elevations 710 and 635 feet.

Rod soundings met generally gradual increase in penetration resistance with increase in depth and were terminated upon encounter with near-refusal and refusal to penetration, at surface to 50 feet below ground surface, elevations 729 and 638 feet, considered to be on or slightly above bedrock surface.

No free water was observed in the rod sounding holes.

If it is the intention to found forward abutment and pier on bedrock, it is considered advisable that the open excavation be inspected in the field in order to insure that the excavations have been extended to rock throughout the entire founding area.

Unconfined compression tests on similar sandstone bedrock indicates a crushing strength on the order of 200 tons per square foot.

LOG OF BORING									
Date Started 7-23-64		Sampler Type SS		Dia. 1 3/8"		Water Elev.			
Date Completed 7-23-64		Casing Length 45'		Dia. 3 1/2"		Surface Elev. 730.1'			
Boring No. B-7		Station & Offset 1424+70, 22' Rt (FORWARD ABUTMENT)							
Elev.	Depth	Std. Pen.	Rec.	Loss	Description	Sample No.	Physical Characteristics	SHTL	
	(ft.)	(N)	(ft.)	(ft.)			Agg. CS. F.S. Silt. Clay LL PL W.C. Class.		
730.1	0				Clay with sandstone fragments (Driller's description)				
725.1	4				TOP OF ROCK				
	6		4.9	0.1					
	10				Sandstone, light-brown, coarse-grained, hard, slightly weathered. No core loss.				
	12		5.0	0.0					
714.1	16				Shale, brown, extremely siliceous, poorly-fissile, firm, slightly weathered. No core loss.				
713.1	18		5.0	0.0	Sandstone, light brown, medium-grained, hard. No core loss.				
710.1	20				BOTTOM OF BORING				

LOG OF BORING									
Date Started 7-21-64		Sampler Type SS		Dia. 1 3/8"		Water Elev.			
Date Completed 7-22-64		Casing Length 45'		Dia. 3 1/2"		Surface Elev. 684.8'			
Boring No. B-4		Station & Offset 1422+72, 29' Lt (REAR PIER)							
Elev.	Depth	Std. Pen.	Rec.	Loss	Description	Sample No.	Physical Characteristics	SHTL	
	(ft.)	(N)	(ft.)	(ft.)			Agg. CS. F.S. Silt. Clay LL PL W.C. Class.		
684.8	0								
	2								
679.8	4								
	6	5/8			Gray and Brown Sand, Ashes, Gravel (Fill Material)	1	V I S U A L		
	8								
674.8	10	11/12			Brown Weathered Sandstone Fragments	2	V I S U A L	12	
672.3	12				Brown Weathered Sandstone Fragments	3	V I S U A L	13	
669.8	14	12/14							
	16	15/14			Brown Weathered Sandstone Fragments	4	V I S U A L	8	
667.3	18	14/15			Brown Sandy Gravelly Silt	5	V I S U A L	25 7 10	
664.8	20	16/16			Brown Sandy Gravelly Silt	6	V I S U A L	14	
662.3	22	15/17			Brown Gravelly Sandy Silt	7	V I S U A L	13	
659.8	24	16/18			Brown Sandy Clayey Gravel	8	V I S U A L	14	
657.3	26	15/18			Brown Silty Sandy Gravel	9	V I S U A L	13	
654.8	28	16/20			Brown Silty Sandy Gravel	10	V I S U A L	24 4 16	
652.3	30	17/18			Brown Silty Sandy Gravel	11	V I S U A L	12	
649.8	32	19/16			Brown Silty Sandy Gravel	12	V I S U A L	12	
	34								
	36								
	38								
644.8	40	18/18			Brown Silty Sandy Gravel	13	53 14 14 9 10 NP NP 16		
	42								
	44								
639.8	46	18/16			Brown Silty Sandy Gravel	14	50 13 11 14 12 NP NP 16		
	48								
634.8	50				TOP OF ROCK				
	52								
	54		5.0	0.0					
	56				Shale, gray, arenaceous, fossiliferous, non-fissile, hard. No core loss.				
	58		5.0	0.0					
624.8	60				BOTTOM OF BORING				

