MICROFILMED
JUN 21 1994

CONVENTIONAL SIGNS

CENTERLINE
SECTION LINE
CORPORATION LINE
PROPERTY LINE
FENCE LINE
LIMITED ACCESS — LA — BOTH — LARW
RIGHT OF WAY — R/W
EXISTING RIGHT OF WAY
EXISTING UTILITIES: STORM SEWER — SS (SIZE)
COMBINED GRAVITY SEWER — CG (SIZE)
GAS LINE — G (SIZE)
FORCE MAIN — FM (SIZE)
WATER LINE — W (SIZE)
SANITARY SEWER — SAN (SIZE)
CULVERTS: PROPOSED — EXISTING
ROCK CHANNEL PROTECTION
JUTE MATTING
RAILROAD — TELEPHONE — T

UTILITY POLES: POWER — LIGHT
CABLE TV — TELEPHONE
POWER & TELEPHONE
TREES — STUMPS
GUARDRAIL: PROPOSED — EXISTING
MANHOLES: PROPOSED — EXISTING
CATCH BASINS: PROPOSED — EXISTING
HYDRANTS: PROPOSED — EXISTING
MAIL BOX — MAIL BOXES (NO.)
EXISTING SIGN — OR
WATER VALVES: PROPOSED — EXISTING
GAS VALVES PROPOSED — EXISTING
PAVEMENT REPLACEMENT
PAVEMENT REMOVED XXXXXXXX
SEPTIC TANK
WELLS
LAMP HOLES — LH.

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SHEET 27 NOT USED
SHEETS #445 AND 446 NOT USED

LINE DATA

BEGIN WORK STA. 677+00	END WORK STA. 830+30	RURAL	URBAN	TOTAL
BEGIN PROJECT		750+06.30	759+18.08	750+06.30
END PROJECT		759+18.08	828+50.00	828+50.00
LENGTH OF PROJECT		811.78 L.F. OR 0.173 MI.	6831.92 L.F. OR 1.313 MI.	7843.70 L.F. OR 1.488 MI.
ADD FOR: APPROACHES 677+00 TO 750+06.30, 828+50 TO 830+30		7306.30 L.F.	180 L.F.	7486.30 L.F.
RELOCATED 10TH ST. ~ STA. 10+07.50 TO STA. 14+31.17			423.67 L.F.	423.67 L.F.
STA. 14+31.17 TO STA. 17+62.11		330.94 L.F.		330.94 L.F.
TWP. RD. 619 CONNECTOR ~ STA. 10+09.00 TO STA. 11+13.00			104.00 L.F.	104.00 L.F.
RELOCATED 12TH ST. ~ STA. 3+81.97 TO STA. 9+83.45			601.48 L.F.	601.48 L.F.
1ST RELOCATED BELMONT ST. ~ STA. 8+60.00 TO STA. 24+50.00			1590.00 L.F.	1590.00 L.F.
RELOCATED GRAPE ALLEY ~ STA. 9+06.74 TO STA. 18+81.94			975.20 L.F.	975.20 L.F.
2ND RELOCATED ~ STA. 11+32.36 TO STA. 18+62.13 (SUSPEND WORK)			729.77 L.F.	
BELMONT ST. STA. 19+11.84 (RESUME) TO STA. 24+20.00			508.16 L.F.	1237.93 L.F.
RELOCATED 26TH ST. ~ STA. 5+72.00 TO STA. 23+37.50			1765.50 L.F.	1765.50 L.F.
RELOCATED UNION ST. ~ STA. 17+50.00 TO STA. 19+80.82			230.82 L.F.	230.82 L.F.
LENGTH OF WORK		8649.02 L.F. OR 1.614 MI.	14040.52 L.F. OR 2.659 MI.	22589.54 L.F. OR 4.278 MI.

PROJECT:

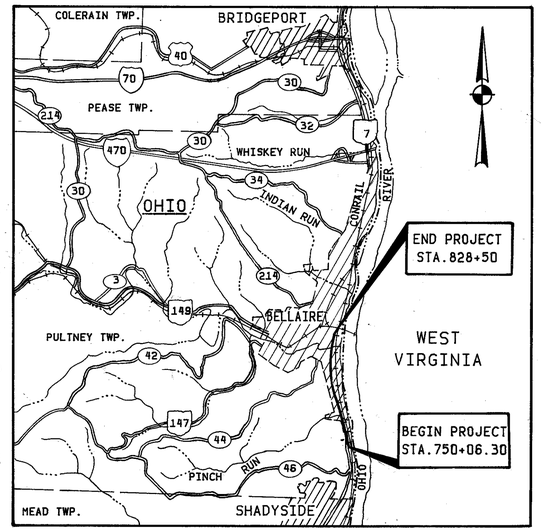
DATE OF LETTING-_____19__ CONTRACT NO.____

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

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

BEL-7-14.17

CITY OF BELLAIRE
PULTNEY TOWNSHIP
BELMONT COUNTY



LOCATION MAP
0 1 2
SCALE IN MILES

PORTION TO BE IMPROVED
INTERSTATE
STATE ROADS
COUNTY ROADS

SCALES
PLAN 0 20' 40'
PROFILE: HORIZONTAL 0 20' 40'
VERTICAL 0 10' 20'
CROSS SECTIONS 0 10' 20'

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
CALL...800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

SUPPLEMENTAL SPECIFICATIONS	
802	5-4-88
814	1-21-88
841	5-16-84
836	11-12-85
842	5-16-84
843	7-29-88
844	6-24-89
845	6-10-87
942	11-27-89
847	10-17-83
947	10-17-83
915	1-21-88
931	6-16-85

STANDARD DRAWINGS

BP-1	6-1-65	CB-8	11-10-83	SD-1-69	6-12-69	MH-1	12-18-84	MH-2	6-12-75
BP-2	1-11-85	CB-458A	5-1-79	HW-4A	4-1-80	MH-3	12-18-84	CB-4	11-10-83
BP-3	12-6-76	AS-81	11-27-81	HW-4B	4-1-80	MT-99.10	11-14-86	TC-51.11	1-20-84
BP-4	10-1-87	F-1	11-10-83	ICD-1-82	8-1-84	LA-1	6-1-79	TC-52.10	4-3-79
BP-5	10-1-87	F-3	5-1-76	I-3C&D	4-1-80	TC-17.10	1-20-84	TC-52.20	4-3-79
BP-6	10-1-87	F-5	5-1-76	MC-1	6-13-69	TC-18.26	5-31-79	TC-61.10	4-5-82
BP-7	10-1-87	F-6	5-1-76	MC-2	7-7-81	TC-21.20	1-20-84	TC-71.10	4-9-79
BP-9	12-6-76	DR-1	5-29-79	FB-1-82	5-10-82	TC-22.20	3-1-79	TC-72.20	2-26-82
BP-10	1-30-84	GR-1	1-11-85	MC-4	7-26-76	TC-41.10	8-29-84	TC-81.10	1-20-84
BP-12	10-1-87	GR-2B	2-5-82	MC-7	10-15-76	TC-41.20	3-26-79	TC-83.10	1-20-84
CB-2-2-A&B	5-1-79	GR-3	1-21-85	MC-8	6-12-75	TC-41.40	6-18-79	TC-83.20	1-20-84
CB-3	5-1-79	GR-4	2-5-82	MC-9	1-30-84	TC-41.41	8-2-79	TC-84.20	1-20-84
CB-3A	5-1-79	GR-4A	1-30-84	MC-9A	1-11-85	TC-41.50	3-26-79	TC-85.10	1-20-84
CB-5	11-10-83	GR-5	2-5-82	MC-10	5-1-76	TC-42.10	8-19-77	TC-85.20	1-20-84
CB-6	5-1-79	GR-6	2-5-82	MC-11	8-1-78	F-2	5-1-76	TC-82.10	8-29-84
HL-10.11	5-1-87								
HL-10.12	5-1-87								
HL-10.13	5-1-87								
HL-20.11	5-1-87								
HL-20.14	5-1-87								
HL-20.15	5-1-87								
HL-30.11	5-1-87								
HL-30.21	5-1-87								
HL-30.22	5-1-87								
HL-30.31	5-1-87								
HL-30.33	5-1-87								
HL-40.10	5-1-87								
HL-50.11	5-1-87								
HL-50.21	5-1-87								
HL-60.12	5-1-87								
HL-60.31	5-1-87								
HL-60.11	5-1-87								

REVISED 4-25-90

STATE

BEL-7-14.17	OHIO FHWA REGION 5	1/663
	STATE PROJECT	

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, DEPARTMENT OF TRANSPORTATION, IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE REVISED CODE OF OHIO.

1989 SPECIFICATIONS

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

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

APPROVED William P. McKenna
DATE 11/30/89 DISTRICT DEPUTY DIRECTOR OF TRANSPORTATION

APPROVED B.D. Hawbaker/GTL
DATE 1/3/90 ENGINEER, BUREAU OF BRIDGES AND STRUCTURAL DESIGN

APPROVED Charles J. Stitt
DATE 1/30/90 DEPUTY DIRECTOR, PLANNING AND DESIGN

APPROVED Bernard B. Hunt
DATE 1/30/90 DIRECTOR, DEPARTMENT OF TRANSPORTATION

SCHEMATIC PLAN

SCALE IN FEET
0 200 400

MAIN LINE CURVE DATA

CURVE NO.1
P.I.= 754+73.39
△ = 4°21'27" LT.
D = 0°28'00"
T = 467.09'
L = 933.72'
E = 8.88'
R = 12277.67'

CURVE NO.2
P.I.= 764+74.66
△ = 7°35'22" RT.
D = 1°28'00"
T = 259.11'
L = 517.46'
E = 8.58'
R = 3906.53'

CURVE NO.3
P.I. = 785+49.46
△ = 7°38'22" LT.
D = 1°28'00"
T = 260.82'
L = 520.87'
E = 8.70'
R = 3906.53'

CURVE NO.4
P.I. = 796+88.54
△ = 3°03'32" RT.
D = 0°28'00"
T = 327.81'
L = 655.46'
E = 4.38'
R = 12277.67'

BEGIN WORK
STA.677+00
SEE TRAFFIC
CONTROL PLAN

BEGIN PROJECT
STA.750+06.30
SLM.=14.17

END WORK
STA.11+13
TWP.RD.619 CONN.

BEGIN WORK
STA.10+09
TWP.RD.619 CONN.

STA.14+31.17

RURAL URBAN

℄ RELOC. 10TH ST.

T.R. 619

END WORK
STA.17+62.11

℄ Temporary Runaround

PINCH RUN

℄ Temporary Runaround

12TH ST.

BEGIN WORK
STA.3+81.97

BEGIN WORK
STA.10+07.50

END WORK
STA.9+83.45

RELOC. 12TH ST.

11TH ST.

SEC. 28-T2N-R2W
SEC. 29-T2N-R2W

EXIST. PINCH RUN
PUMP STATION

14TH ST.

1ST RELOC.
BELMONT ST.

P.C. 782+88.64

END WORK
STA.24+50

P.T. 788+09.51

CITY OF BELLAIRE

PROPOSED RETAINING WALL

17TH ST.

N 11°51'47"W

BELMONT ST.(EXIST. S.R.7)

MATCH LINE STA. 805+00

P.T. 759+40.02

P.C. 750+06.30

P.T. CORP. LINE

EXISTING S.R. 7

745 755 760 765 765 770 775 775 780 785 790 795 800

10TH ST.

RAMP 'C'

RAMP 'D'

RAMP 'B'

RAMP 'A'

N 14°52'19"W

N 14°55'19"W

N 7°16'57"W

CONRAIL

P.C. 762+15.55

P.T. 767+33.01

P.C. 793+60.74

P.T. 800+16.19

℄ SURVEY RELOC. S.R.7

EXIST. 17TH ST. PUMP STATION

℄ RELOC. GRAPE ALLEY

BEGIN WORK
STA.9+06.74

BEL-7-1452 L&R

BEGIN WORK
STA.8+60.00

RURAL URBAN
STA. 759+18.08

~ OHIO RIVER ~

CORPORATION LIMITS

THE CITY OF BELLAIRE HAS DETACHED THE AREA BOUNDED BY THE LIMITED ACCESS RIGHT OF WAY LINES SHOWN ON THE PLANS AND MORE FULLY DESCRIBED IN BELLAIRE CITY ORDINANCE NO. 1317.

DESIGN DESIGNATION

CURRENT A.D.T. (1990)	15,792
DESIGN YEAR A.D.T. (2010)	22,053
D.H.V.	1,985
D (DIRECTIONAL DISTRIBUTION)	52%
T (PERCENT B&C TRUCKS)	4%
V (DESIGN SPEED)	60MPH

DESIGN EXCEPTION	APPROVAL DATE
Graded Shoulder Width	4-21-88
Horizontal Alignment	4-21-88
Superelevation	4-21-88

Drawn WCR 5/6/88 | Checked JAM 5/6/88 | Design JAM 5/6/88 | Project Leader WGF 10/4/88

REVISED 5-4-90

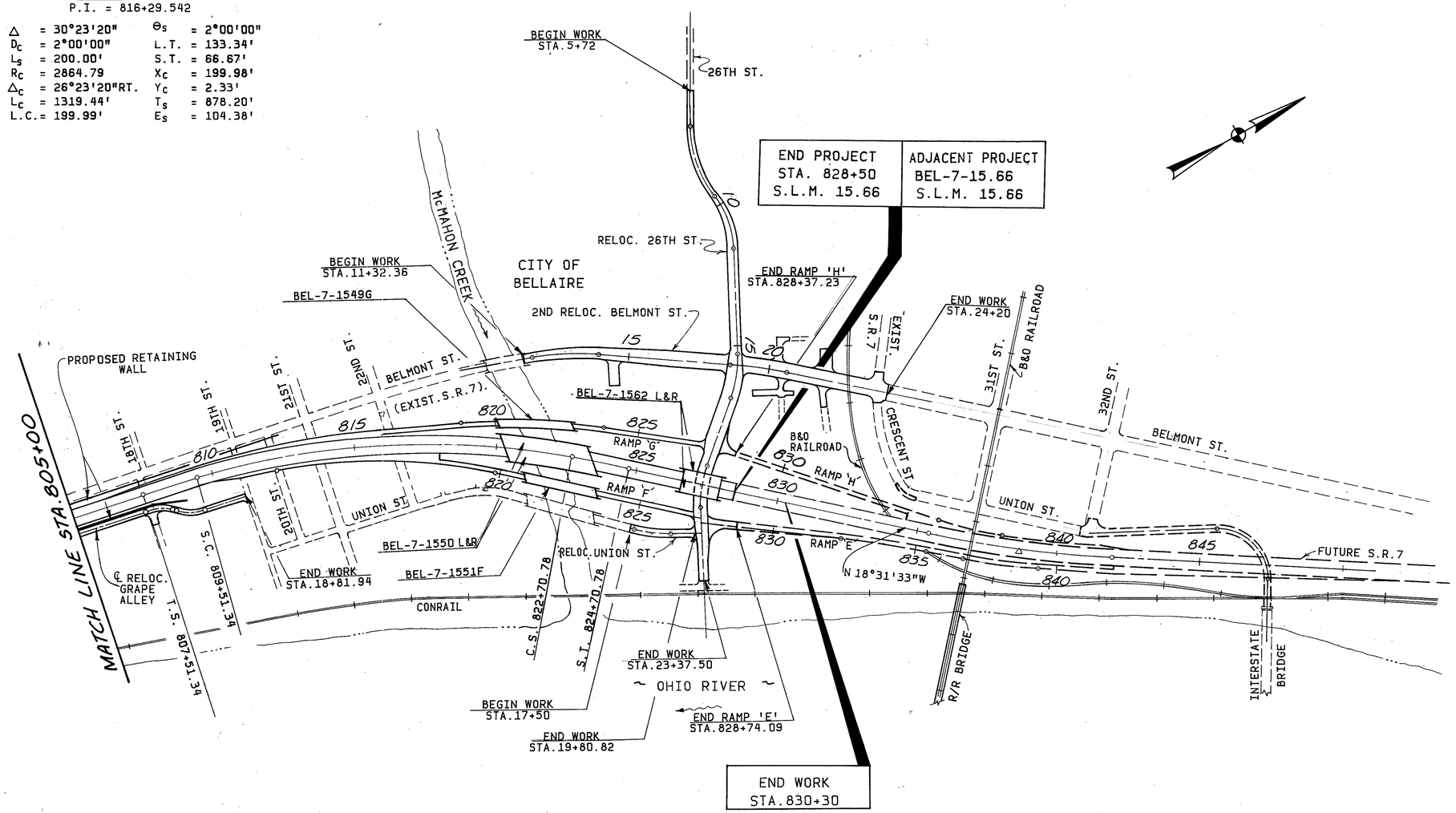
SCHEMATIC PLAN

SCALE IN FEET
0 200 400

MAINLINE CURVE DATA

CURVE NO.5
P.I. = 816+29.542

Δ	= 30°23'20"	Θ_s	= 2°00'00"
D_C	= 2°00'00"	L.T.	= 133.34'
L_s	= 200.00'	S.T.	= 66.67'
R_C	= 2864.79	X_C	= 199.98'
Δ_C	= 26°23'20"RT.	Y_C	= 2.33'
L_C	= 1319.44'	T_s	= 878.20'
L.C.	= 199.99'	E_s	= 104.38'



Drawn GU 6/28/83 | Checked JMC 10/11/83 | Approved [illegible] 12/14/83 | Date [illegible]

SCHEMATIC PLAN

BEL-7-14.17 | OHIO | FHWA REGION 5 | 4 / 663

Notes:
1.) The Ditch or Channels Shall Be Stabilized Immediately Following Construction By Installing the Permanent Lining and Constructing a Straw Bale Dike Between the disturbed Project Area and the Stabilized Ditch at the Following Locations:
Reloc. Pinch Run - Sta. 8+50± to Sta. 9+70± Lt. & Rt.
Reloc. Pinch Run - Sta. 10+30± to Sta. 14+70± Lt. & Rt.

2.) Bale Ditch Checks to be Placed as Directed by the Engineer. (32 Total)

SCALE IN FEET
0 200 400

Sta. 761+65 ~ 75' Lt.
Drainage Area = 2.62 Ac.
Sediment Basin = 176 Cu. Yd.

Sta. 761+40 ~ 75' Lt.
Drainage Area = 2.23 Ac.
Sediment Basin = 150 Cu. Yd.

Sta. 759+50 ~ 70' Lt.
Drainage Area = 1.62 Ac.
Sediment Basin = 110 Cu. Yd.

Sta. 757+85 ~ 68' Lt.
Drainage Area = 2.88 Ac.
Sediment Basin = 193 Cu. Yd.

Sta. 756+00 ~ 65' Lt.
Drainage Area = 3.18 Ac.
Sediment Basin = 213 Cu. Yd.

BEGIN WORK
STA. 677+00

BEGIN PROJECT
STA. 750+06.30
SLM. = 14.17

Sta. 753+90 ~ 57' Lt.
Drainage Area = 3.74 Ac.
Sediment Begin = 251 Cu. Yd.

Sta. 752+00 ~ 53' Lt.
Drainage Area = 4.18 Ac.
Sediment Basin = 280 Cu. Yd.

Sta. 12+90 ~ 50' Lt. 1ST Reloc.
Belmont St.
Drainage Area = 0.93 Ac.
Sediment Basin = 62 Cu. Yd.

Sta. 14+00 ~ 50' Rt. &
Pinch Run
Drainage Area = 1.76 Ac.
Sediment Basin = 118 Cu. Yd.

Sta. 11+60 ~ 25' Rt. @ 10TH St.
Drainage Area = 1.17 Ac.
Sediment Basin = 78 Cu. Yd.

Sta. 770+22 ~ 36' Rt. Ramp 'D'
Drainage Area = 1.22 Ac.
Sediment Basin = 82 Cu. Yd.

Sta. 769+35 ~ 40' Rt. Ramp 'C'
Drainage Area = 1.35 Ac.
Sediment Basin = 91 Cu. Yd.

Sta. 768+50 ~ 30' Lt. Ramp 'C'
Drainage Area = 3.49 Ac.
Sediment Basin = 234 Cu. Yd.

Sta. 8+70 ~ 50' Lt. & 12TH St.
Drainage Area = 1.50 Ac.
Sediment Basin = 101 Cu. Yd.

PINCH RUN
12TH ST.
T. R. 619
RELOC. 10TH ST
RELOC. 12TH ST.
11TH ST.
SEC. 28 - T2N - R2W
SEC. 29 - T2N - R2W
EXIST PINCH RUN PUMP STATION
1ST RELOC. BELMONT ST.
CORP. LINE
10TH ST
RAMP 'C'
RAMP 'D'
RAMP 'B'
RAMP 'A'
EXISTING S.R. 7
CONRAIL
RURAL URBAN
STA. 759+18.08
CITY OF BELLAIRE
BELMONT ST. (EXIST. S.R.7)
17TH ST
℄ SURVEY RELOC. S.R.7
EXIST. 17TH ST. PUMP STATION
℄ GRAPE ALLEY
MATCH LINE STA. 805+00

~ OHIO RIVER ~

Sta. 768+50 ~ 43' Lt. Ramp 'B'
Drainage Area = 1.44 Ac.
Sediment Basin = 97 Cu. Yd.

Sta. 767+10 ~ 55' Rt. Ramp 'B'
Drainage Area = 2.47 Ac.
Sediment Basin = 166 Cu. Yd.

Sta. 766+40 ~ 75' Rt. Ramp B
Drainage Area = 3.01 Ac.
Sediment Basin = 202 Cu. Yd.

Sta. 782+75 ~ 82' Lt.
Drainage Area = 2.53 Ac.
Sediment Basin = 170 Cu. Yd.

Sta. 797+00 ~ 73' Rt.
Drainage Area = 2.98 Ac.
Sediment Basin = 200 Cu. Yd.

Sta. 794+50 ~ 73' Rt.
Drainage Area = 2.16 Ac.
Sediment Basin = 145 Cu. Yd.

Sta. 792+00 ~ 75' Rt.
Drainage Area = 1.85 Ac.
Sediment Basin = 124 Cu. Yd.

Sta. 787+00 ~ 83' Rt.
Drainage Area = 1.97 Ac.
Sediment Basin = 132 Cu. Yd.

Sta. 782+65 ~ 93' Rt.
Drainage Area = 2.39 Ac.
Sediment Basin = 160 Cu. Yd.

Sta. 782+40 ~ 93' Rt.
Drainage Area = 3.10 Ac.
Sediment Basin = 208 Cu. Yd.

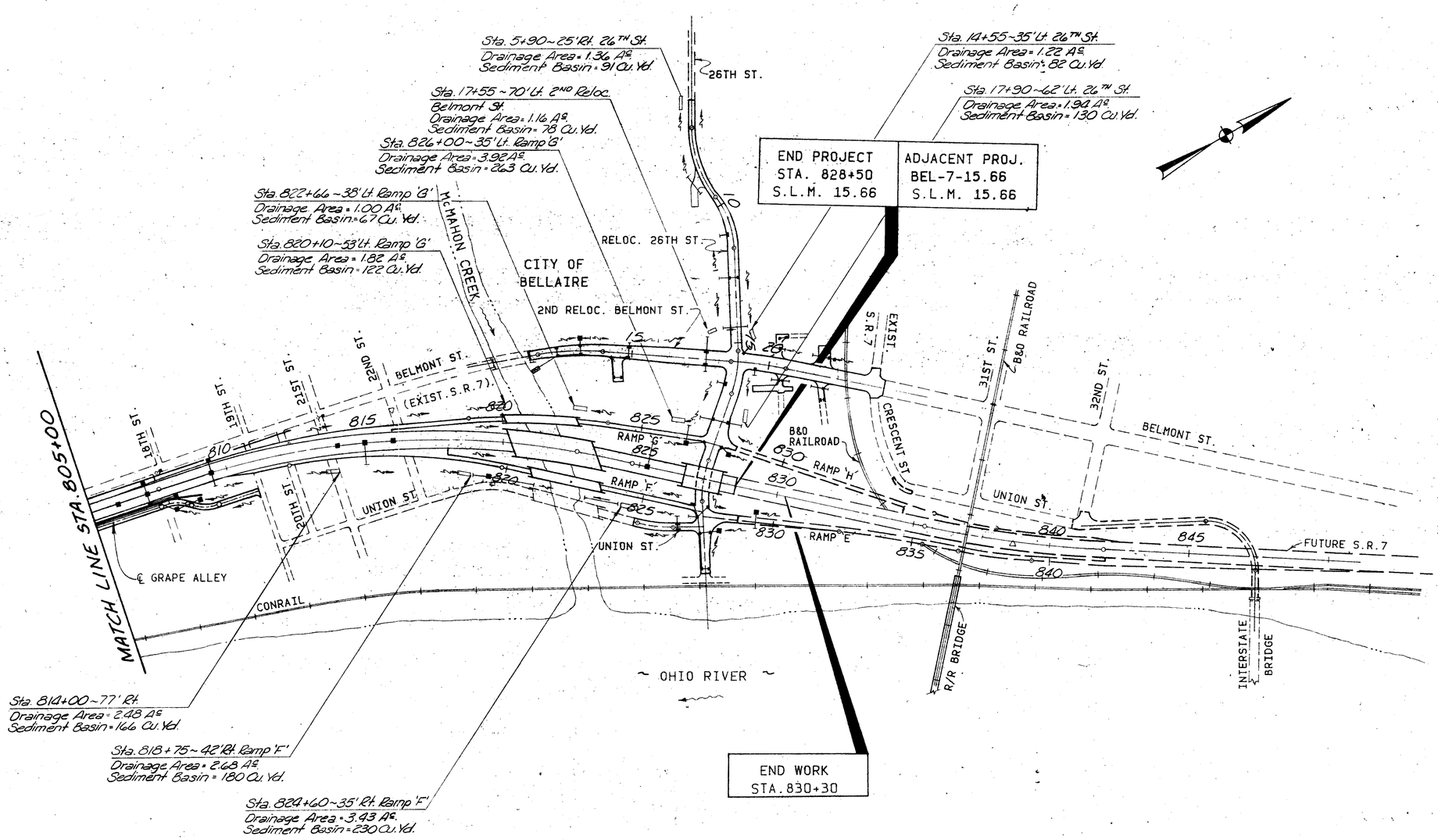
For Quantities, See Sheet No. 63.

LEGEND
Bale Filter Dike
Sediment Basin
Direction of Flow

SCHEMATIC PLAN

BEL-7-14.17 | OHIO | FHWA REGION 5 | 5 / 663

SCALE IN FEET
0 200 400

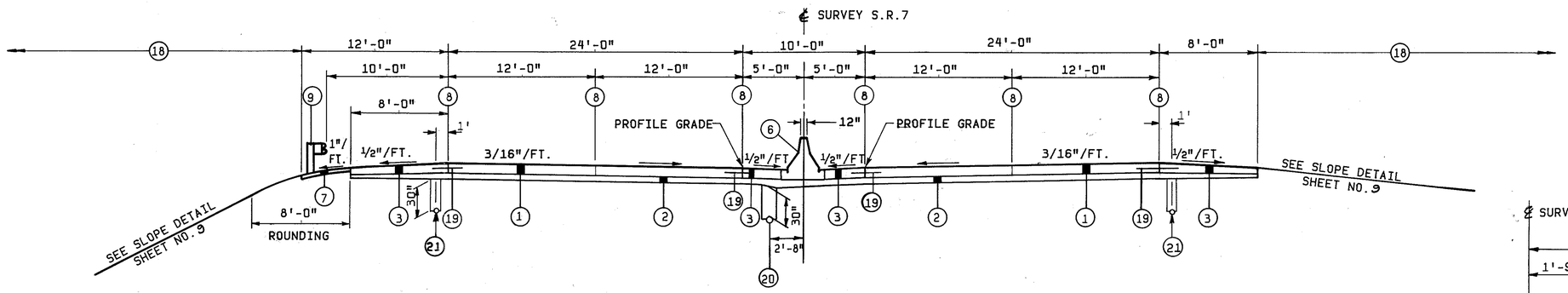


For Legend, See Sheet No. 4
For Quantities, See Sheet No. 63

TYPICAL SECTION

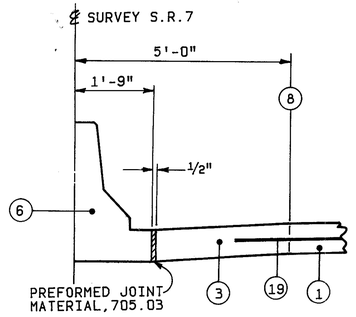
TYPE: 451

SCALE IN FEET
0 5 10

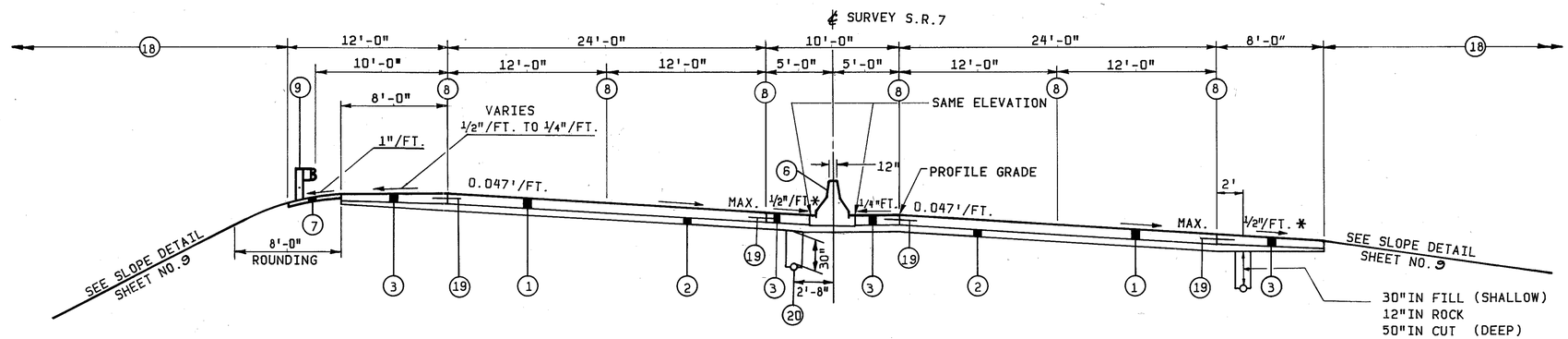


NORMAL SECTION

STA. 769+69.01 TO STA. 780+52.64 = 1083.63 LIN. FT.
STA. 790+45.51 TO STA. 791+73.24 = 127.73 LIN. FT.
STA. 802+03.79 TO STA. 806+01.74 = 397.95 LIN. FT.
STA. 826+20.38 TO STA. 828+50.00 = 229.62 LIN. FT.
SUB-TOTAL = 1838.93 LIN. FT.
DEDUCT FOR BRIDGES AND APPROACH SLABS
(STA. 826+39.15 TO STA. 828+37.15)= 198.00 LIN. FT.
TOTAL = 1640.93 LIN. FT.



SHOULDER/BARRIER JOINT DETAIL



SUPERELEVATED SECTION

STA. 750+06.30 TO STA. 769+69.01 = 1962.71 LIN. FT.
STA. 780+52.64 TO STA. 790+45.51 = 992.87 LIN. FT.
STA. 791+73.24 TO SAT. 802+03.79 = 1030.55 LIN. FT.
STA. 806+01.74 TO STA. 826+20.38 = 2018.64 LIN. FT.
SUB-TOTAL = 6004.77 LIN. FT.
DEDUCT FOR BRIDGES AND APPROACH SLABS
(STA. 768+51.48 TO STA. 770+14.52)= -163.04 LIN. FT.
(STA. 820+04.03 TO STA. 823+33.27)= -329.24 LIN. FT.
TOTAL = 5512.49 LIN FT.
NOTE: 769+69.01 TO 770+14.52 IS IN NORMAL SECTION.

* OR PAVEMENT SLOPE WHICHEVER IS GREATER

FOR ADDITIONAL SHOULDER INFORMATION SEE SHEET NO. 8

FOR LEGEND, SEE SHEET NO. 7

DWN RJG 7-8-83	√Get 7-11-83	DATA VDB 12/14/83	√Get 12/15/83

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

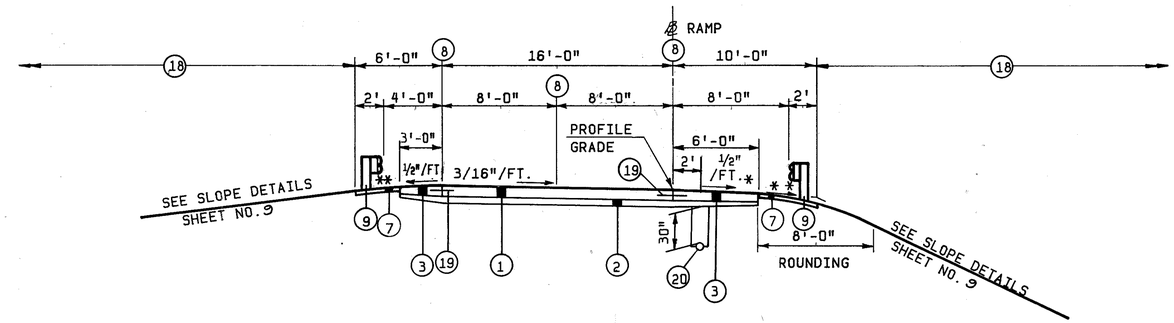
RELOCATED S.R. 7 TYPICAL SECTION

BEL-7-14.17 | OHIO | FHWA REGION 5 | 6/663

TYPICAL SECTION

TYPE: 451

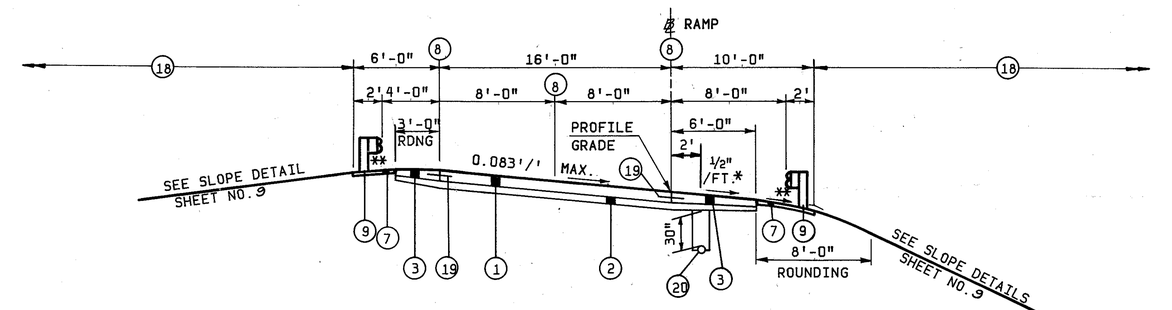
SCALE IN FEET
0 5 10



NORMAL SECTION

RAMP 'A'-STA. 772+72.90 TO STA. 779+00.00 = 627.10 LIN. FT.
RAMP 'B'-STA. 761+00.43 TO STA. 768+29.47 = 729.04 LIN. FT.
RAMP "C"-STA. 762+00.00 TO STA. 764+37.41 = 237.41 LIN. FT.
RAMP 'D'-STA. 775+89.69 TO STA. 777+50.84 = 161.15 LIN. FT.
RAMP 'F'-STA. 820+07.41 TO STA. 826+45.19 = 637.78 LIN. FT.
RAMP 'G'-STA. 816+00.00 TO STA. 817+75.00 = 175.00 LIN. FT.
-STA. 825+20.73 TO STA. 826+52.10 = 131.37 LIN. FT.
SUB-TOTAL = 2698.85 LIN. FT.

DEDUCT FOR BRIDGES AND APPOACH SLABS
(RAMP 'F'-STA. 820+67.43 TO STA. 823+56.57) - - - - - - - - - - - - = -289.14 LIN. FT.
TOTAL = 2409.71 LIN. FT.



SUPERELEVATED SECTION

RAMP 'A'-STA. 768+94.19 TO STA. 772+72.90 = 378.71 LIN. FT.
RAMP 'C'-STA. 764+37.41 TO STA. 769+02.56 = 465.15 LIN. FT.
RAMP 'D'-STA. 769+91.78 TO STA. 775+89.69 = 597.91 LIN. FT.
RAMP 'F'-STA. 817+89.30 TO STA. 820+07.41 = 218.11 LIN. FT.
RAMP 'G'-STA. 817+75.00 TO STA. 825+20.73 = 745.73 LIN. FT.
SUB-TOTAL = 2405.61 LIN. FT.

DEDUCT FOR BRIDGE AND APPROACH SLABS
(RAMP 'G'-STA. 819+66.51 TO STA. 822+91.67) = -325.16 LIN. FT.
TOTAL = 2080.45 LIN. FT.

* OR PAVEMENT SLOPE, WHICHEVER IS GREATER.

** 1"/FT.

FOR ADDITIONAL SHOULDER INFORMATION, SEE SHEET NO.8

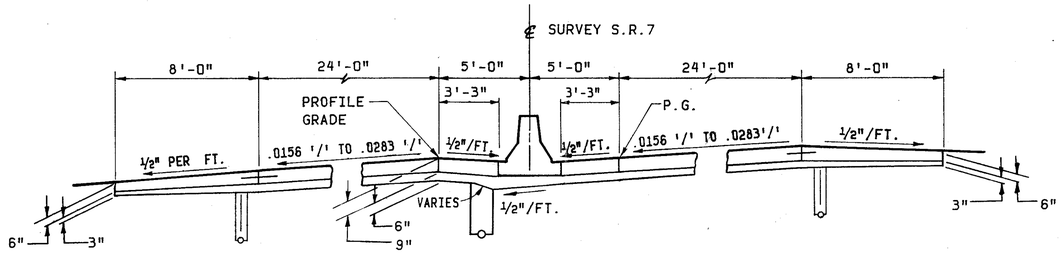
LEGEND

(1) ITEM 451 - 9"REINFORCED CONCRETE PAVEMENT.
(2) ITEM 310 - 6"SUBBASE, TYPE II.
(3) ITEM 452 - PLAIN CONCRETE PAVEMENT, AS PER PLAN
(4) ITEM 301 - BITUMINOUS AGGREGATE BASE, AC-20
(5) ITEM 304 - AGGREGATE BASE, AS PER PLAN
(6) ITEM 622 - CONCRETE BARRIER, TYPE 'B'.
(7) ITEM 404 - 2" ASPHALT CONCRETE, AC-20 (UNDER GUARDRAIL)
(8) LONGITUDINAL JOINT, SEE ST'D. DWG. BP-3.
(9) ITEM 606 - GUARDRAIL, TYPE 5.
(10) ITEM 404 - 1¼"ASPHALT CONCRETE, AC-20.
(11) ITEM 402 - 1¾"ASPHALT CONCRETE, AC-20.
(12) ITEM 408 - BITUMINOUS PRIME COAT AT 0.40 GALLON PER SQ.YD.
(13) ITEM 409 - SEAL COAT BITUMINOUS MATERIAL AT 0.30 GALLONS PER SQ.YD.
(14) ITEM 409 - SEAL COAT COVER AGGREGATE NO.8 AT 0.008 CU.YDS. PER SQ.YD.
(15) ITEM 608 - 4"CONCRETE WALK.
(16) ITEM 609 - CURB, TYPE 6.
(17) ITEM 609 - COMBINATION CURB & GUTTER, TYPE 2
(18) ITEM 659 - SEEDING & MULCHING, SEE GENERAL NOTES
(19) HOOK BOLT OR TIE BAR AS PER ST'D. DWG. BP-3 SPACED AT 60" C/C.
(20) ITEM 605 - 6" PIPE UNDERDRAIN
(21) ITEM 605 - 4" SHALLOW PIPE UNDERDRAIN, AS PER PLAN

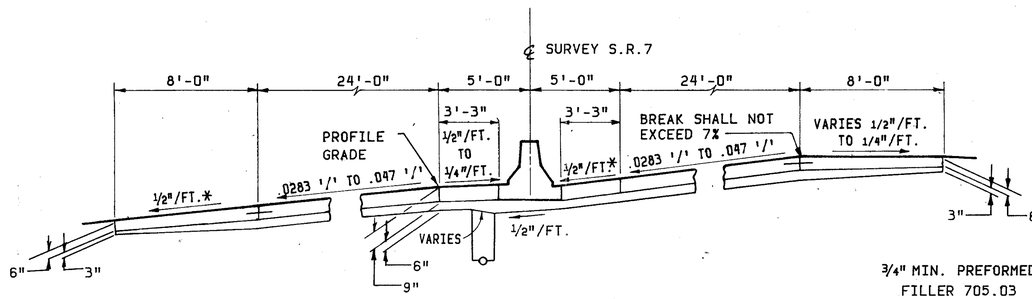
DATE	CHK	DWN	NO.
8/11/83	GET	MW	3

SHOULDER DETAIL

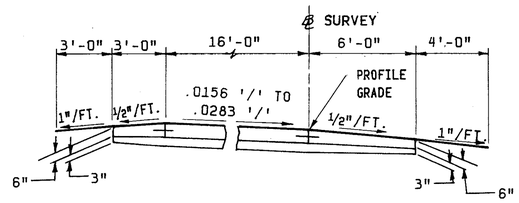
SCALE IN FEET
0 4 8



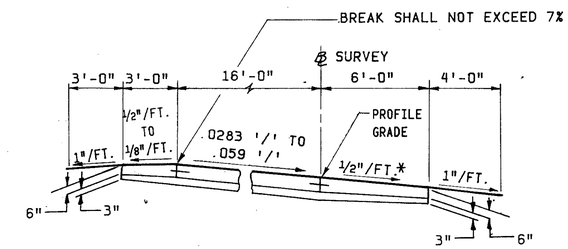
PAVEMENT CROSS-SLOPES
FROM 0.0156 FT/FT TO 0.0283 FT/FT



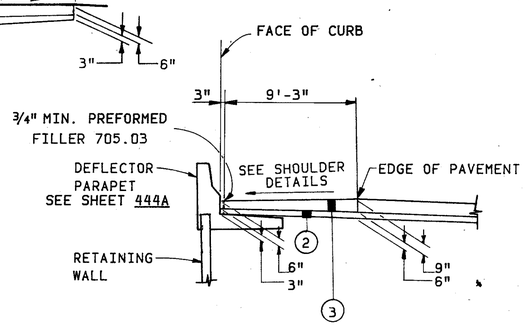
PAVEMENT CROSS-SLOPES
FROM 0.0283 FT/FT TO 0.047 FT/FT



PAVEMENT CROSS-SLOPES
FROM 0.0156 FT/FT TO 0.0283 FT/FT



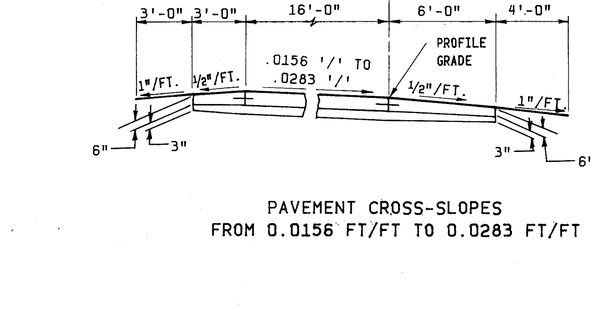
PAVEMENT CROSS-SLOPES
FROM 0.0283 FT/FT TO 0.059 FT/FT



SHOULDER DETAIL @ WALLS 1 & 2

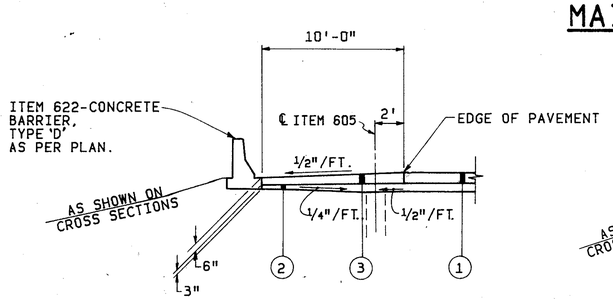
STA. 798+82.84 TO STA. 809+60.32 LT. (SHOWN)
STA. 800+38.08 TO STA. 808+05.68 RT. (OPPOSITE HAND)

ALONG RETAINING WALLS 1&2, STA. 798+82.84 TO 809+60.32 LT., & STA. 800+38.08 TO STA. 808+05.68 RT. RESPECTIVELY, EXTEND STABILIZED SHOULDER TO FACE OF PARAPET. RETURN TO NORMAL WIDTH (8') 50' BACK & AHEAD OF SHOULDER EXTENSION.

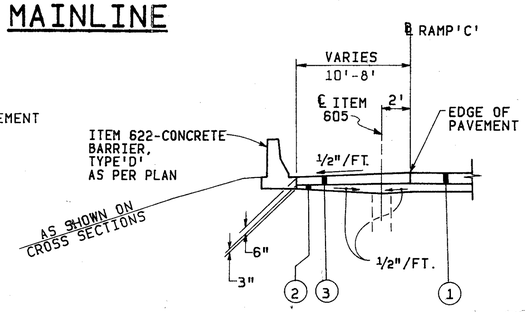


PAVEMENT CROSS-SLOPES
FROM 0.059 FT/FT TO 0.0833 FT/FT

MAINLINE



TYPICAL SHOULDER TREATMENT
FROM STA.750+06.30 TO STA.762+00 LT.



TYPICAL SHOULDER TREATMENT
STA.762+00 TO STA.764+50 ~ RAMP'C'LT.
SHOULDER WIDTH VARIES FROM 10' TO 8' FROM STA.762+00 TO STA.762+50

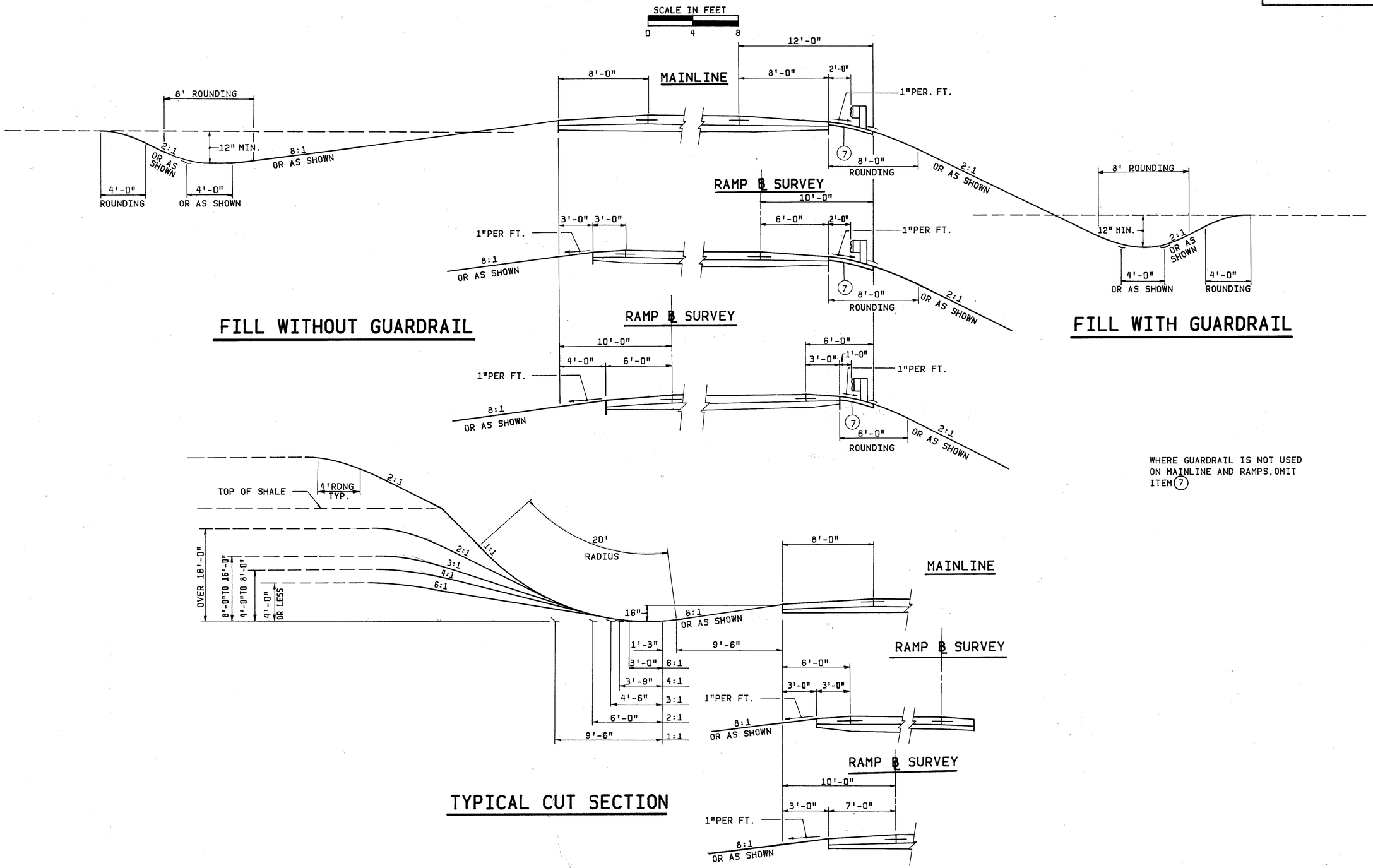
* OR PAVEMENT SLOPE WHICHEVER IS GREATER

FOR LEGEND SEE SHEET NO. 7

RAMPS

DWN RJG 7-25-83 | CHK GET 7-22-83 | DSTA DMA 3-13-84

SLOPE DETAILS



FILL WITHOUT GUARDRAIL

FILL WITH GUARDRAIL

TYPICAL CUT SECTION

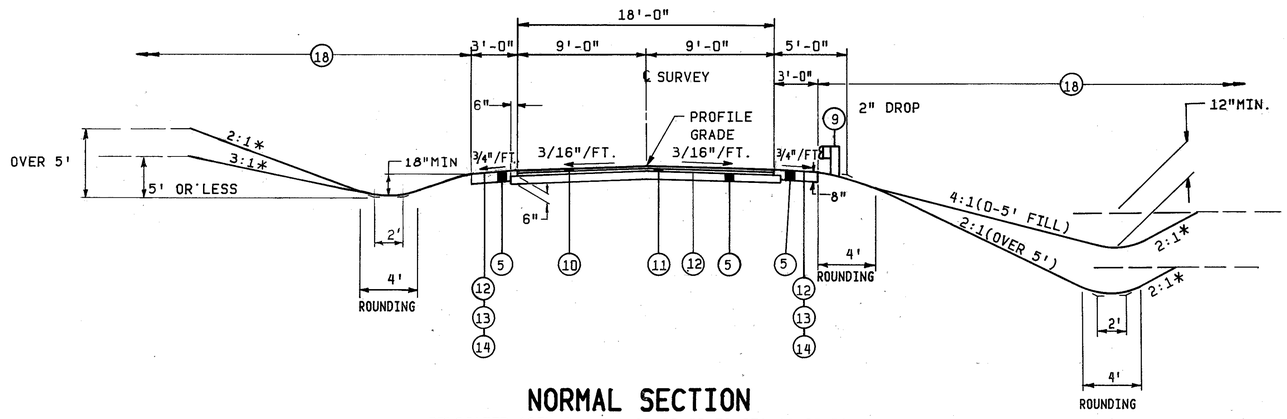
WHERE GUARDRAIL IS NOT USED ON MAINLINE AND RAMPS, OMIT ITEM 7

DRAWN	CK'D.	CORR.	BK.CK'D.
WAC 1-12-84	Get 1/12/84	Dwm-Rmp 3-8-84	Get 3/9/84

TYPICAL SECTION

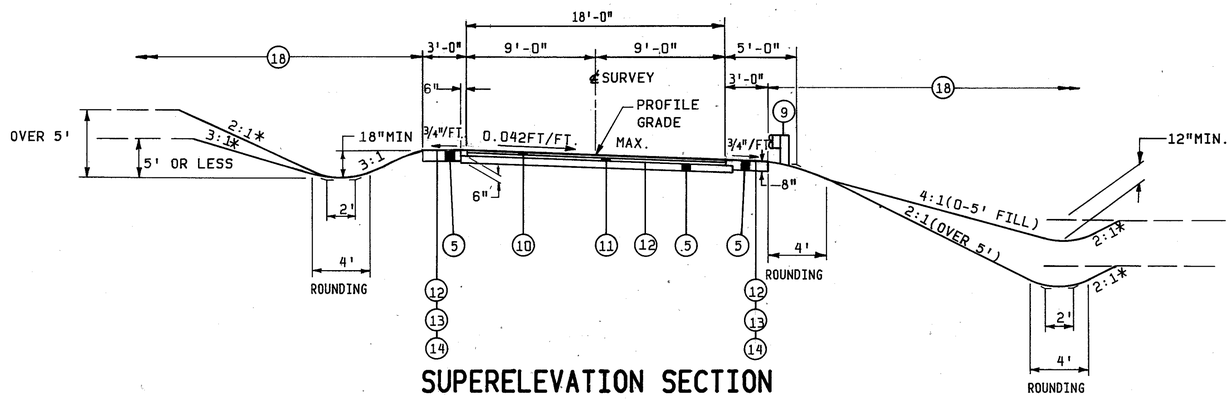
TYPE: 404 ON 304

SCALE IN FEET
0 5 10



NORMAL SECTION

RELOCATED 10TH ST.-STA.12+82.49 TO STA.12+90.34 = 7.85 LIN. FT.



SUPERELEVATION SECTION

RELOCATED 10TH ST.-STA.10+34.85 TO STA.12+82.49 = 247.64 LIN. FT.
-STA.12+90.34 TO STA.17+40.22 = 449.88 LIN. FT.
TOTAL = 697.52 LIN. FT.
TWP.RD 619 CONNECTOR-STA.10+21.66 TO STA.10+55.13 = 33.47 LIN. FT.

* OR AS SHOWN ON CROSS SECTIONS

FOR LEGEND, SEE SHEET NO. 7

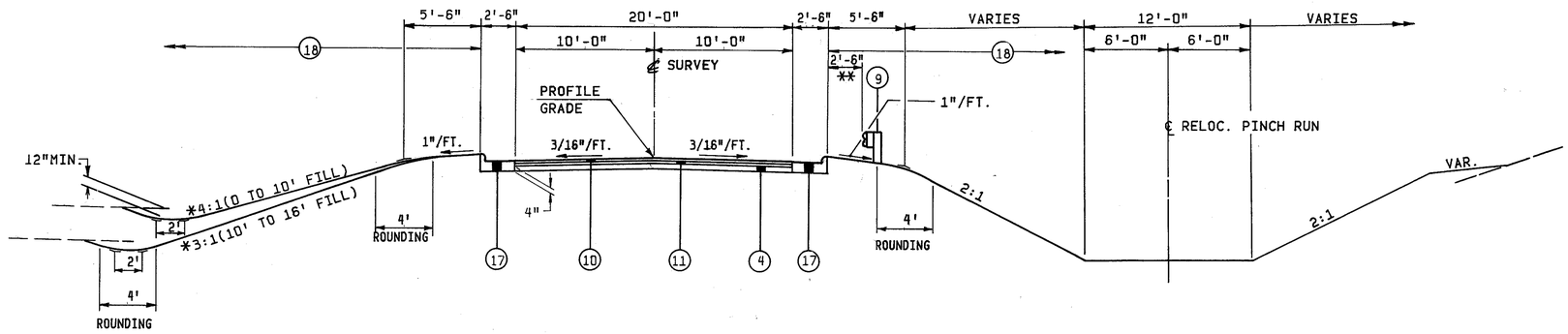
DWN RJG 2-13-89 | CHK GET 2-14-89 | DATA Rwn 3-14-89

TYPICAL SECTION

TYPE: 404 ON 301

SCALE IN FEET

0 5 10



NORMAL SECTION

STA. 4+81.97 TO STA. 9+34.61 = 452.64 LIN. FT.

SEE TAPER DETAIL FOR PAVEMENT
WIDTHS FROM STA.3+81.97 TO STA. 4+81.97

* OR AS SHOWN ON CROSS SECTIONS

** DISTANCE FROM BACK OF CURB TO FACE OF GUARDRAIL VARIES 2'-6" TO 12'-0" FROM STA. 6+60 TO TO 8+60 RT.

FOR LEGEND, SEE SHEET NO. 7

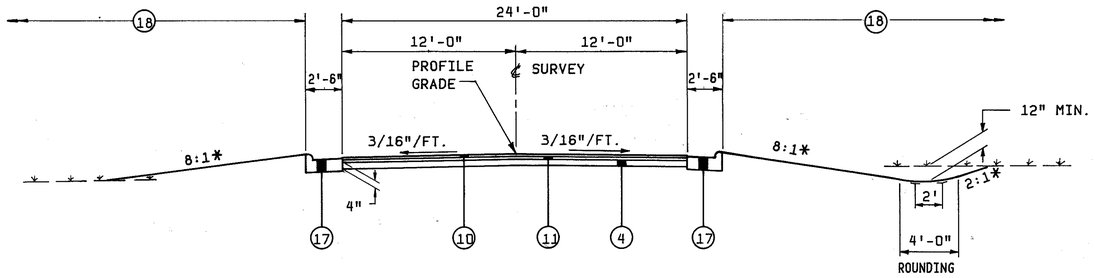
DWN RJG 7-19-83	CHK GET 7-1883	DATA BMA 3-14-84

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

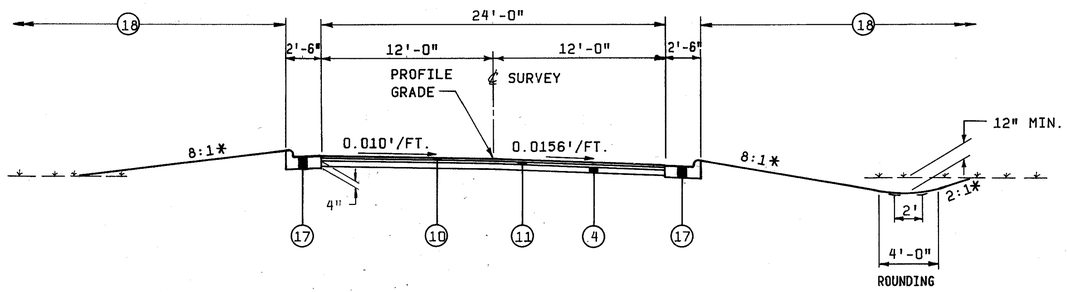
RELOCATED 12TH STREET TYPICAL SECTION

TYPICAL SECTION
TYPE: 404 ON 301

SCALE IN FEET
0 5 10



NORMAL SECTION
STA. 8+60 TO STA. 10+29.88 = 169.88 LIN. FT.



SUPERELEVATED SECTION
STA. 10+29.88 TO STA. 11+26.54 = 96.66 LIN. FT.

PAVEMENT WIDTH VARIES BETWEEN STA.11+26.54 AND STA.12+53.12, SEE INTERSECTION DETAIL, AND SUPERELEVATION TABLES.

* OR AS SHOWN ON CROSS SECTIONS

FOR LEGEND SEE SHEET NO. 7

DWN RJG 7-11-83	CHK GET 7-12-83	DATA DMA 3-13-84

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

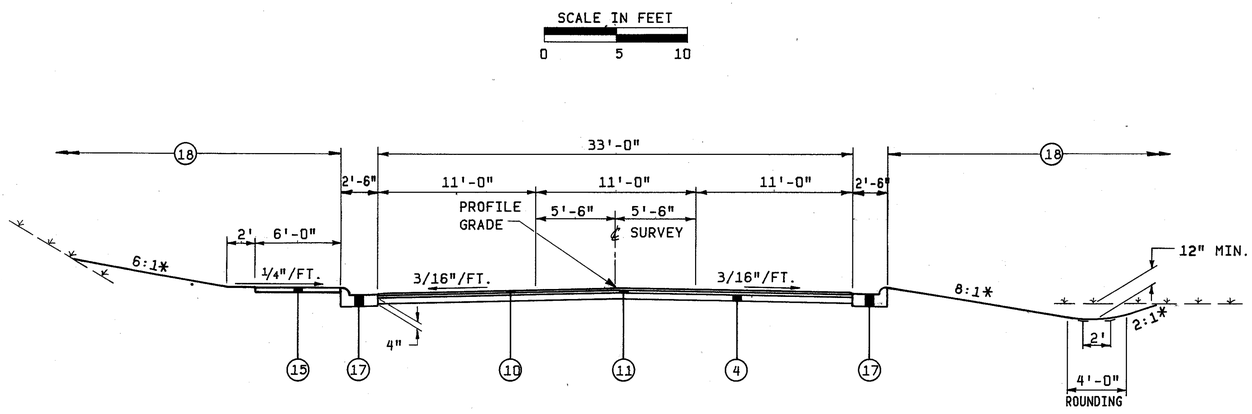
1ST RELOCATED BELMONT ST. TYPICAL SECTION

BEL-7-14.17 | OHIO | FHWA REGION 5 | 12/663

BEL-7-14.17 | OHIO | FHWA REGION 5 | 13/663

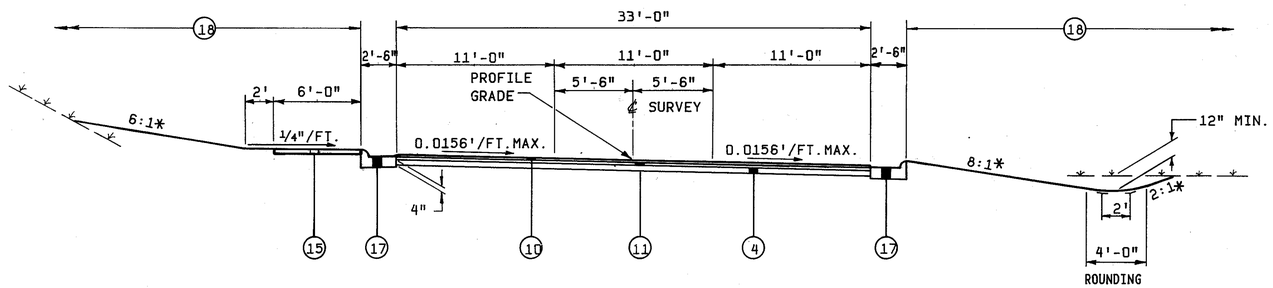
TYPICAL SECTION

TYPE: 404 ON 301



NORMAL SECTION

STA. 16+72.48 TO STA. 24+50 = 777.52 LIN. FT.



SUPERELEVATED SECTION

STA. 12+53.12 TO STA. 16+72.48 = 419.36 LIN. FT.

* OR AS SHOWN ON CROSS SECTIONS

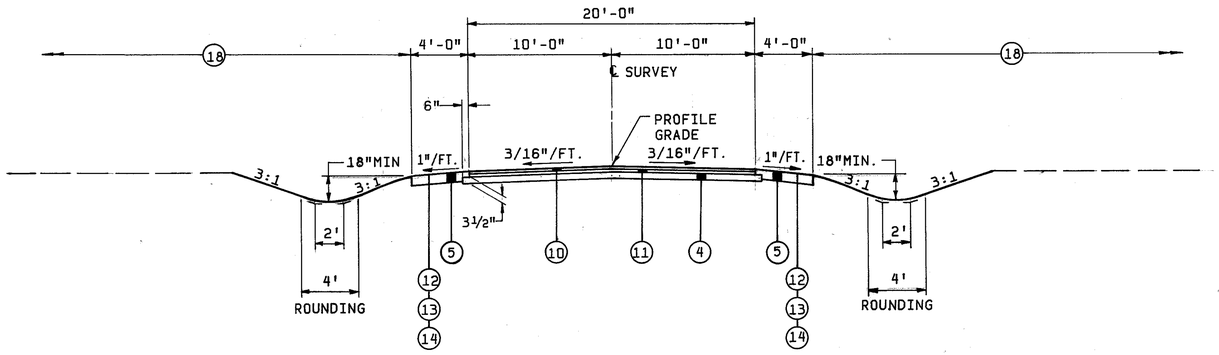
FOR LEGEND, SEE SHEET NO. 7

DWN RJG 7-11-83 | CHK GET 7-12-83 | DATA BMA 3-13-84

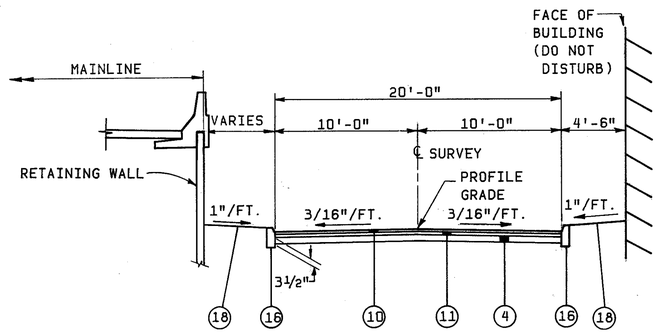
TYPICAL SECTION

TYPE: 404 ON 301

SCALE IN FEET
0 5 10



STA.16+28.93 TO STA. 18+51.94 = 223.01 LIN. FT.



STA. 9+22.92 TO STA.16+28.93 = 706.01 LIN. FT.

END CURB AT STA.16+28.93 LT.AND
STA.15+14.15 RT.

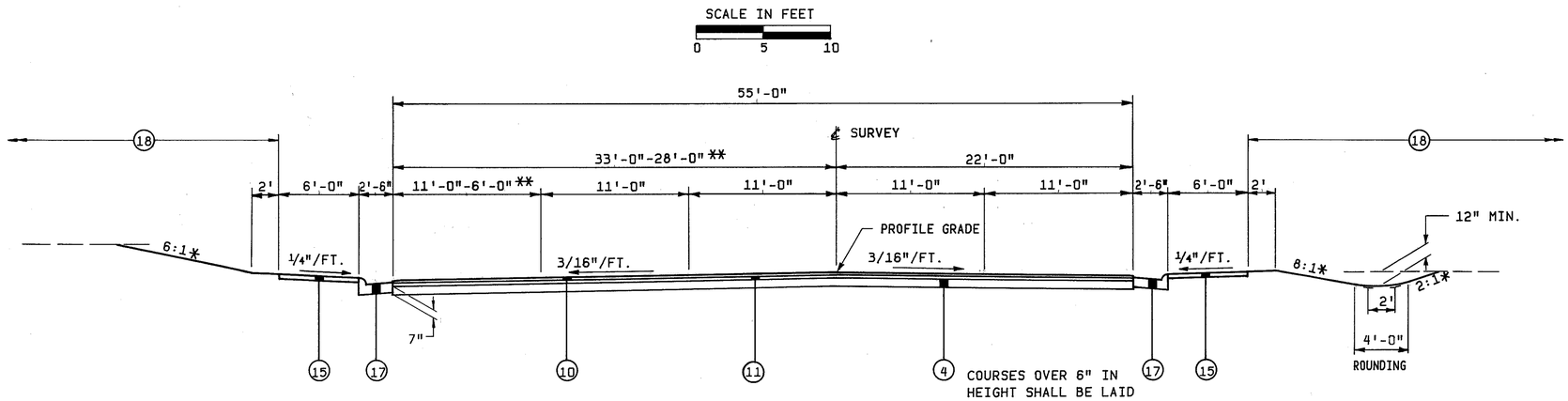
FOR LEGEND SEE SHEET NO. 7

DWN RJG 7-22-83 | CHK GET 7-22-83 | DATA BMA 3-14-83

BEL-7-14.17 | OHIO | FHWA REGION 5 | 15/663

TYPICAL SECTION

TYPE: 404 ON 301



NORMAL SECTION

STA. 16+32.36 TO STA. 17+96.50 = 164.14 LIN. FT.
STA. 19+66.91 TO STA. 23+39.77 = 372.86 LIN. FT.
TOTAL = 537.00 LIN. FT.

SEE TAPER DETAIL FOR PAVEMENT WIDTHS BETWEEN STA.11+32.36 AND STA.16+32.36

SEE INTERSECTION DETAILS FOR ADDITIONAL INFORMATION BETWEEN STATIONS 17+96.50 AND 19+66.91

* OR AS SHOWN ON CROSS SECTIONS
** PAVEMENT WIDTH VARIES FROM 33'-0" TO 28'-0" BETWEEN STA. 22+34.10 AND STA. 23+39.77 LEFT

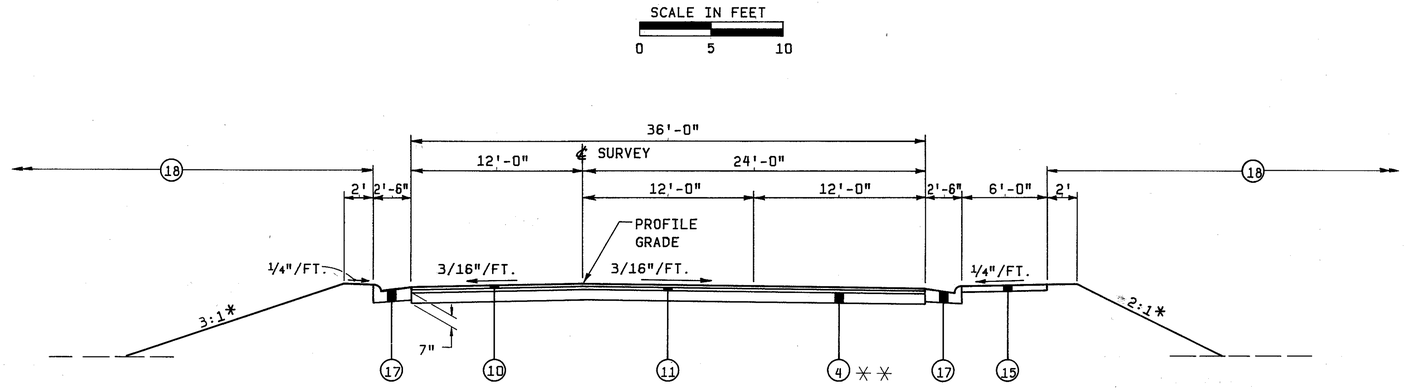
FOR LEGEND, SEE SHEET NO. 7

DWN RJG 7-20-83 | CHK GET 7-21-83 | DATA DWA 3-14-84

TYPICAL SECTION

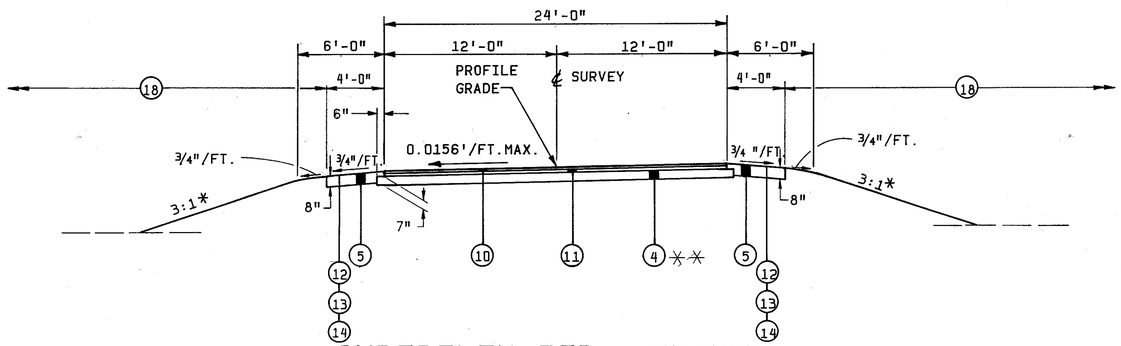
TYPE: 404 ON 301

BEL-7-14.17 | OHIO | FHWA REGION 5 | 16/663



NORMAL SECTION

STA. 12+26.83 TO STA. 14+48.18 = 221.35 LIN. FT.
PAVEMENT WIDTH VARIES FROM STA.14+48.18 TO STA.16+76.55, SEE 2ND RELOCATED BELMONT ST. INTERSECTION DETAILS AND SUPERELEVATION TABLES



SUPERELEVATED SECTION

STA. 6+25 TO STA. 9+55.86 = 330.86 LIN. FT

PAVEMENT WIDTH VARIES FROM STA.9+55.86 TO STA.12+26.83, SEE SUPERELEVATION TABLES

* OR AS SHOWN ON CROSS SECTIONS

FOR LEGEND, SEE SHEET NO. 7

** COURSES OVER 6" IN HEIGHT SHALL BE LAID IN MULTIPLE COURSES NOT TO EXCEED 6" IN ANY ONE COURSE.

DWN RJG 7-19-83 | CHK GET 7-21-83 | DATA DWN 3-14-84

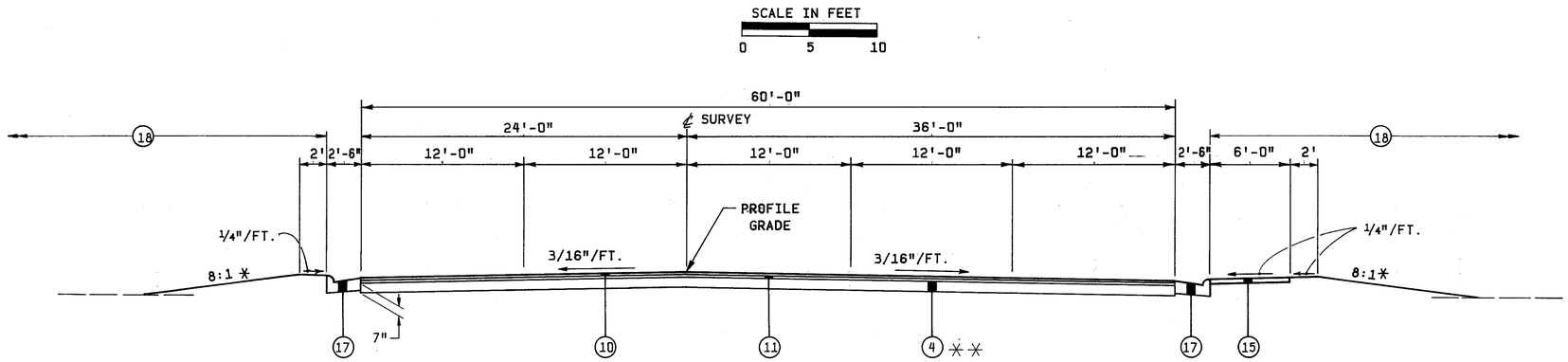
W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

RELOCATED 26TH ST. TYPICAL SECTION

BEL-7-14.17 | OHIO | FHWA REGION 5 | 17/663

TYPICAL SECTION

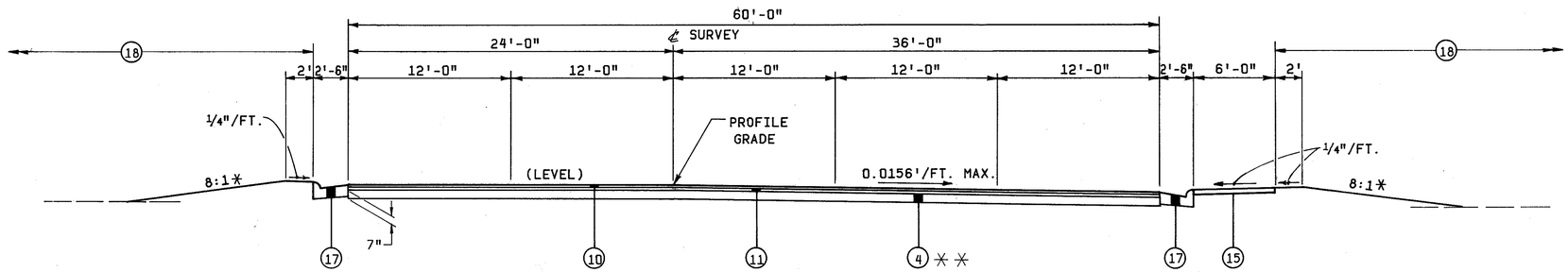
TYPE: 404 ON 301



NORMAL SECTION

STA. 17+51.35 TO STA. 17+59.19 = 7.84 LIN. FT.

PAVEMENT WIDTH VARIES FROM STA.17+59.19 TO STA.18+91.20, SEE RAMP G & H INTERSECTION DETAILS AND SUPERELEVATION TABLES.



SUPERELEVATED SECTION

STA. 16+76.55 TO STA. 17+51.35 = 74.80 LIN. FT.

* OR AS SHOWN ON CROSS SECTIONS

FOR LEGEND, SEE SHEET NO. 7

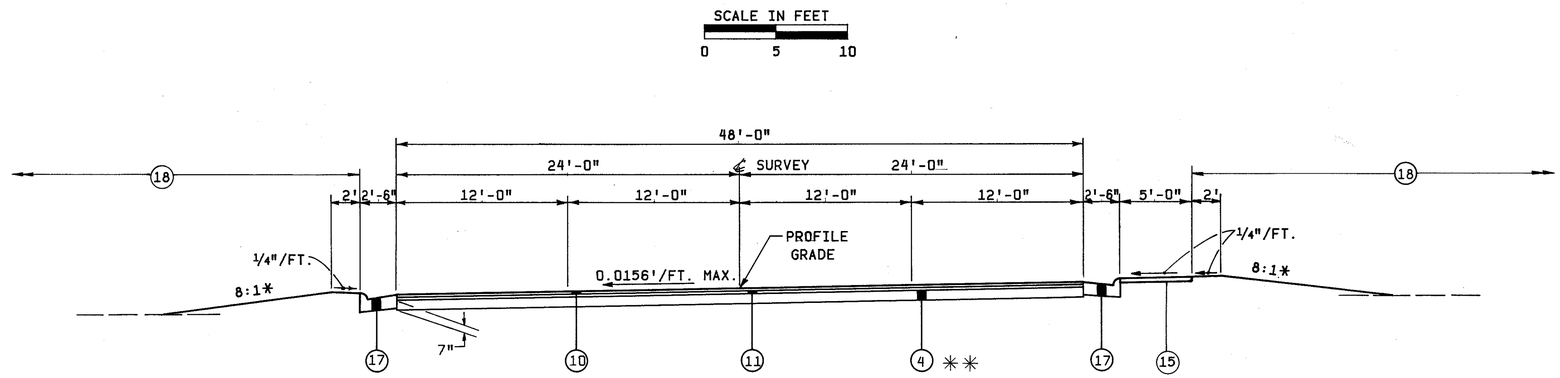
** COURSES OVER 6" IN HEIGHT SHALL BE LAID IN MULTIPLE COURSES NOT TO EXCEED 6" IN ANY ONE COURSE.

DWN RJG 7-18-83 | CHK GET 7-19-83 | DATA DMA 3-13-84

BEL-7-14.17	OHIO FHWA REGION 5	18 / 663

TYPICAL SECTION

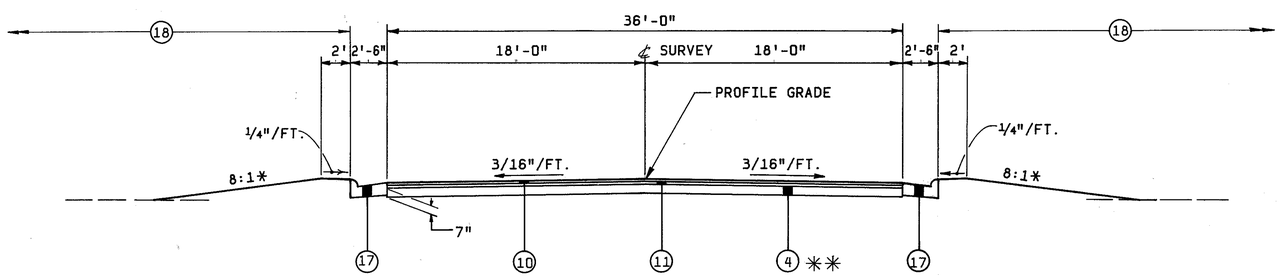
TYPE: 404 ON 301



SUPERELEVATED SECTION

STA. 18+91.20 TO 20+64.16 = 172.96 LIN. FT.

PAVEMENT WIDTH VARIES FROM STA.20+64.16 TO STA.22+51.56, SEE RAMP E & F AND UNION ST. INTERSECTION DETAILS AND SUPERELEVATION TABLES.



NORMAL SECTION

STA. 22+51.56 TO 23+37.50 = 85.94 LIN. FT.

* OR AS SHOWN ON CROSS SECTIONS

FOR LEGEND SEE SHEET NO. 7

** COURSES OVER 6" IN HEIGHT SHALL BE LAID IN MULTIPLE COURSES NOT TO EXCEED 6" IN ANY ONE COURSE.

DWN RJG 7-15-83 | CHK GET 7-18-83 | DATA RJMA 3-14-89

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

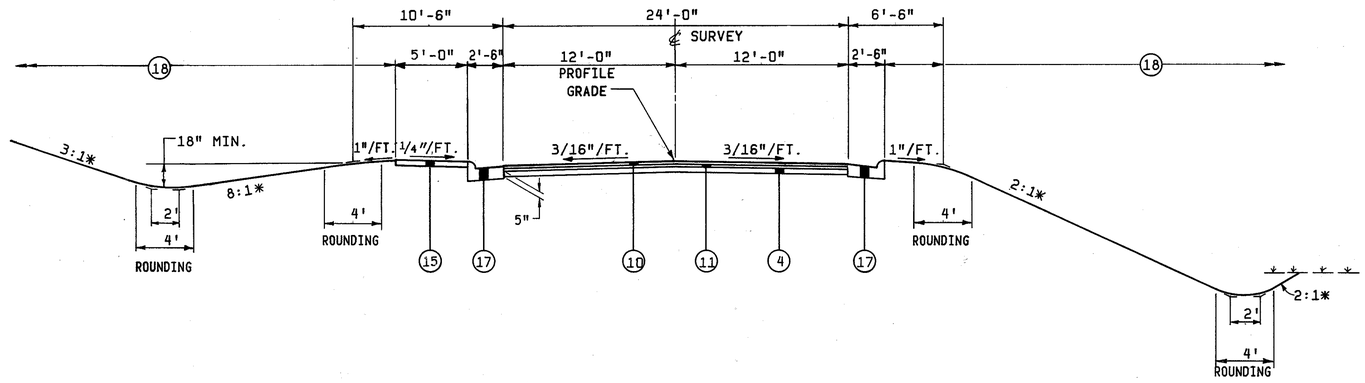
RELOCATED 26TH ST. TYPICAL SECTION

TYPICAL SECTION

TYPE: 404 ON 301

SCALE IN FEET

0 5 10



NORMAL SECTION

STA. 17+50 TO STA. 19+51.70 = 201.70 LIN. FT.

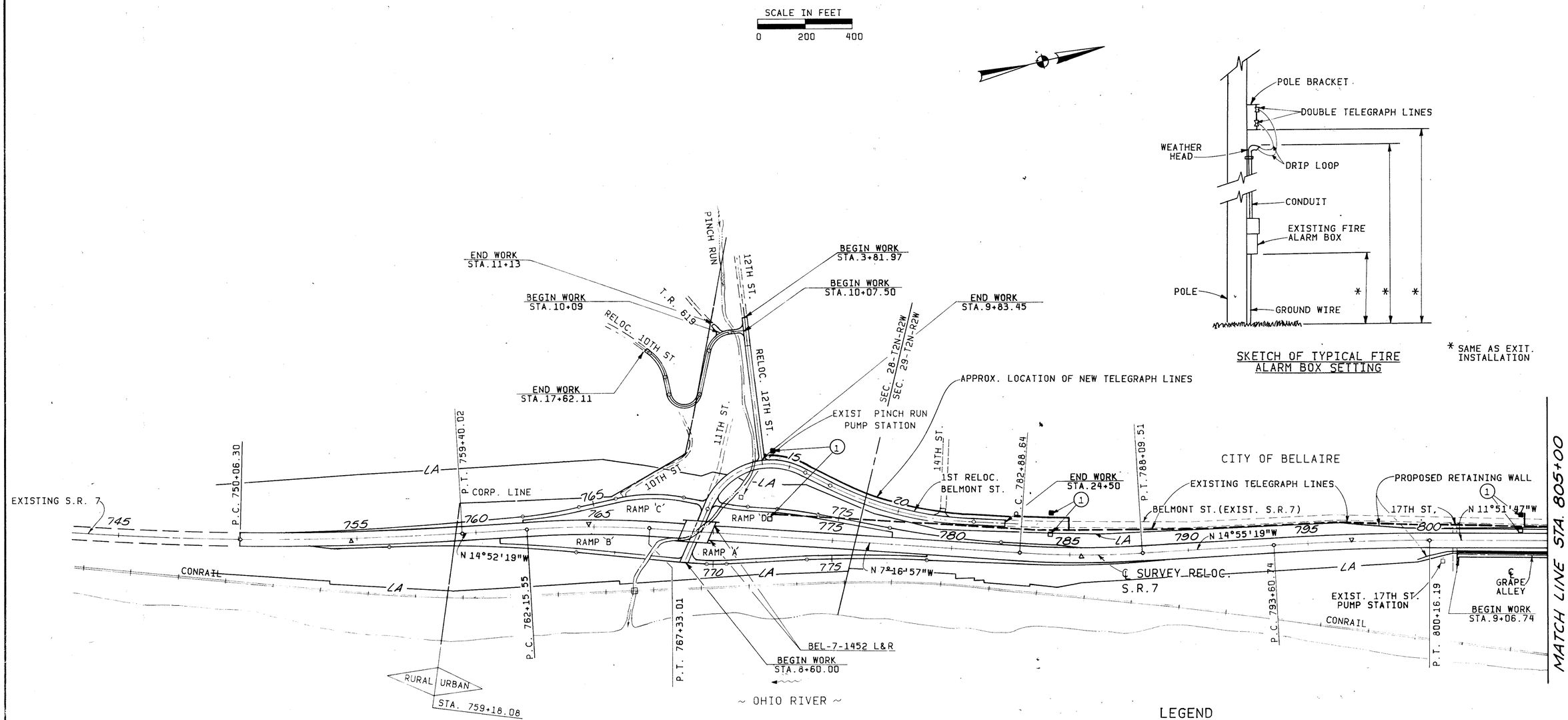
* OR AS SHOWN ON CROSS SECTIONS

FOR LEGEND, SEE SHEET NO. 7

DWN RDG 7-12-83 | CHK GEF 7-13-83 | DATE CMG 3-1984

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

RELOCATED UNION STREET TYPICAL SECTION



LEGEND

- EXISTING FIRE ALARM BOX.
- APPROX. LOCATION OF RELOCATED FIRE ALARM BOX.
- (1) LOCATIONS OF FIRE ALARM BOXES TO BE REMOVED AND RESET.

FOR QUANTITY AND ADDITIONAL INFORMATION, SEE GENERAL NOTES.

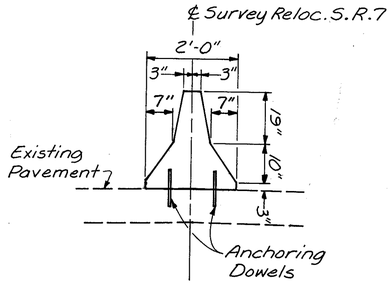
MISCELLANEOUS DETAILS ~ FIRE ALARM SYSTEM SCHEMATIC PLAN

SCALE IN FEET
0 200 400

BEGIN WORK STA. 5+72
26TH ST.
RELOC. 26TH ST.
CITY OF BELLAIRE
APPROX. LOCATIONS OF NEW TELEGRAPH LINES
2ND RELOC. BELMONT ST.
McMAHON CREEK
BEGIN WORK STA.11+32.36
BEL-7-1549G
EXISTING TELEGRAPH LINES
PROPOSED RETAINING WALL
B&O RAILROAD
S.R.7
EXIST.
END WORK STA.24+20
31ST ST.
32ND ST.
BELMONT ST.
CRESCENT ST.
19TH ST.
21ST ST.
22ND ST.
BELMONT PL.
EXIST. S.R.7
BEL-7-1562 L&R
RAMP 'G'
RAMP 'F'
RAMP 'H'
RAMP 'E'
UNION ST.
FUTURE S.R.7
MATCH LINE STA.805+00
℄ GRAPE ALLEY
S.C. 809+34
T.S. 807+34
CONRAIL
BEL-7-1550 L&R
BEL-7-1551F
END WORK STA.18+81.94
APPROX. LOCATION OF NEW TELEGRAPH LINES
S. 822+70.78
S.T. 824+70.78
N 18°31'33"W
R/R BRIDGE
INTERSTATE BRIDGE
END WORK STA.23+37.50
~ OHIO RIVER ~
BEGIN WORK STA.17+50
END WORK STA.19+80.82
END RAMP 'E' STA.828+74.09

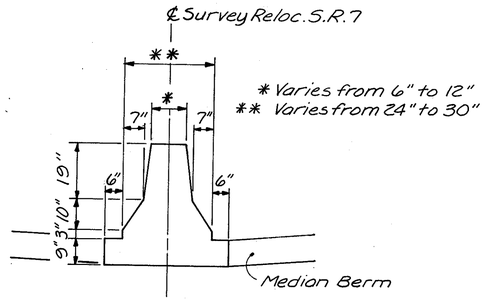
FOR LEGEND, SEE SHEET NO. 20

MISCELLANEOUS DETAILS ~ FIRE ALARM SYSTEM SCHEMATIC PLAN



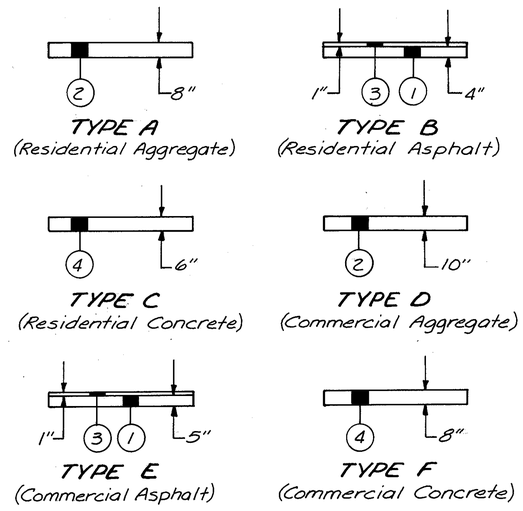
CONCRETE BARRIER, TYPE 'A' AS PER PLAN (WITHOUT INTEGRAL BASE)

Sta. 746+00 to Sta. 750+06.30



CONCRETE BARRIER TRANSITION DETAIL

Sta. 750+06.30 to Sta. 750+26.30



LEGEND

(1) —— Item 301 ~ Bituminous Aggregate Base, AC-20

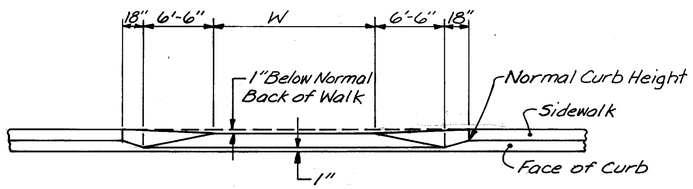
(2) —— Item 304 ~ Aggregate Base

(3) —— Item 404 ~ Asphalt Concrete: AC-20 (Driveways)

(4) —— Item 452 ~ Plain Concrete Pavement

STANDARD DRIVE COMPOSITION

Not To Scale

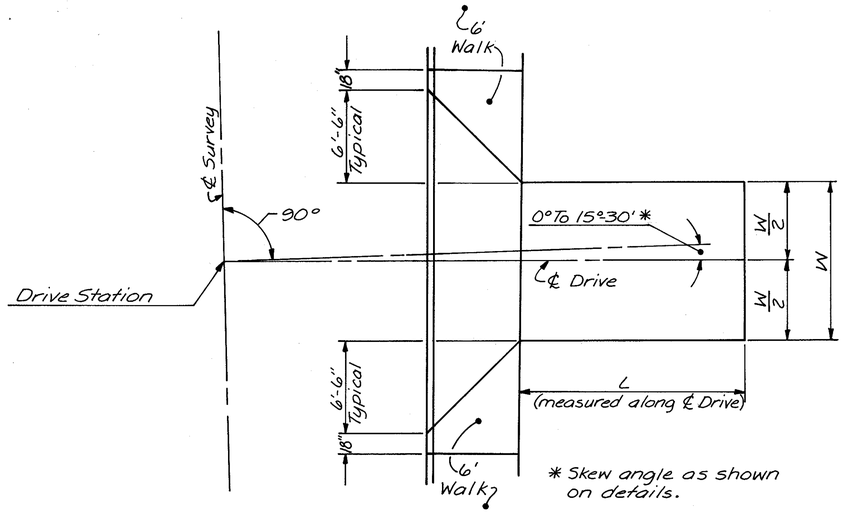


CROSS SECTION AT CURB

Not To Scale

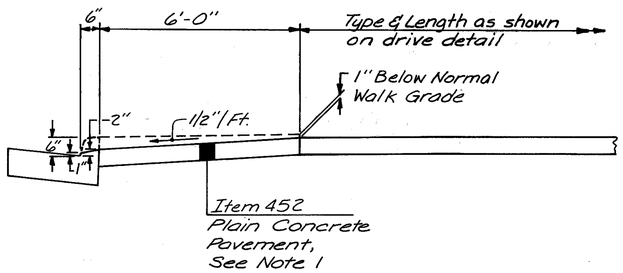
Notes:

1. Use 6" for composition types A thru C, and 8" for types D thru F.
2. Typical configuration of the drive profile for roadway without walk shall be as shown unless detailed elsewhere in this plan.
3. See Std. Dwg. BP-6 for additional Curb Drop Detail information.
4. All drive flares shall be paved. All flares for drives across walk shall be paved with Item 452 as shown. Asphalt and Aggregate drives without walks shall be constructed with asphalt flares. See drive details for specific flare composition information.



PLAN

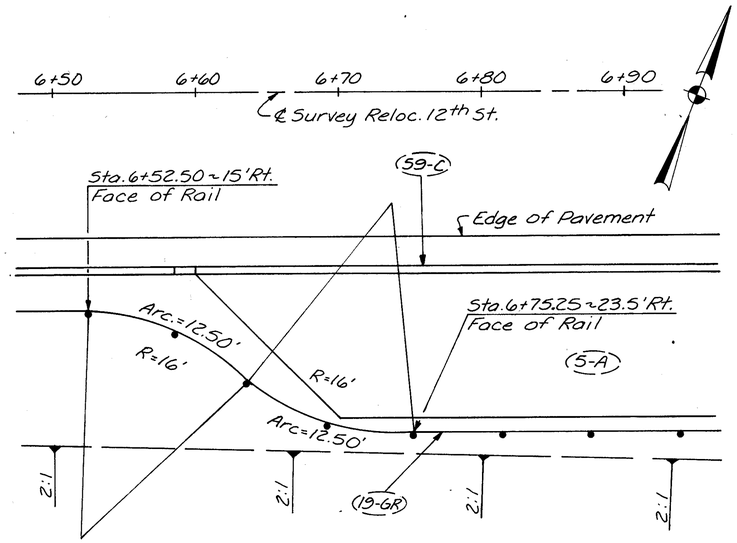
Not To Scale



TYPICAL DRIVE PROFILE

Not To Scale

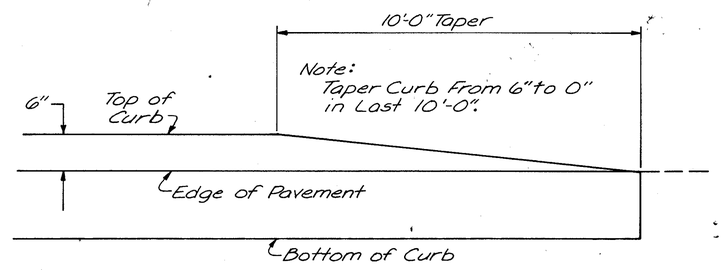
Drawn GW 2/10/84 Checked GJF 2/10/84



(19-GR)

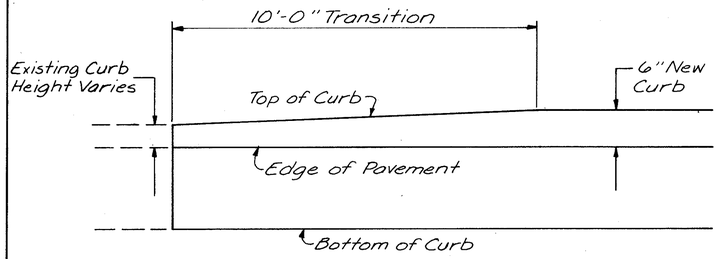
GUARDRAIL DETAIL

Scale: 1"=5'



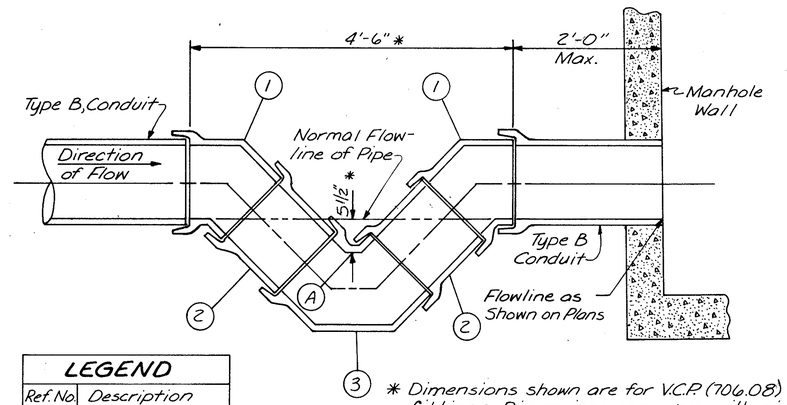
CURB TAPER DETAIL

Not To Scale



CURB TRANSITION DETAIL

Not To Scale



LEGEND	
Ref. No.	Description
1	45° Bend
2	Spool Piece
3	90° Bend

* Dimensions shown are for V.C.P. (706.08) fittings. Dimensions may vary with pipe alternates selected. In no case shall the distance from the normal flowline of pipe to Point (A) be less than 5 1/2".

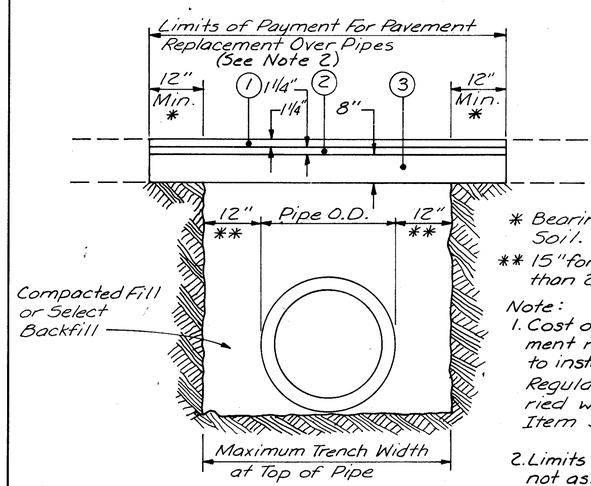
The unit price bid for each Item Special - Odor Control Trap shall include payment for all labor, tools, material and incidentals necessary to complete this item.

ITEM SPECIAL - ODOR CONTROL TRAP

No Scale

REF. NO.	STATION	SIDE	EXISTING GRATE OR TOP ELEV.	PROP. GRATE OR TOP ELEV.	DESCRIPTION	SEE SHT. NO.
1-CB	800+47	LT.	647.13±	647.08	Catch Basin, Adjusted to Grade	108
1-MH	800+95 to 801+00	RT.	646.8±	647.0	Flow Regulator M.H. Adjusted to Grade	108
1-CB	822+11 (Ramp G)	LT.	*	*	*Catch Basin to be Adjusted to Grade as Directed	113
1-MH	2nd Belmont 22+03	RT.	652.5±	656.4	Manhole Reconstructed to Grade	283
2-MH	22+96	LT.	655.5±	658.2	"	283
3-MH	23+30	LT.	656.5±	658.5	"	283
4-MH	23+92	LT.	660.1±	660.2	Manhole Adjusted to Grade	283
1-CB	24+10	LT.	659.70±	659.70	Catch Basin, Adjusted to Grade	283
1-CB	27th St. W. 10+19	RT.	650.1±	650.21	"	281
2-CB	2nd Belmont 20+73	RT.	650.52±	650.48	"	281

MANHOLES & CATCHBASINS ADJUSTED OR RECONSTRUCTED TO GRADE



* Bearing on Undisturbed Soil.

** 15" for Conduit Larger than 24" Diameter.

Note:

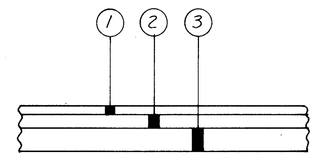
1. Cost of additional pavement replacement required to install manholes or Flow Regulators shall be carried with Item 604 or Item Special, respectively.
2. Limits of replacement not associated with pipe installations shall be as shown elsewhere in the plans.

LEGEND

(1) — Item 404 — Asphalt Concrete, AC-20
(2) — Item 402 — Asphalt Concrete, AC-20
(3) — Item 305 — Concrete Base

PAVEMENT REPLACEMENT DETAIL

Not To Scale



LEGEND

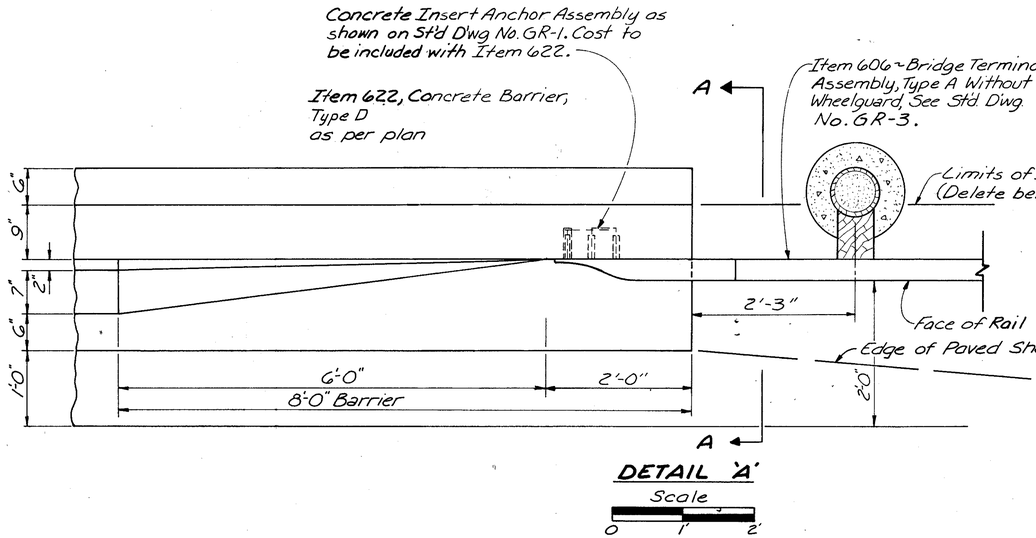
(1) — Item 404 — 1 1/4" Asphalt Concrete, AC-20
(2) — Item 402 — 1 3/4" Asphalt Concrete, AC-20
(3) — Item 301 — 3 1/2" Bituminous Aggregate Base, AC-20

SIDE STREET CONNECTOR PAVEMENT COMPOSITION DETAIL

Side Street Connectors:

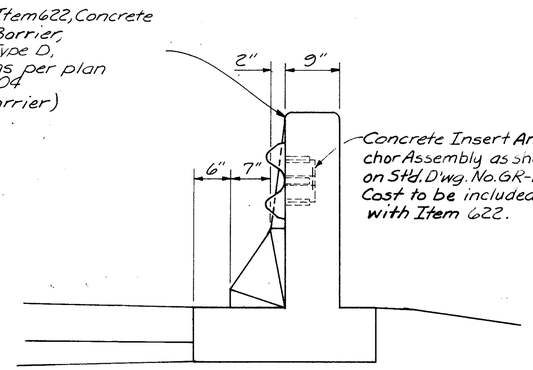
(18-A) — 14th St.
(19-A) — 18th St.
(20-A) — 25th St.
(21-A) — 27th St. East
(22-A) — 27th St. West
(23-A) — Belmont St. North (Off 27th St. East)
(24-A) — Belmont St. South (Off 27th St. East)
(25-A) — 29th St. East
(26-A) — 29th St. West

Drawn G.W. 8/13/84 | Checked G.J. 8/14/84



DETAIL 'A'

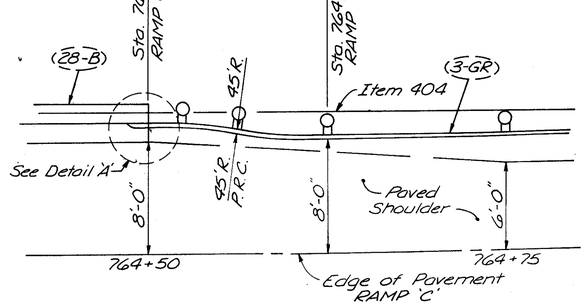
Scale 0 1' 2'



SECTION A-A

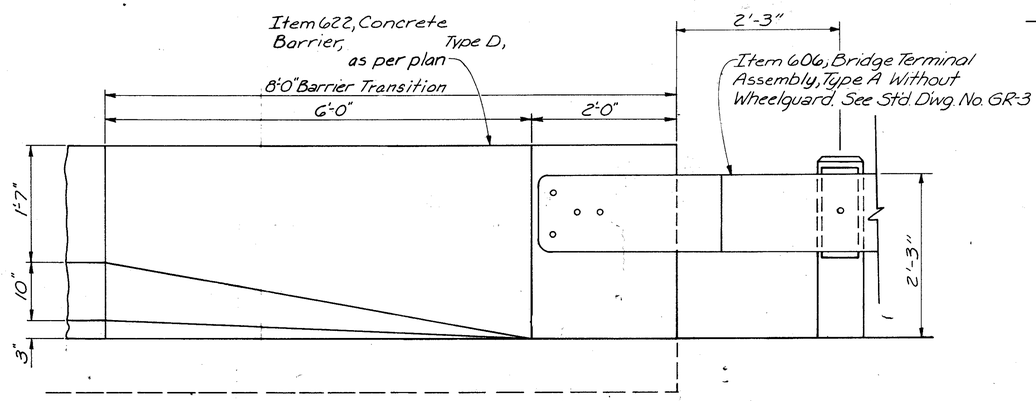
Scale 0 1' 2'

Note:
Dimensions not shown shall conform to St'd. Drawing No. MC-9 and GR-3 Accordingly.



PLAN

Scale 0 5' 10'



ELEVATION

Scale 0 1' 2'

See General Notes For Additional Barrier Information

BRIDGE TERMINAL CONNECTION TO CONCRETE BARRIER

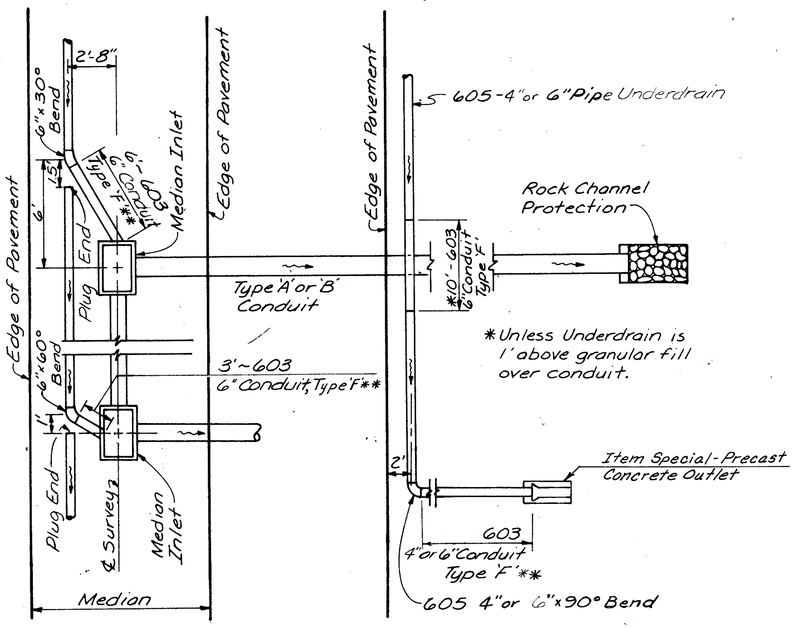
Drawn CM-K-J 2-3 2/16/82 Rev. 1/15/82

FHWA REGION	STATE	PROJECT	
5	OHIO		

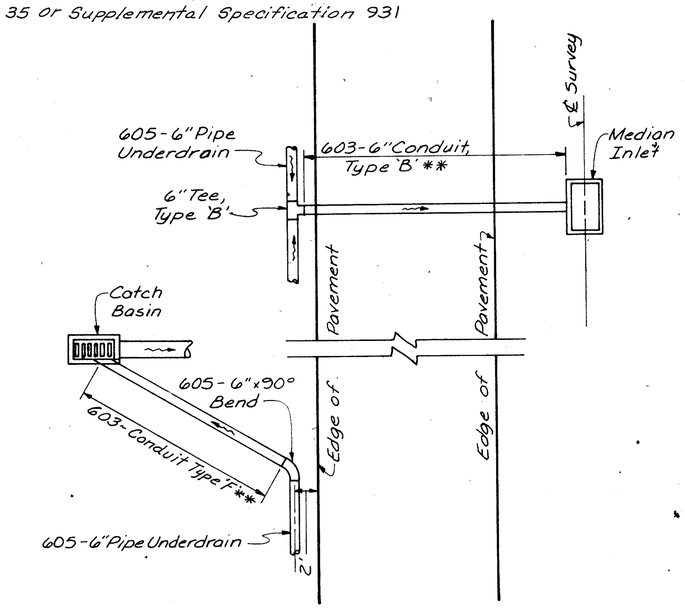
25
663

BEL-7-14.17

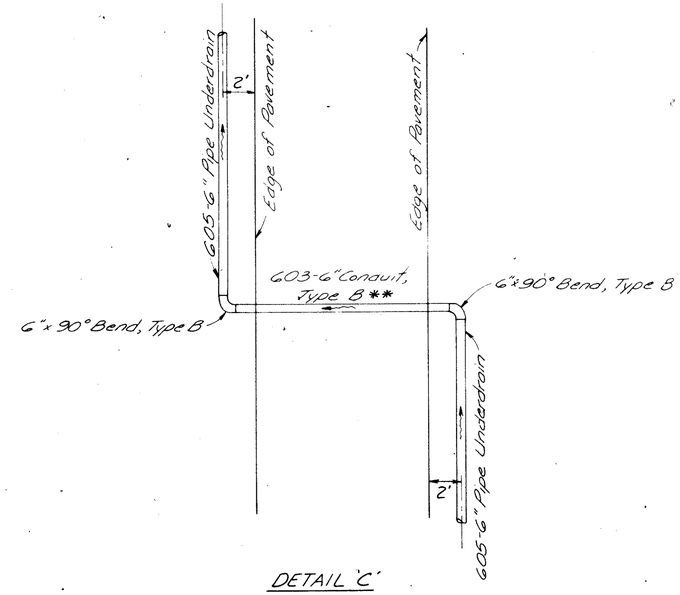
** 707.17 Non-Perforated ASTM 3034 SDR 35 or Supplemental Specification 931



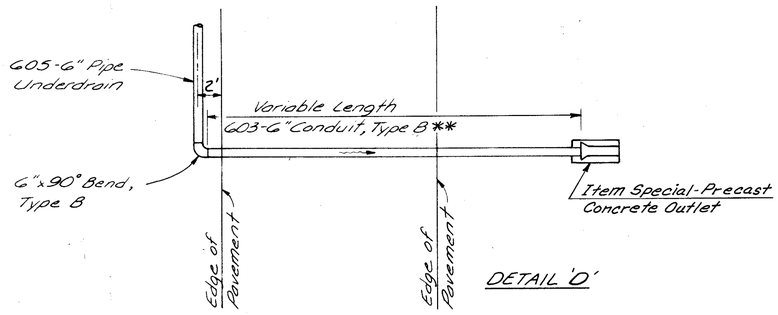
DETAIL 'A'



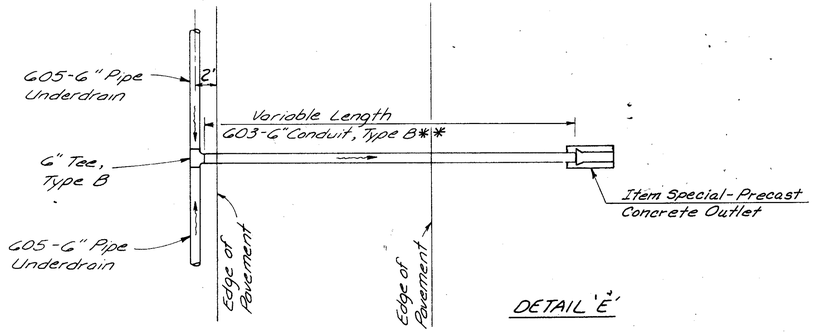
DETAIL 'B'



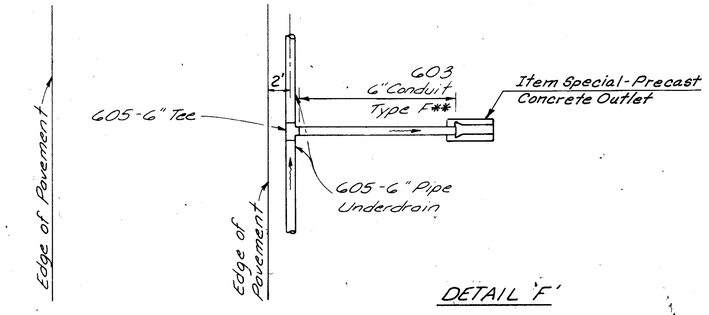
DETAIL 'C'



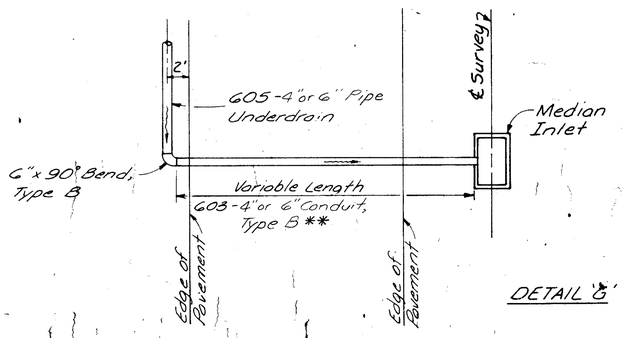
DETAIL 'D'



DETAIL 'E'



DETAIL 'F'



DETAIL 'G'

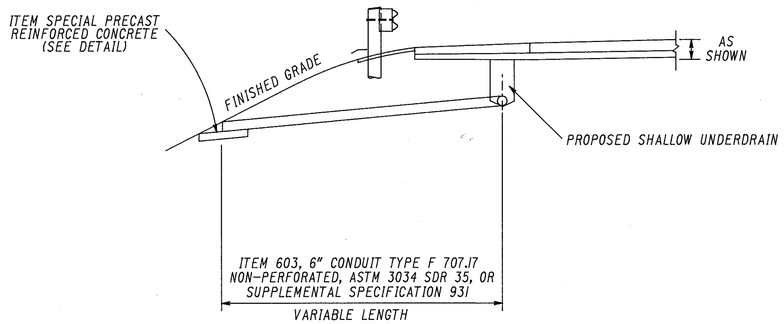
Drawn	Revised	Checked
RJG	GW 8/14/84	GJF 8/15/84

UNDERDRAIN DETAILS

FHWA REGION	STATE	PROJECT	
5	OHIO		

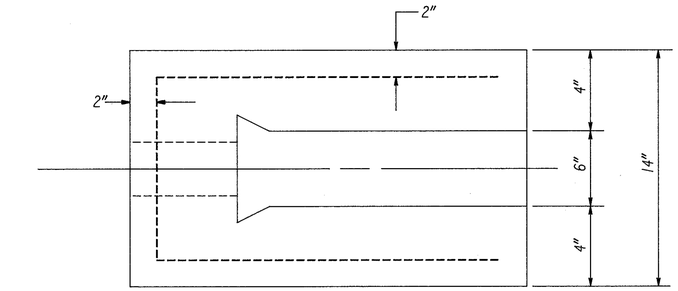
25A
663

BEL-7-14.17

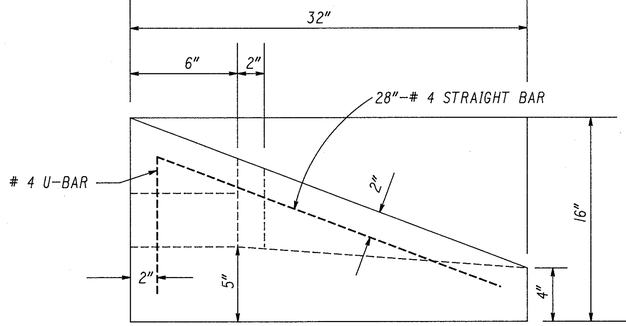


ITEM SPECIAL-PRECAST REINFORCED CONCRETE OUTLET

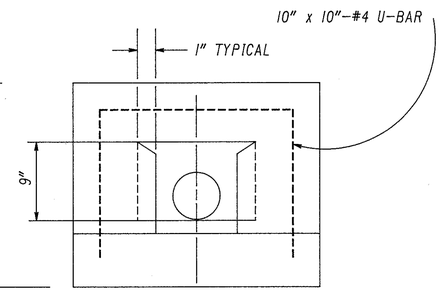
THE CONCRETE OUTLET SHALL MEET THE REQUIREMENTS OF ITEM 604 IN THE CONSTRUCTION & MATERIALS SPECIFICATIONS. PAYMENT SHALL BE MADE ON AN EACH BASIS. PAYMENT SHALL INCLUDE THE COST OF THE SOD & WIRE CLOTH.



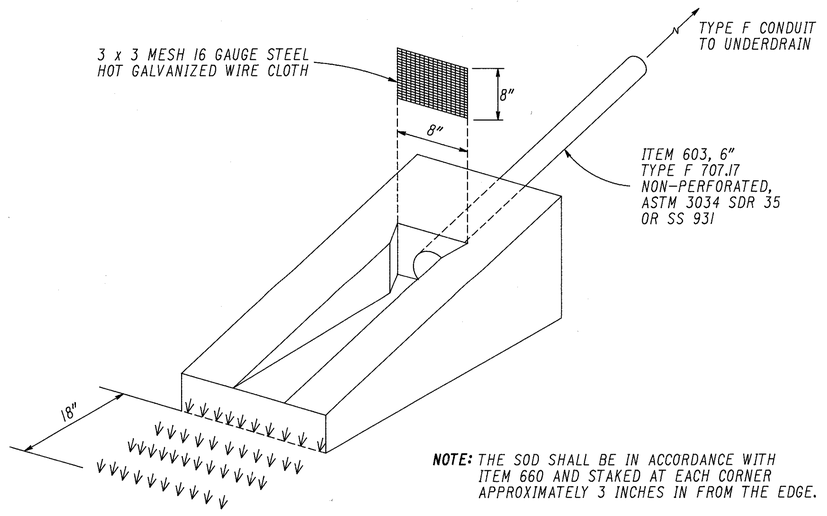
TOP VIEW



SIDE VIEW



FRONT VIEW



NOTE: THE SOD SHALL BE IN ACCORDANCE WITH ITEM 660 AND STAKED AT EACH CORNER APPROXIMATELY 3 INCHES IN FROM THE EDGE.

PIPE UNDERDRAIN OUTLET DETAILS

MAINTENANCE OF TRAFFIC GENERAL NOTES

ITEM 614 MAINTAINING TRAFFIC

THE CONTRACTOR SHALL MAINTAIN TRAFFIC AT ALL TIMES IN ACCORDANCE WITH THE REQUIREMENTS OF SPECIFICATION ITEM 614. TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING PAVEMENT, THE COMPLETED PAVEMENT, ITEM 615 TEMPORARY ROADS AND PAVEMENTS, AND TEMPORARY ROADWAYS SURFACED WITH ITEM 410 AGGREGATE AND STABILIZED WITH ITEM 616 CALCIUM CHLORIDE. THE LIMITS AND DURATION OF USE OF TEMPORARY ROADWAYS SHALL BE HELD TO AN ABSOLUTE MINIMUM, AND IN ALL CASES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

TRAFFIC SHALL BE MAINTAINED TO THE IMPERIAL GLASS CORPORATION AT ALL TIMES DURING CONSTRUCTION BY USING THE SUBGRADE AND ITEM 410 FURNISHED FOR MAINTENANCE OF TRAFFIC AND THE FINISHED PAVEMENT.

TRAFFIC SHALL BE MAINTAINED TO FROZEN STORAGE FOOD, INC. AT EAST END OF RELOCATED 26TH STREET AT ALL TIMES DURING CONSTRUCTION BY USING THE EXISTING PAVEMENT, COMPLETED PAVEMENT, SUBGRADE, AND TEMPORARY ROADWAYS SURFACED WITH ITEM 410 FURNISHED FOR MAINTENANCE OF TRAFFIC.

THE CONTRACTOR, AT HIS OPTION, MAY CHOOSE TO MAINTAIN TRAFFIC TO T.R. 619 AND 10TH STREET BY THE USE OF A TEMPORARY RUNAROUND FROM 12TH STREET TO T.R. 619 OR BY THE USE OF TEMPORARY RUNAROUNDS USED IN CONJUNCTION WITH PARTIAL CONSTRUCTION OF RELOCATED 10TH STREET AND T.R. 619 BY USING THE SUBGRADE, ITEM 410 FURNISHED FOR THE MAINTENANCE OF TRAFFIC AND THE FINISHED PAVEMENT. REFER TO SCHEMATIC PLAN FOR APPROXIMATE LOCATION FOR TEMPORARY RUNAROUNDS.

THE SEQUENCE OF CONSTRUCTION OPERATIONS AND TEMPORARY ROAD USE SHALL BE COORDINATED AND CONFORM TO THE GENERAL NOTE, "CONSTRUCTION SEQUENCE".

ITEM 614 TEMPORARY TRAFFIC SIGNALS

INCIDENTAL TO THE REQUIREMENTS FOR MAINTAINING TRAFFIC IN ACCORDANCE WITH 614.03 THE CONTRACTOR SHALL PROVIDE TEMPORARY TRAFFIC SIGNALS IN ACCORDANCE WITH 614.03(e) AT THE INTERSECTIONS OF 2ND RELOCATED BELMONT AT 26TH STREET AND AT CRESCENT STREET.

AT CRESCENT STREET THE EXISTING SIGNAL OPERATION SHALL BE MAINTAINED DURING THE PERIOD OF CONSTRUCTION. THE EXISTING TRAFFIC SIGNALS AT THE SOUTHEAST CORNER OF THE INTERSECTION MAY BE RESET TO A PERMANENT LOCATION OR TEMPORARY SIGNAL HEADS MAY BE PROVIDED DURING THIS PERIOD.

AT 26TH STREET THE PROPOSED PERMANENT SIGNAL EQUIPMENT MAY BE USED OR A TEMPORARY INSTALLATION MAY BE PROVIDED. OPERATION SHALL BE 2 PHASE PRETIMED. IF A TEMPORARY INSTALLATION IS PROVIDED, PEDESTRIAN SIGNALS SHALL BE OMITTED AND A 60 SECOND CYCLE SHALL BE SPLIT APPROXIMATELY 65% TO BELMONT STREET GREEN, AND 25% TO 26TH STREET GREEN WITH 3 SECOND CLEARANCES. IF THE PROPOSED SIGNAL INSTALLATION IS USED, THE INTERIM SET UP AND OPERATION SHALL BE AS SHOWN ON SHEET 45.

ITEM 615 TEMPORARY ROADS AND PAVEMENTS

ON THIS PROJECT THE TEMPORARY CLASS A PAVEMENT SHALL BE 25 FEET WIDE AND THE ROADWAY WIDTH SHALL BE NOT LESS THAN 32 FEET OUT TO OUT OF SHOULDERS AND 28 FEET FACE TO FACE OF RAIL WHERE GUARDRAIL IS USED. THE ALIGNMENTS AND PAVEMENT TYPICAL SECTIONS SHALL BE AS DETAILED ON THE ASSOCIATED PLAN-PROFILE SHEETS.

AN ESTIMATED QUANTITY OF 8885 SQ. YD. TEMPORARY CLASS "A" PAVEMENT IS INCLUDED IN THE GENERAL SUMMARY FOR TEMPORARY ROAD 'A', MAINLINE STA. 750+06.30, TO STA. 785+08.86 AT EXISTING BELMONT AVENUE, AND FOR TEMPORARY ROAD 'B' AT 2ND RELOCATED BELMONT AVENUE STA. 22+08 AND STA. 23+70. (1844 SQ. YDS. RURAL - 7041 SQ. YDS. URBAN)

ALTHOUGH ESTIMATES FOR TEMPORARY GUARDRAIL HAVE BEEN SHOWN ON THE PLAN DETAILS, THIS ITEM SHALL BE CONSIDERED INCIDENTAL TO, AND INCLUDED WITH, PAYMENT FOR ITEM 615, TEMPORARY ROADS.

THE FOLLOWING QUANTITY IS CARRIED TO THE GENERAL SUMMARY:
ITEM 615 - TEMPORARY ROADS----------LUMP.

PLACEMENT OF ASPHALT CONCRETE

TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES EXCEPT THAT ONE-WAY TRAFFIC WILL BE PERMITTED FOR MINIMUM PERIODS OF TIME CONSISTENT WITH THE REQUIREMENTS OF THE SPECIFICATIONS FOR PROTECTION OF COMPLETED ASPHALT CONCRETE COURSES.

PART-WIDTH CONSTRUCTION

BECAUSE OF THE NECESSITY OF BUILDING PORTIONS OF THIS PROJECT UNDER TRAFFIC AND CONSTRUCTING THE FULL PAVEMENT WIDTH IN STAGES, EXTREME CARE SHALL BE TAKEN TO PREVENT THE CONSTRUCTION OF A BUTT JOINT ON CENTERLINE IN THE BASE COURSES. LONGITUDINAL JOINTS SHALL BE LAPPED AS SHOWN ON STANDARD CONSTRUCTION DRAWING BP-5.

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 HIGHWAY LYING WITHIN THE PROPOSED WORK LIMITS. NECESSARY UPKEEP OF THE ADJOINING PAVEMENTS WHICH ARE USED FOR TRAFFIC MAINTENANCE BUT ARE OUTSIDE OF THE RIGHT-OF-WAY FOR THE PROPOSED HIGHWAY RELOCATION WILL BE PROVIDED BY OTHERS.

CONSTRUCTION SEQUENCE

THE PROJECT HAS TWO AREAS WHERE THE WORK SHALL BE COORDINATED AND PERFORMED IN A PARTICULAR SEQUENCE TO ACCOMMODATE TRAFFIC. INASMUCH AS EACH WORK AREA IS INDEPENDENT OF PROGRESS IN THE OTHER, THE FOLLOWING CONSTRUCTION SEQUENCE IS PRESCRIBED SEPARATELY FOR EACH AREA.

FOR MAINTAINING TRAFFIC WHERE DESCRIBED AS "OVER THE WORK" IN THE FOLLOWING, THE CONTRACTOR SHALL SUBMIT HIS PLAN OF PROCEDURE TO THE ENGINEER AND OBTAIN THE APPROVAL OF THE ENGINEER BEFORE BEGINNING THE WORK OF THE STAGE INVOLVED. REFER TO SPECIFICATION 614.03.

FOR WORK BETWEEN BEGIN WORK, STATION 746+00 AND STATION 785+00.

PHASE I

MAINTAIN TRAFFIC ON THE EXISTING ROADWAYS.
CONSTRUCT PINCH RUN CULVERT FROM STA. 20+20 TO STA. 22+14 AND THE TEMPORARY DIVERSION OF PINCH RUN INTO THE CULVERT.

CONSTRUCT CROSSOVERS STA. 746+00 TO STA. 750+00.00.

CONSTRUCT TEMPORARY ROAD 'A' AS PROVIDED IN THE PLAN.

CONCURRENTLY, THE CONTRACTOR MAY CLOSE TOWNSHIP ROAD 619 AT THE INTERSECTION OF 12TH STREET AND TOWNSHIP ROAD 619 WHILE CONSTRUCTING THE BOX CULVERT UNDER RELOCATED 10TH STREET. TWO-WAY TRAFFIC MUST BE MAINTAINED TO TOWNSHIP ROAD 619 AND TO 10TH STREET AT ALL TIMES DURING CONSTRUCTION OF THE BOX CULVERT.

PHASE II

MAINTAIN TWO-WAY S.R. 7 TRAFFIC BY USING THE MEDIAN CROSSOVER, STA. 746+00 TO STA. 750+00.00, TEMPORARY ROAD 'A' AND EXISTING BELMONT STREET.

CONSTRUCT THE REMAINING PORTION OF PINCH RUN CULVERT AND PINCH RUN CHANNEL CHANGE.

TWO-WAY TRAFFIC SHALL BE MAINTAINED ON 12TH STREET AT ALL TIMES DURING THE CONSTRUCTION OF 12TH STREET BY USING THE SUBGRADE, ITEM 410 FURNISHED FOR THE MAINTENANCE OF TRAFFIC, AND THE FINISHED PAVEMENT.

CONSTRUCT THE SOUTHBOUND LANE FROM STA. 750+06.30 (BEGIN PROJECT) TO STA. 772+50. CONSTRUCT THE NORTHBOUND LANE FROM STA. 761+00 TO STA. 772+50 INCLUDING BRIDGE STRUCTURES.

CONSTRUCT RAMP C AND 1ST RELOCATED BELMONT STREET.

TWO-WAY TRAFFIC TO 12TH STREET AND TO PROPERTIES ALONG THE WEST SIDE OF 1ST RELOCATED BELMONT STREET BETWEEN STA. 19+00 AND STA. 24+50 SHALL BE MAINTAINED AT ALL TIMES BY USING THE SUBGRADE, ITEM 410 FURNISHED FOR THE MAINTENANCE OF TRAFFIC AND THE FINISHED PAVEMENT. (SEE LOCATION SHOWN ON THE PLANS.)

AS SOON AS THE EXISTING PINCH RUN PUMP STATION HAS BEEN RECONSTRUCTED, CONSTRUCT RAMP D BETWEEN STA. 769+91.78 AND STA. 772+50.

PHASE III

MAINTAIN TWO-WAY TRAFFIC ON S.R. 7 BY USING THE CROSSOVER STA. 746+00 TO STA 750+00.00, RAMP C, 1ST RELOCATED BELMONT STREET, AND EXISTING BELMONT STREET.

REMOVE TEMPORARY ROAD A AND CONSTRUCT RAMP A AND RAMP B INCLUDING INTERSECTION WITH 1ST RELOCATED BELMONT STREET.

CONSTRUCT NORTHBOUND PAVEMENT FROM STA. 750+06.30 (BEGIN PROJECT) TO STA 761+00, NORTHBOUND AND SOUTHBOUND LANES BETWEEN STA. 772+50 TO STA. 785+00.

FOR WORK BETWEEN STATION 785+00 AND END WORK, STATION 830+30.

PHASE I

TRAFFIC SHALL BE MAINTAINED ON EXISTING PAVEMENTS AND BELMONT STREET TEMPORARY ROAD 'B' STA. 22+08 TO STA. 23+70 (SEE PLAN SHEET 41 AND THE NOTE "614 TEMPORARY TRAFFIC SIGNALS").

CONSTRUCT 2ND RELOCATED BELMONT STREET FULL WIDTH, FROM STA. 12+50 TO STA. 20+00. FROM STA. 20+00 TO STA. 23+50 CONSTRUCT THE WEST HALF OF 2ND RELOCATED BELMONT STREET.

CONSTRUCT THE WEST SIDE OF 27TH STREET AND CHERRY ALLEY CONNECTION TO 2ND RELOCATED BELMONT STREET.

CONSTRUCT THE WEST SIDE OF 29TH STREET CONNECTION TO 2ND RELOCATED BELMONT STREET.

CONSTRUCT RELOCATED 26TH STREET FROM STA. 8+00 TO STA. 16+00, AND FROM STA. 17+30 TO STA. 23+37.50. MAINTAIN TRAFFIC ON EXISTING 26TH STREET PAVEMENT, AND OVER THE CONSTRUCTION ON 2ND RELOCATED BELMONT STREET TO EXISTING BELMONT STREET.

PHASE II

COMPLETE CONSTRUCTION OF 2ND RELOCATED BELMONT STREET STA. 11+32.36 TO STA. 12+50. WHILE MAINTAINING TRAFFIC OVER THE CONSTRUCTION BY USING THE EXISTING PAVEMENT, SUBGRADE, ITEM 410 FURNISHED FOR MAINTENANCE OF TRAFFIC AND THE PERMANENT PAVEMENT OF 2ND RELOCATED BELMONT.

REMOVE TEMPORARY ROAD 'B' STA. 22+08 TO STA. 23+70 AND CONSTRUCT EAST HALF OF 2ND RELOCATED BELMONT STREET STA. 20+00 TO STA. 23+50, INCLUDING EAST CONNECTIONS TO 27TH AND 29TH STREETS. COMPLETE CONSTRUCTION OF 2ND RELOCATED BELMONT STREET STA. 23+50 TO STA. 24+20 BY UTILIZING HALF WIDTH CONSTRUCTION METHODS, INCLUDING THE CONNECTIONS TO EAST AND WEST CRESCENT STREET.

CONCURRENTLY WITH PLACING TRAFFIC ON 2ND RELOCATED BELMONT STREET, THE CONTRACTOR SHALL MAINTAIN TRAFFIC OVER THE WORK WHILE COMPLETING CONSTRUCTION OF 26TH STREET BETWEEN STA 6+00 AND STA 8+00, BY USING THE SUBGRADE, ITEM 410 FURNISHED FOR MAINTENANCE OF TRAFFIC AND THE PERMANENT PAVEMENT ON 26TH STREET. COMPLETE CONSTRUCTION ON 26TH STREET BETWEEN STA. 16+00 AND 17+30.

CONSTRUCT UNION STREET CONNECTION TO 26TH STREET BETWEEN STA 17+50 AND STA. 19+80.82.

COMPLETE MAINLINE PAVEMENT TO STA. 828+50 AND COMPLETE CONNECTIONS AT RAMPS F AND G TO 26TH STREET.

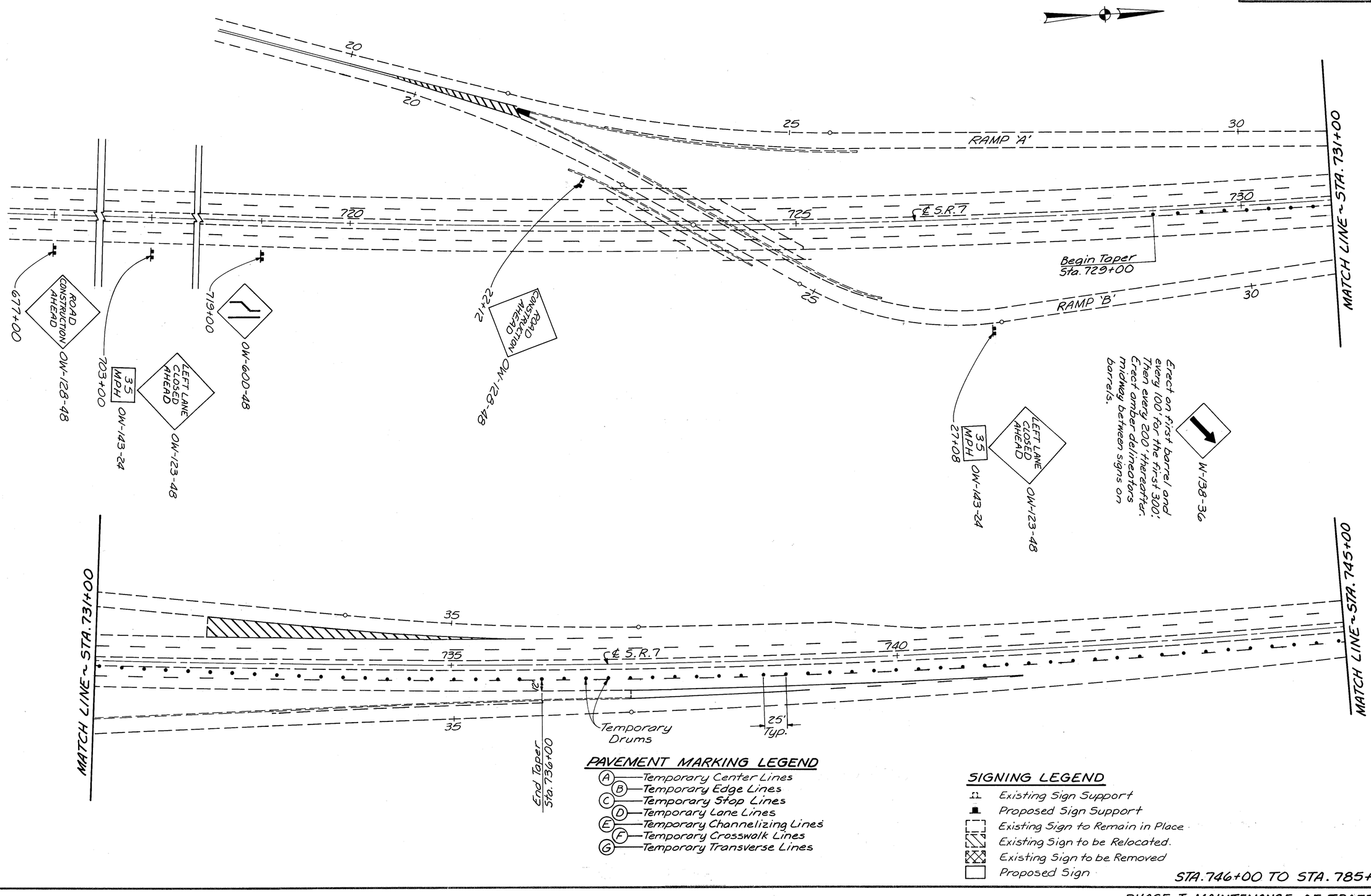
CONSTRUCT GRAPE ALLEY BETWEEN STA. 9+06.74 (AT 17TH STREET) AND STA. 18+81.94 (AT 19TH STREET). MAINTAIN TRAFFIC ON GRAPE ALLEY BY USING THE SUBGRADE, ITEM 410 FURNISHED FOR MAINTENANCE OF TRAFFIC AND THE PERMANENT PAVEMENT.

COMPLETE ALL UNFINISHED PROJECT CONSTRUCTION AND REMOVE ALL TEMPORARY FACILITIES AND TRAFFIC CONTROL DEVICES.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 404	BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC	325 CU. YD.
ITEM 410	TRAFFIC COMPACTED SURFACE TYPE A OR B	1700 CU. YD.
ITEM 410	TRAFFIC COMPACTED SURFACE TYPE C	1700 CU. YD.
ITEM 616	CALCIUM CHLORIDE	34 TONS
ITEM 616	WATER	50 M-GALS.

SEPARATE PAYMENT SHALL BE MADE FOR ITEMS 404, 410, 616, NOTED ABOVE. ALL OTHER WORK REQUIRED FOR TRAFFIC MAINTENANCE, EXCEPT PROVIDING LAW ENFORCEMENT OFFICERS, SHALL BE INCLUDED WITH PAYMENT FOR ITEM 614, MAINTAINING TRAFFIC.



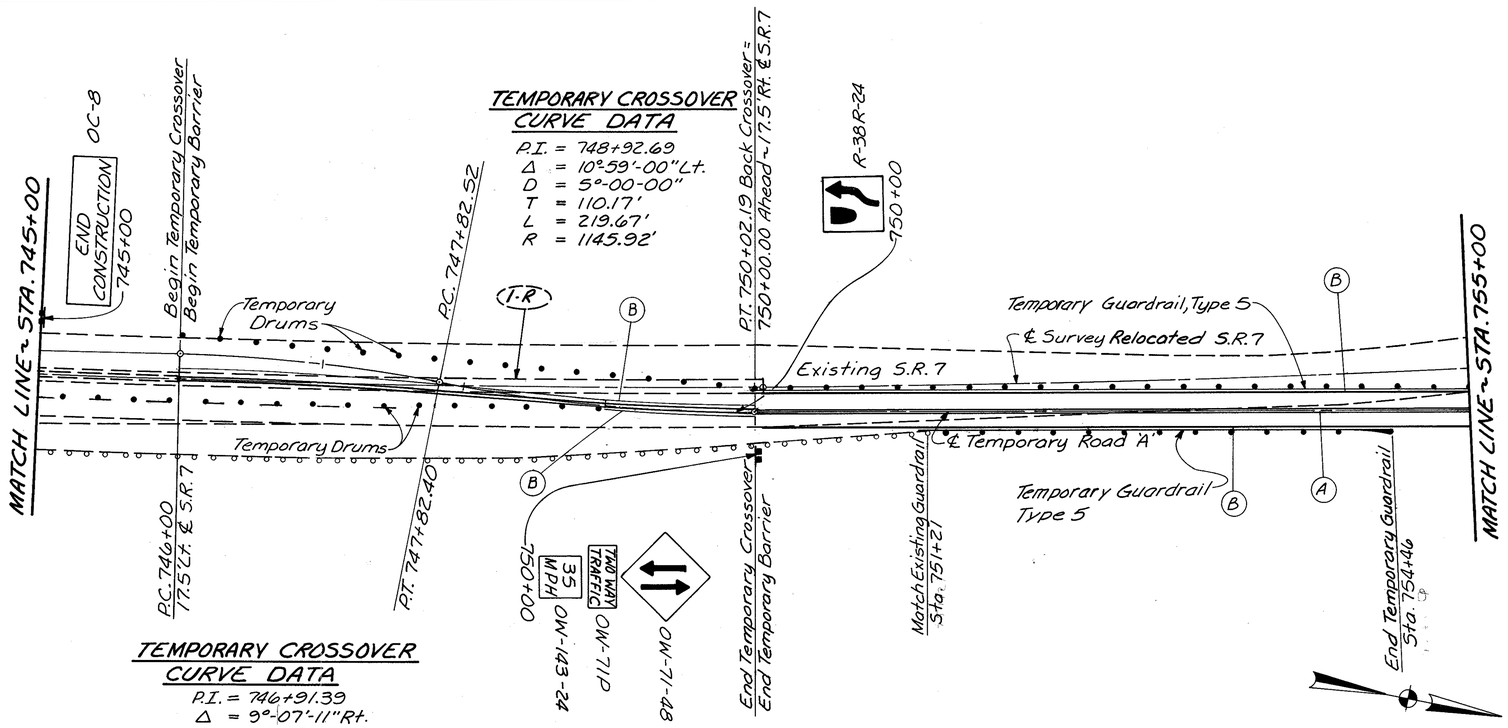
PAVEMENT MARKING LEGEND

- (A) Temporary Center Lines
- (B) Temporary Edge Lines
- (C) Temporary Stop Lines
- (D) Temporary Lane Lines
- (E) Temporary Channelizing Lines
- (F) Temporary Crosswalk Lines
- (G) Temporary Transverse Lines

SIGNING LEGEND

- Existing Sign Support
- Proposed Sign Support
- Existing Sign to Remain in Place
- Existing Sign to be Relocated.
- Existing Sign to be Removed
- Proposed Sign

STA. 746+00 TO STA. 785+00

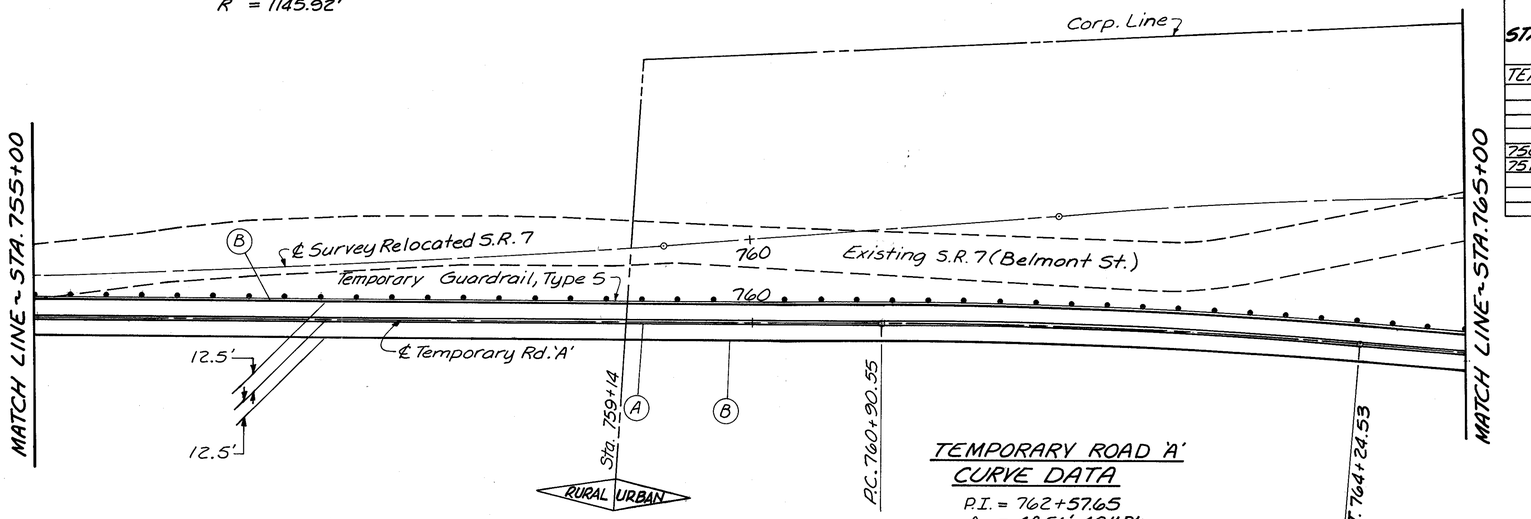


TEMPORARY CROSSOVER CURVE DATA

P.I. = 748+92.69
Δ = 10°-59'-00" Lt.
D = 5°-00'-00"
T = 110.17'
L = 219.67'
R = 1145.92'

TEMPORARY CROSSOVER CURVE DATA

P.I. = 746+91.39
Δ = 9°-07'-11" Rt.
D = 5°-00'-00"
T = 91.39'
L = 182.40'
R = 1145.92'



TEMPORARY ROAD 'A' CURVE DATA

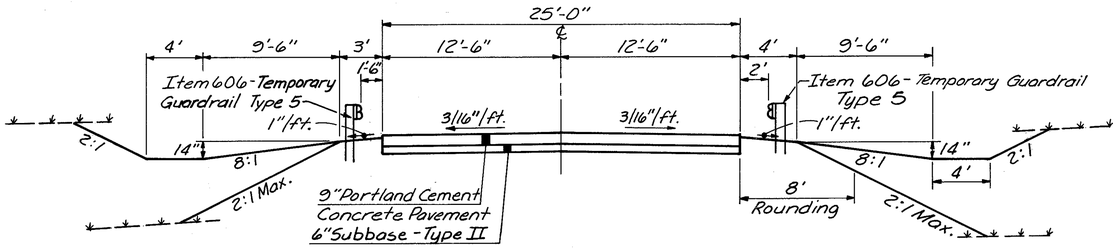
P.I. = 762+57.65
Δ = 4°-56'-48" Rt.
D = 1°-28'-52"
T = 167.09'
L = 333.98'
R = 3868.47'

ESTIMATED QUANTITIES		606			
STATION TO STATION	Side	Temporary Guardrail, Type 5	Temporary Anchor Assembly, Type T	Temporary Anchor Assembly, Type A	
TEMPORARY ROAD		Lin. Ft.	Each	Each	
	Lt.				
	Rt.				
750+00 To 765+00	Lt.	1500	1		
751+21 To 754+46	Rt.	300		1	

For Cross Sections, See Sheet No. 212
For Signing and Pavement Marking Legends; See Sheet No. 28

STA. 746+00 TO STA. 785+00

PHASE I MAINTENANCE OF TRAFFIC PLAN



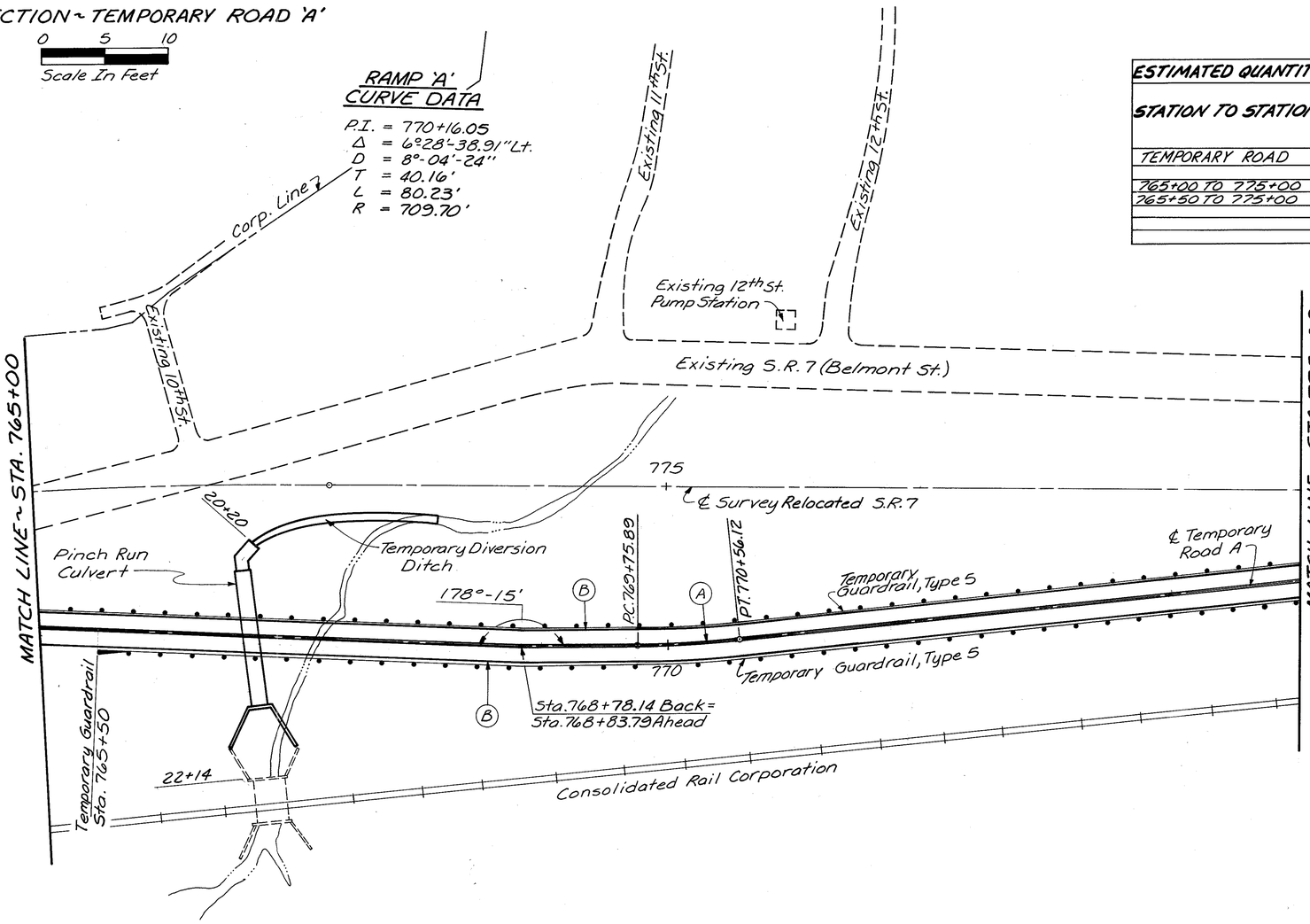
TYPICAL SECTION ~ TEMPORARY ROAD 'A'

0 5 10
Scale In Feet

RAMP 'A' CURVE DATA

P.I. = 770+16.05
Δ = 6°28'-38.91" Lt.
D = 8°-04'-24"
T = 40.16'
L = 80.23'
R = 709.70'

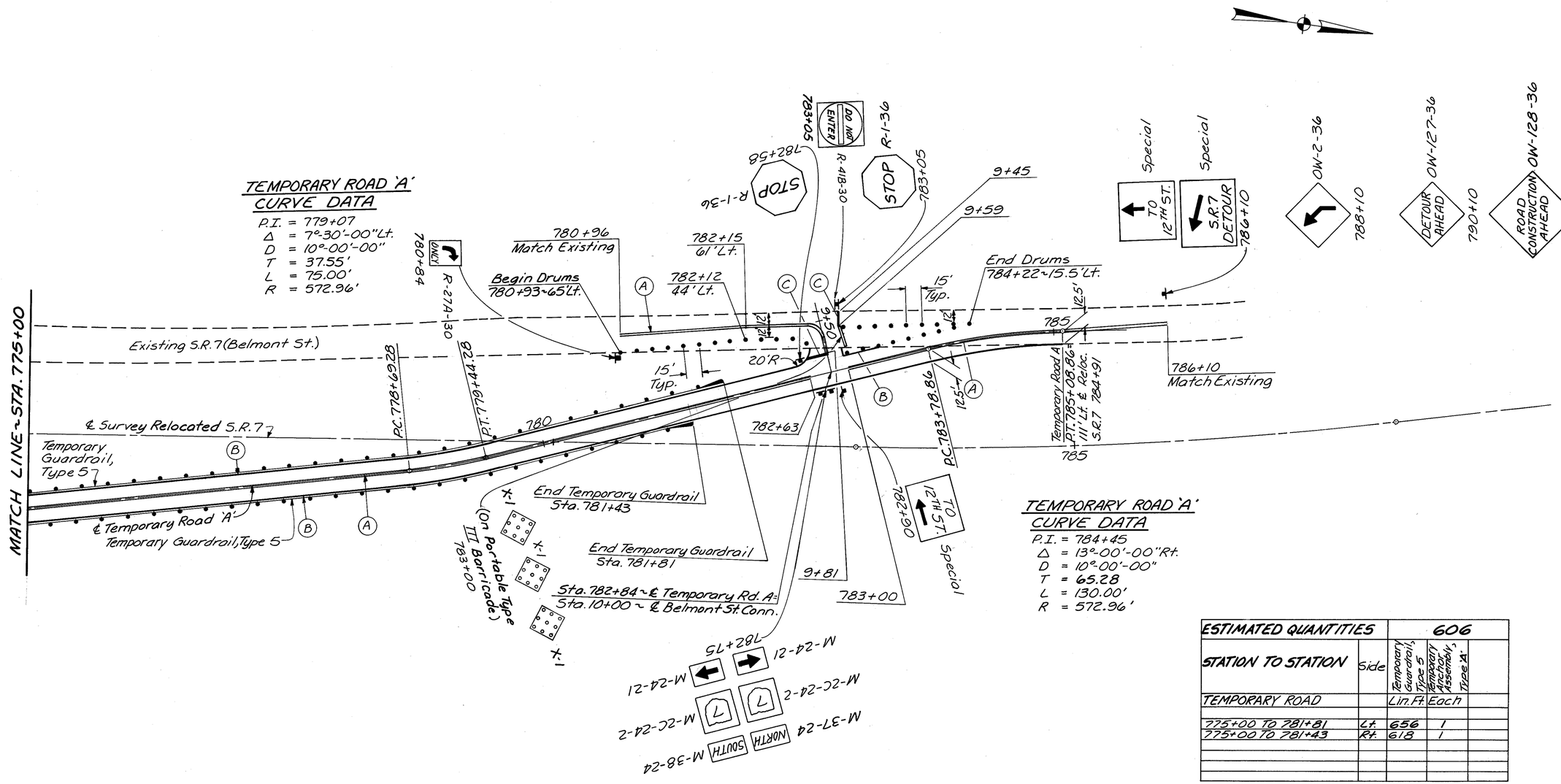
ESTIMATED QUANTITIES		606	
STATION TO STATION	Side	Temporary Guardrail, Type 5	Temporary Anchor Assembly, Type A
TEMPORARY ROAD		Lin. Ft.	Each
765+00 TO 775+00	Lt.	1000	
765+50 TO 775+00	Rt.	925	1



For Cross Sections, See Sheet No. 212
For Pavement Marking Legend; See Sheet No. 28

STA. 746+00 TO STA. 785+00

PHASE I MAINTENANCE OF TRAFFIC PLAN



TEMPORARY ROAD 'A' CURVE DATA

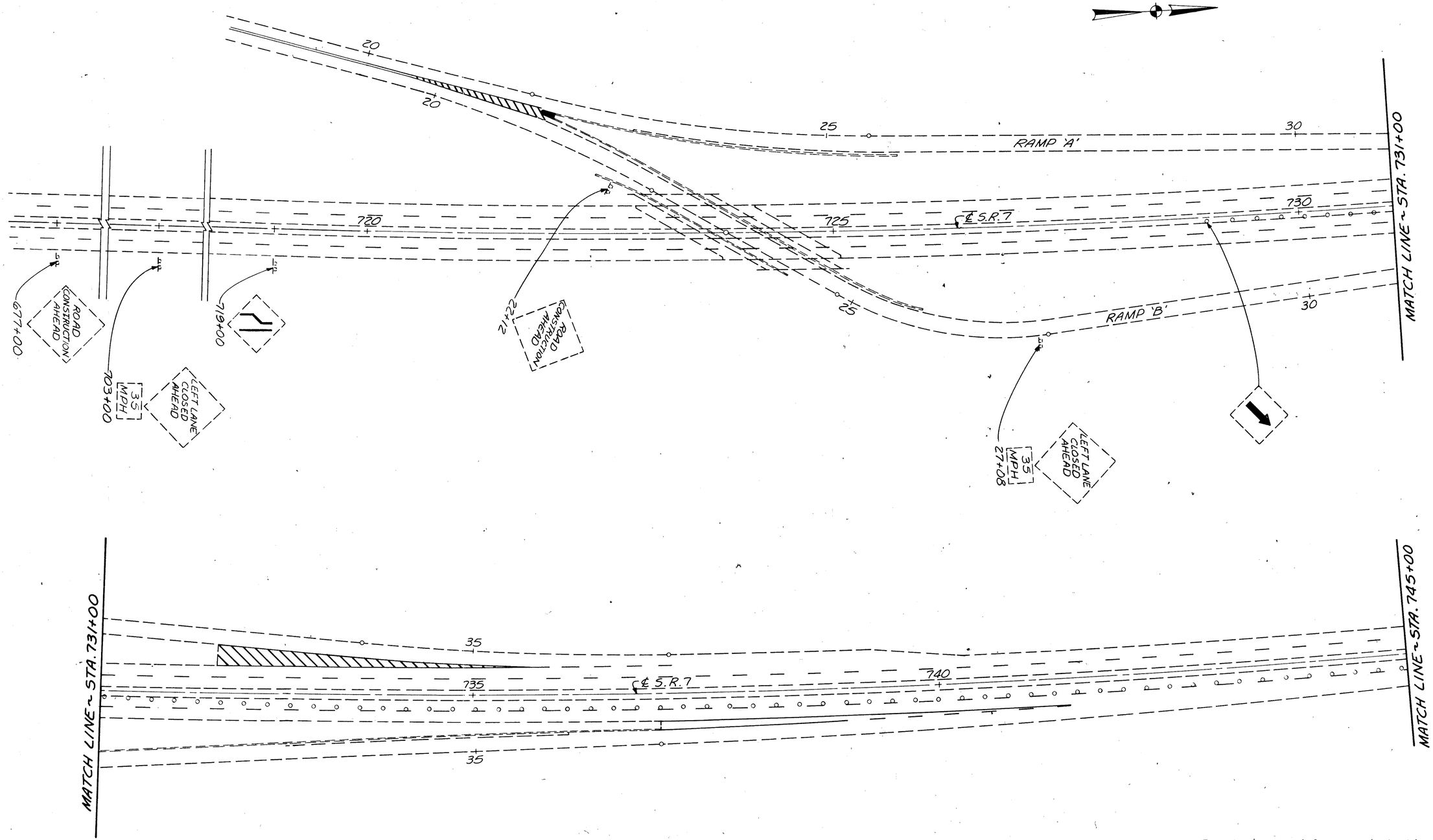
P.I. = 784+45
Δ = 13°-00'-00"Rt.
D = 10°-00'-00"
T = 65.28
L = 130.00'
R = 572.96'

ESTIMATED QUANTITIES		606		
STATION TO STATION	Side	Temporary Guardrail, Type 5	Temporary Anchorage Assembly, Type 1A	
TEMPORARY ROAD		Lin.Ft.	Each	
775+00 TO 781+81	Lt.	656	1	
775+00 TO 781+43	Rt.	618	1	

For Cross Sections, See Sheet No. 212
For Signing and Pavement Marking Legends; See Sheet No. 28

STA. 746+00 TO STA. 785+00

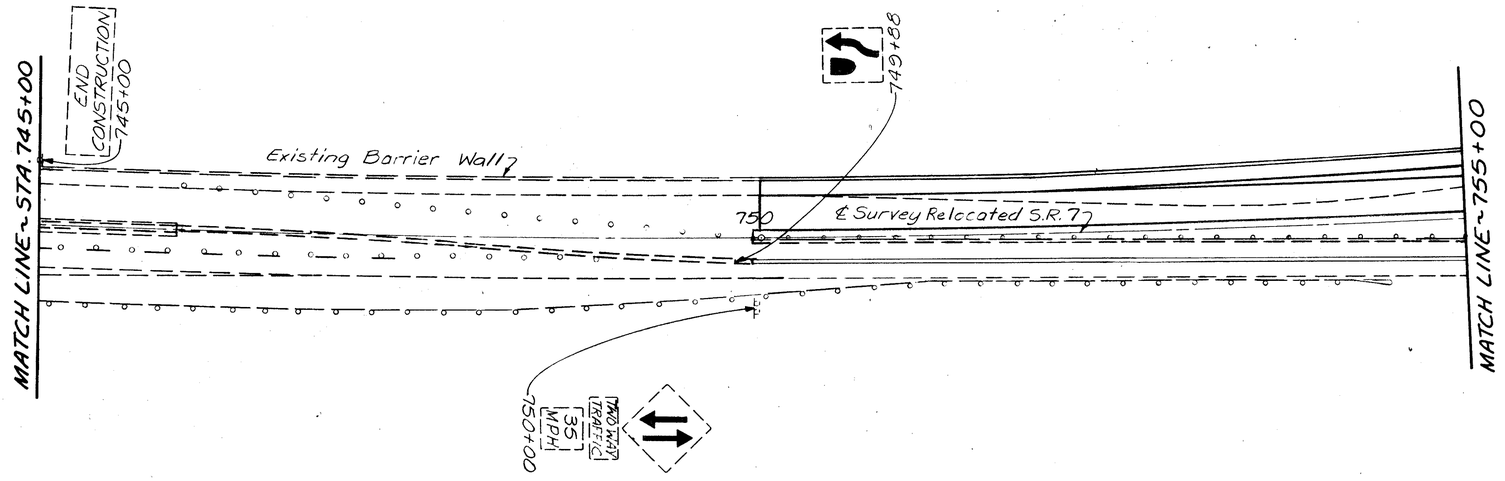
PHASE I MAINTENANCE OF TRAFFIC PLAN

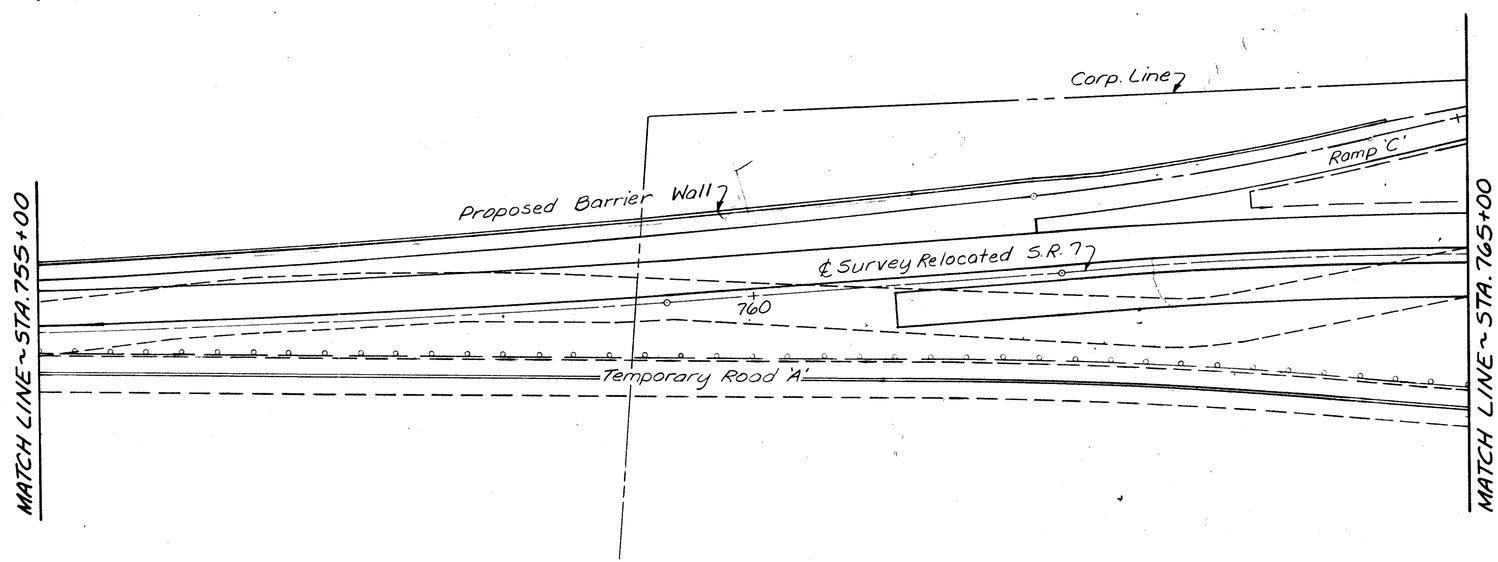


For Signing and Pavement Marking Legends; See Sheet No. 28

STA. 746+00 TO STA. 785+00

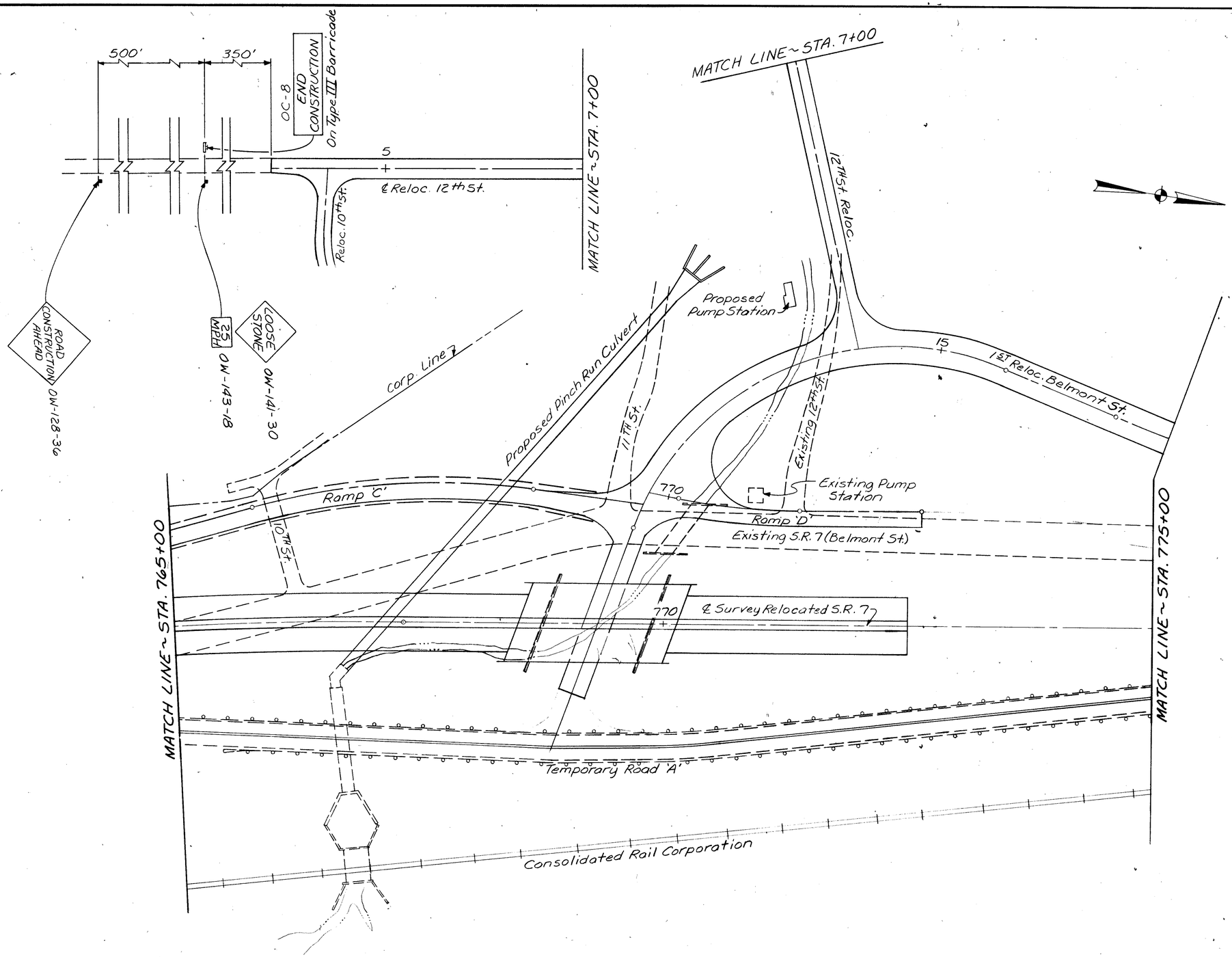
PHASE II MAINTENANCE OF TRAFFIC PLAN





STA. 746+00 TO STA. 785+00

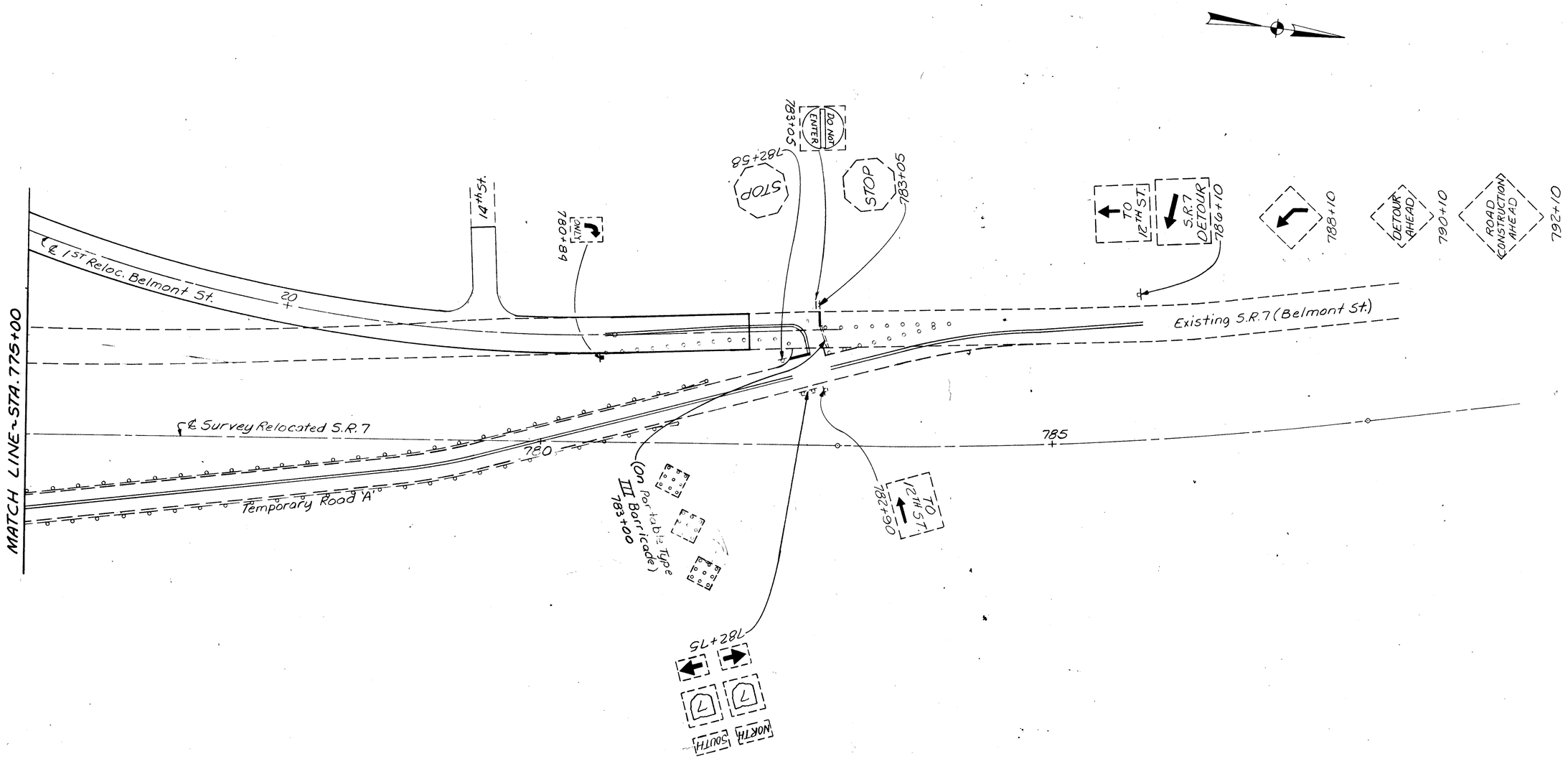
PHASE II MAINTENANCE OF TRAFFIC PLAN



For Signing Legend, See Sheet No. 28

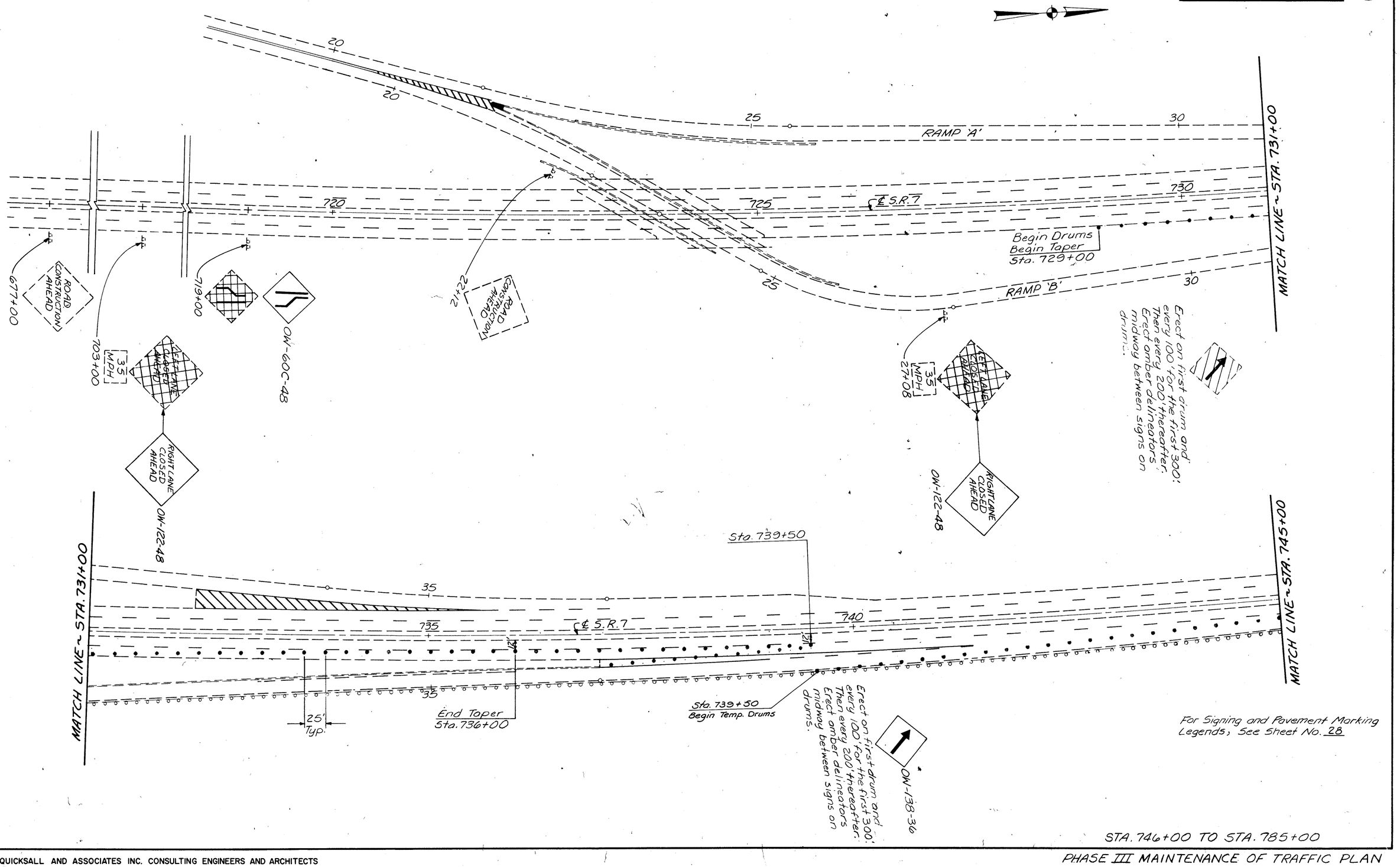
STA. 746+00 TO STA. 785+00

PHASE II MAINTENANCE OF TRAFFIC PLAN



STA. 746+00 TO STA. 785+00

PHASE II MAINTENANCE OF TRAFFIC PLAN



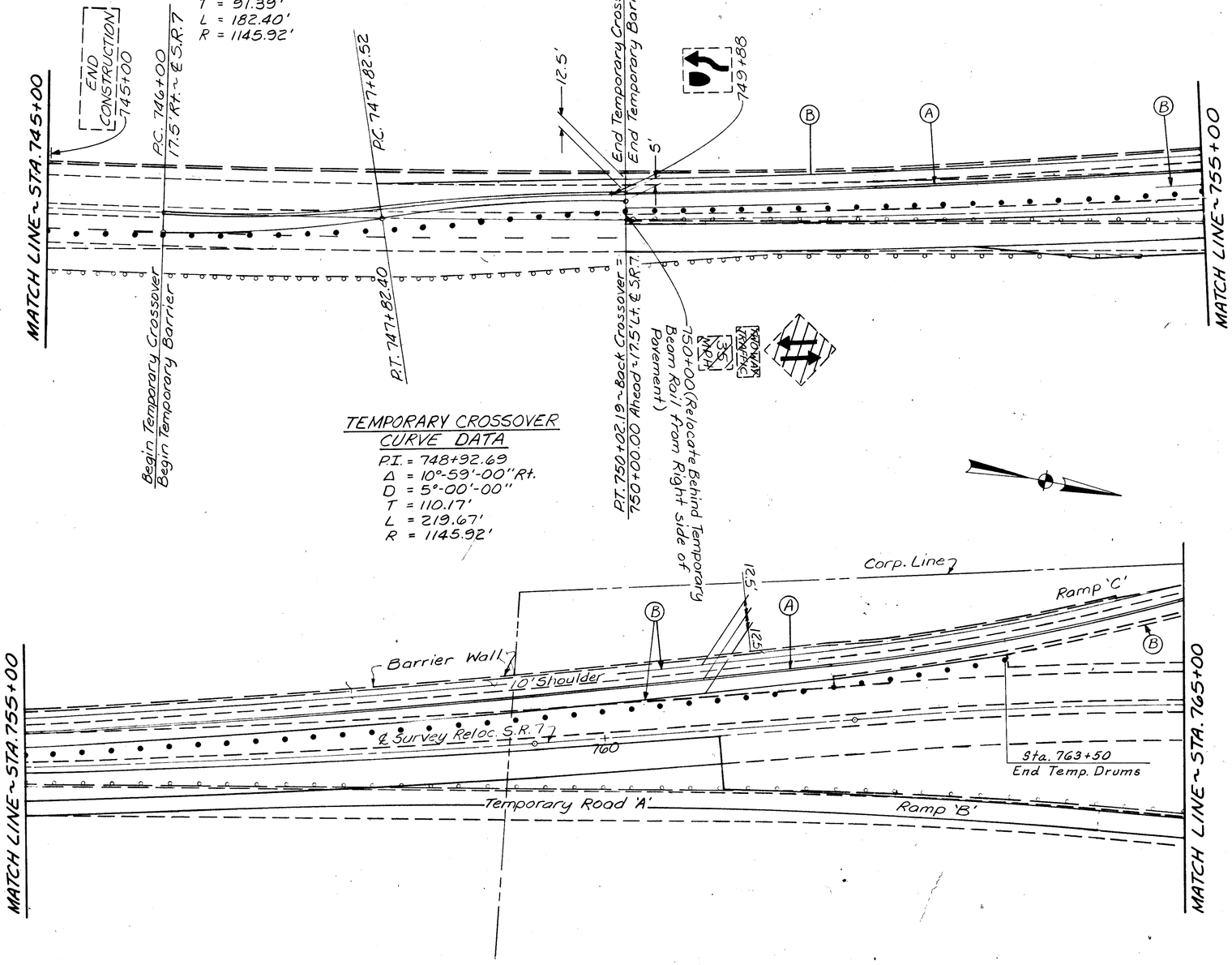
For Signing and Pavement Marking Legends, See Sheet No. 28

STA. 746+00 TO STA. 785+00

PHASE III MAINTENANCE OF TRAFFIC PLAN

TEMPORARY CROSSOVER CURVE DATA

P.I. = 746+91.39
Δ = 9°07'-11" Lt.
D = 5°-00'-00"
T = 91.39'
L = 182.40'
R = 1145.92'



TEMPORARY CROSSOVER CURVE DATA

P.I. = 748+92.69
Δ = 10°-59'-00" Rt.
D = 5°-00'-00"
T = 110.17'
L = 219.67'
R = 1145.92'

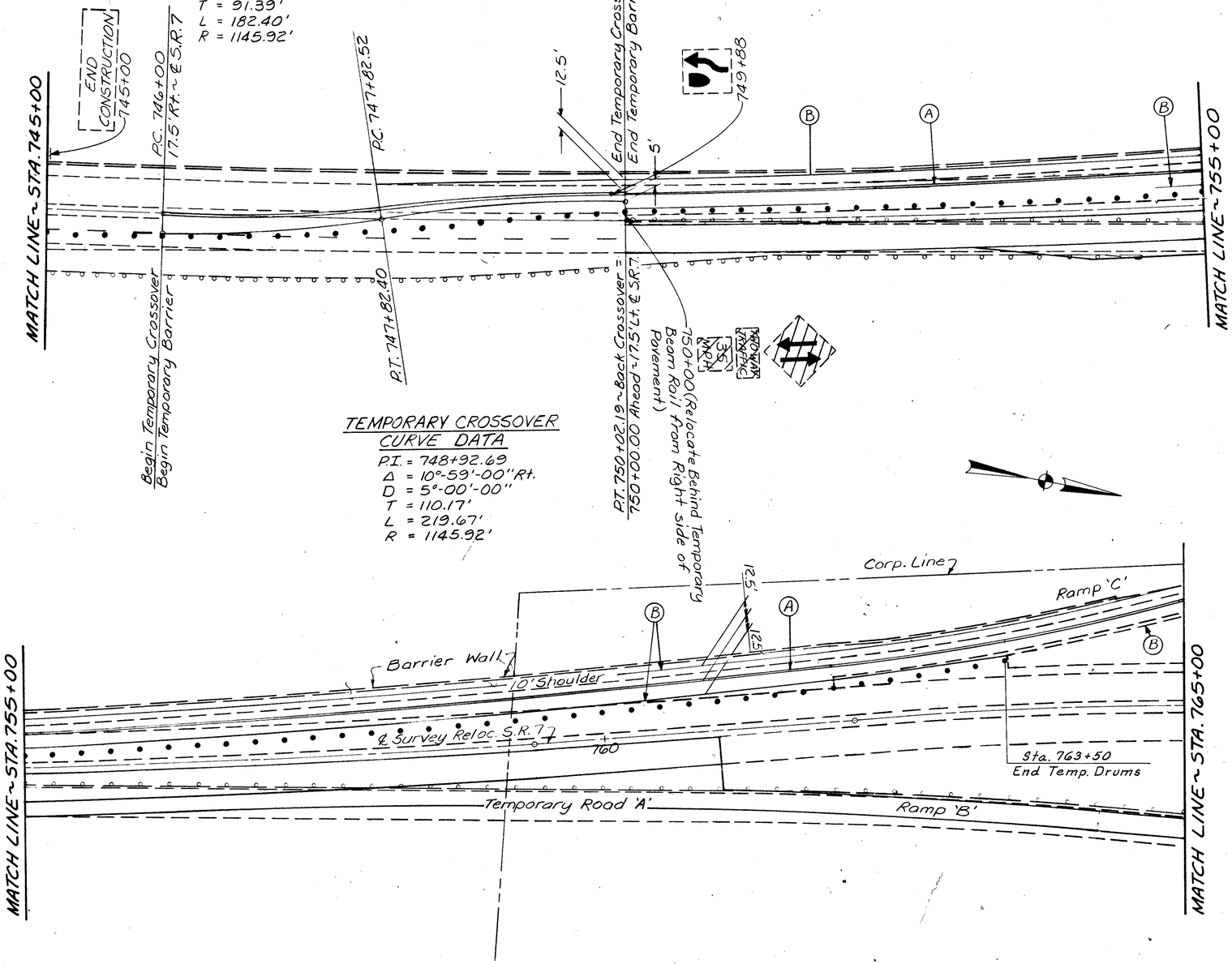
For Signing and Pavement Marking Legends, See Sheet No. 28

STA. 746+00 TO STA. 785+00

PHASE III MAINTENANCE OF TRAFFIC PLAN

TEMPORARY CROSSOVER CURVE DATA

P.I. = 746+91.39
Δ = 9°07'-11" Lt.
D = 5°-00'-00"
T = 91.39'
L = 182.40'
R = 1145.92'



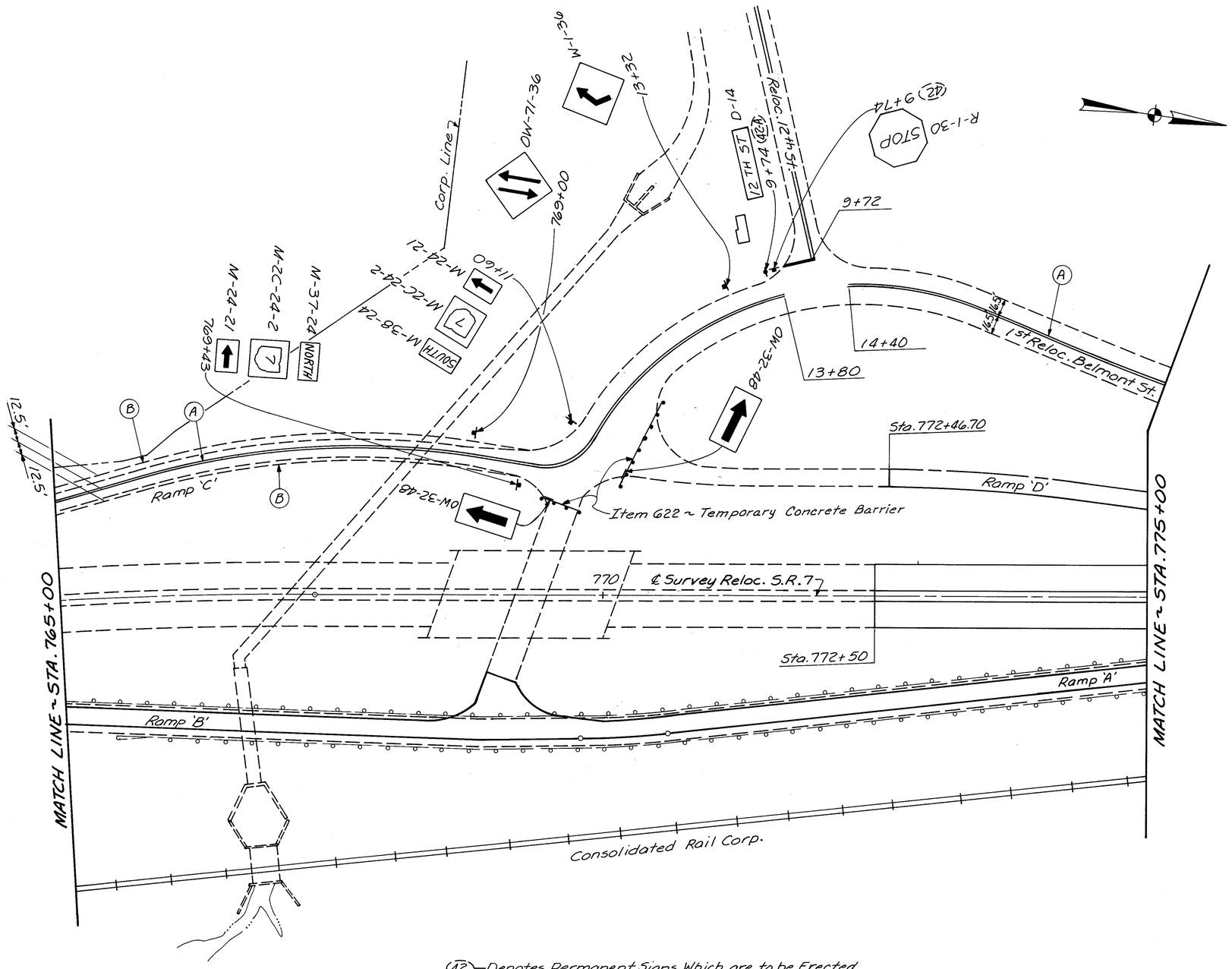
TEMPORARY CROSSOVER CURVE DATA

P.I. = 748+92.69
Δ = 10°-59'-00" Rt.
D = 5°-00'-00"
T = 110.17'
L = 219.67'
R = 1145.92'

For Signing and Pavement Marking Legends, See Sheet No. 28

STA. 746+00 TO STA. 785+00

PHASE III MAINTENANCE OF TRAFFIC PLAN



QUANTITY	622
	Temporary Concrete Barrier
	Lin. Ft.
1st Reloc. Belmont St.	40
Ramp 'D'	90
TOTAL	130

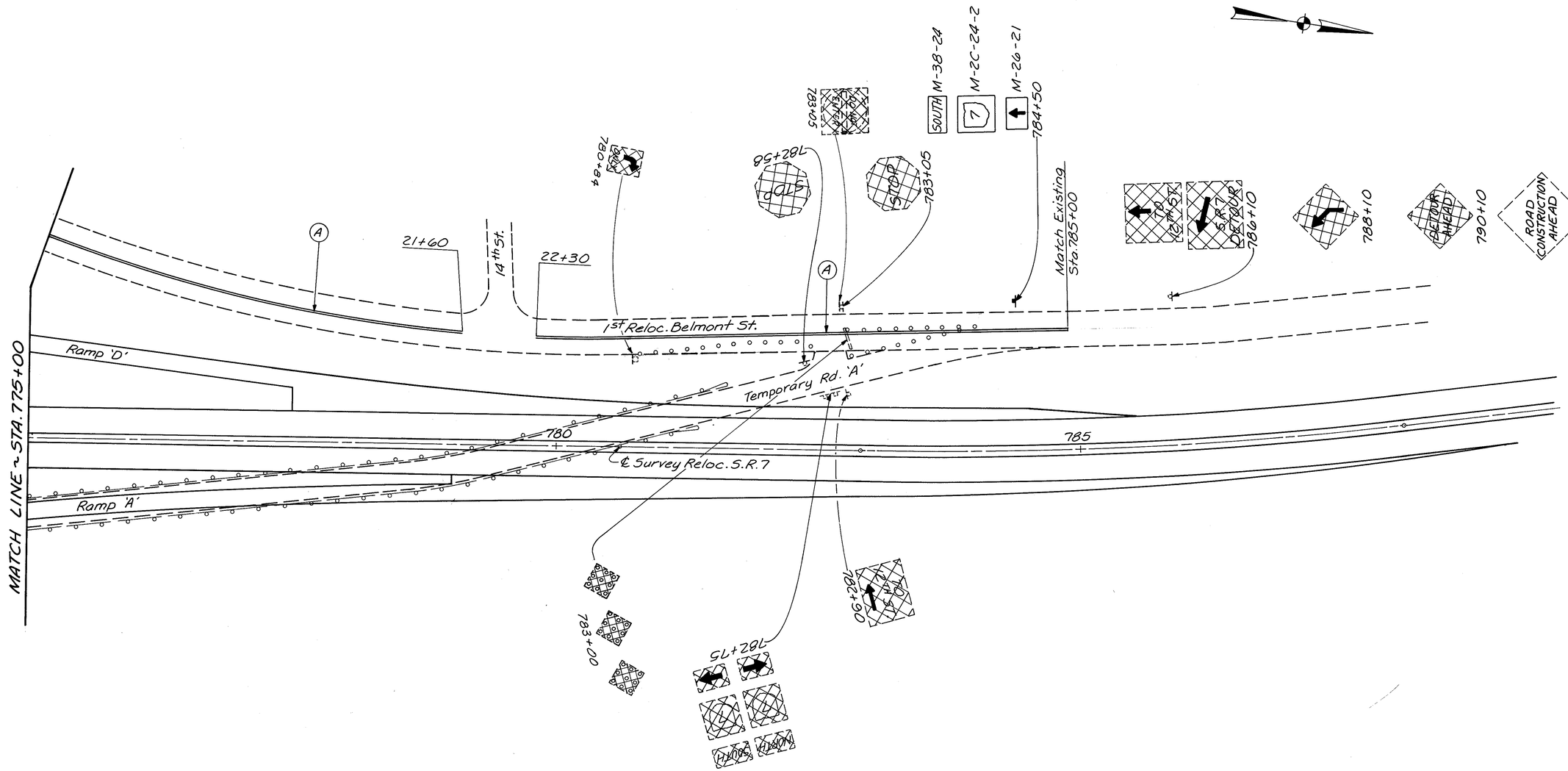
Carried Sheet No 70

(42)—Denotes Permanent Signs Which are to be Erected With This Phase of the Maintenance of Traffic Plan. Payment for These Signs has Been Included With the Traffic Control Plan.

For Signing and Pavement Marking Legends, See Sheet No. 28

STA. 746+00 TO STA. 785+00

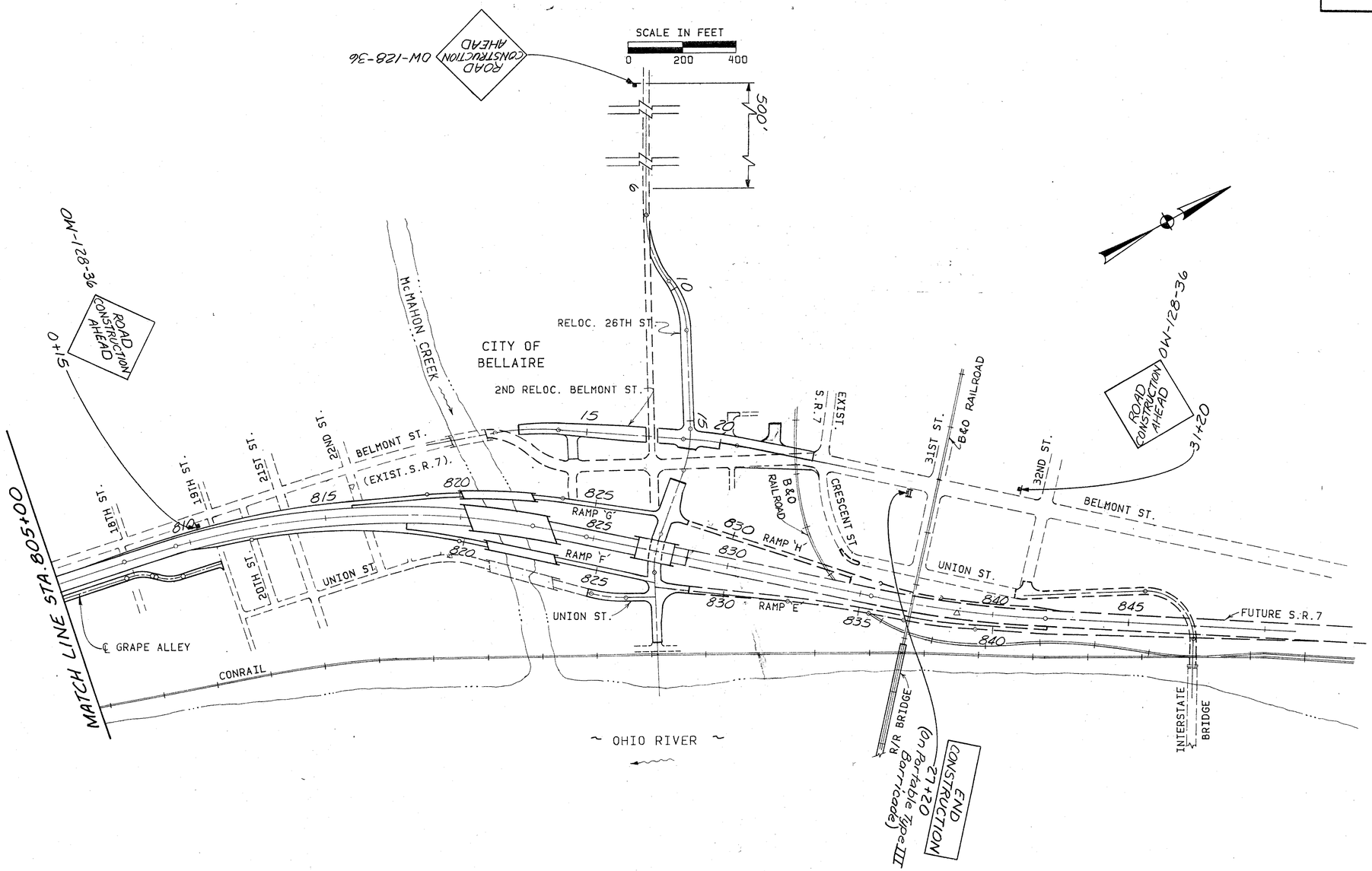
PHASE III MAINTENANCE OF TRAFFIC PLAN



For Signing and Pavement Marking Legends, See Sheet No. 28

STA. 746+00 TO STA. 785+00

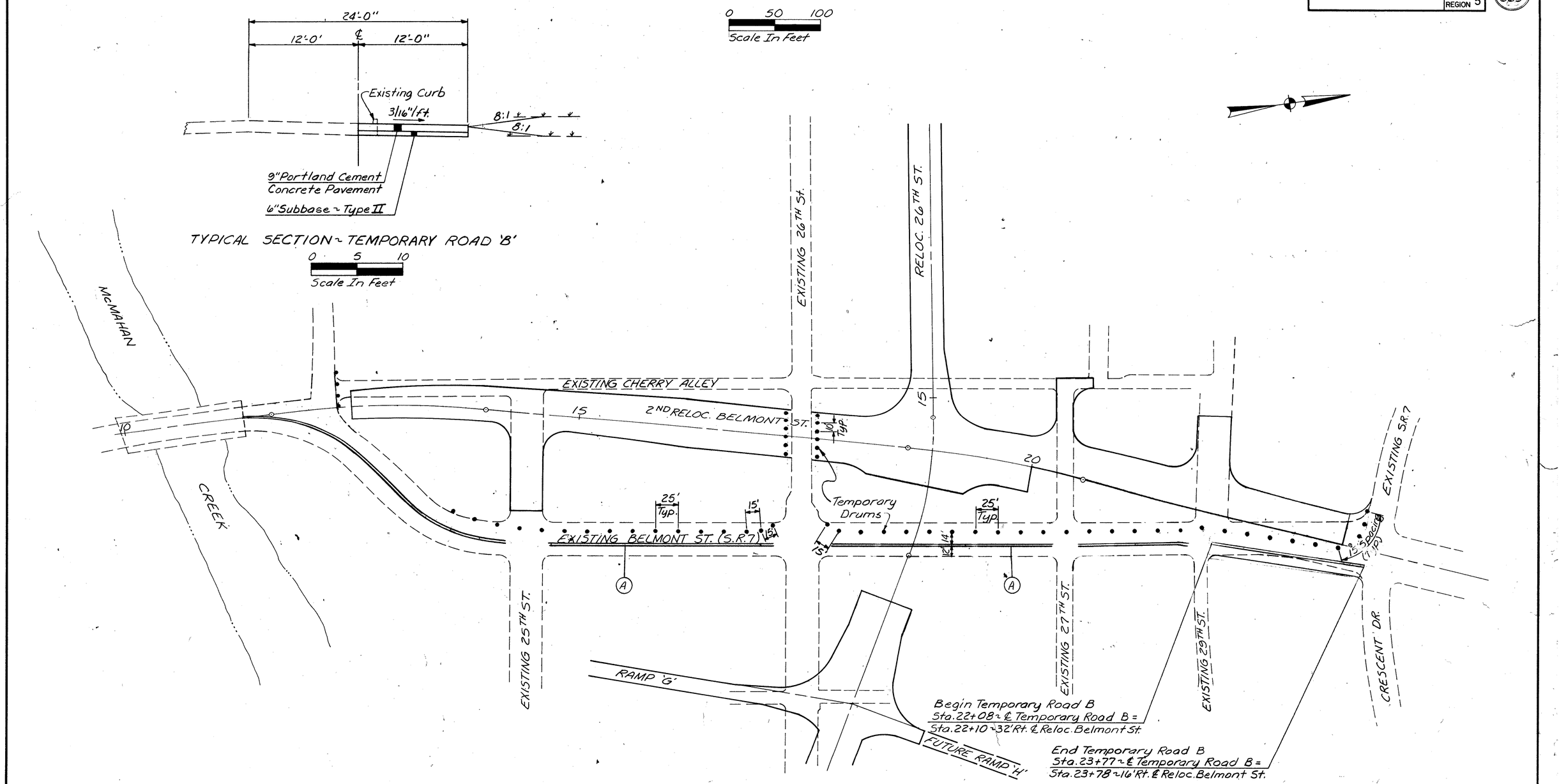
PHASE III MAINTENANCE OF TRAFFIC PLAN



For Cross Sections, See Sheet No. 236
For Signing Legend, See Sheet No. 28

STA. 785+00 TO STA. 830+30

PHASE I MAINTENANCE OF TRAFFIC PLAN



For Cross Sections, See Sheet No. 236
For Pavement Marking Legend, See Sheet No. 28

STA. 785+00 TO STA. 830+30

PHASE I MAINTENANCE OF TRAFFIC PLAN

Drawn GW 8/17/84

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

SCALE IN FEET
0 200 400

ROAD CONSTRUCTION AHEAD

500'

350'

END CONSTRUCTION OC-8
(On Type III Barricade)

25 MPH OW-143-18

LOOSE STONE OW-141-3

LOOSE STONE OW-141-30

25 MPH OW-143-18

7+80

0+15

ROAD CONSTRUCTION AHEAD

MATCH LINE STA. 805+00

McMAHON CREEK

CITY OF BELLAIRE

RELOC. 26TH ST.

2ND RELOC. BELMONT ST.

BELMONT ST. (EXIST. S.R.7).

EXIST. S.R.7

B&O RAILROAD

CRESCENT ST.

31ST ST.

32ND ST.

ROAD CONSTRUCTION AHEAD

3I+20

BELMONT ST.

18TH ST.

19TH ST.

21ST ST.

22ND ST.

20TH ST.

UNION ST.

RAMP G

RAMP F

RAMP H

RAMP E

UNION ST.

UNION ST.

FUTURE S.R.7

℄ GRAPE ALLEY

CONRAIL

~ OHIO RIVER ~

R/R BRIDGE

END CONSTRUCTION 27+20
(On Type III Barricade)

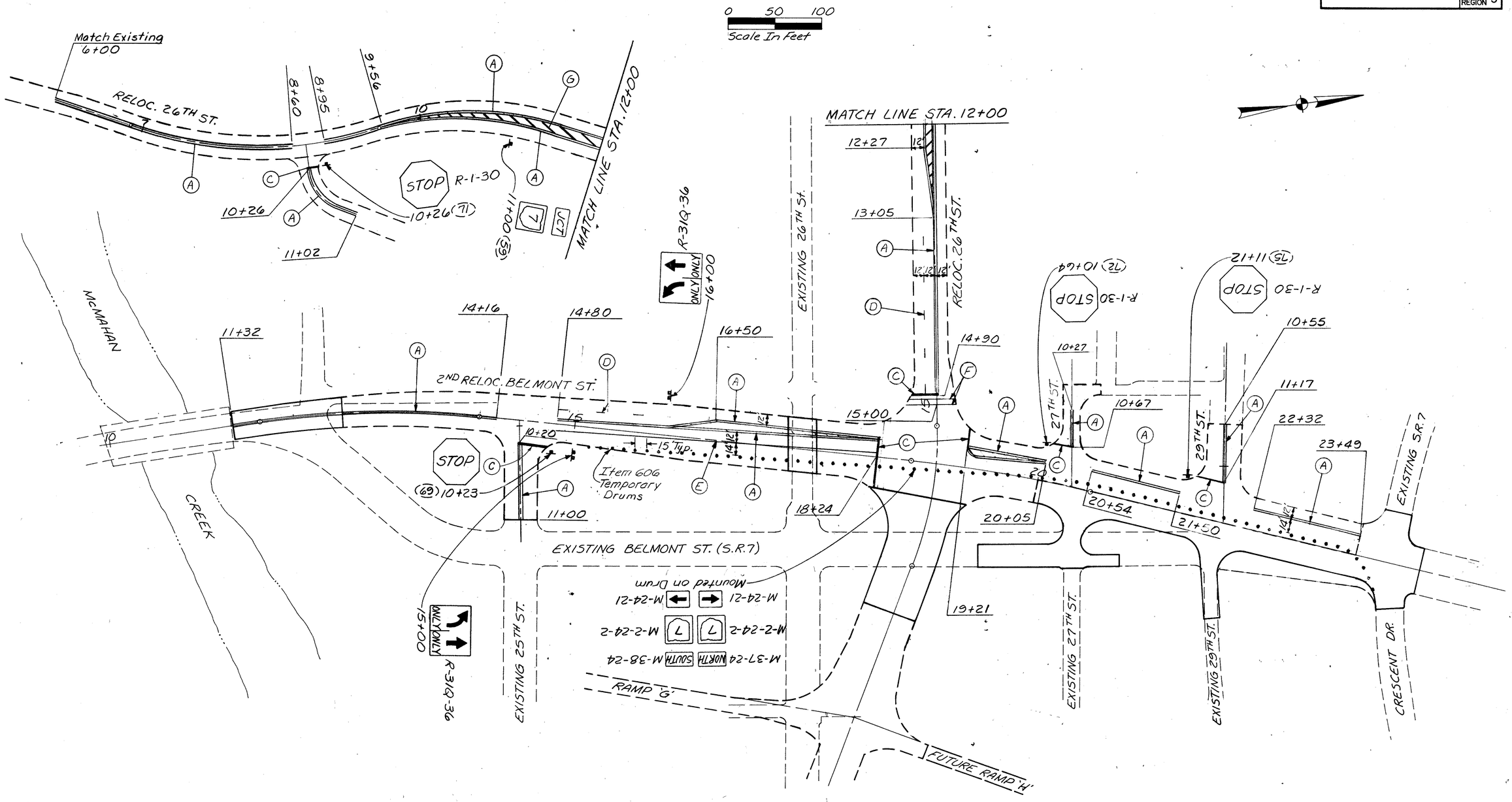
INTERSTATE BRIDGE

For Signing Legend, See Sheet No. 28

STA. 785+00 TO STA. 830+30

PHASE II MAINTENANCE OF TRAFFIC PLAN

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS



SITUATION 1A - INTERIM OPERATION A

(69) - Denotes Permanent Signs Which are to be Erected With This Phase of the Maintenance of Traffic Plan. Payment for These Signs has Been Included With the Traffic Control Plan.

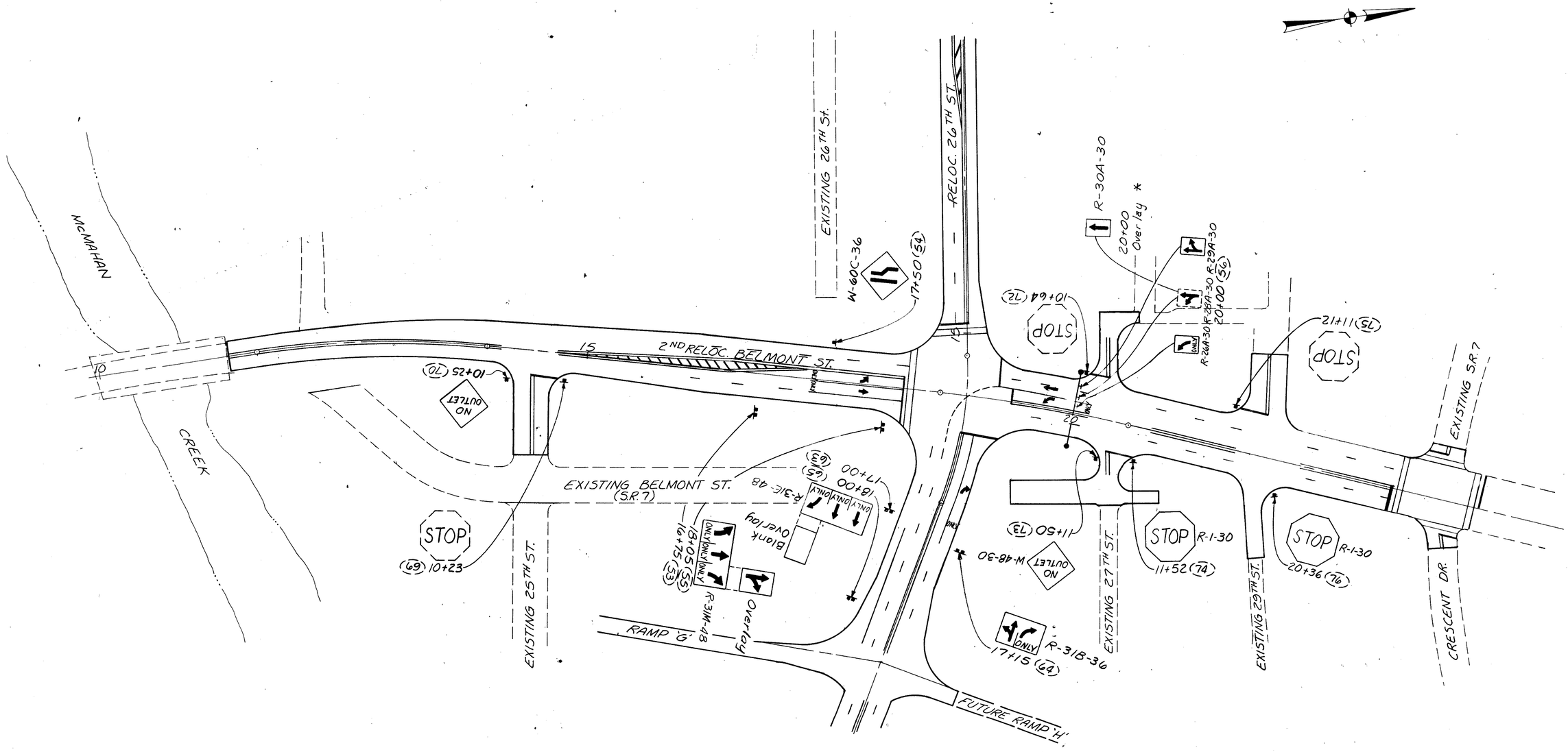
For Signing and Pavement Marking Legends, See Sheet No. 28

STA. 785+00 TO STA. 830+30

PHASE II MAINTENANCE OF TRAFFIC PLAN

Drawn GW 8/1/84

0 50 100
Scale In Feet



SITUATION 1B - INTERIM OPERATION B

Note: The Pavement Marking shown on this Sheet Shall Become Part of the Permanent Pavement Marking. Payment for these Markings is Included with the Traffic Control Plan.
The Stationing shall be as per the Traffic Control Plan, Sheet No. 472, 473

(69) — Denotes Permanent Signs Which are to be Erected with this Phase of the Maintenance of Traffic Plan. Payment for These Signs has been Included with the Traffic Control Plan.

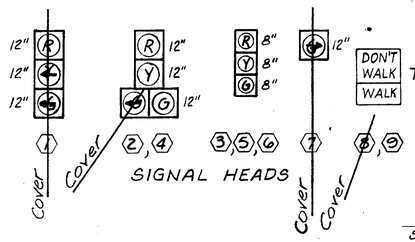
* Payment for the erection and removal of the overlay on sign at Sta 20+00, 2nd Relocation Belmont Ave. shall be included in the unit price Bid for Item 614, Maintenance of Traffic.

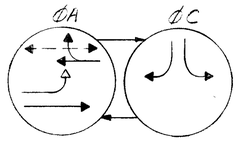
For Signing Legend, See Sheet No. 28

STA. 785+00 TO STA. 830+30

PHASE II MAINTENANCE OF TRAFFIC PLAN

Drawn GW 8/1/84





PHASE SEQUENCE

(To operate effectively as a pretimed controller)

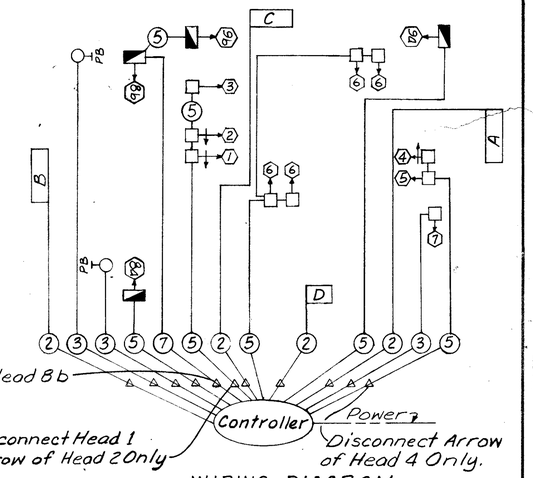
ØA & ØC Call to Non-actuated Mode

Connect Heads (4) & (5) to load switches for head (1)

Disconnect Cable at load switch & cover head

All of heads (1) & (7) & (5)

Left Arrow Section of heads (2) & (4)



WIRING DIAGRAM

△ Cable disconnected for interim operation.

WIRING LEGEND

- Signal Head
- (5) — Cable, Number of Conductors as shown
- A — Detector Loop
- PB — Pedestrian Push Button
- Pedestrian Signal Head

SIGNAL INDICATION CHART

PHASE	INTERVAL	SIGNAL HEAD NUMBER (Covered) 1	2	3	4	5	6	7	8	9
A	R/W	~~G~~	~~GG~~	G	R	R	R	G→	DW	W
	C_P	~~G~~	~~GG~~	G	R	R	R	G→	DW	F DW
	C_1	~~Y~~	Y	Y	R	R	R	G→	DW	DW
	C_2	R	R	R	R	R	R	G→	DW	DW
B	R/W	R	R	R	~~GG~~	G	R	G→	DW	DW
	C_1	R	R	R	~~Y~~	Y	R	G→	DW	DW
	C_2	R	R	R	R	R	R	G→	DW	DW
C	R/W	R	R	R	R	R	G	G→	W	DW
	C_P	R	R	R	R	R	G	G→	F DW	DW
	C_1	R	R	R	R	R	Y	G→	DW	DW
	C_2	R	R	R	R	R	R	G→	DW	DW
Flash		Y	Y	Y	Y	Y	R	G→	—	—

TIMING			
Initial Green	~~30~~ 40 Sec.	Vehicular Red Clearance (C_2)	1 Sec.
Pedestrian R/W (Walk)	7 Sec.	Vehicular Extension	3 Sec.
Pedestrian Clearance (Cp)	13 Sec.	Maximum Green	35 ~~40~~ Sec.
Vehicular Yellow Clearance (C_1)	3 Sec.		
Initial Green	10 Sec.	Maximum Green	40 Sec.
Vehicular Yellow Clearance (C_1)	3.5 Sec.		
Vehicular Red Clearance (C_2)	1.5 Sec.		
Vehicular Extension	3 Sec.		
Initial Green	10 Sec.	Vehicular Red Clearance (C_2)	1.5 Sec.
Pedestrian R/W (Walk)	5 Sec.	Vehicular Extension	0 Sec.
Pedestrian Clearance (Cp)	21 Sec.	Maximum Green	15 ~~40~~ Sec.
Vehicular Yellow Clearance (C_1)	3 Sec.		

Notes: ~~All Phases operate on Basic Actuated Timing, Pulse Mode Locking Actuation.~~

ØA On Recall; ~~ØC pedestrian interval timing and signal indications only when call is placed by Pedestrian Push Button~~

SITUATION 1A - INTERIM OPERATION A

With S.R. 7 on partially completed Reloc. Belmont St. while 26th St. is being finished from 16+00 to 17+30, and the right portion of 2nd Reloc. Belmont St. is being constructed from 20+00 to Crescent St.

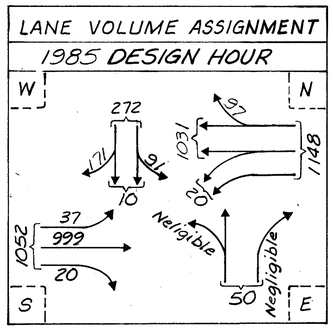
PLAN LEGEND

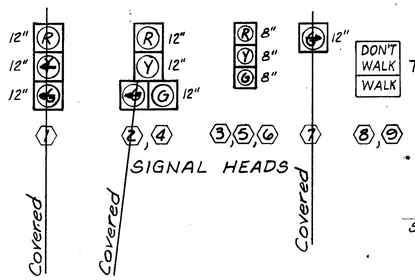
- Proposed Strain Pole with Messenger Cable
- Proposed Strain Pole with Controller
- Signal Head, Standard, One Way
- Signal Head, with Arrows
- ZC — Underground Conduit
- Pull Box
- A — Detector Loop
- Pedestrian Signal Head
- PB — Pedestrian Push Button
- (b) Reference Number for Signal Head

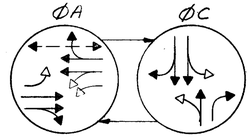
For Signing and Pavement Marking Legend See Sheet No. 28

STA. 785+00 TO STA. 830+30

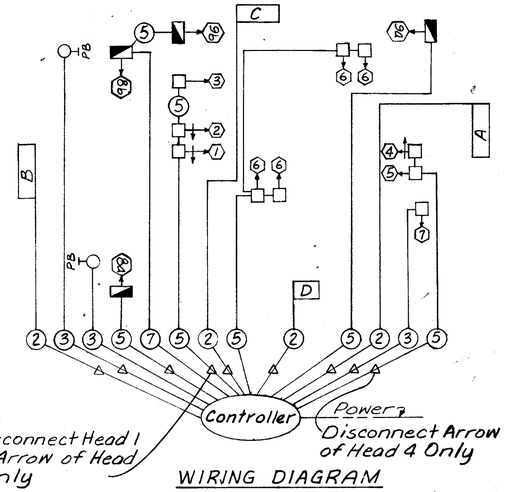
LANE VOLUME ASSIGNMENT
1985 DESIGN HOUR







PHASE SEQUENCE



WIRING DIAGRAM

△ Cable disconnected for interim operation

WIRING LEGEND

- Signal Head
- (5) — Cable, Number of Conductors as shown
- A — Detector Loop
- PB — Pedestrian Push Button
- Pedestrian Signal Head

SIGNAL INDICATION CHART

PHASE	INTERVAL	SIGNAL HEAD NUMBER (Covered: 1) 1	2	3	4	5	6	7	8	9
A	R/W	~~G~~	~~GG~~	G	R	R	R	G→	DW	W
	C_p	~~G~~	~~GG~~	G	R	R	R	G→	DW	F DW
	C_1	~~Y~~	Y	Y	R	R	R	G→	DW	DW
	C_2	R	R	R	R	R	R	G→	DW	DW
B	R/W	R	R	R	~~GG~~	G	R	G→	DW	DW
	C_1	R	~~Ø SKIPPED~~					G→	DW	DW
	C_2	R	R	R	R	R	R	G→	DW	DW
C	R/W	R	R	R	R	R	G	G→	W	DW
	C_p	R	R	R	R	R	G	G→	F DW	DW
	C_1	R	R	R	R	R	Y	G→	DW	DW
	C_2	R	R	R	R	R	R	G→	DW	DW
Flash		Y	Y	Y	Y	Y	R	G→	—	—

TIMING			
Initial Green	~~30~~29 Sec.	Vehicular Red Clearance (C_2)	1 Sec.
Pedestrian R/W (Walk)	7 Sec.	Vehicular Extension	3 Sec.
Pedestrian Clearance (Cp)	13 Sec.	Maximum Green	~~35~~40 Sec.
Vehicular Yellow Clearance (C_1)	3 Sec.		
Initial Green	10 Sec.	Maximum Green	40 Sec.
Vehicular Yellow Clearance (C_1)	3 Sec.		
Vehicular Red Clearance (C_2)	1.5 Sec.		
Vehicular Extension	3 Sec.		
Initial Green	10 Sec.	Vehicular Red Clearance (C_2)	1.5 Sec.
Pedestrian R/W (Walk)	5 Sec.	Vehicular Extension	0 Sec.
Pedestrian Clearance (Cp)	21 Sec.	Maximum Green	~~15~~40 Sec.
Vehicular Yellow Clearance (C_1)	3 Sec.		

Notes: ~~All Phases operate on Basic Actuated Timing, Pulse Mode Locking Actuation.~~
ØA On Recall; ~~ØC pedestrian interval timing and signal indications only when call is placed by Pedestrian Push Button~~

SITUATION 1B - INTERIM OPERATION B

S.R. 7 on Completed Relocated Belmont St.

For Signing and Pavement Marking Legend See Sheet No. 28

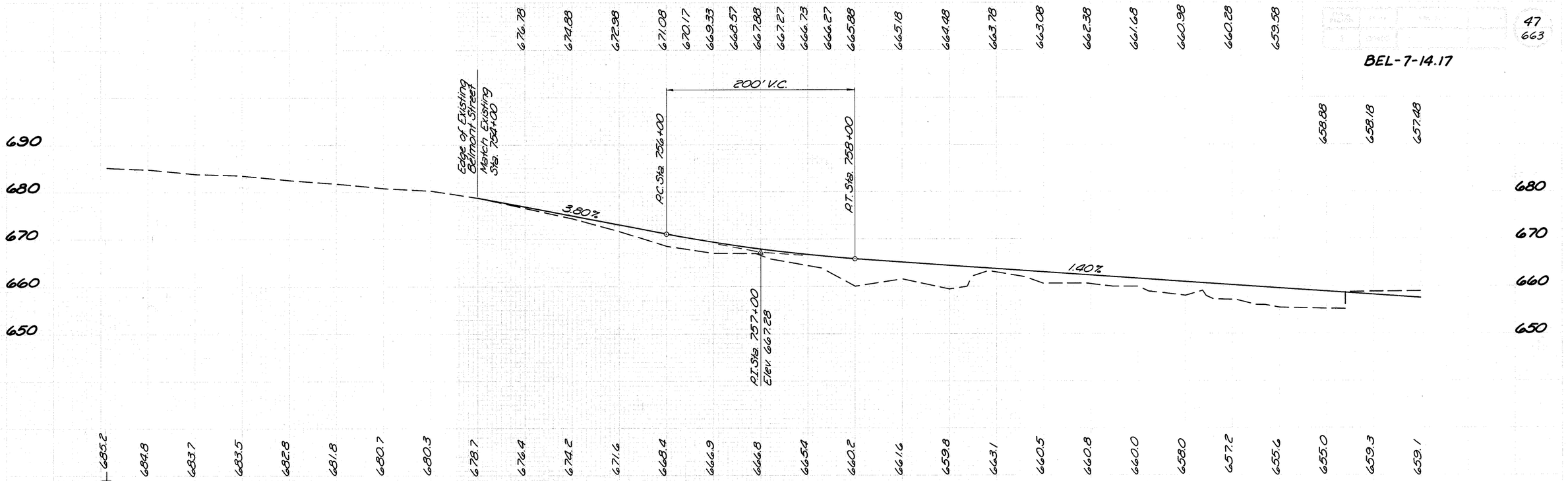
PLAN LEGEND

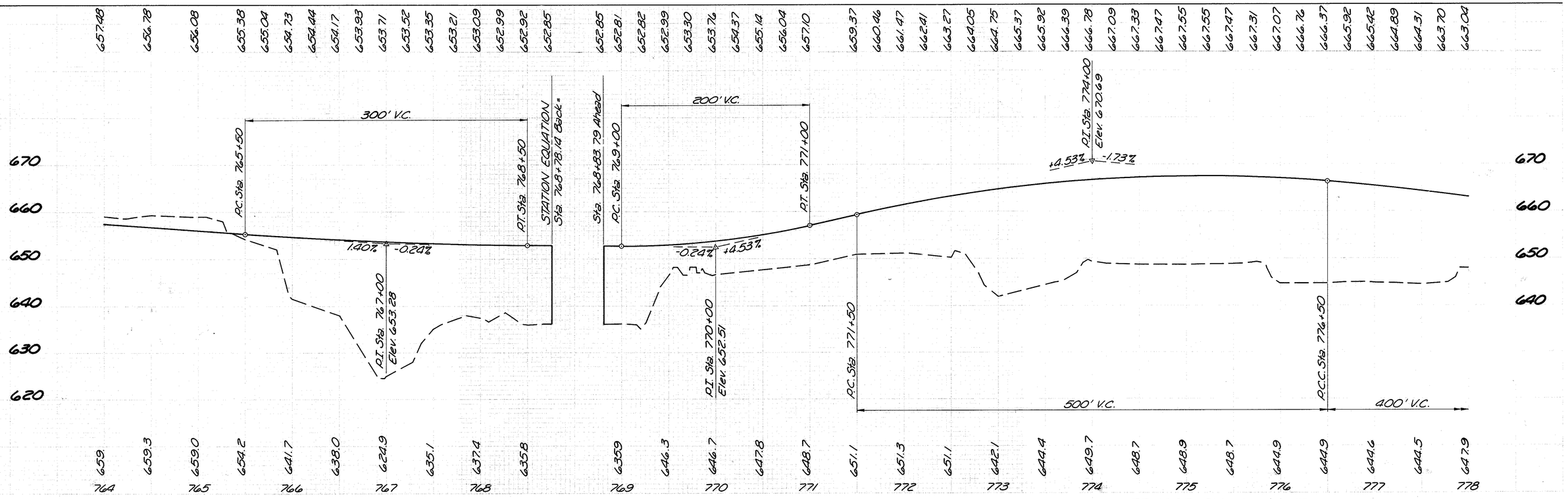
- Proposed Strain Pole with Messenger Cable
- Proposed Strain Pole with Controller
- Signal Head, Standard, One Way
- Signal Head, with Arrows
- 2C — Underground Conduit
- Pull Box
- A — Detector Loop
- Pedestrian Signal Head
- PB — Pedestrian Push Button
- (6) Reference Number for Signal Head

STA. 785+00 TO STA. 830+30

47
663

BEL-7-14.17



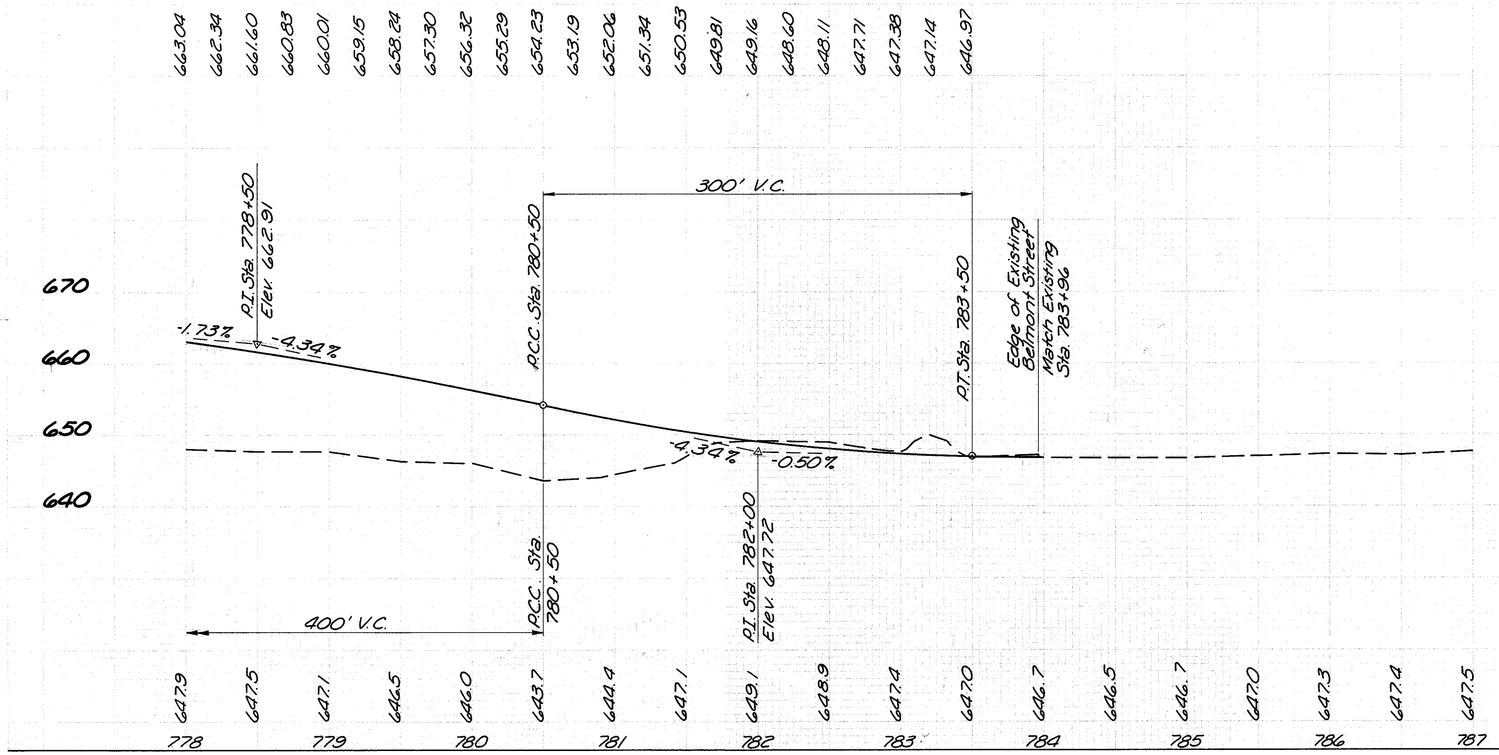


TEMPORARY RD. 'A' STA. 750+06.30 to STA. 778+00

DESIGN OSA 12-2-89
REVISED OSA 1-19-90

K.E. SCHUSTER & ASSOCIATES, INC. Consulting Engineers

BEL-7-14.17



DRAWN OGA 12-26-84

W.E. GUICHBALL & ASSOCIATES INC. Consulting Engineers

TEMPORARY RD. 'A' STA. 778+00 to STA. 787+00

GENERAL NOTES

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 HIGHWAY LYING WITHIN THE PROPOSED WORK LIMITS. NECESSARY UPKEEP OF THE ADJOINING PAVEMENTS WHICH ARE USED FOR TRAFFIC MAINTENANCE BUT ARE OUTSIDE OF THE RIGHT-OF-WAY FOR THE PROPOSED HIGHWAY RELOCATION WILL BE PROVIDED BY OTHERS.

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITY AS REQUIRED BY SECTION 153.64 ORC.

UTILITY OWNERSHIP

THE FOLLOWING UTILITIES AND OWNERS ARE LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT:

WATER LINES: WATER DEPARTMENT OF BELLAIRE
CITY BUILDING
BELLAIRE, OHIO 43906

ATTENTION: MR. RICHARD CROWE
CITY SERVICE DIRECTOR

PHONE: (614) 676-6537

SANITARY SEWERS:

CITY: SANITATION DEPARTMENT OF BELLAIRE
CITY BUILDING
BELLAIRE, OHIO 43906

ATTENTION: MR. RICHARD CROWE
CITY SERVICE DIRECTOR

PHONE: (614) 676-6537

COUNTY: BELMONT COUNTY SEWER AUTHORITY NO. 1
WASTEWATER TREATMENT PLANT
NORTH GUERNSEY STREET
BELLAIRE, OHIO 43906

ATTENTION: MR. RICHARD VANNELLE
SUPERINTENDENT

PHONE: (614) 676-5911

ELECTRIC: OHIO POWER COMPANY
P.O. BOX 400
301 CLEVELAND AVENUE, S.W.
CANTON, OHIO 44701

ATTENTION: MR. JOHN SCHRADE, JR.

PHONE: (216) 438-7040

TELEPHONE: OHIO BELL TELEPHONE COMPANY
150 EAST GAY STREET
COLUMBUS, OHIO 43215

ATTENTION: MR. DONALD MCPEAK
LIAISON ENGINEER

PHONE: (614) 223-5123

FIRE ALARM SYSTEM: BELLAIRE FIRE DEPARTMENT
32ND AND BELMONT STREET
BELLAIRE, OHIO 43906

ATTENTION: MR. MIKE WALLACE

PHONE: (614) 676-5880

NATURAL GAS: COLUMBIA GAS OF OHIO, INC.
P.O. BOX 117
200 CIVIC CENTER DRIVE
COLUMBUS, OHIO 43216-0117

ATTENTION: MR. MICHAEL G. GROOMES
LAND AGENT

PHONE: (614) 460-6000

COLUMBIA GAS TRANSMISSION CORPORATION
P.O. BOX 1273
CHARLESTON, WEST VIRGINIA 25325

ATTENTION: MR. L.H. HOPPE
MANAGER, LIAISON OPERATIONS

PHONE: (304) 346-0951

CABLE TELEVISION: BELLAIRE ANTENNA SYSTEMS, INC.
3153 BELMONT STREET
BELLAIRE, OHIO 43906

ATTENTION: MR. JOHN L. NOWAK

PHONE: (614) 676-7911

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE FOR THE PROTECTION OF ALL EXISTING DURING CONSTRUCTION.

OWNED BY THE CORPORATION SHALL UNDER NORMAL CONDITIONS BE CONSIDERED TO MAINTAIN THIRTY (30) INCHES OF COVER. HOWEVER, A UNIFORM DEPTH OF COVER CANNOT BE ASSURED DUE TO GRADE CHANGES AND APPURTENANT FACILITIES AND STRUCTURES. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE AND SHALL ARRANGE FOR THE LOCATION OF EXISTING LINES BY CORPORATION PERSONNEL.

OWNED BY OHIO SHALL UNDER NORMAL CONDITIONS BE CONSIDERED TO MAINTAIN APPROXIMATELY TWENTY-FOUR (24) INCHES OF COVER ON MAINS, AND APPROXIMATELY EIGHTEEN (18) INCHES OF COVER ON . HOWEVER, A UNIFORM DEPTH OF COVER CANNOT BE ASSURED DUE TO GRADE CHANGES AND APPURTENANT FACILITIES AND STRUCTURES. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH HIO AND SHALL ARRANGE FOR THE LOCATION OF EXISTING LINES BY PERSONNEL.

IT IS THE POLICY HAT THE FOLLOWING PROCEDURE SHOULD BE USED TO INSURE SAFE EXCAVATION WHEN APPROACHING A BURIED

1. APPROACH LINE LOCATION CAUTIOUSLY.
2. PROVIDE A HELPER FOR THE EQUIPMENT OPERATOR TO DIRECT HIS APPROACH AND TO INVESTIGATE ANY BURIED STRUCTURES UNCOVERED.
3. IF A HELPER IS NOT IMMEDIATELY AVAILABLE, DISCONTINUE EQUIPMENT OPERATION. ANY REMAINING EXCAVATION NEAR SHALL BE PERFORMED BY HAND.

VOID

CONCRETE BARRIER, TYPE D, AS PER PLAN

ITEM 622 - CONCRETE BARRIER, TYPE D, AS PER PLAN SHALL CONSIST OF TYPE D BARRIER AS PER STANDARD DRAWING MC-9 PROVIDED WITH 4'-0" LONG BY 8" HIGH DRAINAGE SLOTS AS PER STANDARD DRAWING MC-9A.

THE CENTER OF EACH DRAINAGE SLOT SHALL BE SPACED AT 40' INTERVALS FROM STA. 750+05 LT. TO STA. 761+25 LT. AND FROM STA. 762+02 RAMP C LT. TO STA. 764+42 RAMP 'C' LT. INCLUSIVELY. A DRAINAGE SLOT SHALL ALSO BE LOCATED AT STATION 761+62 LT.

THE BARRIER SHALL BE ADDITIONALLY MODIFIED TO ACCEPT A BRIDGE TERMINAL ASSEMBLY AT STA. 764+50 AS SHOWN ON THE MISCELLANEOUS DETAIL, BRIDGE TERMINAL CONNECTION TO CONCRETE BARRIER.

PAYMENT FOR BARRIER AS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 622 - CONCRETE BARRIER, TYPE D, AS PER PLAN.

PARKING METERS

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE SAFETY DIRECTOR FOR THE CITY OF BELLAIRE, IN WRITING, TEN (10) WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION SO THAT THE CITY CAN REMOVE ANY PARKING METERS THEY WISH TO SALVAGE. ALL PARKING METERS REMAINING WITHIN THE PROJECT RIGHT-OF-WAY LIMITS TEN (10) WORKING DAYS AFTER NOTIFICATION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED AND DISPOSED OF BY HIM.

NO SPECIFIC PAYMENT IS MADE FOR THIS ITEM. THIS WORK SHALL BE INCLUDED WITH ITEM 203 - EXCAVATION.

ITEM SPECIAL, DRILLED WATER 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 ONE (1) FOOT BELOW THE PROPOSED FINISHED GRADE OUTSIDE PROPOSED PAVEMENT AREAS OR AT LEAST ONE (1) FOOT BELOW THE PROPOSED SUBGRADE ELEVATION INSIDE PROPOSED PAVEMENT AREAS. THE WELL SHALL BE FILLED FROM BOTTOM TO TOP WITH CLEAN PADDLED CLAY OR CONCRETE.

THE UNIT PRICE BID FOR EACH ITEM SPECIAL, DRILLED WATER WELL ABANDONED SHALL INCLUDE PAYMENT FOR ALL LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

THE FOLLOWING ESTIMATED QUANTITIES ARE CARRIED TO THE GENERAL SUMMARY:
ITEM SPECIAL - DRILLED WELLS ABANDONED - 2 EACH.

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	NO. STUMPS	SIZES	NO. TREES	NO. STUMPS
18"	49	1	48"	14	1
30"	13	1	60"	1	-

THE ABOVE ESTIMATE IS APPROXIMATE AND THE STATE OF OHIO RESERVES THE RIGHT TO ORDER THE REMOVAL OF ADDITIONAL TREES OR STUMPS OUTSIDE OF THE LIMITS OF CONSTRUCTION BUT WITHIN THE RIGHT-OF-WAY AND/OR EASEMENT LINES. PAYMENT FOR REMOVAL OF THESE ADDITIONAL TREES OR STUMPS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR PLAN ITEMS SET UP TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER.

DATUM

ALL ELEVATIONS ARE BASED ON U.S.G.S. DATUM.

PROOF ROLLING

AN ESTIMATED QUANTITY FOR THIS ITEM HAS BEEN PROVIDED IN THE GENERAL SUMMARY FOR USE, AS DIRECTED BY THE ENGINEER.

ROUNDING OF CORNERS ON CROSS SECTIONS

THE ROUNDED CORNERS SHOWN ON THE TYPICAL SECTIONS, APPLY TO ALL CROSS SECTIONS EVEN THOUGH OTHERWISE SHOWN ON THESE PLANS.

FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 800 SQUARE FEET OF FLOOR SPACE. PAYMENT SHALL BE AT THE LUMP SUM PRICE BID FOR ITEM 619, FIELD OFFICE.

LOCATION OF GUARDRAIL

THE LOCATIONS OF GUARDRAIL RUNS, AS SHOWN IN THESE PLANS, ARE SUBJECT TO ADJUSTMENT PRIOR TO FINAL ACCEPTANCE. THE ENGINEER SHALL BE SATISFIED THAT ALL INSTALLATIONS WILL AFFORD MAXIMUM PROTECTION FOR TRAFFIC.

THIS PLAN MAKES NO PROVISION FOR THE ALTERATION OF PRIVATE AND APPURTENANCES INCLUDING

ALL PRIVATE UTILITY FACILITIES ARE TO BE ADJUSTED, ABANDONED, REMOVED, OR RELOCATED OUTSIDE THE PERMANENT RIGHT-OF-WAY BY THEIR RESPECTIVE OWNERS WHETHER SPECIFICALLY MARKED AS SUCH ON THE PLAN OR NOT.

Calc. By: Cet. Date: 4-17-85
Chkd. By: BEK Date: 4-19-85

BEL-7-14.17 | OHIO | FHWA REGION 5 | 50/663

GENERAL NOTES

MONUMENTS

MONUMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAILS SHOWN ON STANDARD CONSTRUCTION DRAWING MC-1. FOR LOCATIONS SEE SHEET NO. 6 OF THE RIGHT-OF-WAY PLAN.

THE FOLLOWING QUANTITIES ARE CARRIED TO THE GENERAL SUMMARY:

URBAN

ITEM 604 - MONUMENT ASSEMBLY — 31 EA.

ITEM 604 - REFERENCE MONUMENT — 34 EA.

RURAL

ITEM 604 - MONUMENT ASSEMBLY — 3 EA.

ITEM 604 - REFERENCE MONUMENT — 2 EA.

WATERING AND MOWING PERMANENT SEEDED AREAS

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER TO PROMOTE GROWTH AND TO CARE FOR THE PERMANENT SEEDED AREAS AS PER 659.09:

	URBAN	RURAL
659 WATER	200 M. GAL.	20 M. GAL.
659 MOWING	370 M. SQ. FT.	32 M. SQ. FT.

GRADING OF AREAS OUTSIDE NORMAL WORK LIMITS

IN CERTAIN LOCATIONS, WHERE PROPOSED RIGHT-OF-WAY LINES ARE CO-INCIDENT WITH EXISTING STREET RIGHT-OF-WAY LINES, IN THE AREA BETWEEN NORMAL WORK LIMITS AND THE EDGE OF THE EXISTING PAVEMENT, REMNANTS OF SIDEWALK, DRIVES, STEPS, ETC., SHALL BE REMOVED AND THE AREA GRADED AS DIRECTED BY THE ENGINEER SO AS TO PRESENT A NEAT, WELL-DRAINED APPEARANCE. THE COST OF THIS OPERATION IS TO BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION.

AN ESTIMATED QUANTITY OF 5,916 SQ. YDS ITEM 659 - "SEEDING AND MULCHING" HAS BEEN INCLUDED IN THE EARTHWORK TABLE TO BE USED AS DIRECTED BY THE ENGINEER. (URBAN)

THE FOLLOWING AREAS ARE ANTICIPATED TO BE APPLICABLE TO THIS WORK:

STATION - STATION	SIDE
822+98 - 823+24 (RAMP "G")	LT.
766+63 - 769+49 (RAMP "C")	LT.
813+79 (M) - 818+05 (RAMP "G")	LT.
824+25 - 826+77 (RAMP "G")	LT.

ITEM 207- TEMPORARY EROSION AND SEDIMENT CONTROL ITEMS

THE CONTRACTOR SHALL INSTALL AND MAINTAIN THOSE TEMPORARY EROSION AND SEDIMENT CONTROL ITEMS SHOWN IN THE TEMPORARY EROSION AND SEDIMENT CONTROL PLAN ON PLAN SHEETS 4 AND 5. THESE ITEMS SHALL BE INSTALLED UPON COMMENCEMENT OF ANY CLEARING AND/OR EARTHWORK OPERATIONS.

TREATED SANITARY FLOW INTO HIGHWAY DRAINAGE SYSTEMS

TREATED SANITARY FLOW MAY BE DISCHARGED INTO THE HIGHWAY DRAINAGE SYSTEM PROVIDED THE OWNER HAS SECURED THE APPROVAL OF THE LOCAL HEALTH AUTHORITIES AND HAS ACQUIRED FROM THE OHIO DEPARTMENT OF TRANSPORTATION, THE OFFICAL PERMIT TO HAVE THE CONNECTION MADE.

IN EACH CASE WHERE A PERMIT HAS BEEN ISSUED FOR A SANITARY CONNECTION TO BE MADE INTO A HIGHWAY DRAINAGE CONDUIT, IT SHALL BE PROVIDED WITH AN INSPECTION WELL, IN ACCORDANCE WITH THE DETAIL SHOWN ON STANDARD DRAWING MC-8.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY, FOR USE AS DIRECTED BY THE ENGINEER, IN MAKING THE ABOVE DESCRIBED CONNECTIONS:

URBAN:

ITEM 603 - 6" CONDUIT, TYPE C	400 LIN.FT.
*ITEM 604 - INSPECTION WELLS	5 EACH

RURAL:

ITEM 603 - 6" CONDUIT, TYPE C	100 LIN.FT.
* ITEM 604 - INSPECTION WELLS	2 EACH

NECESSARY BENDS OR BRANCHES SHALL BE INCLUDED FOR PAYMENT IN THE PERTINENT CONDUIT ITEM.

NONE OF THE ABOVE MATERIALS SHALL BE ORDERED BY THE CONTRACTOR UNTIL AUTHORIZED BY THE ENGINEER.

* NO INSPECTION WELL IS REQUIRED IF EFFLUENT IS DISCHARGED INTO AN OPEN DITCH, CHANNEL, CATCH BASIN OR MANHOLE.

HOUSE CONNECTIONS

EXISTING ROOF DRAINS, FOOTER DRAINS, OR YARD DRAINS, DISTURBED BY THE PROPOSED WORK SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS BY CONNECTING TO A STORM SEWER, MANHOLE, CATCH BASIN OR THROUGH THE CURB.

THE LOCATION, TYPE, SIZE AND GRADE OF REQUIRED REPLACEMENTS WILL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

URBAN:

ITEM 603 - 4" CONDUIT, TYPE E, 707.19	400 LIN.FT.
ITEM 603 - 4" CONDUIT, TYPE E, 706.01, 706.02 OR 706.08	400 LIN.FT.
ITEM 603 - 4" CONDUIT, TYPE F	400 LIN.FT.

RURAL:

ITEM 603 - 4" CONDUIT, TYPE E, 707.19	100 LIN.FT.
ITEM 603 - 4" CONDUIT, TYPE E, 706.01, 706.02, OR 706.08	100 LIN.FT.
ITEM 603 - 4" CONDUIT, TYPE F	100 LIN.FT.

NONE OF THE ABOVE MATERIALS SHALL BE ORDERED BY THE CONTRACTOR UNTIL AUTHORIZED BY THE ENGINEER.

REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT, AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR, ALONG WITH LOCAL REPRESENTATIVES, SHALL MAKE AN INSPECTION OF THE EXISTING SEWERS WITHIN THE WORK LIMITS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCES SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTIONS SHALL BE KEPT IN WRITING BY THE STATE.

ALL NEW CONDUITS, INLETS, CATCH BASINS AND MANHOLES 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 SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT 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.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE PERTINENT 603 CONDUIT ITEMS OF THE CONTRACT.

CONNECTIONS TO EXISTING PIPE

WHERE THE PLANS PROVIDE FOR PROPOSED CONDUIT TO BE CONNECTED TO AN EXISTING SEWER, OR TO CROSS EITHER OVER OR UNDER AN EXISTING SEWER, 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 CONDUIT.

WHERE CONNECTIONS ARE MADE BETWEEN RIGID AND FLEXIBLE CONDUIT SECTIONS OR BETWEEN CONDUIT SECTIONS OF DIFFERENT KIND OR TYPE OF END FABRICATION, WHETHER REQUIRED BY THE PLANS, OR ARISING FROM PERMISSABLE USE OF OPTIONAL MATERIALS, OR ENCOUNTERED IN CONNECTION TO EXISTING FACILITIES, THE JOINT SHALL BE SEALED BY MEANS OF A CLASS "C" CONCRETE COLLAR. FOR DETAILS OF THIS CONCRETE COLLAR, SEE STANDARD DRAWING MC-4.

PAYMENT FOR LOCATING EXISTING SEWERS AND SEALING JOINTS AS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT 603 CONDUIT ITEM.

EROSION CONTROL

ITEMS 601, 660, AND 670 ARE PROVIDED IN THE PLANS FOR EROSION CONTROL. ROCK OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE ANY OF THESE ITEMS, AND TURF OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE 660 OR 670. THE ENGINEER SHALL CHECK AND NON-PERFORM QUANTITIES OR ADJUST LOCATIONS AND QUANTITIES FOR THESE ITEMS WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION.

EXISTING DRAINS

ANY EXISTING DRAINS IN WHICH THE FLOW IS INDICATED ON THE PLANS TO BE MAINTAINED ENCOUNTERED WITH RELOCATED PINCH RUN, SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS UNDER THE DIRECTION OF THE ENGINEER.

THE LOCATION, TYPE, SIZE, AND GRADE OF REQUIRED REPLACEMENTS SHALL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION, AND PAYMENT SHALL BE MADE ON FINAL MEASUREMENTS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE: URBAN

ITEM 603 - - - 18" CONDUIT, TYPE B --- 75 LIN. FT.

ITEM 603 - - - 10" CONDUIT, TYPE B --- 75 LIN. FT.

ITEM 603 - - - 6" CONDUIT, TYPE F --- 75 LIN. FT.

ITEM 603 - - - 4" CONDUIT, TYPE E --- 75 LIN. FT.

NECESSARY BENDS OR BRANCHES SHALL BE INCLUDED FOR PAYMENT IN THE PERTINENT CONDUIT ITEM.

NONE OF THE ABOVE MATERIALS SHALL BE ORDERED BY THE CONTRACTOR UNTIL AUTHORIZED BY THE ENGINEER.

ITEM 452 - PLAIN CONCRETE PAVEMENT, AS PER PLAN

PAVEMENT SURFACE VARIATIONS SHALL NOT EXCEED 1/4 INCH IN A 10 FOOT LENGTH OF PAVEMENT. ALL OTHER PROVISIONS OF 451.12 AS CALLED FOR IN 452.01 SHALL APPLY.

ITEM 304- AGGREGATE BASE, AS PER PLAN

MATERIALS FURNISHED FOR THIS ITEM SHALL EXCLUDE ALL SLAG EXCEPT GRANULATED SLAG OR CRUSHED AIR-COOLED BLAST FURNACE SLAG.

ITEM 207- TEMPORARY BENCHES, DIKES, DAMS AND SEDIMENT BASINS

THE SEDIMENT BASIN QUANTITIES LISTED IN THE TEMPORARY EROSION AND SEDIMENT CONTROL PLAN ON PAGES 4 AND 5 ARE THE STORAGE VOLUMES REQUIRED FOR THE SEDIMENT BASIN. THE PAY QUANTITY FOR EACH BASIN SHALL BE DETERMINED AS THE ACTUAL AMOUNT OF EXCAVATION OR EMBANKMENT REQUIRED TO PROVIDE THAT STORAGE VOLUME.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER, FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES:

	URBAN	RURAL
207 TEMPORARY SEEDING AND MULCHING	32,906 SQ.YD.	2,830 SQ.YD.
207 STRAW OR HAY BALES	160 EACH	16 EACH
207 TEMPORARY SLOPE DRAINS	1,310 LIN.FT.	90 LIN.FT.
207 TEMPORARY BENCHES, DIKES DAMS AND SEDIMENT BASINS	6,550 CU.YD.	450 CU.YD.
601 ROCK CHANNEL PROTECTION, TYPE C WITHOUT FILTER	53 CU.YD.	4 CU.YD.
659 MOWING	370 M.SQ.FT.	32 M.SQ.FT.
659 COMMERCIAL FERTILIZER	7.03 TON	0.61 TON
659 REPAIR SEEDING AND MULCHING	8,226 SQ.YD.	707 SQ.YD.
659 WATER	71 M.GAL.	6 M.GAL.

GENERAL NOTES

SPRING DRAINS ss

REFERENCE IS MADE TO THE DETAILED DRAWING ON STANDARD CONSTRUCTION DRAWING MC-1, 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:

URBAN:

ITEM 605	6" UNCLASSIFIED PIPE UNDERDRAINS 707.01, TYPE III, OR 707.21 TYPE III AS PER PLAN	500 LIN.FT.
ITEM 605	AGGREGATE DRAINS FOR SPRINGS .	500 LIN.FT.

RURAL:

ITEM 605	6" UNCLASSIFIED PIPE UNDERDRAINS 707.01, TYPE III, OR 707.21 TYPE III AS PER PLAN	100 LIN.FT.
ITEM 605	AGGREGATE DRAINS FOR SPRINGS .	100 LIN.FT.

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 NONPERFORMED.

CONDUIT END TREATMENT

IMMEDIATELY AFTER PLACEMENT OF ANY CONDUITS, THE CONTRACTOR SHALL CONSTRUCT THE END TREATMENTS REQUIRED BY THE PLANS AT BOTH THE OUTLET AND INLET ENDS. THIS SHALL INCLUDE HEADWALLS, CONCRETE RIPRAP, ROCK CHANNEL PROTECTION, SODDING, ETC.

MANHOLES, CATCH BASINS AND INLETS REMOVED OR ABANDONED

THE CASTINGS SHALL BE CAREFULLY REMOVED AND STORED WITHIN THE RICHT OF WAY FOR SALVAGE BY CITY FORCES. EXISTING INLET AND OUTLET PIPES SHALL BE SEALED AS DIRECTED BY THE ENGINEER UNLESS OTHERWISE NOTED.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT 202 ITEM.

CONDUIT TYPE, A 138" 707.03 (0.168) AS PER PLAN

THE BOTTOM 1/3 OF THE CONDUIT SHALL BE FIELD PAVED WITH CLASS C PORTLAND CEMENT CONCRETE. THE PAVING SHALL BE REINFORCED WITH 10 GUAGE GALVANIZED WIRE MESH HAVING OPENINGS OF 10" BY 6" (OR COMPARABLE). MESH SHALL A WIDTH 4" LESS THAN THE FINISHED PAVING. THE MESH SHALL BE SECURELY FASTENED TO THE CONDUIT BY CLIPS, TACK WELDING, OR ANOTHER METHOD APPROVED BY THE ENGINEER. THE MESH SHALL BE SECURED NEAR EACH EDGE AND AT THE CENTER OF THE MESH AT POINTS NOT MORE THAN TWO FEET APART ALONG THE FLOW LINE OF THE CONDUIT.

THE CONCRETE PAVING SHALL BE 3" THICK MEASURED FROM THE TOP OF THE CORRUGATIONS OF THE CONDUIT. AFTER PLACING, THE CONCRETE SHALL BE STRUCK OFF WITH A TEMPLATE TO PRODUCE THE PROPER RADIUS AND FINISHED WITH A FLOAT TO PRODUCE A SMOOTH FINISH COMPARABLE TO CONCRETE PIPE. THE CURING OF THE CONCRETE SHALL BE IN ACCORDANCE WITH 451.10.

IF FEASIBLE, THE PAVING SHALL BE PLACED AFTER COMPLETION OF THE FILL OVER THE CONDUIT. IF THE PAVING IS PLACED PRIOR TO COMPLETION OF THE FILL, ANY GAP BETWEEN THE STEEL CONDUIT AND CONCRETE PAVING SHALL BE FILLED WITH HEATED BITUMINOUS MATERIAL.

CORPORATION LIMITS

THE CITY OF BELLAIRE HAS DETACHED THE AREA BOUNDED BY THE LIMITED ACCESS RIGHT OF WAY LINES SHOWN ON THE PLANS AND MORE FULLY DESCRIBED IN BELLAIRE CITY ORDINANCE NO. 1317.

UNSUITABLE MATERIAL

THE REPORT OF GEOTECHNICAL INVESTIGATION HAS INDICATED THAT UNSTABLE SILTY SOILS ARE EXPECTED TO BE ENCOUNTERED ALONG THE FLOODPLAIN OF PINCH RUN FROM APPROXIMATELY STA. 21+00 TO 22+00.

UNSUITABLE MATERIALS ENCOUNTERED DURING EXCAVATION WITHIN THE LIMITS OF THE PROPOSED PINCH RUN STRUCTURE AND OUTLET SHALL BE REMOVED TO A MINIMUM DEPTH OF THREE (3) FEET AS DIRECTED BY THE ENGINEER AND BACKFILLED WITH SELECT COARSE GRANULAR FILL, SUCH AS DUMPED ROCK FILL TYPE D AS DEFINED IN 601.07. THE UPPER LEVEL SHOULD BE BACKFILLED WITH A FINER GRANULAR MATERIAL AS DEFINED IN 203.02 EXCEPT THAT AT LEAST 65% BY WEIGHT OF THE GRAINS OR PARTICLES SHALL BE RETAINED ON A NO. 200 SIEVE TO PROVIDE A LEVEL UNIFORM WORKING SURFACE.

THE COST OF THE ADDITIONAL EXCAVATION, BACKFILL MATERIALS AND LABOR REQUIRED TO PERFORM THE ABOVE MENTIONED WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 603, CONDUIT, TYPE A.

ITEM SPECIAL - PRESSURE RELIEF JOINT, TYPE 'A', AS PER PLAN

ITEM SPECIAL - PRESSURE RELIEF JOINTS, TYPE 'A' SHALL CONFORM TO THE PROVISIONS OF STANDARD DRAWING BP-10 EXCEPT AS NOTED HEREIN. MAINLINE JOINTS SHALL EXTEND FROM THE CONCRETE BARRIER BASE TO THE OUTSIDE EDGE OF CONCRETE SHOULDER SPANNING THE MEDIAN SHOULDER, PAVEMENT, AND OUTSIDE SHOULDER. RAMP JOINTS SHALL SPAN BOTH LEFT AND RICHT SHOULDERS AND RAMP PAVEMENT. SLEEPER SLABS SHALL EXTEND 12" BEYOND THE EDGE OF SHOULDER ON BOTH ENDS OF THE JOINT.

MEASUREMENT FOR PAY PURPOSES SHALL BE ALONG THE CENTERLINE OF THE JOINT, EDGE TO EDGE OF SHOULDERS AS DESCRIBED ABOVE.

10TH STREET AREA GRADING

10TH STREET CUT AND FILL SLOPES SHALL BE CONSTRUCTED AS SHOWN ON THE CROSS-SECTIONS UNLESS DIRECTED OTHERWISE.

WHERE ROCK IS ENCOUNTERED AND EXPOSED IN THE CUT SLOPE, A 1/2 : 1 SLOPE MAY BE USED IN ROCK TO THE TOP OF ROCK WITH A 2 : 1 OVERBURDEN SLOPE TO EXISTING GROUND IF SO DIRECTED BY THE ENGINEER.

THE HILLSIDE SHALL BE CONTINUOUSLY BENCHED IN ACCORDANCE WITH SECTION 203.09 OVER ALL AREAS WHERE EMBANKMENT WILL BE CONSTRUCTED.

ITEM SPECIAL - FIRE ALARM SYSTEM

WHERE CONSTRUCTION OF THIS PROJECT NECESSITATES THE REMOVAL OR ALTERATION OF EXISTING UTILITY POLES ON WHICH THE CITY OF BELLAIRE HAS MOUNTED PUBLIC FIRE ALARM BOXES AND/OR POLE BRACKETS, THE CONTRACTOR SHALL REMOVE AND RESET THE EXISTING BOXES, CONDUIT, WEATHER HEAD, AND POLE BRACKETS ON NEW/OR EXISTING POLES OUTSIDE LIMITED ACCESS TOGETHER WITH NEW TELEGRAPH WIRE AND GROUND WIRE AS SHOWN ON THE PLANS AND/OR AS DIRECTED BY THE ENGINEER.

THE TELEGRAPH WIRE SHALL BE NEW, TELEGRAPH GRADE WIRE OF THE SIZE AND TYPE CURRENTLY BEING USED, BY THE CITY OF BELLAIRE. THE GROUND WIRE SHALL BE REPLACED IN KIND. IF IN THE OPINION OF THE ENGINEER THE EXISTING GROUND WIRE CAN BE SALVAGED FOR REUSE, NEW GROUND WIRE SHALL NOT BE PROVIDED. TELEGRAPH WIRES SHALL BE ATTACHED TO INTERMEDIATE POLES BY USE OF SALVAGED POLE BRACKETS. ALL POLE BRACKETS REMOVED BUT NOT REUSED SHALL BE STORED WITHIN THE RIGHT OF-WAY FOR SALVAGE BY CITY FORCES.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE LOCATIONS OF RESET FIRE ALARM BOXES WITH THE CITY OF BELLAIRE TO INSURE CITY DESIRED LOCATIONS AS WELL AS INSURE THAT PROPER CITY/UTILITY OWNER COORDINATION HAS OCCURRED. NO ALARM BOXES SHALL BE RESET ON NEW OR EXISTING POLES WITHOUT CITY OF BELLAIRE AUTHORIZATION.

BEFORE ANY OF THE ALARM BOXES DESIGNATED FOR REUSE ARE REMOVED AND AGAIN BEFORE FINAL ACCEPTANCE, REPRESENTATIVES OF THE STATE, THE CONTRACTOR, AND THE CITY SHALL MAKE AN INSPECTION OF THEM AND SHALL TEST THEM FOR PROPER OPERATION. THE CONDITION OF THE EXISTING ALARM BOXES AND THEIR APPURTENANCES SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTIONS AND TEST RESULTS SHALL BE KEPT IN WRITING BY THE STATE.

ALL EXISTING BOXES INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE RESET, MAINTAINED, AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT 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.

PAYMENT FOR THIS WORK WILL BE MADE AT THE UNIT PRICE BID PER LUMP SUM FOR ITEM SPECIAL, FIRE ALARM SYSTEM, AND SHALL CONSTITUTE FULL COMPENSATION FOR REMOVING AND RESETTING THE EXISTING ALARM BOXES AND APPURTENANCES, AND FOR FURNISHING AND INSTALLING ALL WIRE AND INCIDENTALS, AND FOR PROVIDING ALL TOOLS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THIS ITEM AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER.

REVISED 5-4-90

GENERAL NOTES

THE FOLLOWING LOCATIONS ARE ANTICIPATED FOR USE OF THESE QUANTITIES:

STREET NAME	APPROXIMATE LOCATION	SIDE
19TH STREET	811+02 (MAINLINE)	RT.
20TH STREET	812+34 (MAINLINE)	RT.
21ST STREET	813+54 (MAINLINE)	LT.
21ST STREET	813+86 (MAINLINE)	RT.
ALLEY	815+26 (MAINLINE)	RT.
22ND STREET	816+16 (RAMP "G")	LT.
22ND STREET	816+73 (MAINLINE)	RT.
TAYLOR ALLEY	817+56 (RAMP "G")	LT.
23RD STREET	818+87 (RAMP "G")	LT.
BELMONT STREET	822+90 (RAMP "G")	LT.
TAYLOR ALLEY	818+03 (RAMP "F")	RT.
26TH STREET	17+00 RELOCATED 26TH STREET	RT.
PLUM ALLEY	828+27 (FUTURE RAMP "H")	LT.
27TH STREET	829+80 (FUTURE RAMP "H")	LT.
UNION STREET	830+81 (MAINLINE)	LT.
27TH STREET & ALLEY	831+01 (MAINLINE)	RT.
26TH STREET	8+44 (RELOCATED 26TH STREET)	RT.
CHERRY ALLEY	19+71 (SECOND RELOCATED BELMONT STREET)	LT.
BELMONT STREET	21+14 (SECOND RELOCATED BELMONT STREET)	RT.
29TH STREET	22+16 (SECOND RELOCATED BELMONT STREET)	LT.

SCARIFYING EXISTING PAVEMENTS

EXISTING PAVEMENTS BETWEEN WORK LIMITS NOT DESIGNATED FOR REMOVAL, SHALL BE SCARIFIED AS DIRECTED. PAVEMENTS SHALL BE SUFFICIENTLY BROKEN TO PERMIT THE PASSAGE OF GROUNDWATER AND PROPER EMBANKMENT COMPACTION. ALL CONCRETE PAVEMENT OR CONCRETE BASE COURSES EXPOSED DURING SCARIFYING OPERATIONS IN AREAS WHERE THE PROPOSED FILL IS 3' OR LESS SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH 202.05 AND SHALL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM 202 - PAVEMENT REMOVED. PAYMENT FOR ALL OTHER WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 201 - CLEARING AND GRUBBING.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THE PURPOSE OF CONCRETE PAVEMENT REMOVAL AS DESCRIBED ABOVE.

ITEM 202 - PAVEMENT REMOVED ———————100 SQ.YD. (URBAN)

PAVEMENT REMOVAL OUTSIDE NORMAL WORK LIMITS

IN CERTAIN AREAS, WHERE THE PLAN PROVIDES FOR EXISTING STREETS TO BE OBLITERATED, THE EXISTING PAVEMENT SHALL BE REMOVED AND BACKFILLED AS DIRECTED BY THE ENGINEER SO AS TO PRESENT A NEAT, WELL DRAINED APPEARANCE.

EXISTING CURB AND WALK ADJACENT TO THESE PAVEMENTS SHALL BE REMOVED AND DISPOSED OF AS DIRECTED. THE RESULTING TRENCH AND EXISTING DITCHES SHALL BE BACKFILLED AND LEFT IN A CONDITION READY FOR SEEDING. SEEDING SHALL BE MEASURED AND PAID FOR IN ACCORDANCE WITH ITEM 659, SEEDING AND MULCHING, AND IS INCLUDED WITH THE NORMAL SEEDING AND MULCHING IN THE EARTHWORK TABLE. PAYMENT FOR ALL OTHER WORK REQUIRED SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203.

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE EARTHWORK TABLE, TO BE USED AS DIRECTED, FOR THE PURPOSE OF THIS WORK.

ITEM	DESCRIPTION	QUANTITY	UNIT
203	EXCAVATION, NOT INCLUDING EMBANKMENT CONSTRUCTION	1,591 (URBAN)	CU.YD.
203	EMBANKMENT	1,591 (URBAN)	CU.YD.

SEEDING

QUANTITIES FOR SEEDING IN URBAN AREAS, EXCEPT AS NOTED BELOW, ARE CALCULATED FOR THE SOIL AREAS BETWEEN THE RIGHT-OF-WAY FENCE LINES, BETWEEN THE RIGHT-OF-WAY LINES IN UNFENCED AREAS, AND WITHIN THE WORK LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT, AND OTHER SPECIAL EASEMENTS.

QUANTITIES IN RURAL AREAS ARE CALCULATED FOR THE SOILS AREAS BETWEEN 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.

EXCEPTION: FROM STATION 759+18.08 RELOCATED S.R. 7 LT. TO STATION 766+50 RAMP C LT. SEEDING QUANTITIES ARE CALCULATED FOR SOILS AREAS BETWEEN TEN (10) FEET OUTSIDE THE WORK LIMITS AS SHOWN ON CROSS SECTIONS.

BELMONT STREET/25TH STREET PARK MONUMENTS

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CITY OF BELLAIRE, IN WRITING, THIRTY (30) WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION SO THAT THE CITY CAN REMOVE ANY MONUMENTS THEY WISH TO SALVAGE. ALL MONUMENTS REMAINING WITHIN THE PROJECT RIGHT-OF-WAY LIMITS THIRTY (30) WORKING DAYS AFTER NOTIFICATION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED AND DISPOSED OF BY HIM.

NO SPECIFIC PAYMENT IS MADE FOR THIS ITEM. THIS WORK SHALL BE INCLUDED WITH ITEM 203 - EXCAVATION.

ITEM 202 - CONCRETE BARRIER REMOVED, AS PER PLAN

THE EXISTING CONCRETE MEDIAN BARRIER BETWEEN STA. 746+00 AND 750+06.30 SHALL BE REMOVED TO FACILITATE THE USE OF THE TEMPORARY ROAD 'A' CROSSOVER DURING PERIODS OF TRAFFIC MAINTENANCE. THE EXISTING ANCHORING DOWELS SHALL BE EXTRACTED OR CUTOFF AT THE MEDIAN PAVEMENT SURFACE AS DIRECTED BY THE ENGINEER. HOLES RESULTING FROM DOWEL REMOVAL SHALL BE FILLED WITH GROUT.

CARE SHALL BE TAKEN DURING REMOVAL OPERATIONS SO THAT THE EXISTING PAVEMENT BENEATH THE BARRIER IS NOT DAMAGED. ANY DAMAGE OCCURING TO THE EXISTING PAVEMENT AND/OR PAVED MEDIAN DURING REMOVAL OPERATIONS SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE AS DIRECTED.

PAYMENT FOR THE REMOVAL OF THE CONCRETE MEDIAN BARRIER WILL BE MADE AT THE UNIT PRICE BID PER LINEAR FOOT OF ITEM 202, CONCRETE BARRIER REMOVED AS PER PLAN AND SHALL CONSTITUTE FULL COMPENSATION FOR REMOVING AND DISPOSING OF THE EXISTING BARRIER AND DOWELS, IN ACCORDANCE WITH THE PROVISIONS OF ITEM 202 AND AS DESCRIBED HEREIN.

ITEM 605 - 4" SHALLOW PIPE UNDERDRAINS, AS PER PLAN

4" SHALLOW PIPE UNDERDRAINS SHALL BE INSTALLED IN NORMAL SECTIONS AS SHOWN ON THE PLANS AND AS SPECIFIED HEREIN.

ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO THE PROVISIONS OF ITEM 605 EXCEPT THE TRENCH WIDTH SHALL NOT EXCEED 8" (2" ON EACH SIDE).

THE DEPTH SHALL BE 30" FROM THE BOTTOM OF THE SUBBASE TO TOP OF PIPE.

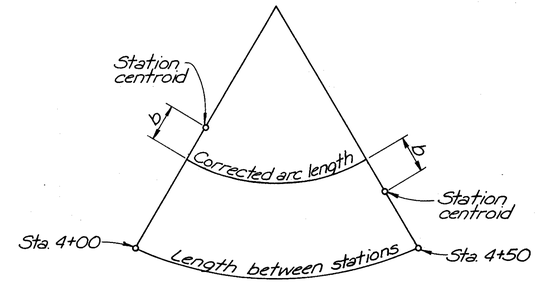
PAYMENT FOR THE UNDERDRAINS AS DESCRIBED ABOVE SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 605 - 4" SHALLOW PIPE UNDERDRAINS, AS PER PLAN.

CROSSING THE CONSOLIDATED RAIL CORPORATION'S TRACKS: In The Event That The Contractor Deems It Is Necessary To Cross The Consolidated Rail Corporation's Tracks With Equipment Or Other Vehicles, It Shall Be The Responsibility Of The Contractor To Negotiate A Private Grade Crossing Aggrement With The Railroad.

TEMPORARY CONCRETE BARRIER REMOVED, AS PER PLAN

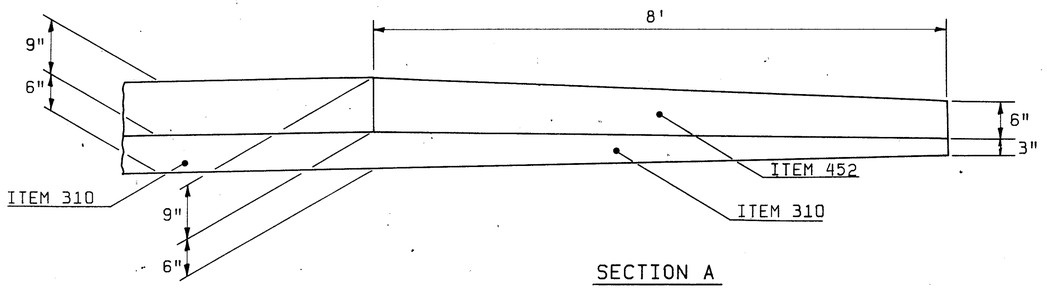
THE EXISTING TEMPORARY CONCRETE BARRIER AND CRASH ATTENUATOR BETWEEN STATIONS 750+06 AND 756+95 CENTERLINE AND LT. SHALL BE CAREFULLY REMOVED AND STORED WITHIN THE RIGHT-OF-WAY FOR SALVAGE BY O.D.O.T. FORCES.

PAYMENT FOR THE REMOVAL AND STORAGE OF THE TEMPORARY BARRIER INCLUDING ATTACHED SIGNS AND CRASH ATTENUATOR WILL BE MADE AT THE UNIT PRICE BID PER LINEAR FOOT OF ITEM 202 - TEMPORARY CONCRETE BARRIER REMOVED, AS PER PLAN AND SHALL CONSTITUTE FULL COMPENSATION FOR REMOVAL, PROTECTION AND STORAGE OF THE EXISTING BARRIER ATTACHED SIGNS AND ATTENUATOR IN ACCORDANCE WITH THE PROVISIONS OF ITEM 202 AND AS DESCRIBED HEREIN.

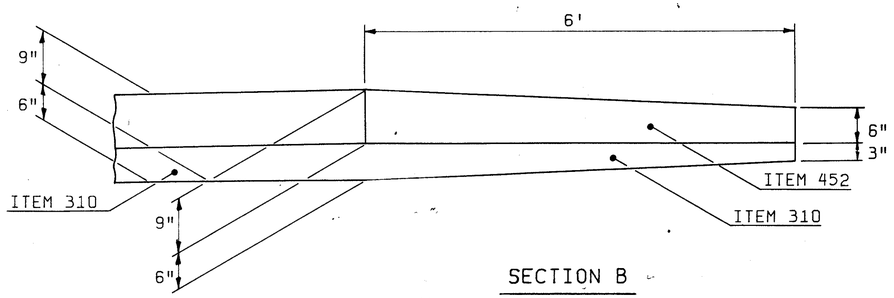


EARTHWORK ADJUSTED ARC METHOD

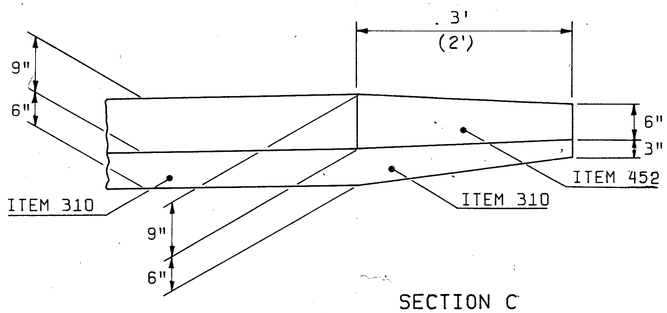
PAVEMENT CALCULATIONS



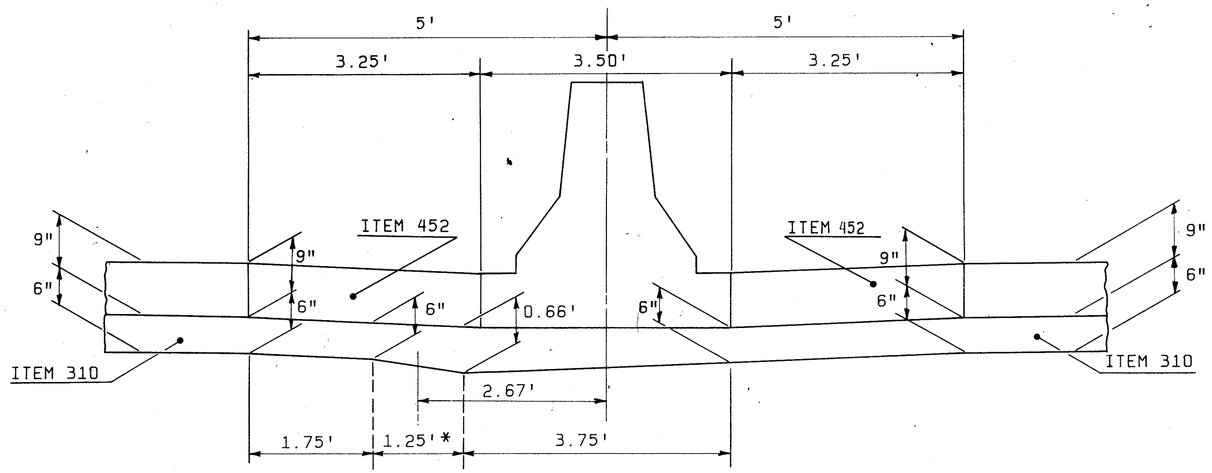
SECTION A



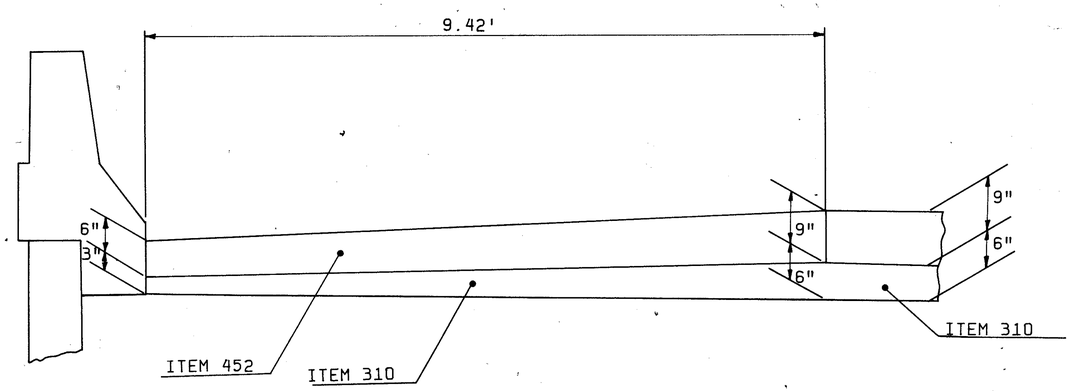
SECTION B



SECTION C
(SECTION C-1)



SECTION D



SECTION E

TYPICAL SHOULDER SECTIONS

SCALE IN FEET

0 1 2

*LIMITS OF ITEM 605 TRENCH

Calc. By: BEK. Date: 4-17-85
Chk'd. By: G.W. Date: 4-19-85

FHWA REGION	STATE	PROJECT	
5	OHIO		

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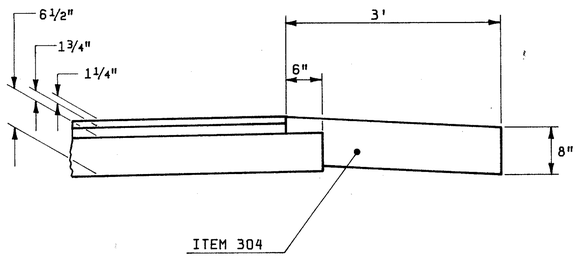
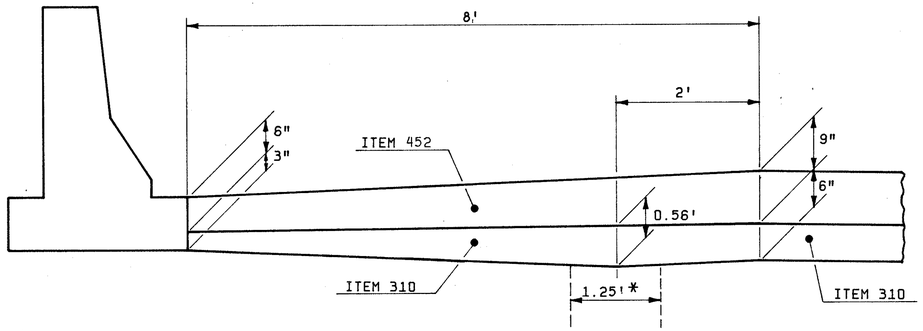
BEL-7-14.17

PAVEMENT CALCULATIONS

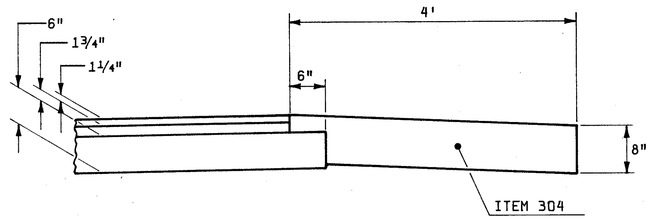


SECTION F

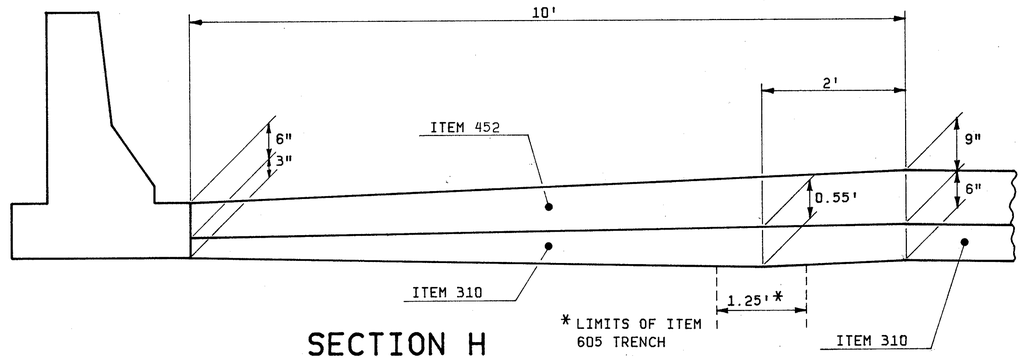


SECTION I

* LIMITS OF ITEM 605 TRENCH



SECTION G



SECTION H

* LIMITS OF ITEM 605 TRENCH

TYPICAL SHOULDER SECTIONS

SCALE IN FEET

0 1 2

CROSS SECTIONAL AREA (C.S.A.) CALCULATIONS

ITEM 310 - SUBBASE, TYPE II

(REFERS ONLY TO THE SHOULDER C.S.A. IN SECTIONS A, B, C, D, E, & C-1)

SECTION A

$(8')\left(\frac{0.5'+0.25'}{2}\right)$ = 3.00 SQ. FT.

SECTION B

$(6')\left(\frac{0.5'+0.25'}{2}\right)$ = 2.25 SQ. FT.

SECTION C

$(3')\left(\frac{0.5'+0.25'}{2}\right)$ = 1.13 SQ. FT.

SECTION D

$[(1.75')(0.5')] + [(1.25')\left(\frac{0.5'+0.66'}{2}\right)] + [(3.75')\left(\frac{0.5'+0.66'}{2}\right)] + [(3.25')(0.5')]$ = 5.40 SQ. FT.

SECTION E

$(9.42')\left(\frac{0.5'+0.25'}{2}\right)$ = 3.53 SQ. FT.

SECTION C-1

$(2')\left(\frac{0.5'+0.25'}{2}\right)$ = 0.75 SQ. FT.

SECTION H

$[(8')\left(\frac{0.25'+0.55'}{2}\right)] + [(2')\left(\frac{0.55'+0.50'}{2}\right)$ = 4.25 SQ. FT.

SECTION I

$[(6')\left(\frac{0.25'+0.56'}{2}\right)] + [(2')\left(\frac{0.56'+0.50'}{2}\right)]$ = 3.49 SQ. FT.

ITEM 304 - AGGREGATE BASE, *AS PER PLAN*

(REFERS ONLY TO THE SHOULDER C.S.A. IN SECTIONS F & G)

SECTION F

$[(2.5')(0.67')] + [(0.5')\left(\frac{0.25'+0.22'}{2}\right)]$ = 1.79 SQ. FT.

SECTION G

$[(3.5')(0.67')] + [(0.5')\left(\frac{0.25'+0.22'}{2}\right)]$ = 2.47 SQ. FT.

DWN	CK'D	Draft	Data
10 CK 6-27-84	6 CT 6-29-84	G W 9-23-85	TSMA 5-16-85

W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

PAVEMENT CALCULATIONS

Calc. By: BEK. Date: 4-17-85
Chkd. By: G.W. Date: 4-19-85

FHWA REGION	STATE	PROJECT	
5	OHIO		

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BEL-7-14.17

PAVEMENT CALCULATIONS

ITEM 451 - 9" REINFORCED CONCRETE PAVEMENT

RURAL

MAINLINE PAVEMENT

STA. 750+06.30 TO STA. 759+18.08 = 911.78 LIN.FT.

(911.78') (24') (2) = 43,765.44 SQ. FT.

ADD FOR DECELERATION LANE AT

RAMP B

STA. 753+00.00 TO STA. 754+00.00
(100') $(\frac{0'+12'}{2})$ = 600.00 SQ. FT.

STA. 754+00.00 TO STA. 756+32.73
(232.73') (12') = 2,792.76 SQ. FT.

STA. 756+32.73 TO STA. 759+18.08
(PLANIMETERED AREA) = 4,332.00 SQ. FT.

ADD FOR ACCELERATION LANE AT

RAMP C

STA. 752+00.00 TO STA. 759+18.08
(718.08') $(\frac{0'+18.1'}{2})$ = 6,498.62 SQ. FT.

TOTAL = 57,988.82 SQ. FT.

RURAL TOTAL ITEM 451 (57,988.82) (1/9) = 6,443.20 SQ. YD.

ITEM 452 - PLAIN CONCRETE PAVEMENT, AS PER PLAN

RURAL

MAINLINE (OUTSIDE) SHOULDERS

STA. 750+06.30 TO STA. 759+18.08 RT.
(911.78') (8') = 7,294.24 SQ. FT.

STA. 750+06.30 TO STA. 759+18.08 LT.
(911.78') (8') = 7,294.24 SQ. FT.

MEDIAN SHOULDERS

STA. 750+06.30 TO STA. 759+18.08
(911.78') [(3.25)(2)] = 5,926.57 SQ. FT.

TOTAL = 20,515.05 SQ. FT.

RURAL TOTAL ITEM 452 = (20,515.05 SQ. FT.) (1/9) = 2,279.45 SQ. YD.

ITEM 310 - 6" SUBBASE TYPE II

RURAL

UNDER ITEM 451

$\frac{(6,443.20 \text{ SQ. YD.})\ (6")}{36}$ = 1,073.87 CU. YD.

MAINLINE (OUTSIDE) SHOULDERS

STA. 750+06.30 TO STA. 759+18.08 RT.
(SEE SECTION A ITEM 310 C.S.A. CALCULATIONS)
(911.78') (3.00 SQ. FT.) (1/27) = 101.31 CU. YD.

STA. 750+06.30 TO STA. 759+18.08 LT.
(SEE SECTION A ITEM 310 C.S.A. CALCULATIONS)
(911.78') (3.00 SQ. FT.) (1/27) = 101.31 CU. YD.

MEDIAN SHOULDERS

STA. 750+06.30 TO STA. 759+18.08
(SEE SECTION D ITEM 310 C.S.A. CALCULATIONS)
(911.78') (5.40 SQ. FT.) (1/27) = 182.36 CU. YD.

RURAL TOTAL ITEM 310 = 1,458.85 CU. YD.

ITEM 451 - 9" REINFORCED CONCRETE PAVEMENT

URBAN

MAINLINE PAVEMENT

STA. 759+18.08 TO STA. 828+50.00 = 6,931.92 LIN.FT.

DEDUCT FOR BRIDGE NO. 1450 LT. & RT. AND APPROACH SLABS

(STA. 768+51.94 TO STA. 770+14.06) = -162.12 LIN.FT.

DEDUCT FOR BRIDGE NO. 1550 LT. & RT. AND APPROACH SLABS

(STA. 820+04.55 TO STA. 823+32.57 = -328.02 LIN.FT.

DEDUCT FOR BRIDGE NO. 1562 LT. & RT. AND APPROACH SLABS

(STA. 826+39.15 TO STA. 828+37.15) = -198.00 LIN.FT.

6,243.78 LIN.FT.

DEDUCT FOR PRESSURE RELIEF JOINTS

(5 LOCATIONS) = - 20.00 LIN.FT.

NET LENGTH = 6,223.78 LIN.FT.

(6,223.78 LIN.FT.) (24') (2) = 298,741.44 SQ. FT.

ADD FOR DECELERATION LANES AT

RAMP B

STA. 759+18.08 TO STA. 761+00.00
(PLANIMETERED AREA) = 5,600.00 SQ. FT.

RAMP D

STA. 777+50 TO STA. 782+09.55
(PLANIMETERED AREA) = 9,656.00 SQ. FT.

STA. 782+09.55 TO STA. 784+50.00
(240.45') (12') = 2,885.40 SQ. FT.

STA. 784+50.00 TO STA. 785+50.00
(100') $(\frac{12'+0'}{2})$ = 600.00 SQ. FT.

RAMP F

STA. 810+00.00 TO STA. 811+00.00
(100') $(\frac{0'+12'}{2})$ = 600.00 SQ. FT.

STA. 811+00.00 TO STA. 812+24.85
(124.85') (12') = 1,498.20 SQ. FT.

STA. 812+24.85 TO STA. 818+00.00
(PLANIMETERED AREA) = 12,192.00 SQ. FT.

ADD FOR ACCELERATION LANES AT

RAMP C

STA. 759+18.08 TO STA. 762+00.00
(281.92') $(\frac{18.1'+25'}{2})$ = 6,075.38 SQ. FT.

RAMP A

STA. 779+00.00 TO STA. 789+00.00
(1,000') $(\frac{25'+0'}{2})$ = 12,500.00 SQ. FT.

RAMP G

STA. 806+00.00 TO STA. 816+00.00
(1,000') $(\frac{0'+25'}{2})$ = 12,500.00 SQ. FT.

ITEM 451 - 9" REINFORCED CONCRETE PAVEMENT

RAMP PAVEMENT

RAMP B

STA. 761+00.43 TO STA. 768+29.47
(729.04') (16') = 11,664.64 SQ. FT.

STA. 768+29.47 TO STA. 768+63.36
(PLANIMETERED AREA) = 824.00 SQ. FT.

RAMP C

STA. 762+00.00 TO STA. 769+36.14
[(736.14') (16')] + $(\frac{40' \times 4'}{2})$ (2) = 11,938.24 SQ. FT.

STA. 769+36.14 TO STA. 769+87.35
(PLANIMETERED AREA) = 2,168.00 SQ. FT.

RAMP D

STA. 769+91.78 TO STA. 770+88.61
(PLANIMETERED AREA) = 4,292.00 SQ. FT.

STA. 770+88.61 TO STA. 777+50.84
(662.23') (16') = 10,595.68 SQ. FT.

RAMP A

STA. 768+94.19 TO STA. 769+55.24
(PLANIMETERED AREA) = 1,776.00 SQ. FT.

STA. 769+55.24 TO STA. 779+00.00
(944.76') (16') = 15,116.16 SQ. FT.

RAMP F

STA. 817+89.30 TO STA. 820+67.43
(278.13') (16') = 4,450.08 SQ. FT.

STA. 823+56.57 TO STA. 826+45.19
(288.62') (16') = 4,617.92 SQ. FT.

STA. 826+45.19 TO STA. 827+05.42
(PLANIMETERED AREA) = 1,520.00 SQ. FT.

RAMP G

STA. 816+00.00 TO STA. 819+66.51
(366.51') (16') = 5,864.16 SQ. FT.

STA. 822+91.67 TO STA. 826+52.10
(360.43') (16') = 5,766.88 SQ. FT.

STA. 826+52.10 TO STA. 827+47.46
(PLANIMETERED AREA) = 3,360.00 SQ. FT.

RAMP E

STA. 827+69.13 TO STA. 828+74.09
(PLANIMETERED AREA) = 4,512.00 SQ. FT.

RAMP H

STA. 827+69.43 TO STA. 828+37.23
(PLANIMETERED AREA) = 2,340.00 SQ. FT.

TOTAL = 453,654.18 SQ. FT.

URBAN TOTAL ITEM 451 (453,654.18 SQ.FT.) (1/9) = 50,406.02 SQ. YD.

Calc BEK 7.31.84	CK'D Wac 8/13/84	CK'D GW 9.18.85
	Rev'd BEK 9.18.85	

Calc. By: BEK. Date: 4-17-85
Chk'd. By: GeL Date: 4-19-85

FHWA REGION	STATE	PROJECT	
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BEL-7-14.17

PAVEMENT CALCULATIONS

ITEM 452 - PLAIN CONCRETE PAVEMENT, AS PER PLAN

URBAN

MAINLINE (OUTSIDE) SHOULDERS

STA. 759+18.08 TO STA. 768+39.93 RT. (921.85') (8') = 7,374.80 SQ. FT.

STA. 770+02.05 TO STA. 776+18.5 RT. (616.45') (8') = 4,931.60 SQ. FT.

STA. 779+00.00 TO STA. 799+90.00 RT. (2,090.00') (8') = 16,720.00 SQ. FT.

STA. 799+90.00 TO STA. 800+40.00 RT. (50.00') $(\frac{8'+9.42'}{2})$ = 435.50 SQ. FT.

STA. 800+40.00 TO STA. 808+00.00 RT. (760.00') (9.42') = 7,159.20 SQ. FT.

STA. 808+00.00 TO STA. 808+50.00 RT. (50.00') $(\frac{9.42'+8'}{2})$ = 435.50 SQ. FT.

STA. 808+50.00 TO STA. 820+19.32 RT. (1,169.32') (8') = 9,354.56 SQ. FT.

STA. 823+51.00 TO STA. 826+39.15 RT. (288.15') (8') = 2,305.20 SQ. FT.

STA. 828+37.15 TO STA. 828+50.00 RT. (12.85') (8') = 102.80 SQ. FT.

STA. 759+18.08 TO STA. 762+00.00 LT. (281.92') (10') = 2,819.20 SQ. FT.

STA. 763+62.00 TO STA. 768+63.95 LT. (501.95') (8') = 4,015.60 SQ. FT.

STA. 770+26.07 TO STA. 798+35.00 LT. (2,808.93') (8') = 22471.44 SQ. FT.

STA. 798+35.00 TO STA. 798+85.00 LT. (50.00') $(\frac{8'+9.42'}{2})$ = 435.50 SQ. FT.

STA. 798+85.00 TO STA. 809+05.00 LT. (1,020.00') (9.42') = 9,608.40 SQ. FT.

STA. 809+05.00 TO STA. 809+55.00 LT. (50.00') $(\frac{9.42'+8'}{2})$ = 435.50 SQ. FT.

STA. 809+55.00 TO STA. 816+00.00 LT. (645.00') (8') = 5,160.00 SQ. FT.

STA. 818+20.00 TO STA. 819+89.78 LT. (169.78') (8') = 1,358.24 SQ. FT.

STA. 823+14.14 TO STA. 826+39.15 LT. (325.01') (8') = 2,600.08 SQ. FT.

STA. 828+37.15 TO STA. 828+50.00 LT. (12.85') (8') = 102.80 SQ. FT.

STA. 762+00.00 TO STA. 763+62.00 LT. (PLANIMETERED AREA) = 2,400.00 SQ. FT.

STA. 776+18.50 TO STA. 779+00.00 RT. (PLANIMETERED AREA) = 4,304.00 SQ. FT.

STA. 816+00.00 TO STA. 818+20.00 LT. (PLANIMETERED AREA) = 3,260.00 SQ. FT.

MEDIAN SHOULDERS

(6,243.78') [(3.25' x 2)] = 40584.57 SQ. FT.

DEDUCT FOR PRESSURE RELIEF JOINTS IN OUTSIDE AND INSIDE SHOULDERS 5 LOCATIONS

5 (4') 22.5') - 450.00 SQ. FT.

NET SUBTOTAL = 147924.49 SQ. FT.

RAMP B

RIGHT SHOULDER

STA. 761+00.43 TO STA. 761+50.43 (50.00') $(\frac{8'+6'}{2})$ = 350.00 SQ. FT.

STA. 761+50.43 TO STA. 768+76.00 (725.57') (6') = 4,353.42 SQ. FT.

LEFT SHOULDER

STA. 761+00.43 TO STA. 768+29.47 (729.04') (3') = 2,187.12 SQ. FT.

SUBTOTAL 6,890.54 SQ. FT.

ITEM 452 - PLAIN CONCRETE PAVEMENT, AS PER PLAN

RAMP C

LEFT SHOULDER

STA. 762+00.00 TO STA. 762+50.00 (50.00') $(\frac{10'+8'}{2})$ = 450.00 SQ. FT.

STA. 762+50.00 TO STA. 764+50.00 (200.00') (8') = 1,600.00 SQ. FT.

STA. 764+50.00 TO STA. 764+75.00 (25.00') $(\frac{8'+6'}{2})$ = 175.00 SQ. FT.

STA. 764+75.00 TO STA. 769+34.53 (459.53') (6') = 2,757.18 SQ. FT.

STA. 769+34.53 TO STA. 769+44.33 (10.00') $(\frac{6'+2'}{2})$ = 40.00 SQ. FT.

RIGHT SHOULDER

STA. 763+62.00 TO STA. 769+36.14 (574.14') (3') = 1,722.42 SQ. FT.

SUBTOTAL = 6,744.60 SQ. FT.

RAMP A

RIGHT SHOULDER

STA. 768+81.42 TO STA. 778+50.00 (968.58') (6') = 5,811.48 SQ. FT.

STA. 778+50.00 TO STA. 779+00.00 (50.00') $(\frac{6'+8'}{2})$ = 350.00 SQ. FT.

LEFT SHOULDER

STA. 769+55.24 TO STA. 776+18.50 (663.26') (3') = 1,989.78 SQ. FT.

SUBTOTAL = 8,151.26 SQ. FT.

RAMP D

LEFT SHOULDER

STA. 770+88.61 TO STA. 770+98.61 (10.00') $(\frac{2'+6'}{2})$ = 40.00 SQ. FT.

STA. 770+98.61 TO STA. 777+00.84 (602.23') (6') = 3,613.38 SQ. FT.

STA. 777+00.84 TO STA. 777+50.84 (50.00') $(\frac{6'+8'}{2})$ = 350.00 SQ. FT.

RIGHT SHOULDER

STA. 770+30.20 TO STA. 777+50.84 (720.64') (3') = 2,161.92 SQ. FT.

SUBTOTAL = 6,165.30 SQ. FT.

RAMP F

RIGHT SHOULDER

STA. 817+89.30 TO STA. 818+39.30 (50.00') $(\frac{8'+6'}{2})$ = 350.00 SQ. FT.

STA. 818+39.30 TO STA. 820+69.09 (229.79') (6') = 1,378.74 SQ. FT.

STA. 823+58.23 TO STA. 826+71.76 (313.53') (6') = 1,881.18 SQ. FT.

STA. 826+71.76 TO STA. 826+81.76 (10.00') $(\frac{6'+2'}{2})$ = 40.00 SQ. FT.

LEFT SHOULDER

STA. 817+89.30 TO STA. 820+57.73 (268.43') (3') = 805.29 SQ. FT.

STA. 823+46.87 TO STA. 826+45.19 (298.32') (3') = 894.96 SQ. FT.

SUBTOTAL = 5,350.17 SQ. FT.

ITEM 452 - PLAIN CONCRETE PAVEMENT, AS PER PLAN

RAMP G

LEFT SHOULDER

STA. 816+00.00 TO STA. 816+50.00 (50.00') $(\frac{8'+6'}{2})$ = 350.00 SQ. FT.

STA. 816+50.00 TO STA. 819+65.07 (315.07') (6') = 1,890.42 SQ. FT.

STA. 822+89.76 TO STA. 826+81.90 (392.14') (6') = 2,352.84 SQ. FT.

STA. 826+81.90 TO STA. 826+91.90 (10.00') $(\frac{6'+2'}{2})$ = 40.00 SQ. FT.

RIGHT SHOULDER

STA. 818+21.00 TO STA. 819+74.93 (153.93') (3') = 461.79 SQ. FT.

STA. 823+02.79 TO STA. 827+15.60 (412.81') (3') = 1,238.43 SQ. FT.

SUBTOTAL = 6,333.48 SQ. FT.

RAMP E

RIGHT SHOULDER

STA. 828+34.28 TO STA. 828+44.28 (10.00') $(\frac{2'+6'}{2})$ = 40.00 SQ. FT.

STA. 828+44.28 TO STA. 828+74.09 (29.81') (6') = 178.86 SQ. FT.

LEFT SHOULDER

STA. 827+88.76 TO STA. 828+74.09 (85.33') (3') = 255.99 SQ. FT.

SUBTOTAL = 474.85 SQ. FT.

RAMP H

RIGHT SHOULDER

STA. 828+02.86 TO STA. 828+37.23 (34.37') (3') = 103.11 SQ. FT.

LEFT SHOULDER

STA. 828+27.23 TO STA. 828+37.44 (10.00') $(\frac{2'+6'}{2})$ = 40.00 SQ. FT.

SUBTOTAL = 143.11 SQ. FT.

TOTAL = 188177.80 SQ. FT.

(188177.80 SQ. FT.) (1/9) = 20908.64 SQ. YD.

URBAN TOTAL ITEM 452 = 20908.64 SQ. YD.

ITEM 310 - 6" SUBBASE, TYPE II

URBAN

UNDER ITEM 451

REINFORCED CONCRETE PAVEMENT

$\frac{(50,406.02 \text{ SQ. YD.}) (6")}{36}$ = 8,401.00 CU. YD.

MAINLINE (OUTSIDE) SHOULDERS

STA. 759+18.08 TO STA. 799+90.00 RT.
(SEE SECTION A ITEM 310 C.S.A. CALCULATIONS)
(SEE ITEM 305 FOR LENGTHS)
(3,635.38') (3.00) (1/27) = 403.93 CU. YD.

STA. 799+90.00 TO STA. 800+40.00 RT.
(SEE SECTION A & E ITEM 310 C.S.A. CALCULATIONS)
(50.00') $(\frac{3.00+3.53}{2})$ (1/27) = 6.05 CU. YD.

STA. 800+40.00 TO STA. 808+00.00 RT.
(SEE SECTION E ITEM 310 C.S.A. CALCULATIONS)
(760.00') (3.53) (1/27) = 99.36 CU. YD.

STA. 808+00.00 TO STA. 808+50.00 RT.
(SEE SECTION E & A ITEM 310 C.S.A. CALCULATIONS)
(50.00') $(\frac{3.53+3.00}{2})$ (1/27) = 6.05 CU. YD.

STA. 808+50.00 TO STA. 828+50.00 RT.
(SEE SECTION A ITEM 310 C.S.A. CALCULATIONS)
(SEE ITEM 305 FOR LENGTHS)
(1,470.32') (3.00) (1/27) = 163.37 CU. YD.

SUBTOTAL = 678.76 CU. YD.

STA. 759+18.08 TO STA. 762+00.00 LT.
(SEE SECTION H ITEM 310 C.S.A. CALCULATIONS)
(281.92') (4.25) (1/27) = 44.37 CU. YD.

STA. 763+62.00 TO STA. 798+35.00 LT.
(SEE SECTION A ITEM 310 C.S.A. CALCULATIONS)
(SEE ITEM 305 FOR LENGTHS)
(3,310.88') (3.00) (1/27) = 367.88 CU. YD.

STA. 798+35.00 TO STA. 798+85.00 LT.
(SEE SECTION A & E ITEM 310 C.S.A. CALCULATIONS)
(50.00') $(\frac{3.00+3.53}{2})$ (1/27) = 6.05 CU. YD.

STA. 798+85.00 TO STA. 809+05.00 LT.
(SEE SECTION E ITEM 310 C.S.A. CALCULATIONS)
(1,020.00') (3.53) (1/27) = 133.36 CU. YD.

STA. 809+05.00 TO STA. 809+55.00 LT.
(SEE SECTION E & A ITEM 310 C.S.A. CALCULATIONS)
(50.00') $(\frac{3.53+3.00}{2})$ (1/27) = 6.05 CU. YD.

STA. 809+05.00 TO STA. 828+50.00 LT.
(SEE SECTION A ITEM 310 C.S.A. CALCULATIONS)
(SEE ITEM 305 FOR LENGTHS)
(1,152.64') (3.00) (1/27) = 128.07 CU. YD.

SUBTOTAL = 685.78 CU. YD.

STA. 762+00.00 TO STA. 763+62.00 LT.
(PLANIMETERED AREA)
(2,400.00 SQ. FT.) (1/9)
$\frac{(266.67 \text{ SQ. YD.}) (6")}{36}$ = 44.45 CU. YD.

STA. 776+18.50 TO STA. 779+00.00 RT.
(PLANIMETERED AREA)
(4,304.00 SQ. FT.) (1/9)
$\frac{(478.22 \text{ SQ. YD.}) (6")}{36}$ = 79.70 CU. YD.

STA. 816+00.00 TO STA. 818+20.00 LT.
(PLANIMETERED AREA)
(3,260.00 SQ. FT.) (1/9)
$\frac{(362.22 \text{ SQ. YD.}) (6")}{36}$ = 60.37 CU. YD.

MEDIAN SHOULDER

(SEE SECTION D ITEM 310 C.S.A. CALCULATIONS)
(6,243.78') (5.40) (1/27) = 1,248.76 CU. YD.

SUBTOTAL = 1,433.28 CU. YD.

CALC. BEK	7-31-85	
CK'D GeL	8-13-85	
REV. & CK'D GeL	4-19-85	
CK'D GeL	4-19-85	

Calc. By: BEK. Date: 4-17-85
Chk'd. By: G.W. Date: 4-19-85

FHWA REGION	STATE	PROJECT	
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BEL-7-14.17

PAVEMENT CALCULATIONS

ITEM 310 - 6" SUBBASE, TYPE II

RAMP B

RIGHT SHOULDER

STA. 761+00.43 TO STA. 761+50.43
(SEE SECTION A & B ITEM 310 C.S.A. CALCULATIONS)
(50.00') $(\frac{3.00+2.25}{2})$ (1/27) = 4.86 CU. YD.

STA. 761+50.43 TO STA. 768+76.00
(SEE SECTION B ITEM 310 C.S.A. CALCULATIONS)
(725.57') (2.25) (1/27) = 60.46 CU. YD.

LEFT SHOULDER

STA. 761+00.43 TO STA. 768+29.47
(SEE SECTION C ITEM 310 C.S.A. CALCULATIONS)
(729.04') (1.13) (1/27) = 30.51 CU. YD.

SUBTOTAL = 95.83 CU. YD.

RAMP C

RIGHT SHOULDER

STA. 763+63.00 TO STA. 768+36.14
(SEE SECTION C ITEM 310 C.S.A. CALCULATIONS)
(573.33') (1.13) (1/27) = 24.00 CU. YD.

LEFT SHOULDER

STA. 762+00.00 TO STA. 762+50.00
(SEE SECTION H & I ITEM 310 C.S.A. CALCULATIONS)
(50.00') $(\frac{4.25+3.49}{2})$ (1/27) = 7.17 CU. YD.

STA. 762+50.00 TO STA. 764+50.00
(SEE SECTION I ITEM 310 C.S.A. CALCULATIONS)
(200.00') (3.49) (1/27) = 25.85 CU. YD.

STA. 764+50.00 TO STA. 764+75.00
(SEE SECTION I & B ITEM 310 C.S.A. CALCULATIONS)
(25.00') $(\frac{3.49+2.25}{2})$ (1/27) = 2.66 CU. YD.

STA. 764+75.00 TO STA. 769+34.53
(SEE SECTION B ITEM 310 C.S.A. CALCULATIONS)
(459.53') (2.25) (1/27) = 38.29 CU. YD.

STA. 769+34.53 TO STA. 769+44.33
(SEE SECTION B & C-1 ITEM 310 C.S.A. CALCULATIONS)
(10.00') $(\frac{2.25+0.75}{2})$ (1/27) = 0.56 CU. YD.

SUBTOTAL = 98.56 CU. YD.

RAMP A

RIGHT SHOULDER

STA. 768+81.42 TO STA. 778+50.00
(SEE SECTION B ITEM 310 C.S.A. CALCULATIONS)
(968.58') (2.25) (1/27) = 80.72 CU. YD.

STA. 778+50.00 TO STA. 779+00.00
(SEE SECTION B & A ITEM 310 C.S.A. CALCULATIONS)
(50.00') $(\frac{2.25+3.00}{2})$ (1/27) = 4.86 CU. YD.

LEFT SHOULDER

STA. 769+55.24 TO STA. 776+18.50
(SEE SECTION C ITEM 310 C.S.A. CALCULATIONS)
(663.26') (1.13) (1/27) = 27.76 CU. YD.

SUBTOTAL 113.34 CU. YD.

ITEM 310 - 6" SUBBASE, TYPE II

RAMP D

RIGHT SHOULDER

STA. 770+30.20 TO STA. 777+50.84
(SEE SECTION C ITEM 310 C.S.A. CALCULATIONS)
(720.64') (1.13) (1/27) = 30.16 CU. YD.

LEFT SHOULDER

STA. 770+88.61 TO STA. 770+98.61
(SEE SECTION C-1 & B ITEM 310 C.S.A. CALCULATIONS)
(10.00') $(\frac{0.75+2.25}{2})$ (1/27) = 0.56 CU. YD.

STA. 770+98.61 TO STA. 777+00.84
(SEE SECTION B ITEM 310 C.S.A. CALCULATIONS)
(602.23') (2.25) (1/27) = 50.19 CU. YD.

STA. 777+00.84 TO STA. 777+50.84
(SEE SECTION B & A ITEM 310 C.S.A. CALCULATIONS)
(50.00') $(\frac{2.25+3.00}{2})$ (1/27) = 4.86 CU. YD.

SUBTOTAL = 85.77 CU. YD.

RAMP F

RIGHT SHOULDER

STA. 817+89.30 TO STA. 818+39.30
(SEE SECTION A & B ITEM 310 C.S.A. CALCULATIONS)
(50.00') $(\frac{3.00+2.25}{2})$ (1/27) = 4.86 CU. YD.

STA. 818+39.30 TO STA. 826+71.76
(SEE SECTION B ITEM 310 C.S.A. CALCULATIONS)
(SEE ITEM 305 FOR LENGTHS)
(543.32') (2.25) (1/27) = 45.28 CU. YD.

STA. 826+71.76 TO STA. 826+81.76
(SEE SECTION B & C-1 ITEM 310 C.S.A. CALCULATIONS)
(10.00') $(\frac{2.25+0.75}{2})$ (1/27) = 0.56 CU. YD.

LEFT SHOULDER

STA. 817+89.30 TO STA. 826+45.19
(SEE SECTION C ITEM 310 C.S.A. CALCULATIONS)
(SEE ITEM 305 FOR LENGTHS)
(566.75') (1.13) (1/27) = 23.72 CU. YD.

SUBTOTAL = 74.42 CU. YD.

RAMP G

RIGHT SHOULDER

STA. 818+21.00 TO STA. 827+15.60
(SEE SECTION C ITEM 310 C.S.A. CALCULATIONS)
(SEE ITEM 305 FOR LENGTHS)
(566.74) (1.13) (1/27) = 23.72 CU. YD.

LEFT SHOULDER

STA. 816+00.00 TO STA. 816+50.00
(SEE SECTION A & B ITEM 310 C.S.A. CALCULATIONS)
(50.00') $(\frac{3.00+2.25}{2})$ (1/27) = 4.86 CU. YD.

STA. 816+50.00 TO STA. 826+81.90
(SEE SECTION B ITEM 310 C.S.A. CALCULATIONS)
(SEE ITEM 305 FOR LENGTHS)
(707.21') (2.25) (1/27) = 58.93 CU. YD.

STA. 826+81.90 TO STA. 826+91.90
(SEE SECTION B & C-1 ITEM 310 C.S.A. CALCULATIONS)
(10.00') $(\frac{2.25+0.75}{2})$ (1/27) = 0.56 CU. YD.

SUBTOTAL = 88.07 CU. YD.

ITEM 310 - 6" SUBBASE, TYPE II

RAMP E

RIGHT SHOULDER

STA. 828+34.28 TO STA. 828+44.28
(SEE SECTION C-1 & B ITEM 310 C.S.A. CALCULATIONS)
(10.00') $(\frac{0.75+2.25}{2})$ (1/27) = 0.56 CU. YD.

STA. 828+44.28 TO STA. 828+74.09
(SEE SECTION B ITEM 310 C.S.A. CALCULATIONS)
(29.81') (2.25) (1/27) = 2.48 CU. YD.

LEFT SHOULDER

STA. 827+88.76 TO STA. 828+74.09
(SEE SECTION C ITEM 310 C.S.A. CALCULATIONS)
(85.33') (1.13) (1/27) = 3.57 CU. YD.

SUBTOTAL = 6.61 CU. YD.

RAMP H

RIGHT SHOULDER

STA. 828+02.86 TO STA. 828+37.23
(SEE SECTION C ITEM 310 C.S.A. CALCULATIONS)
(34.47') (1.13) (1/27) = 1.44 CU. YD.

LEFT SHOULDER

STA. 828+27.23 TO STA. 828+37.44
(SEE SECTION C-1 & B ITEM 310 C.S.A. CALCULATIONS)
(10.00') $(\frac{0.75+2.25}{2})$ (1/27) = 0.56 CU. YD.

SUBTOTAL = 2.00 CU. YD.

URBAN TOTAL ITEM 310 = 11,763.42 CU. YD.

ITEM 404 - 1 1/4" ASPHALT CONCRETE, AC-20

SECOND RELOCATED BELMONT STREET		SQ. FT.	CU. YD.
STA. 11+32.36 TO STA. 13+96.73 RT. (264.37') (13') (1¼") (1/27)	=	3,436.81	13.26
STA. 13+96.73 TO STA. 16+21.73 RT. (225.00') $(\frac{13'+22'}{2})$ (1¼") (1/27)	=	3,937.50	15.20
STA. 11+32.36 TO STA. 12+54.60 LT. (122.14') $(\frac{15'+19.89'}{2})$ (1¼") (1/27)	=	2,130.73	8.22
STA. 12+54.60 TO STA. 16+32.36 LT. (377.96') $(\frac{17.89'+33'}{2})$ (1¼") (1/27)	=	9,617.19	37.12
STA. 16+21.73 TO STA. 17+96.50 RT. (174.77') (22') (1¼") (1/27)	=	3,844.94	14.84
STA. 16+32.36 TO STA. 18+07.42 LT. (175.06') (33') (1¼") (1/27)	=	5,776.98	22.29
STA. 19+47.18 TO STA. 22+34.10 LT. (286.92') (33') (1¼") (1/27)	=	9,468.36	36.54
STA. 22+34.10 TO STA. 23+39.77 LT. (105.67') $(\frac{33'+28'}{2})$ (1¼") (1/27)	=	3,222.94	12.44
STA. 19+66.91 TO STA. 23+56.98 RT. (390.07') (22') (1¼") (1/27)	=	8,581.54	33.12
STA. 23+39.77 LT. AND STA. 23+56.98 RT. TO STA. 24+20.00 (INCLUDES RETURNS AT CRESCENT DRIVE) (PLANIMETERED AREA) (5,721.00 SQ.FT.) (1¼") (1/27)	=	5,721.00	22.07
SUBTOTAL	=	55,737.99 SQ.FT.	215.11 CU.YD.

26TH STREET		SQ. FT.	CU. YD.
STA. 6+00.00 TO STA. 6+25.00 (25') $(\frac{23'+24'}{2})$ (1¼") (1/27)	=	587.50	2.27
STA. 6+25.00 TO STA. 9+55.86 (330.86') (24') (1¼") (1/27)	=	7,940.64	30.64
STA. 9+55.86 TO STA. 12+26.83 (270.97') $(\frac{24'+36'}{2})$ (1¼") (1/27)	=	8,129.10	31.37
STA. 12+26.83 TO STA. 14+49.04 (222.21') (36') (1¼") (1/27)	=	7,999.56	30.87
STA. 14+49.04 TO STA. 16+76.55 (INCLUDES RETURNS AT 2ND RELOCATED BELMONT) (PLANIMETERED AREA) (19,926.00 SQ.FT.) (1¼") (1/27)	=	19,926.00	76.90
STA. 16+76.55 TO STA. 17+59.19 (82.64') (60') (1¼") (1/27)	=	4,958.40	19.14
STA. 17+59.19 TO STA. 18+91.20 (PLANIMETERED AREA) (7,412.00 SQ.FT.) (1¼") (1/27)	=	7,412.00	28.60
STA. 18+91.20 TO STA. 20+64.96 (173.76') (48') (1¼") (1/27)	=	8,340.48	32.19
STA. 20+64.96 TO STA. 22+11.76 (PLANIMETERED AREA) (6,600.00 SQ.FT.) (1¼") (1/27)	=	6,600.00	25.47
STA. 22+11.76 TO STA. 23+37.50 (125.74') (36') (1¼") (1/27)	=	4,526.64	17.47
SUBTOTAL	=	76,420.32 SQ.FT.	294.92 CU.YD.

ITEM 404 - 1 1/4" ASPHALT CONCRETE, AC-20

RURAL

RELOCATED 10TH STREET		SQ. FT.	CU. YD.
STA. 14+31.17 TO STA. 17+40.22 (309.05') (18') (1¼") (1/27)	=	5,562.90	21.47
STA. 17+40.22 TO STA. 17+62.11 (21.89') $(\frac{18'+9'}{2})$ (1¼") (1/27)	=	295.52	1.14
RURAL TOTAL ITEM 404	=	5,858.42 SQ.FT.	22.61 CU.YD.

URBAN

1ST RELOCATED BELMONT STREET		SQ. FT.	CU. YD.
STA. 8+60.00 TO STA. 9+20.68 (PLANIMETERED AREA) (1,460.00 SQ.FT.) (1¼") (1/27)	=	1,460.00	5.63
STA. 9+20.68 TO STA. 10+78.62 (157.94') (24') (1¼") (1/27)	=	3,790.56	14.63
STA. 10+78.62 TO STA. 12+53.12 (PLANIMETERED AREA) (4,980.00 SQ.FT.) (1¼") (1/27)	=	4,980.00	19.22
STA. 12+53.12 TO STA. 24+30.00 (1,176.88') (33') (1¼") (1/27)	=	38,837.04	149.88
STA. 24+30.00 TO STA. 24+50.00 (20') $(\frac{33'+30'}{2})$ (1¼") (1/27)	=	630.00	2.43
SUBTOTAL	=	49,697.60 SQ.FT.	191.79 CU.YD.

14TH STREET		SQ. FT.	CU. YD.
STA. 10+75.00 TO STA. 11+35.92 (PLANIMETERED AREA) (1,701.00 SQ.FT.) (1¼") (1/27)	=	1,701.00	6.56
STA. 10+50.00 TO STA. 10+75.00 (25') (24') (1¼") (1/27)	=	600.00	2.32

25TH STREET			
STA. 10+09.06 TO STA. 11+00 (PLANIMETERED AREA) (3,550.00 SQ.FT.) (1¼") (1/27)	=	3,550.00	13.70

Ck'd BEK 2-20-87	Ck'd GWC 8-21-87	Rev'd per CO 4-11-88	Ck'd GWC 4-18-88

PAVEMENT CALCULATIONS

Calc. By: BEK. Date: 4-17-85
Chk'd. By: G.W. Date: 4-18-85

FHWA REGION	STATE	PROJECT	
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BEL-7-14.17

ITEM 438 - 1 1/4" ASPHALT CONCRETE, AC-20

	SQ. FT.	CU. YD.
27TH STREET (WEST)		
STA. 10+03.00 TO STA. 10+77.46 (PLANIMETERED AREA) (2,104.00 SQ.FT.) (1¼") (1/27) =	2,104.00	8.12
27TH STREET (EAST) AND BELMONT STREET		
STA. 11+31.49 TO STA. 11+95.00 (PLANIMETERED AREA) (2,154.00 SQ.FT.) (1¼") (1/27) =	2,154.00	8.31
STA. 11+15.39 TO STA. 10+35 (80.39') (24') (1¼") (1/27) =	1,929.36	7.45
29TH STREET WEST		
STA. 10+55 TO STA. 11+28.94 (PLANIMETERED AREA) (2,952.00 SQ.FT.) (1¼") (1/27) =	2,952.00	11.39
29TH STREET EAST		
STA. 20+14.63 TO STA. 21+00.00 (PLANIMETERED AREA) (1,851.00 SQ.FT.) (1¼") (1/27) =	1,851.00	7.14
SUBTOTAL	16,841.36 SQ.FT.	64.99 CU.YD.
RELOCATED T.R. 619	SQ. FT.	CU. YD.
STA. 10+09.00 TO STA. 11+13.00 (PLANIMETERED AREA) (1,688.00 SQ.FT.) (1¼") (1/27) =	1,688.00	6.51
12TH STREET		
STA. 3+81.97 TO STA. 4+81.97 (100') $(\frac{14'+20'}{2})$ (1¼") (1/27) =	1,700.00	6.56
STA. 4+81.97 TO STA. 9+34.61 (452.64') (20') (1¼") (1/27) =	9,052.80	34.94
STA. 9+34.61 TO STA. 9+83.45 (PLANIMETERED AREA) (1,784.00 SQ.FT.) (1¼") (1/27) =	1,784.00	6.88
SUBTOTAL =	12,536.80 SQ.FT.	48.38 CU.YD.
RELOCATED 10TH STREET	SQ. FT.	CU. YD.
STA. 10+07.50 TO STA. 10+34.85 (PLANIMETERED AREA) (821.00 SQ.FT.) (1¼") (1/27) =	821.00	3.17
STA. 10+34.85 TO STA. 14+31.17 (396.32') (18') (1¼") (1/27) =	7,133.76	27.53
SUBTOTAL =	7,954.76	30.70
GRAPE ALLEY		
STA. 9+06.74 TO STA. 9+22.92 (PLANIMETERED AREA) (378.00 SQ.FT.) (1¼") (1/27) =	378.00	1.46
STA. 9+22.92 TO STA. 18+51.94 (929.02') (20') (1¼") (1/27) =	18,580.40	71.71
STA. 18+51.94 TO STA. 18+81.94 (PLANIMETERED AREA) (801.00 SQ.FT.) (1¼") (1/27) =	801.00	3.09
SUBTOTAL =	19,759.40 SQ.FT.	76.26 CU.YD.
UNION STREET	SQ. FT.	CU. YD.
STA. 17+50.00 TO STA. 19+51.70 (201.70') (24') (1¼") (1/27) =	4,840.80 SQ.FT.	18.68 CU.YD.
STA. 19+51.70 TO STA. 19+80.82 (PLANIMETERED AREA) (1,028.00 SQ.FT.) (1¼") (1/27) =	1,028.00 SQ.FT.	3.97 CU.YD.
SUBTOTAL =	5,868.80 SQ.FT.	22.65 CU.YD.
18TH STREET AT GRAPE ALLEY		
STA. 9+06.74 TO STA. 9+22.92 (PLANIMETERED AREA) (1,762.00 SQ.FT.) (1¼") (1/27) =	1,762.00 SQ.FT.	6.80 CU.YD.
URBAN TOTAL ITEM 404 =	248,267.03 SQ.FT.	958.11 CU.YD.

ITEM 402 - 1 3/4" ASPHALT CONCRETE, AC-20

RURAL

RELOCATED 10TH STREET

UNDER ITEM 404 5,858.42 SQ.FT.
(5,858.42 SQ.FT.) (1 3/4") (1/27) = 31.64 CU.YD.

RURAL TOTAL ITEM 402 = 31.64 CU.YD.

URBAN

TOTAL ITEM 404 = 248,267.03 SQ. FT.

(248,267.03 SQ. FT.) (1 3/4") (1/27) = 1,340.64 CU. YD.

URBAN TOTAL ITEM 402 = 1,340.64 CU. YD.

ITEM 404 - ASPHALT CONCRETE, AC-20 (UNDER GUARDRAIL)

RURAL

SURFACE AREA = 3,684.00 SQ. FT.
(3,684.00 SQ. FT.) (2") (1/27) = 22.75 CU. YD.

RURAL TOTAL ITEM 404 (UNDER GUARDRAIL) = 22.75 CU. YD.

URBAN

SURFACE AREA = 55,843.78 SQ. FT.
(55,843.78 SQ. FT.) (2") (1/27) = 344.78 CU. YD.

URBAN TOTAL ITEM 404 (UNDER GUARDRAIL) = 344.78 CU. YD.

ITEM 301 - BITUMINOUS AGGREGATE BASE, AC-20

URBAN

1ST RELOCATED BELMONT STREET

(SEE ITEM 404 CALCULATIONS)
(49,697.60 SQ.FT.) (4") (1/27) = 613.55 CU. YD.

2ND RELOCATED BELMONT STREET

(SEE ITEM 404 CALCULATIONS)
(55,737.99 SQ.FT.) (7") (1/27) = 1,204.15 CU. YD.

26TH STREET

(SEE ITEM 404 CALCULATIONS)
(76,420.32 SQ.FT.) (7") (1/27) = 1,650.96 CU. YD.

STA. 6+00 TO STA. 9+00 LT. SIDE
(87.3') + [(9+00) - (6+87.31)] $(\frac{397.26'}{409.26'})$
(6") (7") (1/27) = 3.15 CU. YD.

STA. 6+00 TO STA. 8+51.7 RT. SIDE
(87.3') + [(8+51.7) - (6+87.31)] $(\frac{421.25'}{409.26'})$
(6") (7") (1/27) = 2.80 CU. YD.

SUBTOTAL = 1,656.91 CU. YD.

12TH STREET

(SEE ITEM 404 CALCULATIONS)
(12,537.00 SQ.FT.) (4") (1/27) = 153.23 CU. YD.

UNION AVENUE

(SEE ITEM 404 CALCULATIONS)
(5,868.80 SQ.FT.) (5") (1/27) = 90.58 CU. YD.

ITEM 301 - BITUMINOUS AGGREGATE BASE, AC-20

14TH STREET, 25TH STREET, 27TH STREET EAST AND WEST, BELMONT STREET, 29TH STREET EAST AND WEST

(SEE ITEM 404 CALCULATIONS)
(16,841.36 SQ.FT.) (3½") (1/27) = 181.93 CU. YD.

GRAPE ALLEY

(SEE ITEM 404 CALCULATIONS)
(19,759.00 SQ.FT.) (3½") (1/27) = 213.45 CU. YD.

STA. 16+21.00 TO STA. 18+81.94 LT.
(260.94) (6") (3½") (1/27) = 1.41 CU. YD.

STA. 15+99.52 TO STA. 18+51.94 RT.
(252.42) (6") (3½") (1/27) = 1.36 CU. YD.

STA. 18+51.94 GRAPE ALLEY TO
STA. 10+79.71 19TH STREET
(47.12) (6") (3½") (1/27) = 0.25 CU. YD.

SUBTOTAL = 216.47 CU. YD.

18TH AND GRAPE ALLEY INTERSECTION

(FROM ITEM 404 CALCULATIONS)
(1,762.00 SQ.FT.) (3½") (1/27) = 19.03 CU. YD.

STA. 20+50.26 TO STA. 20+65.00
(+INTERSECTION RETURN ARC.)
(14.74 + 58.26) (6") (3½") (1/27) = 0.39 CU. YD.

SUBTOTAL = 19.42 CU. YD.

URBAN TOTAL ITEM 301 = 4,136.24 CU. YD.

ITEM 304 - AGGREGATE BASE, AS PER PLAN

RURAL

RELOCATED 10TH STREET

UNDER ITEM 404 5,858.42 SQ.FT.
(5,858.42 SQ.FT.) (6") (1/27) = 108.49 CU.YD.

STA. 14+31.17 TO STA. 17+40.22
[(309.05') (2)] (6") (6") (1/27) = 5.72 CU.YD.

STA. 17+40.22 TO STA. 17+62.11
[(21.89') (2)] $(\frac{5"+0"}{2})$ (6") (1/27) = 0.20 CU.YD.

SHOULDERS

STA. 14+31.17 TO STA. 17+40.22
(SEE SECTION F ITEM 304 C.S.A. CALCULATIONS)
[(309.05') (2)] (1.79) (1/27) = 40.98 CU.YD.

STA. 17+40.22 TO STA. 17+62.11
(SEE SECTION F ITEM 304 C.S.A. CALCULATIONS)
[(21.89') (2)] $(\frac{1.79'+0'}{2})$ (1/27) = 1.45 CU.YD.

RURAL TOTAL ITEM 304 = 156.84 CU.YD.

ITEM 304 - AGGREGATE BASE, AS PER PLAN

URBAN

26TH STREET

STA. 6+00.00 TO STA. 9+00.00 LT.
(SEE SECTION F ITEM 304 C.S.A. CALCULATIONS)
(300') (2.47) (1/27) = 27.44 CU. YD.

STA. 6+00.00 TO STA. 8+51.70 RT.
(SEE SECTION F ITEM 304 C.S.A. CALCULATIONS)
(251.70') (2.47) (1/27) = 23.03 CU. YD.

STA. 8+51.70 TO STA. 8+63.00 RT.
(SEE SECTION F ITEM 304 C.S.A. CALCULATIONS)
(11.3') $(\frac{2.47 + 0}{2})$ (1/27) = 0.52 CU. YD.

SUBTOTAL = 50.99 CU. YD.

RELOCATED T.R. 619

STA. 10+09.00 TO STA. 11+13.00
(SEE ITEM 404 CALCULATIONS)
SURFACE AREA = 1,688.00 SQ. FT.
1,688.00 + [(20.64' + 95.00' + 20.64' + 87.00') (6")]
(6") (1/27) = 33.33 CU. YD.

STA. 10+09.00 TO STA. 11+13.00
(SEE SECTION G ITEM 304 C.S.A. CALCULATIONS)
(223.28') (1.79) (1/27) = 14.80 CU. YD.

SUBTOTAL = 48.13 CU. YD.

RELOCATED 10TH STREET

STA. 10+07.50 TO STA. 14+31.17
(SEE ITEM 404 CALCULATIONS)
SURFACE AREA = 7,954.76 SQ.FT.

STA. 4+03.65 (12TH STREET) TO
STA. 10+96.24 RT. = 104.07 LIN.FT.
STA. 11+35.18 TO STA. 14+31.17 RT. = 295.99 LIN.FT.
STA. 10+34.14 TO STA. 14+31.17 LT. = 397.03 LIN.FT.
797.19 LIN.FT.

(7,954.76+[(797.19) (6")]) (6") (1/27) = 154.69 CU. YD.

STA. 10+07.50 TO STA. 14+31.17
(SEE SECTION F ITEM 304 C.S.A. CALCULATIONS)
(797.19') (1.79) (1/27) = 52.85 CU. YD.

SUBTOTAL = 207.54 CU. YD.

RELOCATED GRAPE ALLEY

18TH STREET AND GRAPE ALLEY INTERSECTION

STA. 20+65 18TH STREET TO STA. 15+99.52
GRAPE ALLEY, RT.
(SEE SECTION F C.S.A. CALCULATIONS)
(73.00') (1.79) (1/27) = 4.84 CU. YD.

STA. 15+99.52 TO STA. 18+51.94 RT.
(SEE SECTION F C.S.A. CALCULATIONS)
(252.42') (1.79) (1/27) = 16.74 CU. YD.

STA. 18+51.94 GRAPE ALLEY TO STA. 10+79.71
18TH STREET
(SEE SECTION F C.S.A. CALCULATIONS)
(47.12') $(\frac{1.79+0.00}{2})$ (1/27) = 1.56 CU. YD.

STA. 16+21.00 TO STA. 18+81.94 LT.
(SEE SECTION F C.S.A. CALCULATIONS)
(260.94') (1.79) (1/27) = 17.30 CU. YD.

SUBTOTAL = 40.44 CU. YD.

URBAN TOTAL ITEM 304 = 347.10 CU. YD.

CK'D GW 4.18.85
Rev'd & K'D BEK 4.18.85
CK'D WOC 9.13.85
CK'D BEK 7.31.84

Calc. By: BEK. Date: 4-17-85
Chk'd. By: G.W. Date: 4-19-85

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BEL-7-14.17

PAVEMENT CALCULATIONS

ITEM 408 - BITUMINOUS PRIME COAT AT 0.40 GALLON PER SQUARE YARD

RURAL

RELOCATED 10TH STREET

STA. 14+31.17 TO STA. 17+40.22 LT. & RT.
(309.05') (2) (3') = 1,854.30 SQ.FT.

STA. 17+40.22 TO STA. 17+62.11 LT. & RT.
(21.89') (2) $(\frac{3'+0'}{2})$ = 65.67 SQ.FT.

(SEE ITEM 304 - SURFACE AREA) = 5,858.42 SQ.FT.

7,778.39 SQ.FT.

(7778.39 SQ.FT.) (1/9) = 864.27 SQ.YD.

(864.27 SQ.YD.) (0.40 CAL/SQ.YD.) = 345.71 GAL.

RURAL TOTAL ITEM 408 = 345.71 GAL.

URBAN

RELOCATED 10TH STREET

STA. 10+07.50 TO STA. 14+31.17 LT. & RT.
(SEE ITEM 304 FOR LENGTH AND AREA RESPECTIVELY)

(797.19 LIN.FT.) (3') (1/9) = 265.73 SQ.YD.
(7954.76 SQ.FT.) (1/9) = 883.86 SQ.YD.

RELOCATED T.R. 619

STA. 10+09.00 TO STA. 11+13.00 LT. & RT.
(SEE ITEM 304 FOR LENGTH AND AREA RESPECTIVELY)

(223.28 LIN.FT.) (3') (1/9) = 74.43 SQ.YD.
(1688.00 SQ.FT.) (1/9) = 187.56 SQ.YD.

26TH STREET

STA. 6+00.00 TO STA. 9+00.00 LT.
(300') (4') = 1,200.00 SQ.FT.

STA. 6+00.00 TO STA. 8+51.70 RT.
(251.70') (4') = 1,006.80 SQ.FT.

STA. 8+51.70 TO STA. 8+63.00 RT.
(11.30') $(\frac{4'+0'}{2})$ = 22.60 SQ.FT.

2,229.40 SQ.FT.

(2,229.40 SQ.FT.) (1/9) = 247.71 SQ.YD.

18TH STREET AND GRAPE ALLEY INTERSECTION

STA. 20+65.00 18TH STREET TO STA. 15+99.52
GRAPE ALLEY RT.
(73.00') (4') = 292.00 SQ.FT.
(292.00 SQ.FT.) (1/9) = 32.44 SQ.YD.

RELOCATED GRAPE ALLEY

STA. 15+99.52 TO STA. 18+51.94 RT.
(252.42') (4') = 1,009.68 SQ.FT.

STA. 18+51.94 GRAPE ALLEY TO STA. 10+79.71
18TH STREET
(47.12') $(\frac{4'+0'}{2})$ = 94.24 SQ.FT.

STA. 16+21.00 TO STA. 18+81.94 LT.
(260.94') (4') = 1,043.76 SQ.FT.

2,147.68 SQ.FT.

(2,147.68 SQ.FT.) (1/9) = 238.63 SQ.YD.

1,930.36 SQ.YD.

(1,930.36 SQ.YD.) (0.40 GAL/SQ.YD.) = 772.14 GAL.

URBAN TOTAL ITEM 408 = 772.14 GAL.

ITEM 409 - SEAL COAT BITUMINOUS MATERIAL AT 0.30 GALLONS PER SQUARE YARD

RURAL

RELOCATED 10TH STREET

STA. 14+31.17 TO STA. 17+40.22 LT. & RT.
(309.05') (2) (3') = 1,854.30 SQ.FT.

STA. 17+40.22 TO STA. 17+62.11 LT. & RT.
(21.89') (2) $(\frac{3'+0'}{2})$ = 65.67 SQ.FT.

1,919.97 SQ.FT.

(1,919.97 SQ.FT.) (1/9) = 213.33 SQ.YD.

(213.33 SQ.YD.) (0.30 GAL/SQ.YD.) = 64.00 GAL.

RURAL TOTAL ITEM 409 SEAL COAT = 64.00 GAL.

URBAN

RELOCATED 10TH STREET

STA. 10+07.50 TO STA. 14+31.17 LT. & RT.
(SEE ITEM 304 FOR LENGTHS)
(797.19 LIN.FT.) (3') (1/9) = 265.73 SQ.YD.

RELOCATED T.R. 619

STA. 10+09.00 TO STA. 11+13.00 LT. & RT.
(SEE ITEM 304 FOR LENGTHS)
(223.28 LIN.FT.) (3') (1/9) = 74.43 SQ.YD.

26TH STREET

STA. 6+00.00 TO STA. 9+00.00 LT.
(300') (4') = 1,200.00 SQ.FT.

STA. 6+00.00 TO STA. 8+51.70 RT.
(251.70') (4') = 1,006.80 SQ.FT.

STA. 8+51.70 TO STA. 8+63.00 RT.
(11.30') $(\frac{4'+0'}{2})$ = 22.60 SQ.FT.

2,229.40 SQ.FT.

(2,229.40 SQ.FT.) (1/9) = 247.71 SQ.YD.

18TH STREET AND GRAPE ALLEY INTERSECTION

STA. 20+65.00 18TH STREET TO STA. 15+99.52
GRAPE ALLEY RT.
(73.00') (4') = 292.00 SQ.FT.

(292.00 SQ.FT.) (1/9) = 32.44 SQ.YD.

RELOCATED GRAPE ALLEY

STA. 15+99.52 TO STA. 18+51.94 RT.
(252.42') (4') = 1,009.68 SQ.FT.

STA. 18+51.94 GRAPE ALLEY TO STA. 10+79.71
18TH STREET
(47.12') $(\frac{4'+0'}{2})$ = 94.24 SQ.FT.

STA. 16+21.00 TO STA. 18+81.94 LT.
(260.94') (4') = 1,043.76 SQ.FT.

2,147.68 SQ.FT.

(2,147.68 SQ.FT.) (1/9) = 238.63 SQ.YD.

858.94 SQ.YD.

(858.94 SQ.YD.) (0.30 GAL/SQ.YD.) = 257.68 GAL.

URBAN TOTAL ITEM 409 SEAL COAT = 257.68 GAL.

ITEM 409 - SEAL COAT COVER AGGREGATE, NO. 8 AT 0.008 CU. YDS. PER SQ. YD.

RURAL

RELOCATED 10TH STREET

STA. 14+31.17 TO STA. 17+40.22 LT. & RT.
(309.05') (2) (3') = 1,854.30 SQ.FT.

STA. 17+40.22 TO STA. 17+62.11 LT. & RT.
(21.89') (2) $(\frac{3'+0'}{2})$ = 65.67 SQ.FT.

1,919.97 SQ.FT.

(1,919.97 SQ.FT.) (1/9) = 213.33 SQ.YD.

(213.33 SQ.YD.) (0.008 CU.YD./SQ.YD.) = 1.71 CU.YD.

RURAL TOTAL ITEM 409 SEAL COAT COVER AGGREGATE = 1.71 CU.YD.

URBAN

RELOCATED 10TH STREET

STA. 10+07.50 TO STA. 14+31.17 LT. & RT.
(SEE ITEM 304 FOR LENGTHS)
(797.19 LIN.FT.) (3') (1/9) = 265.73 SQ.YD.

RELOCATED T.R. 619

STA. 10+09.00 TO STA. 11+13.00 LT. & RT.
(SEE ITEM 304 FOR LENGTHS)
(723.28 LIN.FT.) (3') (1/9) = 74.43 SQ.YD.

26TH STREET

STA. 6+00.00 TO STA. 9+00.00 LT.
(300') (4') = 1,200.00 SQ.FT.

STA. 6+00.00 TO STA. 8+51.70 RT.
(251.70') (4') = 1,006.80 SQ.FT.

STA. 8+51.70 TO STA. 8+63.00 RT.
(11.30') $(\frac{4'+0'}{2})$ = 22.60 SQ.FT.

2,229.40 SQ.FT.

(2,229.40 SQ.FT.) (1/9) = 247.71 SQ.YD.

18TH STREET AND GRAPE ALLEY INTERSECTION

STA. 20+65.00 18TH STREET TO STA. 15+99.52
GRAPE ALLEY RT.
(73.00') (4') = 292.00 SQ.FT.

(292.00 SQ.FT.) (1/9) = 32.44 SQ.YD.

RELOCATED GRAPE ALLEY

STA. 15+99.52 TO STA. 18+51.94 RT.
(252.42') (4') = 1,009.68 SQ.FT.

STA. 18+51.94 GRAPE ALLEY TO STA. 10+79.71
18TH STREET
(47.12') $(\frac{4'+0'}{2})$ = 94.24 SQ.FT.

STA. 16+21.00 TO STA. 18+81.94 LT.
(260.94') (4') = 1,043.76 SQ.FT.

2,147.68 SQ.FT.

(2,147.68 SQ.FT.) (1/9) = 238.63 SQ.YD.

858.94 SQ.YD.

(858.94 SQ.YD.) (0.008 CU.YD./SQ.YD.) = 6.87 CU.YD.

URBAN TOTAL ITEM 409 SEAL COAT COVER AGGREGATE = 6.87 CU.YD.

ITEM 203 - SUBGRADE COMPACTION

(AREAS FROM 451, 404, 452, 304 CALCULATIONS)

RURAL

MAINLINE AND RAMPS

UNDER 451
(57,988.80 SQ.FT.) (1/9) = 6,443.20 SQ.YD.

UNDER 452
(20,562.39 SQ.FT.) (1/9) = 2,284.71 SQ.YD.

UNDER BARRIER MEDIAN
(911.78) (3.5) (1/9) = 354.58 SQ.YD.

RELOCATED 10TH STREET

UNDER 404
(5,858.42 SQ.FT.) (1/9) = 650.94 SQ.YD.

UNDER 304
(320.00 SQ.FT.) (1/9) = 35.56 SQ.YD.

RURAL TOTAL ITEM 203 SUBGRADE COMPACTION = 9,768.99 SQ.YD.

URBAN

MAINLINE AND RAMPS

UNDER 451
(453,654.18 SQ.FT.) (1/9) = 50,406.02 SQ.YD.

UNDER 452
(190,986.73 SQ.FT.) (1/9) = 21,220.75 SQ.YD.

UNDER BARRIER MEDIAN
(6,243.78) (3.5) (1/9) = 2,428.14 SQ.YD.

SIDE ROADS

UNDER 404
(248,267.03 SQ.FT.) (1/9) = 27,585.23 SQ.YD.

UNDER 304
(7,730.43 SQ.FT.) (1/9) = 858.94 SQ.YD.

URBAN TOTAL ITEM 203 SUBGRADE COMPACTION = 102,499.08 SQ.YD.

ITEM 203 - PROOF ROLLING

(AREAS FROM ITEM 203 - SUBGRADE COMPACTION CALCULATIONS)

RURAL

(9,768.99 SQ.YD.) (1/3000) = 3.26 HRS.

RURAL TOTAL ITEM 203 PROOF ROLLING = 3.26 HRS.

URBAN

(AREAS FROM ITEM 203 - SUBGRADE COMPACTION CALCULATIONS)

(102,499.08 SQ.YD.) (1/3000) = 34.17 HRS.

URBAN TOTAL 203 PROOF ROLLING = 34.17 HRS.

For Summary of Pavement Quantities, See Sheet No. 60

Calc. BEK	Chk'd WAC	Chk'd GW
7-31-84	8-13-84	4-18-85
Recalc BEK		
4-18-85		

SUB-SUMMARY

Calc. By: Get. Date: 5-20-85
Chk'd. By: Sy Date: 5-20-85

BEL-7-14.17 | OHIO | FHWA REGION 5 | 60/663

EARTHWORK AND SEEDING

STATION TO STATION	203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION CU. YD.	203 EMBANKMENT CU. YD.	659 SEEDING AND MULCHING SQ. YD.
RURAL			
RELOCATED S.R. 7			
745+00 - 751+00	361	30	371
751+00 - 757+00	6193	1768	5060
757+00 - 759+18.08	4204	3740	2399
RELOCATED 10th ST.			
10+07.50 - 14+00	4855	7410	5883
14+00 - 14+31.17	520	1216	1292
Deduct for Item 670 *			-856 *
RURAL TOTAL	16133	14164	14149
URBAN			
RELOCATED S.R. 7			
759+18.08 - 763+00	4458	8776	5698
763+00 - 769+00	4	65154	5118
769+00 - 775+00	0	63600	4330
775+00 - 781+00	275	33327	2859
781+00 - 787+00	6294	22880	8627
787+00 - 791+00	856	20406	5322
791+00 - 795+00	1258	17897	5122
795+00 - 799+00	577	19314	4439
799+00 - 803+00	10	12444	1728
803+00 - 807+00	0	10297	889
807+00 - 811+00	148	10618	1606
811+00 - 817+00	1145	23544	6170
817+00 - 823+00	344	14929	1421
823+00 - 829+00	7	57442	5073
829+00 - 833+00	25	9694	3853
RAMP 'A'			
768+94.19 - 779+00	1317	5395	8765
RAMP 'B'			
761+00.43 - 768+63.36	1161	3679	13889
RAMP 'C'			
762+00 - 769+87.35	1246	11518	4691
RAMP "D'			
769+91.78 - 777+50.84	0	37924	4842
RAMP 'E'			
827+69.13 - 830+05	572	553	6665
RAMP 'F'			
817+89.59 - 827+05.42	802	12878	3800
Continued Next Table			

EARTHWORK AND SEEDING

STATION TO STATION	203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION CU. YD.	203 EMBANKMENT CU. YD.	659 SEEDING AND MULCHING SQ. YD.
RAMP 'G'			
816+00 - 827+47.46	2070	19909	11328
RAMP 'H'			
827+69.43 - 829+90	80	3055	3338
RELOCATED 10th ST.			
14+31.17 - 17+62.11	14522	127	4327
TWP. RD. 619 CONNECTOR			
10+09 - 11+13	343	219	735
RELOCATED 12th ST.			
3+81.97 - 6+50	140	1005	387
6+50 - 9+83.45	209	10773	2342
1st. RELOCATED BELMONT ST.			
8+60 - 11+00	0	15434	1618
11+00 - 15+00	261	21982	4984
15+00 - 19+00	220	9509	5287
19+00 - 23+00	162	3955	2722
23+00 - 24+50	42	414	411
RELOCATED GRAPE ALLEY			
9+06.74 - 18+81.94	1785	36	2785
2ND RELOCATED BELMONT ST.			
11+32.36 - 13+50	145	67	1239
13+50 - 17+50	368	2206	3997
17+50 - 21+50	647	7393	4057
21+50 - 24+20	203	2279	1630
RELOCATED 26TH ST.			
5+72 - 8+00	436	136	1144
8+00 - 12+00	276	2639	2674
12+00 - 16+00	281	4125	2267
16+00 - 20+00	410	8191	3200
20+00 - 23+37.50	129	4347	1634
RELOCATED UNION ST.			
17+50 - 19+80.82	304	651	1310
Continued Next Table			

EARTHWORK AND SEEDING

STATION TO STATION	203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION CU. YD.	203 EMBANKMENT CU. YD.	659 SEEDING AND MULCHING SQ. YD.
Pavement Removal Areas, From General Notes	1591	1591	
Grading Areas Outside Normal Work Limits, From General Notes			5916
Deduct for Items 601 & 670 *			-9710 *
RURAL TOTAL	16,133	14,164	14,149 *
URBAN TOTAL	45,123	582,312	164,529 *
GRAND TOTAL	61,256	596,476	178,678 *

ITEM 659-AGRICULTURAL LIMING

RURAL: $\frac{(14{,}149 + 856^{**}) \times 9 \times 100}{1000 \text{ Sq. Ft.} \times 2000} = 6.75$ TONS

URBAN: $\frac{(164{,}529 + 9159^{**}) \times 9 \times 100}{1000 \text{ Sq. Ft.} \times 2000} = 78.16$ TONS

ITEM 659-COMMERCIAL FERTILIZER

RURAL: $\frac{(14{,}149 + 856^{**}) \times 9 \times 20}{1000 \text{ Sq. Ft.} \times 2000} = 1.35$ TONS

URBAN: $\frac{(164{,}529 + 9159^{**}) \times 9 \times 20}{1000 \text{ Sq. Ft.} \times 2000} = 15.63$ TONS

* Total Seeding area does not include areas where the use of Item 670, Ditch Erosion Protection or Slope Erosion Protection, or Item 601 Rock Channel Protection used in roadway ditches is specified.

** Areas specified for use of Item 670.

SUMMARY OF PAVEMENT QUANTITIES

	SHEET	QUANTITY RURAL	QUANTITY URBAN
ITEM 451 - 9" REINFORCED CONCRETE PAVEMENT	55	6,443 SQ. YD.	50,406 SQ. YD.
ITEM 452 - PLAIN CONCRETE PAVEMENT, AS PER PLAN	55 & 56	2,279 SQ. YD.	20,909 SQ. YD.
ITEM 310 - SUBBASE, TYPE II	55 & 57	1,459 CU. YD.	11,763 CU. YD.
ITEM 404 - ASPHALT CONCRETE, AC-20	57 & 58	23 CU. YD.	958 CU. YD.
ITEM 402 - ASPHALT CONCRETE, AC-20	58	32 CU. YD.	1,341 CU. YD.
ITEM 301 - BITUMINOUS AGGREGATE BASE, AC-20	58		4,136 CU. YD.
ITEM 304 - AGGREGATE BASE, AS PER PLAN	58	157 CU. YD.	347 CU. YD.
ITEM 408 - BITUMINOUS PRIME COAT	59	346 GAL.	772 GAL.
ITEM 409 - SEAL COAT BITUMINOUS MATERIAL	59	64 GAL.	258 GAL.
ITEM 409 - SEAL COAT COVER AGGREGATE, NO. 8	59	2 CU. YD.	7 CU. YD.
ITEM 203 - SUBGRADE COMPACTION	59	9,769 SQ. YD.	102,499 SQ. YD.
ITEM 203 - PROOF ROLLING	59	3 HRS.	34 HRS.
ITEM 404 - ASPHALT CONCRETE, AC-20, (UNDER GUARDRAIL)	58	23 CU. YD.	345 CU. YD.

GENERAL - SUMMARY

CALC.		OHIO
DATE	BEL-7-14.17	FHWA REGION 5
CHKD.		FEDERAL PROJECT
DATE		

CITY OF BELLAIRE

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NOTE: ALL SHEET NUMBERS REFERENCED ARE TO RIGHT OF WAY PLAN SHEET NUMBERS

SHEET NUMBER														ITEM	GRAND TOTAL	UNIT	PARCEL	DESCRIPTION DEMOLISH ALL OF THE FOLLOWING ITEMS
40	43	44	45	49	51	61	52	53	54	57	58	65	68					
LUMP														202	LUMP		31-WL	1 STORY METAL COMMERCIAL BUILDING, CONCRETE BLOCK GARAGE, 6 UNDERGROUND GAS STORAGE TANKS,WOOD LOADING DOCK, PUMP ISLANDS, SIGN AND SECURITY LIGHT. 960 BELMONT STREET (DUFFY & DEBIASS)
						LUMP								202	LUMP		91-WU	CONCRETE BLOCK GARAGE (PARKER)
		LUMP												202	LUMP		106-WL	1 STORY CONCRETE BLOCK RESTAURANT BUILDING, METAL SIGN, 2 LIGHT POLES WITH CONCRETE BASES AND A CONCRETE TRASH BIN. 1250 BELMONT STREET (AALYSON)
	LUMP													202	LUMP		122-WL	2 STORY FRAME RESIDENCE WITH BASEMENT AND DETACHED TILE BLOCK GARAGE 1366 BELMONT STREET (SALVATERRA)
			LUMP											202	LUMP		125-WL	1 STORY GARAGE BUILDING, 2 STORY BRICK COMMERCIAL BUILDING WITH ATTACHED 1 STORY STEEL BUILDING AND 1 SIGN AND POLE. 1400 BELMONT STREET (MARHEFKA)
			LUMP											202	LUMP		127-WL	2 STORY TILE BLOCK & BRICK COMMERCIAL BUILDING AND WOOD SIGN (SWIFT)
				LUMP										202	LUMP		132-WL	BLOCK BUILDING AND METAL SHED (STRAUB)
					LUMP									202	LUMP		134-WL	1 STORY CONCRETE BLOCK COMMERCIAL BUILDING, 2 UNDERGROUND FUEL TANKS AND 3 SIGNS WITH CONCRETE BASES 1650 BELMONT STREET (CERVELLI)
							LUMP							202	LUMP		151-WL	2 STORY FRAME RESIDENCE WITH BASEMENT 1732-1734 BELMONT STREET (DELGUZZO)
							LUMP							202	LUMP		167-WL	2 STORY BRICK COMMERCIAL BUILDING WITH BASEMENT AND ATTACHED 1 STORY BLOCK & BRICK GARAGE 1800 BELMONT STREET (CLOUSTON)
								LUMP						202	LUMP		180-WL	2 STORY BRICK COMMERCIAL FIREHOUSE (CITY OF BELLAIRE)
									LUMP					202	LUMP		198-WL,WV	2 STORY FRAME RESIDENCE WITH BASEMENT AND A 2 STORY FRAME & BLOCK RESIDENCE AND GARAGE 2114 BELMONT STREET (CIACONE)
									LUMP					202	LUMP		199-WL	2 STORY BRICK RESIDENCE AND COMMERCIAL BUILDING AND DETACHED FRAME SHED 2120 BELMONT STREET (PATTERSON)
									LUMP					202	LUMP		221-WL	2 STORY FRAME RESIDENCE WITH BASEMENT WITH ATTACHED 1 STORY SECTION,DETACHED FRAME GARAGE AND DETACHED CONCRETE BLOCK AND FRAME STORAGE SHED. 219-221 22 ND. STREET (JEWELL)
										LUMP				202	LUMP		255-WL	2 STORY FRAME RESIDENCE WITH BASEMENT WITH ATTACHED 1 STORY SECTION,2 STORY FRAME RESIDENCE WITH BASEMENT AND A 1 STORY FRAME SHED. 225 25 TH. STREET (McGUIRE)
										LUMP				202	LUMP		278-WL,WU	1 STORY CONCRETE BLOCK SERVICE STATION, 3 UNDERGROUND FUEL TANKS, 2 CONCRETE PUMP ISLANDS AND 3 LIGHT POLES. S.E. CORNER OF BELMONT & 26 ST. STREETS (PENZOIL)
											LUMP			202	LUMP		277-WL	2 STORY CONCRETE BLOCK COMMERCIAL BUILDING N.W. CORNER OF 26 TH. STREET & VINE ALLEY (BELLAIRE PATTERN & FOUNDRY)
											LUMP			202	LUMP		296-WL,WU	1 STORY FRAME & BRICK COMMERCIAL BUILDING WITH ATTACHED 2 STORY CONCRETE BLOCK COMMERCIAL BUILDING AND A 2 STORY BRICK BUILDING. N.E. CORNER OF 26 TH. STREET & VINE ALLEY. (BELLAIRE PATTERN & FOUNDRY)
											LUMP			202	LUMP		303-WL	2 & 1 STORY FRAME BUILDING WITH ATTACHED 1 STORY TILE BLOCK SHED AND DETACHED 1 STORY FRAME SHED EAST SIDE OF UNION APPROX. 75' NORTH OF 26 TH. STREET (RIEGER)
												LUMP		202	LUMP		333-WU	1 STORY CONCRETE BLOCK COMMERCIAL/OFFICE BUILDING, DETACHED METAL SHED, 2 UNDERGROUND FUEL TANKS, 4 LIGHT POLES AND BASES AND STEEL PIPE BUMPERS. N.W. CORNER OF CHERRY ALLEY & 26 TH. STREET (BOARD OF EDUCATION)
													LUMP	202	LUMP		340-WU	1 STORY BRICK & BLOCK RESTAURANT BUILDING AND PLEXIGLASS SIGN AND POLE BASE 2900 BELMONT STREET (MAROON ENTERPRISES)

THIS PLAN FOR THE REMOVAL OF CERTAIN BUILDINGS ONLY. (NOT FOR CONSTRUCTION)

SUB-SUMMARY

CALC. BY: LDC DATE: 4-10-84
CHKD. BY: RMS DATE: 4/11/84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 62 / 663

FENCE

RIGHT OF WAY SHEET NO.	607 URBAN TYPE CL	607 URBAN TYPE 47	607 RURAL TYPE 47						
	LIN. FT.	LIN. FT.	LIN. FT.						
37			355						
38	398								
39		40	494						
40	519								
41	247	224							
42	505								
43	511								
44	511								
45	503								
46	503								
47	491								
48	519								
49	1,000								
50	1,004								
51	332								
53	880								
54	1,098								
55	475								
56	399								
57	498								
58	488								
59	357								
60	448								
TOTAL	11,686	264	849						

TEMPORARY EROSION CONTROL

Calc By: B.L. Date 4-10-85
Check By: R.L. Date 4-11-85

FHWA REGION	STATE	PROJECT	
5	OHIO		

63/663

BEL-7-14.17

REFERENCE	ROADWAY	STATION TO STATION	SIDE	DRAINAGE AREA	RURAL 207 TEMPORARY BENCHES, DAMS, DIKES, AND SEDIMENT BASIN CU.YD.	URBAN 207 TEMPORARY BENCHES, DAMS, DIKES, AND SEDIMENT BASIN CU.YD.	RURAL 207 STRAW OR HAY BALES EACH	URBAN 207 STRAW OR HAY BALES EACH		RURAL 601 ROCK CHANNEL PROTECTION, TYPE C WITHOUT FILTER CU.YD.	URBAN 601 ROCK CHANNEL PROTECTION, TYPE C WITHOUT FILTER CU.YD.
A	S.R.7	752+00	Lt.	4.18	280					2	
A		753+90	Lt.	3.74	251					2	
A		756+00	Lt.	3.18	213					2	
A		757+85	Lt.	2.88	193					2	
A		759+50	Lt.	1.62		110					1
A		761+40	Lt.	2.23		150					1
A		761+65	Lt.	2.62		176					2
A		782+75	Lt.	2.53		170					2
A		782+40	Rt.	3.10		208					2
A		782+65	Rt.	2.39		160					1
A		787+00	Rt.	1.97		132					1
A		792+00	Rt.	1.85		124					1
A		794+50	Rt.	2.16		145					1
A		797+00	Rt.	2.98		200					2
A	S.R.7	814+00	Rt.	2.48		166					2
A	Ramp B	768+50	Lt.	1.44		97					1
A	Ramp B	766+40	Rt.	3.01		202					2
A	Ramp B	767+10	Rt.	2.47		166					2
A	Ramp C	768+50	Lt.	3.49		234					2
A	Ramp C	769+35	Rt.	1.35		91					1
A	Ramp D	770+22	Rt.	1.22		82					1
A	Ramp F	818+75	Rt.	2.68		180					2
A	Ramp F	824+60	Rt.	3.43		230					2
A	Ramp G	820+10	Lt.	1.82		122					1
A	Ramp G	822+66	Lt.	1.00		67					1
A	Ramp G	826+00	Lt.	3.92		263					2
A	1ST Reloc. Belmont St.	12+90	Lt.	0.93		62					1
A	Reloc. 12TH St.	8+70	Lt.	1.50		101					1
A	Reloc. 10TH St.	11+60	Rt.	1.17		78					1
A	2ND Reloc Belmont St.	17+55	Lt.	1.16		78					1
A	26TH St.	5+90	Rt.	1.36		91					1
A	26TH St.	14+55	Lt.	1.22		82					1
A	26TH St.	17+90	Lt.	1.94		130					1
A	Pinch Run	14+00	Rt.	1.76		118					1
B	Pinch Run	8+50 to 9+70	L&R					70			
B	Pinch Run	10+30 to 14+70	L&R					252			
C	S.R.7	5 Locations						25			
C	10TH St.	1 Location					5				
C	12TH St.	2 Locations						10			
C	1ST Reloc. Belmont St.	7 Locations						35			
C	2ND Reloc. Belmont St.	4 Locations						20			
C	26TH St.	4 Locations						20			
C	Ramp A	1 Location						5			
C	Ramp F	3 Locations						15			
C	Ramp G	4 Locations						20			
C	Ramp H	1 Location						5			
TOTAL TO GENERAL SUMMARY					937	4215	5	477		8	41

CK'D. BL
CORR.
CK'D. RJL 5-25-85
DRAWN GW

ITEMS LISTED IN THE GENERAL NOTES

ITEM 207 - TEMPORARY SEEDING AND MULCHING

SQ. YD. PERMANENT SEED AREA =

164,529 x 20% (0.20) (URBAN) = 32,906 SQ. YD.
14,149 x 20% (0.20) (RURAL) = 2,830 SQ. YD.

ITEM 207 - STRAW OR HAY BALES

URBAN 20 CATCH BASINS x 8 = 160 EACH
RURAL 2 CATCH BASINS x 8 = 16 EACH

ITEM 207 - TEMPORARY SLOPE DRAINS

		URBAN	RURAL
SR-7	STA. 753+75 TO STA. 762+00 (LT)	L = 282'	L = 543'
	STA. 767+75 TO STA. 768+75 (LT)	L = 100'	
	STA. 769+90 TO STA. 773+00 (LT)	L = 310'	
	STA. 777+50 TO STA. 797+25 (LT)	L = 1,975'	
	STA. 812+25 TO STA. 816+00 (LT)	L = 375'	
	STA. 819+00 TO STA. 820+25 (LT)	L = 125'	
	STA. 823+10 TO STA. 826+75 (LT)	L = 365'	
	STA. 828+20 TO STA. 830+00 (LT)	L = 180'	
	STA. 766+25 TO STA. 768+75 (RT)	L = 250'	
	STA. 769+90 TO STA. 773+50 (RT)	L = 360'	
	STA. 779+00 TO STA. 799+25 (RT)	L = 2,025'	
	STA. 808+75 TO STA. 818+00 (RT)	L = 925'	
	STA. 819+00 TO STA. 820+25 (RT)	L = 125'	
	STA. 823+10 TO STA. 826+75 (RT)	L = 365'	
	STA. 828+20 TO STA. 830+00 (RT)	L = 180'	
RAMP A	STA. 768+81 TO STA. 779+00 (RT)	L = 1,019'	
RAMP B	STA. 765+75 TO STA. 768+76 (RT)	L = 301'	
RAMP C	STA. 762+00 TO STA. 764+25 (LT)	L = 225'	
RAMP D	STA. 776+50 TO STA. 777+50 (LT)	L = 300'	
RAMP F	STA. 817+89 TO STA. 821+00 (RT)	L = 311'	
	STA. 823+25 TO STA. 826+60 (RT)	L = 335'	
RAMP G	STA. 816+00 TO STA. 819+92 (LT)	L = 392'	
	STA. 822+66 TO STA. 827+25 (LT)	L = 459'	
RAMP H	STA. 828+00 TO STA. 829+25 (LT)	L = 125'	
RELOCATED 10TH STREET			
	STA. 11 +75 TO STA. 17+55 (LT)	L = 256'	L = 324'
	STA. 11 +50 TO STA. 14+75 (RT)	L = 281'	L = 44'
RELOCATED 12TH STREET			
	STA. 7 +25 TO STA. 9+50 (LT)	L = 225'	
FIRST RELOCATED BELMONT STREET			
	STA. 14 +00 TO STA. 15+00 (LT)	L = 100'	
SECOND RELOCATED BELMONT STREET			
	STA. 17 +25 TO STA. 18+25 (LT)	L = 100'	
	STA. 17 +25 TO STA. 18+25 (RT)	L = 100'	
	STA. 19+50 TO STA. 21+50 (LT)	L = 200'	
	STA. 19 +50 TO STA. 21+50 (RT)	L = 200'	
RELOCATED 26TH STREET			
	STA. 16 +25 TO STA. 18+25 (RT)	L = 200'	
	TOTAL LIN. FT.	13,071	911'

LENGTH IN STA. (URBAN) =
13,071 ÷ 100 = 131 x 10 = 1,310 LIN. FT.

LENGTH IN STA. (RURAL) =
911 ÷ 100 = 9 x 10 = 90 LIN. FT.

ITEM 207 - TEMPORARY BENCHES, DIKES, DAMS, AND SEDIMENT BASINS

(URBAN) 1,310 LIN. FT. (TEMP. SLOPE DRAINS) x 5 = 6,550 CU. YD.
(RURAL) 90 LIN. FT. (TEMP. SLOPE DRAINS) x 5 = 450 CU. YD.

ITEM 601 - ROCK CHANNEL PROTECTION, TYPE C WITHOUT FILTER

(URBAN) 1,310 LIN.FT. (TEMP. SLOPE DRAINS) ÷ 25 = 53 CU. YD.
(RURAL) 90 LIN.FT. (TEMP. SLOPE DRAINS) ÷ 25 = 4 CU. YD.

ITEM 659 - MOWING *

SQ. FT. PERMANENT SEEDING
AREA X 25% (0.25) ÷ 1,000 (URBAN) = 370 M. SQ.FT.
(RURAL) = 32 M. SQ.FT.

ITEM 659 - COMMERCIAL FERTILIZER *

A. 10 LBS. X M. SQ. FT. (TEMP. SEEDING AREA) URBAN = 2,962 LBS. RURAL = 255 LBS.

B. 7.5 LBS. X M. SQ. FT. (PERM. SEEDING AREA) URBAN = 11,106 LBS. RURAL = 955 LBS.

LBS. ÷ 2,000 LBS/TON URBAN = 7.03 TON RURAL = 0.61 TON

ITEM 659 - REPAIR SEEDING AND MULCHING *

SQ. YD. PERM. SEEDING AREA X 5% (0.05) URBAN = 6,226 SQ. YD. RURAL = 707 SQ. YD.

ITEM 659 - WATER *

240 GAL X M. SQ. FT. TEMP. SEEDING AREA URBAN = 71 M. GAL. RURAL = 6 M. GAL.

ALL QUANTITIES CARRIED TO GENERAL NOTES.

* AREA OF PERMANENT AND TEMPORARY SEEDING IN SQ. FT.:

PERMANENT = (URBAN) 164,529 X 9 = 1,480,761 SQ. FT.
(RURAL) 14,149 X 9 = 127,341 SQ. FT.

TEMPORARY = (URBAN) 32,906 X 9 = 296,154 SQ. FT.
(RURAL) 2,830 X 9 = 25,470 SQ. FT.

REFERENCE LEGEND

A = Sediment Basins.
B = Bale Filter Dike
C = Bale Ditch Checks
(5 Bales Per Location)

For Plan, See Sheet Nos. 4 & 5

CANTON CITY BJP 75041

Calc. By: B.E.K. Date: 7/16/85
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SUB - SUMMARY

RURAL	URBAN FROM SHEET NO.																								URBAN TOTAL	RURAL TOTAL	UNIT	ITEM	DESCRIPTION
79	85	87	86	87	93	94	95	96	100	101	103	105	106	108	110	116	118	119	124	126	127								
																													ROADWAY
							120																		120		Lin. Ft.	202	Pipe Removed, Over 24"
689																										689	Lin. Ft.	202	Temporary Concrete Barrier Removed, as per plan
							Lump										Lump		Lump	Lump					Lump			202	Structure Removed
																				36					36		Lin. Ft.	202	Pipe Removed, 24" and Under
96	314																									410	Lin. Ft.	202	Guardrail Removed
							1								1										2		Each	202	Manhole Removed
																				1					1		Each	202	Catch Basin Removed
					1		4	1											1						7		Each	202	Manhole Abandoned
																	1		6						7		Each	202	Underground Storage Tank Removed
406																										406	Lin. Ft.	202	Concrete Barrier Removed, As Per Plan
			1	1	5	3	10							4	2	2	3	2	6	4	1				44		Each	202	Catch Basin Abandoned
																	1084		148						1232		Sq. Ft.	202	Walk Removed
																					Lump				Lump			202	Portions of Structure Removed
						408				15															423		Cu. Yd.	203	Excavation Not Including Embankment Construction
						2																			2		Cu. Yd.	203	Embankment
950.0	606.0	220.0		549.0	762.5	1151.5	636.40	1131.13	1410.26	1209.50	800.00	800.00	782.84	1380.8	459.0	1379.0	406.25	849.56	894.52	886.03	75.00				14,320.57	921.00	Lin. Ft.	606	Guardrail, Type 5
				1	1				1									2	2						7		Each	606	Anchor Assembly, Type A
					1		1		1											2					5		Each	606	Anchor Assembly, Type T
					2	1	1	1					1	1	2		3	3	2	4					21		Each	606	Bridge Terminal Assembly, Type A
																		435.0		1922.9					2357.9		Sq. Ft.	608	4" Concrete Walk

CANTON CITY B/P 75041*

SUB - SUMMARY

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URBAN		RURAL	URBAN FROM SHEET NO.															URBAN SUB-TOTAL	RURAL SUB-TOTAL	URBAN FROM SHEET 64	RURAL FROM SHEET 64	URBAN TOTAL	RURAL TOTAL	UNIT	ITEM	DESCRIPTION
240	241	241	252	254	261	262	263	265	277	278	281	283	292	296	298											
																										ROADWAY
							200										200		120		320		Lin. Ft.	202	Pipe Removed, Over 24"
		1																1				1	Each	202	Septic Tank Removed
																			689		689	Lin. Ft.	202	Temporary Concrete Barrier Removed as per plan
Lump																	LUMP		Lump		Lump			202	Structure Removed
118													19				137		36		173		Lin. Ft.	202	Pipe Removed, 24" and Under
																				410		410	Lin. Ft.	202	Guardrail Removed
																			2		2		Each	202	Manhole Removed
								2	1	2				2	2		9		1		10		Each	202	Catch Basin Removed
										1		1					2		7		9		Each	202	Manhole Abandoned
																			7		7		Each	202	Underground Storage Tank Removed
																				406		406	Lin. Ft.	202	Concrete Barrier Removed, As Per Plan
					1		2				2	3			3		11		44		55		Each	202	Catch Basin Abandoned
											12						12				12		Lin. Ft.	202	Curb Removed
											280						280		1232		1512		Sq. Ft.	202	Walk Removed
																			Lump		Lump			202	Portions of Structure Removed
5319																	5319		423		5742		Cu. Yd.	203	Excavation Not Including Embankment Construction
5111																	5111		2		5113		Cu. Yd.	203	Embankment
586.80	37.00	188.70	197.50	227.50						12.50	25.00						1,086.30	188.70	14,320.57	921.00	15,406.87	1,109.70	Lin. Ft.	606	Guardrail, Type 5
4		3		1													5	3	7		12	3	Each	606	Anchor Assembly, Type A
2			1														3		5		8		Each	606	Anchor Assembly, Type T
																			21		21		Each	606	Bridge Terminal Assembly, Type A
			76.0	196.0	61.8.0	2205.0	1512.0		756.0	1917.8	4299.0		3630.0	2839.2			1760.5	405.0	20,214.5		2357.9		22,572	Sq. Ft.	608	4" Concrete Walk
				44															44				44	Lin. Ft.	608	Concrete Steps, Type A
							2			1	2		7	8			2	2	24				24	Each	608	Curb Ramps

CANTON CITY BLP 75041

SUB - SUMMARY

Calc. By: B.E.K. Date: 7/16/85
Chk'd By: R.C.S. Date: 7/16/85

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RURAL	URBAN FROM SHEET NO.																										URBAN TOTAL	RURAL TOTAL	UNIT	ITEM	DESCRIPTION
79	85	86	87	86	87	93	94	95	96	100	101	103	105	106	108	109	110	111	116	117	118	119	124	125	126	127					
																															PAVEMENT
											48.6	10.4	9.8	9.8	587.2		25.4	52.8	13.2	12.3	32.9		13.8				935		Sq.Yd.	305	8" Concrete Base
											1.7	0.4	0.3	0.3	18.6		0.9	1.9	4.6	0.5	1.2		0.5				30.9		Cu.Yd.	402	Asphalt Concrete, AC-20
											1.7	0.4	0.3	0.3	18.6		0.9	1.9	4.6	0.5	1.2		0.5				30.9		Cu.Yd.	404	Asphalt Concrete, AC-20
						7.3	17.3	47.3	17.3		219.0	47.0	44.0	44.0	539.1	800.0	292.4		82.0		63.7	32.5	76.6	11.6	74.7		2,427.8		Lin.Ft.	609	Curb, Type 6
																						87.0			985.1		1072.1		Lin.Ft.	609	Combination Curb and Gutter, Type 2
																					163.8	81.9			81.9		327.6		Sq.Yd.	611	Reinforced Concrete Approach Slab (T=15")
						220.8		220.8													220.8		662.4				1,324.8		Sq.Yd.	611	Reinforced Concrete Approach Slab (T=15"), As Per Plan
406																												406	Lin.Ft.	622	Concrete Barrier, Type A, As Per Plan
94	600		198.1		321.9	551.5		485.5		560.0	520.0	360.0	380.0	360.0	400.0	360.0	360.0		540.0		304.3		298.8				5802	892.1	Lin.Ft.	622	Concrete Barrier, Type B
94	598	217		384		148																					532	909	Lin.Ft.	622	Concrete Barrier, Type D, As Per Plan
						36.0	36.0	36.0	36.0												61.0	61.0	97.0		97.0		460.0		Lin.Ft.	Special	Pressure Relief Joint, Type A, AS PER PLAN (SEE SHT. 51)
																															EROSION CONTROL
							304.6																				304.6		Cu.Yd.	601	Rock Channel Protection, Type A With Filter
							13.3																		3.0		16.3		Sq.Yd.	601	Riprap Using 6" Reinforced Concrete Slab
			1.3		1.6	2.7	81.5	3.8	1.3	2.0	20.6	1.3	1.3	2.6				1.3		1.3	28.4			4.0	2.9	1.8	158.4	1.3	Cu.Yd.	601	Rock Channel Protection, Type C With Filter
						57.8	50.7	46.2	50.7												52.0	8.9	120.0		122.2		508.5		Sq.Yd.	660	Reinforced Sodding
78.3	666.2	111.2	54.2	240.8	204.0	656.7	741.1	593.3	268.7	24.1	771.8	484.0	592.3						492.8		230.3	240.8	668.8		51.7	258.3	6,320.1	909.9	Sq.Yd.	670	Ditch Erosion Protection
							124.4	290.2	177.8														441.8		328.9		1,363.1		Sq.Yd.	670	Slope Erosion Protection

CANTON CITY B/P 75041*

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SUB - SUMMARY

URBAN		RURAL	URBAN																		URBAN SUB-TOTAL	RURAL SUB-TOTAL	URBAN FROM SHEET 66	RURAL FROM SHEET 66	URBAN TOTAL	RURAL TOTAL	UNIT	ITEM	DESCRIPTION
			FROM SHEET NO.																										
240	241	241	252	254	259	261	262	263	265	277	278	279	281	283	292	293	294	296	298										
																													PAVEMENT
				3.3				6.4	19.6	28.2					2.5	31.8			6.2		98.0				98.0		Cu.Yd.	301	Bituminous Aggregate Base, AC-20
				92.9			28.8	47.3							14.4				65.5		248.9				248.9		Cu.Yd.	304	Aggregate Base, AS PER PLAN
										25.9											25.9		935.0		960.9		Sq.Yd.	305	8" Concrete Base
										0.9											0.9		30.9		31.8		Cu.Yd.	402	Asphalt Concrete, AC-20
										0.9											0.9		30.9		31.8		Cu.Yd.	404	Asphalt Concrete, AC-20
				0.9				1.6	3.9	5.6					0.5	6.3			1.2		20				20.0		Cu.Yd.	404	Asphalt Concrete, AC-20 (Driveways)
			32.9				21.4	54.7													109.0				109.0		Sq.Yd.	452	6" Plain Concrete Pavement
									22.7	52.6											75.3				75.3		Sq.Yd.	452	8" Plain Concrete Pavement
			10.0							31.5	127.4		225.6	191.0				40.0	20.0		645.5		2427.8		3073.3		Lin.Ft.	609	Curb, Type 6
			481.5	577.0	512.0	652.7	800.0	803.2	300.0	313.1	791.6		873.0	491.7		568.0	498.0	771.8	249.9		8883.5		1,072.1		9,955.6		Lin.Ft.	609	Combination Curb and Gutter, Type 2
																							327.6		327.6		Sq.Yd.	611	Reinforced Concrete Approach Slab (T=15")
																							1,324.8		1,324.8		Sq.Yd.	611	Reinforced Concrete Approach Slab, As Per Plan (T=15")
																								406		406	Lin.Ft.	622	Concrete Barrier, Type A As Per Plan
																							5802	892.1	5802	892.1	Lin.Ft.	622	Concrete Barrier, Type B
																							532	909	532	909	Lin.Ft.	622	Concrete Barrier, Type D As Per Plan
																							460.0		460.0		Lin.Ft.	Special	Pressure Relief Joint, Type A, AS PER PLAN
																													EROSION CONTROL
149.4																					149.4		304.6		454.0		Cu.Yd.	601	Rock Channel Protection, Type A With Filter
133.3																					133.3		16.3		149.6		Sq.Yd.	601	Riprap Using 6" Reinforced Concrete Slab
1486.0																					1486.0				1486.0		Cu.Yd.	601	Rock Channel Protection, Type B With Filter
54.3	61.3	76.7					1.3	1.3				2.1	6.2	2.6		2.6	2.9	4.5	1.3		140.4	76.7	158.4	1.3	298.8	78.0	Cu.Yd.	601	Rock Channel Protection, Type C With Filter
										7.4					11.8						19.2				19.2		Cu.Yd.	601	Rock Channel Protection, Type C Without Filter
3452																					3452				3452		Sq.Yd.	659	Seeding And Mulching
696.0																24.4					720.4		508.5		1228.9		Sq.Yd.	660	Reinforced Sodding
198.4	17.5	152.5		182.5			185.8	210.8			185.9		122.5	89.1	250.0		47.5	291.3			1,781.3	152.5	6,320.1	909.9	8,101.4	1,062.4	Sq.Yd.	670	Ditch Erosion Protection
																							1,363.1		1,363.1		Sq.Yd.	670	Slope Erosion Protection

Calc. By: B.E.K. Date: 7-16-85
Ch'kd. By: R.C.S. Date: 7-16-85

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SUB - SUMMARY

| RURAL | | | | | | | | | | | | | | | | | | | | | | | | | URBAN | | | | | | | | | | | | | | | | | | |

SUB-SUMMARY

Calc. By: R.C.S. Date: 7/17/85
Ch'kd. By: B.E.K. Date: 7/17/85

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URBAN FROM SHEET NO. 126	127	240	252	254	261	262	263	264	265	277	279	281	283	293	294	296	298	URBAN SUB TOTAL	URBAN FROM SHT 68	RURAL FROM SHT 68	URBAN TOTAL	RURAL TOTAL	UNIT	ITEM	DESCRIPTION
																									DRAINAGE
2																		2	14	1	16	1	Each	Special	Precast Reinforced Concrete Outlet
1.13	0.27	21.03	0.21	0.21				0.21		0.39	1.19	1.50	0.63	0.87	1.13	0.99	0.39	30.15	6.17	0.33	36.32	0.33	Cu.Yd.	602	Concrete Masonry
																			131		131		Lin. Ft.	603	4" Conduit, Type B 707.17 Non Perforated ASTM 3034 SDR 35 or Supplemental Specification 931
																			48		48		Lin. Ft.	603	4" Conduit, Type F 707.17 Non Perforated ASTM 3034 SDR 35 or Supplemental Specification 931
																			325		325		Lin.Ft.	603	6" Conduit, Type B 707.17 Non Perforated ASTM 3034 SDR 35 or Supplemental Specification 931
43																		43	341	35	384	35	Lin.Ft.	603	6" Conduit, Type F 707.17 Non Perforated ASTM 3034 SDR 35 or Supplemental Specification 931
												36						36			36		Lin.Ft.	603	8" Conduit, Type B
										7								7			7		Lin.Ft.	603	8" Conduit, Type F
117			21					37		94	104	45	177		62		212	869	693		1562		Lin.Ft.	603	12" Conduit, Type B
			155	166														321			321		Lin.Ft.	603	12" Conduit, Type B, 706.01, 706.02, 706.08; Or 707.13 FIBER Bonded As Per 707.09
								119				47		18		31		215	38		253		Lin.Ft.	603	12" Conduit, Type C
								40										40			40		Lin.Ft.	603	12" Conduit, Type C, 706.01, 706.02, 706.08; Or 707.13 FIBER Bonded As Per 707.09
						66	38											104			104		Lin.Ft.	603	12" Conduit, Type D
				43														43			43		Lin.Ft.	603	12" Conduit, Type E
			31															31			31		Lin.Ft.	603	12" Conduit, Type F, 707.05, TYPE C
	55				128						142							325	2190		2515		Lin.Ft.	603	15" Conduit, Type B
																			194		194		Lin.Ft.	603	15" Conduit, Type C
								40										40			40		Lin.Ft.	603	15" Conduit, Type C, 706.01, 706.02, 706.08; Or 707.13 FIBER Bonded As Per 707.09
																			517		517		Lin.Ft.	603	15" Conduit, Type F, 707.05, Type C
														61				61			61		Lin.Ft.	603	Conduit, Type A: 15" 706.01, 706.02, 706.08; Or 18" 707.01(0.109"), 707.05 Type C(0.079"), 707.09 Or 707.04(0.079") With Bituminous Paved Invert As Per 707.05
											112	55					134	301	423	141	724	141	Lin.Ft.	603	18" Conduit, Type B
								37										37			37		Lin.Ft.	603	18" Conduit, Type B, 706.01, 706.02, 706.08; Or 707.13 FIBER Bonded As Per 707.09
								89										89			89		Lin.Ft.	603	18" Conduit, Type C, 706.01, 706.02, 706.08; Or 707.13 FIBER Bonded As Per 707.09
133																		133			133		Lin.Ft.	603	21" Conduit, Type A 706.01, 706.02, 706.08; Or 707.09(0.109")
								131	126	71						96	27	194	76		270		Lin.Ft.	603	21" Conduit, Type B
																		257			257		Lin.Ft.	603	21" Conduit, Type B, 706.02, 706.08; Or 707.13 FIBER Bonded As Per 707.09
					36					93						36		165			165		Lin.Ft.	603	21" Conduit, Type C
									75									75			75		Lin.Ft.	603	21" Conduit, Type C, 706.01, 706.02, 706.08; Or 707.13 FIBER Bonded As Per 707.09
															80			80			80		Lin.Ft.	603	24" Conduit, Type A, 706.01, 706.02, 706.08, Or 707.09 (0.109")
											112							112	99	8	211	8	Lin.Ft.	603	24" Conduit, Type B
																			246		246		Lin.Ft.	603	24" Conduit, Type C
																			176		176		Lin.Ft.	603	27" Conduit, Type B, 706.02 2000 D-Load
																			89		89		Lin.Ft.	603	33" Conduit, Type B, 706.02
																			32		32		Lin.Ft.	603	33" Conduit, Type B, 706.02 3000 D-Load Under Railroad As Per Plan
		54																54			54		Lin.Ft.	603	Conduit, Type A: 42" 706.02; Or 48" 707.01(0.109"), 707.05 Type C, (0.079") Or 707.04(0.079") With Bituminous Paved Invert As Per 707.05
																			628		628		Lin.Ft.	603	Conduit, Type A: 120" 706.02 3250 D-Load Or 138" 707.03(0.168"), As Per Plan, With 156" 706.02, 2000 D-Load, As Per Plan
		72																72			72		Lin.Ft.	603	12'x8' Conduit, Type A 706.05 (DESIGN EARTH COVER = 5')
				2				3		1			1					7	2		9		Each	604	Catch Basin, No. 2-2-B
3			2					2	3	2	4	1	2			2	2	23	6		29		Each	604	Catch Basin, No. 3 With 'V' GRATE
			2					2		2	2	5	3	1	2	1	3	23	9		32		Each	604	Catch Basin, No. 3A, With 'V' GRATE
																			1		1		Each	604	Catch Basin, No. 4A
					1			1										2			2		Each	604	Catch Basin, No. 5, With 'B' GRATE
																			1		1		Each	604	Catch Basin, No. 5A, With 'B' GRATE
			2															2	5		7		Each	604	Catch Basin, No. 6
	1				1			1		1	1						1	3	8	2	11	2	Each	604	Catch Basin, No. 8
																			23	1	23	1	Each	604	Manhole, No. 3
											1		3					4			4		Each	604	Inlet, No. 3D
												2	1					3	2		5		Each	604	Manhole Reconstructed To Grade
													1					1			1		Each	604	Catch Basin Adjusted To Grade
																			2336		2336		Each	604	Manhole Adjusted To Grade
385																		385	14310	1667	14695	1667	Lin. Ft.	605	4" Shallow Pipe Underdrains, as per plan
129																		129	478		607		Lin.Ft.	605	6" Shallow Pipe Underdrains
																			464	902	464	902	Lin.Ft.	605	6" Shallow Pipe Underdrains, 707.01 Type III, 707.17 or 707.21 Type III
																			100		100		Lin.Ft.	605	6" Deep Pipe Underdrains
																							Lin.Ft.	605	6" Unclassified Pipe Underdrains
												1						1	4		5		Each	Special	Odor Control Trap

CANTON CITY B/P 73041

CALC. BY: RCS DATE: 7-17-85
CHKD. BY: B.K DATE: 7-17-85

FHWA REGION	STATE	PROJECT	
5	OHIO		

70/663

BEL-7-14.17

GENERAL SUMMARY

URBAN 100% CITY	URBAN FROM SHEET NO.												RURAL FROM SHEET NO.										CITY TOTAL	URBAN TOTAL	RURAL TOTAL	GRAND TOTAL	UNIT	ITEM	DESCRIPTION
51	26	27	38	49	50	51	52	459	60	62	65	462	26	27	49	50	51	60	62	65									
																													ROADWAY
				Lump											Lump									Lump	Lump	Lump		201	Clearing and Grubbing
											Lump													Lump		Lump		202	Structure Removed
											Lump													Lump		Lump		202	Portions of Structure Removed
											12													12		12	Lin. Ft.	202	Curb Removed
											1512													1512		1512	Sq. Ft.	202	Walk Removed
											320													320		320	Lin. Ft.	202	Pipe Removed, Over 24"
											173													173		173	Lin. Ft.	202	Pipe Removed, 24" and Under
							100																	100		100	Sq. Yd.	202	Pavement Removed
																				410					410	410	Lin. Ft.	202	Guardrail Removed
											55													55		55	Each	202	Catch Basin Abandoned
											2													2		2	Each	202	Manhole Removed
											10													10		10	Each	202	Catch Basin Removed
											9													9		9	Each	202	Manhole Abandoned
											7													7		7	Each	202	Underground Storage Tank Removed
																				1					1	1	Each	202	Septic Tank Removed
																				689					689	689	Lin. Ft.	202	Temporary Concrete Barrier Removed, as per plan (SEE SHT. 52)
																				406					406	406	Lin. Ft.	202	Concrete Barrier Removed, As per plan (SEE SHT. 52)
									102,499									9769						102,499	9769	112,268	Sq. Yd.	203	Subgrade Compaction
									34									3						34	3	37	Hr.	203	Proof Rolling
							1591		45123		5742							16133						52,456	16133	68,589	Cu. Yd.	203	Excavation Not Including Embankment Construction
							1591		582312		5113							14164						589,016	14,164	603,180	Cu. Yd.	203	Embankment
	325																							325		325	Cu. Yd.	404	Bituminous Concrete for Maintaining Traffic
	1700																							1700		1700	Cu. Yd.	410	Traffic Compacted Surface, Type A or B
	1700																							1700		1700	Cu. Yd.	410	Traffic Compacted Surface, Type C
					31											3								31	3	34	Each	604	Monument Assembly
					34											2								34	2	36	Each	604	Reference Monument
											15406.87									1109.70				15,406.87	1109.70	16,516.57	Lin. Ft.	606	Guardrail, Type 5
											12									3				12	3	15	Each	606	Anchor Assembly, Type A
											8													8		8	Each	606	Anchor Assembly, Type T
											21													21		21	Each	606	Bridge Terminal Assembly, Type A
										11,686														11,686		11,686	Lin. Ft.	607	Fence, Type CL
										264									849					264	849	1113	Lin. Ft.	607	Fence, Type 47
											24													24		24	Each	608	Curb Ramps
											22,572													22,572		22,572	Sq. Ft.	608	4" Concrete Walk
											44													44		44	Lin. Ft.	608	Concrete Steps, Type A
	Lump														Lump									Lump	Lump	Lump		615	Temporary Roads
	7041														1844									7041	1844	8885	Sq. Yd.	615	Temporary Pavement, Class A
	50																							50		50	M. Gal.	616	Water
	34																							34		34	Ton	616	Calcium Chloride
		130						1900				200												2230		2230	LIN. FT.	622	TEMPORARY CONCRETE BARRIER
LUMP																							LUMP			Lump		Special	Fire Alarm System (SEE SHT. 51)
				1											1									1	1	2	Each	Special	Drilled Well Abandoned
																													(GENERAL SUMMARY CONTINUED ON SHTS. 71-74)
	Lump														Lump									Lump	Lump	Lump		614	Maintaining Traffic
				Lump																				Lump	Lump	Lump		619	Field Office
																										Lump		623	Construction Layout Stakes
																										Lump		624	Mobilization

REVISED 5-4-90

CANTON CITY B/P 7304[illegible]

CALC. BY: RCS DATE: 7-17-85
CHKD. BY: BEK DATE: 7-17-85

FHWA REGION	STATE	PROJECT	
5	OHIO		

BEL-7-14.17

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GENERAL SUMMARY

URBAN FROM SHEET NO. 50	60	63	67	RURAL FROM SHEET NO. 50	60	63	67	URBAN TOTAL	RURAL TOTAL	GRAND TOTAL	UNIT	ITEM	DESCRIPTION
													PAVEMENT
	4136		98					4234		4234	Cu.Yd.	301	Bituminous Aggregate Base, AC-20
	347		249		157			596	157	753	Cu.Yd.	304	Aggregate Base, As Per Plan (SEE SHT. 50)
			961					961		961	Sq.Yd.	305	8" Concrete Base
	11763				1459			11763	1459	13222	Cu.Yd.	310	Subbase, Type II
	1341		32		32			1373	32	1405	Cu.Yd.	402	Asphalt Concrete, AC-20
	958		32		23			990	23	1013	Cu.Yd.	404	Asphalt Concrete, AC-20
			20					20		20	Cu.Yd.	404	Asphalt Concrete, AC-20 (Driveways)
	345				23			345	23	368	Cu.Yd.	404	Asphalt Concrete, AC-20, Under Guardrail
	772				346			772	346	1118	Gal.	408	Bituminous Prime Coat
	258				64			258	64	322	Gal.	409	Seal Coat Bituminous Material
	7				2			7	2	9	Cu.Yd.	409	Seal Coat Cover Aggregate, No. 8
	50406				6443			50406	6443	56849	Sq.Yd.	451	9" Reinforced Concrete Pavement
			109					109		109	Sq.Yd.	452	6" Plain Concrete Pavement
			75					75		75	Sq.Yd.	452	8" Plain Concrete Pavement
	20909				2279			20909	2279	23,188	Sq.Yd.	452	PLAIN CONCRETE PAVEMENT, AS PER PLAN (SEE SHT. 50)
			9956					9956		9956	Lin.Ft.	609	Combination Curb and Gutter, Type 2
			3073					3073		3073	Lin.Ft.	609	Curb, Type 6
			328					328		328	Sq.Yd.	611	Reinforced Concrete Approach Slab (T=15")
			1325					1325		1325	Sq.Yd.	611	Reinforced Concrete Approach Slab (T=15"), AS PER PLAN (SEE SHT. 478)
							406		406	406	Lin.Ft.	622	Concrete Barrier, Type A, as per plan (SEE SHT. 22)
			5802				892	5802	892	6694	Lin.Ft.	622	Concrete Barrier, Type B
			532				909	532	909	1441	Lin.Ft.	622	Concrete Barrier, Type D, AS PER PLAN (SEE SHT. 24 & 49)
			460					460		460	Lin.Ft.	SPECIAL	Pressure Relief Joint, Type A, AS PER PLAN
													EROSION CONTROL
160		477		16		5		637	21	658	Each	207	Straw or Hay Bales
32906				2830				32906	2830	35736	Sq.Yd.	207	Temporary Seeding and Mulching
1310				90				1310	90	1400	Lin.Ft.	207	Temporary Slope Drains
6550		4215		450		937		10765	1387	12152	Cu.Yd.	207	Temporary Benches, Dikes, Dams and Sediment Basins
			150					150		150	Sq.Yd.	601	Riprap Using 6" Reinforced Concrete Slab
			454					454		454	Cu.Yd.	601	Rock Channel Protection, Type A with Filter
			1486					1486		1486	Cu.Yd.	601	Rock Channel Protection, Type B with Filter
			299				78	299	78	377	Cu.Yd.	601	Rock Channel Protection, Type C with Filter
53		41	19	4		8		113	12	125	Cu.Yd.	601	Rock Channel Protection, Type C without Filter
740				64				740	64	804	M.Sq.Ft.	659	Mowing
271				26				271	26	297	M.Gal.	659	Water
	164589		3452		14149			167981	14149	182130	Sq.Yd.	659	Seeding and Mulching
8226				707				8226	707	8933	Sq.Yd.	659	Repair Seeding and Mulching
7.03	15.63			0.61	1.35			22.66	1.96	24.62	Ton	659	Commercial Fertilizer
	78.16				6.75			78.16	6.75	84.91	Ton	659	Agricultural Liming
			1229					1229		1229	Sq.Yd.	660	Reinforced Sodding
			8101				1062	8101	1062	9163	Sq.Yd.	670	Ditch Erosion Protection
			1363					1363		1363	Sq.Yd.	670	Slope Erosion Protection

CANTON CITY B/P 75041

Calc. By: R.C.S. Date: 7/17/85
Chk'd By: B.E.K. Date: 7/17/85

FHWA REGION	STATE	PROJECT	
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GENERAL SUMMARY

URBAN FROM SHEET NO.			RURAL FROM SHEET NO.			URBAN TOTAL	RURAL TOTAL	GRAND TOTAL	UNIT	ITEM	DESCRIPTION
50	51	69	50	51	69						
											DRAINAGE
		16			1	16	1	17	Each	Special	Precast Reinforced Concrete Outlet (SEE SHT. 25A)
		36.3			0.3	36.3	0.3	36.6	Cu.Yd.	602	Concrete Masonry
		131				131		131	Lin.Ft.	603	4" Conduit, Type B, 707.17 Non-Perforated, ASTM 3034 SDR 35 or Supplemental Specification 931
400			100			400	100	500	Lin.Ft.	603	4" Conduit, Type E, 707.19
400			100			400	100	500	Lin.Ft.	603	4" Conduit, Type E, 706.01, 706.02 Or 706.08
75						75		75	Lin.Ft.	603	4" Conduit, Type E
400		48	100			448	100	548	Lin.Ft.	603	4" Conduit, Type F: 707.17 Non-Perforated, ASTM 3034 SDR 35 or Supplemental Specification 931
		325				325		325	Lin.Ft.	603	6" Conduit, Type B, 707.17 Non-Perforated, ASTM 3034 SDR 35 or Supplemental Specification 931
400			100			400	100	500	Lin.Ft.	603	6" Conduit, Type C
75		384			35	459	35	494	Lin.Ft.	603	6" Conduit, Type F, 707.17 Non-Perforated, ASTM 3034 SDR 35 or Supplemental Specification 931
		36				36		36	Lin.Ft.	603	8" Conduit, Type B
		7				7		7	Lin.Ft.	603	8" Conduit, Type F
75						75		75	Lin.Ft.	603	10" Conduit, Type B
		1562				1562		1562	Lin.Ft.	603	12" Conduit, Type B
		321				321		321	Lin.Ft.	603	12" Conduit, Type B, 706.01, 706.02, 706.08; Or 707.13 Fiber Bonded As Per 707.09
		253				253		253	Lin.Ft.	603	12" Conduit, Type C
		40				40		40	Lin.Ft.	603	12" Conduit, Type C, 706.01, 706.02, 706.08; Or 707.13 Fiber Bonded As Per 707.09
		104				104		104	Lin.Ft.	603	12" Conduit, Type D
		43				43		43	Lin.Ft.	603	12" Conduit, Type E
		31				31		31	Lin.Ft.	603	12" Conduit, Type F, 707.05, TYPE C
		2515				2515		2515	Lin.Ft.	603	15" Conduit, Type B
		194				194		194	Lin.Ft.	603	15" Conduit, Type C
		40				40		40	Lin.Ft.	603	15" Conduit, Type C, 706.01, 706.02, 706.08; Or 707.13 Fiber Bonded As Per 707.09
		517				517		517	Lin.Ft.	603	15" Conduit, Type F, 707.05, Type C
		61				61		61	Lin.Ft.	603	Conduit, Type A: 15", 706.01, 706.02, 706.08; Or 18", 707.01(0.109"), 707.05 Type C(0.079"), 707.09 Or 707.04(0.079") With Bituminous Paved Invert As Per 707.05
75		724			141	799	141	940	Lin.Ft.	603	18" Conduit, Type B
		37				37		37	Lin.Ft.	603	18" Conduit, Type B, 706.01, 706.02, 706.08; Or 707.13 Fiber Bonded As Per 707.09
		89				89		89	Lin.Ft.	603	18" Conduit, Type C, 706.01, 706.02, 706.08; Or 707.13 Fiber Bonded As Per 707.09
		133				133		133	Lin.Ft.	603	21" Conduit, Type A, 706.01, 706.02, 706.08; Or 707.09(0.109")
		270				270		270	Lin.Ft.	603	21" Conduit, Type B
		257				257		257	Lin.Ft.	603	21" Conduit, Type B, 706.02, 706.08; Or 707.13 Fiber Bonded As Per 707.09
		165				165		165	Lin.Ft.	603	21" Conduit, Type C
		75				75		75	Lin.Ft.	603	21" Conduit, Type C, 706.01, 706.02, 706.08; Or 707.13 Fiber Bonded As Per 707.09
		80				80		80	Lin.Ft.	603	24" Conduit, Type A, 706.01, 706.02, 706.08, Or 707.09 (0.109")
		211			8	211	8	219	Lin.Ft.	603	24" Conduit, Type B
		246				246		246	Lin.Ft.	603	24" Conduit, Type C
		176				176		176	Lin.Ft.	603	27" Conduit, Type B, 706.02 2000 D-Load
		89				89		89	Lin.Ft.	603	33" Conduit, Type B, 706.02
		32				32		32	Lin.Ft.	603	33" Conduit, Type B, 706.02 3000 D-Load Under Railroad, As Per Plan
		54				54		54	Lin.Ft.	603	Conduit, Type A: 42" 706.02; Or 48" 707.01(0.109"), 707.05 Type C, (0.079") Or 707.04(0.079") With Bituminous Paved Invert As Per 707.05
		628				628		628	Lin.Ft.	603	Conduit, Type A: 120" 706.02 3250 D-Load Or 138", 707.03(0.168), As Per Plan With 15G", 706.02 2000 D-Load, As Per Plan
		72				72		72	Lin.Ft.	603	12'x8' Conduit, Type A, 706.05 (DESIGN EARTH COVER = 5') (SEE SHT. 51) (SEE SHTS. 385 & 386)
		4				4		4	Each	604	Manhole Reconstructed To Grade
		9				9		9	Each	604	Catch Basin, No. 2-2-B
		29				29		29	Each	604	Catch Basin, No. 3 With 'V' GRATE
		32				32		32	Each	604	Catch Basin, No. 3A With 'V' GRATE
		1				1		1	Each	604	Catch Basin, No. 4A
		2				2		2	Each	604	Catch Basin, No. 5 With 'B' GRATE
		1				1		1	Each	604	Catch Basin, No. 5A With 'B' GRATE
		7				7		7	Each	604	Catch Basin, No. 6
		11			2	11	2	13	Each	604	Catch Basin, No. 8
		7				7		7	Each	604	Manhole, No. 3
		23			1	23	1	24	Each	604	Inlet, No. 3D
5			2			5	2	7	Each	604	Inspection Well
		5				5		5	Each	604	Catch Basin Adjusted To Grade
		1				1		1	Each	604	Manhole Adjusted To Grade
		2,336				2,336		2,336	Lin. Ft.	605	4" Shallow Pipe Underdrains, as per plan (SEE SHT. 52)
		14695			1667	14695	1667	16,362	Lin.Ft.	605	6" Shallow Pipe Underdrains
		607				607		607	Lin.Ft.	605	6" Shallow Pipe Underdrains, 707.01 Type III, 707.17 or 707.21 Type III
		464			902	464	902	1366	Lin.Ft.	605	6" Deep Pipe Underdrains
		100				100		100	Lin.Ft.	605	6" Unclassified Pipe Underdrains
500			100			500	100	600	Lin.Ft.	605	6" Unclassified Pipe Underdrains, 707.01 Type III Or 707.21 Type III, As Per Plan (SEE SHT. 51)
500			100			500	100	600	Lin.Ft.	605	Aggregate Drains For Springs
		5				5		5	Each	Special	Odor Control Trap (SEE SHT. 23)

CANYON CITY B/P 75041

Calc. By: RCS. Date: 7-17-85
Chk'd. By: BEK. Date: 7-17-85

FHWA REGION	STATE	PROJECT	
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GENERAL SUMMARY

| STATE | | | | | | COUNTY | | | | | 100% CITY | | | | | |

CANTON CITY BJP 75041+

Calc. By: RCS. Date: 7-17-85
Chkd By: BEK. Date: 7-17-85

FHWA REGION	STATE	PROJECT	
5	OHIO		

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BEL-7-14.17

GENERAL SUMMARY

URBAN

FROM SHEET NO.																											GRAND TOTAL	UNIT	ITEM	DESCRIPTION
86	87	95	100	106	108	110	116	118	119	126	127		240	252	254	261	277	278	281	292	293	296		298		426					
																														WATER WORK 100% CITY
																										500	500	Lin. Ft.	814	3/4" Service Branches
																										500	500	Lin. Ft.	814	1" Service Branches
														41													41	Lin. Ft.	814	1 1/4" Service Branches
				169	112	84	5			207	5		178	593					30	30		760					2,173	Lin. Ft.	814	6" Water Main, Ductile Iron Pipe ANSI Class 52, Push on Joints and Fittings
							15														30	122				167	Lin. Ft.	814	8" Water Main, Ductile Iron Pipe ANSI Class 52, Push on Joints and Fittings
							5																				5	Lin. Ft.	814	10" Water Main, Ductile Iron Pipe ANSI Class 52, Push on Joints and Fittings
							1,951	320			146					1,025											3,442	Lin. Ft.	814	16" Water Main, Ductile Iron Pipe ANSI Class 52, Push on Joints and Fittings
							112																				112	Lin. Ft.	814	16" WATER MAIN, DUCTILE IRON PIPE ANSI CLASS 56, BALL AND SOCKET JOINTS AND FITTINGS
				2	1	2	1			1	1		1	2								4					15	Each	814	6" "G" ATE VALVE AND Valve Box
							3															2					5	Each	814	8" "G" ATE VALVE AND Valve Box
							1																				1	Each	814	10" "G" ATE VALVE AND Valve Box
							8	3			1					1											13	Each	814	16" "G" ATE VALVE AND Valve Box
																										2	2	Each	814	6" Inserting Valve and Valve Box
																										2	2	Each	814	16" Inserting Valve and Valve Box
																										2	2	Each	814	6" X 6" TAPPING SLEEVE, VALVE and Valve Box
																										2	2	Each	814	16" X 10" TAPPING SLEEVE, VALVE and Valve Box
														2		1						1					4	Each	814	6" FIRE HYDRANT, AS PER PLAN
									1									1		1							4	Each	814	Fire Hydrant AND "G" ATE VALVE REMOVED AND RESET, AS PER PLAN
1	1	2	1				1			1	1				1			1				1	2				13	Each	814	Fire Hydrant Removed and Disposed of

LIGHTING
For Quantities, See Sheet No. 448

TRAFFIC CONTROL & TRAFFIC SIGNALS
For Quantities, See Sheet No. 466, 467

RETAINING WALLS
For Wall 1-W Quantities, See Sheet No. 434
For Wall 2-W Quantities, See Sheet No. 434

STRUCTURES

For Reloc. Pinch Run Inlet & Outlet Quantities, See Shts. 394 & 397

STRUCTURES 20' SPAN & OVER
For Structure No. 1452' Quantities, See Sheet No. 481
For Structure No. 1550' Quantities, See Sheet No. 521
For Structure No. 1562' Quantities, See Sheet No. 575
For Structure No. 1549 @ Quantities, See Sheet No. 500
For Structure No 1551 F Quantities, See Sheet No. 554

BUILDINGS DEMOLISHED
For Quantities, See Sheet No. 61

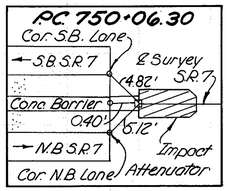
Drawn By GS 6/8/85 Checked By

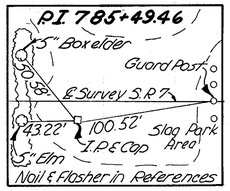
REVISED 5-4-90

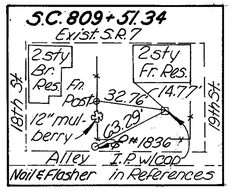
℄ REFERENCES

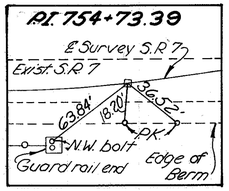
BEL-7-14.17 | OHIO | FHWA REGION 5 | 75/663

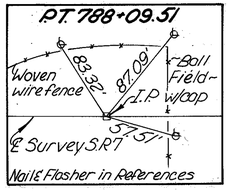
MAINLINE

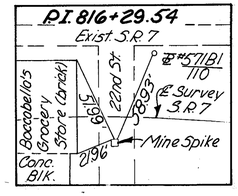


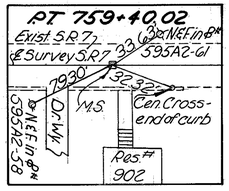


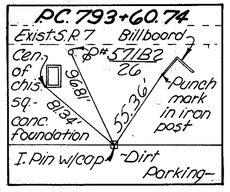


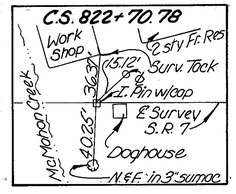


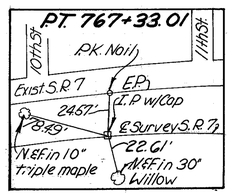


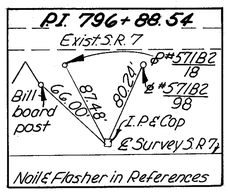


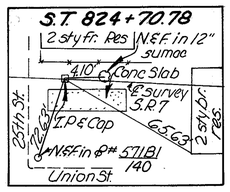


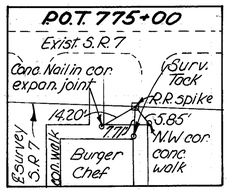


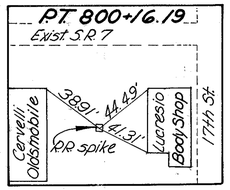


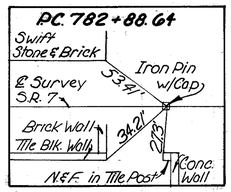


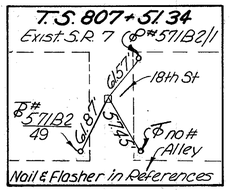












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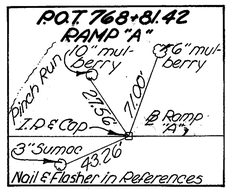
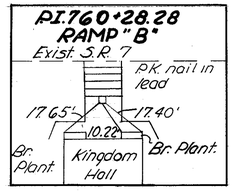
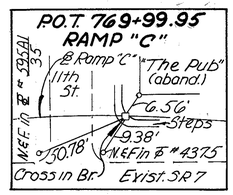
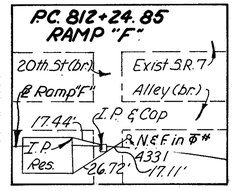
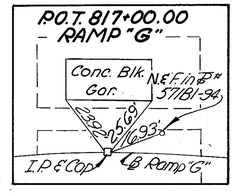
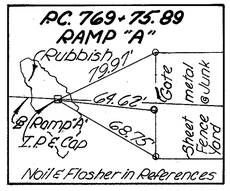


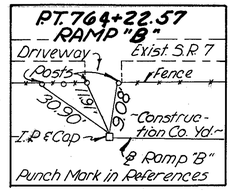


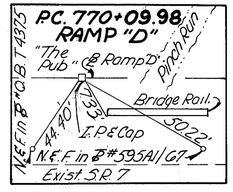


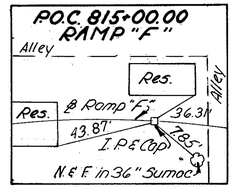


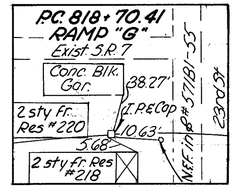


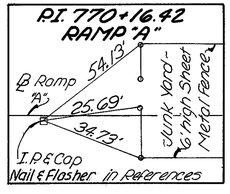


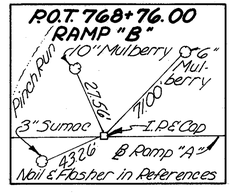


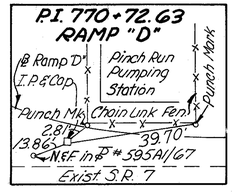


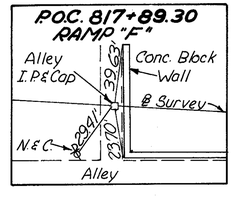


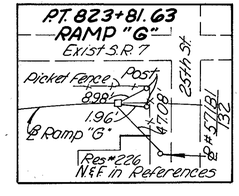


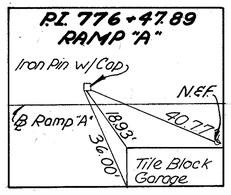


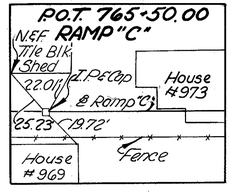


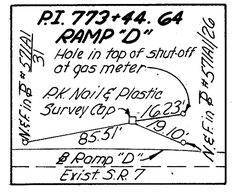


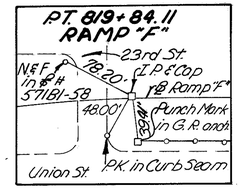


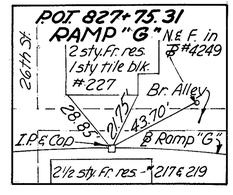


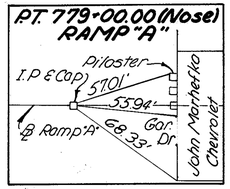


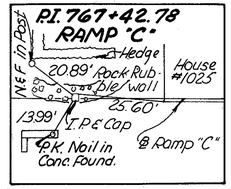


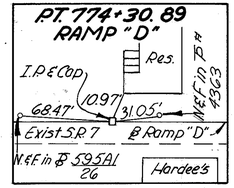


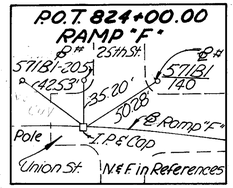








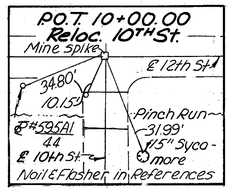


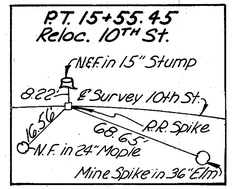


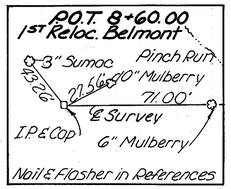
W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

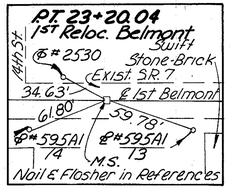
℄ REFERENCES

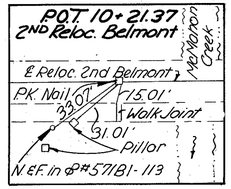
SIDEROADS

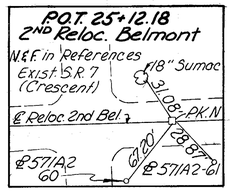


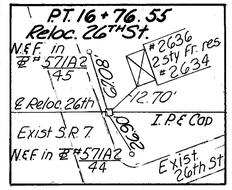


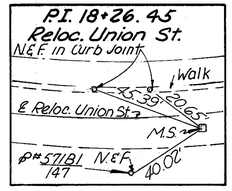


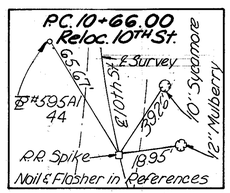


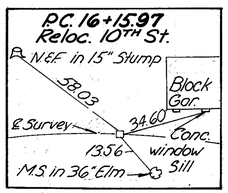


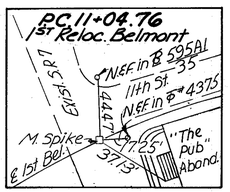


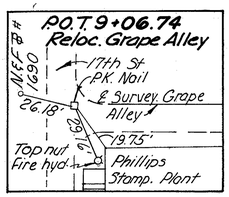


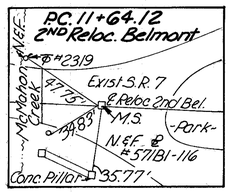


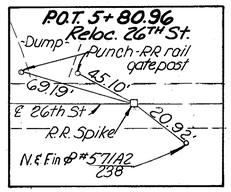


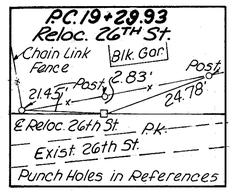


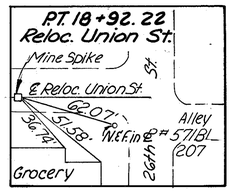


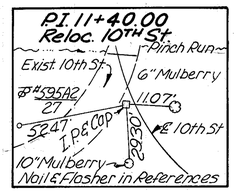


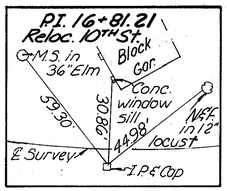


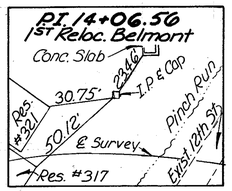


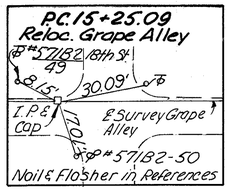


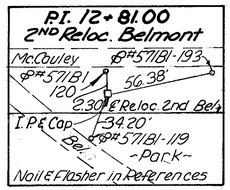


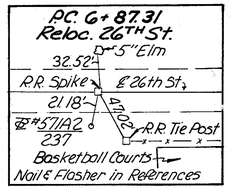


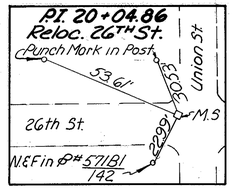


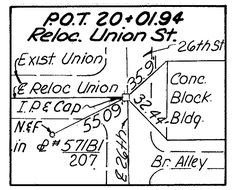


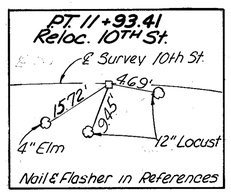


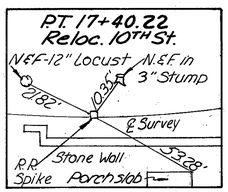


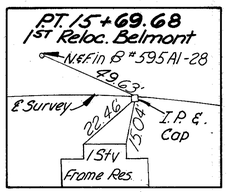


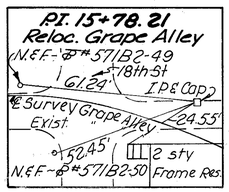


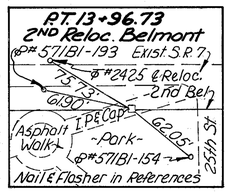


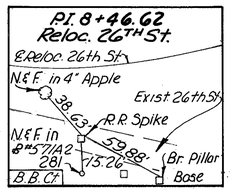


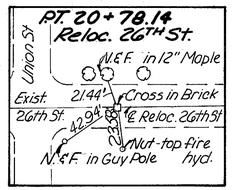


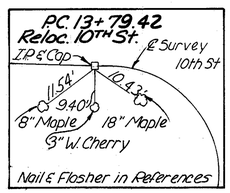


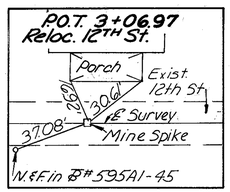


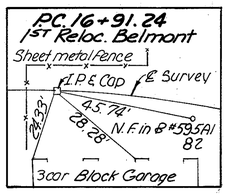


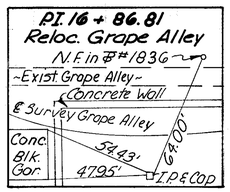


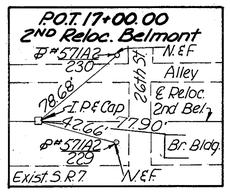


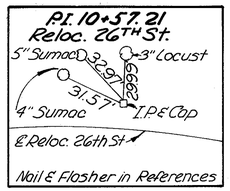


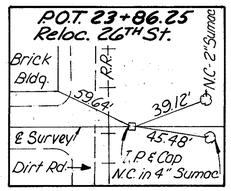


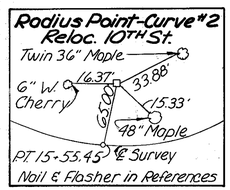


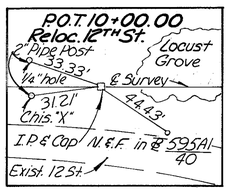












LEGEND

N.E.F. = Nail & Flasher
N.&C. = Nail & Cap
M.S. = Mine Spike
I.P. = Iron Pin

Existing Curve Data

P.I. = 725+84.29
Δ = 22°84'57"L.T.
D = 00°28'00"
T = 2,488.53'
L = 4,910.54'
E = 249.66'
R = 12,277.67

WOODS

BEGIN PROJECT
STA. 750+06.30
S.L.M. = 14.17

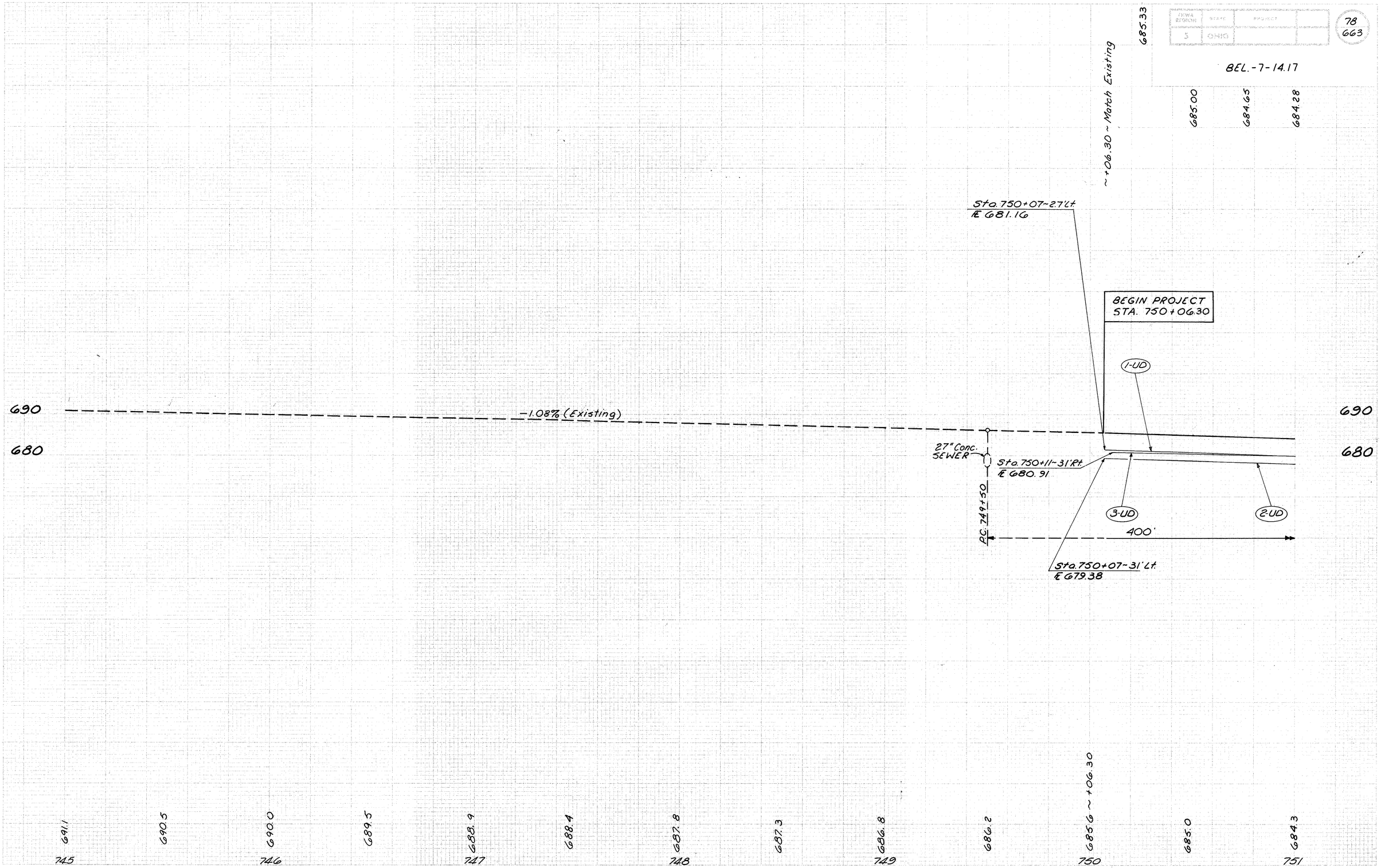
P.C. Sta. 750+06.30
Match Existing

7'-6"
1-JM
Constr. Limits
28-B
2-UD
1-B
1-UD
3-R
℄ SURVEY RELOC. S.R. 7
3-UD
1-GR
2-R
Const. Limits
Guard Rail

MATCH LINE STA. 751+00

Exist. LA
℄
Conc.
C.B.
Existing Ditch
Existing Barrier
Existing 6" Pipe Underdrain
Existing Southbound Lane
℄ EXISTING RELOC. S.R. 7
Conc. Barrier
℄ Existing S.R. 7
(Asphalt)
27" Conc.
Existing 6" Pipe Underdrain
746
747
748
749
750
29-B
1-R
Existing Northbound Lane
(Asphalt)
Existing 6" Pipe Underdrain
24" Conc.
Brush
Brush
Exist. LARW
Consolidated Rail Corp. (Do Not Disturb)

For Profile See Sheet No. 78
For Quantities See Sheet No. 79
For Barrier Transition Detail, See Misc. Detail Sheet No. 22



W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RELOCATED S.R.7 PROFILE~ STA. 745+00 TO STA. 751+00

ESTIMATED QUANTITIES

Calc. By: F.S. Date: 5-23-84
Chkd. By: W.a.C. Date: 6-11-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

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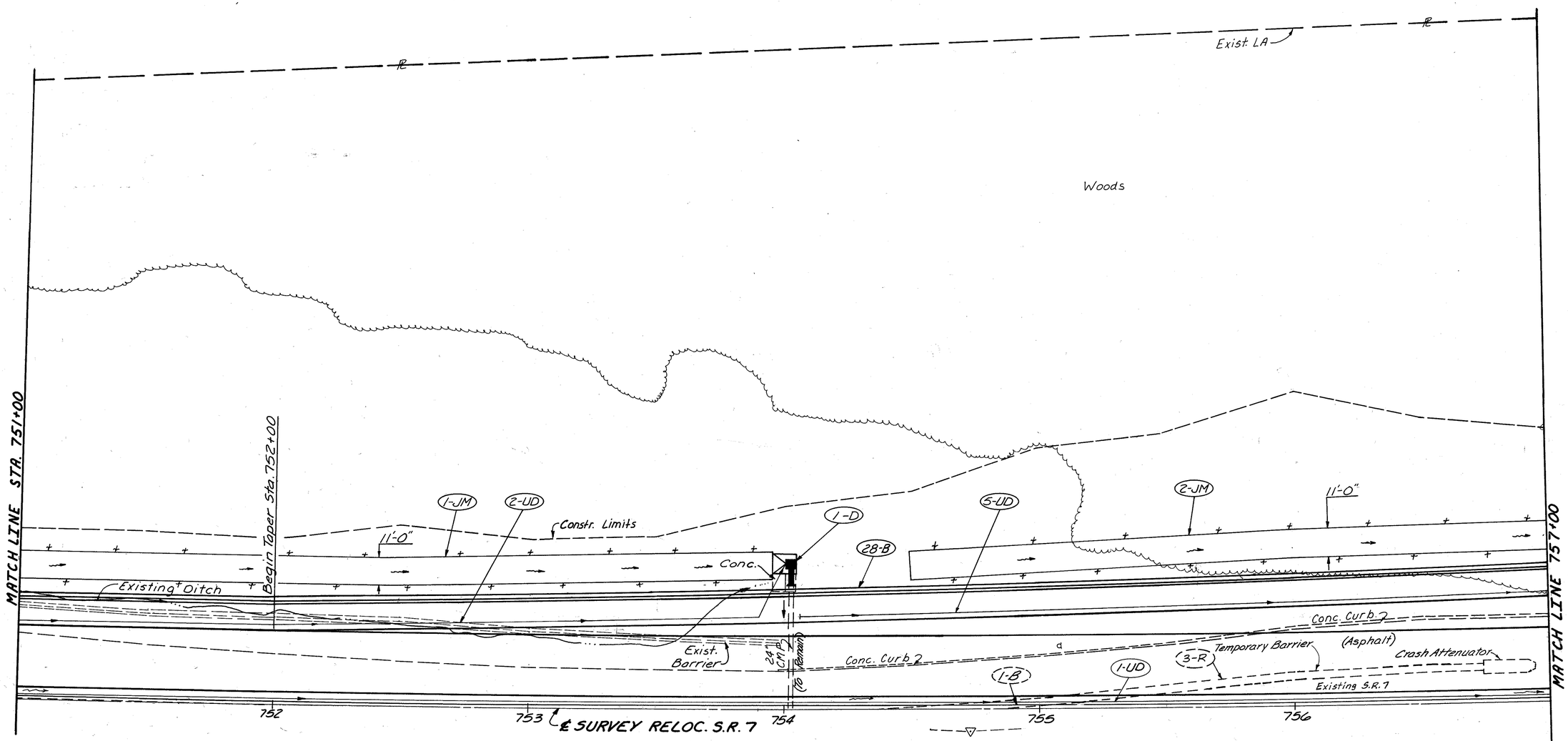
BEL-7-14.17

REF. NO.	STATION TO STATION	SIDE	202 Concrete Barrier Removed, As Per Plan Lin. Ft.	202 Temporary Concrete Barrier Removed as per plan Lin. Ft.	202 Guardrail Removed Lin. Ft.	606 Guardrail, Type 5 Lin. Ft.	605 6" Shallow pipe Underdrains Lin. Ft.	605 6" Deep pipe Underdrains Lin. Ft.	622 Concrete Barrier Type A, As Per Plan Lin. Ft.	622 Concrete Barrier, Type B Lin. Ft.	622 Concrete Barrier Type D, As Per Plan Lin. Ft.	670 Ditch Erosion Protection Sq. Yd.	SEE SHEET NO.
	RURAL												
1-GR	750+06 to 751+00	Rt.				95.00							
1-B	750+06.3 to 751+00	℄								94			
28-B	750+06.3 to 751+00	Lt.									94		
29-B	746+00 to 750+06.3	℄							406				
1-UD	750+07 to 751+00	Lt.					93						
2-UD	750+07 to 751+00	Lt.						93					
3-UD	750+11 to 751+00	Rt.					89						
1-JM	750+06 to 751+00	Lt.										78.3	
1-R	746+00 to 750+27.3	℄	406										
2-R	750+06 to 751+00	Rt.			96								
3-R	750+06 to 756+95	℄ & Lt.		689									52
	TOTAL		406	689	96	95.00	182	93	406	94	94	78.3	

Curve Data

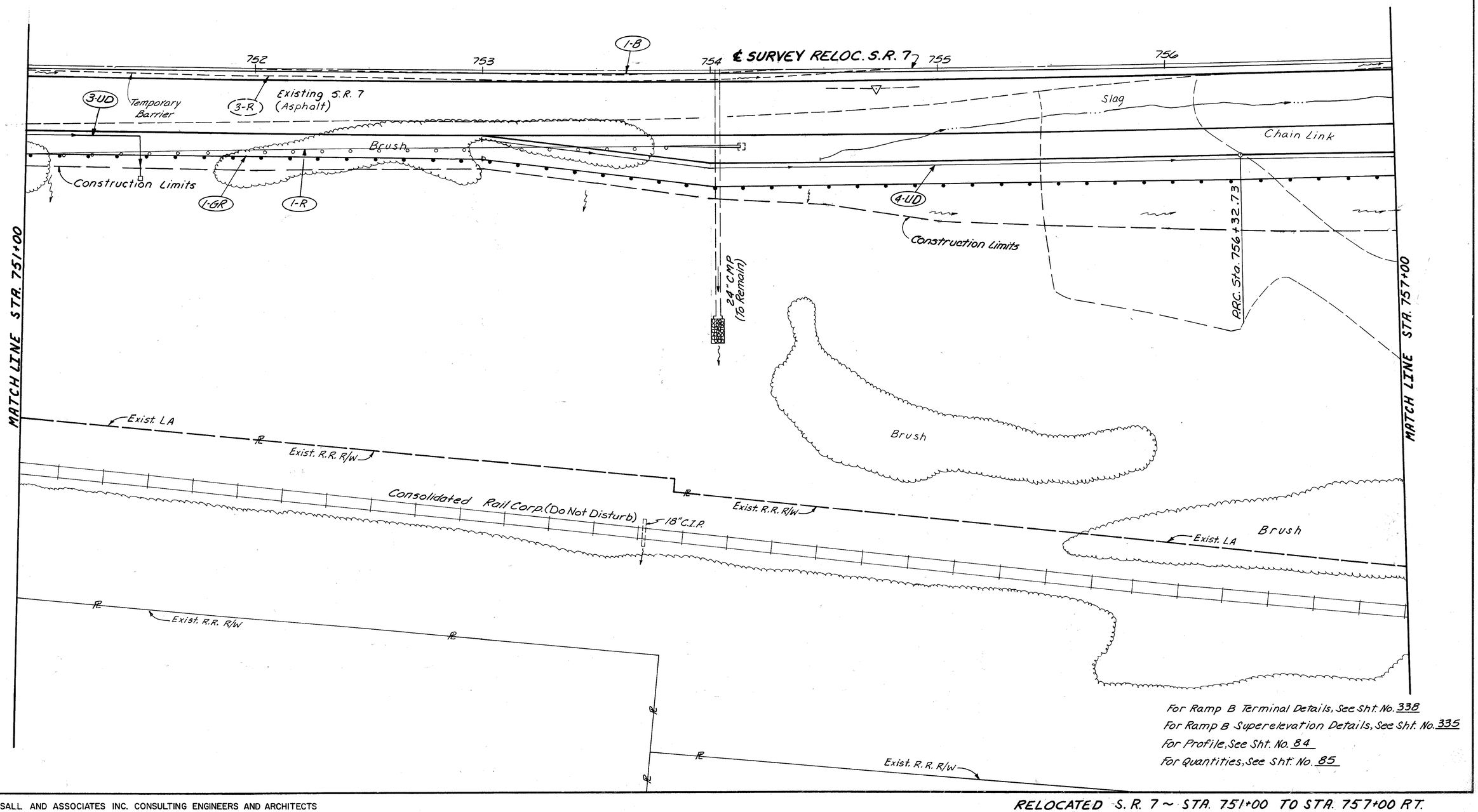
P.I. = 754+73.39 ~ S.R 7
Δ = 04°21'26.56" Lt.
D = 00°28'00"
T = 467.09'
L = 933.72'
E = 8.88'
R = 12,277.67'



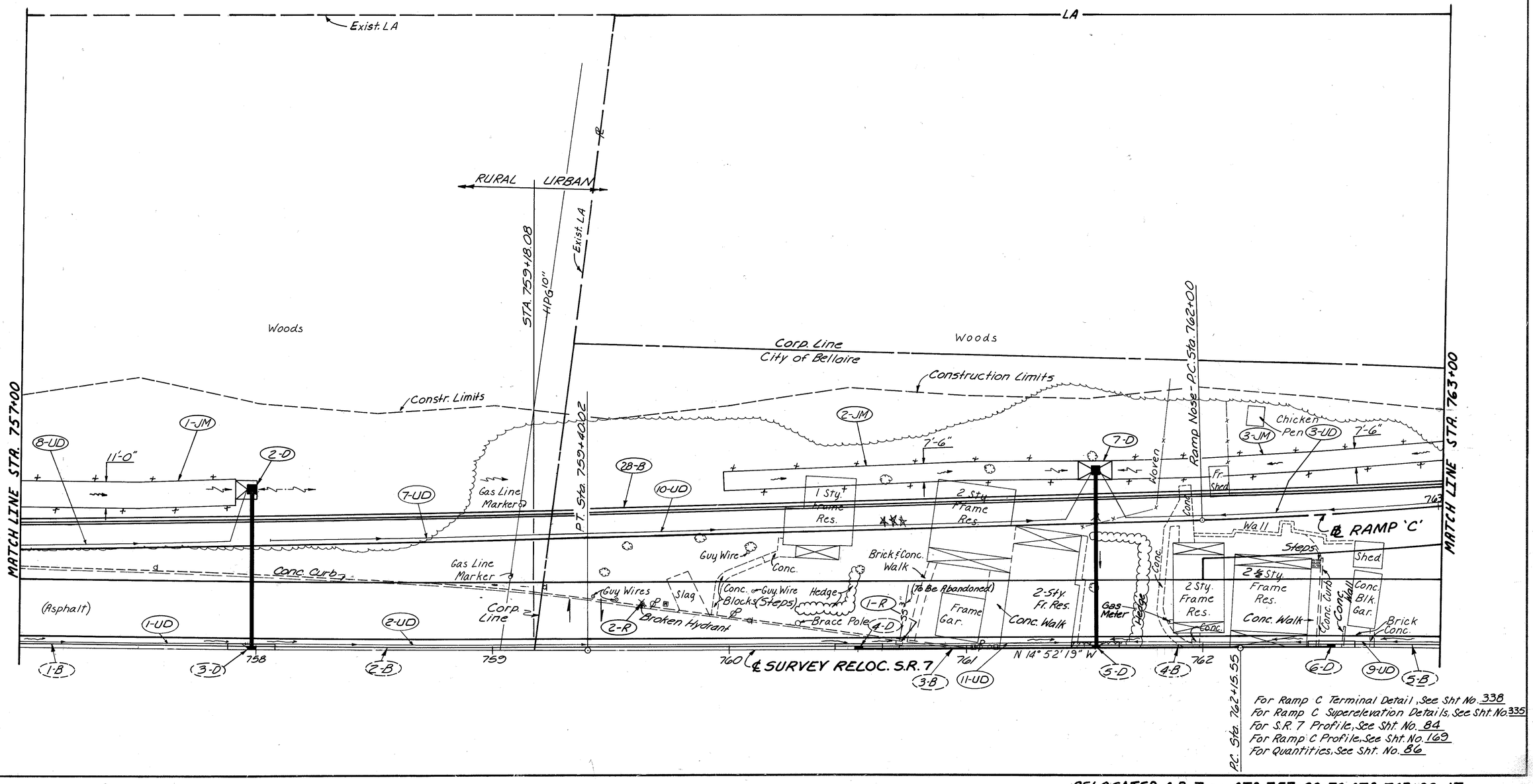
For Ramp C Terminal Detail, See Sheet No. 338
For Ramp C Superelevation Detail, See Sheet No. 335
For Profile, See Sheet No. 84
For Quantities, See Sheet No. 85

Curve Data

P.I. = 754+73.39 ~ S.R. 7
Δ = 04°21'26.56" Lt.
D = 00°28'00"
T = 467.09'
L = 933.72
E = 8.88'
R = 12,277.67'



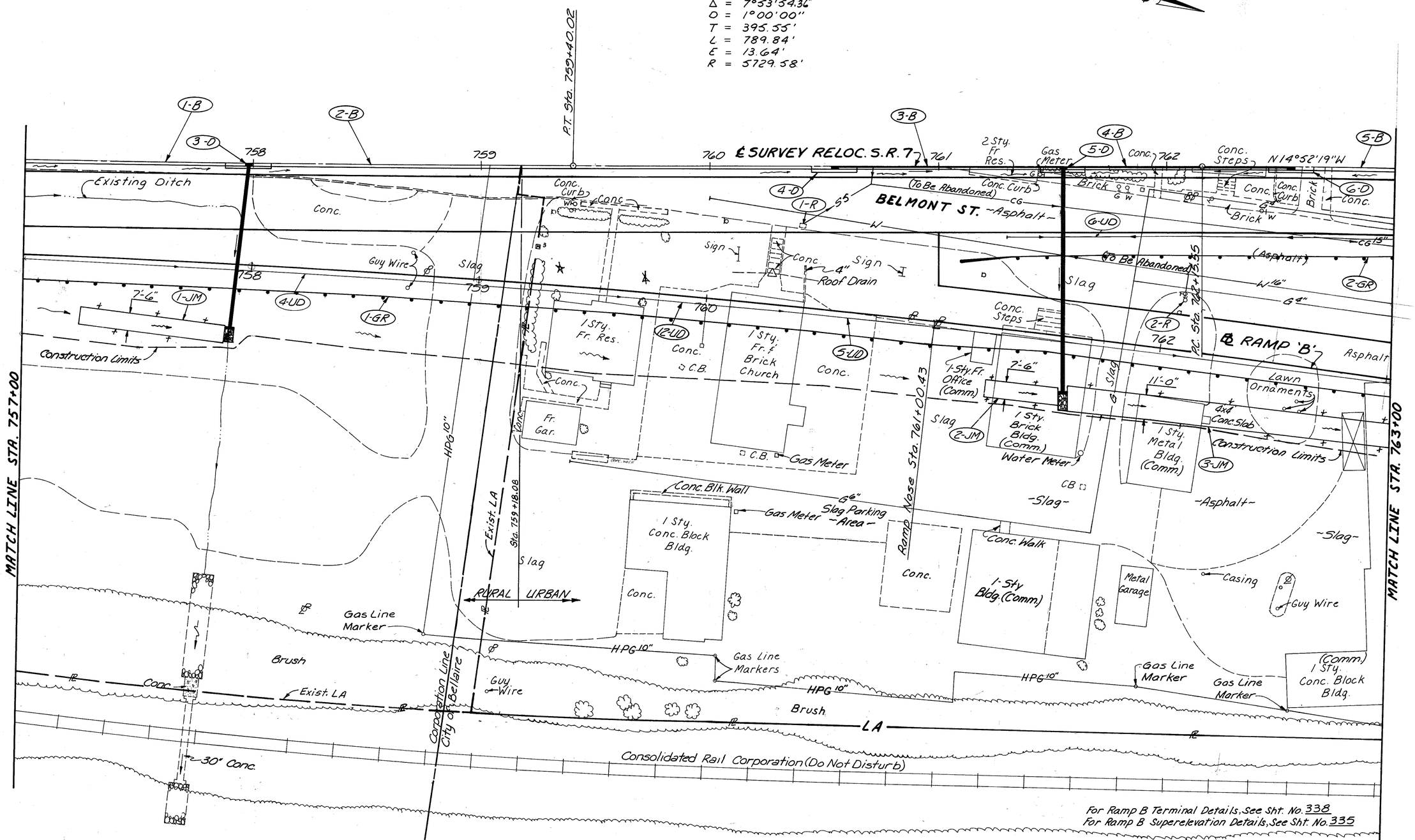
For Ramp B Terminal Details, See Sht. No. 338
For Ramp B Superelevation Details, See Sht. No. 335
For Profile, See Sht. No. 84
For Quantities, See Sht. No. 85



For Ramp C Terminal Detail, See Sht No. 338
For Ramp C Superelevation Details, See Sht. No. 335
For S.R. 7 Profile, See Sht. No. 84
For Ramp C Profile, See Sht. No. 169
For Quantities, See Sht. No. 86

RELOCATED S.R. 7 ~ STA. 757+00 TO STA. 763+00 LT.