Particle Size Definitions									
Boulders		Cobbles		Gravel		Coarse Sand		Fine Sand	
8"		3"		2.0mm		0.42mm		0.074mm	
No. 10 sieve		No. 40 sieve		No. 200 sieve					

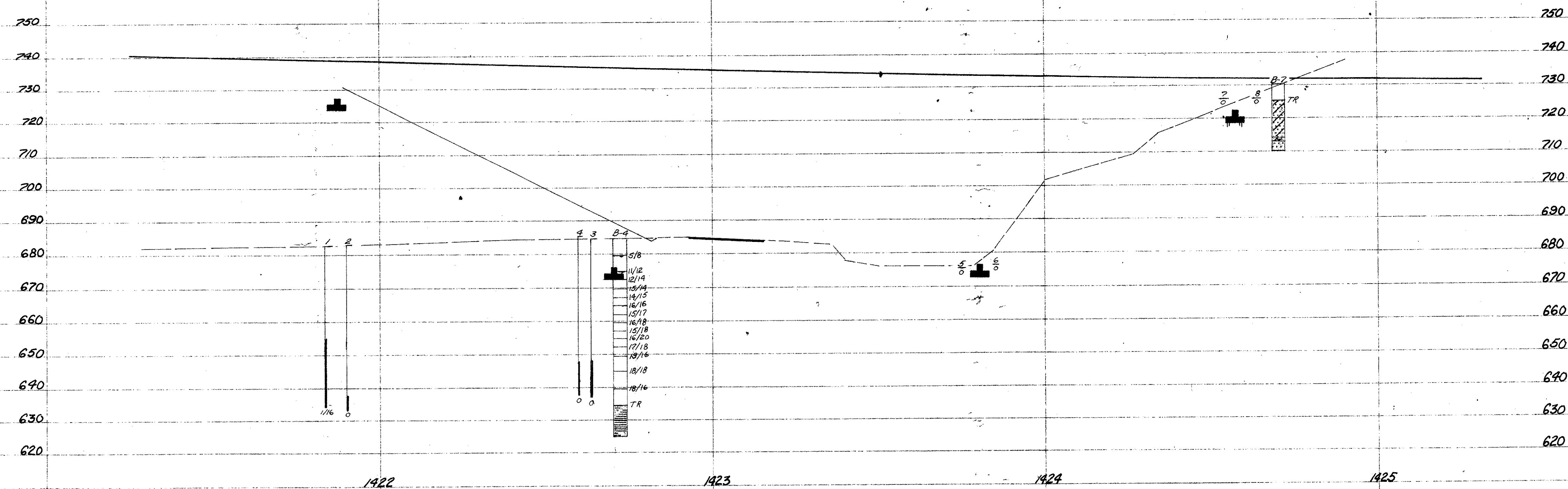
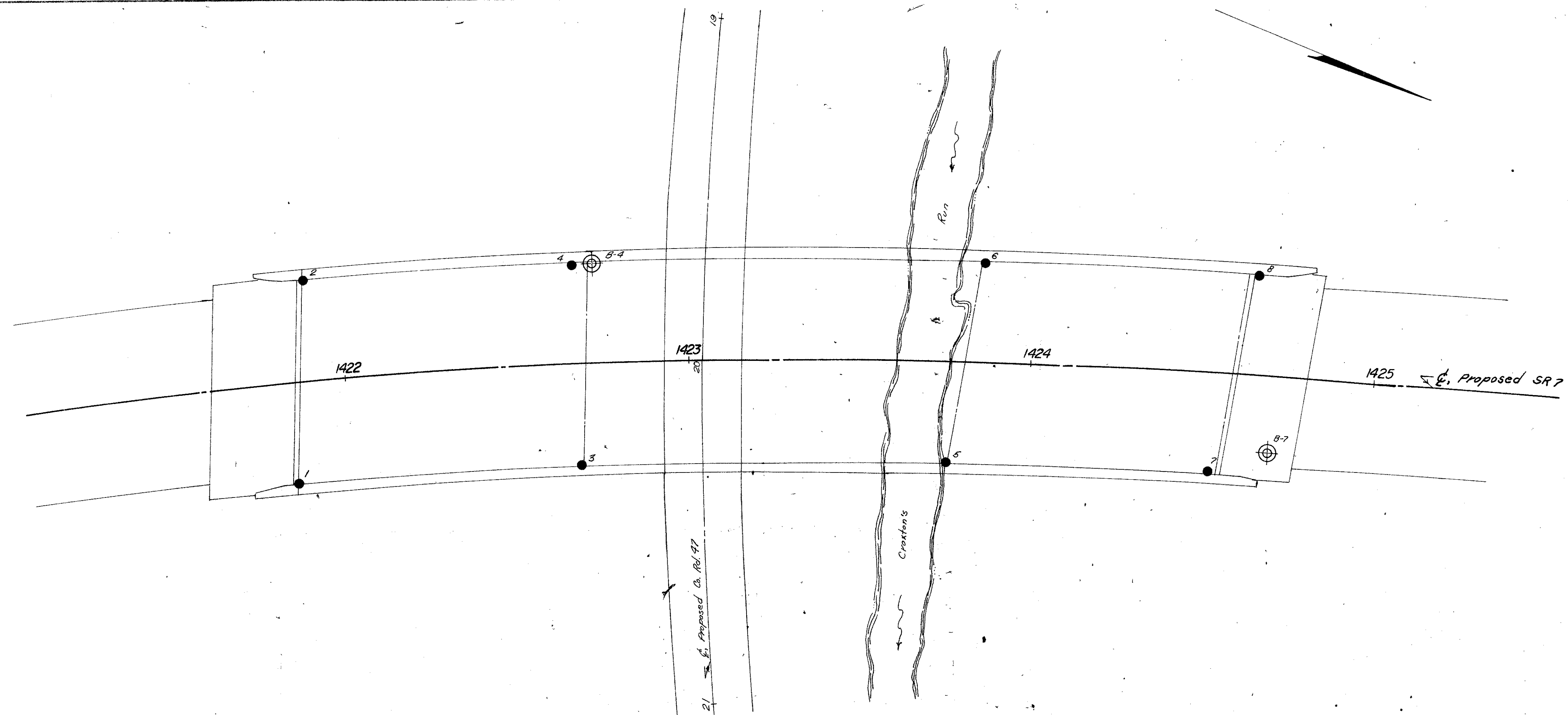
NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO STATE HIGHWAY  
TESTING LABORATORY  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. JEF-7-2689  
OVER CO. RD. 47 & CROXTONS RUN  
SEC. JEF-7-23.37