RAMP 'B'
CURVE DATA
P.I. = 760+28.28
Δ = 7°53'54.36"
D = 1°00'00"
T = 395.55'
L = 789.84'
E = 13.64'
R = 5729.58'



For Ramp B Terminal Details, See Sht. No. 338
For Ramp B Superelevation Details, See Sht. No. 335

For Ramp B Profile, See Sht. No. 168
For S.R. 7 Profile, See Sht. No. 84
For Quantities, See Sht. No. 87

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

RELOCATED S.R. 7 ~ STA. 757+00 TO STA. 763+00 RT.

FHWA REGION	STATE	PROJECT	
5	OHIO		

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BEL-7-14.17

684.28 683.89 683.48 683.06 682.62 682.15 681.67 681.17 680.66 680.12 679.57 678.44 677.32 676.19 675.07 673.94 672.82 671.69

690 680 670 660

P.I. 751+50
Elev. 684.07

Sta. 751+50 ~ 31' Rt.
90° Bend ~ E 679.54

Sta. 751+50 ~ 50' Rt.
Outlet ~ E 679.04

3-UD 1-UD 2-UD 4-UD 5-UD

400' V.C.

P.T. 753+50

Sta. 753+00 ~ 31' Rt.
E 676.82

Sta. 754+03 ~ 57' Lt.
Outlet in C.B.
E 671.85

-2.25 %

24" Sewer
(To Remain)

Sta. 754+05 ~ 36.1' Lt.
E 672.01

Sta. 753+90 ~ 35.6' Lt.
60° Bend ~ E 672.35

B.M. #48 Elev. 647.45
Sta. 752+00 ± Rt.
Mine spike in 18" Willow, river side of Railroad

684.3 683.5 682.5 681.7 680.7 679.6 678.0 675.7 674.4 672.8 671.8 668.1 662.2

751 752 753 754 755 756 757

671.69 670.57 669.44 668.90 668.40 667.93 667.51 667.13 666.78 666.48 666.21 665.99 665.80 665.65 665.55 665.48 665.46 665.47 665.52 665.61 665.74 665.92 666.13

Rural Urban

759+18.08

Sta. 757+92 ~ 2.67' Lt.
30° Bend E 665.28

Sta. 757+95.5 ~ 2.67' Lt.
E 665.19

P.C. 758+00

Sta. 760+00 ~ 64.2' Rt.
90° Bend E 661.92

Inlet, No. F-3D Sta. 760+54.4 ~ & 22.6Lc. S.R. 7

100'

Sta. 761+54.4 ~ 1' Lt.
Outlet in C.B.
E 660.56

Sta. 761+30 ~ 31' Rt.
E 661.26

600' V.C.

Inlet, No. F-3D Sta. 761+54.4 ~ & 22.6Lc. S.R. 7

Sta. 761+54.4 ~ 31' Rt.
6x6 Tee E 660.75

E @ C.B. 660.56

Inlet, No. F-3D Sta. 762+54.4 ~ & 22.6Lc. S.R. 7

100'

Sta. 760+01 ~ 64.3' Rt.
E 661.91

Sta. 761+00 ~ 2.67' Lt.
E 661.20

Sta. 761+40 ~ 2.67' Lt.
30° Bend ~ E 661.11

Sta. 761+74 ~ 2.67' Lt.
60° Bend ~ E 661.11

Sta. 762+00 ~ 36' Lt.
E 659.63

Window Elev. 665.47

Window Elev. 665.15

Window Elev. 665.47

4-UD 1-UD 3-D 2-UD 12-UD 11-UD 3-D 3-UD 9-UD 6-D 8-UD 2-D 7-UD 10-UD 5-UD 4-D 6-UD 7-D

-2.25 %

E. 660.96

15" Type B @ 1.00%

E. 659.99

E. 660.97

E. 660.00

15" Type B @ 1.00%

Sta. 757+84 ~ 45.6' Lt.
60° Bend E 663.53

E @ C.B. 664.78

E @ C.B. 663.29

Sta. 758+05 ~ 46.1' Lt.
E 663.10

10" H.P.C.

Sta. 759+06 ~ 49.2' Lt.
E 661.08

Sta. 760+00 ~ 78' Rt.
Outlet E 661.42'

8" Sewer
(To Be Abandoned)

Sta. 761+67 ~ 55' Lt.
60° Bend ~ E 659.55

E @ C.B. 659.05

E @ C.B. 659.07

P.I. 761+00
Elev. 662.69

Sta. 761+42 ~ 54.5' Lt.
60° Bend ~ E 659.57

Sta. 761+25 ~ 54.4' Lt.
E 659.63

B.M. #1 Elev. 659.88
Sta. 761+50 ± Rt.
State Benchmark, southeast corner top of steps.

662.2 664.2 666.2 660.0 659.2 657.0 656.4 656.1 655.7 655.7 654.5 654.2 653.8

757 758 759 760 761 762 763

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RELOCATED S.R. 7 PROFILE ~ STA. 751+00 TO STA. 763+00

ESTIMATED QUANTITIES

Calc.By: F.S. Date: 5-23-84
Chkd.By: W.a.C. Date: 6-11-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

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663

BEL-7-14.17

* 707.17 Non-Perforated ASTM 3034 SDR 35 Or Supplemental Specification 931

REF. NO.	STATION TO STATION	SIDE	202 Guardrail Removed	606 Guardrail, Type S	622 Concrete Barrier, Type 'B'	622 Concrete Barrier, Type O As Per Plan	605 6" Shallow Pipe Underdrains	605 6" Deep Pipe Underdrains	SPECIAL Precast Reinforced Concrete Outlet	670 Ditch Erosion Protection	603-CONDUIT * 6" Type F	603-CONDUIT 24" Type B	604 Catch Basin, No. 8	BENDS & BRANCHES 6"x6" Bend	SEE SHEET NO.
	RURAL		Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Each	Sq. Yd.	Lin. Ft.	Lin. Ft.	Each	Each	
1-GR	751+00 to 757+00	Rt.		606.00											
1-B	751+00 to 757+00	℄			600.0										
28-B	751+00 to 757+00	Lt.				598.0									
1-D	754+03	Lt.										8	1		132
1-UD	751+00 to 757+00	Lt.					600							1	
2-UD	751+00 to 754+03	Lt.						303							
3-UD	751+00 to 751+50	Rt.					50		1		19				
4-UD	753+00 to 757+00	Rt.					400								
5-UD	754+05 to 757+00	Lt.						295							
1-JM	751+00 to 753+95	Lt.								360.6					
2-JM	754+50 to 757+00	Lt.								305.6					
1-R	751+00 to 754+14	Rt.	314												
	TOTAL		314	606.00	600.0	598.0	1050	598	1	666.2	19	8	1		

ESTIMATED QUANTITIES

Calc. By: F.S. Date: 5-23-84
Chkd. By: W.a.C. Date: 6-11-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

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* 707.19 Non-Perforated ASTM 3034 SDR 35 Or Supplemental Specification 931

BEL-7-14.17
*BENDS & BRANCHES

REF. NO.	STATION TO STATION	SIDE	202 Catch Basin Abandoned	605 6" Shallow Pipe Underdrains	605 6" Deep Pipe Underdrains	622 Concrete Barrier, Type D As Per Plan	670 Ditch Erosion Protection	603~CONDUIT 21" Type B	603~CONDUIT 18" Type B	603~CONDUIT 6" Type F *	604 Catch Basin, No. 8	814 Fire Hydrant Removed And Disposed of	* 6"x30° Bend	* 6"x60° Bend	SEE SHEET NO.
	RURAL		Each	Lin. Ft.	Lin. Ft.	Lin. Ft.	Sq. Yd.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Each	Each	Each	
1-JM	757+00 to 757+91	Lt.					111.2								
28-B	757+00 to 759+18.08	Lt.				217									
2-D	757+98	Lt.							68		1				355
1-UD	757+00 to 757+98	Lt.		94						6			1		
2-UD	757+95.5 to 759+18.08	Lt.		123											
7-UD	758+05 to 759+18.08	Lt.			113										
8-UD	757+00 to 757+98	Lt.			98					10				1	
	TOTAL RURAL			217	211	217	111.2		68	16	1				
	URBAN														
1-R	760+72	Lt.	1												
2-R	759+63	Lt.										1			
2-JM	759+97 to 761+47	Lt.					125.0								
3-JM	761+61 to 763+00	Lt.					115.8								
7-D	761+54.4	Lt.						76			1				356
3-UD	761+55.7 to 763+01 Ramp C	Lt.			147					10			1		
9-UD	761+54.4 to 763+00	Lt.		142						6			1		
10-UD	759+18.08 to 761+53.1	Lt.			237					10			1		
11-UD	759+18.08 to 761+54.4	Lt.		231						6			1		
28-B	759+18.08 to 763+03 Ramp C	Lt.				384									
	TOTAL URBAN		1	373	384	384	240.8	76		32	1	1			

W.E. QUICKSALL AND ASSOCIATES INC., CONSULTING ENGINEERS AND ARCHITECTS

RELOCATED S.R. 7~STA. 757+00 TO STA. 763+00 LT. ESTIMATED QUANTITIES

ESTIMATED QUANTITIES

Calc. By: F.S. Date: 5-23-84
Chkd. By: Wa.C. Date: 6-12-84

FHWA REGION	STATE	PROJECT	
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BEL-7-14.17

* 707.07 Non-Perforated ASTM 3034 SDR 35 Or Supplemental Specification 931

REF. NO.	STATION TO STATION	SIDE	202 Catch Basin Abandoned	606 Guardrail, Type S	606 Anchor Assembly, Type A	SPECIAL Precast Reinforced Concrete Outlet	605 6" Shallow Pipe Underdrains	622 Concrete Barrier, Type B	670 Ditch Erosion Protection	601 Rock Channel Protection, Type Filter	602 Concrete Masonry	603 - CONDUIT * 6" Type B	603 - CONDUIT * 6" Type F	603 - CONDUIT 15" Type B	603 - CONDUIT 18" Type B	603 - CONDUIT 24" Type B	604 Inlet, No. I-3D	814 Fire Hydrant Removed and Disposed of	BENDS & BRANCHES 6"x90° Bend	BENDS & BRANCHES 6"x6" Tee, Type B	SEE SHEET NO.
	RURAL		Each	Lin. Ft.	Each	Each	Lin. Ft.	Lin. Ft.	Sq. Yd.	Cu. Yd.	Cu. Yd.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Each	Each	Each	
1-GR	757+00 to 759+18.08	Rt.		220.00																	
1-B	757+00 to 757+90	℄						90.0													
2-B	758+10 to 759+18.08	℄						108.1													
3-D	757+98	℄								1.3	0.33				73		1				355
4-UD	757+00 to 759+18.08	Rt.					218														
1-JM	757+25 to 757+90	Rt.							54.2												
	TOTAL RURAL			220.00			218	198.1	54.2	1.3	0.33				73		1				
	URBAN																				
1-GR	759+18.08 to 763+00 State Route 7 - Ramp B	Rt.		384.00																	
2-GR	761+10 to 763+00	Rt.		165.00	1																
2-B	759+18.08 to 760+44.4	℄						126.3													
3-B	760+64.4 to 761+44.5	℄						80.1													
4-B	761+64.5 to 762+44.54	℄						80.0													
5-B	762+64.54 to 763+00	℄						35.5													
2-JM	761+25 to 761+52 (Ramp B)	Rt.							22.5												
3-JM	761+56 to 763+05 (Ramp B)	Rt.							182.1												
1-R	760+41	Rt.	1																		
2-R	762+08.5	Rt.																1			
4-D	760+54.4	℄												100		1					84
5-D	761+54.4	℄								1.6	0.46				99	1					356
6-D	762+54.4	℄												100		1					84
5-UD	760+01 to 763+02 Ramp B	Rt.					292						10								
6-UD	761+30 to 763+00	Rt.					160					31	10							1	
12-UD	759+18.08 to 760+00	Rt.				1	82						14						1		
	TOTAL URBAN		1	549.00	1	1	534	321.9	204.6	1.6	0.46	31	34	200	99	3	1	1			

W.E. QUICKSALL AND ASSOCIATES INC., CONSULTING ENGINEERS AND ARCHITECTS

RELOCATED S.R. 7 - STA. 757+00 TO STA. 763+00 RT. **ESTIMATED QUANTITIES**

BEL - 7 - 14.17 | OHIO | FHWA REGION 5 | 88 / 663

RAMP 'C' CURVE DATA

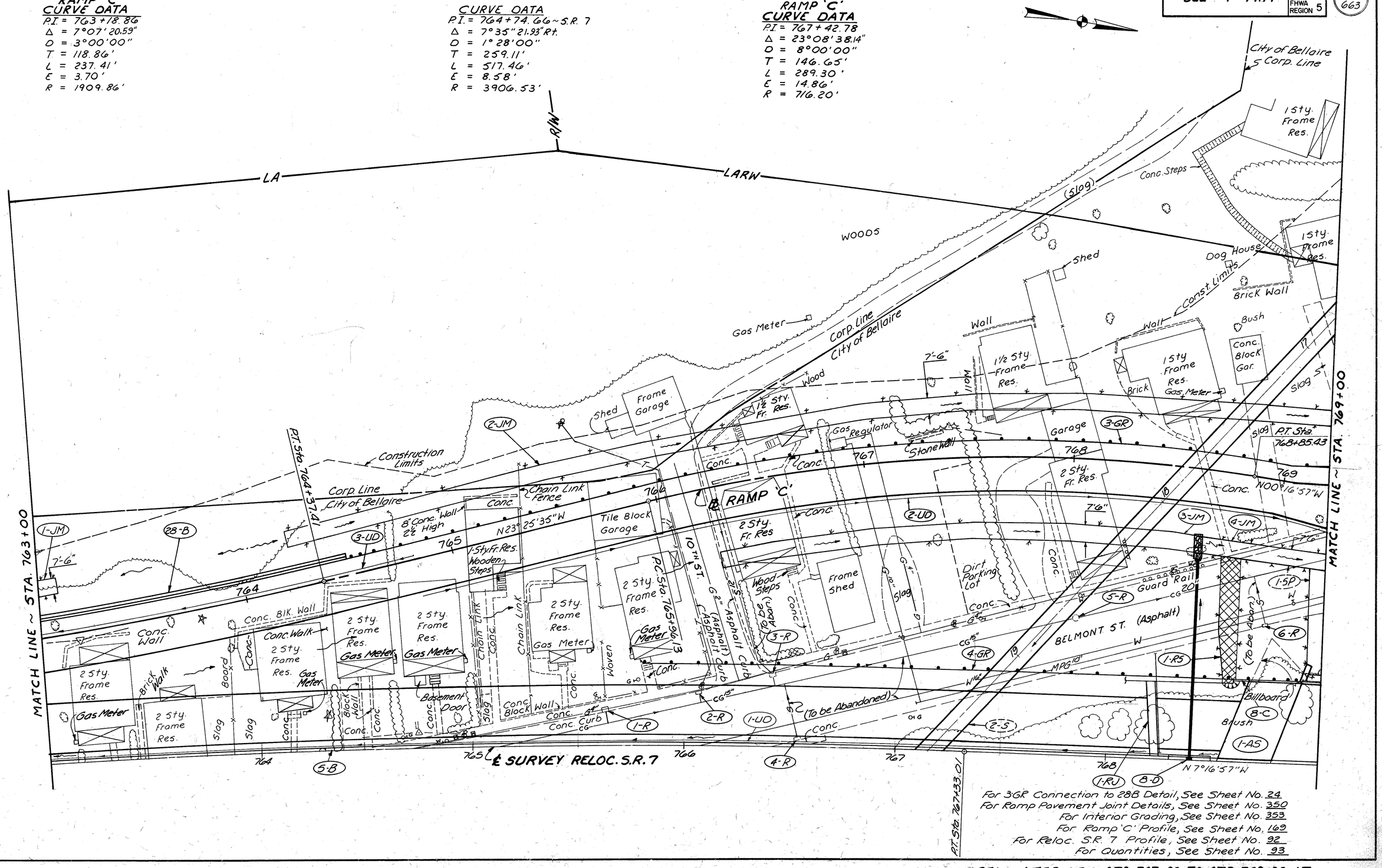
P.I. = 763 + 18.86
Δ = 7°07'20.59"
D = 3°00'00"
T = 118.86'
L = 237.41'
E = 3.70'
R = 1909.86'

CURVE DATA

P.I. = 764 + 74.66 ~ S.R. 7
Δ = 7°35'21.93" Rt.
D = 1°28'00"
T = 259.11'
L = 517.46'
E = 8.58'
R = 3906.53'

RAMP 'C' CURVE DATA

P.I. = 767 + 42.78
Δ = 23°08'38.14"
D = 8°00'00"
T = 146.65'
L = 289.30'
E = 14.86'
R = 716.20'



For 3GR Connection to 28B Detail, See Sheet No. 24
For Ramp Pavement Joint Details, See Sheet No. 350
For Interior Grading, See Sheet No. 353
For Ramp 'C' Profile, See Sheet No. 169
For Reloc. S.R. 7 Profile, See Sheet No. 92
For Quantities, See Sheet No. 93

RELOCATED S.R. 7 - STA. 763+00 TO STA. 769+00 LT.

CURVE DATA

P.I. = 764+74.66 ~ S.R. 7
Δ = 07°35'21.98" RT.
D = 1°28'00"
T = 259.11'
L = 517.46'
E = 8.58'
R = 3906.53'

P.I. Sta. 764+74.66

℄ SURVEY RELOC. S.R. 7

BELMONT ST.

N 07°16'57" W

N 05°32'21" W

P.T. Sta. 767+33.01

℄ RAMP 'B'

℄ 1ST RELOC. BELMONT ST.

MATCH LINE STA. 763+00

MATCH LINE STA. 769+00

END RAMP 'B'
STA. 768+63.36

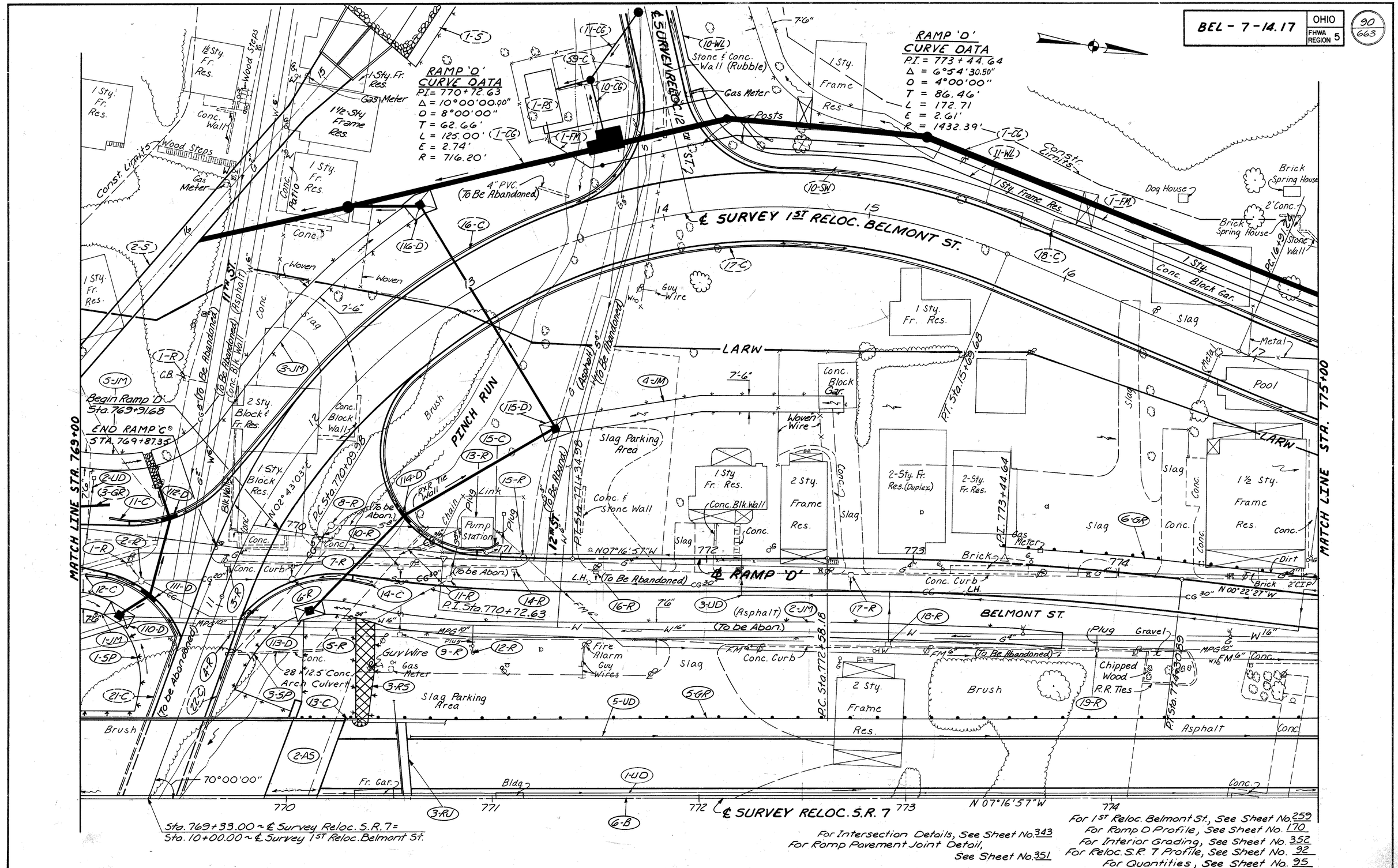
BEGIN RAMP 'A'
STA. 768+94.19

P.I. Sta. 764+22.57

(2) Gas Meter
Billboard
2 Sty. Fr. Res.
Brick
Slag
Conc. Hedge
Conc.
Mail Boxes
Plug
End Conc. Curb
(To Be Abandoned)
Conc. Curb
Gas Test Hole
Asphalt & Slag
Billboards
1 Sty. Frame Garage
Chain Link
Sign
Stone Wall
(2) Gas Tanks
4000 Gal. Gas Tanks
Gas Pump
Ramp
Construction Limits
Wooden Timber Loading Dock
2000 Gal. Gas Tank
1000 Gal. Gas Tank
1 Sty. Conc. Block Bldg.
1 Sty. Metal Bldg. (Comm.)
Conc. & Slag
Conc. Block Gar. (Comm.)
Brush
Pinch Run
140'x8'x18"
54'x6'x18"
Gas Line Marker
HPG 10"
Const. Limits
Exist. R.R. R/W
Conc. Wall (Do Not Disturb)
Consolidated Rail Corporation (Do Not Disturb)
See Note regarding existing Channel and Culvert clean out on Sht. No. 383
25'x15' Conc. Arch Culvert (Do Not Disturb)
OHIO RIVER

1-R, 2-R, 3-R, 4-UD, 5-B, 1-JM, 2-JM, 3-JM, 1-GR, 1-DR, 2-DR, 2-S, 2-RJ, 8-D, 1-AS, 9-C, 2-GR, 2-RS, 2-SP, 21-C, 9-D, 10-C, 10-D, 3-UD, 4-JM, 5-JM

For Ramp Pavement Joint Details, See Sht. No. 350
For Intersection Details, See Sheet No. 342
For 1st Reloc. Belmont St, See Sheet No. 259
For Interior Grading, See Sheet No. 353
For Ramp B Profile, See Sheet No. 168
For Reloc. S.R. 7 Profile, See Sheet No. 92
For Quantities, See Sheet No. 94



For Intersection Details, See Sheet No. 343
For Ramp Pavement Joint Detail, See Sheet No. 351

For 1ST Reloc. Belmont St., See Sheet No. 259
For Ramp D Profile, See Sheet No. 170
For Interior Grading, See Sheet No. 352
For Reloc. S.R. 7 Profile, See Sheet No. 92
For Quantities, See Sheet No. 95

RELOCATED S.R. 7 ~ STA. 769+00 TO STA. 775+00 LT.

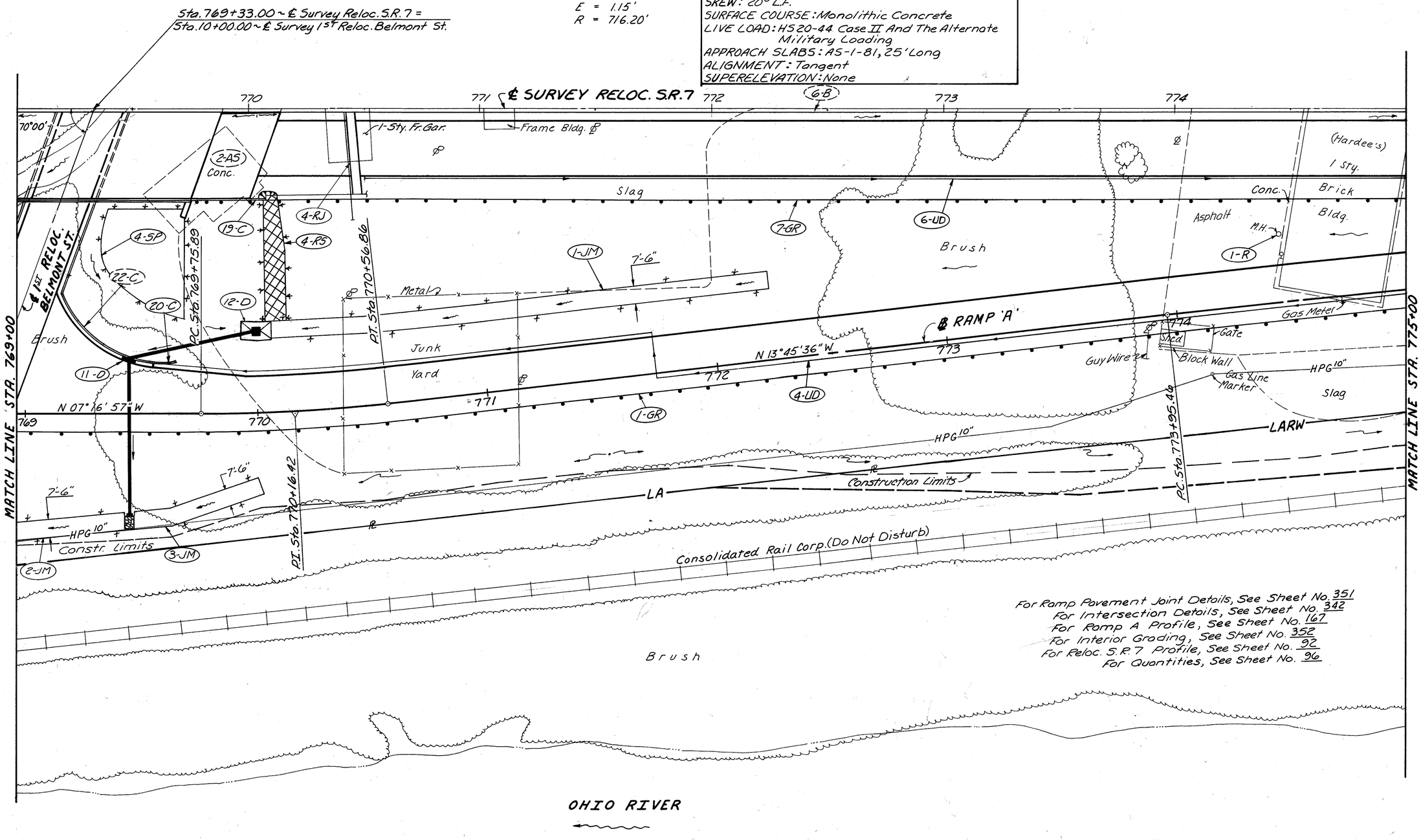
BEL - 7 - 14.17 | OHIO | FHWA REGION 5 | 91/663

RAMP 'A'
CURVE DATA

P.I. = 770+16.42
Δ = 6°28'38.91"
D = 8°00'00"
T = 40.53'
L = 80.97'
E = 1.15'
R = 716.20'

PROPOSED STRUCTURE
BRIDGE NO. BEL-7-1452 L/R
S.R. 7 OVER BELMONT ST.

TYPE: Continuous Steel Beams With Reinforced Concrete Deck And Substructure Units
SPANS: 32'-46'-32' Measured Along ℄ of Survey
ROADWAY: 78'-0" F/F Parapets With a 2'-8" Median Barrier
SKEW: 20° L.F.
SURFACE COURSE: Monolithic Concrete
LIVE LOAD: HS20-44 Case II And The Alternate Military Loading
APPROACH SLABS: AS-1-81, 25' Long
ALIGNMENT: Tangent
SUPERELEVATION: None



For Ramp Pavement Joint Details, See Sheet No. 351
For Intersection Details, See Sheet No. 342
For Ramp A Profile, See Sheet No. 167
For Interior Grading, See Sheet No. 352
For Reloc. S.R. 7 Profile, See Sheet No. 92
For Quantities, See Sheet No. 96

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666.13 666.38 666.67 667.00 667.37 668.15 668.93 669.31 669.67 670.01 670.34 670.64 670.92 671.19 671.43 671.66 671.86 672.05 672.22 672.37 672.50 672.61 672.70

600 V.C.

P.T. 764+00

+1.56%

P.C. 765.00

1-UD

4-UD

1100 V.C.

Sta. 768+35 ~ 2.67' Lt.
E 667.92

Sta. 768+00 ~ 31' Rt.
E 667.91

8-D

Bridge Limits

4" Gas

16" Water
(To Be Abandoned)

15" Sewer
(To Be Abandoned)

2-S

670 660 650 640 630 620

B.M.# 57	Elev. 649.12
Sta 766+40 ± Rt.	
Chiseled square on concete curb at northwest corner of Belmont and 10th Streets.	
B.M.# 21	Elev. 647.85
Sta 769+80 ± Lt.	
Chiseled square on west bridge railing over Pinch Run.	

653.8 653.3 652.4 651.6 650.9 650.1 649.9 649.3 649.0 641.8 634.0 633.0 629.4

763 764 765 766 767 768 769

672.70 672.77 672.82 672.85 672.87 672.86 672.84 672.79 672.73 672.64 672.54 672.42 672.28 672.12 671.94 671.74 671.52 671.28 671.02 670.75 670.45 670.14 669.80 669.45 669.08

Bridge Limits

Sta. 770+17 ~ 2.67' Lt.
E 668.51

+1.56%

P.I. 770+50
Elev. 677.51

-1.84%

5-UD

6-UD

1-UD

1100 V.C.

Sta. 770+60 ~ 30' Rt.
E 668.60

Sta. 770+50 ~ 30' Lt.
E 668.62

℄ Survey Relocated Belmont St.

℄ Exist. Pinch Run

670 660 650 640 630 620

B.M.# 20	Elev. 648.70
Sta 774+90 ± Lt.	
Top of the northeast bolt of sign base, at Hardee's along Belmont Street.	
B.M. # 20A	Elev. 650.45
Sta 773+90 ± Rt.	
Chiseled square on conc. base of light pole at S. end of Hardee's parking lot, 80' ± E. of Belmont St.	

629.4 628.2 648.1 648.3 648.2 647.8 646.9 649.3 646.4 645.1 647.2 648.1 648.1

769 770 771 772 773 774 775

RELOCATED S.R. 7 PROFILE ~ STA. 763+00 TO STA. 775+00

ESTIMATED QUANTITIES

Calc. By: F.S. Date: 5-23-84
Chkd. By: W.a.C. Date: 6-12-84

FHWA REGION	STATE	PROJECT	
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* Bends And Branches

REF. NO.	STATION TO STATION	SIDE	202 Catch Basin Abandoned	202 Manhole Abandoned			606 Guardrail, Type S	606 Anchor Assembly, Type 2A	606 Anchor Assembly, Type T	606 Bridge Terminal Assembly, Type 2A	609 Curb, Type G	611 Reinforced Concrete Approach Slab, As Per Plan, T=18"	622 Concrete Barrier, Type D, As Per Plan	622 Concrete Barrier, Type B	SPECIAL Pressure Relief Joint, Type 2A, As Per Plans		660 Reinforced Sodding	605 6" Shallow Pipe Underdrains, 707.01 Type III, 707.17 or 707.21 Type III	605 6" Shallow Pipe Underdrains	605 6" Deep Pipe Underdrains	605 6" Unclassified Pipe Underdrains		670 Ditch Erosion Protection		601 Rock Channel Protection, Type C With Filter	602 Concrete Masonry	603 CONDUIT 15" Type B	603 CONDUIT 15" Type F, 707.05, Type C	604 Inlet, No. I-3D	* 15"-22½° Bend Type F, 707.05, Type C	SEE SHEET NO.
	URBAN		Each	Each			Lin.Ft.	Each	Each	Each	Lin.Ft.	Sq.Yd.	Lin.Ft.	Lin.Ft.	Lin.Ft.		Sq. Yd.	Lin. Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.		Sq. Yd.		Cu. Yd.	Cu. Yd.	Lin.Ft.	Lin. Ft.	Each	Each	
3-GR	764+50 to 769+37.5 Ramp C	Lt.					462.50	1		1																				
4-GR	765+78.63 to 768+91.13	Lt.					300.00		1	1																				
1-RS	768+56.88	Lt.															57.8													
5-B	763+00 to 768+51.49	℄												551.5																
28-B	763+03 to 764+50 (Ramp C)	Lt.											148.0																	
8-C	768+58.88 to 768+66.13	Lt.									7.3																			
1-RJ	768+25	Lt.													36.0			47												
8-D	768+40	℄																							2.7	0.27		37	62	1	2	356
1-UD	763+00 to 768+35	Lt.																	535											
2-UD	764+81 to 769+21 Ramp C	Rt.																	443											
3-UD	763+01 to 764+81 Ramp C	Lt.																		80	100									
1-JM	763+00 to 763+09	Lt.																					7.5							
2-JM	764+25 to 769+21 (Ramp C)	Lt.																					413.3							
3-JM	766+25 to 768+61 (Ramp C)	Rt.																					186.7							
4-JM	768+65 to 769+21 (Ramp C)	Rt.																					49.2							
1-R	765+63	Lt.	1																											
2-R	766+07	Lt.	1																											
3-R	766+42	Lt.	1																											
4-R	766+54	Lt.	1																											
5-R	767+83	Lt.		1																										
6-R	768+73	Lt.	1																											
1-AS	768+51.49 to 768+76.94	℄										220.8																		478
	TOTAL		5	1			762.50	1	1	2	7.3	220.8	148.0	551.5	36.0		57.8	47	978	80	100		656.7		2.7	0.27		37	62	1		

ESTIMATED QUANTITIES

Calc. By: F.S. Date: 5-23-84
Chkd. By: W.a.C. Date: 6-12-84

FHWA REGION	STATE	PROJECT	
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* 707.17 Non Perforated ASTM 3034 SDR 35 or Supplemental Specification 931

REF. NO.	STATION TO STATION	SIDE	202 Catch Basin Abandoned (Each)	203 Excavation Not Including Embankment Construction (Cu. Yd.)	203 Embankment (Cu. Yd.)	606 Guardrail, Type S (Lin. Ft.)	606 Bridge Terminal Assembly, Type A (Each)	609 Curb, Type 6 (Lin. Ft.)	660 Reinforced Sodding, (Sq. Yd.)	SPECIAL Pressure Relief Joint, Type A, As Per Plan (Lin. Ft.)	670 Ditch Erosion Protection (Sq. Yd.)	670 Slope Erosion Protection (Sq. Yd.)	605 6" Shallow Pipe Underdrains, 707.01 Type III, 707.21 Type III (Lin. Ft.)	605 6" Shallow Pipe Underdrains (Lin. Ft.)	SPECIAL Precast Reinforced Concrete Outlet (Each)	601 Riprap, 6" Reinforced, Concrete Slab (Sq. Yd.)	601 Rock Channel Protection, Type A with Filter (Cu. Yd.)	601 Rock Channel Protection, Type C with Filter (Cu. Yd.)	602 Concrete Masonry (Cu. Yd.)	603 CONDUIT 15" Type B (Lin. Ft.)	603 CONDUIT 6" Type F * (Lin. Ft.)	603 CONDUIT 15" Type F 707.05 Type C (Lin. Ft.)	603 CONDUIT Type A 120° 706.02 3250 D-Load (or 33 707.03 CL A) As Per Plan, With 156 706.02 2000 D-Load As Per Plan (Lin. Ft.)	604 Catch Basin, No. 3A With Grate 'V' (Each)	604 Catch Basin, No. 8 (Each)	BENDS & BRANCHES 6"x6" Tee (Each)	BENDS & BRANCHES 15"x25" Bend Type F, 707.05, Type C (Each)	SEE SHEET NO.
	URBAN																												
1-GR	763+00 to 768+96.5 Ramp B ~ Ramp A	Rt.				591.50																							
2-GR	763+00 to 768+62.74	Rt.				560.00	1																						
2-RJ	768+11	Rt.								36.0			46																
2-RS	768+28.5	Rt.							50.7																				
9-C	768+30.49 to 768+37.74	Rt.						7.3																					
10-C	768+19.47 to 768+29.47 Ramp B	Lt.						10.0																					
2-SP	768+59 to 768+91	Rt.										124.4																	
9-D	768+49 (Ramp B)	Lt.																			21					1			357
10-D	768+59 (Ramp B)	Lt.																1.3	0.27		30		46		1			2	357
1-JM	763+22 to 768+42 (Ramp B)	Lt.									435.0																		
2-JM	763+05 to 763+25 (Ramp B)	Rt.									24.4																		
3-JM	763+25 to 765+25 (Ramp B)	Rt.									166.7																		
4-JM	767+50 to 768+58 (Ramp B)	Rt.									90.0																		
5-JM	768+62 to 768+97 (Ramp B - Ramp A)	Rt.									25.0																		
1-R	763+20	Rt.	1																										
2-R	763+73	Rt.	1																										
3-R	764+30	Rt.	1																										
3-UD	763+02 to 768+64 Ramp B	Rt.												532	1							46					1		
4-UD	763+00 to 768+00	Rt.												500															
1-DR	765+25 to 766+50 (Ramp B)	Rt.																62.2											
2-DR	767+00 to 767+50 (Ramp B)	Rt.																18.0											
2-S	767+15.5	℄		408	2											13.3	304.6			628									381
	TOTAL		3	408	2	1151.50	1	17.3	50.7	36.0	741.1	124.4	46	1032	1	13.3	304.6	81.5	0.27	51	46	46	628	1	1			

ESTIMATED QUANTITIES

Calc. By: F.S. Date: 5-23-84
Chkd. By: W.o.C. Date: 6-12-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

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BEL-7-14.17

* 707.17 Non-Perforated ASTM 3034 SDR 35 Or Supplemental Specification 931

REF. NO.	STATION TO STATION	SIDE	202 Catch Basin Abandoned	202 Manhole Abandoned	202 Structure Removed	202 Manhole Removed	202 Pipe Removed, Over 24"	606 Guardrail, Type 5	606 Bridge Terminal Assembly, Type 'A'	606 Anchor Assembly, Type 'T'	609 Curb, Type 6	611 Reinforced Concrete Approach Slab, As Per Plan, T=15"	SPECIAL Pressure Relief Joint, 'A', As Per Plan	622 Concrete Barrier, Type 'B'	660 Reinforced Sodding	670 Slope Erosion Protection	670 Ditch Erosion Protection	601 Rock Channel Protection, Type C With Filter	602 Concrete Masonry	605 6" Shallow Pipe Underdrains, 707.01 Type III, 707.17 or 707.21 Type III	605 6" Shallow Pipe Underdrains	605 4" Shallow Pipe Underdrains, as per plan	603 CONDUIT *6" Type B	603 CONDUIT *6" Type F	603 CONDUIT 15" Type B	603 CONDUIT 15" Type C	603 CONDUIT 18" Type B	603 CONDUIT Special Reinforced Concrete Outlet	604 Catch Basin, No. 8	604 Catch Basin, No. 3 With Grate 'V'	604 Catch Basin, No. 3A With Grate 'V'	814 Fire Hydrant Removed and Disposed of	BENDS & BRANCHES 6"x90° Bend	BENDS & BRANCHES 6"x90° Bend Type B	SEE SHEET NO.
	URBAN		Each	Each	Lump	Each	Lin. Ft.	Lin. Ft.	Each	Each	Lin. Ft.	Sq. Yd.	Lin. Ft.	Lin. Ft.	Sq. Yd.	Sq. Yd.	Sq. Yd.	Cu. Yd.	Cu. Yd.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Each	Each	Each	Each	Each	Each	
5-GR	770+03.26 to 775+00	Lt.						496.74	1																										
6-GR	773+44.84 to 774+97	Lt.						139.66		1																									
	Ramp D																																		
3-RS	770+37.51	Lt.													46.2																				
2-AS	769+89.06+770+14.51	℄										220.8																							478
6-B	770+14.51 to 775+00	℄												485.5																					
11-C	769+34.33 to 769+44.33	Lt.									10.0																								
	Ramp C																																		
12-C	769+26.14 to 769+36.14	Rt.									10.0																								
	Ramp C																																		
13-C	770+28.26 to 770+35.51	Lt.									7.3																								
14-C	770+30.20 to 770+40.20	Rt.									10.0																								
	Ramp D																																		
15-C	770+88.61 to 770+98.61	Lt.									10.0																								
	Ramp D																																		
3-RJ	770+56.50	Lt.											36.0								46														
1-SP	768+93 to 769+26	Lt.														179.1																			
3-SP	769+75 to 770+07	Lt.														111.1																			
1-UD	770+17 to 775+00	Lt.																				483													
2-UD	769+24 to 769+25	Lt. & Rt.																				1		46										1	
	Ramp C																																		
3-UD	771+00 to 774+97	Lt. & Rt.																				397		40	21			1					1	4	
	Ramp D																																		
5-UD	770+60 to 775+00	Lt.																					440												
1-JM	769+00 to 769+42	Rt.															13.3																		
2-JM	770+18 to 773+75 (Ramp D)	Rt.															237.5																		
3-JM	769+34 to 12+93 (Ramp C - 1st BEL.)	Lt.															145																		
4-JM	771+33 to 772+67 (Ramp D)	Lt.															111.7																		
5-JM	769+21 to 769+50 (Ramp C)	Lt.															25.8																		
110-D	769+47 (Ramp C)	Rt.																											14		1				376
111-D	769+57 (Ramp C)	Rt.																											40			1			376
112-D	769+62.5 (Ramp C)	Lt.																3.8	0.33										15			1			376
113-D	770+12 (Ramp D)	Rt.																												66	1				376
114-D	770+52 (Ramp D)	Lt.																												83		1			376
1-R	769+23	Lt.	1																																
2-R	769+30	Lt.		1																															
3-R	769+71	Lt.	1																																
4-R	769+73	Lt.	1																																
5-R	769+73 to 770+58	Lt.			Lump (Conc. Arch Culvert)																																
6-R	770+03	Lt.		1																															
7-R	770+03	Lt.	1																																
8-R	770+21	Lt.		1																															
9-R	770+55	Lt.	1																																
10-R	770+55	Lt.	1																																
11-R	770+79	Lt.				1	120																												
12-R	770+91	Lt.																															1		
13-R	770+93	Lt.			Lump (Pump Station)																																
14-R	771+10.5	Lt.	1																																
15-R	771+15	Lt.		1																															
16-R	771+50	Lt.	1																																
17-R	772+73	Lt.	1																																
18-R	772+91	Lt.	1																																
19-R	773+93	Lt.																															1		
	TOTAL		10	4	Lump	1	120	636.40	1	1	47.3	220.8	36.0	485.5	46.2	290.2	593.3	3.8	0.33	46	881	440	86	21	66	83	69	1	2	1	2	2			

W.E. QUICKSALL AND ASSOCIATES INC., CONSULTING ENGINEERS AND ARCHITECTS

RELOCATED S.R. 7 ~ STA. 769+00 TO STA. 775+00 LT. **ESTIMATED QUANTITIES**

ESTIMATED QUANTITIES

Calc.By: F.S. Date: 5-23-84
Chkd.By: W.a.C. Date: 6-12-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

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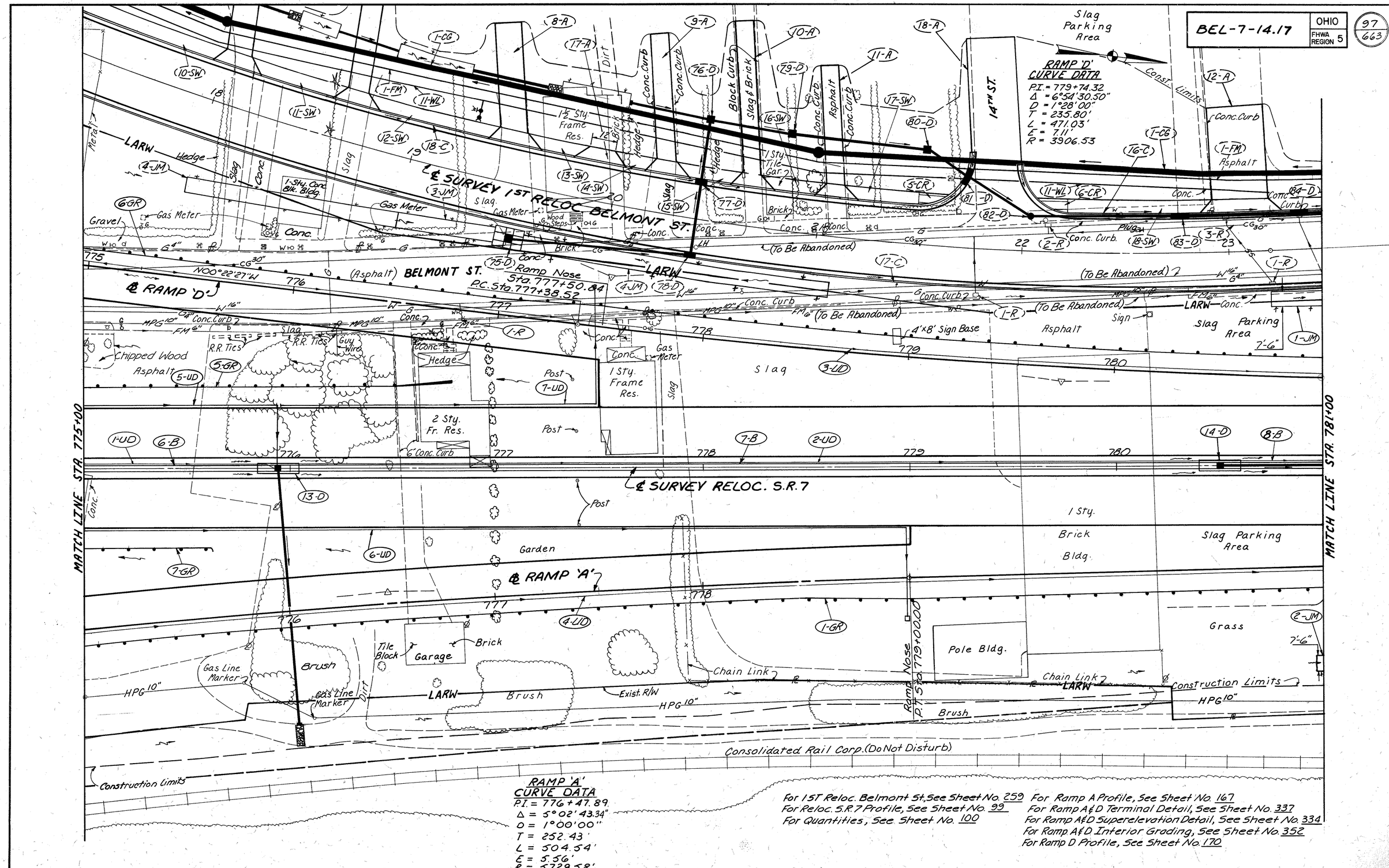
BEL-7-14.17

* 707.17 Non-Perforated ASTM 3034 SDR 35 Or Supplemental Specification 931

REF. NO.	STATION TO STATION	SIDE	202 Manhole Abandoned	606 Guardrail, Type S	606 Bridge Terminal Assembly, Type A	609 Curb, Type 6	660 Reinforced Sodding	670 Slope Erosion Protection	670 Ditch Erosion Protection	SPECIAL Pressure Relief Joint, Type A, As PER PLAN	601 Rock Channel Protection, Type C With Filter	602 Concrete Masonry	603-CONDUIT 6" Type *B	603-CONDUIT 6" Type *F	603-CONDUIT 15" Type C	603-CONDUIT 15" Type B	603-CONDUIT 15" Type F 707.05, Type C	604 Catch Basin, No.3A With Grate V	604 Catch Basin, No.8	605 4" Shallow Pipe Underdrains, as per plan	605 6" Shallow Pipe Underdrains	605 6" Shallow Pipe Underdrains, 707.01 Type III, 707.11 or 707.21 Type III	BENDS & BRANCHES 6"x90° Bend Type B	BENDS & BRANCHES 15"x25° Bend Type F, 707.05, Type C		SEE SHEET NO.
	URBAN		Each	Lin.Ft.	Each	Lin.Ft.	Sq.Yd.	Sq.Yd.	Sq.Yd.	Lin.Ft.	Cu.Yd.	Cu.Yd.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Each	Each	Lin.Ft.	Lin.Ft.	Lin.Ft.	Each	Each		
1-GR	768+96.50 to 774+98.50 Ramp A	Rt.		606.00																							
7-GR	769+74.87 to 775+00	Rt.		525.13	1																						
4-RJ	770+42	Rt.								36.0												46					
4-RS	770+09.12	Rt.					50.7																				
19-C	769+99.87 to 770+07.12	Rt.				7.3																					
20-C	769+55.21 to 769+65.21 Ramp A	Lt.				10.0																					
4-SP	769+39.5 to 769+72.5	Rt.						177.8																			
11-D	769+45 (Ramp A)	Lt.									1.3	0.27				29	42	1						2			357
12-D	770+00 (Ramp A)	Lt.													57				1								357
4-UD	769+45 to 775+00 Ramp A	Rt.&Lt.											20	10							545		2				
6-UD	770+50 to 775+00	Rt.																				450					
1-JM	770+07 to 772+25 (Ramp A)	Lt.							182.0																		
2-JM	768+97 to 769+43 (Ramp A)	Rt.							39.2																		
3-JM	769+47 to 770+00 (Ramp A)	Rt.							47.5																		
1-R	774+45	Rt.	1																								
	TOTAL		1	1131.13	1	17.3	50.7	177.8	268.7	36.0	1.3	0.27	20	10	57	29	42	1	1	450	545	46				

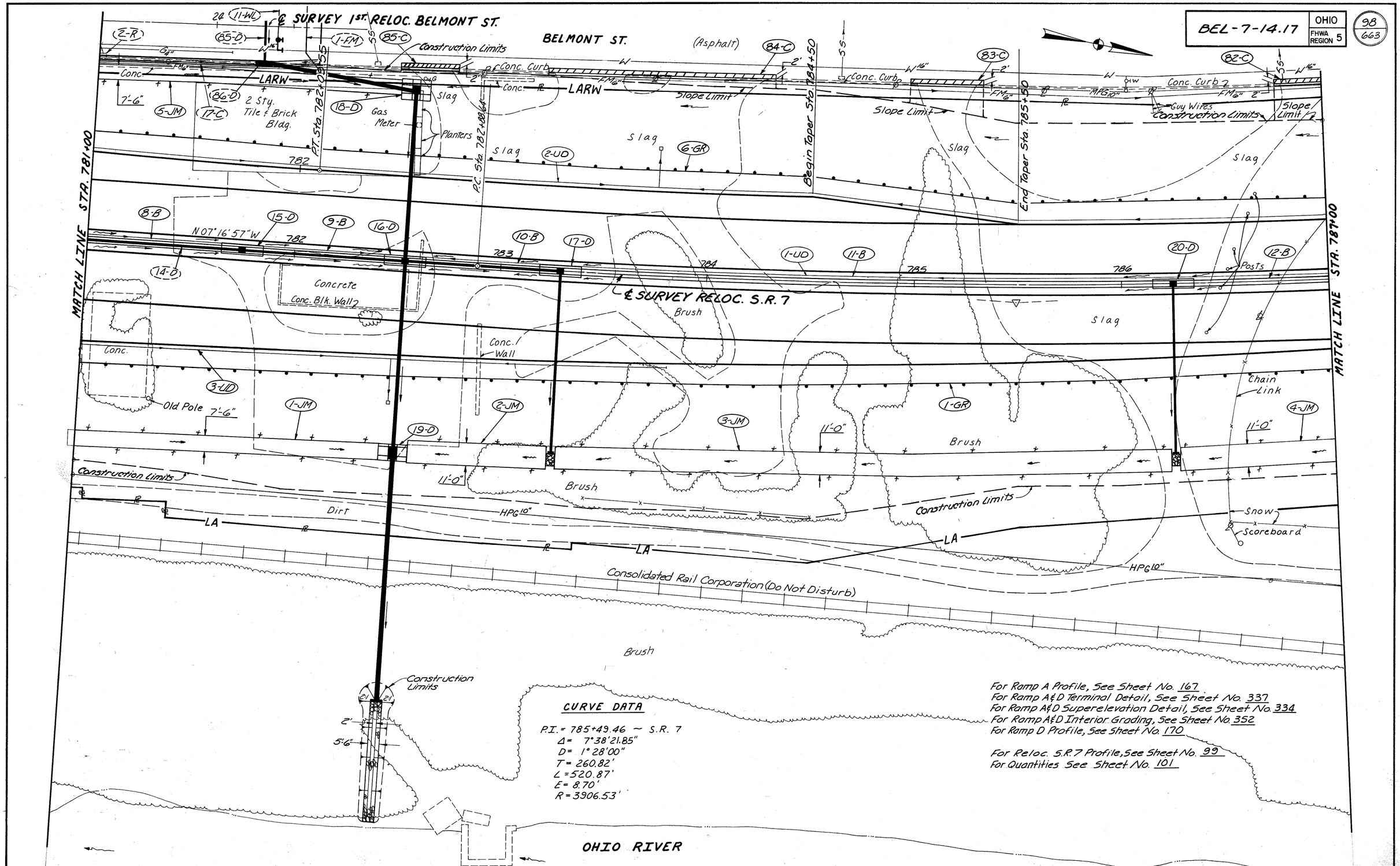


RAMP 'D' CURVE DATA
P.I. = 779+74.32
Δ = 6°54'30.50"
D = 1°28'00"
T = 235.80'
L = 471.03'
E = 7.11'
R = 3906.53

RAMP 'A' CURVE DATA
P.I. = 776+47.89
Δ = 5°02'43.34"
D = 1°00'00"
T = 252.43'
L = 504.54'
E = 5.56'
R = 5729.58'

For 1ST Reloc. Belmont St., See Sheet No. 259
For Reloc. S.R. 7 Profile, See Sheet No. 99
For Quantities, See Sheet No. 100
For Ramp A Profile, See Sheet No. 167
For Ramp A&D Terminal Detail, See Sheet No. 337
For Ramp A&D Superelevation Detail, See Sheet No. 334
For Ramp A&D Interior Grading, See Sheet No. 352
For Ramp D Profile, See Sheet No. 170

RELOCATED S.R. 7 ~ STA. 775+00 TO STA. 781+00



CURVE DATA

P.I. = 785+49.46 ~ S.R. 7
Δ = 7°38'21.85"
D = 1°28'00"
T = 260.82'
L = 520.87'
E = 8.70'
R = 3906.53'

For Ramp A Profile, See Sheet No. 167
For Ramp A&D Terminal Detail, See Sheet No. 337
For Ramp A&D Superelevation Detail, See Sheet No. 334
For Ramp A&D Interior Grading, See Sheet No. 352
For Ramp D Profile, See Sheet No. 170

For Reloc. S.R. 7 Profile, See Sheet No. 99
For Quantities See Sheet No. 101

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

RELOCATED S.R. 7 ~ STA. 781+00 TO STA. 787+00

FHWA REGION	STATE	PROJECT	
5	OHIO		

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669.08 668.68 668.27 667.84 667.39 666.47 665.55 664.63 663.71 662.79 661.87 661.43 661.02 660.64 660.29 659.98 659.70 659.45 659.23

Sta. 775+86 ~ 2.67' Lt.
30° Bend ~ E 663.15

Sta. 775+89.5 ~ 2.67' Lt.
E 663.12

Sta. 775+94 ~ 30' Lt.
90° Bend ~ E 663.28

Sta. 775+96 ~ 30' Lt.
E 663.24

1-UD

13-D

1100 V.C.

Outlet in C.B.
E 662.65

P.T. 776+00

7-UD

2-UD

Outlet 5-UD in CB
E 662.94

Sta. 777+48 ~ 30' Lt.
90° Bend ~ E 660.45

-1.84%

3-UD

6-UD

Sta. 777+50.84 ~ 70' Lt.
E 660.15

Sta. 777+48 ~ 87' Lt.
Outlet ~ 659.88

Sta. 778+98 ~ 30' Rt.
4"x90° Bend ~ E 657.65

3-UD

4-UD

Sta. 778+98 ~ 73.5' Rt.
Outlet ~ E 657.21

P.C. 779+00

4-UD

Sta. 779+00 ~ 56' Rt.
E 657.64

400 V.C.

Inlet, No. I-30
Sta. 780+50 ~ ℄
Reloc. S.R. 7

125'

Window Elev. 659.40

14-D

15" Type B @ 0.80%
E. 655.28

P.T. 781+00
Elev. 658.19

660 650 640

648.1 647.7 645.8 645.5 645.2 644.0 647.5 647.4 646.8 646.5 645.0 643.6 645.2

775 776 777 778 779 780 781

659.23 659.05 658.90 658.78 658.69 658.64 658.62 658.63 658.67 658.79 658.91 659.03 659.15 659.27 659.39 659.51 659.63

125' 78.9' 75'

Inlet, No. I-30
Sta. 781+25 ~ ℄
Reloc. S.R. 7

Inlet, No. I-30
Sta. 782+53.9 ~ ℄
Reloc. S.R. 7

Inlet, No. I-30
Sta. 783+28.9 ~ ℄
Reloc. S.R. 7

400 V.C.

Sta. 782+50 ~ 47.3' Rt.
6"x6" Tee ~ E 654.53

Sta. 782+53.9 ~ 2.67' Lt.
6"x6" Tee ~ E 654.20

Sta. 783+75 ~ 44.1' Rt.
E 655.58

Sta. 783+25 ~ 2.67' Lt.
E 654.38

P.T. 783+00

Window Elev. 658.48

Window Elev. 658.32

Window Elev. 658.44

1-UD

3-UD

20-D

+0.24%

-0.28%

+0.24%

15" Type B @ 0.80%

15" Type B @ 0.80%

15" Type B @ 0.60%

E. 654.30

E. 654.28

E. 653.67

E. 653.65

E. 653.22

17-D

2-UD

14-D

15-D

16-D

Sta. 782+00 ~ 2.67' Lt.
E 654.34

Sta. 783.75 ~ 43' Lt.
6"x6" Tee ~ E 653.35

Outlet in C.B.
E 653.70

18-D

Sta. 782+50 ~ 65' Rt.
Outlet ~ E 654.03

Sta. 783+75 ~ 61' Lt.
Outlet ~ E 652.85

P.I. 784+00
Elev. 658.19

B.M. #19A Elev. 647.35
Sta. 781+00 ± Lt.
Chiseled square north edge of concrete gutter 35' south of Riviero Lanes.

B.M. #18 Elev. 651.49
Sta. 786+35 ± Lt.
Top of steel post at apartment residences nos. 1477 and 1479.

645.2 649.0 649.8 651.8 652.4 653.0 652.3 652.1 650.5 645.8 646.1 646.1 645.9

781 782 783 784 785 786 787

RELOCATED S.R. 7 PROFILE ~ STA. 775+00 TO STA. 787+00

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

ESTIMATED QUANTITIES

Calc. By: F.S. Date: 5-23-84
Chkd. By: W.a.C. Date: 6-12-84

*707.17 Non Perforated ASTM 3034 SDR 35 or Supplemental Specification 931

FHWA REGION	STATE	PROJECT	
5	OHIO		

100/663

BEL.-7-14.17

REF. NO.	STATION TO STATION	SIDE	SPECIAL: Precast Reinforced Concrete Outlet	606: Guardrail, Type S	606: Anchor Assembly, Type A	606: Anchor Assembly, Type T	622: Concrete Barrier, Type B	670: Ditch Erosion Protection	601: Rock Channel Protection, Type C With Filter	602: Concrete Masonry	603 CONDUIT: *4" Type B	603 CONDUIT: *4" Type F	603 CONDUIT: *6" Type F	603 CONDUIT: 15" Type B	603 CONDUIT: 15" Type F, 707.05, Type C	604: Inlet, No. 1-30	605: 4" Shallow Pipe Underdrains, as per plan	605: 6" Shallow Pipe Underdrains	814: Bends & Branches: Fire Hydrant Removed and Disposed of	814: Bends & Branches: 6" x 30° Bend	814: Bends & Branches: 15" x 22.5° Bend Type F, 707.05, Type C	814: Bends & Branches: 4" x 90° Bend Type B	SEE SHEET NO.
	URBAN		Each	Lin.Ft.	Each	Each	Lin.Ft.	Sq. Yd.	Cu. Yd.	Cu. Yd.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Lin. Ft.	Lin. Ft.	Each	Each	Each	Each	
1-GR	774+98.5 to 781+00	Rt.		603.50																			
	Ramp A'-State Route 7																						
5-GR	775+00 to 776+78.26	Lt.		153.26	1																		
6-GR	774+97 to 781+00	Lt.		605.50																			
	Ramp D-State Route 7																						
7-GR	775+00 to 775+60.5	Rt.		48.00		1																	
6-B	775+00 to 775+90	℄					90.0																
7-B	776+10 to 780+40	℄					430.0																
8-B	780+60 to 781+00	℄					40.0																
13-D	775+94	℄							2.0	0.27				74	56	1					2		358
14-D	780+50	℄												125		1							99
1-UD	775+00 to 775+94	Lt.											6					86		1			
2-UD	775+89.5 to 781+00	Lt.																511					
3-UD	774+97 to 781+00	Lt.																603					
	Ramp D																						
4-UD	775+00 to 781+00-Ramp A	Rt.																601					
5-UD	775+00 to 775+94	Lt.									30						94					1	
6-UD	775+00 to 778+98	Rt.	1								44	10					388					1	
7-UD	775+96 to 777+48	Lt.	1								57						152					1	
1-JM	780+75 to 781+00	Lt.						20.8															
2-JM	780+96 to 781+00	Rt.						3.3															
1-R	776+83. Ramp D	Rt.																	1				
	TOTAL		2	1410.26	1	1	560.0	24.1	2.0	0.27	131	10	6	199	56	2	634	1801	1				

ESTIMATED QUANTITIES

Calc. By: F.S. Date: 5-24-84
Chkd. By: W.C. Date: 6-12-84

*707.17 Non-Perforated ASTM 3034 SDR 35 or Supplemental Specification 931

FHWA REGION	STATE	PROJECT	
5	OHIO		

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BEL.-7-14.17

REF. NO.	STATION TO STATION	SIDE	SPECIAL Precast Reinforced Concrete Outlet	203 Excavation Not Including Embankment Construction	305 8" Concrete Base	402 Asphalt Concrete, AC-20	404 Asphalt Concrete, AC-20	606 Guardrail, Type S	609 Curb, Type G	622 Concrete Barrier, Type 'B'	670 Ditch Erosion Protection	601 Rock Channel Protection, Type C with Filter	602 Concrete Masonry	603 CONDUIT: 33" Type B, 706.02	603 CONDUIT: *6" Type F	603 CONDUIT: 15" Type B	603 CONDUIT: 15" Type F, 707.05, Type C	603 CONDUIT: 27" Type B, 706.02 2000 D-Load	603 CONDUIT: 33" Type B, 706.02 3000 D-Load, Under Railroad as per plan	604 Inlet, No. I-30	604 Catch Basin, No. 4A	604 Catch Basin, No. 5A with Grate 'B'	605 BENDS & BRANCHES: 6" Shallow Pipe Underdrains	15"x25" Bend Type F, 707.05, Type C	6"x6" Tee	SEE SHEET NO.
	URBAN		Each	Cu. Yd.	Sq. Yd.	Cu. Yd.	Cu. Yd.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Sq. Yd.	Cu. Yd.	Cu. Yd.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Each	Each	Lin. Ft.	Each	Each	
1-GR	781+00 to 787+00	Rt.						600.00																		
6-GR	781+00 to 787+00	Lt.						609.50																		
8-B	781+00 to 781+65	℄								65.0																
9-B	781+65 to 782+43.9	℄								58.9																
10-B	782+63.9 to 783+18.4	℄								54.5																
11-B	783+38.4 to 786+15	℄								276.6																
12-B	786+35 to 787+00	℄								65.0																
15 O	781+75	℄														79				1						99
16 O	782+53.9	℄														75				1						99
17 O	783+28.9	℄										1.3	0.27			49	42			1					2	359
18 O	782+53.9	Lt.																176				1				371
19 O	782+53.9	Rt.		15								18.0	0.62	89					32		1					359
20 O	786+25	℄										1.3	0.27			41	45			1					2	358
1 JM	781+00 to 782+47	Rt.									122.5															
2 JM	782+61 to 783+27	Rt.									80.7															
3 JM	783+31 to 786+23	Rt.									356.9															
4 JM	786+27 to 787+00	Rt.									89.2															
5 JM	781+00 to 782+47	Lt.									122.5															
82-C	786+76 to 787+18	Lt.			9.3	0.3	0.3		42.0																	
83-C	784+97 to 785+33	Lt.			8.0	0.3	0.3		36.0																	
84-C	783+17 to 784+30	Lt.			25.1	0.9	0.9		113.0																	
85-C	782+46 to 782+74	Lt.			6.2	0.2	0.2		28.0																	
1-UD	781+00 to 787+00	Lt.													3								600		1	
2-UD	781+00 to 787+00	Lt.	1												18								600		1	
3-UD	781+00 to 783+75	Rt.	1												28								265		1	
	TOTAL		2	15	48.6	1.7	1.7	1209.50	219	520.0	771.8	20.6	1.16	89	49	244	87	176	32	4	1	1	1465			

FHWA REGION	STATE	PROJECT	
5	OHIO		

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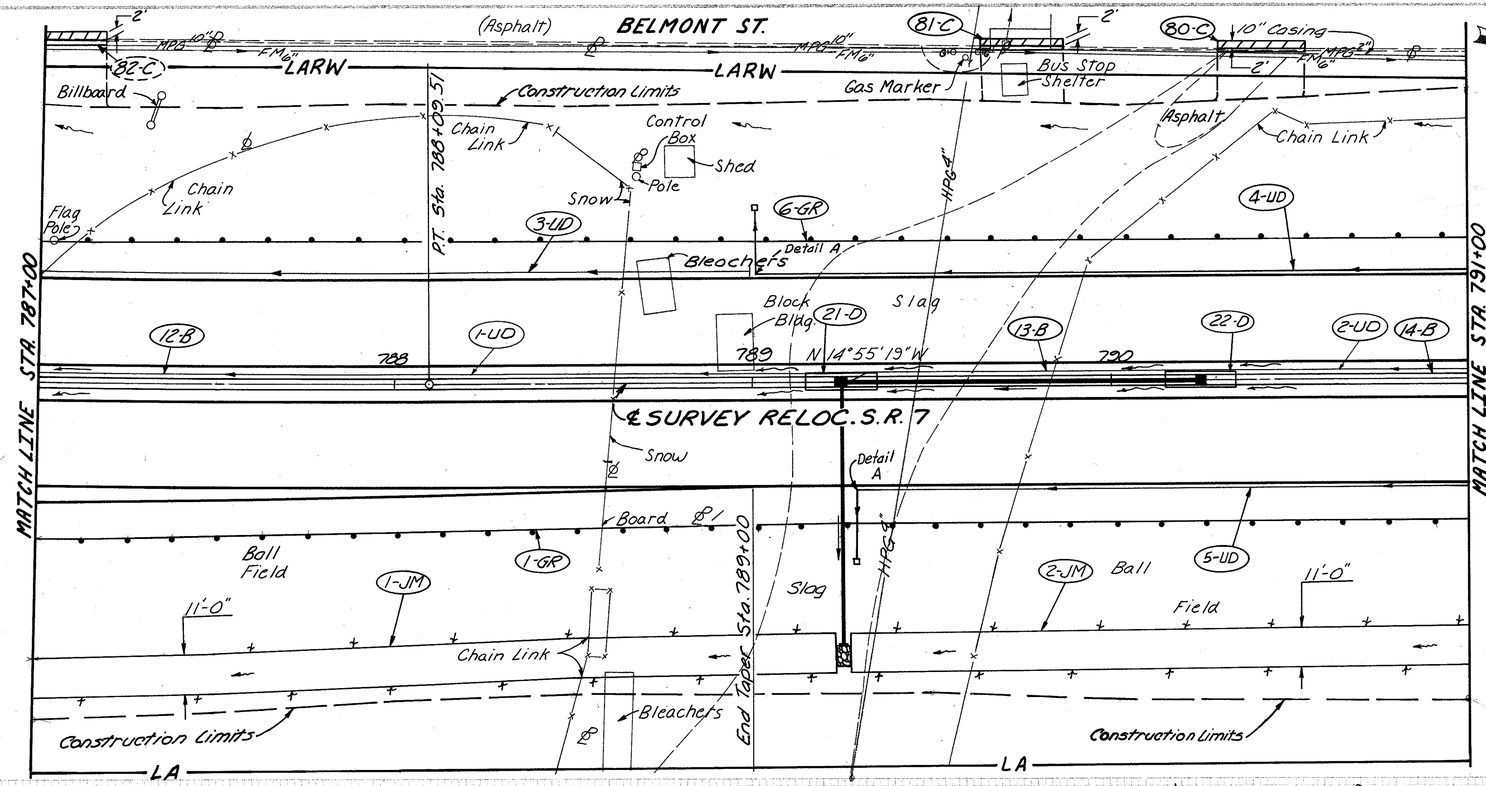
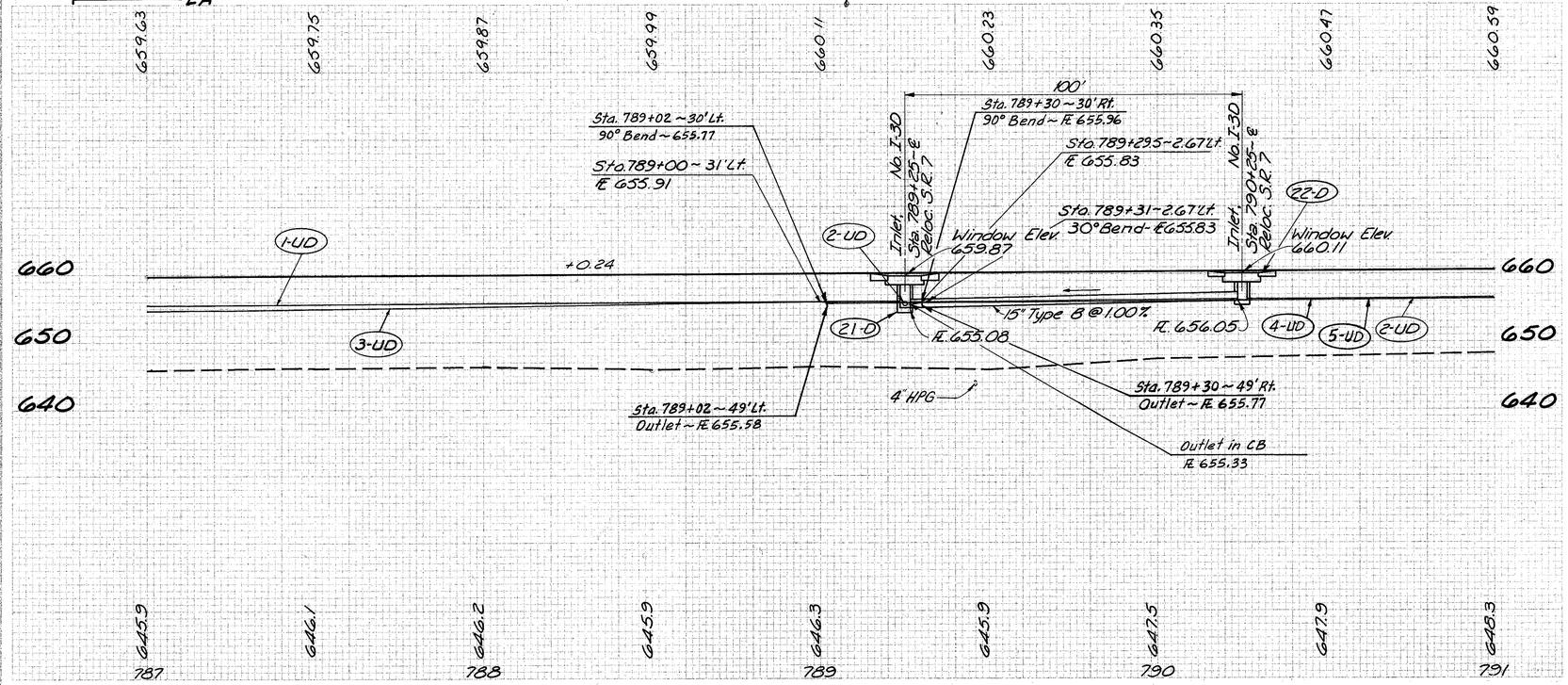
BEL - 7 - 14.17





ESTIMATED QUANTITIES

BASE MAP NO.	STATION TO STATION	SHEET TOTALS

For Quantities, See Sheet No. 103

RELOCATED S.R. 7 ~ STA. 787+00 TO STA. 791+00

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

ESTIMATED QUANTITIES

Calc. By: F.S. Date: 5-24-84
Chkd. By: W.a.C. Date: 6-12-84

*707.17 Non-Perforated ASTM 3034 SDR 35 or Supplemental Specification 931

FHWA REGION	STATE	PROJECT	
5	OHIO		

BEL-7-14.17

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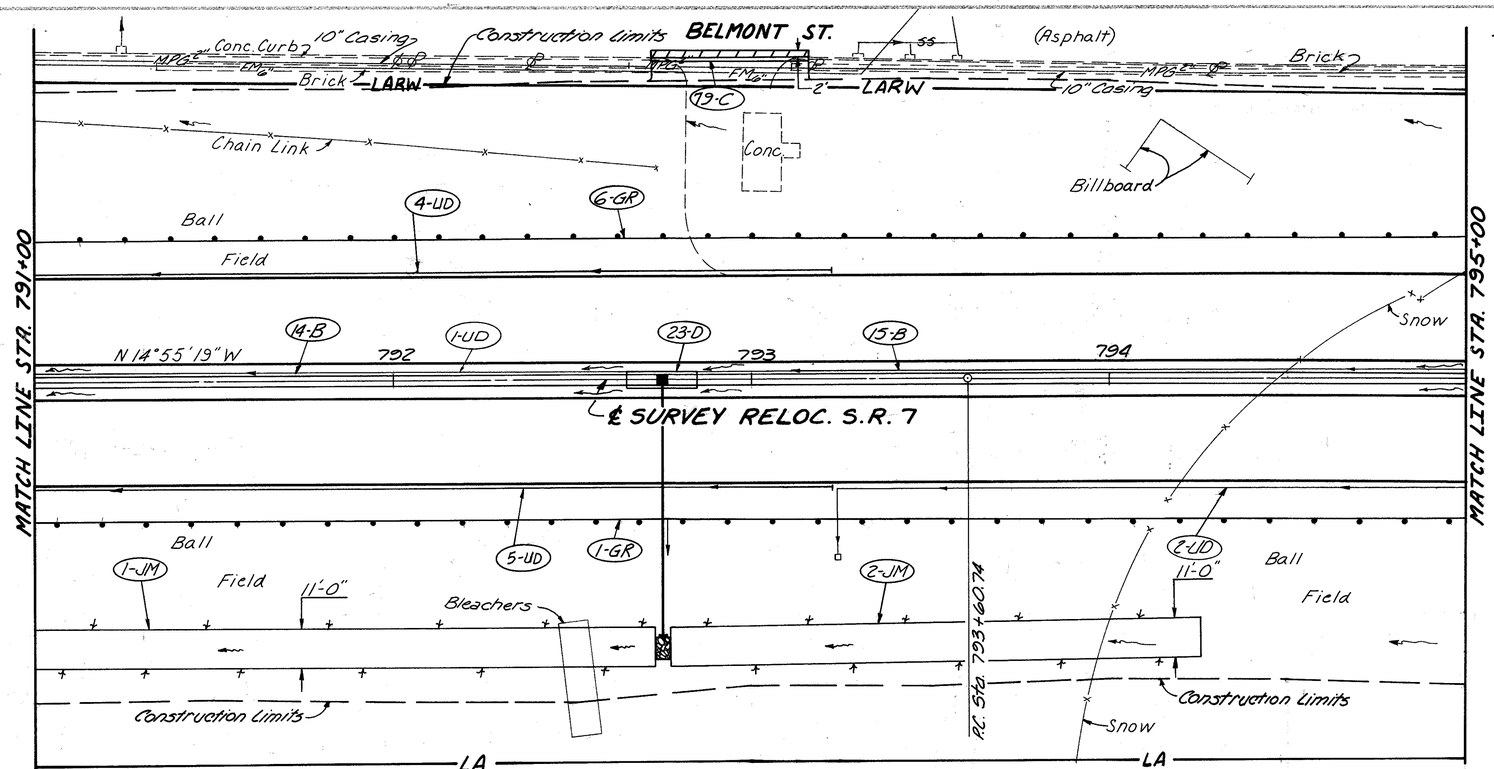
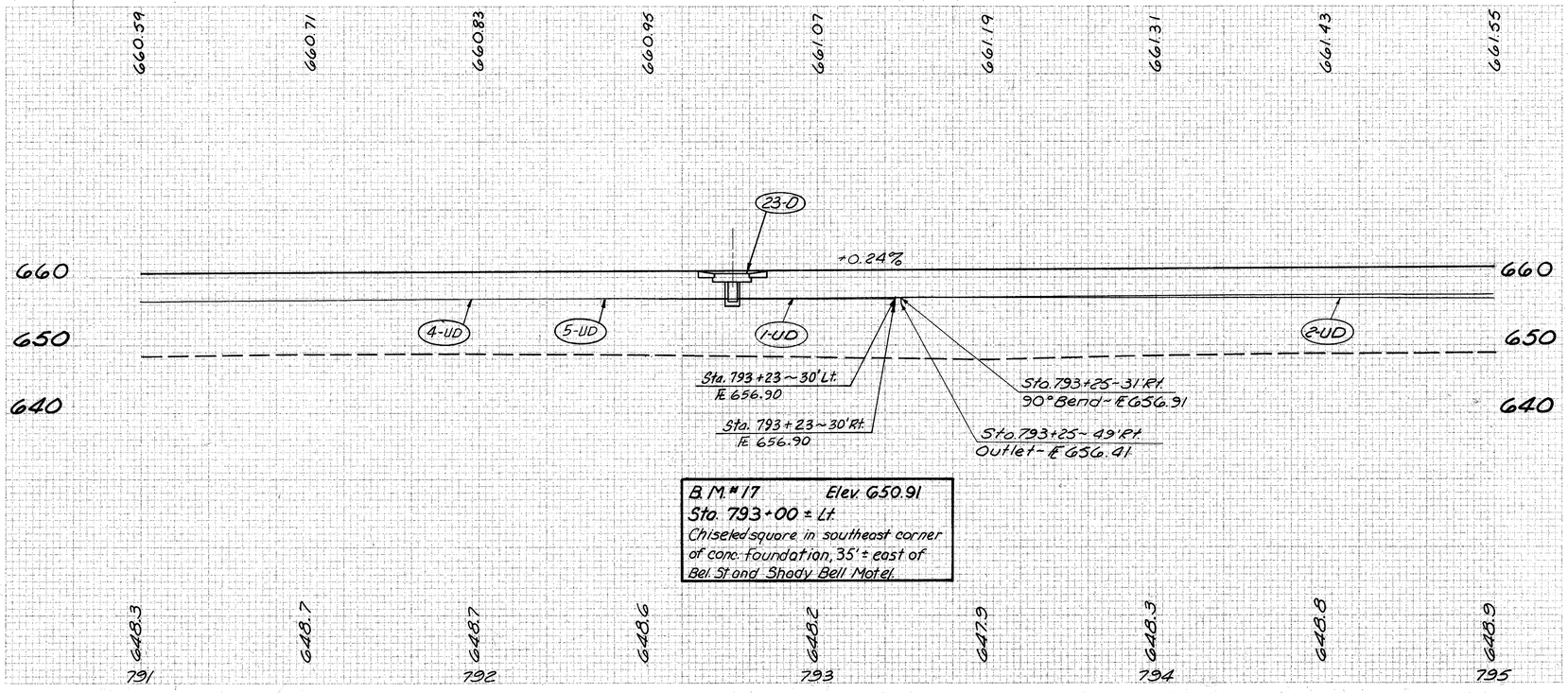
REF. NO.	STATION TO STATION	SIDE	305 8" Concrete Base	402 Asphalt Concrete, AC-20	404 Asphalt Concrete, AC-20	606 Guardrail, Type S	609 Curb, Type 6	622 Concrete Barrier, Type 'B'	670 Ditch Erosion Protection	601 Rock Channel Protection, Type C With Filter	SPECIAL Precast Reinforced Concrete Outlet	602 Concrete Masonry	603 - CONDUIT *4" Type F	*6" Type F	15" Type B	15" Type F, 707.05, Type C	604 Inlet, Na T-30	605 4" Shallow Pipe Underdrains, as per plan	6" Shallow Pipe Underdrains	BENDS & BRANCHES 6"x60° Bend	15"x25° Bend Type F, 707.05, Type C	4"x90° Bend	SEE SHEET NO.
	URBAN		Sq. Yd.	Cu. Yd.	Cu. Yd.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Sq. Yd.	Cu. Yd.	Each	Cu. Yd.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Lin. Ft.	Lin. Ft.	Each	Each	Each	
1-GR	787+00 to 791+00	Rt.				400.00																	
6-GR	787+00 to 791+00	Lt.				400.00																	
12-B	787+00 to 789+15	℄						215.0															
13-B	789+35 to 790+15	℄						80.0															
14-B	790+35 to 791+00	℄						65.0															
21-D	789+25	℄								1.3		0.27			33	44	1				2		358
22-D	790+25	℄													100		1						102
1-JM	787+00 to 789+23	Rt.							272.6														
2-JM	789+27 to 791+00	Rt.							211.4														
80-C	790+30.5 to 790+54.5	Lt.	5.3	0.2	0.2		24.0																
81-C	789+64 to 789+87	Lt.	5.1	0.2	0.2		23.0																
1-UD	787+00 to 789+29.5	Lt.																	230				
2-UD	789+25 to 791+00	Lt.												3					172	1			
3-UD	787+00 to 789+00	Lt.																	200				
4-UD	789+02 to 791+00	Lt.									1		19					197				1	
5-UD	789+30 to 791+00	Rt.									1		19					169				1	
	TOTAL		10.4	0.4	0.4	800.00	47.0	360.0	484.0	1.3	2	0.27	38	3	133	44	2	366	602				





FHWA REGION	STATE	PROJECT		104 / 663
5	OHIO			

BEL - 7 - 14.17

SEE SHEET 95

ESTIMATED QUANTITIES

MISC. NO.	STATION TO STATION	SIGN

ESTIMATED QUANTITIES

Calc. By: F.S. Date: 5-24-84
Chkd. By: W.a.C. Date: 6-12-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

105/663

BEL-7-14.17

* 707.17 Non-Perforated ASTM 3034 SDR 35 Or Supplemental Specification 931

REF. NO.	STATION TO STATION	SIDE	SPECIAL	305	402	404	606	609	622	670	601	602	603-CONDUIT			604	605		BENDS & BRANCHES		
			Precast Reinforced Concrete Outlet	8" Concrete Base	Asphalt Concrete, AC-20	Asphalt Concrete, AC-20	Guardrail, Type 5	Curb, Type 6	Concrete Barrier, Type B	Ditch Erosion Protection	Rock Channel Protection, Type C, with Filter	Concrete Masonry	6" Type F *	15" Type B	15" Type E, 707.05, Type C	Inlet, No. 1-30	4" Shallow Pipe Underdrains; as per plan	6" Shallow Pipe Underdrains	6"x 90° Bend	15"x 25° Bend Type F, 707.05, Type C	SEE SHEET NO.
	URBAN		Each	Sq. Yd.	Cu. Yd.	Cu. Yd.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Sq. Yd.	Cu. Yd.	Cu. Yd.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Lin. Ft.	Lin. Ft.	Each	Each	
1-GR	791+00 to 795+00	Rt.					400.00														
6-GR	791+00 to 795+00	Lt.					400.00														
14-B	791+00 to 792+65	℄							165.0												
15-B	792+85 to 795+00	℄							215.0												
23-D	792+75	℄									1.3	0.27		31	45	1				2	358
1-JM	791+00 to 792+73	Rt.								211.4											
2-JM	792+77 to 794+25	Rt.								180.9											
79-C	792+72 to 793+16	Lt.		9.8	0.3	0.3		44.0													
1-UD	791+00 to 795+00	Lt.																400			
2-UD	793+25 to 795+00	Rt.	1										18					175		1	
4-UD	791+00 to 793+23	Lt.															223				
5-UD	791+00 to 793+23	Rt.															223				
	TOTAL		1	9.8	0.3	0.3	800.00	44.0	380.0	392.3	1.3	0.27	18	31	45	1	446	575			

Calc. By: F.S. Date: 5-24-84
Chkd. By: W.a.C. Date: 6-12-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

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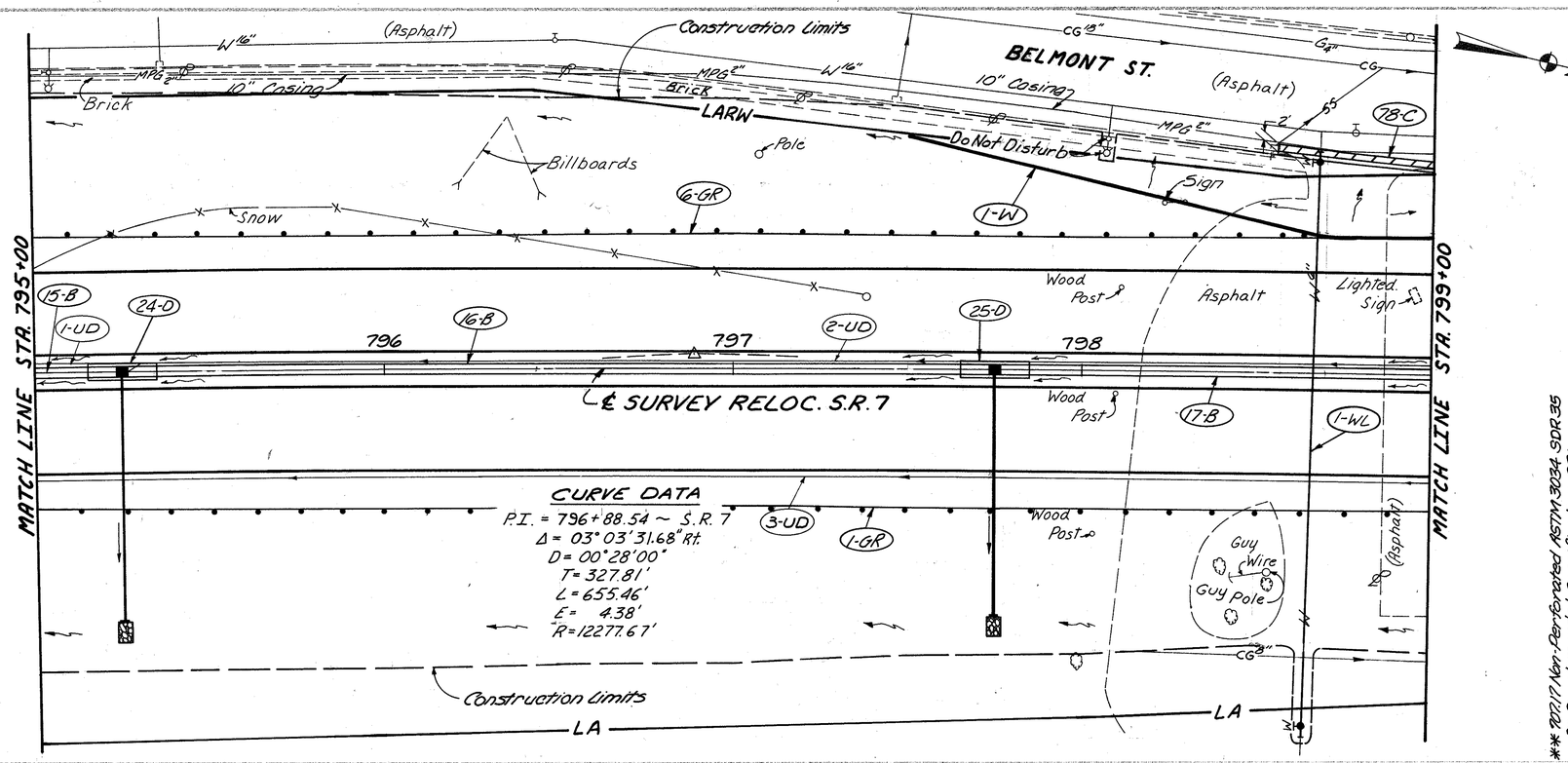
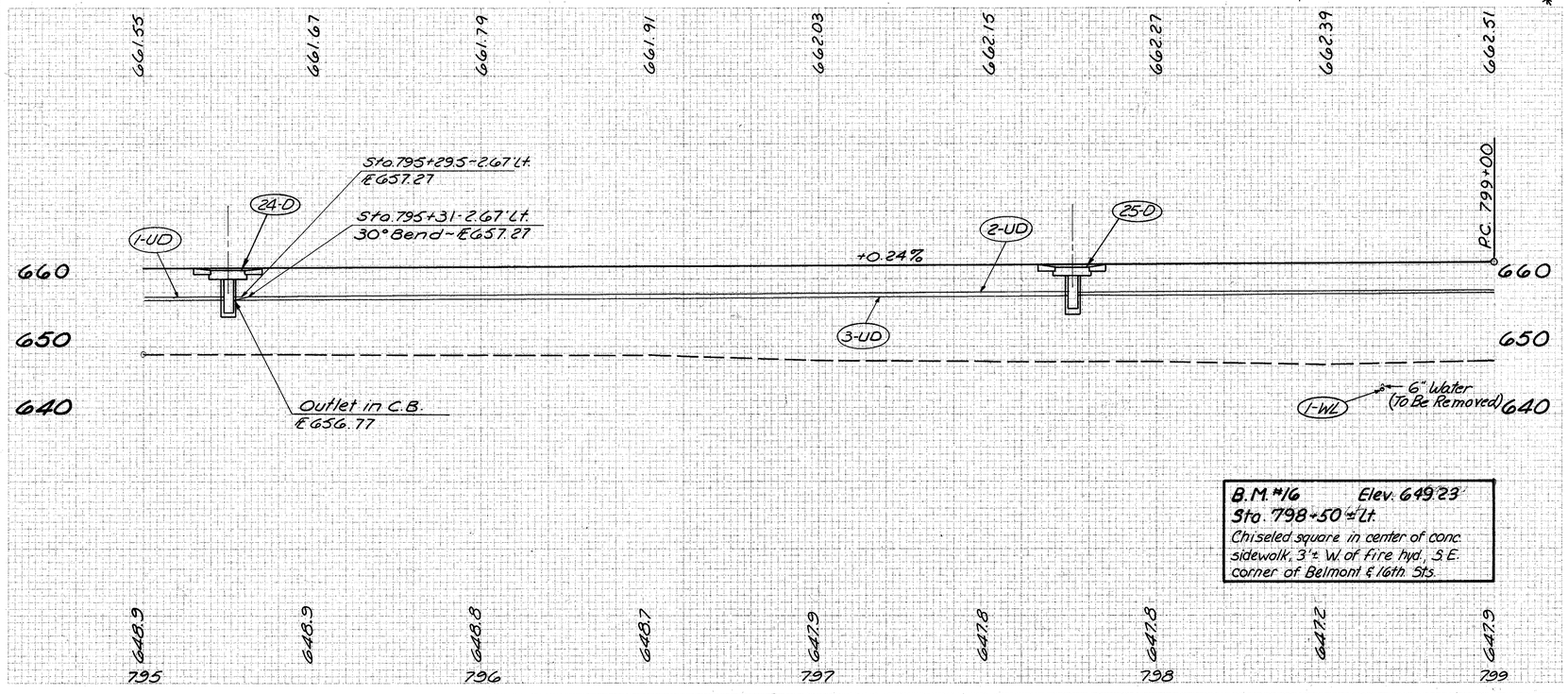
BEL - 7 - 14.17





B.M. #16 Elev. 649.23
Sta. 798+50 ± Lt.
Chiseled square in center of conc. sidewalk, 3'± W. of fire hyd., S.E. corner of Belmont & 16th Sts.

* 707.05, Type C

** 707.17 Non-Perforated ASTM 3034 SDR 35 Or Supplemental Specification 931

| ESTIMATED QUANTITIES | | |

DISTRICT / REGION	STATE	PROJECT		SHEET NO.	TOTAL SHEETS
5	OHIO			107	663

BEL - 7 - 14.17

MATCH LINE STA. 799+00

MATCH LINE STA. 803+00

Conc. Curb & Gutter

Conc. Curb

Construction Limits

10" Casing?

Lighted Sign

Asphalt

Conc.

Conc. & Brick

Sandstone Curb

Brick

Metal

Metal?

1 Sty. Conc. Blk. Bldg.

1 Sty. Conc. Blk. Bldg.

2 Sty. Brick Building

1 Sty. Brick Building

1 Sty. Metal Addition

Shed Roof

Asphalt

Metal Shed

800

802

N 11° 51' 47" W

N 11° 54' 01" W

℄ SURVEY

RELOC. S.R. 7

17TH ST. (To Be Abandoned)

RELOCATED GRAPE ALLEY

LARW

Pipe Thru

(To Remain)

10

(Brick)

Grass

Slag

Sanitary

Pumping Station

Chain Link

Fence

Cut & Plug

Guy Wires

Guy Wires

6" VSP

Gas Marker

Pipe Thru

1 Sty Metal Bldg. (Do Not Disturb)

Do Not Disturb

BEGIN WORK STA. 9+06.74

Conc. Steps

Combined Flow Regulator

P.T. Sta. 800+16.19

77-C

26-D

76-C

1-CB

1-R

2-R

1-W

1-UD

17-B

2-CG

89-C

120-D

119-D

2-UD

1-GR

2-W

7-PR

121-D

90-C

122-D

4-R

3-R

3-FM

1-MH

2-WL

For Reloc. Grape Alley Intersection Detail, See Sheet No. 343

For Reloc. Grape Alley Profile, See Sheet No. 308

For Reloc. Grape Alley Cross Sections, See Sheet No. 309

662.51 662.57 662.61 662.65 662.67 662.69 662.69 662.69 662.67 662.63 662.61 662.57 662.51 662.39 662.27

P.I. 800+50 Elev. 662.87

Sta. 800+50-31' Rt. E 638.46

1-UD

PC. 799+00

2-UD

300 V.C.

-0.24%

PT. 802+00

6" Water (To Be Abandoned)

30" Sewer (To Be Removed)

2-CG

660

650

640

B.M. #16B Elev 649.42

Sta 802+00 ± Rt.

Top of steel bar, inside of conc. found. at Phillips Stomp. Co., 100'± N. of 17th St. on Grape Alley.

648.79 648.28 648.18 648.78 648.67 648.15 648.82 648.80 648.85

799 800 801 802 803

ESTIMATED QUANTITIES

PAGE NO.	STATION TO STATION	SIDE

ESTIMATED QUANTITIES

Calc. By: F.S. Date: 5-24-84
Chkd. By: W.a.C. Date: 6-12-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

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*SPECIAL

REF. NO.	STATION TO STATION	SIDE	202 Catch Basin Abandoned			305 8" Concrete Base	402 Asphalt Concrete, AC-20	404 Asphalt Concrete, AC-20	606 Bridge Terminal Assembly, Type A	606 Guardrail, Type S		609 Curb, Type 6		622 Concrete Barrier, Type B	603-CONDUIT 12" Type B	603-CONDUIT 18" Type B	603-CONDUIT 30" Type B 706.02 2500 D-Load With Joints As Per 706.11 With Class A Backing	603-CONDUIT 30" Type B 706.02 2500 D-Load or 706.03 With Joints As Per 706.11	603-CONDUIT 6" Force Main With Fittings, As Per Plan		604 Catch Basin Adjusted To Grade	604 Catch Basin, No. 3 With "V" GRATE	604 Manhole, No. 3 With Joints As Per 706.11	604 Catch Basin, No. 6	604 Manhole, No. 3	604 Sanitary Manhole, Adjusted To Grade	605 6" Shallow Pipe Underdrains	814 6" Water Main, D.I.P. ANSI Class 52 Push On Joints And Fittings	814 6" Valve And Valve Box		* Odor Control Trap	SEE SHEET NO.
	URBAN		Each			Sq. Yd.	Cu. Yd.	Cu. Yd.	Each	Lin. Ft.		Lin. Ft.		Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.		Each	Each	Each	Each	Each	Each	Lin. Ft.	Lin. Ft.	Each		Each	
1-GR	799+00 to 800+38.08	Rt.							1	138.08																						
17-B	799+00 to 803+00	℄												400.0																		
1-R	800+93.5	Lt.	1																													
2-R	801+09	Lt.	1																													
3-R	9+12 (Grape Alley)	Rt.	1																													
4-R	10+68 (Grape Alley)	Rt.	1																													
2-WL	801+14	Rt.																											112	1		428
1-PR	800+85 to 801+27	Rt.				533.3	16.7	16.7																								428
2-CG	800+98	Lt & Rt.				14.4	0.5	0.5									120	12					2									410
76-C	800+83 to 801+25	Lt.				11.3	0.4	0.4				42.0																				
77-C	799+27 to 800+54	Lt.				28.2	1.0	1.0				127.0																				
26-D	801+05	Lt.													12							1									1	361
1-MH	800+95 to 801+00	Rt.																							4							23
2-W	799+25 to 808+50	Rt.	(For Quantities, See Sheet No. 434)																													
3-FM	9+44 (Grape Alley)	Rt.																		20												
117-D	800+79	Rt.													22											1						377 & 428
118-D	801+01	Rt.																16					1									377 & 428
119-D	9+44 (Grape Alley)	℄														58									1						1	377
120-D	9+44 (Grape Alley)	Lt.													10							1										377
121-D	9+44 (Grape Alley)	Rt.													10							1										377
1-CB	800+47	Lt.																			1											23
1-UD	799+00 to 803+00	Lt.																										400				
2-UD	799+00 to 800+50	Rt.																										150				
89-C	9+05.50 to 10+87 (Grape Alley)	Lt.										181.5																				
90-C	9+08 to 10+87 (Grape Alley)	Rt.										188.6																				
	TOTAL		4			587.2	18.6	18.6	1	138.08		539.1		400	54	58	120	28	20		1	3	3	1	1	4	550	112	1		2	

Calc.By: F.S. Date: 5-24-84
Chkd.By: W.o.C. Date: 6-12-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

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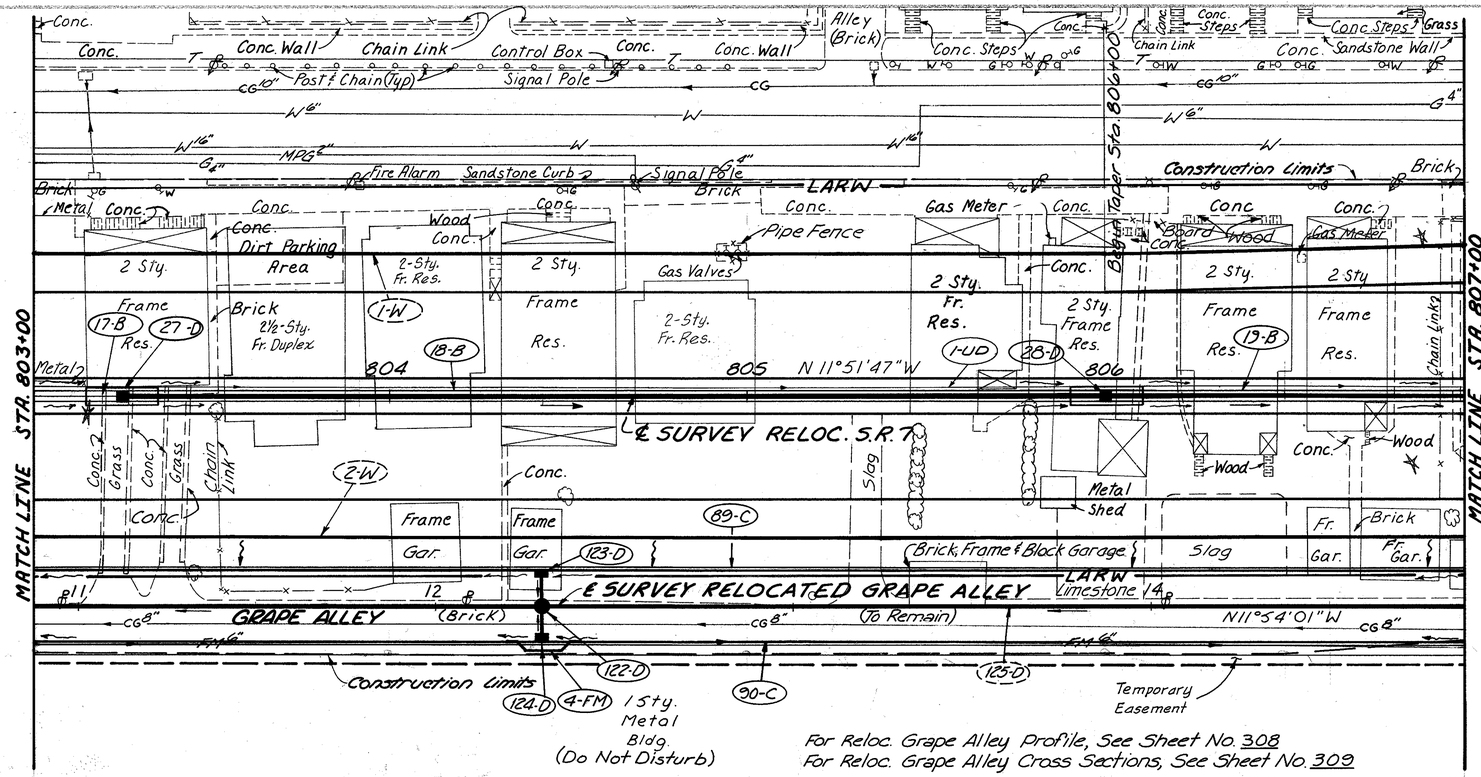
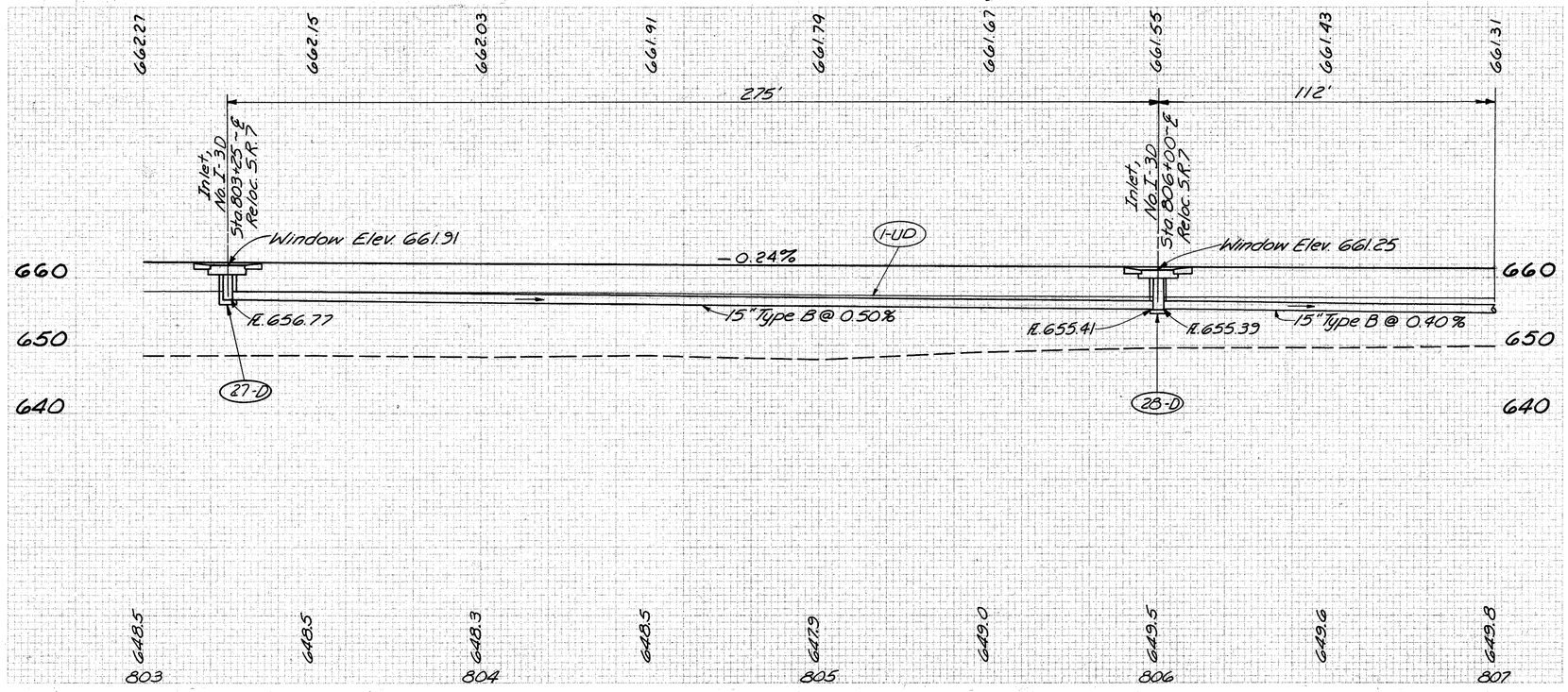
BEL-7-14.17



For Reloc. Grape Alley Profile, See Sheet No. 308
For Reloc. Grape Alley Cross Sections, See Sheet No. 309



| BASE SHEET NO. | | |

Calc. By: F.S. Date: 5-24-84
Chkd. By: W.a.C. Date: 6-12-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

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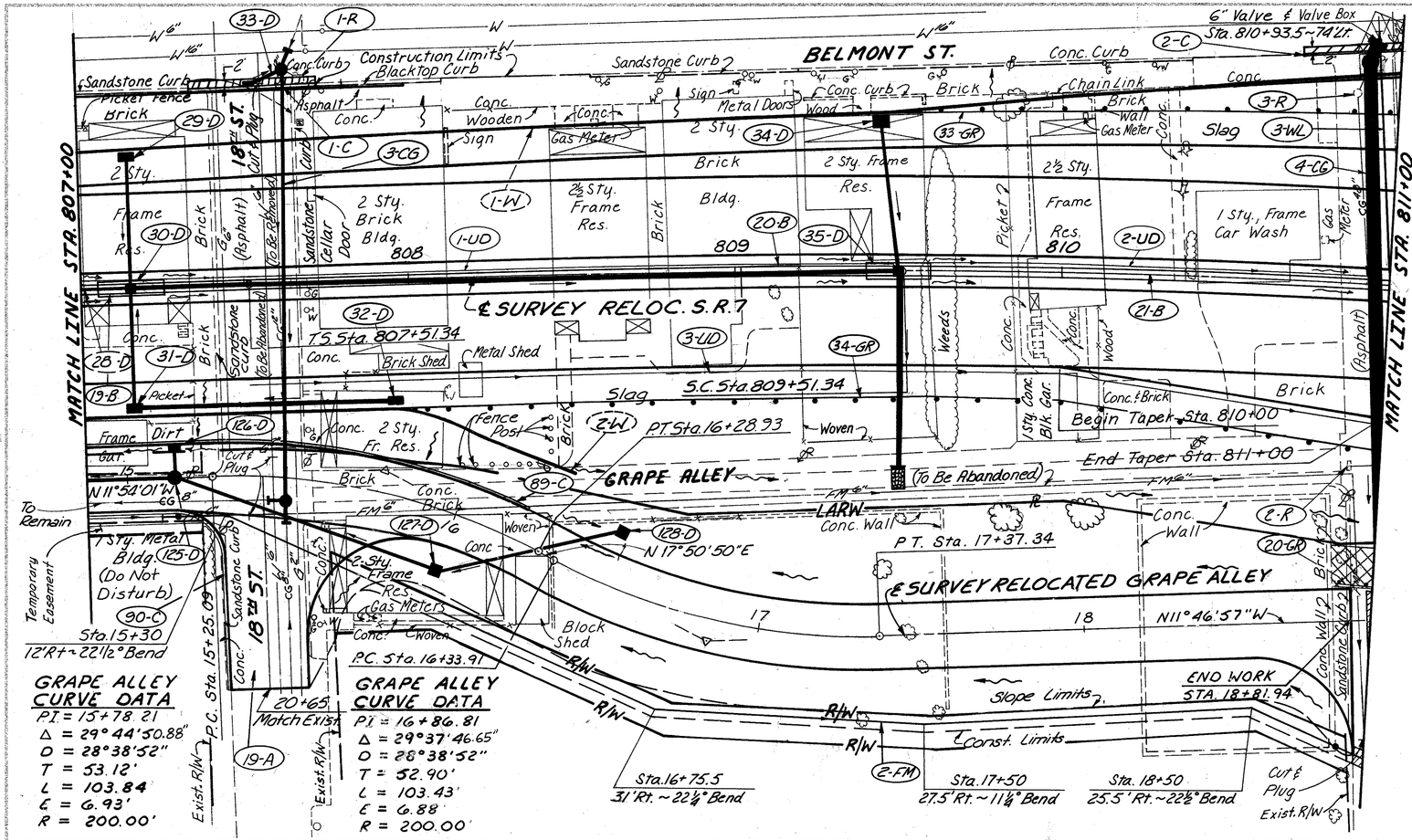
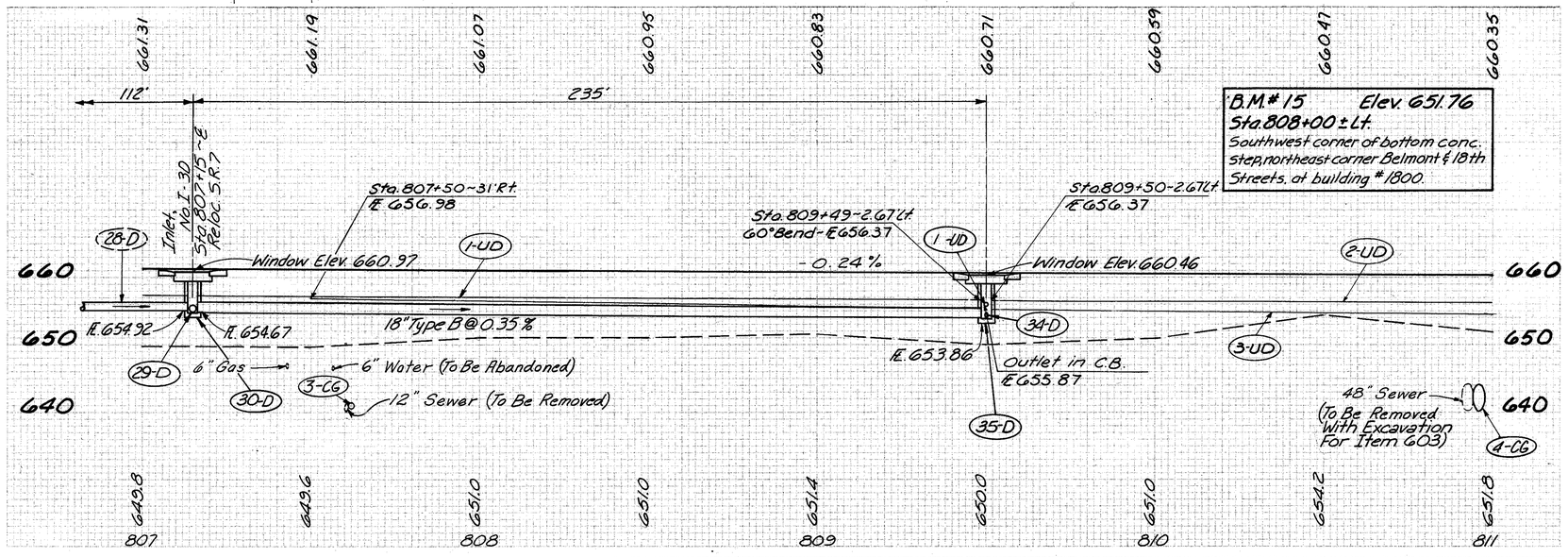
BEL - 7 - 14.17





B.M. # 15 Elev. 651.76
Sta. 808+00 ± Lt.
Southwest corner of bottom conc. step, northeast corner Belmont & 18th Streets, at building # 1800.

For Ramp F & G Superelevation Detail, See Sheet No. 336
For Ramp F & G Terminal Detail, See Sheet No. 339
For Relocated Grape Alley Profile, See Sheet No. 308
For Relocated Grape Alley Intersection Detail, See Sheet No. 344
For Additional Quantities, See Sheet No. 111

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	SUPP. DESC. NO.	STATION TO STATION																TOTALS
	URBAN																		
202	Manhole Removed	Each																1	1
	Catch Basin Abandoned	Each																1	2
305	8" Concrete Base	Sq. Yd.	19-A (S+41.6 Grape Alley	Rt.	7.8													(See Par't. Calcs for Quantities)	25.4
402	Asphalt Concrete, AC-20	Cu. Yd.	807+39 to 807+74	Lt.	0.3														0.9
			810+69 to 811+04	Lt.	0.3														
404	Asphalt Concrete, AC-20	Cu. Yd.	807+00 to 807+05	℄															0.9
			809+25 to 809+90	℄															
			810+10 to 811+00	℄															
609	Curb, Type 6	Lin. Ft.	19-B 807+00 to 807+05	℄	350														299.4
			20-B 807+25 to 809+90	℄	350														
			21-B 810+10 to 811+00	℄															
606	Bridge Terminal Assembly Type 'A'	Each	3-WL	Lt./Rt.															2
			811+00																
	Guardrail, Type 3	Lin. Ft.	1-R 807+67	Lt.															459
			2-R 810+91	Rt.															
			3-R 810+68	Lt.															
			20-B 810+90 to 811+15	Rt.															
			35-B 809+60.22 to 811+00	Lt.															
			34-GR 808+05.63 to 811+00	Rt.															
622	Concrete Barrier, Standard Type 'B'	Lin. Ft.	50		2650		900												360.0
814	6" Valve & Valve Box 6" Water Main D.I.P. ANSI Class 52 Push on Joints & Fittings	Each			2														84
		Lin. Ft.			84														

69-C	(14+87 to (6+21 Grape Alley	Lt.																	
90-C	14+87 (Grape Alley) to 20+65 (18th St.)	Rt.																	
		Rt.																	

W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RELOCATED S.R. 7 ~ STA. 807+00 TO STA. 811+00

ESTIMATED QUANTITIES

Calc. By: F.S. Date: 5-24-84
Chkd. By: W.a.C. Date: 6-12-84

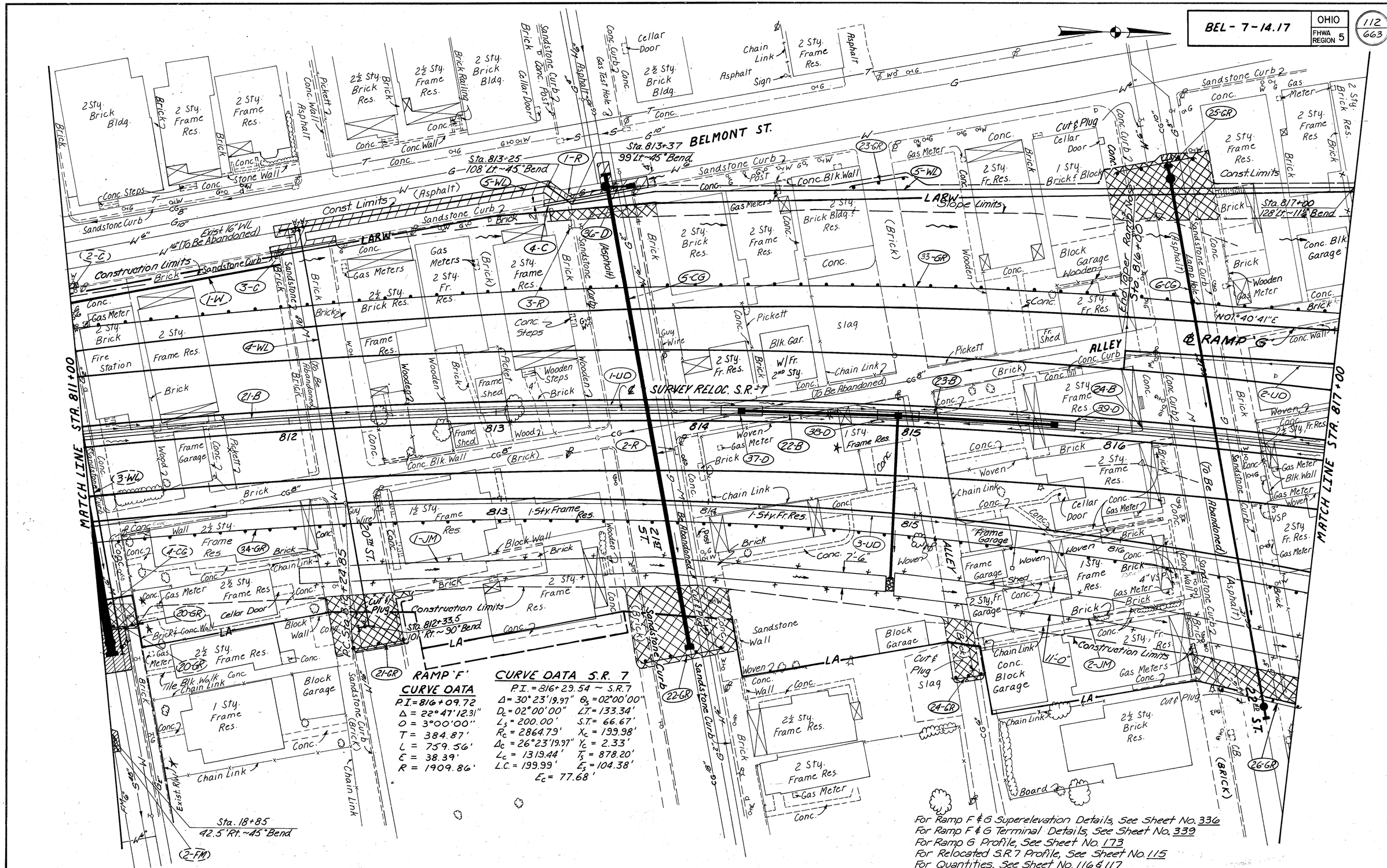
FHWA REGION	STATE	PROJECT	
5	OHIO		

111/663

BEL-7-14.17
*BENDS & BRANCHES

** 707.17 Non-Perforated ASTM 3034 SDR 35 or Supplemental Specification 931

REF. NO.	STATION TO STATION	SIDE	305 8" Concrete Base, Sq. Yd.	402 Asphalt Concrete, AC-20 Cu. Yd.	404 Asphalt Concrete, AC-20 Cu. Yd.	601 Rock Channel Protection, Type C With Filter Cu. Yd.	602 Concrete Masonry Cu. Yd.	603 CONDUIT ** 6" Type F	12" Type B	15" Type B	18" Type B	8" Type B, 706.01 or 706.02 with Joints as per 706.11 or 706.12	12" Type B, 706.01, 706.02 or 706.08 with Joints as per 706.11 or 706.12	12" Type B, 706.02 D-Load with Joints as per 706.11 with Class A Bedding	48" Type B, 706.02 D-Load with Joints as per 706.11 with Class A Bedding	48" Type B, 706.02 with Joints as per 706.11	6" Force Main with Fittings, as per plan	604 Catch Basin, No. 6 Each	Catch Basin, No. 2-2B Each	Inlet, No. I-3D Each	Manhole, No. 3 Each	Catch Basin, No. 3A with "V" GRATE Each	Manhole, No. 3 with Joints as per 706.11 Each	605 SPECIAL 6" Shallow Pipe Underdrains Lin. Ft.	* Force Main Cleanout Each	Odor Control Trap Each	6"x60° Bend Each	SEE SHEET NO.
	URBAN								Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.											
2-FM	15+10 to 18+85 (Reloc. Grape Alley)	Rt.	8.9	0.3	0.3											390								2			413
3-CG	807+62	Lt./Rt.	10.1	0.4	0.4							18	12	126								2					410
4-CG	810+96	Lt./Rt.	33.8	1.2	1.2										165	12						2					410
1-UD	807+00 to 809+49	Lt.						3																249		1	
2-UD	809+50 to 811+00	Lt.																						150			
3-UD	807+50 to 811+00	Rt.						10																340			
29-D	807+15	Lt.								40								1									360
30-D	807+15	℄									235								1								110
31-D	807+15	Rt.								37								1									360
32-D	807+95	Rt.							80									1									360
33-D	807+58	Lt.							12													1			1		361
34-D	809+45	Lt.								46								1									360
35-D	809+50	℄				1.3	0.33				61								1								360
125-D	15+15 (Reloc. Grape Alley)	℄							285											1							308
126-D	15+15 (Reloc. Grape Alley)	Lt.							10													1					378
127-D	16+00 (Reloc. Grape Alley)	Rt.							85										1								378
128-D	16+50 (Reloc. Grape Alley)	Lt.							59										1								378
	TOTAL		52.8	1.9	1.9	1.3	0.33	13	531	123	296	18	12	126	165	12	390		4	2	2	1	2	4	739	2	1	



RAMP 'F' CURVE DATA

P.I. = 816+09.72
Δ = 22°47'12.31"
D = 3°00'00"
T = 384.87'
L = 759.56'
E = 38.39'
R = 1909.86'

CURVE DATA S.R. 7

P.I. = 816+29.54 ~ S.R.7
Δ = 30°23'19.97" θ_s = 02°00'00"
D_c = 02°00'00" L.T. = 133.34'
L_s = 200.00' S.T. = 66.67'
R_c = 2864.79' X_c = 199.98'
Δ_c = 26°23'19.97" Y_c = 2.33'
L_c = 1319.44' T_s = 878.20'
L.C. = 199.99' E_s = 104.38'
E_c = 77.68'

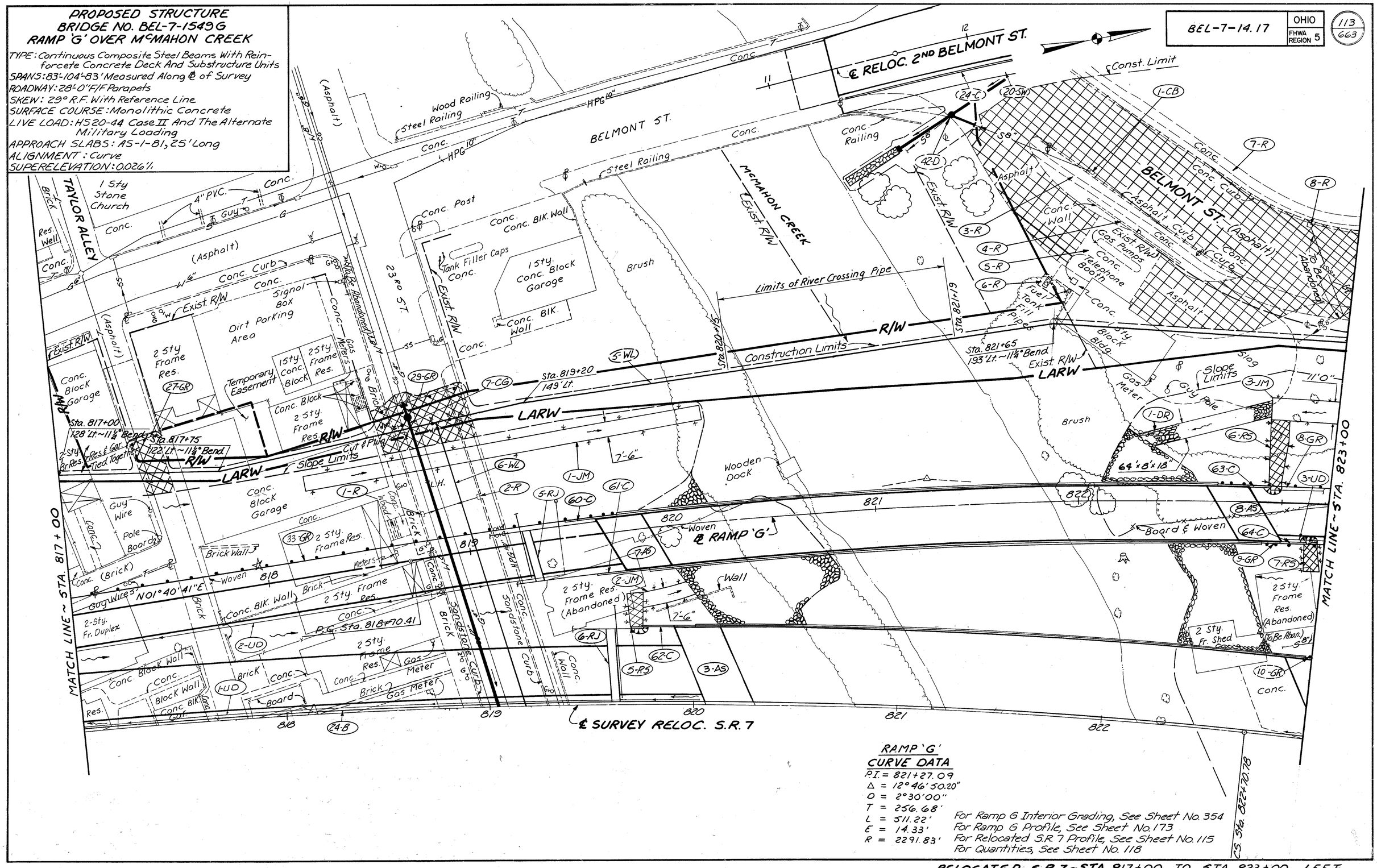
For Ramp F & G Superelevation Details, See Sheet No. 336
For Ramp F & G Terminal Details, See Sheet No. 339
For Ramp G Profile, See Sheet No. 173
For Relocated S.R.7 Profile, See Sheet No. 115
For Quantities, See Sheet No. 116 & 117

RELOCATED S.R.7 ~ STA. 811+00 TO STA. 817+00

PROPOSED STRUCTURE
BRIDGE NO. BEL-7-1549G
RAMP 'G' OVER McMAHON CREEK

TYPE: Continuous Composite Steel Beams With Reinforcete Concrete Deck And Substructure Units
SPANS: 83'-104'-83' Meosured Along ℄ of Survey
ROADWAY: 28'-0" F/F Parapets
SKEW: 29° R.F. With Reference Line
SURFACE COURSE: Monolithic Concrete
LIVE LOAD: HS20-44 Case II And The Alternate Military Loading
APPROACH SLABS: AS-1-81, 25' Long
ALIGNMENT: Curve
SUPERELEVATION: 0.026%

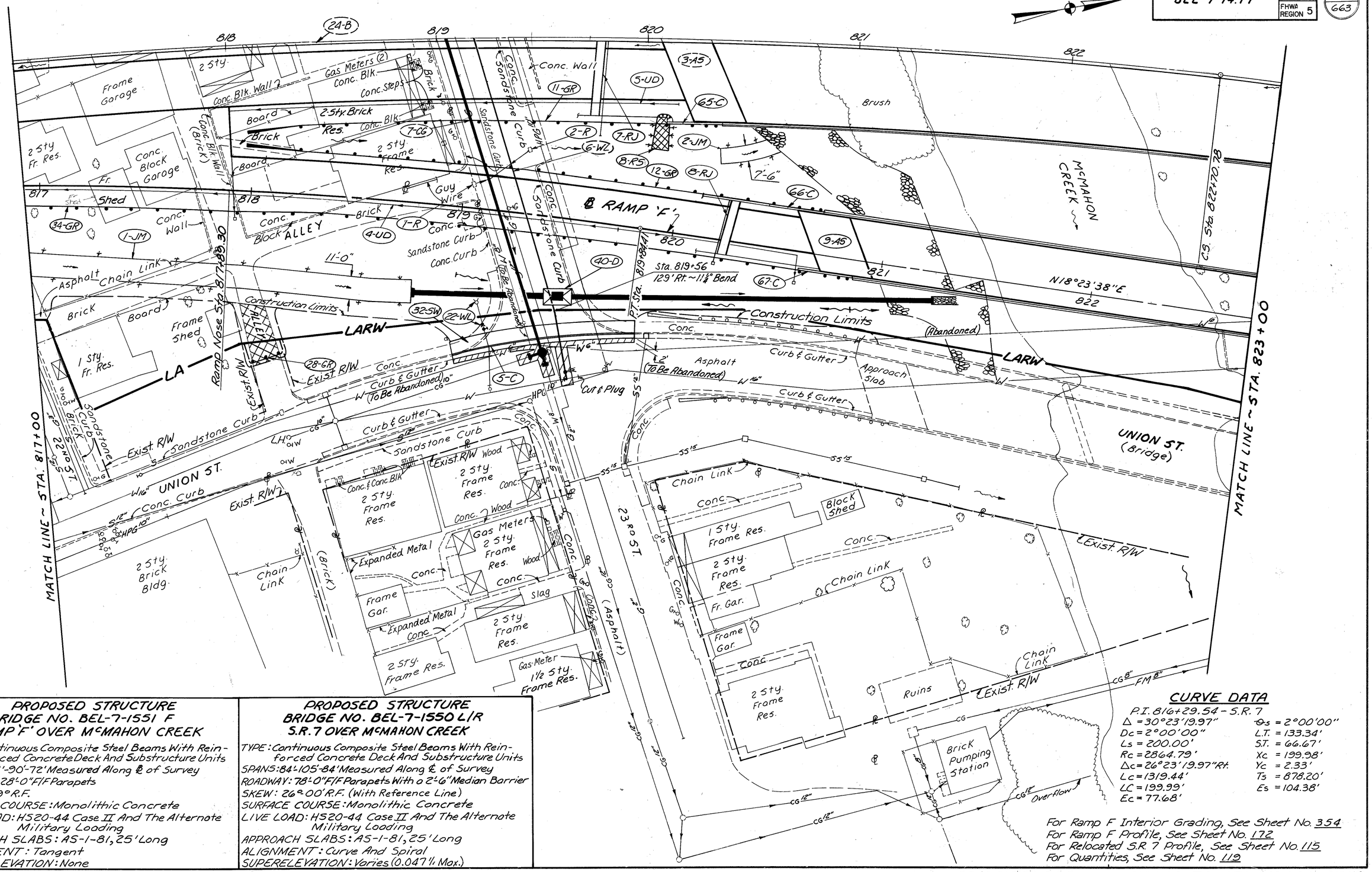
BEL-7-14.17 | OHIO | FHWA REGION 5 | 113 / 663



RAMP 'G' CURVE DATA

P.I. = 821+27.09
Δ = 12°46'50.20"
D = 2°30'00"
T = 256.68'
L = 511.22'
E = 14.33'
R = 2291.83'

For Ramp G Interior Grading, See Sheet No. 354
For Ramp G Profile, See Sheet No. 173
For Relocated S.R. 7 Profile, See Sheet No. 115
For Quantities, See Sheet No. 118



PROPOSED STRUCTURE
BRIDGE NO. BEL-7-1551 F
RAMP 'F' OVER McMAHON CREEK

TYPE: Continuous Composite Steel Beams With Reinforced Concrete Deck And Substructure Units
SPANS: 72'-90'-72' Measured Along ℄ of Survey
ROADWAY: 28'-0" F/F Parapets
SKEW: 29° R.F.
SURFACE COURSE: Monolithic Concrete
LIVE LOAD: H520-44 Case II And The Alternate Military Loading
APPROACH SLABS: AS-1-81, 25' Long
ALIGNMENT: Tangent
SUPERELEVATION: None

PROPOSED STRUCTURE
BRIDGE NO. BEL-7-1550 L/R
S.R. 7 OVER McMAHON CREEK

TYPE: Continuous Composite Steel Beams With Reinforced Concrete Deck And Substructure Units
SPANS: 84'-105'-84' Measured Along ℄ of Survey
ROADWAY: 78'-0" F/F Parapets With a 2'-6" Median Barrier
SKEW: 26°-00' R.F. (With Reference Line)
SURFACE COURSE: Monolithic Concrete
LIVE LOAD: H520-44 Case II And The Alternate Military Loading
APPROACH SLABS: AS-1-81, 25' Long
ALIGNMENT: Curve And Spiral
SUPERELEVATION: Varies (0.047 ft/ft Max.)

CURVE DATA

P.I. 816+29.54 - S.R. 7

Δ = 30°23'19.97"	Θs = 2°00'00"
Dc = 2°00'00"	L.T. = 133.34'
Ls = 200.00'	S.T. = 66.67'
Rc = 2864.79'	Xc = 199.98'
Δc = 26°23'19.97" Rt.	Yc = 2.33'
Lc = 1319.44'	Ts = 878.20'
LC = 199.99'	Es = 104.38'
Ec = 77.68'	

For Ramp F Interior Grading, See Sheet No. 354
For Ramp F Profile, See Sheet No. 172
For Relocated S.R. 7 Profile, See Sheet No. 115
For Quantities, See Sheet No. 119

FHWA REGION	STATE	PROJECT	
5	OHIO		

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660.35 660.23 660.11 659.99 659.87 659.75 659.63 659.51 659.47 659.46 659.49 659.55 659.64 659.77 659.94 660.13 660.37 660.64

75' 75'

Inlet, No. I-30 Sta. 814+18.5 ~ ℄ Reloc. S.R. 7

Inlet, No. I-30 Sta. 815+68.5 ~ ℄ Reloc. S.R. 7

500' V.C.

P.C. 814+50

Sta. 814+50 ~ 2.67 Lt.
℄ Elev. 655.16
Window Elev. 659.34

Sta. 814+93.5 ~ 2.67 Lt.
6"×6" Tee ~ ℄ Elev. 655.06

Sta. 815+25 ~ 2.67 Lt.
℄ Elev. 655.14

Window Elev. 659.22

Window Elev. 659.37

660 650 640

-0.24%

-0.24%

+0.25

15" Type B @ 0.40%

15" Type B @ 0.70%

℄ Elev. 654.66 ℄ Elev. 654.37 ℄ Elev. 654.37 ℄ Elev. 654.87

1-UD 1-UD 3-UD 5-G6 37-D 38-D 39-D 6-G6

±2" Gas
6" Water (To Be Removed)
3-WL

16" Water (To Be Abandoned)
4-WL

2" Gas
6" Water (To Be Abandoned)
18" Sewer (To Be Removed With Item 603)

8" Sewer (To Be Abandoned)

Outlet in C.B. ℄ Elev. 654.56

Sta. 815+50 ~ 70' Rt. Outlet ~ ℄ Elev. 652.69

Sta. 815+50 ~ 52' Rt. 6"×6" Tee ~ ℄ Elev. 653.19

6" Water (To Be Abandoned)

3" Gas

12" Sewer (To Be Removed With Item 603)

P.I. 817+00
Elev. 658.91

651.8 651.7 651.3 650.5 649.7 649.3 650.2 650.2 651.2 650.7 650.3 651.2

811 812 813 814 815 816 817

B.M. #14 Elev. 650.77	B.M. #50 Elev. 649.60
Sta. 813+80 ± Lt.	Sta. 814+50 ± Rt.
Chiseled square in sandstone curb, 12' ± E. of S.R. 7, N.E. corner of Belmont & 21st Sts.	Word "Co" top of fire hyd., south side of 21st St, 225' ± west of railroad track.

660.64 660.94 661.27 661.65 662.05 662.49 662.97 663.48 664.02 664.60 665.21 665.83 666.43 667.01 667.57 668.12 668.64 669.14 669.62 670.09 670.53 670.96 671.36 671.75 672.11

Sta. 820+03 ~ 2.67' Lt.
℄ 662.15

Sta. 820+15 ~ 31' Rt.
℄ 661.44

Bridge Limits

500' V.C.

Sta. 818+00 ~ 31' Rt.
90° Bend ~ ℄ 656.71

P.T. 819+50

P.C. 819+50

1200' V.C.

660 650 640

+2.52%

1-UD 4-UD 4-UD 5-UD

4" Gas 10" H.P.G.

6-WL

8" Water (To Be Abandoned)

12" Sewer (To Be Removed With Item 603)

7-G6

Sta. 818+00 ~ 85' Rt. Outlet ~ ℄ 656.21

Sta. 817+89.30 ~ 70' Rt. ℄ 655.47

℄ McMahon Creek
Normal Water Elev. 624.1

P.I. 817+00
Elev. 658.91

660 650 640 630 620 610

651.2 651.2 650.2 649.3 648.4 654.0 650.2 645.5 639.5 619.2 618.0 640.9 644.2

817 818 819 820 821 822 823

B.M. #13 Elev. 649.76	B.M. #13A Elev. 652.07	B.M. #12 Elev. 651.27
Sta. 818 ~ 30 ± Lt.	Sta. 820+00 ± Rt.	Sta. 821+20 ± Lt.
Chiseled square on conc. curb, 1' ± N. of fire hyd. S.E. corner of Belmont & 23rd Sts.	Chiseled square on conc. guardrail anchor, N.W. corner of Union & 23rd Sts.	Chiseled square on light post base.

RELOCATED S.R. 7 PROFILE ~ STA. 811+00 TO STA. 823+00

ESTIMATED QUANTITIES

Calc. By: F.S. Date: 5-24-84
Chkd. By: W.A.C. Date: 6-12-84

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REF. NO.	STATION TO STATION	SIDE	202 Catch Basin Abandoned (Each)	305 8" Concrete Base (Sq. Yd.)	404 Asphalt Concrete, AC-20 (Cu. Yd.)	402 Asphalt Concrete, AC-20 (Cu. Yd.)	606 Guardrail, Type 5 (Lin. Ft.)	609 Curb, Type 6 (Lin. Ft.)	622 Concrete Barrier, Type 8 (Lin. Ft.)	670 Ditch Erosion Protection (Sq. Yd.)	814 6" Water Main, D.I.P. C.152 Push On Joints & Fittings (Lin. Ft.)	814 8" Water Main, D.I.P. C.152 Push On Joints & Fittings (Lin. Ft.)	814 10" Water Main, D.I.P. C.152 Push On Joints & Fittings (Lin. Ft.)	814 16" Water Main, D.I.P. C.152 Push On Joints & Fittings (Lin. Ft.)	814 6" Valve & Valve Box (Each)	814 8" Valve & Valve Box (Each)	814 10" Valve & Valve Box (Each)	814 16" Valve & Valve Box (Each)	814 16" WATER MAIN D.I.P. ANSI CLASS 54, BALL & SOCKET JOINTS AND FITTINGS (Lin. Ft.)	Fire Hydrant Removed & Disposed of (Each)	SEE SHEET NO.
	URBAN																			
21-GR	812+25 to 812+50	Rt.					25.00													
22-GR	813+72 to 814+10	Rt.					37.50													
23-GR	814+67 to 814+91	Lt.					25.00													
24-GR	815+28 to 815+41	Rt.					12.50													
25-GR	815+91 to 816+24	Lt.					37.50													
26-GR	816+62 to 817+02	Rt.					37.50													
33-GR	811+00 to 817+02	Lt.					614.00													
	State Route 7 ~ Ramp 6																			
34-GR	811+00 to 817+00	Rt.					590.00													
3-C	811+96 to 812+28	Lt.		7.1	0.3	0.3		32.0												
4-C	813+25 to 813+73	Lt.		12.4	0.4	0.4		50.0												
21-B	811+00 to 814+08.5	℄							308.5											
22-B	814+28.5 to 814+83.5	℄							55.0											
23-B	815+03.5 to 815+58.5	℄							55.0											
24-B	815+78.5 to 817+00	℄							121.5											
4-WL	812+20	Lt. & Rt.												200				2		427
5-WL	812+00 to 829+84	Lt.		112.5	3.9	3.9					5	15	5	1751	1	3	1	6	112	430&431
1-JM	812+00 to 814+91.5	Rt.								242.9										
2-JM	814+95.5 to 817+00	Rt.								249.9										
1-R	813+36	Lt.	1																	
2-R	813+87	Rt.	1																	
3-R	813+37	Lt.																	1	
	TOTAL		2	132.0	4.6	4.6	1379.00	82.0	540.0	492.8	5	15	5	1951	1	3	1	8	112	1	

ESTIMATED QUANTITIES

Calc. By: F.S. Date: 5-24-84
Chkd. By: Wa.C. Date: 6-12-84

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* BENDS & BRANCHES

** 707.17 Non-Perforated ASTM 3034 SDR 35 Or Supplemental Specification 931

REF. NO.	STATION TO STATION	SIDE	305 8" Concrete Base Sq. Yd.	402 Asphalt Concrete, AC-20 Cu. Yd.	404 Asphalt Concrete, AC-20 Cu. Yd.	601 Rock Channel Protection, Type C With Filter Cu. Yd.	602 Concrete Masonry Cu. Yd.	603 CONDUIT ** 6" Type B Lin. Ft.	** 6" Type F Lin. Ft.	12" Type B Lin. Ft.	12" Type B 250 D-load with Joints As Per 706.11 Lin. Ft.	15" Conduit, Type B Lin. Ft.	18" Type B 200 D-load with Joints As Per 706.11 Lin. Ft.	SPECIAL Precast Reinforced Concrete Outlet Each	604 Inlet, No I-30 Each	Manhole, No. 3 With Joints As Per 706.11 Each	Catch Basin, No. 3 With "V" GRATE Each	605 6" Shallow Pipe Underdrains Lin. Ft.	SPECIAL Odor Control Trap Each	* 6"x6"Tee Each	6"x90° Bend Type B Each	SEE SHEET NO.
	URBAN																					
5-CG	813+73	Lt.&Rt.	9.9	0.4	0.4						272		232			2						410
6-CG	816+47.5	Lt.&Rt.	2.4	0.1	0.1											2						413
36-D	813+60	Lt.								13							1		1			361
37-D	814+18.5	℄										75			1							115
38-D	814+93.5	℄				1.3	0.27					79			1							362
39-D	815+68.5	℄										75			1							115
1-UD	811+00 to 817+00	Lt.							3									600		1		
2-UD	816+00 to 817+01	Lt.&Rt.						28	10					1				101			1	
	Ramp G								28					1				583		1		
3-UD	811+00 to 816+93	Rt.																				
	TOTAL		12.3	0.5	0.5	1.3	0.27	28	41	13	272	229	232	2	3	4	1	1284	1			

ESTIMATED QUANTITIES

Calc. By: G.W. Date: 5-13-85
Chkd. By: B.E.K. Date: 5-20-85

FHWA REGION	STATE	PROJECT	
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BEL-7-14.17

*BENDS & BRANCHES

** 707.17 Non-Perforated ASTM 3034 SDR 35 Or Supplemental Specification 931

REF. NO.	STATION TO STATION	SIDE	202 Catch Basin Abandoned (Each)	202 Underground Storage Tank Removed (Each)	202 Structure Removed (Lump)	305 6" Concrete Base (Sq. Yd.)	402 Asphalt Concrete, AC-20 (Cu. Yd.)	404 Asphalt Concrete AC-20 (Cu. Yd.)	605 6" Shallow Pipe Underdrains (Lin. Ft.)	606 Guardrail, Type S (Lin. Ft.)	606 Bridge Terminal Assembly, Type A (Each)	609 Curb, Type 6 (Lin. Ft.)	611 Reinforced Concrete Approach Slab T-15" (Sq. Yd.)	611 Reinforced Concrete Approach Slab, Mod. as per plan F15" (Sq. Yd.)	622 Concrete Barrier, Type B (Lin. Ft.)	202 Walk Removed (Sq. Ft.)	660 Reinforced Sodding (Sq. Yd.)	SPECIAL Pressure Relief Joint, Type A, A.P.P. (Lin. Ft.)	670 Ditch Erosion Protection (Sq. Yd.)	601 Rock Channel Protection, Type C With Filter (Cu. Yd.)	605 6" Shallow Pipe Underdrains, 707.01, Type III, 707.17 or 707.21 Type III (Lin. Ft.)	603-CONDUIT **6" Type B (Lin. Ft.)	603-CONDUIT 10" Type B, 706.01, 706.02 Or 706.03 With Joints As Per 706.11 Or 706.12 (Lin. Ft.)	603-CONDUIT 12" Type B, 706.02 2500 D-Load With Joints As Per 706.11 (Lin. Ft.)	814 16" Water Main Ductile Iron Pipe ANSI Class 52 Push On Joints & Fittings (Lin. Ft.)	814 16" Valve & Valve Box (Each)	604 Catch Basin Adjusted To Grade (Each)	604 Manhole, Type 1 With Joints As Per 706.11 (Each)	* 6"x90° Bend Type B (Each)	SEE SHEET NO.
	URBAN																														
8-GR	822+71.93 to 823+24 Ramp G	Lt.								52.50	1																				
9-GR	822+91.27 to 823+21 Ramp G	Rt.								30.50	1																				
27-GR	817+35 to 817+48	Lt.								12.50																					
29-GR	818+51 to 818+87	Lt.								37.50																					
33-GR	817+02 to 819+75.25 Ramp G	Lt.								273.25	1																				
5-RJ	819+26 (Ramp G)	Lt.																25.0			35										
6-RJ	819+63.5	Lt.																36.0			48										
5-RS	819+70.67	Lt.															10.7														
6-RS	822+99.93 (Ramp G)	Lt.															31.1														
7-RS	823+19.27 (Ramp G)	Rt.															10.2														
24-B	817+00 to 820+04.30	℄													304.3																
60-C	819+49.25 to 819+62.08	Lt.										12.8																			
61-C	819+64.82 to 819+77.60	Lt.										12.8																			
62-C	819+72.67 to 819+85.53	Lt.										12.9																			
63-C	822+87.24 to 822+97.93	Lt.										10.7																			
64-C	823+02.76 to 823+17.27	Lt.										14.5																			
1-DR	822+33.5 to 822+94 (Ramp G)	Lt.																		28.4											
1-R	818+80 (Ramp G)	Lt.	1																												
2-R	819+09 (Ramp G)	Lt.	1																												
3-R	821+80.5 to 822+70 (Ramp G)	Lt.														468															
4-R	821+80.5 to 822+49 (Ramp G)	Lt.			Lump (Conc. Wall)																										
5-R	821+83 to 822+41.5 (Ramp G)	Lt.			Lump (Conc. Pad & Pump Island)																										
6-R	821+91 (Ramp G)	Lt.		1																											
7-R	822+11 to 823+23 (Ramp G)	Lt.														616															
8-R	823+09 (Ramp G)	Lt.	1																												
1-JM	818+15 To 820+18 (Ramp G)	Lt.																	169.2												
2-JM	819+75 To 819+98	Lt.																	20.8												
3-JM	822+94 To 823+27 (Ramp G)	Lt.																	40.3												
1-CB	822+08 (Ramp G)	Lt.																										1			23
6-WL	819+18	Lt. & Rt.				14.5	0.5	0.5																				320	3			431
7-CG	819+04.5	Lt. & Rt.				18.4	0.7	0.7																			6	318		2		413
1-UD	817+00 to 820+03	Lt.							303																						
2-UD	817+01 to 819+45 Ramp G	Lt. & Rt.							244																36					1	
3-UD	823+02 to 823+22 Ramp G	Rt.							20																						
3-AS	820+04.03 to 820+29.55	℄												220.8																	478
7-AS	819+66.51 to 819+91.51 (Ramp G)	Lt. & Rt.											81.9																		478
8-AS	822+66.67 to 822+91.67 (Ramp G)	Lt. & Rt.											81.9																		478
	TOTAL		3	1	LUMP	32.9	1.2	1.2	567	406.25	3	63.7	163.8	220.8	304.3	1084	52.0		61.0	230.3	28.4	83		36	6	318	320	3	1	2		

W.E. QUICKSALL AND ASSOCIATES INC., CONSULTING ENGINEERS AND ARCHITECTS

RELOC. S.R.7 – STA. 817+00 TO STA. 823+00 LT. ESTIMATED QUANTITIES

ESTIMATED QUANTITIES

Calc. By: F.S. Date: 5-24-84
Chkd. By: W.a.C. Date: 5-29-84

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BEL-7-14.17 *BENDS & BRANCHES

** 707.17 Non-Perforated ASTM 3034 SDR 35 or Supplemental Specifcation 931

REF. NO.	STATION TO STATION	SIDE	202 Catch Basin Abandoned			609 Curb, Type 6	606 Guardrail, Type 5	606 Bridge Terminal Assembly, Type A	606 Anchor Assembly, Type A	608 4" Concrete Walk	609 Combination Curb & Gutter, Type 2	611 Reinforced Concrete Approach Slab T=15	660 Reinforced Sodding		670 Ditch Erosion Protection		SPECIAL Pressure Relief Joint, Type A, As Per Plan	SPECIAL Precast Reinforced Concrete Outlet	605 6" Shallow Pipe Underdrains	605 6" Shallow Pipe Underdrains, 707.01 Type III, 707.17 or 707.21 Type III	602 Concrete Masonry		603-CONDUIT ** 6" Type B	603-CONDUIT ** 6" Type F	603-CONDUIT 24" Type C		604 Catch Basin No. 8		814 Fire Hydrant & GATE VALVE RENDERED & RESET, As Per Plan	* 6"x90° Bend	* 6"x90° Bend Type 'B'	SEE SHEET NO.
	URBAN		Each			Lin. Ft.	Lin. Ft.	Each	Each	Sq. Ft.	Lin. Ft.	Sq. Yd.	Sq. Yd.		Sq. Yd.		Lin. Ft.	Each	Lin. Ft.	Lin. Ft.	Cu. Yd.		Lin. Ft.	Lin. Ft.	Lin. Ft.		Each		Each	Each	Each	
11-GR	818+08 to 820+37.20	Rt.					200.00	1	1																						
12-GR	817+97 to 820+68.01	Lt.					250.00	1	1																						
	Ramp F																														
28-GR	818+07 to 818+21	Rt.					12.50																								
34-GR	817+00 to 820+87.06	Rt.					387.06	1																							
	Ramp F																														
5-C	819+03 to 819+95	Rt.									87.0																				
30-SW	819+03 to 819+95	Rt.								435.0																					
7-RJ	819+82	Rt.															36.0			46											
8-RJ	820+26 (Ramp F)	Lt.															25.0			34											
8-RS	820+09.20	Rt.											8.9																		
40-D	819+50-Ramp F	Rt.																			0.92				246		1				363
1-JM	817+00 To 818+80 Ramp F	Rt.													220.0																
2-JM	820+36 To 820+61	Rt.													20.8																
1-R	819+04-Ramp F	Lt.	1																												
2-R	819+28-Ramp F	Lt.	1																												
4-UD	816+93 NM to 820+60 Ramp F	Rt.																1	367					16				1			
5-UD	818+00 to 820+15	Rt.																	215				54						1		
22-WL	819+14 Ramp-F	Rt.																									1				
9-A5	820+67.43 to 820+92.43 Ramp F	Lt. & Rt.										81.9																			478
65-C	820+11.20 to 820+23.57	Rt.				12.4																									
66-C	820+42.01 to 820+56.34 (Ramp 'F')	Lt.				14.3																									
67-C	820+61.06 to 820+71.86 (Ramp 'F')	Rt.				10.8																									
	TOTAL		2			37.5	849.56	3	2	435.0	87.0	81.9	8.9		240.8		61.0	1	582	80	0.92		54	16	246		1		1			

PROPOSED STRUCTURE
BRIDGE NO. BEL-7-1562 L/R
S.R. 7 OVER 26TH ST.

TYPE: Continuous Composite Steel Beams With Reinforced Concrete Deck And Substructure Units
SPANS: 36.5'-73'-36.5' Measured Along ℄ of Survey
ROADWAY: 78'-0" F/F Parapets With a 2'-8" Median Barrier
SKEW: None
SURFACE COURSE: Monolithic Concrete
LIVE LOAD: HS20-44 Case II And The Alternate Military Loading
APPROACH SLABS: AS-1-81, 25' Long
ALIGNMENT: Tangent
SUPERELEVATION: None

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BELMONT ST.
Exist. R/W
Conc. Curb
(Asphalt)
Chain Link
2 Sty. Brick Bldg.
2 Sty. Brick & Fr. Res.
2 Sty. Brick Res.
2 Sty. Frame Res.
Slag
Post
Pole
Gas Meter
Sign
Cellar Door
2 Sty. Brick Bldg.
Curb
Gas Meters
Control Box
2 Sty. Fr. Bldg.
2 Sty. Frame Res.
Pt. Sta. 16+76.55
Dirt & Ashes
Chain Link
2 Sty. Fr. Res.
Block Wall
Conc. Wall
Pool
Woven
Asphalt
Brick
Conc. Block Gar.
Const. Limits
Slag
Filler Cap
Exist. R/W
Sta. 827+02
23° Lt. ~ 22½° Bend
BEGIN RAMP 'H'
Sta. 827+69.43
℄ SURVEY RELOC. 26TH ST.
℄ RAMP 'G'
℄ RAMP 'H'
END RAMP 'G'
Sta. 827+47.46
Sta. 826+01
205' Lt. ~ 11½° Bend
Slope Limits
Construction Limits
Cut & Plug
Tank Fillers
Caps
Fuel Tank Covers
Pumps
Sign
Conc. Picket
Brick Picket
Wood Picket
Board
Posts with Cables
Trash Bin
Waste Oil Tank
Gas Meter
Ashes
Guy Wire
Sandstone Curb
Tile Gar.
Brush
Conc. Walk
Woven
Chain Link
Conc. Block Bldg.
Conc. Block Res.
1 Sty. Frame Church
1 Sty. Frame Shed
2 Sty. Frame Res.
2 Sty. Brick Res.
2 Sty. Fr. Res.
2 Sty. Fr., Br. & Tile Res.
2 Sty. Fr. & Tile Bl. Res.
2 Sty. Br. Apt.
2 Sty. Bk. Res.
1 Sty. Fr. Res.
1 Sty. Frame & Brick Res.
3 Sty. Frame & Brick Res.
3-Car Br. & Conc. Gar.
1 Sty. Conc. Block Gar.
Highway
ALLEY
(Brick)
(Abandoned) 2 Sty. Conc. Block Res.
(To be Abandoned)
To Be Abandoned
Exist. R/W
Exist. R/W
Exist. R/W

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MATCH LINE ~ STA. 823+00

MATCH LINE ~ STA. 829+00

Sta. 827+36.21 ~ ℄ Survey Reloc. S.R. 7 = Sta. 20+00 ~ ℄ Survey Reloc. 26th St.

℄ SURVEY RELOC. S.R. 7

N18°31'33"E

N18°23'38"E

N13°42'31"E

UNION ST.

℄ RAMP 'F'

℄ RAMP 'E'

℄ SURVEY RELOC. UNION ST.

℄ SURVEY RELOC. 26 TH ST.

ST. Sta. 824+20.78

PT. Sta. 18+92.22

PC. Sta. 17+59.83

BEGIN WORK ~ UNION ST. STA. 17+50.00

END RAMP 'F' STA. 827+05.42

END RAMP 'E' PAY'T STA. 828+74.09

Begin RAMP 'E' STA. 827+69.13

END WORK ~ UNION ST. STA. 19+80.82

END PROJECT STA. 828+50 S.L.M. = 15.66

END M PAV'T STA 828+50

P.T. Sta. 20+78.14

Hydrant Assembly Sta. 22+56 ~ 22.5' Lt.

Sta. 828+21 325' ± Rt.

Brick

Sandstone Curb

Conc. Curb

Conc. Curb Gutter

Conc. Slab

Slag

Pier

Gas Meter

Guy Pole

Guy Wire

Guy Wires

Picket Fence

Conc. Steps

Sandstone Wall

Conc. Foundation

Chain Link

Fr. Shed

Block Garage

Conc. Block Bldg. (Do Not Disturb)

Consolidated Rail Corp. (Do Not Disturb)

Temporary Easement

Exist. R/W

Construction Limits

Const. Limits

LARW

LA

ALLEY

Siphon Chamber

FM Cleanout

C.B. (To Remain)

Plug

Slope Limit

Approach Slab

Combined Flow Regulator

Adjoining Pavement Existing 26TH St. (Asphalt on Brick)

Adjoining Pavement Existing Union St. Asphalt

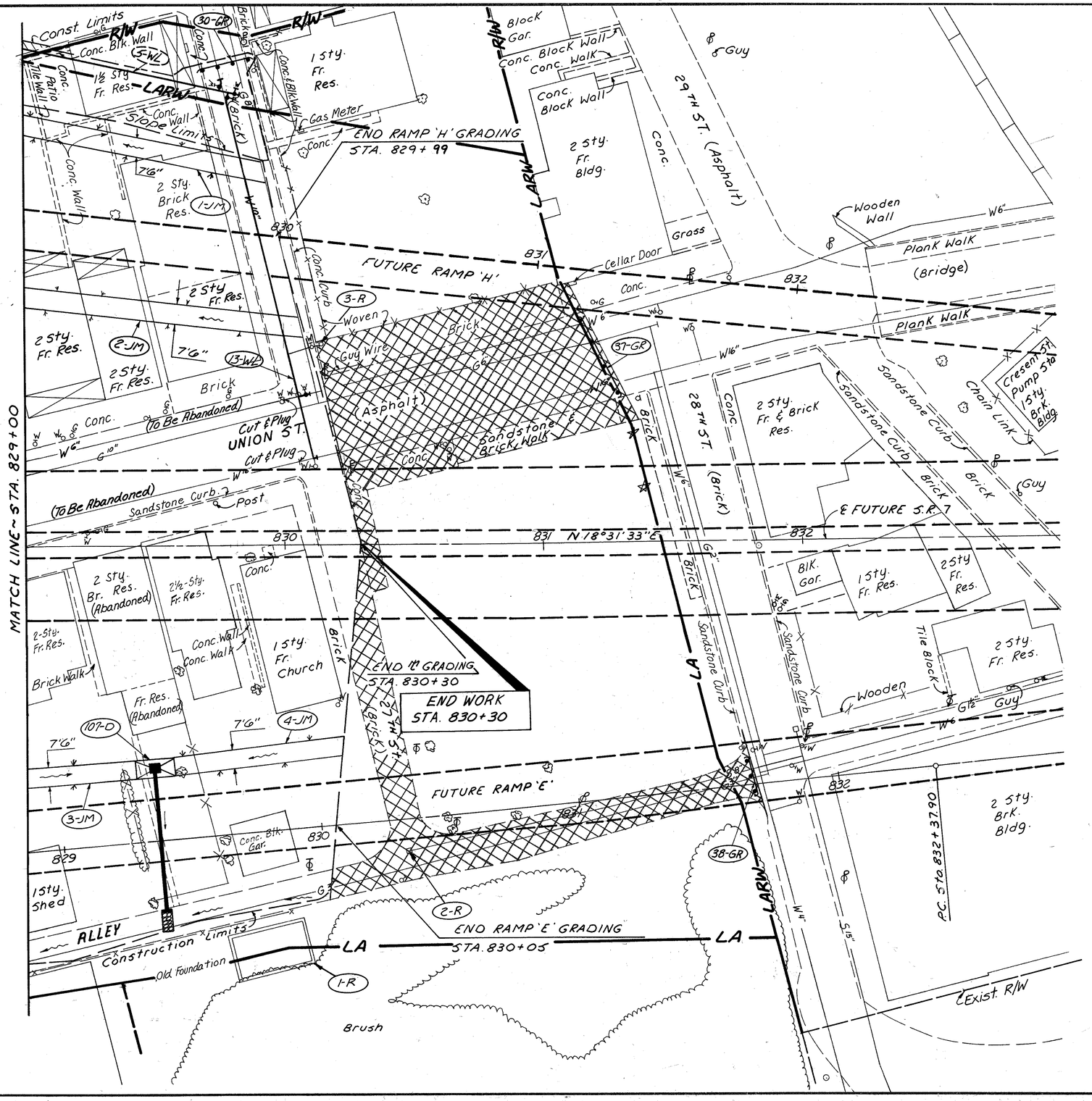
UNION ST. CURVE DATA

P.I. = 18+26.45
Δ = 15°53'12.16" Lt.
D = 12°00'00"
T = 66.62'
L = 132.39'
E = 4.63'
R = 477.47'

For Ramp Pavement Joint Details, See Sheet No. 351
For Reloc. 26TH St., See Sheet No. 296
For Reloc. Union St. Profile, See Sheet No. 314
For Ramp 'F' Profile, See Sheet No. 172
For Ramp 'E' Profile, See Sheet No. 171
For Ramp 'F' Interior Grading, See Sheet No. 354
For Ramp 'H' Profile, See Sheet No. 171
For Reloc. S.R. 7 Profile, See Sheet No. 123
For Quantities, See Sheet No. 126

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

RELOCATED S.R. 7 ~ STA. 823+00 TO STA. 829+00 Rt.



For Ramp 'E' & 'H' Profile, See Sheet No. 171
For Ramp 'E' & 'H' Interior Grading, See Sheet No. 354
For Reloc. S.R.7 Profile, See Sheet No. 123
For Quantities, See Sheet No. 127

FHWA REGION	STATE	PROJECT	
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BEL-7-14.17

672.11 672.46 672.78 673.09 673.38 673.65 673.89 674.12 674.33 674.52 674.69 674.84 674.97 675.08 675.17 675.25 675.30 675.33 675.34 675.34 675.31 675.27

675.20 *675.12 *675.01

Bridge Limits

Sta. 823+35 ~ 2.67' Lt.
90° Bend ~ E 668.24

Sta. 823+75 ~ 31' Rt.
E 668.34 ~ 30° Bend

Sta. 823+75 ~ 49' Rt.
Outlet ~ E 667.84

Sta. 823+35 ~ 52' Lt.
Outlet ~ E 667.74

4-UO

41-D

PT. Sta. 825+50
Elev. 680.33

Sta. 824+70 ~ 31' Rt.
E 669.88

1-UO

Sta. 826+40 ~ 2.67' Lt.
E 670.87

Bridge Limits

* Future S.R. 7
Profile Grade

8-WL

8" Water (To Be Abandoned)

6" Gas

10" Gas

END PROJECT
END S.R.7 PAVEMENT
STA. 828+50

16" Water (To Be Abandoned)

670 660 650 640

4" Gas

6" Water (To Be Abandoned)

1200' V.C.

8" Sewer (To Be Abandoned)

6" Water (To Be Abandoned)

24" Sewer (To Be Removed with Excavation for Item 603)

9-CG

644.2 646.1 646.1 648.6 649.3 649.5 649.1 649.3 649.6 649.9 651.3 652.6 655.0

823 824 825 826 827 828 829

*675.01 *674.89 *674.74 *674.58 *674.40 *674.20 *673.97 *673.73 *673.47 *673.19 *672.89 *672.27

* Future S.R. 7
Profile Grade

670 660 650

1:2

1200' V.C.

-1.24%

END WORK
END S.R.7 GRADING
STA. 830+30

P.T. Sta. 831+50

8" Force Main

18" Sewer

Note:
Refer to Cross Sections for grading elevations between Sta. 828+50 and Sta. 830+00.

B.M. #11 Elev. 650.44
Sta. 825+75 ± Lt.
Top of N.W. bolt on Pennzoil sign base.

B.M. #51 Elev. 650.23
Sta. 828+00 ± Rt.
Chiseled sq. on R.R. bridge headwall.

B.M. #54 Elev. 650.73
Sta. 829+50 ± Lt.
Top of bolt in walk at N.W. cor. of Belmont & 27th Sts.

B.M. #55 Elev. 653.53
Sta. 831+25 ± Lt.
Chis. sq. on curb end of N.W. cor. of Bel. & 29th Sts.

B.M. #10 Elev. 662.17
Sta. 833+00 ± Lt.
Top of concrete step, Residence # 3001.

650.0 658.1 659.3 659.4 660.0 660.2 660.5 661.5 658.2 655.0 654.0 652.5 653.2

829 830 831 832 833 834 835

RELOCATED S.R. 7 PROFILE ~ STA. 823+00 TO STA. 830+50

ESTIMATED QUANTITIES

Calc. By: W.a.C. Date: 6-27-84
Chkd. By: F.S. Date: 7-6-84

FHWA REGION	STATE	PROJECT	
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BEL-7-14.17 *SPECIAL

REF. NO.	STATION TO STATION	SIDE	202 Catch Basin Abandoned	202 Manhole Abandoned	202 Walk Removed	202 Underground Storage Tank Removed	202 Structure Removed	305 8" Concrete Base	402 Asphalt Concrete, AC-20	404 Asphalt Concrete, AC-20	605 6" Shallow Pipe Underdrains, 707.01 Type III, 707.17 or 707.21 Type III	606 Guardrail, Type S	606 Anchor Assembly, Type 'A'	606 Bridge Terminal Assembly, Type 'A'	609 Curb, Type G	611 Reinforced Concrete Slab Approach as per Plan 75-5	622 Concrete Barrier, Type B	660 Reinforced Sodding,	670 Slope Erosion Protection	670 Ditch Erosion Protection	* Pressure Relief Joint, TYPE A, A.P.P.	SEE SHEET NO.
	URBAN		Each	Each	Sq. Ft.	Each	Lump	Sq. Yd.	Cu. Yd.	Cu. Yd.	Lin. Ft.	Lin. Ft.	Each	Each	Lin. Ft.	Sq. Yd.	Lin. Ft.	Sq. Yd.	Sq. Yd.	Sq. Yd.	Lin. Ft.	
39-GR	823+62 ~ Ramp G	Lt.										37.50										
8-GR	823+24 to 826+96.93 Ramp G	Lt.										347.50	1									
9-GR	823+21 to 824+15.50 Ramp G	Rt.										69.50	1									
10-GR	822+99.13 to 826+64.15	Lt.										365.02		2								
31-GR	828+37.73 (Ramp H)	Lt. & Rt.										25.00										
40-GR	826+67 ~ Ramp G	Lt.										37.50										
41-GR	828+56 ~ Ramp H	Lt.										12.50										
6-C	823+33 to 823+91	Lt.						13.8	0.5	0.5					62.0							
69-C	826+31.90 to 826+39.15	Lt.													7.3							
70-C	828+37.15 to 828+44.4	Lt.													7.3							
9-RS	826+29.9	Lt.																62.2				
10-RS	828+46.4	Lt.																57.8				
25-B	823+33.27 To 825+20	℄															186.7					
26-B	825+40 To 826+39.15	℄															99.2					
27-B	828+37.15 To 828+50	℄															12.9					
5-SP	826+62.7 To 827+01.5	Lt.																	240.0			
6-SP	827+70.5 To 828+12.15	Lt.																	201.8			
1-R	824+14	Lt.	1																			
2-R	826+93 Ramp G	Lt.	1																			
3-R	827+02 Ramp G	Rt.	1																			
4-R	827+35 Ramp G	Lt.	1																			
5-R	827+39 Ramp G	Rt.	1																			
6-R	823+23 to 823+60 ~ Ramp G	Lt.			148																	
7-R	823+27 ~ Ramp G	Lt.	1																			
8-R	823+78	Lt.		1																		
9-RJ	823+28 Ramp 'G'	Lt.									35										25.0	
10-RJ	823+54	Lt.									47										36.0	
11-RJ	826+02	Lt.									48										36.0	
9-R	824+42.5 ~ Ramp G	Lt.				1																
10-R	824+55 ~ Ramp G	Lt.				1																
11-R	826+10 ~ Ramp G	Lt.					Lump (Conc. Pad & Pump Island)															
12-R	826+38 ~ Ramp G	Lt.				3																
1-JM	825+58 To 826+68 Ramp G	Rt.															91.7					
2-JM	18+00 26th St. to 829+00 Ramp H	Lt.															82.5					
3-JM	828+15 To 829+00	Lt.															71.7					
4-JM	823+27 To 826+73 Ramp G	Lt.															422.9					
13-R	826+06 ~ Ramp G	Lt.				1																
4-AS	823+07.57 To 823+33.27	℄														220.8						478
5-AS	826+39.15 To 826+64.15	℄														220.8						478
6-AS	828+12.15 To 828+37.15	℄														220.8						478
	TOTAL		6	1	148	6	LUMP	13.8	0.5	0.5	130	894.52	2	2	76.6	662.4	298.8	120.0	441.8	668.8	97.0	

ESTIMATED QUANTITIES

Calc. By: W.A.C. Date: 6-27-84
Chkd. By: F.S. Date: 7-6-84

FHWA REGION	STATE	PROJECT	
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** 707.17 Non-Perforated ASTM 3034 SDR 35 or Supplemental Specification 931

REF. NO.	STATION TO STATION	SIDE	601 Rock Channel Protection, Type C With Fitter	602 Concrete Masonry	SPEC. Precast Reinf. Conc. Outlet	603 - CONDUIT ** 6" Type B	** 6" Type F	15" Type C	15" Type B	15" Type F, 707.05, Type C	12" Type B	24" Type B, 706.02 3250 D-Load With Joints As per 706.11	12" Type C	604 Catch Basin, No. 3 with 'V' GRATE	Catch Basin, No. 3A with 'V' GRATE	Catch Basin, No. 8	Inlet, No. 3D	605 6" Shallow Pipe Underdrains	609 Curb, Type 6	BENDS & BRANCHES 6"x90° Bend	6"x90° Bend Type B	15"x22½° Bend Type F, 707.05, Type C	SEE SHEET NO.
	URBAN		Cu. Yd.	Cu. Yd.	Each	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Each	Each	Each	Lin. Ft.	Lin. Ft.	Each	Each	Each	
41-D	825+30	℄	2.2	0.27					39	57							1					2	362
2-CG	824+03	Lt./Rt.										390											414
95-D	828+12-Ramp H	Rt.											38			1							373
96-D	827+80-Ramp H	Rt.									75			1									373
97-D	827+29-Ramp G	Rt.						54							1								373
98-D	826+75-Ramp G	Rt.	1.8	0.27					66							1							373
1-UD	823+35 to 826+40	Lt.				50	10											295			1		
2-UD	823+22 to 826+50 Ramp G	Lt. & Rt.			1	20	16											328		1	2		
68-C	823+13.55 to 823+25.13	Lt.																	11.6				
	TOTAL		4.0	0.54	1	70	26	54	105	57	75	390	38	1	1	2	1	623	11.6				

ESTIMATED QUANTITIES

Calc. By: F.S. Date: 6-4-84
Chkd. By: W.C. Date: 6-12-84

FHWA REGION	STATE	PROJECT	
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BEL-7-14.17 *BENDS & BRANCHES

XX 707.17 Non-Perforated ASTM 3034 SDR 35 or Supplemental Specification 931

REF. NO.	STATION TO STATION	SIDE	202 Catch Basin Abandoned (Each)	202 Pipe Removed, 24" & Under (Lin. Ft.)	202 Structure Removed (Lump)	202 Catch Basin Removed (Each)	606 Guardrail, Type 5 (Lin. Ft.)	606 Anchor Assembly, Type A' (Each)	606 Bridge Terminal Assembly, Type A' (Each)	606 Anchor Assembly, Type T' (Each)	608 4" Concrete Walk (Sq. Ft.)	609 Curb, Type G (Lin. Ft.)	609 Combination Curb & Gutter, Type 2 (Lin. Ft.)	611 Reinforced Concrete Approach, Slab T=15" (Sq. Yd.)	660 Reinforced Sodding (Sq. Yd.)	601 Riprap Using 6" reinforced conc. Slab (Sq. Yd.)	670 Slope Erosion Protection (Sq. Yd.)	670 Ditch Erosion Protection (Sq. Yd.)	601 Rock Channel Protection, Type C With Filter (Cu. Yd.)	602 Concrete Masonry (Cu. Yd.)	SPEC. Precast Reinf. Conc. Outlet (Ea.)	603 CONDUIT 6" Type F ** (L.F.)	603 CONDUIT 12" Type B (Lin. Ft.)	603 CONDUIT 2/Conduit, Type A, 706.01, 706.02, 706.08 or 707.09 (O.109) (Lin. Ft.)	604 Catch Basin, No. 3 With 'V' GRATE (Each)	605 6" Shallow Pipe Underdrains, 707.01 Type III, 707.17 or 707.21 Type III (Lin. Ft.)	605 6" Shallow Pipe Underdrains (Lin. Ft.)	814 Fire Hydrant Removed And Disposed of (Each)	814 6" Water Main, D.I.P. MJ. Class 52 Push on Joints & Fittings (Lin. Ft.)	814 6" Valve & Valve Box (Each)	SPECIAL Pressure Relief Joint, TYPE A, As PER PLAN (Lin. Ft.)	* 6"x 90° Bend (Each)	SEE SHEET NO.
	URBAN		Each	Lin. Ft.	Lump	Each	Lin. Ft.	Each	Each	Each	Sq. Ft.	Lin. Ft.	Lin. Ft.	Sq. Yd.	Sq. Yd.	Sq. Yd.	Sq. Yd.	Sq. Yd.	Cu. Yd.	Cu. Yd.	Ea.	L.F.	Lin. Ft.	Lin. Ft.	Each	Lin. Ft.	Lin. Ft.	Each	Lin. Ft.	Each	Lin. Ft.	Each	
53-C	828+34.28 to 828+44.28	Rt.										10.0																					
	Ramp E																																
54-C	828+34.28 to 23+37.5	Rt & Lt.											214.4																				
	Ramp E ~ 26th St.																																
55-C	823+82 to 826+81.76	Rt.											395.6																				
	Ramp F																																
56-C	826+71.76 to 826+81.76	Rt.										10.0																					
	Ramp F																																
57-C	17+50 to 23+37.5	Rt.											375.1																				
	Union St. ~ 26th St.																																
71-C	823+51.59 to 823+66.62	Rt.										15.0																					
72-C	823+45.48 to 823+56.80	Rt.	(Ramp F)									11.3																					
73-C	823+61.00 to 823+74.84	Rt.	(Ramp F)									13.8																					
74-C	826+31.9 to 826+39.15	Rt.										7.3																					
75-C	828+37.15 to 828+44.4	Rt.										7.3																					
9-SW	823+82 to 826+81.76	Rt.									1922.9																						
	Ramp F																																
1-R	823+90 ~ Ramp F	Lt.	1																														
2-R	823+98 ~ Ramp F	Rt.	1																														
3-R	824+27 ~ Ramp F	Lt.	1																														
4-R	824+35 ~ Ramp F	Lt.	1																														
5-R	824+37 ~ Ramp F	Lt.																												1			
6-R	19+48 ~ Union St.	Lt.		24		1																											
7-R	17+50 ~ Union St.	Lt.		12	Lump	(Headwall)																											
7-SP	826+62.7 to 827+00.5	Rt.															155.6																
8-SP	827+71 to 828+13.65	Rt.															173.3																
9-WL	21+89 (26th) to 18+16.5 (Union)	Lt. & Rt.																													207	1		427
12-RJ	823+74	Rt.																											47			36.0		
13-RJ	823+86 Ramp F	Lt.																											36			25.0		
14-RJ	826+00	Rt.																											46			36.0		
11-RS	823+58.8 Ramp F	Lt.												6.2																			
12-RS	826+29.9	Rt.												42.2																			
13-RS	823+76.84 Ramp F	Rt.												22.7																			
14-RS	828+46.4	Rt.												51.1																			
1-JM	828+29 to 828+91 (Ramp E)	Lt.																51.7															
100-D	826+79 Ramp F	Lt.																							61		1						374
108-D	18+68.3 Union St.	Rt.																							28		1						362
109-D	18+68.3 Union St.	Lt.																	2.9	0.21					28		1						362
6-S	823+17 to 824+50 ~ Ramp F	Rt.														3.0				0.92						133							393
3-UD	823+60 to 826+50	Rt.																			1	25						290				1	
	Ramp F																																
4-UD	823+75 to 824+70	Rt.																			1	18						95				1	
10-AS	823+31.57 To 823+56.57	Lt. & Rt.												81.9																			478
	Ramp F																																
13-GR	823+40.62 to 826+64.15	Rt.					323.53		2																								
14-GR	823+30.80 to 825+68.30	Lt.					225.00		1	1																							
	Ramp F																																
15-GR	823+48.84 to 826+73.84	Rt.					312.50		1	1																							
	Ramp F																																
32-GR	828+74.59 (Ramp E)	Lt. & Rt.					25.00																										
	TOTAL		4	36	LUMP	1	886.03		4	2	1922.9	74.7	985.1	81.9	122.2	3.0	328.9	51.7	2.9	1.13	2	43	117	133	3	129	385	1	207	1	97.0		

W.E. QUICKSALL AND ASSOCIATES INC., CONSULTING ENGINEERS AND ARCHITECTS

RELOCATED S.R. 7 ~ STA. 823+00 TO STA. 829+00 Rt. **ESTIMATED QUANTITIES**

ESTIMATED QUANTITIES

Calc. By: G.e.t. Date: 7-10-85
Chkd. By: W.a.C Date: 7-11-85

FHWA REGION	STATE	PROJECT	
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BEL-7-14.17

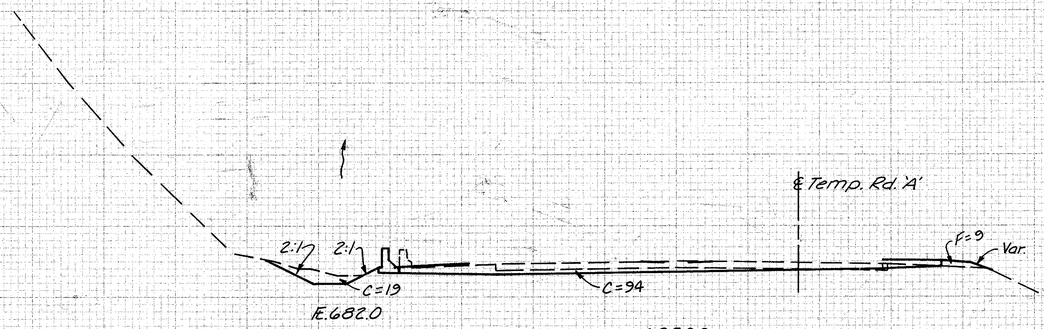
REF. NO.	STATION TO STATION	SIDE	202 Portions of Structure Removed	202 Catch Basins Abandoned	601 Rock Channel Protection, Type C with Filter	606 Guardrail, Type S	670 Ditch Erosion Protection	602 Concrete Masonry	603 15" Conduit, Type B	604 Catch Basin, No.8	814 16" Water Main, D.I.P. ANSI Cl. 52 Push on Joints & Fittings	814 6" Water Main, D.I.P. ANSI Cl. 52 Push on Joints & Fittings	814 16" Valve & Valve Box	814 6" Valve & Valve Box	814 Fire Hydrant Removed and Disposed of	SEE SHEET NO.
	URBAN		Lump	Each	Cu. Yd.	Lin. Ft.	Sq. Yd.	Cu. Yd.	Lin. Ft.	Each	Lin. Ft.	Lin. Ft.	Each	Each	Each	
30-GR	829+65 to 829+90	Lt.				25.00										
37-GR	831+18 to 831+38 ~ Ramp H	Rt.				37.50										
38-GR	831+68 ~ Ramp E	Lt & Rt.				12.50										
1-JM	829+00 to 829+90 (Ramp H)	Lt.					78.3									
2-JM	829+00 to 830+12 (Ramp H)	Rt.					90.0									
4-JM	829+45 to 830+11 (Ramp E)	Lt.					55.0									
3-JM	828+88 to 829+31 (Ramp E)	Lt.					35.0									
107-D	829+38 (Ramp E)	Lt.			1.8			0.27	55	1						363
13-WL	829+79 to 830+11	Lt.									146	5	1	1		431
1-R	829+75 ~ Ramp E	Rt.	Lump (Conc. Foundation)													
2-R	830+32.5 ~ Ramp E	Rt.		1												
3-R	830+19 ~ Ramp H	Rt.													1	
	TOTAL		Lump	1	1.8	75.00	258.3	0.27	55	1	146	5	1	1	1	

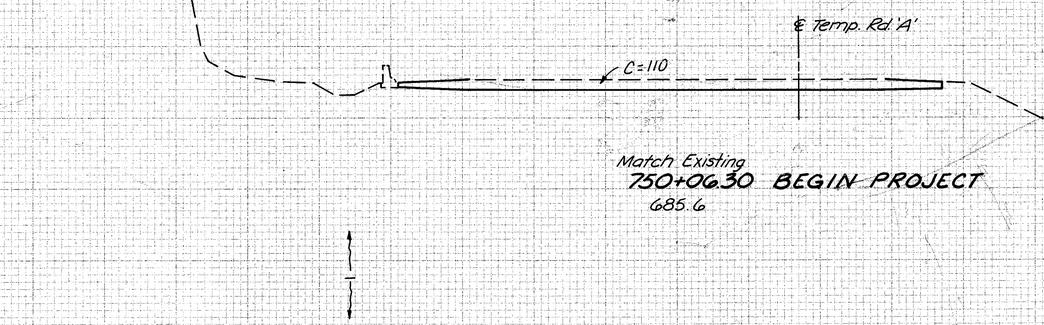
CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-19-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 128 / 663

SEEDING

END WIDTH	SQ. YDS.
44	
107	
0	





ELEVATION	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
720				
710				
700				
690				
680				
670	113	9		
660				
650				
740				
730			180	7
720				
710				
700				
690				
680				
670	110	0		
660				
650				

100 80 60 40 20 0 20 40 60 80 100 120

W. E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

STA. 750+06.30 TO STA. 750+50

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-19-84

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

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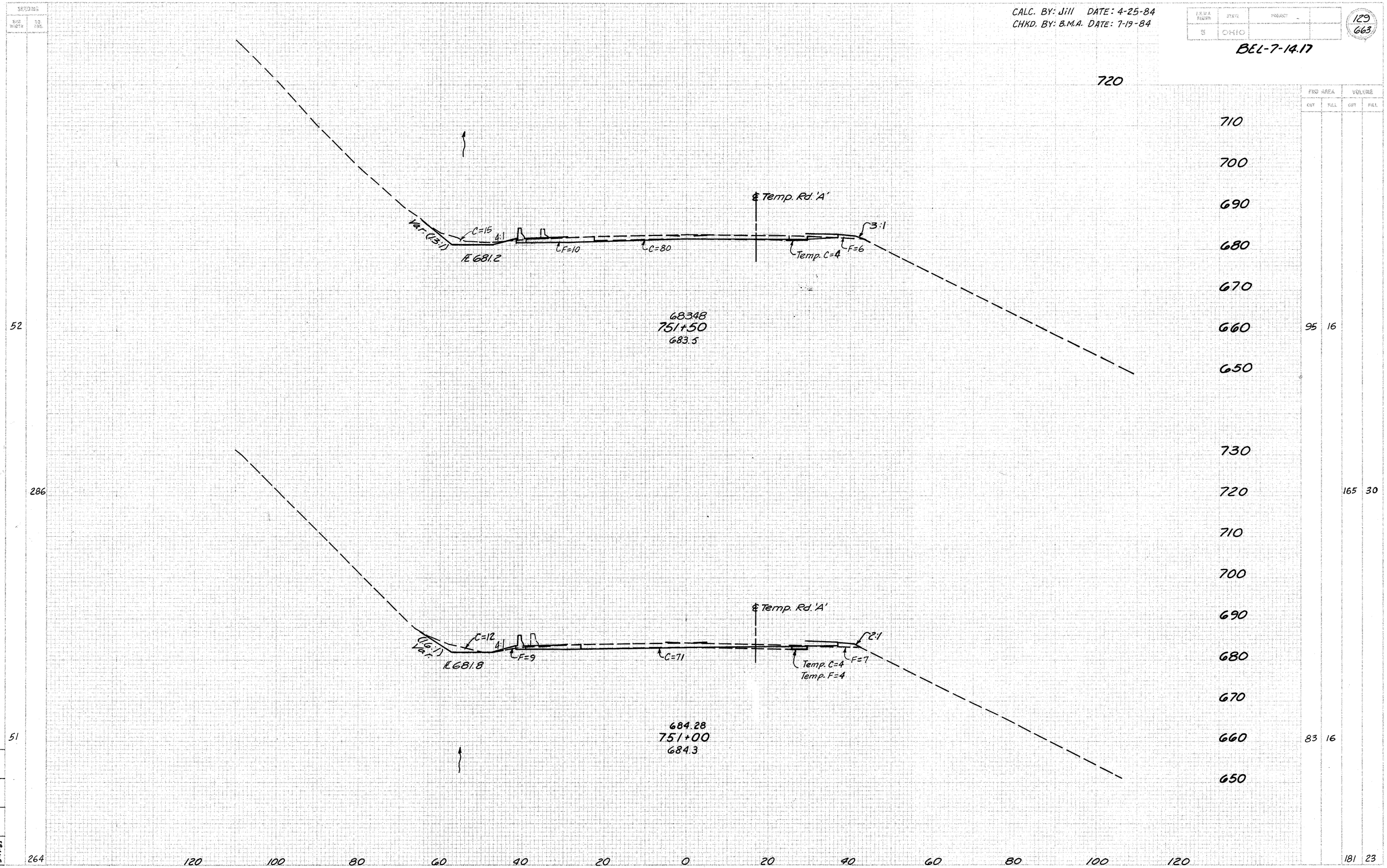

STA. 751+00 TO STA. 751+50

W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-19-84

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

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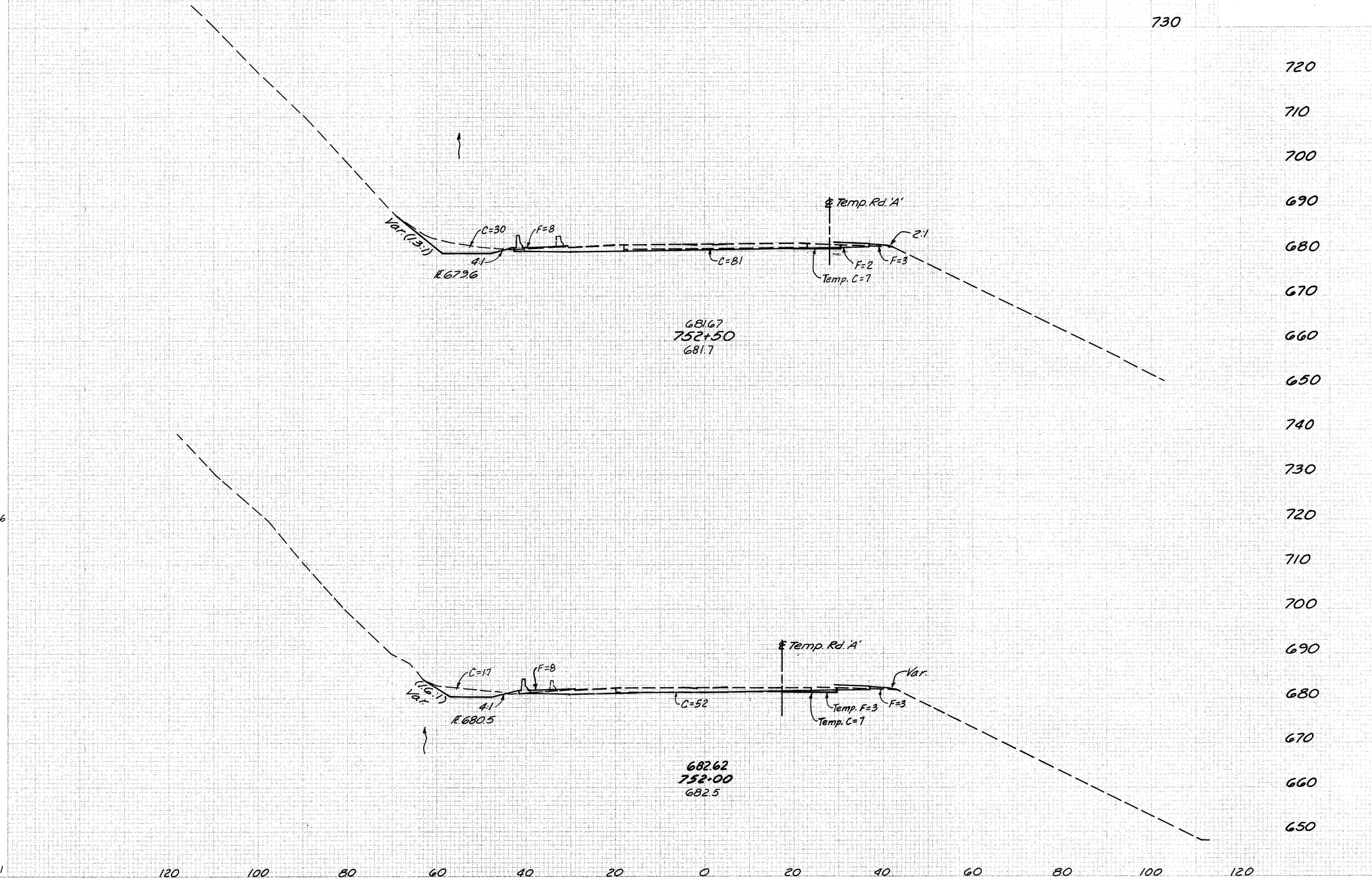


SHEDING END WIDTH	SHEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
54		111	13		
	286			167	22
49		69	11		
	281			152	25

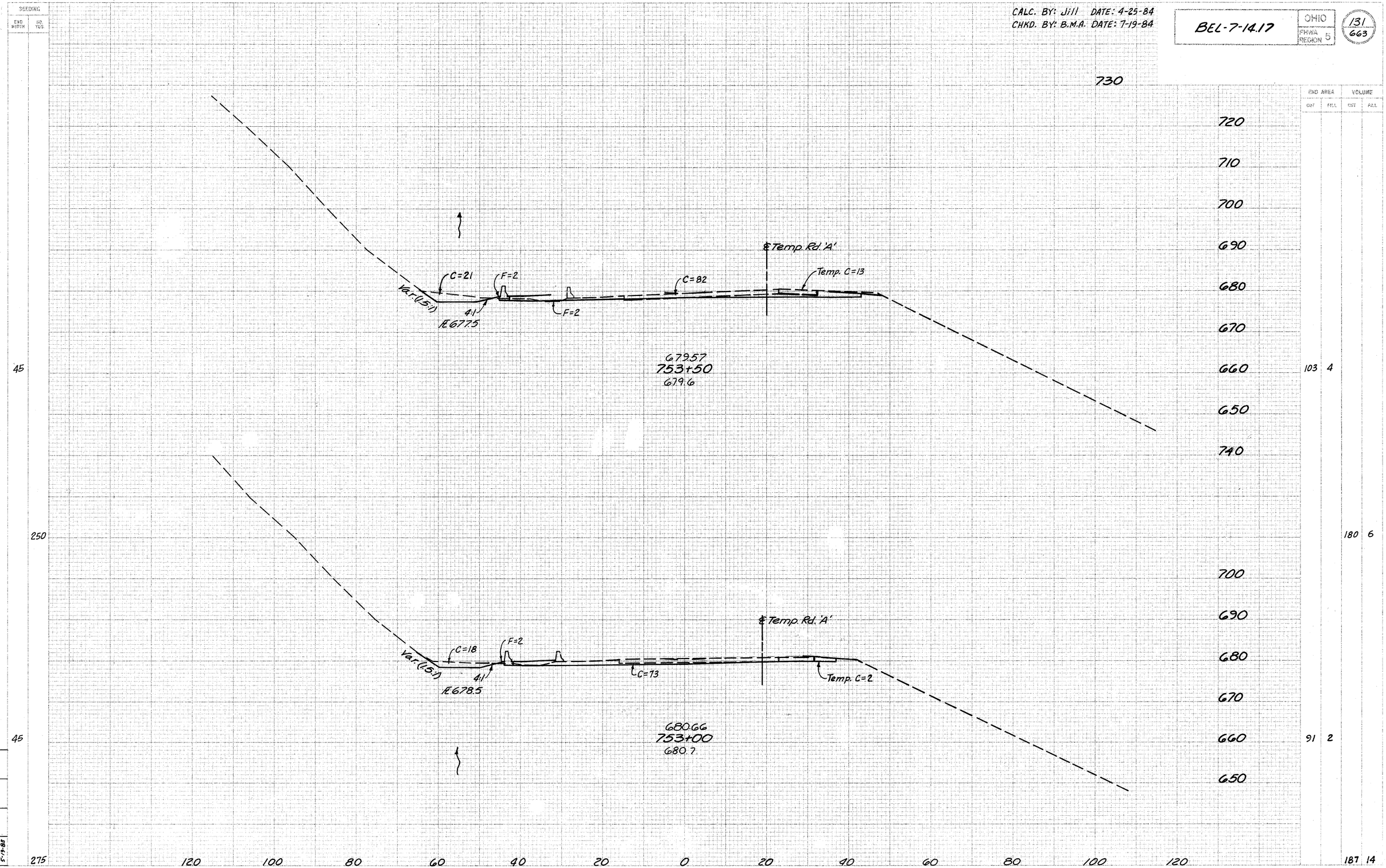
Exist. Rob 5-19-83

W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

STA. 752+00 TO STA. 752+50

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-19-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 131/663



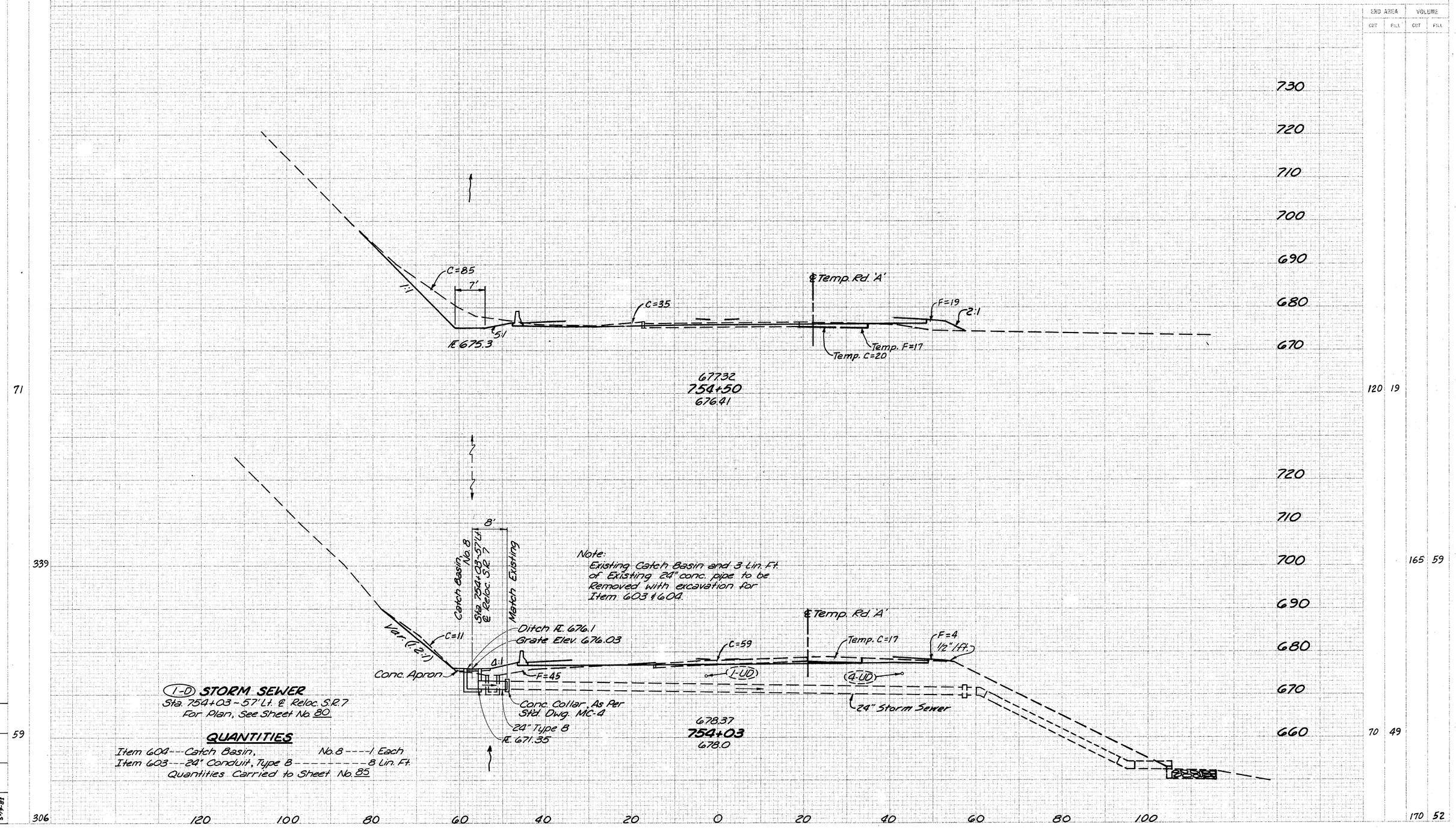
STA. 753+00 TO STA. 753+50

Exist. Rob 5-19-83

W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-19-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 132/663



STA. 754+03 TO STA. 754+50

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

SEEDING

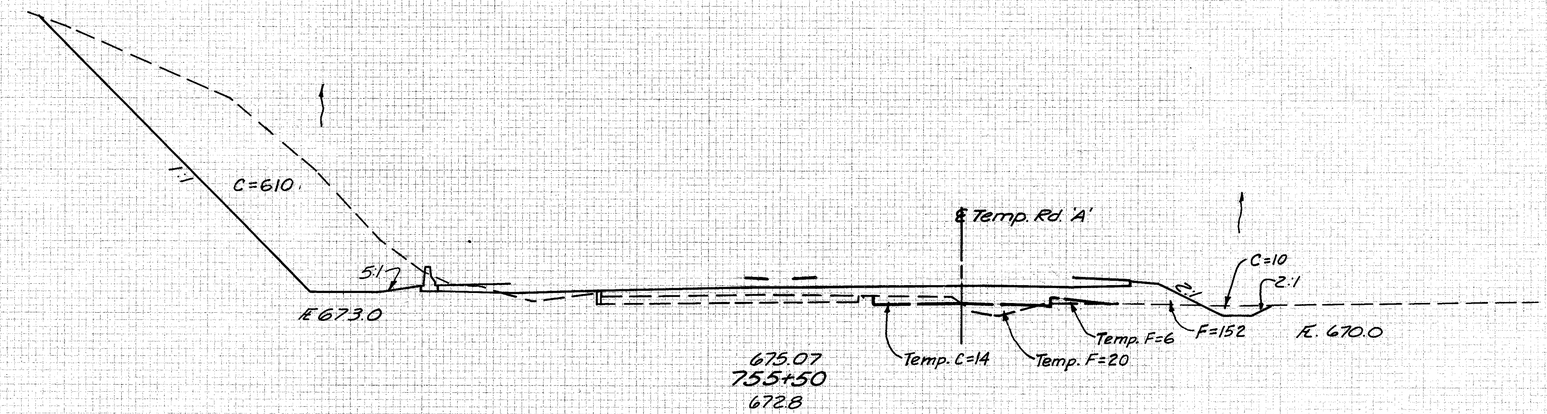
END AREA		VOLUME	
CUT	FILL	CUT	FILL

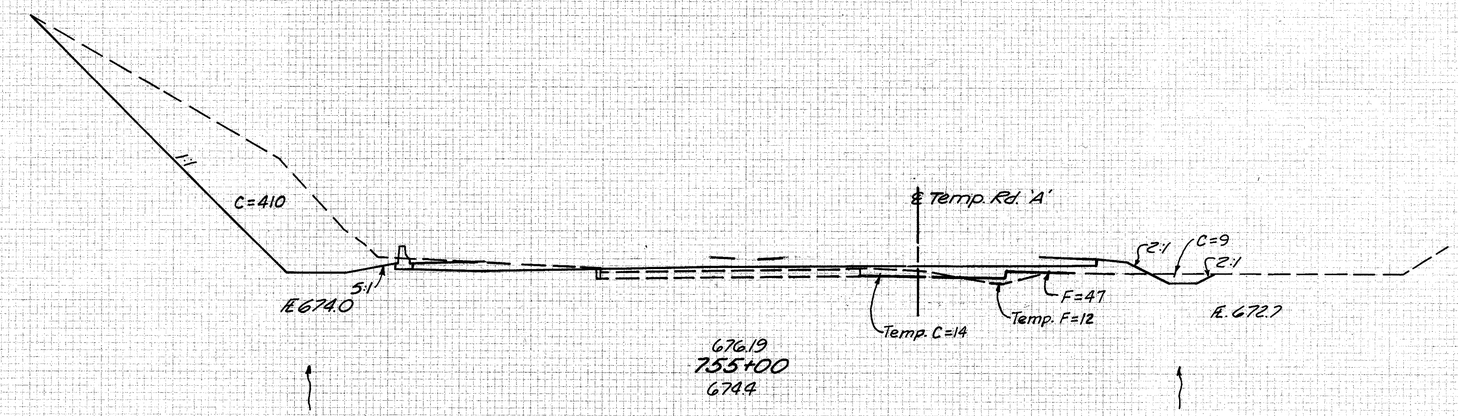
CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-19-84

FEDERAL ROUTE	STATE	PROJECT	
S	OHIO		

133
663

BEL-7-14.17





720
710
700
690
680
670

107
620 152
575
962 184
100
419 47
475
499 61

120 100 80 60 40 20 0 20 40 60 80 100 120

STA. 755+00 TO STA. 755+50

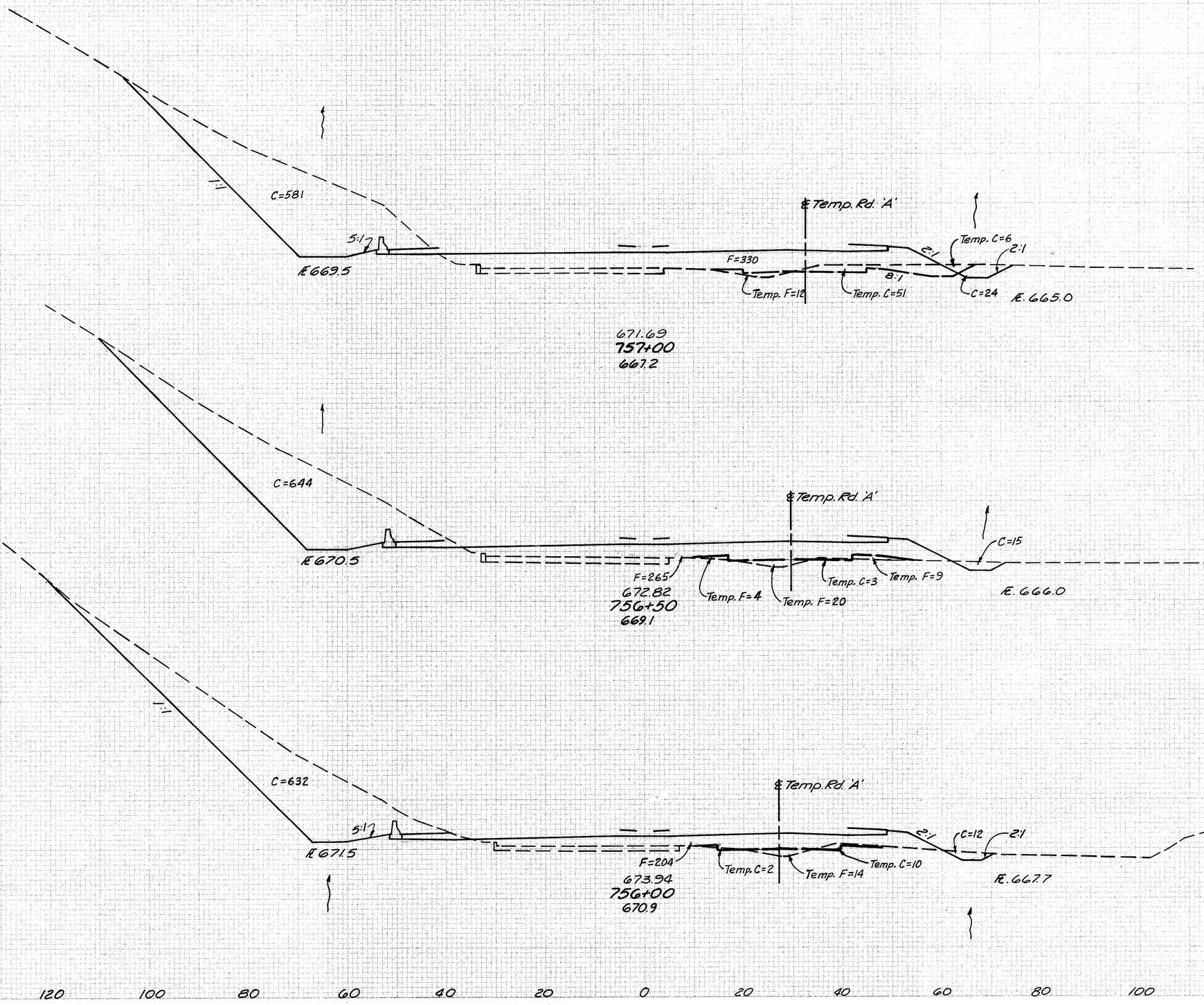
W.E. DUCKSALL & ASSOCIATES INC. Consulting Engineers

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-19-84

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

134
663

BEL-7-14.17



	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
700				
690				
680				
670				
660				
710			605	330
700				
690			1170	551
680				
670				
660			659	265
710				
700				
690			1206	434
680				
670				
660			644	204
			1170	330

STA. 756+00 TO STA. 757+00

W.E. QUINCSAU & ASSOCIATES INC. Consulting Engineers

CALC. BY: F.S. DATE: 4-2-85
CHKD. BY: R.L. DATE: 5-7-85

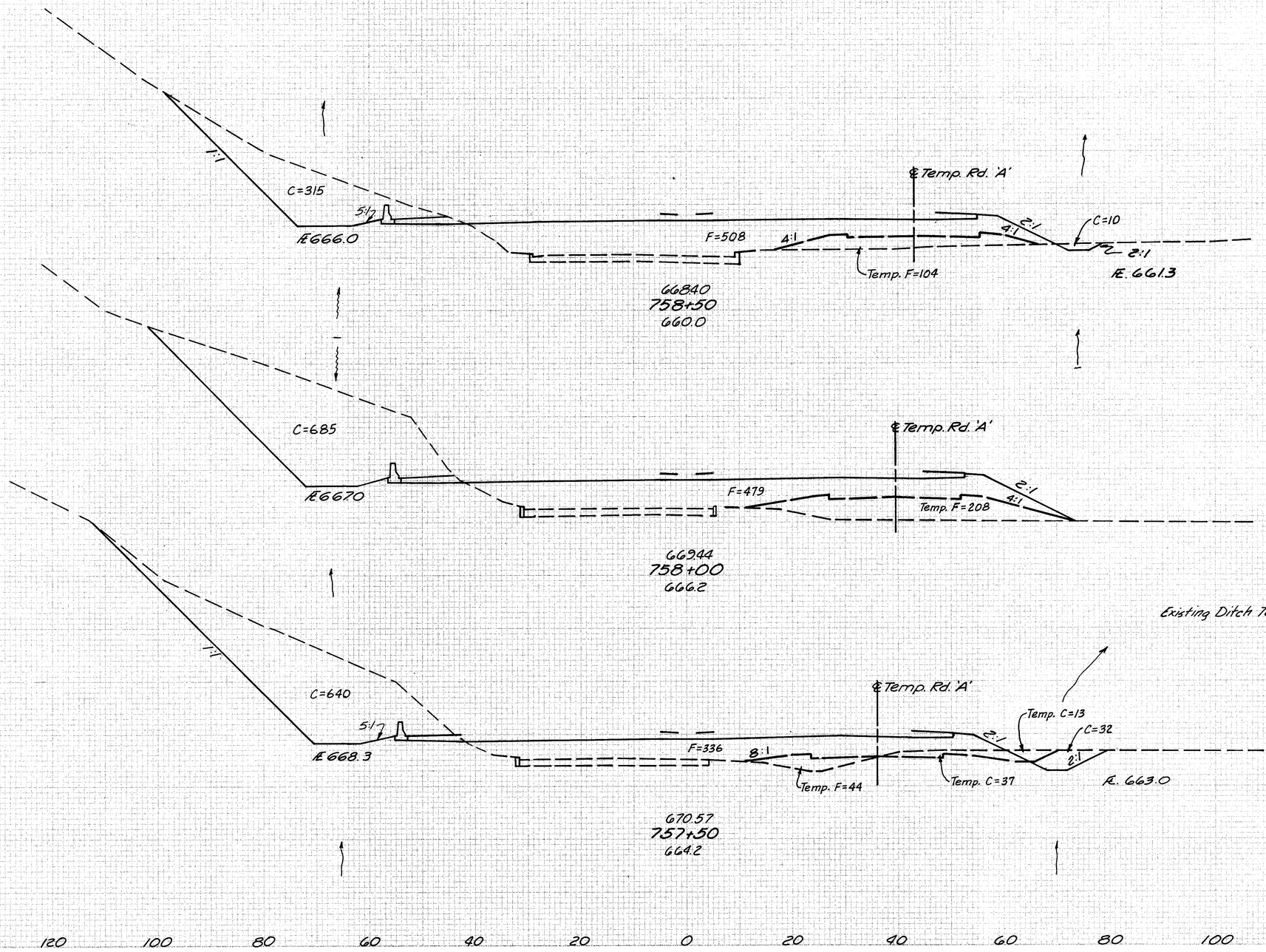
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

135/663

BEL-7-14.17

RECORD

END WIDTH	SQ. YDS.
93	
531	
98	
561	
104	
594	



END AREA		VOLUME	
CUT	FILL	CUT	FILL
	325		508
	935		914
	685		479
	1256		755
	672		336
	1182		617

STA. 757+50 TO STA. 758+50

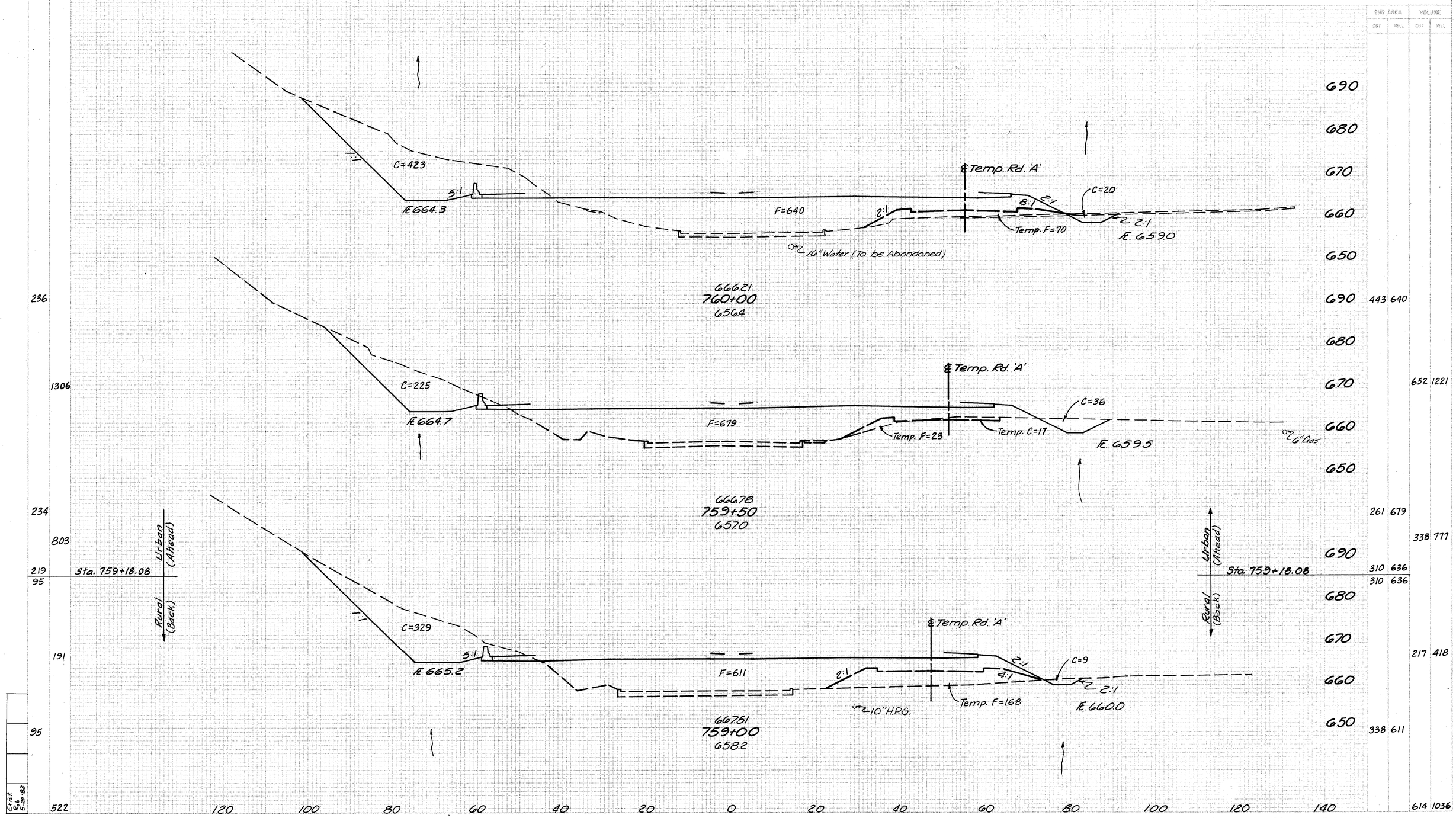
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

CALC. BY: F.S. DATE: 4-2-85
CHKD. BY: R.L. DATE: 5-7-85

FHWA REGION	STATE	PROJECT	
5	OHIO		

136
663

BEL-7-14.17



STA. 759+00 TO STA. 760+00

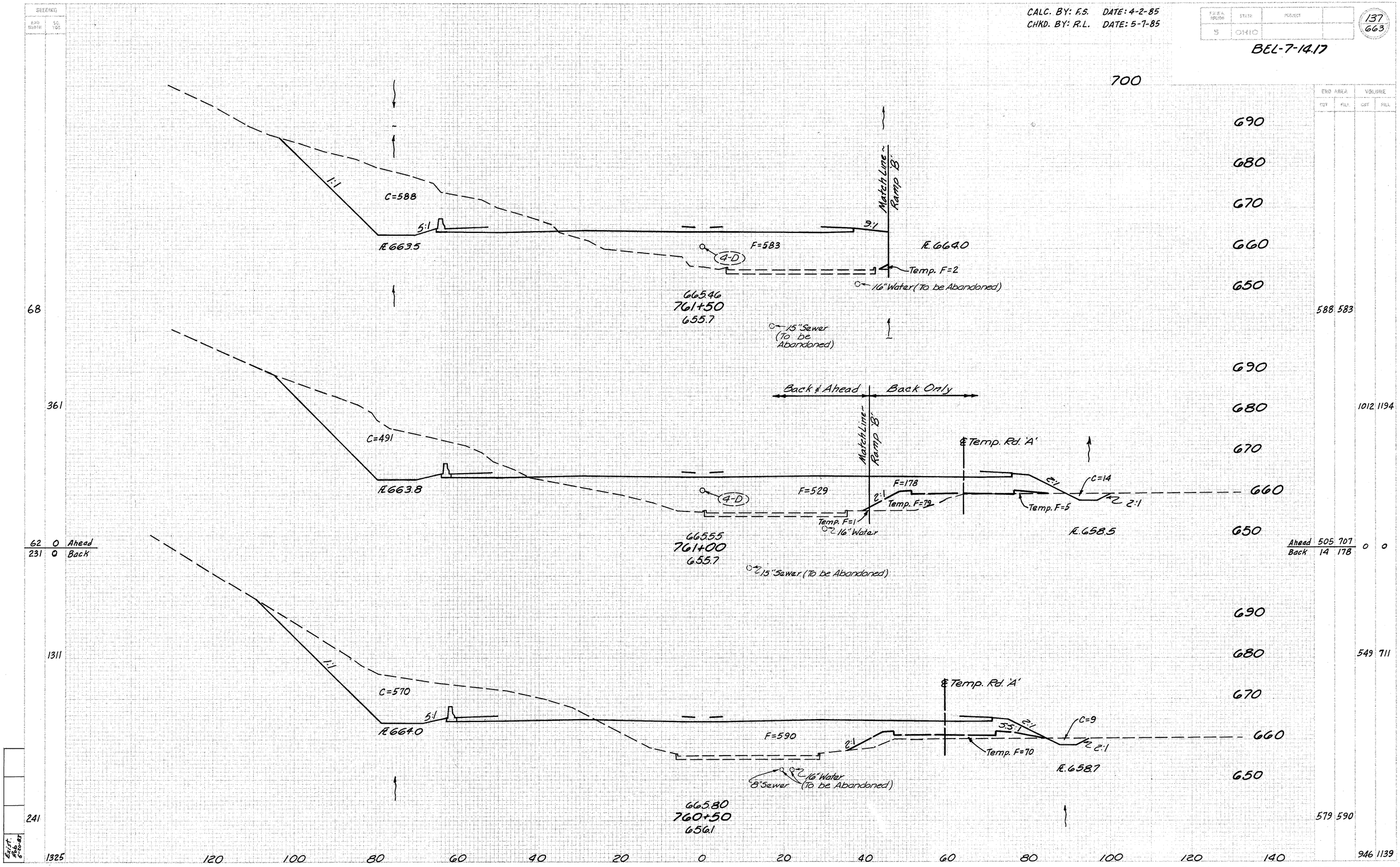
W. E. GUICKSALL & ASSOCIATES INC. Consulting Engineers

CALC. BY: F.S. DATE: 4-2-85
CHKD. BY: R.L. DATE: 5-7-85

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

137/663

BEL-7-14.17



SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
68			588	583		
	361				1012	1194
62	0	Ahead	Ahead 505	707	0	0
231	0	Back	Back 14	178		
	1311				549	711
241			579	590		
	1325				946	1139

Exist. Rob 6-20-85

STA. 760+50 TO STA. 761+50

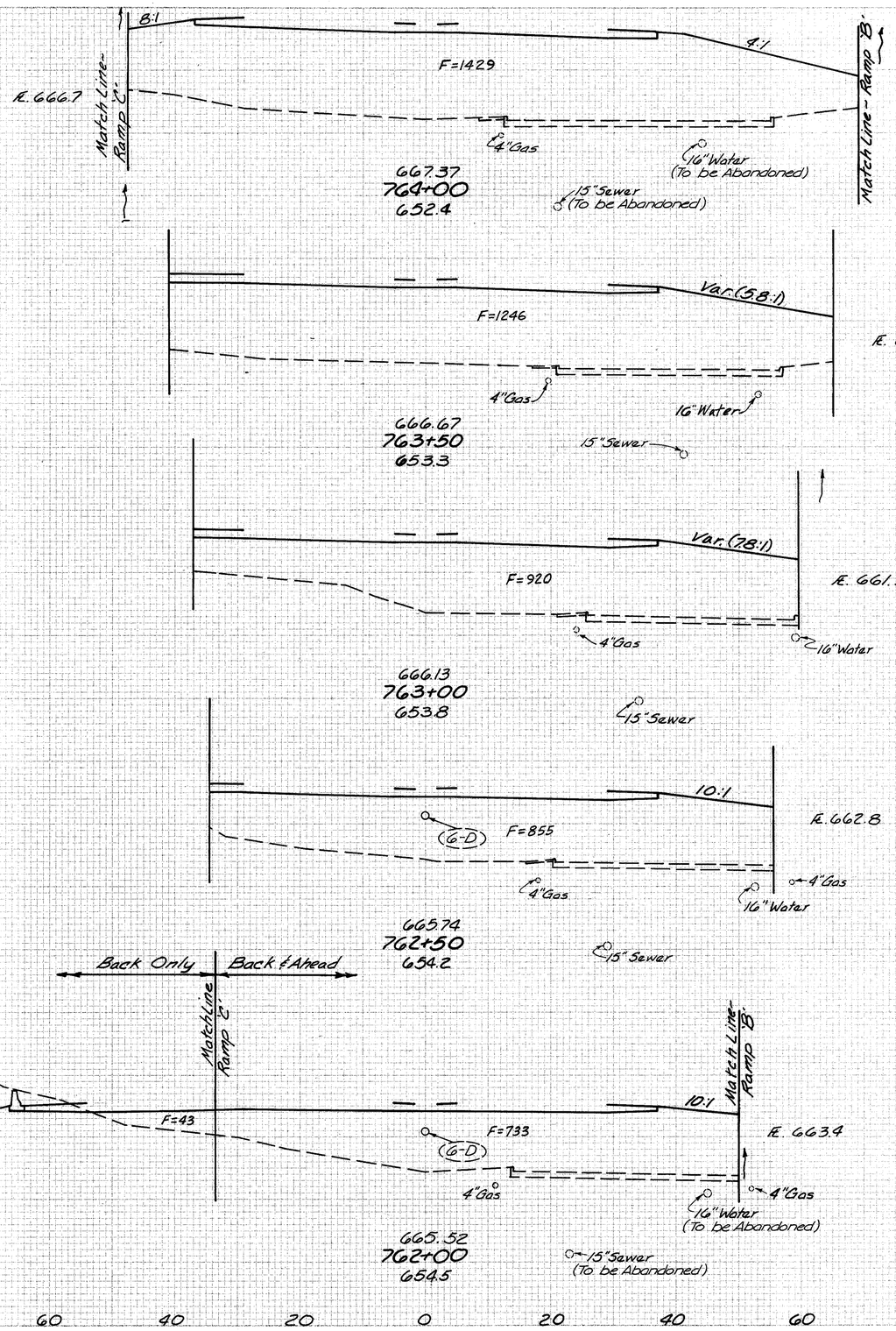
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

STATE	PROJECT		
OHIO			

138
663

BEL-7-14.17

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84



			END AREA		VOLUME	
			CUT	FILL	CUT	FILL
40			0	1429		
		660				
		650				
189					0	2477
		670				
		660				
		650				
28			0	1246		
		670				
142					0	2006
		660				
		650				
23			0	920		
		670				
117		660			0	1644
		650				
19		690	0	855		
		680				
89		670			208	1510
		660				
		650				
13	0	Ahead	Ahead	225	776	0 0
71	0	Back	Back	225	43	
386					753	580

140 120 100 80 60 40 20 0 20 40 60 80

STA. 762+00 TO STA. 764+00

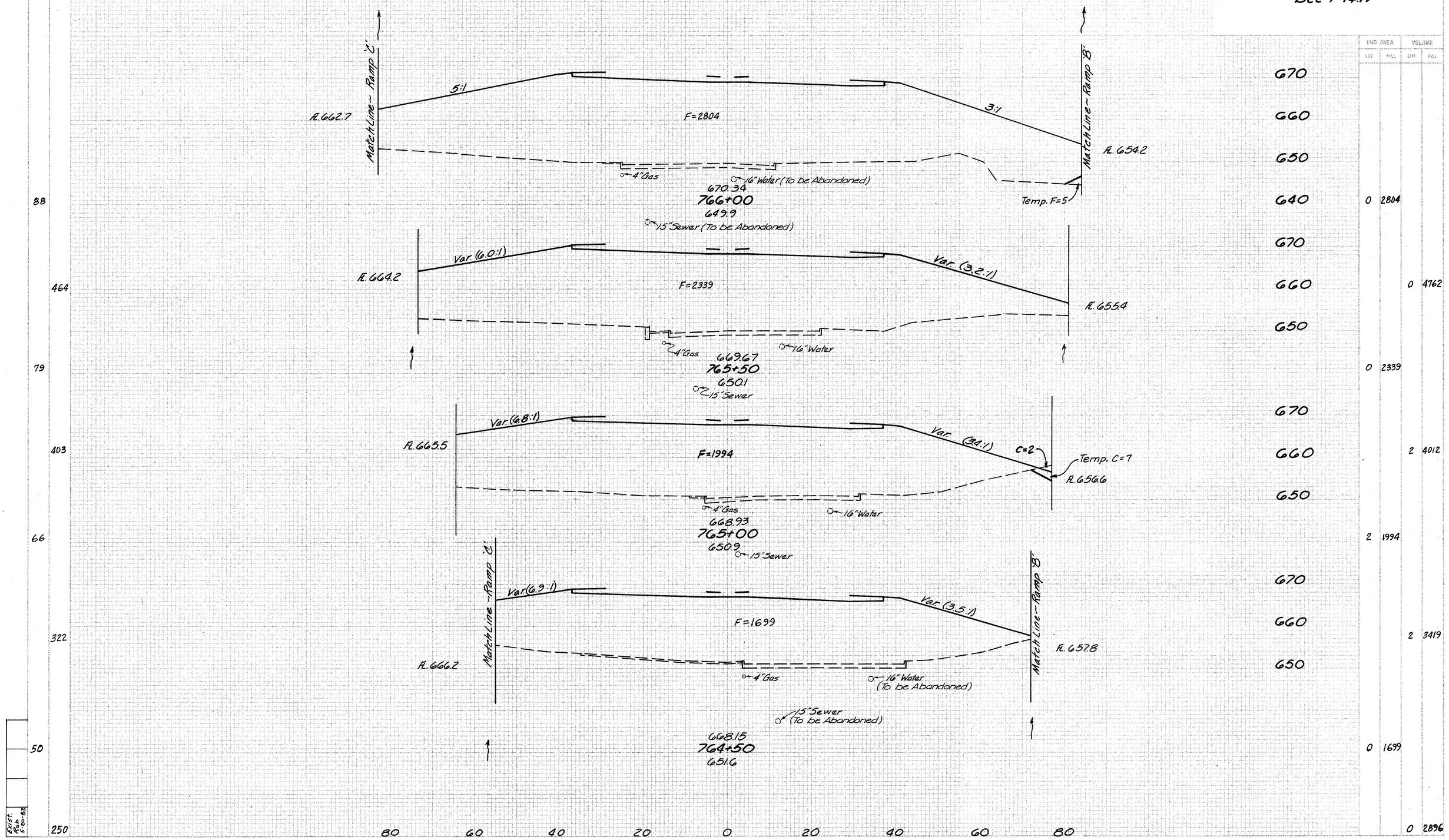
W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

139/663

BEL-7-14.17



Exist. Rob 5-20-83

W.E. QUICKSALL & ASSOCIATES INC Consulting Engineers

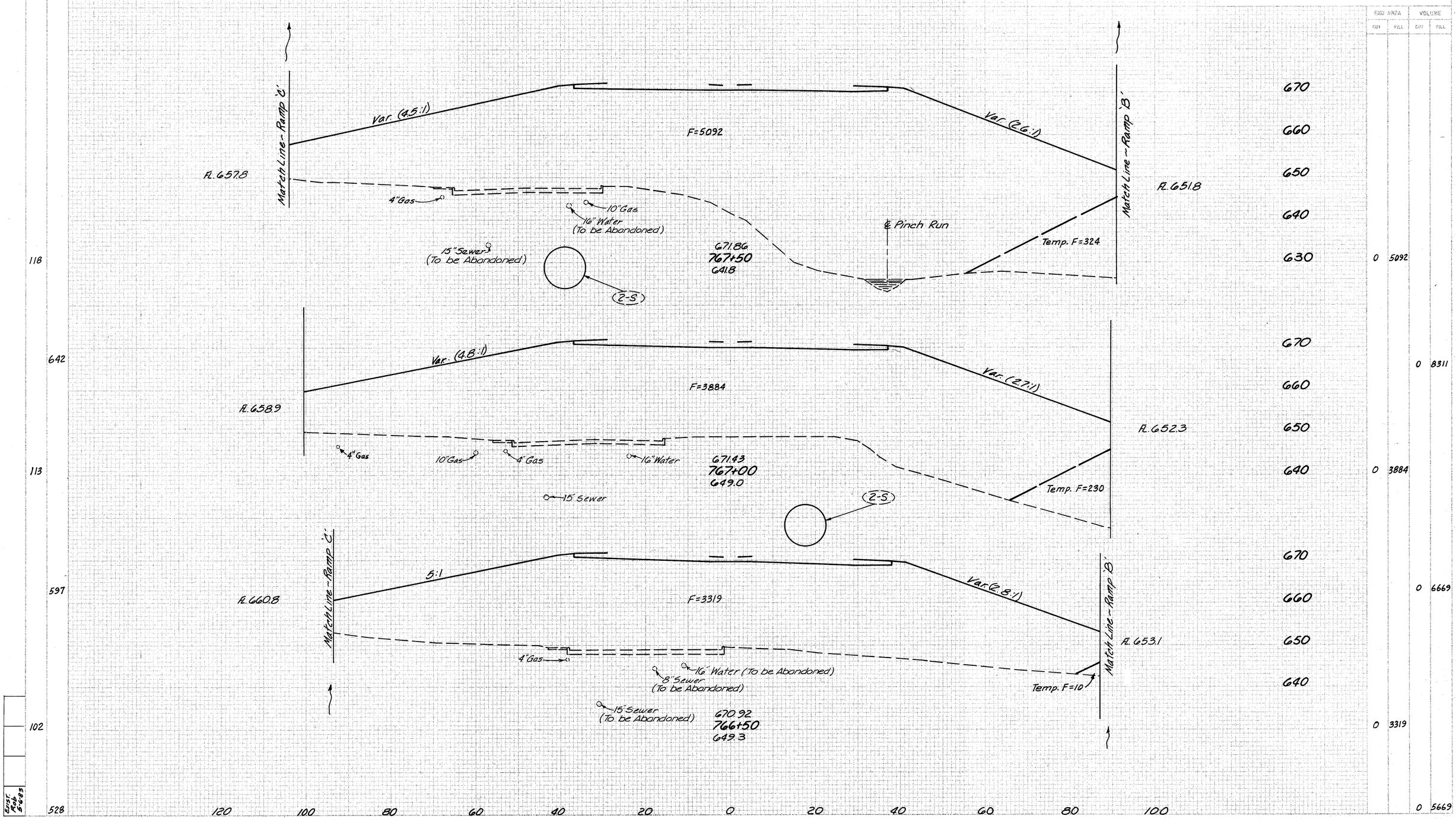
STA. 764+50 TO STA. 766+00

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

FILMED REGION	STATE	PROJECT	
5	OHIO		

140/663

BEL-7-14.17



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	5092		
		0	8311
0	3884		
		0	6669
0	3319		
		0	5669

STA. 766+50 TO STA. 767+50

W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

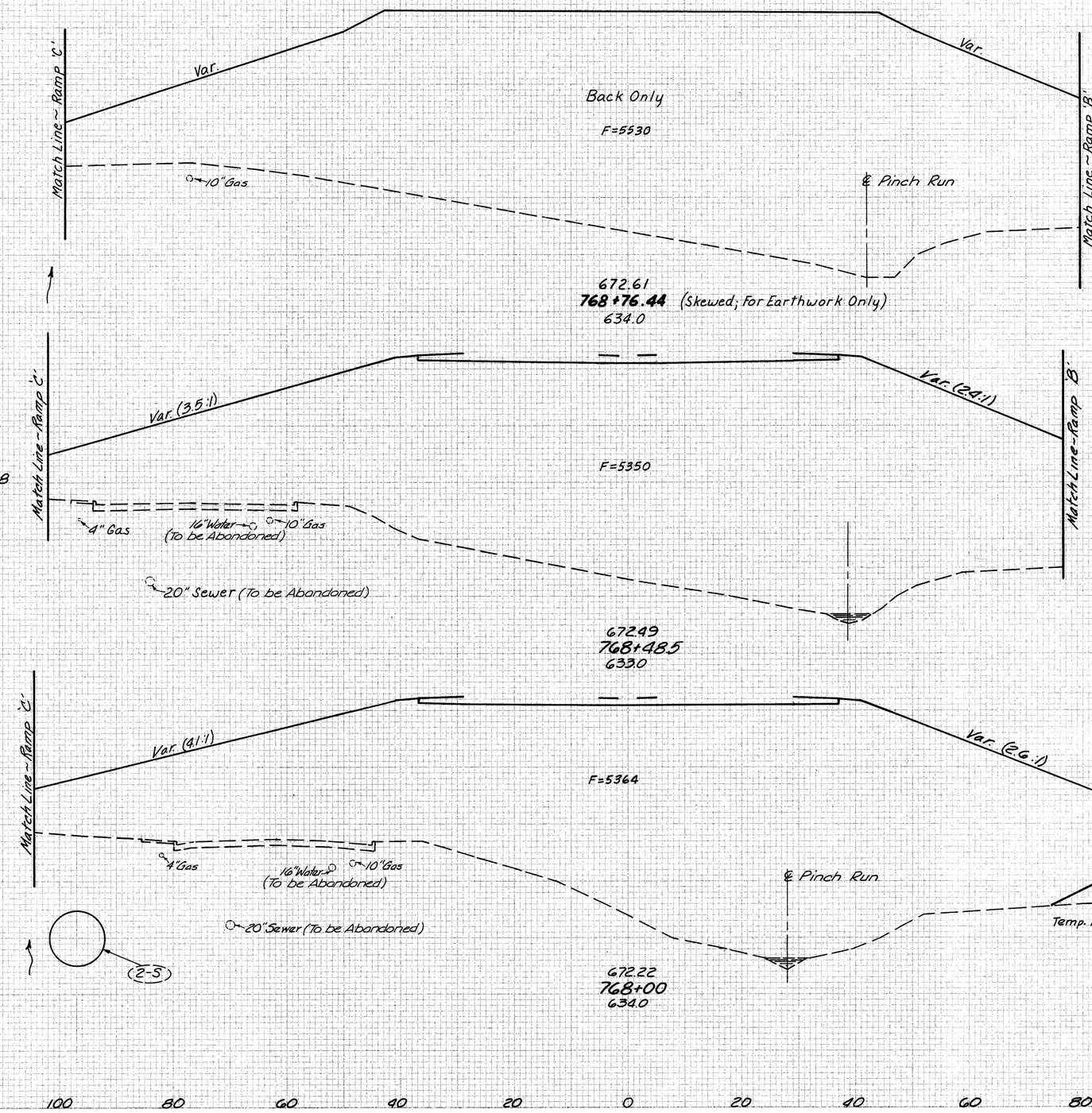
CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

141
663

BEL-7-14.17

(BRIDGE)



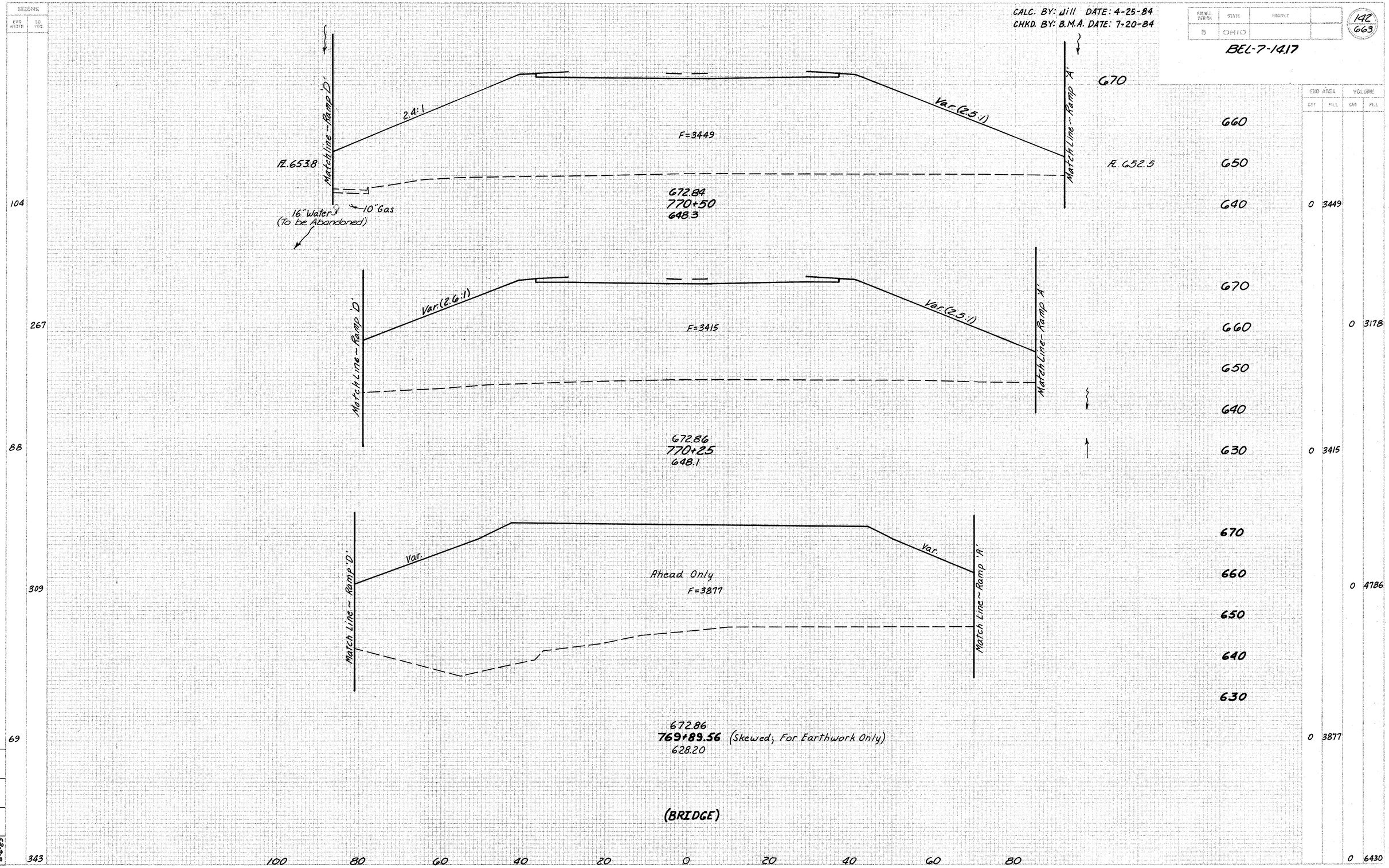
| SEEDING | | |

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

142/663

BEL-7-14.17



STA. 769+89.56 TO STA. 770+50

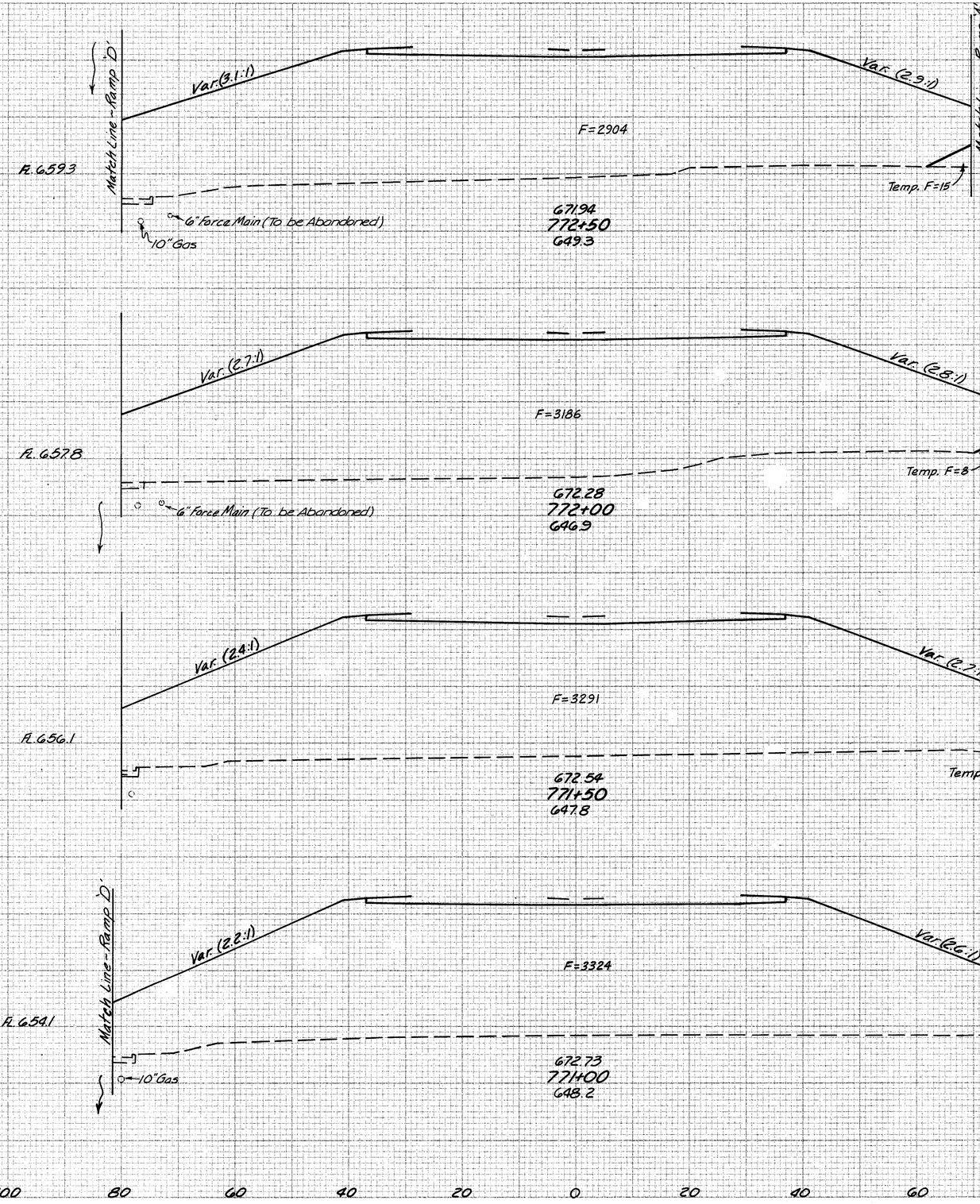
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 143/663

SEEDING END WIDTH	SEEDING SQ. YDS.	
		670
		660
		650
70		640
	411	670
		660
		650
78		640
		670
		660
		650
84		640
	492	670
		660
		650
93		640
	547	

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	2904		
		0	5639
0	3186		
		0	5997
0	3291		
		0	6125
0	3324		
		0	6271



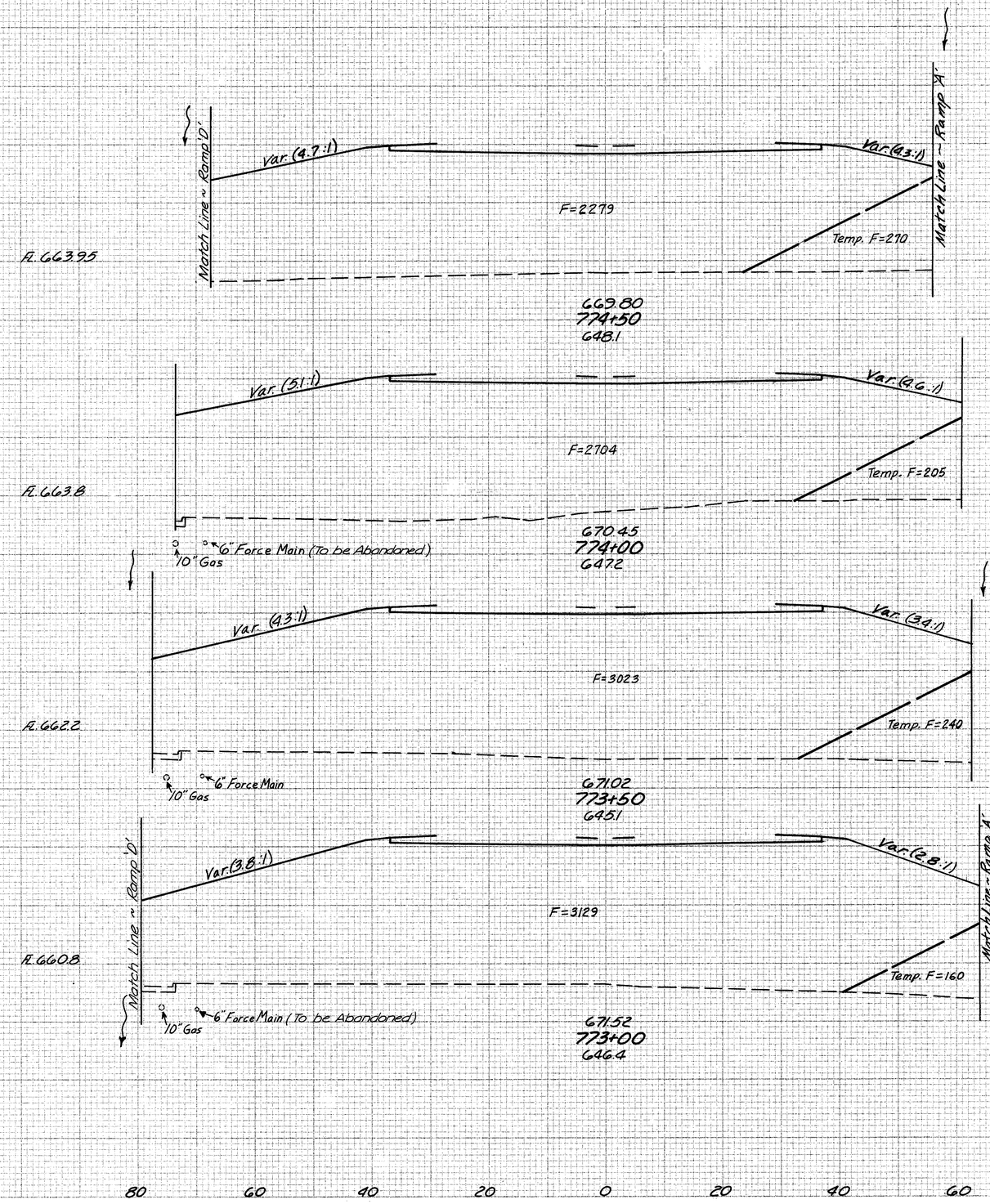
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

STA. 771+00 TO STA. 772+50

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BFL-7-14.17 | OHIO | FHWA REGION 5 | 144 / 663

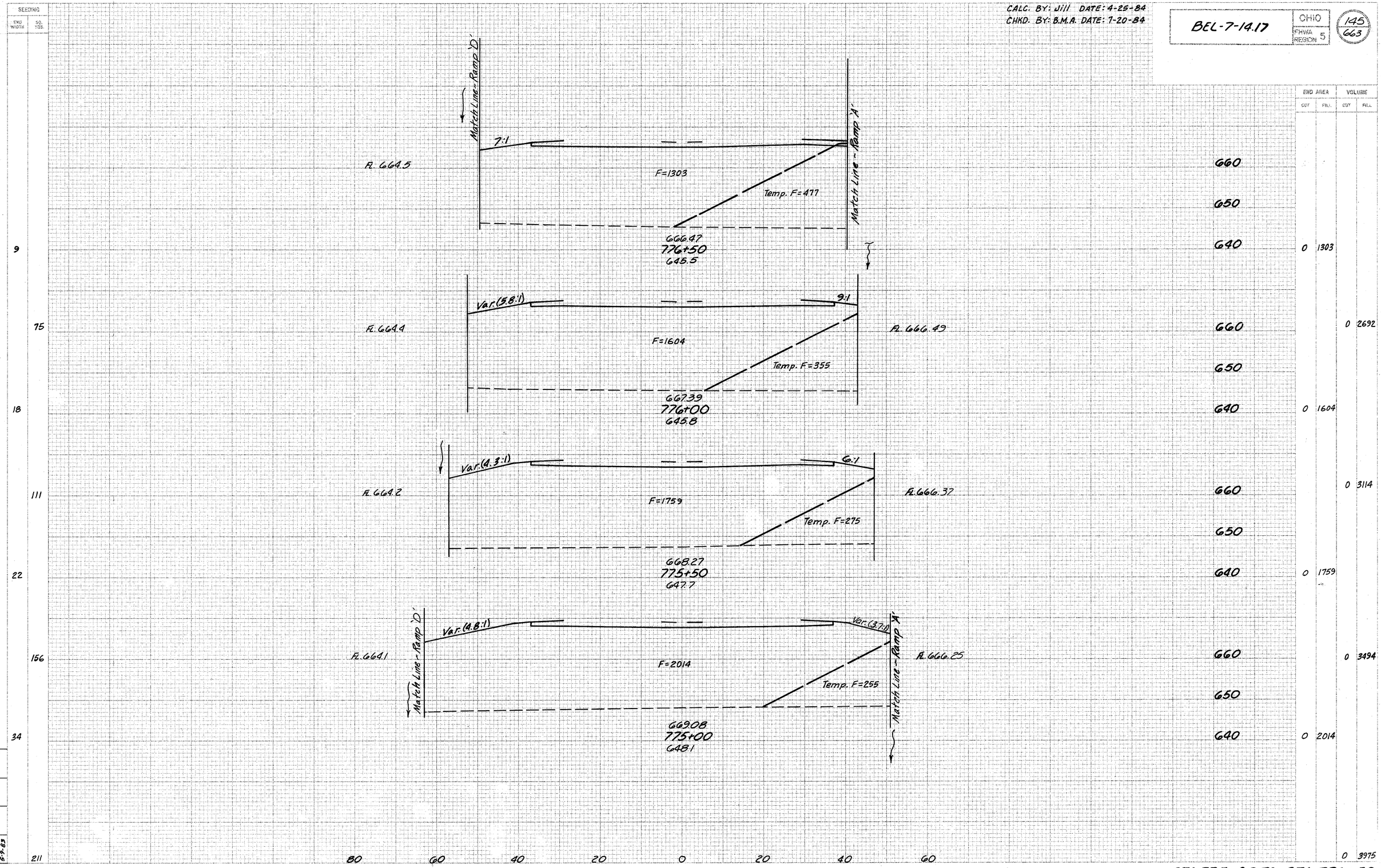
SEEDING END WIDTH	SEEDING SQ. YDS.
42	
264	
53	
317	
61	
347	
64	
372	



| | | |

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 145/663



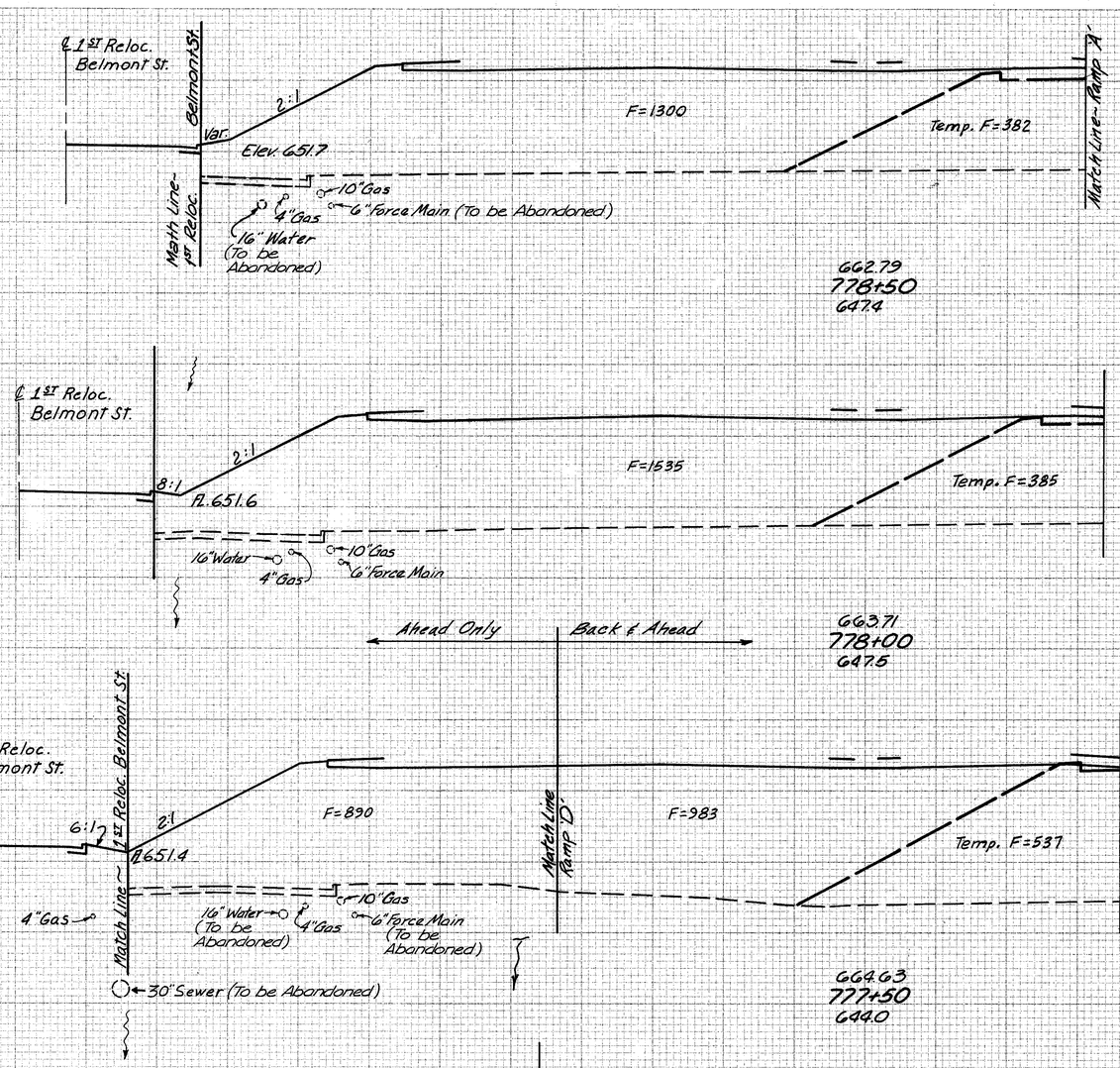
STA. 775+00 TO STA. 776+50

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

Exist. Rob 5-9-83

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 146 / 663



	SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
			650				
			640				
		27		0	1300		
			660				
		153				0	2625
			650				
			640				
		28		0	1535		
			660				
		153				0	3156
			650				
			640				
	27	0	Ahead	0	1873	0	0
	6	0	Back	0	983		
			660				
		42				0	1998
			650				
			640				
	9			0	1175		
		50				0	2294

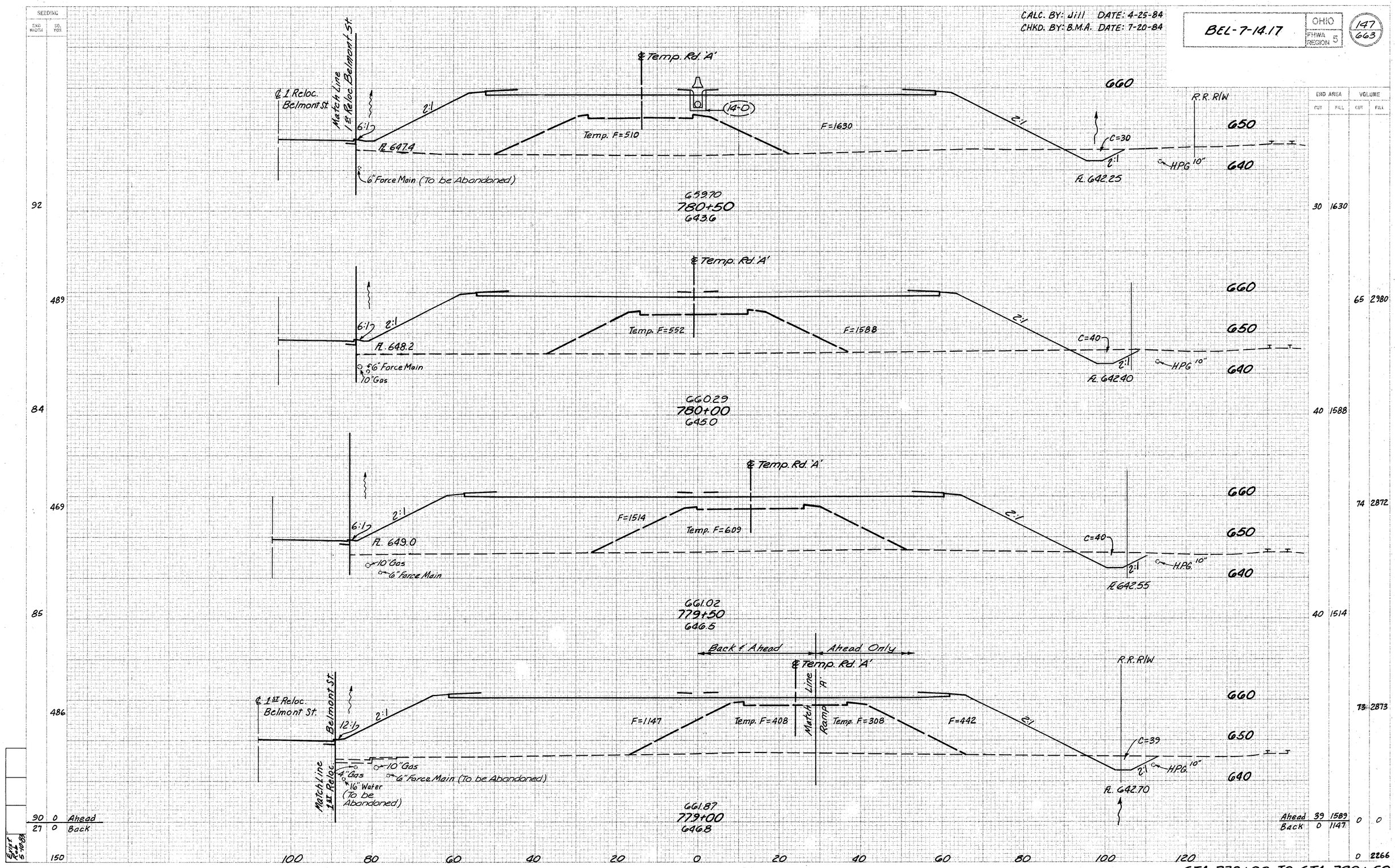
Grist Mill 6-10-83

100 80 60 40 20 0 20 40 60 80

STA. 777+00 TO STA. 778+50

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 147/663



STA. 779+00 TO STA. 780+50

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 148 / 663

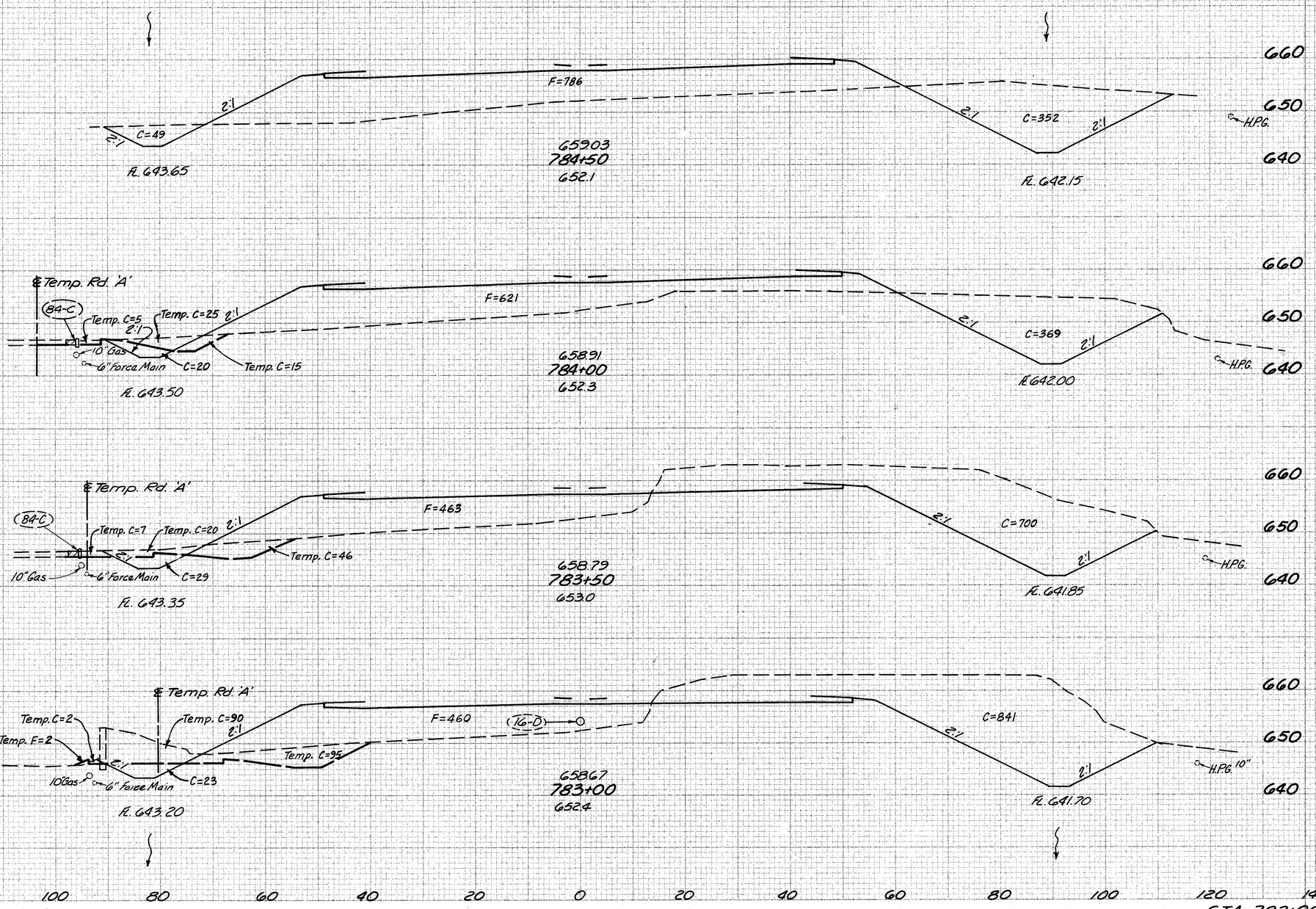
SEEDING

END WIDTH	SQ. YDS

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 149 / 663

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
132		401	786		
717				731	1303
126		389	621		
686				1035	1004
121		729	463		
689				1475	855
127		864	460		
697		1078	1217		



CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 150/663

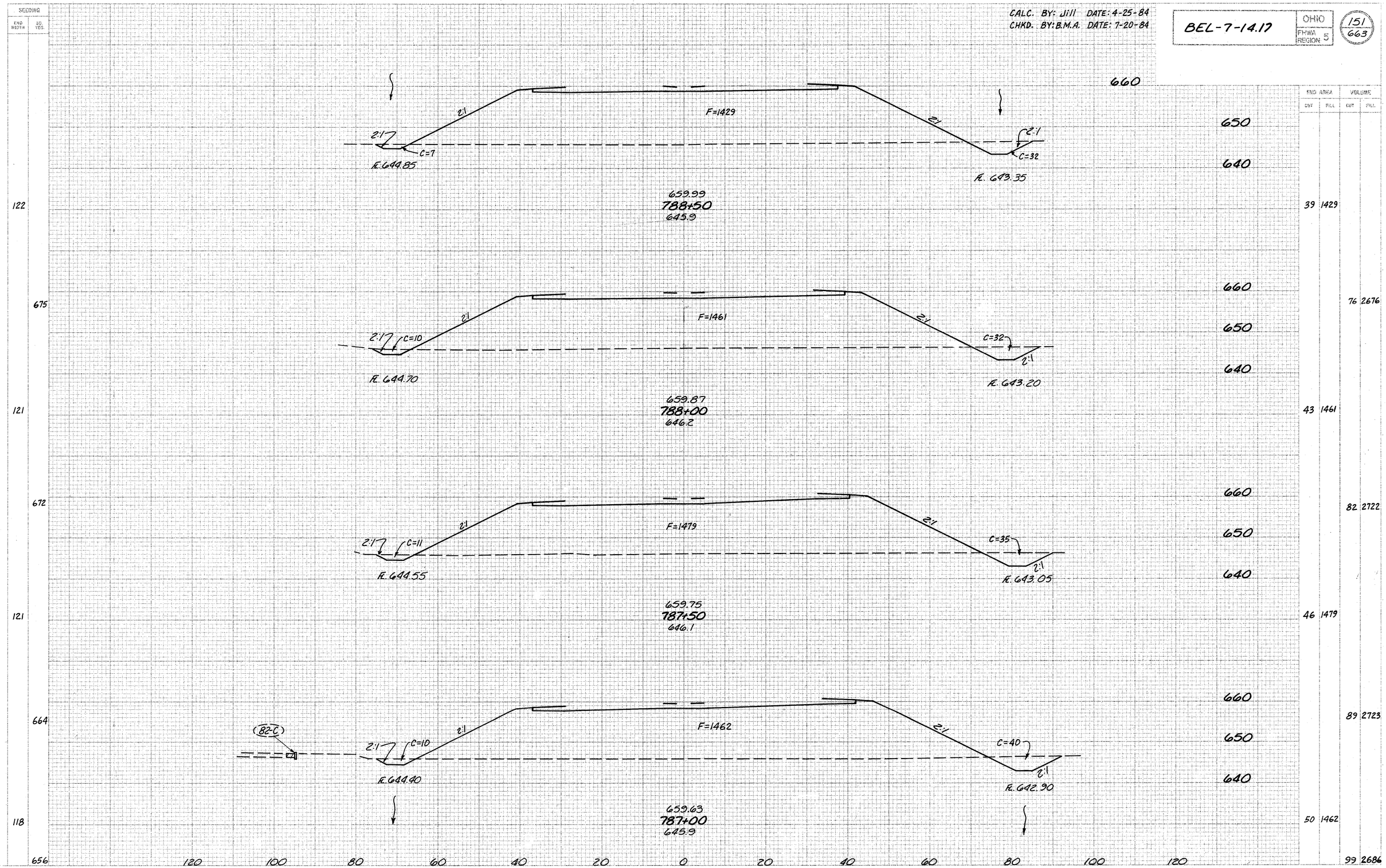
SEEDING				END AREA		VOLUME	
END WIDTH	SQ. YDS.			CUT	FILL	CUT	FILL
			660				
			650				
			640				
118		F=1439 2:1 2:1 C=15 C=42		57	1439		
		Fl. 649.25 Fl. 642.75					
		659.51 786+50 646.1					
			660				
661		F=1469 2:1 2:1 C=15 C=40	650			104	2693
		Fl. 644.10 Fl. 642.60	640				
		659.39 786+00 646.1					
			660				
678		F=1480 2:1 2:1 C=19 C=40	650			106	2731
		10"Gas 6"Force Main	640				
		Fl. 643.95 Fl. 642.45					
124		659.27 785+50 645.8		59	1480		
703		F=1015 2:1 2:1 C=50 C=130	660			221	2310
		(83-C) 10"Gas 6"Force Main	650				
129		659.15 785+00 650.5	640	180	1015		
		Fl. 643.80 Fl. 642.30					
725		100 80 60 40 20 0 20 40 60 80 100 120				538	1668

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

STA. 785+00 TO STA. 786+50

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 151/663



STA. 787+00 TO STA. 788+50

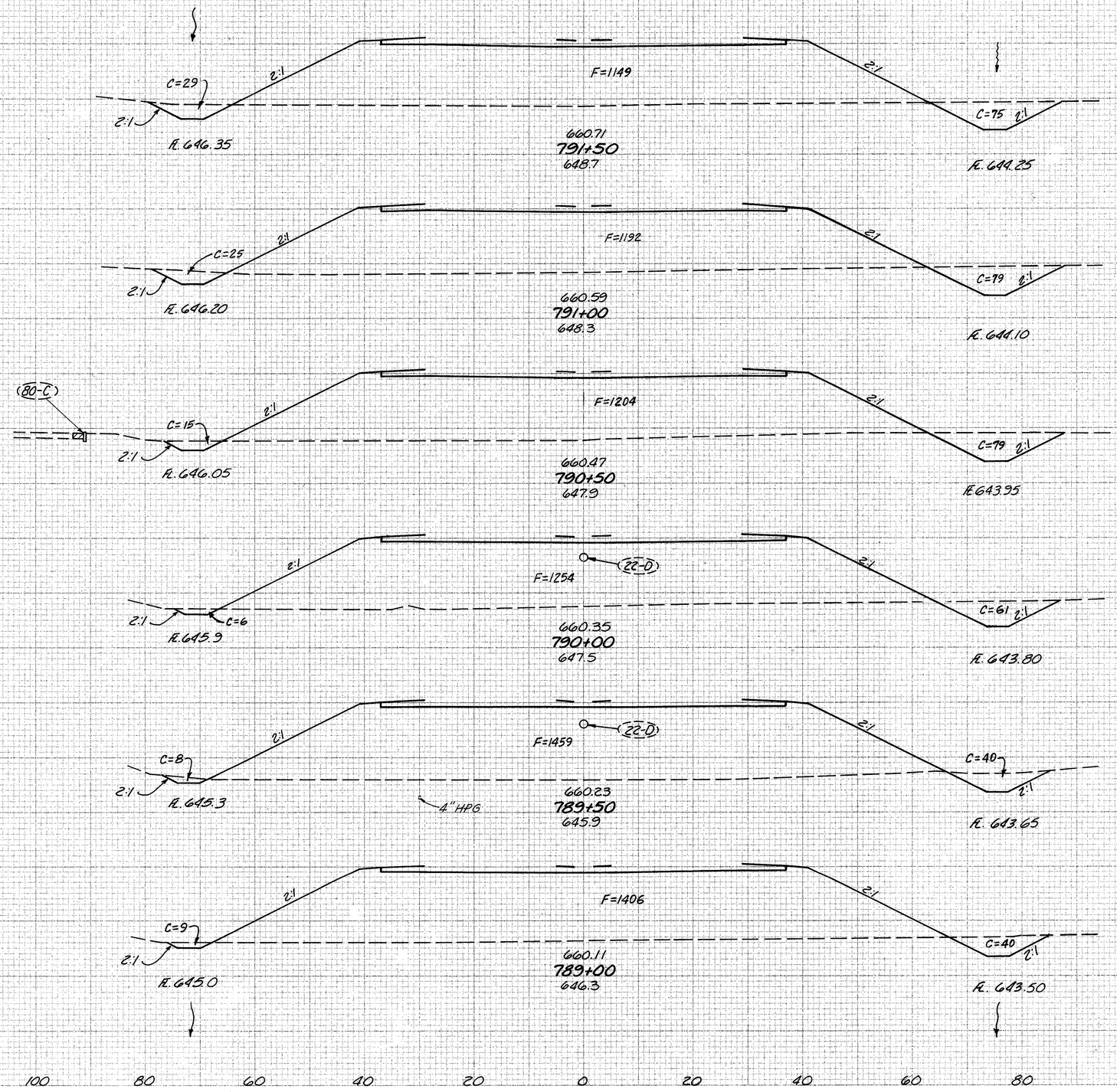
W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 152/663

SEEDING

END WIDTH	SQ YDS
116	650
118	656
118	653
117	661
121	669
120	672



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
104	1149		
		193	2168
104	1192		
		183	2219
94	1204		
		149	2276
67	1254		
		106	2512
48	1459		
		90	2653
49	1406		
		81	2625

120 100 80 60 40 20 0 20 40 60 80 100 120

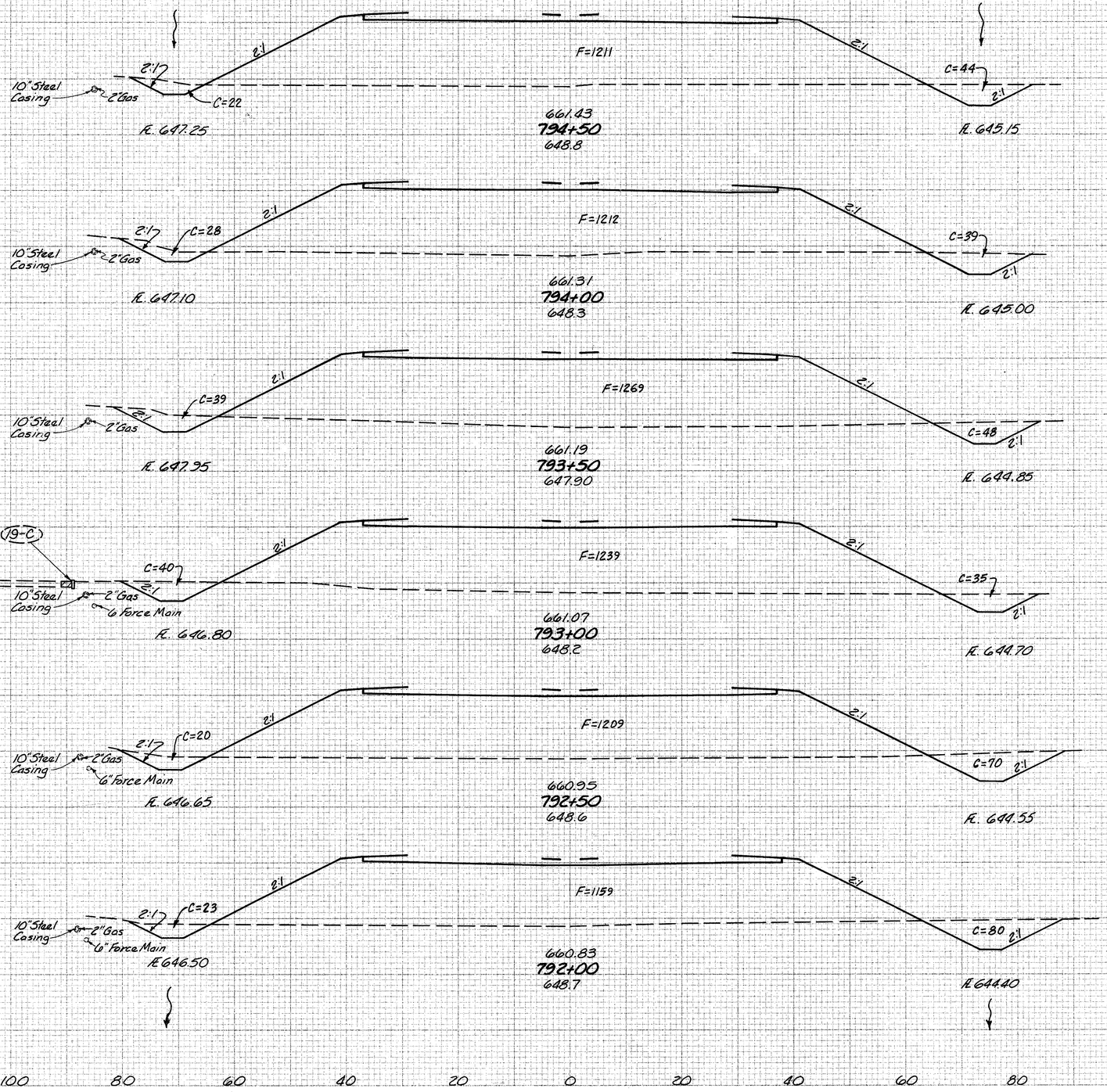
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

STA. 789+00 TO STA. 791+50

CALC. BY: Jill DATE: 4-24-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 153/663

SEEDING END WIDTH	SEEDING SQ. YDS.
112	631
115	639
115	636
114	644
118	653
117	



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
66	1211	123	2244
67	1212	143	2297
87	1269	150	2322
75	1239	153	2267
90	1209	179	2193
103	1159	192	2137

120 100 80 60 40 20 0 20 40 60 80 100 120

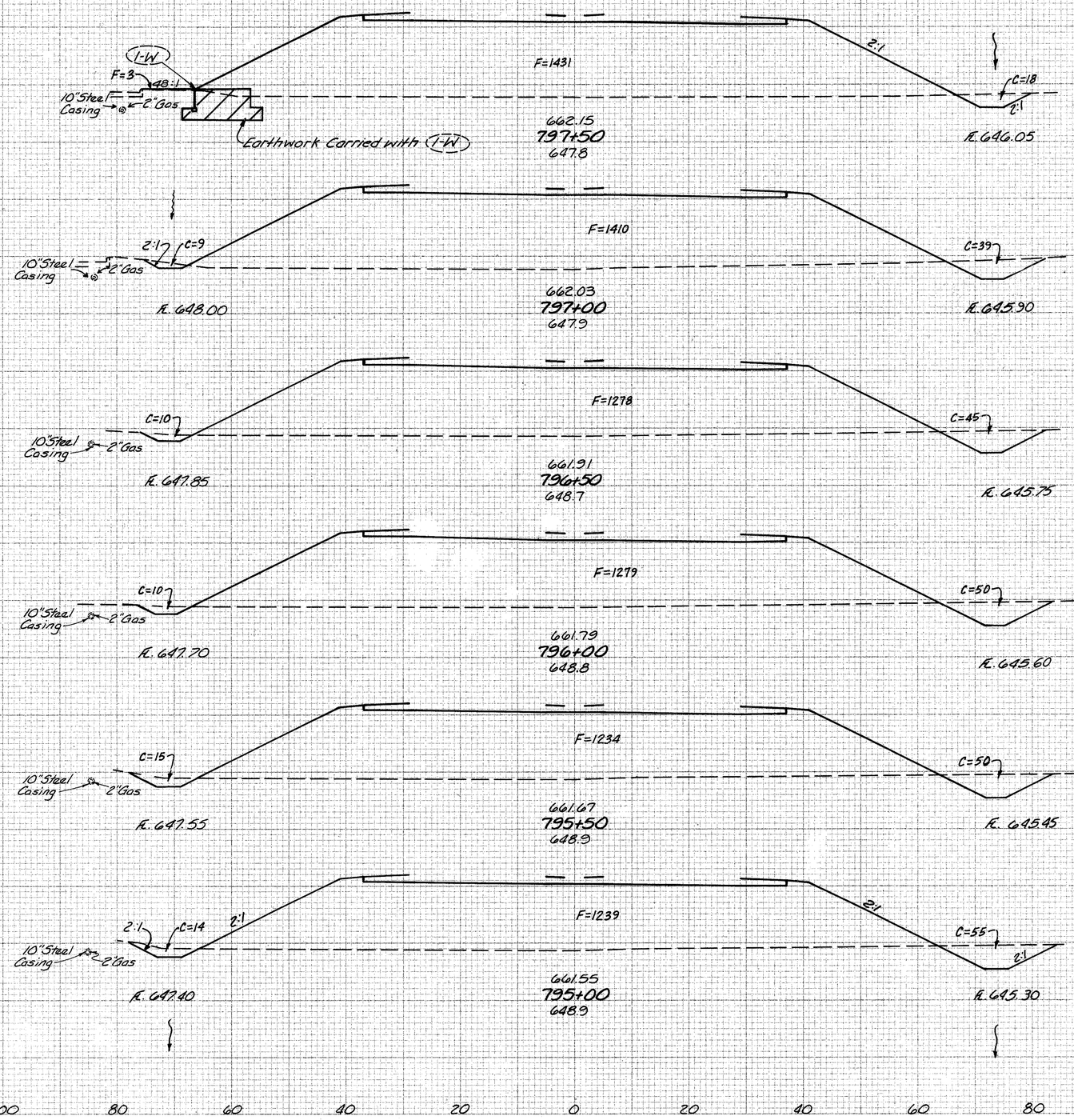
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

STA. 792+00 TO STA. 794+50

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 154/663

SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		660				
		650				
101	569	F=1431	18	1434	61	2633
		660				
		650				
104	589	F=1410	48	1410	95	2489
		660				
		650				
108	603	F=1278	55	1278	106	2368
		660				
		650				
109	608	F=1279	60	1279	116	2327
		660				
		650				
110	617	F=1234	65	1234	124	2290
		660				
		650				
112	622	F=1239	69	1239	125	2269



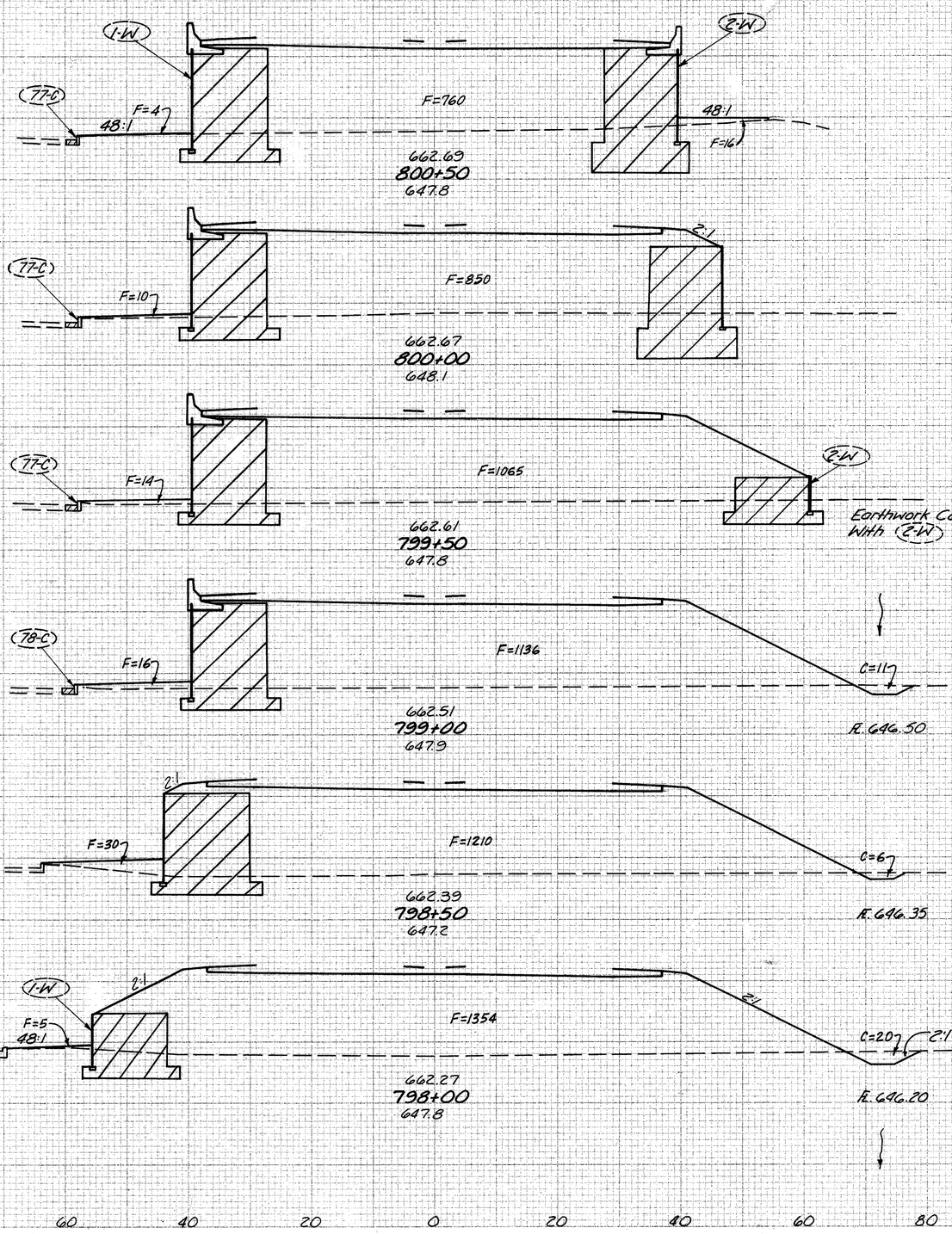
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

STA. 795+00 TO STA. 797+50

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 155/663

SEEDING END WIDTH	SEEDING SQ. YDS		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		660				
		650				
45		662.69 800+50 647.8	0	780		
		660				
	286				0	1519
		650				
58		662.67 800+00 648.1	0	860		
		660				
	356				0	1795
		650				
70		662.61 799+50 647.8	0	1079		
		660				
	406				10	2066
		650				
76		662.51 799+00 647.9	11	1152		
		660				
	439				16	2215
		650				
82		662.39 798+50 647.2	6	1240		
		660				
	481				24	2406
		650				
91		662.27 798+00 647.8	20	1359		
	533				35	2586

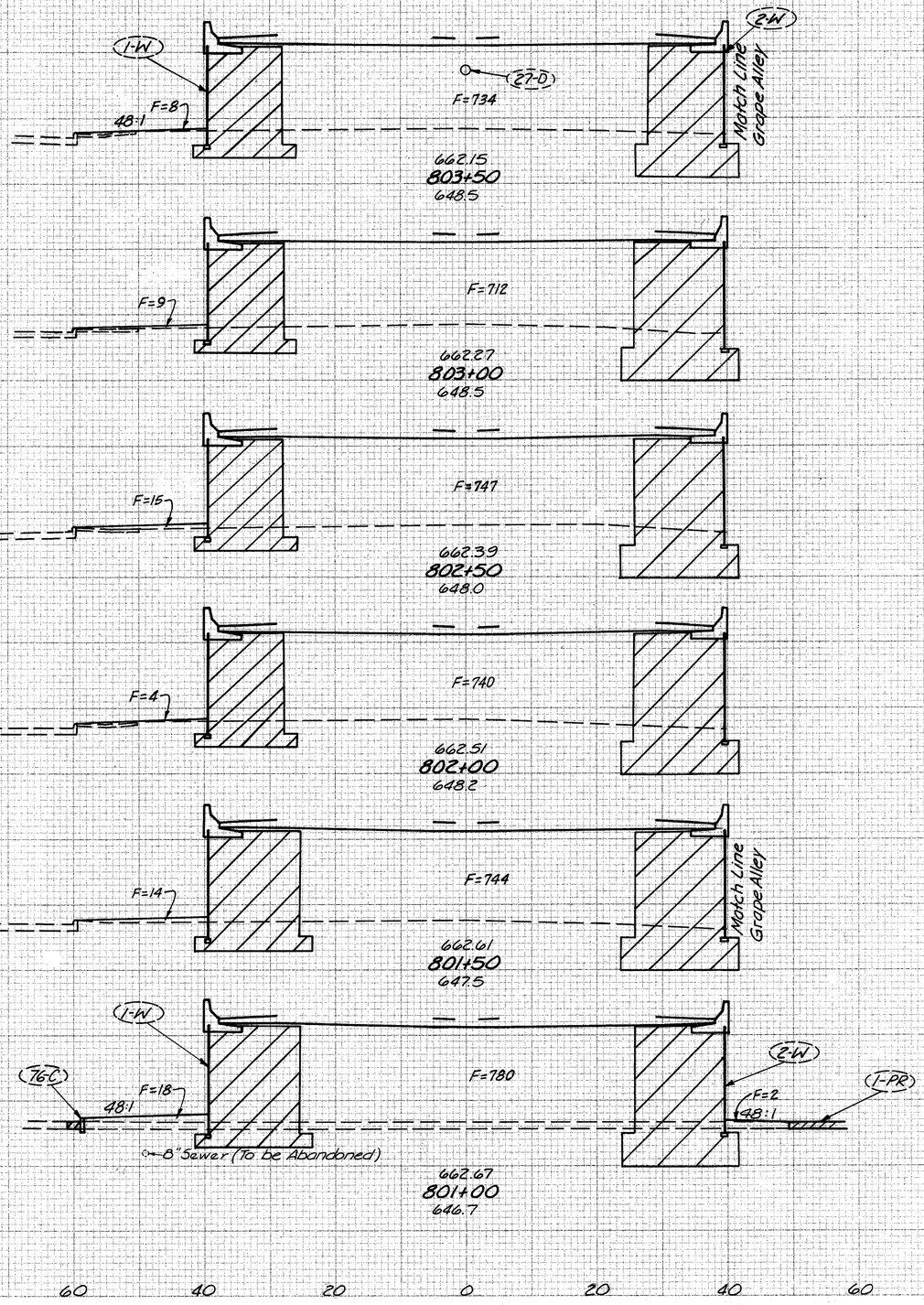


W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

STA. 798+00 TO STA. 800+50

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO FHWA REGION 5 | 156/663



SEEDING

END WIDTH	SQ. YDS.
20	
	111
20	
	111
20	
	111
20	
	139
30	
208	

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
660				
650				
640	0	742		
660				
650			0	1355
640	0	721		
660				
650			0	1373
640	0	762		
660				
650			0	1394
640	0	744		
660				
650			0	1391
640	0	758		
660				
650			0	1443
640	0	800		
			0	1463

120 100 80 60 40 20 0 20 40 60 80 100 120

STA. 801+00 TO STA. 803+50

CALC. BY: JJH DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 157/663

SEEDING END WIDTH	SEEDING SQ. YDS.			END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
			660				
			650				
19		1-W, 48:1, F=10; F=637, 28-D; Match Line Grape Alley, 2-W	660	0	647		
		661.43 / 806+50 / 649.6	650				
	111	F=10; F=620, 28-D	660			0	1182
			650				
21		661.55 / 806+00 / 649.5	660	0	630		
	117	F=16; F=670, 27-D	650			0	1219
		661.67 / 805+50 / 649.0	660	0	686		
	114	F=7; F=712, 27-D	650			0	1301
20		661.79 / 805+00 / 647.9	660	0	719		
	111	F=12; F=708, 27-D	650			0	1332
20		661.91 / 804+50 / 648.5	660	0	720		
	111	1-W, 48:1; F=730, 27-D; Match Line Grape Alley, 2-W	650			0	1343
20		662.03 / 804+00 / 648.3	660	0	730		
	111		650			0	1363

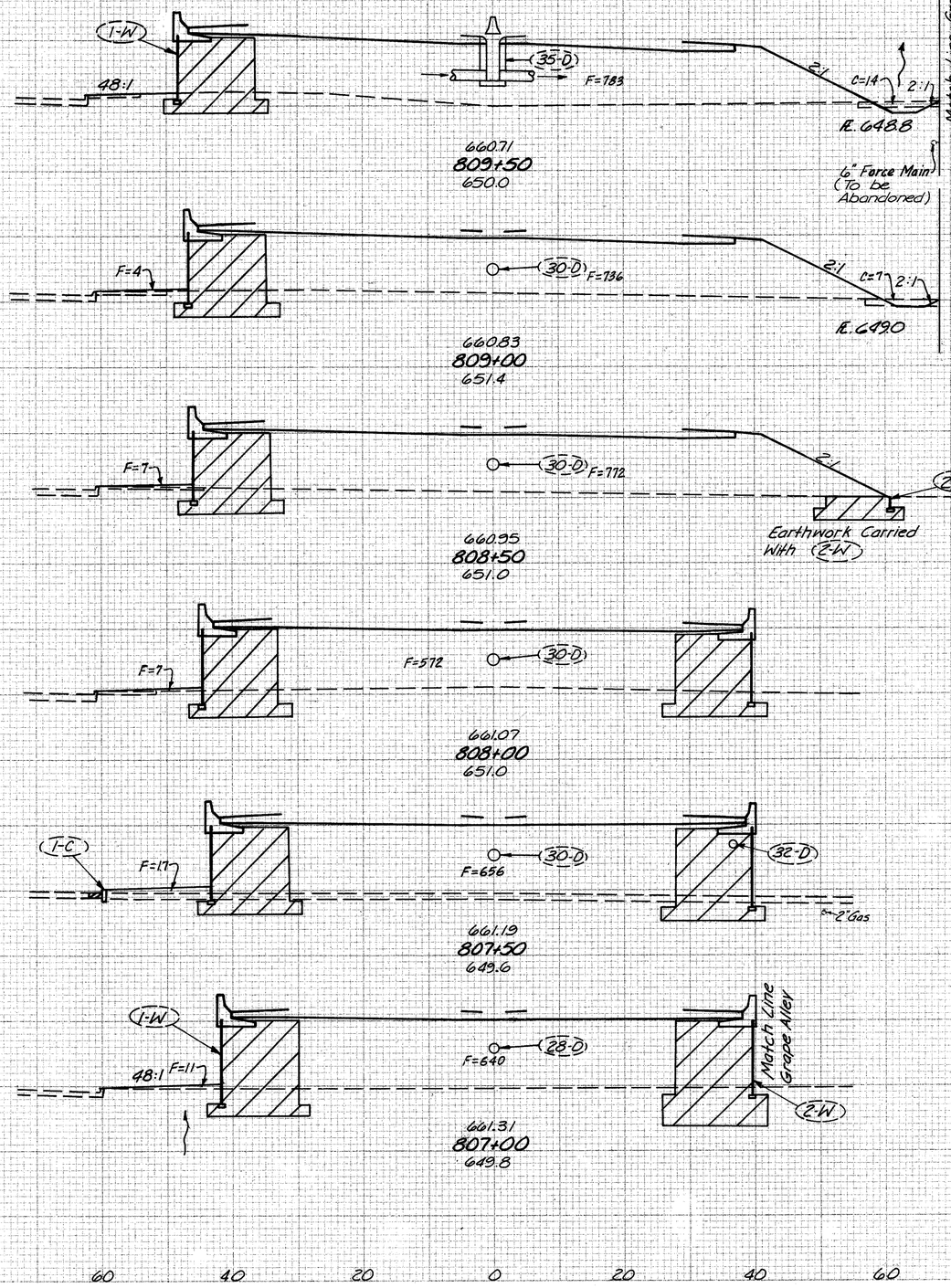
120 100 80 60 40 20 0 20 40 60 80 100 120

STA. 804+00 TO STA. 806+50

CALC. BY: JJ/l DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO FHWA REGION 5 | 158 / 663

SEEDING END WIDTH	SEEDING SQ. YDS.	
		660
44		650
		660
244		650
44		660
225		650
37		660
147		650
16		660
89		650
16		660
94		650
18		660
103		650



← 6" Force Main (To be Abandoned)

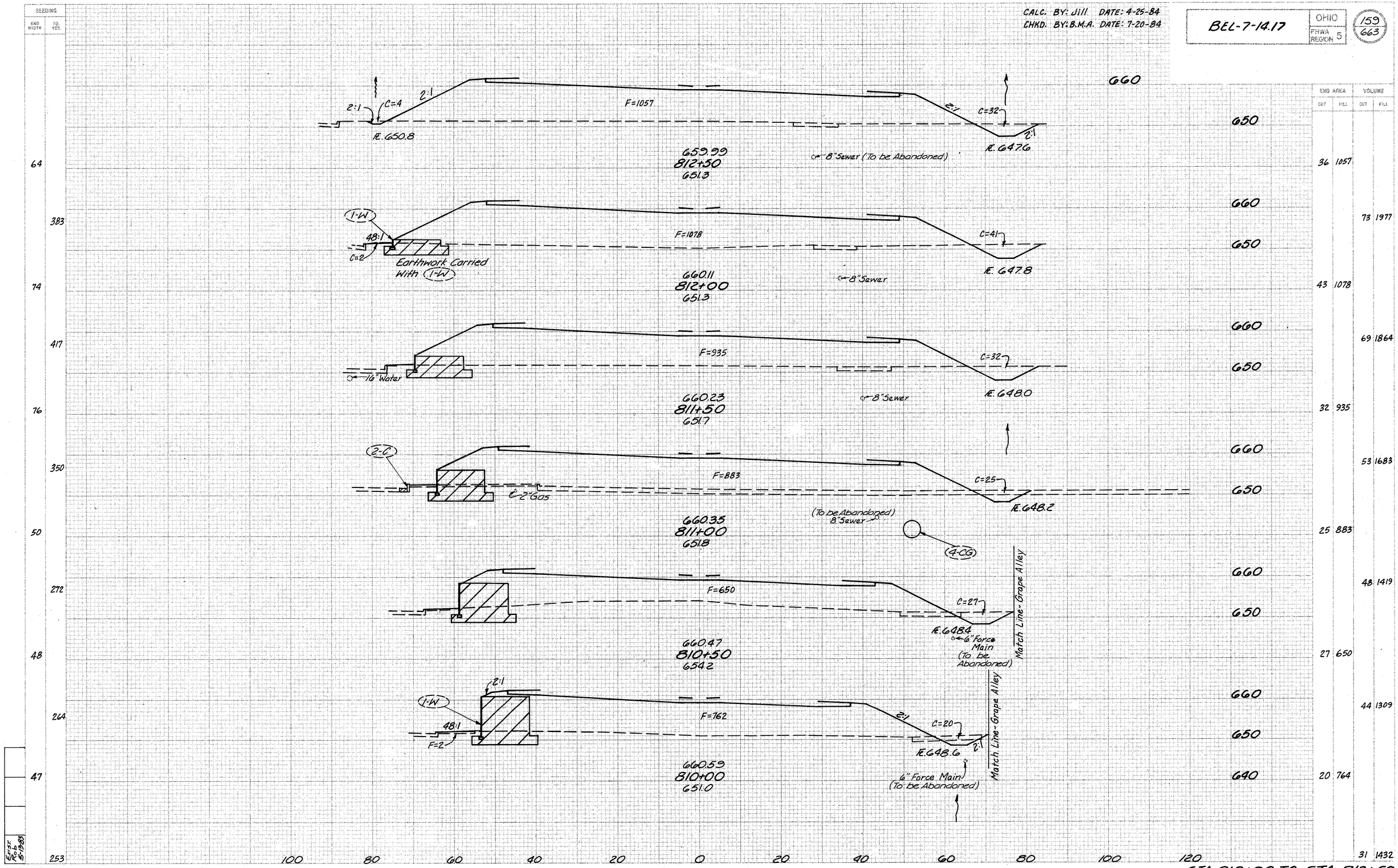
END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
14	783		
		19	1410
7	740		
		6	1406
0	779		
		0	1257
0	579		
		0	1159
0	673		
		0	1226
0	651		
		0	1202

120 100 80 60 40 20 0 20 40 60 80 100 120

STA. 807+00 TO STA. 809+50

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 159/663

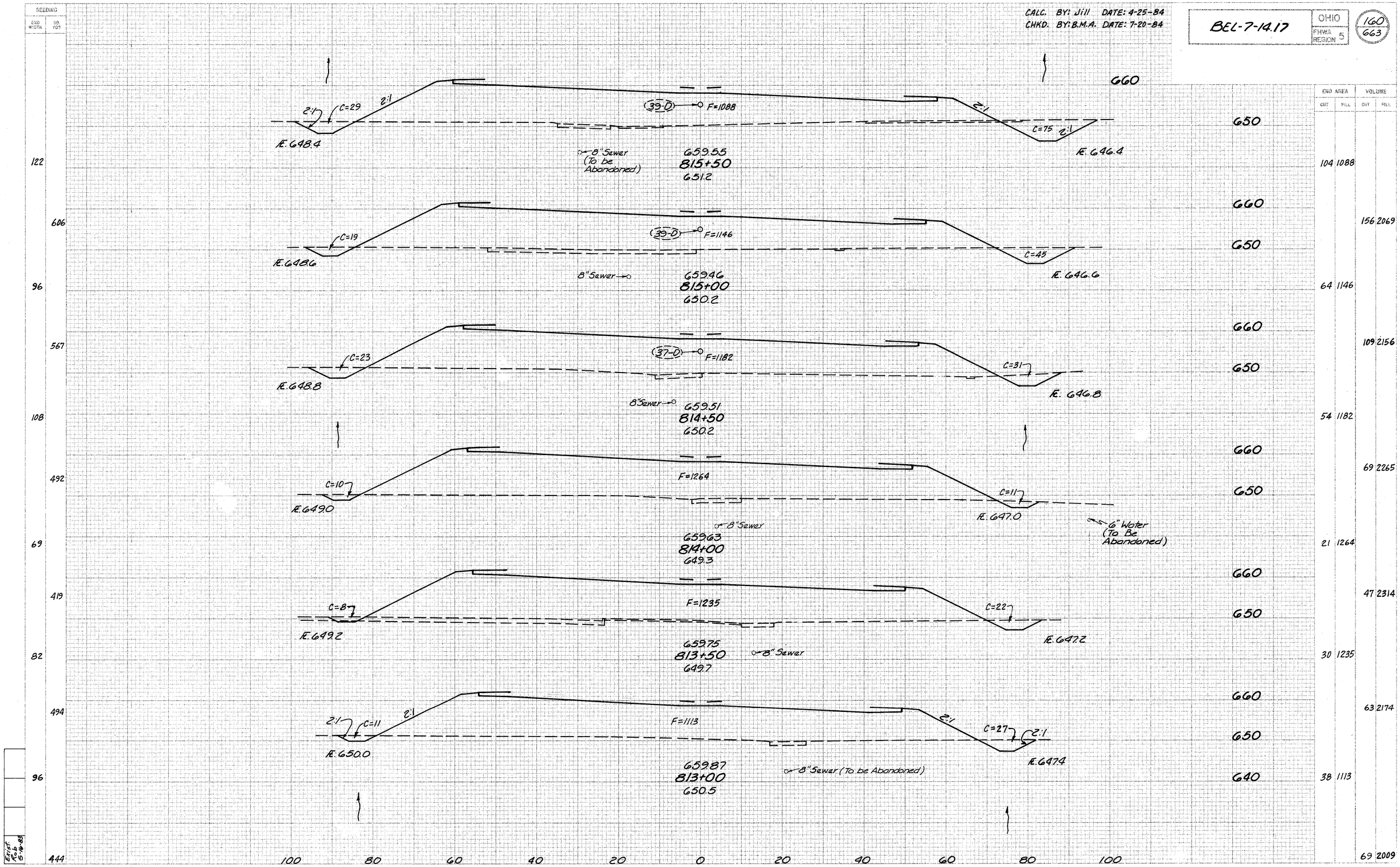


STA. 810+00 TO STA. 812+50

W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 160/663



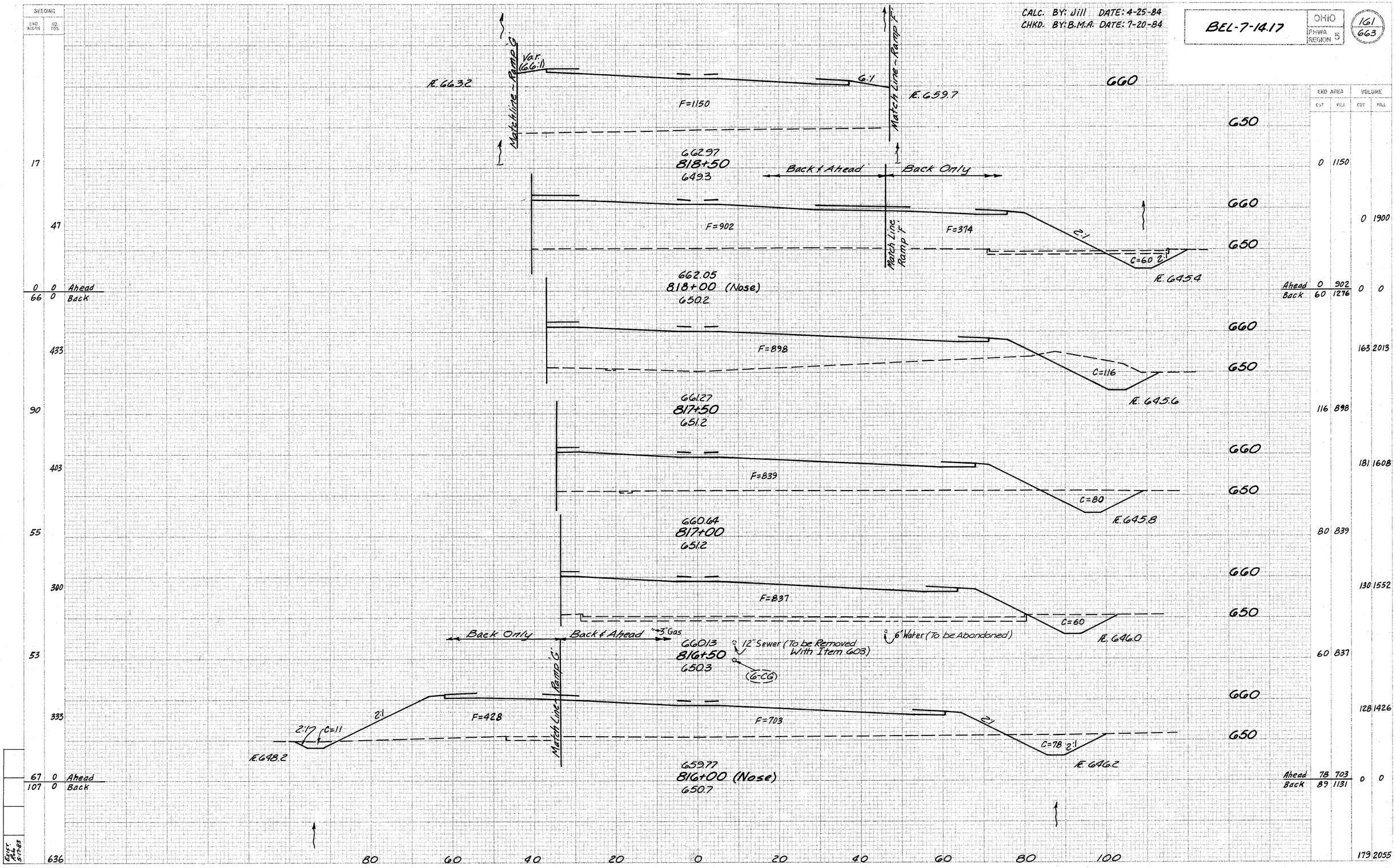
Exist. Rob 5-16-83

W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

STA. 813+00 TO STA. 815+50

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 161/663



W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

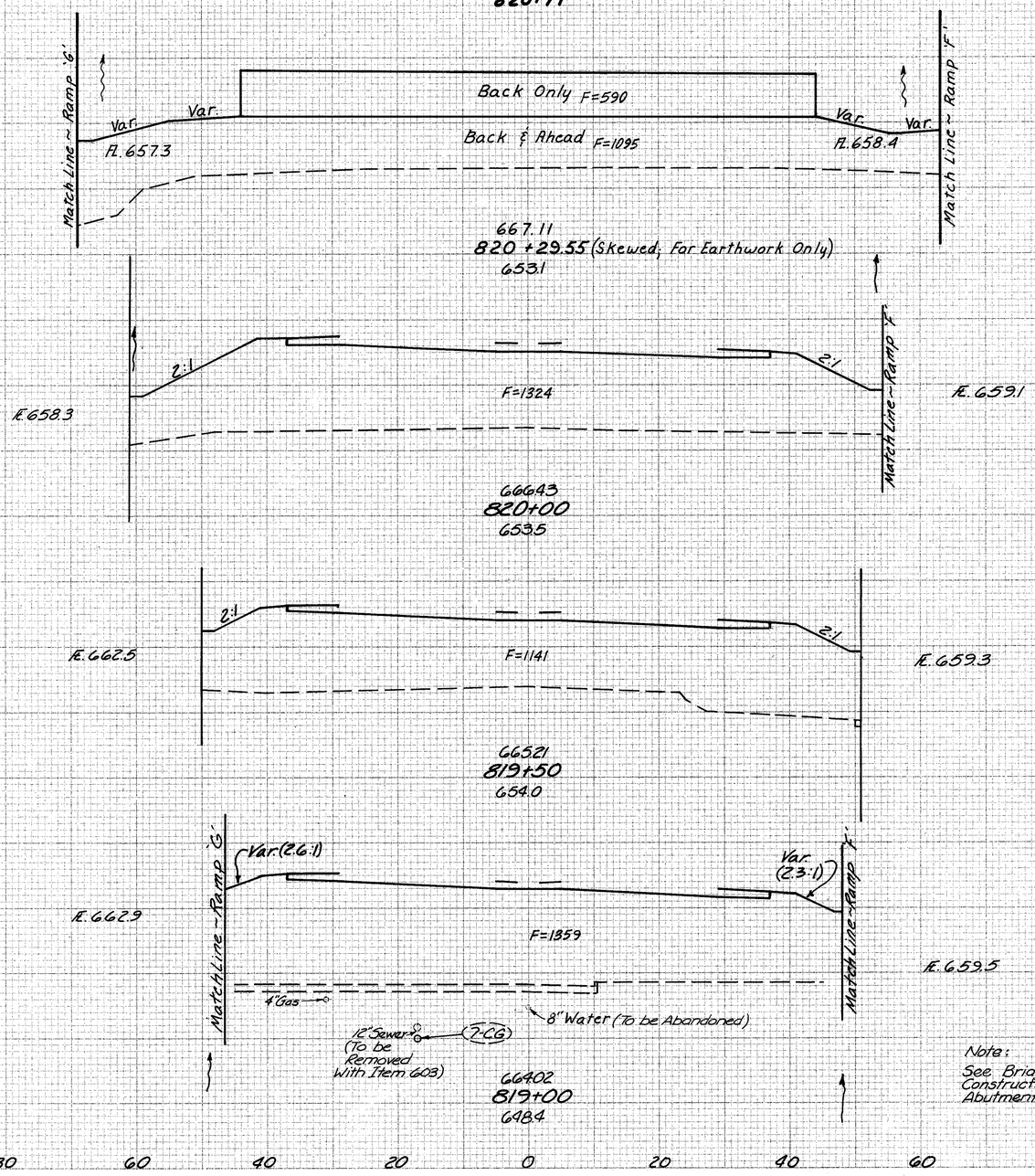
STA. 816+00 TO STA. 818+50

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 162/663

(BRIDGE)

ZERO EARTHWORK
820+71



SEEDING PRD WDTH	SEEDING SQ. YDS		ENC AREA CUT	ENC AREA FILL	VOLUME CUT	VOLUME FILL
0			0	0		
		670				
	44	660			0	841
		650				
19	0	Ahead	0	1095	0	0
44	0	Back	0	1685		
		670				
	133	660			0	1647
		650				
37			0	1324		
		670				
	161	660			0	2282
		650				
21			0	1141		
		640				
		660			0	2315
	97	650				
		640				
14			0	1359		
86			0	2323		

Note:
See Bridge Design Notes for Embankment Construction conditions Back & Ahead of Abutments.

80 60 40 20 0 20 40 60 80

STA. 819+00 TO STA. 820+71

Engr. Rev. 6-19-85

BEC-7-14.17 | OHIO FHWA REGION 5 | 163/663

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

SEEDING END WIDTH	SEEDING SQ YDS		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		670				
		660				
96		640	0	3367		
		670			0	6513
	519	660				
		650				
		640				
91		670				
		660			0	6617
	492	650				
		640				
86		670			0	3479
		660				
	405	650			0	5911
		640				
86	Ahead	Ahead	0	4044	0	0
86	Back	Back	0	3318	0	465
36			0	0		
0						

Match Line ~ Ramp 'G'

Var. (2.7:1)

F=3367

2:1

Match Line ~ Ramp 'F'

E. 655.6

8" Sewer (To be Abandoned)

673.89
824+50
648.6

E. 653.1

6" Water (To be Abandoned)

10" Sewer (To be Abandoned)

Note:
See Bridge Design Notes for Embankment Construction conditions Back & Ahead of Abutments.

Var. (2.6:1)

F=3667

E. 655.4

4" Gas

12" Sewer (To be Abandoned)

S-CG

673.38
824+00
646.1

E. 653.0

24" Sewer (To be Removed With Item 603)

Var. (2.2:1)

F=3479

2:1

E. 654.5

8" Sewer (To be Abandoned)

E. 652.8

672.78
823+50
646.3

Match Line ~ Ramp 'G'

Var.

F=726 Ahead Only

F=3318
Back & Ahead

Var

Match Line ~ Ramp 'F'

E. 653.5

672.22
823+07.57 (Skewed; For Earthwork Only)
645.0

ZERO EARTHWORK 822+48.50

80 60 40 20 0 20 40 60 80

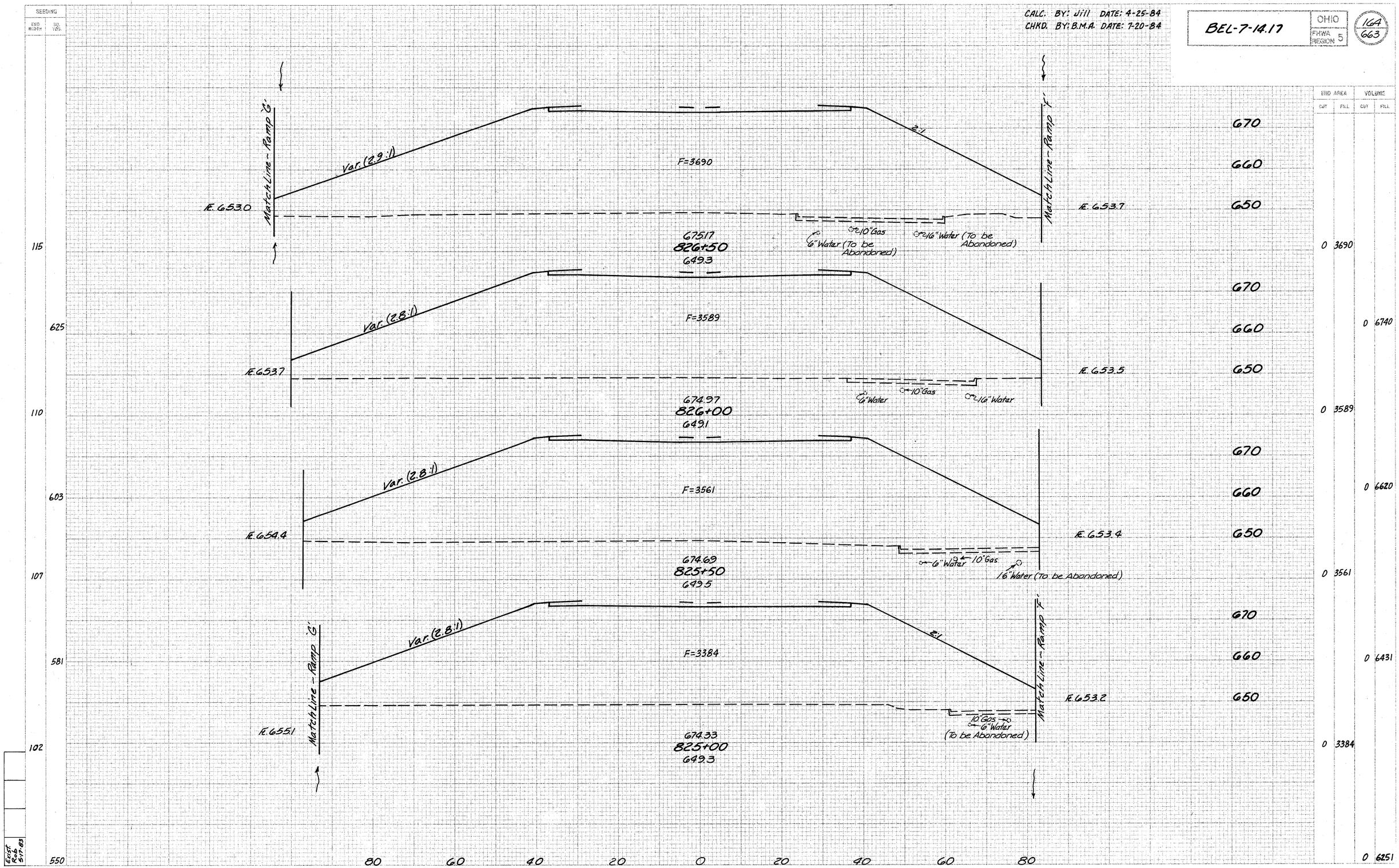
Errata Rec'd 5-17-83

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

STA. 823+07.57 TO STA. 824+50

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 164/663



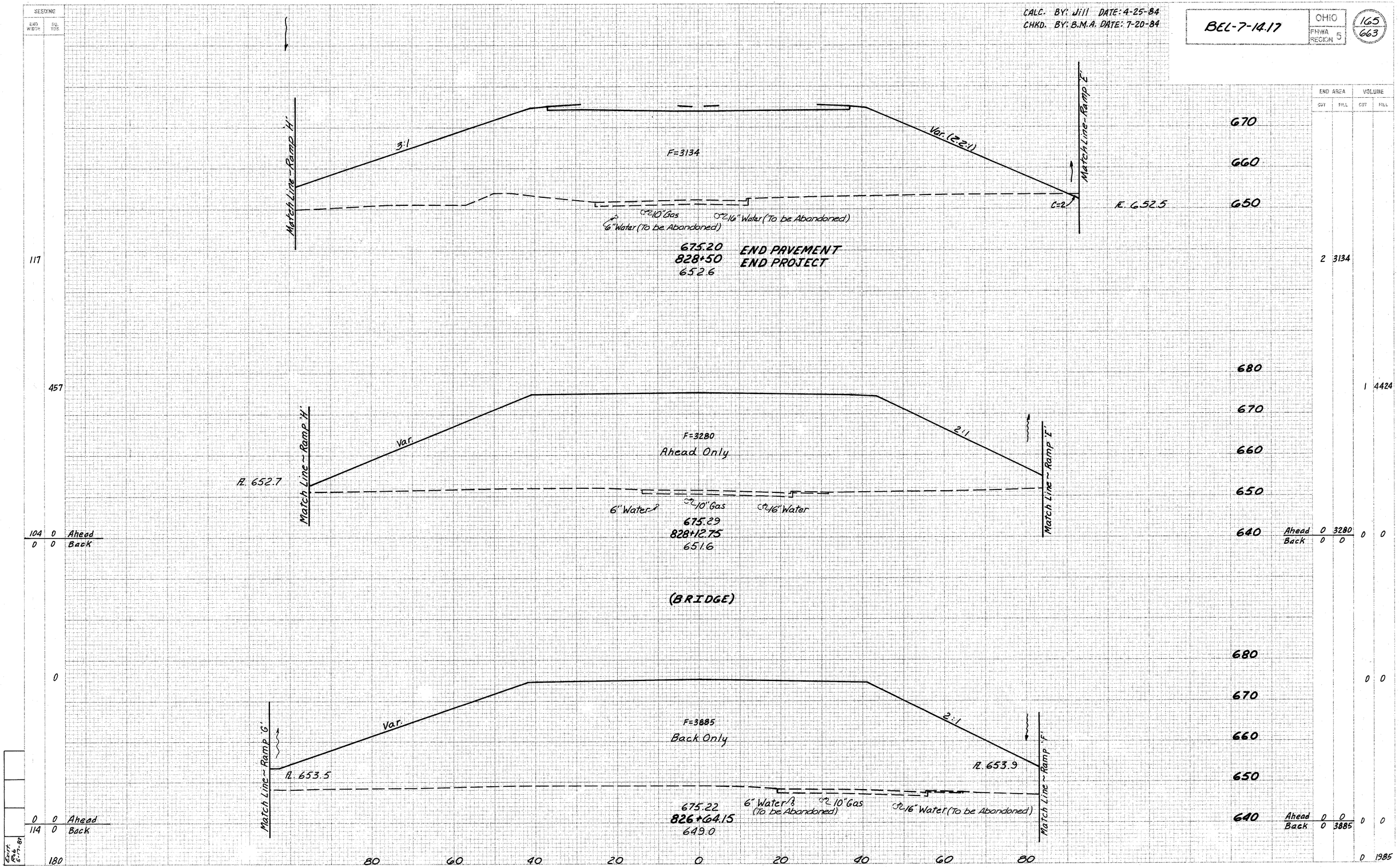
Exist. Rob 5-17-83

W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

STA. 825+00 TO STA. 826+50

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 165/663

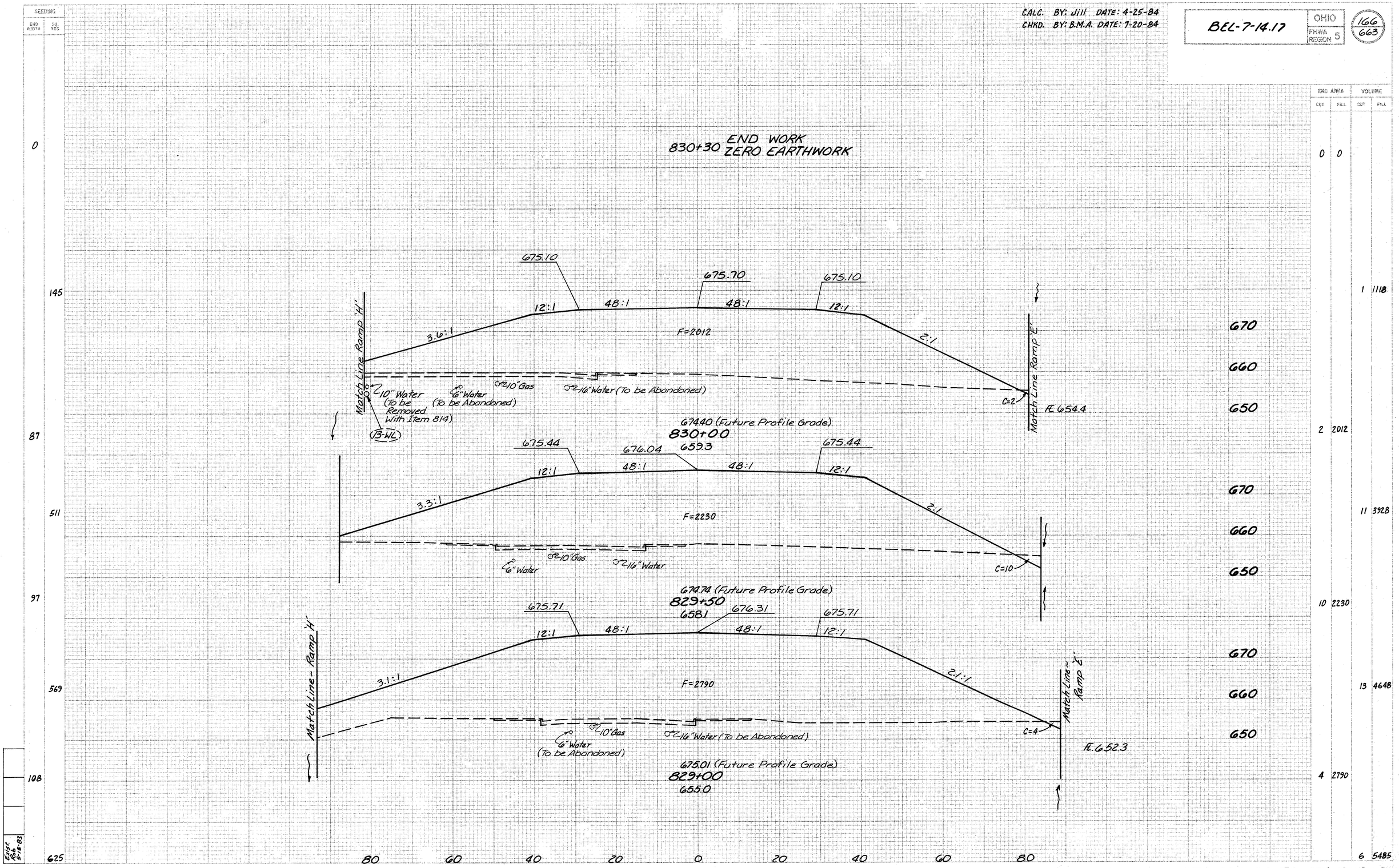


STA. 826+64.15 TO STA. 828+50

W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

CALC. BY: Jill DATE: 4-25-84
CHKD. BY: B.M.A. DATE: 7-20-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 166/663



Exist. Rob 5-18-83

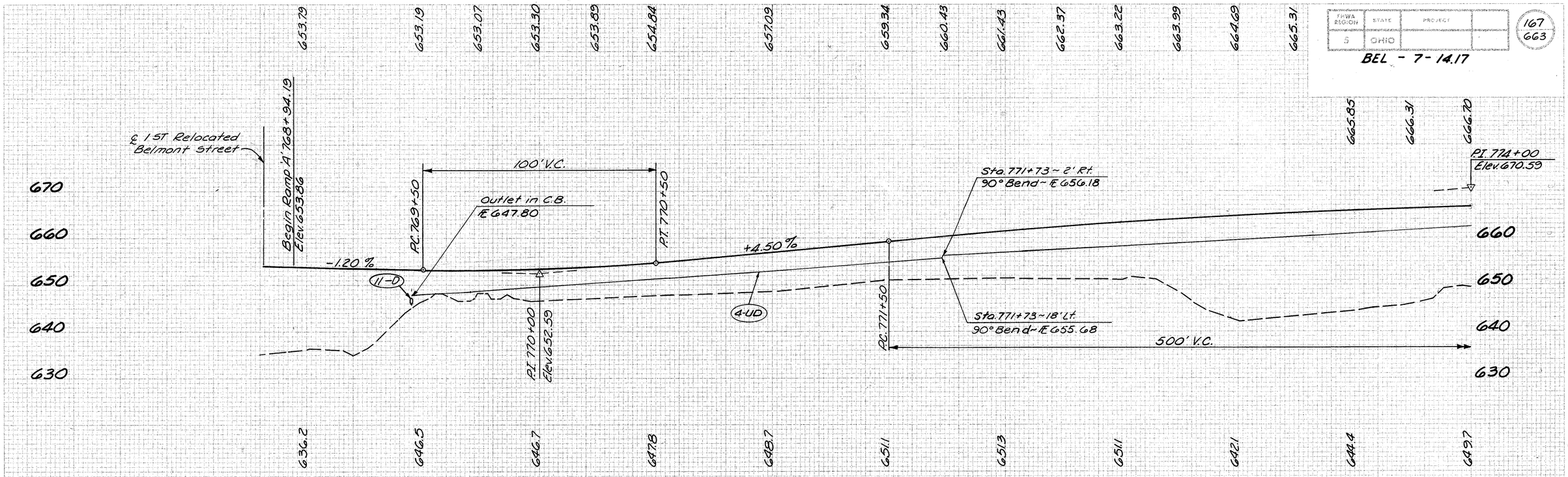
W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

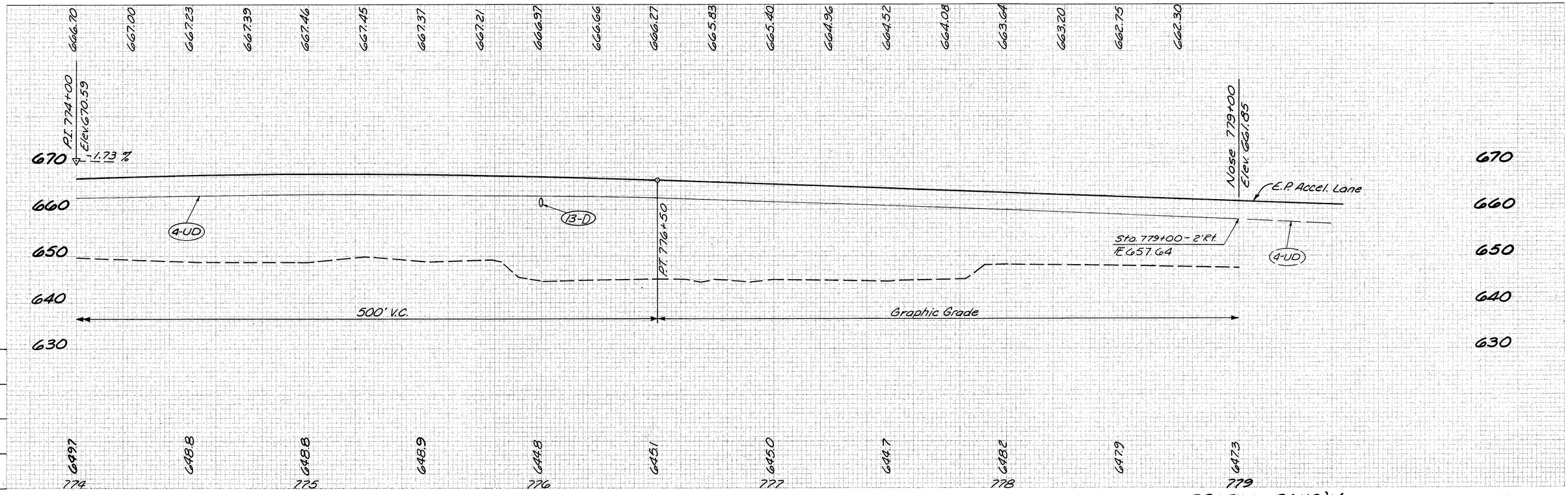
STA. 829+00 TO STA. 830+30

FHWA REGION	STATE	PROJECT	
5	OHIO		

167
663

BEL - 7 - 14.17





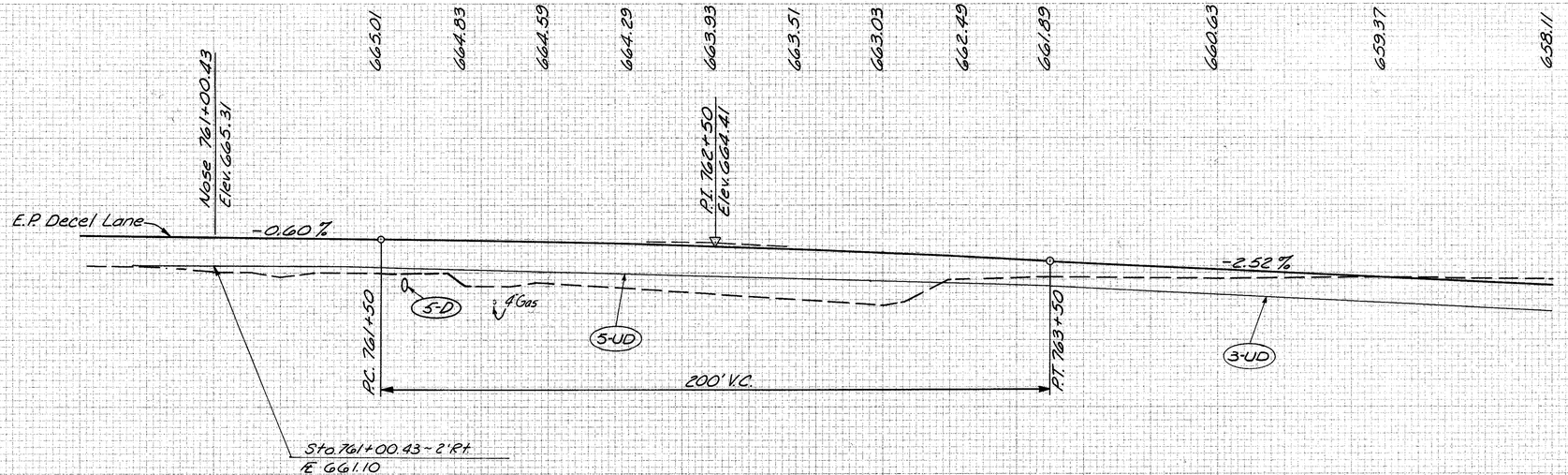
W.E. QUICKSALL & ASSOCIATES INC Consulting Engineers

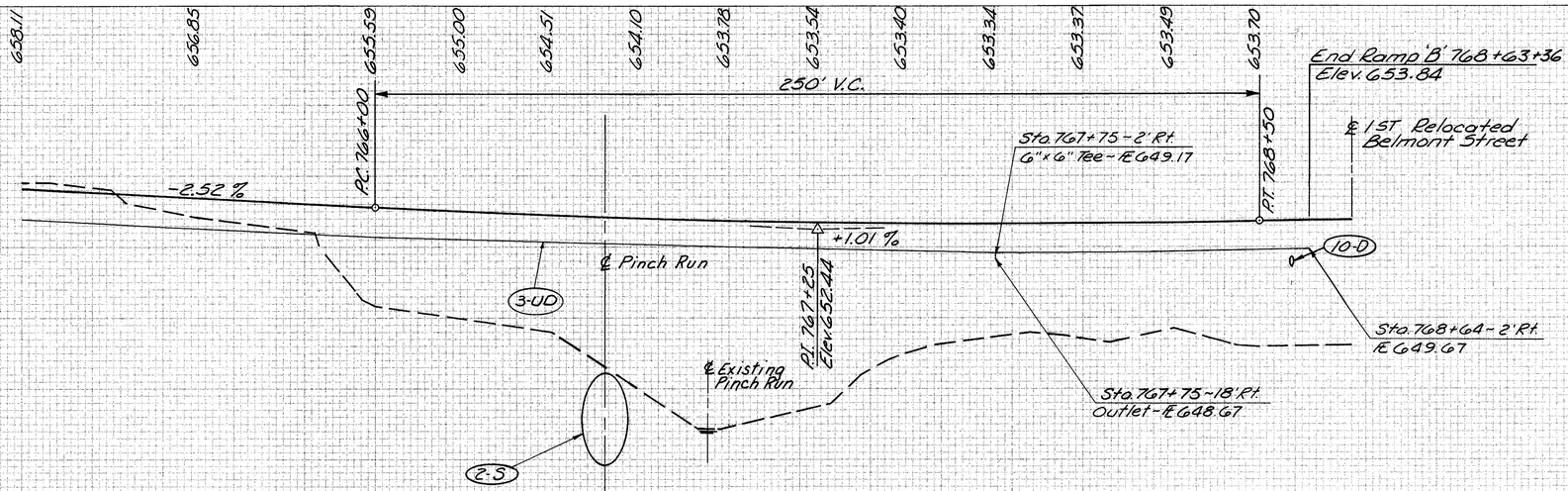
PROFILE - RAMP 'A'

INVA REGION	STATE	PROJECT		
5	OHIO			

168
663

BEL - 7 - 14.17

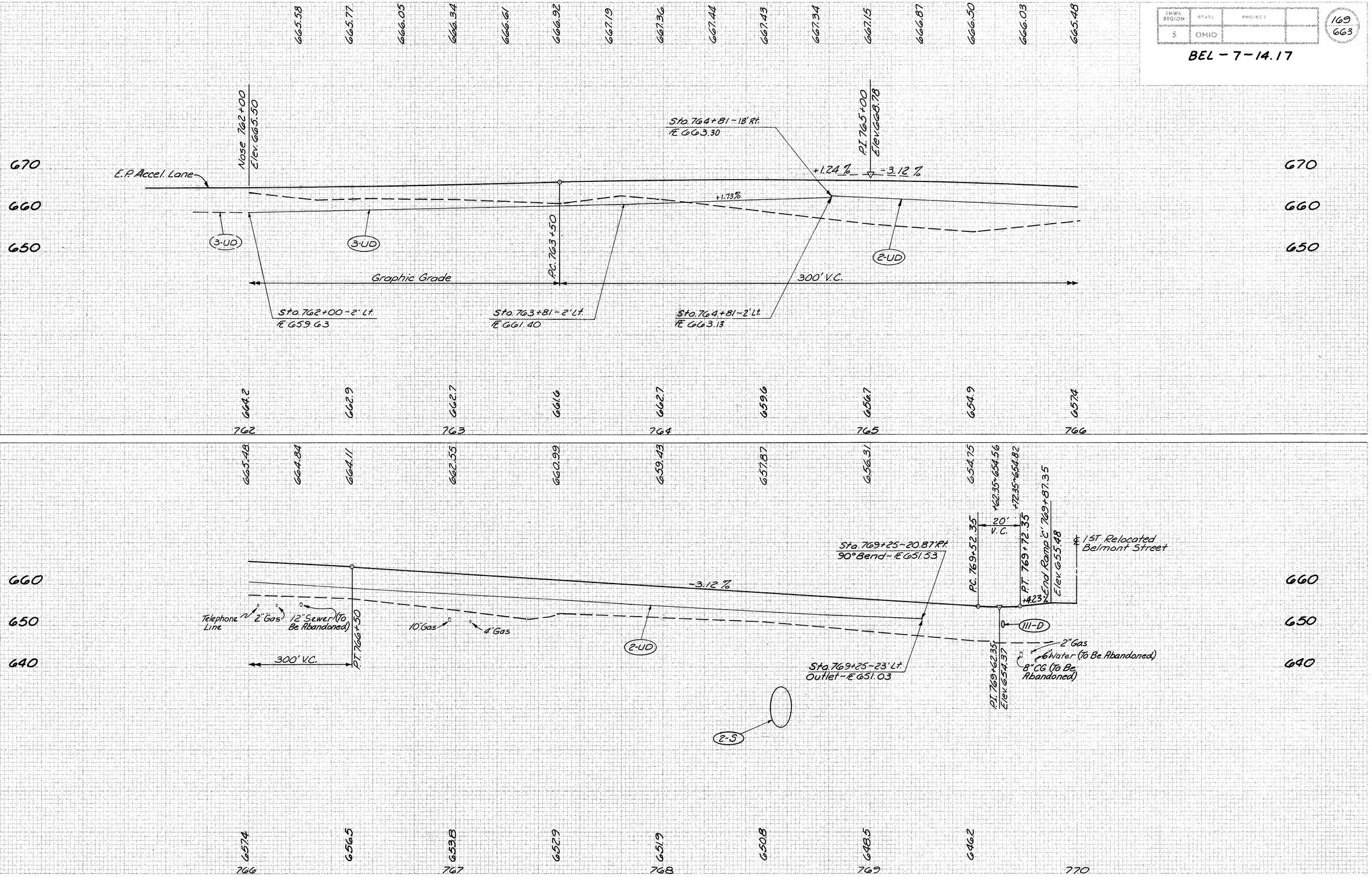




PROFILE - RAMP 'B'

FHWA REGION	STATE	PROJECT		169 / 663
5	OHIO			

BEL - 7 - 14.17



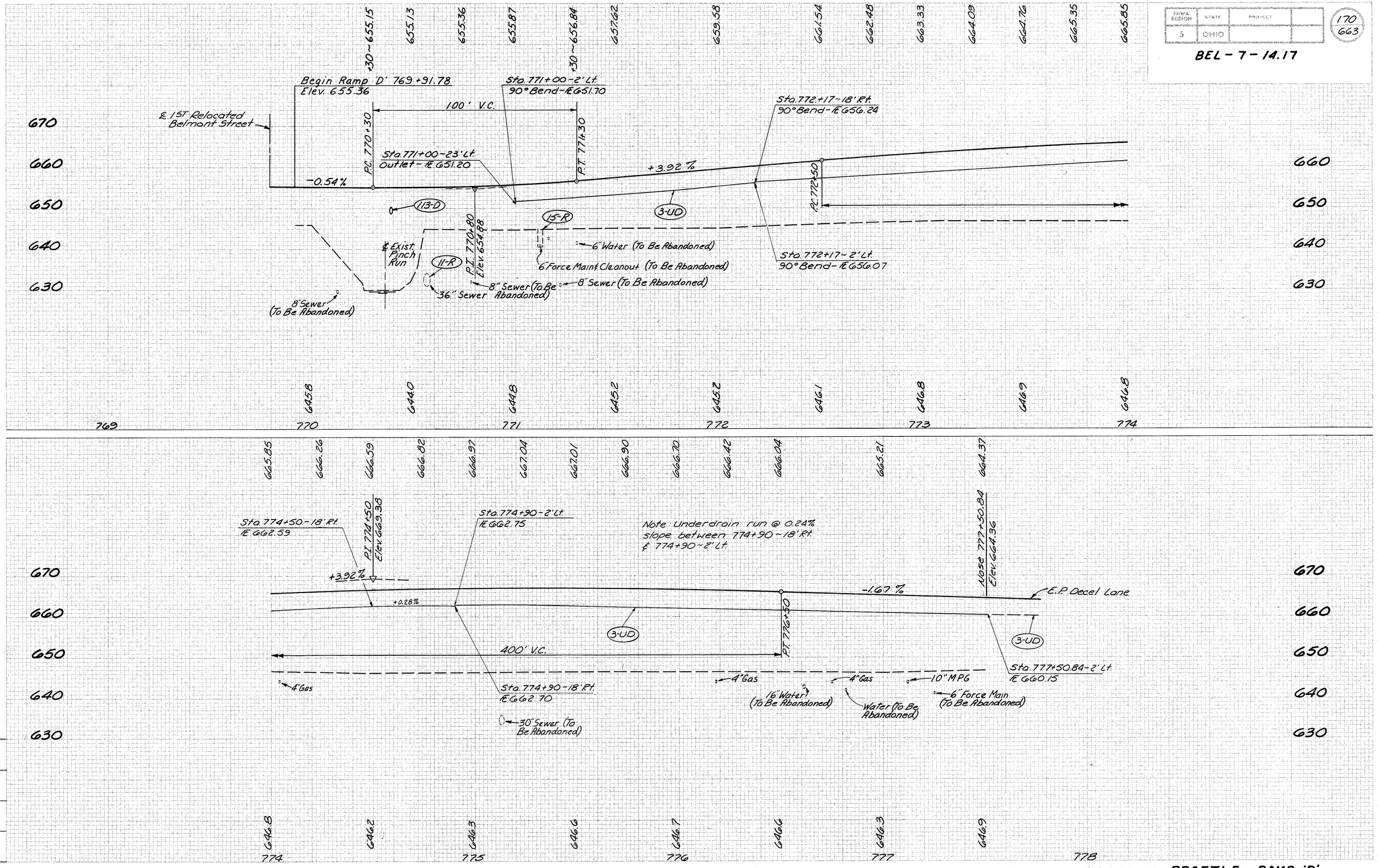
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

PROFILE ~ RAMP 'C'

FHWA REGION	STATE	PROJECT		
5	OHIO			

170
663

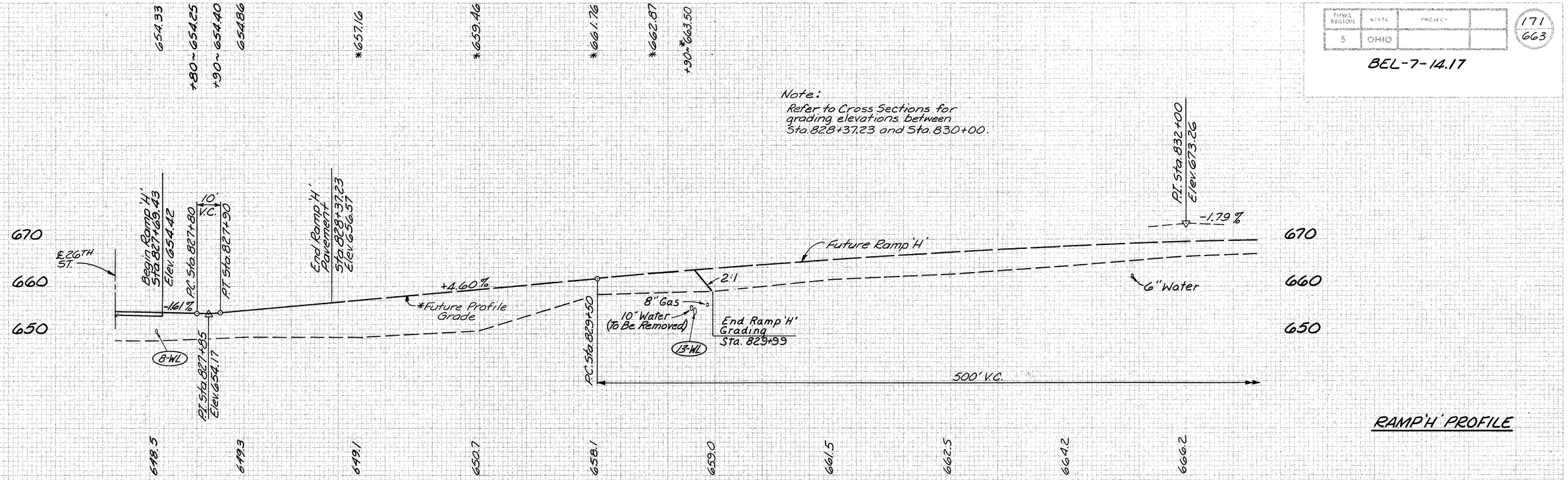
BEL - 7 - 14.17



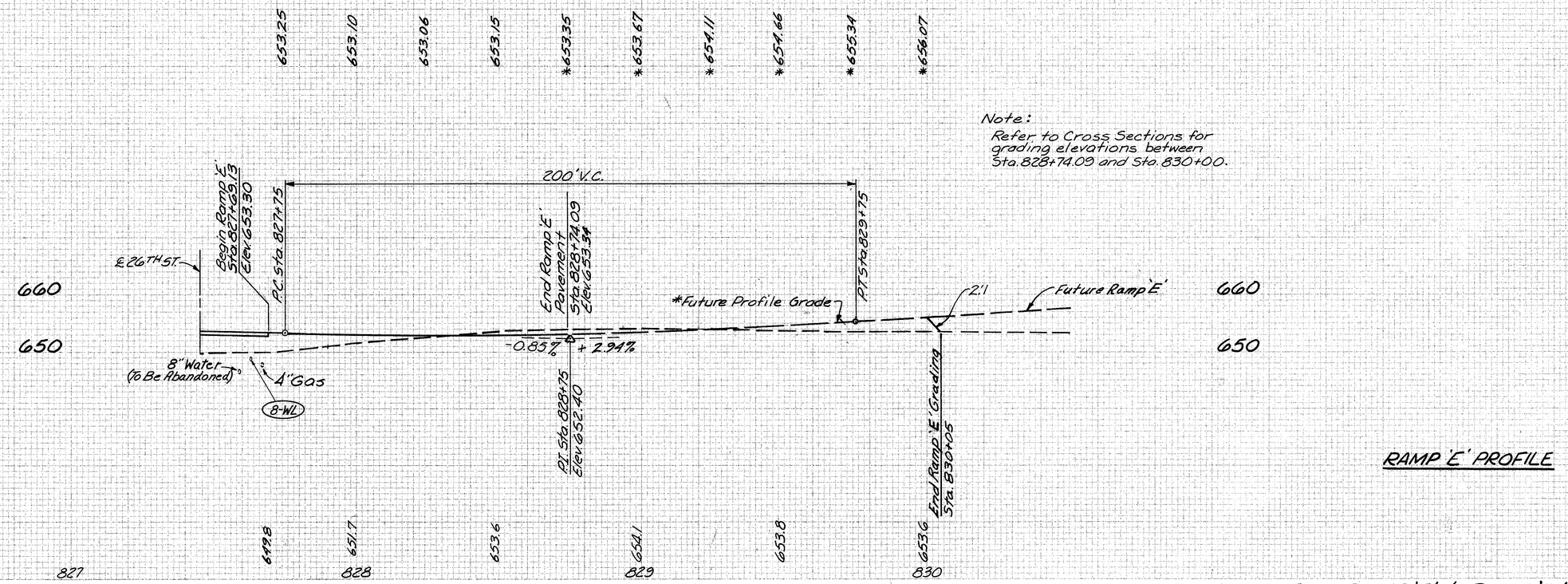
PROFILE ~ RAMP 'D'

FHWA REGION	STATE	PROJECT		171
5	OHIO			663

BEL-7-14.17



RAMP 'H' PROFILE



PROFILES ~ RAMP 'E' & RAMP 'H'

FHWA REGION	STATE	PROJECT	
5	OHIO		

172
663

BEL - 7 - 14.17

659.89 660.35 660.73 661.05 661.30 661.49 661.60 661.65 661.62 661.53 661.37 661.14 660.85 660.19

659.53

Nose 817+89.30
Elev. 659.68

P.I. 819+50
Elev. 662.83

Sta. 820+60 - 2' Rt.
90° Bend - E 657.11

Bridge Limits

E.P. Decel Lane

4-UD

4-UD

+1.96%

-1.32%

8" Water (To Be Abandoned)

4" Gas

10" HPG

6-WL

7-CG

12" Sewer (To Be Removed)

Sta. 817+89.30 - 2' Rt.
E 655.47

Sta. 820+60 - 18' Rt.
Outlet - E 656.61

P.C. 818+00

P.T. 821+00

300' V.C.

650.3 649.8 649.1 649.5 651.9 652.3 650.5 627.8

817 818 819 820 821 822

670 660 650 640 630 620

659.53 658.87 658.20 657.54 656.88 656.22 655.90 655.61 655.34 655.10 654.88 654.69 654.52 654.37 654.11

200' V.C.

Sta. 823+60 - 2' Rt.
E 653.24

Bridge Limits

-1.32%

P.C. 824+50

P.T. 826+50

End Ramp 'F' 827+05.42
Elev 654.08

-0.53%

℄ 26TH Street

℄ McMahon Creek

Normal Water Elev. 624.1

6" Water (To Be Abandoned)

24" Sewer (To Be Removed With Item 603)

9-CG

16" Water (To Be Abandoned)

8" Sewer (To Be Abandoned)

6" Water (To Be Abandoned)

3-UD

P.T. 825+50
Elev 654.90

Sta. 826+50 - 2' Rt.
90° Bend - E 650.20

100-D

Sta. 826+50 - 27' Rt.
Outlet - E 649.70

8" Water (To Be Abandoned)

639.9 645.5 645.7 647.3 648.1 647.9 649.2 649.4 649.5

822 823 824 825 826 827

660 650 640 630 620

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

PROFILE-RAMP 'F'

FHWA REGION	STATE	PROJECT		
5	OHIO			

173
663

BEL-7-14.17

661.80 662.00 662.23 662.46 662.73 663.00 663.40 663.85 664.25 664.55 664.75 664.85 664.84 664.74 664.54 664.23 663.52 662.81

Graphic Grade

Nose 816+00 Elev. 661.65

Sta. 816+00 ~ 18' Rt.
90° Bend ~ E 657.19

E.P. Accel. Lane

670
660
650
640
630
620

6" Water (To Be Abandoned)

3" Gas

12" Sewer (To Be Removed)

6-CG

Sta. 816+00 ~ 19' Lt.
Outlet ~ E 656.69

2-UD

P.I. 819+00
Elev. 665.65

+1.80%

Sta. 819+45 ~ 18' Rt.
90° Bend ~ E 660.34

Sta. 819+45 ~ 18' Lt.
Outlet ~ E 659.84

8" Water (To Be Abandoned)

4" Gas

10" H.P.G.

200' V.C.

6-WL

7-CG

12" Sewer (To Be Removed)

P.C. 818+00

200' V.C.

P.T. 820+00

662.10

661.39

Bridge Limits

-1.42%

E. McMahon Creek

Normal Water Elev. 624.1

649.5 650.7 651.1 651.2 649.9 648.5 648.2 649.1 647.8 634.0

816 817 818 819 820 821 822

661.39 660.80 659.97 659.26 659.55 657.84 657.13 656.42 655.71 655.00 654.93 654.69 654.52 654.49 654.57

+55 ~ +45 ~

End Ramp 'G' 827+47.46
Elev. 654.59

90' V.C.