CHECKED BY R.H.P.	REVIEWED BY G.P.H.	DATE 9/10/64
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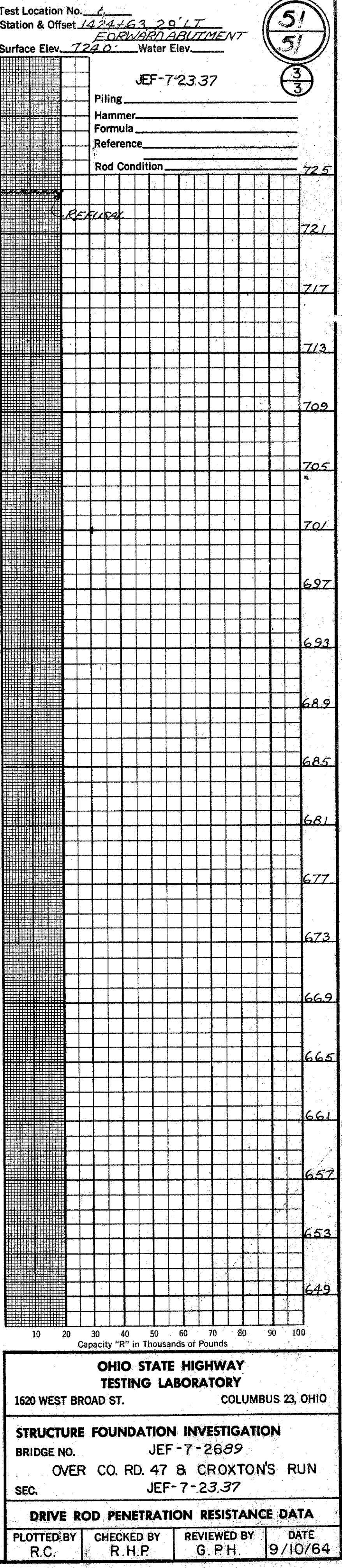
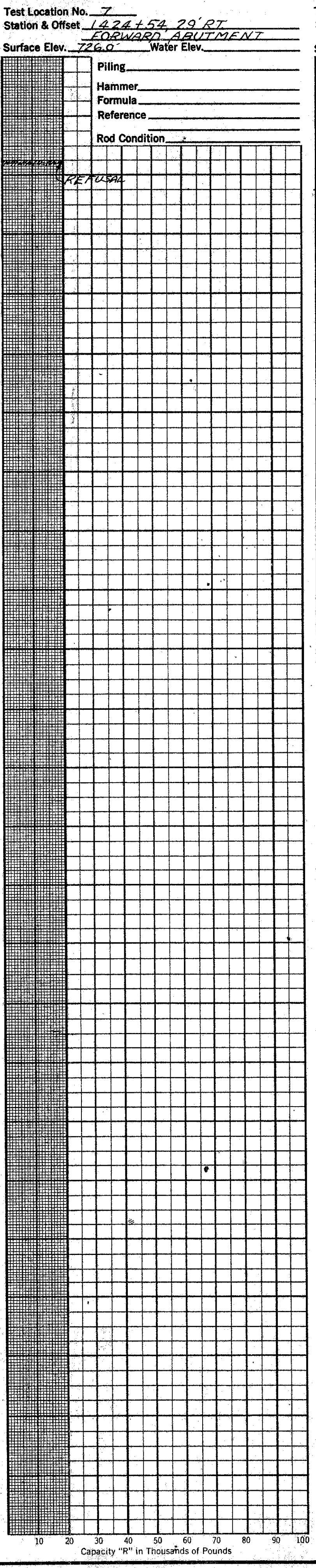
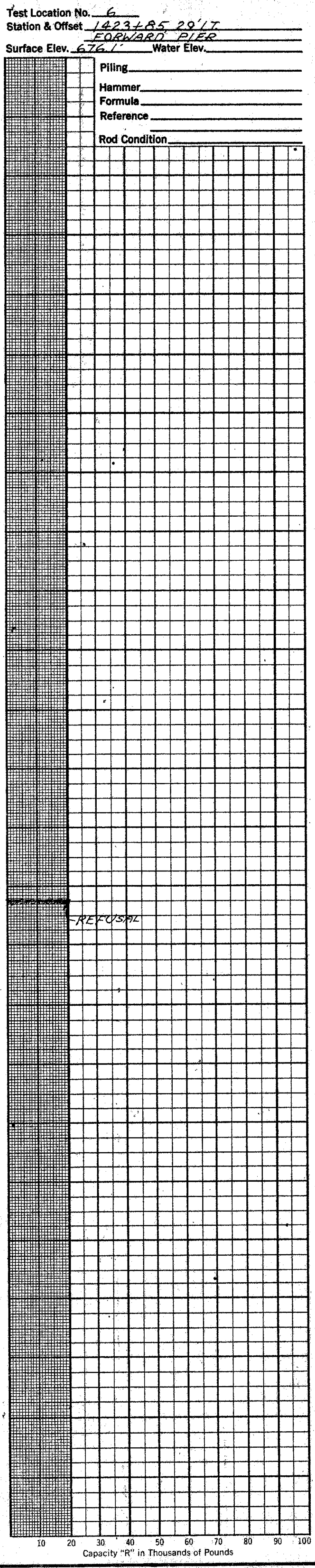
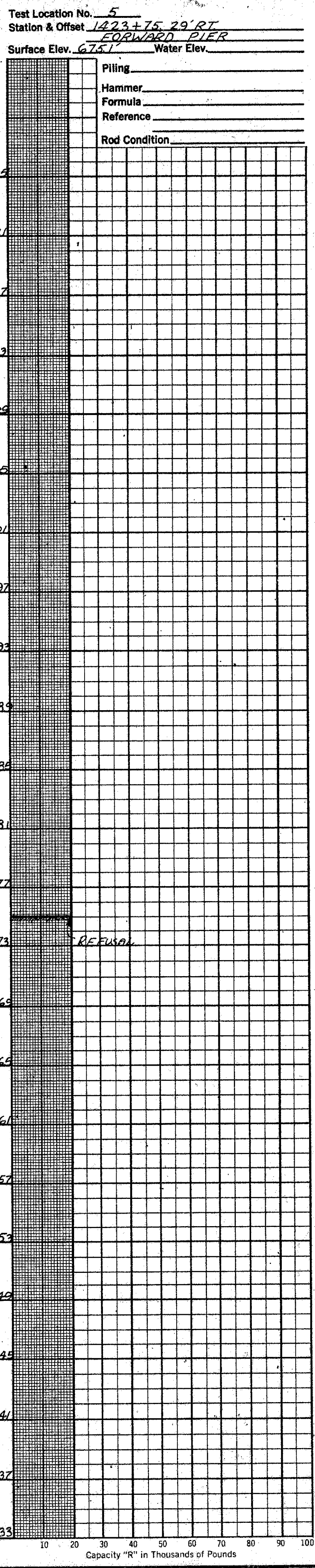
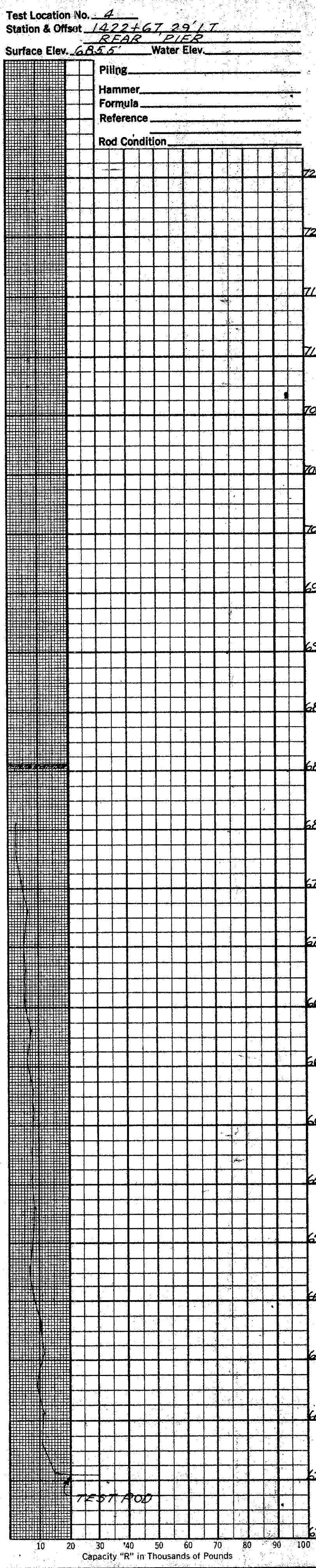
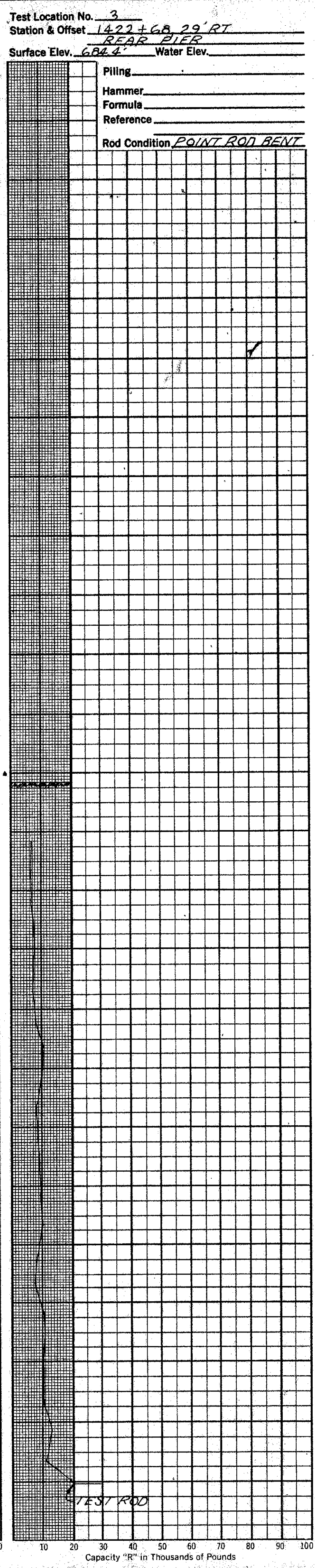