P.C. 826+55

P.T. 827+45

E 26TH Street

Bridge Limits

Sta. 823+02 ~ 2' Rt.
E 655.52

5-UD

Sta. 824+21 ~ 18' Rt.
90° Bend ~ E 654.25

-1.42%

Sta. 826+50 ~ 2' Lt.
90° Bend ~ E 650.83

+0.63%

Sta. 824+21 ~ 2' Lt.
90° Bend ~ E 654.08

4" Gas

6" Water (To Be Abandoned)

24" Sewer (To Be Removed With Item 603)

9-CG

2-UD

98-D

8" Sewer (To Be Abandoned)

Sta. 826+50 ~ 18' Lt.
Outlet ~ E 650.33

6" Gas

8" Water (To Be Abandoned)

10" Sewer (To Be Abandoned)

10" Sewer (To Be Abandoned)

8" Sewer (To Be Abandoned)

P.I. 827+00
Elev. 654.29

626.8 637.8 644.7 646.1 647.1 647.8 648.6 648.6 648.0 648.0

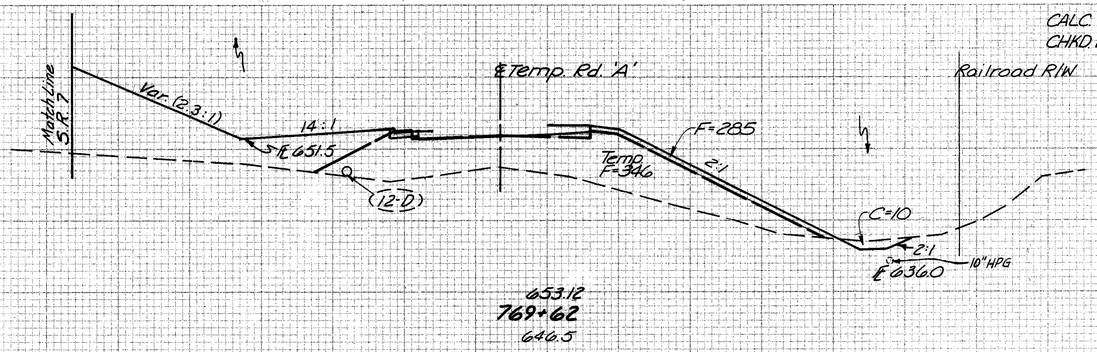
822 823 824 825 826 827 828

PROFILE ~ RAMP 'G'

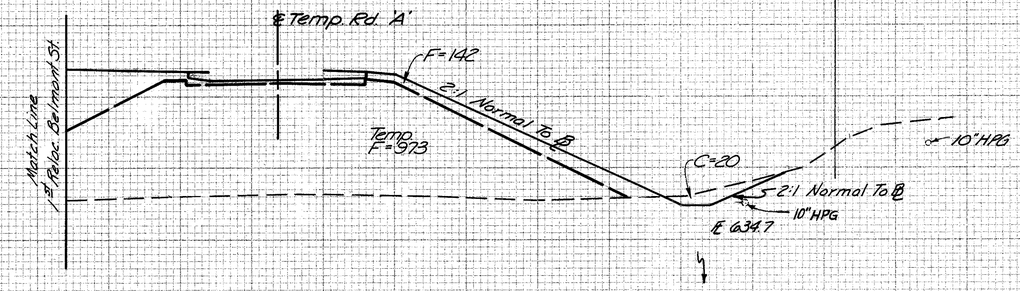
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

CALC. BY: Jill DATE: 4/24/84
CHKD. BY: B.M.A. DATE: 7/23/84

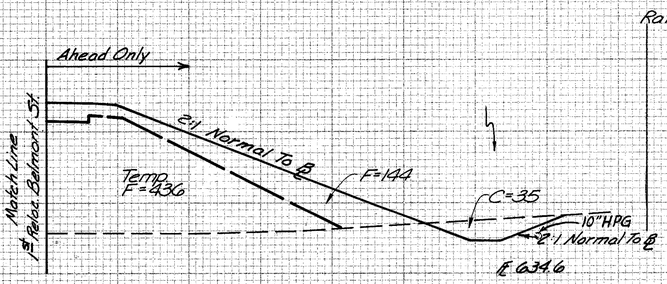
BEL-7-14.17 | OHIO | FHWA REGION 5 | 174 / 663



653.12
769+62
646.5



653.86
768+94.19 (Skewed)
636.2



654.03
768+81.42 (Skewed)
635.7

END WIDTH	SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
SEEDING					
350					
				31	278
98				10	285
633				38	536
70				20	142
104				13	68
76				35	144
0				0	0

650 640 630 650 640 630 650 640 630

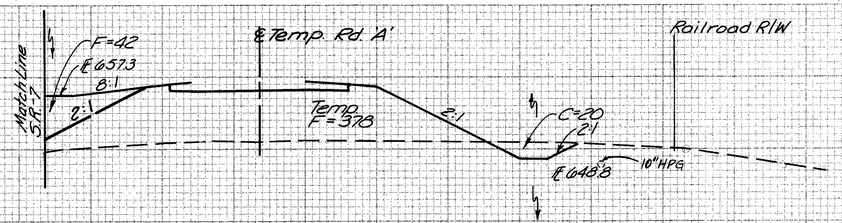
80 60 40 20 0 20 40 60 80 100 120

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

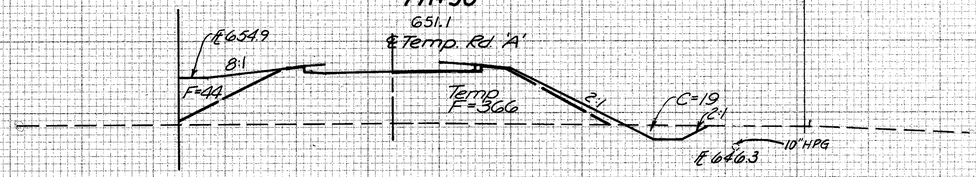
RAMP 'A' - STA. 768+81.42 TO STA. 769+62

CALC.BY: Jill DATE: 4/26/84
CHKD.BY: B.M.A. DATE: 7/23/84

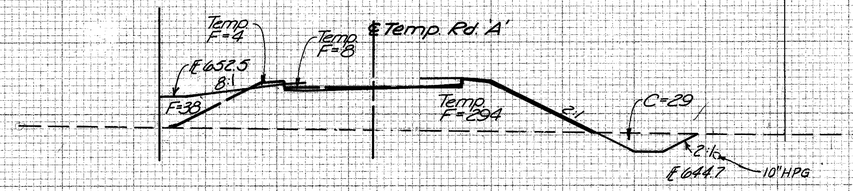
BEL-7-14.17 | OHIO FHWA REGION 5 | 175 / 663



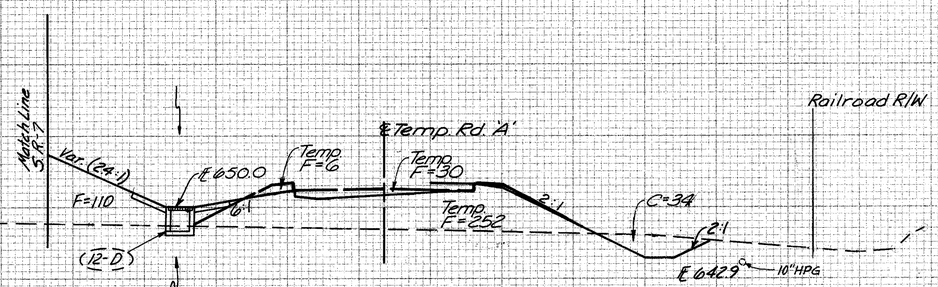
659.34
771+50
651.1



657.09
771+00
648.7



654.84
770+50
647.8



653.30
770+00
646.7

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	339			33	81
640					
62		20	42		
650					
	344			36	80
640					
62		19	44		
	344			44	76
650					
640					
62		29	38		
	361			58	137
650					
640					
68		34	110		

80 60 40 20 0 20 40 60 80

RAMP 'A' ~ STA. 770+00 TO STA. 771+50

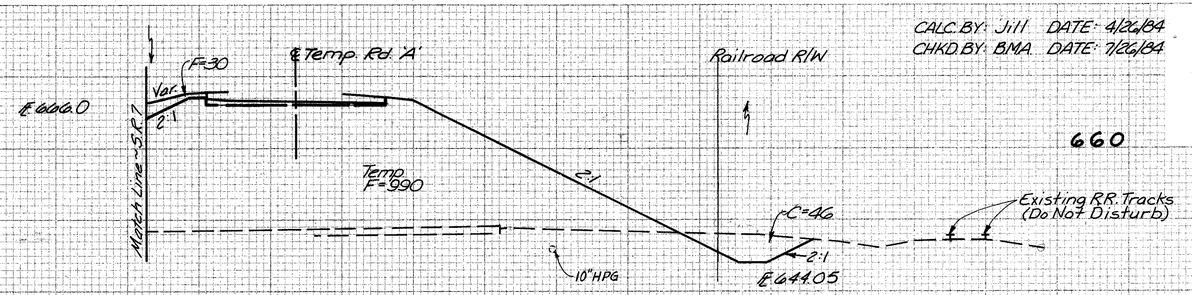
CALC. BY: Jill DATE: 4/26/84
CHKD. BY: B.M.A. DATE: 7/23/84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 176 / 663

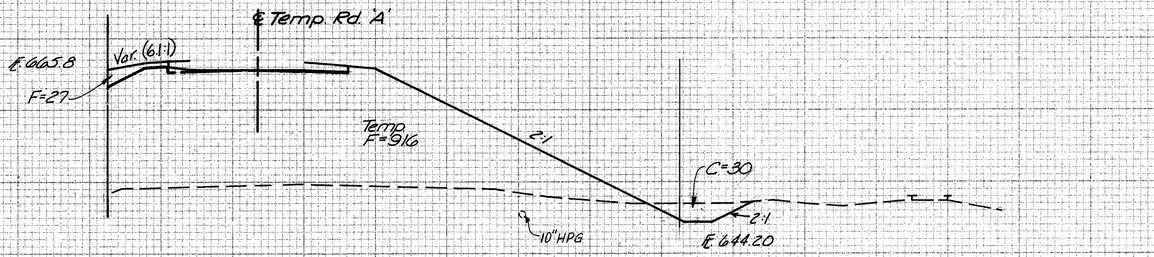
SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS	CUT	FILL	CUT	FILL
				22	75
428					

CALC. BY: Jill DATE: 4/26/84
CHK'D. BY: BMA DATE: 7/26/84

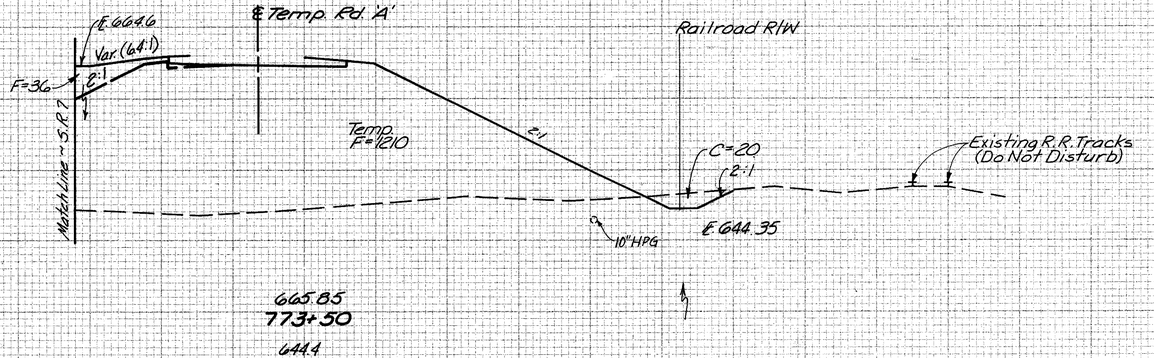
BEL-7-14.17 | OHIO | FHWA REGION 5 | 177 / 663



667.23
774+50
648.8



666.70
774+00
649.7

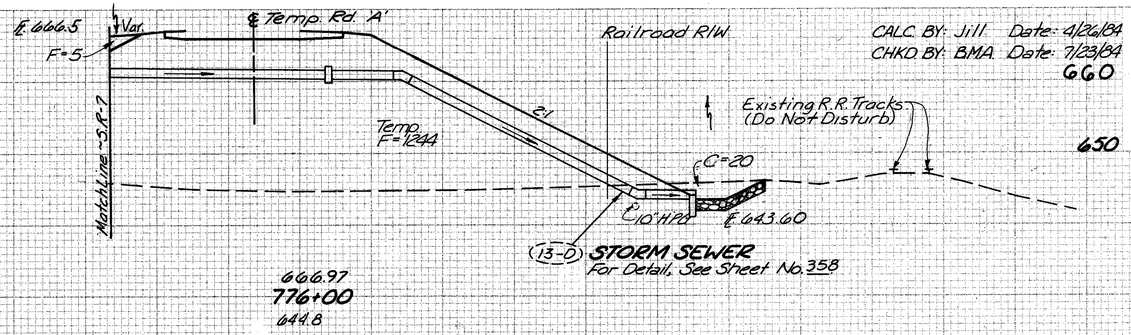


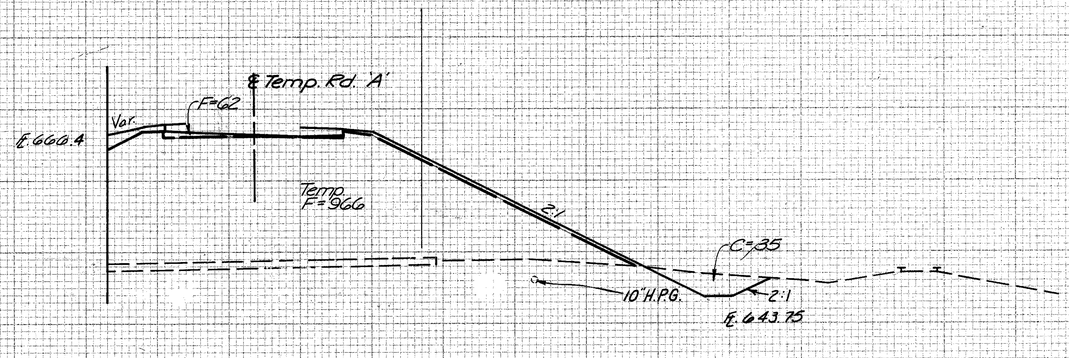
665.85
773+50
644.4

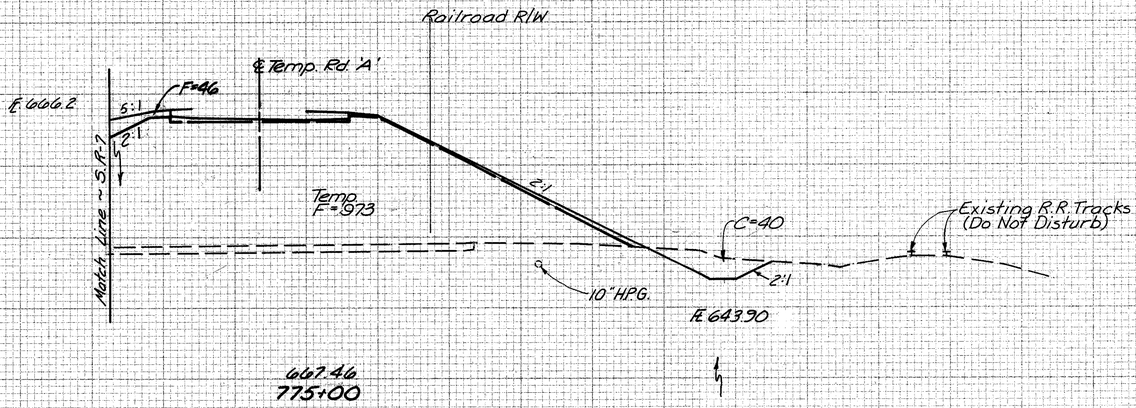
SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	431			80	70
77		46	30		
	428			70	53
77		30	27		
	433			46	58
79		20	36		

60 40 20 0 20 40 60 80

SEEDING	
END WIDTH	SQ. YDS.
70	392
77	408
78	431







END AREA		VOLUME	
CUT	FILL	CUT	FILL
		45	88
20	5		
		51	62
35	62		
		69	100
40	46		

100	80	60	40	20	0	20	40	60	80

BEL-7-14.17 | OHIO | FHWA REGION 5 | 178 / 663

W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

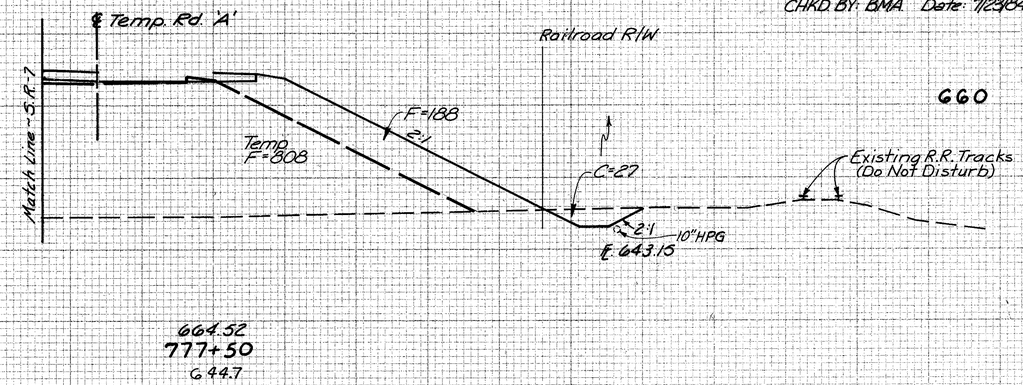
RAMP 'A' ~ STA 775+00 TO STA. 776+00

CALC. BY: Jill Date: 4/26/84
CHKD. BY: BMA Date: 7/23/84

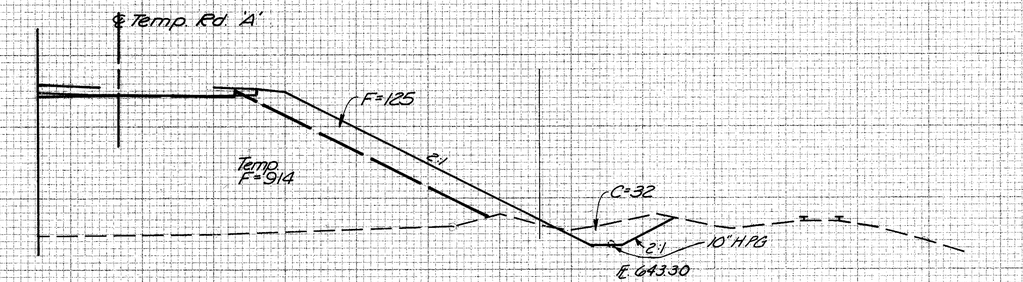
BEL-7-14.17 | OHIO | FHWA REGION 5 | 179 / 663

SEEDING

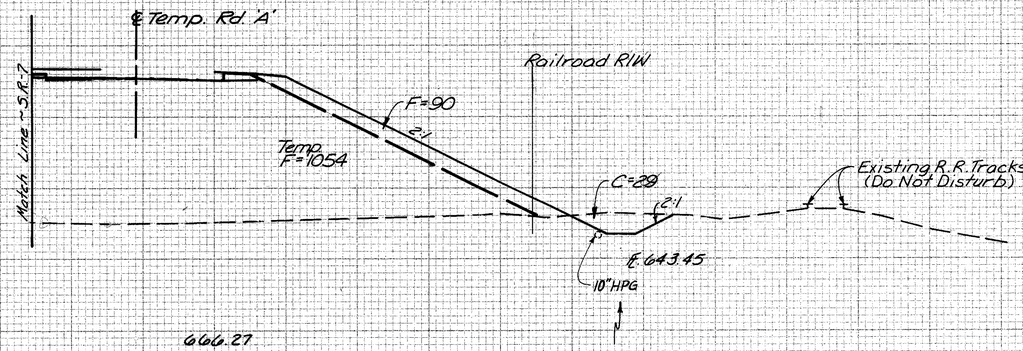
END WIDTH	SQ. YDS.
-	381
68	
	383
70	
	392
71	



664.52
777+50
G 44.7



665.40
777+00
G 45.0



666.27
776+50
G 45.1

	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
			90	375
	27	188		
			55	290
	32	125		
			56	199
	29	90		

660 650 640 630 660 650 640 630 660 650 640 630

100 80 60 40 20 0 20 40 60 80 100

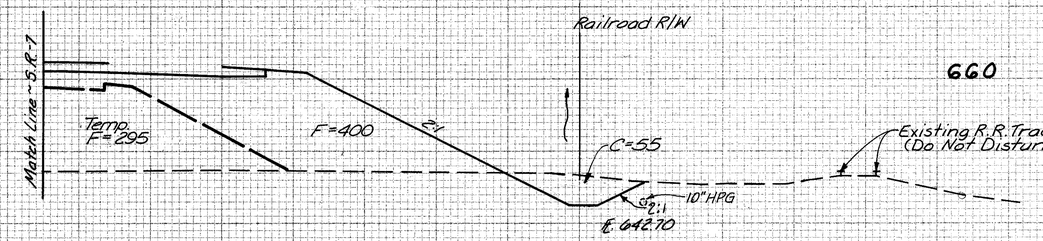
W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RAMP 'A' - STA. 776+50 TO STA. 777+50

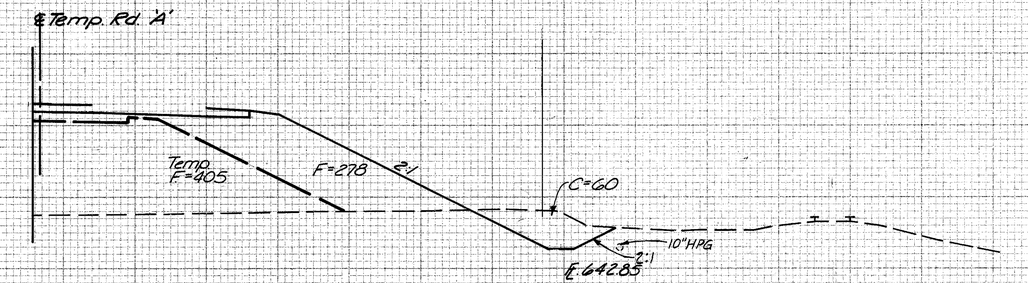
CALC. BY: Jill Date: 4/26/84
CHKD. BY: BMA Date: 7/23/84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 180 / 663

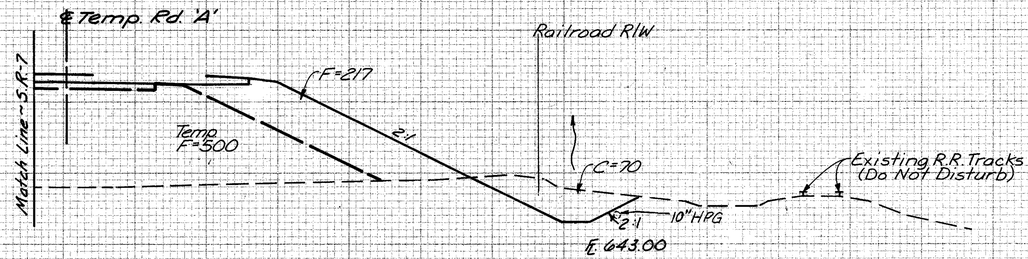
SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
62	358	55	400	106	628
67	378	60	278	120	458
69		70	217		



661.85
779+00 (Nose)
647.3



662.75
778+50
647.9



663.64
778+00
648.2

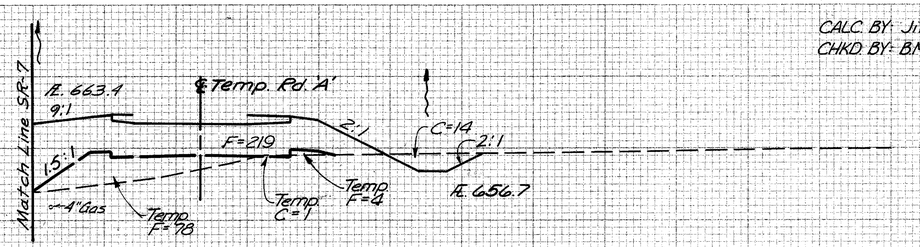
80 60 40 20 0 20 40 60 80 100

RAMP 'A' ~ STA. 778+00 TO STA. 779+00 (NOSE)

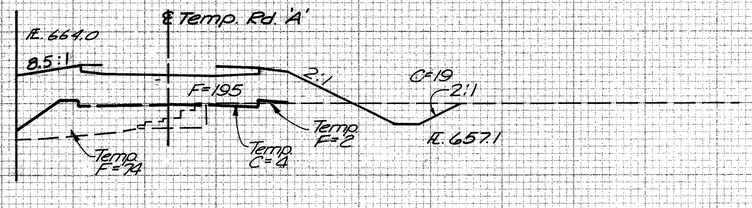
CALC. BY: Jill DATE: 4/26/84
CHKD. BY: B.M.A. DATE: 7/23/84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 181/663

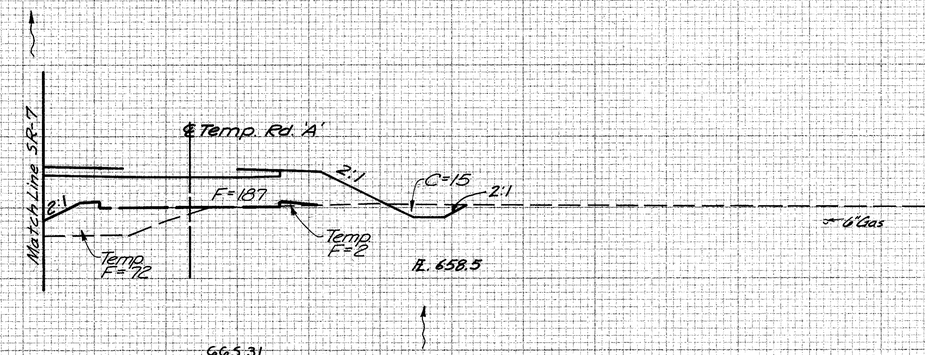
SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	956				37	416
		650				
		640				
173			14	219		
	969				31	383
		660				
		650				
		640				
176			19	195		
	945				31	351
		660				
		650				
167			15	187		



664.59
762+00
658.5



665.01
761+50
660.0



665.31
761+00.43 (Nose)
660.1

60 40 20 0 20 40 60 80 100

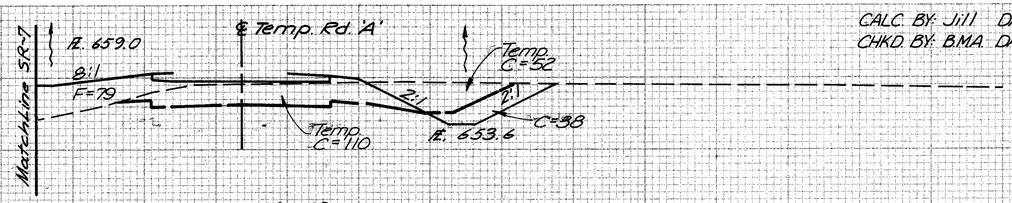
RAMP 'B' ~ STA. 761+00.43 To STA. 762+00

CALC. BY: Jill DATE: 4/26/84
CHKD. BY: B.M.A. DATE: 7/23/84

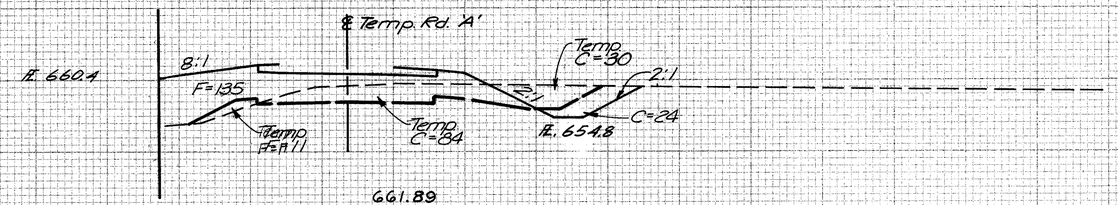
BEL-7-14.17 | OHIO FHWA REGION 5 | 182 663

SEEDING

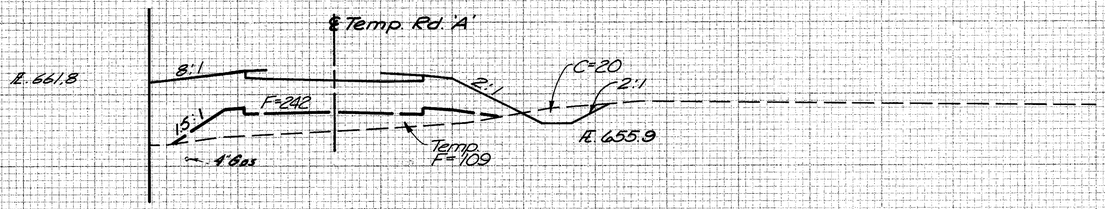
END WIDTH	SQ. YDS.
	819
151	
	850
155	
	881
162	
	925
171	



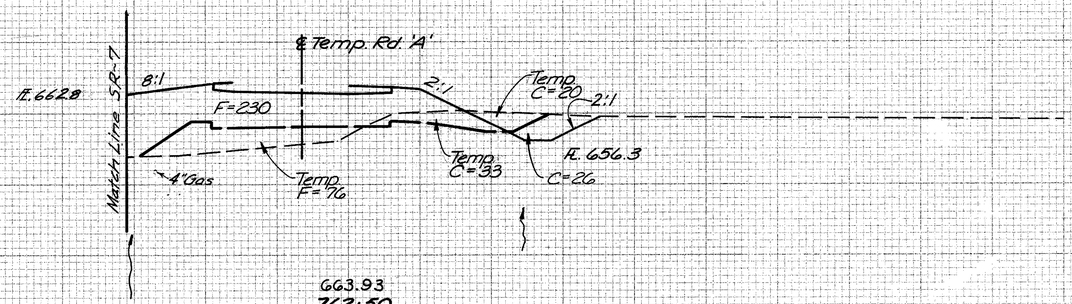
660.63
764+00
659.1



661.89
763+50
659.4



663.03
763+00
655.1



663.93
762+50
656.9

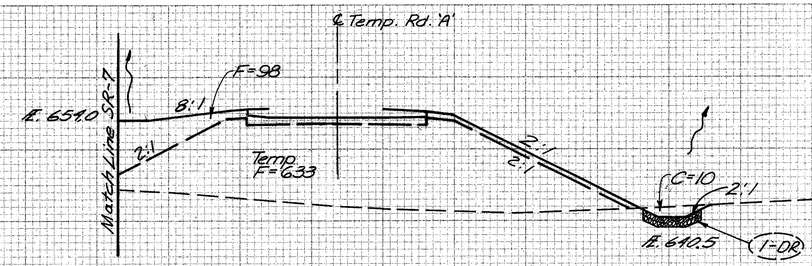
END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		85	78
38	79		
		57	198
24	135		
		41	349
20	242		
		43	437
26	230		

60 40 20 0 20 40 60 80 100

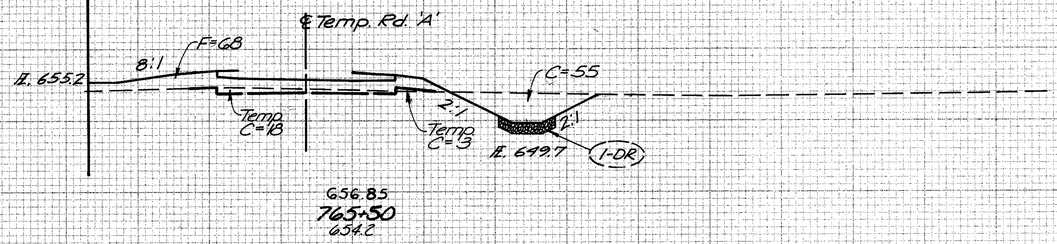
RAMP 'B' ~ STA. 762+50 TO STA. 764+00

CALC.BY: Jill Date: 4/26/85
CHKD BY: B.M.A. Date: 7/23/85

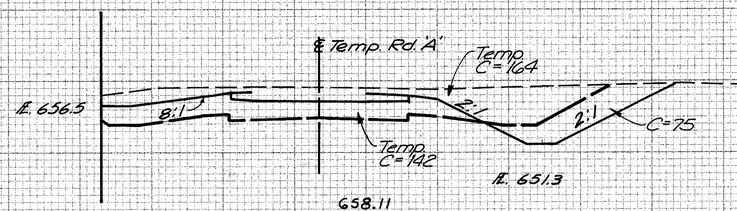
BEL-7-14.17 | OHIO FHWA REGION 5 | 183 / 663



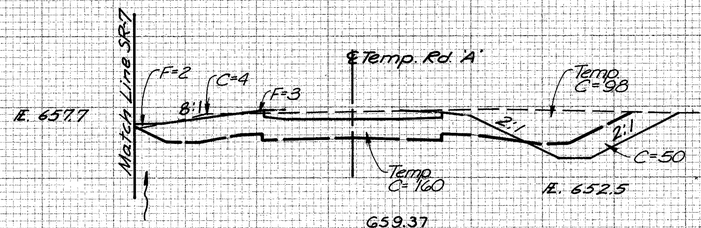
655.59
766+00
641.7



656.85
765+50
654.2



658.11
765+00
659.0



659.37
764+50
659.3

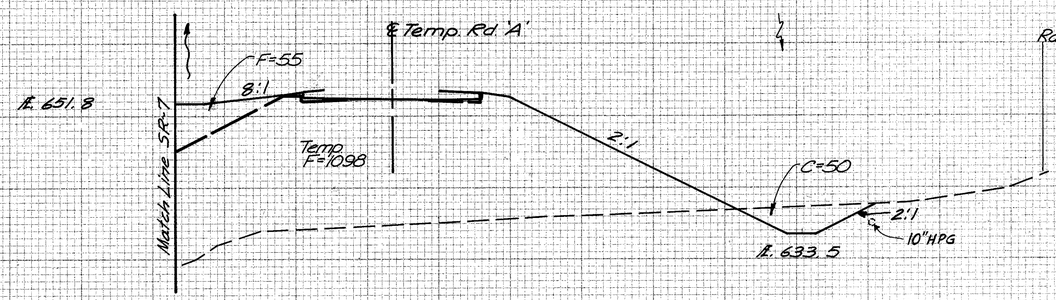
SEEDING RWD WIDTH	SEEDING SQ. YDS.	STATION	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	625	650			83	198
118		640	10	98		
	678	660			60	154
		650	55	68		
126						
	733	660			120	63
		650				
138			75	0		
	783	660			119	5
		650				
144			54	5		

80 60 40 20 0 20 40 60 80 100 120

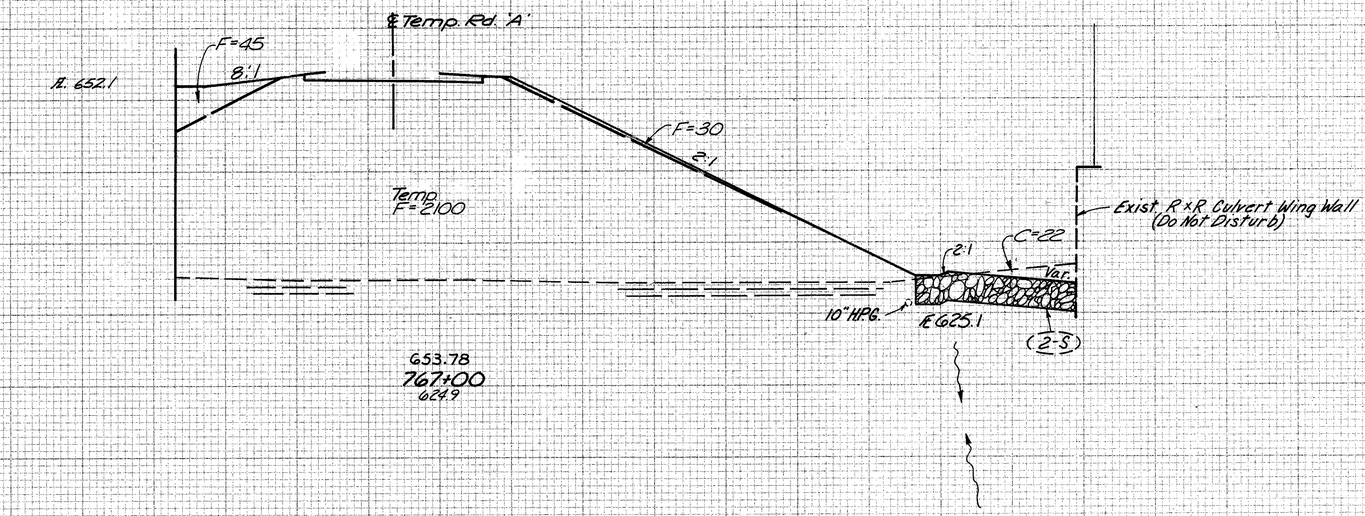
RAMP 'B' ~ STA. 764+50 TO STA. 766+00

CALC BY: Jill Date: 4/26/84
CHKD BY: BMA Date: 7/23/84

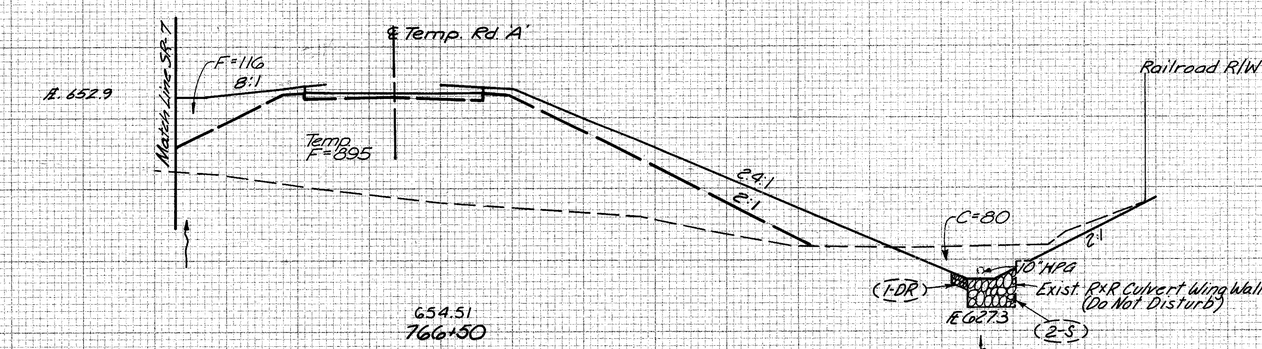
BEL-7-14.17 | OHIO | FHWA REGION 5 | 184 / 663



653.40
767+50
635.1



653.78
767+00
624.9



654.51
766+50
638.0

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL	
		127	120	650
				640
				630
50	55			
		67	120	650
				640
				630
				620
22	75			
		94	177	650
				640
				630
80	116			

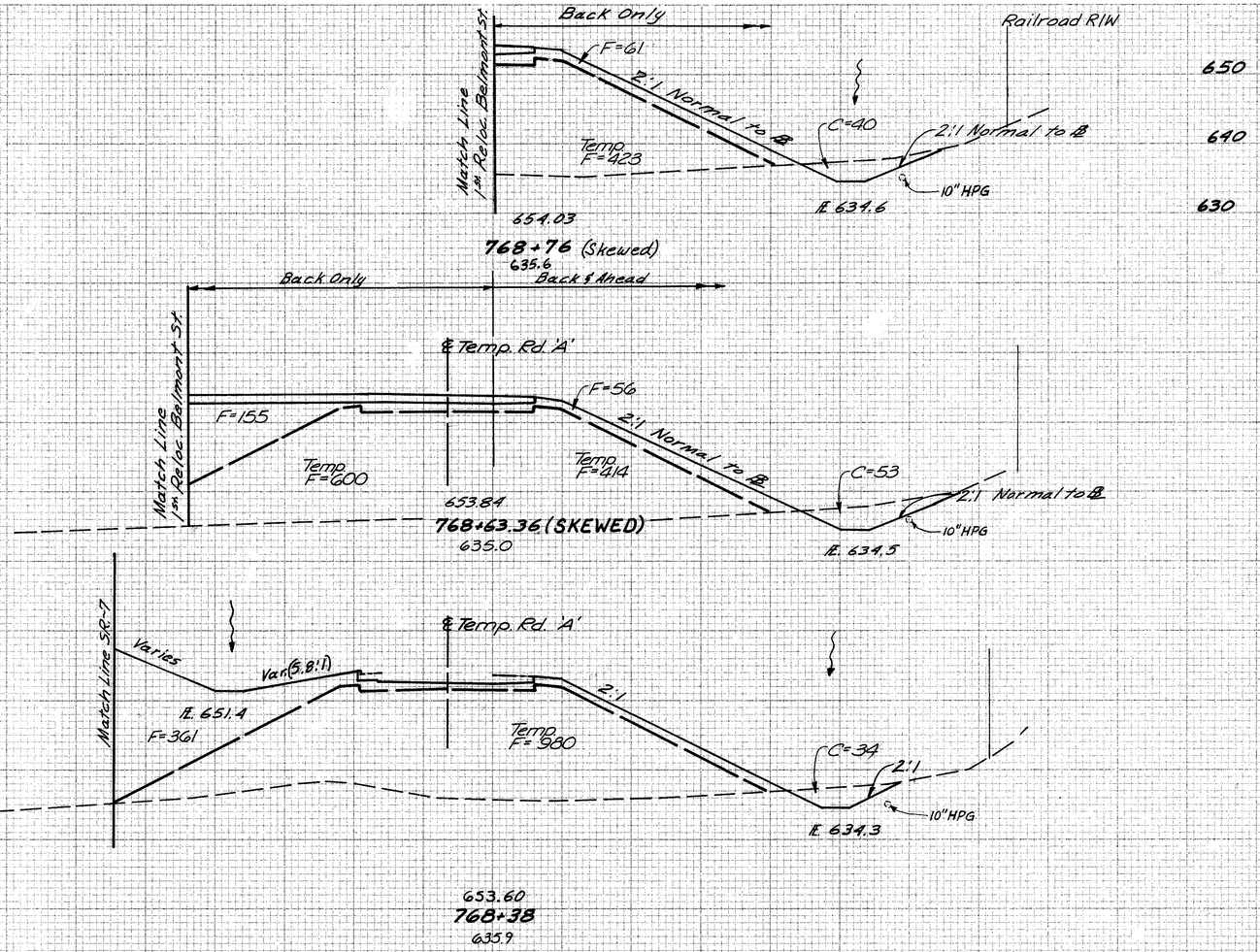
SEEDING END WIDTH	SEEDING SQ. YDS
	494
92	
	472
78	
	514
107	

80 60 40 20 0 20 40 60 80 100

RAMP 'B' ~ STA. 766+50 TO STA. 767+50

BEL-7-14.17 | OHIO | FHWA REGION 5 | 185 / 663

CALC. BY: JILL DATE: 4/26/84
CHK'D BY: B.M.A. DATE: 7/23/84



SEEDING END WIDTH	SEEDING SQ. YDS		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	91				18	27
68			40	61		
	96				22	27
68	0	Ahead	53	56	0	0
68	0	Back	53	211	0	0
	235				41	269
99			34	361		
	391				85	307
86			87	75		

650 640 630 650 640 630 650 640 630

80 60 40 20 0 20 40 60 80 100

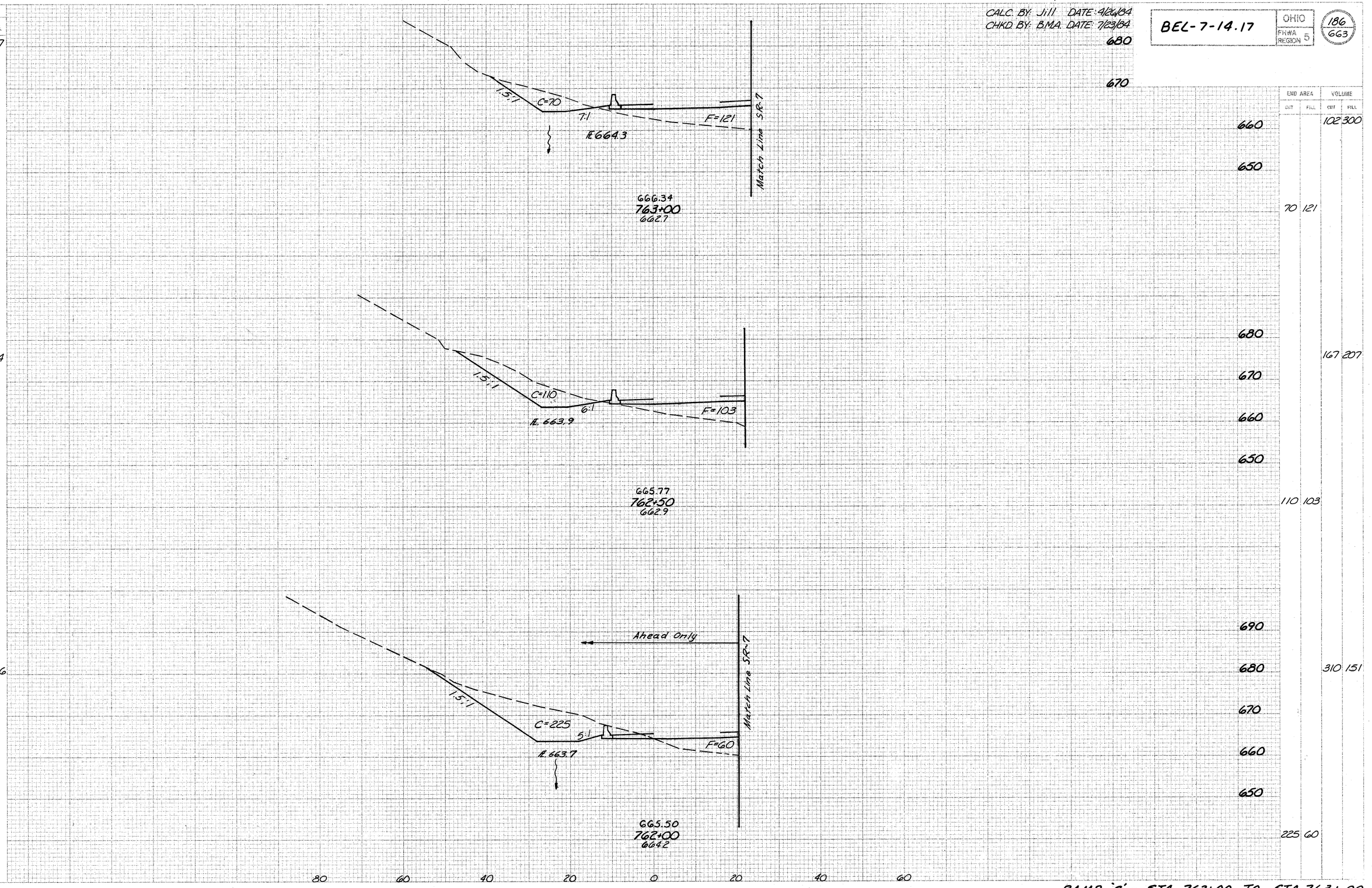
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RAMP 'B' ~ STA. 768+00 TO STA. 768+76

CALC. BY: Jill DATE: 4/26/84
CHKD BY: B.M.A. DATE: 7/23/84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 186 / 663

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
197					
				102	300
34		70	121		
				167	207
214					
43		110	103		
256				310	151
49		225	60		

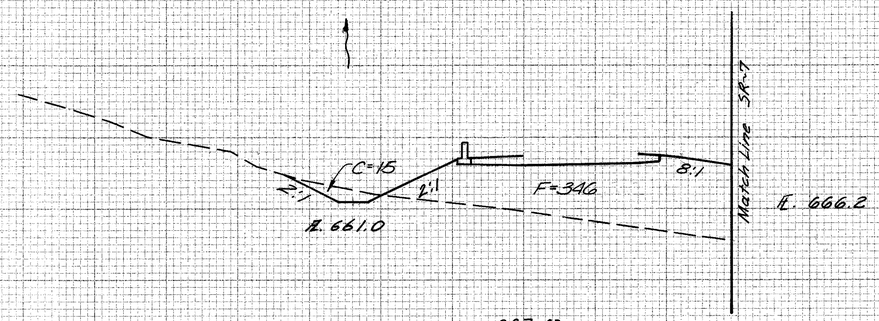


RAMP 'C' - STA. 762+00 TO STA. 763+00

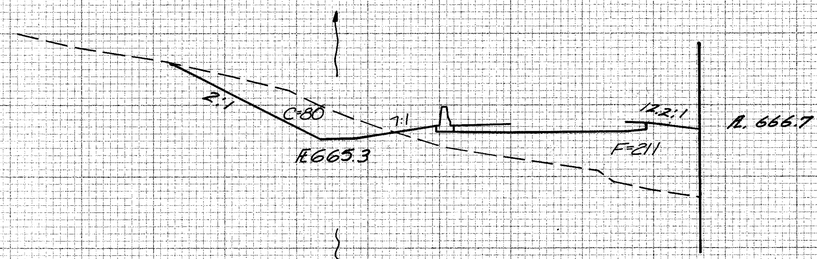
CALC. BY: JHH DATE: 4/26/84
CHKD. BY: B.M.A. DATE: 7/23/84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 187 / 663

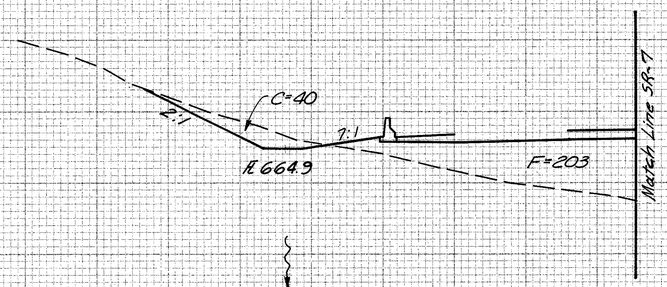
SEEDING			END AREA		VOLUME	
END WIDTH	SQ. YDS		CUT	FILL	CUT	FILL
	194					
					30	761
	34			15	346	
	217				88	516
	44			80	211	
	225				111	383
	37			40	203	



667.43
764+50
659.6



667.36
764+00
662.7



666.92
763+50
661.6

680
670
660
650
680
670
660
650
680
670
660
650

80 60 40 20 0 20 40 60 80

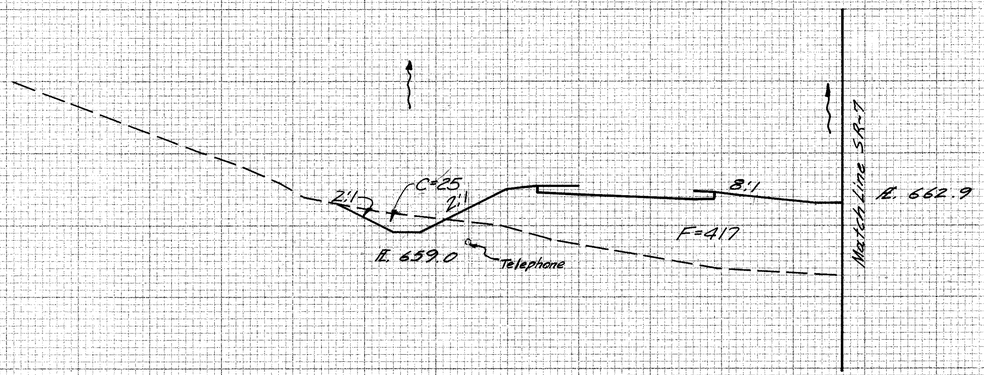
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

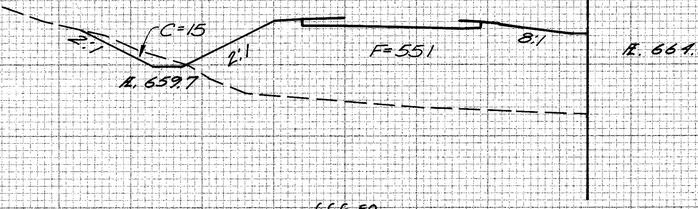
RAMP 'C' - STA. 763+50 TO STA. 764+50

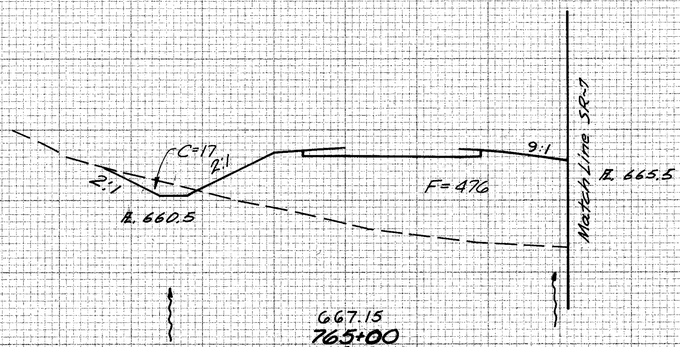
CALC BY: Jill Date: 4/26/84
CHKD BY: B.M.A. Date: 7/23/84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 188 / 663

SEEDING			END AREA		VOLUME	
END WIDTH	SQ. YDS.		CUT	FILL	CUT	FILL
250		680				
		670			59	757
		660				
		650				
42		665.98 766+00 657.4		25	417	
233		680			37	896
		670				
		660				
		650				
42		666.50 765+50 654.9		15	551	
217		670			30	951
		660				
		650				
36		667.15 765+00 656.7		17	476	







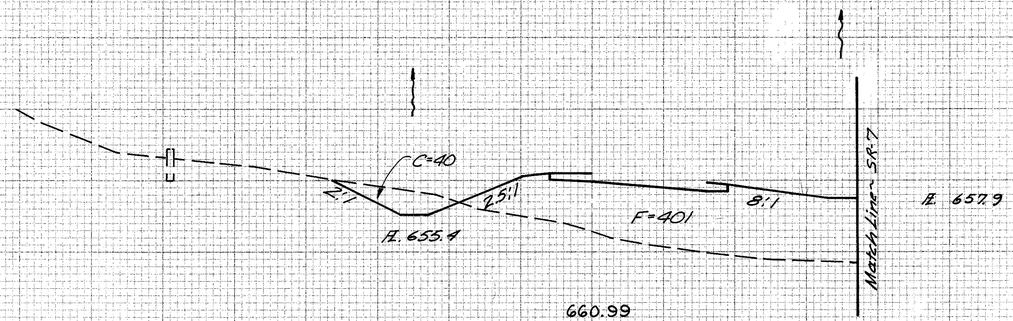
80 60 40 20 0 20 40 60 80

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

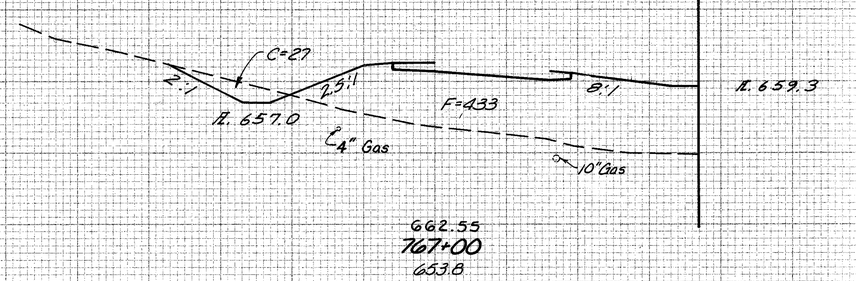
RAMP "E" ~ STA. 765+00 TO STA. 766+00

CALC. BY: Jill DATE: 4/26/84
CHKD. BY: BMA DATE: 7/23/84

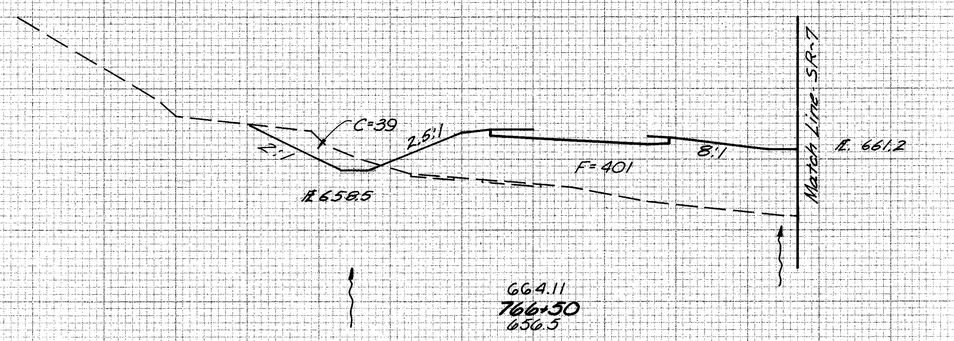
BEL-7-14.17 | OHIO | FHWA REGION 5 | 189 / 663



660.99
767+50
652.9



662.55
767+00
653.8



664.11
766+50
650.5

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL	
	267			42	726	670
						660
						650
44			40		401	
	250			62	772	670
						660
						650
46			27		433	
	261			61	772	670
						660
						650
48			39		401	

80 60 40 20 0 20 40 60 80

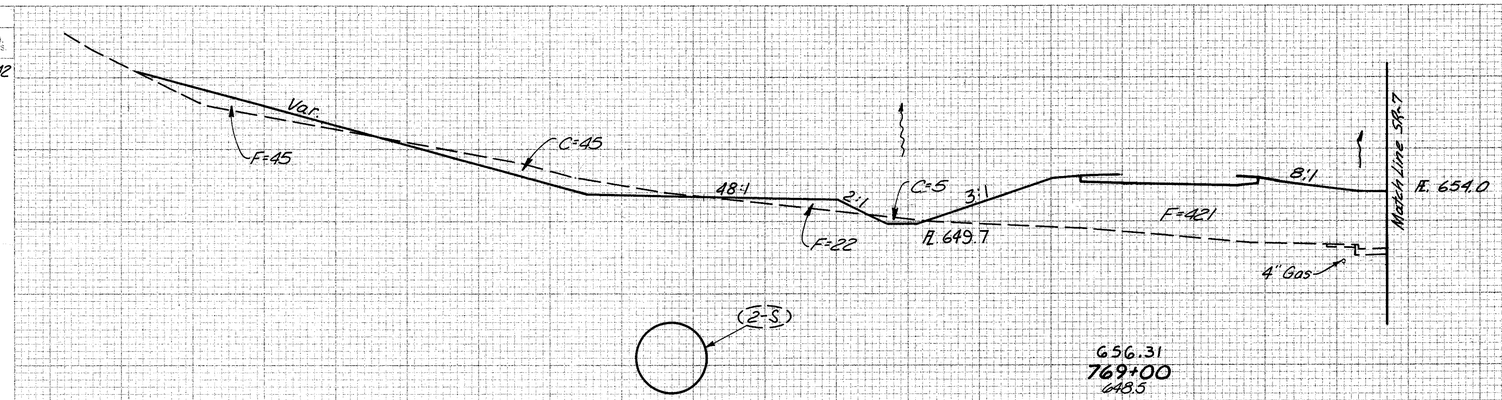
RAMP 'C' ~ STA. 766+50 TO STA. 767+50

CALC. BY: Jill DATE: 4/26/94
CHKD. BY: B.M.A. DATE: 7/23/94

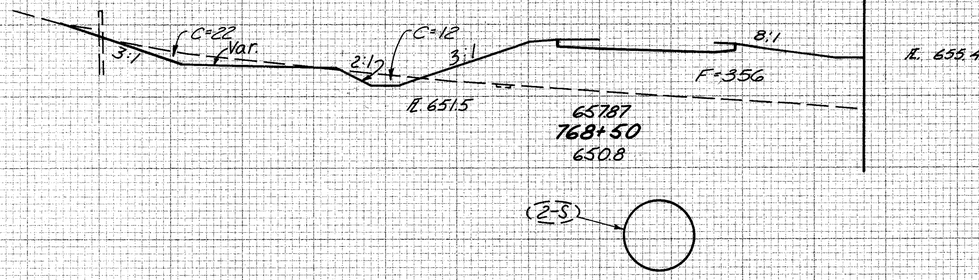
BEL - 7 - 14.17 | OHIO FHWA REGION 5 | 190 / 663

SEEDING

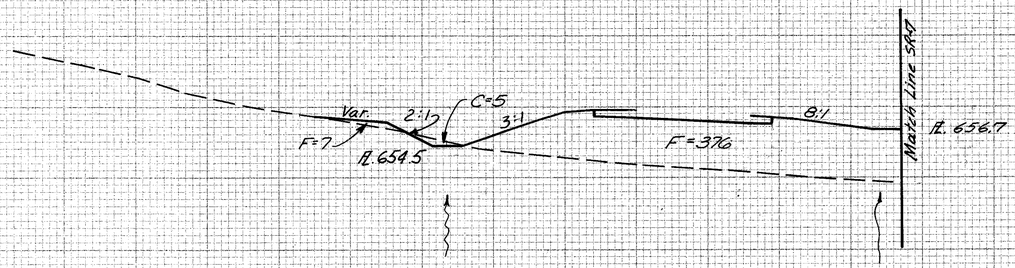
END WIDTH	SQ. YDS.
542	
147	
639	
83	
375	
52	



656.31
769+00
648.5



657.87
768+50
650.8



659.43
768+00
651.9

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		33	857
	50	488	
		78	781
		34	356
		36	684
		5	383

660
650
640
660
650
640
670
660
650
640
80 60 40 20 0 20 40 60 80 100

RAMP 'C' ~ STA. 768+00 TO STA. 769+00

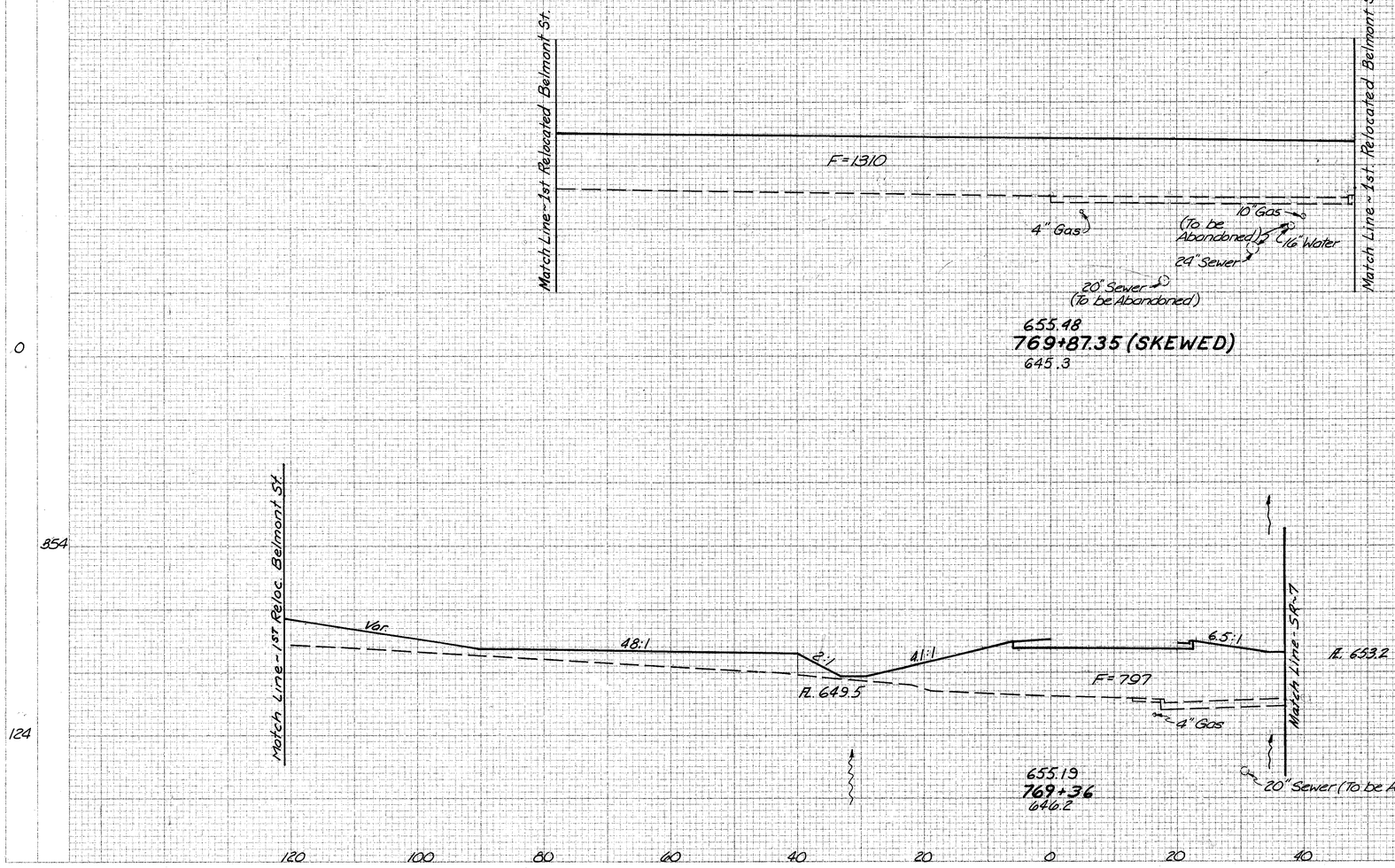
CALC BY: Jill Date: 4/29/84
CHKD BY: B.M.A. Date: 7/23/84

BEL - 7 - 14.17 | OHIO | FHWA REGION 5 | 191/663

SEEDING

END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL



660
650
640
0 1310
0 2004
660
650
640
0 797

0
854
124

120 100 80 60 40 20 0 20 40 60 80

RAMP 'C' - STA. 769+36 TO STA. 769+87.35

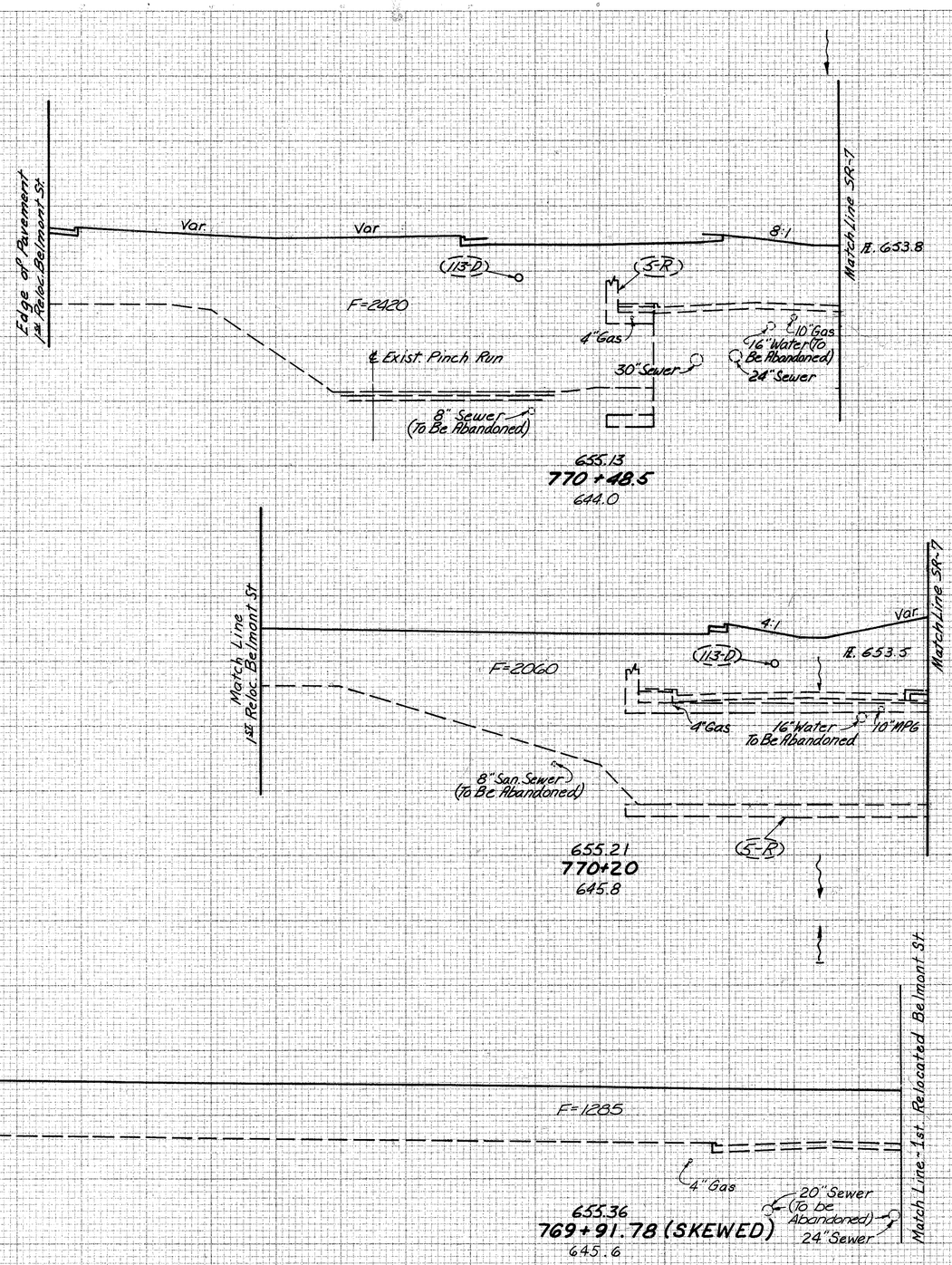
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

CALC. BY: Jill DATE: 4/26/84
CHKD. BY: B.M.A. DATE: 7/23/84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 192 / 663

SEEDING

END WIDTH	SQ. YDS.
305	
74	
166	
31	
49	
0	



	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
660			0	2442
650				
640				
630				
	0	2420		
660				
650			0	2364
640				
630				
620	0	2060		
660			0	1748
650				
640				
	0	1285		

100 80 60 40 20 0 20 40 60 80 100

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

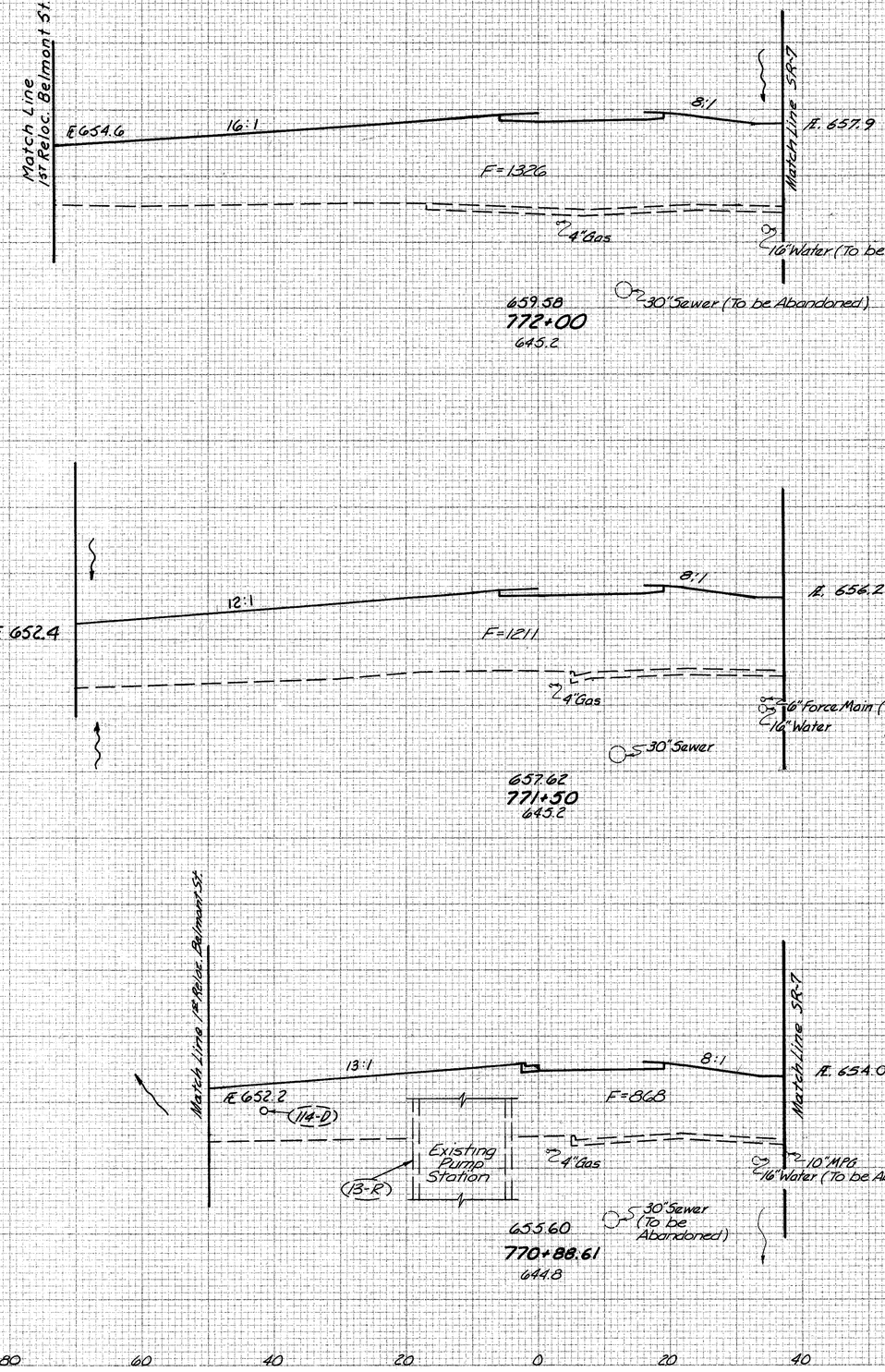
RAMP 'D' ~ STA. 769+91.78 TO STA. 770+48.5

CALC. BY: Jill DATE: 4/26/94
CHKD. BY: B.M.A. DATE: 7/23/94

BEL-7-14.17 | OHIO | FHWA REGION 5 | 193 / 663

SEEDING

END WIDTH	SQ. YDS.
	436
	78
	428
	76
	474
	63



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
			0 2497
	0 1326		
			0 2349
	0 1211		
	0 236		
	0 868		

660
650
640
660
650
640
660
650
640
630

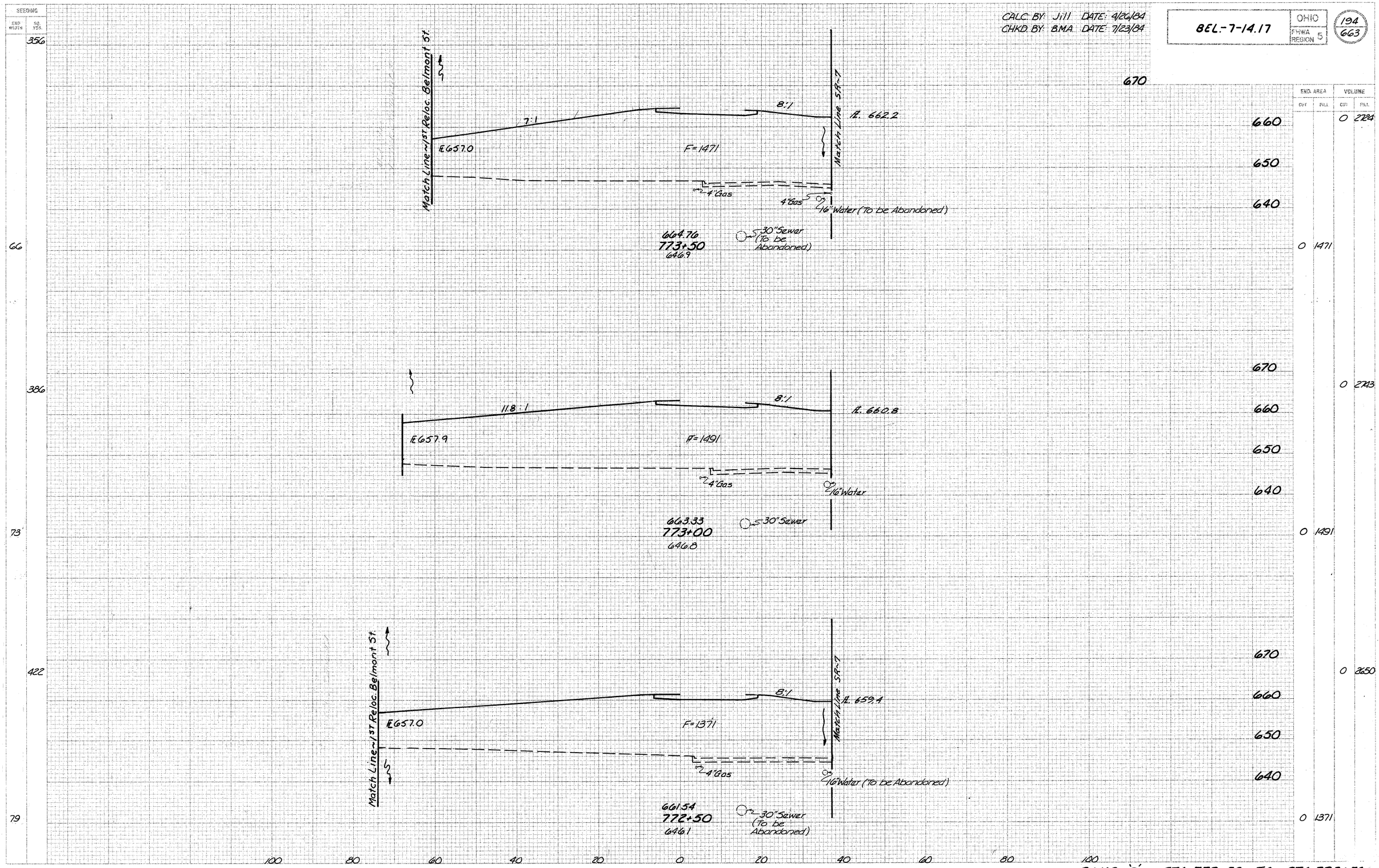
120 100 80 60 40 20 0 20 40 60 80 100

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RAMP 'D' - STA. 770+88.61 TO STA. 772+00

CALC. BY: Jill DATE: 4/26/84
CHKD. BY: B.M.A. DATE: 7/23/84

BEL.-7-14.17 | OHIO | FHWA REGION 5 | 194/663



RAMP 'D' ~ STA. 772+50 TO STA. 773+50

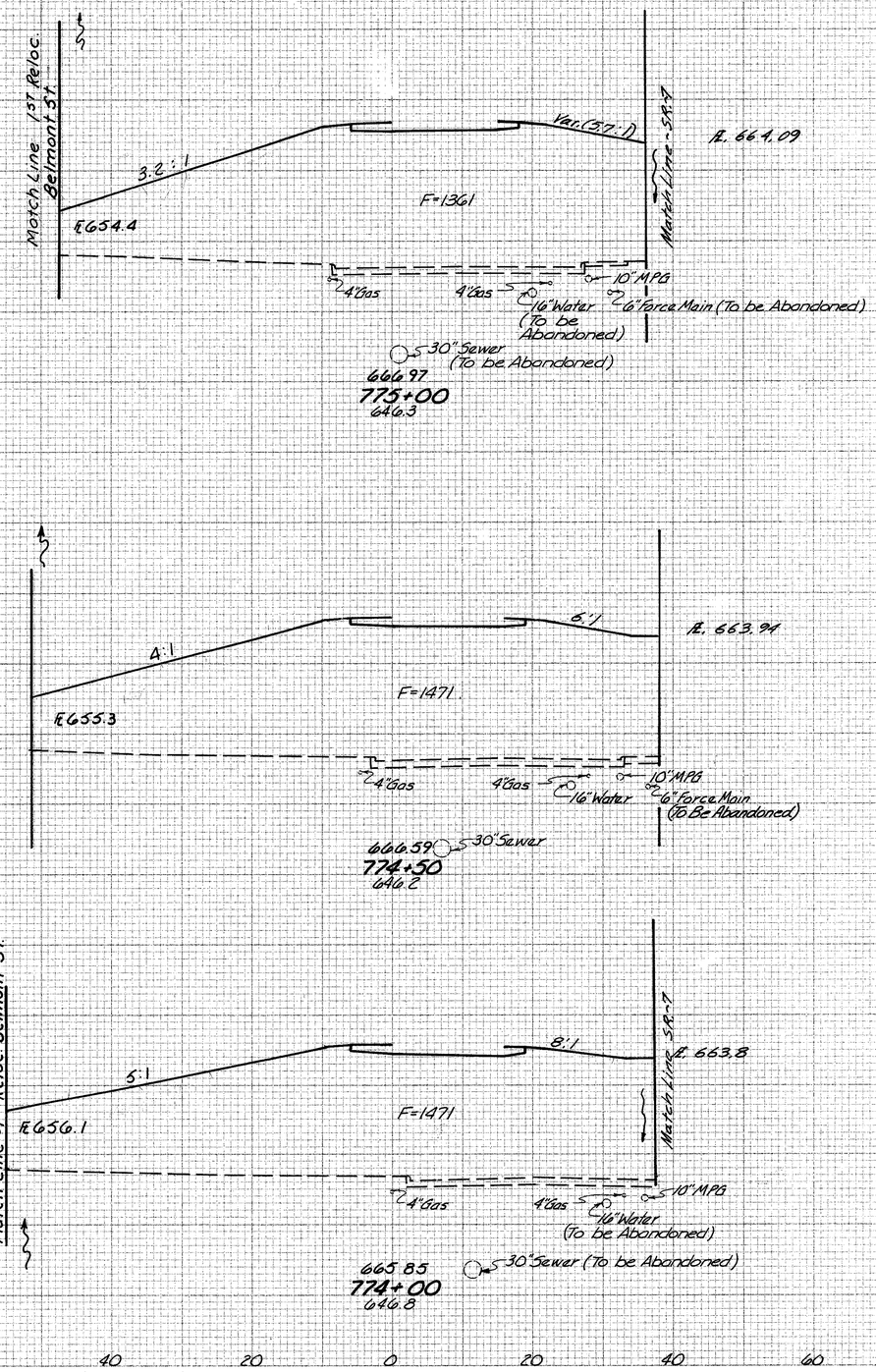
W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

CALC. BY: Jill DATE: 4/26/84
CHKD. BY: B.M.A. DATE: 7/23/84

BEL.-7-14.17 | OHIO | FHWA REGION 5 | 195 / 663

SEEDING

END WIDTH	SQ. YDS.
	294
	55
	317
	59
	336
	62



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL	
		0	2469	670
				660
				650
				640
0	1361			
				670
		0	2022	
				660
				650
				640
0	1471			
				670
				660
		0	2724	
				650
				640
0	1471			

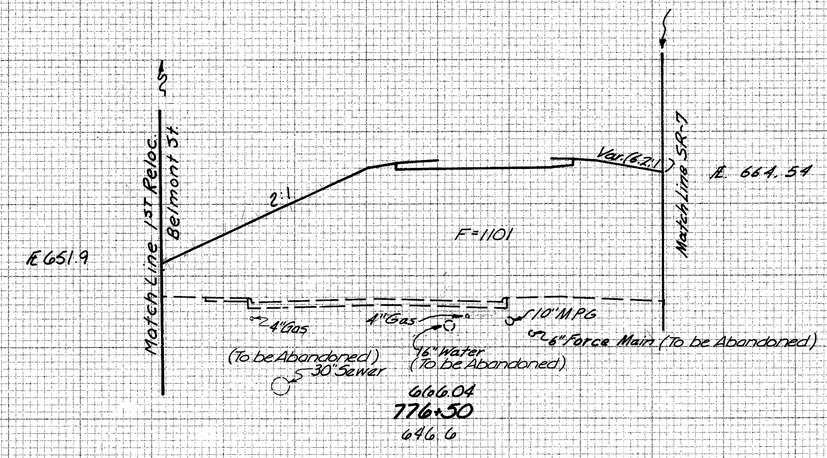
100 80 60 40 20 0 20 40 60 80 100 120

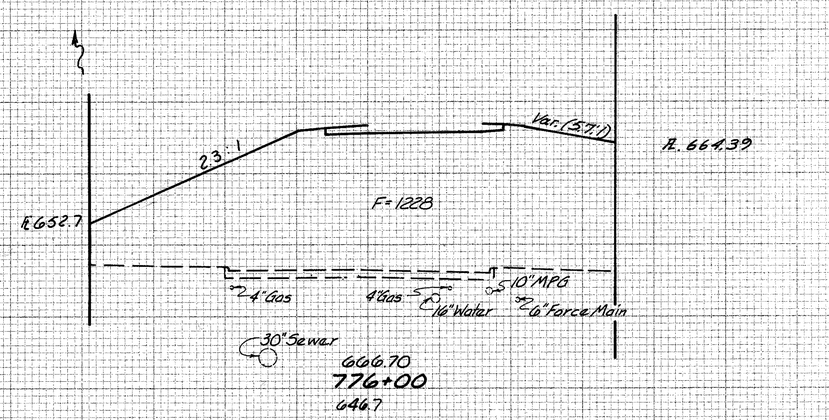
RAMP 'D' ~ STA. 774+00 TO STA. 775+00

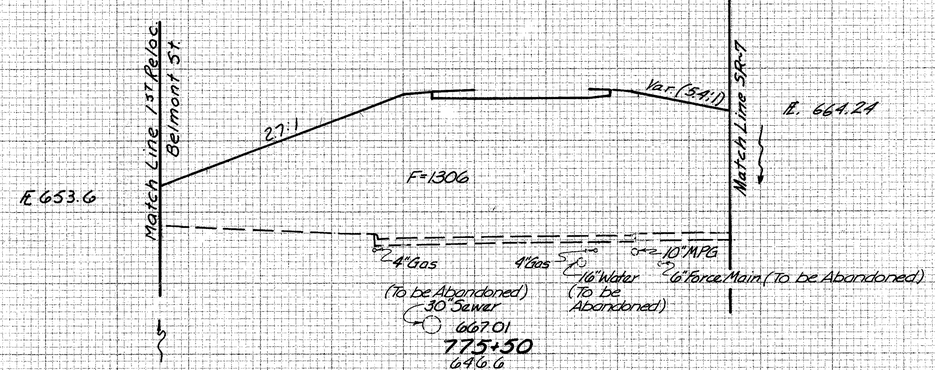
CALC. BY: Jill DATE: 4/26/84
CHKD BY: B.M.A. DATE: 7/23/84

BEL-7-14.17 | OHIO FHWA REGION 5 | 196/663

SEEDING			END AREA		VOLUME	
END WIDTH	SQ. YDS		CUT	FILL	CUT	FILL
203		670				
		660			0	1956
		650				
		640				
41				1101		
239		670			0	2156
		660				
		650				
		640				
45				1228		
267		670			0	2396
		660				
		650				
		640				
51				1306		







100 80 60 40 20 0 20 40 60 80 100

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

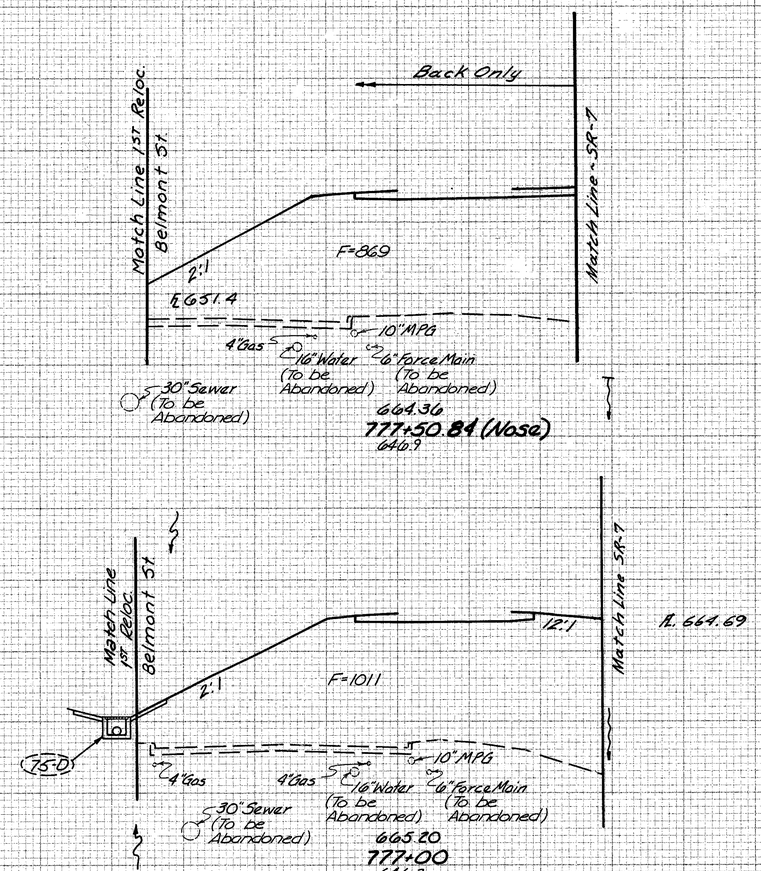
RAMP 'D' ~ STA. 775+50 TO STA. 776+50

CALC. BY: Jill DATE: 4/26/84
CHKD BY: BMA DATE: 7/23/84

BEL-7-14.17 | OHIO FHWA REGION 5 | 197/663

SEEDING	
END WIDTH	SQ. YDS.
26	
164	
32	

END AREA		VOLUMES	
CUT	FILL	CUT	FILL
		0	869
		0	1770
		0	1011



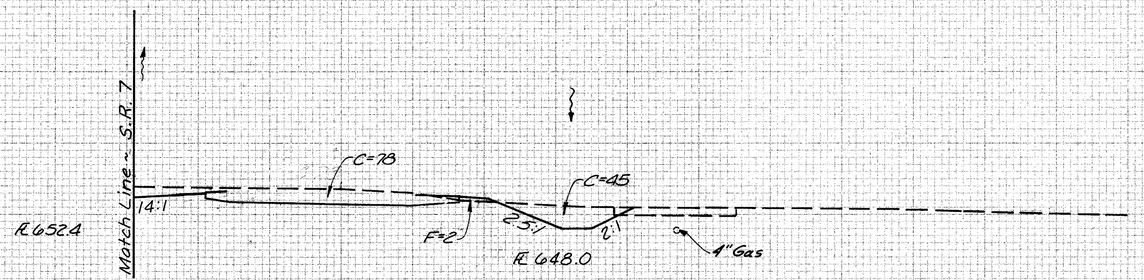
670
660
650
640
670
660
650
640
80 60 40 20 0 20 40

RAMP D ~ STA. 777+00 TO STA. 777+50.84

CALC. BY: Jill DATE: 4/26/84
CHKD BY: BMA DATE: 7/23/84

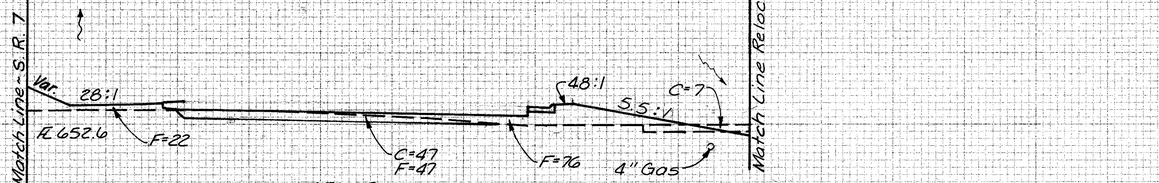
BEL-7-14.17 | OHIO | FHWA REGION 5 | 198 / 663

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
	116			116	1
42				123	2
239				164	136
44				54	145
75				39	189
0				15	185



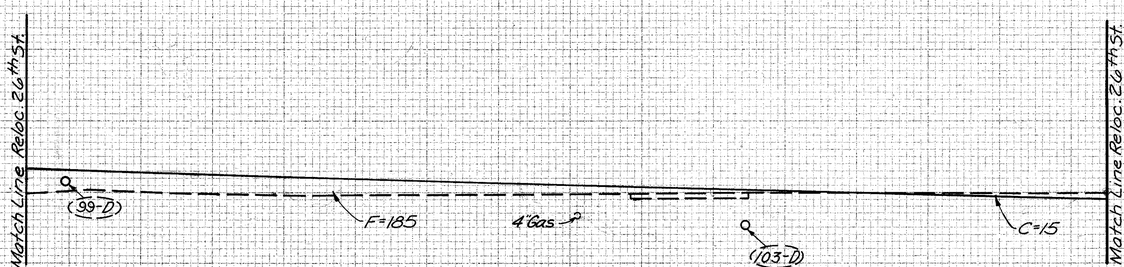
653.15
828+50
653.6

660
650
640



653.09
828+00
651.7

660
650
640



653.30
827+69.13 (SKEWED)
649.8

650
640

100 80 60 40 20 0 20 40 60 80 100

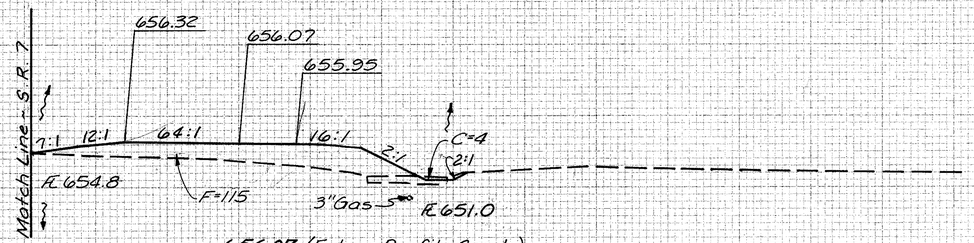
W. E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

RAMP 'E' ~ STA. 827+69.13 TO STA. 828+50

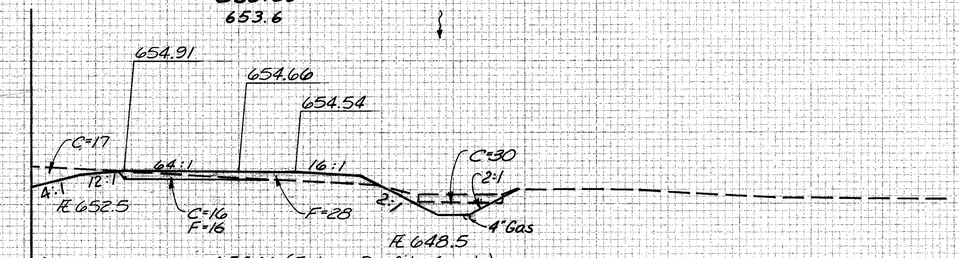
CALC. BY: JHL DATE: 4/26/84
CHKD. BY: BMA DATE: 7/23/84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 199 / 663

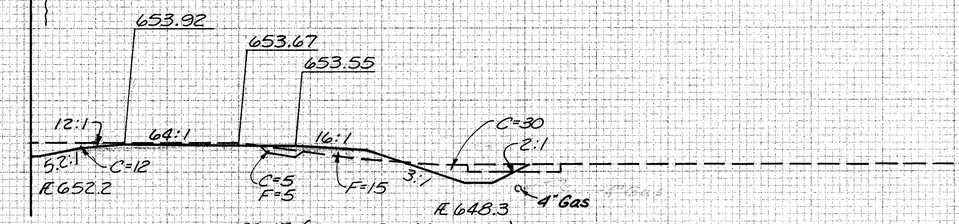
ZERO EARTHWORK
STA. 830+05



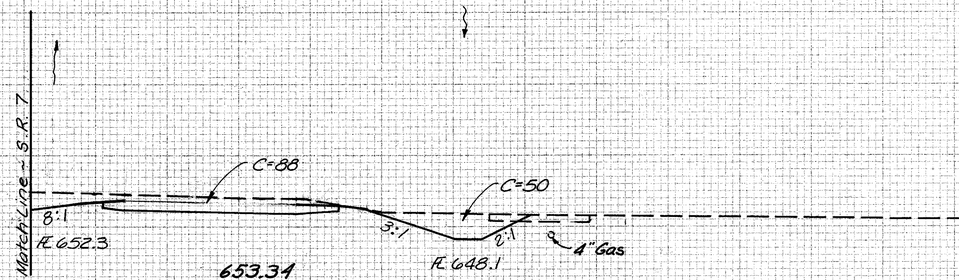
656.07 (Future Profile Grade)
830+00
653.6



654.66 (Future Profile Grade)
829+50
653.8



653.67 (Future Profile Grade)
829+00
654.1



653.34
828+74.09 END PAVEMENT
654.0

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL	
		0	11	660
				650
4	115			
		62	147	660
				650
		63	44	660
				650
		102	59	
		47	20	
		89	10	660
				650
138	0			

SEEDING

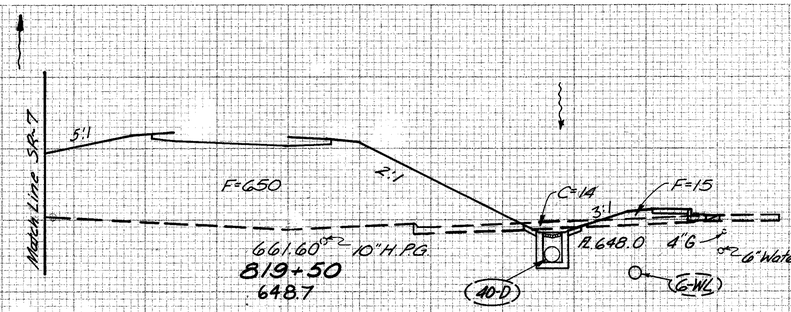
END WIDTH	SQ. YDS.	
	22	
78		
	444	
82		
	467	
86		
	189	
45		

100 80 60 40 20 0 20 40 60 80 100

RAMP 'E' ~ STA. 828+74.09 TO STA. 830+05

CALC. BY: JJH DATE: 4/26/84
CHKD. BY: B.M.A. DATE: 7/23/84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 200 / 663

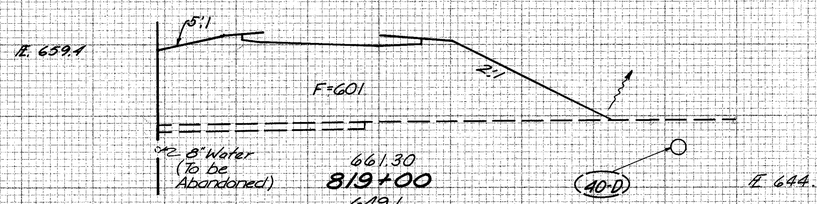


660

650

640

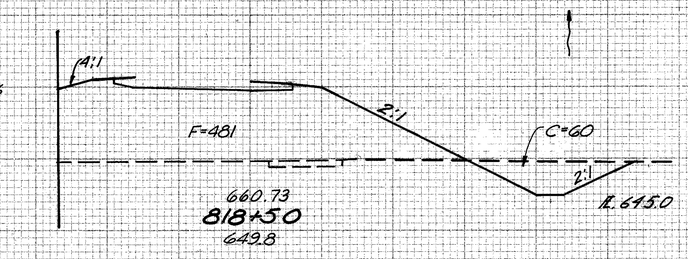
Note:
See Bridge Design Notes for Embankment Construction conditions Back & Ahead of Abutments.



660

650

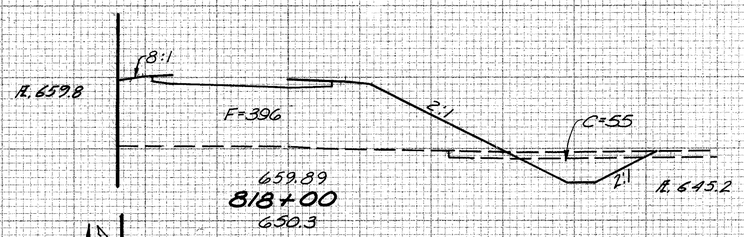
640



660

650

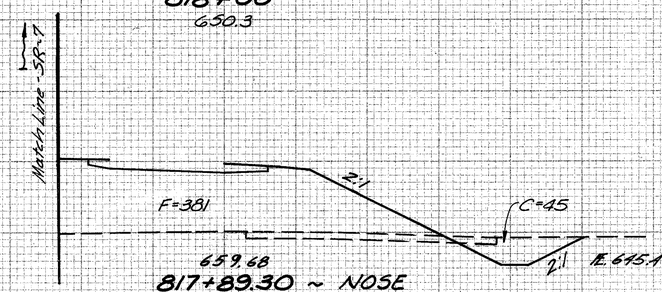
640



660

650

640



660

650

640

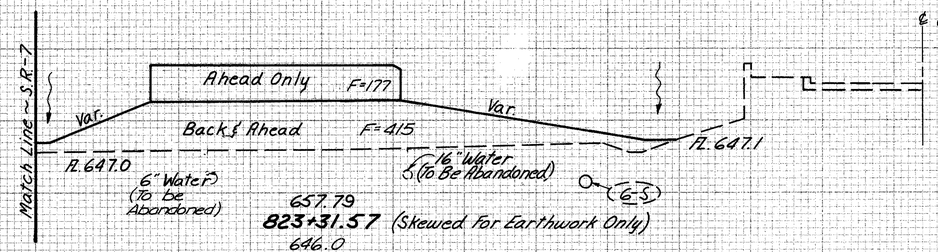
SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	272			21	1179
48		14	665		
	289			13	1172
56		0	601		
	328			56	1002
62		60	481		
	353			106	812
65		55	396		
	77			20	154
65		45	381		

100 80 60 40 20 0 20 40 60 80 100

RAMP 'F' STA. 817+89.30 TO STA. 819+50

CALC. BY: Jill DATE: 4/26/84
CHKD.BY: B.M.A. DATE: 7/23/84

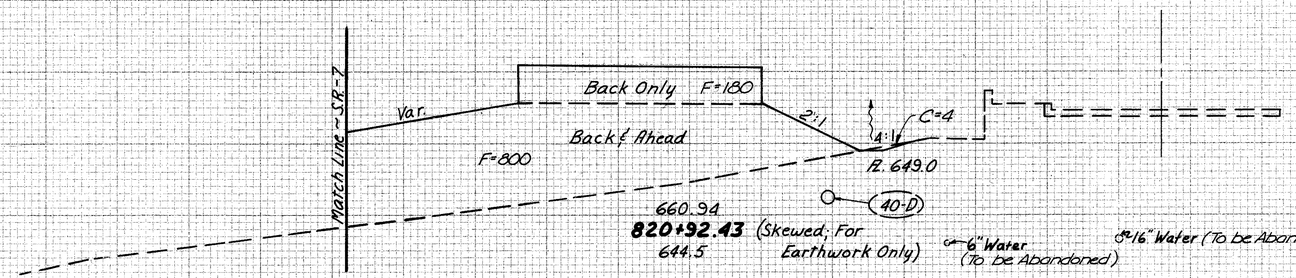
BEL-7-14.17 | OHIO | FHWA REGION 5 | 201/663

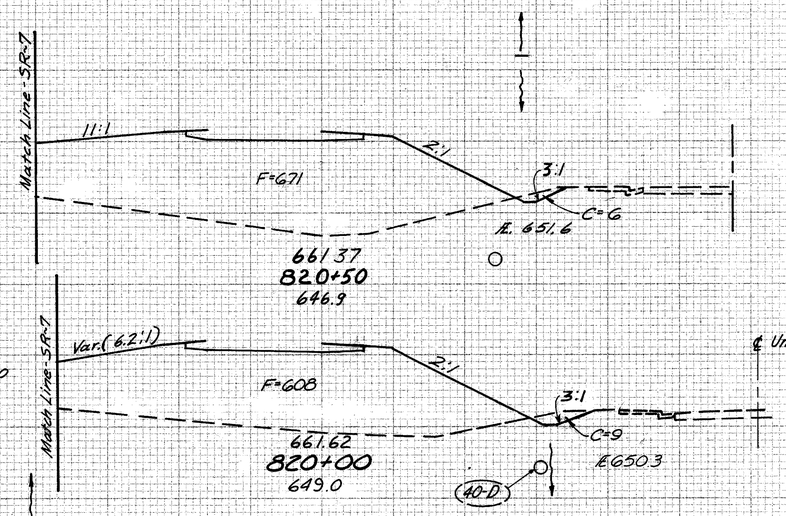


ZERO EARTHWORK
STA. 822+90

(BRIDGE)

ZERO EARTHWORK
STA. 821+32





SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL	
	109				0	354	650
57	0	Ahead					640
57	0	Back					
	100				0	346	
0			0	0			
	0				0	0	
0			0	0			
	108				3	586	660
							650
49	0	Ahead					640
49	0	Back					
	222				8	1297	
							660
							650
45					6	671	
	264				14	1184	660
							650
50					9	608	
							640

END AREA CUT	END AREA FILL		VOLUME CUT	VOLUME FILL
0	415	Ahead		
0	592	Back		
4	800	Ahead		
4	980	Back		

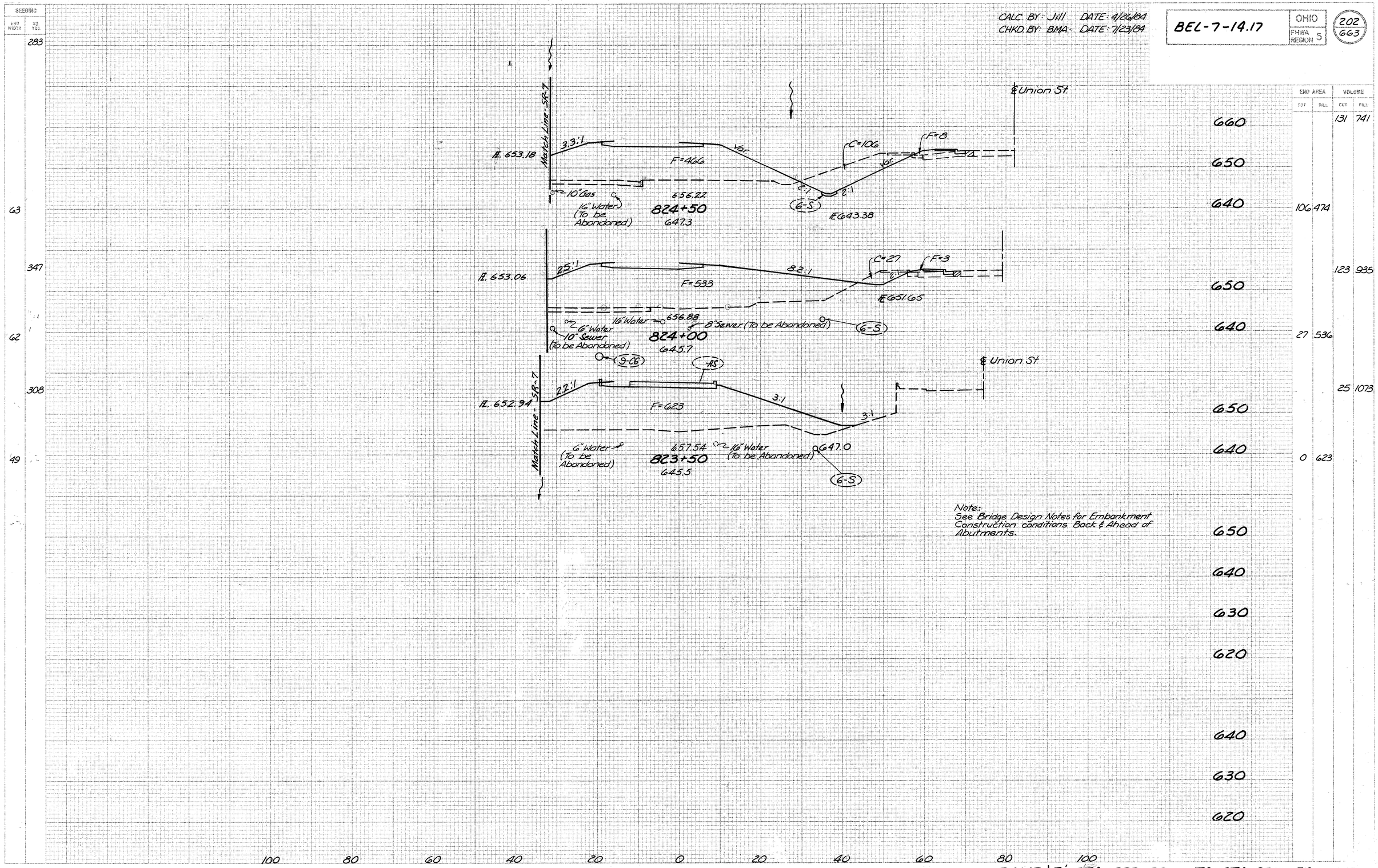
80 60 40 20 0 20 40 60 80

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RAMP 'F' STA. 820+00 TO STA. 823+31.57

CALC. BY: Jill DATE: 4/26/84
CHKD. BY: BMA DATE: 7/23/84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 202/663



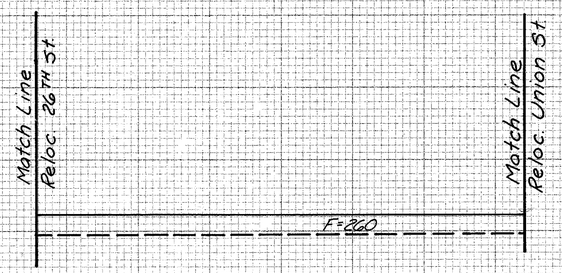
END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		131	741
106	474		
		123	935
27	536		
		25	1073
0	623		

RAMP 'F' STA. 823+50 TO STA. 824+50

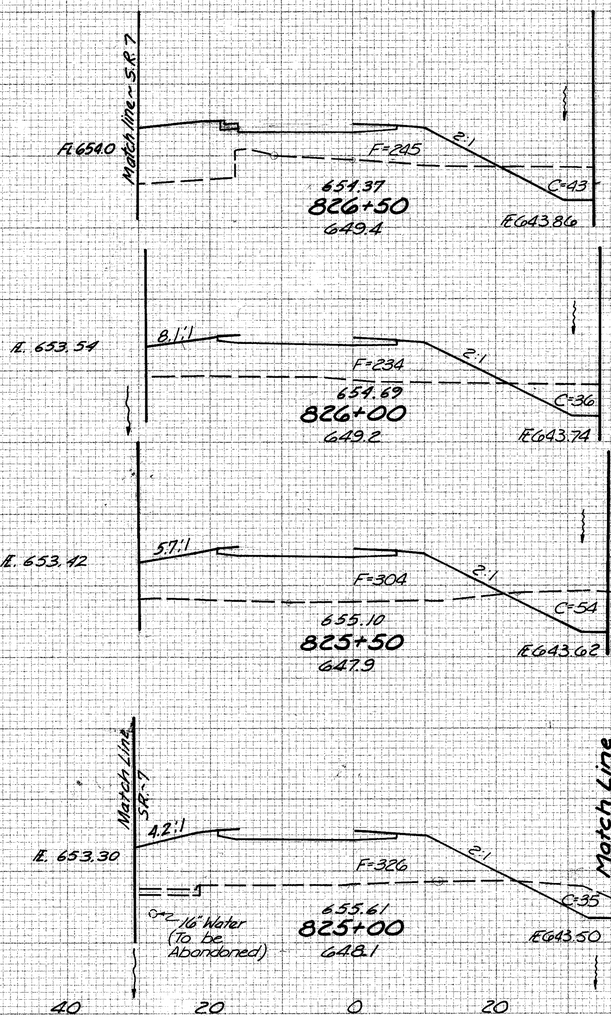
W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

CALC BY: Jill DATE: 4/26/84
CHKD BY: B.M.A. DATE: 7/23/84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 203 / 663



827+05.42 (SKEWED)
649.5



SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0			650	0	260	
	108		640			44 518
35			650			
			640	43	245	
192			650			73 444
34			640	36	234	
194			650			83 498
36			640	54	304	
208			660			82 583
			650			
39			640	35	326	

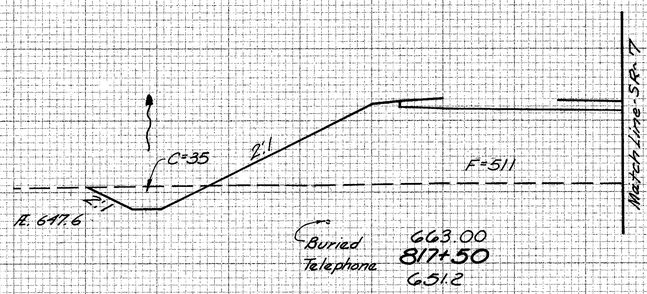
100 80 60 40 20 0 20 40 60 80

RAMP 'F' STA. 825+00 TO STA. 827+05.42

CALC BY: Jill DATE: 4/26/84
CHKD BY: BMA DATE: 7/23/84

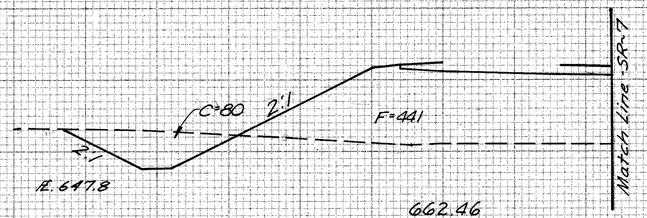
BEL-7-14.17 | OHIO | FHWA REGION 5 | 204 / 663

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	256				48 1081
44		35	511		
	256				106 881
48		80	441		
	253				116 807
43		45	431		
	228				52 835
39		11	471		



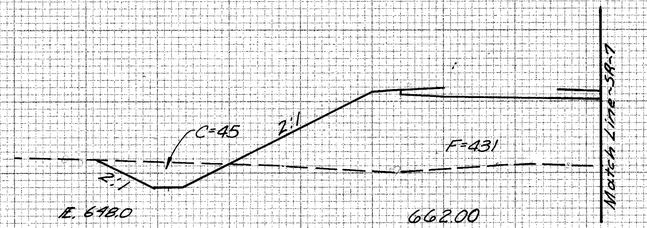
663.00
817+50
651.2

660
650



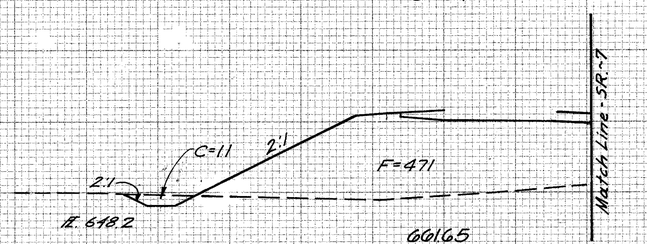
662.46
817+00
651.1

660
650



662.00
816+50
650.7

660
650



661.65
816+00
649.5

660
650

80 60 40 20 0 20 40 60 80 100 120

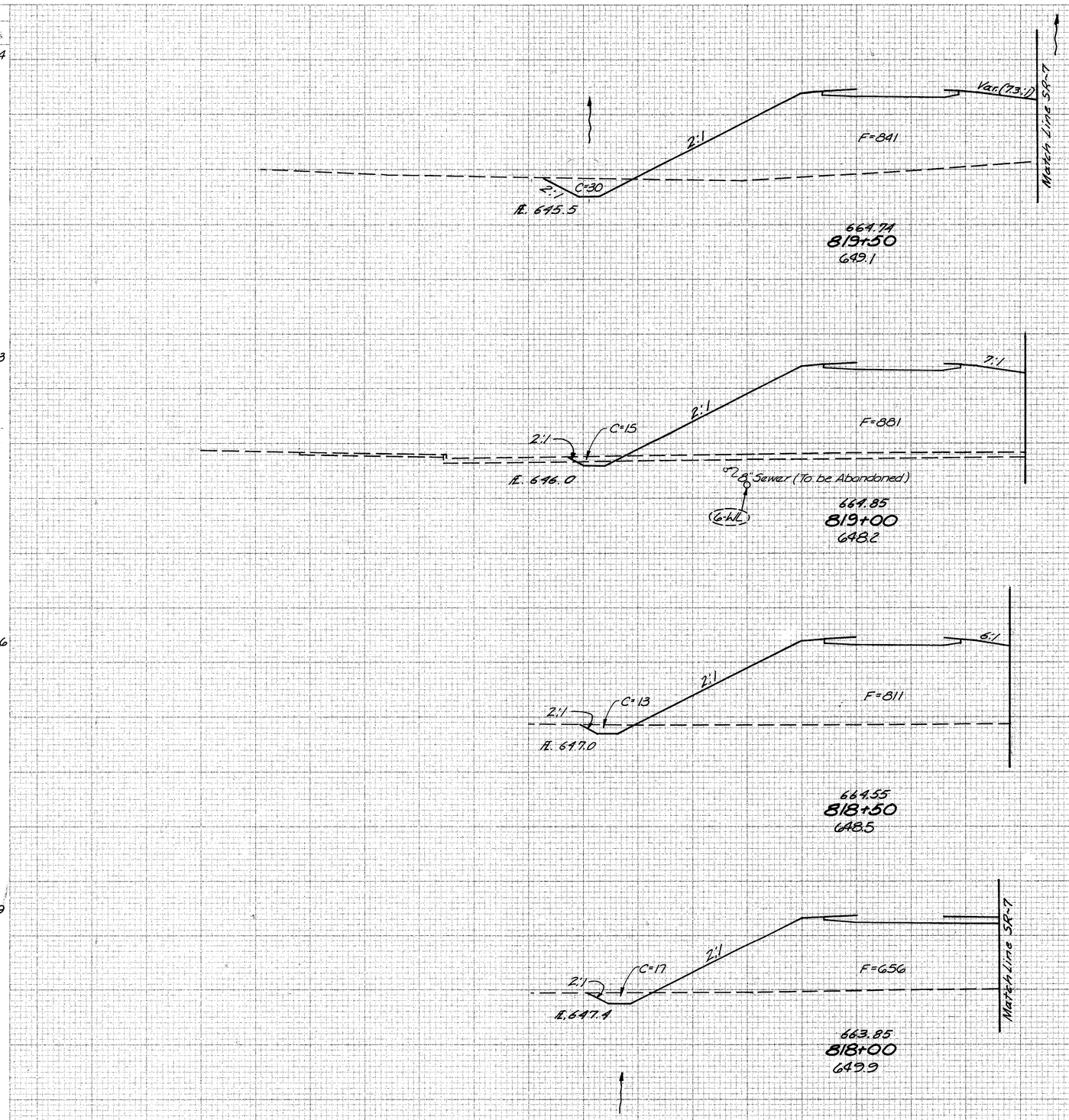
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RAMP 'G' STA. 816+00 TO STA. 817+50

CALC. BY: Jill DATE: 4/26/84
CHKD BY: BMA DATE: 7/23/84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 205/663

SEEDING END WIDTH	SEEDING SQ YDS
394	
	84
433	
	72
386	
	67
319	
	48



	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
660				
650			38	1279
640				
	30	841		
660				
650			42	1594
640				
	15	881		
660				
650			26	1567
640				
	13	811		
660				
650			28	1358
640				
	17	656		

Note:
See Bridge Design Notes for Embankment Construction conditions Back & Ahead of Abutments.

120 100 80 60 40 20 0 20 40 60 80 100 120

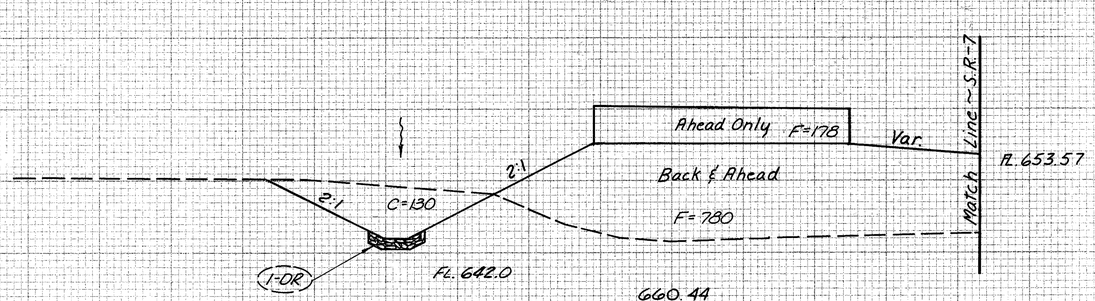
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RAMP 'G' STA. 818+00 TO STA. 819+50

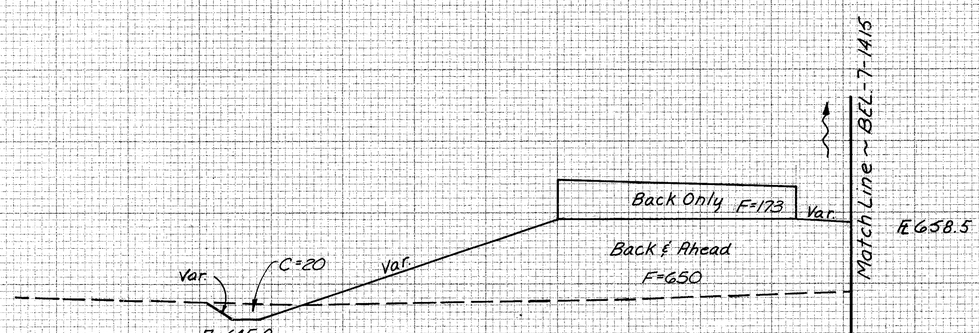
CALC BY: Jill DATE: 4/26/84
CHKD BY: BMA DATE: 7/23/84

BEL-7-14.17 | OHIO FHWA REGION 5 | 206 / 663

SEEDING END WIDTH	SEEDING SQ. YDS.			END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	307					157	1080
			660				
			650				
			640				
90	Ahead		630	Ahead	130	958	
90	Back			Back	130	780	
	283		620			136	819
0		ZERO EARTHWORK 822+10			0	0	
			660				
0		(BRIDGE)				0	0
			650				
			640				
0		ZERO EARTHWORK 820+25	630		0	0	
	162					12	403
			660				
			650				
87	Ahead		640	Ahead	20	650	0
87	Back			Back	20	823	0



660.44
822+66.67 (Skewed; For Earthwork Only)
641.5



664.23
819+91.51 (Skewed; For Earthwork Only)
647.8

100 80 60 40 20 0 20 40 60 80 100 120

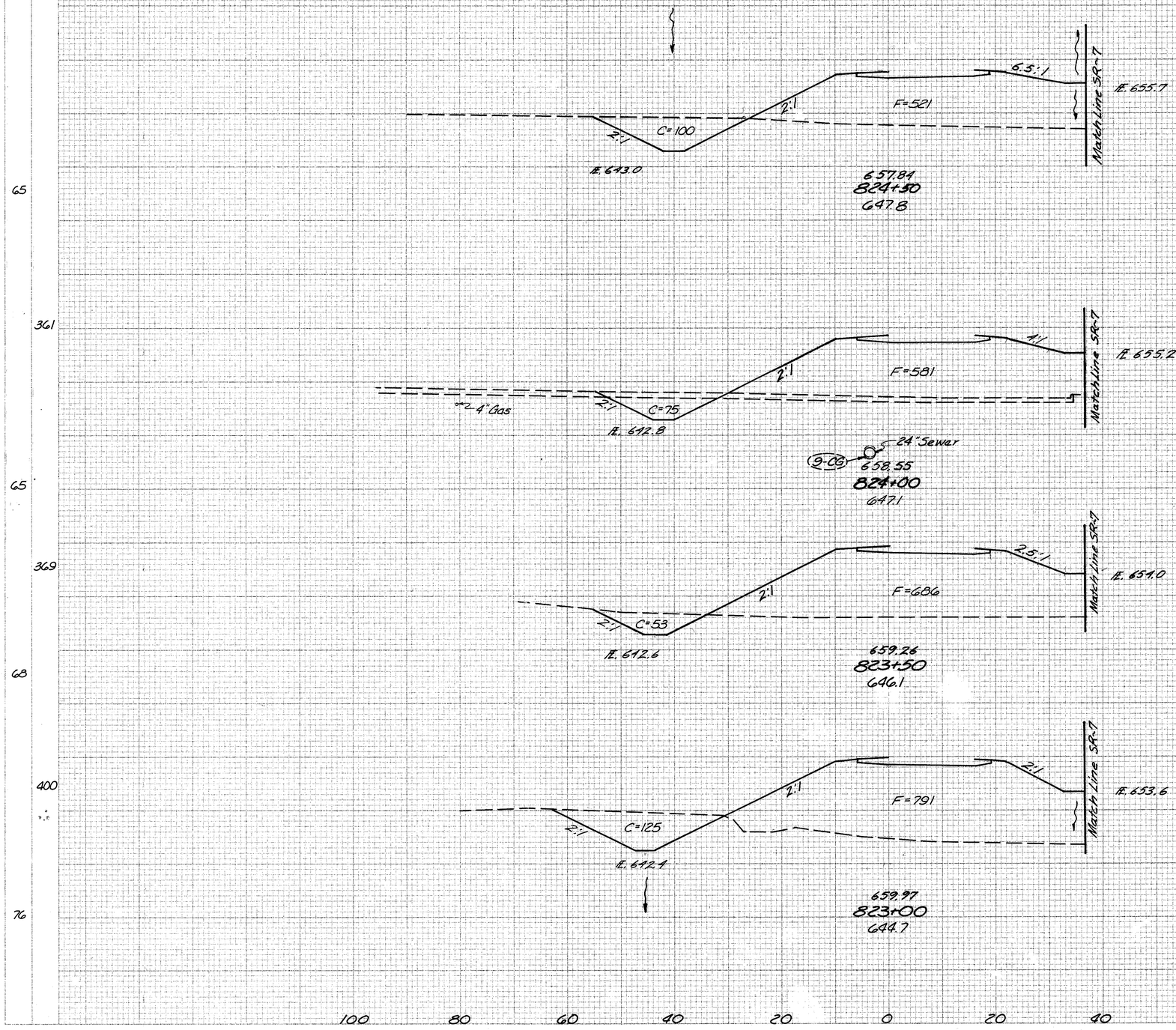
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RAMP 'G' STA. 819+91.51 TO STA. 822+66.67

CALC. BY: Jill DATE: 4/26/84
CHKD. BY: B.M.A. DATE: 7/23/84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 207 / 663

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	353	660		181	876
65		650			
		640			
		100	521		
	361	660		162	1020
65		650			
		640			
		75	581		
	369	660		119	1173
68		650			
		640			
		53	686		
	400	660		165	1368
		650			
		640			
76		125	791		



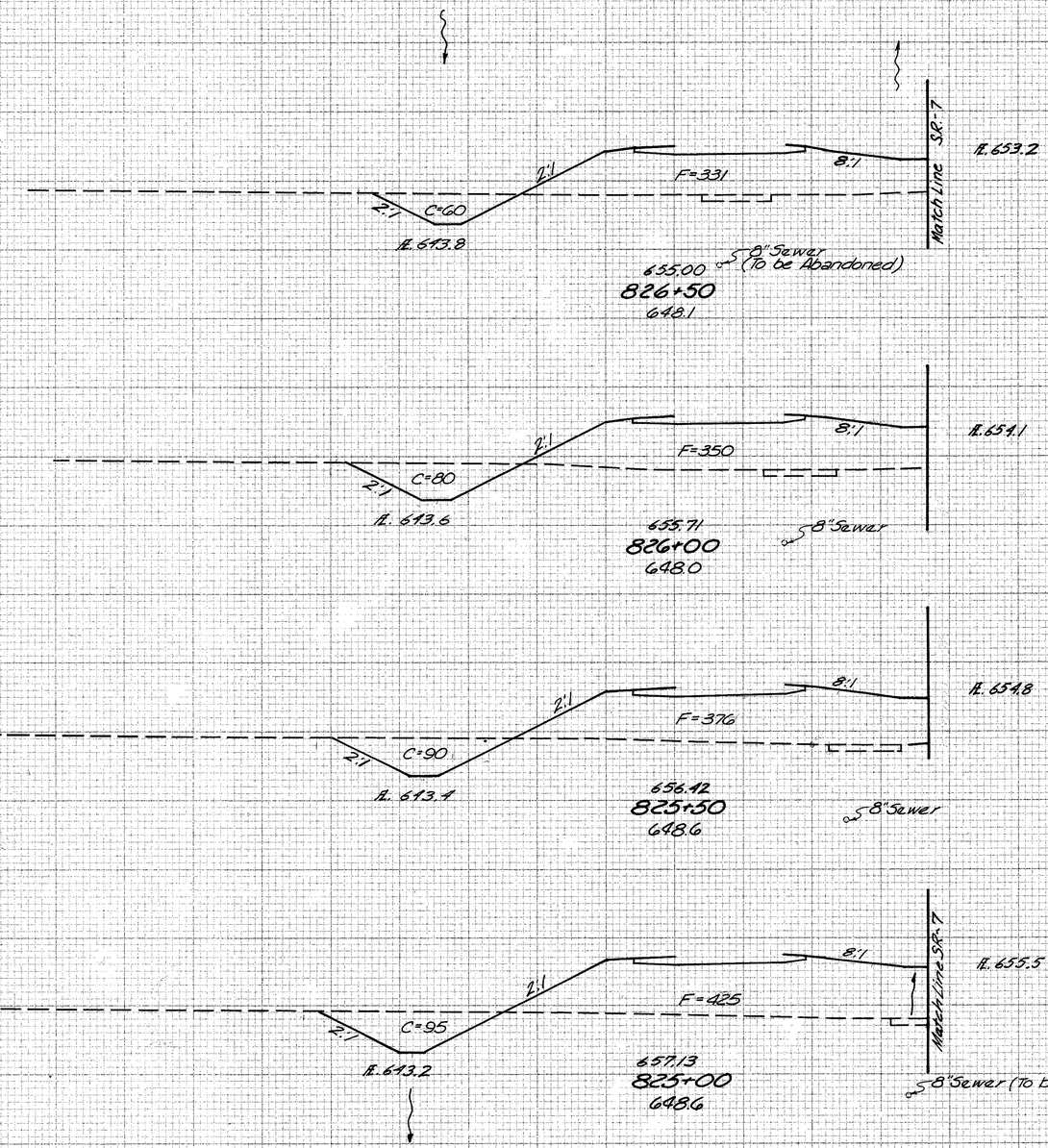
Note:
See Bridge Design Notes for Embankment Construction conditions Back & Ahead of Abutments.

100 80 60 40 20 0 20 40 60 80 100 120

RAMP 'C' - STA. 823+00 TO STA. 824+50

CALC. BY: Jill DATE: 4/27/84
CHKD BY: B.M.A. DATE: 7/23/84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 208 / 663



END AREA		VOLUME	
CUT	FILL	CUT	FILL
		142	724
60	331		
		130	631
80	350		
		157	672
90	376		
		171	742
95	425		

W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RAMP 'C' - STA. 825+00 TO STA. 826+50

CALC. BY: Jill DATE: 4/26/84
CHKD BY: BMA DATE: 7/23/84

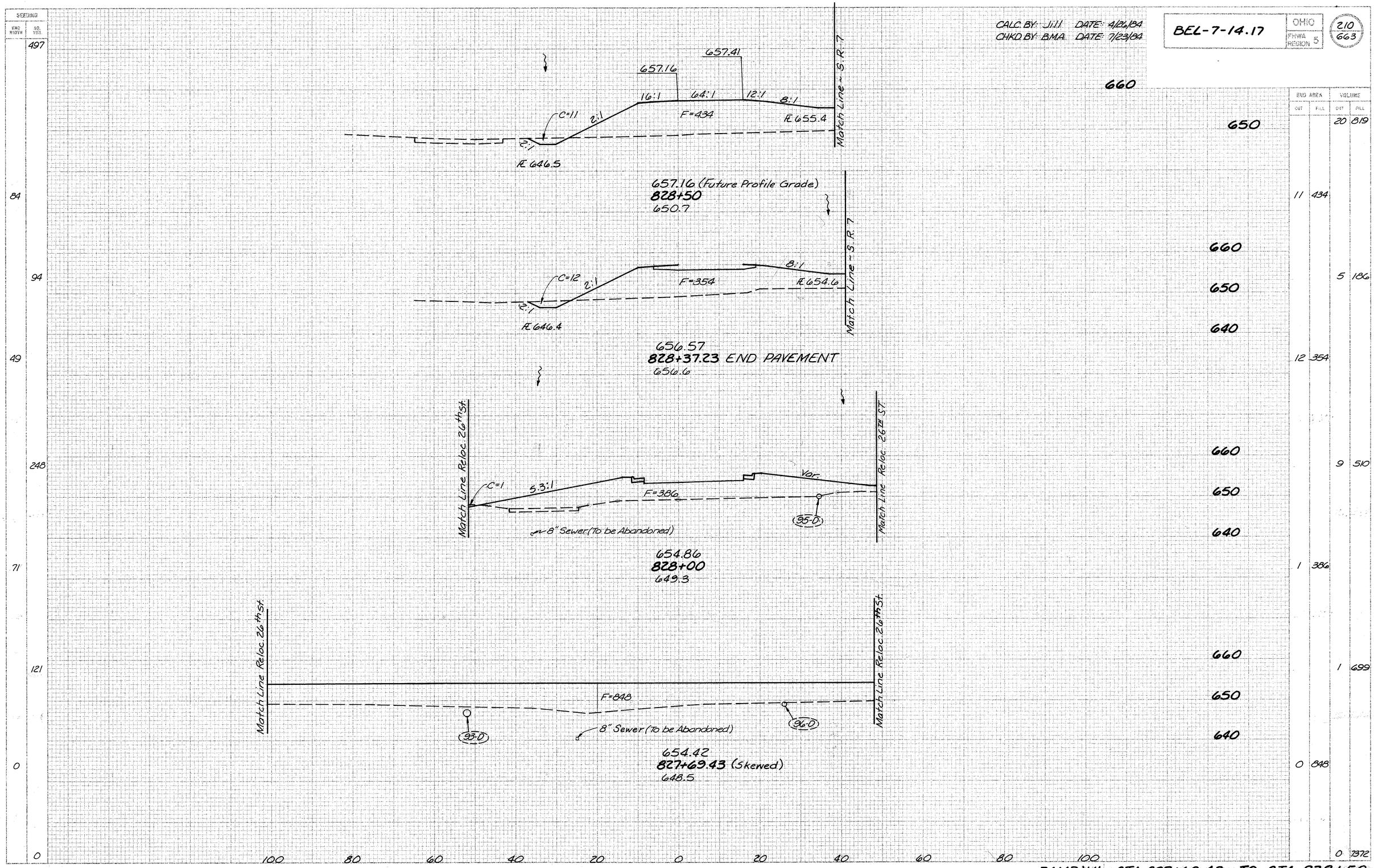
BEL - 7 - 14.17 | OHIO | FHWA REGION 5 | 209 / 663

SEEDING: END WIDTH | SQ. YDS.

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL

CALC. BY: Jill DATE: 4/26/84
CHKD. BY: BMA DATE: 7/23/84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 210/663



W. E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

RAMP 'H' ~ STA. 827+69.43 TO STA. 828+50

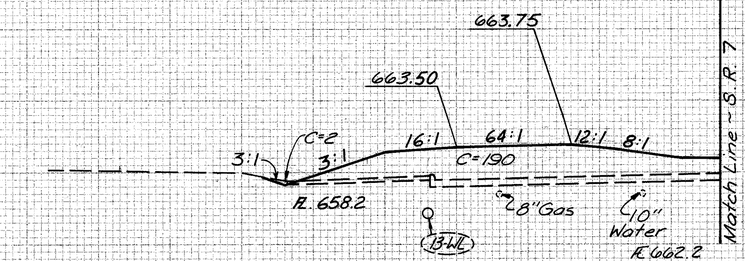
CALC. BY: Jill DATE: 4/27/84
CHKD BY: BMA DATE: 7/23/84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 211/663

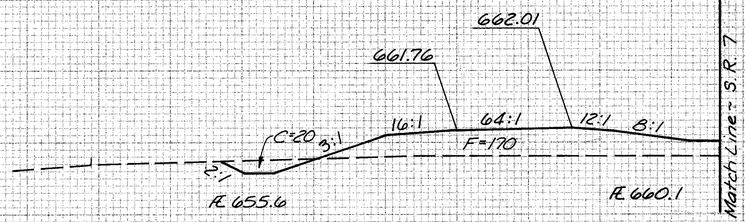
SEEDING

END WIDTH	SQ. YDS.
66	
344	
89	
511	
95	

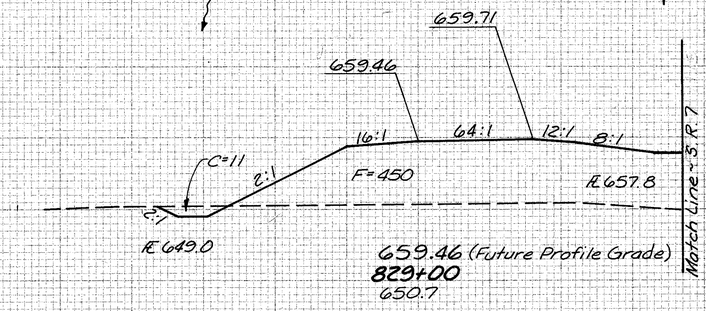
ZERO EARTHWORK
829+99
661.5



663.50 (Future Profile Grade)
829+90
659.0



661.76 (Future Profile Grade)
829+50
658.1



659.46 (Future Profile Grade)
829+00
650.7

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
2	190		
		16	267
		20	170
		29	574
		11	450

660
650
670
660
650
660
650
660
650

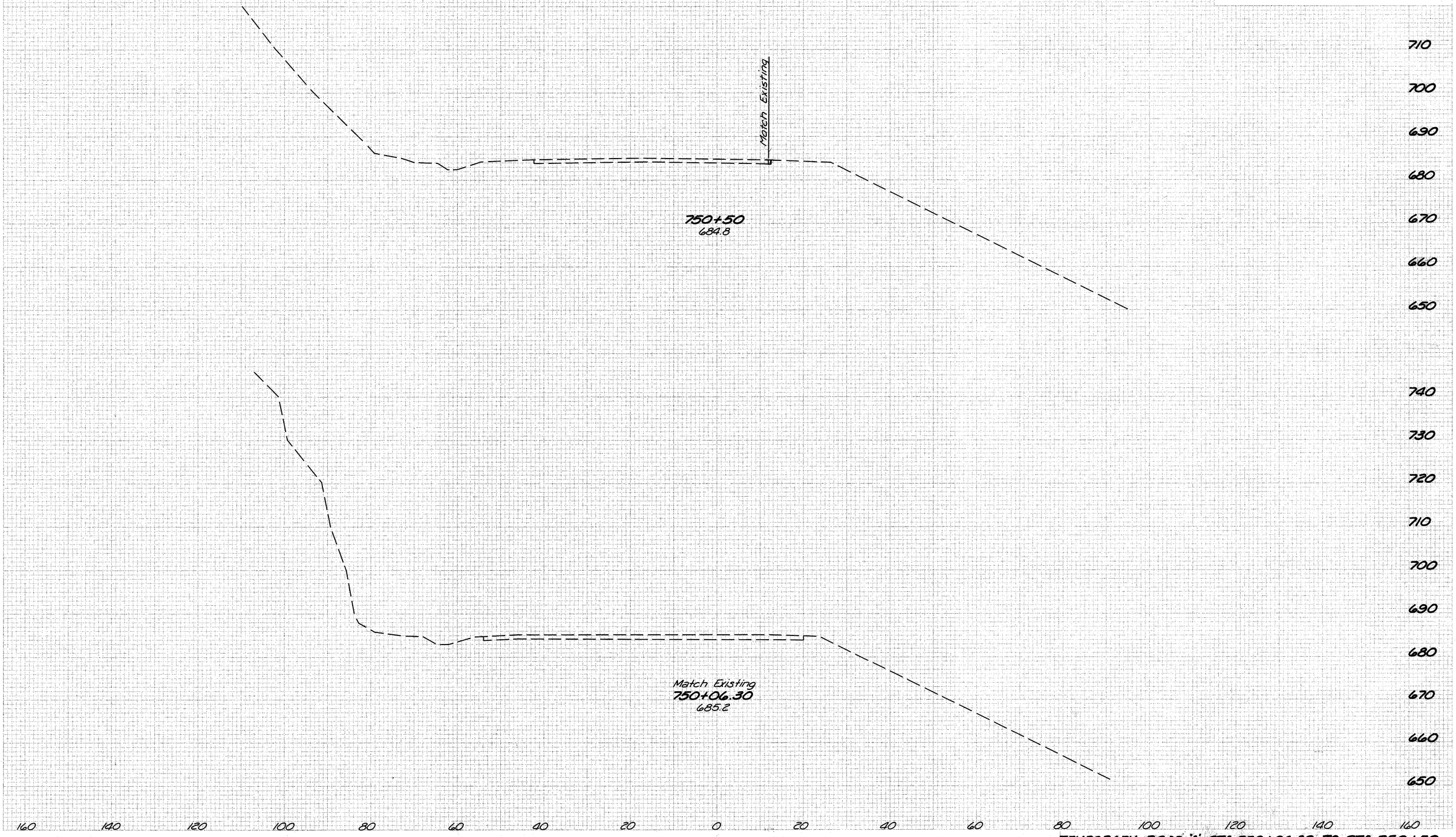
100 80 60 40 20 0 20 40 60 80 100

W. E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

RAMP 'H' ~ STA. 829+00 TO STA. 829+99

FHWA REGION	STATE	PROJECT		212 / 663
5	OHIO			

BEL-7-14.17



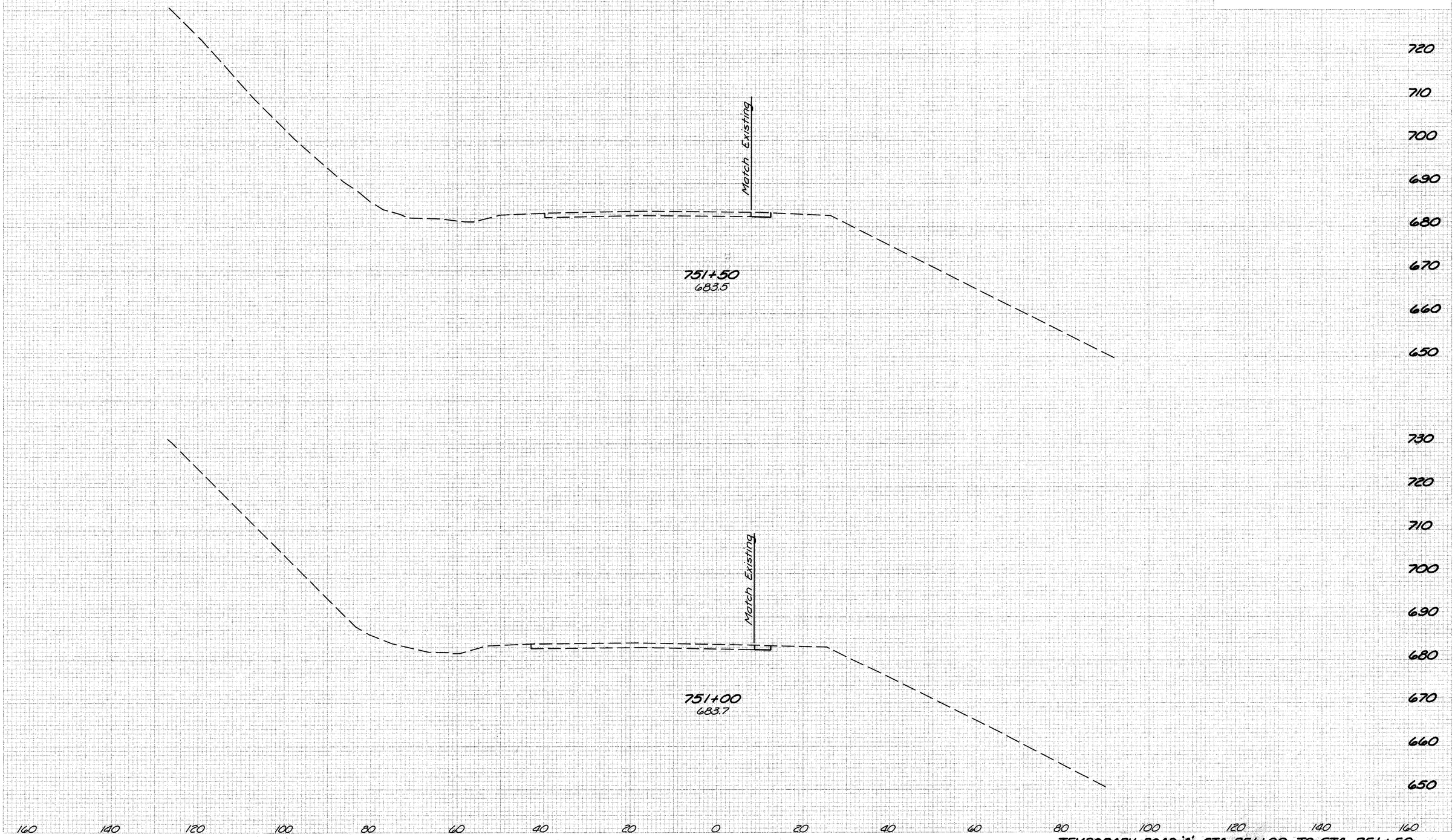
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

TEMPORARY ROAD 'A' STA 750+06.30 TO STA. 750+50

FHWA REGION	STATE	PROJECT		
5	OHIO			

213
663

BEL-7-14.17

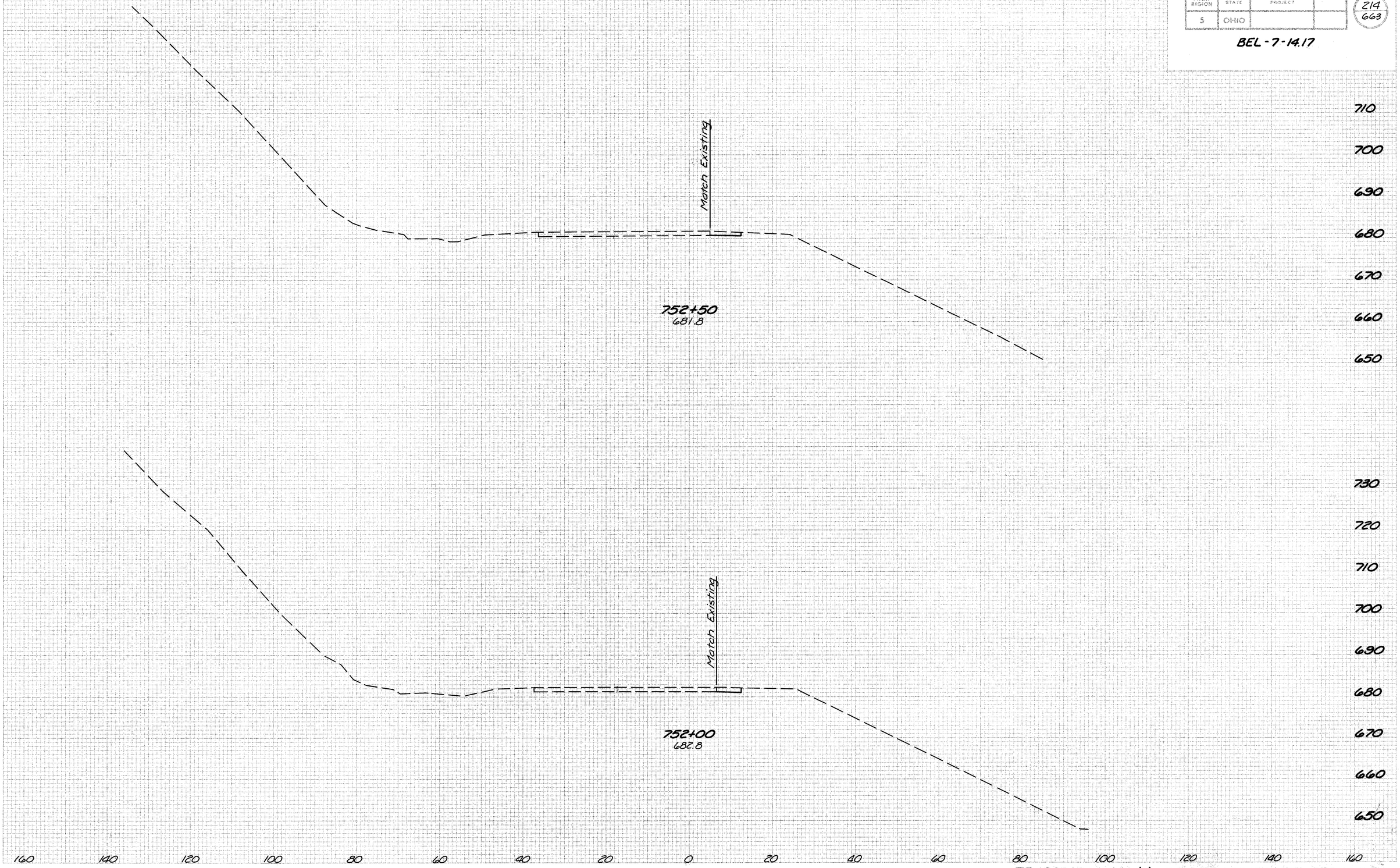


TEMPORARY ROAD 'A'-STA. 751+00 TO STA. 751+50

FHWA REGION	STATE	PROJECT	
5	OHIO		

214
663

BEL-7-14.17

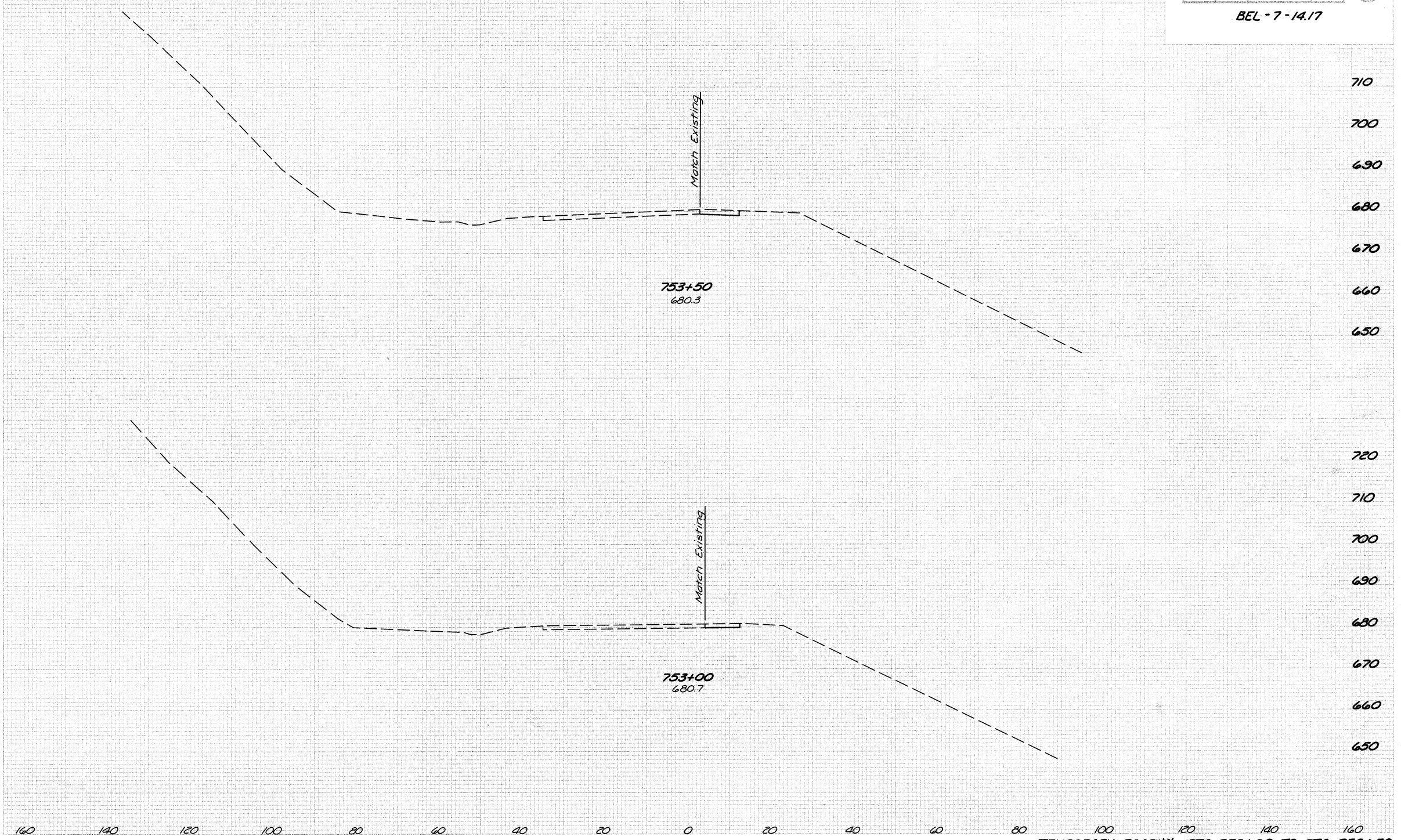


W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

TEMPORARY ROAD 'A' ~ STA 752+00 TO STA. 752+50

FHWA REGION	STATE	PROJECT		215 663
5	OHIO			

BEL - 7 - 14.17



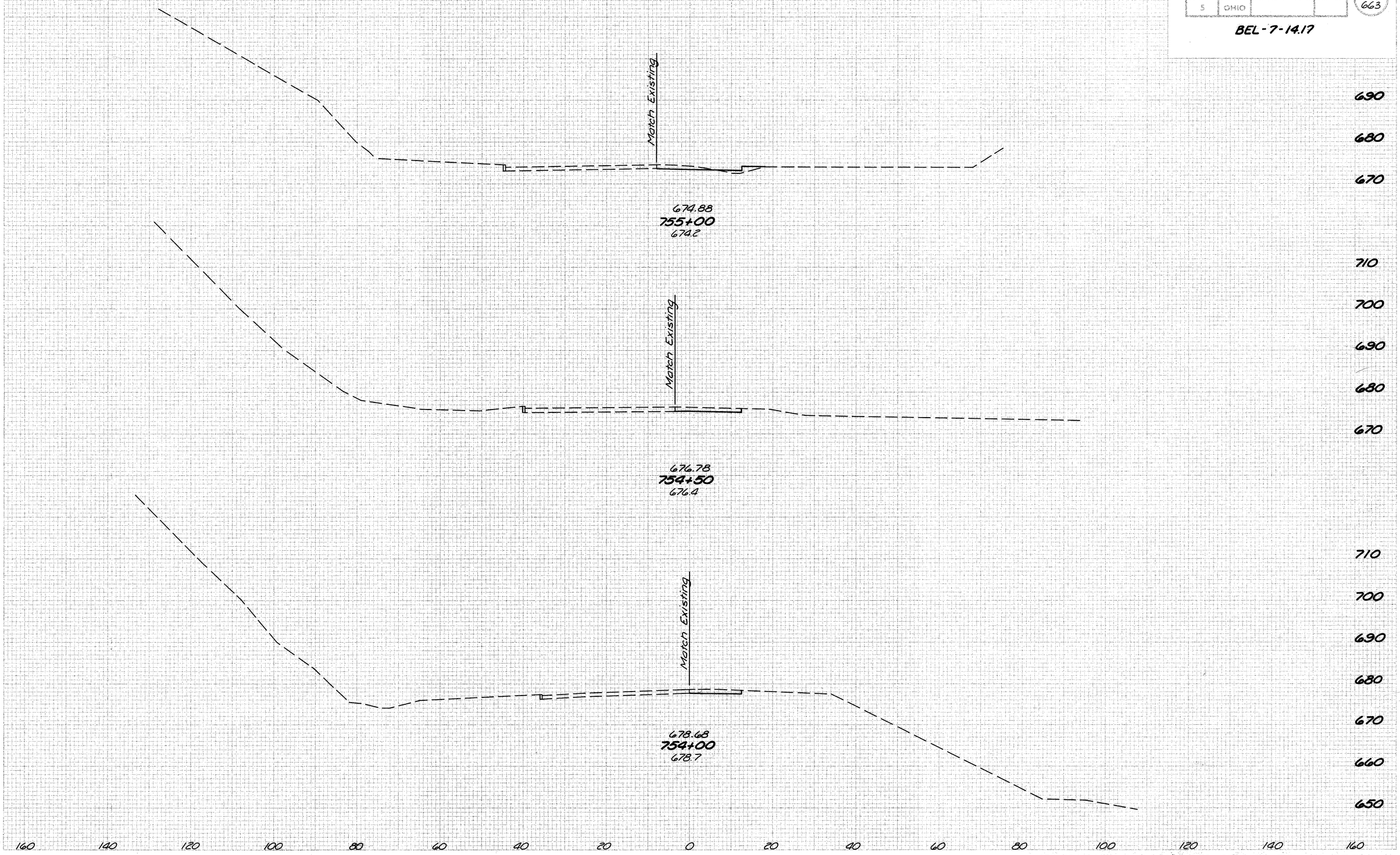
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

TEMPORARY ROAD 'A' - STA. 753+00 TO STA. 753+50

FHWA REGION	STATE	PROJECT	
5	OHIO		

216
663

BEL-7-14.17



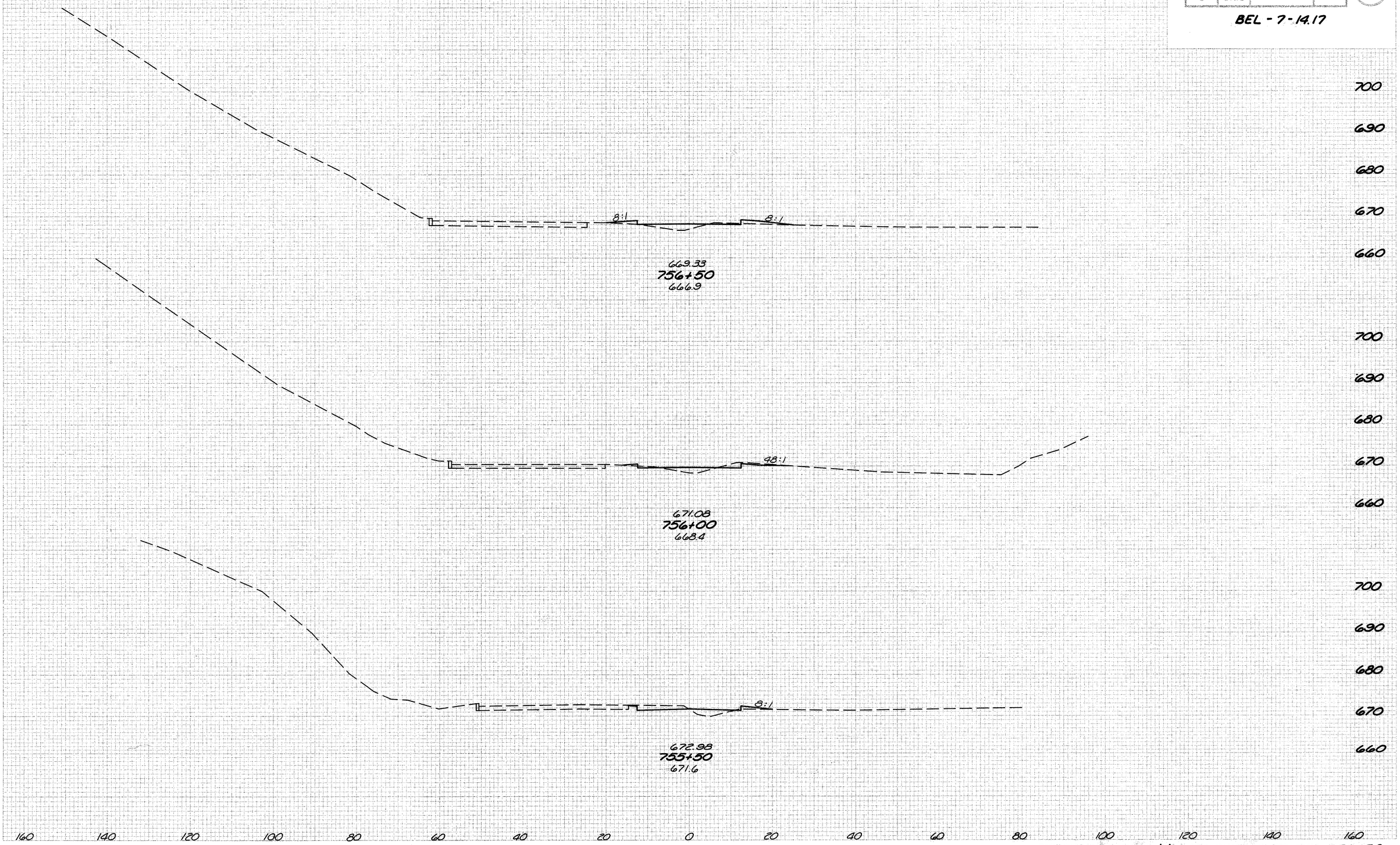
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

TEMPORARY ROAD 'A' ~ STA. 754+00 TO STA. 755+00

FHWA REGION	STATE	PROJECT		
5	OHIO			

217
663

BEL - 7 - 14.17

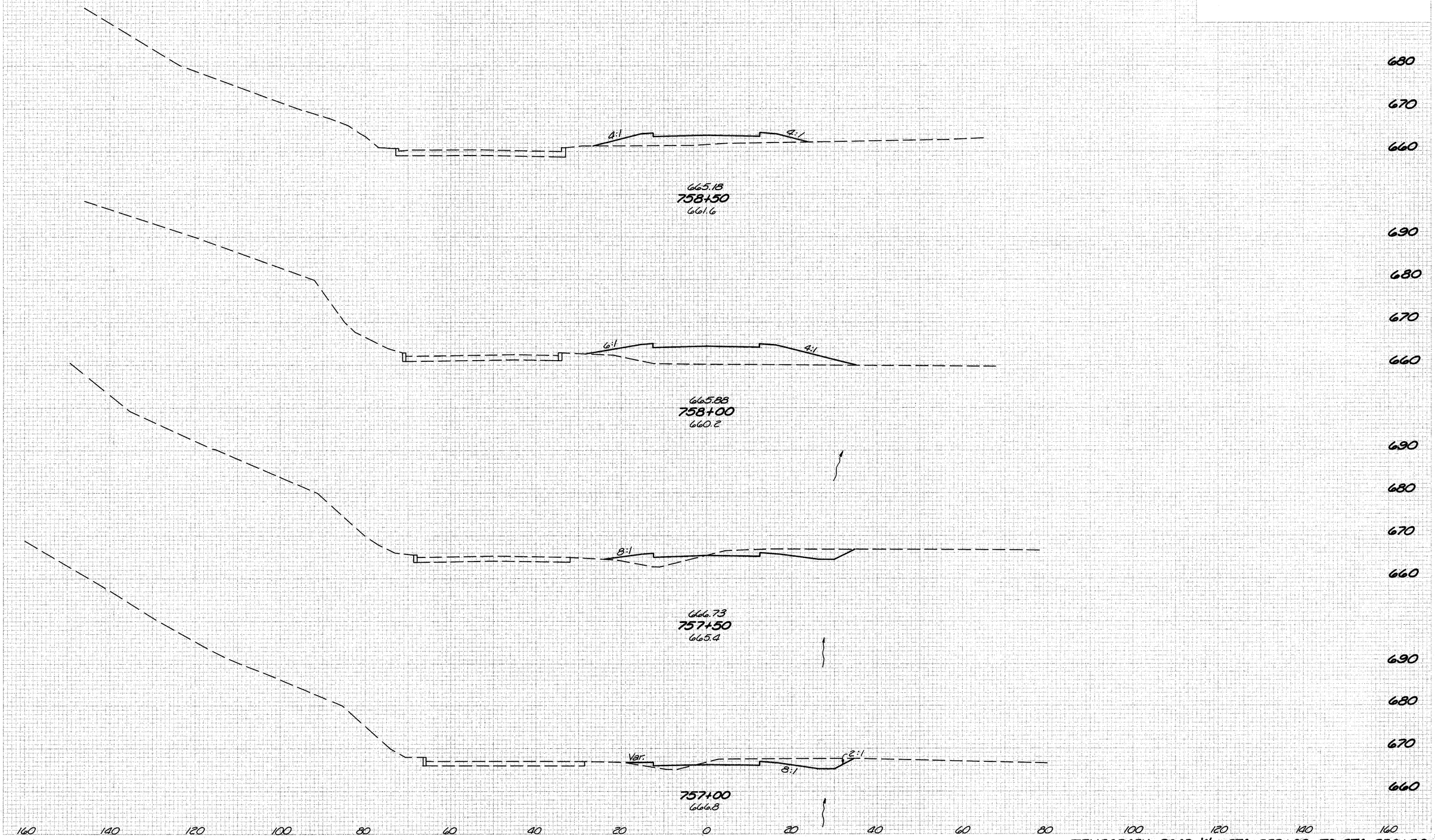


W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

TEMPORARY ROAD 'A' ~ STA. 755+50 TO STA. 756+50

FHWA REGION	STATE	PROJECT		218 / 663
5	OHIO			

BEL-7-14.17

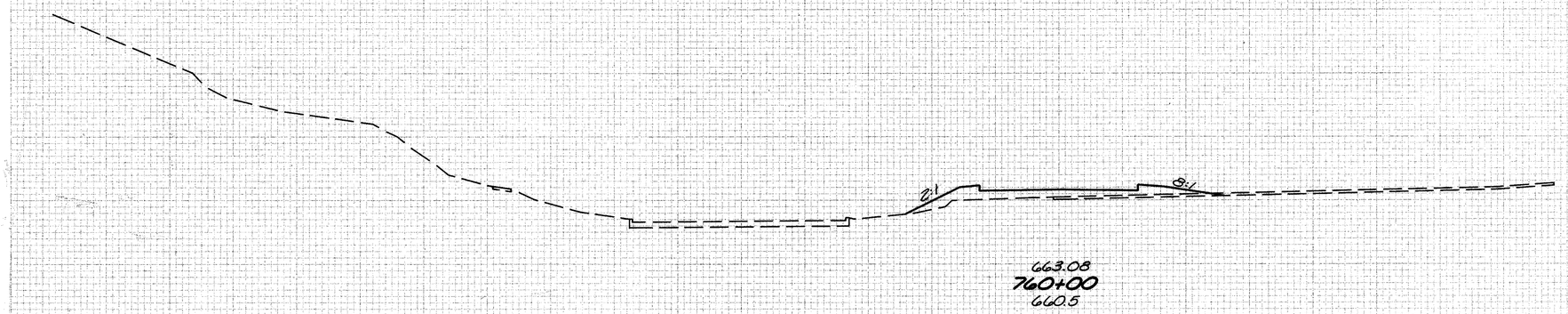


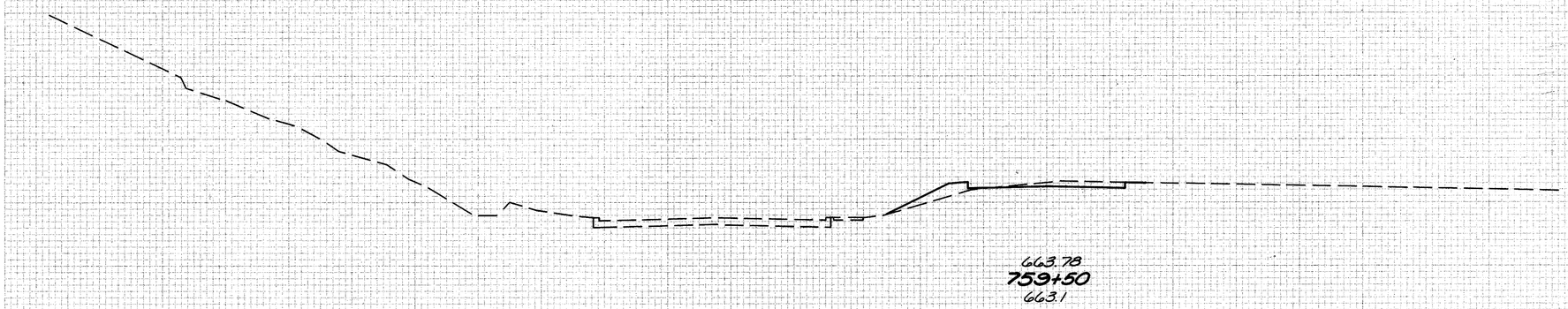
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

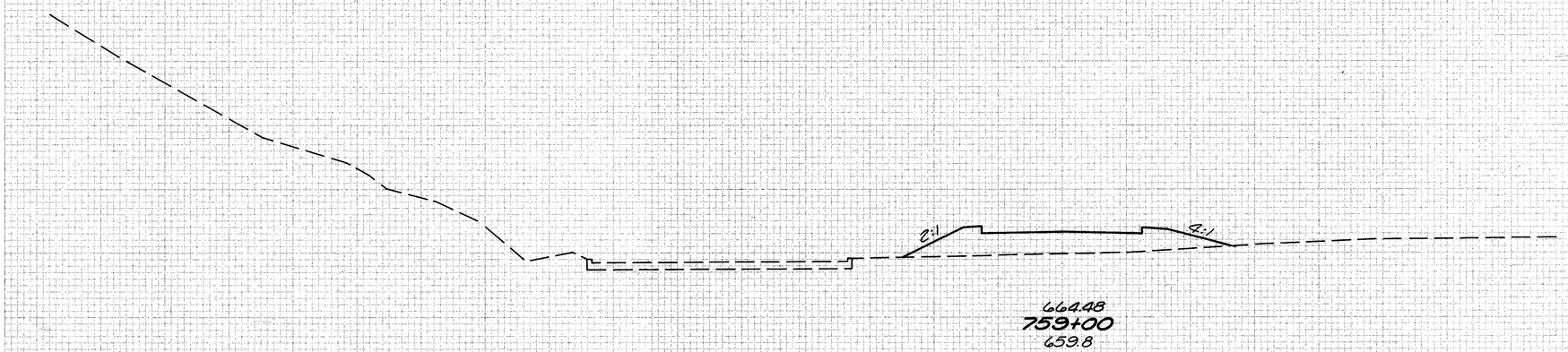
TEMPORARY ROAD 'A' ~ STA. 757+00 TO STA. 758+50

FHWA REGION	STATE	PROJECT			219 / 663
5	OHIO				

BEL-7-14.17







690 680 670 660 650

690 680 670 660 650

160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160

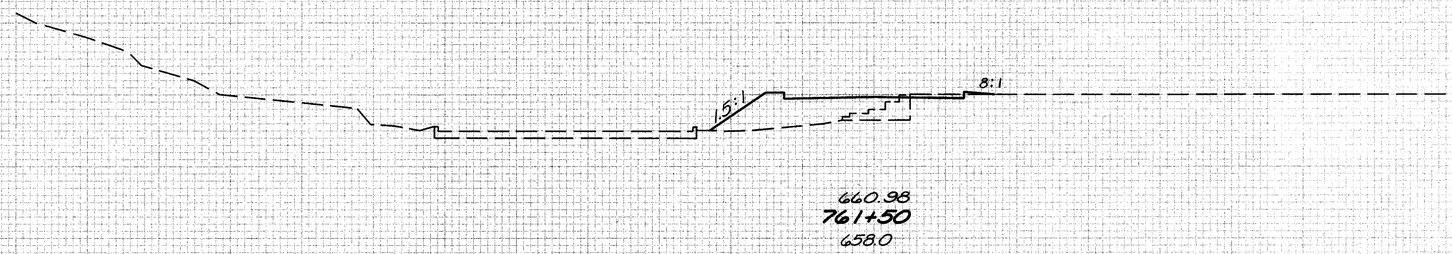
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

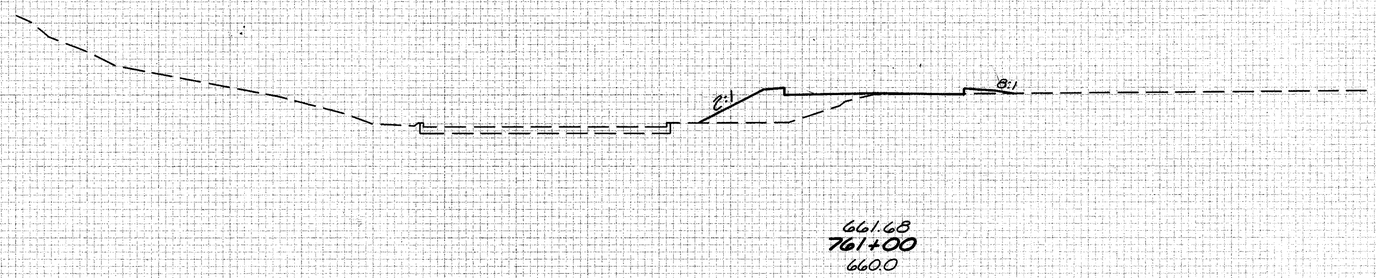
TEMPORARY ROAD 'A' - STA. 759+00 TO STA. 760+00

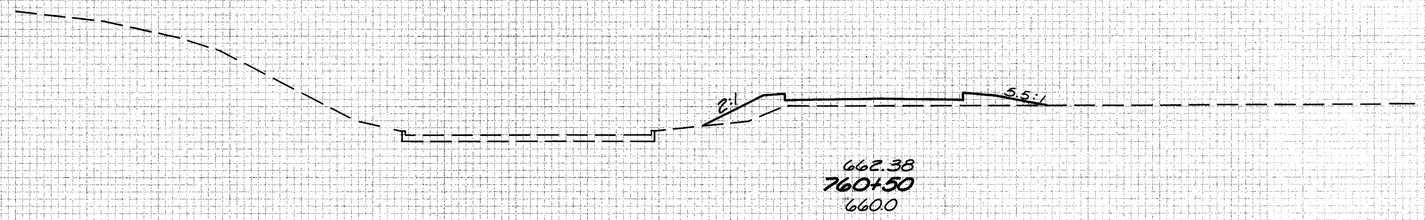
BEL-7-14.17 663 219

FHWA REGION	STATE	PROJECT		220 663
5	OHIO			

BEL-7-14.17







670 660 650

670 660 650

670 660 650

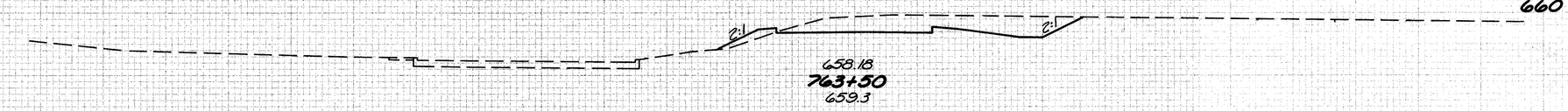
160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160

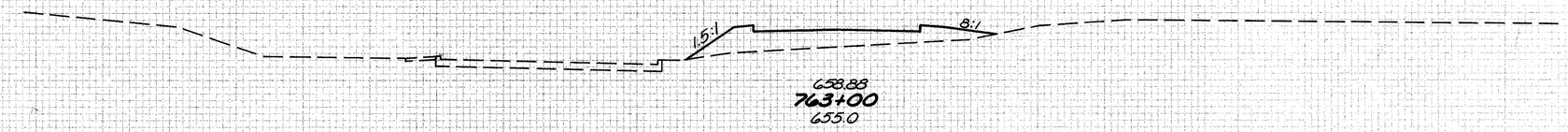
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

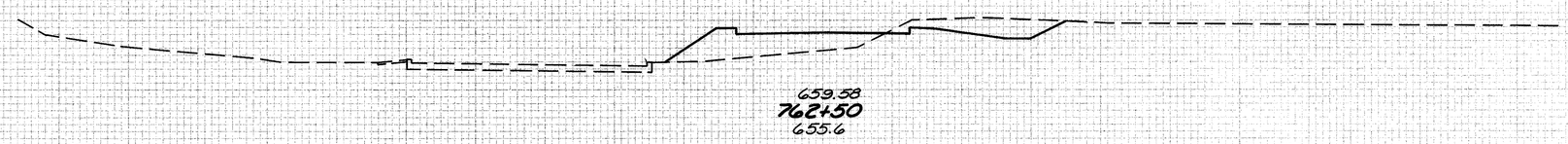
TEMPORARY ROAD 'A' - STA. 760+50 TO STA 761+50

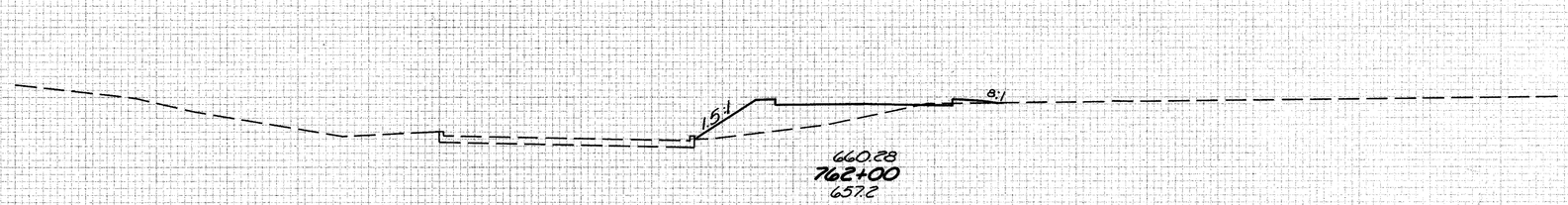
1 FHWA REGION	STATE	PROJECT		221 663
5	OHIO			

BEL-7-14.17









160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160

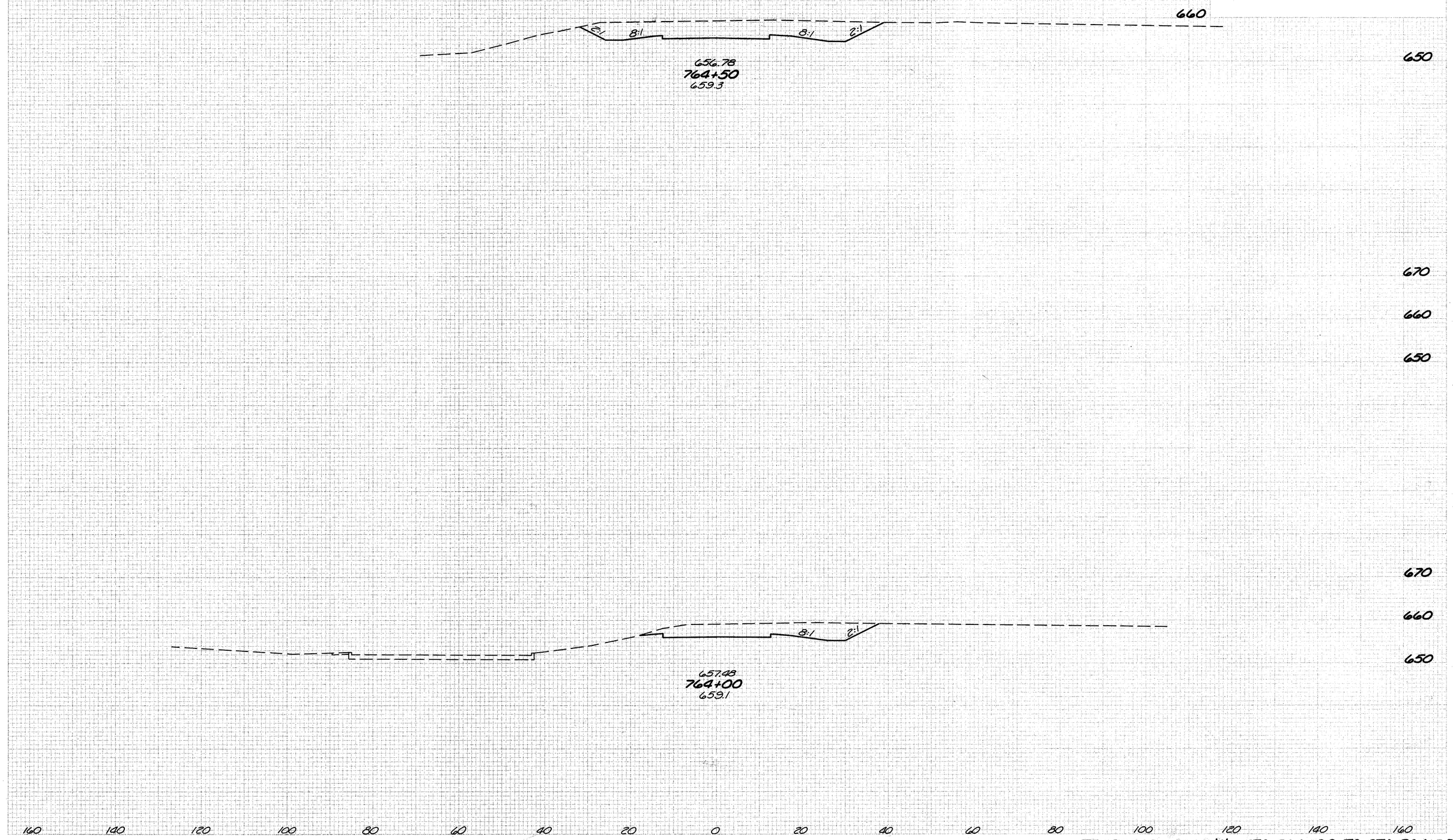
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

TEMPORARY ROAD 'A' ~ STA. 762+00 TO STA. 763+50

FHWA REGION	STATE	PROJECT	
5	OHIO		

222
663

BEL-7-14.17

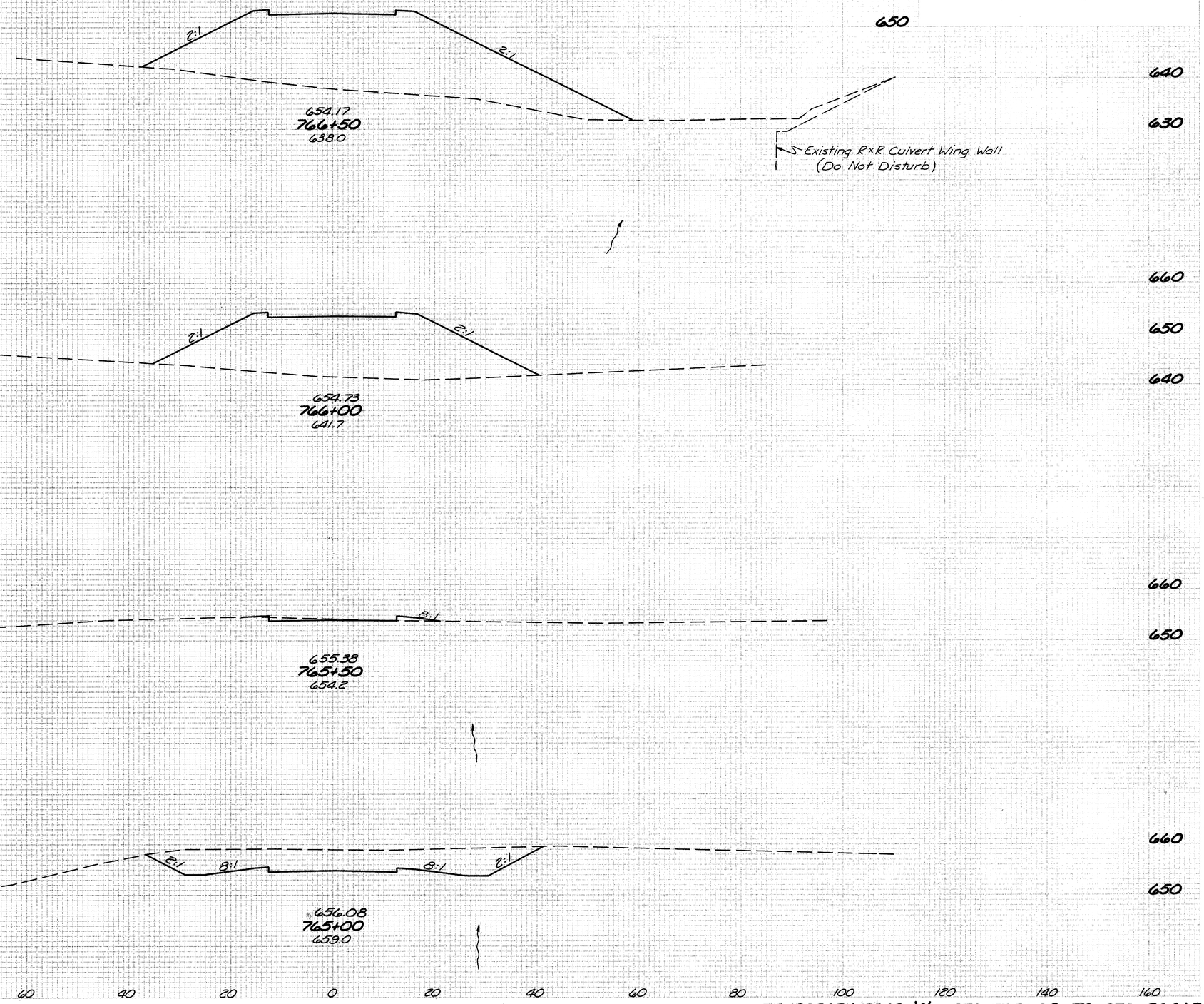


W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

TEMPORARY ROAD 'A' ~ STA. 764+00 TO STA. 764+50

FHWA REGION	STATE	PROJECT		223 / 663
5	OHIO			

. BEL - 7 - 14.17



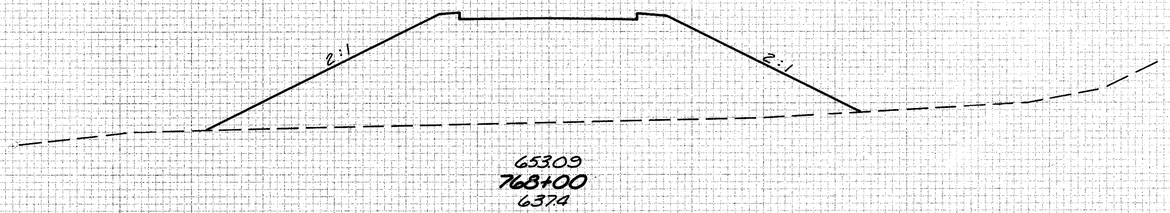
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

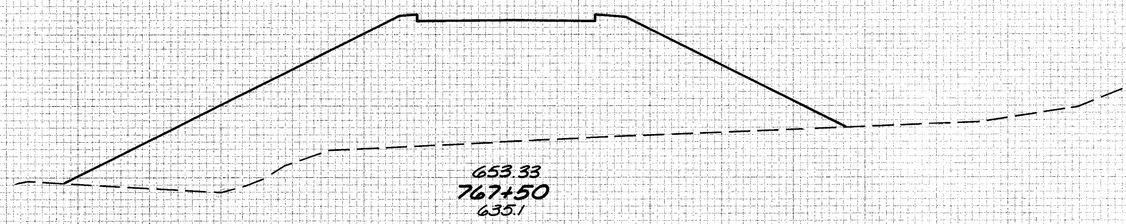
TEMPORARY ROAD 'A' ~ STA. 765+00 TO STA. 766+50

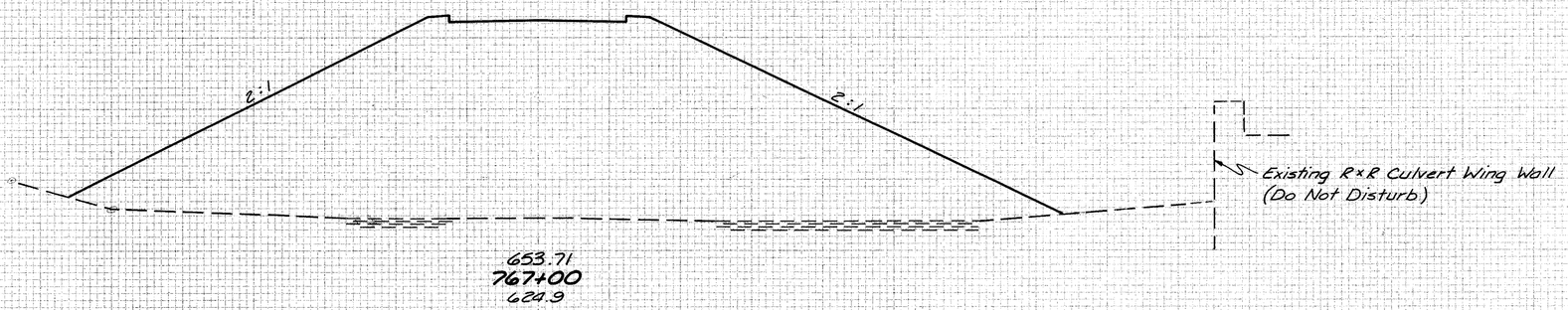
FHWA REGION	STATE	PROJECT	
5	OHIO		

224
663

BEL-7-14.17







660 650 640 630 660 650 640 630 660 650 640 630 620

160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

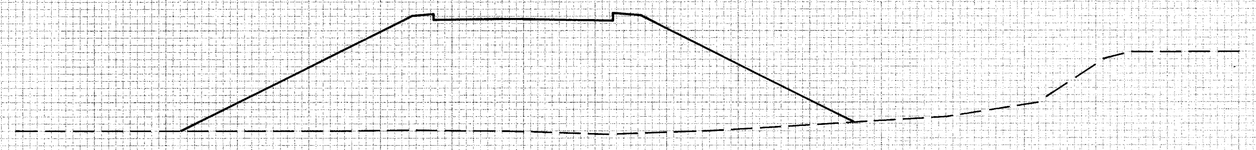
TEMPORARY RD. 'A' ~ STA. 767+00 TO STA. 768+00

FHWA REGION	STATE	PROJECT		225
5	OHIO			663

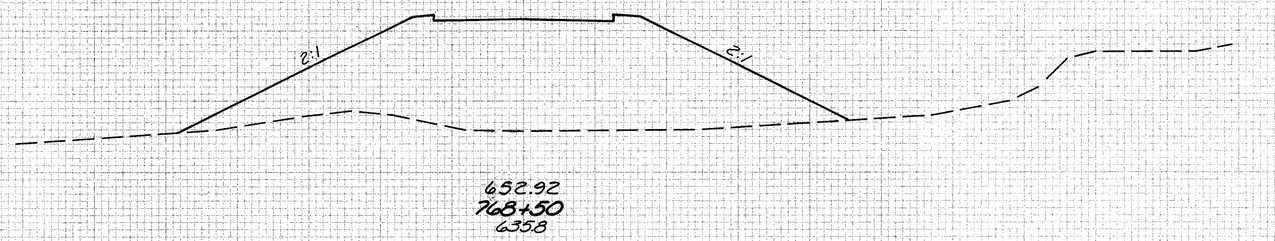
BEL-7-14.17



652.99
769+50
646.3



652.85
STA. 768+78.14 BACK=
STA. 768+83.79 AHEAD
635.9



652.92
768+50
635.8

650
640
630

650
640
630

650
640
630

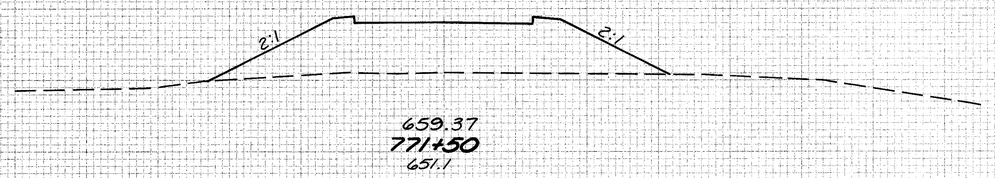
160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

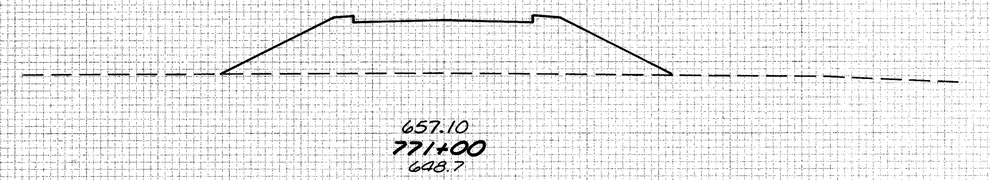
TEMPORARY RD. 'A' STA. 768+50 TO STA. 769+50

FHWA REGION	STATE	PROJECT		226
5	OHIO			663

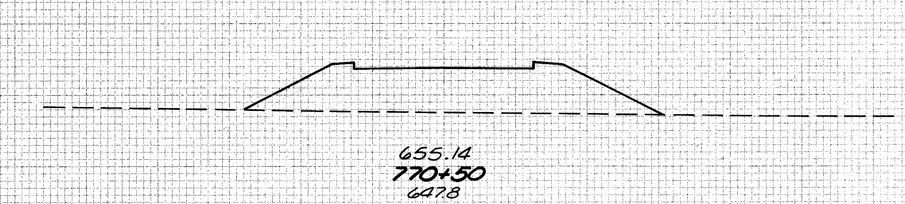
BEL-7-14.17



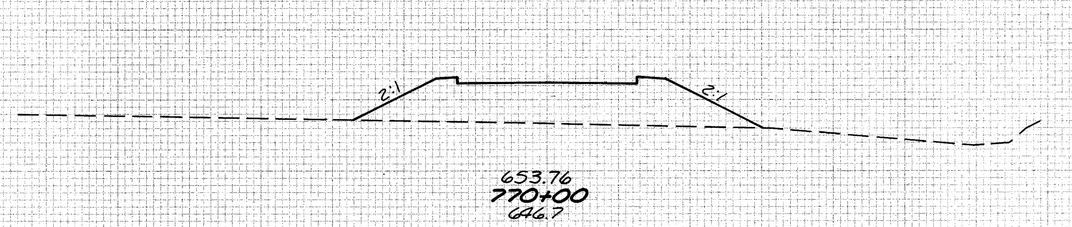
659.37
771+50
651.1



657.10
771+00
648.7



655.14
770+50
647.8



653.76
770+00
646.7

160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160

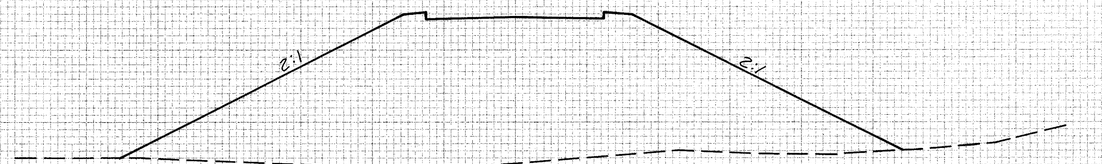
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

TEMPORARY RD. 'A' STA. 770+00 TO STA. 771+50

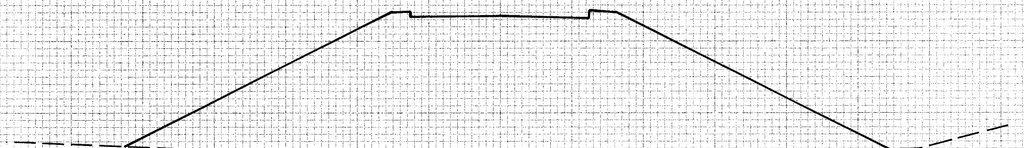
FHWA REGION	STATE	PROJECT	
5	OHIO		

227
663

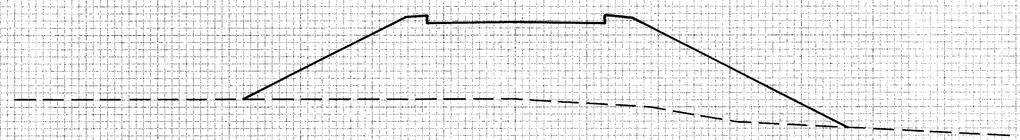
BEL-7-14.17



665.92
773+50
644.4



664.75
773+00
642.1



663.27
772+50
651.1



661.47
772+00
651.3

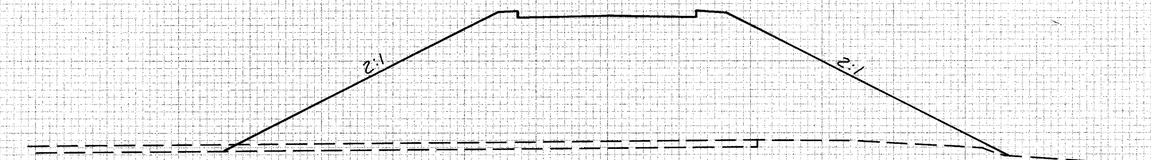
660 650 640 670 660 650 640 670 660 650 640 670 660 650 640

160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160

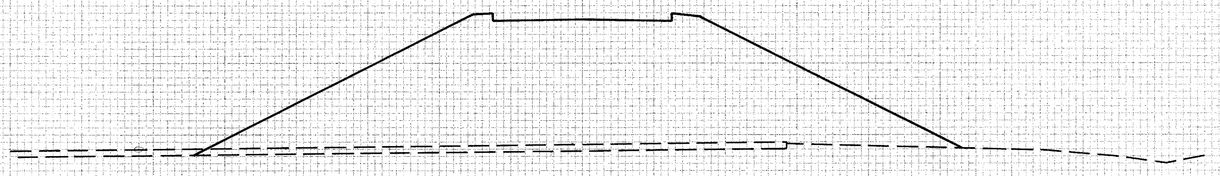
TEMPORARY RD. A' STA. 772+00 TO STA. 773+50

SHRP REGION	STATE	PROJECT		228 663
5	OHIO			

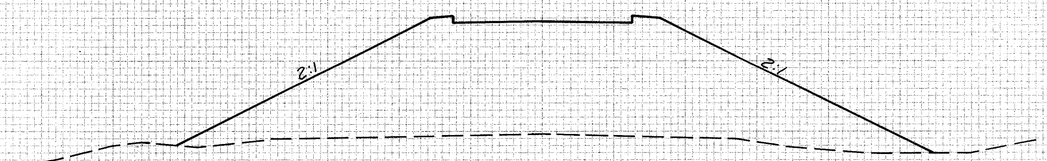
BEL-7-14.17



667.55
775+00
648.9



667.33
774+50
648.7



666.78
774+00
649.7

670
660
650
640

670
660
650
640

670
660
650
640

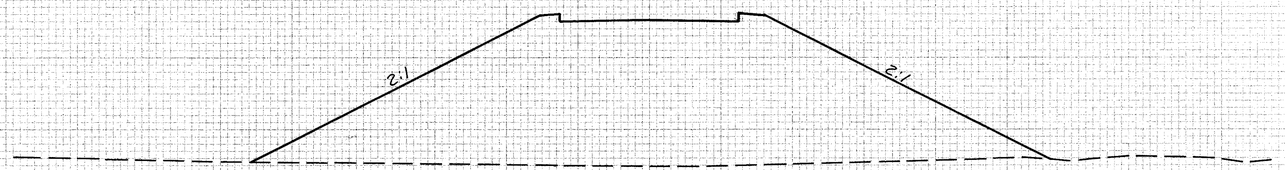
160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

TEMPORARY RD. 'A' STA.774+00 TO STA.775+00

FHWA REGION	STATE	PROJECT		229
5	OHIO			663

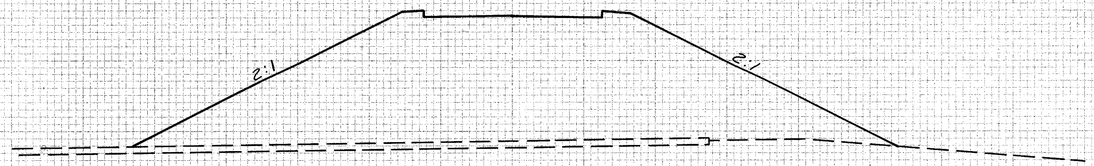
BEL-7-14.17



666.37
776+50
644.9



667.07
776+00
644.9



667.47
775+50
648.7

670 660 650 640 670 660 650 640 670 660 650 640

160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160

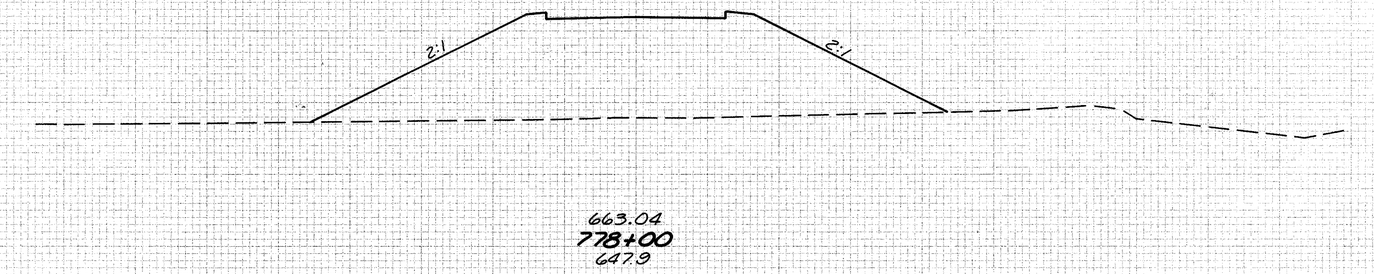
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

TEMPORARY RD. 'A' STA. 775+50 TO STA. 776+50

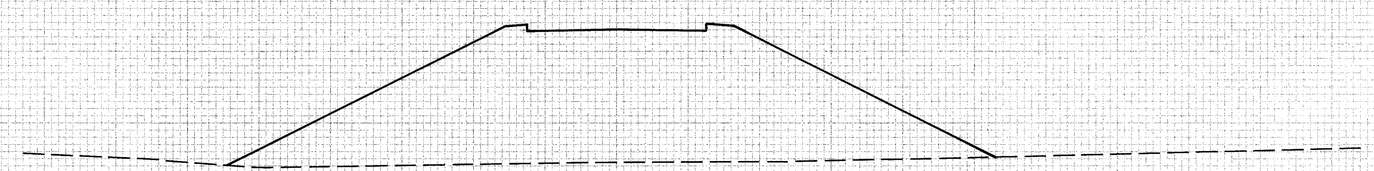
FHWA REGION	STATE	PROJECT		
5	OHIO			

230
663

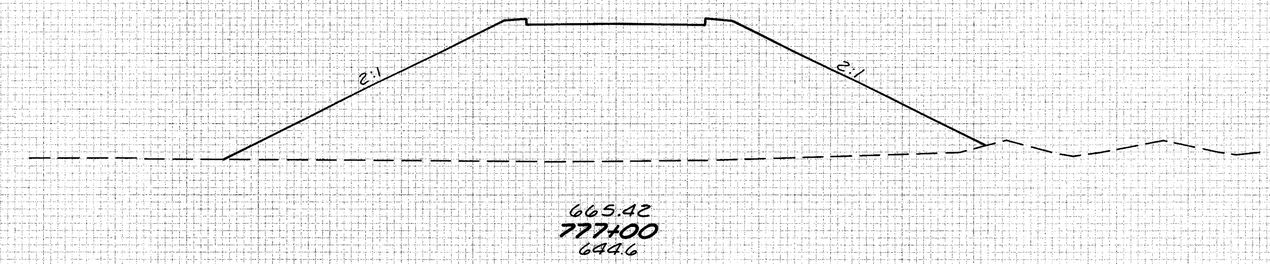
BEL-7-14.17



663.04
778+00
647.9



664.31
777+50
644.5



665.42
777+00
644.6

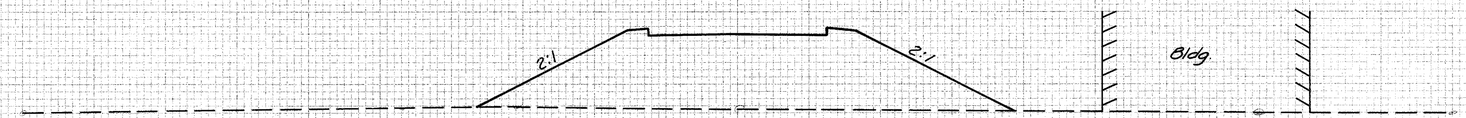
160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

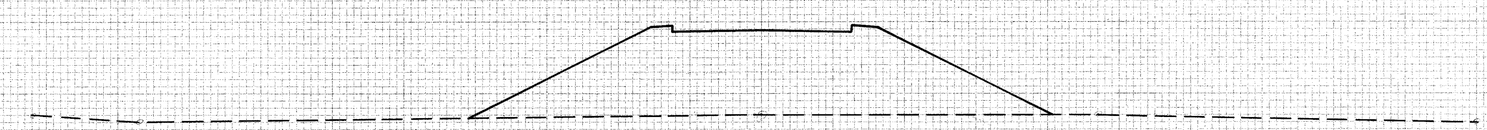
TEMPORARY RD. 'A' STA. 777+00 TO STA. 778+00

FHWA REGION	STATE	PROJECT		231
5	OHIO			663

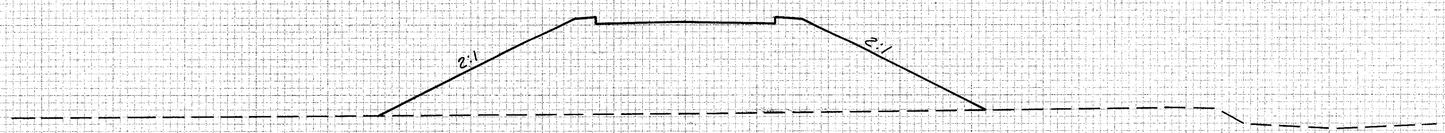
BEL-7-14.17



658.24
779+50
646.5



660.01
779+00
647.1



661.60
778+50
647.5

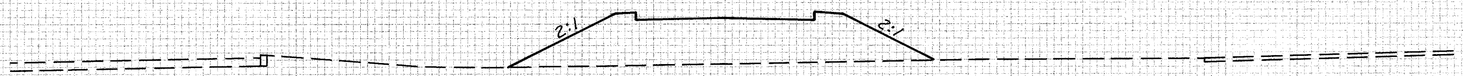
160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

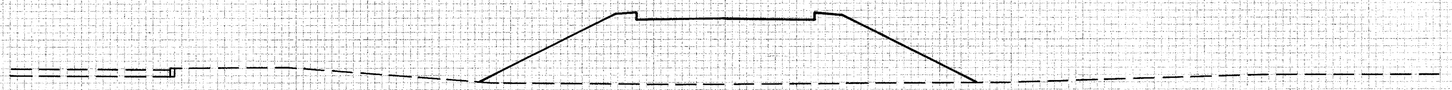
TEMPORARY RD. 'A' STA. 778+50 TO STA. 779+50

FHWA REGION	STATE	PROJECT		232
5	OHIO			663

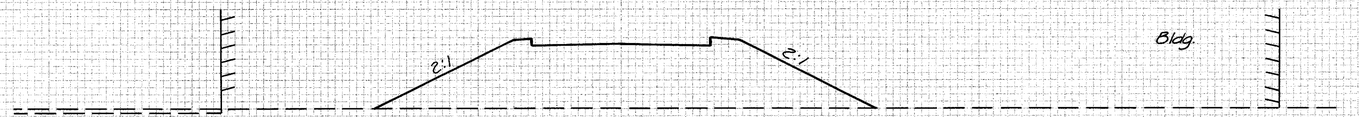
BEL-7-14.17



652.06
781+00
644.4



654.23
780+50
643.7



656.32
780+00
646.0

670 660 650 640 670 660 650 640 670 660 650 640

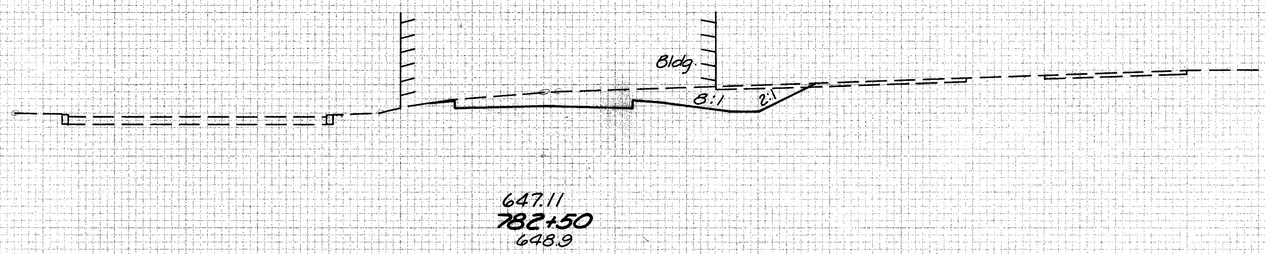
160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

TEMPORARY RD. 'A' STA. 780+00 TO STA. 781+00

FHWA REGION	STATE	PROJECT			233
5	OHIO				663

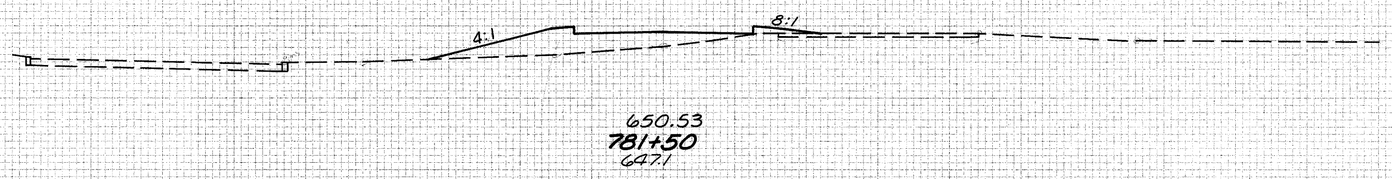
BEL-7-14.17



647.11
782+50
648.9



649.16
782+00
649.1



650.53
781+50
647.1

670 660 650 640 670 660 650 640 670 660 650 640

160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

TEMPORARY RD. 'A' STA. 781+50 TO STA. 782+50

FHWA REGION	STATE	PROJECT	
5	OHIO		

234
663

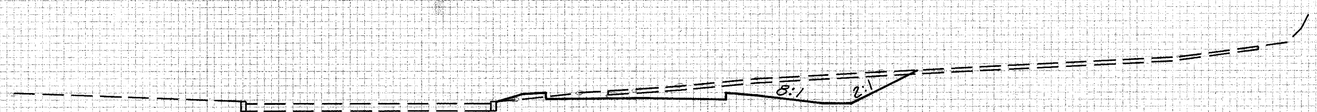
BEL-7-14.17



783+88 MATCH EXISTING
646.8 EDGE OF PAVEMENT



646.97
783+50
647.0



647.38
783+00
647.4

670
660
650
640

160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

TEMPORARY RD. 'A' STA. 783+00 TO STA. 783+88

FHWA REGION	STATE	PROJECT		235
5	OHIO			663

BEL-7-14.17

660

650

640

Match Existing
785+08.86
646.7

660

650

6:1

2:1

640

784+50
646.5

160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160

W.E. QUICHSALL & ASSOCIATES INC. Consulting Engineers

TEMPORARY RD. 'A' STA. 784+50 TO STA. 785+08.86

FHWA REGION	STATE	PROJECT		
5	OHIO			

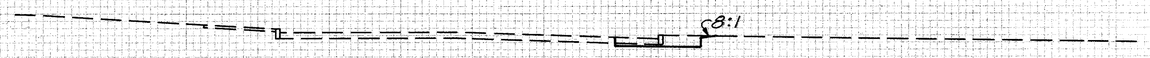
236
663

BEL-7-14.17

660
650

23+70 MATCH EXISTING
658.6

640



660
650

Match Existing
23+50
656.8

640



660
650

Match Existing
23+00
654.5

640



660
650

Match Existing
22+50
654.0

640

660
650

22+08 MATCH EXISTING
652.9

640

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

TEMPORARY RD. 'B' STA. 22+08 TO STA. 23+70

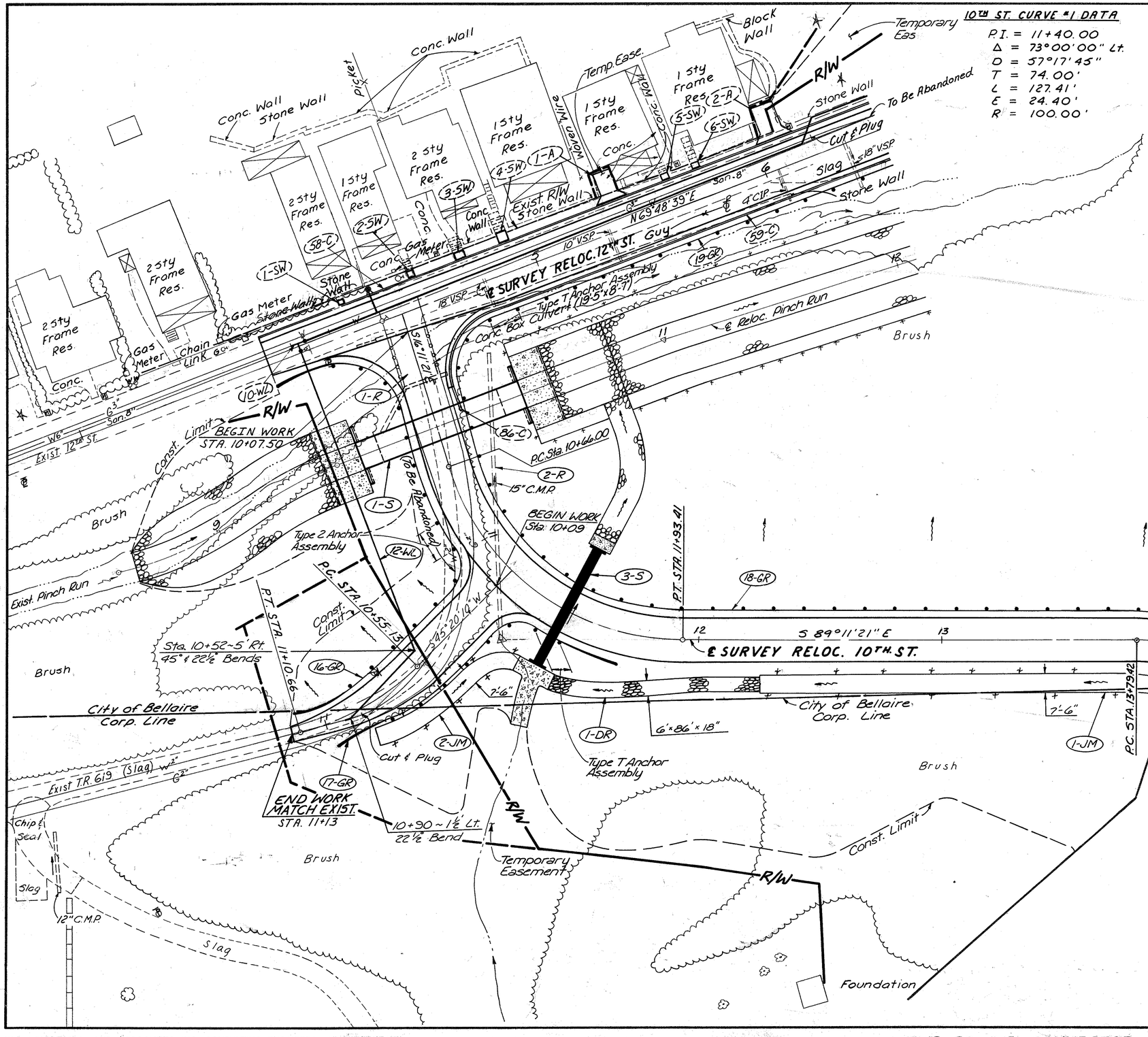
BEL-7-14.17 | OHIO | FHWA REGION 5 | 237 / 663

10TH ST. CURVE #1 DATA

P.I. = 11+40.00
Δ = 73°00'00" Lt.
D = 57°17'45"
T = 74.00'
L = 127.41'
E = 24.40'
R = 100.00'

TR. 619 CURVE DATA

P.I = 10+83.63
Δ = 31°49'12"
D = 57°17'45"
T = 28.51'
L = 55.54'
E = 3.98'
R = 100.00'



For Reloc. 12TH St. Intersection Detail, See Sheet No. 341
For Twp. Rd. 619 Connector Intersection Detail, See Sheet No. 341
For Profiles, See Sheet No. 239
For Quantities, See Sheet No. 240

BEL - 7 - 14.17 | OHIO | FHWA REGION 5 | 238 / 663

℄ Survey
3.5' 5.5'

ADJOINING TYPICAL
Existing 10TH ST.
(Slag)

CURVE #3 DATA
P.I. = 16+81.21
Δ = 43°08'52.98" Lt.
D = 34°43'29"
T = 65.24'
L = 124.26'
E = 12.43'
R = 165.00'

Const. Limits
Woods
R/W
EXISTING 10TH ST.
(Slag)
END WORK MATCH EXISTING
STA. 17+62.11
21.89' Taper
P.T. Sta 17+40.22
S 22°49'30" W 18
7'-6"
2-JM
Conc. Blk. Garage
P.C. Sta 16+15.97
230'×6'×18" (Rural)
1-ST
1-DR
1 Sty Frame Res.
1 Sty Frame Res.
1 Sty Frame Res.
(Slag)
City of Bellaire Corp. Line
S 65°38'43" W 16
35.45'
1-JM
7'-6"
P.T. Sta. 15+
35-GR
Const. Limits
R/W
Stone Wall
Brush
Urban Rural
Sta. 14+31.17
14
184'×6'×18" (Urban)
18-GR
MATCH LINE STA. 14+00
13' E Channel 'A'
Brush
Frame Shed
Frame Garage
Chicken Coops
1 Sty Frame Res.
(Slag)
1 Sty Frame Res.
Gas Meter
Conc. Block Wall
1 Sty Frame Res.
2 Sty Frame Res.
Stone Wall

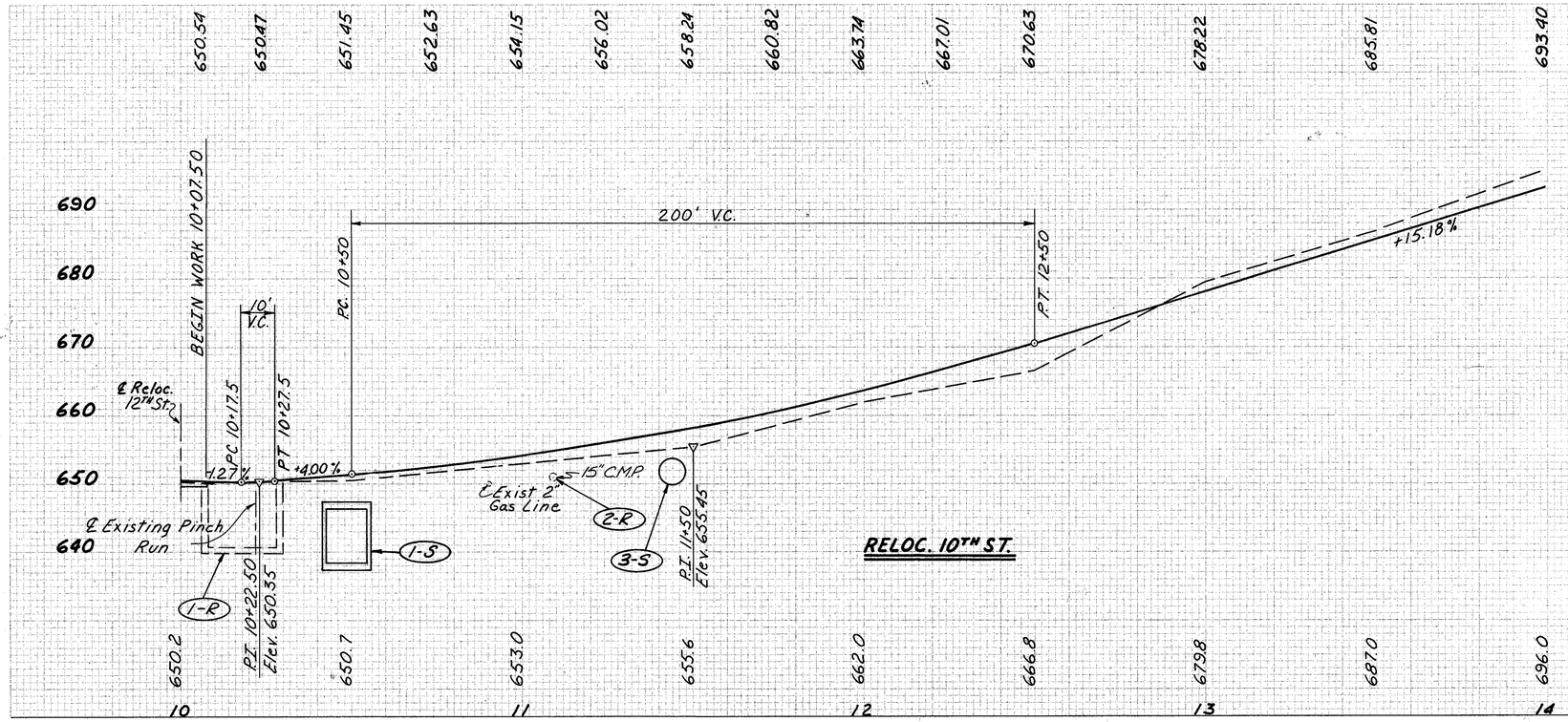
CURVE #2 DATA
P.I. = 16+74.66
Δ = 155°10'03.24" Rt.
D = 88°08'51"
T = 295.24'
L = 176.03'
E = 237.31'
R = 65.00'

For Channel 'A', See Sheet No. 249 & 380
For Profile, See Sheet No. 239
For Quantities, See Sheet No. 241

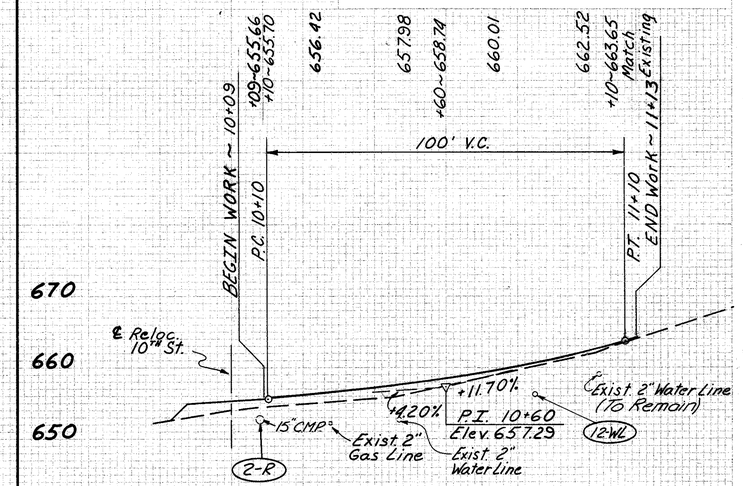
RELOCATED 10TH ST. ~ STA. 14+00 TO STA. 17+62.11

FHWA REGION	STATE	PROJECT		239 / 663
5	OHIO			

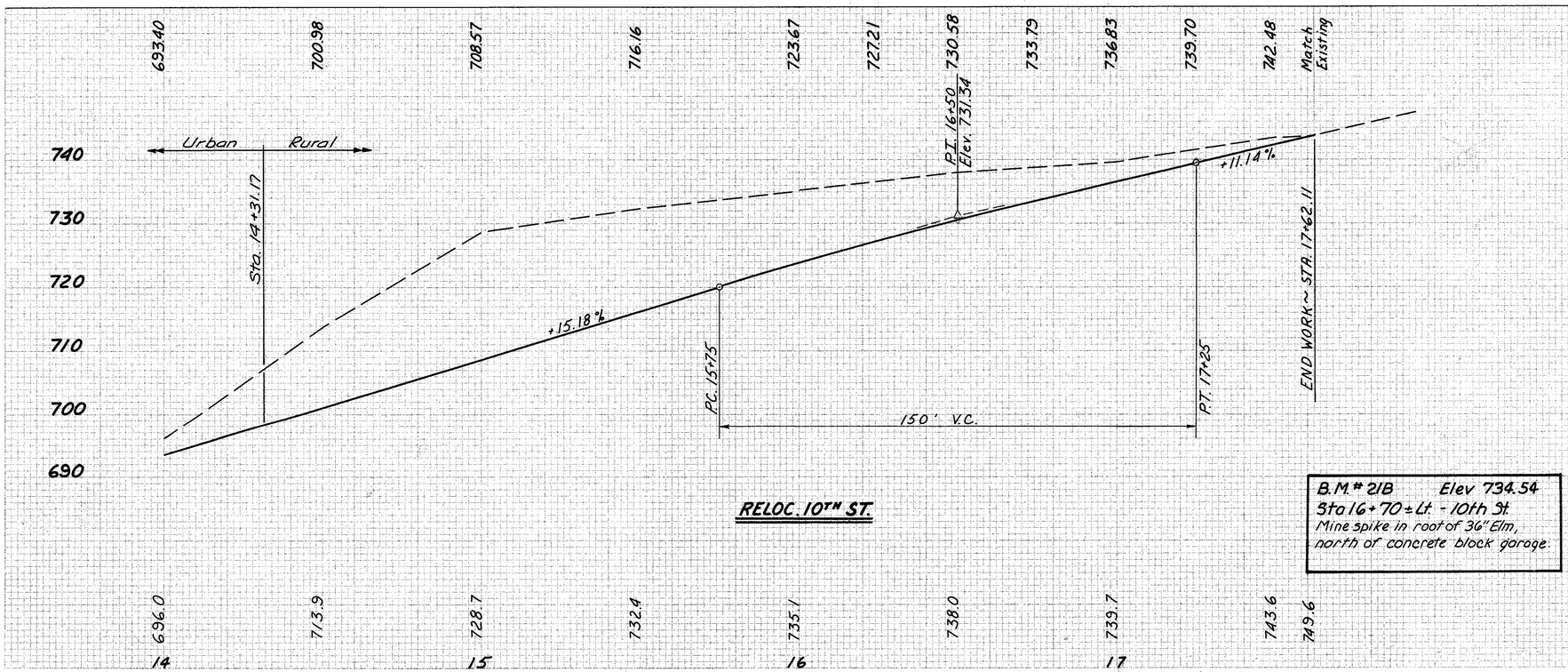
BEL - 7 - 14.17



RELOC. 10TH ST.



TWP. RD. 619 CONNECTOR



RELOC. 10TH ST.

B.M.# 218 Elev 734.54
Sta 16+70 ± Lt. - 10th St
Mine spike in root of 36" Elm, north of concrete block garage.

PROFILES ~ RELOC. 10TH ST. AND TWP. RD. 619 CONNECTOR

ESTIMATED QUANTITIES

Calc. By: F.S. Date: 6-5-84
Ch'k'd By: W.A.C. Date: 6-12-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

240/663

BEL-7-14.17

REF. NO.	STATION TO STATION	SIDE	202 Pipe Removed 24" & Under	202 Structure Removed	203 Excavation Not Including Embankment Construction	203 Embankment	601 Rock Channel Protection, Type B With Filter	601 Rock Channel Protection, Type A With Filter	601 Rock Channel Protection, Type C With Filter	601 Riprap Using 6" Reinforced Concrete Slab	602 Concrete Masonry	606 Guardrail, Type 5	606 Anchor Assembly, Type A	606 Anchor Assembly, Type T	670 Ditch Erosion Protection	660 Sodding	659 Seeding And Mulching	603 CONDUIT Type A: 42" 706.02; or 48" 707.01 (0.109) 707.05 Type C (0.079) 707.09 or 707.04 (0.079) with Bituminous Paved Invert As Per 707.05	603 CONDUIT 12' x 8' Conduit Type A, 706.05 (DESIGN EARTH COVER = 5')	814 6" Water Main D.I.P. C1.52 Push On Joints & Fittings	814 6" Valve & Valve Box	SEE SHEET NO.
	URBAN		Lin. Ft.	Lump	Cu. Yd.	Cu. Yd	Cu. Yd.	Cu. Yd.	Cu. Yd.	Sq. Yd.	Cu. Yd.	Lin. Ft.	Each	Each	Sq. Yd.	Sq. Yd.	Sq. Yd.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	
16-GR	3+81.97 to 11+10 12th ~ T.R. 619	Rt.										162.50	2	1								
17-GR	11+00 to 11+69 T.R. 619 ~ 10th	Lt. & Rt.										75.00	2	1								
18-GR	10+34.14 to 14+00	Lt.										349.30										
1-R	10+06 to 10+29.5	Lt. & Rt.		Lump	(Existing Box Culvert)																	
2-R	10+26 to 11+31	Lt. & Rt.	118																			
12-WL	3+96 to 10+93 (12TH to T.R. 619)	Lt.																		178	1	432
1-S	10+48.5	℄			5,290	5,111	1,486	132.7		99.5	18.45					696	3,452		72			379
3-S	11+44	℄			29			16.7	25.6	33.8	2.58							54				391
1-JM	12+25 to 14+00	Rt.													141.7							
2-JM	11+39 10TH St. to 10+85 T.R. 619	Lt.													56.7							
1-DR	11+50 to 12+25	Rt.							28.7													
	TOTAL		118	Lump	5,319	5,111	1,486	149.4	54.3	133.3	21.03	586.80	4	2	198.4	696	3,452	54	72	178	1	

ESTIMATED QUANTITIES

Calc By: F.S. Date: 1-29-85
Ch'k'd By: Get Date: 1-29-85

FHWA REGION	STATE	PROJECT	
5	OHIO		

241
663

BEL-7-14.17

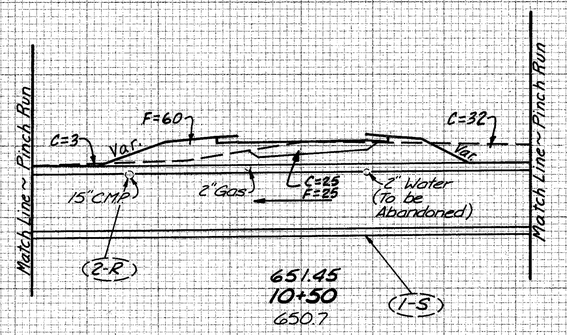
REF. NO.	STATION TO STATION	SIDE	202 Septic Tank Removed	601 Rock Channel Protection, Type C With Filter	606 Guardrail, Type S	606 Anchor Assembly Type A	670 Ditch Erosion Protection	SEE SHEET NO.
	URBAN		Each	Cu. Yd.	Lin. Ft.	Each	Sq. Yd.	
1B-GR	14+00 to 14+31.17	Lt.			37.00			
1-JM	14+00 to 14+31.17	Rt.					17.5	
1-DR	14+31.17 10TH St. to Pinch Run	Lt.		61.3				
	TOTAL URBAN			61.3	37.00		17.5	
	RURAL							
1B-GR	14+31.17 to 14+74	Lt.			26.20	1		
35-GR	15+50 to 17+50	Rt.			162.50	2		
1-JM	14+31.17 to 15+25	Rt.					37.5	
2-JM	16+25 to 17+50	Lt.					95	
1-DR	14+31.17 to 16+25	Lt.		76.7				
1-ST	15+11	Lt.	1					
	TOTAL RURAL		1	76.7	188.70	3	152.5	

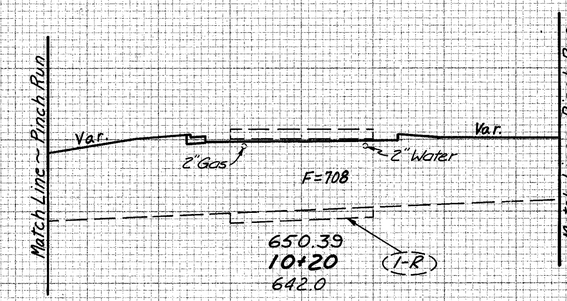
CALC. BY: B.E.K. DATE: 6-12-85
CHKD. BY: G.E.T. DATE: 6-13-85

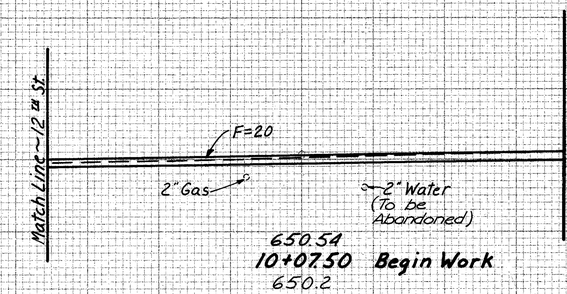
BEL-7-14.17 | OHIO | FHWA REGION 5 | 242 / 663

SEEDING

END WIDTH	SQ YDS
55	
162	
42	
29	
0	







END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL	
				660
				650
				640
60	85			
				33 441
				660
				650
				640
		0	708	
				660
				650
		0	169	
				660
				650
		0	20	

120 100 80 60 40 20 0 20 40 60 80 100

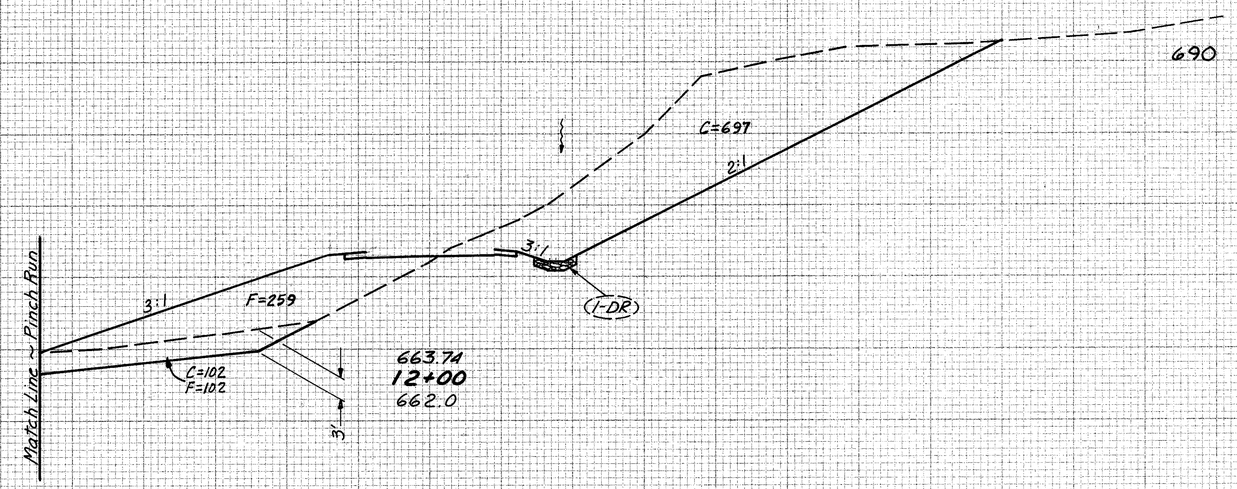
RELOCATED 10TH STREET ~ STA. 10+07.50 TO STA. 10+50

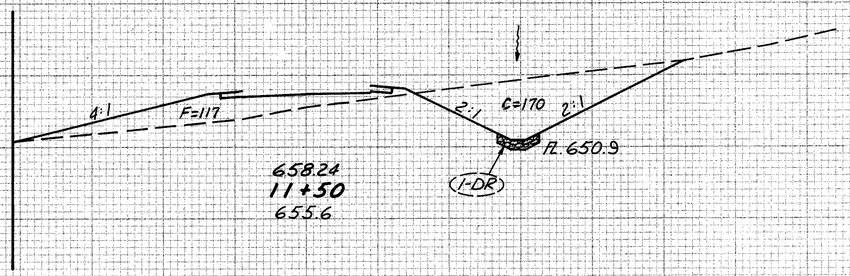
CALC. BY: B.E.K. DATE: 6-12-85
CHKD. BY: G.E.T. DATE: 6-13-85

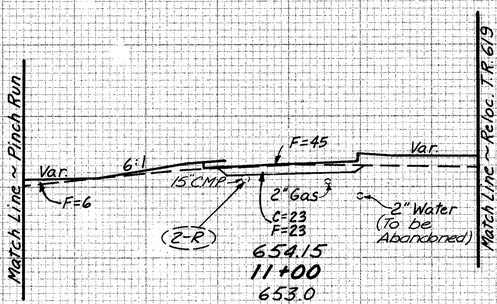
BEL-7-14.17 | OHIO | FHWA REGION 5 | 243/663

SEEDING

SEED WIDTH	SQ. YDS
128	703
125	497
54	303







	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
680				
670				
660				
650				
640	799	361		
660				
650				
640			897	443
660				
650	170	117		
640				
660				
650				
640	23	74		
			179	177
			77	147

120 100 80 60 40 20 0 20 40 60 80

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RELOCATED 10th STREET STA. 11+00 TO STA. 12+00

CALC. BY: B.E.K. DATE: 6-12-85
CHKD. BY: G.E.T. DATE: 6-13-85

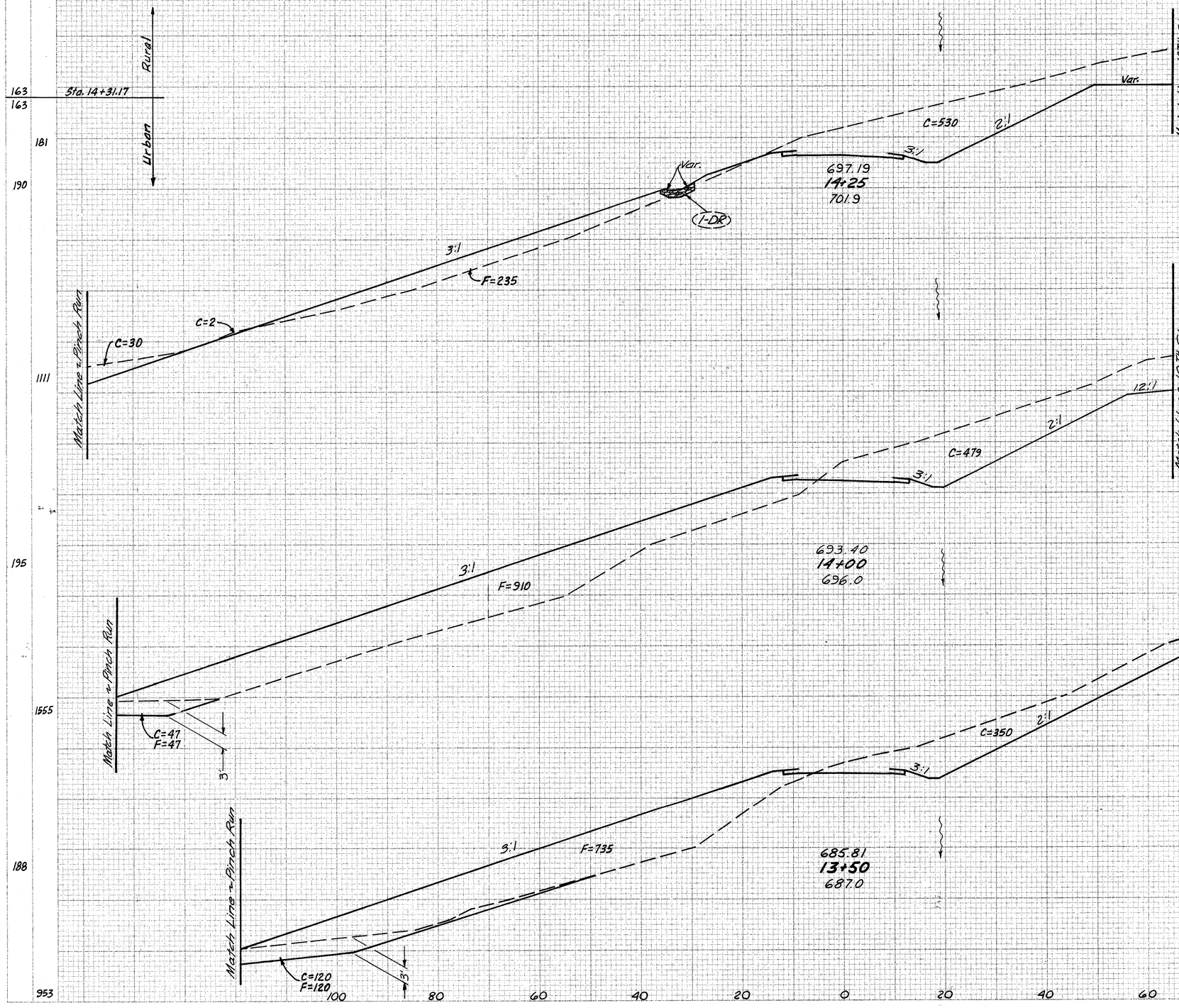
BEL - 7 - 14.17 | OHIO | FHWA REGION 5 | 244 / 663

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS	CUT	FILL	CUT	FILL

CALC. BY: B.E.K. DATE: 6-12-85
CHKD. BY: G.E.T. DATE: 6-13-85

BEL-7-14.17 | OHIO FHWA REGION 5 | 245/663

SEEDING END WIDTH	SEEDING SQ. YDS
163	
163	181
190	
1111	
195	
1555	
188	
953	

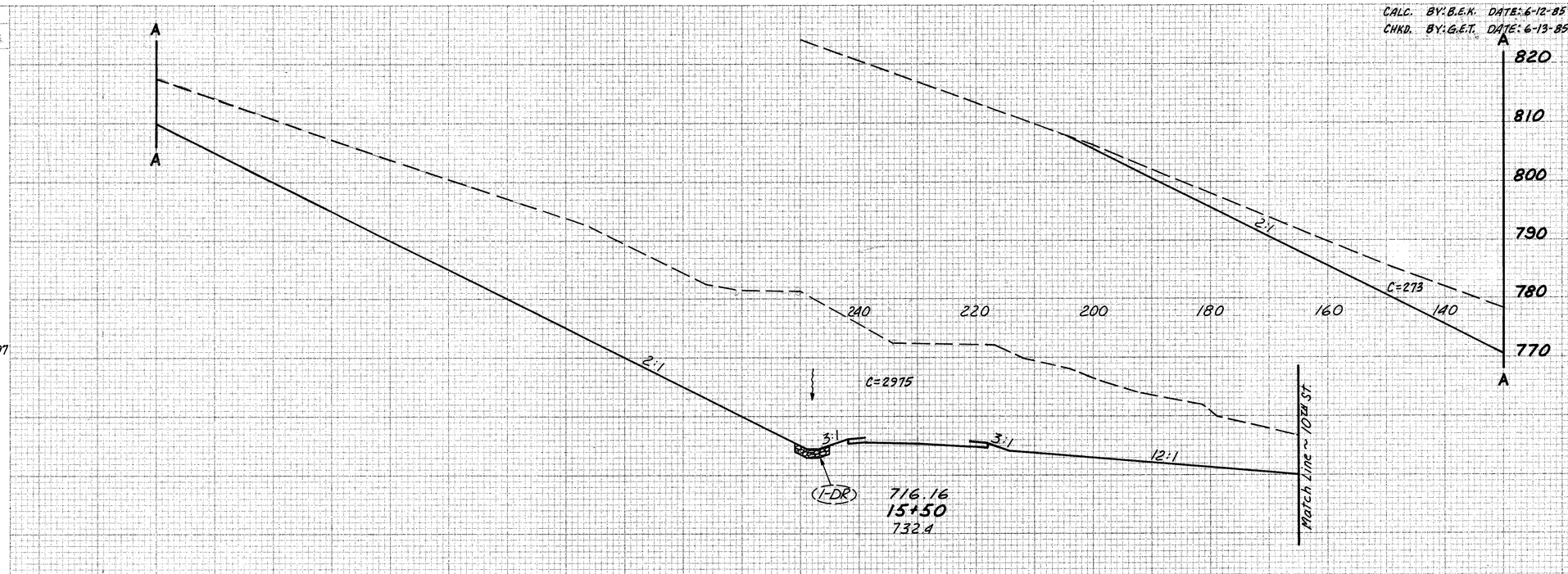


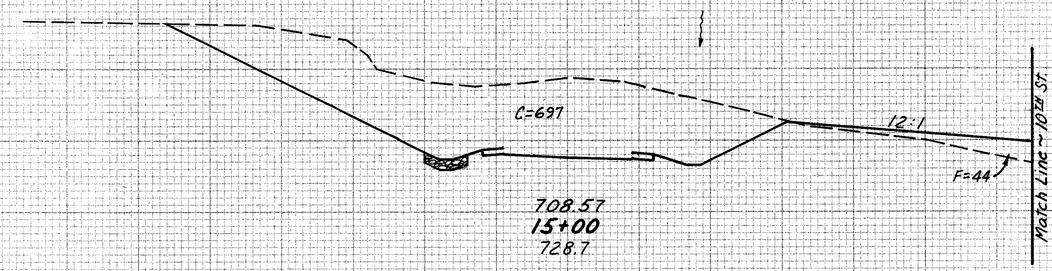
	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
720 Rural				
710 Sta. 14+31.17	1189	177		
	1189	177		
700				
Corrected Arc Length Cut = 4.60'			149	
Corrected Arc Length Fill = 9.21'				70
Urban	562	235		
720				
710				
Corrected Arc Length Cut = 18.40'			371	
Corrected Arc Length Fill = 51.32'				1140
700				
690				
	526	957		
710				
Corrected Arc Length Cut = 46.02'			849	
Corrected Arc Length Fill = 73.09'				2453
700				
690				
680				
670				
	470	855		
660				
650				
	801	1478		

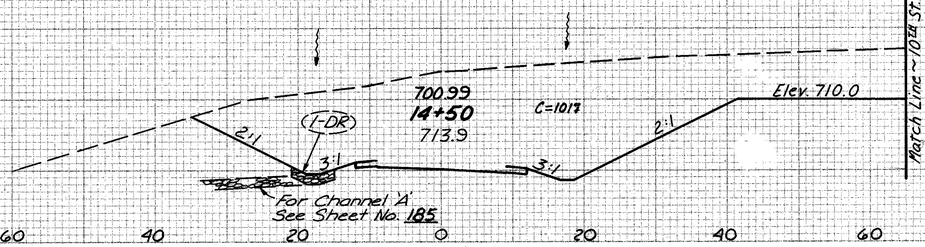
RELOCATED 10th STREET STA. 13+50 TO STA. 14+25

CALC. BY: B.E.K. DATE: 6-12-85
CHKD. BY: G.E.T. DATE: 6-13-85

BEL-7-14.17 | OHIO | FHWA REGION 5 | 246 / 663







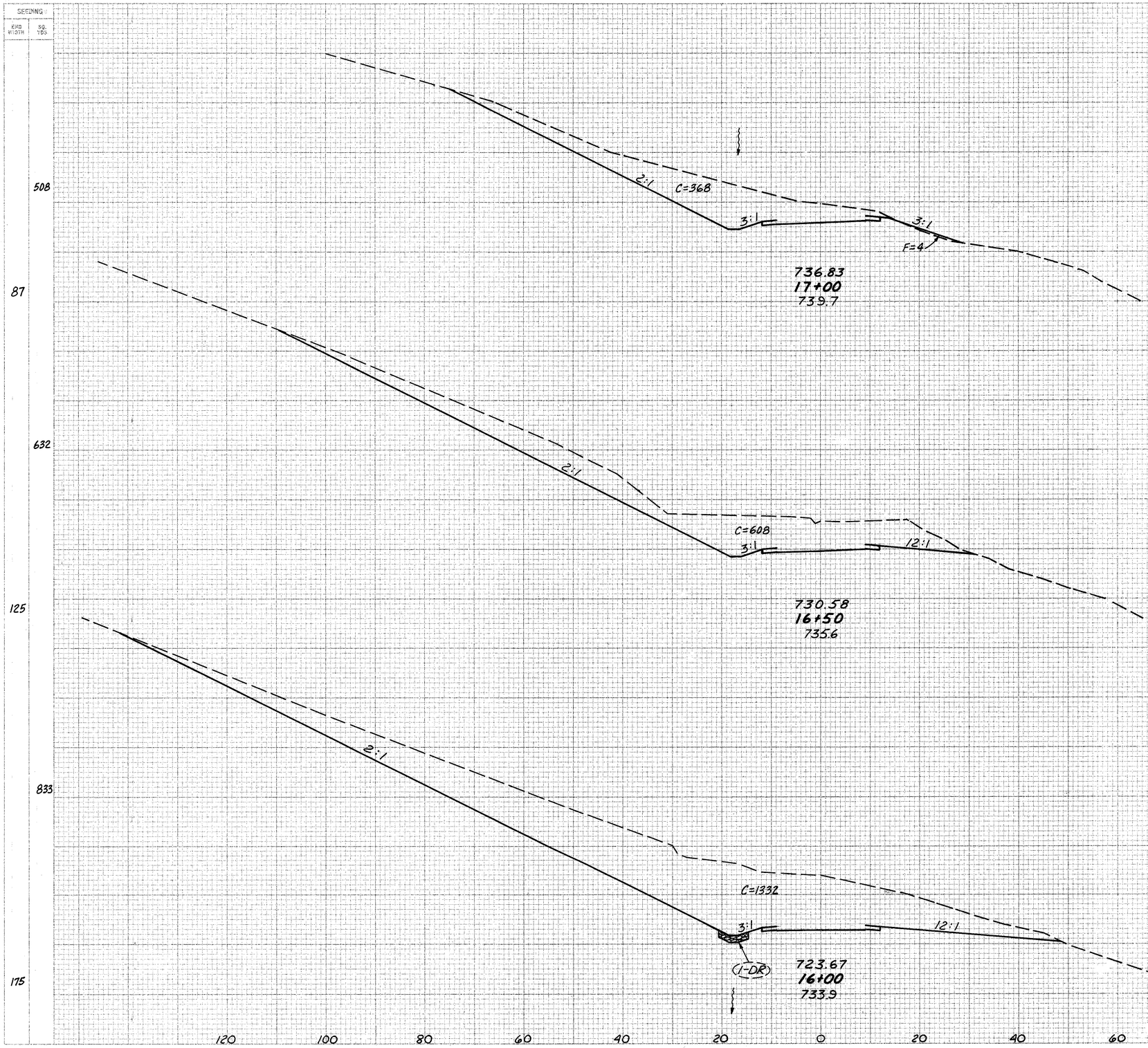
SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
			760		
			750		
		Corrected Arc Length Cut=53.08'		4502	
		Corrected Arc Length Fill=50.00'			0
			740		
1197			730		
			720		
			710		
256		3248	0		
		Corrected Arc Length Cut=67.69'		4945	
		Corrected Arc Length Fill=28.08'			23
			730		
563			720		
			710		
			700		
105		697	44		
		Corrected Arc Length Cut=48.08'		1526	
		Corrected Arc Length Fill=28.08'			23
287			720		
		Add For Channel A →		52	0
			710		
79		1017	0	591	
		Corrected Arc Length Cut=14.46'			
		Corrected Arc Length Fill=18.83'			62
253			700		

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RELOCATED 10th STREET STA. 14+50 TO STA. 15+50

CALC. BY: B.E.K. DATE: 6-12-85
CHKD. BY: G.E.T. DATE: 6-13-85

BEL-7-14.17 | OHIO | FHWA REGION 5 | 247/663



	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
760				
750				
Corrected Arc Length Cut = 44.25'			480	
Corrected Arc Length Fill = 54.77'				13
740				
730				
720	368	4		
710				
760				
Corrected Arc Length Cut = 42.58'			770	
Corrected Arc Length Fill = 53.64'				4
750				
740				
730				
720	608	0		
710				
760				
Corrected Arc Length Cut = 44.70'			1606	
Corrected Arc Length Fill = 50.00'				0
750				
740				
730				
720	1332	0		
710				

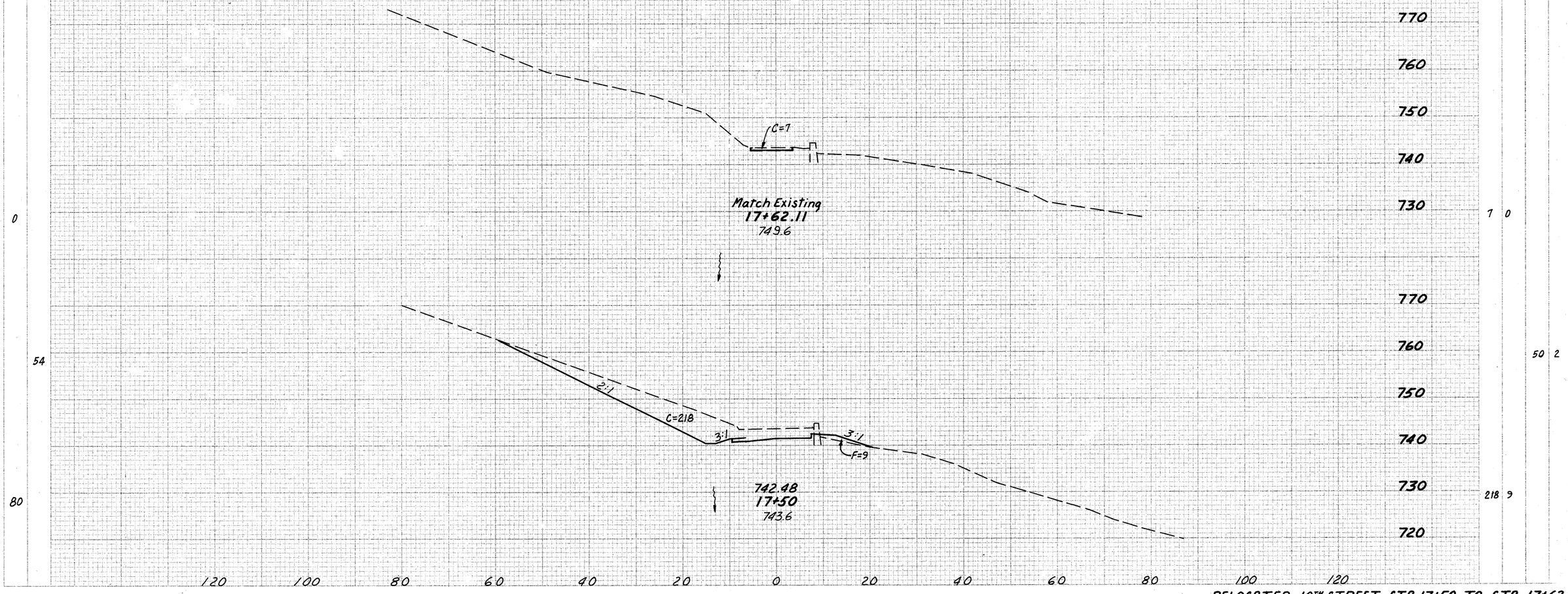
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RELOCATED 10th STREET STA. 16+00 TO STA. 17+00

CALC. BY: B.E.K. DATE: 6-12-85
CHKD. BY: G.E.T. DATE: 6-13-85

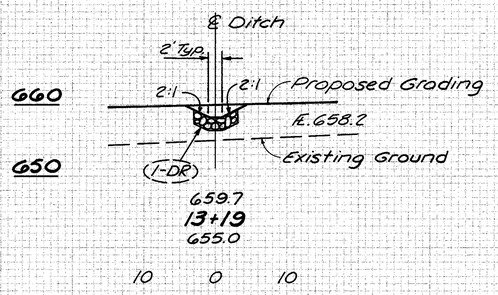
BEL - 7 - 14.17 | OHIO | FHWA REGION 5 | 248/663

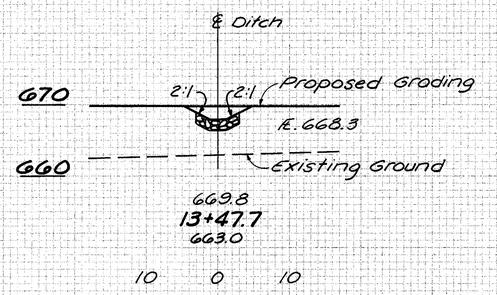
SEEDING		END AREA		VOLUME	
SHD WIDTH	SQ. YDS	CUT	FILL	CUT	FILL
0					
54				50	2
80				218	9
				7	0

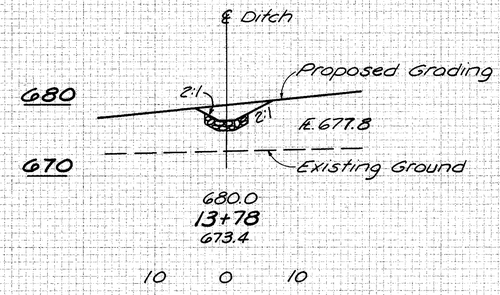


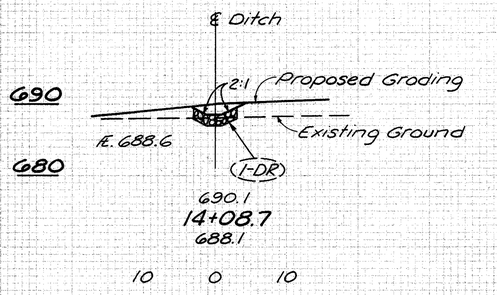
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RELOCATED 10TH STREET STA. 17+50 TO STA. 17+62.11



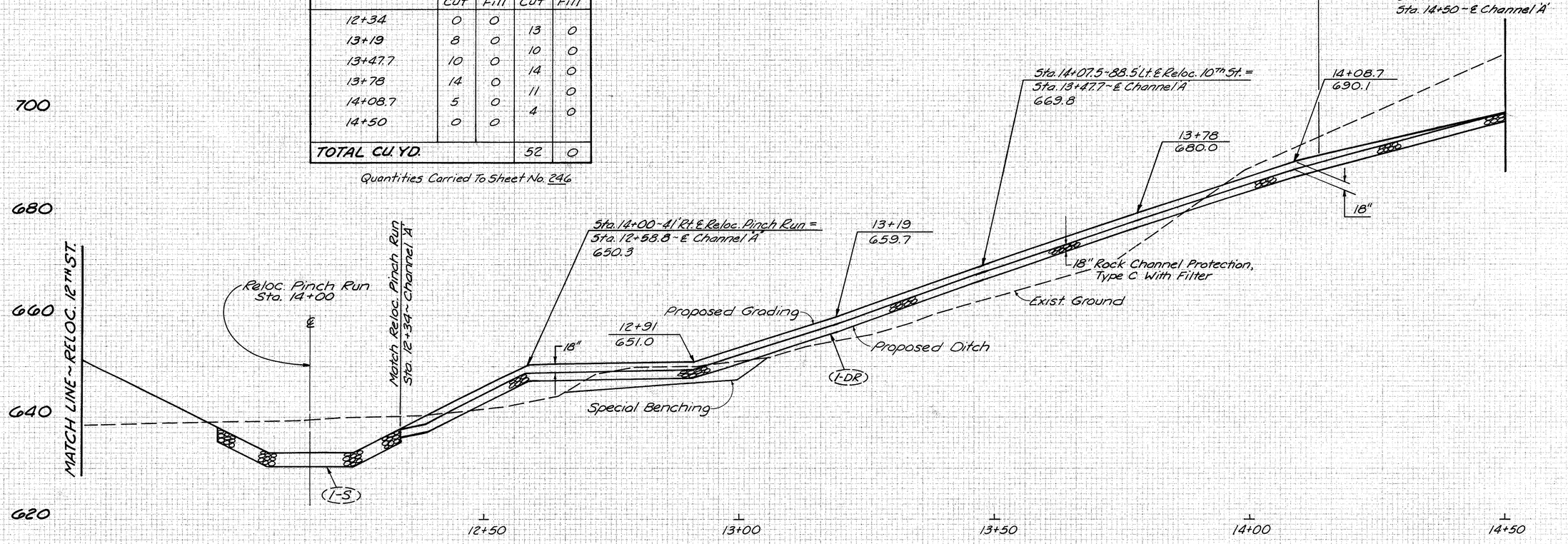






EARTHWORK QUANTITIES				
Station	End Area		Volume	
	Cut	Fill	Cut	Fill
12+34	0	0		
13+19	8	0	13	0
13+47.7	10	0	10	0
13+78	14	0	14	0
14+08.7	5	0	11	0
14+50	0	0	4	0
TOTAL CU. YD.			52	0

Quantities Carried To Sheet No. 246



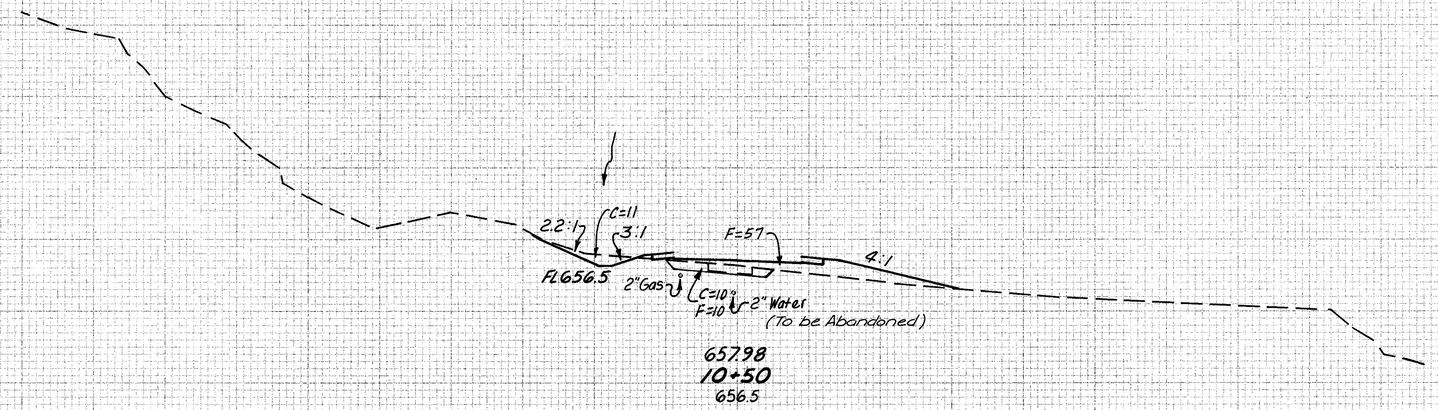
RELOCATED 10TH ST. CHANNEL 'A' PROFILE AND CROSS SECTIONS

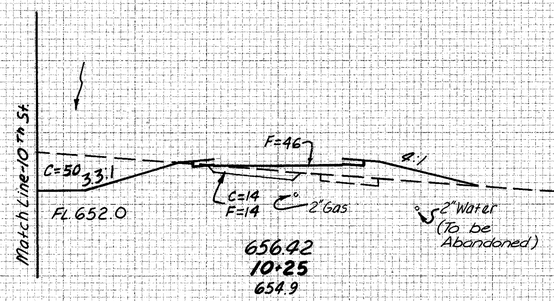
CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

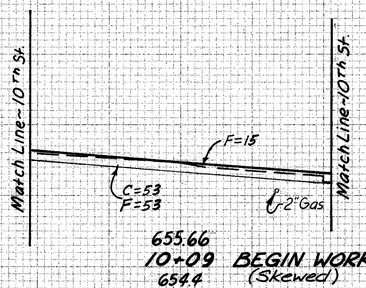
BEL-7-14.17 | OHIO | FHWA REGION 5 | 250 / 663

SEEDING

END WIDTH	SQ. YDS.
77	
158	
37	
33	
0	







	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
680				
670				
660				
650				
640	21	67		
680				
670			39	59
660				
650				
640	64	60		
680				
670			35	38
660				
650				
640	53	68		

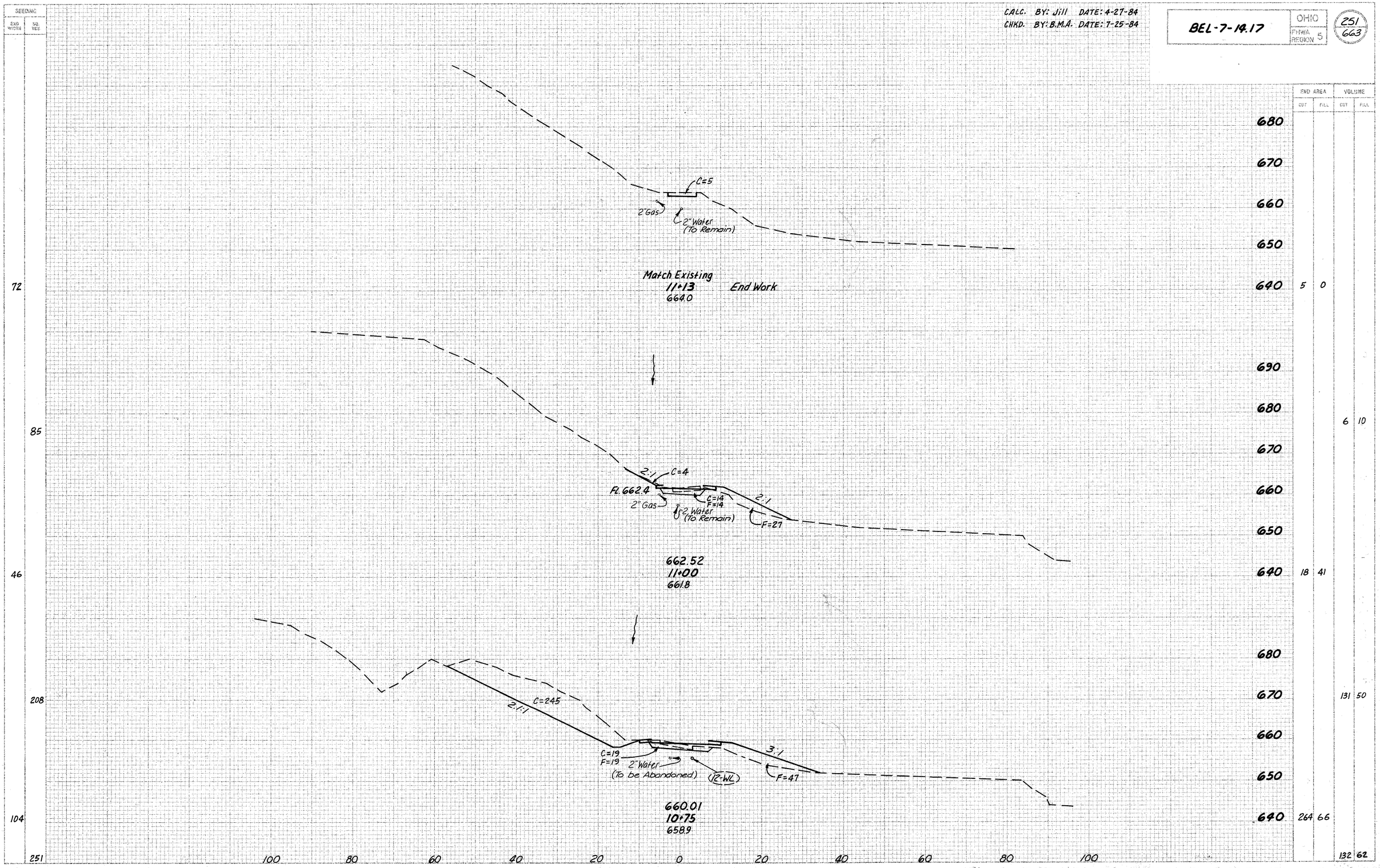
100 80 60 40 20 0 20 40 60 80 100

W. E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

T.W.P. RD. 613 CONNECTOR - STA. 10+09 TO STA. 10+50

CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 251/663



W. E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

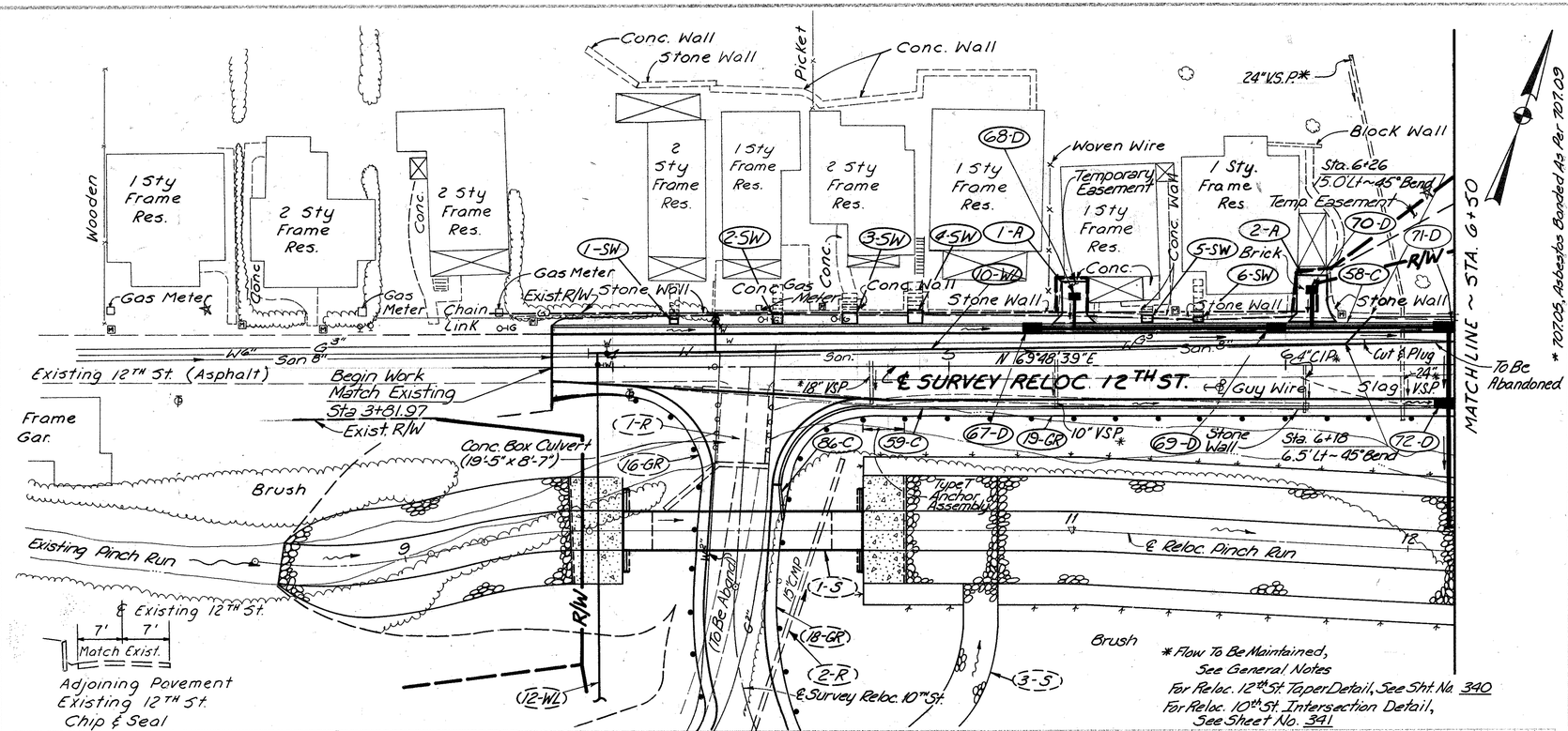
T.W.P. RD. 619 CONNECTOR-STA. 10+75 TO STA. 11+13

Calc. By: F.S. Date: G-5-84
Ch'k'd By: Wa.C. Date: G-13-84

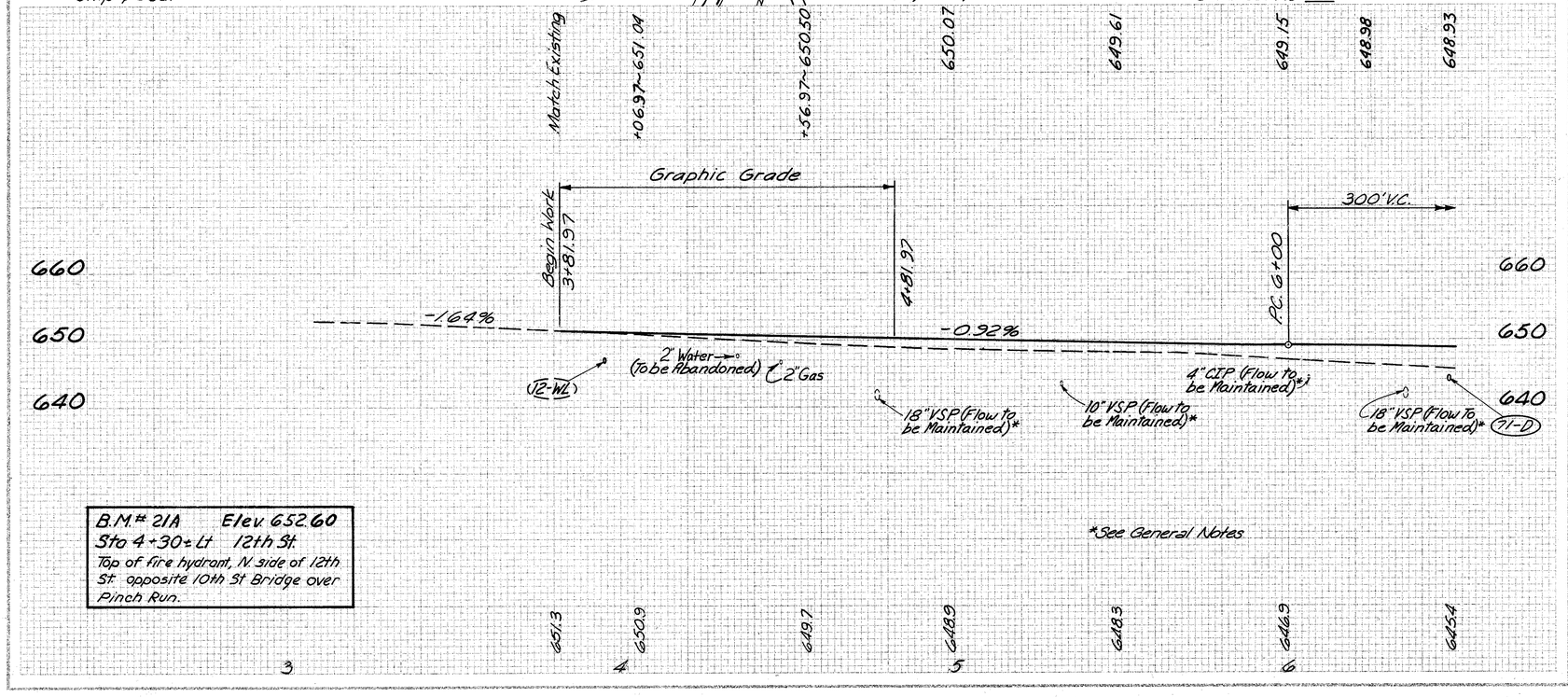
FHWA REGION	STATE	PROJECT		
5	OHIO			

252
663

BEL - 7 - 14.17



* 10705, Asbestos Bonded As Per 707.09



B.M.# 21A Elev. 652.60
Sta 4+30± Lt. 12th St.
Top of fire hydrant, N. side of 12th St. opposite 10th St. Bridge over Pinch Run.

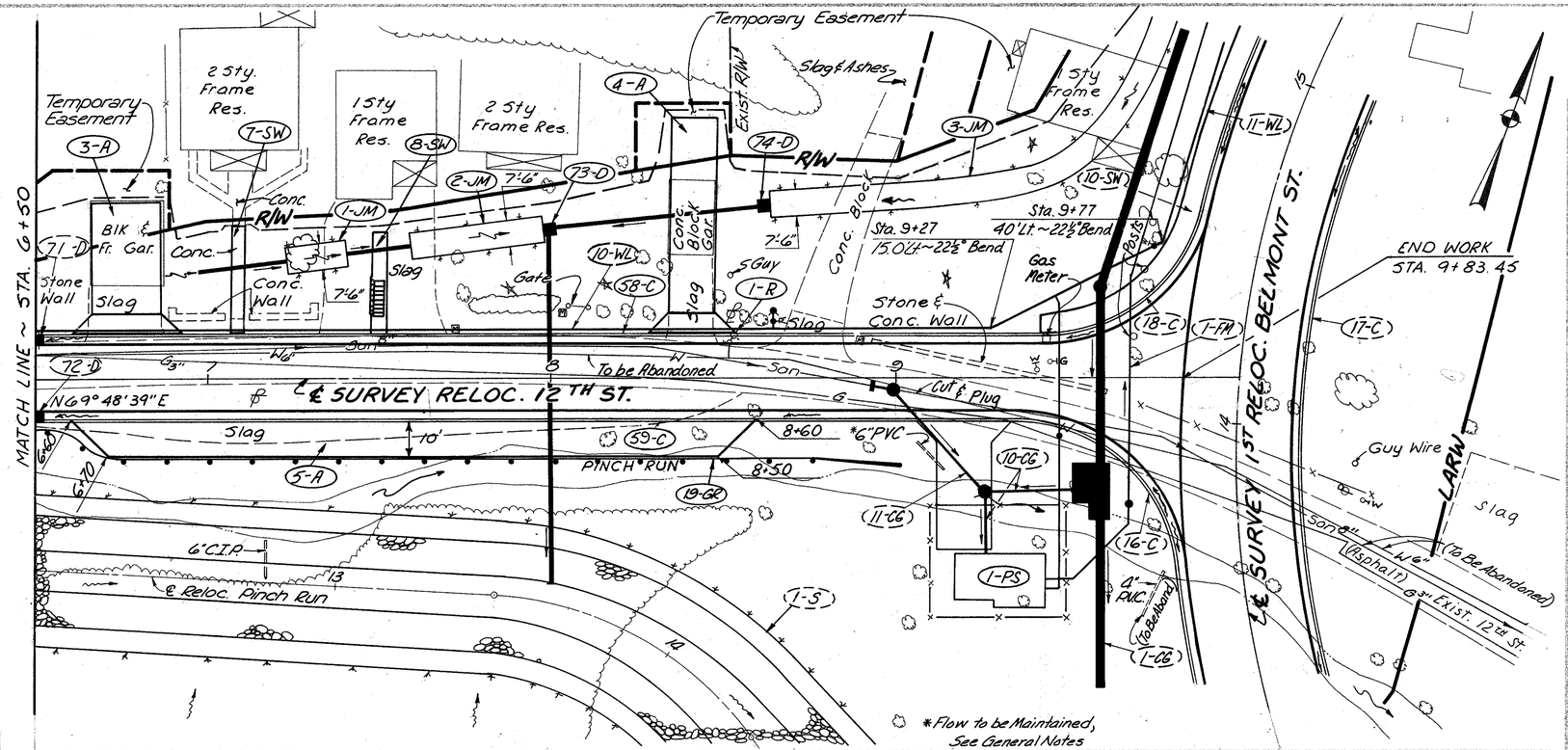
*See General Notes

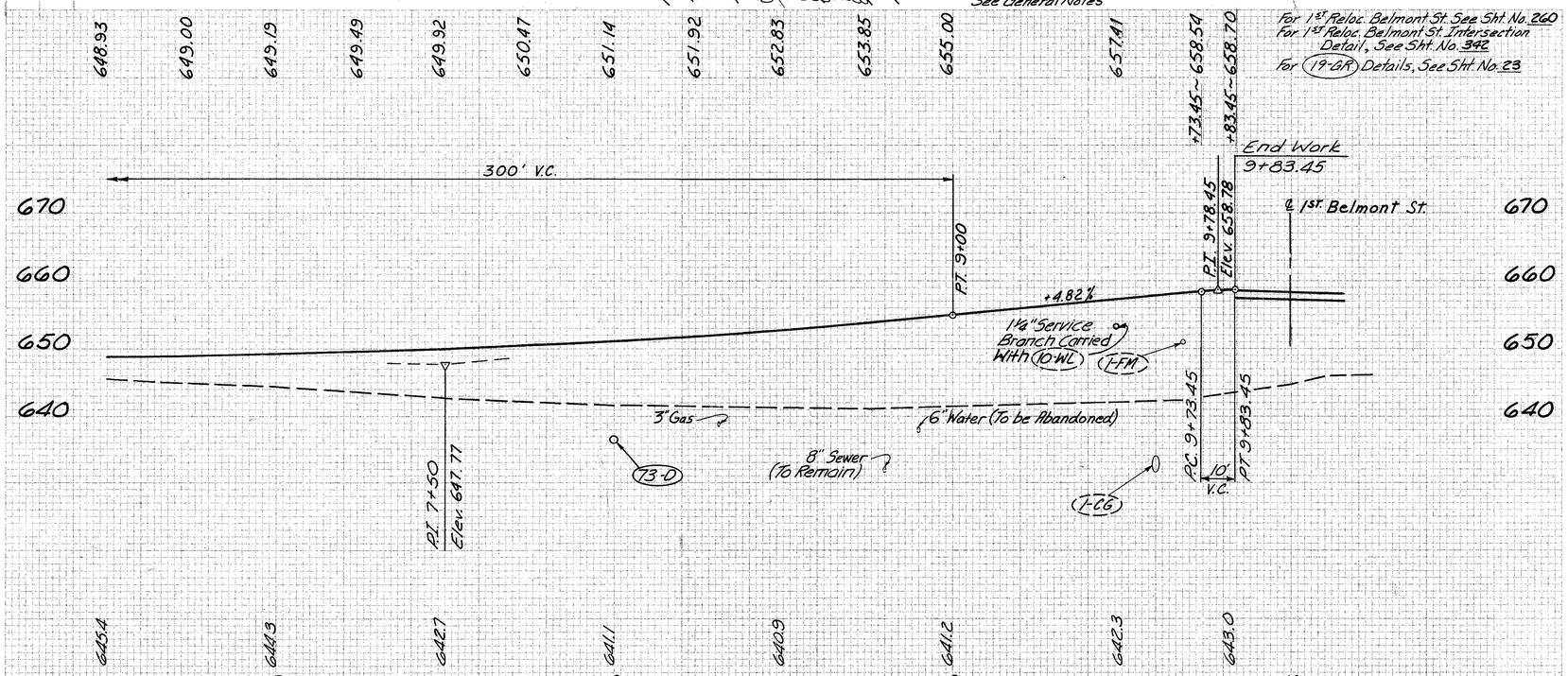
ESTIMATED QUANTITIES — URBAN

SEE SHEET NO.				STATION TO STATION	SIDE	814 BENDS & BRANCHES						604			603 - CONDUIT			609	608	609	606	452	602	606	
						12" Tee	12"x12" Bend, Type F*	6" FIRE Hydrant, As PER PLAN	6" Valve & Box	6" Water Main, "DIP" CL52 Push On Fittings 1¼"	Service Branch	Catch Basin, No. 6	Catch Basin, No. 3A with V' GRATE	Catch Basin, No. 3 with V' GRATE	12" Type F, 207.05, TYPE C	12" Type B, 206.01, 206.02, 206.08, or 207.13 FIBER Conduit as per 207.09		Curb, Type G	4" Concrete Walk	Combination Curb And Gutter, Type 2	Guardrail, Type 5	6" Plain Concrete Pavement	Concrete Masonry	Anchor Assembly, Type 'T'	
						Each	Each	Each	Each	Lin. Ft.	Lin. Ft.	Each	Each	Each	Lin. Ft.	Lin. Ft.		Lin. Ft.	Sq. Ft.	Lin. Ft.	Lin. Ft.	Sq. Yd.	Cu. Yd.	Each	
3/7	368	425																							
3/7	368					1	1					1	1												
3/7	368							2																	
3/7	368								2																
3/7	368								2	593	41														
3/8	368											1	1												
3/8	368											1	1												
														1											
															31										
																10	11								

FHWA REGION	STATE	PROJECT		253 663
5	OHIO			

BEL. - 7 - 14.17





ESTIMATED QUANTITIES

SHEET NO.	STATION TO STATION	SIDE
TOTALS		

For Quantities, See Sht. No. 254

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RELOCATED 12TH STREET STA. 6+50 TO STA. 9+83.45

ESTIMATED QUANTITIES

Calc. By: F.S. Date: 6-5-84
Ch'k'd By: W.a.C. Date: 6-13-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

254
663

BEL-7-14.17

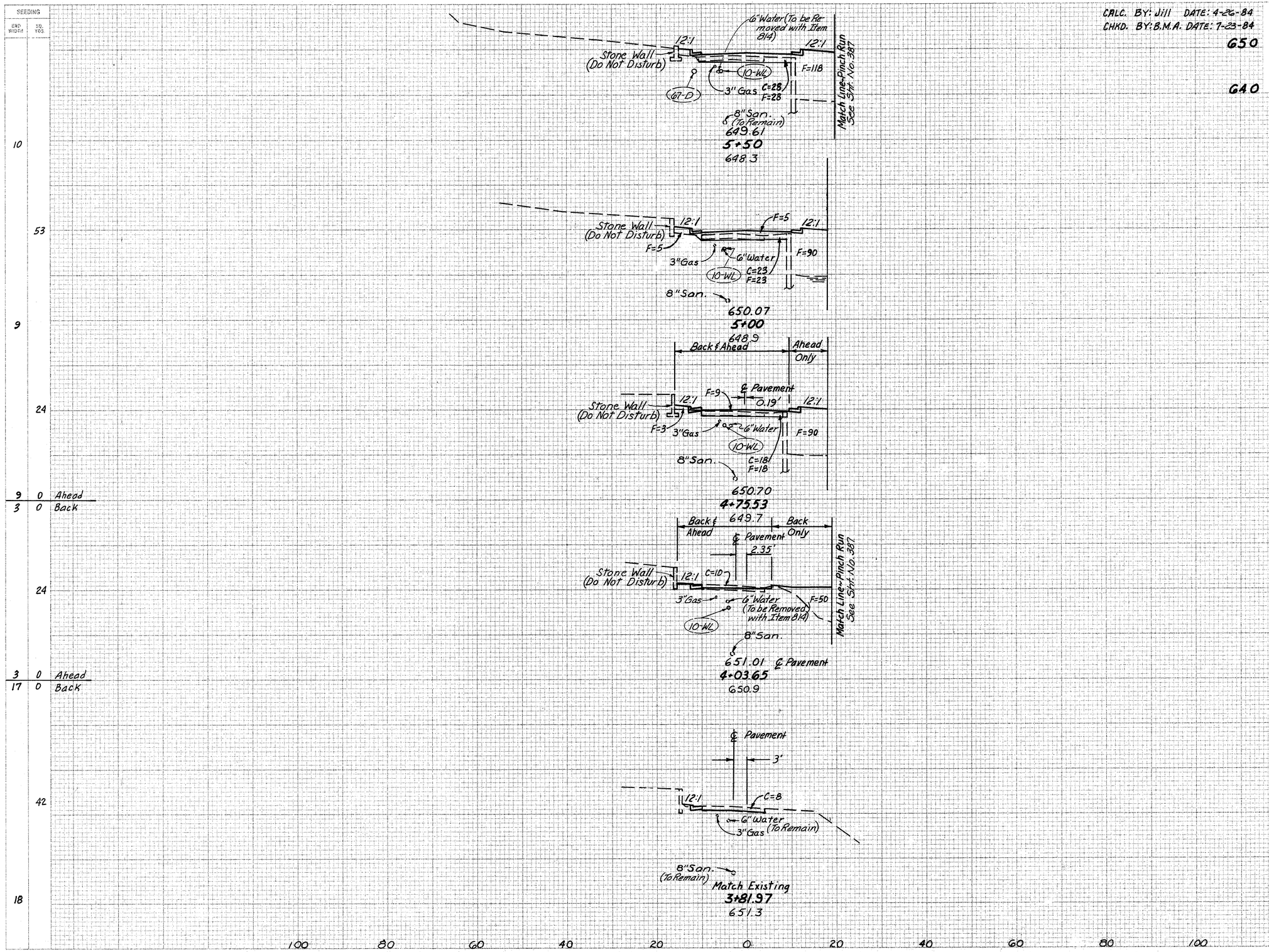
*-SPECIAL

REF. NO.	STATION TO STATION	SIDE	301 Bituminous Aggregate Base, AC-20	304 Aggregate Base, As Per Plan	404 Asphalt Concrete, AC-20 (Driveways)	602 Concrete Masonry	606 Guardrail, Type S	606 Anchor Assembly, Type 'A'	608 4" Concrete Walk	608 Concrete Steps, Type A	609 Combination Curb And Gutter, Type 2	670 Ditch Erosion Protection	603-CONDUIT 12" Type B, 706.01, 706.02, 706.08, or 707.13 FIBER bonded as per 707.09	603-CONDUIT 12" Type E	604 Catch Basin, No. 2-2-8	* Pump Station	814 Fire Hydrant Removed And Disposed Of	SEE SHEET NO.
	URBAN		Cu. Yd.	Cu. Yd.	Cu. Yd.	Cu. Yd.	Lin. Ft.	Each	Sq. Ft.	Lin. Ft.	Lin. Ft.	Sq. Yd.	Lin. Ft.	Lin. Ft.	Each	Lump	Each	
19-GR	6+50 to 9+00.25	Rt.					227.50	1										
7-SW	7+08.5	Lt.							128.0					25				317
8-SW	7+50	Lt.							68.0	44.0				18				317
58-C	6+50 to 9+42.39	Lt.									292.4							
59-C	6+50 to 9+34.61	Rt.									284.6							
3-A	6+76.5	Lt.	1.9	16.1	0.5													318
4-A	8+40.5	Lt.	1.4	18.4	0.4													318
5-A	6+60 To 8+60	Rt.		58.4														
1-RS	9+19	Rt.														Lump		
73-D	8+00	Lt.				0.21							103		1			369
74-D	8+63	Lt.											63		1			369
1-JM	7+23 To 7+41	Lt.										15.0						
2-JM	7+59 To 7+98	Lt.										32.5						
3-JM	8+64 To 15+25 (12th St-1st Bel.)	Lt.										135.0						
1-R	8+53	Lt.															1	
	TOTAL		3.3	92.9	0.9	0.21	227.50	1	196.0	44.0	577.0	182.5	166	43	2	LUMP	1	

RELOCATED 12TH ST. ~ STA. 6+50 TO STA. 9+83.45

CALC. BY: Jill DATE: 4-26-84
CHKD. BY: B.M.A. DATE: 7-23-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 255/663



	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	28	146		
			47	249
Add for 1-A			2	0
	23	123		
			19	110
Ahead	18	120	0	0
Back	18	30		
			37	40
Ahead	10	0	0	0
Back	10	50		
			7	20
	8	0		

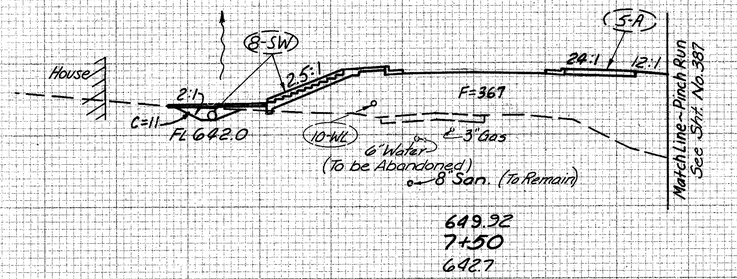
W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RELOCATED 12TH ST.-STA. 3+81.97 TO STA. 5+50

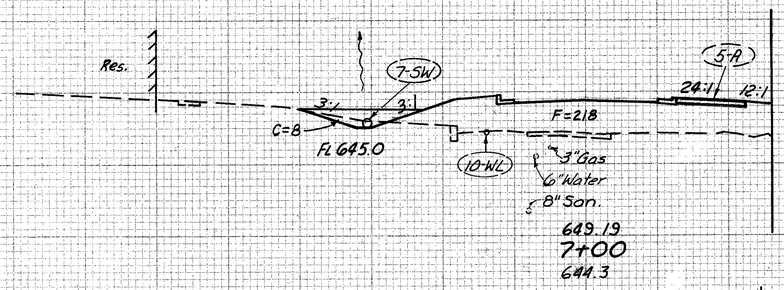
CALC. BY: Jill DATE: 4-26-84
CHKD. BY: B.M.A. DATE: 7-23-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 256/663

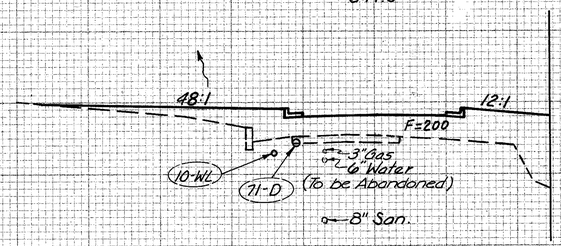
SEEDING		
END WIDTH	SQ. YDS.	
	41	
	219	
	38	
	261	
	56	
	186	
	11	
	58	



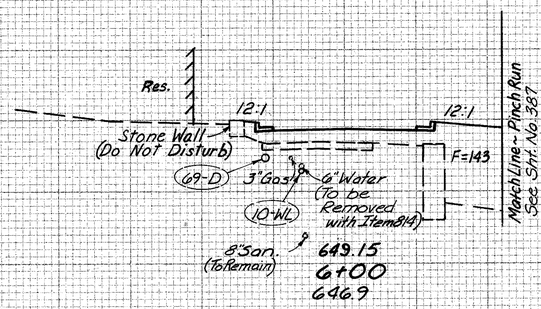
649.92
7+50
642.7



649.19
7+00
644.3



648.93
6+50
645.4



649.15
6+00
646.9

		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
650					
640					
Add For	(8-SW)			0	9
630					
		11	367		
Add For	(7-SW)			2	36
				18	542
650					
640					
				8	218
650				7	387
Add for	(3-A)			23	0
640					
		0	200		
				0	318
650					
640					
Add for	(2-A)			2	0
		0	143		
				26	268

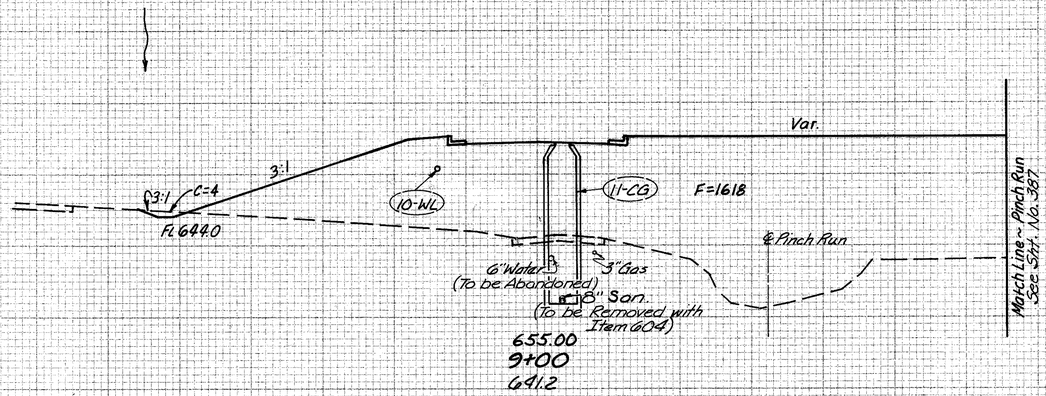
80 60 40 20 0 20 40 60

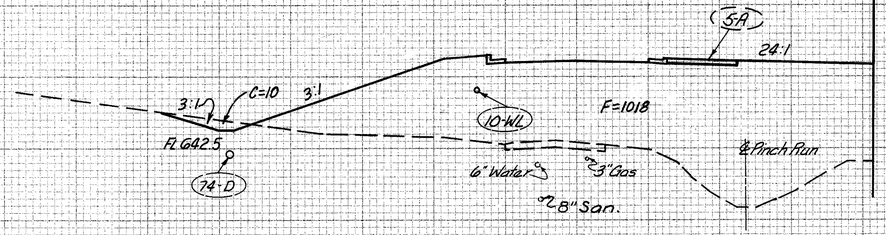
RELOCATED 12TH ST.-STA. 6+00 TO STA. 7+50

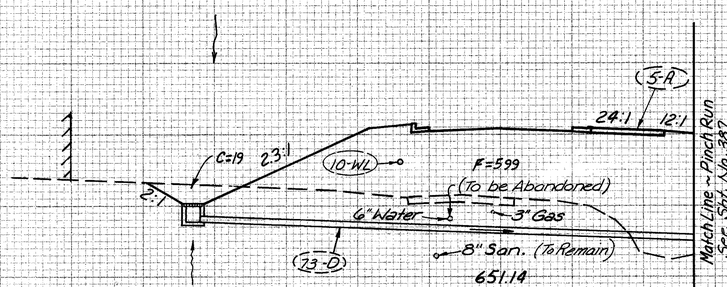
CALC. BY: Jill DATE: 4-26-84
CHKD. BY: B.M.A. DATE: 7-23-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 257/663

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
			650		
			640		
			630		
	99	4	1618		
			650		
			640		
			630		
	464			13	2441
			650		
			640		
			630		
	68	10	1018		
			650		
			640		
			630		
	308			27	1497
			650		
			Add for 1-A	10	131
			640		
			630		
	43	19	599		
	233			28	894







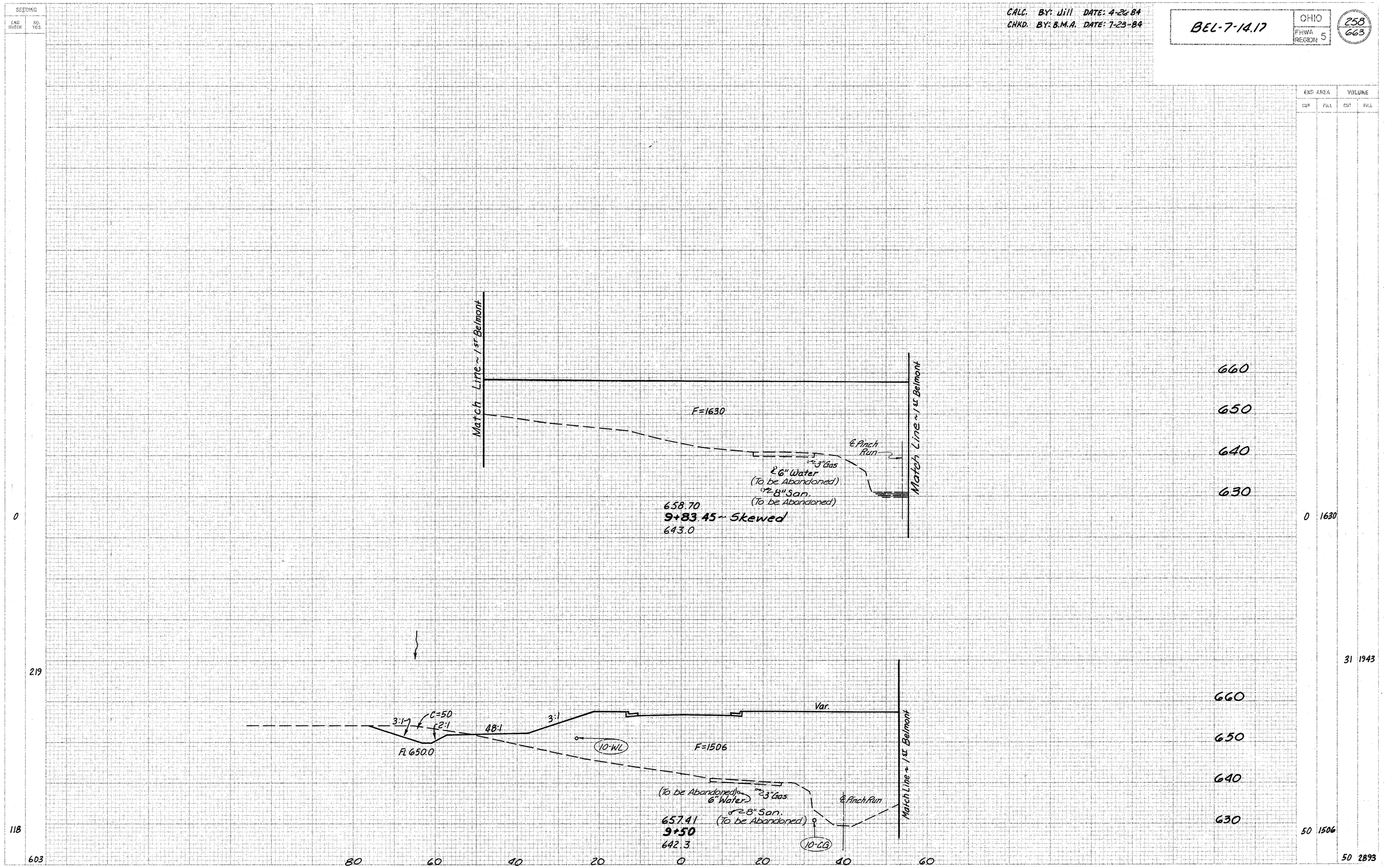
80 60 40 20 0 20 40 60

W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RELOCATED 12 IN ST. - STA. 8+00 TO STA. 9+00

CALC. BY: Jill DATE: 4-26-84
CHKD. BY: B.M.A. DATE: 7-23-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 258/663



W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RELOCATED 12TH ST.-STA. 9+50 TO STA. 9+83.45

Calc. By: F.S. Date: 6-29-84
Ch'k'd By: Get Date: 6-29-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

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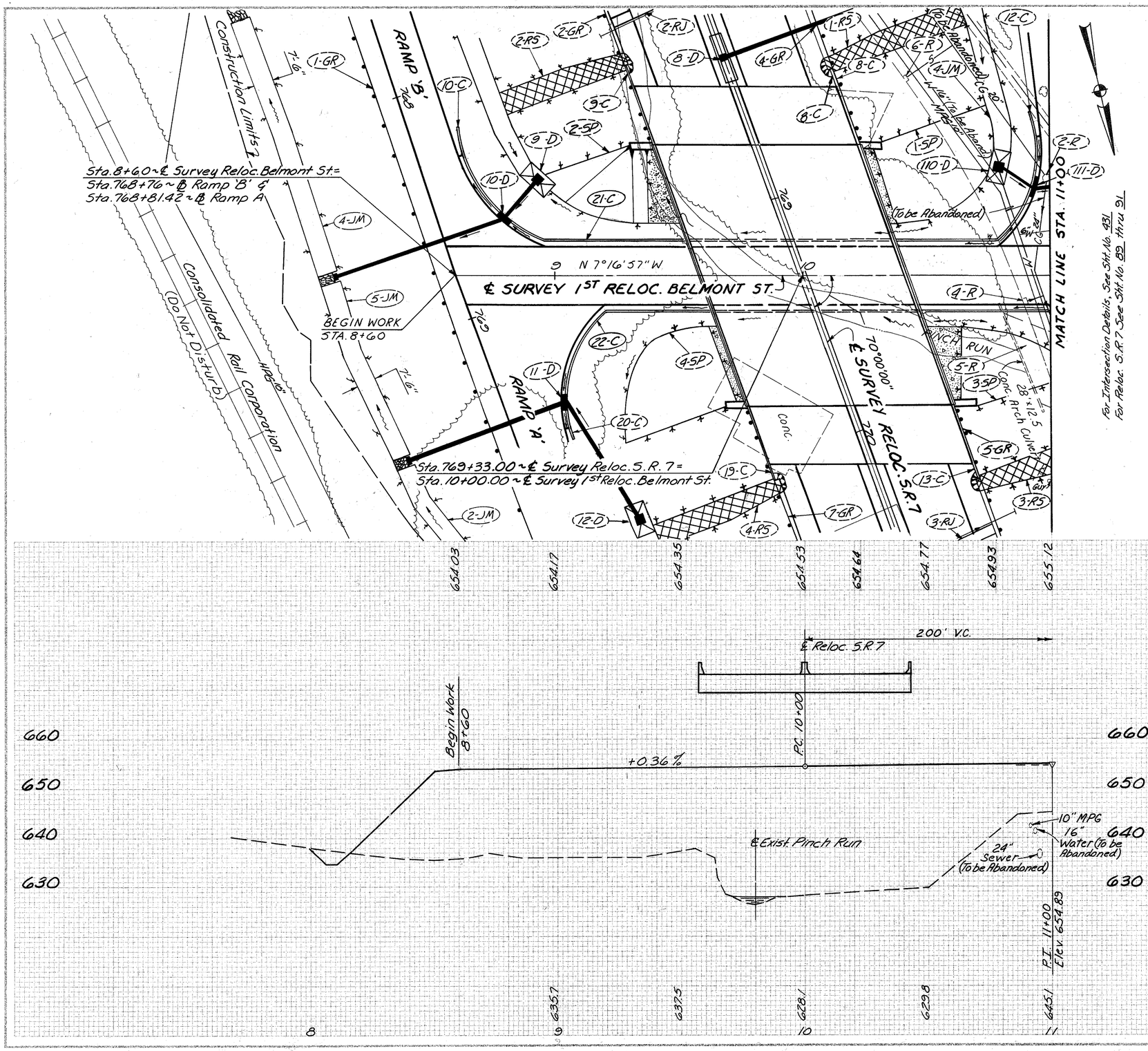
BEL-7-14.17



ESTIMATED QUANTITIES				
REF. NO.	STATION TO STATION	SIDE		
	URBAN			
21-C	768+29.47 To 769+36.14 (B10) Lt & Rt			
22-C	769+55.24 To 11+00 (Rt 1st Bed) Lt & Rt			
609	Combination Curb & Gutter Type 2	Lin. Ft.	280.0	512.0
			232.0	
TOTALS				

1ST RELOCATED BELMONT STREET STA. 8+60 TO STA. 11+00

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

FHWA REGION	STATE	PROJECT	
5	OHIO		

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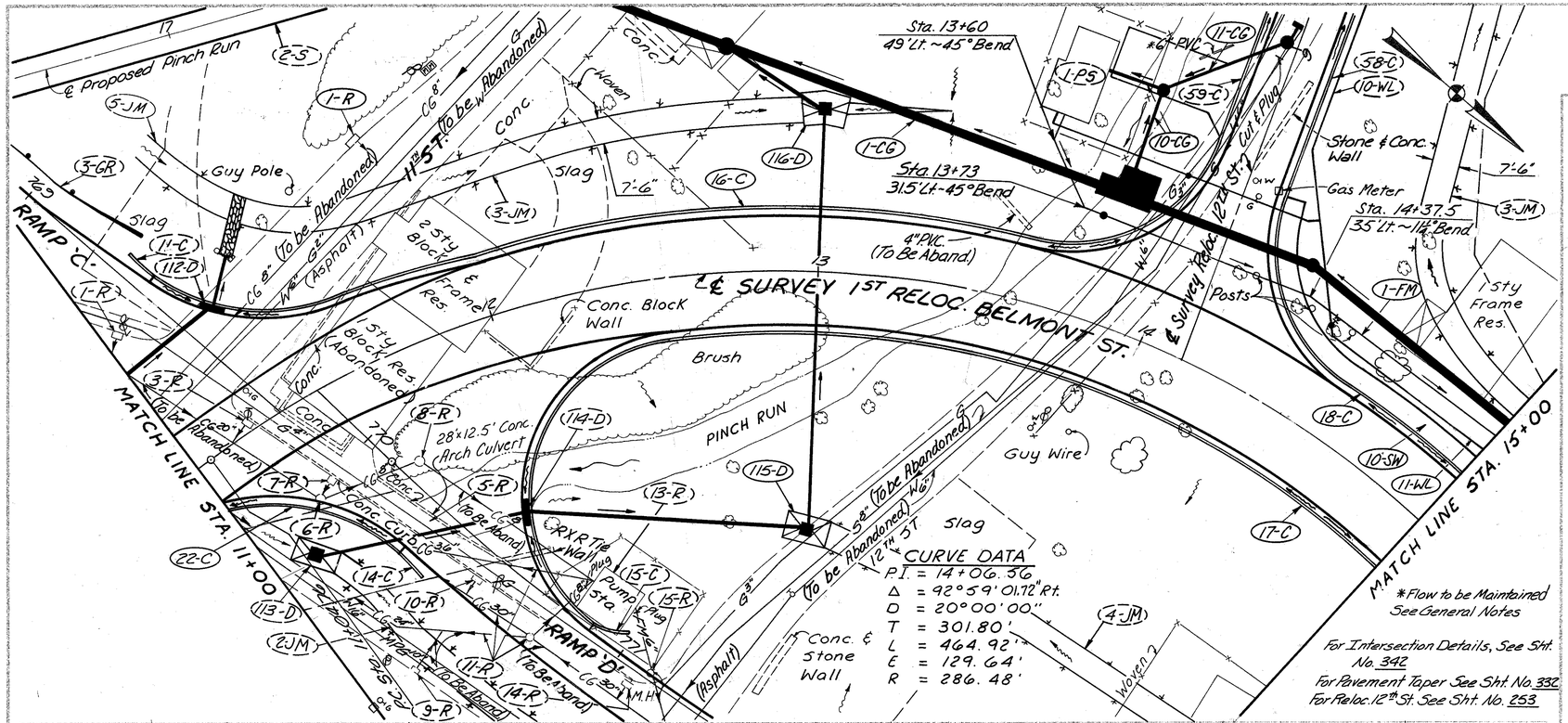
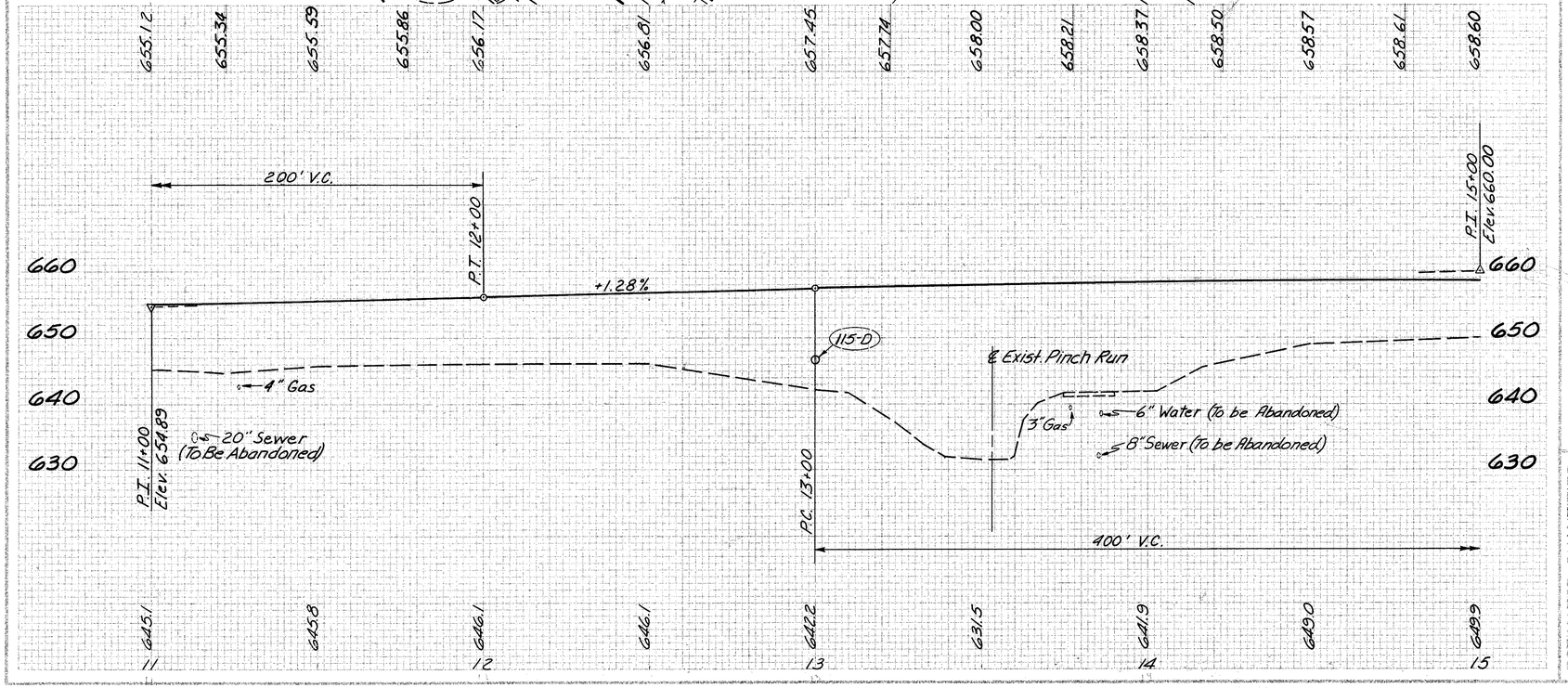
BEL - 7 - 14.17



CURVE DATA
P.I. = 14+06.56
Δ = 92°59'01.12" Rt.
D = 20°00'00"
T = 301.80'
L = 464.92'
℄ = 129.64'
R = 286.48'

*Flow to be Maintained See General Notes

For Intersection Details, See Sht. No. 342
For Pavement Taper See Sht. No. 332
For Reloc. 12th St. See Sht. No. 253



ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE

ESTIMATED QUANTITIES

* BENDS & BRANCHES

Calc. By: F.S. Date 6-20-84
Ch'kd By: Get Date 6-20-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

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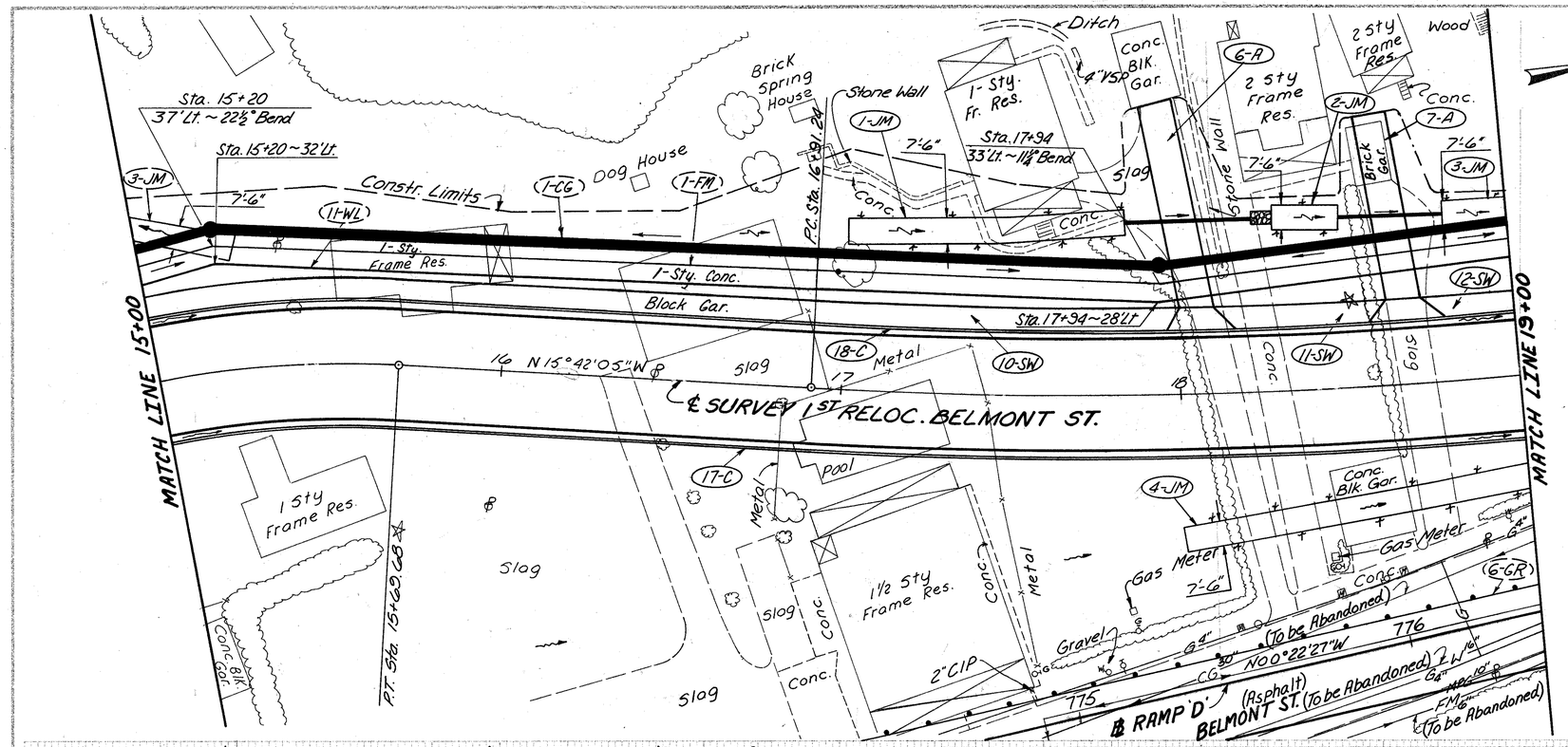
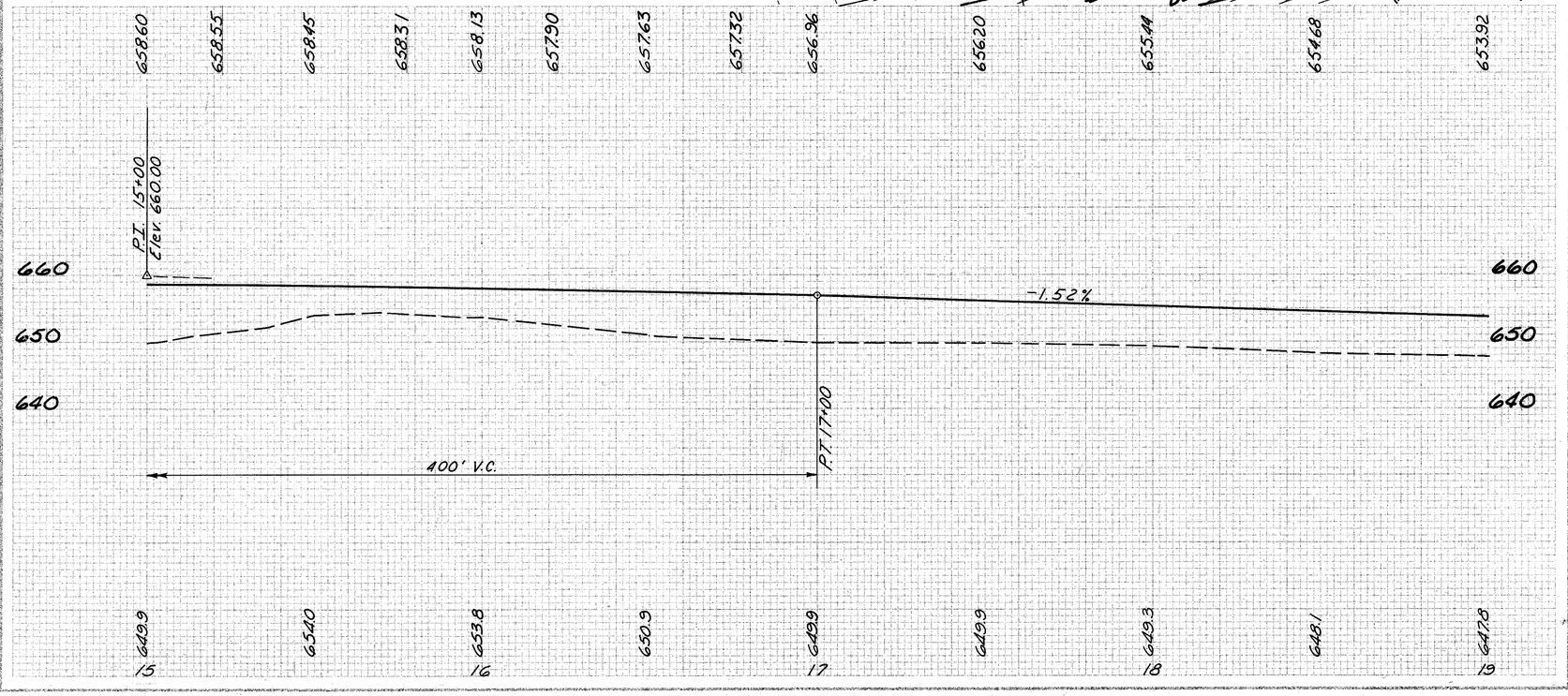
BEL-7-14.17

REF. NO.	STATION TO STATION	SIDE	202 Catch Basin Abandoned				608 4" Concrete Walk	609 Combination Curb & Gutter, Type 2	SPECIAL Combined Flow Regulator	SPECIAL Force Main Cleanout		* 120°×36" Field Tee		603 CONDUIT 15" Type B	21" Type C	30" Type C, 706.02 or 706.08 with joints as per 706.11 or 706.12	4" Force Main With Fittings, As Per Plan	8" Type B, 706.01, 706.02 or 706.08 with Joints As Per 706.11 or 706.12	30" Type B, 706.02 or 706.08 With Joints As Per 706.11 or 706.12	30" Type B, 706.02 or 706.08 Load with Joints As Per 706.11	30" Type B, 7500 D-Load with Joints As Per 706.11	30" Type C, 20000 D-Load with Joints As Per 706.11	30" Type C, 22500 D-Load with Joints As Per 706.11	30" Type C, 25000 D-Load with Joints As Per 706.11	36" Type B, 27500 D-Load with Joints As Per 706.11	604 Catch Basin, No. 5 With 'S' GRATE	Catch Basin, No. 8	Manhole, No. 3 With Joints As Per 706.11	814 16" Water Main, D.I.P. ANSI CL. 52 PUSH ON JOINTS AND FITTINGS	16" Valve & ValveBox	6" Fire Hydrant, AS PER PLAN	SEE SHEET NO.
	URBAN		Each				Sq. Ft.	Lin. Ft.	Each	Each		Each		Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Each	Each	Lin. Ft.	Each	Each	
10-SW	9+42 To 15+00 (12TH & 1ST Bel)	Lt.					618.0																								
16-C	769+44.33 To 9+34.61 (C & 12TH)	Lt. & Rt.						341.7																							
17-C	770+88.61 To 15+00 (D & 1ST Bel)	Lt. & Rt.						345.9																							
18-C	9+42.39 To 15+00 (12TH & 1ST Bel)	Lt.						109.1																							
22-C	11+00 To 770+30.2 (1ST Bel & D)	Rt.						56.0																							
115-D	13+00	Rt.												128													1				269
116-D	13+00	Lt.													36											1					369
11-WL	14+47 to 24+30	Lt. & Rt.																											1025	1	1	432
1-CG	12+25 to 24+49	Lt.							1			1				96			33	233	294	99	176	280	75			8				409
10-CG	13+68 to 13+81	Lt.															46											1				409
11-CG	14+04 to 13+82	Lt.															48											1				409
1-FM	13+61 to 24+50	Lt.								4							1163															411
1-R	11+81	Lt.	1																													
	TOTAL		1				618.0	852.7	1	4				128	36	96	1163	94	33	233	294	99	176	280	75	1	1	10	1025	1	1	





Calc. By: F.S. Date: 6-20-84
Chkd By: Get Date: 6-20-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

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BEL - 7 - 14.17

For Ramp D, See Sht. No. 92

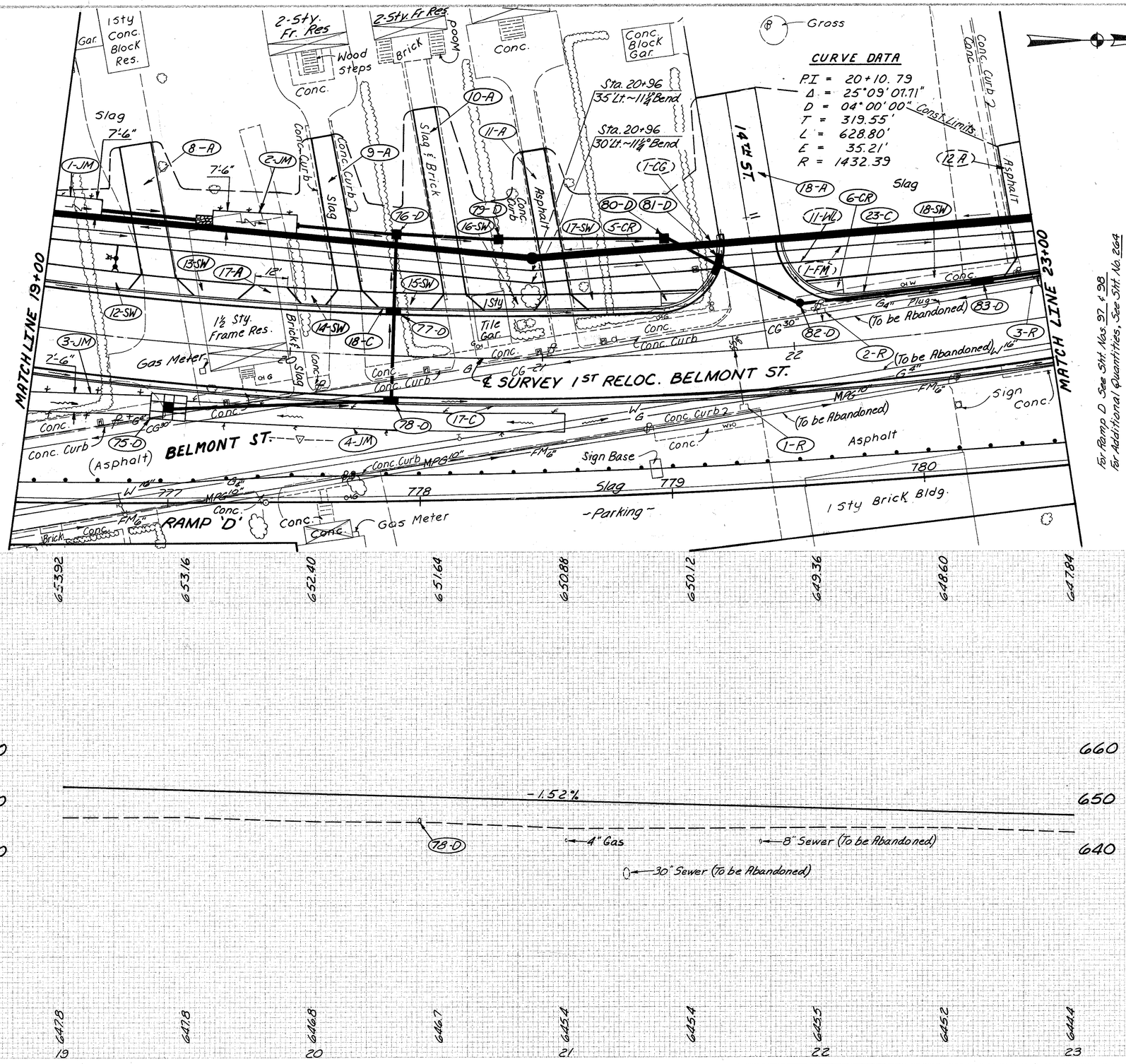
ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	SHEET NO.	STATION TO STATION	URBAN
603	12" Type D Conduit	Lin. Ft.	39		66
			39		
			30		
			30		
601	Rock Channel Protection, Type C, With Filter	Cu. Yd.			1.3
			1.3		
670	Ditch Erosion Protection	Sq. Yd.			1858
				70.0	
				15.8	
				16.7	
				83.3	
609	Combination Curb & Gutter, Type 2	Lin. Ft.			800.0
					400.0
					400.0
608	4" Concrete Walk	Sq. Ft.			2205.0
					1,768.0
					270.0
					147.0
452	6" Plain Concrete Pavement	Sq. Yd.			21.4
					10.7
					10.7
304	Aggregate Base, As Per Plan	Cu. Yd.			28.8
					15.1
					13.7
	TOTALS				

ITEM NO.	STATION TO STATION	URBAN
10-SW	15+00 TO 17+98	Lt.
11-SW	18+14 TO 18+53	Lt.
12-SW	18+13.5 TO 19+00	Lt.
17-C	15+00 TO 19+00	Ft.
18-C	15+00 TO 19+00	Lt.
6-A	18+10	Lt.
7-A	18+10	Lt.
1-JM	17+00 TO 17+84	Lt.
2-JM	18+29 TO 18+48	Lt.
3-JM	18+80 TO 19+00	Lt.
4-JM	18+00 TO 19+00	Ft.

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

1ST RELOCATED BELMONT STREET STA. 15+00 TO STA. 19+00



For Ramp D See Sht. Nos 97 & 98
For Additional Quantities, See Sht. No 264

Calc. By: TLG Date: 7-3-84
Chk'd By: Get Date: 7-19-84

ESWA REGION	STATE	PROJECT		263 663
5	OHIO			

BEL-7-14.17

ESTIMATED QUANTITIES

KEY NO.	STATION TO STATION	SIDE	202 Catch Basin Abandoned Each	202 Pipe Removed, over 24" Lin.Ft.	304 Aggregate Base As Per Plan Cu.Yd.	404 Asphalt Concrete, AC-20 (Driveways) Cu.Yd.	452 6" Plain Concrete Pavement Sq.Yd.	301 Bituminous Aggregate Base, AC-20 Cu.Yd.
	URBAN							
5-CR	21+58 (14th & Bel.)	Lft.						
6-CR	22+11 (14th & Bel.)	Lft.						
2-SW	19+00 To 19+36.5	Lft.						
13-SW	19+57 To 19+87	Lft.						
14-SW	19+99 To 20+15	Lft.						
15-SW	20+31 To 20+57.5	Lft.						
16-SW	20+72.5 To 20+99	Lft.						
17-SW	21+14 To 21+58	Lft.						
18-SW	22+11 To 22+93.5	Lft.						
1-CG	19+00 To 23+00	Rt. Lft.						
18-C	19+00 To 11+04.82 Rdc. Belmont-14th St.	Lft.						
23-C	11+11.78 To 23+00 (14th & Bel.)	Lft.						
1-M	19+00 To 19+19	Lft.			16.8		12.7	
2-M	19+63 To 20+00	Lft.			13.7		10.0	
3-M	19+00 To 19+47	Rt.			16.8		10.0	
4-M	19+61 To 21+08	Rt.				1.6	12.0	6.4
1-R	21+78.5	Rt.	1					
2-R	22+12	Lft.	1					
3-R	22+30 To 24+50	Lft.		200				
8-A	19+53	Lft.					12.7	
9-A	20+29.5	Lft.					10.0	
10-A	20+70	Lft.					10.0	
11-A	21+11	Lft.				1.6	12.0	6.4
17-A	19+90	Lft.						
18-A	21+90.17	Lft.					(See Pavement Calculations for Quantities)	
	1st Rdc. Belmont St.							
	TOTALS		2	200	47.3	1.6	54.7	6.4

609 Combination Curb & Gutter, Type 2 Lin.Ft.	670 Ditch Erosion Protection Sq.Yd.	601 Rock Channel Protection, Type C with Filter Cu.Yd.	603 CONDUIT 12" Type D Lin.Ft.	608 4" Concrete Walk Sq.Ft.	608 Curb Ramps Each
			319		
			319		
			320		
			323.43		
		1.3	38	219.0	1
	15.8			144.0	1
	30.8			36.0	
	39.2			159.0	
	125.0			159.0	
4000				264.0	
2900				471.0	
113.2					
803.2	210.0	1.3	38	1512.0	2

1ST RELOCATED BELMONT STREET STA.19+00 TO STA.23+00

ESTIMATED QUANTITIES

Calc. By: TLG Date 7-3-84
Ch'k'd By: Get Date 7-19-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

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BEL-7-14.17

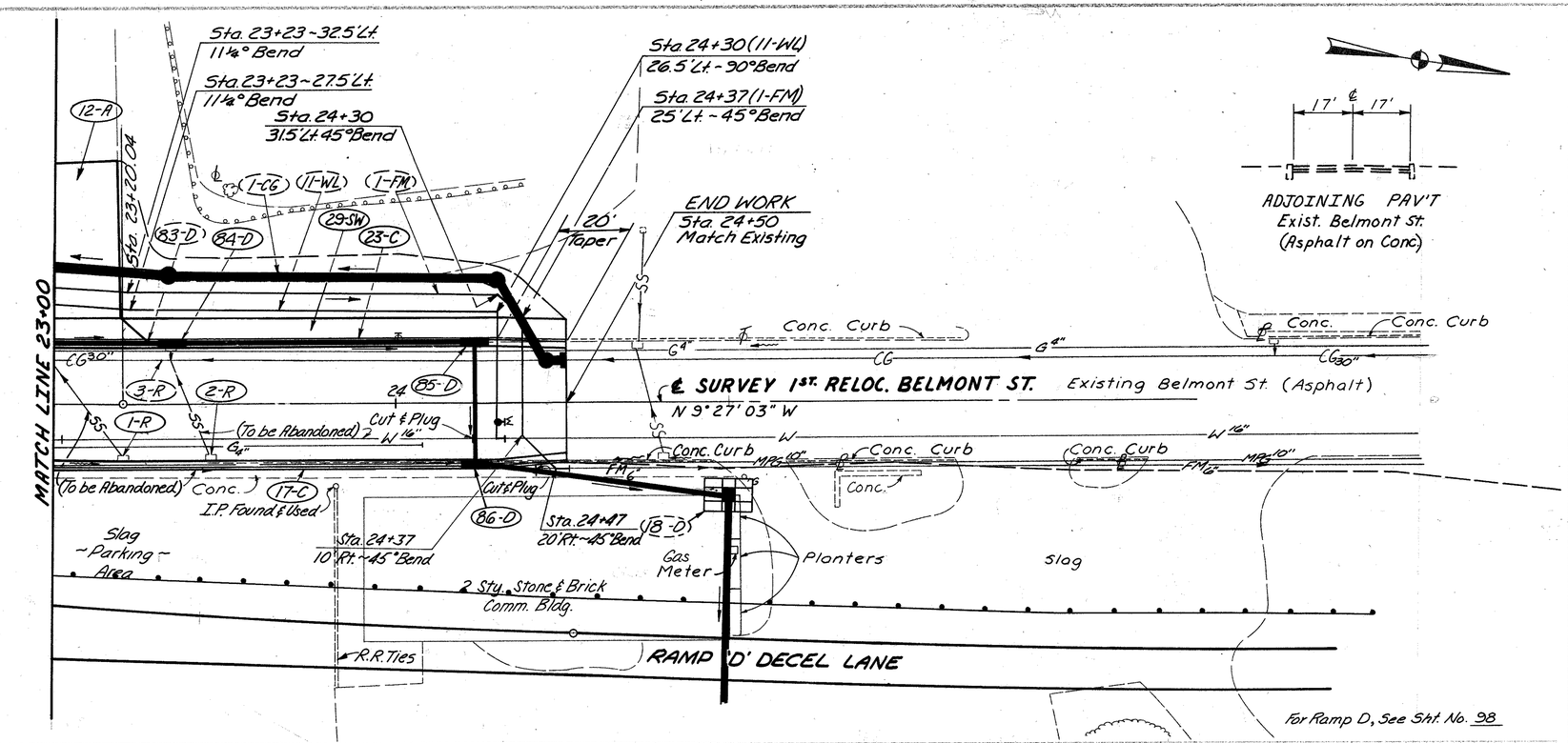
REF. NO.	STATION TO STATION	SIDE	602	603 CONDUIT								604					SEE SHEET NO.
			Concrete Masonry	12" Type B	12" Type C	12" Type C 706.01, 706.02, 706.08, or 707.13 FIBER bonded as per 707.09	15" Type C 706.01, 706.02, 706.03, or 707.13 FIBER bonded as per 707.09	18" Type B, 706.01 706.02, 706.08 or 707.13 FIBER bonded as per 707.09	18" Type C, 706.01 706.02, 706.03 or 707.13 FIBER bonded as per 707.09	21" Type B, 706.02, 706.08 or 707.13 FIBER bonded as per 707.09		Manhole, No. 3	Catch Basin, No. 3 With 'V' GRATE	Catch Basin, No. 2-2-B	Catch Basin, No. 3A With 'V' GRATE	Catch Basin, No. 5 With 'B' GRATE	
	URBAN		Cu. Yd.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.		Each	Each	Each	Each	Each	
75-D	19+54	Rt.			89											1	370
76-D	20+41	Lt.	0.21			40	40							1			370
77-D	20+41	Lt.			30										1		370
78-D	20+41	Rt.		37										1			370
79-D	20+82	Lt.							66					1			370
80-D	21+50	Lt.						37	23				1				370
81-D	11+16.5 14TH St.	Rt.								73		1					371
82-D	22+03.5	Lt.								58			1				371
83-D	22+77	Lt.															
	TOTAL		0.21	37	119	40	40	37	89	131		1	2	3	2	1	

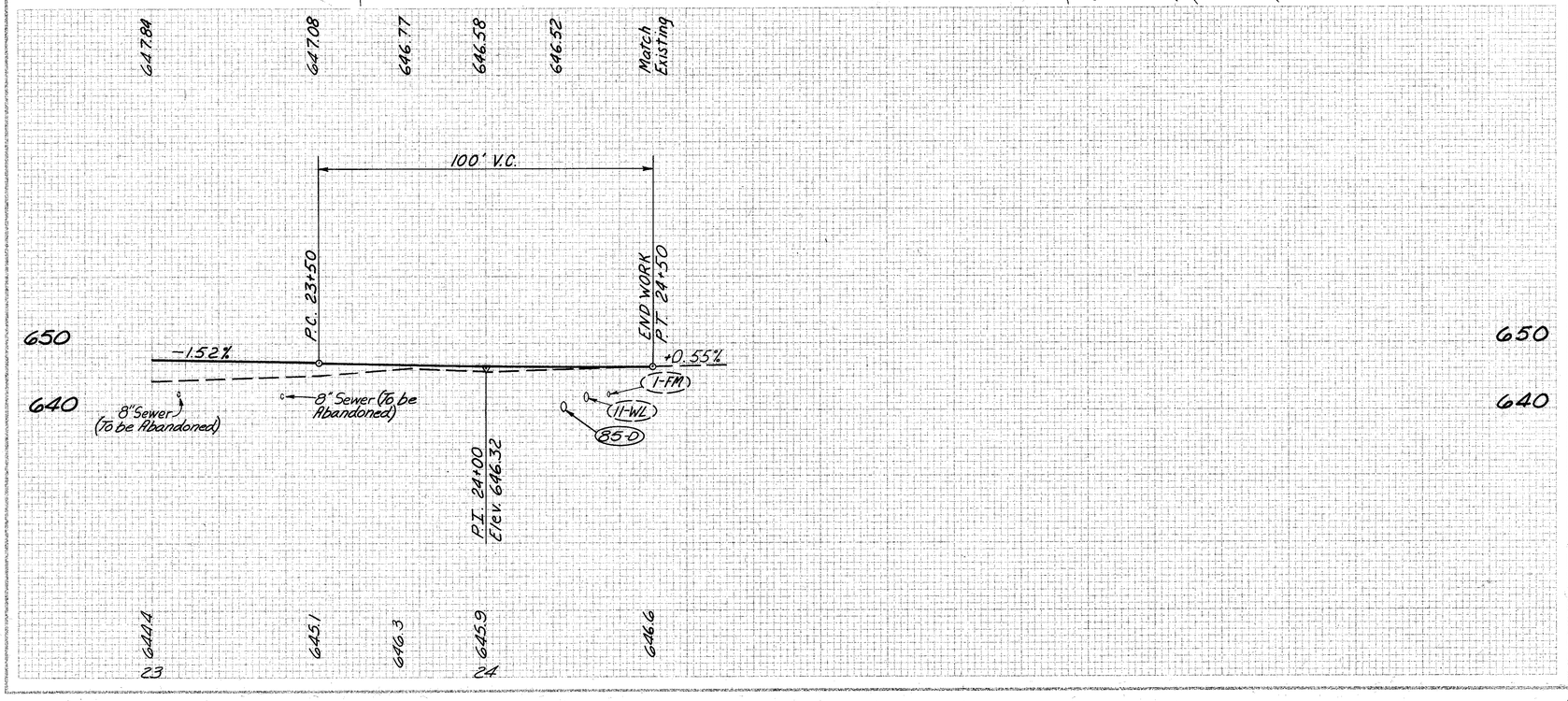
Calc. By: TLG Date: 7-13-84
Chk'd By: Get Date: 7-19-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

265
663

BEL-7-14.17





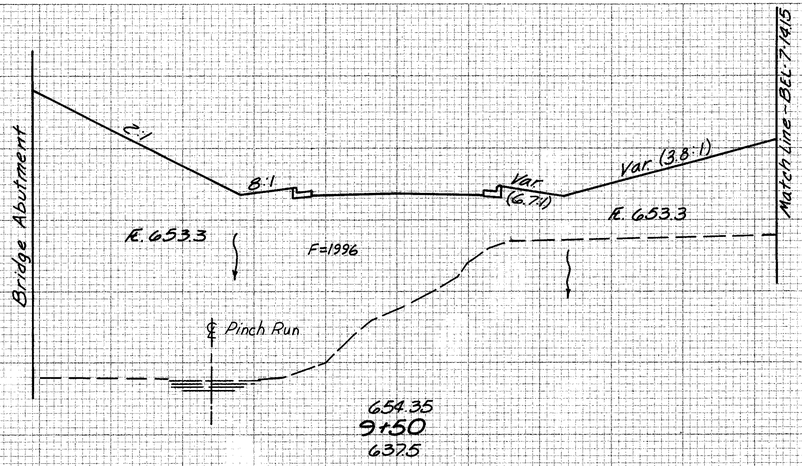
| ESTIMATED QUANTITIES | | |

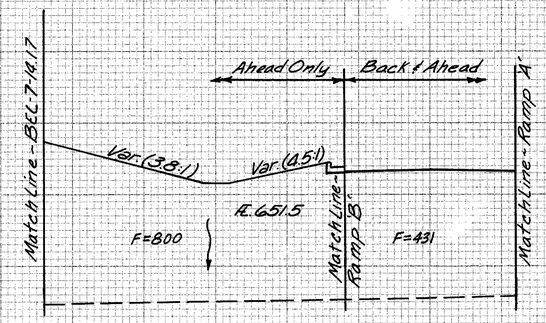
C.ALC. BY: Jill DATE: 4-26-84
CHKD. BY: B.M.A. DATE: 7-25-84

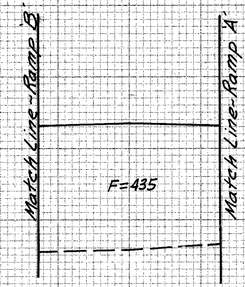
BEL-7-14.17 | OHIO | FHWA REGION 5 | 266/663

SEEDING

END WIDTH	SQ. YDS.
80	
336	
41	0 Ahead
0	0 Back
0	
0	







END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	1996		
		0	2988
Ahead	0 1231	0	0
Back	0 431		
		0	641
		0	435

660
650
640
630
660
650
640
630
660
650
640
630

120 100 80 60 40 20 0 20 40 60

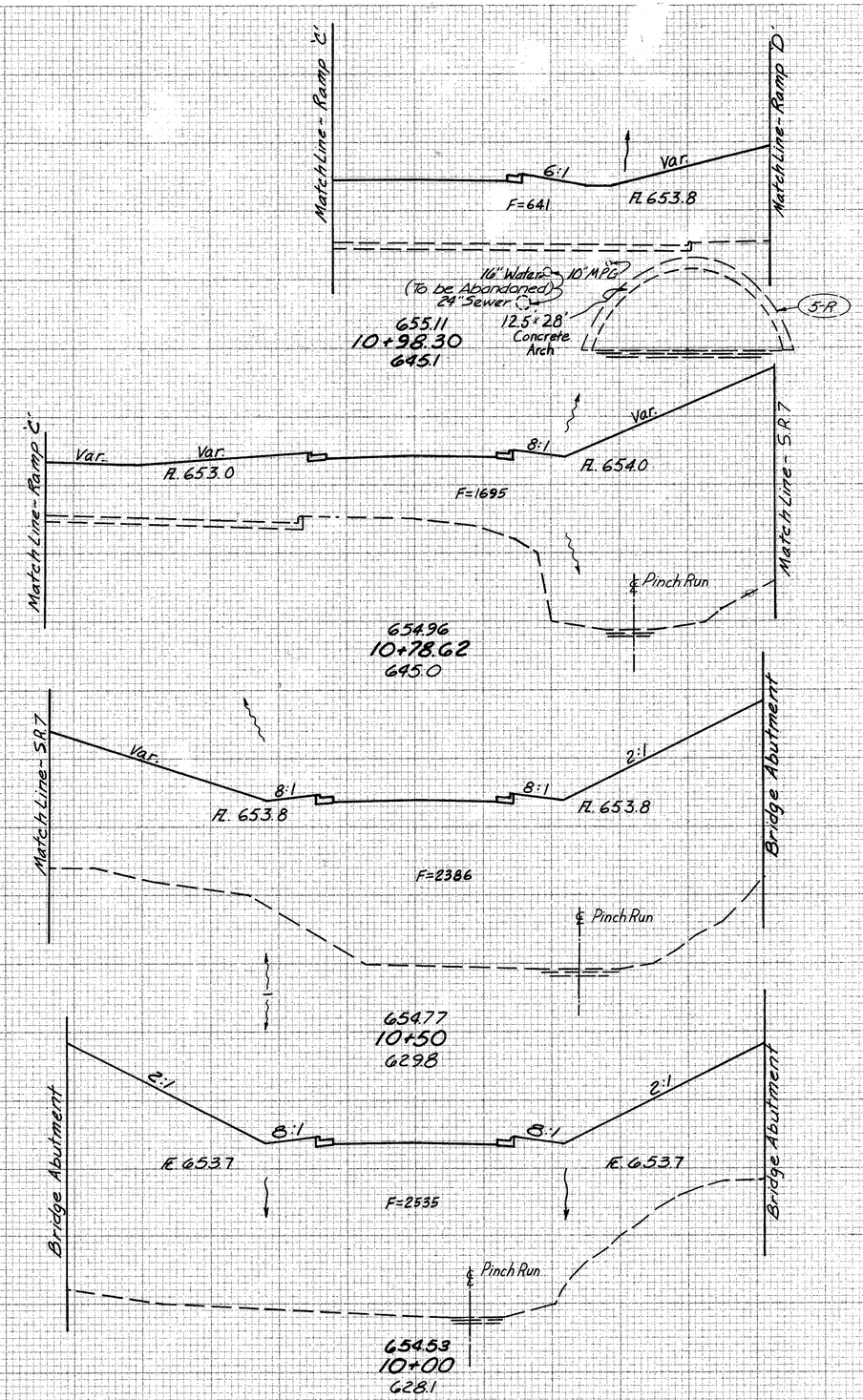
1ST RELOCATED BELMONT ST. - STA. 8+60 TO STA. 9+50

CALC. BY: Jill DATE: 4-26-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 267/663

SEEDING

END WIDTH	SQ. YDS
37	
128	
80	
256	
81	
447	
80	
444	



	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
660				
650				
640				
630	0	641		
650			0	851
640				
630	0	1695		
650			0	2163
640				
630				
	0	2386		
650			0	4556
640				
630				
	0	2535		
	0	4195		

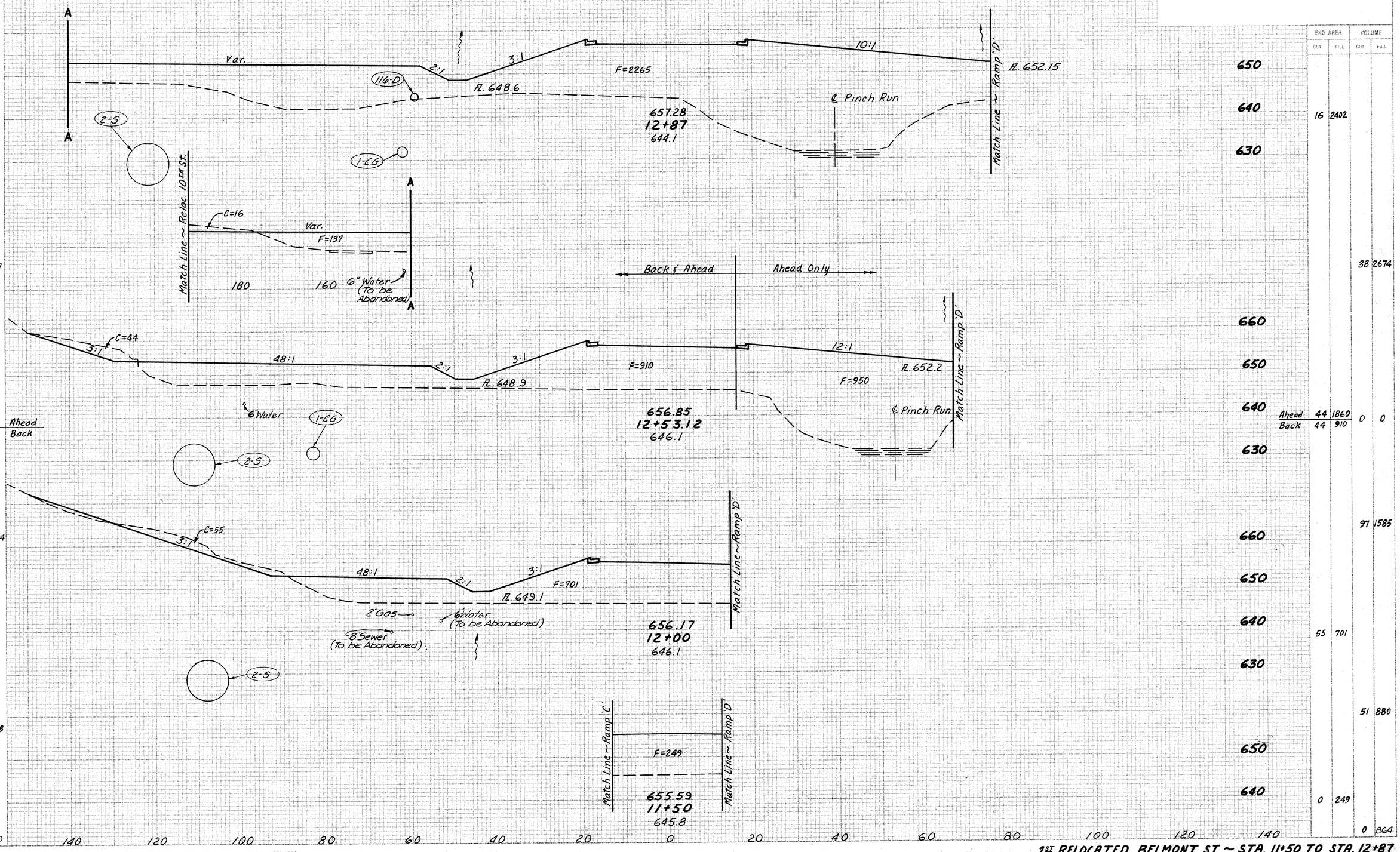
80 60 40 20 0 20 40 60 80

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

1ST RELOCATED BELMONT ST. - STA. 10+00 TO STA. 10+98.30

CALC. BY: Jill DATE: 4-26-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL - 7-14.17 | OHIO FHWA REGION 5 | 268/663



181	0	Ahead	
133	0	Back	
	232		
	777		
	794		
	136		
	378		
	0		

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
650				
640				
	16	2402		
630				
			38	2674
660				
650				
640				
Ahead	44	1860	0	0
Back	44	910		
630				
			97	1585
660				
650				
640				
	55	701		
630				
			51	880
650				
640				
	0	249		
			0	864

110 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

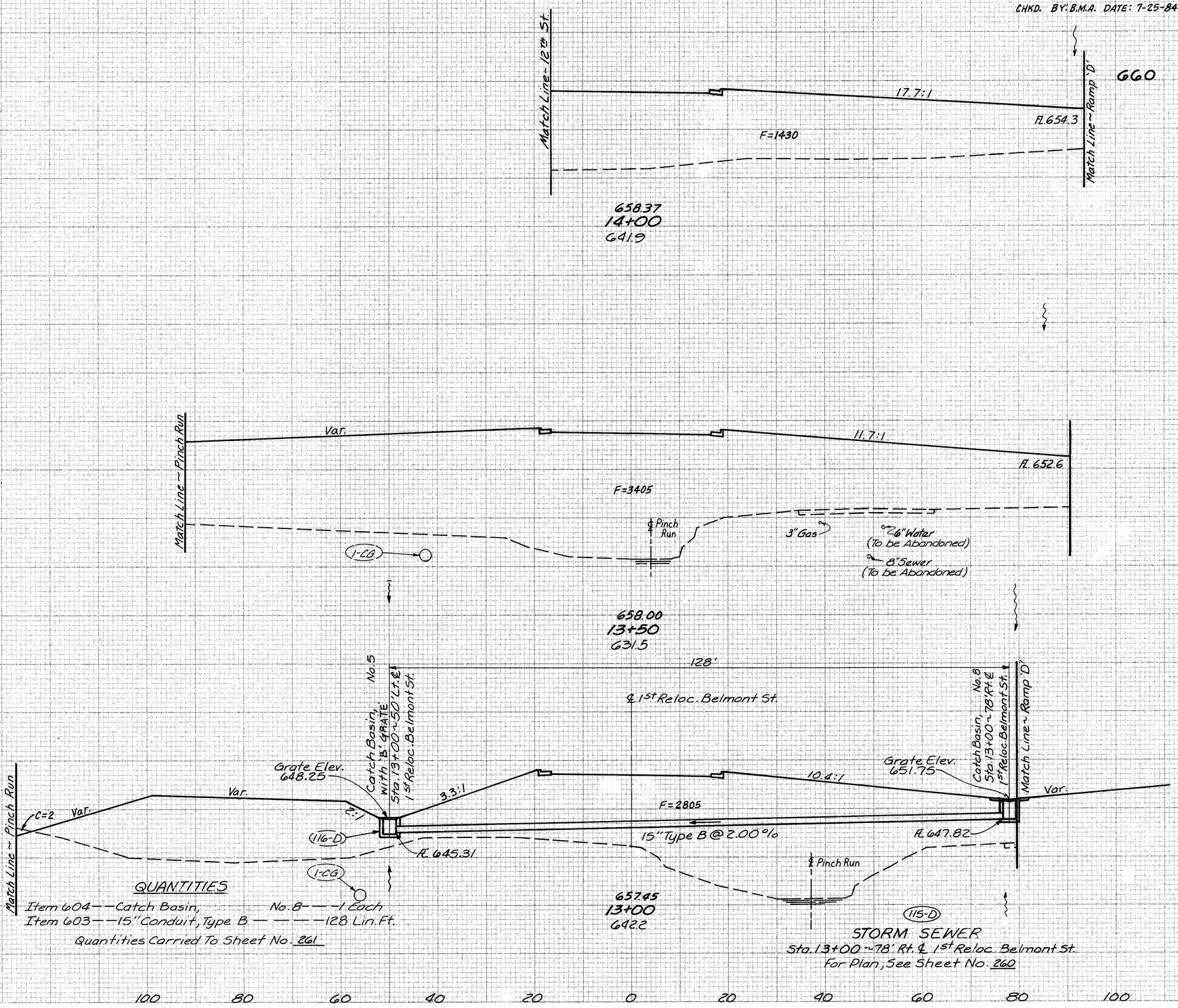
W. E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

1ST RELOCATED BELMONT ST. ~ STA. 11+50 TO STA. 12+87

CALC. BY: Jill DATE: 4-26-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 269/663

SEEDING			END AREA		VOLUME	
END WIDTH	SQ. YDS.		CUT	FILL	CUT	FILL
		660				
		650				
		640				
75		630	0	1430		
		660				
		650				
		640				
611		630			0	4477
		650				
		640				
		630				
145					0	3405
881		660			2	5750
		650				
		640				
172		630			2	2805
292					4	1254



QUANTITIES

Item 604 — Catch Basin, No. 8 — 1 Each
Item 603 — 15" Conduit, Type B — 128 Lin. Ft.

Quantities Carried To Sheet No. 261

STORM SEWER

Sta. 13+00 ~ 78' Rt. ℄ 1st Reloc. Belmont St.
For Plan, See Sheet No. 260

100 80 60 40 20 0 20 40 60 80 100

W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

1ST RELOCATED BELMONT ST. — STA. 13+00 TO STA. 14+00

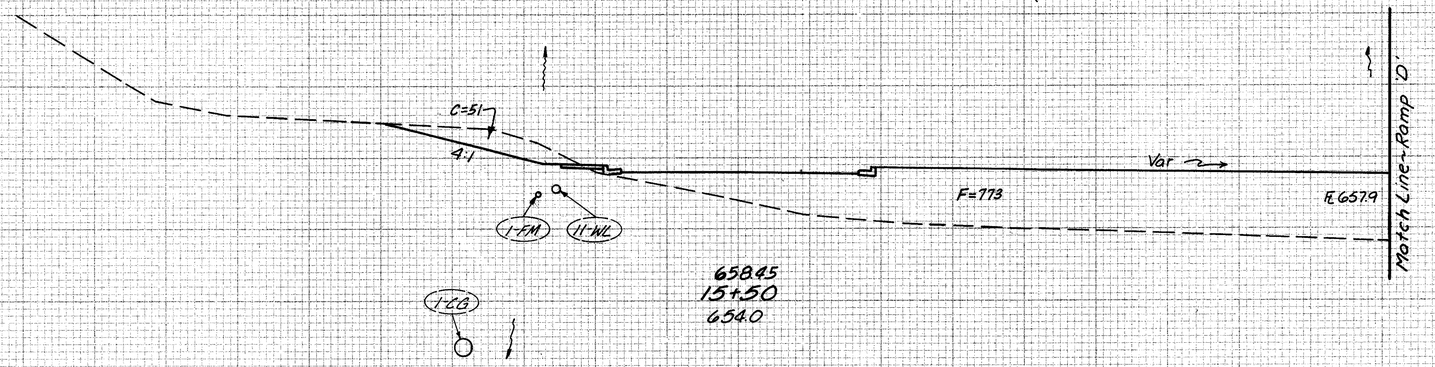
CALC. BY: JJH DATE: 4-26-84
CHKD. BY: B.M.A. DATE: 7-25-84

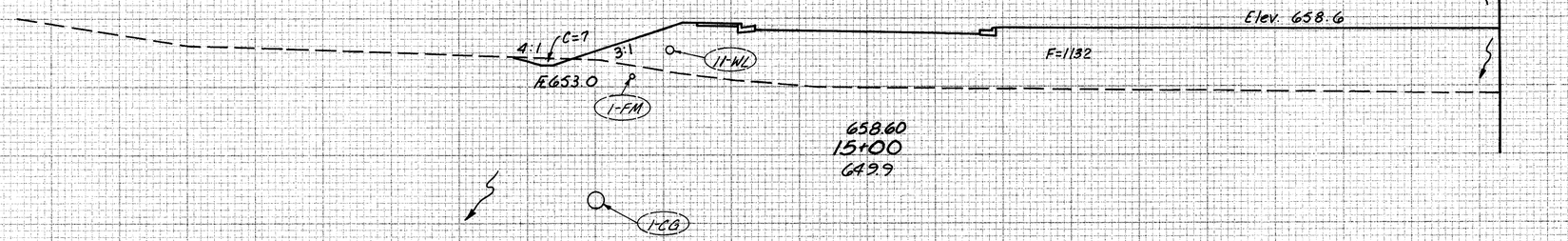
BEL-7-14.17 | OHIO | FHWA REGION 5 | 270/663

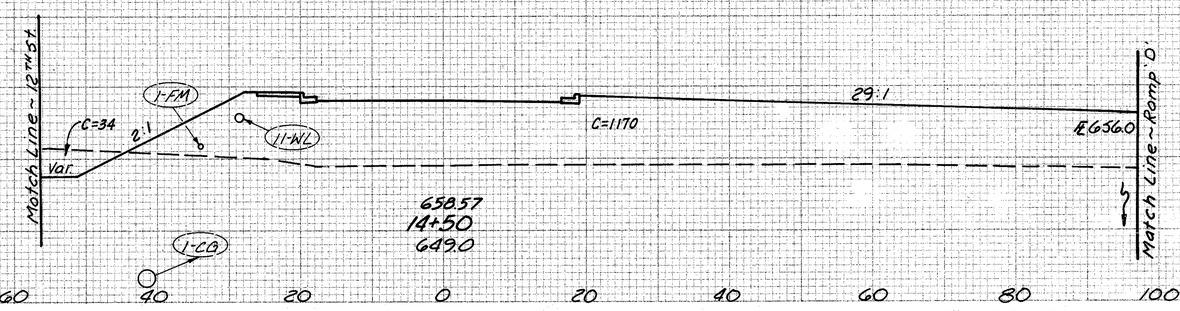
SEEDING

END WIDTH	SQ. YDS
114	51
116	7
111	34
517	31

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
639			54
773		1764	
1132			38
2131			
1170			34
2407			31







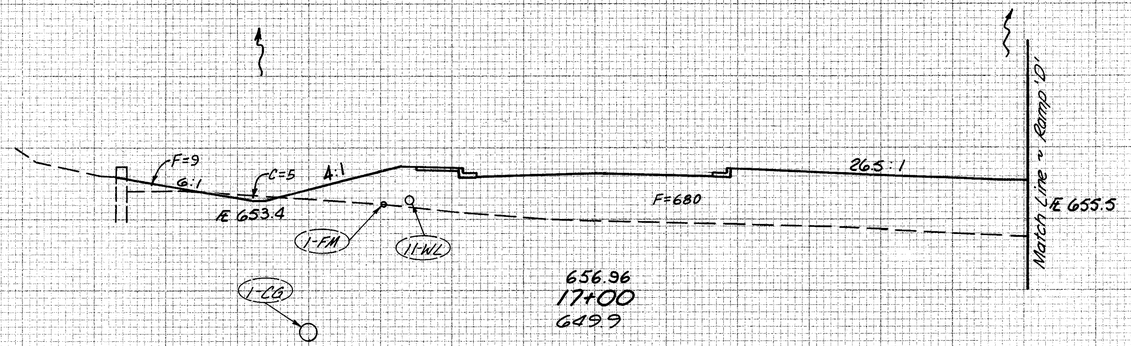
1ST RELOCATED BELMONT ST.- STA. 14+50 TO STA. 15+50

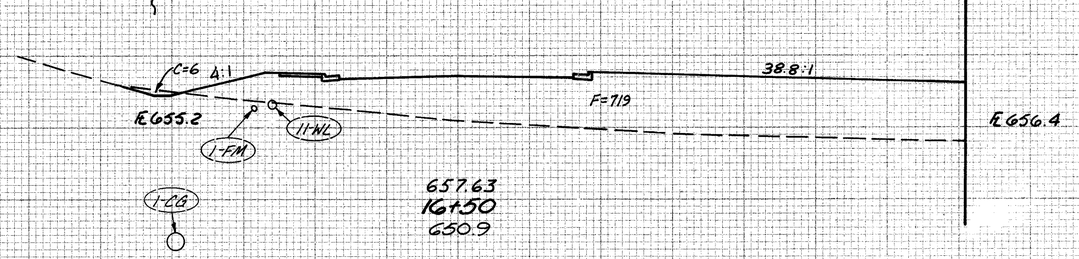
CALC. BY: JIII DATE: 4-26-84
CHKD. BY: B.M.A. DATE: 7-25-84

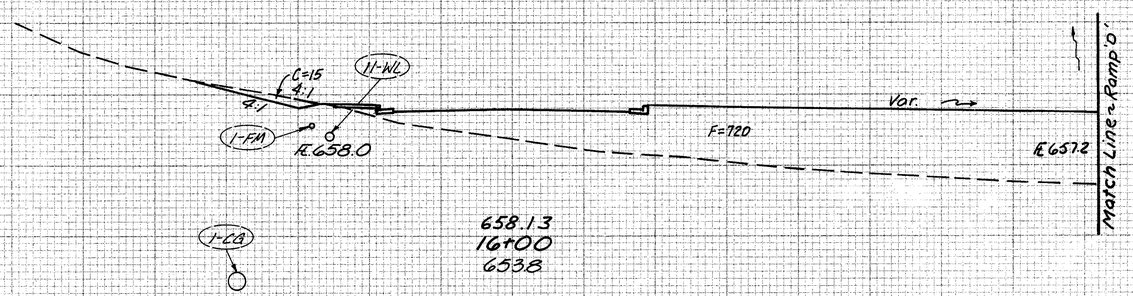
BEL-7-14.17 | OHIO | FHWA REGION 5 | 271/663

SEEDING

END WIDTH	SQ. YDS.
126	
633	
102	
583	
108	
617	







END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
660			
650			
640			
	5		689
660			
650			
640			
	6		719
670			
660			
650			
640			
	15		720
			10 1304
			19 1332
			61 1382

80 60 40 20 0 20 40 60 80

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

1st RELOCATED BELMONT ST. - STA. 16+00 TO STA. 17+00

CALC. BY: JIII DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 272/663

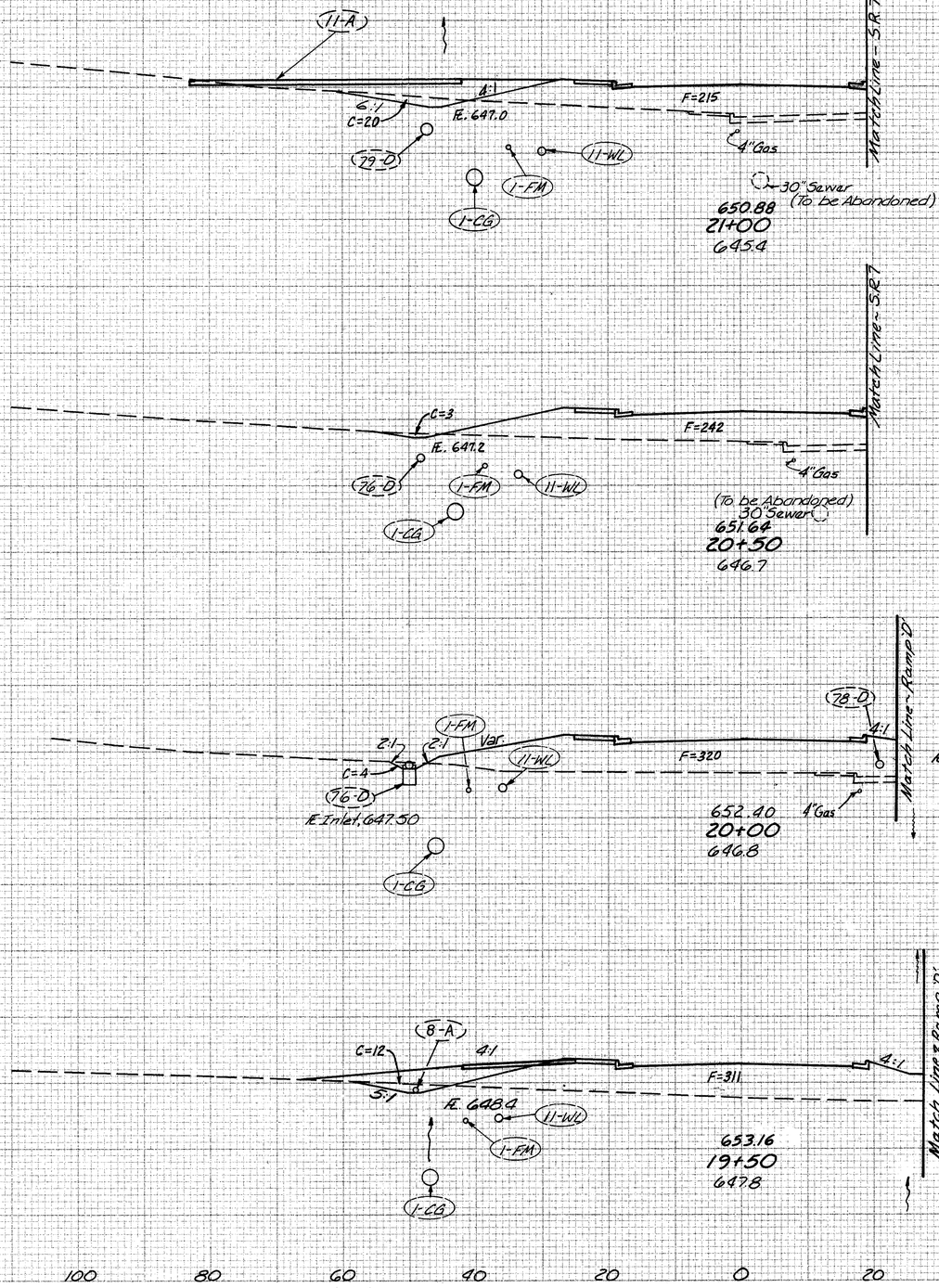
SEEDING END WIDTH	SEEDING SQ. YDS.		SHD AREA CUT	SHD AREA FILL	VOLUME CUT	VOLUME FILL

CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 273/663

SEEDING

END WIDTH	SQ. YDS.
44	
44	
158	
222	
36	
228	
113	
46	
269	
138	
51	
297	



	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
660				
650				
Add for 11-A →			4	51
640				
		20		215
Add for 10-A →			9	102
			21	423
650				
640				
		3		242
Add for 9-A →			7	141
			6	520
650				
640				
		4		320
			15	584
Add for 8-A →			7	98
650				
640				
		12		311
			13	637

120 100 80 60 40 20 0 20 40 60

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

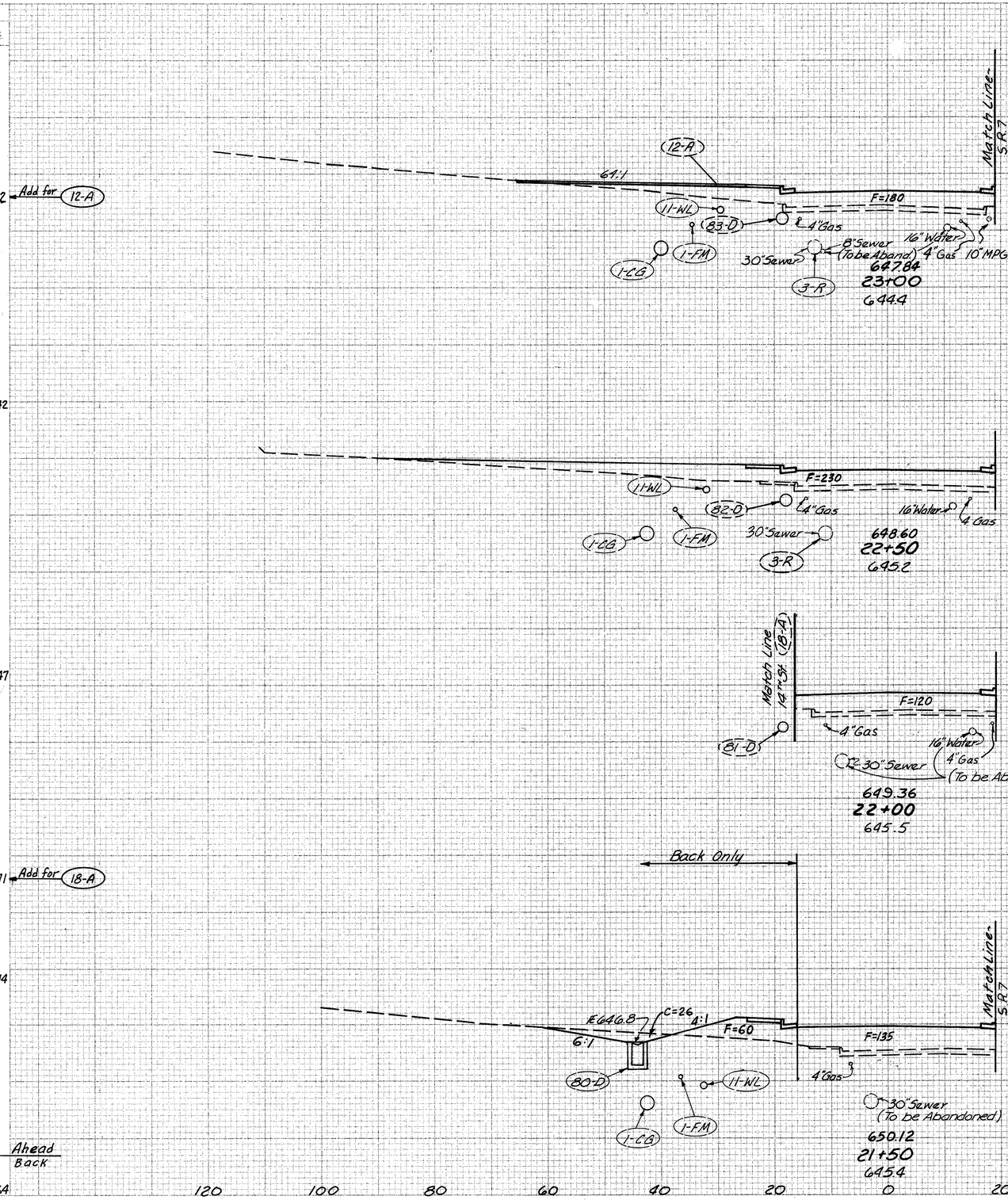
1ST RELOCATED BELMONT ST.-STA. 19+50 TO STA. 21+00

CALC. BY: JJ/I DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 274/663

SEEDING

SKID WIDTH	SQ. YDS.
52	
24	
142	
27	
147	
26	
271	
214	
51	0
51	0
264	



	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
660				
650				
Add for (12-A) →			23	0
640				
	0	180		
				0 380
650				
640				
	0	230		
660				
				0 324
650				
640				
	0	120		
Add for (18-A) →			37	79
660				
				0 236
650				
640				
Ahead	0	135	0	0
Back	26	195	43	380

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

1st RELOCATED BELMONT ST. - STA. 21+50 TO STA. 23+00

CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 275/663



W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

1ST RELOCATED BELMONT ST. ~ STA. 23+50 TO STA. 24+50

15' ℄ 15'

ADJOINING PAVEMENT
Existing 2ND BELMONT ST.
Asphalt

McMAHON

BEGIN WORK
STA. 11+32.36
Match Existing

Exist. R/W

Conc. Slab (over storage tank)

Gas Pump Island Canopy

Asphalt

Conc. Curb

Conc. Sign Base

Guy Wire

Steel Railing

HPG 10" Conc.

℄ SURVEY 2ND RELOC. BELMONT ST.

N3°29'17"W

Existing Belmont St. (Asphalt) Conc.

Approach Slab

Conc.

Steel Railing

Conc.

15ty. Conc. Block Gar.

Conc.

Brush

CREEK

Conc. Railing

Construction Limits

Asphalt & Drive

Const. Limits

16' 16'

Guy Wire

R/W

2' 2'

W 16' (Asphalt)

23'

Plug (To Remain)

HPG 10"

McCauley St.

Conc. Curb

+85

Asphalt

Monument Base

Do Not Disturb 25TH ST. Park

Do Not Disturb

Flag Pole

Monument

Asphalt

BELMONT ST

Conc. Walk

Asphalt Curb

Conc.

MATCH LINE ~ STA. 13+50

22-A
13-A
1-R
7-CR
45-D
25-C
19-SW
26-C
1-PR
43-D
(To Remain)
15-WL
46-D
44-D
47-D
42-D
24-C
20-SW
48-D
1-CB
4-R
8-R
5-R

CURVE DATA
P.I. = 12+81.00
Δ = 13°57'24.77" Rt.
D = 6°00'00"
T = 116.89'
L = 232.62'
E = 7.13'
R = 954.93'

AC. 11+64.12

For Pavement Taper Detail, See Sheet No. 340

	10	11	12	13
Match Existing	649.59	649.44	649.39	649.38	649.41	649.49	649.61	649.78
660								
650								
640								

Begin Work Sta. 11+32.36
-0.31%
P.C. 12+00
150' V.C.
+0.76%
P.T. 13+50
P.I. 12+75 Elev. 649.21
43-D
46-D

ESTIMATED QUANTITIES

ITEM NO.	STATION TO STATION	TOTALS
SCHE		

For Quantities, See Sheet No. 277

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

2ND RELOCATED BELMONT STREET STA. 11+32.36 TO STA. 13+50

ESTIMATED QUANTITIES

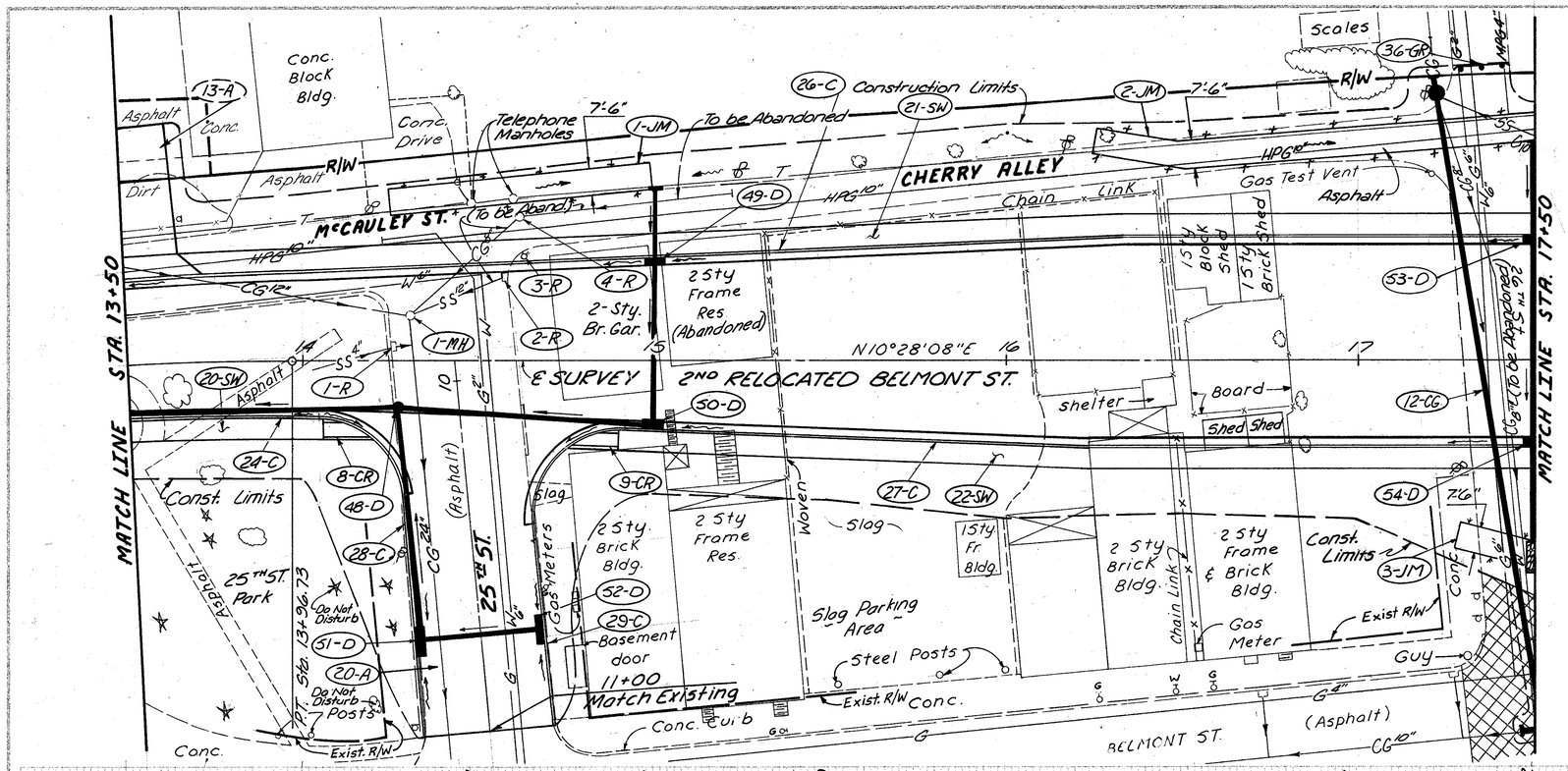
Calc. By: T.L.G. Date: 7-9-84
Ch'k'd. By: Get Date: 7-19-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

277
663

BEL-7-14.17

REF. NO.	STATION TO STATION	SIDE	202 Catch Basin Removed	305 8" Concrete Base	301 Bituminous Aggregate Base, AC-20	402 Asphalt Concrete, AC-20	404 Asphalt Concrete, AC-20 (Driveways)	404 Asphalt Concrete, AC-20	452 8" Plain Concrete Pavement	608 Curb Ramps	608 4" Concrete Walk	609 Combination Curb And Gutter, Type 2	609 Curb, Type 6	601 Rock Channel Protection, Type C Without Filter	602 Concrete Masonry	603-CONDUIT 8" Type F	603-CONDUIT 12" Type B	603-CONDUIT 21" Type B	603-CONDUIT 21" Type C	604 Manhole, No. 3	604 Catch Basin, No. 2-2-B	604 Catch Basin, No. 3 With V'GRATE	604 Catch Basin, No. 3A With V'GRATE	BENDS & BRANCHES 8"x30° Bend, Type F		814 FIRE HYDRANT AND GATE VALVE REMOVED AND RESET, AS PER PLAN	SEE SHEET NO.
	URBAN		Each	Sq. Yd.	Cu. Yd.	Cu. Yd.	Cu. Yd.	Cu. Yd.	Sq. Yd.	Each	Sq. Ft.	Lin. Ft.	Lin. Ft.	Cu. Yd.	Cu. Yd.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Each	Each	Each	Each		Each	
7-CR	12+42.5	Lt.								1																	
19-SW	12+36.5 to 13+28.5	Lt.									612.0																
20-SW	11+32.36 to 13+50	Rt.									1305.8																
24-C	11+32.36 to 13+50	Rt.										217.6															
25-C	12+34 to 12+54.5	Lt.											31.5														
26-C	12+54.5 to 13+50	Lt.										95.5															
1-R	13+11	Lt.	1																								
13-A	13+50	Lt.			19.8		3.9		27.3																		320
27-A	12+85	Lt.			8.4		1.7		25.3																		
15-WL	12+47	Lt.																								1	
42-D	11+84	Rt.												7.4	0.39	7		32	1				1				364
43-D	12+44.5	Lt.															38				1						365
44-D	12+43.5	Rt.																61			1						364
45-D	13+15	Lt.															18					1					365
46-D	13+15	Lt.															38						1				365
47-D	13+15	Rt.																71					1				364
1-PR	11+38 to 12+54.5	Lt.		25.9		0.9		0.9																			
	TOTAL		1	25.9	28.2	0.9	5.6	0.9	52.6	1	1917.8	313.1	31.5	7.4	0.39	7	94	71	93	1	1	2	2			1	



For Taper Detail, See Sheet No. 340
For 25TH St. Intersection Detail, See Sheet No. 347
For Additional Quantities, See Sheet No. 279

ESTIMATED QUANTITIES

BEF. REQ.	STATION TO STATION	SIDE	202 Manhole Abandoned Each	202 Catch Basin Removed Each	606 Guardrail Type 5 Lin. Ft.	608 4" Concrete Walk Sq. Ft.	608 Curb Ramps Each	609 Curb, Type G Combination Curb & Gutter Type 2 Lin. Ft.	670 Ditch Erosion Protection Sq. Yd.	814 Fire Hydrant Removed And Disposed Of Each
	URBAN									
6-CR	14+15.5 25TH-2ND Reloc. Belmont	Rt.								
9-CR	14+80 25TH-2ND Reloc. Belmont	Rt.								
20-SW	13+50 TO 14+15.5	Rt.								
21-SW	13+69 TO 17+50	Lt.								
22-SW	14+80 TO 17+50	Rt.								
24-C	13+50 TO 10+30.38 2ND Reloc. Belmont-25TH	Rt.								
26-C	13+50 TO 17+50	Lt.								
27-C	10+42.21 TO 17+50 25TH-2ND Reloc. Belmont	Lt. & Rt.								
28-C	10+30.38 TO 11+00	Rt.								
29-C	10+42.21 TO 11+00	Lt.								
36-GR	17+28 to 17+41	Lt.			12.50					
1-JM	14+25 TO 14+99	Lt.								
2-JM	16+25 TO 17+50	Lt.								
3-JM	17+25 TO 17+48	Rt.								
1-R	14+31	Lt.		1			1			
2-R	14+58	Lt.		1			1			
3-R	14+62	Lt.				3930		90.6	62.5	1
4-R	14+63	Lt.	1			22960		400.0	104.2	
20-A	14+43.27 2ND Reloc. Belmont ST.	Rt.			(See Pay't. Calc. for Quantities)	16200		301.0	19.2	
TOTALS			1	2	12.50	42230	2	791.6	185.9	1

2ND RELOCATED BELMONT STREET STA. 13+50 TO STA. 17+50

ESTIMATED QUANTITIES

Calc. By: FS Date: 6-20-84
Ch'k'd. By: Get Date: 7-19-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

279/663

BEL-7-14.17

REF. NO.	STATION TO STATION	SIDE	601	602	603-CONDUIT						604					SEE SHEET NO.
			Rock Channel Protection, Type C With Filter	Concrete Masonry	12" Type B	15" Type B	18" Type B	24" Type B	10" Type B, 706.02 or 706.08 with Joints As Per 706.11 or 706.12	6" Type C, 706.02 or 706.08 with Joints As Per 706.11 or 706.12	Manhole, No. 3	Catch Basin, No. 3A With "V" GRATE	Manhole Reconstructed To Grade	Catch Basin, No. 3 With "V" GRATE	Manhole, No. 3 With Joints As Per 706.11	
	URBAN		Cu. Yd.	Cu. Yd.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Each	Each	Each	Each	
1-MH	14+31	Lt.											1			
48-D	14+27	Rt.					112				1					364
49-D	15+00	Lt.		0.27		69						1				286
50-D	15+00	Rt.				73						1				364
51-D	10+72.3 (25th St.)	Rt.			68									1		365
52-D	10+72.3 (25th St.)	Lt.			36									1		365
53-D	17+50	Lt.		0.46				85						1		287
54-D	17+50	Rt.	2.1	0.46				27						1		287
12-CG	17+35	Lt.							195	6					2	412
TOTAL			2.1	1.19	104	142	112	112	195	6	1	2	1	4	2	

Const. Limits (Chain Link) R/W MPG 6" MPG 10" 6"10" Gas Marker Asphalt Board 2 Sty Frame Res. (26-C) (12-CR) (11-CR) Ash Parking Area 2 Sty Frame & Tile Res. Chain Link Picket Board Conc. (53-D) (21-SW) SUSPEND WORK STA. 18+62.13 Dirt Frame Shed 2 Sty Fr. Res. 2 Sty. Brick Bldg. (Comm)-Apts. Basement Floor (54-D) (22-SW) (27-C) (10-CR) (2-JM) Asphalt Const. Limits Conc. (12-CG) (52-D) (2-JM) MATCH LINE ~ STA. 17+50 2-R 22nd ST. 7'-6" 6" 18 19 Woven Wire Fence 13 Block Wall Exist. R/W (58-D) CHERRY ALLEY (1-JM) (31-C) (1-CB) Construction Limits 2 Sty Frame Res. (13-CR) 2 Sty. Fr. Res. (55-D) Conc. Block Gar. Sandstone Curb (30-C) (57-D) 10+05.28 - ℄ 27 St. = 10+50 ℄ Cherry Alley Telephone Manhouse (Asphalt) 10+84.20 Match Exist. (36-C) (21-A) 1 Sty. Fr. Res. Brick Frame Gar. Buried Electrical Const. Limits (61-D) 2-Sty. Fr. Res. (15-CR) P.T. Sta. 20+57 Welded Wire (24-SW) (37-C) (23-SW) (14-CR) RESUME WORK STA. 19+11.84 ℄ SURVEY 2ND RELOC. BELMONT ST. 21 1 Sty. Frame Gar. 2 Sty Frame Res. Conc. Block Bldg. Asphalt Brick 2 Sty Fr. Res. (56-D) (33-C) (32-C) (22-A) (25-SW) (1-R) (16-CR) (35-C) (1-JM) 7'-6" (34-C) Conc. Curb Const. Limits (23-A) (3-R) (23-WL) MATCH LINE ~ STA. 21+50 ℄ SURVEY RELOC. 26TH ST. P.C. Sta. 18+62.13 (24-A) Conc. Curb BELMONT ST. (Asphalt) (16-WL) (60-D) (21-WL) (42-GR) Const. Limits Conc. Curb (59-D) Cut & Plug (2-CB)

CURVE DATA
P.I. = 19+60.48
Δ = 7°48'39.83" Rt.
D = 4°00'00"
T = 97.79'
L = 195.28'
E = 3.33'
R = 1432.39'

For 27TH St. Intersection Details, See Sheet No. 348
For Relocated 26TH St. Intersection Details, See Sheet No. 345
For Relocated 26TH St., See Sheet No. 294

652.82 653.20 653.58 653.67 654.45 654.24 654.22 654.38 654.94 655.50 656.06 656.62

Suspend work 18+62.13 ~ 653.67
Resume work 19+11.84 ~ 654.45
+35 ~ 654.22

℄ Relocated 26TH Street

10' V.C.
PC 19+25
PT 19+35
PI 19+30
Elev. 654.16

+0.76 %
-1.60 %
+1.12 %

660 650 640

8" Water (To Remain) (53-D)
10" Water (To be Abandoned)
8" Gas
Telephone
8" Sewer (To Remain)

Note: Lower Water Main 3' Below ditch.
(23-WL) Flowline Return to Existing in 15'

648.3 648.2 648.2 648.1 649.1 649.8 649.8 650.0 650.8 652.0
18 19 20 21

325/348 325/348 326/348 326/348

ESTIMATED QUANTITIES

BASE MAP	STATION TO STATION		
21-A	20+37.32 (27TH St. West)	Lf.	(See Pav't. Calc. For Quantities)
22-A	20+37.32 (27TH St. East)	Pt.	(See Pav't. Calc. For Quantities)
23-A	11+87.58 (27TH St.)	Lf.	(See Pav't. Calc. For Quantities)
24-A	11+82.08 (27TH St.)	Pt.	(See Pav't. Calc. For Quantities)
TOTALS			For Quantities, See Sheet No. 281

ESTIMATED QUANTITIES

Calc. By: FS Date: 6-20-84
Ch'k'd. By: Get Date: 7-19-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

281
663

BEL-7-14.17

REF. NO.	STATION TO STATION	SIDE	202 Catch Basin Abandoned (Each)	202 Curb Removed (Lin. Ft.)	202 Walk Removed (Sq. Ft.)	SPECIAL Odor Control Trap (Each)	606 Guardrail, Type 5 (Lin. Ft.)	608 Curb Ramps (Each)	608 4" Concrete Walk (Sq. Ft.)	609 Combination Curb & Gutter, Type 2 (Lin. Ft.)	609 Curb Type 6 (Lin. Ft.)	601 Rock Channel Protection, Type C With Filter (Cu. Yd.)	602 Concrete Masonry (Cu. Yd.)	603-CONDUIT 12" Type C (Lin. Ft.)	603-CONDUIT 12" Type B (Lin. Ft.)	603-CONDUIT 8" Type B (Lin. Ft.)	603-CONDUIT 18" Type B (Lin. Ft.)	604 Catch Basin, No.3A With "V" GRATE (Each)	604 Catch Basin, Adjusted To Grade (Each)	604 Manhole, No.3 With Joints As Per 706.11 (Each)	604 Catch Basin, No.3 With "V" GRATE (Each)	670 Ditch Erosion Protection (Sq. Yd.)	814 6" WATER MAIN DIP ANSI CLASS 52, PUSH ON JOINTS AND FITTINGS (Lin. Ft.)	814 FIRE HYDRANT AND GATE VALVE REMOVED AND RESET, AS PER PLAN (Each)	SEE SHEET NO.
	URBAN																								
10-CR	18+33	Rt.						1																	
11-CR	18+33	Lt.						1																	
12-CR	14+97 (26th St)	Rt.						1																	
13-CR	14+97 (26th St)	Lt.						1																	
14-CR	20+04	Lt.						1																	
15-CR	20+47.5	Lt.						1																	
16-CR	11+77.5 (27th St)	Lt.						1																	
21-SW	17+50 to 14+86 2nd Reloc. Belmont-26th St.	Lt. & Rt.							711.0																
22-SW	17+50 to 16+76.55 2nd Reloc. Belmont-26th St.	Rt.							882.0																
23-SW	14+85.5 to 20+04 26th St-2nd Reloc. Belmont	Lt.							750.0																
24-SW	20+47.5 to 21+50	Lt.							615.0																
25-SW	11+77.5 to 21+50 27th St-2nd Reloc. Belmont	Lt. & Rt.							672.0																
26-C	17+50 to 14+49.04 2nd Reloc. Belmont-26th St.	Lt. & Rt.								161.2															
27-C	17+50 to 16+54.08 2nd Reloc. Belmont-26th St.	Rt.								131.9															
30-C	14+49.04 to 10+42.99 26th St-27th St.	Lt. & Rt.								197.0															
31-C	10+15 to 10+42.99 (27th St)	Rt.									28.0														
32-C	16+23.22 to 11+54.09 26th St-27th St.	Lt. & Rt.								146.2															
33-C	11+54.09 to 10+35 27th St-Exist. Belmont	Rt. & Lt.									105.6														
34-C	11+69.57 to 11+74.49 27th St-Exist. Belmont	Lt.									31.6														
35-C	11+69.57 to 21+50 27th St-2nd Reloc. Belmont	Lt. & Rt.								111.2															
36-C	10+57.52 to 10+84.20 27th St-Cherry St.	Lt. & Rt.									60.4														
37-C	10+57.52 to 21+50 27th St-2nd Reloc. Belmont	Lt.								125.5															
55-D	19+21	Lt.										1.6	0.21	25				1							366
56-D	19+51	Rt.										2.0	0.21	22				1							367
57-D	10+43 ~ 27th St.	Lt.										1.3	0.42		45			1							366
58-D	10+75 ~ Cherry Alley	Rt.				1										36				1	1				361
59-D	11+63 ~ 27th St.	Lt.											0.33				37	1							367
60-D	11+58.5 ~ 27th St.	Rt.										1.3	0.33				18	1							367
1-CB	10+19 ~ 27th St. West	Rt.																	1						23
2-CB	20+73	Rt.																	1						23
16-WL	11+24 - Exist. Belmont St.	Lt. & Rt.																						1	
23-WL	21+47	Rt.																					30		
1-R	11+56 ~ 27th St. East	Lt.	1																						
2-R	17+53	Lt.	1																						
3-R	21+31 to 21+79	Rt.		12.0	280.0																				
1-JM	20+76 to 21+50	Rt.																					61.7		
2-JM	17+52 to 16+75 ~ Reloc. 26th St.	Rt.																					60.8		
42-GR	19+41	Rt.					25.00																		
	TOTAL		2	12.0	280.0	1	25.00	7	3630.0	873.0	225.6	6.2	1.50	47	45	36	55	5	2	1	1	122.5	30	1	

FHWA REGION	STATE	PROJECT	
5	OHIO		

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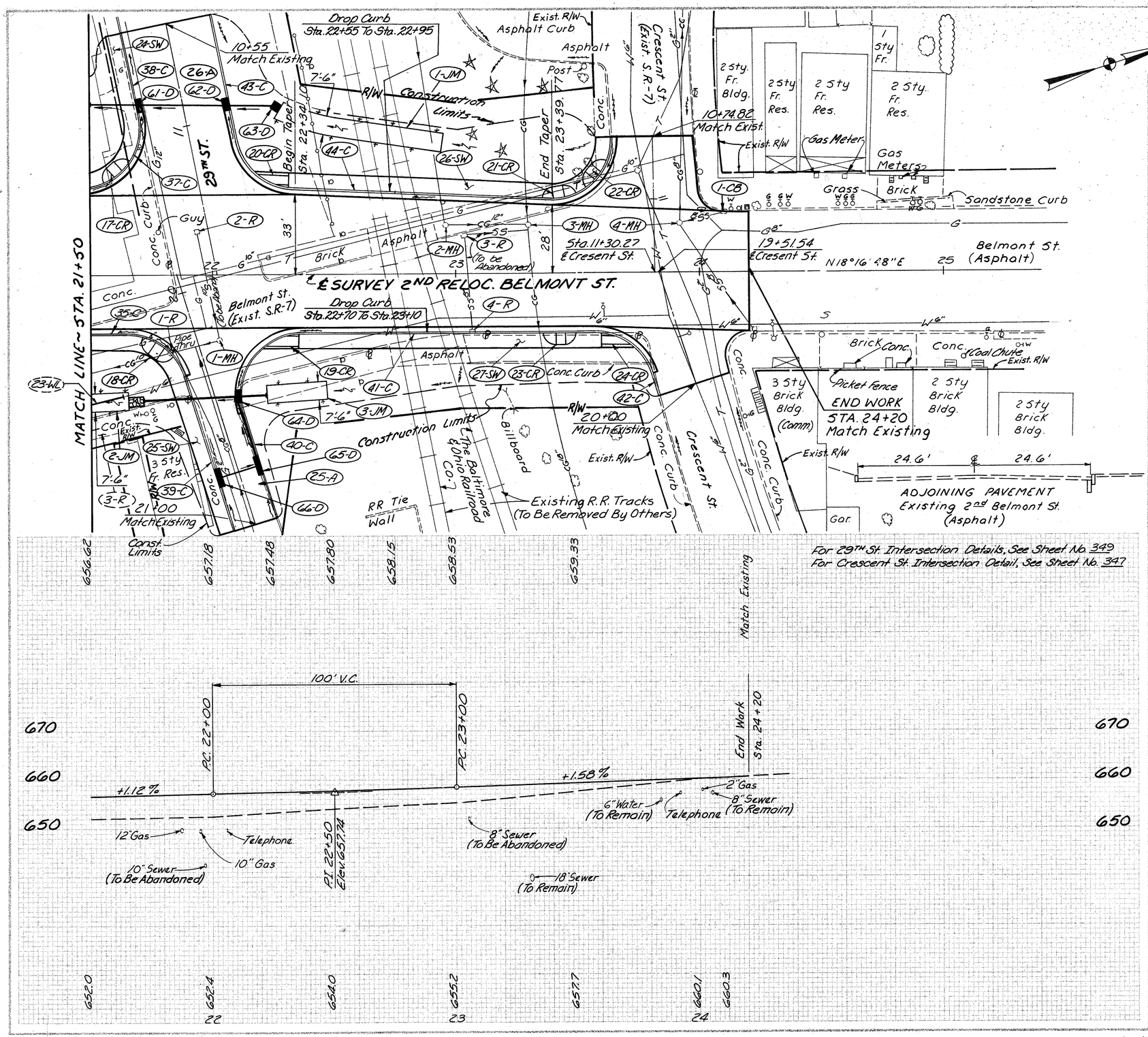
BEL-7-14.17



For 29TH St. Intersection Details, See Sheet No. 349
For Crescent St. Intersection Detail, See Sheet No. 347

SEE SHEET NO.	
327/349	
327/349	

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	
25-A	21+85.24	Rt.	(See Pav't. Calc. for Quantities)
26-A	22+02.42	Lt.	(See Pav't. Calc. for Quantities)

For Quantities, See Sheet No. 283

TOTALS

2ND RELOCATED BELMONT STREET STA. 21+50 TO STA. 24+20

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

ESTIMATED QUANTITIES

Calc. By: FS Date: 6-20-84
Ch'kd. By: Wac Date: 6-26-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

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REF. NO.	STATION TO STATION	SIDE	202 Catch Basin Abandoned	202 Manhole Abandoned	608 Curb Ramps	608 4" Concrete Walk	609 Combination Curb & Gutter Type 2	609 Curb Type 6	601 Rock Channel Protection, Type C With Filter	602 Concrete Masonry	603-CONDUIT 12" Type B	604 Catch Basin, No.3 with V'GRATE	604 Manhole Adjusted To Grade	604 Catch Basin, No.3A with V'GRATE	604 Catch Basin, No.22B	604 Manhole Reconstructed To Grade	604 Catch Basin, Adjusted to Grade	670 Ditch Erosion Protection	SEE SHEET NO.
	URBAN		Each	Each	Each	Sq. Ft.	Lin. Ft.	Lin. Ft.	Cu. Yd.	Cu. Yd.	Lin. Ft.	Each	Each	Each	Each	Each	Each	Sq. Yd.	
17-CR	21+62	Lt.			1														
18-CR	21+79	Rt.			1														
19-CR	22+25.3	Rt.			1														
20-CR	22+21.8	Lt.			1														
21-CR	23+43	Lt.			1														
22-CR	23+58	Lt.			1														
23-CR	23+43	Rt.			1														
24-CR	23+68.5	Rt.			1														
24-SW	21+50 To 10+55 29TH & 2ND Belmont	Lt. & Rt.				414.0													
25-SW	21+50 To 21+00 29TH & 2ND Belmont	Rt.				648.0													
26-SW	22+21.8 To 10+74.82 Crescent & 2ND Belmont	Lt. & Rt.				918.0													
27-SW	22+25.3 To 23+68.5	Rt.				859.2													
35-C	21+50 To 20+32.28 29TH & 2ND Belmont	Rt.					46.6												
37-C	21+50 To 10+92.65 29TH & 2ND Belmont	Lt. & Rt.					48.3												
38-C	10+55 To 10+92.65 29TH St.	Rt.						30.0											
39-C	20+32.28 To 21+00 29TH St.	Rt.						67.7											
40-C	20+53.55 To 21+00 29TH St.	Lt.						46.5											
41-C	20+53.55 To 19+90.22 29TH & Crescent	Lt. & Rt.					199.2												
42-C	19+90.22 To 20+00 Crescent St.	Rt.						9.8											
43-C	10+55 To 10+92 29TH St.	Lt.						37.0											
44-C	10+92 To 10+74.82 29TH & Crescent	Lt.					197.6												
1-CB	24+10	Lt.															1		23
1-JM	22+28 to 22+95	Lt.																55.8	
2-JM	21+50 to 21+65	Rt.																12.5	
3-JM	22+22 to 22+47	Rt.																20.8	
1-R	21+83	Rt.		1															
2-R	21+94	Lt.	1																
3-R	23+04	Lt.	1																
4-R	23+07	Rt.	1																
1-MH	22+03	Rt.														1			23
2-MH	22+96	Lt.														1			23
3-MH	23+30	Lt.														1			23
4-MH	23+92	Lt.											1						23
G1-D	10+88 (29th St)	Rt.							1.3	0.21	20			1					366
G2-D	10+95 (29th St)	Lt.									37			1					366
G3-D	11+00 (29th St)	Lt.									20				1				366
G4-D	20+47.5 (29th St)	Lt.							1.3	0.42	52			1					367
G5-D	20+77 (29th St)	Lt.									30	1							367
G6-D	20+77 (29th St)	Rt.									18	1							367
	TOTAL		3	1	8	2839.2	491.7	191.0	2.6	0.63	177	2	1	3	1	3	1	89.1	

CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-24-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 284 / 663

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL

CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 285/663

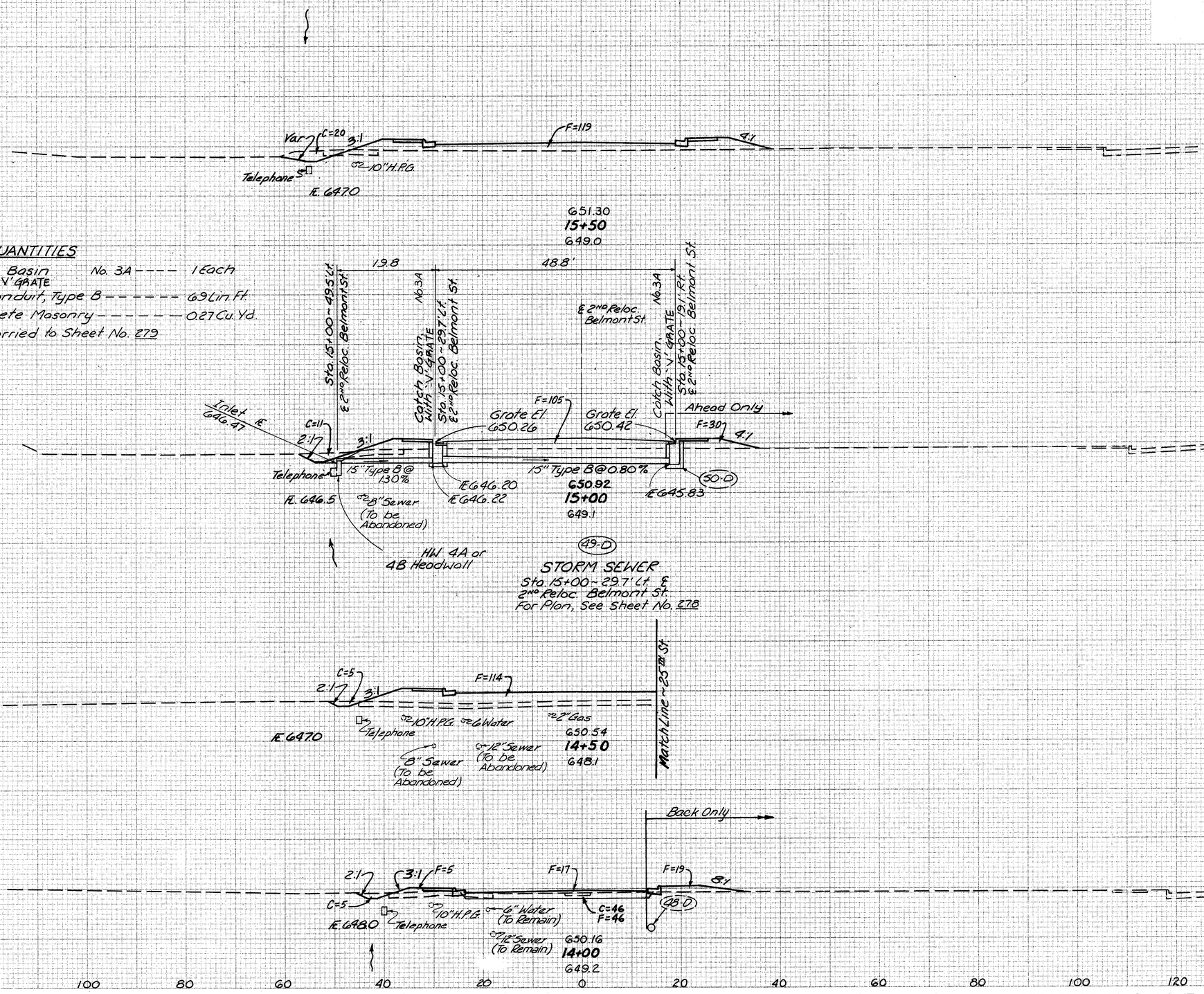
SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
87	Add for (13-A)				
				Add for (13-A) →	8 6
				650	
				640	
70				10	11

CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 286/663

SEEDING

END WIDTH	SQ YDS		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
100				20		119
569						29
						235
105	0	Ahead				
84	0	Back				
259		Add for (20-A)				
308						
27				5		114
317						52
						169
87	0	Ahead				
114	0	Back				
511						56
						91



			END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		Ahead	11	135	0	0
		Back	11	105		
		Add for (20-A)				15 203
						70 112
		Ahead	51	68	0	0
		Back	51	87		

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

2ND RELOCATED BELMONT ST. STA. 14+00 TO STA. 15+50

QUANTITIES

Item 604 --- Catch Basin With "V" GRATE No. 3A ---- 1 Each
Item 603 --- 15" Conduit, Type B ------- 69 Lin. Ft.
Item 602 --- Concrete Masonry ------ 0.27 Cu. Yd.
Quantities Carried to Sheet No. 279

CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 287 / 663

QUANTITIES

(53-D)

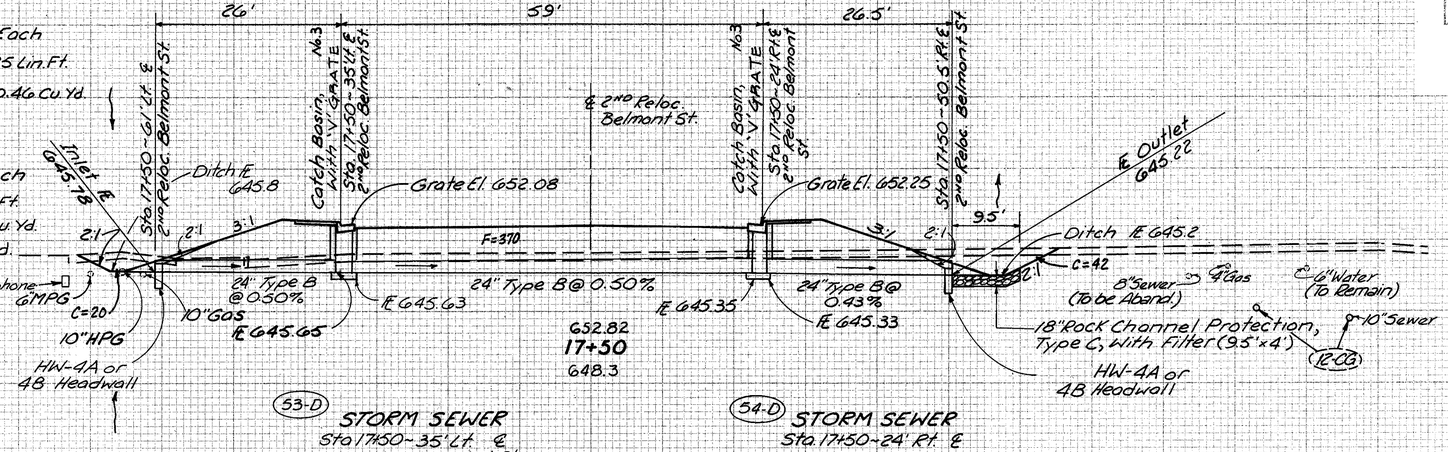
Item 604 --- Catch Basin, With "V" GRATE --- No. 3 --- 1 Each
Item 603 --- 24" Conduit, Type B --- 85 Lin. Ft.
Item 602 --- Concrete Masonry --- 0.46 Cu. Yd.

Quantities Carried to sheet No. 279

(54-D)

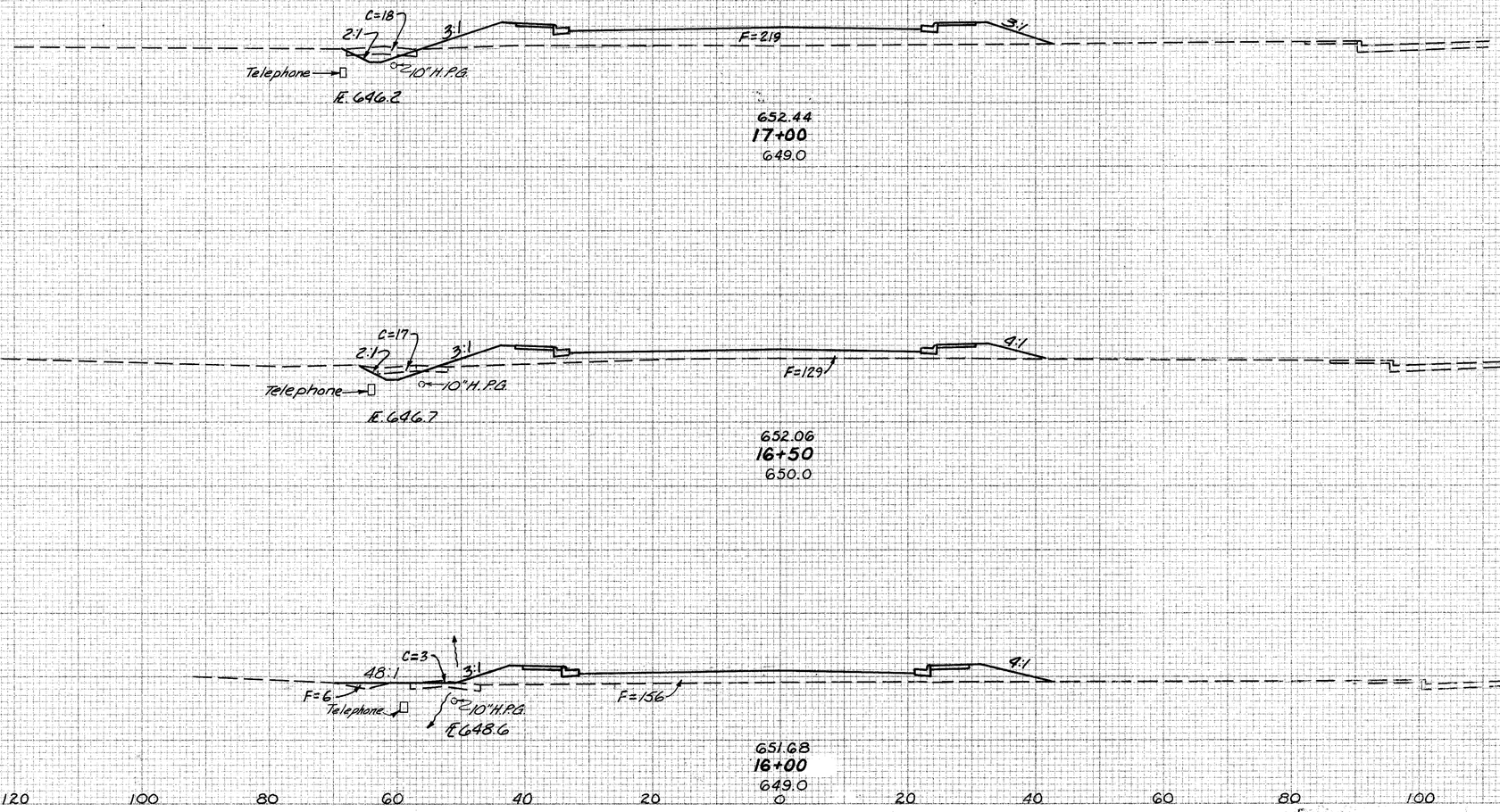
Item 604 --- Catch Basin, With "V" GRATE --- No. 3 --- 1 Each
Item 603 --- 24" Conduit, Type B --- 27 Lin. Ft.
Item 602 --- Concrete Masonry --- 0.46 Cu. Yd.
Item 601 --- Rock Channel Protection, Type C with Filter --- 21 Cu. Yd.

Quantities Carried to sheet No. 279



(53-D) STORM SEWER
Sta. 17+50 ~ 35' Lt. ℄ 2nd Reloc. Belmont St.
For Plan, See Sheet No. 278

(54-D) STORM SEWER
Sta. 17+50 ~ 24' Rt. ℄ 2nd Reloc. Belmont St.
For Plan, See Sheet No. 278



SEEDING END WIDTH	SEEDING SQ. YDS		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		660				
		650				
		640				
82	478		62	370	74	545
		660				
		650				
		640				
90	508		18	219	32	322
		660				
		650				
		640				
93	514		17	129	19	269
		660				
		650				
		640				
92	533		3	162	21	260

120 100 80 60 40 20 0 20 40 60 80 100 120

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

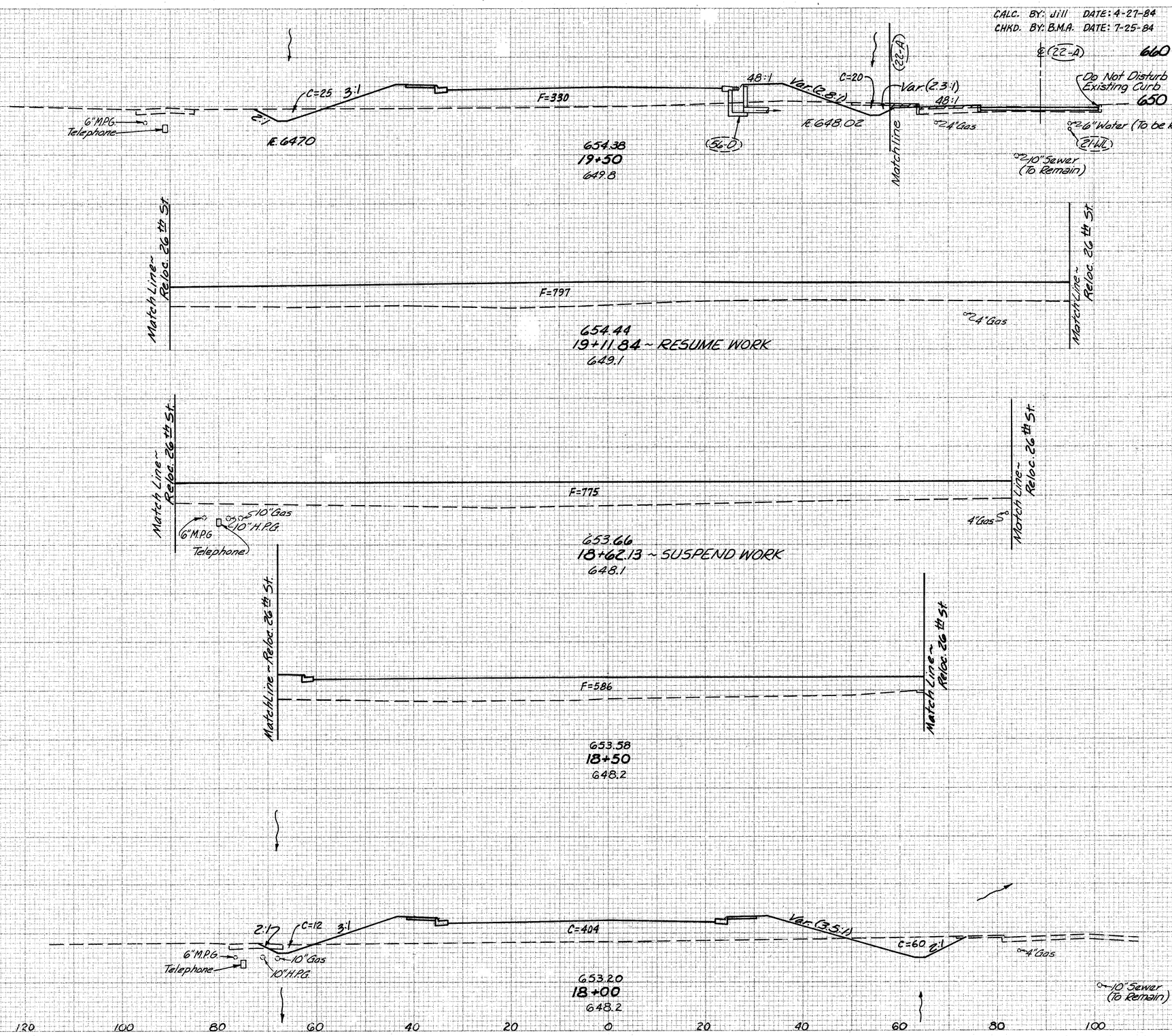
2ND RELOCATED BELMONT ST. STA. 16+00 TO STA. 17+50

CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL-7-14.17 | OHIO FHWA REGION 5 | 288/663

SEEDING

END WIDTH	SQ. YDS.
123	401
66	182
0	16
24	317
90	478



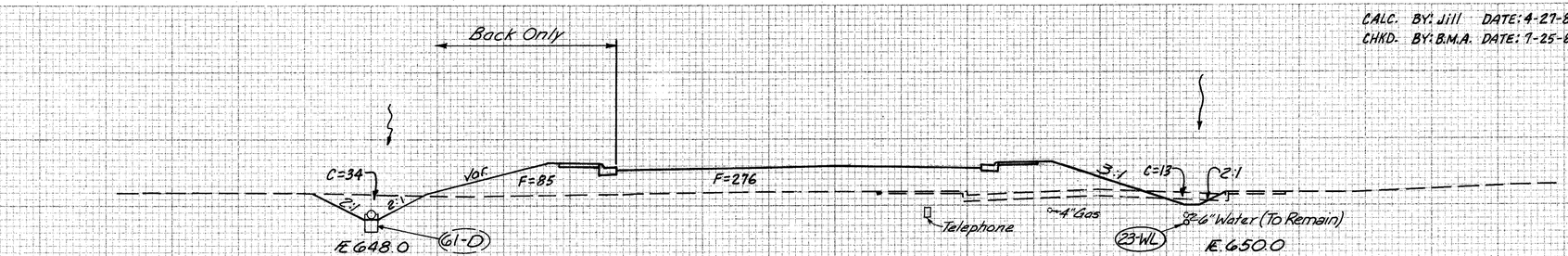
END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
45	330		
			32 796
0	797		
			0 1447
0	775		
			0 306
0	586		
			67 917
72	404		
			124 717

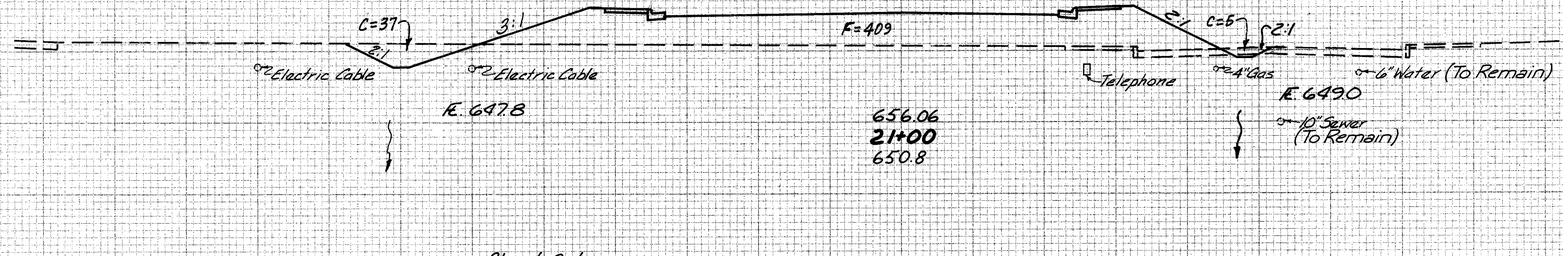
120 100 80 60 40 20 0 20 40 60 80 100 120

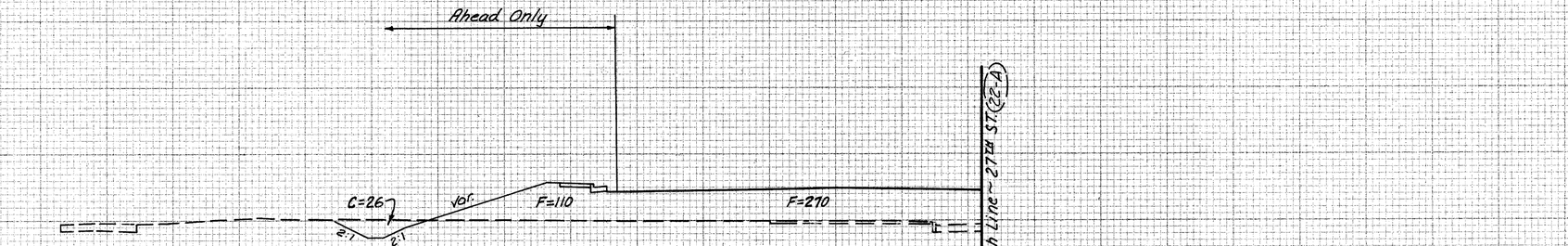
CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

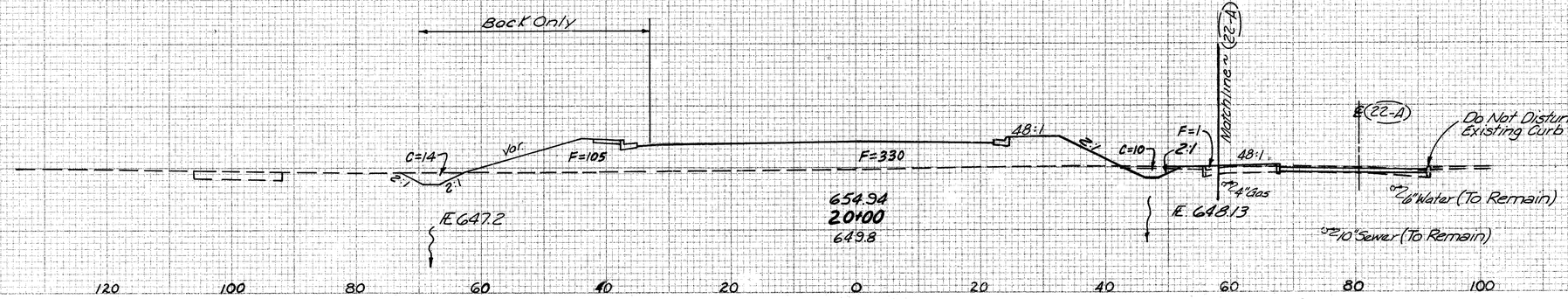
BEL-7-14.17 | OHIO | FHWA REGION 5 | 289 / 663

SEEDING END WIDTH	SEEDING SQ YDS		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
				650		
				640		
122	0	Ahead				
122	0	Back				
				Ahead	13	276
				Back	47	361
	703					82 713
				660		
				650		
	131			640	42	409
						63 731
				660		
				650		
68	0	Ahead				
68	0	Back				
				Ahead	26 380	0 0
				Back	0 270	
				Add for (22-A)	24	204
				Add for (21-A)	27	277
				Add for (23-A)	13	4
				Add for (24-A)	142	17
	533					9 556
				660		
				650		
124	0					
124	0					
				Ahead	10 330	0 0
				Back	24 435	
	686					64 708





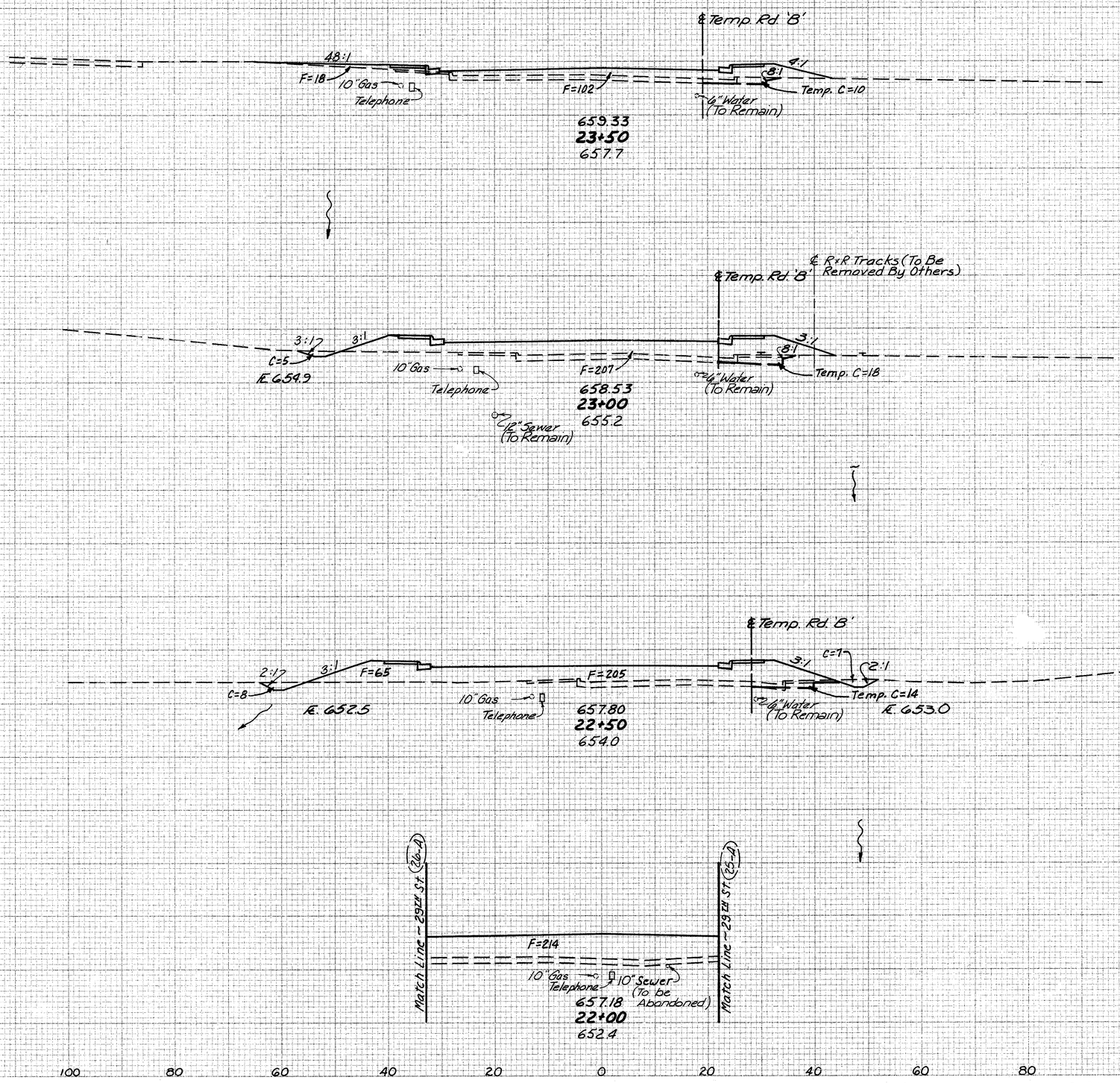




CALC. BY: JJH DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 290 / 663

SEEDING			END AREA		VOLUME	
END WIDTH	SQ YDS.		CUT	FILL	CUT	FILL
		660				
		650				
65			0	130		
		640				
	344				5	329
		660				
		650			5	225
59						
		640				
	367				19	471
		660				
		650				
73			15	284		
		640				
	264				14	461
					Add for 25-A →	21 248
					Add for 26-A →	50 238
		660				
		650				
22						
		640	0	214		
	400				12	454



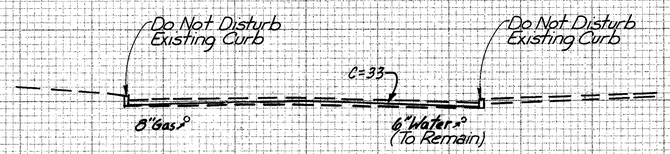
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

2ND RELOCATED BELMONT ST. STA. 22+00 TO STA. 23+50

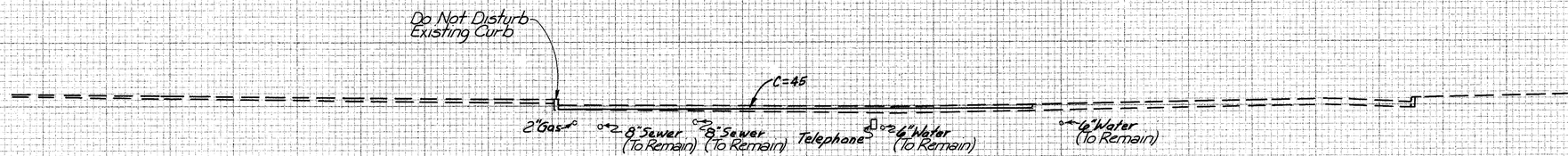
CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 291 / 663

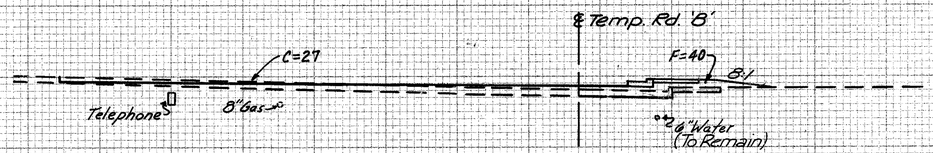
SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL



Match Existing
24+20 END WORK
660.4



660.12
24+00
660.1



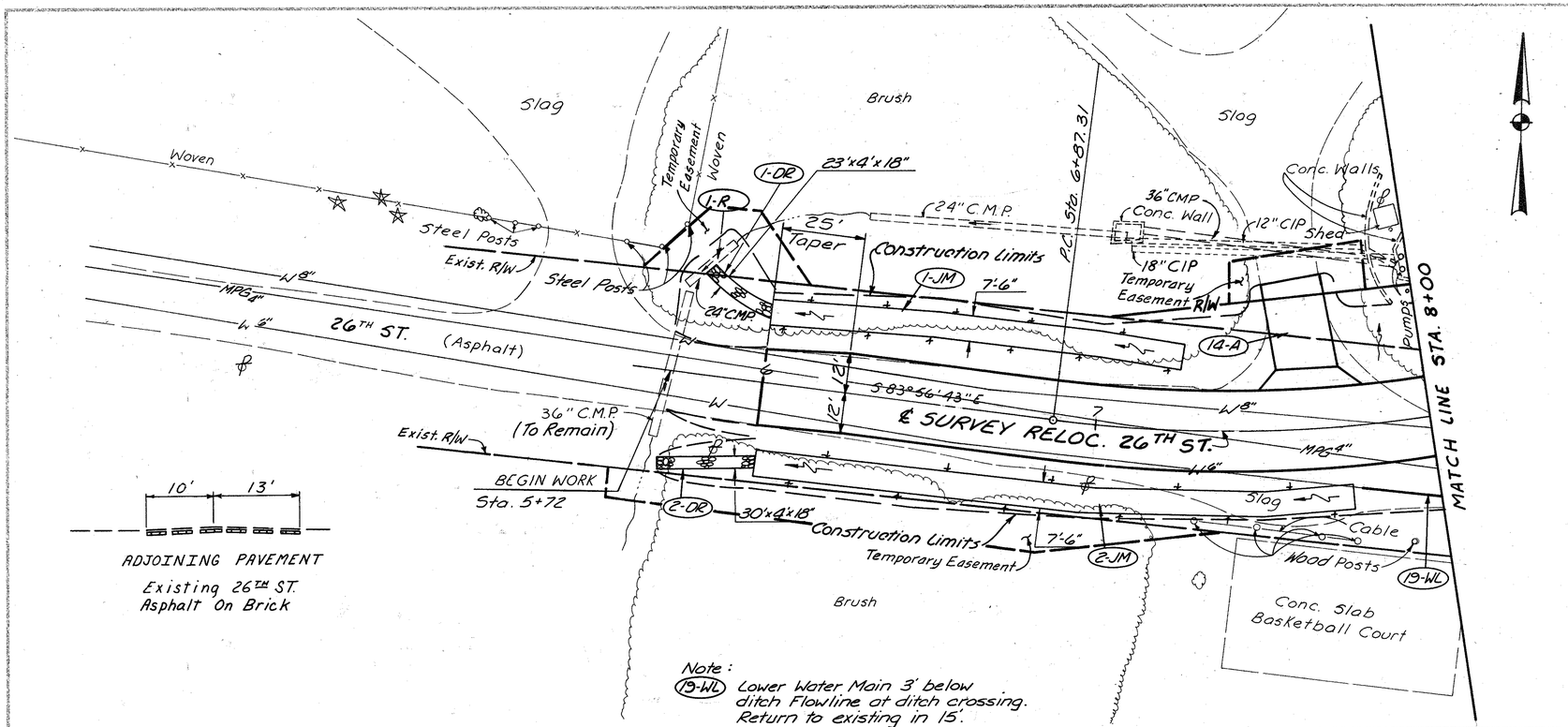
659.59
23+67
658.5

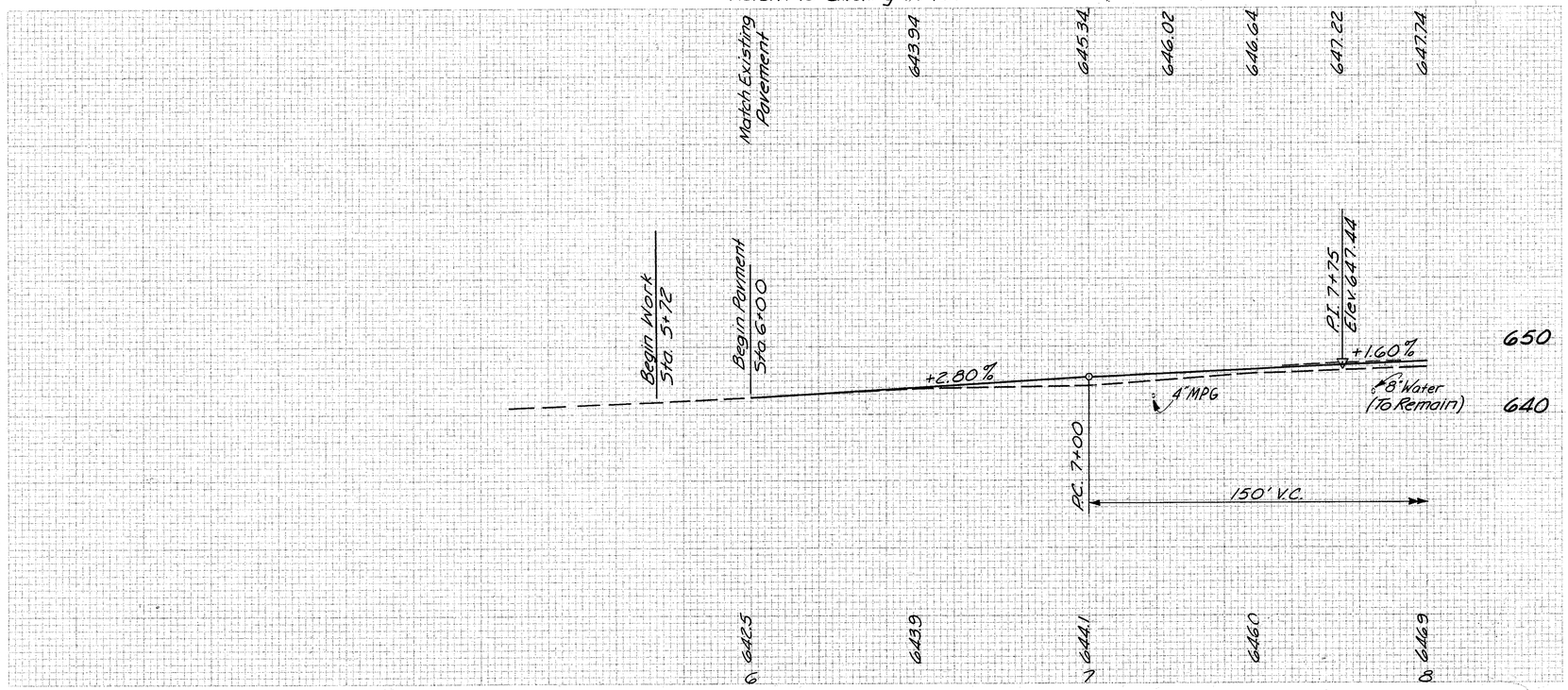
| | | |

Calc. By: T.L.G. Date: 7-9-84
Ch'k'd. By: Get. Date: 7-19-84

FHWA REGION	STATE	PROJECT		292 / 663
5	OHIO			

BEL-7-14.17





ESTIMATED QUANTITIES

| ITEM NO. | DESCRIPTION | UNIT | SIDE | STATION TO STATION | | |

Calc. By: FS Date: 7-2-84
Ch'k'd By: Get. Date: 7-19-84

FHWA REGION	STATE	PROJECT		
5	OHIO			

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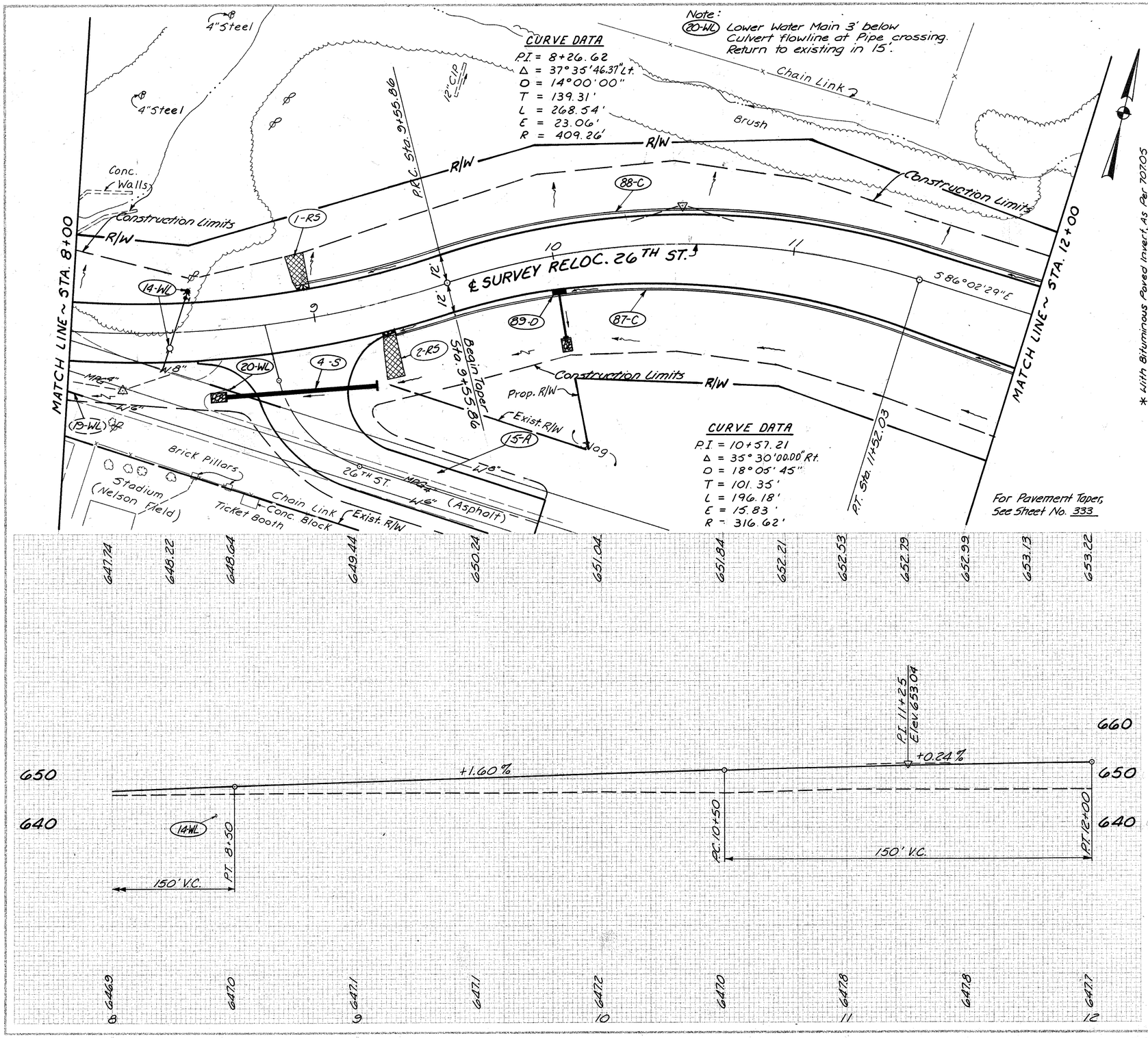
BEL-7-14.17



* With Bituminous Paved Invert, As Per 707.05

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	814 Fire Hydrant & Gate Valve Removed & Reset, A.P.P. (Each)	814 8" Water Main DIP ANSI Class 52 Push On Joints and Fittings (Lin. Ft.)	604 Catch Basin, No. 3A With V' Grate (Each)	603 Conduit Type A: 15" 706.01, 706.02, 706.08 or 18" 707.01 (0.109), 707.05 Type C (0.079), 707.09 or 707.04 (0.079) * (Lin. Ft.)	603 Conduit 12" Type C (Lin. Ft.)	602 Concrete Masonry (Cu. Yd.)	601 Rock Channel Protection, Type C With Filter (Cu. Yd.)	660 Reinforced Sodding (Sq. Yd.)	609 Combination Curb & Gutter, Type 2 (Lin. Ft.)	404 Asphalt Concrete, AC-20 (Driveways) (Cu. Yd.)	301 Bituminous Aggregate Base, AC20 (Cu. Yd.)
						321							
87-C	9+30.3 To 12+00	Rt.											
88-C	9+00 To 12+00	Lt.											
15A	8+80	Rt.				61						6.3	31.8
4-S	10+28.5 - Drive 15A	℄											
1-R5	8+97	Lt.								11.1			
2-R5	9+27.3	Rt.								13.3			
89-D	10+00	Rt.			1		18	0.21	1.3		261.0		
											307.0		
14-WL	8+49	Lt. & Rt.	1										
20-WL	8+19.5	Rt.		30									
TOTALS			1	30	1	61	18	0.87	2.6	24.4	568.0	6.3	31.8

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RELOCATED 26TH STREET STA. 8+00 TO STA. 12+00

Calc. By: FS Date: 7-2-84
Ch'k'd. By: Get Date: 7-19-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

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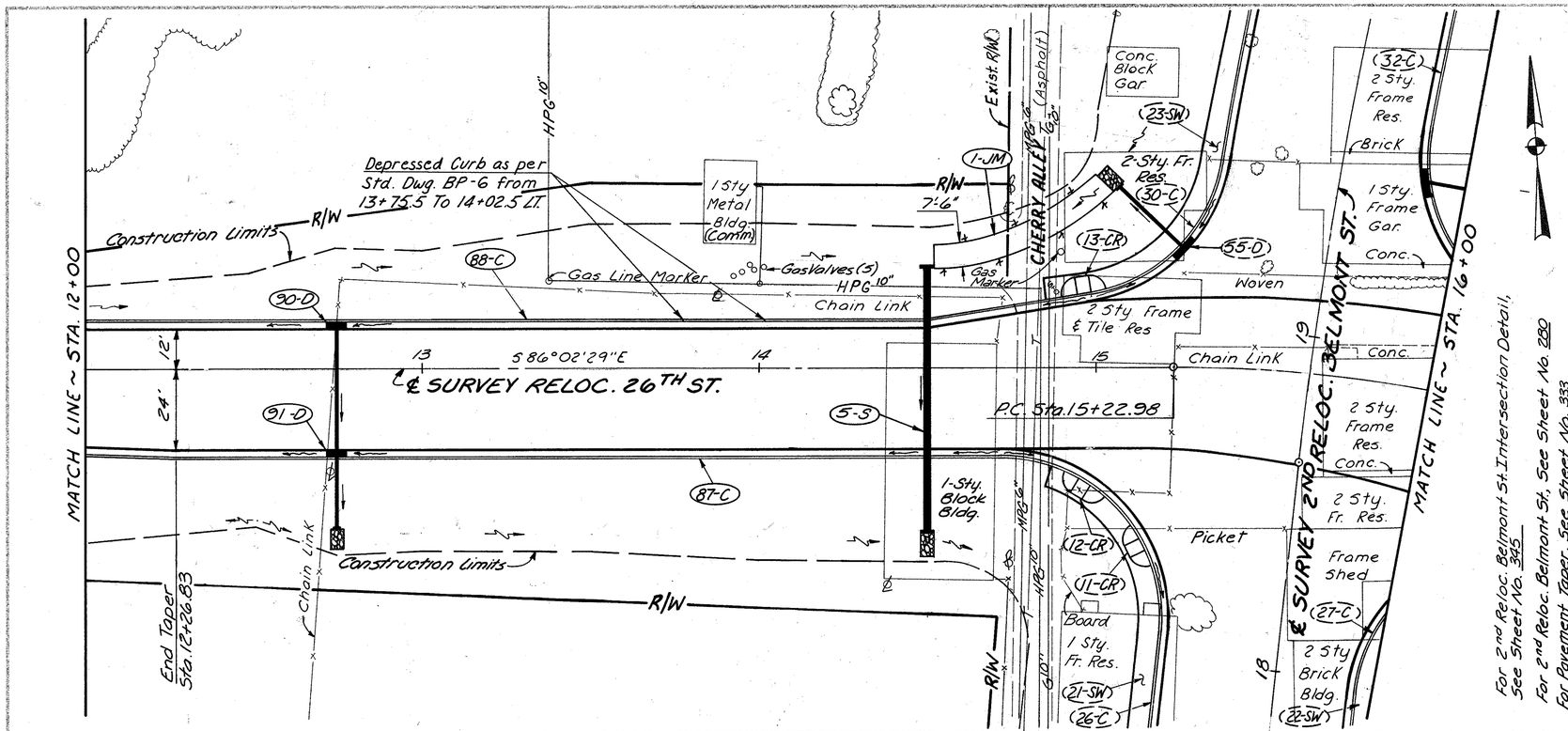
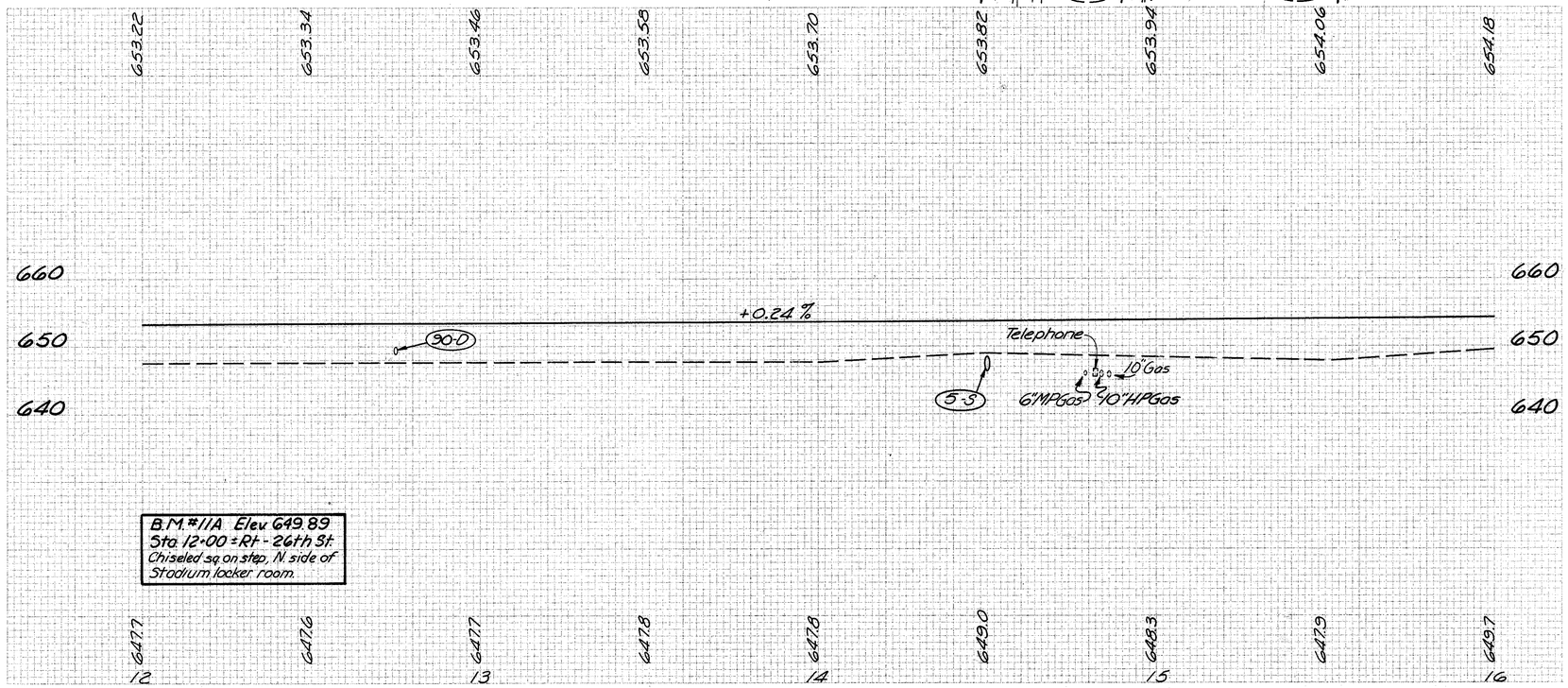
BEL-7-14.17



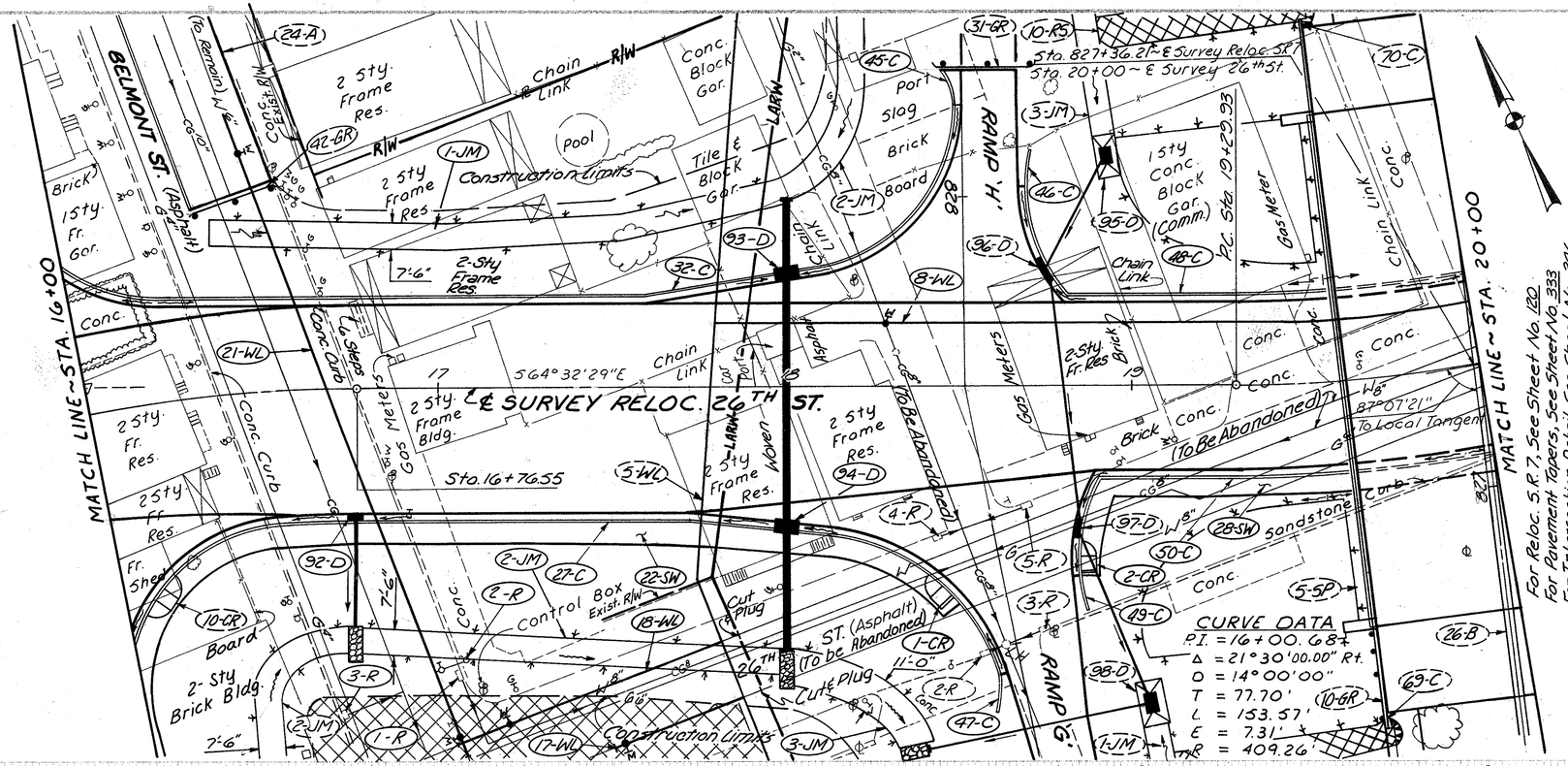


| ESTIMATED QUANTITIES | | |

FHWA REGION	STATE	PROJECT		
5	OHIO			

295
663

BEL-7-14.17


BELMONT ST. (Asphalt)
MATCH LINE ~ STA. 16+00
MATCH LINE ~ STA. 20+00
E SURVEY RELOC. 26TH ST.
Sta. 16+76.55
S64°32'29"E
Sta. 827+36.21 ~ E Survey Reloc. SR
Sta. 20+00 ~ E Survey 26th St.
H. RAMP
RAMP G
Construction Limits
Control Box Exist. R/W
Cut & Plug
(To Be Abandoned)
(To Remain) 16'-0"
Conc. Curb
Chain Link
Gas Meters
Pool
Tile & Block Gar.
Concrete Block Gar. (Comm.)
2 Sty. Frame Res.
2 Sty. Frame Bldg.
2 Sty. Brick Bldg.
2 Sty. Fr. Res.
2 Sty. Fr. Res Brick
1 Sty. Fr. Gar.
Brick Shed
Frame Shed
Asphalt
Concrete
Sandstone
Board
Slag
Brick
Port
Curb
Conc. Block Gar.
Chain Link
Gas Meter
Conc. Steps
Conc. Curb
Conc. Curb & Gutter
Conc. Curb & Gutter (To Be Abandoned)
Conc. Curb & Gutter (To Be Abandoned)
Conc. Curb & Gutter (To Be Abandoned)

ESTIMATED QUANTITIES

Calc. By: FS Date: 6-21-84
Ch'k'd. By: Get Date: 7-19-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

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BEL-7-14.17

REF. NO.	STATION TO STATION	SIDE	202 Catch Basin Removed	608 Curb Ramps	608 4" Concrete Walk	609 Curb Type 6	609 Combination Curb & Gutter Type 2	670 Ditch Erosion Protection	601 Rock Channel Protection, Type C, With Filter	602 Concrete Masonry	603-CONDUIT 12" Type C	603-CONDUIT 21" Type B	603-CONDUIT 21" Type C	604 Catch Basin, No.3 With "V" GRATE	604 Catch Basin, No.3A With "V" GRATE	814 Fire Hydrant Removed And Disposed Of	814 6" Water Main, D.I.P. MST Class 52 Push On Joints And Fittings	814 8" Water Main, D.I.P. MST Class 52 Push On Joints And Fittings	814 6" Valve And Valve Box	814 8" Valve And Valve Box	814 6" Fire Hydrant, As Per Plan	SEE SHEET NO.
	URBAN		Each	Each	Sq.Ft.	Lin.Ft.	Lin.Ft.	Sq.Yd.	Cu.Yd.	Cu.Yd.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Each	Each	Each	Lin.Ft.	Lin.Ft.	Each	Each	Each	
22-SW	16+76.55 To 827+13 26TH St. & Ramp 'G'	Lt.&Rt.			1,068.0																	
28-SW	827+15 To 20+00 Ramp 'G' & 26TH St.	Rt.			692.5																	
27-C	16+54.08 To 826+91.90 26TH St. & Ramp 'G'	Rt.&Lt.					226.6															
32-C	16+23.22 To 828+27.23 26TH St. & Ramp 'H'	Lt.					253.9															
45-C	828+27.23 To 828+37.23 Ramp 'H'	Lt.				10.0																
46-C	828+02.86 To 828+12.86 Ramp 'H'	Rt.				10.0																
47-C	826+81.90 To 826+91.90 Ramp 'G'	Lt.				10.0																
48-C	828+02.86 To 20+00 Ramp 'H' & 26TH St.	Rt.&Lt.					152.9															
49-C	827+05.60 To 827+15.60 Ramp 'G'	Rt.				10.0																
50-C	827+15.60 To 20+00 Ramp 'G' & 26TH St.	Rt.					138.4															
1-CR	18+46.5	Rt.		1																		
2-CR	18+85	Rt.		1																		
1-JM	16+39 to 18+00	Lt.						138.3														
2-JM	16+79 to 17+98	Rt.						99.2														
3-JM	826+79 to 18+02 (Ramp G-26th St.)	Lt.&Rt.						53.8														
92-D	16+76.5	Rt.							2.2	0.21	31				1							372
93-D	18+00	Lt.								0.39		96		1								372
94-D	18+00	Rt.							2.3	0.39			36	1								372
8-WL	17+84 to 23+36	Lt.															560		2		1	429
17-WL	17+51 to 17+88	Rt.																40		1		431
18-WL	17+05 to 17+82	Rt.																82		1		431
21-WL	16+40 to 17+09.5	Lt.&Rt.															200		2			429
1-R	17+07	Rt.	1																			
2-R	17+08	Rt.														1						
3-R	16+69	Rt.	1																			
	TOTAL		2	2	1760.5	40.0	771.8	291.3	4.5	0.99	31	96	36	2	1	1	760	122	4	2	1	

FHWA REGION 5 | STATE OHIO | PROJECT
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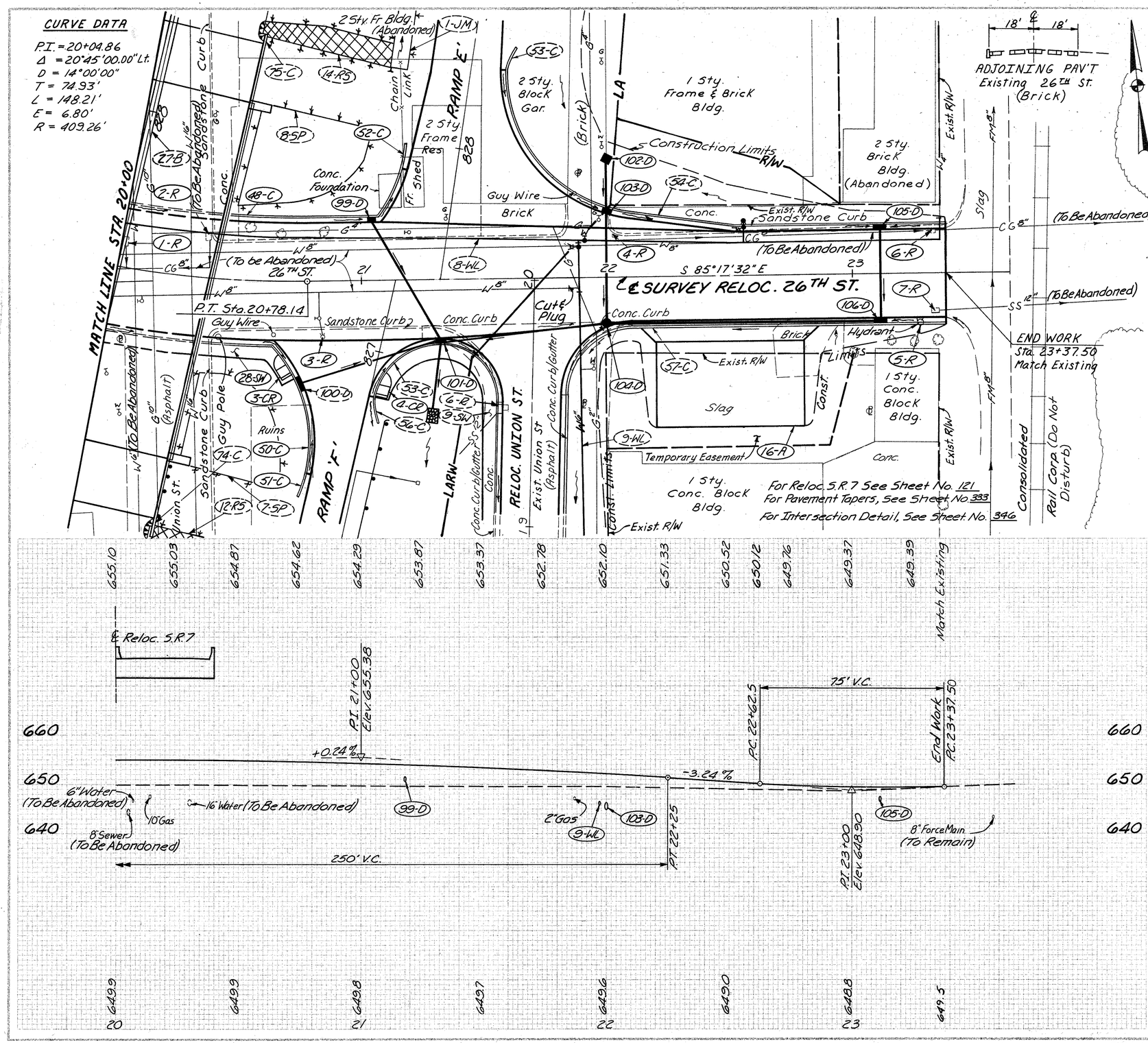
BEL-7-14.17



For Quantities, See Sheet No. 298

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE

TOTALS

RELOCATED 26TH STREET STA. 20+00 TO STA. 23+37.50

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

ESTIMATED QUANTITIES

Calc. By: FS Date: 6-21-84
Ch'k'd. By: Get Date: 7-19-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

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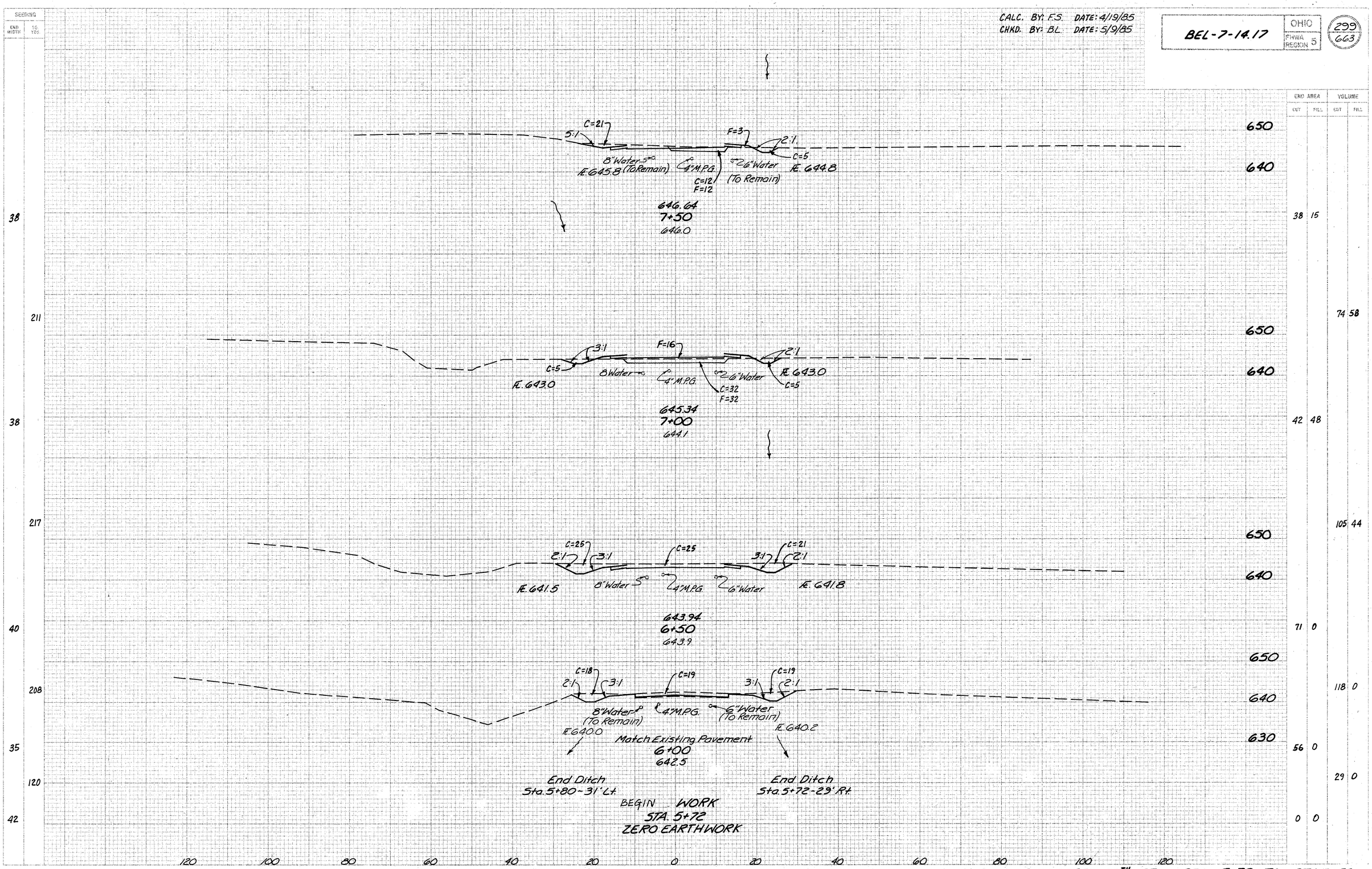
BEL-7-14.17

REF. NO.	STATION TO STATION	SIDE	202 Catch Basin Abandoned	202 Catch Basin Removed	301 Bituminous Aggregate Base, AC-20	304 Aggregate Base, As Per Plan	404 Asphalt Concrete AC-20 (Driveways)	608 4" Concrete Walk	608 Curb Ramps	609 Combination Curb & Gutter, Type 2	609 Curb, Type 6	601 Rock Channel Protection, Type C with Filter	602 Concrete Masonry	603-CONDUIT 12" Type B	603-CONDUIT 18" Type B	603-CONDUIT 21" Type B	604 Catch Basin, No.3 With 'V' GRATE	604 Catch Basin, No.3A With 'V' GRATE	604 Catch Basin, No.8	604 Manhole, No.3	814 Fire Hydrant Removed And Disposed Of	SEE SHEET NO.
	URBAN		Each	Each	Cu. Yds.	Cu. Yds.	Cu. Yds.	Sq. Ft.	Each	Lin. Ft.	Lin. Ft.	Cu. Yd.	Cu. Yd.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Each	Each	Each	Each	
28-SW	20+00 To 826+79.5 26TH St. & Ramp 'F'	Rt. & Lt.						405.0														
48-C	20+00 To 827+88.76 26TH St. & Ramp 'E'	Lt.								129.5												
50-C	20+00 To 826+45.19 26TH St. & Ramp 'F'	Rt. & Lt.								120.4												
51-C	826+35.19 To 826+45.19 Ramp 'F'	Lt.									10.0											
52-C	827+88.76 To 827+98.76 Ramp 'E'	Lt.									10.0											
16-A	22+50 ~ 26TH St.	Rt.			6.2	65.5	1.2															322
3-CR	20+71	Rt.							1													
4-CR	21+06	Rt.							1													
1-R	20+01	Lt.	1																			
2-R	20+35	Lt.	1																			
3-R	20+84	Rt.																			1	
4-R	22+04	Lt.	1																			
5-R	23+28	Rt.																			1	
6-R	23+33	Lt.		1																		
7-R	23+34	Rt.		1																		
99-D	21+04	Lt.												60				1				374
101-D	21+32	Rt.										1.3	0.39			27		1				374
102-D	22+00	Lt.													20				1			374
103-D	22+00	Lt.													46			1				374
104-D	22+00	Rt.													68					1		375
105-D	23+11.4	Lt.												40			1					375
106-D	23+11.4	Rt.												112			1					375
	TOTAL		3	2	6.2	65.5	1.2	405.0	2	249.9	20.0	1.3	0.39	212	134	27	2	3	1	1	2	

CALC. BY: F.S. DATE: 4/19/85
CHKD. BY: B.L. DATE: 5/9/85

BEL-7-14.17 | OHIO | FHWA REGION 5 | 299/663

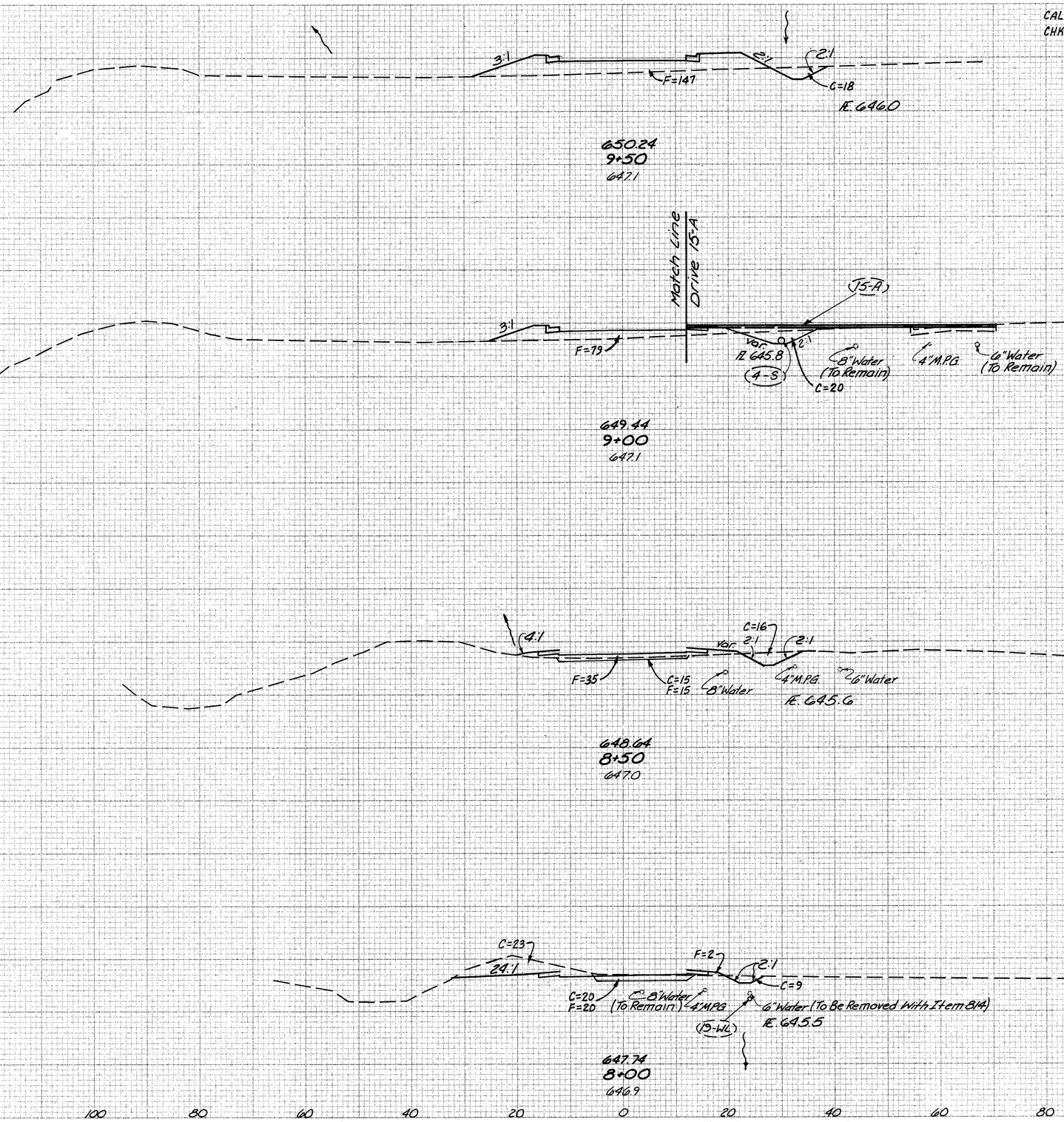


W. E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RELOCATED 26TH ST. ~ STA. 5+72 TO STA. 7+50

CALC. BY: JJH DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 300/663



SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
99		18	147		
378				36	209
37		21	79		
222				48	119
43		31	50		
253				77	67
53		52	22		
48				83	34
244					
		Add for 15-A →		31	204
		Add for 14-A →		27	0

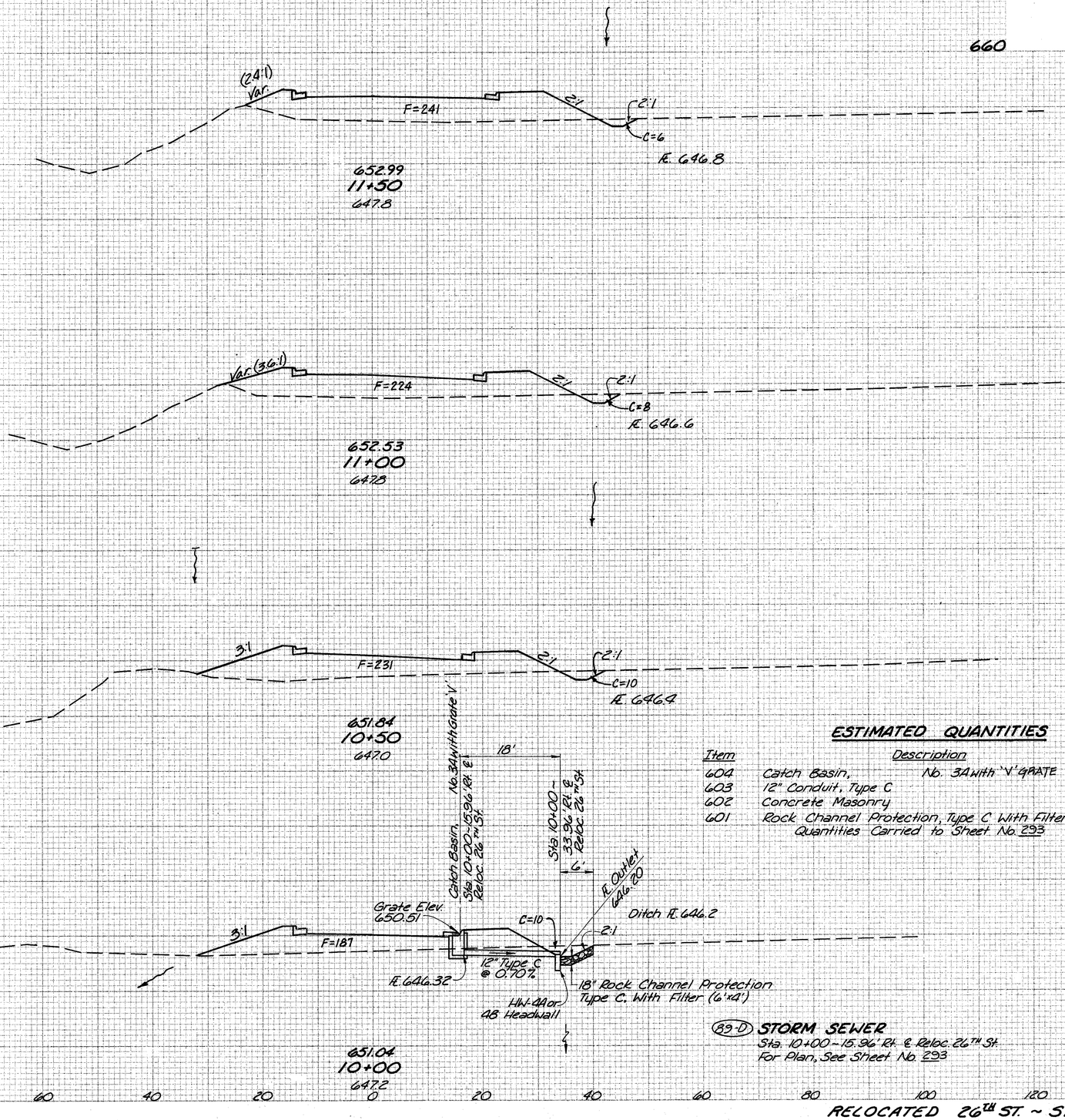
120 100 80 60 40 20 0 20 40 60 80 100 120

RELOCATED 26TH ST. ~ STA. 8+00 TO STA. 9+50

CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 301 / 663

SEEDING		END AREA		VOLUME	
ENG WIDTH	SQ YDS	CUT	FILL	CUT	FILL
56		6	241		
322				13	431
60		8	224		
336				17	421
61		10	231		
333				19	387
59		10	187		
439				26	309



ESTIMATED QUANTITIES

Item	Description	Quantity	Unit
604	Catch Basin, No. 3A with 'V' GRATE	1	Each
603	12" Conduit, Type C	18	Lin. Ft.
602	Concrete Masonry	0.21	Cu. Yd.
601	Rock Channel Protection, Type C With Filter	1.3	Cu. Yd.