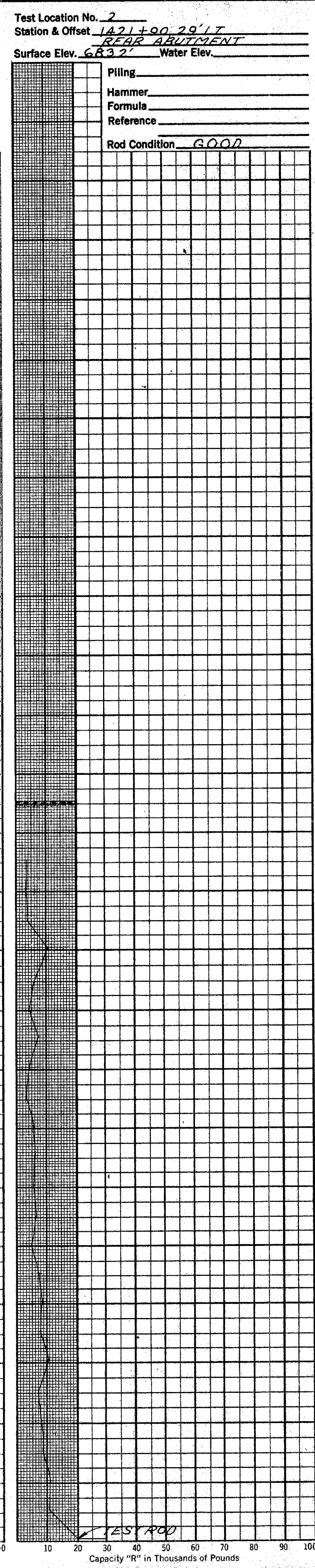
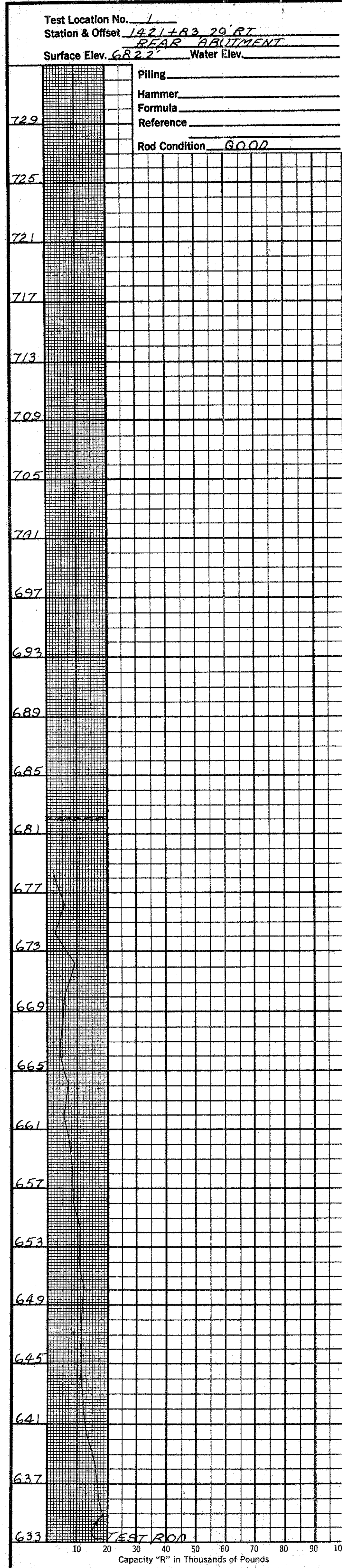




OHIO STATE HIGHWAY TESTING LABORATORY 1620 WEST BROAD ST., COLUMBUS 23, OHIO			
STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. JEF-7-2689 OVER CO. RD. 47 & CROXTON'S RUN SEC. JEF-7-23.37			
PLAN AND PROFILE			
DRAWN BY R.L.F.	CHECKED BY R.H.P.	REVIEWED BY G.P.H.	DATE 9/10/64

SCALE: 1" = 20'





OHIO STATE HIGHWAY  
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STRUCTURE FOUNDATION INVESTIGATION  
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DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY R.C.	CHECKED BY R.H.P.	REVIEWED BY G.P.H.	DATE 9/10/64
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