Quantities Carried to Sheet No. 293

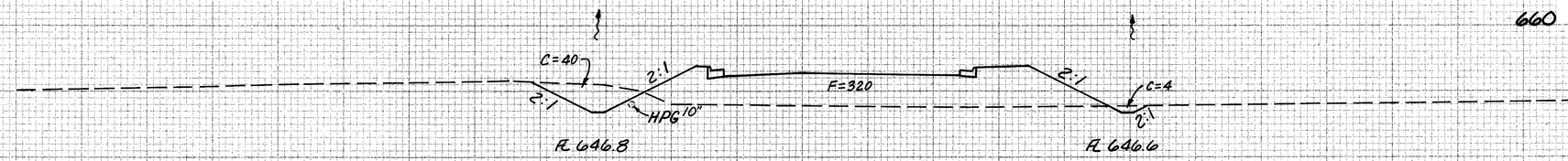
(89-D) **STORM SEWER**
Sta. 10+00 - 15.96' Rt. & Reloc. 26TH St.
For Plan, See Sheet No. 293

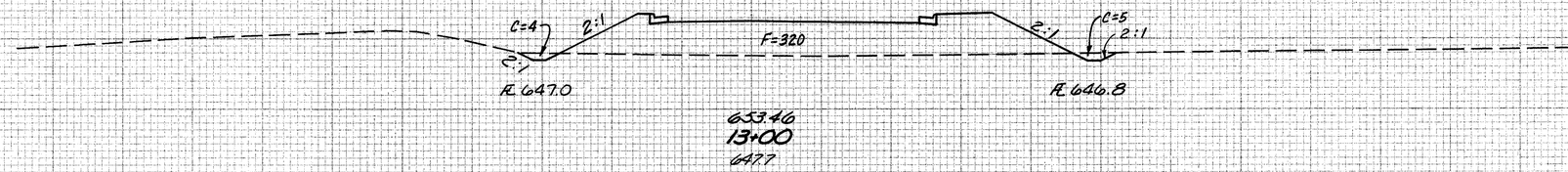
RELOCATED 26TH ST. ~ STA. 10+00 TO STA. 11+50

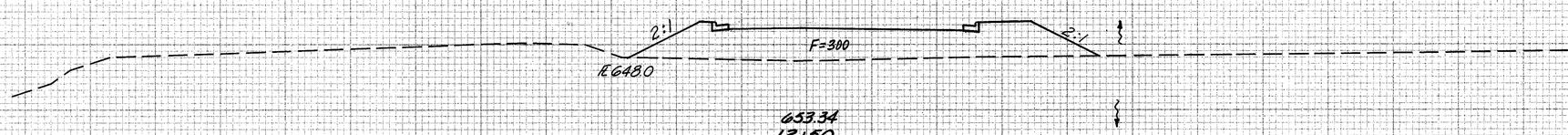
CALC. BY: F.S. DATE: 4/5/85
CHKD. BY: B.L. DATE: 5/9/85

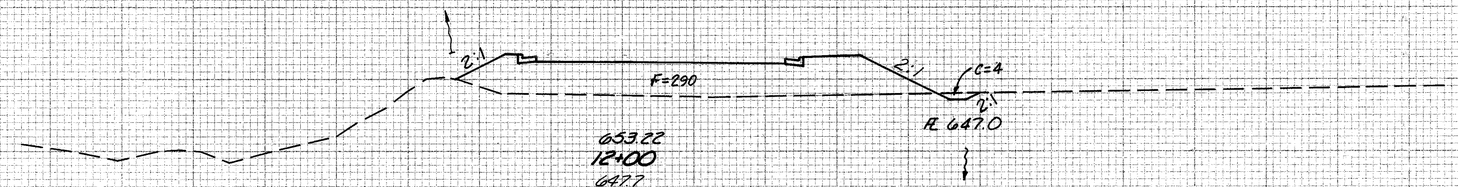
BEL-7-14.17 | OHIO | FHWA REGION 5 | 302 / 663

SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		660				
		650				
		640				
80		653.58 13+50 647.8	44	320		
	417				49	593
		650				
		640				
70		653.46 13+00 647.7	9	320		
	364				8	574
		650				
		640				
61		653.34 12+50 647.6	0	300		
	317				4	546
		660				
		650				
		640				
53		653.22 12+00 647.7	4	290		
	303				9	492









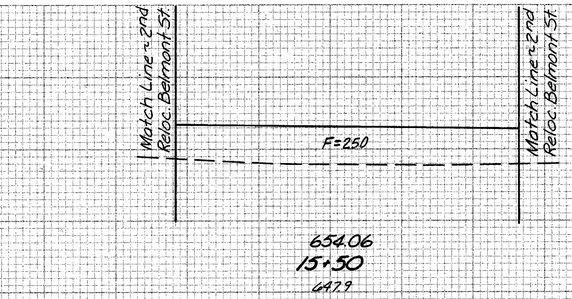
120 100 80 60 40 20 0 20 40 60 80 100 120

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

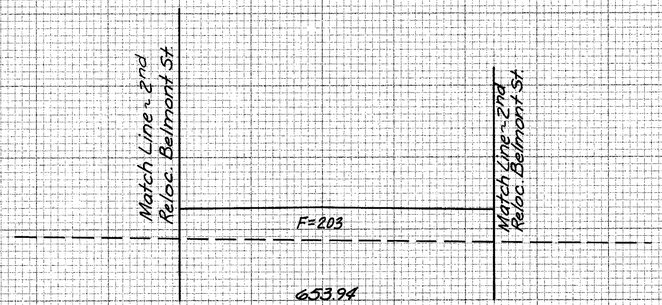
RELOCATED 26TH ST. ~ STA. 12+00 TO STA. 13+50

CALC. BY: F.S. DATE: 4/5/85
CHKD. BY: B.L. DATE: 5/9/85

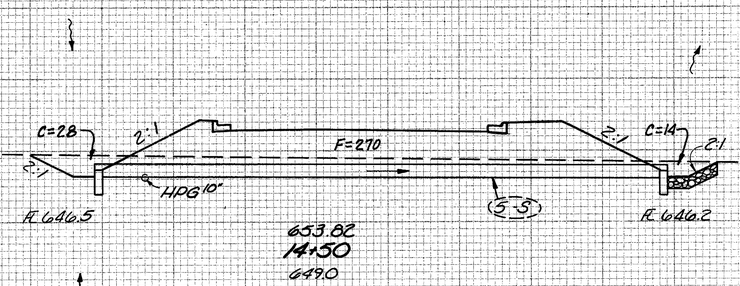
BEL-7-19.17 | OHIO | FHWA REGION 5 | 303/663



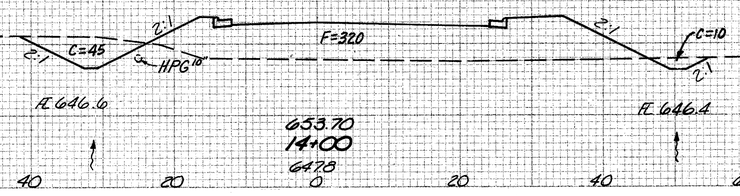
654.06
15+50
649.9



653.94
15+00
648.3



653.82
14+50
649.0



653.70
14+00
647.8

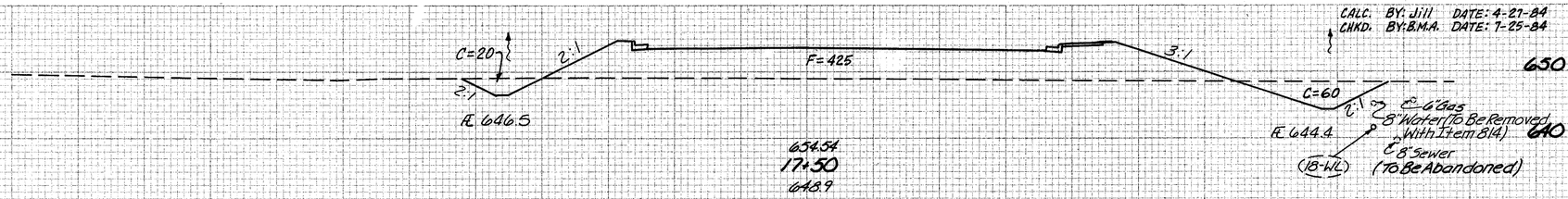
SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		660				
		650				
		640				
0			0	250		
		660				
0					0	419
		650				
		640				
0			0	203		
198					40	446
		650				
		640				
70			42	270		
414					88	536
		650				
		640				
82			55	320		
450					92	593

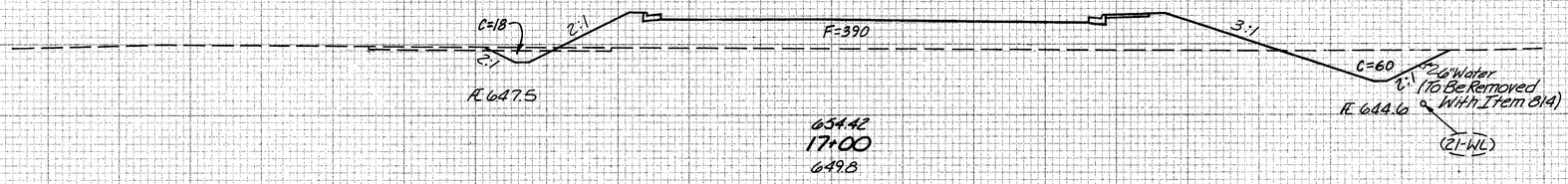
120 100 80 60 40 20 0 20 40 60 80 100 120

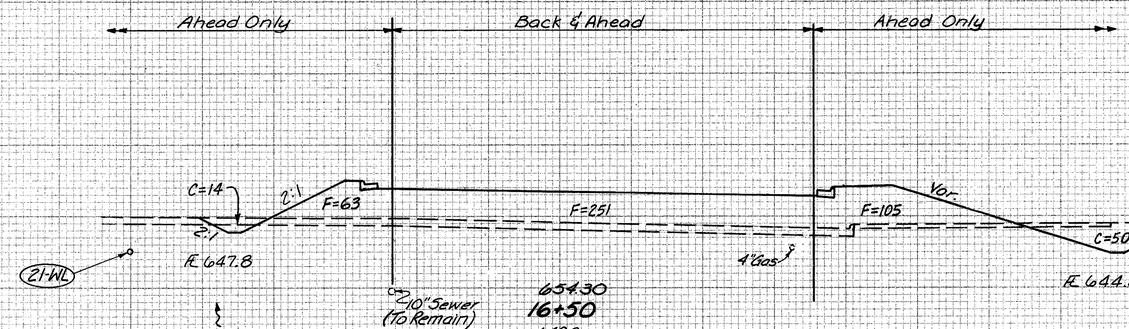
RELOCATED 26TH ST. ~ STA. 14+00 TO STA. 15+50

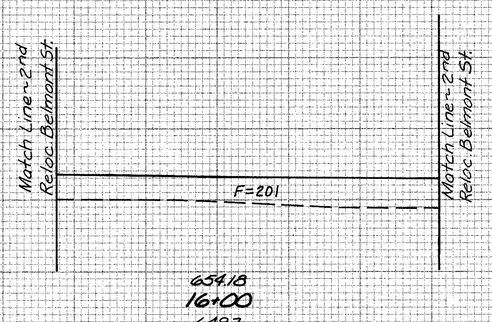
CALC. BY: JJ/I DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 304 / 663









SEEDING END WIDTH	SEEDING SQ. YDS.		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL	
			80	425			660
118						146	755
	597						650
							640
	97		78	390			
							660
	458					131	749
							650
							640
68	0	Ahead	64	419	0	0	
0	0	Back	0	251			
	0				0	419	660
							650
	0		0	201			640
	0				0	418	

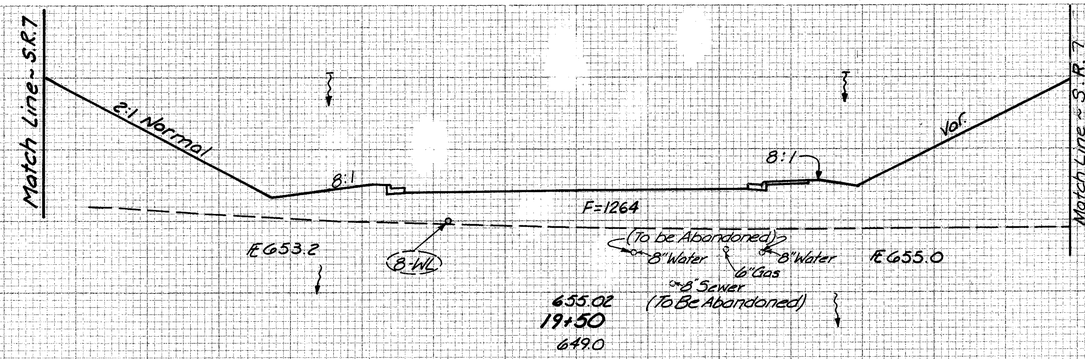
120 100 80 60 40 20 0 20 40 60 80 100 120

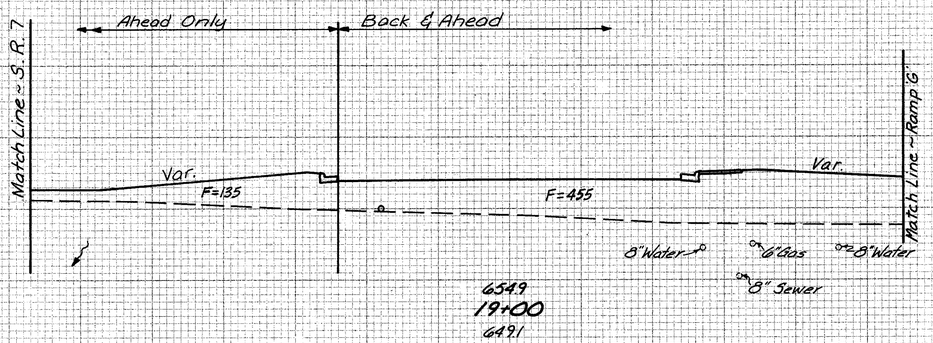
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RELOCATED 26TH ST. ~ STA. 16+00 TO STA. 17+50

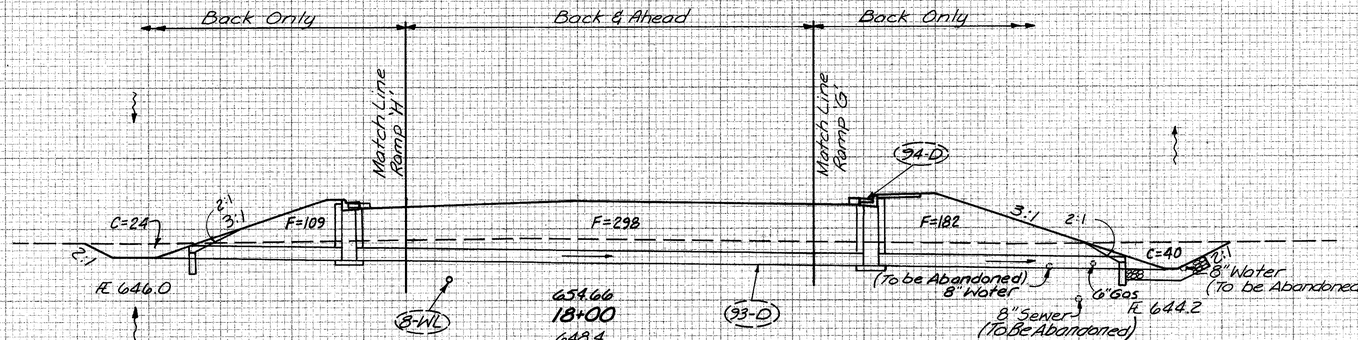
CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-24-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 305 / 663









SEEDING END WIDTH	SEEDING SQ. YDS.		STA.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
			660				
			650				
92			640	0	1264		
	433		660			0	1717
			650				
			640				
64	0	Ahead	Ahead	0	590	0	0
0	0	Back	Back	0	455		
			660			0	733
			650				
0			640	0	337		
			660			0	588
			650				
0	0	Ahead	Ahead	0	298	0	0
95	0	Back	Back	64	589		
	592					133	939

120 100 80 60 40 20 0 20 40 60 80 100 120

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

RELOCATED 26TH ST. ~ STA. 18+00 TO STA. 19+50

CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL-7-19.17 | OHIO | FHWA REGION 5 | 306/663



SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL	
						660
						650
0						640
		0	137			
						660
86				0	383	
						650
						640
31		0	277			
						660
344				0	1317	
						650
						640
93		0	1145			
						660
514				0	2181	
						650
						640
92		0	1210			
511				0	2291	

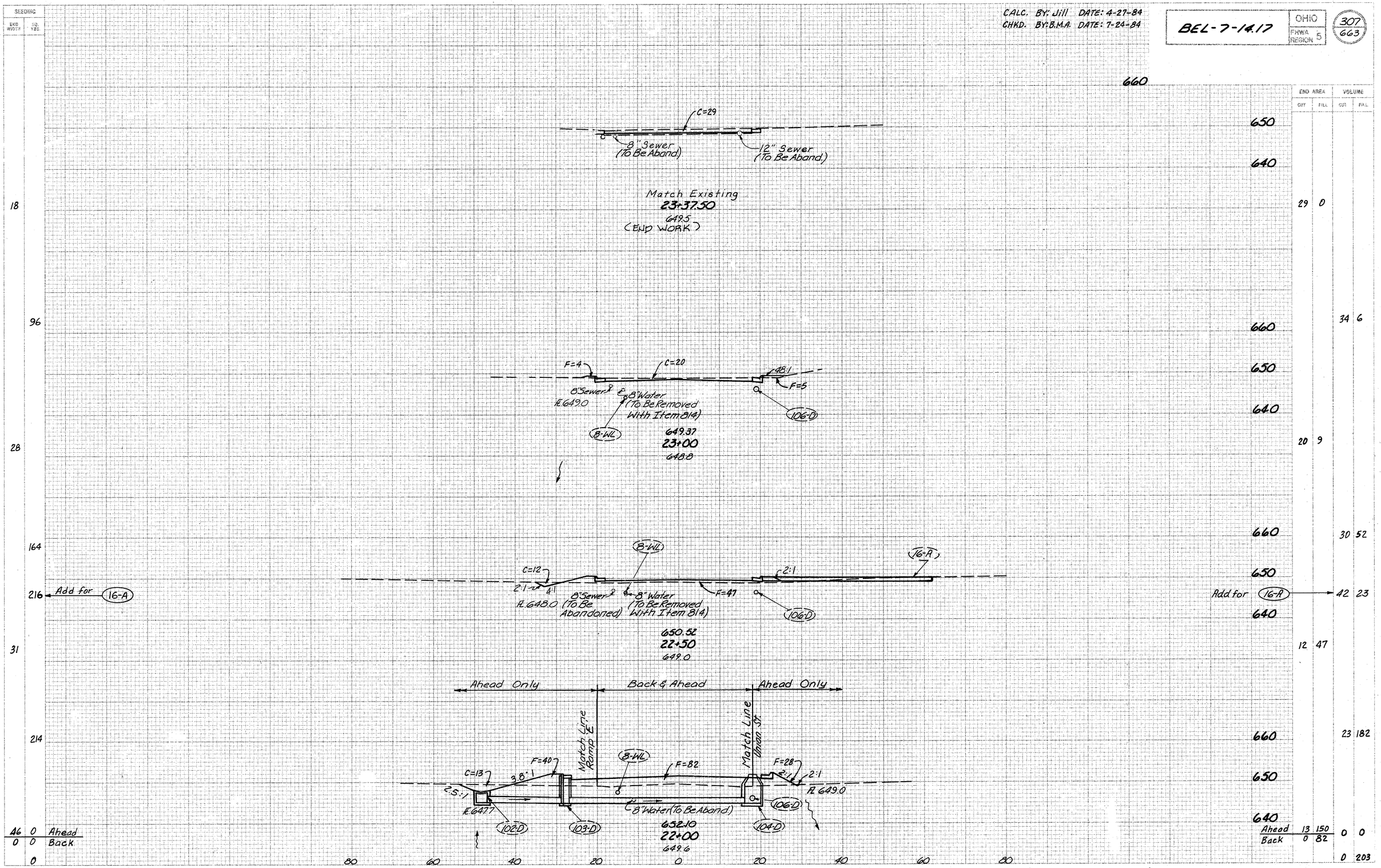
120 100 80 60 40 20 0 20 40 60 80 100

RELOCATED 26TH ST. ~ STA. 20+00 TO STA. 21+50

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-24-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 307/663



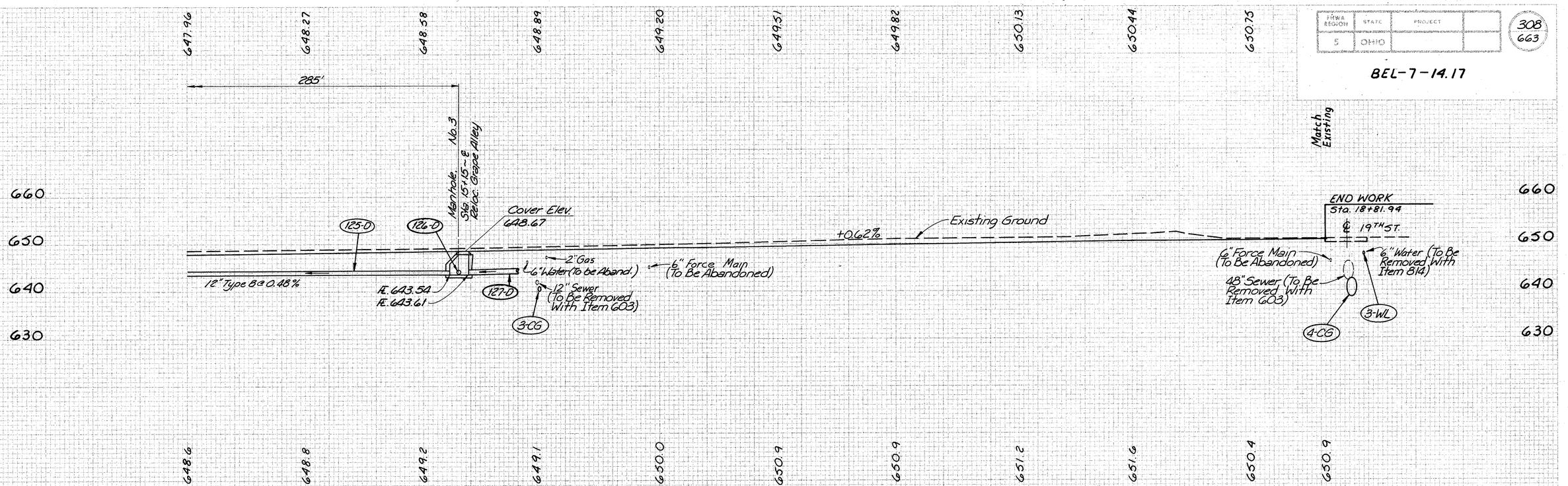
W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

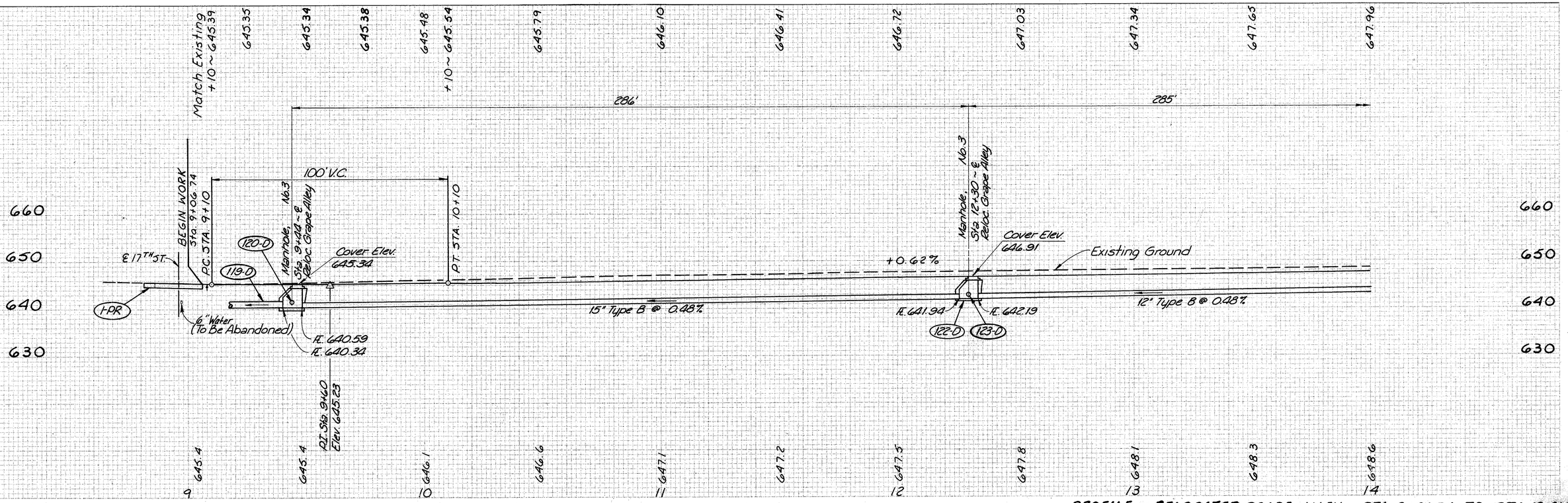
RELOCATED 26TH ST. ~ STA. 22+00 TO STA. 23+37.50

FHWA REGION	STATE	PROJECT		
5	OHIO			

308
663

BEL-7-14.17





W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

PROFILE ~ RELOCATED GRAPE ALLEY STA. 9+06.74 TO STA. 18+81.94

CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL - 7-14.17 | OHIO | FHWA REGION 5 | 309 / 663

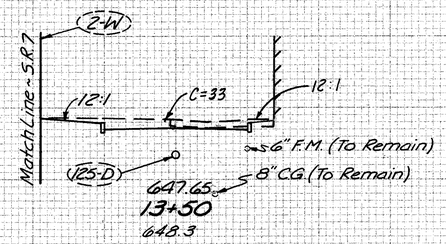
| SEEDING | | |

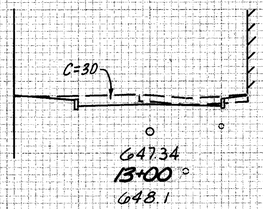
CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

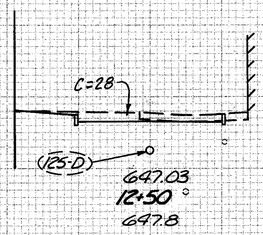
BEL-7-14.17 | OHIO | FHWA REGION 5 | 310 / 663

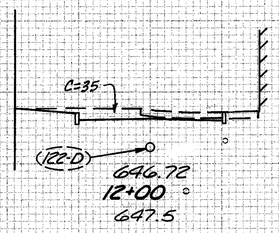
SEEDING

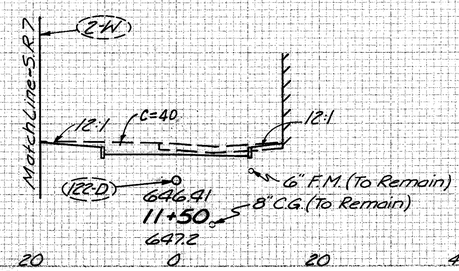
END WIDTH	SQ. YDS.
12	67
12	67
12	67
13	69
13	72
72	











		END AREA		VOLUME	
		CUT	FILL	CUT	FILL
660					
650					
640		33	0		
660				58	0
650					
640		30	0		
660				54	0
650					
640		28	0		
660				58	0
650					
640		35	0		
660				69	0
650					
640		40	0	81	1

40 20 0 20 40

W. E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

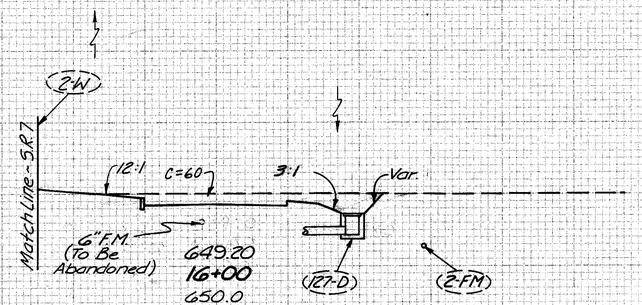
RELOCATED GRAPE ALLEY STA. 11+50 TO STA. 13+50

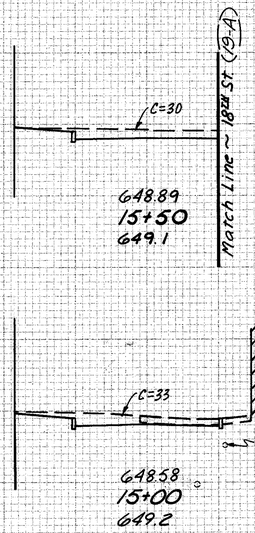
CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

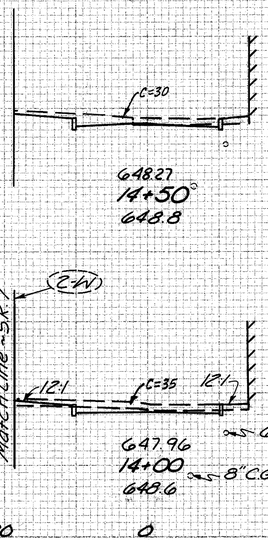
BEL-7-14.17 | OHIO | FHWA REGION 5 | 311 / 663

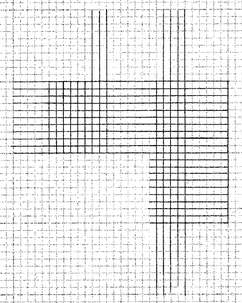
SEEDING

END WIDTH	SQ. YDS.
66	
	356
62	
	206
12	
67	
12	
67	
12	
67	









		END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	660				
	650				
	640	60	0		
Add for (19-A)				121	0
	660			83	0
	650				
	640	30	0		
	660			58	0
	650				
	640	33	0		
	660			58	0
	650				
	640	30	0		
	660			60	0
	650				
	640	35	0		
				63	0

20 0 20

RELOCATED GRAPE ALLEY STA. 14+00 TO STA. 16+00

CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

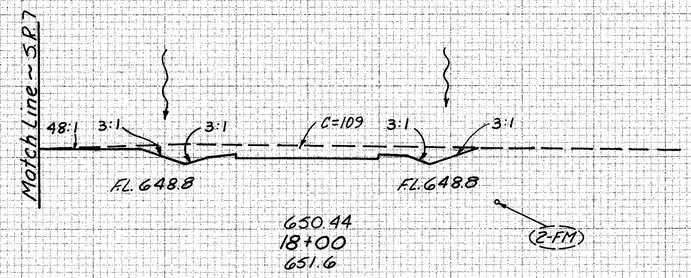
BEL-7-14.17

OHIO FHWA REGION 5

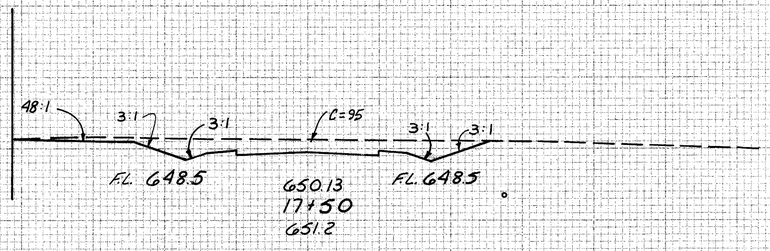
312 / 663

SEEDING

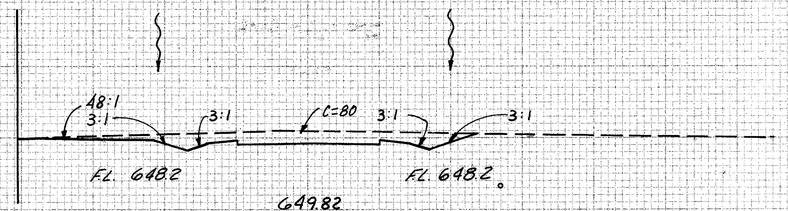
END NIOTH	SQ. YDS.
38	
	231
45	
	261
49	
	311
63	
	358



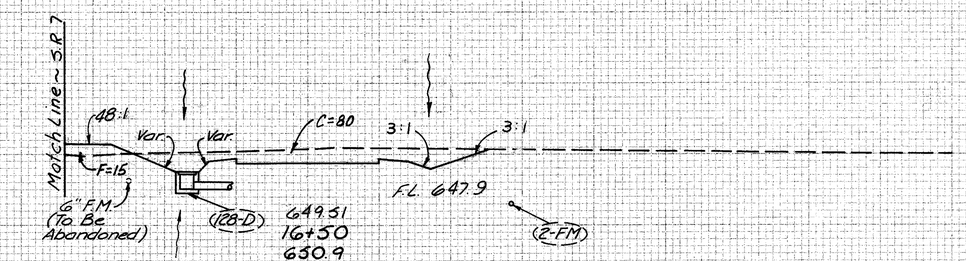
650.44
18+00
651.6



650.13
17+50
651.2



649.82
17+00
650.0



649.51
16+50
650.9

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
660				
650				
640		109	0	
660				189 0
650				
640		95	0	
660				162 0
650				
640		80	0	
660				148 14
650				
640		80	15	
				130 14

80 60 40 20 0 20 40 60 80

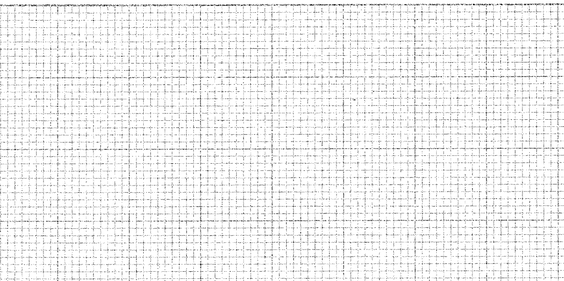
W. E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

RELOCATED GRAPE ALLEY STA. 16+50 TO STA. 18+00

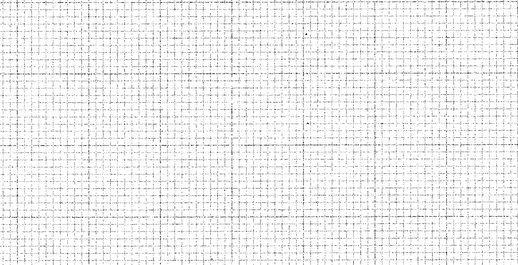
CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 313 / 663

SEEDING		CMD AREA		VOLUME	
END WIDTH	LG. TOS.	CUT	FILL	CUT	FILL
14				3	0
78				22	0
30				35	0
189				133	0



Match Existing
18+81.94
650.9



650.75
18+50
650.4

660
650
640
660
650
640

40 20 0 20 40

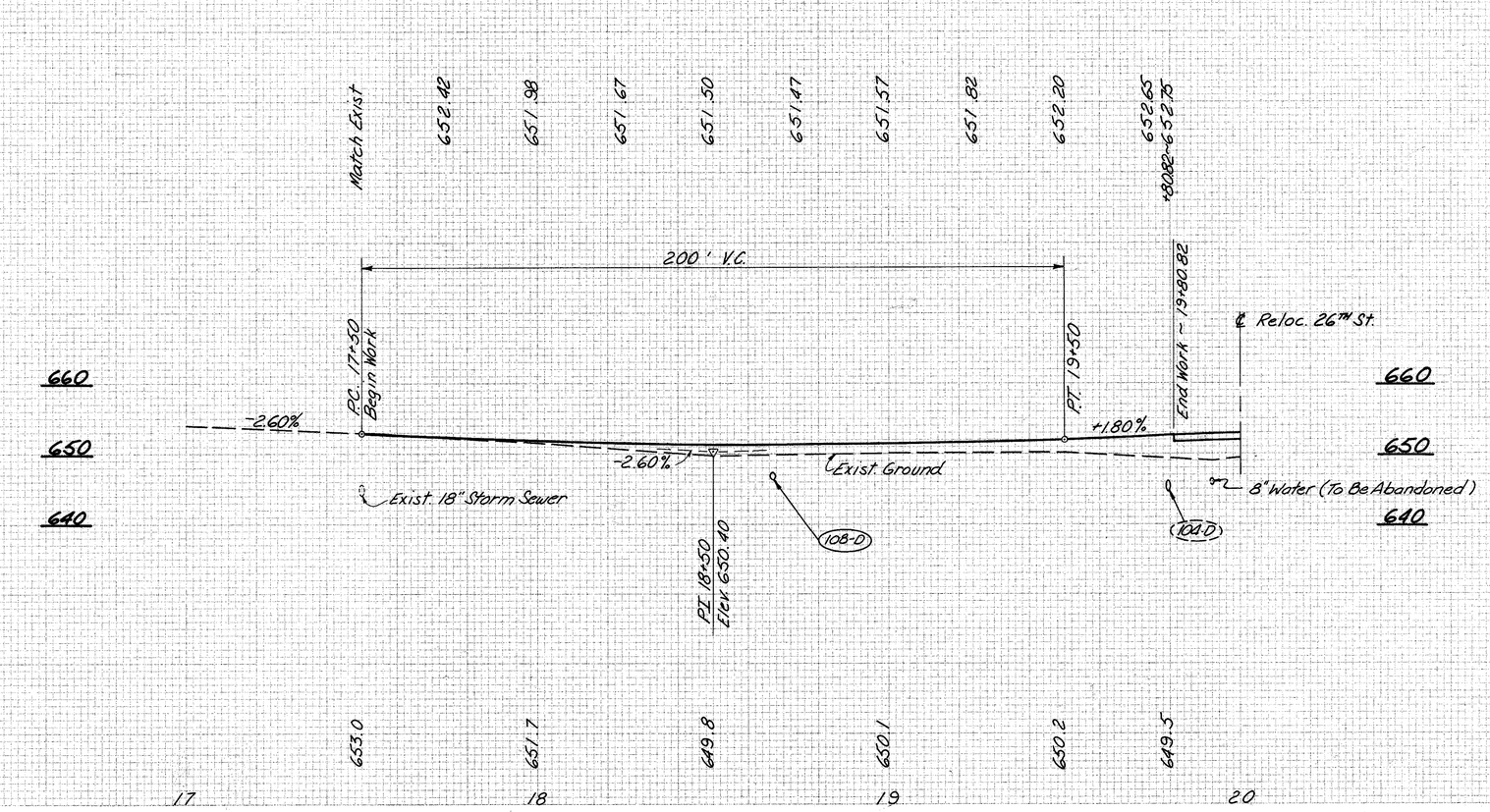
W. E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

RELOCATED GRAPE ALLEY STA. 18+50 TO 18+81.94

FHWA REGION	STATE	PROJECT		
5	OHIO			

314
663

BEL - 7 - 14.17



W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

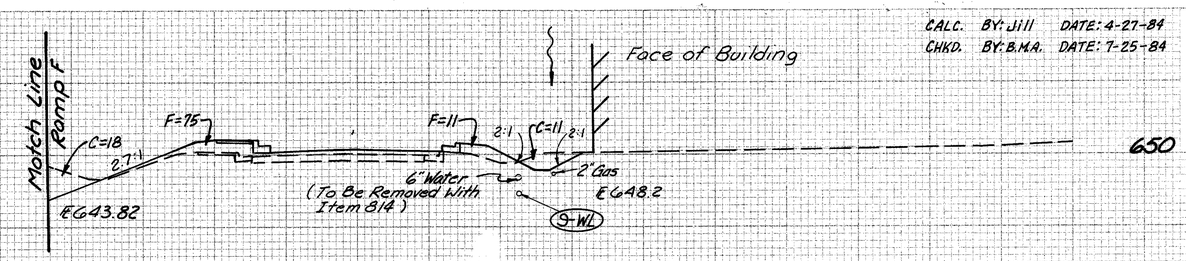
PROFILE ~ RELOC. UNION ST.

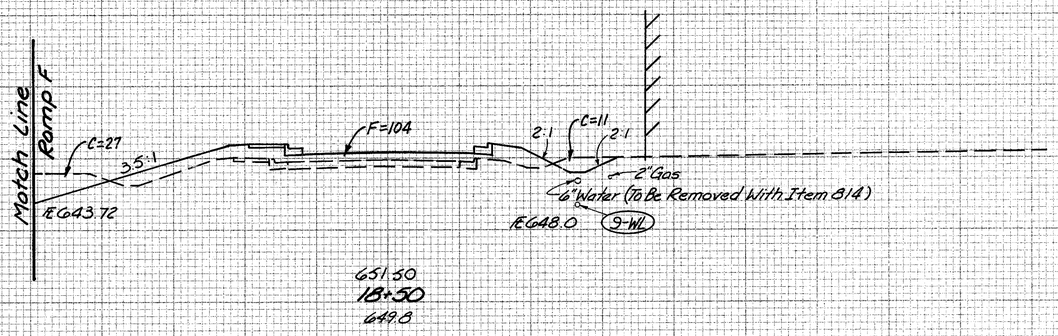
CALC. BY: JIII DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

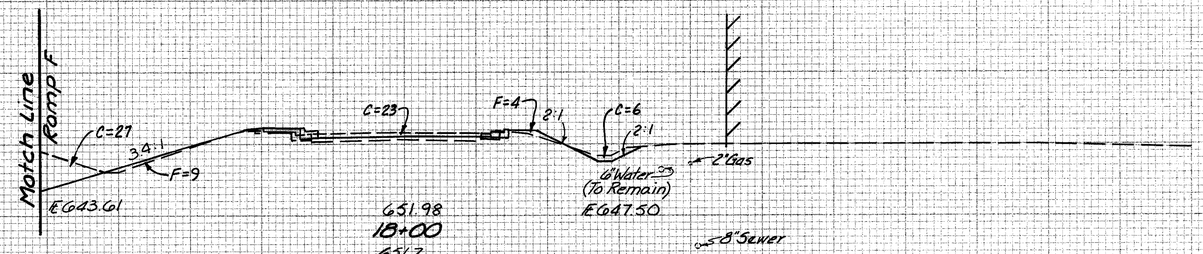
BEL-7-14.17 | OHIO | FHWA REGION 5 | 315 / 663

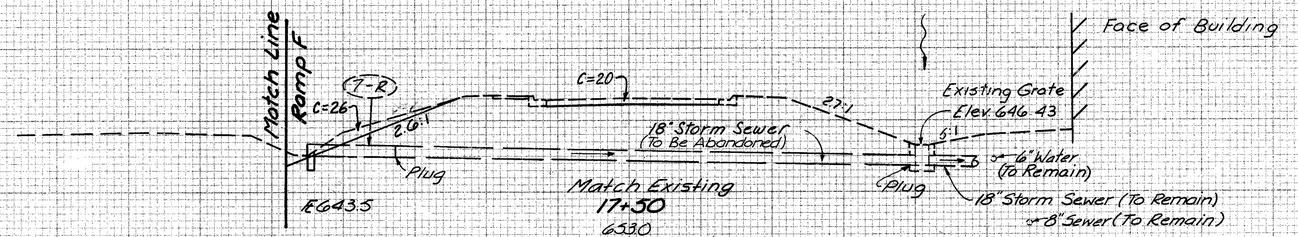
SEEDING

END WIDTH	SQ. YDS.
45	
	275
54	
328	
64	
411	
84	









END AREA CUT	END AREA FILL	VOLUMES CUT	VOLUMES FILL
29	86		
		62	176
38	104		
87	108		
56	13		
94	12		
46	0		

650 640 650 640 650 640 650 640

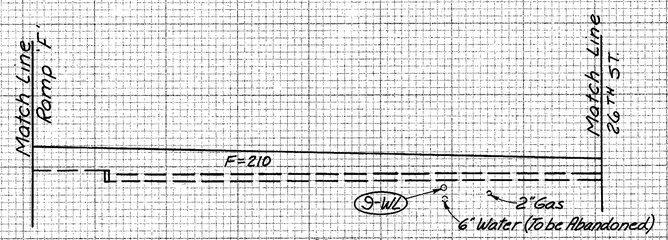
80 60 40 20 0 20 40 60 80 100

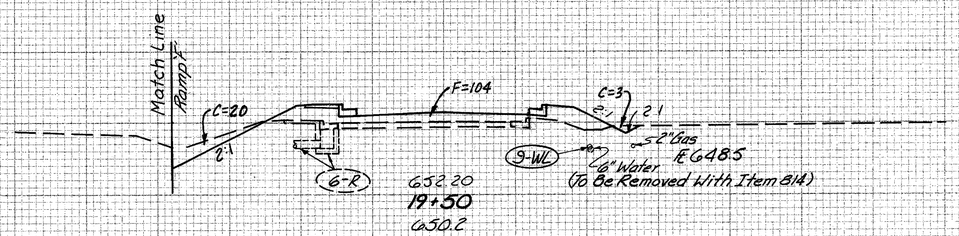
RELOCATED UNION ST. - STA. 17+50 TO STA. 19+00

CALC. BY: Jill DATE: 4-27-84
CHKD. BY: B.M.A. DATE: 7-25-84

BEL - 7 - 14.17 | OHIO | FHWA REGION 5 | 316/663

SEEDING		END AREA		VOLUME	
END WIDTH	SQ YDS	CUT	FILL	CUT	FILL
0				0	210
65					13 179
38				23	104
231					48 176





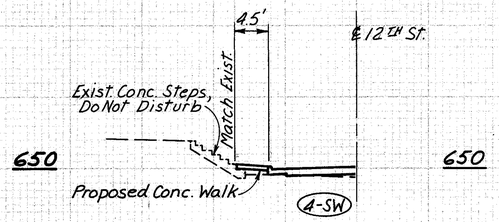
650
640
650
640

60 40 20 0 20 40 60

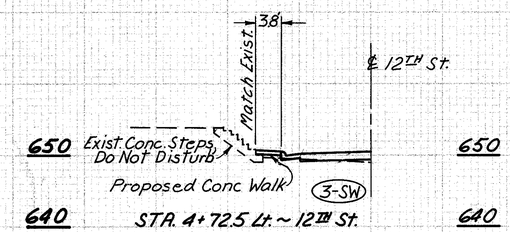
RELOCATED UNION ST. ~ STA. 19+50 TO STA. 19+80.82

Calc. By: F. S. Date: 6-5-84
Chkd. By: W.C. Date: 6-13-84

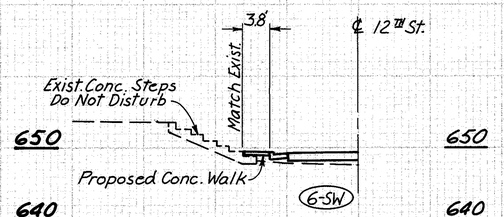
BEL - 7 - 14.17 | OHIO | FHWA REGION 5 | 317 / 663



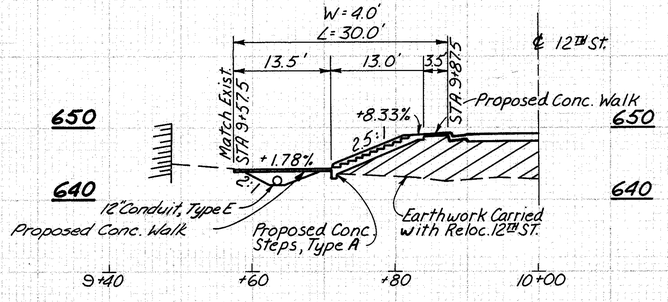
STA. 4+91 Lt. ~ 12TH St.
t = 4"
w = 4.3'
For Plan & Quantities See Sht. No. 252



STA. 4+72.5 Lt. ~ 12TH St.
t = 4"
w = 4.0'
For Plan & Quantities See Sht. No. 252



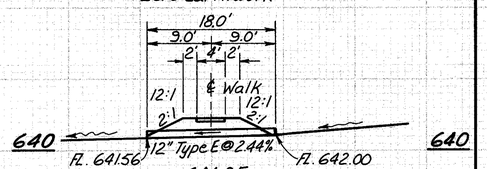
STA. 5+74 Lt. ~ 12TH St.
t = 4"
w = 3.0'
For Plan & Quantities See Sht. No. 252



8-SW

STA. 7+50 Lt. ~ 12TH St.
Concrete Walk: t = 4"
w = 4'
Concrete Steps: T = 13"
R = 5"
For Plan, See Sheet No. 253
For Quantities, See Sheet No. 254

STA. 9+70.13
Zero Earthwork



644.05
STA. 9+63.5
642.0

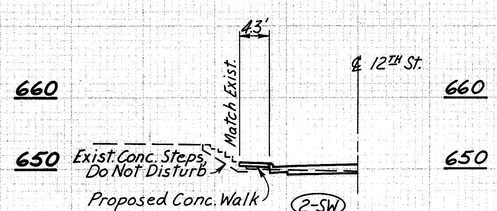
STA. 9+57.5
Zero Earthwork



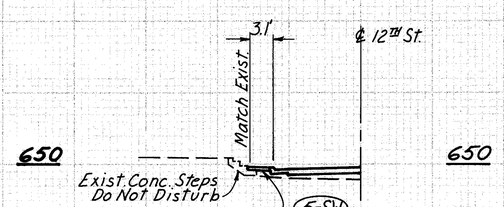
CROSS SECTIONS

EARTHWORK QUANTITIES				
STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
9+57.5	0	0		
9+63.5	0	36	0	4
9+70.13	0	0	0	5
TOTALS			0	9

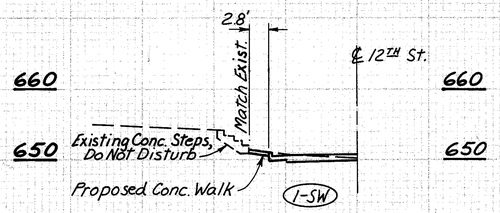
Earth Quantities Carried to Sheet No. 256



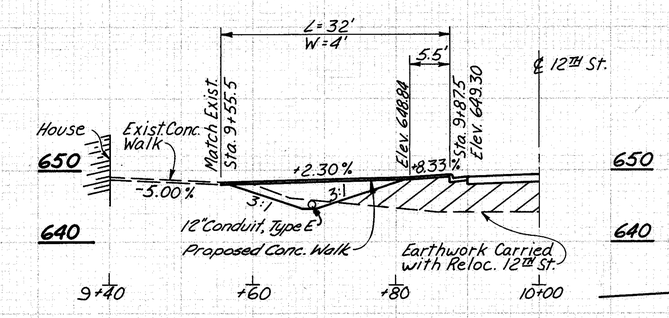
STA. 4+49 Lt. ~ 12TH St.
t = 4"
w = 3.0'
For Plan & Quantities See Sht. No. 252



STA. 5+59.7 Lt. ~ 12TH St.
t = 4"
w = 3.0'
For Plan & Quantities See Sht. No. 252



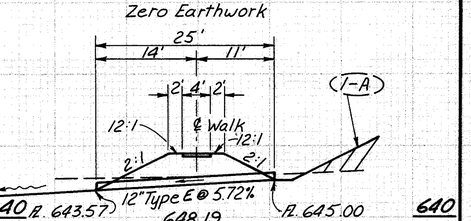
STA. 4+18 Lt ~ 12TH St.
t = 4"
W = 2.8'
For Plan & Quantities See Sht. No. 252



7-SW

STA. 7+08.5 Lt ~ 12TH St.
t = 4"
w = 4'
For Plan, See Sheet No. 253
For Quantities, See Sheet No. 254

STA. 9+82
Zero Earthwork



648.19
STA. 9+68
644.49

EARTHWORK QUANTITIES				
STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
9+55.5	0	0	1	17
9+68	4	70	1	19
9+82	0	0		
TOTALS			2	36

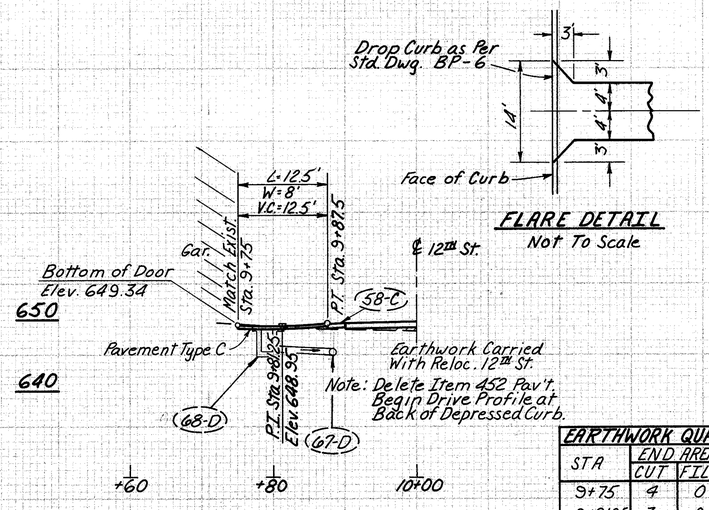
Earth work Quantities Carried to Sheet No. 256

STA. 9+55.5
Zero Earthwork



CROSS SECTIONS

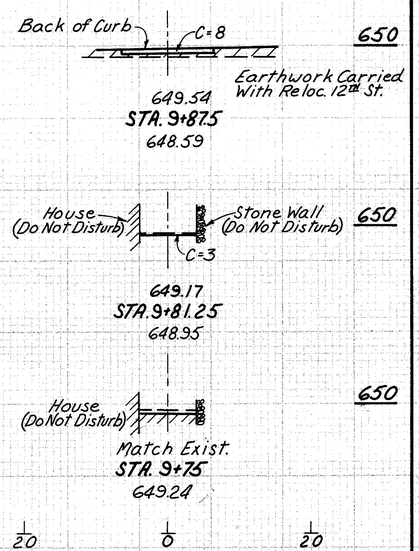
1-SW thru 8-SW STEP AND WALK DETAILS



EARTHWORK QUANTITIES				
STA	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
9+75	4	0	1	0
9+81.25	3	0	1	0
9+87.50	8	0		
TOTALS			2	0

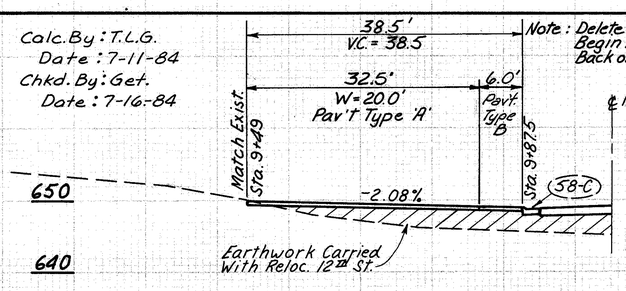
Earthwork Quantities Carried to Sheet No. 255

0 10 20
Scale in Feet



For Plan and Quantities See Sheet No. 252

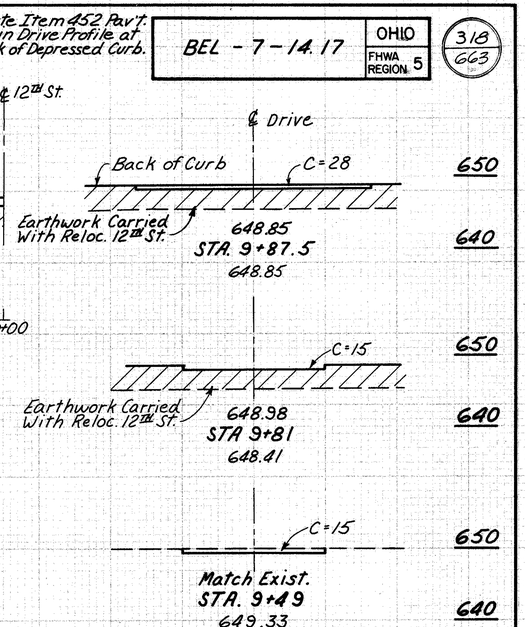
Calc. By: T.L.G.
Date: 7-11-84
Chkd. By: Get.
Date: 7-16-84



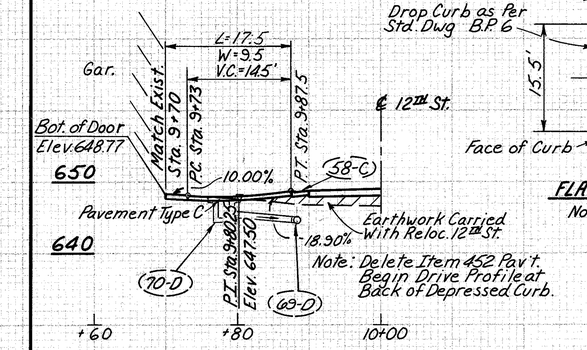
Earthwork Quantities Carried to Sheet No. 256

EARTHWORK QUANTITIES				
STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
9+49	15	0	18	0
9+81	15	0	5	0
9+87.5	28	0		
TOTALS			23	0

0 10 20
Scale in Feet



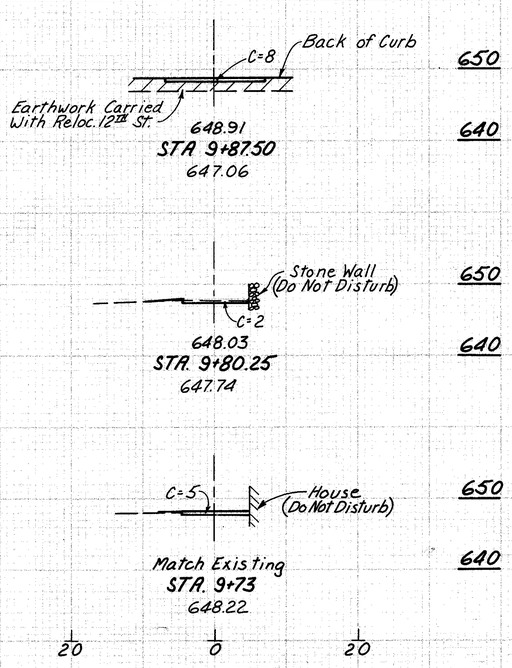
For Plan and Quantities See Sheet No. 254



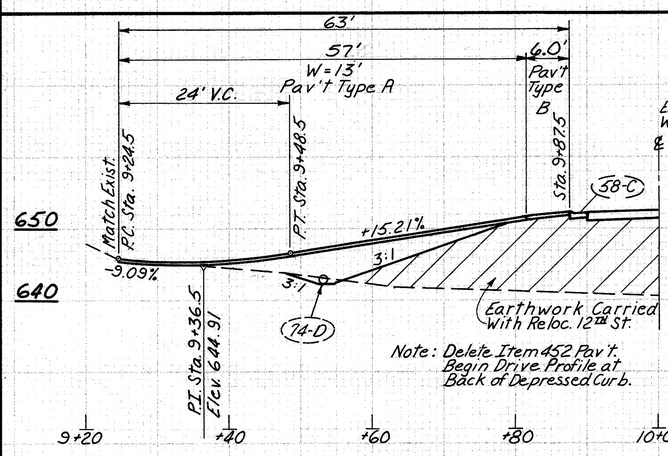
EARTHWORK QUANTITIES				
STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
9+73	5	0	1	0
9+80.25	2	0	1	0
9+87.50	8	0		
TOTALS			2	0

Earthwork Quantities Carried to Sheet No. 256

0 10 20
Scale in Feet



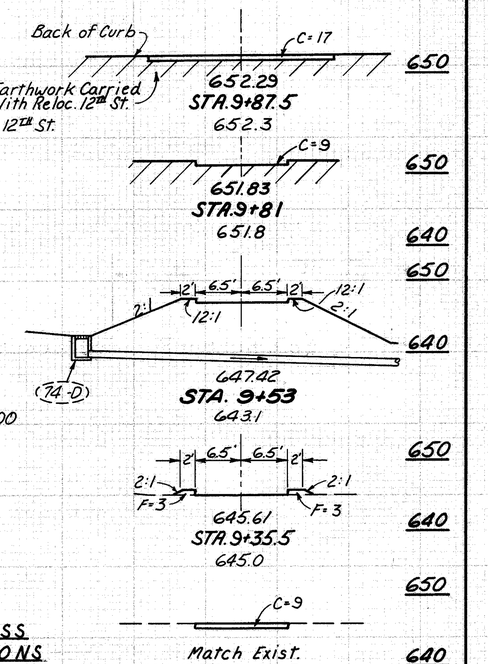
For Plan and Quantities See Sheet No. 252



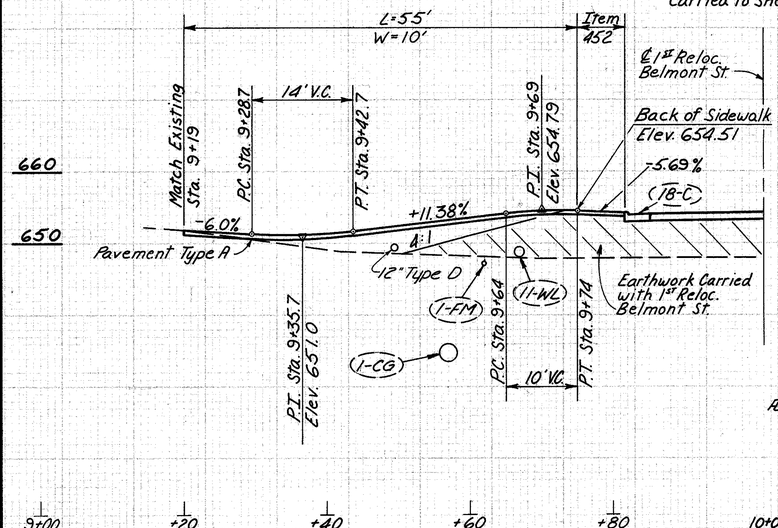
EARTHWORK QUANTITIES				
STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
9+24.5	9	0	2	2
9+35.5	0	6	0	50
9+53	0	146	5	79
9+81	9	0	3	0
9+87.5	17	0		
TOTALS			10	131

Earthwork Quantities Carried to Sheet No. 257

0 10 20
Scale in Feet

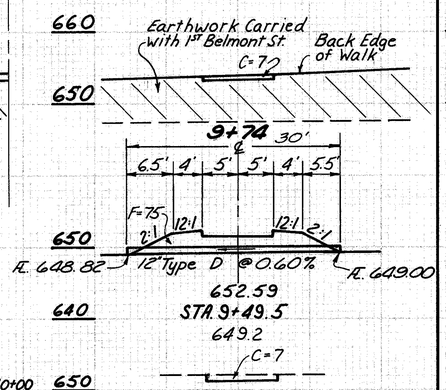


For Plan and Quantities See Sheet No. 254



Earthwork Quantities Carried to Sheet No.272

EARTHWORK QUANTITIES				
STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
9+19	7	0		
			4	42
9+49.5	0	75		
			3	34
9+74	7	0		
TOTALS			7	76



PROFILE

(7-A)

STA. 18+70 LT.
1ST RELOC. BELMONT ST. =
STA. 10+00 ℄ DRIVE
Skew = 7°00' RF.

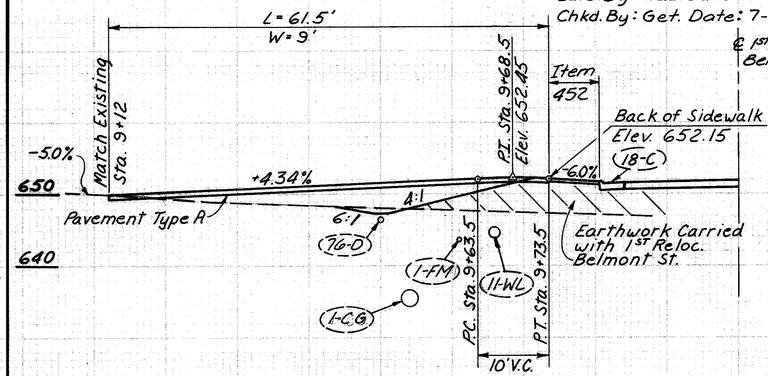
0 10 20
Scale in Feet

CROSS SECTIONS

For Plan and Quantities See Sheet No. 262

Calc. By: T.L.G. Date: 7-3-84
Chkd. By: G.e.t. Date: 7-3-84

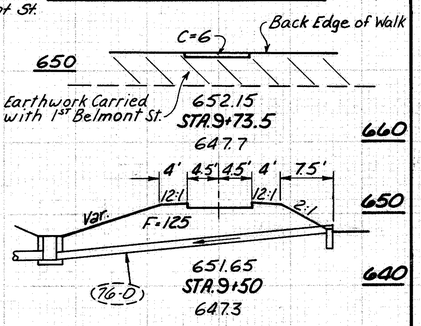
BEL-7-14.17 | OHIO | FHWA REGION 5 | 319 / 663



PROFILE

(9-A)

STA. 20+28.5 LT.
1ST RELOC. BELMONT ST. =
STA. 10+00 ℄ DRIVE
Skew = 12°45' R.F.



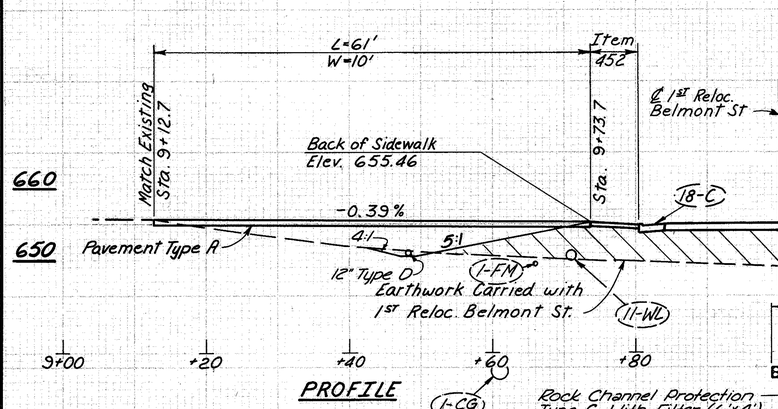
EARTHWORK QUANTITIES				
STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
9+12	6	0		
			4	88
9+50	0	125		
			3	53
9+73.5	6	0		
TOTALS			7	141

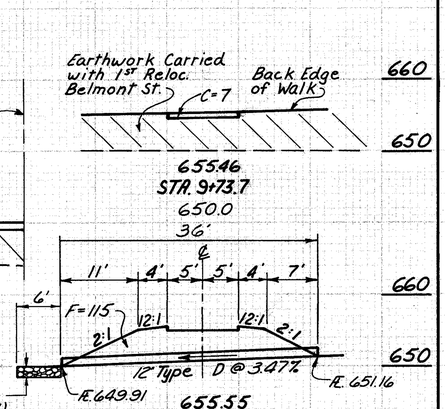
Earthwork Quantities Carried to Sheet No. 273

0 10 20
Scale in Feet

CROSS SECTIONS

For Plan and Quantities See Sheet No. 263





PROFILE

(6-A)

STA. 18+10 LT.
1ST RELOC. BELMONT ST. =
STA. 10+00 ℄ DRIVE
Skew = 10°15' RF

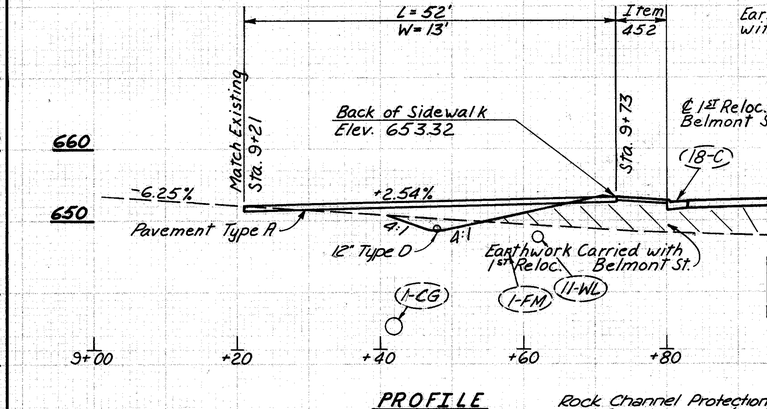
0 10 20
Scale in Feet

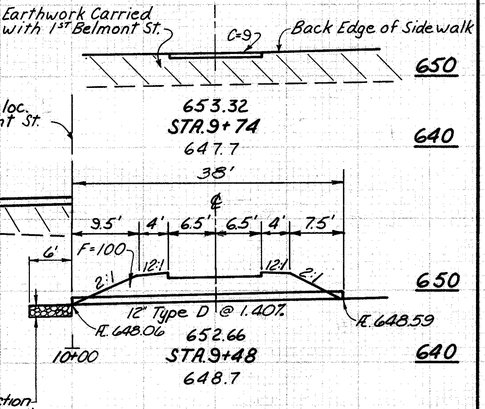
EARTHWORK QUANTITIES				
STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
9+12.7	7	0		
			5	76
9+48	0	115		
			3	51
9+73.7	7	0		
TOTALS			8	127

Earthwork Quantities Carried to Sheet No. 272

CROSS SECTIONS

For Plan Sheet Quantities See Sheet No. 262





PROFILE

(8-A)

STA. 19+53 LT.
1ST RELOC. BELMONT ST.
STA. 10+00 ℄ DRIVE
Skew = 15°30' R.F.

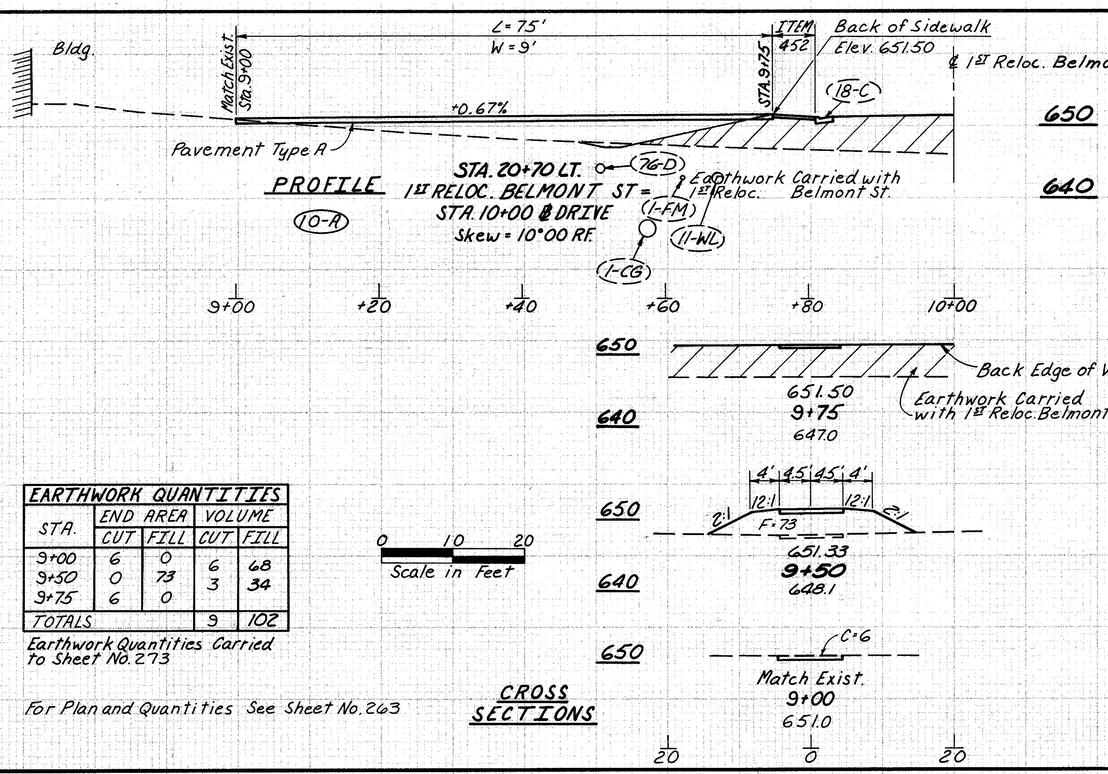
0 10 20
Scale in feet

EARTHWORK QUANTITIES				
STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
9+21	9	0		
			3	50
9+48	0	100		
			4	48
9+74	9	0		
TOTALS			7	98

Earthwork Quantities Carried to Sheet No. 273

CROSS SECTIONS

For Plan and Quantities See Sheet No. 263



PROFILE

(10-A)

STA. 20+70 LT. = 1ST RELOC. BELMONT ST = STA. 10+00 ℄ DRIVE

Skew = 10°00 R.F.

CROSS SECTIONS

EARTHWORK QUANTITIES				
STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
9+00	6	0	6	68
9+50	0	73	3	34
9+75	6	0		
TOTALS			9	102

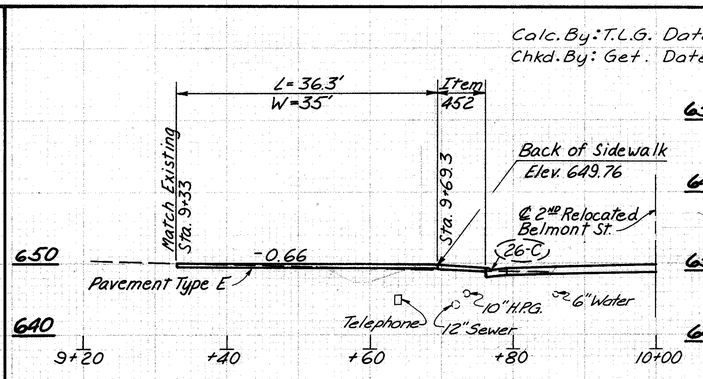
Earthwork Quantities Carried to Sheet No. 273

0 10 20
Scale in Feet

For Plan and Quantities See Sheet No. 263

Calc. By: T.L.G. Date: 7-9-84
Chkd. By: Get. Date: 7-19-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 320 / 663



PROFILE

(13-A)

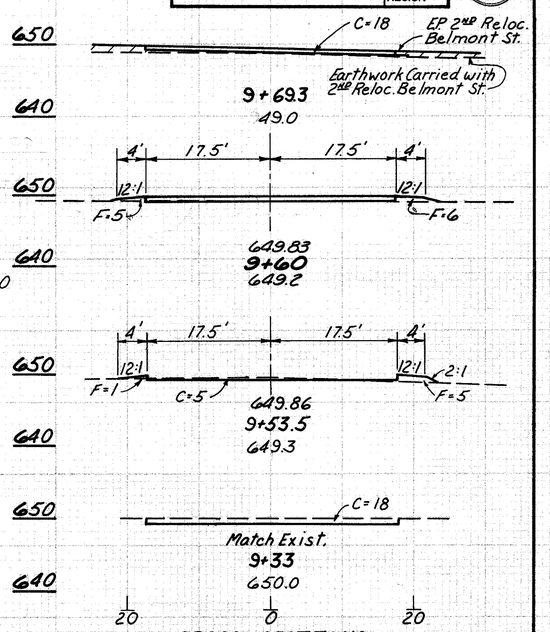
STA. 13+50 LT. = 2ND RELOC. BELMONT ST. = STA. 10+00 ℄ DRIVE

Skew = 3°15' R.F.

EARTHWORK QUANTITIES				
STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
9+33	18	0	4	2
9+53.5	5	6	1	2
9+60	0	11	3	2
9+69.3	18	0		
TOTALS			8	6

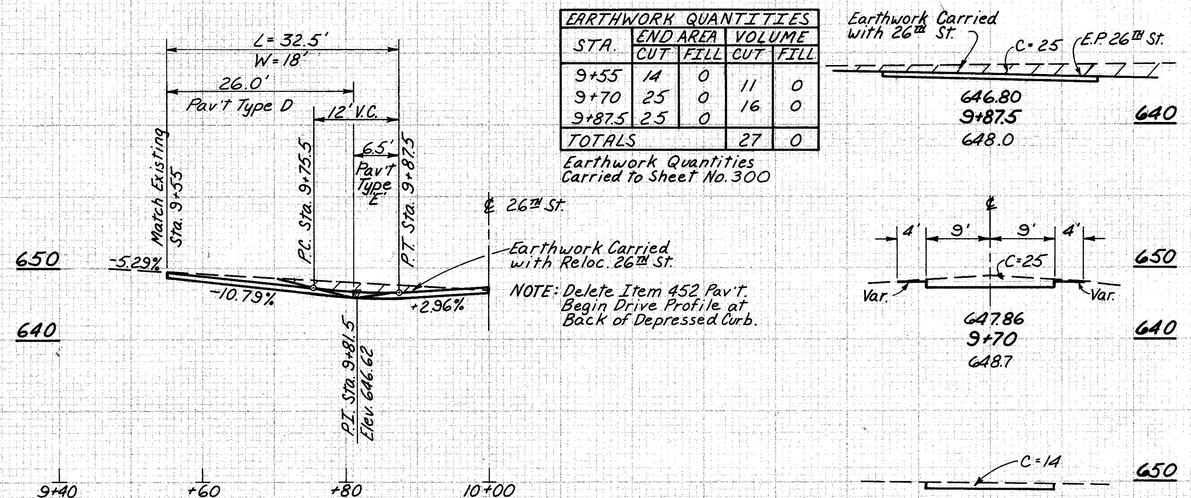
Earthwork Quantities Carried to Sheet No. 285

0 10 20
Scale in Feet



CROSS SECTIONS

For Plan and Quantities See Sheet No. 277



PROFILE

(14-A)

STA. 7+66.5 LT. RELOC. 26th ST. = STA. 10+00 ℄ DRIVE

Skew = 6°40' R.F.

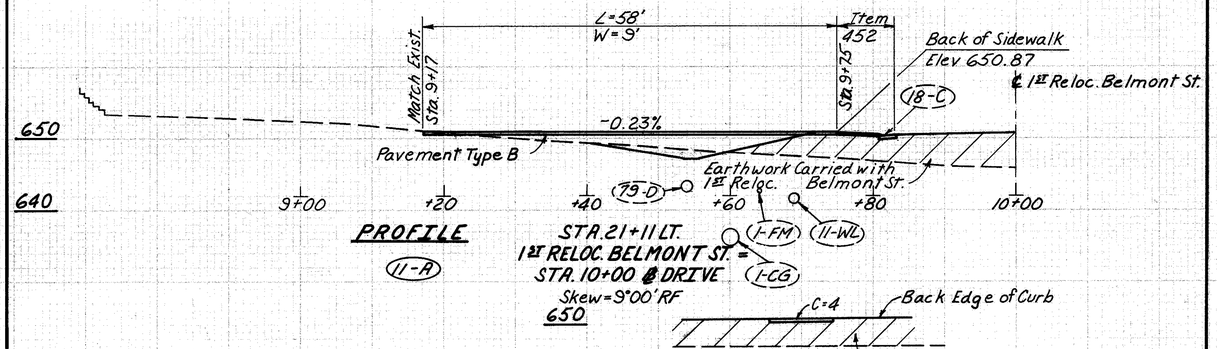
EARTHWORK QUANTITIES				
STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
9+55	14	0	11	0
9+70	25	0	16	0
9+87.5	25	0		
TOTALS			27	0

Earthwork Quantities Carried to Sheet No. 300

0 10 20
Scale in Feet

CROSS SECTIONS

For Plan and Quantities See Sheet No. 292



PROFILE

(11-A)

STA. 21+11 LT. 1ST RELOC. BELMONT ST. = STA. 10+00 ℄ DRIVE

Skew = 9°00' RF

EARTHWORK QUANTITIES				
STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
9+17	4	0	2	29
9+50	0	47	2	22
9+75	4	0		
TOTALS			4	51

Earthwork Quantities Carried to Sheet No. 273

For Plan and Quantities See Sheet No. 262

0 10 20
Scale in Feet

CROSS SECTIONS

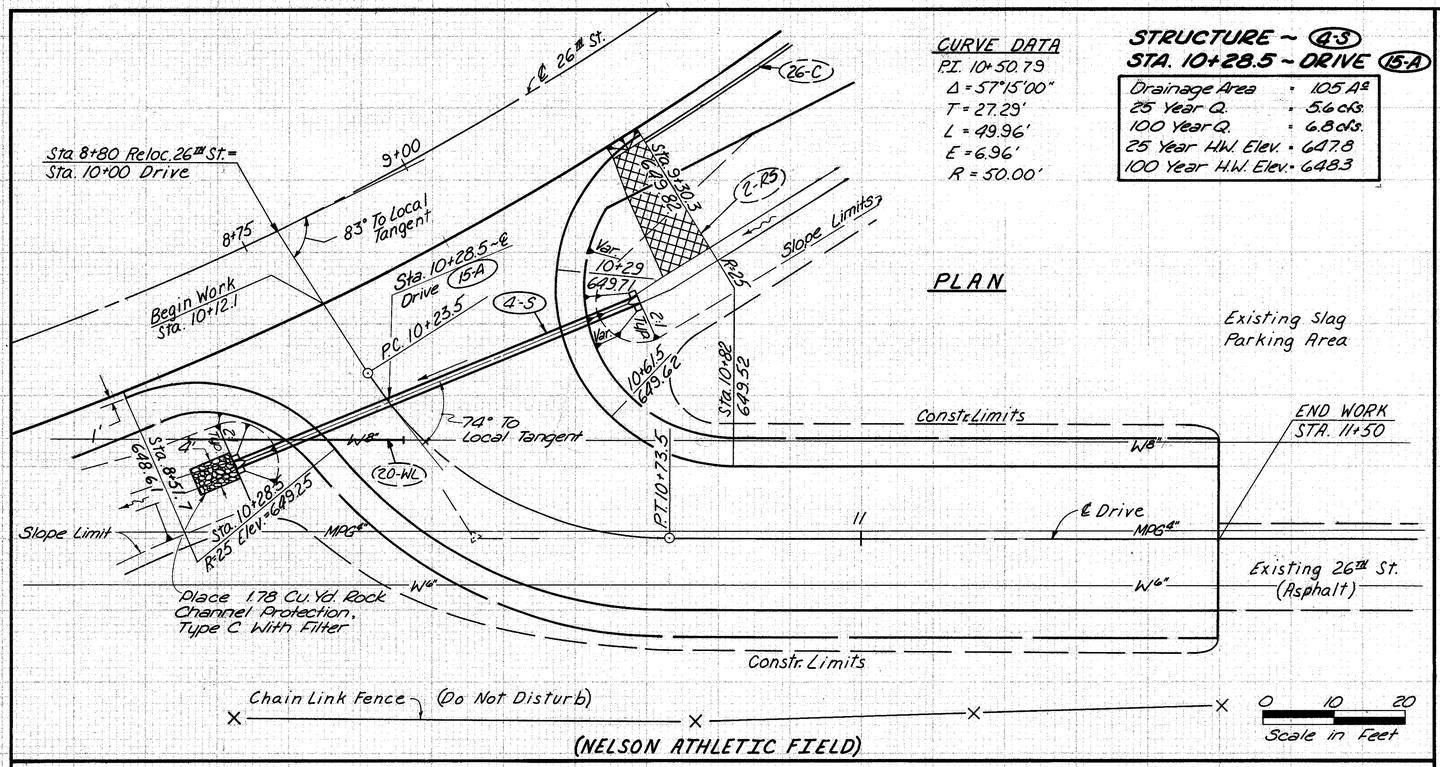
BEL - 7 - 14.17 | OHIO | FHWA REGION 5 | 321/663

Calc. By: T.L.G. Date: 7-16-84
Chkd. By: Get. Date: 7-19-84

STRUCTURE ~ (4-S)
STA. 10+28.5 ~ DRIVE (15-A)

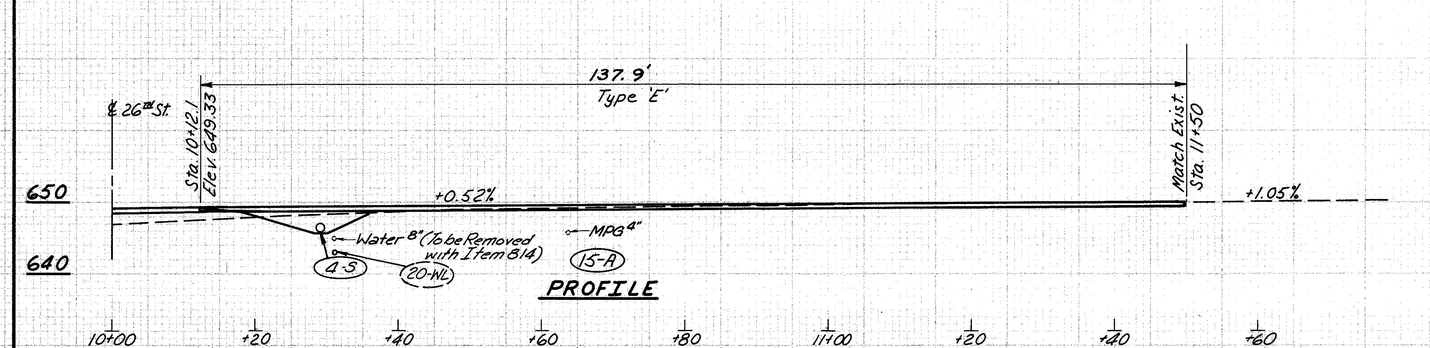
Drainage Area	= 105 A²
25 Year Q.	= 5.6 cfs.
100 Year Q.	= 6.8 cfs.
25 Year H.W. Elev.	= 647.8
100 Year H.W. Elev.	= 648.3

CURVE DATA
P.I. 10+50.79
Δ = 57°15'00"
T = 27.29'
L = 49.96'
E = 6.96'
R = 50.00'



PLAN

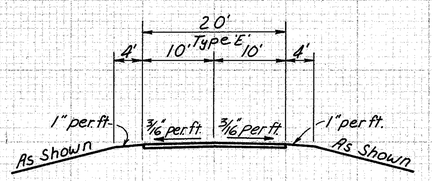
(NELSON ATHLETIC FIELD)



PROFILE

STA. 8+80 RELOC. 26TH ST. = STA. 10+00 ℄ DRIVE
Skew = 7°00 R.F.

(4-S)



TYPICAL SECTION

ESTIMATED QUANTITIES

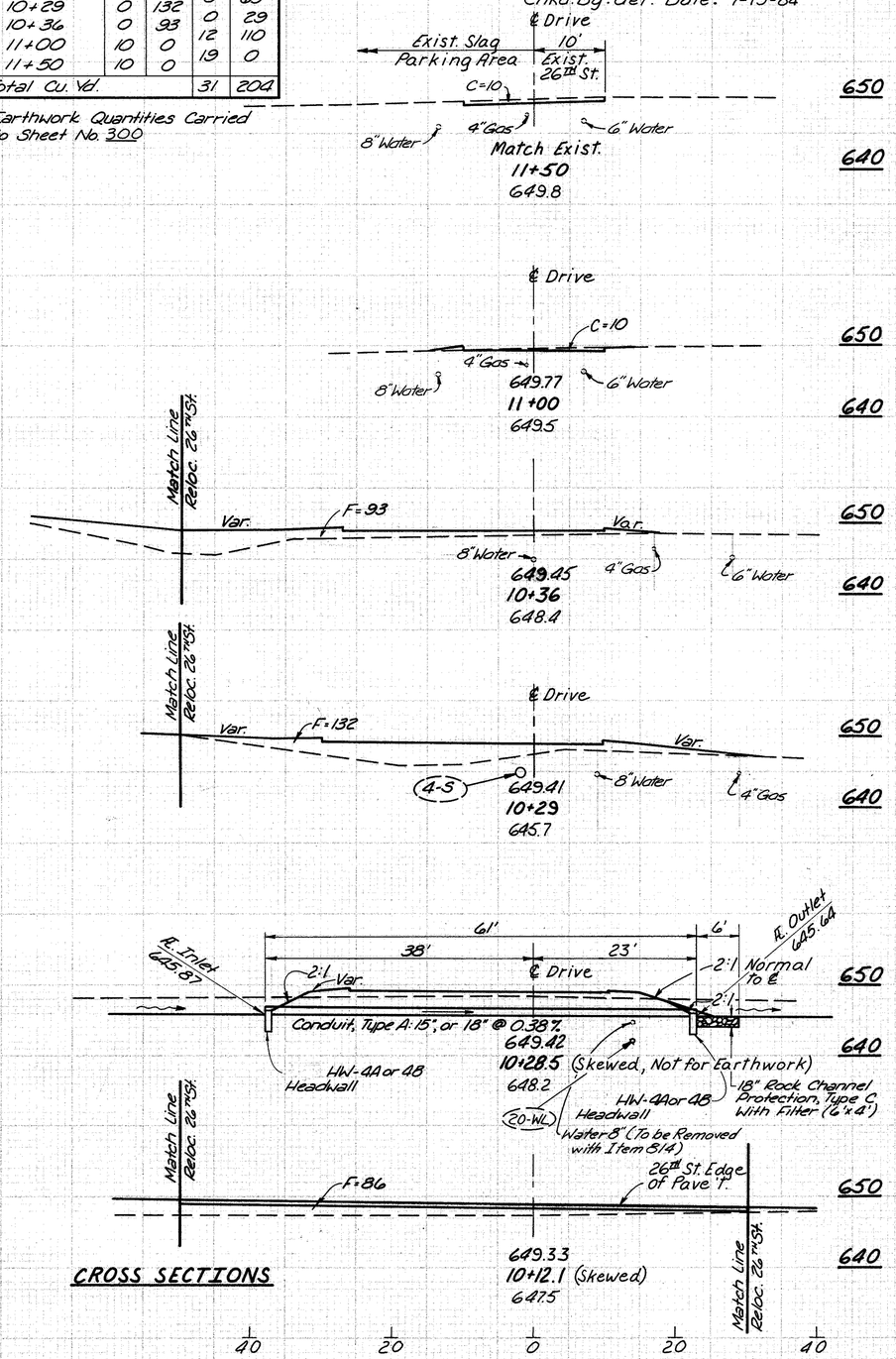
Item No.	Description	Quantity	Unit
603	Conduit, Type A: 15", 706.01, 706.02, 706.08; or 18" 707.01 (0.109), 707.05 Type C (0.079), 707.09, or 707.04 (0.079) with Bituminous Paved Invert As Per 707.05	61	Lin. Ft.
602	Concrete Masonry	0.66	Cu. Yd.
601	Rock Channel Protection, Type C with Filter	1.3	Cu. Yd.

Quantities Carried to Sheet No. 293

EARTHWORK QUANTITIES

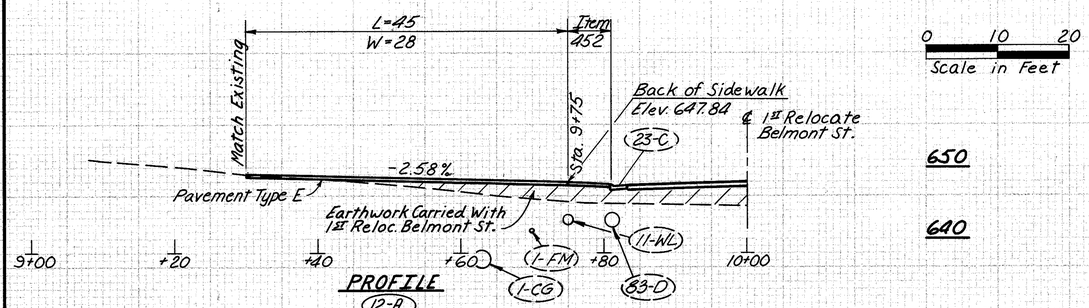
Station	End Area Cut	End Area Fill	Volume Cut	Volume Fill
10+12.1	0	86	0	65
10+29	0	132	0	29
10+36	0	93	12	110
11+00	10	0	19	0
11+50	10	0		
Total Cu. Yd.			31	204

Earthwork Quantities Carried to Sheet No. 300



CROSS SECTIONS

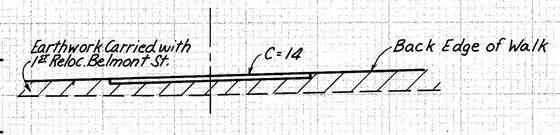
(15-A) DRIVE DETAIL



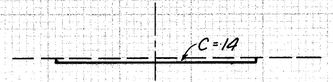
PROFILE

(12-A)

STA. 23+07 LT. ~ 1ST BELMONT ST. =
STA. 10+00 ℄ DRIVE
Skew = 1°45' R.F.



647.84
STA. 9+75
645.3



Match Exist.
STA. 9+30
649.0

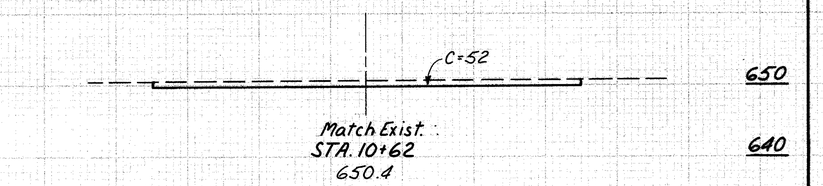
CROSS SECTIONS

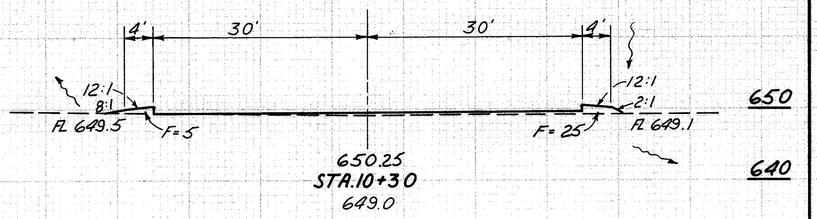
EARTHWORK QUANTITIES				
STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
9+30	14	0		
9+75	14	0	23	0
TOTALS			23	0

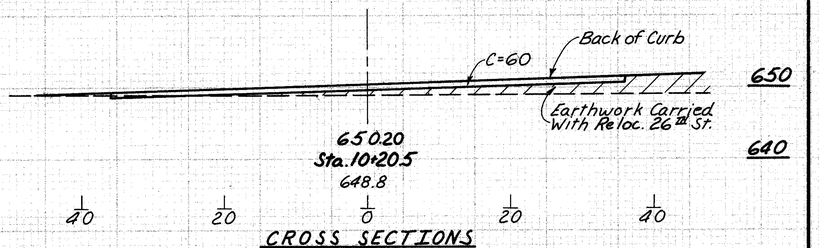
Earthwork Quantities Carried to Sheet No. 274

For Plan and Quantities See Sheet No. 265

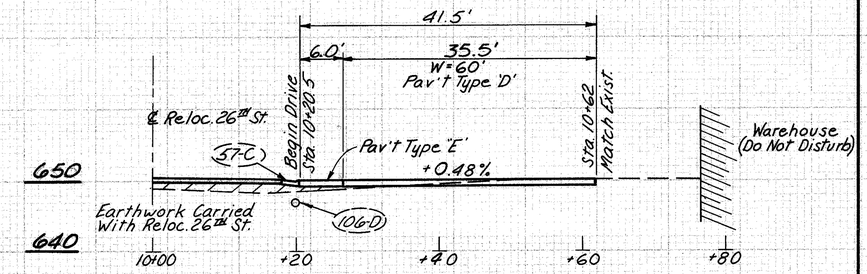
Calc. By: T.L.G. Date: 7-9-84
Chkd. By: Get Date: 7-19-84







CROSS SECTIONS



PROFILE

(16-A)

STA. 22+50 RT.
RELOC. 26TH ST. =
STA. 10+00 ℄ DRIVE
Skew = 0°00'

Note: Delete Item 452 Pav't. Begin Drive Profile at Back of Depressed Curb.

EARTHWORK QUANTITIES				
STA.	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
10+20.5	60	0	11	5
10+30	0	30	31	18
10+62	52	0		
TOTALS			42	23

Earthwork Quantities Carried to Sheet No. 307

For Plan and Quantities See Sheet No. 297

0 10 20
Scale in Feet

CALC. BY: F.S. DATE: 2-20-84
CHKD. BY: J.B.H. DATE: 2-23-84

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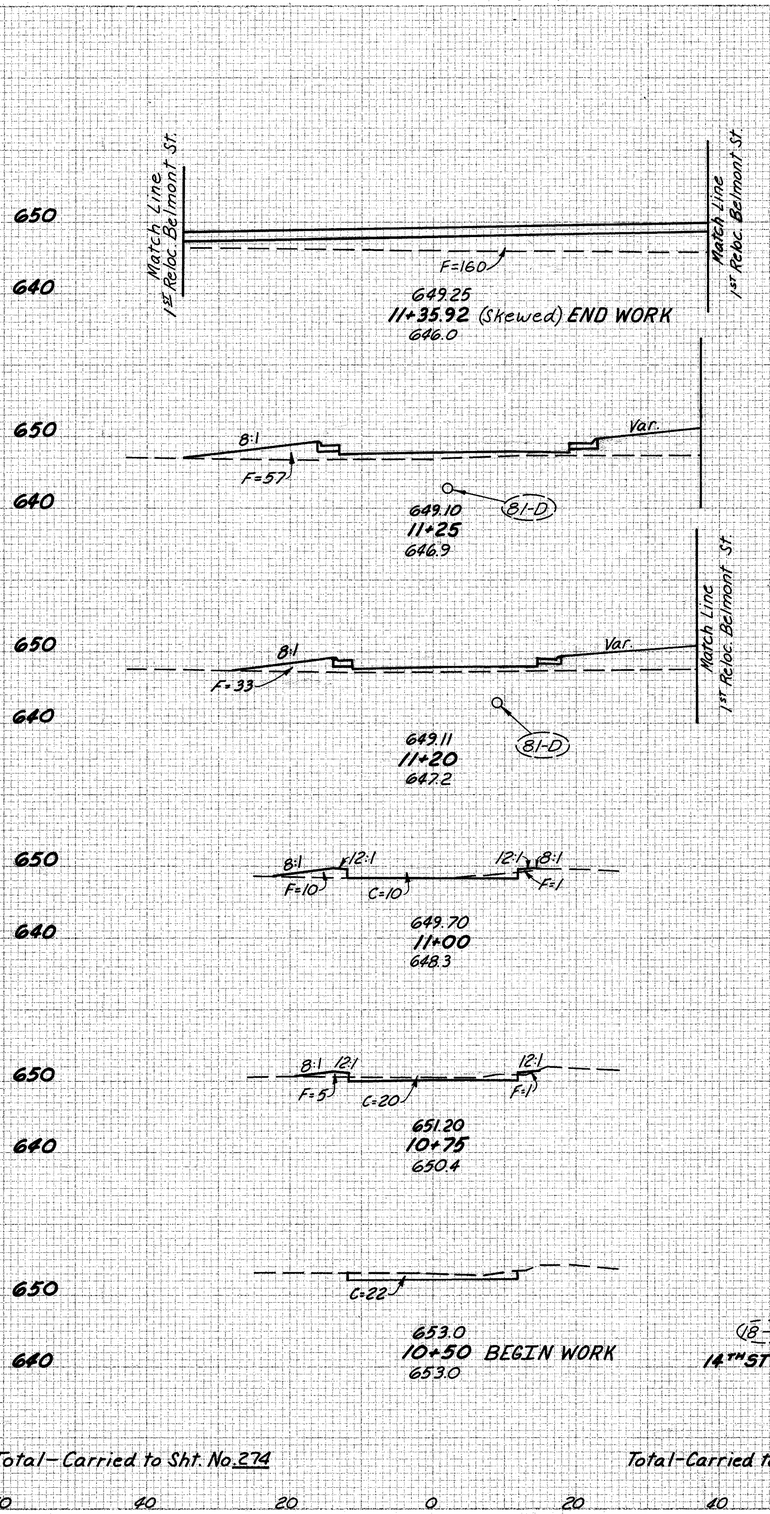
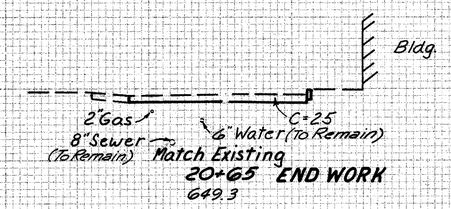
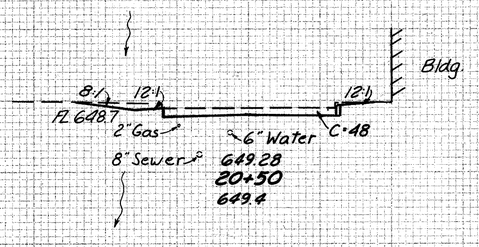
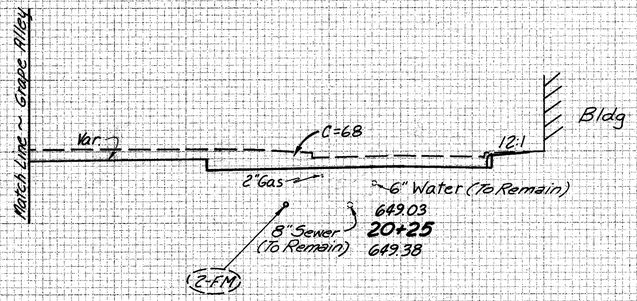
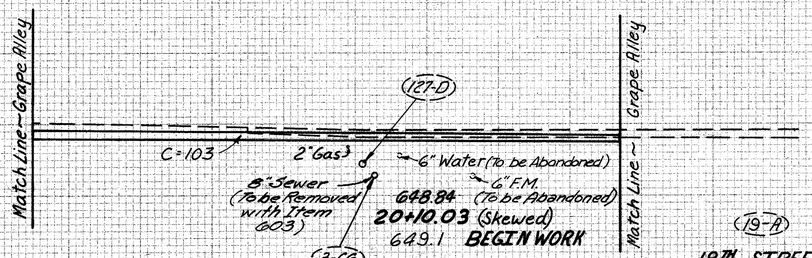


END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL	SEEDING END WIDTH	SEEDING SQ. YDS.
0	160				
		0	44		
0	57				0
		0	8		
0	33				0
		4	16		
10	11				0
		14	8		
20	6				0
		19	3		
22	0				0
← Total-Carried to Sht. No. 274		→ 37	79		0









END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		25	0
		20	0
		48	0
		54	0
		68	0
		47	0
		103	0
Total-Carried to Sht. No. 311 →		121	0

CALC. BY: F.S. DATE: 2-14-84
CHKD. BY: J.B.H. DATE: 2-23-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 324 / 663

SEEDING	
END WIDTH	SQ. YDS.

CALC. BY: F.S. DATE: 2-14-84
CHKD. BY: J.B.H. DATE: 2-23-84

BEL - 7 - 14.17 | OHIO FHWA REGION 5 | 325 / 663

SEEDING		END AREA		VOLUME		SEEDING	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	END WIDTH	SQ. YDS.

CALC. BY: F.S. DATE: 2-14-84
CHKD. BY: J.B.H. DATE: 2-23-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 326 / 663

SEEDING	
END WIDTH	SQ. YDS.

CALC. BY: F.S. DATE: 2-13-84
CHKD. BY: J.B.H. DATE: 2-23-84

BEL - 7 - 14.17 | OHIO | FHWA REGION 5 | 327 / 663

SEEDING		END AREA		VOLUME		SEEDING	
CRD WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	CRD WIDTH	SQ. YDS.
0		0	270			0	
				6	188		
0		11	80			0	
				19	44		
0						0	
				30	16		
0						0	
				25	6		
0		38	0			0	
0						0	202
0						0	235
				50	238		

SUPERELEVATION TABLES

RELOCATED S.R.7 CURVE #1

P.O.C.750+06.30 — D=0°28'LT. — MAX. SUPER=0.0156 FT./FT. — P.T.759+40.02

29.00'LT.	17.00'LT.	STATION	5.00'LT.&RT. PROFILE GRADE	17.00'RT.	29.00'RT.
MATCH	EXISTING	750+06.30	← MATCH	EXISTING →	
684.96	685.15	+25	685.33	685.52	684.99
684.63	684.81	+50	685+00	685.19	684.74
684.27	684.46	+75	684.65	684.84	684.50
683.90	684.09	751+00	684.28	684.47	684.27
683.52	683.70	+25	683.89	684.08	684.04
683.11	683.30	+50	683.48	683.67	683.75
682.68	682.87	+75	683.06	683.25	683.41
682.24	682.43	752+00	682.62	682.80	682.99
681.78	681.97	+25	682.15	682.34	682.53
681.30	681.49	+50	681.67	681.86	682.05
680.80	680.99	+75	681.17	681.36	681.55
680.28	680.47	753+00	680.66	680.85	681.03
679.75	679.93	+25	680.12	680.31	680.50
679.19	679.38	+50	679.57	679.76	679.94
678.63	678.82	+75	679.01	679.19	679.38
678.07	678.26	754+00	678.44	678.63	678.82
677.51	677.69	+25	677.88	678.02	678.26
676.94	677.13	+50	677.32	677.51	677.69
676.38	676.57	+75	676.76	676.94	677.13
675.82	676.01	755+00	676.19	676.38	676.57
675.26	675.44	+25	675.63	675.82	676.01
674.69	674.88	+50	675.07	675.26	675.44
674.13	674.32	+75	674.51	674.69	674.88
673.57	673.76	756+00	673.94	674.13	674.32
673.01	673.19	+25	673.38	673.57	673.76
672.44	672.63	+50	672.82	673.01	673.19
671.88	672.07	+75	672.26	672.44	672.63
671.32	671.50	757+00	671.69	671.88	672.07
670.75	670.94	+25	671.13	671.32	671.50
670.19	670.38	+50	670.57	670.76	670.94
669.63	669.82	+75	670.00	670.19	670.38
669.07	669.25	758+00	669.44	669.63	669.82
668.52	668.71	+25	668.90	669.09	669.27
668.02	668.21	+50	668.40	668.58	668.77
667.57	667.76	758+74.40	667.94	668.13	668.32
667.56	667.75	+75	667.93	668.12	668.31
667.28	667.39	759+00	667.51	667.70	667.88
667.04	667.08	+25	667.13	667.31	667.50
666.91	666.91	P.T.759+40.02	666.91	667.10	667.29
666.81	666.80	+50	666.78	666.97	667.16
666.59	666.53	+75	666.48	666.66	666.85
666.41	666.31	760+00	666.21	666.40	666.59
666.27	666.13	+25	665.99	666.17	666.36
666.16	665.98	+50	665.80	665.99	666.18
666.15	665.96	760+54.15	665.77	665.96	666.15

RELOCATED S.R.7 CURVE #2 LEFT SIDE

P.C.762+15.55 — D=1°28'RT. — MAX. SUPER=0.036 FT./FT. — P.T.767+33.01

	29.00'LT.	17.00'LT.	5.00'LT.	1.75'LT.	STATION
	666.15	665.96	665.77	665.64	760+54.15
	666.03	665.84	665.65	665.52	+75
	665.92	665.74	665.55	665.41	761+00
	665.86	665.67	665.48	665.34	+25
	665.85	665.66	665.47	665.34	761+29.15
	665.83	665.64	665.46	665.32	+50
	665.84	665.66	665.47	665.33	+75
	665.89	665.71	665.52	665.38	762+00
	665.91	665.72	665.53	665.40	762+03.95
	666.01	665.79	665.57	665.44	P.C.762+15.55
	666.09	665.85	665.61	665.48	+25
	666.35	666.05	665.74	665.61	+50
	666.51	666.17	665.83	665.70	762+63.25
	666.65	666.29	665.92	665.79	+75
	667.01	666.58	666.15	666.02	763+00
	667.04	666.60	666.17	666.04	763+01.95
	667.27	666.84	666.41	666.27	+25
	667.56	667.13	666.70	666.56	+50
	667.89	667.46	667.03	666.89	+75
	668.26	667.83	667.40	667.26	764+00
	668.65	668.22	667.79	667.65	+25
	669.04	668.61	668.18	668.04	+50
	669.43	669.00	668.57	668.43	+75
	669.82	669.39	668.96	668.82	765+00
	670.20	669.72	669.34	669.20	+25
	670.56	670.13	669.70	669.56	+50
	670.90	670.47	670.04	669.90	+75
	671.23	670.79	670.36	670.22	766+00
	671.53	671.10	670.67	670.53	+25
	671.78	671.34	670.91	670.77	766+46.61
	671.79	671.37	670.95	670.81	+50
	671.92	671.56	671.19	671.06	+75
	671.96	671.62	671.29	671.15	766+85.01
	672.03	671.73	671.43	671.30	767+00
	672.13	671.89	671.66	671.52	+25
	672.16	671.94	671.73	671.59	P.T.767+33.01
	672.20	672.01	671.82	671.68	767+44.61
	672.24	672.05	671.86	671.73	+50
	672.43	672.24	672.05	671.91	+75
	672.59	672.41	672.22	672.08	768+00
	672.71	672.52	672.34	672.20	768+19.41
	672.74	672.56	672.37	672.23	+25
	672.87	672.68	672.50	672.36	+50
	672.98	672.79	672.61	672.47	+75
	673.07	672.88	672.20	672.56	769+00
	673.14	672.96	672.77	672.63	+25
	673.19	673.01	672.82	672.68	+50
	673.22	673.03	672.85	672.71	769+69.01

RELOCATED S.R.7 CURVE #2 RIGHT SIDE

P.C.762+15.55 — D=1°28'RT. — MAX. SUPER=0.036 FT./FT. — P.T.767+33.01

STATION	1.75'RT.	5.00'RT. PROFILE GRADE	17.00'RT.	29.00'RT.
760+54.15	665.64	665.77	665.96	666.15
+75	665.52	665.65	665.79	665.92
761+00	665.41	665.55	665.62	665.69
+25	665.34	665.48	665.49	665.50
761+29.15	665.34	665.47	665.47	665.47
+50	665.32	665.46	665.40	665.35
+75	665.33	665.47	665.35	665.24
762+00	665.38	665.52	665.34	665.17
762+03.95	665.40	665.53	665.35	665.16
P.C.762+15.55	665.44	665.57	665.36	665.14
+25	665.48	665.61	665.37	665.13
+50	665.61	665.74	665.44	665.14
762+63.55	665.70	665.83	665.50	665.16
+75	665.79	665.92	665.55	665.19
763+00	666.02	666.13	665.70	665.27
763+01.95	666.04	666.15	665.71	665.78
+225	666.27	666.38	665.95	665.52
+50	666.56	666.67	666.24	665.81
+75	666.89	667.00	666.57	666.14
764+00	667.26	667.37	666.94	666.51
+25	667.65	667.76	667.33	666.90
+50	668.04	668.15	667.72	667.29
+75	668.43	668.54	668.11	667.68
765+00	668.82	668.93	668.50	668.07
+25	669.20	669.31	668.88	668.45
+50	669.56	669.67	669.24	668.81
+75	669.90	670.01	669.58	669.15
766+00	670.22	670.34	669.90	669.47
+25	670.53	670.64	670.21	669.78
766+46.61	670.77	670.89	670.45	670.02
+50	670.81	670.92	670.50	670.08
+75	671.06	671.19	670.83	670.47
766+85.01	671.15	671.29	670.95	670.62
767+00	671.30	671.43	671.13	670.84
+25	671.52	671.66	671.42	671.19
P.T.767+33.01	671.59	671.73	671.51	671.29
767+44.61	671.68	671.82	671.63	671.45
+50	671.73	671.86	671.69	671.52
+75	671.91	672.05	671.94	671.83
768+00	672.08	672.22	672.17	672.12
768+19.41	672.20	672.34	672.34	672.34
+25	672.23	672.37	672.38	672.38
+50	672.36	672.50	672.54	672.57
+75	672.47	672.61	672.68	672.75
769+00	672.56	672.70	672.80	672.90
+25	672.63	672.77	672.90	673.03
+50	672.68	672.82	672.98	673.15
769+69.01	672.71	672.85	673.03	673.22

SUPERELEVATION TABLES

RELOCATED S.R.7 CURVE #3 LEFT SIDE

P.C.782+88.64 — D=1°28'LT. — MAX. SUPER=0.036 FT./FT. — P.T.788+09.51

29.00'LT.	17.00'LT.	5.00'LT. PROFILE GRADE	1.75'LT.	STATION
660.04	659.85	659.67	659.53	780+52.64
659.76	659.61	659.45	659.31	+75
659.49	659.36	659.23	659.09	781+00
659.24	659.14	659.05	658.91	+25
659.03	658.96	658.90	658.76	+50
658.84	658.81	658.78	658.64	+75
658.70	658.69	658.69	658.55	782+00
658.68	658.68	658.68	658.55	782+02.24
658.52	658.58	658.64	658.50	+25
658.38	658.50	658.62	658.48	+50
658.26	658.44	658.63	658.49	+75
658.26	658.44	658.63	658.49	782+77.04
658.21	658.43	658.65	658.51	P.C.782+88.64
658.18	658.43	658.67	658.53	783+00
658.12	658.42	658.73	658.59	+25
658.09	658.42	658.76	658.62	783+36.64
658.05	658.42	658.79	658.66	+50
657.99	658.42	658.85	658.74	+75
657.99	658.42	658.85	658.74	783+75.04
658.05	658.48	658.91	658.80	784+00
658.11	658.54	658.97	658.86	+25
658.17	658.60	659.03	658.92	+50
658.23	658.66	659.09	658.98	+75
658.29	658.72	659.15	659.04	785+00
658.35	658.78	659.21	659.10	+25
658.41	658.84	659.27	659.16	+50
658.47	658.90	659.33	659.22	+75
658.53	658.96	659.39	659.28	786+00
658.59	659.02	659.45	659.34	+25
658.65	659.08	659.51	659.40	+50
658.71	659.14	659.57	659.46	+75
658.77	659.20	659.63	659.52	787+00
658.82	659.25	659.69	659.57	787+23.11
658.84	659.26	659.69	659.58	+25
659.02	659.39	659.75	659.62	+50
659.11	659.44	659.78	659.64	787+61.51
659.21	659.51	659.81	659.67	+75
659.39	659.63	659.87	659.73	788+00
659.46	659.68	659.89	659.76	P.T.788+09.51
659.55	659.73	659.92	659.78	788+21.11
659.58	659.75	659.93	659.79	+25
659.76	659.88	659.99	659.85	+50
659.95	660.00	660.05	659.91	+75
660.10	660.10	660.10	659.96	788+95.91
660.12	660.12	660.11	659.97	789+00
660.24	660.21	660.17	660.03	+25
660.37	660.30	660.23	660.09	+50
660.49	660.39	660.29	660.15	+75
660.61	660.48	660.35	660.21	790+00
660.73	660.57	660.41	660.27	+25
660.83	660.65	660.46	660.32	790+45.51

RELOCATED S.R.7 CURVE #3 RIGHT SIDE

P.C.782+88.64 — D=1°28'LT. — MAX. SUPER=0.036 FT./FT. — P.T.788+09.51

STATION	1.75'RT.	5.00'RT.	17.00'RT.	29.00'RT.
780+52.64	659.53	659.67	659.85	660.04
+75	659.31	659.45	659.63	659.82
781+00	659.09	659.23	659.42	659.60
+25	658.91	659.05	659.23	659.42
+50	658.76	658.90	659.08	659.27
+75	658.64	658.78	658.96	659.15
782+00	658.55	658.69	658.88	659.06
782+02.24	658.55	658.68	658.87	659.06
+25	658.50	658.64	658.82	659.01
+50	658.48	658.62	658.80	658.99
+75	658.49	658.63	658.81	659.00
782+77.04	658.49	658.63	658.82	659.00
P.C.782+88.64	658.51	658.65	658.86	659.08
783+00	658.53	658.67	658.91	659.16
+25	658.59	658.73	659.04	659.34
783+36.64	658.62	658.76	659.09	659.43
+50	658.66	658.80	659.17	659.54
+75	658.64	658.88	659.31	659.74
783+75.04	658.74	658.88	659.31	659.74
784+00	658.80	658.94	659.37	659.80
+25	658.86	659.00	659.43	659.86
+50	658.92	659.06	659.49	659.92
+75	658.98	659.12	659.55	659.98
785+00	659.04	659.18	659.61	660.04
+25	659.10	659.24	659.67	660.10
+50	659.16	659.30	659.73	660.16
+75	659.22	659.36	659.79	660.22
786+00	659.28	659.42	659.85	660.28
+25	659.34	659.48	659.91	660.34
+50	659.40	659.54	659.97	660.40
+75	659.46	659.60	660.03	660.46
787+00	659.52	659.66	660.09	660.52
787+23.11	659.57	659.71	660.14	660.58
+25	659.58	659.72	660.14	660.57
+50	659.62	659.76	660.12	660.49
787+61.51	659.64	659.78	660.11	660.45
+75	659.67	659.81	660.11	660.42
788+00	659.73	659.87	660.11	660.35
P.T.788+09.51	659.76	659.89	660.11	660.33
788+21.11	659.78	659.92	660.11	660.30
+25	659.79	659.93	660.12	660.30
+50	659.85	659.99	660.18	660.36
+75	659.91	660.05	660.24	660.42
788+95.91	659.96	660.10	660.29	660.47
789+00	659.97	660.11	660.30	660.48
+25	660.03	660.17	660.36	660.54
+50	660.09	660.23	660.42	660.60
+75	660.15	660.29	660.48	660.66
790+00	660.21	660.35	660.54	660.72
+25	660.27	660.41	660.60	660.78
790+45.51	660.32	660.46	660.65	660.83

RELOCATED S.R.7 CURVE #4

P.C.793+60.74 — D=0°28'RT. — MAX. SUPER=0.0156 FT./FT. — P.T.800+16.19

29.00'LT.	17.00'LT.	STATION	5.00'LT.&RT. PROFILE GRADE	17.00'RT.	29.00'RT.
661.14	660.95	791+73.24	660.77	660.95	661.14
661.15	660.96	+75	660.77	660.96	661.14
661.21	661.02	792+00	660.83	660.98	661.14
661.27	661.08	+25	660.89	661.01	661.14
661.33	661.14	+50	660.95	661.04	661.13
661.39	661.20	+75	661.01	661.07	661.13
661.45	661.26	793+00	661.07	661.10	661.13
661.50	661.31	793+23.24	661.13	661.13	661.13
661.51	661.32	+25	661.13	661.13	661.12
661.57	661.38	+50	661.19	661.12	661.06
661.59	661.40	P.C.793+60.94	661.22	661.12	661.03
661.63	661.44	+75	661.25	661.12	660.99
661.68	661.49	793+98.14	661.31	661.12	660.93
661.69	661.50	794+00	661.31	661.12	660.94
661.75	661.56	+25	661.37	661.18	661.00
661.81	661.62	+50	661.43	661.24	661.06
661.87	661.68	+75	661.49	661.30	661.12
661.93	661.74	795+00	661.55	661.36	661.18
661.99	661.80	+25	661.61	661.42	661.24
662.05	661.86	+50	661.67	661.48	661.30
662.11	661.92	+75	661.73	661.54	661.36
662.17	661.98	796+00	661.79	661.60	661.42
662.23	662.04	+25	661,85	661.66	661.48
662.29	662.10	+50	661.91	661.72	661.54
662.35	662.16	+75	661.97	661.78	661.60
662.41	662.22	797+00	662.03	661.84	661.66
662.47	662.28	+25	662.09	661.90	661.72
662.53	662.34	+50	662.15	661.96	661.78
662.59	662.40	+75	662.21	662.02	661.84
662.65	662.46	798+00	662.27	662.08	661.90
662.71	662.52	+25	662.33	662.14	661.96
662.77	662.58	+50	662.39	662.20	662.02
662.83	662.64	+75	662.45	662.26	662.08
662.89	662.70	799+00	662.51	662.32	662.14
662.94	662.75	+25	662.57	662.38	662.19
662.99	662.80	+50	662.61	662.42	662.24
663.02	662.83	+75	662.65	662.46	662.27
663.02	662.84	799+78.79	662.65	662.46	662.27
663.05	662.86	800+00	662.67	662.54	662.40
663.06	662.87	P.T.800+16.19	662.68	662.59	662.49
663.06	662.87	+25	662.69	662.61	662.54
663.07	662.88	+50	662.69	662.68	662.67
663.07	662.88	800+53.79	662.69	662.69	662.69
663.06	662.87	+75	662.69	662.71	662.74
663.05	662.86	801+00	662.67	662.73	662.79
663.02	662.83	+25	662.65	662.73	662.82
662.99	662.80	+50	662.61	662.73	662.85
662.94	662.75	+75	662.57	662.72	662.87
662.89	662.70	802+00	662.51	662.69	662.88
662.88	662.69	802+03.79	662.50	662.69	662.88

SUPERELEVATION TABLES

RELOCATED S.R.7 CURVE #5 LEFT SIDE

T.S.807+51.34 S.C.809+51.34 — D=2°00'RT. MAX. SUPER=0.047 FT./FT. — C.S.822+70.78 S.T.824+70.78

	29.00'LT.	17.00'LT.	5.00'LT.	1.75'LT.	STATION
	661.92	661.73	661.55	661.41	806+01.74
	661.86	661.68	661.49	661.35	+25
	661.80	661.62	661.43	661.29	+50
	661.74	661.56	661.37	661.23	+75
	661.68	661.50	661.31	661.17	807+00
	661.62	661.44	661.25	661.11	+25
	661.56	661.38	661.19	661.05	+50
	661.56	661.37	661.19	661.05	T.S.807+51.34
	661.50	661.32	661.13	660.99	+75
	661.44	661.26	661.07	660.93	808+00
	661.40	661.22	661.03	660.89	808+17.54
	661.43	661.22	661.01	660.87	+25
	661.51	661.23	660.95	660.81	+50
	661.57	661.24	660.90	660.76	808+70.28
	661.59	661.24	660.90	660.76	+75
	661.70	661.28	660.86	660.72	809+00
	661.80	661.31	660.82	660.68	+25
	661.91	661.35	660.79	660.63	+50
	661.92	661.35	660.79	660.63	S.C.809+51.34
	661.86	661.29	660.73	660.58	+75
	661.80	661.23	660.67	660.52	810+00
	661.74	661.17	660.61	660.46	+25
	661.68	661.11	660.55	660.40	+50
	661.62	661.05	660.49	660.34	+75
	661.56	660.99	660.43	660.28	811+00
	661.50	660.93	660.37	660.22	+25
	661.44	660.87	660.31	660.16	+50
	661.38	660.81	660.25	660.10	+75
	661.32	660.75	660.19	660.04	812+00
	661.26	660.69	660.13	659.98	+25
	661.20	660.63	660.07	659.92	+50
	661.14	660.57	660.01	659.86	+75
	661.08	660.51	659.95	659.80	813+00
	661.02	660.45	659.89	659.74	+25
	660.96	660.39	659.83	659.68	+50
	660.90	660.33	659.77	659.62	+75
	660.84	660.27	659.71	659.56	814+00
	660.78	660.21	659.65	659.50	+25
	660.72	660.15	659.59	659.44	+50
	660.68	660.11	659.55	659.39	+75
	660.67	660.10	659.54	659.38	815+00
	660.69	660.13	659.57	659.41	+25
	660.75	660.19	659.63	659.47	+50
	660.85	660.29	659.72	659.57	+75
	660.98	660.42	659.85	659.70	816+00
	661.14	660.58	660.02	659.86	+25
	661.34	660.78	660.21	660.06	+50
	661.58	661.01	660.45	660.29	+75
	661.84	661.28	660.72	660.56	817+00
	661.15	661.58	661.02	660.86	+25
	662.48	661.92	661.35	661.20	+50
	662.85	662.29	661.73	661.57	+75
	663.26	662.70	662.13	661.98	818+00
	663.70	663.14	662.57	662.42	+25
	664.17	663.61	663.05	662.89	+50
	664.68	664.12	663.56	663.40	+75
	665.23	664.66	664.10	663.94	819+00
	665.81	665.24	664.68	664.52	+25
	666.42	665.85	665.29	665.14	+50
	667.04	666.47	665.91	665.76	+75
	667.64	667.08	666.51	666.36	820+00
	668.22	667.66	667.09	666.94	+25
	668.78	668.22	667.65	667.50	+50
	669.32	668.76	668.20	668.04	+75
	669.85	669.28	668.72	668.56	821+00
	670.35	669.78	669.22	669.07	+25
	670.83	670.27	669.70	669.55	+50
	671.30	670.73	670.17	670.01	+75
	671.74	671.18	670.61	670.46	822+00

RELOCATED S.R.7 CURVE #5 LEFT SIDE CONTINUED

	29.00'LT.	17.00'LT.	5.00'LT.	1.75'LT.	STATION
	672.16	671.60	671.04	670.88	+25
	672.57	672.00	671.44	671.29	+50
	672.89	672.33	671.76	671.61	C.S.822+70.78
	672.93	672.37	671.82	671.67	+75
	673.13	672.64	672.16	672.01	823+00
	673.31	672.89	672.48	672.34	+25
	673.47	673.13	672.79	672.65	+50
	673.47	673.14	672.80	672.67	823+51.49
	673.63	673.36	673.09	672.95	+75
	673.78	673.58	673.38	673.24	824+00
	673.80	673.61	673.42	673.29	824+04.24
	674.02	673.83	673.65	673.51	+25
	674.27	674.08	673.89	673.76	+50
	674.46	674.27	674.09	673.95	S.T.824+70.78
	674.50	674.31	674.12	673.99	+75
	674.71	674.52	674.33	674.19	825+00
	674.89	674.71	674.52	674.38	+25
	675.06	674.88	674.69	674.55	+50
	675.21	675.03	674.84	674.70	+75
	675.35	675.16	674.97	674.83	826+00
	675.44	675.25	675.06	674.93	826+20.38

RELOCATED S.R.7 CURVE #5 RIGHT SIDE

T.S.807+51.34 S.C.809+51.34 — D=2°00'RT. MAX. SUPER=0.047 FT./FT. — C.S.822+70.78 S.T.824+70.78

STATION	1.75'RT.	PROFILE GRADE	17.00'RT.	29.00'RT.
806+01.74	661.41	661.55	661.73	661.92
+25	661.35	661.49	661.65	661.81
+50	661.29	661.43	661.56	661.68
+75	661.23	661.37	661.47	661.56
807+00	661.17	661.31	661.37	661.44
+25	661.11	661.25	661.28	661.32
+50	661.05	661.19	661.19	661.19
T.S.807+51.34	661.05	661.19	661.19	661.19
+75	660.99	661.13	661.06	661.00
808+00	660.93	661.07	660.93	660.80
808+17.54	660.89	661.03	660.84	660.65
+25	660.87	661.01	660.80	660.59
+50	660.81	660.95	660.67	660.39
808+70.28	660.76	660.90	660.57	660.23
+75	660.76	660.89	660.54	660.19
809+00	660.72	660.83	660.41	659.99
+25	660.68	660.77	660.28	659.79
+50	660.63	660.71	660.15	659.59
S.C.809+51.34	660.63	660.71	660.14	659.58
+75	660.58	660.65	660.09	659.52
810+00	660.52	660.59	660.03	659.46
+25	660.46	660.53	659.97	659.40
+50	660.40	660.47	659.91	659.34
+75	660.34	660.41	659.85	659.28
811+00	660.28	660.35	659.79	659.22
+25	660.22	660.29	659.73	659.16
+50	660.16	660.23	659.67	659.10
+75	660.10	660.17	659.61	659.04
812+00	660.04	660.11	659.55	658.98
+25	658.98	660.05	659.49	658.92
+50	659.92	659.99	659.43	658.86
+75	659.86	659.93	659.37	658.80
813+00	659.80	659.87	659.31	658.74
+25	659.74	659.81	659.25	658.68
+50	659.68	659.75	659.19	658.62
+75	659.62	659.69	659.13	658.56
814+00	659.56	659.63	659.07	658.50

RELOCATED S.R.7 CURVE #5 RIGHT SIDE CONTINUED

STATION	1.75'RT.	PROFILE GRADE	17.00'RT.	29.00'RT.
+25	659.50	659.57	659.01	658.44
+50	659.44	659.51	658.95	658.38
+75	659.39	659.47	658.90	658.34
815+00	659.38	659.46	658.90	658.33
+25	659.41	659.49	658.92	658.36
+50	659.47	659.55	658.98	658.42
+75	659.57	659.64	659.08	658.51
816+00	659.70	659.77	659.21	658.64
+25	659.86	659.94	659.37	658.81
+50	660.06	660.13	659.57	659.01
+75	660.29	660.37	659.80	659.24
817+00	660.56	660.64	660.07	659.51
+25	660.86	660.94	660.37	659.81
+50	661.20	661.27	660.71	660.15
+75	661.57	661.65	661.08	660.52
818+00	661.98	662.05	661.49	660.92
+25	662.42	662.49	661.93	661.36
+50	662.89	662.97	662.40	661.84
+75	663.40	663.48	662.91	662.35
819+00	663.94	664.02	663.46	662.89
+25	664.52	664.60	664.03	663.47
+50	665.14	665.21	664.65	664.08
+75	665.76	665.83	665.27	664.70
820+00	666.36	666.43	665.87	665.30
+25	666.94	667.01	666.45	665.88
+50	667.50	667.57	667.01	666.45
+75	668.04	668.12	667.55	666.99
821+00	668.56	668.64	668.07	667.51
+25	669.07	669.14	668.58	668.01
+50	669.55	669.62	669.06	668.50
+75	670.01	670.09	669.52	668.96
822+00	670.46	670.53	669.97	669.40
+25	670.88	670.96	670.39	669.83
+50	671.29	671.36	670.80	670.23
C.S.822+70.78	671.61	671.68	671.12	670.55
+75	671.67	671.75	671.19	670.64
823+00	672.01	672.11	671.63	671.15
+25	672.34	672.46	672.05	671.64
+50	672.65	672.78	672.44	672.10
823+51.49	672.67	672.80	672.47	672.13
+75	672.95	673.09	672.82	672.55
824+00	673.24	673.38	673.18	672.98
824+04.24	673.29	673.42	673.24	673.05
+25	673.51	673.65	673.52	673.39
+50	673.76	673.89	673.84	673.78
S.T.824+70.78	673.95	674.09	674.09	674.09
+75	673.99	674.12	674.13	674.13
825+00	674.19	674.33	674.37	674.40
+25	674.38	674.52	674.59	674.66
+50	674.55	674.69	674.79	674.89
+75	674.70	674.84	674.97	675.10
826+00	674.83	674.97	675.13	675.29
826+20.38	674.93	675.06	675.25	675.44

SUPERELEVATION TABLES

RAMP 'A'

P.C.769+75.89 — D=8°00'LT. — MAX. SUPER=0.056 FT./FT. — P.T.770+56.86

16.00'LT.	STATION	PROFILE GRADE 0.00'
653.82	768+94.19	653.86
653.71	769+00	653.79
653.22	+25	653.49
652.72	+50	653.19
652.41	+75	653.07
652.41	P.C.769+75.89	653.07
652.50	770+00	653.30
652.75	770+16.38	653.65
653.04	+25	653.89
653.14	+50	654.84
653.49	P.T.770+56.86	655.15
655.41	+75	655.97
656.67	771+00	657.09
657.95	+25	658.22
658.16	771+29.38	658.41
659.21	+50	659.34
660.35	771+73.06	660.35
660.44	+75	660.43
661.50	772+00	661.43
662.50	+25	662.37
663.41	+50	663.22
664.18	772+72.90	663.93

RAMP 'D'

P.C.772+58.18 — D=4°00'RT. — MAX. SUPER=0.042 FT./FT. — P.T.774+30.89

PROFILE GRADE 0.00'	STATION	16.00'RT.
660.24	772+16.78	660.24
660.56	+25	660.49
661.54	+50	661.27
661.86	P.C.772+58.18	661.52
662.48	+75	662.04
663.33	773+00	662.75
663.85	773+16.98	663.18
664.09	+25	663.42
664.76	+50	664.09
665.29	773+72.09	664.61
665.35	+75	664.69
665.85	774+00	665.34
666.26	+25	665.89
666.35	P.T.774+30.89	666.01
666.59	+50	666.36
666.82	+75	666.74
666.92	774+89.69	666.92
666.97	775+00	667.00
667.04	+25	667.13
667.01	+50	667.16
666.90	+75	667.11
666.80	775+89.69	667.05

RAMP 'F'

P.C.812+24.85 — D=3°00'RT. — MAX. SUPER=0.032 FT./FT. — P.T.819+84.41

16.00'LT.	STATION	PROFILE GRADE 0.00'
660.19	817+89.30	659.68
660.40	818+00	659.89
660.86	+25	660.35
661.25	+50	660.73
661.56	+75	661.05
661.82	819+00	661.30
662.00	+25	661.49
662.11	+50	661.60
662.14	819+61.45	661.63
662.08	+75	661.65
662.03	P.T.819+84.41	661.64
661.91	820+00	661.62
661.85	820+07.41	661.60

RAMP'C'

P.C.765+96.13 — D=8°00'RT. — MAX. SUPER=0.0833 FT./FT. — P.T.768+85.43

PROFILE GRADE	STATION	16.00'RT.
667.45	764+37.41	667.70
667.43	+50	667.61
667.34	+75	667.37
667.30	764+81.09	667.30
667.15	765+00	667.04
666.87	+25	666.62
666.50	+50	666.10
666.03	+75	665.50
665.55	765+97.29	664.88
665.48	766+00	664.80
664.84	+25	664.02
664.11	+50	663.14
663.33	+75	662.21
662.55	767+00	661.29
662.13	767+13.49	660.79
661.77	+25	660.50
660.99	+50	659.86
660.21	+75	659.23
659.43	768+00	658.59
658.65	+25	657.96
657.87	+50	657.32
657.09	+75	656.69
656.31	769+00	656.05
656.23	769+02.56	655.98

RAMP 'D'

P.C.770+09.98 — D=8°00'LT. — MAX. SUPER=0.042 FT./FT. — P.T.771+34.98

PROFILE GRADE	STATION	16.00'RT.
655.36	769+91.78	655.44
655.32	770+00	655.43
655.18	+25	655.39
655.13	+50	655.45
655.36	+75	655.79
655.87	771+00	656.39
656.65	+25	657.27
657.03	P.T.771+34.98	657.70
657.62	+50	658.16
658.60	+75	658.94
659.58	772+00	659.72
660.24	772+16.78	660.24

RAMP 'G'

P.C.818+78.65 — D=2°30'RT. — MAX. SUPER=0.026 FT./FT. — P.T.823+84.49

PROFILE GRADE	STATION	16.00'RT.
663.40	817+75.00	663.15
663.85	818+00	663.60
664.25	+25	664.00
664.55	+50	664.30
664.75	+75	664.50
664.77	P.C.818+78.65	664.52
664.85	819+00	664.48
664.86	819+07.77	664.44
664.84	+25	664.42
664.74	+50	664.32
664.54	+75	664.12
664.23	820+00	663.81
663.88	+25	663.46
663.52	+50	663.10
663.17	+75	662.75
662.81	821+00	662.39
662.46	+25	662.04
662.10	+50	661.68
661.75	+75	661.33
661.39	822+00	660.97
661.04	+25	660.62
660.68	+50	660.26
660.33	+75	659.91
659.97	823+00	659.55
659.62	+25	659.20
659.29	823+48.09	658.87
659.26	+50	658.86
658.91	+75	658.65
658.78	P.T.823+84.49	658.57
658.55	824+00	658.43
658.25	824+20.89	658.25
658.20	+25	658.21
657.84	+50	657.91
657.49	+75	657.63
657.13	825+00	657.33
656.84	825+20.73	657.09

SUPERELEVATION TABLES

10TH ST. CURVE #1

P.C.10+66.00 — 57°17'45"LT. — MAX. SUPER=0.042 FT./FT. — P.T.11+93.41

	9.00'LT.	STATION	PROFILE GRADE	9.00'RT.	
	650.70	10+34.85	650.84	650.70	
	651.23	10+48.11	651.37	651.37	
	651.31	+50	651.45	651.47	
	651.80	10+61.37	651.94	652.08	
	651.97	P.C.10+66	652.16	652.35	
	652.38	10+75	652.63	652.87	
	653.71	10+99.08	654.09	654.46	
	653.77	11+00	654.15	654.53	
	655.64	+25	656.02	656.40	
	657.87	+50	658.25	658.62	
	658.89	11+60.33	659.27	659.64	
	660.52	+75	660.82	661.11	
	662.75	P.T.11+93.41	662.94	663,12	
	663.59	12+00	663.74	663.89	
	663.85	12+01.99	663.99	664.13	
	666.87	+25	667.01	667.02	
	667.08	12+26.49	667.22	667.22	
	670.49	+50	670.63	670.57	
	674.29	+75	674.43	674.30	
	675.42	12+82.49	675.56	675.42	

10TH ST. CURVE #2

P.C.13+79.42 — 88°08'51"LT. — MAX, SUPER=0.042 FT./FT. — P.T.15+55.45

	9.00'LT.	STATION	PROFILE GRADE	9.00'RT.	
	676.61	12+90.34	676.75	676.61	
	678.10	13+00	678.22	678.08	
	681.96	+25	682.02	681.88	
	685.25	13+46.34	685.25	685.11	
	685.83	+50	685.81	685.67	
	689.11	13+70.84	688.97	688.83	
	689.77	+75	689.61	689.44	
	690.47	P.C.13+79.42	690.28	690.09	
	693.71	14+00	693.40	693.09	
	695.68	14+12.50	695.30	694.92	
	697.57	+25	697.19	696.82	
	701.37	+50	700.99	700.61	
	705.16	+75	704.78	704.40	
	708.95	15+00	708.58	708.20	
	712.35	15+22.37	711.97	711.59	
	712.73	+25	712.37	712.01	
	716.38	+50	716.16	715.94	
	717.18	P.T.15+55.45	716.99	716.80	
	718.32	15+63.30	718.18	718.04	
	720.03	+75	719.96	719.89	
	721.57	15+85.71	721.57	721.57	

10TH ST. CURVE #3

P.C.16+15.97 — 34°43'29"LT. — MAX. SUPER=0.042 FT./FT. — P.T.17+40.22

	9.00'LT. OR AS NOTED	STATION	PROFILE GRADE	9.00'RT. OR AS NOTED	
	721.57	15+85.71	721.57	721.57	
	723.58	16+00	723.67	723.76	
	724.70	16+08.13	724.84	724.98	
	725.76	P.C.16+15.97	725.95	726.14	
	726.97	+25	727.21	727.45	
	730.08	16+49.05	730.46	730.84	
	730.21	+50	730.58	730.96	
	733.41	+75	733.79	734.17	
	736.45	17+00	736.83	737.20	
	737.29	17+07.14	737.66	738.04	
	739.15	+25	739.70	739.97	
	9.00'-740.70	P.T.17+40.22	741.39	9.00'-741.58	
	7.57'-741.40	17+45.90	742.02	8.09'-742.15	
	6.54'-741.96	+50	742.48	7.44'-742.57	
	MATCH EXIST.	17+62.11	MATCH EXIST.	MATCH EXIST.	

1ST RELOCATED BELMONT STREET CURVE #1

P.C.11+04.76 — 20°00'RT. — MAX. SUPER=0.0156 FT./FT. — P.T.15+69.68

	16.50'LT. OR AS NOTED	STATION	PROFILE GRADE	16.50'RT. OR AS NOTED	
	12.00'-654.47	10+29.88	654.66	12.00'-654.47	
	12.00'-654.63	+50	654.77	12.00'-654.58	
	12.00'-654.86	+75	654.93	12.00'-654.74	
	12.00'-655.11	11+00	655.12	12.00'-654.93	
	12.00'-655.16	P.C.11+04.76	655.16	12.00'-654.97	
	12.00'-655.45	+25	655.34	12.00'-655.15	
	12.00'-655.48	11+26.54	655.35	12.00'-655.17	
	13.21'-655.76	11+46.52	655.55	12.00'-655.36	
	13.42'-655.80	+50	655.59	12.15'-655.40	
	14.94'-656.09	+75	655.86	13.02'-655.66	
	16.47'-656.43	12+00	656.17	14.26'-655.95	
	656.74	+25	656.49	15.31'-656.25	
	657.06	+50	656.81	16.37'-656.55	
	657.10	12+53.12	656.85	656.59	
	657.38	+75	657.13	656.87	
	657.70	13+00	657.45	657.19	
	658.00	+25	657.74	657.49	
	658.25	+50	658.00	657.74	
	658.46	+75	658.21	657.95	
	658.63	14+00	658.37	658.12	
	658.75	+25	658.50	658.24	
	658.83	+50	658.57	658.32	
	658.87	+75	658.61	658.35	
	658.86	15+00	658.60	658.34	
	658.81	15+24.71	658.55	658.29	
	658.80	+25	658.55	658.29	
	658.57	+50	658.45	658.20	
	658.35	P.T.15+69.68	658.35	658.09	
	658.30	+75	658.31	658.06	
	658.06	16+00	658.13	657.87	
	657.77	+25	657.90	657.65	
	657.43	+50	657.63	657.38	
	657.10	16+72.48	657.35	657.10	

SUPERELEVATION TABLES

RELOCATED 26TH ST. CURVE #1

P.C.6+87.31 — D=14°00'LT. — MAX. SUPER=0.0156 FT./FT. — P.R.C.9+55.86

	12.00'LT. OR AS NOTED	STATION	PROFILE GRADE	12.00'RT. OR AS NOTED	
	10.99'-642.72	6+12.43	642.89	12.50'-642.70	
	643.05	+25	643.24	643.08	
	643.75	+50	643.94	643.85	
	644.45	+75	644.64	644.61	
	644.80	P.C.6+87.31	644.99	644.99	
	645.15	7+00	645.34	645.41	
	645.70	7+20.04	645.89	646.07	
	645.83	+25	646.02	646.20	
	646.45	+50	646.64	646.83	
	647.03	+75	647.22	647.40	
	647.55	8+00	647.74	647.93	
	648.03	+25	648.22	648.40	
	648.45	+50	648.64	648.83	
	648.85	+75	649.04	649.23	
	649.25	9+00	649.44	649.63	
	649.62	9+23.14	649.81	650.00	
	649.66	+25	649.84	650.02	
	650.21	+50	650.24	650.27	
	650.33	P.R.C.9+55.86	650.33	650.33	

RELOCATED 26TH ST. CURVE #2

P.R.C.9+55.86 — D=18°05'45"RT. — MAX. SUPER=0.030 FT./FT. — P.T.11+52.03

12.00'LT.	6.00'LT.	STATION	PROFILE GRADE	12.00'RT.	12'TO 24'RT.
650.33	650.33	P.R.C.9+55.86	650.33	650.33	12.00'-650.33
650.75	650.70	+75	650.64	650.53	12.85'-650.52
651.29	651.17	10+00	651.04	650.79	13.96'-650.74
651.70	651.52	10+18.86	651.34	650.98	14.79'-650.89
651.80	651.62	+25	651.44	651.08	15.06'-650.99
652.20	652.02	+50	651.84	651.48	16.17'-651.35
652.57	652.39	+75	652.21	651.85	17.28'-651.69
652.76	652.58	10+89.03	652.40	652.04	17.90'-651.86
652.82	652.68	11+00	652.53	652.20	18.39'-652.02
652.94	652.86	+25	652.79	652.52	19.50'-652.36
653.00	652.99	+50	652.99	652.79	20.61'-652.65
653.00	653.00	P.T.11+52.03	653.00	652.81	20.69'-652.68
653.07	653.10	+75	653.13	652.95	21.71'-652.79
653.10	653.16	12+00	653.22	653.03	22.82'-652.86
653.10	653.19	+25	653.28	653.09	23.93'-652.91
653.10	653.19	12+26.83	653.28	653.10	24.00'-652.91

RELOCATED 26TH ST. CURVE #3

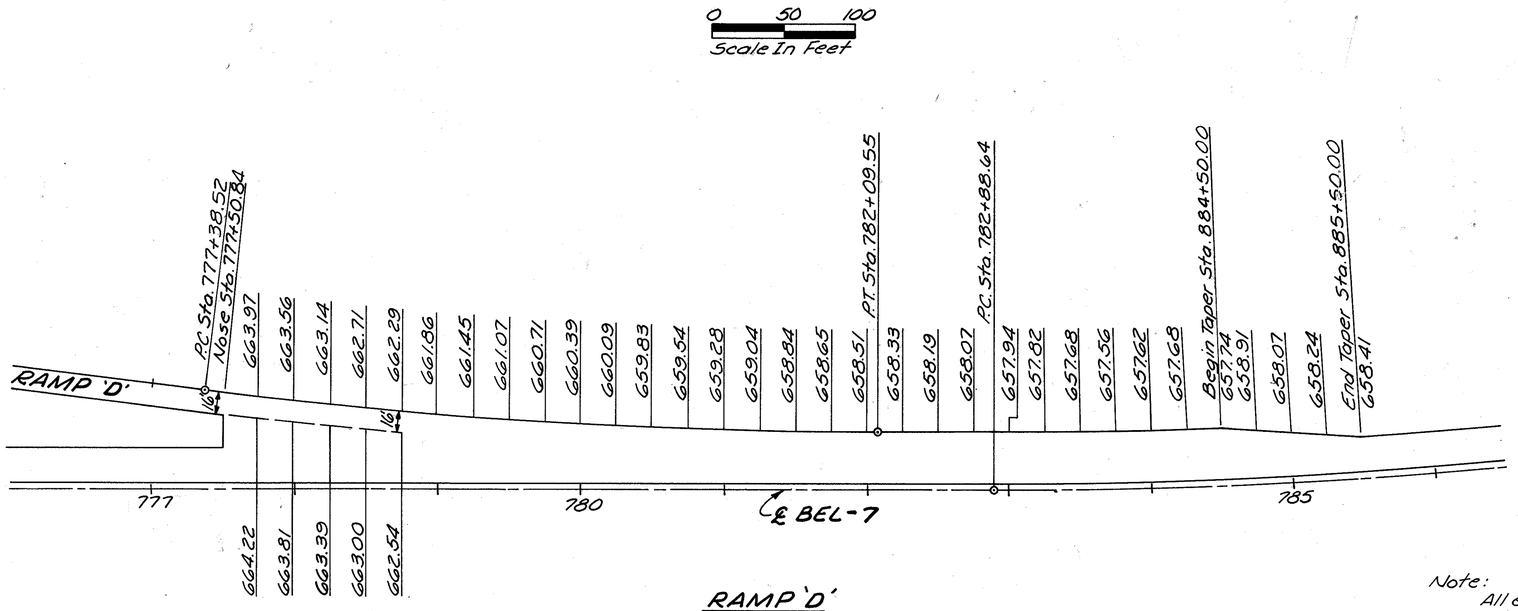
P.C.15+22.98 — D=14°00'RT. — MAX. SUPER=0.0156 FT./FT. — P.T.16+76.55

20.00'TO 24.00'LT.	12.00'LT.	STATION	PROFILE GRADE	12.00'RT.	24.18'TO 36.00'RT.
	653.63	14+48.18	653.82	653.63	24.00'-653.44
	653.64	+50	653.82	653.63	24.00'-653.45
	653.76	+75	653.88	653.69	24.00'-653.51
20.00'-653.84	653.88	15+00	653.94	653.75	24.00'-653.57
21.00'-654.00	654.00	P.C.15+22.98	654.00	653.81	24.00'-653.62
21.04'-654.01	654.01	+25	654.00	653.81	24.18'-653.62
21.53'-654.33	654.21	+50	654.06	653.87	26.47'-653.65
21.84'-654.41	654.26	15+55.71	654.07	653.89	27.00'-653.65
22.02'-654.47	654.31	+75	654.12	653.93	28.76'-653.67
22.50'-654.54	654.37	16+00	654.18	653.99	31.05'-653.70
22.99'-654.60	654.43	+25	654.24	654.05	33.34'-653.72
23.36'-654.64	654.47	16+43.83	654.29	654.10	35.06'-653.74
23.48'-654.59	654.45	+50	654.30	654.11	35.63'-653.75
23.97'-654.38	654.37	+75	654.36	654.17	36.00'-653.80
24.00'-654.36	654.36	16+76.55	654.36	654.18	36.00'-653.80
24.00'-654.30	654.36	17+00	654.42	654.23	36.00'-653.86
24.00'-654.24	654.36	+25	654.48	654.29	36.00'-653.92
24.00'-654.17	654.36	+50	654.54	654.35	36.00'-653.98
24.00'-654.17	654.36	17+51.35	654.54	654.36	36.00'-653.98

RELOCATED 26TH ST. CURVE #4

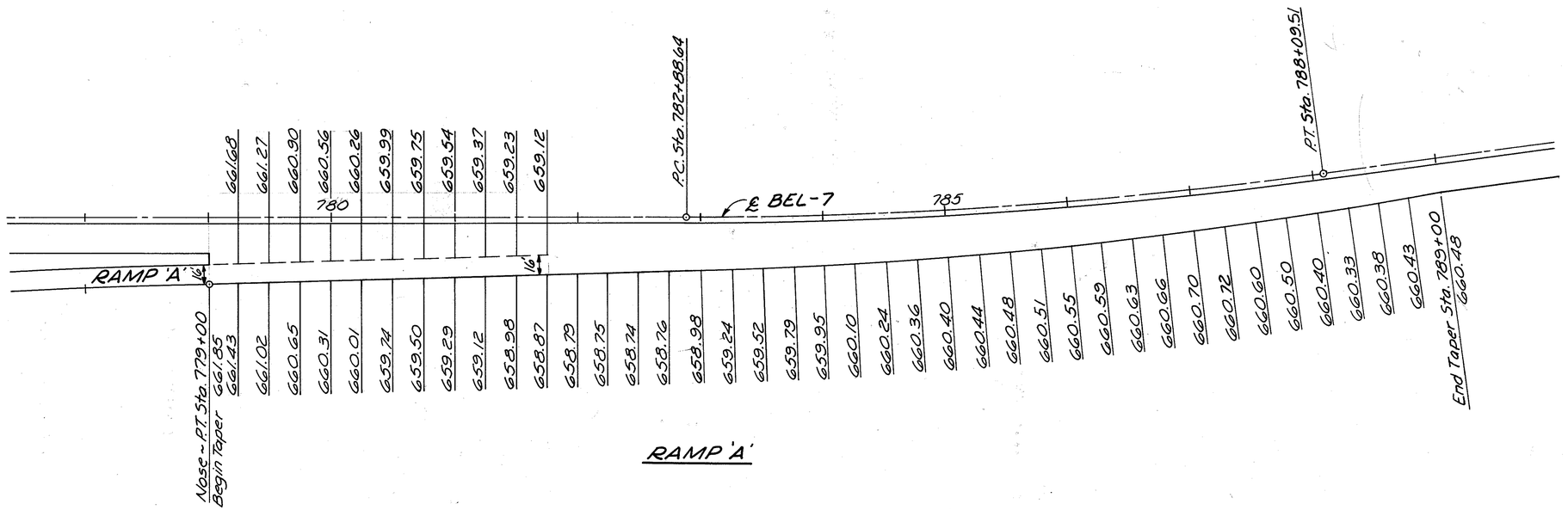
P.C.19+29.93 — D=14°00'LT. — MAX. SUPER=0.0156 FT./FT. — P.T.20+78.14

24.00'LT. OR AS NOTED	12.00'LT.	STATION	PROFILE GRADE	12.00'RT.	24.00'RT. OR AS NOTED
654.24	654.43	17+80.33	654.61	654.43	35.20'-654.07
654.29	654.47	18+00	654.66	654.50	33.19'-654.22
654.35	654.53	+25	654.72	654.59	30.64'-654.39
654.41	654.59	+50	654.78	654.68	28.09'-654.55
654.47	654.65	+75	654.84	654.77	25.54'-654.69
654.53	654.71	19+00	654.90	654.86	654.83
654.59	654.77	+25	654.96	654.95	654.95
654.60	654.79	19+29.93	654.97	654.97	654.97
654.65	654.83	+50	655.02	655.07	655.14
654.71	654.89	+75	655.08	655.21	655.34
654.73	654.91	19+95.38	655.10	655.29	655.47
654.72	654.91	20+00	655.10	655.28	655.47
654.70	654.89	20+12.69	655.07	655.26	655.45
654.65	654.84	+25	655.03	655.18	655.33
654.50	654.68	+50	654.87	654.95	655.03
654.25	654.44	+75	654.62	654.63	654.64
654.21	654.40	20+78.14	654.59	654.59	654.59
653.92	654.11	21+00	654.29	654.27	654.24
23.31'-653.51	653.69	+25	653.87	653.82	653.76
23.03'-653.37	653.55	+31.73	653.74	653.67	653.61
22.26'-653.02	653.18	+50	653.37	653.29	22.61'-653.21
21.21'-652.45	652.59	+75	652.78	652.66	20.72'-652.58
20.16'-651.79	651.91	22+00	652.10	651.95	18.82'-651.86
19.11'-651.03	651.14	+25	651.33	651.14	18.00'-651.05
19.00'-650.94	651.05	22+27.74	651.24	651.05	18.00'-650.96



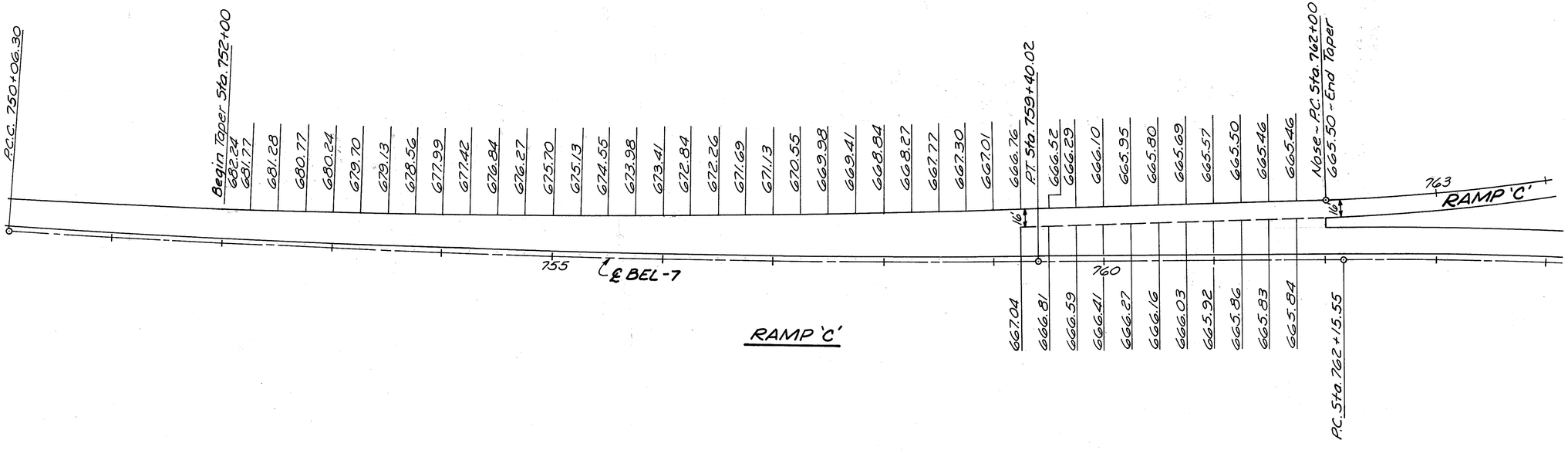
RAMP 'D'

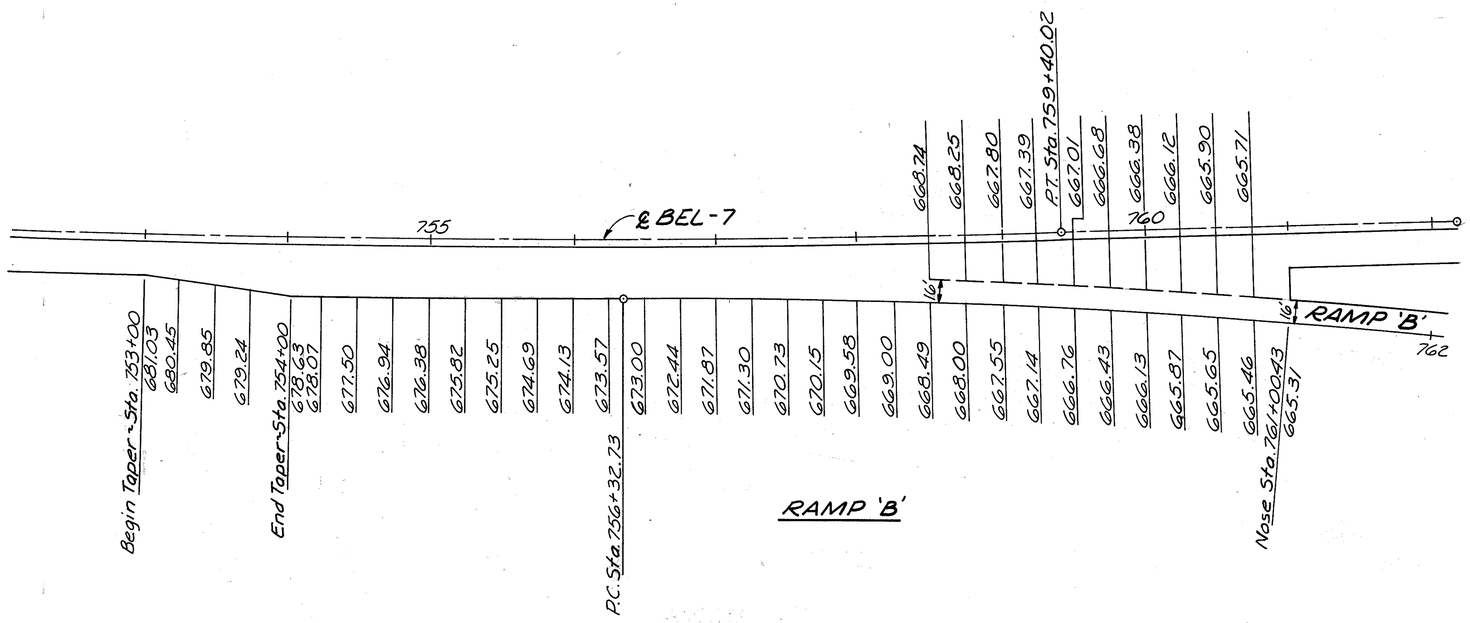
Note:
All elevations are at 25' intervals unless otherwise noted.



RAMP 'A'

0 50 100
Scale In Feet

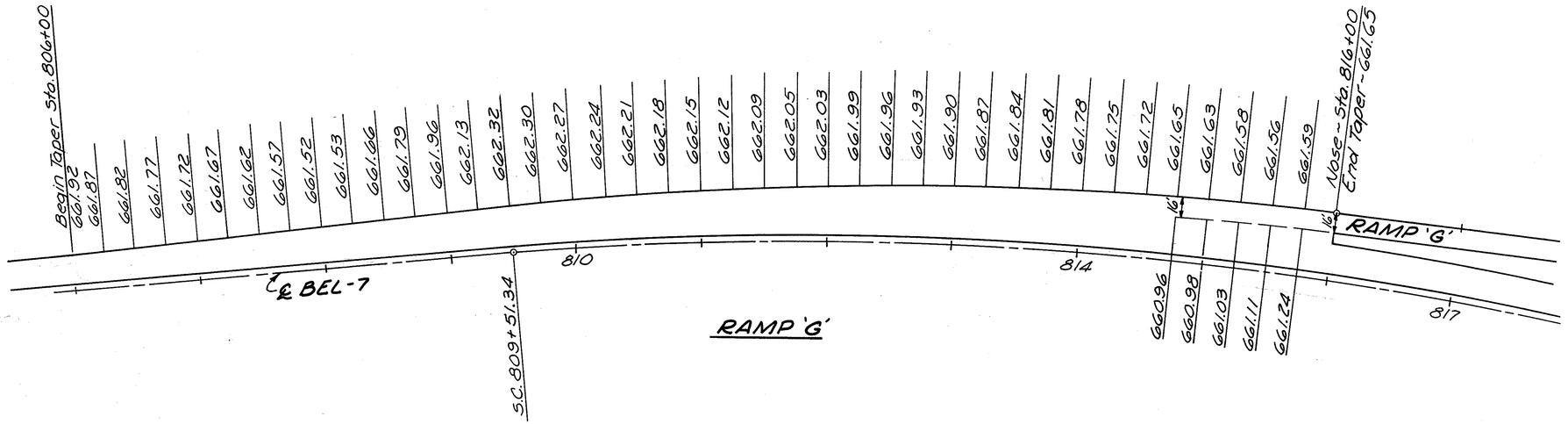


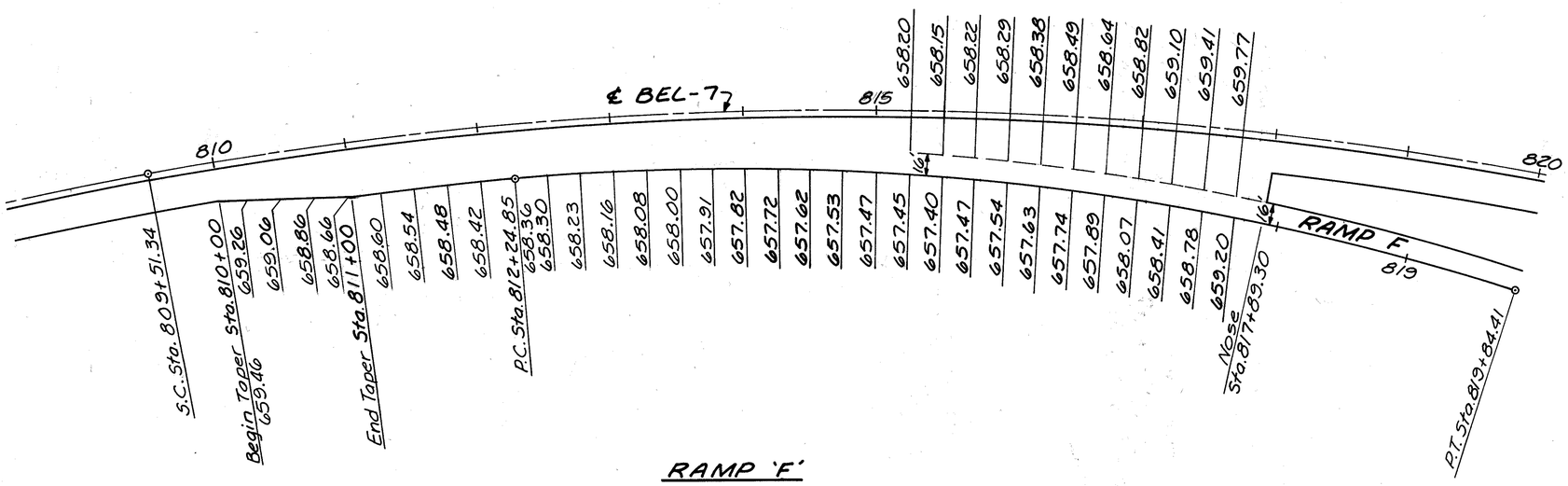


Note:
All elevations are at 25' intervals unless otherwise noted.

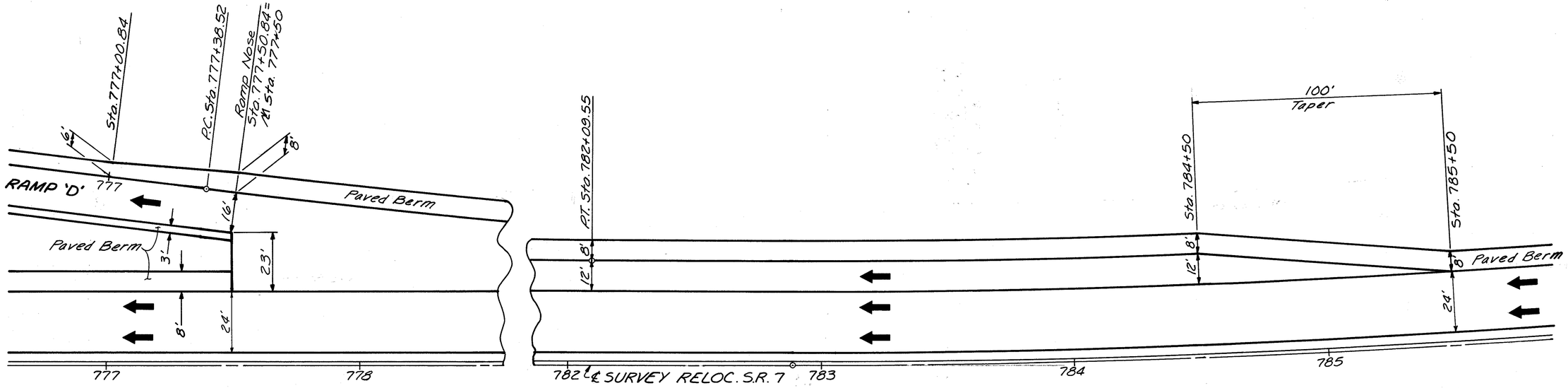
SUPERELEVATION DETAILS

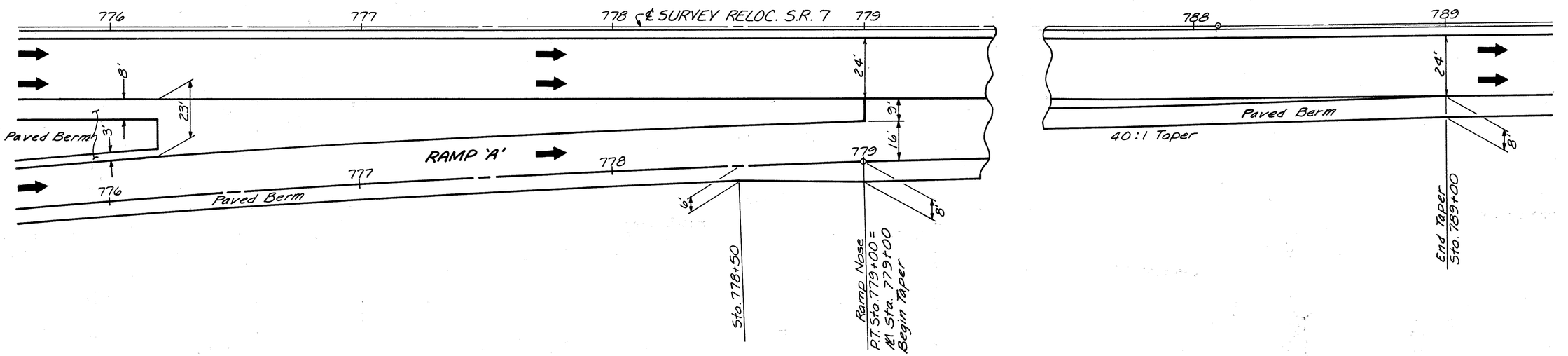
0 50 100
Scale In Feet





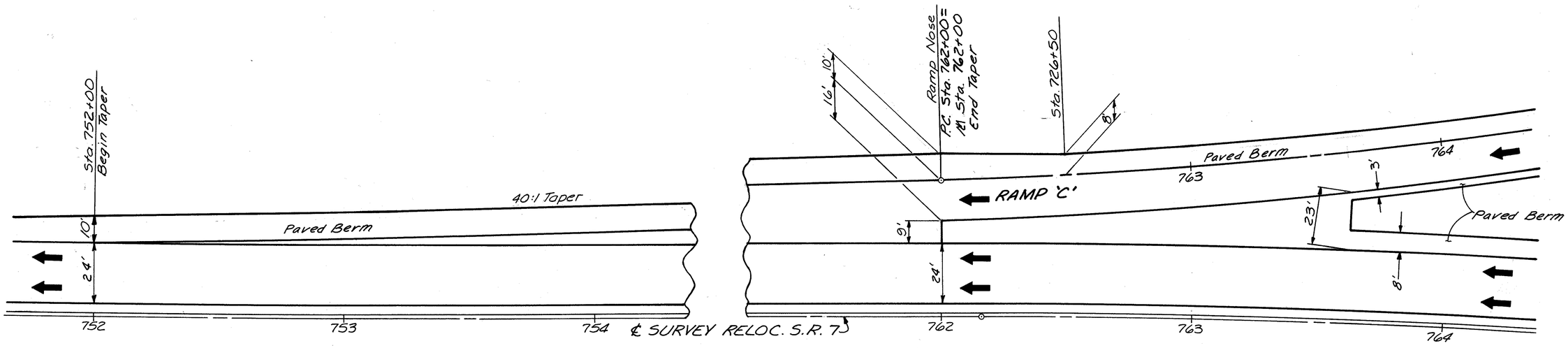
0 20 40
Scale In Feet

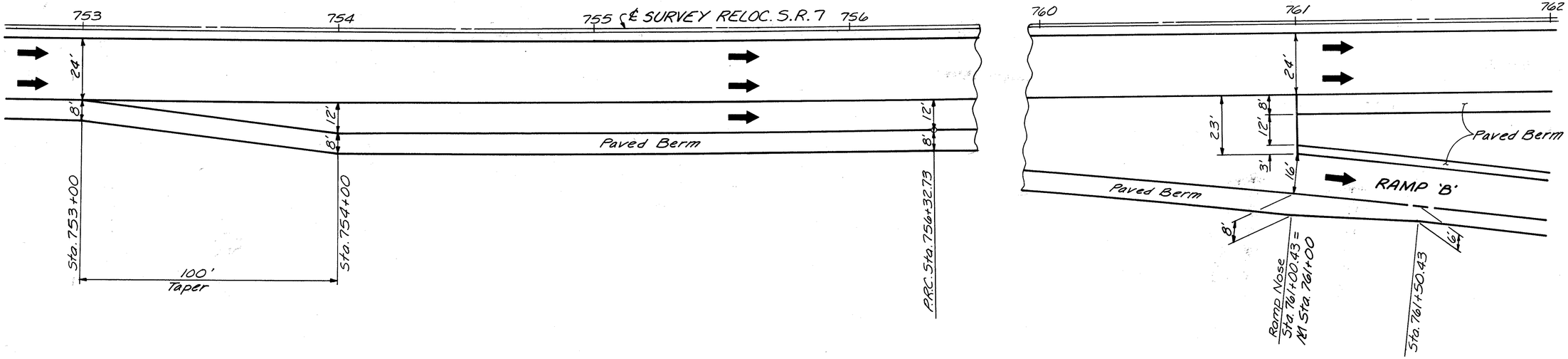




RAMP 'A' AND 'D' TERMINAL DETAILS

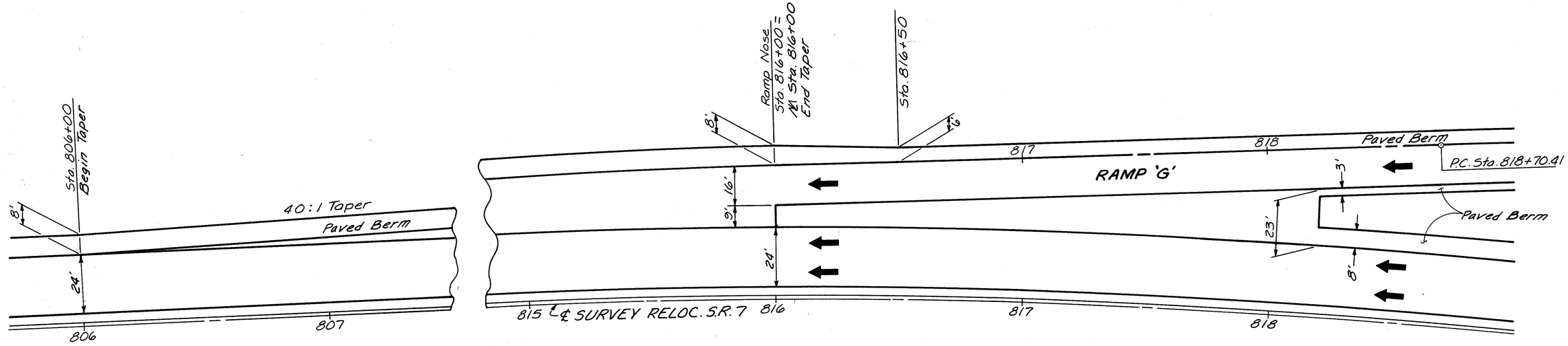
0 20 40
Scale In Feet

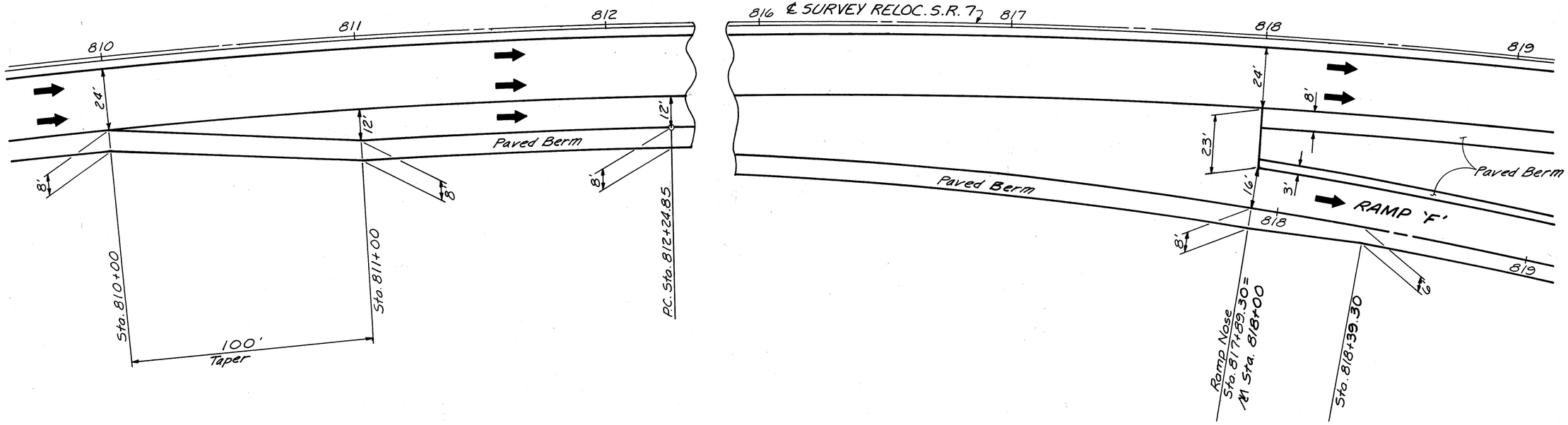




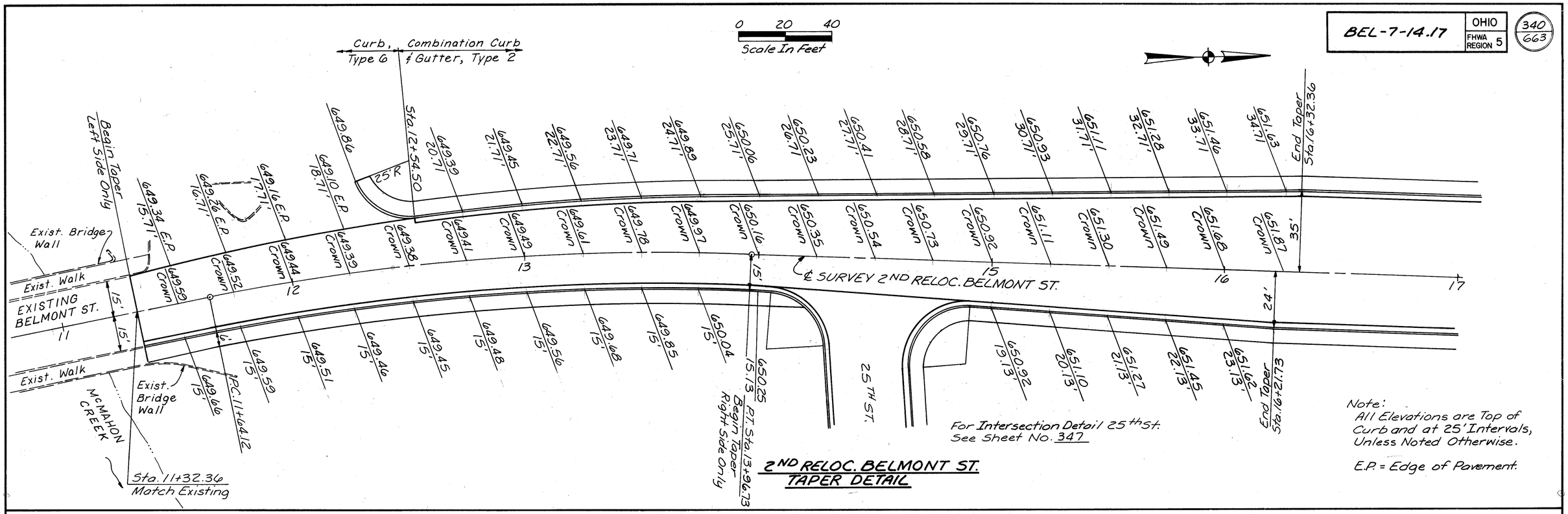
RAMP 'B' AND 'C' TERMINAL DETAILS

0 20 40
Scale In Feet

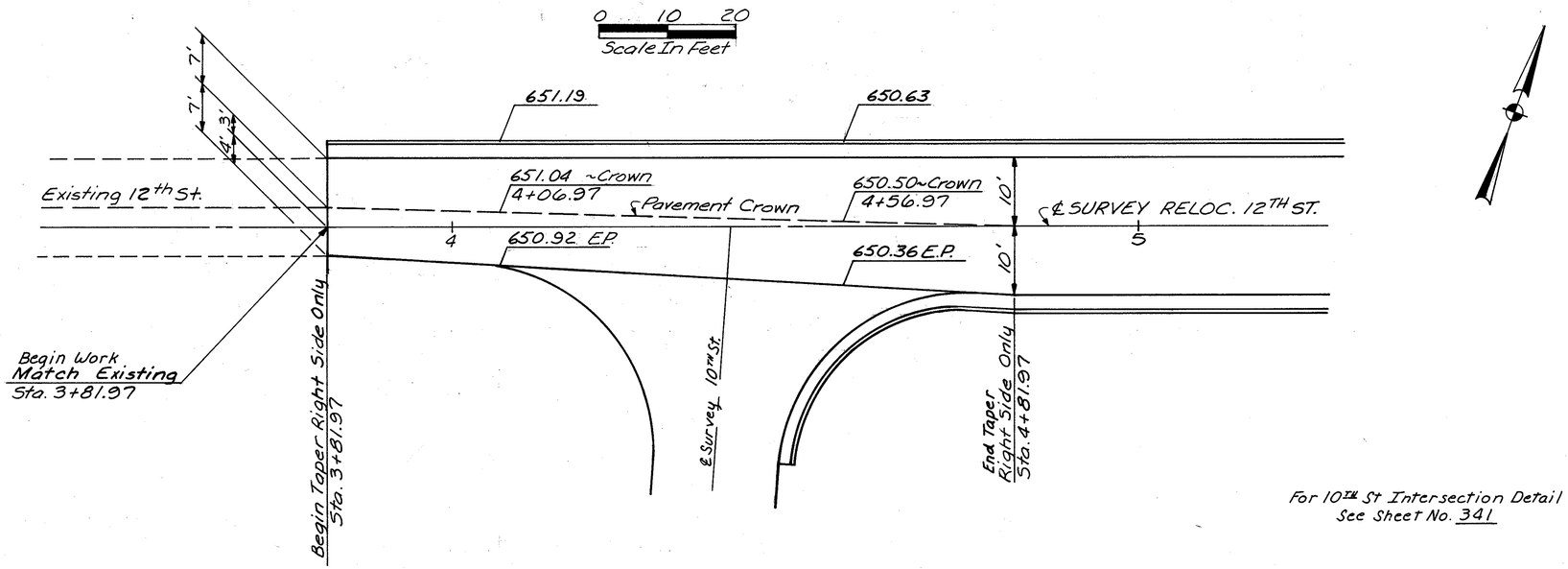




RAMP 'F' AND 'G' TERMINAL DETAILS

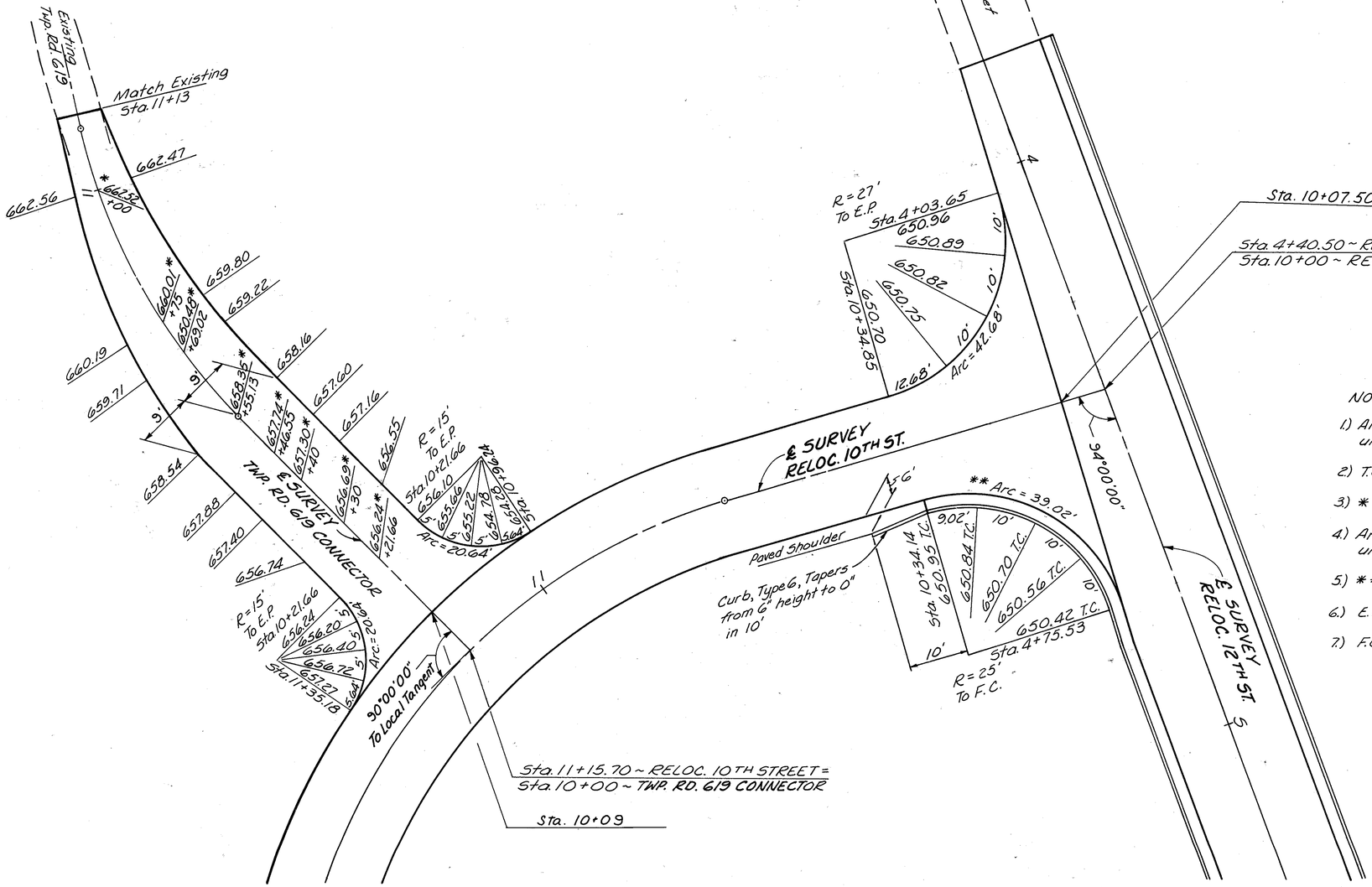


2ND RELOC. BELMONT ST. TAPER DETAIL



RELOC. 12TH ST. TAPER DETAIL

0 10 20
Scale In Feet



NOTES:

1.) All elevations are given at edge of pavement unless noted otherwise.

2.) T.C. = Top of Curb

3.) * = Elevations at Crown of Pavement

4.) Arc lengths are along edge of pavement unless noted otherwise.

5.) ** = Arc length along face of curb

6.) E.P. = Edge of Pavement

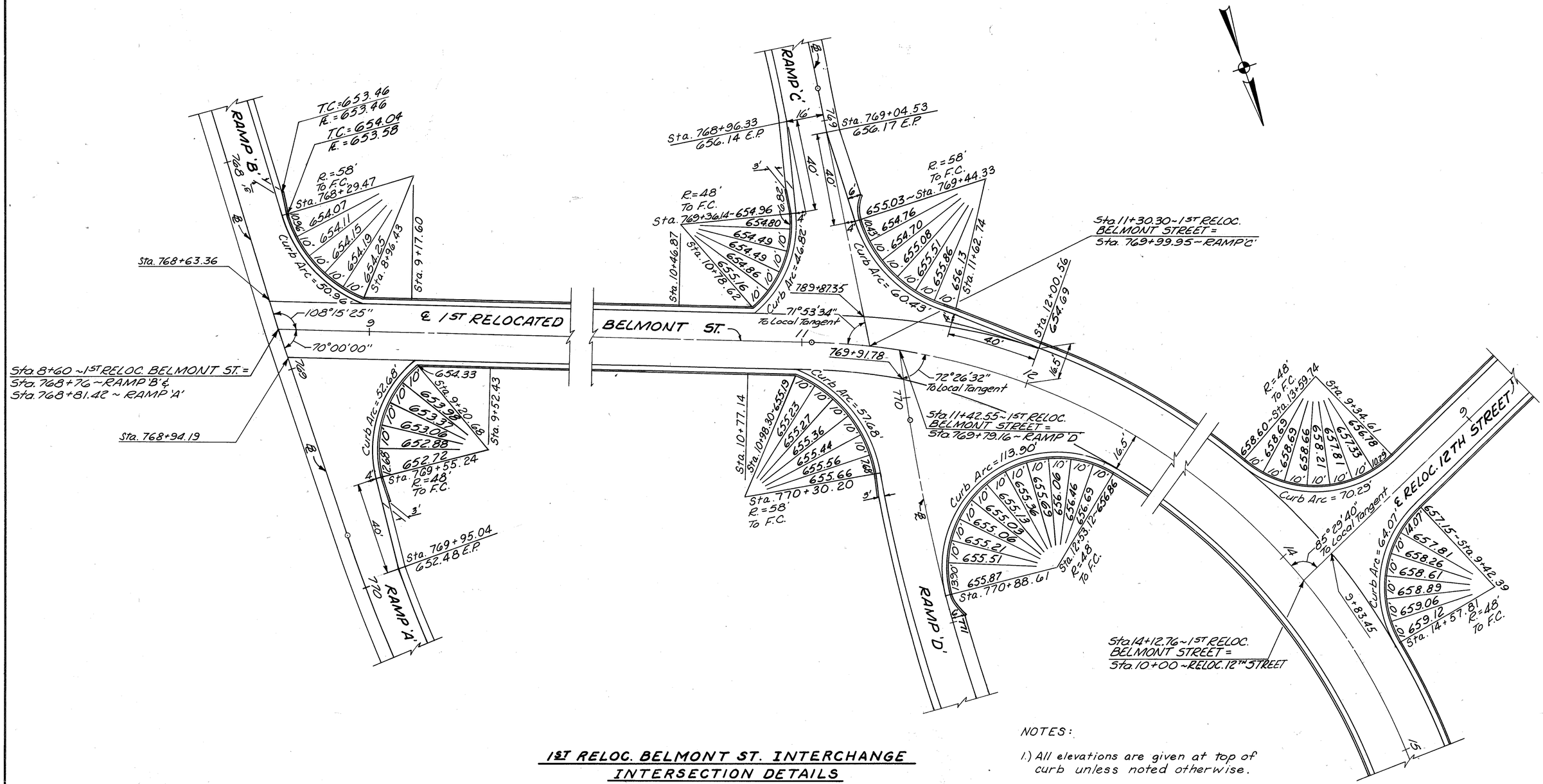
7.) F.C. = Face of Curb

For Reloc. 12TH ST. Taper Details, See Sheet No. 340

TWP. RD. 619 CONNECTOR & RELOC. 10TH ST. INTERSECTION DETAILS

RELOC. 10TH ST. & RELOC. 12TH ST. INTERSECTION DETAILS

0 20 40
Scale In Feet



1ST RELOC. BELMONT ST. INTERCHANGE INTERSECTION DETAILS

12TH ST. INTERSECTION DETAIL

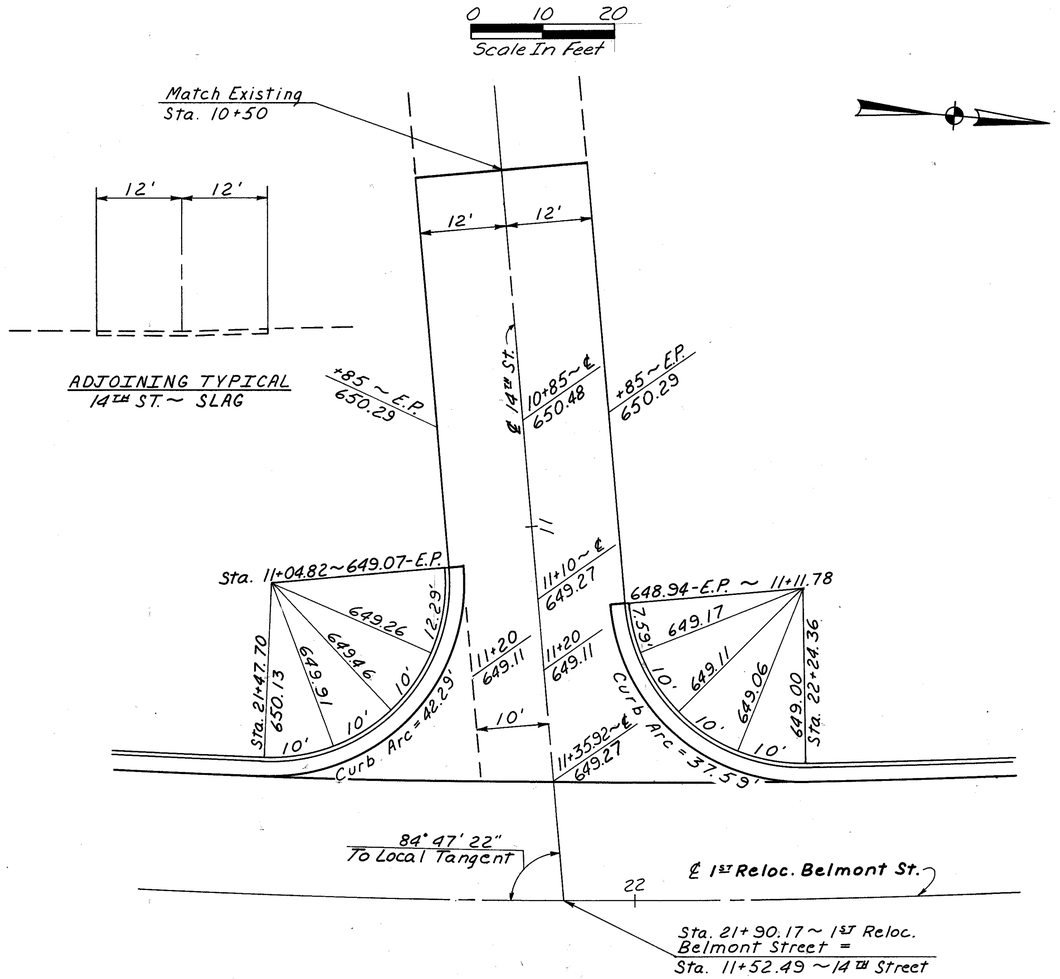
NOTES:

1.) All elevations are given at top of curb unless noted otherwise.

2.) F.C. = Face of Curb

3.) E.P. = Edge of Pavement

4.) Begin taper from 12'-16.5' at 11+26.64 Lt. and 11+46.52 Rt.

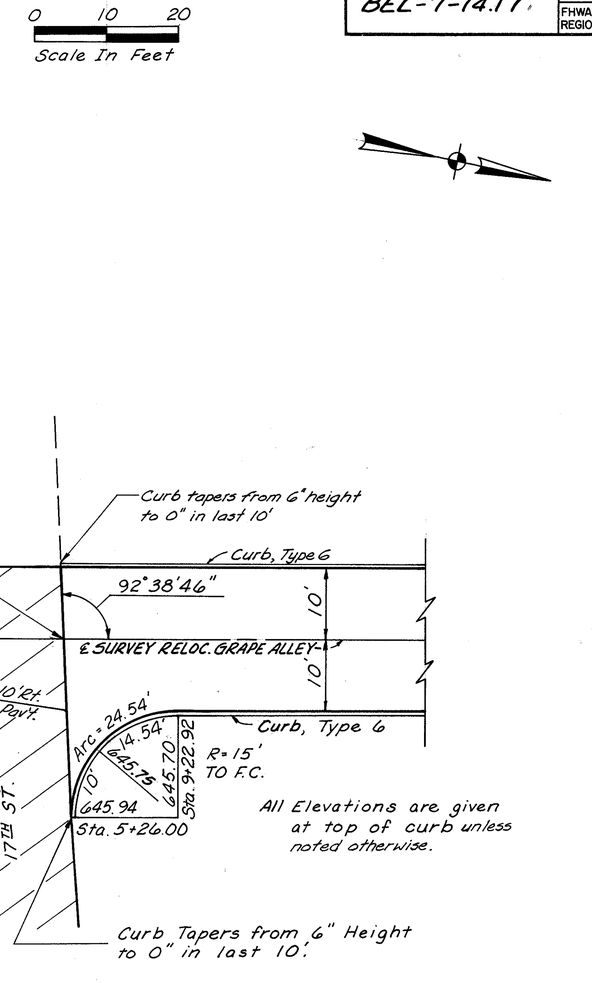


NOTES:

1.) All elevations are given at top of curb unless noted otherwise.
2.) Curb tapers from 6" height to 0" in last 10'.
3.) E.P. = Edge of Pavement

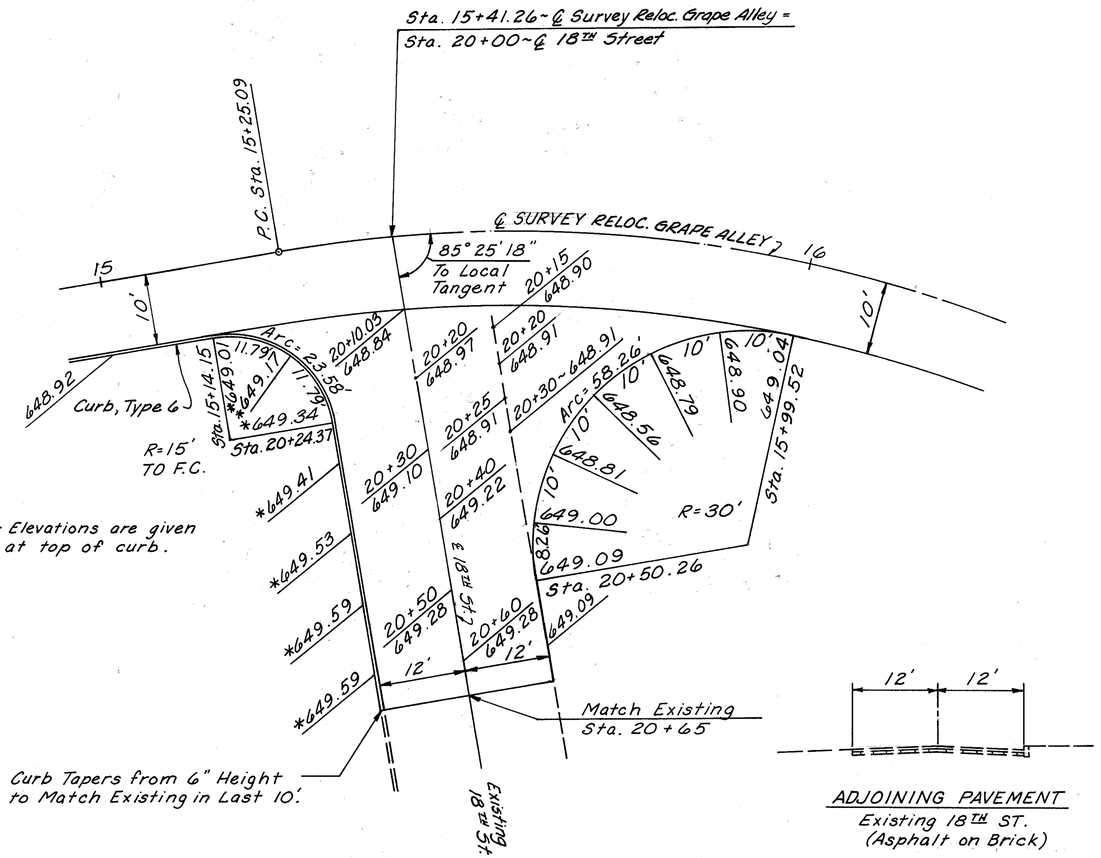
(18-A)

14TH ST. ℄ 1ST RELOC. BELMONT ST.



RELOC. GRAPE ALLEY ℄ 17TH ST. INTERSECTION DETAIL

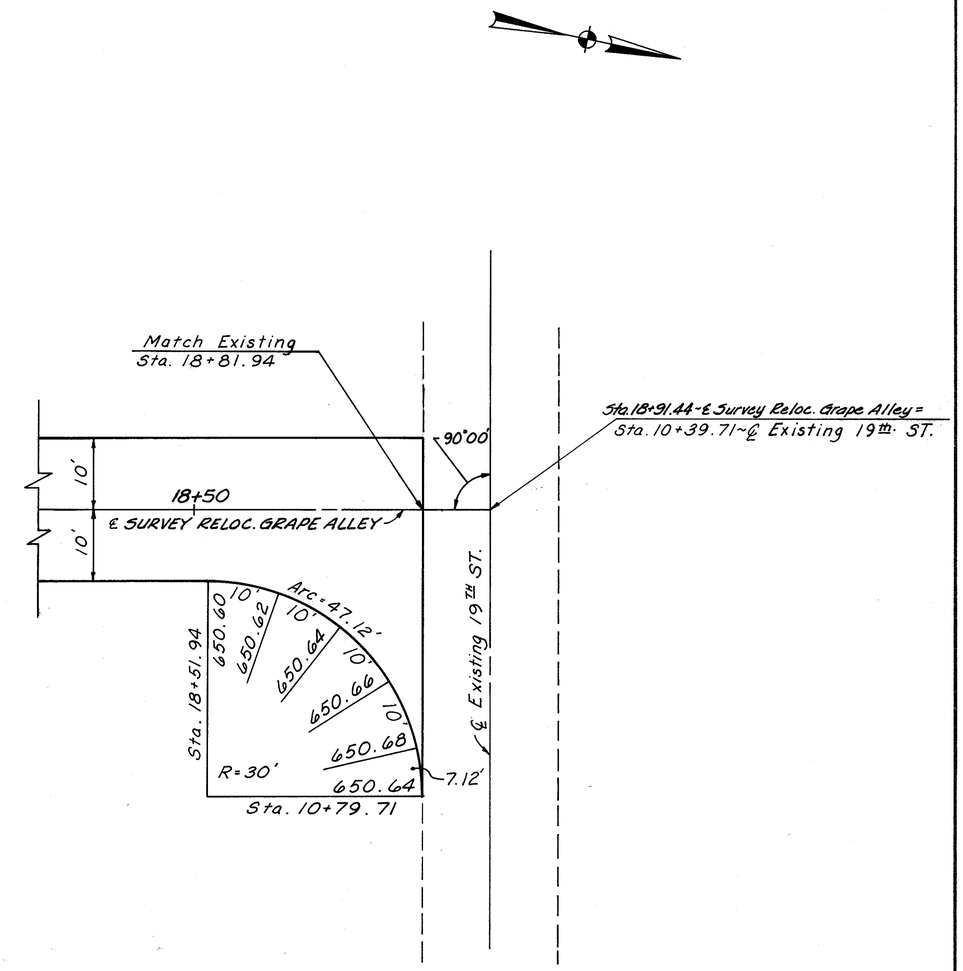
0 10 20
Scale In Feet



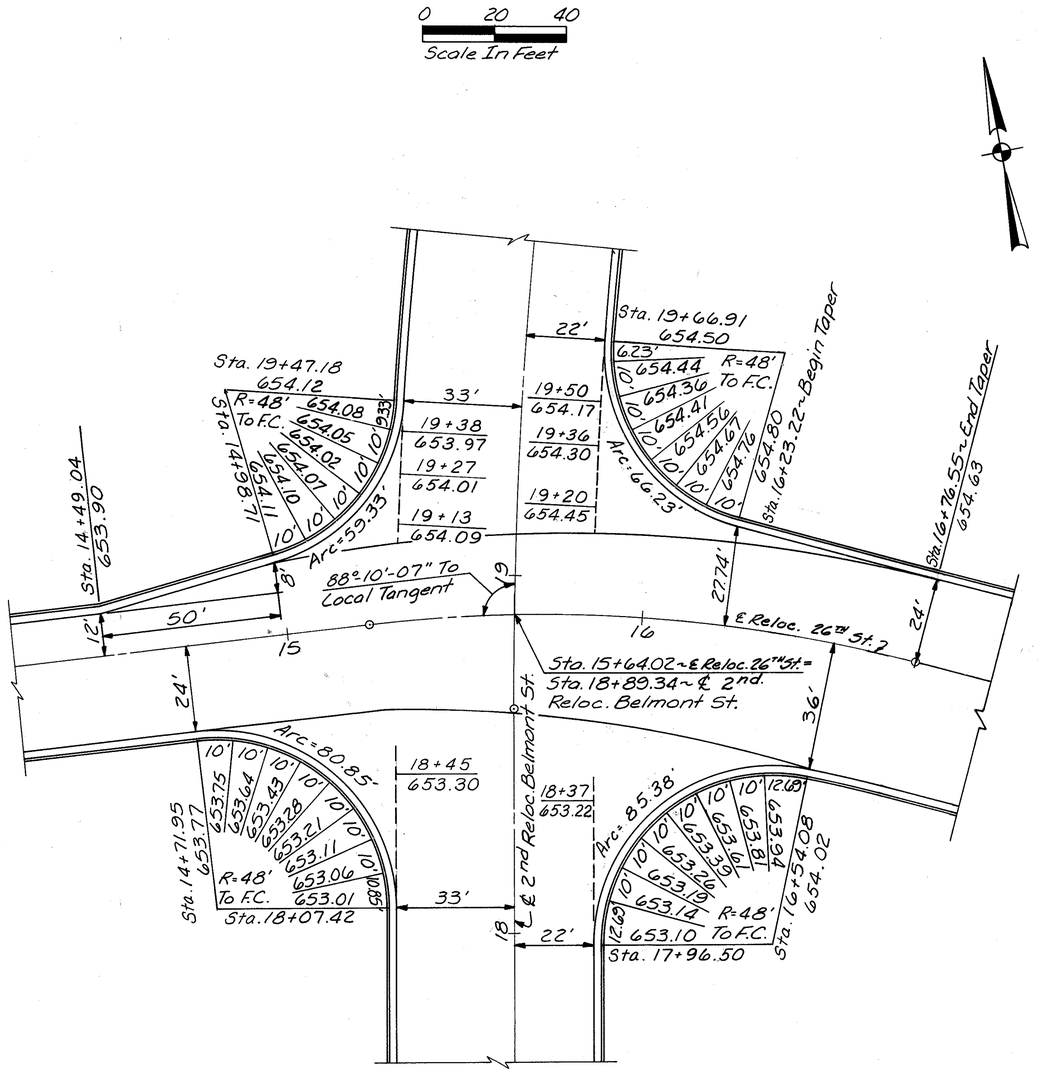
(19-A)

RELOC. GRAPE ALLEY ℄ 18TH ST. INTERSECTION DETAIL

0 10 20
Scale In Feet



RELOC. GRAPE ALLEY ℄ 19TH ST. INTERSECTION DETAIL



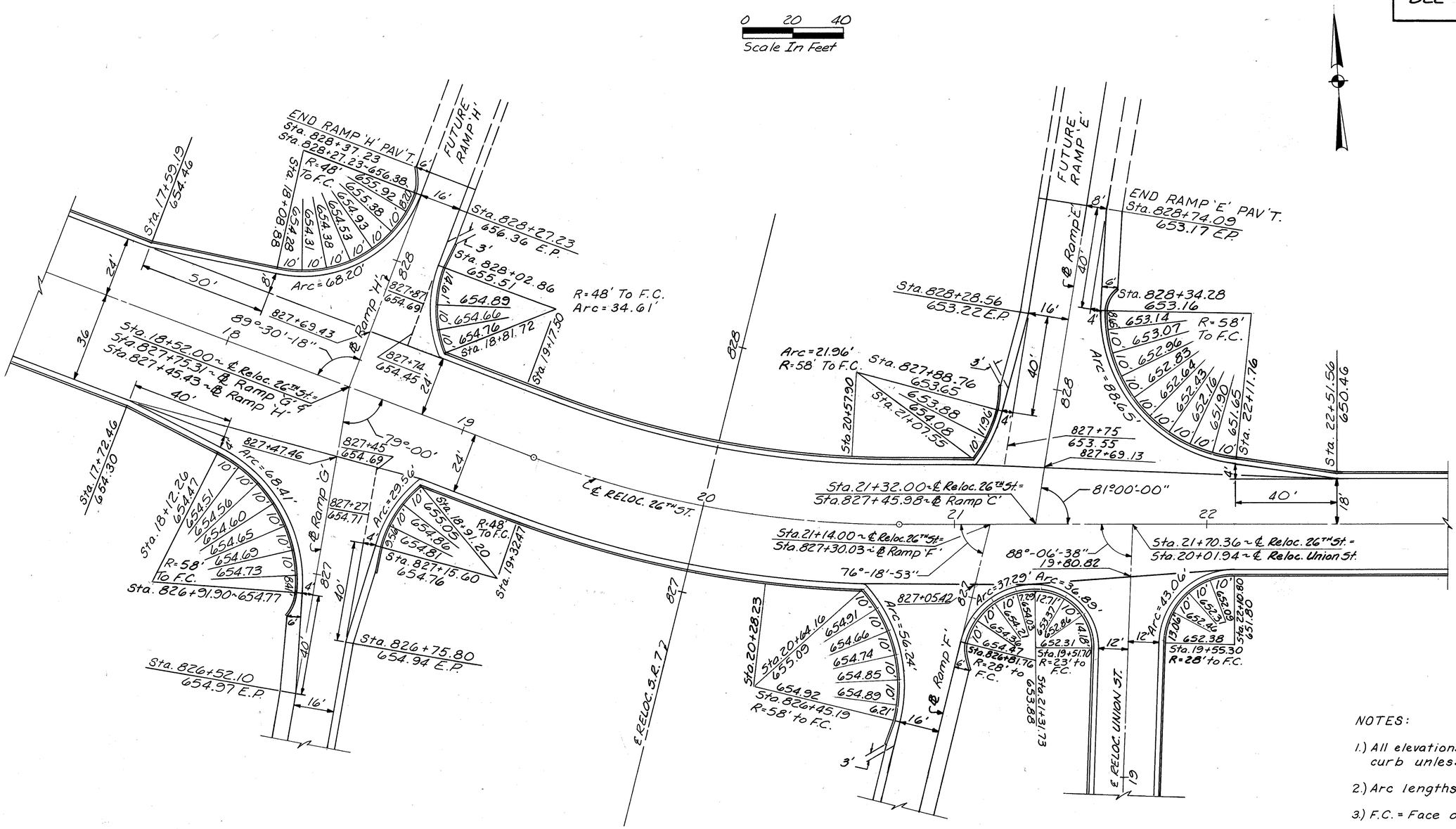
RELOC. 26TH ST. / 2ND RELOC. BELMONT ST. INTERSECTION DETAIL

NOTES:

1.) All elevations are given at top of curb unless noted otherwise.

2.) Arc lengths are along face of curb.

3.) F.C. = Face of Curb



NOTES:

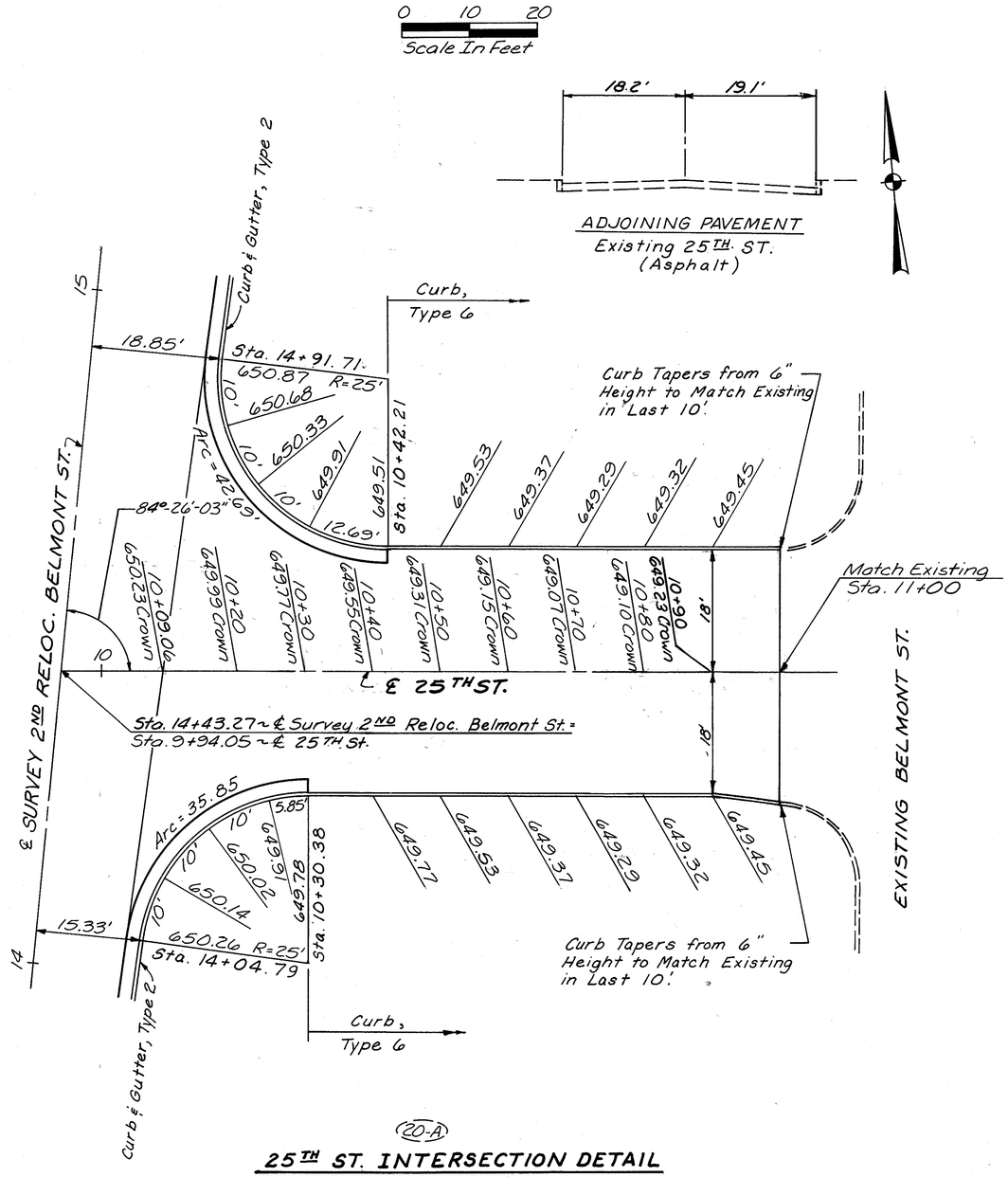
1.) All elevations are given at top of curb unless noted otherwise.

2.) Arc lengths are along face of curb.

3.) F.C. = Face of Curb

4.) E.P. = Edge of Pavement

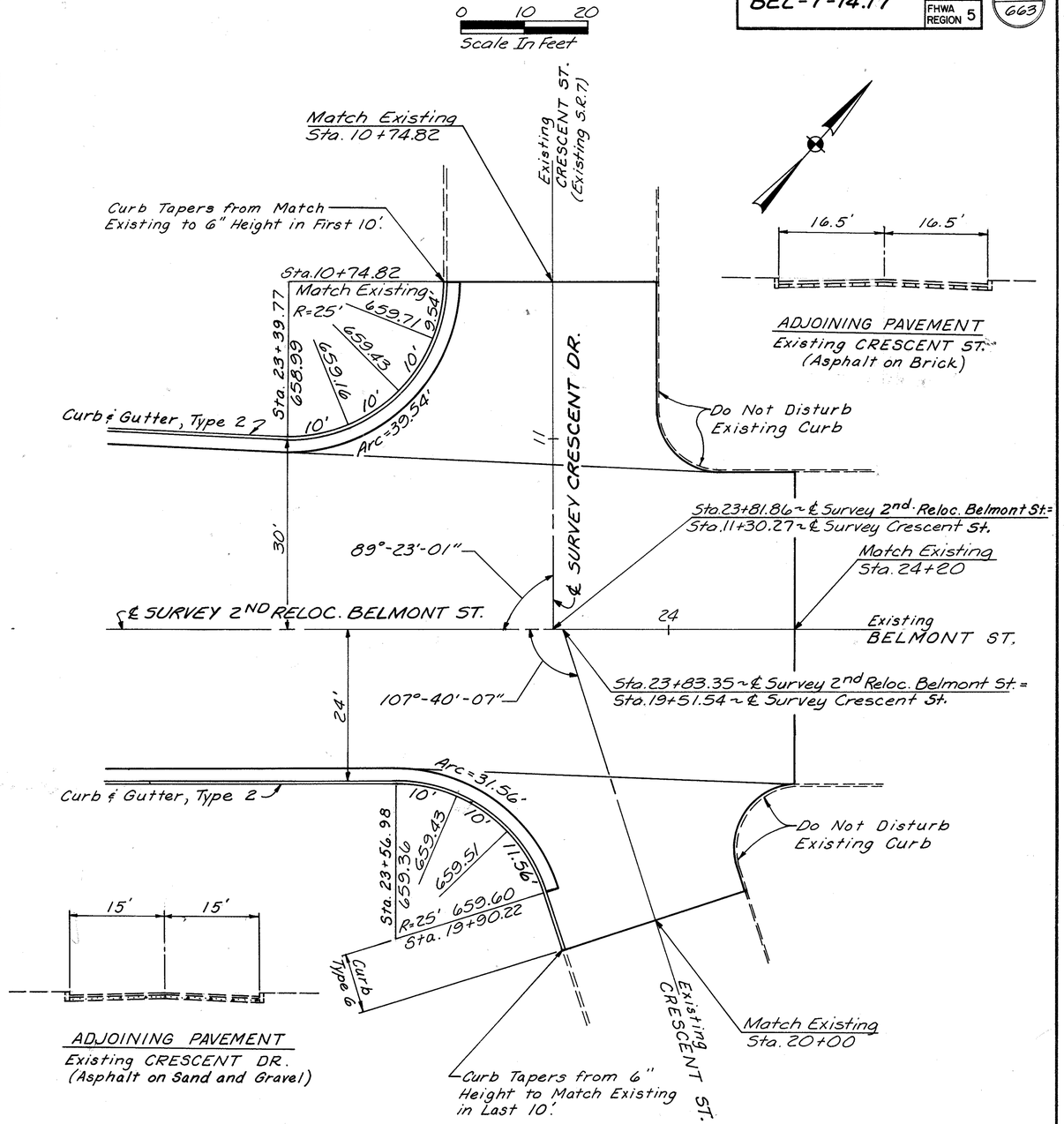
RELOC. 26TH ST. INTERCHANGE
INTERSECTION DETAILS



(20-A)

25TH ST. INTERSECTION DETAIL

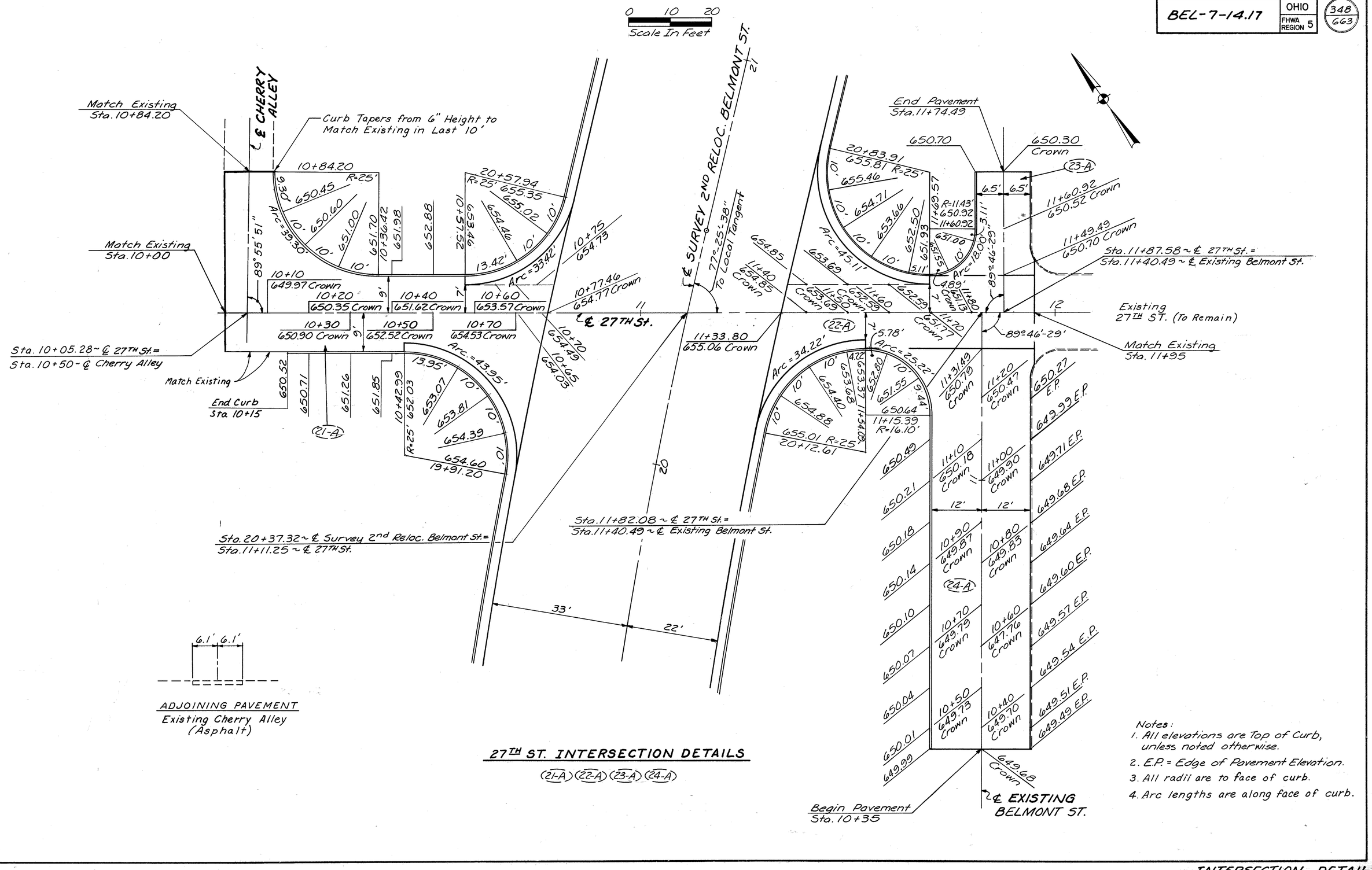
Note:
All Elevations are Top of Curb, Unless Noted Otherwise.



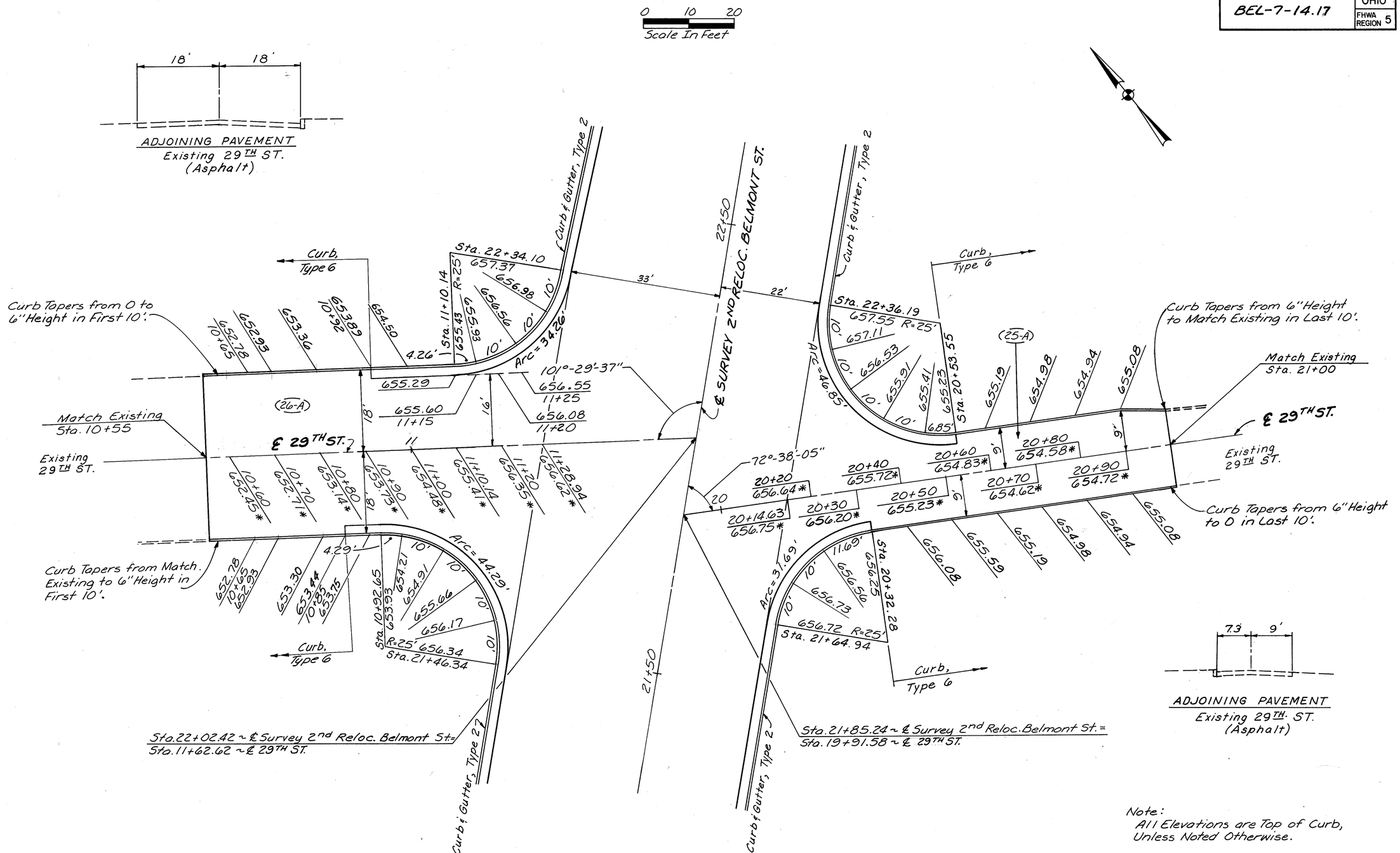
Note:
All Elevations are Top of Curb, Unless Noted Otherwise.

Arc lengths are along face of curb.

2ND RELOC. BELMONT ST. / CRESCENT ST. INTERSECTION DETAIL



Notes:
1. All elevations are Top of Curb, unless noted otherwise.
2. E.P. = Edge of Pavement Elevation.
3. All radii are to face of curb.
4. Arc lengths are along face of curb.



Note:
All Elevations are Top of Curb, Unless Noted Otherwise.

* = Elevations at Crown of Pavement.

Arc lengths are along face of curb.

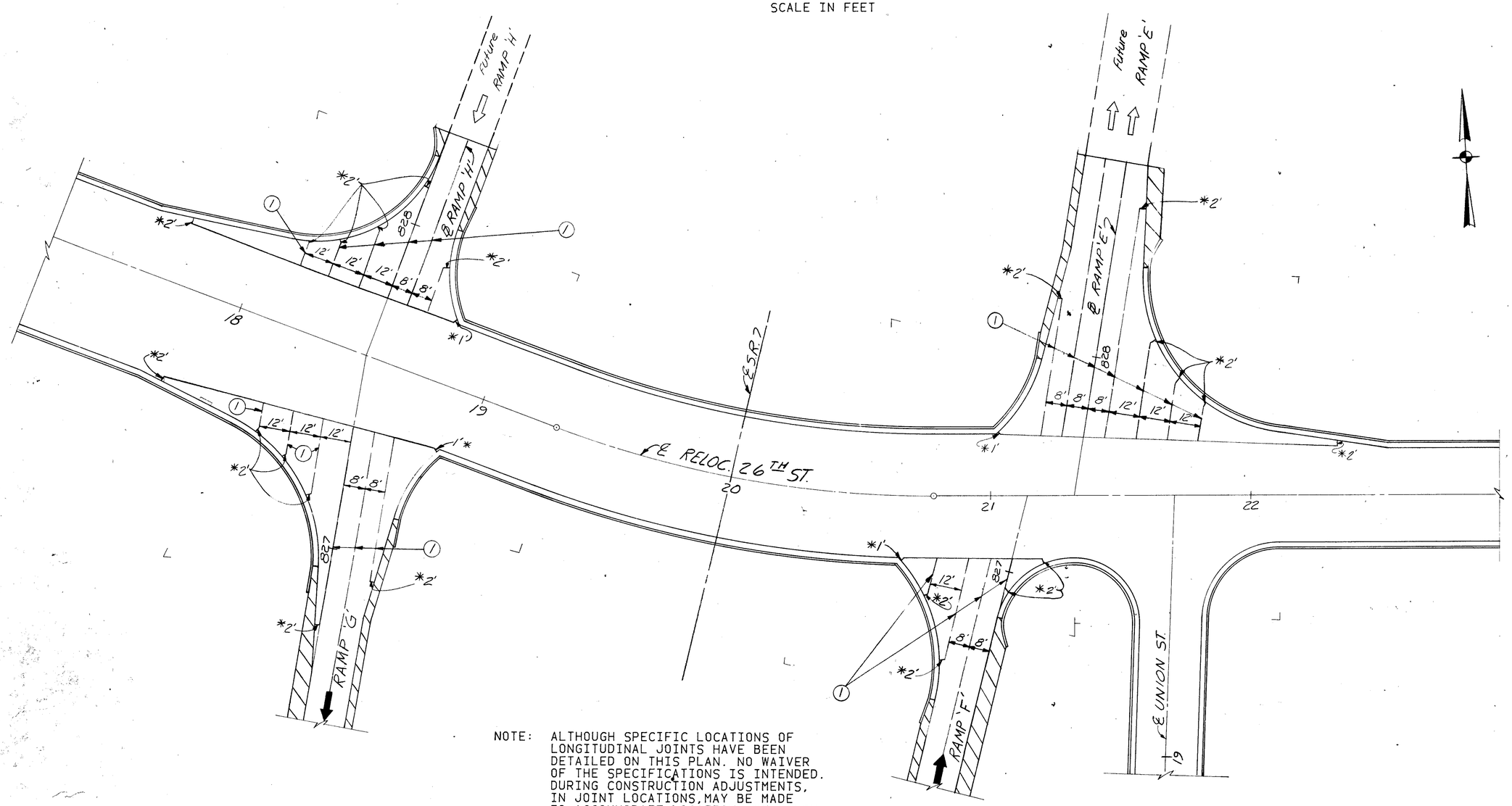
29TH ST. INTERSECTION DETAILS

(25-A) (26-A)

PAVEMENT JOINT DETAILS

BEL-7-14.17	OHIO FHWA REGION 5	350/663

0 20 40
SCALE IN FEET



NOTE: ALTHOUGH SPECIFIC LOCATIONS OF LONGITUDINAL JOINTS HAVE BEEN DETAILED ON THIS PLAN. NO WAIVER OF THE SPECIFICATIONS IS INTENDED. DURING CONSTRUCTION ADJUSTMENTS, IN JOINT LOCATIONS, MAY BE MADE TO ACCOMMODATE LOCATIONS OF CATCH BASINS, PROVIDING THE MAXIMUM SPACING BETWEEN JOINTS SHALL IN ALL CASES BE IN ACCORDANCE WITH THE STANDARD CONSTRUCTION DRAWINGS AND SPECIFICATIONS.

JOINT LEGEND

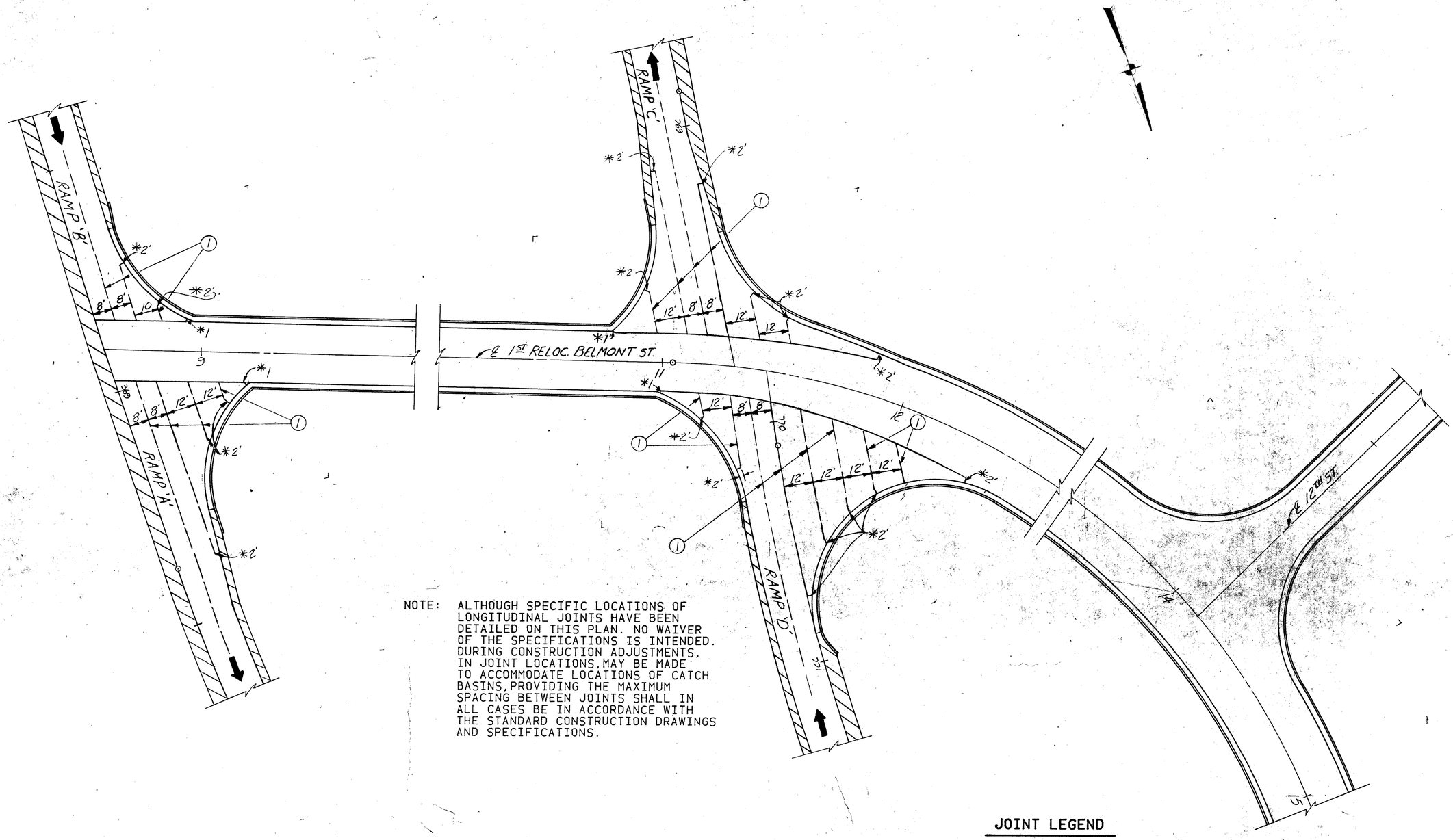
(1) STD. LONGITUDINAL JOINT.
* EXPANSION JOINT WITHOUT DOWELS.

DWN	CHD	CORR.	BKCKD	REV.
BMA 11/6/84	BEF 11/7/84	BMA 11/7/84	BEF 11/9/84	

PAVEMENT JOINT DETAILS

0 20 40
SCALE IN FEET

BEL-7-14.17	OHIO FHWA REGION 5	351/663



NOTE: ALTHOUGH SPECIFIC LOCATIONS OF LONGITUDINAL JOINTS HAVE BEEN DETAILED ON THIS PLAN. NO WAIVER OF THE SPECIFICATIONS IS INTENDED. DURING CONSTRUCTION ADJUSTMENTS, IN JOINT LOCATIONS, MAY BE MADE TO ACCOMMODATE LOCATIONS OF CATCH BASINS, PROVIDING THE MAXIMUM SPACING BETWEEN JOINTS SHALL IN ALL CASES BE IN ACCORDANCE WITH THE STANDARD CONSTRUCTION DRAWINGS AND SPECIFICATIONS.

JOINT LEGEND

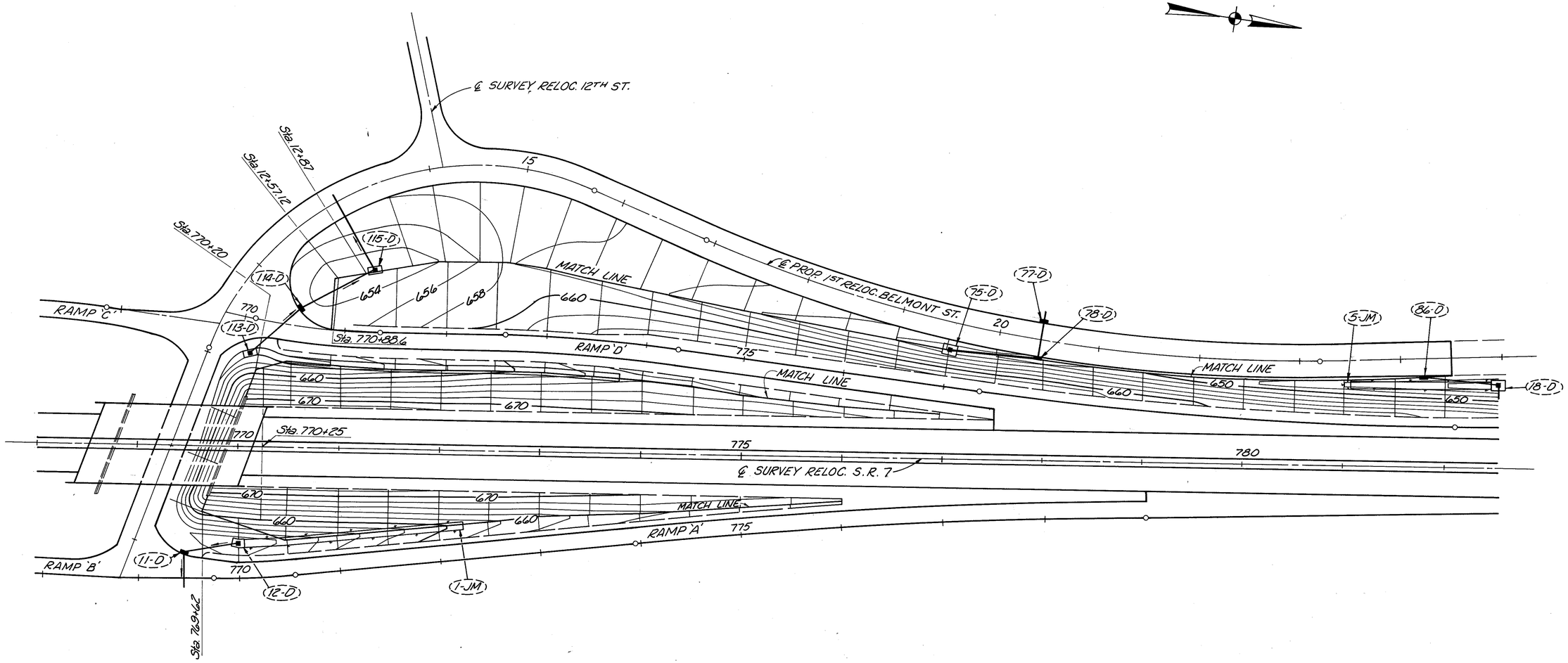
(1) STD. LONGITUDINAL JOINT.
* EXPANSION JOINT WITHOUT DOWELS.

DWN BMA 11/8/84	CHKD GCT 11/7/84	CORR BMA 11/7/84	CHKD BMA 11-7-84

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

PAVEMENT JOINT DETAILS

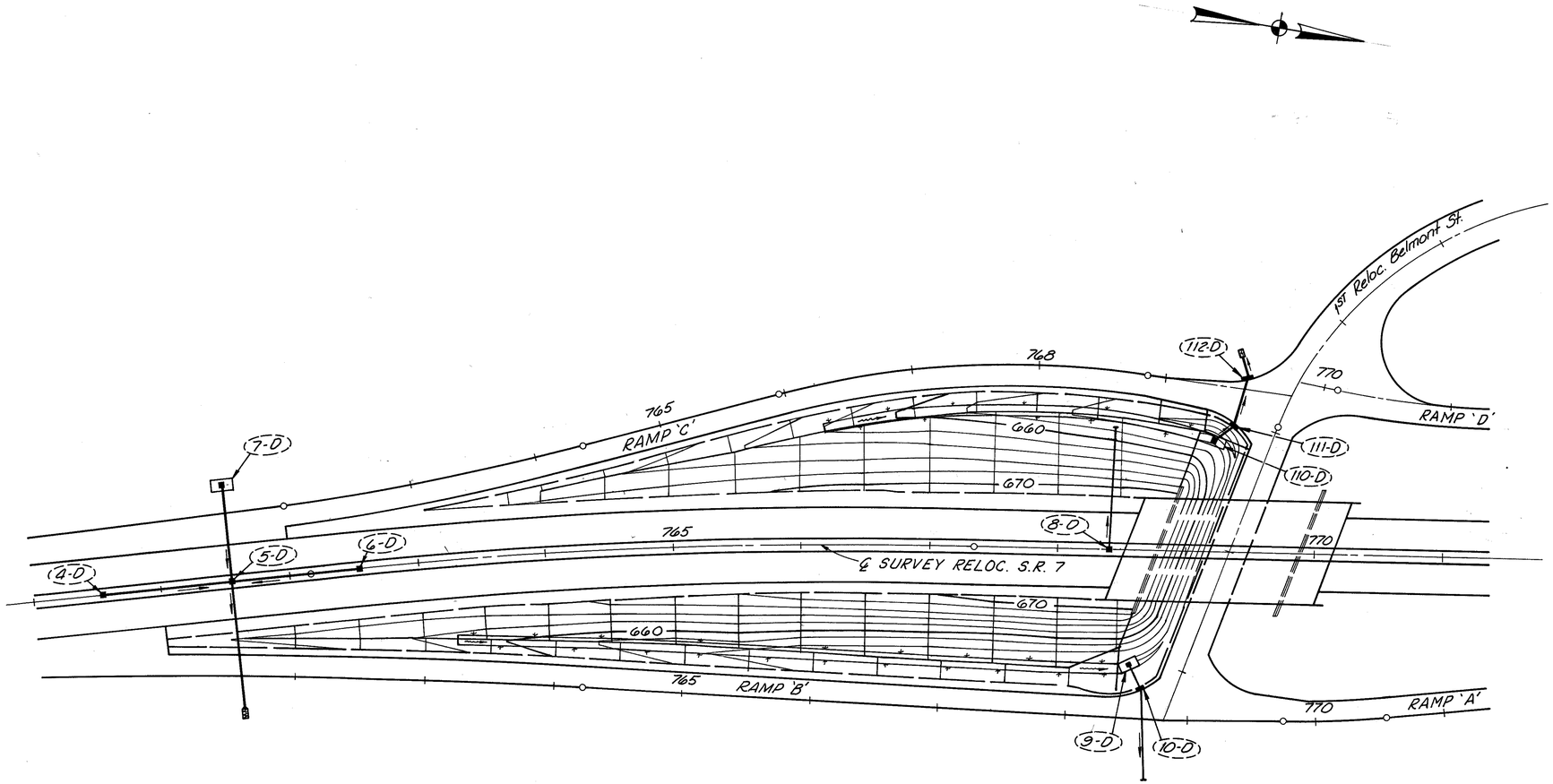
0 50 100
Scale in Feet



Note:
All Cross Sections taken at even 50' or 100' Stations, Unless Noted Otherwise.

RAMP 'A' AND 'D' GRADING PLAN

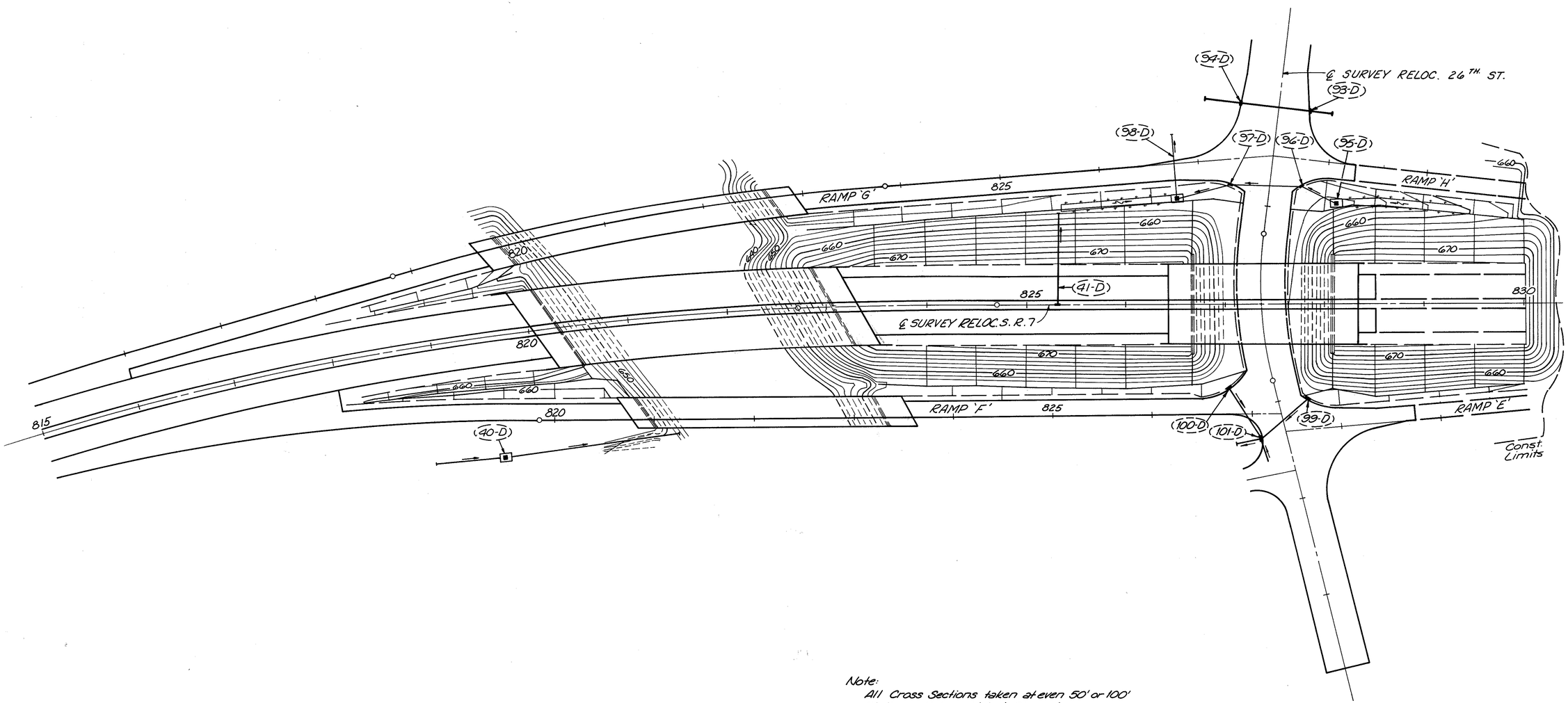
0 50 100
Scale in Feet



Note:
All Cross Sections taken at even 50' or 100' Stations, Unless Noted Otherwise.

RAMP 'B' AND 'C' GRADING PLAN

0 50 100
Scale in Feet

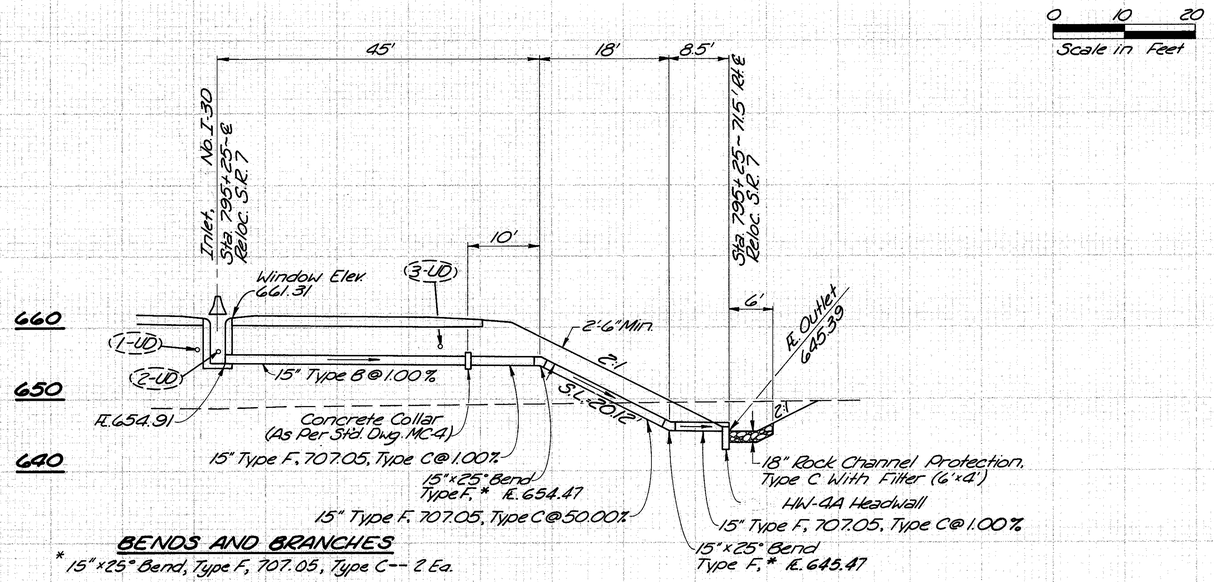


Note:
All Cross Sections taken at even 50' or 100' Stations, Unless Noted Otherwise.

RAMP 'E', 'F', 'G', AND 'H' GRADING PLAN

Calc. By: R.L. Date: 1-16-85
Ch'k'd. By: RAM Date: 1-24-85

BEL-7-14.17 | OHIO | FHWA REGION 5 | 355 / 663



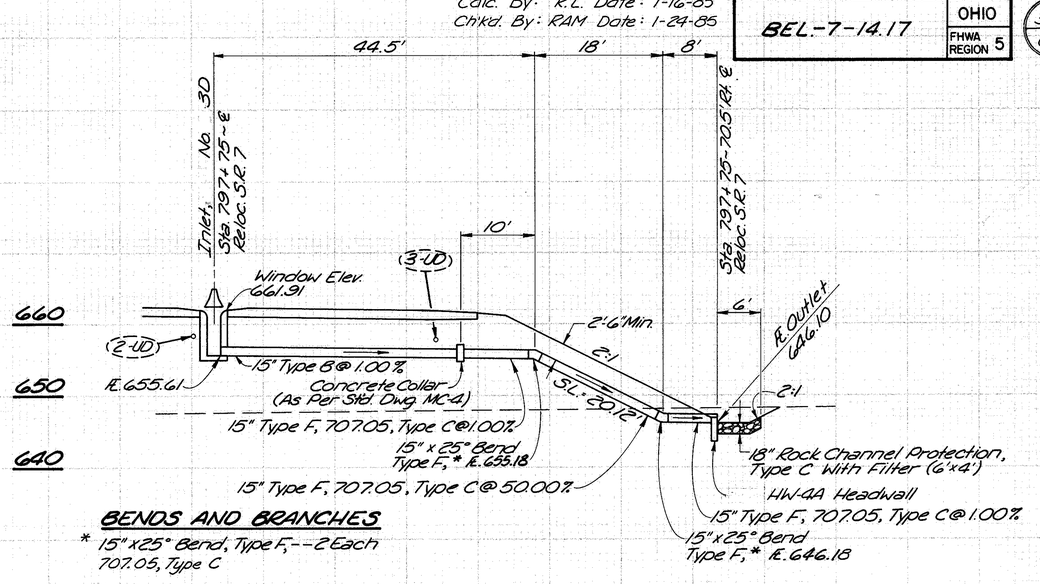
BENDS AND BRANCHES

* 15"x25° Bend, Type F, 707.05, Type C -- 2 Ea.

(24-D)

MEDIAN INLET

Sta. 795+25~ℓ Reloc. S.R. 7
For Plan, See Sheet No. 106



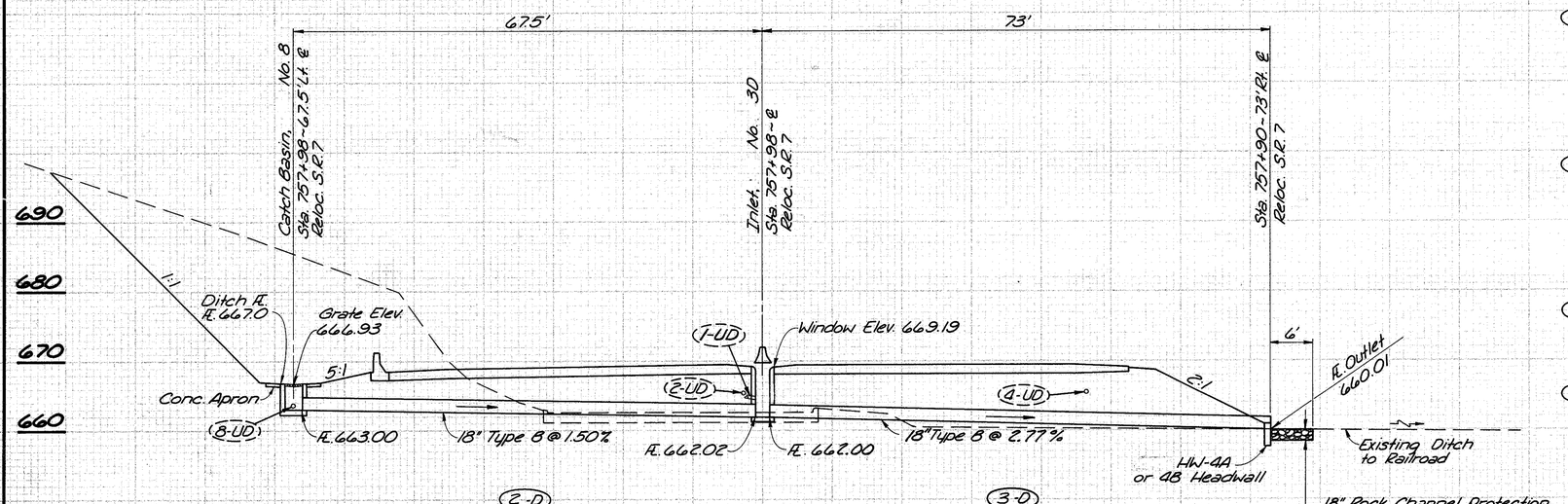
BENDS AND BRANCHES

* 15"x25° Bend, Type F, -- 2 Each 707.05, Type C

(25-D)

MEDIAN INLET

Sta. 797+75~ℓ Reloc. S.R. 7
For Plan, See Sheet No. 106



(2-D)

STORM SEWER

Sta. 757+98~67.5' Lt. ℓ Reloc. S.R. 7
For Plan, See Sheet No. 82

(3-D)

MEDIAN INLET

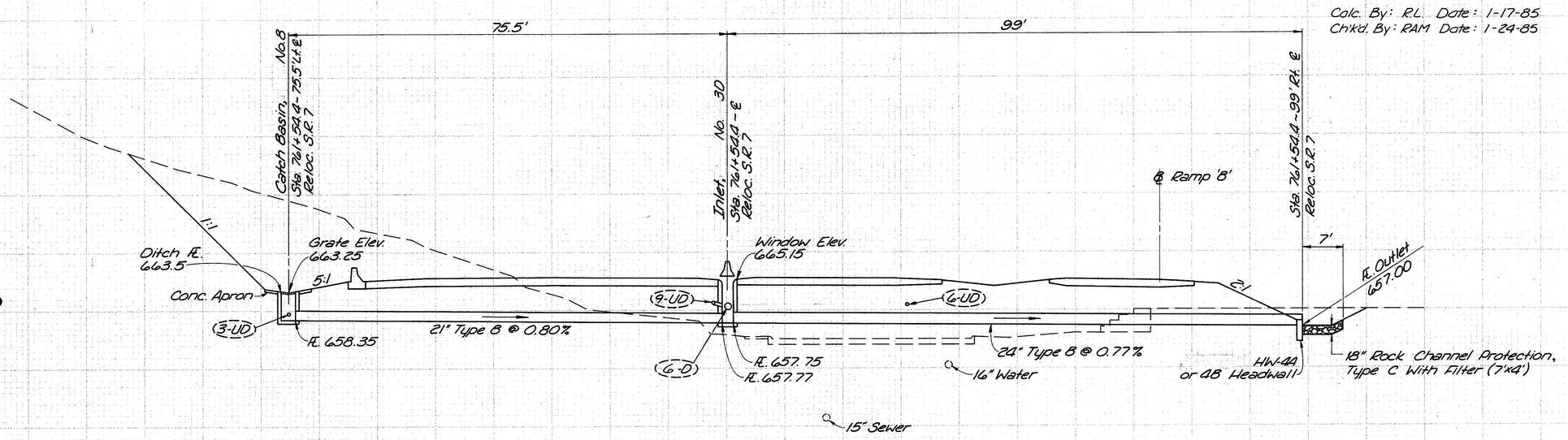
Sta. 757+98~ℓ Reloc. S.R. 7
For Plan, See Sheet No. 83

ESTIMATED QUANTITIES

	Item No.	Description	Quantity	Unit
(24-D)	604	Inlet, No. 30	1	Each
	603	15" Conduit, Type B	35	Lin. Ft.
	603	15" Conduit, Type F, 707.05, Type C	39	Lin. Ft.
	602	Concrete Masonry	0.27	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	1.3	Cu. Yd.
		Quantities Carried to Sheet No. 106.		
(25-D)	604	Inlet, No. 30	1	Each
	603	15" Conduit, Type B	35	Lin. Ft.
	603	15" Conduit, Type F, 707.05, Type C	39	Lin. Ft.
	602	Concrete Masonry	0.27	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	1.3	Cu. Yd.
		Quantities Carried to Sheet No. 106.		
(2-D)	604	Catch Basin, No. 8	1	Each
	603	18" Conduit, Type B	68	Lin. Ft.
		Quantities Carried to Sheet No. 86.		
(3-D)	604	Inlet, No. 30	1	Each
	603	18" Conduit, Type B	73	Lin. Ft.
	602	Concrete Masonry	0.33	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	1.3	Cu. Yd.
		Quantities Carried to Sheet No. 87.		

Calc. By: R.L. Date: 1-17-85
Chk'd. By: RAM Date: 1-24-85

BEL.-7-14.17 | OHIO | FHWA REGION 5 | 356 / 663



(7-D)

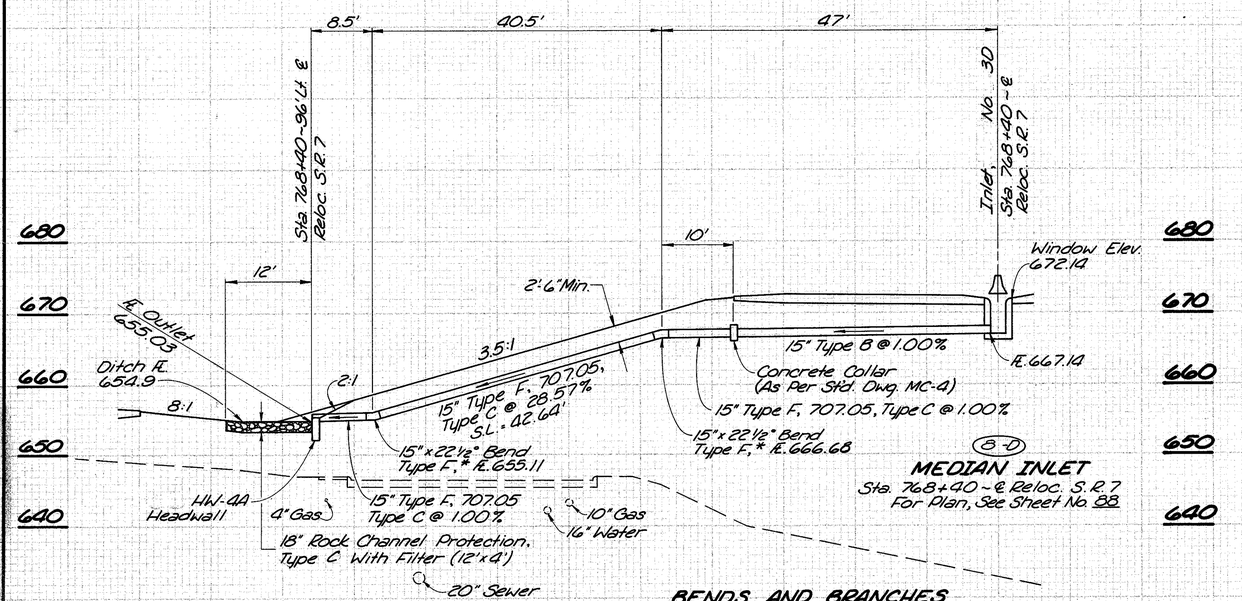
STORM SEWER

Sta. 761+54.4 ~ 75.5' Lt. ℄ Reloc. S.R. 7
For Plan, See Sheet No. 82

(5-D)

STORM SEWER

Sta. 761+54.4 ~ ℄ Reloc. S.R. 7
For Plan, See Sheet No. 83



(8-D)

MEDIAN INLET

Sta. 768+40 ~ ℄ Reloc. S.R. 7
For Plan, See Sheet No. 88

BENDS AND BRANCHES

* 15"x22½° Bend, Type F, --- 2 Each
707.05, Type C

0 10 20
Scale in Feet

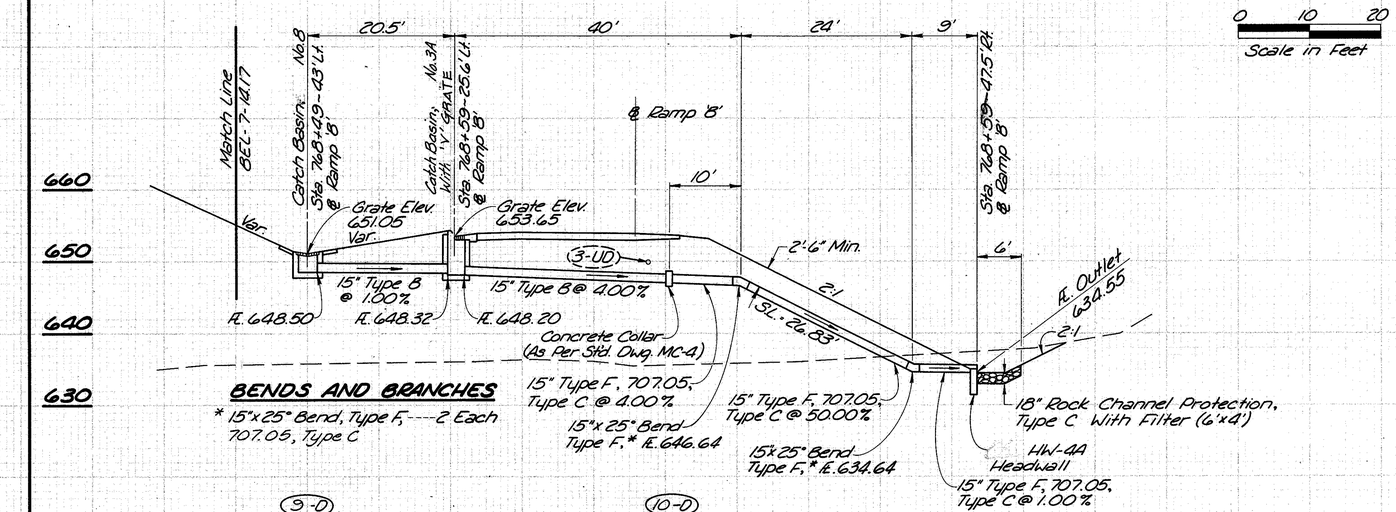
ESTIMATED QUANTITIES

	Item No.	Description	Quantity	Unit
(7-D)	604	Catch Basin, No. 8	1	Each
	603	21" Conduit, Type B	76	Lin. Ft.
		Quantities Carried to Sheet No. 86		
(5-D)	604	Inlet, No. 30	1	Each
	603	24" Conduit, Type B	99	Lin. Ft.
	602	Concrete Masonry	0.46	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	1.6	Cu. Yd.
		Quantities Carried to Sheet No. 87		
(8-D)	604	Inlet, No. 30	1	Each
	603	15" Conduit, Type B	37	Lin. Ft.
	603	15" Conduit, Type F, 707.05, Type C	62	Lin. Ft.
	602	Concrete Masonry	0.27	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	2.7	Cu. Yd.
		Quantities Carried to Sheet No. 93		

(5-D) (7-D) (8-D) STORM SEWER PROFILES

Calc. By: R.L. Date: 12-4-84
Chkd. By: RAM Date: 12-27-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 357 / 663



BENDS AND BRANCHES

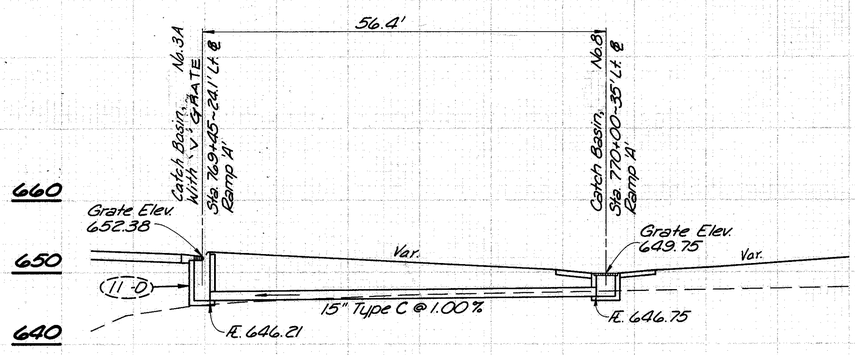
* 15"x 25° Bend, Type F, ---- 2 Each
707.05, Type C

(9-D)

STORM SEWER
Sta. 768+49-43' Lt.
@ Ramp '8'
For Plan, See Sheet No. 89.

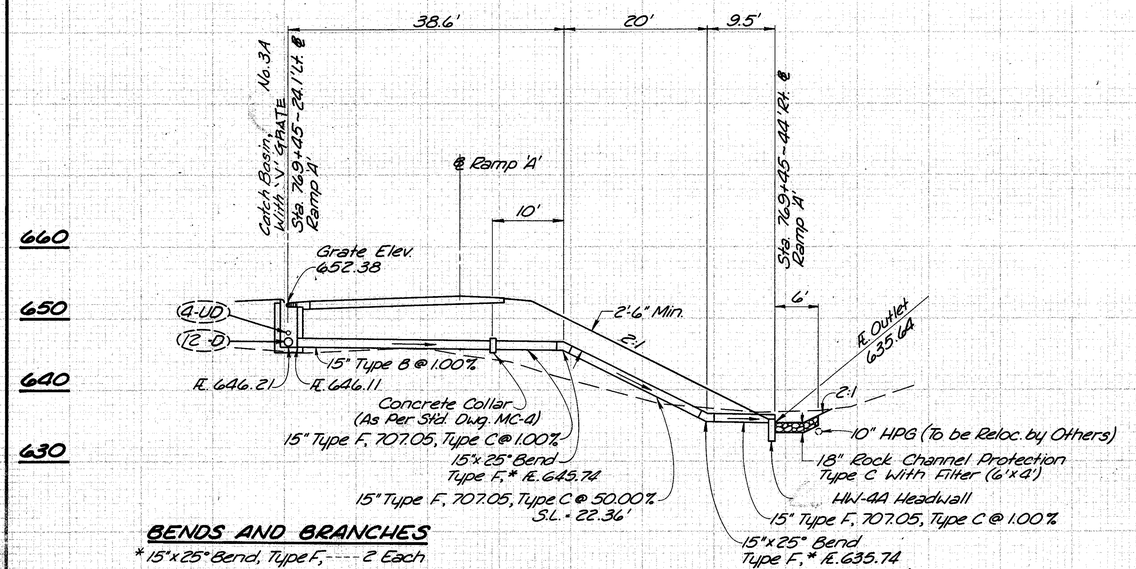
(10-D)

STORM SEWER
Sta. 768+59-25.6' Lt.
@ Ramp '8'
For Plan, See Sheet No. 89.



(12-D)

STORM SEWER
Sta. 770+00-35' Lt.
@ Ramp 'A'
For Plan, See Sheet No. 91.



BENDS AND BRANCHES

* 15"x 25° Bend, Type F, ---- 2 Each
707.05, Type C

(11-D)

STORM SEWER
Sta. 769+45-24.1' Lt. @
Ramp 'A'
For Plan, See Sheet No. 91.

ESTIMATED QUANTITIES

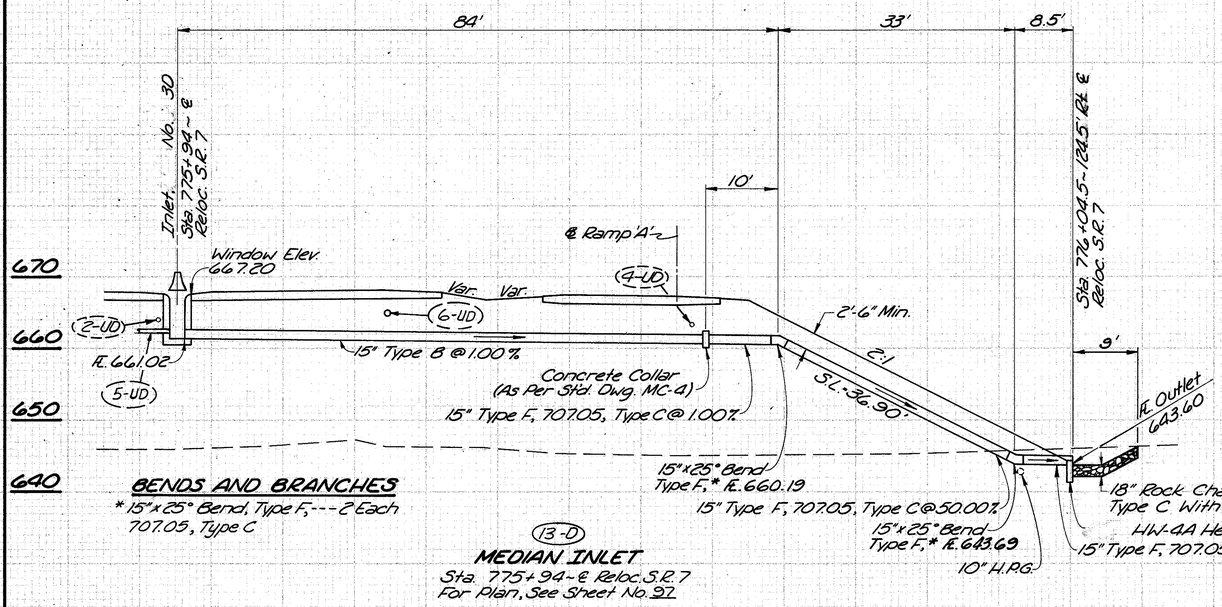
Item No.	Description	Quantity	Unit
(9-D) 604	Catch Basin, No. 8	1	Each
603	15" Conduit, Type B	21	Lin. Ft.
	Quantities Carried to Sheet No. 94.		
(10-D) 604	Catch Basin, No. 3A With 'V' GRATE	1	Each
603	15" Conduit, Type B	30	Lin. Ft.
603	15" Conduit, Type F, 707.05, Type C	46	Lin. Ft.
602	Concrete Masonry	0.27	Cu. Yd.
601	Rock Channel Protection, Type C With Filter	1.3	Cu. Yd.
	Quantities Carried to Sheet No. 94.		
(12-D) 604	Catch Basin, No. 8	1	Each
603	15" Conduit, Type C	57	Lin. Ft.
	Quantities Carried to Sheet No. 96.		
(11-D) 604	Catch Basin, No. 3A With 'V' GRATE	1	Each
603	15" Conduit, Type B	29	Lin. Ft.
603	15" Conduit, Type F, 707.05, Type C	42	Lin. Ft.
602	Concrete Masonry	0.27	Cu. Yd.
601	Rock Channel Protection, Type C With Filter	1.3	Cu. Yd.
	Quantities Carried to Sheet No. 96.		

(9-D) (10-D) (11-D) (12-D) STORM SEWER PROFILES

Calc. By: B.L. Date: 10-24-84
Chk'd. By: R.L. Date: 11-16-84

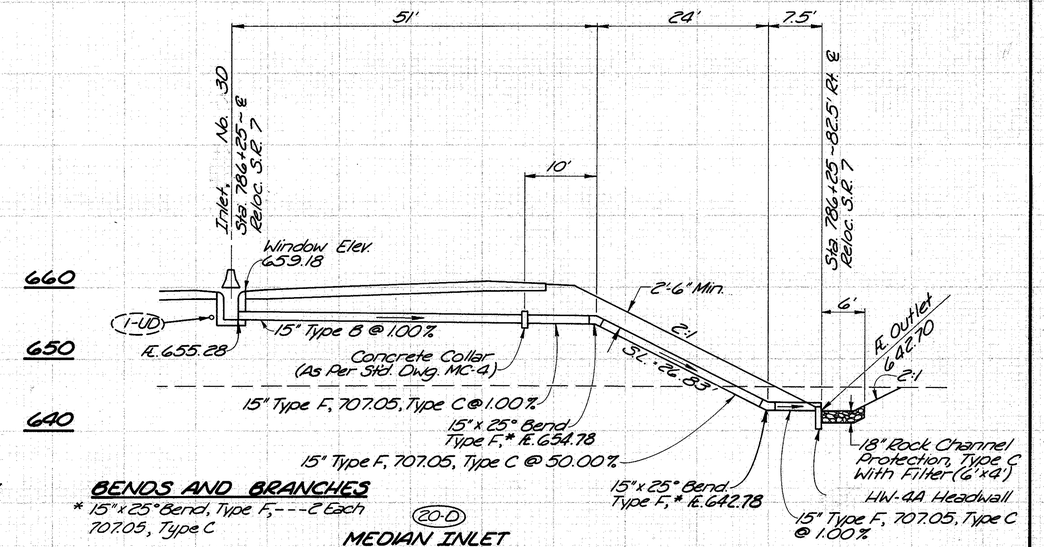
BEL-7-14.17 | OHIO | FHWA REGION 5 | 358 / 663

0 10 20
Scale in Feet



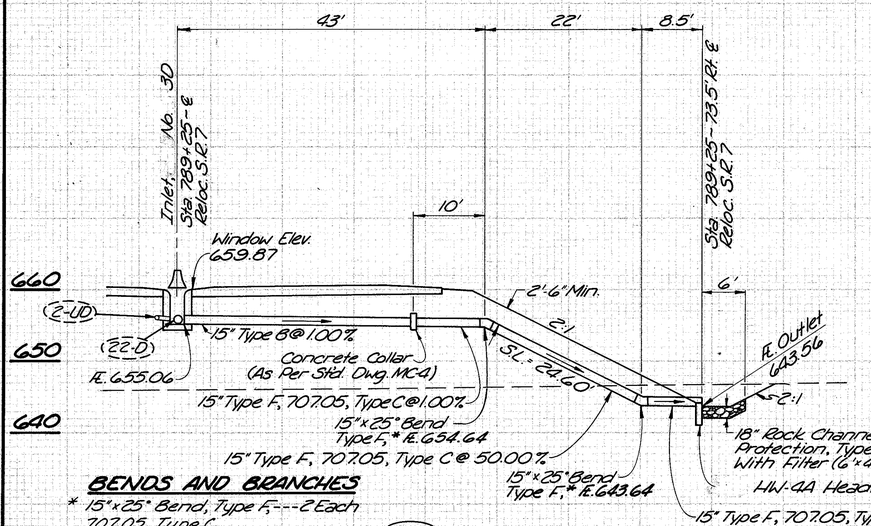
BENDS AND BRANCHES
* 15"x25° Bend, Type F, --- 2 Each
707.05, Type C

(13-D)
MEDIAN INLET
Sta. 775+94 ~ ℄ Reloc. S.R. 7
For Plan, See Sheet No. 97



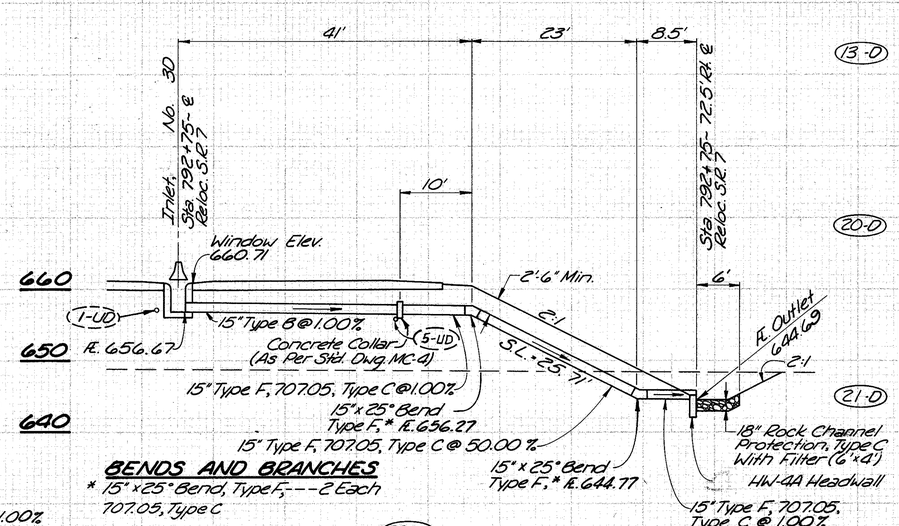
BENDS AND BRANCHES
* 15"x25° Bend, Type F, --- 2 Each
707.05, Type C

(20-D)
MEDIAN INLET
Sta. 786+25 ~ ℄ Reloc. S.R. 7
For Plan, See Sheet No. 98



BENDS AND BRANCHES
* 15"x25° Bend, Type F, --- 2 Each
707.05, Type C

(21-D)
MEDIAN INLET
Sta. 789+25 ~ ℄ Reloc. S.R. 7
For Plan, See Sheet No. 102

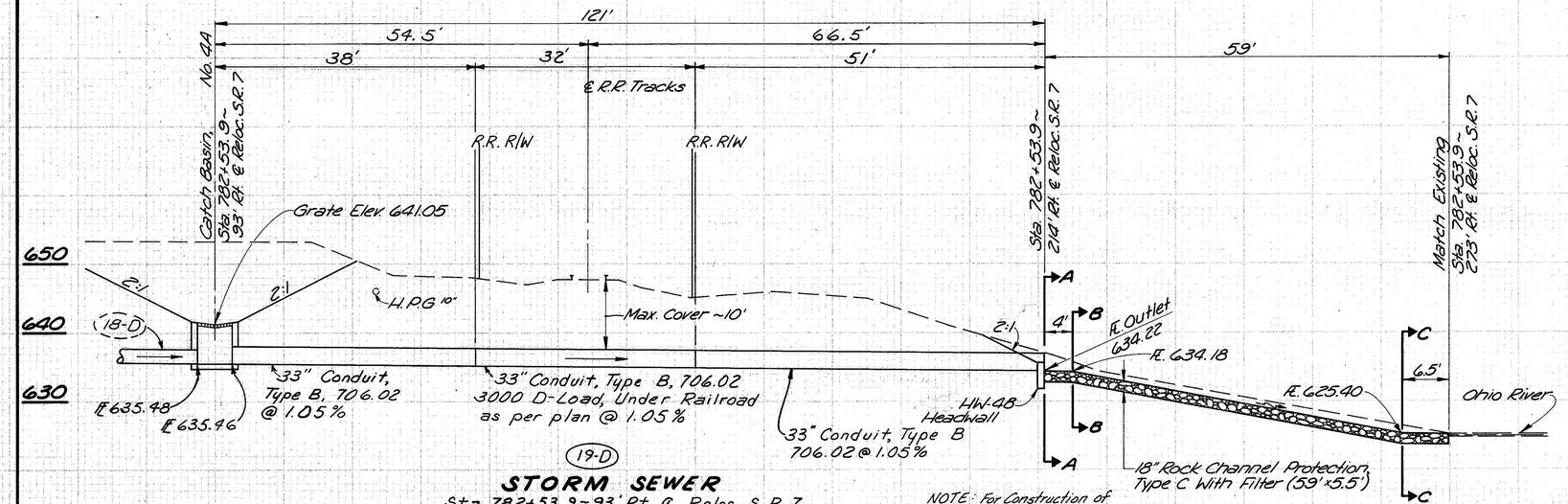


BENDS AND BRANCHES
* 15"x25° Bend, Type F, --- 2 Each
707.05, Type C

(23-D)
MEDIAN INLET
Sta. 792+75 ~ ℄ Reloc. S.R. 7
For Plan, See Sheet No. 104

ESTIMATED QUANTITIES

Item No.	Description	Quantity	Unit
	(13-D)		
604	Inlet, No. 30	1	Each
603	15" Conduit, Type B	74	Lin. Ft.
603	15" Conduit, Type F, 707.05, Type C	56	Lin. Ft.
602	Concrete Masonry	0.27	Cu. Yd.
601	Rock Channel Protection, Type C With Filter	2.0	Cu. Yd.
	Quantities Carried to Sheet No. 100.		
	(20-D)		
604	Inlet, No. 30	1	Each
603	15" Conduit, Type B	41	Lin. Ft.
603	15" Conduit, Type F, 707.05, Type C	45	Lin. Ft.
602	Concrete Masonry	0.27	Cu. Yd.
601	Rock Channel Protection, Type C With Filter	1.3	Cu. Yd.
	Quantities Carried to Sheet No. 101.		
	(21-D)		
604	Inlet, No. 30	1	Each
603	15" Conduit, Type B	33	Lin. Ft.
603	15" Conduit, Type F, 707.05, Type C	44	Lin. Ft.
602	Concrete Masonry	0.27	Cu. Yd.
601	Rock Channel Protection, Type C With Filter	1.3	Cu. Yd.
	Quantities Carried to Sheet No. 103.		
	(23-D)		
604	Inlet, No. 30	1	Each
603	15" Conduit, Type B	31	Lin. Ft.
603	15" Conduit, Type F, 707.05, Type C	45	Lin. Ft.
602	Concrete Masonry	0.27	Cu. Yd.
601	Rock Channel Protection, Type C With Filter	1.3	Cu. Yd.
	Quantities Carried to Sheet No. 105.		



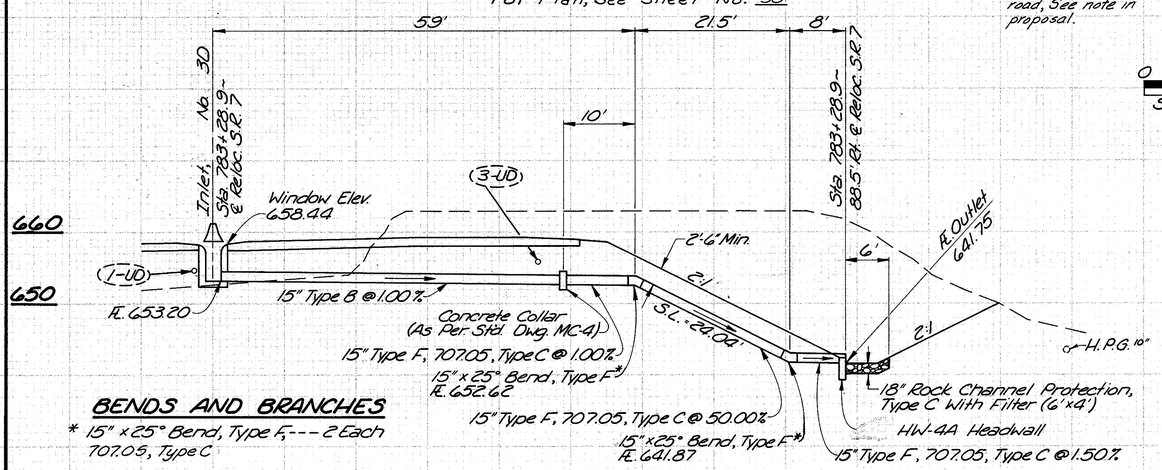
NOTE: For Construction of conduit under railroad, See note in proposal.

0 10 20
Scale in Feet

(19-D)

STORM SEWER

Sta. 782+53.9~93' Rt. ℄ Reloc. S.R. 7
For Plan, See Sheet No. 98.



BENDS AND BRANCHES

* 15" x 25° Bend, Type F, --- 2 Each
707.05, Type C

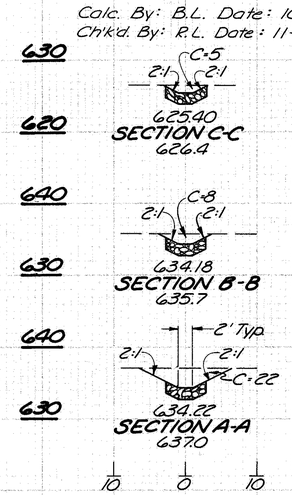
(17-D)

MEDIAN INLET

Sta. 783+28.9~℄ Reloc. S.R. 7
For Plan, See Sheet No. 98.

Calc. By: B.L. Date: 10-5-84
Ch'k'd. By: R.L. Date: 11-19-84

BEL-7-14.17	OHIO	359
	FHWA REGION 5	663



CROSS SECTIONS

0 10 20
Scale in Feet

EARTHWORK QUANTITIES

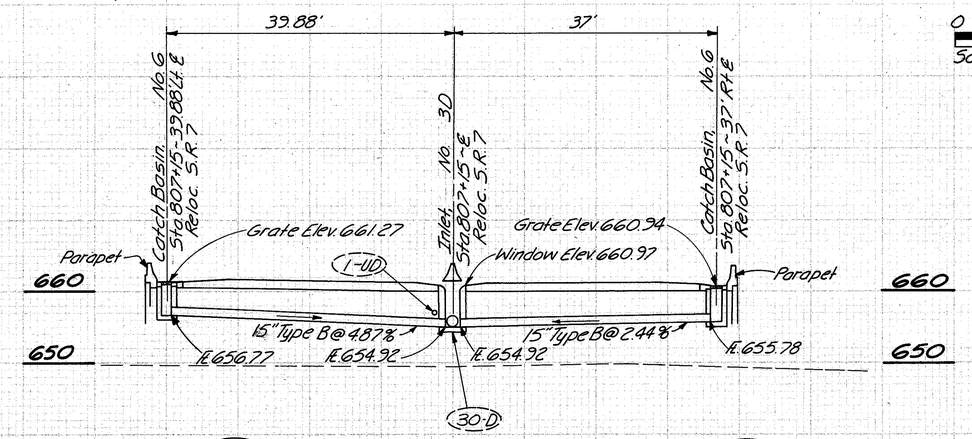
STATION	End Area		Volume	
	Cut	Fill	Cut	Fill
Section A-A	22	0		
			2	0
Section B-B	8	0		
			12	0
Section C-C	5	0		
			1	0
Match Existing	0	0		
TOTAL CU. YDS.			15	0

ESTIMATED QUANTITIES

	Item No.	Description	Quantity	Unit
(19-D)	603	33" Conduit, Type B, 706.02 3000 D-Load, Under	32	Lin. Ft.
		Railroad as per plan		
	604	Catch Basin, No. 4A	1	Each
	602	Concrete Masonry	0.62	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	18.0	Cu. Yd.
	203	Excavation Not Including Embankment Construction	15.0	Cu. Yd.
	603	33" Conduit, Type B, 706.02	89	Lin. Ft.
(17-D)		Quantities Carried to Sheet No. 101		
	603	15" Conduit, Type B	49	Lin. Ft.
	603	15" Conduit, Type F, 707.05, Type C	42	Lin. Ft.
	602	Concrete Masonry	0.27	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	1.3	Cu. Yd.
	604	Inlet, No. 3D	1	Each
		Quantities Carried to Sheet No. 101.		

Calc. By: B.L. Date: 11-12-84
Ch'k'd. By: R.L. Date: 11-14-84

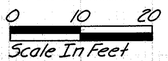
BEL-7-14.17 | OHIO | FHWA REGION 5 | 360/663

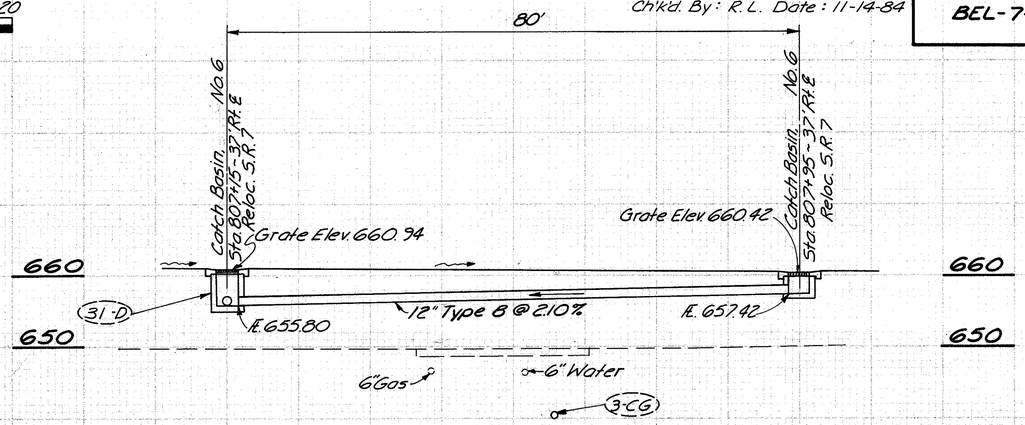


29-D

STORM SEWER

Sta. 807+15 - 39.88' Lt. & Reloc. S.R. 7
For Plan, See Sheet No. 110





31-D

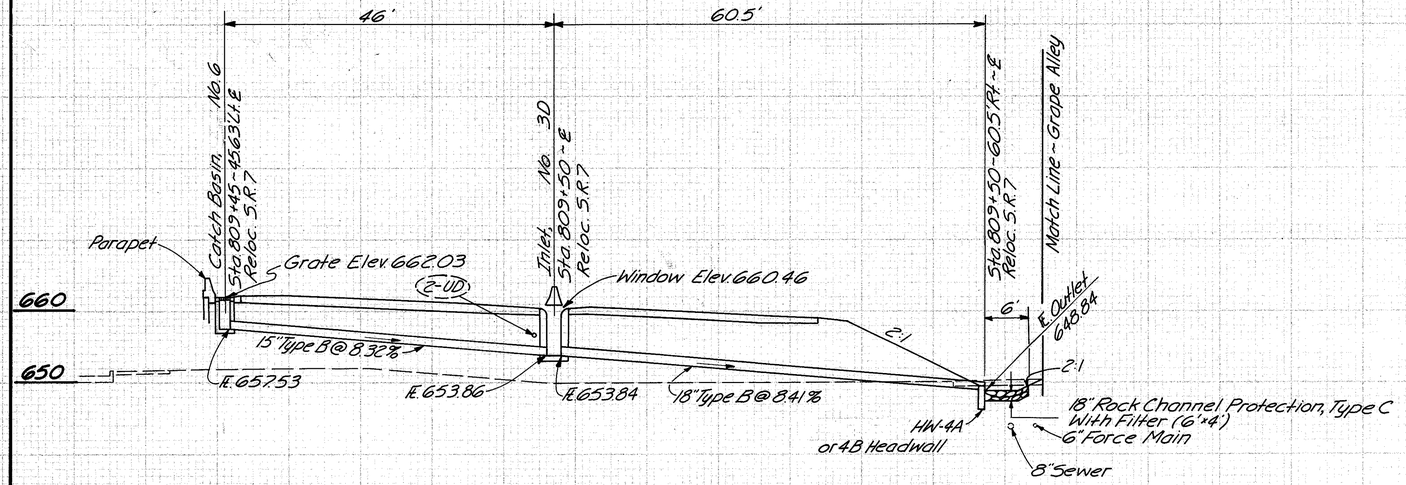
STORM SEWER

Sta. 807+15 - 37' Rt. & Reloc. S.R. 7
For Plan, See Sheet No. 110

32-D

STORM SEWER

Sta. 807+95 - 37' Rt. & Reloc. S.R. 7
For Plan, See Sheet No. 110



34-D

STORM SEWER

Sta. 809+45 - 45.63' Lt. & Reloc. S.R. 7
For Plan, See Sheet No. 110

35-D

MEDIAN INLET

Sta. 809+50 - ℄ Reloc. S.R. 7
For Plan, See Sheet No. 110

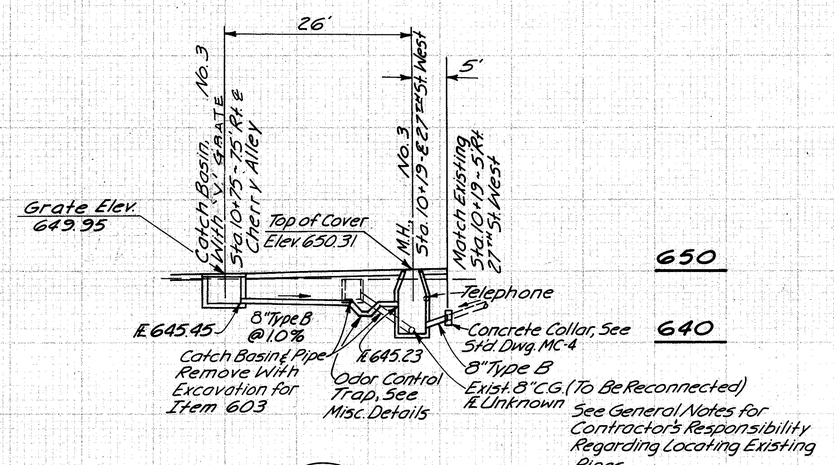
ESTIMATED QUANTITIES

	Item No.	Description	Quantity	Unit
29-D	604	Catch Basin, No. 6	1	Each
	603	15" Conduit, Type B	40	Lin. Ft.
		Quantities Carried To Sheet No. 111		
31-D	604	Catch Basin, No. 6	1	Each
	603	15" Conduit, Type B	37	Lin. Ft.
		Quantities Carried To Sheet No. 111		
32-D	604	Catch Basin, No. 6	1	Each
	603	12" Conduit, Type B	80	Lin. Ft.
		Quantities Carried To Sheet No. 111		
34-D	604	Catch Basin, No. 6	1	Each
	603	15" Conduit, Type B	46	Lin. Ft.
		Quantities Carried To Sheet No. 111		
35-D	604	Inlet, No. 3D	1	Each
	603	18" Conduit, Type B	61	Lin. Ft.
	602	Concrete, Masonry	0.33	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	1.3	Cu. Yd.
		Quantities Carried To Sheet No. 111		

Calc. By: B.L. Date: 11-12-84
Ch'k'd. By: R.L. Date: 11-14-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 361 / 663

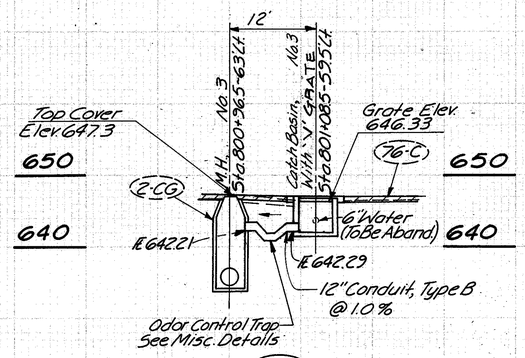
0 10 20
Scale in Feet



(58-D)

STORM SEWER

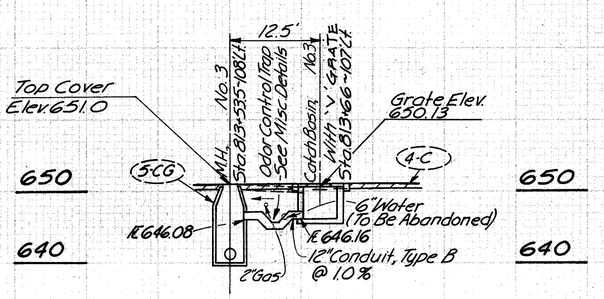
Sta. 10+75 ~ 7.5' Rt. ℄ Cherry Alley
For Plan, See Sheet No. 281



(26-D)

STORM SEWER

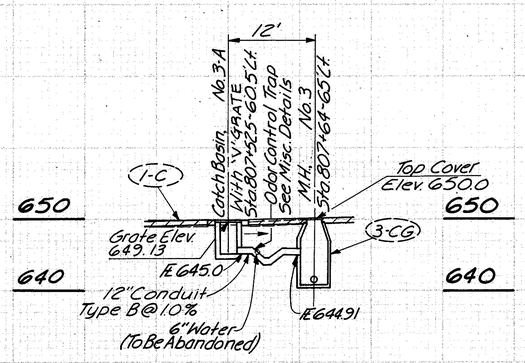
Sta. 801+05 Lt. ~ Reloc. SR. 7
For Plan, See Sheet No. 107



(36-D)

STORM SEWER

Sta. 813+60 Lt. ~ Reloc. SR. 7
For Plan, See Sheet No. 112



(33-D)

STORM SEWER

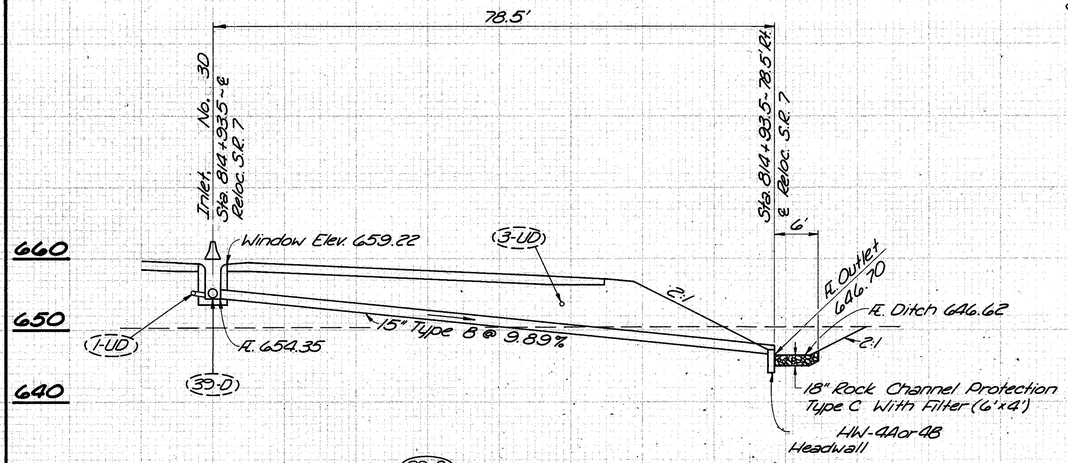
Sta. 807+58 Lt. ~ Reloc. SR. 7
For Plan, See Sheet No. 110

ESTIMATED QUANTITIES

	Item No.	Description	Quantity	Unit
	603	12" Conduit, Type B	12	Lin. Ft.
(26-D)	604	Catch Basin, No. 3 With "V" GRATE	1	Each
	Special	Odor Control Trap	1	Each
		Quantities Carried To Sheet No. 108		
	603	12" Conduit, Type B	12	Lin. Ft.
(33-D)	604	Catch Basin, No. 3A With "V" GRATE	1	Each
	Special	Odor Control Trap	1	Each
		Quantities Carried To Sheet No. 111		
	603	12" Conduit, Type B	13	Lin. Ft.
(36-D)	604	Catch Basin, No. 3 With "V" GRATE	1	Each
	Special	Odor Control Trap	1	Each
		Quantities Carried To Sheet No. 117		
	603	8" Conduit, Type B	36	Lin. Ft.
(58-D)	604	Manhole, No. 3 With Joints As Per 706.11	1	Each
	604	Catch Basin, No. 3 With "V" GRATE	1	Each
	Special	Odor Control Trap	1	Each
		Quantities Carried To Sheet No. 281		

Calc. By: B.L. Date: 12-4-84
Ch'k'd. By: R.L. Date: 12-13-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 362 / 663

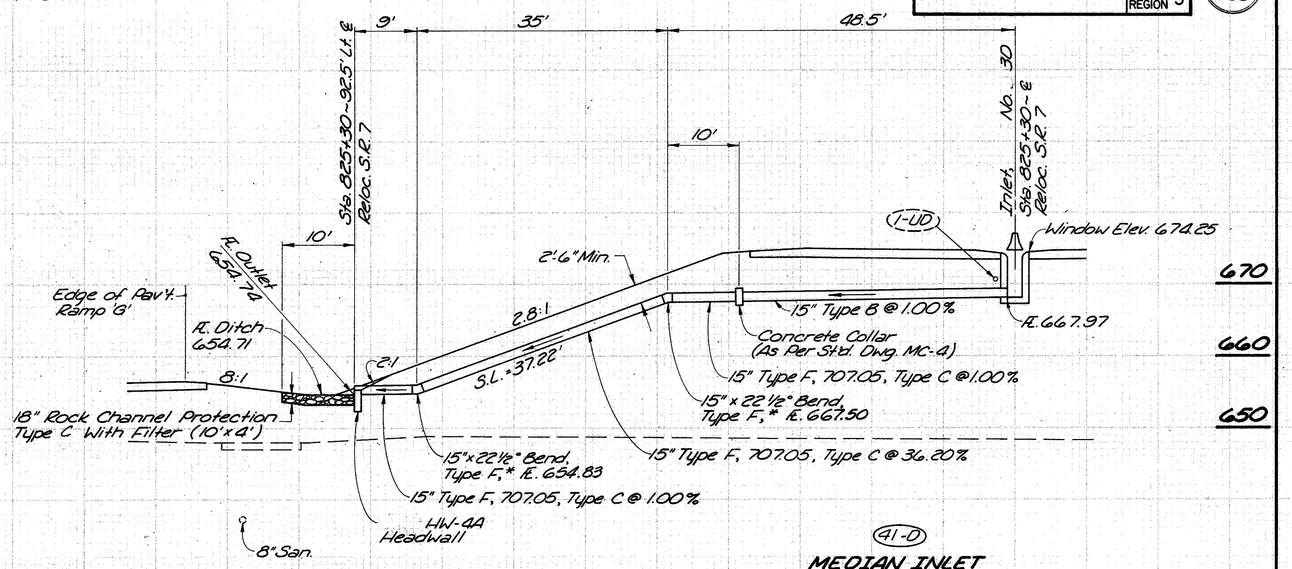


(38-D)

MEDIAN INLET

Sta. 814+93.5~ℓ Reloc. S.R. 7
For Plan, See Sheet No. 112

0 10 20
Scale in Feet



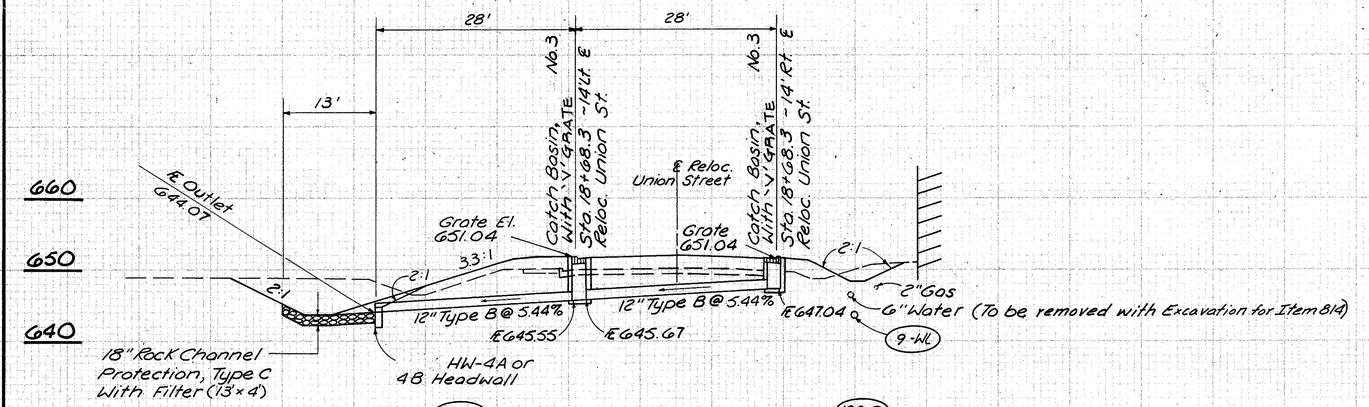
BENDS AND BRANCHES

*15" x 22½° Bend, Type F, 707.05, Type C -- 2 Ea.

(41-D)

MEDIAN INLET

Sta. 825+30~ℓ Reloc. S.R. 7
For Plan, See Sheet No. 120



(109-D)

STORM SEWER

Sta. 18+68.3~14'Lt. ℓ Reloc. Union St.
For Plan, See Sheet No. 121.

(108-D)

STORM SEWER

Sta. 18+68.3~14'Rt. ℓ Reloc. Union St.
For Plan, See Sheet No. 121.

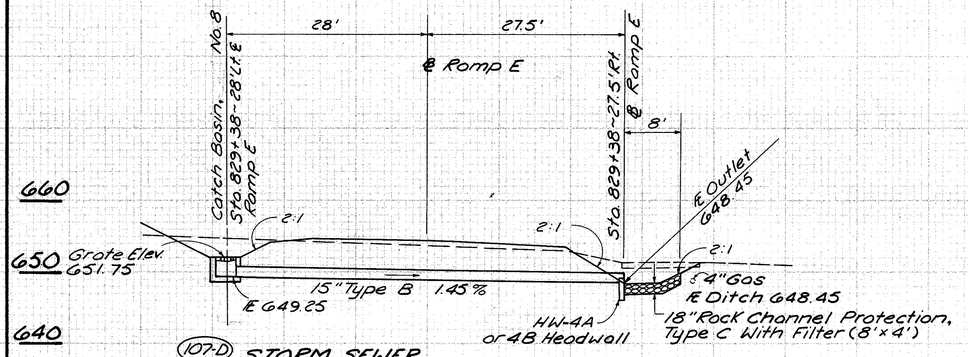
ESTIMATED QUANTITIES

	Item	Description	Quantity	Unit
(38-D)	604	Inlet, No. 30	1	Each
	603	15" Conduit, Type B	79	Lin. Ft.
	602	Concrete Masonry	0.27	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	1.3	Cu. Yd.
		Quantities Carried to Sheet No. 117		
(41-D)	604	Inlet, No. 30	1	Each
	603	15" Conduit, Type B	39	Lin. Ft.
	603	15" Conduit, Type F, 707.05, Type C	57	Lin. Ft.
	602	Concrete Masonry	0.27	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	2.2	Cu. Yd.
		Quantities Carried to Sheet No. 125		
(108-D)	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	12" Conduit, Type B	28	Lin. Ft.
		Quantities Carried to Sheet No. 126		
(109-D)	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	12" Conduit, Type B	28	Lin. Ft.
	602	Concrete Masonry	0.21	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	2.9	Cu. Yd.
		Quantities Carried to Sheet No. 126		

Calc. By: B.E.K. Date: 2-18-85
Ch'k'd. By: G.W. Date: 2-21-85

BEL-7-14.17 | OHIO | FHWA REGION 5 | 363 / 663

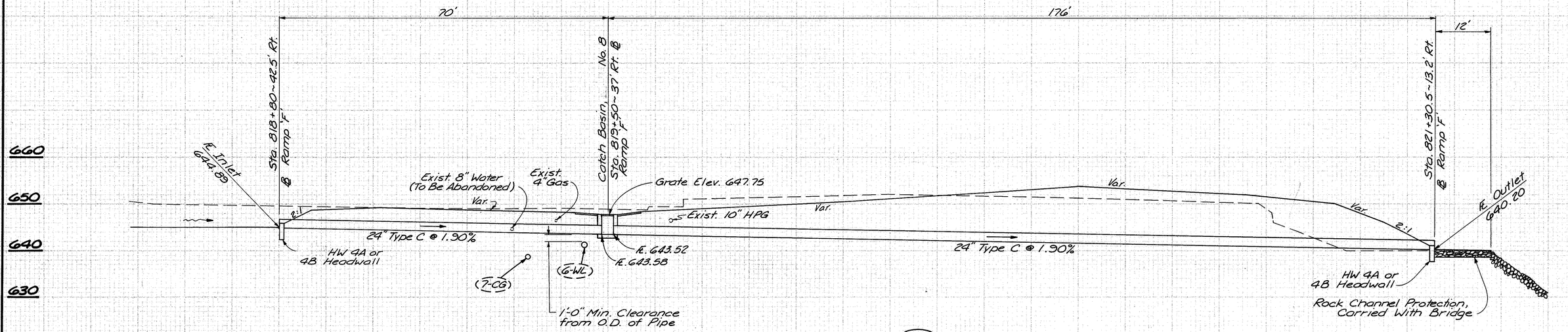
0 10 20
Scale in Feet



(107-D) **STORM SEWER**
Sta. 829+38 ~ 28' Lt. ℄ Ramp E
For Plan, See Sheet No. 122

ESTIMATED QUANTITIES

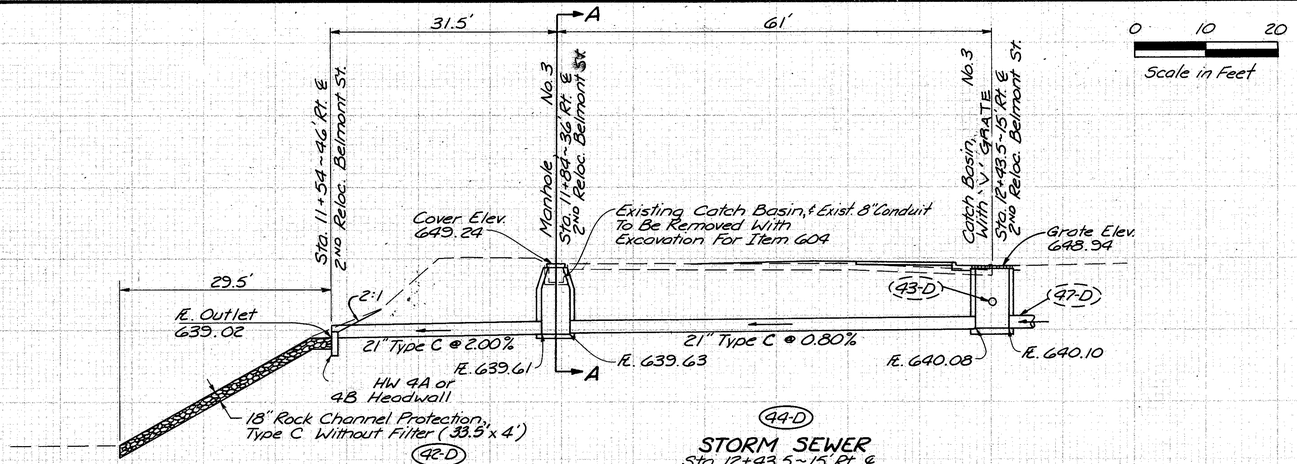
	Item	Description	Quantity	Unit
(107-D)	604	Catch Basin, No. 8	1	Each
	603	15" Conduit, Type B	55	Lin. Ft.
	602	Concrete Masonry	0.27	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	1.8	Cu. Yd.
		Quantities Carried to Sheet No. 127		
(40-D)	604	Catch Basin, No. 8	1	Each
	603	24" Conduit, Type C	246	Lin. Ft.
	602	Concrete Masonry	0.92	Cu. Yd.
		Quantities Carried to Sheet No. 119		



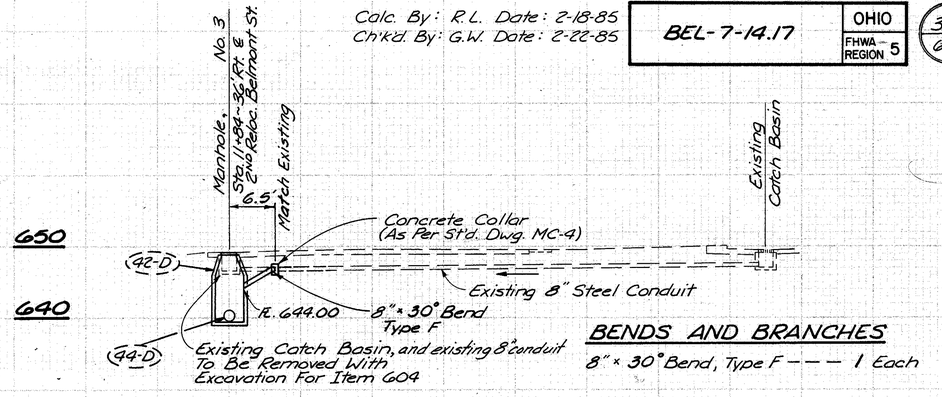
(40-D)
STORM SEWER
Sta. 819+50 ~ 37' Rt. ℄ Ramp 'F'
For Plan, See Sheet No. 114

Calc. By: R.L. Date: 2-18-85
Ch'k'd. By: G.W. Date: 2-22-85

BEL-7-14.17 | OHIO FHWA REGION 5 | 364/663



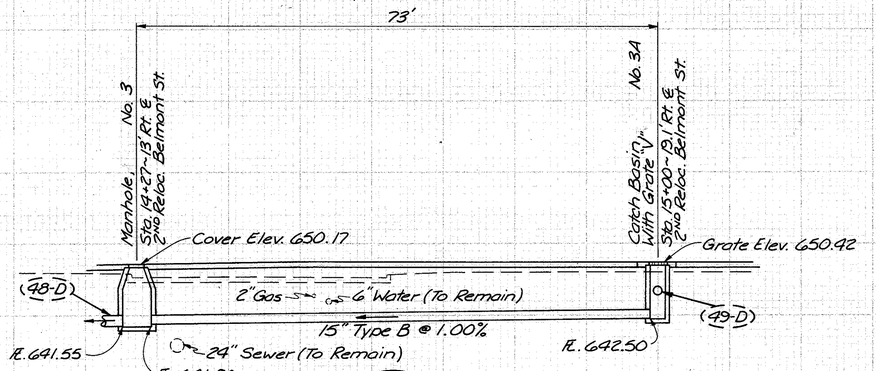
0 10 20
Scale in Feet



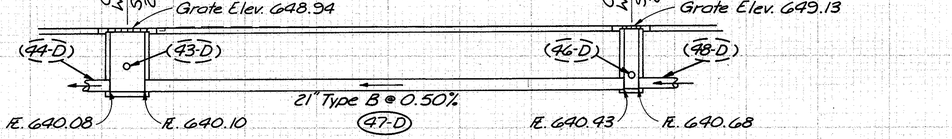
BENDS AND BRANCHES

8" x 30° Bend, Type F --- 1 Each

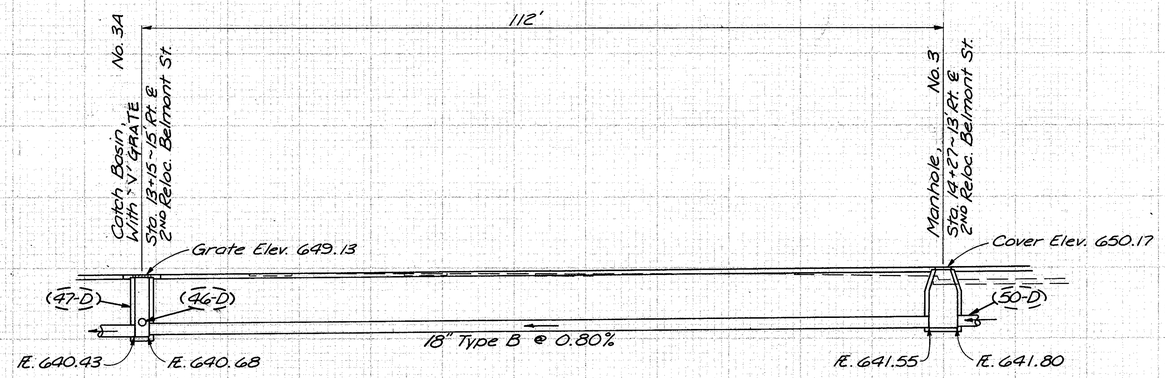
SECTION A-A



STORM SEWER
Sta. 15+00 ~ 19.1' Rt. ℄ 2nd Reloc. Belmont St.
For Plan, See Sheet No. 278



STORM SEWER
Sta. 13+15 ~ 15' Rt. ℄ 2nd Reloc. Belmont St.
For Plan, See Sheet No. 276



(48-D)
STORM SEWER
Sta. 14+27 ~ 13' Rt. ℄ 2nd Reloc. Belmont St.
For Plan, See Sheet No. 278

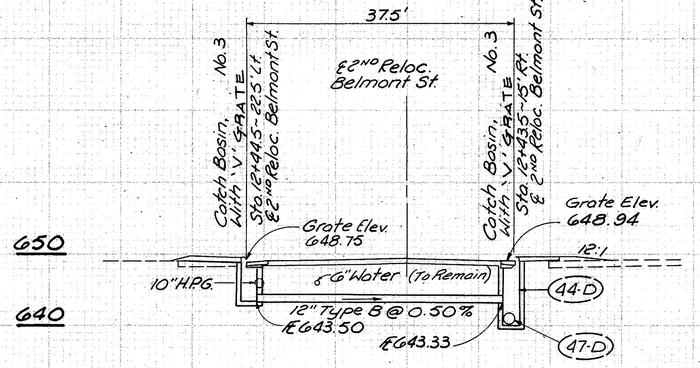
ESTIMATED QUANTITIES

	Item No.	Description	Quantity	Unit
(42-D) *	604	Manhole, No. 3	1	Each
	603	21" Conduit, Type C	32	Lin. Ft.
	603	8" Conduit, Type F	7	Lin. Ft.
	602	Concrete Masonry	0.39	Cu. Yd.
	601	Rock Channel Protection, Type C Without Filter	7.4	Cu. Yd.
		Quantities Carried to Sheet No. 277		
(44-D) *	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	21" Conduit, Type C	61	Lin. Ft.
		Quantities Carried to Sheet No. 277		
(47-D) *	604	Catch Basin, No. 3A With 'V' GRATE	1	Each
	603	21" Conduit, Type B	71	Lin. Ft.
		Quantities Carried to Sheet No. 277		
(48-D) *	604	Manhole, No. 3	1	Each
	603	18" Conduit, Type B	112	Lin. Ft.
		Quantities Carried to Sheet No. 279		
(50-D)	604	Catch Basin, No. 3A With 'V' GRATE	1	Each
	603	15" Conduit, Type B	73	Lin. Ft.
		Quantities Carried to Sheet No. 279		

(42-D) (44-D) (47-D) (48-D) (50-D) STORM SEWER PROFILES

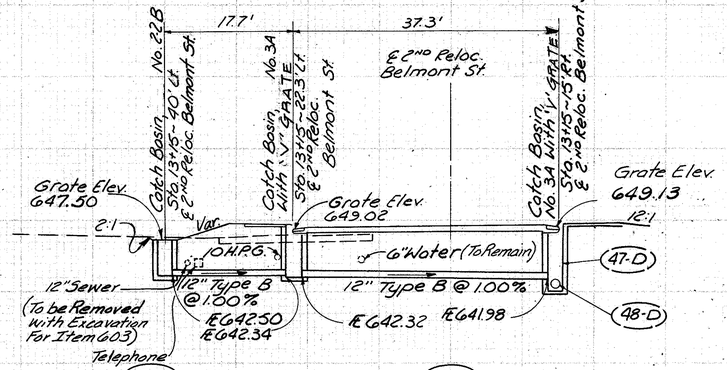
Calc. By: R.L. Date: 2-18-85
Ch'k'd. By: G.W. Date: 2-22-85

BEL-7-14.17 | OHIO FHWA REGION 5 | 365/663



43-D

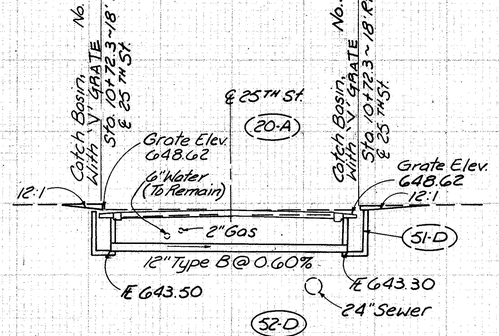
STORM SEWER
Sta. 12+44.5 - 22.5' Lt. & 2ND Reloc. Belmont St.
For Plan, See Sheet No. 276



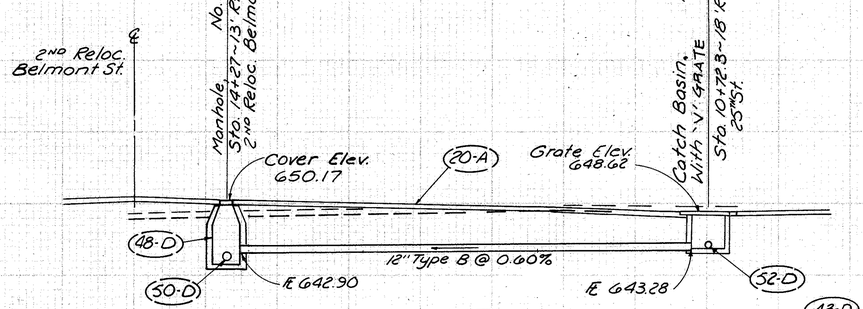
STORM SEWER
Sta. 13+15 - 40' Lt. & 2ND Reloc. Belmont St.
For Plan, See Sheet No. 276

46-D

STORM SEWER
Sta. 13+15 - 22.3' Lt. & 2ND Reloc. Belmont St.
For Plan, See Sheet No. 276



STORM SEWER
Sta. 10+72.3 - 18' Lt. & 25TH St.
For Plan, See Sheet No. 278



51-D

STORM SEWER
Sta. 10+72.3 - 18' Rt. & 25TH St.
For Plan, See Sheet No. 278

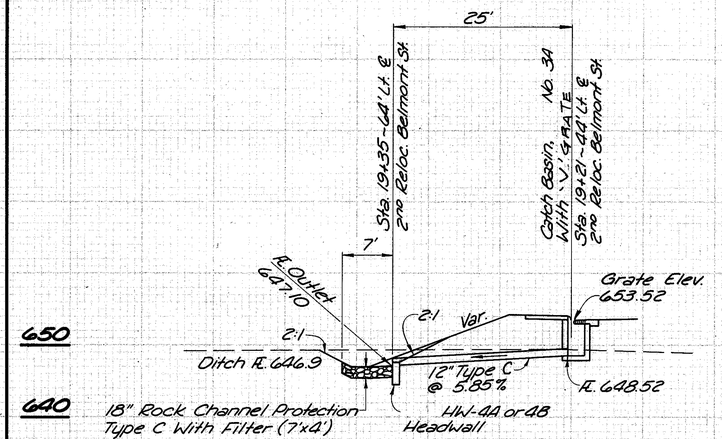
0 10 20
Scale in Feet

ESTIMATED QUANTITIES

	Item No.	Description	Quantity	Unit
43-D	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	12" Conduit, Type B	38	Lin. Ft.
		Quantities Carried to Sheet No. 277		
45-D	604	Catch Basin, No. 2-2-B	1	Each
	603	12" Conduit, Type B	18	Lin. Ft.
		Quantities Carried to Sheet No. 277		
46-D	604	Catch Basin, No. 3A With 'V' GRATE	1	Each
	603	12" Conduit, Type B	38	Lin. Ft.
		Quantities Carried to Sheet No. 277		
52-D	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	12" Conduit, Type B	36	Lin. Ft.
		Quantities Carried to Sheet No. 279		
51-D	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	12" Conduit, Type B	68	Lin. Ft.
		Quantities Carried to Sheet No. 279		

Calc. By: B.L. Date: 1-15-85
Ch'k'd. By: RAM Date: 1-25-85

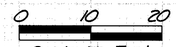
BEL-7-14.17 | OHIO | FHWA REGION 5 | 366 / 663

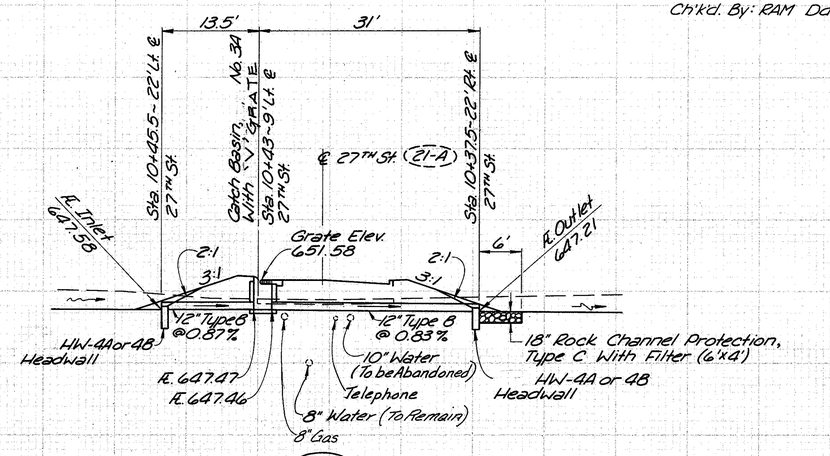


(55-D)

STORM SEWER

Sta. 19+21~44' Lt. ℄ 2nd Reloc. Belmont St.
For Plan, See Sheet No. 280

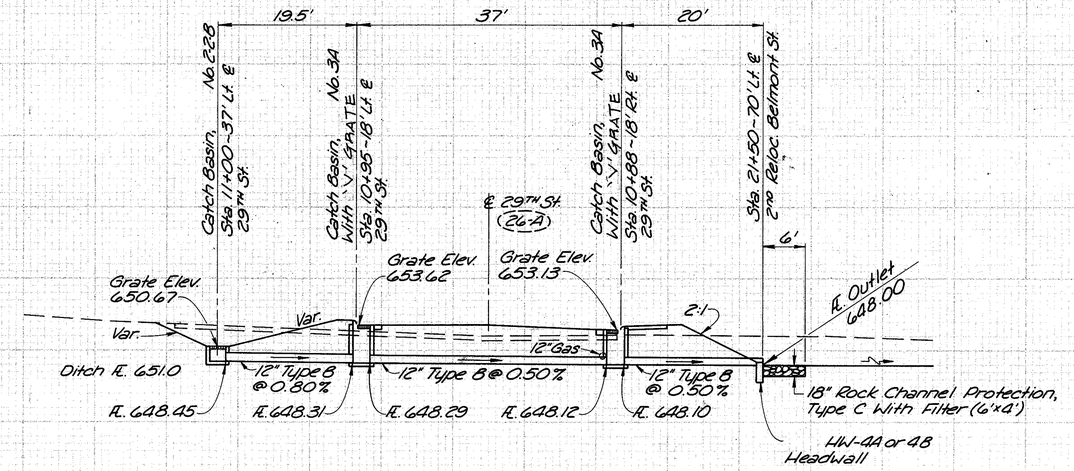




(57-D)

STORM SEWER

Sta. 10+43~9' Lt. ℄ 27TH Street
For Plan, See Sheet No. 280



(63-D)

STORM SEWER

Sta. 11+00~37' Lt. ℄ 29TH St.
For Plan, See Sheet No. 282

(62-D)

STORM SEWER

Sta. 10+95~18' Lt. ℄ 29TH St.
For Plan, See Sheet No. 282

(61-D)

STORM SEWER

Sta. 10+88~18' Rt. ℄ 29TH St.
For Plan, See Sheet No. 282

ESTIMATED QUANTITIES

	Item No.	Description	Quantity	Unit
(55-D)	604	Catch Basin, No. 3A With "V" GRATE	1	Each
	603	12" Conduit, Type C	25	Lin. Ft.
	602	Concrete Masonry	0.21	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	1.6	Cu. Yd.
		Quantities Carried to Sheet No. 281.		
(57-D)	604	Catch Basin, No. 3A With "V" GRATE	1	Each
	603	12" Conduit, Type B	45	Lin. Ft.
	602	Concrete Masonry	0.42	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	1.3	Cu. Yd.
		Quantities Carried to Sheet No. 281.		
(63-D)	604	Catch Basin, No. 2-2-B	1	Each
	603	12" Conduit, Type B	20	Lin. Ft.
		Quantities Carried to Sheet No. 283.		
(62-D)	604	Catch Basin, No. 3A With "V" GRATE	1	Each
	603	12" Conduit, Type B	37	Lin. Ft.
		Quantities Carried to Sheet No. 283.		
(61-D)	604	Catch Basin, No. 3A With "V" GRATE	1	Each
	603	12" Conduit, Type B	20	Lin. Ft.
	602	Concrete Masonry	0.21	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	1.3	Cu. Yd.
		Quantities Carried to Sheet No. 283.		

Calc. By: B.E.K. Date: 2-13-85
Chk'd. By: R.A.M. Date: 2-14-85

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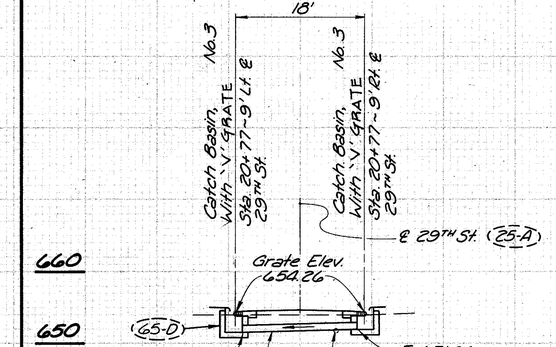
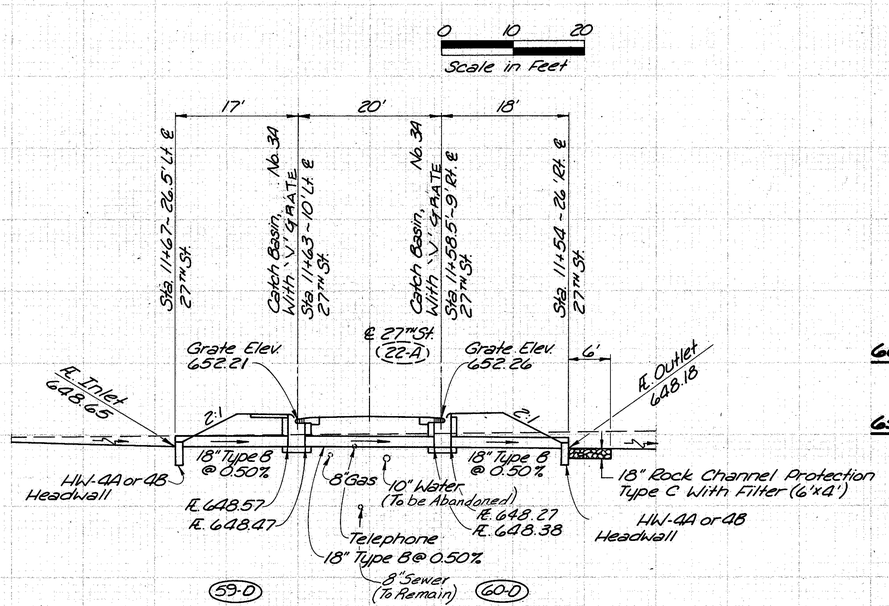
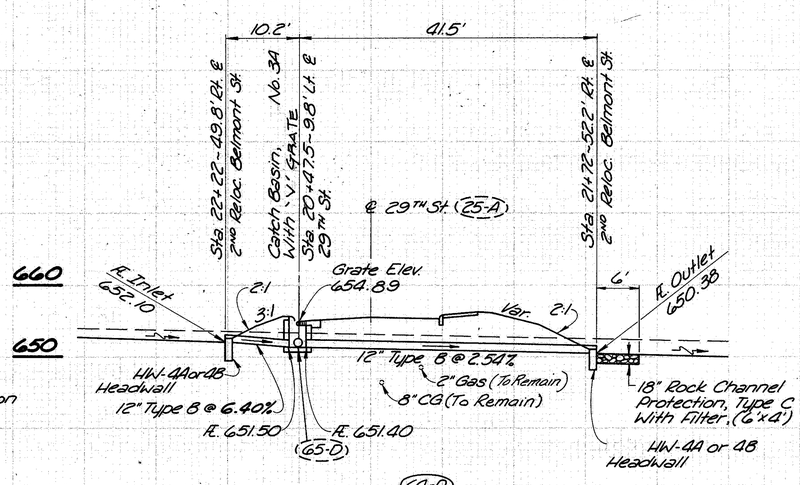


STORM SEWER
Sta. 20+77 ~ 9' Rt. ℄ 29TH St.
For Plan, See Sheet No. 282

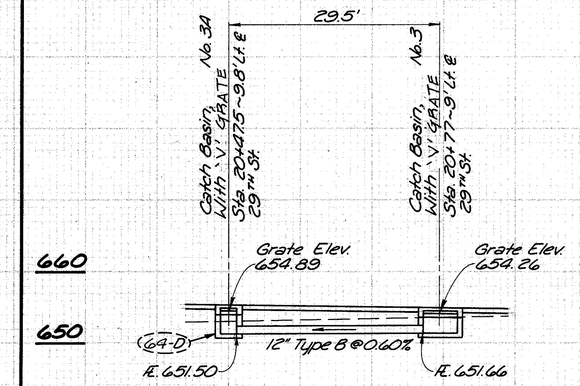


STORM SEWER
Sta. 11+63 ~ 10' Lt. ℄ 27TH St.
For Plan, See Sheet No. 280

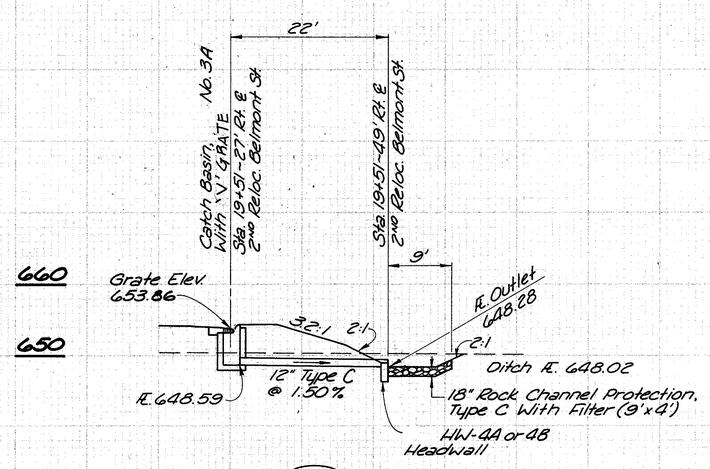
STORM SEWER
Sta. 11+58.5 ~ 9' Rt. ℄ 27TH St.
For Plan, See Sheet No. 280



STORM SEWER
Sta. 20+47.5 ~ 9.8' Lt. ℄ 29TH St.
For Plan, See Sheet No. 282



STORM SEWER
Sta. 20+77 ~ 9' Lt. ℄ 29TH St.
For Plan, See Sheet No. 282



STORM SEWER
Sta. 19+51 ~ 27' Rt. ℄ Reloc. Belmont St.
For Plan, See Sheet No. 280

ESTIMATED QUANTITIES

	Item No.	Description	Quantity	Unit
(66-D)	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	12" Conduit, Type B	18	Lin. Ft.
		Quantities Carried to Sheet No. 283.		
(59-D)	604	Catch Basin, No. 3A With 'V' GRATE	1	Each
	603	18" Conduit, Type B	37	Lin. Ft.
	602	Concrete Masonry	0.33	Cu. Yd.
		Quantities Carried to Sheet No. 281.		
(60-D)	604	Catch Basin, No. 3A With 'V' GRATE	1	Each
	603	18" Conduit, Type B	18	Lin. Ft.
	602	Concrete Masonry	0.33	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	1.3	Cu. Yd.
		Quantities Carried to Sheet No. 281.		
(64-D)	604	Catch Basin, No. 3A With 'V' GRATE	1	Each
	603	12" Conduit, Type B	52	Lin. Ft.
	602	Concrete Masonry	0.42	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	1.3	Cu. Yd.
		Quantities Carried to Sheet No. 283.		
(65-D)	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	12" Conduit, Type B	30	Lin. Ft.
		Quantities Carried to Sheet No. 283.		
(56-D)	604	Catch Basin, No. 3A With 'V' GRATE	1	Each
	603	12" Conduit, Type C	22	Lin. Ft.
	602	Concrete Masonry	0.21	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	2.0	Cu. Yd.
		Quantities Carried to Sheet No. 281.		

(56-D) (59-D) (60-D) (64-D) (65-D) (66-D) STORM SEWER PROFILES

Calc. By: B.L. Date: 11-6-84
Ch'k'd. By: Rpm Date: 1-10-85

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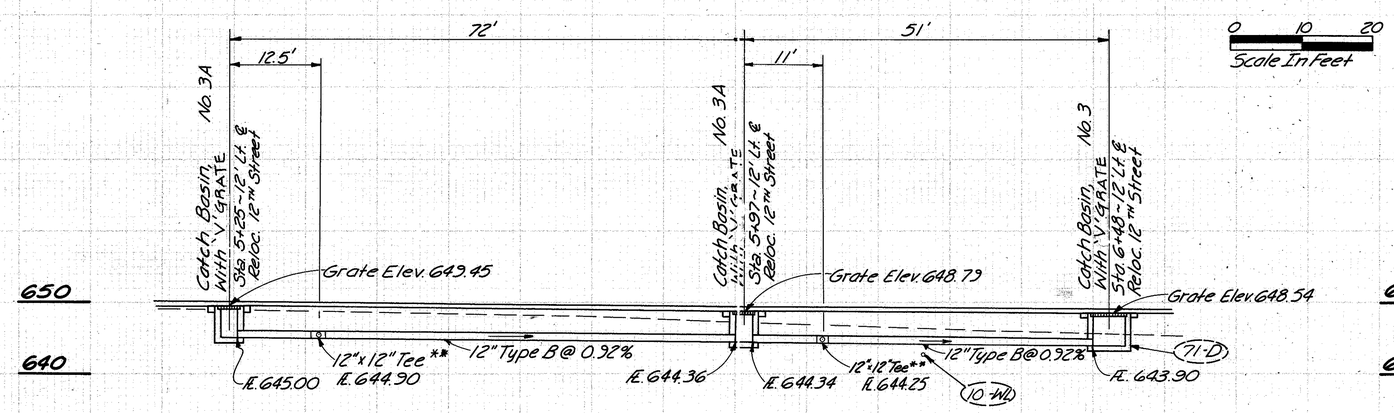


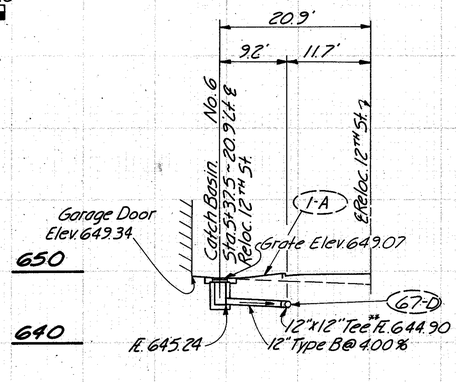
BENDS AND BRANCHES
12"x12" Tee** ---------- 1 Each

(67-D)
STORM SEWER
Sta. 5+25 - 12' Lt. & Reloc. 12 TH St.
For Plan, See Sheet No. 252

BENDS AND BRANCHES
12"x12" Tee** ---------- 1 Each

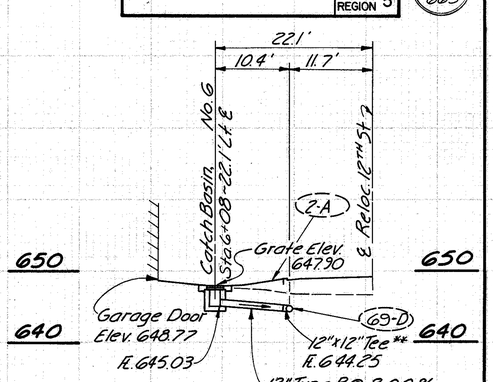
(69-D)
STORM SEWER
Sta. 5+97 - 12' Lt. & Reloc. 12 TH St.
For Plan, See Sheet No. 252

** Note: If the corrugated steel conduit alternate is selected, the 12"x12" Tees shall be Fiber Bonded As Per 707.09.

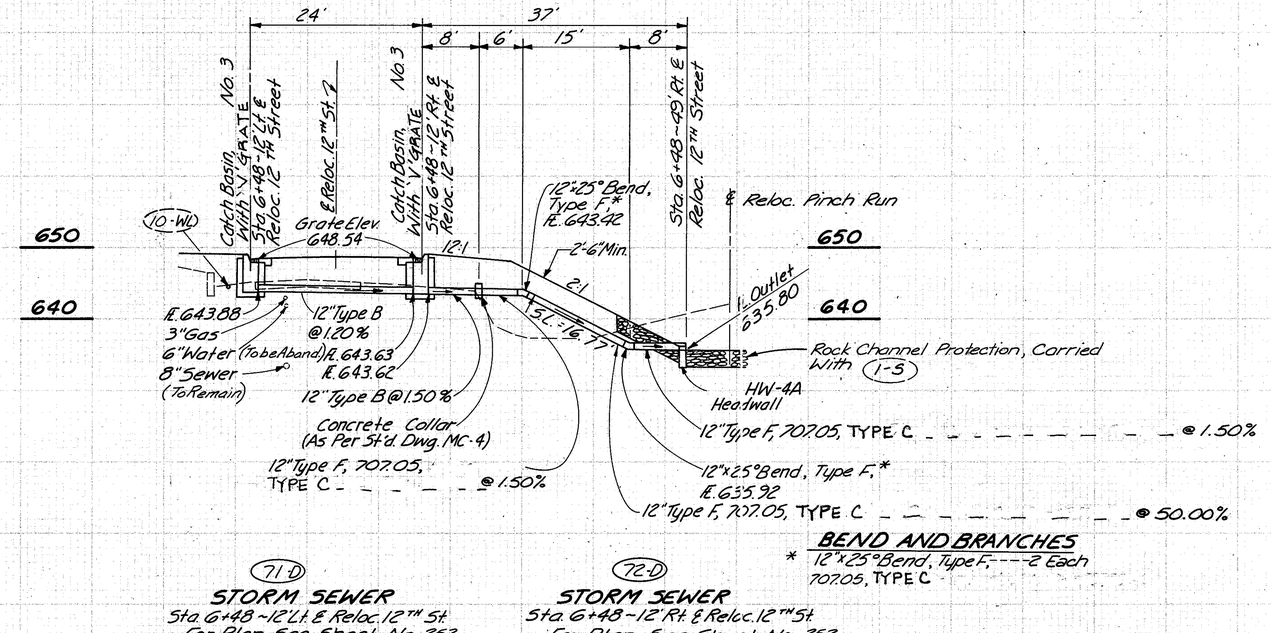


BENDS AND BRANCHES
12"x12" Tee** ---------- 1 Each

(68-D)
STORM SEWER
Sta. 5+37.5 - 20.9' Lt. & Reloc. 12 TH St.
For Plan, See Sheet No. 252



(70-D)
STORM SEWER
Sta. 6+08 - 22.1 Lt. & Reloc. 12 TH St.
For Plan, See Sheet No. 252



(71-D)
STORM SEWER
Sta. 6+48 - 12' Lt. & Reloc. 12 TH St.
For Plan, See Sheet No. 252

(72-D)
STORM SEWER
Sta. 6+48 - 12' Rt. & Reloc. 12 TH St.
For Plan, See Sheet No. 252

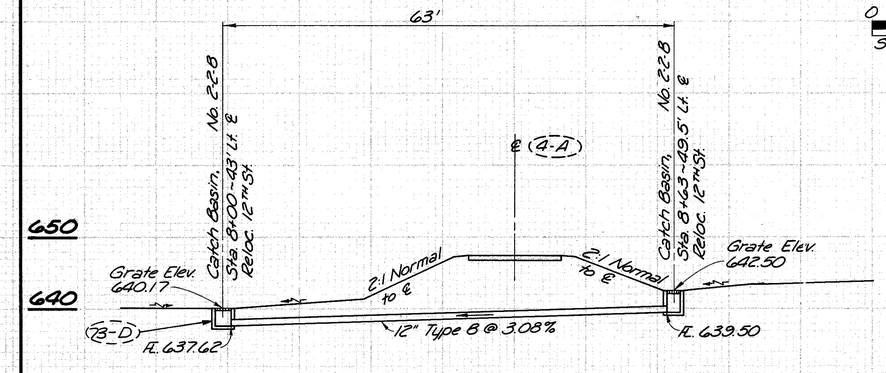
* **BEND AND BRANCHES**
12"x25° Bend, Type F. ---- 2 Each
707.05, TYPE C

ESTIMATED QUANTITIES

	Item No.	Description	Quantity	Unit
(67-D)	604	Catch Basin, No. 3A With 'V' GRATE	1	Each
	603	12" Conduit, Type B, 706.01, 706.02, 706.08; or 707.13 Fiber Bonded As Per 707.09	72	Lin. Ft.
		Quantities Carried to Sheet No. 252		
(69-D)	604	Catch Basin, No. 3A With 'V' GRATE	1	Each
	603	12" Conduit, Type B, 706.01, 706.02, 706.08; or 707.13 Fiber Bonded As Per 707.09	51	Lin. Ft.
		Quantities Carried to Sheet No. 252		
(71-D)	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	12" Conduit, Type B, 706.01, 706.02, 706.08; or 707.13 Fiber Bonded As Per 707.09	24	Lin. Ft.
		Quantities Carried to Sheet No. 252		
(72-D)	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	12" Conduit, Type B, 706.01, 706.02, 706.08; or 707.13 Fiber Bonded As Per 707.09	8	Lin. Ft.
	603	12" Conduit, Type F, 707.05, TYPE C	31	Lin. Ft.
	602	Concrete Masonry	0.21	Cu. Yd.
		Quantities Carried to Sheet No. 252		
(68-D)	604	Catch Basin, No. 6	1	Each
	603	12" Conduit, Type B	10	Lin. Ft.
		Quantities Carried to Sheet No. 252		
(70-D)	604	Catch Basin, No. 6	1	Each
	603	12" Conduit, Type B	11	Lin. Ft.
		Quantities Carried to Sheet No. 252		

(67-D) (68-D) (69-D) (70-D) (71-D) (72-D) **STORM SEWER PROFILES**

Calc. By: B.L. Date: 1-12-85
Ch'k'd. By: RAM Date: 1-16-85

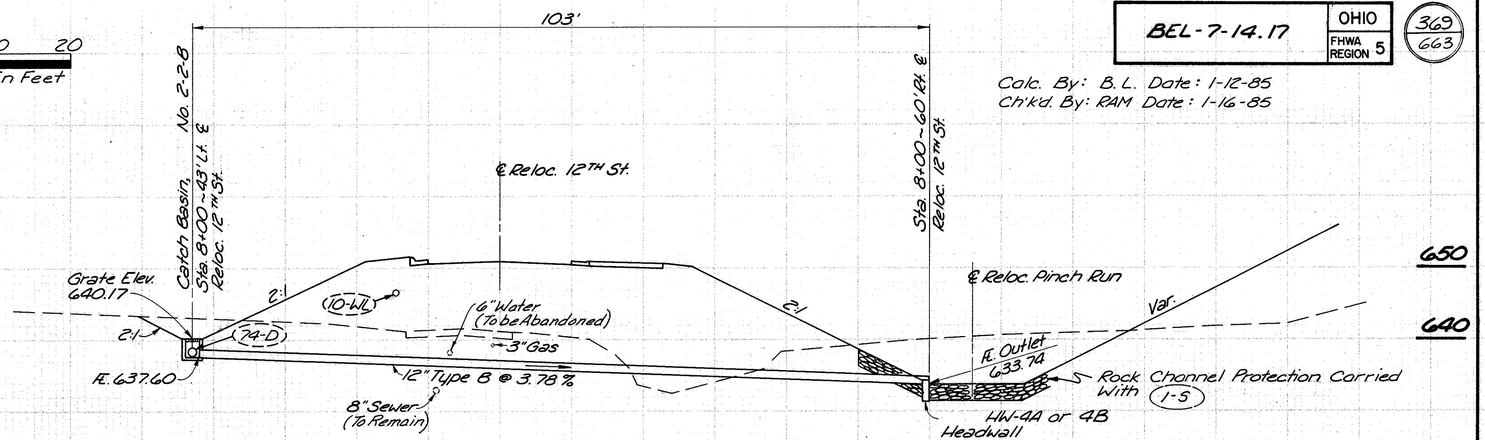


(74-D)

STORM SEWER

Sta. 8+63~49.5' Lt. ℄ Reloc. 12TH St.
For Plan, See Sheet No. 253

0 10 20
Scale In Feet



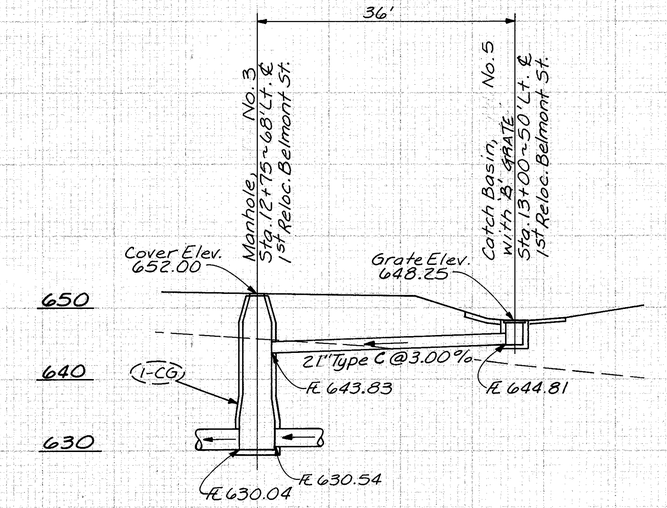
(73-D)

STORM SEWER

Sta. 8+00~43' Lt. ℄ Reloc. 12TH St.
For Plan, See Sheet No. 253

ESTIMATED QUANTITIES

	Item	Description	Quantity	Unit
(74-D)	604	Catch Basin, No. 2-2-B	1	Each
	603	12" Conduit, Type B, 706.01, 706.02, 706.08; or 707.13 Fiber Bonded As Per 707.09	63	Lin. Ft.
		Quantities Carried to Sheet No. 254		
(73-D)	604	Catch Basin, No. 2-2-B	1	Each
	603	12" Conduit, Type B, 706.01, 706.02, 706.08; or 707.13 Fiber Bonded As Per 707.09	103	Lin. Ft.
	602	Concrete Masonry	0.21	Cu. Yd.
		Quantities Carried to Sheet No. 254		
(116-D)	604	Catch Basin, No. 5 with 'B' GRATE	1	Each
	603	21" Conduit, Type C	36	Lin. Ft.
		Quantities Carried to Sheet No. 261		



(116-D)

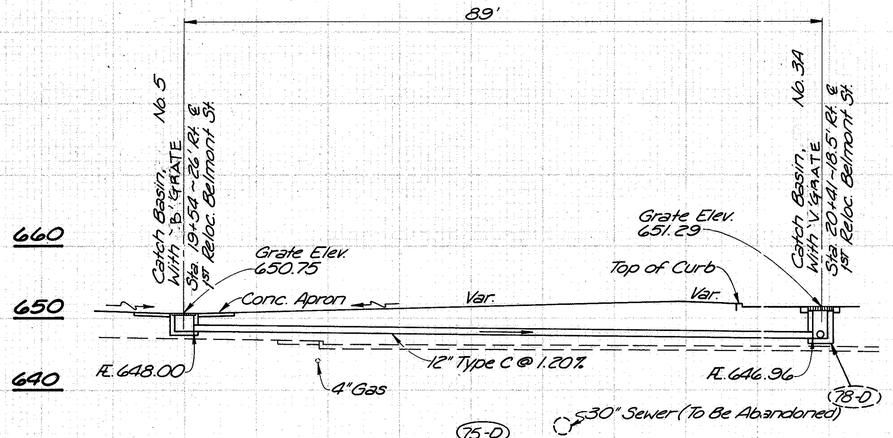
STORM SEWER

Sta. 13+00~50' Lt. ℄ 1st Reloc. Belmont St.
For Plan, See Sheet No. 260

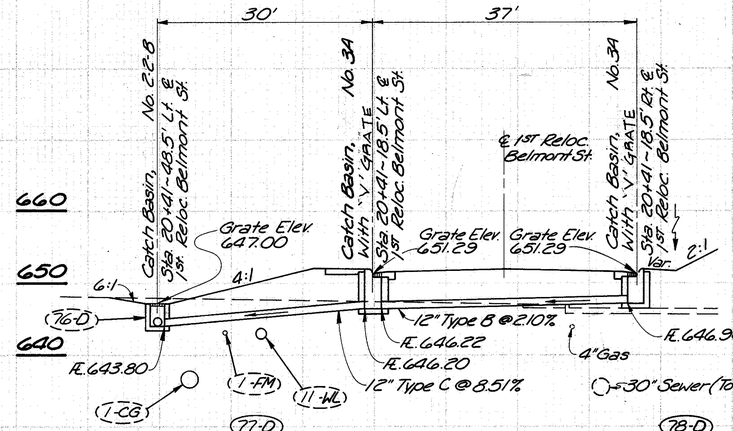
Calc. By: B.L. Date: 10-3-84
Ch'k'd. By: R.L. Date: 11-7-84

BEL-7-14.17 | OHIO | FHWA REGION 5 | 370 / 663

0 10 20
Scale in Feet

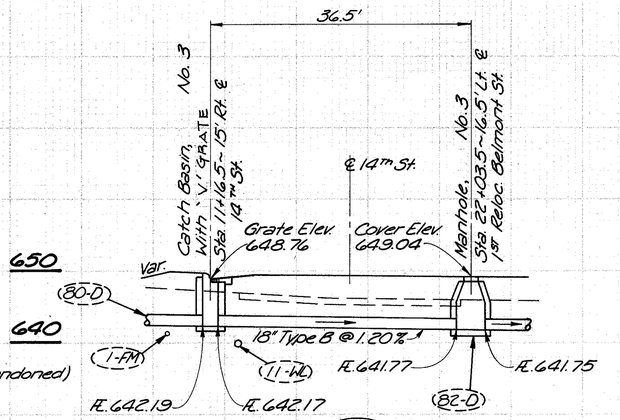


STORM SEWER
Sta. 19+54~26' Rt. ℄ 1st Reloc. Belmont St.
For Plan, See Sheet No. 263



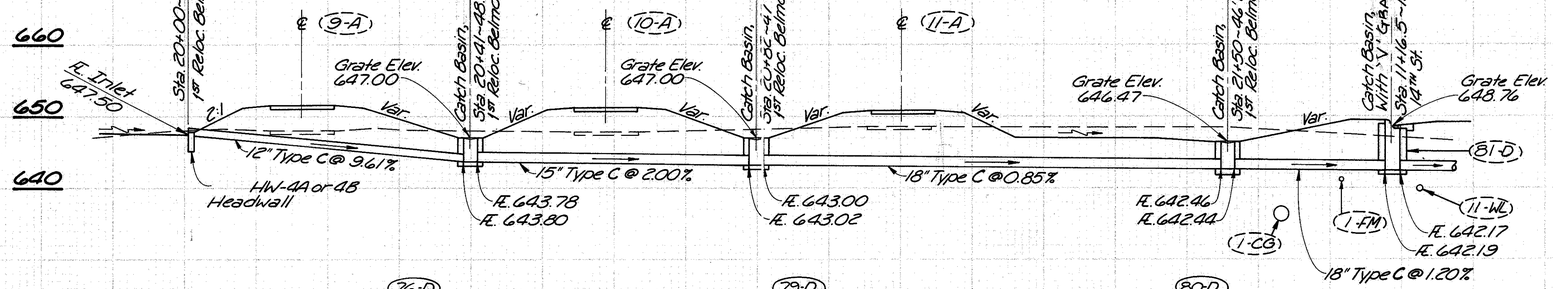
STORM SEWER
Sta. 20+41~18.5' Lt. ℄ 1st Reloc. Belmont St.
For Plan, See Sheet No. 263

STORM SEWER
Sta. 20+41~18.5' Rt. ℄ 1st Reloc. Belmont St.
For Plan, See Sheet No. 263



81-D

STORM SEWER
Sta. 11+16.5~15' Rt. ℄ 14th St.
For Plan, See Sheet No. 263



STORM SEWER
Sta. 20+41~48.5' Lt. ℄ 1st Reloc. Belmont St.
For Plan, See Sheet No. 263

STORM SEWER
Sta. 20+82~47' Lt. ℄ 1st Reloc. Belmont St.
For Plan, See Sheet No. 263

STORM SEWER
Sta. 21+50~46' Lt. ℄ 1st Reloc. Belmont St.
For Plan, See Sheet No. 263

ESTIMATED QUANTITIES

	Item No.	Description	Quantity	Unit
75-D	604	Catch Basin, No. 5 With 'B' GRATE	1	Each
	603	12" Conduit, Type C	89	Lin. Ft.
		Quantities Carried to Sheet No. 264		
78-D	604	Catch Basin, No. 3A With 'V' GRATE	1	Each
	603	12" Conduit, Type B	37	Lin. Ft.
		Quantities Carried to Sheet No. 264		
77-D	604	Catch Basin, No. 3A With 'V' GRATE	1	Each
	603	12" Conduit, Type C	30	Lin. Ft.
		Quantities Carried to Sheet No. 264		
76-D	604	Catch Basin, No. 2-2-B	1	Each
	603	12" Conduit, Type C, 706.01, 706.02, 706.08; or	40	Lin. Ft.
		707.13 Fiber Bonded As Per 707.09		
	603	15" Conduit, Type C, 706.01, 706.02, 706.08; or	40	Lin. Ft.
		707.13 Fiber Bonded As Per 707.09		
	602	Concrete Masonry	0.21	Cu. Yd.
		Quantities Carried to Sheet No. 264		
79-D	604	Catch Basin, No. 2-2-B	1	Each
	603	18" Conduit, Type C, 706.01, 706.02, 706.08; or	66	Lin. Ft.
		707.13 Fiber Bonded As Per 707.09		
		Quantities Carried to Sheet No. 264		
80-D	604	Catch Basin, No. 2-2-B	1	Each
	603	18" Conduit, Type C, 706.01, 706.02, 706.08; or	23	Lin. Ft.
		707.13 Fiber Bonded As Per 707.09		
		Quantities Carried to Sheet No. 264		
81-D	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	18" Conduit, Type B, 706.01, 706.02, 706.08; or	37	Lin. Ft.
		707.13 Fiber Bonded As Per 707.09		
		Quantities Carried to Sheet No. 264		

75-D 76-D 77-D 78-D 79-D 80-D 81-D **STORM SEWER PROFILES**

Calc. By: B. L. Date: 10-3-84
Ch'kd. By: R.L. Date: 11-7-84

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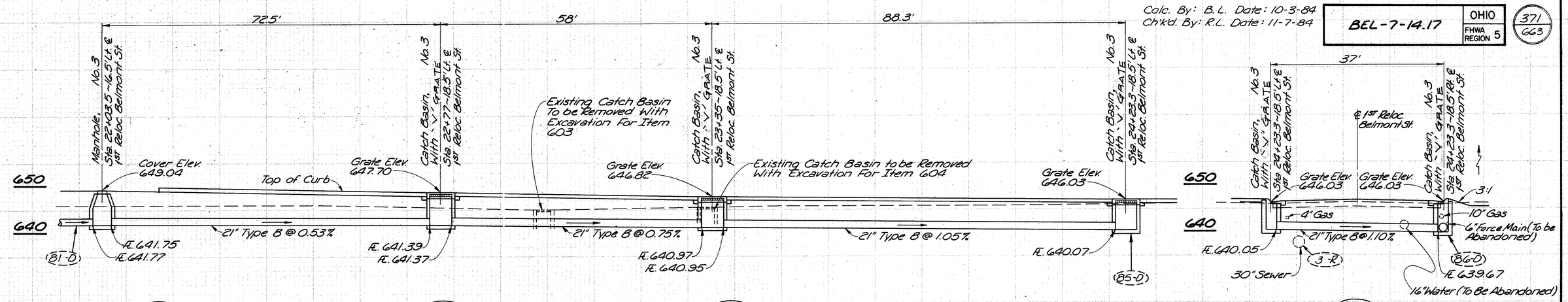
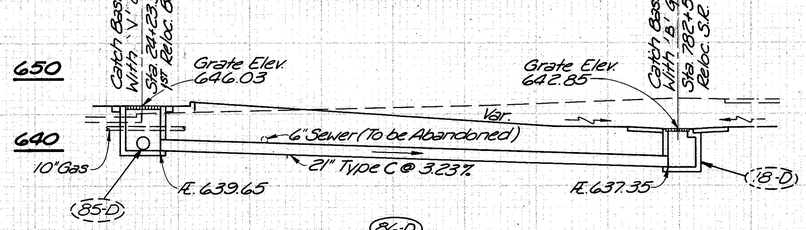


82-D
STORM SEWER
Sta. 22+03.5~16.5' Lt & 1st Reloc. Belmont St.
For Plan, See Sheet No. 263.

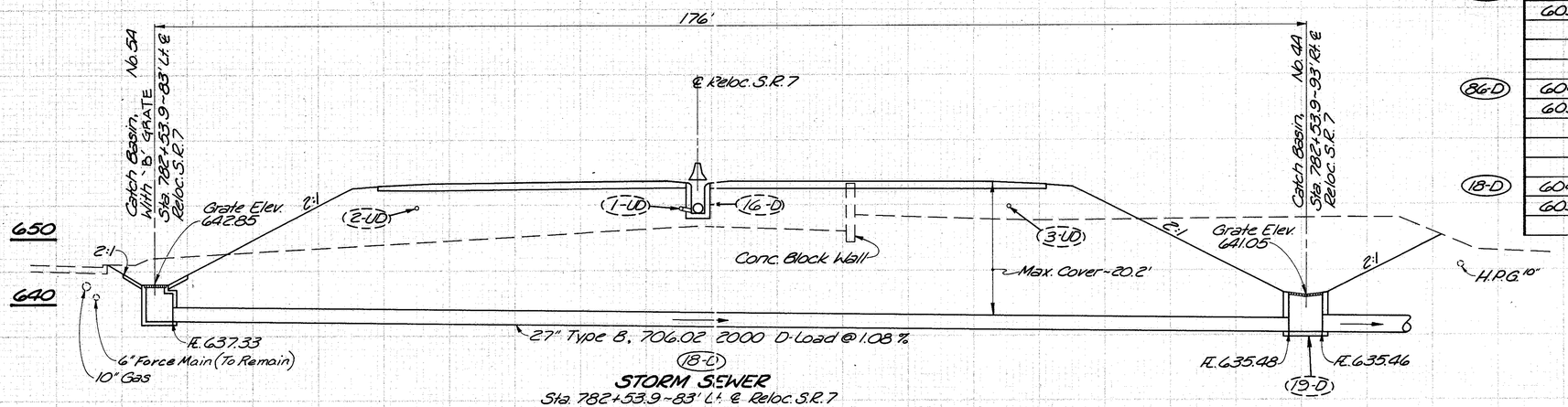
83-D
STORM SEWER
Sta. 22+77~18.5' Lt & 1st Reloc. Belmont St.
For Plan, See Sheet No. 263.

84-D
STORM SEWER
Sta. 23+35~18.5' Lt & 1st Reloc. Belmont St.
For Plan, See Sheet No. 263.

85-D
STORM SEWER
Sta. 24+23.3~18.5' Lt. & 1st Reloc. Belmont St.
For Plan, See Sheet No. 265.



86-D
STORM SEWER
Sta. 24+23.3~18.5' Rt. & 1st Reloc. Belmont St.
For Plan, See Sheet No. 265.

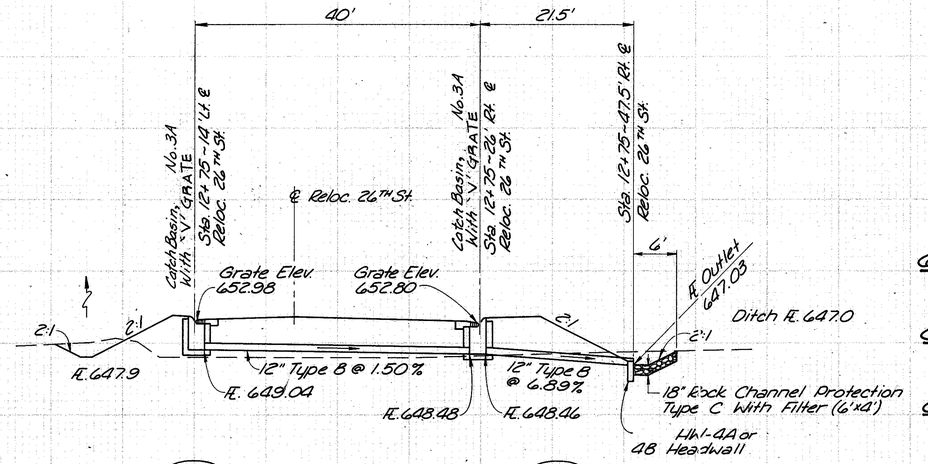


18-D
STORM SEWER
Sta. 782+53.9~83' Lt. & Reloc. S.R. 7
For Plan, See Sheet No. 98.

0 10 20
Scale in Feet

ESTIMATED QUANTITIES

	Item No.	Description	Quantity	Unit
82-D	604	Manhole, No. 3	1	Each
	603	21" Conduit, Type B, 706.02, 706.08; or 707.13	73	Lin. Ft.
		Fiber Bonded As Per 707.09		
		Quantities Carried to Sheet No. 264		
83-D	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	21" Conduit, Type B, 706.02, 706.08; or 707.13	58	Lin. Ft.
		Fiber Bonded As Per 707.09		
		Quantities Carried to Sheet No. 264		
84-D	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	21" Conduit, Type B, 706.02, 706.08; or 707.13	89	Lin. Ft.
		Fiber Bonded As Per 707.09		
		Quantities Carried to Sheet No. 265		
85-D	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	21" Conduit, Type B, 706.02, 706.08; or 707.13	37	Lin. Ft.
		Fiber Bonded As Per 707.09		
		Quantities Carried to Sheet No. 265		
86-D	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	21" Conduit, Type C, 706.01, 706.02, 706.08; or 707.13	75	Lin. Ft.
		Fiber Bonded As Per 707.09		
		Quantities Carried to Sheet No. 265		
18-D	604	Catch Basin, No. 5A With 'B' GRATE	1	Each
	603	27" Conduit, Type B, 706.02 2000 D-Load	176	Lin. Ft.
		Quantities Carried to Sheet No. 101		



(90-D)

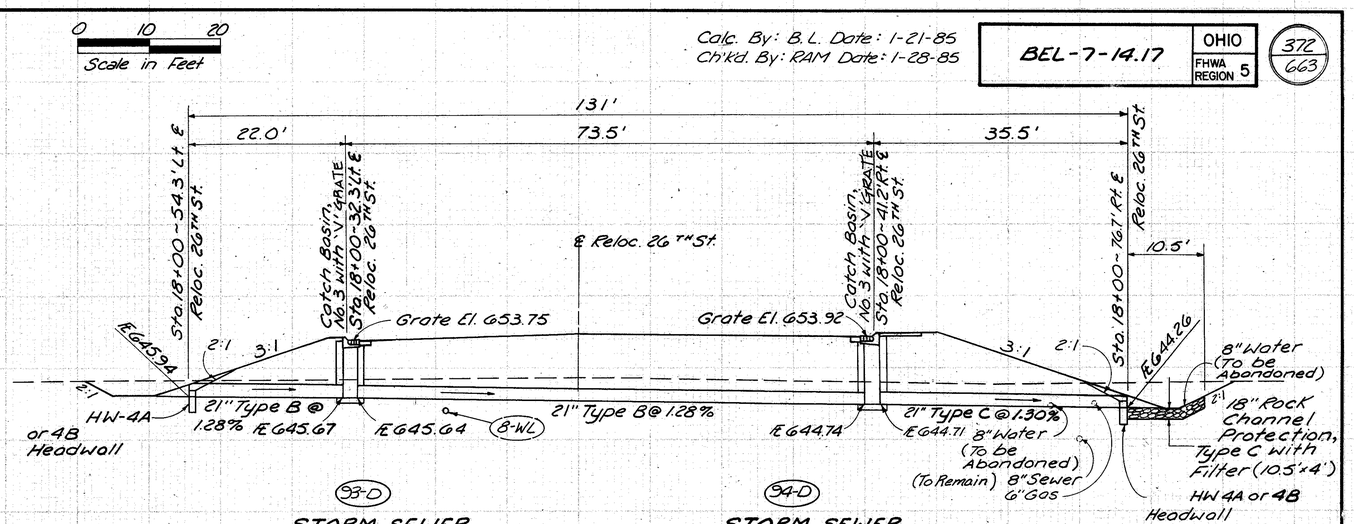
STORM SEWER

Sta. 12+75-14' Lt. & Reloc. 26TH St.
For Plan, See Sheet No. 294

(91-D)

STORM SEWER

Sta. 12+75-26' Rt. & Reloc. 26TH St.
For Plan, See Sheet No. 294



(93-D)

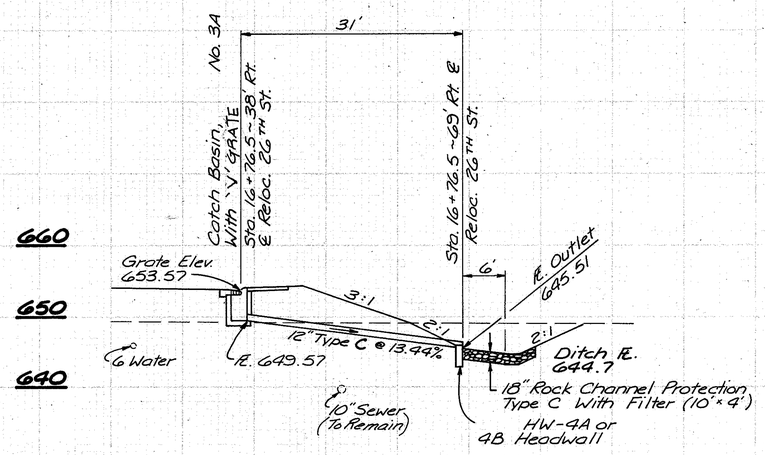
STORM SEWER

Sta. 18+00~32.3' Lt. & Reloc. 26TH St.
For Plan, See Sheet No. 295

(94-D)

STORM SEWER

Sta. 18+00~41.2' Rt. & Reloc. 26TH St.
For Plan, See Sheet No. 295



(92-D)

STORM SEWER

Sta. 16+76.5~38' Rt. & Reloc. 26TH St.
For Plan, See Sheet No. 295

Calc. By: B.L. Date: 1-21-85
Ch'kd. By: RAM Date: 1-28-85

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ESTIMATED QUANTITIES

	Item No.	Description	Quantity	Unit
(90-D)	604	Catch Basin, No. 3A With 'V' GRATE	1	Each
	603	12" Conduit, Type B	40	Lin.Ft.
		Quantities Carried to Sheet No. 294		
(91-D)	604	Catch Basin, No. 3A With 'V' GRATE	1	Each
	603	12" Conduit, Type B	22	Lin.Ft.
	602	Concrete Masonry	0.21	Cu.Yd.
	601	Rock Channel Protection, Type C With Filter	1.3	Cu.Yd.
		Quantities Carried to Sheet No. 294		
(93-D)	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	21" Conduit, Type B	96	Lin.Ft.
	602	Concrete Masonry	0.39	Cu.Yd.
		Quantities Carried to Sheet No. 296		
(94-D)	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	21" Conduit, Type C	36	Lin.Ft.
	602	Concrete Masonry	0.39	Cu.Yd.
	601	Rock Channel Protection, Type C With Filter	2.3	Cu.Yd.
		Quantities Carried to Sheet No. 296		
(92-D)	604	Catch Basin, No. 3A With 'V' GRATE	1	Each
	603	12" Conduit, Type C	31	Lin.Ft.
	602	Concrete Masonry	0.21	Cu.Yd.
	601	Rock Channel Protection, Type C With Filter	2.2	Cu.Yd.
		Quantities Carried to Sheet No. 296		

(90-D) (91-D) (92-D) (93-D) (94-D) **STORM SEWER PROFILES**

Calc. By: GW Date: 2-27-85
Ch'k'd. By: RAM Date: 3-6-85

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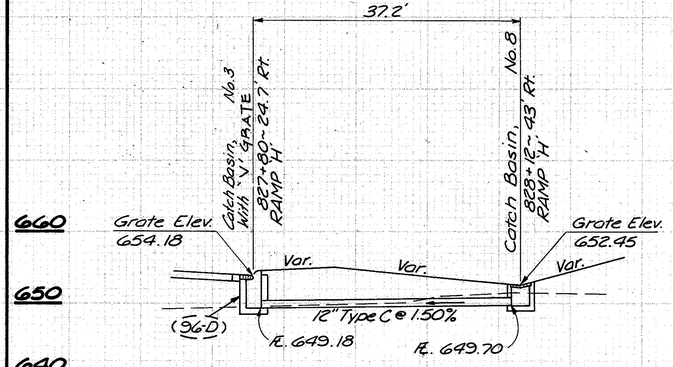
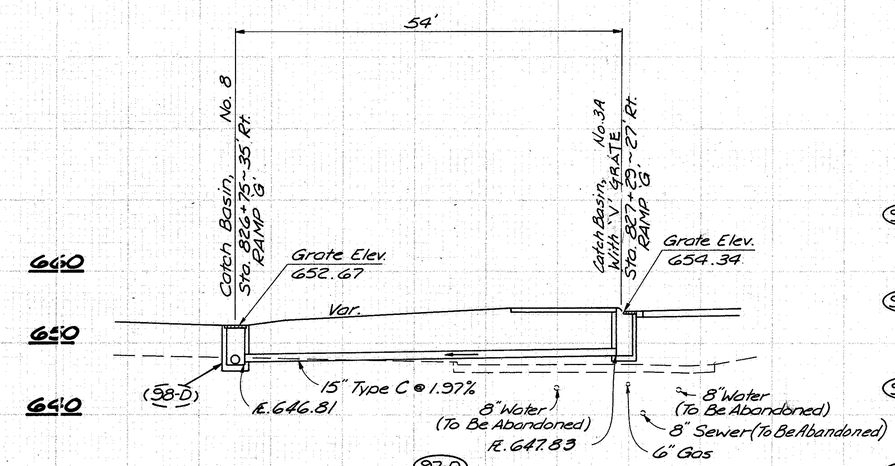


(95-D)

STORM SEWER

Sta. 828+12~43' Rt. RAMP 'H'
For Plan, See Sheet No. 120



(97-D)

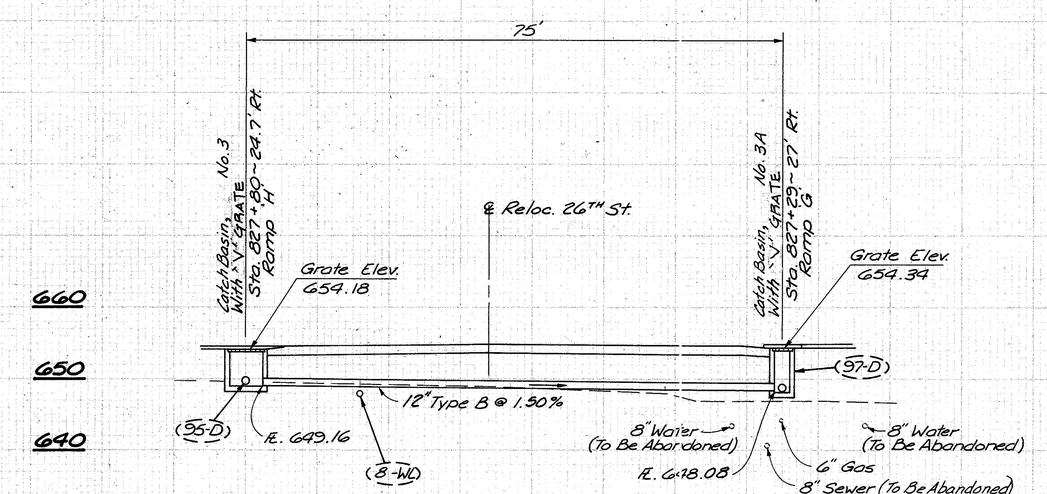
STORM SEWER

Sta. 827+29~27' Rt. RAMP 'G'
For Plan, See Sheet No. 120

ESTIMATED QUANTITIES

	Item	Description	Quantity	Unit
(95-D)	604	Catch Basin, No. 8	1	Each
	603	12" Conduit, Type C	38	Lin. Ft.
		Quantities Carried to Sheet No. 125		
(96-D)	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	12" Conduit, Type B	75	Lin. Ft.
		Quantities Carried to Sheet No. 125		
(97-D)	604	Catch Basin, No. 3A With 'V' GRATE	1	Each
	603	15" Conduit, Type C	54	Lin. Ft.
		Quantities Carried to Sheet No. 125		
(98-D)	604	Catch Basin, No. 8	1	Each
	603	15" Conduit, Type B	66	Lin. Ft.
	602	Concrete Masonry	0.27	Cu. Yd.
	601	Rock Channel Protection, Type C With Filter	1.8	Cu. Yd.
		Quantities Carried to Sheet No. 125		

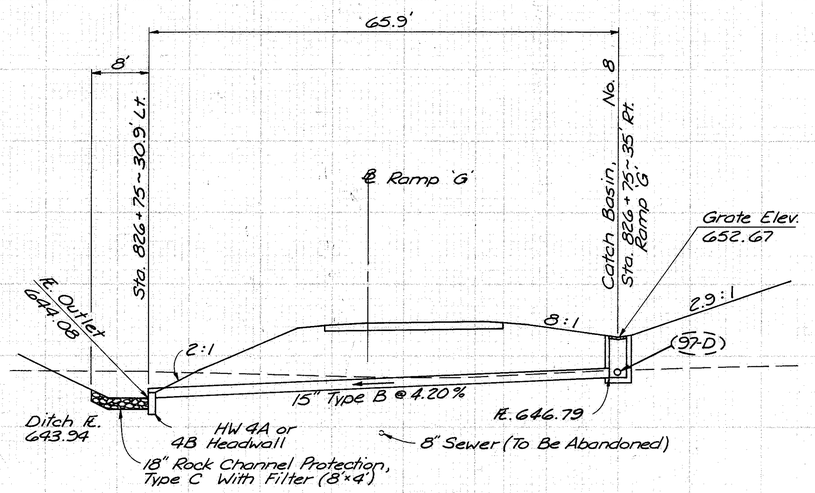
0 10 20
Scale in Feet



(96-D)

STORM SEWER

Sta. 827+80~24.7' Rt. RAMP 'H'
For Plan, See Sheet No. 120



(98-D)

STORM SEWER

Sta. 826+75~35' Rt. RAMP 'G'
For Plan, See Sheet No. 120

Calc. By: B.E.K. Date: 2-26-85
Chkd. By: G.W. Date: 3-1-85

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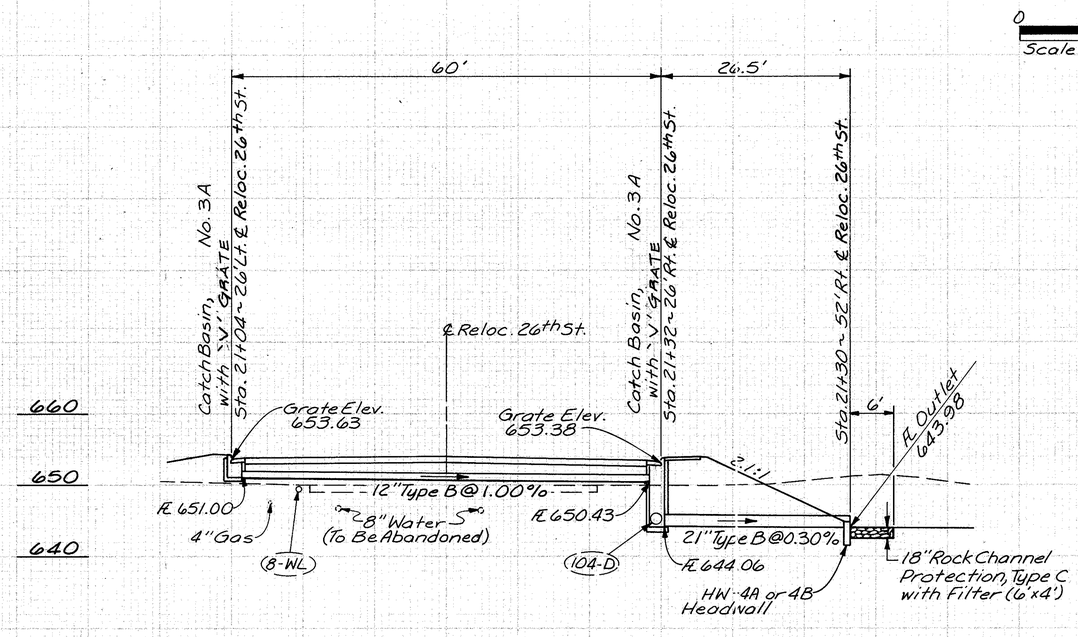


99-D

STORM SEWER

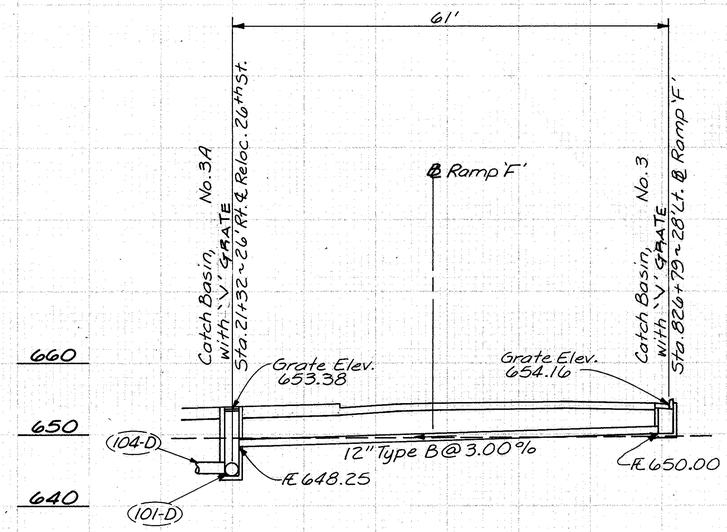
Sta. 21+04 ~ 26' Lt. & Reloc. 26th St.

101-D

STORM SEWER

Sta. 21+32 ~ 26' Rt. & Reloc. 26th St.

For Plan, See Sheet No. 297

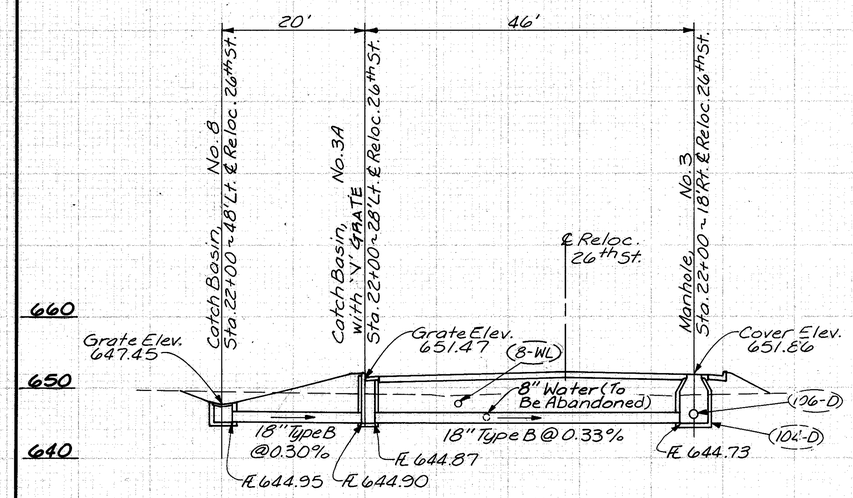


100-D

STORM SEWER

Sta. 826+79 ~ 28' Lt. ℄ Ramp 'F'

For Plan, See Sheet No. 121



102-D

STORM SEWER

Sta. 22+00 ~ 48' Lt. & Reloc. 26th St.

103-D

STORM SEWER

Sta. 22+00 ~ 28' Lt & Reloc. 26th St.

For Plan, See Sheet No. 297

ESTIMATED QUANTITIES

	Item No.	Description	Quantity	Unit
99-D	604	Catch Basin, No. 3A with 'V' GRATE	1	Each
	603	12" Conduit, Type B	60	Lin. Ft.
		Quantities Carried To Sheet No. 298		
101-D	604	Catch Basin, No. 3A with 'V' GRATE	1	Each
	603	21" Conduit, Type B	27	Lin. Ft.
	602	Concrete Masonry	0.39	Cu. Yd.
	601	Rock Channel Protection, Type C with Filter	1.3	Cu. Yd.
		Quantities Carried To Sheet No. 298		
100-D	604	Catch Basin, No. 3 with 'V' GRATE	1	Each
	603	12" Conduit, Type B	61	Lin. Ft.
		Quantities Carried To Sheet No. 126		
102-D	604	Catch Basin, No. 8	1	Each
	603	18" Conduit, Type B	20	Lin. Ft.
		Quantities Carried To Sheet No. 298		
103-D	604	Catch Basin, No. 3A with 'V' GRATE	1	Each
	603	18" Conduit, Type B	46	Lin. Ft.
		Quantities Carried To Sheet No. 298		

Calc.By: B.E.K. Date: 3-1-85
Chkd By: G.W. Date: 3-1-85

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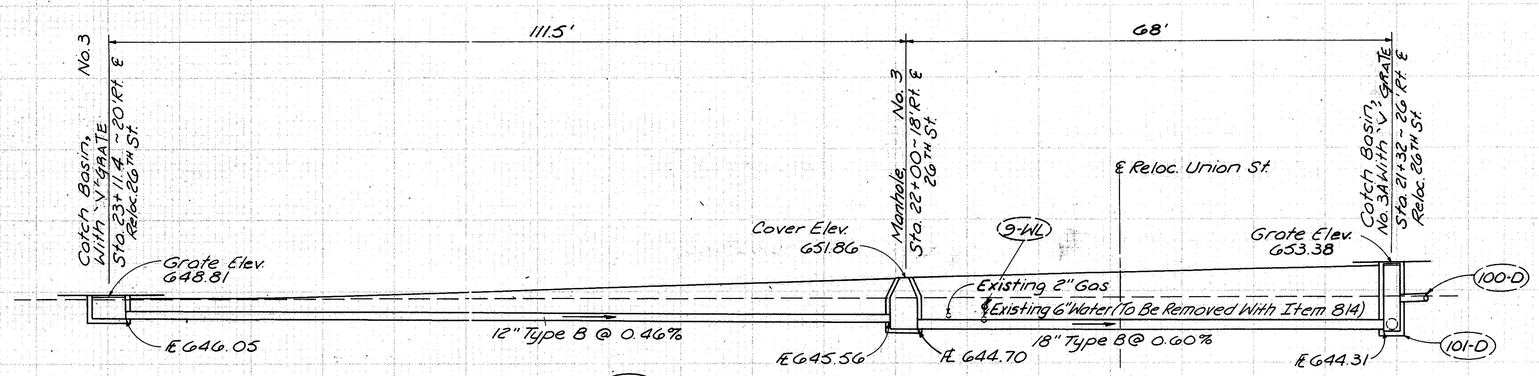
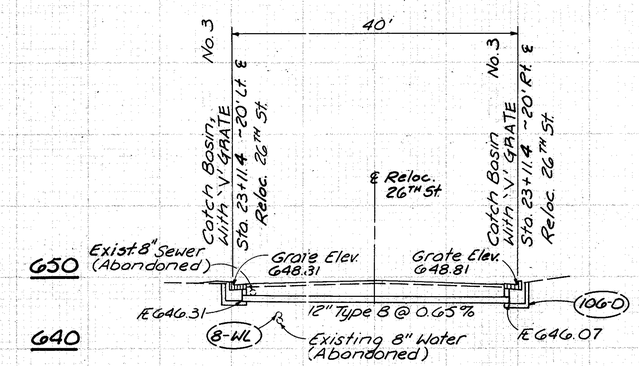


STORM SEWER
Sta. 23+11.4 ~20' Rt. ℄ Reloc. 26TH St.
For Plan, See Sheet No. 297

STORM SEWER
Sta. 22+00 ~ 18' Rt. ℄ Reloc. 26TH St.
For Plan, See Sheet No. 297

0 10 20
Scale in Feet



STORM SEWER
Sta. 23+11.4 ~20' Lt. ℄ Reloc. 26TH St.
For Plan, See Sheet No. 297

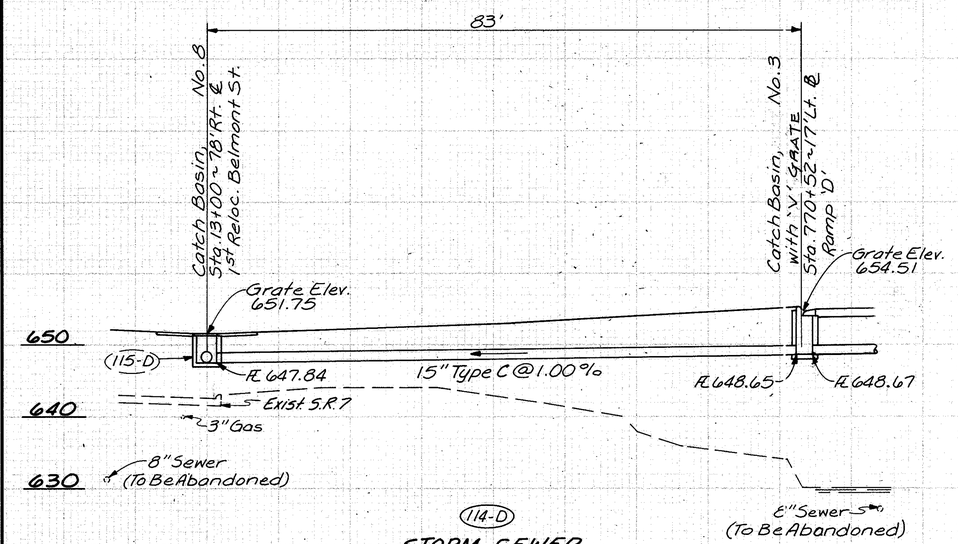
ESTIMATED QUANTITIES

	Item No.	Description	Quantity	Unit
104-D	604	Manhole, No. 3	1	Each
	603	18" Conduit, Type B	68	Lin.Ft.
		Quantities Carried to Sheet No. 298		
105-D	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	12" Conduit, Type B	40	Lin.Ft.
		Quantities Carried to Sheet No. 298		
106-D	604	Catch Basin, No. 3 With 'V' GRATE	1	Each
	603	12" Conduit, Type B	112	Lin.Ft.
		Quantities Carried to Sheet No. 298		

0 10 20
Scale In Feet

Calc.By: R.L. Date: 3-11-85
Chkd.By: B.E.K. Date: 3-13-85

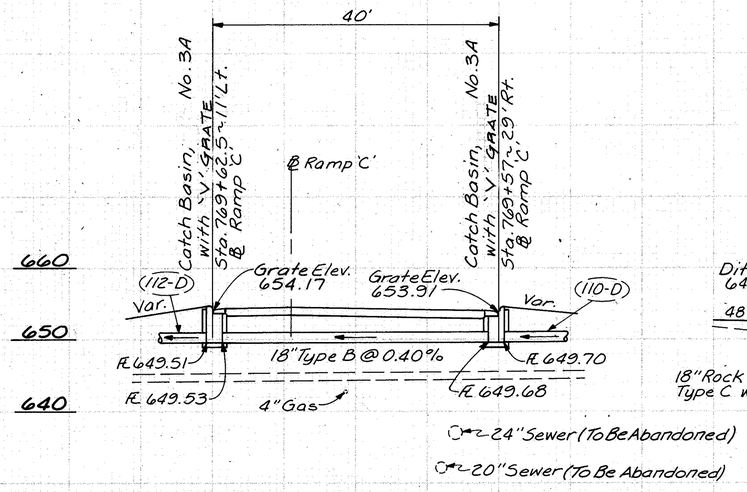
BEL-7-14.17 | OHIO | FHWA REGION 5 | 376 / 663



(114-D)

STORM SEWER

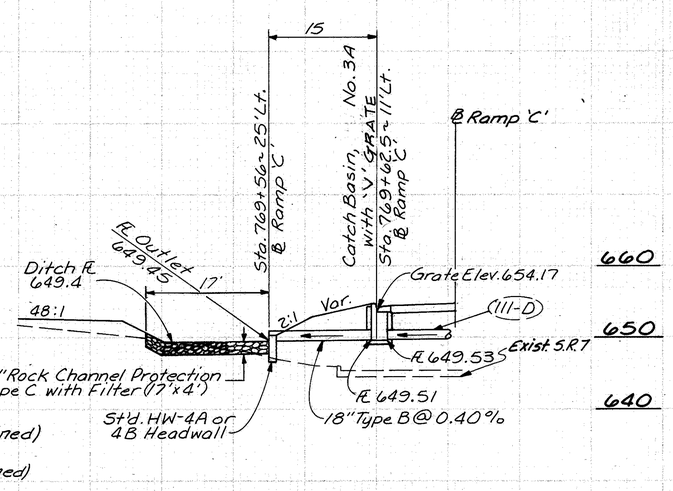
Sta.770+52~17'Lt. ℄ Ramp 'D'
For Plan, See Sheet No. 90



(111-D)

STORM SEWER

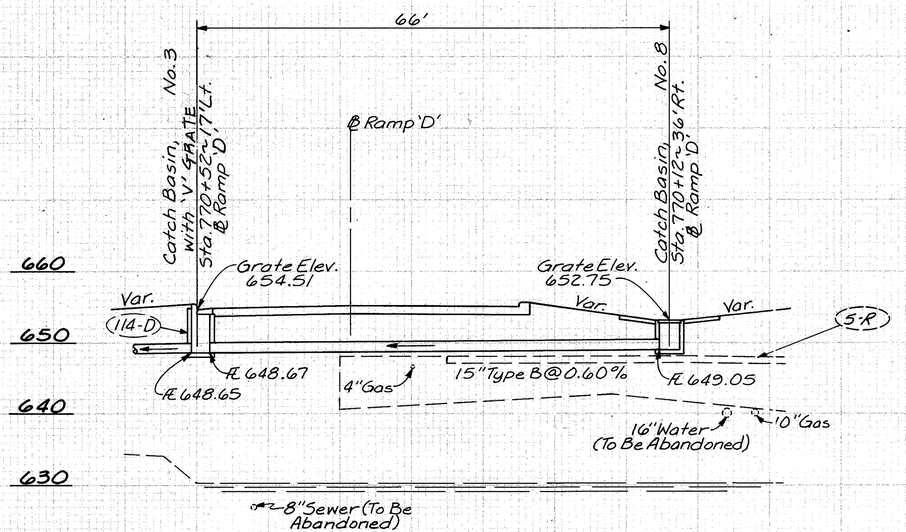
Sta.769+57~29'Rt. ℄ Ramp 'C'
For Plan, See Sheet No. 90



(112-D)

STORM SEWER

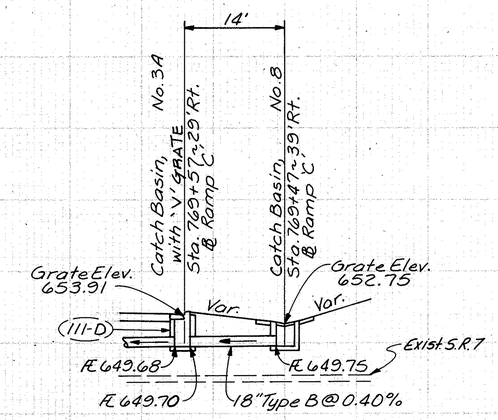
Sta.769+62.5~11'Lt. ℄ Ramp 'C'
For Plan, See Sheet No. 90



(113-D)

STORM SEWER

Sta.770+12~36'Rt. ℄ Ramp 'D'
For Plan, See Sheet No. 90



(110-D)

STORM SEWER

Sta.769+47~39'Rt. ℄ Ramp 'C'
For Plan, See Sheet No. 90

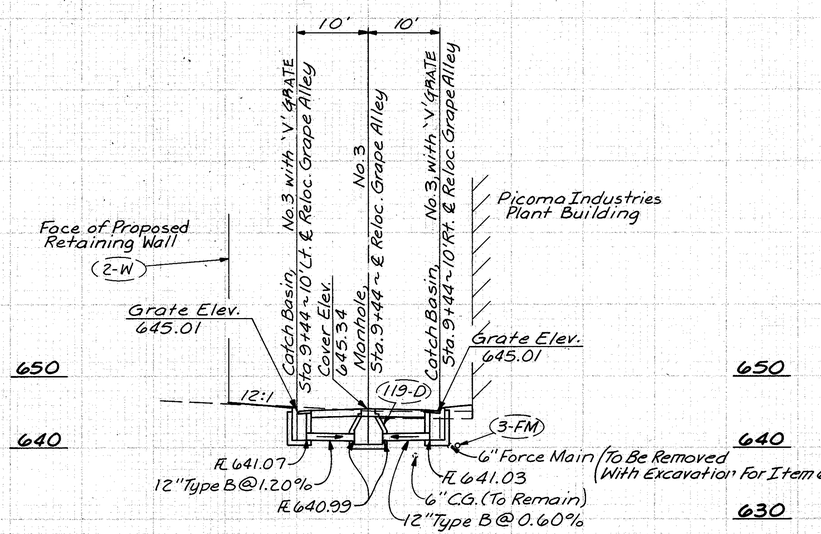
ESTIMATED QUANTITIES

	Item	Description	Quantity	Unit
(110-D)	604	Catch Basin, No. 8	1	Each
	603	18" Conduit, Type B	14	Lin.Ft.
		Quantities Carried To Sheet No. 95		
(111-D)	604	Catch Basin, No.3A with 'V' GRATE	1	Each
	603	18" Conduit, Type B	40	Lin.Ft.
		Quantities Carried To Sheet No. 95		
(112-D)	604	Catch Basin, No.3A with 'V' GRATE	1	Each
	603	18" Conduit, Type B	15	Lin.Ft.
	602	Concrete Masonry	0.33	Cu.Yd.
	601	Rock Channel Protection, Type C with Filter	3.8	Cu.Yd.
		Quantities Carried To Sheet No. 95		
(113-D)	604	Catch Basin, No. 8	1	Each
	603	15" Conduit, Type B	66	Lin.Ft.
		Quantities Carried To Sheet No. 95		
(114-D)	604	Catch Basin, No.3 with 'V' GRATE	1	Each
	603	15" Conduit, Type C	83	Lin.Ft.
		Quantities Carried To Sheet No. 95		

Calc. By: G.W Date: 3-12-85
Chkd By: B.E.K. Date: 3-18-85

BEL-7-14.17 | OHIO | FHWA REGION 5 | 377 / 663

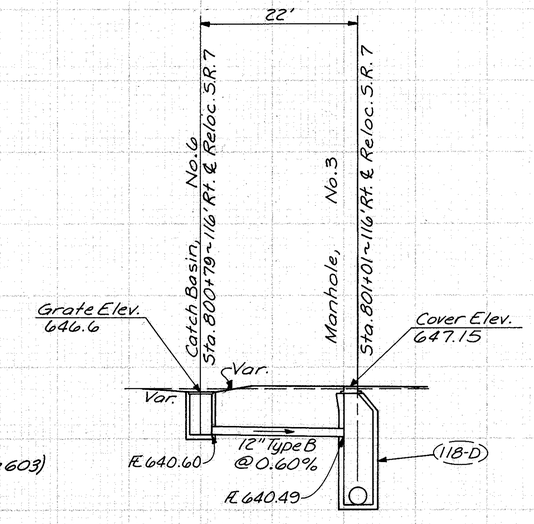
0 10 20
Scale In Feet



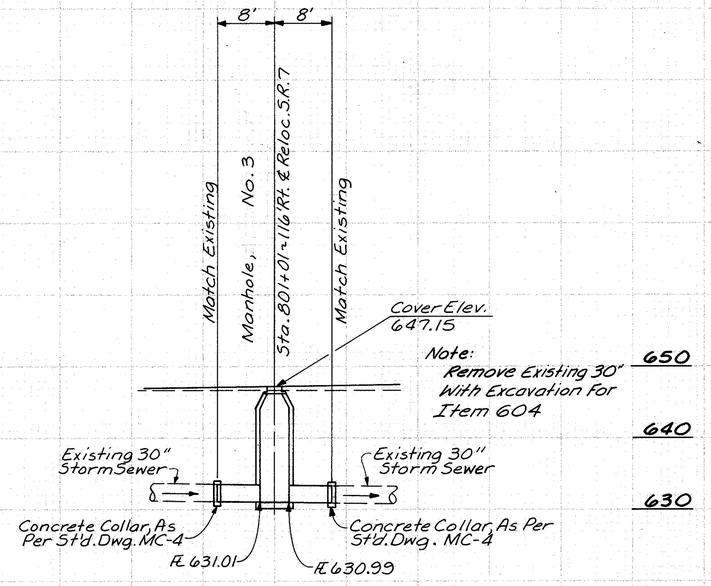
120-D
STORM SEWER
Sta. 9+44 ~ 10' Lt. & Reloc. Grape Alley

121-D
STORM SEWER
Sta. 9+44 ~ 10' Rt. & Reloc. Grape Alley

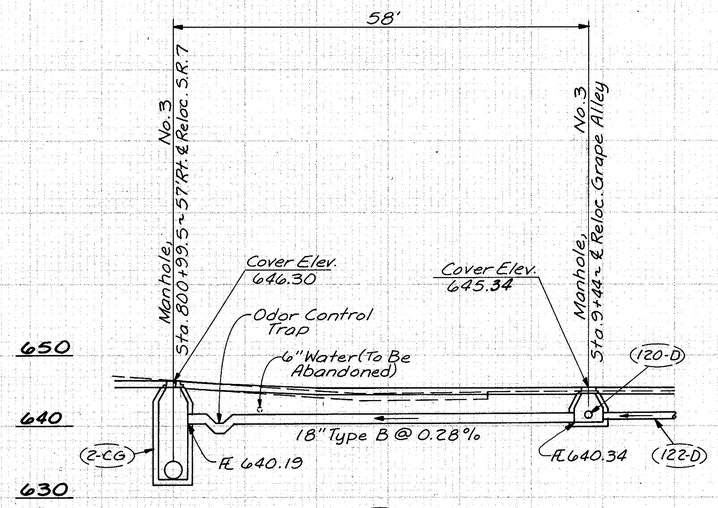
For Plan, See Sheet No. 107



117-D
STORM SEWER
Sta. 800+79 ~ 116' Rt. & Reloc. S.R. 7
For Plan, See Sheet No. 428



118-D
STORM SEWER
Sta. 801+01 ~ 116' Rt. & Reloc. S.R. 7
For Plan, See Sheet No. 428



119-D
STORM SEWER
Sta. 9+44 ~ & Reloc. Grape Alley
For Plan, See Sheet No. 107

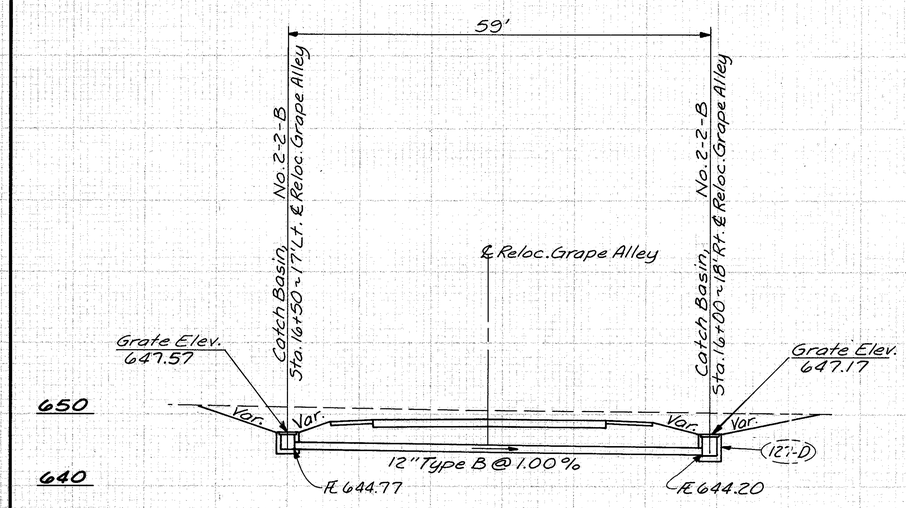
ESTIMATED QUANTITIES

	Item	Description	Quantity	Unit
120-D	604	Catch Basin, No.3 with 'V' GRATE	1	Each
	603	12" Conduit, Type B	10	Lin.Ft.
		Quantities Carried To Sheet No. 108		
121-D	604	Catch Basin, No.3 with 'V' GRATE	1	Each
	603	12" Conduit, Type B	10	Lin.Ft.
		Quantities Carried To Sheet No. 108		
117-D	604	Catch Basin, No.6	1	Each
	603	12" Conduit, Type B	22	Lin.Ft.
		Quantities Carried To Sheet No. 108		
118-D	604	Manhole, No.3 with Joints as per 706.11	1	Each
	603	30" Conduit, Type B, 706.02 1250 D-Load, 706.08 with Joints as per 706.11 or 706.12	16	Lin.Ft.
		Quantities Carried To Sheet No. 108		
119-D	604	Manhole, No.3	1	Each
	603	18" Conduit, Type B	58	Lin.Ft.
	Special	Oder Control Trap	1	Each
		Quantities Carried To Sheet No. 108		

117-D 118-D 119-D 120-D 121-D **STORM SEWER PROFILES**

Calc.By:G.W. Date:3-12-85
Chkd.By:B.E.K. Date:3-18-85

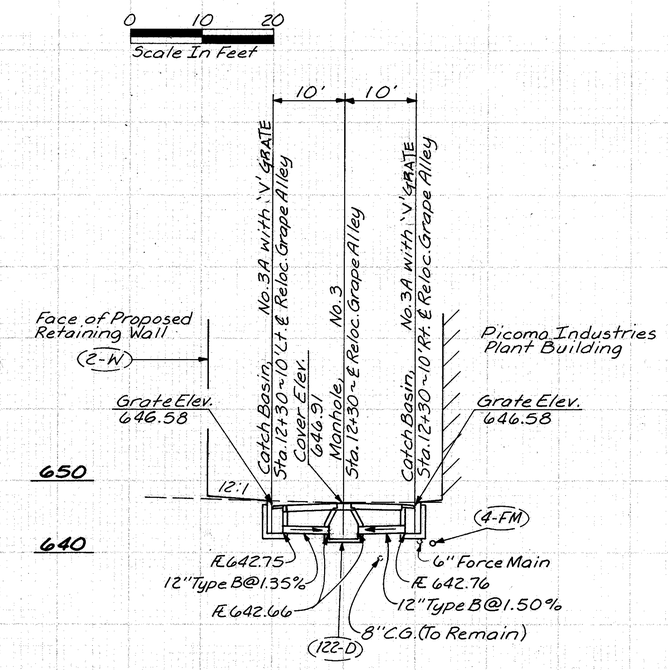
BEL-7-14.17 | OHIO | FHWA REGION 5 | 378/663



(128-D)

STORM SEWER

Sta.16+50~17'Lt. & Reloc.Grape Alley
For Plan, See Sheet No. 110



(123-D)

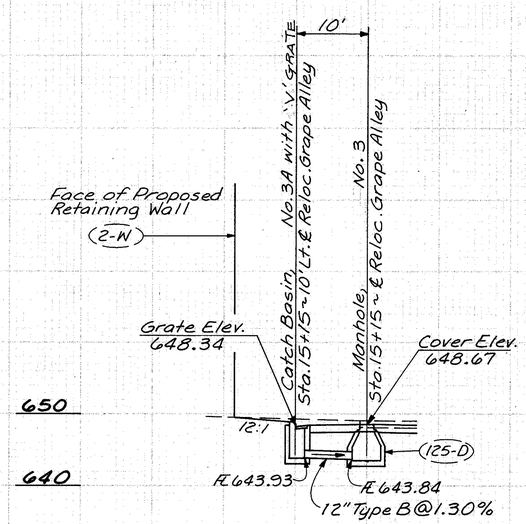
STORM SEWER

Sta.12+30~10'Lt.
& Reloc.Grape Alley
For Plan, See Sheet No. 109

(124-D)

STORM SEWER

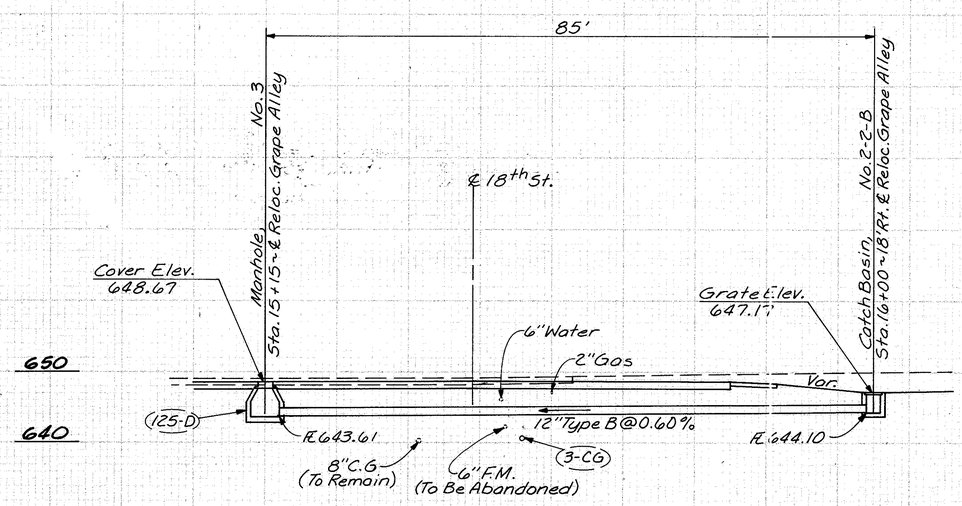
Sta.12+30~10'Rt.
& Reloc.Grape Alley



(126-D)

STORM SEWER

Sta.15+15~10'Lt. & Reloc.Grape Alley
For Plan, See Sheet No. 110



(127-D)

STORM SEWER

Sta.16+00~18'Rt. & Reloc.Grape Alley
For Plan, See Sheet No. 110

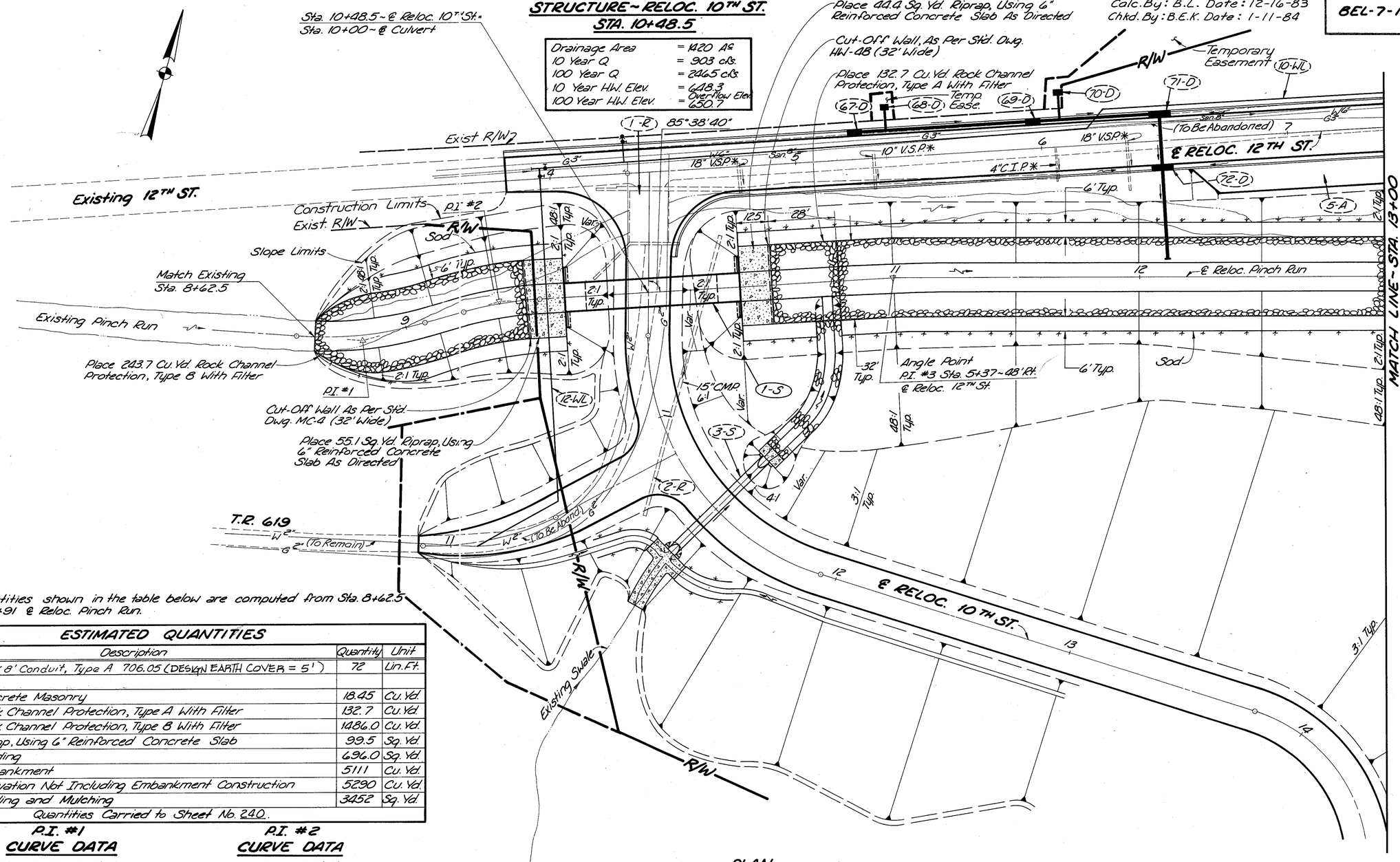
ESTIMATED QUANTITIES

	Item	Description	Quantity	Unit
(123-D)	604	Catch Basin, No.3A with 'V' GRATE	1	Each
	603	12"Conduit, Type B	10	Lin.Ft.
		Quantities Carried To Sheet No. 109		
(124-D)	604	Catch Basin, No.3A with 'V' GRATE	1	Each
	603	12"Conduit, Type B	10	Lin.Ft.
		Quantities Carried To Sheet No. 109		
(126-D)	604	Catch Basin, No.3A with 'V' GRATE	1	Each
	603	12"Conduit, Type B	10	Lin.Ft.
		Quantities Carried To Sheet No. 111		
(127-D)	604	Catch Basin, No.2-2-B	1	Each
	603	12"Conduit, Type B	85	Lin.Ft.
		Quantities Carried To Sheet No. 111		
(128-D)	604	Catch Basin, No.2-2-B	1	Each
	603	12"Conduit, Type B	59	Lin.Ft.
		Quantities Carried To Sheet No. 111		

Calc. By: B.L. Date: 12-16-83
Chkd. By: B.E.K. Date: 1-11-84

STRUCTURE ~ RELOC. 10TH ST.
STA. 10+48.5

Drainage Area	= 1420 Ac.
10 Year Q	= 903 cfs.
100 Year Q	= 2465 cfs.
10 Year H.W. Elev.	= 648.3
100 Year H.W. Elev.	= 650.7 Overflow Elev.



Notes:
1.) Quantities shown in the table below are computed from Sta. 8+62.5 to Sta. 14+91 ℄ Reloc. Pinch Run.

ESTIMATED QUANTITIES

Item No.	Description	Quantity	Unit
603	12' x 8' Conduit, Type A 706.05 (DESIGN EARTH COVER = 5')	72	Lin. Ft.
602	Concrete Masonry	18.45	Cu. Yd.
601	Rock Channel Protection, Type A With Filter	132.7	Cu. Yd.
601	Rock Channel Protection, Type B With Filter	1486.0	Cu. Yd.
601	Riprap, Using 6" Reinforced Concrete Slab	99.5	Sq. Yd.
660	Sodding	696.0	Sq. Yd.
203	Embankment	5111	Cu. Yd.
203	Excavation Not Including Embankment Construction	5290	Cu. Yd.
659	Seeding and Mulching	3452	Sq. Yd.
	Quantities Carried to Sheet No. 240.		

P.I. #1 CURVE DATA
Sta. 3+20 ~ 51.5' Rt. ℄ Reloc. 12TH St.
Δ = 19°50'06" Lt.
D = 38°12'00"
T = 26.22'
L = 51.92'
E = 2.27'
R = 150.00'

P.I. #2 CURVE DATA
Sta. 3+76 ~ 49' Rt. ℄ Reloc. 12TH St.
Δ = 11°44'30" Rt.
D = 39°30'52"
T = 14.91'
L = 29.71'
E = 0.76'
R = 145.00'

PLAN
0 20 40
Scale in Feet

For Reloc. Pinch Run Cross Sections, See Sheet No. 387, 388 & 389.
For Detail of (3-S), See Sheet No. 391
For Reloc. Pinch Run Profiles, See Sheet No. 382 & 383.

* Flow To Be Maintained, See General Notes, See Sheet No. 50

(1-S)
CONDUIT, TYPE A
STA. 10+48.5 ~ RELOC. 10TH ST.
(RELOC. PINCH RUN)

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Temporary Easement

Temporary Easement

R/W

(1-FM) (10-WL) (74-D) (73-D) (10-CG) (11-CG) (5-A) (1-CG) (115-D) (114-D) (113-D) (5-R) (116-D) (112-D) (111-D) (110-D)

Existing Pinch Run

1ST RELOC. BELMONT ST.

RELOC. 12TH ST.

EXISTING 11TH ST.

EXISTING BELMONT ST.

S.R. 7

RAMP 'C'

LARW

4" P.V.C. (To Be Abandoned)

6" P.V.C.*

Proposed Sanitary Pump Station

℄ Reloc. Pinch Run

184' × 6' × 18" Urban

℄ Channel 'A'

Slope Limits
Construction Limits

MATCH LINE-STA. 13+00

MATCH LINE-STA. 19+00

All Quantities for Rock Channel Protection, Sod, Excavation and Embankment for Pinch Run carried with (1-5)

P.I. #4
CURVE DATA
Sta. 8+30 ~ 66' Rt. ℄ Reloc. 12TH St.
Δ = 50° 27' 30" Rt.
D = 57° 17' 45"
T = 47.12'
L = 88.07'
E = 10.55'
R = 100.00'

PLAN
0 20 40
Scale in Feet

Note:
For Disposition of Existing Utilities, Existing Catch Basins, and Existing Manholes, See Appropriate Plan Sheets.

* Flow To Be Maintained, See General Notes, Sheet No. 50

For Continuation of Channel 'A', See Sheet No. 238
For Reloc. Pinch Run Cross-Sections, See Sheet No. 387, 388 & 389.
For Reloc. Pinch Run Profile, See Sheet No. 382 & 383.
For Estimated Quantities for (2-5) See Sheet No. 381.
For Proposed Sanitary Pump Station Detail, See Sheet No. 415.

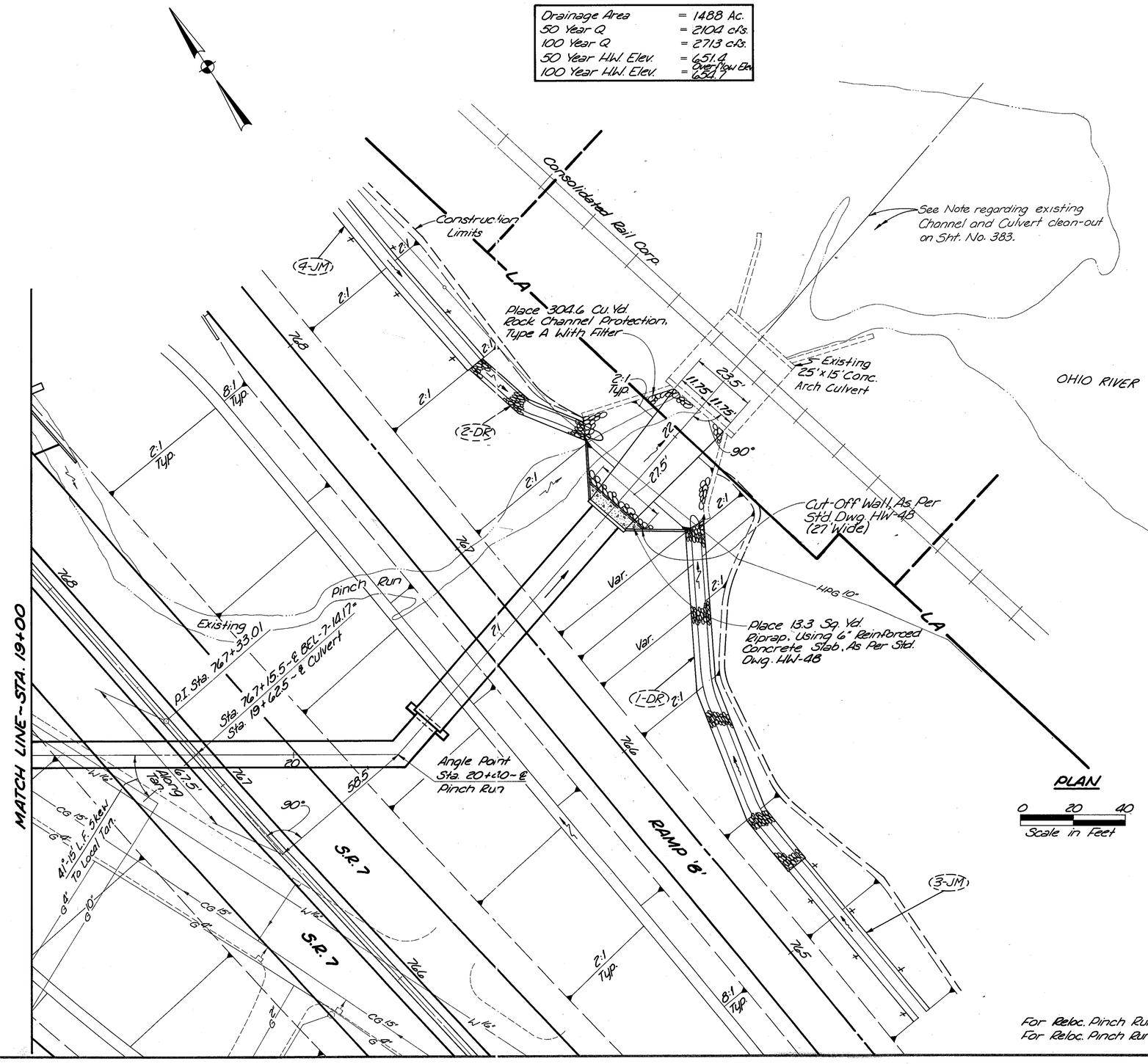
(2-5)
CONDUIT, TYPE A
STA. 767+15.5 ~ BEL-7-14.17
(RELOC. PINCH RUN)

Calc. By: B.L. Date: 12-12-83
Chkd. By: B.E.K. Date: 1-11-84

BEL-7-14.17	OHIO	381
	FHWA REGION 5	663

STRUCTURE ~ BEL-7-14.49
STA. 767+15.5

Drainage Area	= 1488 Ac.
50 Year Q	= 2104 cfs.
100 Year Q	= 2713 cfs.
50 Year H.W. Elev.	= 651.4 Overflow Gap
100 Year H.W. Elev.	= 651.7



EARTHWORK QUANTITIES

Station	End Area		Volume	
	Cut	Fill	Cut	Fill
21+61.0	145	0	121	1
21+76.5	278	5	112	1
21+88.0	246	0	96	0
22+00.0	185	0	79	0
22+14.0	120	0		
TOTAL CU. YD.			408	2

ESTIMATED QUANTITIES

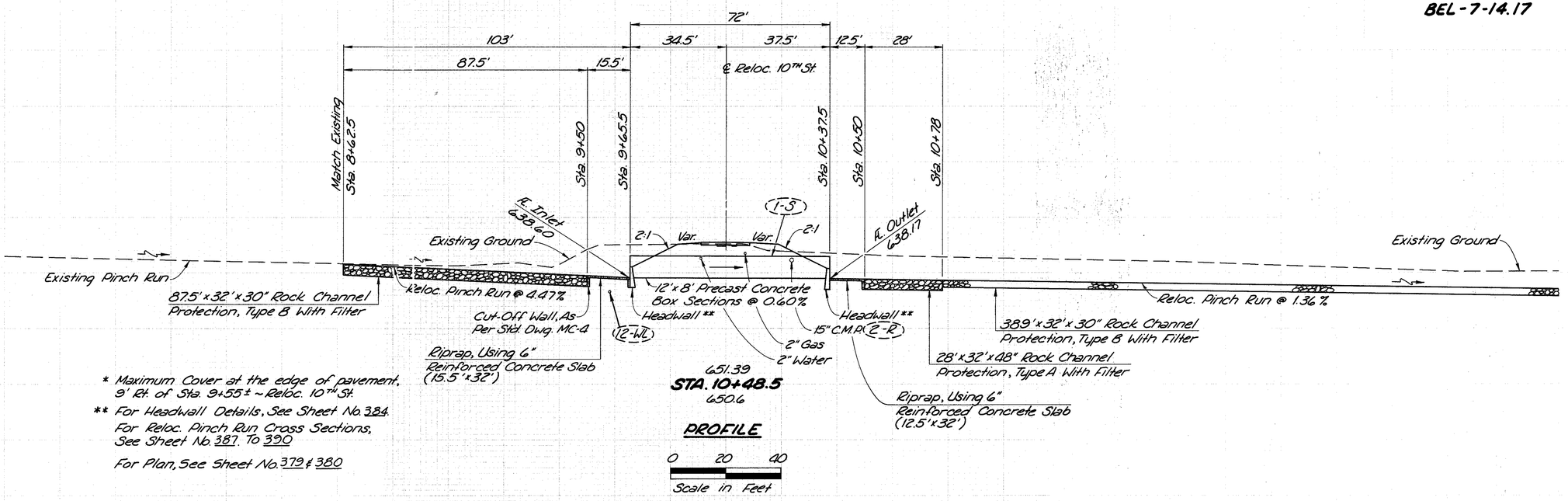
Item No.	Description	Quantity	Unit
603	Conduit, Type A: 120" 706.02 3250 D-Load; or 138" 707.03 (0.168) As Per Plan, With 156" 706.02 2000 D-Load, As Per Plan	628	Lin. Ft.
601	Riprap, Using 6" Reinforced Concrete Slab	13.3	Sq. Yd.
601	Rock Channel Protection, Type A With Filter	304.6	Cu. Yd.
203	Excavation Not Including Embankment Construction	408	Cu. Yd.
203	Embankment	2	Cu. Yd.
Quantities Carried to Sheet No. 94			

For Reloc. Pinch Run Profiles, See Sheet No. 382 & 383
For Reloc. Pinch Run Cross-Sections, See Sheet No. 390.

(2-S)

CONDUIT, TYPE A
STA. 767+15.5 - BEL-7-14.17
(RELOC. PINCH RUN)

BEL-7-14.17

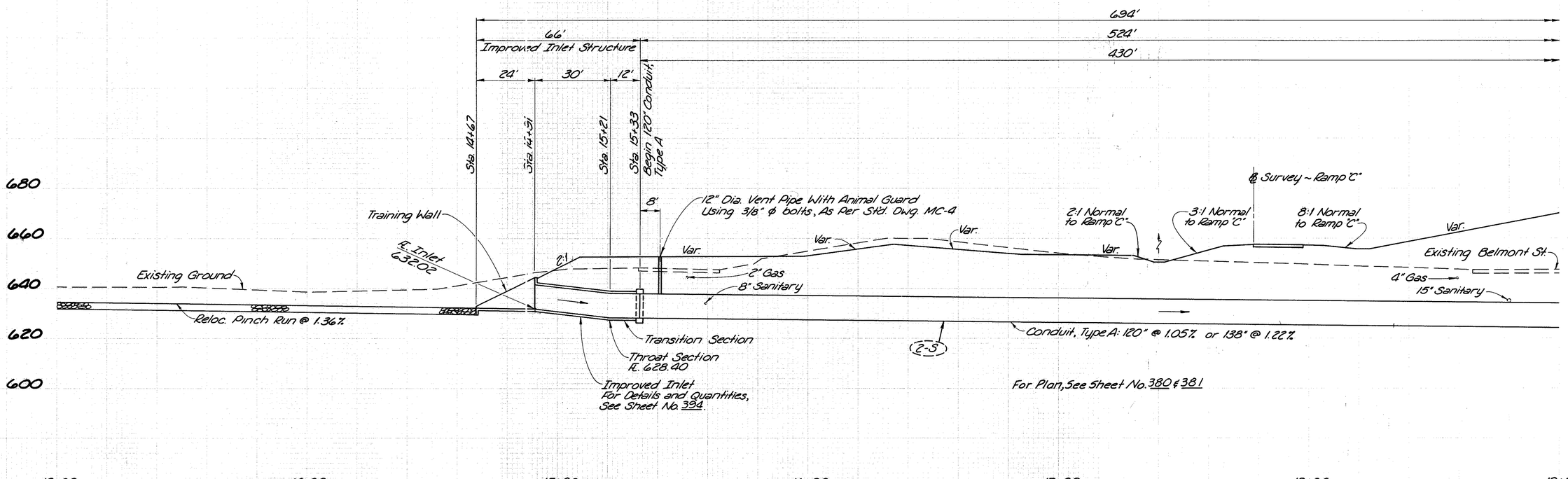


* Maximum Cover at the edge of pavement, 9' Rt. of Sta. 9+55± ~ Reloc. 10TH St.

** For Headwall Details, See Sheet No. 384.

For Reloc. Pinch Run Cross Sections, See Sheet No. 387 To 390

For Plan, See Sheet No. 379 & 380



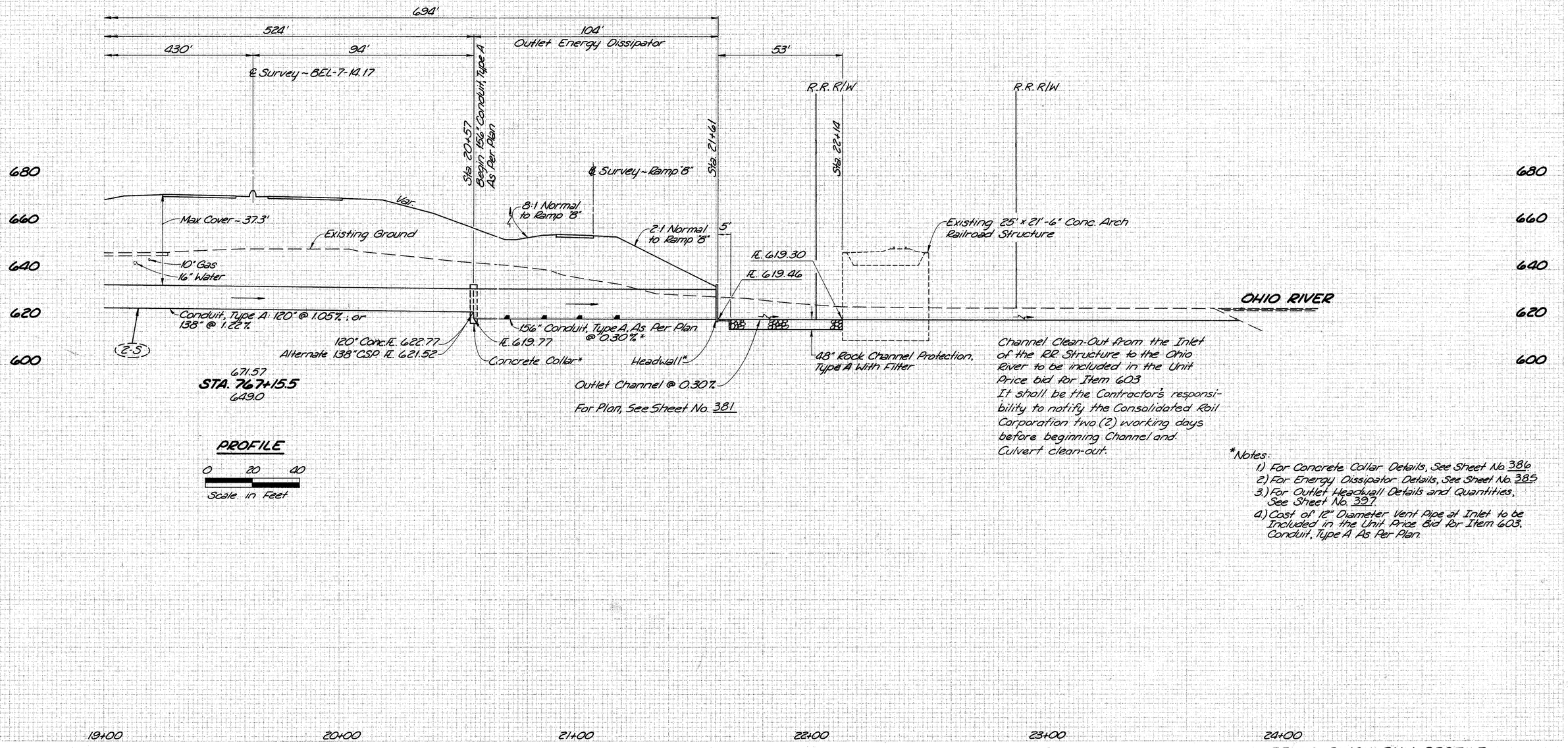
For Plan, See Sheet No. 380 & 381

W.E. BUTCHBALL & ASSOCIATES, INC. Consulting Engineers

RELOC. PINCH RUN PROFILE

FWWA REGION	STATE	PROJECT		383
5	OHIO			663

BEL-7-14.17



PROFILE

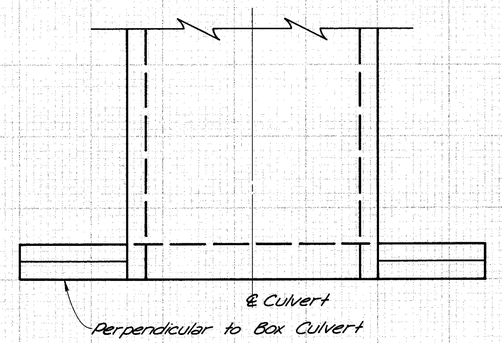
0 20 40

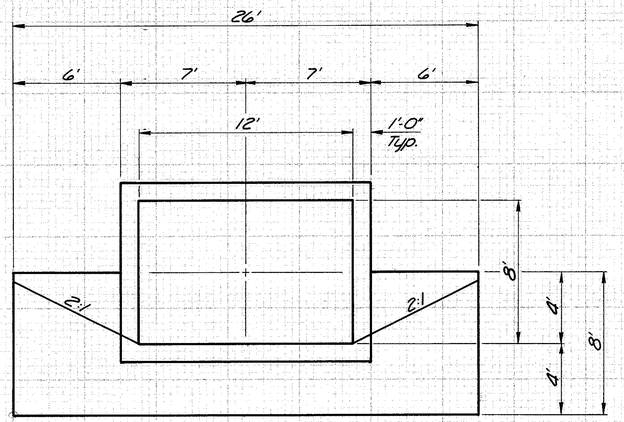
Scale in Feet

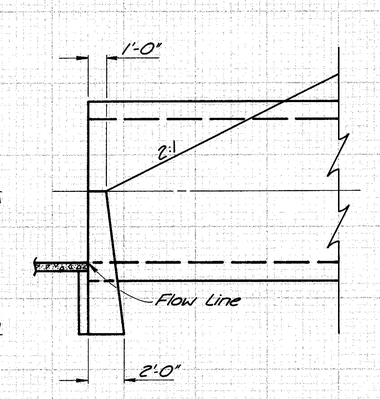
*Notes:

1) For Concrete Collar Details, See Sheet No. 386
2) For Energy Dissipator Details, See Sheet No. 385
3) For Outlet Headwall Details and Quantities, See Sheet No. 397
4) Cost of 12" Diameter Vent Pipe at Inlet to be Included in the Unit Price Bid for Item 603, Conduit, Type A As Per Plan.

RELOC. PINCH RUN PROFILE







Notes:
1. Concrete For Headwalls Shall Be Class C.
2. For Inlet and Outlet Protection, See Detail (1-5)

0 4 8
Scale in Feet

HEADWALL DETAIL FOR 12' x 8' PRECAST BOX CULVERT AT STA. 10+48.5 RELOC. 10TH ST.

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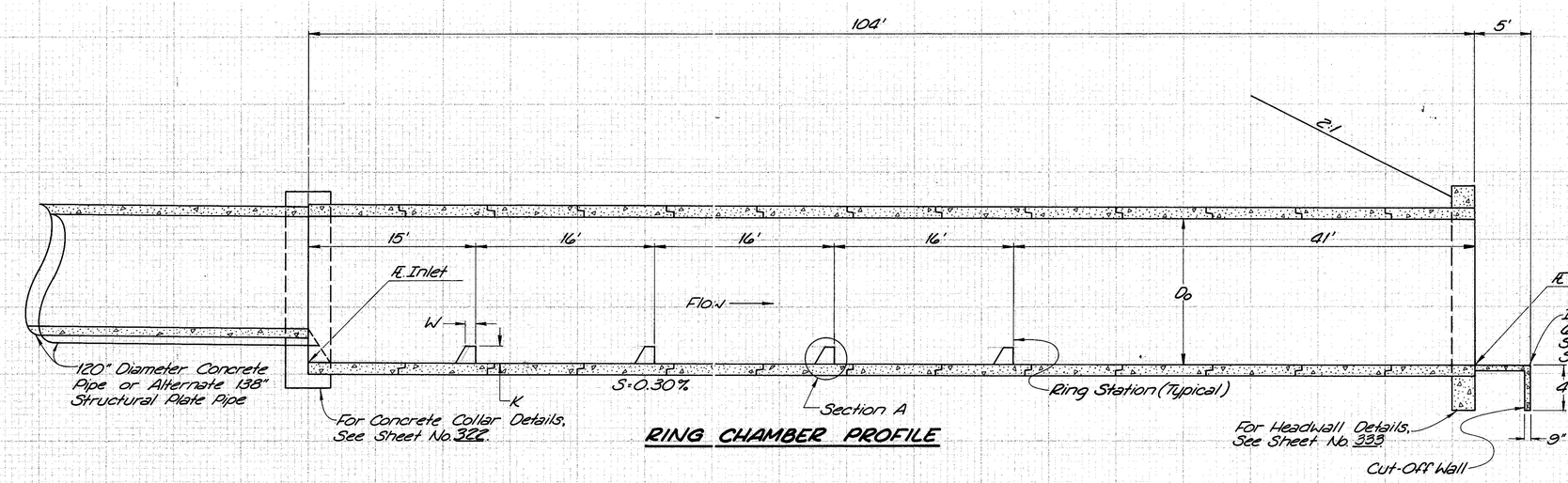
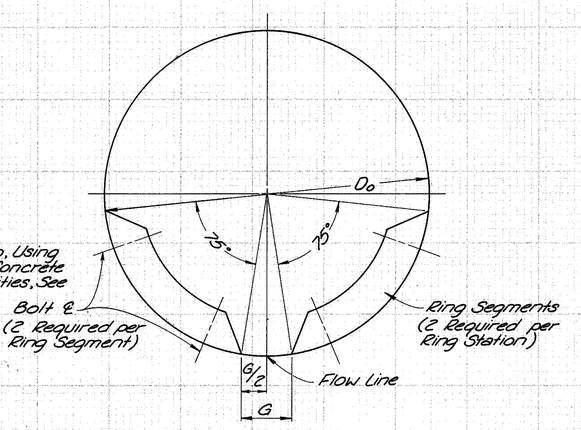


RING CHAMBER PROFILE



RING CHAMBER STATION (TYP.)

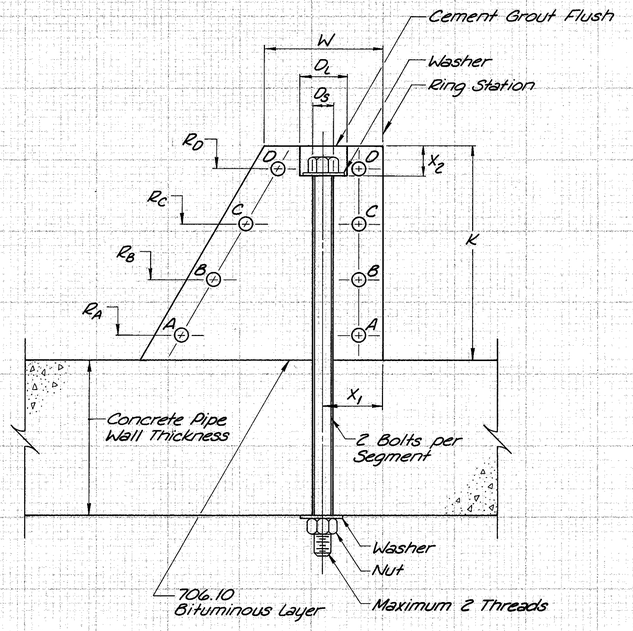
NOTES:

1.) THE RING CHAMBER IS TO BE MADE FROM THE STRENGTH AND SIZE OF CONCRETE PIPE SPECIFIED IN THE STRUCTURE DETAIL. THE RING SEGMENTS SHALL BE PRE-CAST AND ASSEMBLED INTO PIPE SECTIONS ACCORDING TO THIS DRAWING AT THE PRE-CAST FACILITY. A 706.10 BITUMINOUS COAT WILL BE PLACED BETWEEN EACH RING SEGMENT AND THE PIPE SECTION. EACH BOLT HEAD CAVITY MUST BE GROUTED FLUSH WITH CEMENT GROUT. ALL BOLTS, NUTS, AND WASHERS MUST BE GALVANIZED AS PER SECTION 711.02. THE BOLT LENGTHS WILL PERMIT FULL ENGAGEMENT OF ALL THREADS OF THE NUTS (MINIMUM). THE RINGED SECTIONS MUST BE DELIVERED TO THE PROJECT MARKED AS NEEDED AND READY TO LAY SIMILAR TO ANY OTHER CONCRETE PIPE SECTION.

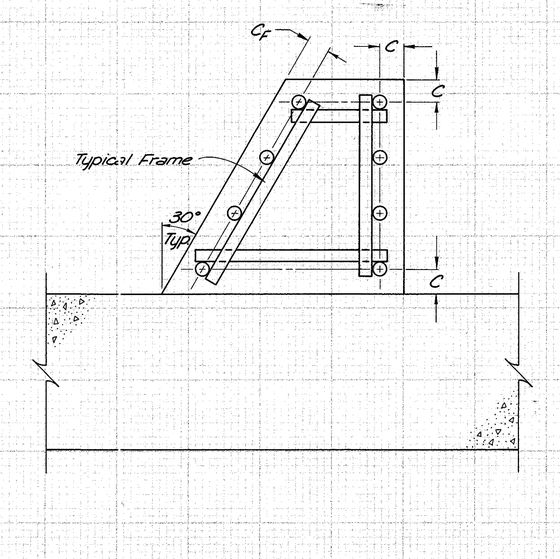
2.) RING SEGMENTS ARE TO BE PRE-CAST FROM CLASS C CONCRETE AS PER 706.13.

3.) FRAMES OF ITEM 709 REINFORCING MUST BE WIRED OR RESISTANCE WELDED TO THE CURVED BARS TO FORM A CAGE. A FRAME MUST BE PLACED AT EACH END FACE. FRAME BARS MUST BE MADE OF THE SAME SIZE BARS AS THE CURVED BARS (A THRU D). FRAMES ARE TO BE EVENLY SPACED BUT MAY BE ADJUSTED TO AVOID THE BLOCK OUT FOR THE BOLT HOLES. FRAMES MAY BE MADE FROM A SINGLE BENT BAR RATHER THAN FOUR INDIVIDUAL BARS AS SHOWN. THE OUTSIDE DIAMETER D_O MAY BE REDUCED TO OBTAIN A PROPER FIT WITH THE INSIDE DIAMETER OF THE PIPE SECTION.

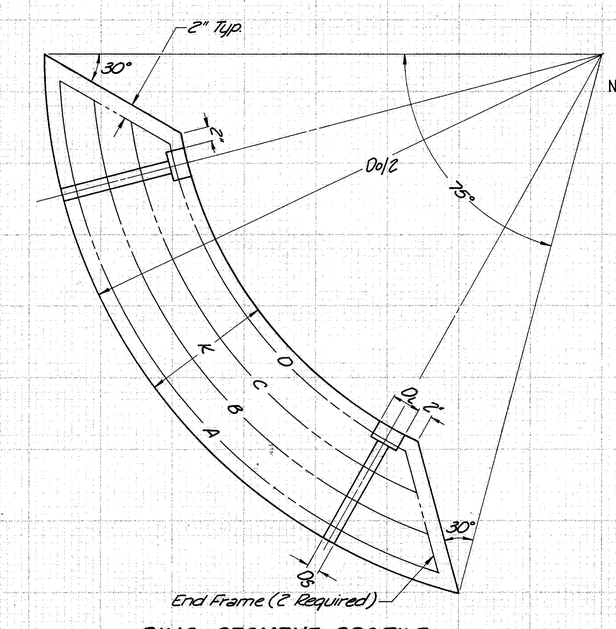
4.) THE COST OF ALL MATERIALS AND LABOR NECESSARY TO ASSEMBLE AND SEAL THE RING SEGMENTS TO THE CONCRETE PIPE SECTION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT ITEM 603-CONDUIT, TYPE A, AS PER PLAN.



SECTION 'A' @ BOLT & (TYPICAL)



TYPICAL FRAME DETAIL



RING SEGMENT PROFILE

TABLE FOR RING CHAMBER AND RING SEGMENT DATA

D_O Inches	K Inches	W Inches	O_S Inches	O_L Inches	X_1 Inches	X_2 Inches	G Inches	Bolt Size Inches	A Length Inches	B Length Inches	C Length Inches	O Length Inches	R_A Radius Inches	R_B Radius Inches	R_C Radius Inches	R_O Radius Inches	Number of Frames	C Inches	C_F Inches	Reinforcing Bar Size
156"	18"	10"	1.750	4.0	5.00	2.50	24	1.50	93.17	81.68	70.18	58.68	76.00	71.33	66.67	62.00	7	2	2	#6

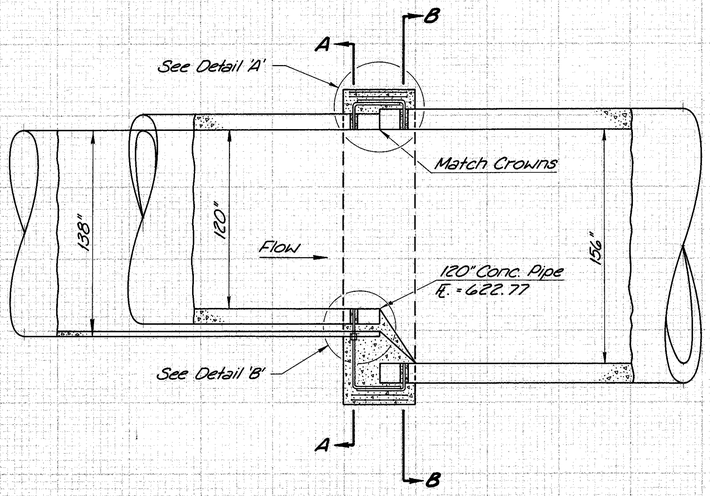
Sheet 7

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

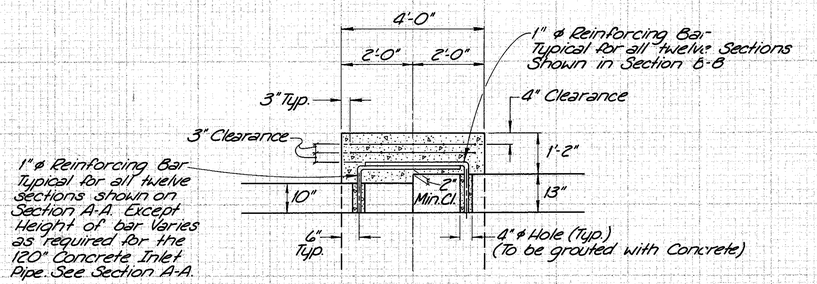
(2-5)

OUTLET DISSIPATOR DETAILS

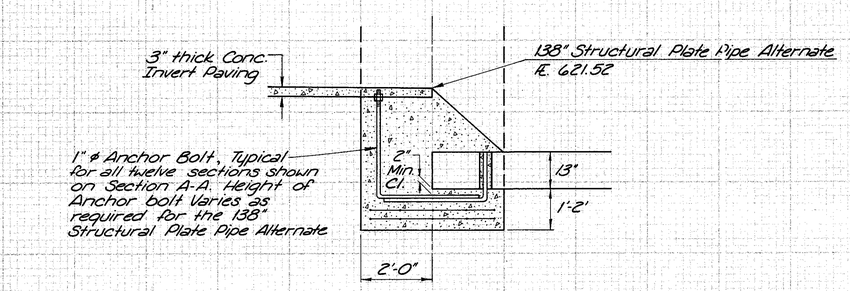
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED



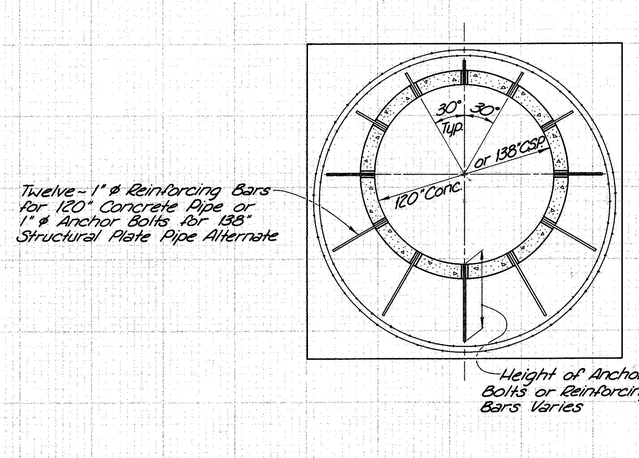
CONCRETE COLLAR
STA. 20+57
Not to Scale



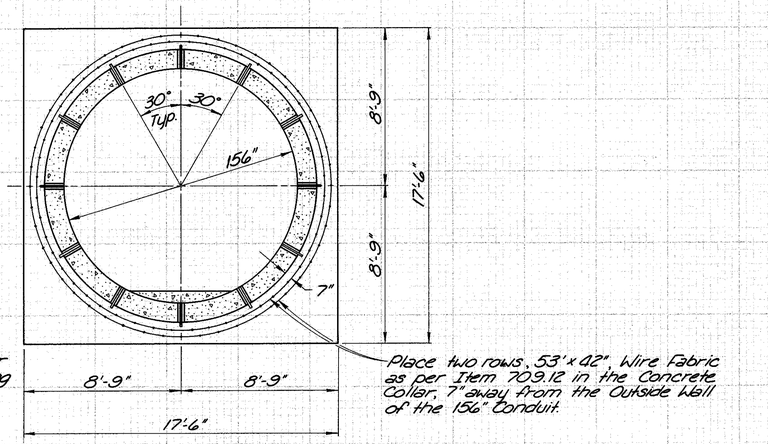
DETAIL 'A'



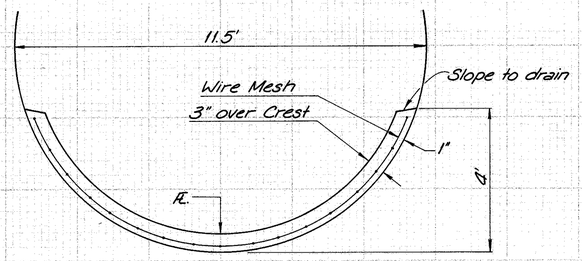
DETAIL 'B'



SECTION A-A
INLET PIPE
120" DIAMETER CONCRETE PIPE OR ALTERNATE 138" STRUCTURAL PLATE CORRUGATED STEEL PIPE



SECTION B-B
OUTLET PIPE
156" DIAMETER CONCRETE PIPE



CONCRETE INVERT PAVING FOR 138" STRUCTURAL PLATE PIPE ALTERNATE

1.) CONCRETE FOR THE COLLAR SHALL BE CLASS C.

2.) IF THE 138" STRUCTURAL PLATE PIPE ALTERNATE IS SELECTED, THE ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A307. THE TOP 6" MINIMUM OF THE BOLT SHALL BE GALVANIZED ACCORDING TO ASTM A153.

3.) ALL CONCRETE, REINFORCING BARS, ANCHOR BOLTS AND LABOR REQUIRED TO CONSTRUCT THE CONCRETE COLLAR SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM 603-CONDUIT, TYPE A, AS PER PLAN.

4.) FOR CONCRETE INVERT PAVING FOR THE 138" STRUCTURAL PLATE PIPE, SEE GENERAL NOTES.

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

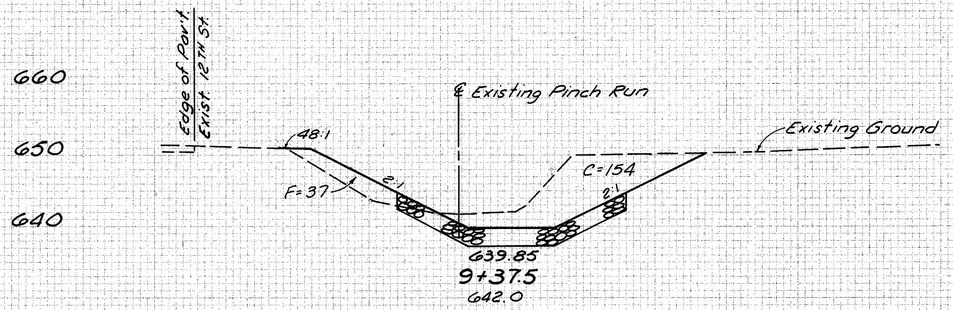
2:5

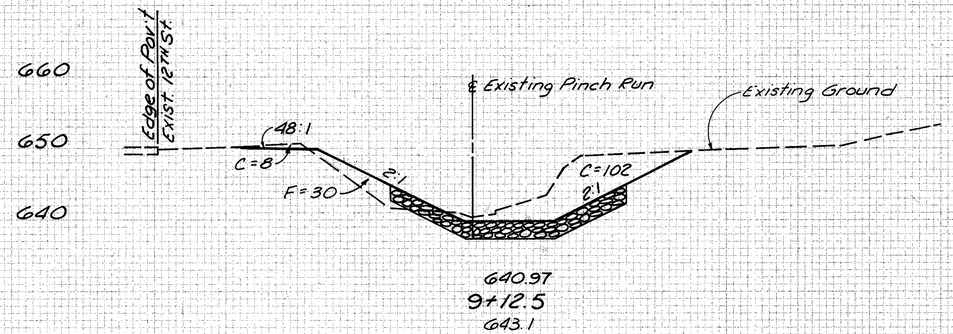
CONCRETE COLLAR DETAILS

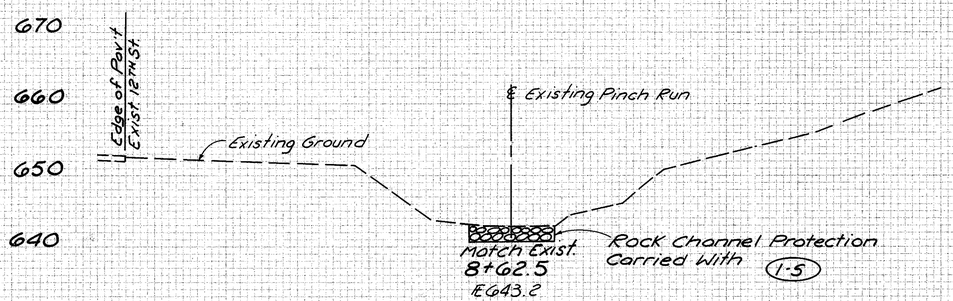
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED

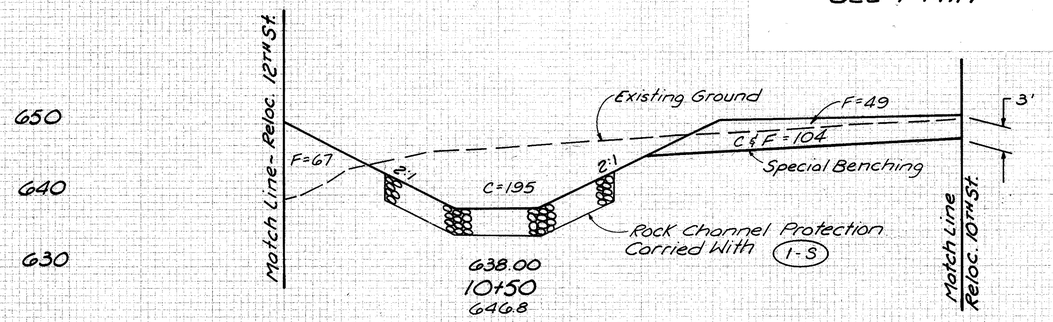
FHWA REGION	STATE	PROJECT			387
5	OHIO				663

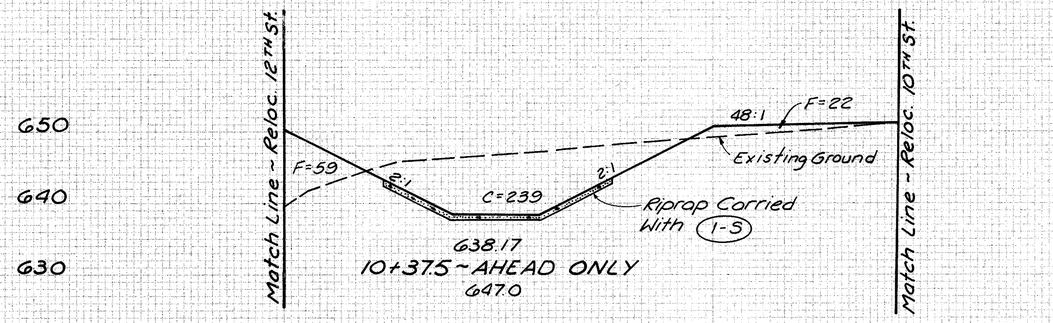
BEL-7-14.17

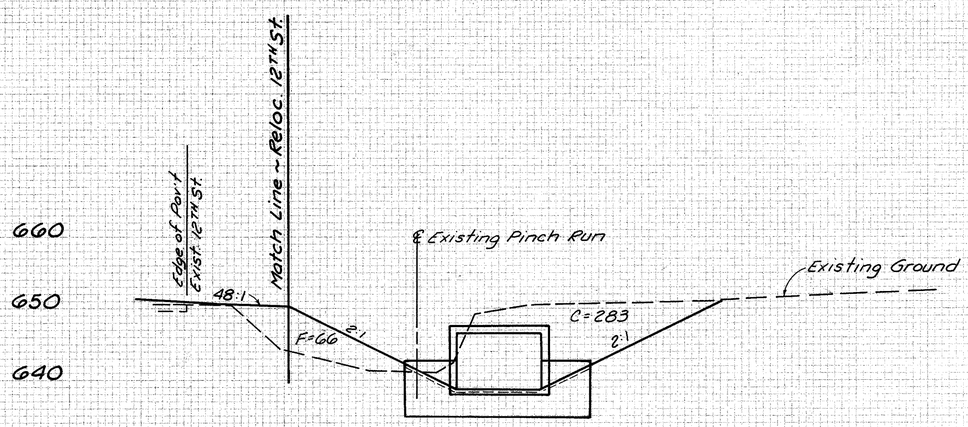










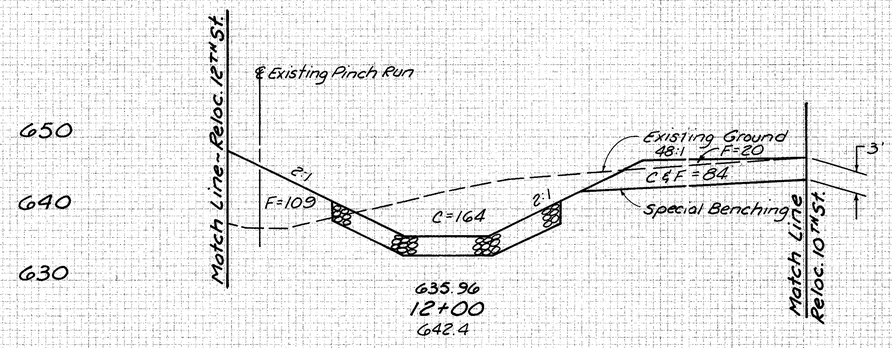


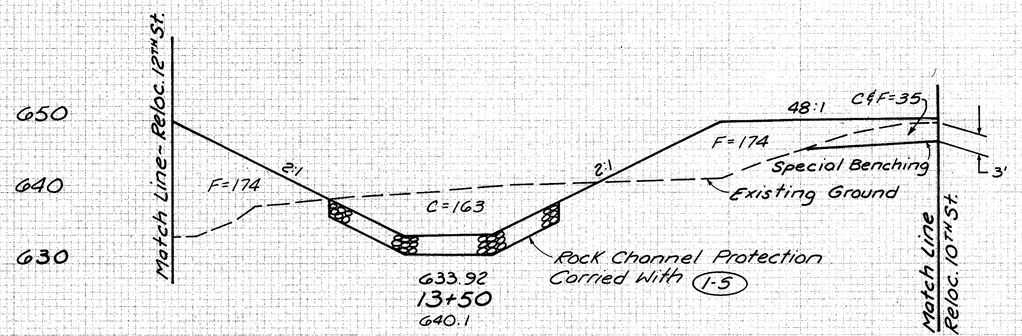
60 40 20 0 20 40 60 60 40 20 0 20 40 60

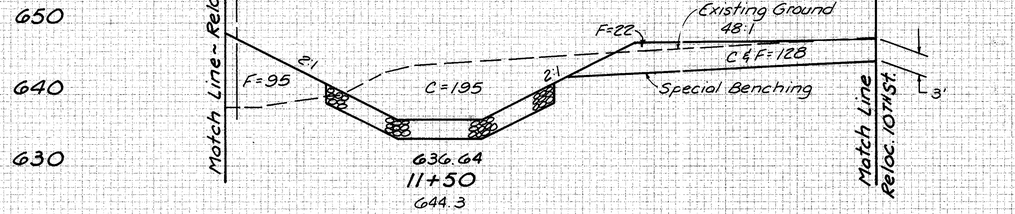
RELOCATED PINCH RUN - STA. 8+62.5 TO STA. 10+50

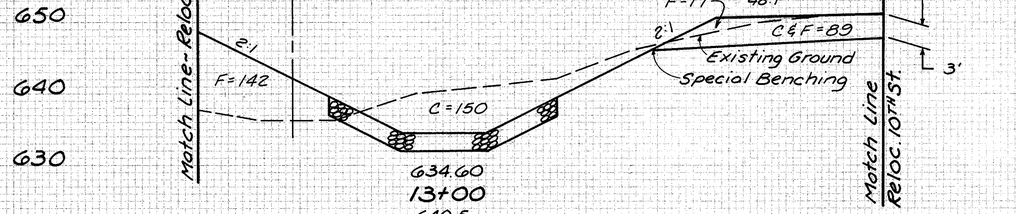
FHWA REGION	STATE	PROJECT		388
5	OHIO			663

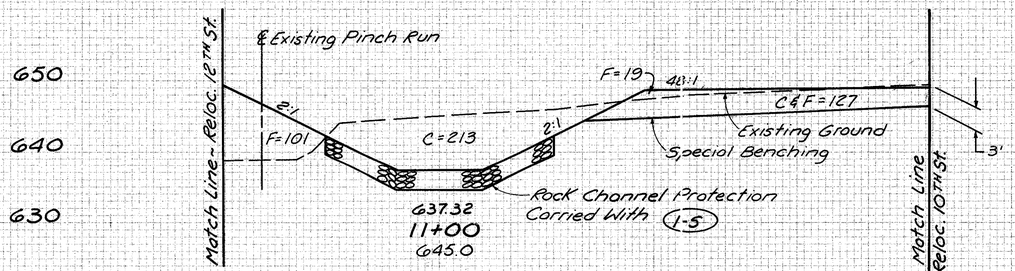
BEL-7-14.17

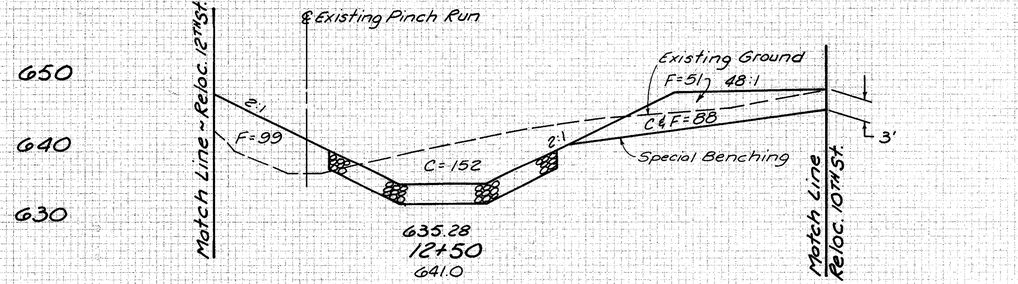












40 20 0 20 40 60 80

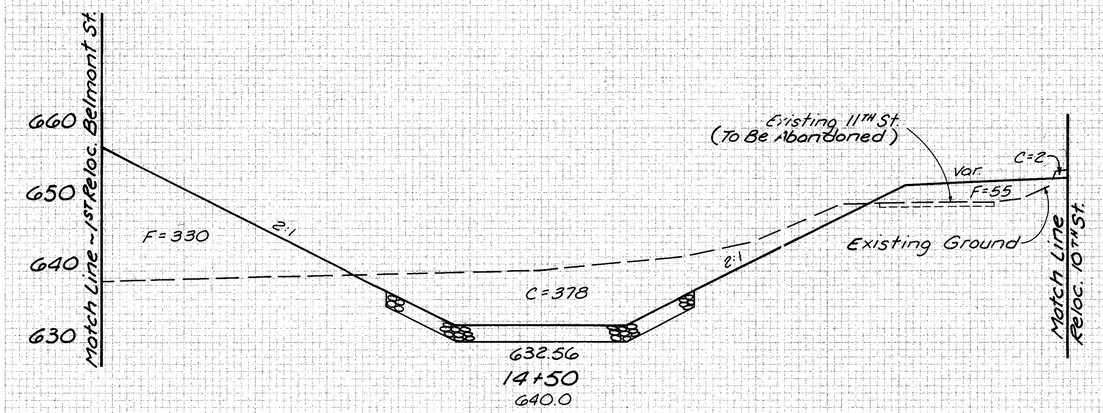
40 20 0 20 40 60

RELOCATED PINCH RUN ~ STA. 11+00 TO STA. 13+50

Calc. By: W.C.R. Date: 3-13-85
Chkd. By: B.L. Date: 4-2-85

FHWA REGION	STATE	PROJECT		389
5	OHIO			663

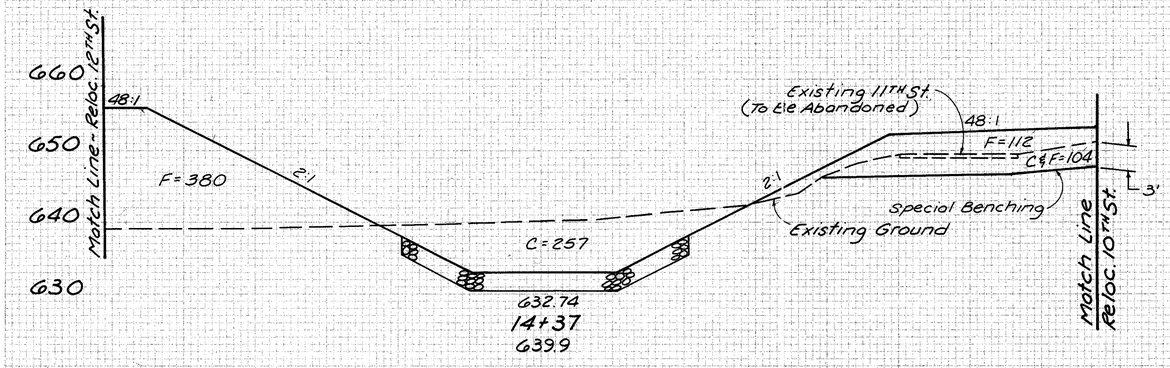
BEL-7-14.17

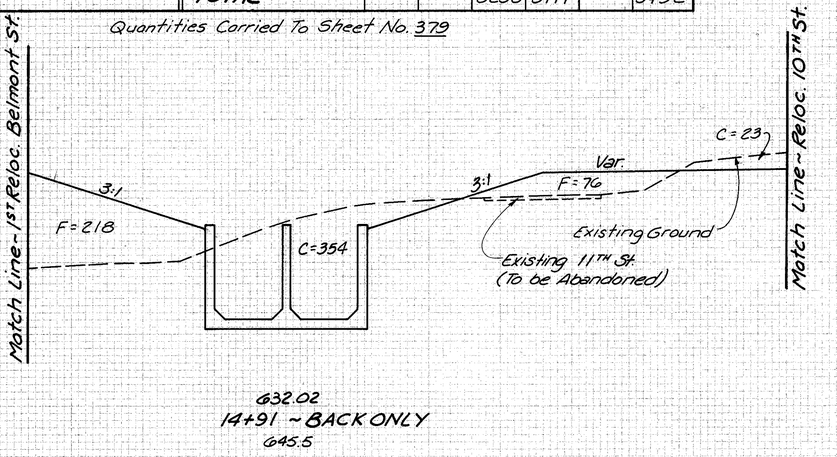


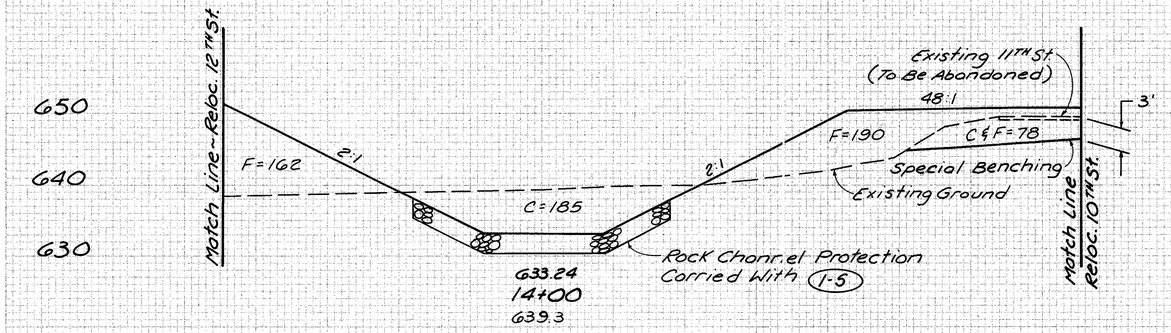
EARTHWORK QUANTITIES

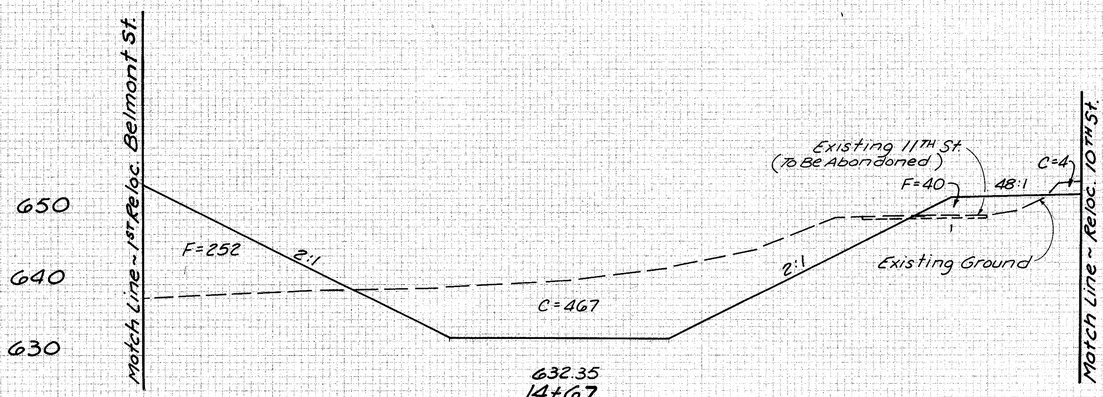
Station	End Area Cut	End Area Fill	Volume Cut	Volume Fill	Seeding Width	Seeding Area
8+62.50	0	0	102	28	0	111
9+12.50	110	30	122	31	40	108
9+37.50	154	37	227	53	38	115
9+65.50	283	66	0	0	36	0
9+65.50	0	0	0	0	0	0
10+37.50	0	0	0	0	0	0
10+37.50	239	81	125	70	48	71
10+50	299	220	592	432	54	317
11+00	340	247	614	456	60	306
11+50	323	245			50	
12+00	248	213	529	424	40	250
12+50	240	238	444	450	45	286
13+00	239	248	405	584	58	350
13+50	198	383	427	753	68	408
14+00	263	430	428	703	79	356
14+37	361	596	178	236	94	132
14+50	380	385	268	213	89	177
14+67	471	292	377	260	98	229
14+91	377	294			74	
TOTAL			5290	5111		3452

Quantities Carried To Sheet No. 379







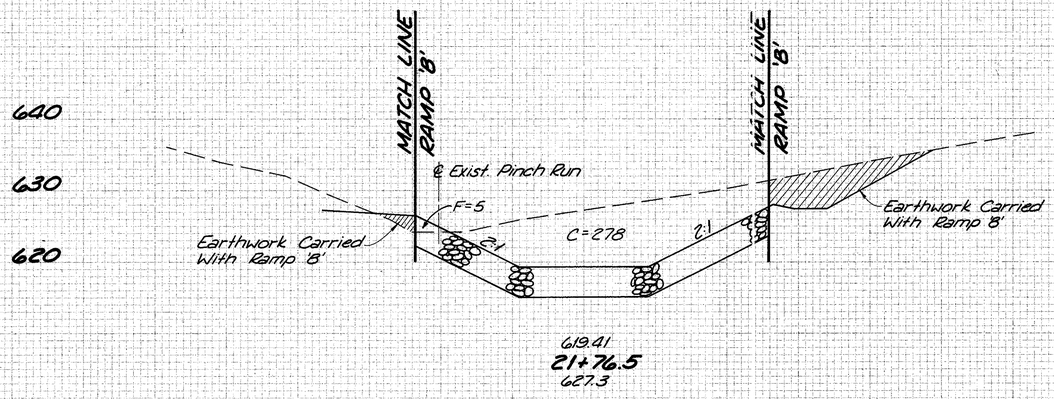


60 40 20 0 20 40 60 60 40 20 0 20 40 60

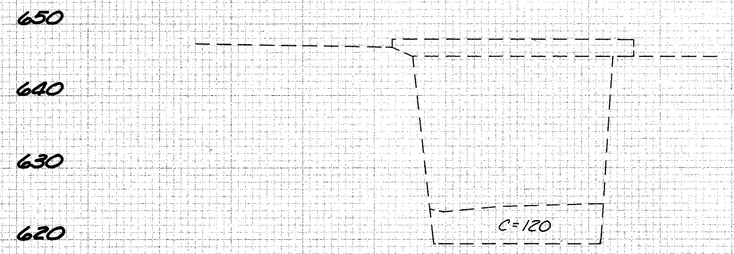
RELOCATED PINCH RUN ~ STA. 14+00 TO STA. 14+85

FHWA REGION	STATE	PROJECT		390
5	OHIO			663

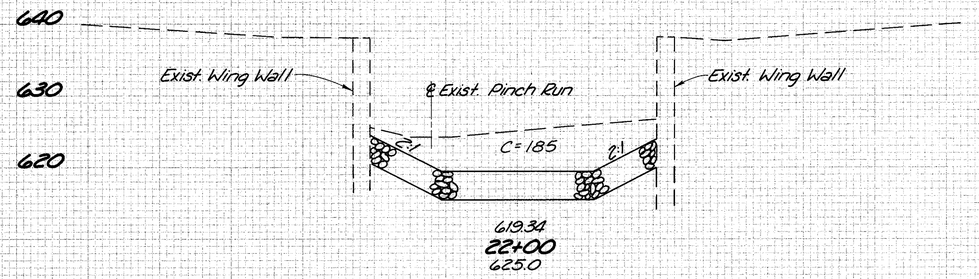
BEL-7-14.17



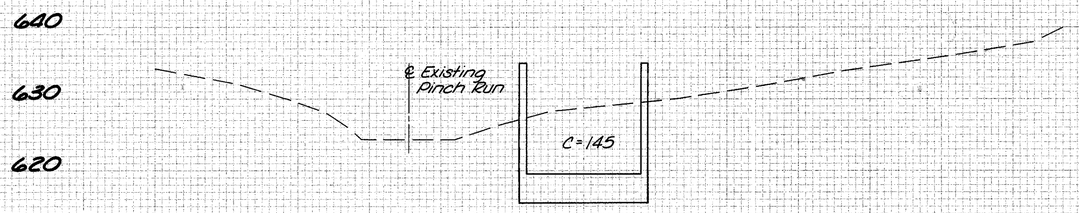
619.41
21+76.5
627.3



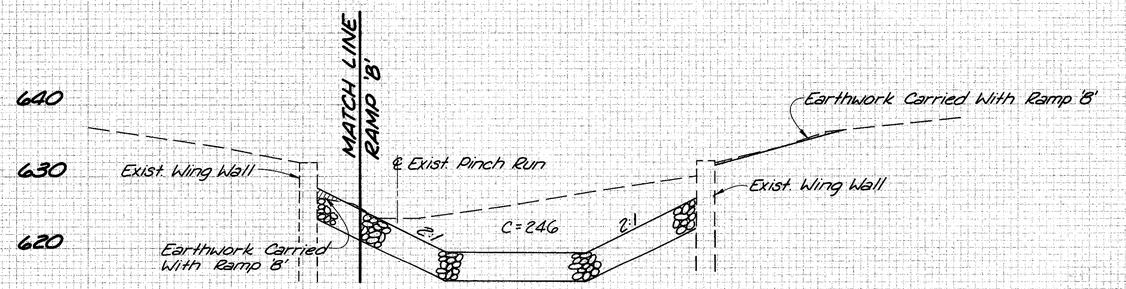
619.30
22+14 - BACK ONLY
624.8



619.34
22+00
625.0



619.46
21+61 - AHEAD ONLY
628.4



619.38
21+88
626.0

For Earthwork Total, See Sheet No. 317

60 40 20 0 20 40 60

60 40 20 0 20 40 60

RELOCATED PINCH RUN - STA. 21+61 TO STA. 22+14

Calc. By: B.L. Date: 2-20-84
Chkd. By: B.E.K. Date: 1-29-85

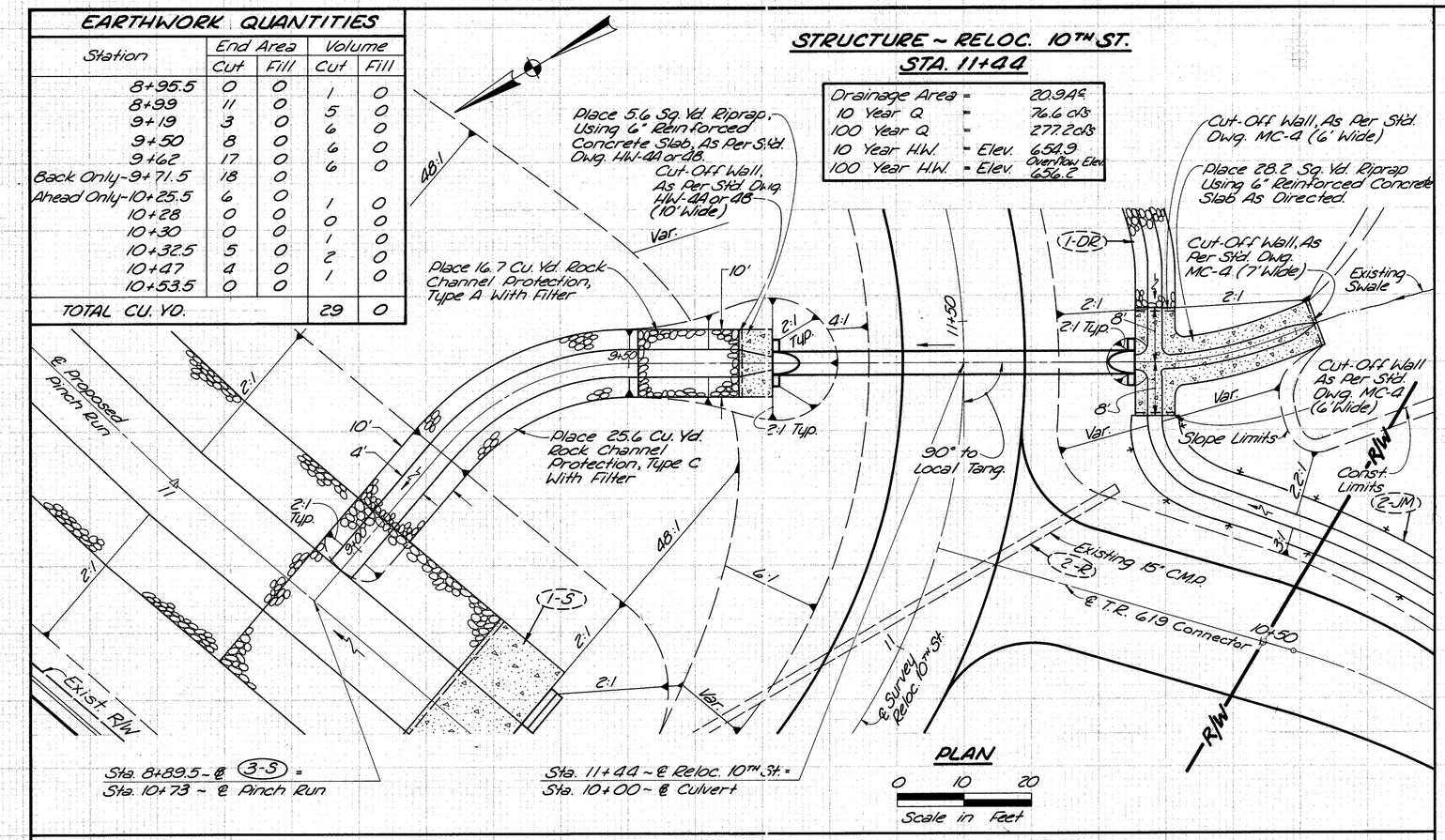
BEL-7-14.17 | OHIO | FHWA REGION 5 | 391 / 663

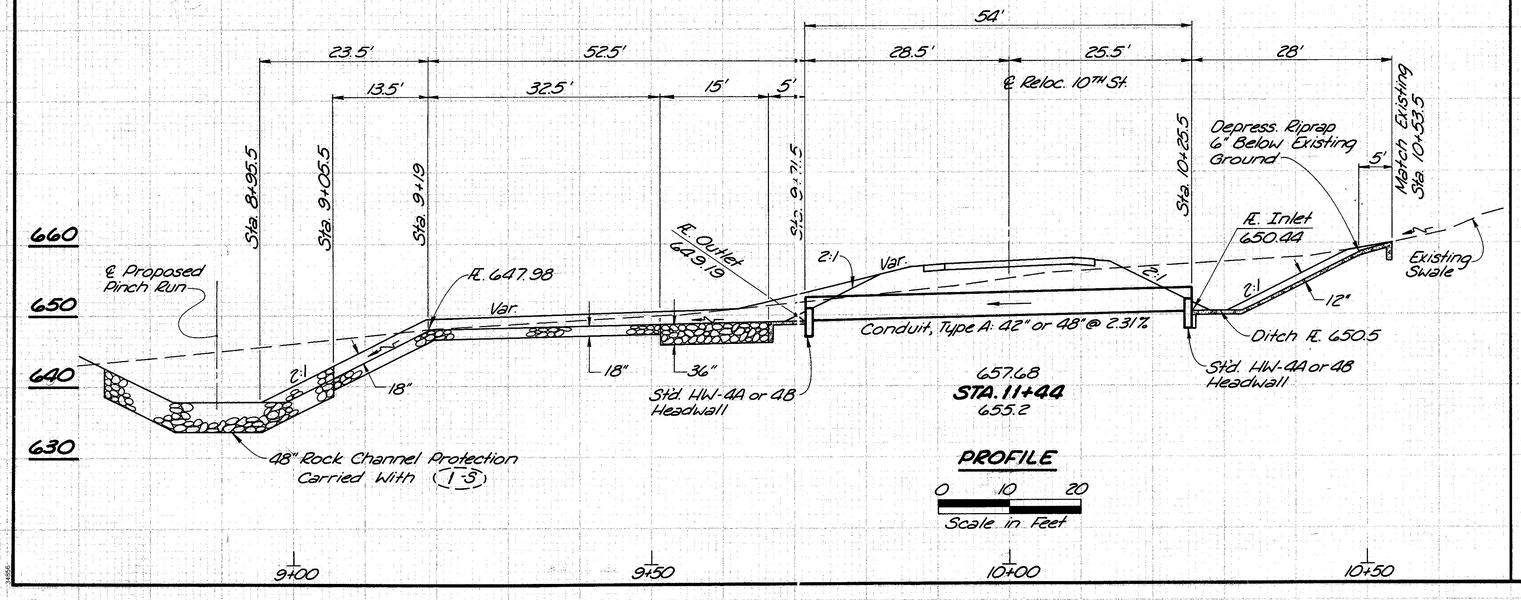
EARTHWORK QUANTITIES

Station	End Area Cut	End Area Fill	Volume Cut	Volume Fill
8+95.5	0	0	1	0
8+99	11	0	5	0
9+19	3	0	6	0
9+50	8	0	6	0
9+62	17	0	6	0
Back Only-9+71.5	18	0		
Ahead Only-10+25.5	6	0	1	0
10+28	0	0	0	0
10+30	0	0	1	0
10+32.5	5	0	2	0
10+47	4	0	1	0
10+53.5	0	0		
TOTAL CU. YD.			29	0

STRUCTURE ~ RELOC. 10TH ST.
STA. 11+44

Drainage Area	=	20.9Ac.
10 Year Q	=	76.6 cfs
100 Year Q	=	277.2cfs
10 Year H.W.	= Elev.	654.9
100 Year H.W.	= Elev.	656.2 Overflow Elev.

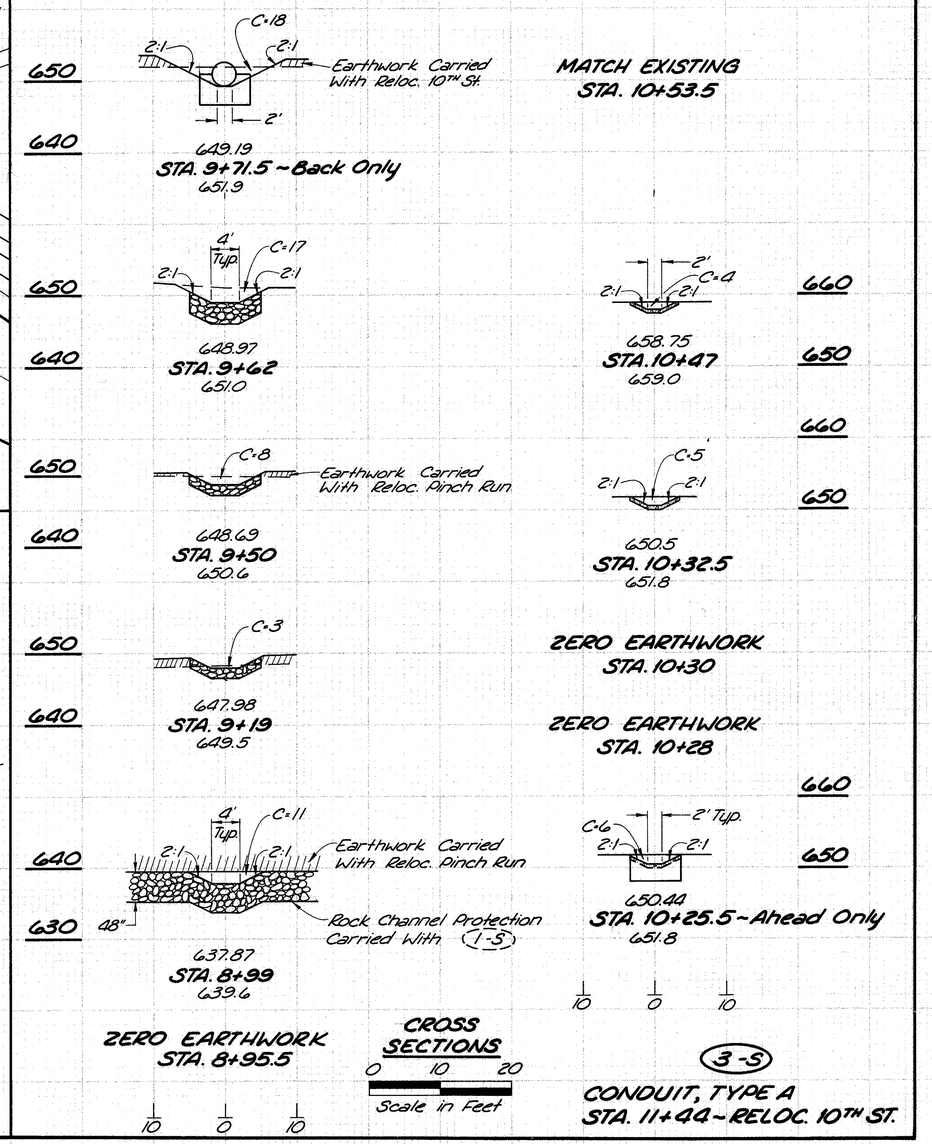




ESTIMATED QUANTITIES

Item No.	Description	Quantity	Unit
603	Conduit, Type A: 42" 706.02; or 48" 707.01 (0.109), 707.05	54	Lin. Ft.
	Type C (0.079), 707.09, or 707.04 (0.079) with Bituminous		
	Paved Invert As Per 707.05		
602	Concrete Masonry	2.58	Cu. Yd.
601	Riprap, Using 6" Reinforced Concrete Slab	33.8	Sq. Yd.
601	Rock Channel Protection, Type A With Filter	16.7	Cu. Yd.
601	Rock Channel Protection, Type C With Filter	25.6	Cu. Yd.
203	Excavation Not Including Embankment Construction	29	Cu. Yd.

Quantities Carried to Sheet No. 240

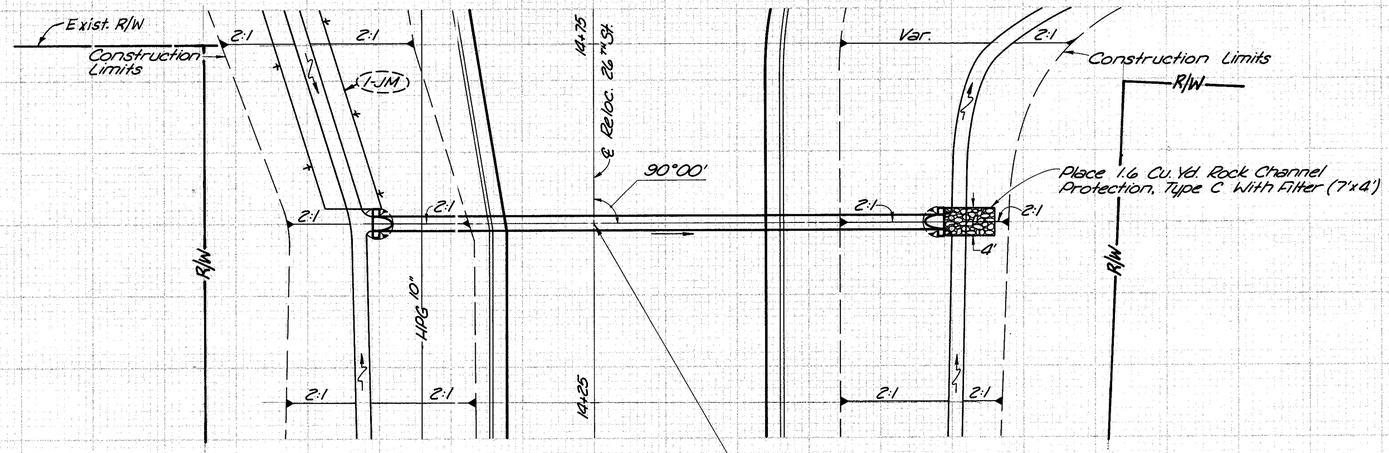


Calc. By: B.L. Date: 2-2-85
Chkd. By: B.E.K. Date: 2-4-85

BEL-7-14.17 | OHIO | FHWA REGION 5 | 392 / 663

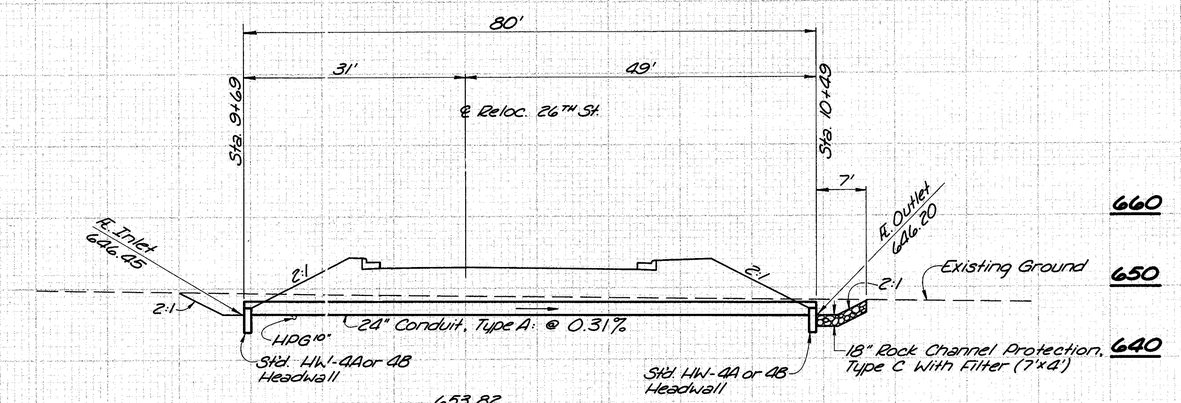
STRUCTURE - RELOC. 26TH ST.
STA. 14+50

Drainage Area	=	1.44 Aq.
25 Year Q	=	5.4 cfs
100 Year Q	=	6.6 cfs
25 Year H.W	= Elev.	648.0
100 Year H.W.	= Elev.	648.1



PLAN

0 10 20
Scale in Feet



STA. 14+50

PROFILE

0 10 20
Scale in Feet

9+50 10+00 10+50

ESTIMATED QUANTITIES

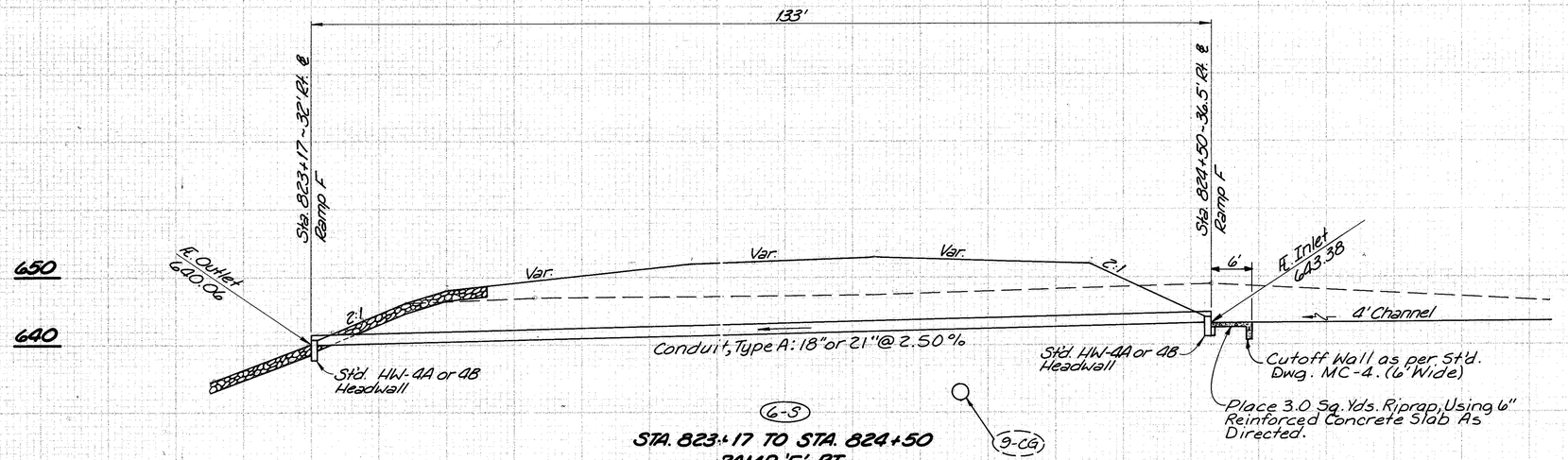
Item No.	Description	Quantity	Unit
603	24" Conduit, Type A. 706.01, 706.02, 706.08, or 707.03 (0.109)	80	Lin. Ft.
602	Concrete Masonry	0.92	Cu. Yd.
601	Rock Channel Protection, Type C With Filter	1.6	Cu. Yd.

Quantities Carried to Sheet No. 294

(5-S)
CONDUIT, TYPE A
STA. 14+50 - RELOC. 26TH ST.

Calc. By: G.W. Date: 3-6-85
Chkd. By: B.E.K. Date: 3-12-85

BEL-7-14.17 | OHIO | FHWA REGION 5 | 393/663



STA. 823+17 TO STA. 824+50
RAMP 'F' RT.
For Plan, See Sheet No. 121.

STRUCTURE ~ RAMP 'F'
STA. 823+17 TO STA. 824+50

Drainage Area	=	3.5 A^c
25 Year Q	=	13.47 c.f.s.
100 Year Q	=	16.55 c.f.s.
25 Year H.W.	=	Elev. 646.0
100 Year H.W.	=	Elev. 648.3

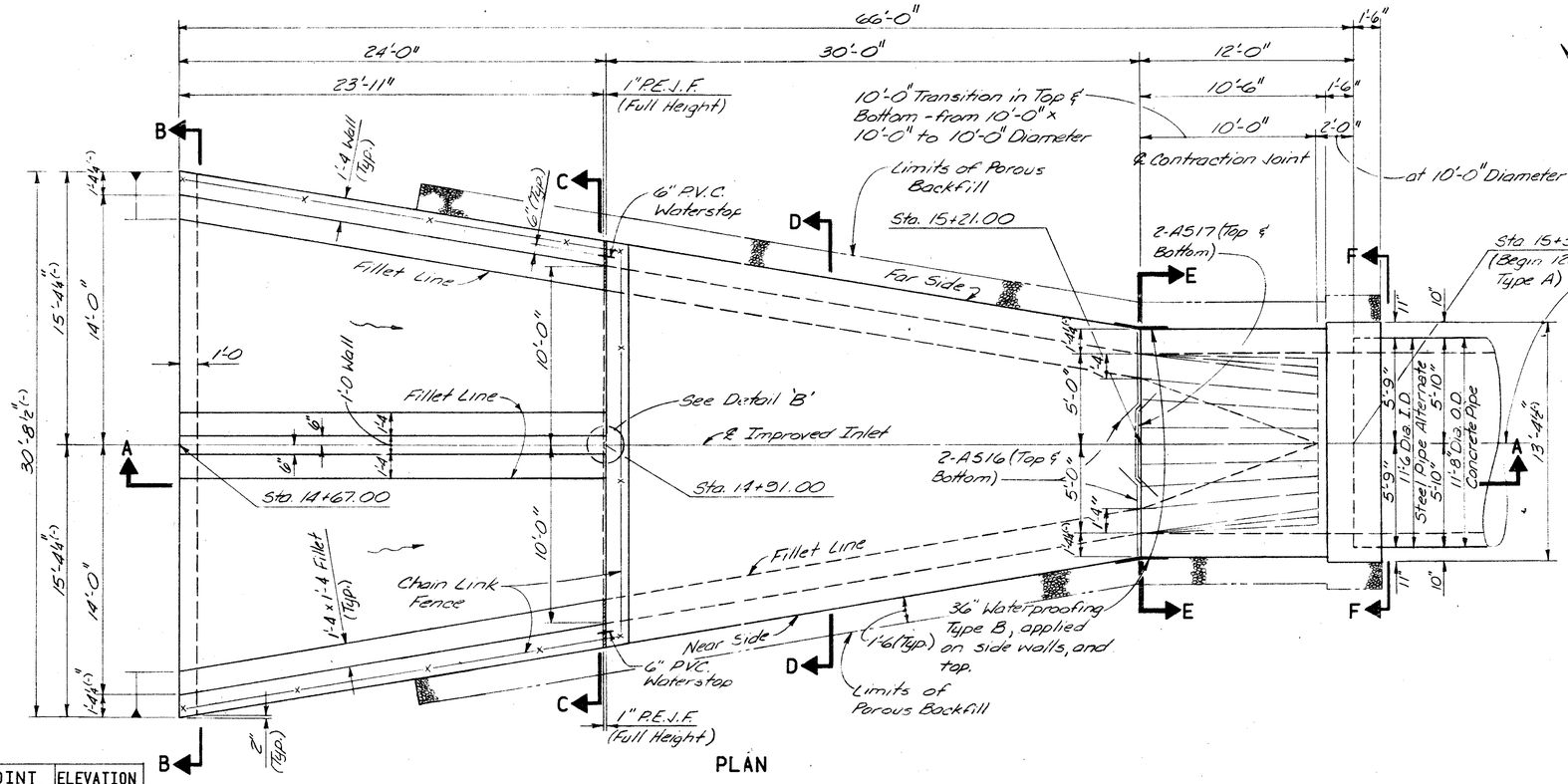
ESTIMATED QUANTITIES

Item No.	Description	Quantity	Unit
603	21" Conduit, Type A, 706.01, 706.02, 706.08: or 707.03, (0.109)	133	Lin. Ft.
602	Concrete Masonry	0.92	Cu. Yd.
601	Riprap, Using 6" Reinforced Concrete Slab	3.0	Sq. Yd.
	Quantities Carried to Sheet No. 126.		

(6-5)
CONDUIT TYPE 'A'
STA. 823+17 TO STA. 824+50
RAMP 'F' RT.

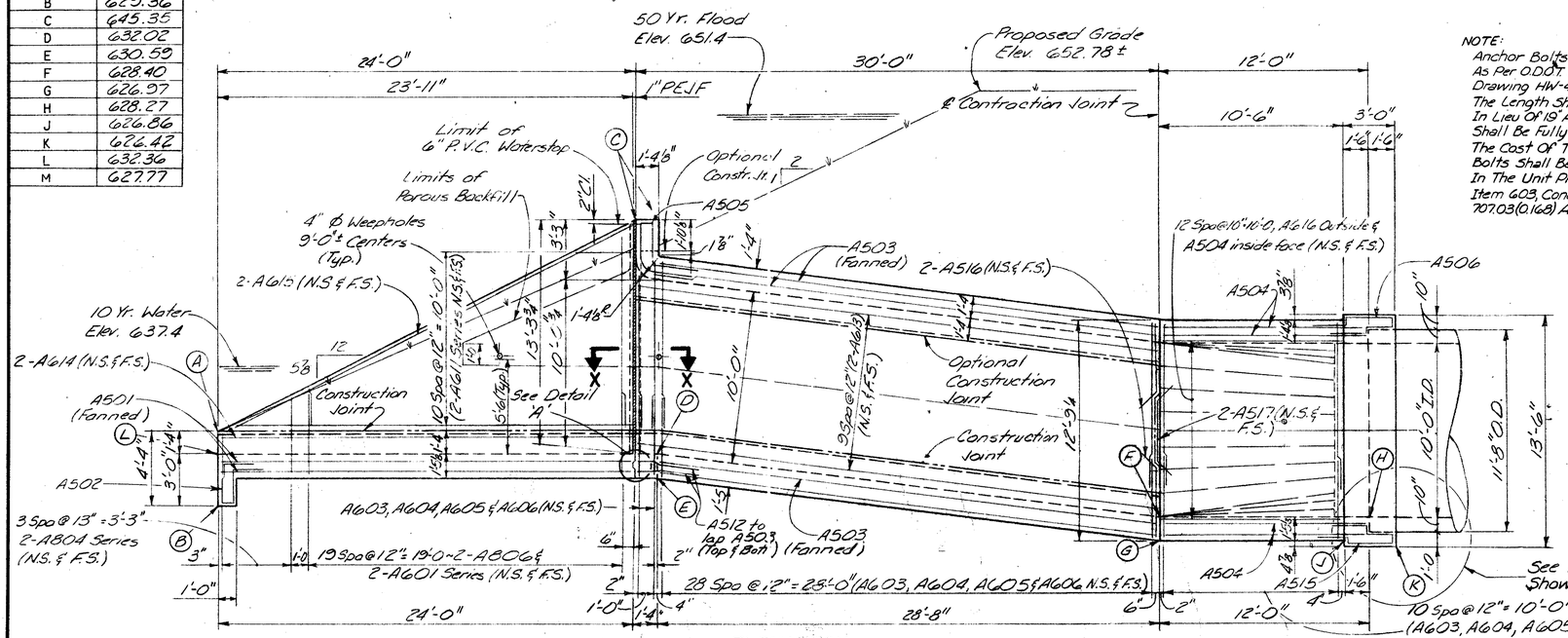
Calc. By: F.D.H. Date: 3/28/85
Chkd. By: J.M.G. Date: 4/1/85

BEL-7-14.17 | OHIO | FHWA REGION 5 | 394 / 663



PLAN

POINT	ELEVATION
A	633.69
B	629.36
C	645.35
D	632.02
E	630.59
F	628.40
G	626.97
H	628.27
J	626.86
K	626.42
L	632.36
M	627.77



ELEVATION

ITEM	TOTAL	UNIT	DESCRIPTION
			IMPROVED INLET GENERAL SUMMARY
503	Lump		Cofferdams, Cribs and Sheeting
503	547	Cu. Yd.	Unclassified Excavation
511	190	Cu. Yd.	Class 'C' Concrete; Improved Inlet
512	13	Sq. Yd.	Type 'B' Waterproofing
516	37	Sq. Ft.	1" Preformed Expansion Joint Filler
516	26	Lin. Ft.	6" PVC Waterstop, as per plan
518	36	Cu. Yd.	Porous Backfill
509	26,789	Lb.	Reinforcing Steel, Grade 60
607	75	Lin. Ft.	Chain Link Fence, Type CL, As Per Plan

DESIGN NOTES:
THE INLET AND OUTLET DETAILS OF THIS CULVERT CONFORM TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1983, INCLUDING THE 1984 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

CONCRETE CLASS C : COMPRESSIVE STRENGTH 4000 P.S.I,

REINFORCING STEEL: ASTM A615, A616, A617-GRADE 60 MINIMUM YIELD STRENGTH 60000 P.S.I.

REINFORCING STEEL SPLICES: ALL REINFORCING STEEL SPLICES SHALL BE IN ACCORDANCE WITH ITEM 509.08, UNLESS SHOWN OTHERWISE. ALL SPLICES SHALL BE MADE BY OVERLAPPING THE ENDS OF THE BARS NOT LESS THAN SHOWN IN THE FOLLOWING TABLE:

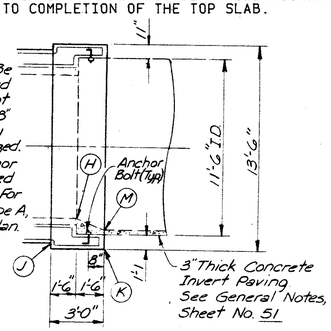
BAR SIZE	LAP LENGTH
#4	1'-4"
#5	1'-8"
#6	2'-0"
#7	2'-6"
#8	3'-3"

THE RETAINING WALL FOOTINGS AT THE OUTLET ARE DESIGNED TO PRODUCE A MAXIMUM BEARING PRESSURE OF 2 TONS PER SQUARE FOOT. BOTTOM SLABS AT THE INLET ARE DESIGNED TO PRODUCE A MAXIMUM BEARING PRESSURE OF 1.5 TONS PER SQUARE FOOT.

PVC WATERSTOP: THE PVC WATERSTOP SHALL BE A WATER SEALS "FLEX-BULB", OR SAF-T-GRIP "SS11" AND "SS14", OR AN APPROVED EQUAL, MEETING THE CORPS OF ENGINEERS SPECIFICATIONS FOR POLYVINYL CHLORIDE WATERSTOPS (NO. CRD-C572-661).

BACKFILL: SHALL NOT BE PLACED HIGHER THAN 4'-0" ABOVE FLOW LINE PRIOR TO COMPLETION OF THE TOP SLAB.

NOTE:
Anchor Bolts Shall Be As Per ODOT Standard Drawing HW-4A Except The Length Shall Be 8" In Lieu Of 18" And They Shall Be Fully Galvanized. The Cost Of The Anchor Bolts Shall Be Included In The Unit Price Bid For Item 603, Conduit, Type A, 707.03(0.168) As Per Plan.



DETAIL 'A'
138" Structural Plate Corrugated Steel Pipe Alternate

N.S. - denotes Near Side
F.S. - denotes Far Side
P.E.J.F. - denotes Preformed Expansion Joint Filler

For Pinch Run Plans, Profile and Cross Sections, See Roadway Sheets 380 Thru 389.

For Chain Link Fence Post Detail, see sheet 3/8

For 6" P.V.C. Waterstop Details see sheet 6/8

For Section X-X, see sheet 6/8

For Detail 'A' & Detail 'B' see sheet 3/8

For Sections A-A, B-B, C-C & D-D see sheet 2/8

For Sections E-E & F-F, see sheet 3/8

For Contraction Joint Details, see sheet 3/8

For Outlet Details see sheets 4/8 thru 6/8

Sheet 1/8

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

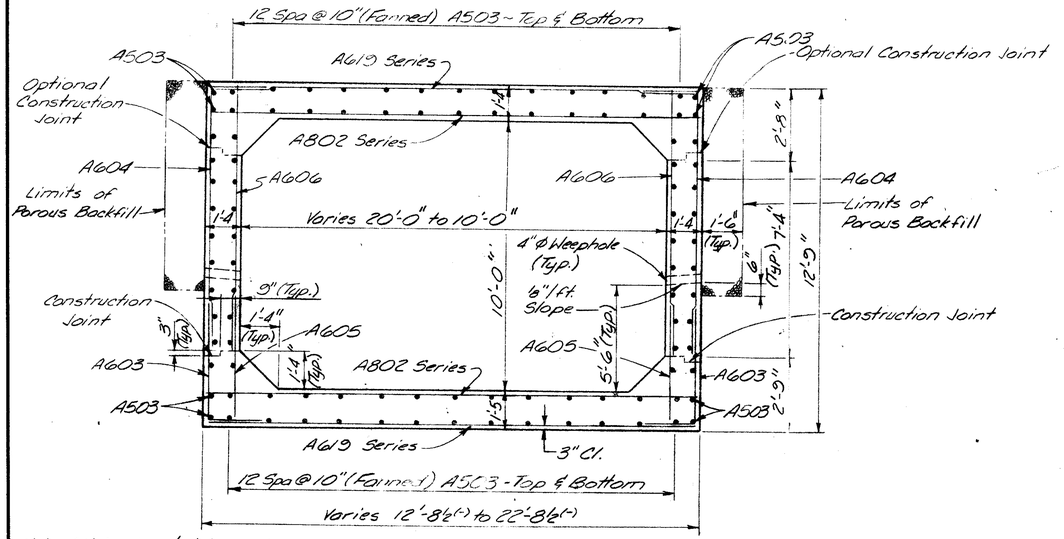
IMPROVED INLET DETAILS
RELOCATED PINCH RUN

BELMONT COUNTY — BELLAIRE, OHIO

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMG	WEQ	4/85	

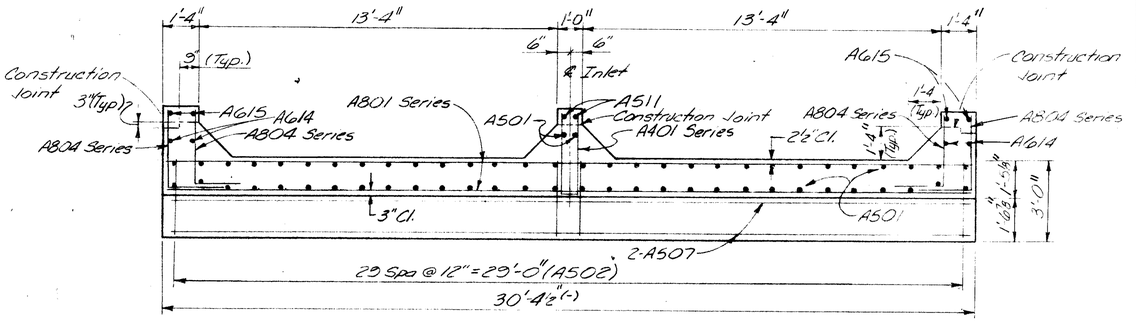
W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

Note: Dimensioning normal to top and bottom slab.



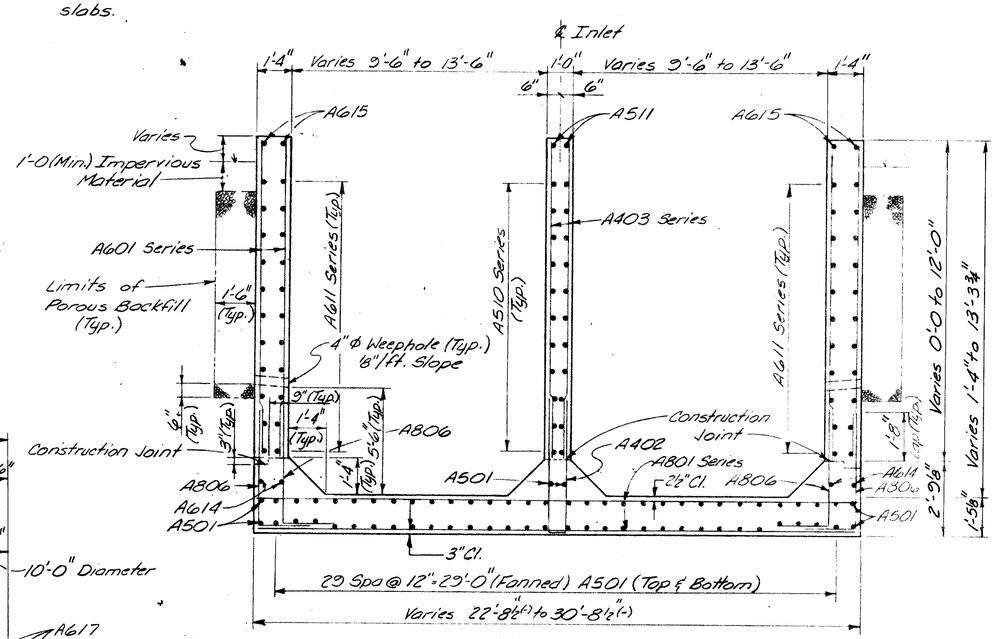
Note: All horizontal bars in side walls are A613 unless noted otherwise.

SECTION D-D

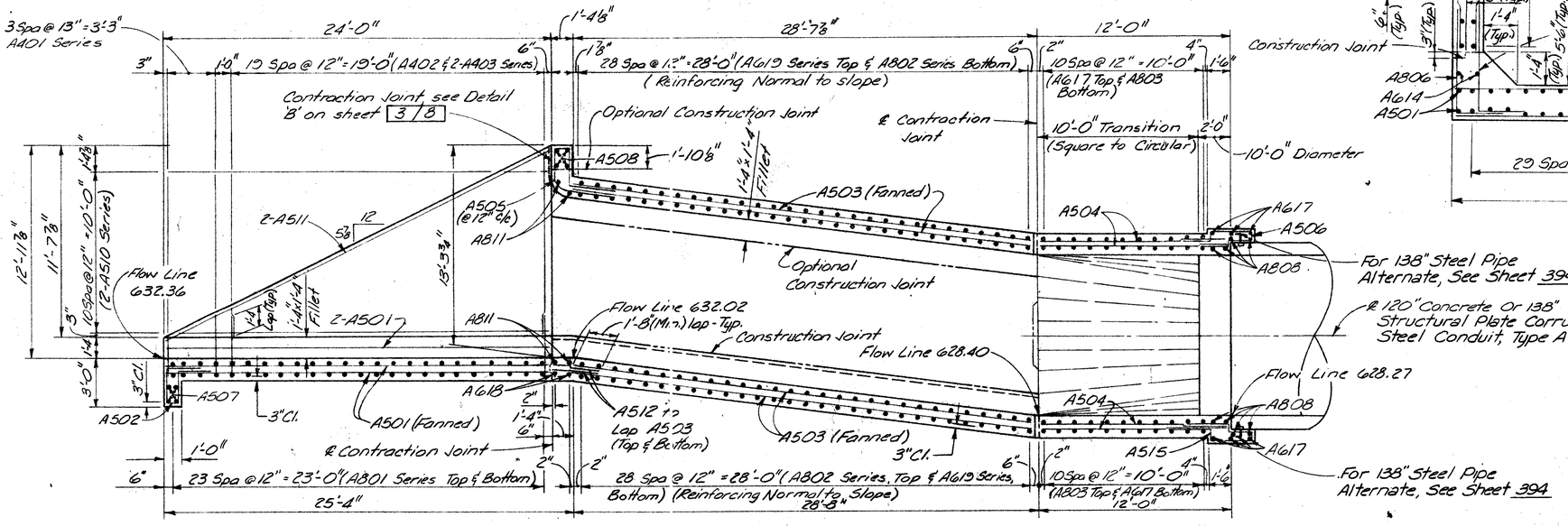


SECTION B-B

Note: Wall and slab thicknesses are normal to walls and slabs.



SECTION C-C



SECTION A-A

Sheet 2 8

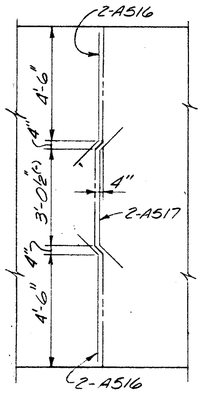
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

IMPROVED INLET DETAILS

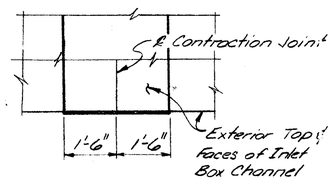
RELOCATED PINCH RUN

BELMONT COUNTY — BELLAIRE, OHIO

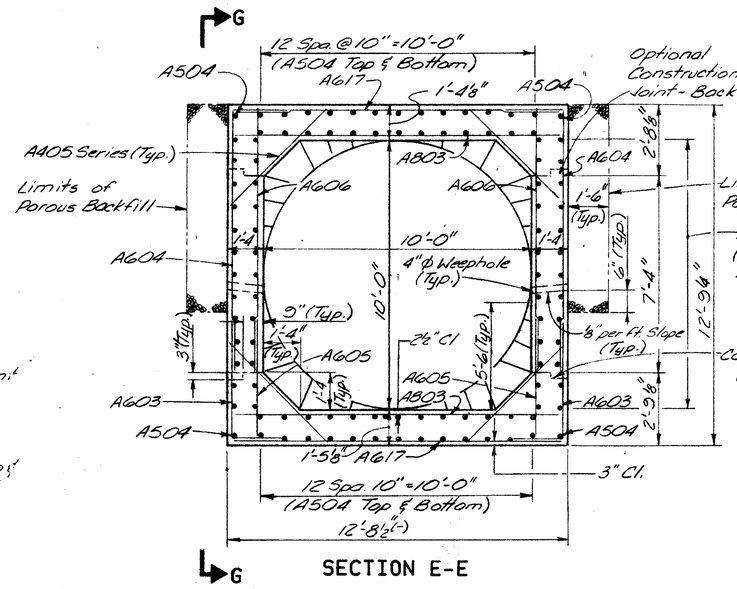
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JWG	WGQ	9/35	

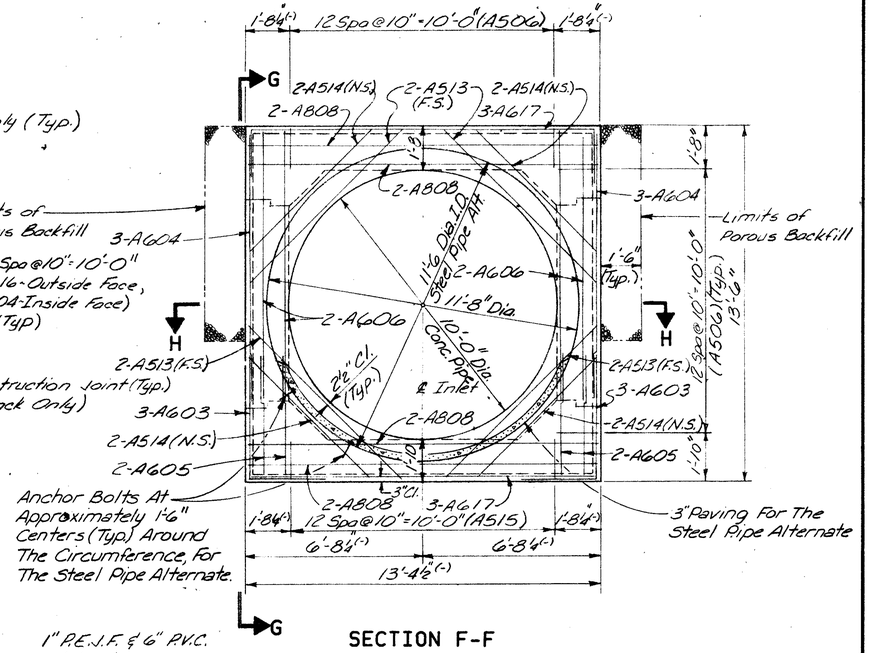


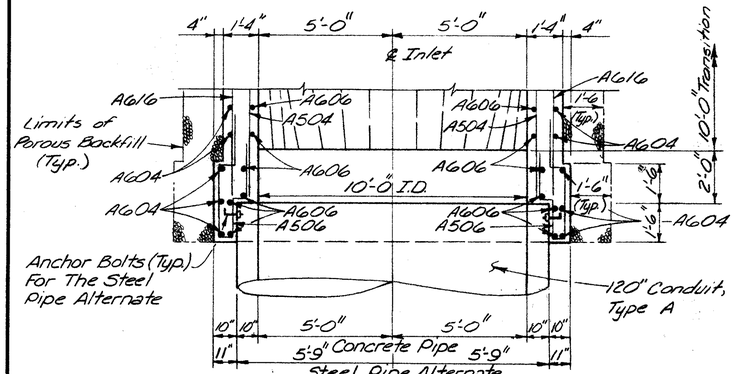
CONTRACTION JOINT



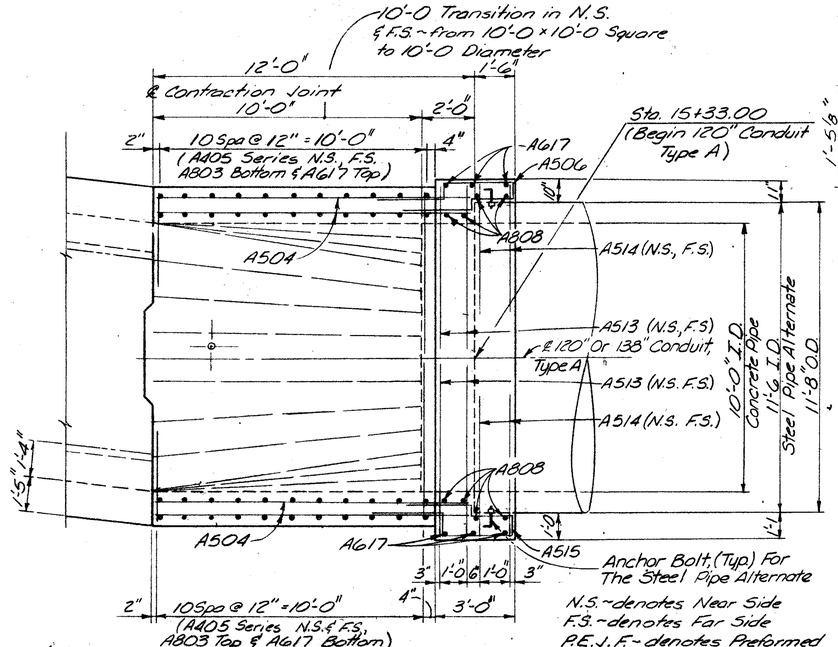
TYPE B WATERPROOFING DETAILS





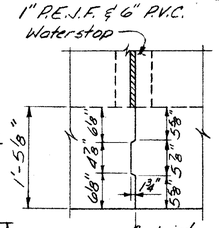


SECTION H-H

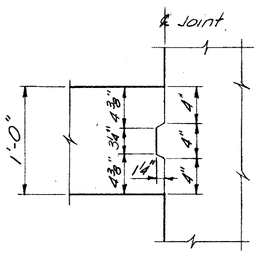


ELEVATION G-G

N.S. - denotes Near Side
F.S. - denotes Far Side
P.E.J.F. - denotes Preformed Expansion Joint Filler

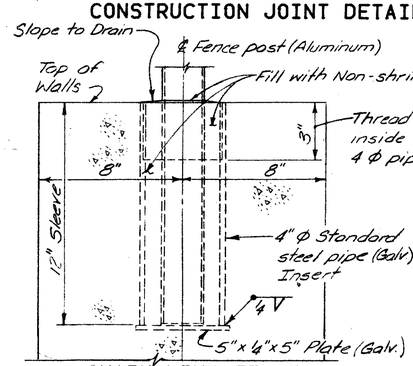


DETAIL 'A'



DETAIL 'B'

CONSTRUCTION JOINT DETAILS



CHAIN LINK FENCE POST DETAIL

Payment for fence inserts to be included with Item 607 for payment.

Sheet 3/8

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

IMPROVED INLET DETAILS.

RELOCATED PINCH RUN

BELMONT COUNTY — BELLAIRE, OHIO

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMG	WDA	4/85	

Calc. By: F.D.H Date: 3/28/85
Chkd. By: J.M.G. Date: 4/1/85

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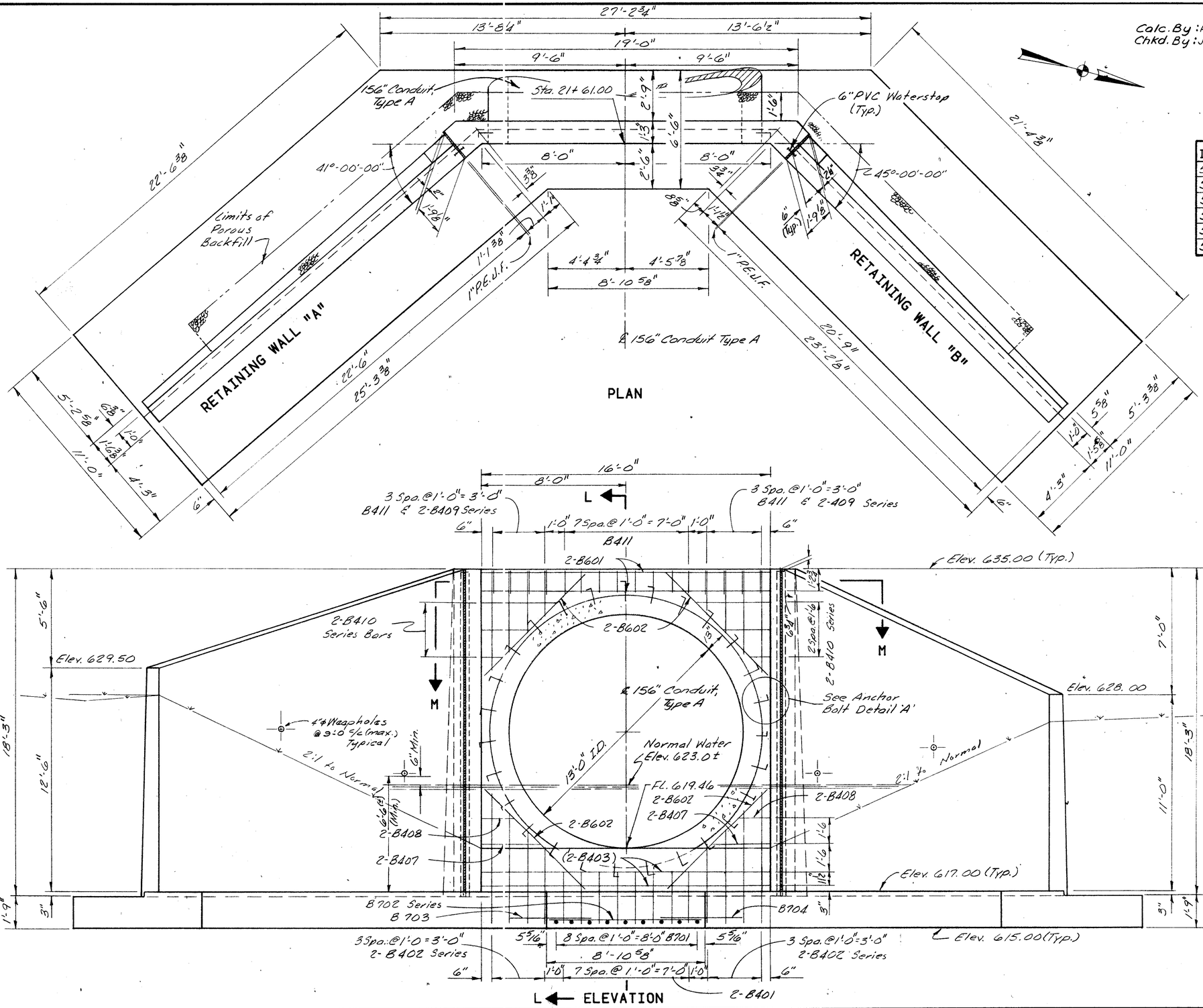

IMPROVED OUTLET (GENERAL SUMMARY)

ITEM	TOTAL	UNIT	DESCRIPTION
503	225	Cu. Yd.	Unclassified Excavation, Incl. Shale
511	84	Cu. Yd.	Class C Concrete, Outlet
516	50	Sq. Ft.	1" Preformed Expansion Joint Filler
516	36	Lin. Ft.	6" P.V.C. Waterstop, as per plan
518	18	Cu. Yd.	Porous Backfill
509	9,508	Lb.	Reinforcing Steel, Grade 60

For Pinch Run Plans, Profile and Cross Sections, see roadway plan sheets 380 thru 389

P.E.J.F. - denotes Preformed Expansion Joint Filler

For Design Notes, see sheet 1/8

For Anchor Bolt Detail 'A', see sheet 6/8

For 6" P.V.C. Waterstop Detail, see sheet 6/8

For Footing Plan see sheet 5/8

For Retaining Walls "A" and "B" Elevations, see sheet 5/8

For Sections U-U, K-K, L-L and M-M, see sheet 6/8

Sheet 4/8

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

IMPROVED OUTLET DETAILS.
RELOCATED PINCH RUN

BELMONT COUNTY — BELLAIRE, OHIO

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH			JMG	JMG	6/85	

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	FHWA REGION 5	663

RETAINING WALL "A"
FOOTING PLAN

RETAINING WALL "B"
FOOTING PLAN

RETAINING WALL "A" ELEVATION

RETAINING WALL "B" ELEVATION

Note.
N.S. - Denotes Near Side
F.S. - Denotes Far Side
P.E.J.F. - Denotes Preformed Expansion Joint Filler

For Sections J-J, K-K, L-L and M-M, see sheet 6/8

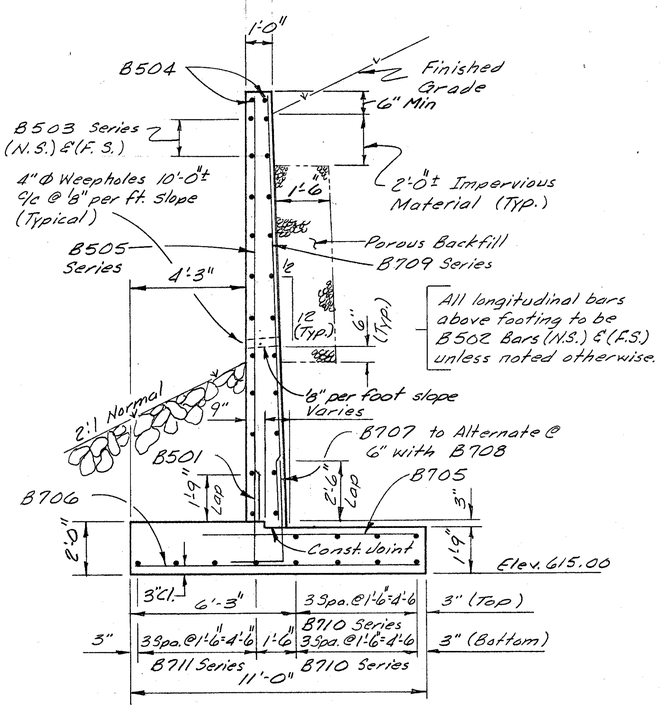
Sheet 5/8

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

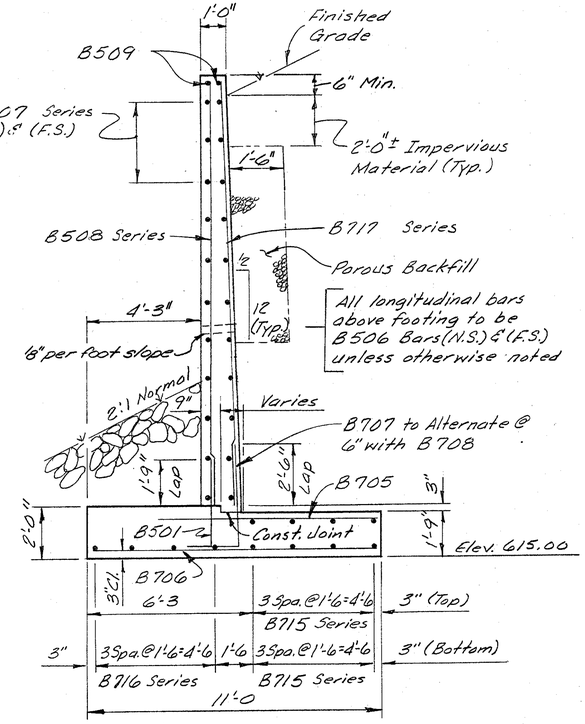
IMPROVED OUTLET DETAILS
RELOCATED PINCH RUN

BELMONT COUNTY — BELLAIRE, OHIO

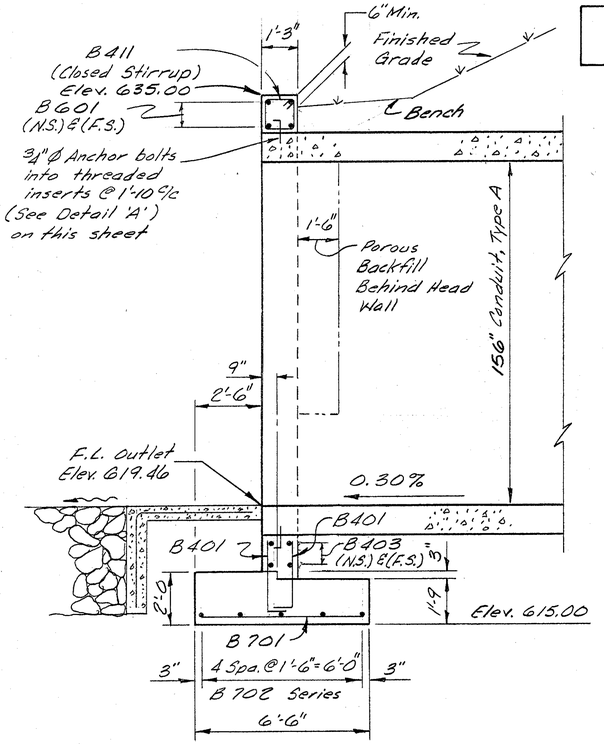
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
			H.J.S.	JMG	6/85	



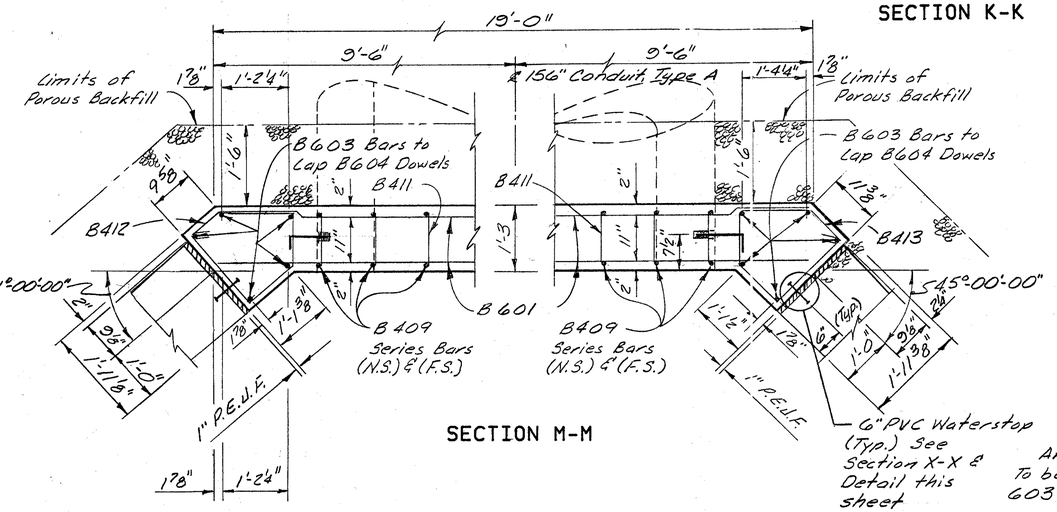
SECTION J-J



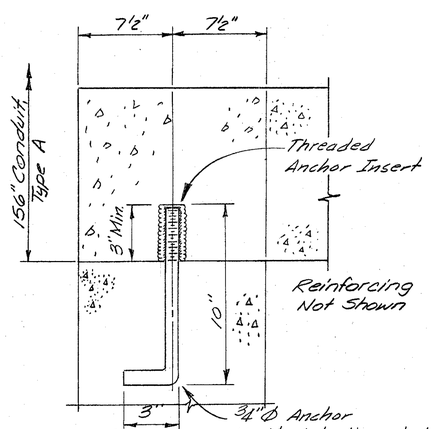
SECTION K-K



SECTION L-L



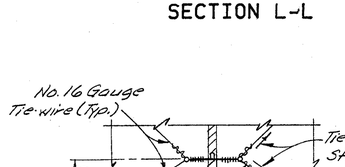
SECTION M-M



Anchor Bolts & Inserts To be Included with Item 603 for payment.

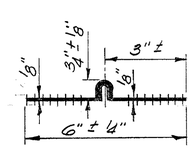
DETAIL 'A'

Note: Bolts and inserts to be stainless steel.



SECTION X-X

Construction Procedures:
For the first pour, the waterstop should be securely in place by the use of split forms and tie-wires. For the second pour, secure the free end of the waterstop in proper position with tie-wires. Alternate methods, as approved by the Engineer, may be used to insure the correct positioning of the waterstop.



Waterstop: A 6" PVC waterstop shall be centered on the expansion joint, and be capable of accommodating 1½" of joint movement.

WATERSTOP DETAIL

Sheet 6 / 8

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

IMPROVED OUTLET DETAILS
RELOCATED PINCH RUN

BELMONT COUNTY — BELLAIRE, OHIO

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
CWD	CWD		HJS	JmG	4/85	

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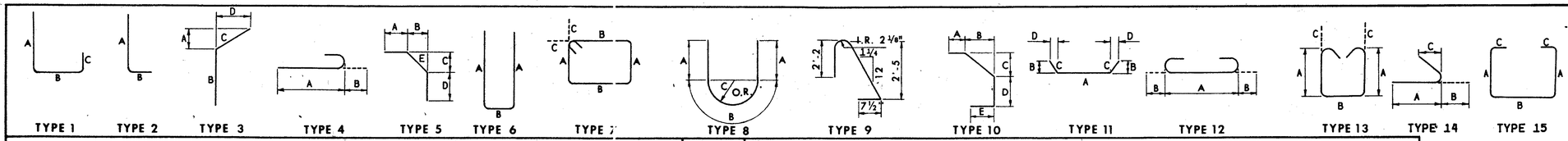
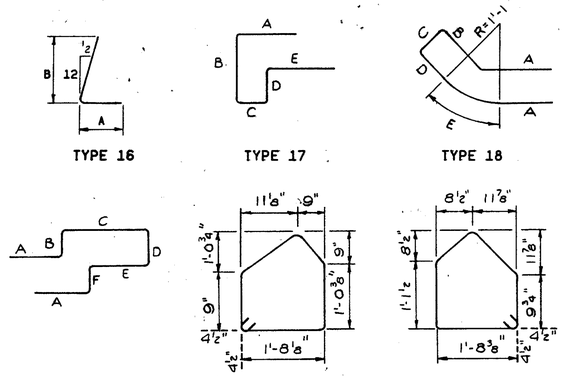


IMPROVED INLET

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
A801	STR.	Lengths Vary By 4⅛"(-)						2 Series of 24	22'-5" TO 30'-3"	3375
A802	STR	Lengths Vary By 4"(+)						2 Series of 29	12'-6" TO 21'-11"	2665
A803	STR							22	12'-4"	724
A804	2	2'-5½" TO 4'-0½"	3'-3"	Lengths Vary By 6⅝"(+)				4 Series of 4	5'-6" TO 7'-1"	269
A806	2	4'-2½"	3'-3"					80	7'-3"	1549
A808	STR							8	13'-0"	278
A811	STR							4	22'-4"	239
A601	STR.	Lengths Vary By 5¹³⁄₁₆"(-)						4 Series of 20	2'-0" TO 11'-3"	796
A603	2	4'-11"	2'-8"					90	7'-5"	1003
A604	2	9'-10"	2'-8"					90	12'-4"	1667
A605	STR							92	4'-11"	679
A606	STR							92	9'-10"	1359
A611	STR	Lengths Vary By 2'-0¹⁵⁄₁₆"(+)						4 Series of 11	2'-2" TO 22'-9"	823
A613	STR							40	29'-8"	1782
A614	STR							4	23'-6"	141
A615	STR							4	26'-0"	156
A616	STR							26	11'-8"	456
A617	STR							28	12'-4"	519
A618	STR							2	22'-4"	67
A619	STR	Lengths Vary By 4"(+)						2 Series of 29	12'-6" TO 21'-11"	1500

IMPROVED INLET

MARK	TYPE	A	B	C	D	E	F	NUMBER	TOTAL	LENGTH	WEIGHT
A501	STR								66	23'-6"	1618
A502	17	2'-0½"	2'-5"	8"	1'-8½"	2'-0"			30	8'-4"	261
A503	STR								60	28'-6"	1784
A504	STR								82	11'-8"	998
A505	18	1'-10"	1'-11⅜"	1'-0"	1'-10¾"	1'-1"			23	9'-4"	224
A506	19	1'-8"	5¼"	2'-8"	6"	1'-6⅝"	9⅝"		39	8'-6"	346
A507	STR								4	30'-4"	127
A508	STR								4	22'-4"	93
A510	STR	Lengths Vary By 2'-0¹¹⁄₁₆"(+)							2 Series of 11	2'-2" TO 22'-9"	286
A511	STR								2	26'-0"	54
A512	3	1'-1⅞"	2'-4"	1'-2"	1¾"				30	3'-6"	110
A513	STR								8	8'-0"	67
A514	STR								8	6'-4"	53
A515	19	1'-8"	64"	2'-8"	7"	1'-6⅝"	9⅝"		13	8'-8"	118
A516	3	7⅛"	4'-4"	10"	7⅛"				16	5'-2"	86
A517	11	3'-0"	7⅛"	10"	7⅛"				8	4'-8"	39
A401	6	2'-4½" TO 3'-11½"	8"	Lengths Vary By 1'-0⅝"(+)					1 Series of 4	5'-3" TO 8'-5"	18
A402	6	3'-9½"	8"						20	8'-1"	108
A403	STR	Lengths Vary By 5¹³⁄₁₆"(+)							2 Series of 20	2'-0" TO 11'-3"	177
A405	STR	Lengths Vary By 2½"							4 Series of 11	4'-11" TO 7'-0"	175



NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

Sheet 7 | 8

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

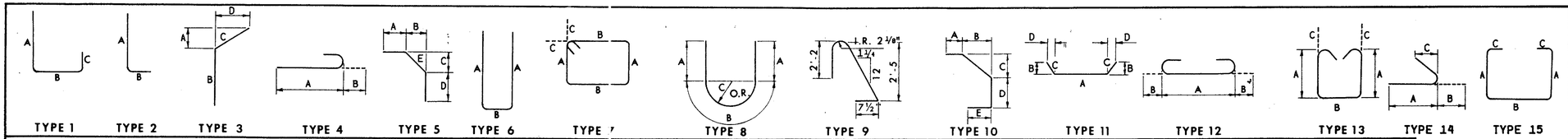
REINFORCING BAR SCHEDULE

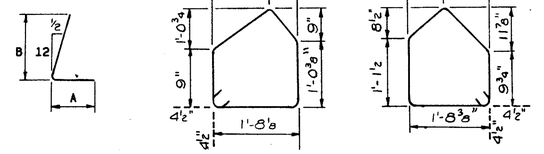
IMPROVED INLET DETAILS
RELOCATED PINCH RUN

BELMONT COUNTY — BELLAIRE, OHIO

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		JMG	WEQ	6/95	

BEL-7-14.17 | OHIO | FHWA REGION 5 | 401 / 663





IMPROVED OUTLET

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
B701	STR							9	6'-2"	114
B702	STR	Lengths Vary By 1'-2¼						1 Series of 5	9'-0" TO 13'-9"	116
B703	3	2'-0⅜	2'-8"	2'-8"	1'-9"			5	5'-3"	54
B704	3	1'-10⅝	2'-8"	2'-8"	1'-10⅝			5	5'-3"	54
B705	STR							88	8'-0"	1439
B706	STR							45	10'-6"	966
B707	16	1'-2"	4'-0"					44	5'-0"	450
B708	16	1'-2"	6'-9"					42	7'-9"	665
B709	STR	Lengths Vary By 2⅞"(+)						1 Series of 23	12'-8" TO 18'-1"	723
B710	STR	Lengths Vary By 1'-8⅝ (+)						2 Series of 4	22'-5" TO 27'-7"	409
B711	STR	Lengths Vary By 6⅝" (+)						1 Series of 4	25'-1" TO 26'-9"	212
B712	STR							4	8'-6"	70
B713	STR	Lengths Vary By 1'-9"						1 Series of 4	2'-6" TO 7'-9"	42
B714	STR	Lengths Vary By 10½"						1 Series of 5	3'-6" TO 7'-0"	54
B715	STR	Lengths Vary By 1'-6"						2 Series of 4	21'-2" TO 25'-8"	383
B716	STR	Lengths Vary By 7⅝" (+)						1 Series of 4	23'-1" TO 25'-0"	197
B717	STR	Lengths Vary By 4⅛" (+)						1 Series of 21	11'-1" TO 18'-1"	626
B718	STR	Lengths Vary By 2'-0"						1 Series of 3	3'-0" TO 7'-0"	31
B719	STR	Lengths Vary By 1'-0"						1 Series of 4	4'-0" TO 7'-0"	45
B601	STR							4	18'-7"	112
B602	STR							8	9'-0"	108
B603	STR							10	17'-10"	268
B604	2	4'-3"	1'-0"					10	5'-1"	76

IMPROVED OUTLET

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
B501	2	3'-5"	10"					44	4'-2"	191
B502	STR							18	22'-2"	416
B503	STR	Lengths Vary By 6'-1"						2 Series of 3	16'-6" TO 41'-4"	65
B504	STR							2	22'-10"	48
B505	STR	Lengths Vary By 2'8" (+)						1 Series of 23	12'-5" TO 17'-10"	363
B506	STR							16	20'-5"	341
B507	STR	Lengths Vary By 4'-5¼"						2 Series of 4	3'-9" TO 17'-1"	87
B508	STR	Lengths Vary By 4'8" (+)						1 Series of 21	10'-10" TO 17'-10"	313
B509	STR							2	21'-7"	45
B401	2	2'-11½	8"					16	3'-7"	38
B402	2	4'-4" TO 7'-4"	8"	Lengths Vary By 11"(+)				4 Series of 4	4'-11" TO 7'-9"	68
B403	STR							4	18'-7"	50
B407	STR							4	4'-9"	13
B408	STR							4	3'-0"	8
B409	STR	Lengths Vary By 10⅝"(+)						4 Series of 4	2'-5" TO 5'-1"	40
B410	STR	Lengths Vary By 1'-8"						4 Series of 3	2'-4" TO 5'-8"	32
B411	7	1'-0"	1'-0"	4½"				16	4'-6"	48
B412	20	See Detail						15	6'-3"	63
B413	21	See Detail						15	6'-6"	65

NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

Sheet 8 | 8

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

REINFORCING BAR SCHEDULE

IMPROVED OUTLET DETAILS
RELOCATED PINCH RUN

BELMONT COUNTY — BELLAIRE, OHIO

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		JMG	1/15	9/65	

GENERAL NOTES

Calc.By:Wa.C. Date:2-26-85
Chkd.By:Get. Date:2-27-85

FHWA REGION	STATE	PROJECT	
5	OHIO		

402/663

BEL-7-14.17

SEWER LINES

UNRECORDED SANITARY CONNECTIONS

ANY UNRECORDED ACTIVE CONNECTION TO A SANITARY SEWER, INCLUDING SERVICE CONNECTION, ENCOUNTERED DURING CONSTRUCTION SHALL BE RECONNECTED TO THE SEWER AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE: (URBAN)

ITEM 603, 4" CONDUIT, TYPE C, 706.01, 706.02, OR 706.08 WITH JOINTS AS PER 706.11 OR 706.12 . . . . . 200 LIN. FT.

ITEM 603, 6" CONDUIT, TYPE C, 706.01, 706.02, OR 706.08 WITH JOINTS AS PER 706.11 OR 706.12 . . . . . 200 LIN. FT.

ITEM 603, 8" CONDUIT, TYPE C, 706.01, 706.02, OR 706.08 WITH JOINTS AS PER 706.11 OR 706.12 . . . . . 100 LIN. FT.

ITEM 603, 12" CONDUIT, TYPE C, 706.01, 706.02, OR 706.08 WITH JOINTS AS PER 706.11 OR 706.12 . . . . . 100 LIN. FT.

NONE OF THE ABOVE MATERIALS SHALL BE ORDERED BY THE CONTRACTOR UNTIL AUTHORIZED BY THE ENGINEER.

ITEM 603 - FORCE MAIN WITH FITTINGS, AS PER PLAN

UNDER THIS ITEM, THE CONTRACTOR SHALL FURNISH AND INSTALL NEW 4" OR 6" FORCE MAIN AS APPLICABLE WHERE INDICATED, INCLUDING EXCAVATION, BACKFILL, REACTION BACKING, SHEETING NOT LEFT IN PLACE, AND ALL NECESSARY BENDS, CONNECTIONS TO EXISTING, FITTINGS AND APPURTENANCES AS SHOWN IN THE PLANS.

FORCE MAIN SHALL BE "BLUE BRUTE", AS MANUFACTURERED BY THE JOHNS-MANSVILLE MANUFACTURING COMPANY, INCORPORATED OR APPROVED EQUAL AND MEET THE REQUIREMENTS OF AWWA C900. PIPE SHALL ALSO BE CLASS 150 AND MEET THE REQUIREMENTS OF DR-18. THE BELL SHALL CONSIST OF AN INTEGRAL WALL SECTION WITH A SOLID CROSS SECTION ELASTOMETIC RING WHICH SHALL BE IN ACCORDANCE WITH ASTM D 1869 AND E 477.

PIPE SHALL BE PRESSURE TESTED IN ACCORDANCE WITH ASTM D 1599 AND IMPACT TESTED IN ACCORDANCE WITH ASTM D 2444.

PAYMENT FOR FORCE MAIN AS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 603, 4" OR 6" FORCE MAIN WITH FITTINGS, AS PER PLAN.

- FORCE MAIN LOWERED OR OFFSET

THE CONTRACTOR SHALL LOWER OR OFFSET EXISTING 6" FORCE MAIN WHERE INDICATED IN REASONABLY CLOSE CONFORMITY TO LINES AND GRADES ON THE PLANS OR ESTABLISHED BY THE ENGINEER, INCLUDING EXCAVATION, BACKFILL, REACTION BACKING, SHEETING NOT LEFT IN PLACE, AND ALL NECESSARY BENDS, CONNECTIONS TO EXISTING, FITTINGS AND APPURTENANCES.

FORCE MAIN SHALL BE "BLUE BRUTE", AS MANUFACTURERED BY THE JOHNS-MANSVILLE MANUFACTURING COMPANY, INCORPORATED OR APPROVED EQUAL, AND MEET THE REQUIREMENTS OF AWWA C900. PIPE SHALL ALSO BE CLASS 150 AND MEET THE REQUIREMENTS OF DR-18. THE BELL SHALL CONSIST OF AN INTEGRAL WALL SECTION WITH A SOLID CROSS SECTION ELASTOMETRIC RING WHICH SHALL BE IN ACCORDANCE WITH ASTM D 1869 AND E 477.

PIPE SHALL BE PRESSURE TESTED IN ACCORDANCE WITH ASTM D 1599 AND IMPACT TESTED IN ACCORDANCE WITH ASTM D 2444.

PAYMENT FOR FORCE MAN AS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT FRICE BID FOR ITEM 603, 6" FORCE MAIN WITH FITTINGS, AS PER PLAN.

FORCE MAIN CLEANOUT

UNDER THIS ITEM SPECIAL, THE CONTRACTOR SHALL FURNISH AND INSTALL NEW FORCE MAIN CLEANOUTS WHERE INDICATED, INCLUDING EXCAVATION, BACKFILL, SHEETING NOT LEFT IN PLACE, AND ALL NECESSARY PIPE, BENDS, FITTINGS AND APPURTENANCES AS SHOWN IN THE PLANS.

FORCE MAIN CLEANOUT SHALL BE AS SHOWN ON THE MISCELLANEOUS DETAILS, SEE SHEET NO. 424

FORCE MAIN CLEANOUTS SHALL BE CONSTRUCTED USING CLASS 22 CAST IRON PIPE OR CLASS 52 DUCTILE IRON PIPE. BENDS SHALL BE EQUIPPED WITH LUGS TO ACCOMMODATE THE USE OF RODS AS SHOWN ON THE DETAIL.

PAYMENT FOR FORCE MAIN CLEANOUTS AS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM SPECIAL, FORCE MAIN CLEANOUT.

PUMP STATION

GENERAL

UNDER THIS ITEM SPECIAL, PUMP STATION, THE CONTRACTOR SHALL FURNISH A 4 LEVEL CAST-IN-PLACE REINFORCED CONCRETE SEWAGE PUMPING STATION WITH WET WELL AT THE LOCATION SHOWN ON THE PLANS. THE STATION SHALL BE COMPLETE WITH SEWAGE PUMPS, MOTORS, PIPING, VALVES, AUTOMATIC PUMP CONTROLS, WATER SEAL UNIT, COMMINUTOR, MONITORING SYSTEM AND ALL NECESSARY APPURTENANCES AS SHOWN ON THE PLANS AND/OR AS SPECIFIED HEREIN.

THE CONTRACTOR SHALL BE REQUIRED TO FURNISH SHOP AND/OR SETTING OR ERECTION DRAWINGS FOR ALL SHOP FABRICATED MATERIALS WHICH IN THE JUDGEMENT OF THE ENGINEER REQUIRES SUCH DRAWINGS TO INSURE SATISFACTORY PERFORMANCE. THREE (3) SETS OF SHOP DRAWINGS ARE REQUIRED FOR ALL EQUIPMENT AND SHALL BE SUBMITTED FOR APPROVAL TO O.D.O.T. BUREAU OF LOCATION AND DESIGN PRIOR TO INSTALLATION.

CONTRACTOR FURNISHED DETAIL DRAWINGS SHALL INCLUDE, BUT ARE NOT LIMITED TO, STURCTURAL METALS TO BE INCORPORATED IN THE CONCRETE WORK; ELECTRICAL, LIGHTING AND POTABLE WATER SYSTEMS AND EQUIPMENT AND PIPING PEDESTALS. THE CONCRETE WORK SHALL BE FORMED TO ACCOMODATE THESE ITEMS IN ACCORDANCE WITH APPROVED DETAIL DRAWINGS.

SITE REQUIREMENTS

GENERAL: CLEARING AND GRUBBING OF THE PUMP STATION SITE SHALL BE PERFORMED IN ACCORDANCE WITH ITEM 201.

EXCAVATION AND BACKFILL FOR THE PUMP STATION SHALL BE IN ACCORDANCE WITH ITEM 604. EMBANKMENT SHALL BE IN ACCORDANCE WITH ITEM 203.

CRUSHED AGGREGATE WALK SHALL BE AS SHOWN ON THE PLANS AND CONFORM TO THE REQUIREMENTS OF ITEM 608.

AGGREGATE DRIVE SHALL BE AS SHOWN ON THE PLANS.

UPON COMPLETION, THE SITE SHALL BE RESTORED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ITEM 659, SEEDING AND MULCHING.

FENCE: FENCE AND GATES AROUND THE PUMP STATION SITE SHALL BE TYPE CL AS SHOWN ON THE PLANS AND ON STANDARD DRAWING NO. F-1 AND BE IN ACCORDANCE WITH ITEM 607, FENCE. UPON COMPLETION AND ACCEPTANCE OF ALL WORK, THE CONTRACTOR SHALL TURN SIX (6) SETS OF KEYS OVER TO THE BELMONT COUNTY SEWER AUTHORITY NO. ONE.

SERVICE POLE AND YARD LIGHT: THE CONTRACTOR SHALL FURNISH AND INSTALL A SERVICE POLE AND YARD LIGHT WITH ALL REQUIRED WIRING, METER AND EQUIPMENT. THE SERVICE POLE SHALL MEET THE REQUIREMENTS OF ITEM 713.19 AND BE 35 FEET IN LENGTH. LOCATION OF THE SERVICE POLE WILL BE AS SHOWN ON THE PLANS. THE YARD LIGHT SHALL BE MOUNTED SO THAT THE BOTTOM OF THE FIXTURE IS 20 FEET ABOVE GRADE AND BE AN AREA LIGHTING TYPE V FIXTURE WITH AN 18" MOUNTING BRACKET OF 1 1/4" GALVANIZED PIPE AND ALL NECESSARY HARDWARE. THE FIXTURE SHALL CONSIST OF A DIE-CAST ALUMINUM HEAD DESIGNED TO CONFORM TO NEMA SPECIFICATIONS, A OPEN BOTTOM ACRYLIC REFRACTOR WITH CRIMP-ON REFLECTOR/REFRACTOR ASSEMBLY, AND A DUSK TO DAWN PHOTO-ELECTRIC CONTROL RECEPTACLE AND CELL MEETING UNDERWRITERS LABORATORY APPROVAL. THE UNIT SHALL BE RATED FOR OPERATION AT 120 VOLTS. THE LAMP SHALL BE CLEAR, HIGH PRESSURE SODIUM AND RATED AT 100 WATTS.

PUMP STATION

STRUCTURE

GENERAL: THE PUMP STATION STRUCTURE SHALL CONSIST OF A (4) FOUR STORY DRYWELL STRUCTURE WITH A WET WELL ATTACHED BY MEANS OF A COMMON WALL. THE STRUCTURE SHALL CONFORM TO THE DIMENSIONS AND CONFIGURATION AS SHOWN ON THE PLANS.

DEVIATIONS IN THE STRUCTURE REQUIRED FOR THE SUMP PIT AND COMMINUTOR SHALL BE DONE IN ACCORDANCE WITH THE DETAILS PREPARED FOR EACH IN THE PLANS. THE STRUCTURE FLOORS AND WALLS SHALL BE MONOLITHICALLY POURED AS A CAST-IN-PLACE STRUCTURE. THE FOUNDATION FOR THE STRUCTURE SHALL BE AS SHOWN ON THE PLANS. ALL CONCRETE MASONRY SHALL BE DONE IN ACCORDANCE WITH ITEM 602.

ALL CONCRETE SHALL BE CLASS "C" CONFORMING TO THE REQUIREMENTS OF ITEM 499 IN ACCORDANCE WITH ITEM 511. CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.

WATERPROOFING OF EXTERIOR, BELOW GRADE WALLS SHALL BE PERFORMED IN ACCORDANCE WITH ITEM 512 AND BE TYPE A WATERPROOFING.

WATERSTOPS SHALL BE USED IN ALL CONSTRUCTION AND EXPANSION JOINTS OF WATER RETAINING STRUCTURES. IN ADDITION, WATERSTOPS SHALL BE USED IN CONSTRUCTION JOINTS OF ALL WALLS OF OTHER STRUCTURES.

WATERSTOPS FOR HORIZONTAL CONSTRUCTION JOINTS SHALL BE PVC SERRATED TYPE WITHOUT CENTER BULB, NOT LESS THAN 6" WIDE AND 3/8" THICK AT CENTER (1/4" MIN. AT ENDS).

WATERSTOPS FOR VERTICAL CONSTRUCTION JOINTS SHALL BE PVC SERRATED TYPE WITHOUT CENTER BULB, NOT LESS THAN 6" WIDE AND 3/8" THICK AT CENTER (1/4" MIN. AT ENDS).

WATERSTOPS FOR EXPANSION JOINTS SHALL BE PVC SERRATED TYPE WITH CENTER BULB HAVING A MINIMUM INSIDE DIAMETER OF 3/4" (INCH), NOT LESS THAN 9" WIDE AND 3/8" THICK AT CENTER.

ALL JOINTS OF PVC WATERSTOPS SHALL BE SPLICED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. OVERLAP SPLICING OF PVC WATERSTOPS SHALL NOT BE PERMITTED. ALL SPLICES SHALL DEVELOP EFFECTIVE WATER-TIGHTNESS FULLY EQUAL TO THAT OF CONTINUOUS WATERSTOP.

STRUCTURAL STEEL AS REQUIRED IN THE PLANS SHALL BE IN ACCORDANCE WITH ITEM 513, ASTM A-36 STRUCTURAL STEEL AND SHALL BE LOCATED AS SHOWN ON THE DRAWINGS.

REINFORCING STEEL AS REQUIRED IN THE PLANS SHALL BE IN ACCORDANCE WITH ITEM 509, REINFORCING STEEL (EXCEPT SECTIONS 509.11 AND 509.12) AND SHALL BE GRADE 60.

THE INTERIOR FINISH OF WALLS AND CEILINGS BELOW GRADE AND CEILING OF SUPERSTRUCTURE OF THE DRY WELL SHALL BE THOROUGHLY CLEANED AND PREPARED IN ACCORDANCE WITH THE COATING MANUFACTURER'S RECOMMENDATIONS. A TWO (2) COAT SYSTEM OF THE POLYAMIDE CURE EPOXY RESIN COATING SHALL BE APPLIED TO ALL CONCRETE SURFACES. THE PRIME COAT SHALL HAVE A DFT OF 6 MILS. THE FINISH COAT SHALL BE A COLOR SELECTED BY THE BELMONT COUNTY SEWER AUTHORITY NO. ONE AND HAVE A DFT OF 4 MILS. THE TOTAL DFT OF THE 2 COAT SYSTEM SHALL BE 10 MILS.

ALL FLOORS SUBJECT TO TRAFFIC SHALL HAVE A SMOOTH HARD SURFACE OBTAINED BY FIRST SCREEDING AND REMOVING ALL EXCESS LAITANCE

DRAWN	CK'D.	CORR.	BK.CK'D.	ECO.
MW 12/84	GET 12/84	MW 2/85	GET 2/85	Revised Gate Valves 2/11/85

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

SANITARY GENERAL NOTES

N29493

GENERAL NOTES

AND THEN GIVING THE CONCRETE A PRELIMINARY WOOD FLOAT FINISH, WHICH SHALL BE TRUE AND EVEN AND FREE FROM DEPRESSIONS. SURFACE SHALL THEN BE WORKED WITH A STEEL TROWEL TO A DENSE SMOOTH FINISH WHICH IS FREE OF VISIBLE AGGREGATE. TO OBTAIN A HARD SURFACE, AN APPROVED HARDENER SHALL BE APPLIED, FOLLOWED BY AN APPLICATION OF APPROVED CURING COMPOUND. BOTH SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

SUPERSTRUCTURE

PRECAST CONCRETE ROOF DECK: THIS WORK INCLUDES THE FURNISHING, DELIVERY AND ERECTION OF PRECAST REINFORCED CONCRETE ROOF SLABS AS SHOWN ON THE PLANS. THE UNITS SHALL BE PRECAST, PRESTRESSED, REINFORCED, PRECURED CONCRETE UNITS WITH ROUND HOLLOW VOIDS RUNNING LENGTHWISE. SLABS SHALL BE 8" X 24" AND OF THE LENGTH REQUIRED. SLABS SHALL BE DESIGNED TO SUPPORT A UNIFORM LOAD OF 50 POUNDS PER SQUARE FOOT PLUS SLAB WEIGHT, IN ACCORDANCE WITH ACI-318-83 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE. AFTER CURING, UNITS SHALL BE STORED, STACKED, AND TRANSPORTED IN A MANNER TO PREVENT THE DEVELOPMENT OF CRACKS OR OTHER DEFORMITIES.

SHOP DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED FOR APPROVAL, SHOWING SETTING PLAN, REINFORCING AND DETAILS. EACH SLAB SHALL BE IDENTIFIED BY A STANDARD MARK TO BE LISTED IN THE SCHEDULE SHOWN ON THE MANUFACTURER'S ERECTION PLAN AND PLACED LEGIBLY ON EACH UNIT AT TIME OF MANUFACTURE. "TOP SIDE" SHALL BE MARKED ON EACH UNIT. MATERIALS SHALL BE AS FOLLOWS: PORTLAND CEMENT SHALL CONFORM TO ASTM C150. FINE AGGREGATE SHALL CONFORM TO THE REQUIREMENTS OF ASTM C33. COARSE AGGREGATE SHALL CONFORM TO ASTM C33 OR C-330. LIGHWEIGHT AGGREGATE SHALL CONFORM TO ASTM C330. THE MAXIMUM SIZES AND OTHER PROVISIONS OF COURSE AGGREGATE SHALL APPLY. WATER SHALL BE CLEAN, FRESH AND FREE FROM INJURIOUS AMOUNTS OF MINERAL OR ORGANIC SUBSTANCES.

STEEL REINFORCEMENT FOR PRECAST PRE-STRESSED CONCRETE UNITS SHALL BE AS FOLLOWS: PRESTRESSING STEEL SHALL BE UNCOATED SEVEN WIRE STRESS RELIEVED STRAND EQUIVALENT OF ASTM A416.

WIRE FOR REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM STANDARD SPECIFICATION, ASTM A-82-79.

ALL CONCRETE MATERIALS SHALL BE CLEAN AND PROPERLY GRADED AND THE RESULTING CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5000 POUNDS PER SQUARE INCH AT 28 DAYS.

THE MANUFACTURER SHALL CURE THE SLABS BY STEAM OR OTHER SUITABLE METHODS, TO SECURE 3500 PSI MINIMUM COMPRESSIVE STRENGTH AT TIME OF INITIAL PRESTRESS AND 5000 PSI MINIMUM AT 28 DAYS AS TESTED PER ASTM C39-81.

INSTALLATION OF THE PRECAST UNITS SHALL BE MADE BY LAYING THE ROOF SLABS LEVEL IN A WORKMANLIKE MANNER, KEEPING THE UNITS TIGHT AND AT RIGHT ANGLES TO THE WALLS.

SLABS SHALL BE ALIGNED AND LEVELED BY THE STANDARD METHOD INDICATED IN THE MANUFACTURER'S INSTRUCTION MANUAL.

ANCHORAGE OF SLABS TO MASONRY CONSTRUCTION, SHALL BE AS SPECIFIED BY THE MANUFACTURER AND SHALL COMPLY WITH LOCAL BUILDING CODES.

THE SLABS SHALL BE GROUTED BY A MIXTURE OF NOT LESS THAN ONE PART CEMENT TO THREE PARTS FINE SAND, ON THE ENDS AND BETWEEN SLABS, CARE BEING TAKEN TO SEE THAT THE JOINTS ARE FILLED. ANY GROUT THAT MAY HAVE SEEPED THROUGH TO THE CEILING BELOW SHALL BE REMOVED BEFORE IT HARDENS.

COOPERATION SHALL BE EXTENDED OTHER TRADES, IN PERMITTING INSERTION OF ANCHORS, HANGERS, ELECTRICAL OUTLETS, ETC. HOLES FOR PLUMBING AND HEATING PIPES, ELECTRICAL CONDUITS, OUTLET BOXES AND VENTS, LESS THAN SLAB WIDTH, SHALL BE CUT IN THE FIELD IN HOLLOW SECTIONS OF SLABS, IF POSSIBLE, FROM BELOW. NO TENSION RODS SHALL BE CUT WITHOUT APPROVAL OF MANUFACTURER OR ENGINEER. LARGE OPENINGS REQUIRED TO FACILITATE EQUIPMENT, SHALL BE FRAMED WITH STRUCTURAL STEEL IN ACCORDANCE WITH DESIGN LIMITATIONS OF ACI-711 AND THE SLABS SHALL BE DESIGNED FOR THE ADDITIONAL LOAD.

BUILT-UP ROOFING: THE PUMP STATION ROOF DECK SHALL BE GRAVEL SURFACE, ORGANIC FELT BUILT-UP ROOF PLACED ON A 1" LAYER OF RIGID INSULATION BOARD AND CONFORM TO THIS SPECIFICATION.

ROOF DECKS SHALL BE FIRM, DRY, AND CLEAN, AND PROPERLY GRADED TO OUTLET.

FIRST APPLY ONE LAYER OF FIBERGLASS ROLL ROOFING OVER THE 1" INSULATION BOARD, SPOT MOPPING TO THE DECK WITH TYPE III ASTM D312 ASPHALT. SPOTS SHALL BE APPROXIMATELY 12" IN DIAMETER, 24" ON CENTER LONGITUDINALLY IN THREE ROWS PER WIDTH OF FIBERGLASS ROLL ROOFING STAGGERED. EDGES SHALL BE LAPPED, ENDS OF ROOFING SHALL BE BUTTED. CARRY THE FIBERGLASS ROLL ROOFING TO THE EDGE OF THE ROOF BUT DO NOT SEAL WITH THE ASPHALT. VENTING SPACE MUST BE LEFT BETWEEN THE ROOF EDGE AND THE EDGING STRIP. THEN, THE BUILT-UP ROOFING, FLASHING AND EDGING STRIP ARE APPLIED IN THE USUAL MANNER.

NEXT, LAY FOUR PLIES OF ASPHALT-SATURATED RAG FELTS, MEETING ASTM SPECIFICATION D226, LAPPING EACH SHEET 27 - 1/2 INCHES OVER THE PRECEDING ONE, MOPPING THE FULL WIDTH UNDER EACH WITH A ROOFING ASPHALT MEETING ASTM SPECIFICATION D312 FOR TYPE I. OVER THE ENTIRE SURFACE POUR A UNIFORM COATING OF A TYPE I ASTM D312 ASPHALT AND EMBEDDED THEREIN, WHILE HOT, NOT LESS THAN 400 POUNDS OF GRAVEL, OR 300 POUNDS OF SLAG FOR EACH 100 SQUARE FEET OF ROOF AREA.

ALL FLASHING AND FASCIA COVERING SHALL BE AS SHOWN ON THE DRAWINGS AND BE .032 INCH ALUMINUM. INSTALLATION SHALL BE WITH ALUMINUM FASTENERS AND BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

ROOFING SHALL BE INSTALLED BY A ROOFING INSTALLER, APPROVED BY THE MANUFACTURER, AND SHALL FURNISH SURETY BOND GUARANTY FOR 20 YEARS FROM DATE OF COMPLETION OF ALL ROOFING INSTALLATION, INCLUDING ALL FLASHING AND OTHER APPURTENANCES.

ROOF DRAIN: ROOF DRAIN SHALL BE AS SHOWN ON THE PLANS AND ROOF DRAINAGE PIPING SHALL BE SCHEDULE 40 PVC SOLVENT WELD PIPE. PIPE SHALL CONFORM TO THE REQUIREMENTS OF ASTM D-1785 AND SOLVENT CEMENT SHALL BE IN ACCORDANCE WITH ASTM D-2564. ROOF DRAIN SHALL BE CAST IRON WITH OUTLET SUITABLE FOR CONNECTION TO THE ROOF DRAIN PIPING WITHOUT ADAPTERS OR NONSTANDARD PRACTICES. ROOF DRAINS SHALL RECEIVE A HEAVY COAT OF BITUMINOUS PAINT AND INSTALLED WATERTIGHT.

CONCRETE SPLASH BLOCK: A CONCRETE SPLASH BLOCK SHALL BE FURNISHED AND BE AS SHOWN ON THE PLANS.

INTERIOR/EXTERIOR FINISH: THE SUPERSTRUCTURE FINISH SHALL CONSIST OF 1 3/4" FACING TILE PLACED ON THE INTERIOR AND 4" FACING BRICK ON THE EXTERIOR OF THE 9" POURED CONCRETE WALL.

GLAZED FACING TILE SHALL BE SELECT QUALITY SERIES 6T (5 1/16" X 11 3/4" ACTUAL FACE SIZE) AND OF NOMINAL THICKNESS AND SHALL MEET IN ALL RESPECTS THE REQUIREMENTS OF THE FACING TILE INSTITUTE OR ASTM C126 FOR IMPERVIOUSNESS, RESISTANCE OF FINISH, AND RESISTANCE TO CRAZING. ALL SPECIALS SUCH AS COVED BASE, GLAZED SILL, LINTELS, BULLNOSE CAPS, ETC., SHALL BE PROVIDED AS REQUIRED. ALL TILE SHALL BE LAID TRUE TO LINE AND GRADE. JOINTS SHALL BE TOOLED WITH A ROUND TOOL. STRUCTURAL GLAZED TILE COLOR SHALL BE APPROVED BY THE BELMONT COUNTY SEWER AUTHORITY NO. ONE PRIOR TO CONSTRUCTION.

FACE BRICK SHALL BE FIRST QUALITY, HARD-BURNED GRADE A CONFORMING TO THE REQUIREMENTS OF ASTM C216, GRADE SW, TYPE FBS OR FBX. FACE BRICK COLOR SHALL MATCH THE BRICK USED IN THE STRUCTURE WHICH IT IS REPLACING. CONTRACTOR SHALL SUBMIT SAMPLES TO THE BELMONT COUNTY SEWER AUTHORITY NO. ONE FOR APPROVAL OF TEXTURE AND COLOR PRIOR TO ORDERING BRICK.

INTERIOR AND EXTERIOR MASONRY UNITS SHALL BE THOROUGHLY CLEANED AFTER CONSTRUCTION. CLEANING SHALL BE BY MEANS OF SOAP AND WARM WATER; MURIATIC ACID SHALL BE USED ONLY IF REQUIRED AND ONLY AS RECOMMENDED BY THE MASONRY MANUFACTURER.

WATERTIGHT FLOOD DOORS: THE CONTRACTOR SHALL FURNISH AND INSTALL HINGED WATERTIGHT FLOOD DOORS AT THE ENTRANCE TO BOTH THE WET WELL AND THE DRY WELL. DOORS SHALL BE AS SHOWN ON THE PLANS AND AS SPECIFIED HEREIN. DOORS SHALL BE MODEL PRSD3BHW AS MANUFACTURED BY THE PRESRAY CORPORATION OF PAWLING, NEW YORK OR AN APPROVED EQUAL AND BE DESIGNED WITH A MINIMUM 2:1 SAFETY FACTOR BASED ON YIELD AND SHALL PROVIDE AN EFFECTIVE SEAL AGAINST A HYDROSTATIC PRESSURE OF FIVE (5) POUNDS PER SQUARE INCH WITH NO VISIBLE LEAKAGE.

THE DOORS SHALL BE DESIGNED TO ALLOW THE ENTIRE HYDROSTATIC PRESSURE ON THE DOOR TO BE TRANSMITTED TO THE FRAME OR DOGS AND SHALL HAVE A RECTANGULAR OPENING WITH SQUARE CORNERS. WHEN INSTALLED, THE DOORS SHALL OPEN AND CLOSE MANUALLY WITH MINIMUM EFFORT.

THE DOOR PANELS SHALL BE CONSTRUCTED OF A36 STRUCTURAL STEEL PLATE AND BE A MINIMUM OF 1/2" THICK TO WITHSTAND HEADS OF WATER UP TO 20 FEET. ALL WELDS IN THE POTENTIAL "LEAK PATH" SHALL BE LIQUID PENETRANT INSPECTED IN ACCORDANCE WITH APPENDIX VIII OF SECTION VIII DIVISION 1 OF THE ASME CODE.

THE DOOR FRAMES SHALL BE CONSTRUCTED OF A36 STRUCTURAL ANGLE HAVING A MINIMUM THICKNESS OF 3/8". THE EDGE COMING IN CONTACT WITH THE MOLDED NEOPRENE GASKET SHALL BE MACHINED STRAIGHT AND RADIUSED TO MAXIMIZE SEALING. THE FRAME SHALL HAVE A CONTINUOUSLY WELDED SUBFRAME SUITABLE FOR CAST-IN-PLACE INSTALLATION AND STUD ANCHORS AT A MAXIMUM SPACING OF 24 INCHES. THE FRAME SHALL OVERLAP THE SUBFRAME BY APPROXIMATELY 1 1/2" ON ALL FOUR SIDES TO PROVIDE A LOCATING SURFACE FOR THE DOGS.

DOORS SHALL BE EQUIPPED WITH A LOWER THRUST HINGE AND AN UPPER RADIAL HINGE. THE LOWER THRUST HINGE SHALL BE EQUIPPED WITH A BRONZE OIL-IMPREGNATED THRUST BEARING, A STAINLESS STEEL HINGE PIN, GRADE 5 OR BETTER MOUNTING BOLTS, AND A SLOTTED HINGE BLADE TO PREVENT HINGES FROM CARRYING THE HYDROSTATIC LOAD. THE UPPER HINGE SHALL HAVE TWO SEALED RADIALLY POSITIONED BALL BEARINGS, STAINLESS STEEL HINGE PIN, SLOTTED HINGE BLADE AND GRADE 5 OR BETTER MOUNTING BOLTS. UPPER HINGE SHALL NOT CARRY THE DIRECT WEIGHT OF THE DOOR.

DOOR LATCHING OPERATION IS TO BE ACCOMPLISHED WITH MINIMUM EFFORT AND TIME BY THE TURNING OF A HANDWHEEL. THE HANDWHEEL SHALL THROW SIX DOGS. EACH DOG SHALL BE ADJUSTABLE AS TO STROKE LENGTH AND POSITION TO PROVIDE MAXIMUM ADJUSTMENT FOR SEAL COMPRESSION.

THE DOORS SHALL HAVE A FACTORY FINISH OF ONE COAT OF RUST INHIBITIVE PRIMER. THE CONTRACTOR SHALL APPLY TWO COATS OF HEAVY-BODIED BITUMINOUS PAINT WHICH SHALL BE A COLOR SELECTED BY THE BELMONT COUNTY SEWER AUTHORITY NO. ONE.

EACH DOOR SHALL BE FURNISHED WITH A CERTIFICATION OF LEAK TIGHTNESS FROM THE SUPPLIER BASED ON ACTUAL TESTS CONDUCTED ON THE DOOR TO VERIFY THAT IT WILL WITHSTAND THE DESIGN HYDROSTATIC PRESSURE WITH NO VISIBLE LEAKAGE ALONG WITH COMPLETE INSTALLATION INSTRUCTIONS AND OPERATION AND MAINTENANCE MANUALS.

PROVISIONS FOR PADLOCKING DOORS SHALL BE PROVIDED BY THE MANUFACTURER AND PADLOCKS SHALL BE SUPPLIED BY THE CONTRACTOR. WET WELL AND DRY WELL DOOR LOCKS SHALL BE KEYED ALIKE. UPON ACCEPTANCE OF ALL WORK, THE CONTRACTOR SHALL FURNISH SIX (6) SETS OF KEYS TO THE BELMONT COUNTY SEWER AUTHORITY NO. ONE.

LETTERING: LETTERING ON PUMP STATION EXTERIOR SHALL BE PLACED ON THE NORTH WALL AND BE "PINCH RUN PUMPING STATION". LETTERING SHALL BE ALUMINUM WITH 3/8" STROKE, 3/4" DEEP, 6" HIGH AND HAVE AN ENAMEL FINISH. LETTERING SHALL BE LOCATED AS SHOWN ON THE PLANS AND MAY BE SALVAGED FROM THE EXISTING PUMP STATION.

PUMPING EQUIPMENT AND APPURTENANCES

GENERAL: THE CONTRACTOR SHALL FURNISH AND INSTALL (2) TWO VERTICAL OPEN SHAFT TYPE HEAVY DUTY CENTRIFUGAL SEWAGE PUMPS WITH FRAMES. THE PUMPS SHALL BE MODEL VOS-44122 AS MANUFACTURED BY CLOW PUMP CO., DIVISION OF CLOW CORPORATION OR APPROVED EQUAL. EACH UNIT SHALL HAVE A MINIMUM CAPACITY OF 130 GALLONS PER MINUTE WHEN DISCHARGING AGAINST A TOTAL DYNAMIC HEAD OF 61.5 FEET. OPERATING SPEED TO BE A MAXIMUM 1170 RPM. THE TWO PUMPS SHALL BE CAPABLE OF 135 GPM AGAINST A TOTAL DYNAMIC HEAD OF 64.5 FEET WHEN PUMPING IN PARALLEL. PUMPS SHALL BE NON-CLOGGING TYPE AND CAPABLE OF PASSING A 3" SPHERE AND FURNISHED COMPLETE WITH PUMP PEDESTAL, MOTOR, MOTOR SUPPORT, CASING VENT CONNECTION, COUPLINGS, FLANGES, AND VERTICAL DRIVE SHAFTING. MINIMUM SHUT-OFF HEAD SHALL BE 67' T.D.H. ONE PUMP SHALL BE CAPABLE OF 1000 GPM AT 38' T.D.H. WITHOUT OVERLOADING MOTOR.

PUMP CASINGS, BEARING HOUSINGS AND PUMP SUPPORTS SHALL BE CLOSE GRAINED, ASTM A48, CLASS 30 CAST IRON. A SUCTION ELBOW SHALL BE PROVIDED WITH A HANDHOLE. A SECOND HANDHOLE SHALL BE PROVIDED IN THE PUMP CASINGS.

IMPELLERS SHALL BE OF CLOSE GRAINED, ASTM A48, CLASS 30 CAST IRON AND DYNAMICALLY BALANCED. THE IMPELLER SHALL BE OF THE TWO PORT CLOSED DESIGN CAPABLE OF PASSING A THREE INCH SPHERE.

PUMP SHAFTS SHALL BE MACHINED FROM HIGH GRADE, TURNED, GROUND AND POLISHED ALLOY STEEL, MEETING AISI SPECIFICATION A4142, HEAT TREATED.

DRAWN	CK'D.	CORR.	BK CK'D.	IOCK	Revised
WK 5/29/84	GET 5/29/84	WK 6/5/84	GET 6/6/84	D.O.G. 8/24/84	GET/LJE 2/14/85

GENERAL NOTES

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LARGE PACKING BOXES SHALL BE BOLTED TO THE PUMP CASING. PACKING BOXES SHALL BE PROVIDED WITH NOT LESS THAN FIVE RINGS OF GRAPHITE IMPREGNATED ASBESTOS PACKING, WATER SEAL RINGS AND TAPPED CONNECTIONS SO THAT SEAL WATER MAY BE PROVIDED. PUMP SHAFTS SHALL BE PROTECTED FROM WEAR AT THE PACKING BOXES BY SLIP-ON 416 STAINLESS STEEL SLEEVES.

EACH PUMP SHALL HAVE TWO SETS OF DEEP GROOVED BALL BEARINGS DESIGNED FOR BOTH RADIAL AND THRUST LOADS WITH A 5 YEAR B10 MINIMUM BEARING LIFE PER AFBMA TEST PROCEDURE. THE BEARINGS SHALL BE MOUNTED IN A DUST AND MOISTURE-PROOF HOUSING THAT IS BOLTED TO THE PUMP CASING TO INSURE PERMANENT ALIGNMENT. ALEMITE FITTINGS SHALL BE FURNISHED AT EACH BALL BEARING FOR GREASE LUBRICATION.

A MOTOR SUPPORT PEDESTAL SHALL BE PROVIDED FOR MOUNTING THE MOTOR ON A SEPARATE MOTOR FLOOR. VERTICAL SHAFTING IS REQUIRED TO TRANSMIT POWER FROM THE MOTOR TO THE PUMP.

SHAFTING SHALL BE FURNISHED WITH UNIVERSAL JOINTS TO COMPENSATE FOR MISALIGNMENT WHICH MIGHT OCCUR DURING OR DEVELOP AFTER INSTALLATION OF THE PUMP AND MOTOR. THE SHAFTING SHALL BE PROVIDED WITH A SLIP SPLINE WHICH WILL PERMIT THE REMOVAL OF THE PUMP SHAFT AND IMPELLER WITHOUT REMOVING ANY SECTION OF INTERMEDIATE SHAFTING OR ANY INTERMEDIATE BEARING AND WITHOUT REMOVING THE SUCTION OR DISCHARGE PIPING. WHERE NECESSARY, SUPPORT BEAMS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR FOR ANCHORING INTERMEDIATE BEARINGS.

SHAFTING SHALL BE FURNISHED AS REQUIRED, WHERE MULTIPLE LENGTHS ARE NECESSARY, A RELUBRICABLE BALL BEARING SHALL BE FURNISHED ON ALL BUT THE LOWEST SECTIONS OF SHAFTING. SHAFTING SHALL BE OF STEEL TUBING DESIGN WITH MINIMUM BEARING LIFE OF 8,000 HOURS UNDER CONTINUOUS DUTY OPERATION.

MOTOR AND PUMP COUPLING FLANGES ARE PROVIDED WITH SHAFTING.

SHAFT SEALING SHALL BE ACCOMPLISHED BY INSTALLING A DOUBLE TYPE MECHANICAL SEAL IN THE PUMP SEAL HOUSING. THE SEAL SHALL HAVE PRECISION LAPPED SEATS FOR TRUE SEALING.

A STAINLESS STEEL RENEWABLE WEARING RING SHALL BE PROVIDED ON THE IMPELLER AND ON THE CASING TO REDUCE WEAR ON THESE PARTS.

A SHAFTING GUARD OF EXPANDED METAL, ALL WELDED CONSTRUCTION SHALL BE FURNISHED FOR MOUNTING ATOP EACH PUMP AND SHALL EXTEND FOUR FEET ABOVE TOP OF PUMP FOR PERSONNEL SAFETY.

MOTORS: EACH PUMP SHALL BE DRIVEN BY A VERTICAL, NORMAL THRUST MOTOR IN AN OPEN DRIP PROOF ENCLOSURE. MOTORS SHALL CONFORM TO NEMA DESIGN B, GENERAL PURPOSE, CONSTANT SPEED, 40°C AMBIENT DESIGN AND SHALL BE FURNISHED WITH A MAGNETIC STARTER WITH OVERLOAD PROTECTION AND LOW VOLTAGE RELEASE FOR EACH PUMP. MOTORS SHALL BE SIZED AS PER PUMP MANUFACTURES RECOMMENDATIONS AND SHALL BE NON-OVERLOADING AT ANY POINT ON THE CURVE. BE WIRED FOR 208 VOLT, 3 PHASE AND 60 HERTZ. PUMPS, MOTORS, SHAFTS AND SUPPORT PEDESTALS SHALL HAVE ONE COAT OF RUST INHIBITIVE PRIMER AND ONE COAT OF MACHINERY ENAMEL.

WATER SEAL UNIT: THE CONTRACTOR SHALL FURNISH AND INSTALL A 1/2 H.P. MOTOR WATER SEAL PUMP, CAPABLE OF 4 GPM AT 60' T.D.H., CONSTANT LEVEL GALVANIZED STEEL (22" DIA. X 38" HIGH) TANK WITH PRESSURE RELEASE VALVE, BY-PASS PIPING, PRESSURE GAGES, FLOAT VALVES, AND SOLENOID VALVES AS SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN. THE PUMP SHALL BE MANUFACTURED BY CHICAGO PUMP COMPANY OR APPROVED EQUAL. THE PUMPS SHALL BE OF THE HORIZONTAL, TURBINE TYPE WITH SINGLE SPEED AND DIRECT CONNECTED DRIVE: THE MAXIMUM PUMP SPEED SHALL BE 3500 RPM.

SOLENOID VALVES SHALL BE FURNISHED AND INSTALLED IN THE SEAL WATER LINES TO EACH OF THE PUMPS REQUIRING WATER SEALS, IN ORDER TO ADMIT WATER TO EACH PUMP UNDER PRESSURE ONLY WHEN THE PUMP IS RUNNING. THE SOLENOID VALVES SHALL BE 115 VOLTS, NORMALLY CLOSED, AND OF THE SAME SIZE AS THE LINE IN WHICH THEY ARE INSTALLED.

ALL WATER SEAL PIPING SHALL BE SIZED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN RECOMMENDATIONS FOR THE PUMPS SELECTED. THE WATER SEAL UNIT DRAIN SHALL BE OUTLETED TO THE FLOOR DRAIN.

PIPING: THE CONTRACTOR SHALL FURNISH, INSTALL AND PROPERLY SUPPORT AND BRACE ALL PIPING AND VALVES INSIDE THE PUMP STATION AS SHOWN IN THE PLANS. EACH PUMP SUCTION PIPE SHALL BE CLASS 52, DUCTILE IRON, INCLUDE ALL WALL SLEEVES AND FITTINGS AND BE FURNISHED WITH A GATE VALVE. GATE VALVES SHALL BE PARALLEL SEAT DOUBLE GATE TYPE CONFORMING TO AWWA C500 WITH HANDWHEEL OPERATOR AND NON-RISING STEM. SUCTION PIPING SHALL BE DRILLED AND TAPPED FOR A PRESSURE GAUGE IN EACH LINE. DISCHARGE PIPING SHALL BE CLASS 52, DUCTILE IRON, INCLUDE ALL NECESSARY FITTINGS, AND BE AS SHOWN ON THE PLANS. EACH DISCHARGE PIPE SHALL INCLUDE A GATE VALVE. GATE VALVES SHALL BE PARALLEL SEAT DOUBLE GATE TYPE CONFORMING TO AWWA C500 WITH HANDWHEEL OPERATOR AND NON-RISING STEM.

IN ADDITION EACH DISCHARGE LINE SHALL BE DRILLED AND TAPPED FOR INSTALLATION OF A PRESSURE GAUGE. GAUGES SHALL BE SILICONE FILLED BOURON TUBE TYPE PRESSURE GAUGES CALIBRATED IN 0-100 FEET OF WATER. A BALL TYPE ISOLATION VALVE SHALL BE INSTALLED BETWEEN THE LINE AND THE GAUGE.

ALSO INCLUDED IN EACH LINE SHALL BE A SWING CHECK VALVE TO CONTROL WATER HAMMER AND PREVENT REVERSE FLOW AND PUMP BACK SPIN. VALVES SHALL BE FURNISHED COMPLETE WITH LEVER AND SPRING OPERATOR ALONG WITH ALL OTHER NECESSARY APPURTENANCES. VALVE AND COMPONENTS SHALL BE CAST IRON AND MEET THE REQUIREMENTS OF ASTM A 126 CLASS B. VALVES SHALL BE EQUAL IN PERFORMANCE TO THOSE MANUFACTURED BY APCO CORPORATION OR APPROVED EQUAL.

DISCHARGE PIPING HEADER SHALL BE FED BY THE INDIVIDUAL PUMP DISCHARGE PIPES AS SHOWN ON THE DRAWINGS AND BE CLASS 52, DUCTILE IRON PIPE WITH ALL NECESSARY WALL SLEEVES COUPLINGS AND FITTINGS REQUIRED. DISCHARGE PIPING SHALL BE DRILLED AND TAPPED FOR INSTALLATION OF A PRESSURE GAUGE AND INCLUDE A FLOW MEASURING MANOMETER. THE FLOW METER SHALL OPERATE UNDER THE DIFFERENTIAL PRESSURE PRINCIPLE AND BE FURNISHED COMPLETE WITH CAPABILITY TO 500 GPM. IN ADDITION A PARALLEL SEAT, DOUBLE GATE AWWA C-500 GATE VALVE SHALL BE FURNISHED WITH A HANDWHEEL OPERATOR AND NON-RISING STEM.

AIR RELEASE VALVE ASSEMBLY: ALSO INCLUDED SHALL BE AN AIR RELEASE VALVE ASSEMBLY SUITABLE FOR OPERATING UNDER A WORKING PRESSURE OF 150 POUNDS PER SQUARE INCH. EACH VALVE SHALL BE OF THE TYPE WHEREIN A SPHERICAL FLOAT RESTING ON THE SURFACE OF THE WATER WITHIN THE VALVE CASING OPENS OR CLOSES, BY MEANS OF A LEVER MOVEMENT, THE AIR DISCHARGING THROUGH A VENT HOLE.

THE AIR VALVE SHALL BE A NO. 400 AIR RELEASE VALVE AS MANUFACTURED BY APCO OR NO. VM-48 AS MANUFACTURED BY VAL-MATIC AND MANUFACTURING CORPORATION, OR EQUAL. VALVE BODIES SHALL BE CAST IRON WITH STAINLESS STEEL FLOATS.

THE CONTRACTOR SHALL FURNISH AND INSTALL ONE 2" BALL VALVE AND NECESSARY PIPING BETWEEN THE DISCHARGE LINE AND THE AIR RELEASE VALVE FOR SHUT-OFF PURPOSES. ONE 1" BALL VALVE SHALL BE INSTALLED AS A BLOW-OFF VALVE IN THE LOWER PORTION OF THE AIR RELEASE VALVE BODY IN THE THREADED HOLE PROVIDED FOR THAT PURPOSE. BACKWASH ACCESSORIES SHALL BE FURNISHED AND ASSEMBLED TO THE VALVE CONSISTING OF A 1/2" INLET SHUT-OFF BALL VALVE, CLEAR WATER INLET VALVE, RUBBER SUPPLY HOSE AND QUICK DISCONNECT COUPLINGS.

INTERIOR PIPING FINISH: ALL STATION INTERIOR PIPING, VALVES AND FITTINGS SHALL BE CLEANED IN ACCORDANCE WITH THE COATING MANUFACTURER'S WRITTEN RECOMMENDATIONS, AND COATED WITH A RUST INHIBITIVE PRIMER WITH AT LEAST 62% SOLIDS WHICH WILL ACCEPT A CHLORINATED RUBBER TOPCOAT. PRIMER SHALL HAVE 2 MILS DFT. FINISH COATING SHALL BE CHLORINATED RUBBER APPLIED IN TWO (2) COATS WITH THE FINAL COAT BEING A COLOR APPROVED BY THE BELMONT COUNTY SEWER AUTHORITY NO. ONE. TOTAL DFT OF THE THREE COAT SYSTEM TO BE 6 MILS.

COMMINUTOR: THE CONTRACTOR SHALL FURNISH AND INSTALL A COMMINUTING MECHANISM IN THE PUMP STATION WET WELL AS SHOWN ON THE DRAWINGS AND/OR AS SPECIFIED HEREIN. THE COMMINUTOR SHALL BE CHICAGO PUMP MODEL 7C AS MANUFACTURED BY THE CHICAGO PUMP CO., DIVISION OF CLOW CORPORATION OR APPROVED EQUAL.

THE COMMINUTOR SHALL REDUCE THE SOLIDS TO A SIZE THAT WILL PASS THROUGH 1/4" SLOTS IN THE CONTINUOUS, SINGLE DIRECTION, ROTATING DRUM. THE COMMINUTOR SHALL BE CAPABLE OF HANDLING 20 TO 200 GPM WITHOUT THE USE OF BYPASS OR OVERFLOW SCREENS. ALL FLOW SHALL EXIT THRU THE BOTTOM OF THE MACHINE TO THE WET WELL.

THE UNIT SHALL BE POWERED BY A 1/3 H.P., 1725 RPM; EXPLOSION PROOF GEAR MOTOR. THE MOTOR SHALL BE WIRED TO OPERATE ON 208 VOLT, 3 PHASE, 60 HERTZ, POWER SUPPLY. THE GEAR MOTOR SHALL HAVE A MAXIMUM OUTPUT SPEED OF 56 RPM.

THE COMMINUTOR SHALL CONSIST OF A STATIONARY HOUSING, VERTICAL ROTATING DRUM, VERTICAL SHAFT, GEAR MOTOR DRIVE UNIT, AND SHALL HAVE 3 TYPES OF CUTTING ELEMENTS CONSISTING OF 2 STATIONARY COMB-BAR SECTIONS OF HARDENED HIGH CHROMIUM TOOL STEEL, 8 SHEAR-BAR SECTIONS OF HARDENED HIGH CHROMIUM TOOL STEEL MOUNTED ON THE ROTATING DRUM, AND 14 CUTTING TEETH OF HIGHLY ABRASION RESISTANT STELLITE ALLOY, EACH SPACED AND STAGGERED EFFECTIVELY ON THE ENTIRE ROTATING DRUM ASSEMBLY. ALL CUTTING ELEMENTS SHALL BE INDIVIDUALLY REPLACEABLE.

THE COMMINUTOR DRIVE ARRANGEMENT SHALL BE STANDARD HEIGHT WITH THE GEAR MOTOR MOUNTED DIRECTLY ON THE COMMINUTOR.

THE COMMINUTOR HOUSING SHALL BE CAST IRON, ASTM A48, CLASS 40, THE ROTATING DRUM SHALL BE CAST NICKEL IRON.

THE COMMINUTOR DRUM SHALL BE A MINIMUM OF 25 POUNDS TO PROVIDE FOR INERTIAL CUTTING OF ALL MATERIALS WITHOUT STALLING OR JAMMING.

THE DRUM SHALL BE HIGHLY MACHINED AND PROVIDE RECESSED MOUNTING POSITIONS FOR TEETH AND SHEAR BARS. TEETH, SHEAR BARS, AND COMBS SHALL BE SHIM ADJUSTABLE.

THE COMMINUTOR SHALL RECEIVE ONE SHOP COAT OF RUST INHIBITIVE PRIMER AND ONE COAT OF CLOW GREEN MACHINERY ENAMEL.

A SET OF SPECIAL TOOLS SHALL BE FURNISHED FOR THE COMMINUTOR ALONG WITH A COMPLETE SET OF SPARE CUTTING TEETH, ONE SPARE COMB, AND A FULL SET OF STAINLESS STEEL ANCHORS.

BYPASS BAR SCREEN AND FRAME SHALL BE FOR EMERGENCY USE ONLY AND AS SHOWN ON THE DETAIL. IT SHALL BE FABRICATED OF ALUMINUM ASSOCIATION ALLOY 6063-T6. BAR SCREEN SHALL BE REMOVABLE AND ALL FASTENERS AND ANCHORS SHALL BE ALUMINUM. ALL SURFACES SHALL RECEIVE A COAT OF HEAVY BODIED BITUMINOUS PAINT.

ALUMINUM STOP GATES AND GUIDES SHALL BE AS SHOWN ON THE DRAWINGS AND BE ALUMINUM ALLOY OF COMPOSITION EQUAL TO ALUMINUM COMPANY OF AMERICA HIGH STRENGTH ALLOY 6061-T6 AND 6063-T6 RESPECTIVELY. A 6" X 2" OPENING SHALL BE PROVIDED AT THE TOP CENTER OF EACH GATE, 3" FROM THE TOP, TO BE USED AS A LIFTING HANDLE. ALL SURFACES SHALL BE GIVEN A SHOP COAT OF BITUMINOUS PAINT AND ALL FASTENERS SHALL BE STAINLESS STEEL.

HEATING AND VENTILATING

HEATERS: A 1500 WATT, 208 VOLT, SINGLE PHASE ELECTRICAL HEATER, MODEL 360-A AS MANUFACTURED BY ILG INDUSTRIES INC. OR APPROVED EQUAL. SHALL BE FURNISHED AND MOUNTED ON THE WALL OF BOTH THE PUMP CHAMBER AND CONTROL CHAMBER OF THE DRY WELL BY THE CONTRACTOR. THE HEATERS SHALL BE THERMOSTATICALLY CONTROLLED AND SHALL BE COMPLETE WITH A CIRCUIT BREAKER IN THE MAIN CONTROL PANEL.

DEHUMIDIFIER: A DEHUMIDIFIER SHALL BE FURNISHED AND MOUNTED ON THE WALL AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN. THE DEHUMIDIFIER SHALL HAVE A CAPACITY OF REMOVING A MINIMUM OF THREE GALLONS OF MOISTURE IN TWENTY-FOUR HOURS. THE DEHUMIDIFIER SHALL BE FURNISHED WITH A 1/8 H.P., 115 VOLT, SINGLE PHASE, 60 CYCLE HERMETICALLY SEALED COMPRESSOR UNIT; WITH AUTOMATIC RESET THERMOGUARD MOTOR PROTECTION. THE DEHUMIDIFIER SHALL BE FURNISHED COMPLETE WITH WALL BRACKET AND A ONE-QUARTER INCH RUBBER OR PLASTIC HOSE DRAIN EXTENDED TO THE BUILDING DRAINAGE SYSTEM. A HUMIDISTAT TO AUTOMATICALLY STOP AND START THE DEHUMIDIFIER SHALL BE MOUNTED IN THE CABINET.

VENTILATORS: THE DRY WELL INTAKE ROOF VENTILATOR SHALL BE SPUN ALUMINUM WITH A BELT-DRIVEN CAST ALUMINUM PROPELLER AND BE EQUAL TO TYPE ACRU-B, CATALOG NO. 195R5B AS MANUFACTURED BY THE LOREN COOK COMPANY OR APPROVED EQUAL. THE FAN SHALL BE 1/2HP, 865 RPM, UL APPROVED AND CAPABLE OF 3981 CFM AGAINST 1/8" STATIC PRESSURE. THE SHAFT BEARINGS SHALL BE SEALED FOR LIFE AND ENCASED IN A MOLDED RUBBER CUSHION. THE VENTILATOR SHALL BE FURNISHED COMPLETE WITH 5 YEAR WARRANTY, BIRD SCREEN, TYPE VCA 34 OR EQUAL PREFABRICATED ALUMINUM CURB AND OTHER APPURTENANCES. UNIT SHALL BE WIRED FOR 208 VOLT, 3 PHASE POWER SUPPLY.

THE DRY WELL EXHAUST FAN SHALL BE AN ALL ALUMINUM UPBLAST CENTRIFUGAL ROOF BLOWER WITH A BELT DRIVEN CENTRIFUGAL FAN AND BE EQUAL TO MODEL 195V5B AS MANUFACTURED BY THE LOREN COOK COMPANY

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OR APPROVED EQUAL. THE BLOWER SHALL BE 1/2 HP, 865 RPM, UL APPROVED AND CAPABLE OF 3981 CFM AGAINST 1/8" STATIC PRESSURE. THE UNIT SHALL BE ENTIRELY WEATHERPROOF AND VENTILATED BY FORCED AIR COOLING TUBES WITH OUTSIDE AIR. THE BLOWER SHALL BE FURNISHED COMPLETE WITH 5 YEAR WARRANTY, BIRD SCREEN, TYPE VCA 28 OR EQUAL PREFABRICATED ALUMINUM CURB AND OTHER APPURTENANCES. UNIT SHALL BE WIRED FOR 208 VOLT, 3 PHASE POWER SUPPLY.

THE WET WELL INTAKE ROOF VENTILATOR SHALL BE SPUN ALUMINUM WITH A BELT-DRIVEN CAST ALUMINUM PROPELLER AND BE EQUAL TO MODEL 24SEP3 AS MANUFACTURED BY THE LOREN COOK COMPANY OR APPROVED EQUAL. THE FAN SHALL BE 1/4 HP, 785 RPM, U.L. APPROVED AND CAPABLE OF 2838 CFM AGAINST 1/8" STATIC PRESSURE. THE SHAFT BEARINGS SHALL BE SEALED FOR LIFE AND ENCASED IN A MOLDED RUBBER CUSHION. THE VENTILATOR MOTOR SHALL BE A TOTALLY ENCLOSED CLASS I, GROUP D, EXPLOSION PROOF MOTOR. THE UNIT SHALL BE FURNISHED COMPLETE WITH 5 YEAR WARRANTY, BIRD SCREEN, TYPE VCA 34 OR EQUAL PREFABRICATED ALUMINUM CURB AND OTHER APPURTENANCES. UNIT SHALL BE WIRED FOR 208 VOLT, 3 PHASE POWER SUPPLY.

THE WET WELL EXHAUST FAN SHALL BE AN ALL ALUMINUM UPBLAST CENTRIFUGAL ROOF BLOWER WITH A BELT DRIVEN CENTRIFUGAL FAN AND BE EQUAL TO MODEL 135R 4B AS MANUFACTURED BY THE LOREN COOK COMPANY OR APPROVED EQUAL. THE BLOWER SHALL BE 1/3 HP, 1410 RPM, U.L. APPROVED AND CAPABLE OF 2062 CFM AGAINST 1/8" STATIC PRESSURE. THE UNIT SHALL BE ENTIRELY WEATHERPROOF AND VENTILATED BY FORCED AIR COOLING TUBES WITH OUTSIDE AIR. THE BLOWER SHALL BE FURNISHED COMPLETE WITH 5 YEAR WARRANTY, BIRD SCREEN, TYPE VCA 22 OR EQUAL PREFABRICATED ALUMINUM CURB AND OTHER APPURTENANCES. UNIT SHALL BE WIRED FOR 208 VOLT, 3 PHASE POWER SUPPLY.

DUCT WORK: ALL DUCT WORK SHOWN ON THE DRAWINGS, SPECIFIED OR REQUIRED FOR THE VENTILATING SYSTEMS SHALL BE CONSTRUCTED AND ERECTED WITH TIGHT JOINTS AND SHALL BE ADEQUATELY SUPPORTED AND RIGIDLY REINFORCED. ALL DUCTS SHALL BE NO. 20 U.S. STANDARD GAUGE GALVANIZED STEEL OR NO. 18 B. & S. GAUGE ALUMINUM AND SHALL BE STRAIGHT AND SMOOTH ON THE OUTSIDE WITH JOINTS NEATLY FINISHED, AND CURVED ELBOWS SHALL HAVE A CENTER LINE RADIUS EQUAL TO 1 - 1/2 TIMES THE WIDTH OF THE DUCT WHERE POSSIBLE. DUCTS SHALL BE ANCHORED SECURELY TO THE BUILDING IN AN APPROVED MANNER, INSTALLED FREE FROM VIBRATION UNDER ALL CONDITIONS OF OPERATION, SHALL BE PROPERLY BRACED, REINFORCED WITH GALVANIZED STEEL ANGLES OR OTHER STRUCTURAL MEMBERS WITH INTERNAL ENDS OF ALL SLIP JOINTS INSTALLED IN THE DIRECTION OF AIR FLOW.

GRILLES: GRILLES SHALL BE PROVIDED IN THE LOCATIONS AND OF THE SIZES SHOWN ON THE DRAWINGS. GRILLES SHALL BE FABRICATED OF GALVANIZED STEEL OR ALUMINUM AND BE COMPATIBLE FOR INSTALLATION IN DUCTWORK.

MONITORING EQUIPMENT

PUMP STATION MONITORING SHALL BE DONE WITH SEALED FLOAT TYPE MERCURY SWITCHES WHICH SHALL BE SUPPLIED TO CONTROL SUMP LEVEL AND ALARM SIGNAL. THE MERCURY TUBE SWITCHES SHALL BE SEALED IN A SOLID POLYURETHANE FLOAT FOR CORROSION AND SHOCK RESISTANCE. THE SUPPORT WIRE SHALL HAVE HEAVY NEOPRENE JACKET AND A WEIGHT SHALL BE ATTACHED TO A CORD ABOVE THE FLOAT TO HOLD SWITCH IN PLACE IN SUMP. WEIGHT SHALL BE ABOVE THE FLOAT TO PREVENT SHARP BENDS IN THE CORD WHEN THE FLOAT OPERATES UNDER WATER. THE FLOAT SWITCHES SHALL HANG IN THE SUMP SUPPORTED ONLY BY THE CORD THAT IS HELD TO THE WIRING CHANNEL. THREE FLOAT SWITCHES SHALL BE USED TO CONTROL LEVEL. ONE FOR PUMP TURN-ON, ONE FOR PUMP TURN-OFF AND ONE FOR TWO PUMPS TO TURN-ON. A FOURTH SWITCH SHALL BE PROVIDED FOR ALARM CONTROL WHICH SHALL BE UTILIZED TO ACTIVATE THE TELEMETERING SYSTEM.

A COMPLETE TELEMETERING SYSTEM SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AT THE PUMP STATION. THE HIGH WATER ALARM SIGNAL SHALL BE TRANSMITTED OVER A SINGLE PAIR OF LEASED LINES TO THE EXISTING BELMONT COUNTY SEWER AUTHORITY NO. ONE WASTEWATER TREATMENT PLANT WHERE THE SIGNAL WILL BE RECEIVED AND INDICATED BY A RED WARNING LIGHT AND A SINGLE AUDIO ALARM BELL MOUNTED IN THE EXISTING SUPERVISORY PANEL. THE TELEMETERING TRANSMITTER AND APPURTENANCES USED IN THE PUMP STATION SHALL BE EQUAL TO AND COMPATIBLE WITH THE EXISTING WASTEWATER TREATMENT PLANT EQUIPMENT AND SHALL BE APPROVED BY THE BELMONT COUNTY SEWER AUTHORITY PRIOR TO ORDERING.

PLUMBING

WATERLINES AND VALVES: A COMPLETE POTABLE WATER SYSTEM SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR IN ACCORDANCE WITH THE PLANS, THE APPLICABLE PORTIONS OF SUPPLEMENTAL SPECIFICATION 814 AND/OR AS SPECIFIED HEREIN. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL LOCAL OR STATE CODES AND SHALL NOT CONTAIN ANY CROSS OR INTERCONNECTIONS WITHOUT BACKFLOW PREVENTORS. THE DRAWINGS INDICATE APPROXIMATE LOCATIONS OF EQUIPMENT AND PIPING AND DO NOT INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES WHICH MAY BE REQUIRED FOR A COMPLETE INSTALLATION. THE CONTRACTOR SHALL ARRANGE AND SUPPORT ALL WORK AND FURNISH NECESSARY FITTINGS, VALVES AND ACCESSORIES TO MEET THE STRUCTURAL AND FINISH CONDITIONS OF THE STATION AS MAY BE REQUIRED.

ALL PIPE USED FOR WATERLINES SHALL BE COPPER AND CONFORM TO THE REQUIREMENTS OF ASTM B88-62, TYPE "L" FOR INTERIOR SERVICE, HARD DRAWN, STRAIGHT LENGTHS, WITH SOLDER TYPE JOINTS. FITTINGS FOR COPPER PIPE SHALL BE WROUGHT COPPER, CAST OR WROUGHT BRONZE FITTINGS CONFORMING TO A.S.A. NO. B 16.22. ALL WATERLINES, FITTINGS AND VALVES IN THE WET WELL AND DRY WELL SHALL BE INSULATED. INSULATION SHALL BE FIBERGLASS AND CONFORM TO FEDERAL SPECIFICATION HH-I-558, FORM D, TYPE III; CLASS 12 FOR HOT AND COLD PIPING. INSULATION SHALL BE INSTALLED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S WRITTEN DIRECTIONS.

ALL VALVES AND HOSE BIBBS SHALL BE MANUFACTURER'S STANDARD, OF THE DESIGN WHICH THE MANUFACTURER RECOMMENDS FOR THE SERVICE INTENDED, AND SHALL BE IRON BODY, FULLY BRONZE MOUNTED, BRASS, OR ALL BRONZE. BODY METAL THICKNESS OF VALVES SHALL NOT BE LESS THAN THAT OF FITTINGS FOR CORRESPONDING MATERIAL, SIZE AND RATING. EACH VALVE SHALL BEAR THE MAKER'S NAME OR TRADEMARK AND REFERENCE SYMBOL TO INDICATE THE SERVICE CONDITIONS FOR WHICH IT IS GUARANTEED. ALL VALVES FOR USE WITH COPPER TUBING SHALL HAVE SOLDER TYPE CONNECTIONS.

ALL VALVES AND BIBBS SHALL BE SUITABLE FOR 150 POUNDS WATER PRESSURE WITH HANDWHEELS OF NON-HEATING TYPE, OR MALLEABLE IRON.

PRESSURE REDUCING VALVE: THE PRESSURE REDUCING VALVE SHALL BE DIRECT ACTING, SPRING LOADED, DIAPHRAGM TYPE, SELF-CONTAINED UNIT REQUIRING NO EXTERNAL SENSING LINES OR OUTSIDE CONTROL MEDIUM. IT SHALL BE CONSTRUCTED WITH A BRASS OR BRONZE BODY WITH AN ALUMINUM OR IRON SPRING CHAMBER. THE INLET AND OUTLET END CONNECTIONS SHALL BE SCREW TYPE IN ACCORDANCE WITH ANSI B 16.4. WATER TEMPERATURE OPERATING RANGE SHALL BE FROM 40° TO 180° F. MAXIMUM INLET PRESSURE RATING SHALL NOT EXCEED 300 PSI. OUTLET PRESSURE SHALL BE ADJUSTABLE BETWEEN 50 AND 100 PSI AND SHALL BE SET FOR AN OUTLET PRESSURE OF 75 PSI.

BACKFLOW PREVENTORS: BACKFLOW PREVENTORS SHALL BE FURNISHED FOR INSTALLATION AT LOCATIONS SHOWN ON THE PLANS TO PREVENT BACK-SIPHONAGE AND BACK-PRESSURE BACKFLOW OF CONTAMINATED WATER INTO THE POTABLE WATER SUPPLY. BACKFLOW PREVENTORS SHALL HAVE A BRONZE BODY CONSTRUCTION, STAINLESS STEEL INTERNAL PARTS AND FLANGE BOLTS AND DURABLE, TIGHT-SEATING RUBBER CHECK VALVE ASSEMBLIES. THE BACKFLOW PREVENTORS SHALL BE FURNISHED COMPLETE WITH STRAINER, TEST COCKS, GATE VALVES.

METER: A NEW WATER SERVICE METER AND ALL NECESSARY FITTINGS AND APPURTENANCES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. METER SHALL BE FIRST QUALITY AND BE A OSCILLATING PISTON, POSITIVE DISPLACEMENT TYPE, MAGNETICALLY DRIVEN, SEALED REGISTER WATER METER FOR COLD WATER SERVICE. METERS SHALL COMPLY WITH AWWA STANDARD C700-77 FOR ACCURACY, CAPACITY, PRESSURE LOSS AND DIMENSIONS. METER SHALL BE READILY ADAPTABLE TO REMOTE READOUT CAPABILITY DESIGNED AND MANUFACTURED FOR THE BRAND OF METER FURNISHED. THE SEALED REGISTER, MEASURING CHAMBER AND SCREEN SHALL BE REMOVABLE WITHOUT DISTURBING THE CONNECTION WITH THE PIPELINE. METER SHALL BE DESIGNED TO OPERATE UNDER A WORKING PRESSURE OF 150 PSI WITHOUT LEAKAGE OR DAMAGE TO ANY PARTS AND FURNISHED WITH A HINGED COVER FOR THE REGISTER GLASS AND SHALL HAVE PROVISIONS FOR WIRE SEALING THE METER BODY. REGISTER SHALL BE STRAIGHT READING MEASUREMENT OF U.S. GALLONS. THE METER MAIN CASE AND MEASURING CHAMBER SHALL BE BRONZE, THE PISTON TO BE HARD RUBBER, MAGNETS TO BE CERAMIC AND ALNICO, AND REMAINDER OF METER INTERNALS TO BE STAINLESS STEEL.

WATER SERVICE CONNECTION: A NEW 2" SERVICE BRANCH ALONG WITH ALL NECESSARY FITTINGS AND APPURTENANCES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AT THE LOCATION SHOWN ON THE PLANS FROM THE PUMP STATION TO THE PROPOSED SERVICE STOP AT THE NEW SERVICE BRANCH PROVIDED FOR THE PUMP STATION. THE 2" BRANCH SHALL MEET THE REQUIREMENTS OF ITEM 814.

TESTING: ALL WATERLINE, FITTINGS, AND VALVES SHALL BE HYDROSTATICALLY TESTED AND DISINFECTED UPON COMPLETION OF THE WORK UNDER THE PROVISIONS OF ITEM 814.

ELECTRICAL WORK

GENERAL: ALL PUMP STATION ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE APPLICABLE PORTIONS OF ITEM 625. THIS SPECIFICATION IS MODIFIED BY THE FOLLOWING SPECIAL PROVISIONS WHICH CONSIST OF THESE NOTES. IN ALL CASES OF CONFLICT WITH SPECIFICATION 625 THESE NOTES SHALL GOVERN.

POWER SERVICE: POWER SERVICE SHALL BE COMMERCIAL 120/208 VOLT 3 PHASE, 60 HZ SUPPLIED AS PER 625.18. THE SUPPLYING AGENCY SHALL PROVIDE POWER TO THE WIRE SUPPORTS ON THE SERVICE POLE HEAD AS SHOWN ON STANDARD DRAWING HL-15. ALL ELECTRICAL CONNECTIONS FROM THIS SERVICE DROP TO THE PUMP STATION SHALL BE MADE BY THE CONTRACTOR.

A SERVICE METER SHALL BE SUPPLIED BY THE POWER COMPANY TO BE INSTALLED BY THE CONTRACTOR.

ELECTRICAL WORK SHALL INCLUDE, BUT NOT NECESSARILY LIMITED TO, THE FOLLOWING:

1. THE CONTRACTOR SHALL MAKE ALL CONNECTIONS TO THE THREE PHASE, 4 WIRE, 120/208 VOLT, 60 HZ, POWER SUPPLY, SUPPLIED BY THE UTILITY COMPANY. TAPS, WIRE SIZES, SAFETY SWITCHES, ETC., SHALL BE AS DESCRIBED OR SHOWN ON THE PLANS. THIS INCLUDES ALL REQUIRED SERVICE ENTRANCE EQUIPMENT AND METERS.
2. PROVIDE AND INSTALL NEW MAIN SERVICE ENTRANCE EQUIPMENT AS DESCRIBED AND SHOWN ON THE PLANS.
3. PROVIDE AND INSTALL ELECTRICAL PANELS AND A TRANSFER SWITCH PANEL AS DESCRIBED AND SHOWN.
4. PROVIDE AND INSTALL SERVICE POLE AS DESCRIBED.
5. ALL OUTLET BOXES, JUNCTION BOXES, RECEPTACLES, SWITCHES, CONDUIT FITTINGS, AND ANY OTHER REQUIRED ITEMS SHALL BE PROVIDED AND INSTALLED.
6. ALL SYSTEMS SHALL BE GROUNDED AS SPECIFIED IN THE NATIONAL ELECTRICAL CODE.
7. ELECTRICAL CONNECTION FOR MOTORS AND MECHANICAL EQUIPMENT THAT ARE FURNISHED AND INSTALLED BY THE CONTRACTOR.
8. WIRING OF ALL PUMPS AND INSTALL AND WIRE ALL PUMP CONTROL SYSTEMS, INCLUDING PUMP CONTROL PANEL SO THAT THE PUMPS WILL OPERATE IN THE MANNER SPECIFIED AND INTENDED.
9. INSTALLATION OF AN EMERGENCY POWER CONNECTION POINT ON THE OUTSIDE OF THE SUPERSTRUCTURE. THIS INCLUDES ALL EQUIPMENT, AND ALL WIRING CONNECTIONS.
10. ANY ELECTRICAL WORK WHICH MAY BE REQUIRED TO ENSURE THE PROPER COMPLETION OF THE JOB AND OPERATION OF THE EQUIPMENT SHALL BE PERFORMED AS A PART OF THE CONTRACT.

ALL EQUIPMENT, WHETHER CALLED FOR BY THIS OR OTHER SECTIONS OF THESE GENERAL NOTES, SHALL BE WIRED TO INSURE SAFE AND CORRECT OPERATION.

ALL OUTSIDE WIRING SHALL BE TYPE USE RUN UNDERGROUND AS PER 625.12. THE CABLE SHALL BE UL APPROVED FOR THAT TYPE OF SERVICE

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GENERAL NOTES

AND SHALL BE LAID IN TRENCHES WITH 36" MINIMUM COVER SPECIFIED. AT ALL POINTS WHERE CABLE COMES TO THE SURFACE FOR CONNECTION TO A PIECE OF EQUIPMENT IT SHALL BE PROTECTED BY CONDUIT. IN ADDITION, WHENEVER CABLE PASSES UNDER A STRUCTURE OR ROADWAY, IT SHALL BE PROTECTED BY CONDUIT.

ALL CABINETS SHALL BE EQUIPPED WITH STRIP HEATERS TO PREVENT THE BUILD-UP OF CONDENSATION INSIDE THEM.

ALL CONDUIT, JUNCTION BOXES AND OTHER EQUIPMENT REQUIRED FOR A COMPLETE AND SAFE INSTALLATION SHALL BE PROVIDED AND INSTALLED. ALL EQUIPMENT SHALL BE SUITABLE FOR OPERATION OUTDOORS IN ALL WEATHER CONDITIONS.

LIGHTNING PROTECTION, THROUGH USE OF LIGHTNING ARRESTERS, SHALL BE PROVIDED AND INSTALLED FOR ALL PUMP STATION ELECTRICAL EQUIPMENT.

THE CONTRACTOR SHALL PROVIDE A FUSED MANUALLY OPERATED MAIN DISCONNECT SWITCH FOR THE PUMPING STATION. THE SWITCH SHALL BE FOR HEAVY DUTY SERVICE AND SHALL BE SUITABLE FOR OUTDOOR INSTALLATION AND OPERATION IN ALL TYPES OF WEATHER. RATED SWITCH CAPACITY IS FOR 200 AMPERES. IT SHALL BE CAPABLE OF BEING LOCKED IN POSITION. OVER CURRENT PROTECTION SHALL BE PROVIDED TO PROTECT THE SWITCH AND WIRE INSTALLED.

THE CONTRACTOR SHALL FURNISH AND INSTALL AN ELECTRICAL CONTROL CABINET WITH A NEMA 12 ENCLOSURE EXCEPT FOR THE PANELBOARD WHICH SHALL BE IN A SEPARATE NEMA 12 CABINET. INSOFAR AS IS PRACTICABLE ALL ITEMS SHALL BE IN ONE CABINET. ALL ELECTRICAL COMPONENTS SHALL BE LABELLED TO AGREE WITH THE ELECTRICAL SCHEMATIC WHICH WILL BE SUBMITTED BY THE CONTRACTOR. CONVENIENT TO THE OPERATOR, AND LOCATED ON THE PANEL DOOR SHALL BE THE PUMP POWER SELECTOR SWITCH HANDLE AND A "POWER-ON" AMBER INDICATING LIGHT.

A CONVENIENCE OUTLET SHALL BE PROVIDED ON THE SIDE OF THE PANEL FOR 120 VOLT SERVICE. CIRCUIT BREAKERS SHALL BE PROVIDED FOR DISCONNECT SERVICE AND OVER CURRENT PROTECTION OF THE SEWAGE PUMP MOTORS, COMMINUTOR AND COMBINATION LIGHT/VENT FAN CIRCUIT TO ASSURE SIMULTANEOUS OPERATION.

SEPARATE CIRCUIT BREAKERS SHALL BE PROVIDED FOR THE STATION ACCESSORIES SUCH AS: DEHUMIDIFIER, SUMP PUMP, WATER SEAL UNIT, CONVENIENCE OUTLETS, HEATERS, MONITORING EQUIPMENT, AND SPARES. THE 120 VOLT, SINGLE PHASE ITEMS SHALL HAVE SINGLE POLE BREAKERS. THE 208 VOLT SINGLE PHASE UNITS SHALL HAVE TWO POLE BREAKERS. ALL BREAKERS SHALL BE NUMBERED AND A SWITCH SCHEDULE SHALL BE SECURED TO THE INSIDE OF THE PANEL DOOR. ALL HANDLES, SWITCHES, AND LIGHTS ON THE OUTSIDE OF THE PANEL DOOR SHALL BE LABELLED WITH ENGRAVED LAMACOID NAMEPLATES. TWO LOCK HASPS AND PADLOCKS SHALL BE PROVIDED ON THE OUTSIDE DOOR.

THE PUMP CONTROL PANEL AS DESCRIBED HEREIN, SHALL BE PROVIDED, INSTALLED, AND CONNECTED BY THE CONTRACTOR.
A CIRCUIT BREAKER SHALL BE PROVIDED FOR EACH PUMP AND A MAGNETIC STARTER WITH 3 LEG OVERLOAD PROTECTION SHALL BE SUPPLIED FOR EACH PUMP. AN ALTERNATING RELAY SHALL BE PROVIDED TO ALTERNATE PUMPS ON EACH SUCCESSIVE CYCLE OF OPERATION. STARTERS SHALL HAVE AUXILIARY CONTACTS TO OPERATE BOTH PUMPS ON OVERRIDE CONDITION.
AN INTERLOCK RELAY SHALL BE PROVIDED TO AUTOMATICALLY RE-CONNECT THE CONTROL CIRCUIT IN CASE OF CIRCUIT BREAKER TRIP ON ONE PUMP.

H-O-A SWITCHES AND RUN LIGHTS SHALL BE SUPPLIED FOR EACH PUMP. TERMINAL STRIP SHALL BE PROVIDED FOR CONNECTING PUMP AND CONTROL WIRES. ALL CONTROL PANELS INCLUDE A TRANSFORMER TO REDUCE CONTROL VOLTAGE TO 24 VOLTS.

AN ELAPSED TIME METER SHALL BE ATTACHED TO EACH PUMP MOTOR STARTER TO INDICATE THE TOTAL RUNNING TIME OF EACH PUMP IN "HOURS" AND "TENTHS OF HOURS".

AUXILIARY POWER: THE CONTRACTOR SHALL PROVIDE AN AUXILIARY POWER SYSTEM COMPLETE WITH WATER PROOF RECEPTACLE, AUTOMATIC TRANSFER SWITCH AND ALL NECESSARY WIRING. THE RECEPTACLE SHALL BE MOUNTED ON THE DRY WELL OUTSIDE WALL AS SHOWN ON THE PLANS AND SHALL BE COMPATIBLE WITH THE PORTABLE POWER GENERATOR CURRENTLY IN USE BY THE BELMONT COUNTY SEWER AUTHORITY NO. ONE AT THEIR BEL-CAPRE PUMPING STATION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE AUTHORITY FOR SPECIFICATIONS REGARDING THE TYPE OF RECEPTACLE REQUIRED FOR EMERGENCY POWER RECEPTACLE PRIOR TO ORDERING.

THE AUTOMATIC TRANSFER SWITCH SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. THE SWITCH SHALL BE MECHANICALLY HELD, AND EQUIPPED WITH LATCHING AND UNLATCHING RELAYS FOR EACH POWER SOURCE. THE SWITCH SHALL ALSO INCLUDE A TIMING RELAY TO PREVENT TRANSFER FROM EMERGENCY SOURCE TO COMMERCIAL SOURCE UNTIL THE VOLTAGE HAS STABILIZED AND AFTER A DELAY OF THREE MINUTES. LOCKOUT PROVISION SHALL BE MADE TO PREVENT TRANSFER OF STATION LOAD TO THE EMERGENCY SOURCE UNTIL THE VOLTAGE IS 90% OF NORMAL, AND THEN AUTOMATICALLY TRANSFER THE LOAD.

INTERLOCKS SHALL BE PROVIDED FOR PILOT LIGHTS TO INDICATE NORMAL OR EMERGENCY POWER SOURCE.

MISCELLANEOUS

HATCHES: ROOF HATCHES FOR PERSONNEL ENTRY DURING FLOOD CONDITIONS SHALL BE OF THE DIMENSIONS AND LOCATIONS SHOWN IN THE PLANS AND BE CENTERED OVER THE ACCESS LADDERS. HATCHES SHALL BE TYPE GS-50 AS MANUFACTURED BY THE BILCO COMPANY OR APPROVED EQUAL. COVER SHALL BE 11 GAUGE ALUMINUM WITH LIGHT AND 3" BEADED FLANGE. INSULATION SHALL BE 1" THICK GLASS FIBER, FULLY COVERED AND PROTECTED BY A 18 GAUGE ALUMINUM LINER.

CURB SHALL BE 12" IN HEIGHT AND FABRICATED OF 11 GAUGE ALUMINUM WITH A 3 1/2" FLANGE WITH HOLES PROVIDED FOR SECURING TO THE ROOF DECK. CURB SHALL BE EQUIPPED WITH AN INTEGRAL METAL CAP FLASHING OF 11 GAUGE ALUMINUM, FULL WELDED AT THE CORNERS FOR WEATHERTIGHTNESS. INSULATION ON THE EXTERIOR OF THE CURB SHALL BE RIGID FIBER BOARD 1" IN THICKNESS.

HATCH SHALL BE COMPLETELY ASSEMBLED WITH HEAVY PINTLE HINGES, COMPRESSION SPRING OPERATORS ENCLOSED IN TELESCOPIC TUBES, POSITIVE SNAP LATCH WITH TURN HANDLES AND PADLOCK HASPS INSIDE AND OUTSIDE, AND NEOPRENE DRAFT SEAL. ALSO PROVIDED SHALL BE A PADLOCK AND SIX (6) SETS OF KEYS. ALL HATCHES SHALL BE KEYED ALIKE.

COVER SHALL BE EQUIPPED WITH AN AUTOMATIC HOLD-OPEN ARM COMPLETE WITH VINYL GRIP HANDLE. ALL HARDWARE SHALL BE STAINLESS STEEL.

ENTIRE HATCH SHALL RECEIVE A HEAVY COAT OF BITUMINOUS PAINT AND SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

MANUFACTURER SHALL GUARANTEE HATCH TO BE FREE OF DEFECTS IN MATERIAL OR WORKMANSHIP FOR A PERIOD OF FIVE YEARS.

MAINTENANCE HATCHES FOR EQUIPMENT REMOVAL SHALL BE OF THE DIMENSIONS AND LOCATIONS SHOWN IN THE PLANS. HATCHES SHALL BE FURNISHED WITH ALUMINUM FRAMES AND HINGED LIDS. HATCHES SHALL HAVE DOUBLE LEAF DOORS AND BE 1/4" THICK WITH A DIAMOND PATTERN PLATE AND WITHSTAND A LIVE LOAD OF 300 POUNDS PER SQUARE FOOT. CHANNEL FRAMES SHALL BE 1/4" THICK COMPLETE WITH ANCHOR FLANGE AND MOUNT FLUSH WITH THE FINISHED DOOR. DOORS SHALL BE EQUIPPED WITH HEAVY FORGED BRASS HINGES, STAINLESS STEEL PINS, SPRING OPERATORS FOR EASY OPERATION, AND AN AUTOMATIC HOLD-OPEN ARM WITH RELEASE HANDLE. A SNAP LOCK WITH REMOVABLE HANDLE SHALL BE PROVIDED. ALL HARDWARE SHALL BE CADMIUM PLATED AND GUARANTEED AGAINST DEFECTS IN MATERIALS OR WORKMANSHIP FOR A PERIOD OF 5 YEARS.

MANHOLE STEPS: MANHOLE STEPS SHALL BE FURNISHED AND INSTALLED AT THE LOCATIONS SHOWN ON THE DRAWINGS AND CONFORM TO THE REQUIREMENTS OF STANDARD DRAWING NO. MH-1 FOR DIMENSION AND INSTALLATION.

SHIPS LADDERS AND RAILINGS: STEEL SHIPS LADDERS SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE DRAWINGS AND SHALL BE DONE IN CONFORMANCE WITH BEST PRACTICE FOR STAIR BUILDING. STAIRS SHALL BE STEADY AND FREE OF VIBRATION UNDER NORMAL LOADING. UPON COMPLETION, ALL STAIRS SHALL BE TO LINE, PLUMB, SQUARE, AND BE TRUE AND LEVEL WITH TREADS REGISTERING LEVEL WITH FLOORS. STRUCTURAL WORK SHALL INCLUDE ALL SUPPORTS, HANGERS, BOLTS, STRUTS, BRACKETS, STRINGERS, RISERS, TREADS AND HANDRAIL SUPPORTS. STRINGERS SHALL EXTEND UP FULL FLIGHTS OF STAIRS AND FINISH FLUSH AT FLOOR AS DETAILED. FACE AND WALL STRINGERS SHALL HAVE CLOSED ENDS AND BE SECURELY ANCHORED TO BUILDING CONSTRUCTION WITH STEEL ANGLES AND EXPANSION BOLTS. HORIZONTAL CARRIER ANGLES FOR SUPPORT OF TREADS SHALL BE BOLTED TO STRINGERS AND TREADS. HANDRAILS SHALL BE CARRIED UP FULL FLIGHTS OF STAIRS TO MEET THE HORIZONTAL RAILS ON THE LANDINGS. HANDRAIL SHALL BE AS SPECIFIED ELSEWHERE. TREADS SHALL HAVE SKID RESISTANT SURFACES. ALL STEEL LADDERS AND RAILINGS SHALL BE GIVEN A COATING OF RED LEAD PRIMER FOLLOWED BY A COAT OF CORROSION RESISTANT OIL BASE PAINT, IN ACCORDANCE WITH 708.08, OF A COLOR SELECTED BY THE B.C.S.A. #1. PIPE RAILINGS SHALL BE FABRICATED OF NOMINAL SIZE 1 1/2 INCH ALUMINUM PIPE MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION FOR ALUMINUM-ALLOY PIPE ASTM DESIGNATION: B 241, 6063 T6 ASA SCHEDULE 40. THE RAIL SHALL BE JOINED BY WELDING OR SHALL BE PROVIDED WITH INTERNAL SLEEVES AND SHALL BE SMOOTH AND WATERTIGHT AFTER ERECTION. ALL JOINTS SHALL BE GROUND TO REMOVE SHARP BURRS AND EDGES. ALL APPURTENANCES NECESSARY FOR A COMPLETE JOB, SUCH AS PLATES, FLANGES, MOUNTING HARDWARE, SLEEVES AND APPROVED ANCHORING DEVICES SHALL BE FURNISHED. RAILINGS MOUNTED ON CONCRETE SHALL BE SET IN LEAD. RAILING LOCATIONS SHALL CONFORM TO THE DIMENSIONS SHOWN ON THE DETAILS.

HOIST EYE BOLTS: 2" EYE BOLTS SHALL BE PROVIDED AS SHOWN ON THE PLANS TO ACCOMMODATE EQUIPMENT MAINTENANCE AND REMOVAL. ONE EYE BOLT SHALL BE INSTALLED IN THE DRY WELL SUPERSTRUCTURE CEILING CENTERED OVER THE MAINTENANCE HATCH. TWO EYE BOLTS SHALL BE INSTALLED IN THE DRY WELL LOWER INTERMEDIATE FLOOR CEILING CENTERED OVER EACH OF THE PUMP MOTORS AND ONE EYE BOLT SHALL BE INSTALLED IN THE DRY WELL BASEMENT CEILING CENTERED BETWEEN SEWAGE PUMPS. ONE EYE BOLT SHALL BE INSTALLED IN THE WET WELL SUPERSTRUCTURE CEILING CENTERED OVER THE MAINTENANCE HATCH AND

ONE EYE BOLT SHALL BE INSTALLED IN THE COMMINUTOR CHAMBER CEILING CENTERED OVER THE COMMINUTOR.

ALUMINUM LADDERS: WHERE INDICATED ON THE DRAWINGS, THE CONTRACTOR SHALL FURNISH AND INSTALL ALUMINUM LADDERS WHICH SHALL BE ATTACHED TO THE ADJOINING CONSTRUCTION IN A RIGID, SECURE MANNER. THE LADDERS SHALL BE CONSTRUCTED OF ALUMINUM ASSOCIATION'S ALLOY 6063-T6, EXCEPT RIVETS, WHICH IF USED IN THE CONSTRUCTION SHALL CONFORM TO ALUMINUM ASSOCIATION'S ALLOY 5053-T61. THE LADDERS SHALL BE CONSTRUCTED OF ALUMINUM STRUCTURAL SECTIONS OF SUCH STRENGTH AS WILL CARRY A LOAD OF 400 POUNDS ON A RUNG, WITH A FACTOR OF SAFETY OF 2, AND SHALL BE OF SUCH CONSTRUCTION AS WILL NOT ALLOW ANY UNDUE VIBRATION, DEFLECTION, OR OTHER OBJECTIONABLE MOVEMENT UNDER NORMAL USE.

GRATING: SAFETY GRATING SHALL BE MANUFACTURED OF ALUMINUM ALLOY 6063-T6. GRATING SHALL BE OF SUCH CONSTRUCTION AS TO HAVE A UNIFORM LOAD CAPACITY OF 150 POUNDS PER SQUARE FOOT WITH A DEFLECTION OF LESS THAN 1/160 OF THE CLEAR SPAN. BEARING BARS SHALL NOT BE LESS THAN 3/16" THICK, AND THE MINIMUM DEPTH OF BARS SHALL BE AT LEAST 1 1/2".

SUPPORT ANGLES SHALL BE SUPPLIED AND INSTALLED AS SHOWN ON THE PLANS AND AS REQUIRED TO MEET THE ABOVE LOADING REQUIREMENTS. ALL EMBEDDED SUPPORT OR ATTACHMENT MEMBERS SHALL BE ALUMINUM.

SUMP PUMP: A SUMP PUMP SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AS SHOWN IN THE PLANS AND/OR AS SPECIFIED HEREIN. THE SUBMERSIBLE SUMP PUMP SHALL HAVE A MINIMUM OF 1/2 H.P. AND A MAXIMUM SPEED 1800 RPM AND DELIVER 45 GPM AT 20' T.D.H. AND SHALL BE MODEL 3883, AS MANUFACTURED BY GOULDS PUMPS, INC. OR APPROVED EQUAL. THE MOTOR SHALL BE WIRED FOR 208 VOLT, SINGLE PHASE SERVICE AND CONNECTED DIRECTLY TO THE PUMP IMPELLER BY A 316 STAINLESS STEEL SHAFT. THE VOLUTE CASING SHALL HAVE FEET TO SUPPORT THE IMPELLER ABOVE THE BOTTOM OF THE SUMP. THE PUMP SHALL BE EQUIPPED WITH AN AUTOMATIC FLOAT CONTROL WITH AN ADJUSTABLE DIAPHRAGM FLOAT SWITCH. SUMP PUMP DISCHARGE PIPING SHALL BE 2" GALVANIZED STEEL, SCHEDULE 40, ASTM A - 120 AND BE FURNISHED COMPLETE WITH ALL NECESSARY FITTINGS, WALL SLEEVES, UNIONS AND APPURTENANCES. ALSO FURNISHED SHALL BE A PARALLEL SEAT, DOUBLE GATE AWWA C-500 GATE VALVE. TWO 2" SWING TYPE CHECK VALVES SHALL ALSO BE INSTALLED IN THE DISCHARGE LINE.

FIRE EXTINGUISHER: THE PUMP STATION SHALL BE PROVIDED WITH FIVE (5) 10 LB., BRACKET MOUNTED CO_2 FIRE EXTINGUISHERS FOR TYPE B AND TYPE C FIRES AND BE APPROVED BY UNDERWRITERS LABORATORIES, INC. ONE FIRE EXTINGUISHER SHALL BE MOUNTED IN EACH OF THE FOUR CHAMBERS OF THE DRY WELL AND ONE SHALL BE MOUNTED ON THE COMMINUTOR LEVEL OF THE WET WELL.

START-UP SERVICES

THE CONTRACTOR UPON COMPLETION OF WORK SHALL MAKE CERTAIN THAT PERMANENT ELECTRICAL POWER IS PROPERLY INSTALLED INTO THE STATION

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GENERAL NOTES

CONTROL PANEL, THE ENTRANCE SWITCH FUNCTIONS AND IS WIRED PROPERLY AND ALL EQUIPMENT IS PROPERLY AND PERMANENTLY INSTALLED. THE CONTRACTOR SHALL THEN ARRANGE FOR THE SERVICES OR REPRESENTATIVES OF THE STATION MECHANICAL AND ELECTRICAL EQUIPMENT MANUFACTURER TO CHECK THE INSTALLATION, PLACE THE STATION INTO OPERATION AND GIVE MAINTENANCE INSTRUCTIONS. THE CONTRACTOR SHALL NOTIFY ALL FIRMS INVOLVED IN THE STATION INSTALLATION AND REQUEST THAT THEY HAVE A REPRESENTATIVE AT THE PUMPING STATION TO PERFORM INITIAL START-UP OF THE PUMPING STATION AND TO INSTRUCT OPERATING PERSONNEL IN THE OPERATION AND MAINTENANCE OF THE EQUIPMENT AND TO DEMONSTRATE SATISFACTORILY THE PERFORMANCE OF EACH PIECE OF EQUIPMENT. CONTRACTOR SHALL FURNISH 4 SETS OF OPERATION MANUALS IN BOOK FORM FOR ALL ITEMS OF EQUIPMENT.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THE PUMPING STATION TO BE OF QUALITY CONSTRUCTION, FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP.

THE EQUIPMENT, APPARATUS AND PARTS FURNISHED SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE CONTRACT, EXCEPTING ONLY THOSE ITEMS THAT ARE NORMALLY CONSUMED IN SERVICE, SUCH AS LIGHT BULBS, OIL, GREASE, PACKING, GASKETS, ETC. THE CONTRACTOR SHALL BE SOLEY RESPONSIBLE FOR THE GUARANTEE OF THE UNIT AND ALL COMPONENTS.

THE WARRANTY WILL BECOME EFFECTIVE UPON THE DATE OF ACCEPTANCE.

MAJOR COMPONENTS, SUCH AS STATION STRUCTURE, PUMPS, PUMP MOTORS, ETC. FAILING TO PERFORM AS SPECIFIED, OR AS REPRESENTED BY THE MANUFACTURER; OR PROVEN DEFECTIVE IN SERVICE DURING THE GUARANTEE PERIOD, SHALL BE REPLACED, REPAIRED OR SATISFACTORILY MODIFIED WITHOUT COST. AFTER START-UP SERVICE HAS BEEN PERFORMED, LABOR TO REPLACE ACCESSORY ITEMS SUCH AS VALVES, ELECTRICAL COMPONENTS, OR OTHER ACCESSIBLY AND EASILY SERVICED PARTS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SUCH COMPONENTS, PARTS, OR REPAIRS DETERMINED TO HAVE FAILED BECAUSE OF DEFECTIVE WORKMANSHIP OR MATERIALS WILL BE REPLACED OR REPAIRED.

PAYMENT

PAYMENT FOR THE PUMP STATION WILL BE MADE AT THE UNIT PRICE BID PER LUMP SUM, ITEM SPECIAL, PUMP STATION, AND SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING AND INSTALLING ALL MATERIALS AND EQUIPMENT NECESSARY TO CONSTRUCT THE PUMP STATION COMPLETE AND IN PLACE AS DESCRIBED HEREIN AND AS SHOWN ON THE PLANS.

REGULATOR

COMBINED FLOW REGULATORS:

GENERAL: UNDER THIS ITEM SPECIAL, COMBINED SEWAGE REGULATOR, THE CONTRACTOR SHALL FURNISH ALL EXCAVATION, LABOR, MATERIALS, EQUIPMENT TOOLS AND ALL NECESSARY APPERTAINING WORK TO INSTALL THIS ITEM SPECIAL, COMPLETE AND IN PLACE AS SHOWN IN THE PLANS AND AS SPECIFIED HEREIN.

THE NEW STRUCTURE AND APPURTENANCES SHALL BE LOCATED APPROXIMATELY AS SHOWN ON THE DRAWINGS AND SHALL BE INSTALLED AT THE APPROPRIATE GRADE IN ORDER TO ASSURE PROPER PERFORMANCE AND OPERATION. STRUCTURE SHALL BE EQUIPPED WITH NEW AUTOMATIC REGULATING EQUIPMENT EQUAL TO THAT WHICH IS CURRENTLY USED BY THE BELMONT COUNTY SEWER AUTHORITY NO. 1.

THE CONTRACTOR SHALL FURNISH SHOP DRAWINGS IN ACCORDANCE WITH SECTION 501.05.

EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH ITEM 604.

STRUCTURE: THE STRUCTURE SHALL CONSIST OF FOUR (4) CHAMBERS AND CONFORM TO THE DIMENSIONS AS OUTLINED ON THE COMBINED FLOW REGULATOR DETAIL AND BE CAST IN PLACE USING REINFORCED CLASS "C" CONCRETE CONFORMING TO THE REQUIREMENTS OF ITEM 499 IN ACCORDANCE WITH ITEM 511. REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ITEM 509.

ACCESS TO EACH OF THE FOUR (4) CHAMBERS SHALL BE GAINED THRU INDIVIDUAL ENTRY TUBES WHICH CONSIST OF PRECAST REINFORCED CONCRETE MANHOLE RISER SECTIONS IN ACCORDANCE WITH ITEM 604, PLACED ON THE SLAB TOP OF THE STRUCTURE. PROVISIONS SHALL BE MADE TO SECURE THE BOTTOM SECTION OF PIPE OF EACH TUBE TO THE SLAB TOP TO PROVIDE A HOMOGENEOUS STRUCTURE. IN ADDITION, AN ECCENTRIC CONE TOP ALONG WITH NECESSARY GRADE RINGS SHALL BE FURNISHED FOR EACH ENTRY TUBE. CONSTRUCTION OF ENTRY TUBES SHALL BE IN ACCORDANCE WITH ITEM 604. MANHOLE CASTINGS SHALL MEET THE DIMENSIONAL REQUIREMENTS SET FORTH ON STANDARD DRAWING NO. MH-1 AND CONFORM TO THE REQUIREMENTS OF 711.12 OR 711.13. MANHOLE COVERS SHALL BE SOLID AND BEAR THE WORDING "BELMONT AUTHORITY REGULATOR" CAST IN RAISED BLOCK LETTERING. STEPS SHALL BE IN ACCORDANCE WITH ITEM 604 AND STANDARD DRAWING NO. MH-1, AND MEET THE REQUIREMENTS OF 711.13, 711.30 OR 711.31. CONCRETE CHANNELS, OPENINGS AND FORMING OF THE STRUCTURE INTERNALS SHALL BE AS SHOWN ON THE PLANS AND/OR AS REQUIRED BY THE AUTOMATIC REGULATING EQUIPMENT MANUFACTURER. CONCRETE USED FOR CHANNELS AND FORMING SHALL BE CLASS "C", AND ALL MASONRY WORK SHALL BE PERFORMED IN ACCORDANCE WITH ITEM 602.

WATERPROOFING OF EXTERIOR BELOW GRADE WALLS SHALL BE PERFORMED IN ACCORDANCE WITH ITEM 512 AND BE TYPE A WATERPROOFING.

EQUIPMENT: AUTOMATIC REGULATING EQUIPMENT SHALL BE FURNISHED AND INSTALLED IN THE REGULATOR CHAMBERS COMPLETE AND IN PLACE AND BE EQUAL IN PERFORMANCE TO THE EQUIPMENT CURRENTLY USED BY THE BELMONT COUNTY SEWER AUTHORITY NO. ONE AND BROWN AND BROWN TYPE AS MANUFACTURED BY WCS LIMITED, OR APPROVED EQUAL.

COMPONENTS SHALL BE OF CORROSION RESISTANT MATERIALS. GATE BODIES AND SHUTTERS FOR REGULATORS 5" X 10" AND SMALLER ARE TO BE ALL BRONZE. SHAFTS, CHAINS, ADJUSTING BUCKLES, BOLTS AND OTHER HARDWARE ARE TO BE STAINLESS STEEL. FERROUS COMPONENTS SHALL RECEIVE A HEAVY DUTY CORROSION CONTROL EPOXY COATING THAT IS APPLIED IN TWO COATS FOLLOWING SANDBLASTING TO WHITE METAL.

AUTOMATIC REGULATING EQUIPMENT SHALL FUNCTION TO SHUT OFF ALL COMBINED FLOW TO THE PUMP STATION WHEN SUCH FLOW HAS REACHED A PREDETERMINED LEVEL DUE TO A STORM. THIS EQUIPMENT SHALL CONSIST OF A REGULATING GATE, A FLOAT AND AN INTERCONNECTING FULLY ADJUSTABLE UNIT ARRANGED IN SUCH BALANCE THAT ANY CHANGE IN DEPTH OF FLOW WHICH CONTACTS THE FLOAT WILL ACTUATE THE REGULATING GATE.

THE REGULATOR GATE SHALL BE OF THE REVERSE TAINTER, ARCUATE OR SECTOR TYPE AND SHALL COMPRISE, (1) A CAST BODY OR TUBE SECTION OF THE SIZE INDICATED ON THE DRAWINGS WITH BACK FLANGE TO SUIT THE COMPANION FLANGE ON THE WALL CASTING AND WITH AN ARCUATE FLANGE ON THE DISCHARGE END, (2) AN ARCUATELY SHAPED SHUTTER SECTION WHICH SHALL SWING CONCENTRICALLY AROUND THE ARCUATE FLANGE ON THE TUBE BY MEANS OF (3) SUITABLE CAST RADIAL HINGE ARMS WHICH SHALL TURN ON BEARINGS OR TRUNNIONS LOCATED ON THE SIDES OF THE GATE TUBE NEAR THE TUBE BACK FLANGE. THE BACK FLANGE SHALL BE MACHINED AND FITTED TO THE COMPANION FLANGE ON THE WALL CASTING WITH A SUITABLE GASKET BETWEEN.

THE REGULATOR GATE SHUTTER SHALL BE A RIBBED ARCUATELY SHAPED CASTING WITH A SUITABLE MEANS FOR CONNECTING THE RADIAL HINGE ARMS AND THE TRANSMISSION UNIT. THE ARCUATE SURFACE, WHICH IS COMPANION TO THE GATE TUBE, SHALL BE MACHINED. THE SHUTTER SHALL BE FURTHER MACHINED TO ASSURE PROPER CONNECTION TO THE RADIAL HINGE ARMS AND TO PROVIDE PROPER BALANCE. THE GATE SHUTTER SHALL BE SO CONSTRUCTED THAT THE TENSION IN THE TRANSMISSION CONNECTION SHALL BE CONSTANT REGARDLESS OF THE POSITION OF THE SHUTTER WITHIN ITS WORKING RANGE.

THE REGULATOR OPENING SHALL BE OF CAST IRON WITH BRONZE SEAT FACINGS. THE COMPANION FACES ON GATE TUBE AND SHUTTER SHALL BE FACED WITH BRONZE BARS NOT LESS THAN 1/4" THICK AND 2 1/2" WIDE. THE BARS SHALL BE CAREFULLY FORMED TO FIT THE SURFACES TO WHICH THEY ARE ATTACHED. THEY SHALL BE ATTACHED WITH BRONZE SCREWS WITH COUNTERSUNK HEADS. A SEALANT SHALL BE APPLIED BETWEEN THE BRONZE FACES AND THE FERROUS FINISHED SURFACES TO WHICH THEY ARE ATTACHED. FOLLOWING ATTACHMENT OF THE SEAT FACES, THE COMPANION FACES SHALL BE REMACHINED, GROUND AND LAPPED SO THAT, WHEN THE GATE IS CLOSED, IT SHALL BE PRACTICALLY WATERTIGHT. FOR THE ALL-BRONZE REGULATORS, THE SAME MACHINING, GRINDING AND LAPPING PROCESSES SHALL BE FOLLOWED.

RADIAL HINGE ARMS SHALL BE ACCURATELY MACHINED FOR THE TRUNNION FITS AND FOR THE CONNECTIONS AND SHALL BE CAPABLE OF MICROMETER ADJUSTMENTS TO PERMIT MINIMUM CHANGES IN CLEARANCE BETWEEN ARCUATE COMPANION FACES.

THE FLOAT ASSEMBLY SHALL CONSIST OF A FLOAT AND A HINGED GUIDE ARRANGEMENT WITH WALL BRACKETS AND ROTATABLE FINGERS ON THE TRANSMISSION SHAFT TO LIMIT FLOAT TRAVEL. THE FLOAT SHALL BE A HOLLOW CASTING OF SUCH DIMENSIONS THAT A CHANGE OF NOT MORE THAN 1/2" IN SUBMERGENCE SHALL BE SUFFICIENT TO REVERSE THE DIRECTION OF THE GATE SHUTTER TRAVEL. THE CASTING SHALL BE CYLINDRICAL WITH AMPLE STAYS BETWEEN THE HEADS. A SMALL CIRCULAR OPENING SHALL BE CAST IN THE HEAD AND COVERED WITH A PLATE THAT IS SECURED WITH STUDS AND NUTS. THE FLOAT SHALL BE HYDROSTATICALLY TESTED AND PROVEN WATERTIGHT TO 30 PSI.

THE FLOAT GUIDE HINGE BOLTS AND WALL BRACKETS SHALL BE STAINLESS STEEL. THE ASSEMBLY SHALL BE CONSTRUCTED SO AS TO ACCOMMODATE FUTURE ADJUSTMENTS FOR ELEVATION OF THE FLOAT. CAST IRON ROTATABLE FINGERS SHALL BE ACCURATELY MACHINED AND FITTED WITH LOCKING DEVICES TO LIMIT THE UPWARD AND DOWNWARD TRAVEL OF THE FLOAT.

THE TRANSMISSION ASSEMBLY SHALL CONSIST OF AN OVERHEAD STAINLESS STEEL SHAFT EXTENDING ABOVE THE GATE AND THE FLOAT WITH GROOVED WHEELS OR SECTORS. TO THESE, STAINLESS COIL CHAINS SHALL BE ATTACHED FOR CONNECTION TO THE REGULATOR SHUTTER GATE AND FLOAT.

THE TRANSMISSION SHAFT SHALL BE MACHINE FINISHED AND REST IN TWO UNIVERSAL TYPE WEATHER-PROOF ROLLER BEARING PILLOW BLOCKS SUPPORTED BY CAST BRACKETS MOUNTED UPON CHAMBER WALLS WITH ANCHOR BOLTS CAST IN THE CONCRETE.

THE TRANSMISSION WHEELS OR SECTORS SHALL BE CAST AND ACCURATELY BORED, FACED AND KEYED TO THE SHAFT. THE PERIPHERAL GROOVES SHALL BE MACHINE FINISHED.

THE TRANSMISSION CHAINS SHALL BE STAINLESS COIL CHAINS. IN EACH OF THESE TRANSMISSION CHAINS SHALL BE INSERTED AN ADJUSTING BUCKLE TO PERMIT LENGTHENING AND SHORTENING TO SUIT CHANGED OPERATING CONDITIONS.

THE FOLLOWING MATERIAL SPECIFICATIONS SHALL APPLY:

CAST IRON: A.S.T.M. CLASS 35 FOR THE LARGE (5" X 9 1/4") REGULATOR, LARGE REGULATOR SHUTTER, ALL WALL CASTINGS, FLOATS, TRANSMISSION WHEELS, WALL BRACKETS, TRAVEL LIMITS, AND RADIAL HINGE ARMS ON THE LARGE REGULATOR.

CAST IRON: A.S.T.M. A48, CLASS 20 FOR THE PILLOW BLOCK BASES, CAPS AND ROLLER CAGES AND THE SECTIONAL COUNTERWEIGHTS.

BRONZE CASTINGS: A.S.T.M. B30, COMPOSITION 4 FOR ALL OTHER REGULATOR GATE BODIES, SHUTTERS, RADIAL HINGE ARMS, HINGE ARM COVER PLATES AND WEATER-PROOFING GLANDS FOR PILLOW BLOCKS.

STAINLESS STEEL: TYPE 316 FOR THE TRANSMISSION SHAFT, ALL BOLTING AND ADJUSTING BUCKLES AND THE FLOAT GUIDE ASSEMBLY COMPONENTS.

NAVAL BRASS: A.S.T.M. B-21 FOR THE LARGE REGULATOR SEAT FACES.

GREASE FITTINGS: ALEMITE TYPE OF STAINLESS STEEL CONSTRUCTION.

FOLLOWING INSTALLATION, A FACTORY-TRAINED REPRESENTATIVE SHALL CHECK THE INSTALLATION AND PROVIDE FINAL ADJUSTMENTS TO SUITE THE ACTUAL FLOWS.

PAYMENT FOR THE COMBINED FLOW REGULATOR SHALL INCLUDE ALL LABOR, EXCAVATION AND BACKFILL, PAVEMENT REPLACEMENT, MATERIALS, EQUIPMENT, TOOLS, AND INCIDENTAL WORK NECESSARY TO COMPLETELY CONSTRUCT THE SEWAGE REGULATOR WITH ALL APPURTENANCES INCLUDING BACKWATER GATE AND CONTROLS, DIVERSION CHAMBER AND DAM, TELL-TALE OPENING, FLOW REGULATOR, MASONRY AND ALL TESTING TO ASSURE A WORKING REGULATOR AND SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM SPECIAL, COMBINED FLOW REGULATOR.

REVISED 5-2-90

DRAWN	CK'D.	CORR.	BK.CK'D.	I.C.CK.	Revised
WAC. 5/21/84	GET. 5/24/84	WAC. 6/5/84	GET. 6/6/84	O.O.O. 8/24/84	Get/LE 2/4/85

Calc. By: Wa.C. Date: 2-25-85
Chkd. By: Get. Date: 2-27-85

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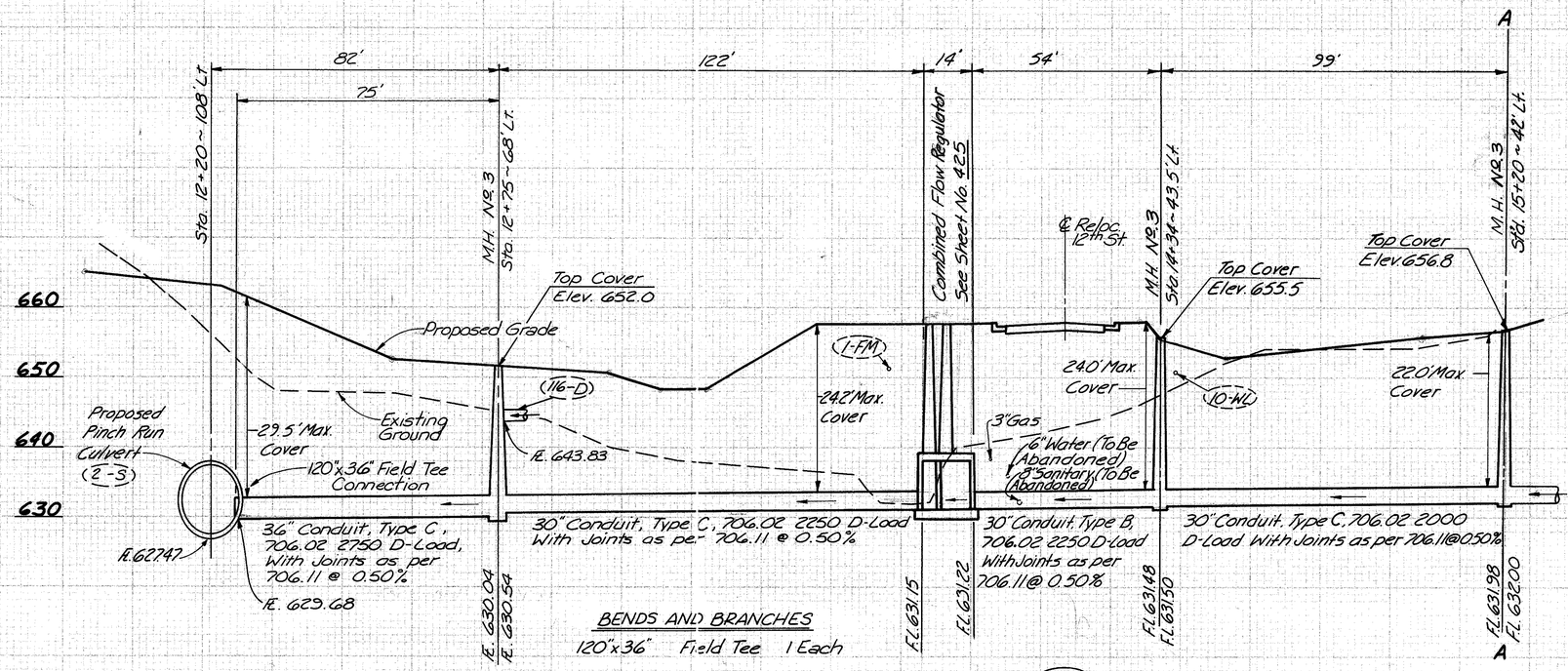


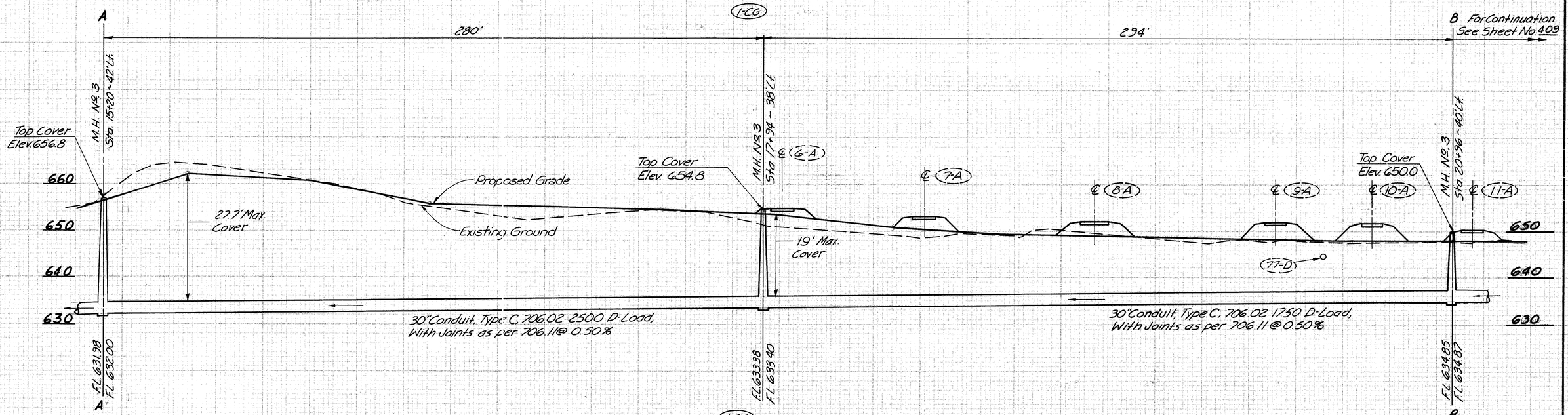
BENDS AND BRANCHES
120"x36" Field Tee 1 Each

(1-CG)

Sta. 12+25 To Sta. 24+49 ~ 1ST Reloc. Belmont St.
For Plan, See Sheet No. 30, 260, 262, 263, 265

SCALE: 1" = 20' Horizontal
1" = 10' Vertical

For Quantities, See Sheet No. 409

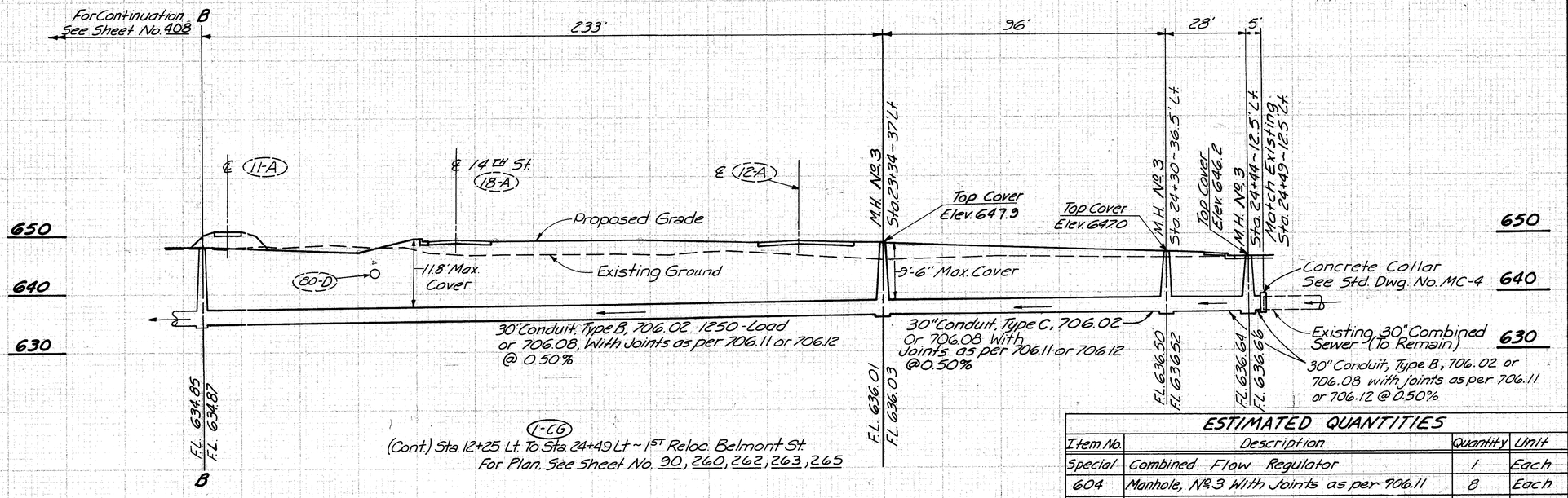


W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

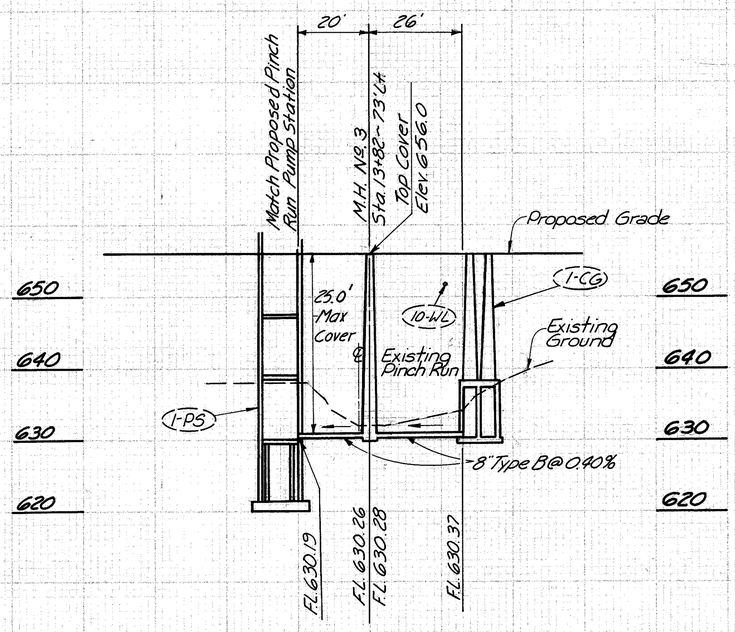
(1-CG) COMBINED GRAVITY SEWER PROFILE

Calc. By: W.a.C. Date: 2-25-85
Chkd. By: Get. Date: 2-27-85

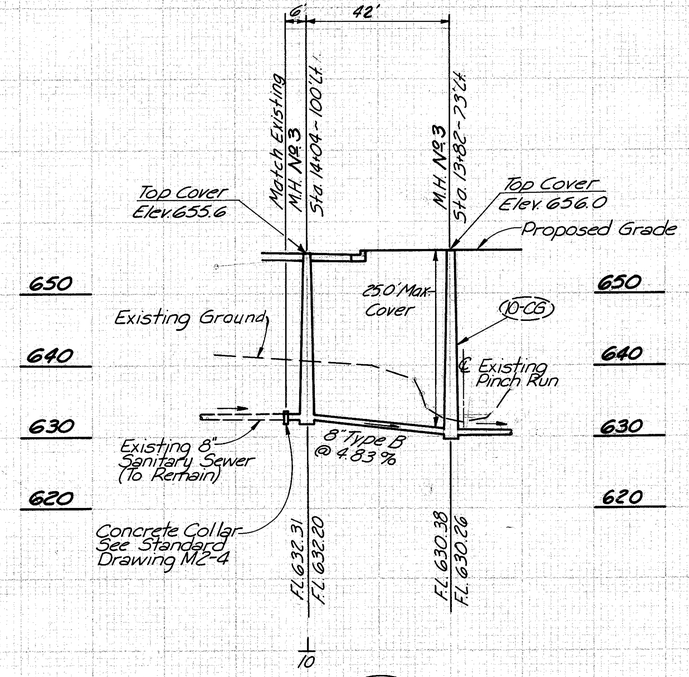
BEL-7-14.17 | OHIO | FHWA REGION 5 | 409 / 663



(1-CG)
(Cont.) Sta. 12+25 Lt. To Sta. 24+49 Lt ~ 1ST Reloc. Belmont St.
For Plan, See Sheet No. 90, 260, 262, 263, 265



(10-CG)
Sta. 13+68 Lt. To 13+81 Lt. ~ 1ST Reloc. Belmont St.
For Plan, See Sheet No. 260



(11-CG)
Sta. 13+82 Lt. To Sta. 14+04 Lt. ~ 1ST Reloc. Belmont St.
For Plan, See Sheet No. 260

ESTIMATED QUANTITIES

	Item No.	Description	Quantity	Unit
	Special	Combined Flow Regulator	1	Each
	604	Manhole, №3 With Joints as per 706.11	8	Each
	603	30" Conduit, Type B, 706.02 Or 706.08, with Joints as per 706.11 or 706.12	33	Lin. Ft.
	603	30" Conduit, Type B, 706.02 1250 D-Load or 706.08 with Joints as per 706.11 or 706.12	233	Lin. Ft.
	603	30" Conduit, Type B, 706.02 1750 D-Load with Joints as per 706.11	294	Lin. Ft.
(1-CG)	603	30" Conduit, Type C, 706.02 2000 D-Load with Joints as per 706.11	99	Lin. Ft.
	603	30" Conduit, Type C, 706.02 2250 D-Load With Joints as per 706.11	176	Lin. Ft.
	603	30" Conduit, Type C, 706.02 2500 D-Load With Joints as per 706.11	280	Lin. Ft.
	603	36" Conduit, Type B, 706.02 2750 D-Load with Joints as per 706.11	75	Lin. Ft.
	603	30" CONDUIT, TYPE C, 706.02 OR 706.08 W/ JOINTS AS PER 706.11 OR 706.12	96	LIN. FT.
		Quantities Carried to Sheet No. 261		
	604	Manhole, №3 With Joints as per 706.11	1	Each
(10-CG)	603	8" Conduit, Type B, 706.01, 706.02 or 706.08 with joints as per 706.11 or 706.12	46	Lin. Ft.
		Quantities Carried to Sheet No. 261		
	604	Manhole, №3 With Joints as per 706.11	1	Each
(11-CG)	603	8" Conduit, Type B, 706.01, 706.02 or 706.08 with joints as per 706.11 or 706.12	48	Lin. Ft.
		Quantities Carried to Sheet No. 261		

SCALE: 1" = 20' Horizontal
1" = 10' Vertical

(1-CG) (10-CG) (11-CG) COMBINED GRAVITY SEWER PROFILES

Calc. By: WaC. Date: 2-25-85
Chkd. By: Get. Date: 2-27-85

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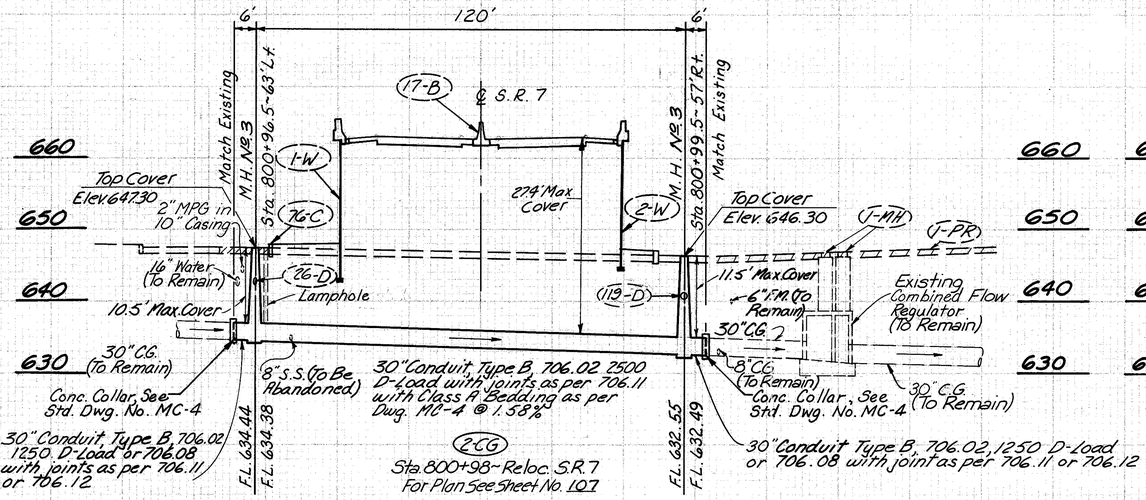

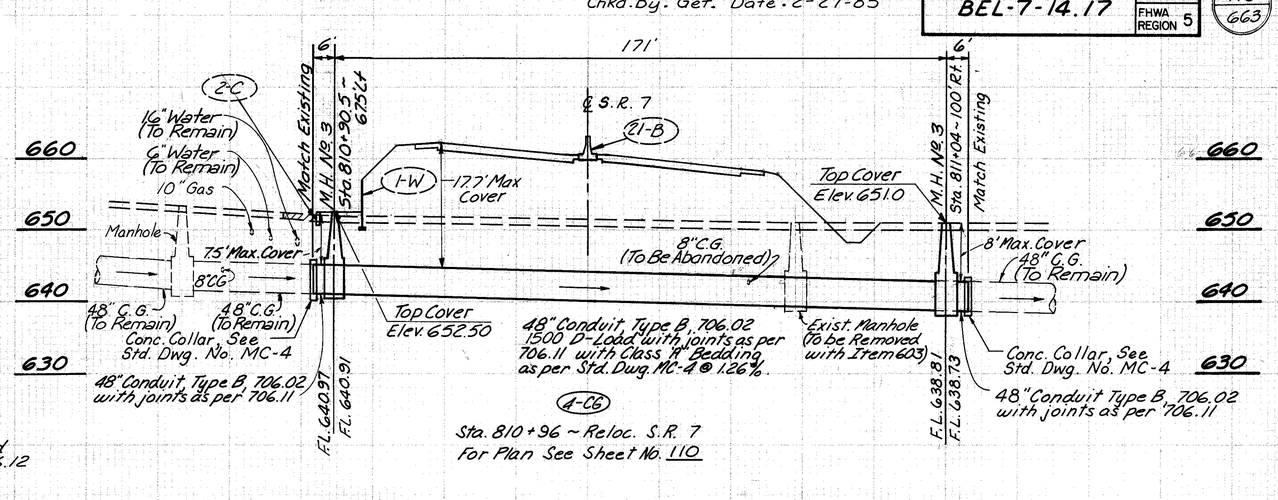

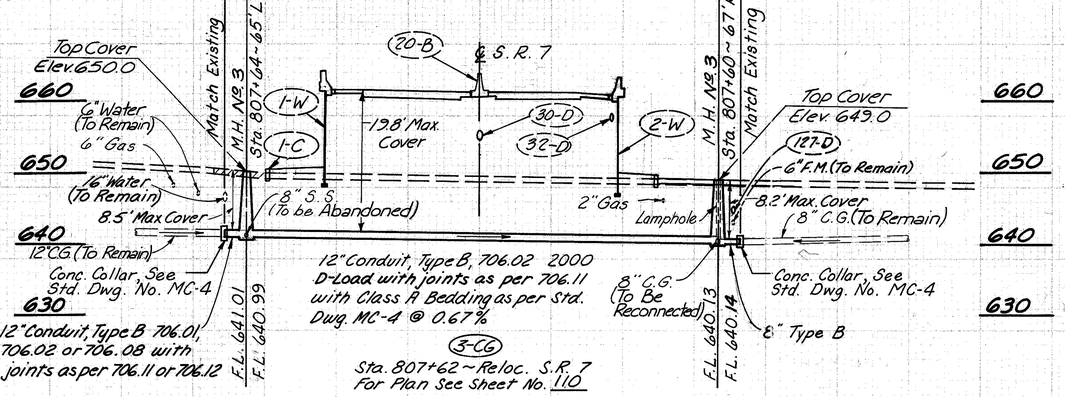

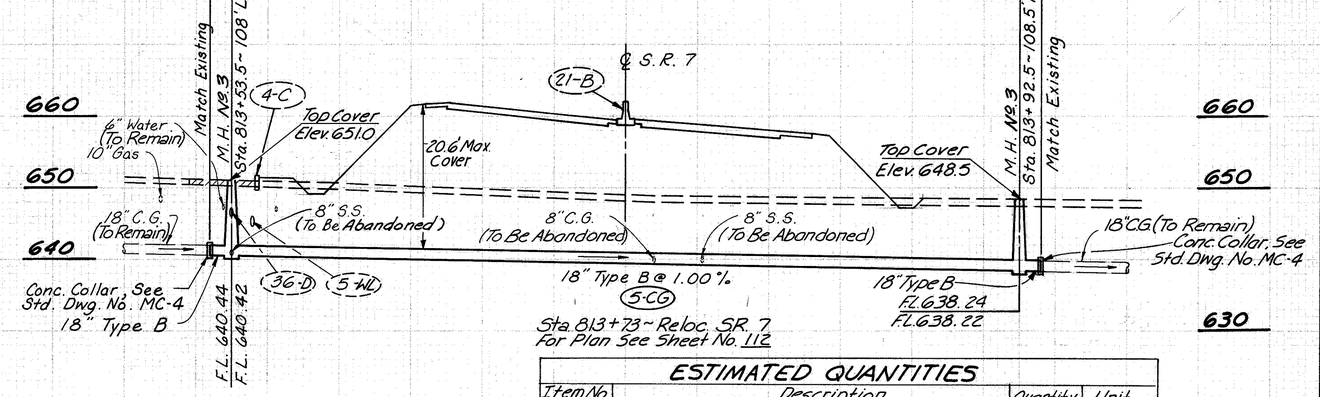

ESTIMATED QUANTITIES

2-CG

Item No.	Description	Quantity	Unit
604	Manhole, No. 3 With Joints as per 706.11	2	Each
603	30" Conduit, Type B, 706.02 2500 D-Load	120	Lin. Ft.
	with joints as per 706.11 with Class A Bedding		
402	Asphalt Concrete, AC-20	0.50	Cu. Yd.
404	Asphalt Concrete, AC-20	0.50	Cu. Yd.
305	8" Concrete Base	14.38	Sq. Yd.
603	30" Conduit, Type B, 706.02 1250 D-Load or 706.08 with joints as per 706.11 or 706.12	12	Lin. Ft.
	Quantities Carried to Sheet No. 108		

ESTIMATED QUANTITIES

3-CG

Item No.	Description	Quantity	Unit
604	Manhole, No. 3 With Joints as per 706.11	2	Each
603	12" Conduit, Type B, 706.02 2000 D-Load	126	Lin. Ft.
	with joints as per 706.11 with Class A Bedding		
603	8" Conduit, Type B, 706.01, 706.02 or 706.08	18	Lin. Ft.
	with joints as per 706.11 or 706.12		
402	Asphalt Concrete, AC-20	0.36	Cu. Yd.
404	Asphalt Concrete, AC-20	0.36	Cu. Yd.
305	8" Concrete Base	10.06	Sq. Yd.
603	12" Conduit, Type B, 706.01, 706.02 or 706.08 with joints as per 706.11 or 706.12	12	Lin. Ft.
	Quantities Carried to Sheet No. 111		

SCALE: 1"=20' Horizontal
1"=10' Vertical

ESTIMATED QUANTITIES

4-CG

Item No.	Description	Quantity	Unit
604	Manhole, No. 3 With Joints as per 706.11	2	Each
603	48" Conduit, Type B, 706.02 1500 D-Load	165	Lin. Ft.
	with joints as per 706.11 with Class A Bedding		
402	Asphalt Concrete, AC-20	1.17	Cu. Yd.
404	Asphalt Concrete, AC-20	1.17	Cu. Yd.
305	8" Concrete Base	33.84	Sq. Yd.
603	48" Conduit, 706.02 with joints as per 706.11	12	Lin. Ft.
	Quantities Carried to Sheet No. 111		

ESTIMATED QUANTITIES

5-CG

Item No.	Description	Quantity	Unit
604	Manhole, No. 3 With Joints as per 706.11	2	Each
603	18" Conduit, Type B, 706.02 2000 D-Load	232	Lin. Ft.
	with joints as per 706.11		
402	Asphalt Concrete, AC-20	0.35	Cu. Yd.
404	Asphalt Concrete, AC-20	0.35	Cu. Yd.
305	8" Concrete Base	3.87	Sq. Yd.
	Quantities Carried to Sheet No. 117		

(2-CG) (3-CG) (4-CG) (5-CG) COMBINED GRAVITY SEWER PROFILES

Calc. By: WaC. Date: 2-26-85
Chkd. By: Get. Date: 2-27-85

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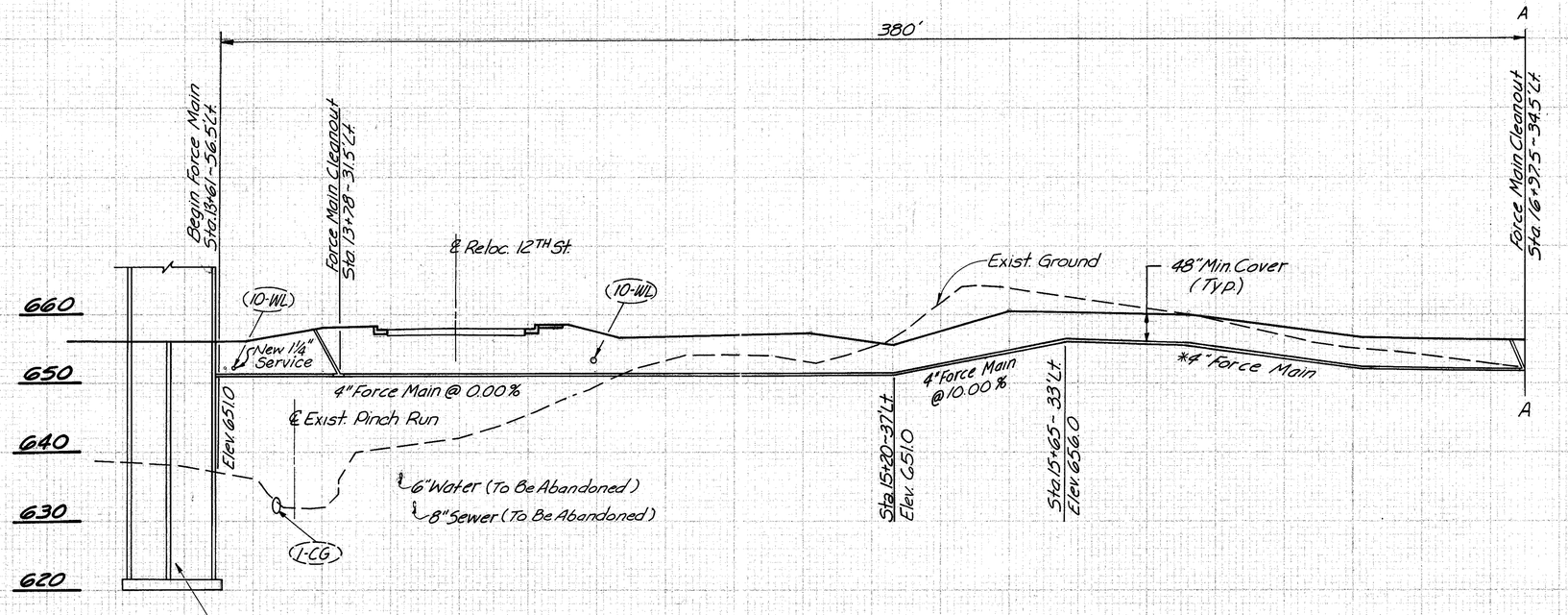

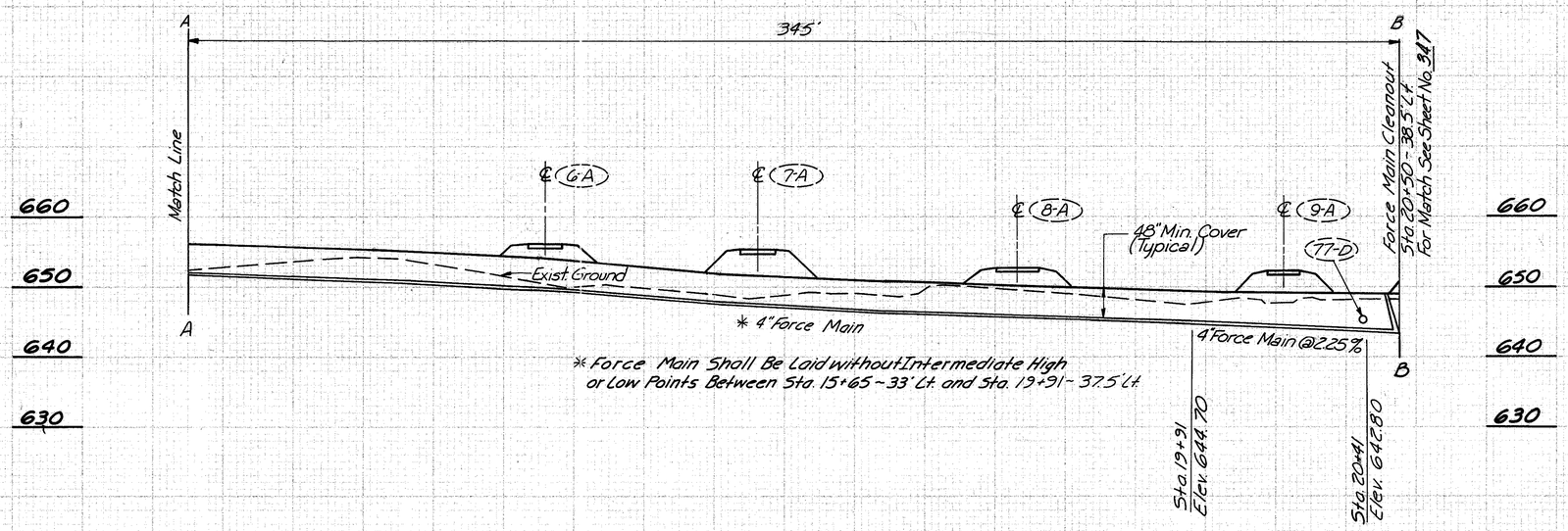

* Force Main Shall Be Laid Without Intermediate High or Low Points Between Sta. 15+65 - 33' Lt. and Sta. 19+91 - 37.5' Lt.

(1-FM)

Sta. 13+61 Lt. To Sta. 24+50 - 1ST Reloc. Belmont St.
For Plan See Sheet No. 260, 262, 263, 265

ESTIMATED QUANTITIES

	Item No.		Quantity	Unit
(1-FM)	603	4" Force Main with fittings, as per plan	1163	Lin. Ft.
	Special	Force Main Cleanout	4	Each
		Quantities Carried to Sheet No. 261		

SCALE 1"=20' Horizontal
1"=10' Vertical

(1-FM) FORCE MAIN PROFILE

Calc. By: W.a.C. Date: 2-26-85
Chkd. By: Get. Date: 2-27-85

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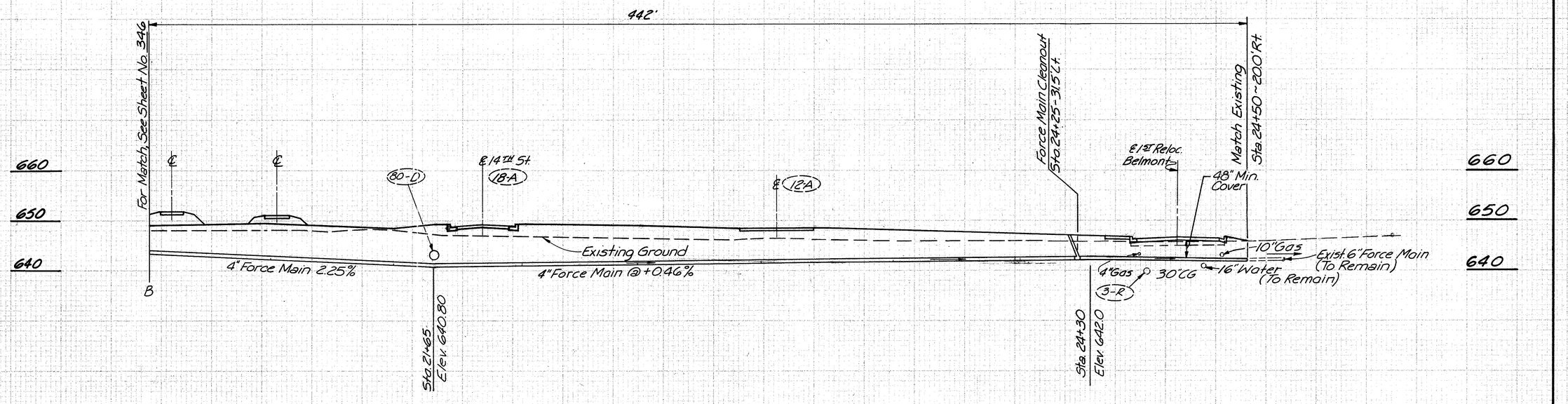


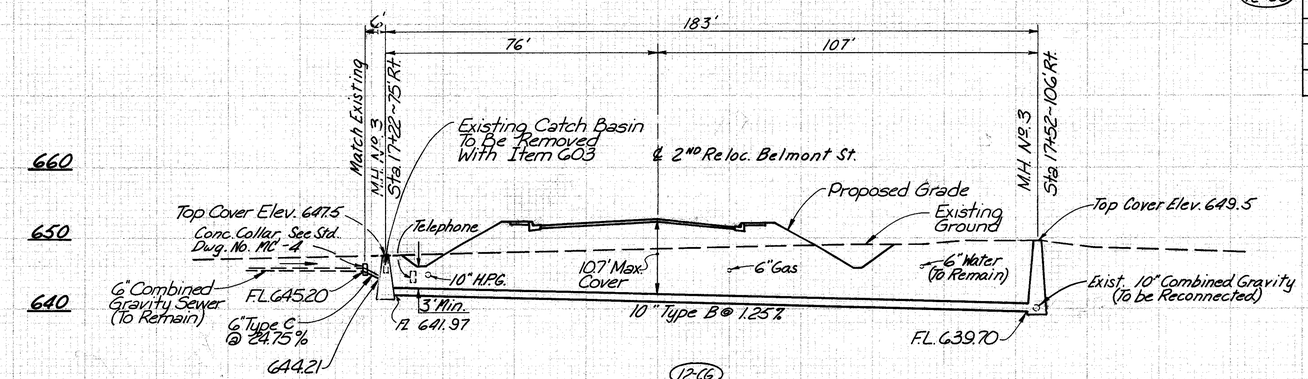
(1-FM) Con't.
Sta. 13+61 Lt. To Sta. 24+50 Rt. ~ 1ST Reloc. Belmont St.
For Plan See Sheet No. 260, 262, 263, 265

For Quantities See Sheet No. 411

SCALE: 1" = 20' Horizontal
1" = 10' Vertical

ESTIMATED QUANTITIES			
Item No.	Description	Quantity	Unit
604	Manhole, No. 3 With Joints As Per 706.11	2	Each
603	10" Conduit, Type B, 706.01, 706.02 Or 706.08	195	Lin. Ft.
	With Joints As Per 706.11 Or 706.12		
603	6" Conduit, Type C, 706.01, 706.02 Or 706.08	6	Lin. Ft.
	With Joints As Per 706.11 Or 706.12		
	Quantities Carried To Sheet No. 279		

(12-CG)



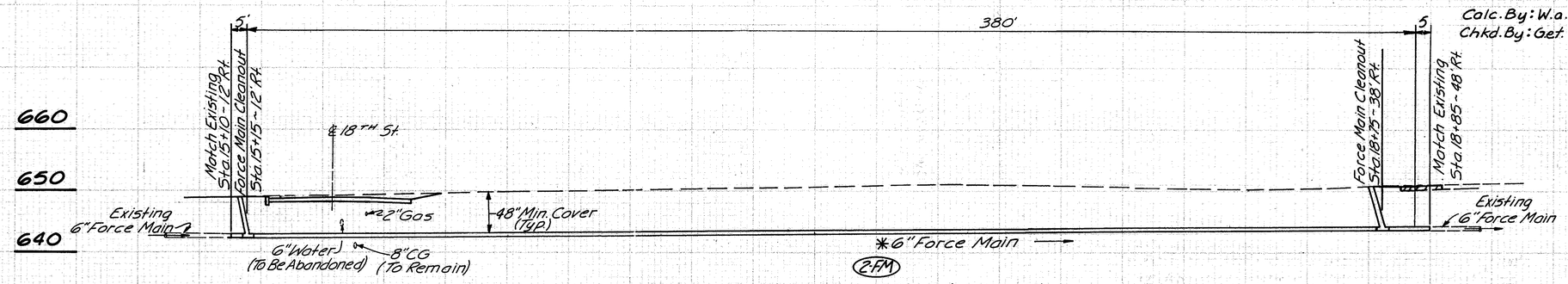
(12-CG)

STA. 17+35 ~ 2ND RELOC. BELMONT ST.
For Plan, See Sheet No. 278

(12-CG) (1-FM) COMBINED GRAVITY SEWER AND FORCE MAIN PROFILES

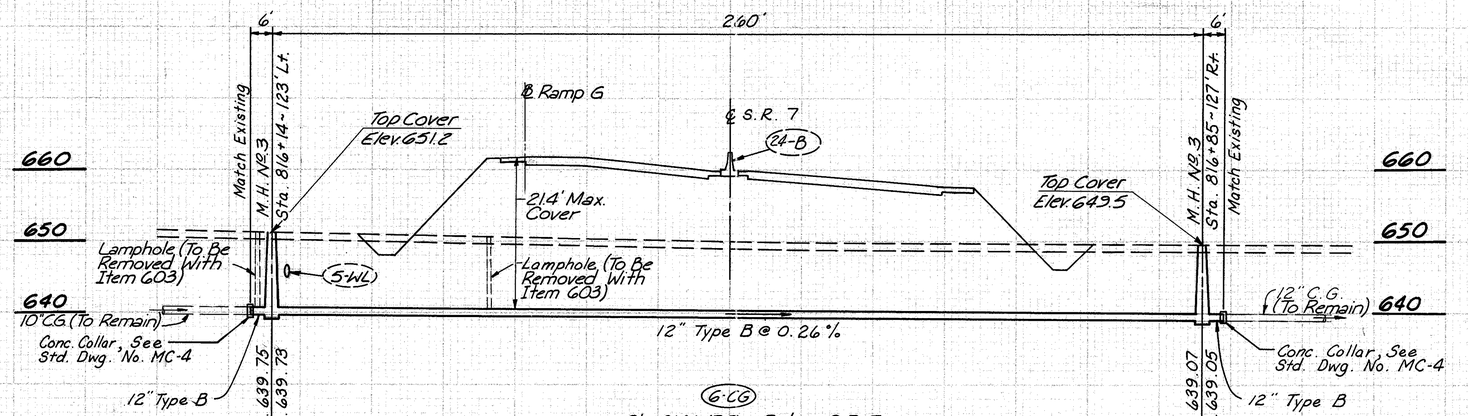
Calc. By: W.a.C. Date: 2-26-85
Chkd. By: Get. Date: 2-27-85

BEL-7-14.17 | OHIO | FHWA REGION 5 | 413 / 663

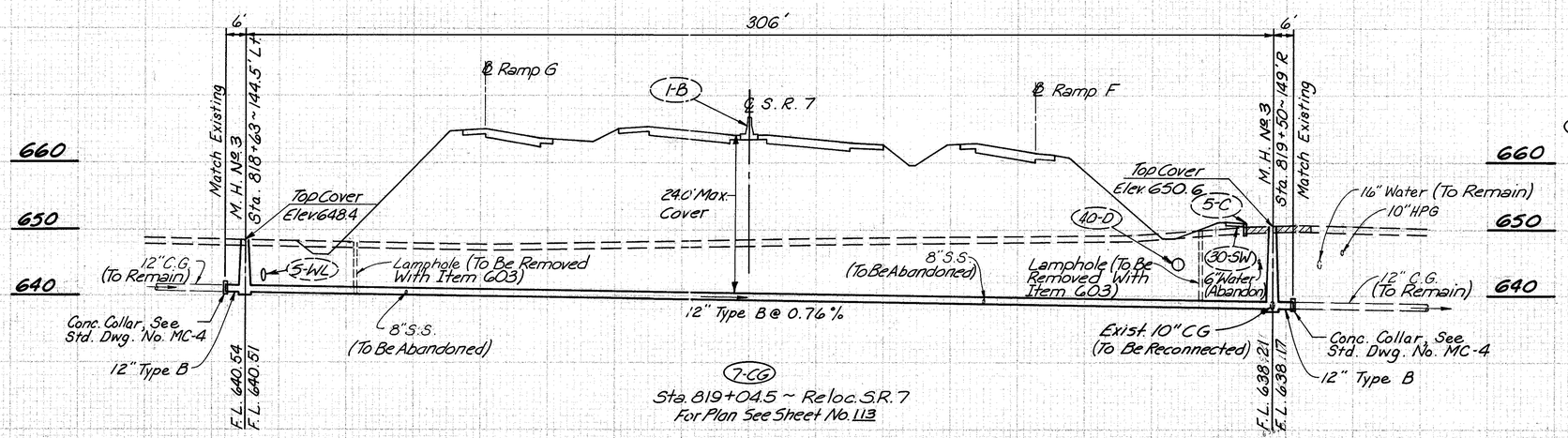


Sta. 15+10 Rt. To 18+85 Rt. ~ Reloc. Grape Alley
For Plan, See Sheet No. 110

* Force Main shall be laid without Intermediate high or low points between connections to Existing



Sta. 816+47.5 ~ Reloc. S.R. 7
For Plan See Sheet No. 112



Sta. 819+04.5 ~ Reloc. S.R. 7
For Plan See Sheet No. 113

ESTIMATED QUANTITIES

	Item No.	Description	Quantity	Unit
	603	6" Force Main with fittings, as per plan	390	Lin. Ft.
2-FM	Special	Force Main Cleanout	2	Each
	402	Asphalt Concrete, AC-20	0.31	Cu. Yd.
	404	Asphalt Concrete, AC-20	0.31	Cu. Yd.
	305	8" Concrete Base	8.89	Sq. Yd.
		Quantities Carried to Sheet No. 111		
	604	Manhole, No. 3 With Joints as per 706.11	2	Each
	603	12" Conduit, Type B, 706.02 2250 D-Load	272	Lin. Ft.
		with joints as per 706.11		
	402	Asphalt Concrete, AC-20	0.08	Cu. Yd.
6-CG	404	Asphalt Concrete, AC-20	0.08	Cu. Yd.
	305	8" Concrete Base	2.37	Sq. Yd.
		Quantities Carried to Sheet No. 117		
	604	Manhole, No. 3 With Joints	2	Each
		as per 706.11		
	603	12" Conduit, Type B, 706.02 2500 D-Load	318	Lin. Ft.
7-CG		with joints as per 706.11		
	603	10" Conduit, Type 'B,' 706.01, 706.02 or	6	Lin. Ft.
		706.08 With Joints as per 706.11 or 706.12		
	402	Asphalt Concrete, AC-20	0.65	Cu. Yd.
	404	Asphalt Concrete, AC-20	0.65	Cu. Yd.
	305	8" Concrete Base	18.35	Sq. Yd.
		Quantities Carried To Sheet No. 118		

SCALE: 1"=20' Horizontal
1"=10' Vertical

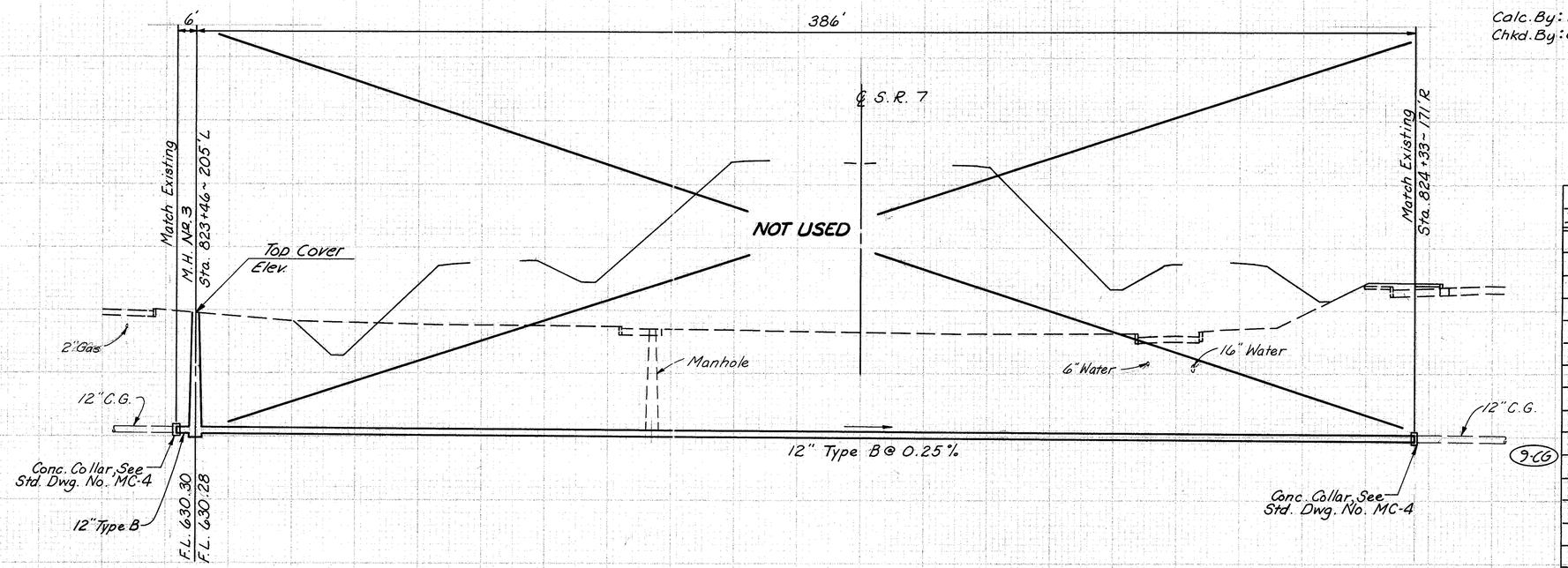
DRAWN Wac 2-10-84 | CHECKED GW 3/2/85 | REVISED L-E 3/12/85

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

2-FM FORCE MAIN PROFILE & 6-CG 7-CG COMBINED GRAVITY SEWER PROFILES

Calc.By: Wa.C. Date: 2-26-85
Chkd.By: Get. Date: 2-27-85

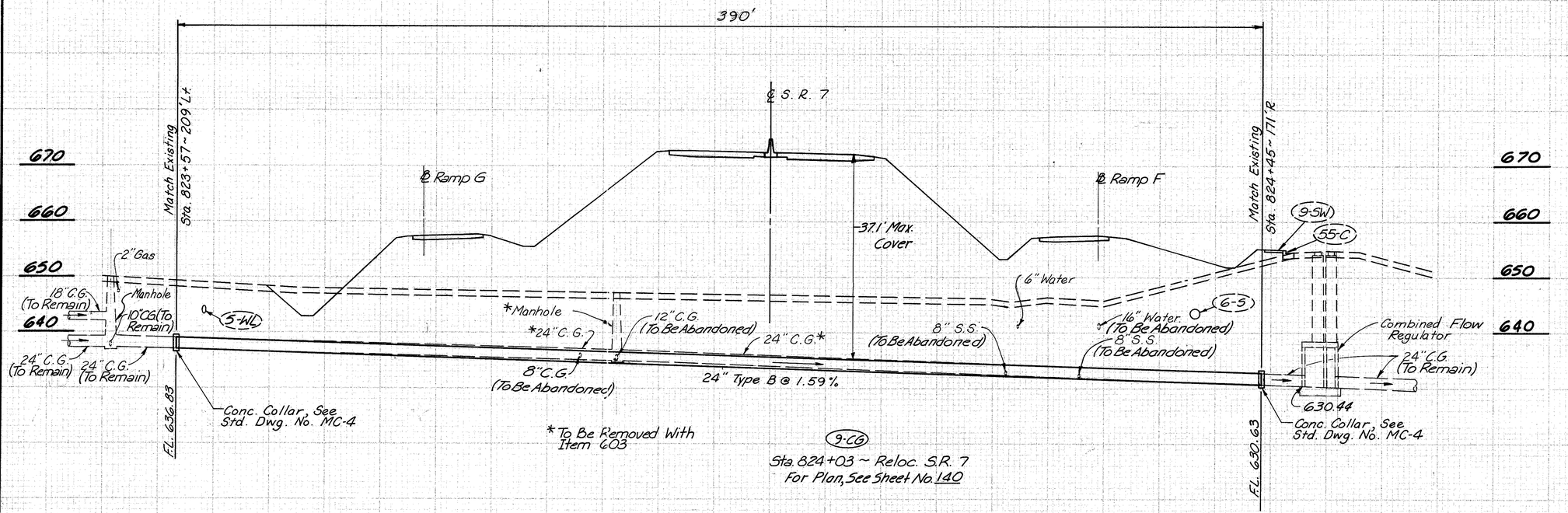
BEL-7-14.17 | OHIO | FHWA REGION 5 | 414/663



ESTIMATED QUANTITIES

Item No.	Description	Quantity	Unit
603	24" Conduit, Type B, 706.02 3250 D-Load with Joints as per 706.11	390	Lin. Ft.
	Quantities Carried to Sheet No. 125		

SCALE: 1"=20' Horizontal
1"=10' Vertical

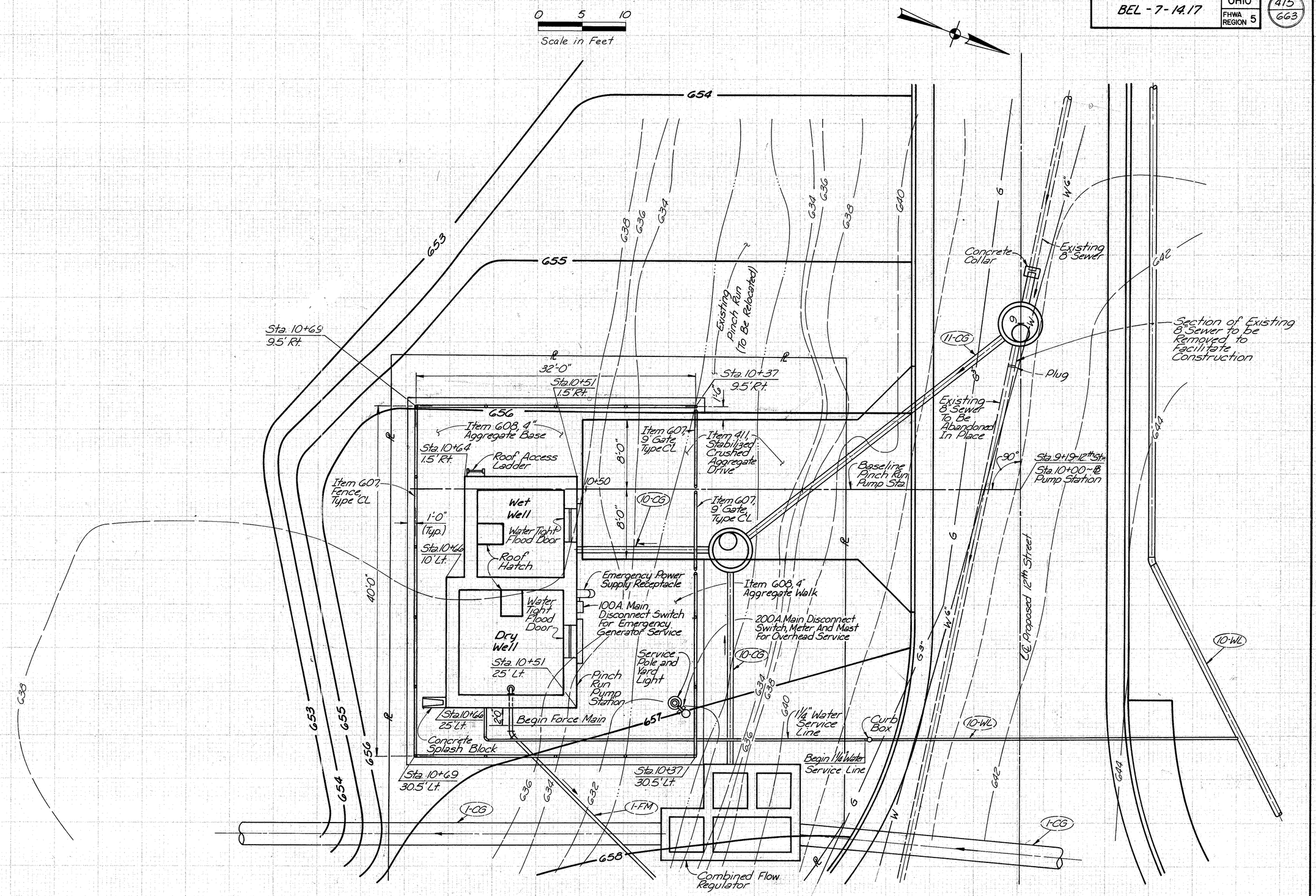


DRAWN Wac 2-13-84 | CHECKED GW 3/2/85 | REVISED LE 3/13/85

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

9-CG COMBINED GRAVITY SEWER PROFILES

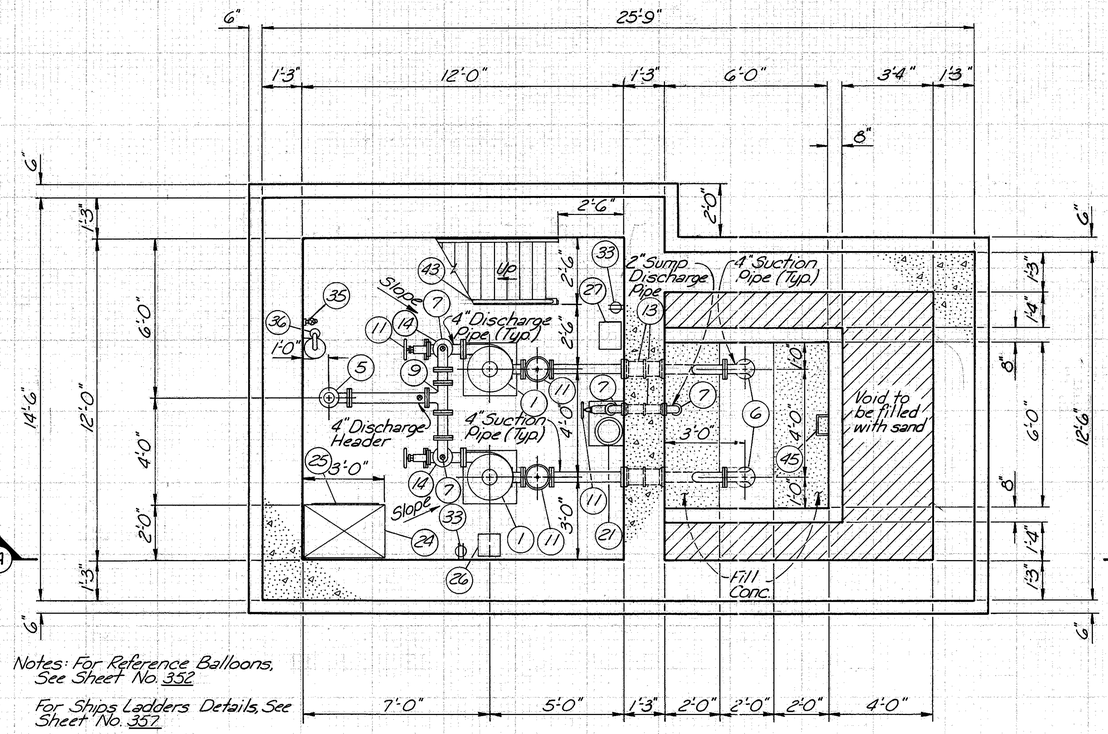
BEL - 7 - 14.17 | OHIO | FHWA REGION 5 | 415/663



Drawn By	Chk'd By	I.O.Ck.	Revised
L.E.	Wac	D.O.Q.	L.E.
4/10/84	5/16/84	8/24/84	9/10/84

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

(1-PS) SITE PLAN - PINCH RUN PUMP STATION



Notes: For Reference Balloons, See Sheet No. 352

For Ships Ladders Details, See Sheet No. 357

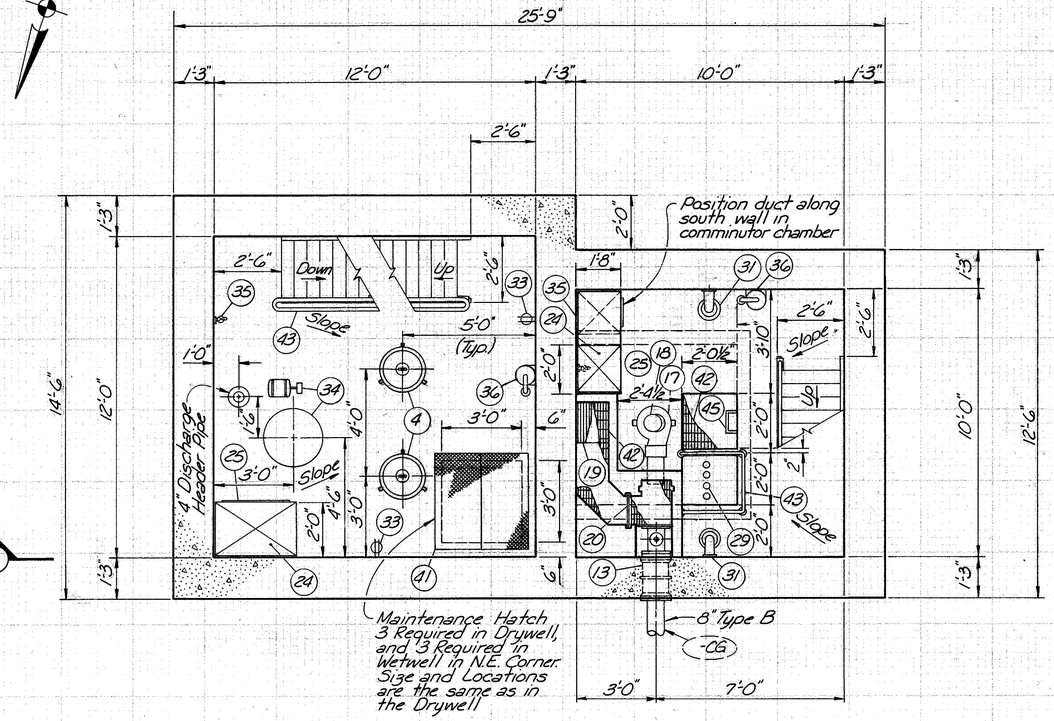
For Handrail Details, See Sheet No. 357

For Structural Steel Details, See Sheet No. 353 & 354

For Comminutor and Bypass Details, See Sheet No. 357

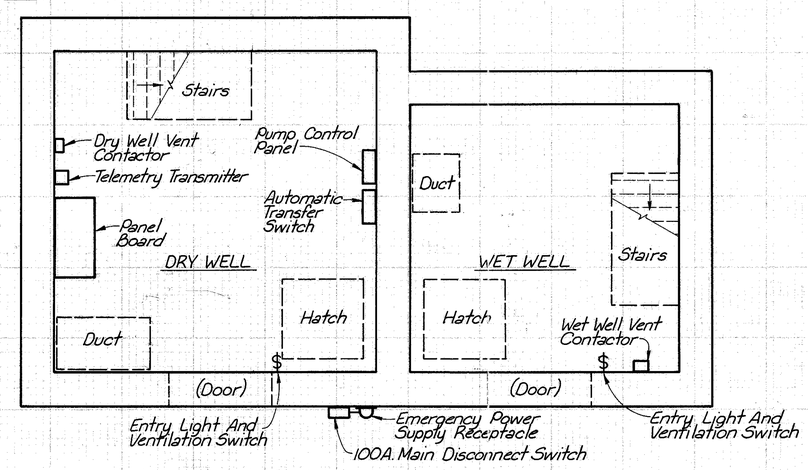
BASEMENT FLOOR

Scale: 3/8" = 1'-0"



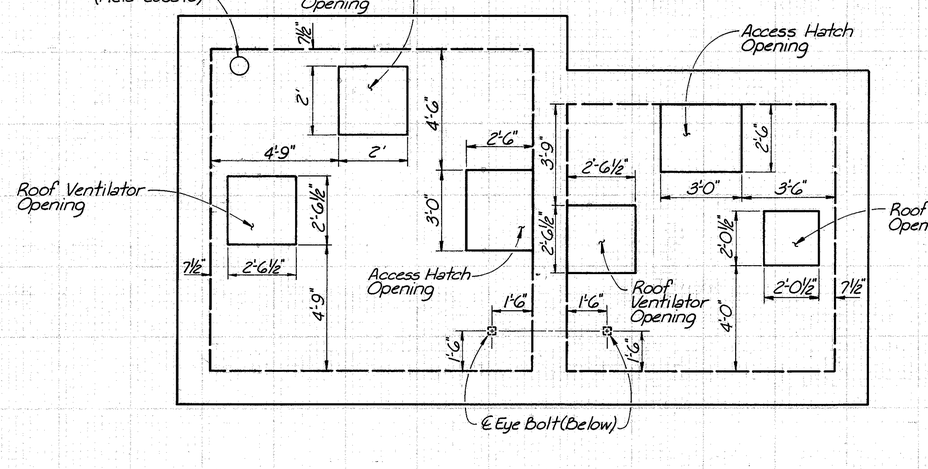
LOWER INTERMEDIATE FLOOR

Scale: 3/8" = 1'-0"



GROUND FLOOR ELECTRICAL PLAN

Scale: 3/8" = 1'-0"



Notes:

Pre-cast Roof Manufacturer Shall Provide 2" Lifting Eye Bolts Capable Of Handling Loads Of 1200 Lbs.

Roof Blower Openings Can Be Other Than Shown Anywhere Over Stairs To Facilitate Roof Panel Manufacturer.

ROOF PLAN

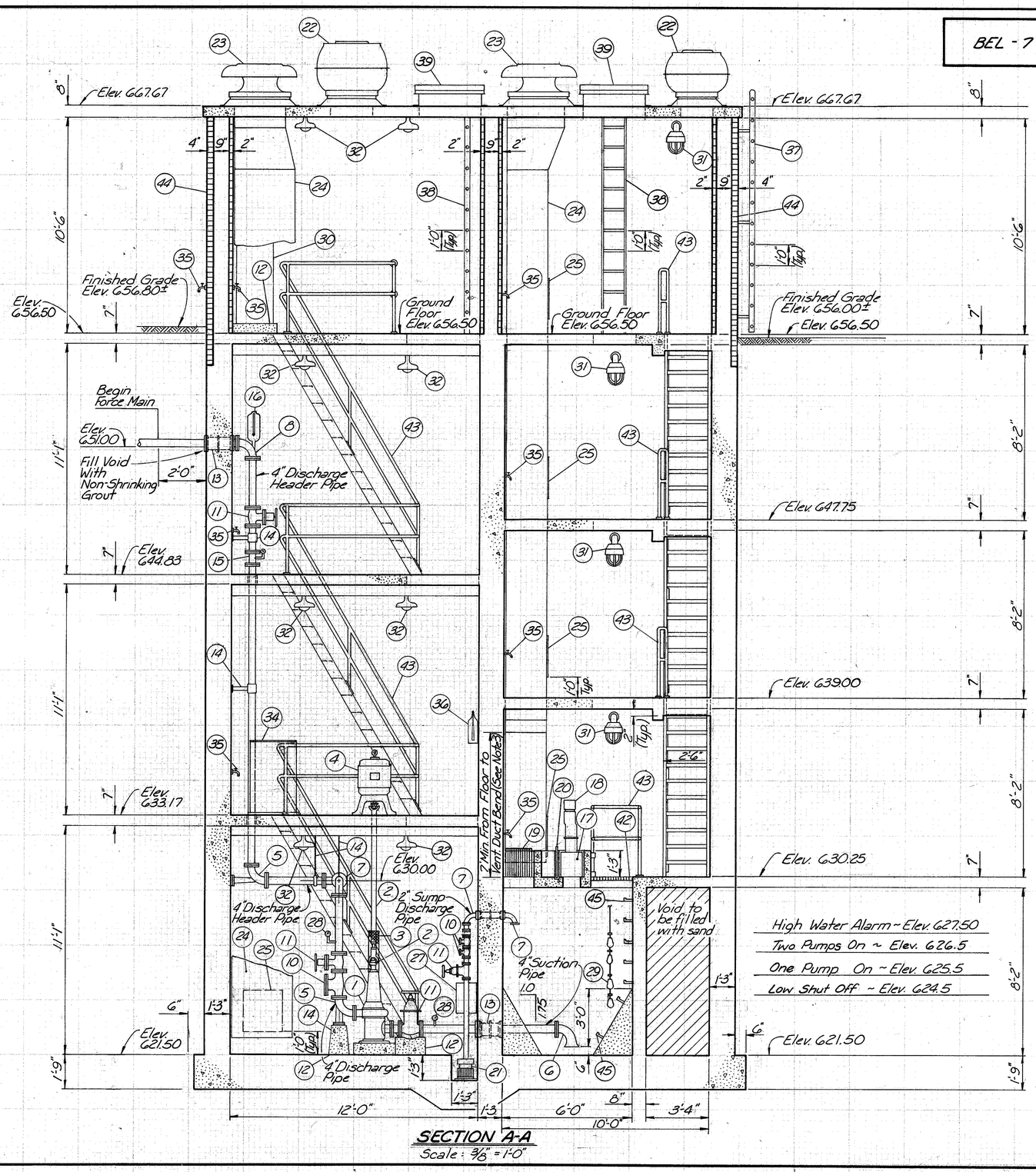
Scale: 3/8" = 1'-0"

Drawn By	Chkd By	IOCK	Revised
LJE 3/30/84	WAQ 5/15/84	QDQ 6/26/84	LJE 9/10/84

PUMP STATION INCIDENTALS

Ref. No.	Description
1	Sewage Pump
2	Pump Drive Assembly
3	Shafting Guard
4	Pump Motor
5	Base Elbow (Long Radius)
6	90° Bend (Flared End)
7	90° Bend
8	90° Bend (Modified)
9	Tee
10	Check Valve (Lever Operated Spring Check)
11	Gate Valve
12	Concrete Base
13	Wall Sleeve
14	Pipe Support
15	Flow Meter
16	Air Release Valve Assembly
17	Comminutor,
18	Comminutor Motor, 1/3 H.P.
19	Aluminum Bypass Bar Screen
20	Aluminum Slop Gate
21	Sump Pump, 1/3 H.P., 208 V., 1Φ
22	Upblast Centrifugal Fan
23	Roof Ventilator
24	Duct
25	Duct Grille
26	Heater
27	Dehumidifier
28	Gauge
29	Mercury Float Switch
30	Control Panel
31	Light Fixture (Explosion Proof) See Note 1
32	Light Fixture (See Note 2)
33	Convenience Outlet
34	Water Seal Unit, 1/2 H.P., 115 V., 1Φ
35	Hose Bibb With Vacuum Breaker
36	Fire Extinguisher
37	Aluminum Ladder
38	Aluminum Access Ladder
39	Roof Hatch
40	Water Tight Flood Door (Not Shown)
41	Maintenance Hatch
42	Removable Aluminum Grating
43	Aluminum Handrail
44	Face Brick
45	Manhole Steps

Notes:
1. Suggested Wet Well Lights: Crouse-Hinds EVBX 210 Hazardous Location Incandescent With Wall Bracket And Guard, And 1-150 V. Lamp Or Approved Equal.
2. Suggested Dry Well Lights: Crouse-Hinds VXHF25GPRD Vapor Guard Body With Globe Guard And Dome Reflector With 1-150 V. Lamp Or Approved Equal.
3. Locate Ventilator Duct In The Southeast Corner Of The Lower Intermediate Level (Comminutor Chamber)
4. 6" Suction Line to be sloped toward pump at 1.00%.

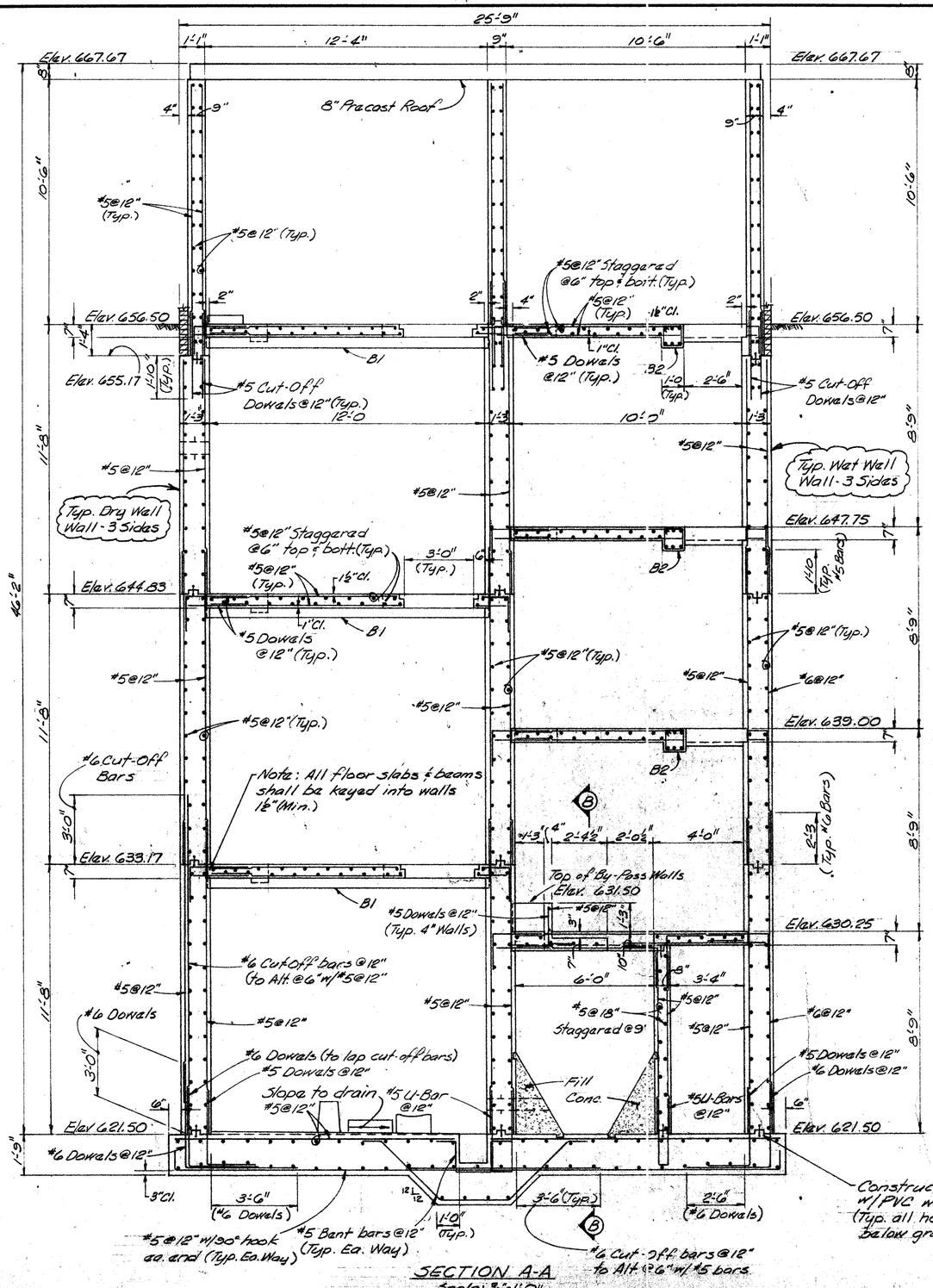


SECTION A-A
Scale: 3/8" = 1'-0"

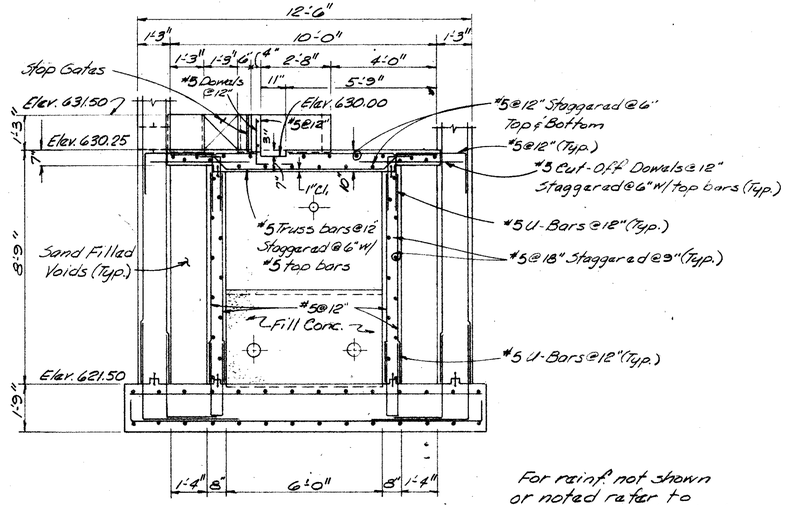
Drawn By	Chkd By	10 Ck	Revised
L.E. 3/27/84	W.E.Q. 5/15/84	L.E. 6/26/84	L.E. 9/10/84

BEL - 7 - 14.1.7 | OHIO | FHWA REGION 5 | 417 / 663

BEL-7-14.17 | OHIO | FHWA REGION 5 | 418 / 663

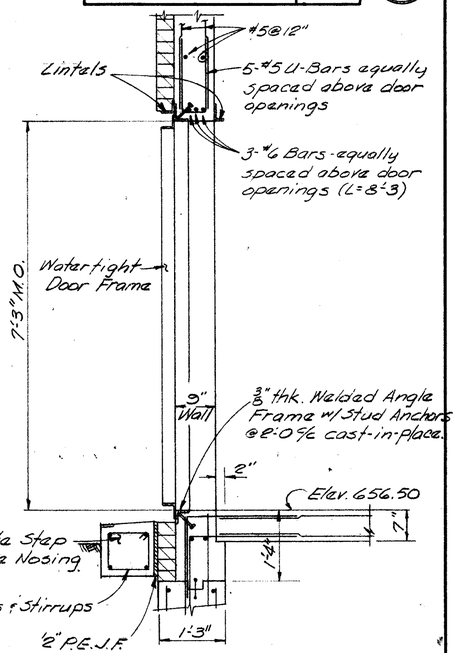


SECTION A-A
Scale: 3/8" = 1'-0"

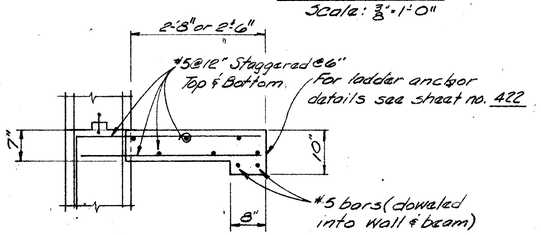


SECTION B-B
Scale: 3/8" = 1'-0"

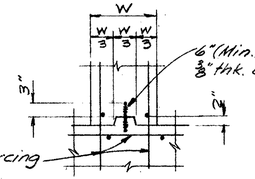
For reinf. not shown or noted refer to Section A-A this sheet.



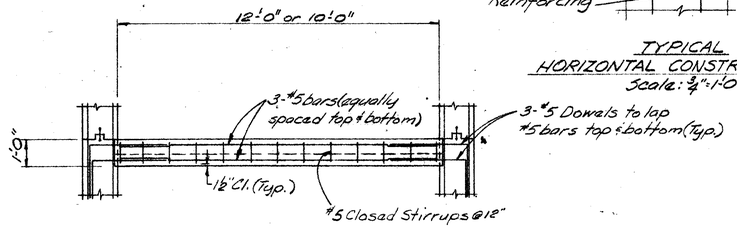
SECTION C-C
Scale: 3/4" = 1'-0"



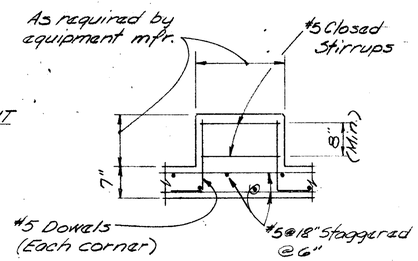
TYPICAL STAIRWELL HEADER DETAIL
Scale: 3/4" = 1'-0"



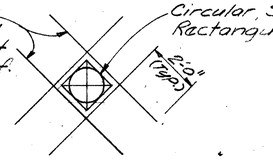
TYPICAL HORIZONTAL CONSTRUCTION JOINT
Scale: 3/4" = 1'-0"



B1 & B2 BEAM DETAILS
Scale: 3/8" = 1'-0"



TYPICAL EQUIPMENT AND PIPE SUPPORT DETAIL
Scale: 3/4" = 1'-0"



TYPICAL REINFORCING AROUND OPENINGS
No Scale

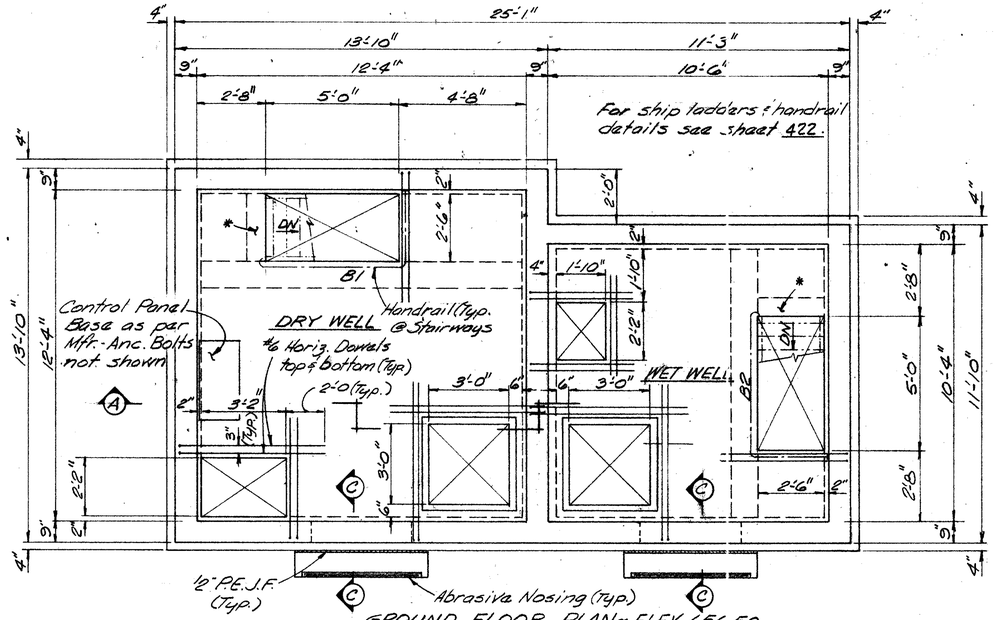
Reinforcing Note: All lap splices to be 35 bar diameters of the lesser bar size to be lapped, unless noted otherwise.

For additional information not shown or noted see "General Notes" sheets 402 thru 407
For Plan details see sheet 416

DRAWN	CK'D.	CORR.	CK'D.
JMG 9-21-84	AF 12-Dec-84	FDH 2-20-87	JMG 3-6-87

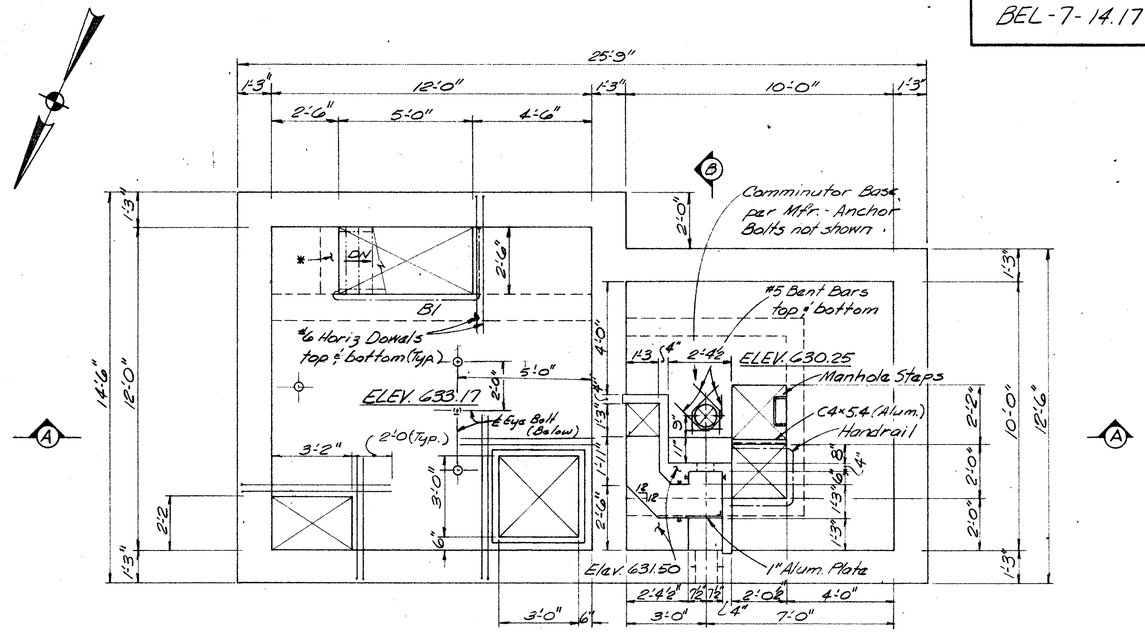
W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

1-PS STRUCTURE DETAILS - PINCH RUN PUMP STATION



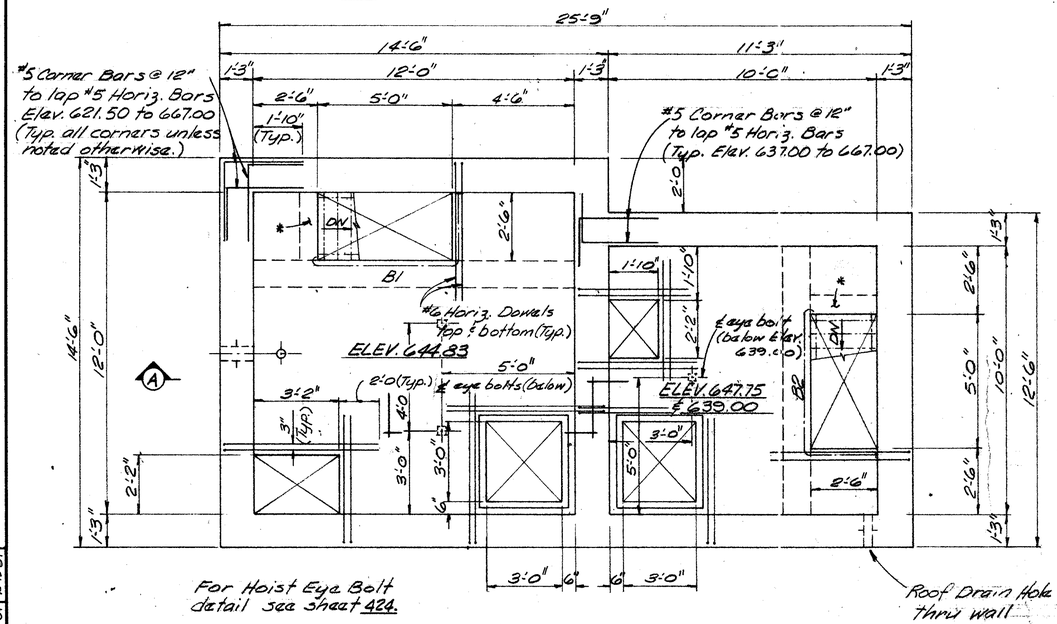
GROUND FLOOR PLAN - ELEV. 656.50
Scale: 3/8" = 1'-0"

* For Typical Stairwell Header detail see sheet 353.



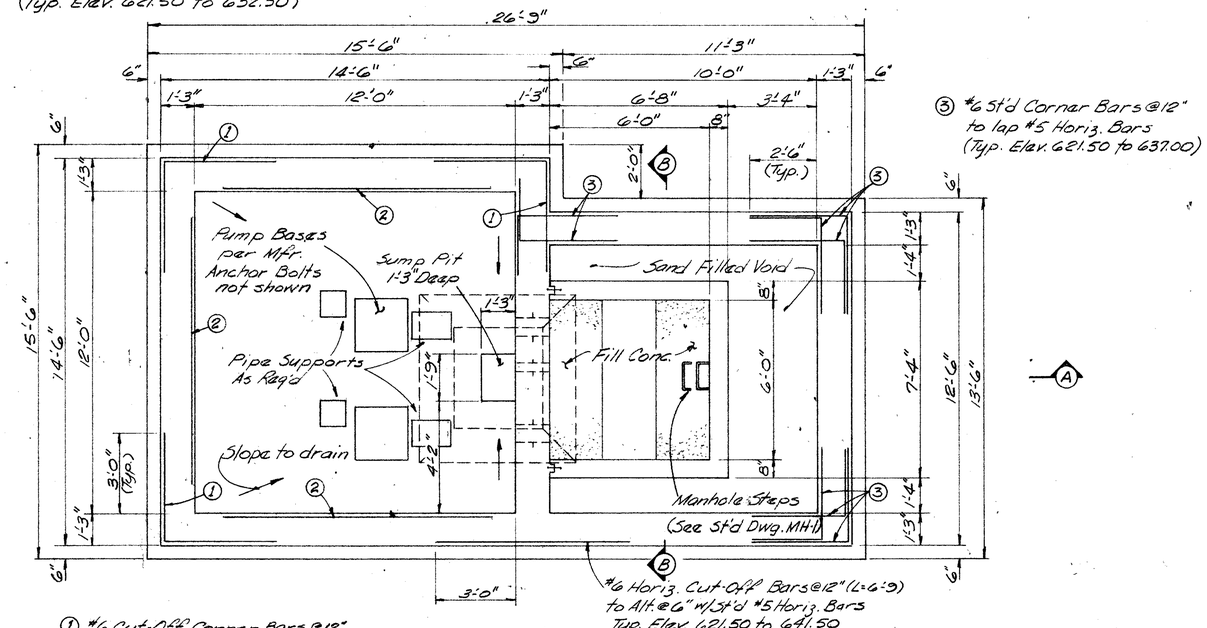
FLOOR PLAN
Scale: 3/8" = 1'-0"

② #5 Horiz. Cut-Off Bars @ 12" (L=10'-0" to Alt. @ 6" w/St'd #5 Horiz. Bars (Typ. Elev. 621.50 to 632.50)



For Hoist Eye Bolt detail see sheet 424.

FLOOR PLANS
Scale: 3/8" = 1'-0"



③ #6 St'd Corner Bars @ 12" to lap #5 Horiz. Bars (Typ. Elev. 621.50 to 637.00)

① #6 Cut-Off Corner Bars @ 12" to Alt. @ 6" w/St'd #5 Corner Bars. Typ. Elev. 621.50 to 641.50

BASEMENT PLAN - ELEV. 621.50
Scale: 3/8" = 1'-0"

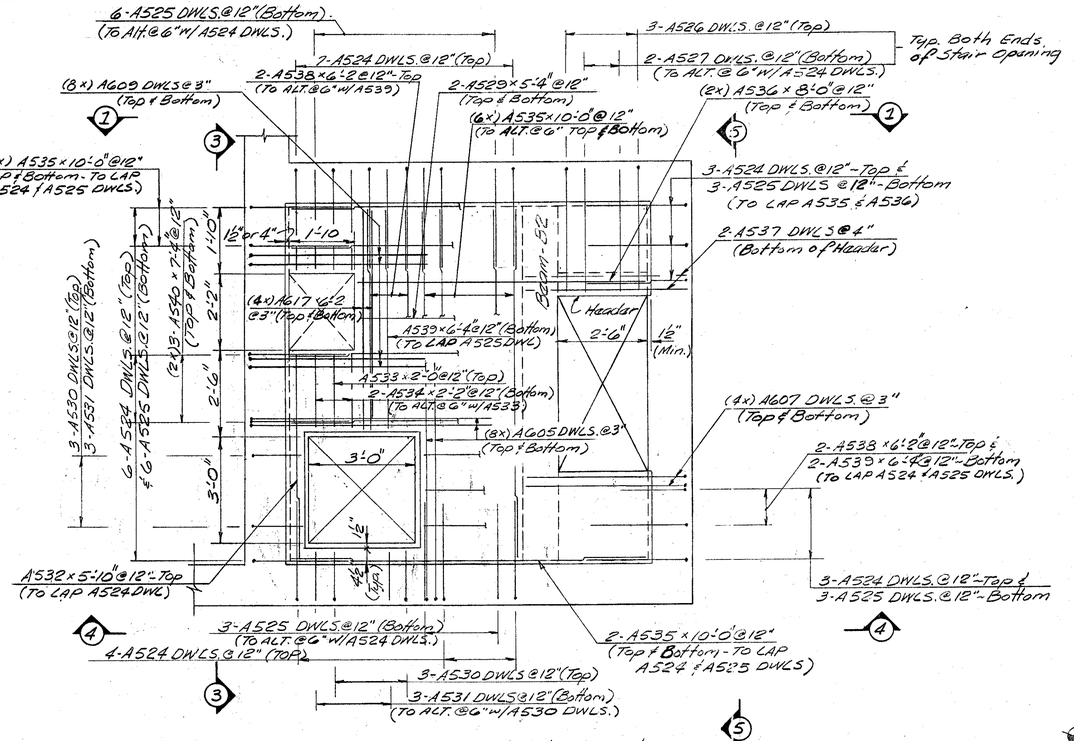
For Reinforcing Note see sheet 418
For additional information not shown or noted see "General Notes" sheets 402 thru 407
For Section A-A, B-B & C-C see sheet 418
For B1 & B2 Beam details see sheet 418
For Typical Details see sheet 418.

DRAWN	CK'D.	CORR.	BK. CK'D.
JMG 9-18-84	12 Dec 84	JMG 12-13-84	FDH 12-13-84

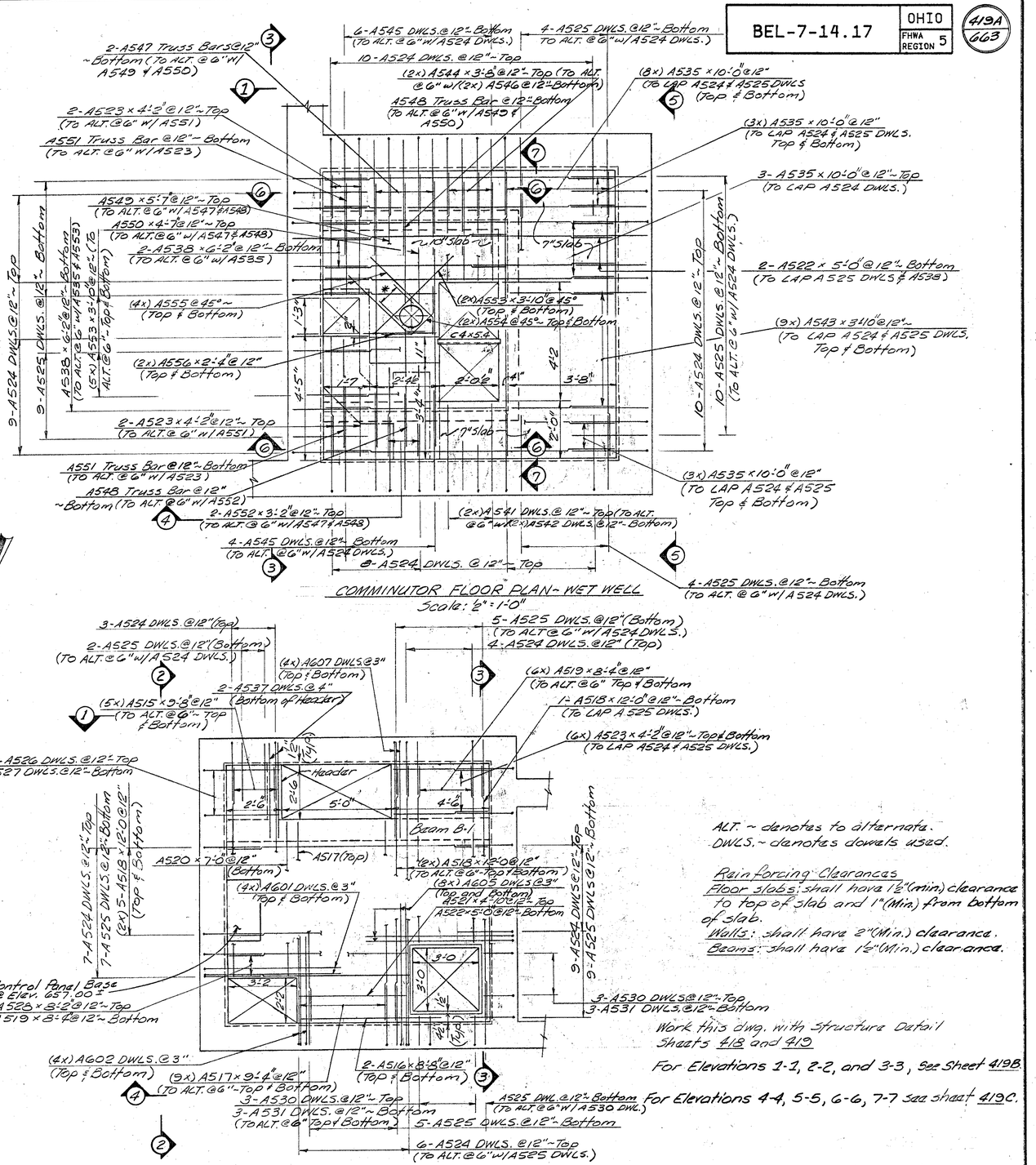
W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

(1-PS) STRUCTURE DETAILS - PINCH RUN PUMP STATION

BEL-7-14.17 | OHIO | FHWA REGION 5 | 419A / 663

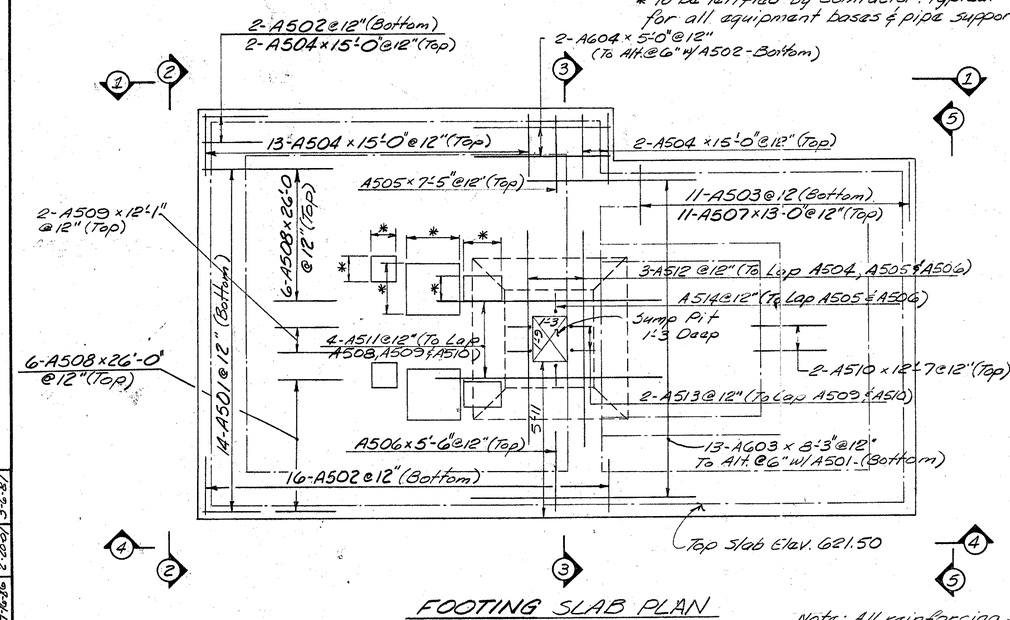


WET WELL FLOOR PLAN - 3-REQ'D
Scale: 1/2" = 1'-0"



COMMINUTOR FLOOR PLAN - WET WELL
Scale: 1/2" = 1'-0"

* To Be Verified by Contractor. Typical for all equipment bases & pipe supports.



FOOTING SLAB PLAN
Scale: 3/8" = 1'-0"

Note: All reinforcing steel in the footing slab shall be 3" clear of the sides and bottom surfaces of the slab. 2" clear from top of slab.

ALT. - denotes to alternate.
DWLS. - denotes dowels used.

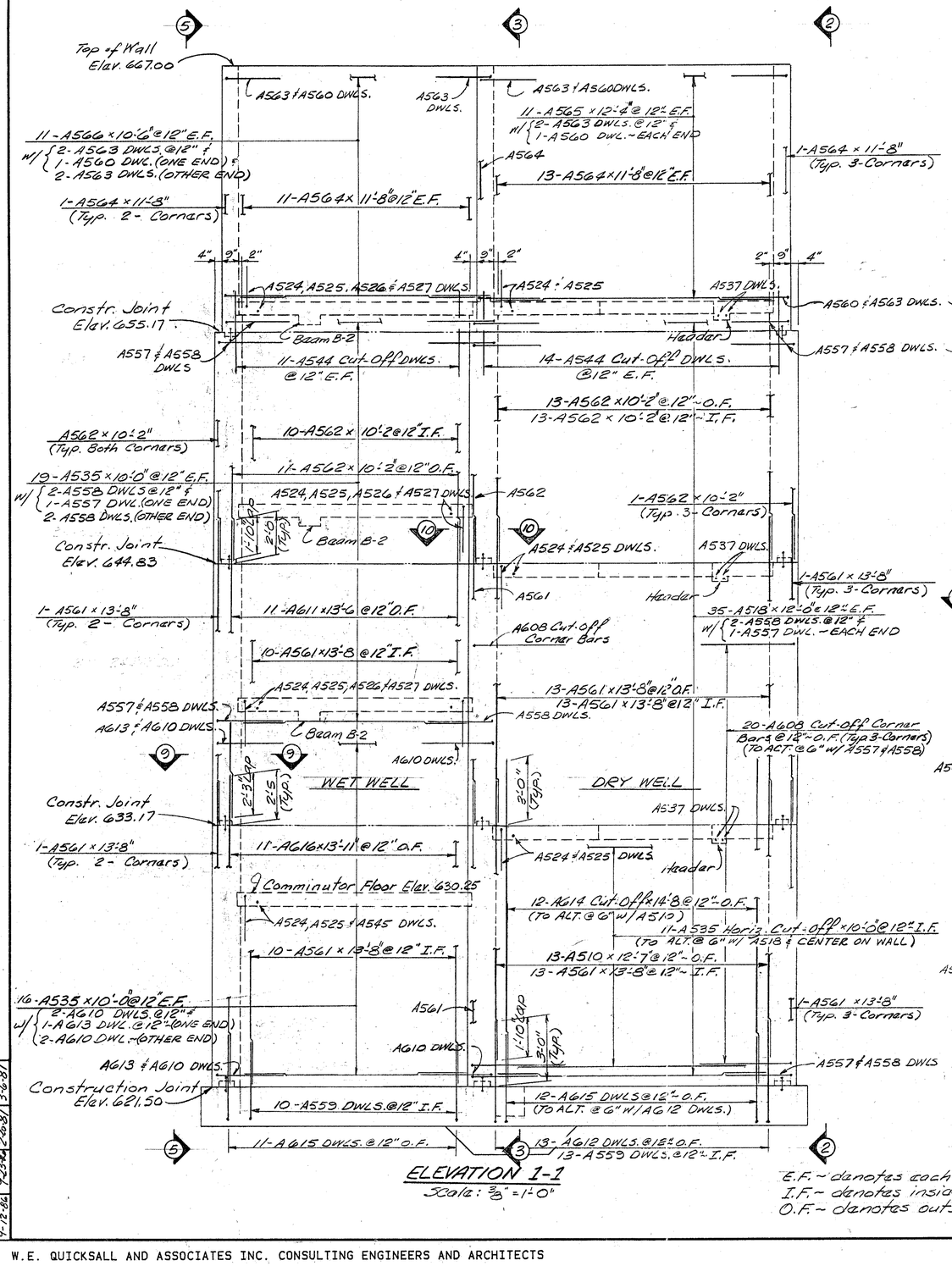
Reinforcing Clearances
Floor slabs: shall have 1½" (min.) clearance to top of slab and 1" (Min.) from bottom of slab.
Walls: shall have 2" (Min.) clearance.
Beams: shall have 1½" (Min.) clearance.

DRY WELL FLOOR PLAN - 3-REQ'D
Scale: 3/8" = 1'-0"

DRAWN	CK'D.	CORR.	CK'D.
FDW 9-3-96	MG 9-16-96	FDW 2-28-97	MC 3-4-97

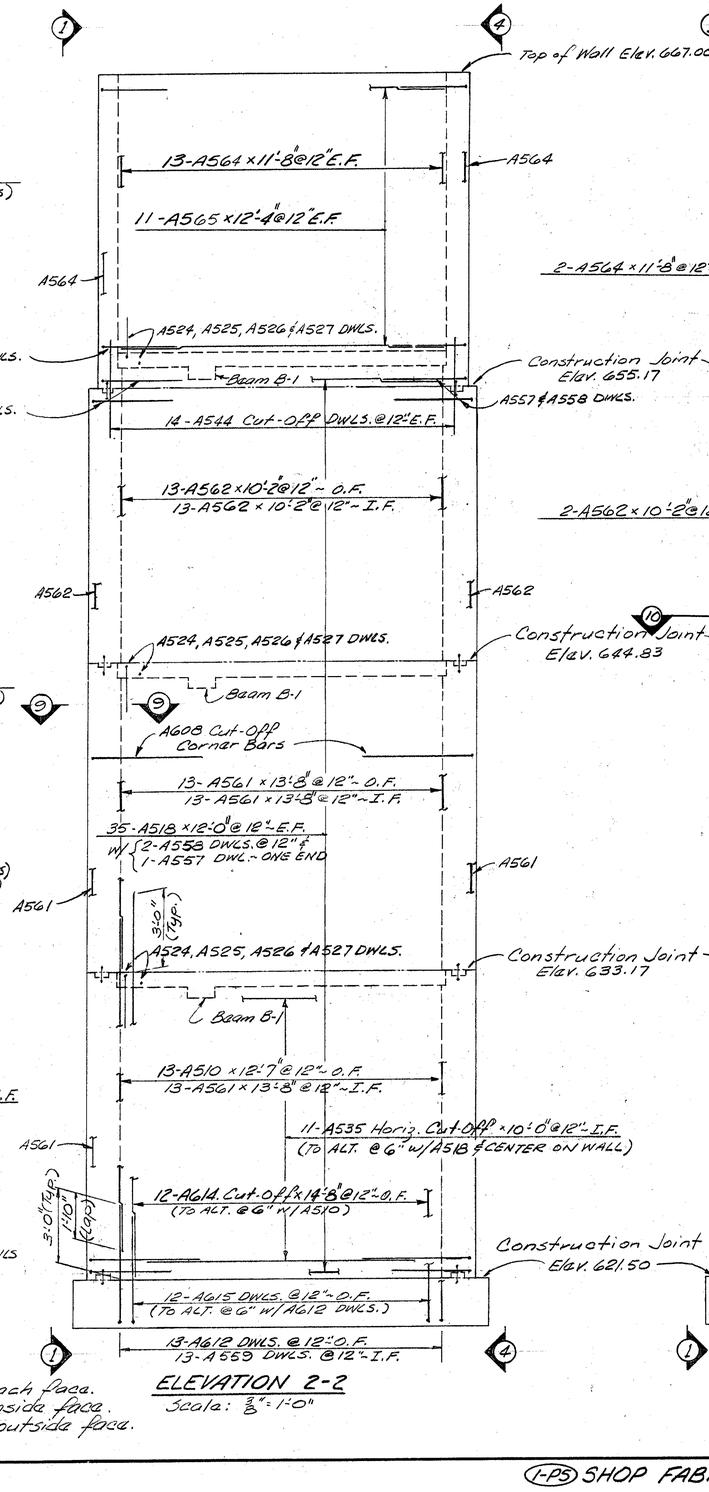
W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

(1-PS) SHOP FABRICATION DETAILS - PINCH RUN PUMP STATION

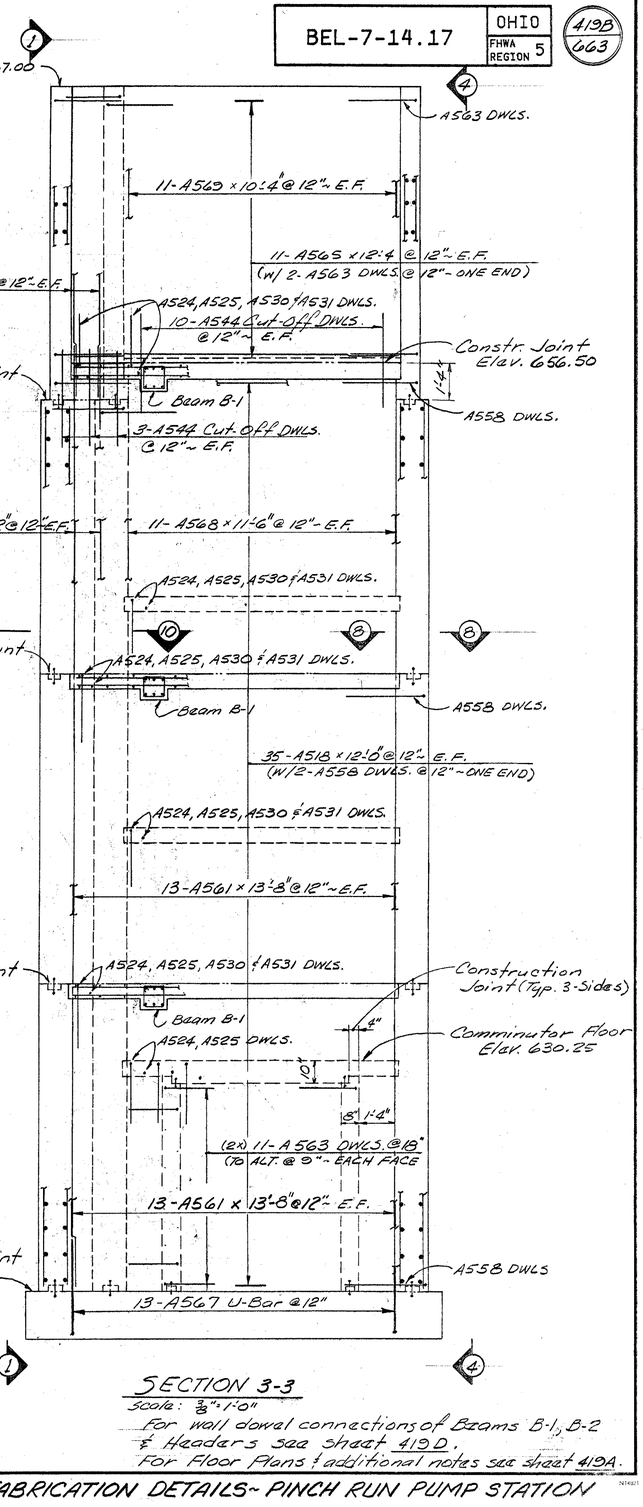


ELEVATION 1-1
Scale: 3/8" = 1'-0"

E.F. - denotes each face.
I.F. - denotes inside face.
O.F. - denotes outside face.



ELEVATION 2-2
Scale: 3/8" = 1'-0"



SECTION 3-3
Scale: 3/8" = 1'-0"

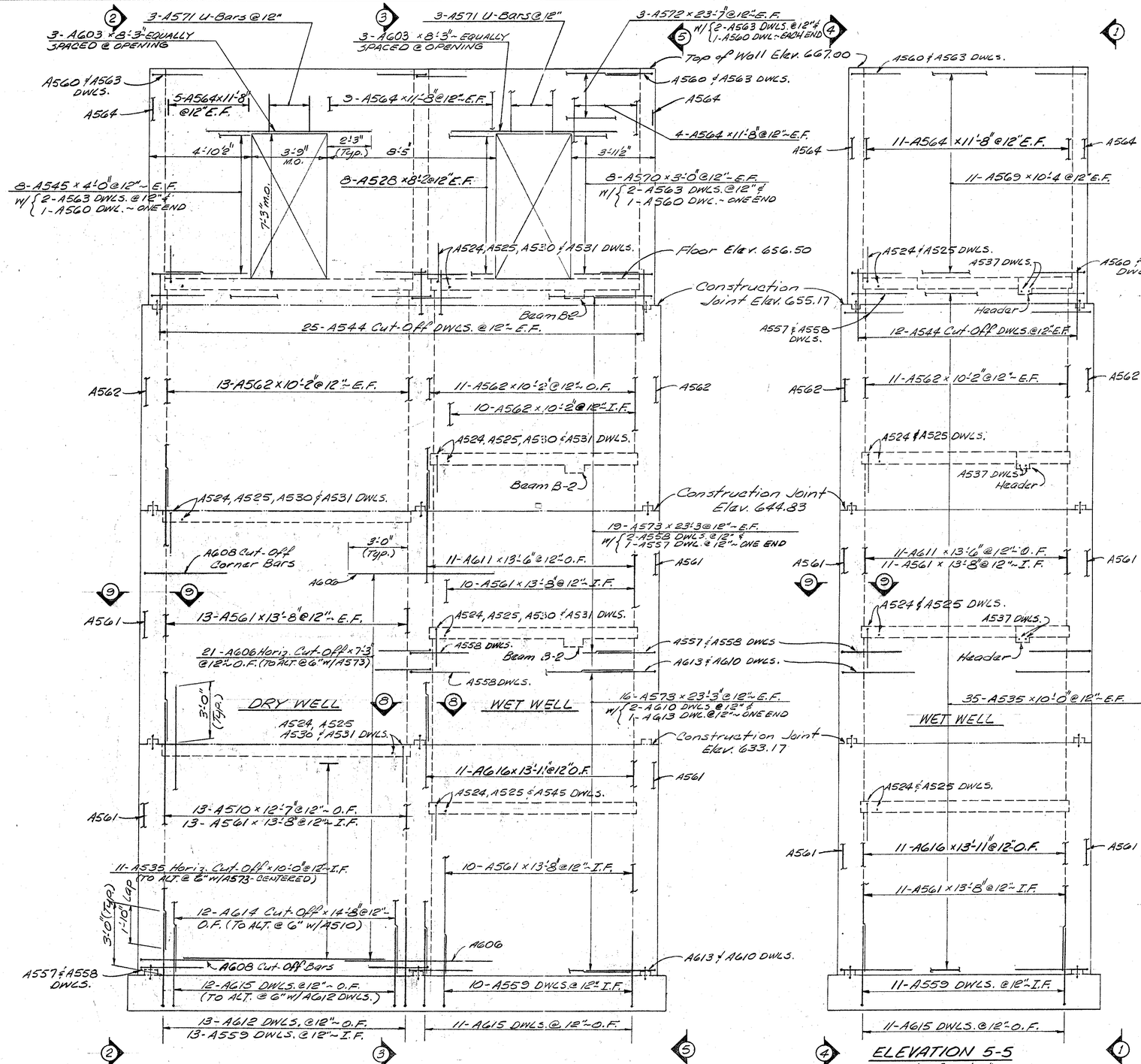
For wall dowel connections of Beams B-1, B-2 & Headers see sheet 419D.
For Floor Plans & additional notes see sheet 419A.

DRAWN	CK'D.	CORR.	CK'D.	BK.CK'D.
FDW 9-12-86	7234	2-26-87	7234	3-6-87

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

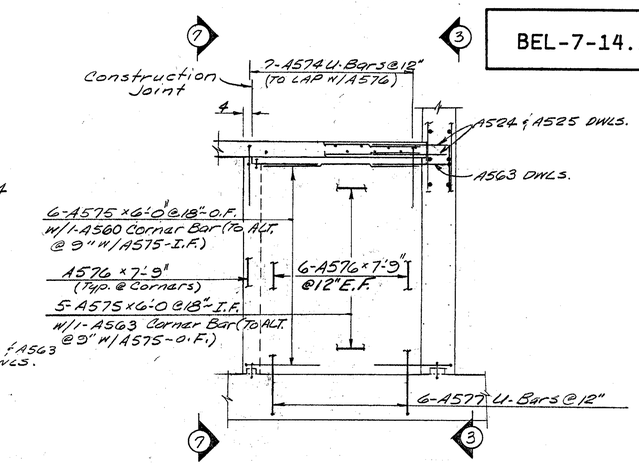
(1-PS) SHOP FABRICATION DETAILS - PINCH RUN PUMP STATION

BEL-7-14.17 | OHIO | FHWA REGION 5 | 4190 / 663

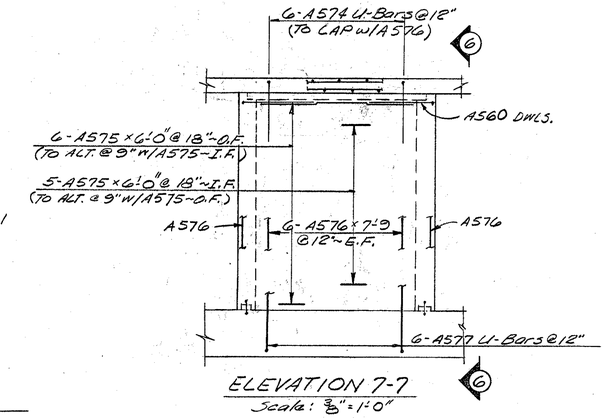


ELEVATION 4-4
Scale: 3/8" = 1'-0"

ELEVATION 5-5
Scale: 3/8" = 1'-0"

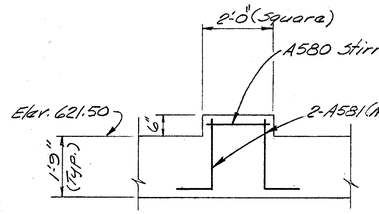


ELEVATION 6-6 (2-REQ'D)
Scale: 3/8" = 1'-0"

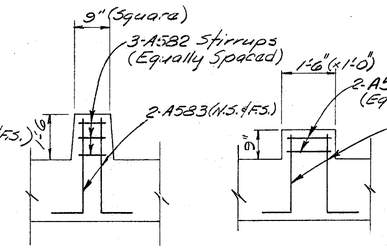


ELEVATION 7-7
Scale: 3/8" = 1'-0"

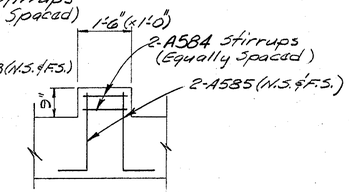
DRAWN	CK'D.	CORR.	BK CK'D.
FDH 9-7-86	JMG 9-19-86	FDH 2-20-87	JMG 3-6-87



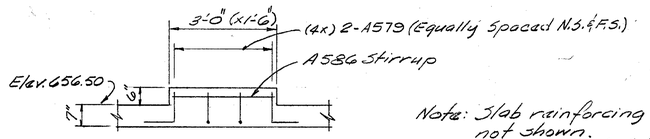
* PUMP SUPPORT BASE
(2-REQ'D)
N.T.S.



* BASE ELBOW SUPPORT
(2-REQ'D)
N.T.S.

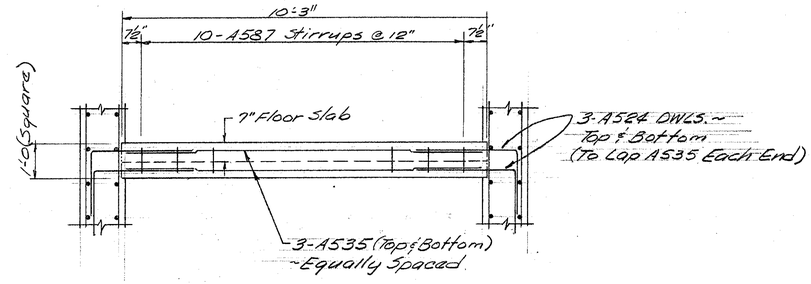


* PIPE VALVE SUPPORT
2-REQ'D
N.T.S.

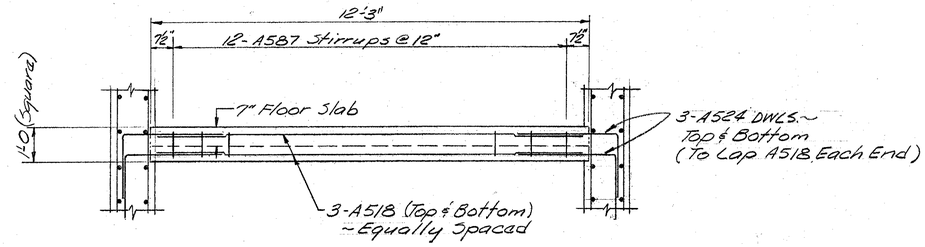


* CONTROL PANEL BASE
N.T.S.

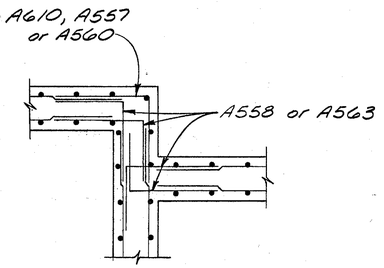
Note: Slab reinforcing not shown.
Anchor Bolts (if required) as per manufacturer.



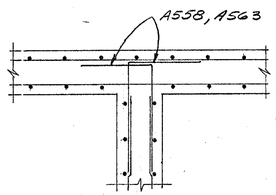
BEAM B-2 (3-REQ'D)
Scale: ½" = 1'-0"



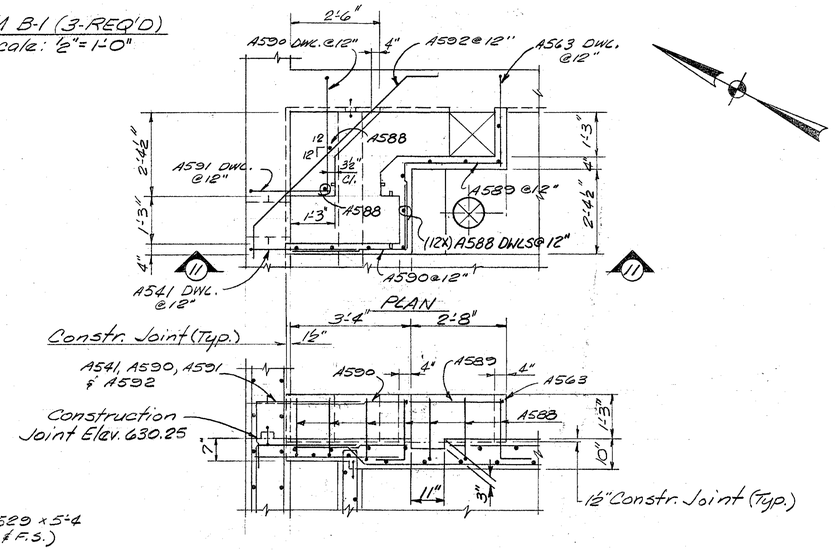
BEAM B-1 (3-REQ'D)
Scale: ½" = 1'-0"



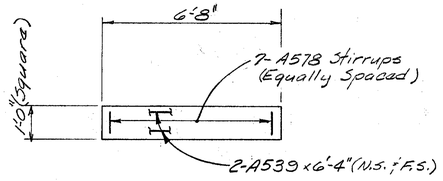
SECTION 10-10
Scale: ½" = 1'-0"



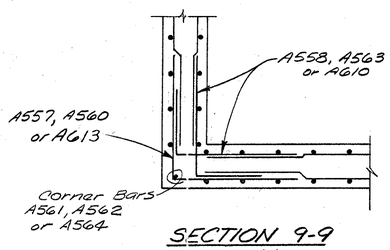
SECTION 8-8
Scale: ½" = 1'-0"



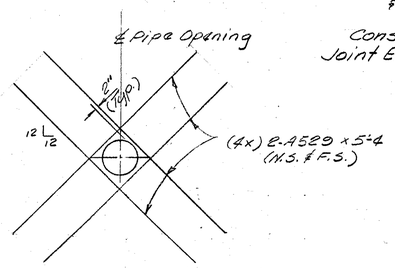
SECTION 11-11
Scale: ½" = 1'-0"



* CONCRETE STEPS ~ 2-REQ'D
N.T.S.



SECTION 9-9
Scale: ½" = 1'-0"

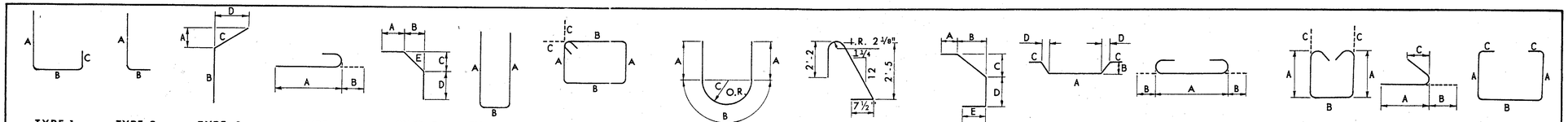


INFLUENT SEWER MAIN
ADDITIONAL WALL REINFORCING
N.T.S.

* ~ denotes to be verified by Contractor.
N.T.S. ~ denotes "not to scale".
N.S. ~ denotes near side.
F.S. ~ denotes far side.

DRAWN	CK'D.	CORR.	BK. CK'D.
FDH 9-16-86	JMG 9-25-86	FDH 2-20-87	JMG 3-9-87

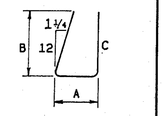
BEL-7-14.17 | OHIO | FHWA REGION 5 | 419E 663

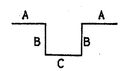


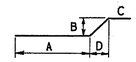
MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
A601	2	6'-3"	2'-0"					12	8'-1"	146
A602	2	5'-3"	2'-0"					12	7'-1"	128
A603	Str.							19	8'-3"	235
A604	Str.							2	5'-0"	15
A605	2	6'-7"	2'-0"					48	8'-5"	607
A606	Str.							21	7'-3"	229
A607	2	4'-5"	2'-0"					24	6'-3"	225
A608	2	4'-10"	4'-0"					60	7'-10"	706
A609	2	4'-11"	2'-0"					24	6'-3"	243
A610	2	3'-6"	2'-9"					96	6'-1"	877
A611	Str.							33	13'-6"	669
A612	2	4'-6"	4'-7"					39	8'-11"	522
A613	2	3'-6"	3'-6"					32	6'-10"	328
A614	Str.							36	14'-8"	793
A615	2	3'-11"	2'-0"					69	5'-9"	596
A616	Str.							33	13'-11"	690
										7009#
A587	7	9"	9"	5½"				66	3'-6"	241
A588	2	1'-6	10½"					12	2'-3"	28
A589	2	2'-8"	2'-4½"					1	4'-11"	5
A590	2	3'-2"	1'-10½"					1	4'-11"	5
A591	2	2'-1"	1'-8½"					1	3'-8"	4
A592	5	10½"	4'-2"	4'-2"	10½"	5'-10½"		1	7'-6"	8
										28,733#
A501	6	10"	26'-3"					14	27'-8"	404
A502	6	10"	15'-0"					18	16'-5"	308
A503	6	10"	13'-0"					11	14'-5"	165
A504	Str.							17	15'-0"	266
A505	Str.							1	7'-5"	8
A506	Str.							1	5'-6"	6
A507	Str.							11	13'-0"	149
A508	Str.							12	26'-0"	325
A509	Str.							2	12'-1"	25
A510	Str.							41	12'-7"	538
A511	11	3'-0	2'-7"	10½"	2'-7"			4	11'-3"	49
A512	11	3'-6	2'-7"	10½"	2'-7"			3	12'-3"	38
A513	17	1'-8	1'-4"	1'-8"				2	7'-2"	15
A514	17	1'-8	1'-4"	2'-2"				1	7'-8"	8
A515	Str.							15	9'-8"	151
A516	Str.							6	8'-8"	54
A517	Str.							27	9'-4"	263
A518	Str.							265	12'-0"	3316
A519	Str.							24	8'-4"	209
A520	Str.							3	7'-0"	22
A521	Str.							3	4'-10"	15
A522	Str.							5	5'-0"	26
A523	Str.							22	4'-2"	96
A524	2	2'-3"	1'-8½"					265	4'-4"	1198
A525	Str.							177	2'-3"	508
A526	2	3'-5"	1'-8½"					27	5'-0"	141
A527	Str.							21	3'-5"	75
A528	Str.							22	8'-2"	187
A529	Str.							14	5'-4"	78
A530	2	1'-5"	1'-8½"					36	3'-0"	113

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
A531	Str.							36	1'-5"	53
A532	Str.							3	5'-10"	18
A533	Str.							3	2'-0"	6
A534	Str.							6	2'-2"	14
A535	Str.							244	10'-0"	2545
A536	Str.							6	8'-0"	50
A537	Str.							12	4'-5"	55
A538	Str.							15	6'-2"	96
A539	Str.							17	6'-4"	112
A540	Str.							18	7'-4"	138
A541	2	2'-11"	1'-8⅜"					3	4'-6'	14
A542	Str.							2	2'-11"	6
A543	Str.							9	3'-10"	36
A544	Str.							180	3'-8"	688
A545	Str.							38	4'-0"	156
A546	18	1'-4½"	7½"	1'-3⅜"	7½"			2	3'-5"	7
A547	11	5'-5"	7½"	1'-3⅜"	7½"			2	9'-6"	20
A548	18	2'-3½"	7½"	1'-3⅜"	7½"			2	4'-4"	9
A549	Str.							1	5'-7"	6
A550	Str.							1	4'-7"	5
A551	18	1'-10½"	7½"	1'-3⅜"	7½"			2	3'-11"	8
A552	Str.							2	3'-2"	7
A553	Str.							7	3'-10"	28
A554	5	10"	8 13/16"	8 13/16"	10"	1'-0½"		2	2'-7"	5
A555	3	4'4"	2'-10¾"	6"	4'4"			4	3'-4"	14
A556	Str.							2	2'-4"	5
A557	2	2'-10"	2'-10½"					143	5'-7"	833
A558	2	2'-10"	2'-1½"					394	4'-10"	1986
A559	2	3'-6"	1'-10½"					59	5'-3"	323
A560	2	2'-4"	2'-4½"					67	4'-7"	320
A561	Str.							241	13'-8"	3435
A562	Str.							151	10'-2"	1601
A563	2	2'-5"	1'-10½"					187	4'-2"	813
A564	Str.							141	11'-8"	1716
A565	Str.							66	12'-4"	848
A566	Str.							22	10'-6"	241
A567	6	3'-6"	11"					13	7'-8"	104
A568	Str.							22	11'-6"	264
A569	Str.							22	10'-4"	237
A570	Str.							16	3'-0"	50
A571	6	2'-11"	7"					6	6'-2"	39
A572	Str.							6	23'-7"	148
A573	Str.							70	23'-3"	1697
A574	6	2'-6½"	4"					20	5'-2"	108
A575	Str.							33	6'-0"	207
A576	Str.							38	7'-9"	307
A577	6	3'-2"	4"					18	6'-5"	120
A578	7	8"	8"	5½"				14	3'-2"	46
A579	2	9"	10½"					8	1'-6"	13
A580	7	1'-8"	1'-8"	5½				2	7'-2"	15
A581	2	1'-8"	10½"					8	2'-5"	20
A582	7	6"	6"	5½"				6	2'-6"	16
A583	2	2'-8"	10½"					8	3'-5"	29
A584	7	8"	1'-2"	5½"				4	4'-3"	18
A585	2	2'-0"	10½"					8	2'-9"	23
A586	7	2'-8"	1'-2"	5½"				1	8'-2"	8

A587 carried to first column.







NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

* Note: 12-A545 Bars to be used for additional hoist eye bolt reinforcing (4-Per Eye Bolt), refer to Sheet 424.

Total Wt. Reinforcing Steel 35,742#

Sheet

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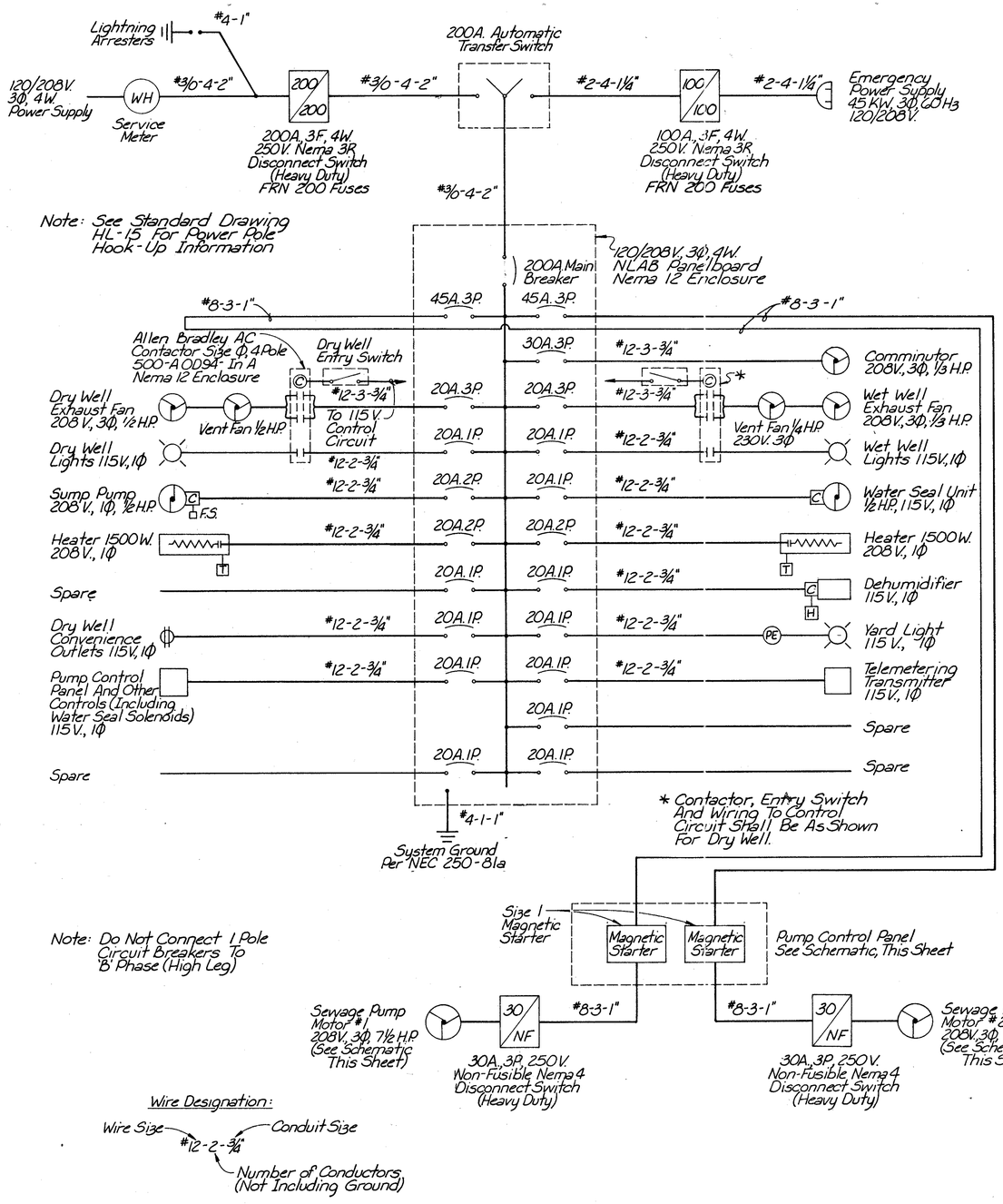
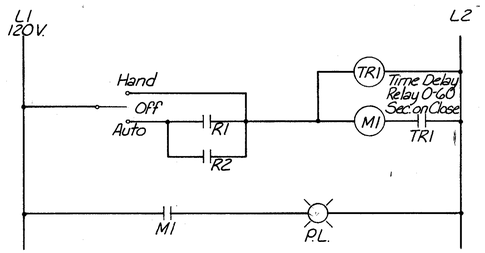
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

REINFORCING BAR SCHEDULE

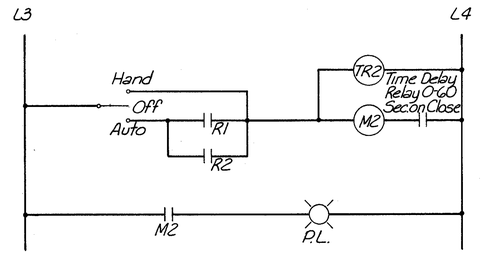
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMS	WDA	3/86	3/87



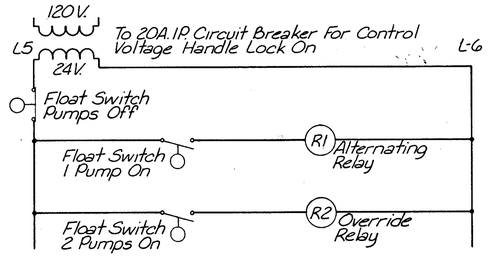
PUMP STATION WIRING DIAGRAM



SEWAGE PUMP NO. 1 SCHEMATIC



SEWAGE PUMP NO. 2 SCHEMATIC



Note: Float Switches 24 VAC, For Interface With Telemetering Equipment (4th F.S.)

SEWAGE PUMP CONTROL PANEL SCHEMATIC

NOTES:

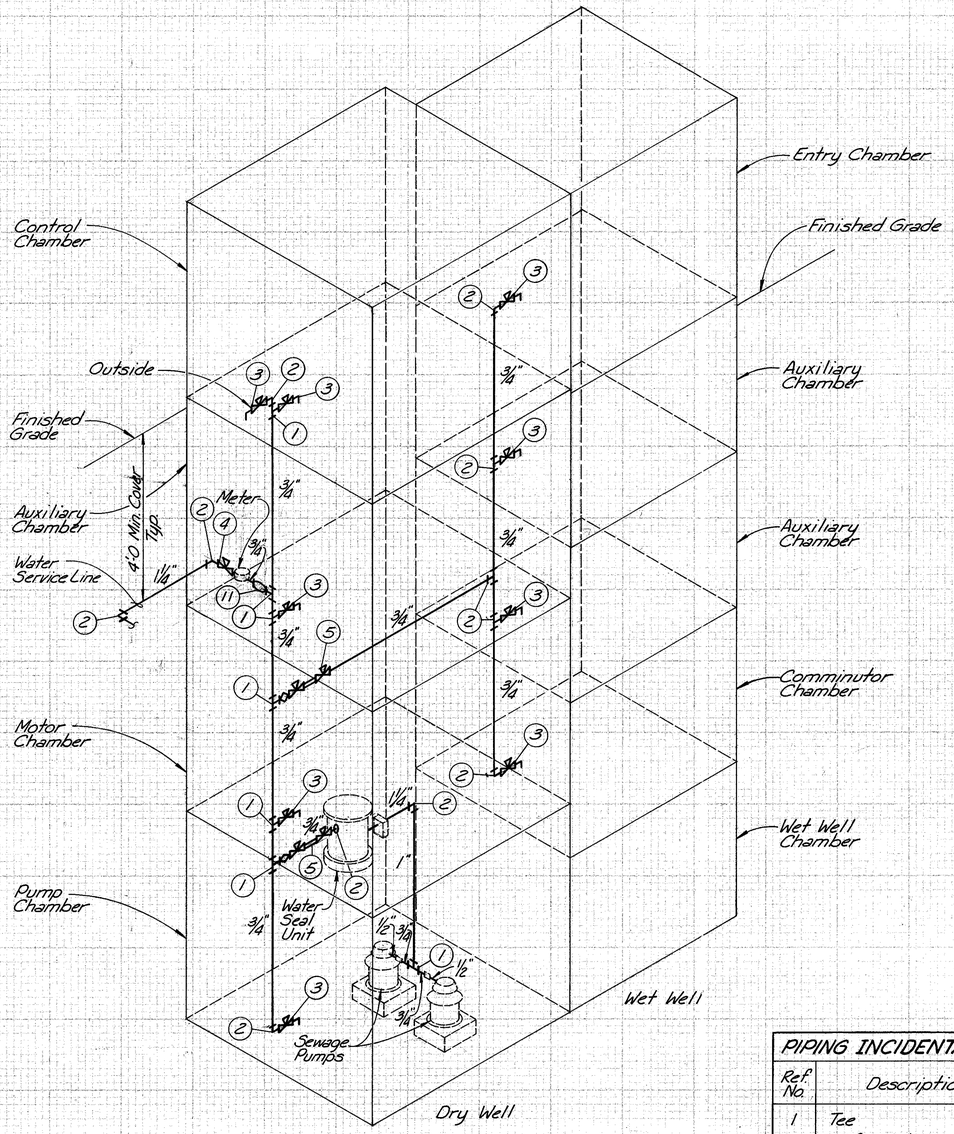
1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH OHIO BUILDING CODE 4101:2-49 AND NATIONAL ELECTRICAL CODE NFDA 70, LATEST EDITION.
2. ELECTRICAL WIRING, EQUIPMENT, AND INSTALLATION WILL CONFORM TO THE REQUIREMENTS OF SECTION 4101:2 - 73 - 29 OF THE OHIO ADMINISTRATIVE CODE AND THE NATIONAL ELECTRICAL CODE, NFPA STANDARD NO. 70, AND IS SUBJECT TO THE APPROVAL OF THE DISTRICT ELECTRICAL INSPECTOR ASSIGNED BY THE DIVISION OF FACTORY AND BUILDING INSPECTION.
3. CONTRACTOR TO SUPPLY ALL MATERIAL AND LABOR FROM UTILITY COMPANY DROP POINT.
4. CONTRACTOR TO ARRANGE FOR SERVICE ENTRANCE, AT LOCATION SHOWN, WITH THE UTILITY COMPANY.
5. GROUND LINES ARE TYPICAL AND REQUIRED FOR ALL EQUIPMENT. TO BE SIZED ACCORDING TO NEC TABLE 250-95, AND SHALL BE PROVIDED FOR ALL CIRCUITS. WHERE EQUIPMENT IS SUPPLIED WITH A NEUTRAL TERMINAL, THIS CONNECTION IS ALSO REQUIRED.
6. THE HORSEPOWER AND AMPERAGE RATINGS SHOWN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE ELECTRICAL RATINGS OF THE EQUIPMENT TO BE FURNISHED, AND PROVIDE PROPER CONTROLS, WIRE, CONDUIT, AND CONNECTION AT NO CHANGE IN CONTRACT PRICE.
7. MOTOR OVERLOAD HEATERS AND FUSING SHALL BE FIELD VERIFIED FOR MOTOR NAMEPLATE CURRENT, AND INSTALLED ACCORDINGLY.
8. CONTRACTOR TO BALANCE ALL LOADS.
9. ALL OVERCURRENT PROTECTION TO BE COORDINATED TO PREVENT CASCADING IN CASE OF FAULT.
10. CONTRACTOR SHALL FURNISH A MINIMUM OF 10% SPARE FUSES FOR EACH SIZE. THE MINIMUM NUMBER OF SPARE FUSES FURNISHED FOR EACH SIZE SHALL BE 3.
11. BUSSMAN, SHAWMUT, OR EQUAL DUAL ELEMENT, TIME DELAY, CURRENT LIMITING FUSES. MOTOR FUSES ARE SIZED BY NOMINAL RATINGS AND ARE FOR MOTORS RATED AT NOT OVER 40°C., OR NOT LESS THAN 1.15 SERVICE FACTOR. IF OTHER TYPES OF MOTORS ARE INSTALLED, THE FUSE SIZES SHALL BE CHANGED ACCORDINGLY.
12. GROUNDING AND FAULT PROTECTION SHALL BE PROVIDED AND INSTALLED AS REQUIRED BY NEC.
13. ALL WIRE IS COPPER AS SHOWN. IF ALUMINUM WIRE IS USED, THE WIRE AND CONDUIT SIZES MUST BE INCREASED IN ACCORDANCE WITH NEC.
14. ALL CONDUIT SHALL BE BONDED FOR GROUND.
15. MINIMUM WIRE SIZE IS #12 COPPER; MINIMUM CONDUIT SIZE IS 3/4".
16. ALL EXTERIOR WIRING IS TO BE RUN UNDERGROUND WHEREVER POSSIBLE.
17. ALL CIRCUIT BREAKERS SHALL BE THE BOLT-ON TYPE.
18. CIRCUIT BREAKERS TO WITHSTAND A MINIMUM OF 50,000 A.I.C.; RMS AT 250 VOLT.
19. MAIN SWITCH AND ITS FUSES SHALL HAVE SHORT-CIRCUIT CURRENT RATINGS NOT LESS THAN MAXIMUM AVAILABLE SHORT-CIRCUIT CURRENT.
20. SWITCH HANDLES SHALL NOT BE LOCATED AT A HEIGHT WHICH EXCEEDS 6'-0".
21. ALL SWITCHES TO BE HEAVY DUTY TO WITHSTAND OPENING OR CLOSING UNDER FULL LOAD.

SWITCH AND FUSE INDICATED IN THE FOLLOWING MANNER:	
SWITCH RATING	FUSE SIZE
200 A	175 A

22. WHERE PLUG AND RECEPTACLE ARE SHOWN, THE CONTRACTOR SHALL BE RESPONSIBLE TO SEE THEY MATCH.
23. CONTRACTOR SHALL FURNISH GUTTER AS REQUIRED FOR THE ELECTRICAL DISTRIBUTION CENTER, AND AS NEEDED ELSEWHERE.
24. WHERE CONDUIT PASSES THROUGH FLOORS OR WALLS, VOIDS BETWEEN CONDUIT AND STRUCTURE SHALL BE FILLED WITH NONSHRINKING GROUT.
25. ALL WIRING IN WET WELL SHALL BE CLASS I, DIVISION ± EXPLOSION PROOF.

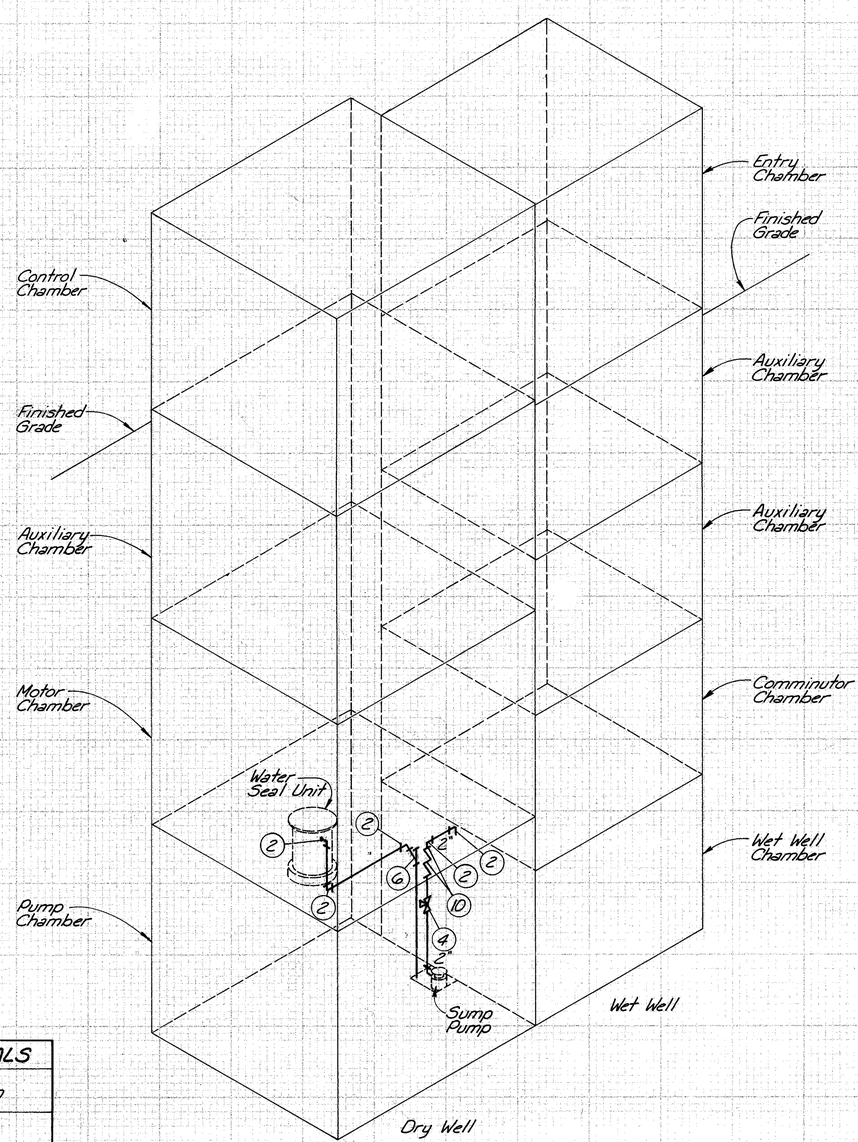
For Ground Floor Electrical Plan, See Sheet No. 416

Dawn LE 2/12/85



POTABLE WATER PIPING

No Scale



FLOOR DRAIN PIPING

No Scale

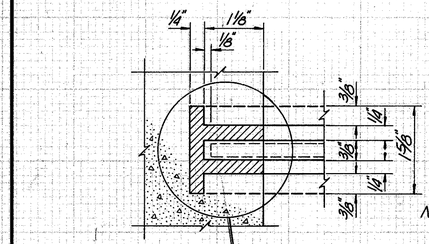
PIPING INCIDENTALS	
Ref. No.	Description
1	Tee
2	90° Bend
3	Hose Bibb *
4	Gate Valve
5	Backflow Preventor
6	Wye
7	45° Bend
8	Plug
9	Floor Drain
10	Check Valve
11	Pressure Reducing Valve

* With Vacuum Breaker

Drawn By	Chkd By	I.O.Ck.	Revised
LE 4/6/84	Wac 5/14/84	DOQ 8/24/84	LE 9/10/84

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

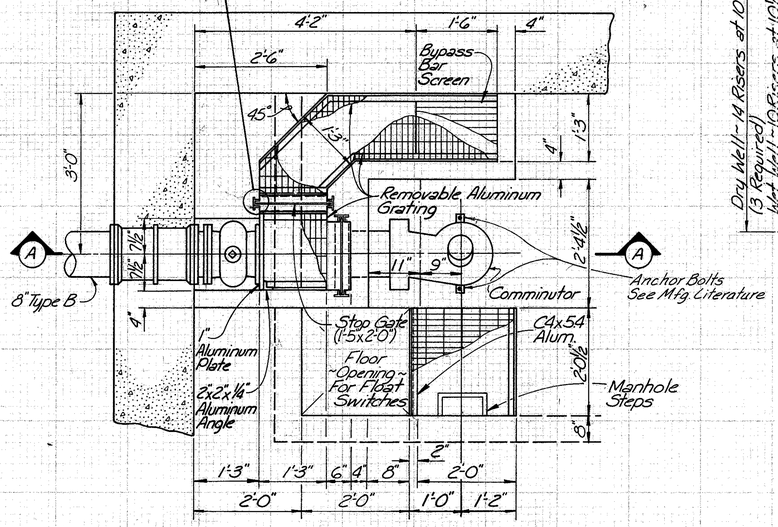
PUMP STATION MISCELLANEOUS DETAILS



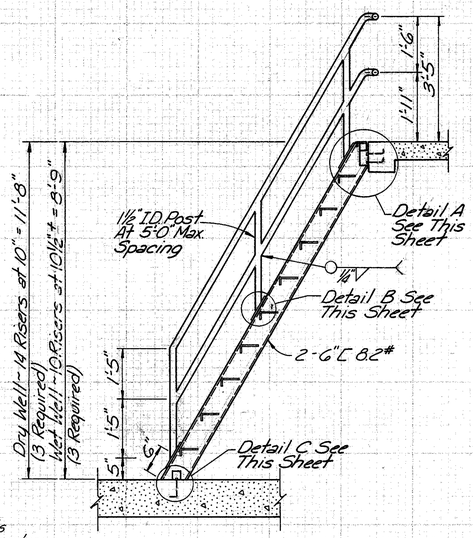
Note: Shop Coat of Heavy Bituminous Paint On Surfaces Coming In Contact With Concrete.

ALUMINUM STOP GATE GUIDE

No Scale

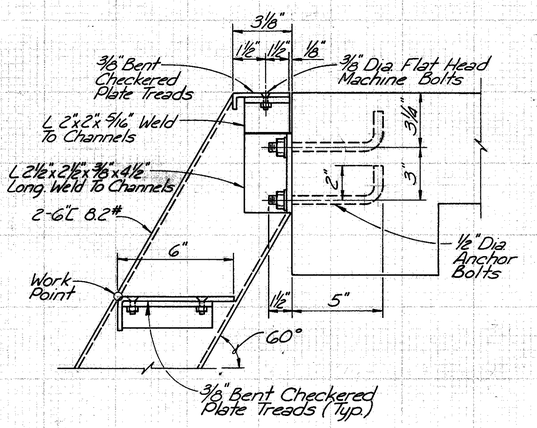


PLAN



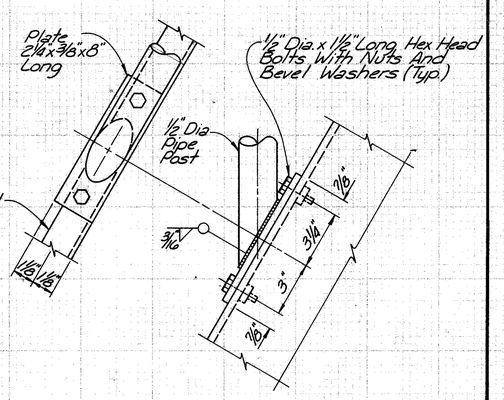
SHIPS LADDER DETAIL

Scale: 1/2" = 1'-0"



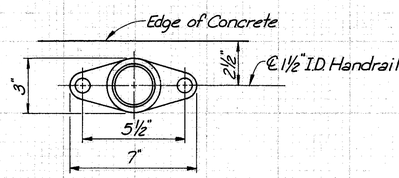
DETAIL 'A'

Scale: 3" = 1'-0"

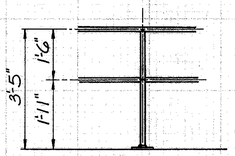


DETAIL 'B'

Scale: 3" = 1'-0"

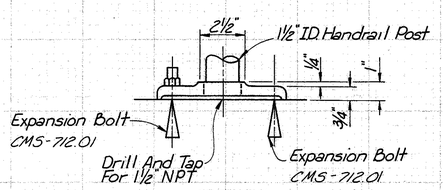


PLAN



TYPICAL PIPE HANDRAIL DETAILS

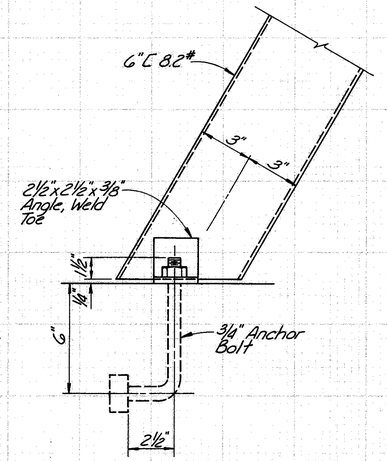
No Scale



SECTION

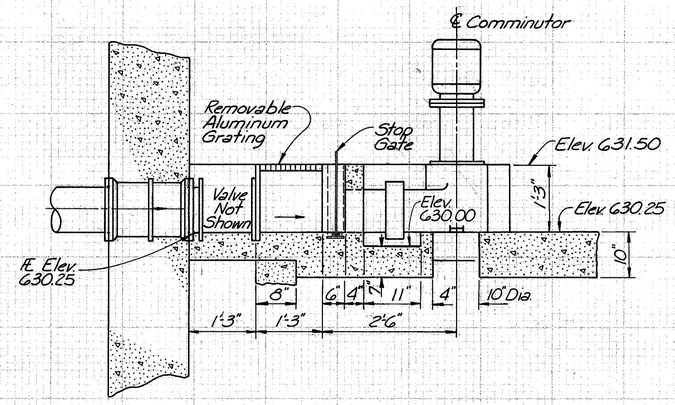
DETAIL OF FLOOR FLANGE FOR RAILING POST IN CONCRETE

Scale: 3" = 1'-0"



DETAIL 'C'

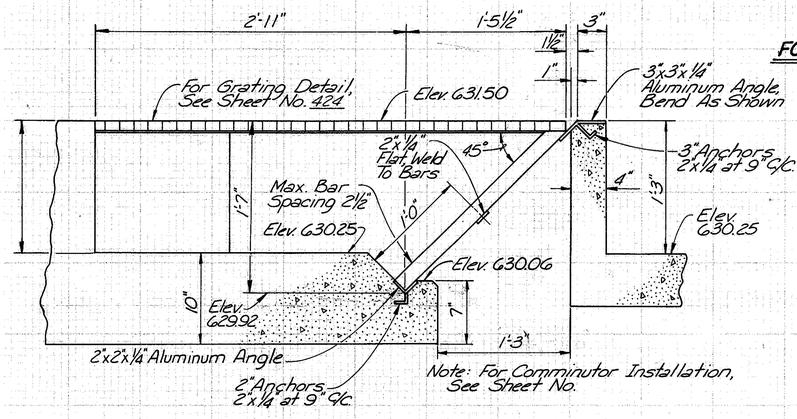
Scale: 3" = 1'-0"



SECTION A-A

COMMINUTOR ARRANGEMENT DETAIL

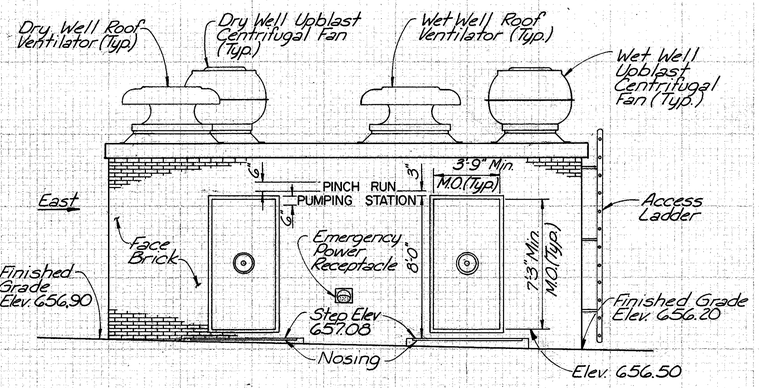
Scale: 3/4" = 1'-0"



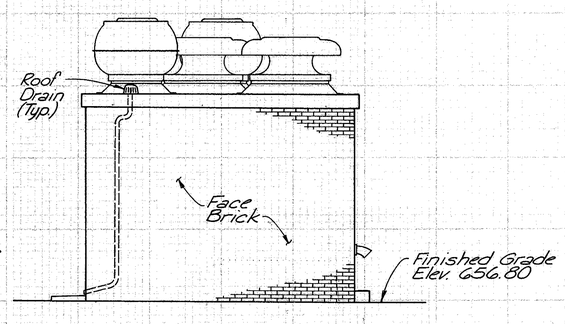
BYPASS BAR SCREEN DETAIL

Scale = 1 1/2" = 1'-0

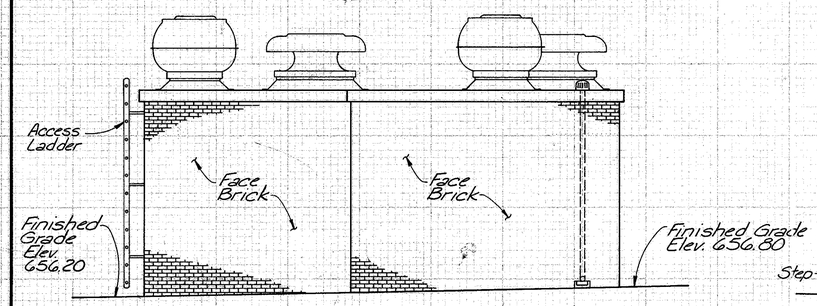
Drawn By	Checked By	Revised
LE	WBG	LE
SEITZ	5.25.84	9/10/84



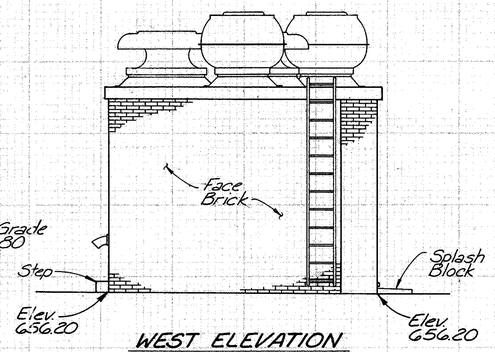
NORTH ELEVATION
Scale: 1/4" = 1'-0"



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



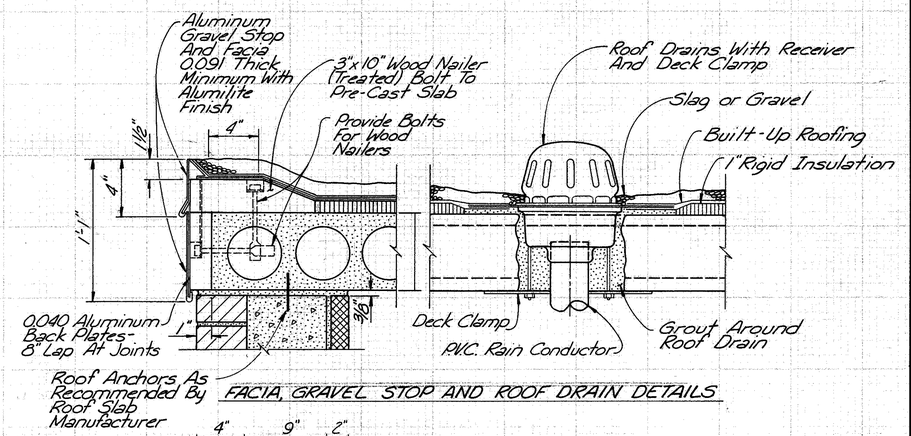
SOUTH ELEVATION
Scale: 1/4" = 1'-0"



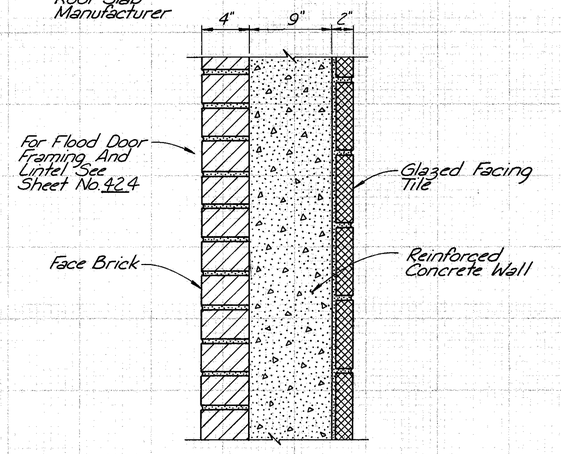
WEST ELEVATION
Scale: 1/4" = 1'-0"

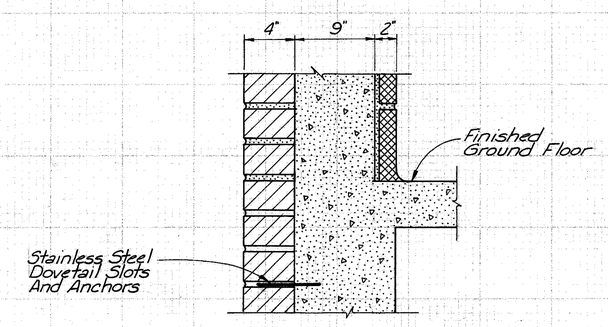
DOOR AND LINTEL DESCRIPTION

(D-1) 3'-6" x 7'-0" Clear Opening Steel Flood Door. See Detail Sheet No. Lintel of Reinforced Concrete and 1L, 4" x 4" x 5/16" - 7'-0" Long and 1L, 4" x 1 3/4" x 5/16" - 7'-0" Long



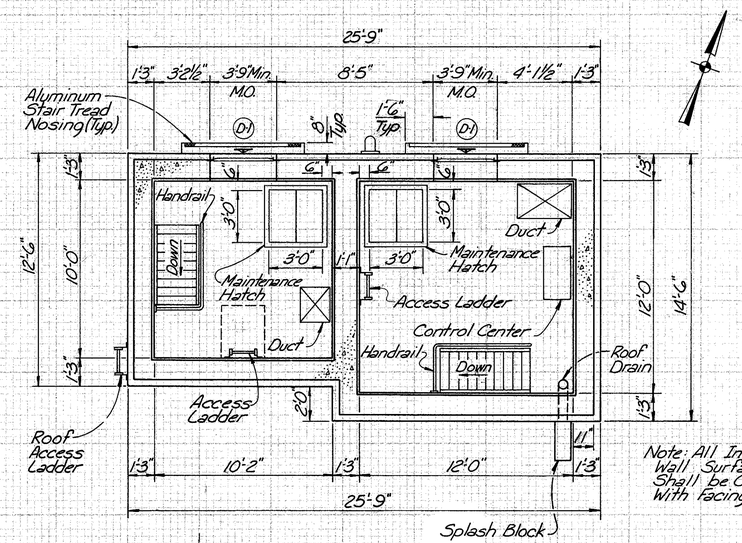
FACIA, GRAVEL STOP AND ROOF DRAIN DETAILS





1'-3" WALL

TYPICAL WALL SECTION
No Scale

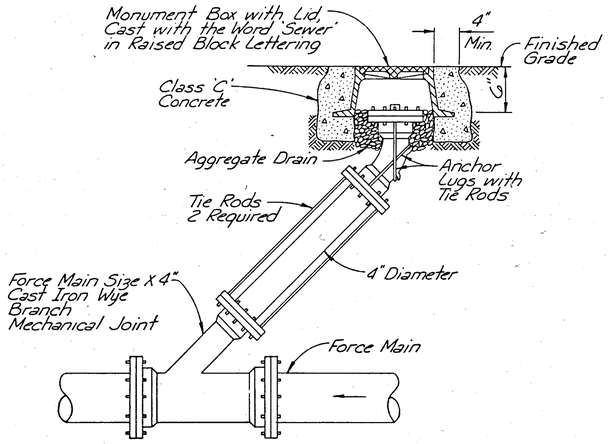


Note: All Interior Wall Surfaces Shall be Covered With Facing Tile

GROUND FLOOR PLAN
No Scale

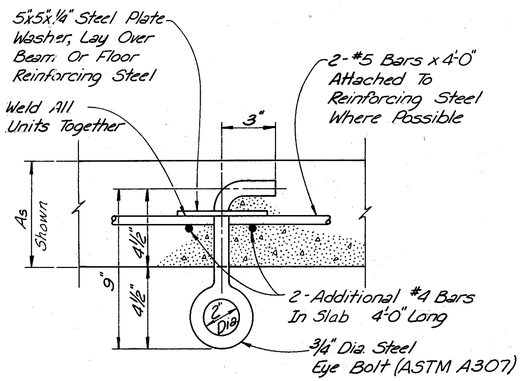
Drawn By	Checked By	I.O.Ck.	Revised
LE	Wac	DOQ	LE
5/29/84	6/1/84	8/24/84	9/10/84

PUMP STATION MISCELLANEOUS DETAILS



FORCE MAIN CLEANOUT DETAIL

Not To Scale



HOIST EYE BOLT

Scale: 3" = 1'-0"

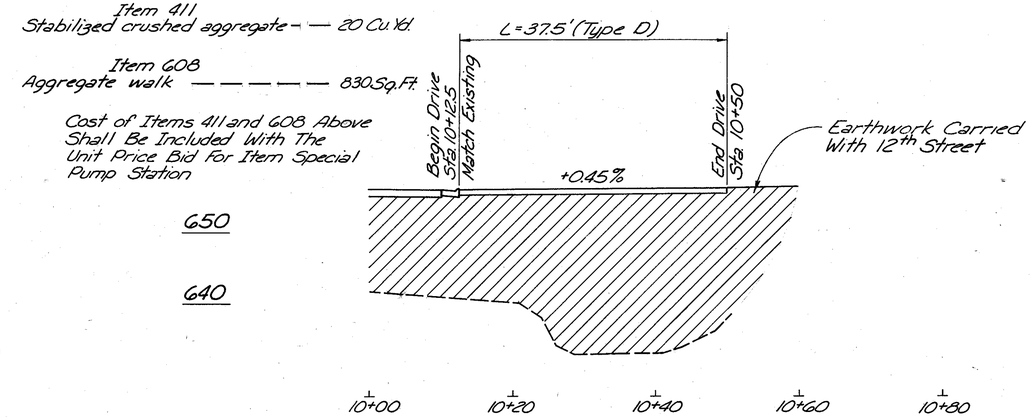
STABILIZED CRUSHED AGGREGATE AND AGGREGATE WALK

Stabilized crushed aggregate and aggregate walk required for pump station drive and walk:

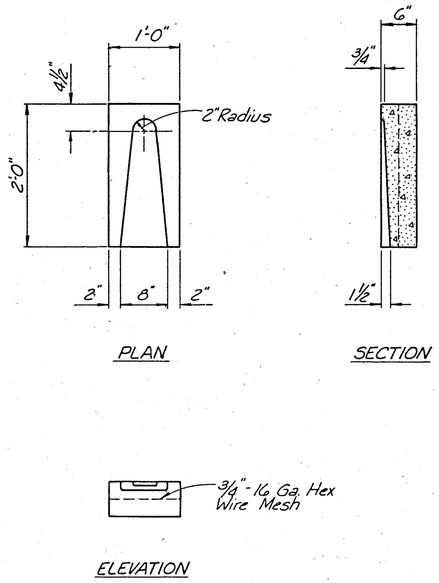
Item 411
Stabilized crushed aggregate — — 20 Cu.Yd.

Item 608
Aggregate walk — — — — — 830 Sq.Ft.

Cost of Items 411 and 608 Above Shall Be Included With The Unit Price Bid For Item Special Pump Station



PINCH RUN PUMP STATION ACCESS DRIVE DETAIL



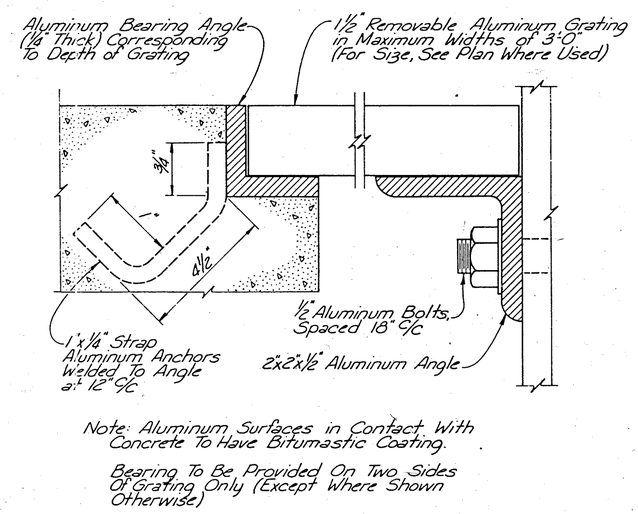
PLAN

SECTION

ELEVATION

CONCRETE SPLASH BLOCK

Scale: 1" = 1'-0"

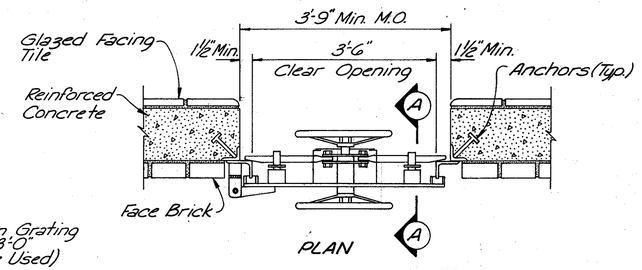


Note: Aluminum Surfaces in Contact With Concrete To Have Bitumastic Coating.

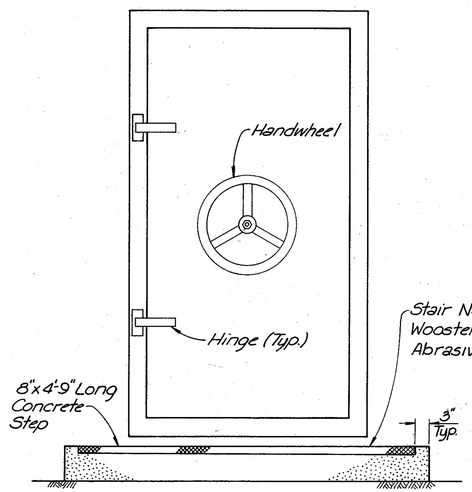
Bearing To Be Provided On Two Sides Of Grating Only (Except Where Shown Otherwise)

TYPICAL ALUMINUM GRATING DETAILS

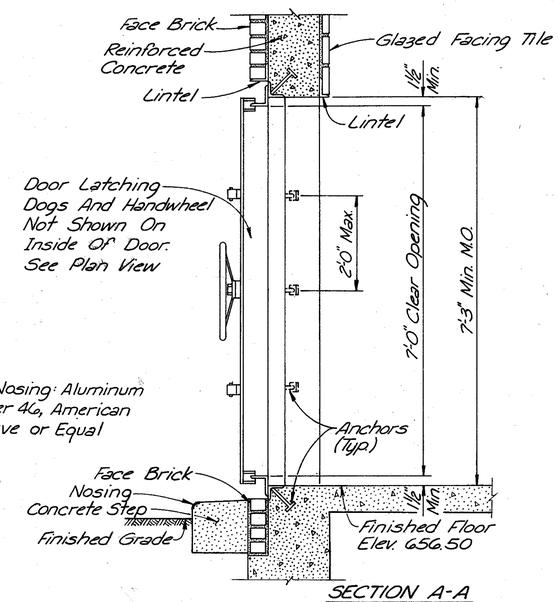
No Scale



PLAN



ELEVATION



SECTION A-A

WATERTIGHT DOOR DETAIL

No Scale

Drawn By	Checked By	I.O.Ck.	Revised
LE 4/30/84	Wac 5/25/84	DOQ 8/24/84	LE 9/10/84

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

SANITARY AND PUMP STATION MISCELLANEOUS DETAILS

ITEM	LOCATION	GROUND ELEVATION±	REGULATOR GATE SIZE	INVERT REGULATOR GATE	DIAMETER BACKWATER GATE	DIAMETER OF FLOAT	DIAMETER PROPOSED SEWER	PROPOSED SEWER INVERTS			DIAMETER OUTLET SEWER	INVERT OUTLET SEWER	ELEVATION TOP OF DAM	ELEVATION FLOAT CHAMBER
								INLET	OUTLET	SLOPE				
SPECIAL	SEE 1-CG	658.0	5"X 9¼"	630.79	30"	16"	30"	631.22	631.15	0.50%	8"	630.37	631.31	630.98

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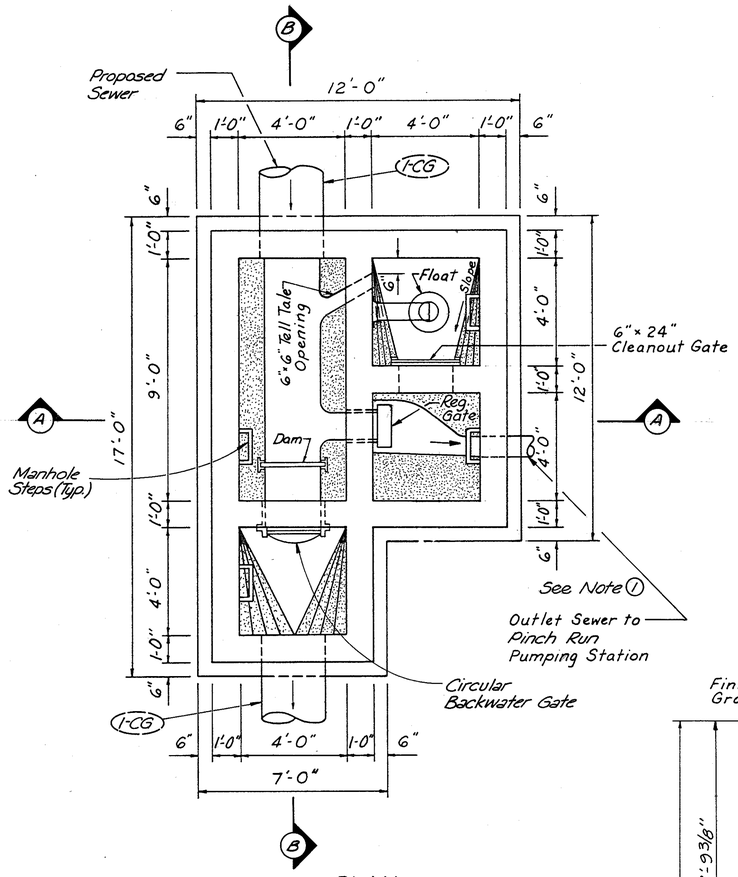
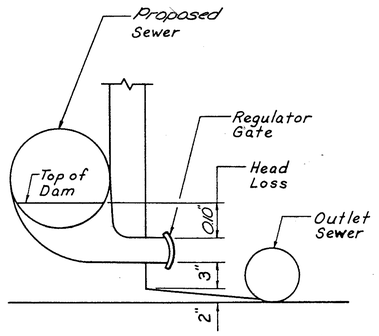
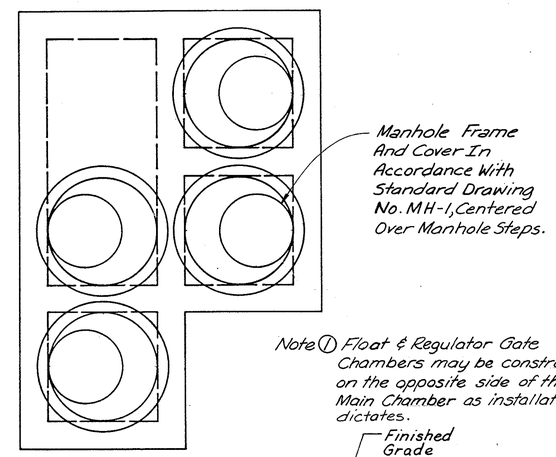


PLAN
Scale: 3/8"=1'-0"



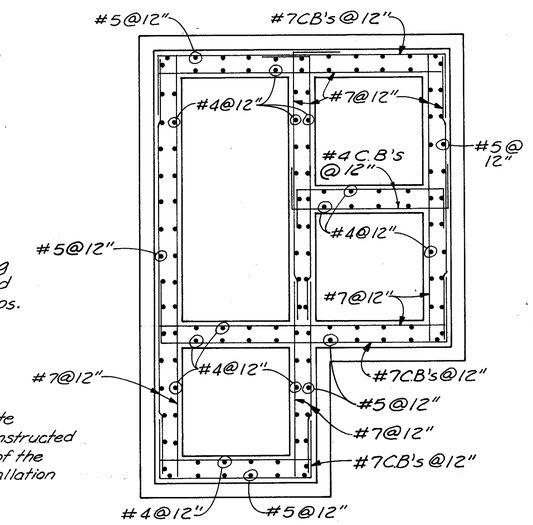
HEAD LOSS DIAGRAM
Not To Scale

Note: The 1-CG Regulator shall be constructed with the Float & Regulator Gate Chambers on the side opposite the Main Chamber.

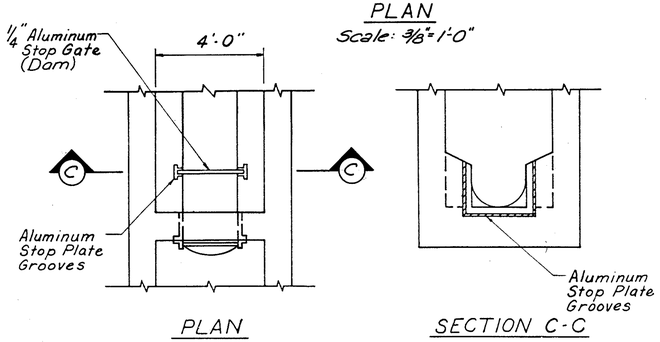


TOP PLAN
Not To Scale

Note ① Float & Regulator Gate Chambers may be constructed on the opposite side of the Main Chamber as installation dictates.



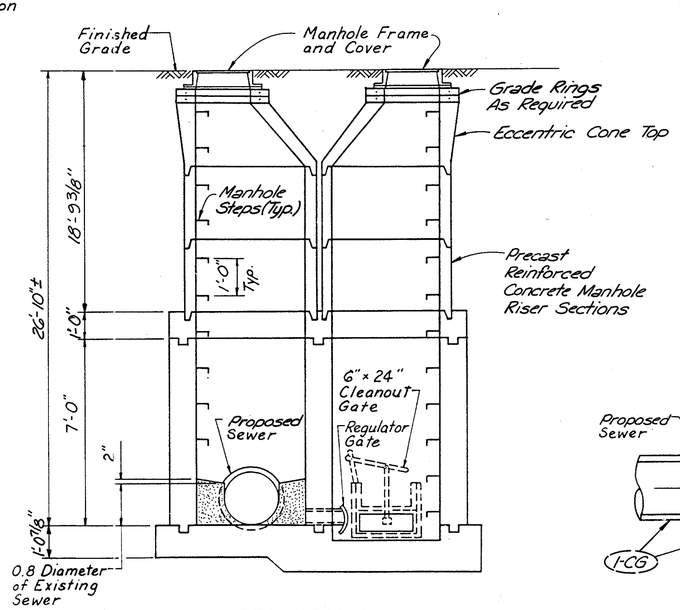
PLAN
Scale: 3/8"=1'-0"



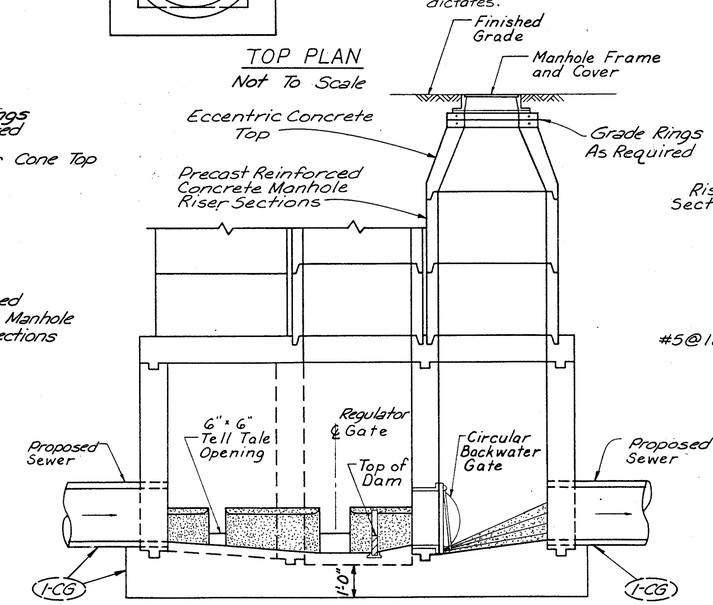
PLAN

SECTION C-C

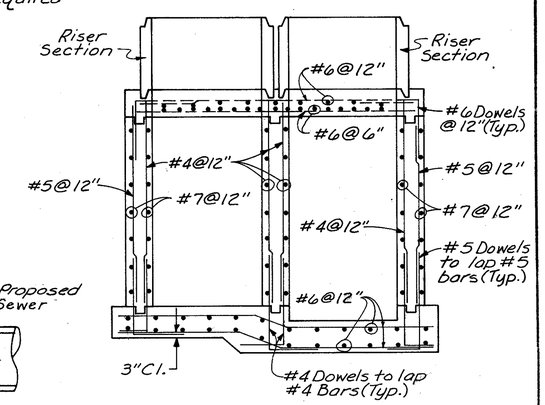
TYPICAL DAM DETAILS
Not To Scale



SECTION A-A
Not To Scale



SECTION B-B
Not To Scale



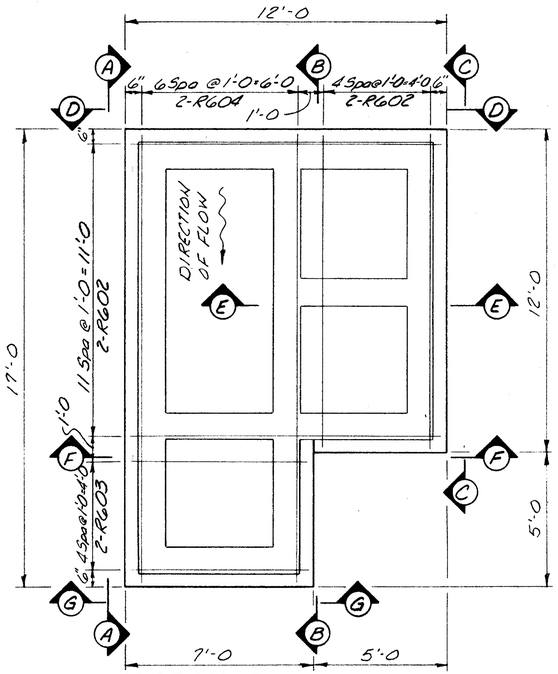
SECTION A-A
Not To Scale

STRUCTURAL STEEL DETAILS

DRAWN BY	CHK'D BY	I.O.Ck.	REVISED
Wac 10-3-83	LYE 6/1/84	DDQ 8/28/84	LYE 9/10/84

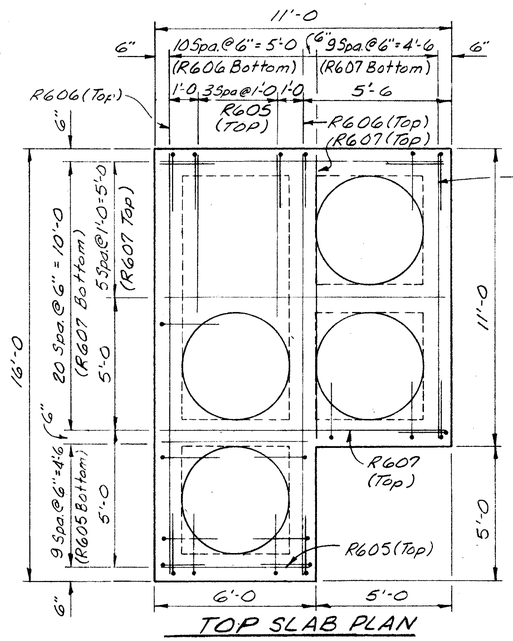
W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

TYPICAL COMBINED FLOW REGULATOR DETAIL



FOOTING PLAN

For Detail of Flow Regulator, see sheet 425



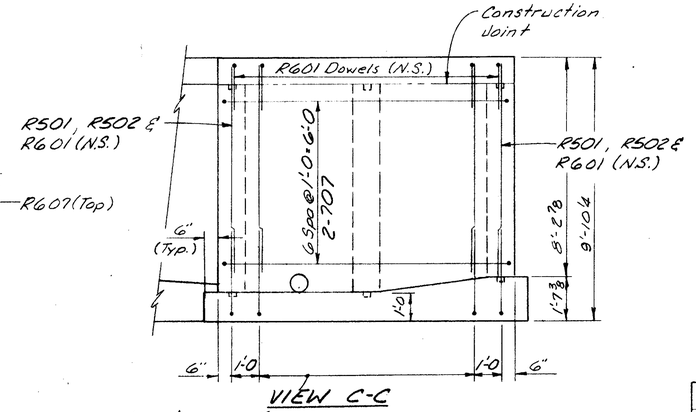
TOP SLAB PLAN

Note: All reinforcing to clear bottom and sides of footing by 3", 2" all other places.

Cut all bars to clear openings in field as necessary.

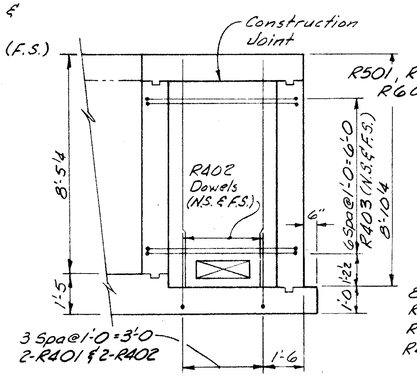
N.S. Denotes near side
F.S. Denotes far side

Flow regulators may be bouyant until construction is complete and ground cover replaced.



VIEW C-C

8 Spa @ 1'-0 = 8'-0
R501, R502 & R601 (N.S.)
R401 & R402 (F.S.)



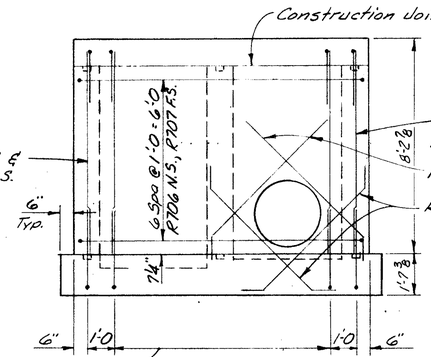
SECTION E-E

ESTIMATED QUANTITIES		
Item	Description	QUANTITY
511	Class C Concrete	31.0 C.Y.
509	Reinforcing Steel, Grade 60	6166 lbs.

Quantities to be carried as a Lump Sum under Item Special - Combined Flow Regulator.

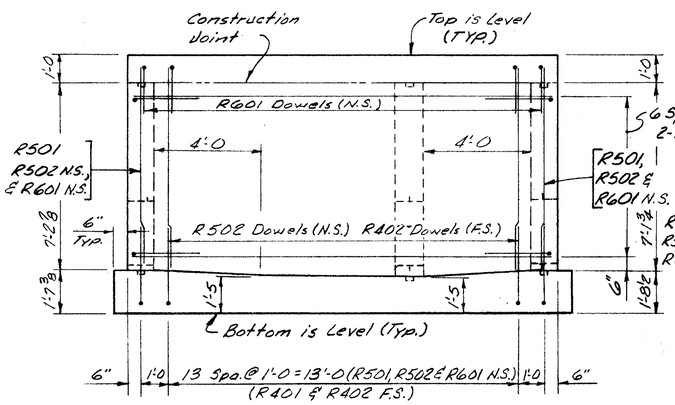
Note: Quantities shown are for one Flow Regulator.

For Reinforcing Schedule See Sheet 425 B

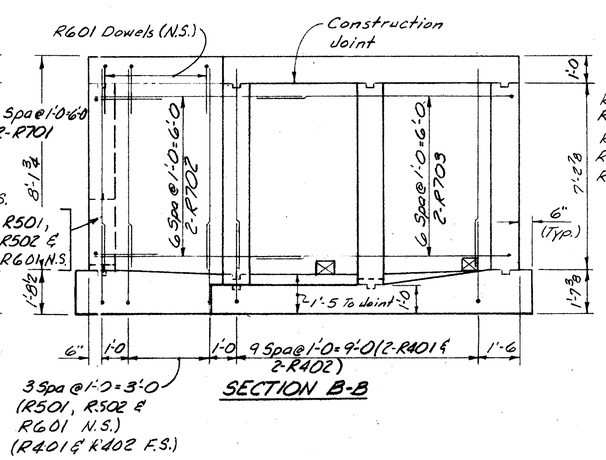


VIEW D-D

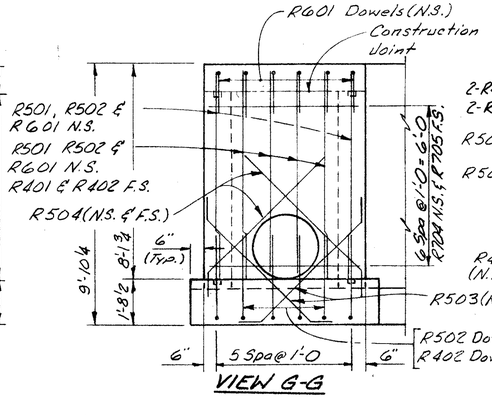
8 Spa @ 1'-0 = 8'-0
R501, R502 & R601 (N.S.)
R401 & R402 (F.S.)



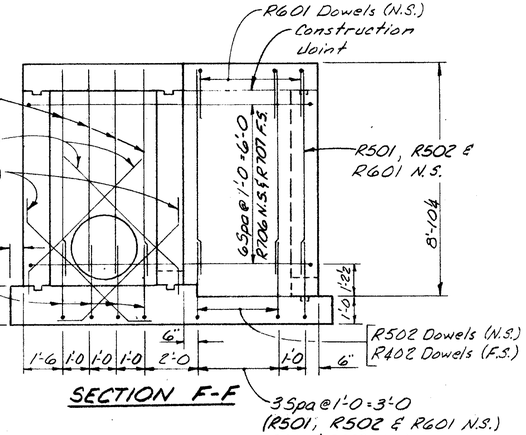
VIEW A-A



SECTION B-B



VIEW G-G



SECTION F-F

3 Spa @ 1'-0 = 3'-0
(R501, R502 & R601 N.S.)
(R401 & R402 F.S.)

DRAWN	CK'D.	CORR.	CK'D.
FDH 1-31-86	[illegible] 2-20-86	CMD 3-10-86	[illegible] 3-27-86

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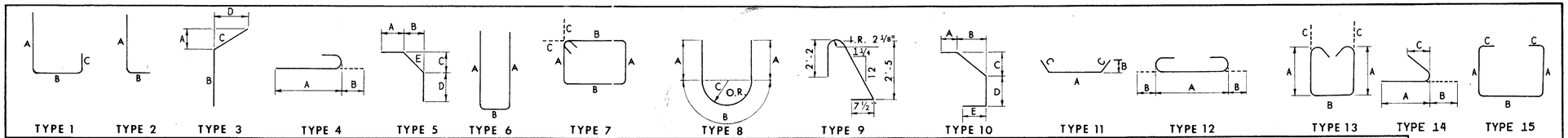
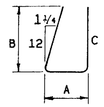


MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
R701	STR.							14	15'-8	448
R702	STR.							14	8'-4	238
R703	2	9'-10	1'-2					14	10'-10	310
R704	6	2'-6	5'-8					7	10'-4	148
R705	STR.							7	5'-8	81
R706	6	2'-6	10'-8					14	15'-4	439
R707	STR.							28	10'-8	610
R601	2	2'-0	2'-0					54	3'-8	297
R602	STR.							34	11'-6	587
R603	STR.							10	6'-6	98
R604	STR.							14	16'-6	347
R605	STR.							15	5'-8	128
R606	STR.							13	15'-8	306
R607	STR.							39	10'-8	625
R501	STR.							54	7'-8	432
R502	2	3'-4	10½"					54	4'-1	230
R503	11	5'-0½	7 1/16"	10"	7 1/16"			12	6'-7	82
R504	3	7 1/16"	6'-0	10"	7 1/16"			12	6'-10	86
R401	STR.							80	7'-8	410
R402	2	3'-2	8"					80	3'-9	200
R403	6	5'-8	8"					14	6'-10	64



NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

Note: Quantities shown are for one Flow Regulator

DRAWN	CK'D.	CORR.	BK. CK'D.
FDW 3-31-86	Jones 2-28-86	C-WP 5-10-86	Jones 5-21-86

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

TYPICAL COMBINED FLOW REGULATOR REINFORCING SCHEDULE

WATER LINE GENERAL NOTES

Calc. By: RJG. Date 4-6-85
Ch'k'd By: GMC Date 4-6-85

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WATER LINE WORK SPECIFICATIONS

ALL WATERLINE RELOCATIONS SHALL BE MADE IN ACCORDANCE WITH THE O.D.O.T. SUPPLEMENTAL SPECIFICATION 814 ENTITLED, "ITEM 814, WATER MAINS AND SERVICE BRANCHES" AND THE CITY OF BELLAIRE WATER DEPARTMENT. THIS SPECIFICATION IS MODIFIED BY THE FOLLOWING SPECIAL PROVISIONS WHICH CONSIST OF THESE NOTES. IN ALL CASES OF CONFLICT WITH SUPPLEMENTAL SPECIFICATION 814, THESE NOTES SHALL GOVERN.

ITEM 814 - WATER MAIN

THE CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO FURNISH AND INSTALL ALL NEW WATER MAINS INCLUDING ALL FITTINGS, BENDS, AND BRANCHES AS SHOWN ON THE PLANS, IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 814 OR AS DIRECTED BY THE ENGINEER.

ALL WATER LINE PIPE SHALL BE NEW DUCTILE IRON, CLASS 52 WITH BELL AND SPIGOT COMPRESSION TYPE JOINTS AS PER ITEM 814 UNLESS OTHERWISE SPECIFIED.

THE WATER MAIN ALIGNMENT SHALL CONFORM AS CLOSELY TO THE LINES SHOWN ON THE PLANS AS THE EXISTING CONNECTION LOCATIONS WILL PERMIT. BENDS AND FITTINGS SHOWN IN BOTH THE PLAN AND PROFILE PROVIDE A SUGGESTED METHOD OF ACCOMPLISHING THE INTENDED HORIZONTAL AND VERTICAL ALIGNMENT. HOWEVER, THE CONTRACTOR HAS THE OPTION OF USING ALTERNATE BRANCHES TO SATISFY THE ALIGNMENT SHOWN ON THE PLANS. CHANGES IN LINE AND GRADE OBTAINED BY DEFLECTIONS AT PIPE JOINTS SHALL BE NO GREATER THAN RECOMMENDED BY THE MANUFACTURER OF THE WATER PIPE.

CONNECTIONS TO EXISTING PIPE

AT PLACES WHERE THE PLANS PROVIDE FOR PROPOSED PIPE TO BE CONNECTED TO EXISTING PIPE, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE BEFORE BEGINNING TO LAY THE PROPOSED PIPE.

THE CONTRACTOR SHALL PROVIDE THE NECESSARY FITTINGS AND ADAPTERS TO MAKE THE CONNECTION TO THE EXISTING AND PROVIDE FOR HORIZONTAL AND VERTICAL ALIGNMENT IN CLOSE CONFORMITY TO THE LINES AND GRADES SHOWN ON THE PLANS. THE COST OF LOCATING EXISTING PIPE, AND MAKING THE CONNECTION INCLUDING ADAPTERS AND FITTINGS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 814, WATER MAIN.

SEQUENCE OF OPERATIONS

THE CONTRACTOR SHALL COMPLETELY INSTALL, TEST AND STERILIZE THE PROPOSED WATERLINES BEFORE CUTTING OR TAPPING EXISTING MAINS OR OTHERWISE DISRUPTING WATER SERVICE.

THE WATER DEPARTMENT OF BELLAIRE AND THE PROJECT ENGINEER SHALL BE NOTIFIED 2 WORKING DAYS IN ADVANCE OF CUTTING OR TYING INTO EXISTING MAINS. SERVICE SHALL BE INTERRUPTED FOR NO LONGER THAN TWO (2) HOUR INTERVALS.

SERVICE BRANCHES

DURING THE RELOCATION OF WATER MAINS, EXISTING SERVICE BRANCHES MAY BE CUT OR OTHERWISE TAKEN OUT OF SERVICE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO RESTORE WATER SERVICE TO ALL USERS AFFECTED BY THE RELOCATIONS BY PROVIDING NEW SERVICE BRANCHES. THE NEW BRANCHES SHALL BE INSTALLED AS DIRECTED AND SHALL INCLUDE FURNISHING AND PLACING CORPORATION STOPS, SERVICE STOPS, AND SERVICE BOXES IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 814.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR THIS PURPOSE: (URBAN)

ITEM 814 - 3/4" SERVICE BRANCHES — — — — 500 LIN.FT.
ITEM 814 - 1" SERVICE BRANCHES — — — — — 500 LIN.FT.

THE CONTRACTOR SHALL NOT ORDER MATERIALS FOR "SERVICE BRANCHES" UNTIL AUTHORIZED BY THE ENGINEER.

WATER VALVES

WATER VALVE LOCATIONS ARE SHOWN ON THE PLANS. WHERE THE PLANS PROVIDE FOR VALVES TO BE INSTALLED ON STUB CONNECTIONS TO EXISTING WATERLINES THE VALVES SHALL BE LOCATED AS DIRECTED.

VALVES, INCLUDING INSERTING VALVES AND TAPPING VALVES, SHALL BE GATE VALVES AND SHALL BE SUPPLIED AND INSTALLED COMPLETE WITH AN ADJUSTABLE VALVE BOX IN ACCORDANCE WITH ITEM 814. VALVE OPERATING NUTS SHALL BE STANDARD 2" SQUARE.

VALVE BOXES SHALL BE CAST IRON OR PLASTIC WITH CAST IRON LIDS MARKED 'WATER' FOR USE IN 4 FEET OF COVER.

EACH VALVE SHALL BE SUPPORTED BY A CONCRETE VALVE SUPPORT PAD AS SHOWN ON THE PLAN DETAILS.

PAYMENT WILL BE MADE FOR EACH VALVE OF VARIOUS SIZES SHOWN ON THE PLANS AT THE UNIT PRICE BID PER EACH ITEM 814 - GATE VALVE AND VALVE BOX AND SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING AND INSTALLING GATE VALVE COMPLETE WITH VALVE BOX.

FIRE HYDRANT SETTINGS

FIRE HYDRANT SHALL BE POST TYPE WITH BREAKABLE FLANGE DESIGNED FOR TRAFFIC COLLISIONS. THE MAIN VALVE SHALL HAVE A MINIMUM DIAMETER OF 5 INCHES WITH ONE 4 1/2 INCH STEAMER NOZZLE AND TWO 2 1/2 HOSE NOZZLES WITH PITTSBURGH BASTARD THREADS. STEAMER NOZZLES SHALL HAVE A 5.515 INCH OUTSIDE DIAMETER WITH 4 THREADS PER INCH. HOSE NOZZLES SHALL HAVE A 3.055 INCH OUTSIDE DIAMETER WITH 6 THREADS PER INCH. THE MAIN VALVE IS TO OPEN RIGHT (CLOCKWISE) WITH THE DIRECTION OF OPENING INDICATED WITH AN ARROW CAST ON THE HYDRANT BONNET. THE OPERATING NUTS AND CAP NUTS SHALL BE PENTAGONAL IN SHAPE MEASURING 1 3/8 INCH POINT TO FLAT.

HYDRANTS SHALL BE DRESSER M & H STYLE 129 OR AN EQUAL APPROVED BY THE CITY OF BELLAIRE WATER DEPARTMENT.

ALL HYDRANTS WILL BE GIVEN A COATING OF RED LEAD PRIMER AND A FINAL COATING OF "WHITE LEAD" PAINT. FINAL COAT PAINT COLOR SHALL BE YELLOW.

EACH HYDRANT SHALL BE CONNECTED TO THE MAIN WITH A 6" MECHANICAL JOINT DUCTILE IRON ANCHORING PIPE AND SHALL BE CONTROLLED BY AN INDEPENDENT GATE VALVE BETWEEN THE MAIN AND THE HYDRANT.

PAYMENT FOR THE HYDRANTS WILL BE MADE AT THE UNIT PRICE BID PER EACH ITEM 814 - 6" FIRE HYDRANT, A.P.P. AND SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING AND INSTALLING HYDRANTS, VALVES AND 6" ANCHORING PIPE COMPLETE AND IN PLACE AS SHOWN ON THE PLANS AND SPECIFIED HEREIN.

FIRE HYDRANT AND GATE VALVE REMOVED AND RESET, AS PER PLAN

THIS WORK SHALL CONSIST OF REMOVING EXISTING HYDRANT, INSTALLING NEW 6" DUCTILE IRON PIPE WITH MECHANICAL JOINT ANCHORING FITTINGS AND RESETTING HYDRANT TO LOCATION AS SET FORTH ON THE PLAN SHEETS. HYDRANT SHALL BE RESET WITH BACKING AS REQUIRED, SEE TYPICAL HYDRANT SETTING DETAIL. COST OF THE 6" DUCTILE IRON PIPE WITH FITTINGS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR ITEM 814 "FIRE HYDRANT AND GATE VALVE REMOVED AND RESET, AS PER PLAN."

RIVER CROSSING PIPE

RIVER CROSSING PIPE SHALL BE INSTALLED BETWEEN STATION 820+15 LT. AND STATION 821+19 LT. THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLING 16" WATER MAIN IRON PIPE AWWA CLASS 56, BALL AND SOCKET JOINTS AND FITTINGS.

WORK TO BE DONE BY THE CITY

ALL OPENING AND CLOSING OF VALVES NECESSARY TO SHUT OFF WATER WHEN MAKING CONNECTIONS TO EXISTING WATERLINES SHALL BE DONE BY CITY OF BELLAIRE WATER DEPARTMENT PERSONNEL.

SYSTEM VALVING TO FACILITATE CONSTRUCTION

INSERTING VALVES AND TAPPING SLEEVES AND VALVES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE BY THE CONTRACTOR AS DIRECTED IN CONSTRUCTION AREAS WHERE THE EXISTING SYSTEM VALVING IS INADEQUATE TO PROVIDE PROPER CONTROL OF WATER FLOW WHEN MAKING CONNECTIONS TO EXISTING WATERLINES.

THE UNIT PRICE BID PER EACH ITEM 814 - INSERTING VALVE AND VALVE BOX SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING AND INSTALLING THE VALVE WITH VALVE BOX, COMPLETE AND IN PLACE AND SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, EXCAVATION DRILLING THE EXISTING MAIN UNDER PRESSURE, INSTALLING THE VALVE AND VALVE BOX, BACKFILLING, PAVEMENT REPLACEMENT, TESTING, AND STERILIZATION IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 814, WATER MAIN.

THE UNIT PRICE BID PER EACH ITEM 814 - TAPPING SLEEVE, VALVE AND VALVE BOX SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING AND INSTALLING THE VALVE AND SLEEVE WITH VALVE BOX. COMPLETE AND IN PLACE AND SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, EXCAVATION, INSTALLING THE SLEEVE VALVE AND VALVE BOX, TAPPING THE WATER MAIN, BACKFILLING, PAVEMENT REPLACEMENT, TESTING, AND STERILIZATION IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 814 - WATER MAIN.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE: (URBAN)

ITEM 814 - 6" INSERTING VALVE AND VALVE BOX . . . . 2 EACH
ITEM 814 - 16" INSERTING VALVE AND VALVE BOX . . . . 2 EACH
ITEM 814 - 6" x 6" TAPPING SLEEVE, VALVE AND VALVE BOX . . . . . 2 EACH
ITEM 814 - 16" x 10" TAPPING SLEEVE, VALVE AND VALVE BOX . . . . . 2 EACH

NONE OF THE ABOVE MATERIALS SHALL BE ORDERED BY THE CONTRACTOR UNTIL AUTHORIZED BY THE ENGINEER.

CUTTING AND PLUGGING (OR CAPPING) EXISTING MAINS

WATER MAINS CALLED OUT TO BE CUT AND PLUGGED AT POINTS ON EXISTING MAINS SHALL HAVE THE ABANDONED WATER MAINS CUT AND REMOVED AS REQUIRED TO ATTACH THE NEW PLUGS (OR CAPS) AND ACCESSORIES AND PLACING BLOCKING AND BACKING. WOOD BLOCKING SHALL BE USED TO BRACE BETWEEN THE NEW PLUG (OR CAP) AND THE END OF THE REMAINING ABANDONED MAIN. CLASS 'C' CONCRETE BACKING SHALL BE USED TO ENCASE THE BLOCKING.

THE COST OF FURNISHING ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED TO COMPLETE THE EXCAVATING, CUTTING, REMOVING AND DISPOSING OF PORTIONS OF WATER MAIN, ATTACHING THE NEW PLUGS AND ACCESSORIES, PLACING BACKING AND BLOCKING, BACKFILLING AND RESTORING THE GROUND TO ITS ORIGINAL CONDITION SHALL BE INCLUDED IN THE UNIT PRICE BID PER LINEAR FOOT OF ITEM 814 - WATER MAIN. WHERE REQUIRED THE MAINS SHALL BE CUT AND PLUGGED (OR CAPPED) TWO (2) FEET OUTSIDE THE PROPOSED RIGHT-OF-WAY UNLESS OTHERWISE NOTED ON THE PLANS.

Calc. By: RJG Date: 8-30-84
Chk'd By: GMC Date: 8-30-84

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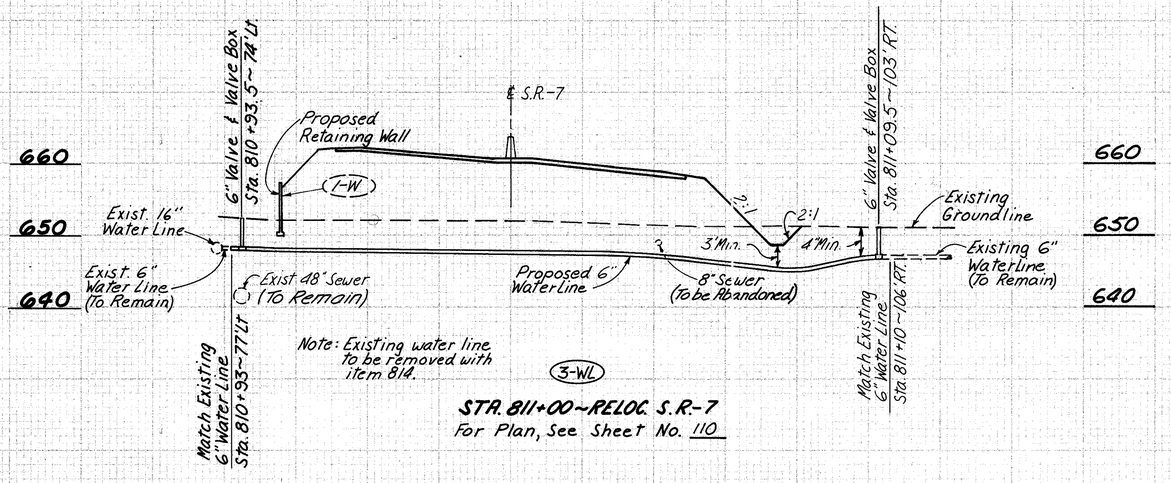
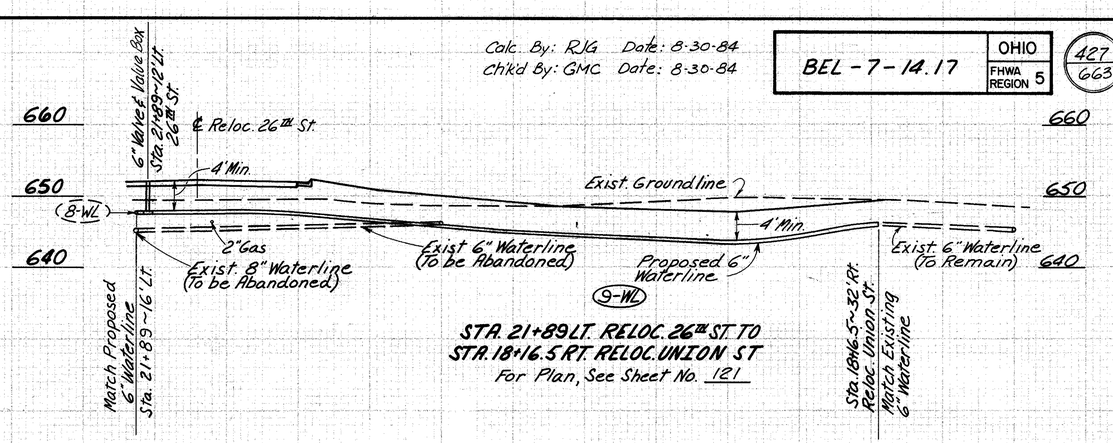
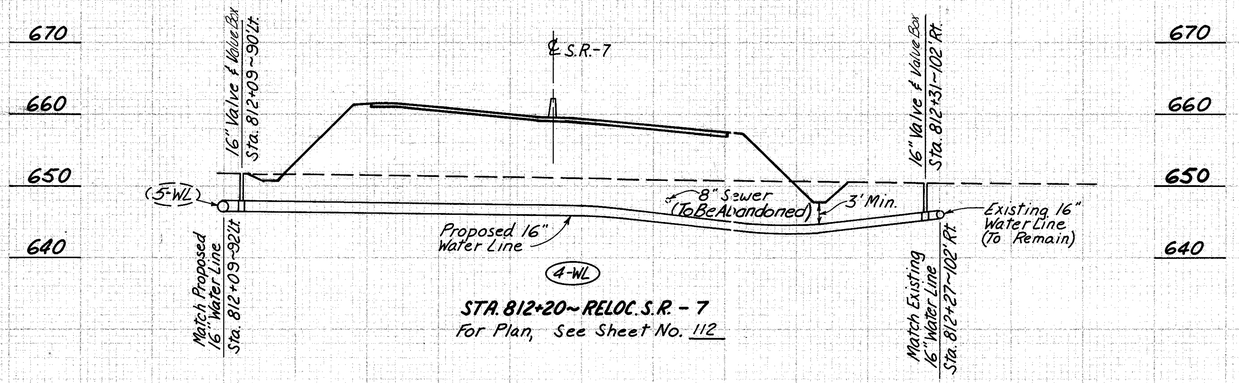
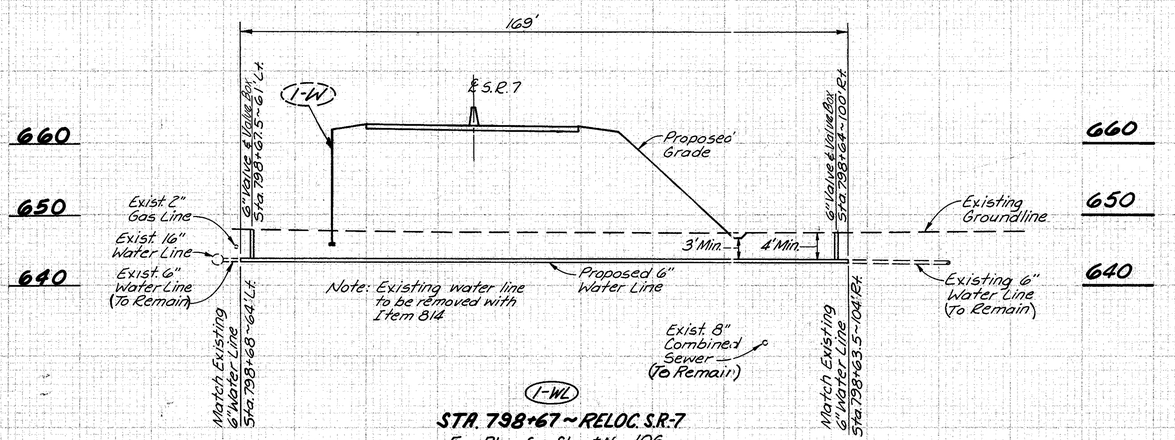






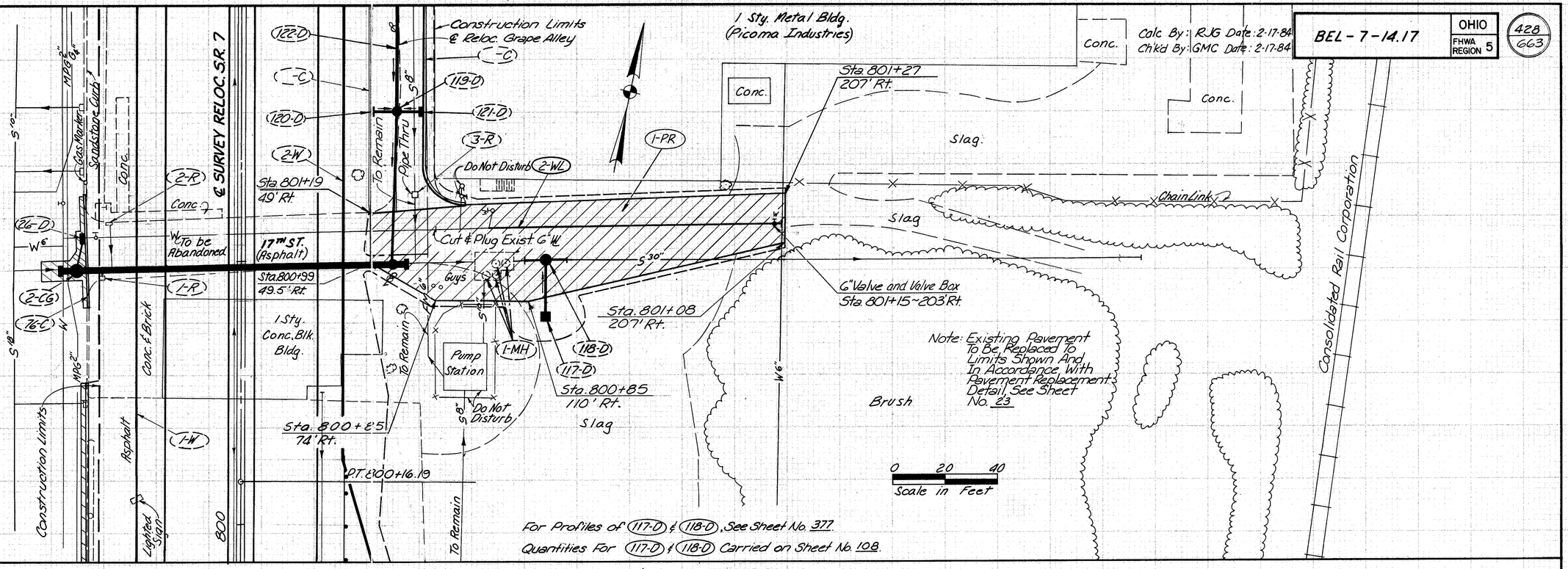


QUANTITIES

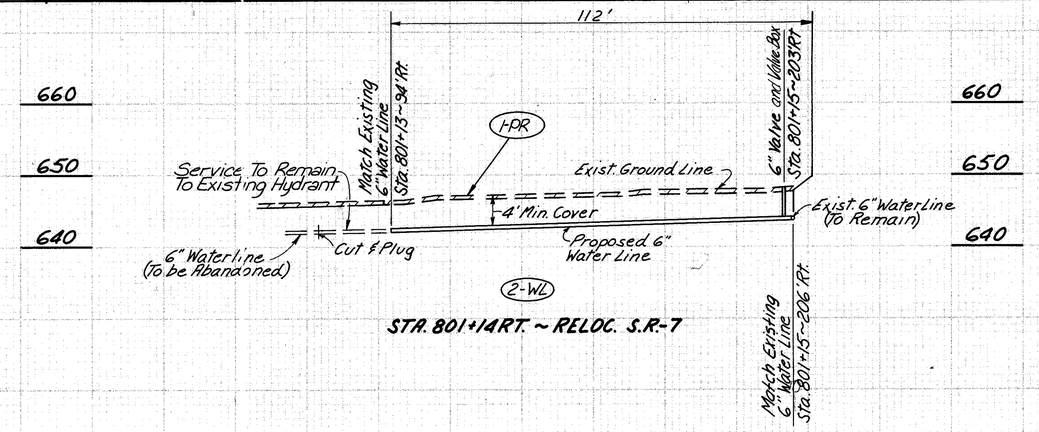
Item No.	Description	Quantity	Unit
	(1-WL)		
814	6" Water Main, Ductile Iron Pipe ANSI Class 52 Push on Joints and Fittings	169	Lin. Ft.
814	6" Valve and Valve Box	2	Each
	Quantities Carried To Sheet No. 102		
	(3-WL)		
814	6" Water Main, Ductile Iron Pipe ANSI Class 52 Push on Joints and Fittings	84	Lin. Ft.
814	6" Valve and Valve Box	2	Each
402	Asphalt Concrete, AC-20	0.34	Cu. Yd.
404	Asphalt Concrete, AC-20	0.34	Cu. Yd.
305	8" Concrete Base	9.78	Sq. Yds.
	Quantities Carried To Sheet No. 110		
	(4-WL)		
814	16" Water Main, Ductile Iron Pipe ANSI Class 52 Push on Joints and Fittings	200	Lin. Ft.
814	16" Valve and Valve Box	2	Each
	Quantities Carried To Sheet No. 116		
	(9-WL)		
814	6" Water Main, Ductile Iron Pipe ANSI Class 52 Push on Joints and Fittings	207	Lin. Ft.
814	6" Valve and Valve Box	1	Each
	Quantities Carried To Sheet No. 126		

SCALE: 1" = 20' Horizontal
1" = 10' Vertical

Calc By: RJG Date: 2-17-84
Chk'd By: GMC Date: 2-17-84



For Profiles of (117-D) & (118-D), See Sheet No. 377.
Quantities For (117-D) & (118-D) Carried on Sheet No. 108.



STA. 801+14 RT. ~ RELOC. S.R.-7

SCALE: 1" = 20' HORIZONTAL
1" = 10' VERTICAL

QUANTITIES

	Item No.	Description	Quantity	Unit
(2-WL)	814	6" Water Main, Ductile Iron Pipe ANSI Class 52 Push on Joints and Fittings	112	Lin. Ft.
	814	6" Valve and Valve Box	1	Each

Quantities Carried To Sheet No. 108

(1-PR)	404	1 1/4" Asphalt Concrete, AC-20	16.7	Cu. Yd.
	402	1 1/4" Asphalt Concrete, AC-20	16.7	Cu. Yd.
	305	8" Concrete Base	533.3	Sq. Yd.

Quantities Carried To Sheet No. 108

WATERLINE & PAVEMENT REPLACEMENT DETAILS (2-WL) (1-PR)

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Ch'k'd By: GMC Date: 2-20-84

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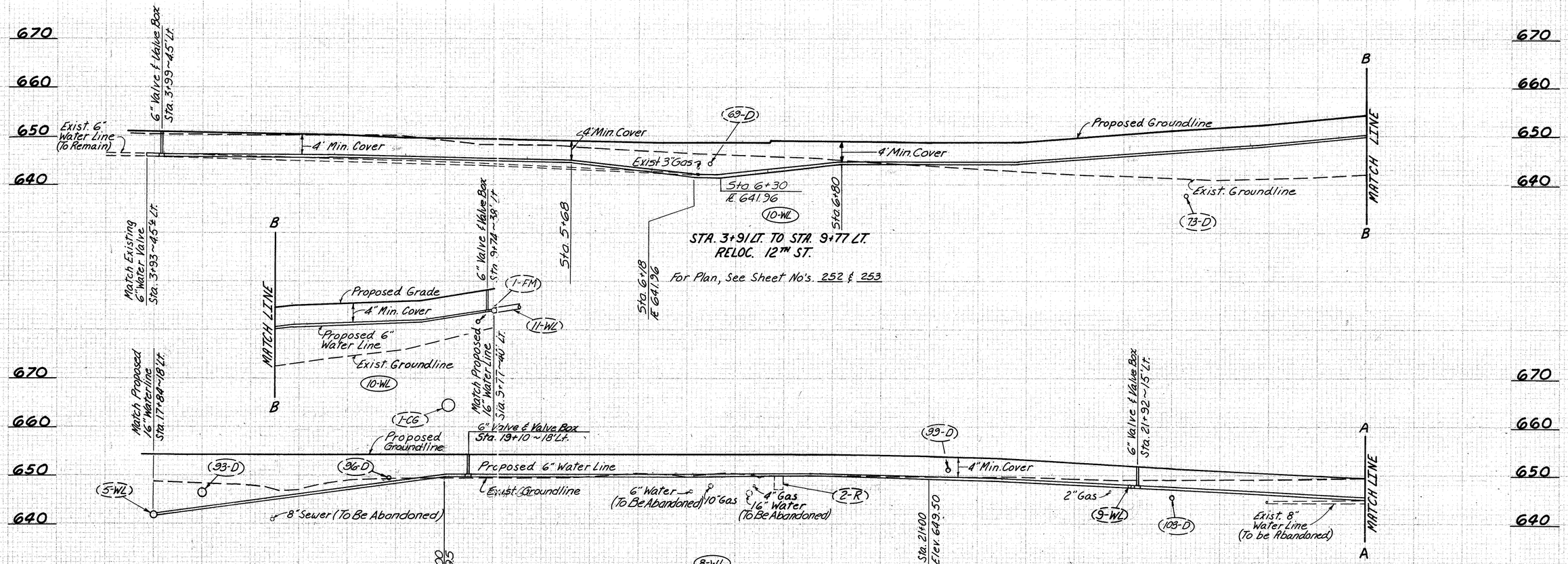
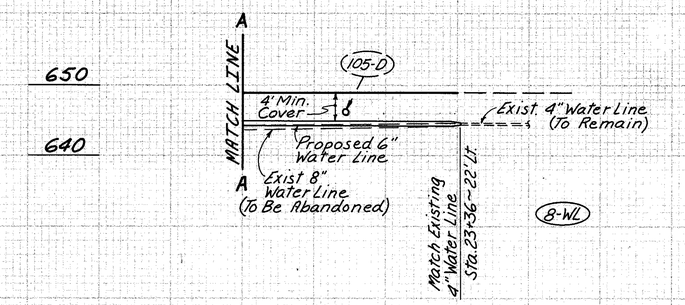
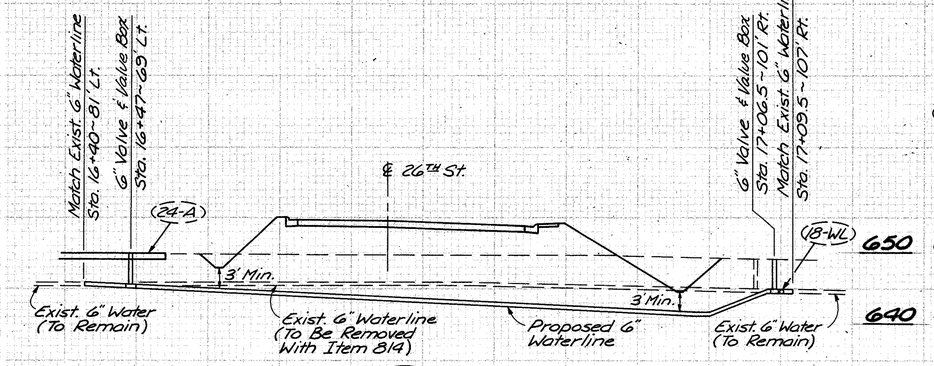
SCALE : 1"=20' Horizontal
1"=10' Vertical







QUANTITIES

	Item No.	Description	Quantity	Unit
	814	6" Water Main, Ductile Iron Pipe ANSI Class 52 Push On Joints And Fittings	560	Lin. Ft.
8-WL	814	6" Valve & Valve Box	2	Each
	814	6" FIRE HYDRANT, AS PER PLAN	1	Each
		Quantities Carried to Sheet No. 296		
	814	6" Water Main, Ductile Iron Pipe ANSI Class 52 Push On Joints And Fittings	593	Lin. Ft.
10-WL	814	6" Valve & Valve Box	2	Each
	814	6" FIRE HYDRANT, AS PER PLAN	2	Each
	814	1" Service Branch	41	Lin. Ft.
		Quantities Carried to Sheet No. 252		
	814	6" Water Main, Ductile Iron Pipe ANSI Class 52 Push On Joints And Fittings	200	Lin. Ft.
21-WL	814	6" Valve & Valve Box	2	Each
		Quantities Carried to Sheet No. 296		

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660
650
640

16" Valve & Valve Box
Sta. 812+07 ~ 92' Lt.
16" Valve & Valve Box
Sta. 812+11 ~ 93' Lt.

Exist. 16" Water Line (To Remain)

Match Existing 16" Water Line
Sta. 812+00 ~ 91.5' Lt.

1-WL

1-C

Exist. 6" Water Line (To Be Abandoned)

Exist. 2" Gas Line

Exist. Groundline

Exist. 6" Water Line (To Be Abandoned)

Exist 3" Gas Line

A — Matchline — A

5-CG

Proposed 16" Water Line

6-CG

5-WL

660
650
640

A — Matchline — A

Exist. Groundline

Exist. 4" Gas Line

Exist. 8" Water (To Be Reconnected)

4' Min.

16" Valve & Valve Box
Sta. 818+78 ~ 139.5' Lt.

16" Valve & Valve Box
Sta. 818+84 ~ 140' Lt.

Proposed 16" Water Line

6-WL

5-WL

7-CG

Sta. 819+75 ~ 156' Lt.
Elev. 641.5
22½° Bend

112'
Limits of River Crossing Pipe

Sta. 820+15 ~ 162' Lt.

Sta. 821+19 ~ 183' Lt.

℄

McMahon Creek
Normal Water Elev. 624.1

Elev. 619.0
22½° Bend

Elev. 617.20
22½° Bend

B — Matchline — B

660
650
640
630
620

660
650
640

B — Matchline — B

Sta. 821+76 ~ 193' Lt.
Elev. 642.5
22½° Bend

16" Valve & Valve Box
Sta. 823+74 ~ 198' Lt.

Exist. Groundline

Exist. 4" Gas

Exist 6" Water Line (To Be Reconnected)

4' Min. Cover

Proposed 16" Water Line

9-CG

5-WL

C — For Match See Sht. No. 431 — C

660
650
640

5-WL

STA. 812+00 LT. TO STA. 829+84 LT. ~ RELOC. S.R. 7

For Quantities, See Sheet No. 431
For Plan, See Sheet No. 112, 113, 120, 122

SCALE: 1" = 20' Horizontal
1" = 10' Vertical

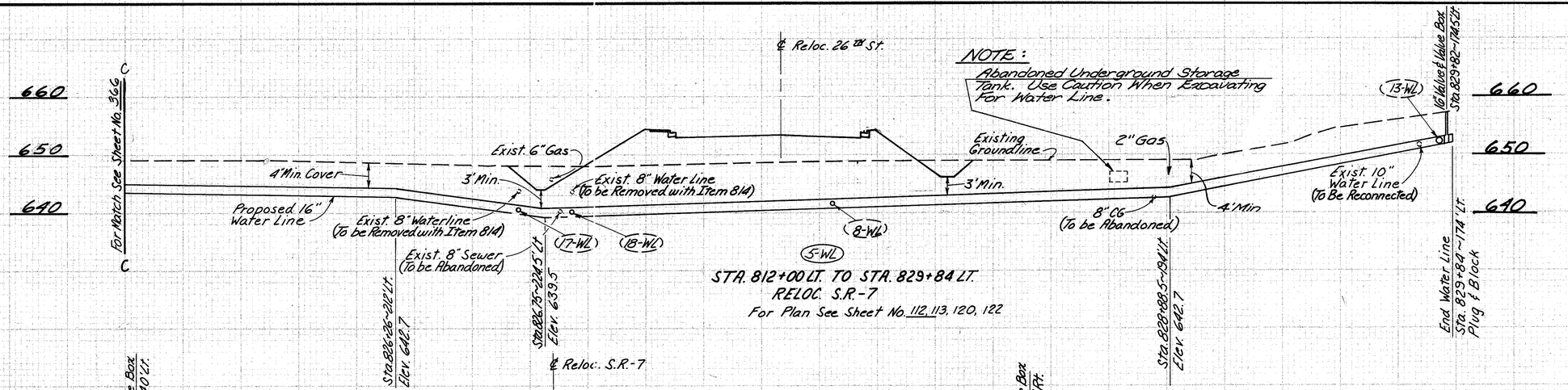
W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

WATER LINE PROFILE 5-WL

BEL - 7 - 14.17 | OHIO | FHWA REGION 5 | 431/663

Calc. By: RJG Date: 8-30-84
Ch'kd By: GMC Date: 8-30-84

SCALE: 1" = 20' Horizontal
1" = 10' Vertical



QUANTITIES

	Item No.	Description	Quantity	Unit
(5-WL)	814	16" Water Main, Ductile Iron Pipe ANSI Class 52 Push On Joints And Fittings	1751	Lin.Ft.
	814	10" Water Main, Ductile Iron Pipe ANSI Class 52 Push On Joints And Fittings	5	Lin.Ft.
	814	8" Water Main, Ductile Iron Pipe ANSI Class 52 Push On Joints And Fittings	15	Lin.Ft.
	814	6" Water Main, Ductile Iron Pipe ANSI Class 52 Push On Joints And Fittings	5	Lin.Ft.
	814	16" WATER MAIN DUCTILE IRON PIPE ANSI CLASS 56, BALL AND SOCKET JOINT TO FITTINGS	112	Lin.Ft.
	814	16" Valve & Valve Box	6	Each
	814	10" Valve & Valve Box	1	Each
	814	8" Valve & Valve Box	3	Each
	814	6" Valve & Valve Box	1	Each
	305	8" Concrete Base	112.5	Sq.Yd.
	402	Asphalt Concrete, AC-20	3.88	Cu.Yd.
	404	Asphalt Concrete, AC-20	3.88	Cu.Yd.

Quantities Carried To Sheet No. 116

(6-WL)	814	16" Water Main, Ductile Iron Pipe ANSI Class 52 Push On Joints And Fittings	320	Lin.Ft.
	814	16" Valve & Valve Box	3	Each
	402	Asphalt Concrete, AC-20	0.50	Cu.Yd.
	404	Asphalt Concrete, AC-20	0.50	Cu.Yd.
	305	8" Concrete Base	14.54	Sq.Yd.

Quantities Carried To Sheet No. 118

(13-WL)	814	16" Water Main, Ductile Iron Pipe ANSI Class 52 Push On Joints And Fittings	146	Lin.Ft.
	814	6" Water Main, Ductile Iron Pipe ANSI Class 52 Push On Joints And Fittings	5	Lin.Ft.
	814	16" Valve & Valve Box	1	Each
	814	6" Valve & Valve Box	1	Each

Quantities Carried To Sheet No. 127

(17-WL)	814	8" Water Main, Ductile Iron Pipe ANSI Class 52 Push On Joints And Fittings	40	Lin.Ft.
	814	8" Valve & Valve Box	1	Each

Quantities Carried To Sheet No. 296

(18-WL)	814	8" Water Main, Ductile Iron Pipe ANSI Class 52 Push On Joints And Fittings	82	Lin.Ft.
	814	8" Valve & Valve Box	1	Each

Quantities Carried to Sheet No. 296

Calc. By: RJG Date: 8-30-84
Ch'k'd By: GMC Date: 8-30-84

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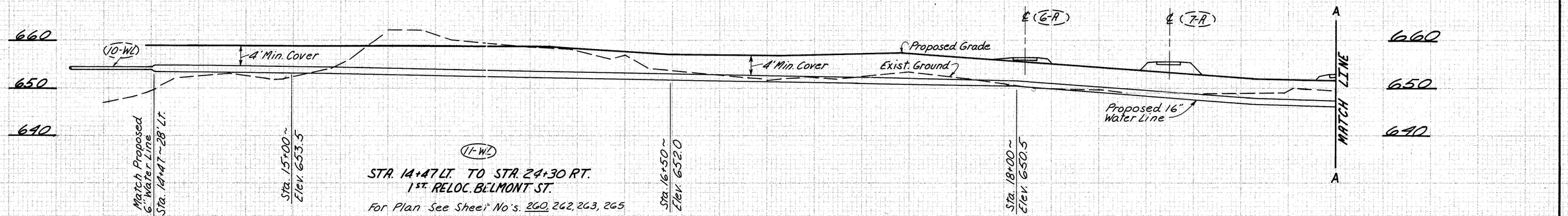

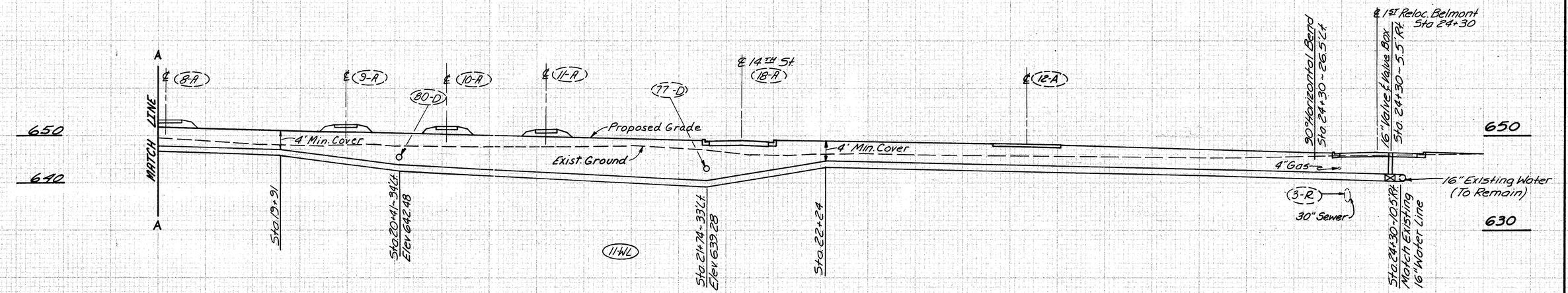

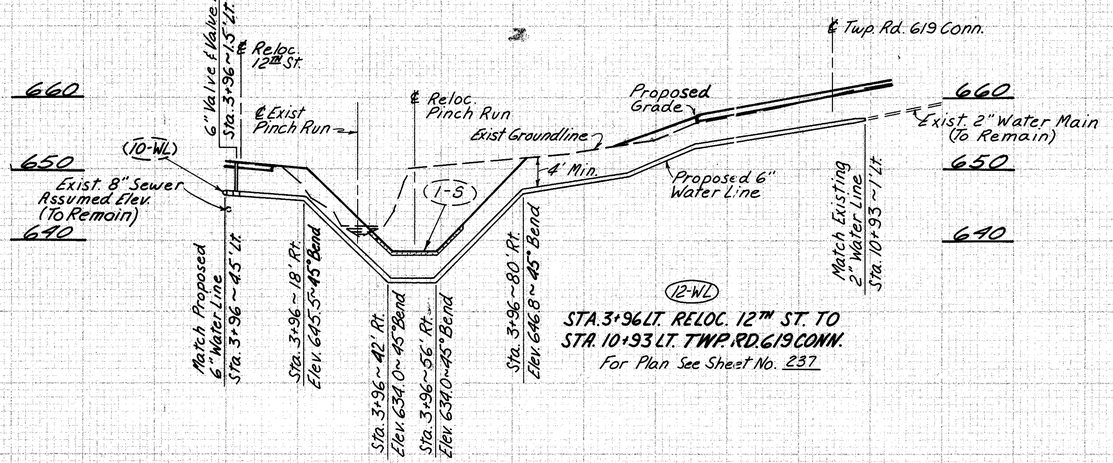

QUANTITIES

	Item No.	Description	Quantity	Unit
(11-WL)	814	16" Water Main, Ductile Iron Pipe ANSI Class 52 Push On Joints And Fittings	1025	Lin. Ft.
	814	16" Valve & Valve Box	1	Each
	814	6" FIRE HYDRANT, AS PER PLAN	1	Each
		Quantities Carried To Sheet No. 261		
(12-WL)	814	6" Water Main, Ductile Iron Pipe INSI Class 52 Push On Joints And Fittings	178	Lin. Ft.
	814	6" Valve & Valve Box	1	Each
		Quantities Carried To Sheet No. 240		

SCALE: 1" = 20' HORIZONTAL
1" = 10' VERTICAL

FHWA REGION	STATE	PROJECT	
5	OHIO		

433/663

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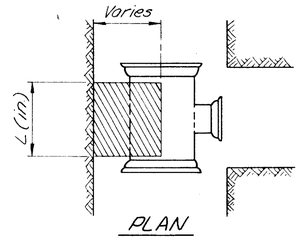
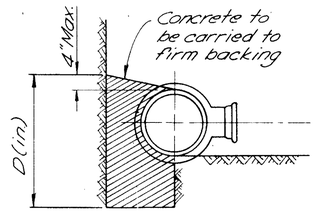


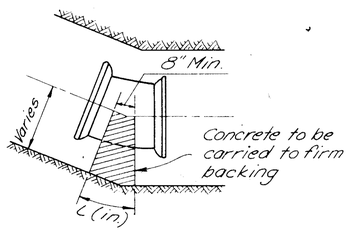
PLAN



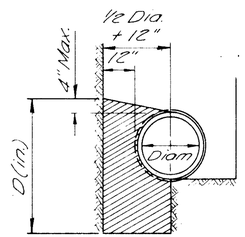
SECTION

ELEVATION TEES

Run	BRANCH 2" L	2" D	4" L	4" D	6" L	6" D	8" L	8" D	10" L	10" D	12" L	12" D
4"	13	10	18	13								
6"	15	12	20	15	24	21						
8"	17	14	22	17	26	23	32	28				
10"	19	16	24	19	28	25	34	30	40	35		
16"	25	22	30	25	34	31	40	36	46	41	52	46



PLAN

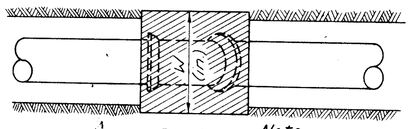


SECTION

HORIZONTAL BENDS

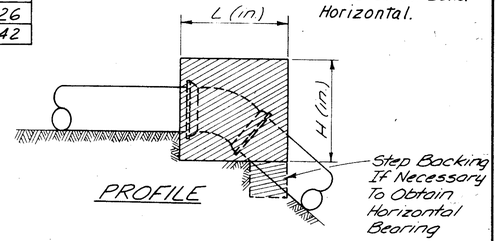
Size of Pipe	Degree Of Bend 22½° L	22½° D	45° L	45° D	90° L	90° D
4"	12	12	12	12	18	18
6"	12	12	13	14	30	16
8"	17	14	23	16	31	20
10"	32	15	35	20	51	26
16"	40	24	58	32	62	42

Size of Pipe	Degree of Bend 22 ½° L	22 ½° W	22 ½° H	45° L	45° W	45° H
4"	12	30	30	22	34	22
6"	15	43	36	28	55	24
8"	22	52	36	35	56	32
10"	30	54	36	45	58	48
16"	56	65	40	60	62	60



PLAN

Note:
Backing To Be Centered On Bend Horizontal.

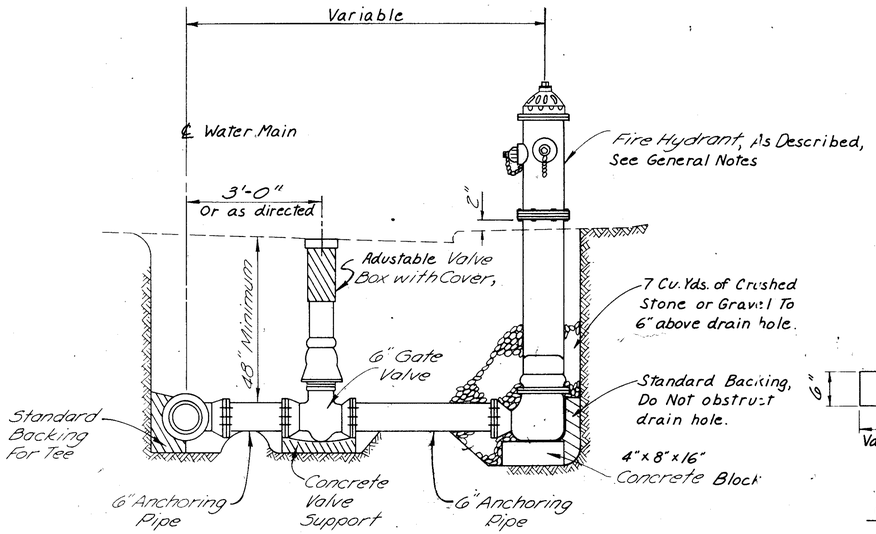


PROFILE

VERTICAL BENDS

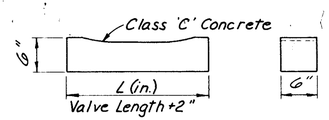
STANDARD BACKING DETAILS

No Scale



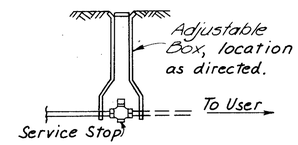
TYPICAL HYDRANT SETTING

No Scale

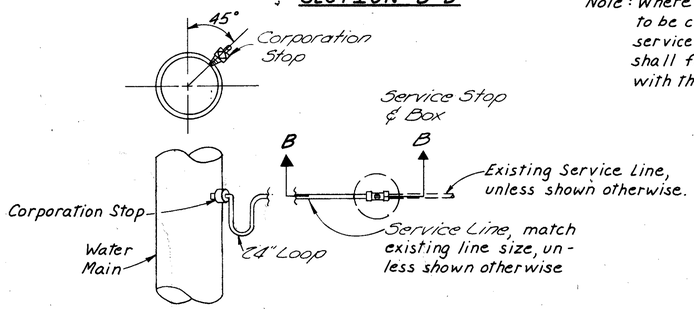


CONCRETE VALVE SUPPORTS

Scale 1"=1'-0"



SECTION B-B



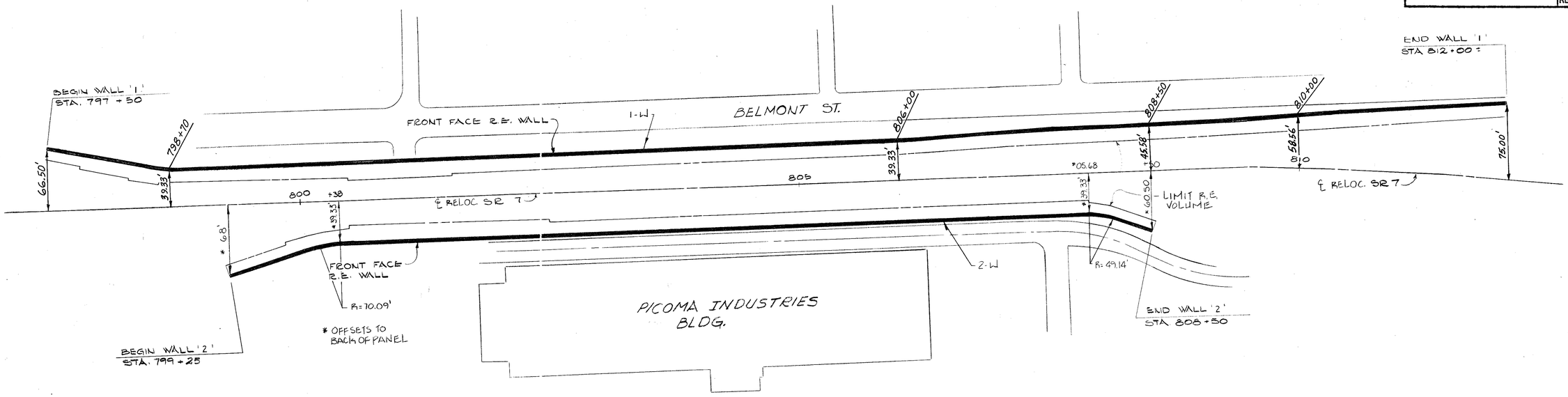
SERVICE BRANCH DETAIL

No Scale

Note: Where service branches are to be connected to existing service lines, the Contractor shall fit the service stop with the required adapter.

Rev. Oct. 4-6-85

WATER LINE DETAILS



PLAN
1" = 50'

GENERAL NOTES:

1. STATIONS SHOWN ARE ALONG CENTERLINE ROADWAY.
2. R.E. WALL IN CURVE WILL FORM A SERIES OF SHORT CHORDS OF 4.92' EACH TO MATCH DESIRED WALL ALIGNMENT.
3. ALL PANELS ARE TYPE 'A' UNLESS OTHERWISE NOTED.
4. FOR TYPICAL SECTION THRU WALL SEE SHEET 7 OF 11 .
5. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE REINFORCED EARTH VOLUME, METHODS OF CONSTRUCTION AND QUALITY OF PREFABRICATED MATERIALS SHALL CONFORM TO THE MANUFACTURER'S SPECIFICATIONS.
6. FOR STANDARD PANEL DETAILS SEE SHEET 11 OF 11 .
7. SYMBOLS:
   - (5) INDICATES NO. OF TIE STRIPS PER 'A' PANEL ONLY.
8. REINFORCING STRIPS FOR REINFORCED EARTH® WALLS SHALL CONFORM TO THE PHYSICAL AND MECHANICAL PROPERTIES OF ASTM A-572, GRADE 65.
9. SEE REINFORCED EARTH WALL NOTE IN PROPOSAL FOR ADDITIONAL INFORMATION.
10. PAYMENT FOR *CAST-IN-PLACE TRAFFIC BARRIER*, EXCEPT SEALING OF CONCRETES (EPOXY) SHALL BE INCLUDED IN THE UNIT PRICE BID FOR REINFORCED EARTH WALLS. PAYMENT FOR PRECAST TRAFFIC BARRIER WILL BE INCLUDED IN THE ITEM UNIT PRICE BID FOR ITEM SPECIAL-REINFORCED EARTH WALL.

WALL 1 & 2

1W ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
SPECIAL	REINFORCED EARTH WALL	SQ. FT.	16,000
203	SELECT GRANULAR EMBANKMENT	C.Y.	10,300
503	COFFERDAMS, CRIBS AND SHEETING		LUMP
203	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	C.Y.	3212
SPECIAL	SEALING OF CONCRETE SURFACES (EPOXY) (CONCRETE BARRIER ONLY)	S.Y.	808

2W ESTIMATED QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
SPECIAL	REINFORCED EARTH WALL	SQ. FT.	12,200
203	SELECT GRANULAR EMBANKMENT	C.Y.	5,660
503	COFFERDAMS, CRIBS AND SHEETING		LUMP
203	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	C.Y.	3654
SPECIAL	SEALING OF CONCRETE SURFACES (EPOXY) (CONCRETE BARRIER ONLY)	S.Y.	520

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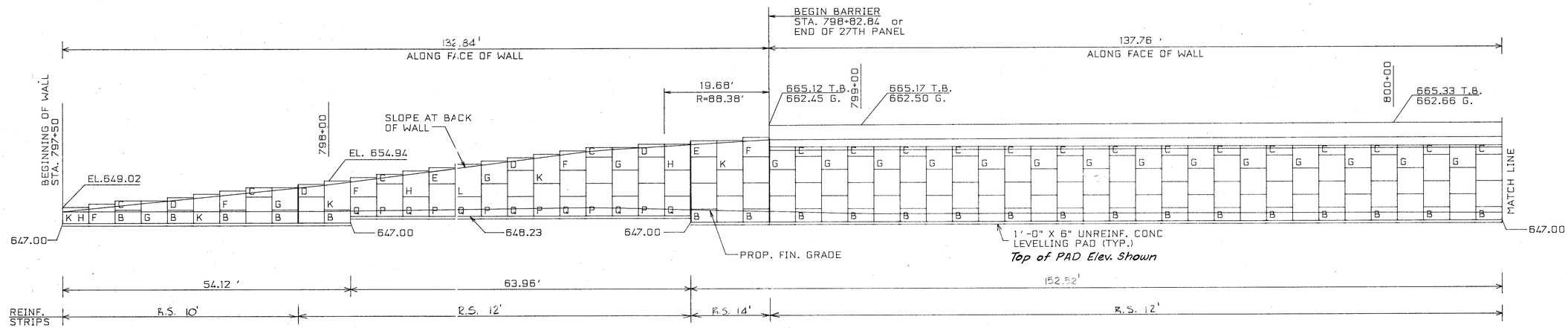
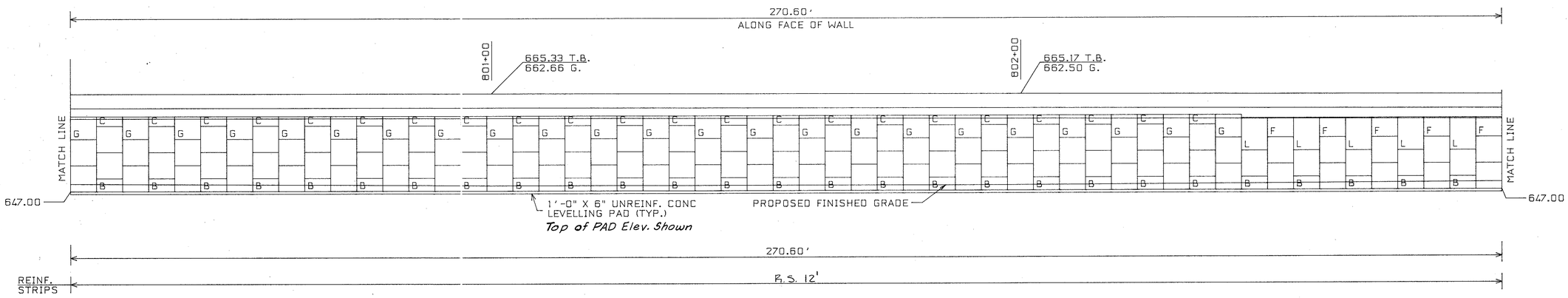
The Reinforced Earth Company
Rosslyn Center, 1700 North Moore Street, Arlington, Virginia 22209
(703) 527-3434

REV. NO.	DATE	DESCRIPTION

Structure	REINFORCED EARTH WALL
Location	BEL 7-14.17 WALLS 1 & 2
	BELLAIRE, OHIO
Owner	
DESIGNED BY: SEK	DATE: 4-15-85
PROJECT ENGR: AJP	CONTRACT NO. 1916
CHECKED BY:	DRAWING NO. 1 OF 11
PLAN & NOTES	SCALE AS SHOWN

1W-2W REINFORCED EARTH WALL DETAILS





WALL 1

WALL 1

The Reinforced Earth Company
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(703) 527-3434

Structure	REINFORCED EARTH WALL
Location	BEL 7-14.7 WALLS 1 & 2
	BELLAIRE, OHIO
Owner	
DESIGNED BY: FE	DATE
PROJECT ENGR: AJP	4-15-85
CHECKED BY:	
ELEVATION	
CONTRACT NO.	1916
DRAWING NO.	2 OF 11
SCALE	AS SHOWN

REV. NO.	DATE	DESCRIPTION

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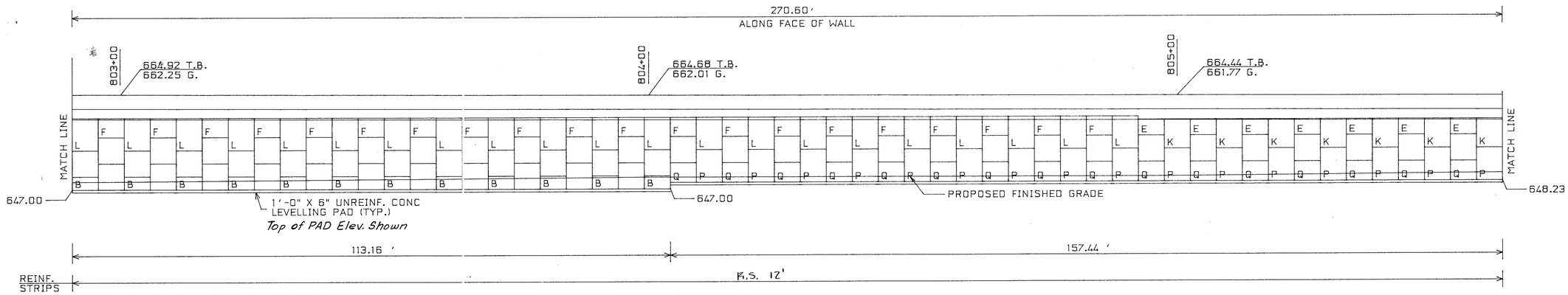

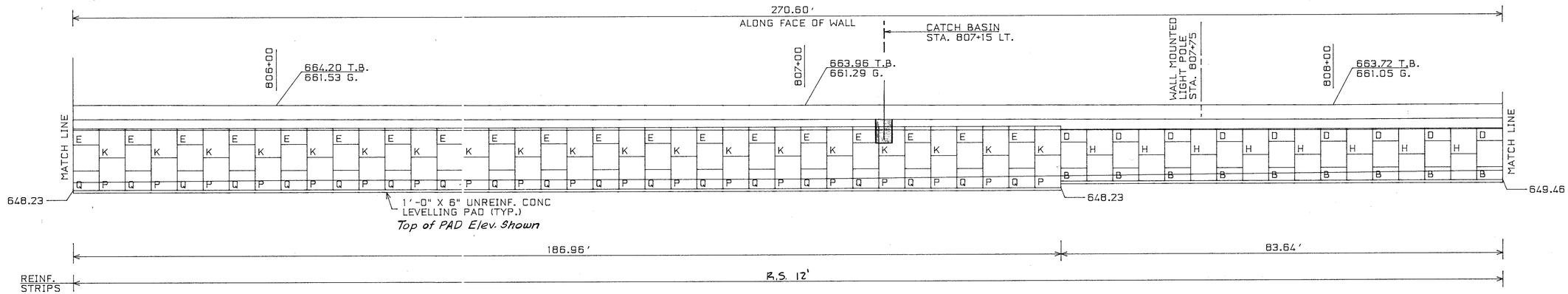

WALL 1 (CONT.)

ELEVATION - BACK FACE

SCALE: 1"=10'

WALL 1

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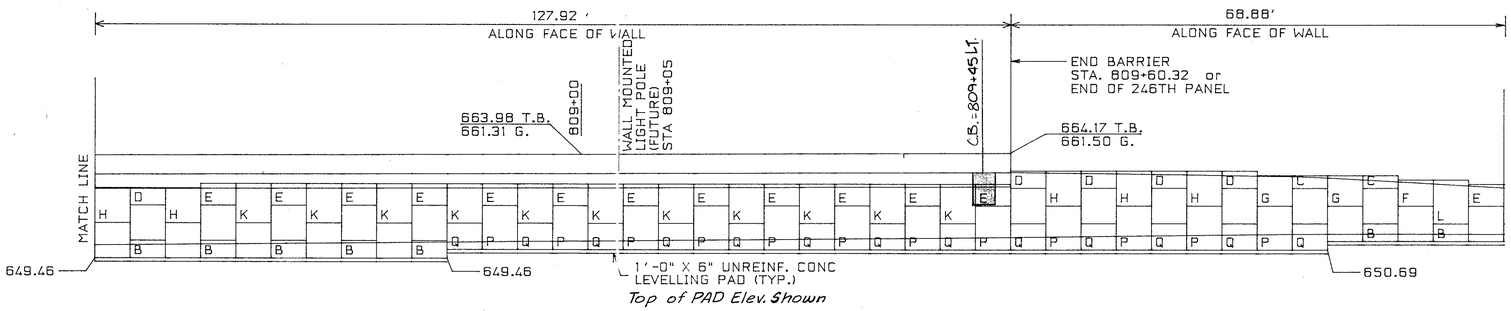
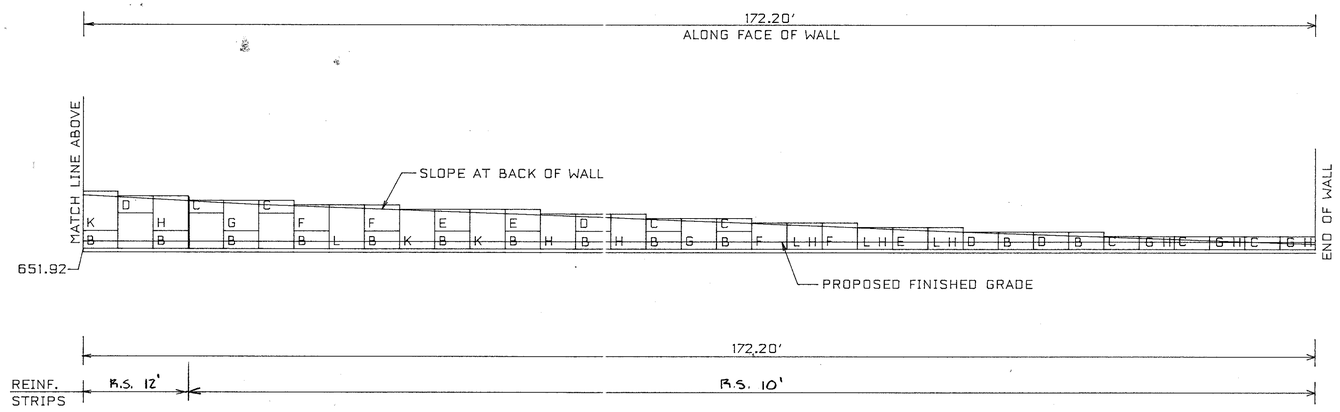
(703) 527-3434

REV. NO.	DATE	DESCRIPTION

Structure	REINFORCED EARTH WALL
Location	BEL 7-14.17 WALLS 1 & 2
	BELLAIRE, OHIO
Owner	
DESIGNED BY: RE	DATE: 4-15-85
PROJECT ENGR: AJP	CONTRACT NO. 1916
CHECKED BY:	DRAWING NO. 3 OF 11
ELEVATION	SCALE AS SHOWN





WALL 1

ELEVATION - BACK FACE

SCALE: 1"=10'

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WALL 1

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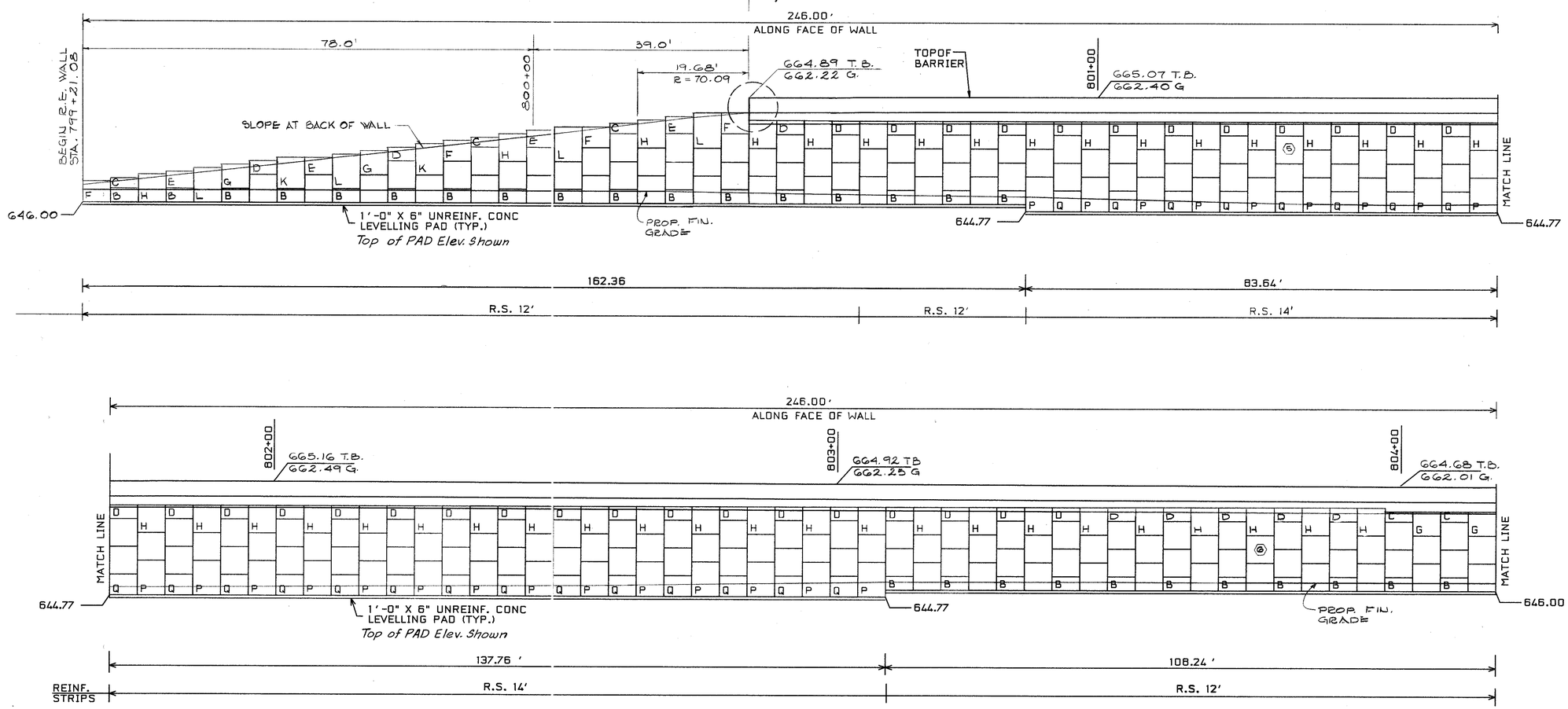
(703) 527-3434

REV. NO.	DATE	DESCRIPTION

Structure	REINFORCED EARTH WALL
Location	BEL 7-14.7 WALLS 1&2
	BELLAIRE, OHIO
Owner	
DESIGNED BY: FC	DATE
PROJECT ENGR: AJP	4-15-85
CHECKED BY:	
ELEVATION	
CONTRACT NO.	1916
DRAWING NO.	4 OF 11
SCALE	AS SHOWN

1W REINFORCED EARTH WALL DETAILS



WALL 2W

ELEVATION - FRONT FACE

SCALE: 1"=10'

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WALL 2W

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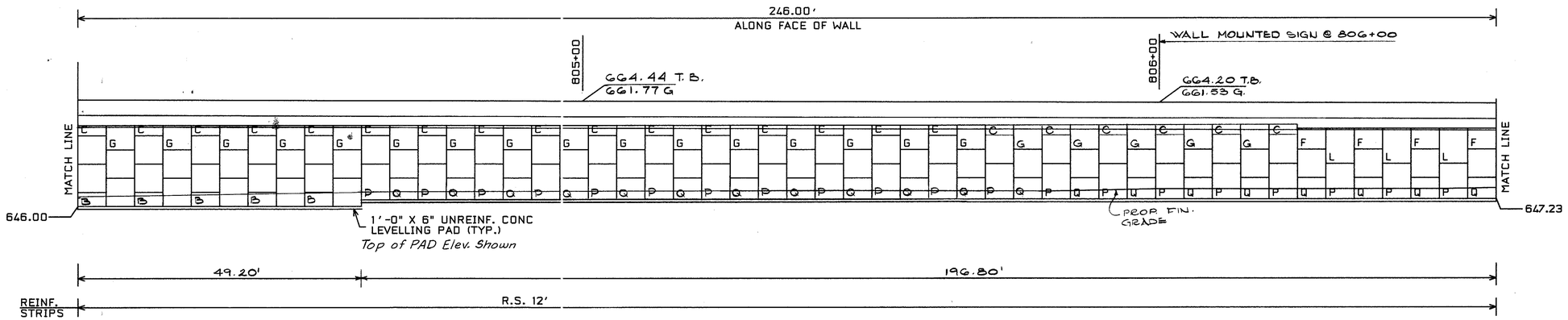
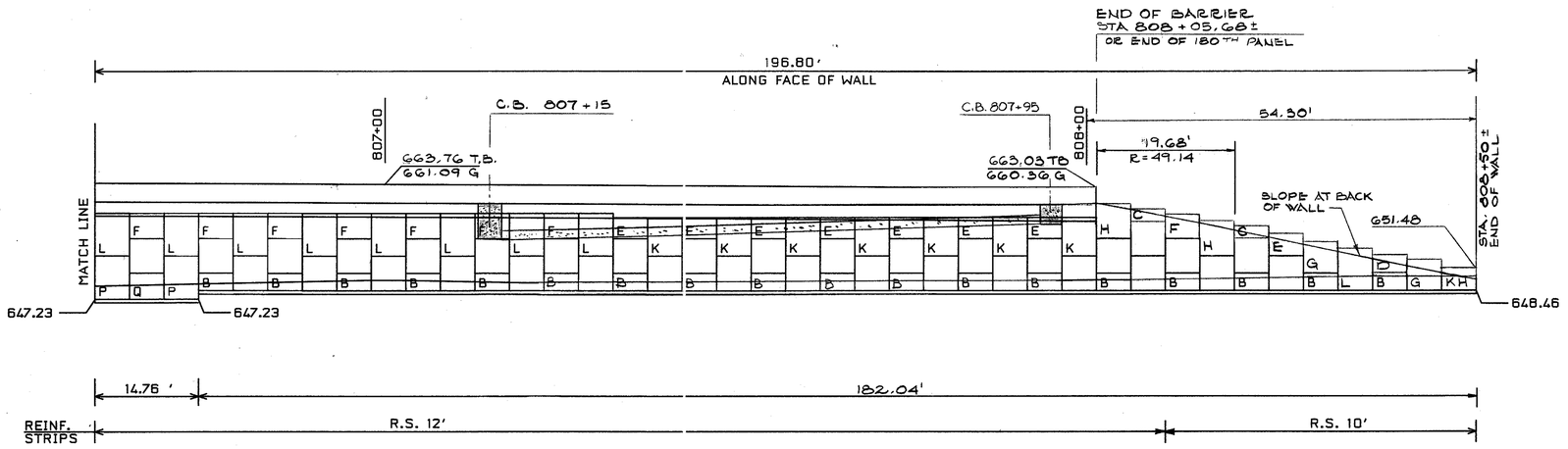
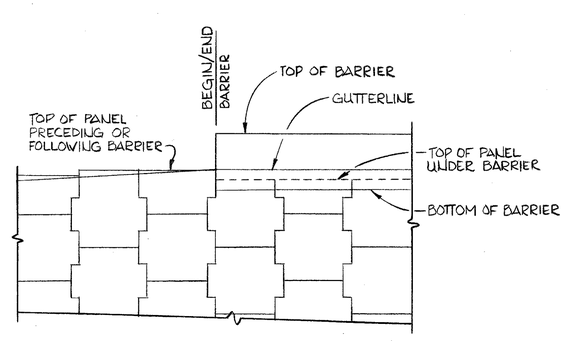
(703) 527-3434

REV. NO.	DATE	DESCRIPTION

Structure	REINFORCED EARTH WALL
Location	BEL 7-14.17 WALLS 1 & 2
	BELLAIRE, OHIO
Owner	
DESIGNED BY: SEK	DATE: 4-15-85
PROJECT ENGR: AJP	CONTRACT NO. 1916
CHECKED BY:	DRAWING NO. 5 OF 11
ELEVATION	SCALE AS SHOWN







PARTIAL ELEVATION—
TYPICAL BARRIER END TREATMENT
(WALLS 1 & 2)

WALL 2W(CONT.)

ELEVATION - FRONT FACE

SCALE: 1"=10'

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WALL 2W

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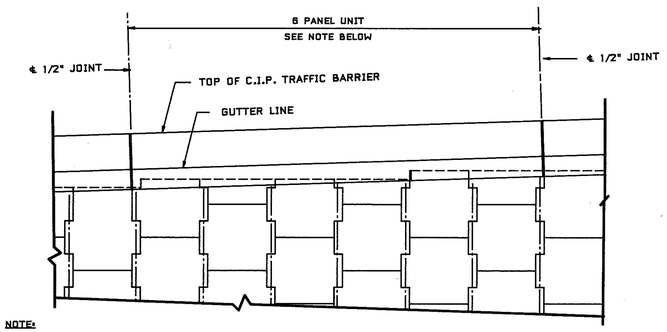
(703) 527-3434

Structure	REINFORCED EARTH WALL
Location	BEL 7-14.17 WALLS 1 & 2
	BELLAIRE, OHIO
Owner	
DESIGNED BY: SEK	DATE: 4-15-85
PROJECT ENGR: AJP	CONTRACT NO. 1916
CHECKED BY:	DRAWING NO. 6 OF 11
ELEVATION	SCALE AS SHOWN

REV. NO. | DATE | DESCRIPTION



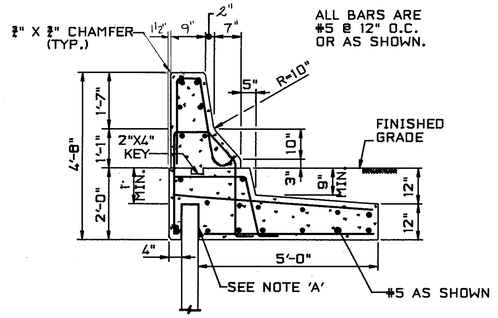
NOTE:

1- CAST IN PLACE CONCRETE BARRIER SHALL BE POURED IN A STAGGERED MANNER. ADJACENT SEGMENTS OF CONCRETE BARRIER MAY BE POURED NO SOONER THAN 24 HOURS AFTER FIRST POUR HAS BEEN COMPLETED. EXP. JOINT MATERIAL TO BE PLACED AT JOINTS PRIOR TO SECOND POUR. ALL LONGITUDINAL REINFORCEMENT SHALL BE STOPPED 2" CL. FROM JOINT.

2- ALL JOINTS SHALL BE LOCATED AS SHOWN ON WALL ELEVATIONS AND MUST COINCIDE WITH PANEL JOINT ON FRONT FACE WHERE BOTTOM OF LIP INTERSECTS WITH PANEL JOINT.

C.I.P. TRAFFIC BARRIER PARTIAL ELEVATION

SCALE: 3/16" = 1'



NOTE A: POSITIVE BOND BREAKER SHALL BE PROVIDED BETWEEN CAST-IN-PLACE CONC. AND PRECAST CONC. PANEL.

TRAFFIC BARRIER DETAIL

SCALE: 1/2" = 1'

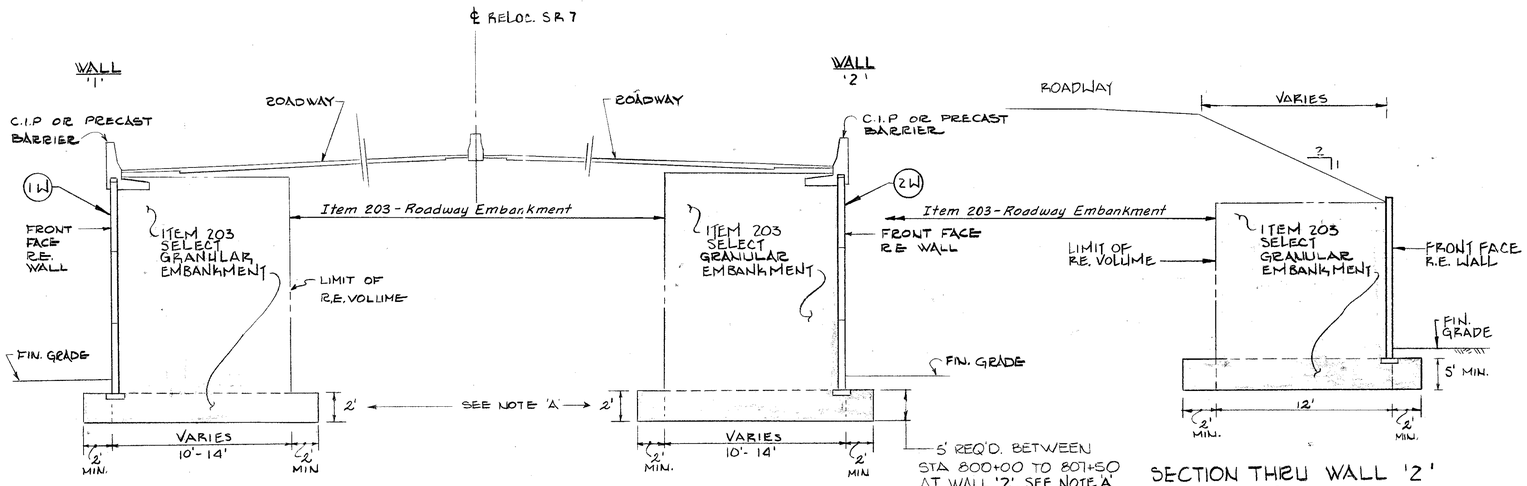
NOTE A:

MINIMUN LIMIT OF REMOVAL OF EXISTING MATERIAL BELOW BOTTOM OF WALL ELEVATION SHALL BE 2' FOR BOTH WALLS EXCEPT BETWEEN STATIONS 800+00 AND 807+50 RT. (WALL 2) WHERE THE MINIMUM MATERIAL REMOVED SHALL BE 5'.

THE EXCAVATION SHALL BE INSPECTED AFTER MAKING THE MINIMUM UNDERCUT TO DETERMINE IF ADDITIONAL EXCAVATION IS REQUIRED. UNSTABLE AREAS SHALL BE FUTHER EXCAVATED AS DIRECTED BY THE ENGINEER.

UNDERCUT AREAS SHALL BE BACKFILLED WITH ITEM 203, SELECT GRANULAR EMBANKMENT.

SEE REINFORCED EARTH NOTE IN PROPOSAL FOR ADDITIONAL INFORMATION.



TYPICAL SECTION THRU WALL

SCALE: 1" = 5'-0"

STA. 797+50 To STA. 812+00 LT.
STA. 799+25 To STA. 808+50 RT.

SECTION THRU WALL '2'

@ STA. 800+00

SCALE: 1" = 5'-0"

STA. 799+25 To STA. 808+50 RT.

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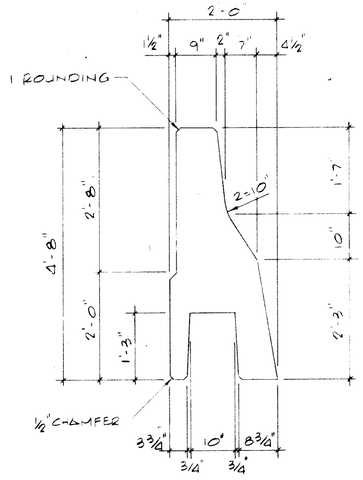
The Reinforced Earth Company
Rosslyn Center, 1700 North Moore Street, Arlington, Virginia 22209
(703) 527-3434

REV. NO.	DATE	DESCRIPTION

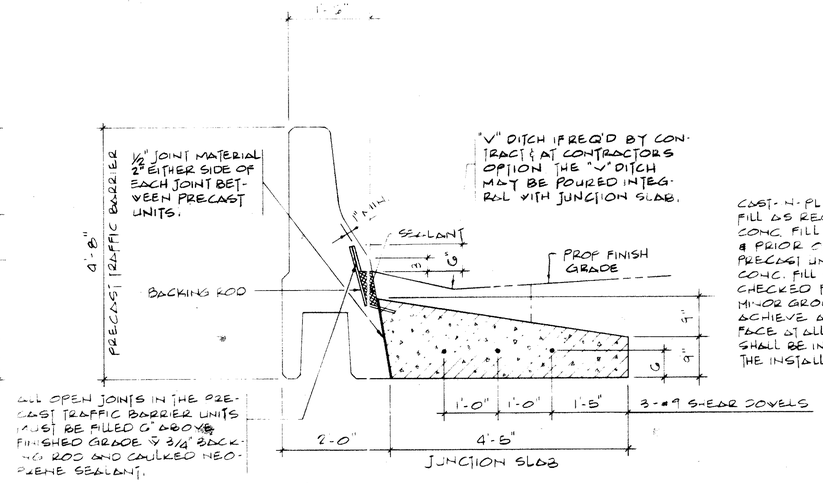
Structure	REINFORCED EARTH WALL
Location	BEL 7-14.17 WALLS 1 & 2
	BELLAIRE, OHIO
Owner	
DESIGNED BY: SEK	DATE
PROJECT ENGR: AJP	4-15-85
CHECKED BY:	
DETAILS	

CONTRACT NO. 1916
DRAWING NO. 7 OF 11
SCALE AS SHOWN

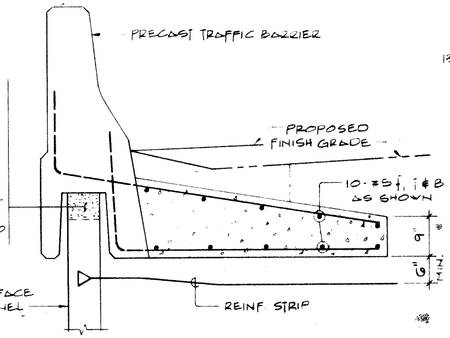
1-W 2-W REINFORCED EARTH WALL DETAILS



SECTION
PRECAST TRAFFIC
BARRIER



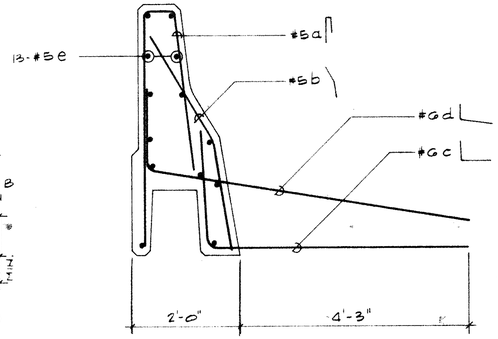
SECTION "A"-"A"



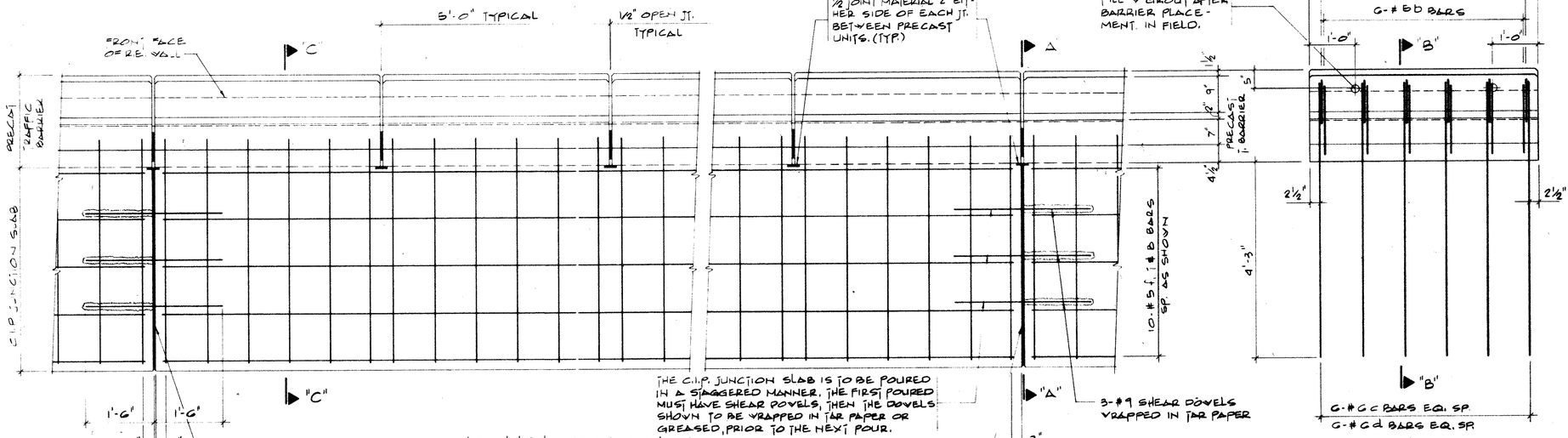
CAST-IN-PLACE CONC. FILL AS REQ'D. AFTER CONC. FILL IS PLACED & PRIOR OF SETTING PRECAST UNITS. THE CONC. FILL SHALL BE CHECKED FOR LEVEL MINOR GROUTING TO ACHIEVE A LEVEL SURFACE AT ALL POINTS SHALL BE INCIDENTAL TO THE INSTALLATION.

SECTION "C"-"C"

NOTE: BARS #5a, #5b, #Gc, #Gd, & #5e WILL BE SHOWN ON SHOP DRAWINGS.



SECTION "B"-"B"



PLAN
PRECAST TRAFFIC BARRIER
▽ C.I.P. JUNCTION SLAB
SCALE: 3/4"=1'-0"

CAST-IN-PLACE
JUNCTION SLAB
CONCRETE: = .19 C.Y./L.F.
STEEL: = 11.76 LBS./L.F.

PLAN
PRECAST TRAFFIC
BARRIER

BAR LIST FOR CAST-IN-PLACE CONCRETE

BAR DESIGNATION	SIZE	QUANTITY	LBS./FT.	LENGTH EACH	TOTAL LENGTH	TOTAL WEIGHT
BAR f	#5	10	1.043	29'-8½"	297'-1"	310 LBS.
SHEAR DOVELS	#9	3	3.40	3'-0"	9'-0"	30.6 LBS.

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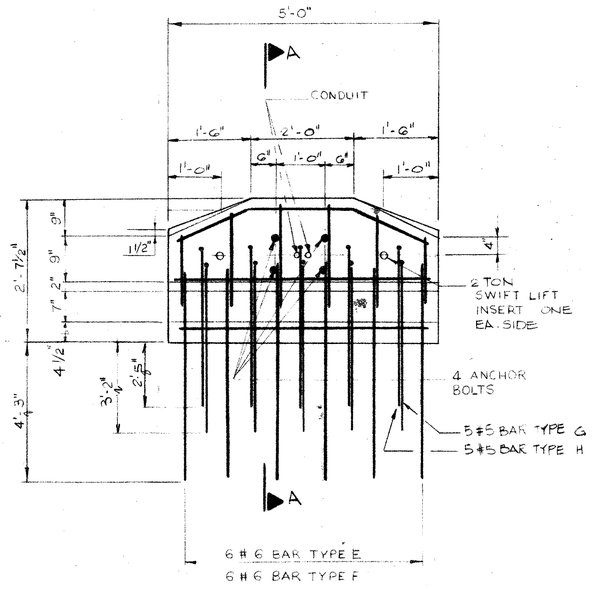
The Reinforced Earth Company
Rosslyn Center, 1700 North Moore Street, Arlington, Virginia 22209
(703) 527-3434

REV. NO.	DATE	DESCRIPTION

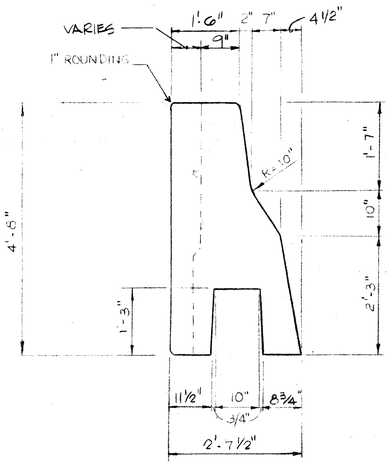
Structure	REINFORCED EARTH WALL
Location	BEL 7-14.17 WALL 1 & 2
	BELAIRE, OHIO
Owner	
DESIGNED BY: SEK	DATE
PROJECT ENGR: AJP	4-15-85
CHECKED BY:	
DETAILS	

CONTRACT NO. 1916
DRAWING NO. 8 OF 11
SCALE AS SHOWN

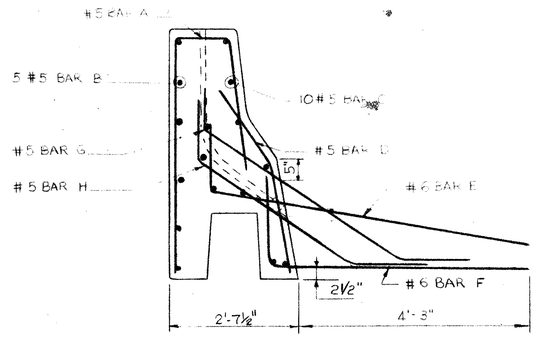
1W 2W REINFORCED EARTH WALL DETAILS



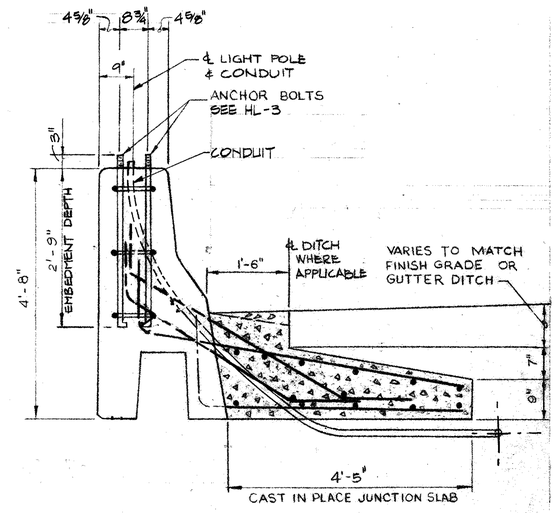
PRECAST TRAFFIC BARRIER
PLAN
SCALE 3/4" = 1'-0"



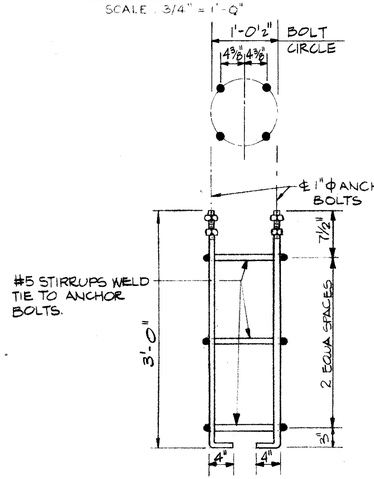
PRECAST TRAFFIC BARRIER
FOR LIGHT POLE
SCALE 3/4" = 1'-0"



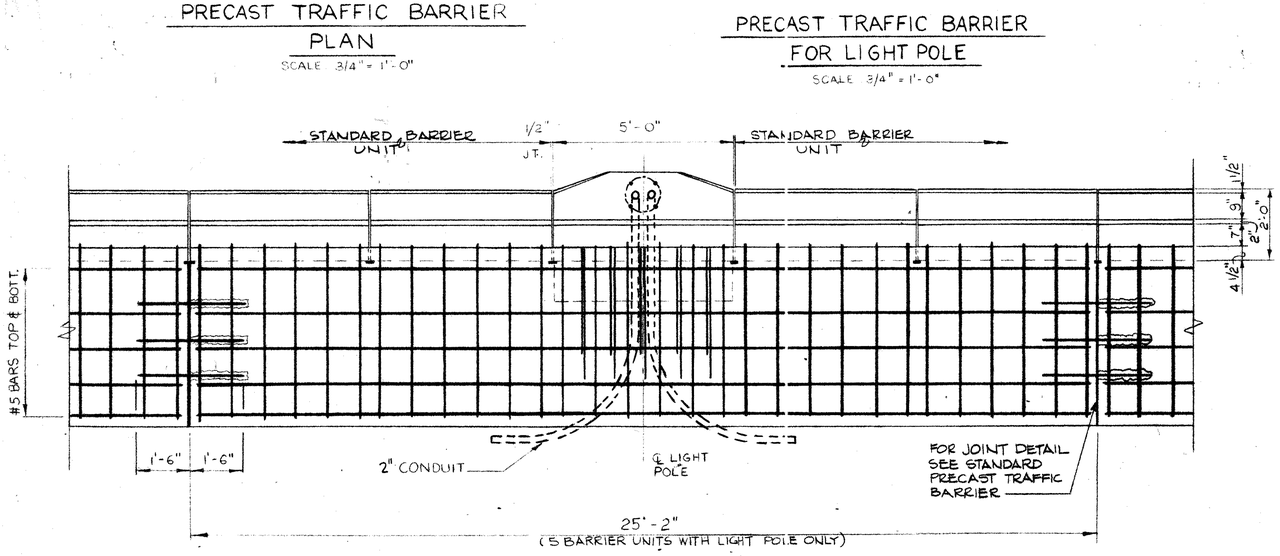
SECTION A-A
SCALE : 3/4" = 1'-0"



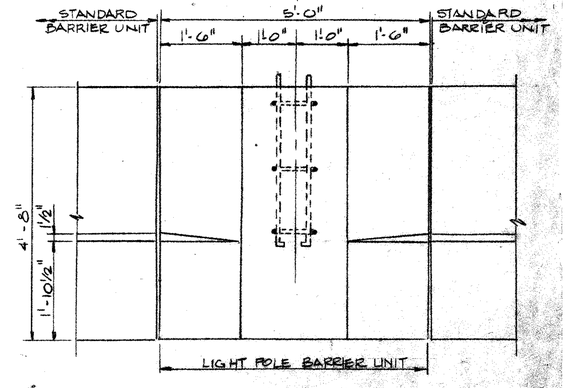
SECTION AT LIGHT POLE
SCALE : 3/4" = 1'-0"



ANCHOR BOLT DETAIL
SCALE : 1" = 1'-0"



PRECAST BARRIER W/ CAST IN PLACE JUNCTION SLAB
PLAN
SCALE : 1/2" = 1'-0"



PARTIAL ELEVATION
(FRONT FACE OF R.E. WALL)
SCALE 3/4"=1'-0"

NOTE: FOR TYPICAL DETAILS SEE STANDARD BARRIER UNIT DETAILS.

CONTRACTOR TO SUPPLY ANCHOR BOLTS TO PRECASTER.

PRECAST LIGHT POLE UNITS

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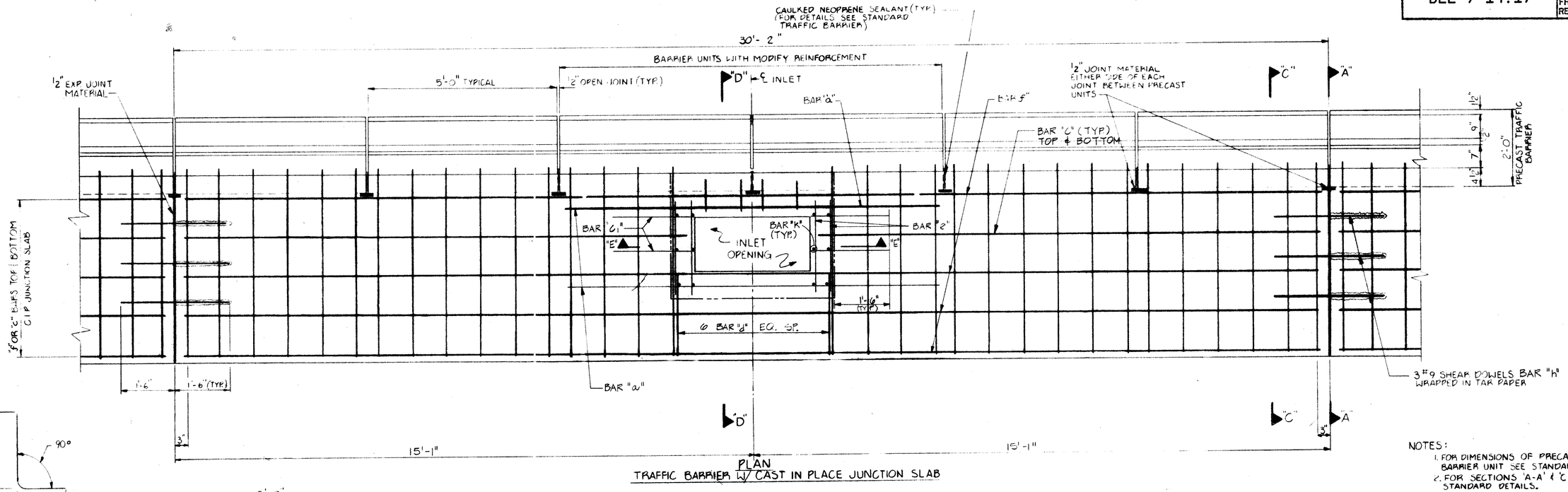
The Reinforced Earth Company
Rosslyn Center, 1700 North Moore Street, Arlington, Virginia 22209
(703) 527-3434

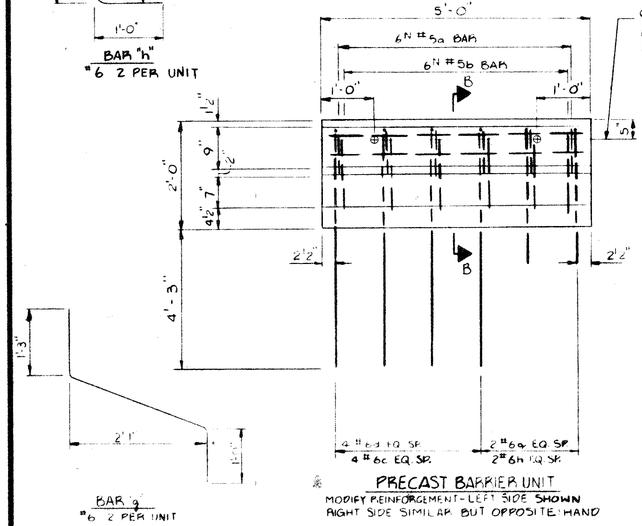
Structure	REINFORCED EARTH WALL
Location	BEL 7-14.17 WALL 1 & 2
	BELAIRE, OHIO
Owner	
DESIGNED BY: SEK	DATE 6-14-85
PROJECT ENGR: AJP	CONTRACT NO. 1916
CHECKED BY:	DRAWING NO. 9 OF 11
DETAILS	SCALE AS SHOWN

REV. NO. | DATE | DESCRIPTION

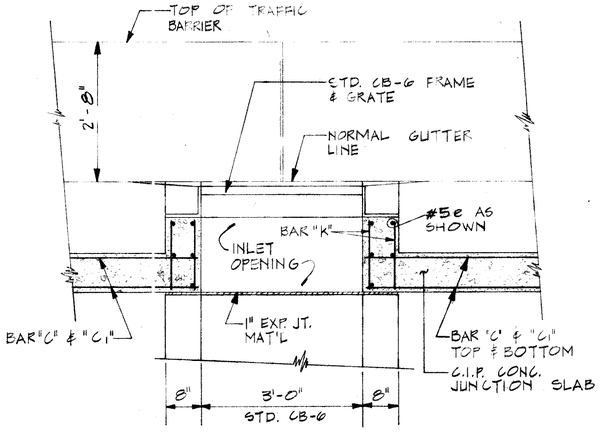
1W 2W REINFORCED EARTH WALL DETAILS



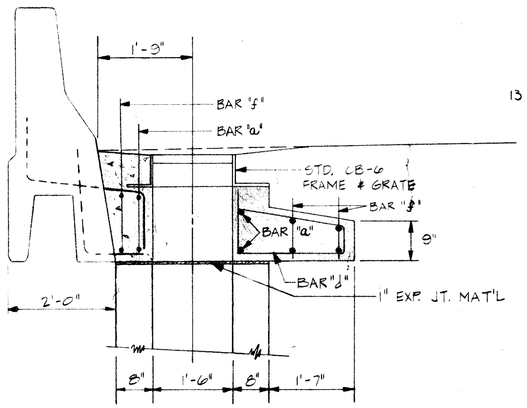
PLAN
TRAFFIC BARRIER W/ CAST IN PLACE JUNCTION SLAB



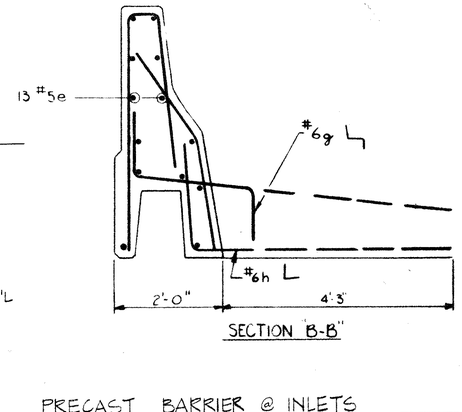
PRECAST BARRIER UNIT
MODIFY REINFORCEMENT - LEFT SIDE SHOWN
RIGHT SIDE SIMILAR BUT OPPOSITE HAND



SECTION "E-E"



SECTION "D-D"



SECTION B-B"

BAR LIST FOR CAST-IN PLACE CONCRETE

BAR DESIGNATION	SIZE	QUANTITY	LBS/FT	LENGTH EACH	TOTAL LENGTH	TOTAL WEIGHT
BAR "a"	#5	4	1.043	10'-0"	40.0	41.8
BAR "c1"	#5	8	1.043	2'-0"	16.0	16.7
BAR c	#5	4	1.043	13'-3"	26.5	27.6
BAR d	#5	6	1.043	5'-4"	21.98	33.4
BAR e	#5	10	1.043	2'-3"	22.5	23.5
BAR f	#5	4	1.043	29'-10"	119.2	124 3
BAR "H"	#9	3	3.40	3'-0"	9.0	30.6
BAR "K"	#5	12	1.043	1'-1"	12.96	13.5

NOTES:
1. FOR DIMENSIONS OF PRECAST TRAFFIC BARRIER UNIT SEE STANDARD DETAILS.
2. FOR SECTIONS 'A-A' & 'C-C' SEE STANDARD DETAILS.
3. ONLY NEW REBARS SHOWN. FOR OTHER REINFORCEMENT STANDARD PRECAST TRAFFIC BARRIER.

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PRECAST BARRIER @ INLETS

The Reinforced Earth Company
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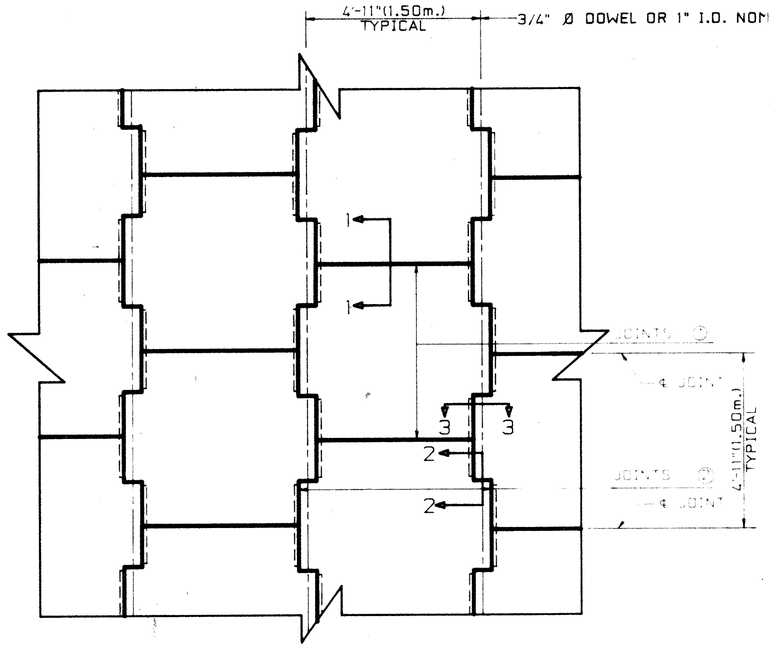
(703) 527-3434

REV NO.	DATE	DESCRIPTION

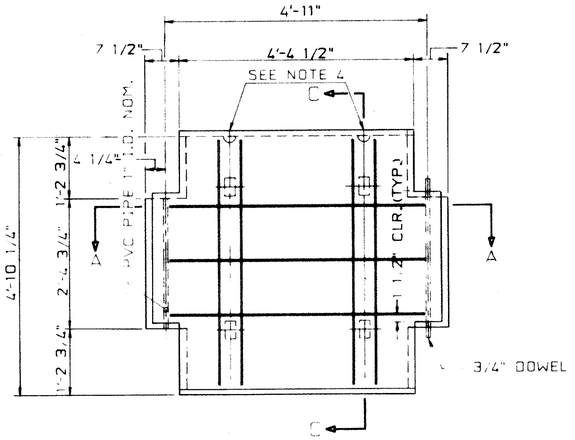
Structure	REINFORCED EARTH WALL
Location	BEL 7-14.17 WALL 1 & 2
	BELAIRE, OHIO
Owner	
DESIGNED BY: SEK	DATE
PROJECT ENGR: AJP	6-14-85
CHECKED BY:	DRAWING NO. 10 OF 11
DETAILS	SCALE AS SHOWN

1W 2W REINFORCED EARTH WALL DETAILS

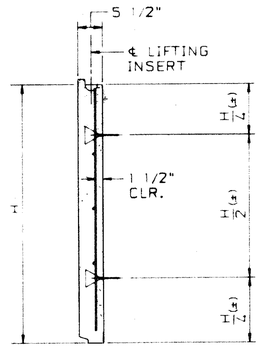
BEL-7-14.17 | OHIO | FHWA REGION 5 | 444 / 663



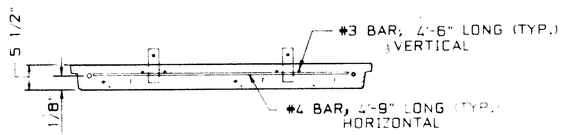
TYPICAL PANEL LAYOUT
SCALE: 1/2" = 1'-0"



PANEL TYPE "A"
WITH P4 REINFORCEMENT
FRONT VIEW



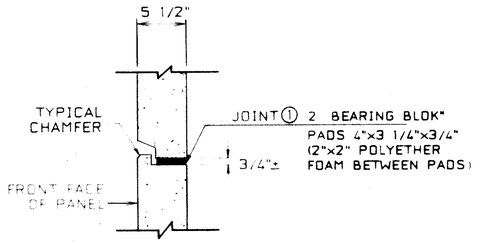
SECTION C-C
SCALE: 3/4" = 1'-0"



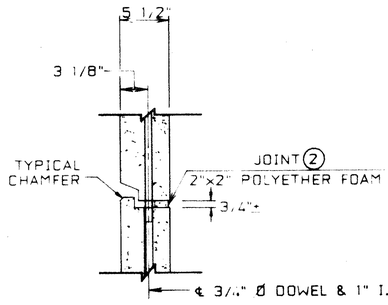
SECTION A-A
SCALE: 3/4" = 1'-0"

NOTES:

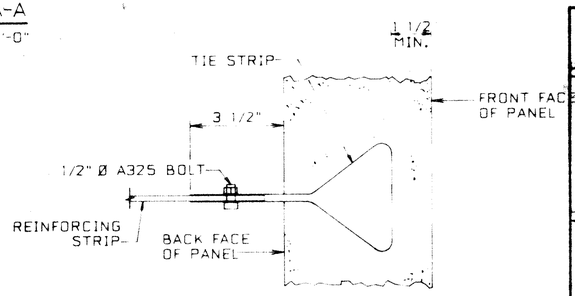
1. REINFORCING STEEL TO BE A615 GRADE 60.
2. 3/8" x 3/8" CHAMFER SHALL BE PROVIDED ON ALL EXPOSED EDGES (FRONT FACE ONLY).
3. ALL PANEL TYPES AND OTHER RELATED ELEMENTS WILL BE DETAILED ON SHOP DRAWINGS.
4. ALL PANELS SHALL HAVE TWO LIFTING INSERTS OF ONE TON CAPACITY EACH.
5. PANEL DESIGN THICKNESS IS 5½". QUANTITY OF CONCRETE WILL INCREASE TO ACCOMODATE ANY ARCHITECTURAL SURFACE FINISH THAT MAY BE SPECIFIED.
6. ACTUAL PANEL REINFORCEMENT FOR ALL PANEL TYPES IS DESIGNATED ON THE WALL ELEVATION DRAWINGS. P4 ILLUSTRATED FOR INFORMATION ONLY.
7. HORIZONTAL STRESS AT THE FACING IS CALCULATED BASED ON STANDARD REINFORCED EARTH® CALCULATION PROCEDURE.
8. PANELS SUBJECT TO HORIZONTAL STRESS AT THE FACING IN EXCESS OF 2.83_{KSF} WILL BE DESIGNED ON AN INDIVIDUAL PROJECT BASIS.



SECTION 1-1

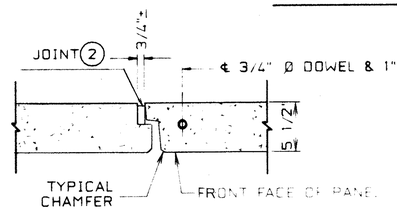


SECTION 2-2



CONNECTION DETAIL
NO SCALE

PANEL THICKNESS	REINFORCEMENT DESIGNATION	PANEL REINFORCEMENT	MAXIMUM ALLOWABLE HORIZONTAL STRESS AT FACING (KSF)
5½"	P0	~~UNREINFORCED~~	~~0.54~~
	P4	4 #3 VERTICAL 3 #4 HORIZONTAL	1.01
	P6	~~6 #3 VERTICAL~~ ~~4 #4 HORIZONTAL~~	~~1.33~~
7 1/16"	~~P6~~	6 #3 VERTICAL 3 #4 HORIZONTAL	2.14
	P8	8 #3 VERTICAL 4 #4 HORIZONTAL	~~2.83~~



SECTION 3-3
JOINT DETAILS
SCALE: 1-1/2" = 1'-0"

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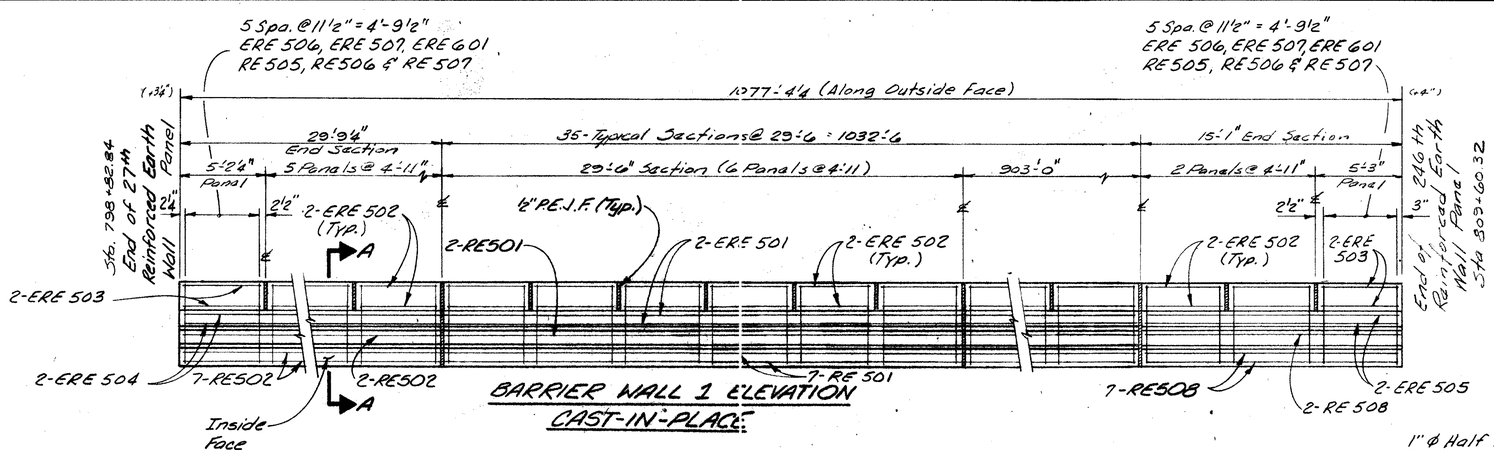
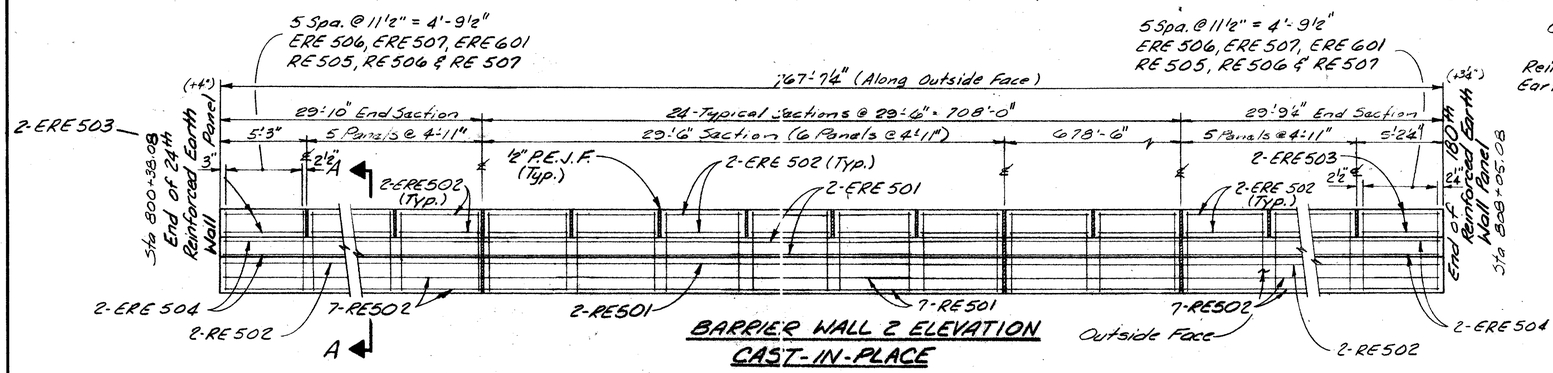
The Reinforced Earth Company
Rosslyn Center, 1700 North Moore Street, Arlington, Virginia 22209
(703) 527-3434

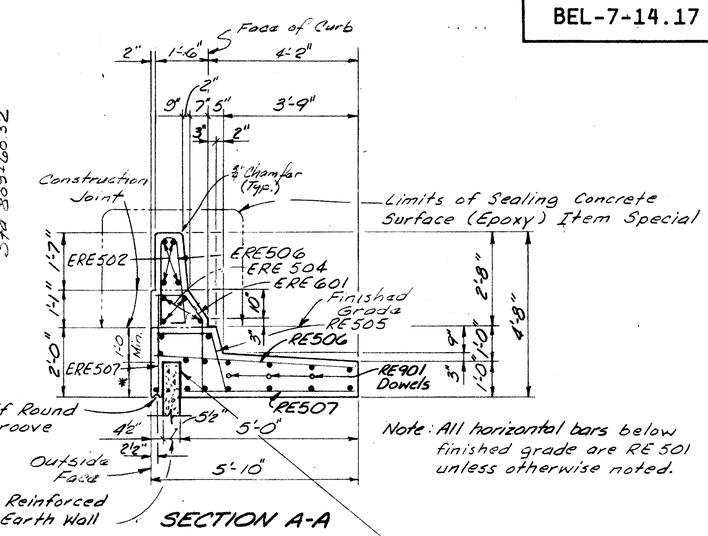
REV. NO.	DATE	DESCRIPTION

Structure	REINFORCED EARTH WALL
Location	BEL 7-14.17 WALL 1 & 2
	BELAIRE, OHIO
Owner	
DESIGNED BY: SEIG	DATE: 4-15-85
PROJECT ENGR: AJP	CONTRACT NO. 1916
CHECKED BY:	DRAWING NO. 11 OF 11
DETAILS	SCALE: AS SHOWN

1W 2W REINFORCED EARTH WALL DETAILS







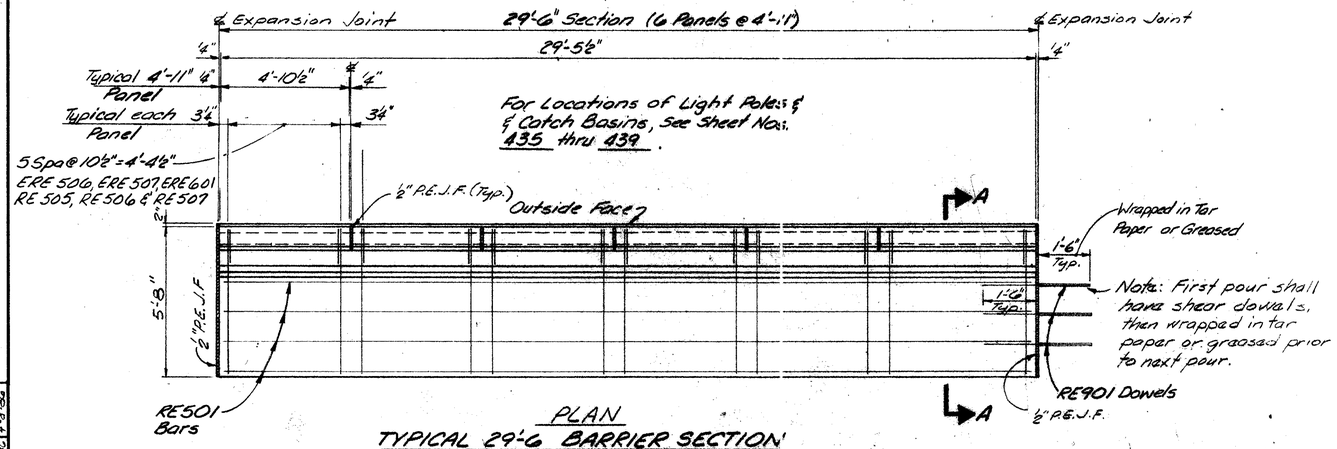
* Depth of integration slot will vary with heights of Pre-Cast wall panels.

ESTIMATED QUANTITIES FOR WALLS 1-W & 2-W			
Item	Total	Unit	Description
509*	63,114	Lb.	Reinforcing Steel, Grade 60
511*	748	Cu. Yd.	Class 'C' Concrete
509*	45,239	Lb.	Epoxy Coated Reinforcing Steel Grade 60
Special	808 **	Sq. Yd.	Sealing of Concrete Surfaces (Epoxy) FOR 1-W (SEE PROPOSAL NOTE)
SPECIAL	520 **	SQ. YD.	SEALING OF CONCRETE SURFACES (EPOXY) FOR 2-W

Note: * Quantities carried with Item Special Reinforced Earth Wall for Payment. ALSO SEE NOTE No 10 ON SHT. No 434

For Reinforcing Schedule see Sheet 444C.

** QUANTITIES CARRIED TO SHT. No. 434



For Locations of Light Poles & Catch Basins, see Sheet Nos. 435 thru 439.

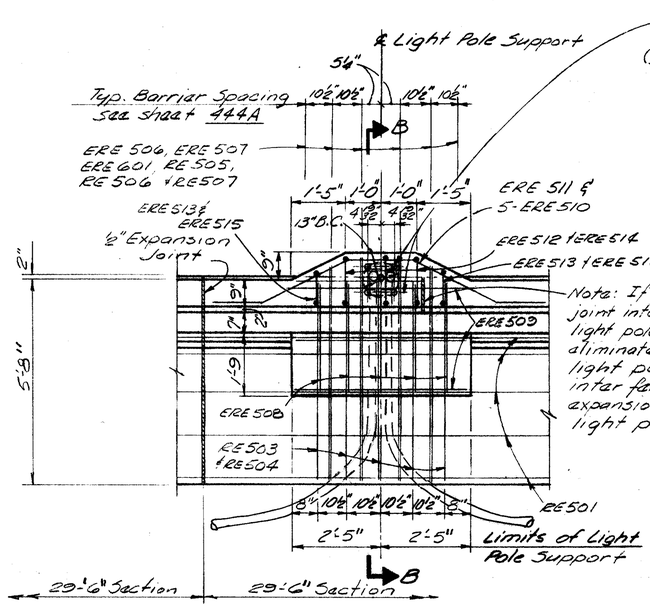
For Plan Limits of Cast-In-Place Barriers see sheets 434 thru 439.

For Additional Details and Reinforced Earth Wall Details, see sheets 434 thru 444.

For Details of Light Pole & Catch Basin Reinforcement, see Sheet No. 444B

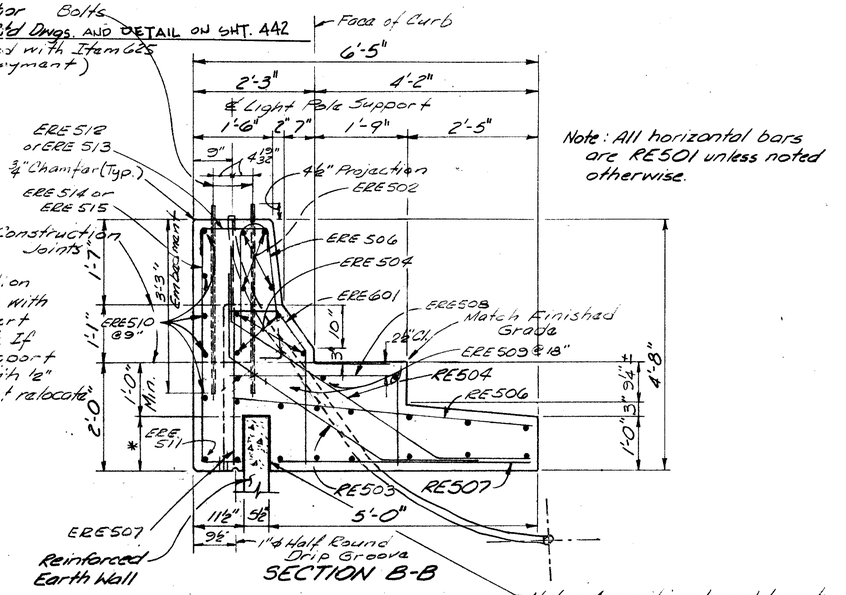
P.E.J.F. denotes Preformed Expansion Joint Filler

DRAWN	FDH	2-26-36
CK'D.	JMC	3-1-36
CORR.	CFD	3-3-36
BK. CK'D.	JMC	4-8-36



LIGHT POLE SUPPORT-PLAN

B.C.- Dongtas bolt circle.



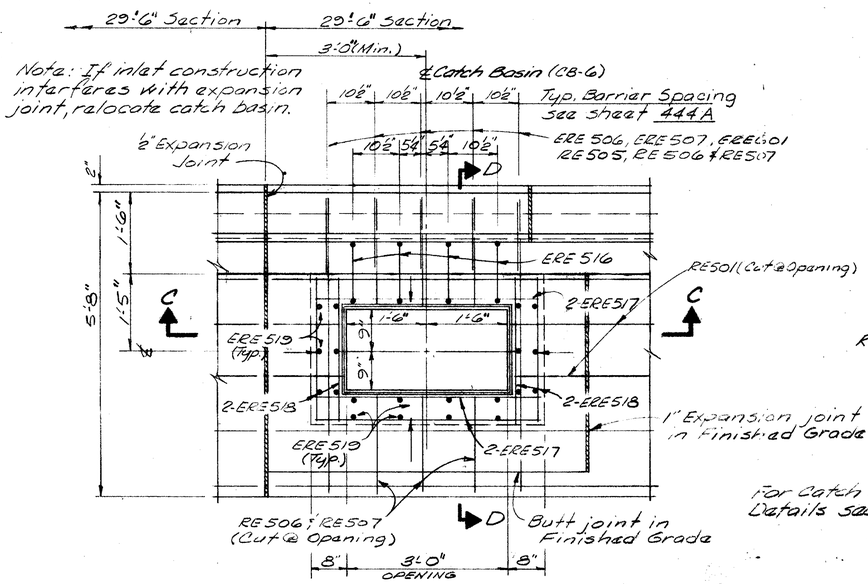
SECTION B-B

Note: All horizontal bars are RE501 unless noted otherwise.

Note: If deflection joint interferes with light pole support eliminate joint. If light pole support interferes with ½" expansion joint relocate light pole.

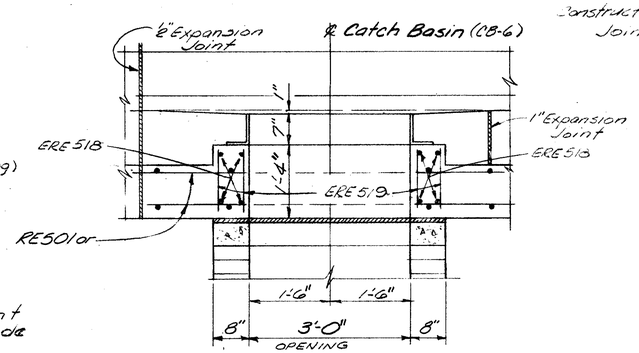
* Depth of integration slot will vary with heights of Pre-Cast wall panels

Note: A positive bond breaker shall be provided between Cast-In-Place concrete and Precast concrete panels.

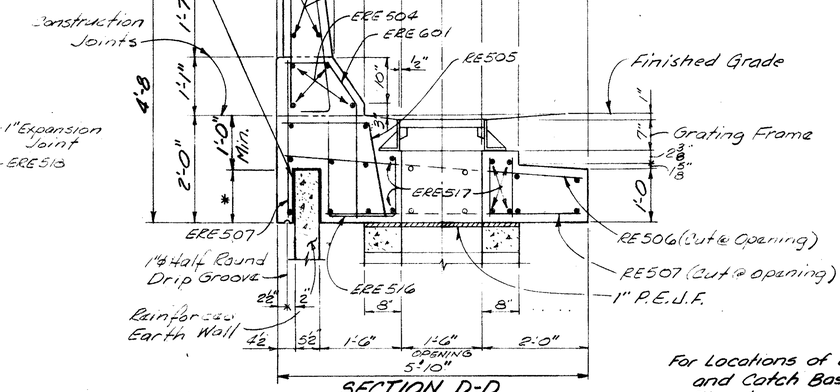


CATCH BASIN DETAIL-PLAN

For Catch Basin Inlet Details see Std Dwg. CB-6.



SECTION C-C



SECTION D-D

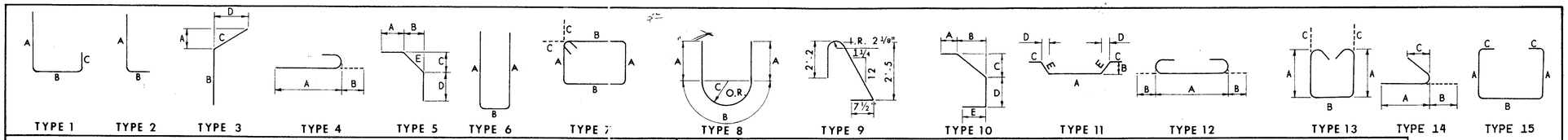
P.E.J.F. - denotes preformed expansion joint filler.

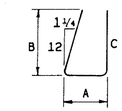
For Locations of Light Poles and Catch Basins, see Wall Elevations Sheet 436 and 437

For Additional Details and Reinforced Earth Wall Details, see Sheet 434 thru 444B

DRAWN	EDH 2-24-86	
CK'D.	JMG 3-5-86	
CORR.	EJD 2-7-86	
BK.CK'D.	JMG 4-8-86	

BEL-7-14.17 | OHIO | FHWA REGION 5 | 444C 663





MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT

MARK	TYPE	A	B	C	D	E	NUMBER WALL 1-W	NUMBER WALL 2-W	TOTAL	LENGTH	WEIGHT
ERE501	STR.						140	92	232	29'-2"	7058
ERE502	STR.						868	592	1460	4'-7"	6979
ERE503	STR.						8	8	16	4'-11"	82
ERE504	STR.						4	8	12	29'-6"	369
ERE505	STR.						4	—	4	14'-9"	62
ERE506	9	See Detail					1,314	900	2,214	5'-3"	12,123
ERE507	STR.						1,314	900	2,214	2'-9"	6,350
ERE508	2	3'-1"	1'-7½"				10	—	10	4'-7"	48
ERE509	STR.						6	—	6	4'-6	28
ERE510	11	1'-10"	1'-2"	10"	2'-2½"	2'-6"	10	—	10	8'-6"	89
ERE511	11	1'-10	9"	0"	1'-5"	1'-7¼"	2	—	2	5'-0"	10
ERE512	6	10"	1'-3"				6	—	6	2'-8"	17
ERE513	6	10"	10"				4	—	4	2'-3"	9
ERE514	2	4'-4"	9½"				6	—	6	5'-0"	31
ERE515	2	4'-4"	4½"				4	—	4	4'-7"	19
ERE516	1	1'-8"	1'-2"	1'-0"			8	8	16	3'-7"	60
ERE517	STR.						12	12	24	4'-0"	100
ERE518	STR.						16	16	32	2'-6"	83
ERE519	STR.						40	40	80	1'-0"	83
ERE601	5	9"	6"	8½"	2'-0½"	10½"	1314	900	2214	3'-6"	11,639
RE901	STR.						108	72	180	3'-0"	1,836
RE501	STR.						560	368	928	29'-2"	28,231
RE502	STR.						16	32	48	29'-6"	1,477
RE503	5	1'-8"	2'-8¾"	1'-10⅛"	1'-8"	3'-3½"	10	—	10	6'-6"	68
RE504	5	1'-8"	3'-10"	2'-7⅛"	1'-8"	4'-7½"	10	—	10	7'-10"	82
RE505	3	4 7/16"	1'-8"	1'-8½"	1'-8"		1,314	900	2,214	3'-4"	7,697
RE506	STR.						1,314	900	2,214	5'-6"	12,701
RE507	STR.						1,314	900	2,214	4'-8"	10,776
RE508	STR.						16	—	16	14'-9"	246

NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

AN 'ERE' DESIGNATION PRECEDING THE BAR MARK DENOTES EPOXY COATED BARS.

For Cast-In-Place Barrier Details of 1-W & 2-W Barriers, see sheet 444A & 444B.

DRAWN	CK'D	CORR.	BK CK'D
FDH 2-26-86	JMG 3-5-86	CFD 4-7-86	JMG 4-8-86

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

1-W & 2-W REINFORCED EARTH WALL CAST-IN-PLACE PARAPET REINFORCING SCHEDULE

LIGHTING GENERAL NOTES

POWER SERVICE

THE PROJECT WILL RECEIVE 480 VOLT TWO WIRE GROUNDED SERVICE. THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

OHIO POWER COMPANY
301 CLEVELAND AVENUE, S.W.
CANTON, OH 44701

UNDERDRAINS FOR PULL BOXES

REFERENCE IS MADE TO STANDARD DRAWINGS FOR DETAILS OF DRAINING PULL BOXES. UNDERDRAINS FOR PULL BOXES SHALL BE USED AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHERE THE LENGTH REQUIRED FOR A SATISFACTORY OUTLET DOES NOT EXCEED APPROXIMATELY 20 FEET. AN ESTIMATED QUANTITY OF "80 LINEAR FEET OF ITEM 603, 4" CONDUIT, TYPE E IS INCLUDED IN THE LIGHTING GENERAL SUMMARY FOR THIS PURPOSE.

JUNCTION BOX, AS PER PLAN

This item of work shall consist of furnishing and installing a steel transformer base with a ½-inch thick galvanized steel plate to cover over the top opening of the transformer base so as to provide a junction box over the conduits at the location shown in the plans.

Payment will be made for each "Item 625 Junction Box, As Per Plan" furnished and installed.

PADLOCKS AND KEYS

PADLOCKS FURNISHED SHALL BE EITHER BRASS OR BRONZE, EQUAL TO MASTER NO. 4BKA OR WILSON BOHANNAN 660A, AND SHALL BE KEYED IN ACCORDANCE WITH SPECIFICATION 631.08, PARAGRAPH 3. PAYMENT SHALL BE INCLUDED IN THE BID FOR THE ITEM(S) BEING LOCKED.

CONDUIT ON STRUCTURE

EXPANSION FITTINGS FOR CONDUIT ON STRUCTURES SHALL BE OZ TYPE AX, CROUSE-HINDS TYPE XJ-4, APPLETON TYPE XJ-4, OR EQUAL APPROVED BY THE ENGINEER, FOR BRIDGE NO. BEL-7-1549G.

EACH EXPANSION FITTING SHALL HAVE A COPPER EXTERNAL BONDING JUMPER.

713.18 LAMPS

HIGH PRESSURE SODIUM LAMPS SHALL BE GENERAL ELECTRIC "LUCALOX", WESTINGHOUSE "CERAMALUX", SYLVANIA "LUMALUX", OR EQUAL APPROVED BY THE ENGINEER.

LUMINAIRES

STYLE B LUMINAIRES SHALL HAVE SINGLE RATED 480 VOLTS, 200 WATT, INTEGRAL REGULATOR BALLASTS FOR USE WITH HIGH PRESSURE SODIUM LAMPS AND SHALL BE GENERAL ELECTRIC M400, CROUSE-HINDS OVM, AMERICAN 25/26 OR EQUAL APPROVED BY THE ENGINEER.

Calc. By: G.W. 3-12-84
Chkd. By: FS 3-20-84

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BEL-7-14.17

GENERAL SUMMARY LIGHTING QUANTITIES

General Ref. Line Nos.	STRUCTURES 1547G Sheet No.	STRUCTURES 1547G URBAN	STRUCTURES WALL A Sheet No.	STRUCTURES WALL A URBAN	ROADWAY Sheet No.	ROADWAY URBAN	ROADWAY RURAL	ROADWAY URBAN	ROADWAY Sheet No.	ROADWAY URBAN	ROADWAY Sheet No.	ROADWAY URBAN	URBAN	RURAL	ITEM	ITEM EXTENSION	GRAND TOTAL	UNIT	DESCRIPTION	Reference Letter	General Ref. Line Nos.
1																					1
2							3	3		11			14	3	625	0640 4	17	Each	Light Pole Design AT-18B-41.7	A	2
3			1										1		625		1	Each	Light Pole Design ST18B41.7		3
4								2		2			4		625	0630 7	4	Each	Light Pole Design AT-15B-41.7	B	4
5																					5
6																				C	6
7																					7
8								3				4	7		625	0610 2	7	Each	Light Pole Design AT-8B-34.2	D	8
9																					9
10								2		2			4		625	2620 0	4	Each	Luminaire, Type II, Style B, 260 Watt HIGH PRESSURE SODIUM, 713.11, 480 VOLT		10
11																					11
12			1				3	6		11		4	22	3	625	2630 8	25	Each	Luminaire, Type III, Style B, 200 Watt HIGH PRESSURE SODIUM, 713.11, 480 VOLT		12
13																					13
14								3				4	7		625	1400 8	7	Each	Light Pole Foundation, 24"x6', Deep		14
15																					15
16							3	5		13			18	3	625	1410 5	21	Each	Light Pole Foundation, 24"x8', Deep		16
17																					17
18							3	8		13		4	25	3	625	3200 6	28	Each	Ground Rod		18
19			1										1		625	2991 9	1	Each	Junction Box, As Per Plan (SEE SHT. 455)		19
20										1		2	3		625	3070 4	3	Each	Pull Box, Concrete, 713.08, 18"		20
21																					21
22								1				1	2		625	3076 3	2	Each	Pull Box, Concrete, 713.08, 24"		22
23																					23
24			46				646	2808		3116		1265	7235	646	625	2905 6	7881	Lin. Ft.	Trench, 24" DEEP		24
25																					25
26		37	285	233									555		625	2540 9	555	Lin. Ft.	Conduit, 2" Galvanized Rigid Steel		26
27																					27
28							105	421		616		537	1574	105	625	2550 6	1679	Lin. Ft.	Conduit, 3" Galvanized Rigid Steel		28
29																					29
30			120				360	840		1548		340	2848	360	625	2346 6	3208	Lin. Ft.	No. 10 AWG, Pole And Bracket Cable		30
31																					31
32		82	586	486			230	306		660			2120	230	625	2320 1	2350	Lin. Ft.	No. 4 AWG 5000 Volt Distribution Cable		32
33																					33
34							556	2988		2911		1318	7217	556	625	2410 0	7773	Lin. Ft.	1½" Duct-Cable, with 2-No 4 AWG 5,000 Volt Cables		34
35																					35
36			1				3	8		13		4	26	3	625	0050 3	29	Each	Connector Kit, Type II		36
37																					37
38			1				3	8		13		4	26	3	625	0060 0	29	Each	Connector Kit, Type III		38
39																					39
40								2		4			6		625	0105 4	6	Each	Connector Kit, Type VII B		40
41																					41
42		2		2								2	6		625	0150	6	Each	Cable Splicing Kit		42
43																					43
44																					44
45																					45
46								1				1	2		625	3400 9	2	Each	Power Service		46
47																					47
48				1									1		625	3300 2	1	Each	Structure Grounding System for Bridge No. BEL-7-1549G		48
49																					49
50													LUMP		625	3800 4	Lump		High Voltage Test		50
51																					51
52						80							80		603	0040 4	80	Lin. Ft.	4" Conduit, Type E		52
53																					53
54																					54
55																					55
56			8										8		625	1060 6	8	Each	Anchor Bolts for Wall Mounted Light Poles		56
57																					57
58																					58
59																					59
60																					60
61																					61
62																					62
63																					63
64																					64
65																					65
66																					66

LIGHTING SUB-SUMMARY TABLE

Calc. By: G.W. 1-27-84
Chkd. By: W.E.S. 1-31-84

FHWA REGION	STATE	PROJECT	
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BEL-7-14.17

* RURAL PARTICIPATION

REFERENCE NUMBER	SIDE	STATION TO STATION		LIGHT POLE DESIGN NO. AT-8B-34.2 Ea.	AT-15B-41.7 Ea.	AT-18B-41.7 Ea.	Luminaire, Type II, Style B, 200 watt, 480 volt Ea.	Luminaire, Type III, Style B, 200 watt, 480 volt Ea.	1#2 "Duct Cable 2-No.4 AWG Cables, 600 volt Lin.Ft.	No.10 AWG Pole and Bracket Cable Lin.Ft.	No.4 AWG 5000 volt Distribution Cable Lin.Ft.	Trench Lin.Ft.	Connector kit, Type II Ea.	Connector kit, Type III Ea.	Connector kit, Type III B Ea.	Ground Rod Ea.	Conduit 3" Galvanized Rigid Steel Lin.Ft.	Pull Box, 24" Concrete Ea.	Light Pole Foundation 24"x6' Deep Ea.	Light Pole Foundation 24"x8' Deep Ea.	Power Service Ea.
Stationing Referenced to BEL-7 Unless Noted Otherwise																					
		POWER SERVICE - A																			
		CIRCUIT A																			
AA-2	Lt.	753+75				1*		1*		120*			1*	1*		1*				1*	
AA-1	Rt.	754+00				1*		1*		120*			1*	1*		1*				1*	
AA-3	Lt.	757+20				1*		1*		120			1*	1*		1*				1*	
	Lt&Rt.	753+75	754+00								230*	105*					105*				
	Lt.	753+75	757+20						355*			345*									
	Lt.	757+20	759+20						201*			196*									
	Lt.	759+20	760+00						83			83									
TOTAL	ROADWAY FOR SHEET NO.		(URBAN)						83			83									
TOTAL	ROADWAY FOR SHEET NO.		(RURAL)			3		3	556	360	230	646	3	3		3	105			3	
		POWER SERVICE - A																			
		CIRCUIT A																			
AA-4	Lt.	760+45				1		1		120			1	1	2	1				1	
AA-7	Rt.	760+60				1		1		120			1	1		1				1	
AA-5	Rt.	762+00				1		1		120			1	1		1				1	
AA-6	Rt.	762+55 Ramp B			1		1			114			1	1		1				1	
PS-A	Lt.	13+39 - 1ST Reloc. Belmont St.																			1
PB-AA-1	Lt.	13+39 - 1ST Reloc. Belmont St.																1			
	Lt.	760+00 -	760+45						50			45									
	Lt.	760+45	13+39 1ST Reloc Belmont St.						1145			1135									
	Lt&Rt.	760+45	760+60								306	143					143				
	Rt.	760+60	762+55 Ramp B						203			193									
	Rt.	762+00	762+55 Ramp B						83			73					48				
	Lt.	13+39 (17'Lt.)	13+39 (20'Lt.)						8			3									
		CIRCUIT B																			
AB-1	Rt.	769+50 Ramp A			1		1			114			1	1		1				1	
AB-2	Lt.	9+05 1ST Reloc. Belmont St.		1				1		84			1	1		1			1		
AB-3	Lt.	10+70 1ST Reloc. Belmont St.		1				1		84			1	1		1			1		
AB-4	Rt.	12+34 1ST Reloc. Belmont St.		1				1		84			1	1		1			1		
	Lt&Rt.	769+50 Ramp A Rt.	9+05 Lt. 1ST Reloc. Belmont St.						172			162									
	Lt.	9+05 Belmont St.	10+70 Belmont St.						167			157									
	Lt&Rt.	10+70 Belmont St.	12+34 Belmont St.						224			214									
	Lt&Rt.	12+34 Belmont St.	13+39 Belmont St.						174			52									
	Lt.	13+39 (17'Lt.) Belmont St.	13+39 (20'Lt.)						8												
	Lt&Rt.	768+58 Ramp B															38				
	Lt&Rt.	10+70 - 1ST Reloc. Belmont St.															38				
	Lt&Rt.	770+31 Ramp D	770+50 Ramp D														56				
	Lt&Rt.	12+34 - 1ST Reloc. Belmont St.															49				
		CIRCUIT C																			
	Lt&Rt.	12+44 - 1ST Reloc. Belmont St.															49				
	Lt.	13+39 (17'Lt.)	13+39 (20'Lt.)						8												
	Lt.	13+39 Belmont St.	774+96 Ramp D						663												
	Lt&Rt.	12+44 Belmont St.	774+96 Ramp D									548									
TOTAL	ROADWAY FOR SHEET NO.		(URBAN)	3	2	3	2	6	2905	840	306	2725	8	8	2	8	421	1	3	5	1
GRAND TOTAL THIS SHEET (RURAL)						3		3	556	360	230	646	3	3		3	105			3	
GRAND TOTAL THIS SHEET (URBAN)				3	2	3	2	6	2988	840	306	2808	8	8	2	8	421	1	3	5	1

BK. CK'D.
CORR.
CK'D. G.W. 2-7-84
DRAWN R.J.G. 2-3-84

LIGHTING SUB-SUMMARY TABLE

Calc. By: G.W. 1-30-84
Chkd. By: V.D.B. 1-31-84

FHWA REGION	STATE	PROJECT	
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| REFERENCE NUMBER | SIDE | STATION TO STATION | LIGHT POLE DESIGN NO. | | |

LIGHTING SUB-SUMMARY TABLE

Calc. By: G.W. 1-31-84
Chkd. By: V.D.B. 1-31-84

FHWA REGION	STATE	PROJECT	
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REFERENCE NUMBER	SIDE	STATION TO STATION	LIGHT POLE DESIGN NO. AT-8B-34.2 Ea.	Luminaire Type III Style B 200 watt 480 volt Ea.	1/2" Duct Cable 2-No.4 Cables, 5000 volts Lin.Ft.	No.10 AWG Pole and Bracket Cable Lin.Ft.	No.4 AWG, 5000 Volt Distribution Cable Lin.Ft.	Trench 24" Lin.Ft.	Connector Kit, Type II Ea.	Connector Kit, Type III Ea.	Cable Splicing Kit Ea.	Structure Grounding System Ea.	Ground Rod, Ea.	Conduit, 3" Galvanized Rigid Steel Lin.Ft.	Conduit, 2" Galvanized Rigid Steel Lin.Ft.	Pull Box, 24" Concrete Ea.	Pull Box, 18" Concrete Ea.	Light Pole Foundation 24"x6' Deep Ea.	Power Service Ea.
Stationing Referenced To BEL-7 Unless Noted Otherwise																			
		POWER SERVICE - B CIRCUIT A																	
PBBA-3	Rt.	17+57 Reloc.26TH St.														1			
PS-B	Rt.	17+54 Reloc.26TH St.																	1
PBBA-2	Lt.	823+00 Ramp G									2						1		
	Lt.	820+12 Ramp G	823+00 Ramp G				586								285				
	Lt&Rt.	823+00 Ramp G	17+57 Reloc.26TH St.		524			514											
	Rt.	17+54 Reloc.26TH St.	17+57 Reloc.26TH St.		8			3											
	Lt.	822+90 Ramp G	823+00 Ramp G					10											
		BEL-7-1547 G										1							
		CIRCUIT B																	
BB-4	Lt.	17+95 Reloc.26TH St.		1		85			1	1			1					1	
BB-3	Rt.	19+24 Reloc.26TH St.		1		85			1	1			1					1	
BB-2	Lt.	20+83 Reloc.26TH St.		1		85			1	1			1					1	
BB-1	Rt.	22+11 Reloc.26TH St.		1		85			1	1			1					1	
PBBA-3	Rt.	17+57																	
	Rt.	17+54 Reloc.26TH St.	17+57 Reloc.26TH St.		8														
	Rt&Lt.	17+57 Reloc.26TH St.	17+95 Reloc.26TH St.		153			143											
	Lt&Rt.	17+95 Reloc.26TH St.	19+24 Reloc.26TH St.		203			193											
	Rt&Lt.	19+24 Reloc.26TH St.	20+83 Reloc.26TH St.		224			214											
	Lt&Rt.	20+83 Reloc.26TH St.	22+11 Reloc.26TH St.		198			188											
	Lt&Rt.	17+95 Reloc.26TH St.												84					
	Lt&Rt.	827+81 Ramp H												83					
	Lt&Rt.	19+24 Reloc.26TH St.												64					
	Rt&Lt.	20+59 Reloc.26TH St.	20+83 Reloc.26TH St.											70					
	Lt&Rt.	20+83 Reloc.26TH St.	827+91 Ramp E											99					
	Lt&Rt.	22+11 Reloc.26TH St.												53					
		CIRCUIT C																	
	Lt&Rt.	17+85 Reloc.26TH St.												84					
		TOTAL STRUCTURES FOR SHEET NO. (URBAN)					586					1			285				
		TOTAL ROADWAY FOR SHEET NO. (URBAN)		4	1318	340		1265	4	4	2		4	537		1	1	4	1
		GRAND TOTAL STRUCTURES THIS SHEET (URBAN)					586					1			285				
		GRAND TOTAL ROADWAY THIS SHEET (URBAN)		4	1318	340		1265	4	4	2		4	537		1	1	4	1

BK. CK'D.
CORR.
CK'D. G.W. 2-7-84
DRAWN R.J.G. 2-3-84

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

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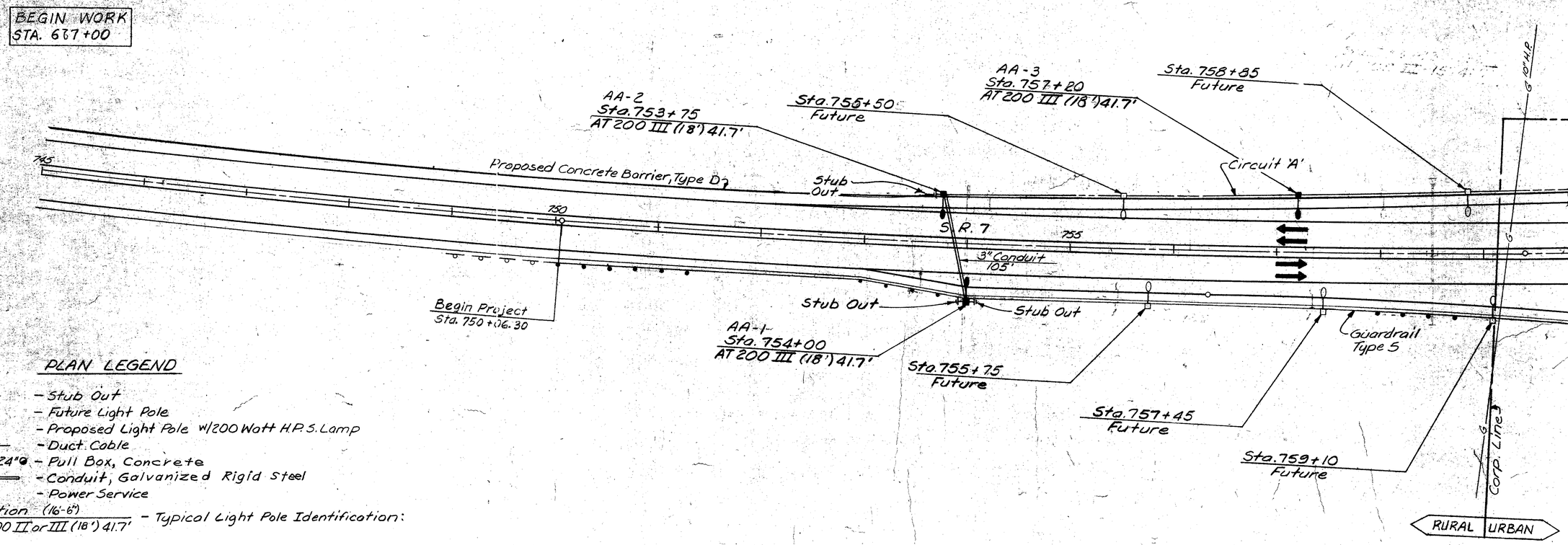
0 50 100
Scale In Feet



PLAN LEGEND

- ⟵ – Stub Out
- ○□ – Future Light Pole
- ●■ – Proposed Light Pole w/200 Watt H.P.S. Lamp
- ----- – Duct Cable
- 18"ø 24"ø – Pull Box, Concrete
- ═══ – Conduit, Galvanized Rigid Steel
- ◘ – Power Service

Station (16'-6") / (A) 200 II or III (18') 41.7' – Typical Light Pole Identification:

(16'-6") – Offset from edge of traveled pavement is shown ONLY IF NON-STANDARD. REFER TO STANDARD DRAWINGS.
(A) – Base Type : AT = Aluminum Transformer Base

200 – Lamp Wattage
II or III – IES Distribution Type
(18') – Bracket Arm Length (All medium; semi-cutoff)
41.7' – Luminaire Mounting Height

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

1ST RELOCATED BELMONT ST. INTERCHANGE LIGHTING PLAN

0 50 100
Scale In Feet

Power Service "A"
Sta. 13+39 ~20' Lt.

Relocated Pump Station

Reloc. 12th St.

P.B. AA-1
Sta. 13+39 (17')
24" Pull Box

Sta. 12+44
Sta. 12+34
Sta. 770+50

Corp. Line?

(2) 3" Conduit
49'

Stub Out

Sta. 12+44

AB-4 Locate Center of Pole
Sta. 12+34, 6'-6" Back of Face of Curb
AT 200 III (8') 34.2°

1ST Reloc. Belmont St.

MATCH LINE STA. 17+50

Circuit 'A'

Guardrail Type 5

Circuit 'C'

Ramp 'D'

3" Conduit
56'

Sta. 770+32

Locate Center of Pole 6'-6"
Behind Face of Curb
AB-3 Sta. 10+70
AT 200 III (8') 34.2°

Stub Out

3" Conduit
38'

Guardrail Type 5

Proposed Concrete Barrier, Type D

Ramp 'C'

S.R. 7

Structure No. BEL-7-1450 L/R

Guardrail Type 5

MATCH LINE STA. 760+00

3" Conduit
143'

Stub Out

3" Conduit
48'

Circuit 'B'

AB-2 Locate Center of Pole 6'-6"
Sta. 9+05 Back of Face of Curb
AT 200 III (8') 34.2°

Sta. 768+57

Ramp 'B'

Guardrail Type 5

Ramp 'A'

Stub Out

Stub Out

3" Conduit
38'

Sta. 768+57

AA-6
Sta. 762+55
AT 200 II (15') 41.7°

Sta. 762+17

AA-5
Sta. 762+00
AT 200 III (18') 41.7°

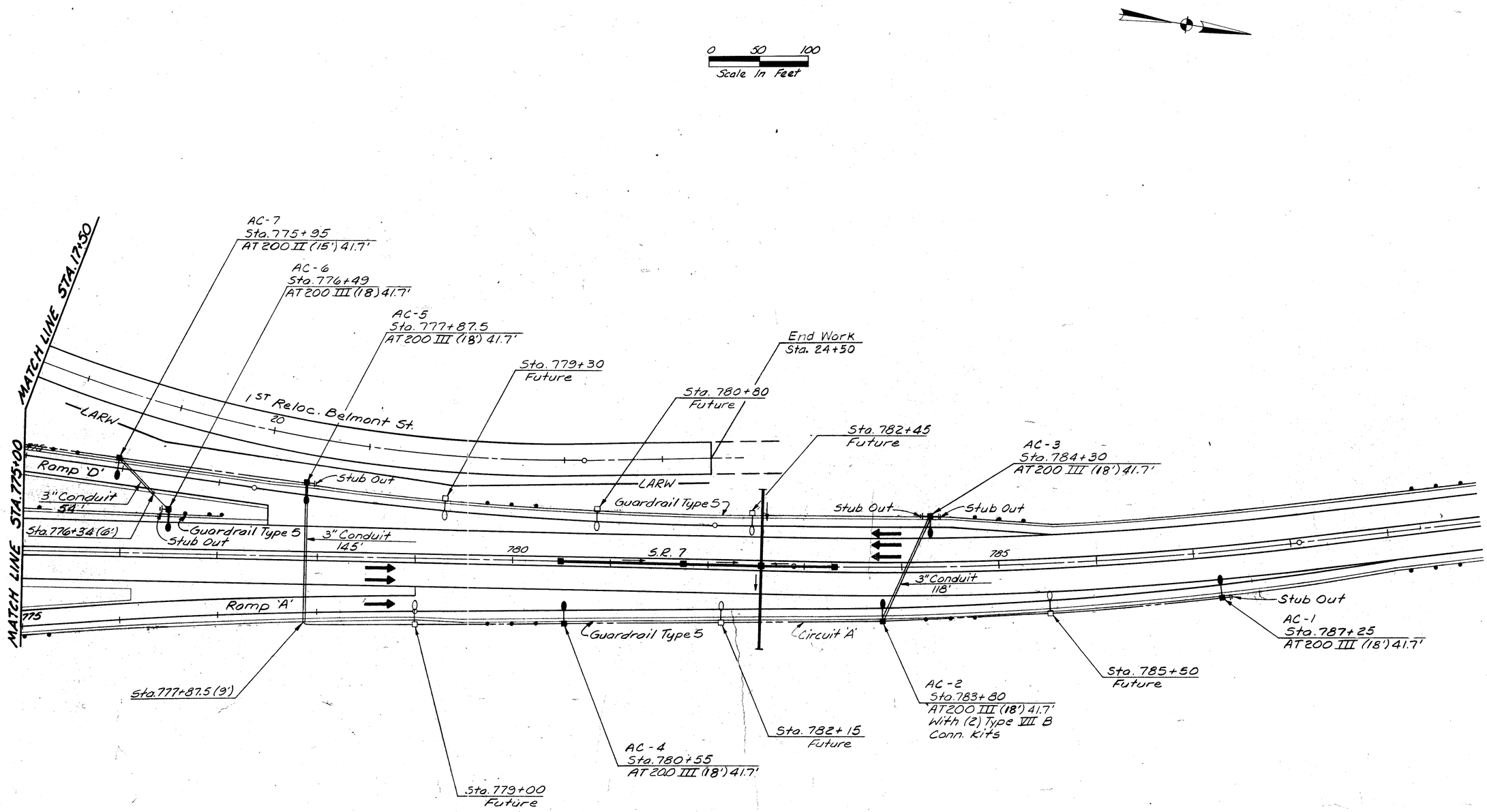
AA-7
Sta. 760+60
AT 200 III (18') 41.7°

AB-1
Sta. 769+50
AT 200 II (15') 41.7°

AA-4
Sta. 760+45
AT 200 III (18') 41.7°
With 2 Type VII B Conn. Kits

Sta. 762+00
Future

For Plan Legend, See Sheet No. 452



For Plan Legend, See Sheet No. 452.

0 50 100
Scale In Feet

BA-2
Sta. 811+20
AT 200 III (18') 41.7'
With (2) Type VII B
Conn. Kits

P.B. BA-4
Sta. 810+06
18" Pull Box, with
(2) Cable Splice Kits

2" Conduit
132'

Sta. 809+05
Future

2" Conduit
101'

BA-1
Sta. 807+75
AT 200 III (18') 41.7'

Stub out

LARW

Proposed Wall '1'

JB-AB-1

JB-AB-2

810

3" Conduit
108'

S.R. 7

815

Stub out

Stub Out

Proposed Wall '2'

BA-3
Sta. 811+20
AT 200 III (18') 41.7'

Sta. 812+85
Future

Sta. 812+95
Future

BA-4
Sta. 814+45
AT 200 III (18') 41.7

Sta. 814+65
Future

Sta. 816+00
Future

Sta. 816+20
Future

Circuit 'A'

Guardrail
Type 5

Guardrail Type 5

818

Ramp 'G'

2" Conduit
10'

P.B. BA-1
Sta. 819+76
18" Pull Box with (2)
Cable Splice Kits

Sta. 819+33

3" Conduit
129'

3" Conduit
62'

Ramp 'F'

Stub out

Stub out

LARW

Stub
Out

MATCH LINE STA. 820+00

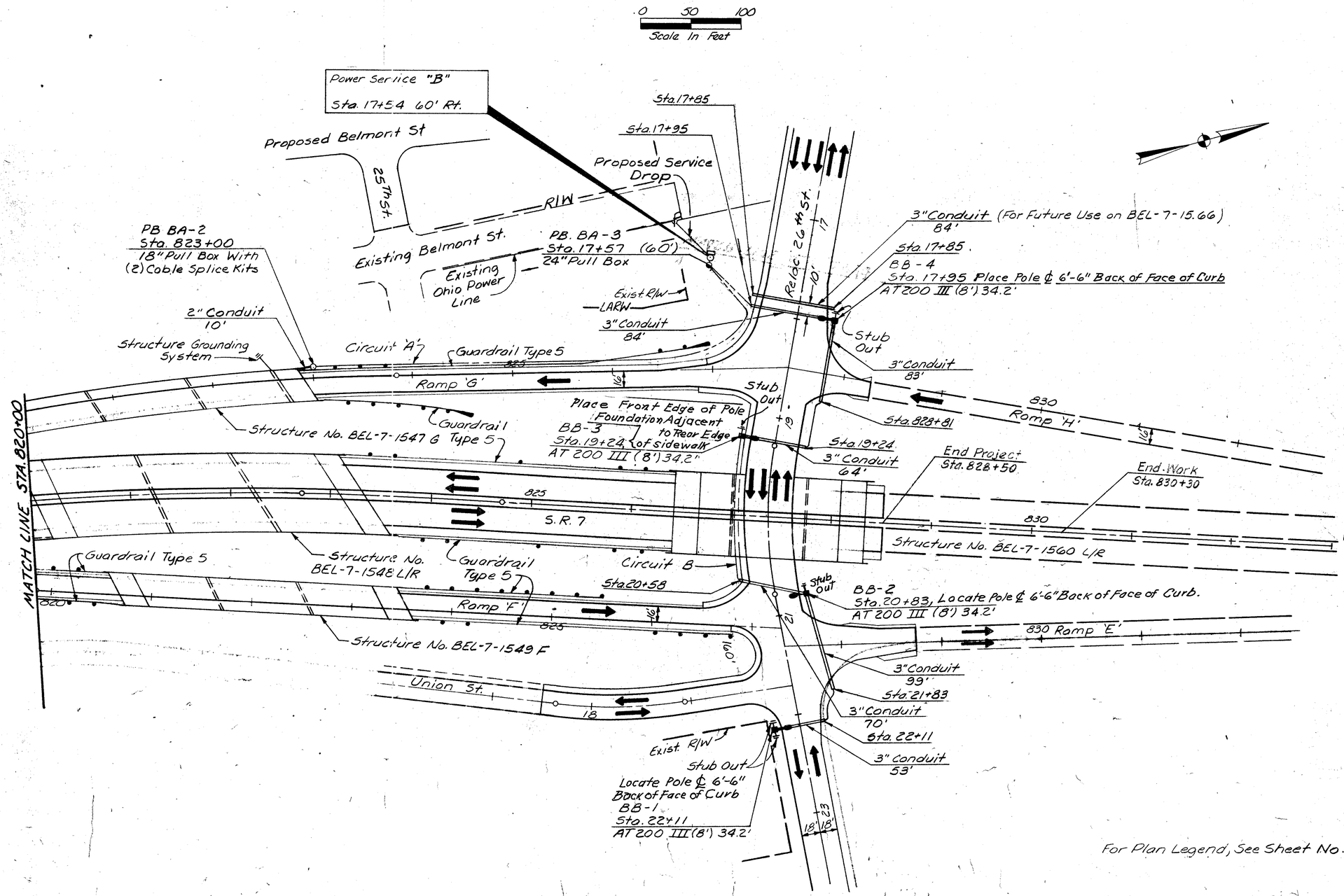
BA-5
Sta. 817+60
AT 200 III (18') 41.7'

BA-7
Sta. 819+23
AT 200 III (18') 41.7'

BA-6
Sta. 819+58
AT 200 II (15') 41.7'

For Plan Legend, See Sheet No. 452

RELOCATED 26TH ST. INTERCHANGE LIGHTING PLAN



For Plan Legend, See Sheet No. 452

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Power Service Data

POWER SERVICE IDENTITY	SERVICE	CONNECTOR LOAD K.V.A.	ENCLOSURE RATING AMPS	SERV. ENT. CONDUCTOR SIZE AWG	CIRCUIT	CIRCUIT CONDUCTOR SIZE AWG	CIRCUIT LOAD AMPS	CIRCUIT FUSE AMPS	Maintaining Agency
A	480V Single & 2 Wire Grounded Neutral	4.6	30	#4					City of Bellaire
					A	#4	3.7	30	
					B	#4	2.1	30	
					C	#4	3.7	30	
B	480V Single & 2 Wire Grounded Neutral	4.6	30	#4					
					A	#4	3.7	30	
					B	#4	2.1	30	
					C*				

* Circuit 'C' to be placed with Project BEL-7-15.66

TRAFFIC CONTROL & TRAFFIC SIGNAL GENERAL NOTES

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105 COOPERATION WITH UTILITY COMPANIES

THE CONTRACTOR IS ADVISED THAT THROUGHOUT THESE PLANS THE UTILITY COMPANIES HAVE BEEN CALLED UPON TO PERFORM NECESSARY ADJUSTMENTS OF PUBLIC OR PRIVATE UTILITY FIXTURES, PIPE LINES AND OTHER APPURTENANCES WITHIN OR ADJACENT TO THE LIMITS OF CONSTRUCTION. THE CONTRACTOR SHALL COOPERATE WITH THE UTILITY COMPANIES IN ACCORDANCE WITH 105.06 TO ARRANGE A MUTUALLY ACCEPTABLE WORK SCHEDULE, SUBJECT TO THE APPROVAL OF THE ENGINEER.

THE FOLLOWING IS A LIST OF THE VARIOUS UTILITY COMPANIES AFFECTED BY THIS CONTRACT.

CITY OF BELLAIRE, MUNICIPAL BUILDING, BELLAIRE, OHIO 43906

BELMONT COUNTY SEWER AUTHORITY NO. 1 WASTEWATER TREATMENT PLANT, NORTH GUERNSEY STREET, BELLAIRE, OHIO 43906

OHIO POWER COMPANY, P.O. BOX 24400, 301 CLEVELAND AVENUE, S. W., CANTON OHIO, 44701

OHIO BELL TELEPHONE COMPANY, 150 EAST GAY STREET, COLUMBUS, OHIO 43215

BELLAIRE ANTENNA SYSTEMS, INC., 3153 BELMONT STREET, BELLAIRE, OHIO 43906

COLUMBIA GAS OF OHIO, 99 NORTH FRONT STREET, COLUMBUS, OHIO 43215

COLUMBIA GAS TRANSMISSION CORPORATION, 159 NATIONAL ROAD, TRIDELPHIA, WEST VIRGINIA 26059

COMPENSATION FOR THE ABOVE COOPERATION SHALL BE INCIDENTIAL TO THE VARIOUS PAY ITEMS INCLUDED WITHIN THIS PROJECT.

614 MAINTAINING TRAFFIC

SPECIAL PROVISIONS FOR SPECIFICATIONS 104.04 SHALL BE AS STATED IN THE GENERAL NOTES UNDER ITEM 614, MAINTAINING TRAFFIC ON SHEET 26 .

TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS

REFERENCES TO SUPPLEMENTAL SPECIFICATIONS 857, 858, 961, 957, 958 AND 961 ON THE TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS IN THESE PLANS SHALL BE CONSIDERED TO READ AS RESPECTIVE REFERENCES TO ITEMS 630, 631, 633, 730, 731 AND 733.

ITEM 632-REMOVAL OF TRAFFIC SIGNAL INSTALLATION

ITEMS REMOVED SHALL BE STORED WITHIN THE PROJECT FOR SALVAGE BY THE CITY OF BELLAIRE AT THEIR OPTION.

THE FOLLOWING IS A LIST OF EXISTING EQUIPMENT TO BE REMOVED AND INCLUDES ALL MOUNTING HARDWARE AND CABLES.

A.) 26th STREET/BELMONT STREET
- 2-STRAIN POLES
- 1-CONTROLLER CABINET
- 1-4 WAY SIGNAL HEAD

B.) CRESCENT STREET/BELMONT STREET, S.E. CORNER
- 1-STRAIN POLES
- 1-CONTROLLER CABINET
- 1-ONE WAY SIGNAL HEAD

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:
ITEM 632-REMOVAL OF TRAFFIC SIGNAL INSTALLATION---- 2 EACH

TRAFFIC SIGNALIZATION AT CRESCENT STREET/BELMONT STREET

CONSTRUCTION OF THIS PROJECT WILL REQUIRE THE PARTIAL REMOVAL OF TRAFFIC SIGNALIZATION EQUIPMENT AT THE INTERSECTION OF CRESCENT STREET/BELMONT STREET AS NOTED IN ITEM 632-REMOVAL OF TRAFFIC SIGNAL INSTALLATION.

THE RELOCATION AND INSTALLATION OF ANY AND ALL TRAFFIC CONTROL DEVICES AT THIS INTERSECTION SHALL BE PERFORMED BY OTHERS.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEM INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 90 DAYS FOLLOWING COMPLETION OF THE 10-DAY PERFORMANCE TEST. IN THE EVENT OF UNSATISFACTORY OPERATION, THE CONTRACTOR SHALL CORRECT FAULTY INSTALLATIONS, MAKE REPAIRS AND REPLACE DEFECTIVE PARTS WITH NEW PARTS OF EQUAL OR BETTER QUALITY. EQUIPMENT, MATERIAL AND LABOR COSTS INCURRED IN CORRECTING AN UNSATISFACTORY OPERATION SHALL BE BORNE BY THE CONTRACTOR.

THE GUARANTEE SHALL COVER THE FOLLOWING ITEMS OF THE TRAFFIC CONTROL SYSTEM: CONTROLLERS AND ASSOCIATED EQUIPMENT, DETECTOR UNITS, INTERCONNECTION ITEMS AND MASTER CONTROL EQUIPMENT.

CUSTOMARY MANUFACTURER'S GUARANTEES FOR THE FOREGOING ITEMS SHALL BE TURNED OVER TO THE STATE OR THE MAINTAINING AGENCY FOLLOWING ACCEPTANCE OF THE EQUIPMENT.

THE COST OF GUARANTEEING THE TRAFFIC CONTROL SYSTEM WILL BE INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE OF THE VARIOUS ITEMS MAKING UP THE SYSTEM.

POWER SUPPLY FOR TRAFFIC SIGNALS

ELECTRIC POWER SHALL BE OBTAINED FROM THE

OHIO POWER COMPANY
P.O. BOX 24400
301 CLEVELAND AVENUE S.W.
CANTON, OHIO 44701
(216) 438-7040

AT THE LOCATION INDICATED ON THE PLANS.
POWER SUPPLY SHALL BE 120 VOLTS.

TRAFFIC CONTROL QUANTITIES

Calc. By: G.W. 3-6-84
Chkd. By: JBH. 3-22-84

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GROUND MOUNTED SIGNS

REF. NO.	STATION	SIDE	CODE	SIZE	630 ~ SIGNS			630 ~ GROUND MOUNTED SUPPORTS								630			630 ~ REMOVAL OF					622
					Flat Sheet Type 'G'	Extrusheet Type 'G'	Overlay Type 'G'	One Way Support No. 3 Post	One Way Support No. 4 Post	No. 3 Post	No. 4 Post		54 x 7.7 Beam	W6 x 9 Beam	W10 x 12 Beam	Sign Support Assembly, Bridge Mounted, Type 2	Breakaway Beam Connection	Concrete For Embedded Foundation	Ground Mounted Sign and Reerection	Ground Mounted Major Sign and Disposal	Ground Mounted Sign and Disposal	Ground Mounted Beam Support and Disposal	Ground Mounted Post Support and Disposal	Temporary Concrete Barrier
					Sq. Ft.	Sq. Ft.	Sq. Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.		Lin.Ft.	Lin.Ft.	Lin.Ft.	Each	Each	Cu.Yd.	Each	Each	Each	Each	Each	Lin.Ft.
	RURAL PARTICIPATION																							
	S.R.7																							
1	703+70	Rt.	Existing																	1		2		
2	708+00	Rt.	G.B.	13'x5'		65.0									36.0		2	2.2						
3	720+00	Rt.	W-55-144 Mod.	144"x48"		48.0								34.0			2	0.66						
4	723+75	Rt.	Existing																	1		2		
5	747+00	Rt.	Existing																	1		2		
6	747+00	Rt.	G.B.	13'x5'		65.0									47.2			2.2						
7	744+00	Lt.	M-38-30	30"x15"	3.1						14.3													
			M-2-30-2	30"x30"	6.3																			
8	750+06.3	Lt.	Existing																		1		1	
9	750+85	Rt.	Existing																		1		1	
10	780+85	℄	Existing																		1		1	
11	753+00	Rt.	Existing																		1		1	
12	748+00	Lt.	Reerected												35.9			2.2						
	756+00	Lt.	Existing																1			2		
13	753+80	Rt.	G.E	13'x5'		65.0									46.6			2.2						
14	757+50	Lt.	Existing																		1		1	
	TOTAL RURAL PARTICIPATION				10	243					15			34	166		4	10	1	3	5	8	5	
	URBAN PARTICIPATION																							
	S.R.7																							
15	759+30	Rt.	Existing								15.7								1				1	
16	759+50	Lt.	Existing																	1		2		
17	761+50	Rt.	GF	6'x5'		30.0							34.0					0.54						
18	764+00	Lt.	W-49R-48	48"x48"	16.0						35.2													
19	767+50	Rt.	GB	13'x5'		65.0									45.4			2.2						
			Overlay	12'x4'			48.0																	
20	772+00	Lt.	GB	13'x5'		65.0									44.4			2.2						
21	775+00	Rt.	W-49R-48	48"x48"	16.0								38.7					0.54						
22	776+50	Lt.	GF	6'x5'		30.0							36.7					0.54						
23	784+52	Lt.	GE	13'x5'		65.0									48.6			2.2						
24	790+00	Rt.	GB	13'x5'		65.0									48.6			2.2						
25	798+00	Lt.	GB	13'x5'		65.0									47.5			2.2						
26	799+00	Rt.	W-54A-144	144"x48"		48.0									45.0			2.2						
27	806+00	Rt.	R-33-30	30"x36"	7.5						15.0					1								
28	810+00	Rt.	GE	9'x5'		45.0									45.5			2.2						
81	12 Temp Signs		W-138-36	36"x36"	108.0																			1900
	RAMP 'A'																							
29	769+60	Rt.	R-15B	30"x18"	3.8					14.0														
	RAMP 'B'																							
30	766+25	Rt.	D-4D	8'x2'	16.0								35.0					0.54						
			R-41A-36	36"x24"	6.0																			
31	766+25	Lt.	R-41A-36	36"x24"	6.0					13.9														
32	768+67	Lt.	R-41B-36	36"x36"	9.0			16.0		14.0														
			R-43L-48	48"x18"	6.0																			
33	768+67	Rt.	R-1-48	48"x48"	16.0				19.1		16.6													
			R-41B-36	36"x36"	9.0																			
			R-43L-48	48"x18"	6.0																			
34	768+87	Rt.	M-37-30	30"x15"	3.1						16.0													
			M-2-30-2	30"x30"	6.3																			
			M-24-24	24"x18"	3.0																			
			TOTALS		238	478	48	16	19	42	99		145		325	1		17.56	1	1		2	1	1900

TRAFFIC CONTROL QUANTITIES

Calc. By: G.W. 3-6-84
Chkd. By: J.B.H. 3-22-84

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GROUND MOUNTED SIGNS

REF. NO.	STATION	SIDE	CODE	SIZE	630~SIGNS Flat Sheet Type 'G' Sq. Ft.		Extrusheet Type 'G' Sq. Ft.	630~GROUND MOUNTED SUPPORTS No. 2 Post Lin. Ft.	No. 3 Post Lin. Ft.	No. 4 Post Lin. Ft.	One Way Support No. 4 Post Lin. Ft.	S4x7.7 Beam Lin. Ft.	W6x9 Beam Lin. Ft.	One Way Support No. 3 Post Lin. Ft.	630 Breakaway Beam Connection Each	Concrete For Embedded Foundation Cu. Yd.	Street Name Sign Support Each	Signs, Double Faced, Street Name Each				
			RAMP 'C'																			
35	769+25	Lt.	R-15B	30"x18"	3.8				13.3													
			RAMP 'D'																			
36	770+09	Rt.	R-1-48	48"x48"	16.0					15.8	17.8											
			R-41B-36	36"x36"	9.0																	
			R-43L-48	48"x18"	6.0																	
			R-43R-48	48"x18"	6.0																	
37	770+50	Lt.	R-2-48	48"x48"x48"	6.9				29.2													
			R-41B-36	36"x36"	9.0																	
38	772+50	Lt.	D-4D	10"x2'			20.0			29.0												
			R-41A-36	36"x24"	6.0																	
39	772+50	Rt.	R-41A-36	36"x24"	6.0			27.3														
			1st Reloc. Belmont St.																			
40	10+85	Lt.	M-52A	108"x30"			22.5					31.0			2	0.54						
41	16+00	Lt.	M-17-24	24"x12"	2.0					13.5												
			M-2-24-2	24"x24"	4.0																	
41A	13+20	Lt.	M-52B-120	120"x48"			40.0						33.0			0.66						
			12th St.																			
42	9+74	Rt.	R-1-30	30"x30"	6.3				14.0													
42-A	9+74	Rt.	D-14														1	2				
			D-14																			
			10th St.																			
43	20+17	Rt.	R-1-30	30"x30"	6.3				14.0													
			T.R. 619																			
44	9+83	Rt.	R-1-30	30"x30"	6.3				14.0													
			26TH ST.																			
45	19+25	Rt.	R-36L-30	30"x36"	7.5				13.5													
			R-32R-30	30"x30"	6.3				13.1													
46	21+33	Rt.	R-36L-30	30"x36"	7.5				13.5													
			R-32R-30	30"x30"	6.3				13.1													
			RAMP 'F'																			
47	824+00	Rt.	R-41A-36	36"x24"	6.0							30.9				0.54						
			D-4D	6'x2'			12.0															
			M-37-24	24"x12"	2.0				6.5													
			M-2-24-2	24"x24"	4.0																	
			M-21-21	21"x15"	2.2																	
48	824+00	Lt.	R-41A-36	36"x24"	6.0				31.8													
49	826+99	Lt.	R-41B-36	36"x36"	9.0				15.0					17.0								
			R-43L-48	48"x18"	6.0																	
			R-43R-48	48"x18"	6.0																	
50	826+90	Rt.	R-1-48	48"x48"	16.0				30.2													
			R-41B-36	36"x36"	9.0																	
			RAMP 'G'																			
51	826+50	Lt.	R-15B	30"x18"	3.8				14.2													
				TOTALS	192		95	28	236	59	18	62	33	17	2	1.74	1	2				

TRAFFIC CONTROL QUANTITIES

Calc. By: G.W. 3-6-84
Chkd. By: J.B.H. 3-22-84

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GROUND MOUNTED SIGNS

REF. NO.	STATION	SIDE	CODE	SIZE	630~SIGNS			630~GROUND MOUNTED SUPPORTS						630							
						Flat Sheet Type 'G'	Extrusheet Type 'G'	Overlay, Type 'G'	No. 3 Post	No. 4 Post	Street Name Sign Support	5#x7.7 Beam	W6x9 Beam	W10x12 Beam	Breakaway Beam Connection	Concrete For Embedded Foundation	Signs, Double Faced, Street Name				
						Sq. Ft.	Sq. Ft.	Sq. Ft.	Lin. Ft.	Lin. Ft.	Each	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Cu. Yd.	Each				
	2nd Reloc. Belmont St.																				
52	15+25	Rt.	M-17-24	24"x12"		2.0				15.2											
			M-2-24-2	24"x24"		4.0															
53	16+75	Rt.	R-31M-48	48"x30"		10.0			26.4												
54	17+50	Lt.	W-60C-36	36"x36"		9.0				15.2											
55	18+05	Rt.	R-31M-48	48"x30"		10.0			26.8												
57	21+00	Rt.	M-37-24	24"x12"		2.0			13.6												
			M-2-24-2	24"x24"		4.0															
58	21+00	Lt.	M-45-42	42"x60"			17.5					32.9			2	0.54					
			OVERLAY	24"x12"				2.0													
64B	19+34	Lt.	M-2-24-2	24"x24"		4.0			13.8												
			M-24-21	21"x15"		2.2															
		26th St.																			
59	11+00	Rt.	M-17-24	24"x12"		2.0			14.3												
			M-2-24-2	24"x24"		4.0															
60	15+07	Lt.	M-38-24	24"x12"		2.0				15.9											
			M-2-24-2	24"x24"		4.0															
			M-24-21	21"x15"		2.2															
60A	15+03	Lt.	D-14 (On Signal Pole)														2				
61	16+00	Lt.	M-52B-120	120"x66"			55.0						36.0		2	0.66					
			Overlay	30"x30"				6.3													
62	15+95	Lt.	M-37-24	24"x12"		2.0				15.9											
			M-2-24-2	24"x24"		4.0															
			M-26-21	21"x15"		2.2															
			M-38-24	24"x12"		2.0				16.4											
			M-2-24-2	24"x24"		4.0															
			M-24-21	21"x15"		2.2															
62A	16+03	Lt.	D-14 (On Signal Pole)														2				
63	17+00	Rt.	R-31E-48	48"x30"		10.0			26.5												
64	17+15	Lt.	R-31B-36	36"x30"		7.5			28.6												
64A	18+00	Lt.	M-37-24	24"x12"		2.0				14.9											
			M-2-24-2	24"x24"		4.0															
			M-13-21	21"x15"		2.2															
65	18+00	Rt.	R-31E-48	48"x30"		10.0			26.8												
66	19+00	Rt.	GH-1	10'x5.5'			55.0							38.6	2	2.2					
			GH-1	10'x5.5'			55.0														
	Union St.																				
68	19+72	Rt.	R-1-30	30"x30"		6.3			13.3												
68A	19+76	Rt.	D-14								1						2				
	25th St.																				
69	10+23	Lt.	R-1-30	30"x30"		6.3			13.3												
70	10+25	Rt.	W-48-30	30"x30"		6.3			14.3												
			TOTALS			133	183	9	218	94	1	33	36	39	6	3.40	6				

W.E. QUICKSALL & ASSOCIATES INC. Consulting Engineers

GROUND MOUNTED SIGN QUANTITIES

TRAFFIC CONTROL QUANTITIES

Calc. By: G.W. 3-6-84
Chkd. By: J.B.H. 3-22-84

FHWA REGION	STATE	PROJECT	
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GROUND MOUNTED SIGNS

REF. NO.	STATION	SIDE	CODE	SIZE	630~SIGNS Flat Sheet Type 'G' Sq. Ft.	630~GROUND MOUNTED SUPPORTS No. 3 Post Lin. Ft.	622 Temporary Concrete Barrier Lin. Ft.
	Existing 26th St.						
71	10+26	Rt.	R-1-30	30"x30"	6.3	13.3	
		27th St.					
72	10+64	Rt.	R-1-30	30"x30"	6.3	13.3	
73	11+50	Rt.	W-48-30	30"x30"	6.3	14.3	
74	11+52	Lt.	R-1-30	30"x30"	6.3	13.3	
		29th St.					
75	11+12	Rt.	R-1-30	30"x30"	6.3	13.3	
76	20+24	Rt.	W-48-30	30"x30"	6.3	14.3	
77	20+36	Lt.	R-1-30	30"x30"	6.3	13.3	
	26TH. ST.						
	17+79 to 18+79	Lt.					100.00
	21+00 to 22+00	Lt.					100.00
				TOTALS	45	96	200.00

Calc. By: G.W. 3-8-84
Chkd. By: J.B.H. 3-20-84

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620 DELINEATOR SUB-SUMMARY

LOCATION	SIDE	STATION FROM	STATION TO	SPACING	FLEXIBLE POST Type C Each					BRACKET Type C Each				
100% RURAL														
S.R. 7	Lt.	750+00	758+00	200	5									
	Rt.	751+00	753+00	200	2									
S.R. 7	Rt.	754+25	758+25	200	3									
TOTAL RURAL					10									
100% URBAN														
S.R. 7	Lt.	760+00	762+00	200	3									
	Rt.	760+25			1									
	Lt.	765+04	773+04	400	2					1				
	Rt.	763+76	775+76	400	4									
	Lt.	777+50	785+50	200	5									
	Rt.	780+00	788+00	200	5									
	Rt.	789+00	805+00	400	5									
	Lt.	789+50	801+50	400	4									
	Rt.	808+00	810+00	200	2									
	Lt.	805+00	815+00	200	6									
	Rt.	811+00	813+00	200	2									
	Rt.	814+50	816+00	150	2									
	Rt.	817+30			1									
	Lt.	819+75	827+75	400	3									
S.R. 7	Rt.	820+88	824+88	400	1					1				
Ramp A	Rt.	772+00	778+00	200	4									
Ramp A	Rt.	769+75	770+50	75	2									
Ramp B	Rt.	762+25	768+25	200	4									
Ramp C	Lt.	763+20	764+40	120	2									
Ramp C	Lt.	766+00	769+00	150	3									
Ramp D	Lt.	770+90	774+30	170	3									
Ramp D	Lt.	775+90			1									
Ramp F	Rt.	818+55	820+25	170	2									
	Rt.	821+80								1				
	Rt.	823+80	825+80	200	2									
Ramp F	Rt.	826+60			1									
Ramp G	Lt.	817+00	819+00	200	2									
	Lt.	820+35	821+70	135						2				
Ramp G	Lt.	823+00	827+00	200	3									
TOTAL URBAN					75					5				

620 DELINEATOR SUB-SUMMARY (CONT.)

LOCATION	SIDE	STATION FROM	STATION TO	SPACING	POST				BRACKET			

OVERHEAD SIGN SUPPORT SUB-SUMMARY

100% URBAN

REF. NO.	STATION	SIDE	CODE	SIZE	630-SIGNS Signs, Extra Sheet, Type 'G' Sq.Ft.	630-SIGNS Signs, Flat Sheet, Type 'G' Sq.Ft.	630-SIGN SUPPORT QUANTITIES Span Wire Sign Support, Type TZ-17.10 Design Fig. Span 75'-0" Each	T.C. 18.26 Design #2 Overpass Structure Mount Sign Support Each	Concrete For Anchor Base Foundation Cu.Yd.	Sign Hanger Assembly, Span Wire, Type 1 Each		Sign Hanger Assembly, Span Wire, Type 1 (Paid with Support)				625 Ground Rod Each	625 Ground Rod, as per plan Each			
	26th St.																		
67	20+44.5	Lt.	GH	12'x4'	48.0			1									1		
	2nd Reloc. Belmont St.																		
56	20+00	Lt.&Rt.	R-26A-30	30"x36"		7.5	2		4.78			2				2			
			R-28A-30	30"x36"		7.5						2							
			R-29A-30	30"x36"		7.5						2							
78	18+53	Lt.	R-25E-L-24	24"x30"		5.0				2									
79	18+53	Lt.	R-23-24	24"x24"		4.0				2									
80	19+13	Rt.	R-23-24	24"x24"		4.0				2									
				TOTALS	48	36	2	1	4.78	6						2	1		

PAVEMENT MARKING SUB-SUMMARY

Calc. By: G.W. 2-10-84
Chkd. By: J.B.H. 3-21-84

	STATE	PROJECT	
5	OHIO		

464/663

BEL-7-14.17

LOCATION	SIDE	STATION FROM	STATION TO	Center Line, Double, Solid Lin. Ft.	Edge Line, White Lin. Ft.	Edge Line, Yellow Lin. Ft.	Lane Line Lin. Ft.		Stop Line Lin. Ft.	Channelizing Line Lin. Ft.	Transverse Lines, 12' Spacing White Lin. Ft.				Lane Arrow Each		
RURAL																	
S.R. 7	Lt.	750+06	759+18		912												
	Lt.	750+06	759+18			912											
	Rt.	750+06	759+18			912											
	Rt.	750+06	759+18		912												
	Lt.	750+06	759+18				912										
	Rt.	750+06	759+18				912										
	Rt.	756+14	758+10				196										
S.R. 7	Rt.	758+10	759+18							213	35						
TOTAL RURAL					1824	1824	2020			213	35						
GRAND TOTAL RURAL					0.69 Mile		0.39 Mile			213	35						
URBAN																	
S.R. 7	Lt.	759+18	762+00		282												
	Lt.	759+18	816+00			5,682											
	Lt.	759+18	816+00				5,682										
	Rt.	759+18	800+00			4,082											
	Rt.	759+18	761+00							368	304						
	Rt.	759+18	800+00				4,082										
	Rt.	759+18	761+00		182												
	Lt.	760+85	777+50		1,665												
	Lt.	777+50	816+00		3,850												
	Lt.	814+48	816+00		152												
	Rt.	761+00	780+40		1,940												
	Rt.	779+00	818+00		3,900												
	Lt.	760+85	762+00							115							
	Lt.	759+25	760+85				160										
	Lt.	777+50	780+33							568	313						
	Rt.	779+00	780+40							140							
S.R. 7	Lt.	814+48	816+00							152							
RAMP-A	Rt.	768+81	779+00		1,019												
	Lt.	769+55	779+00			945											
RAMP-B	Rt.	761+00	768+76		776												
	Lt.	761+00	768+29			729											
	Lt.	767+65							29								
RAMP-B	Lt.	768+17													1		
RAMP-C	Lt.	762+00	769+44		744												
RAMP-C	Rt.	762+00	769+36			736											
RAMP-D	Lt.	770+88	777+50		662												
	Rt.	770+30	777+50			720											
	Rt.	770+13							22								
	Lt.	770+00	770+35							108	69						
RAMP-D	Rt.	770+25													1		
1st Relocated Belmont St.	℄	9+28	10+93	165													
	℄	11+52	13+80	228													
	℄	14+40	24+50	1,010													
12th St.	℄	4+50	9+70	520													
12th St.	Rt.	9+70							27								
10th St.	Rt.	80+17							20								
T.R. 619	Rt.	9+83							10								
SUB TOTAL A				1,923	15,172	12,894	9,924		108	1,451	686				2		

LOCATION	SIDE	STATION FROM	STATION TO	Center Line, Double, Solid Lin. Ft.	Edge Line, White Lin. Ft.	Edge Line, Yellow Lin. Ft.	Lane Line Lin. Ft.	Dotted Line, 4" Lin. Ft.	Stop Line Lin. Ft.	Channelizing Line Lin. Ft.	Transverse Line, 12' Spacing White Lin. Ft.	24" Transverse Line, 12' Spacing Yellow Lin. Ft.	Crosswalk Line Lin. Ft.	Word "ONLY" On Pavement 72" Each	Lane Arrow Each		
URBAN (Cont.)																	
Phillips Access Rd.	℄	10+21	19+78	957													
	Lt.	10+21							11								
	Rt.	19+78							17								
RAMP-F	Lt.	817+89	826+45			856											
	Rt.	817+89	826+82		893												
	Lt&Rt.	826+90							39								
RAMP-F	Lt.	826+42													1		
RAMP-G	Lt.	816+00	826+92		1,092												
	Rt.	816+00	827+16			1,116											
RAMP-G	Lt&Rt.	827+14											69				
2nd Relocated Belmont St.	℄	11+33	14+16	283													
	℄	14+72	16+50	178													
	Lt.	14+72	18+24	352													
	Lt.	16+50	17+30	80													
	Lt.	14+72	17+30									150					
	Rt.	16+23	17+30				107										
	Lt.	16+33	18+24				191										
	Rt.	17+30	18+24							94							
	℄	17+30	18+24							94							
	Rt.	17+30												3			
	Lt&Rt.	17+89													3		
	Lt&Rt.	18+36											156				
	Lt&Rt.	18+24							50								
	Lt.	19+21							28								
	Lt.	19+21	23+33				412										
	Lt.	19+21	20+75							154							
	Lt.	19+36							15								
	℄	19+36	20+14	78													
	℄	20+80	21+68	88													
	℄	22+35	23+33	98													
	Rt.	19+02	20+14							112							
	Rt.	20+19	23+33				319										
	Lt.	20+19												1			
	Lt.	20+66													2		
	Rt.	23+33							24								
	Lt&Rt.	23+46											116				
	Lt&Rt.	24+13											116				
	Lt.	24+26							34								
	Rt.	19+02	19+55								86						
26th St. & Belmont	Rt.	16+23	19+55							92							
26th St. & Belmont	Lt&Rt.	19+19	16+02					77									
26th St.	℄	6+00	8+60	260													
	℄	8+95	14+88	593													
	℄	9+56	13+05	349								210					
	Rt.	13+05	14+86				181										
	Rt.	14+88							27								
	Lt&Rt.	14+94											94				
	Lt.	15+76	17+15							139							
	Lt.	16+02							13								
26th St.	℄	16+02	18+36	234													
26th St.	Rt.	16+02	17+10				108										
SUB TOTAL B				3,550	1,985	1,972	1,318	77	258	685	86	360	551	4	6		
SUB TOTAL A				1,923	15,172	12,894	9,924		108	1,451	686				2		
COMBINED TOTAL				5473	32,023		11,242		366	2,136	1132		551	4	8		
GRAND TOTAL URBAN (THIS SHEET)				1.04 Mile	6.06 Mile		2.13 Mile	77 Lin.Ft.	366 Lin.Ft.	2,136 Lin.Ft.	1132 Lin.Ft.		551 Lin.Ft.	4 Each	8 Each		

PAVEMENT MARKING SUB-SUMMARY

Calc. By: G.W. 2-13-84
Chkd. By: J.B.H. 3-22-84

	STATE	PROJECT	
5	OHIO		

BEL-7-14.17

465/663

LOCATION	SIDE	STATION FROM	STATION TO	Center Line, Double, Solid Lin. Ft.	Lane Line Lin. Ft.	Stop Line Lin. Ft.	Channelizing Line Lin. Ft.	Crosswalk Line Lin. Ft.	Word "ONLY" On Pavement 72" Each	Lane Arrow Each
LIB = All (Cont.)										
26th St (Cont.)	Rt.	16+02	18+36		234					
	Lt.	16+50								1
	Lt.	16+88							1	
	Rt.	17+10	18+36				126			
	Rt.	17+18								1
	Lt.	17+30	18+36		106					
	Rt.	17+71							1	
	Rt.	18+11								1
	℄	18+90	20+55	165						
	Lt.	18+90	20+55		165					
	Rt.	18+90	20+55		165					
	℄	22+00	23+37.5	138						
UNION ST.	℄	17+50	19+70	220						
UNION ST.	Rt.	19+70				19				
27th St. West	℄	10+17	10+67	50						
27th St. West	Rt.	10+67				19				
27th St. East	Lt.	11+47				20				
27th St. East	℄	11+47	11+95	48						
29th St. West	℄	10+55	11+17	62						
29th St. West	Rt.	11+17				31				
Exist. S.R. 7	℄	10+74	10+83	9						
Belmont St.	Rt.	10+83				20				
	Lt. & Rt.	10+89						96		
Crescent Dr.	Lt.	19+90				20				
Crescent Dr.	℄	19+90	20+00	10						
	Lt. & Rt.	19+84						88		
Exist. 25th St.	℄	10+20	11+00	80						
Exist. 25th St.	Lt.	10+20				28				
Exist. 26th St.	℄	10+26	11+02	76						
Exist. 26th St.	Lt.	10+26				13				
TOTALS				858	670	170	126	184	2	3
GRAND TOTAL	URBAN (THIS SHEET)			0.16 Mile	0.13 Mile	170	126	184	2	3

Calc. By: G.W. 4-4-84
Chkd. By: F.S. 4-9-84

FHWA REGION	STATE	PROJECT	
5	OHIO		

466/663

BEL-7-14.17

GENERAL SUMMARY

FROM SHEET NO.													RURAL TOTAL	URBAN TOTAL	GRAND TOTAL	UNIT	ITEM	DESCRIPTION
38 URBAN	459 RURAL	459 URBAN	460 URBAN	461 URBAN	462 URBAN	463 RURAL	463 URBAN	464 RURAL	464 URBAN	465 URBAN	477 RURAL	477 URBAN						
																		TRAFFIC CONTROL
						10	75						10	75	85	Each	620	Delineator, Type C, Flexible Post Mounted
							5							5	5	Each	620	Delineator, Type C, Bracket Mounted
											10	146	10	146	156	Each	802	Barrier Reflector, Type A
											38	194	38	194	232	Each	802	Barrier Reflector, Type B
								0.69	6.06				0.69	6.06	6.75	Mile	621	Edge Line
								0.39	2.13	0.13			0.39	2.26	2.65	Mile	621	Lane Line
									1.04	0.16				1.20	1.20	Mile	621	Center Line
								213	2136	126			213	2262	2475	Lin.Ft.	621	Channelizing Line
									366	170				536	536	Lin.Ft.	621	Stop Line
									551	184				735	735	Lin.Ft.	621	Crosswalk Line
								35	1132				35	1132	1167	Lin.Ft.	621	Transverse Line
									8	3				11	11	Each	621	Lane Arrow
									4	2				6	6	Each	621	Word on Pavement, 72"
										77				77	77	LIN.FT.	621	DOTTED LINE, 4"
	10	238	192	133	45		36						10	644	654	Sq.Ft.	630	Signs, Flat Sheet, Type G
	243	478	95	183			48						243	804	1047	Sq.Ft.	630	Signs, Extrusheet, Type G
		48		9										57	57	Sq.Ft.	630	Signs, PERMANENT OVERLAY, TYPE G
			2	6										8	8	Each	630	Signs, Double Faced, Street Name
			28											28	28	Lin.Ft.	630	Ground Mounted Support, No. 2 Post
		42	236	218	96									592	592	Lin.Ft.	630	Ground Mounted Support, No. 3 Post
	15	99	59	94									15	252	267	Lin.Ft.	630	Ground Mounted Support, No. 4 Post
		145	62	33										240	240	Lin.Ft.	630	Ground Mounted Support, S4x7.7 Beam
	34		33	36									34	69	103	Lin.Ft.	630	Ground Mounted Support, W6x9 Beam
	166	325		39									166	364	530	Lin.Ft.	630	Ground Mounted Support, W10x12 Beam
			1	1										2	2	Each	630	Street Name Sign Support
		16	17											33	33	Lin.Ft.	630	One Way Support, No. 3 Post
		19	18											37	37	Lin.Ft.	630	One Way Support, No. 4 Post
	4		2	6									4	8	12	Each	630	Breakaway Beam Connection
	10.00	17.56	1.74	3.40									10.00	22.70	32.70	Cu.Yd.	630	Concrete for Embedded Foundation
							4.78							4.78	4.78	Cu.Yd.	630	Concrete for Anchor Base Foundation
	1	1											1	1	2	Each	630	Removal of Ground Mounted Sign and Reerection
	3	1											3	1	4	Each	630	Removal of Ground Mounted Major Sign and Disposal
	5												5		5	Each	630	Removal of Ground Mounted Sign and Disposal
	8	2											8	2	10	Each	630	Removal of Ground Mounted Beam Support and Disposal
	5	1											5	1	6	Each	630	Removal of Ground Mounted Post Support and Disposal
							2							2	2	Each	630	Span Wire Sign Support, Type TC-17.10, Design 6, Span 75 Feet
							1							1	1	Each	630	Overpass Structure Mounted Sign Support, Type TC-18.26, Design 2
		1												1	1	Each	630	Sign Support Assembly, Bridge Mounted, Type 2
							6							6	6	Each	630	Sign Hanger Assembly, Span Wire, Type 1
							2							2	2	Each	625	Ground Rod
							1							1	1	Each	625	Ground Rod, as per plan (SEE SHT. 474)
												0.06		0.06	0.06	Mile	614	Temporary Lane Line, Class I
											0.35	1.76	0.35	1.76	2.10	Mile	614	Temporary Center Line, Class I
											0.79	1.34	0.79	1.34	2.13	Mile	614	Temporary Edge Line, Class I
												170		170	170	Lin.Ft.	614	Temporary Channelizing Line, Class I
												266		266	266	Lin.Ft.	614	Temporary Transverse Line, Class I
												229		229	229	Lin.Ft.	614	Temporary Stop Line, Class I
												102		102	102	Lin.Ft.	614	Temporary Crosswalk Line, Class I

GENERAL SUMMARY

Calc. By: GW. 4-9-84
Chkd. By: FS. 4-9-84

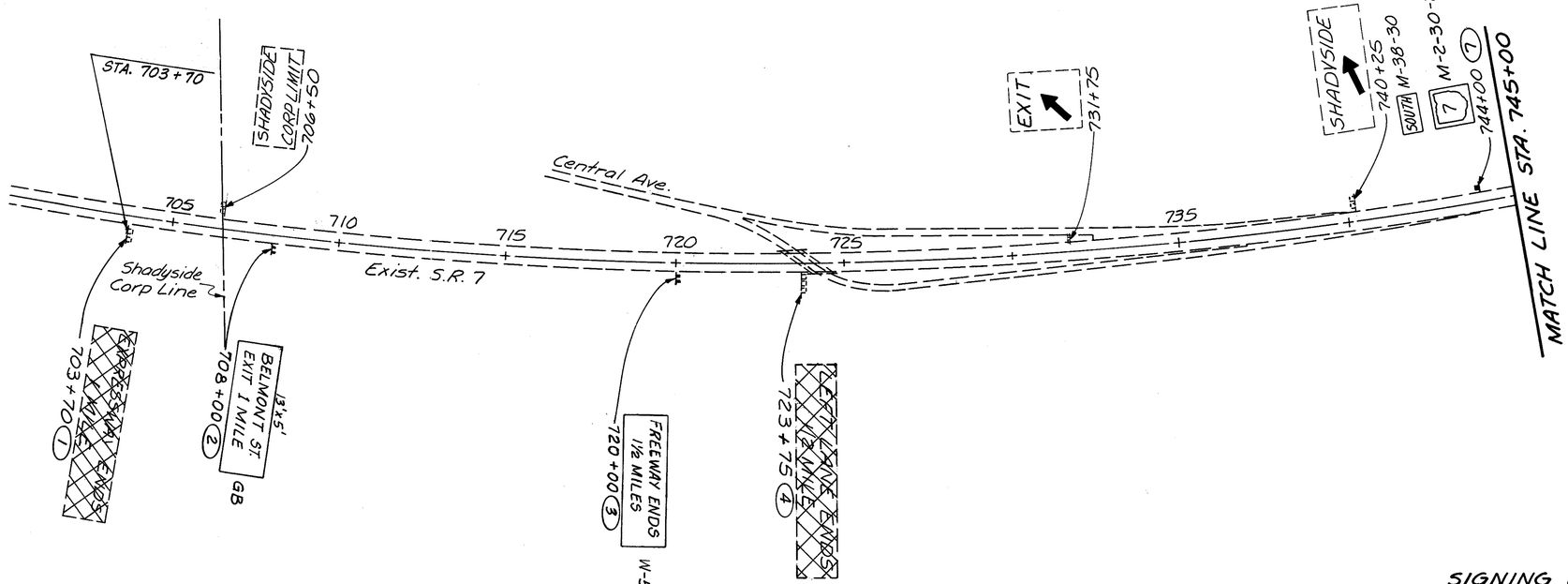
FHWA REGION	STATE	PROJECT	
5	OHIO		

467
663

BEL-7-14.17

FROM SHEET NO.																	GRAND TOTAL	UNIT	ITEM	DESCRIPTION
							458		476											TRAFFIC SIGNAL
									5								5	Each	625	Ground Rod
									8								8	Each	625	Pull Box, 713.09, 18"
									176								176	Lin.Ft.	625	Conduit, 713.04, 2"
									180								180	Lin.Ft.	625	Trench
									1								1	Each	633	Controller, Actuated, 3 Phase, Solid State Digital
									12								12	Sq.Ft.	633	Controller Work Pad
									1								1	Each	632	Strain Pole, Type TC-81.10, Design 5, 30' Pole
									2								2	Each	632	Strain Pole, Type TC-81.10, Design 5, 28' Pole
									1								1	Each	632	Strain Pole, Type TC-81.10, Design 4, 26' Pole
									1								1	Each	632	Vehicular Signal Head, 3 Section, 12" Lens, One-Way
									6								6	Each	632	Vehicular Signal Head, 3 Section, 8" Lens, One-Way
									2								2	Each	632	Vehicular Signal Head, 4 Section, 12" Lens, One-Way
									1								1	Each	632	Vehicular Signal Head, 1 Section, 12" Lens, One-Way
									4								4	Each	632	Pedestrian Signal Head, Type D 2
									2								2	Each	632	Pedestrian Push Button
									1								1	Each	632	Pedestal, 8'
									10								10	Each	632	Covering of Vehicular Signal Head
									1								1	Each	632	Power Service
									3								3	Each	632	Loop Detector Unit
									277								277	Lin.Ft.	632	Loop Detector Pavement Cutting
									638								638	Lin.Ft.	632	Loop Detector Wire, Type E
									627								627	Lin.Ft.	632	Loop Detector Lead-In Cable
									9.67								9.67	Cu.Yd.	632	Concrete for Anchor Base Foundation
									4								4	Each	632	Cable Support Assembly
									348								348	Lin.Ft.	632	Messenger Wire, 7 Strand, 3/8" Dia. with Accessories
									41								41	Lin.Ft.	632	Power Cable, 3 Conductor, No. 8 AWG.
									335								335	Lin.Ft.	632	Signal Cable, 3 Conductor, No. 14 AWG
									864								864	Lin.Ft.	632	Signal Cable, 5 Conductor, No. 14 AWG
									176								176	Lin.Ft.	632	Signal Cable, 7 Conductor, No. 14 AWG
							2										2	Each	632	Removal of Traffic Signal Installation

0 200 400
Scale In Feet

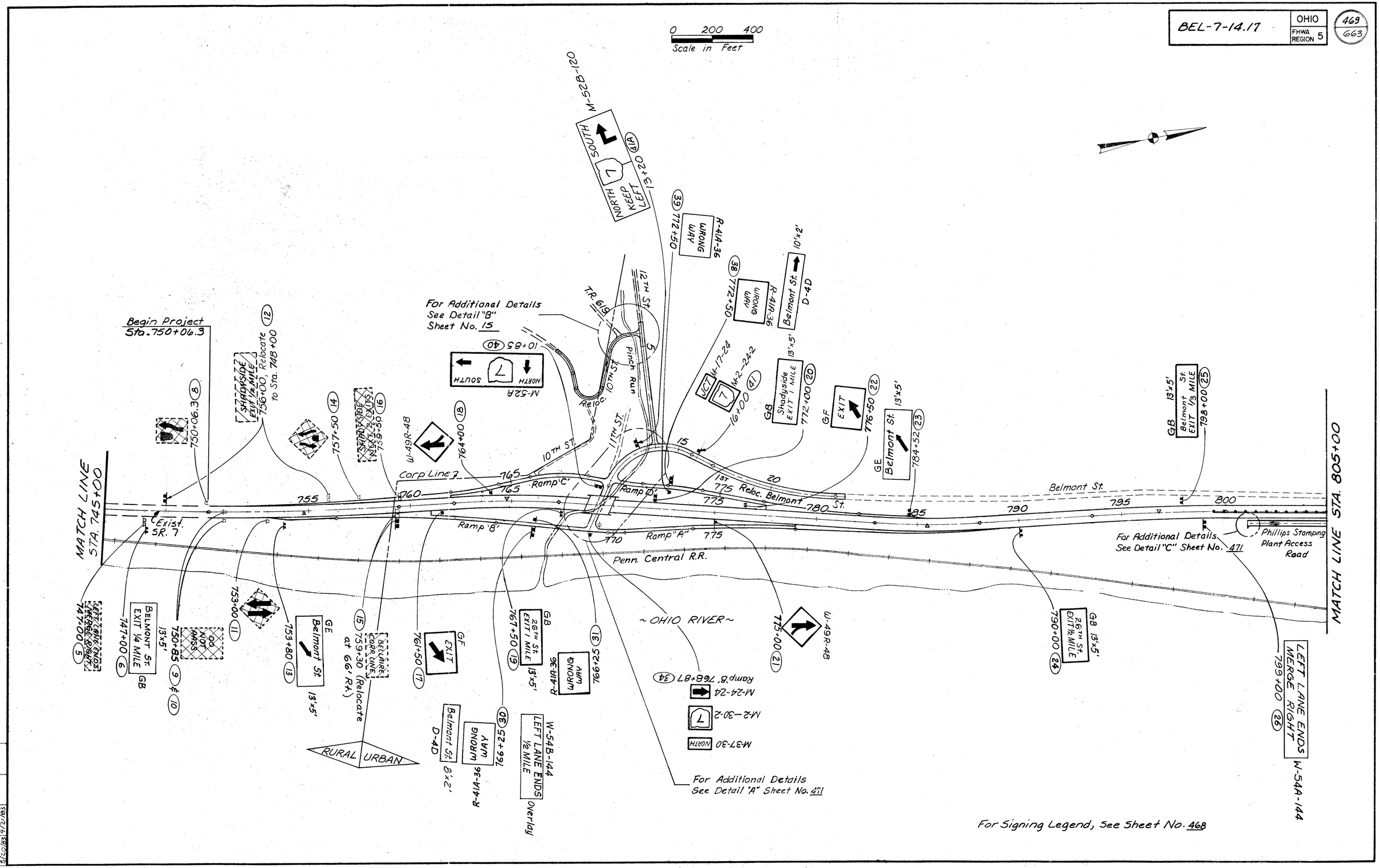


SIGNING LEGEND

- Existing Sign, to Remain
- Existing Sign, to be Relocated.
- Existing Sign, to be Removed
- Proposed Sign

Existing	Proposed	
		Single Ground Mounted Support
		Two Ground Mounted Supports
		Single, Back to Back
		Stop, One Way, Do Not Enter
		Span Wire Supports

SIGNING PLAN



W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

SIGNING PLAN

BEL-7-14.17 | OHIO | FHWA REGION 5 | 470 / 663

0 200 400
Scale in Feet

D-14 BELMONT ST

26TH ST D-14

15+03 (60A) (On Signal Pole B)

11+00 (59)
M-2-24-2
M-17-24

19+34 (64B)
M-2-24-2
M-24-21

16+00 (61)
OVERLAY 30'x30'

M-528-120
NORTH 7 SOUTH
MEER LEFT

19+90 (66)
GH-1
SOUTH 7
Powhatan Point
10'x5.5'

M-8-24 (Future) 70

SOUTH M-38-24
M-2-24-2
M-24-21
15+07 (60)

(Future)
M-2-24-2 (2)
M-37-24 NORTH
M-38-24 SOUTH
M-24-21
15+95 (62)

26TH ST. D-14

BELMONT ST. D-14
16+03 (62A)
(On Signal Pole D)

W-49-48 (Future)

McMAHAN CREEK

Reloc. 26 TH

2ND Reloc. Belmont St.

00+60 18

00+12 (63)
M-2-24-2
M-37-24 NORTH
2

B&O R.R.

Belmont St.

32ND St.

Interstate Bridge Ramp

18TH St.

21ST St.

19TH St.

Union St.

Ramp G

Ramp F

Ramp H

Ramp E

815 820 825 830 835 840 845 850

819+00 (Future)

GF EXIT

MATCH LINE STA. 805+00

For Additional Details
See Detail "C"
See Sheet No. 165

GH-1 10'x5.5'
7 SOUTH
Powhaten Point
(66)

End Project
Sta. 828+50
~ OHIO RIVER ~

M-37-24 NORTH
M-2-24-2 7
M-19-21
(64A) 18+00

END WORK
STA. 830+30

Penn Central R.R.

DO NOT PASS R-33-30
806+00 (27)
(Mounted On Wall)

GE 26th St. 9'x5'
810+00 (28)

W-138-36 (81)
Erect at beginning of Temporary Concrete Barrier and every 100' for the first 300'. Then every 200' thereafter. Erect amber delineators midway between signs on Temporary Concrete Barrier.

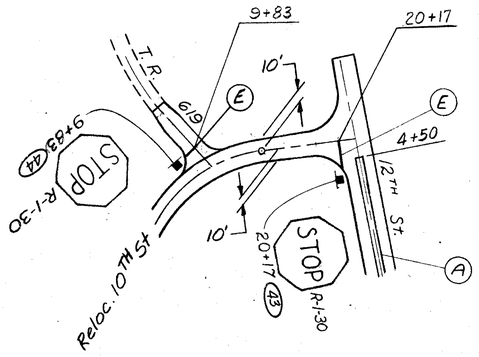
GH 7 SOUTH
Powhatan Point
12'x4'
Bridge Mount
20+44.5 (67)

For Additional Signing & Pavement Marking Details
See Sheet No. 472 & 473

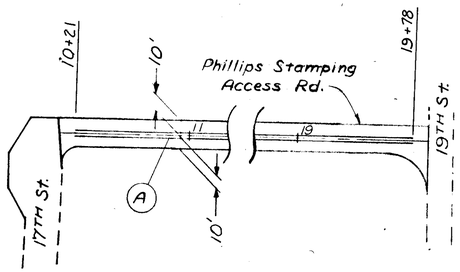
For Signing Legend,
See Sheet No. 468

For Elevation Detail Sign 67,
See Sheet No. 474

Drawn DJC Submitted 6/21/78



DETAIL "B"



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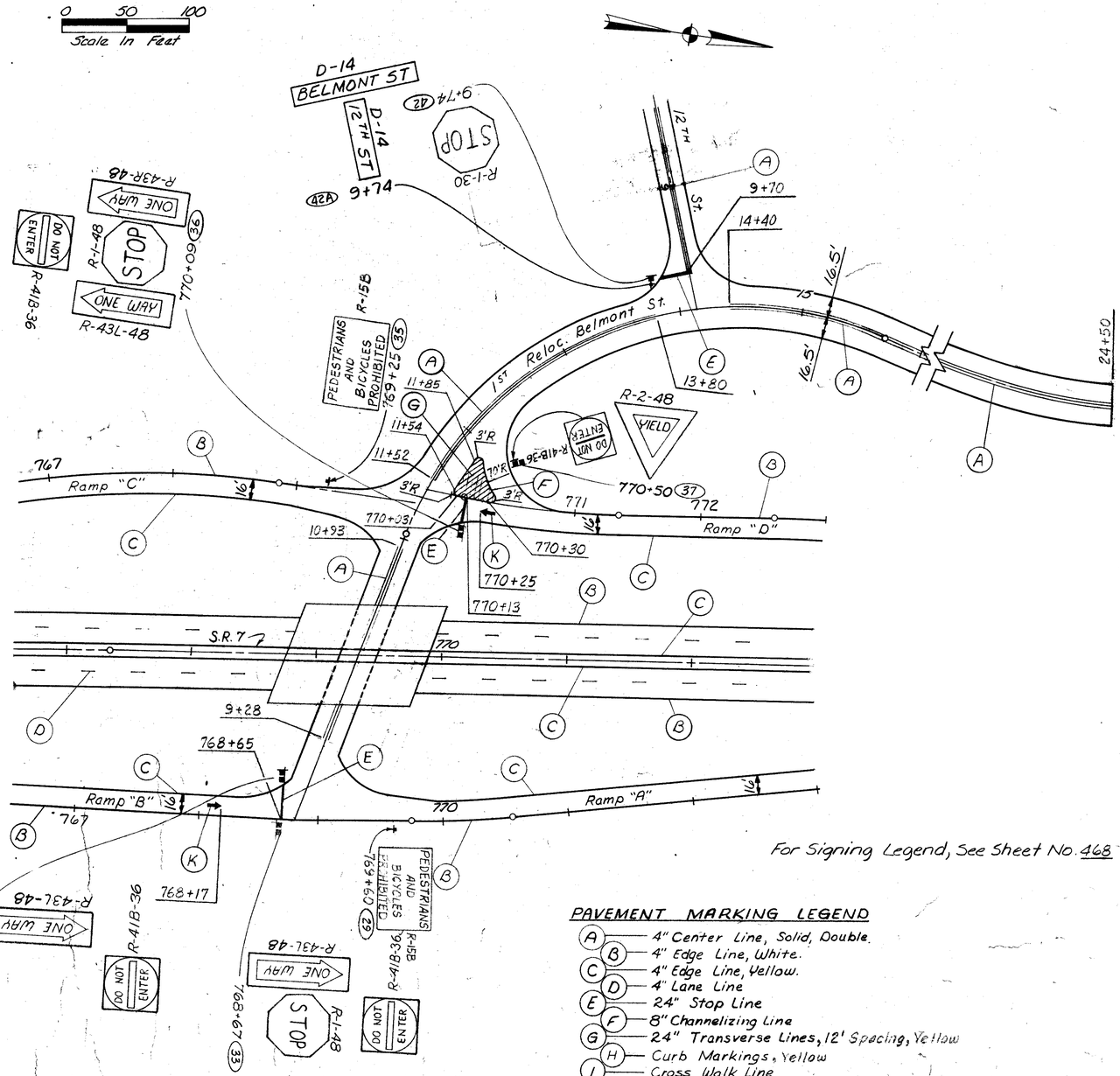
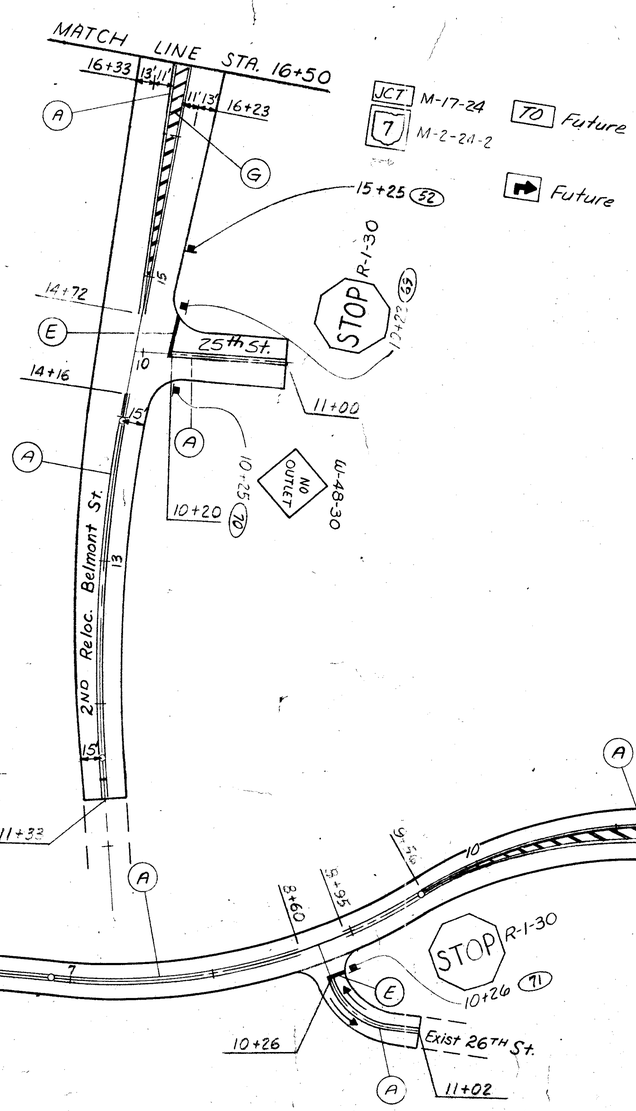


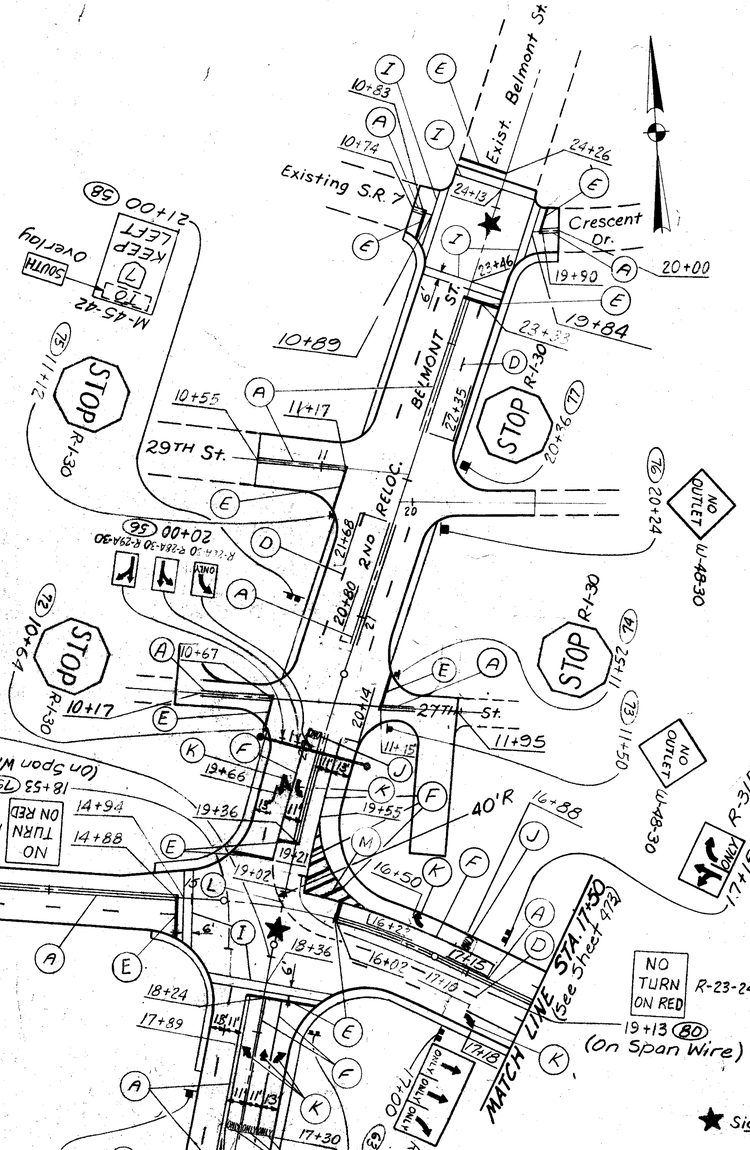
DETAIL "A"

For Signing Legend, See Sheet No. 468

PAVEMENT MARKING LEGEND

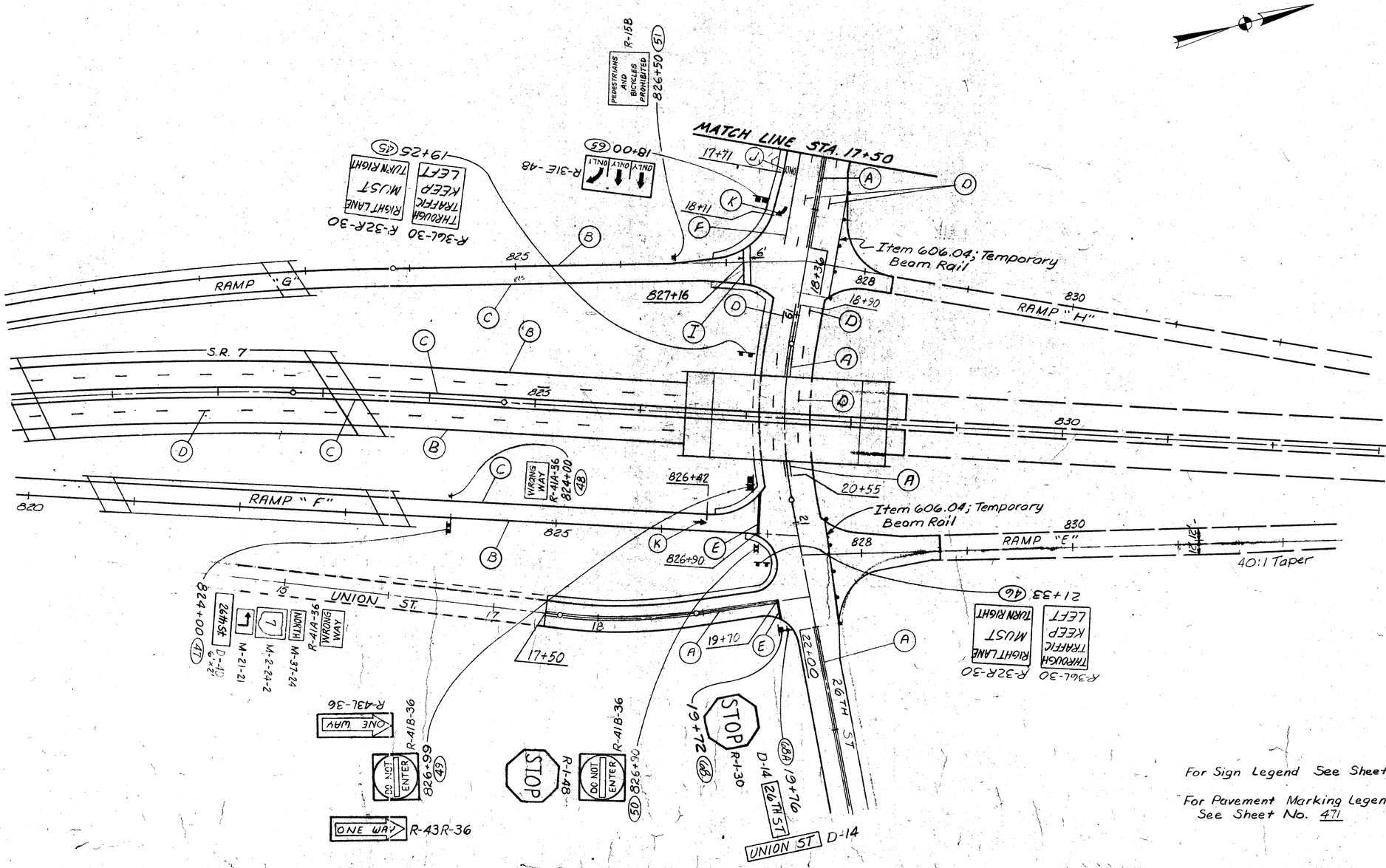
- A — 4" Center Line, Solid, Double.
- B — 4" Edge Line, White.
- C — 4" Edge Line, Yellow.
- D — 4" Lane Line
- E — 24" Stop Line
- F — 8" Channelizing Line
- G — 24" Transverse Lines, 12' Spacing, Yellow
- H — Curb Markings, Yellow
- I — Cross Walk Line
- J — Word "Only" on Pavement 12 in.
- K — Lane Arrows
- L — 4" Dotted Line, White
- M — 24" Transverse Line, 12' Spacing, White





REGULATORY AND WARNING SIGN AND PAVEMENT MARKING PLAN

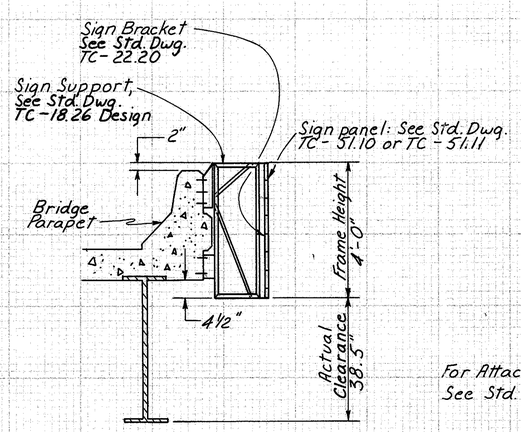
0 50 100
Scale In Feet



For Sign Legend See Sheet No. 468

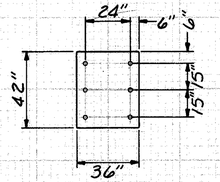
For Pavement Marking Legend See Sheet No. 471

REGULATORY & WARNING SIGNS AND PAVEMENT MARKING PLAN

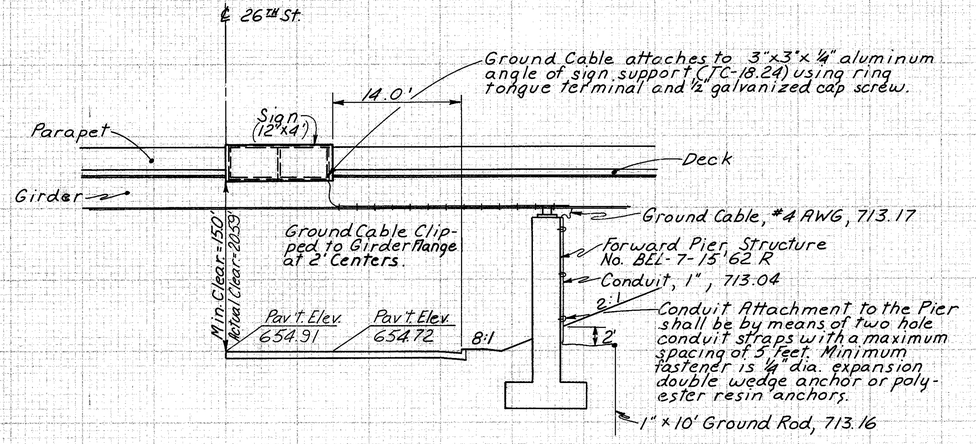


For Attachment Details
See Std. Dwg. TC-18.26

CROSS SECTION
Not To Scale



TYPICAL SIGN BLANK DETAIL
(This Installation Only)

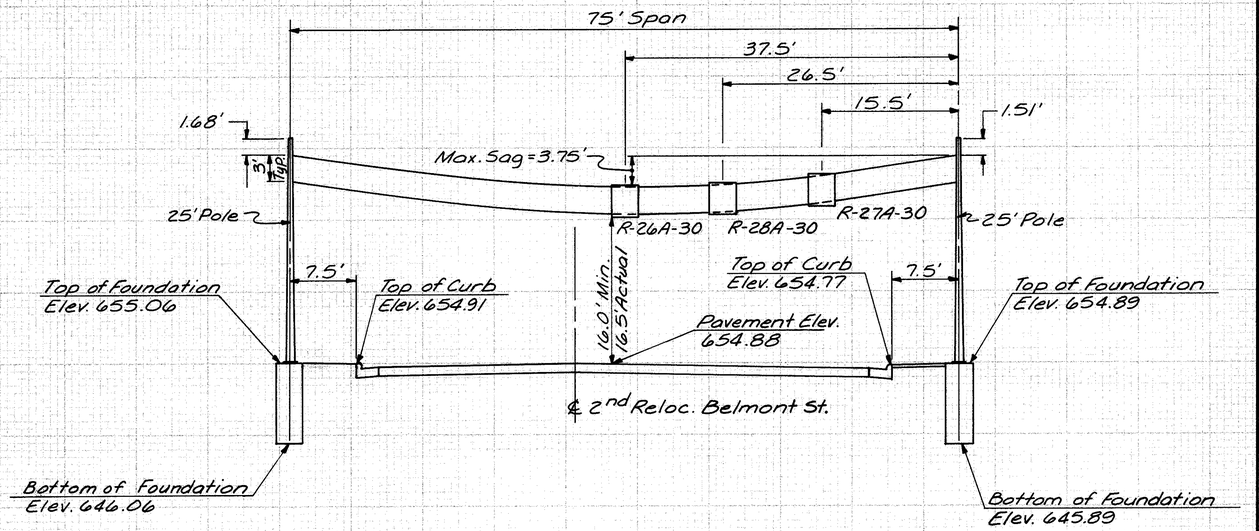


(67)

STA. 20+44.5 LT. ~ 26TH ST.

Bracket Spacing = 6, 66, 66, 6
No. of Brackets 3 Height 4'

Scale: ⅛" = 1'



(56)

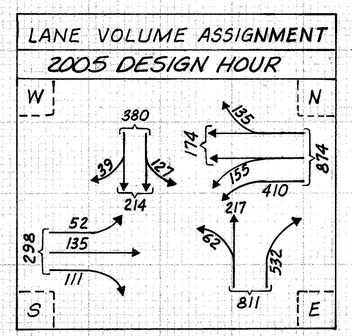
STA. 20+00 ~ 2ND RELOC. BELMONT ST.
TC-17.10, DESIGN NO. 6, 25' POLE, 75' SPAN

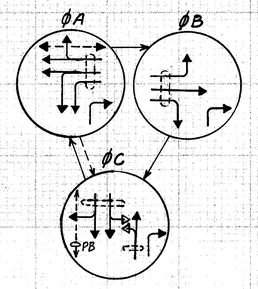
Approx. Stringing Tension = 657 (Top Cable Only)
Requires 6 Each, Sign Hanger Assemblies (Span Wire Type I, Single Sign)

For Additional Details, See Standard Drawing TC-17.10

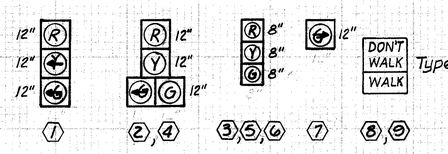
Scale: 1/8" = 1'

BEL-7-14.17 | OHIO | FHWA REGION 5 | 475 / 663

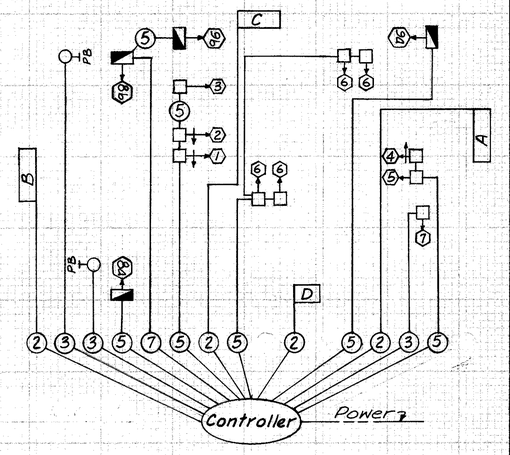




PHASE SEQUENCE



SIGNAL HEADS



WIRING DIAGRAM

WIRING LEGEND

- Signal Head
- (5) — Cable, Number of Conductors as shown
- A — Detector Loop
- PB — Pedestrian Push Button
- Pedestrian Signal Head

For Quantities, Orientation Data Table, and Typical Elevations, See Sheet No. 476
For Signing and Pavement Marking Plan See Sheet No. 472

SIGNAL INDICATION CHART

PHASE	INTERVAL	SIGNAL HEAD NUMBER 1	2	3	4	5	6	7	8	9	TIMING			
A	R/W	→G	→GG	G	R	R	R	G→	DW	W	Initial Green	20 Sec.	Vehicular Red Clearance (C_2)	1 Sec.
	C_p	→G	→GG	G	R	R	R	G→	DW	F DW	Pedestrian R/W (Walk)	7 Sec.	Vehicular Extension	3 Sec.
	C_1	→Y	Y	Y	R	R	R	G→	DW	DW	Pedestrian Clearance (Cp)	13 Sec.	Maximum Green	40 Sec.
	C_2	R	R	R	R	R	R	G→	DW	DW	Vehicular Yellow Clearance (C_1)	3 Sec.		
B	R/W	R	R	R	→GG	G	R	G→	DW	DW	Initial Green	10 Sec.	Maximum Green	40 Sec.
	C_1	R	R	R	Y	Y	R	G→	DW	DW	Vehicular Yellow Clearance C_1	3 Sec.		
	C_2	R	R	R	R	R	R	G→	DW	DW	Vehicular Red Clearance C_2	1.5 Sec.		
											Vehicular Extension	3 Sec.		
C	R/W	R	R	R	R	R	G	G→	W	DW	Initial Green	10 Sec.	Vehicular Red Clearance (C_2)	1.5 Sec.
	C_p	R	R	R	R	R	G	G→	F DW	DW	Pedestrian R/W (Walk)	7 Sec.	Vehicular Extension	3 Sec.
	C_1	R	R	R	R	R	Y	G→	DW	DW	Pedestrian Clearance (Cp)	15 Sec.	Maximum Green	40 Sec.
	C_2	R	R	R	R	R	R	G→	DW	DW	Vehicular Yellow Clearance (C_1)	3 Sec.		
Flash		Y	Y	Y	Y	Y	R	G→	—	—				

Notes: All Phases operate on Basic Actuated Timing, Pulse Mode Locking Actuation.
ØA On Recall; ØC pedestrian interval timing and signal indications only when call is placed by Pedestrian Push Button

PLAN LEGEND

- — Proposed Strain Pole with Messenger Cable
- — Proposed Strain Pole with Controller
- — Signal Head, Standard, One Way
- — Signal Head, with Arrows
- ZC — Underground Conduit
- — Pull Box
- A — Detector Loop
- — Pedestrian Signal Head
- PB — Pedestrian Push Button
- (6) Reference Number for Signal Head

Calc. By: G.W. 3-13-84
Chkd. By: J.B.H. 3-30-84

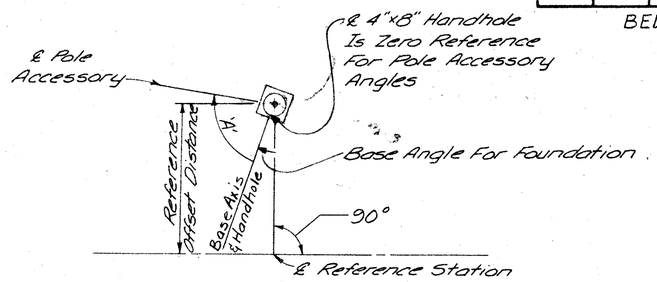
FHWA REGION	STATE	PROJECT	
5	OHIO		

476/663

BEL-7-14.17

ORIENTATION DATA FOR SIGNAL STRAIN POLES

Pole	LOCATION Station	LOCATION Offset	Top Of Foundation Elevation	Base Angle For Foundation	ANGLE 'A' (Pole Accessory Orientation) 4"x8" Handhole		Pedestrian Pushbutton 3/4" ø Hole	Cabinet Mounting 2½" Blind Half Coupling	Pedestrian Signal Head 1½" Blind Half Coupling	Power Cable Entrance 1½" Blind Coupling 1'-0" From Top		Pole Height	
A	18+26	44.5' Rt.	653.46	45°-0'	0		0°	90°	315°-0'	180°-0'		30'	
B	18+34	54.0' Lt.	653.37	315°-0'	0		315°	—	45° & 215°	—		28'	
C	19+26.5	50.0' Lt.	654.27	45°-0'	0		—	—	—	—		26'	
D	19+40	41.0' Rt.	654.64	315°-0'	0		—	—	—	—		28'	



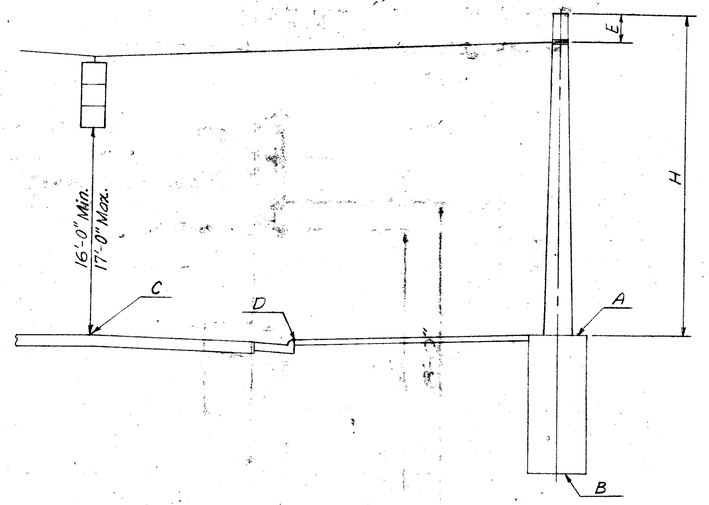
ORIENTATION DIAGRAM

QUANTITIES

ITEM	REF	DESCRIPTION	QUANT	UNIT
625		Ground Rod	5	Each
625		Pull Box, 18",	8	Each
625		Conduit, 713.04, 2"	176	Lin. Ft.
625		Trench	180	Lin. Ft.
633		Controller, Actuated, 3 Phase, Solid State Digital	1	Each
633		Control Work Pad	12	Sq. Ft.
632	A	Strain Pole, Type TC-81.10, Design 5, 30' Pole	1	Each
632	B & D	Strain Pole, Type TC-81.10, Design 5, 28' Pole	2	Each
632	C	Strain Pole, Type TC-81.10, Design 4, 26' Pole	1	Each
632	1	Vehicular Signal Head, 3 Section, 12 inch Lens, One Way	1	Each
632	3,5,6	Vehicular Signal Head, 3 Section, 8 inch Lens, One Way	6	Each
632	2,4	Vehicular Signal Head, 4 Section, 12 inch Lens, One Way	2	Each
632	7	Vehicular Signal Head, 1 Section, 12 inch Lens, One Way	1	Each
632	8 & 9	Pedestrian Signal Head, Type D 2	4	Each
632	A & B	Pedestrian Pushbutton	2	Each
632		Pedestal 8 Feet (For Pedestrian Signal Head)	1	Each
632		Covering of Vehicular Signal Head	10	Each
632		Power Service	1	Each
632		Loop Detector Unit	3	Each
632		Loop Detector Pavement Cutting	277	Lin. Ft.
632		Loop Detector Wire, Type E	638	Lin. Ft.
632		Loop Detector Lead-In Cable	627	Lin. Ft.
632		Concrete for Anchor Base Foundations	9.67	Cu. Yd.
632	A,B,C & D	Cable Support Assembly	4	Each
632		Messenger Wire, 7 Strand 3/8" Diameter, With Accessories	348	Lin. Ft.
632		Power Cable, 3 Conductor, No. 8 AWG	41	Lin. Ft.
632		Signal Cable, 3 Conductor, No. 14 AWG	335	Lin. Ft.
632		Signal Cable, 5 Conductor, No. 14 AWG	864	Lin. Ft.
632		Signal Cable, 7 Conductor, No. 14 AWG	176	Lin. Ft.

Quantities Carried To General Summary

POLE REF.	DESIGN No.	H	A ELEVATION	B ELEVATION	C ELEVATION	E	STRINGING TENSION	D ELEVATION
Sta. 18+53 ~ 5' Lt. 2nd. Reloc. Belmont St.					653.59	Least Clearance Point		
A	5	30	653.46	644.46	—	2.02	1483	653.33
B	5	28	653.37	644.37	—	1.01	1483	653.25
C	4	26	654.27	646.27	—	1.91	1483	654.15
D	5	28	654.64	645.64	—	1.57	1483	654.53



SIGNAL STRAIN POLE
TYPICAL ELEVATION

QUANTITIES	
Calc. JCN	Chkd. JNM
Date: 11-20-89	Date: 11-27-89

FHWA REGION	STATE	PROJECT	
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BEL-7-14.17

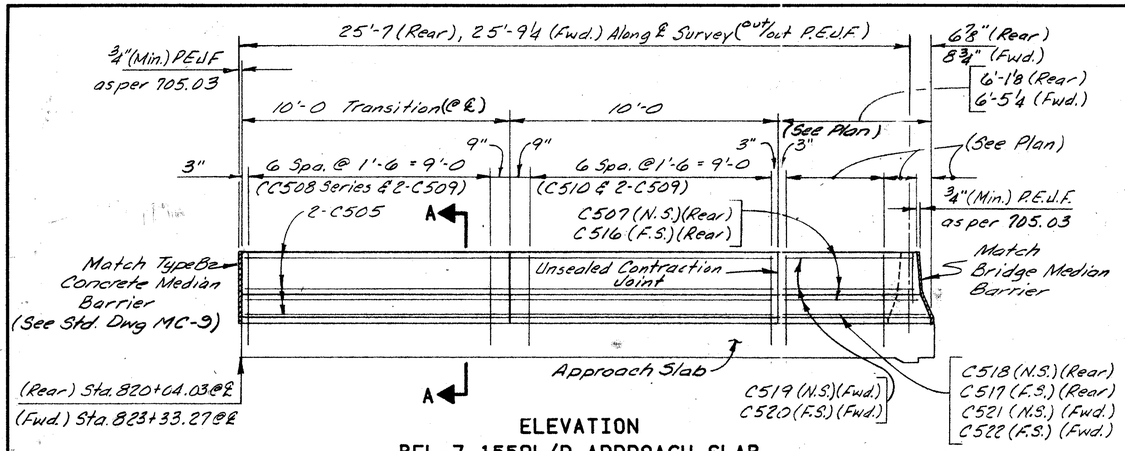
ITEM 614 – TEMPORARY PAVEMENT MARKING

FROM SHEET NO.	STATION FROM	STATION TO	PHASE NO.	ROAD	SIDE	TEMPORARY, CLASS I: LANE LINE LIN. FT.	CENTER LINE LIN. FT.	EDGE LINE LIN. FT.	CHANNELIZING LINE LIN. FT.	TRANSVERSE LINE LIN. FT.	STOP LINE LIN. FT.	CROSSWALK LINE LIN. FT.
URBAN												
29–31	759+14	782+63	I	TEMPORARY ROAD A	CTR		2349					
31	783+00	786+10	I		CTR		310					
29–31	759+14	785+10	I		RT			2596				
29–31	759+14	782+70	I		LT			2356				
31	783+00	783+35	I		LT			45				
31	780+96	9+81	I	EXIST. S.R. 7	CTR		220					
31	9+81		I		RT						20	
31	9+45	9+59	I		LT						14	
41	11+30	23+78	I		CTR & RT		1100					
43	6+00	8+60	II	RELOCATED 26th ST.	CTR		260					
43	8+95	9+56	II		CTR		61					
43	9+56	13+05	II		L & R		690			266		
43	13+05	14+90	II		L & R	185	185					
43	14+90		II		RT						28	
43	15+00		II		L & R							102
43	10+26		II	STREET ON 26th	LT						12	
43	10+26	11+02	II	RELOCATED BELMONT ST.	CTR		76					
43	11+32	14+06	II		CTR		274					
43	14+80	18+24	II		LT	120	569		170			
43	18+24		II		L & R						55	
43	19+21		II		LT						20	
43	19+21	20+05	II		LT		173					
43	20+54	21+50	II		LT		96					
43	22+32	23+49	II		LT		117					
43	10+20		II	25th ST.	LT						30	
43	10+20	11+00	II		CTR		80					
43	10+27	10+67	II	27th ST.	CTR		40					
43	10+67		II		RT						20	
43	10+55	11+17	II	29th ST.	CTR		62					
43	11+17		II		RT						30	
37–38	759+14	13+80	III	RAMP C & BEL. ST.	CTR		1333					
37–38	759+14	RAMP C	III	RAMP C	LT			1048				
37–38	759+14	RAMP C	III		RT			1043				
38–39	14+40	21+60	III	RELOC. BEL. ST.	CTR		720					
38	22+30	785+00	III		CTR		505					
TOTAL URBAN (CARRIED TO SHEET NO. 466)						305 L.F.	9220 L.F.	7088 L.F.	170	266	229	102
						0.06 MI.	**1.75 MI.**	**1.34 MI.**				
RURAL												
29	750+00	759+14	I	TEMP. ROAD 'A'	CTR		914					
29	750+00	759+14	I		L & R			1828				
37	750+00	759+14	III	RAMP C	CTR		914					
37	751+00	759+14	III		L & R			1828				
29	746+00	750+00	I	CROSS-OVER				500				
TOTAL RURAL (CARRIED TO SHEET NO. 466)							1828 L.F.	4156 L.F.				
							0.35 MI.	**0.79 MI.**				

ITEM 802 – BARRIER REFLECTOR

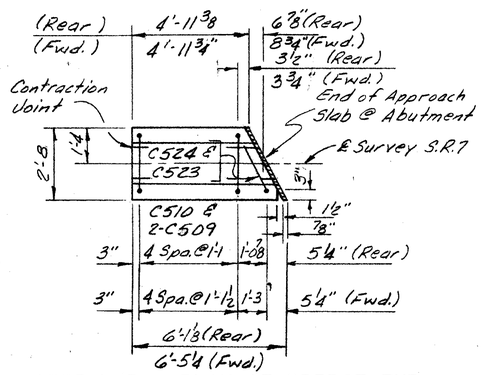
STATION FROM	STATION TO	LANE	SIDE OF LANE	LENGTH LIN. FT.	SPACING FT.	BARRIER REFLECTOR TYPE A WHITE EA.	TYPE A YELLOW EA.	TYPE B WHITE EA.	TYPE B YELLOW EA.	COMMENTS
RURAL										
746+00	759+18.08	N.B.L	LT.	1318.08	100				14	℄ BARRIER
750+06.30	759+18.08	N.B.L	RT.	911.78	100	10				I-GR
746+00	759+18.08	S.B.L	RT.	1318.08	100				14	℄ BARRIER
750+06.30	759+18.08	S.B.L	LT.	911.78	100			10		28-B
TOTAL RURAL (TOTALS CARRIED TO SHEET NO. 466)						10		10	28	
						10		**38**		
URBAN										
759+18.08	828+50	NORTHBOUND	LT.	6931.92	100				70	℄ BARRIER
759+18.08	800+38.08		RT.	4113.08	100	42				I-GR
761+35	775+60.5		RT.	1425.5	100	15		1		2-GR-BRIDGE-7-GR
800+38.08	808+05.68		RT.	767.6	100			9		2-W
808+38.08	826+73.84		RT.	1848.3	100	15		3		34-GR-BRIDGE-15-GR
818+33	828+50		RT.	1017.0	100	5		6		11-GR-BRIDGE-13-GR-BRIDGE
818+22	825+68.30		RT.	746.30	100		6		3	12-GR-BRIDGE-14-GR
759+18.08	828+50	SOUTHBOUND	RT.	6931.92	100				70	℄ BARRIER
759+18.08	764+50		LT.	365	100			5		28-B
764+50	769+12.5		LT.	462.5	100	6				3-GR
765+78.63	776+53.26		LT.	1074.63	100	11		1		4-GR-BRIDGE-5-GR
773+44.84	798+82.84		LT.	2537.50	100	27				6-GR
798+82.84	809+60.32		LT.	1077.48	100			12		I-W
809+60.32	826+71.93		LT.	1723.61	100	16		2		33-GR-BRIDGE-8-GR
820+02	828+50		LT.	848	100	2		8		BRIDGE-10-GR-BRIDGE
819+87	823+90.50		LT.	403.5	100		1		4	BRIDGE-9-GR
TOTAL URBAN (TOTALS CARRIED TO SHEET NO. 466)						139	7	47	147	
						146		**194**		

TEMPORARY PAVEMENT MARKING & BARRIER REFLECTOR QUANTITIES

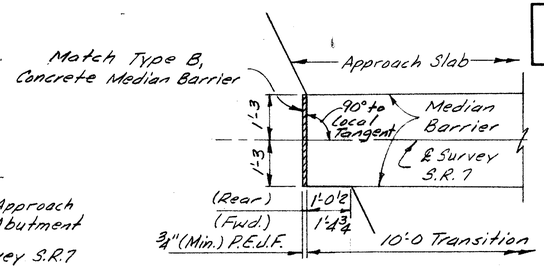


ELEVATION
BEL-7-1550L/R APPROACH SLAB
MEDIAN BARRIER
(2-REQ'D)

N.S. - denotes near side
F.S. - denotes far side
Rear - denotes rear approach slab
Fwd. - denotes fwd. approach slab



1550 L/R - PLAN AT BRIDGE END

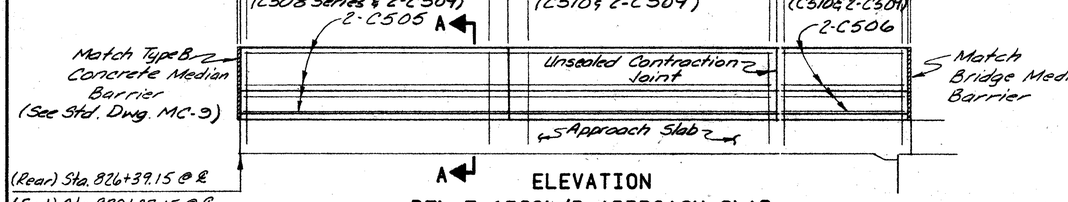


1550 L/R - PLAN AT ROADWAY END

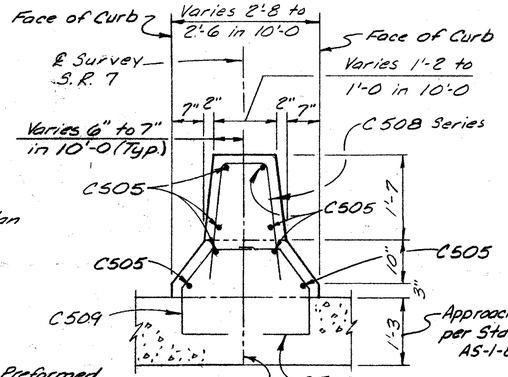
APPROACH SLAB MEDIAN BARRIER REINFORCING STEEL

MARK	A	B	C	D	LENGTH	BRIDGE NO. 1452L/R	BRIDGE NO. 1550L/R	BRIDGE NO. 1562L/R	TOTAL
C505					19'-8	16	16	16	48
C506					4'-6			16	16
C507					5'-3		3		3
C508	Varies 8" to 10"	2'-5			5'-3 to 5'-5	2 Series of 7	2 Series of 7	2 Series of 7	42
C509	10"	6"	10½"	10½"	3'-4	72	76	72	220
C510	10"	2'-5			5'-5	22	24	22	68
C511	10½"	2'-5¼			5'-6	1			1
C512					5'-6	2			2
C513					4'-6	2			2
C514					4'-10	6			6
C515					5'-2	6			6
C516					4'-11		3		3
C517					4'-7		1		1
C518					5'-7		1		1
C519					5'-6		3		3
C520					5'-1		3		3
C521					5'-11		1		1
C522					4'-8		1		1
C523	11"	2'-5			5'-6		1		1
C524	10½"	7 3/8"	1'-⅜	10½"	3'-8	2	1		3

Note: Approach slab median barrier to be included with Unit Price for Item 611, Reinforced Concrete Approach Slab, as per plan.

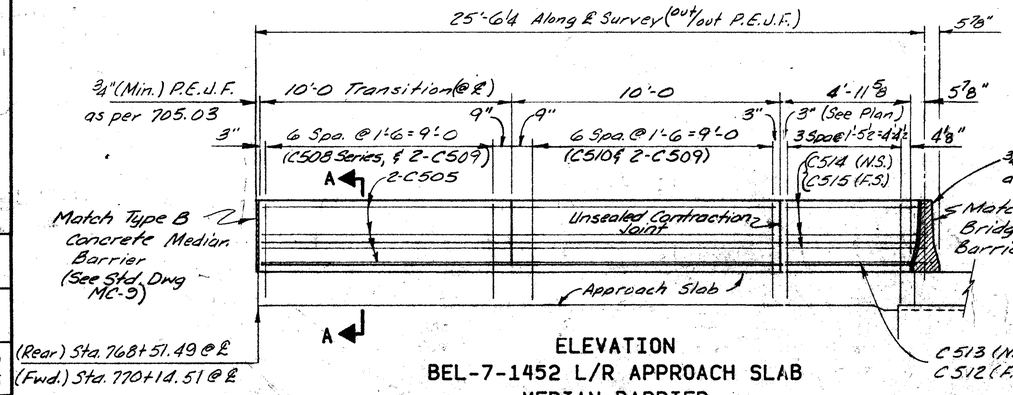


ELEVATION
BEL-7-1562L/R APPROACH SLAB
MEDIAN BARRIER
(2-REQ'D)

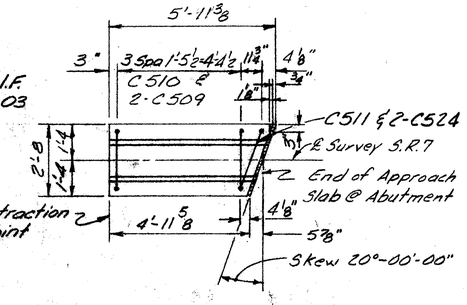


SECTION A-A

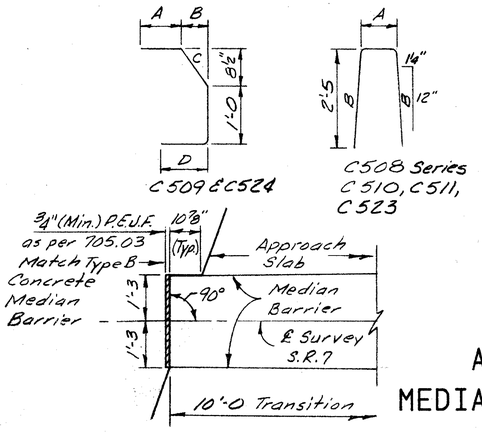
Note: P.E.J.F. - denotes Preformed Expansion Joint Filler. For Reinforcing in approach slab, see Std Dwg AS-1-81.



ELEVATION
BEL-7-1452 L/R APPROACH SLAB
MEDIAN BARRIER
(2-REQ'D)



1452 L/R - PLAN AT BRIDGE END



1452 L/R - PLAN AT ROADWAY END

APPROACH SLAB MEDIAN BARRIER DETAILS

BEL -7- 14.17

DRAWN	CK'D.	CORR.	CK'D.
CFD	JMS		

BEL-7-14.17	OHIO	479
	FHWA REGION 5	663

CITY OF BELLAIRE

768 ℄ Survey Ramp 'C'
RAMP 'C'
769
770
Pinch Run Pump Station
℄ Survey Ramp 'D'
RAMP 'D'
771
END APPROACH SLAB
STA. 768+76.94
Critical Clearance Point
Skew 20°-00'-00" (Typ.)
10' Median Transition (Typ.)
8'-0 Min.
8'-1⅜ Act.
70°-00'-00"
℄ Survey S.R. 7
PINCH RUN
Existing Structures (To Be Removed)
Foundation (To Be Removed)
Type 6 Curb (Typ.)
BEGIN APPROACH SLAB
STA. 769+89.06
Concrete Slope Protection (Typ.)
Sod Erosion Control (Typ.)
Jute Matting (Typ.)
Sta. 769+33.00 = ℄ Survey S.R. 7 =
Sta. 10+00.00 = ℄ Survey Relocated Belmont St.
Note: Pinch Run to be relocated
BELMONT ST.
RELOCATED
℄ Survey Reloc. Belmont St.
RAMP 'B'
RAMP 'A'
℄ Survey Ramp 'B'
℄ Survey Ramp 'A'
P.I. 770+50
Elev. 677.51
1100' V.C.
Bridge Limits = 112.12'

671.43 671.66 671.86 672.05 672.22 672.37 672.50 672.61 672.70 672.77 672.82 672.85 672.87 672.86 672.84 672.79 672.73
768+76.94 769+89.06
+1.56% -1.84%
680
660
640
620
Elev. 663.00
Top of Slope 668.0
2:1 Normal
15'-0 Min
15'-8¾ Act
Elev. 649.50
Concrete Slope Protection 6" Thick
Elev. 663.30
Top of Slope 668.3
Existing Ground Line
℄ Survey Relocated Belmont St.
Exist. Pinch Run (To be relocated)
649.3 642.1 638.7 635.6 632.0 628.3 648.3 648.1
767 768 769 770 771

NOTE:
ALL PILING TO BE HP 10X42 PILES.
ESTIMATED AVERAGE PAY LENGTH:
REAR & FORWARD ABUTMENTS = 65'
REAR & FORWARD PIERS = 45'

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS.

BM #21 ELEV. 647.85
Sta. 770+17± - 122'± Lt.
Chiseled Square on top of south end of the west concrete bridge railing, @ Pinch Run, 2½" above sidewalk & S.R. 7, & 75'± south of Pinch Run Pumping Station.

DESIGN DESIGNATION

1990 ADT	14,944
2010 ADT	20,868
2010 ADTT	835

PROPOSED STRUCTURE

TYPE: CONTINUOUS STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE UNITS.
SPANS: 32'-46'-32' MEASURED ALONG ℄ OF SURVEY
ROADWAY: 78'-0" F/F PARAPETS WITH A 2'-8 MEDIAN BARRIER
SKEW: 20° L.F.
SURFACE COURSE: MONOLITHIC CONCRETE
LIVE LOAD: HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING
APPROACH SLABS: AS-1-81, 25' LONG
ALIGNMENT: TANGENT
SUPERELEVATION: NONE

SHEET 1 / 19

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

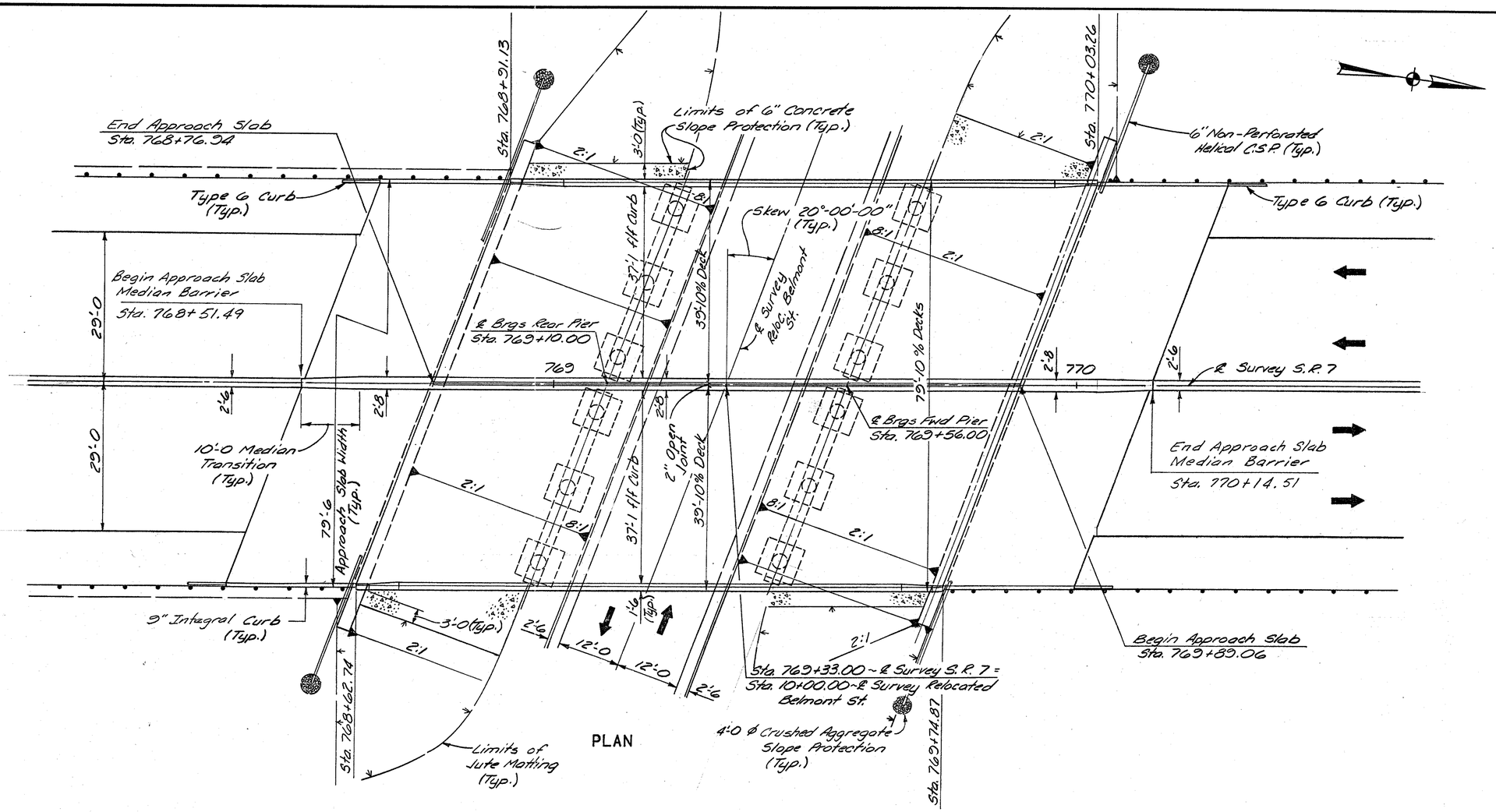
SITE PLAN

BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET

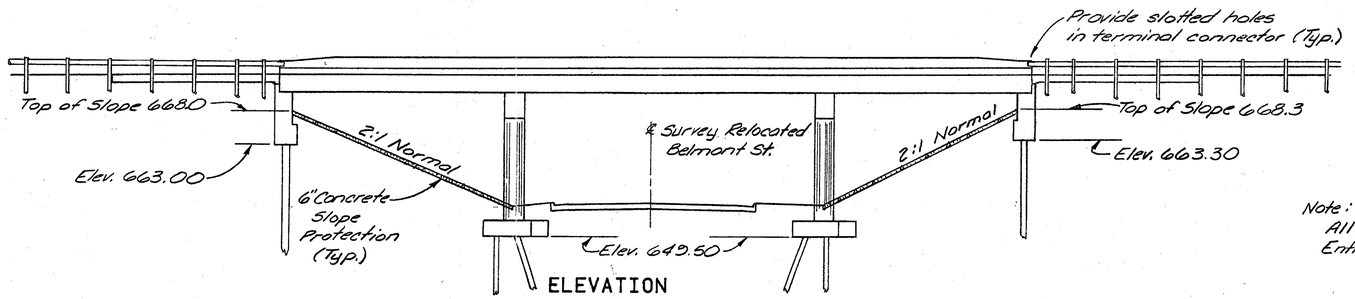
BELMONT COUNTY
STA. 768+76.94
STA. 769+89.06

EXIST. TOPO		PROPOSED			
SURVEY	DRAWN	DESIGN	DRAWN	CHECKED	REVIEWED
MARTINEZ	CFO	FDH	FDH	wdo	TMG 7/28

BEL-7-14.17 | OHIO | FHWA REGION 5 | 180 / 663



PLAN



ELEVATION

Note:
All piles are H.P 10x42
Entire number not shown

Sheet 2 / 19

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

GENERAL PLAN AND ELEVATION

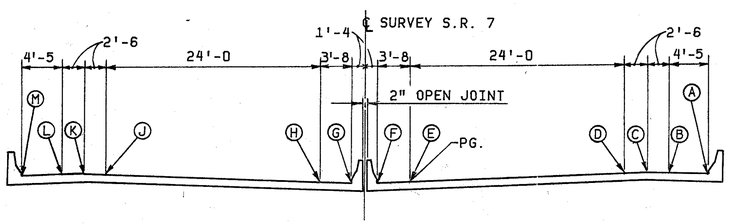
BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET

BELMONT COUNTY — STA. 768+76.94 — STA. 769+89.06

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JWS	wda	2/85	

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	ABUTS	PIERS	SUPER	GEN'L.
503	LUMP		COFFERDAMS, CRIBS AND SHEETING				LUMP
503	517	CU.YD.	UNCLASSIFIED EXCAVATION	206	311		
505	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				LUMP
507	3,850	LIN.FT.	STEEL PILES, HP10X42, AS PER PLAN	1690	2160		
509	35,661	LB.	REINFORCING STEEL, GRADE 60	12,817	22,844		
509	81,011	LB.	EPOXY COATED REINFORCING STEEL, GRADE 60			81011	
511	341	CU.YD.	CLASS S CONCRETE, SUPERSTRUCTURE			341	
511	55	CU.YD.	CLASS C CONCRETE, ABUTMENT ABOVE FOOTINGS	55			
511	117	CU.YD.	CLASS C CONCRETE, PIER ABOVE FOOTINGS		117		
511	138	CU.YD.	CLASS C CONCRETE, FOOTINGS	67	71		
513	132,810	LB.	STRUCTURAL STEEL, ASTM A588 (AISC CATEGORY I)			132,810	
514	LUMP		PARTIAL PAINTING OF A588 STEEL, SYSTEM A, AS PER PLAN			LUMP	
516	20	EACH	LAMINATED ELASTOMERIC BEARING (12"X1 1/8"X1'-0" ELASTOMERIC PAD WITH 1 3/8"X13"X1'-1" STEEL LOAD PLATE)		20		
516	213	LIN.FT.	6" PVC WATERSTOP, AS PER PLAN	213			
516	176	SQ.FT.	1/2" PREFORMED EXPANSION JOINT FILLER	176			
516	185	SQ.FT.	1" PREFORMED EXPANSION JOINT FILLER	185			
518	198	LIN.FT.	6" PERFORATED HELICAL CORRUGATED STEEL PIPE, 707.01	198			
518	48	LIN.FT.	6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE, INCLUDING SPECIALS, 707.01	48			
518	58	CU.YD.	POROUS BACKFILL	58			
601	6	SQ.YD.	CRUSHED AGGREGATE SLOPE PROTECTION	6			
601	695	SQ.YD.	CONCRETE SLOPE PROTECTION	695			
SPECIAL	955	SQ.YD.	SEALING OF CONCRETE SURFACES (EPOXY), SEE PROPOSAL NOTE	88	405	462	



LEFT STRUCTURE RIGHT STRUCTURE

RIGHT STRUCTURE TOP OF SLAB ELEVATIONS (SCREED ELEVATIONS)

STATION	POINTS A	B	C	D	E	F	STATION	POINTS A	B	C	D	E	F
768+64.02	672.60	-	-	-	-	-	769+19.02	672.86	-	-	-	-	-
768+65.63	-	672.66	-	-	-	-	769+20.63	-	672.99	-	-	-	-
768+66.54	-	-	672.69	-	-	-	769+21.54	-	-	673.04	-	-	-
768+67.45	-	-	-	672.70	-	-	769+22.45	-	-	-	673.05	-	-
768+76.18	-	-	-	-	672.61	-	769+31.18	-	-	-	-	672.81	-
768+77.52	-	-	-	-	-	672.46	769+32.52	-	-	-	-	-	672.66
768+80.02	672.68	-	-	-	-	-	769+42.02	672.91	-	-	-	-	-
768+81.63	-	672.77	-	-	-	-	769+43.63	-	673.07	-	-	-	-
768+82.54	-	-	672.80	-	-	-	769+44.54	-	-	673.13	-	-	-
768+83.45	-	-	-	672.80	-	-	769+45.45	-	-	-	673.13	-	-
768+92.18	-	-	-	-	672.68	-	769+54.18	-	-	-	-	672.83	-
768+93.52	-	-	-	-	-	672.53	769+55.52	-	-	-	-	-	672.68
768+96.02	672.75	-	-	-	-	-	769+58.02	672.95	-	-	-	-	-
768+97.63	-	672.85	-	-	-	-	769+59.63	-	673.13	-	-	-	-
768+98.54	-	-	672.89	-	-	-	769+60.54	-	-	673.20	-	-	-
768+99.45	-	-	-	672.90	-	-	769+61.45	-	-	-	673.20	-	-
769+08.18	-	-	-	-	672.72	-	769+70.18	-	-	-	-	672.85	-
769+09.52	-	-	-	-	-	672.57	769+71.52	-	-	-	-	-	672.70
769+04.02	672.80	-	-	-	-	-	769+74.02	672.98	-	-	-	-	-
769+05.63	-	672.91	-	-	-	-	769+75.63	-	673.16	-	-	-	-
769+06.54	-	-	672.94	-	-	-	769+76.54	-	-	673.23	-	-	-
769+07.45	-	-	-	672.96	-	-	769+77.45	-	-	-	673.23	-	-
769+16.18	-	-	-	-	672.76	-	769+86.18	-	-	-	-	672.86	-
769+17.52	-	-	-	-	-	672.61	769+87.52	-	-	-	-	-	672.71

LEFT STRUCTURE TOP OF SLAB ELEVATIONS (SCREED ELEVATIONS)

STATION	POINTS G	H	J	K	L	M	STATION	POINTS G	H	J	K	L	M
768+78.49	672.47	-	-	-	-	-	769+56.49	672.68	-	-	-	-	-
768+79.82	-	672.63	-	-	-	-	769+57.82	-	672.83	-	-	-	-
768+88.56	-	-	673.03	-	-	-	769+66.56	-	-	673.22	-	-	-
768+89.47	-	-	-	673.04	-	-	769+67.47	-	-	-	673.22	-	-
768+90.38	-	-	-	-	672.97	-	769+68.38	-	-	-	-	673.16	-
768+91.98	-	-	-	-	-	672.80	769+69.98	-	-	-	-	-	672.97
768+94.49	672.53	-	-	-	-	-	769+72.49	672.70	-	-	-	-	-
768+95.82	-	672.69	-	-	-	-	769+73.82	-	672.86	-	-	-	-
769+04.56	-	-	673.09	-	-	-	769+82.56	-	-	673.24	-	-	-
769+05.47	-	-	-	673.10	-	-	769+83.47	-	-	-	673.24	-	-
769+06.38	-	-	-	-	673.03	-	769+84.38	-	-	-	-	673.18	-
769+07.98	-	-	-	-	-	672.85	769+85.98	-	-	-	-	-	672,99
769+10.49	672.58	-	-	-	-	-	769+88.49	672.71	-	-	-	-	-
769+11.82	-	672.73	-	-	-	-	769+89.82	-	672.86	-	-	-	-
769+20.56	-	-	673.13	-	-	-	769+98.56	-	-	673.24	-	-	-
769+21.47	-	-	-	673.14	-	-	769+99.47	-	-	-	673.24	-	-
769+22.38	-	-	-	-	673.07	-	770+00.38	-	-	-	-	673.18	-
769+23.98	-	-	-	-	-	672.89	770+01.98	-	-	-	-	-	672.99
769+18.49	672.62	-	-	-	-	-		-					
769+19.82	-	672.77	-	-	-	-							
769+28.56	-	-	673.17	-	-	-							
769+29.47	-	-	-	673.17	-	-							
769+30.38	-	-	-	-	673.11	-							
769+31.98	-	-	-	-	-	672.93							
769+33.49	672.66	-	-	-	-	-							
769+34.82	-	672.82	-	-	-	-							
769+43.56	-	-	673.21	-	-	-							
769+44.47	-	-	-	673.21	-	-							
769+45.38	-	-	-	-	673.15	-							
769+46.98	-	-	-	-	-	672.97							

NOTE: ELEVATIONS ARE THOSE REQUIRED BEFORE DECK CONCRETE IS PLACED TO ALLOW FOR DEAD LOAD DEFLECTION CAUSED BY THE WEIGHT OF THE CONCRETE.

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

ESTIMATED QUANTITIES & SLAB ELEVATIONS

BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET

BELMONT COUNTY

STA. 768+76.94
STA. 769+89.06

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMG	wda	2/85	11/85

DESIGN NOTES

DESIGN SPECIFICATIONS
THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1983, INCLUDING THE 1984 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA
DESIGN LOADING: HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING
CONCRETE CLASS 'S': COMPRESSIVE STRENGTH 4500 P.S.I. (SUPERSTRUCTURE)
CONCRETE CLASS 'C': COMPRESSIVE STRENGTH 4000 P.S.I. (SUBSTRUCTURE)
REINFORCING STEEL: ASTM A615, A616, A617-GRADE 60 MINIMUM YIELD STRENGTH 60,000 P.S.I.
STRUCTURAL STEEL: ASTM A588-YIELD STRENGTH 50,000 P.S.I.
ASTM A36-YIELD STRENGTH 36,000 P.S.I.
SPIRAL REINFORCING: MAY BE PLAIN BARS, ASTM A82 OR A615

DECK PROTECTION METHOD
EPOXY COATED REINFORCING STEEL, TOP AND BOTTOM MAT. MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1".

Series

REFERENCE SHALL BE MADE TO:

STANDARD DRAWINGS	SUPPLEMENTAL SPECIFICATIONS
AS-1-81 DATED 11-27-81	836 DATED 11-12-85
BR-1 DATED 5-29-79	
SD-1-69 DATED 6-12-69	
ICD-1-82 REVISED 8-1-84	

REINFORCING STEEL SPLICES: ALL REINFORCING STEEL SPLICES SHALL BE IN ACCORDANCE WITH ITEM 509.08. UNLESS SHOWN OTHERWISE, ALL SPLICES SHALL BE MADE BY OVERLAPPING THE ENDS OF THE BARS NOT LESS THAN SHOWN IN THE FOLLOWING TABLE:

BAR SIZE	LAP LENGTH
#4	1'-4"
#5	1'-8"
#6	2'-0"
#7	2'-6"
#8	3'-3"
#9	4'-2"

ABUTMENT PILING:
ABUTMENT PILING BENDING STRESS MAY APPROACH, REACH OR EXCEED YIELD STRESS.

PILE DRIVING CONSTRAINTS:
PRIOR TO DRIVING PILES AT THE PROPOSED STRUCTURE, THE SPILL-THRU SLOPE EMBANKMENT AT THE ABUTMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BACK OF BOTH ABUTMENTS. AFTER THE EMBANKMENT HAS BEEN COMPLETED WITHIN THE ABOVE REQUIRED LIMITS, A 120 DAY WAITING PEROID MUST ELAPSE PRIOR TO EXCAVATING AND DRIVING PILES AT THE ABUTMENTS AND PIERS. THE DIRECTOR MAY SHORTEN THE WAITING PERIOD IF THE CONTRACTOR'S FIELD MEASUREMENTS INDICATES THAT 90 PERCENT CONSOLIDATION HAS BEEN ATTAINED.

PILE HAMMER:
THE PILE HAMMER USED TO INSTALL THE STEEL "H" BEARING PILES SHALL HAVE A STATES ENERGY RATING OF NOT LESS THAN 14,000 FOOT-POUNDS. THIS REQUIREMENT DOES NOT RELIEVE THE CONTRACTOR FROM 108.05 WHICH STATES THAT THE CONTRACTOR IS TO PROVIDE SUFFICIENT EQUIPMENT FOR PROSECUTING THE REQUIRED WORK. REFER TO "ODOT'S MANUAL OF PROCEDURES FOR STRUCTURES" TO OBTAIN THE STATE'S ENERGY RATING.

PILES:
PILES SHALL BE DRIVEN TO REFUSAL ON BEDROCK. REFUSAL SHALL BE CONSIDERED AS ATTAINED BY PENETRATING SOFT BEDROCK WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH, OR REFUSAL SHALL BE CONSIDERED AS ATTAINED AFTER THE PILE HAS CONTACTED HARD BEDROCK AND THE PILE HAS THEN RECEIVED AT LEAST 20 BLOWS.

THE DESIGN LOAD IS 35 TONS PER PILE FOR THE REAR AND FORWARD ABUTMENTS, AND 35 TONS PER PILE FOR THE REAR AND FORWARD PIERS.

SEALING OF CONCRETE SURFACES:
AN EPOXY SEALER SHALL BE APPLIED TO THE EXPOSED CONCRETE SURFACE AREAS,(AS PER PROPOSAL NOTE), AND AS FOLLOWS: COMPLETE AREA OF DECK PARAPETS AS SHOWN IN TRANSVERSE SECTION ON SHEET 18/19, COMPLETE AREA OF THE ABUTMENT INTEGRAL BACKWALL AND BREASTWALL BETWEEN VERTICAL EXPANSION JOINTS, AND ALL SURFACES OF THE PIERS ABOVE GROUND. (SEE PROPOSAL NOTE)

GUARDRAIL EXPANSION JOINT ADJACENT TO BRIDGE
HOLES FOR SPLICE BOLTS ATTACHING GUARDRAIL TO THE TERMINAL CONNECTOR AT ENDS OF PARAPETS SHALL BE SLOTTED 29/32" X 3" AND ALL BOLTS SHALL BE TIGHTENED AS SPECIFIED FOR EXPANSION JOINTS AS PER CMS 606.05 TO ALLOW FOR BRIDGE MOVEMENT.

PARTIAL PAINTING OF A588 STEEL
A588 STEEL IS TO BE LEFT UNPAINTED, EXCEPT AS NOTED BELOW. SEE CMS 513.221 FOR CLEANING REQUIREMENTS.

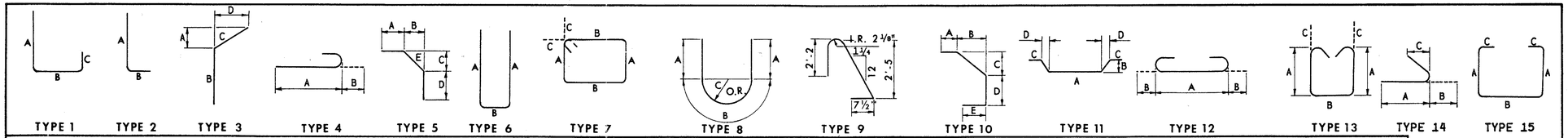
A 10'-0" LENGTH OF THE ENDS OF BEAMS ADJACENT TO ABUTMENTS AND ALL CROSSFRAMES AND OTHER A588 STEEL WITHIN THESE LIMITS SHALL BE PAINTED. PAINT SHALL BE 514, SYSTEM A. THE PRIME COAT SHALL BE 708.17. THE TOP COAT SHALL BE 708.18 EXCEPT THAT THE COLOR SHALL CLOSELY APPROACH FEDERAL STANDARD NO. 595A-20045 OR 20059. PRIME COAT SHALL BE APPLIED IN THE SHOP.

Sheet 4/19

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

DESIGN NOTES
BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET
BELMONT COUNTY
STA. 768+76.94
STA. 769+89.06

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMG	wda	2/85	



SUPERSTRUCTURE

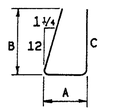
MARK	TYPE	A	B	C	D	E	NUMBER LEFT	NUMBER RIGHT	TOTAL	LENGTH	WEIGHT
E801	5	1'-5	1'-4 3/4	1'-4 3/4	1'-5	1'-11 3/8	56	56	112	4'-8	1326
E802	Str.						48	48	96	23'-8	6066
E601	Str.						178	178	356	25'-1	13,412
E602	Str						160	160	320	16'-6	7931
E603	Str.	Length Varies by 1'-7/4					2 Series of 13	2 Series of 13	4 Series of 13	5'-3 to 24'-6	1162
E604	Str.						6	6	12	3'-8	66
E605	Str	Length Varies by 1'-7 1/8 (+)					2 Series of 8	2 Series of 8	4 Series of 8	4'-8 to 15'-10	493
E606	STR.						2	2	4	10'-5	63
E607	STR.						4	4	8	14'-8	176
E608	STR.						4	4	8	7'-2	86
E501	Str.						344	344	688	20'-7	14,770
E502	Str.	Length Varies by 1'-7 3/16 (+)					2 Series of 11	2 Series of 11	4 Series of 11	4'-0 to 20'-0	551
E503	Str.						6	6	12	3'-8	46
E504	Str.						150	150	300	30'-0	9387
E505	Str.						154	154	308	27'-0	8674
E506	Str.	Length Varies by 1'-7 4 (+)					2 Series of 10	2 Series of 10	4 Series of 10	5'-3 to 19'-8	520
E508	Str						24	24	48	14'-8	734
E509	Str.						24	24	48	7'-2	359
E510	Str.						8	8	16	8'-9	146
E511	Str.						2	2	4	10'-8	45
E512	Str.						2	2	4	10'-3	43
E513	Str.						8	8	16	4'-4	72
E514	9	See Detail					74	74	148	5'-3	810
E515	10	9"	6"	8 1/2"	10"	10 1/2"	76	76	152	3'-1	489
E516	10	8"	5"	8 1/2"	10"	10 1/2"	2	2	4	2'-11	12
E517	10	8"	4"	8 1/2"	10"	10 1/2"	2	2	4	2'-11	12
E518	10	7"	3"	8 1/2"	10"	10 1/2"	2	2	4	2'-10	12
E519	10	7"	2"	8 1/2"	10"	10 1/2"	8	8	16	2'-10	47
E520	2	1'-8	10 1/2"				174	174	348	2'-5	877
E521	4	2'-1	7"				8	8	16	2'-8	45
E522	Str.	Length Varies by 1"					2 Series of 5	2 Series of 5	4 Series of 5	2'-0 to 2'-4	45
E523	4	2'-5	7"				84	84	168	3'-0	526
E524	10	6"	6"	8 1/2"	10"	10 1/2"	84	84	168	2'-10	496
E525	Str.						6	6	12	2'-0	25
E526	6	3'-0	1'-8				83	83	166	7'-5	1284
E527	7	2'-3 1/2	2'-2	5 1/2"			88	88	176	9'-5	1729
E528	6	4'-0	2'-2				5	5	10	3'-11	103
E529	Str.						84	84	168	2'-4	409

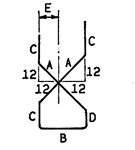
SUPERSTRUCTURE

MARK	TYPE	A	B	C	D	E	NUMBER LEFT	NUMBER RIGHT	TOTAL	LENGTH	WEIGHT
E401	Str.						153	153	306	30'-0	6132
E402	Str.						51	51	102	25'-10	1760

REAR ABUTMENT

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
A801	Str.							12	30'-0	961
A802	Str.							4	20'-3	216
A803	Str.							8	12'-0	406
A804	Str.							4	32'-0	342
A805	Str.							8	18'-3	390
A601	17	3'-0 3/4	2'-2	10"	5"	10"		86	10'-9	1389
A501	Str							2	32'-0	67
A502	Str.							12	30'-0	375
A503	Str.							4	18'-2	76
A504	7	2'-7	2'-8	5 1/2"				76	11'-0	872
A505	6	4'-0	2'-2					66	9'-11	683
A506	6	5'-10	2'-2					11	13'-7	156
A507	6	2'-5 to 4'-10 1/2	2'-2	Length Varies by 1'-7 5/8 (+)				1 Series of 4	6'-9 to 11'-8	38
A508	6	5'-0	2'-2					1	11'-11	12
A509	Str.							2	6'-6	14
A510	Str.							2	5'-10	12
A511	Str.							2	3'-0	6
A512	Str.							2	7'-4	15
A513	Str.							4	15'-8	65
A514	6	5'-2	2'-2					1	12'-3	13
A515	6	2'-8 to 4'-6	2'-2	Length Varies by 1'-10				1 Series of 3	7'-3 to 10'-11	28
A516	Str.							2	5'-8	12
A517	Str.							2	5'-0	10
A518	Str.							2	2'-5	5
A519	Str.							2	6'-8	14
A520	Str.							4	17'-6	73
A401	7	1'-9	2'-6 3/4	4 1/2"				26	9'-1	158





NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

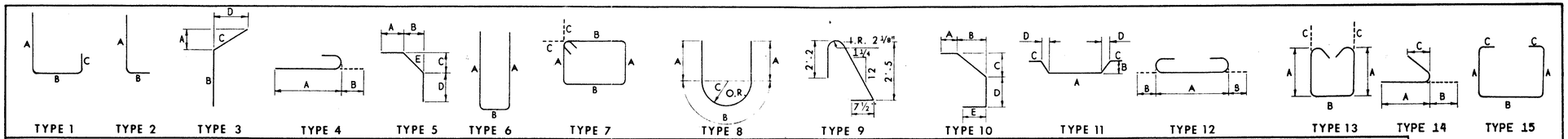
AN 'E' DESIGNATION PRECEDING THE BAR MARK DENOTES EPOXY COATED BARS.

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

REINFORCING BAR SCHEDULE

BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET
BELMONT COUNTY
STA. 68+76.94
STA. 69+89.06

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMG	wda	2/85	

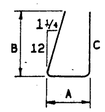


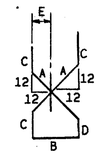
FORWARD. ABUTMENT

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
B801	Str.							12	30'-0	961
B802	Str.							4	20'-3	216
B803	Str.							8	18'-11	404
B804	Str.							4	32'-0	342
B805	Str.							8	18'-4	392
B601	17	3'-0 3/4	2'-2	10"	5"	10"		86	10'-9	1389
B501	Str.							2	32'-0	67
B502	Str.							12	30'-0	375
B503	Str.							4	18'-2	76
B504	7	2'-7	2'-8	5½"				76	11'-0	872
B505	6	3'-11	2'-2					67	9'-9	681
B506	6	5'-10	2'-2					11	13'-7	156
B507	6	2'-6 to 4'-10	2'-2	Length Varies by 1'-6 5/8 (+)				1 Series of 4	6'-11 to 11'-7	39
B508	6	5'-1	2'-2					2	12'-1	25
B509	Str.							2	6'-9	14
B510	Str.							2	6'-1	13
B511	Str.							2	3'-2	7
B512	Str.							2	7'-7	16
B513	Str.							4	15'-8	65
B514	6	2'-8 to 4'-8	2'-2	Length Varies by 2'-0				1 Series of 3	7'-3 to 11'-3	29
B515	Str.							2	5'-5	11
B516	Str.							2	4'-10	10
B517	Str.							2	2'-7	5
B518	Str.							2	6'-5	13
B519	Str.							4	17'-6	73
B401	7	1'-9	2'-6 3/4	4½"				26	9'-1	158

PIERS

MARK	TYPE	A	B	C	D	E	NUMBER LEFT REAR	NUMBER LEFT FWD.	NUMBER RIGHT REAR	NUMBER RIGHT FWD.	TOTAL	LENGTH	WEIGHT
P901	Str.						30	30	30	30	120	16'-7	6766
P902	2	6'-4	1'-7½				30	30	30	30	120	7'-8	3128
P801	2	21'-6½	3'-7				10	10	10	10	40	24'-11	2661
P802	Str.						10	10	10	10	40	21'-6	2296
P701	12						36	36	36	36	144	9'-2	2698
P501	Str.						8	8	8	8	32	20'-8	690
P502	6	1'-8	2'-6				8	8	8	8	32	5'-7	186
P503	7	3'-8	2'-8	5½"			24	24	24	24	96	13'-2	1318





MARK	NO.	LENGTH	WEIGHT	SHAPE	
SPIRALS - CORE DIA. 32" o/o - PITCH 4½" c/c - OTHER DETAILS IN ACCORDANCE WITH CRSI STANDARD PRACTICE					
SP401	6	13'-5½	1545	Bent	Rear Piers
SP402	6	13'-6 3/4	1556	Bent	Fwd Piers

NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

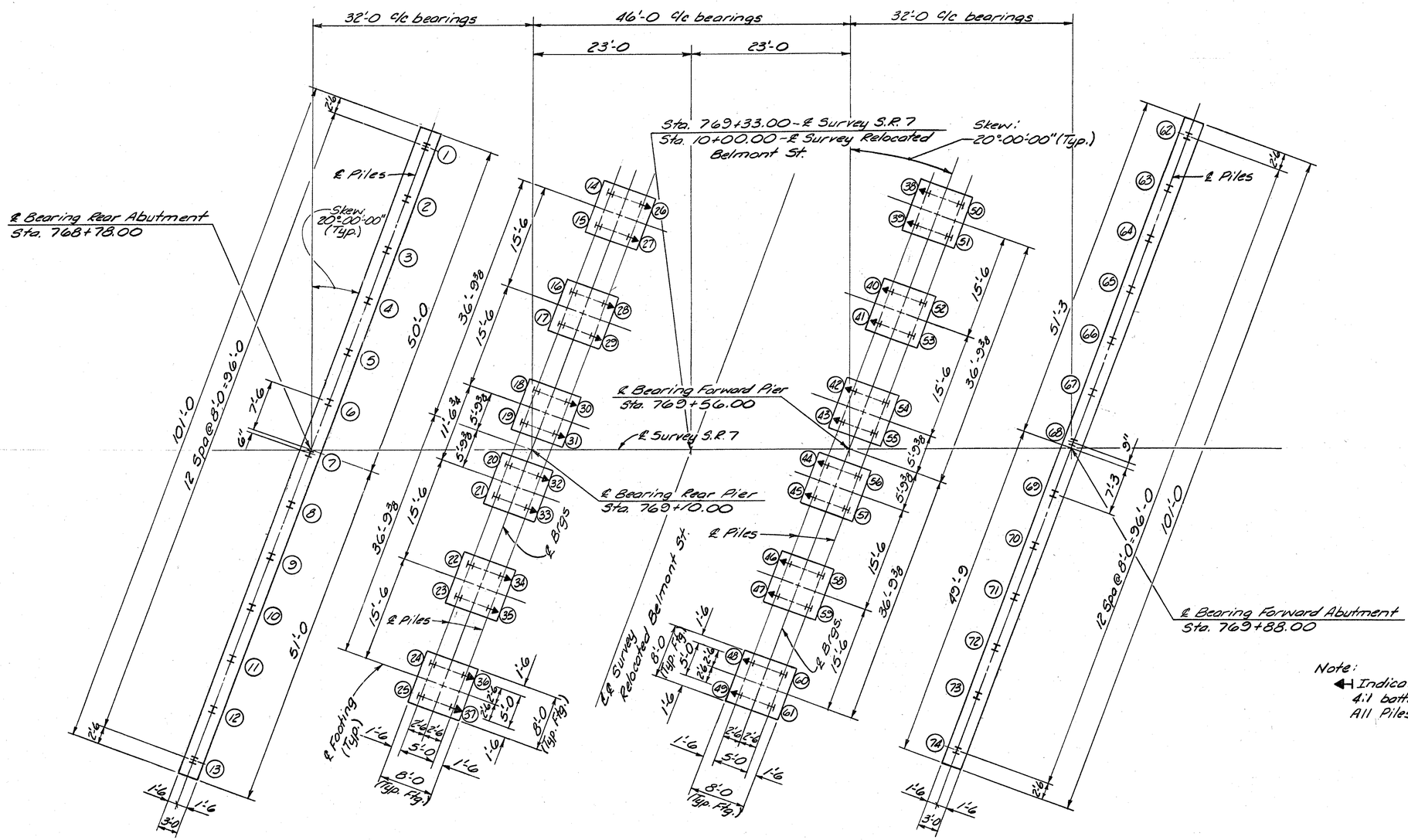
REINFORCING BAR SCHEDULE

BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET

BELMONT COUNTY

STA. 768+76.94
STA. 769+89.06

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMG	wda	2/85	



Note:
◀H Indicates direction of 4:1 battered Piles
All Piles to be HP 10x42

Sheet 7/19

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

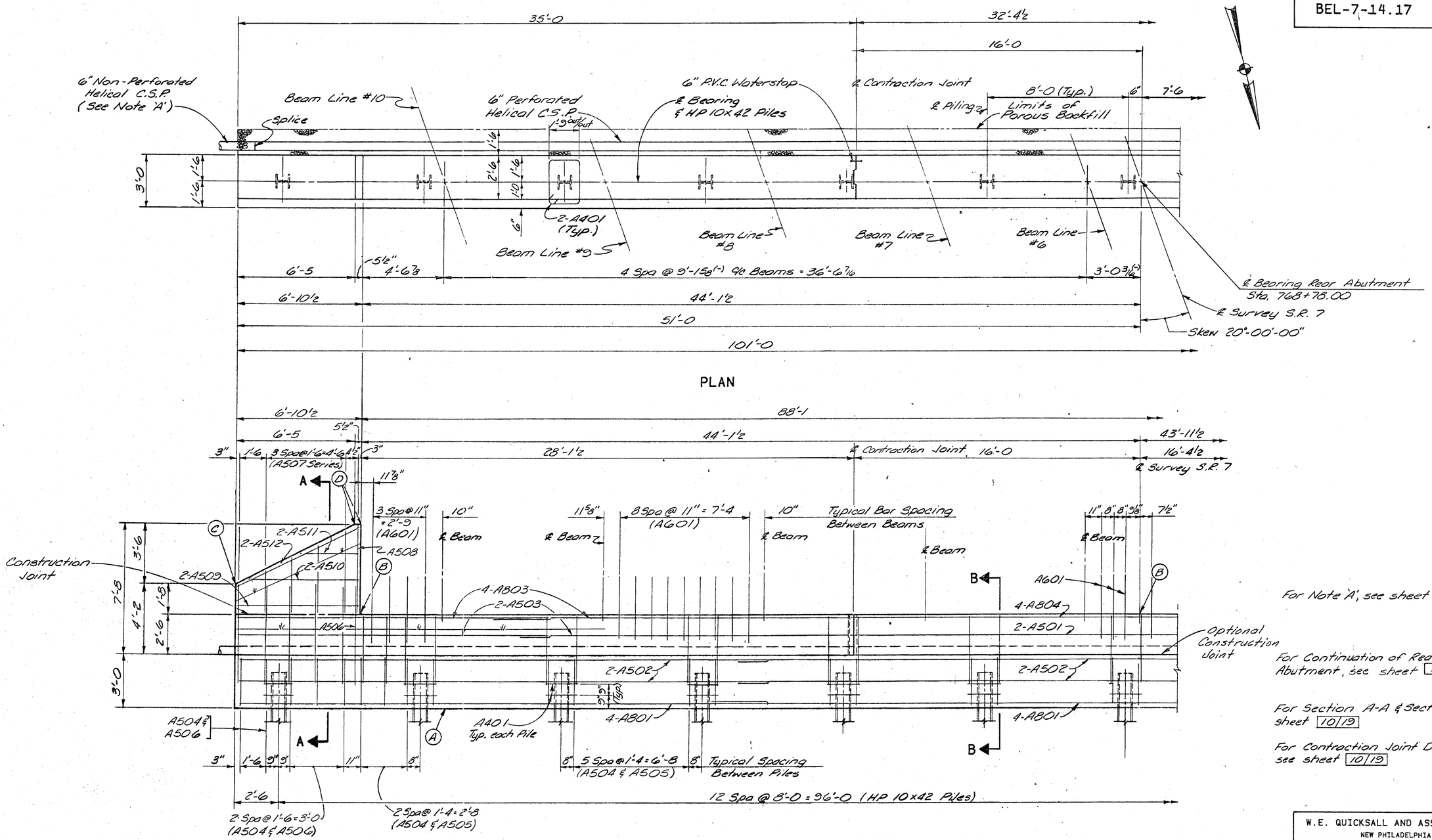
FOOTING PLAN

BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET

BELMONT COUNTY

STA. 768+76.94
STA. 769+89.06

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMG	WDA	2/85	



PLAN

ELEVATION

ELEVATIONS				
LOCATION	A	B	C	D
REAR ABUTMENT	663.00	668.50	670.17	673.67

For Note 'A', see sheet 11/19

For Continuation of Rear Abutment, see sheet 9/19

For Section A-A & Section B-B, see sheet 10/19

For Contraction Joint Detail, see sheet 10/19

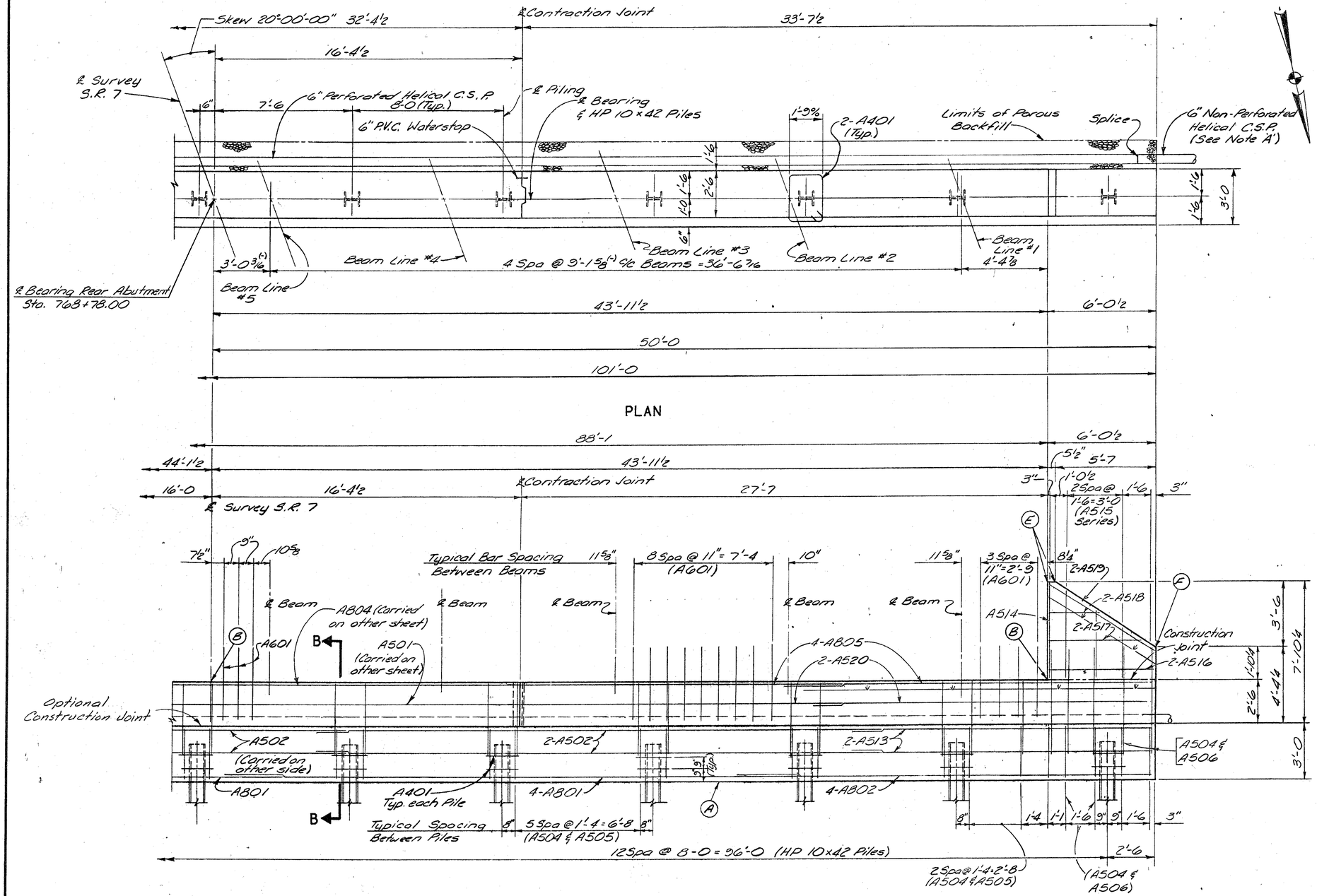
POROUS BACKFILL: 1.5 ft. thick shall extend up to the plane of the subgrade and laterally to the ends of the wing walls.

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

REAR ABUTMENT DETAILS

BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET
BELMONT COUNTY
STA. 768+76.94
STA. 769+89.06

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMG	wda	2/85	



ELEVATIONS				
LOCATION	A	B	E	F
REAR ABUTMENT	663.00	668.50	673.85	670.35

For Note 'A', see sheet 11/19

For Contraction Joint Detail see sheet 10/19

For Continuation of Rear Abutment, see sheet 8/19

For Section B-B, see sheet 10/19

For Porous Backfill Note, see sheet 8/19

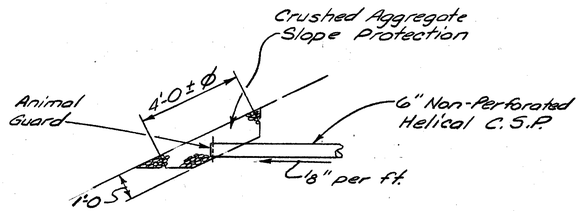
Sheet 9/19

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

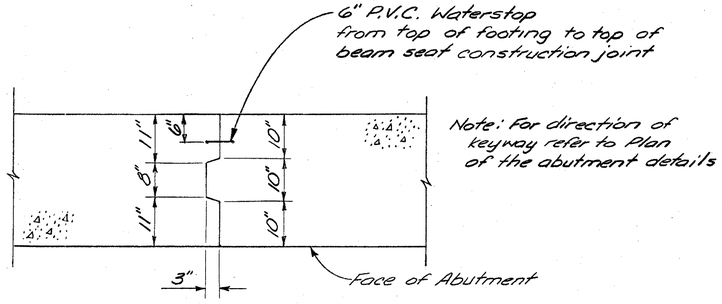
REAR ABUTMENT DETAILS

BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET
BELMONT COUNTY
STA. 768+76.94
STA. 769+89.06

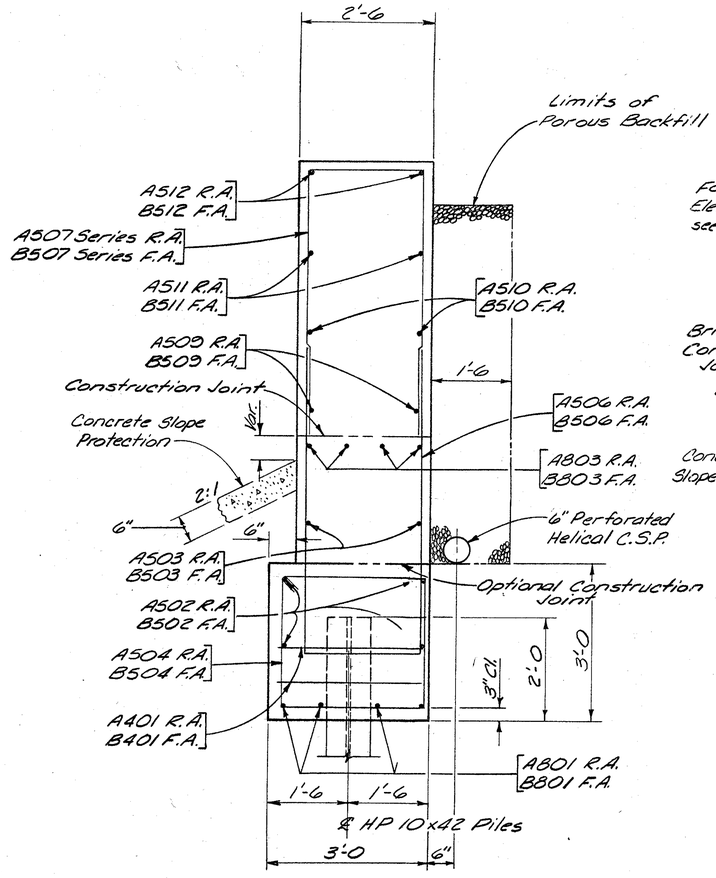
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE :	REVISED
FDH	FDH		JM16	wda	2/85	



TERMINATION OF 6" C.S.P.

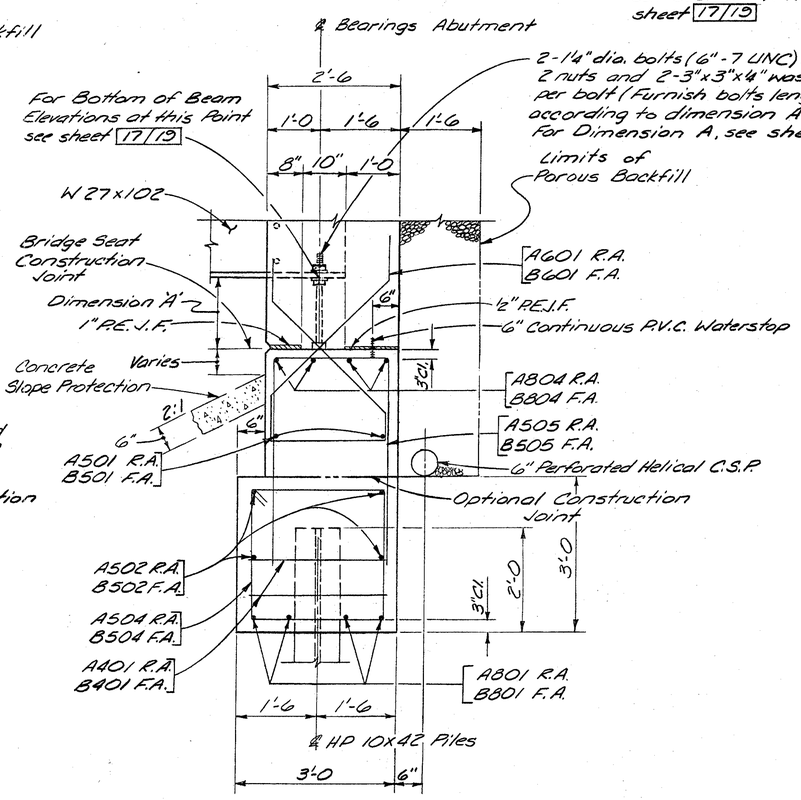


CONTRACTION JOINT DETAIL



SECTION A-A

Note: For reinforcing & details not shown in integral backwall see Section H-H on sheet 17/19



SECTION B-B

For Additional Abutment Details, see sheets 8/19, 9/19, 11/19 & 12/19

For Porous Backfill Note, see sheet 8/19

For additional details & notes of bridge seat construction joint and waterstop, see Section X-X and G-G on Std Dwgs ICD-1-82 sheet 2 of 5 and 3 of 5.

P.E.J.F. - denotes Preformed Expansion Joint Filler

R.A. denotes Rear Abutment
F.A. denotes Forward Abutment

Sheet 10/19

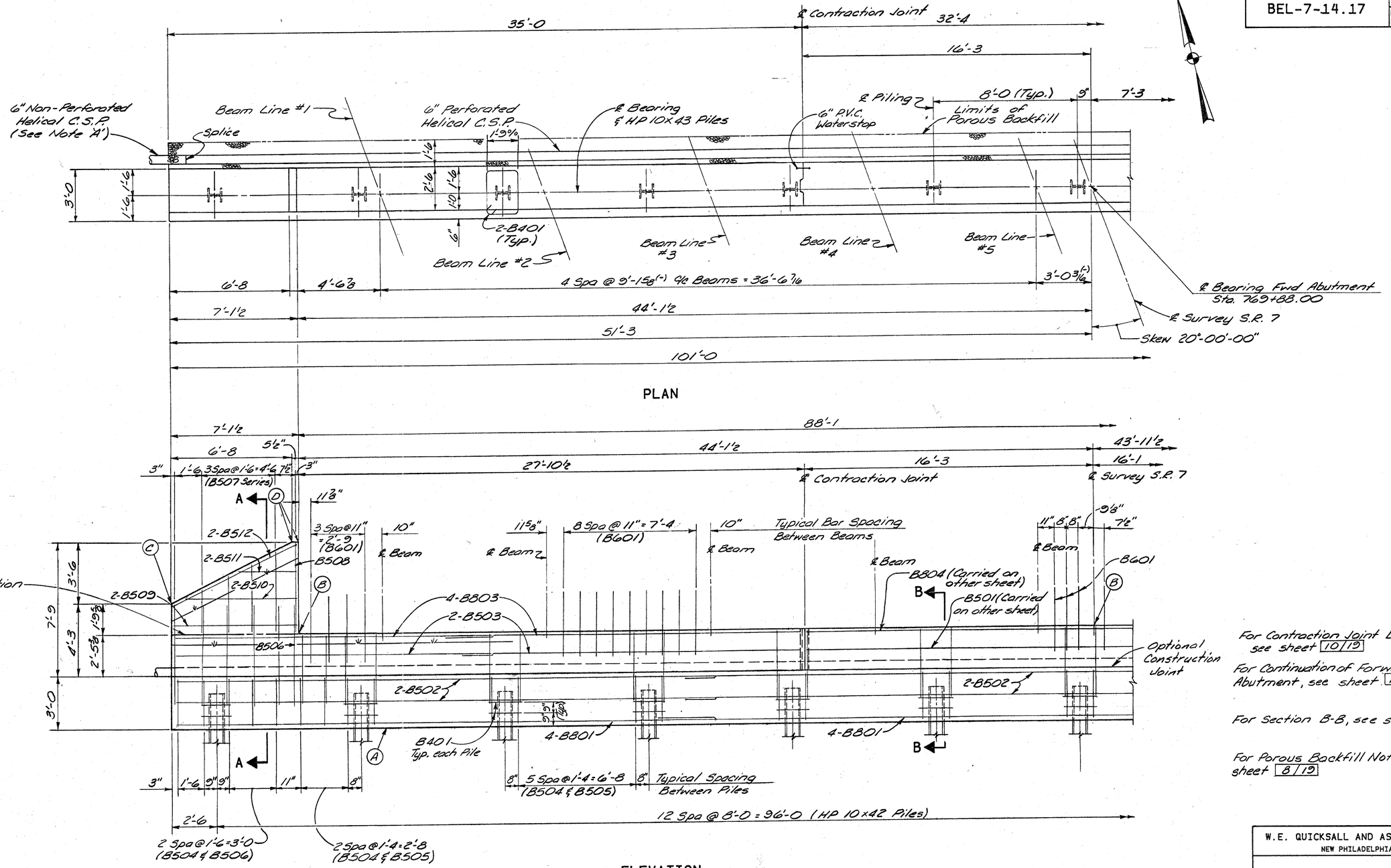
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

REAR AND FORWARD ABUTMENT DETAILS

BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET
BELMONT COUNTY
STA. 768+76.94
STA. 769+89.06

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMG	wda	2/85	

BEL-7-14.17 | OHIO | FHWA REGION 5 | 489 / 663



ELEVATIONS				
LOCATION	A	B	C	D
FWD. ABUTMENT	663.30	668.75	670.55	674.05

Note 'A':
For Additional Details & Notes of 6" C.S.P. See Std. Dwg. ICD-1-82 Sheet 2 of 5, and Sheet 10/19

For Contraction Joint Detail, see sheet 10/19
For Continuation of Forward Abutment, see sheet 12/19
For Section B-B, see sheet 10/19
For Porous Backfill Note, see sheet 8/19

Sheet 11/19

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

FORWARD ABUTMENT DETAILS

BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET
BELMONT COUNTY
STA. 768+76.94
STA. 769+88.06

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
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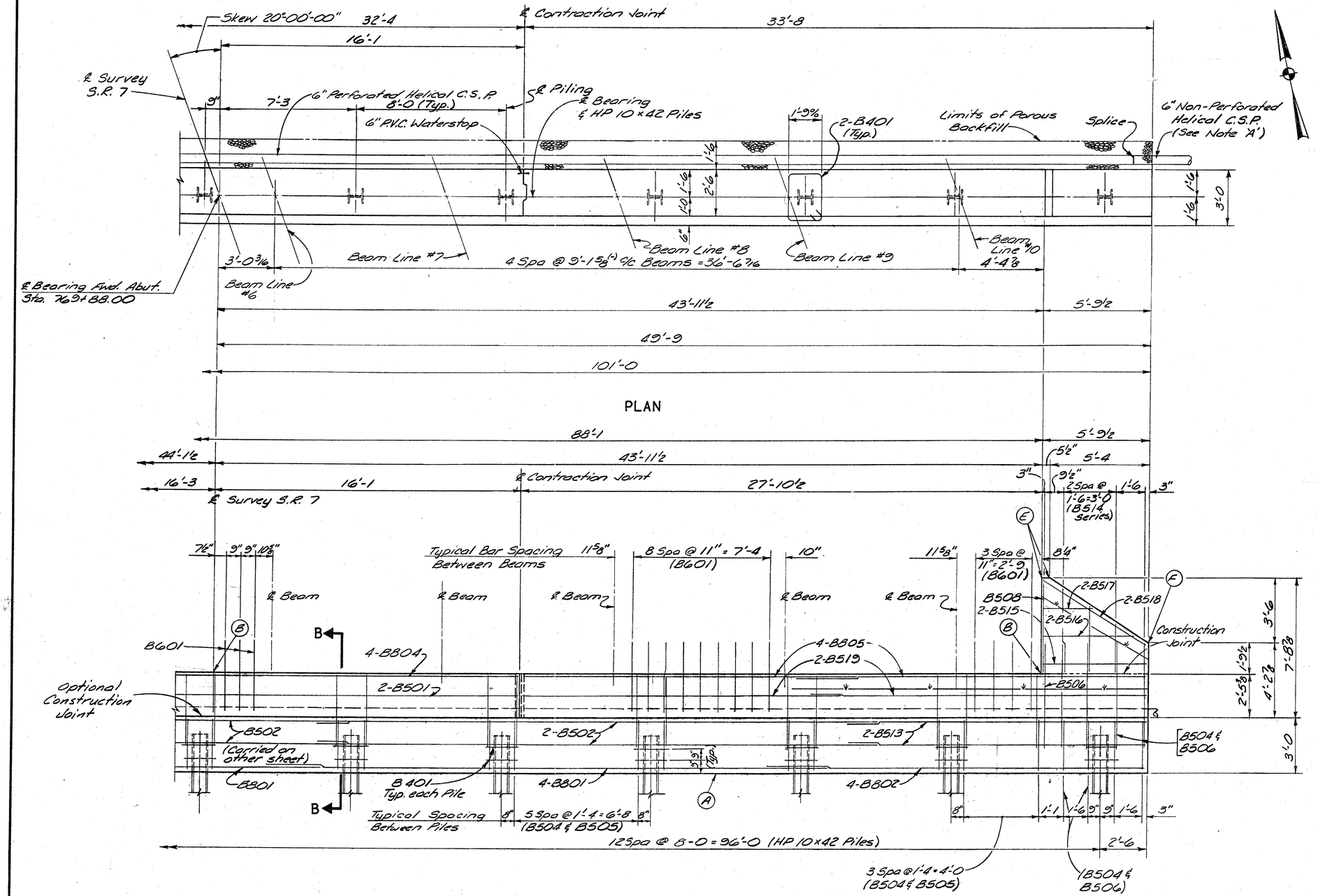


ELEVATIONS				
LOCATION	A	B	E	F
FWD. ABUTMENT	663.30	668.75	674.04	670.54

For Note 'A', see sheet 11/19

For Contraction Joint Detail see sheet 10/19

For Continuation of Forward Abutment, see sheet 11/19

For Section A-A, see sheet 10/19

For Porous Backfill Note, see sheet 8/19

Sheet 12/19

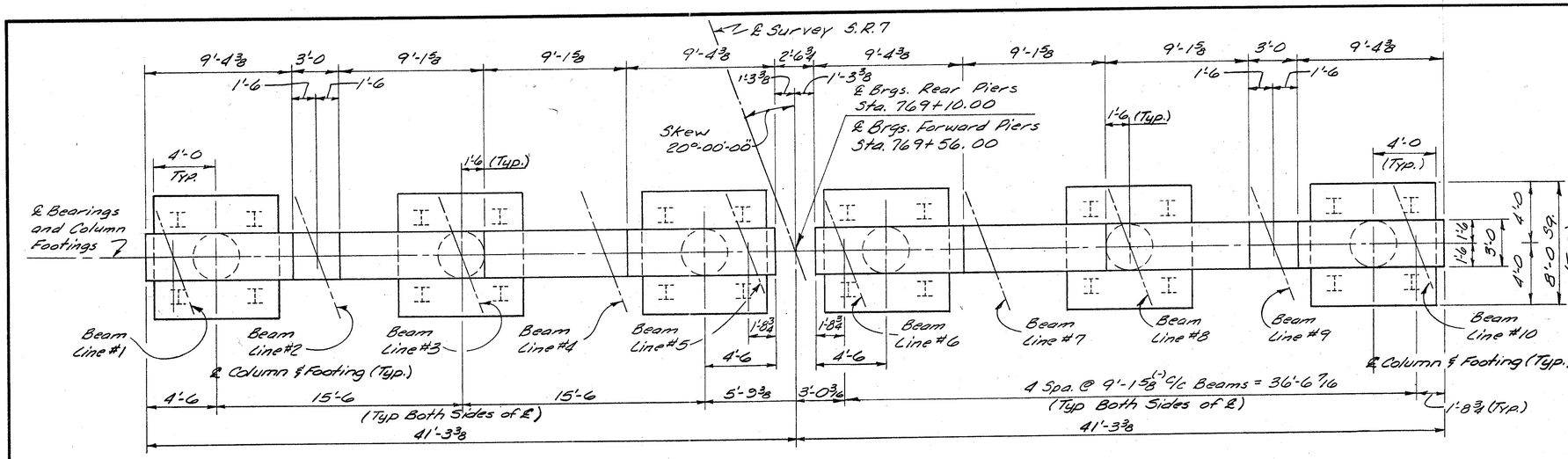
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

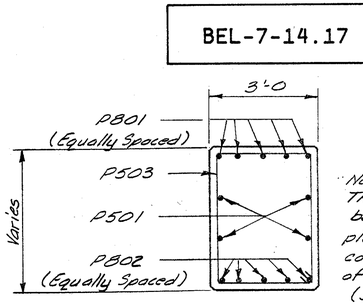
FORWARD ABUTMENT DETAILS

BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET

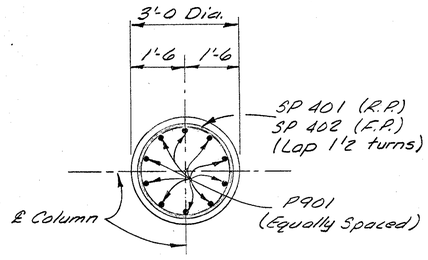
BELMONT COUNTY
STA. 768+76.94
STA. 769+89.06

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMG	wda	2/85	

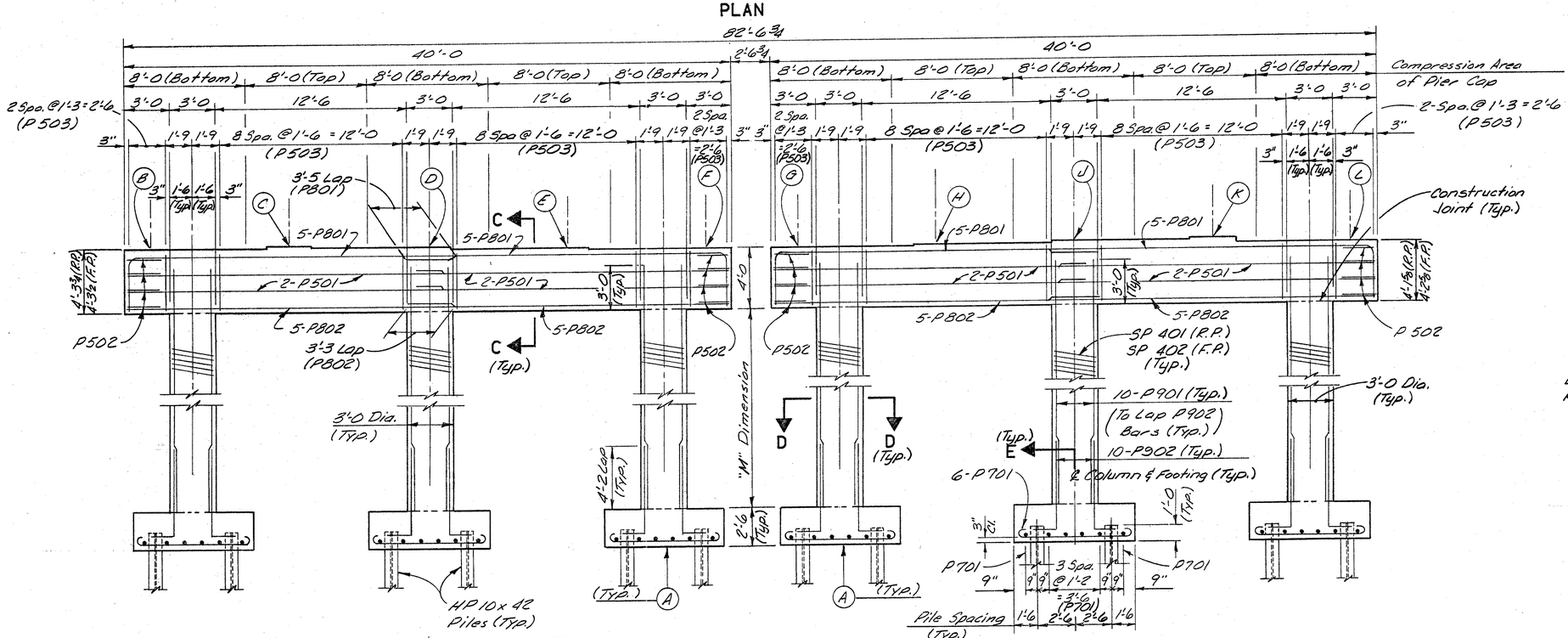




SECTION C-C



PLAN



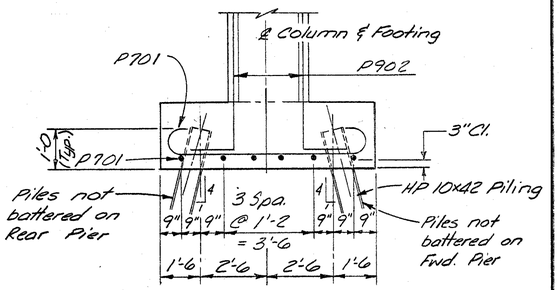
LEFT REAR AND FORWARD PIER ELEVATION

RIGHT REAR AND FORWARD PIER ELEVATION

(R.P.) Denotes Lt. & Rt. Rear Piers
(F.P.) Denotes Lt. & Rt. Fwd. Piers

ELEVATIONS												DIMENSION
LOCATION	A	B	C	D	E	F	G	H	J	K	L	"M"
REAR PIER	649.50	669.77	669.95	669.81	669.66	669.46	669.46	669.60	669.66	669.72	669.60	13'-5 1/2
FWD. PIER	649.50	669.85	670.04	669.90	669.76	669.56	669.56	669.74	669.84	669.95	669.78	13'-6 3/4

SECTION D-D



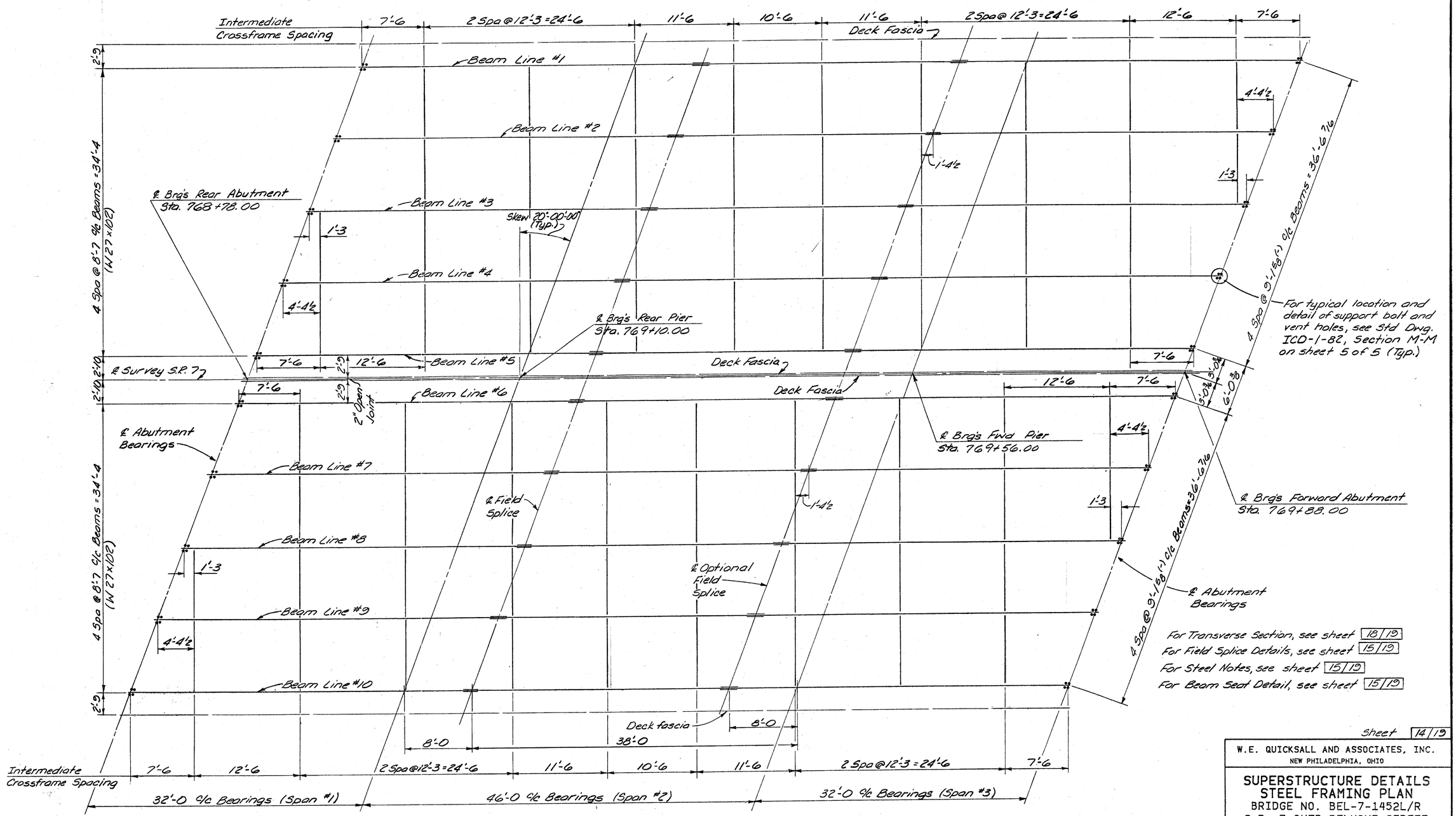
SECTION E-E

Sheet 13/19

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

REAR AND FORWARD PIER DETAILS
BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET
BELMONT COUNTY
STA. 768+76.94
STA. 769+89.06

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
			JMG	wda	2/85	



For Transverse Section, see sheet 18/19
For Field Splice Details, see sheet 15/19
For Steel Notes, see sheet 15/19
For Beam Seat Detail, see sheet 15/19

STRUCTURAL STEEL FRAMING PLAN

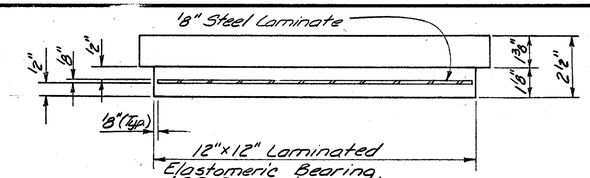
Sheet 14/19

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

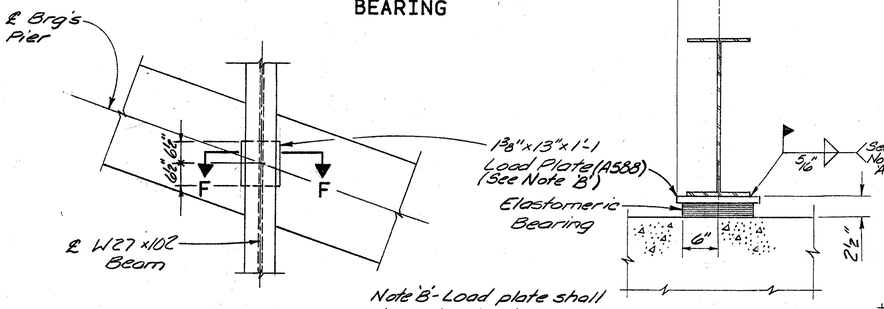
SUPERSTRUCTURE DETAILS STEEL FRAMING PLAN

BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET
BELMONT COUNTY
STA. 768+76.94
STA. 769+89.06

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMS	wda	2/85	



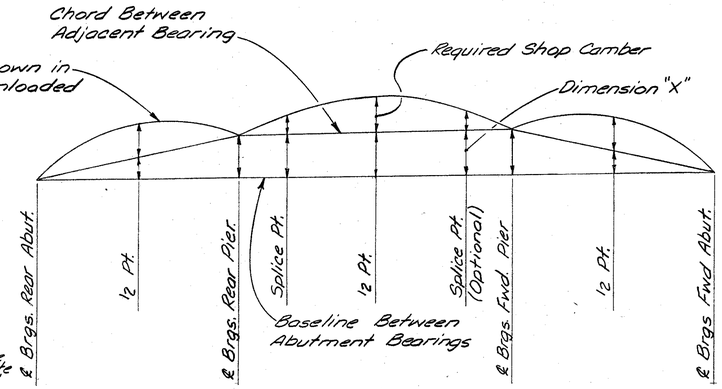
LAMINATED ELASTOMERIC BEARING



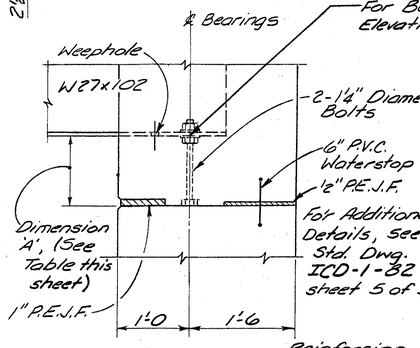
ELASTOMERIC BEARING DETAIL

SECTION F-F

Note 'A': Welding shall be controlled so that the plate temperature at the elastomer bonded surface does not exceed 300° F as determined by use of pyrometric sticks or other temperature monitoring devices. Quenching to accelerate cooling is not permitted.



CAMBER AND DEFLECTION DIAGRAM



BEAM SEAT DETAIL

DIMENSION 'A'		
BEAM LINE	REAR ABUT.	FWD. ABUT.
1	1'-4 1/2	1'-3 7/8
2	1'-6 11/16	1'-6 3/16
3	1'-4 15/16	1'-4 9/16
4	1'-3 3/16	1'-2 15/16
5	1'-0 3/4	1'-0 5/8
6	1'-0 11/16	1'-0 5/8
7	1'-2	1'-2 7/8
8	1'-2 3/8	1'-4 1/2
9	1'-2 3/4	1'-6 1/16
10	1'-1 3/4	1'-3 3/4

Dimension 'A' includes bolt head

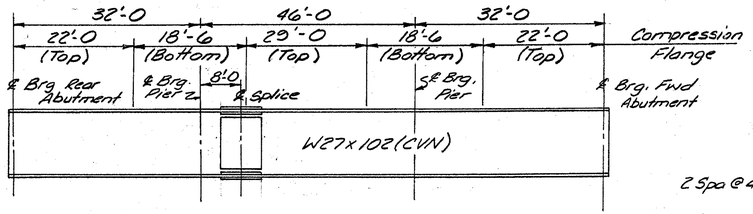
CAMBER AND DEFLECTION

LOCATION	BEAM NO.	SPAN 1		SPAN 2			SPAN 3	
		℄ Brg.	1/2 Pt.	℄ Brg.	Spl.	1/2 Pt.	℄ Brg.	1/2 Pt.	℄ Brg.
DIMENSION "X"	1	0	1/4	1/2	1/2	1/2	1/2	1/4	0
	2	0	1/4	1/2	1/2	1/2	1/2	1/4	0
	3	0	1/4	1/2	1/2	1/2	1/2	1/4	0
	4	0	1/4	1/2	1/2	1/2	1/2	1/4	0
	5	0	1/4	1/2	1/2	1/2	1/2	1/4	0
	6	0	1/4	1/2	1/2	1/2	1/2	1/4	0
	7	0	1/4	1/2	1/2	9/16	9/16	5/16	0
	8	0	5/16	9/16	9/16	5/8	5/8	5/16	0
	9	0	5/16	9/16	9/16	5/8	5/8	5/16	0
	10	0	1/4	1/2	1/2	1/2	1/2	1/4	0
DEFLECTION DUE TO WEIGHT OF STEEL	1 THRU 10	0	0	0	0	0	0	0	0
DEFLECTION DUE TO REMAINING DEAD LOAD	1 THRU 10	0	1/16	0	3/16	5/16	0	1/16	0
CONVEXITY REQUIRED FOR VERTICAL CURVE	1 THRU 10	0	1/16	0	1/16	1/8	0	1/16	0
REQUIRED SHOP CAMBER	1 THRU 10	0	1/8	0	1/4	5/16	0	1/8	0

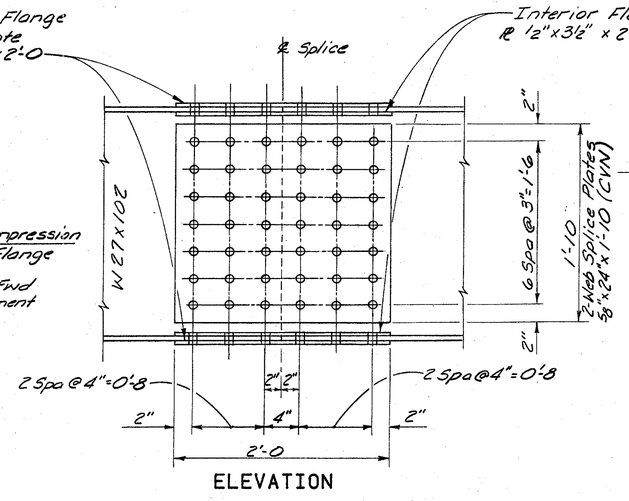
STEEL NOTES

Welded attachment of supports for concrete deck finishing machine may be made to areas of the fascia stringer flanges designated "Compression." Attachments shall not be made to areas designated "Tension." Fillet welds to compression flanges shall be not closer than 1" from edge of flange, be not more than 2" long, and be not smaller than the minimum size required by AASHTO.

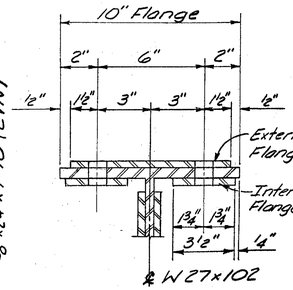
Where a shape or plate is designated (CVN) the material shall meet specified minimum notch toughness requirements as specified in 711.01 of C.M.S.



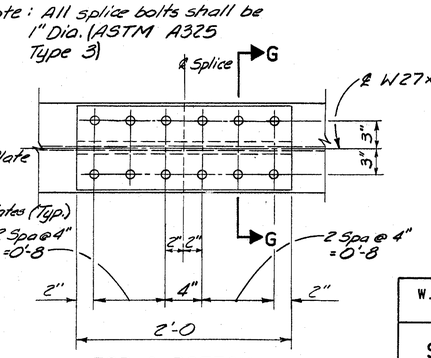
BEAM ELEVATION



ELEVATION



SECTION G-G



TOP & BOTTOM FLANGE PLAN

P.E.J.F. – denotes preformed expansion joint filler

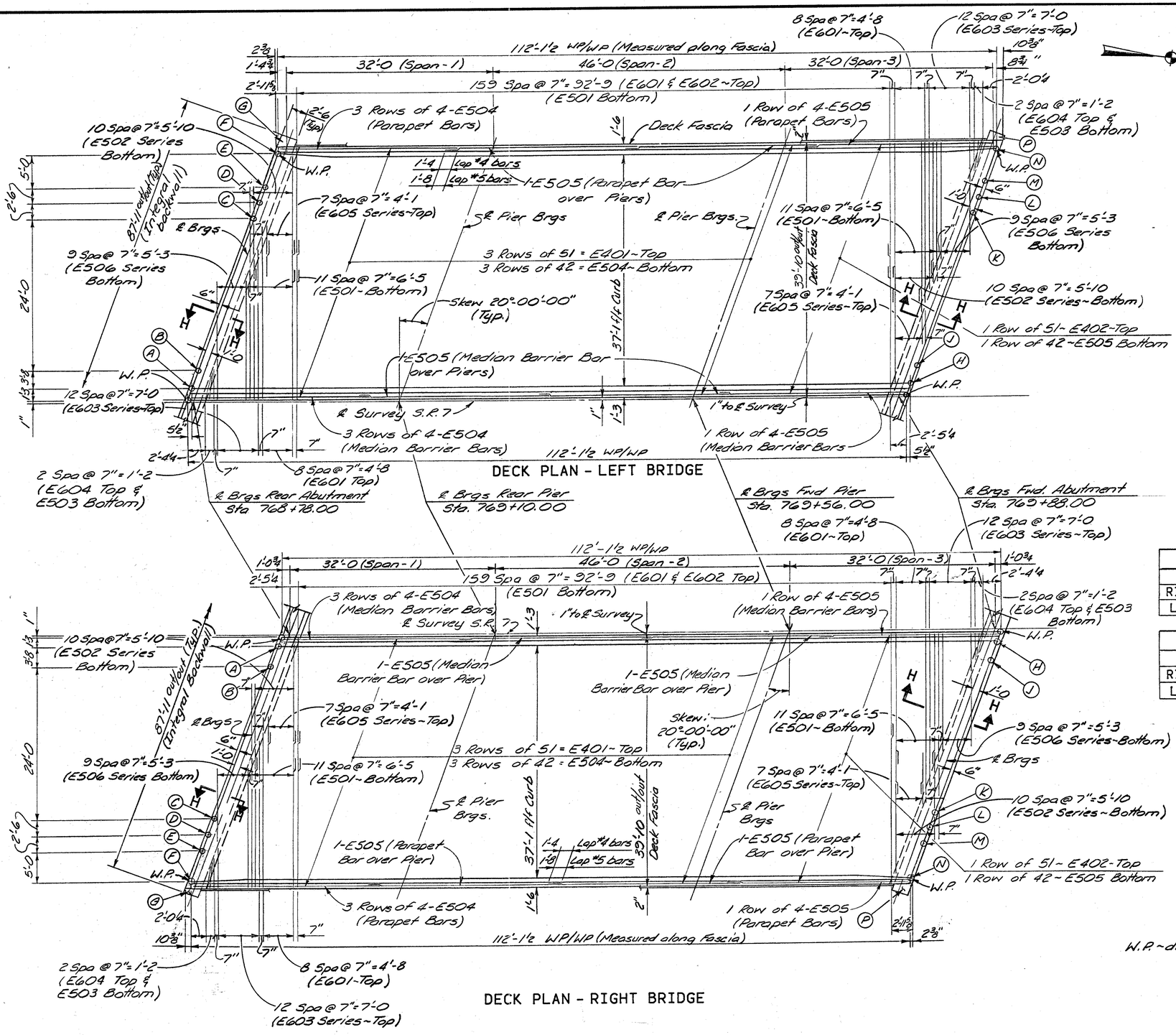
FIELD SPLICE DETAILS

Sheet 15/19

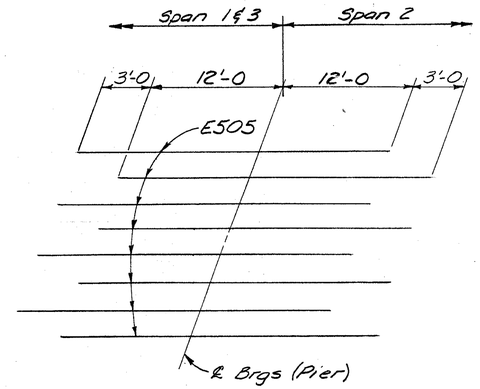
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET
BELMONT COUNTY
STA. 768+76.94
STA. 769+89.06

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMG	WDA	2/85	11/85



DECK PLAN - LEFT BRIDGE



STAGGER SYSTEM OF E505 BARS OVER PIERS

DECK PLAN - RIGHT BRIDGE

TOP OF CONCRETE ELEVATIONS							
POINT	A	B	C	D	E	F	G
RIGHT BRIDGE	672.46	672.61	672.69	672.68	672.66	672.58	673.85
LEFT BRIDGE	672.46	672.62	673.03	673.04	672.97	672.77	673.67

TOP OF CONCRETE ELEVATIONS							
POINT	H	J	K	L	M	N	P
RIGHT BRIDGE	672.71	672.86	673.23	673.23	673.16	672.95	674.04
LEFT BRIDGE	672.71	672.86	673.24	673.24	673.18	672.97	674.05

W.P. - denotes work point

For Typical Section Thru Median Barrier and Parapet see sheet 18/19

For Tranverse Section, see sheet 18/19

For Section H-H see sheet 17/19

For Screed Elevations, see sheet 3/19

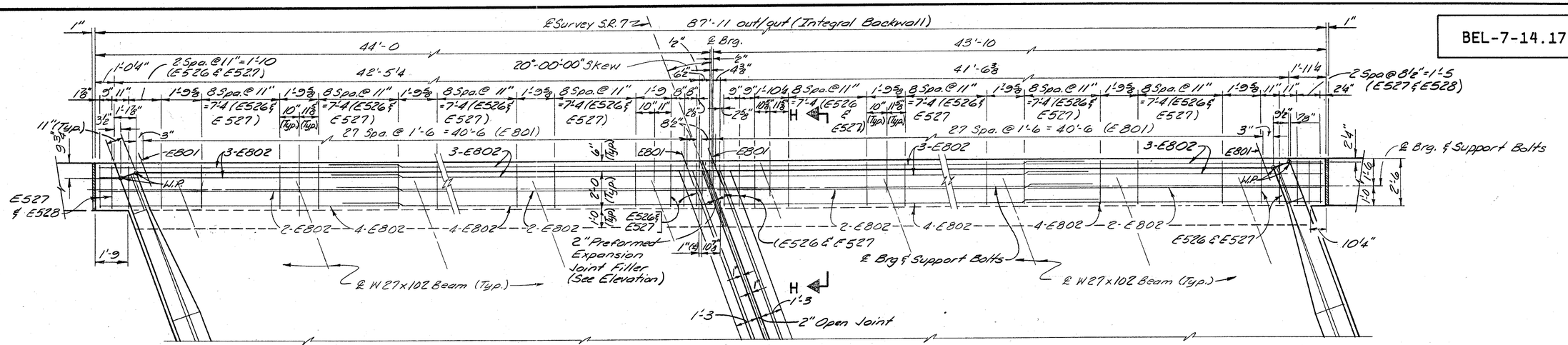
Sheet 16/19

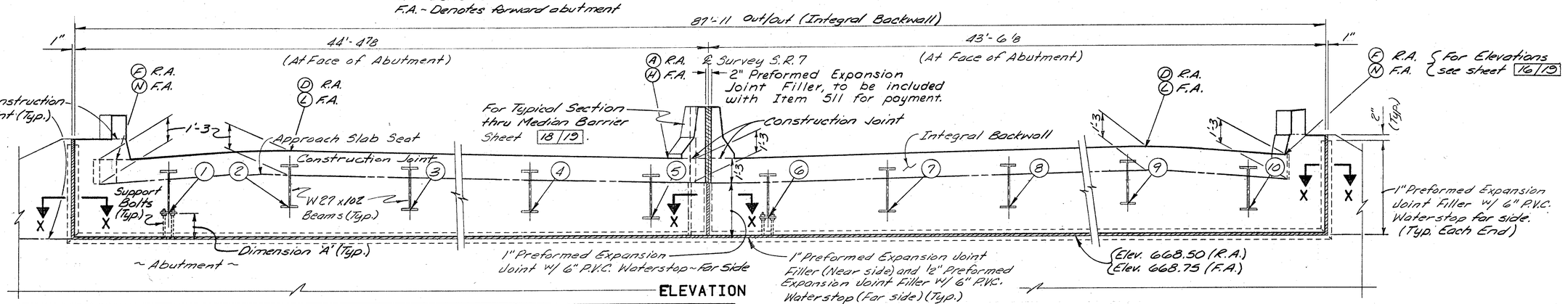
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS

BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET
STA. 768+76.94
STA. 769+89.06
BELMONT COUNTY.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMG	WDA	2/85	11/85





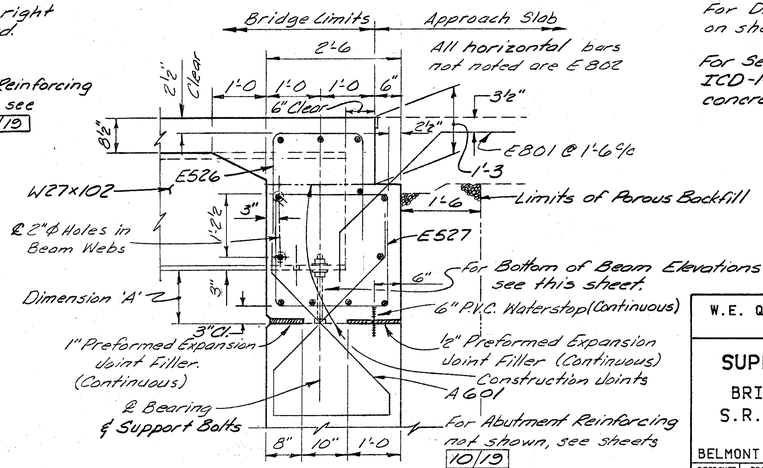
ELEVATION

BOTTOM OF BEAM ELEVATIONS

LOCATION	BEAM LINE NO.									
	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
REAR ABUTMENT	669.88	670.06	669.91	669.77	669.56	669.56	669.67	669.70	669.73	669.65
FWD. ABUTMENT	670.08	670.27	670.13	670.00	669.80	669.80	669.99	670.12	670.25	670.06

Note:
All beam locations as shown (1 thru 10) are left to right looking at face of fwd. abutment.

For Deck Reinforcing Not shown see sheet 16/19



SECTION H-H

For Dimension 'A' see table on sheet 15/19

For Section X-X see Std Dwgs. ICD-1-82 (For bridge with concrete parapets)

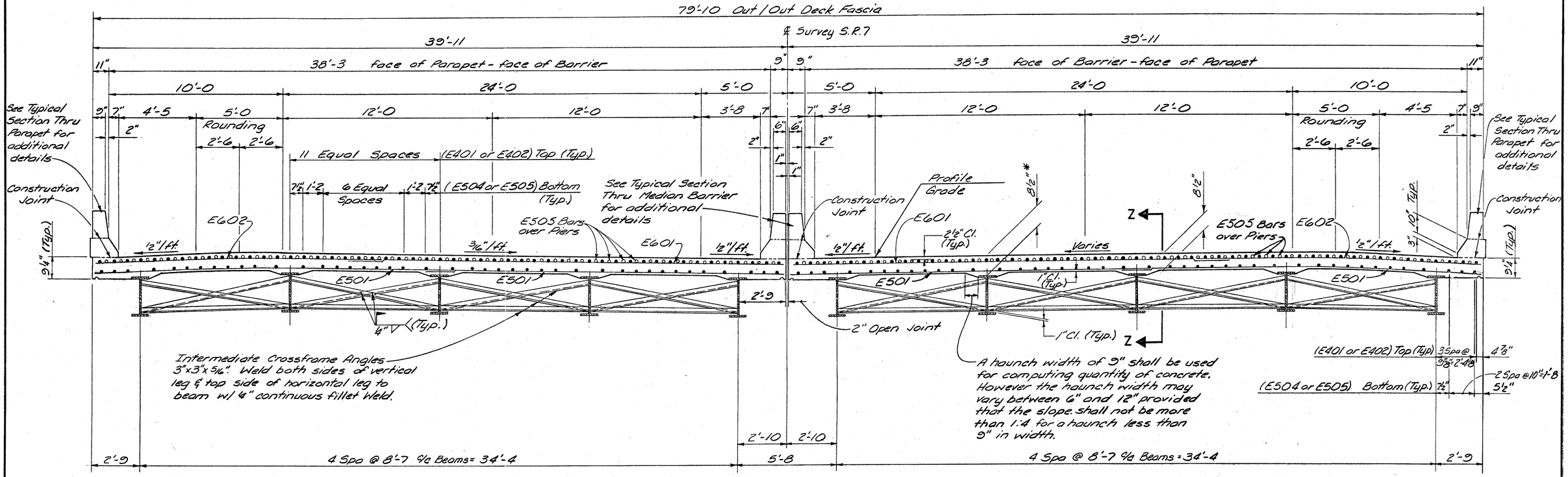
Sheet 17/19

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS

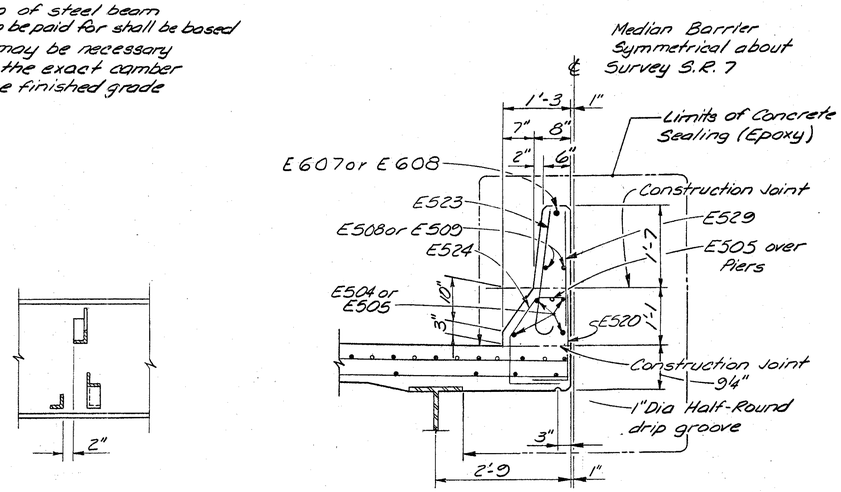
BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET
STA. 768+76.94
STA. 769+89.06
BELMONT COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GAD	GAD		JmG	wda	2/85	

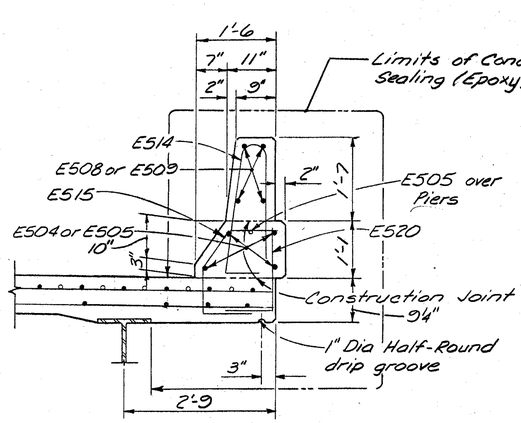


TRANSVERSE SECTION

*Deck Slab Depth:
The distance shown from the top of concrete to top of steel beam is the design 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



TYPICAL SECTION THRU MEDIAN BARRIER



TYPICAL SECTION THRU PARAPET

SECTION Z-Z

For Structural Steel Framing Plan see sheet 14/19

For Deck Reinforcing Plan see sheet 16/19

Sheet 18/19

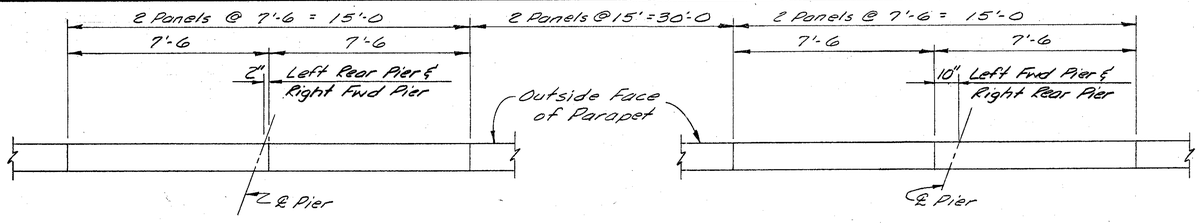
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS

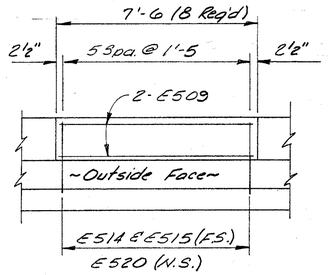
BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET

BELMONT COUNTY
STA. 768+76.94
STA. 769+89.06

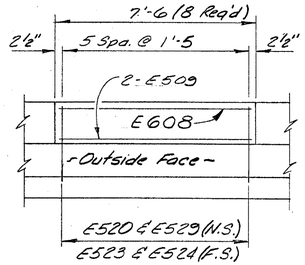
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMG	wda	2/85	11/85



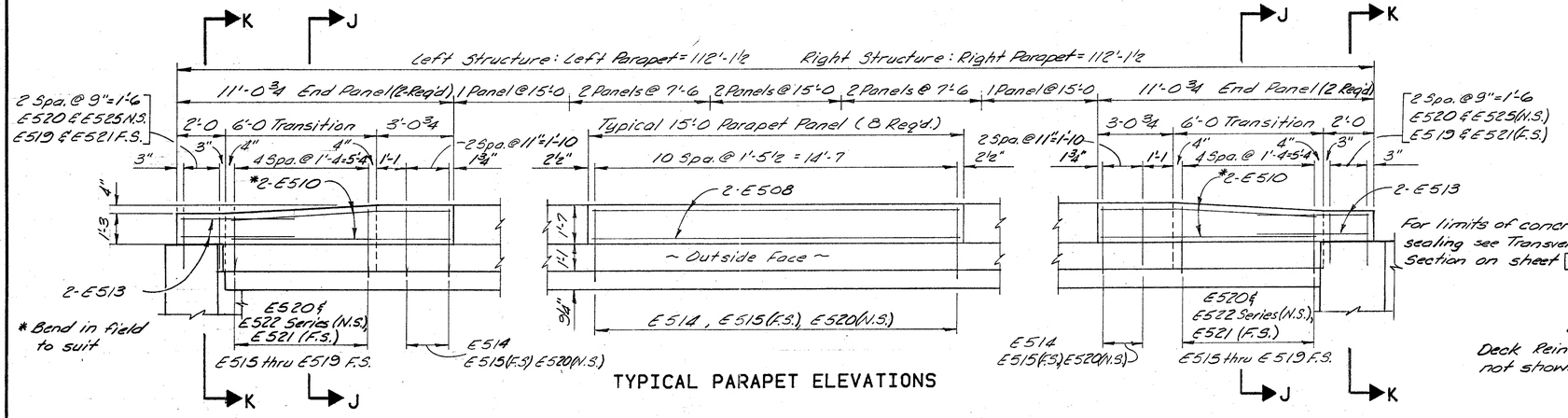
PLAN OF PARAPET PANEL DEFLECTION JOINT AT PIERS



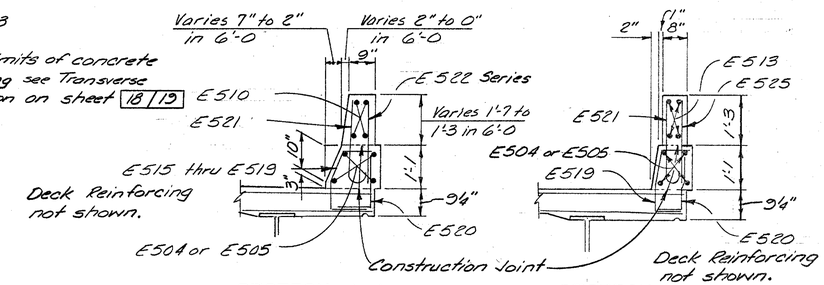
TYPICAL 7'-6 PARAPET PANEL



TYPICAL 7'-6 MEDIAN BARRIER PANEL

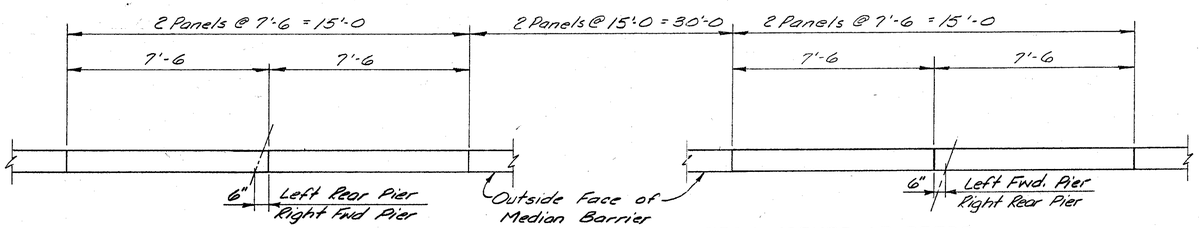


TYPICAL PARAPET ELEVATIONS

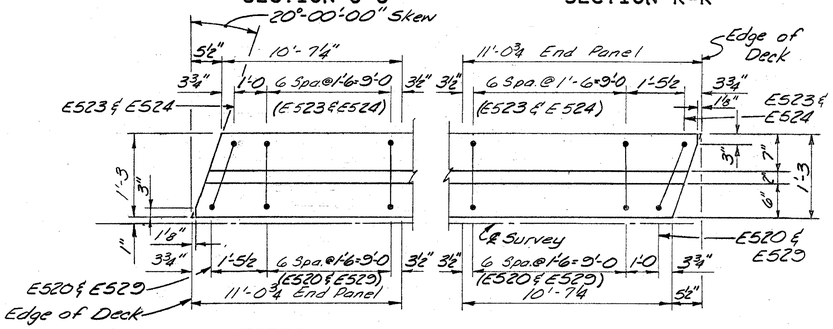


SECTION J-J

SECTION K-K

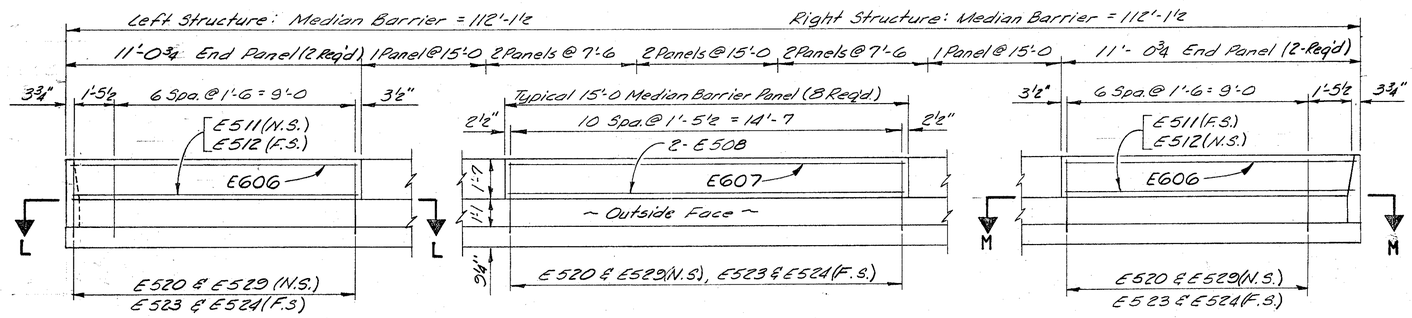


PLAN OF MEDIAN BARRIER PANEL DEFLECTION JOINTS AT PIERS



SECTION L-L

SECTION M-M



TYPICAL MEDIAN BARRIER ELEVATIONS

Note: F.S. Denotes Far Side
N.S. Denotes Near Side

For Typical Section thru Median Barrier & Parapet, see sheet 18/19.

Sheet 19/19

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS

BRIDGE NO. BEL-7-1452L/R
S.R. 7 OVER BELMONT STREET

BELMONT COUNTY
STA. 768+76.94
STA. 769+89.06

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
CHD	CHD		JMG	wda	2/85	11/85

B.M.#12 ELEV. 651.27
Sta. 11+80± Relocated Belmont St. ~46± Rt.
Chiseled Square on Southside of conc. base for light post. 55'± N of McMahon Creek, 100' SW of Gulf Service Station along S.R. 7

CURVE DATA
RAMP 'G'

P.I. = 821+32.61
Δ = 12°-38'-46"
D = 2°-30'-00"
T = 253.95'
L = 505.84'
E = 14.03'
R = 2291.83'

McMAHON CREEK

23rd STREET

29°00' Skew (Typ.) (With Reference Line)

℄ Survey Ramp 'G'

RAMP 'G'

Reference Line (Chord ℄ Abutment Bearings)

BEGIN APPROACH SLAB
STA. 822+66.67

END APPROACH SLAB
STA. 819+91.51

Type 6 Curb (Typ)

Existing Bldg ℄ Fdn. Wall (To Be Removed

Sod Erosion Control (Typ)

P.T. Sta. 823+64.00

Exist. Bldgs (To Be Removed)

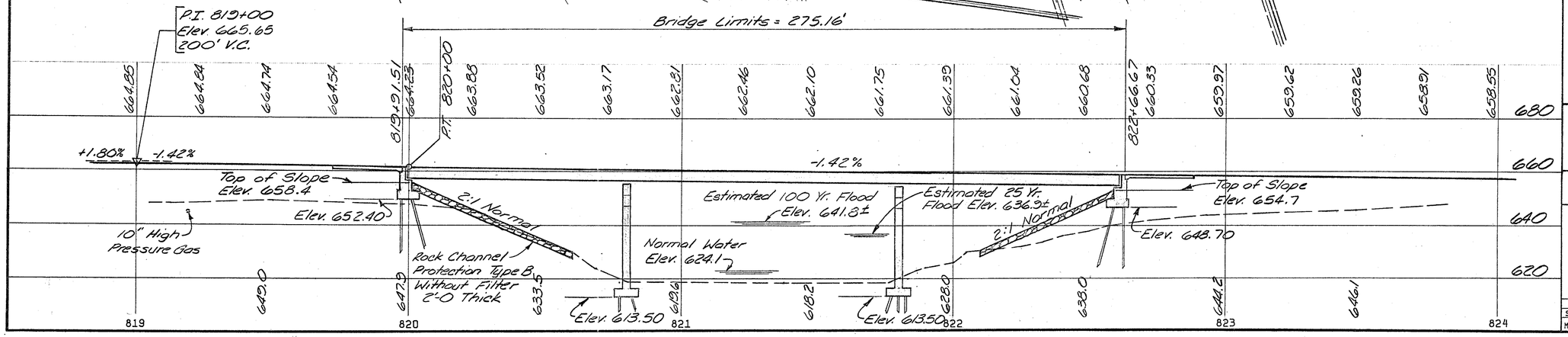
℄ Survey S.R. 7

EARTHWORK LIMITS SHOWN ARE APPROXIMATE ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS.

NOTE:
PILING TO BE HP10X42 PILES ON REAR AND FORWARD ABUTMENTS.
PILING TO BE HP12X53 PILES ON REAR AND FORWARD PIERS.

ESTIMATED AVERAGE PAY LENGTH:

REAR ABUTMENT	60 LIN. FT.
REAR PIER	16 LIN. FT.
FORWARD PIER	12 LIN. FT.
FORWARD ABUTMENT	50 LIN. FT.



OHIO RIVER FLOOD ELEVATIONS

NORMAL POOL ELEV.	623.7
25 YR. ELEV.	651.1±
100 YR. ELEV.	656.3±

STREAM DATA

DRAINAGE AREA: 89.67 SQ. MILES
Q100 = 18,250 CFS, Q25 = 11860 CFS
V100 = 8.0 FPS, V25 = 7.0 FPS
STRUCTURE CLEARS 25 YR. ESTIMATED HIGH WATER ELEVATION BY 19.2'±
McMAHON CREEK WATER ELEVATIONS CONTROLLED BY OHIO RIVER WATER ELEVATIONS.

PROPOSED STRUCTURE

TYPE: CONTINUOUS COMPOSITE STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE UNITS.
SPANS: 83'-104'-83' MEASURED ALONG ℄ OF SURVEY
ROADWAY: 28'-0 F/F PARAPETS
SKEW: 29° R.F. WITH REFERENCE LINE
SURFACE COURSE: MONOLITHIC CONCRETE
LIVE LOAD: HS 20-44 CASE II AND THE ALTERNATE MILITARY LOADING
APPROACH SLABS: AS-1-81, 25' LONG
ALIGNMENT: CURVE
SUPERELEVATION: 0.026'/'

BEL-7-14.17 | OHIO | FHWA REGION 5 | 498 / 663

CITY OF BELLAIRE

DESIGN DESIGNATION

1990 ADT	2081
2010 ADT	2906
2010 ADTT	116

SHEET 1 / 21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SITE PLAN

BRIDGE NO. BEL-7-1549G
RAMP 'G' OVER McMAHON CREEK

BELMONT COUNTY

STA. 819+91.51
STA. 822+66.67

EXIST. TOPO		PROPOSED WORK			
SURVEY	DRAWN	DESIGN	DRAWN	CHECKED	REVIEWED
MARTINEZ	FDH	FDH	FDH	JMS	wda 7/03

BEL-7-14.17 | OHIO | FHWA REGION 5 | 499 / 663

Sta. 819+75.25

2:1

℄ Brgs Rear Abutment
Sta. 819+94.00

Wing 'B'

Limits of Rock Channel Protection Type B Without Filter

Skew 29°-00' (With Reference Line) Typ.

℄ Brgs Rear Pier
Sta. 820+77.00

McMahon Creek

Limits of Rock Channel Protection Type B Without Filter

℄ Brgs Fwd Pier
Sta. 821+81.00

Sta. 822+71.93

Begin Approach Slab
Sta. 822+66.67

Sod Erosion Protection (Typ.)

Wing 'C'

820

℄ Survey Ramp 'G'

822

823

Integral Curb (Typ.)

Type 6 Curb

16'-0

Reference Line (Chord ℄ Abutment Bearings)

23'-10 out/out of Deck

Type 6 Curb

Wing 'A'

Var.

Pay Limits of Rock Channel Protection Type B, with BEL-7-1549G

End Approach Slab
Sta. 819+91.51

Limits of Rock Channel Protection Type B Without Filter

Creek

℄ Brgs Fwd. Abutment
Sta. 822+64.00

Wing 'D'

Var.

Limits of Rock Channel Protection Type B Without Filter

Sta. 822+91.27

Pay Limits of Rock Channel Protection Type B with BEL-7-1549G

3'-0" (Typ.)

Sta. 819+90.82

BEL-7-1550 L/R

3'-0 (Typ.)

Var.

PLAN

Top of Slope Elev. 658.4

Elev. 652.40

HP 10x42 Piles

Expansion Brgs

2:1 Normal

Rock Channel Protection Type B without Filter (2'-0 Thick) (Typ.)

Expansion Brgs

Normal Water Elev. 624.1

HP 12x53 Piles

℄ Elev. 613.50

Fixed Brgs

HP 12x53 Piles

℄ Elev. 613.50

Expansion Brgs

2:1 Normal

Top of Slope Elev. 654.7

℄ Elev. 648.70

HP 10x42 Piles

ELEVATION

Sheet 2 / 21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

GENERAL PLAN AND ELEVATION

BRIDGE NO. BEL-7-1549G
RAMP G OVER McMAHON CREEK

BELMONT COUNTY

STA. 819+91.5
STA. 822+66.67

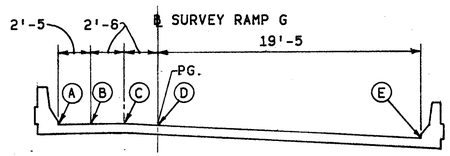
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH			JMG	7/85	

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	ABUTS	PIERS	SUPER	GEN'L
503	LUMP		COFFERDAMS, CRIBS AND SHEETING				LUMP
503	368	CU.YD.	UNCLASSIFIED EXCAVATION	193	175		
505	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				LUMP
507	1,100	LIN.FT.	STEEL PILES, HP10X42, AS PER PLAN	1,100			
507	372	LIN.FT.	STEEL PILES, HP12X53, AS PER PLAN		372		
507	47	EACH	STEEL POINTS (OR SHOES)	20	27		
509	60,045	LB.	REINFORCING STEEL, GRADE 60	9,449	26,278	24,318	
509	43,674	LB.	EPOXY COATED REINFORCING STEEL, GRADE 60	1,089		42,585	
511	277	CU.YD.	CLASS S CONCRETE, SUPERSTRUCTURE			277	
511	76	CU.YD.	CLASS C CONCRETE, ABUTMENT ABOVE FOOTINGS	76			
511	152	CU.YD.	CLASS C CONCRETE, PIER ABOVE FOOTINGS		152		
511	133	CU.YD.	CLASS C CONCRETE, FOOTINGS	59	74		
513	236,700	LB.	STRUCTURAL STEEL, ASTM A588 (AISC CATAGORY I)			236,700	
513	2,052	EACH	WELDED STUD SHEAR CONNECTOR			2,052	
514	LUMP		PARTIAL PAINTING OF A588 STEEL, SYSTEM A, AS PER PLAN			LUMP	
516	4	EACH	LAMINATED ELASTOMERIC BEARINGS, (18"X43/8"X1'-6"		4		
			ELASTOMERIC PAD WITH 2"X19"X1'-7" STEEL LOAD PLATE)				
516	4	EACH	LAMINATED ELASTOMERIC BEARINGS, (12"X35/8"X1'-0"	4			
			ELASTOMERIC PAD WITH 1 1/8"X13"X1'-1" STEEL LOAD PLATE)				
516	4	EACH	LAMINATED ELASTOMERIC BEARINGS, (14"X51/8"X1'-2"	4			
			ELASTOMERIC PAD WITH 1 1/4"X15"X1'-3" STEEL LOAD PLATE)				
516	64	LIN.FT.	STRUCTURAL EXPANSION JOINTS INCLUDING			64	
			ELASTOMERIC STRIP SEALS				
518	54	LIN.FT.	6" PERFORATED HELICAL CORRUGATED STEEL PIPE, 707.01	54			
518	96	LIN.FT.	6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE,	96			
			INCLUDING SPECIALS, 707.01				
518	33	CU.YD.	POROUS BACKFILL	33			
601	532	CU.YD.	ROCK CHANNEL PROTECTION, TYPE B WITHOUT FILTER	532			
SPECIAL	1,010	SQ.YD.	SEALING OF CONCRETE SURFACES (EPOXY), SEE PROPOSAL NOTE	90	366	554	

TOP OF SLAB ELEVATIONS (SCREED ELEVATIONS)

STATION	POINTS A	B	C	D	E	STATION	POINTS A	B	C	D	E
819+90.46	664.22	-	-	-	-	821+39.87	-	-	-	-	661.86
819+91.61	-	664.30	-	-	-	821+45.62	662.11	-	-	-	-
819+92.80	-	-	664.35	-	-	821+46.98	-	662.19	-	-	-
819+94.00	-	-	-	664.31	-	821+48.39	-	-	662.23	-	-
820+03.40	-	-	-	-	663.68	821+49.80	-	-	-	662.19	-
820+06.99	664.07	-	-	-	-	821+60.90	-	-	-	-	661.53
820+08.16	-	664.16	-	-	-	821+56.77	661.91	-	-	-	-
820+09.38	-	-	664.20	-	-	821+58.14	-	661.99	-	-	-
820+10.60	-	-	-	664.16	-	821+59.57	-	-	662.03	-	-
820+10.18	-	-	-	-	663.52	821+61.00	-	-	-	661.99	-
820+23.52	663.87	-	-	-	-	821+72.23	-	-	-	-	661.32
820+24.72	-	663.95	-	-	-	821+76.68	661.58	-	-	-	-
820+25.96	-	-	664.00	-	-	821+78.09	-	661.66	-	-	-
820+27.20	-	-	-	663.96	-	821+79.54	-	-	661.70	-	-
820+36.96	-	-	-	-	663.32	821+81.00	-	-	-	661.66	-
820+40.06	663.62	-	-	-	-	821+92.46	-	-	-	-	660.99
820+41.27	-	663.70	-	-	-	821+97.59	661.33	-	-	-	-
820+42.54	-	-	663.74	-	-	821+99.02	-	661.41	-	-	-
820+43.80	-	-	-	663.70	-	822+00.51	-	-	661.45	-	-
820+53.73	-	-	-	-	663.06	822+02.00	-	-	-	661.40	-
820+52.21	663.39	-	-	-	-	822+13.70	-	-	-	-	660.73
820+53.44	-	663.47	-	-	-	822+09.74	661.19	-	-	-	-
820+54.72	-	-	663.52	-	-	822+11.19	-	661.27	-	-	-
820+56.00	-	-	-	663.48	-	822+12.69	-	-	661.32	-	-
820+66.07	-	-	-	-	662.83	822+14.20	-	-	-	661.27	-
820+73.12	663.05	-	-	-	-	822+26.05	-	-	-	-	660.60
820+74.38	-	663.13	-	-	-	822+26.26	660.99	-	-	-	-
820+75.69	-	-	663.18	-	-	822+27.74	-	661.07	-	-	-
820+77.00	-	-	-	663.14	-	822+29.27	-	-	661.11	-	-
820+87.29	-	-	-	-	662.49	822+30.80	-	-	-	661.06	-
820+93.04	662.81	-	-	-	-	822+42.84	-	-	-	-	660.39
820+94.33	-	662.89	-	-	-	822+42.79	660.72	-	-	-	-
820+95.66	-	-	662.94	-	-	822+44.29	-	660.80	-	-	-
820+97.00	-	-	-	662.89	-	822+45.84	-	-	660.84	-	-
821+07.51	-	-	-	-	662.24	822+47.40	-	-	-	660.79	-
821+04.19	662.69	-	-	-	-	822+59.64	-	-	-	-	660.12
821+05.49	-	662.78	-	-	-	822+59.32	660.41	-	-	-	-
821+06.85	-	-	662.82	-	-	822+60.84	-	660.49	-	-	-
821+08.20	-	-	-	662.78	-	822+62.42	-	-	660.53	-	-
821+18.84	-	-	-	-	662.12	822+64.00	-	-	-	660.48	-
821+24.90	662.44	-	-	-	-	822+76.44	-	-	-	-	659.80
821+26.24	-	662.52	-	-	-						
821+27.62	-	-	662.57	-	-						
821+29.00	-	-	-	662.52	-						



NOTE: ELEVATIONS ARE THOSE REQUIRED BEFORE DECK CONCRETE IS PLACED TO ALLOW FOR DEAD LOAD DEFLECTION CAUSED BY THE WEIGHT OF THE CONCRETE.

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

ESTIMATED QUANTITIES AND SLAB ELEVATIONS

BRIDGE NO. BEL-7-1549G
RAMP G OVER McMAHON CREEK

BELMONT COUNTY

STA. 819+91.51
STA. 822+66.67

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		CFD	JMG	7/85	10/85

DESIGN NOTES

DESIGN SPECIFICATIONS
THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGH-WAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1983, INCLUDING THE 1984 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA
DESIGN LOADING: HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING
CONCRETE CLASS 'S': COMPRESSIVE STRENGTH 4500 P.S.I. (SUPER-STRUCTURE)
CONCRETE CLASS 'C': COMPRESSIVE STRENGTH 4000 P.S.I. (SUB-STRUCTURE)
REINFORCING STEEL: ASTM A615, A616, A617-GRADE 60 MINIMUM YIELD STRENGTH 60,000 P.S.I.
STRUCTURAL STEEL: ASTM A588-YIELD STRENGTH 50,000 P.S.I.
ASTM A36-YIELD STRENGTH 36,000 P.S.I.

DECK PROTECTION METHOD
EPOXY COATED REINFORCING STEEL, TOP MAT ONLY. MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

REFERENCE SHALL BE MADE TO:

STANDARD DRAWINGS	SUPPLEMENTAL SPECIFICATIONS
AS-1-81 DATED 11-27-81	836 DATED 11-12-85
BR-1 DATED 5-29-79	
SD-1-69 DATED 6-12-69	
FB-1-82 DATED 5-10-82	

REINFORCING STEEL SPLICES: ALL REINFORCING STEEL SPLICES SHALL BE IN ACCORDANCE WITH ITEM 509.08. UNLESS SHOWN OTHERWISE, ALL SPLICES SHALL BE MADE BY OVERLAPPING THE ENDS OF THE BARS NOT LESS THAN SHOWN IN THE FOLLOWING TABLE:

BAR SIZE	LAP LENGTH
#4	1'-4"
#5	1'-8"
#6	2'-0"
#7	2'-6"
#8	3'-3"
#9	4'-2"
#10	5'-3"

PILES
PILES SHALL BE DRIVEN TO REFUSAL ON BEDROCK. REFUSAL SHALL BE CONSIDERED AS ATTAINED BY PENETRATING SOFT BEDROCK WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH OR REFUSAL SHALL BE CONSIDERED AS ATTAINED AFTER THE PILE HAS CONTRACTED HARD BEDROCK AND THE PILE HAS THEN RECEIVED AT LEAST 20 BLOWS.

THE DESIGN LOAD IS 55 TONS PER PILE FOR THE REAR AND FORWARD ABUTMENTS, AND 65 TONS PER PILE FOR THE FORWARD PIER, AND 61 TONS PER PILE FOR THE REAR PIER.

PILE HAMMER
THE PILE HAMMER USED TO INSTALL THE STEEL "H" BEARING PILES SHALL HAVE A STATE'S ENERGY RATING OF NOT LESS THAN 13,500 FOOT-POUNDS. THIS REQUIREMENT DOES NOT RELIEVE THE CONTRACTOR FROM 108.05 WHICH STATES THAT THE CONTRACTOR IS TO PROVIDE SUFFICIENT EQUIPMENT FOR PROSECUTING THE REQUIRED WORK. REFER TO "ODOT'S MANUAL OF PROCEDURES FOR STRUCTURES" TO OBTAIN THE STATE'S ENERGY RATING.

PILE POINTS
STEEL PILE POINTS SHALL BE USED TO PROTECT THE TIPS OF THE PROPOSED PILING. THE STEEL POINTS SHALL BE FURNISHED BY THE ASSOCIATED PILE AND FITTING CORPORATION, 262 RUTHERFORD BOULEVARD, CLIFTON, NEW JERSEY 07014, THE INTERNATIONAL CONSTRUCTION EQUIPMENT, INC., 301 WAREHOUSE DRIVE, MATTHEWS, NORTH CAROLINA 28105 OR BY A MANUFACTURER THAT CAN FURNISH A STEEL POINT THAT IS ACCEPTABLE TO THE DIRECTOR.

PIER COFFERDAM CONSTRUCTION
THE CONTRACTOR SHOULD GIVE CONSIDERATION TO DESIGNING THE PIER COFFERDAMS IN A MANNER THAT IS COMPATIBLE WITH INFORMATION OBTAINED FROM THE SUBSURFACE MONITORING PROGRAM. HIGH PORE WATER PRESSURES MAY CAUSE THE SLOPE STABILITY TO HAVE A LOW FACTOR OF SAFETY.

SEALING OF CONCRETE SURFACES
AN EPOXY SEALER SHALL BE APPLIED TO THE FOLLOWING EXPOSED CONCRETE SURFACE AREAS: COMPLETE AREA OF THE DECK PARAPETS AS SHOWN IN TRANSVERSE SECTION ON SHEET 18/21, COMPLETE AREA OF THE ABUTMENT BACKWALLS, BEAM SEATS, AND BREASTWALLS, AND ALL SURFACES OF THE PIERS ABOVE THE WATER LINE.

PARTIAL PAINTING OF A588 STEEL
A588 STEEL IS TO BE LEFT UNPAINTED, EXCEPT AS NOTED BELOW. SEE CMS 513.221 FOR CLEANING REQUIREMENTS.

A 10'-0 LENGTH OF THE ENDS OF BEAMS ADJACENT TO ABUTMENTS AND ALL CROSSFRAMES AND OTHER A588 STEEL WITHIN THESE LIMITS SHALL BE PAINTED. PAINT SHALL BE 514, SYSTEM A. THE PRIME COAT SHALL BE 708.17. THE TOP COAT SHALL BE 708.18 EXCEPT THAT THE COLOR SHALL CLOSELY APPROACH FEDERAL STANDARD NO. 595a-20045 OR 20059. PRIME COAT SHALL BE APPLIED IN THE SHOP.

EMBANKMENT CONSTRUCTION AND PILE DRIVING CONSTRAINTS
PRIOR TO DRIVING PILES AT THE PIERS AND ABUTMENTS THE SPILL-THRU EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FOR A DISTANCE OF 200 FEET BACK OF THE ABUTMENTS. AFTER THE EMBANKMENT HAS BEEN COMPLETED WITHIN THE ABOVE REQUIRED LIMITS, A 30 DAY WAITING PERIOD IS REQUIRED PRIOR TO EXCAVATING AND DRIVING PILES FOR THE PIERS AND ABUTMENTS. THE PROPOSED EMBANKMENTS WITHIN THE ABOVE REQUIRED LIMITS SHALL BE CONSTRUCTED AT A RATE NOT TO EXCEED TWO FEET IN HEIGHT PER WEEK.

THE RATE OF SETTLEMENT AND PORE PRESSURE SHALL BE MONITORED IN THE FIELD DURING CONSTRUCTION. UNDER THE CONTRACT, THE CONTRACTOR SHALL RETAIN AN EXPERIENCED SOILS FIRM TO MONITOR THE INSTRUMENTATION, RECOMMEND ANY NEEDED CHANGES IN THE RATE OF FILL PLACEMENT OR WAITING PERIODS, AND SUBMIT A WRITTEN REPORT TO THE DIRECTOR.

THE WAITING PERIOD AND RATE OF CONSTRUCTION OF THE EMBANKMENT CAN BE CHANGED IF THE DIRECTOR'S REVIEW OF THE RESULTS FROM THE SOIL MONITORING INSTRUMENTATION INDICATES THAT REVISED REQUIREMENTS FOR THE CONSTRUCTION OF THE EMBANKMENT ARE APPROPRIATE.

THE FOLLOWING INSTRUMENTATION SHALL BE INSTALLED BY THE CONTRACTOR:

LOCATION	INSTRUMENT	OFFSET
SOUTH ABUTMENT	PIEZOMETER	CENTERLINE
SOUTH ABUTMENT	SETTLEMENT PLATFORM	CENTERLINE
TOE OF SOUTH FRONT SLOPE	SLOPE INCLINOMETER	CENTERLINE
NORTH ABUTMENT	PIEZOMETER	CENTERLINE
NORTH ABUTMENT	SETTLEMENT PLATFORM	CENTERLINE
TOE OF NORTH FRONT SLOPE	SLOPE INDICATOR	CENTERLINE

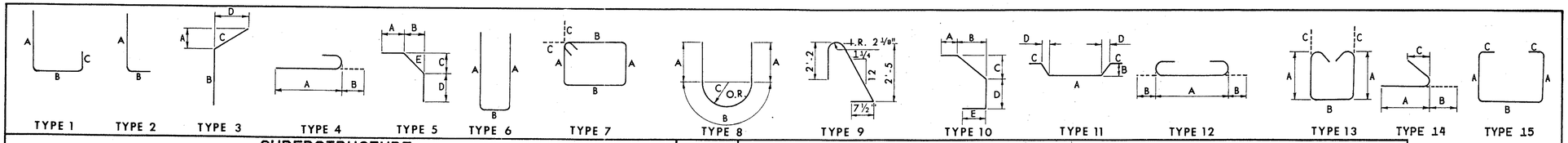
PAYMENT FOR THE ABOVE WORK SHALL BE INCLUDED WITH ITEM 203, ROADWAY EXCAVATION AND EMBANKMENT.

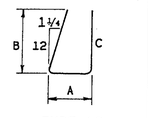
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

DESIGN NOTES

BRIDGE NO. BEL-7-1549G
RAMP G OVER McMAHON CREEK
STA. 819+91.51
BELMONT COUNTY STA. 822+06.67

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMG	wda	7/85	





SUPERSTRUCTURE

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
E601	STR.							445	29'-6"	19,718
E602	STR.							3	5'-0"	23
E603	STR.							3	4'-0"	19
E604	STR.	Lengths Vary By 1'-2 3/8"(-)						1 Series of 18	6'-3" TO 26'-7"	444
E605	STR.	Lengths Vary By 10 7/8"						1 Series of 25	4'-9" TO 26'-6"	587
E501	2	1'-6	10 1/2"					418	2'-3"	981
E502	9	See Detail						418	5'-3"	2289
E503	10	9"	6"	8 1/2"	10"	10 1/2"		418	3'-1"	1345
E504	STR.							16	8'-1"	135
E505	STR.							128	7'-1"	946
E506	STR.							72	14'-7"	1096
E507	STR.							154	30'-0"	4819
E508	STR.							8	17'-0"	142
E516	STR.							82	28'-8"	2452
S501	STR.							445	29'-6"	13,692
S502	STR.							297	30'-0"	9,294
S503	STR.							33	17'-0"	586
S504	STR.							3	5'-0"	16
S505	STR.							3	4'-0"	13
S506	STR.	Lengths Vary By 1'-2 3/8"(-)						1 Series of 18	6'-3" TO 26'-7"	309
S507	STR.	Lengths Vary By 10 7/8"						1 Series of 25	4'-9" TO 26'-6"	408
E401	STR.							360	30'-0"	7214
E402	STR.							40	14'-0"	375

REAR ABUTMENT

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
A801	5	1'-5"	1'-5"	1'-5"	1'-5"	2'-0"		20	4'-10"	258
A802	STR.							7	30'-0"	561
A803	STR.							7	8'-0"	150
A804	STR.							3	10'-6"	84
A805	STR.							3	7'-9"	62
A806	STR.							3	9'-4"	75
A807	STR.							3	5'-10"	47

REAR ABUTMENT

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
A601	1	6'-6"	5'-4"	2'-7"				6	14'-1"	127
A602	1	6'-9"	5'-4"	2'-7"				7	14'-4"	151
A603	1	7'-1"	5'-4"	2'-7"				8	14'-8"	176
A604	6	2'-9"	11"					29	6'-1"	265
A605	6	2'-10"	1'-5"					29	6'-9"	294
A606	6	4'-0"	1'-5"					29	9'-1"	396
A607	STR.							4	3'-6"	21
A608	6	8'-5"	1'-2"					4	17'-8"	106
A609	STR.							5	2'-8"	20
A610	STR.							1	3'-0"	5
A611	STR.							9	4'-2"	56
A612	6	9'-0"	1'-2"					5	18'-10"	141
A613	STR.	Lengths Vary By 9"						1 Series of 4	2'-9" TO 5'-0"	23
A501	STR.							30	17'-4"	542
A502	2	6'-5"	10 1/2"					6	7'-2"	45
A503	2	6'-8"	10 1/2"					7	7'-5"	54
A504	2	7'-0"	10 1/2"					8	7'-9"	65
A505	6	1'-8"	3'-5					21	6'-6"	142
A506	6	1'-8"	5'-4					21	8'-5"	184
A507	STR.							5	2'-8"	14
A508	6	10"	1'-2"					10	2'-7"	27
A509	STR.							1	3'-0"	3
A510	STR.							9	4'-2"	39
A511	STR.							11	7'-3"	83
A512	STR.							1	4'-8"	5
A513	STR.							6	10'-8"	67
A514	STR.	7'-7"	10 1/2"					2	8'-4"	17
A515	7	2'-4"	3'-0"	5 1/2"				6	11'-3"	70
A516	STR.							6	14'-2"	89
A517	STR.	Lengths Vary By 9"						1 Series of 4	2'-9" TO 5'-0"	16
A518	2	6'-10"	10 1/2"					1	7'-7"	8
A519	STR.							4	8'-4"	35
E606	5	7"	2"	8 1/2"	2'-5"	8 3/4"		8	3'-7"	43
E607	5	7"	3"	8 1/2"	2'-5"	9"		2	3'-7"	11
E608	5	8"	4"	8 1/2"	2'-5"	9 3/8"		2	3'-8"	11
E609	5	8"	5"	8 1/2"	2'-5"	9 7/8"		2	3'-8"	11
E610	5	9"	6"	8 1/2"	2'-5"	10 3/8"		9	3'-9"	51
E502	9	See Detail						7	5'-3"	38
E509	STR.							16	4'-7"	76
E510	4	2'-1"	7"					16	2'-8"	45
E511	STR.							7	3'-0"	22
E512	STR.							16	4'-4"	72
E513	STR.							8	8'-8"	72
E514	STR.							8	12'-2"	102

NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

AN 'E' DESIGNATION PRECEDING THE BAR MARK DENOTES EPOXY COATED BARS.

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

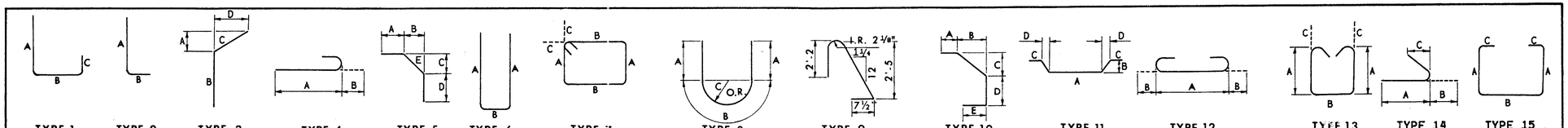
REINFORCING BAR SCHEDULE

BRIDGE NO. BEL-7-1549G
RAMP G OVER McMAHON CREEK

BELMONT COUNTY

STA. 819+91.51
STA. 822+66.67

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.			JMK	7/85	

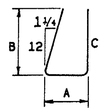


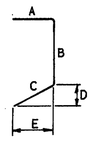
FORWARD ABUTMENT

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
B801	5	1'-5"	1'-5"	1'-5"	1'-5"	2'-0"		21	4'-10"	271
B802	STR.							7	30'-0"	561
B803	STR.							7	10'-6"	196
B804	STR.							3	11'-2"	89
B805	STR.							3	7'-9"	62
B806	STR.							3	9'-2"	73
B807	STR.							3	5'-5"	46
B601	1	7'-11"	5'-4"	2'-7"				9	14'-8"	198
B602	1	6'-9"	5'-4"	2'-7"				8	14'-4"	172
B603	1	6'-6"	5'-4"	2'-7"				8	14'-1"	169
B604	6	2'-9"	11"					31	6'-1"	283
B605	6	2'-8"	1'-5"					31	6'-5"	299
B606	6	4'-0"	1'-5"					31	9'-1"	423
B607	STR							4	3'-6"	21
B608	6	9'-0"	1'-2"					4	18'-10"	113
B609	STR							6	2'-8"	24
B610	STR							1	3'-2"	5
B611	STR							9	3'-11"	53
B612	6	8'-5"	1'-2"					5	17'-8"	133
B613	STR							1	4'-1"	6
B614	STR							1	3'-4"	5
B501	STR							36	18'-4"	688
B502	2	6'-4"	10½"					1	7'-1"	7
B503	2	7'-0"	10½"					9	7'-9"	73
B504	2	6'-8"	10½"					8	7'-5"	62
B505	2	6'-5"	10½"					8	7'-2"	60
B506	6	1'-8"	3'-5"					25	6'-6"	169
B507	6	1'-8"	5'-4"					25	8'-5"	219
B508	STR							6	2'-8"	17
B509	STR							1	3'-2"	3
B510	STR							9	3'-11"	37
B511	6	10"	1'-2"					9	2'-7"	24
B512	STR							6	7'-6"	47
B513	STR							2	4'-8"	10
B514	STR							6	10'-8"	67
B515	2	8'-1"	10½"					2	8'-10"	18
B516	7	2'-4"	3'-0"	5½"				6	11'-3"	70
B517	STR							1	4'-1"	4
B518	STR							1	3'-4"	3
B519	STR							4	7'-1"	30
B520	STR							2	8'-9"	18
B521	STR							6	13'-8"	86
B522	STR							2	4'-4"	9

FORWARD ABUTMENT

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
E606	5	7"	2"	8½"	2'-5"	8¾"		8	3'-7"	43
E607	5	7"	3"	8½"	2'-5"	9"		2	3'-7"	11
E608	5	8"	4"	8½"	2'-5"	9⅜"		2	3'-8"	11
E609	5	8"	5"	8½"	2'-5"	9⅞"		2	3'-8"	11
E610	5	9"	6"	8½"	2'-5"	10⅜"		8	3'-9"	45
E502	9	See Details						6	5'-3"	33
E509	STR							16	4'-7"	76
E510	4	2'-1"	7"					16	2'-8"	45
E511	STR							6	3'-0"	19
E512	STR							16	4'-4"	72
E513	STR							8	8'-8"	72
E515	STR							8	11'-8"	97





PIERS

							REAR	FWD.					
P1001	Str.						-	32			32	14'-4"	1974
P1002	2	7'-5"	1'-10"				-	32			32	8'-11"	1228
P1003	2	11'-7"	1'-10"				-	32			32	13'-1"	1802
P1004	Str.						-	32			32	23'-9"	3270
P901	Str.						-	32			32	15'-6"	1686
P801	Str.						12	12			24	32'-8"	2093
P802	2	5'-10"	1'-4½"				32	-			32	7'-0"	598
P803	2	8'-5"	1'-4½"				32	-			32	9'-7"	819
P804	Str.						32	-			32	22'-7"	1930
P805	Str.						32	-			32	15'-5"	1317
P806	2	3'-3"	2'-8½"				6	6			12	5'-9"	184
P807	2	3'-3"	3'-2½"				6	6			12	6'-3"	200
P808	Str.						11	-			11	22'6"	661
P809	12	14'-6"	11"				-	30			30	16'-4"	1308
P701	12	10'-6"	10"				32	-			32	12'-2"	796
P702	Str.						32	-			32	16'-2"	1057
P703	Str.						-	26			26	7'-1"	376
P601	Str.						-	16			16	20'-6"	493
P602	Str.						26	-			26	7'-1"	277
P501	8	1'-8"	4'-2¾"	1'-4			46	44			90	7'-6"	704
P502	Str.						46	44			90	12'-0"	1126
P503	6	2'-0"	2'-8"				13	13			26	6'-5"	174
P504	Str.						4	4			8	32'-8"	273
P505	Str.			Length Varies by 6'-9"			2 Series of 3	2 Series of 3			4 Series of 3	15'-5" to 28'-11"	277
P506	3	1'-6¾"	9'-3"	1'-8"	8⅜"		6	6			12	10'-11"	137
P508	Str.						-	14			14	14'-6"	212

NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

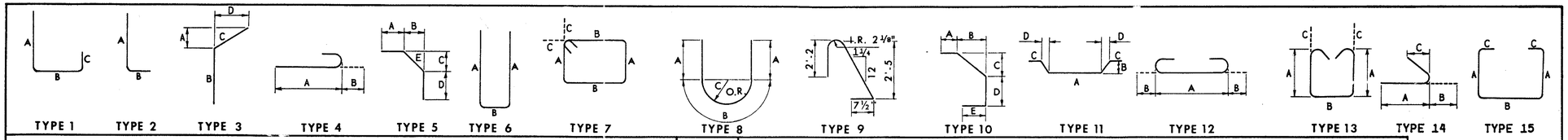
AN 'E' DESIGNATION PRECEDING THE BAR MARK DENOTES EPOXY COATED BARS.

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

REINFORCING BAR SCHEDULE

BRIDGE NO. BEL-7-1549G
RAMP G OVER McMAHON CREEK
BELMONT COUNTY
STA. 819+91.51
STA. 822+66.67

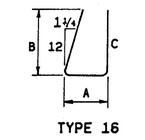
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.			JMG	7/85	10/85



PIERS

MARK	TYPE	A	B	C	D	E	NUMBER				TOTAL	LENGTH	WEIGHT
							REAR	FWD.					
P510	6	2'-7"	2'-8"				28	26			54	7'-7"	427
P511	6	3'-0" to 4'-7"	2'-8"	Length Varies by 5 3/8"(+)			2 Series 8	2 Series 8			4 Series 8	8'-5" to 11'-7"	334
P512	6	4'-11	2'-8"				2	-			2	12'-3"	26
P513	6	5'-3" to 6'-8"	2'-8"	Length Varies by 11"			2 Series of 4	-			2 Series of 4	13'-0" to 15'-9"	120
P518	6	5'-0" to 5'-11"	2'-8"	Length Varies by 11"			-	2 Series of 3			2 Series of 3	12'-6" to 14'-4"	84
P519	6	6'-8"	2'-8"				-	2			2	15'-9"	33
P301	18	4"	2'-8"	2½"			115	110			225	3'-4"	282

MARK	TYPE	A	B	C	D	E	NUMBER				TOTAL	LENGTH	WEIGHT



NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDA CE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

Sheet 7 / 21

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

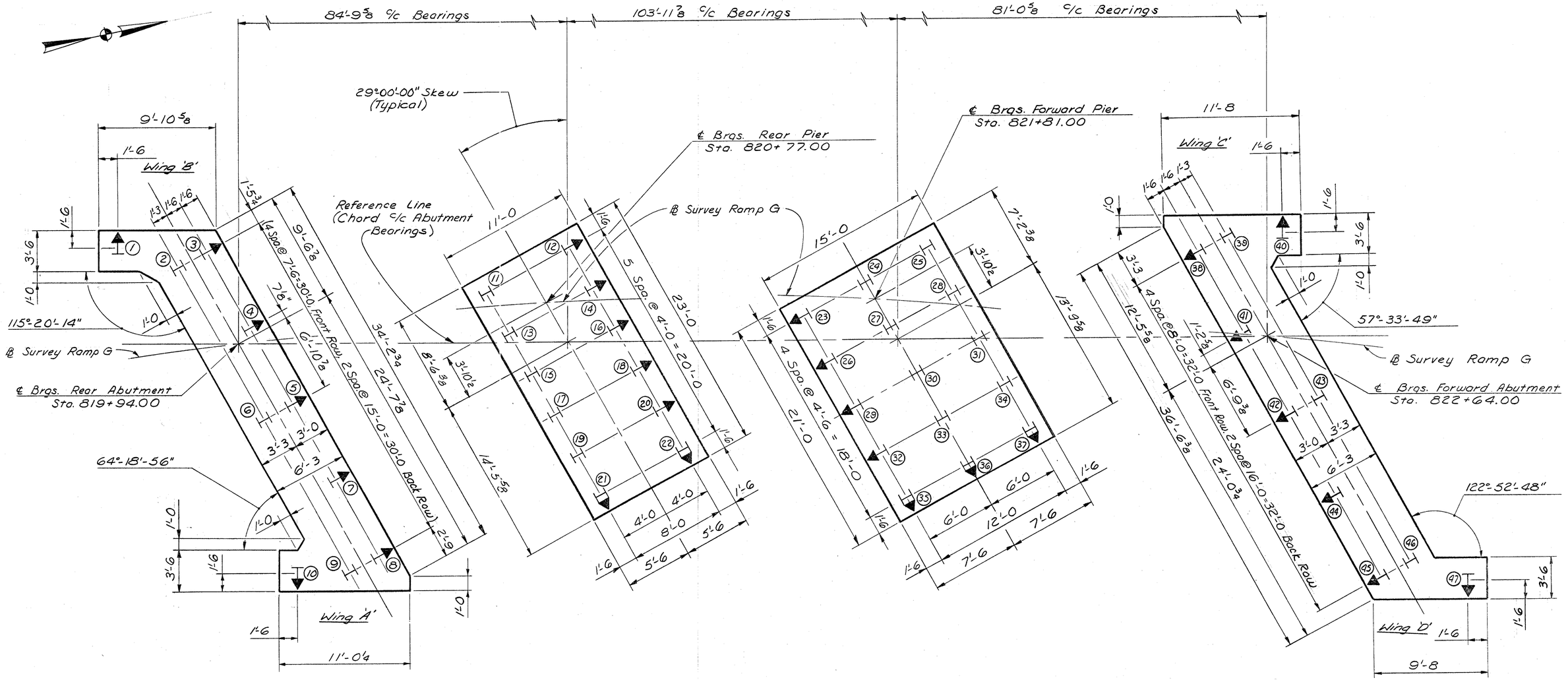
REINFORCING BAR SCHEDULE

BRIDGE NO. BEL-7-1549G
RAMP G OVER McMAHON CREEK

STA. 819+91.51
STA. 822+66.67

BELMONT COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		FDH	JMG	7/85	10/85



NOTE:
◀—| Indicates direction of 4:1 battered Piles.

All Pier Footing Piles to be HP 12x53.

All Abutment Footing Piles to be HP 10x42.

Steel Pile Points shall be used as per plan.

Sheet 8/21

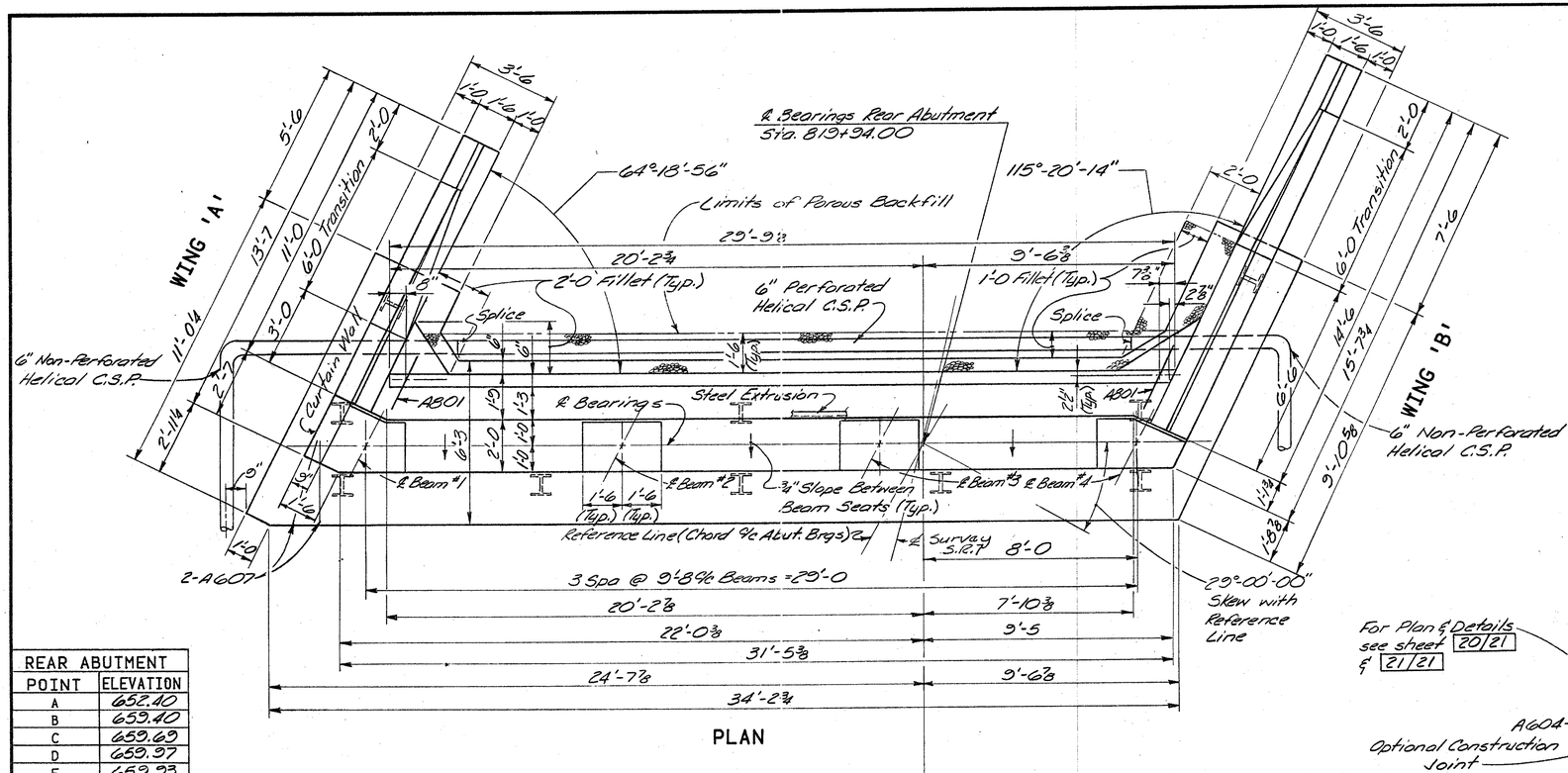
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

FOOTING PLAN

BRIDGE NO. BEL-7-1549 G
RAMP G OVER McMAHON CREEK

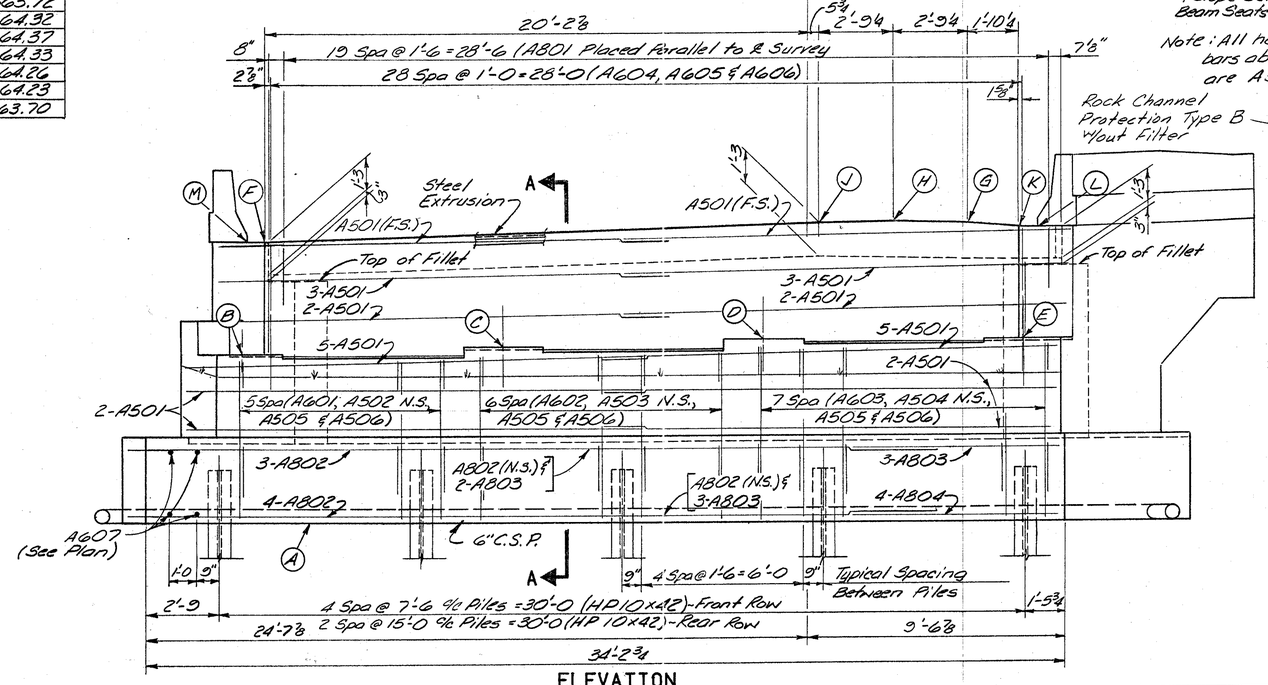
BELMONT COUNTY — STA. 819+91.51, STA. 822+66.67

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JWG	7/85	10/85

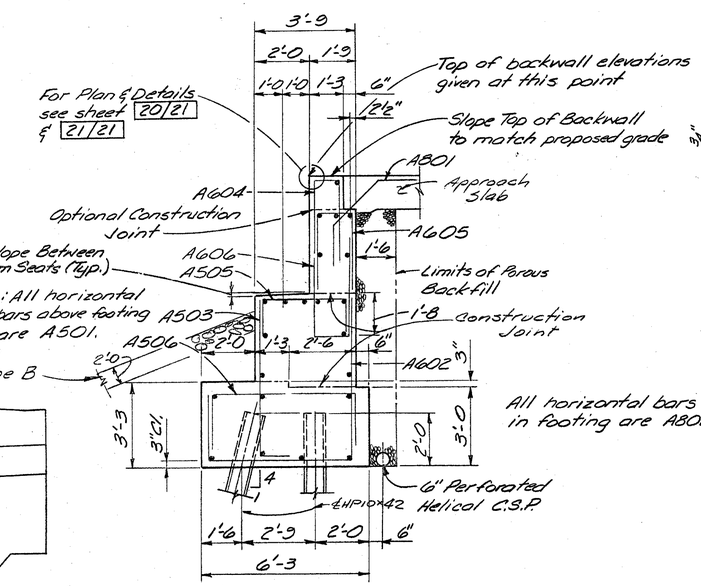


PLAN

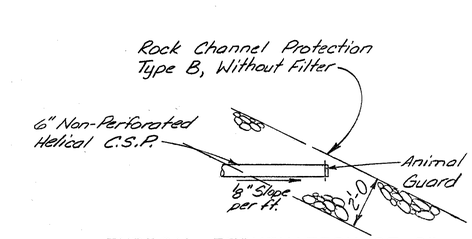
REAR ABUTMENT	
POINT	ELEVATION
A	652.40
B	659.40
C	659.69
D	659.97
E	659.93
F	663.72
G	664.32
H	664.37
J	664.33
K	664.26
L	664.23
M	663.70



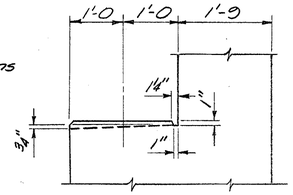
ELEVATION



SECTION A-A



TYPICAL TERMINATION OF 6" NON-PERFORATED C.S.P.



TYPICAL SECTION THRU BEAM SEAT

For Details of Wings 'A' & 'B', see sheet 10/21

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

POROUS BACKFILL: 1'-6 shall extend up to the plane of the subgrade and laterally to the ends of wing

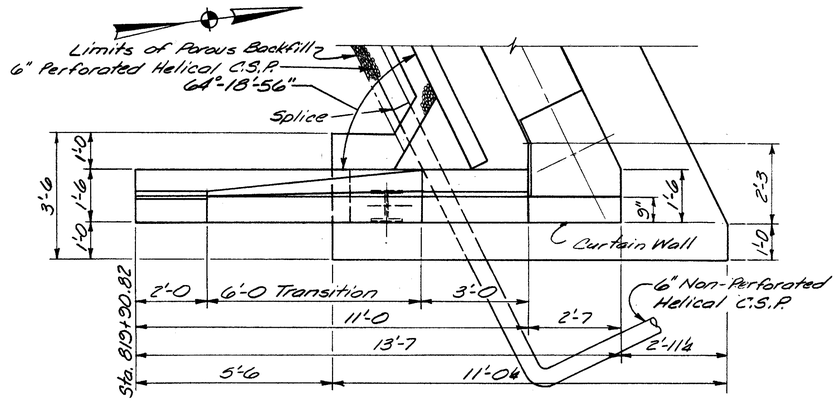
Sheet 9/21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

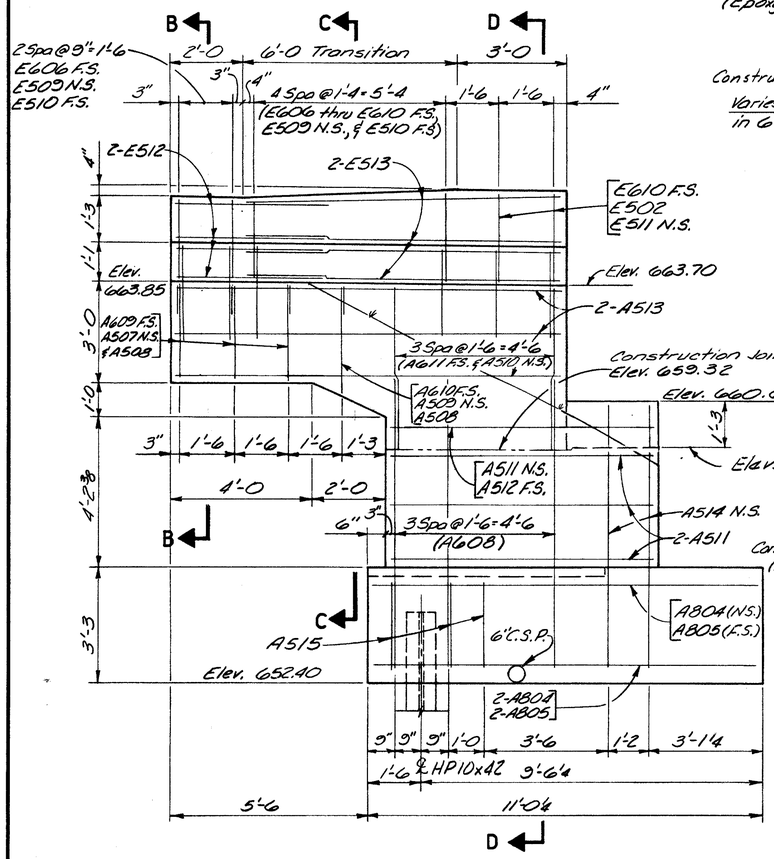
REAR ABUTMENT DETAILS

BRIDGE NO. BEL-7-1549G
RAMP 'G' OVER McMAHON CREEK
STA. 819+91.51
BELMONT COUNTY STA. 822+66.67

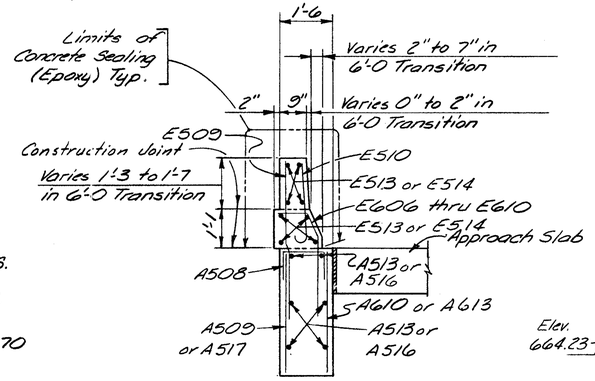
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		wda	JMG	7/85	



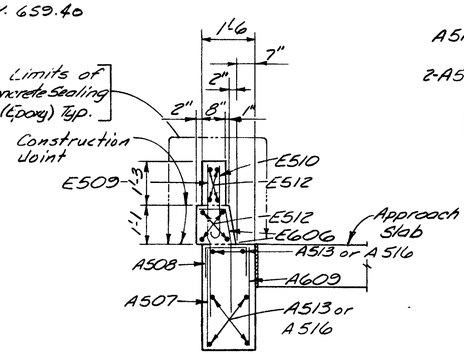
PLAN



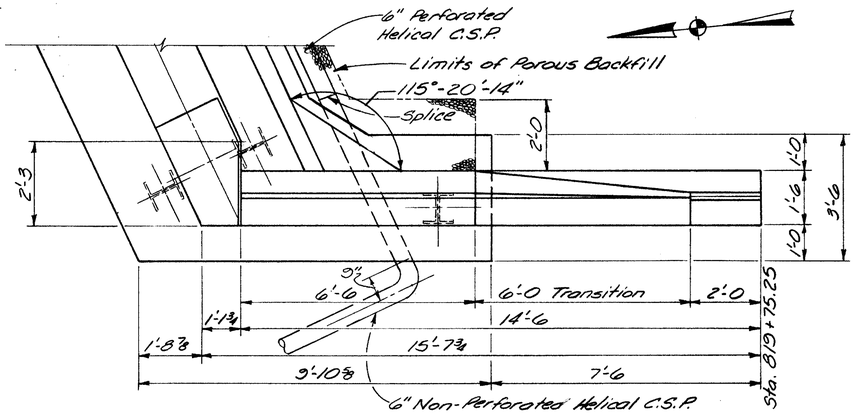
ELEVATION
WING 'A'



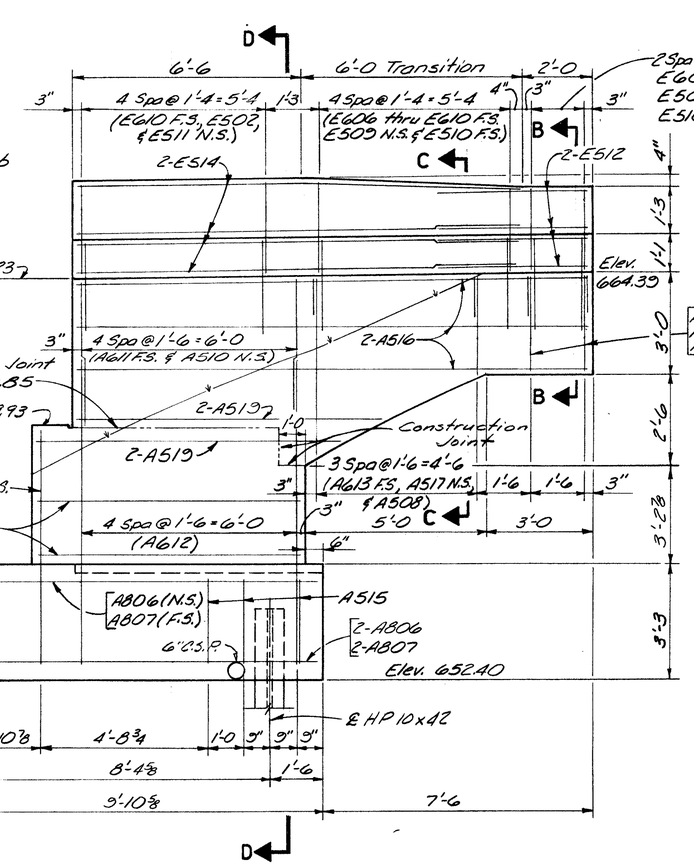
SECTION C-C



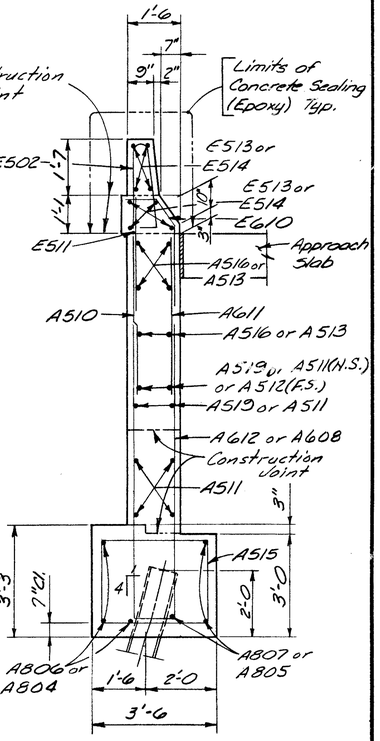
SECTION B-B



PLAN



ELEVATION
WING 'B'



SECTION D-D

For Plan & Elevation of Rear Abutment, see sheet 9/21

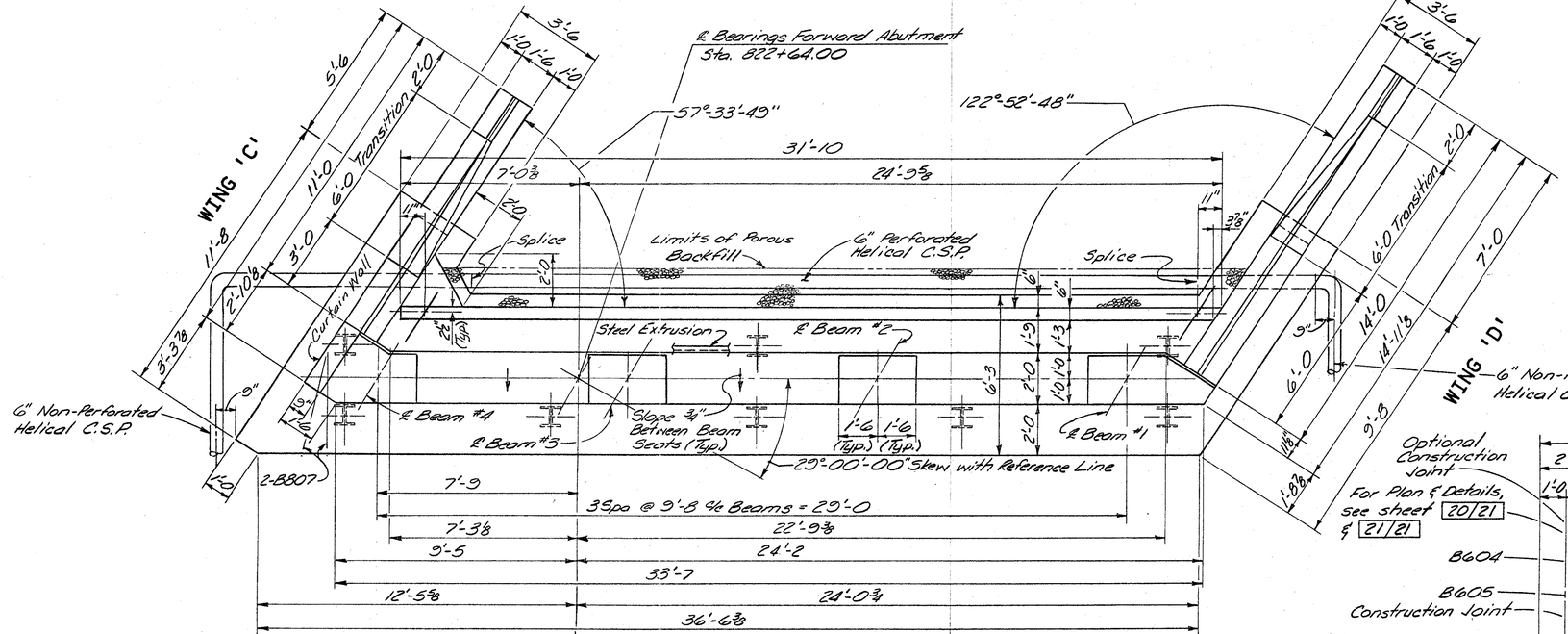
Sheet 10/21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

REAR ABUTMENT DETAILS

BRIDGE NO. BEL-7-1549G
RAMP 'G' OVER McMAHON CREEK
BELMONT COUNTY
STA. 819+91.51
STA. 822+66.67

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		wda	JMG	7/85	



FORWARD ABUTMENT	
POINT	ELEVATION
A	648.70
B	656.29
C	656.28
D	655.99
E	655.71
F	660.42
G	660.47
H	660.51
J	660.46
K	659.81
L	659.79
M	660.38

For Details of Wings 'C' & 'D', see sheet 12/21

For Termination Detail of 6" C.S.P., see sheet 9/21

For Typical Section Thru Beam Seat, see sheet 9/21

For Backwall Concrete Note, see sheet 9/21

For Porous Backfill Note, see sheet 9/21

BRIDGE SEAT ELEVATIONS have been adjusted upward ⅛" at the Forward Abutment to compensate for the vertical deformation of the bearings.

Sheet 11/21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

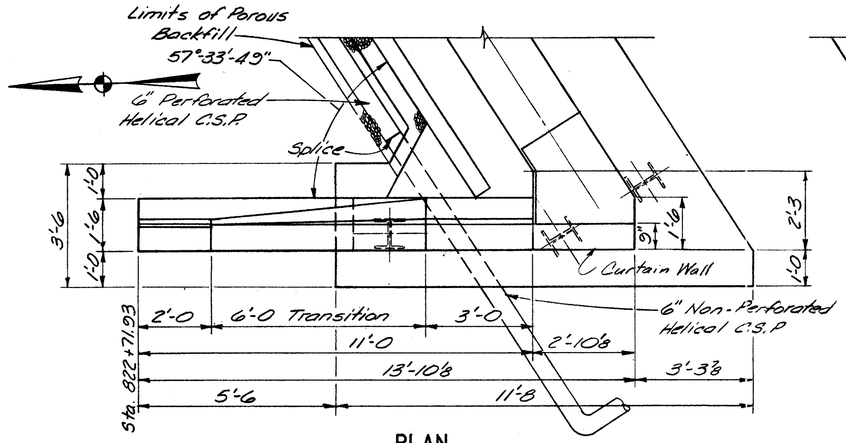
FORWARD ABUTMENT DETAILS

BRIDGE NO. BEL-7-1549G
RAMP 'G' OVER McMAHON CREEK

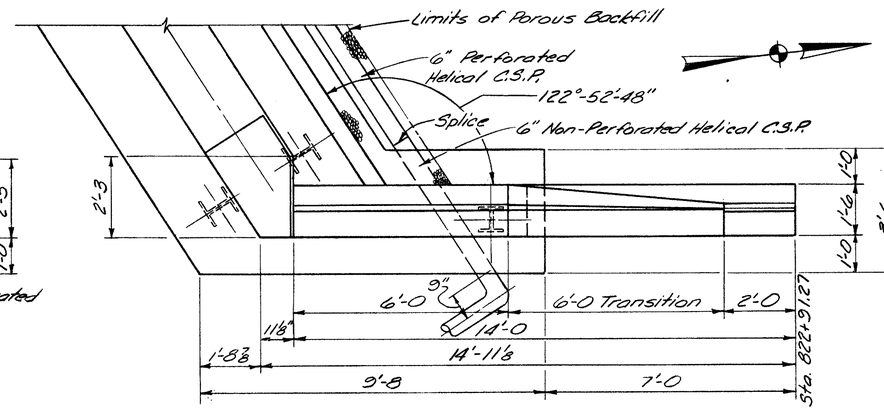
BELMONT COUNTY — STA. 819+91.51 / STA. 822+66.67

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		wda	JMG	7/85	

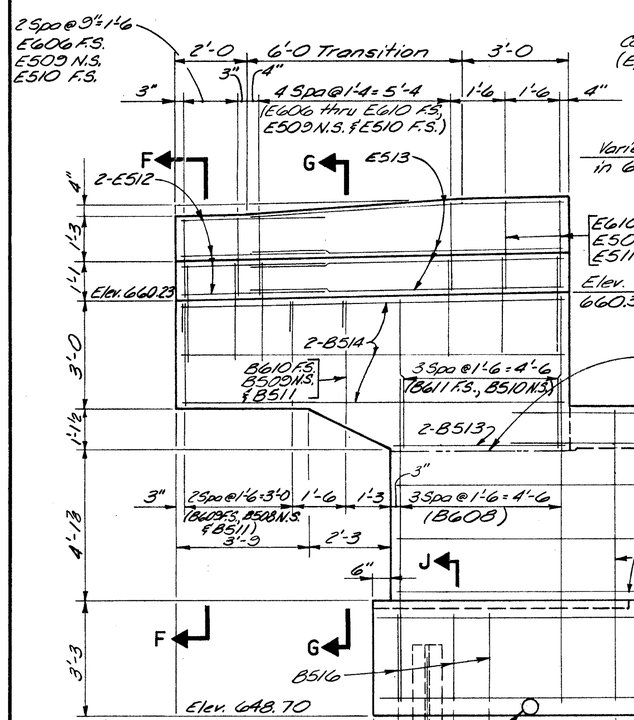
BEL-7-14.17 | OHIO | FHWA REGION 5 | 509 / 663



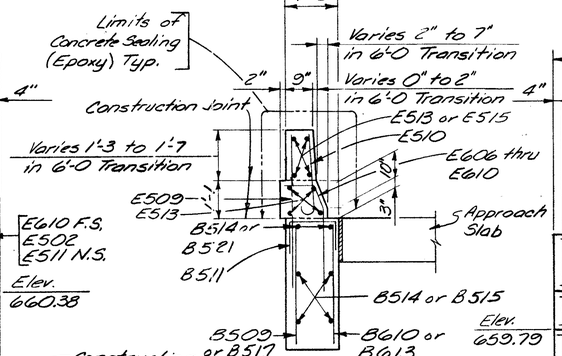
PLAN



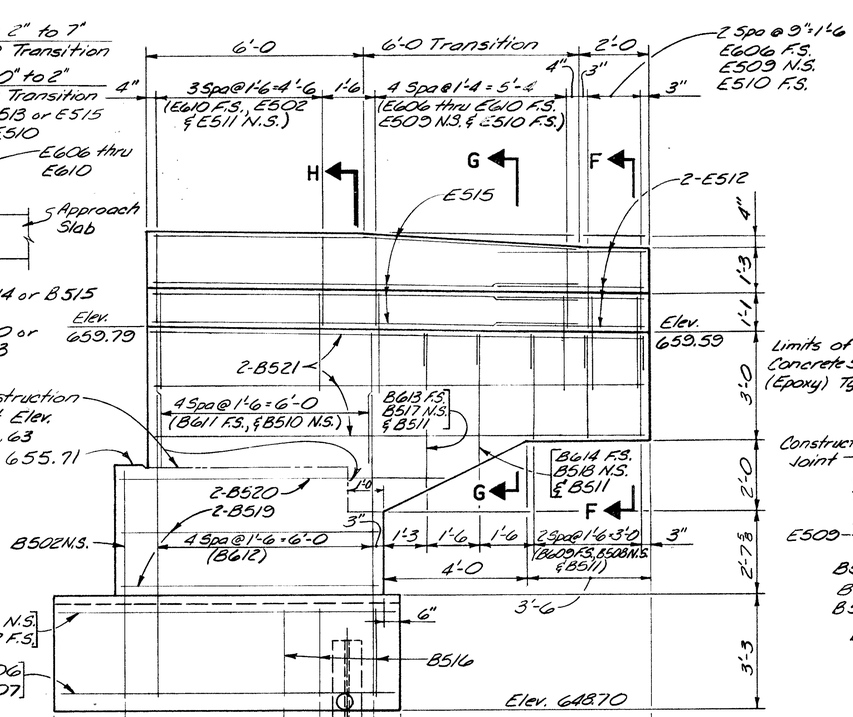
PLAN



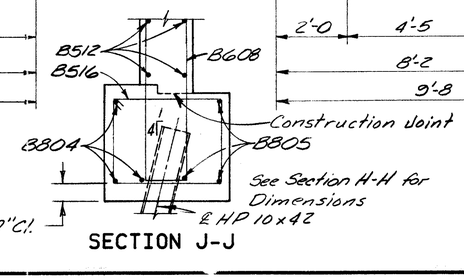
ELEVATION
WING 'C'



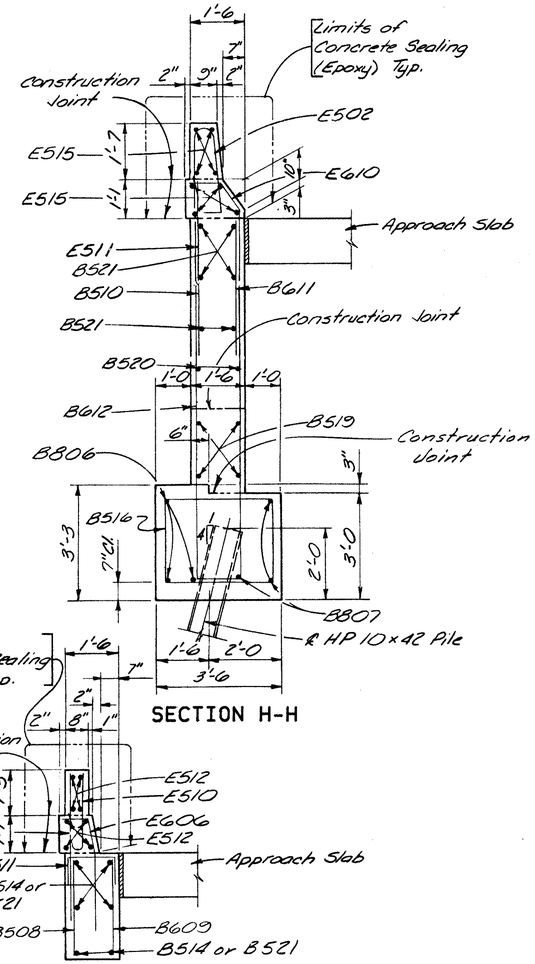
SECTION G-G



ELEVATION
WING 'D'



SECTION J-J



SECTION H-H

SECTION F-F

For Plan & Elevation of Forward Abutment, see sheet 11/21

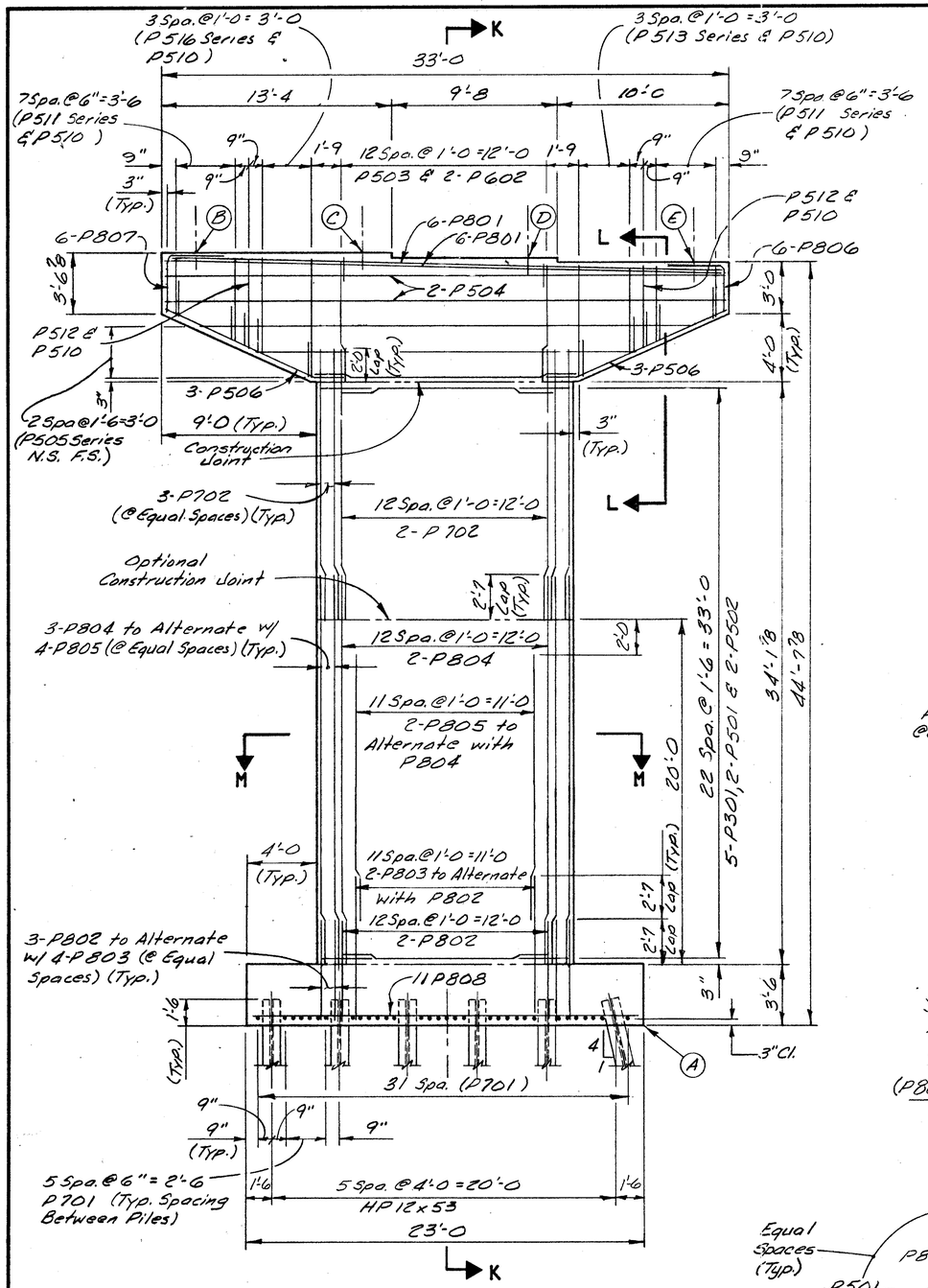
Sheet 12/21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

FORWARD ABUTMENT DETAILS

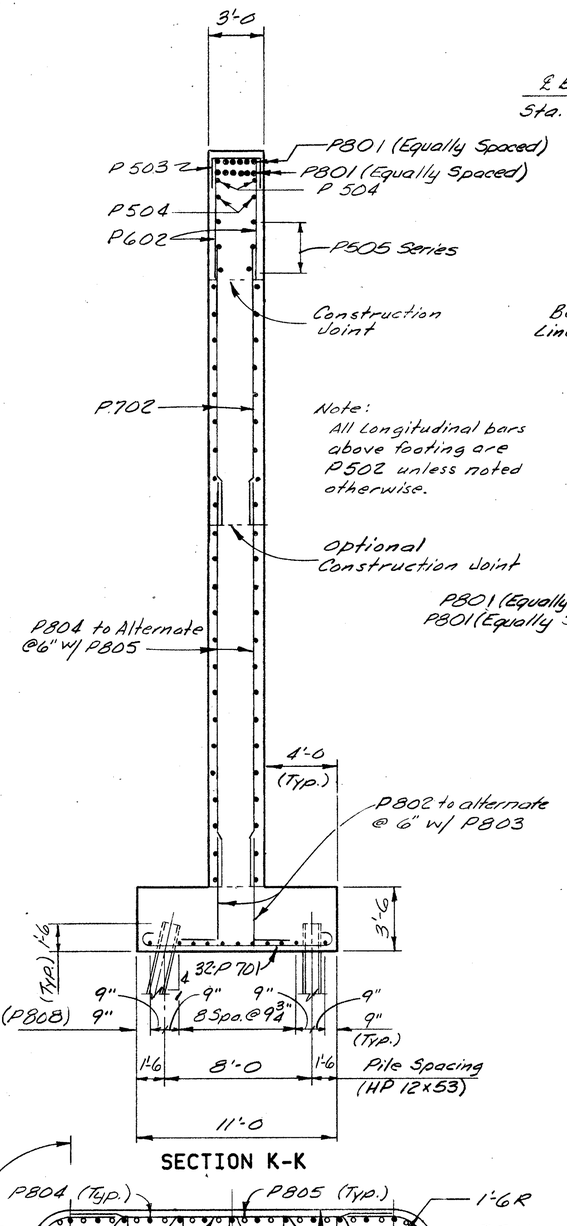
BRIDGE NO. BEL-7-1549G
RAMP 'G' OVER McMAHON CREEK
STA. 819+91.51
STA. 822+66.67
BELMONT COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		wda	jmc	7/85	

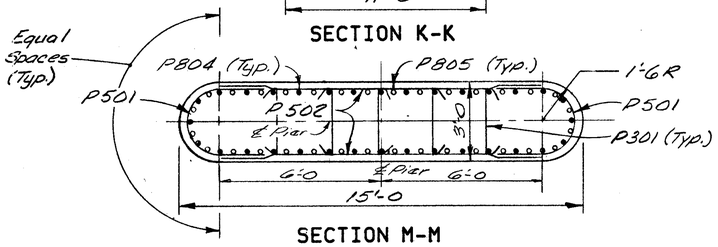


ELEVATION

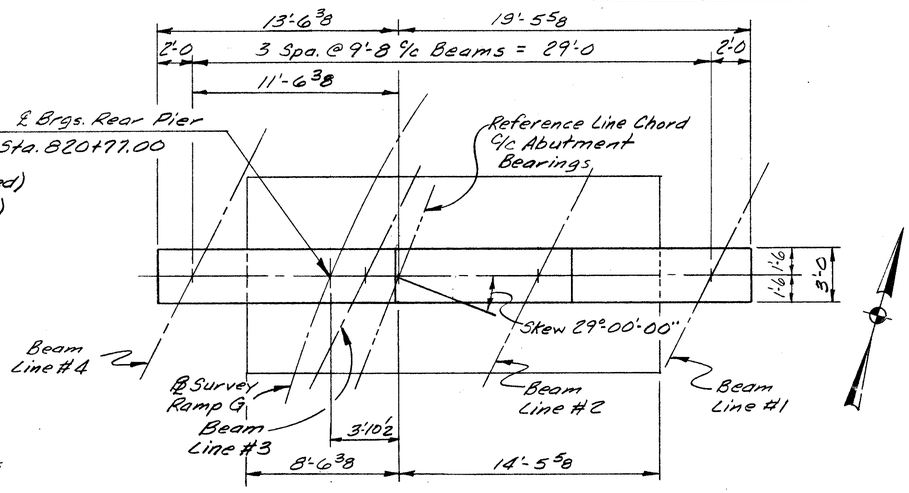
ELEVATIONS					
LOCATION	A	B	C	D	E
REAR PIER	613.50	658.73	658.74	658.45	658.16



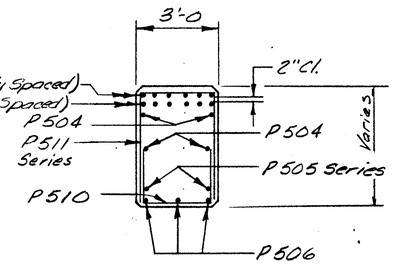
SECTION K-K



SECTION M-M



PLAN



SECTION L-L

BRIDGE SEAT ELEVATIONS have been adjusted upward 3/16" at the rear pier to compensate for the vertical deformation of the bearings

For batter arrangement of piles, see footing plan on sheet 8/21

Sheet 13/21

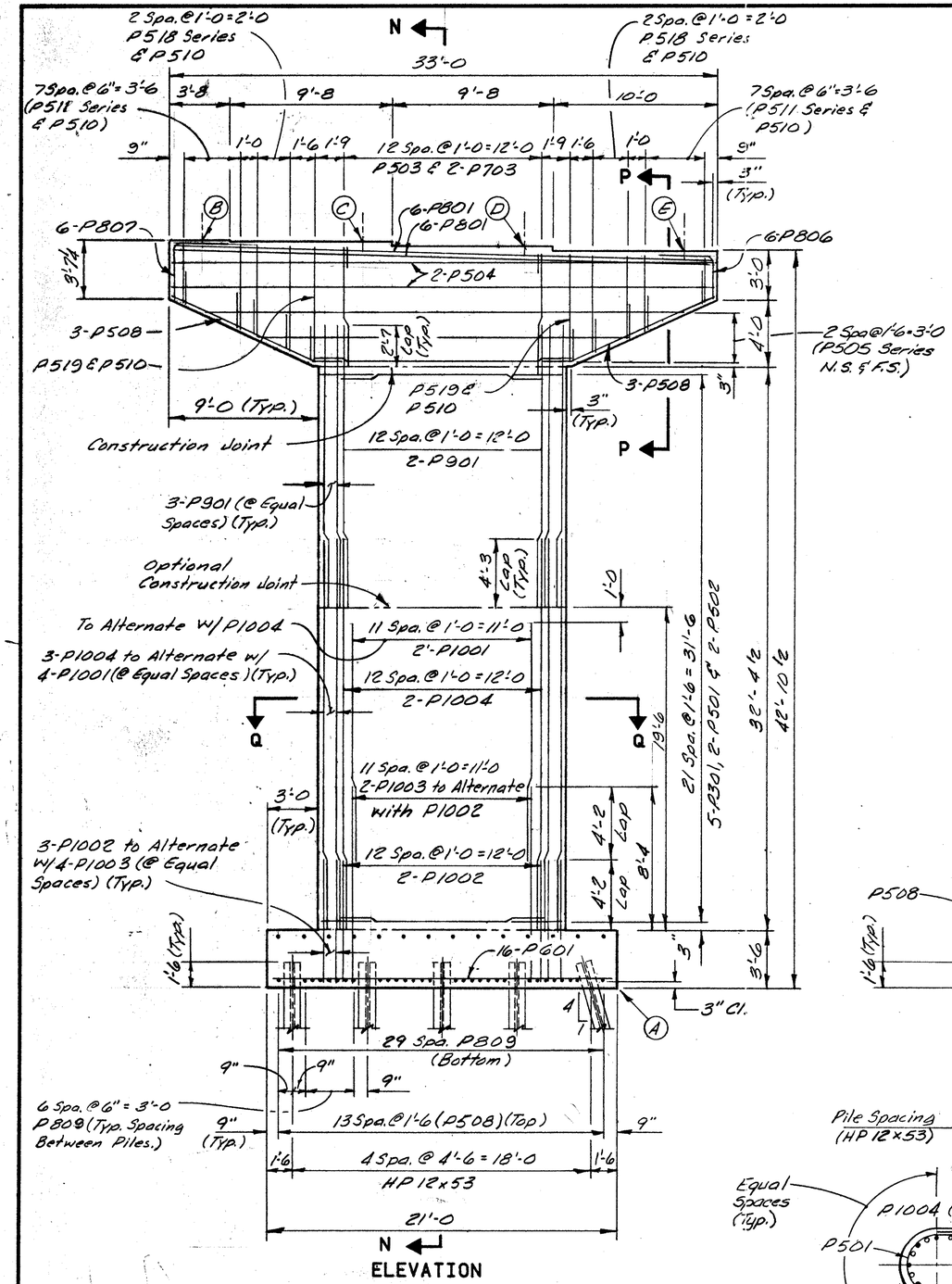
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

REAR PIER DETAILS

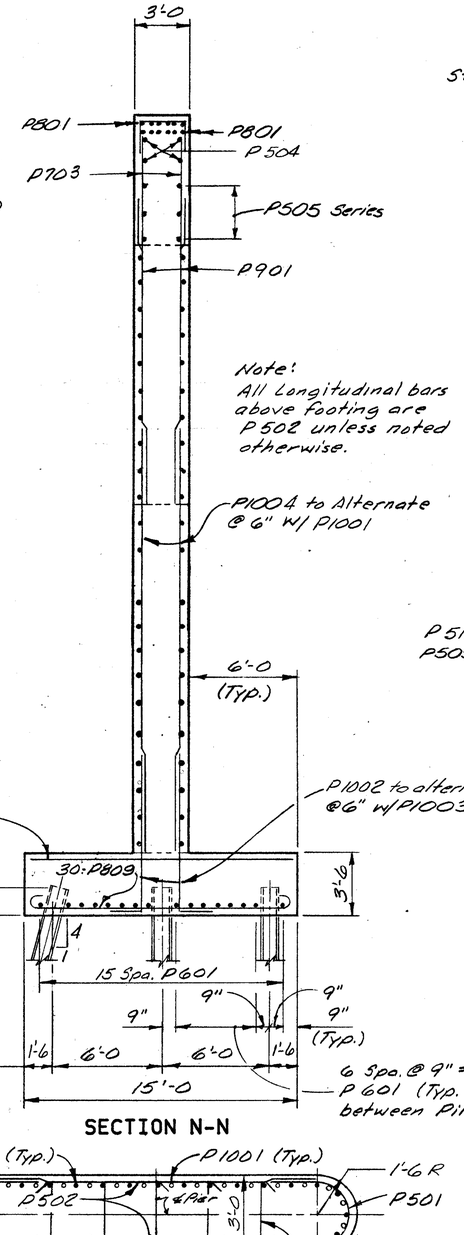
BRIDGE NO. BEL-7-1549G
RAMP G OVER McMAHON CREEK

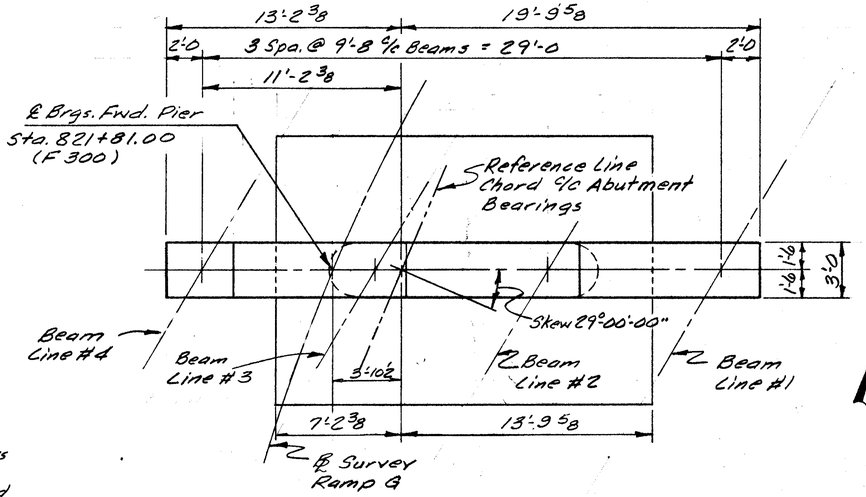
BELMONT COUNTY
STA. 819+91.51
STA. 822+66.67

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GHD	GHD		FDH	JMG	7/85	10/85

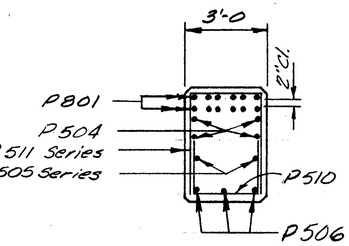


ELEVATIONS					
LOCATION	A	B	C	D	E
FORWARD PIER	613.50	656.98	656.96	656.67	656.38

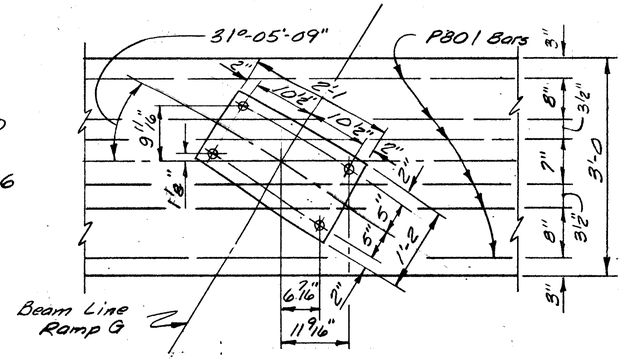




PLAN



SECTION P-P



BEARING ANCHOR DETAIL
(F300)

Bridge Seat Reinforcing:
Reinforcing steel in the vicinity of the bridge seat shall be accurately placed to avoid interference with the drilling of bearing anchor holes or the pre-setting of bearing anchors.

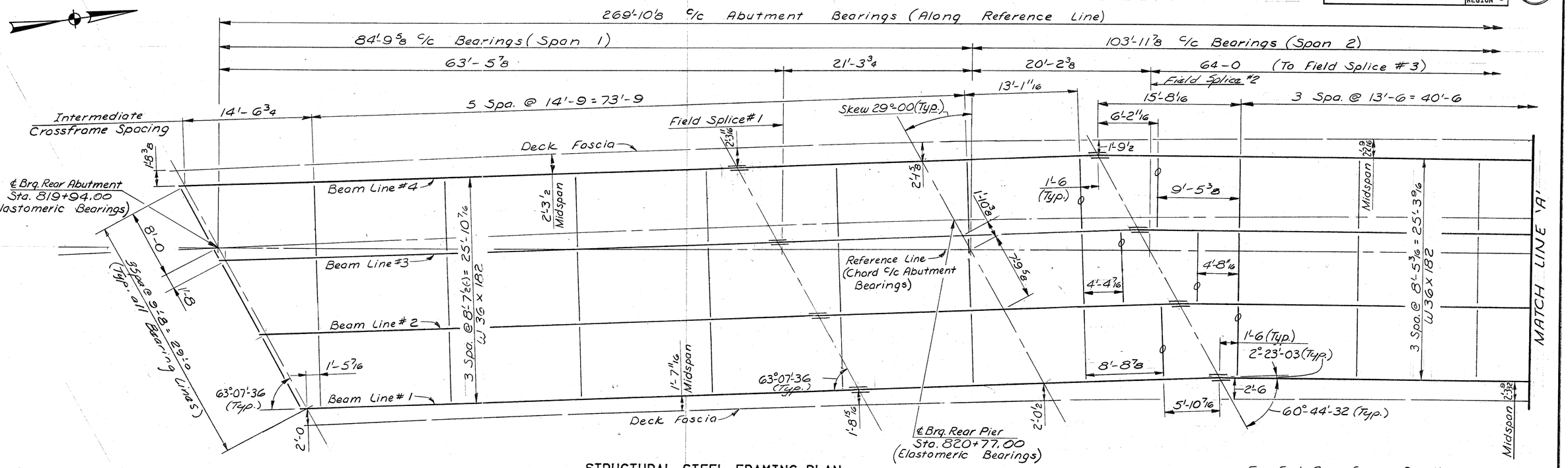
Bearing Anchors:
At the option of the contractor, bearing anchors (or formed holes), located and supported by templates, may be cast in place.

For batter arrangement of piles, see footing plan on sheet 8/21

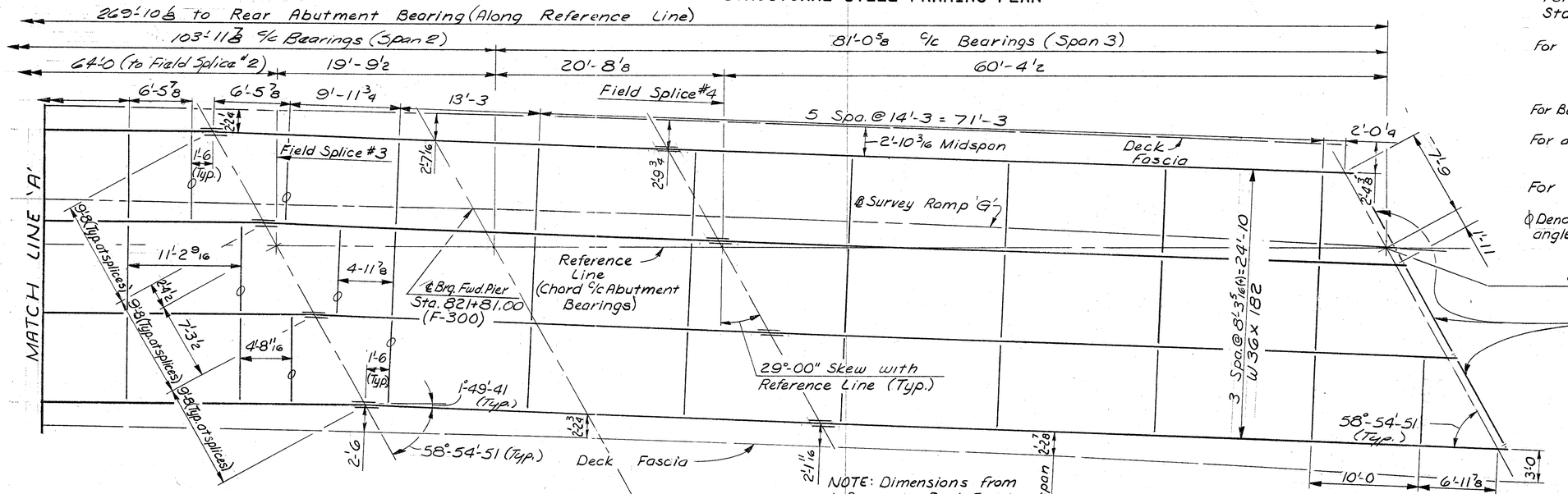
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

FORWARD PIER DETAILS
BRIDGE NO. BEL-7-1549G
RAMP G OVER McMAHON CREEK
BELMONT COUNTY
STA. 819+91.51
STA. 822+66.67

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
EJD	EJD		FDH	JMG	7/85	10/85



STRUCTURAL STEEL FRAMING PLAN



For End Crossfrome Details, see Std. Dwg. SD-1-69, Sheet 1 of 4.

For Transverse Section, see sheet 18/21

For Beam Ending Detail, see sheet 17/21

For additional steel details, see sheet 16/21

For Steel Notes, see sheet 16/21

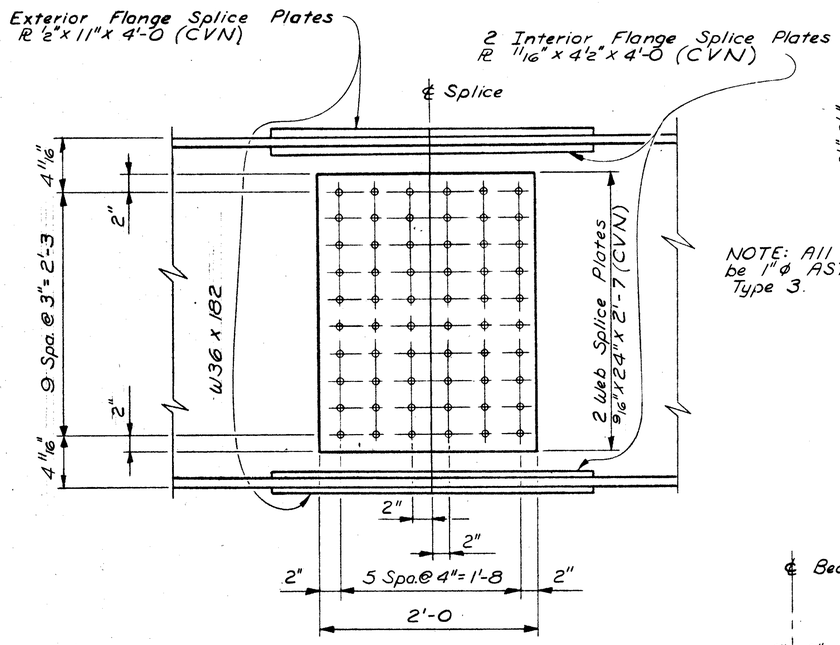
℄ Denotes Crossframes to have top horizontal angle.

SHEET 15/21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS
STEEL FRAMING PLAN
BRIDGE NO. BEL-7-1549G
RAMP G OVER McMAHON CREEK
BELMONT COUNTY
STA. 819+91.51
STA. 822+66.67

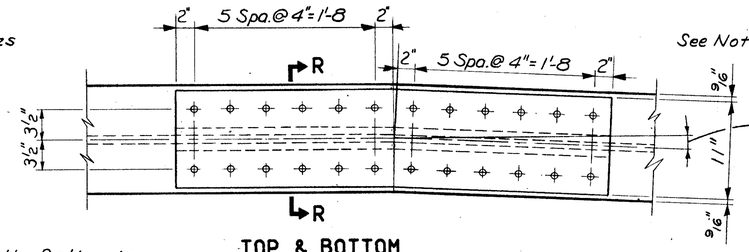
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		AJ	JMG	7/85	



ELEVATION
FIELD SPLICE DETAILS

NOTE 'B'
Load Plates shall be vulconized bonded to the neoprene during the moulding process.

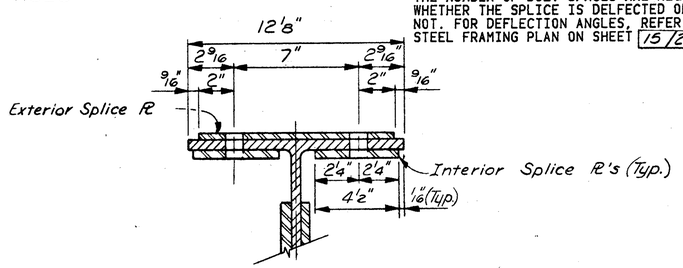
NOTE 'A'
Welding shall be controlled so that the plate temperature at the elastomer bonded surface does not exceed 300°F as determined by use of pyrometric sticks or other temperature monitoring devices. Quenching to accelerate cooling is not permitted.



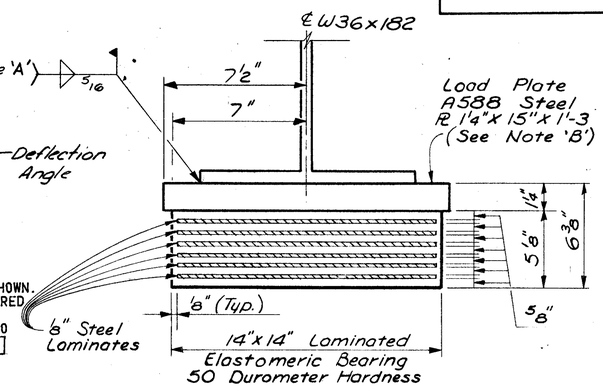
NOTE: All Bolts to be 1"ϕ ASTM A325 Type 3.

TOP & BOTTOM FLANGE PLAN

NOTE: DEFLECTION ANGLE DETAIL IS SHOWN. THE NUMBER OF BOLT SPACES ARE REQUIRED WHETHER THE SPLICE IS DELFECTED OR NOT. FOR DEFLECTION ANGLES, REFER TO STEEL FRAMING PLAN ON SHEET 15/21



SECTION R-R
(TYPICAL TOP & BOTTOM FLANGES)



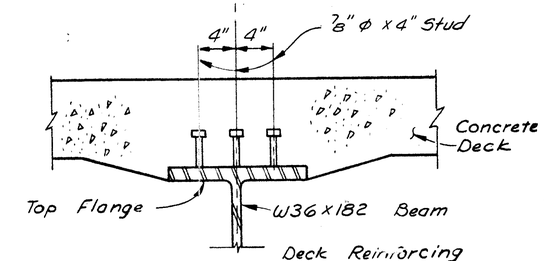
LAMINATED ELASTOMERIC BEARING DETAIL
(REAR ABUTMENT)

STEEL NOTES

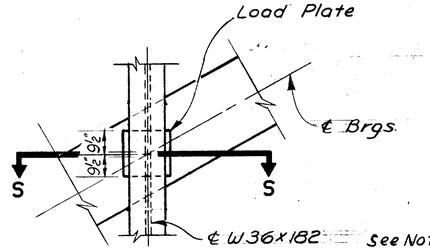
WHERE A SHAPE OR PLATE IS DESIGNATED (CVN) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF CMS.

WELDED ATTACHMENTS OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE, MAY BE MADE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". ATTACHMENTS SHALL NOT BE MADE TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE NOT CLOSER THAN 1" FROM EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO.

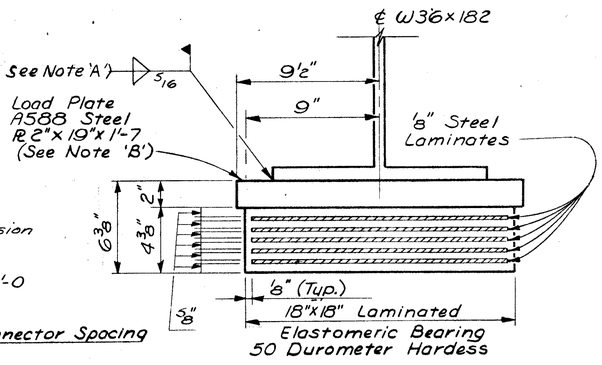
AT THE CONTRACTORS OPTION, THE BOTTOM MAT OF DECK REINFORCING STEEL MAY BE PLACED PRIOR TO AT ATTACHING THE SHEAR CONNECTOR STUDS TO AVOID INTERFERENCE WITH THE REINFORCING STEEL. IF NECESSARY THE SHEAR CONNECTOR STUDS MAY BE PLACED PARALLEL TO THE TRANSVERSE REINFORCING STEEL.



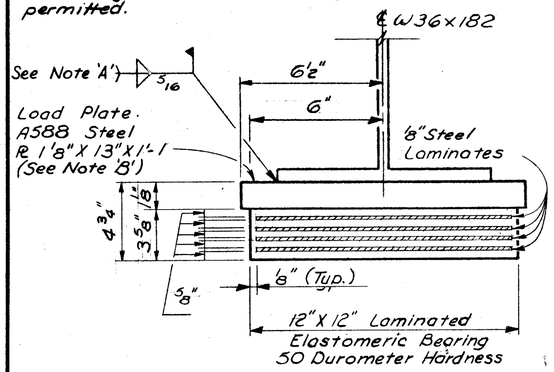
TYPICAL SECTION
SHEAR CONNECTOR DETAIL



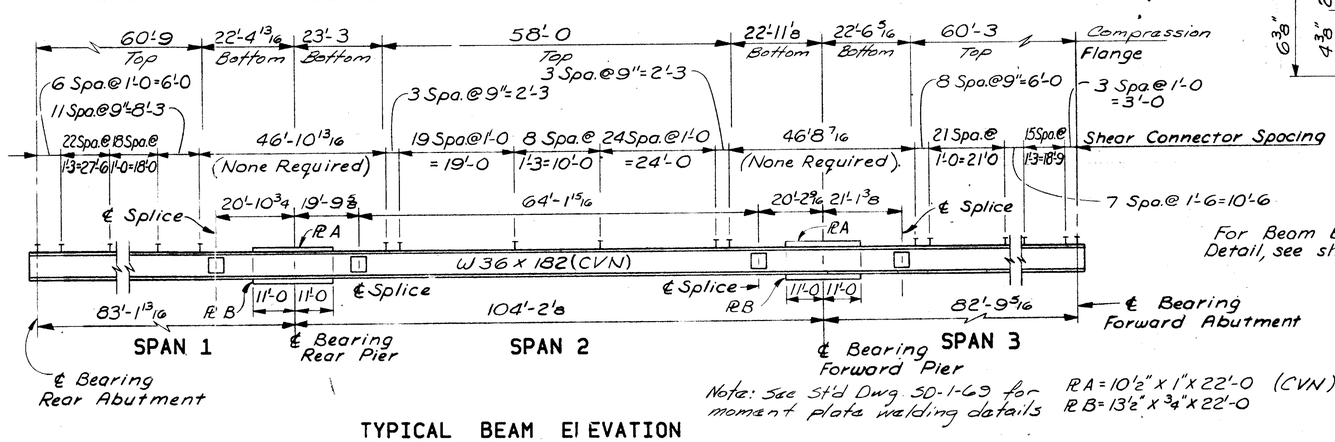
LAMINATED ELASTOMERIC BEARING DETAIL PLAN AT REAR PIER



SECTION S-S
(REAR PIER)



LAMINATED ELASTOMERIC BEARING DETAIL
(FORWARD ABUTMENT)



Note: See Std Dwg SD-1-69 for moment plate welding details

PL A = 10'2" x 1" x 22'-0 (CVN)
PL B = 13'2" x 3/4" x 22'-0

TYPICAL BEAM ELEVATION

For Beam Ending Detail, see sheet 17/21

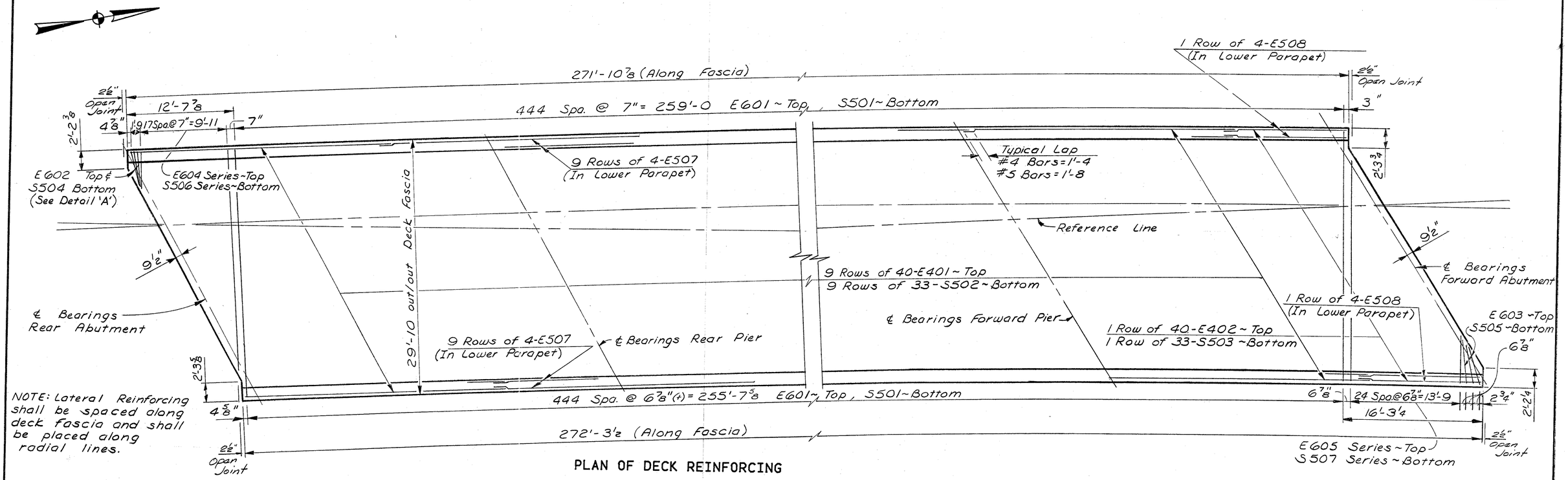
Sheet 16/21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS

BRIDGE NO. BEL-7-1549 G
RAMP G OVER McMAHON CREEK
STA. 819+91.51
STA. 822+66.67
BELMONT COUNTY

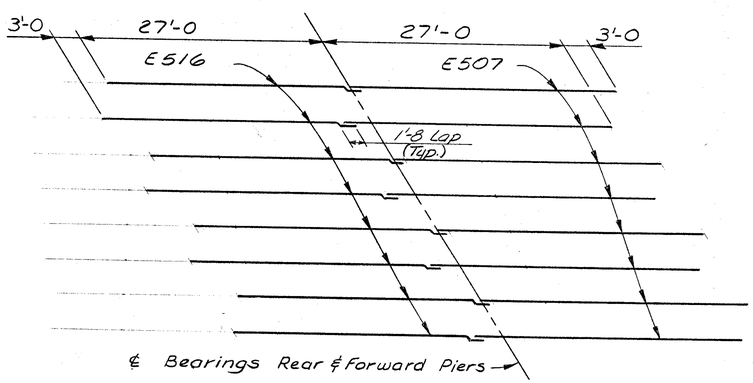
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		AH	JMG	7/85	10/[illegible]



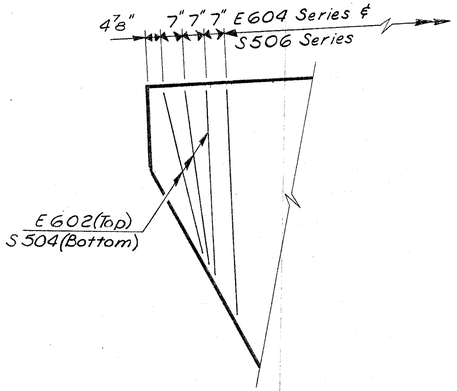
NOTE: Lateral Reinforcing shall be spaced along deck fascia and shall be placed along radial lines.

PLAN OF DECK REINFORCING

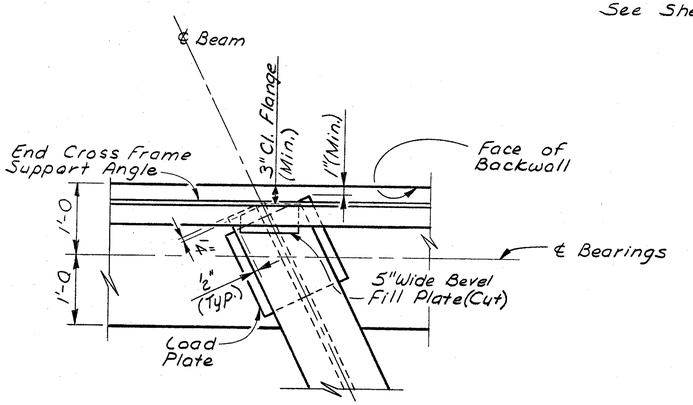
For Transverse Section, See Sheet 18/21.



STAGGER SYSTEM OF E507 & E516 BARS OVER PIERS



DETAIL 'A'



BEAM ENDING DETAIL

Sheet 17/21

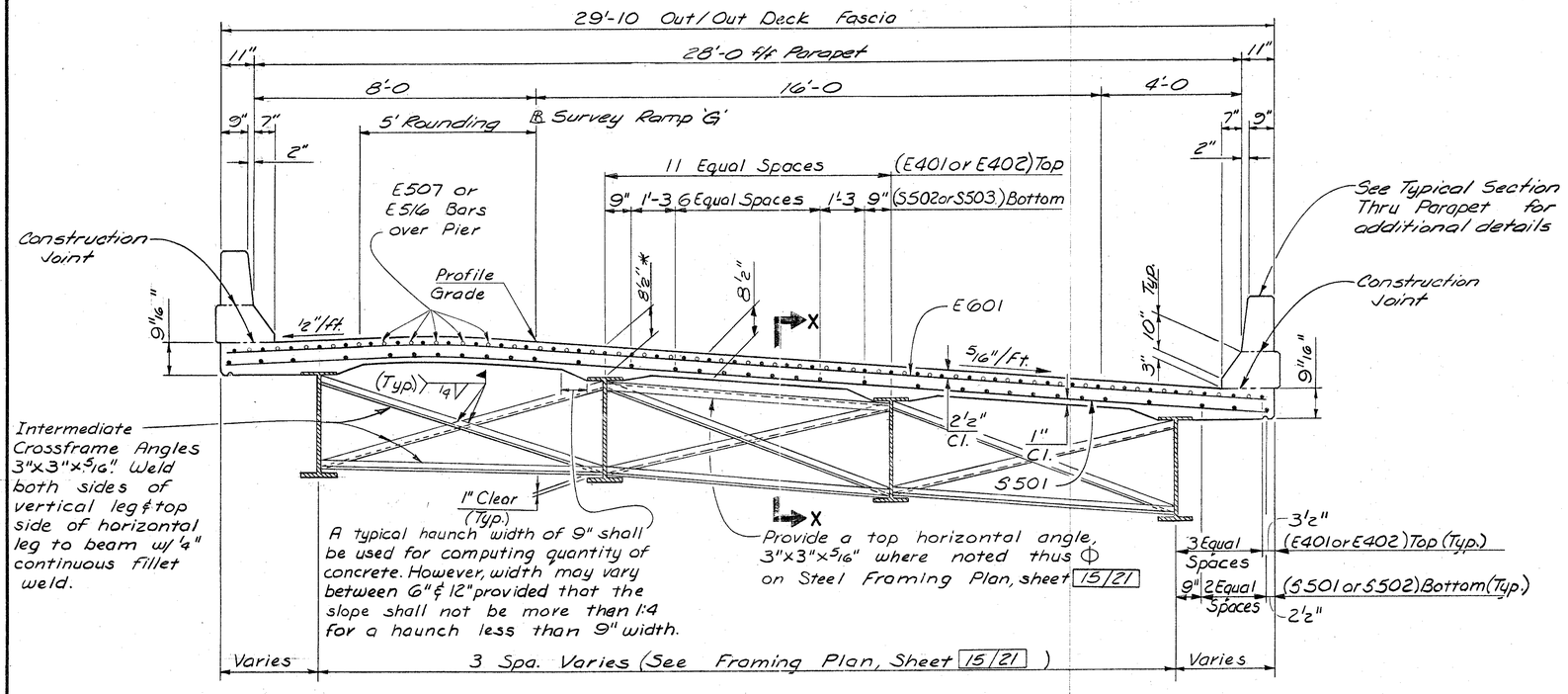
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS

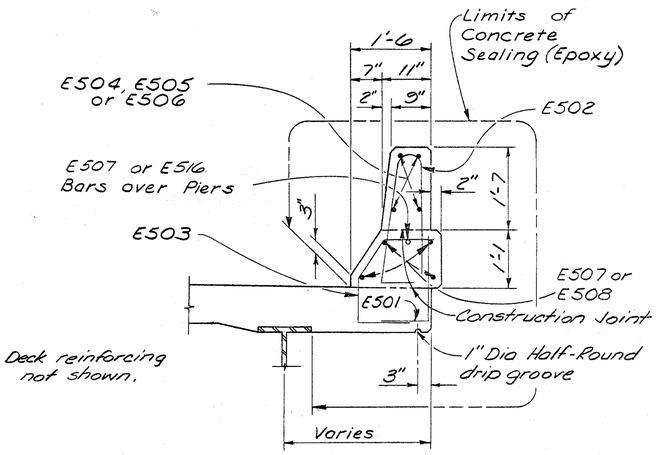
BRIDGE NO. BEL-7-1549G
RAMP G OVER McMAHON CREEK

BELMONT COUNTY
STA. 819+91.51
STA. 822+66.67

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		A	JMG	7/85	



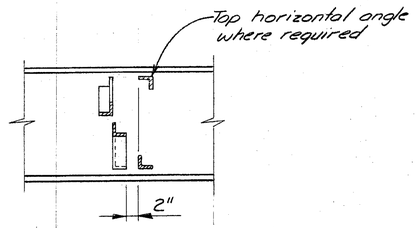
TRANSVERSE SECTION



TYPICAL SECTION THRU PARAPET

*DECK SLAB DEPTH:
The distance shown from the top of concrete to top of steel beam is the design 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 placed it parallel to the finished grade.

For Stuctural Steel Framing Plan, see sheet 15/21.
For Deck Reinforcing Plan, see sheet 17/21.



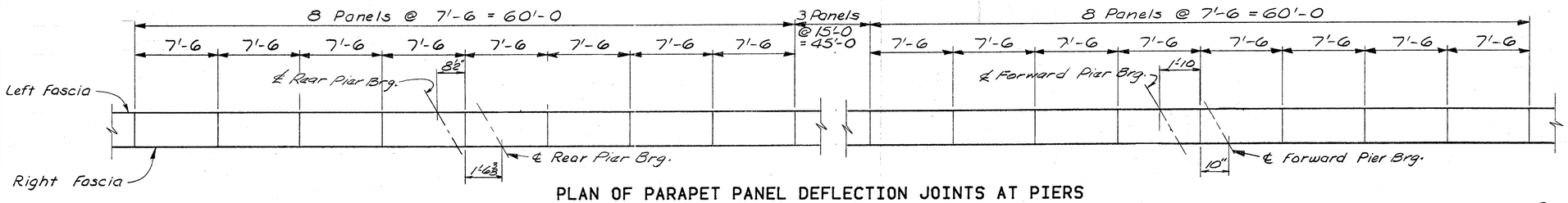
SECTION X-X

Sheet 18/21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

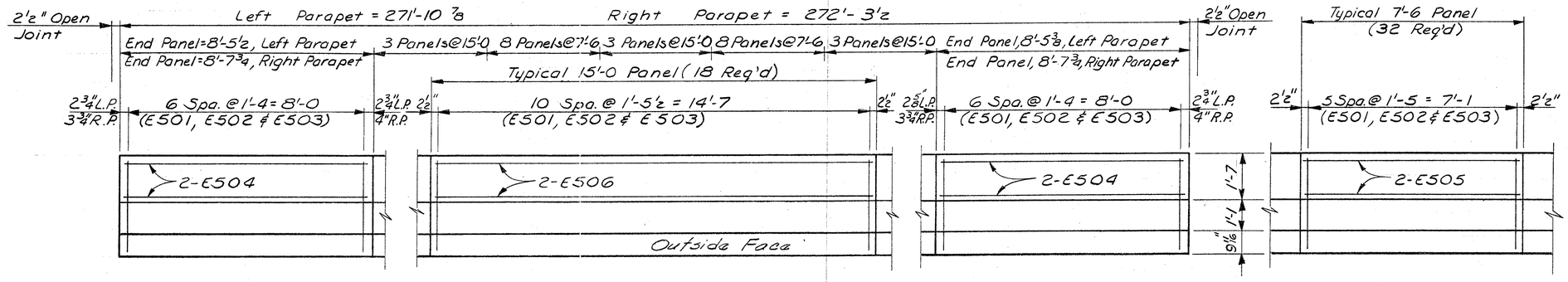
SUPERSTRUCTURE DETAILS
BRIDGE NO. BEL-7-1549G
RAMP G OVER McMAHON CREEK
BELMONT COUNTY
STA. 819+91.51
STA. 822+66.67

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		AL	JMG	7/85	10/85



PLAN OF PARAPET PANEL DEFLECTION JOINTS AT PIERS

For "Typical Section Thru Parapet", sheet 18/21.

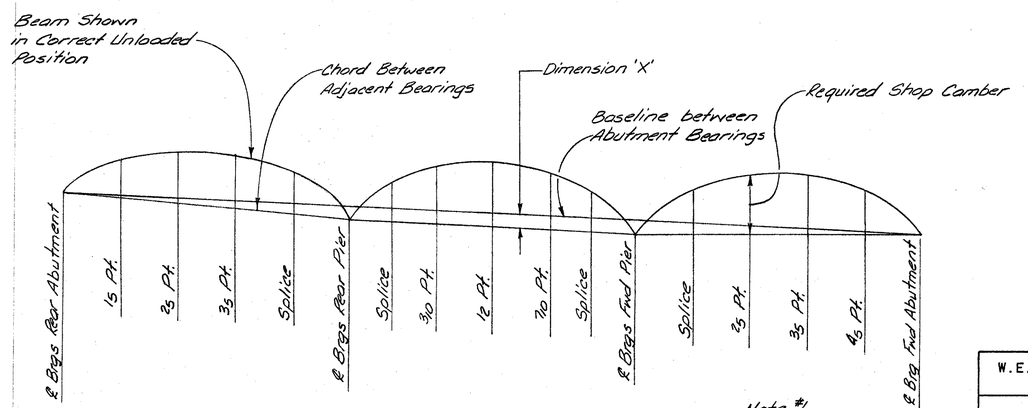


PARAPET ELEVATIONS

NOTE:
L.P. Denotes Left Parapet
R.P. Denotes Right Parapet

CAMBER AND DEFLECTION

LOCATION	BEAM NO.	SPAN 1						SPAN 2						SPAN 3					
		℄ Brg.	⅕ Pt.	⅖ Pt.	⅗ Pt.	Spl.	℄ Brg.	Spl.	³⁄₁₀ Pt.	½ Pt.	⁷⁄₁₀ Pt.	Spl.	℄ Brg.	Spl.	⅖ Pt.	⅗ Pt.	⅘ Pt.	℄ Brg.
DIMENSION 'X' (SEE NOTE #1)	1	0	0	-1/16	-1/16	-1/16	-1/16	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/16	-1/16	0	0
	2	0	0	-1/16	-1/16	-1/16	-1/16	-1/16	-1/8	-1/8	-1/8	-1/8	-1/8	-1/8	-1/16	-1/16	0	0
	3	0	0	0	0	-1/16	-1/16	-1/16	-1/16	-1/16	-1/8	-1/8	-1/8	-1/8	-1/16	-1/16	0	0
	4	0	1/16	1/16	1/8	1/8	3/16	3/16	3/16	3/16	3/16	1/4	1/4	3/16	1/8	1/8	1/16	0
DEFLECTION DUE TO WEIGHT OF STEEL	1 THRU 4	0	3/16	1/4	3/16	1/8	0	1/16	3/16	1/4	3/16	1/8	0	1/8	3/16	1/4	3/16	0
DEFLECTION DUE TO REMAINING DEAD LOAD	1 THRU 4	0	1	1 3/8	1 1/8	1/2	0	1/2	1	1 1/2	1 1/16	1/2	0	1/2	1	1 5/16	1 5/16	0
CONVEXITY REQUIRED FOR VERTICAL CURVE (SEE NOTE #2)	1	0	-1/16	-1/8	-1/8	-1/16	0	1/8	1/8	1/16	1/16	1/8	0	-1/16	-1/8	-1/8	-1/16	0
	2	0	-1/16	-1/8	-1/8	-1/16	0	1/8	1/8	1/16	1/16	1/8	0	-1/16	-1/8	-1/8	-1/16	0
	3	0	-1/16	-1/16	-1/16	-1/16	0	1/8	1/8	1/16	1/16	1/8	0	-1/16	-1/8	-1/8	-1/16	0
	4	0	3/16	1/4	1/4	3/16	0	-3/16	-1/8	-1/16	-1/16	-1/8	0	3/16	3/16	3/16	1/8	0
REQUIRED SHOP CAMBER	1	0	1 1/8	1 1/2	1 3/16	9/16	0	1 1/16	1 5/16	1 13/16	1 5/16	3/4	0	9/16	1 1/16	1 7/16	1 1/16	0
	2	0	1 1/8	1 1/2	1 3/16	9/16	0	1 1/16	1 5/16	1 13/16	1 5/16	3/4	0	9/16	1 1/16	1 7/16	1 1/16	0
	3	0	1 1/8	1 9/16	1 1/4	9/16	0	1 1/16	1 5/16	1 13/16	1 5/16	3/4	0	9/16	1 1/16	1 7/16	1 1/16	0
	4	0	1 3/8	1 7/8	1 9/16	1 3/16	0	3/8	1 1/16	1 11/16	1 1/16	1/2	0	1 3/16	1 3/8	1 3/4	1 1/4	0



Note #2
Negative value for convexity indicates that the point is below the chord between adjacent bearing.

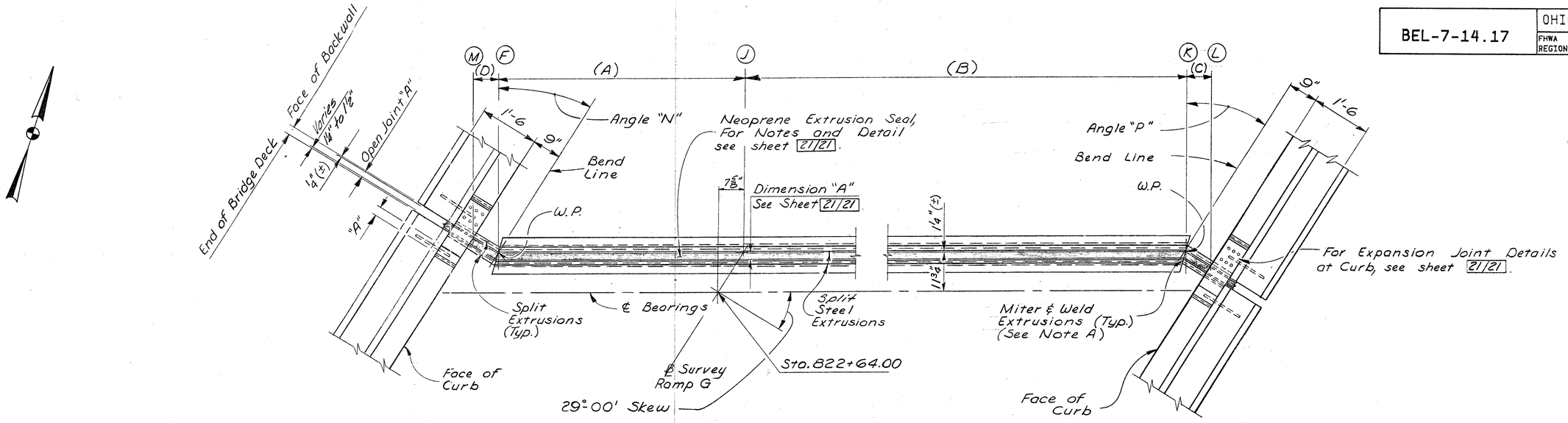
CAMBER AND DEFLECTION DIAGRAM

Note #1
Negative value for Dimension 'X' indicates that the chord between adjacent bearings is located below the baseline between abutment bearings.

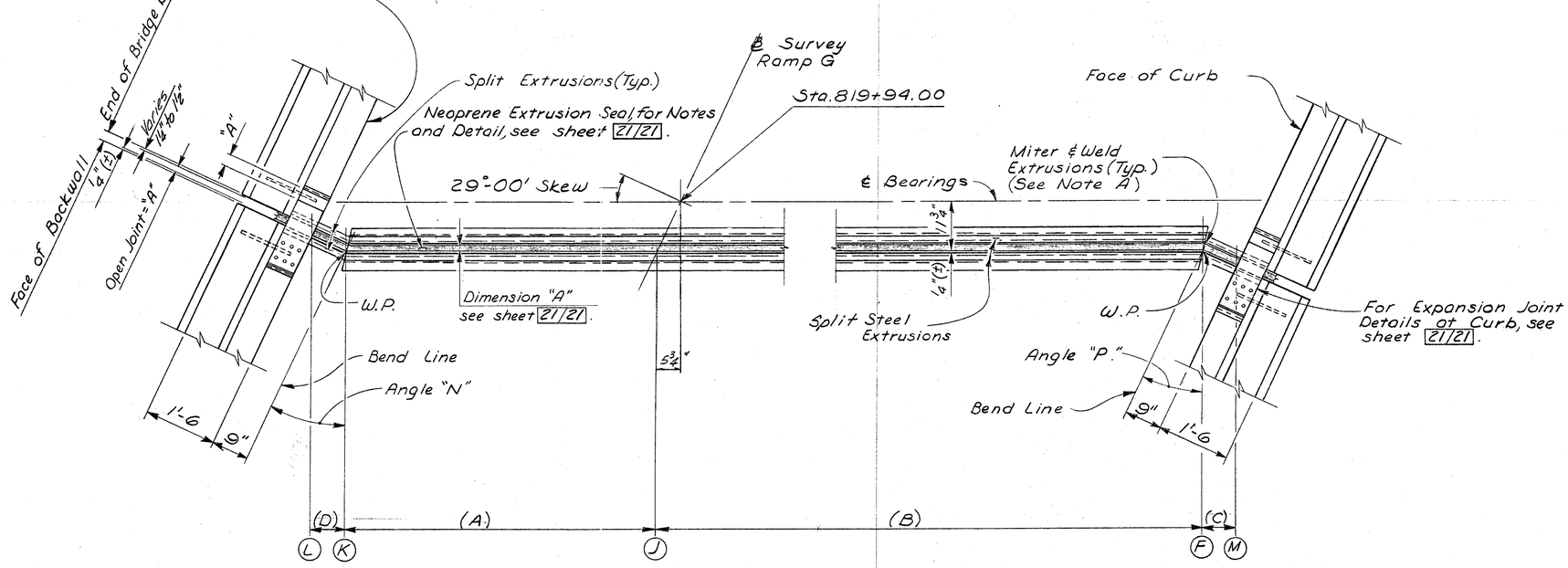
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE NO. BEL-7-1549G
RAMP G OVER McMAHON CREEK
BELMONT COUNTY
STA. 819+91.51
STA. 822+66.67

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		AE	JMG	7/85	



PLAN AT FORWARD ABUTMENT



PLAN AT REAR ABUTMENT

Note A: Mitered split extrusions shall be welded below the split line only.

W.P. denotes Work Point.

For detail of expansion joints and strip seal notes, See sheet 21/21.

For expansion joint anchorage details, see sheet 21/21

NOTE: Dimensions and Elevations given are at the top edge and face of the Backwall steel.

See Typical Section thru Expansion Joint 21/21

	DIMENSION					ELEVATION							ANGLE	
POINT	A	B	C	D	E	F	G	H	J	K	L	M	N	P
FORWARD ABUTMENT	7'-10 3/4	22'-1 3/4	7 9/16" (-)	7 5/8" (-)		660.42			660.46	659.81	659.79	660.38	32°-26'-11"	32°-52'-48"
REAR ABUTMENT	7'-4 11/16	20'-8 5/8	8'8" (-)	8'8" (+)		663.72			664.33	664.26	664.23	663.70	25°-20'-14"	25°-41'-04"

Sheet 20/21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

(NEOPRENE EXTRUSION SEAL)

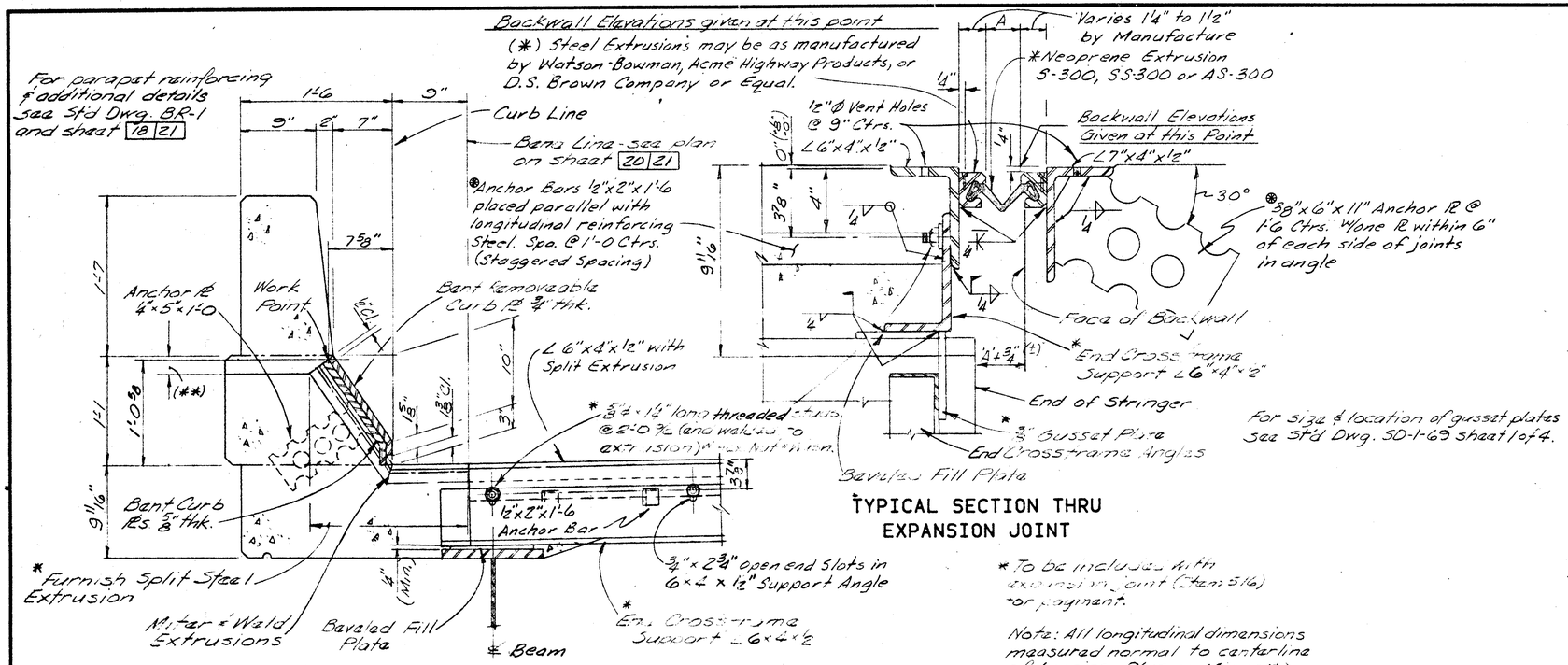
EXPANSION JOINT DETAILS

BRIDGE NO. BEL-7-1549 G
RAMP G OVER McMAHON CREEK

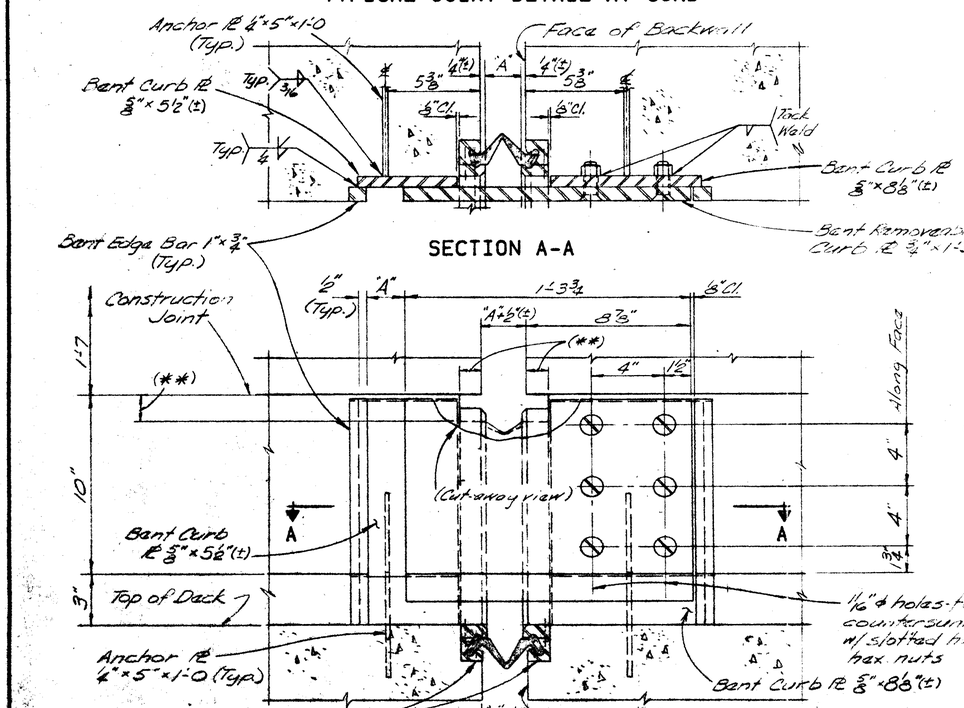
BELMONT COUNTY

STA. 819+91.51
STA. 822+66.67

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	7/85	11/85



TYPICAL SECTION THRU EXPANSION JOINT



SECTION A-A

CURB DETAIL

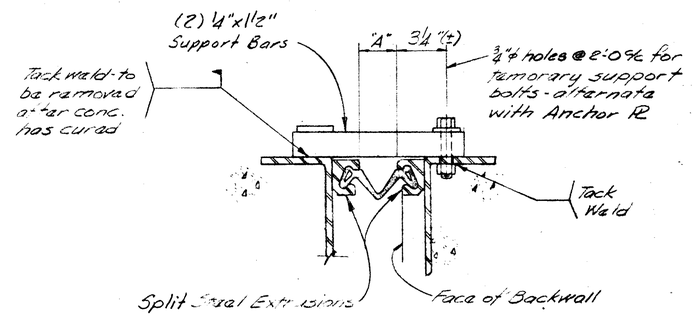
(**) Block-out to suit extrusion.

For detail and notes not shown see typical joint detail and sections - this sheet.

TYPICAL JOINT DETAIL AT CURB

* To be included with expansion joint (Item 516) for payment.

Note: All longitudinal dimensions measured normal to centerline of bearing. Plus or Minus (±) dimensions are to allow for manufacturer's variances.



TEMPORARY SUPPORT DETAIL

For additional detail & notes see Std Dwg. EXJ-1-81 sheet 1 of 3.

DIMENSION "A" FOR VARIOUS INSTALLATION TEMPERATURES		
TEMP. °F	DIMENSION "A" REAR ABUTMENT	DIMENSION "A" FORWARD ABUTMENT
40	2 1/4"	2 1/8"
50	2 1/8"	2 1/16"
60	2"	2"
70	1 7/8"	1 15/16"
80	1 3/4"	1 7/8"

Dimension "A" measured normal to centerline bearing

* For Anchor Bar details, see Std. Dwg. SD-1-69

For additional Beam and end crossframe details see Std Dwg. SD-1-69 and sheet 17 21

For plan of expansion joints at rear and forward abutments see sheet 20 21

Curb plates, edge bars, anchor plates and stainless steel bolts and nuts to be furnished under Item 513 for payment.

STRIP SEAL EXPANSION JOINT NOTES

CONCRETE SURFACE ADJACENT TO DECK JOINTS SHALL BE FINISHED FLUSH WITH OR SLIGHTLY ABOVE THE STEEL JOINT SURFACE.

STRUCTURAL STEEL PORTIONS OF THE EXPANSION JOINT (EXCLUDING ITEMS UNDER ITEM 516 FOR PAYMENT), SHALL BE ASTM A36 STEEL, PAINTED IN ACCORDANCE WITH 514 (SYSTEM A), AND INCLUDED WITH ITEM 513 FOR PAYMENT, COUNTERSUNK BOLTS AND NUTS SHALL BE STAINLESS STEEL, INCLUDED WITH ITEM 513 FOR PAYMENT. FOR COLOR SEE PARTIAL PAINTING NOTE. STEEL EXTRUSIONS, END CROSSFRAME SUPPORT ANGLE AND GUSSET PLATES SHALL BE ASTM A36 STEEL, PAINTED IN ACCORDANCE WITH 514 (SYSTEM A). STEEL EXTRUSIONS INCLUDING END CROSSFRAME SUPPORT ANGLE, GUSSET PLATES, END WELDED STUDS AND BOLTS, AND NEOPRENE SEAL SHALL BE INCLUDED WITH ITEM 516 FOR PAYMENT.

WELDED CONNECTIONS SHALL BE PARTIAL PENETRATION FULL STRENGTH WELDS AND SHALL CONFORM TO STANDARD AWS AND AASHTO SPECIFICATIONS FOR HIGHWAY BRIDGES.

INSTALLATION OF SEAL: DURING INSTALLATION OF THE SUPPORT/ARMOR FOR THE SUPERSTRUCTURE SIDE OF THE EXPANSION JOINT SEAL, THE SEATING OF BEAMS ON BEARINGS SHALL BE CAREFULLY OBSERVED TO ASSURE THAT POSITIVE BEARING IS MAINTAINED. PROPER VERTICAL FIT OF THE SUPPORT/ARMOR ON THE BEAMS SHALL BE ACHIEVED BY ADJUSTING THE STEEL EXTRUSIONS AND THE NUTS FULLY TORQUED IN ACCORDANCE WITH ASTM A325 SPECIFICATIONS.

NEOPRENE EXTRUSIONS SHALL BE OF THE STRIP SEAL TYPE AS MANUFACTURED BY WATSON-BOWMAN ASSOC., INC., BUFFALO, NEW YORK, OR ACME HIGHWAY PRODUCTS, INC., BUFFALO, NEW YORK, OR D.S. BROWN, NORTH BALTIMORE, OHIO AND SHALL MEET THE REQUIREMENTS OF ASTM D-2628 MODIFIED (RECOVERY TEST EXCLUDED). THESE EXTRUSIONS SHALL RUN THE FULL LENGTH OF THE ROADWAY AND INTO THE CURB PORTION OF THE PARAPET.

BONDING OF THE STRIP SEAL SHALL BE WITH AN ADHESIVE AS MANUFACTURED AND FURNISHED BY THE SEAL MANUFACTURER, UNDER ITEM 516 FOR PAYMENT.

PREPARATION AND INSTALLATION PROCEDURE: PRIOR TO INSTALLING THE NEOPRENE EXTRUSION, THE STEEL AND NEOPRENE SURFACES WHICH ARE TO BE BONDED TOGETHER SHALL BE THOROUGHLY CLEANED TO INSURE THE REMOVAL OF ALL CONTAMINANTS WHICH WOULD BE DETRIMENTAL TO BONDING. APPLY ADHESIVE TO DRY SURFACES AND INSTALL STRIP SEAL AS RECOMMENDED BY THE MANUFACTURER. TEMPERATURE SHALL BE WARMER THAN 40°F DURING APPLICATION OF THE ADHESIVE.

JOINTS: AT THE ABUTMENT CONTRACTION JOINT, A BUTTED JOINT SHALL BE PROVIDED IN THOSE PORTIONS OF THE STEEL EXTRUSION THAT ARE ATTACHED TO THE ABUTMENT BACKWALL. THIS JOINT SHALL BE CLOSELY BUTTED, BUT SHALL NOT BE WELDED. TO FACILITATE HANDLING AND SHIPPING, A WELDED BUTT JOINT MAY BE FURNISHED NEAR THE CENTERLINE OF DECK ON THOSE PORTIONS OF THE STEEL EXTRUSION THAT ARE ATTACHED TO THE SUPERSTRUCTURE.

SHOP DRAWINGS FOR THE STRIP SEAL SHALL BE PREPARED BY THE SEAL FABRICATOR. THESE DRAWINGS, AFTER BEING COORDINATED WITH THE DRAWINGS OF THE STRUCTURAL STEEL FABRICATOR, SHALL BE SUBMITTED TO THE DIRECTOR FOR APPROVAL BEFORE THE START OF FABRICATION.

METHOD OF MEASUREMENT: THE LENGTH OF COMPLETED AND ACCEPTED STRIP SEAL TO BE PAID FOR SHALL BE BASED ON THE HORIZONTAL LENGTH OF THE SEALS MEASURED ON THE CENTERLINE OF JOINTS.

BASIS OF PAYMENT: PAYMENT WILL BE MADE UNDER:

ITEM	UNIT	DESCRIPTION
516	LIN. FT.	STRUCTURAL EXPANSION JOINTS INCLUDING ELASTOMERIC STRIP SEALS.

Sheet 21 21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

(NEOPRENE EXTRUSION SEAL)
EXPANSION JOINT DETAILS
BRIDGE NO. BEL-7-1549 G
RAMP G OVER McMAHON CREEK
STA. 819+91.51
BELMONT COUNTY
STA. 822+66.67

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JMS	JMS		wda	JMG	7/85	11/85

BEL-7-14.17	OHIO
	FHWA REGION 5

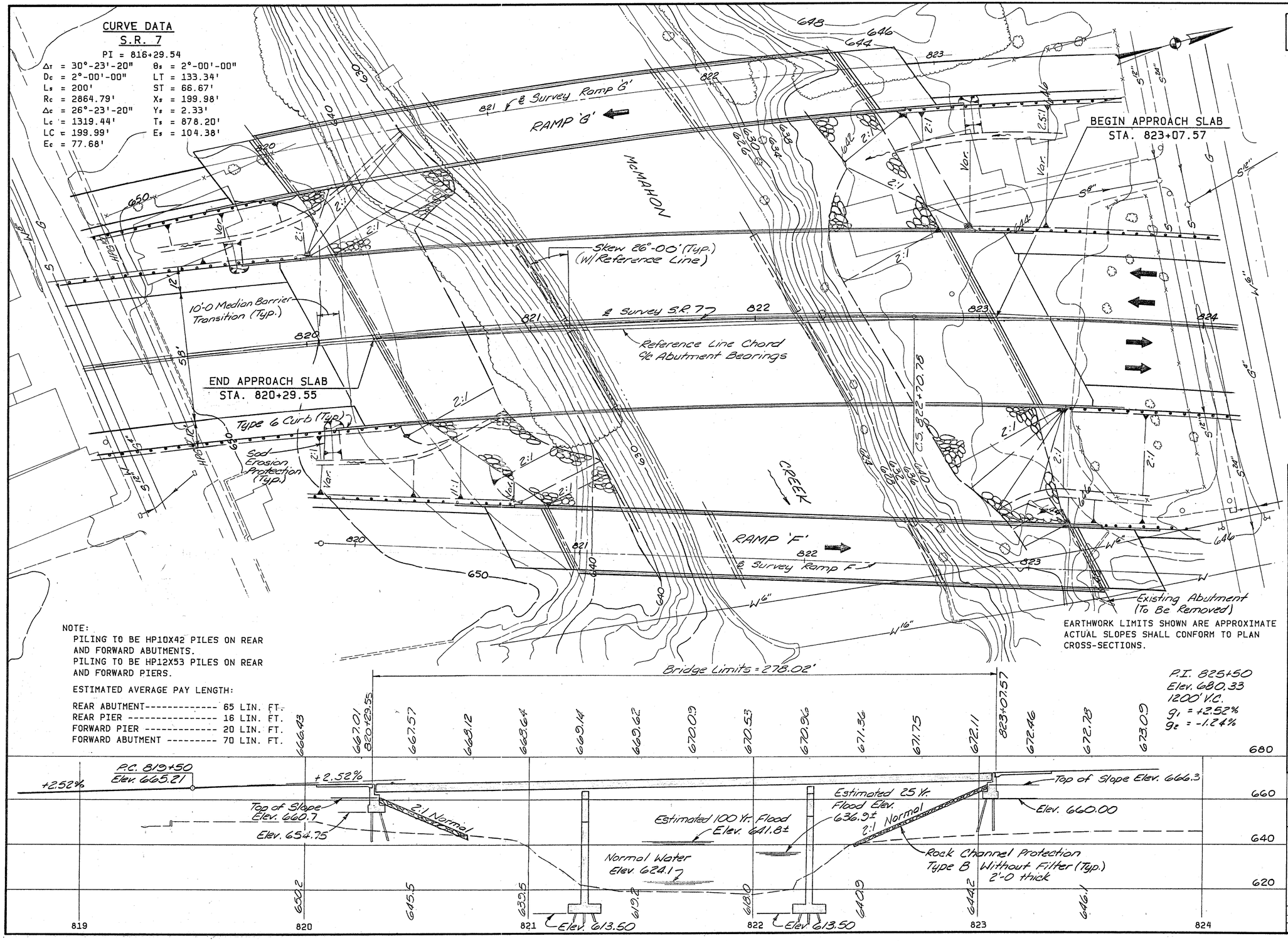
5/9
663

CITY OF BELLAIRE

CURVE DATA
S.R. 7

PI = 816+29.54

Δ_T	= 30°-23'-20"	θ_s	= 2°-00'-00"
D_c	= 2°-00'-00"	LT	= 133.34'
L_s	= 200'	ST	= 66.67'
R_c	= 2864.79'	X_s	= 199.98'
Δ_c	= 26°-23'-20"	Y_s	= 2.33'
L_c	= 1319.44'	T_s	= 878.20'
LC	= 199.99'	E_s	= 104.38'
E_c	= 77.68'		



NOTE:
PILING TO BE HP10X42 PILES ON REAR AND FORWARD ABUTMENTS.
PILING TO BE HP12X53 PILES ON REAR AND FORWARD PIERS.

ESTIMATED AVERAGE PAY LENGTH:

REAR ABUTMENT	65 LIN. FT.
REAR PIER	16 LIN. FT.
FORWARD PIER	20 LIN. FT.
FORWARD ABUTMENT	70 LIN. FT.

EARTHWORK LIMITS SHOWN ARE APPROXIMATE ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS.

DESIGN DESIGNATION

1990 ADT	11,668
2010 ADT	16,293
2010 ADTT	652

BM #12 ELEV. 651.27
Sta. 11+80± Reloc. Belmont St-46'± Rt.
Chiseled Square on Southside of conc. base for light post, 55'±N of McMahon Cr., 100'±SW of Gulf Service Station along S.R. 7

OHIO RIVER FLOOD ELEVATIONS

NORMAL POOL ELEV.	623.7
25 YR. ELEV.	651.1±
100 YR. ELEV.	656.3±

STREAM DATA

DRAINAGE AREA: 89.67 SQ. MILES

Q100 = 18,250 CFS Q25 = 11,860 CFS
V100 = 8.0 FPS V25 = 7.0 FPS
STRUCTURE CLEARS 25 YR. ESTIMATED HIGH WATER ELEVATION BY 25.4'±
McMAHON CREEK WATER ELEVATIONS CONTROLLED BY OHIO RIVER WATER ELEVATIONS

PROPOSED STRUCTURE

TYPE: CONTINUOUS COMPOSITE STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE UNITS.
SPANS: 84'-105'-84' MEASURED ALONG ℄ OF SURVEY
ROADWAY: 78'-0 F/F PARAPETS WITH A 2'-6 MEDIAN BARRIER
SKEW: 26°-00' R.F. (WITH REFERENCE LINE)
SURFACE COURSE: MONOLITHIC CONCRETE
LIVE LOAD: HS 20-44 CASE II AND THE ALTERNATE MILITARY LOADING
APPROACH SLABS: AS-1-81, 25' LONG
ALIGNMENT: CURVE AND SPIRAL
SUPERELEVATION: VARIES (0.047'/' MAX.)

SHEET 1 /33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

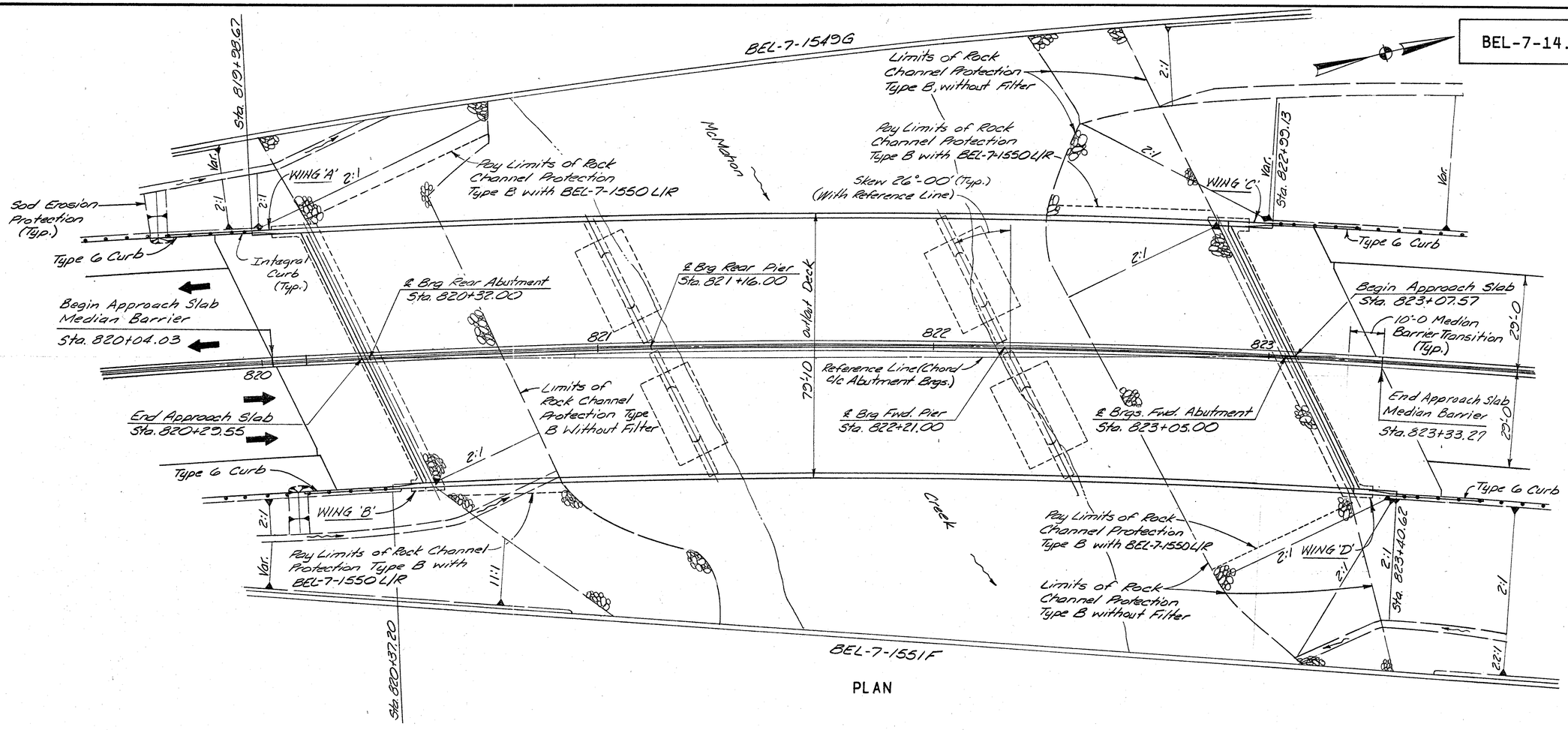
SITE PLAN

BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK

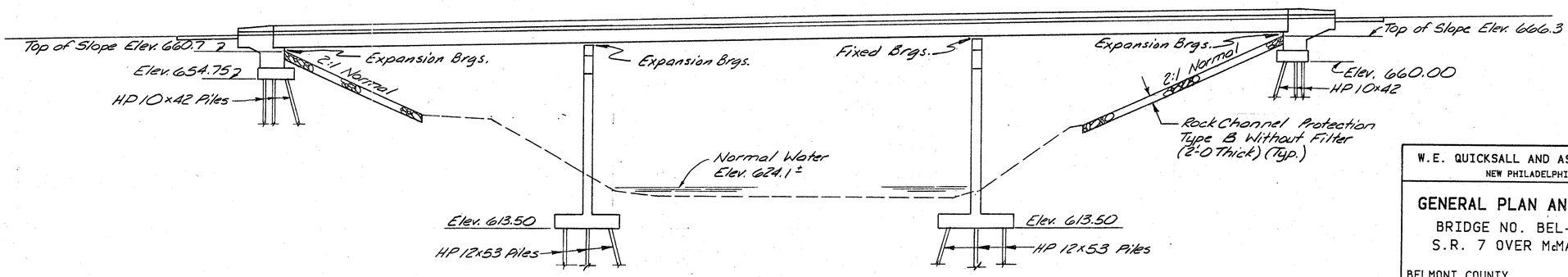
BELMONT COUNTY
STA. 820+29.55
STA. 823+07.57

EXIST. TOPO		PROPOSED WORK			
SURVEY	DRAWN	DESIGN	DRAWN	CHECKED	REVIEWED
MARTINEZ	FDH	FDH	FDH	[illegible]	wda 7/83

BEL-7-14.17 | OHIO | FHWA REGION 5 | 520 / 663



PLAN



ELEVATION

Sheet 2 / 33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

GENERAL PLAN AND ELEVATION

BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK

BELMONT COUNTY
STA. 820+29.55
STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		CAO	JMG	7/85	

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	ABUTS	PIERS	SUPER	GEN'L.
503	LUMP		COFFERDAMS, CRIBS AND SHEETING				LUMP
503	1,729	CU.YD.	UNCLASSIFIED EXCAVATION	425	1,304		
505	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				LUMP
507	2970	LIN.FT.	STEEL PILES, HP10X42, AS PER PLAN	2970			
507	1,512	LIN.FT.	STEEL PILES, HP12X53, AS PER PLAN		1512		
507	128	EACH	STEEL POINTS (OR SHOES)	44	84		
509	110,105	LB.	REINFORCING STEEL, GRADE 60	22,414	87,691		
509	176,186	LB.	EPOXY COATED REINFORCING STEEL, GRADE 60	1276		174,910	
511	688	CU.YD.	CLASS S CONCRETE, SUPERSTRUCTURE			688	
511	188	CU.YD.	CLASS C CONCRETE, ABUTMENT ABOVE FOOTINGS	188			
511	445	CU.YD.	CLASS C CONCRETE, PIER ABOVE FOOTINGS		445		
511	419	CU.YD.	CLASS C CONCRETE, FOOTINGS	139	280		
513	5220	EACH	WELDED STUD SHEAR CONNECTOR			5220	
513	612,200	LB.	STRUCTURAL STEEL, ASTM A588 (AISC CATAGORY I)			612,200	
514	LUMP		PARTIAL PAINTING OF A588 STEEL, SYSTEM A, AS PER PLAN			LUMP	
516	10	EACH	LAMINATED ELASTOMERIC BEARINGS, (18"X4 1/4"X1'-2"		10		
			ELASTOMERIC PAD WITH 2"X19"X1'-7" STEEL LOAD PLATE)				
516	10	EACH	LAMINATED ELASTOMERIC BEARINGS, (14"X3 3/8"X1'-2"	10			
			ELASTOMERIC PAD WITH 1 1/4"X15"X1'-3" STEEL LOAD PLATE)				
516	10	EACH	LAMINATED ELASTOMERIC BEARINGS, (14"X5 1/8"X1'-2"	10			
			ELASTOMERIC PAD WITH 1 1/4"X15"X1'-3" STEEL LOAD PLATE)				
516	55	SQ.FT.	1" PREFORMED EXPANSION JOINT FILLER	55			
516	16	LIN.FT.	6" PVC WATERSTOP, AS PER PLAN	16			
516	172	LIN.FT.	STRUCTURAL EXPANSION JOINTS INCLUDING			172	
			ELASTOMERIC STRIP SEALS				
518	164	LIN.FT.	6" PERFORATED HELICAL CORRUGATED STEEL PIPE, 707.01	164			
518	97	LIN.FT.	6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE,	97			
			INCLUDING SPECIALS, 707.01				
518	93	CU.YD.	POROUS BACKFILL	93			
601	723	CU.YD.	ROCK CHANNEL PROTECTION, TYPE B WITHOUT FILTER	723			
SPECIAL	2202	SQ.YD.	SEALING OF CONCRETE SURFACES (EPOXY), SEE PROPOSAL NOTE	196	908	1098	

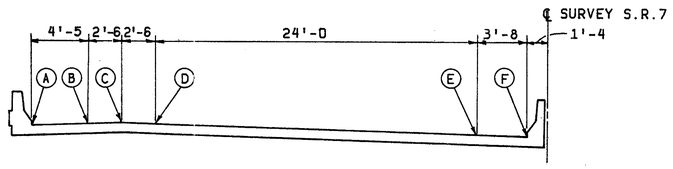
LEFT SUPERSTRUCTURE TOP OF SLAB ELEVATIONS (SCREED ELEVATIONS)

SPAN	PT.	A STATION	A ELEV.	B STATION	B ELEV.	C STATION	C ELEV.	D STATION	D ELEV.	E STATION	E ELEV.	F STATION	F ELEV.
1	BRG	820+15.72	667.85	820+17.56	668.07	820+18.61	668.15	820+19.66	668.11	820+29.85	667.21	820+31.43	667.07
	1/5	820+31.86	668.29	820+33.74	668.52	820+34.80	668.59	820+35.87	668.55	820+46.22	667.65	820+47.82	667.51
	2/5	820+48.79	668.70	820+50.70	668.93	820+51.78	669.00	820+52.86	668.96	820+63.38	668.06	820+65.01	667.93
	3/5	820+65.32	669.04	820+67.26	669.27	820+68.36	669.34	820+69.46	669.30	820+80.15	668.40	820+81.80	668.26
	SPL	820+78.71	669.28	820+80.67	669.51	820+81.78	669.58	820+82.90	669.54	820+93.72	668.64	820+95.39	668.50
2	BRG	821+98.39	669.65	821+00.39	669.88	821+01.52	669.95	821+02.66	669.91	821+13.68	669.00	821+15.38	668.87
	SPL	821+18.07	670.09	821+20.10	670.32	821+21.26	670.39	821+22.41	670.35	821+33.64	669.44	821+35.37	669.30
	3/10	821+29.38	670.35	821+31.44	670.58	821+32.60	670.65	821+33.77	670.61	821+45.11	669.70	821+46.86	669.56
	1/2	821+50.04	670.79	821+52.13	671.01	821+53.32	671.08	821+54.51	671.04	821+66.07	670.13	821+67.85	669.99
	7/10	821+70.69	671.14	821+72.83	671.36	821+74.04	671.43	821+75.25	671.39	821+87.02	670.47	821+88.84	670.33
	SPL	821+82.01	671.30	821+84.16	671.53	821+85.38	671.60	821+86.61	671.56	821+98.50	670.64	822+00.33	670.49
3	BRG	822+01.67	671.61	822+03.87	671.83	822+05.11	671.90	822+06.36	671.86	822+18.45	670.93	822+20.32	670.79
	SPL	822+21.34	671.98	822+23.57	672.21	822+24.84	672.28	822+26.11	672.23	822+38.41	671.31	822+40.31	671.16
	2/5	822+34.71	672.25	822+36.97	672.47	822+38.25	672.54	822+39.53	672.50	822+51.98	671.56	822+53.90	671.42
	3/5	822+51.23	672.53	822+53.52	672.75	822+54.82	672.82	822+56.12	672.78	822+68.74	671.84	822+70.69	671.70
	4/5	822+67.75	672.76	822+70.07	672.98	822+71.38	673.04	822+72.70	672.99	822+85.50	672.04	822+87.48	671.90
	BRG	822+84.27	672.82	822+86.62	673.02	822+87.96	673.08	822+89.30	673.04	823+02.27	672.18	823+04.27	672.06

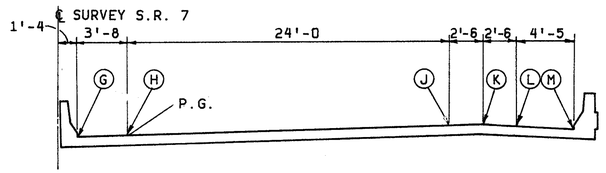
RIGHT SUPERSTRUCTURE TOP OF SLAB ELEVATIONS (SCREED ELEVATIONS)

SPAN	PT.	G STATION	G ELEV.	H STATION	H ELEV.	J STATION	J ELEV.	K STATION	K ELEV.	L STATION	L ELEV.	M STATION	M ELEV.
1	BRG	820+32.57	667.10	820+34.16	667.22	820+44.61	666.32	820+45.71	666.23	820+46.82	666.14	820+48.77	665.97
	1/5	820+48.98	667.54	820+50.59	667.66	820+61.21	666.77	820+62.33	666.67	820+63.45	666.58	820+65.43	666.41
	2/5	820+66.19	667.96	820+67.83	668.08	820+78.62	667.18	820+79.76	667.08	820+80.90	666.99	820+82.92	666.82
	3/5	820+83.00	668.29	820+84.66	668.41	820+95.63	667.51	820+96.78	667.41	820+97.94	667.32	820+99.99	667.15
	SPL	820+96.61	668.53	820+98.30	668.64	821+09.40	667.74	821+10.57	667.65	821+11.74	667.55	821+13.81	667.39
2	BRG	821+16.62	668.89	821+18.33	669.01	821+29.65	668.10	821+30.84	668.01	821+32.03	667.91	821+34.15	667.75
	SPL	821+36.63	669.33	821+38.37	669.44	821+49.90	668.53	821+51.11	668.44	821+52.33	668.34	821+54.48	668.18
	3/10	821+48.14	669.58	821+49.90	669.70	821+61.54	668.79	821+62.77	668.69	821+64.00	668.60	821+66.17	668.43
	1/2	821+69.15	670.02	821+70.94	670.14	821+82.81	669.22	821+84.06	669.13	821+85.31	669.03	821+87.53	668.86
	7/10	821+90.16	670.36	821+91.99	670.47	822+04.08	669.55	822+05.35	669.46	822+06.62	669.36	822+08.88	669.19
	SPL	822+01.67	670.52	822+03.51	670.64	822+15.72	669.72	822+17.01	669.62	822+18.30	669.52	822+20.58	669.35
3	BRG	822+21.68	670.82	822+23.56	670.93	822+35.98	670.01	822+37.29	669.91	822+38.60	669.81	822+40.92	669.64
	SPL	822+41.69	671.19	822+43.60	671.30	822+56.24	670.37	822+57.57	670.27	822+58.91	670.18	822+61.27	670.00
	2/5	822+55.30	671.44	822+57.23	671.56	822+70.02	670.62	822+71.37	670.53	822+72.71	670.44	822+75.10	670.29
	3/5	822+72.11	671.73	822+74.07	671.84	822+87.03	670.99	822+88.40	670.91	822+89.76	670.84	822+92.18	670.70
	4/5	822+88.92	671.93	822+90.91	672.06	823+04.03	671.30	823+05.41	671.23	823+06.79	671.16	823+09.23	671.05
	BRG	823+05.73	672.08	823+07.74	672.22	823+21.01	671.56	823+22.40	671.50	823+23.80	671.44	823+26.27	671.34

NOTE: ELEVATIONS ARE THOSE REQUIRED BEFORE DECK CONCRETE IS PLACED TO ALLOW FOR DEAD LOAD DEFLECTION CAUSED BY THE WEIGHT OF THE CONCRETE.



LEFT SUPERSTRUCTURE



RIGHT SUPERSTRUCTURE

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

ESTIMATED QUANTITIES AND SLAB ELEVATIONS

BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK

BELMONT COUNTY

STA. 820+29.55
STA. 823+07.57

DES. NO.	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		CFD	JMG	7/85	10/85

DESIGN NOTES

DESIGN SPECIFICATIONS
THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1983, INCLUDING THE 1984 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA
DESIGN LOADING: HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING
CONCRETE CLASS 'S': COMPRESSIVE STRENGTH 4500 P.S.I. (SUPERSTRUCTURE)
CONCRETE CLASS 'C': COMPRESSIVE STRENGTH 4000 P.S.I. (SUBSTRUCTURE)
REINFORCING STEEL: ASTM A615, A616, A617-GRADE 60 MINIMUM YIELD STRENGTH 60,000 P.S.I.
STRUCTURAL STEEL: ASTM A588-YIELD STRENGTH 50,000 P.S.I. ASTM A36-YIELD STRENGTH 36,000 P.S.I.

DECK PROTECTION METHOD
EPOXY COATED REINFORCING STEEL, TOP AND BOTTOM MAT. MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

REFERENCE SHALL BE MADE TO:

STANDARD DRAWINGS	SUPPLEMENTAL SPECIFICATIONS
AS-1-81 DATED 11-27-81	836 DATED 11-12-85
BR-1 DATED 5-29-79	
SD-1-69 DATED 6-12-69	
FB-1-82 DATED 5-10-82	
ICD-1-82 REVISED 8-1-84	

REINFORCING STEEL SPLICES: ALL REINFORCING STEEL SPLICES SHALL BE IN ACCORDANCE WITH ITEM 509.08. UNLESS SHOWN OTHERWISE, ALL SPLICES SHALL BE MADE BY OVERLAPPING THE ENDS OF THE BARS NOT LESS THAN SHOWN IN THE FOLLOWING TABLE:

BAR SIZE	LAP LENGTH
#4	1'-4"
#5	1'-8"
#6	2'-0"
#7	2'-6"
#8	3'-3"
#9	4'-2"
#10	5'-3"

PILES
PILES SHALL BE DRIVEN TO REFUSAL ON BEDROCK. REFUSAL SHALL BE CONSIDERED AS ATTAINED BY PENETRATING SOFT BEDROCK WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH OR REFUSAL SHALL BE CONSIDERED AS ATTAINED AFTER THE PILE HAS CONTRACTED HARD BEDROCK AND THE PILE HAS THEN RECEIVED AT LEAST 20 BLOWS.

THE DESIGN LOAD IS 45 TONS PER PILE FOR THE REAR AND FORWARD ABUTMENTS, AND 70 TONS PER PILE FOR THE REAR AND FORWARD PIERS.

PILE HAMMER
THE PILE HAMMER USED TO INSTALL THE STEEL "H" BEARING PILES SHALL HAVE A STATE'S ENERGY RATING OF NOT LESS THAN 13,500 FOOT-POUNDS. THIS REQUIREMENT DOES NOT RELIEVE THE CONTRACTOR FROM 108.05 WHICH STATES THAT THE CONTRACTOR IS TO PROVIDE SUFFICIENT EQUIPMENT FOR PROSECUTING THE REQUIRED WORK. REFER TO "ODOT'S MANUAL OF PROCEDURES FOR STRUCTURES" TO OBTAIN THE STATE'S ENERGY RATING.

PILE POINTS
STEEL PILE POINTS SHALL BE USED TO PROTECT THE TIPS OF THE PROPOSED PILING. THE STEEL POINTS SHALL BE FURNISHED BY THE ASSOCIATED PILE AND FITTING CORPORATION, 262 RUTHERFORD BOULEVARD, CLIFTON, NEW JERSEY 07014, THE INTERNATIONAL CONSTRUCTION EQUIPMENT, INC., 301 WAREHOUSE DRIVE, MATTHEWS, NORTH CAROLINA 28105 OR BY A MANUFACTURER THAT CAN FURNISH A STEEL POINT THAT IS ACCEPTABLE TO THE DIRECTOR.

PIER COFFERDAM CONSTRUCTION
THE CONTRACTOR SHOULD GIVE CONSIDERATION TO DESIGNING THE PIER COFFERDAMS IN A MANNER THAT IS COMPATIBLE WITH INFORMATION OBTAINED FROM THE SUBSURFACE MONITORING PROGRAM. HIGH PORE WATER PRESSURES MAY CAUSE THE SLOPE STABILITY TO HAVE A LOW FACTOR OF SAFETY.

SEALING OF CONCRETE SURFACES
AN EPOXY SEALER SHALL BE APPLIED TO THE FOLLOWING EXPOSED CONCRETE SURFACE AREAS: COMPLETE AREA OF THE DECK PARAPETS AS SHOWN IN TRANSVERSE SECTION ON SHEET 27/33, COMPLETE AREA OF THE ABUTMENT BACKWALLS, BEAM SEATS, AND BREASTWALLS, AND ALL SURFACES OF THE PIERS ABOVE THE WATER LINE.

PARTIAL PAINTING OF A588 STEEL
A588 STEEL IS TO BE LEFT UNPAINTED, EXCEPT AS NOTED BELOW. SEE CMS 513.221 FOR CLEANING REQUIREMENTS.

A 10'-0" LENGTH OF THE ENDS OF BEAMS ADJACENT TO ABUTMENTS AND ALL CROSSFRAMES AND OTHER A588 STEEL WITHIN THESE LIMITS SHALL BE PAINTED. PAINT SHALL BE 514, SYSTEM A. THE PRIME COAT SHALL BE 708.17. THE TOP COAT SHALL BE 708.18 EXCEPT THAT THE COLOR SHALL CLOSELY APPROACH FEDERAL STANDARD NO. 595a-20045 OR 20059. PRIME COAT SHALL BE APPLIED IN THE SHOP.

EMBANKMENT CONSTRUCTION AND PILE DRIVING CONSTRAINTS
PRIOR TO DRIVING PILES AT THE PIERS AND ABUTMENTS THE SPILL-THRU EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FOR A DISTANCE OF 200 FEET BACK OF THE ABUTMENTS. AFTER THE EMBANKMENT HAS BEEN COMPLETED WITHIN THE ABOVE REQUIRED LIMITS, A 30 DAY WAITING PERIOD IS REQUIRED PRIOR TO EXCAVATING AND DRIVING PILES FOR THE PIERS AND ABUTMENTS. THE PROPOSED EMBANKMENTS WITHIN THE ABOVE REQUIRED LIMITS SHALL BE CONSTRUCTED AT A RATE NOT TO EXCEED TWO FEET IN HEIGHT PER WEEK.

THE RATE OF SETTLEMENT AND PORE PRESSURE SHALL BE MONITORED IN THE FIELD DURING CONSTRUCTION. UNDER THE CONTRACT, THE CONTRACTOR SHALL RETAIN AN EXPERIENCED SOILS FIRM TO MONITOR THE INSTRUMENTATION, RECOMMEND ANY NEEDED CHANGES IN THE RATE OF FILL PLACEMENT OR WAITING PERIODS, AND SUBMIT A WRITTEN REPORT TO THE DIRECTOR.

THE WAITING PERIOD AND RATE OF CONSTRUCTION OF THE EMBANKMENT CAN BE CHANGED IF THE DIRECTOR'S REVIEW OF THE RESULTS FROM THE SOIL MONITORING INSTRUMENTATION INDICATES THAT REVISED REQUIREMENTS FOR THE CONSTRUCTION OF THE EMBANKMENT ARE APPROPRIATE.

THE FOLLOWING INSTRUMENTATION SHALL BE INSTALLED BY THE CONTRACTOR:

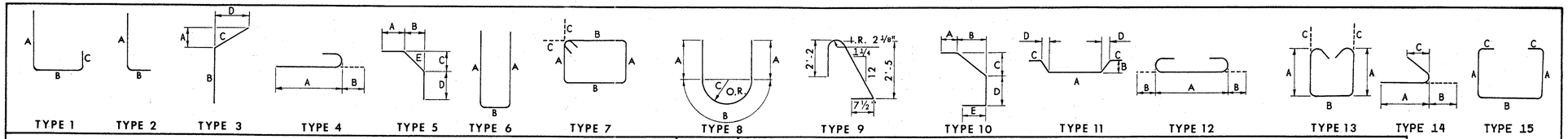
LOCATION	INSTRUMENT	OFFSET
SOUTH ABUTMENT	PIEZOMETER	CENTERLINE
SOUTH ABUTMENT	SETTLEMENT PLATFORM	CENTERLINE
TOE OF SOUTH FRONT SLOPE	SLOPE INCLINOMETER	CENTERLINE
NORTH ABUTMENT	PIEZOMETER	CENTERLINE
NORTH ABUTMENT	SETTLEMENT PLATFORM	CENTERLINE
NORTH ABUTMENT	SLOPE INCLINOMETER	TOE OF SIDE SLOPE
TOE OF NORTH FRONT SLOPE	SLOPE INCLINOMETER	CENTERLINE

PAYMENT FOR THE ABOVE LISTED WORK SHALL BE INCLUDED WITH ITEM 203, ROADWAY EXCAVATION AND EMBANKMENT.

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

DESIGN NOTES
BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK
BELMONT COUNTY
STA. 820+29.55
STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMG			

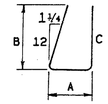


SUPERSTRUCTURE

MARK	TYPE	A	B	C	D	E	LT.	NUMBER	RT.	TOTAL	LENGTH	WEIGHT
E606	STR.						458		459	917	39'-6	54405
E607	STR.						2		—	2	3'-11	12
E608	STR.						4		—	4	4'-0	24
E609	STR.	Lengths Vary by 1'-3 11/16					1 Series of 27		—	1 Series of 27	5'-3 TO 39'-3	902
E610	STR.	Lengths Vary by 1'-0 1/4 (+)					1 Series of 33		—	1 Series of 33	4'-0 TO 36'-9	1010
E611	STR.						3		—	3	3'-0	14
E612	STR.						—		2	2	3'-6	11
E613	STR.	Lengths Vary by 1'-3 3/8					—		1 Series of 26	1 Series of 26	4'-2 TO 36'-2	788
E614	STR.	Lengths Vary by 1'-0 (+)					—		1 Series of 36	1 Series of 36	4'-2 TO 39'-4	1176
E615	STR.						9		9	18	14'-8	397
E616	STR.						16		16	32	7'-2	344
E617	STR.						2		2	4	9'-4	56
							—		—			
E502	4	2'-5	7"				210		210	420	3'-0	1,314
E503	9	See Detail					209		211	420	5'-3	2,300
E511	STR.						658		658	1316	30'-0	41,178
E512	STR.						50			50	19'-6	1,017
E513	STR.						458		459	917	39'-6	37,779
E514	STR.						2			2	3'-11	8
E515	STR.						4		—	4	4'-0	17
E516	STR.	Lengths Vary by 1'-3 11/16					1 Series of 27		—	1 Series of 27	5'-3 TO 39'-3	627
E517	STR.	Lengths Vary by 1'-0 1/4					1 Series of 33		—	1 Series of 33	4'-0 TO 36'-9	701
E518	STR.						—		50	50	20'-2	1052
E519	STR.						—		3	3	3'-0	9
E520	STR.						—		2	2	3'-6	7
E521	STR.	Lengths Vary by 1'-3 3/8					—		1 Series of 26	1 Series of 26	4'-2 TO 36'-2	547
E522	STR.	Lengths Vary by 1'-0 (+)					—		1 Series of 36	1 Series of 36	4'-2 TO 39'-4	817
E523	STR.						54		54	108	14'-8	1652
E524	STR.						96		96	192	7'-2	1435
E525	STR.						8		—	8	9'-3	77
E526	STR.						—		8	8	9'-10	82
E527	STR.						2		2	4	9'-3	39
E528	10	9"	6"	8 1/2"	10"	10 1/2"	209		211	420	3'-1	1351
E529	10	4 1/2"	7"	8 1/2"	10"	1'-0	1		1	2	2'-10	6
E530	2	1'-6	10 1/2"				420		422	842	2'-3	1976
E531	10	4"	6"	8 1/2"	10"	10 1/2"	210		210	420	2'-8	1168
E532	10	4"	6 1/2"	8 1/2"	10"	11 1/2"	1		1	2	2'-9	6
E533	STR	4"	6 1/2"	8 1/2"	10"	11 1/2"	210		210	420	2'-4	1022
E534	STR.						2		2	4	9'-7	40
E401	STR.						459		459	918	30'-0	18,397
E402	STR.						51			51	16'-6	562
E403	STR.								51	51	17'-2	585

REAR ABUTMENT

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
A801	5	1'-5	1'-5	1'-5	1'-5	2'-0		56	4'-10	723
A802	STR.							21	30'-0	1682
A803	STR.							7	8'-4	156
A804	STR.							3	9'-4	75
A805	STR.							3	6'-6	52
A806	STR.							3	12'-0	96
A807	STR.							3	8'-0	64
A601	1	6'-6	5'-4	2'-7				7	14'-1	148
A602	1	6'-10	5'-4	2'-7				7	14'-5	152
A603	1	7'-2	5'-4	2'-7				7	14'-9	155
A604	1	7'-6	5'-4	2'-7				17	15'-1	385
A605	1	7'-11	5'-4	2'-7				7	15'-6	163
A606	1	8'-3	5'-4	2'-7				16	15'-10	381
A607	6	2'-9	11"					82	6'-1	749
A608	6	2'-9	1'-5					82	6'-7	811
A609	6	4'-1	1'-5					82	9'-3	1139
A610	STR.							4	3'-3	20
A611	6	8'-5	1'-2					3	17'-8	80
A612	STR.							4	2'-8	16
A613	STR.							1	2'-11	4
A614	STR.							1	3'-8	6
A615	STR.							3	4'-1	18
A616	6	4'-6	1'-2					6	9'-10	89
A617	STR.							6	7'-9	70
A618	STR.	Lengths Vary by 9"						1 Series of 3	2'-11 TO 4'-5	17
A619	STR.							6	4'-0	36
A501	STR.							7	30'-0	219
A502	STR.							16	22'-3	371
A503	STR.							8	22'-10	191
A504	6	1'-8	5'-4					61	8'-5	535
A505	6	1'-8	3'-5					61	6'-6	414
A506	STR.							38	22'-4	885
A507	2	6'-5	10 1/2"					7	7'-2	52
A508	2	6'-9	10 1/2"					7	7'-6	55
A509	2	7'-1	10 1/2"					7	7'-10	57
A510	2	7'-5	10 1/2"					17	8'-2	145
A511	2	7'-10	10 1/2"					7	8'-7	63
A512	2	8'-2	10 1/2"					16	8'-11	149
A513	STR.							5	15'-8	82
A514	7	2'-4	3'-0	5 1/2"				7	11'-3	82
A515	2	7'-3	10 1/2"					2	8'-0	17
A516	STR.							4	2'-8	11
A517	STR.							1	2'-11	3
A518	STR.							1	3'-8	4
A519	STR.							6	4'-1	26
A520	STR.							2	5'-6	11



NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

AN 'E' DESIGNATION PRECEDING THE BAR MARK DENOTES EPOXY COATED BARS.

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

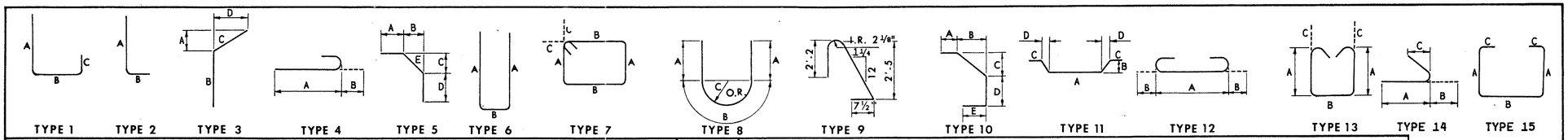
REINFORCING BAR SCHEDULE

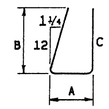
BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK

BELMONT COUNTY

STA. 820+29.55
STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		[illegible]	JMG	7/85	





REAR ABUTMENT

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
A521	STR.							6	6'-2	39
A522	6	10"	1'-2					9	2'-7	24
A523	STR.							6	9'-8	60
A524	STR.							6	7'-2	45
A525	STR.	Lengths Vary by 9"						1 Series of 3	2'-11 TO 4'-5	11
A526	STR.							6	4'-0	25
A527	STR.							2	7'-9	16
A528	2	8'-2	10½"					2	8'-11	19
A529	STR.							6	16'-2	101
A530	STR.							6	9'-11	62
E601	5	7"	2"	8½"	2'-5	8¾"		8	3'-7	43
E602	5	7"	3"	8½"	2'-5	9"		2	3'-7	11
E603	5	8"	4"	8½"	2'-5	9⅜"		2	3'-8	11
E604	5	8"	5"	8½"	2'-5	9⅞"		2	3'-8	11
E605	5	9"	6"	8½"	2'-5	10⅜"		10	3'-9	56
E618	STR.							2	1'-0	3
E501	STR.							20	4'-7	96
E503	9	See Detail						8	5'-3	44
E504	STR.							8	3'-0	25
E505	STR.							16	4'-4	72
E506	STR.							8	7'-8	64
E507	STR.							8	14'-2	118
E509	STR.							12	1'-0	13
E510	10	6"	7"	8½"	9"	10½"		4	2'-10	12
E535	4	2'-1	7"					20	2'-8	56

FORWARD ABUTMENT

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
B801	5	1'-5	1'-5	1'-5	1'-5	2'-0		58	4'-10	748
B802	STR.							21	30'-0	1682
B803	STR.							7	12'-6	234
B804	STR.							3	11'-11	95
B805	STR.							3	8'-6	68
B806	STR.							3	8'-9	70
B807	STR.							3	5'-0	40
B601	1	8'-3	5'-4	2'-7				9	15'-10	214
B602	1	8'-1	5'-4	2'-7				6	15'-8	141
B603	1	7'-9	5'-4	2'-7				7	15'-4	161
B604	1	7'-6	5'-4	2'-7				11	15'-1	249
B605	1	7'-5	5'-4	2'-7				7	15'-0	158
B606	1	7'-2	5'-4	2'-7				6	14'-9	133

FORWARD ABUTMENT

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
B607	1	6'-11	5'-4	2'-7				7	14'-6	152
B608	1	6'-9	5'-4	2'-7				8	14'-4	172
B610	6	2'-9	11"					86	6'-1	786
B611	6	2'-9	1'-5					86	6'-7	850
B612	6	4'-0	1'-5					86	9'-1	1173
B613	STR.							4	3'-6	21
B614	6	4'-6	1'-2					4	9'-10	59
B615	STR.							4	7'-8	46
B616	STR.							4	4'-0	24
B617	STR.							3	2'-8	12
B618	STR.	Lengths Vary by 9"						1 Series of 3	3'-0 TO 4'-6	17
B619	6	8'-9	1'-2					4	18'-4	110
B620	STR.							4	4'-1	25
B621	STR.	Lengths Vary by 9"						1 Series of 4	2'-9 TO 5'-0	23
B501	STR.							22	23'-10	547
B502	STR.							16	23'-3	388
B503	2	8'-2	10½"					9	8'-11	84
B504	2	8'-0	10½"					6	8'-9	55
B505	2	7'-8	10½"					7	8'-5	61
B506	2	7'-5	10½"					11	8'-2	94
B507	2	7'-4	10½"					7	8'-1	59
B508	2	7'-1	10½"					6	7'-10	49
B509	2	6'-10	10½"					7	7'-7	55
B510	2	6'-8	10½"					8	7'-5	62
B511	6	1'-8	3'-5					61	6'-6	414
B512	6	1'-8	5'-4					61	8'-5	535
B513	STR.							38	23'-5	928
B514	7	2'-4	3'-0	5½"				5	11'-3	59
B515	2	8'-1	10½"					2	8'-10	18
B516	STR.							5	7'-1	37
B517	STR.							5	4'-0	21
B518	2	4'-5	10½"					1	5'-2	5
B519	STR.	Lengths Vary by 9"						1 Series of 3	3'-0 TO 4'-6	12
B520	STR.							3	2'-8	8
B521	STR.							6	8'-4	52
B522	STR.							2	9'-3	19
B523	STR.							2	8'-6	18
B524	STR.							12	13'-2	165
B525	6	10"	1'-2					10	2'-7	27
B526	STR.							4	6'-8	28
B527	2	6'-7	10½"					1	7'-4	8
B528	STR.							5	4'-1	21
B529	STR.							2	8'-1	17
B530	STR.	Lengths Vary by 9"						1 Series of 4	2'-9 TO 5'-0	16
B531	STR.							2	9'-0	19
B532	2	8'-4	10½"					1	9'-1	9

NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

AN 'E' DESIGNATION PRECEDING THE BAR MARK DENOTES EPOXY COATED BARS.

Sheet 6 / 33

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

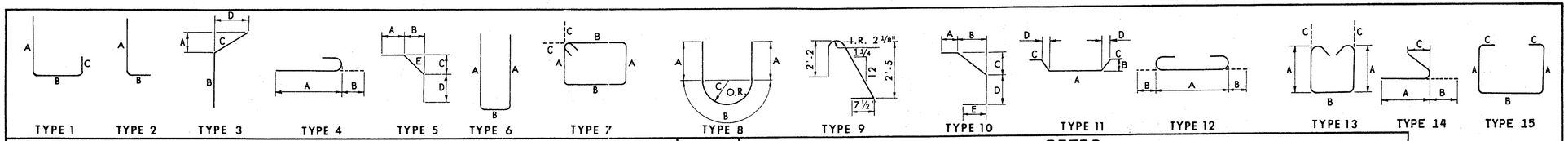
REINFORCING BAR SCHEDULE

BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK

BELMONT COUNTY

STA. 820+29.55
STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVISED	DATE	REVISED
D. D.B.	D.D.B.		CFD	JMG	7/85	



FORWARD ABUTMENT

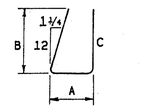
MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
E601	5	7"	2"	8½"	2'-5	8¾"		8	3'-7	43
E602	5	7"	3"	8½"	2'-5	9"		2	3'-7	11
E603	5	8"	4"	8½"	2'-5	9⅜"		2	3'-8	11
E604	5	8"	5"	8½"	2'-5	9⅞"		2	3'-8	11
E605	5	9"	6"	8½"	2'-5	10⅜"		10	3'-9	56
E618	Str.							2	1'-0	3
E501	STR.							20	4'-7	96
E503	9	See Detail						8	5'-3	44
E504	STR.							8	3'-0	25
E505	STR.							16	4'-4	72
E508	STR.							16	11'-2	186
E509	STR.							12	1'-0	13
E510	10	6"	7"	8½"	9"	10½"		4	2'-10	12
E535	4	2'-1	7"					20	2'-8	56

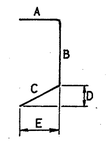
PIERS

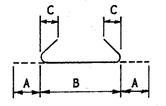
							LT. REAR	RT. REAR	LT. FWD.	RT. FWD.			
P1001	Str.						42	42	-	-	84	26'-1	9428
P1002	2	12'-9	1'-10				30	30	-	-	60	14'-3	3679
P1003	2	7'-11	1'-10				42	42	-	-	84	9'-5	3404
P1004	Str.						-	-	38	38	76	14'-10	4851
P1005	12	18'-6	1'-5				-	-	38	38	76	21'-4	6977
P1006	2	10'-3	1'-10				-	-	32	32	64	11'-9	3236
P1007	2	7'-11	1'-10				-	-	38	38	76	9'-5	3080
P1008	2	12'-1	1'-10				-	-	38	38	76	13'-7	4442
P1009	Str.						-	-	38	38	76	26'-6	8666
P901	Str.						10	10	10	10	40	42'-8	5802
P902	2.	4'-2	2'-7½				6	6	6	6	24	6'-6	530
P903	12	15'-6	1'-3				38	38	-	-	76	18'-0	4651
P904	2	4'-2	3'-5½				6	6	6	6	24	7'-4	598
P905	Str.						-	-	36	-	36	20'-0	2448
P906	Str.						-	-	-	36	36	18'-11	2315
P801	Str.						-	-	27	27	54	18'-6	2667
P701	Str.						20	20	20	20	80	26'-6	4334
P702	Str.						42	-	-	-	42	17'-2	1474
P703	Str.						32	-	32	-	64	9'-1	1188

PIERS

MARK	TYPE	A	B	C	D	E	NUMBER LT. REAR	RT. REAR	LT. FWD.	RT. FWD.	TOTAL	LENGTH	WEIGHT
P704	Str.						-	42	-	-	42	16'-0	1374
							-	32	-	32	64	9'-2	1200
P601	Str.						4	4	4	4	16	42'-8	1026
P602	Str.			Length Varies by 6'-1			2 Series 4	2 Series 4	2 Series 4	2 Series 4	8 Series 4	18'-9 to 37'-0	1340
P603	3	1'-9½	13'-4½	2'-0	10½"		6	6	6	6	24	15'-4	552
P501	8	1'-8	4'-2¼	1'-4			52	50	54	52	208	7'-6	16026
P502	Str.						52	50	54	52	208	15'-0	3254
P503	6	2'-1	2'-8				16	16	16	16	64	6'-7	440
P504	6	2'-2	2'-8				24	24	24	24	96	6'-9	676
P505	6	4'-0½ to 6'-2	2'-8	Length Varies by 8½"			-	1 Series of 7	-	1 Series of 7	2 Series of 7	10'-6 to 14'-9	184
P506	6	6'-7 to 8'-8	2'-8	Length Varies by 1'-4 5/8" (+)			-	1 Series of 4	-	1 Series of 4	2 Series of 4	15'-7 to 19'-9	148
P507	6	3'-8½ to 5'-11	2'-8	Length Varies by 8 13/16" (+)			1 Series of 7	-	1 Series of 7	-	2 Series of 7	9'-10 to 14'-3	176
P508	6	6'-4 to 8'-5½	2'-8	Length Varies by 1'-5 (+)			1 Series of 4	-	1 Series of 4	-	2 Series of 4	15'-1 to 19'-4	144
P509	6	9'-2	2'-8				1	-	1	-	2	20'-9	44
P510	6	2'-10½ to 5'-1	2'-8	Length Varies by 8 13/16" (+)			1 Series of 7	1 Series of 7	1 Series of 7	1 Series of 7	4 Series of 7	8'-2 to 12'-7	303
P511	6	5'-7 to 7'-9½	2'-8	Length Varies by 1'-5 5/8 (+)			1 Series of 4	1 Series of 4	1 Series of 4	1 Series of 4	4 Series of 4	13'-7 to 18'-0	264
P512	6	8'-10	2'-8				1	1	1	1	4	20'-1	84
P513	6	9'-4½	2'-8				-	1	-	1	2	21'-2	44
P301	18	4"	2'-8	2½"			208	200	216	208	832	3'-4	1042







NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

AN 'E' DESIGNATION PRECEDING THE BAR MARK DENOTES EPOXY COATED BARS.

Sheet 7 / 33

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

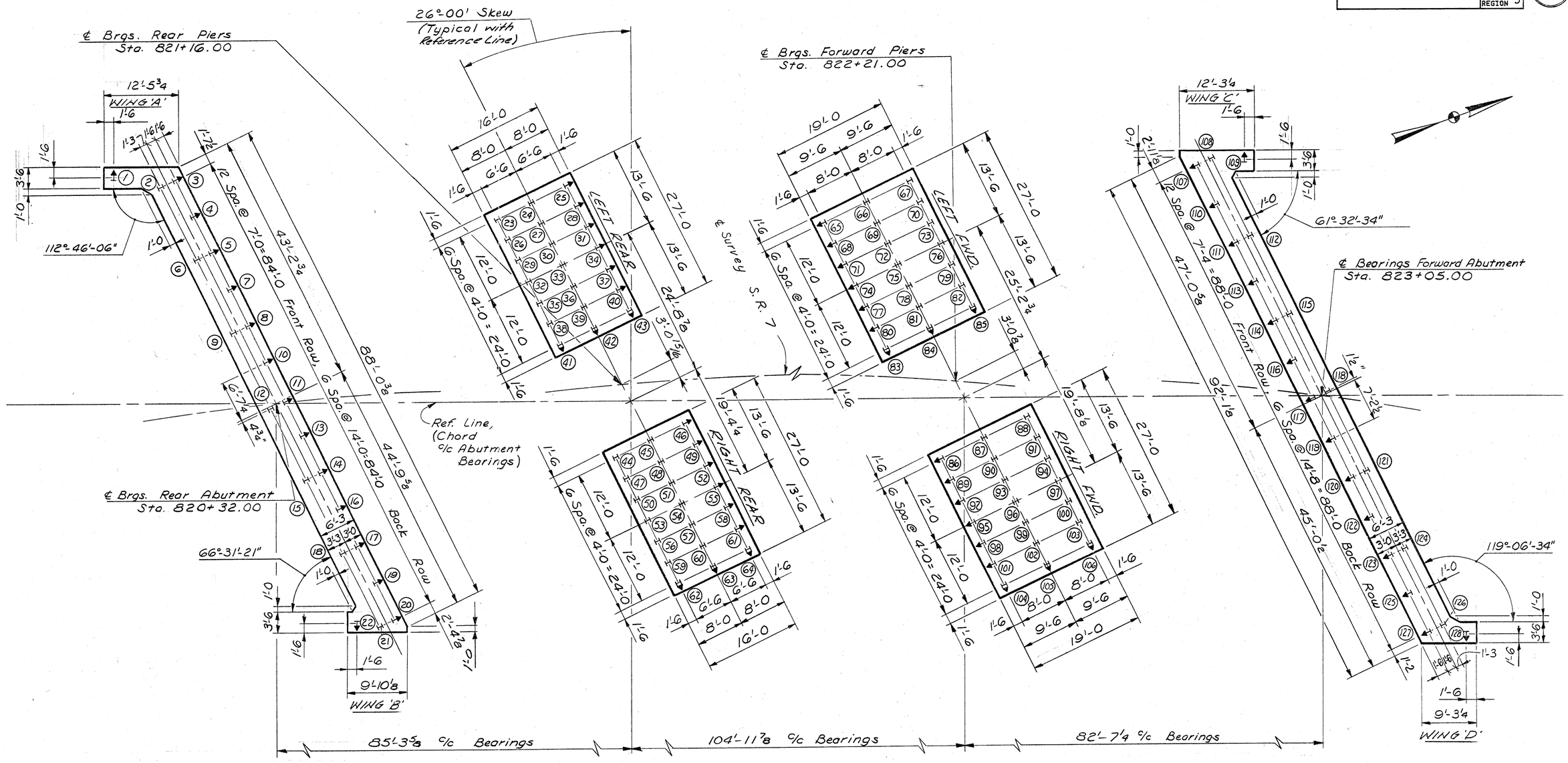
REINFORCING BAR SCHEDULE

BRIDGE NO. BEL-7-1550 L/R
S.R. 7 OVER McMAHON CREEK

BELMONT COUNTY

STA. 820+29.55
STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	7/85	10/85



NOTE:
↤ Indicates direction of 4:1 Battered Piles.

All Pier Footing Piles to be HP 12×53.

All Abutment Footing Piles to be HP 10×42.

Steel Pile Points shall be used as per Plan.

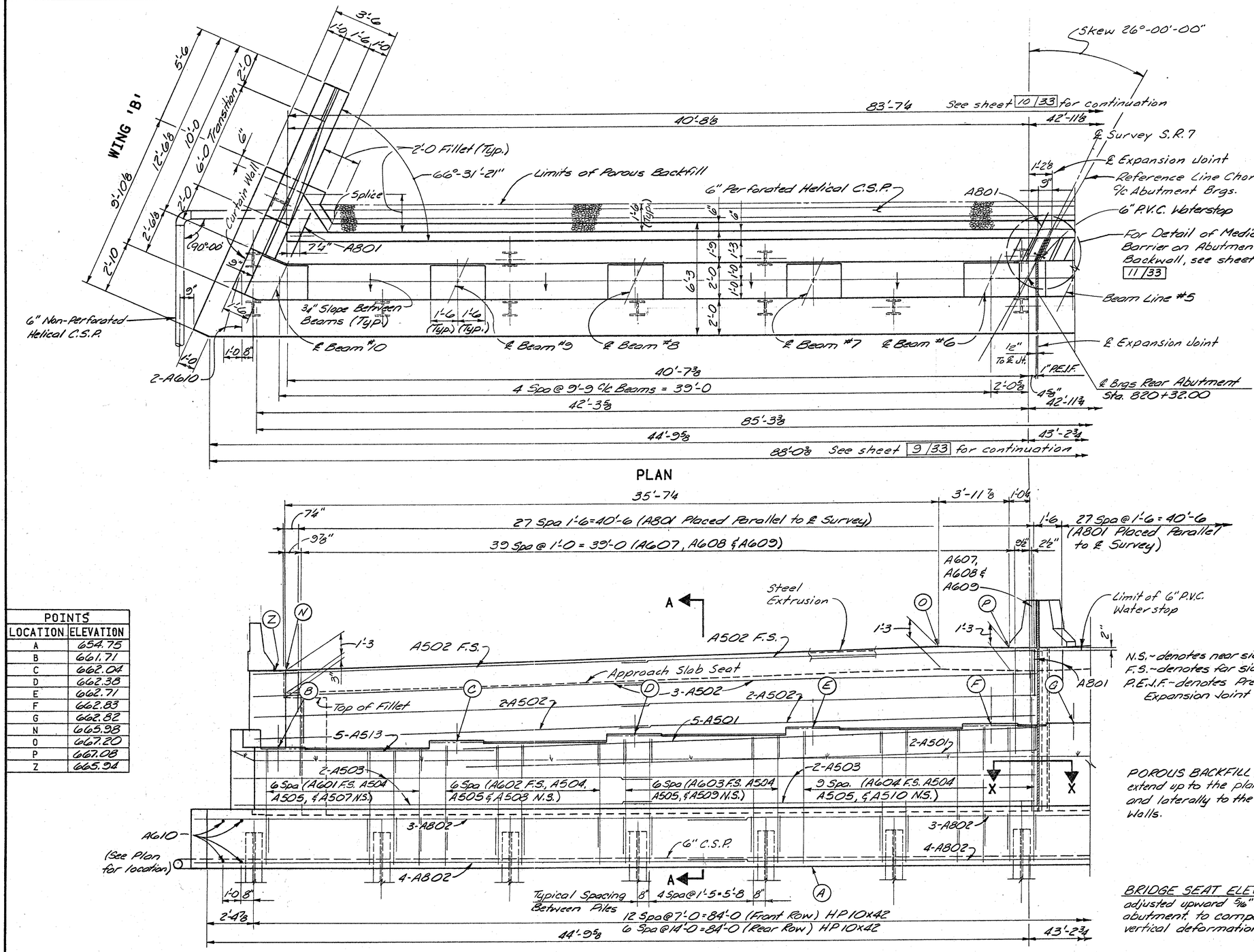
Sheet 8/33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

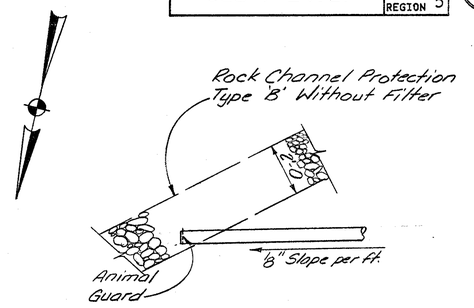
FOOTING PLAN

BRIDGE NO. BEL-7-1550 L/R
S.R. 7 OVER McMAHON CREEK
STA. 820+29.55
STA. 823+07.57
BELMONT COUNTY

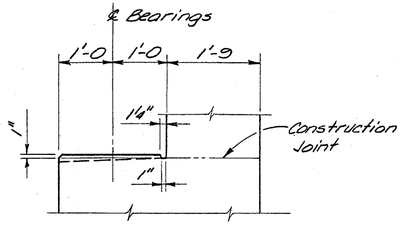
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	7/85	10/85



POINTS	
LOCATION	ELEVATION
A	654.75
B	661.71
C	662.04
D	662.38
E	662.71
F	662.83
G	662.82
N	665.98
O	667.20
P	667.08
Z	665.94



TYPICAL TERMINATION OF 6" NON-PERFORATED C.S.P.



TYPICAL SECTION THRU BEAM SEAT

For Backwall Concrete note, see sheet 10/33

For Details of Wing 'B', see sheet 11/33

For Continuation of Rear Abutment, see sheet 10/33

For Typical Expansion Joint Detail, see sheet 12/33

POROUS BACKFILL: 1.5 ft. thick shall extend up to the plane of the subgrade and laterally to the ends of the Wing Walls.

For Section X-X and Waterstop note, see Std. Dwgs. ICD-1-82 sheets #1 & 5.

BRIDGE SEAT ELEVATIONS have been adjusted upward 5/16" at the rear abutment to compensate for the vertical deformation of the bearings

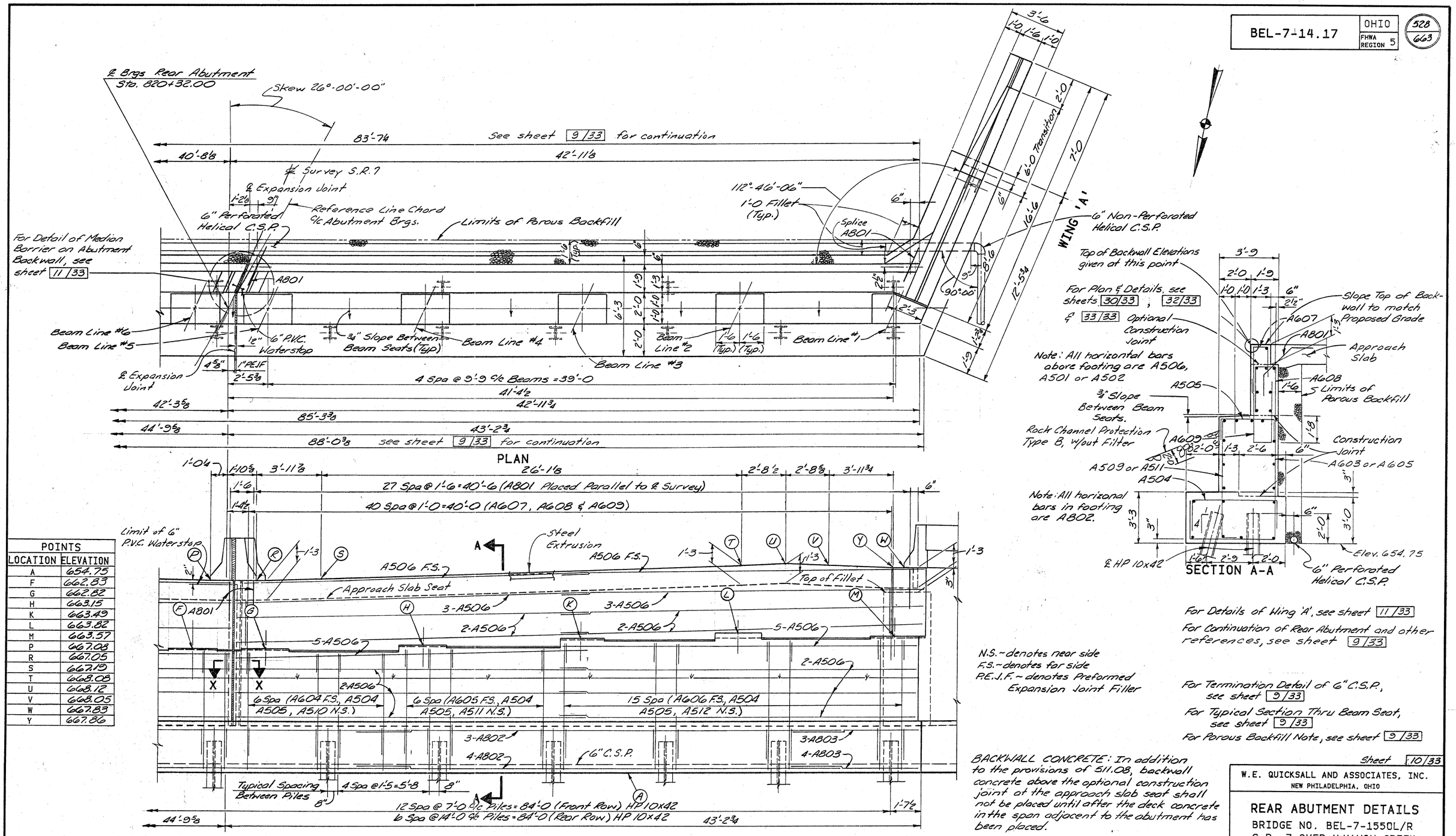
Sheet 9/33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

REAR ABUTMENT DETAILS

BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK
BELMONT COUNTY
STA. 820+29.55
STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		wdo	JmG	7/85	



POINTS	
LOCATION	ELEVATION
A	654.75
F	662.83
G	662.82
H	663.15
K	663.49
L	663.82
M	663.57
P	667.08
R	667.05
S	667.19
T	668.08
U	668.12
V	668.05
W	667.83
Y	667.86

N.S. - denotes near side
F.S. - denotes far side
P.E.J.F. - denotes Preformed Expansion Joint Filler

For Details of Wing 'A', see sheet 11/33

For Continuation of Rear Abutment and other references, see sheet 9/33

For Termination Detail of 6" C.S.P., see sheet 9/33

For Typical Section Thru Beam Seat, see sheet 9/33

For Porous Backfill Note, see sheet 9/33

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

Sheet 10/33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

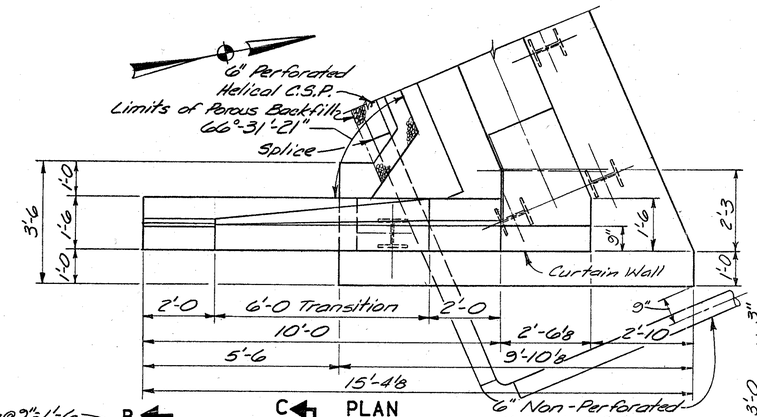
REAR ABUTMENT DETAILS

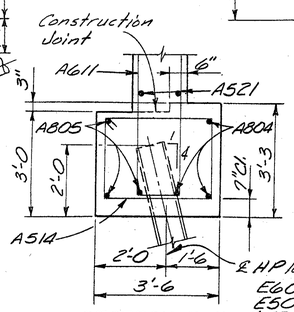
BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK
BELMONT COUNTY
STA. 820+29.55
STA. 823+07.57

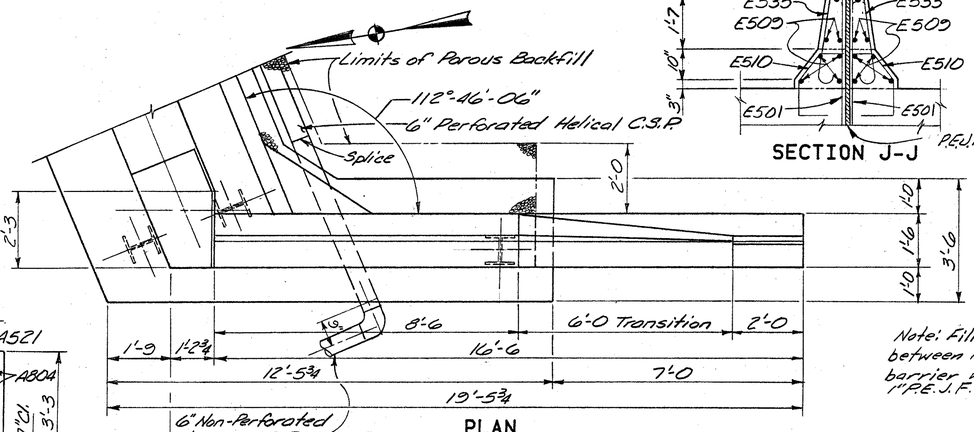
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		wda	JMG	7/85	

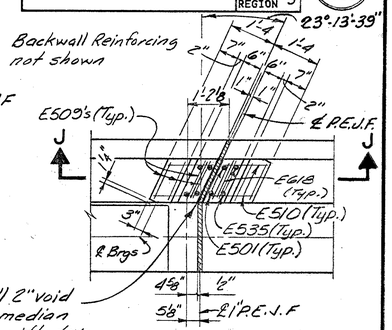
BEL-7-14.17 | OHIO | FHWA REGION 5 | 529 / 663

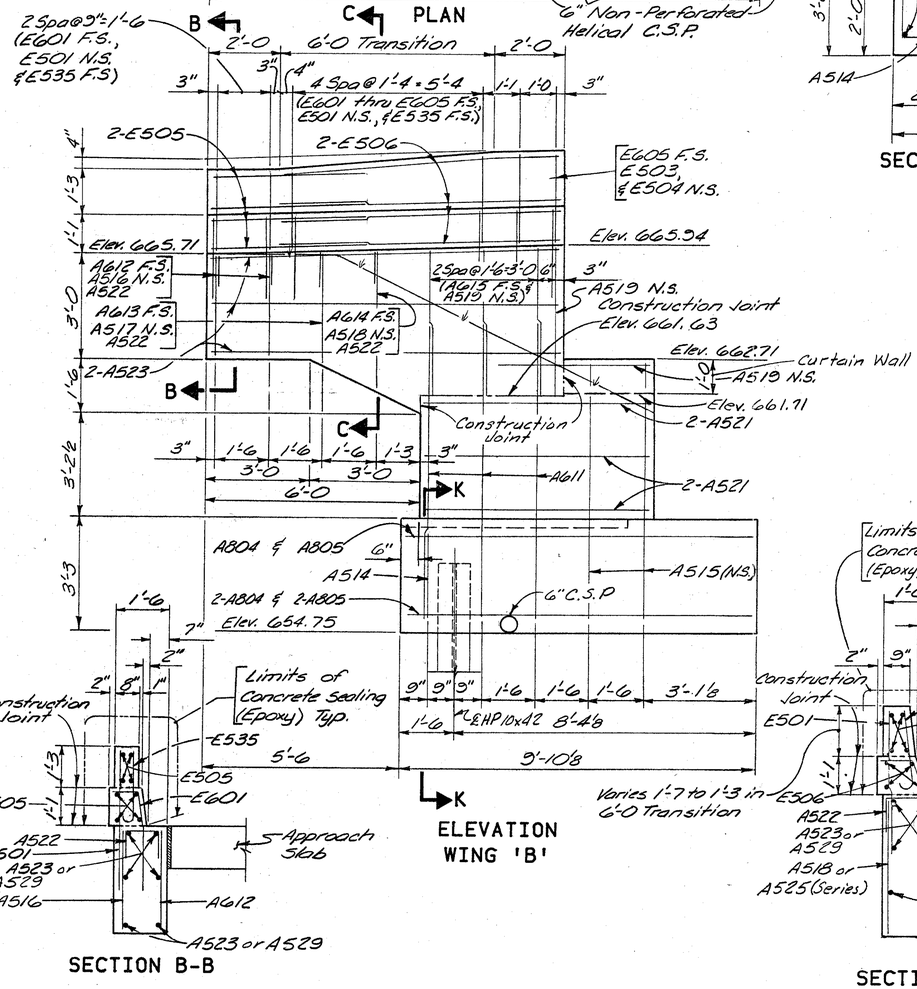
REAR ABUTMENT MEDIAN BARRIER DETAILS

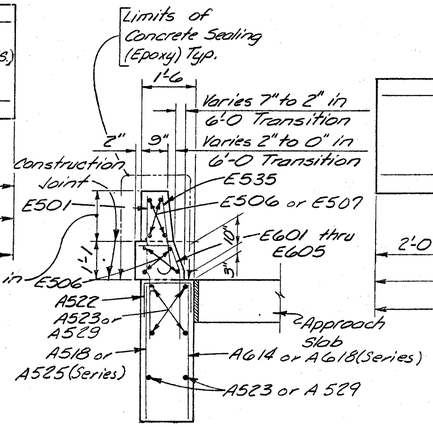


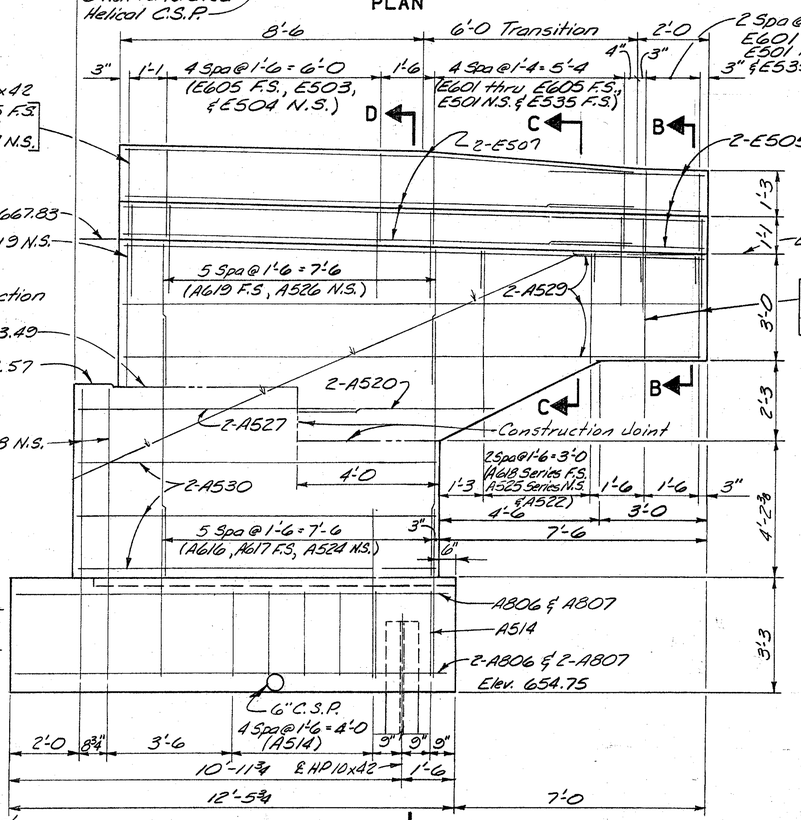


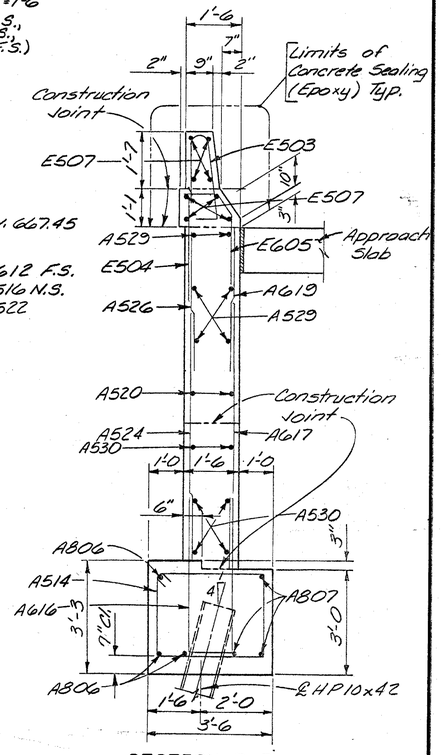












For Plan & Elevation of Rear Abutment, see sheet 9/33 & 10/33

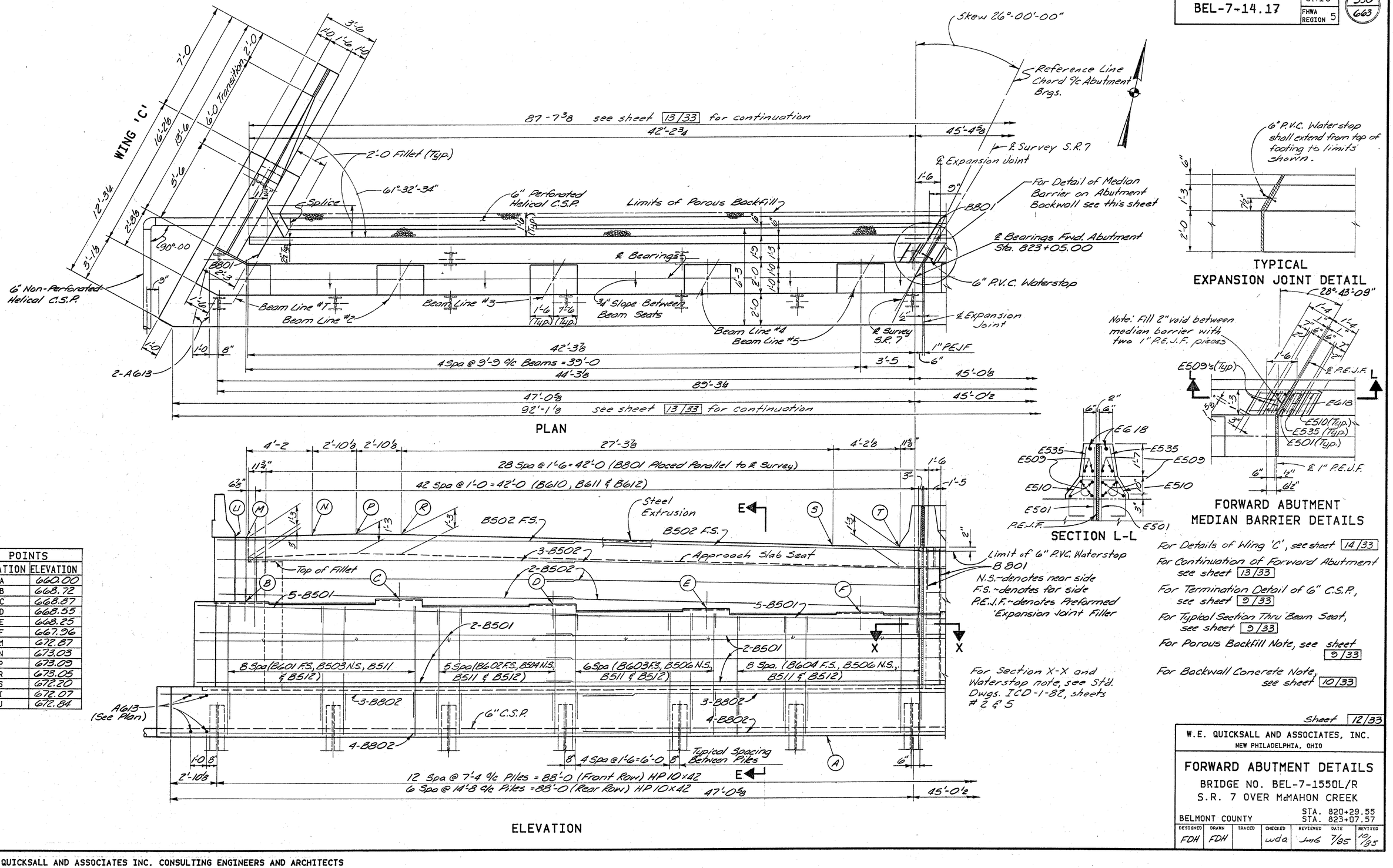
Sheet 11/33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

REAR ABUTMENT DETAILS
BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK

BELMONT COUNTY
STA. 820+29.55
STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		wda	mg	7/85	10/85



POINTS	
LOCATION	ELEVATION
A	660.00
B	668.72
C	668.87
D	668.55
E	668.25
F	667.96
M	672.87
N	673.03
P	673.09
R	673.05
S	672.20
T	672.07
U	672.84

Limit of 6" P.V.C. Waterstop

B801

N.S.-denotes near side
F.S.-denotes far side
P.E.J.F.-denotes Preformed Expansion Joint Filler

For Section X-X and Waterstop note, see Std. Dwgs. ICD-1-82, sheets # 2 & 5

For Details of Wing 'C', see sheet 14/33

For Continuation of Forward Abutment see sheet 13/33

For Termination Detail of 6" C.S.P., see sheet 9/33

For Typical Section Thru Beam Seat, see sheet 9/33

For Porous Backfill Note, see sheet 9/33

For Backwall Concrete Note, see sheet 10/33

Sheet 12/33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

FORWARD ABUTMENT DETAILS

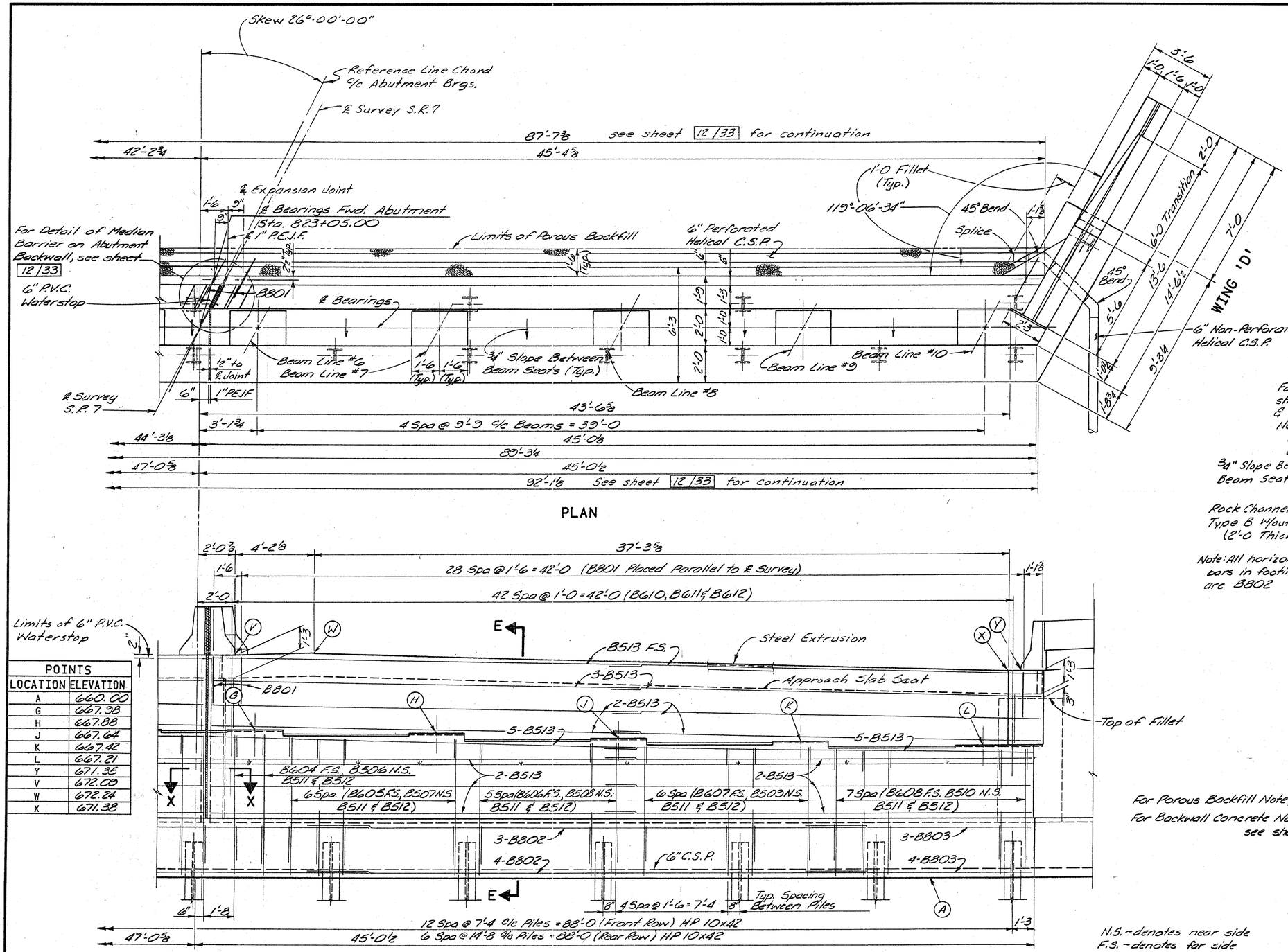
BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK

BELMONT COUNTY

STA. 820+29.55
STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		wda	JMG	7/85	10/85

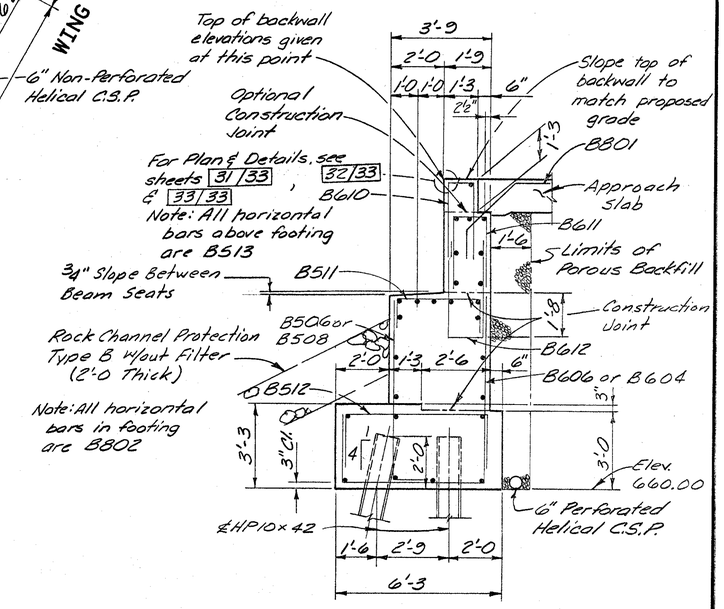
BEL-7-14.17	OHIO	531
	FHWA REGION 5	663



PLAN

POINTS	
LOCATION	ELEVATION
A	660.00
G	667.98
H	667.88
J	667.64
K	667.42
L	667.21
Y	671.35
V	672.09
W	672.24
X	671.38

ELEVATION



SECTION E-E

For Typical Section Thru Beam Seat see sheet 9/33
For Details of Wing 'D', see sheet 14/33
For Continuation of Forward Abutment & other references, see sheet 12/33
For Termination Detail of 6" C.S.P., see sheet 9/33

For Porous Backfill Note, see sheet 9/33
For Backwall Concrete Note, see sheet 10/33

N.S. - denotes near side
F.S. - denotes far side
P.E.J.F. - denotes Preformed Expansion Joint Filler.

Sheet 13/33

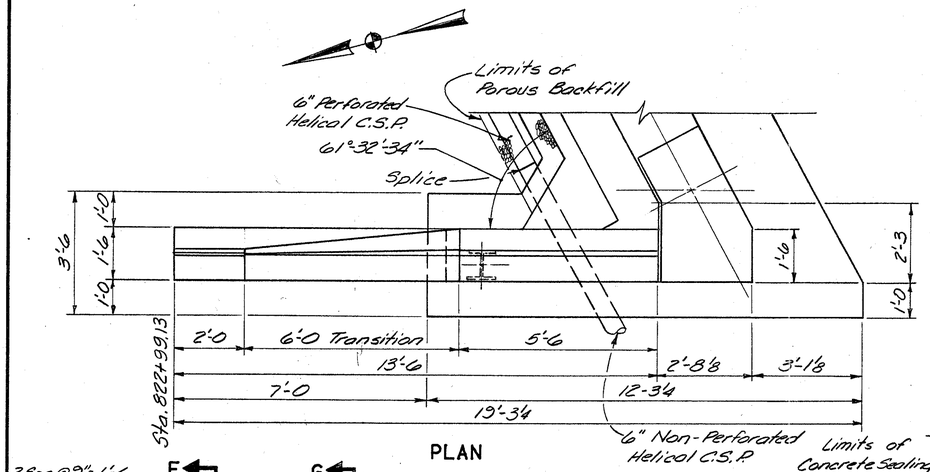
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

FORWARD ABUTMENT DETAILS

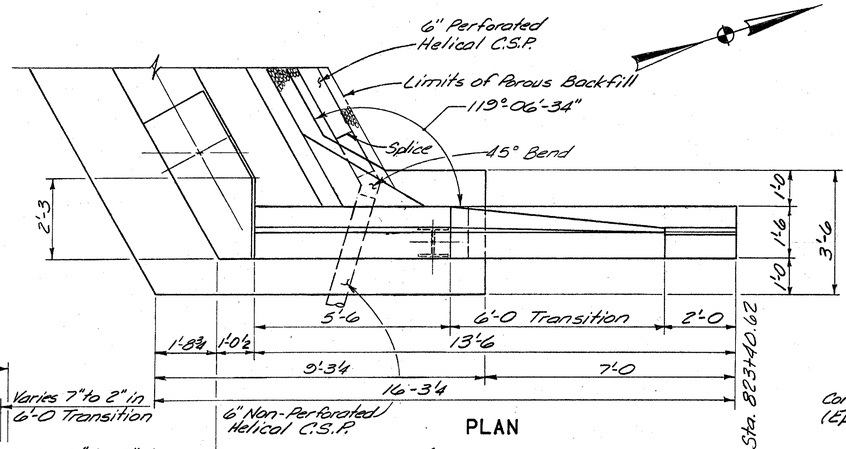
BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK

BELMONT COUNTY
STA. 820+29.55
STA. 823+07.57

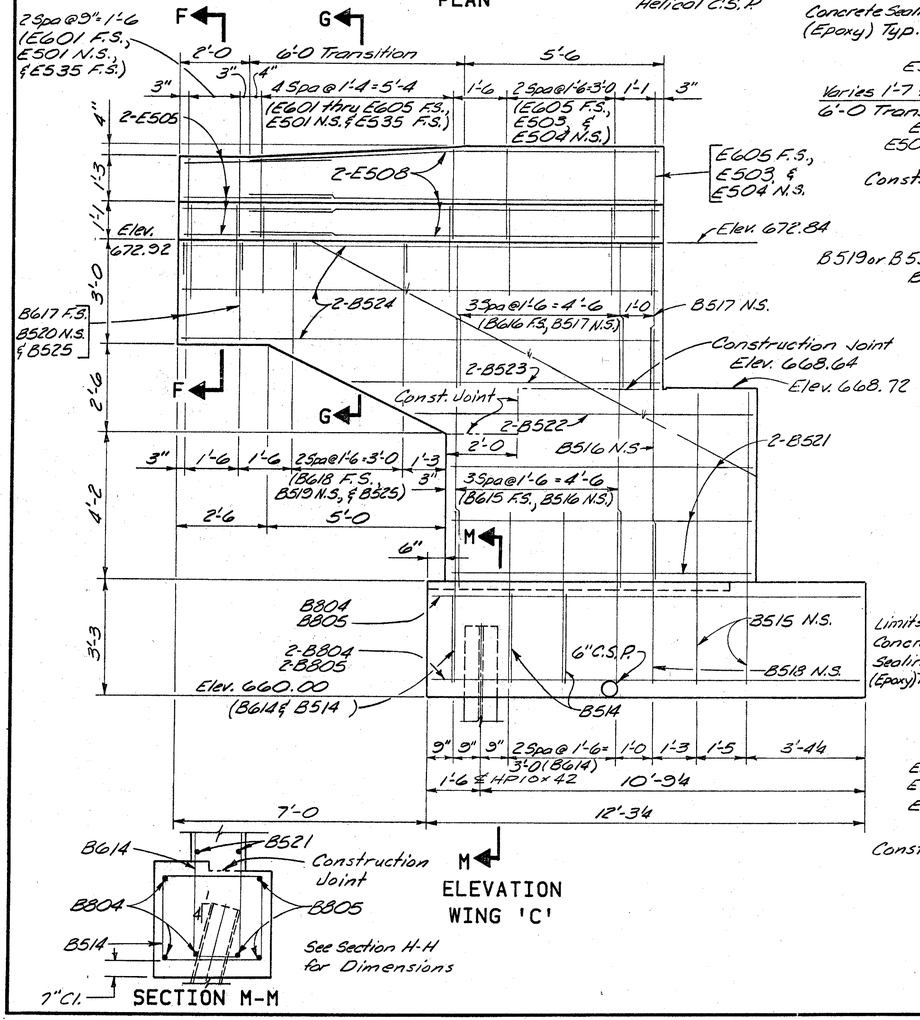
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		wda	JMG	7/85	



PLAN

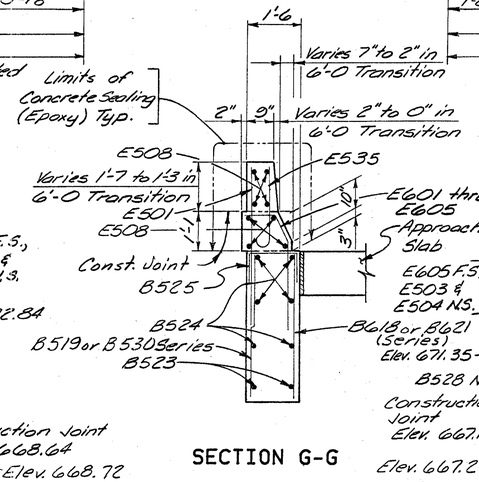


PLAN

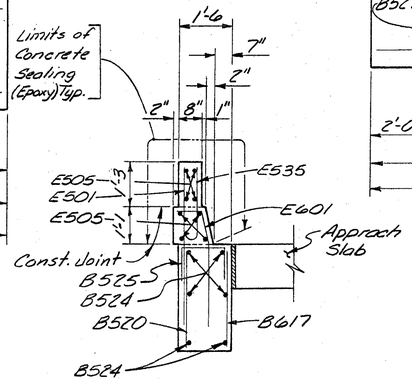


M
ELEVATION WING 'C'

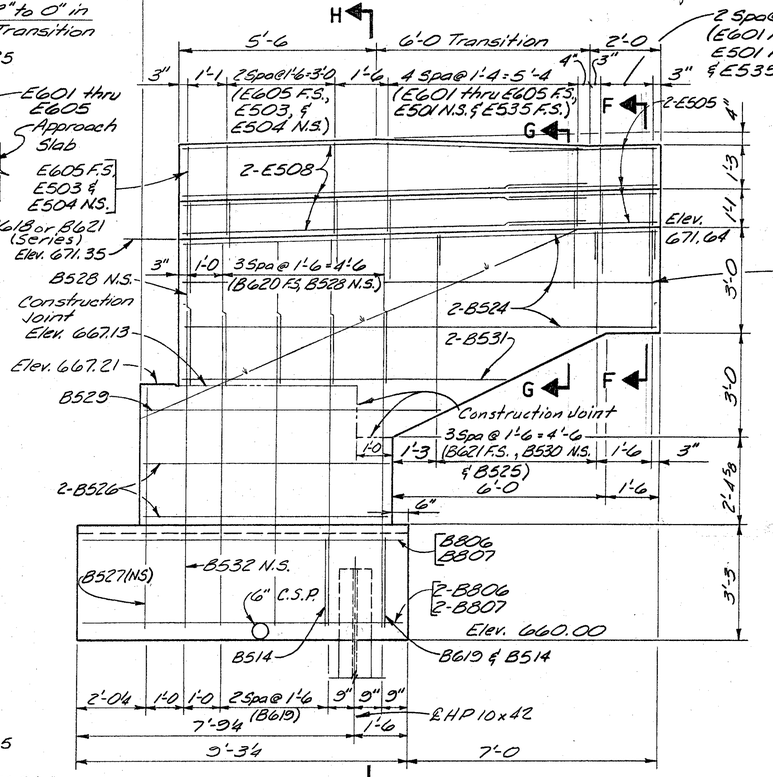
SECTION M-M



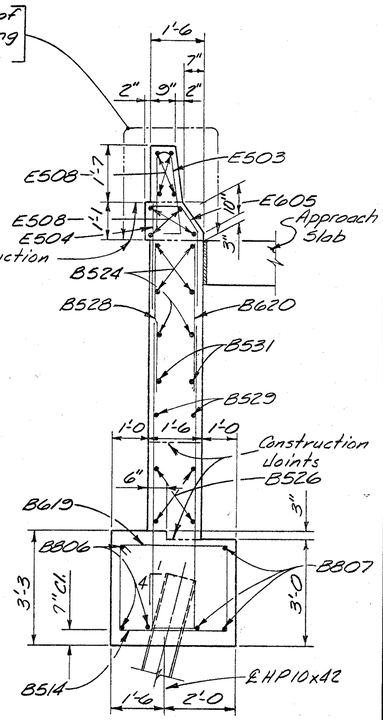
SECTION G-G



SECTION F-F



H
ELEVATION WING 'D'.



SECTION H-H

For Plan and Elevation of Forward Abutment see sheets 12/33 & 13/33

N.S. - denotes near side
F.S. - denotes far side

Sheet 14/33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

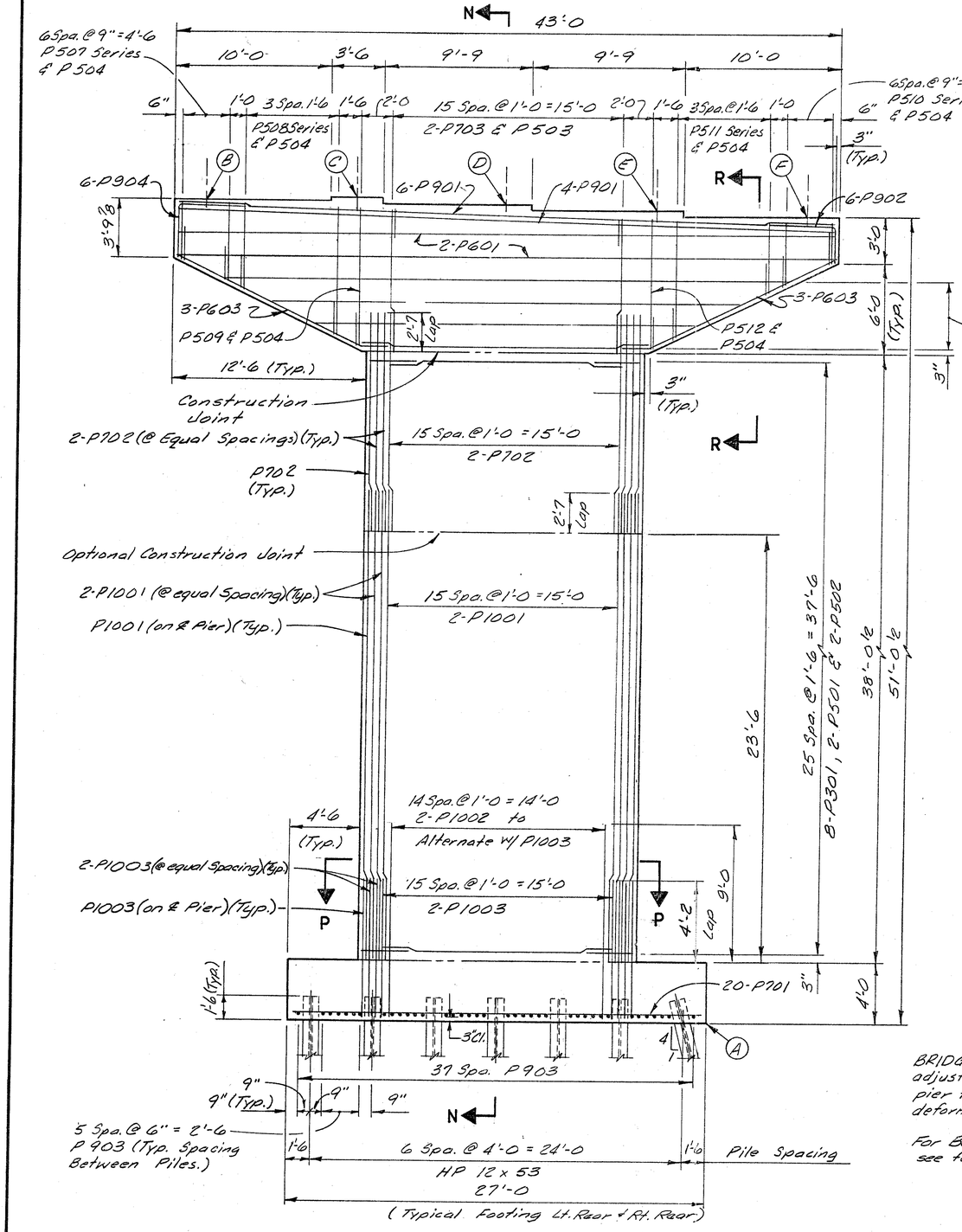
FORWARD ABUTMENT DETAILS

BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK

BELMONT COUNTY
STA. 820+29.55
STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		wda	JMG	7/85	

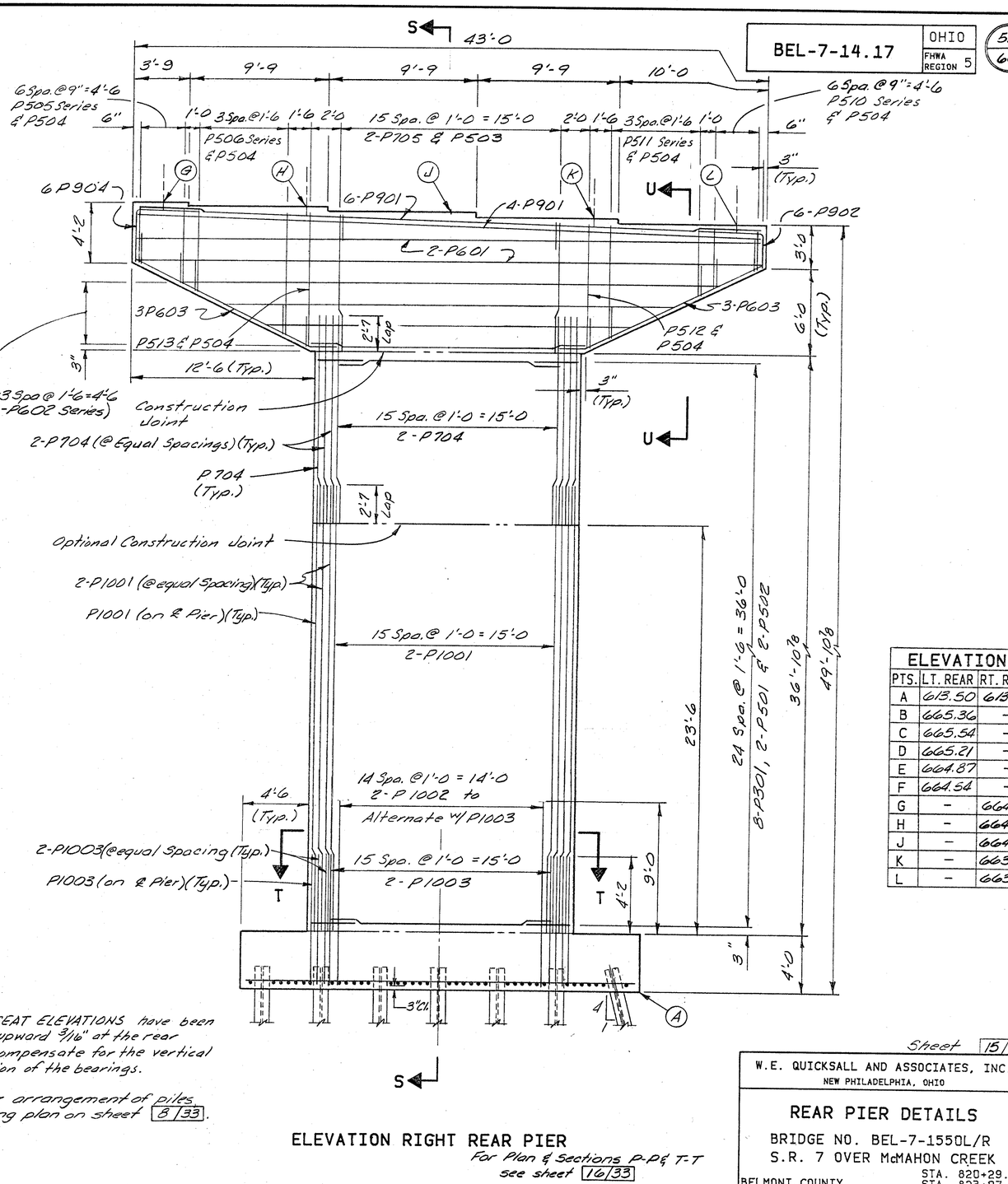
BEL-7-14.17 | OHIO | FHWA REGION 5 | 533 / 663



ELEVATION LEFT REAR PIER

BRIDGE SEAT ELEVATIONS have been adjusted upward 3/16" at the rear pier to compensate for the vertical deformation of the bearings.

For Batter arrangement of piles, see footing plan on sheet 8/33.



ELEVATION RIGHT REAR PIER

For Plan & Sections P-P & T-T see sheet 16/33

For Sections N-N, R-R, S-S & U-U, see sheet 17/33

ELEVATIONS.		
PTS.	LT. REAR	RT. REAR
A	613.50	613.50
B	665.36	–
C	665.54	–
D	665.21	–
E	664.87	–
F	664.54	–
G	–	664.58
H	–	664.41
J	–	664.08
K	–	663.75
L	–	663.41

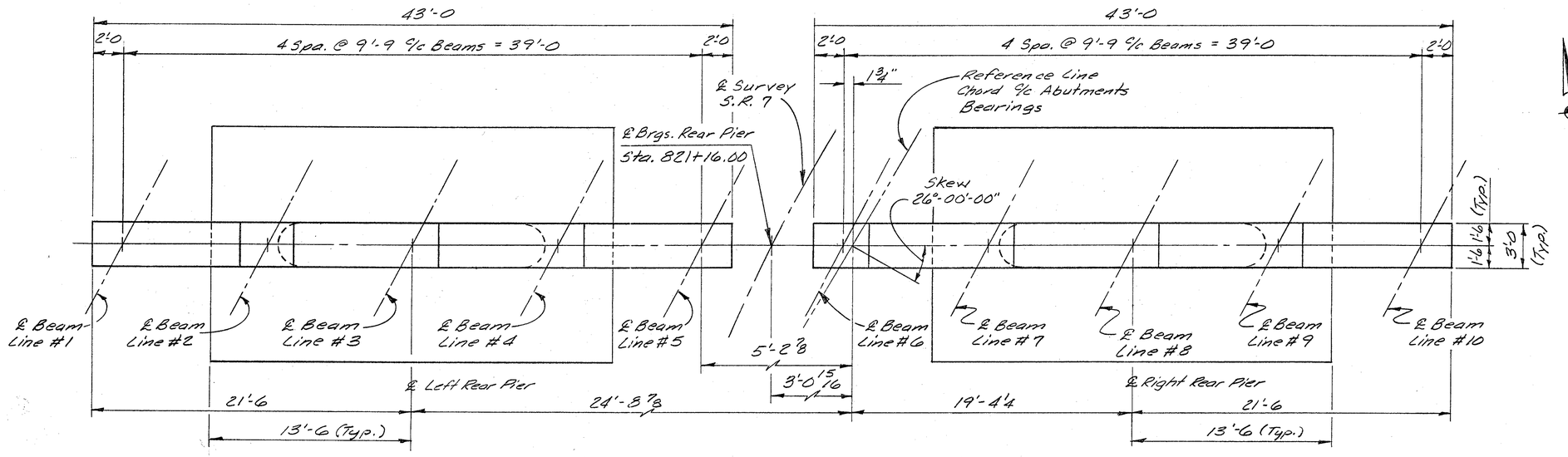
Sheet 15/33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

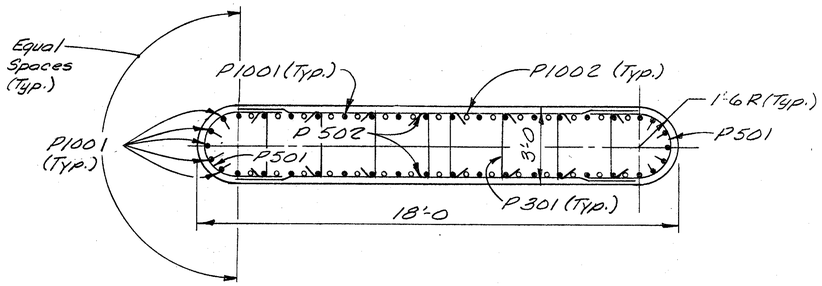
REAR PIER DETAILS

BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK
BELMONT COUNTY
STA. 820+29.55
STA. 823+07.57

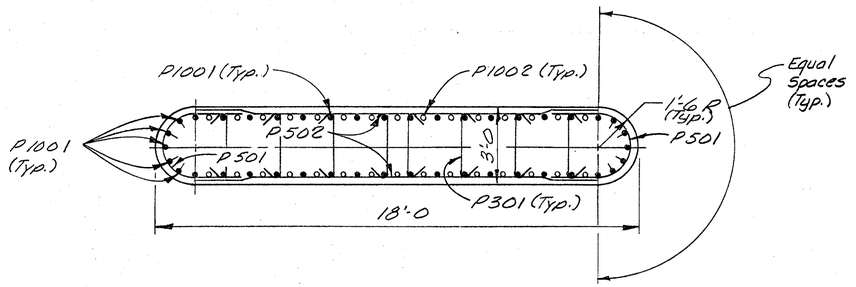
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
			FDH	JMG	7/85	10/85



PLAN



SECTION P-P



SECTION T-T

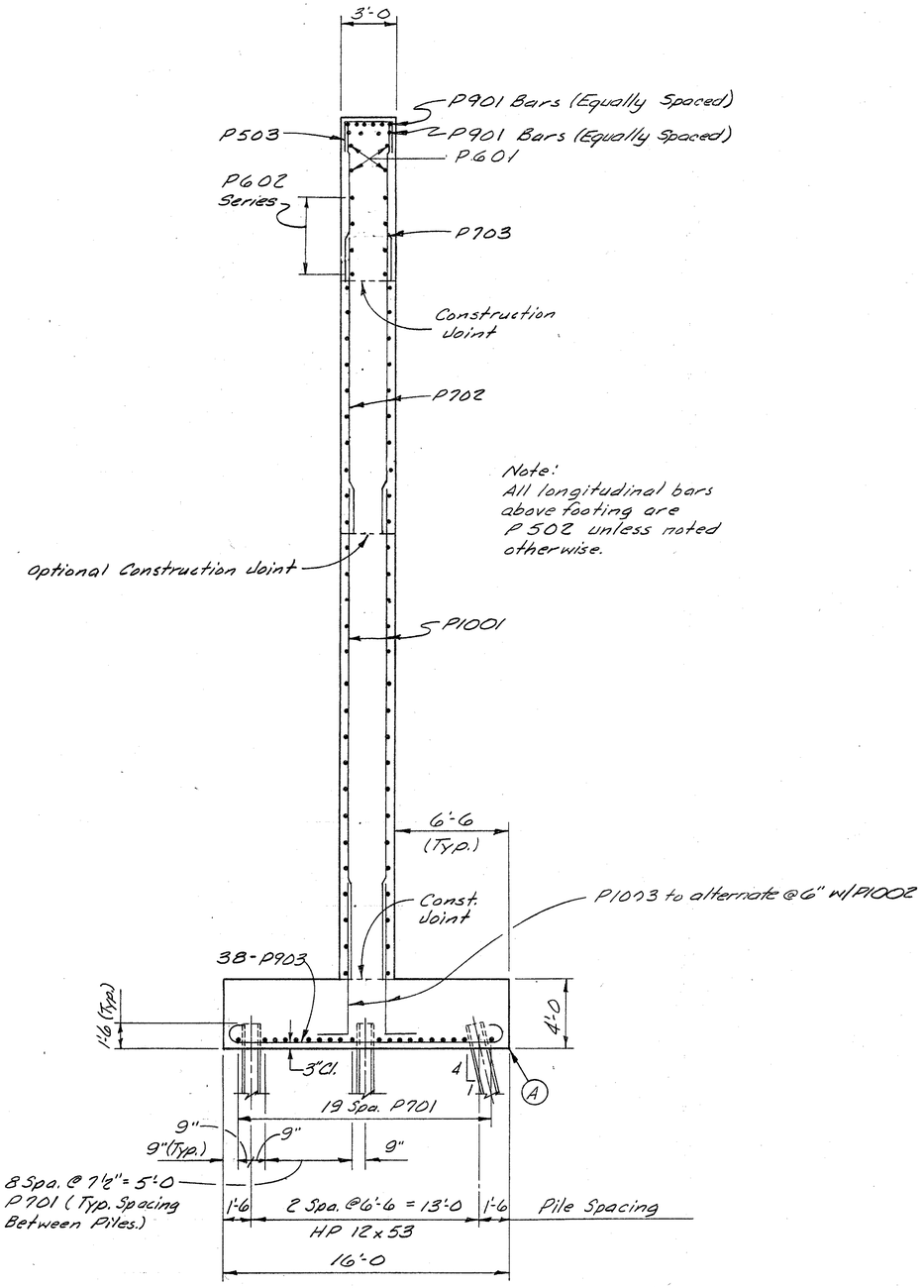
Sheet 16/33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

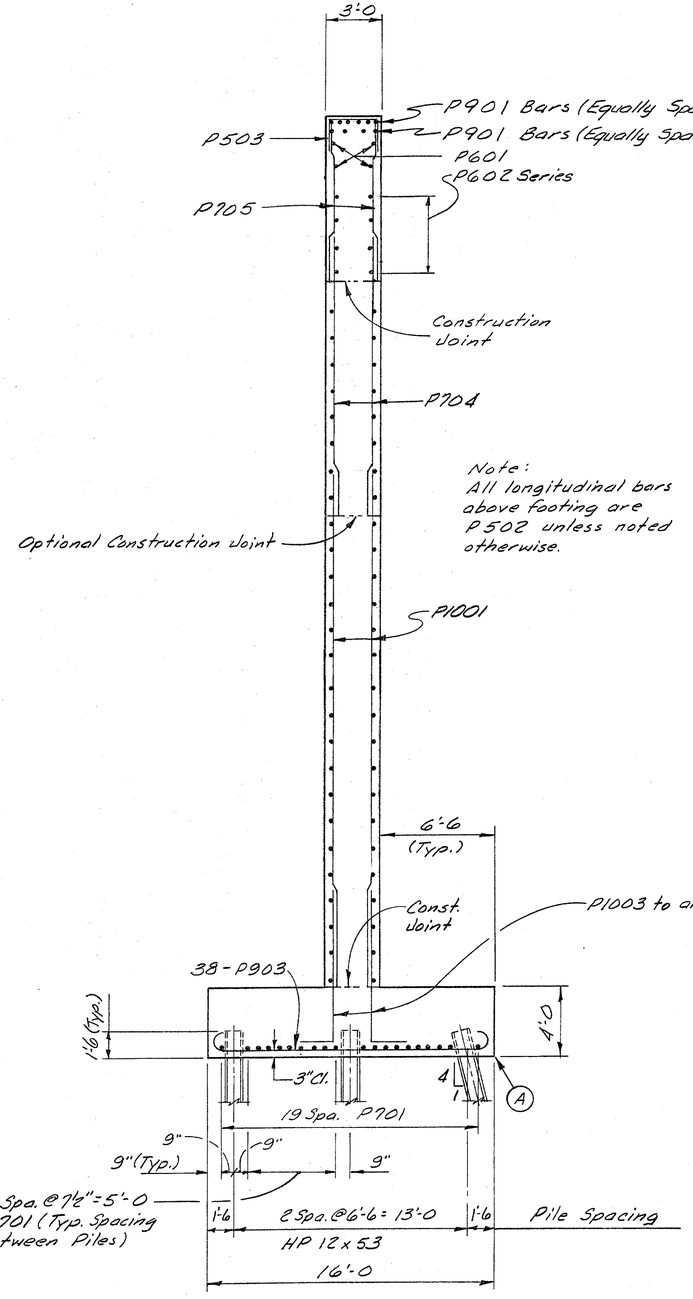
REAR PIER DETAILS

BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK
STA. 820+29.55
BELMONT COUNTY STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
			FDH	JMG	7/85	10/85



SECTION N-N



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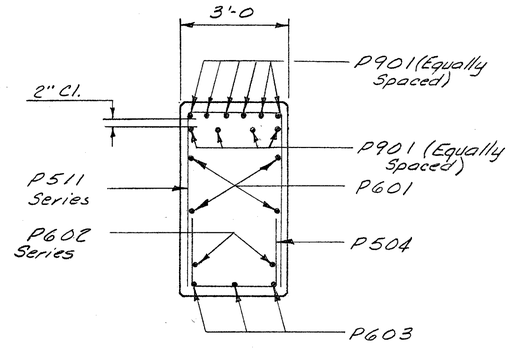
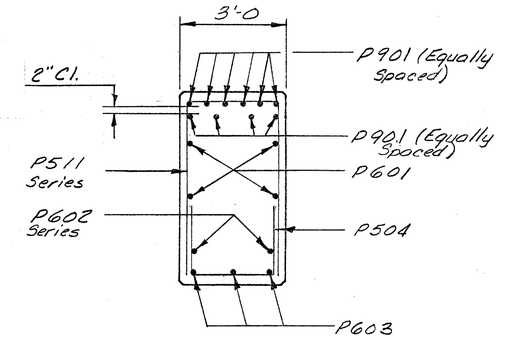


SECTION R-R



SECTION U-U

Sheet 17/33

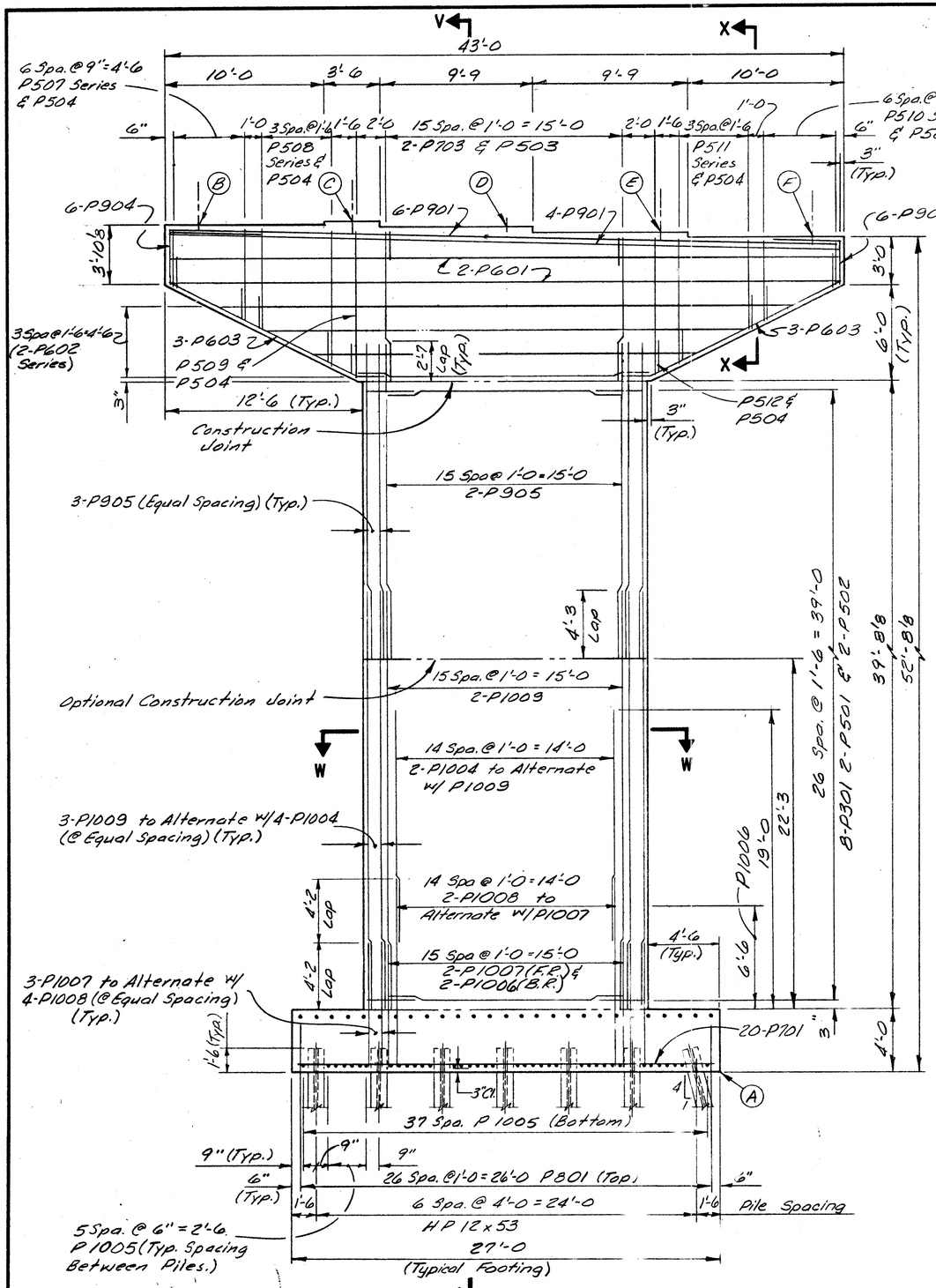
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

REAR PIER DETAILS

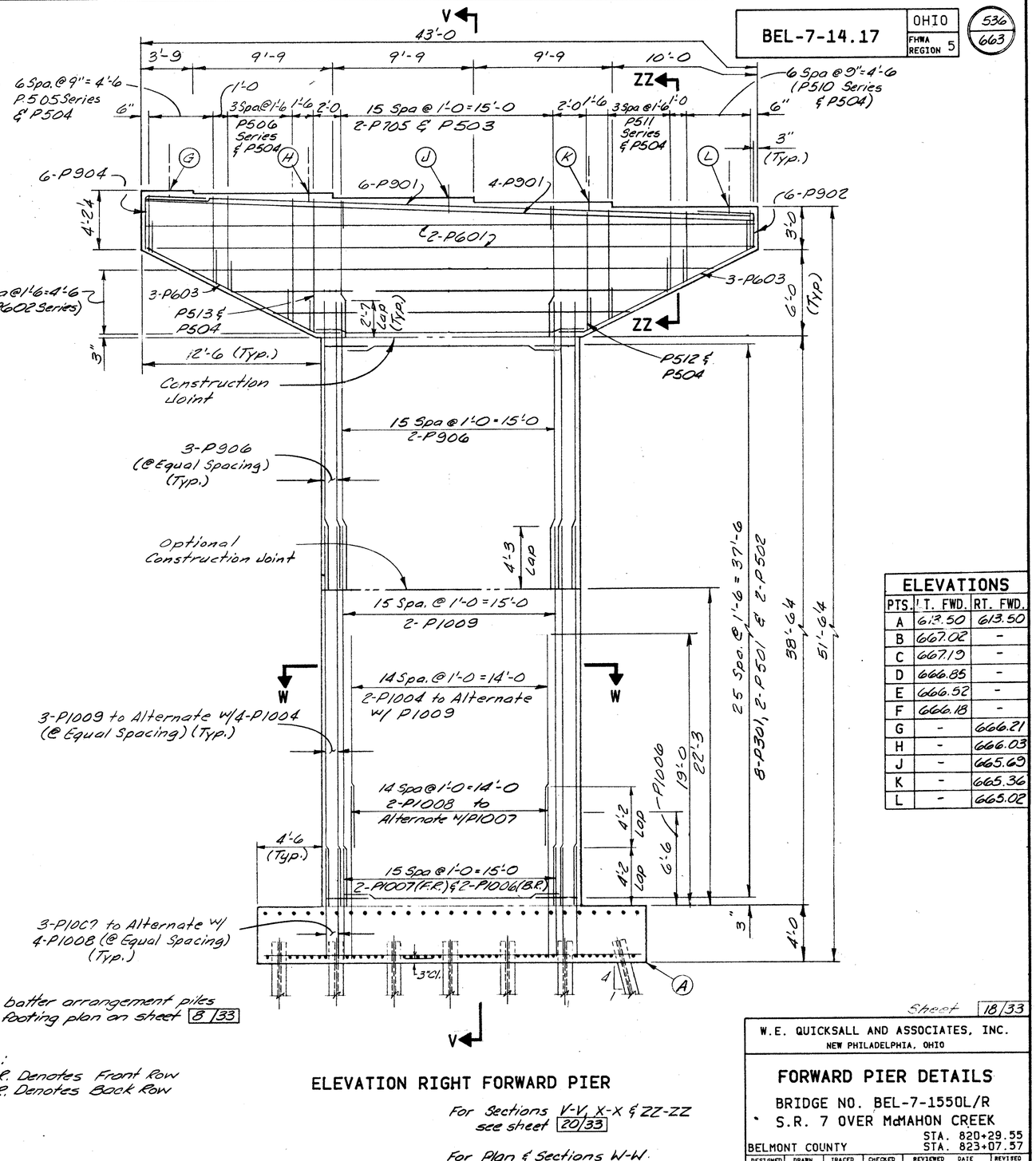
BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK
STA. 820+29.55
BELMONT COUNTY STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GD	GD		FDH	Jm6	7/85	10/85

BEL-7-14.17 | OHIO | FHWA REGION 5 | 536 / 663



ELEVATION LEFT FORWARD PIER



ELEVATION RIGHT FORWARD PIER

ELEVATIONS		
PTS.	T. FWD.	RT. FWD.
A	613.50	613.50
B	667.02	-
C	667.19	-
D	666.85	-
E	666.52	-
F	666.18	-
G	-	666.21
H	-	666.03
J	-	665.69
K	-	665.36
L	-	665.02

For batter arrangement piles see footing plan on sheet 8/33

Note:
F.R. Denotes Front Row
B.R. Denotes Back Row

For Sections V-V, X-X & ZZ-ZZ see sheet 20/33

For Plan & Sections W-W see sheet 19/33

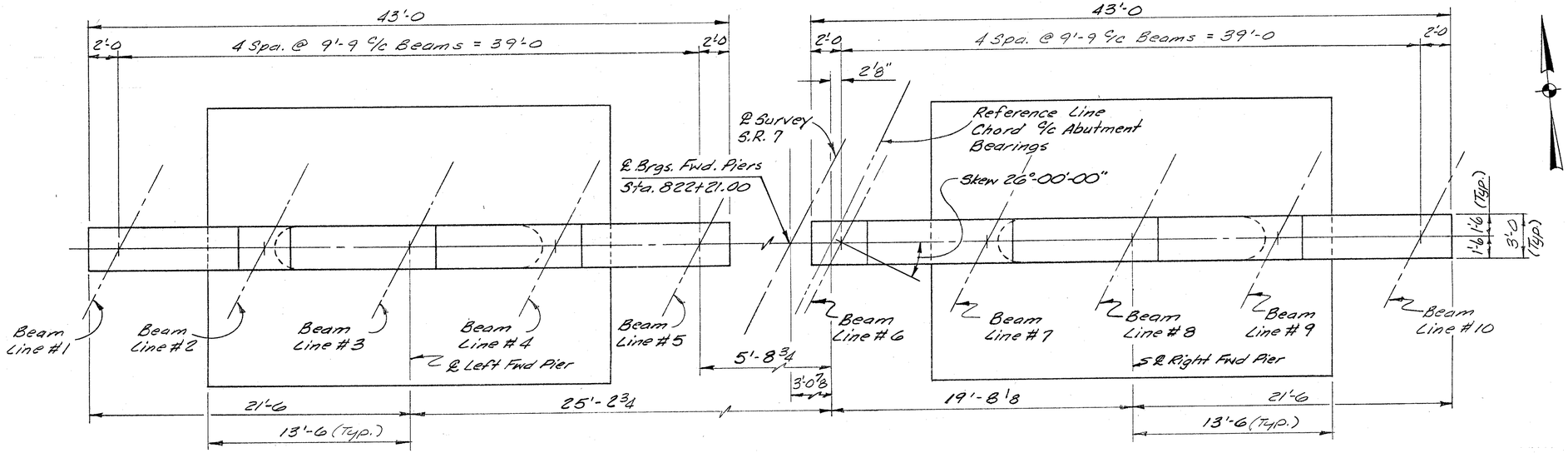
Sheet 18/33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

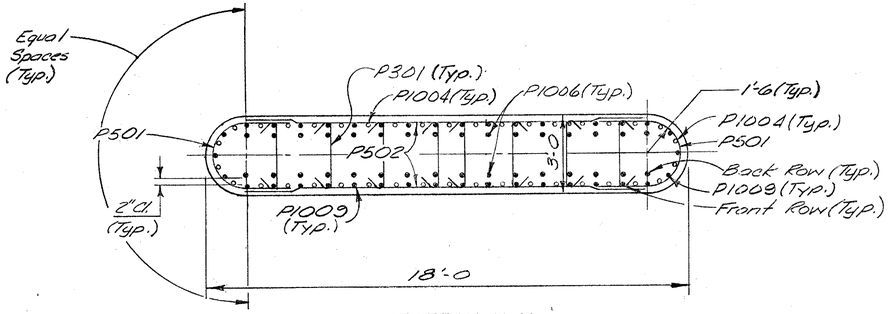
FORWARD PIER DETAILS

BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK
STA. 820+29.55
STA. 823+07.57
BELMONT COUNTY

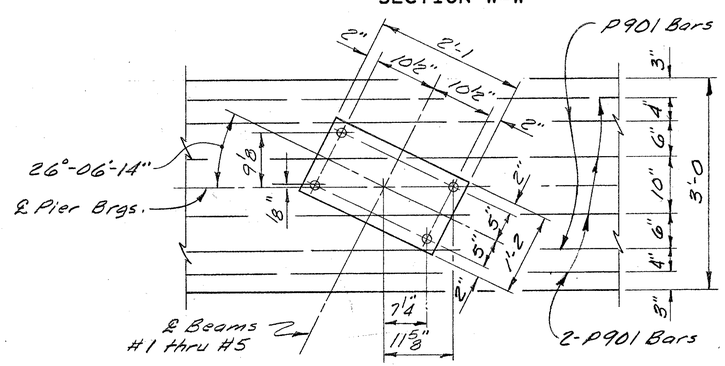
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		CFD	JMC	7/85	10/85



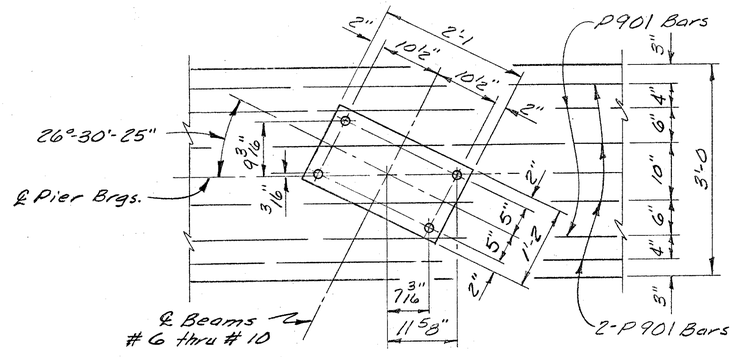
PLAN



SECTION W-W



ANCHOR PLATE DETAIL



ANCHOR PLATE DETAIL

BRIDGE SEAT REINFORCING: Reinforcing steel in the vicinity of the bridge seat shall be accurately placed to avoid interference with the drilling of bearing anchor holes or the pre-setting of bearing anchors.

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

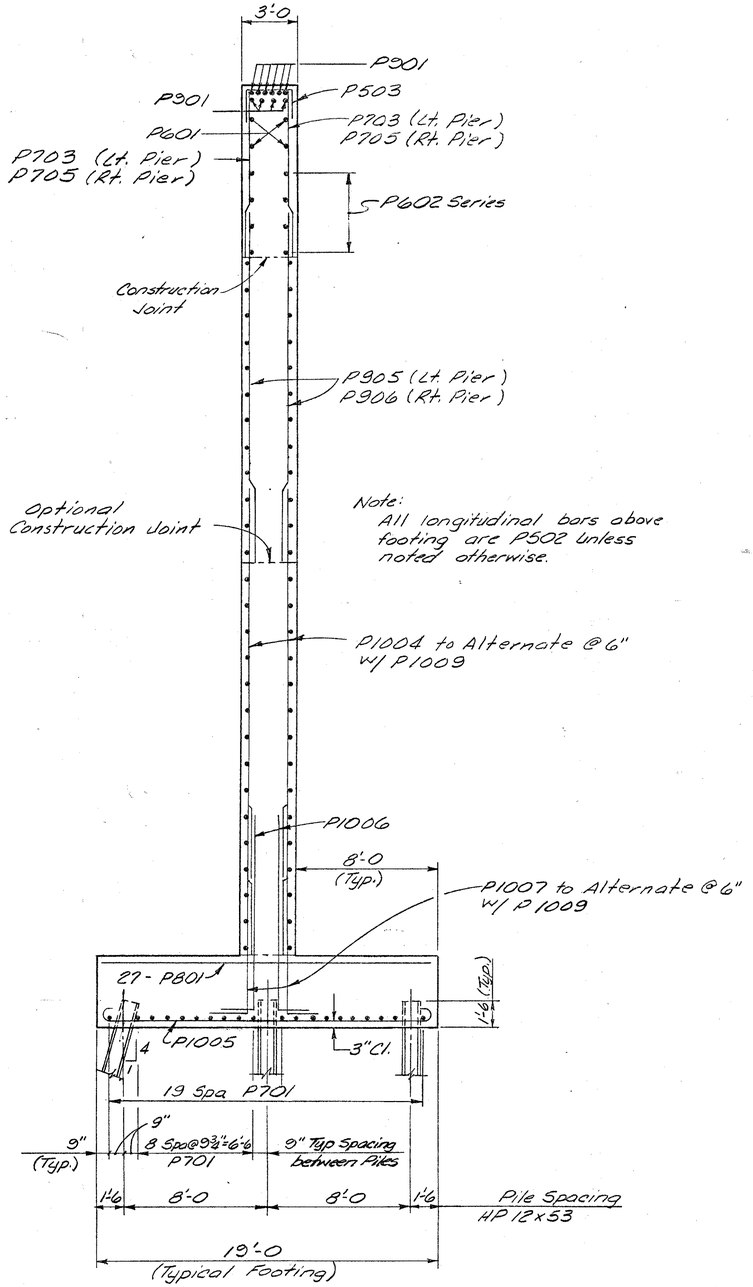
Sheet 19/33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

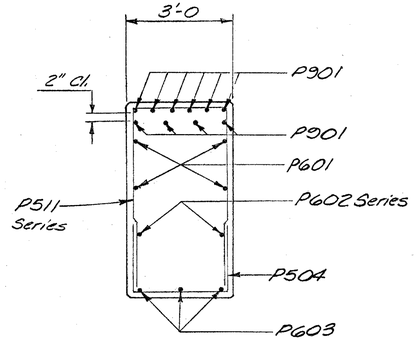
FORWARD PIER DETAILS

BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK
STA. 820+29.55
BELMONT COUNTY STA. 823+07.57

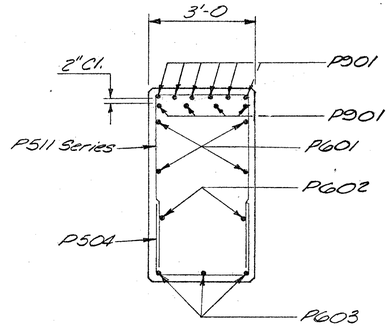
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		CFD	tmG	7/85	10/85



SECTION V-V



SECTION ZZ-ZZ



SECTION X-X

Sheet 20/33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

FORWARD PIER DETAILS

BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK
STA. 820+29.55
STA. 823+07.57
BELMONT COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		CFD	JmG	7/85	10/85

BEL-7-14.17	OHIO	539
	FHWA REGION 5	663

Note: Dimensions from ℄ Beam to deck fascia are radial dimensions.

64'-2¼ (Beams 1 thru 5) | 39'-9½ (Beams 1 thru 5) | 65'-0 5/8 (Beams 1 thru 5)

19'-11⅛ (Beams 1 thru 5) | 19'-10⅜ (Beams 1 thru 5) | 1°-48'-43 (Beams 1 thru 5)

6 Spa @ 14'-1 = 84'-6 | 4 Spa @ 14'-2 = 56'-8

1'-3 9/16 | 5'-11¾ | 12'-0 | 1'-6 | 5'-9½ | 12'-10 7/16 | 14'-8¾ | 2'-6 9/16

Deck Fascia

Beam Line #1 | Beam Line #2 | Beam Line #3 | Beam Line #4 | Beam Line #5 | Beam Line #6 | Beam Line #7 | Beam Line #8 | Beam Line #9 | Beam Line #10

65°-42'-28" (Beams 1 thru 5) | 1'-11⅝

65°-42'-28" (Beam 1 thru 5) | 65°-42'-28" (Beams 1 thru 5) | 63°-53'-46" (Beams 1 thru 5)

2'-5 1/16 Midspan | 2'-9¾ Midspan

Intermediate Crossframes

4 Spa @ 8'-10 11/16 (-) ℄ Beams = 35'-6 9/16

4 Spa @ 9'-9 = 39'-0 | 4 Spa @ 9'-9 = 39'-0 | 4 Spa @ 9'-9 = 39'-0

W36x194 (CVN) | W36x182 (CVN)

1'-6 (Typ.) | 8'-6 5/16 | 4'-0⅛ | 5'-6⅛ (Typ.)

5'-9½ (Typ.) | 4'-3½ | 8'-0¼ | 1'-6 (Typ.)

End Crossframes See Std Dwg SD-1-69 & Sheet 32/33

1 Spa @ 9'-9 = 39'-0

9'-11½ | 5'-11⅜ | 1'-11¼ | 2'-2

Reference Line (Chord ℄ Abutment Brgs)

℄ Survey S.R. 7

1'-8 7/16 Midspan

4'-6 15/16 | 4½"

Deck Fascia | Deck Fascia

12'-0 3/8 | 5'-6⅛ | 1'-10½ | 2'-6⅜ | 5'-10¾

See Detail A

W36x182 (CVN)

2'-5⅜ | 2'-0⅜ | 5'-1'-9⅜ | 6'-3 5/16 | 12'-0 | 2'-2½

2'-7⅛

3'-0 15/16 | 3¾"

3'-4⅜ | 9'-7¼ | 9'-1 1/16 | 13'-0 11/16

℄ Brgs Rear Pier Sta. 821+16.00 (Elastomeric Bearings)

W36x182 (CVN)

End Crossframes See Std. Dwg SD-1-69 & Sheet 32/33

4 Spa @ 9'-9 = 39'-0

℄ Brgs Rear Abutment Sta. 820+32.00 (Elastomeric Bearings)

10'-1 1/16 | 6'-0⅞

Intermediate Crossframes

4 Spa @ 8'-10 5/16 (+) ℄ Beams = 35'-5⅜

4 Spa @ 9'-9 = 39'-0 | 4 Spa @ 9'-9 = 39'-0

W36x194 (CVN) | W36x194 (CVN)

1'-6 Typ. | 8'-8 7/16 | 4'-0 13/16 | 5'-6 13/16 (Typ.)

5'-10 3/16 (Typ.) | 4'-4¼ | 8'-1⅝ | 1'-6 (Typ.)

1'-9 7/16 Midspan | 1'-1 7/16

W36x182 (CVN)

1°-50'-57" (Beams 6 thru 10)

63°-29'-35 (Beams 6 thru 10)

Skew: 26°-00'-00" (Typ.) (With Reference Line)

Beam Line #10

2'-3 | 2'-0 1/16

65°-20'-32" (Beams 6 thru 10) | 65°-20'-32" (Beams 6 thru 10) | 65°-20'-32" (Beams 6 thru 10)

Deck Fascia

12'-2 7/16 | 5'-6 13/16

65'-3 3/8 (Beams 6 thru 10)

6 Spa @ 14'-1 = 84'-6

19'-11 3/16 (Beams 6 thru 10) | 19'-11 (Beams 6 thru 10)

39'-10 13/16 (Beams 6 thru 10)

64'-4½ (Beams 6 thru 10)

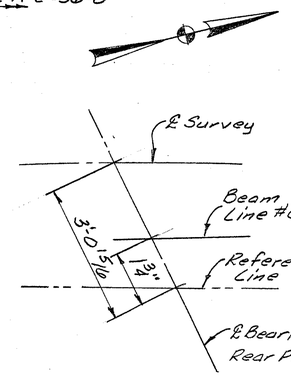
Field Splice #1 | Field Splice #2

65'-1⅛ | 20'-2½ | 20'-1¾ | 64'-11 15/16

85'-3⅝ ℄ Bearings (Span 1) | 104'-11 15/16 ℄ Bearings (Span 2)

272'-10 13/16 ℄ Abutment Bearings (Along Reference Line)

STRUCTURAL STEEL FRAMING PLAN



DETAIL 'A'

For Continuation of Match Line see sheet 22/33

Denotes Crossframes to have top horizontal angle.

For Transverse Section, see sheet 27/33.

For Field Splice Details, see sheet 23/33.

For End Beam Details, see sheet 24/33.

For shear Connector Spacing Diagram and Moment Plate Details, see sheet 24/33.

For Steel Notes, see sheet 23/33.

For Beam Details, see sheet 24/33

MATCH LINE

Sheet 21/33

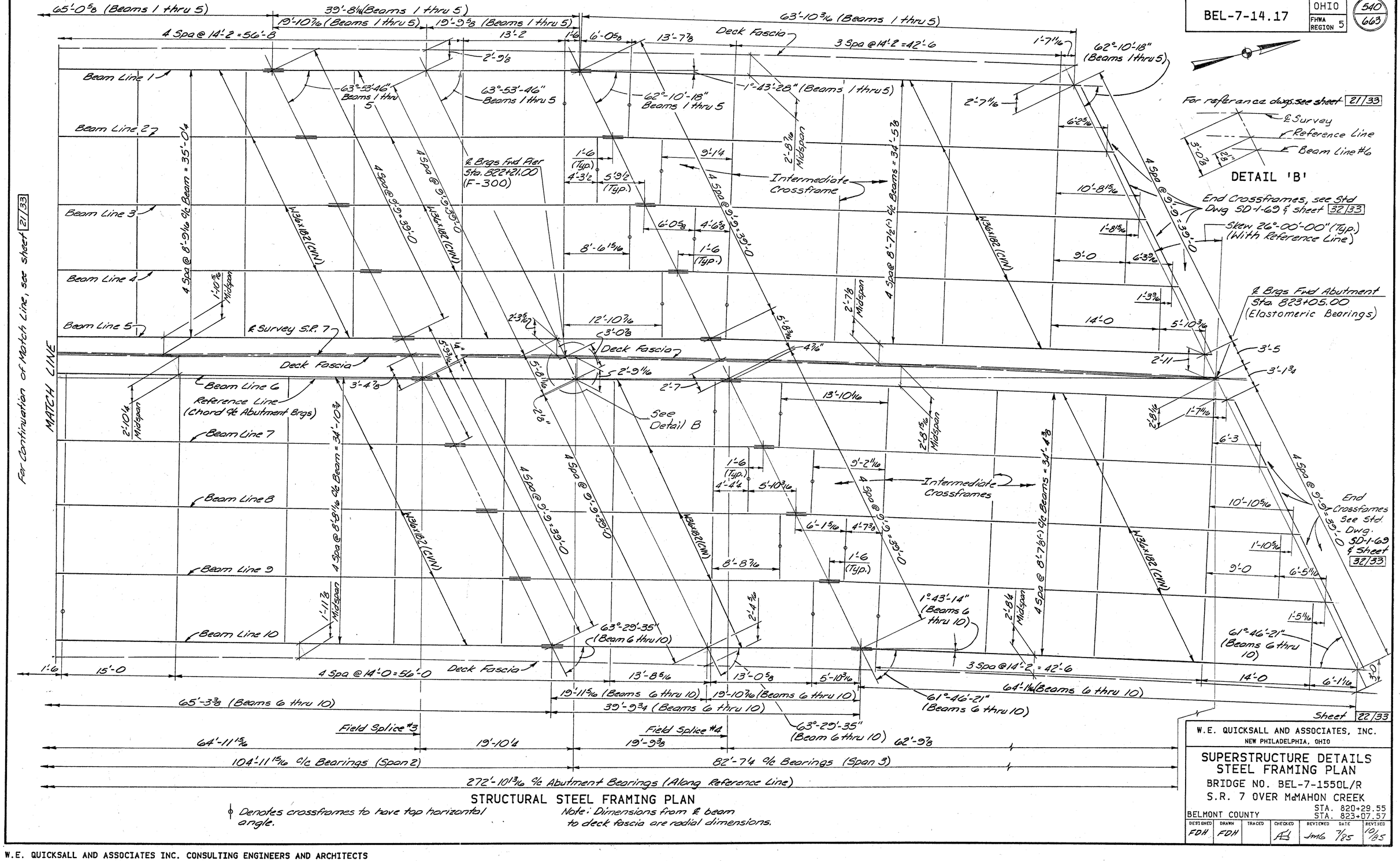
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS STEEL FRAMING PLAN

BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK
BELMONT COUNTY
STA. 820+29.55
STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		AJ	JMG	7/65	10/65

BEL-7-14.17 | OHIO | FHWA REGION 5 | 540 / 663



STRUCTURAL STEEL FRAMING PLAN

℄ Denotes crossframes to have top horizontal angle.

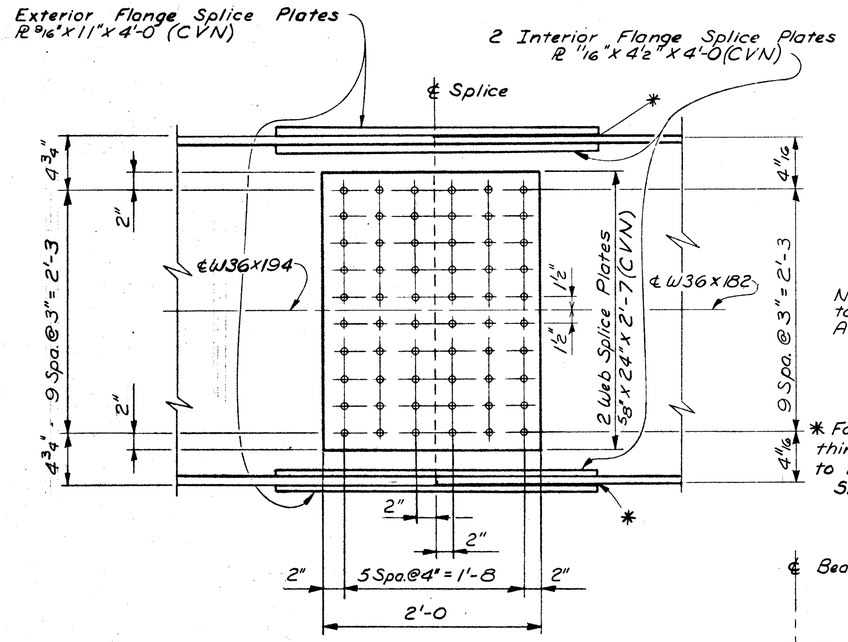
Note: Dimensions from ℄ beam to deck fascia are radial dimensions.

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

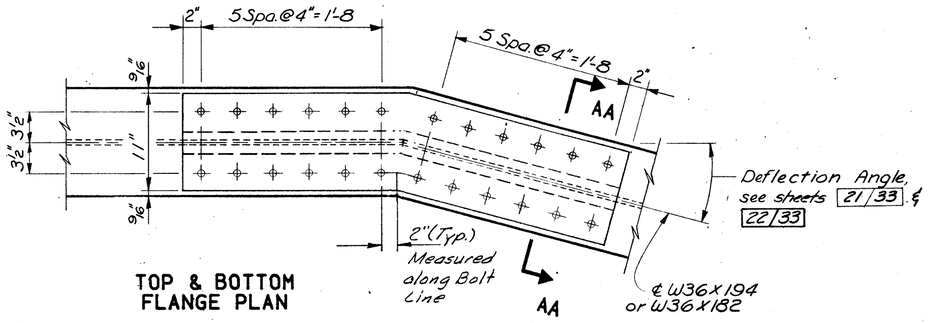
SUPERSTRUCTURE DETAILS STEEL FRAMING PLAN

BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK
BELMONT COUNTY
STA. 820+29.55
STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		AL	JMG	7/85	10/85

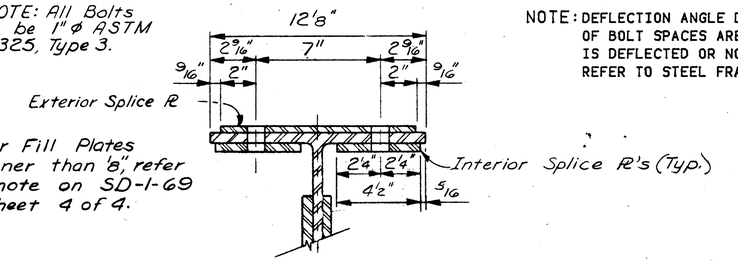


ELEVATION
FIELD SPLICE DETAILS



TOP & BOTTOM
FLANGE PLAN

NOTE: All Bolts to be 1" ϕ ASTM A325, Type 3.



SECTION AA-AA
(TYPICAL TOP & BOTTOM FLANGES)

NOTE: DEFLECTION ANGLE DETAIL IS SHOWN. THE NUMBER OF BOLT SPACES ARE REQUIRED WHETHER THE SPLICE IS DEFLECTED OR NOT. FOR DEFLECTION ANGLES, REFER TO STEEL FRAMING PLAN ON SHEET

* For Fill Plates thinner than ⅛", refer to note on SD-1-69 Sheet 4 of 4.

STEEL NOTES

WHERE A SHAPE OR PLATE IS DESIGNATED (CVN) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF CMS.

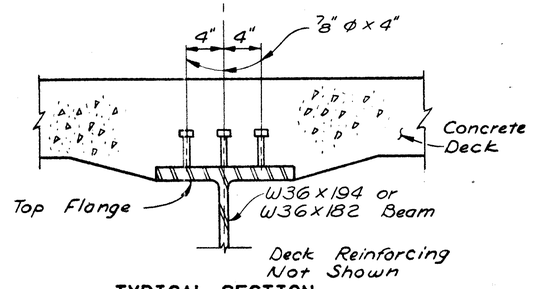
WELDED ATTACHMENTS OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE, MAY BE MADE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". ATTACHMENTS SHALL NOT BE MADE TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE NOT CLOSER THAN 1" FROM EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO.

AT THE CONTRACTOR'S OPTION, THE BOTTOM MAT OF DECK REINFORCING STEEL MAY BE PLACED PRIOR TO ATTACHING THE SHEAR CONNECTOR STUDS TO AVOID INTERFERENCE WITH THE REINFORCING STEEL. IF NECESSARY THE SHEAR CONNECTOR STUDS MAY BE PLACED PARALLEL TO THE TRANSVERSE REINFORCING STEEL.

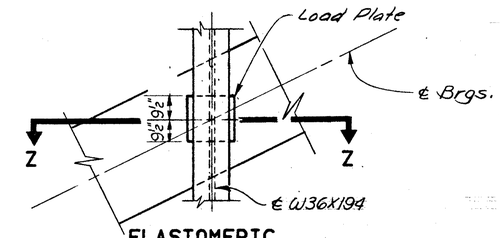
BEARINGS: IN LIEU OF A588 STEEL, A36 STEEL, GALVANIZED, MAY BE FURNISHED FOR BEARINGS, EXCEPT FOR UPPER PLATE ELEMENT OF BEARINGS. THIS A36 STEEL SHALL BE INCLUDED WITH THE A588 STEEL QUANTITY FOR PAYMENT.

NOTE 'B'
Load Plates shall be Vulcanized bonded to the neoprene during the moulding process.

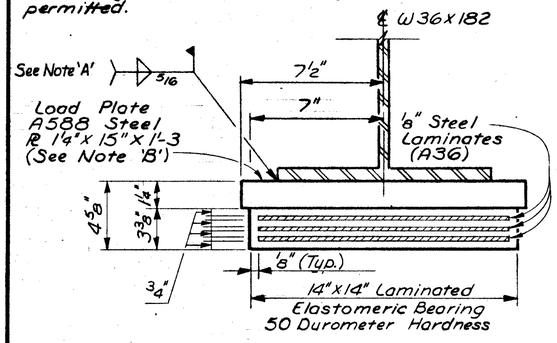
NOTE 'A':
Welding shall be controlled so that the plate temperature at the elastomer bonded surface does not exceed 300°F as determined by use of pyrometric sticks or other temperature monitoring devices. Quenching to accelerate cooling is not permitted.



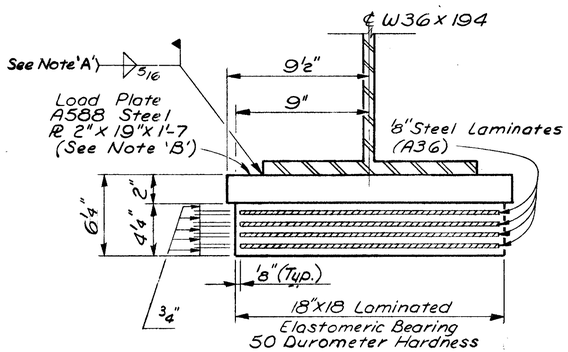
TYPICAL SECTION
SHEAR CONNECTOR DETAIL



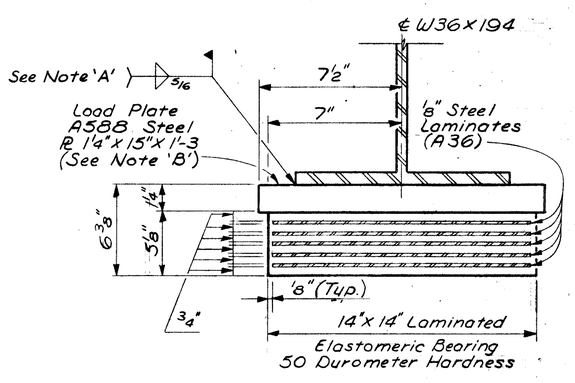
ELASTOMERIC
BEARING DETAIL
PLAN AT REAR PIER



(FORWARD ABUTMENT)



SECTION Z-Z
(REAR PIER)



(REAR ABUTMENT)

For Beam Ending Detail, see sheet 24/33.

For Beam Details, see sheet 24/33

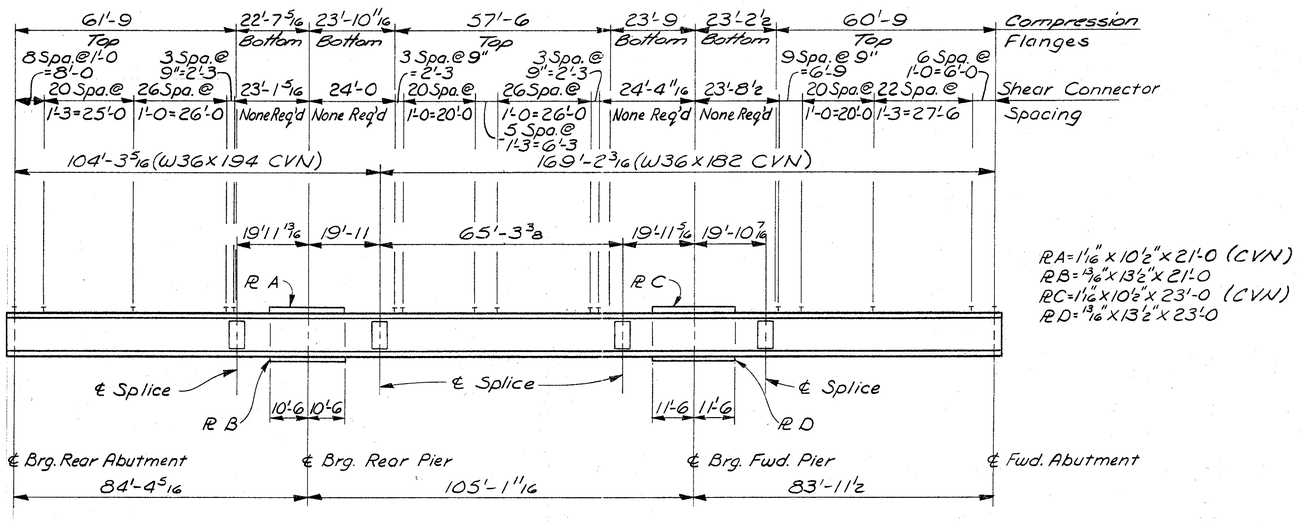
Sheet 23/33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE NO. BEL-7- 1550 L/R
S.R.7 OVER McMAHON CREEK
STA. 820+29.55
STA. 823+07.57
BELMONT COUNTY

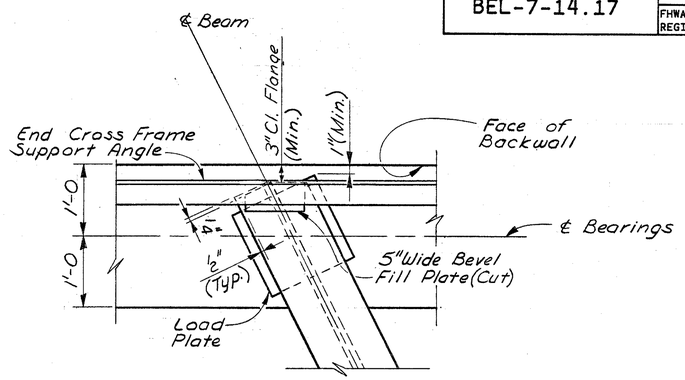
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.			JMG	7/85	10/85

LAMINATED ELASTOMERIC BEARING DETAILS



RA=1 1/16" x 10 1/2" x 21'-0 (CVN)
RB=13/16" x 13 1/2" x 21'-0
RC=1 1/16" x 10 1/2" x 23'-0 (CVN)
RD=13/16" x 13 1/2" x 23'-0

TYPICAL BEAM ELEVATION
(BEAMS 6 THRU 10)

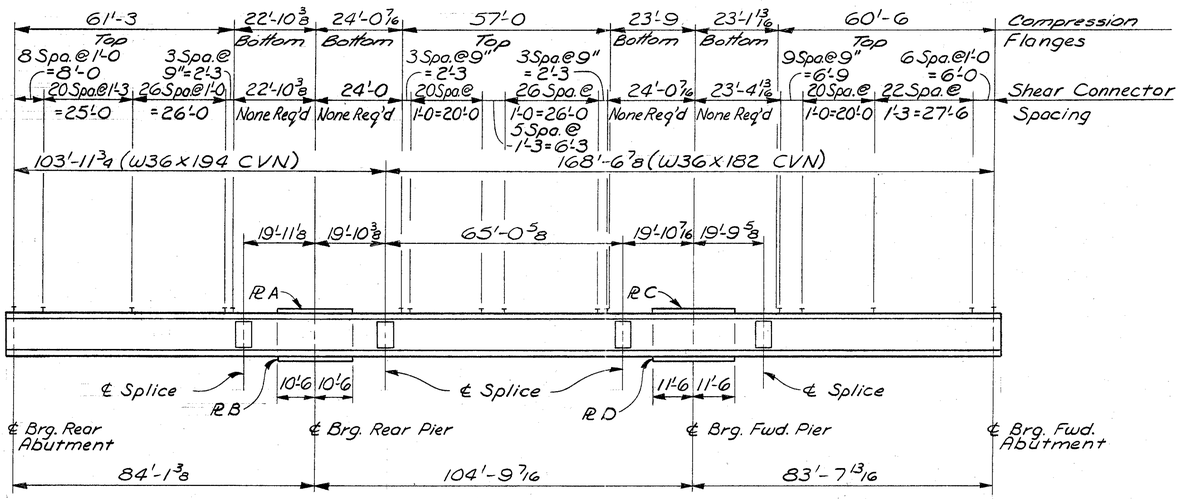


BEAM ENDING DETAIL

For Detail of Laminated Elastomeric Bearing, see sheet 23/33.

For End Crossframe and Bevel Fill Plate Details, see Std. Dwg. SD-1-69, Sheet 1 of 4.

See std. Dwg. SD-1-69 for moment plate welding details
For additional details & steel notes see sheet 23/33



TYPICAL BEAM ELEVATION
(BEAMS 1 THRU 5)

RA=1 1/16" x 10 1/2" x 21'-0 (CVN)
RB=13/16" x 13 1/2" x 21'-0
RC=1 1/16" x 10 1/2" x 23'-0 (CVN)
RD=13/16" x 13 1/2" x 23'-0

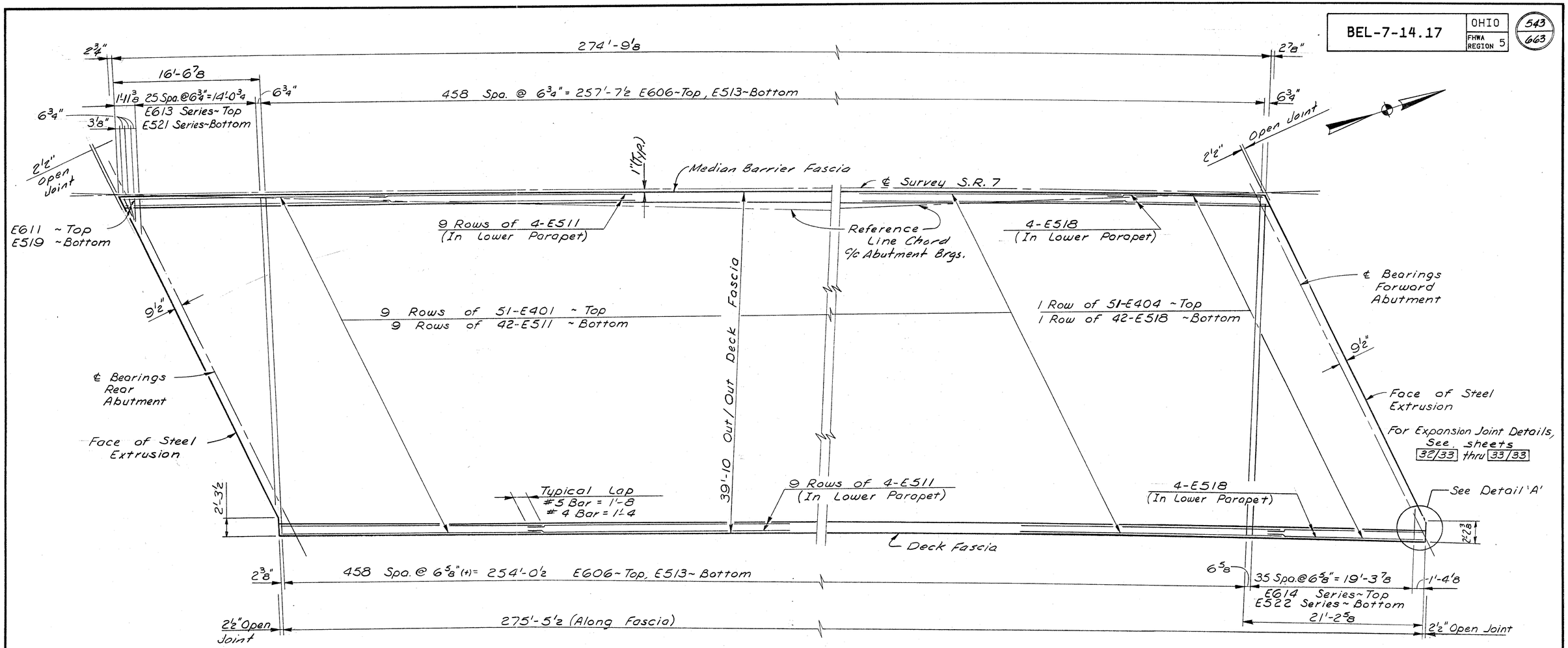
Sheet 24/33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE NO. BEL-7-1550 L/R
S.R. 7 OVER McMAHON CREEK
BELMONT COUNTY
STA. 820+29.55
STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		AJ	JMC	7/85	10/85

BEL-7-14.17 | OHIO | FHWA REGION 5 | 543/663

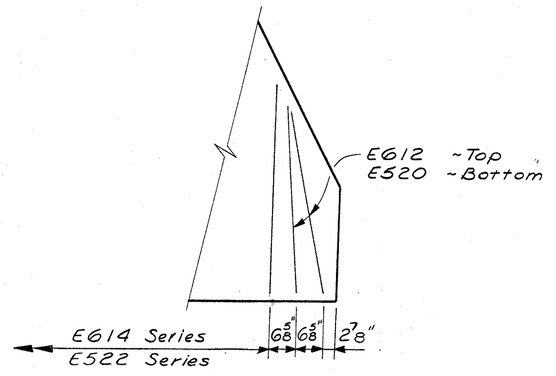


PLAN OF RIGHT DECK REINFORCING

NOTE: Lateral Reinforcing shall be spaced along deck fascia and shall be placed along radial lines.

For Transverse Section, see sheet 27/33.

For Secondary Reinforcing over Piers see sheet 26/33.



DETAIL 'A'

Sheet 25/33

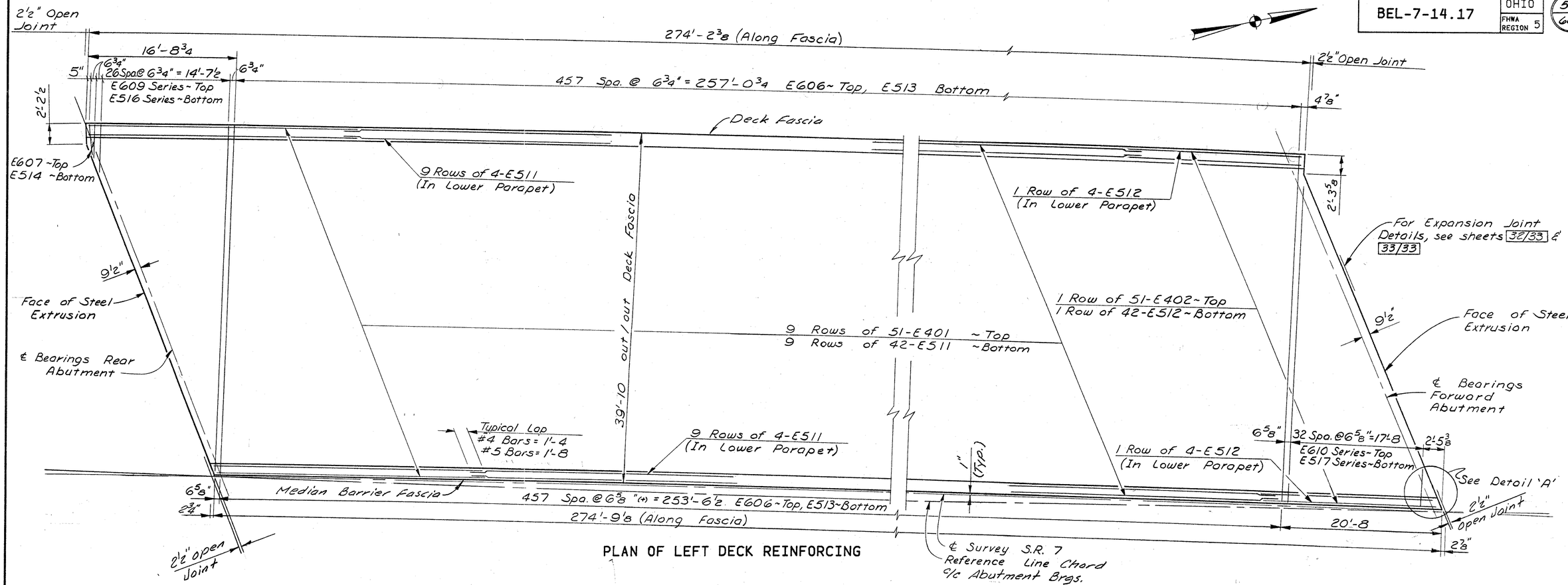
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS

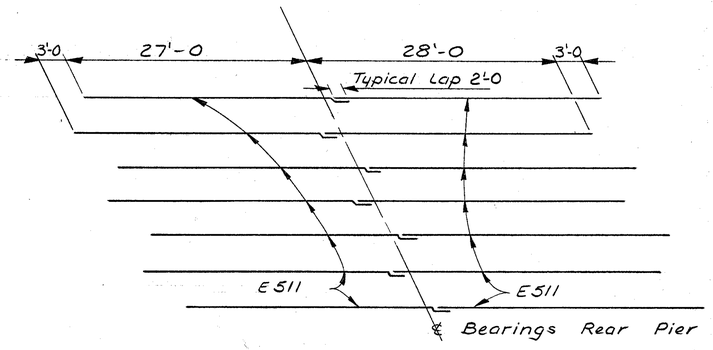
BRIDGE NO. BEL-7-1550 R
S.R. 7 OVER McMAHON CREEK

BELMONT COUNTY
STA. 820+29.55
STA. 823+07.57

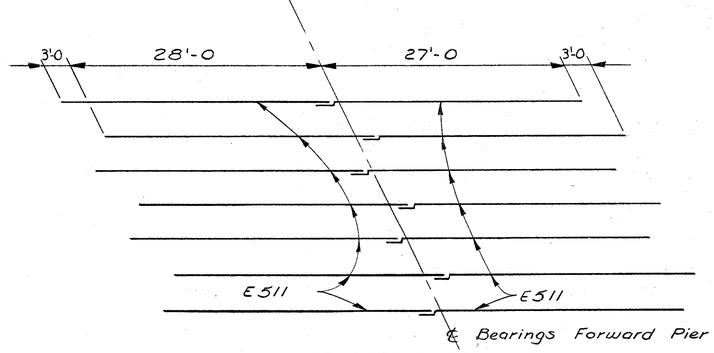
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		AH	JMM	7/85	



PLAN OF LEFT DECK REINFORCING



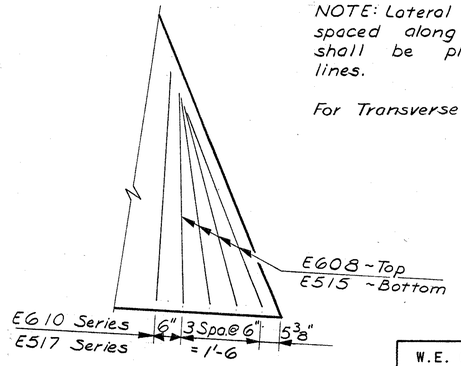
STAGGER SYSTEM OF
E511 BARS
OVER REAR PIER



STAGGER SYSTEM OF
E511 BARS
OVER FORWARD PIER

NOTE: Lateral Reinforcing shall be spaced along deck fascia and shall be placed along radial lines.

For Transverse Section, see sheet 27/33.



DETAIL 'A'

Sheet 26/33

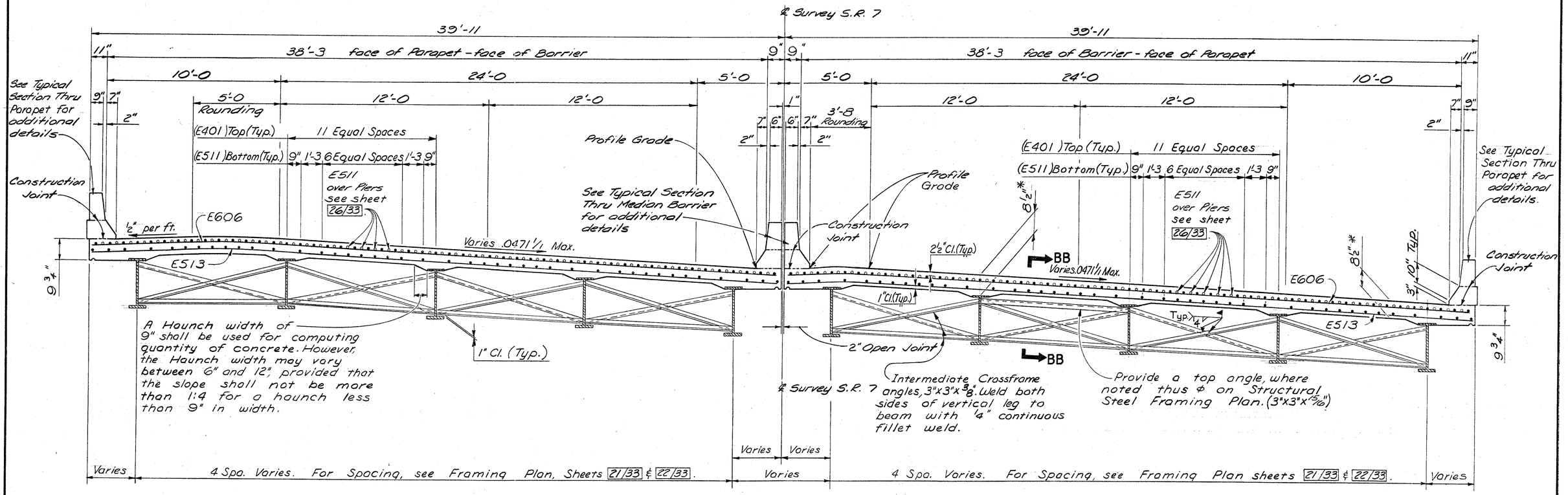
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS

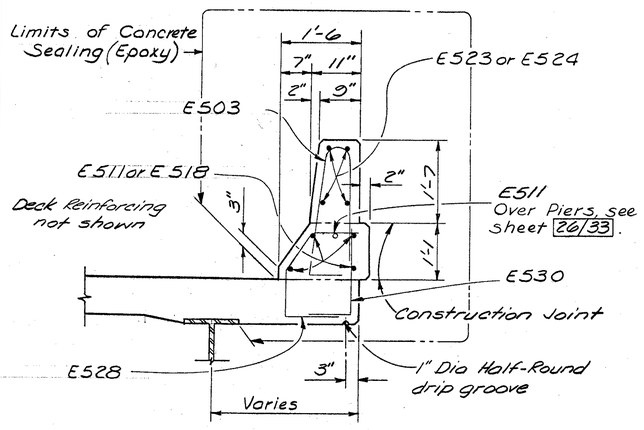
BRIDGE NO. BEL-7-1550 L
S.R. 7 OVER McMAHON CREEK

BELMONT COUNTY
STA. 820+29.55
STA. 823+07.57

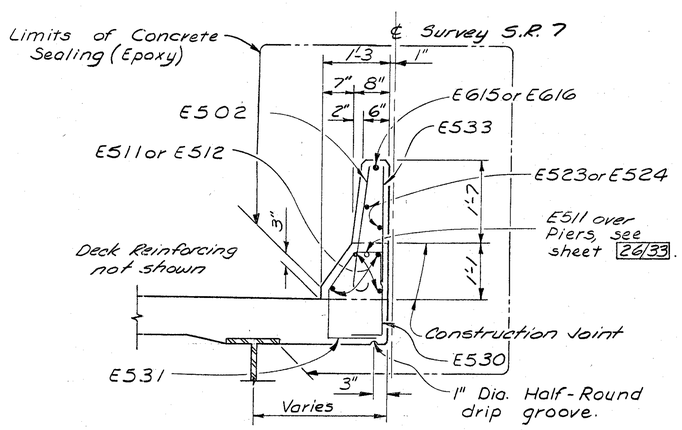
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		AE	JMG	7/85	



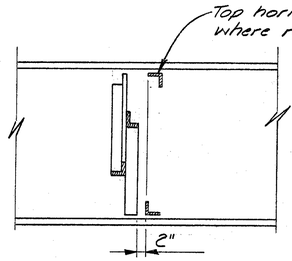
TRANSVERSE SECTION



TYPICAL SECTION THRU PARAPET



TYPICAL SECTION MEDIAN BARRIER



SECTION BB-BB

For Deck Reinforcing Plan, see sheets 25/33 & 26/33

✱ The distance shown from top of deck slab to top of steel beam is the design 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 the finished grade.

Sheet 27/33

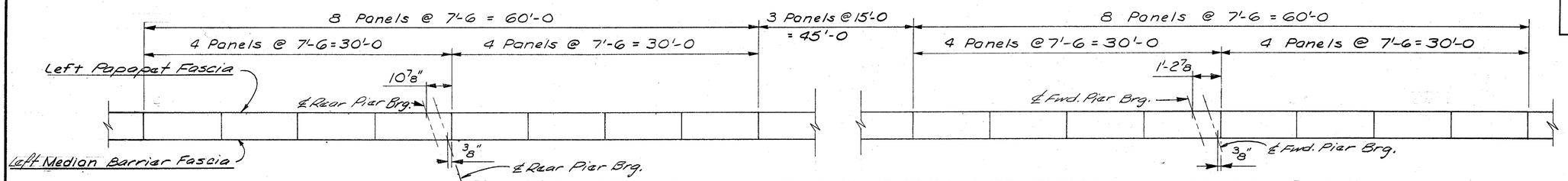
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS

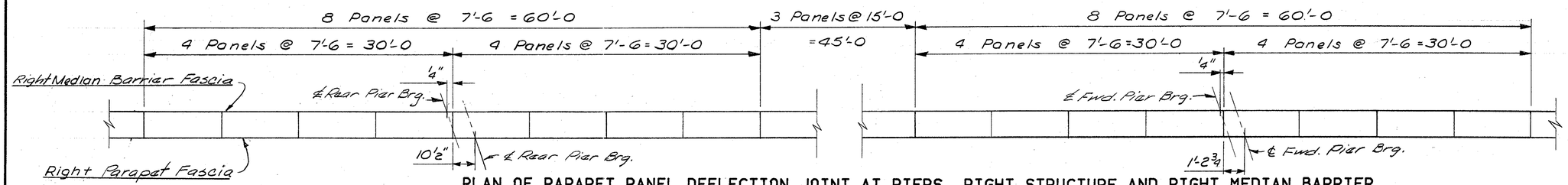
BRIDGE NO. BEL-7-1550 L/R
S.R. 7 OVER McMAHON CREEK

BELMONT COUNTY
STA. 820+29.55
STA. 823+07.57

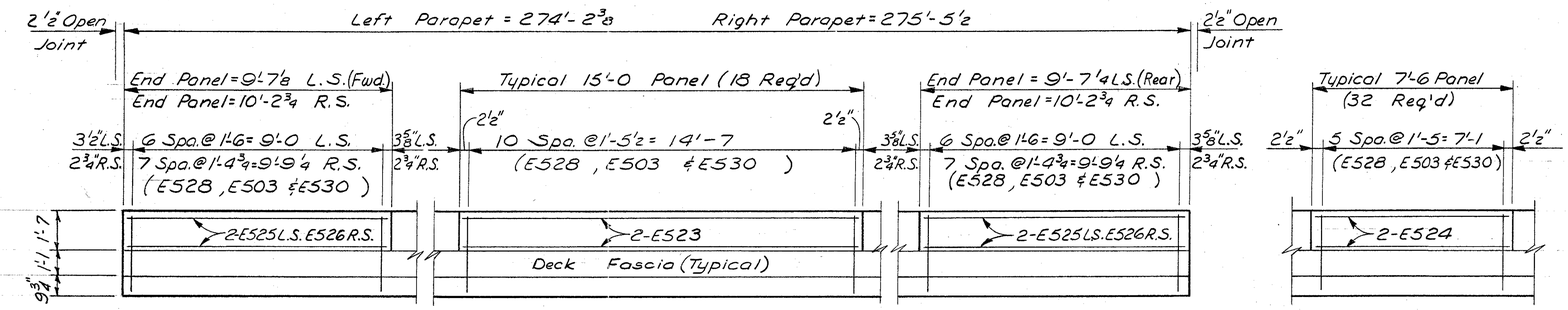
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		AH	JMG	7/85	10/85



PLAN OF PARAPET PANEL DEFLECTION JOINT AT PIERS, LEFT STRUCTURE AND LEFT MEDIAN BARRIER



PLAN OF PARAPET PANEL DEFLECTION JOINT AT PIERS, RIGHT STRUCTURE AND RIGHT MEDIAN BARRIER

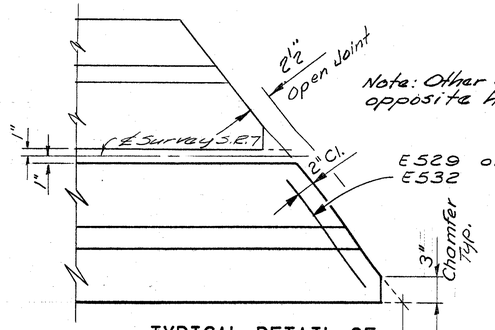


NOTE:
L.S. Denotes Left Structure
R.S. Denotes Right Structure

PARAPET ELEVATIONS, LEFT AND RIGHT STRUCTURES

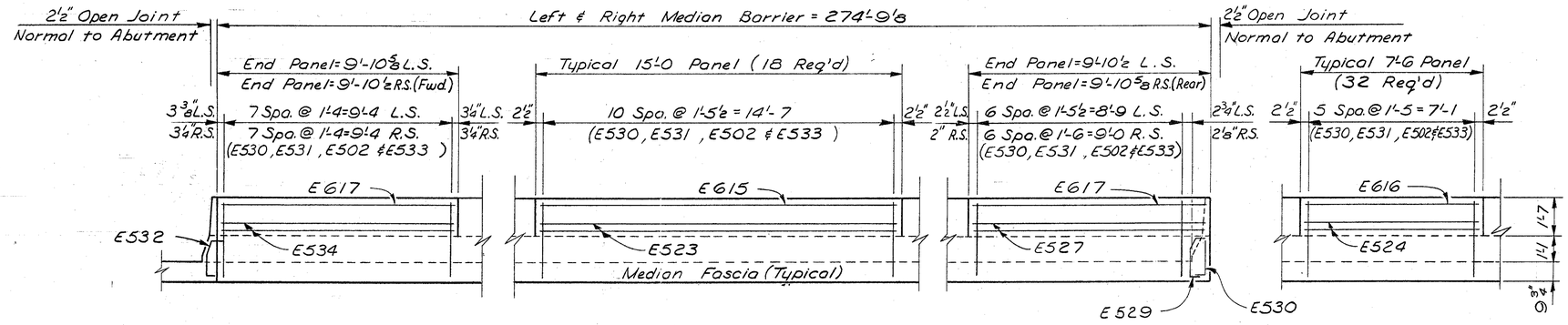
TYPICAL 7'-6 PANEL

For Typical Section thru Parapet and Median Barrier, see sheet 27/33



TYPICAL DETAIL OF SKEWED END PANELS AT MEDIAN BARRIERS

Dimensions shown on Elevation Views are to this work point.



MEDIAN BARRIER ELEVATIONS LEFT AND RIGHT STRUCTURES

TYPICAL 7'-6 PANEL

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

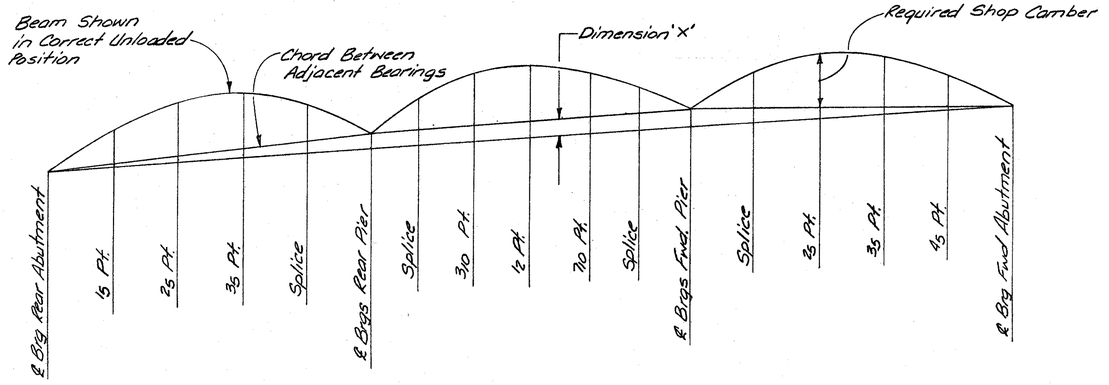
SUPERSTRUCTURE DETAILS

BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK
STA. 820+28.55
STA. 823+07.57
BELMONT COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		AH	JMG	7/95	

CAMBER AND DEFLECTION

LOCATION	BEAM NO.	SPAN 1					SPAN 2							SPAN 3				
		℄ Brg.	⅕ Pt.	⅓ Pt.	⅜ Pt.	Spl.	℄ Brg	Spl.	9/20 Pt.	½ Pt.	7/20 Pt.	Spl.	℄ Brg	Spl.	⅜ Pt.	⅓ Pt.	⅕ Pt	℄ Brg
DIMENSION 'X' (SEE NOTE 2)	1	0	1/16	1 7/16	2 5/8	2 11/16	3 9/16	3 5/8	3 11/16	3 13/16	3 7/8	3 15/16	4	3 1/16	2 7/16	1 5/8	1 3/16	0
	2	0	5/8	1 1/4	1 3/8	2 3/8	3 1/2	3 1/4	3 3/8	3 1/2	3 5/8	3 1/16	3 13/16	2 15/16	2 5/16	1 9/16	3/4	0
	3	0	5/8	1 1/4	1 3/8	2 3/8	3 1/2	3 1/4	3 5/16	3 7/16	3 9/16	3 5/8	3 3/4	2 7/8	2 1/4	1 1/2	3/4	0
	4	0	5/8	1 3/16	1 7/16	2 5/16	3	3 1/16	3 1/8	3 1/4	3 5/16	3 3/8	3 7/16	2 3/8	2 1/16	1 3/8	1/16	0
	5	0	9/16	1 1/8	1 1/16	2 1/8	2 13/16	2 7/8	2 7/8	2 15/16	3	3	3 1/16	2 5/16	1 13/16	1 3/16	5/8	0
	6	0	5/8	1 5/16	1 1/16	2 1/16	3 1/16	3 1/16	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	2 1/2	1 1/16	1 3/16	5/8	0
	7	0	1/2	1	1 1/2	1 1/16	2 1/2	2 1/2	2 7/16	2 3/8	2 3/8	2 5/16	2 5/16	1 3/4	1 3/8	1 5/16	7/16	0
	8	0	7/16	3/8	1 5/16	1 5/8	2 3/16	2 1/16	1 15/16	1 13/16	1 11/16	1 5/8	1/2	1/2	3/8	5/16	5/16	0
	9	0	3/8	1/2	1 1/16	1 3/16	1 3/4	1 1/2	1 3/8	1 1/8	1 1/8	3/4	3/16	7/16	5/16	3/16	1/8	0
	10	0	1/4	1/2	3/4	15/16	1/4	15/16	3/4	3/8	0	-3/16	-3/16	-7/16	-5/16	-1/4	-1/8	0
DEFLECTION DUE TO WEIGHT OF STEEL	1 THRU 5	0	3/16	1/4	3/16	1/16	0	1/16	3/16	1/4	3/16	1/16	0	1/16	3/16	1/4	3/16	0
	6 THRU 10	0	3/16	1/4	3/16	1/8	0	1/16	3/16	1/4	3/16	1/16	0	1/16	3/16	1/4	3/16	0
DEFLECTION DUE TO REMAINING DEAD LOAD	1 THRU 5	0	3/8	1 5/16	1	1/2	0	1/2	1 5/16	1 3/8	1 5/16	1/2	0	1/2	1	1/4	7/8	0
	6 THRU 10	0	1 5/16	1 3/8	1 1/16	1/2	0	1/2	1 5/16	1 1/2	1	9/16	0	1/2	1	1 5/16	1 5/16	0
CONVEXITY REQUIRED FOR VERTICAL CURVE (SEE NOTE 1)	1	0	5/16	1/2	1/2	3/8	0	3/16	7/16	5/8	9/16	7/16	0	7/16	13/16	1 3/8	1 5/16	0
	2	0	1/8	3/16	3/16	1/8	0	7/16	7/16	7/16	5/16	1/4	0	3/4	1	1 1/4	1 5/16	0
	3	0	1/8	3/16	3/16	1/8	0	7/16	7/16	7/16	5/16	1/4	0	3/4	15/16	1 1/16	1 1/16	0
	4	0	1/8	3/16	3/16	1/8	0	7/16	7/16	7/16	5/16	1/4	0	5/8	13/16	15/16	9/16	0
	5	0	1/8	3/16	3/16	1/8	0	7/16	1/2	7/16	5/16	1/4	0	1/2	9/16	9/16	5/16	0
	6	0	5/16	7/16	7/16	5/16	0	1/4	7/16	9/16	1/2	3/8	0	1/4	3/8	1/2	5/16	0
	7	0	1/8	3/16	3/16	1/8	0	7/16	1/2	7/16	5/16	1/4	0	1/4	1/16	0	1/16	0
	8	0	1/8	3/16	3/16	1/8	0	7/16	1/2	7/16	5/16	1/4	0	-1/16	-3/16	-5/16	-1/8	0
	9	0	1/8	3/16	3/16	1/8	0	7/16	1/2	7/16	5/16	1/4	0	-3/16	-5/16	-9/16	-1/4	0
	10	0	1/8	3/16	3/16	1/8	0	7/16	1/2	7/16	5/16	1/4	0	-3/16	-1/4	-3/16	-5/16	0
REQUIRED SHOP CAMBER (SEE NOTE 1)	1	0	1 3/8	2 1/16	1 1/16	15/16	0	3/4	1 1/16	2 1/4	1 11/16	1	0	1	2	2 5/8	2 5/8	0
	2	0	1 3/16	1 3/4	1 3/8	1 1/16	0	1	1 1/16	2 1/16	1 7/16	1 3/16	0	1 5/16	2 3/16	2 3/4	2 5/8	0
	3	0	1 3/16	1 3/4	1 3/8	1 1/16	0	1	1 1/16	2 1/16	1 7/16	1 3/16	0	1 5/16	2 1/8	2 1/16	2	0
	4	0	1 3/16	1 3/4	1 3/8	1 1/16	0	1	1 1/16	2 1/16	1 7/16	1 3/16	0	1 3/16	2	2 7/16	1 5/8	0
	5	0	1 3/16	1 3/4	1 3/8	1 1/16	0	1	1 1/16	2 1/16	1 7/16	1 3/16	0	1 1/16	1 3/4	2 1/16	1 3/8	0
	6	0	1 7/16	2 1/16	1 1/16	15/16	0	1 3/16	1 1/16	2 5/16	1 11/16	1	0	1 3/16	1 1/16	2 1/16	1 7/16	0
	7	0	1 1/4	1 13/16	1 7/16	3/4	0	1	1 5/8	2 3/4	1 1/2	3/8	0	1 3/16	1 1/4	1 1/16	1 3/16	0
	8	0	1 1/4	1 13/16	1 1/16	3/4	0	1	1 5/8	2 3/4	1 1/2	3/8	0	1/2	1 1/16	1 1/4	1	0
	9	0	1 1/4	1 3/16	1 7/16	3/4	0	1	1 5/8	2 3/16	1 1/2	3/8	0	3/16	1/4	1	3/8	0
	10	0	1 1/4	1 13/16	1 7/16	3/4	0	1	1 5/8	2 3/16	1 1/2	3/8	0	-3/16	-1/16	1 3/16	1 3/16	0



CAMBER AND DEFLECTION DIAGRAM

Note 1 - Negative values for convexity and/or camber indicates that the convexity and/or camber is located below the chord between adjacent bearings.

Note 2 - Negative values for Dimension X indicates that the chord between adjacent bearings is located below the baseline between abutment bearings.

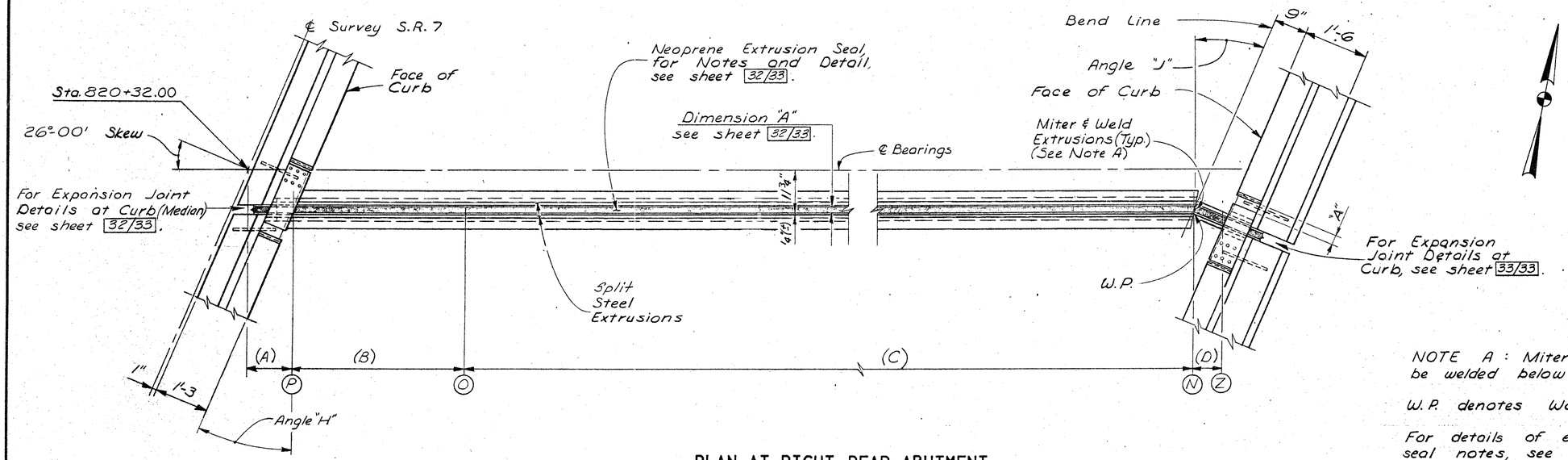
Sheet 29/33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

CAMBER AND DEFLECTION
BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK
BELMONT COUNTY
STA. 820+29.55
STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH			SMC	7/85	

BEL-7-14.17 | OHIO | FHWA REGION 5 | 548 / 663



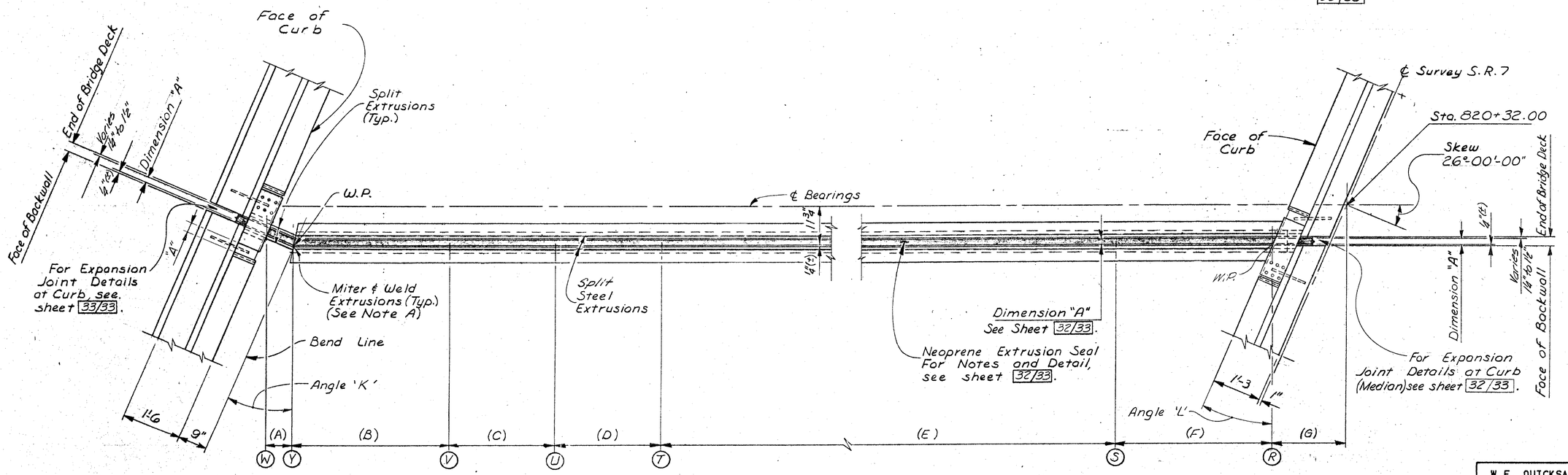
PLAN AT RIGHT REAR ABUTMENT

NOTE A : Mitered split extrusions shall be welded below the split line only.

W.P. denotes Work Point.

For details of expansion joints and strip seal notes, see sheet 32/33. & 33/33.

For expansion joints anchorage details, see sheet 33/33



PLAN AT LEFT REAR ABUTMENT

NOTE: Dimensions and Elevations given are at the top edge and face of the backwall steel.

See Typical Section thru expansion Joint, sheet 32/33

POINT	DIMENSION							ANGLE				ELEVATION										
	A	B	C	D	E	F	G	H	J	K	L	N	O	P	R	S	T	U	V	W	Y	Z
RIGHT REAR ABUTMENT	1'-0 1/4	3'-11 7/8	35'-7 1/4	8 1/4"				23°-11'-55"	23°-28'-39"			665.98	667.20	667.08								665.94
LEFT REAR ABUTMENT	8 5/16"	3'-11 3/4	2'-8 5/8	2'-8 1/2	26'-1/8	3'-11 7/8	1'-10 5/8			22°-46'-06"	23°-11'-55"				667.05	667.19	668.08	668.12	668.05	667.83	667.86	

Sheet 30/33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

(NEOPRENE EXTRUSION SEAL)

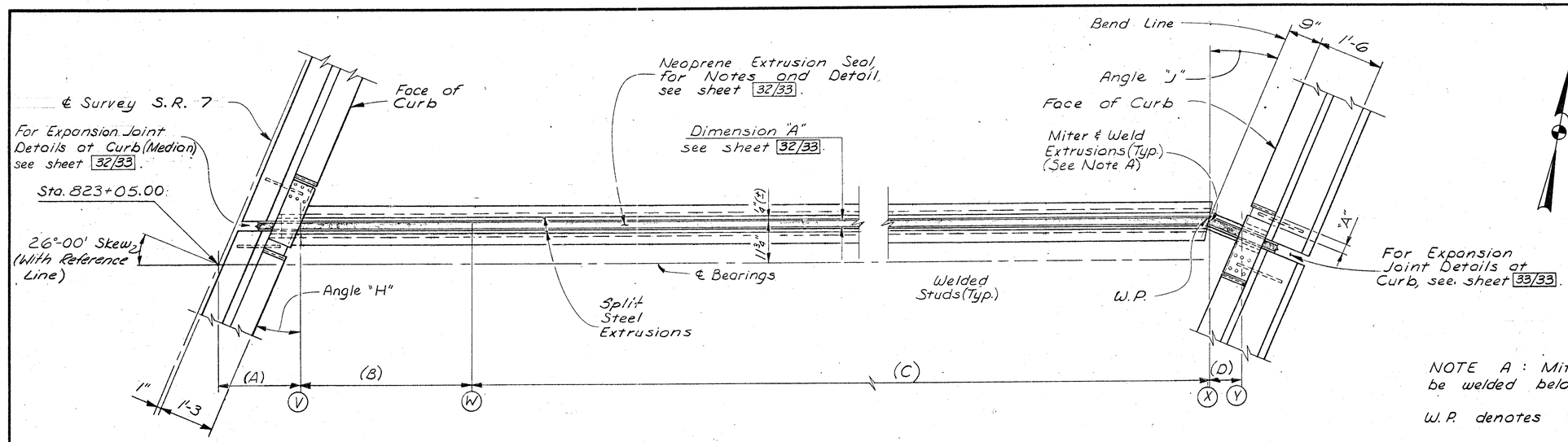
EXPANSION JOINT DETAILS

BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK

BELMONT COUNTY
STA. 820+29.55
STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	7/85	

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS



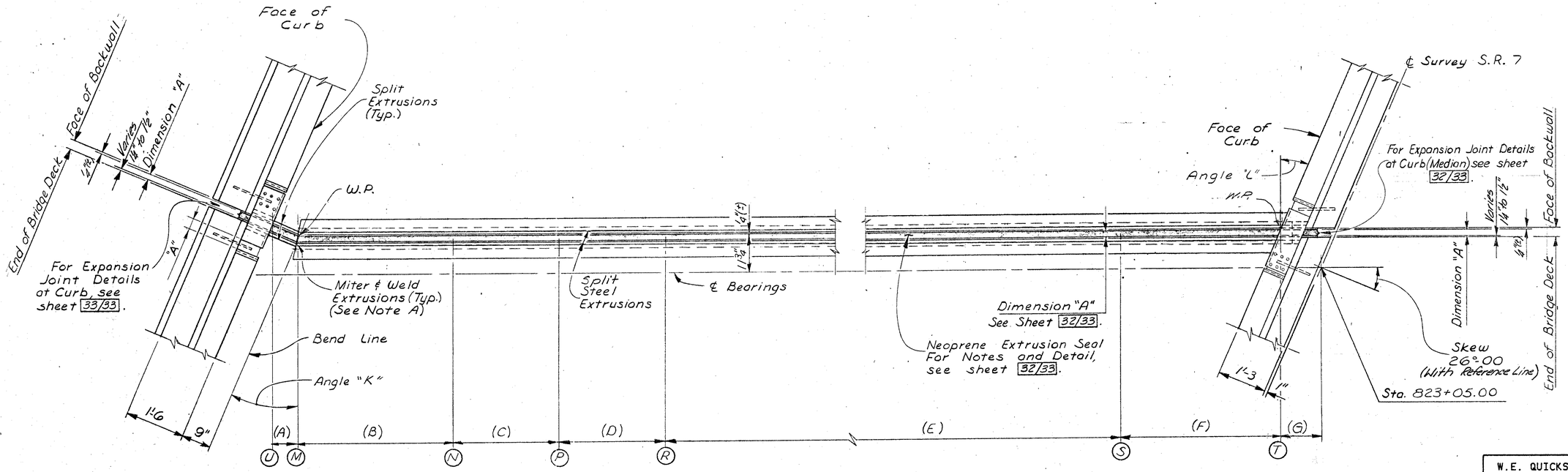
PLAN AT RIGHT FORWARD ABUTMENT

NOTE A : Mitered split extrusions shall be welded below the split line only.

W.P. denotes Work Point.

For details of expansion joints and strip seal notes, see sheets 32/33 & 33/33.

For expansion joints anchorage details, see sheet 33/33



PLAN AT LEFT FORWARD ABUTMENT

NOTE: Dimensions and Elevations given are at the top edge and Face of the Backwall steel.

See Typical Section thru expansion joint, sheet 32/33

POINT	DIMENSION							ANGLE				ELEVATION											
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y
RIGHT FORWARD ABUTMENT	2'-0 7/8	4'-2 1/8	37'-3 5/8	7 7/8"				28°-42'-18"	29°-06'-34"										672.09	672.24	671.38	671.35
LEFT FORWARD ABUTMENT	1'-7 15/16"	4'-2	2'-10 1/8	2'-10 1/8	27'-3 3/8	4'-2 1/8	11 5/8"			28°-27'-26"	28°-42'-18"	672.87	673.03	673.09	673.05	672.20	672.07	672.84				

Sheet 31/33

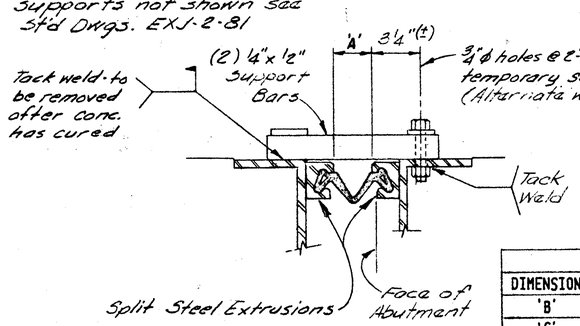
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

(NEOPRENE EXTRUSION SEAL)
EXPANSION JOINT DETAILS
BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK
BELMONT COUNTY
STA. 820+29.55
STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	7/85	

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

For details of temporary supports not shown see Std Dwgs. EXJ-2-81

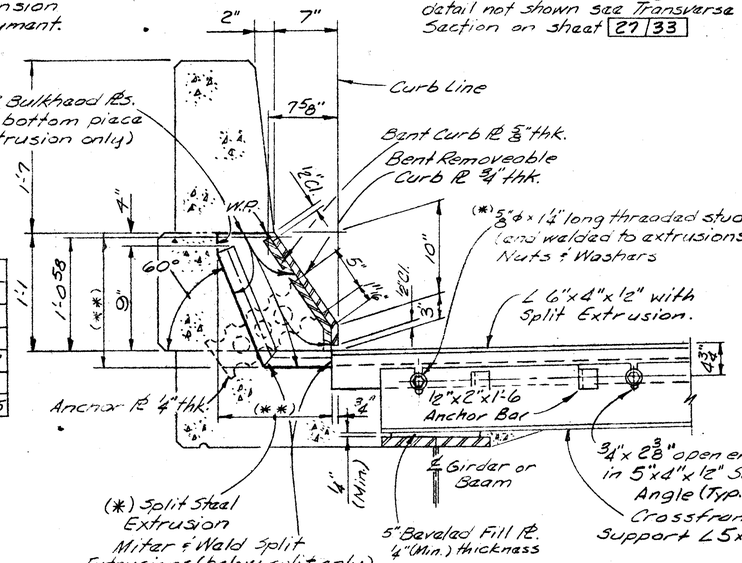


TEMPORARY SUPPORT DETAIL

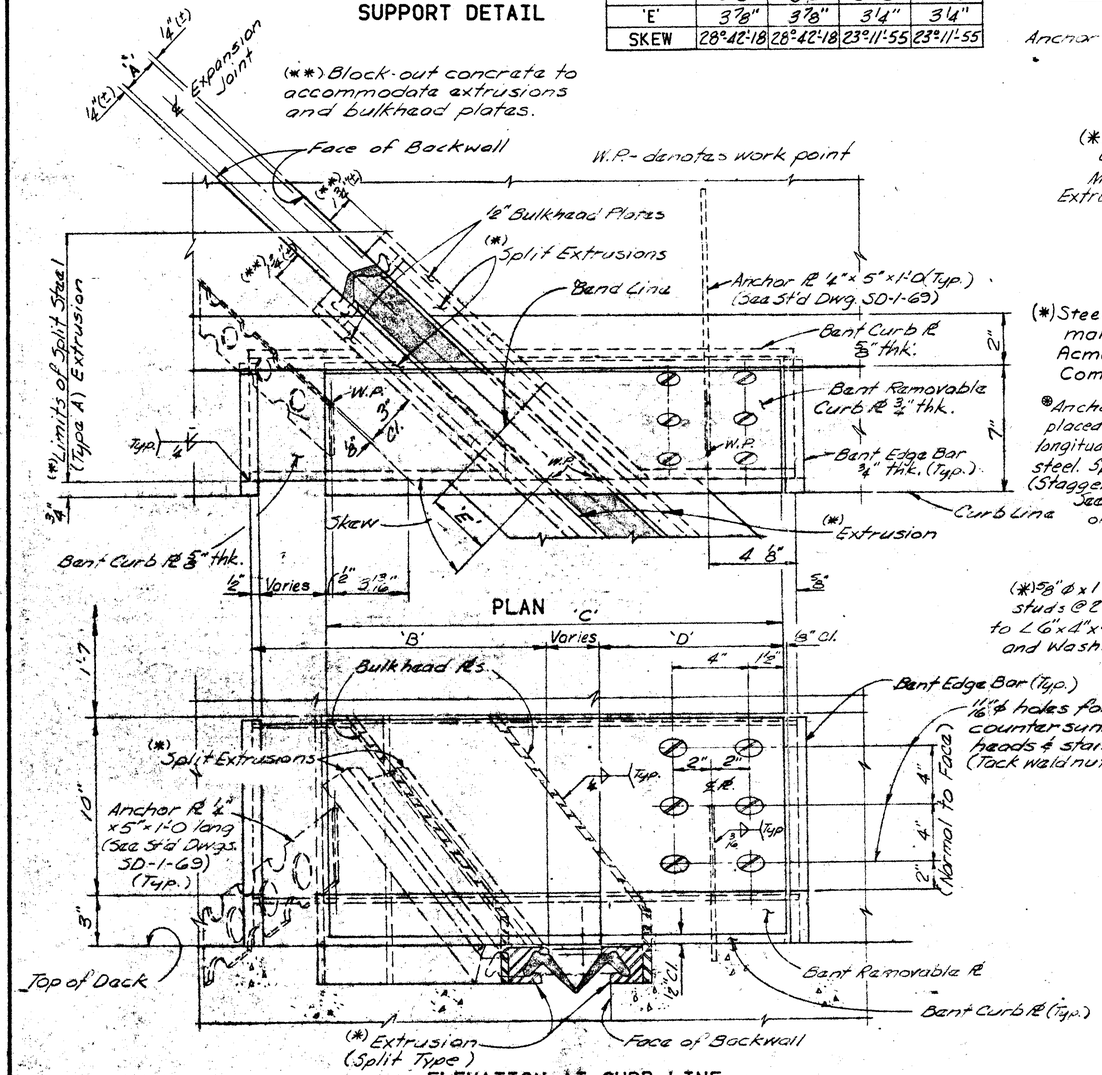
(*) To be included with expansion joint (Item 516) for payment.

CURB PLATES					
DIMENSION	LT. REAR	RT. REAR	LT. FWD.	RT. FWD.
'B'	1'-0 7/8"	1'-0 7/8"	11 13/16"	11 13/16"
'C'	1'-8 7/8"	1'-8 7/8"	1'-7 5/8"	1'-7 5/8"
'D'	9 1/2"	9 1/2"	9 5/16"	9 5/16"
'E'	3 7/8"	3 7/8"	3¼"	3¼"
SKEW	28°-42'-18"	28°-42'-18"	23°-11'-55"	23°-11'-55"

For parapet reinforcing and detail not shown see Transverse Section on sheet 27|33



TYPICAL JOINT DETAIL AT CURB



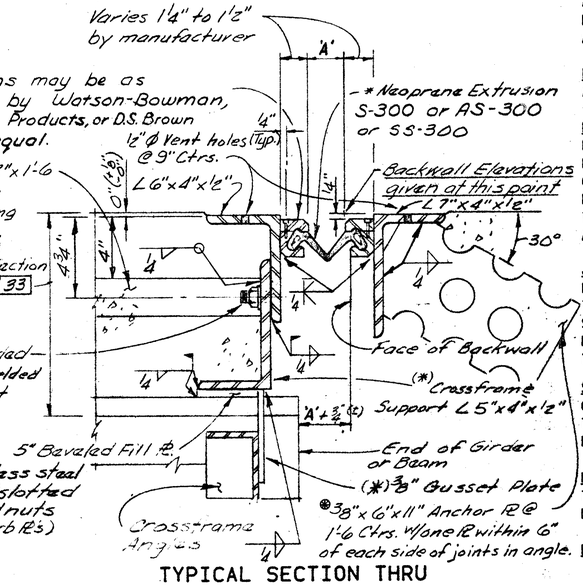
PLAN

ELEVATION AT CURB LINE

(*) Steel Extrusions may be as manufactured by Watson-Bowman, Acme Highway Products, or D.S. Brown Company or equal.

(*) Anchor Bars 12"x 2"x 1'-6 placed parallel with longitudinal reinforcing steel. Spa. @ 1'-0 Ctrs. (Staggered Spacing) See Transverse Section on sheet 27|33

(*) ⅝"ø x 1¼" long threaded studs @ 2'-0 ctrs (end welded to L 6"x4"x½") w/ Hex Nut and Washer



TYPICAL SECTION THRU EXPANSION JOINT

DIMENSION 'A' FOR VARIOUS INSTALLATION TEMPERATURES		
TEMP. °F	DIMENSION 'A' REAR ABUT.	FWD. ABUT.
40	2 1/4"	2 1/8"
50	2 1/8"	2 1/16"
60	2"	2"
70	1 7/8"	1 15/16"
80	1 3/4"	1 7/8"

Dimension 'A' measured normal to ℄ bearings.

For additional beam and end crossframe details see SD-1-69 and sheet 21|33

For Plan at Expansion Joint see sheet 30|33 & 31|33

Plus or Minus (±) dimensions are to allow for manufacturer's variances.

(*) For Anchor Bar details, see Std. Dwg. SD-1-69

STRIP SEAL EXPANSION JOINT NOTES

CONCRETE SURFACE ADJACENT TO DECK JOINTS SHALL BE FINISHED FLUSH WITH OR SLIGHTLY ABOVE THE STEEL JOINT SURFACE.

STRUCTURAL STEEL PORTIONS OF THE EXPANSION JOINT (EXCLUDING ITEMS UNDER ITEM 516 FOR PAYMENT), SHALL BE ASTM A36 STEEL PAINTED IN ACCORDANCE WITH 514 (SYSTEM A), AND INCLUDED WITH ITEM 513 FOR PAYMENT. COUNTERSUNK BOLTS AND NUTS SHALL BE STAINLESS STEEL, INCLUDED WITH ITEM 513 FOR PAYMENT. FOR COLOR REFER TO PARTIAL PAINTING NOTE, SHEET 4|33

STEEL EXTRUSIONS, END CROSSFRAME SUPPORT ANGLE AND GUSSET PLATES SHALL BE ASTM A36 STEEL, PAINTED IN ACCORDANCE WITH 514 (SYSTEM A). STEEL EXTRUSIONS INCLUDING END CROSSFRAME SUPPORT ANGLE, GUSSET PLATES, END WELDED STUDS AND BOLTS, AND NEOPRENE SEAL SHALL BE INCLUDED WITH ITEM 516 FOR PAYMENT. FOR COLOR REFER TO PARTIAL PAINTING NOTE, SHEET 4|33.

WELDED CONNECTIONS SHALL BE PARTIAL PENETRATION FULL STRENGTH WELDS AND SHALL CONFORM TO STANDARD AWS AND AASHTO SPECIFICATIONS FOR HIGHWAY BRIDGES.

INSTALLATION OF SEAL: DURING INSTALLATION OF THE SUPPORT/ARMOR FOR THE SUPERSTRUCTURE SIDE OF THE EXPANSION JOINT SEAL, THE SEATING OF BEAMS ON BEARINGS SHALL BE CAREFULLY OBSERVED TO ASSURE THAT POSITIVE BEARING IS MAINTAINED. PROPER VERTICAL FIT OF THE SUPPORT/ARMOR ON THE BEAMS SHALL BE ACHIEVED BY ADJUSTING THE STEEL EXTRUSIONS AND THE NUTS FULLY TORQUED IN ACCORDANCE WITH ASTM A325 SPECIFICATIONS.

NEOPRENE EXTRUSIONS SHALL BE OF THE STRIP SEAL TYPE AS MANUFACTURED BY WATSON-BOWMAN ASSOC., INC., BUFFALO, NEW YORK, ACME HIGHWAY PRODUCTS, INC., BUFFALO, NEW YORK, OR D.S. BROWN, NORTH BALTIMORE, OHIO AND SHALL MEET THE REQUIREMENTS OF ASTM D-2628 MODIFIED (RECOVERY TESTS EXCLUDED). THESE EXTRUSIONS SHALL RUN THE FULL LENGTH OF THE ROADWAY AND INTO THE CURB PORTION OF THE PARAPET.

BONDING OF THE STRIP SEAL SHALL BE WITH AN ADHESIVE AS MANUFACTURED AND FURNISHED BY THE SEAL MANUFACTURER, UNDER ITEM 516 FOR PAYMENT.

PREPARATION AND INSTALLATION PROCEDURE: PRIOR TO INSTALLING THE NEOPRENE EXTRUSION, THE STEEL AND NEOPRENE SURFACES WHICH ARE TO BE BONDED TOGETHER SHALL BE THOROUGHLY CLEANED TO INSURE THE REMOVAL OF ALL CONTAMINANTS WHICH WOULD BE DETRIMENTAL TO BONDING. APPLY ADHESIVE TO DRY SURFACES AND INSTALL STRIP SEAL AS RECOMMENDED BY THE MANUFACTURER. TEMPERATURE SHALL BE WARMER THAN 40°F DURING APPLICATION OF THE ADHESIVE.

JOINTS: AT AN ABUTMENT CONTRACTION JOINT, A BUTTED JOINT SHALL BE PROVIDED IN THOSE PORTIONS OF THE STEEL EXTRUSION THAT ARE ATTACHED TO THE ABUTMENT BACKWALL. THIS JOINT SHALL BE CLOSELY BUTTED, BUT SHALL NOT BE WELDED. TO FACILITATE HANDLING AND SHIPPING, A WELDED BUTT JOINT MAY BE FURNISHED NEAR THE CENTERLINE OF DECK ON THOSE PORTIONS OF THE STEEL EXTRUSION THAT ARE ATTACHED TO THE SUPERSTRUCTURE.

SHOP DRAWINGS FOR THE STRIP SEAL SHALL BE PREPARED BY THE SEAL FABRICATOR. THESE DRAWINGS, AFTER BEING COORDINATED WITH THE DRAWINGS OF THE STRUCTURAL STEEL FABRICATOR, SHALL BE SUBMITTED TO THE DIRECTOR FOR APPROVAL BEFORE THE START OF FABRICATION.

METHOD OF MEASUREMENT: THE LENGTH OF COMPLETED AND ACCEPTED STRIP SEAL TO BE PAID FOR SHALL BE BASED ON THE HORIZONTAL LENGTH OF THE SEALS MEASURED ON THE CENTERLINE OF JOINTS.

BASIS OF PAYMENT: PAYMENT WILL BE MADE UNDER:

ITEM	UNIT	DESCRIPTION
516	LIN. FT.	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEALS

Sheet 32|33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

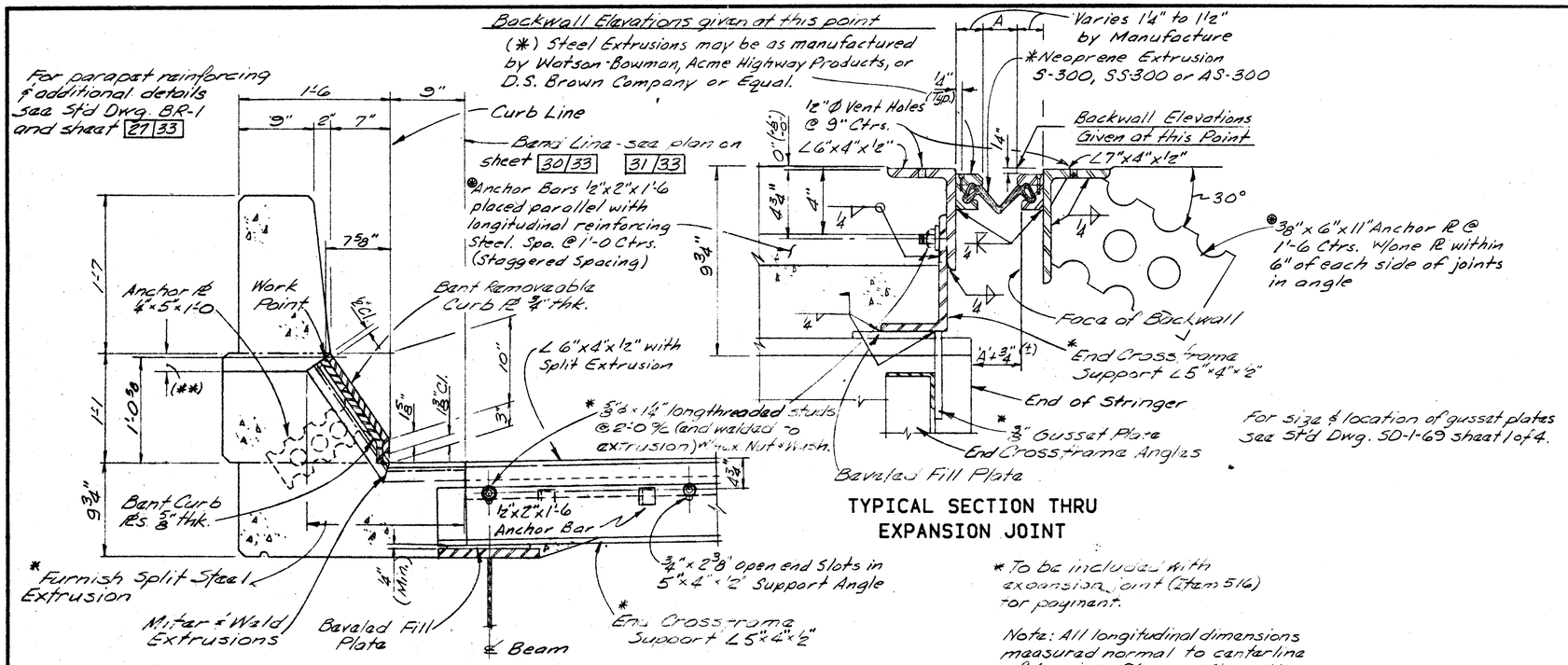
(NEOPRENE EXTRUSION SEAL)
EXPANSION JOINT DETAILS
BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK
STA. 820+29.55
BELMONT COUNTY STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GHD	GHD		JMG	WCA	7/85	

Backwall Elevations given at this point

(*) Steel Extrusions may be as manufactured by Watson-Bowman, Acme Highway Products, or D.S. Brown Company or Equal.

For parapet reinforcing & additional details see Std Dwg. BR-1 and sheet 27|33



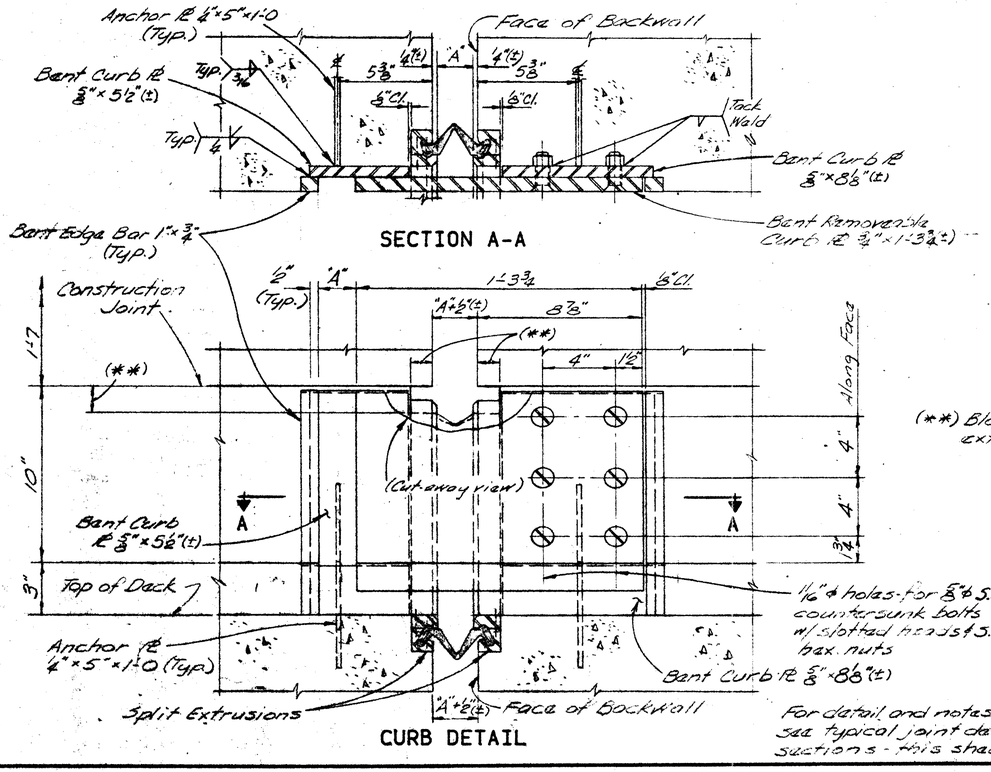
TYPICAL JOINT DETAIL AT CURB

TYPICAL SECTION THRU EXPANSION JOINT

For size & location of gusset plates see Std Dwg. SD-1-69 sheet 1 of 4.

* To be included with expansion joint (Item 516) for payment.

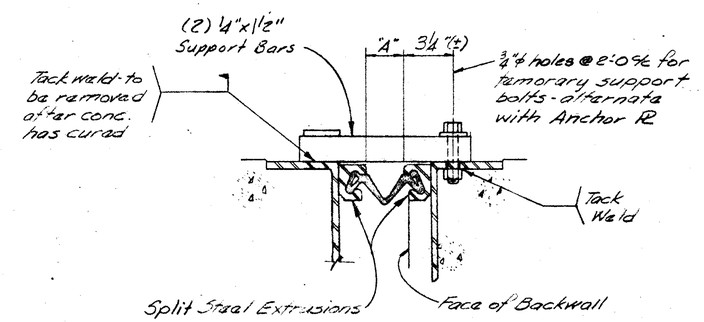
Note: All longitudinal dimensions measured normal to centerline of bearing. Plus or Minus (±) dimensions are to allow for manufacturer's variances.



CURB DETAIL

(**) Block-out to suit extrusion.

For detail and notes not shown see typical joint detail and sections - this sheet.



TEMPORARY SUPPORT DETAIL

For additional detail & notes see Std Dwg. EXJ-1-81 sheet 1 of 3, Detail A & D

For Strip Seal Expansion Joint Notes, see sheet 32|33

For Dimension 'A' values, see sheet 32|33

* For Anchor Bar details, see Std. Dwg. SD-1-69

For additional beam and end crossframe details see Std Dwg. SD-1-69 and sheet 24|33

For plan of expansion joints at rear and forward abutments see sheet 30|33 & 31|33

Curb plates, edge bars, anchor plates and stainless steel bolts and nuts to be furnished under Item 513 for payment.

Sheet 33|33

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

(NEOPRENE EXTRUSION SEAL)
EXPANSION JOINT DETAILS

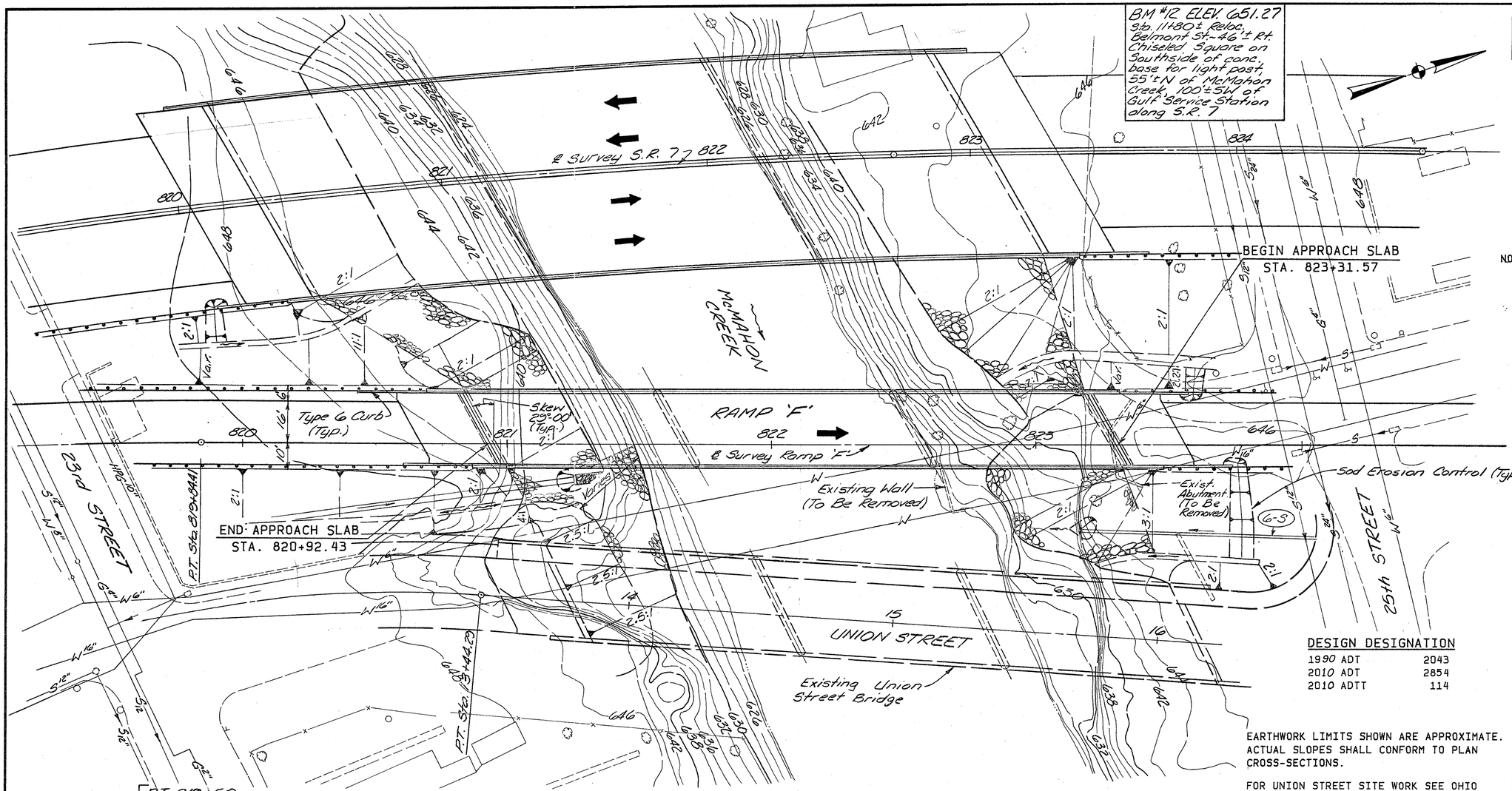
BRIDGE NO. BEL-7-1550L/R
S.R. 7 OVER McMAHON CREEK
STA. 820+29.55
BELMONT COUNTY
STA. 823+07.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JMS	JMS		wda	JMG	7/85	

BEL-7-14.17 | OHIO | FHWA REGION 5 | 552 / 663

CITY OF BELLAIRE

B.M. #12 ELEV. 651.27
S to 11480± Reloc. Belmont St. 46'± Rt. Chiseled Square on Southside of conc. base for light post, 55'± N of McMahon Creek, 100'± SW of Gulf Service Station along S.R. 7



NOTE:
PILING TO BE HP10X42 PILES ON REAR AND FORWARD ABUTMENTS.
PILING TO BE HP12X53 PILES ON REAR AND FORWARD PIERS.

ESTIMATED AVERAGE PAY LENGTH:

REAR ABUTMENT	60 LIN. FT.
REAR PIER	20 LIN. FT.
FORWARD PIER	20 LIN. FT.
FORWARD ABUTMENT	60 LIN. FT.

OHIO RIVER FLOOD ELEVATIONS

NORMAL POOL ELEV.	623.7
25 YR. ELEV.	651.1±
100 YR. ELEV.	656.3±

STREAM DATA

DRAINAGE AREA: 89.67 SQ. MILES
Q100 = 18,250 CFS, Q25 = 11,860 CFS
V100 = 8.05 FPS, V25 = 7.0 FPS
STRUCTURE CLEARS 25 YR. ESTIMATED HIGH WATER ELEVATION BY 17.1'±
McMAHON CREEK WATER ELEVATIONS CONTROLLED BY OHIO RIVER WATER ELEVATIONS.

PROPOSED STRUCTURE

TYPE: CONTINUOUS COMPOSITE STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE UNITS.
SPANS: 72'-90'-72' MEASURED ALONG ℄ OF SURVEY
ROADWAY: 28'-0 F/F PARAPETS
SKEW: 29° R.F.
SURFACE COURSE: MONOLITHIC CONCRETE
LIVE LOAD: HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING
APPROACH SLAB: AS-1-81, 25' LONG
ALIGNMENT: TANGENT
SUPERELEVATION: NONE

DESIGN DESIGNATION

1990 ADT	2043
2010 ADT	2854
2010 ADTT	114

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS.

FOR UNION STREET SITE WORK SEE OHIO DEPARTMENT OF TRANSPORTATION, BUREAU OF BRIDGES, DWG. 1 OF 15, DATED JAN. '83.

SHEET 1 / 21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SITE PLAN

BRIDGE NO. BEL-7-1551F
RAMP F OVER McMAHON CREEK

BELMONT COUNTY
STA. 820+92.43
STA. 823+31.57

EXIST. TOPO		PROPOSED WORK			
SURVEY	DRAWN	DESIGN	DRAWN	CHECKED	REVIEWED
MARTINEZ	FDH	FDH	FDH	JMG	wde 7/83

BEL-7-14.17 | OHIO | FHWA REGION 5 | 553 / 663

BEL-7-1550 L/R BRIDGE

3'-0 (Typ.)

2:1

Pay Limits of Rock Channel Protection with BEL-7-1551 F

Limits of Rock Channel Protection Type B Without Filter

Sta. 820+68.01

℄ Brgs Rear Abutment Sta. 820+95.00

WING 'B'

11:1

Construction Limits

Integal Curb (Typ.)

16'-0

Type 6 Curb

821

WING 'A'

3:1

Skew 29°-00' (Typ.)

McMahon Creek

℄ Brgs Rear Pier Sta. 821+67.00

822

℄ Survey Ramp F

29'-10 out/out Deck

℄ Brgs Fwd. Pier Sta 822+57.00

Construction Limits

Pay Limits of Rock Channel Protection with BEL-7-1551 F

Sta. 823+30.80

Begin Approach Slab Sta. 823+31.57

WING 'C'

22:1

Sod Erosion Protection (Typ.)

Type 6 Curb

823

WING 'D'

℄ Brgs Fwd. Abutment Sta. 823+23.00

Limits of Rock Channel Protection, Type B without filter

Sta. 823+46.84

3:1

Construction Limits

Sta. 820+87.05

End Approach Slab Sta. 820+92.43

Limits of Rock Channel Protection Type B Without filter

(EXISTING UNION STREET BRIDGE)

PLAN

Top of Slope Elev. 655.6

Elev. 649.60

HP 10x42 Piles

Expansion Brgs.

2:1 Normal

Rock Channel Protection Type B without filter (2'-0 Thick) (Typ)

Normal Water Elev 624.1

Elev. 613.50

HP 12x53 Piles

Expansion Brgs.

Fixed Brgs.

Expansion Brgs

Top of Slope Elev. 652.6

Elev. 646.60

HP 10x42 Piles

2:1 Normal

ELEVATION

Sheet 2 / 21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

GENERAL PLAN AND ELEVATION

BRIDGE NO. BEL-7-1551F
RAMP F OVER McMAHON CREEK

BELMONT COUNTY

STA. 820+92.43
STA. 823+31.57

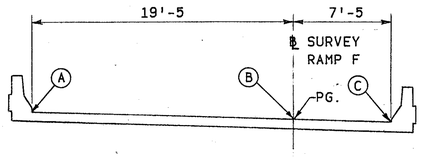
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH			JMG	7/85	

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	ABUTS	PIERS	SUPER	GEN'L.
503	LUMP		COFFERDAMS, CRIBS AND SHEETING				LUMP
503	360	CU.YD.	UNCLASSIFIED EXCAVATION	193	167		
505	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				LUMP
507	1200	LIN.FT.	STEEL PILES, HP10X42, AS PER PLAN	1200			
507	440	LIN.FT.	STEEL PILES, HP12X53, AS PER PLAN		440		
507	42	EACH	STEEL POINTS (OR SHOES)	20	22		
509	50,268	LB.	REINFORCING STEEL, GRADE 60	9737	20,310	20,221	
511	234	CU.YD.	CLASS S CONCRETE, SUPERSTRUCTURE			234	
511	75	CU.YD.	CLASS C CONCRETE, ABUTMENT ABOVE FOOTINGS	75			
511	122	CU.YD.	CLASS C CONCRETE, PIER ABOVE FOOTINGS		122		
511	119	CU.YD.	CLASS C CONCRETE, FOOTINGS	59	60		
513	167,000	LB.	STRUCTURAL STEEL, ASTM A588 (AISC CATAGORY I)			167,000	
513	1764	EACH	WELDED STUD SHEAR CONNECTOR			1764	
514	LUMP		PARTIAL PAINTING OF A588 STEEL, SYSTEM A, AS PER PLAN			LUMP	
516	4	EACH	LAMINATED ELASTOMERIC BEARINGS, (17"X3⅝"X1'-5"		4		
			ELASTOMERIC PAD WITH 1⅞"X18"X1'-6" STEEL LOAD PLATE)				
516	4	EACH	LAMINATED ELASTOMERIC BEARINGS, (12"X2⅞"X1'-0"	4			
			ELASTOMERIC PAD WITH 1⅛"X13"X1'-1" STEEL LOAD PLATE)				
516	4	EACH	LAMINATED ELASTOMERIC BEARINGS, (12"X4⅜"X1'-0"	4			
			ELASTOMERIC PAD WITH 1⅛"X13"X1'-1" STEEL LOAD PLATE)				
516	64	LIN.FT.	STRUCTURAL EXPANSION JOINTS INCLUDING			64	
			ELASTOMERIC STRIP SEALS				
518	53	LIN.FT.	6" PERFORATED HELICAL CORRUGATED STEEL PIPE, 707.01	53			
518	96	LIN.FT.	6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE,	96			
			INCLUDING SPECIALS, 707.01				
518	32	CU.YD.	POROUS BACKFILL	32			
601	663	CU.YD.	ROCK CHANNEL PROTECTION, TYPE B WITHOUT FILTER	663			
SPECIAL	984	SQ.YD.	SEALING OF CONCRETE SURFACES (EPOXY), SEE PROPOSAL NOTE	89	388	507	
509	36,969	LB.	EPOXY COATED REINFORCING STEEL, GRADE 60	1,098		35,871	

TOP OF SLAB ELEVATIONS (SCREED ELEVATIONS)

STATION	POINTS A	POINTS B	POINTS C	STATION	POINTS A	POINTS B	POINTS C	STATION	POINTS A	POINTS B	POINTS C
820+84.24	661.35	-	-	821+71.11	-	-	659.80	822+57.00	-	658.78	-
820+95.00	-	660.91	-	821+71.24	660.23	-	-	822+61.11	-	-	658.61
820+99.11	-	-	660.75	821+82.00	-	659.79	-	822+63.24	659.03	-	-
820+98.64	661.22	-	-	821+86.11	-	-	659.62	822+74.00	-	658.58	-
821+09.40	-	660.78	-	821+83.24	660.11	-	-	822+78.11	-	-	658.41
821+13.51	-	-	660.61	821+94.00	-	659.67	-	822+75.04	658.91	-	-
821+13.04	661.06	-	-	821+98.11	-	-	659.50	822+85.80	-	658.46	-
821+23.80	-	660.61	-	822+01.24	659.90	-	-	822+89.91	-	-	658.29
821+27.91	-	-	660.44	822+12.00	-	659.45	-	822+89.44	658.73	-	-
821+27.44	660.85	-	-	822+16.11	-	-	659.28	823+00.20	-	658.29	-
821+38.20	-	660.41	-	822+19.24	659.64	-	-	823+04.31	-	-	658.12
821+42.31	-	-	660.24	822+30.00	-	659.19	-	823+03.84	658.51	-	-
821+39.24	660.67	-	-	822+34.11	-	-	659.02	823+14.60	-	658.07	-
821+50.00	-	660.22	-	822+31.24	659.44	-	-	823+18.71	-	-	657.90
821+54.11	-	-	660.05	822+42.00	-	659.00	-	823+18.24	658.27	-	-
821+56.24	660.41	-	-	822+46.11	-	-	658.83	823+29.00	-	657.83	-
821+67.00	-	659.97	-	822+46.24	659.22	-	-	823+33.11	-	-	657.66



NOTE: ELEVATIONS ARE THOSE REQUIRED BEFORE DECK CONCRETE IS PLACED TO ALLOW FOR DEAD LOAD DEFLECTION CAUSED BY THE WEIGHT OF THE CONCRETE.

Sheet 3 21

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

ESTIMATED QUANTITIES AND SLAB ELEVATIONS

BRIDGE NO. BEL-7-1551F
RAMP F OVER McMAHON CREEK

BELMONT COUNTY

STA.820+92.43
STA.823+31.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED BY	REVISED
FDH	FDH		CFD	JmG 7/85	10/85

DESIGN NOTES

DESIGN SPECIFICATIONS
THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1983, INCLUDING THE 1984 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA
DESIGN LOADING: HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING
CONCRETE CLASS 'S': COMPRESSIVE STRENGTH 4500 P.S.I. (SUPERSTRUCTURE)
CONCRETE CLASS 'C': COMPRESSIVE STRENGTH 4000 P.S.I. (SUBSTRUCTURE)
REINFORCING STEEL: ASTM A615, A616, A617-GRADE 60 MINIMUM YIELD STRENGTH 60,000 P.S.I.
STRUCTURAL STEEL: ASTM A588-YIELD STRENGTH 50,000 P.S.I. ASTM A36-YIELD STRENGTH 36,000 P.S.I.

DECK PROTECTION METHOD
EPOXY COATED REINFORCING STEEL, TOP MAT ONLY. MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

REFERENCE SHALL BE MADE TO:

STANDARD DRAWINGS	SUPPLEMENTAL SPECIFICATIONS
AS-1-81 DATED 11-27-81	836 DATED 11-12-85
BR-1 DATED 5-29-79	
SD-1-69 DATED 6-12-69	
FB-1-82 DATED 5-10-82	

REINFORCING STEEL SPLICES: ALL REINFORCING STEEL SPLICES SHALL BE IN ACCORDANCE WITH ITEM 509.08. UNLESS SHOWN OTHERWISE, ALL SPLICES SHALL BE MADE BY OVERLAPPING THE ENDS OF THE BARS NOT LESS THAN SHOWN IN THE FOLLOWING TABLE:

BAR SIZE	LAP LENGTH
#4	1'-4"
#5	1'-8"
#6	2'-0"
#7	2'-6"
#8	3'-3"
#9	4'-2"
#10	5'-3"

PILES
PILES SHALL BE DRIVEN TO REFUSAL ON BEDROCK. REFUSAL SHALL BE CONSIDERED AS ATTAINED BY PENETRATING SOFT BEDROCK WITH A MINIMUM RESISTANCE OF 20 BLOWS PER INCH OR REFUSAL SHALL BE CONSIDERED AS ATTAINED AFTER THE PILE HAS CONTRACTED HARD BEDROCK AND THE PILE HAS THEN RECEIVED AT LEAST 20 BLOWS.

THE DESIGN LOAD IS 50 TONS PER PILE FOR THE REAR AND FORWARD ABUTMENTS, AND 57 TONS PER PILE FOR THE REAR AND FORWARD PIERS.

PILE HAMMER
THE PILE HAMMER USED TO INSTALL THE STEEL "H" BEARING PILES SHALL HAVE A STATE'S ENERGY RATING OF NOT LESS THAN 13,500 FOOT-POUNDS. THIS REQUIREMENT DOES NOT RELIEVE THE CONTRACTOR FROM 108.05 WHICH STATES THAT THE CONTRACTOR IS TO PROVIDE SUFFICIENT EQUIPMENT FOR PROSECUTING THE REQUIRED WORK. REFER TO "ODOT'S MANUAL OF PROCEDURES FOR STRUCTURES" TO OBTAIN THE STATE'S ENERGY RATING.

PILE POINTS
STEEL PILE POINTS SHALL BE USED TO PROTECT THE TIPS OF THE PROPOSED PILING. THE STEEL POINTS SHALL BE FURNISHED BY THE ASSOCIATED PILE AND FITTING CORPORATION, 262 RUTHERFORD BOULEVARD, CLIFTON, NEW JERSEY 07014, THE INTERNATIONAL CONSTRUCTION EQUIPMENT, INC., 301 WAREHOUSE DRIVE, MATTHEWS, NORTH CAROLINA 28105 OR BY A MANUFACTURER THAT CAN FURNISH A STEEL POINT THAT IS ACCEPTABLE TO THE DIRECTOR.

PIER COFFERDAM CONSTRUCTION
THE CONTRACTOR SHOULD GIVE CONSIDERATION TO DESIGNING THE PIER COFFERDAMS IN A MANNER THAT IS COMPATIBLE WITH INFORMATION OBTAINED FROM THE SUBSURFACE MONITORING PROGRAM. HIGH PORE WATER PRESSURES MAY CAUSE THE SLOPE STABILITY TO HAVE A LOW FACTOR OF SAFETY.

SEALING OF CONCRETE SURFACES
AN EPOXY SEALER SHALL BE APPLIED TO THE FOLLOWING EXPOSED CONCRETE SURFACE AREAS: COMPLETE AREA OF THE DECK PARAPETS AS SHOWN IN TRANSVERSE SECTION ON SHEET 18/21 , COMPLETE AREA OF THE ABUTMENT BACKWALLS, BEAM SEATS, AND BREASTWALLS, AND ALL SURFACES OF THE PIERS ABOVE THE WATER LINE.

PARTIAL PAINTING OF A588 STEEL
A588 STEEL IS TO BE LEFT UNPAINTED, EXCEPT AS NOTED BELOW. SEE CMS 513.221 FOR CLEANING REQUIREMENTS.

A 10'-0" LENGTH OF THE ENDS OF BEAMS ADJACENT TO ABUTMENTS AND ALL CROSSFRAMES AND OTHER A588 STEEL WITHIN THESE LIMITS SHALL BE PAINTED. PAINT SHALL BE 514, SYSTEM A. THE PRIME COAT SHALL BE 708.17. THE TOP COAT SHALL BE 708.18 EXCEPT THAT THE COLOR SHALL CLOSELY APPROACH FEDERAL STANDARD NO. 595a-20045 OR 20059. PRIME COAT SHALL BE APPLIED IN THE SHOP.

EMBANKMENT CONSTRUCTION AND PILE DRIVING CONSTRAINTS
PRIOR TO DRIVING PILES AT THE PIERS AND ABUTMENTS THE SPILL-THRU EMBANKMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FOR A DISTANCE OF 200 FEET BACK OF THE ABUTMENTS. AFTER THE EMBANKMENT HAS BEEN COMPLETED WITHIN THE ABOVE REQUIRED LIMITS, A 30 DAY WAITING PERIOD IS REQUIRED PRIOR TO EXCAVATING AND DRIVING PILES FOR THE PIERS AND ABUTMENTS. THE PROPOSED EMBANKMENTS WITHIN THE ABOVE REQUIRED LIMITS SHALL BE CONSTRUCTED AT A RATE NOT TO EXCEED TWO FEET IN HEIGHT PER WEEK.

THE RATE OF SETTLEMENT AND PORE PRESSURE SHALL BE MONITORED IN THE FIELD DURING CONSTRUCTION. UNDER THE CONTRACT, THE CONTRACTOR SHALL RETAIN AN EXPERIENCED SOILS FIRM TO MONITOR THE INSTRUMENTATION, RECOMMEND ANY NEEDED CHANGES IN THE RATE OF FILL PLACEMENT OR WAITING PERIODS, AND SUBMIT A WRITTEN REPORT TO THE DIRECTOR.

THE WAITING PERIOD AND RATE OF CONSTRUCTION OF THE EMBANKMENT CAN BE CHANGED IF THE DIRECTOR'S REVIEW OF THE RESULTS FROM THE SOIL MONITORING INSTRUMENTATION INDICATES THAT REVISED REQUIREMENTS FOR THE CONSTRUCTION OF THE EMBANKMENT ARE APPROPRIATE.

THE FOLLOWING INSTRUMENTATION SHALL BE INSTALLED BY THE CONTRACTOR:

LOCATION	INSTRUMENT	OFFSET
SOUTH ABUTMENT	PIEZOMETER	CENTERLINE
SOUTH ABUTMENT	SETTLEMENT PLATFORM	CENTERLINE
TOE OF SQUTH FRONT SLOPE	SLOPE INCLINOMETER	CENTERLINE
NORTH ABUTMENT	PIEZOMETER	CENTERLINE
NORTH ABUTMENT	SETTLEMENT PLATFORM	CENTERLINE
TOE OF NORTH SLOPE	SLOPE INDICATOR	CENTERLINE

PAYMENT FOR THE ABOVE LISTED WORK SHALL BE INCLUDED WITH ITEM 203, ROADWAY EXCAVATION AND EMBANKMENT.

Sheet 4/21

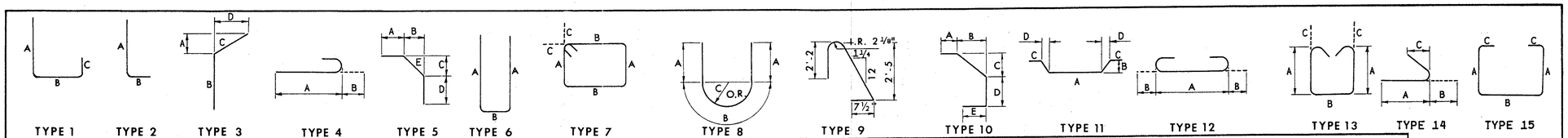
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

DESIGN NOTES

BRIDGE NO. BEL-7-1551F
RAMP F OVER McMAHON CREEK
BELMONT COUNTY
STA. 820+92.43
STA. 823+31.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMG	JMG	7/85	

BEL-7-14.17 | OHIO | FHWA REGION 5 | 556/663



SUPERSTRUCTURE

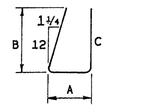
MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
E601	STR							380	29'-6	16,838
E602	STR	Lengths Vary By 1'-0 5/8						2 Series of 23	3'-6 TO 26'-8	1,043
E603	STR							4	3'-6	21
E501	STR							56	14'-7	852
E502	STR							128	7'-1	946
E503	STR							8	10'-5	87
E504	9	See Detail						362	5'-3	1983
E505	10	9"	6"	8 1/2"	8"	10 1/2"		362	2'-11	1102
E506	2	1'-5	10 1/2"					362	2'-2	819
E507	STR							140	30'-0	4381
E508	STR							8	8'-11	74
E517	STR							76	20'-8	1638
E401	STR							296	30'-0	5932
E402	STR							37	6'-3	155
S501	STR							240	30'-0	7510
S502	STR							380	29'-6	11693
S503	STR							30	8'-11	279
S504	STR	Lengths Vary By 1'-0 5/8						2 Series of 23	3'-6 TO 26'-8	724
S505	STR							4	3'-6	15

REAR ABUTMENT

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
A801	5	1'-5	1'-5	1'-5	1'-5	2'-0		21	4'-10	271
A802	STR							7	30'-0	561
A803	STR							7	9'-1	170
A804	STR							3	10'-4	83
A805	STR							3	7'-6	60
A806	STR							3	10'-0	80
A807	STR							3	7'-3	58
A601	1	6'-6	5'-4	2'-7				8	14'-1	169
A602	1	6'-9	5'-4	2'-7				7	14'-4	151
A603	1	6'-11	5'-4	2'-7				7	14'-6	152
A604	1	7'-1	5'-4	2'-7				3	14'-8	66
A605	6	2'-9	11"					30	6'-1	274
A606	6	2'-8	1'-5					30	6'-5	289
A607	6	4'-0	1'-5					30	9'-1	409
A608	STR							4	3'-9	23

REAR ABUTMENT

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
A609	6	8'-6	1'-2					4	17'-10	107
A610	STR							6	2'-8	24
A611	STR							2	3'-3	10
A612	STR							11	4'-1	67
A613	6	9'-0	1'-2					6	18'-10	170
A501	STR							38	17'-9	704
A502	2	6'-5	10 1/2"					8	7'-2	60
A503	2	6'-8	10 1/2"					7	7'-5	54
A504	2	6'-10	10 1/2"					8	7'-7	63
A505	2	7'-0	10 1/2"					3	7'-9	24
A506	6	1'-8	3'-5					25	6'-6	169
A507	6	1'-8	5'-4					25	8'-5	219
A508	7	2'-4	3'-0	5 1/2"				5	11'-3	59
A509	2	7'-4	10 1/2"					2	8'-1	17
A510	STR							6	2'-8	17
A511	STR							2	3'-3	7
A512	STR							11	4'-1	47
A513	STR							6	6'-10	43
A514	STR							2	8'-4	17
A515	STR							6	10'-2	64
A516	6	10"	1'-2					9	2'-7	24
A517	STR							6	8'-8	54
A518	STR							2	9'-10	21
A519	STR							6	15'-2	95
E604	5	7"	2"	8 1/2"	2'-5	8 3/4"		8	3'-7	43
E605	5	7"	3"	8 1/2"	2'-5	9"		2	3'-7	11
E606	5	8"	4"	8 1/2"	2'-5	9 3/8"		2	3'-8	11
E607	5	8"	5"	8 1/2"	2'-5	9 3/8"		2	3'-8	11
E608	5	9"	6"	8 1/2"	2'-5	10 3/8"		10	3'-9	56
E504	9	See Detail						8	5'-3	44
E509	4	2'-1	7"					16	2'-8	45
E510	STR							16	4'-7	76
E511	STR							8	3'-0	25
E512	STR							16	4'-4	72
E513	STR							8	8'-2	68
E514	STR							8	13'-2	110



NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

AN 'E' DESIGNATION PRECEDING THE BAR MARK DENOTES EPOXY COATED BARS.

Sheet 5 of 21

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

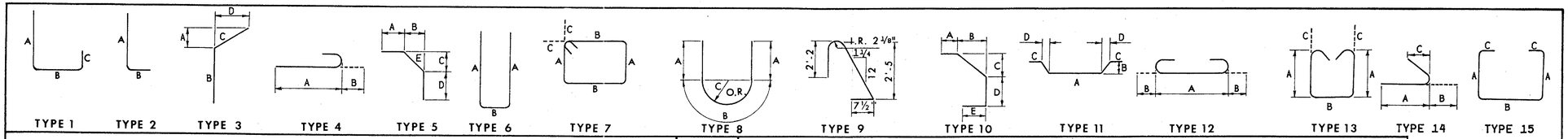
REINFORCING BAR SCHEDULE

BRIDGE NO. BEL-7-15 51.F
RAMP F OVER McMAHON CREEK

BELMONT COUNTY

STA. 820+92.43
STA. 823+31.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		GHD	JMG	7/85	



FORWARD ABUTMENT

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
B801	5	1'-5	1'-5	1'-5	1'-5	2'-0		21	4'-10	271
B802	STR							7	30'-0	561
B803	STR							7	9'-1	170
B804	STR							3	10'-9	86
B805	STR							3	8'-0	64
B806	STR							3	8'-3	66
B807	STR							3	4'-8	37
B601	1	7'-2	5'-4	1'-8				3	13'-10	62
B602	1	7'-0	5'-4	1'-8				7	13'-8	144
B603	1	6'-9	5'-4	1'-8				7	13'-5	141
B604	1	6'-7	5'-4	1'-8				8	13'-3	159
B605	6	2'-9	11"					30	6'-1	274
B606	6	2'-8	1'-5					30	6'-5	289
B607	6	4'-0	1'-5					30	9'-1	409
B608	STR							4	3'-9	23
B609	6	9'-1	1'-2					4	19'-0	114
B610	STR							5	2'-8	20
B611	STR							1	3'-3	5
B612	6	8'-6	1'-2					5	17'-10	134
B613	STR							9	3'-10	52
B614	STR	Lengths Vary By 9"						1 Series of 3	2'-10 TO 4'-4	16
B501	STR							38	17'-9	704
B502	2	7'-1	10½"					3	7'-10	25
B503	2	6'-11	10½"					7	7'-8	56
B504	2	6'-8	10½"					7	7'-5	54
B505	2	6'-6	10½"					8	7'-3	60
B506	6	1'-8	3'-5					25	6'-6	169
B507	6	1'-8	5'-4					25	8'-5	219
B508	2	8'-0	10½"					2	8'-9	18
B509	7	2'-4	3'-0	5½"				3	11'-3	35
B510	STR							5	2'-8	14
B511	STR							1	3'-3	3
B512	6	10"	1'-2					9	2'-7	24
B513	STR							8	7'-4	61
B514	STR							1	4'-2	4
B515	STR							6	10'-8	67
B516	STR							9	3'-10	36
B517	2	6'-5	10½"					1	7'-2	7
B518	STR	Lengths Vary By 9"						1 Series of 3	2'-10 TO 4'-4	11
B519	STR							4	6'-2	26
B520	STR							2	7'-9	16
B521	STR							6	12'-8	79

FORWARD ABUTMENT

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT
E604	5	7"	2"	8½"	2'-5	8¾"		8	3'-7	43
E605	5	7"	3"	8½"	2'-5	9"		2	3'-7	11
E606	5	8"	4"	8½"	2'-5	9⅜"		2	3'-8	11
E607	5	8"	5"	8½"	2'-5	9⅞"		2	3'-8	11
E608	5	9"	6"	8½"	2'-5	10⅜"		8	3'-8	44
E504	9	See Detail						6	5'-3	33
E509	4	2'-1	7"					16	2'-8	45
E510	STR							16	4'-7	76
E511	STR							6	3'-0	19
E512	STR							16	4'-4	72
E515	STR							8	8'-8	72
E516	STR							8	10'-8	89

NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

AN 'E' DESIGNATION PRECEDING THE BAR MARK DENOTES EPOXY COATED BARS.

Sheet 6 / 21

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

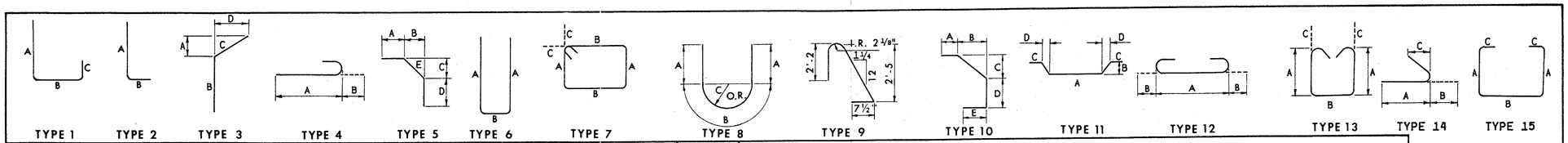
REINFORCING BAR SCHEDULE

BRIDGE NO. BEL-7-1551 F
RAMP F OVER McMAHON CREEK

BELMONT COUNTY

STA. 820+92.43
STA. 823+31.57

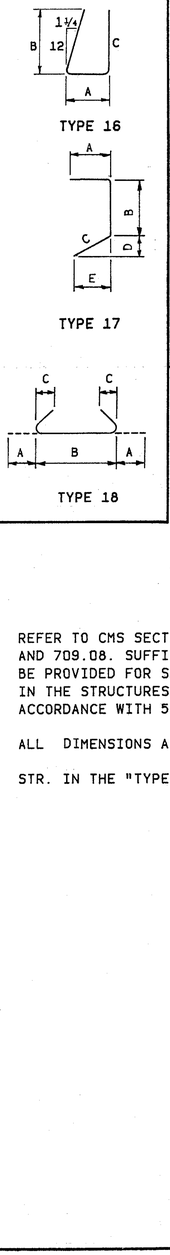
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.			JMG	7/95	



PIERS

MARK	TYPE	A	B	C	D	E	NUMBER REAR	NUMBER FORWARD	TOTAL	LENGTH	WEIGHT
P1001	Str.						6	6	12	30'-8	1584
P1002	2	5'-3	3'-2 3/4				6	6	12	8'-2	422
P1003	2	5'-3	2'-8 1/2				6	6	12	7'-8	396
P1004	Str.						-	26	26	20'-3	2266
P1005	Str.						-	26	26	9'-10	1100
P1006	2	11'-7	1'-10				-	26	26	13'-1	1464
P1007	2	7'-5	1'-10				-	26	26	8'-11	998
P901	Str.						-	26	26	15'-2	1341
P801	12						22	27	49	12'-4	1614
P802	Str.						26	-	26	15'-2	1053
P803	Str.						26	-	26	20'-11	1452
P804	Str.						26	-	26	14'-5	1001
P805	2	8'-5	1'-4 1/2				26	-	26	9'-7	665
P806	2	5'-10	1'-4 1/2				26	-	26	7'-0	486
P701	Str.						-	16	16	22'-6	736
P601	Str.						14	-	14	18'-6	389
P602	Str.						20	20	40	7'-11	476
P501	8	1'-8	4'-2 1/4	1'-4			42	40	82	7'-6	641
P502	Str.						42	40	82	9'-0	770
P503	6	2'-0	2'-8				10	10	20	6'-5	134
P504	Str.						2	2	4	30'-8	128
P505	Str.			Lengths Vary By 5'-8			2 Series of 4	2 Series of 4	4 Series of 4	12'-4 to 29'-4	348
P509	3	1'-5 5/8	10'-4 3/4	1'-8	9 1/2"		6	6	12	12'-0	150
P510	6	2'-6	2'-8				18	18	36	6'-9	278
P513	6	3'-2 3/8 to 4'-5	2'-8	Lengths Vary By 9 5/8" (±)			1 Series of 4	1 Series of 4	2 Series of 4	8'-10 to 11'-3	84
P514	6	5'-3 to 7'-8	2'-8	Lengths Vary By 1'-7 5/16 (±)			1 Series of 4	1 Series of 4	2 Series of 4	12'-11 to 17'-9	128
P301	18	4"	2'-8	2 1/2"			84	80	164	3'-4	206

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT



NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

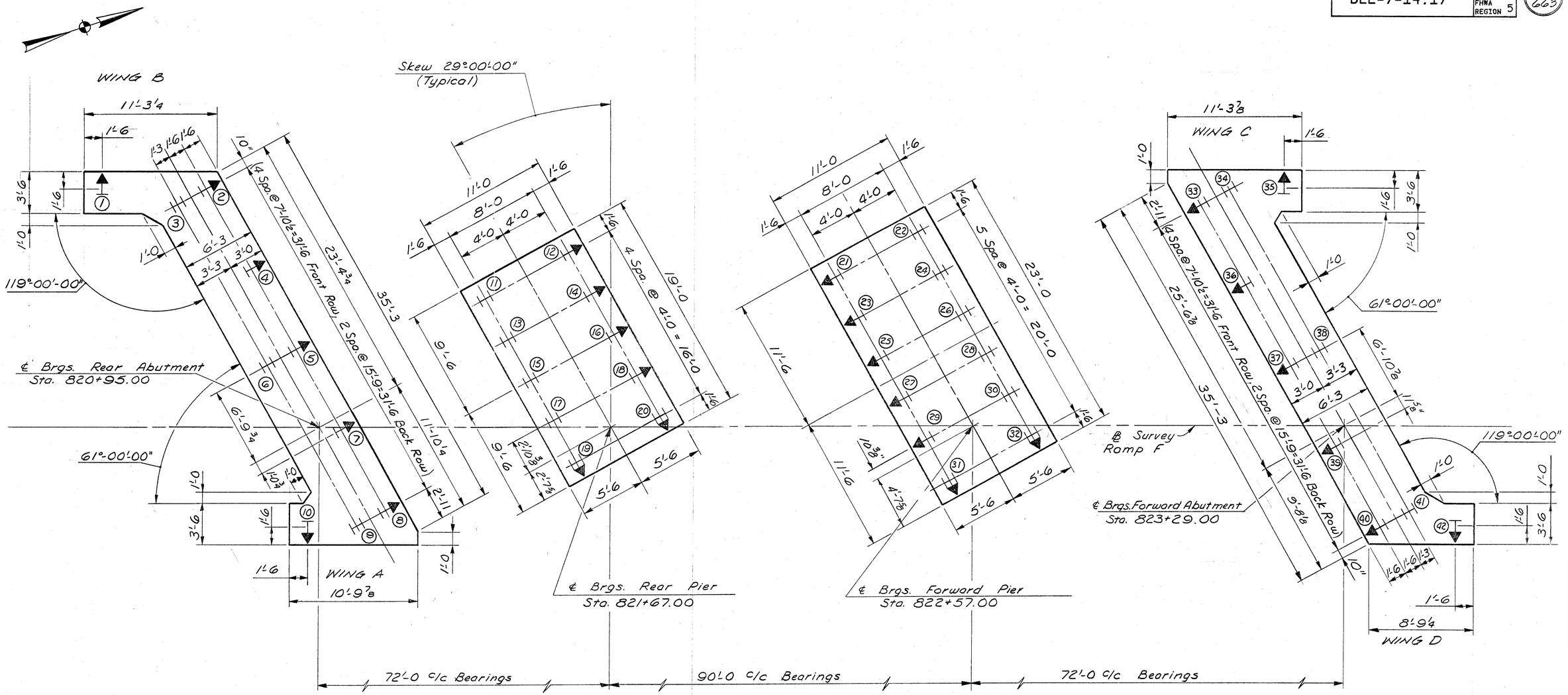
Sheet 7 / 21

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

REINFORCING BAR SCHEDULE

BRIDGE NO. BEL-7-1551F
RAMP F OVER McMAHON CREEK
STA. 820+92.43
BELMONT COUNTY STA. 823+31.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
			FOH	JMG	7/85	10/85



NOTE:
◀— Indicates direction of 4:1 battered Piles.

All Pier Footing Piles to be HP 12x53.

All Abutment Footing Piles to be HP 10x42.

Steel Pile Points shall be used, as per Plan.

Sheet 8/21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

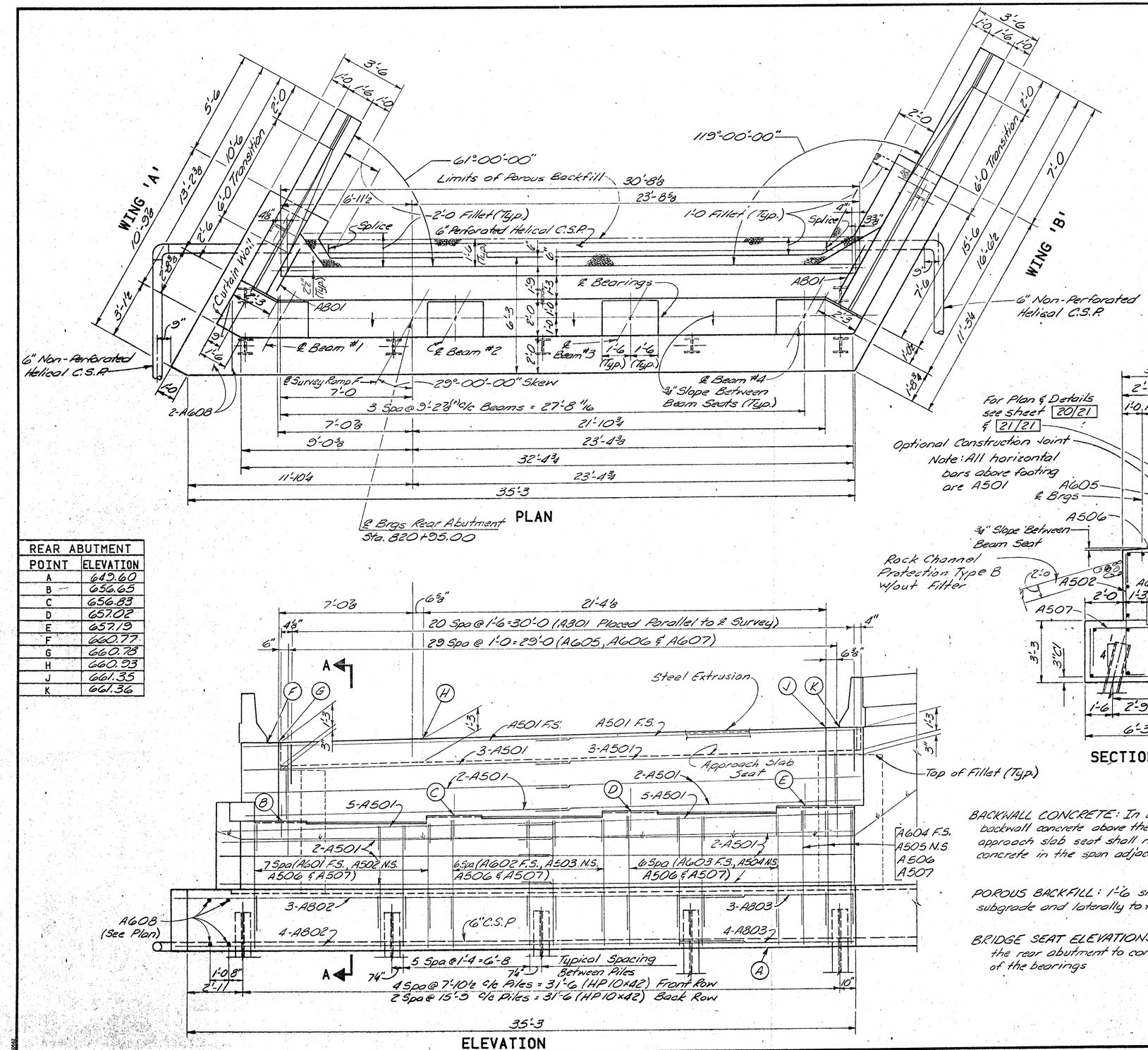
FOOTING PLAN

BRIDGE NO. BEL-7-15 51 F
RAMP F OVER McMAHON CREEK

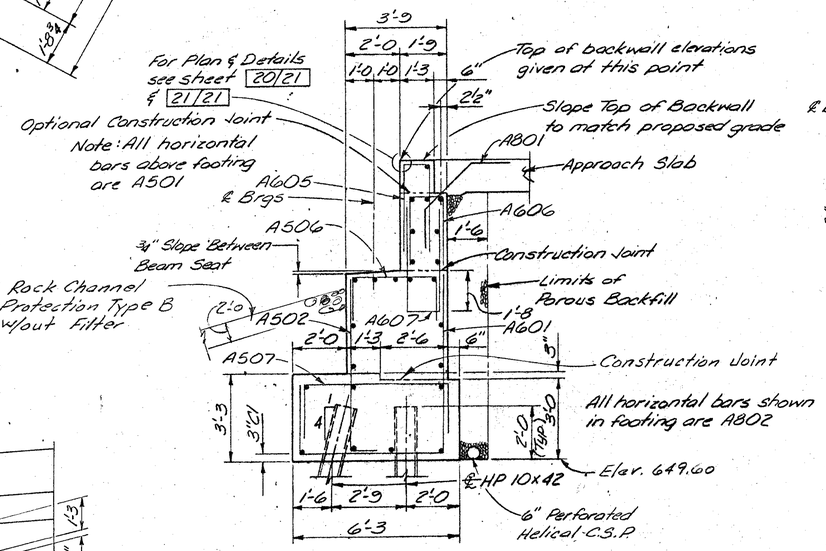
BELMONT COUNTY

STA. 820+92.43
STA. 823+31.57

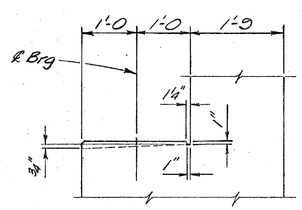
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	7/85	



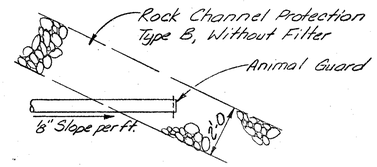
REAR ABUTMENT	
POINT	ELEVATION
A	643.60
B	656.65
C	656.83
D	657.02
E	657.19
F	660.77
G	660.78
H	660.93
J	661.35
K	661.36



SECTION A-A



TYPICAL SECTION THRU BEAM SEAT



TYPICAL TERMINATION OF 6" NON-PERFORATED C.S.P.

For Details of Wings 'A' & 'B', see sheet 10/21

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

POROUS BACKFILL: 1'-6 shall extend up to the plane of the subgrade and laterally to the ends of the wing walls

BRIDGE SEAT ELEVATIONS have been adjusted upward '8" at the rear abutment to compensate for the vertical deformation of the bearings

Sheet 9/21

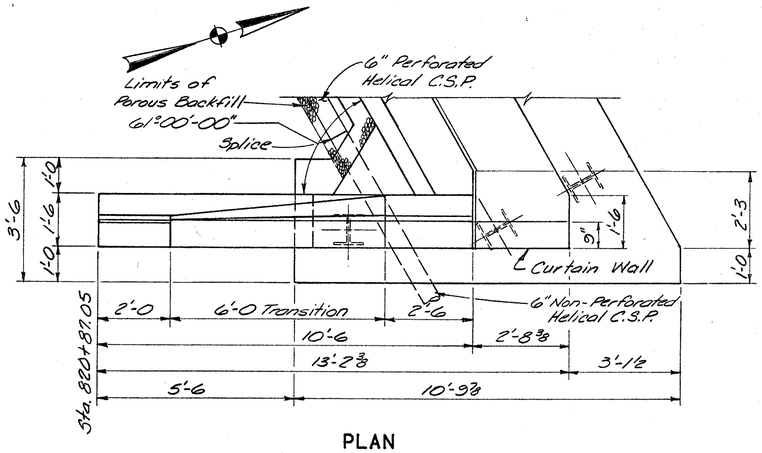
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

REAR ABUTMENT DETAILS
BRIDGE NO. BEL-7-1551F
RAMP F OVER McMAHON CREEK

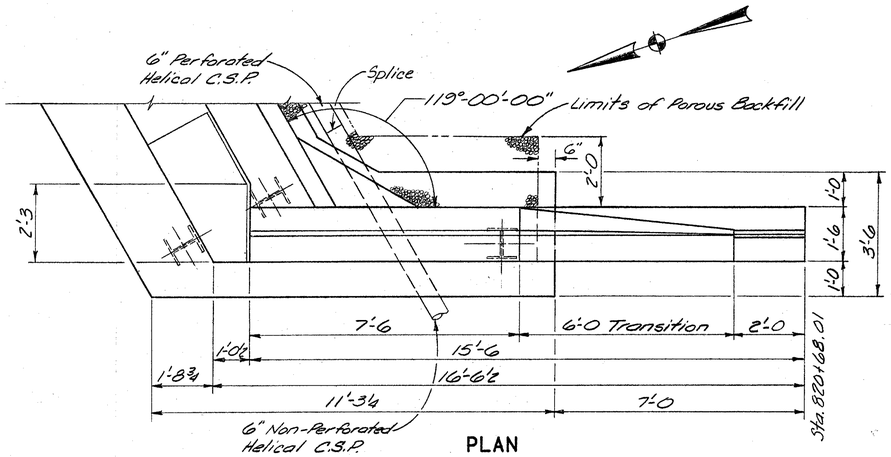
BELMONT COUNTY
STA. 820+92.43
STA. 823+31.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		wda	JMG	7/85	

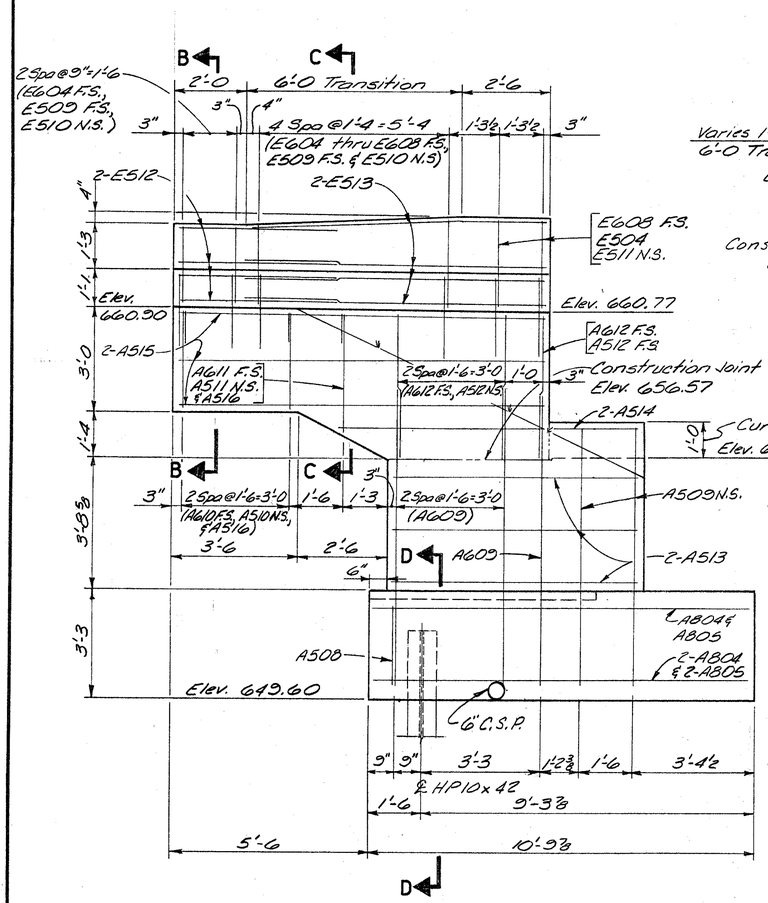
BEL-7-14.17 | OHIO | FHWA REGION 5 | 561/663



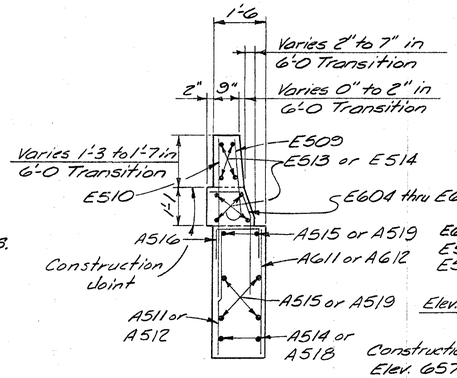
PLAN



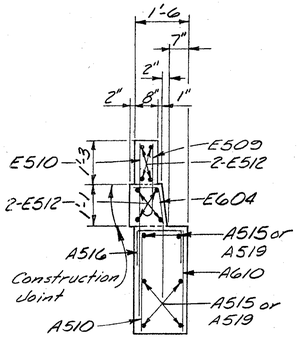
PLAN



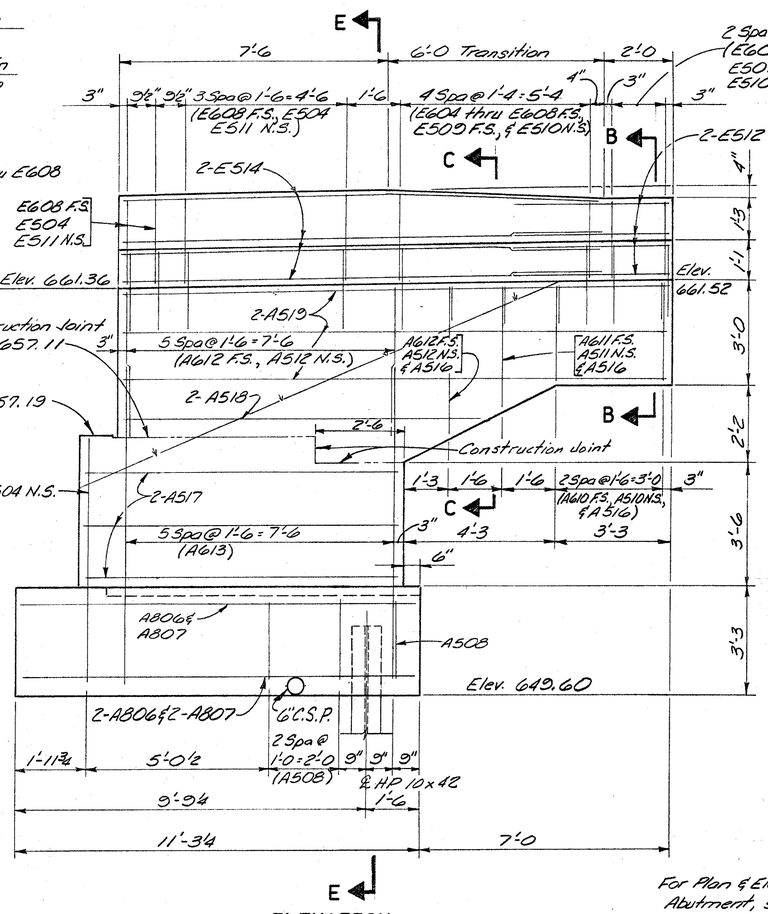
ELEVATION WING 'A'



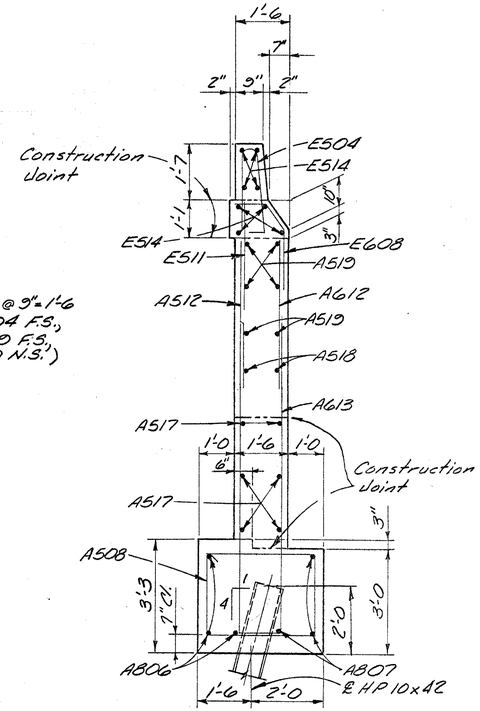
SECTION C-C



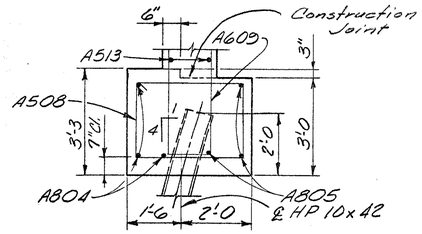
SECTION B-B



ELEVATION WING 'B'



SECTION E-E



SECTION D-D

For Plan & Elevation of Rear Abutment, see sheet 9/21

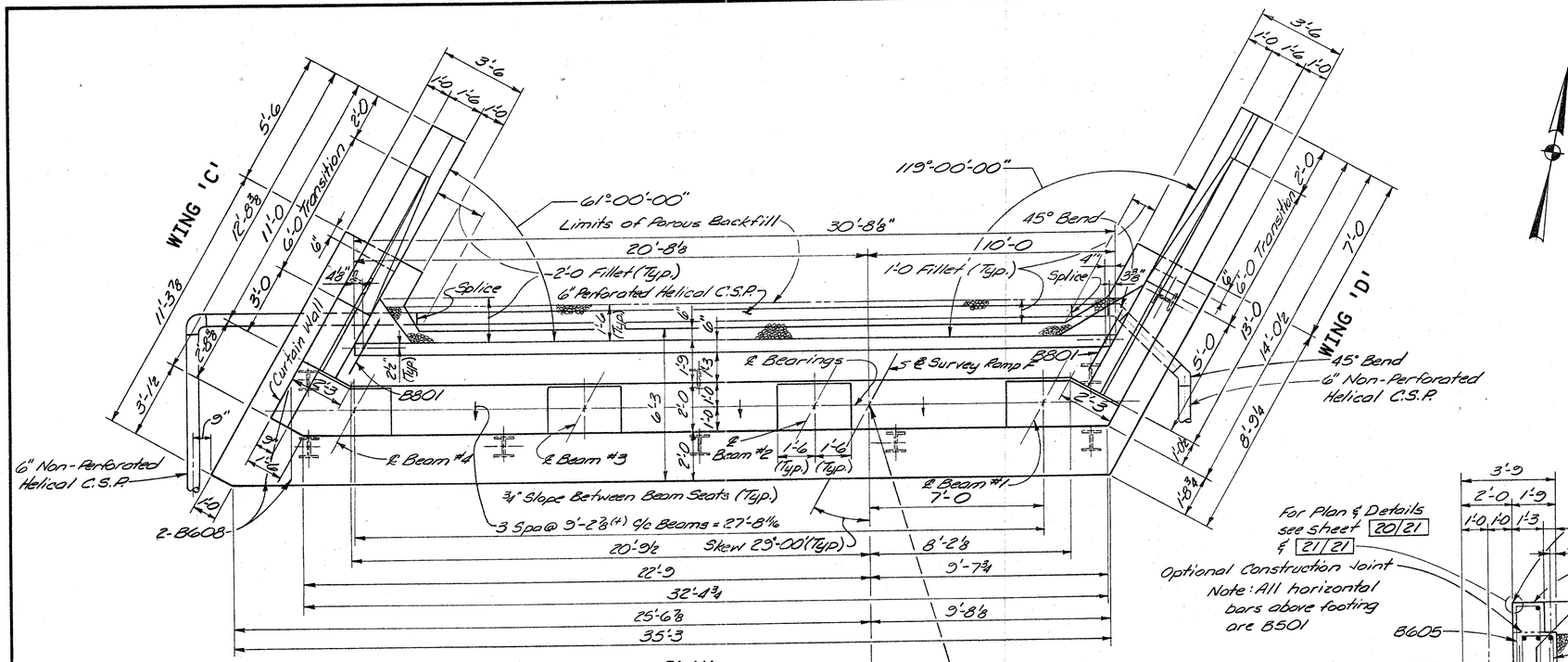
Sheet 10/21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

REAR ABUTMENT DETAILS

BRIDGE NO. BEL-7-1551F
RAMP F OVER McMAHON CREEK
BELMONT COUNTY
STA. 820+92.43
STA. 823+31.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		wda	JMC	7/85	



FORWARD ABUTMENT	
POINT	ELEVATION
A	646.60
B	654.23
C	654.05
D	653.86
E	653.68
F	658.25
G	658.24
H	657.81
J	657.66
K	657.65

For Backwall Concrete Note, see sheet 9/21
For Porous Backfill Note, see sheet 9/21
For Termination Detail of 6" C.S.P. see sheet 9/21
For Typical Section thru Beam Seat, see sheet 9/21
For Details of Wings 'C' & 'D', see sheet 12/21

Sheet 11/21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

FORWARD ABUTMENT DETAILS

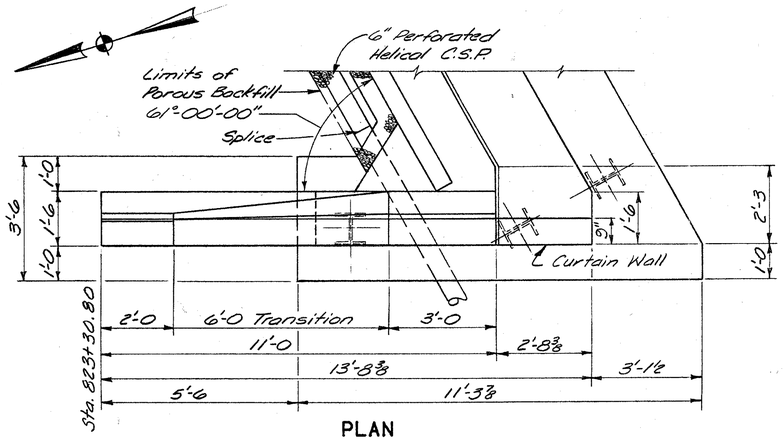
BRIDGE NO. BEL-7-1551F
RAMP F OVER McMAHON CREEK

BELMONT COUNTY

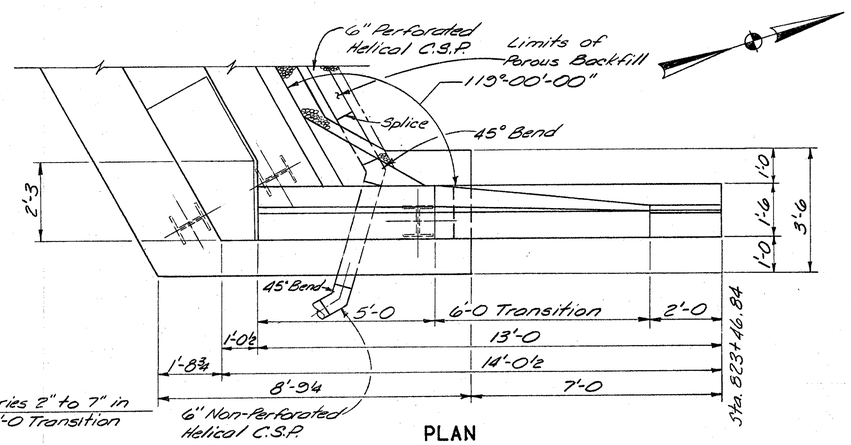
STA. 820+92.43
STA. 823+31.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		wda	JMC	7/85	

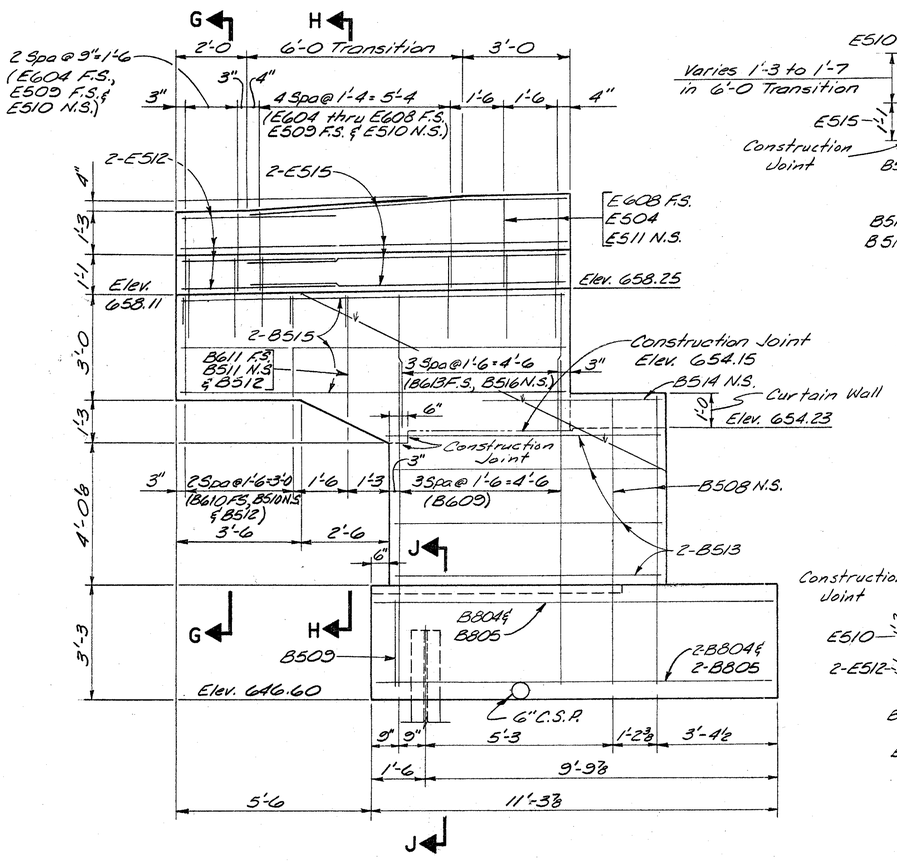
BEL-7-14.17 | OHIO | FHWA REGION 5 | 563/663



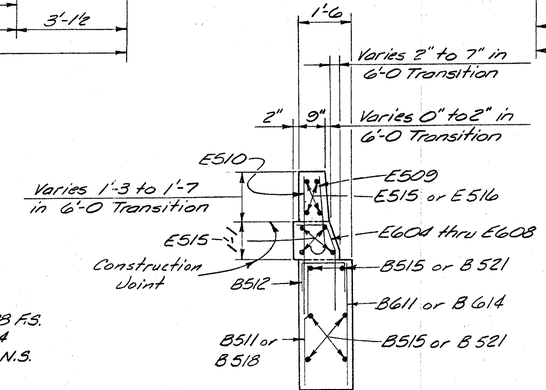
PLAN



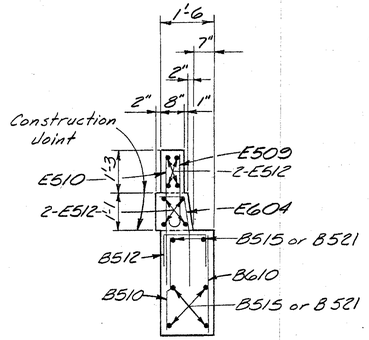
PLAN



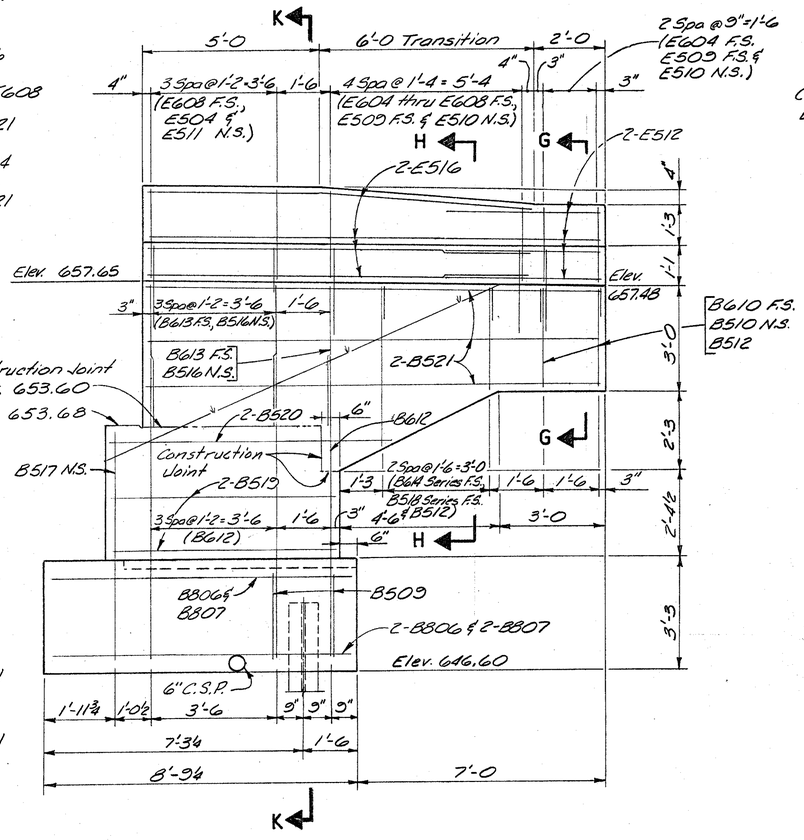
ELEVATION
WING 'C'



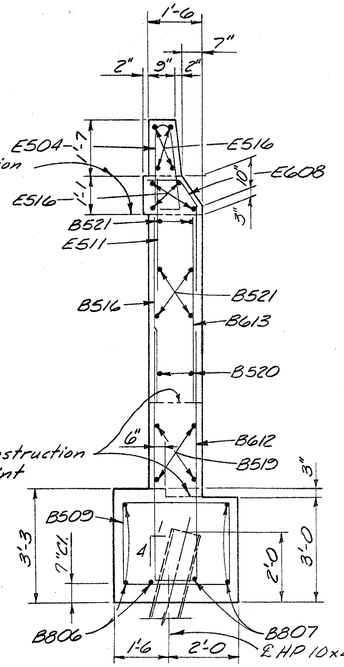
SECTION H-H



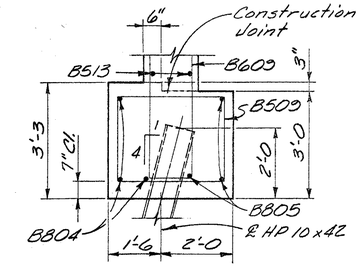
SECTION G-G



ELEVATION
WING 'D'



SECTION K-K



SECTION J-J

For Plan & Elevation of Forward Abutment, see sheet 11/21.

Sheet 12/21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

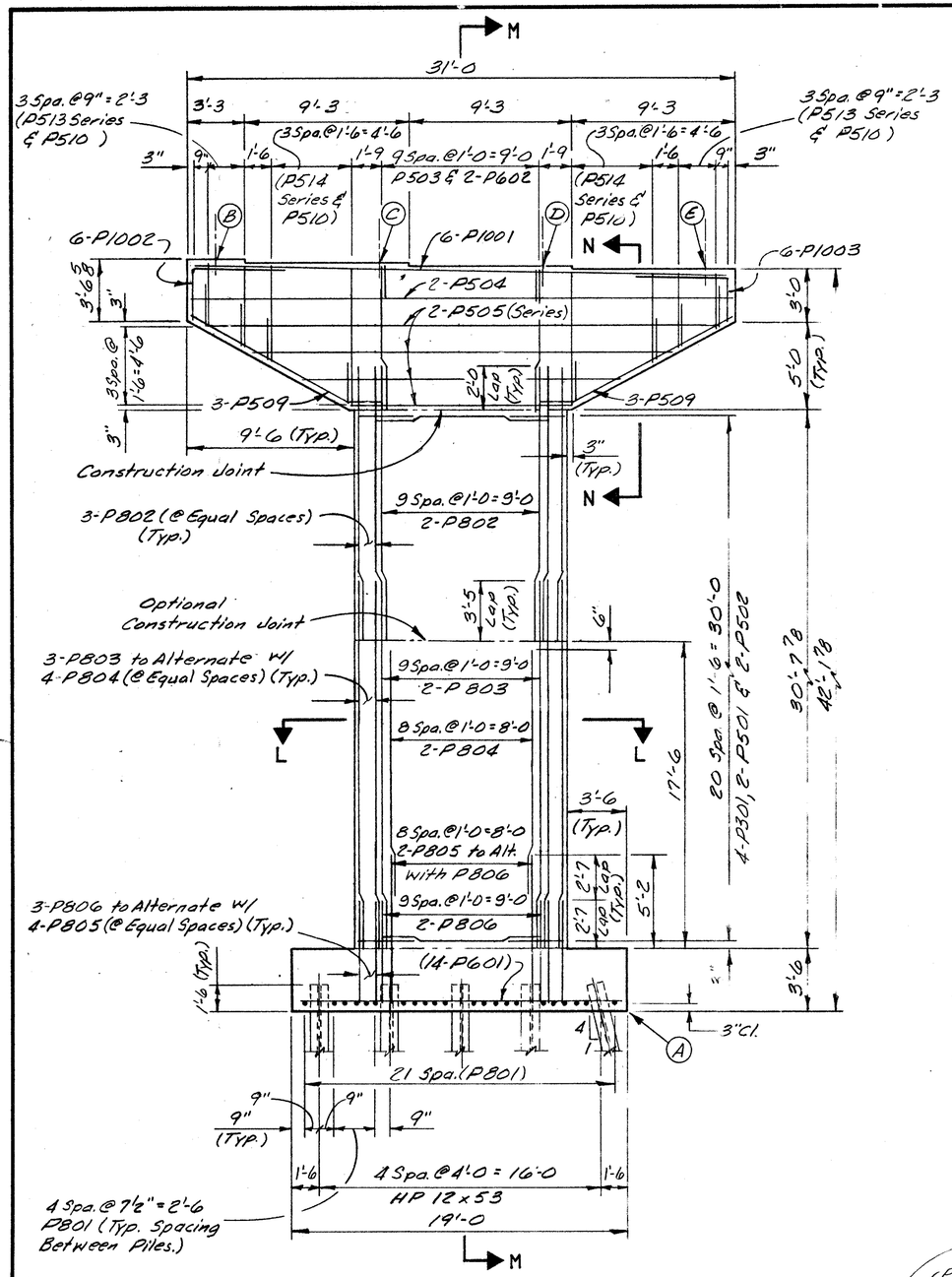
FORWARD ABUTMENT DETAILS

BRIDGE NO. BEL-7-1551F
RAMP F OVER McMAHON CREEK

BELMONT COUNTY
STA. 820+92.43
STA. 823+31.57

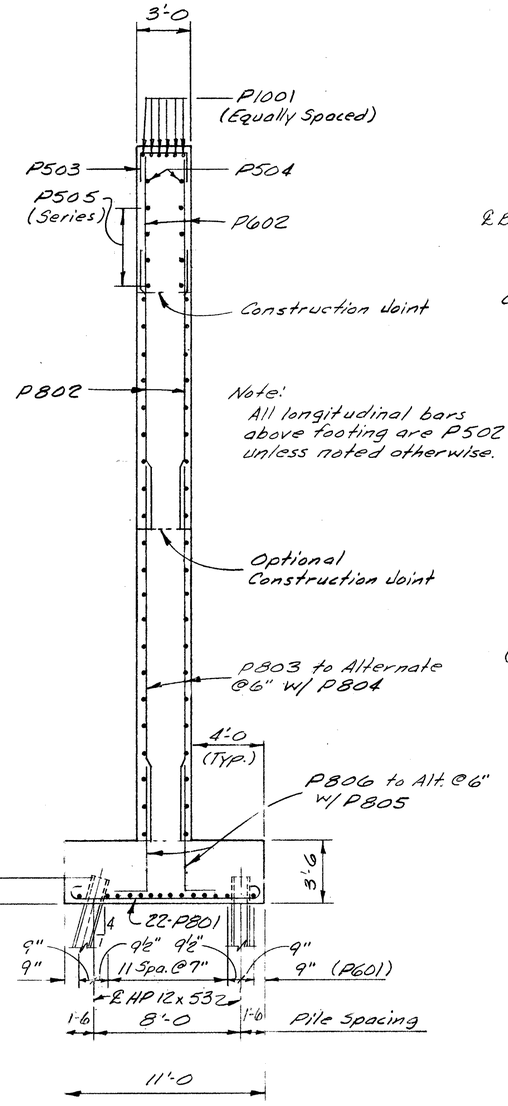
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		wda	AmG	7/85	

BEL-7-14.17 | OHIO | FHWA REGION 5 | 564/663

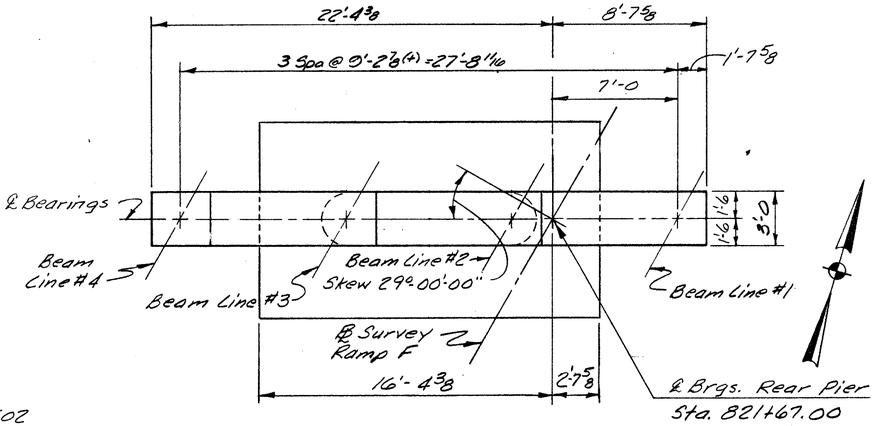


ELEVATION

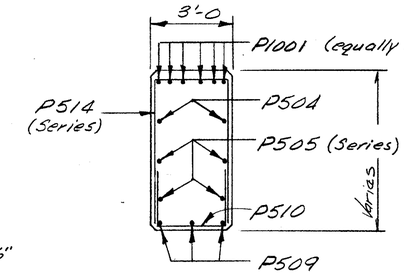
ELEVATIONS					
LOCATION	A	B	C	D	E
REAR PIER	613.50	656.21	656.03	655.84	655.66



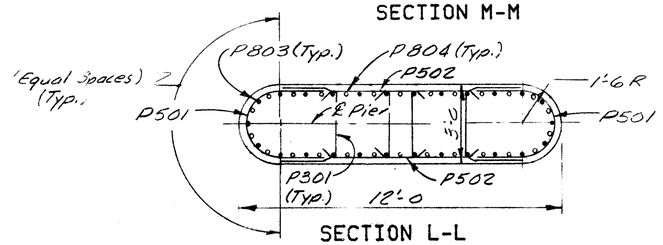
SECTION M-M



PLAN



SECTION N-N



SECTION L-L

Note: Bridge Seat Elevations have been adjusted upward 1/8" at Rear Pier to compensate for the vertical deformation of the bearings.

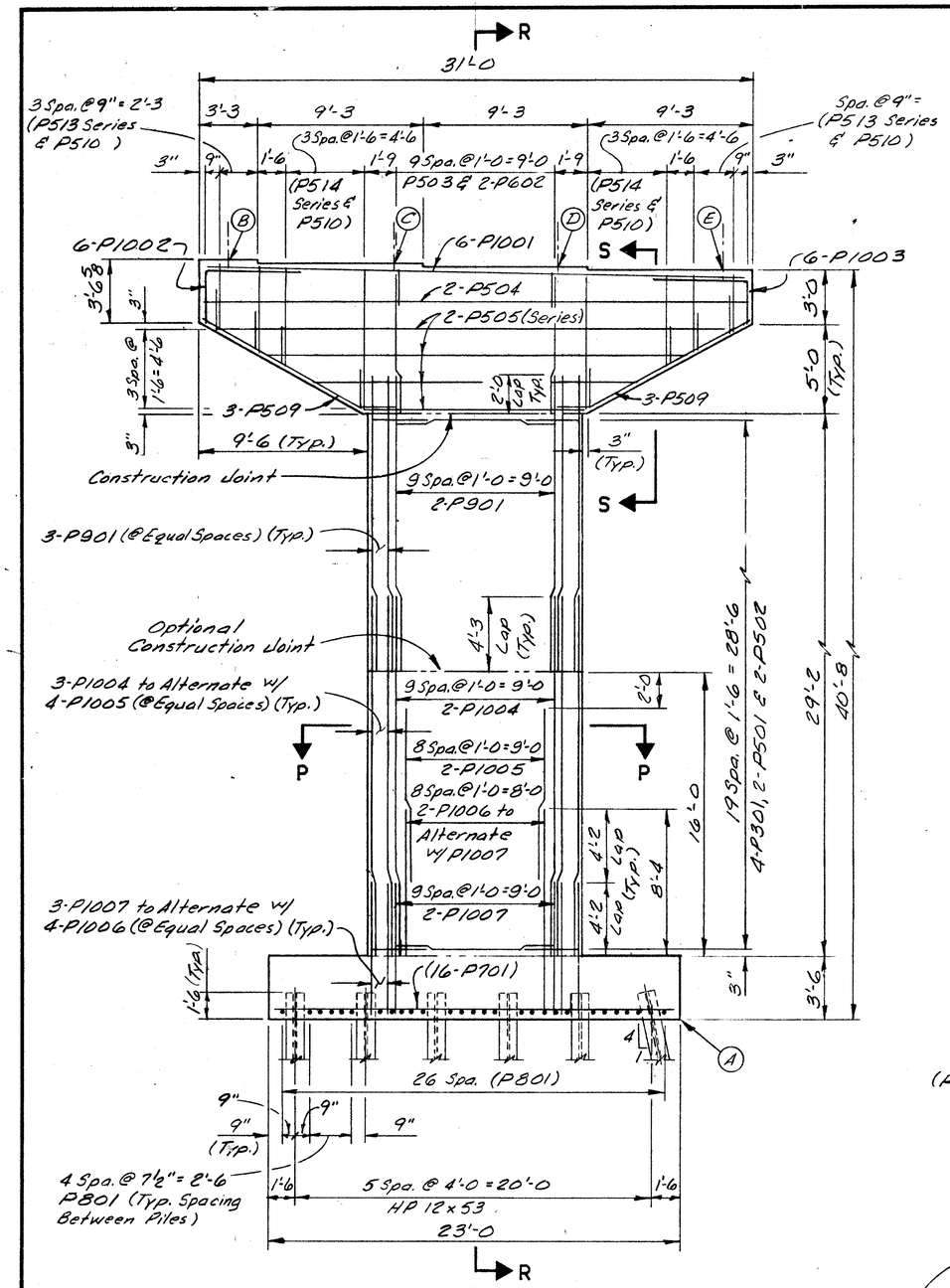
For batter arrangement of piles, see footing plan on sheet 8/21

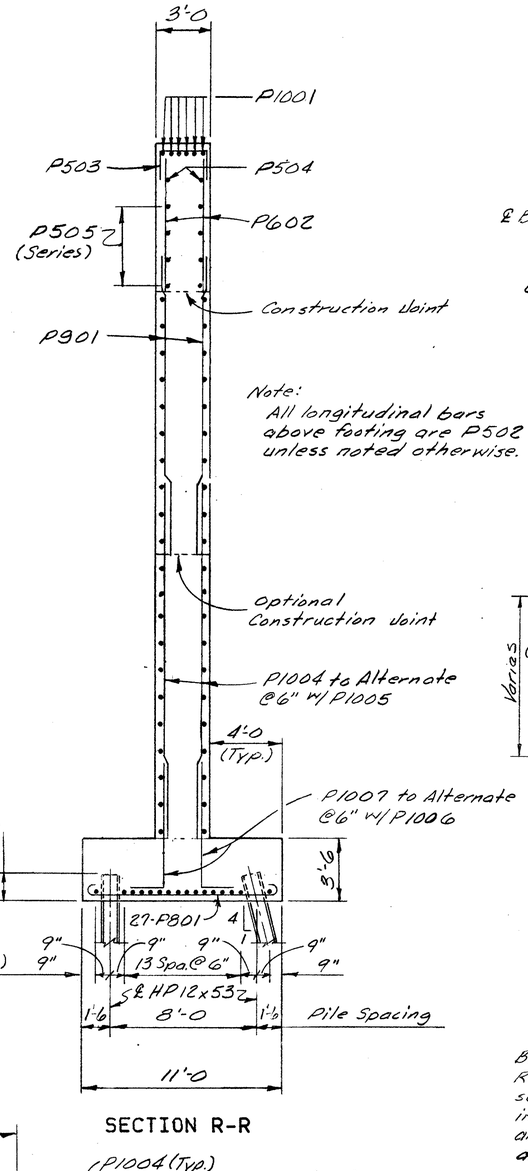
Sheet 13/21

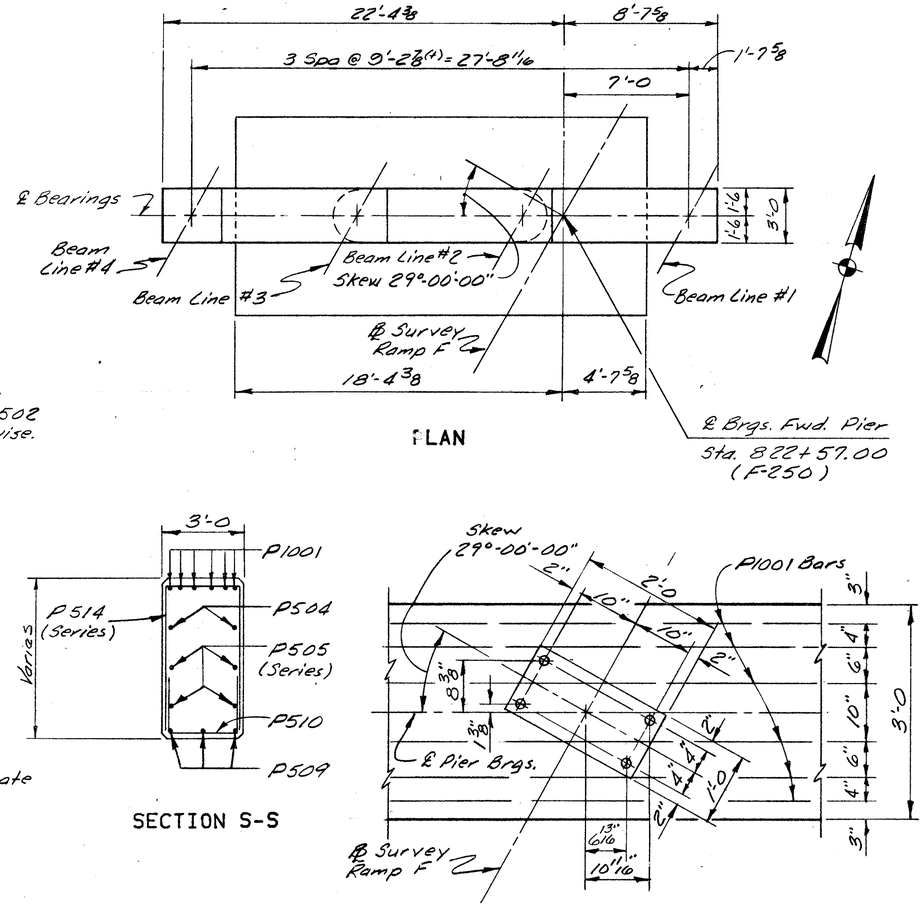
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

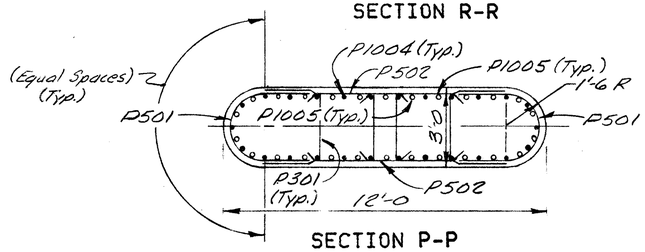
REAR PIER DETAILS
BRIDGE NO. BEL-7-1551F
RAMP F OVER McMAHON CREEK
STA. 820+92.43
STA. 823+31.57
BELMONT COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WD	WD		FDH	JMG	7/85	10/85









ELEVATIONS					
LOCATION	A	B	C	D	E
FORWARD PIER	613.50	654.72	654.54	654.35	654.17

Bridge Seat Reinforcing:
Reinforcing steel in the vicinity of the bridge seat shall be accurately placed to avoid interference with the drilling of bearing anchor holes or the pre-setting of bearing anchors.

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

For batter arrangement of piles, see footing plan on sheet 8/21

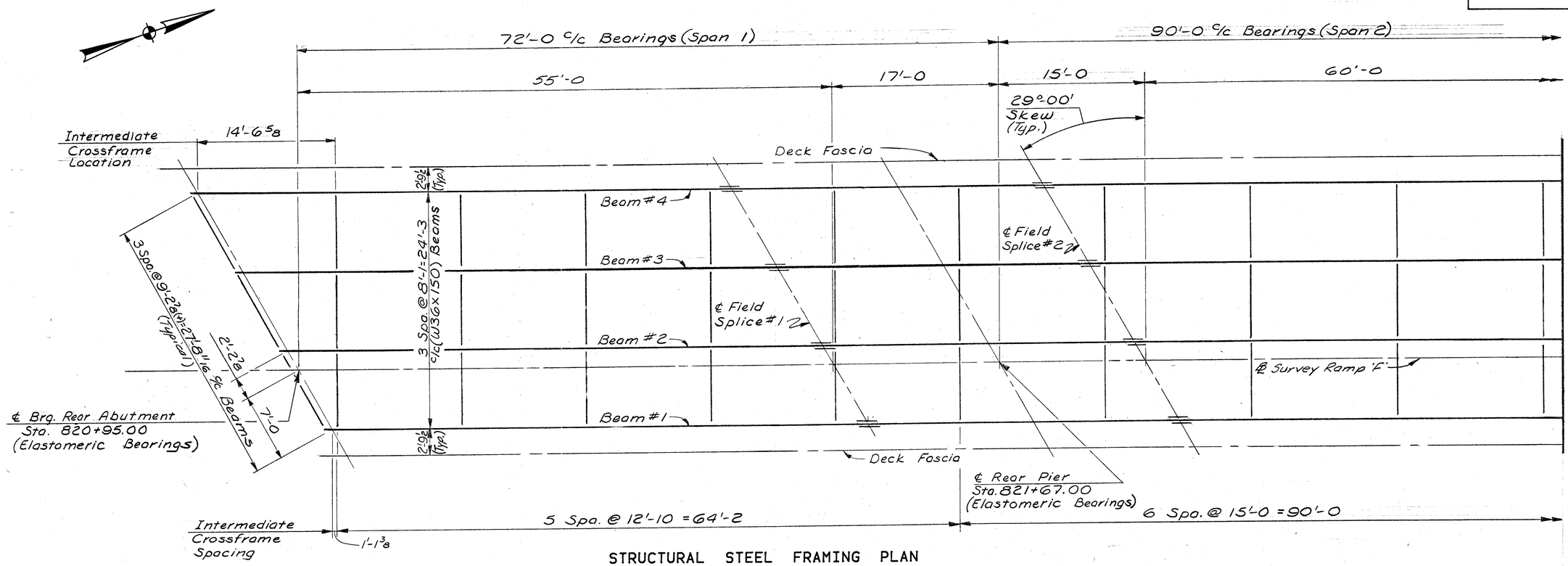
Sheet 14/21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

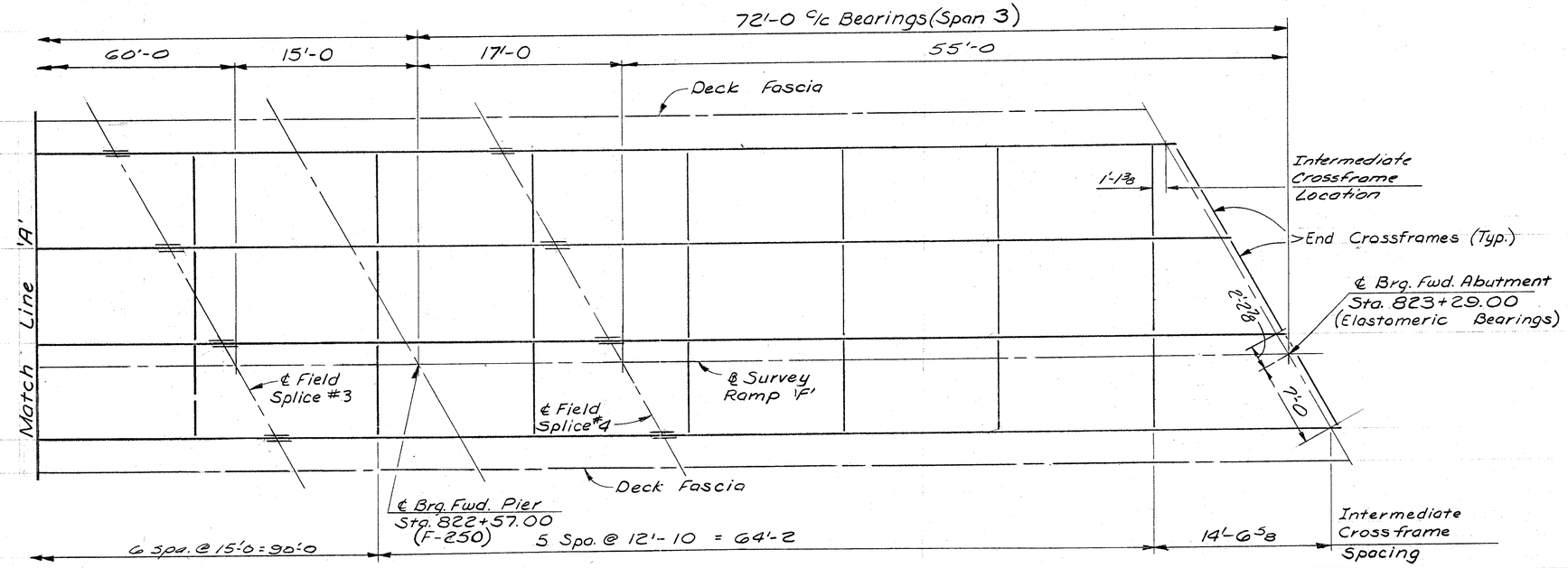
FORWARD PIER DETAILS
BRIDGE NO. BEL-7-1551F
RAMP F OVER McMAHON CREEK

BELMONT COUNTY
STA. 820+92.43
STA. 823+31.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
EHD	EHD		EDH	JMG	7/8/5	10/85



STRUCTURAL STEEL FRAMING PLAN



For End Crossframe Details, see Std Dwgs. SD-1-69 Sheet 1.

For Transverse Section, see sheet 18/21.

For steel notes, see sheet 16/21.

For Additional Steel Details, see sheet 16/21.

For Beam Ending Detail, see sheet 17/21.

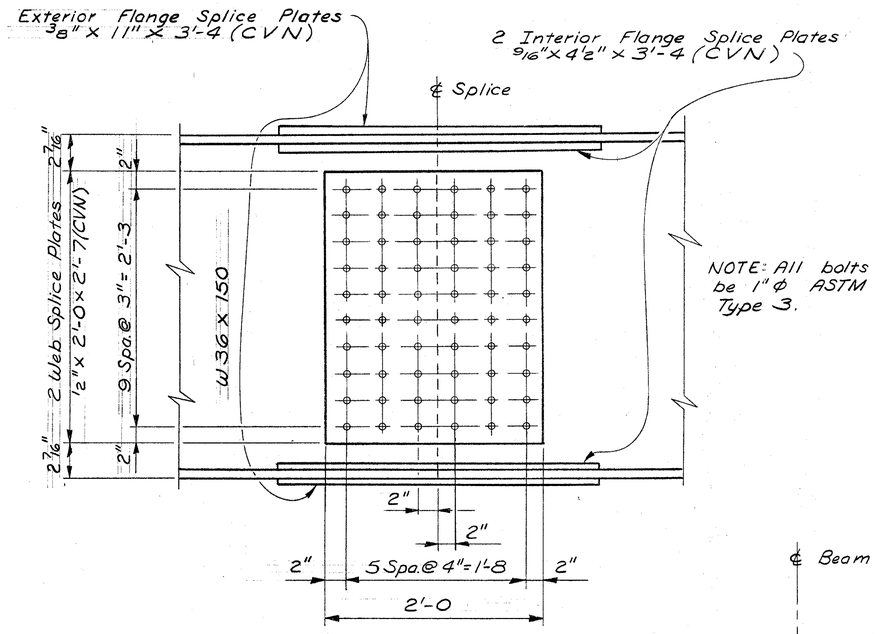
Sheet 15/21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS STEEL FRAMING PLAN

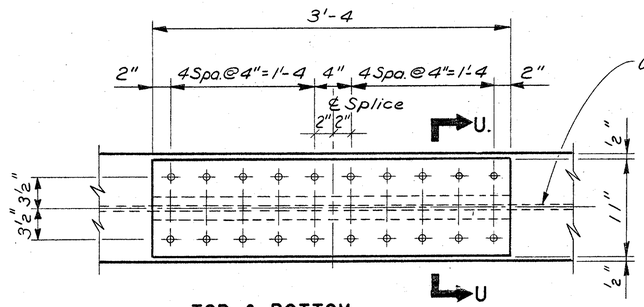
BRIDGE NO. BEL-7-1551 F
.RAMP F OVER McMAHON CREEK
STA. 820+92.43
STA. 823+31.57
BELMONT COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		AB	JMG	7/35	

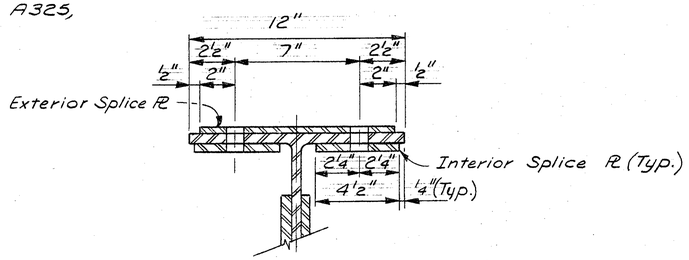


ELEVATION
FIELD SPLICE DETAILS

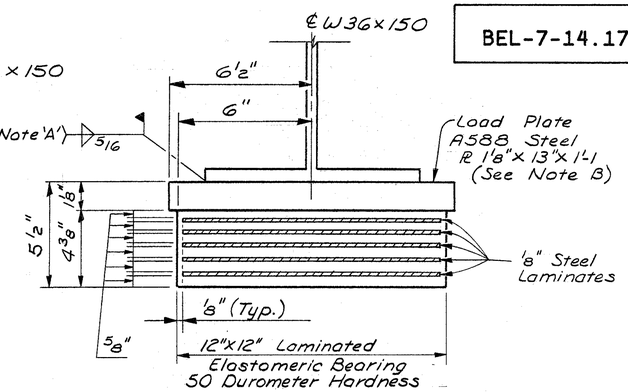
NOTE: All bolts to be 1" ϕ ASTM A325, Type 3.



TOP & BOTTOM
FLANGE PLAN



SECTION U-U
(TYPICAL TOP & BOTTOM FLANGES)



LAMINATED ELASTOMERIC BEARING DETAIL
(REAR ABUTMENT)

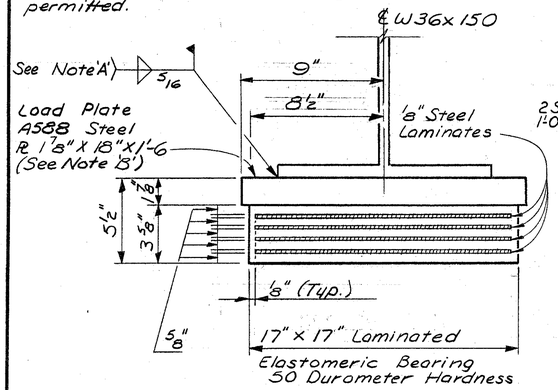
STEEL NOTES

WHERE A SHAPE OR PLATE IS DESIGNATED (CVN) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF CMS.

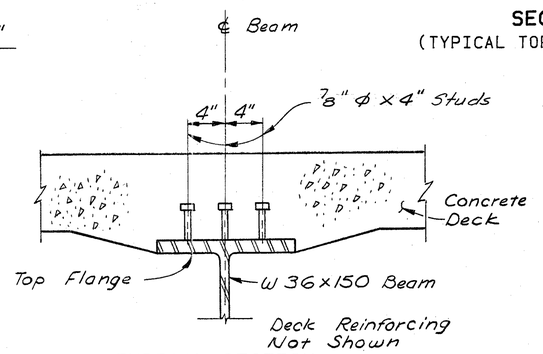
WELDED ATTACHMENTS OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE, MAY BE MADE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". ATTACHMENTS SHALL NOT BE MADE TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE NOT CLOSER THAN 1" FROM EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO.

NOTE 'B'
Load Plates shall be vulcanized bonded to the neoprene during the moulding process.

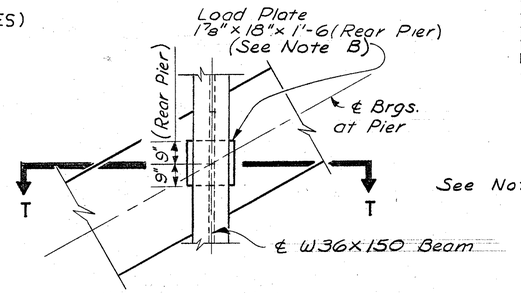
NOTE 'A'
Welding shall be controlled so that the plate temperature at the elastomer bonded surface does not exceed 300°F as determined by use of pyrometric sticks or other temperature monitoring devices. Quenching to accelerate cooling is not permitted.



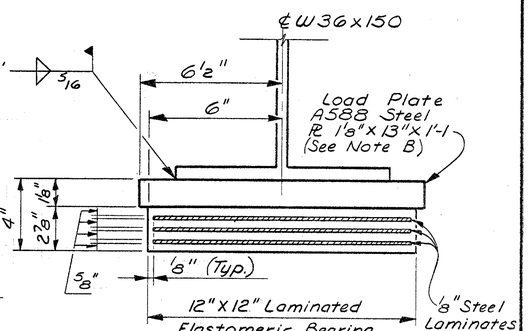
SECTION T-T
REAR PIER



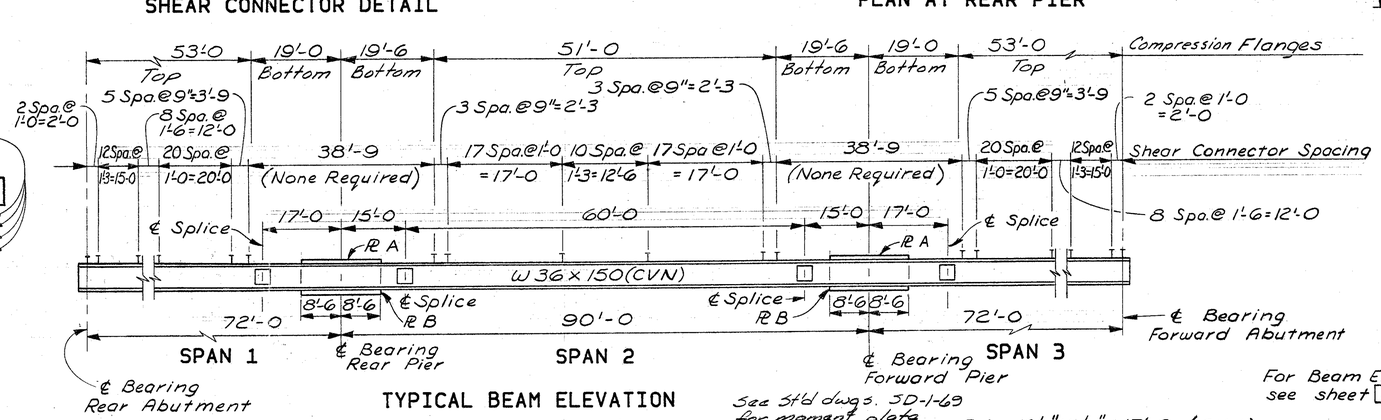
TYPICAL SECTION
SHEAR CONNECTOR DETAIL



LAMINATED ELASTOMERIC
BEARING DETAIL
PLAN AT REAR PIER



LAMINATED ELASTOMERIC BEARING DETAIL
(FORWARD ABUTMENT)



TYPICAL BEAM ELEVATION

See Std dwgs. SD-1-69 for moment plate welding details.

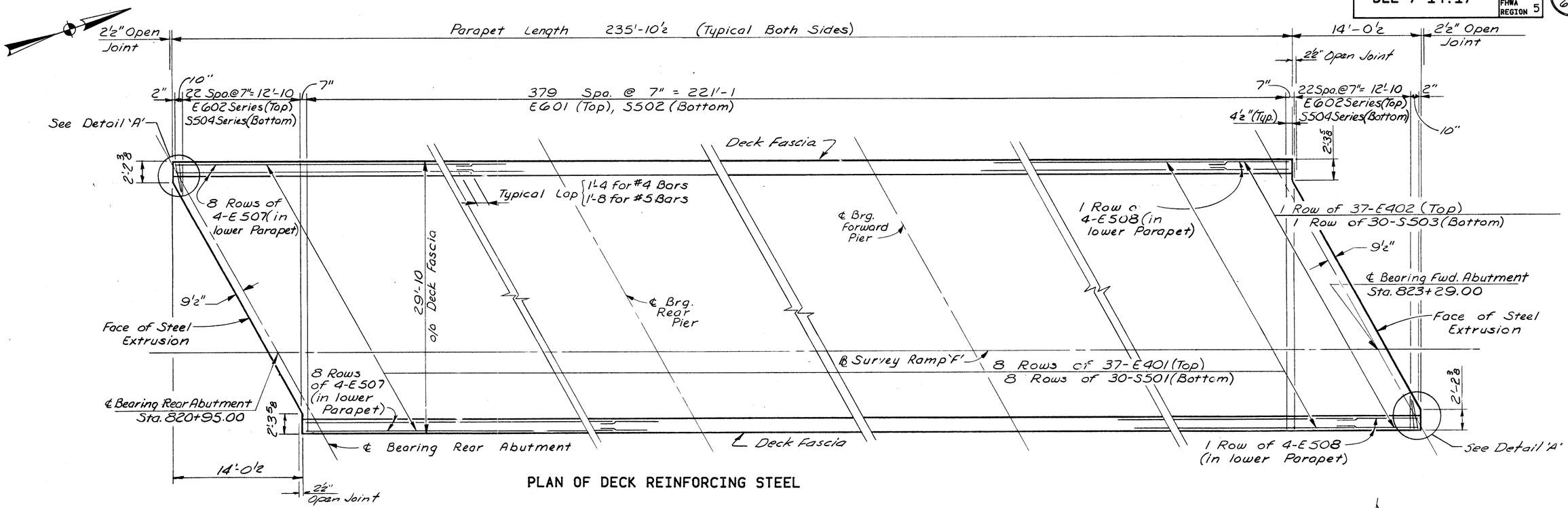
PL A = 10'2" x 2" x 17'-0 (CVN)
PL B = 13'2" x 2" x 17'-0

For Beam End Detail, see sheet 17/21.

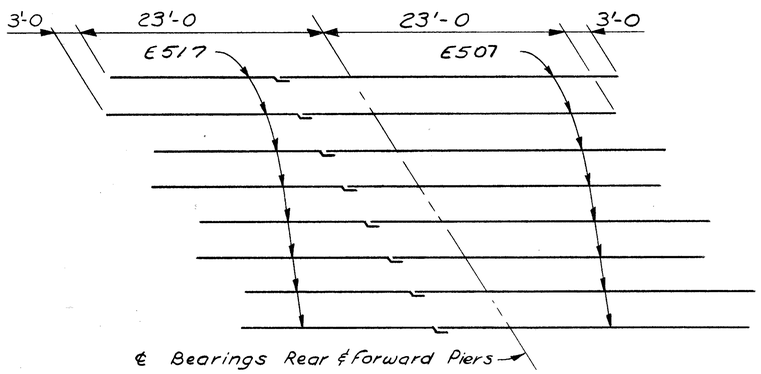
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE NO. BEL-7- 1551 F
RAMP F OVER McMAHON CREEK
BELMONT COUNTY
STA. 820+92.43
STA. 823+31.57

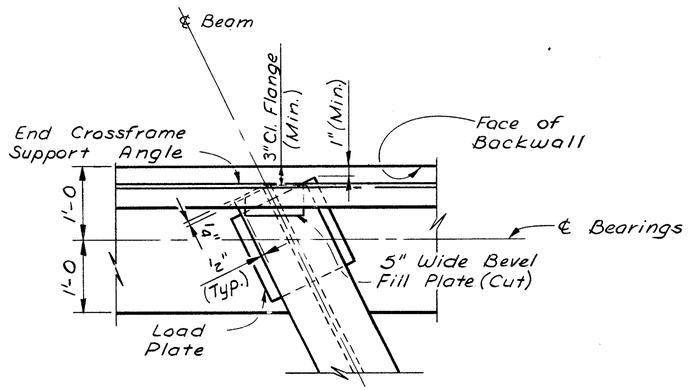
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		AEI	JMG	7/85	10/84



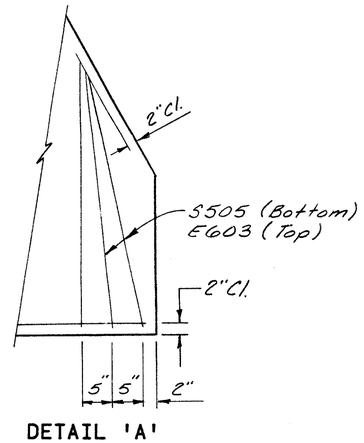
PLAN OF DECK REINFORCING STEEL



STAGGER SYSTEM OF E507 & E517 BARS OVER PIERS



BEAM ENDING DETAIL



DETAIL 'A'

For Transverse Section, see sheet 19/21

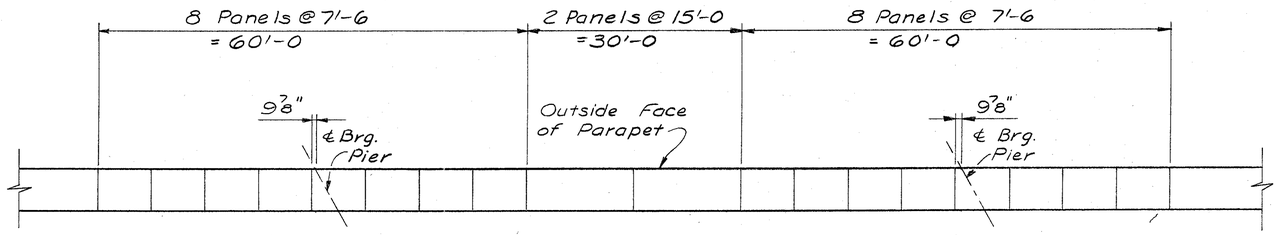
Sheet 17/21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS

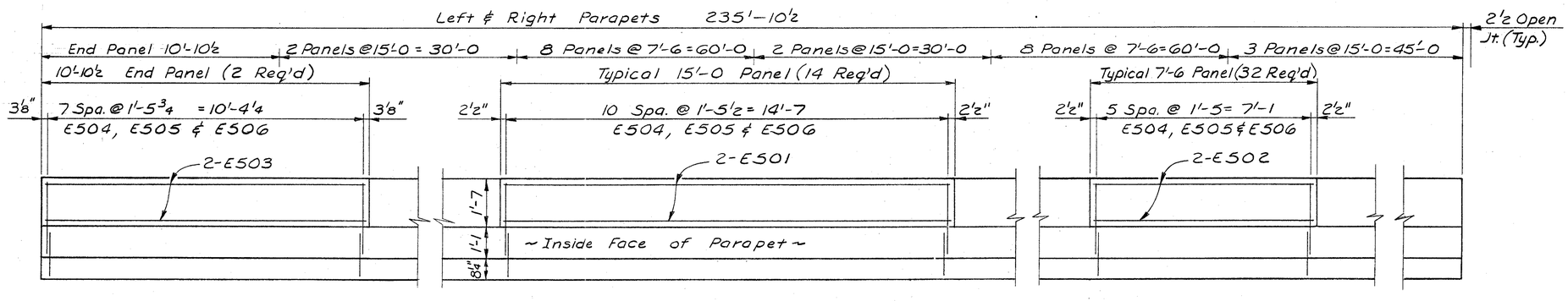
BRIDGE NO. BEL-7-1551 F
RAMP F OVER McMAHON CREEK
STA. 820+92.43
STA. 823+31.57
BELMONT COUNTY

DESIGNED	DETAILED	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		AB	WMG	7/85	



PLAN OF PARAPET PANEL DEFLECTION JOINTS AT PIERS

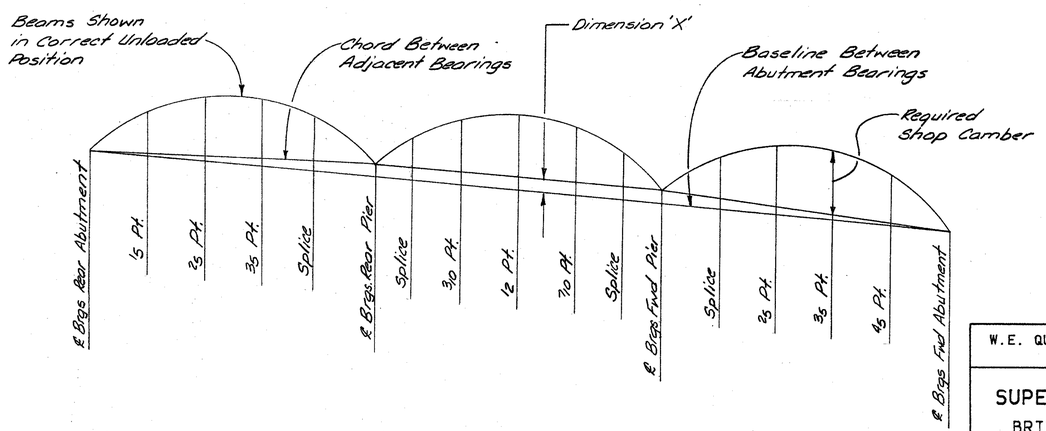
For Typical Section thru Parapet, see sheet 19/21



PARAPET ELEVATION

CAMBER AND DEFLECTION

LOCATION	BEAM NO.	SPAN 1					SPAN 2						SPAN 3					
		℄ Brg.	⅕ Pt.	⅖ Pt.	⅗ Pt.	Spl.	℄ Brg.	Spl.	3/10 Pt.	½ Pt.	7/10 Pt.	Spl.	℄ Brg.	Spl.	⅖ Pt.	⅗ Pt.	⅘ Pt.	℄ Brg.
DIMENSION 'X'	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	0	0	0	0	0	0
	4	0	0	1/16	1/16	1/16	1/8	1/16	1/16	1/16	1/16	1/16	1/16	1/16	0	0	0	0
DEFLECTION DUE TO WEIGHT OF STEEL	1 THRU 4	0	1/8	1/8	1/8	1/16	0	1/16	1/8	3/16	1/8	1/16	0	1/16	1/8	1/8	1/8	0
DEFLECTION DUE TO REMAINING DEAD LOAD	1 THRU 4	0	5/8	15/16	3/4	3/8	0	1/4	11/16	1	11/16	1/4	0	3/8	3/4	15/16	5/8	0
CONVEXITY REQUIRED FOR VERTICAL CURVE	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	1/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	1/16	1/16	1/16	1/16	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	1/8	1/8	1/16	1/16	0	0	0	0	0	0	0	0	0	0	0	0
REQUIRED SHOP CAMBER	1	0	3/4	11/16	7/8	7/16	0	5/16	13/16	1 3/16	13/16	5/16	0	7/16	7/8	1 1/16	3/4	0
	2	0	13/16	1 1/16	7/8	7/16	0	5/16	13/16	1 3/16	13/16	5/16	0	7/16	7/8	1 1/16	3/4	0
	3	0	13/16	1 1/8	15/16	1/2	0	5/16	13/16	1 3/16	13/16	5/16	0	7/16	7/8	1 1/16	3/4	0
	4	0	7/8	1 3/16	1 5/16	1/2	0	5/16	13/16	1 3/16	13/16	5/16	0	7/16	7/8	1 1/16	3/4	0



CAMBER AND DEFLECTION DIAGRAM

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

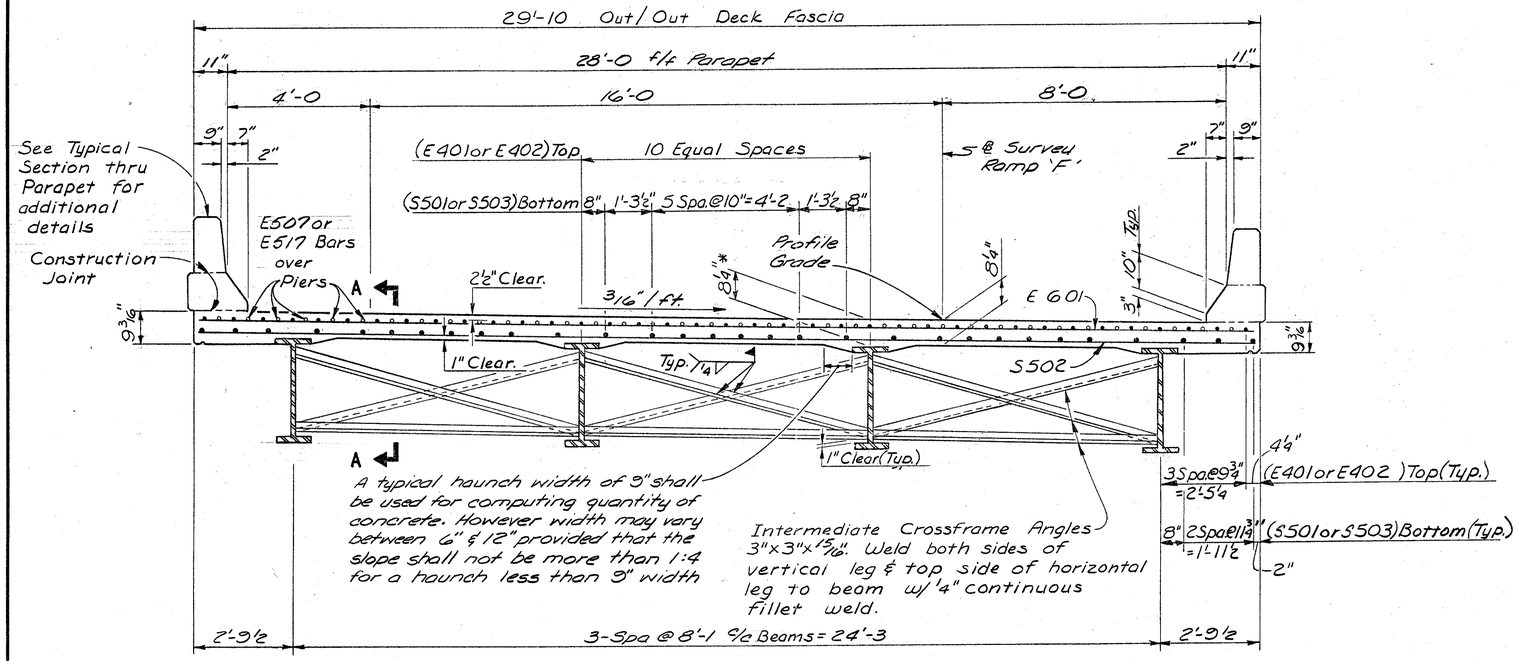
SUPERSTRUCTURE DETAILS

BRIDGE NO. BEL-7-1551 F
RAMP F OVER McMAHON CREEK

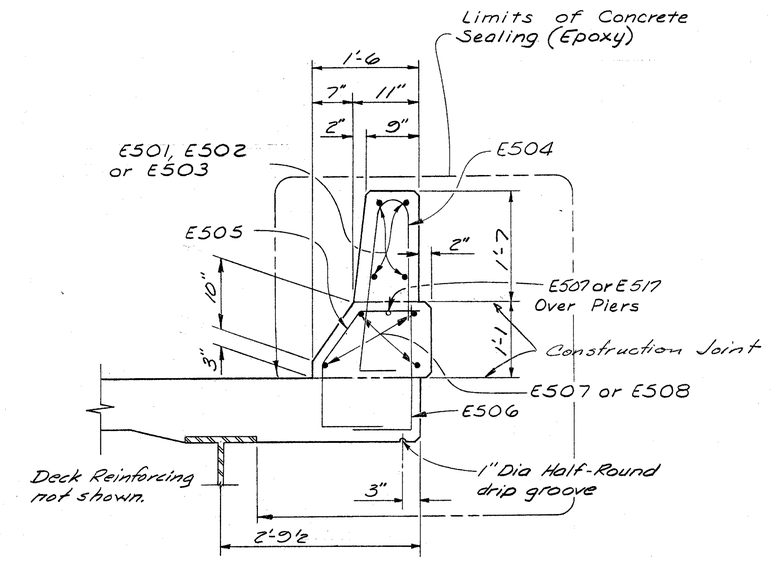
BELMONT COUNTY

STA. 820+92.43
STA. 823+31.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		AJ	JMG	7/85	

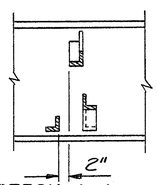


TRANSVERSE SECTION



TYPICAL SECTION
THRU PARAPET

*DECK SLAB DEPTH:
The distance shown from the top of concrete to top of steel beam is the design 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

For Structural Steel Framing Plan see sheet 15/21

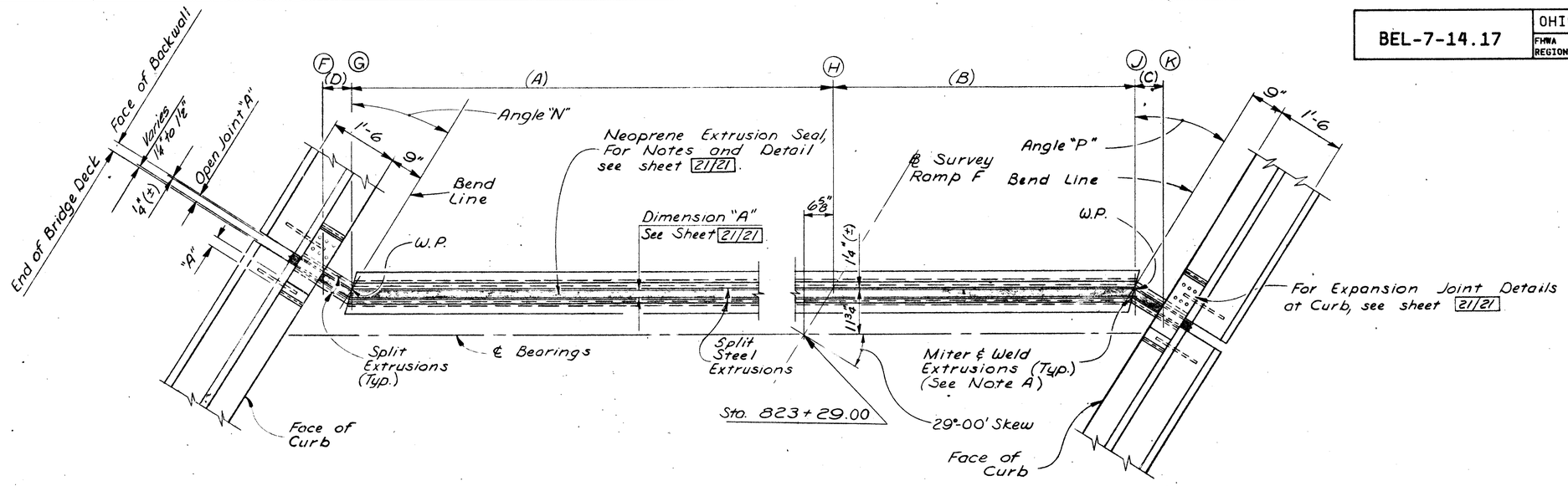
For Deck Reinforcing Plan see sheet 17/21

Sheet 19/21

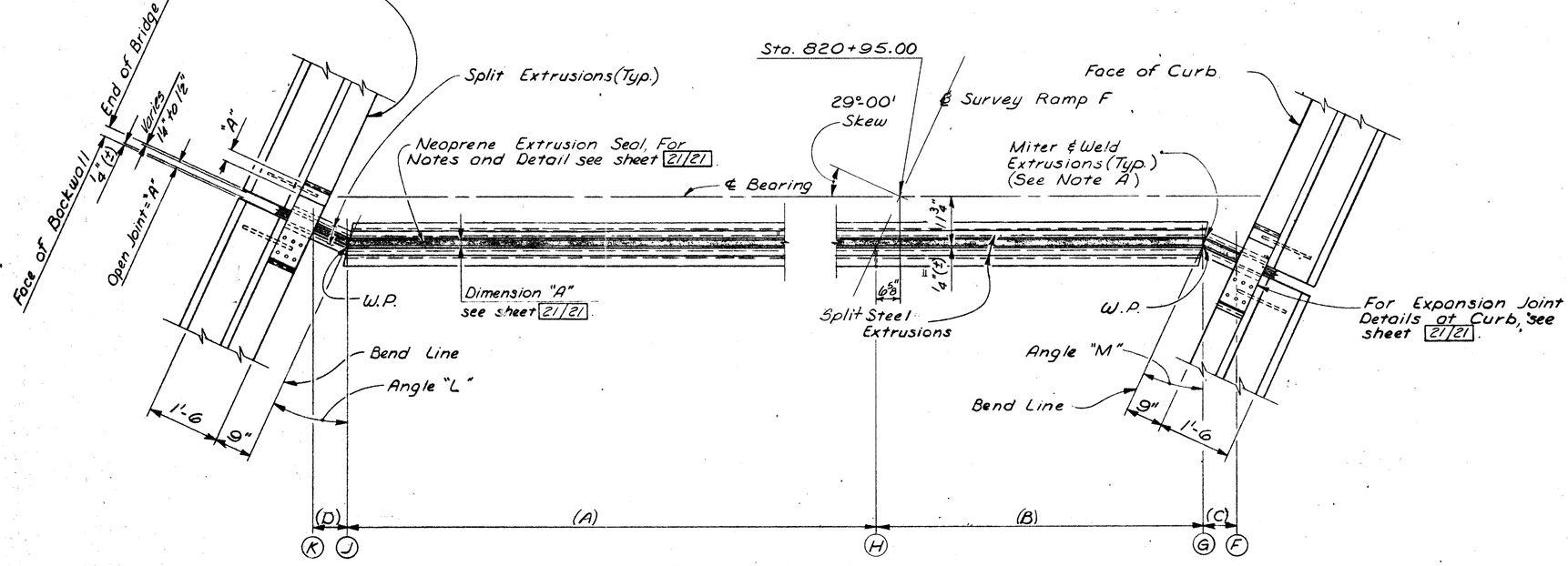
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE NO. BEL-7-1551 F
RAMP F OVER McMAHON CREEK
BELMONT COUNTY
STA. 820+92.43
STA. 823+31.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		AL	JMG	7/95	10/95



PLAN AT FORWARD ABUTMENT



PLAN AT REAR ABUTMENT

Note A: Mitered split extrusions shall be welded below the split line only.

W.P. denotes Work Point.

For detail of expansion joints and strip seal notes, see sheet 21/21.

For expansion joint anchorage details, see sheet 21/21

NOTE: Dimensions and Elevations given are at the top edge and face of the Backwall steel. See Typical Section thru Expansion Joint 21/21

POINT	DIMENSION					ELEVATION					ANGLE				
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	
FORWARD ABUTMENT	21'-4 1/8	7'-7 1/2	7 7/8"	7 7/8"		658.25	658.24	657.81	657.66	657.65			29°-00'	29°-00'	
REAR ABUTMENT	21'-4 1/8	7'-7 1/2	7 7/8"	7 7/8"		660.77	660.78	660.93	661.35	661.36	29°-00'	29°-00'			

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

Sheet 20/21

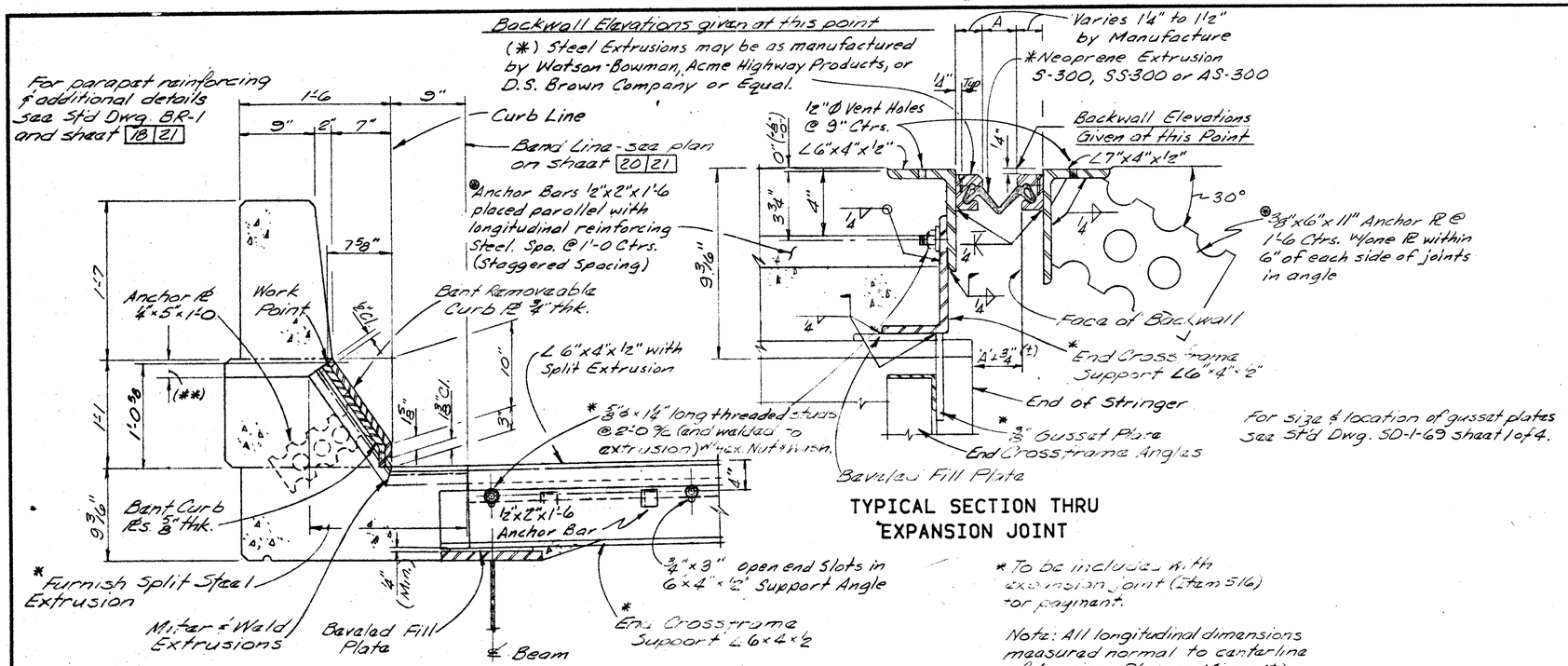
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

(NEOPRENE EXTRUSION SEAL)

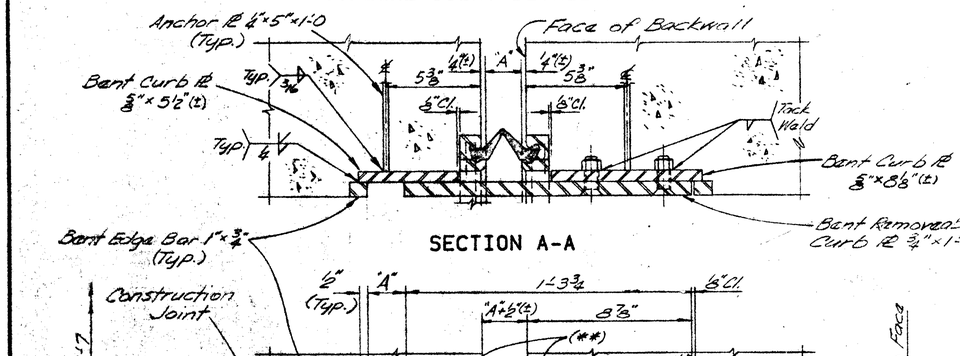
EXPANSION JOINT DETAILS

BRIDGE NO. BEL-7-1551 F
RAMP F OVER McMAHON CREEK
STA. 820+92.43
STA. 823+31.57
BELMONT COUNTY

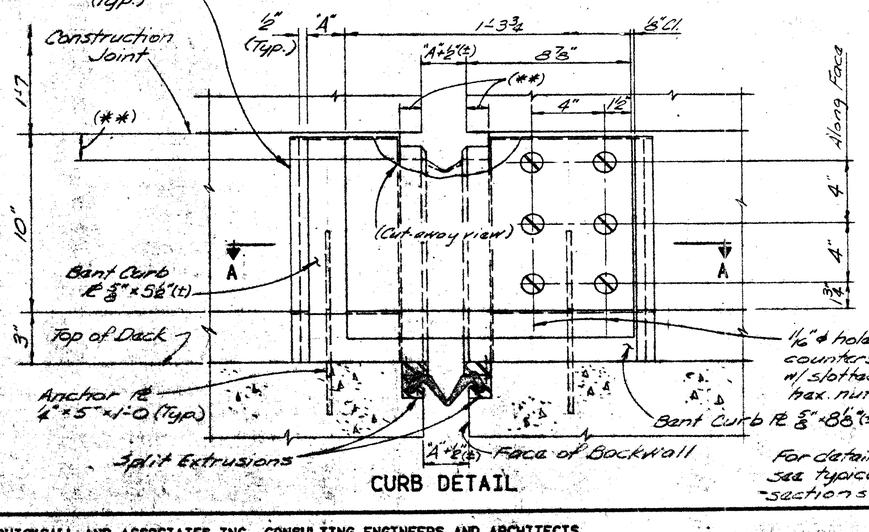
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	7/85	



TYPICAL SECTION THRU EXPANSION JOINT



SECTION A-A



CURB DETAIL

(**) Block-out to suit extrusion.

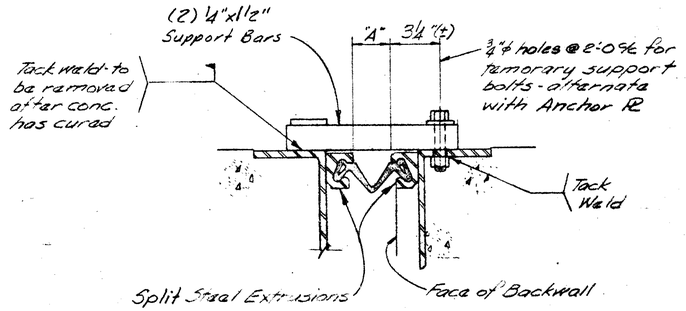
For detail and notes not shown see typical joint detail and sections - this sheet.

DIMENSION "A" FOR VARIOUS INSTALLATION TEMPERATURES		
TEMP. °F	DIMENSION "A"	
	REAR ABUTMENT	FORWARD ABUTMENT
40	2 1/4"	2'0"
50	2'0"	2'1/16"
60	2"	2"
70	1'7/8"	1'15/16"
80	1'3/4"	1'7/8"

Dimension "A" measured normal to centerline bearing

* To be included with expansion joint (Item 516) for payment.

Note: All longitudinal dimensions measured normal to centerline of bearing. Plus or Minus (±) dimensions are to allow for manufacturer's variances.



TEMPORARY SUPPORT DETAIL

For additional detail & notes see Std Dwg. EXJ-1-81 sheet 1 of 3.

STRIP SEAL EXPANSION JOINT NOTES

CONCRETE SURFACE ADJACENT TO DECK JOINTS SHALL BE FINISHED FLUSH WITH OR SLIGHTLY ABOVE THE STEEL JOINT SURFACE.

STRUCTURAL STEEL PORTIONS OF THE EXPANSION JOINT (EXCLUDING ITEMS UNDER ITEM 516 FOR PAYMENT), SHALL BE ASTM A36 STEEL, PAINTED IN ACCORDANCE WITH 514 (SYSTEM A), AND INCLUDED WITH ITEM 513 FOR PAYMENT, COUNTERSUNK BOLTS AND NUTS SHALL BE STAINLESS STEEL, INCLUDED WITH ITEM 513 FOR PAYMENT. FOR COLOR SEE PARTIAL PAINTING NOTE. STEEL EXTRUSIONS, END CROSSFRAME SUPPORT ANGLE AND GUSSET PLATES SHALL BE ASTM A36 STEEL, PAINTED IN ACCORDANCE WITH 514 (SYSTEM A). STEEL EXTRUSIONS INCLUDING END CROSSFRAME SUPPORT ANGLE, GUSSET PLATES, END WELDED STUDS AND BOLTS, AND NEOPRENE SEAL SHALL BE INCLUDED WITH ITEM 516 FOR PAYMENT.

WELDED CONNECTIONS SHALL BE PARTIAL PENETRATION FULL STRENGTH WELDS AND SHALL CONFORM TO STANDARD AWS AND AASHTO SPECIFICATIONS FOR HIGHWAY BRIDGES.

INSTALLATION OF SEAL: DURING INSTALLATION OF THE SUPPORT/ARMOR FOR THE SUPERSTRUCTURE SIDE OF THE EXPANSION JOINT SEAL, THE SEATING OF BEAMS ON BEARINGS SHALL BE CAREFULLY OBSERVED TO ASSURE THAT POSITIVE BEARING IS MAINTAINED. PROPER VERTICAL FIT OF THE SUPPORT/ARMOR ON THE BEAMS SHALL BE ACHIEVED BY ADJUSTING THE STEEL EXTRUSIONS AND THE NUTS FULLY TORQUED IN ACCORDANCE WITH ASTM A325 SPECIFICATIONS.

NEOPRENE EXTRUSIONS SHALL BE OF THE STRIP SEAL TYPE AS MANUFACTURED BY WATSON-BOWMAN ASSOC., INC., BUFFALO, NEW YORK, OR ACME HIGHWAY PRODUCTS, INC., BUFFALO, NEW YORK, OR D.S. BROWN, NORTH BALTIMORE, OHIO AND SHALL MEET THE REQUIREMENTS OF ASTM D-2628 MODIFIED (RECOVERY TEST EXCLUDED). THESE EXTRUSIONS SHALL RUN THE FULL LENGTH OF THE ROADWAY AND INTO THE CURB PORTION OF THE PARAPET.

BONDING OF THE STRIP SEAL SHALL BE WITH AN ADHESIVE AS MANUFACTURED AND FURNISHED BY THE SEAL MANUFACTURER, UNDER ITEM 516 FOR PAYMENT.

PREPARATION AND INSTALLATION PROCEDURE: PRIOR TO INSTALLING THE NEOPRENE EXTRUSION, THE STEEL AND NEOPRENE SURFACES WHICH ARE TO BE BONDED TOGETHER SHALL BE THOROUGHLY CLEANED TO INSURE THE REMOVAL OF ALL CONTAMINANTS WHICH WOULD BE DETRIMENTAL TO BONDING. APPLY ADHESIVE TO DRY SURFACES AND INSTALL STRIP SEAL AS RECOMMENDED BY THE MANUFACTURER. TEMPERATURE SHALL BE WARMER THAN 40°F DURING APPLICATION OF THE ADHESIVE.

JOINTS: AT THE ABUTMENT CONTRACTION JOINT, A BUTTED JOINT SHALL BE PROVIDED IN THOSE PORTIONS OF THE STEEL EXTRUSION THAT ARE ATTACHED TO THE ABUTMENT BACKWALL. THIS JOINT SHALL BE CLOSELY BUTTED, BUT SHALL NOT BE WELDED. TO FACILITATE HANDLING AND SHIPPING, A WELDED BUTT JOINT MAY BE FURNISHED NEAR THE CENTERLINE OF DECK ON THOSE PORTIONS OF THE STEEL EXTRUSION THAT ARE ATTACHED TO THE SUPERSTRUCTURE.

SHOP DRAWINGS FOR THE STRIP SEAL SHALL BE PREPARED BY THE SEAL FABRICATOR. THESE DRAWINGS, AFTER BEING COORDINATED WITH THE DRAWINGS OF THE STRUCTURAL STEEL FABRICATOR, SHALL BE SUBMITTED TO THE DIRECTOR FOR APPROVAL BEFORE THE START OF FABRICATION.

METHOD OF MEASUREMENT: THE LENGTH OF COMPLETED AND ACCEPTED STRIP SEAL TO BE PAID FOR SHALL BE BASED ON THE HORIZONTAL LENGTH OF THE SEALS MEASURED ON THE CENTERLINE OF JOINTS.

BASIS OF PAYMENT: PAYMENT WILL BE MADE UNDER:

ITEM	UNIT	DESCRIPTION
516	LIN. FT.	STRUCTURAL EXPANSION JOINTS INCLUDING ELASTOMERIC STRIP SEALS.

* For Anchor Bar details, see Std. Dwg. SD-1-69

For additional Beam and end crossframe details see Std Dwg. SD-1-69 and sheet 17 21

For plan of expansion joints at rear and forward abutments see sheet 20 21

Curb plates, edge bars, anchor plates and stainless steel bolts and nuts to be furnished under Item 513 for payment.

Sheet 21 21

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

(NEOPRENE EXTRUSION SEAL)
EXPANSION JOINT DETAILS
BRIDGE NO. BEL-7-1551 F
RAMP F OVER McMAHON CREEK
STA. 820+92.43
BELMONT COUNTY STA. 823+31.57

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JMS	JMS		wda	JMG	7/85	10/85

BEL-7-14.17 | OHIO | FHWA REGION 5 | 573/663

CITY OF BELLAIRE

NOTE: ALL PILING TO BE 12" CAST-IN-PLACE REINFORCED CONCRETE PILES.
ESTIMATED AVERAGE PAY LENGTH:
REAR ABUTMENT: 65 FEET
FORWARD ABUTMENT: 60 FEET
REAR PIER: 50 FEET
FORWARD PIER: 45 FEET

BM #11 ELEV. 650.44
Sta. 826+63± - Ramp 'B' 130'± Lt.
Top of the NW bolt on base, for Pennzoil sign, S.E. corner of Belmont and 26th St.

CURVE DATA
26TH STREET

P.I. = 20+04.86
Δ = 20°-45'-00"
D = 14°-00'-00"
T = 74.93'
L = 148.21'
E = 6.80'
R = 409.26'

DESIGN DESIGNATION

1990 ADT	11,668
2010 ADT	16,293
2010 ADTT	652

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS.

PROPOSED STRUCTURE

TYPE: CONTINUOUS COMPOSITE STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE UNITS.
SPANS: 36.5'-73'-36.5' MEASURED ALONG ℄ SURVEY
ROADWAY: 78'-0 F/F PARAPETS WITH A 2'-8 MEDIAN BARRIER
SKEW: NONE
SURFACE COURSE: MONOLITHIC CONCRETE
LIVE LOAD: HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING
APPROACH SLABS: AS-1-81, 25' LONG
ALIGNMENT: TANGENT
SUPERELEVATION: NONE

SHEET 1 /15

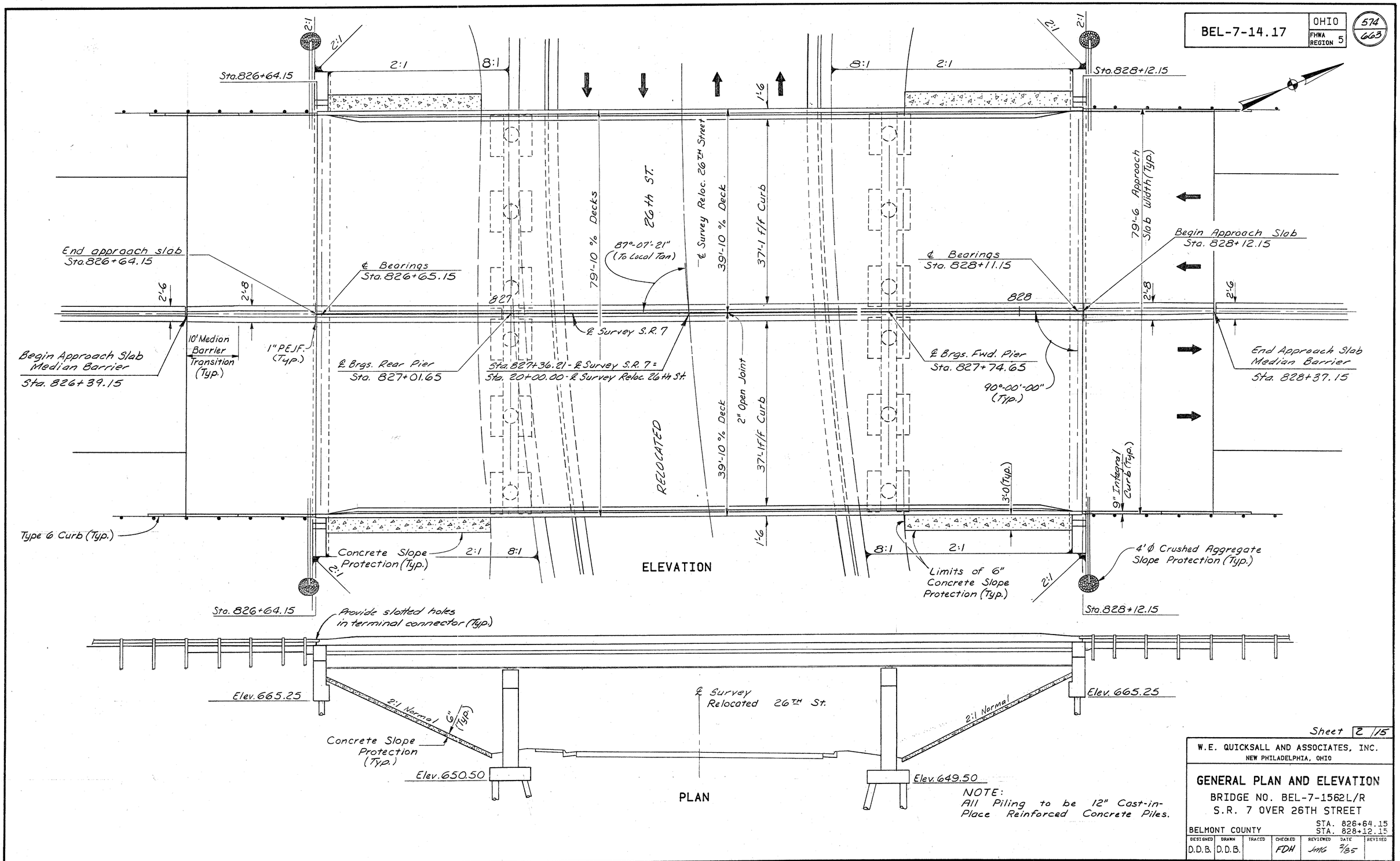
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SITE PLAN
BRIDGE NO. BEL-7-1562L/R
S.R. 7 OVER 26TH STREET
BELMONT COUNTY
STA. 826.64.15
STA. 828+12.15

EXIST. TOPO		PROPOSED WORK			
SURVEY	DRAWN	DESIGN	DRAWN	CHECKED	REVIEWED
MARTINEZ	FDH	FDH	FDH	wda	JMB 7/14

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS

BEL-7-14.17 | OHIO | FHWA REGION 5 | 574/663



NOTE:
All Piling to be 12" Cast-in-Place Reinforced Concrete Piles.

Sheet 2/15

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

GENERAL PLAN AND ELEVATION

BRIDGE NO. BEL-7-1562L/R
S.R. 7 OVER 26TH STREET

BELMONT COUNTY — STA. 826+64.15, STA. 828+12.15

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	2/85	

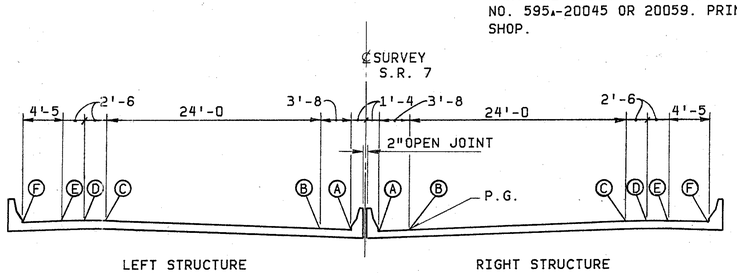
ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	ABUTS	PIERS	SUPER	GEN'L.
503	LUMP		COFFERDAMS, CRIBS AND SHEETING				LUMP
503	459	CU.YD.	UNCLASSIFIED EXCAVATION	200	259		
505	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				LUMP
507	4095	LIN.FT.	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, AS PER PLAN	1625	2470		
509	34655	LB.	REINFORCING STEEL, GRADE 60	11332	23323		
509	105,413	LB.	EPOXY COATED REINFORCING STEEL, GRADE 60			105413	
511	433	CU.YD.	CLASS S CONCRETE, SUPERSTRUCTURE			433	
511	49	CU.YD.	CLASS C CONCRETE, ABUTMENT ABOVE FOOTINGS	49			
511	118	CU.YD.	CLASS C CONCRETE, PIER - ABOVE FOOTINGS		118		
511	99	CU.YD.	CLASS C CONCRETE, FOOTINGS	63	36		
513	221,300	LB.	STRUCTURAL STEEL, ASTM A588 (AISC CATEGORY I)			221300	
513	1710	EACH	WELDED STUD SHEAR CONNECTOR			1710	
514	LUMP		PARTIAL PAINTING OF A588 STEEL, SYSTEM A, AS PER PLAN			LUMP	
516	20	EACH	LAMINATED ELASTOMERIC BEARING (1¾"X15"X1'-3") ELASTOMERIC PAD WITH 1⅝"X16"X1¼" STEEL LOAD PLATE)		20		
516	164	SQ.FT.	½" PREFORMED EXPANSION JOINT FILLER	164			
516	190	SQ.FT.	1" PREFORMED EXPANSION JOINT FILLER	170		20	
516	204	LIN.FT.	6" PVC WATERSTOP, AS PER PLAN	204			
518	39	CU.YD.	POROUS BACKFILL	39			
518	186	LIN.FT.	6" PERFORATED HELICAL CORRUGATED STEEL PIPE, 707.01	186			
518	33	LIN.FT.	6" NON-PERFORATED HELICAL CORRUGATED STEEL PIPE, INCLUDING SPECIALS, 707.01	33			
523	3	HOUR	DYNAMIC LOAD TEST		3		
601	6	SQ.YD.	CRUSHED AGGREGATE SLOPE PROTECTION	6			
601	675	SQ.YD.	CONCRETE SLOPE PROTECTION	675			
SPECIAL	829	SQ.YD.	SEALING OF CONCRETE SURFACES(EPOXY), SEE PROPOSAL NOTE	78	141	610	

TOP OF SLAB (SCREED ELEVATIONS)

STATION	POINTS					
	A	B	C	D	E	F
826+65.15	675.07	675.22	675.59	675.60	675.53	675.34
826+83.40	675.11	675.26	675.63	675.64	675.57	675.39
827+01.65	675.15	675.30	675.68	675.68	675.61	675.43
827+08.65	675.18	675.33	675.71	675.71	675.64	675.46
827+19.90	675.23	675.38	675.76	675.76	675.69	675.51
827+38.15	675.28	675.43	675.80	675.81	675.74	675.55
827+56.40	675.25	675.40	675.78	675.78	675.71	675.53
827+67.65	675.21	675.36	675.74	675.74	675.67	675.49
827+74.65	675.18	675.34	675.71	675.72	675.65	675.46
827+92.90	675.16	675.32	675.69	675.69	675.62	675.44
828+11.15	675.14	675.29	675.67	675.67	675.60	675.42

NOTE: ELEVATIONS AT THE TOP OF THE CONCRETE SLAB ARE THOSE REQUIRED BEFORE DECK CONCRETE IS PLACED TO ALLOW FOR DEAD LOAD DEFLECTION CAUSED BY THE WEIGHT OF THE CONCRETE.



DESIGN NOTES

DESIGN SPECIFICATIONS
THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1983 , INCLUDING THE 1984 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA
DESIGN LOADING: HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING
CONCRETE CLASS 'S': COMPRESSIVE STRENGTH 4500 P.S.I. (SUPERSTRUCTURE)
CONCRETE CLASS 'C': COMPRESSIVE STRENGTH 4000 P.S.I. (SUBSTRUCTURE)
REINFORCING STEEL: ASTM A615, A616, A617-GRADE 60 MINIMUM YIELD STRENGTH 60,000 P.S.I.
SPIRAL REINFORCING: MAY BE PLAIN BARS, ASTM A82 OR A615
STRUCTURAL STEEL: ASTM A588-YIELD STRENGTH 50,000 P.S.I. ASTM A36-YIELD STRENGTH 36,000 P.S.I.

DECK PROTECTION METHOD
EPOXY COATED REINFORCING STEEL, TOP AND BOTTOM MAT. MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK

REFERENCE SHALL BE MADE TO:

STANDARD DRAWINGS	SUPPLEMENTAL SPECIFICATIONS
AS-1-81 DATED 11-27-81	836 DATED 11-12-85
BR-1 DATED 5-29-79	
SD-1-69 DATED 6-12-69	
ICD-1-82 REVISED 8-1-84	

REINFORCING STEEL SPLICES: ALL REINFORCING STEEL SPLICES SHALL BE IN ACCORDANCE WITH ITEM 509.08. UNLESS SHOWN OTHERWISE, ALL SPLICES SHALL BE MADE BY OVERLAPPING THE ENDS OF THE BARS NOT LESS THAN SHOWN IN THE FOLLOWING TABLE:

BAR SIZE	LAP LENGTH
#4	1'-4"
#5	1'-8"
#6	2'-0"
#7	2'-6"
#8	3'-3"
#9	4'-2"

PARTIAL PAINTING OF A588 STEEL
A588 STEEL IS TO BE LEFT UNPAINTED, EXCEPT AS NOTED BELOW. SEE CMS 513.221 FOR CLEANING REQUIREMENTS.

A 10'-0" LENGTH OF THE ENDS OF BEAMS ADJACENT TO ABUTMENTS AND ALL CROSSFRAMES AND OTHER A588 STEEL WITHIN THESE LIMITS SHALL BE PAINTED. PAINT SHALL BE 514, SYSTEM A. THE PRIME COAT SHALL BE 708.17. THE TOP COAT SHALL BE 708.18 EXCEPT THAT THE COLOR SHALL CLOSELY APPROACH FEDERAL STANDARD NO. 595a-20045 OR 20059. PRIME COAT SHALL BE APPLIED IN THE SHOP.

12 INCH PRECAST PRESTRESSED CONCRETE PILES MAY BE SUBSTITUTED FOR THE 12 INCH CAST-IN-PLACE REINFORCED CONCRETE PILES SHOWN ON THESE PLANS. DRAWINGS SHOWING DETAILS OF AND SPECIFICATIONS FOR PRESTRESSED CONCRETE PILES ARE AVAILABLE FROM THE DIRECTOR (BUREAU OF BRIDGES). IF THE PRESTRESSED PILE ALTERNATE IS CHOSEN, THE METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE THE SAME AS FOR CAST-IN-PLACE REINFORCED CONCRETE PILES PER 507.

PILE DESIGN LOADS: THE DESIGN LOAD FOR THE ABUTMENT PILES IS 34 TONS PER PILE AND THE DESIGN LOAD FOR THE PIER PILES IS 40 TONS PER PILE.

SEALING OF CONCRETE SURFACES:
AN EPOXY SEALER SHALL BE APPLIED TO THE EXPOSED CONCRETE SURFACE AREAS, (AS PER PROPOSAL NOTE), AND AS FOLLOWS: COMPLETE AREA OF DECK PARAPETS AS SHOWN IN TRANSVERSE SECTION ON SHEET 12/15 , COMPLETE AREA OF THE ABUTMENT INTEGRAL BACKWALL AND BREASTWALL, BETWEEN VERTICAL EXPANSION JOINTS, AND ALL SURFACES OF PIERS ABOVE GROUND. (SEE PROPOSAL NOTE)

GUARDRAIL EXPANSION JOINT ADJACENT TO BRIDGE
HOLES FOR SPLICE BOLTS ATTACHING GUARDRAIL TO THE TERMINAL CONNECTOR AT ENDS OF PARAPETS SHALL BE SLOTTED 29/32" X 3" AND ALL BOLTS SHALL BE TIGHTENED AS SPECIFIED FOR EXPANSION JOINTS AS PER CMS 606.05 TO ALLOW FOR BRIDGE MOVEMENT.

PILE DRIVING CONSTRAINTS:
PRIOR TO DRIVING PILES AT THE PROPOSED STRUCTURE, THE SPILL THROUGH SLOPE EMBANKMENT AT THE ABUTMENTS SHALL BE CONSTRUCTED TO THE LEVEL OF THE SUBGRADE FOR A MINIMUM DISTANCE OF 200 FEET BACK OF BOTH ABUTMENTS. AFTER THE EMBANKMENT HAS BEEN COMPLETED WITHIN THE ABOVE REQUIRED LIMITS, A 105 DAY WAITING PERIOD IS REQUIRED PRIOR TO EXCAVATING AND DRIVING PILES AT THE ABUTMENTS AND PIERS. THE DIRECTOR MAY SHORTEN THE WAITING PERIOD IF THE CONTRACTOR'S FIELD MEASUREMENTS SHOW THAT 90 PERCENT CONSOLIDATION HAS BEEN ATTAINED.

PILE HAMMER: THE PILE HAMMER IS USED TO INSTALL THE CAST-IN-PLACE REINFORCED CONCRETE PILES SHALL HAVE A STATE'S ENERGY RATING OF NOT LESS THAN 13,000 FOOT POUNDS. THIS REQUIREMENT DOES NOT RELIEVE THE CONTRACTOR FROM 108.05 WHICH STATES THAT THE CONTRACTOR IS TO PROVIDE SUFFICIENT EQUIPMENT FOR PROSECUTING THE REQUIRED WORK. REFER TO "ODOT'S MANUAL OF PROCEDURES FOR STRUCTURES" TO OBTAIN THE STATE'S ENERGY RATING.

PILE WALL THICKNESS:
THE CAST-IN-PLACE REINFORCED CONCRETE PILES SHALL HAVE A WALL THICKNESS THAT IS NOT LESS THAN 0.200 INCHES. THE ACTUAL PILE GAGE CHOSEN IS THE RESPONSIBILITY OF THE CONTRACTOR.

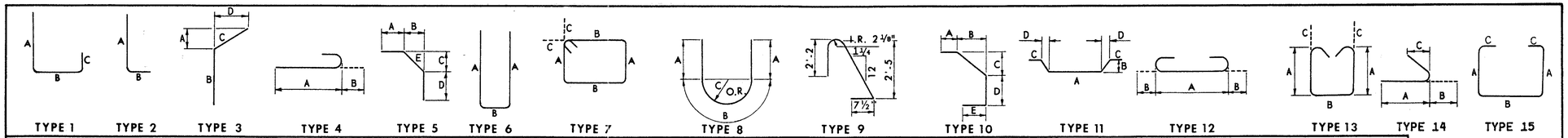
ABUTMENT PILING
ABUTMENT PILING BENDING STRESS MAY APPROACH, REACH OR EXCEED YIELD STRESS.

Sheet 3/15

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

DESIGN NOTES, ESTIMATED QUANTITIES & SLAB ELEVATIONS
BRIDGE NO. BEL-7-1562L/R
S.R. 7 OVER 26TH STREET
BELMONT COUNTY
STA. 826+64.15
STA. 828+12.15

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMG	WEQ	2/85	11/85

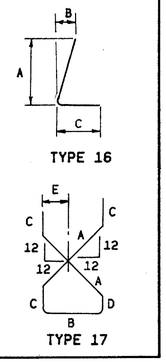


SUPERSTRUCTURE

MARK	TYPE	A	B	C	D	E	NUMBER LEFT	NUMBER RIGHT	TOTAL	LENGTH	WEIGHT
E801	5	1'-5	1'-4¾	1'-4¾	1'-5	1'-11⅝	52	52	104	4'-8	1296
E802	Str.						28	28	56	26'-9	4000
E803	Str.						28	28	56	17'-0	2542
E601	Str.						247	247	494	25'-1	18612
E602	Str.						247	247	494	16'-5	12181
E603	Str.						2	2	4	14'-8	88
E604	Str.						12	12	24	7'-2	258
E605	Str.						2	2	4	13'-8	82
E501	Str.						354	354	708	30'-0	22,153
E502	Str.						50	50	100	6'-0	626
E503	Str.						494	494	988	20'-7	21211
E504	10	6"	6"	8½"	9¼"	10½"	114	114	228	2'-9	654
E505	4	2'-5	7"				114	114	228	3'-0	713
E506	Str.						12	12	24	14'-8	367
E507	Str.						72	72	144	7'-2	1076
E508	Str.						8	8	16	11'-8	195
E509	Str.						8	8	16	4'-4	72
E510	9	See Detail					104	104	208	5'-3	1139
E511	2	1'-6	10½"				234	234	468	2'-3	1098
E512	10	9"	6"	8½"	9¼"	10½"	106	106	212	3'-0	663
E513	10	8"	5"	8½"	9¼"	10½"	2	2	4	2'-10	12
E514	10	8"	4"	8½"	9¼"	10½"	2	2	4	2'-10	12
E515	10	7"	3"	8½"	9¼"	10½"	2	2	4	2'-9	12
E516	10	7"	2"	8½"	9¼"	10½"	8	8	16	2'-9	44
E517	Str.	Length Varies by 1"					2 Series of 5	2 Series of 5	4 Series of 5	2'-1 to 2'-5	47
E518	4	2'-1 to 2'-5	7"	Length Varies by 1"			2 Series of 5	2 Series of 5	4 Series of 5	2'-8 to 3'-0	59
E519	4	2'-1	7"				6	6	12	2'-8	33
E520	Str.						6	6	12	2'-1	26
E521	Str.						4	4	8	13'-8	114
E522	Str.						114	114	228	2'-5	575
E523	6	3'-8	2'-2				4	4	8	9'-3	77
E524	6	3'-5	1'-8				76	76	152	8'-3	1308
E525	7	3'-6½	2'-2	5½"			76	76	152	11'-11	1890
E526	STR.						104	104	208	7'-8	1663
E401	Str.						255	255	510	30'-0	10,220
E402	Str.						51	51	102	4'-4	295

ABUTMENTS

MARK	TYPE	A	B	C	D	E	NUMBER REAR	NUMBER FORWARD	TOTAL	LENGTH	WEIGHT
A801	Str.						12	12	24	30'-0	1922
A802	Str.						4	4	8	14'-5	308
A803	Str.						8	8	16	32'-2	1374
A804	Str.						2	2	4	29'-8	317
A805	Str.						2	2	4	29'-2	312
A601	17	3'-0¾	2'-2	10"	5"	10"	74	74	148	10'-9	2390
A501	Str.						12	12	24	30'-0	751
A502	Str.						4	4	8	9'-8	81
A503	Str.						4	4	8	32'-2	268
A504	7	2'-7	2'-8	5½"			64	64	128	11'-0	1469
A505	6	3'-7	2'-2				54	54	108	9'-1	1023
A506	6	2'-9½ to 5'-10	2'-2	Length Varies by 1'-6¼			2 Series of 5	2 Series of 5	4 Series of 5	7'-6 to 13'-7	220
A507	Str.						4	4	8	3'-3	27
A508	Str.						8	8	16	6'-2	103
A509	Str.						4	4	8	7'-1	59
A510	6	5'-5½	2'-2				10	10	20	12'-10	268
A511	Str.						2	2	4	29'-8	124
A401	7	1'-9	2'-6¾	4½"			26	26	52	9'-1	316



NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

AN 'E' DESIGNATION PRECEDING THE BAR MARK DENOTES EPOXY COATED BARS.

Sheet 4 | 15

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

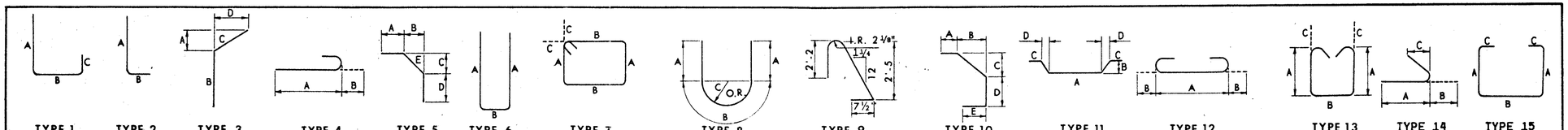
REINFORCING BAR SCHEDULE

BRIDGE NO. BEL-7-1562L/R
S.R. 7 OVER 26TH STREET

STA. 826+64.15
STA. 828+12.15

BELMONT COUNTY

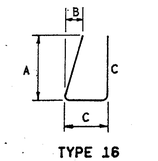
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GHO	GHO		JMG	WDA	2/85	



PIERS

MARK	TYPE	A	B	C	D	E	NUMBER LEFT REAR	NUMBER LEFT FWD.	NUMBER RIGHT REAR	NUMBER RIGHT FWD.	TOTAL	LENGTH	WEIGHT
P901	Str.						30	-	30	-	60	17'-3	3519
P902	Str.						-	30	-	30	60	18'-4	3740
P903	2	6'-6	1'-7½				30	30	30	30	120	7'-10	3196
P701	12	7'-8	10"				40	40	40	40	160	9'-4	3052
P702	Str.						12	12	12	12	48	20'-1	1970
P703	2	20'-7	3'-8				12	12	12	12	48	24'-1	2363
P501	Str.						8	8	8	8	32	19'-8	656
P502	6	10"	2'-8				8	8	8	8	32	4'-1	136
P503	7	2'-8	3'-8	5'2"			24	24	24	24	96	13'-2	1318

MARK	TYPE	A	B	C	D	E	NUMBER	TOTAL	LENGTH	WEIGHT



SPIRAL REINFORCING (PIERS)

MARK	NO.	LENGTH	WEIGHT	SHAPE	
SPIRALS - CORE DIA. 32" o/o - PITCH 4½" c/c - OTHER DETAILS IN ACCORDANCE WITH CRSI STANDARD PRACTICE					
SP401	6	14'-3⅜	1631	Bent	Rear Piers
SP402	6	15'-3⅝	1742	Bent	Fwd. Piers

NOTES

REFER TO CMS SECTIONS 106.03, 700, 709.01 THROUGH 709.05 AND 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08.

ALL DIMENSIONS ARE OUT-TO-OUT.

STR. IN THE "TYPE" COLUMN INDICATES STRAIGHT BARS.

AN 'E' DESIGNATION PRECEDING THE BAR MARK DENOTES EPOXY COATED BARS.

Sheet 5 15

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

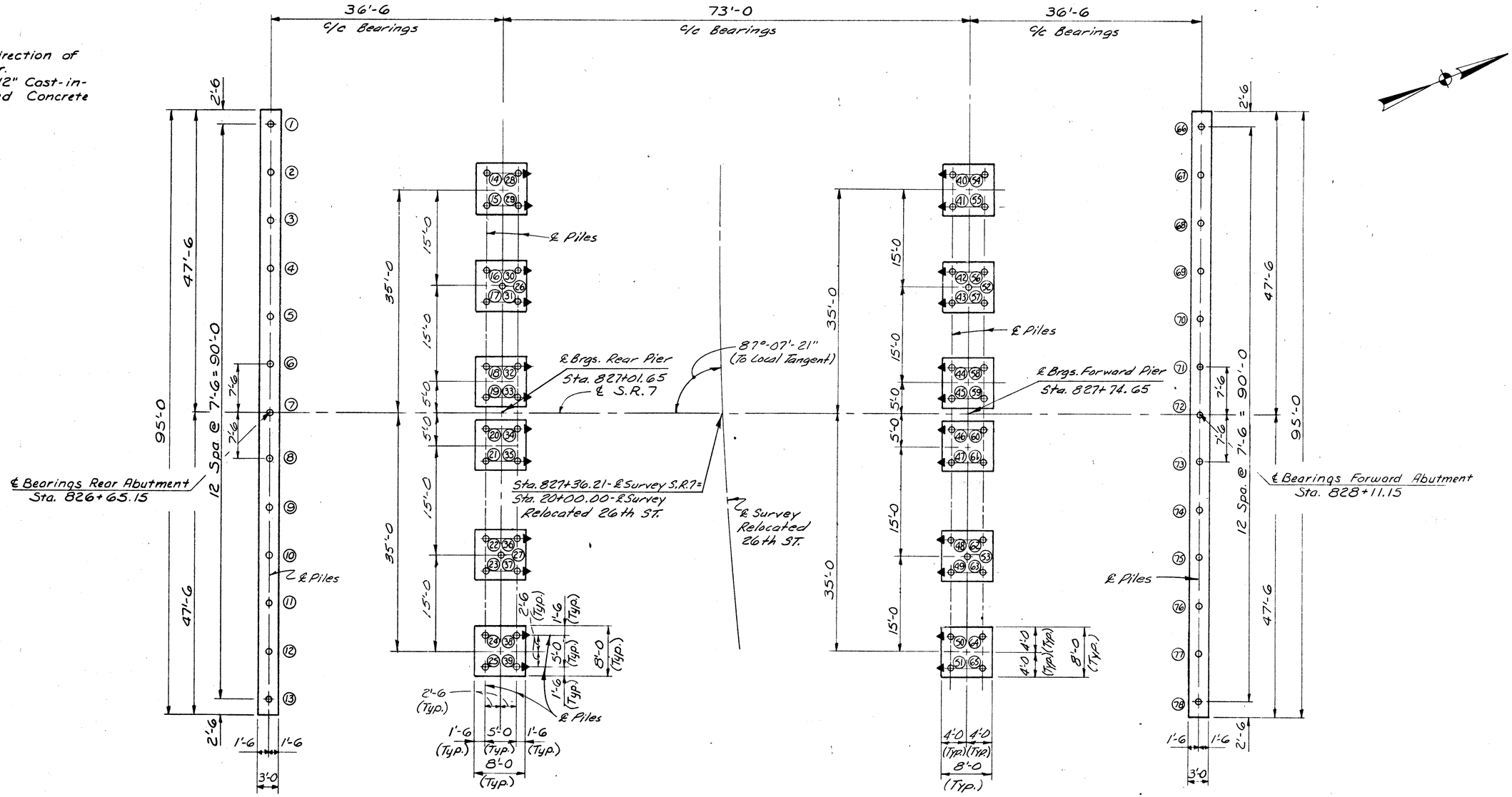
REINFORCING BAR SCHEDULE

BRIDGE NO. BEL-7-1562L/R
S.R. 7 OVER 26TH STREET

BELMONT COUNTY
STA. 826+64.15
STA. 828+12.15

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GHD	GHD		JMG	wda	2/85	

NOTE:
◀ Indicates direction of the 4:1 Batter.
All piles are 12" Cast-in-Place Reinforced Concrete Piles.



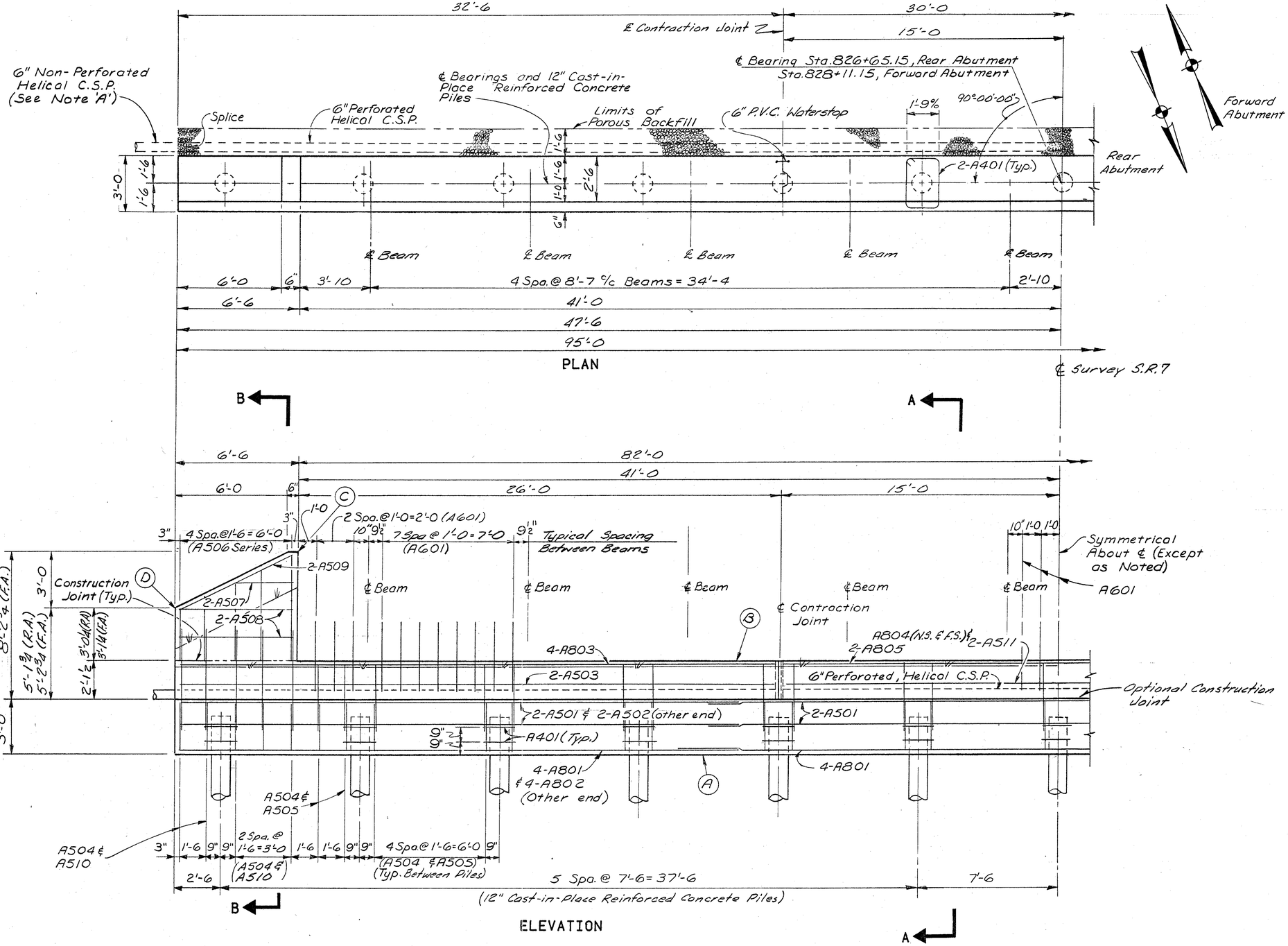
FOOTING PLAN

Sheet 6 of 15

W. E. QUICKSALL AND ASSOCIATES, INC.
CONSULTING ENGINEERS • NEW PHILADELPHIA, OHIO

FOOTING PLAN
BRIDGE NO. BEL-7-1562 L/R
S.R.7 OVER 26TH STREET
BELMONT COUNTY
STA 5+86+64
STA 8+11.15

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED
J.D.B.	D.C.B.			



R.A. - Denotes Rear Abutment.
F.A. - Denotes Forward Abutment.

For Porous Backfill Note, See Sheet 8/15.

For Contraction Joint Detail, See Sheet 8/15.

NOTE 'A':
For Additional Details & Notes of 6" Helical C.S.P. See Std. Dwg. ICD-1-82, Sheet 2 of 5, and Sheet 8/15.

For Sections A-A and B-B, See Sheet 8/15.

N.S. - Denotes Near Side.
F.S. - Denotes Far Side.

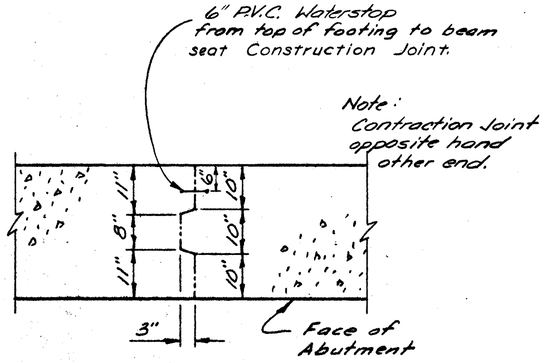
ELEVATIONS						
LOCATION	A	B	C	D		
REAR ABUTMENT	665.25	670.38	676.40	673.40		
FORWARD ABUTMENT	665.25	670.38	676.48	673.48		

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

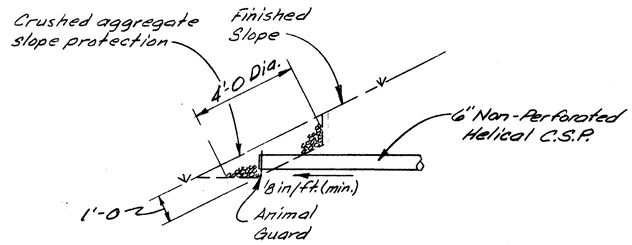
REAR AND FORWARD ABUTMENT DETAILS

BRIDGE NO. BEL-7-1562L/R
S.R. 7 OVER 26TH STREET
BELMONT COUNTY
STA. 826+64.15
STA. 828+12.15

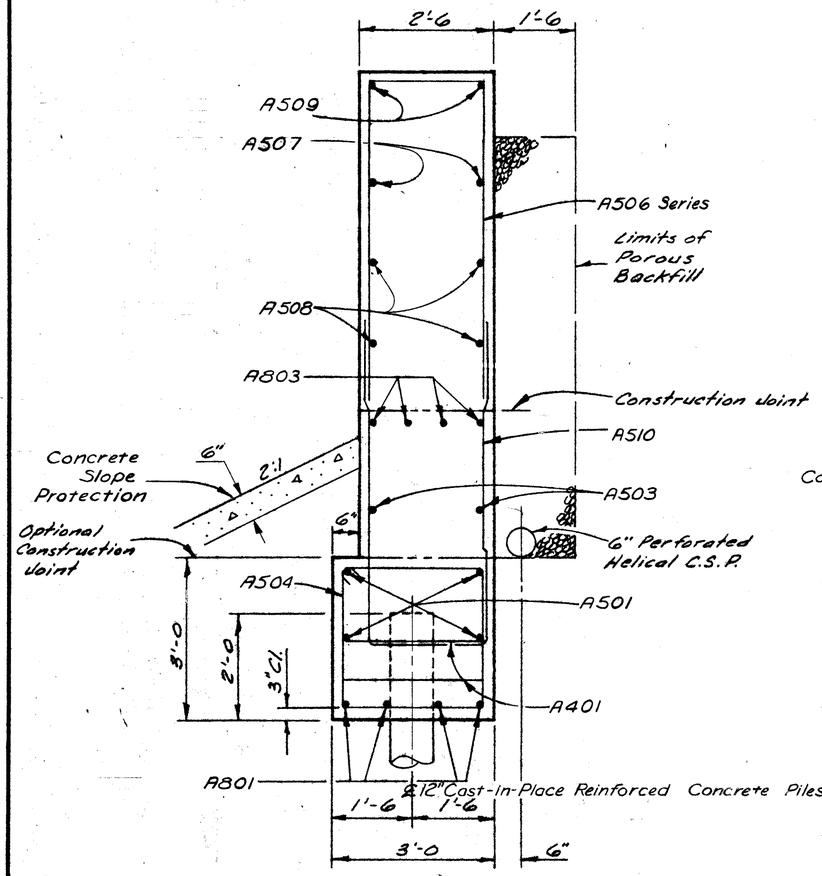
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	2/85	11/85



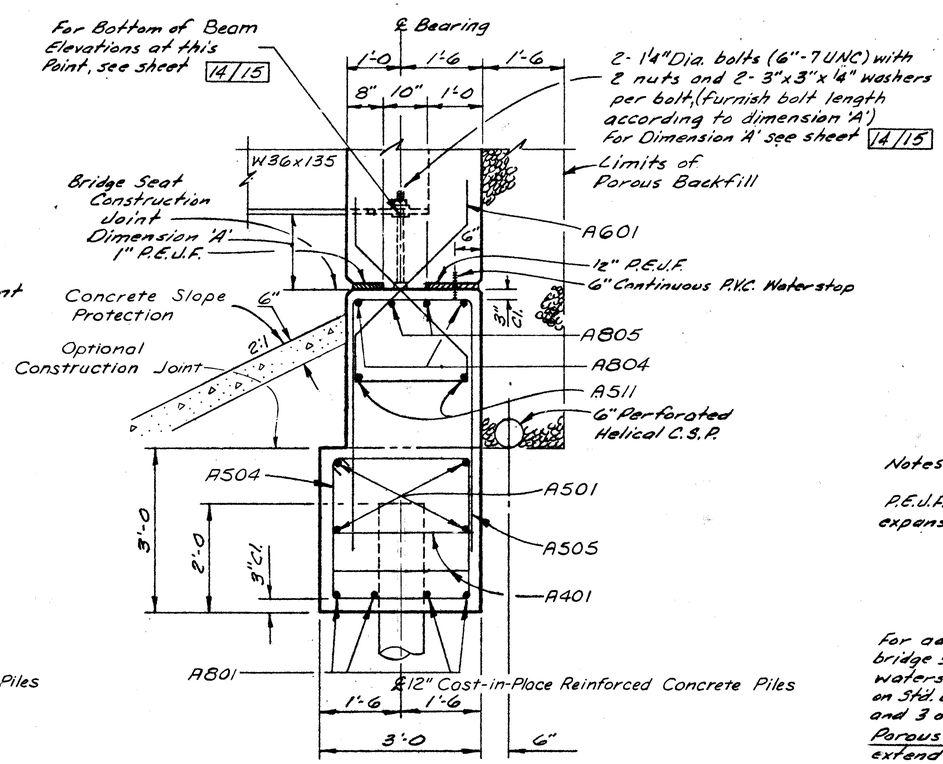
CONTRACTION JOINT



TERMINATION OF 6" C.S.P.
ON SIDE SLOPE



SECTION B-B



SECTION A-A

Note: For reinforcing & details not shown in integral backwall see Section J-J on sheet 14/15

For Rear & Fwd. Abutment Details, see sheet 7/15

Notes:

P.E.U.F. - denotes preformed expansion joint filler.

For additional details & notes of bridge seat construction joint and waterstop see Section X-X and G-G on Std. Dwg.s ICD-1-82 Sheet 2 of 5 and 3 of 5

Porous Backfill, 1.5 ft. thick, shall extend up to the plane of the subgrade and laterally to the end of the wing walls.

Sheet 8/15

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

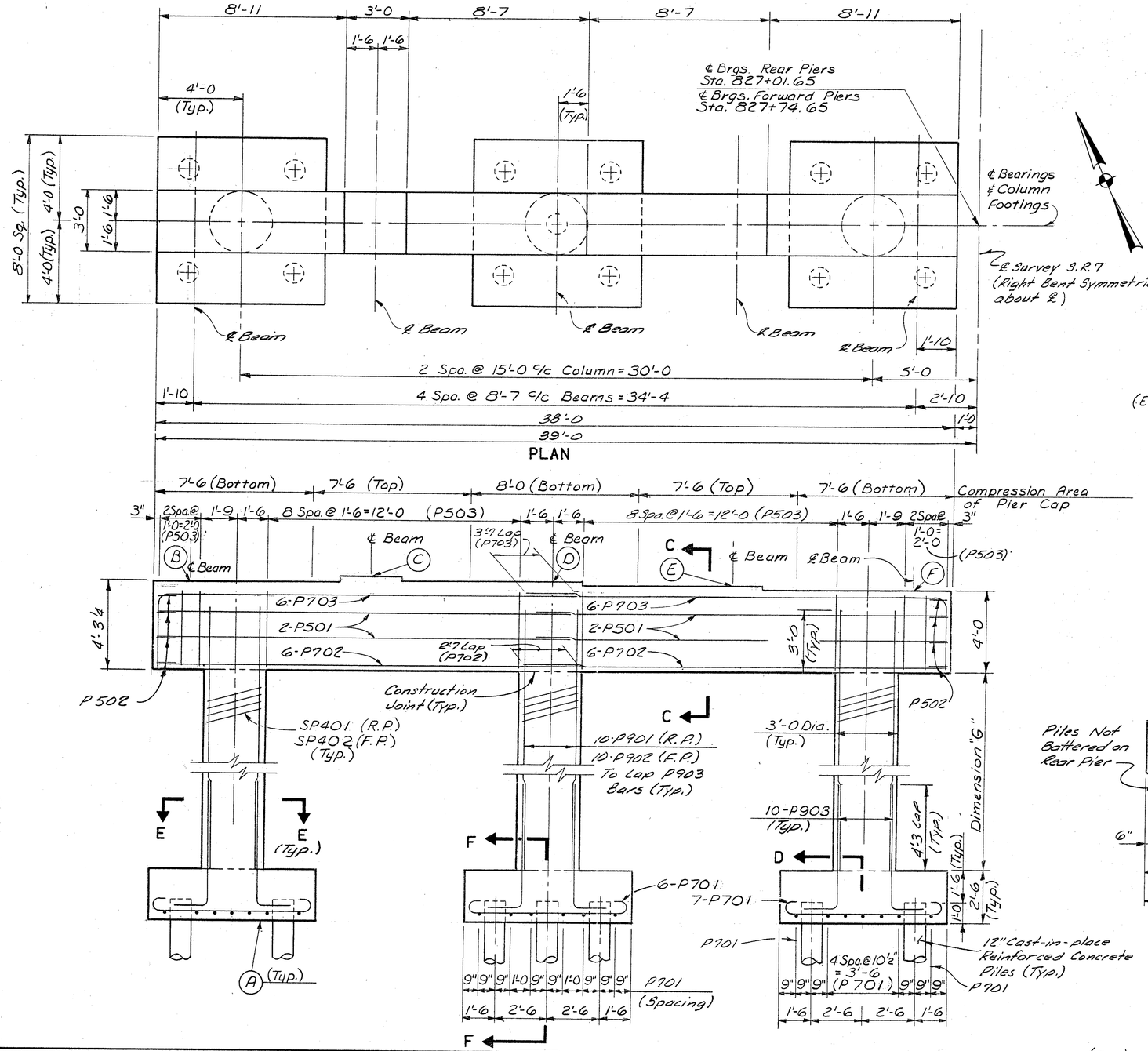
REAR AND FORWARD ABUTMENT DETAILS

BRIDGE NO. BEL-7-1562L/R
S.R.7 OVER 26TH STREET
BELMONT COUNTY
STA. 826+64.15
STA. 828+12.15

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	5/85	

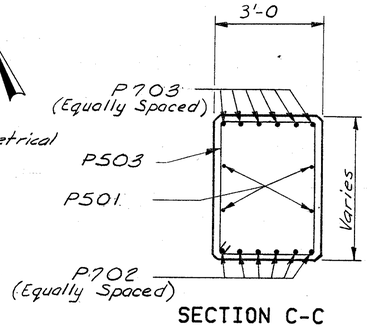
BEL-7-14.17 | OHIO | FHWA REGION 5 | 581/663

NOTE: Hooked corner of P503 bars shall be placed in the compression area of the Pier Cap (See Elevation View).

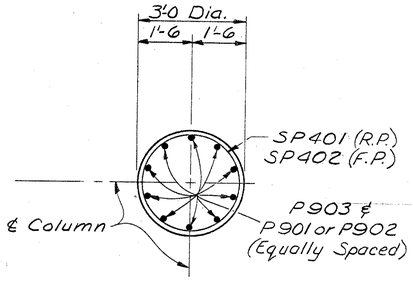


LEFT REAR & FORWARD PIER ELEVATION

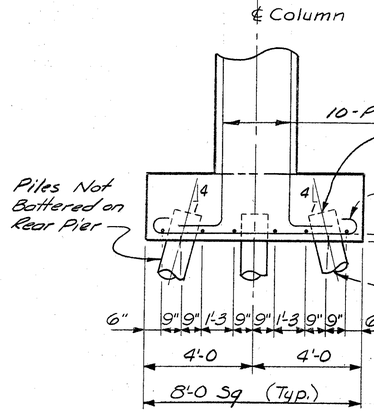
ELEVATIONS							DIMENSION
LOCATION	A	B	C	D	E	F	"G"
REAR PIER	650.50	671.53	671.72	671.59	671.45	671.26	14'-3 3/8
FWD. PIER	649.50	671.57	671.76	671.62	671.49	671.30	15'-3 5/8



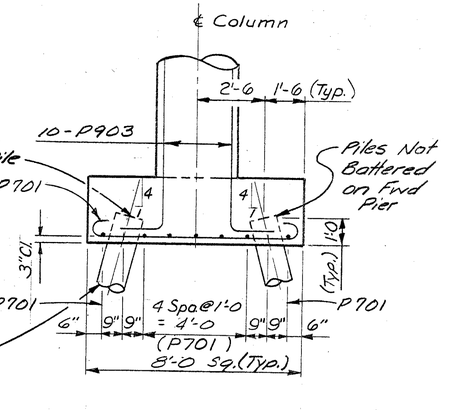
SECTION C-C



SECTION E-E



SECTION F-F



SECTION D-D

(R.P.) Denotes Lt. & Rt. Rear Piers.
(F.P.) Denotes Lt. & Rt. Forward Piers.

Sheet 9/15

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

REAR AND FORWARD PIER DETAILS

BRIDGE NO. BEL-7-1562L/R

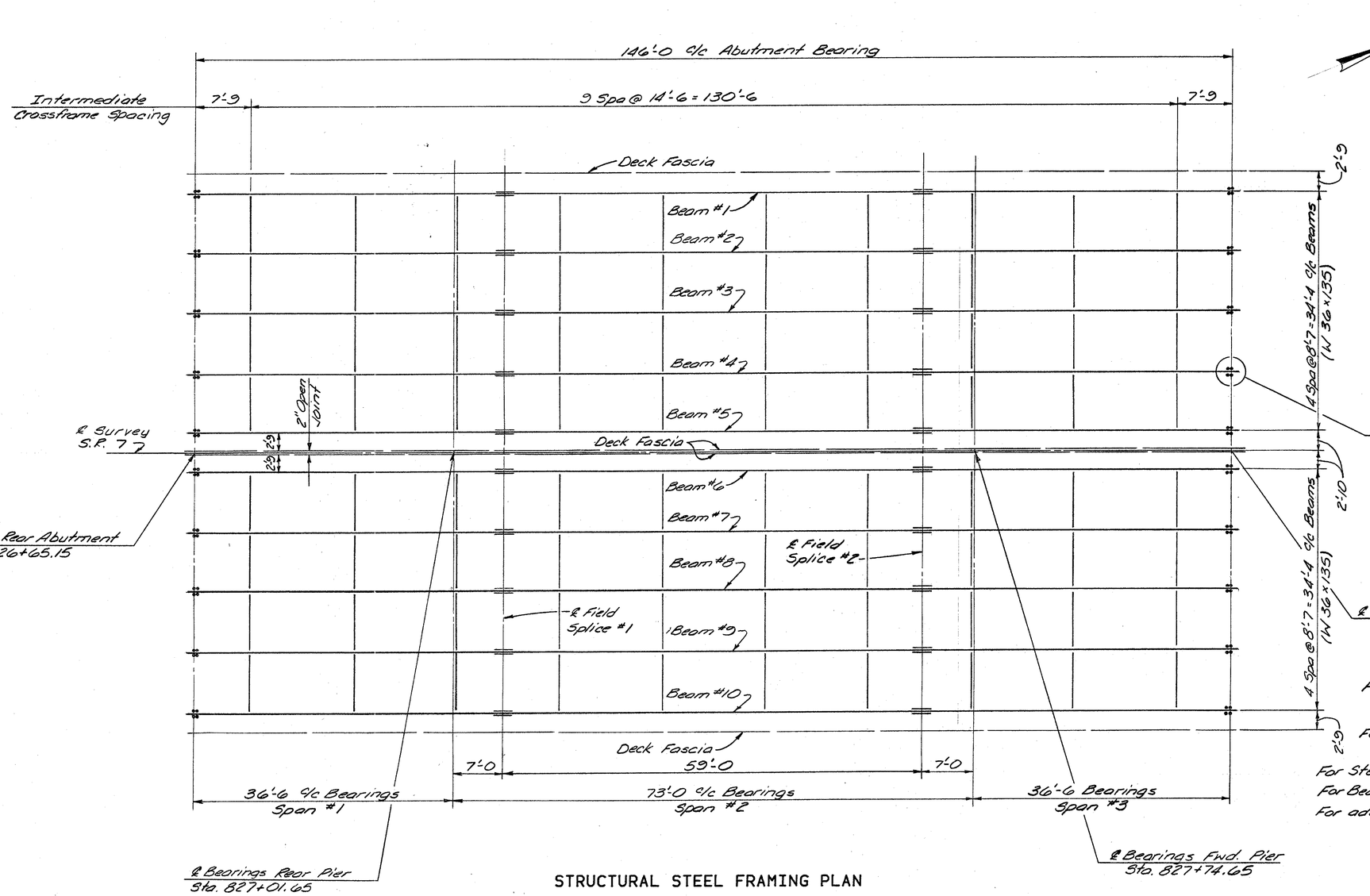
S.R. 7 OVER 26TH STREET

BELMONT COUNTY

STA. 826+64.15
STA. 828+12.15

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	2/85	

W.E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS AND ARCHITECTS



For Typical location and detail of support bolt holes and vent holes, see Std Dwg ICD-1-82 Section M-M on sheet 5 of 5. (Typ.)

For Transverse Section, see sheet 12/15
For Field Splice Details, see sheet 11/15
For Steel Notes, see sheet 11/15
For Beam Seat Detail, see sheet 14/15
For additional steel details, see sheet 11/15

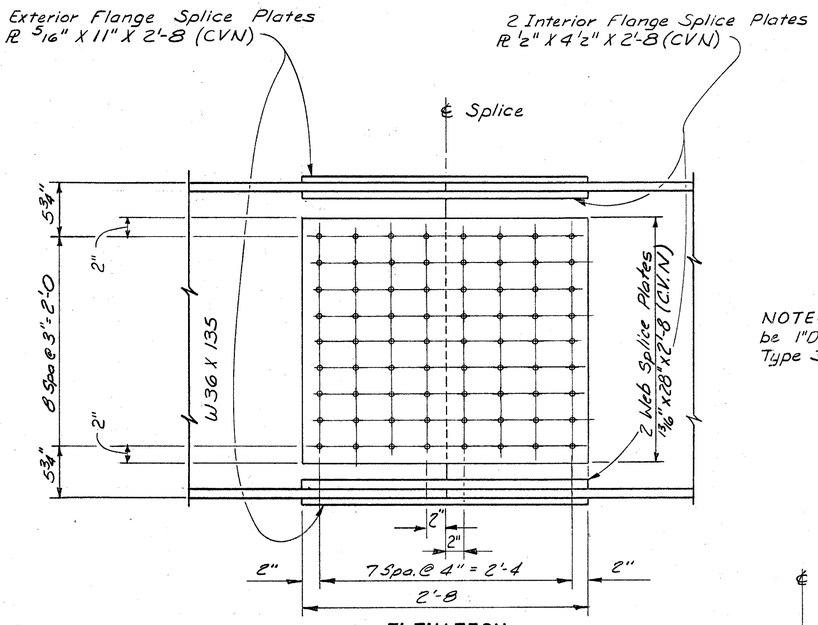
STRUCTURAL STEEL FRAMING PLAN

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

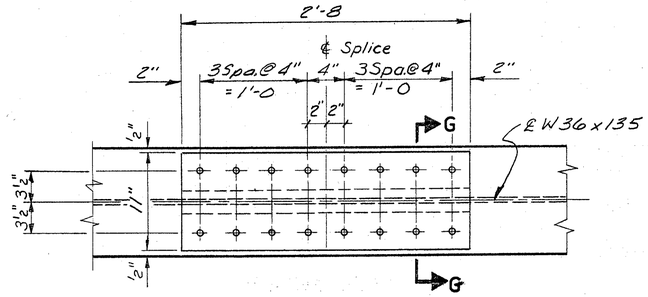
SUPERSTRUCTURE DETAILS STEEL FRAMING PLAN

BRIDGE NO. BEL-7-1562L/R
S.R. 7 OVER 26TH STREET
STA. 826+64.15
STA. 828+12.15
BELMONT COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		CFD	JMG	2/85	

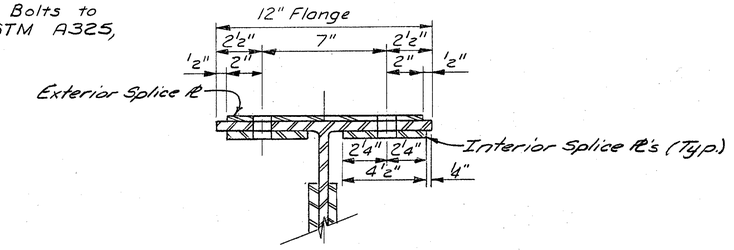


ELEVATION
FIELD SPLICE DETAILS



TOP & BOTTOM
FLANGE PLAN

NOTE: All Bolts to be 1" Dia. ASTM A325, Type 3.



SECTION G-G
(TYPICAL TOP & BOTTOM FLANGES)

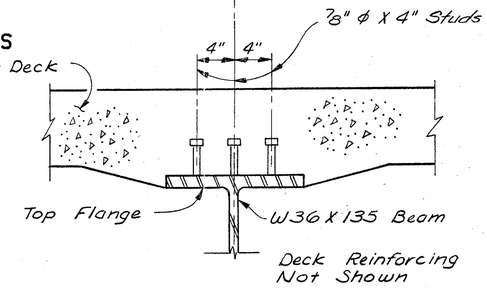
STEEL NOTES:

WHERE A SHAPE OR PLATE IS DESIGNATED (CVN) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF CMS.

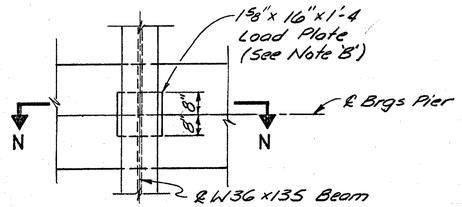
WELDED ATTACHMENTS OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE, MAY BE MADE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". ATTACHMENTS SHALL NOT BE MADE TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE NOT CLOSER THAN 1" FROM EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO.

Note 'A':
Load Plate shall be vulcanized bonded to neoprene during the molding process

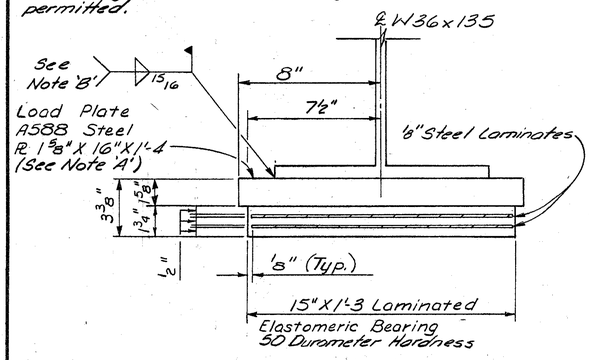
Note 'B':
Welding shall be controlled so that the plate temperature at the elastomer bonded surface does not exceed 300°F as determined by use of pyrometric sticks or other temperature monitoring devices. Quenching to accelerate cooling is not permitted.



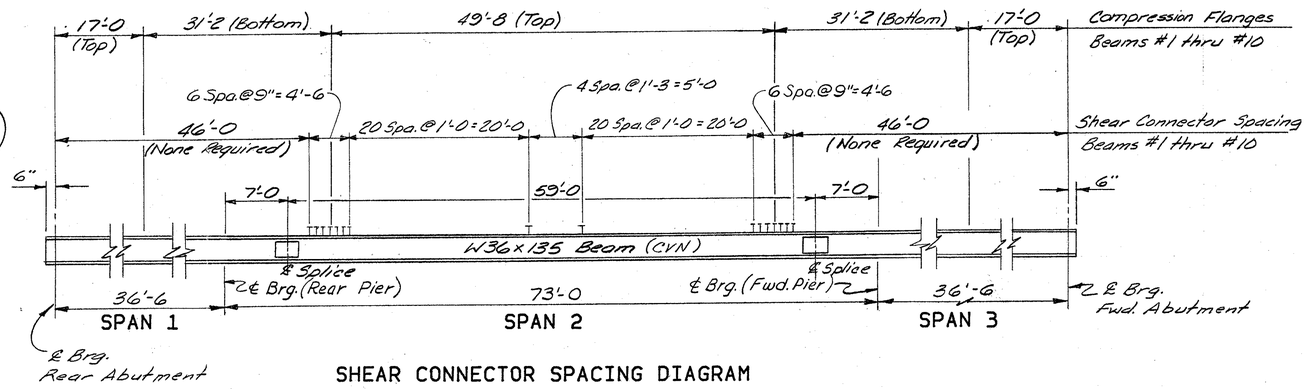
TYPICAL SECTION
SHEAR CONNECTOR DETAIL



ELASTOMERIC
BEARING DETAILS



SECTION N-N



SHEAR CONNECTOR SPACING DIAGRAM

Sheet 11/15

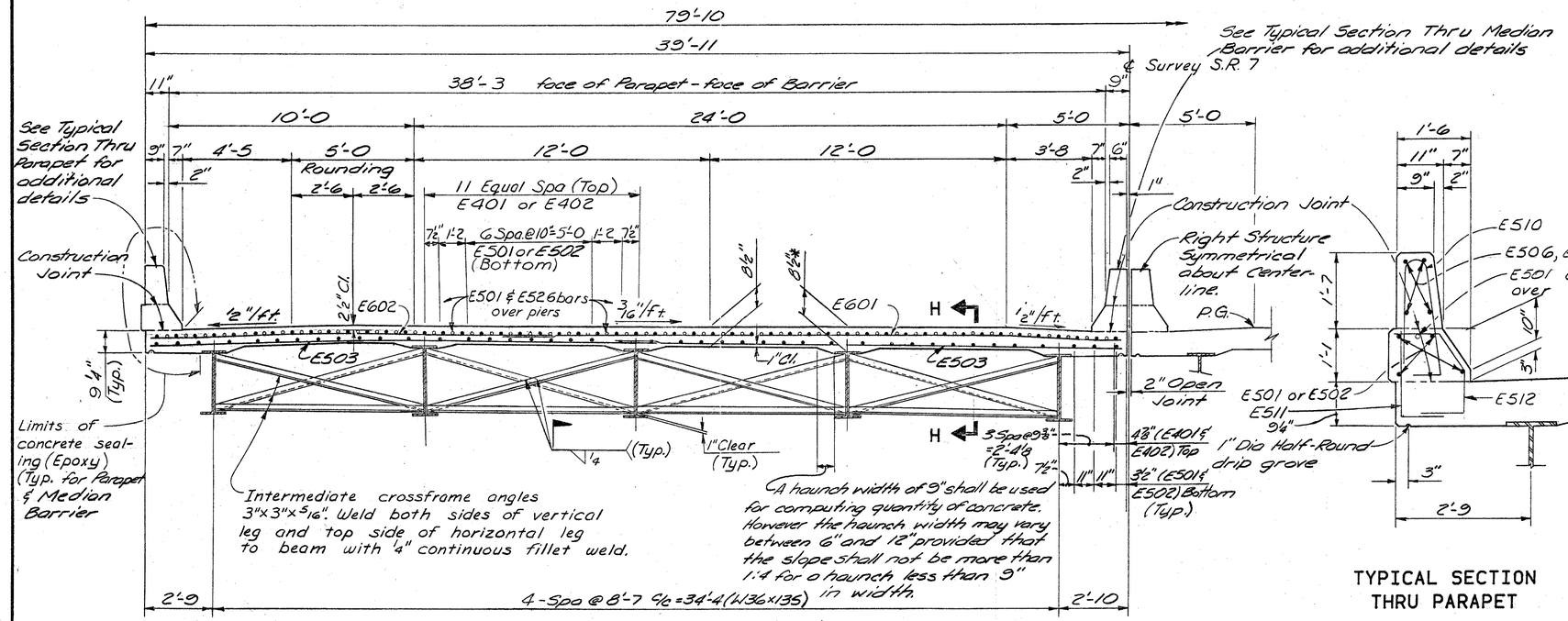
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS

BRIDGE NO. BEL-7-1562L/R
S.R. 7 OVER 26TH STREET

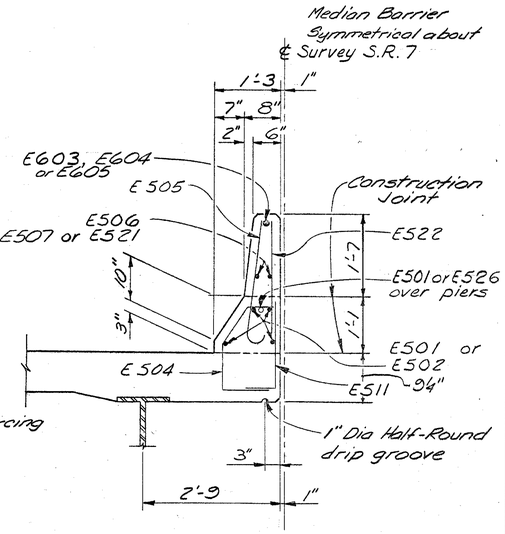
BELMONT COUNTY
STA. 826+64.15
STA. 828+12.15

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.D.B.	D.D.B.		FDH	JMG	3/85	11/85



TYPICAL SECTION THRU PARAPET

Deck Reinforcing not shown.



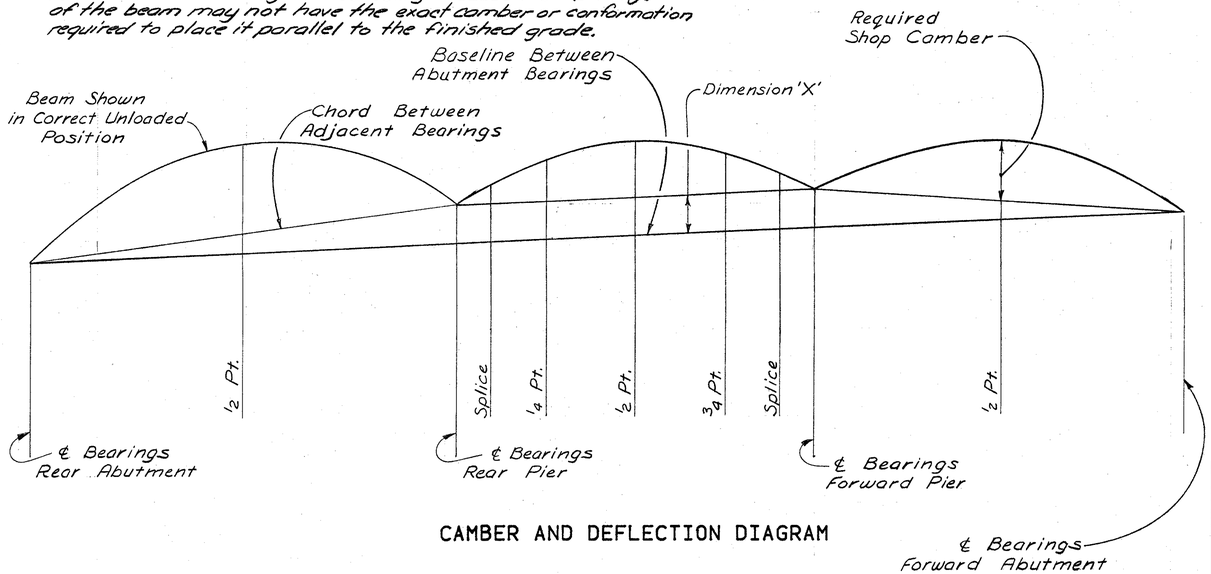
TYPICAL SECTION THRU MEDIAN BARRIER

TRANSVERSE SECTION
(LEFT STRUCTURE SHOWN)

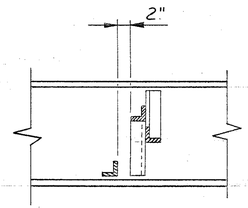
CAMBER AND DEFLECTION

LOCATION	BEAM NO.	SPAN 1			SPAN 2					SPAN 3		
		℄ Brg.	1/2 Pt.	℄ Brg.	Spl.	1/4 Pt.	1/2 Pt.	3/4 Pt.	Spl.	℄ Brg.	1/2 Pt.	℄ Brg.
DIMENSION 'X'	1 THRU 10	0	3/8	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/8	0
DEFLECTION DUE TO WEIGHT OF STEEL	1 THRU 10	0	0	0	0	1/16	1/8	1/16	0	0	0	0
DEFLECTION DUE TO REMAINING DEAD LOAD	1 THRU 10	0	-1/16	0	1/4	11/16	1 1/16	11/16	1/4	0	-1/16	0
CONVEXITY REQUIRED FOR VERTICAL CURVE	1 THRU 10	0	1/16	0	1/8	3/16	1/4	3/16	1/8	0	1/16	0
REQUIRED SHOP CAMBER	1 THRU 10	0	0	0	3/8	15/16	1 7/16	15/16	3/8	0	0	0

*Deck Slab Depth:
The distance shown the top of concrete to top of steel beam is the design 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.



CAMBER AND DEFLECTION DIAGRAM



SECTION H-H

For Structural Steel Framing Plan, see sheet 10/15

For Deck Reinforcing Plan, see sheet 13/15

Sheet 12/15

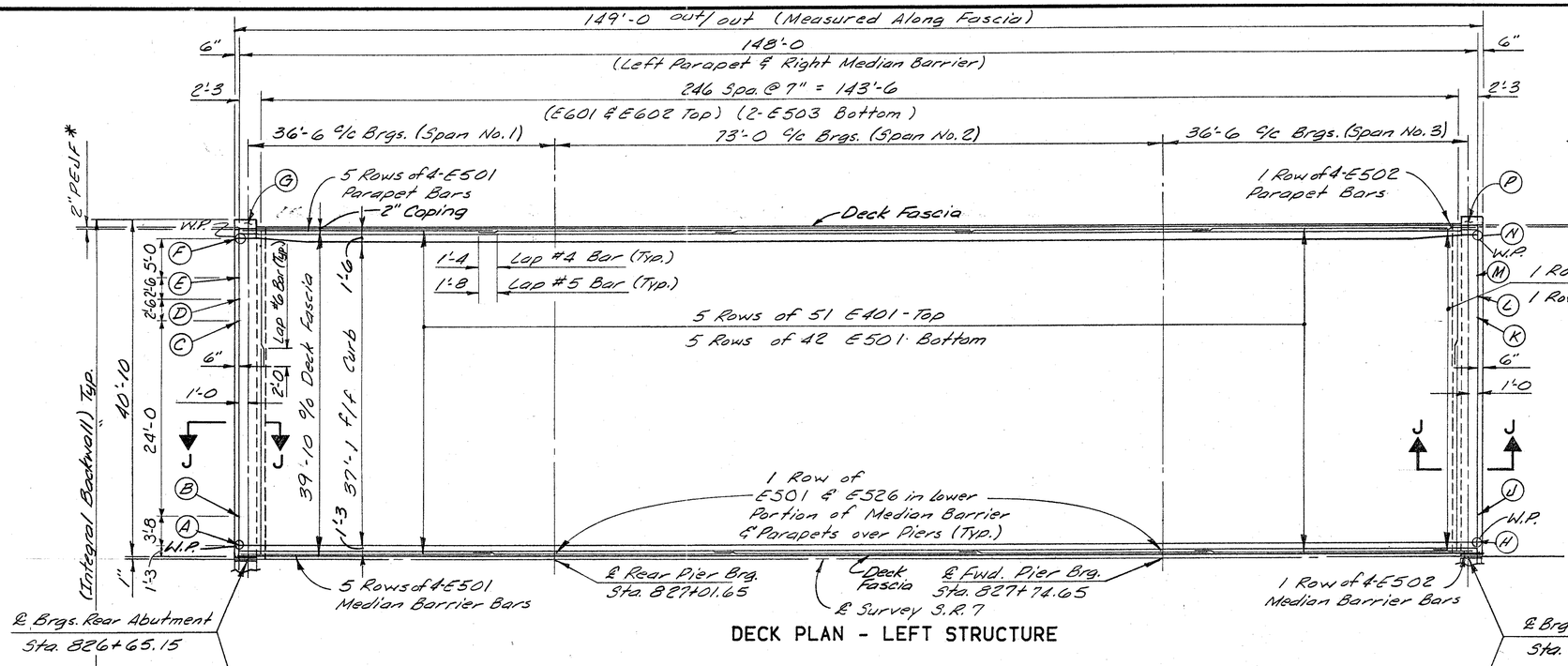
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS

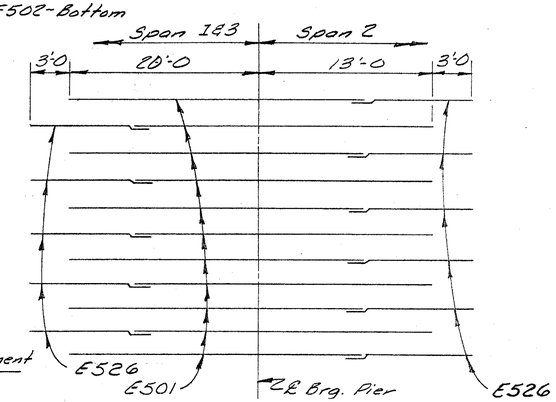
BRIDGE NO. BEL-7-1562L/R
S.R. 7 OVER 26TH STREET

BELMONT COUNTY
STA. 826+64.15
STA. 828+12.15

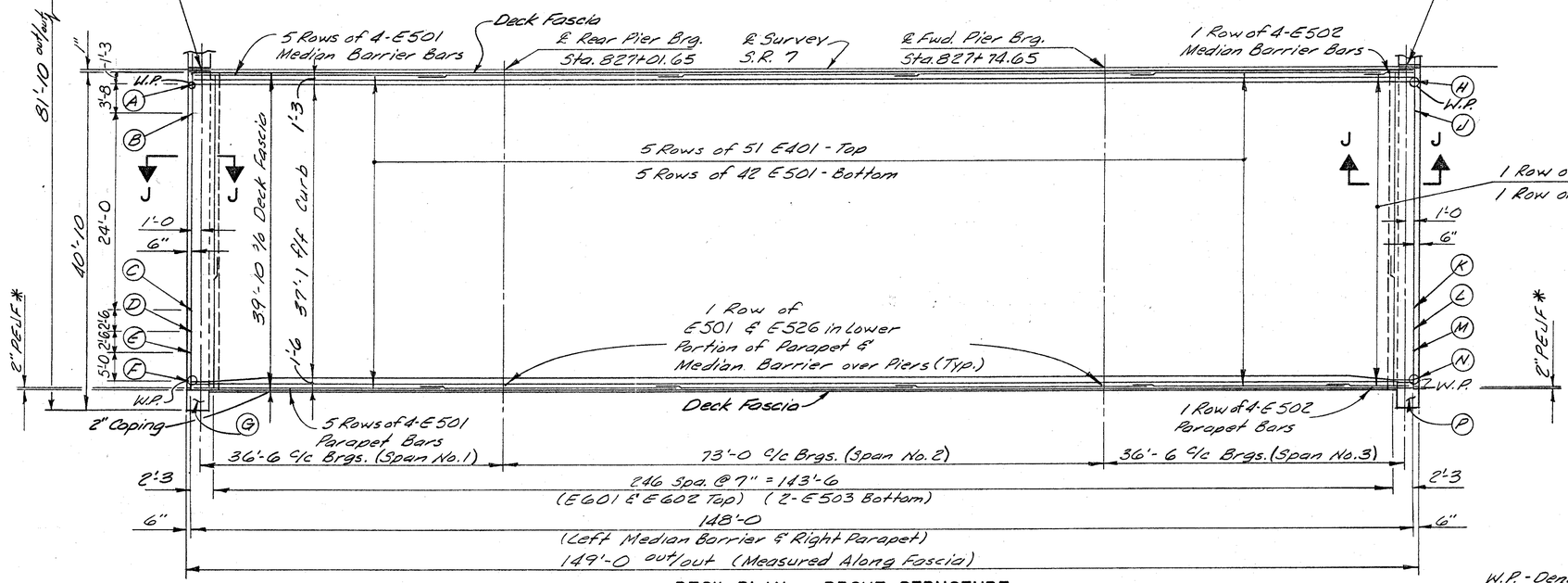
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		JMS	wda	2/85	



DECK PLAN - LEFT STRUCTURE



STAGGER SYSTEM OF E501 & E526 BARS OVER PIERS



DECK PLAN - RIGHT STRUCTURE

NOTE: (*) 2" PEUF to be included with approach slab for Payment.

For Typical Section thru Median Barrier and Parapet see Sheet 12/15

For Section J-J, see Sheet 14/15

For Transverse Section see Sheet 12/15

For Screed Elevations, see Sheet 3/15

W.P. - Denotes Work Point
PEUF - Denotes Preformed Expansion Joint Filler

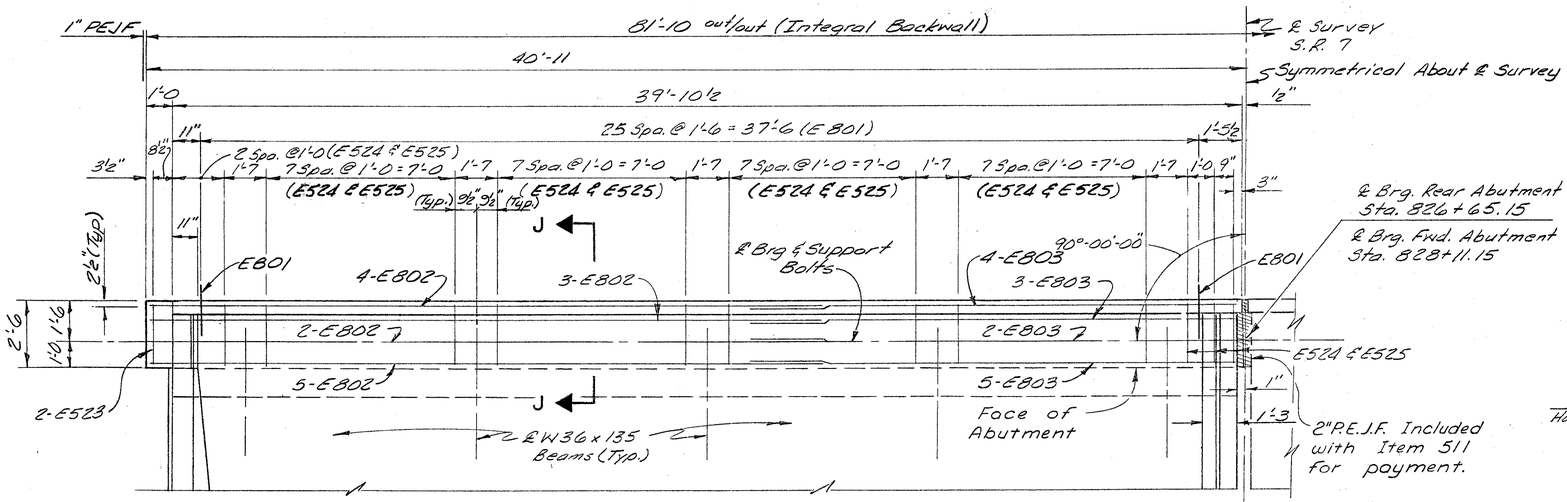
TOP OF CONCRETE ELEVATIONS														
POINT	A	B	C	D	E	F	G	H	J	K	L	M	N	P
LEFT BRIDGE	675.06	675.22	675.59	675.59	675.53	675.32	676.40	675.14	675.29	675.67	675.67	675.60	675.39	676.48
RIGHT BRIDGE	675.06	675.22	675.59	675.59	675.53	675.32	676.40	675.14	675.29	675.67	675.67	675.60	675.39	676.48

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

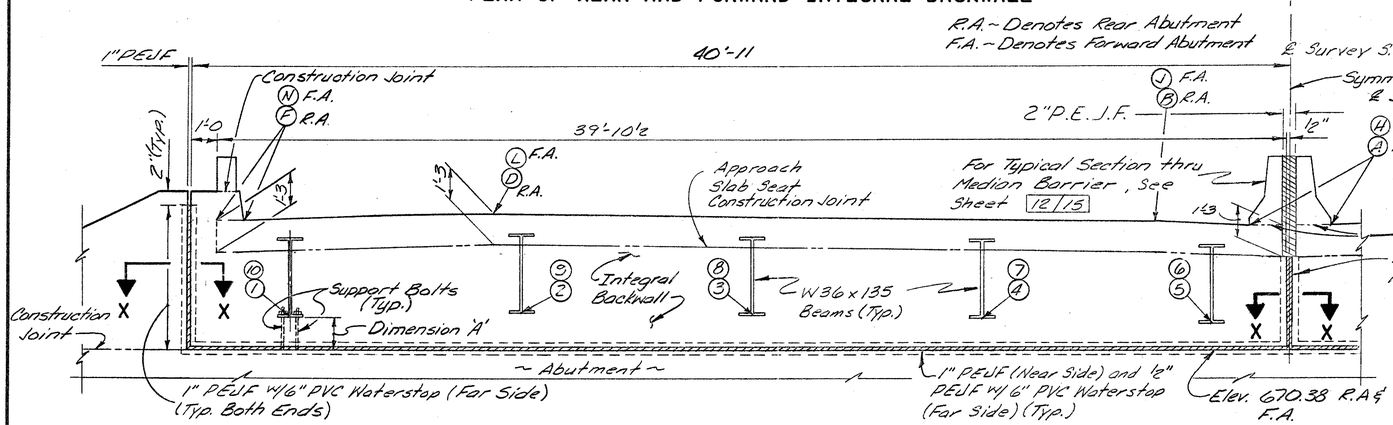
SUPERSTRUCTURE DETAILS
BRIDGE NO. BEL-7-1562L/R
S.R. 7 OVER 26TH STREET
BELMONT COUNTY
STA. 826+64.15
STA. 828+12.15

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GHD	GHD		FDH	JmL	2/85	11/85

Sheet 13/15

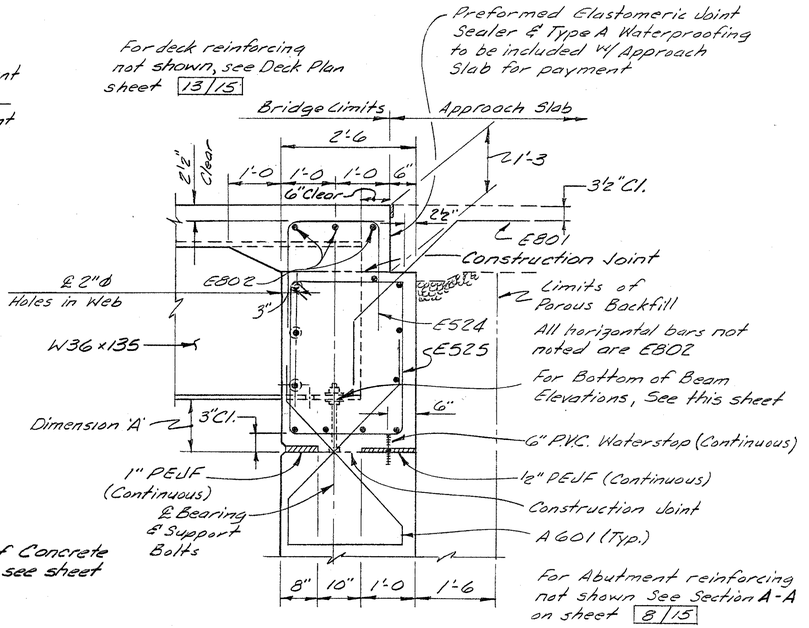


PLAN OF REAR AND FORWARD INTEGRAL BACKWALL



REAR AND FORWARD INTEGRAL BACKWALL ELEVATION

Note: For relative position of beam numbers see Sheet 10/15



SECTION J-J

BOTTOM OF BEAM ELEVATIONS

LOCATION	BEAM LINE NO. ①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
REAR ABUTMENT	671.73	671.92	671.79	671.65	671.46	671.46	671.65	671.79	671.92	671.73
FWD. ABUTMENT	671.80	671.99	671.86	671.73	671.54	671.54	671.73	671.86	671.99	671.80
DIMENSION 'A'										
REAR ABUTMENT	1'-4 4/16	1'-6 9/16	1'-4 15/16	1'-3 5/16	1'-1 1/16	1'-1 1/16	1'-3 5/16	1'-4 15/16	1'-6 9/16	1'-4 4/16
FWD. ABUTMENT	1'-5 1/8	1'-7 9/16	1'-5 13/16	1'-4 3/16	1'-1 15/16	1'-1 15/16	1'-4 3/16	1'-5 13/16	1'-7 9/16	1'-5 1/8

W.P. - Denotes work points
P.E.J.F - Denotes preformed expansion joint filler

For additional details and Section X-X, see Std. Dwg ICO-1-82

Sheet 14/15

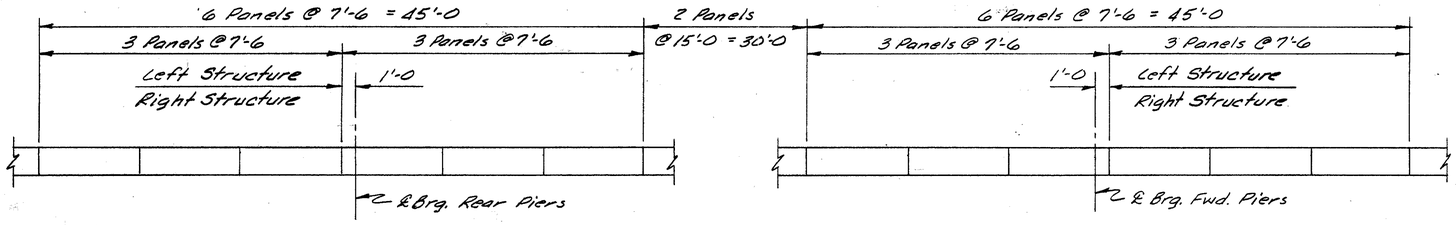
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS

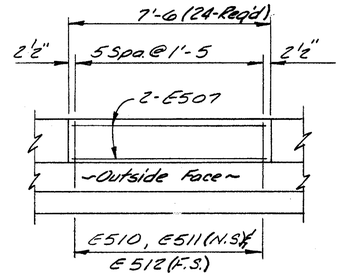
BRIDGE NO. BEL-7-1562L/R
S.R. 7 OVER 26TH STREET

BELMONT COUNTY — STA. 826+64.15 STA. 828+12.15

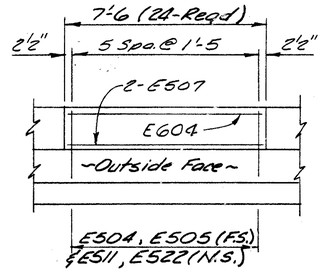
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JD	GAD		FDH	JMG	2/85	



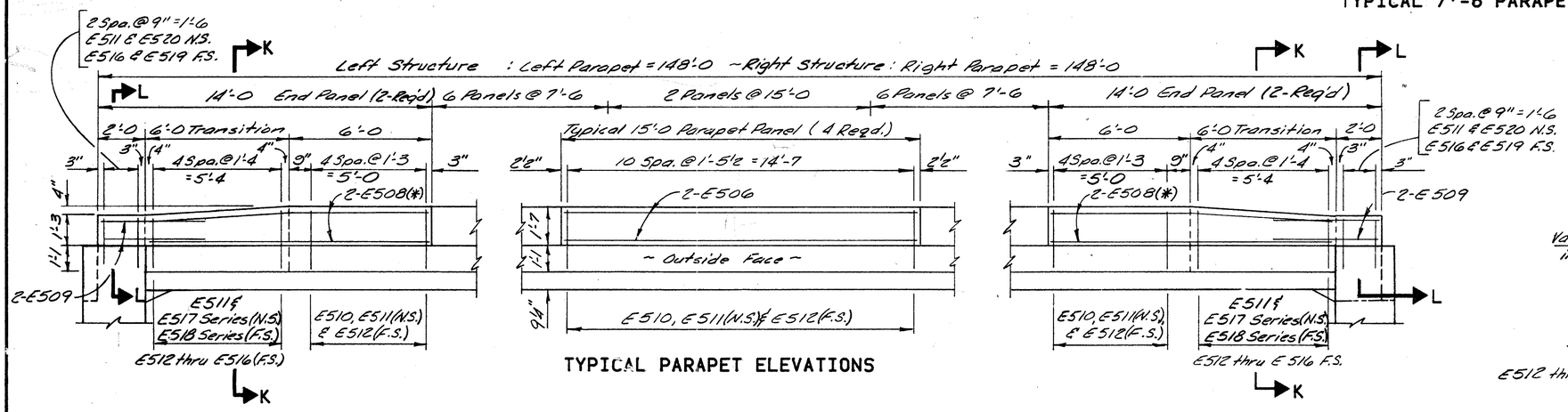
PLAN OF PARAPET PANEL DEFLECTION JOINTS AT PIERS



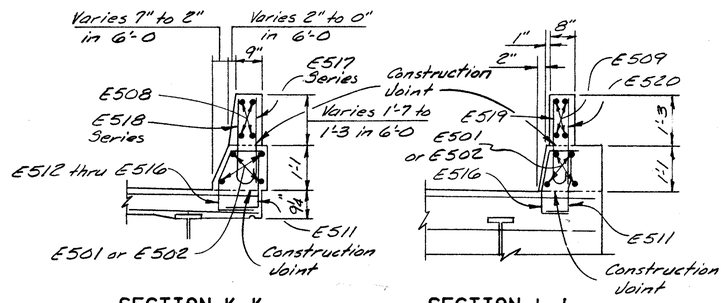
TYPICAL 7'-6 PARAPET PANEL



TYPICAL 7'-6 MEDIAN BARRIER PANEL



TYPICAL PARAPET ELEVATIONS



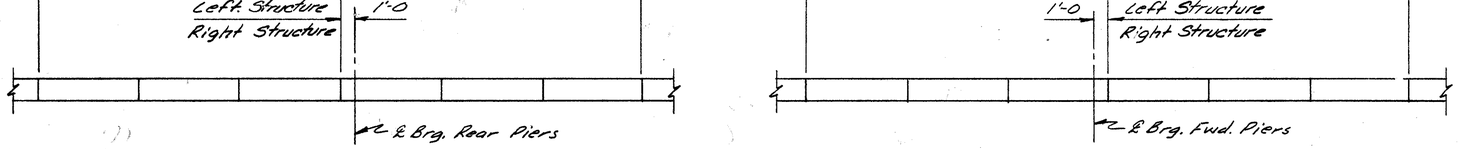
SECTION K-K SECTION L-L

Deck Reinforcing not shown

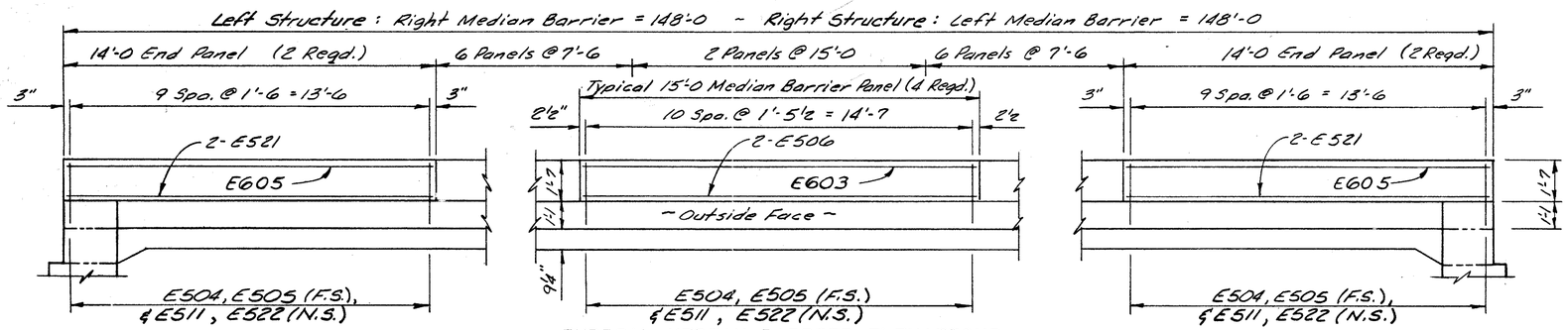
Note: (*) Bend to suit in field

N.S.~Denotes near side
F.S.~Denotes far side

For Typical Section thru Parapet and Median Barrier see sheet 12/15



PLAN OF MEDIAN BARRIER PANEL DEFLECTION JOINTS AT PIERS



TYPICAL MEDIAN BARRIER ELEVATIONS

Sheet 15/15

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE NO. BEL-7-1562L/R
S.R. 7 OVER 26TH STREET
STA. 826+64.15
STA. 828+12.15
BELMONT COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GAD	GAD		FDH	JMG	2/85	

SOIL PROFILE

BELMONT COUNTY
BEL-7-14.17

1/40

THE H. C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO 45226

1/26

NOTE: INFORMATION SHOWN BY THIS SUBGRADE PROFILE 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.

GENERAL INFORMATION

THE OHIO STATE ROUTE 7 ROADWAY PROJECT (PROJECT NO. BEL-7-14.15) CONSISTS OF THE RELOCATION AND UPGRADING OF EXISTING S.R. 7 WITHIN BELMONT COUNTY, OHIO. THE PROJECT BEGINS AT STATION 750+00 JUST NORTH OF THE TOWN OF SHADYSIDE AT EXISTING S.R. 7, AND EXTENDS APPROXIMATELY 1.5 MILES THROUGH BELLAIRE, OHIO AND TERMINATES AT STATION 829+00, JUST NORTH OF MCMAHON CREEK.

RELOCATED S.R. 7 WILL BE LOCATED ON A TERRACE ALONG THE OHIO RIVER, JUST EAST OF EXISTING S.R. 7. THE PROJECT CONSISTS OF RELOCATING AND REALIGNING S.R. 7. EXISTING S.R. 7 WILL BE MAINTAINED. THE NEW HIGHWAY WILL BE UPGRADED TO 4 LANES, 2 EACH FOR NORTHWARD AND SOUTHWARD MOVING TRAFFIC.

THREE BRIDGES WILL BE CONSTRUCTED WITHIN THIS CONSTRUCTION SECTION, NAMELY OVER PINCH RUN CREEK, OVER MCMAHON CREEK AND A BRIDGE CARRYING S.R. 7 OVER 26TH STREET AT THE END OF THE PROJECT. NUMEROUS SIDE ROADS SUCH AS BELMONT STREET, 10TH STREET, 12TH STREET, UNION STREET AND 26TH STREET WILL EITHER BE RELOCATED OR UPGRADED.

THE PINCH RUN CREEK CHANNEL FROM THE INTERSECTION OF 10TH STREET AND 12TH STREET TO THE OHIO RIVER WILL ALSO BE REALIGNED AND UPGRADED. A PORTION OF THE CHANNEL WILL BE LINED WITH RIPRAP. WHERE THE CREEK CROSSES UNDER RELOCATED S.R. 7, THE CREEK WILL BE RELOCATED THROUGH A 12 FT. REINFORCED CONCRETE PIPE ALL THE WAY TO THE OHIO RIVER. THE OLD CHANNEL WILL BE FILLED IN WITH EMBANKMENT CONSTRUCTION.

THREE BRIDGES WILL BE CONSTRUCTED OVER MCMAHON CREEK, NAMELY THE S.R. 7 BRIDGE CARRYING 4 LANES OF SOUTH AND NORTHBOUND TRAFFIC AND RAMPS F AND G. RAMP F EXITS NORTHBOUND TRAFFIC FROM S.R. 7 ACROSS MCMAHON CREEK ONTO 26TH STREET. RAMP G IS AN ENTRANCE RAMP FROM 26TH STREET FOR SOUTHWARD MOVING TRAFFIC HEADING ACROSS MCMAHON CREEK. TWO INTERCHANGES, EACH CONSISTING OF 4 RAMPS, WILL ALSO BE CONSTRUCTED. THE FIRST INTERCHANGE WILL BE CONSTRUCTED AT RELOCATED BELMONT STREET WHERE NEW S.R. 7 CROSSES PINCH RUN CREEK. THE SECOND INTERCHANGE WILL BE CONSTRUCTED AT 26TH STREET WHERE THE NEW S.R. 7 BRIDGE CROSSES RELOCATED 26TH STREET, JUST NORTH OF MCMAHON CREEK.

DUE TO SPACE LIMITATIONS BETWEEN RELOCATED S.R. 7 AND THE EAST AND WEST RIGHT-OF-WAY, A PORTION OF MAIN LINE S.R. 7 WILL BE RETAINED WITHIN RETAINING WALLS. THE WALLS ARE LOCATED APPROXIMATELY BETWEEN STATIONS 797 TO 812+50 AND WILL RANGE IN HEIGHT BETWEEN 2 TO 17 FT., RETAINING A MAXIMUM EMBANKMENT HEIGHT OF ABOUT 15 FT.

THE PROJECT WILL CONSIST MAINLY OF EMBANKMENT CONSTRUCTION WITH FILL HEIGHTS TYPICALLY BETWEEN 7 AND 15 FT. WITH MAXIMUM HEIGHTS OF ABOUT 25 FT. AT THE APPROACHES TO THE THREE BRIDGES. WITHIN THE RELOCATION OF 10TH STREET AND THE PINCH RUN CHANNEL, CUTS AS DEEP AS 20 TO 30 FT., RESPECTIVELY, WILL BE REQUIRED.

GEOLOGY AND SITE OBSERVATIONS

THE PROJECT IS LOCATED ON THE EASTERN EDGE OF OHIO ALONG THE OHIO RIVER, MIDWAY BETWEEN THE NORTHERN AND SOUTHERN BOUNDARIES OF THE STATE. THE AREA LIES WITHIN THE UNGLACIATED ALLEGHENY (APPALACHIAN) PLATEAU PHYSIOGRAPHIC PROVINCE WHICH IS A BROAD DISSECTED UPLAND, UNDERLAIN BY ESSENTIALLY HORIZONTALLY BEDDED SEDIMENTARY ROCKS.

THE MAIN LINE ALIGNMENT LIES ON A RELATIVELY LEVEL AND FLAT RIVER TERRACE ALONG THE OHIO RIVER. TO THE WEST, WHERE CONNECTING SIDE ROADS WHICH ARE TO BE UPGRADED ARE LOCATED, THE LAND SURFACE IMMEDIATELY RISES AND BECOMES HILLY WITH HIGH RIDGES PRESENT. ALONG THE OHIO RIVER, THE RIDGETOPS ARE AS MUCH AS 680 FT. ABOVE RIVER LEVEL.

TWO MAJOR DRAINAGEWAYS WILL BE CROSSED, NAMELY PINCH RUN CREEK AND MCMAHON CREEK. THESE DRAINAGEWAYS ARE STEEP AND NARROW. AS MENTIONED, THE MAIN LINE ALIGNMENT CROSSES RELATIVELY LEVEL GROUND WITH GROUND SURFACE AT APPROXIMATE ELEVATION 648, ABOUT 24 FT. HIGHER THAN THE NORMAL POOL ELEVATION OF 624 OF THE OHIO RIVER.

THE SITE IS TYPICALLY OVERLAIN WITH 5 TO 10 FT. OF FILL MATERIAL. FILL DEPTHS ARE GREATEST AT THE STREAM CROSSINGS, AS MUCH AS 25 FT. UNDERLYING THE FILL TO BEDROCK ARE ALLUVIAL OR COLLUVIAL DEPOSITS OF CLAYEY AND SANDY SILT, SILTY CLAY AND CLAY AND SAND AND GRAVEL. THE BEDROCK TO BE ENCOUNTERED IS SHALE WITH LIMESTONE LAYERS AND SILTSTONE BELONGING TO THE DUNKARD GROUP OF EARLY PERMIAN AGE. THE BEDROCK DIPS TO THE SOUTHEAST AT AN AVERAGE RATE OF 18 FT. PER MILE.

EXPLORATION

NINETY-THREE BORINGS WERE DRILLED FOR THIS PROJECT IN FOUR DIFFERENT SERIES. TWENTY-TWO BORINGS LABELED A THRU E WERE DRILLED AT THE PROPOSED LOCATIONS OF BRIDGE SUBSTRUCTURES. THESE WERE STANDARD PENETRATION BORINGS AND SEVENTEEN OF THESE WERE TAKEN 5 FT. EACH INTO ROCK. BORINGS W-1 THRU W-12 WERE MADE ALONG THE LINES OF THE PROPOSED RETAINING WALLS. THESE WERE ALSO STANDARD PENETRATION BORINGS AND WERE DRILLED TO DEPTHS BETWEEN 15 TO 50 FT. FOUR OF THE BORINGS WERE DRILLED TO A REFUSAL CONDITION ON BEDROCK.

BORINGS PR-1 THRU PR-9 WERE DRILLED ALONG THE RELOCATED ALIGNMENT OF THE PINCH RUN CHANNEL. THESE INCLUDED BOTH STANDARD PENETRATION AND AUGER BORINGS. ROCK CORE WAS OBTAINED WITHIN FOUR OF THE BORINGS.

FIFTY R BORINGS (ROADWAY BORINGS) WERE DRILLED IN PROPOSED EMBANKMENT AND CUT AREAS FOR BOTH THE MAIN LINE AND CONNECTING SIDE ROADS. THESE INCLUDED BOTH STANDARD PENETRATION AND AUGER BORINGS TAKEN TO DEPTHS VARYING BETWEEN 5 TO 41.5 FT. BELOW EXISTING GRADE.

INVESTIGATIONAL FINDINGS

THE S.R. 7 PROJECT LIES ON A RATHER FLAT NARROW TERRACE IMMEDIATELY WEST AND PARALLEL TO THE OHIO RIVER. ALONG CENTERLINE THE EXISTING GRADE IS GENERALLY BETWEEN ELEVATION 640 TO 650, APPROXIMATELY 20 TO 25 FT. ABOVE NORMAL RIVER POOL ELEVATION OF 624. TO THE WEST OF CENTERLINE THE TERRAIN BECOME HILLY AND MOUNTAINOUS. TWO DRAINAGEWAYS WILL BE CROSSED WITHIN THIS INVESTIGATION, NAMELY PINCH RUN CREEK AND MCMAHON CREEK.

CONSIDERABLE FILL WAS FIRST ENCOUNTERED WITHIN ALMOST ALL OF THE BORINGS. THE FILL TYPICALLY RANGES IN DEPTH FROM 5 TO 10 FT., HOWEVER, FILL DEPTHS AS GREAT AS 15 TO 25 FT. WERE PENETRATED. THE FILL IS TYPICALLY A HETEROGENEOUS MIXTURE OF SILTY CLAY OR CLAYEY SILT WITH COAL AND SHALE FRAGMENTS OR A MIXTURE OF SAND, SILT, CINDERS, SLAG, ROCK, SHALE, COAL AND BRICK FRAGMENTS, ETC. THE FILL IS TYPICALLY MEDIUM STIFF OR LOOSE. VARIATIONS IN THE AMOUNT OF EACH CONSTITUENT OF THE FILL VARY FROM BORING TO BORING. MUCH OF THE FILL ENCOUNTERED IS CONSIDERED TO BE MINE SPOIL, A BY-PRODUCT OF THE COAL MINING INDUSTRY. BELMONT COUNTY IS KNOWN AS ONE OF THE LEADING PRODUCERS OF HIGH GRADE BITUMINOUS COAL IN OHIO.

CONTINUED ON SHEET 2

LEGEND FOR PROJECT - AVERAGE RESULTS OF TESTS

DESCRIPTION	AASHTO CLASS	OHIO CLASS	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	SAMPLES TESTED: LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	SAMPLES TESTED
GRAVEL	A-1-a(0)	A-1-a	65	16	9	- 10 -		N.P.	N.P.	16	9
SAND W/GRAVEL AND ROCK FRAGMENTS	A-1-b(0)	A-1-b	40	27	18	- 14 -		26	6	18	6
FINE SAND		A-3	VISUAL CLASSIFICATION					-	-	28	0
COARSE AND FINE SAND		A-3a	VISUAL CLASSIFICATION					-	-	22	0
GRAVEL W/SAND AND CLAY		A-2-6	-	-	-	-	-	-	-	31	0
SANDY SILT	A-4a(5)	A-4a	0	6	29	38	27	27	6	27	13
SILT	A-4b(7)	A-4b	0	0	18	54	28	27	6	32	5
SILT AND CLAY	A-6(9)	A-6a	0	3	14	50	33	36	15	30	4
SILTY CLAY	A-6(11)	A-6b	0	2	6	47	45	40	17	25	1
CLAY	A-7-6(14)	A-7-6	0	2	3	42	53	46	20	28	6
GRAVEL OR STONE FRAGMENTS WITH SAND & SILT	A-2-4(0)	A-2-4	46	11	9	- 34 -		-	-	-	1
WEATHERED SHALE			VISUAL CLASSIFICATION								
SHALE			VISUAL CLASSIFICATION								
LIMESTONE			VISUAL CLASSIFICATION								

AUGER BORING - PLAN VIEW

DRIVE SAMPLE BORING - PLAN VIEW

AUGER BORING PLOTTED TO VERTICAL SCALE ONLY - PROFILE

DRIVE SAMPLE PLOTTED TO VERTICAL SCALE ONLY - PROFILE

16 INDICATED WATER CONTENT IN PERCENT

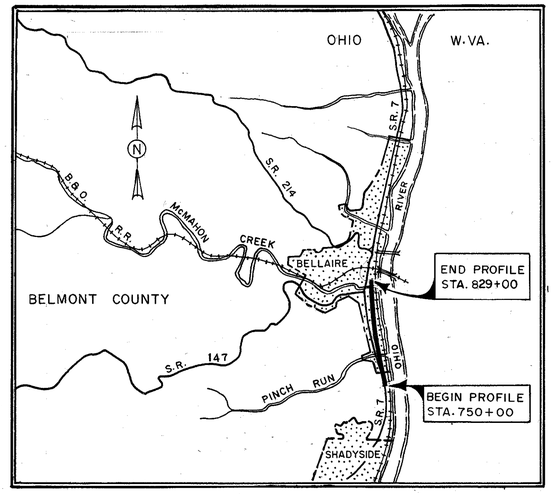
STATIC WATER LEVEL

W FREE WATER

INDICATES EXISTING FILL

X/Y NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
X = NUMBER OF BLOWS FOR FIRST 6 INCHES
Y = NUMBER OF BLOWS FOR SECOND 6 INCHES

C COAL



LOCATION MAP

SCALE IN MILES
0 .5 1 2 3

PROJECT INDEX				
STATION FROM - TO	PLAN VIEW SHEET	PROFILE SHEET	CUT (MAX.)	FILL EMB. (MAX.)
S.R. 7 750+00 - 830+00	3,4,5	3,4,5	0	27'
RAMP "A" 769+00 - 779+00	6	6	0	22'
RAMP "B" 761+00 - 768+00	6	6	1'	18'
RAMP "C" 761+00 - 770+00	6	6	0	12'
RAMP "D" 770+00 - 777+50	6	6	0	21'
RELOC. 12th ST. 3+50 - 10+00	7	7	0	16'
RELOC. BELMONT ST.1 8+00 - 24+00	7	7	0	26'

PROJECT INDEX				
STATION FROM - TO	PLAN VIEW SHEET	PROFILE SHEET	CUT (MAX.)	FILL EMB. (MAX.)
RELOC. 10th ST. 12+00 - 20+00	8	8	25'	10'
RELOC. PINCH RUN CHANNEL 7+00 - 23+00	12	12	29'	0
RETAINING WALL 797+15 - 813+00	15	15	0	15'
RAMP "F" 817+00 - 828+00	5	5	0	12'
RAMP "G" 816+00 - 828+00	5	5	0	15'
RELOC. 26th ST. 6+00 - 23+00	13	13	0	7'
RELOC. BELMONT ST. 2 11+00 - 24+00	13	13	0	7'

THE FILL IS UNDERLAIN BY SOILS FORMED IN ALLUVIUM AND COLLUVIUM LOCATED ON TERRACES AND FLOOD PLAINS OF THE OHIO RIVER. THE SOILS CONSIST OF SANDY AND CLAYEY SILT, SILTY CLAY AND CLAY AND SAND AND GRAVEL. UNDERLYING THE FILL COHESIVE DEPOSITS OF SANDY AND CLAYEY SILT OR SILTY CLAY AND CLAY ARE FIRST ENCOUNTERED. ON THE AVERAGE, THESE SOILS ARE 20 TO 25 FT. THICK. UNDERLYING THESE STRATA, SAND AND GRAVEL AND ROCK FRAGMENTS ARE ENCOUNTERED. THE SAND AND GRAVEL WAS GENERALLY ENCOUNTERED DOWN TO BEDROCK. ALONG MAIN LINE S.R. 7, BEDROCK WAS FIRST ENCOUNTERED AS HIGH AS ELEVATION 615 ALONG THE WEST SIDE OF THE PROPOSED RETAINING WALL, AND AS LOW AS 589 AT MCMAHON CREEK. THE BEDROCK WHICH IS ENCOUNTERED IS SHALE AND LIMESTONE LAYERS OF PERMIAN AGE.

THE ALLUVIAL SANDY AND CLAYEY SILT CONTAINS SAND LENSES OR SEAMS. IT CLASSIFIES FROM AN A-4a TO AN A-4b SOIL ACCORDING TO THE OHIO STATE HIGHWAY TESTING LABORATORY. IT HAS AN AVERAGE LIQUID LIMIT OF 27% WITH A PLASTICITY INDEX EQUAL TO 6% AT AN AVERAGE MOISTURE CONTENT RANGING BETWEEN 27 TO 32%. THE SILTY CLAY AND CLAY CLASSIFIES BETWEEN A-6 TO AN A-7-6 SOIL. AVERAGE LIQUID LIMITS RANGE BETWEEN 36 TO 40% WITH PLASTICITY INDICES BETWEEN 15 TO 17%, WITH WATER CONTENTS RANGING BETWEEN 25 TO 30%. THE CLAY CLASSIFIES AS AN A-7-6 SOIL, WITH AN AVERAGE LIQUID LIMIT EQUAL TO 46%, A PLASTICITY INDEX OF 20% AT A MOISTURE CONTENT OF 28%. THE GRANULAR SOILS GENERALLY CLASSIFY AS AN A-1-a OR A-1-b SOIL CONSISTING OF SAND, GRAVEL AND ROCK FRAGMENTS.

STATION TO STATION ANALYSIS

STATION 650+00 TO 768+00

BORINGS R-2 THRU R-5 WERE DRILLED WITHIN THIS SECTION. BETWEEN 1 TO 10 FT. OF FILL WAS FIRST ENCOUNTERED. THE FILL CONSISTS OF MOIST, MEDIUM STIFF TO STIFF SILTY CLAY CONTAINING SHALE, COAL AND ROCK FRAGMENTS. THE FILL IS UNDERLAIN BETWEEN 10 TO 15 FT. BELOW GRADE BY BROWN AND GRAY A-6 TO A-7-6 MOIST STIFF SILTY CLAY AND CLAY.

STATION 768+00 TO 777+00 (MAIN LINE)

BORINGS A-1 THRU A-4 WERE DRILLED FOR THE PROPOSED BRIDGE OVER RELOCATED BELMONT STREET AT PINCH RUN CREEK TO DEPTHS BETWEEN 30 TO 44 FT. BELOW EXISTING GRADE DOWN TO BEDROCK. BORINGS A-2 AND A-4 WERE DRILLED ON THE TOP EDGE OF RUBBLE FILLED SLOPES ADJACENT TO PINCH RUN. A-1 AND A-3 WERE DRILLED ON THE FLOOD PLAIN OF PINCH RUN CREEK. BORINGS A-2 AND A-4 FIRST ENCOUNTERED A MIXTURE OF 12.5 TO 15 FT. OF HETEROGENEOUS FILL CONSISTING OF SILTY CLAY, SHALE AND COAL FRAGMENTS. THE FILL IS ENCOUNTERED TO ABOUT ELEVATION 633. UNDERLYING THE FILL AND FIRST ENCOUNTERED WITHIN A-1 AND A-3 ARE ALLUVIAL DEPOSITS OF CLAYEY SILT AND SILTY CLAY. IT IS GENERALLY MOIST WITH A CONSISTENCY OF MEDIUM STIFF. THIS STRATUM IS ENCOUNTERED DOWN TO ELEVATIONS OF 629 TO 620. THIS IS UNDERLAIN TO BEDROCK BY WET, MEDIUM DENSE TO VERY DENSE, CLAYEY SAND, GRAVEL AND ROCK FRAGMENTS. BROWN AND GRAY SOFT WEATHERED SHALE BEDROCK WAS ENCOUNTERED BETWEEN ELEVATIONS 605 TO 612, APPROXIMATELY 25 TO 40 FT. BELOW EXISTING GRADE.

STATION 770+00 TO STATION 797+00

BORINGS R-6 THRU R-13 WERE DRILLED TO INVESTIGATE THE SUBSURFACE CONDITIONS FOR THE 7 TO 14 FT. HIGH EMBANKMENTS IN THIS AREA. FIRST ENCOUNTERED WAS 5 TO 10 FT. OF FILL MATERIAL. AT R-6 THE FILL WAS 15 FT. DEEP. THE FILL CONSISTED OF SILTY CLAY TO CLAYEY SILT WITH COAL, SHALE AND ROCK FRAGMENTS. IT IS MEDIUM STIFF TO LOOSE. THE FILL IS UNDERLAIN BY A-4 TO A-6 CLAYEY OR SANDY SILT OR SILTY CLAY TO ABOUT ELEVATION 625, 20 FT. BELOW GROUND SURFACE. IT IS MOIST, WITH A CONSISTENCY OF STIFF, HAVING AN AVERAGE N-VALUE EQUAL TO ABOUT 12. MOISTURE CONTENTS RANGED BETWEEN 20 TO 27%. BORING R-12 WAS THE ONLY BORING EXTENDED BELOW A DEPTH OF 20 FT. IT WAS DRILLED TO 41.5 FT. TO ELEVATION 605. BELOW ELEVATION 625 AND DOWN TO 606 FOR ABOUT 20 FT., MOIST TO VERY MOIST, MEDIUM STIFF TO STIFF A-4 TO A-6 SANDY SILT TO SANDY CLAY WITH SAND LENSES WAS ENCOUNTERED. N-VALUES RANGED BETWEEN 5 TO 12. WET, MEDIUM DENSE A-1-a SAND AND GRAVEL WAS ENCOUNTERED AT ELEVATION 606, 40 FT. BELOW EXISTING GRADE.

STATION 797+00 TO 813+00

BETWEEN STATIONS 797 TO 813, MAIN LINE S.R. 7 WILL BE RETAINED BETWEEN WALLS DUE TO SPACE LIMITATIONS BETWEEN S.R. 7 AND EAST AND WEST RIGHT-OF-WAY. BORINGS W-1 THRU W-12 WERE DRILLED TO EXPLORE SUBSURFACE CONDITIONS FOR THE PROPOSED RETAINING WALLS. GROUND ELEVATION VARIES BETWEEN 647 TO 653. FIVE TO TEN FEET OF HETEROGENEOUS LOOSE FILL MATERIAL CONSISTING OF SILTY CLAY, CLAYEY SILT, CINDERS AND COAL AND BRICK FRAGMENTS WAS FIRST ENCOUNTERED WITHIN THE BORINGS. UNDERLYING THE FILL ALONG THE SOUTHERN PORTIONS OF THE WALL (STATION 797 TO 804), 5 TO 10 FT. OF A-7-6 CLAY WAS PENETRATED. THE TESTED SAMPLES HAD LIQUID LIMITS RANGING BETWEEN 44 TO 50% WITH WATER CONTENTS BETWEEN 29 TO 46%. STRENGTH TESTS RUN ON FIVE SAMPLES HAD UNCONFINED COMPRESSIVE STRENGTHS BETWEEN .76 TO 1.10 TSF. MOVING NORTHWARD AHEAD OF APPROXIMATE STATION 804, THE FILL IS UNDERLAIN BY A-6 STIFF SILTY CLAY HAVING AN AVERAGE N-VALUE OF ABOUT 10 WITH MOISTURE CONTENTS RANGING BETWEEN 20 TO 30%. UNDERLYING THE A-7-6 CLAY AND A-6 SILTY CLAY IS EITHER A-6a SILTY CLAY OR A-4 CLAYEY SILT. THIS IS ENCOUNTERED TO A DEPTH OF 30 FT. BELOW EXISTING GRADE TO ELEVATION 620. THIS STRATUM IS LOOSE TO MEDIUM DENSE OR SOFT TO STIFF WITH N-VALUES BETWEEN 3 TO 12. THIS STRATUM GENERALLY WAS INTERBEDDED WITH SAND LENSES AND SEAMS AND IS MOIST TO WET. AT ELEVATION 620, WET, MEDIUM DENSE TO DENSE SAND AND GRAVEL WAS ENCOUNTERED TO BEDROCK. ALONG THE WEST SECTION OF THE WALL, SHALE BEDROCK WAS ENCOUNTERED AT ABOUT ELEVATION 615 WHILE ALONG THE EAST SECTION BEDROCK WAS ENCOUNTERED AT ELEVATION 600, INDICATING THAT THE ROCK IS DIPPING TO THE EAST TOWARDS THE OHIO RIVER.

STATION 813+00 TO 819+50

BORINGS R-14 AND R-15 WERE DRILLED FOR THE 10 FT. HIGH EMBANKMENTS APPROACHING MCMAHON BRIDGE. TWO FEET OF LOOSE TO MEDIUM DENSE FILL CONSISTING OF SAND, CINDERS, BRICK AND COAL FRAGMENTS WAS FIRST ENCOUNTERED. THIS IS UNDERLAIN TO 12 FT. BY MOIST, MEDIUM STIFF TO STIFF A-4 TO A-6 SANDY TO SILTY CLAY AND CLAYEY SANDY SILT. N-VALUES RANGE FROM 11 TO 19 WITH WATER CONTENTS BETWEEN 18 TO 26%.

STATION 819+50 TO 824 (MAIN LINE & BRIDGE RAMPS F & G)

SIX BORINGS WERE DRILLED FOR THE PROPOSED ABUTMENTS AND SIX BORINGS WERE DRILLED IN THE CREEK CHANNEL FOR THE PROPOSED PIERS FOR THE S.R. 7 BRIDGE AND RAMPS F AND G OVER MCMAHON CREEK. ALSO, FOUR BORINGS (B-5 THRU B-8) WERE DRILLED TO INVESTIGATE SOIL CONDITIONS AT THE SOUTH AND NORTH SPILL-THRU SLOPES. NORMAL WATER FLOW ELEVATION IS 624. THE EMBANKMENTS ON BOTH SIDES OF THE CREEK ARE AT ABOUT ELEVATION 646, 22 FT. ABOVE FLOW LINE. WITHIN ALL BORINGS DRILLED FOR THE ABUTMENTS, FILL MATERIAL WAS FIRST ENCOUNTERED. THE FILL RANGES IN DEPTH FROM 5 TO 25 FT. THE GREATEST DEPTHS OF FILL WERE FOUND ON THE SOUTH SIDE OF THE CREEK WITHIN BORINGS B-1, D-1, E-1, B-5 AND B-6, RANGING IN DEPTH FROM 12.5 FT. IN E-1 TO 25 FT. IN D-1. ON THE NORTH SIDE OF THE CREEK WITHIN BORINGS B-4, D-4, E-4, B-7 AND B-8, FILL DEPTHS RANGED BETWEEN 5 TO 12.5 FT. THE FILL IS A HETEROGENEOUS MIXTURE CONTAINING CLAYEY SILT, SILTY CLAY, SHALE, COAL, BRICK AND WOOD FRAGMENTS, CINDERS, SAND AND GRAVEL AND LARGE PIECES OF ROCK AND CONCRETE.

SOUTH BRIDGE ABUTMENTS

UNDERLYING THE FILL IS A 20 TO 28 FT. THICK STRATUM OF STIFF TO VERY STIFF SILTY CLAY. THIS WAS ENCOUNTERED TO ELEVATIONS BETWEEN 608 TO 601. IT CLASSIFIES AS AN A-6a TO AN A-7-6 SOIL. LOOSE TO MEDIUM DENSE SAND, GRAVEL AND ROCK FRAGMENTS WERE ENCOUNTERED BELOW THE SILTY CLAY TO BEDROCK. SHALE BEDROCK WAS PENETRATED BETWEEN ELEVATIONS 590 IN D-1 TO 598 IN E-1.

SOUTH PIERS

BORINGS B-2, D-2 AND E-2 WERE DRILLED OUT IN THE CREEK FOR THESE PIERS. APPROXIMATELY 23 FT. OF LOOSE TO SOFT ALLUVIAL DEPOSITS WERE ENCOUNTERED. BEDROCK WAS ENCOUNTERED BETWEEN ELEVATIONS 596 AND 600.

NORTH BRIDGE PIERS

AT THE NORTH BRIDGE PIERS, BORINGS B-3, D-3 AND E-3 WERE DRILLED. BETWEEN 20 TO 27 FT. OF ALLUVIAL DEPOSITS WERE ENCOUNTERED ABOVE BEDROCK. SHALE WAS ENCOUNTERED BETWEEN ELEVATIONS 596 AT D-3 TO 603 AT E-3.

NORTH BRIDGE ABUTMENTS

BORINGS B-4, D-4, E-4, B-7 AND B-8 WERE DRILLED FOR THE NORTH ABUTMENTS. SILTY CLAY AND CLAYEY SILT WERE ENCOUNTERED BELOW THE FILL TO ABOUT ELEVATION 615. THIS WAS UNDERLAIN TO BEDROCK BY 13 TO 27 FT. OF WET, MEDIUM DENSE SAND AND GRAVEL. BEDROCK WAS ENCOUNTERED BETWEEN ELEVATIONS 589 IN D-4 TO 601 IN E-4, 40 TO 57 FT. BELOW EXISTING GRADES.

STATION 824+00 TO 830+00 (MAIN LINE & RAMPS F & G)

BORINGS C-1 AND C-4 WERE DRILLED FOR THE S.R. 7 BRIDGE OVER 26TH STREET WHILE R-37, R-38 AND R-40 REVEALED CONDITIONS ALONG RAMPS F AND G. 2.5 TO 7.5 FT. OF HETEROGENEOUS FILL WAS FIRST ENCOUNTERED. THE FILL IS GENERALLY UNDERLAIN TO ABOUT ELEVATION 635 TO 630 BY MOIST, STIFF CLAYEY TO SANDY SILT. BELOW THIS TO ABOUT ELEVATION 620, AS INDICATED BY BORING C-1, THE SANDY SILT IS WET AND SOFT. WITHIN HOLE C-4 THE FILL IS UNDERLAIN BY AN 18 FT. THICK STRATUM OF MOIST, LOOSE TO MEDIUM DENSE, FINE TO MEDIUM SAND WITH CLAYEY SAND LAYERS. AT APPROXIMATE ELEVATION 620, 25 TO 30 FT. BELOW GRADE, WET, MEDIUM DENSE TO DENSE SAND AND GRAVEL WAS ENCOUNTERED TO BEDROCK. SHALE BEDROCK IS ENCOUNTERED 60 FT. BELOW GRADE AT ELEVATION 590.

PINCH RUN CHANNEL

PINCH RUN CREEK FROM THE INTERSECTION OF 10TH AND 12TH STREETS TO THE OHIO RIVER WILL BE RELOCATED TO THE SOUTH OF EXISTING PINCH RUN. PROCEEDING EASTWARD ALONG THE FLOOD PLAIN OF PINCH RUN, THE NEW ALIGNMENT TURNS SOUTHEASTWARD AT STATION 13+50 CROSSING OVER THE EAST EDGE OF THE BEDROCK HILLS AT 11TH STREET, AND TERMINATES WHERE PINCH RUN ENTERS THE OHIO RIVER. BORINGS PR-1 THRU PR-9 WERE DRILLED FOR THIS NEW ALIGNMENT. BORINGS PR-1 THRU PR-5 WERE DRILLED BETWEEN STATIONS 9 TO 17. SHALE WITH LIMESTONE LAYERS WAS ENCOUNTERED AS HIGH AS ELEVATION 645 ABOUT 3 FT. BELOW GROUND SURFACE IN PR-5 TO AS LOW AS 636, 7.5 FT. WITHIN PR-3. THE ROCK IS OVERLAIN BY 5 TO 10 FT. OF FILL AND COLLUVIUM OR ALLUVIUM. BETWEEN STATIONS 17 TO 22, 8 TO 22 FT. OF FILL WAS ENCOUNTERED. THIS IS UNDERLAIN BY SILTY CLAY, CLAYEY SILT, SAND AND GRAVEL TO BEDROCK. BEDROCK IS ENCOUNTERED BETWEEN ELEVATION 624, 25 FT. BELOW GRADE AT PR-6 TO 590, 35 FT. BELOW GRADE AT PR-9, ADJACENT TO THE OHIO RIVER.

INTERCHANGE RAMP B

RAMP B BEGINS ABOUT 600 FT. SOUTH OF PINCH RUN CREEK ON DEVELOPED LAND AT APPROXIMATE ELEVATION 660 AND TERMINATES ALONG THE FLOOD PLAIN AT PINCH RUN AT THE RELOCATION OF BELMONT STREET AT APPROXIMATE ELEVATION 638. APPROACHING PINCH RUN, AT LEAST 16.5 FT. OF FILL IS FIRST ENCOUNTERED. ALONG THE FLOOD PLAIN, BORING R-18 INDICATES APPROXIMATELY 28 FT. OF MOIST TO VERY MOIST CLAYEY SILT WHICH IS PENETRATED TO ELEVATION 610. IT IS UNDERLAIN BY MEDIUM DENSE TO DENSE SAND AND GRAVEL AND ROCK FRAGMENTS.

INTERCHANGE RAMP A

RAMP A BEGINS AT THE END OF RAMP B ON THE FLOOD PLAIN OF PINCH RUN AND PROCEEDS NORTHWARD UP THE FILLED CHANNEL SLOPES OF PINCH RUN. GRADE IS GENERALLY LEVEL WITH GROUND ELEVATION AT ABOUT 650. 15 TO 8.5 FT. OF FILL WAS FIRST ENCOUNTERED. THIS IS UNDERLAIN TO ABOUT ELEVATION 612 BY ALLUVIAL SILTY CLAY AND CLAYEY SILT. IT IS GENERALLY MOIST TO VERY MOIST WITH A CONSISTENCY OF STIFF. CLAYEY SAND AND GRAVEL WITH ROCK FRAGMENTS IS ENCOUNTERED BELOW THIS STRATUM AT ABOUT 30 FT. BELOW GRADE.

PINCH RUN PUMP STATION

BORING R-46 WAS DRILLED AT THE PROPOSED LOCATION OF THE PINCH RUN PUMP STATION. THE PUMP STATION WILL BE LOCATED ADJACENT TO PINCH RUN CREEK AT STATION 9+32 (12TH STREET), 58 FT. RIGHT. THE PUMP STATION WILL BE A 22'X12' CAST-IN-PLACE CONCRETE STRUCTURE. DESIGN BASE ELEVATION IS 621.5, WITH GROUND ELEVATION OF 656.0 AND A ROOF ELEVATION OF 667.0. EXISTING GRADE AT THE BORING LOCATION IS 639.

BORING R-46 WAS DRILLED TO A REFUSAL CONDITION ON SHALE BEDROCK AT 26 FT. BELOW EXISTING GRADE AT ELEVATION 613.1. TO A DEPTH OF 12.5 FT. (ELEVATION 626.6), MOIST TO WET A-4 SANDY SILTY CLAY WITH ROCK FRAGMENTS WAS ENCOUNTERED. THIS IS UNDERLAIN BY WET, MEDIUM DENSE A-2-4 CLAYEY SAND, GRAVEL AND ROCK FRAGMENTS. SOFT GRAY SHALE WAS ENCOUNTERED AT ELEVATION 615, 24 FT. BELOW EXISTING GRADE.

IMMEDIATE WATER WAS ENCOUNTERED AT 10.5 FT. AT ELEVATION 638.6. NORMAL POOL ELEVATION OF THE OHIO RIVER IS AT ELEVATION 624. PUMP STATION BASE IS AT ELEVATION 621.5.

INTERCHANGE RAMP C

EXISTING CENTERLINE GRADE ALONG RAMP C RANGES FROM 665 TO 647. BORINGS R-22 AND PR-6 REPRESENT THE SOIL PROFILE WITHIN THIS SECTION. FROM 2 TO 7.5 FT. OF FILL WAS FIRST ENCOUNTERED. THE FILL IS UNDERLAIN BY A-6 TO A-7-6 MEDIUM STIFF TO STIFF SILTY CLAY.

INTERCHANGE RAMP D

BEGINNING AT STATION 770, RAMP D CROSSES PINCH RUN CREEK WHICH WILL BE FILLED IN AND EXTENDS TO ABOUT STATION 778 WHERE IT TIES IN WITH MAIN LINE S.R. 7. BORINGS R-23 AND R-24 WERE DRILLED FOR THIS RAMP. ABOUT 7 FT. OF FILL WAS FIRST ENCOUNTERED. THIS WAS UNDERLAIN BY VERY MOIST TO MOIST, MEDIUM STIFF TO STIFF A-4 CLAYEY SANDY SILT TO 21.5 FT. IN DEPTH IN BORING RB-24. DENSE A-1-B CLAYEY SAND AND GRAVEL WAS ENCOUNTERED AT 14 FT. IN RB-23.

BELMONT STREET NO. 1

RELOCATED BELMONT STREET BEGINS AT ABOUT STATION 8+00 AT THE INTERSECTION OF RAMPS A AND B ON THE FLOOD PLAIN OF PINCH RUN CREEK AT ELEVATION 636. IT THEN PROCEEDS WESTWARD CROSSING PINCH RUN AND EXISTING BELMONT STREET AND THEN HEADS NORTHWARD, AGAIN CROSSING PINCH RUN AND TERMINATES AT STATION 24 WHERE IT TIES INTO EXISTING BELMONT STREET. BRIDGE BORINGS A-1 THRU A-4 AND ROADWAY BORINGS R18, R-25 AND R-27 ARE INDICATIVE OF THE SOIL CONDITIONS TO BE ENCOUNTERED. TYPICALLY, FILL OF VARIOUS DEPTHS OVERLIES THIS ALIGNMENT UNDERLAIN BY DEPOSITS OF SILTY CLAY TO CLAYEY SILT.

12TH STREET

BORINGS R-28 AND R-29 WERE DRILLED FOR THE UPGRADING OF 12TH STREET. 5 TO 7 FT. OF MEDIUM DENSE GRANULAR FILL WAS FIRST ENCOUNTERED. THIS IS UNDERLAIN BY A 4 FT. STRATUM OF SOFT TO STIFF A-4A SANDY CLAYEY SILT. CLAYEY SAND AND ROCK FRAGMENTS WERE ENCOUNTERED TO ABOUT 10 FT.

10TH STREET

10TH STREET RELOCATION BEGINS AT PINCH RUN CREEK ADJACENT TO 12TH STREET AT ABOUT ELEVATION 650. THE ALIGNMENT PROCEEDS SOUTHWARD UP THE ADJACENT HILLSIDE TERMINATING AT ABOUT STATION 18+00, MATCHING EXISTING 10TH STREET AT ELEVATION 745 FOR A TOTAL RELIEF OF ABOUT 100 FT. BORINGS R-30 THRU R-33 AND R-47 THRU R-52 REPRESENT THE SOIL PROFILE. PROCEEDING UP THE LOWER TO MID SLOPES, REFUSAL ON BEDROCK WAS ENCOUNTERED BETWEEN 5 TO 13.5 FT. AT BORINGS R-30 AND R-52, DRILLED ON THE HIGHER UPPER SLOPES, REFUSAL ON BEDROCK WAS ENCOUNTERED AT 19 FT. (ELEVATION 712) AND 30 FT. (ELEVATION 711.2) RESPECTIVELY. BEDROCK IS OVERLAIN BY FILL AND COLLUVIAL CLAY.

26TH STREET

BORINGS R-40 THRU R-43 WERE DRILLED ALONG RELOCATED 26TH STREET. 6 TO 15 FT. OF FILL WAS FIRST ENCOUNTERED. THE FILL IS GENERALLY GRANULAR CONSISTING OF CINDERS, SAND, SLAG, COAL FRAGMENTS, ETC. THE FILL IS UNDERLAIN BY A-4 TO A-7-6 MEDIUM STIFF TO STIFF CLAYEY SILT TO SILTY CLAY.

RELOCATED BELMONT STREET NO. 2

BORINGS R-41, R-44 AND R-45 INDICATE SOIL CONDITIONS TO BE ENCOUNTERED ALONG RELOCATED BELMONT STREET. 7.5 TO 12.5 FT. OF FILL WAS FIRST ENCOUNTERED. THIS IS UNDERLAIN BY MEDIUM STIFF TO STIFF CLAYEY SILT OR SILTY CLAY.

GROUNDWATER

FROM EXAMINATION OF THE DEEP BORINGS DRILLED FOR THE THREE BRIDGES AND THE RETAINING WALL IT IS EXPECTED THAT THE GROUNDWATER TABLE IS APPROXIMATELY BETWEEN ELEVATIONS 625 TO 630, ABOUT 20 TO 25 FT. BELOW EXISTING GRADE. NORMAL POOL ELEVATION OF THE OHIO RIVER IS 624.

SOIL PROFILE

BELMONT COUNTY
BEL-7-14.17

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO 45226

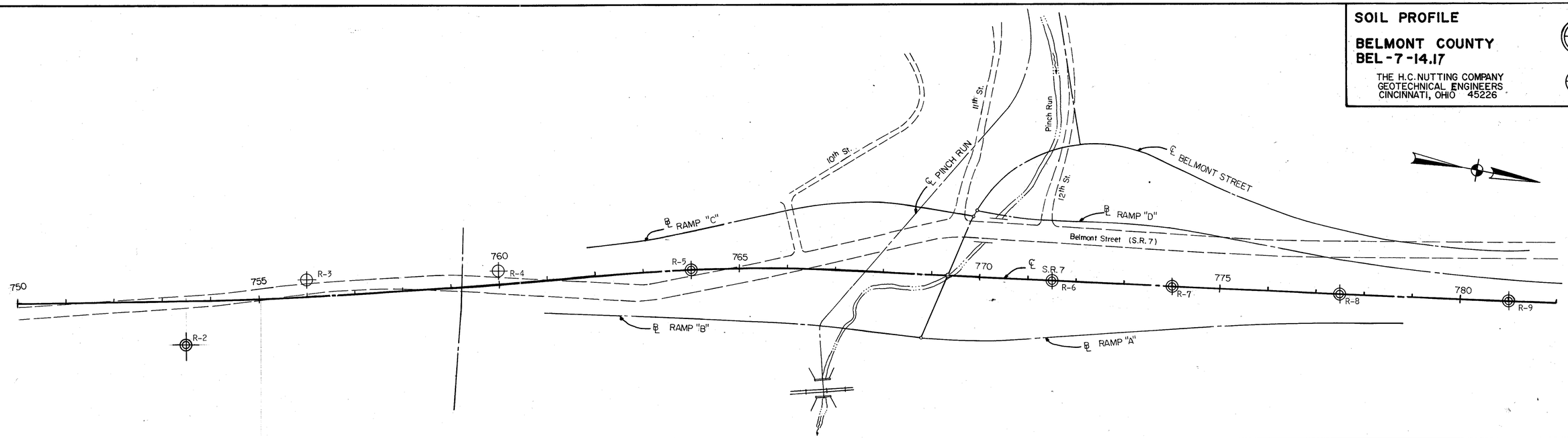
SOIL PROFILE

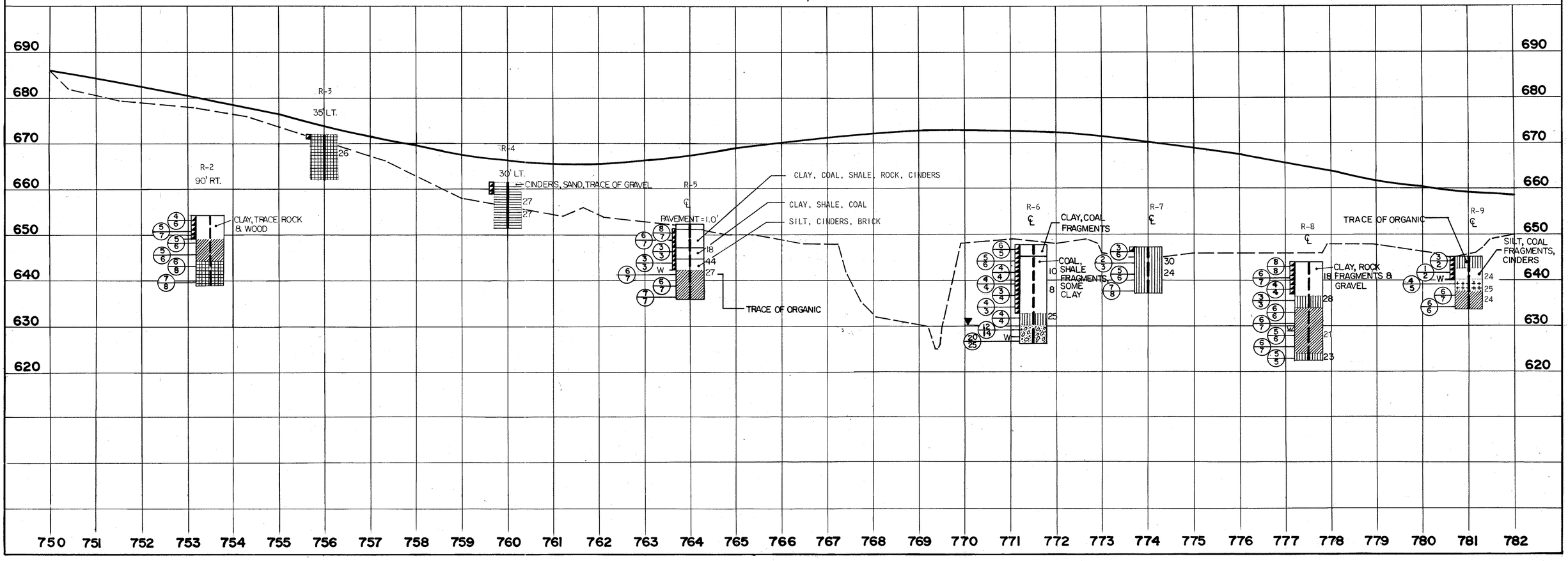
BELMONT COUNTY
BEL-7-14.17

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO 45226

3/40

3/26





R-2

SOIL PROFILE

BELMONT COUNTY
BEL-7-14.17

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO 45226

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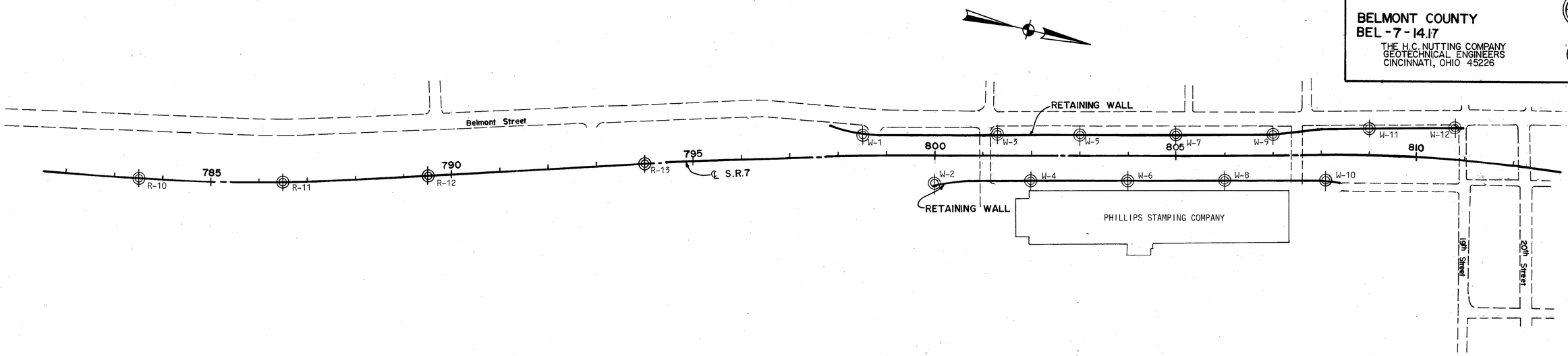
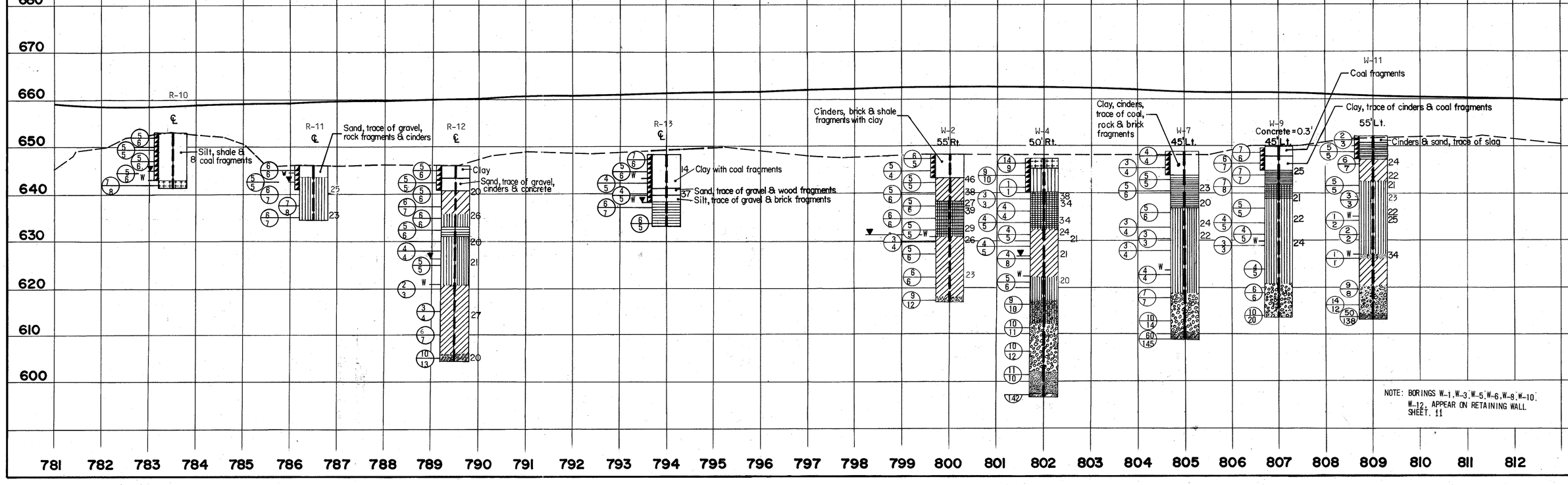
4/26





SOIL PROFILE

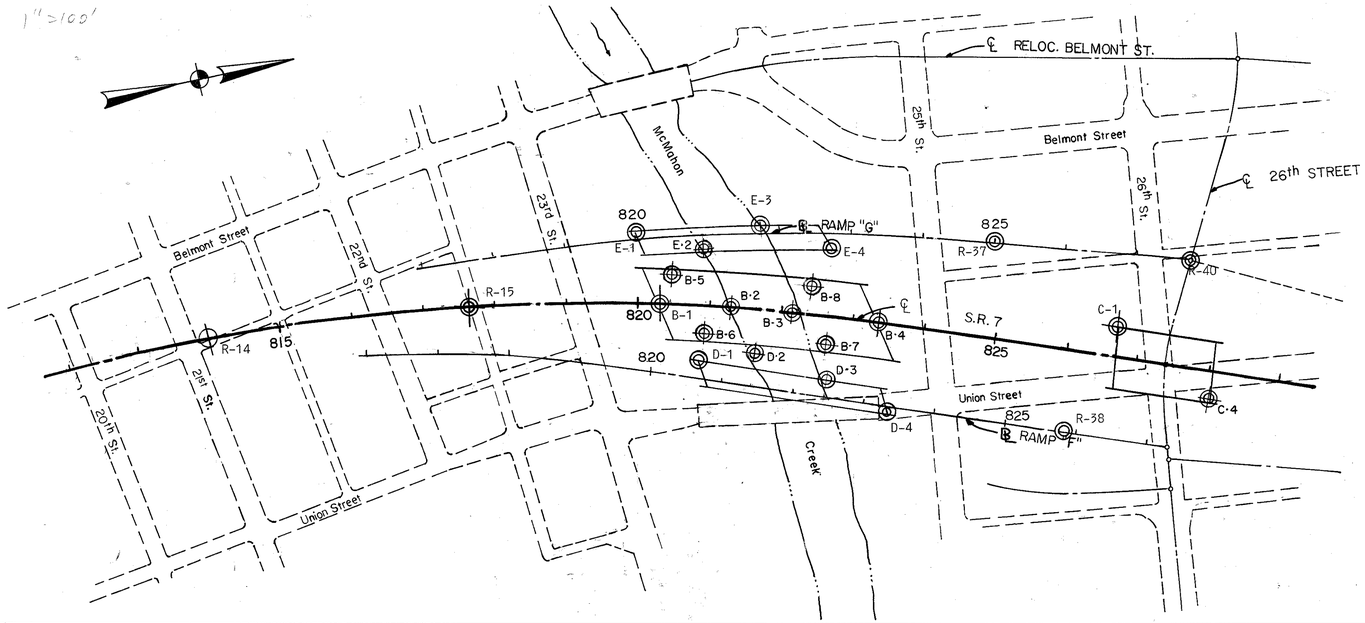
BELMONT COUNTY
BEL-7-14.17

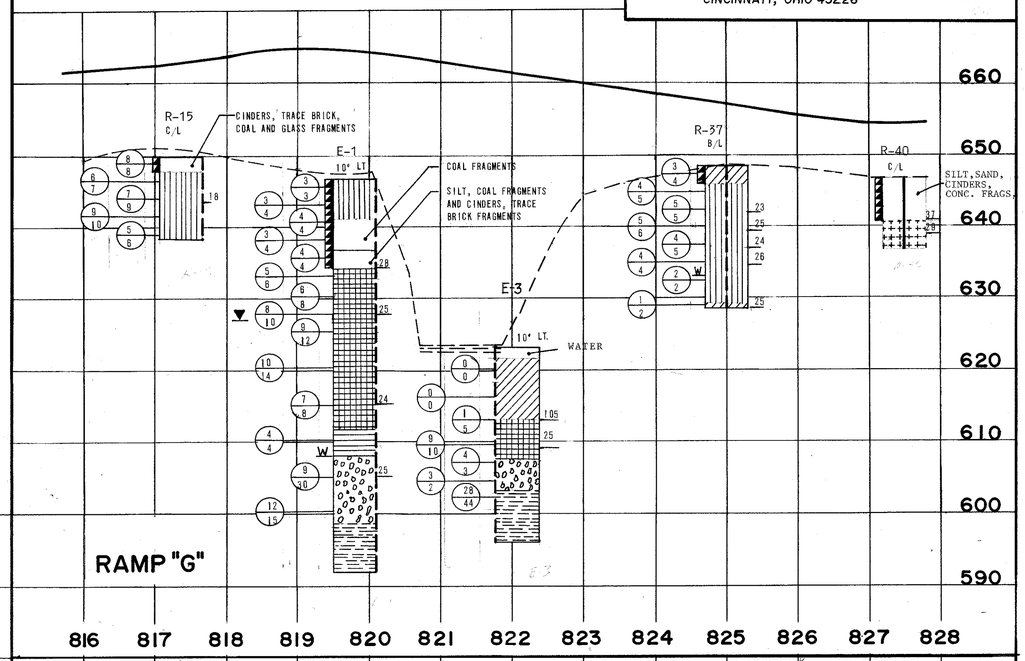
THE H. C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO 45226

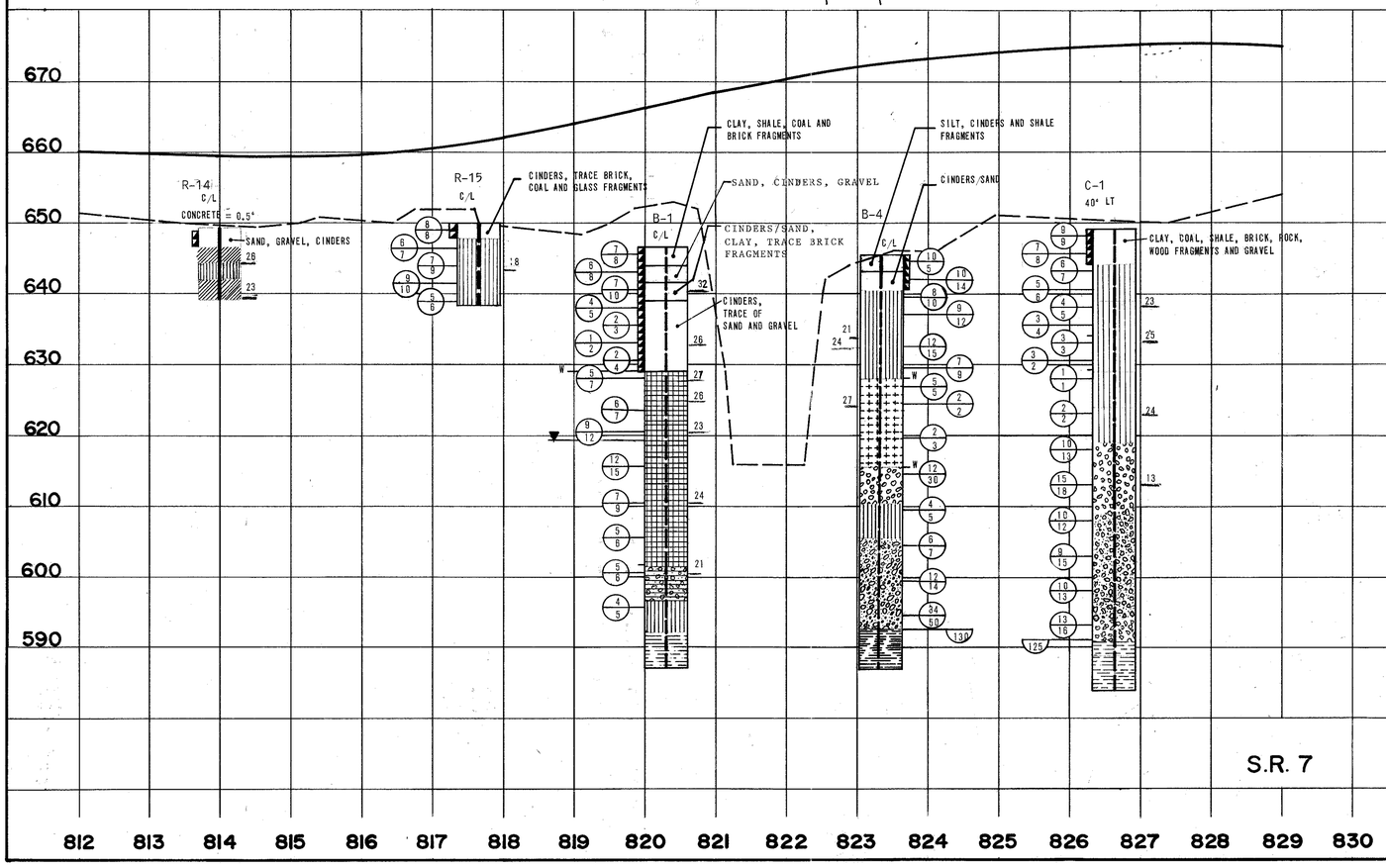
5/40

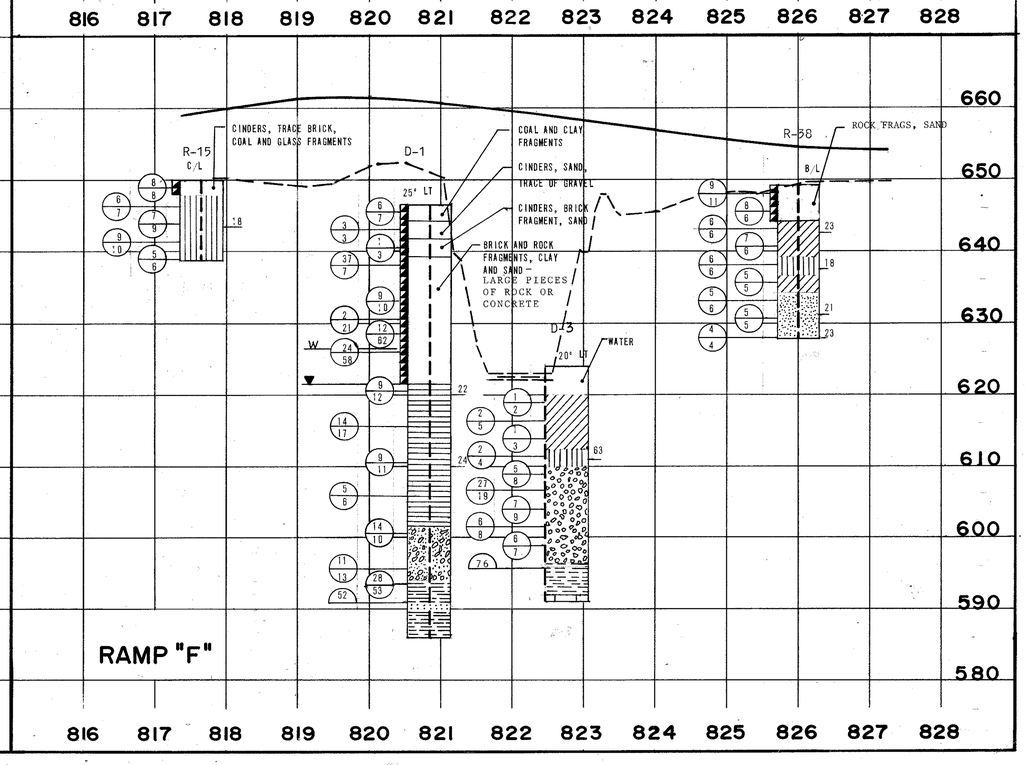
5/26

1"=100'









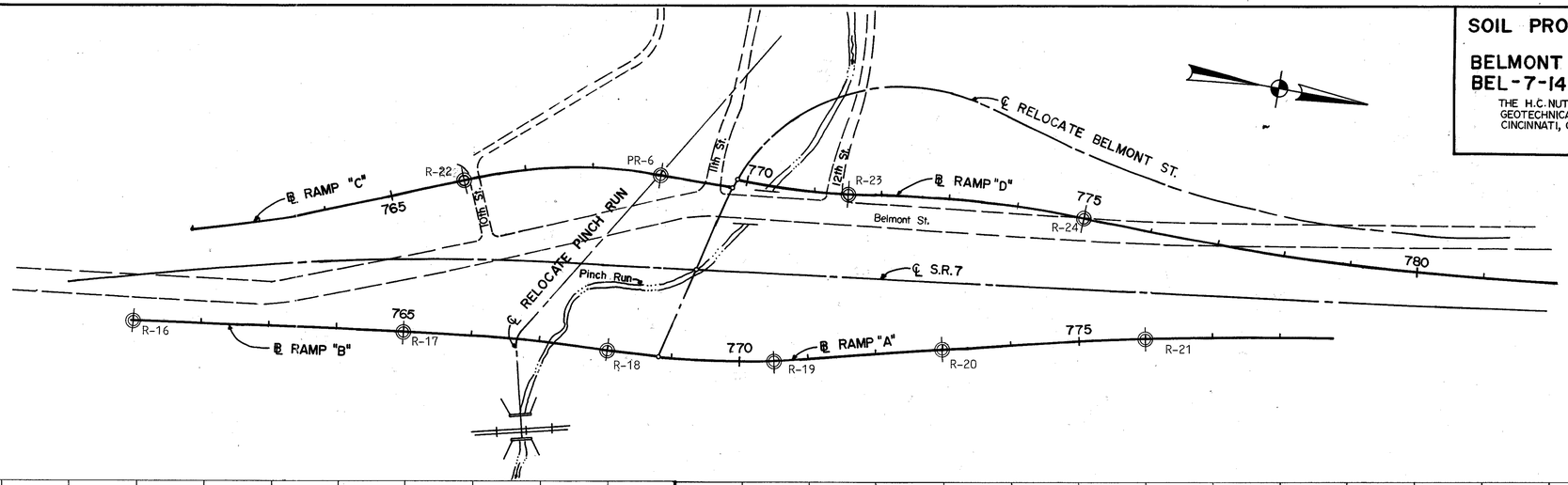
SOIL PROFILE

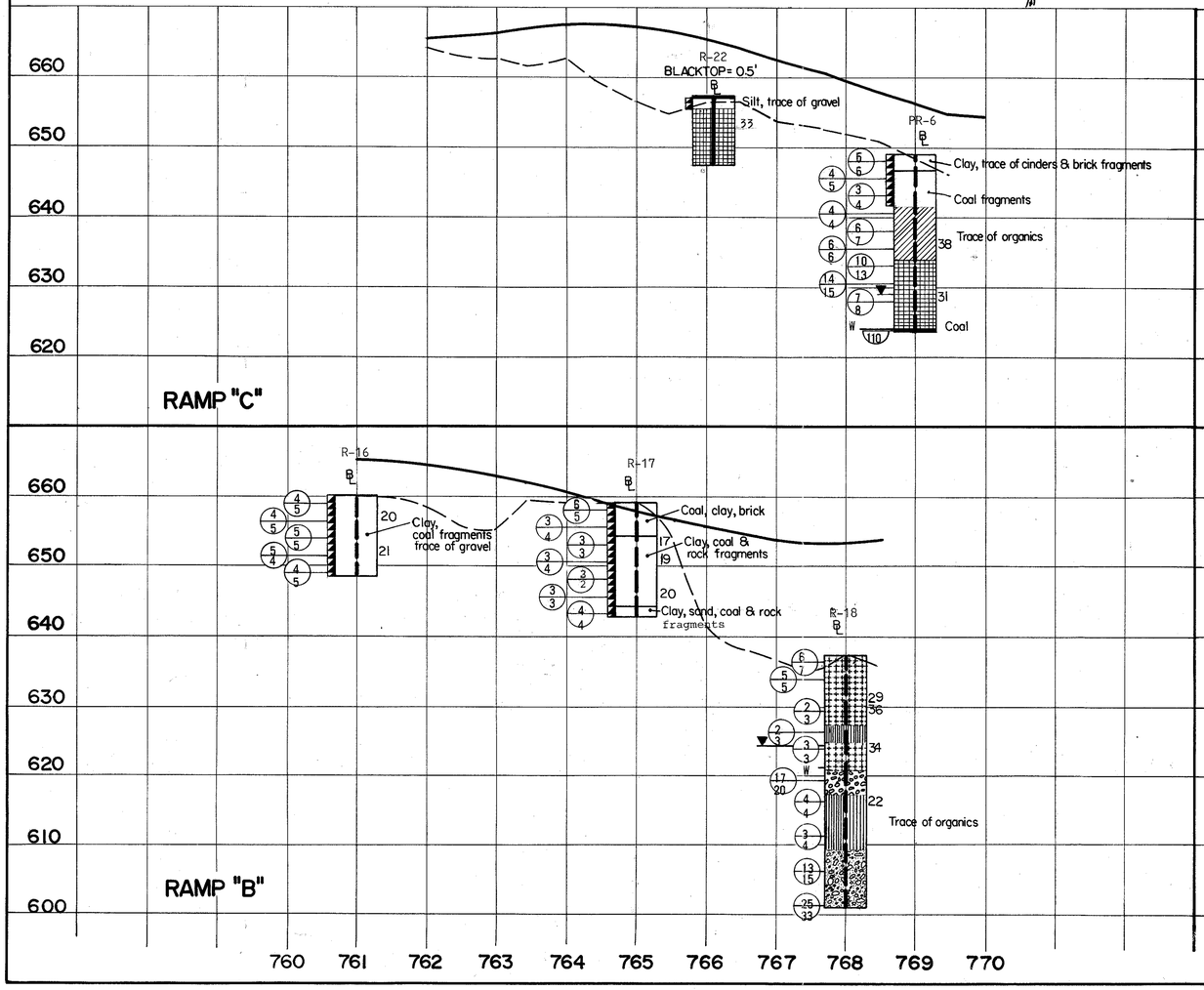
BELMONT COUNTY
BEL-7-14.17

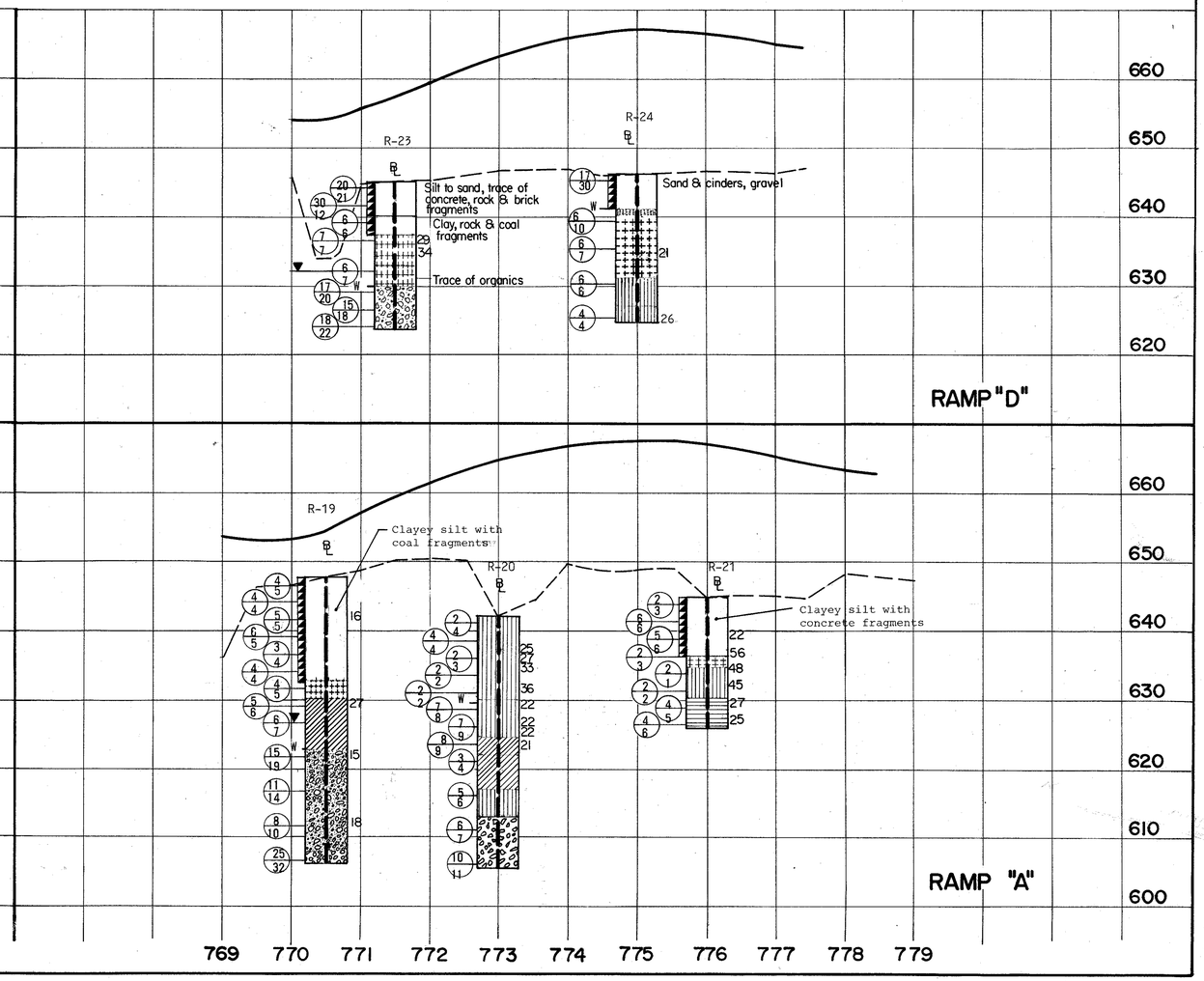
THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO 45226

6/40

6/26







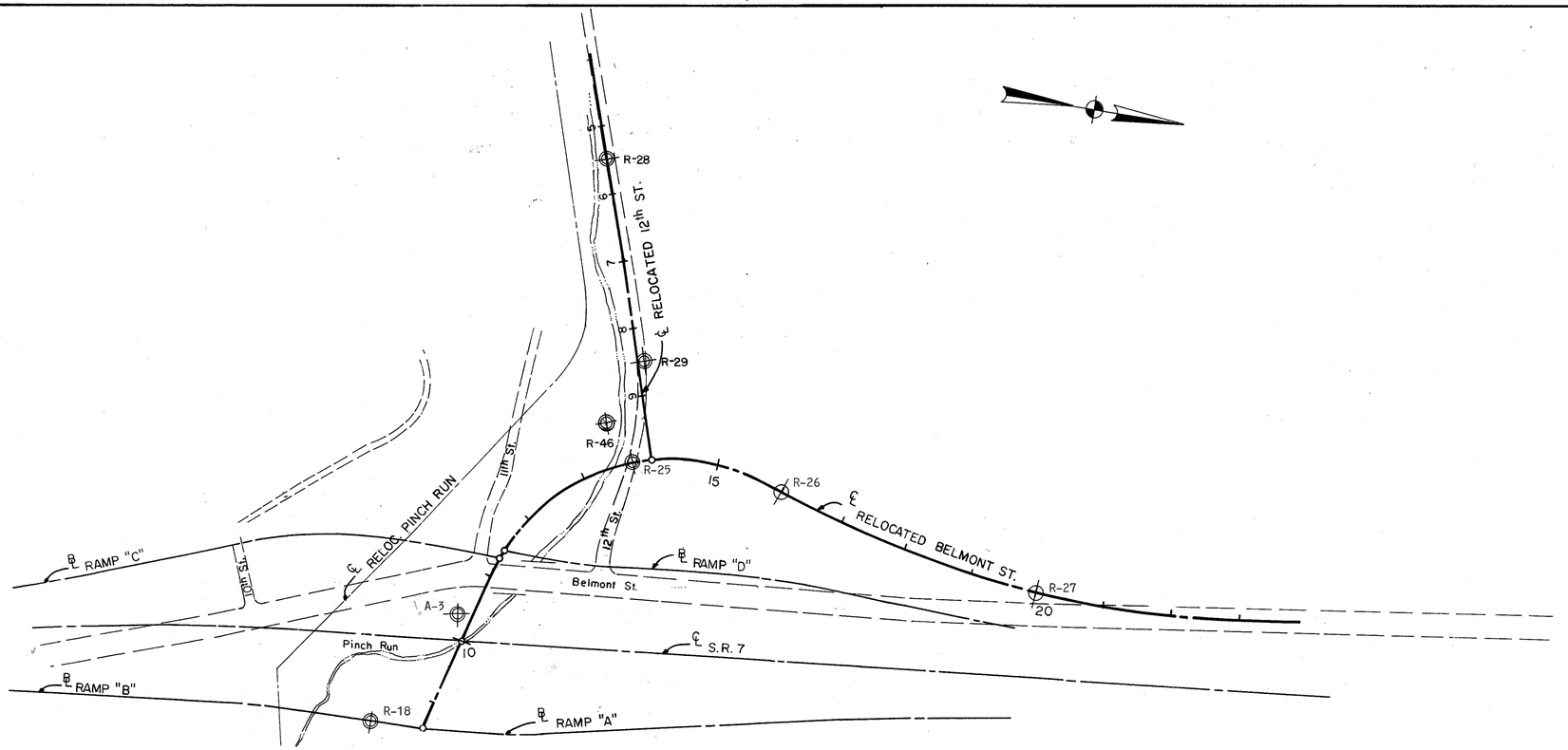
SOIL PROFILE

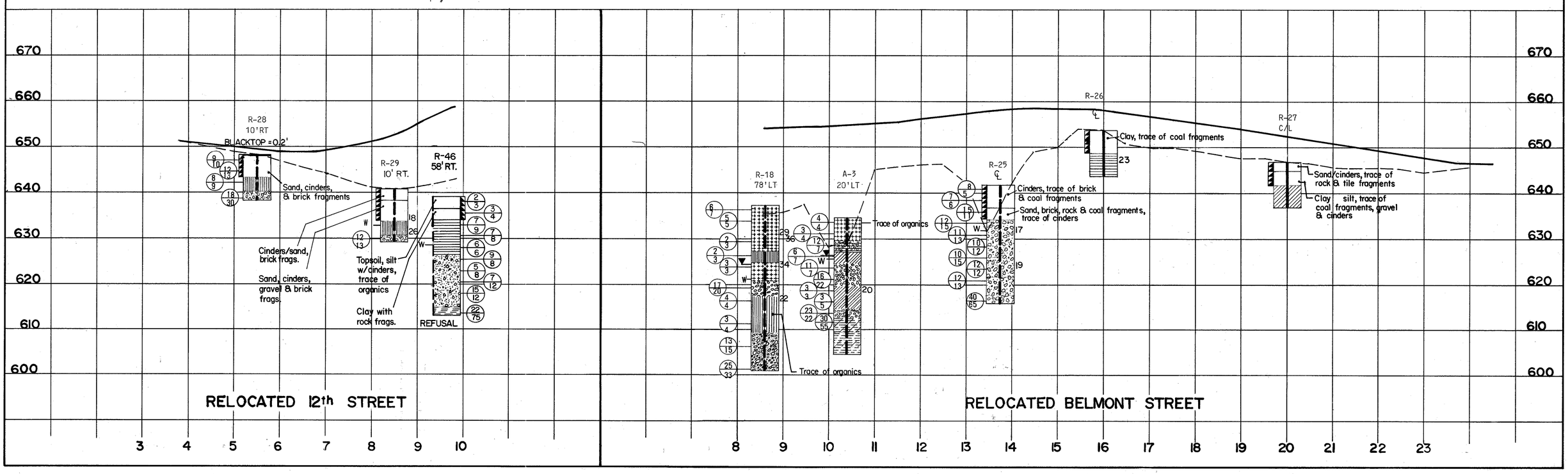
BELMONT COUNTY
BEL-7-14.17

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT, ROAD CINCINNATI, OHIO

7/40

7/26





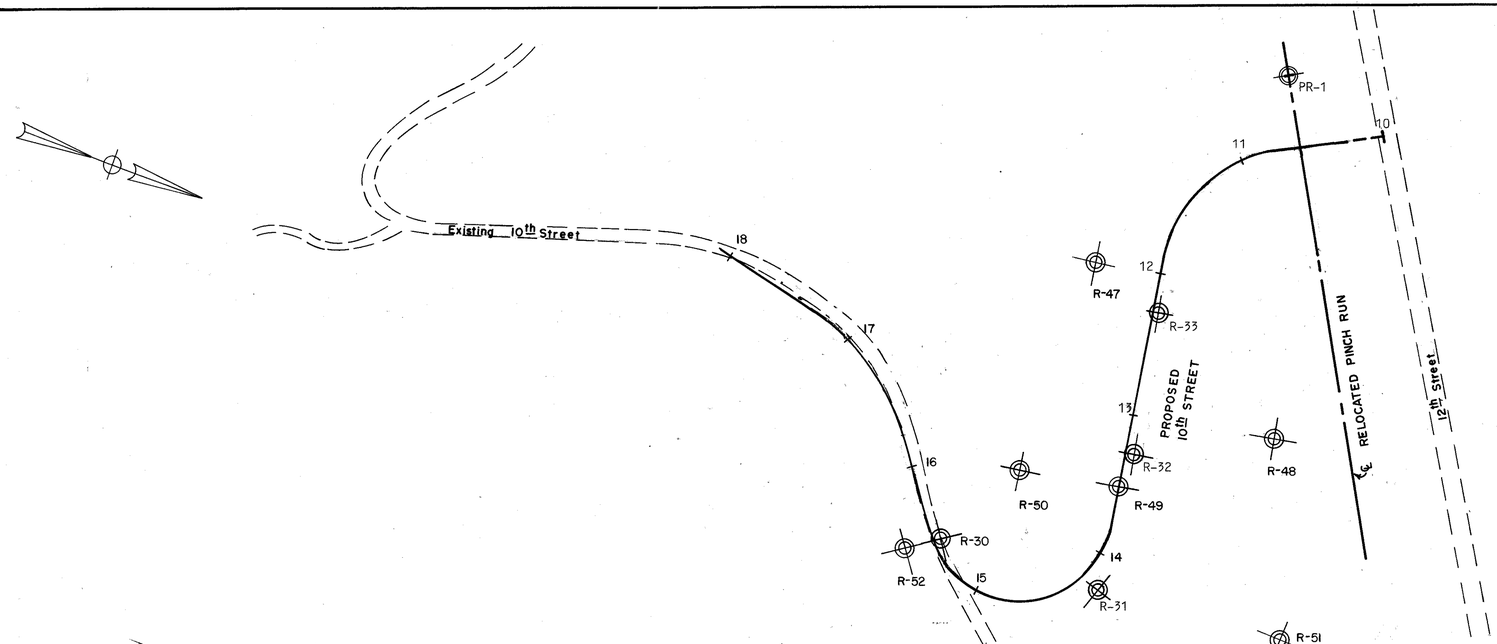
SOIL PROFILE

BELMONT COUNTY
BEL - 7 - 14.17

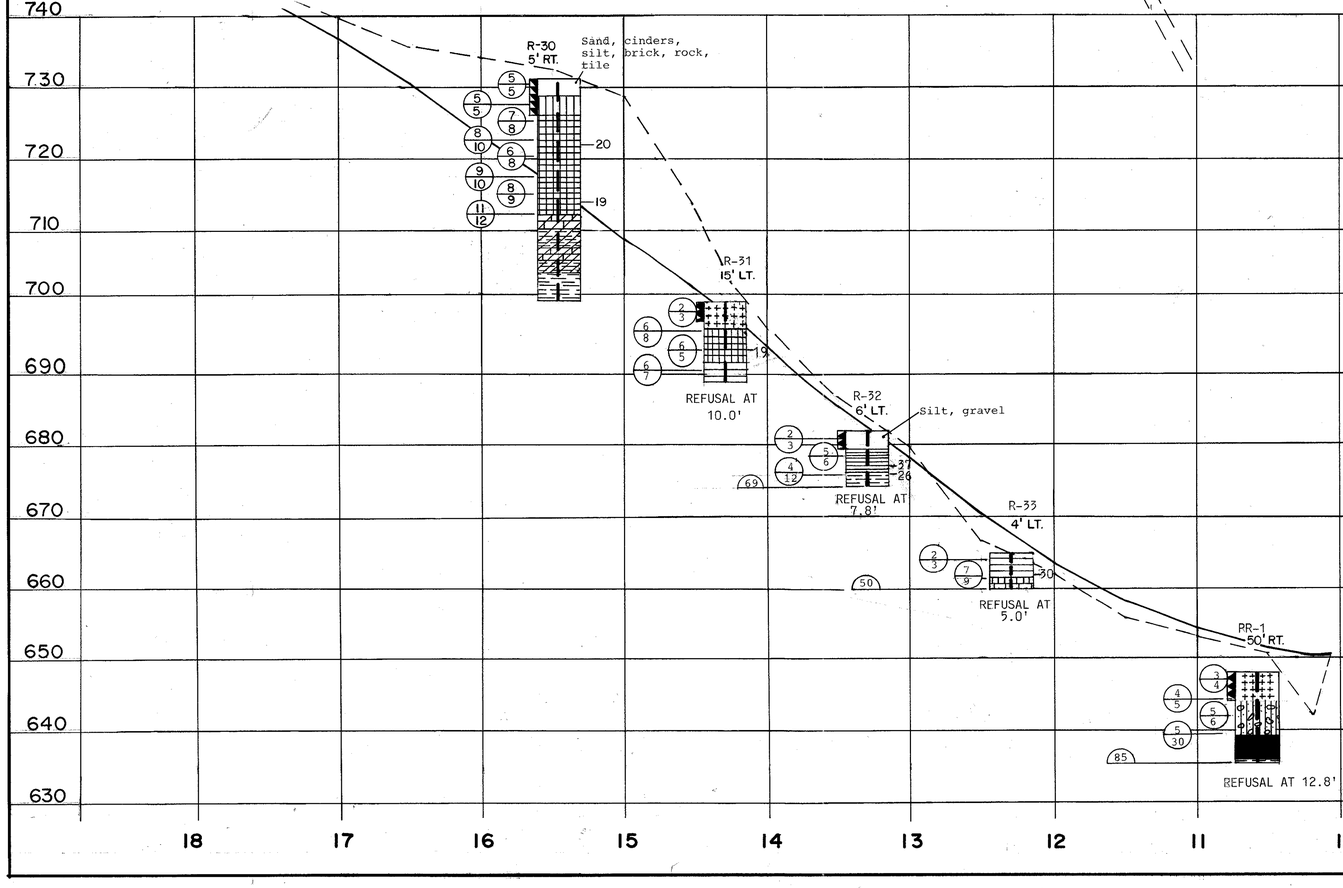
THE H.C. NUTTING CO.
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO 45226

8/40

8/26



SCALE: 1"=50'



SOIL PROFILE

BELMONT COUNTY
BEL-7-14.17

THE H.C. NUTTING CO.
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO 45226

9/40

9/26

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

710
700
690
680
670
660
650
640
630

Match Line-Pinch Run

R-48
100' LT.

SILT/CINDERS & BRICK FRAGMENTS WITH GRAVEL, ROCK, & WOOD FRAGMENTS

TRACE OF ORGANICS

REFUSAL AT 10.5'

12+00

R-33
12+27.4' LT.

REFUSAL AT 5.0'

Match Line-Pinch Run

R - 49
13+50, ℄

REFUSAL AT 7.0'

13+00

R-32
13+26, 6' LT.

Silt, gravel

37
26

REFUSAL AT 7.8'

R - 49
℄

REFUSAL AT 7.0'

13+50

R - 50
70' RT.

REFUSAL AT 13.0'

R-47
46' RT.

TRACE OF ROOTS

BROWN AND GRAY LIMESTONE, VERY FINE GRAINED, WEATHERED TO 12.6'. HIGH ANGLE TO VERTICAL FRACTURES FROM 9.0' TO 10.7' AND 14.3' CONGLOMERATIC FROM 16.4' TO 17.0' TOUGH TO HARD. CORE RECOVERY (ELEV. 676.2 TO 680.2) = 98% CORE RECOVERY (ELEV. 671.2 TO 676.2) = 72%

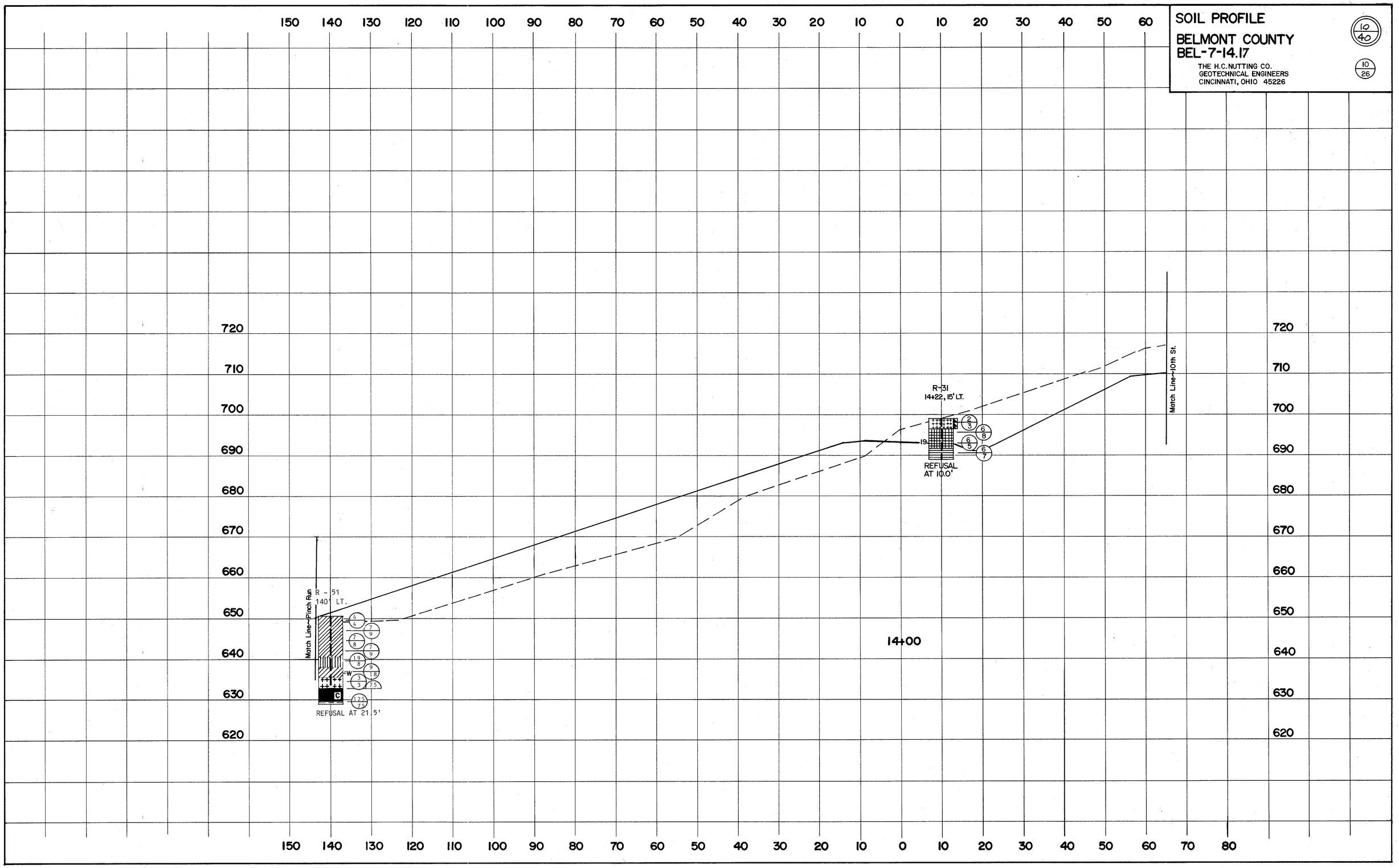
SOIL PROFILE

BELMONT COUNTY
BEL-7-14.17

THE H.C. NUTTING CO.
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO 45226

10/40

10/26



SOIL PROFILE

BELMONT COUNTY
BEL-7-14.17

THE H.C. NUTTING CO.
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO 45226

11/40

11/26

240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30

780 770 760 750 740 730 720 710 700 790

R - 30
15+45, 5' RT.

SAND AND CINDERS WITH SILT LAYER, TRACE OF BRICK, ROCK AND TILE FRAGMENTS.

SILT, TRACE OF ROCK FRAGMENTS AND CINDERS

BROWN AND GRAY SHALE AND LIMESTONE. SHALE, WEATHERED, BROKEN RECOVERY TO 28', VERY SOFT. LIMESTONE FINE TO VERY FINE GRAINED, WEATHERED, SOME BROKEN RECOVERY TO 28', LAYERS TO 10", TOUGH. CORE RECOVERY (ELEV. 709.3 TO 712.3)=72%. CORE RECOVERY (ELEV. 704.3 TO 709.3)=50%.

GRAY TO DARK GRAY SHALE, FISSILE, SANDY, MEDIUM TOUGH TO TOUGH. CORE RECOVERY=76%

16+00

R - 52
20' LT.

CLAY AND CINDERS WITH ROCK AND SHALE FRAGMENTS

R - 30
15+45, 5' RT.

SAND AND CINDERS WITH SILT LAYER, TRACE OF BRICK, ROCK, AND TILE FRAGMENTS.

SILT, TRACE OF ROCK FRAGMENTS AND CINDERS

Match Line - 10th St.

BROWN AND GRAY SHALE AND LIMESTONE. SHALE, WEATHERED, BROKEN RECOVERY TO 28', VERY SOFT. LIMESTONE, FINE TO VERY FINE GRAINED, WEATHERED, SOME BROKEN RECOVERY TO 28', LAYERS TO 10", TOUGH. CORE RECOVERY (ELEV. 709.3 TO 712.3)=72%. CORE RECOVERY (ELEV. 704.3 TO 709.3)=50%.

GRAY TO DARK GRAY SHALE, FISSILE, SANDY, MEDIUM TOUGH TO TOUGH. CORE RECOVERY = 76%

15+50

240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

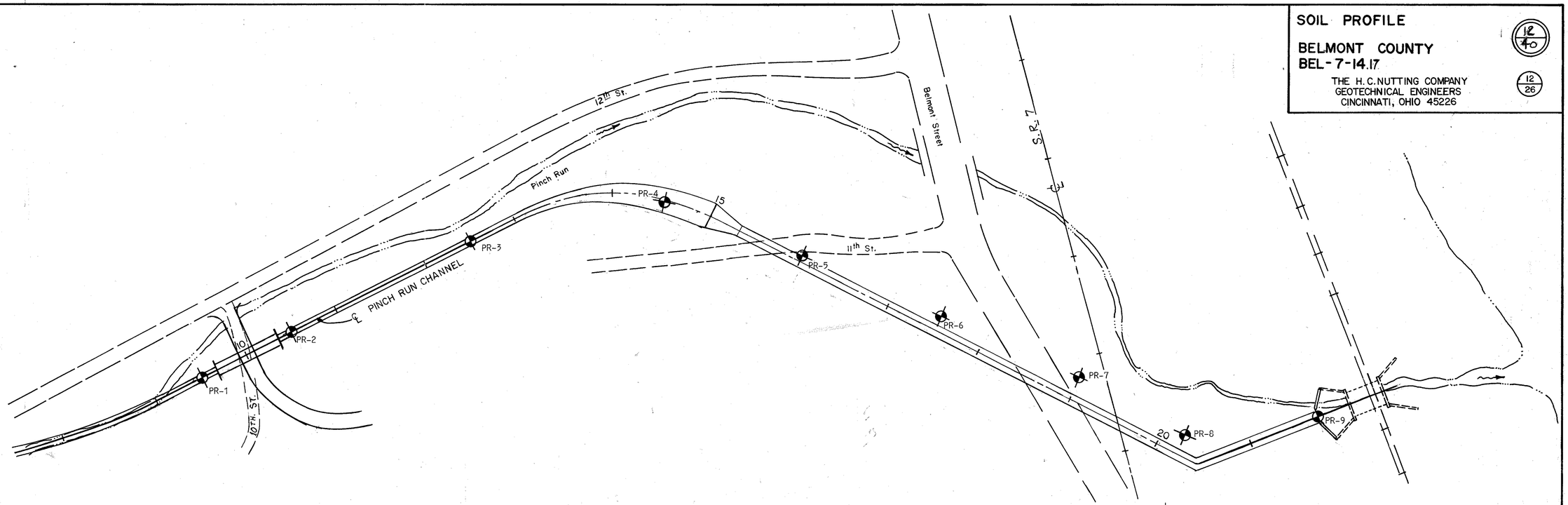
SOIL PROFILE

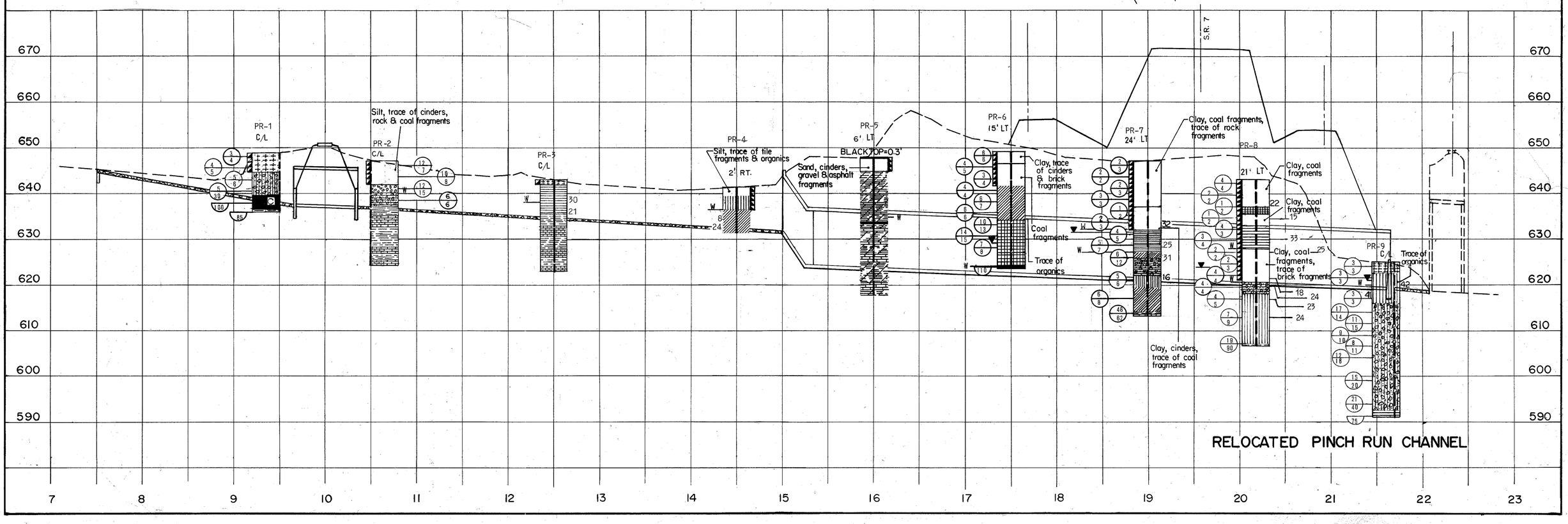
BELMONT COUNTY
BEL-7-14.17

THE H. C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO 45226

12/40

12/26





RELOCATED PINCH RUN CHANNEL

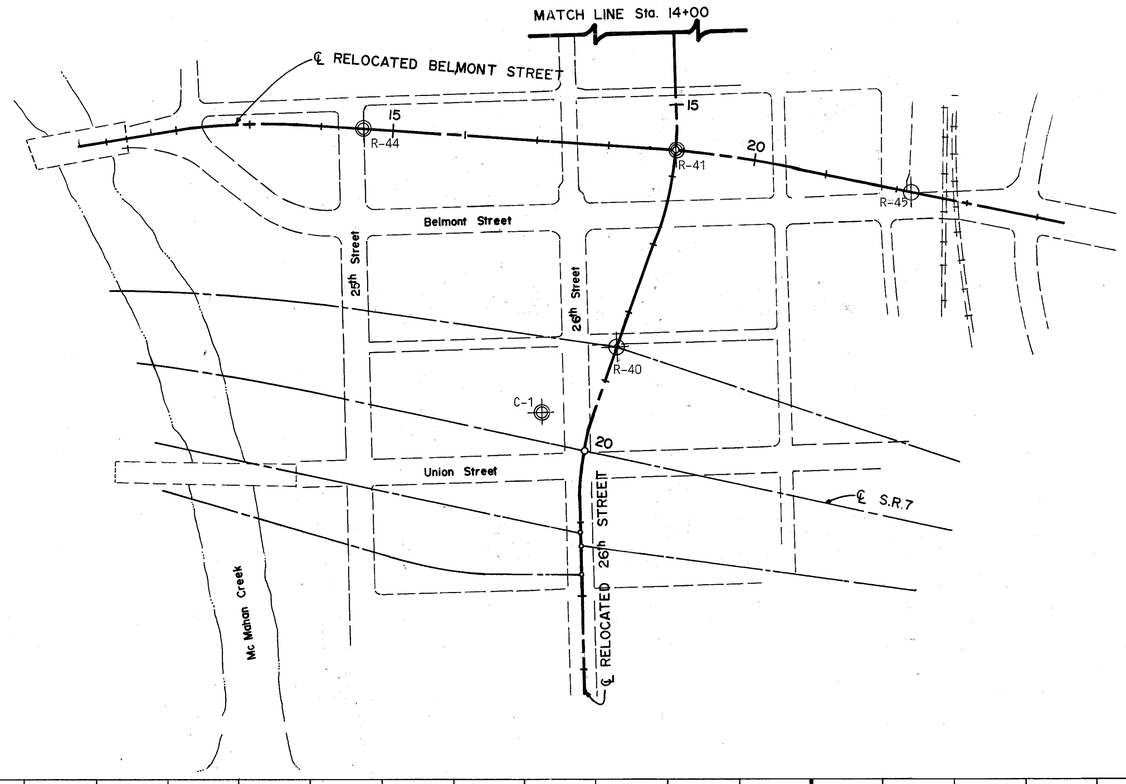
SOIL PROFILE

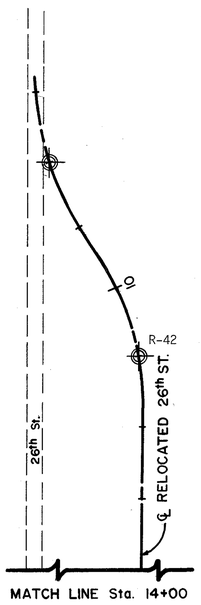
BELMONT COUNTY
BEL-7-14.17

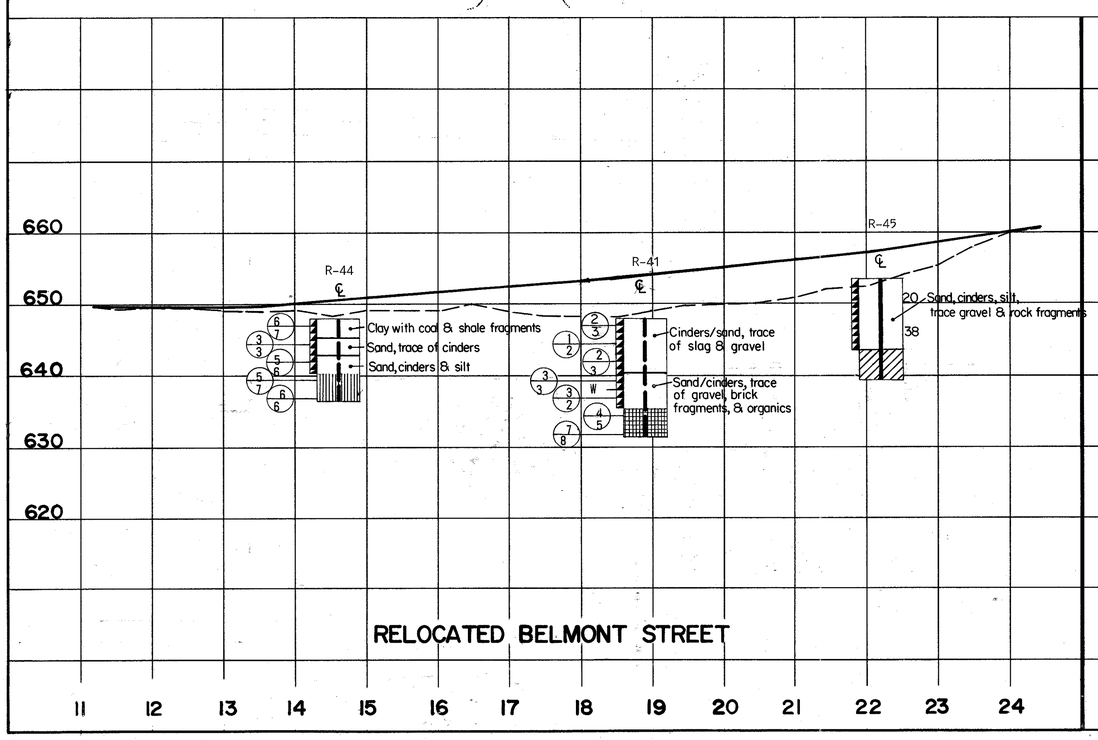
THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO 45226

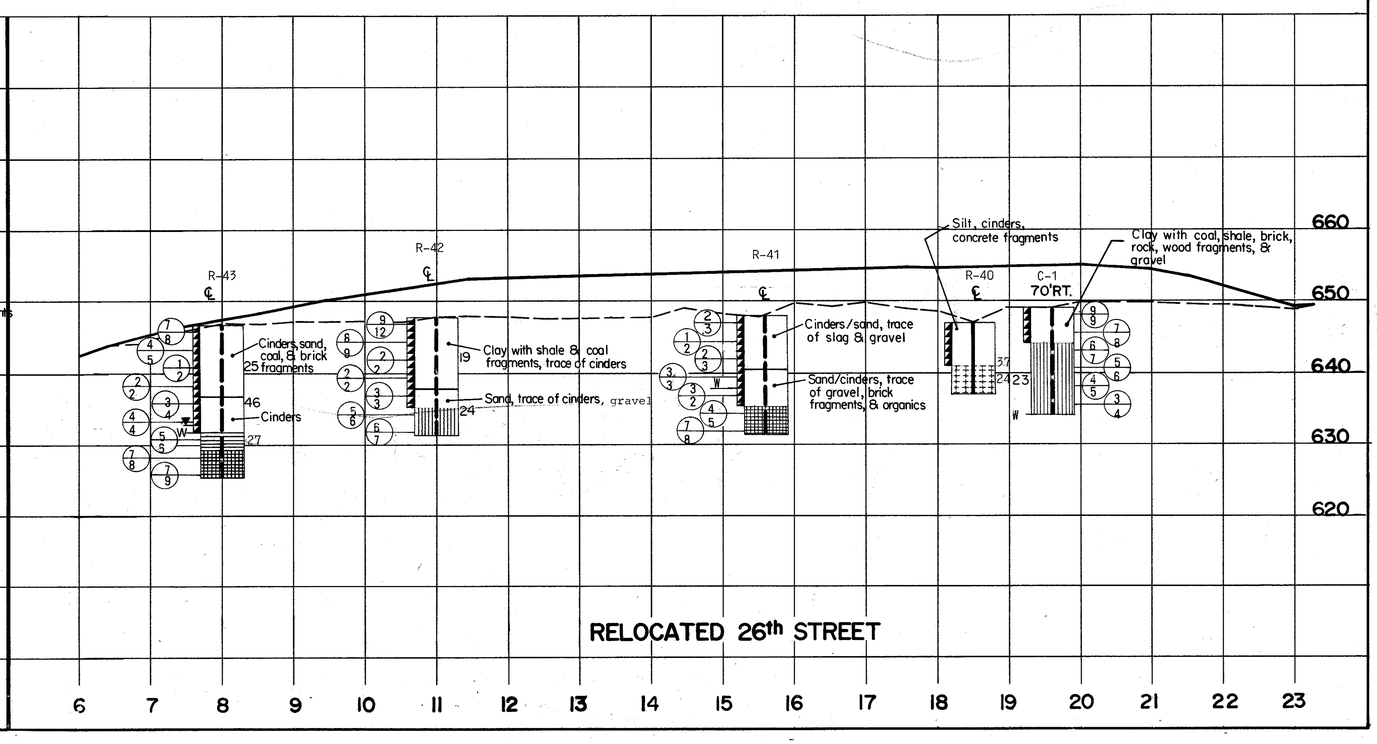
13/40

13/26









INTRODUCTION

THIS INFORMATION IS FOR THE PROPOSED RETAINING WALL TO BE CONSTRUCTED IN CONJUNCTION WITH THE S.R. 7 ROADWAY PROJECT IN BELLAIRE, OHIO IN BELMONT COUNTY. THE WALL WILL BE BUILT APPROXIMATELY 45 TO 50 FT. LEFT AND RIGHT OF CENTERLINE OF MAIN LINE S.R. 7 BETWEEN APPROXIMATE STATIONS 797+00 TO 812+50. THE MAIN LINE WILL BE BUILT ON AN APPROXIMATE MAXIMUM 15 FT. FILL WITHIN THIS SECTION. THE WALL WILL RETAIN THIS 15 FT. HIGH FILL. ON THE LEFT SIDE THE WALL WILL BE CONSTRUCTED BETWEEN STATION 797+15 TO 812+50. ON THE RIGHT, THE WALL WILL BE CONSTRUCTED BETWEEN 799+64 TO 808+60. THE WALL WILL RANGE IN HEIGHT FROM APPROXIMATELY 2 TO 17 FT.

GEOLOGY OF THE SITE

THE AREA LIES WITHIN THE UNGLACIATED ALLEGHENY PLATEAU REGION OF THE STATE. APPROXIMATELY 5 TO 10 FT. OF FILL WAS FIRST ENCOUNTERED WITHIN ALL BORINGS. ALONG THE SOUTHERN PORTION OF THE WALL A 5 TO 10 FT. THICK STRATUM OF A-7-6 CLAY IS ENCOUNTERED BELOW THE FILL. THIS IS UNDERLAIN BY A-6a SILTY CLAY TO A DEPTH OF 30 FT. MOVING NORTHWARD ALONG THE WALL LIMITS, A-6a TO A-4a SILTY CLAY TO CLAYEY SILT WAS ENCOUNTERED BELOW THE FILL. AT ABOUT 30 FT. IN DEPTH (ELEVATION 620) A-1-a SAND AND GRAVEL IS ENCOUNTERED TO BEDROCK.

THE BORINGS DRILLED ALONG THE WEST SIDE OF THE WALL ENCOUNTERED BEDROCK AT ABOUT 40 FT. BELOW GRADE AT ELEVATION 610. THE BEDROCK DIPS TO THE EAST TOWARDS THE OHIO RIVER, AS BEDROCK WAS ENCOUNTERED 10 FT. LOWER WITHIN BORINGS DRILLED FOR THE EAST PORTION OF THE WALL, ABOUT 50 FT. BELOW GRADE AT ABOUT ELEVATION 600. THE BEDROCK IS PERMIAN SHALE, SANDSTONE AND COAL BELONGING TO THE DUNKARD GROUP. THE WASHINGTON NO. 12 COAL BED IS WITHIN THE DUNKARD GROUP.

EXPLORATION

TWELVE TEST BORINGS WERE DRILLED TO EXPLORE SUBSURFACE CONDITIONS FOR THE PROPOSED RETAINING WALL, BETWEEN APRIL 11 AND JUNE 14, 1983. BORINGS W-1, W-3, W-5, W-7, W-9, W-11 AND W-12 WERE DRILLED ALONG THE WEST SIDE OF THE WALL. BORINGS W-2, W-4, W-6, W-8 AND W-10 WERE DRILLED ALONG THE EAST SIDE. THE HOLES WERE DRILLED USING A TRUCK-MOUNTED MOBILE B-61 DRILL MACHINE AND A CENTRAL MINE EQUIPMENT 750 ALL TERRAIN VEHICLE. THE BORINGS WERE TAKEN TO DEPTHS RANGING BETWEEN 15 TO 50.5 FT. BELOW GRADE. FOUR OF THE BORINGS WERE DRILLED TO BEDROCK WHICH WAS ENCOUNTERED ABOUT 40 TO 50 FT. BELOW EXISTING GRADE.

EXISTING SITE CONDITIONS

THE AREA WHERE THE WALL WILL BE BUILT IS RELATIVELY LEVEL. GROUND ELEVATION ALONG THE WALL RANGES BETWEEN 647 TO 653. FIRST ENCOUNTERED WITHIN ALL OF THE BORINGS WAS 5 TO 10 FT. OF FILL MATERIAL. THE FILL IS A HETEROGENEOUS MIXTURE OF SILTY CLAY, CLAYEY SILT, CINDERS, COAL AND BRICK FRAGMENTS AND SAND. IT GENERALLY HAS A RELATIVE DENSITY OF LOOSE.

UNDERLYING THE FILL ALONG THE SOUTHERN PORTION OF THE WALL (APPROXIMATE STATION 797-804) IS A 5 TO 10 FT. THICK STRATUM OF A-7-6 CLAY. TESTED SAMPLES HAD LIQUID LIMITS RANGING BETWEEN 44 TO 50%. MOISTURE CONTENTS WERE RELATIVELY HIGH, RANGING BETWEEN 29 TO 46%. UNCONFINED COMPRESSION TESTS RUN ON FIVE SAMPLES HAD COMPRESSIVE STRENGTHS RANGING BETWEEN .76 TSF TO 1.11 TSF.

MOVING NORTHWARD AHEAD OF APPROXIMATE STATION 804, THE FILL IS UNDERLAIN BY A-6a SILTY CLAY. MOISTURE CONTENTS RANGE BETWEEN 20 TO 30%. UNDERLYING THE A-7-6 CLAY AND A-6a SILTY CLAY IS EITHER A-6a SILTY CLAY OR A-4 CLAYEY SILT. THIS IS ENCOUNTERED TO A DEPTH OF 30 FT. BELOW EXISTING GRADE TO ABOUT ELEVATION 620. THE A-4 CLAYEY SILT SOMETIMES CONTAINING SAND SEAMS WAS EITHER NON-PLASTIC OR HAD A LIQUID LIMIT AROUND 24%.

AT ABOUT 30 FT. IN DEPTH (ELEVATION 620), BELOW THE A-6a SILTY CLAY AND A-4 CLAYEY SILT, WET SAND AND GRAVEL WAS ENCOUNTERED TO BEDROCK. IT HAS A RELATIVE DENSITY OF MEDIUM DENSE TO DENSE. FOUR BORINGS WERE DRILLED TO REFUSAL ON BEDROCK. BORINGS W-5, W-7 AND W-11, DRILLED ALONG THE WEST SECTION OF THE RETAINING WALL PENETRATED SHALE BEDROCK BETWEEN 35 TO 40 FT. BELOW GRADE AT ABOUT ELEVATION 615. BORING W-4, DRILLED FOR THE EAST SECTION OF THE WALL, ENCOUNTERED BEDROCK AT 50 FT. AT ELEVATION 600 INDICATING THE ROCK IS DIPPING TO THE EAST TOWARDS THE OHIO RIVER.

IMMEDIATE WATER LEVELS WERE ENCOUNTERED AT DEPTHS BETWEEN 17.5 FT. TO 25 FT. BELOW GRADE. UPON COMPLETION OF DRILLING, WATER LEVELS HAD GENERALLY RISEN A FEW FEET. IT IS EXPECTED THAT THE WATER TABLE AT THE TIME OF DRILLING IS WITHIN THE RANGE OF ELEVATIONS BETWEEN 625 TO 630.

LEGEND

- ○ AUGER BORING LOCATION-PLAN VIEW.
- ◎ PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION-PLAN VIEW.
- CAPPED PILE
- FOOTING
- FOOTING ON PILE
- TR TOP OF ROCK
- H HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH (MEDIAN) AT WHICH THE SAMPLE WAS TAKEN.
- X/Y FIGURES BESIDE THE BORING LOG IN PROFILE INDICATES THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST.
  X= NUMBER OF BLOWS FOR FIRST 6-INCHES.
  Y= NUMBER OF BLOWS FOR SECOND 6-INCHES.
- ⊠ INDICATES PRESS (SHELBY-TUBE) SAMPLE.
- 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 Sample Borings – Drive-Press Sample Borings – Core 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 2.5 and/or 5-ft. depth intervals driven by means of a 140-lb. drop hammer with a free fall of 30-inches. For each sample obtained the sampler is driven a total of 18-inches except where a condition of refusal (less than 6-inches penetration under 50-blows) is met before obtaining a penetration of 18-inches. The first 6-inches of drive is considered setting the sampler while the number of blows required to drive the sampler the final 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.

Core borings in rock are made by means of a rotary-type drill rig employing an NXM-series type, double tube core barrel and diamond bit, obtaining a continuous core having a nominal diameter of 2-1/8". The core barrel is removed from the test hole at maximum intervals of 5-ft. and the entire core recovered retained.

When necessary to stabilize the bore hole in caving material or simply as a means of advancing the boring, hollow stem augers or flush joint casing is used, each having an inside diameter of 3-1/2". Water under pressure is employed to advance the test hole in non-caving materials or to wash out the casing when hollow stem augers are not used. When hollow stem augers are used, water is introduced into the hole as necessary to maintain the water level inside the hollow stem auger at or above the level first encountered in the ground. The methods employed in advancing the boring are shown on the boring logs. All of the sampling above described is accomplished in undisturbed material below the bottom of the casing or hollow stem augers.

The boring log sheets show a graphic plot of the information obtained including depth and elevation of the sample, the number of blows for the Standard Penetration Test for each 6-inch drive, the depth of press samples, field sample number, sample description-based on laboratory tests and the Casagrande A.C. Classification System, gradation, plasticity and moisture content determinations. The 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 cannot be driven a wash sample is procured for visual classification in order to determine the general character of the material. These are not considered sufficiently representative to warrant laboratory testing.

Particle Size Definitions

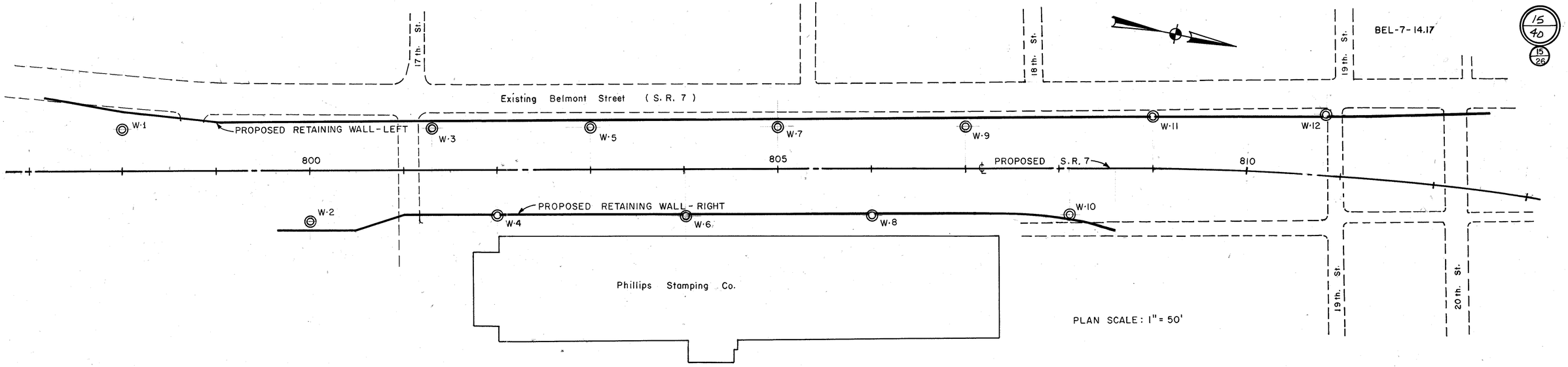
8"	3"	2.0mm		0.42mm		0.074mm	0.005mm
Boulders	Cobbles	Gravel	Coarse Sand		Fine Sand	Silt	Clay
		No. 10 sieve		No. 40 sieve		No. 200 sieve	

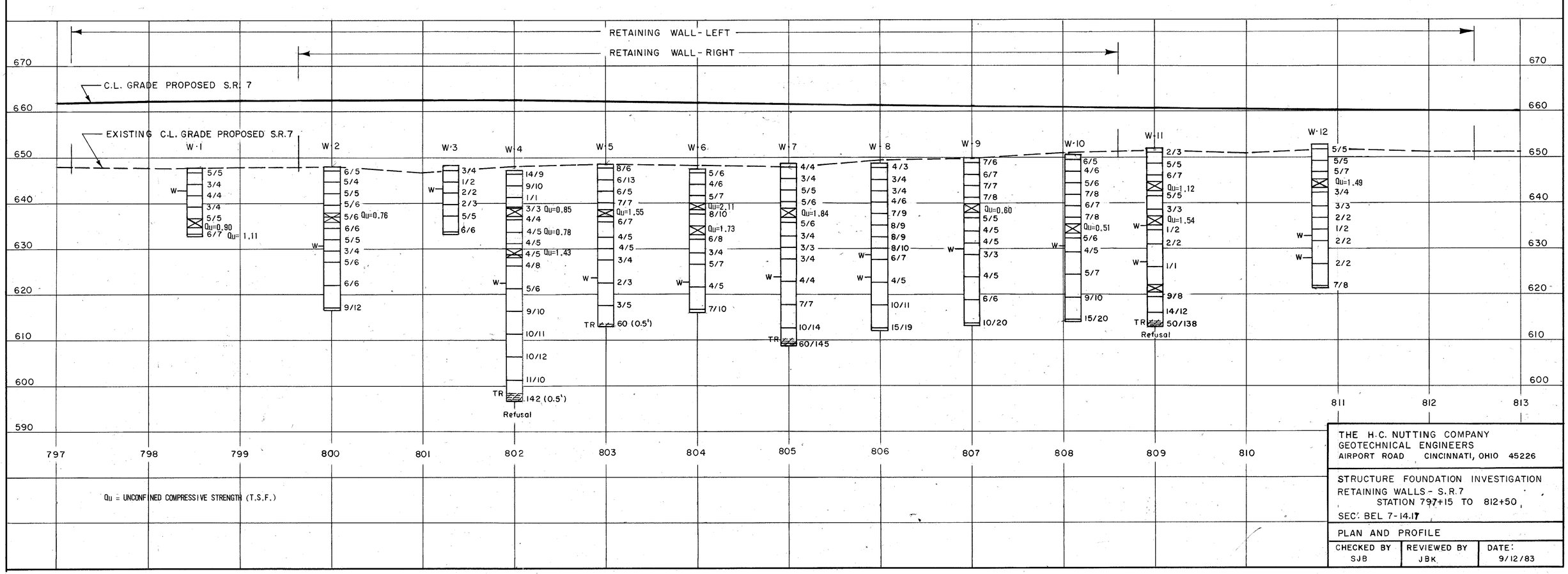
NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

THE H. C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT ROAD CINCINNATI, OHIO 45226

STRUCTURE FOUNDATION INVESTIGATION
RETAINING WALLS – S.R. 7
STATION 797+15 TO 812+50
SEC. BEL-7-14.17

CHECKED BY	REVIEWED BY	DATE
JBK	CRL	8/12/83





Qu = UNCONFINED COMPRESSIVE STRENGTH (T.S.F.)

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT ROAD CINCINNATI, OHIO 45226

STRUCTURE FOUNDATION INVESTIGATION
RETAINING WALLS - S.R.7
STATION 797+15 TO 812+50
SEC. BEL 7-14.17

PLAN AND PROFILE

CHECKED BY	REVIEWED BY	DATE:
SJB	JBK	9/12/83

SOIL PROFILE

BELMONT COUNTY
BEL-7-14.17

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO 45226

16/40

16/26

DATE STARTED 4/23/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/23/83. CASING TYPE H.S.A. DIA. 3.25" I.D. IMMEDIATE NONE
BORING NUMBER PR-1 CORE BARREL SIZE AFTER HRS. BACKFILLED
STATION & OFFSET 9+50, C.L. (PINCH RUN) SURFACE ELEVATION 648.9

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
648.9	0												
	2	3-3-4	BROWN CLAYEY SILT WITH SILTY SAND TRACE OF CINDERS AND BRICK FRAGMENTS (FILL) MOIST-MEDIUM STIFF	1		V	I	S	U	A	L		A-4-b
644.9	4	3-4-5	" "	2		V	I	S	U	A	L		A-4-b
	6	4-5-6	BROWN CLAYEY SAND - SANDY CLAY WITH SHALE AND ROCK FRAGMENTS, MOIST-MEDIUM DENSE	3		V	I	S	U	A	L		A-2-4
639.9	8	4-5-30	" "	4		V	I	S	U	A	L		A-2-4
	10	100/0.4'	COAL	5		V	I	S	U	A	L		
636.4	12		GRAY TOUGH SANDY SHALE	6		V	I	S	U	A	L		
635.9	14	85											

DATE STARTED 6/11/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/11/83. CASING TYPE H.S.A. DIA. 3.25" I.D. IMMEDIATE 640.0
BORING NUMBER PR-2 CORE BARREL N.X.M. SIZE 2 1/8" AFTER HRS. BACKFILLED
STATION & OFFSET 10+50, C.L. (PINCH RUN) SURFACE ELEVATION 647.0

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
647.0	0												
	2	5-12-7	DARK GRAY AND BROWN CLAYEY SILT, TRACE OF CINDERS, ROCK AND COAL FRAGMENTS (FILL), MOIST-MEDIUM DENSE	1		V	I	S	U	A	L		
642.0	4	20-10-8	" "	2		V	I	S	U	A	L		
640.0	6	7-12-15	BROWN CLAYEY SAND AND ROCK FRAGMENTS, MOIST-MEDIUM DENSE	3		V	I	S	U	A	L		A-1-a
	8	5-6-6	BROWN SANDY SILTY CLAY, GRAVEL AND ROCK FRAGMENTS, WET - MEDIUM DENSE	4		V	I	S	U	A	L		A-2-6
637.0	10												
	12	47%	GRAY, DARK GRAY AND BROWN SHALE AND LIMESTONE, SHALE, FISSILE TO NONFISSILE, VERY SOFT, LIMESTONE, FINE GRAINED TO LITHOGRAPHIC, ARGILLACEOUS SOFT LAYERS 11.0' TO 12.0' AND 17.5' TO 18.2'. ~25% OF CORE WITH LAYERS TO 11.5", SLIGHT WEATHERING AT 10.0' TO 10.5', MEDIUM TOUGH TO TOUGH.										
	14												
	16	63%											
	18												
	20												
	22	60%											
624.0	24												

DATE STARTED 6/11/83. SAMPLE TYPE H.S.A. DIA. 3.25" I.D. WATER ELEVATION
DATE COMPLETED 6/11/83. CASING TYPE . . . DIA. . . IMMEDIATE 638.5
BORING NUMBER PR-3 CORE BARREL N.X.M. SIZE 2 1/8" AFTER HRS. BACKFILLED
STATION & OFFSET 12+50, C.L. (PINCH RUN) SURFACE ELEVATION 643.5

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
643.5	0	AUGER	BROWN CLAYEY SILT (FILL), MOIST-MEDIUM STIFF	1		V	I	S	U	A	L		A-4-b
642.5	2												
	4	AUGER	BROWN SANDY SILTY CLAY, TRACE OF GRAVEL AND ROCK FRAGMENTS, VERY MOIST-MEDIUM STIFF	2		V	I	S	U	A	L	30.3	A-6-b
	6												
636.0	8			3		V	I	S	U	A	L	21.4	A-6-b
	10	27%	GRAY AND DARK GRAY SHALE AND LIMESTONE. SHALE, FISSILE TO SUBFISSILE, DARK GRAY MEDIUM TOUGH CALCAREOUS LAYER 10.0' TO 11.2', SOFT TO VERY SOFT LIMESTONE, FINE TO LITHOGRAPHIC, SLIGHT WEATHERING AT TOP OF RUN, BROKEN RECOVERY THROUGHOUT ~ 20% OF CORE WITH LAYERS TO 8.5", MEDIUM TOUGH TO TOUGH										
	12	50%											
	14												
	16	75%											
	18												
623.5	20	38%											

DATE STARTED 6/16/83. SAMPLE TYPE H.S.A. DIA. 3.25" I.D. WATER ELEVATION
DATE COMPLETED 6/16/83. CASING TYPE . . . DIA. . . . IMMEDIATE 636.5
BORING NUMBER PR-4 CORE BARREL SIZE AFTER HRS. BACKFILLED
STATION & OFFSET 14+50, 2'LT. (PINCH RUN) SURFACE ELEVATION 641.6

ELEV	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
641.6	0												
639.6	2	AUGER	DARK GRAY SANDY SILT, TRACE OF TILE FRAGMENTS AND ORGANICS. (FILL), MOIST - LOOSE	1		V	I	S	U	A	L		
	4	AUGER	BROWN SANDY CLAYEY SILT, TRACE OF MORTAR FRAGMENTS AND FINE GRAVEL (POSSIBLE FILL), MOIST-MEDIUM STIFF	2		V	I	S	U	A	L	16.6	A-4-a
636.6	6	AUGER	BROWN SANDY SILTY CLAY, TRACE OF FINE GRAVEL VERY MOIST-SOFT TO MEDIUM STIFF	3		V	I	S	U	A	L	7.6	A-6-a
	8		" "	4		V	I	S	U	A	L	23.8	A-6-a
631.6	10												

DATE STARTED 6/16/83. SAMPLE TYPE H.S.A. DIA. 3.25" I.D. WATER ELEVATION
DATE COMPLETED 6/16/83. CASING TYPE . . . . DIA. . . . IMMEDIATE 634.8
BORING NUMBER PR-5 CORE BARREL N.X.M. SIZE 2 1/8" AFTER HRS. BACKFILLED
STATION & OFFSET 16+00 6'LT (PINCH RUN) SURFACE ELEVATION 647.8

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
647.8	0												
647.5	2	AUGER	BLACKTOP (STREET)	1		V	I	S	U	A	L		
644.8	4	AUGER	DARK BROWN SAND, CINDERS, GRAVEL AND ASPHALT FRAGMENTS WITH SILTY CLAY SEAMS (FILL), MOIST	2		V	I	S	U	A	L		
	6	AUGER	BROWN WEATHERED SHALE AND LIMESTONE FRAGMENTS	3		V	I	S	U	A	L		
639.8	8	AUGER	" "	4		V	I	S	U	A	L		
	10	AUGER	GRAY WEATHERED SHALE AND LIMESTONE LAYERS	5		V	I	S	U	A	L		
	12	AUGER	" "	6		V	I	S	U	A	L		
634.8	14	AUGER	BLACK WEATHERED SHALE AND COAL LAYERS	7		V	I	S	U	A	L		
632.8	16		GRAY WEATHERED SHALE AND LIMESTONE LAYERS	8		V	I	S	U	A	L		
	18												
627.8	20												
	22	80%	DARK GRAY AND GRAY SHALE AND LIMESTONE, SHALE SUBFISSILE TO FISSILE, CALCAREOUS, TRACE CARBONACEOUS, VERY SOFT NON CALCAREOUS LAYERS AT 24.2' TO 25.0', 29.0' TO 30.0' MEDIUM TOUGH TO TOUGH, LIMESTONE, FINE GRAINED TO LITHOGRAPHIC, FRACTURE AT 23.5', BROKEN RECOVERY AT 27.0' ~30% OF CORE WITH LAYERS TO 8.0", MEDIUM TOUGH TO TOUGH.										
	24												
	26												
	28	65%											
617.8	30												

DATE STARTED 4/7/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/7/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 624.0
BORING NUMBER PR-6 CORE BARREL SIZE AFTER 2 DAYS 629.0
STATION & OFFSET 17+50, 15'LT (PINCH RUN) SURFACE ELEVATION 649.0

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA NO	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
649.0	0												
	2	5-6-6	BROWN GRAY AND BLACK SILTY CLAY, TRACE OF CINDERS AND BRICK FRAGMENTS (FILL), MOIST-MEDIUM DENSE	1		V	I	S	U	A	L		
646.5	4	4-4-5	BLACK COAL FRAGMENTS (FILL), MOIST-LOOSE	2		V	I	S	U	A	L		
	6	3-3-4	" "	3		V	I	S	U	A	L		
641.5	8												
	10	3-4-4	BROWN AND GRAY SILTY CLAY, TRACE OF ROOTS, MOIST-SOFT TO STIFF	4		V	I	S	U	A	L		A-6-a
	12	5-6-7	" "	5		V	I	S	U	A	L		A-6-a
	14	5-6-6	" "	6		V	I	S	U	A	L	37.5	A-6-a
634.0	16												
	18	8-10-13	BROWN SILTY CLAY, MOIST TO VERY MOIST-VERY STIFF TO STIFF	7		V	I	S	U	A	L		A-7-6
	20	9-14-15	" "	8		V	I	S	U	A	L		A-7-6
	22	6-7-8	" "	9		V	I	S	U	A	L	31.0	A-7-6
	24												
624.0	26		COAL	10		V	I	S	U	A	L		
623.5		110											

SOIL PROFILE
BELMONT COUNTY
BEL-7-14.17

THE H. C. NUTTING COMPANY
4120 AIRPORT ROAD
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO

17/40

17/26

DATE STARTED 4/25/83 SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/25/83 CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 627.2
BORING NUMBER PR-7 CORE BARREL SIZE AFTER 60 DAYS 633.2
STATION & OFFSET 19+00, 24'LT., C/L RELOC. PINCH RUN SURFACE ELEVATION 647.2

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
647.2	0	(N)											
	2	2-2-3	DARK AND LIGHT GRAY AND BROWN SILTY CLAY WITH COAL FRAGMENTS AND TRACE OF ROCK FRAGMENTS (FILL), MOIST – MEDIUM STIFF	1				VISUAL					
	4	2-2-2		2				VISUAL					
	6	2-2-3		3				VISUAL					
	8	2-3-3		4				VISUAL					
637.2	10												
	12	2-1-2	GRAY AND MAROON SILTY CLAY WITH CINDERS, TRACE OF COAL FRAGMENTS (POSSIBLE FILL), VERY MOIST – MEDIUM STIFF	5				VISUAL					
	14	2-2-3		6				VISUAL				32.2	
632.2													
	16	3-4-5	GRAY AND BROWN SILTY CLAY, MOIST – STIFF	7				VISUAL					A-6b
	18	4-5-7		8				VISUAL				24.5	A-6b
627.2	20												
626.2		5-6	BROWN SANDY SILTY CLAY, MOIST TO VERY MOIST – STIFF	9				VISUAL					A-6a
	22	12		10				VISUAL				30.5	A-2-6
	24		BROWN CLAYEY SAND WITH FINE GRAVEL, WET – MEDIUM DENSE										
622.2													
	26	4-5-6	GRAY AND BROWN SANDY CLAYEY SILT, TRACE OF FINE GRAVEL, VERY MOIST – STIFF	11				VISUAL				16.2	A-4a
	28	ST		S1				VISUAL					A-6a
618.2													
	30	7-6-8	GRAY AND BROWN SANDY SILTY CLAY WITH SILTY SAND SEAMS, TRACE OF GRAVEL, ROCK FRAGMENTS AND COBBLES, VERY MOIST – STIFF	12				VISUAL					A-6a
	32												
614.2													
613.2	34	48-92	GRAY SOFT SANDY SHALE WITH LIMESTONE LAYERS	13				VISUAL					

DATE STARTED 4/25/83 SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/25/83 CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 620.7
BORING NUMBER PR-8 CORE BARREL SIZE AFTER 60 DAYS 623.7
STATION & OFFSET 20+18, 21' LT., C/L RELOC. PINCH RUN SURFACE ELEVATION 643.2

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
643.2	0	(N)											
	2	2-4-4	BROWN AND GRAY SILTY CLAY WITH COAL FRAGMENTS (FILL), MOIST AND VERY MOIST – STIFF TO MEDIUM STIFF	1				VISUAL					
	4	2-2-2		2				VISUAL					
637.2	6	1-1		3				VISUAL				21.9	
635.7	8	2	BROWN SILTY CLAY, TRACE OF CINDERS (FILL), MOIST – MEDIUM STIFF	4				VISUAL				15.4	A-7-6
	10	2-1-2	GRAY SILTY CLAY WITH COAL FRAGMENTS (FILL), MOIST – MEDIUM STIFF	5				VISUAL					
633.2	12	3-4-3	BROWN SILTY CLAY, TRACE OF FINE GRAVEL (FILL), MOIST – MEDIUM STIFF	6				VISUAL				33.1	A-6b
	14	3-3-4		7				VISUAL					A-6b
628.2	16	2-2-2	GRAY AND BROWN SANDY SILTY CLAY WITH COAL FRAGMENTS CLAYEY SAND LAYERS, TRACE OF BRICK FRAGMENTS (FILL), VERY MOIST – MEDIUM STIFF	8				VISUAL				24.7	
	18	3-2-3		9				VISUAL					
	20	3-4-4		10				VISUAL				18.4	
620.7	22												
618.2	24	3-4-4	BROWN CLAYEY SAND WITH GRAVEL, WET – LOOSE	11				VISUAL				24.0 23.1	A-2-6
	26	3-4-5	BROWN SANDY CLAYEY SILT WITH SILTY SAND SEAMS, TRACE OF FINE GRAVEL, MOIST – STIFF TO MEDIUM STIFF	12				VISUAL					A-4a
	28	ST		S1				VISUAL				24.0	A-4a
614.2	30	5-7-9	BROWN SANDY CLAYEY SILT WITH GRAVEL AND CLAYEY SAND SEAMS, VERY MOIST – MEDIUM STIFF	13				VISUAL					A-4a
	32												
	34												
	36	15-19		14				VISUAL					A-4a
606.7	38	90	GRAY SOFT SHALE	15				VISUAL					

DATE STARTED 6/11/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/11/83. CASING TYPE: H.S.A. DIA. 3.25" I.D. IMMEDIATE 620.1
BORING NUMBER PR-9 CORE BARREL SIZE AFTER 5 DAYS 621.9
STATION & OFFSET 21+70, C/L RELOC. PINCH RUN SURFACE ELEVATION 625.1

ELEV.	DEPTH	STN. PEN	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% FS	% CS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
625.1	0	(N)											
622.6	2	2-3-3	BROWN CLAYEY SILT, TRACE OF GRAVEL AND ORGANICS MOIST- MEDIUM STIFF	1		V	I	S	U	A	L		A-4b
	4	3-3-3	BROWN SANDY CLAYEY SILT, TRACE OF ORGANICS, VERY MOIST- MEDIUM STIFF TO SOFT	2		V	I	S	U	A	L		A-4a
	6	S.T.		S1								41.6	A-4a
616.1	8	2-3-3		3		V	I	S	U	A	L	41.1	A-4a
	10												
	12	12-17-14	BROWN SANDY CLAYEY SILT AND ROCK FRAGMENTS, MOIST TO WET-DENSE TO MEDIUM DENSE	4		V	I	S	U	A	L		A-2-4
	14	10-11-15		5		V	I	S	U	A	L		A-2-4
610.1													
	16	7-9-10	BROWN AND GRAY CLAYEY TO SILTY SAND, GRAVEL AND ROCK FRAGMENTS WITH CLAYEY SILT SEAMS, VERY MOIST TO WET- MEDIUM DENSE TO DENSE	6		V	I	S	U	A	L		A-2-4
	18	8-8-11		7	46	11	9	34					A-2-4(0)
	20												
	22	7-12-18		8		V	I	S	U	A	L		A-2-4
	24												
	26	13-15-20		9		V	I	S	U	A	L		A-2-4
597.1	28												
	30		GRAY SILTY SAND, ROCK FRAGMENTS AND GRAVEL, MOIST- VERY DENSE										
593.1	32	30-21-40											
591.1	34	-75-	GRAY SILTY CLAY, TRACE OF ROCK FRAGMENTS, MOIST-STIFF	11		V	I	S	U	A	L		A-6b

DATE STARTED 6/22/84. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/22/84. CASING TYPE. H.S.A. DIA. 3.25" I.D. IMMEDIATE 628.6
BORING NUMBER R-46 CORE BARREL SIZE AFTER 0 DAYS BACKFILLED
STATION & OFFSET 9+32 (12 th ST.) 58' RT. (PINCH RUN PUMP STATION) SURFACE ELEVATION 639.1

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
639.1	0	(N)											
636.6	2	2-2-3	BROWN TOPSOIL, SANDY SILT, WITH CINDERS, TRACE OF ORGANICS (FILL), MOIST LOOSE	1		V	I	S	U	A	L		
	4	3-3-4	BROWN SANDY SILTY CLAY WITH ROCK FRAGMENTS (FILL), MOIST- MEDIUM STIFF	2		V	I	S	U	A	L		A-4a
634.1	6	8-7-9	BROWN SANDY SITLY CLAY WITH ROCK FRAGMENTS, MOIST-STIFF	3		V	I	S	U	A	L		A-4a
631.6	8	4-7-8	BROWN SANDY SILTY CLAY WITH, CLAYEY SAND SEAMS, ROCK AND SHALE FRAGMENTS, VERY MOIST TO WET, SOFT TO MEDIUM STIFF	4		V	I	S	U	A	L		A-4a
	10	7-6-6		5		V	I	S	U	A	L		
626.6	12	9-9-8	BROWN CLAYEY SAND, GRAVEL AND ROCK FRAGMENTS, WET- MEDIUM DENSE	6		V	I	S	U	A	L		A-2-4
624.1	14	5-5-8	BROWN CLAYEY SAND GRAVEL AND ROCK FRAGMENTS, WET- MEDIUM DENSE	7		V	I	S	U	A	L		A-2-4
	16	7-7-12		8		V	I	S	U	A	L		A-2-4
	18												
	20												
	22	24-15-12		9		V	I	S	U	A	L		A-2-4
615.1	24												
613.1	25	22-75	GRAY SOFT SHALE	10		V	I	S	U	A	L		

REFUSAL @ 613.1

18/40 — 18/26

DATE STARTED 4/11/83. SAMPLE TYPE S.S. DIA. 2.0" O.D. WATER ELEVATION
DATE COMPLETED 4/11/83. CASING TYPE H.S.A. DIA. 3.25" I.D. IMMEDIATE 642.8
BORING NUMBER W-1 CORE BARREL SIZE: AFTER HRS.
STATION & OFFSET 798+50, 45' LT. SURFACE ELEVATION 647.8

ELEV.	DEPTH FEET	STN. PEN (N)	DESCRIPTION	SA NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
647.8	0												
	2	4-5-5	DARK GRAY AND BROWN CLAYEY SAND WITH FINE TO COARSE CINDERS AND SILTY SAND LAYERS, TRACE OF GRAVEL AND BRICK AND COAL FRAGMENTS	1		V	I	S	U	A	L		
642.8	4	4-3-4	(FILL), MOIST-LOOSE " "	2		V	I	S	U	A	L		
	6	3-4-4	DARK GRAY SANDY CLAYEY SILT TRACE OF CINDERS AND COAL FRAGMENTS, (FILL)	3		V	I	S	U	A	L		A-4a
	8	2-3-4	MOIST-MEDIUM STIFF TO SOFT " "	4		V	I	S	U	A	L	53.8	A-4a
637.8	10												
	12	4-5-5	GRAY AND BROWN SILTY CLAY, MOIST TO VERY MOIST STIFF	5		V	I	S	U	A	L	40.9	A-7-6
634.3	14		QU=.90 T.S.F.	S1		V	I	S	U	A	L		A-7-6
632.8	16	4-6-7	BROWN AND GRAY SILTY CLAY MOIST-STIFF QU=1.11 T.S.F.	6	0	3	2	39	56	48.8	21.7	32.8	A-7-6(15)

BOTTOM OF BORING

DATE STARTED 5/26/83. SAMPLE TYPE S.S. DIA. 2.0" O.D. WATER ELEVATION
DATE COMPLETED 5/26/83. CASING TYPE H.S.A. DIA. 3.25" I.D. IMMEDIATE 630.6
BORING NUMBER W-2 CORE BARREL SIZE: AFTER HRS.
STATION & OFFSET 800+00, 55' RT. SURFACE ELEVATION 648.1

ELEV.	DEPTH FEET	STN. PEN (N)	DESCRIPTION	SA NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
648.1	0												
	2	7-6-5	CINDERS, BRICK AND SHALE FRAGMENTS WITH SILTY CLAY (FILL),	1		V	I	S	U	A	L		
	4	4-5-4	MOIST- LOOSE " "	2		V	I	S	U	A	L		
643.1	6	4-5-5	GRAY SILTY CLAY WITH SILT LENSES, MOIST-MEDIUM STIFF TO STIFF	3		V	I	S	U	A	L	46.1	A-6a
	8	4-5-6	" "	4		V	I	S	U	A	L	37.9	A-6a
638.1	10												
	12	4-5-6	GRAY AND BROWN SILTY CLAY, MOIST-STIFF	5		V	I	S	U	A	L	27.3	A-7-6
			QU=.76 T.S.F.	S-1								38.6	A-7-6
	14	4-6-6	" "	6		V	I	S	U	A	L	29.1	A-7-6
	16	4-5-5	" "	7		V	I	S	U	A	L		A-7-6
630.6	18												
	20	3-3-4	GRAY SANDY SILTY CLAY, VERY MOIST-MEDIUM STIFF TO STIFF	8		V	I	S	U	A	L	26.1	A-6a
	22	4-5-6	" "	9		V	I	S	U	A	L		A-6a
	24												
	26	4-6-6	" "	10		V	I	S	U	A	L	22.5	A-6a
	28												
618.1	30												
616.6	32	7-9-12	BROWN CLAYEY FINE TO COARSE SAND AND GRAVEL, WITH COBBLES, VERY MOIST-MEDIUM DENSE.	11		V	I	S	U	A	L		A-1b

BOTTOM OF BORING

* QU=UNCONFINED COMPRESSIVE STRENGTH (T.S.F.)

DATE STARTED 4/11/83. SAMPLE TYPE S.S. DIA. 2.0" O.D. WATER ELEVATION
DATE COMPLETED 4/11/83. CASING TYPE H.S.A. DIA. 3.25" I.D. IMMEDIATE 643.2
BORING NUMBER W-3 CORE BARREL SIZE: AFTER HRS.
STATION & OFFSET 801+30, 45' LT. SURFACE ELEVATION 648.2

ELEV.	DEPTH FEET	STN. PEN (N)	DESCRIPTION	SA NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
648.2	0												
	2	3-3-4	DARK GRAY SILTY CLAY WITH CINDERS, SAND, SLAG AND COAL FRAGMENTS, (FILL)	1		V	I	S	U	A	L		
643.2	4	2-1-2	MOIST-SOFT TO MED STIFF " "	2		V	I	S	U	A	L		
	6	2-2-2	BROWN AND DARK GRAY SILTY CLAY, TRACE OF CINDERS AND COAL FRAGMENTS, (FILL)	3		V	I	S	U	A	L	38.2	
	8	2-2-3	VERY MOIST TO MOIST MEDIUM STIFF " "	4		V	I	S	U	A	L		
638.2	10												
	12	4-5-5	GRAY AND BROWN SILTY CLAY MOIST-STIFF	5		V	I	S	U	A	L	23.9	A-7-6
634.7	14												
633.2	16	5-6-6	BROWN AND GRAY SILTY CLAY, WITH SAND LENSES AND SILT LENSES, MOIST-STIFF.	6		V	I	S	U	A	L	21.3	A-6a

BOTTOM OF BORING

DATE STARTED 4/18/83. SAMPLE TYPE S.S. DIA. 2.0" O.D. WATER ELEVATION
DATE COMPLETED 4/19/83. CASING TYPE H.S.A. DIA. 3.25" I.D. IMMEDIATE 622.3
BORING NUMBER W-4 CORE BARREL SIZE: AFTER 1 HRS. 626.8
STATION & OFFSET 802+00, 50' RT. SURFACE ELEVATION 647.3

ELEV.	DEPTH FEET	STN. PEN (N)	DESCRIPTION	SA NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
647.3	0												
644.8	2	2-14-9	DARK GRAY CLAYEY SILT, TRACE OF CINDERS, COAL AND ROCK FRAGMENTS, (FILL), MOIST- SOFT.	1		V	I	S	U	A	L		A-4b
	4	5-9-10	DARK GRAY SANDY CLAYEY SILT, TRACE OF, BRICK AND ROCK FRAGMENTS (FILL), MOIST- STIFF. TO VERY SOFT	2		V	I	S	U	A	L		A-4a
640.3	6	1-1-1	" "	3		V	I	S	U	A	L		A-4a
	8	1-3-3	MOTTLED BROWN AND GRAY CLAY, MOIST-MEDIUM STIFF TO STIFF.	4		V	I	S	U	A	L	37.9	A-7-6
	10												
	12	3-4-4	" QU=.85 T.S.F. "	S-1	0	1	1	52	46	50.0	24.7	34.4	A-7-6(16)CH
			QU=.78 T.S.F.	5		V	I	S	U	A	L		A-7-6
	14	3-4-5	" "	6	0	0	5	34	61	44.0	20.0	33.5	A-7-6(13)-CL
632.3	16												
	16	3-4-5	GRAY LEAN SILTY CLAY, MOIST-MEDIUM STIFF TO STIFF	7		V	I	S	U	A	L	23.6	A-6a
	18		QU=1.43 T.S.F.	S-2	1	2	16	40	35	29.5	11.9	20.6	A-6a(8) CL
	20	4-4-5	" "	8		V	I	S	U	A	L		A-6a
627.3													
626.3	22	3-4	GRAY SANDY SILTY CLAY, MOIST STIFF.	9		V	I	S	U	A	L	21.3	A-6a
		-8-	BROWN, ORANGE AND BLACK SILTY CLAY, TRACE OF GRAVEL, MOIST-STIFF	10		V	I	S	U	A	L		A-6a
622.3	24												
	26	4-5-6	BROWN SANDY CLAYEY SILT WITH SAND SEAMS, TRACE OF FINE GRAVEL,	11		V	I	S	U	A	L	19.8	A-4a
	28		WET MEDIUM STIFF										
617.3	30												
	32	8-9-10	BROWN CLAYEY FINE TO COARSE SAND AND GRAVEL WITH FEW COBBLES,	12		V	I	S	U	A	L		A-2-4
	34		WET-MEDIUM DENSE										
612.3	36												
	36	8-10-11	BROWN SANDY GRAVEL WITH FEW COBBLES WET-MEDIUM DENSE	13		V	I	S	U	A	L		A-1-a
	38												
	40												
	42	8-10-12	" "	14	65	18	9	- 8	-			-	A-1-a(0)
	44												
602.3	46	7-11-10	BROWN FINE TO COARSE SAND WITH GRAVEL, WET-MEDIUM DENSE	15		V	I	S	U	A	L		A-3a
598.3	48												
	50	-142-	MAROON AND GRAY VERY SOFT WEATHERED SHALE	16		V	I	S	U	A	L		
596.8	52												

BOTTOM OF BORING

SPLIT SPOON REFUSAL AT 50.5'

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT ROAD, CINCINNATI, OHIO

STRUCTURE FOUNDATION INVESTIGATION
RETAINING WALL - S.R.7
STA.797+90 To STA.810+95

SEC: BEL - 7 14.17

BORING DATA

CHECKED BY	REVIEWED BY	DATE
T.T.	J.B.K.	JULY 1983.

BELMONT COUNTY
BEL-7-14.17

19/40
19/26

DATE STARTED 6/13/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/13/83. CASING TYPE H.S.A. DIA. 3.25" I.D. IMMEDIATE 623.6
BORING NUMBER W-5 CORE BARREL . . . SIZE ——— AFTER ——— HRS. BACKFILLED
STATION & OFFSET 803+00 . 45' LT. SURFACE ELEVATION 648.6

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
648.6	0												
648.3	2	6-8-6	BRICK SIDEWALK										
	4	10-6-13	BLACK, BROWN AND ORANGE CINDERS AND SILT, TRACE OF SAND, BRICK AND GLASS FRAGMENTS (FILL), MOIST- MEDIUM DENSE	1		V	I	S	U	A	L		
643.6	6	4-6-5	BLACK COAL FRAGMENTS (FILL), MOIST-MEDIUM DENSE	2		V	I	S	U	A	L		
641.6	8	6-7-7	BROWN SILTY CLAY, MOIST-STIFF	3		V	I	S	U	A	L		A-6-a
637.1	10	S.T.	QU=1.55 T.S.F.	4		V	I	S	U	A	L		A-6-a
	12	5-6-7	BROWN SANDY CLAYEY SILT, MOIST-MEDIUM STIFF TO STIFF	S.T.		V	I	S	U	A	L	19.0	A-6-a
633.6	14			5	0	1	34	41	24	24	7	19.5	A-4-a(6)
	16	3-4-5	BROWN SANDY SILT WITH SAND LENSES AND SEAMS , VERY MOIST -LOOSE	6		V	I	S	U	A	L		A-4-a
	18	4-4-5	" "	7		V	I	S	U	A	L	21.5	A-4-a
	20	3-3-4	" "	8		V	I	S	U	A	L		A-4-a
625.6	22												
	24		BROWN SANDY SILT WITH SAND SEAMS WET-LOOSE	9		V	I	S	U	A	L	26.5	A-4-a
	26	2-2-3											
618.6	28												
	30												
	32	3-3-5	BROWN FINE TO COARSE SAND AND GRAVEL, WET-LOOSE	10		V	I	S	U	A	L		A-1-a
613.6	34												
613.1	36	-60-	MAROON AND GRAY VERY SOFT WEATHERED SHALE	11		V	I	S	U	A	L		

BOTTOM OF BORING

DATE STARTED 4/22/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/22/83. CASING TYPE H.S.A. DIA. 3.5 " I.D. IMMEDIATE 622.6
BORING NUMBER W-6 CORE BARREL . . . SIZE ——— AFTER ——— HRS. BACKFILLED
STATION & OFFSET 804+02. 50' RT. SURFACE ELEVATION 647.6

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
647.6	0												
	2	3-5-6	DARK GRAY SILTY CINDERS/SAND, TRACE OF BRICK FRAGMENTS (FILL), MOIST-MEDIUM DENSE	1		V	I	S	U	A	L		
645.1	4	4-4-6	GRAY AND BLACK SILTY CLAY WITH SHALE AND COAL FRAGMENTS (FILL), MOIST-STIFF	2		V	I	S	U	A	L	24.9	
643.1	6	4-5-7	BROWN AND GRAY SILTY CLAY, MOIST-VERY STIFF	3		V	I	S	U	A	L	31.8	A-7-6
	8	S.T.	QU=2.11 T.S.F.	S-1		V	I	S	U	A	L	28.8	A-7-6
637.6	10	5-8		1		V	I	S	U	A	L		A-7-6
	12	-10-	GRAY AND BROWN SILTY CLAY, MOIST-VERY STIFF TO STIFF	2		V	I	S	U	A	L		A-6-b
	14	S.T.	QU=1.73 T.S.F.	S-2		V	I	S	U	A	L	23.5	A-6-b
	16	5-6-8	" "	3		V	I	S	U	A	L	21.0	A-6-b
630.1	18												
	20	2-3-4	BROWN AND GRAY SANDY CLAYEY SILT, VERY MOIST-MEDIUM STIFF	4		V	I	S	U	A	L	25.4	A-4-a
627.6	22	4-5-7	BROWN SILTY SAND -SANDY SILT WITH SAND SEAMS, VERY MOIST-MEDIUM DENSE	5		V	I	S	U	A	L		A-4-a
	24												
622.6	26	4-4-5	BROWN FINE TO MEDIUM SAND, WET-LOOSE	6		V	I	S	U	A	L		A-3
	28												
618.6	30												
616.1	32	6-7-10	BROWN FINE TO COARSE GRAVEL, WET-MEDIUM DENSE	7	84	8	4	-4	-				A-1-a(0)

BOTTOM OF BORING

* QU=UNCONFINED COMPRESSIVE STRENGTH (T.S.F.)

DATE STARTED 4/21/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/22/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 623.8
BORING NUMBER W-7 CORE BARREL . . . SIZE ——— AFTER ——— HRS. BACKFILLED
STATION & OFFSET 805+00. 45' LT. SURFACE ELEVATION 648.8

ELEV.	DEPTH FEET	STN. PEN (N)	DESCRIPTION	SA. NO	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
648.8	0												
	2	5-4-4	BROWN AND GRAY SILTY CLAY WITH CINDERS, TRACE OF COAL, ROCK AND BRICK FRAGMENTS (FILL), MOIST-MEDIUM STIFF	1		V	I	S	U	A	L		
	4	3-3-4	" "	2		V	I	S	U	A	L		
643.8	6												
	8	4-5-5	BROWN SILTY CLAY, MOIST-STIFF	3		V	I	S	U	A	L		A-6-b
	10	4-5-6	" "	4		V	I	S	U	A	L	22.9	A-6-b
636.8	12	S.T.	QU=1.84 T.S.F.	S-1		V	I	S	U	A	L	19.8	A-6-b
	14	4-5-6	BROWN SANDY CLAYEY SILT WITH SAND LENSES AND SILTY CLAY SEAMS, MOIST-TO WET-STIFF TO MEDIUM STIFF (WET @ 25.0')	5		V	I	S	U	A	L		A-4-a
	16	3-3-4	" "	6		V	I	S	U	A	L	23.7	A-4-a
	18	3-3-3	" "	7		V	I	S	U	A	L	22.1	A-4-a
	20	3-3-4	" "	8		V	I	S	U	A	L		A-4-a
	22												
	24												
	26	3-4-4	" "	9		V	I	S	U	A	L		A-4-a
618.8	28												
	30												
	32	5-7-7	BROWN CLAYEY FINE TO COARSE SAND AND GRAVEL, WET-MEDIUM DENSE	10		V	I	S	U	A	L		A-1-a
	34												
	36	8-10-14	" "	11		V	I	S	U	A	L		A-1-a
610.3	38												
608.8	40	60-145	GRAY VERY SOFT WEATHERED SHALE	12		V	I	S	U	A	L		

BOTTOM OF BORING

DATE STARTED 4/22/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/22/83 CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 623.8
BORING NUMBER W-8 CORE BARREL . . . SIZE ——— AFTER ——— HRS. BACKFILLED
STATION & OFFSET 806+00. 50' RT. SURFACE ELEVATION 648.8

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
648.8	0												
646.3	2	3-4-3	BROWN SANDY SILTY CLAY WITH SAND SEAMS, TRACE OF COAL FRAGMENTS AND CINDERS, (FILL), MOIST-LOOSE	1		V	I	S	U	A	L		
	4	3-3-4	BLACK CINDERS, TRACE OF COAL FRAGMENTS (FILL) MOIST-LOOSE	2		V	I	S	U	A	L		
643.3	6	-3-		3		V	I	S	U	A	L		
	8	3-4	GRAY AND BROWN SILTY CLAY, MOIST-STIFF	4		V	I	S	U	A	L		A-7-6
638.8	10	3-4-6	" "	5		V	I	S	U	A	L	28.8	A-7-6
	12	4-7-9	BROWN AND GRAY SILTY CLAY, MOIST-VERY STIFF	6		V	I	S	U	A	L		A-6-b
	14	5-8-9	" "	7		V	I	S	U	A	L	21.6	A-6-b
633.8	16												
631.8	18	6-8-9	BROWN SANDY CLAYEY SILT, MOIST-STIFF	8	0	0	25	45	30	24.7	6.3	19.0	A-4-a(8)
628.8	20	6-8-10	BROWN SANDY CLAYEY SILT, MOIST-STIFF (NOTE: WET SEAM AT 20.0')	9		V	I	S	U	A	L		A-4-a
	22	4-6-7	BROWN SANDY CLAYEY SILT, WITH SAND LENSES MOIST TO VERY MOIST-MEDIUM DENSE TO LOOSE	10	0	1	41	39	19	20.2	3.0	23.3	A-4-a(5)
	24												
	26	4-4-5	" "	11	0	1	47	26	16	N.	P.	22.8	A-4-a(0)
618.8	28												
	30												
	32	11-10-11	BROWN CLAYEY FINE TO COARSE SAND AND FINE GRAVEL , WET-MEDIUM DENSE TO DENSE	12		V	I	S	U	A	L		A-1-a
	34												
612.3	36	10-15-19	" "	13		V	I	S	U	A	L		A-1-a
	38												

BOTTOM OF BORING

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT, ROAD CINCINNATI, OHIO

STRUCTURE FOUNDATION INVESTIGATION
RETAINING WALLS - S.R.7
STATION 797+15 TO 812+50
SEC: BEL-7-14.17

BORING DATA

CHECKED BY	REVIEWED BY	DATE
T.T.	J.B.K.	8/25/83

BELMONT COUNTY
BEL-7-14.17

DATE STARTED 6/14/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/14/83. CASING TYPE H.S.A. DIA. 3.25" I.D. IMMEDIATE 629.9
BORING NUMBER W-9 CORE BARREL ——— SIZE ——— AFTER ——— HRS. BACKFILLED
STATION & OFFSET 807+00, 45' LT. SURFACE ELEVATION 649.9

ELEV.	DEPTH	STN. PEN	DESCRIPTION	SA.	PHYSICAL CHARACTERISTICS								
					%	%	%	%	%			%	SHTL
649.9	0	(N)		NO	AGG	CS	FS	SILT	CLAY	LL	PI	WC	CLASS
649.6	2	5-7-6	CONCRETE SIDEWALK BLACK COAL FRAGMENTS WITH SILTY SAND LAYER (FILL), MOIST-MEDIUM DENSE	1		V	I	S	U	A	L		
647.9	4	5-6-7	BROWN AND BLACK SANDY SILTY CLAY, TRACE OF CINDERS AND COAL FRAGMENTS (FILL), MOIST-SOFT	2		V	I	S	U	A	L		
644.9	6	6-7-7	BROWN SILTY CLAY, TRACE OF CINDERS, MOIST- STIFF	3		V	I	S	U	A	L	24.8	A-6-b
642.4	8	5-7-8	BROWN SILTY CLAY-MOIST-STIFF	4		V	I	S	U	A	L		A-7-6
	10	S.T.	QU=.60 T.S.F.	S.T.	0	0	27	55	18	24	6	21.2	A-4-b(8)
638.9	12	4-5-5	BROWN SANDY CLAYEY SILT WITH SAND SEAMS, VERY MOIST TO WET LOOSE	5		V	I	S	U	A	L		A-4-
	14	3-4-5	(NOTE: WET AT 11.0') " "	6		V	I	S	U	A	L	22.4	A-4-
	16	4-4-5	" "	7		V	I	S	U	A	L		A-4-
	18	2-3-3	" "	8		V	I	S	U	A	L	23.9	A-4-
	20	4-4-5	" "	9		V	I	S	U	A	L		A-4-
620.9	22	4-6-6	BROWN CLAYEY SAND AND GRAVEL, WET-MEDIUM DENSE	10		V	I	S	U	A	L		A-1-a
614.9	24	7-10-20	BROWN AND GRAY CLAYEY SAND AND GRAVEL W/ROCK FRAGS., WET-MED. DENSE	11		V	I	S	U	A	L		A-1-b
613.4	26		BOTTOM OF BORING										

DATE STARTED 6/14/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/14/83. CASING TYPE H.S.A DIA. 3.5" I.D. IMMEDIATE 630.5
BORING NUMBER W-10 CORE BARREL ... SIZE ——— AFTER ——— HRS. BACKFILLED
STATION & OFFSET 808+10. 50' RT. SURFACE ELEVATION 650.5

ELEV.	DEPTH FEET	STN. PEN	DESCRIPTION	SA.	PHYSICAL CHARACTERISTICS								
					%	%	%	%	%			%	SHTL
650.5	0	(N)		NO.	AGG	CS	FS	SILT	CLAY	LL	PI	LL	CLASS
	2	6-6-5	REDDISH BROWN AND GRAY CINDERS, TRACE OF SAND SILT, GRAVEL AND ROCK FRAGMENTS (FILL), MOIST-LOOSE	1		V	I	S	U	A	L		
	4	4-4-6	" "	2		V	I	S	U	A	L		
645.5	6	4-5-6	BROWN SILTY CLAY, TRACE OF CINDERS (FILL), moist-STIFF	3		V	I	S	U	A	L	24.8	
643.5	8	6-7-8	BROWN SILTY CLAY, MOIST- STIFF	4		V	I	S	U	A	L	29.9	A-6-b
	10	5-6-7	" "	5		V	I	S	U	A	L		A-6-b
	12	6-7-8	" "	6		V	I	S	U	A	L	18.0	A-6-b
634.5	14	S.T.	QU=.51 T.S.F.	S.T.		V	I	S	U	A	L	22.7	A-4-a
	16	4-5-6	BROWN SANDY CLAYEY SILT WITH SAND LENSES, WET MEDIUM DENSE TO DENSE	7		V	I	S	U	A	L		A-4-a
	18	3-4-5	" "	8		V	I	S	U	A	L		A-4-a
	20	3-5-7	" "	9		V	I	S	U	A	L	22.6	A-4-a
620.5	22	7-9-19	BROWN CLAYEY FINE TO COARSE SAND AND GRAVEL, WET-MEDIUM DENSE	10		V	I	S	U	A	L		A-1-a
615.5	24	12-15-20	BROWN CLAYEY FINE TO COARSE SAND AND GRAVEL, WET-DENSE	11	48	22	15	-1	5-				A-1-B(0)
614.0	26		BOTTOM OF BORING										

DATE STARTED 4/20/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/20/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 627.1
BORING NUMBER W-11 CORE BARREL ... SIZE ——— AFTER ——— HRS. BACKFILLED
STATION & OFFSET 809+00. 55' LT. SURFACE ELEVATION 652.1

ELEV.	DEPTH	STN. PEN	DESCRIPTION	SA.	PHYSICAL CHARACTERISTICS								
					%	%	%	%	%			%	SHTL
652.1	0	(N)		NO.	AGG	CS	FS	SILT	CLAY	LL	PI	WC	CLASS
650.6	2	2-2-3	BLACK CINDERS AND SAND, TRACE OF SLAG (FILL), MOIST-LOOSE	1		V	I	S	U	A	L		
	4	4-5-5	GRAY AND BROWN SILTY CLAY, TRACE OF CINDERS (POSSIBLE FILL), MOIST-STIFF	2		V	I	S	U	A	L		A-6-b
647.1	6	5-6-7	BROWN SILTY CLAY, MOIST- STIFF	3		V	I	S	U	A	L	24.1	A-6-a
	8	S.T.	" QU=1.12 T.S.F. "	S1	0	0	14	44	42	33.0	15.1	21.8	A-6-a(8)
642.6	10	4-5-5	BROWN SANDY CLAYEY SILT, MOIST-MEDIUM STIFF	4		V	I	S	U	A	L	21.1	A-4-a
640.6	12	3-3-3	BROWN SANDY CLAYEY SILT WITH SAND SEAMS, VERY MOIST TO WET LOOSE TO VERY LOOSE	5		V	I	S	U	A	L	22.5	A-4-a
	14	S.T.	" QU=1.54 T.S.F. "	S2	0	0	35	45	20	N.	P.	21.7	A-4a(0)
	16	1-1-2	" (NOTE: WET AT 17.0') "	6		V	I	S	U	A	L	25.2	A-4-a
	18	1-2-2	" "	7		V	I	S	U	A	L		A-4-a
627.1	20												
626.1	22	1-1	GRAY FINE SAND WITH SILTY CLAY SEAMS, VERY MOIST-VERY LOOSE	8		V	I	S	U	A	L	33.7	A-3
	24	-1-	GRAY SILTY CLAY WITH SAND SEAMS, VERY MOIST-SOFT	9		V	I	S	U	A	L		A-6a
620.6	26	S.T.	" "	S3		V	I	S	U	A	L		A-6-a
	28	7-9-8	BROWN AND GRAY SILTY TO CLAYEY SAND, GRAVEL, ROCK AND SHALE FRAGMENTS, WET -MEDIUM DENSE	10		V	I	S	U	A	L		A-1-b
	30	11-14-12	" "	11		V	I	S	U	A	L		A-1-b
614.1	32	50-138	GRAY VERY SOFT WEATHERED SHALE	12		V	I	S	U	A	L		
613.1	34		BOTTOM OF BORING										

DATE STARTED 4/25/83. SAMPLE TYPE S..S DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/25/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 627.9
BORING NUMBER W-12 CORE BARREL ... SIZE ——— AFTER 2 DAYS 632.9
STATION & OFFSET 810+80. 65' LT SURFACE ELEVATION 652.9

ELEV.	DEPTH	STN. PEN	DESCRIPTION	SA	PHYSICAL CHARACTERISTICS								
					%	%	%	%	%			%	SHTL
652.9	0	(N)		NO.	AGG	CS	FS	SILT	CLAY	LL	PI	WC	CLASS
650.4	2	6-5-5	BROWN AND GRAY SANDY CLAYEY SILT, TRACE OF CINDERS AND COAL FRAGMENTS (FILL), MOIST-MEDIUM STIFF	1		V	I	S	U	A	L		
647.9	4	4-5-5	BROWN SILTY CLAY TRACE OF COAL FRAGMENTS (FILL), MOIST-STIFF	2		V	I	S	U	A	L		A-6-a
	6	4-5-7	BROWN AND GRAY SILTY CLAY, MOIST-STIFF	3	0	2	6	47	45	40.2	17.4	24.9	A-6-b(11)
643.4	8	S.T.	" QU=1.49 T.S.F."	S1		V	I	S	U	A	L	20.6	A-6- b
	10	3-3-4	BROWN AND GRAY SANDY CLAYEY SILT WITH SAND SEAMS, VERY MOIST-LOOSE	4		V	I	S	U	A	L	24.3	A-4-a
	12	3-3-3	" "	5	0	0	29	47	24	22.0	2.5	24.3	A-4-a(7)
635.4	14	2-2-2	" "	6		V	I	S	U	A	L	30.8	A-4-a
	16	2-1-2	BROWN CLAYEY SILT WITH SAND SEAMS, VERY MOIST TO WET SOFT (NOTE: WET AT 20.0')	7		V	I	S	U	A	L		A-4-b
	18	2-2-2	" "	8	0	0	19	52	29	25.0	5.3	31.6	A-4-b(8)
627.9	20	1-2-2	BROWN SANDY SILT WITH SAND SEAMS, WET-VERY LOOSE	9		V	I	S	U	A	L		A-4-a
622.9	22	5-7-8	BROWN CLAYEY FINE TO COARSE SAND AND GRAVEL, WET-MEDIUM DENSE	10		V	I	S	U	A	L		A-1-a
621.4	24		BOTTOM OF BORING										

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT ROAD CINCINNATI, OHIO

STRUCTURE FOUNDATION INVESTIGATION
RETAINING WALLS - S.R.7
STATION 797+15 TO 812+50

SEC: BEL-7-14.17

BORING DATA

CHECKED BY	REVIEWED BY	DATE
T.T.	J.B.K.	8/25/83.

* QU= UNCONFINED COMPRESSIVE STRENGTH (T.S.F.)

SOIL PROFILE

BELMONT COUNTY
BEL-7-14.17

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO 45226

21/40

21/26

DATE STARTED 6/18/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/18/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE NONE
BORING NUMBER R-2 CORE BARREL — SIZE — AFTER — HRS. BACKFILLED
STATION & OFFSET 753+50, 90' RT. SURFACE ELEVATION 654.0

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
654.0	0												
	2	4-4-6	BROWN SANDY SILTY CLAY, TRACE OF ROCK AND WOOD FRAGMENTS (FILL), MOIST-STIFF	1		V	I	S	U	A	L		
649.0	4	9-5-7	" "	2		V	I	S	U	A	L		
	6	4-5-6	BROWN SILTY TO SANDY SILTY CLAY, TRACE OF ROCK FRAGMENTS, MOIST-STIFF	3		V	I	S	U	A	L		A-6-a
	8	5-5-6	" "	4		V	I	S	U	A	L		A-6-a
	10												
	12	5-6-8	BROWN SILTY CLAY, MOIST - STIFF	5		V	I	S	U	A	L		A-7-6
639.0	14												
	16	6-7-8	" "	6		V	I	S	U	A	L		A-7-6

DATE STARTED 6/16/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/16/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE NONE
BORING NUMBER R-3 CORE BARREL — SIZE — AFTER — HRS. BACKFILLED
STATION & OFFSET 758+00, 35' LT. SURFACE ELEVATION 672.0

ELEV.	DEPTH	DESCRIPTION	SA NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
672.0	0											
671.0	2	BROWNISH GRAY SILTY CLAY, TRACE OF FINE GRAVEL (FILL), MOIST-MEDIUM STIFF	1		V	I	S	U	A	L		A-7-6
	4	BROWN SILTY CLAY, MOIST-STIFF	2		V	I	S	U	A	L		A-7-6
	6	" "	3	0	9	6	37	48	48	22	26.4	A-7-6(15)
	8	" "	4		V	I	S	U	A	L		A-7-6
662.0	10	" "	5		V	I	S	U	A	L		A-7-6

DATE STARTED 6/16/83. SAMPLE TYPE AUGER DIA. 3.5" I.D. WATER ELEVATION
DATE COMPLETED 6/16/83 CASING TYPE — DIA. — IMMEDIATE NONE
BORING NUMBER R-4 CORE BARREL — SIZE — AFTER — HRS. BACKFILLED
STATION & OFFSET 760+00, 30' LT SURFACE ELEVATION 661.3

ELEV.	DEPTH	DESCRIPTION	SA NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
661.3	0											
660.3	2	DARK GRAY CINDER SAND WITH CLAYEY SILT SEAM, TRACE OF GRAVEL (FILL) SLIGHTLY MOIST	1		V	I	S	U	A	L		
658.8	4	DARK BROWN & GRAY SILTY CLAY, TRACE OF GRAVEL AND ROCK FRAGMENTS (FILL), MOIST-STIFF	2		V	I	S	U	A	L		A-6-b
	6	BROWN SILTY CLAY, TRACE OF FINE GRAVEL, MOIST-STIFF	3		V	I	S	U	A	L	26.7	A-6-b
	8		4		V	I	S	U	A	L	26.7	A-6-b
651.3	10		5		V	I	S	U	A	L		A-6-b

DATE STARTED 6/16/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/16/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 642.4
BORING NUMBER R-5 CORE BARREL — SIZE — AFTER — HRS. BACKFILLED
STATION & OFFSET 764+00. C.L. SURFACE ELELVATION 652.4

ELEV.	DEPTH	STN. PEN. (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
652.4	0												
651.4	2		CONCRETE AND BLACKTOP										
	4	6-8-7 5-6-7	GRAY, DARK GRAY, BROWN AND BLACK SILTY CLAY WITH COAL, SHALE AND ROCK FRAGMENTS AND CINDERS (FILL), MOIST-STIFF	1		V	I	S	U	A	L		
647.4	6	4-3-3	GRAY AND BROWN SILTY CLAY WITH SHALE AND COAL FRAGMENTS (FILL), VERY MOIST-SOFT	2		V	I	S	U	A	L		A-7-6
644.9	8	3-3-3	DARK GRAY SANDY CLAYEY SILT WITH CINDERS, TRACE OF BRICK FRAGMENTS (FILL), VERY MOIST-SOFT TO MEDIUM STIFF	3		V	I	S	U	A	L	17.9	
642.4	10	5-6-7	GRAY AND BROWN SILTY CLAY, TRACE OF ORGANIC MATTER, MOIST-STIFF	4		V	I	S	U	A	L	43.5	
640.4	12	5-6-7		5		V	I	S	U	A	L	27.3	A-6-a
	14		BROWN SILTY CLAY, MOIST-STIFF	6		V	I	S	U	A	L		A-6-a
635.9	16	6-7-7	" "	7		V	I	S	U	A	L		A-6-a
	18												

DATE STARTED 4/7/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/7/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 627.8
BORING NUMBER R-6 CORE BARREL — SIZE — AFTER 6 DAYS 630.8
STATION & OFFSET 771+50, C.L. SURFACE ELEVATION 647.8

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG.	% CS.	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
647.8	0												
	2	7-6-5	GRAY AND BLACK SILTY CLAY (RESIDUAL OF SHALE,) WITH COAL FRAGMENTS (FILL) - MOIST, STIFF	1		V	I	S	U	A	L		
645.3	4	5-5-6	BLACK AND GRAY COAL AND SHALE FRAGMENTS AND SOME SILTY CLAY, (FILL), MOIST- LOOSE TO MEDIUM DENSE	2		V	I	S	U	A	L		
	6	4-4-4	" "	3		V	I	S	U	A	L	9.7	
	8												
	10	3-4-4	" "	4		V	I	S	U	A	L		
	12	4-3-4	" "	5		V	I	S	U	A	L	7.8	
632.8	14	4-4-3	" "	6		V	I	S	U	A	L		
630.3	16	3-4-4	BROWN SANDY CLAYEY SILT, MOIST-MEDIUM STIFF	7	0	1	24	40	35	27	6	24.7	A-4-b(8)
	18	8-12-14	BROWN AND GRAY CLAYEY SAND, ROCK FRAGMENTS AND GRAVEL, MOIST-MEDIUM DENSE TO DENSE	8		V	I	S	U	A	L		A-1-b
626.3	20 22	16-20-25	" "	9		V	I	S	U	A	L		A-1-b

DATE STARTED 4/20/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/20/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE NONE
BORING NUMBER B-7 CORE BARREL — SIZE — AFTER — HRS. BACKFILLED
STATION & OFFSET 774+00. C.L. SURFACE ELEVATION 647.2

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
647.2	0												
646.2	2	2-3-6	BROWN SANDY CLAYEY SILT, TRACE OF ROOTS AND COAL FRAGS.(POSSIBLE FILL), MOIST-SOFT	1		V	I	S	U	A	L		A-4-a
	4	2-2-3	BROWN SANDY CLAYEY SILT, VERY MOIST-SOFT TO MEDIUM STIFF	2		V	I	S	U	A	L		A-4-a
642.2	6	3-5-6	BROWN SANDY CLAYEY SILT, MOIST-STIFF	3		V	I	S	U	A	L	30.0	A-4-a
	8			4		V	I	S	U	A	L	23.5	A-4-a
637.2	10	5-7-9	" "	5		V	I	S	U	A	L		A-4-a

DATE STARTED 6/13/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/13/83 CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE NONE
BORING NUMBER R-8 CORE BARREL — SIZE — AFTER — HRS. BACKFILLED
STATION & OFFSET 777+50, C.L. SURFACE ELEVATION 644.0

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA NO	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
644.0	0												
	2	6-8-8	BROWN, YELLOW AND GRAY SILTY CLAY, TRACE OF ROCK FRAGMENTS AND GRAVEL (FILL), MOIST-STIFF TO MEDIUM STIFF	1		V	I	S	U	A	L		
	4	5-6-7	" "	2		V	I	S	U	A	L	18.2	
637.5	6		" "	3		V	I	S	U	A	L		
	8	3-4-4	BROWN SANDY CLAYEY SILT, VERY MOIST-MEDIUM STIFF	4		V	I	S	U	A	L	27.7	A-4-a
634.0	10	2-3-3											
	12	5-6-6	BROWN SANDY SILTY CLAY, MOIST-STIFF	5		V	I	S	U	A	L		A-6-a
	14	5-6-7	" "	6		V	I	S	U	A	L		A-6-a
	16	4-5-6	(NOTE: WET AT 15.0') " "	7		V	I	S	U	A	L	20.7	A-6-a
	18												
	20	5-6-7	" "	8		V	I	S	U	A	L		A-6-a
622.5	22	4-5-5	BROWN SANDY CLAYEY SILT, VERY MOIST-STIFF	9		V	I	S	U	A	L	22.7	A-4-a

DATE STARTED 4/11/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/11/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 640.2
BORING NUMBER R-9 CORE BARREL — SIZE — AFTER 2 DAYS 642.2
STATION & OFFSET 781+00, C.L. SURFACE ELEVATION 645.2

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG.	% CS.	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
645.2	0												
642.7	2	3-3-2	BROWN CLAYEY SILT, TRACE OF ORGANICS (FILL), MOIST-SOFT	1		V	I	S	U	A	L		A-4-a
640.2	4	2-1-2	GRAY AND BLACK CLAYEY SILT WITH COAL FRAGMENTS, TRACE OF CINDERS (FILL), MOIST-SOFT	2		V	I	S	U	A	L	24.2	
637.7	6 8	4-4-5	BROWN CLAYEY SILT, MOIST-MEDIUM STIFF TO STIFF	3	0	1	8	51	40	30	8	25.0	A-4-b(8)
635.2	10	4-6-7	BROWN AND GRAY SILTY CLAY MOIST-STIFF	4		V	I	S	U	A	L	24.3	A-6-a
633.7	12	4-8-6	BROWN AND GRAY SANDY SILTY CLAY, MOIST-STIFF	5		V	I	S	U	A	L		A-6-a

DATE STARTED 4/11/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/11/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 643.0
BORING NUMBER R-10 CORE BARREL — SIZE — AFTER 2 DAYS 645.0
STATION & OFFSET 783+50. C.L. SURFACE ELEVATION 653.0

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG.	% CS.	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
653.0	0												
	2	5-5-6	GRAY, BLACK AND YELLOW CLAYEY SILT, SHALE AND COAL FRAGMENTS (FILL), MOIST-LOOSE	1		V	I	S	U	A	L		
	4	4-5-5	" "	2		V	I	S	U	A	L		
	6	5-5-6	" "	3		V	I	S	U	A	L	7.7	
	8												
643.0	10	4-5-6	" "	4		V	I	S	U	A	L		
641.5	12	5-7-8	GRAYISH BROWN SANDY SILT, MOIST-STIFF	5		V	I	S	U	A	L		A-4-b

DATE STARTED 4/11/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/11/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 644.6
BORING NUMBER R-11 CORE BARREL — SIZE — AFTER 2 DAYS 643.1
STATION & OFFSET 786+50. C.L. SURFACE ELEVATION 646.1

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG.	% CS.	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
646.1	0												
643.6	2	5-6-6	BROWN AND MAROON CLAYEY SAND, TRACE OF GRAVEL, ROCK FRAGMENTS AND CINDERS (FILL), moist- LOOSE	1		V	I	S	U	A	L		
641.1	4	4-5-5	GRAY AND BROWN SANDY CLAYEY SILT WITH SAND LENSES, TRACE OF CINDERS AND GRAVEL(FILL) MOIST-MEDIUM STIFF	2		V	I	S	U	A	L		A-4-a
	6	4-6-7	BROWN SANDY CLAYEY SILT, MOIST TO VERY MOIST-STIFF TO MEDIUM STIFF	3		V	I	S	U	A	L	24.5	A-4-a
	8												
	10	5-7-8	" "	4		V	I	S	U	A	L		A-4-a
634.6	12	5-6-7	" "	5		V	I	S	U	A	L	22.7	A-4-a

SOIL PROFILE

BELMONT COUNTY
BEL-7-14.17

THE H.C.NUTTING COMPANY
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO 45226

22/40

22/26

DATE STARTED 4/22/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/23/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 620.9
BORING NUMBER R-12 CORE BARREL —— SIZE —— AFTER 2 DAYS 627.9
STATION & OFFSET 789+50, C.L. SURFACE ELEVATION 645.9

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
645.9	0												
643.4	2	4-5-6	BROWN SILTY CLAY (FILL), MOIST -STIFF	1		V	I	S	U	A	L		
640.9	4	4-5-5	BROWN SILTY SAND WITH CLAYEY SILT LAYERS, TRACE OF GRAVEL, CINDERS AND CONCRETE FRAGMENTS (FILL), MOIST-LOOSE	2		V	I	S	U	A	L		
	6	5-5-6	BROWN SILTY CLAY, MOIST-STIFF	3		V	I	S	U	A	L	20.1	A-6-a
635.9	8	5-6-7	" "	4		V	I	S	U	A	L		A-6-a
633.4	10	5-6-6	BROWN SANDY CLAYEY SILT, MOIST-MEDIUM STIFF	5		V	I	S	U	A	L	25.6	A-4-a
630.9	12	4-5-6	BROWN SILTY CLAY, MOIST STIFF	6		V	I	S	U	A	L		A-6-b
	14	ST.	BROWN SANDY CLAYEY SILT WITH SAND LENSES, VERY MOIST -STIFF TO MEDIUM STIFF	S1		V	I	S	U	A	L	19.7	A-4-a
	16	4-4-4		7		V	I	S	U	A	L		A-4-a
	18		" "	8		V	I	S	U	A	L	20.7	A-4-a
620.9	20	4-5-5											
	22												
	24												
	26	3-2-3	BROWN SANDY SILTY CLAY WITH SAND LENSES AND SEAMS, TRACE OF ROCK FRAGMENTS, VERY MOIST-MEDIUM STIFF	9		V	I	S	U	A	L		A-6-a
	28												
	30		" "	10		V	I	S	U	A	L	27.0	A-6-a
	32	3-3-4											
	34												
	36	4-5-7	" "	11		V	I	S	U	A	L		A-6-a
	38												
605.9	40		BROWN FINE TO COARSE SAND AND GRAVEL,										
604.4	42	8-10-13	WET-MEDIUM DENSE	12	39	39	16	-6	-			19.9	A-1-a(0)

DATE STARTED 4/11/83 SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/11/83 CASING TYPE H.S.A. DIA. 3.5" IMMEDIATE 638.3
BORING NUMBER R-13 CORE BARREL — SIZE — AFTER 9 DAYS 639.3
STATION & OFFSET 794+00, C.L. SURFACE ELEVATION 648.3

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
648.3	0												
	2	5-7-8	GRAY AND BLACK SILTY CLAY WITH COAL FRAGMENTS (FILL), MOIST-STIFF (MINE SPOIL FILL)	1		V	I	S	U	A	L		
647.3	4	4-5-8	" "	2		V	I	S	U	A	L	13.9	
	6	4-4-5	BROWN SILTY SAND, TRACE OF GRAVEL AND WOOD FRAGMENTS (FILL) MOIST-LOOSE	3		V	I	S	U	A	L		
640.8	8												
	10	5-4-5	BROWN SANDY CLAYEY SILT WITH CLAYEY SILT SEAMS, TRACE OF GRAVEL AND BRICK FRAGMENTS (FILL), MOIST-LOOSE	4		V	I	S	U	A	L	37.0	
638.3	12	5-6-7	MOTTLED GRAY AND BROWN SILTY CLAY, MOIST-STIFF	5		V	I	S	U	A	L		A-6b
	14		" "	6		V	I	S	U	A	L		A-6b
633.3	16	5-6-5											

DATE STARTED 6/15/83 SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/15/83 CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE NONE
BORING NUMBER R-14 CORE BARREL —— SIZE —— AFTER —— HRS. BACKFILLED
STATION & OFFSET 814+00, C.L. SURFACE ELEVATION 649.3

ELEV.	DEPTH	STN. PEN	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
649.3	0		CONCRETE SIDEWALK										
648.8	2	AUGER	BROWN SILTY SAND, WITH CINDERS AND GRAVEL (FILL) SLIGHTLY MOIST-LOOSE	1		V	I	S	U	A	L		
646.8	4		BROWN SANDY SILTY CLAY, MOIST-MEDIUM STIFF	2		V	I	S	U	A	L	25.7	A-6a
644.3	6												
	8		BROWN SANDY CLAYEY SILT, MOIST-MEDIUM STIFF	3		V	I	S	U	A	L		A-4a
641.8	10		BROWN SANDY CLAY, MOIST-MEDIUM STIFF	4		V	I	S	U	A	L	23.2	A-6a
639.3													

DATE STARTED 6/15/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/15/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE NONE
BORING NUMBER R-15 CORE BARREL —— SIZE —— AFTER —— HRS. BACKFILLED
STATION & OFFSET 817+65, C.L. SURFACE ELEVATION 650.0

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
650.0	0												
648.0	2	6-8-8	BLACK AND REDDISH BROWN CINDERS, TRACE OF BRICK, COAL AND GLASS FRAGMENTS (FILL), SLIGHTLY MOIST-MEDIUM DENSE	1		V	I	S	U	A	L		
	4	5-6-7											
	6	6-7-9	BROWN SANDY CLAYEY SILT, MOIST-STIFF TO MEDIUM STIFF	2		V	I	S	U	A	L		A-4-a
	8			3		V	I	S	U	A	L	18.0	A-4-a
641.0	10	8-9-10	" "	4		V	I	S	U	A	L		A-4-a
638.5	12	4-5-6	BROWN SANDY CLAYEY SILT WITH SILT AND SAND LENSES, MOIST- MEDIUM STIFF	5		V	I	S	U	A	L		A-4-a

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DATE STARTED 4/7/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/7/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE NONE
BORING NUMBER R-16 CORE BARREL —— SIZE —— AFTER —— HRS. BACKFILLED
STATION & OFFSET 761+00 B.L. RAMP B SURFACE ELEVATION 660.1

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
660.1	0												
	2	5-4-5	GRAY AND BROWN SILTY CLAY WITH COAL FRAGMENTS, TRACE OF FINE GRAVEL (FILL), MOIST-MEDIUM STIFF TO SOFT (MINE SPOIL FILL)	1		V	I	S	U	A	L		
	4	4-4-5		2		V	I	S	U	A	L	20.4	
	6	4-5-5	" "	3		V	I	S	U	A	L		
	8		" "	4		V	I	S	U	A	L	21.4	
	10	4-5-4	" "										
648.6	12	4-4-5	" "	5		V	I	S	U	A	L		

DATE STARTED 4/7/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/7/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE NONE
BORING NUMBER R-17 CORE BARREL —— SIZE —— AFTER —— HRS. BACKFILLED
STATION & OFFSET 765+00, B.L.(RAMP B) SURFACE ELEVATION 659.0

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
659.0	0												
	2	6-6-5	BLACK, REDDISH BROWN AND GRAY COAL FRAGMENTS WITH SILTY CLAY LAYERS, TRACE OF BRICK FRAGMENTS (FILL) MOIST-MEDIUM DENSE TO LOOSE	1		V	I	S	U	A	L		
	4	4-3-4	" "	2		V	I	S	U	A	L		
654.0	6			3		V	I	S	U	A	L	16.8	
		3-3-3	GRAY, BLACK AND BROWN SILTY CLAY, COAL AND ROCK FRAGMENTS (FILL), MOIST TO VERY MOIST LOOSE (MINE SPOIL FILL)										
	8	3-3-4		4	0	39	16	20	25	31.0	8.2	19.4	A-4a(2)
	10		" "										
	12	3-2-3		5		V	I	S	U	A	L		
			" "										
	14	2-3-3		6		V	I	S	U	A	L	20.1	
644.0	16		BROWN AND GRAY SILTY CLAY WITH CLAYEY SAND LAYERS										
642.5	18	4-4-4	AND COAL AND ROCK FRAGMENTS (FILL) MOIST-MEDIUM STIFF	7		V	I	S	U	A	L		

DATE STARTED 6/12/83 SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/12/83 CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 621.4
BORING NUMBER R-18 CORE BARREL —— SIZE —— AFTER 4 DAYS 624.8
STATION & OFFSET 768+00, B.L. RAMP B SURFACE ELEVATION 637.4

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
637.4	0												
	2	5-6-7	BROWN CLAYEY SILT, MOIST TO VERY MOIST, MEDIUM STIFF TO SOFT	1		V	I	S	U	A	L		A-4b
	4	4-5-5	" "	2		V	I	S	U	A	L		A-4b
	6		" "	S1	0	0	24	57	19	28.1	4.6	26.6	A-4b(2)
629.4	8	S.T.											

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
	8	2-2-3		3		V	I	S	U	A	L	35.7	A-4-b
627.4	10												
	12	2-2-3	BROWN SANDY CLAYEY SILT WITH SAND LENSES, MOIST-SOFT	4		V	I	S	U	A	L		A-4-a
624.9	14	3-3-3	BROWN CLAYEY SILT VERY MOIST - MEDIUM STIFF	5		V	I	S	U	A	L	34.4	A-4-b
620.9	16	S.T.		S2		V	I	S	U	A	L		A-4-b
	18	13-17-20	BROWN CLAYEY SAND, GRAVEL AND ROCK FRAGMENTS, WET-DENSE	6		V	I	S	U	A	L		A-1-a
617.4	20												
	22	3-4-4	BROWN SANDY CLAYEY SILT TRACE OF ORGANIC MATTER, VERY MOIST-STIFF TO MEDIUM STIFF	7		V	I	S	U	A	L	21.6	A-4-a
	24												
	26		" "										
	28	2-3-4		8		V	I	S	U	A	L		A-4-a
609.4	30		BROWN AND GRAY CLAYEY SAND, ROCK FRAGMENTS AND GRAVEL, WET-MEDIUM DENSE TO VERY DENSE	9		V	I	S	U	A	L		A-1-b
	32	12-13-15											
	34												
600.9	36		" "										
	38	16-25-33		10		V	I	S	U	A	L		A-1-b

BOTTOM OF BORING

DATE STARTED 4/7/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/7/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 622.8
BORING NUMBER R-19 CORE BARREL —— SIZE —— AFTER 5 DAYS 627.8
STATION & OFFSET 770+50 B.L. RAMP A SURFACE ELEVATION 647.8

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
647.8	0												
645.3	2	4-4-5	BROWN SILTY CLAY, TRACE OF GRAVEL AND ROOTS (FILL) VERY MOIST-STIFF	1		V	I	S	U	A	L		
	4	4-4-4	GRAY CLAYEY SILT WITH COAL FRAGMENTS (FILL), MOIST TO VERY MOIST-LOOSE (MINE SPOIL FILL)	2		V	I	S	U	A	L		A-4-a
	6	5-5-5	" "	3	0	23	15	33	29	32	9	16.4	A-4-a(5)
	8	5-6-5	" "	4		V	I	S	U	A	L		A-4-a
	10	4-3-4	" "	5		V	I	S	U	A	L		A-4-a
	12	4-4-4	" "	6		V	I	S	U	A	L		A-4-a
632.8	14												
630.3	16	4-4-5	BROWN AND GRAY CLAYEY SILT, MOIST-STIFF	7		V	I	S	U	A	L		A-4-b
627.8	18	4-5-6	BROWN SILTY CLAY, MOIST-STIFF	8		V	I	S	U	A	L	27.2	A-6-a
	20	4-6-7	BROWN SANDY SILTY CLAY, WITH ROCK FRAGMENTS, MOIST-MEDIUM STIFF	9		V	I	S	U	A	L		A-6-a
622.8	22												
	24												
	26	10-15-19	BROWN SANDY SILTY CLAY, WITH GRAVEL AND ROCK FRAGMENTS, VERY MOIST-DENSE	10		V	I	S	U	A	L	15.2	A-1-b
	28												
	30												
	32	8-11-14	" "	11		V	I	S	U	A	L		A-1-b
612.8	34												
	36	8-8-10	BROWN CLAYEY SAND WITH GRAVEL AND ROCK FRAGMENTS, - WET MEDIUM DENSE	12	10	48	20	10	12	25.6	5.5	18.4	A-1-b(0)
	38												
607.8	40												
606.3	42	14-25-32	BROWN CLAYEY SANDY GRAVEL WET VERY DENSE	13		V	I	S	U	A	L		A-1-a

BOTTOM OF BORING

SOIL PROFILE

BELMONT COUNTY
BEL-7-14.17

THE H. C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO

23/40

23/26

DATE STARTED 4/20/83 | SAMPLER TYPE S.S. | DIA. 2" O.D. | WATER ELEVATION
DATE COMPLETED 4/20/83 | CASING TYPE H.S.A. | DIA. 3.5" I.D. | IMMEDIATE 629.6
BORING NUMBER R-20 | CORE BARREL | SIZE | AFTER HRS.
STATION & OFFSET 773+00, B/L (RAMP A) | SURFACE ELEVATION 642.1

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
642.1	0	(N)											
	2	1-2-4	BROWN SANDY CLAYEY SILT, MOIST – SOFT TO MEDIUM STIFF	1				VISUAL					A-4a
	4	2-4-4		2				VISUAL					A-4a
	6	2-2-3 ST		3				VISUAL				25.0	A-4a
				S1								26.6	A-4a
	8	1-2-2		4	0	1	34	38	27	28	5	32.9	A-4a(6)
	10												
630.1	12	1-2-2		5				VISUAL				35.8	A-4a
	14	5-7-8	BROWN SANDY CLAYEY SILT, MOIST – VERY STIFF	6				VISUAL				21.6	A-4a
	16	5-7-9 ST		7	0	0	19	44	37	29	9	22.4	A-4a(8)
624.6				S2								22.1	
	18	5-8-9	BROWN SILTY CLAY, VERY MOIST – STIFF	8				VISUAL				21.3	A-6a
622.1	20												
	22	3-3-4	BROWN SILTY CLAY, TRACE OF ROCK FRAGMENTS, VERY MOIST TO WET – MEDIUM STIFF	9				VISUAL					A-6a
617.1	24												
	26	4-5-6	BROWN SANDY CLAYEY SILT, VERY MOIST – STIFF	10				VISUAL					A-4a
613.1	28												
	30		BROWN CLAYEY SAND, GRAVEL AND ROCK FRAGMENTS, WET – MEDIUM DENSE	11				VISUAL					A-1-a
	32	5-6-7											
	34												
605.6	36	8-10-11		12				VISUAL					
	38												

DATE STARTED 4/20/83 | SAMPLER TYPE S.S. | DIA. 2" O.D. | WATER ELEVATION
DATE COMPLETED 4/20/83 | CASING TYPE H.S.A. | DIA. 3.5" I.D. | IMMEDIATE NONE
BORING NUMBER R-21 | CORE BARREL | SIZE | AFTER HRS.
STATION & OFFSET 776+00, B/L (RAMP A) | SURFACE ELEVATION 644.8

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
644.8	0	(N)											
644.3	2	1	BROWN CLAYEY SILT, TRACE OF ORGANICS (FILL), /	1				VISUAL					A-4b
642.3		2-3	BROWN CLAYEY SILT (FILL), MOIST–SOFT /MOIST–SOFT	2				VISUAL					A-4b
	4	4-6-6	BROWN CLAYEY SILT AND ROCK AND CONCRETE FRAGMENTS AND GRAVEL (FILL), MOIST – STIFF	3				VISUAL					A-1-b
	6	3-5-6		4				VISUAL				22.0	A-1-b
637.3	8		(WET SEAM AT 8.0')										
636.3		3-2	GRAY AND BLACK SILTY CLAY WITH COAL FRAGMENTS/	5				VISUAL					
634.8	10	3	BROWN CLAYEY SILT, MOIST–MEDIUM STIFF	6				VISUAL				55.4	A-4b
	12	1-2-1	/(FILL), MOIST – MEDIUM STIFF	7	0	1	19	39	41	36	9	47.8	A-4a(8)
			BROWN AND GRAY SANDY CLAYEY SILT, MOIST –										
	14	2-2-2	MEDIUM STIFF TO SOFT	8				VISUAL				45.3	A-4a
630.3	16												
		3-4-5	BROWN SILTY CLAY, MOIST TO VERY MOIST, STIFF TO MEDIUM STIFF	9				VISUAL				27.4	A-6b
	18												
625.8	20	3-4-6		10				VISUAL				25.4	A-6b

DATE STARTED 6/12/83 | SAMPLER TYPE H.S.A. | DIA. 3.5"I.D. | WATER ELEVATION
DATE COMPLETED 6/12/83 | CASING TYPE . . . | DIA. . . . | IMMEDIATE NONE
BORING NUMBER R-22 | CORE BARREL | SIZE | AFTER HRS. BACKFILLED
STATION & OFFSET 766+10, B/L (RAMP C) | SURFACE ELEVATION 657.3

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
657.3	0	AUGER											
656.8		--	BLACKTOP										
655.3	2		BROWN AND GRAY SANDY CLAYEY SILT, TRACE OF FINE GRAVEL (FILL), MOIST – STIFF	1				VISUAL					
	4												
	6		BROWN SILTY CLAY, TRACE OF FINE GRAVEL AND ROCK FRAGMENTS, MOIST – STIFF	2				VISUAL				32.5	A-7-6
649.3	8			3				VISUAL					A-7-6
			BROWN SILTY CLAY, TRACE OF GRAVEL AND ROCK FRAGMENTS, MOIST – STIFF										
647.3	10			4				VISUAL					A-7-6

DATE STARTED 6/12/83 | SAMPLER TYPE S.S. | DIA. 2" O.D. | WATER ELEVATION
DATE COMPLETED 6/12/83 | CASING TYPE H.S.A. | DIA. 3.5" I.D. | IMMEDIATE 630.2
BORING NUMBER R-23 | CORE BARREL | SIZE | AFTER 4 DAYS 632.2
STATION & OFFSET 771+50, B/L (RAMP D) | SURFACE ELEVATION 645.2

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
645.2	0	(N)											
	2	12-20-21	BROWN AND GRAY SANDY CLAYEY SILT TO CLAYEY SAND, TRACE OF CONCRETE, ROCK AND BRICK FRAGMENTS (FILL), MOIST – VERY STIFF	1				VISUAL					
640.2	4	15-30-12		2				VISUAL					
	6	5-6-6	GRAY, DARK GRAY AND BROWN SILTY CLAY WITH ROCK AND COAL FRAGMENTS (FILL), MOIST – MEDIUM STIFF	3				VISUAL					
637.7	8	6-7-7	GRAY AND BROWN CLAYEY SILT, TRACE OF ORGANIC MATTER, MOIST – MEDIUM STIFF	4				VISUAL				28.7	A-4b
	10												
	12	ST		S1				VISUAL				34.3	A-4b
		5-6-7		5				VISUAL					A-4b
631.2	14												
	16	13-17-20	BROWN AND GRAY CLAYEY SAND AND GRAVEL, MOIST – DENSE	6				VISUAL					A-1b
	18												
	20	12-15-18		7	60	14	7	19					A-1b(0)
623.7	22	13-18-22		8				VISUAL					A-1b

DATE STARTED 6/13/83 | SAMPLER TYPE S.S. | DIA. 2" O.D. | WATER ELEVATION
DATE COMPLETED 6/13/83 | CASING TYPE H.S.A. | DIA. 3.5" I.D. | IMMEDIATE 641.3
BORING NUMBER R-24 | CORE BARREL | SIZE | AFTER HRS. BACKFILLED
STATION & OFFSET 775+00, B/L (RAMP D) | SURFACE ELEVATION 646.3

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
646.3	0	(N)											
	2	12-17-30	BROWN SILTY SANDSAND CINDERS AND SLAG WITH FINE GRAVEL (FILL), SLIGHTLY MOIST– DENSE	1				VISUAL					
641.3	4												
640.3	6		SANDSTONE										
	8	5-6-10	BROWN AND GRAY CLAYEY SANDY SILT TRACE ROCK FRAGMENTS, VERY MOIST–MEDIUM DENSE	2				VISUAL					A-4a
	10												
	12	5-6-7		3				VISUAL				20.6	A-4a
	14												
631.3	16	5-6-6	BROWN AND GRAY SANDY CLAYEY SILT, VERY MOIST – STIFF	4				VISUAL					A-4a
627.3	18												
	20		GRAY SANDY CLAYEY SILT, TRACE OF ROCK FRAGMENTS,										
624.8	22	3-4-4	VERY MOIST – MEDIUM STIFF	5				VISUAL				25.9	A-4a

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DATE STARTED 6/15/83 | SAMPLER TYPE S.S. | DIA. 2" O.D. | WATER ELEVATION
DATE COMPLETED 6/15/83 | CASING TYPE H.S.A. | DIA. 3.5" I.D. | IMMEDIATE 631.7
BORING NUMBER R-25 | CORE BARREL | SIZE | AFTER HRS. BACKFILLED
STATION & OFFSET 13+60, C/L (BELMONT STREET) | SURFACE ELEVATION 641.7

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
641.7	0	(N)											
	2	8-8-5	DARK GRAY CINDERS, TRACE OF BRICK AND COAL FRAGMENTS (FILL), SLIGHTLY MOIST – MEDIUM DENSE	1				VISUAL					
	4	5-7-6		2				VISUAL					
636.7	6	12-15-11	BROWN AND GRAY SILTY SAND, BRICK, ROCK AND COAL FRAGMENTS, TRACE OF CINDERS (FILL), SLIGHTLY MOIST – MEDIUM DENSE	3				VISUAL					
634.2	8	8-12-15	BROWN AND GRAY CLAYEY SAND, ROCK FRAGMENTS AND GRAVEL, MOIST – MEDIUM DENSE	4				VISUAL					A-1b
	10	10-11-13		5				VISUAL				17.0	A-1b
	12												
	14	12-10-12		6				VISUAL					A-1b
626.7	16	9-10-15	BROWN CLAYEY SAND, GRAVEL AND ROCK FRAGMENTS, WET – MEDIUM DENSE	7				VISUAL					A-1b
	18	10-12-12		8				VISUAL				18.8	A-1b
	20												
	22	8-12-13		9				VISUAL					A-1b
617.7	24												
615.7	26	40-65	BROWN CLAYEY SANDY ROCK FRAGMENTS AND GRAVEL, WET –/	10				VISUAL					A-1a

REFUSAL AT 26.0' /VERY DENSE

DATE STARTED 6/13/83 | SAMPLER TYPE H.S.A. | DIA. 3.5"I.D. | WATER ELEVATION
DATE COMPLETED 6/13/83 | CASING TYPE . . . | DIA. . . . | IMMEDIATE NONE
BORING NUMBER R-26 | CORE BARREL | SIZE | AFTER HRS. BACKFILLED
STATION & OFFSET 16+00, C/L (BELMONT STREET) | SURFACE ELEVATION 653.8

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
653.8	0	AUGER											
	2		GRAY SILTY CLAY WITH BROWN SILTY CLAY LAYER, TRACE OF COAL FRAGMENTS (FILL), MOIST – STIFF	1				VISUAL					
	4			2				VISUAL					
648.8	6		BROWN SILTY CLAY, TRACE OF GRAVEL, MOIST – VERY STIFF	3				VISUAL				23.2	A-6b
646.8	8												
643.8	10		BROWN SILTY CLAY, MOIST TO VERY MOIST – STIFF TO MEDIUM STIFF	4				VISUAL					A-6b

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DATE STARTED 6/12/83 | SAMPLER TYPE H.S.A. | DIA. 3.5" I.D. | WATER ELEVATION
DATE COMPLETED 6/12/83 | CASING TYPE . . . | DIA. . . . | IMMEDIATE NONE
BORING NUMBER R-27 | CORE BARREL | SIZE | AFTER HRS. BACKFILLED
STATION & OFFSET 20+00, C/L (BELMONT STREET) | SURFACE ELEVATION 646.8

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
646.8	0	AUGER											
644.8	2		BROWN SILTY SAND CINDERS, TRACE OF ROCK AND TILE FRAGMENTS (FILL), SLIGHTLY MOIST – MEDIUM DENSE	1				VISUAL					
	4		BROWN SILTY CLAY TO CLAYEY SILT, TRACE OF COAL FRAGMENTS, GRAVEL AND CINDERS (FILL), MOIST – MEDIUM STIFF	2				VISUAL					
641.8	6		BROWN SILTY CLAY, MOIST – STIFF	3				VISUAL					A-6-a
	8												
636.8	10			4				VISUAL					A-6-a

DATE STARTED 6/16/83 | SAMPLER TYPE S.S. | DIA. 2" O.D. | WATER ELEVATION
DATE COMPLETED 6/16/83 | CASING TYPE H.S.A. | DIA. 3.5" I.D. | IMMEDIATE NONE
BORING NUMBER R-28 | CORE BARREL | SIZE | AFTER HRS. BACKFILLED
STATION & OFFSET 5+50, 10' RT (12TH STREET) | SURFACE ELEVATION 648.3

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
648.3	0	(N)											
648.1	2	7-9-10	BLACKTOP	1				VISUAL					
	4	8-12-13	BLACK, REDDISH BROWN AND WHITE SAND, CINDERS AND BRICK FRAGMENTS (FILL), SLIGHTLY MOIST – MEDIUM DENSE	2				VISUAL					
643.3	6	6-8-9	BROWN SANDY CLAYEY SILT, MOIST – STIFF TO MEDIUM STIFF	3				VISUAL					A-4a
640.3	8												
638.3	10	12-18-30	BROWN AND GRAY SILTY SAND AND ROCK FRAGMENTS,/	4				VISUAL					A-1b

/MOIST – DENSE

DATE STARTED 6/16/83 | SAMPLER TYPE H.S.A. | DIA. 3.5" I.D. | WATER ELEVATION
DATE COMPLETED 6/16/83 | CASING TYPE . . . | DIA. . . . | IMMEDIATE 632.9
BORING NUMBER R-29 | CORE BARREL | SIZE | AFTER HRS. BACKFILLED
STATION & OFFSET 8+50, 10' RT (12TH STREET) | SURFACE ELEVATION 640.9

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
640.9	0	(N)											
638.4	2		BROWN AND GRAY CINDERS/SAND, TRACE OF BRICK FRAGMENTS (FILL), SLIGHTLY MOIST – MEDIUM DENSE	1				VISUAL					
	4		DARK BROWNISH GRAY CLAYEY SAND, CINDERS, TRACE OF GRAVEL AND BRICK FRAGMENTS (FILL), MOIST – MEDIUM DENSE	2				VISUAL					
635.9	6			3				VISUAL				18.1	
	8		BROWN SANDY CLAYEY SILT, TRACE OF ROCK FRAGMENTS,										
630.9	10		WET – SOFT	4				VISUAL				25.8	A-4a
629.4	12	10-12-13	BROWN AND GRAY CLAYEY SAND, ROCK FRAGMENTS AND/	5				VISUAL					A-1b

/ GRAVEL, WET – MEDIUM DENSE

SOIL PROFILE

BELMONT COUNTY
BEL-7-14.17

THE H. C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO

24/40

24/26

DATE STARTED 6/14/83 | SAMPLER TYPE S.S. | DIA. 2" O.D. | WATER ELEVATION
DATE COMPLETED 6/14/83 | CASING TYPE H.S.A. | DIA. 3.5" I.D. | IMMEDIATE NONE
BORING NUMBER R-30 | CORE BARREL N.X.M. | SIZE 2 1/8" O.D. | AFTER 13 DAYS 723.3
STATION & OFFSET 15+45, 5' RT. (TENTH STREET) | SURFACE ELEVATION 731.3

ELEV.	DEPTH	STN. PEN. (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
731.3	0												
728.8	2	6-5-5	BLACK AND BROWN SAND AND CINDERS WITH SANDY CLAYEY SILT LAYER, TRACE OF BRICK, ROCK AND TILE FRAGMENTS/	1				VISUAL					
	4	4-5-5	BROWN SANDY CLAYEY SILT, TRACE /(FILL), MOIST-LOOSE	2				VISUAL					A-4a
726.3			OF ROCK FRAGMENTS AND CINDERS (FILL), MOIST-STIFF										
	6	4-7-8	GRAY AND BROWN SILTY CLAY WITH ROCK AND SHALE	3				VISUAL					A-7-6
	8		FRAGMENTS, MOIST - VERY STIFF										
	10	6-8-10		4				VISUAL				20.1	A-7-6
	12	6-6-8		5				VISUAL					A-7-6
	14	7-9-10		6				VISUAL					A-7-6
	16	6-8-9		7				VISUAL				19.0	A-7-6
712.3	18	7-10-12		8				VISUAL					A-7-6
	20	CORE REC. 72%	BROWN AND GRAY SHALE AND LIMESTONE. SHALE, WEATHERED, BROKEN RECOVERY										
	22		TO 28', VERY SOFT. LIMESTONE, FINE TO VERY FINE GRAINED, WEATHERED,										
	24	CORE REC. 50%	SOME BROKEN RECOVERY TO 28', LAYERS TO 10", TOUGH										
	26												
703.3	28	CORE REC. 76%	GRAY TO DARK GRAY SHALE, FISSILE, SANDY, MEDIUM TOUGH TO TOUGH										
699.3	30												
	32												

DATE STARTED 6/19/83 | SAMPLER TYPE S.S. | DIA. 2" O.D. | WATER ELEVATION
DATE COMPLETED 6/19/83 | CASING TYPE H.S.A. | DIA. 3.5" I.D. | IMMEDIATE NONE
BORING NUMBER R-31 | CORE BARREL | SIZE | AFTER 24 HRS. NONE
STATION & OFFSET 14+22, 15' LT. (TENTH STREET) | SURFACE ELEVATION 699.0

ELEV.	DEPTH	STN. PEN. (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
699.0	0												
	2	1-2-3	GRAY AND BROWN CLAYEY SILT (FILL), MOIST - MEDIUM STIFF	1				VISUAL					A-4b
696.5	4	5-6-8	BROWN AND GRAY SILTY CLAY, TRACE OF ROCK AND	2				VISUAL					A-7-6
	6	5-6-5	SHALE FRAGMENTS, MOIST - VERY STIFF	3				VISUAL				19.1	A-7-6
691.5	8	5-6-7	BROWN AND BLACK SILTY CLAY, TRACE OF SHALE, ROCK	4 5				VISUAL VISUAL					A-6b
689.0	10		AND COAL FRAGMENTS, MOIST - VERY STIFF										

REFUSAL AT 10'

DATE STARTED 6/19/83 | SAMPLER TYPE S.S. | DIA. 2" O.D. | WATER ELEVATION
DATE COMPLETED 6/19/83 | CASING TYPE H.S.A. | DIA. 3.5" I.D. | IMMEDIATE NONE
BORING NUMBER R-32 | CORE BARREL | SIZE | AFTER 24 HRS. NONE
STATION & OFFSET 13+26, 6' LT. (TENTH STREET) | SURFACE ELEVATION 682.0

ELEV.	DEPTH	STN. PEN. (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
682.0	0												
679.5	2	2-2-3	BROWNISH GRAY CLAYEY SILT, TRACE FINE GRAVEL (FILL) MOIST - VERY STIFF	1				VISUAL					
	4	4-5-6	BROWN SILTY CLAY, MOIST - STIFF	2				VISUAL					A-6b
676.9	6	3-4	GRAY AND BROWN VERY SOFT WEATHERED SHALE	3				VISUAL				36.8	A-6b
674.5	8	12	GRAY AND BROWN VERY SOFT WEATHERED SHALE WITH/	4 5				VISUAL VISUAL				25.6	
674.2		89-25%	/LIMESTONE LAYERS										

REFUSAL AT 7.8'

DATE STARTED 6/19/83 | SAMPLER TYPE S.S. | DIA. 2" O.D. | WATER ELEVATION
DATE COMPLETED 6/19/83 | CASING TYPE H.S.A. | DIA. 3.5" I.D. | IMMEDIATE NONE
BORING NUMBER R-33 | CORE BARREL | SIZE | AFTER 24 HRS. NONE
STATION & OFFSET 12+27, 4' LT. (TENTH STREET) | SURFACE ELEVATION 665.0

ELEV.	DEPTH	STN. PEN. (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
665.0	0												
662.5	2	1-2-3	BROWN AND GRAY SILTY CLAY, TRACE OF ROCK FRAGMENTS, MOIST - STIFF	1				VISUAL					A-6b
	4	5-7-9	BROWN SILTY CLAY, MOIST - VERY STIFF	2				VISUAL				29.6	A-7-6
660.5		50%	LIMESTONE	3				VISUAL					
660.0	6												

REFUSAL AT 5.0'

DATE STARTED 5/25/83 | SAMPLER TYPE H.S.A. | DIA. 3.5" I.D. | WATER ELEVATION
DATE COMPLETED 5/25/83 | CASING TYPE | DIA. | IMMEDIATE NONE
BORING NUMBER R-34 | CORE BARREL | SIZE | AFTER 24 HRS. DRY
STATION & OFFSET 11+00, C/L (ACCESS ROAD) PHILLIPS STAMPING. CO. | SURFACE ELEVATION 653.3

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
653.3	0	AUGER											
	2		BLACK AND BROWN CINDERS, SAND AND GRAVEL (FILL),	1				VISUAL					
650.3	4		MOIST - MEDIUM DENSE	2 3				VISUAL VISUAL					
			BROWN SANDY TO SILTY CLAY, MOIST - STIFF	4				VISUAL					A-6a
647.3	6			5				VISUAL					A-6a
				6				VISUAL					A-6a

DATE STARTED 5/25/83 | SAMPLER TYPE S.S. | DIA. 2" O.D. | WATER ELEVATION
DATE COMPLETED 5/25/83 | CASING TYPE H.S.A. | DIA. 3.5" I.D. | IMMEDIATE NONE
BORING NUMBER R-35 | CORE BARREL | SIZE | AFTER 24 HRS. DRY
STATION & OFFSET 15+00, C/L (ACCESS ROAD) PHILLIPS STAMPING CO. | SURFACE ELEVATION 650.0

ELEV.	DEPTH	STN. PEN. (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
650.0	0												
	2	5-4-6	BLACK CINDERS AND ROCK FRAGMENTS WITH BRICK	1				VISUAL					
	4	4-5-5	FRAGMENTS AND SAND (FILL), MOIST - LOOSE	2				VISUAL				17.3	
645.0													
643.5	6	4-5-6	BROWN SILTY CLAY, MOIST - STIFF	3				VISUAL				21.8	A-6b
	8												

DATE STARTED 6/15/83 | SAMPLER TYPE H.S.A. | DIA. 3.5" I.D. | WATER ELEVATION
DATE COMPLETED 6/15/83 | CASING TYPE | DIA. | IMMEDIATE NONE
BORING NUMBER R-36 | CORE BARREL | SIZE | AFTER HRS. BACKFILLED
STATION & OFFSET 19+00, C/L (ACCESS ROAD) PHILLIPS STAMPING CO. | SURFACE ELEVATION 652.8

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
652.8	0	AUGER											
	2		BLACK AND BROWN SILTY SAND WITH CINDER LAYERS,	1				VISUAL					
	4		SANDY SILT LAYERS AND SILTY CLAY SEAMS, TRACE	2				VISUAL				54.6	
	6		OF BRICK AND GLASS FRAGMENTS, (FILL), MOIST -										
644.8	8		LOOSE	3				VISUAL					
			GRAY AND BROWN SANDY CLAYEY SILT, TRACE OF CINDERS	4				VISUAL				18.2	
642.8	10		(FILL), VERY MOIST - MEDIUM STIFF										
641.3	12	5-6-7	MOTTLED BROWN AND GRAY CLAYEY SILT, MOIST - STIFF	5				VISUAL					A-4b

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DATE STARTED 6/18/83 | SAMPLER TYPE S.S. | DIA. 2" O.D. | WATER ELEVATION
DATE COMPLETED 6/18/83 | CASING TYPE H.S.A. | DIA. 3.5" I.D. | IMMEDIATE 633.6
BORING NUMBER R-37 | CORE BARREL | SIZE | AFTER HRS. BACKFILLED
STATION & OFFSET 825+00, B/L (RAMP G, 26TH STREET) | SURFACE ELEVATION 648.6

ELEV.	DEPTH	STN. PEN. (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
648.6	0												
	2	5-3-4	BROWN AND BLACK SANDY SILTY CLAY WITH CINDER	1				VISUAL					A-6a
646.1			LAYER (FILL), MOIST - MEDIUM STIFF										
	4	3-4-5	BROWN AND GRAY SANDY CLAYEY SILT, MOIST TO VERY	2				VISUAL					A-4a
	6	4-5-5	MOIST - STIFF TO MEDIUM STIFF	3				VISUAL				22.5	A-4a
	8												
		4-5-6		4				VISUAL				25.0	A-4a
	10												
	12	3-4-5		5				VISUAL				24.2	A-4a
	14	3-4-4		6				VISUAL				26.2	A-4a
633.6													
	16	2-2-2	BROWN SANDY CLAYEY SILT, WET - SOFT	7				VISUAL					A-4a
630.1	18												
628.6	20	1-1-2	GRAY AND BROWN SANDY SILTY CLAY WITH SANDY SILT/	8				VISUAL				24.5	A-6a

/LAYERS AND SAND SEAMS, WET - SOFT TO MEDIUM STIFF

DATE STARTED 4/26/83 | SAMPLER TYPE S.S. | DIA. 2" O.D. | WATER ELEVATION
DATE COMPLETED 4/26/83 | CASING TYPE H.S.A. | DIA. 3.5" I.D. | IMMEDIATE NONE
BORING NUMBER R-38 | CORE BARREL | SIZE | AFTER 60 DAYS DRY
STATION & OFFSET 826+00 B/L (RAMP F, 26TH STREET) | SURFACE ELEVATION 649.2

ELEV.	DEPTH	STN. PEN. (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
649.2	0												
	2	10-9-11	BROWN AND GRAY ROCK FRAGMENTS, SAND, TRACE OF BRICK	1				VISUAL					A-1a
	4	7-8-6	FRAGMENTS (FILL), MOIST - MEDIUM DENSE	2				VISUAL					A-1a
644.2													
	6	5-6-6	BROWN SANDY SILTY CLAY, MOIST - STIFF	3				VISUAL				23.3	A-6a
	8												
	10	5-7-6		4				VISUAL					A-6a
639.2													
	12	5-6-6	BROWN SANDY CLAYEY SILT, MOIST - STIFF	5				VISUAL				17.7	A-4a
636.7													
	14	5-5-5	BROWN SANDY SILTY CLAY WITH SILTY SAND LAYERS,	6				VISUAL					A-6a
634.2			MOIST - STIFF										
	16	4-5-6	BROWN SILTY FINE TO MEDIUM SAND WITH CLAYEY SAND	7				VISUAL					A-3a
	18		SEAMS AND SANDY CLAYEY SILT SEAMS, MOIST -										
	20	4-5-5	MEDIUM DENSE TO LOOSE	8				VISUAL				21.4	A-3a
627.7													
	22	4-4-4		9				VISUAL				22.8	A-3a

DATE STARTED 6/14/83 | SAMPLER TYPE H.S.A. | DIA. 3.5" I.D. | WATER ELEVATION
DATE COMPLETED 6/14/83 | CASING TYPE | DIA. | IMMEDIATE NONE
BORING NUMBER R-40 | CORE BARREL | SIZE | AFTER 73 DAYS DRY
STATION & OFFSET 18+50, C/L (26TH STREET) | SURFACE ELEVATION 647.0

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
647.0	0	AUGER											
	2		BROWN CLAYEY SILT WITH CINDERS, TRACE OF CONCRETE	1				VISUAL					
643.0	4		FRAGMENTS (FILL), MOIST - LOOSE	2				VISUAL					
			DARK GRAY CLAYEY SAND/CINDERS (FILL), VERY MOIST -/	3				VISUAL				36.6	
641.0	6		LOOSE										
	8		BROWN CLAYEY SILT, MOIST - MEDIUM STIFF	4				VISUAL				24.4	A-4b
637.0	10			5				VISUAL					A-4b

DATE STARTED 6/6/83 | SAMPLER TYPE S.S. | DIA. 2" O.D. | WATER ELEVATION
DATE COMPLETED 6/6/83 | CASING TYPE H.S.A. | DIA. 3.5" I.D. | IMMEDIATE 638.3
BORING NUMBER R-41 | CORE BARREL | SIZE | AFTER 21 DAYS 641.3
STATION & OFFSET 15+65, C/L (26TH STREET) | SURFACE ELEVATION 648.3

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PL	% WC	SHTL CLASS
648.3	0												
	2	3-2-3	GRAY CINDERS/SAND, TRACE OF SLAG AND GRAVEL (FILL),	1				VISUAL					
	4	2-1-2	SLIGHTLY MOIST - LOOSE TO VERY LOOSE	2				VISUAL					
	6	2-2-3		3				VISUAL					
640.8	8												
	10	2-3-3	DARK BROWNISH GRAY CLAYEY SAND/CINDERS, TRACE	4				VISUAL					
	12	2-3-2	GRAVEL AND BRICK FRAGMENTS AND ORGANICS (FILL),	5				VISUAL					
635.8			VERY MOIST - LOOSE										
	14	3-4-5	BROWN AND GRAY SILTY CLAY, VERY MOIST - SOFT TO	6				VISUAL					A-7-6
633.3			MEDIUM STIFF										
	16	5-7-8	BROWN AND GRAY SILTY CLAY, MOIST - STIFF	7				VISUAL					A-7-6
631.8	18												

SOIL PROFILE

BELMONT COUNTY
BEL-7-14.17

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO 45226

25/40

25/26

DATE STARTED 4/24/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/24/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE NONE
BORING NUMBER R-42 CORE BARREL ——— SIZE ——— AFTER 24 HRS. DRY
STATION & OFFSET 11+00. C.L. (26th ST.) SURFACE ELEVATION 647.8

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
647.8	0												
	2	6-9-12	DARK AND LIGHT GRAY SILTY CLAY WITH SHALE AND COAL FRAGMENTS, TRACE OF CINDERS (FILL), MOIST-MEDIUM DENSE TO LOOSE (MINE SPOIL FILL)	1		V	I	S	U	A	L		
	4	7-8-9	" "	2		V	I	S	U	A	L		
	6	2-2-2	" "	3		V	I	S	U	A	L	18.9	
	8	1-2-2	" "	4		V	I	S	U	A	L		
637.8	10												
	12	2-3-3	DARK GRAY AND BROWN AND LIGHT BROWN SILTY SAND, TRACE OF CINDERS AND FINE GRAVEL (FILL), MOIST-LOOSE	5		V	I	S	U	A	L		
635.3	14	4-5-6	BROWN AND GRAY SANDY CLAYEY SILT, TRACE OF GRAVEL, MOIST-STIFF	6		V	I	S	U	A	L	24.2	A-4-a
631.3	16	5-6-7	" "	7		V	I	S	U	A	L		A-4-a
	18												

DATE STARTED 4/24/83. SAMPLE TYPE S.S DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/24/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 631.9
BORING NUMBER R-43 CORE BARREL ——— SIZE ——— AFTER 63 DAYS 632.4
STATION & OFFSET 8+00. CL (26th ST.) SURFACE ELEVATION 646.9

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
646.9	0												
	2	6-7-8	DARK GRAY, BLACK AND BROWN CINDERS, SAND, COAL AND BRICK FRAGMENTS (FILL), MOIST- LOOSE TO VERY LOOSE	1		V	I	S	U	A	L		
	4	5-4-5	" "	2		V	I	S	U	A	L		
	6	1-1-2	" "	3		V	I	S	U	A	L	25.2	
	8	1-2-2	" "	4		V	I	S	U	A	L		
636.9	10												
	12	3-3-4	BROWN AND BLACK CINDERS (FILL), WET- LOOSE	5		V	I	S	U	A	L	46.2	
	14	3-4-4	" "	6		V	I	S	U	A	L		
631.9	16	4-5-6	GRAY AND BROWN SILTY CLAY, MOIST-STIFF	7		V	I	S	U	A	L	26.5	A-6-b
629.4	18	5-7-8	GRAY AND BROWN SILTY CLAY, MOIST- STIFF	8		V	I	S	U	A	L		A-7-6
625.4	20	5-7-9	" "	9		V	I	S	U	A	L		A-7-6
	22												

DATE STARTED 6/6/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/6/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE NONE
BORING NUMBER R-44 CORE BARREL ——— SIZE ——— AFTER 21 DAYS DRY
STATION & OFFSET 14+60 C.L. (BELMONT ST.) SURFACE ELEVATION 648.0

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG.	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
648.0	0												
645.5	2	5-6-7	LIGHT AND DARK GRAY SILTY CLAY WITH COAL AND SHALE FRAGMENTS (FILL), MOIST- MEDIUM DENSE	1		V	I	S	U	A	L		
643.0	4	4-3-3	BROWN AND DARK GRAY SILTY SAND WITH SANDY CLAYEY SILT LAYER, TRACE OF CINDERS (FILL), MOIST-LOOSE	2		V	I	S	U	A	L		
640.5	6	4-5-6	DARK GRAY SAND/CINDERS AND SILT (FILL), MOIST- MEDIUM DENSE	3		V	I	S	U	A	L		
	8	4-5-7	DARK BROWN AND BROWN CLAYEY SILT, MOIST-STIFF	4		V	I	S	U	A	L		A-4-a
636.5	10	4-6-6	" "	5		V	I	S	U	A	L		A-4-a
	12												

DATE STARTED 6/14/83. SAMPLE TYPE H.S.A. DIA. 3.5" I.D. WATER ELEVATION
DATE COMPLETED 6/14/83. CASING TYPE ——— DIA. . . IMMEDIATE NONE
BORING NUMBER R-45 CORE BARREL ——— SIZE ——— AFTER 23 DAYS DRY
STATION & OFFSET 22+20 C.L. (BELMONT ST.) SURFACE ELEVATION 653.4

ELEV.	DEPTH	STN. PEN	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
653.4	0	AUGER											
	2		DARK BROWNISH GRAY SILTY SAND/CINDERS, SILT TRACE OF FINE GRAVEL AND ROCK FRAGMENTS (FILL) MOIST TO VERY MOIST-MEDIUM DENSE	1		V	I	S	U	A	L		
	4												
	6		" "	2		V	I	S	U	A	L	20.1	
	8		" "	3		V	I	S	U	A	L		
643.4	10		" "	4		V	I	S	U	A	L	37.7	
	12		BROWN AND DARK GRAY SILTY CLAY, MOIST-MEDIUM STIFF	5		V	I	S	U	A	L		
639.4	14		" "	6		V	I	S	U	A	L		A-6-a
				7		V	I	S	U	A	L		A-6-a

SOIL PROFILE

BELMONT COUNTY

BEL - 7 - 14.17

THE H.C. NUTTING CO.
GEOTECHNICAL ENGINEERS
CINCINNATI, OHIO 45226

(26/40) (26/26)

DATE STARTED 6/25/84. SAMPLE TYPE S.S. DIA. 2"O.D. WATER ELEVATION
DATE COMPLETED CASING TYPE H.S.A. DIA. 3.5"I.D. IMMEDIATE NONE
BORING NUMBER R-47 CORE BARREL SIZE AFTER DAYS
STATION & OFFSET 12+00, 46' RT. (10th ST.) SURFACE ELEVATION

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
689.2	0												
	2	2-2	DARK GRAYISH BROWN TOPSOIL, MOIST-STIFF	1		V	I	S	U	A	L		A-4b
		3		2		V	I	S	U	A	L		
684.2	4	4-5-6	BROWN SILTY CLAY, TRACE OF ROOTS, MOIST STIFF	3		V	I	S	U	A	L		
	6	7-8-9	BROWN SILTY CLAY WITH SAND STONE AND SHALE FRAGS, MOIST-STIFF	4		V	I	S	U	A	L		A-6a
681.7	8												
680.2		9-11-12	BROWN SILTY CLAY, MOIST VERY STIFF	5		V	I	S	U	A	L		A-6a
	10												
	12	CORE RECOVERY 98%	BROWN AND GRAY LIMESTONE, VERY FINE GRAINED, WEATHERED TO 12.6', HIGH ANGLE TO VERTICAL FRACTURES FROM 9.0 TO 10.7' AND 14.3', CONGLOMERATIC FROM 16.4' TO 17.0' TOUGH TO HARD	6		V	I	S	U	A	L			
676.2	14												
	16	CORE RECOVERY 72%		7		V	I	S	U	A	L		
671.2	18												

DATE STARTED 6/22/84. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/22/84. CASING TYPE H.S.A. DIA. 3.5"I.D. IMMEDIATE 643.0
BORING NUMBER R-48 CORE BARREL SIZE AFTER 0 DAYS BACKFILLED
STATION & OFFSET 13+00, 100' LT. SURFACE ELEVATION 648.0

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
648.0	0												
	2	1-1-2	DARK GRAY AND BROWN SANDY SILT/CINDERS AND BRICK FRAGMENTS WITH GRAVEL, ROCK AND WOOD FRAGMENTS (FILL), WET-VERY LOOSE TO LOOSE	1		V	I	S	U	A	L		
	4	3-2-3		2		V	I	S	U	A	L		
643.0	6	4-4-5	BROWN SILTY CLAY, TRACE OF ORGANICS VERY MOIST-MEDIUM STIFF	3		V	I	S	U	A	L		A-4b
640.5	8	55		4		V	I	S	U	A	L		
638.0	10	85	COAL										
637.5	12		BROWN & GRAY SOFT WEATHERED SHALE WITH COAL LAYERS	5		V	I	S	U	A	L		

REFUSAL AT ELEV. 637.5'

DATE STARTED 6/24/84. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/24/84. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE NONE
BORING NUMBER R-49 CORE BARREL SIZE AFTER 0 DAYS BACKFILLED
STATION & OFFSET 13+50, ℄ (10th ST.) SURFACE ELEVATION 686.0

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
686.0	0												
	2	4-5-7	BROWN SILTY CLAY WITH SHALE FRAGMENTS, MOIST, STIFF TO VERY STIFF	1		V	I	S	U	A	L		A-6b
				2		V	I	S	U	A	L		A-6b
	4	8-9-10											
681.0	6	8-10-15	GRAY AND BROWN VERY SOFT TO SOFT WEATHERED SHALE WITH LIMESTONE LAYERS	3		V	I	S	U	A	L		
679.0	8	100		4		V	I	S	U	A	L		

DATE STARTED 6/24/84. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/24/84 CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE NONE
BORING NUMBER R-50 CORE BARREL SIZE AFTER DAYS
STATION & OFFSET 13+50, 70' RT. (10thST.) SURFACE ELEVATION 708.2

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
708.2	0												
	2	4-5-5	BROWN AND DARK GRAY SILTY CLAY WITH SHALE AND ROCK FRAGMENTS, MOIST- STIFF	1		V	I	S	U	A	L		A-6b
	4	6-7-8		2		V	I	S	U	A	L		
703.2	6	13-19-23	BROWN AND GRAY VERY SOFT HIGHLY WEATHERED SHALE	3		V	I	S	U	A	L		
699.2	8	17-21-28		4		V	I	S	U	A	L		
	10	65	BROWN AND GRAY SOFT WEATHERED SHALE WITH COAL	5		V	I	S	U	A	L		
695.2	12	-100-		6		V	I	S	U	A	L		
	14												

REFUSAL AT ELEV. 695.2

DATE STARTED 6/22/84. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/22/84. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 636.5
BORING NUMBER R-51 CORE BARREL SIZE AFTER DAYS
STATION & OFFSET 14+00, 140' LT. (10 th ST.) SURFACE ELEVATION 650.5

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
650.5	0												
	2	3-4-4	BROWN AND GRAY SILTY CLAY WITH ROCK FRAGMENTS, MOIST-STIFF	1		V	I	S	U	A	L		A-6a
	4	7-8-9		2		V	I	S	U	A	L		
	6	6-7-8		3		V	I	S	U	A	L		
	8	7-7-9		4		V	I	S	U	A	L		
640.5	10												
638.0	12	20-19-8	BROWN SANDY SILTY CLAY WITH ROCK, COAL AND SHALE FRAGMENTS, MOIST-MEDIUM STIFF	5		V	I	S	U	A	L		A-4a
635.5	14	8-9-18	BROWN SILTY CLAY WITH GRAVEL, ROCK FRAGMENTS, AND BOULDERS, VERY MOIST-MEDIUM STIFF TO SOFT	6		V	I	S	U	A	L		A-6a
	16	3-3-3	GRAY SILTY CLAY, WITH ORGANIC SEAMS-MOIST, MEDIUM STIFF - SOFT	7		V	I	S	U	A	L		A-4b
633.0	18	75	COAL	8		V	I	S	U	A	L		
	20	00-125		9		V	I	S	U	A	L		
629.5	22	75	GRAY SOFT SHALE	10		V	I	S	U	A	L		
629.0													

REFUSAL AT ELEV. 629.0'

SAMPLE TYPE.. S.S.
DIA. 2" O.D.
CASING TYPE H.S.A.
DATE STARTED 6/23/84. DIA. 3.25" I.D.
DATE COMPLETED 6/23/84. CORE BARREL
BORING NUMBER R-52 SIZE
STATION & OFFSET 15+50, 20' LT. (10 th ST.) SURFACE ELEVATION 741.2
NO WATER

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA. NO.	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
741.2	0												
	2	3-2-3	BROWN AND GRAY SILTY CLAY AND CINDERS WITH ROCK AND SHALE FRAGMENTS (FILL), SLIGHTLY MOIST-STIFF TO LOOSE	1		V	I	S	U	A	L		
739.2	4	3-4-5	BROWN AND GRAY SILTY CLAY WITH ROCK FRAGMENTS, MOIST- STIFF	2		V	I	S	U	A	L		A-6a
	6	4-8-15		3		V	I	S	U	A	L		
	8	10-11-17		4		V	I	S	U	A	L		
	10	8-6-9		5		V	I	S	U	A	L		
	12	5-11-12		6		V	I	S	U	A	L		
726.2	14												
	16	7-10-15	BROWN AND GRAY SILTY CLAY WITH ROCK AND SHALE FRAGMENTS, MOIST-VERY STIFF	7		V	I	S	U	A	L		A-6b
	18	9-11-14		8		V	I	S	U	A	L		
721.2	20												
	22	35-15-20	GRAY VERY SOFT HIGHLY WEATHERED SANDY MICACEOUS SHALE	9		V	I	S	U	A	L		
716.2	24												
	26	17-75	GRAY AND BROWN SOFT HIGHLY WEATHERED SHALE WITH SANDSTONE LAYERS	10		V	I	S	U	A	L		
	28												
711.2	30	145		11		V	I	S	U	A	L		

INTRODUCTION

THIS INFORMATION IS FOR THE PROPOSED STATE ROUTE 7 BRIDGE OVER RELOCATED BELMONT STREET IN BELLAIRE, OHIO IN BELMONT COUNTY. THE AREA WHERE THIS BRIDGE IS LOCATED IS PRESENTLY THE CHANNEL OF PINCH RUN CREEK AND THE FLOOD PLAIN OF PINCH RUN AND THE OHIO RIVER. THE PROPOSED BRIDGE AREA IS LOCATED JUST EAST OF THE INTERSECTION OF EXISTING STATE ROUTE 7 AND ELEVENTH STREET.

THE PINCH RUN CHANNEL WILL BE RELOCATED AND THE EXISTING CHANNEL FILLED IN FOR RELOCATED BELMONT STREET. THE PROPOSED BRIDGE HAS 3-SPANS AND WILL BE ABOUT 15 FT. ABOVE RELOCATED BELMONT STREET. THE PROJECT BEGINS AT STATION 768+76.94 AND EXTENDS TO STATION 769+89.06 FOR A LENGTH OF 112 FT.

GEOLOGY OF THE SITE

THE AREA LIES WITHIN THE UNGLACIATED ALLEGHENY PLATEAU REGION OF THE STATE. SOILS TO BE ENCOUNTERED ARE FILL MATERIAL UNDERLAIN BY ALLUVIAL DEPOSITS OF A-4 CLAYEY AND SANDY SILT, A-6a SILTY CLAY, AND A-1-a AND A-1-b CLAYEY SAND, ROCK FRAGMENTS AND GRAVEL. THE AREA IS UNDERLAIN BY PERMIAN SHALES, SANDSTONES AND COAL OF THE DUNKARD GROUP. THE WASHINGTON NO. 12 COAL BED IS IN THE DUNKARD GROUP.

EXPLORATION

FOUR TEST BORINGS WERE DRILLED BETWEEN APRIL 6 TO JUNE 12, 1983 USING A TRUCK-MOUNTED DRILLING RIG AND AN ALL TERRAIN DRILLING RIG. THE BORINGS WERE TAKEN TO DEPTHS RANGING BETWEEN 30 TO 44 FT. BELOW EXISTING GRADE INTO BEDROCK. BEDROCK WAS ENCOUNTERED WITHIN ALL FOUR BORINGS. CORE SAMPLES OF THE ROCK WERE OBTAINED IN THREE OF THE BORINGS.

SITE CONDITIONS

THE PROJECT SITE IS OVER PINCH RUN CREEK AND THE FLOOD PLAIN OF PINCH RUN AND THE OHIO RIVER, LOCATED JUST EAST OF THE INTERSECTION OF EXISTING STATE ROUTE 7 AND ELEVENTH STREET.

FOUR BORINGS WERE DRILLED FOR THIS PROJECT. BORING DEPTHS RANGED BETWEEN 30 TO 44 FT. BORINGS A-1 AND A-3 WERE DRILLED ON THE BANKS OF PINCH RUN. BORINGS A-2 AND A-4 WERE DRILLED ON THE TOP EDGE OF RUBBLE FILLED SLOPES ADJACENT TO PINCH RUN AT THE NORTH ABUTMENT AND BRIDGE PIER.

FIRST ENCOUNTERED WITHIN BORINGS A-2 AND A-4 WAS 12.5 TO 15 FT. OF FILL MATERIAL. NO FILL WAS ENCOUNTERED IN BORINGS A-1 OR A-3. THE FILL IS A HETEROGENEOUS MIXTURE OF SILTY CLAY (RESIDUAL OF SHALE), SHALE AND COAL FRAGMENTS. IT HAS A TYPICAL N-VALUE OF ABOUT 7. THIS FILL IS PROBABLY MINE SPOIL, A BY-PRODUCT OF COAL MINING. THE FILL IS ENCOUNTERED TO ABOUT ELEVATION 633.

UNDERLYING THE FILL IN HOLES A-2 AND A-4 AND FIRST ENCOUNTERED WITHIN HOLES A-1 AND A-3 IS ALLUVIAL DEPOSITS OF CLAYEY SILT OR SILTY CLAY. IT IS GENERALLY MOIST WITH A CONSISTENCY OF MEDIUM STIFF. THIS STRATUM IS ENCOUNTERED DOWN BETWEEN ELEVATIONS 629 TO 620.

UNDERLYING THIS CLAYEY SILT - SILTY CLAY LAYER IS WET MEDIUM DENSE TO VERY DENSE CLAYEY SAND, GRAVEL AND ROCK FRAGMENTS. THIS STRATUM RANGED IN THICKNESS FROM 2.5 TO 11.5 FT. IT IS ENCOUNTERED TO ELEVATIONS BETWEEN 612 TO 617. LAYERS OF SILTY CLAY AND CLAYEY SAND, GRAVEL AND ROCK FRAGMENTS WERE THEN ENCOUNTERED DOWN TO BEDROCK. BROWN AND GRAY SOFT WEATHERED SHALE BEDROCK WAS ENCOUNTERED BETWEEN ELEVATION 605 TO 612, ABOUT 25 FT. BELOW EXISTING GRADE IN HOLES A-1 AND A-3 AND 35 TO 43 FT. IN A-2 AND A-4.

IMMEDIATE WATER WAS PENETRATED IN THE BORINGS BETWEEN ELEVATIONS 620 TO 628 ABOUT 9 TO 25 FT. BELOW EXISTING GRADE. TWENTY-FOUR HOUR WATER READINGS WERE MEASURED BETWEN 626 TO 630. NORMAL POOL ELEVATION OF THE OHIO RIVER IS 624.

LEGEND

- AUGER BORING LOCATION-PLAN VIEW.
- PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION-PLAN VIEW.
- CAPPED PILE
- FOOTING
- FOOTING ON PILE
- TR — TOP OF ROCK
- HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH (MEDIAN) AT WHICH THE SAMPLE WAS TAKEN.
- X/Y — FIGURES BESIDE THE BORING LOG IN PROFILE INDICATES THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST.
  X= NUMBER OF BLOWS FOR FIRST 6-INCHES.
  Y= NUMBER OF BLOWS FOR SECOND 6-INCHES.
- INDICATES PRESS (SHELBY-TUBE) SAMPLE.
- 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 Sample Borings – Drive-Press Sample Borings – Core 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 2.5 and/or 5-ft. depth intervals driven by means of a 140-lb. drop hammer with a free fall of 30-inches. For each sample obtained the sampler is driven a total of 18-inches except where a condition of refusal (less than 6-inches penetration under 50-blows) is met before obtaining a penetration of 18-inches. The first 6-inches of drive is considered setting the sampler while the number of blows required to drive the sampler the final 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.

Core borings in rock are made by means of a rotary-type drill rig employing an NXM-series type, double tube core barrel and diamond bit, obtaining a continuous core having a nominal diameter of 2-1/8". The core barrel is removed from the test hole at maximum intervals of 5-ft. and the entire core recovered retained.

When necessary to stabilize the bore hole in caving material or simply as a means of advancing the boring, hollow stem augers or flush joint casing is used, each having an inside diameter of 3-1/2". Water under pressure is employed to advance the test hole in non-caving materials or to wash out the casing when hollow stem augers are not used. When hollow stem augers are used, water is introduced into the hole as necessary to maintain the water level inside the hollow stem auger at or above the level first encountered in the ground. The methods employed in advancing the boring are shown on the boring logs. All of the sampling above described is accomplished in undisturbed material below the bottom of the casing or hollow stem augers.

The boring log sheets show a graphic plot of the information obtained including depth and elevation of the sample, the number of blows for the Standard Penetration Test for each 6-inch drive, the depth of press samples, field sample number, sample description-based on laboratory tests and the Casagrande A.C. Classification System, gradation, plasticity and moisture content determinations. The 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 cannot be driven a wash sample is procur ed for visual classification in order to determine the general character of the material. These are not considered sufficiently representative to warrant laboratory testing.

Particle Size Definitions

Boulders	Cobbles	Gravel	Coarse Sand	Fine Sand	Silt	Clay
	8"	3" / 2.0mm	0.42mm		0.074mm	0.005mm
		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.

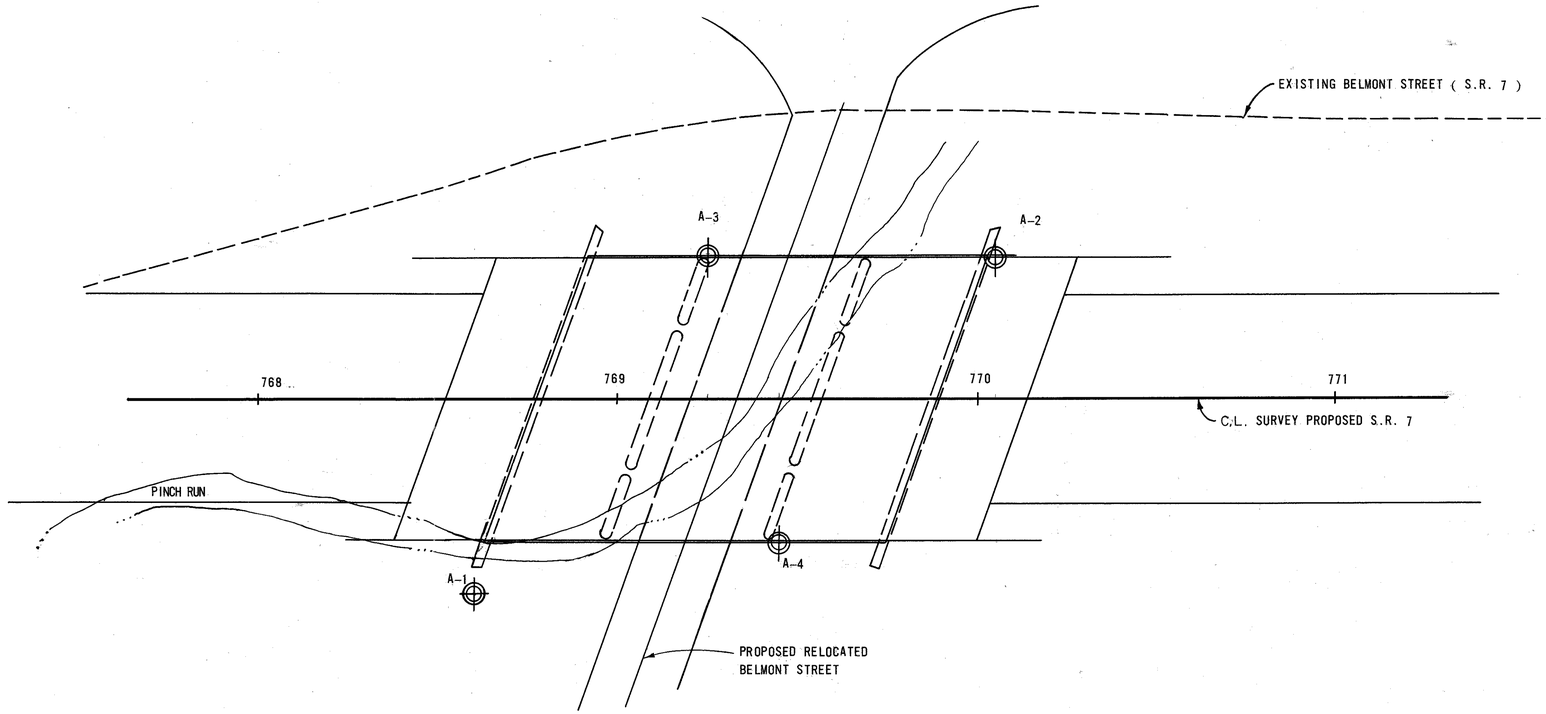
THE H. C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT ROAD CINCINNATI, OHIO 45226

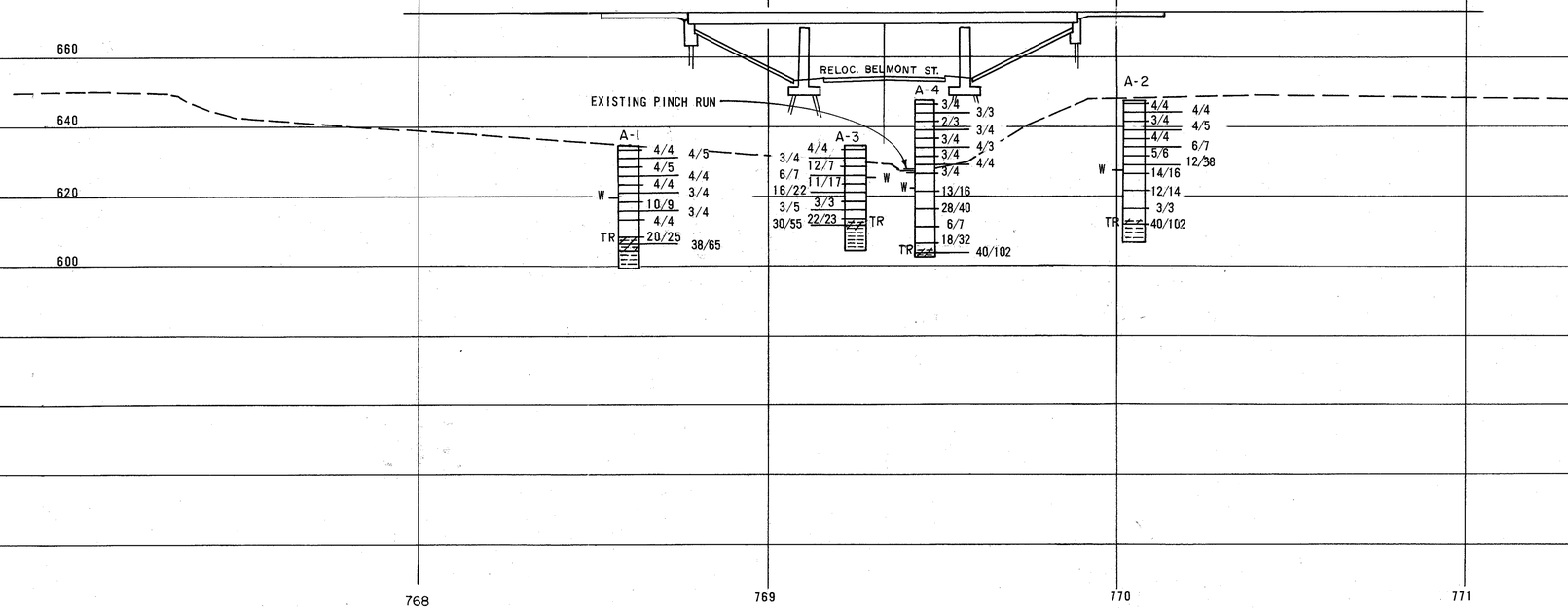
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. BEL-7-1450 L/R
OVER BELMONT STREET
SEC. 7-14.17

CHECKED BY	REVIEWED BY	DATE
S.J.B.	J.B.K.	8/10/83.

BELMONT COUNTY
BEL – 7–14.17

28/40
2/3





SCALE: 1" = 20'

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT ROAD CINCINNATI, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. BEL-7-1450 L/R
OVER BELMONT STREET
SEC: BELMONT 7-14.17

PLAN AND PROFILE

CHECKED BY		REVIEWED BY	DATE
SJB		JBK	AUGUST 1983

BELMONT COUNTY
BEL-7-14.17

29/40
3/3

DATE STARTED 6/12/83. SAMPLE TYPE S.S. DIA. 2.0" O.D. WATER ELEVATION
DATE COMPLETED 6/12/83. CASING TYPE H.S.A. DIA. 3.25" I.D. IMMEDIATE 619.8
BORING NUMBER A-1 CORE BARREL N.X.M. SIZE 2 1/8" AFTER 4 DAYS 628.3
STATION & OFFSET 768+60, 55' RT. SURFACE ELEVATION 634.8

ELEV.	DEPTH FEET	STN. PEN (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
634.8	0												
	2	3-4-4	BROWN CLAYEY SILT, TRACE OF ROOTS AND WOOD, MOIST-MEDIUM STIFF	1		V	I	S	U	A	L		A-4-b
	4	3-4-5	" "	2		V	I	S	U	A	L		A-4-b
	6	3-4-5	" "	3		V	I	S	U	A	L	29.9	A-4-b
	8	3-4-4	" "	4		V	I	S	U	A	L		A-4-b
624.8	10												
	12	3-4-4	BROWN AND GRAY SILTY CLAY, TRACE OF ORGANICS, MOIST TO VERY MOIST-MEDIUM STIFF	5	0	1	11	61	27	38	16	42.4	A-6-a(10)
	14	3-3-4	" "	6		V	I	S	U	A	L		A-6-a
619.8	16												
	18	8-10-9	BROWN AND GRAY CLAYEY FINE TO COARSE SAND AND GRAVEL, AND ROCK FRAGMENTS, WET-MEDIUM DENSE	7		V	I	S	U	A	L		A-1-b
617.3	20	2-3-4	GRAY SILTY CLAY WITH SAND LENSES, TRACE OF ORGANICS, VERY MOIST-MEDIUM STIFF	8		V	I	S	U	A	L	24.3	A-6-a
	22	3-4-4	" "	9		V	I	S	U	A	L		A-6-a
610.8	24												
608.3	26	17-20-25	GRAY AND BROWN CLAYEY SAND, AND ROCK FRAGMENTS WET-DENSE	10		V	I	S	U	A	L		A-1-a
	28	38-65	GRAY VERY SOFT WEATHERED SHALE	11		V	I	S	U	A	L		
604.8	30												
	32	CORE RECOVERY 100%	GRAY TO DARK GRAY SHALE, FISSILE TO BLOCKY, 3 ½" SHALY SANDSTONE LAYER AT 30.0', BROKEN RECOVERY 33.3' TO 34.7', SOFT TO VERY SOFT										
	34												
599.8	36												

BOTTOM OF BORING

DATE STARTED 4/6/83. SAMPLE TYPE S.S. DIA. 2.0" O.D. WATER ELEVATION
DATE COMPLETED 4/6/83. CASING TYPE H.S.A. DIA. 3.25" I.D. IMMEDIATE 627.6
BORING NUMBER A-2 CORE BARREL N.X.M. SIZE 2 1/8" AFTER 7 DAYS 630.6
STATION & OFFSET 770+05, 40' LT. SURFACE ELEVATION 647.6

ELEV.	DEPTH FEET	STN. PEN (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
647.6	0												
	2	3-4-4	LIGHT GRAY, DARK GRAY AND BLACK SILTY CLAY AND COAL FRAGMENTS WITH SHALE FRAGMENTS (FILL), MOIST-LOOSE	1		V	I	S	U	A	L		
	4	4-4-4	" "	2		V	I	S	U	A	L		
	6	4-3-4	" "	3		V	I	S	U	A	L		
	8	4-4-5	" "	4		V	I	S	U	A	L	17.3	
	10	4-4-4	" "	5		V	I	S	U	A	L		
635.1	12												
	14	4-6-7	BROWN AND GRAY SANDY CLAYEY SILT, MOIST-MEDIUM STIFF TO STIFF	6		V	I	S	U	A	L		A-4-a
632.6	16	4-5-6	BROWN SANDY CLAYEY SILT, TRACE OF ROCK FRAGMENTS, MOIST-MEDIUM	7		V	I	S	U	A	L	30.6	A-4-a
	18	6-12	STIFF	8		V	I	S	U	A	L		A-4-a
629.1	20	-38-	BROWN SILTY SAND, ROCK FRAGMENTS AND GRAVEL, MOIST-MEDIUM	9		V	I	S	U	A	L		A-1-b
	22	10-14-16	DENSE	10		V	I	S	U	A	L		A-1-b
	24												
	26	9-12-14	" "	11	63	13	7	-17-				13.0	A-1-b(0)
	28												
617.6	30												
	32	4-3-3	GRAYISH BROWN SANDY CLAYEY SILT, WITH FINE SAND LAYERS-WET, SOFT	12	0	1	43	33	23	22.3	35	29.2	A-4-a(4)
	34												
612.6	36	40-102	GRAY SOFT WEATHERED SHALE	13		V	I	S	U	A	L		
611.6	38	CORE RECOVERY 100%	GRAY SHALE, FISSILE TO BLOCKY, FRACTURED (BROWN STAIN ON FRACTURE FACES), SANDY, SLIGHTLY MICACEOUS, SHALY AND MICACEOUS SANDSTONE LAYER 39.9' TO 40.8', SOFT										
	40												
606.6	42												

BOTTOM OF BORING

DATE STARTED 6/12/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLERED 6/12/83 CASING TYPE H.S.A. DIA. 3.25" I.D. IMMEDIATE 625.7
BORING NUMBER A-3 CORE BARREL N.X.M. SIZE 2 1/8" AFTER 4 DAYS 626.7
STATION & OFFSET 769 + 25, 40' LT. SURFACE ELEVATION 634.7

ELEV.	DEPTH FEET	STN. PEN (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
634.7	0												
	2	3-4-4	BROWN CLAYEY SILT, TRACE OF ORGANICS, MOIST-SOFT TO MEDIUM STIFF	1		V	I	S	U	A	L		A-4-b
	4	3-3-4	" "	2		V	I	S	U	A	L		A-4-b
629.7	6	8-12-7	BROWN SANDY CLAY, GRAVEL AND ROCK FRAGMENTS, MOIST-MEDIUM DENSE	3		V	I	S	U	A	L		A-2-6
627.2	8	6-6-7	BROWN SILTY CLAY WITH SOME SAND AND ROCK FRAGMENTS- MOIST, SOFT	4		V	I	S	U	A	L		A-6-a
624.7	10												
	12	8-11-17	BROWN CLAYEY FINE TO COARSE SAND AND GRAVEL, WET-MEDIUM DENSE TO DENSE	5	72	7	8	-13-					A-1-a(0)
	14	13-16-22	" "	6		V	I	S	U	A	L		A-1-a
619.7	16												
	18	3-3-3	BROWN SILTY CLAY, TRACE OF ROCK FRAGMENTS, WET-SOFT	7		V	I	S	U	A	L	19.6	A-6-a
	20	3-3-5	" "	8		V	I	S	U	A	L		A-6-a
614.7	22	16-23-22	BROWN CLAYEY FINE TO COARSE SAND AND GRAVEL AND ROCK FRAGMENTS, WET-DENSE	9		V	I	S	U	A	L		A-1-a
	24	30-55	GRAY VERY SOFT WEATHERED SHALE	10		V	I	S	U	A	L		
609.7	26												
	28	CORE RECOVERY 90%	GRAY TO DARK GRAY SHALE, FISSILE, VERY SANDY, MICACEOUS AND SLIGHTLY WEATHERED AT 26.8' TO 28.3' SOFT TO MEDIUM TOUGH.										
604.7	30												

BOTTOM OF BORING

DATE STARTED 4/10/83 SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/10/83. CASING TYPE H.S.A. DIA. 3.25" I.D. IMMEDIATE 622.7
BORING NUMBER A-4 CORE BARREL —— SIZE —— AFTER 2 DAYS 628.2
STATION & OFFSET 769+45, 40' RT. SURFACE ELEVATION 647.7

ELEV.	DEPTH FEET	STN. PEN (N)	DESCRIPTION	SA. NO	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
647.7	0												
	2	4-3-4	GRAY, BLACK AND BROWN SILTY CLAY (RESIDUAL OF SHALE) WITH COAL FRAGMENTS, TRACE OF SHALE FRAGMENTS (FILL), MOIST-LOOSE	1		V	I	S	U	A	L		
	4	3-3-3	" "	2		V	I	S	U	A	L		
	6	3-2-3	" "	3		V	I	S	U	A	L	28.2	
	8	3-3-4	" "	4		V	I	S	U	A	L		
	10	4-3-4	" "	5		V	I	S	U	A	L		
	12	4-4-3	" "	6		V	I	S	U	A	L	25.6	
632.7	14												
	16	3-3-4	BROWN SANDY CLAYEY SILT, MOIST-MEDIUM STIFF TO STIFF	7		V	I	S	U	A	L	42.8	A-4-a
	18	4-4-4	" "	8		V	I	S	U	A	L		A-4-a
	20	3-3-4	" "	9		V	I	S	U	A	L	31.6	A-4-a
	22												
622.7	24												
	26	12-13-16	BROWN CLAYEY SAND, GRAVEL AND ROCK FRAGMENTS, WET-MEDIUM TO VERY DENSE	10		V	I	S	U	A	L		A-1-b
	28												
	30												
	32	18-28-40	" "	11		V	I	S	U	A	L		A-1-b
612.7	34												
	36	5-6-7	BROWN SANDY SILTY CLAY WITH GRAVEL AND ROCK FRAGMENTS WITH SAND LENSES, VERY MOIST-MEDIUM STIFF TO STIFF	12		V	I	S	U	A	L		A-6-a
607.7	38												
	40												
	42	12-18-32	BROWN CLAYEY SAND AND GRAVEL, WET-DENSE	13		V	I	S	U	A	L		A-1-b
604.7	44	40-102	GRAY AND BROWN SOFT TO VERY SOFT WEATHERED SHALE	14		V	I	S	U	A	L		
602.7	46												

AUGER REFUSAL AT 45.0' BOTTOM OF BORING

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT, ROAD CINCINNATI, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. BEL-7-1450 L/R
S.R. 7 OVER BELMONT STREET AT PINCH RUN CREEK
SEC: BEL-7-14.17

BORING DATA

CHECKED BY	REVIEWED BY	DATE
S.J.B.	J.B.K.	AUGUST 1983.

INTRODUCTION

THIS INFORMATION IS FOR THE PROPOSED STATE ROUTE 7 BRIDGE OVER RELOCATED TWENTY-SIXTH STREET IN BELLAIRE, OHIO IN BELMONT COUNTY. THE AREA IN WHICH THIS BRIDGE WILL BE CONSTRUCTED IS PRESENTLY THE INTERSECTION OF UNION STREET AND TWENTY-SIXTH STREET. THE BRIDGE WILL BE CONSTRUCTED OVER AN AREA OF VACANT LOTS WHERE HOUSES HAVE BEEN RAZED.

THE PROPOSED BRIDGE HAS 3-SPANS AND WILL BE 20 FT. ABOVE RELOCATED TWENTY-SIXTH STREET. THE PROJECT BEGINS AT STATION 826+67.65 AND TERMINATES AT STATION 828+08.65 FOR A BRIDGE LENGTH OF 141 FT.

GEOLOGY OF THE SITE

THE AREA LIES WITHIN THE UNGLACIATED ALLEGHENY PLATEAU REGION OF THE STATE. SOILS TO BE ENCOUNTERED ARE DEEP ALLUVIAL DEPOSITS OF SANDY AND CLAYEY SILT AND SAND AND GRAVEL. THE AREA IS UNDERLAIN BY PERMIAN SHALES, SANDSTONES AND COAL OF THE DUNKARD GROUP.

EXPLORATION

TWO TEST BORINGS WERE DRILLED BETWEEN APRIL 20 TO APRIL 23, 1983 USING A TRUCK--MOUNTED DRILLING RIG. THE BORINGS WERE TAKEN TO DEPTHS RANGING BETWEEN 65 TO 70 FT. BELOW EXISTING GRADE. BEDROCK WAS ENCOUNTERED IN BOTH BORINGS. CORE SAMPLES OF THE ROCK WERE OBTAINED.

SITE CONDITIONS

THE PROJECT SITE IS AT THE INTERSECTION OF EXISTING UNION STREET AND TWENTY-SIXTH STREET. THE AREA IS RELATIVELY FLAT. EXISTING GRADE ACROSS THE SITE IS AT ABOUT ELEVATION 649. THE SITE IS PRESENTLY VACANT BUILDING LOTS. THE HOUSES HAVE BEEN RAZED IN THE AREA.

TWO BORINGS WERE DRILLED FOR THIS PROJECT. BORING DEPTHS RANGED FROM 65 TO 70 FT. FIRST ENCOUNTERED WITHIN THE BORINGS WERE 5 TO 7.5 FT. OF FILL MATERIAL. THE FILL IS A SILTY CLAY-CLAYEY SILT (RESIDUAL OF SHALE) WITH COAL, ROCK AND WOOD FRAGMENTS. WITHIN BORING C-1 THE FILL IS UNDERLAIN TO ABOUT ELEVATION 620 BY A 25 FT. THICK STRATUM OF MOIST TO WET, STIFF TO SOFT CLAYEY TO SANDY SILT. FROM ELEVATION 644 TO 629 THE SILT IS STIFF. BELOW THIS, TO ELEVATION 619, THE SANDY SILT IS WET AND SOFT. WITHIN HOLE C-4, THE FILL IS UNDERLAIN BY AN 18 FT. STRATUM OF MOIST, LOOSE TO MEDIUM DENSE, FINE TO MEDIUM SAND WITH CLAYEY SAND LAYERS. THIS SAND STRATUM CLASSIFIES AS AN A-3 SOIL.

AT A DEPTH OF 25 TO 30 FT. BELOW GRADE (APPROXIMATE ELEVATION 620), WET, MEDIUM DENSE TO DENSE SAND AND GRAVEL WAS ENCOUNTERED DOWN TO BEDROCK. THIS SAND AND GRAVEL GENERALLY CLASSIFIES AS AN A-1-a OR A-1-b SOIL ACCORDING TO THE AASHTO CLASSIFICATION SYSTEM.

SANDY SHALE BEDROCK WAS PENETRATED AT ABOUT 60 FT. BELOW GROUND SURFACE AT APPROXIMATE ELEVATION 590.

IMMEDIATE WATER WAS ENCOUNTERED AT A DEPTH OF 20 TO 25 FT. (ELEVATION 629-626). AFTER 24 HOURS THE WATER WAS MEASURED AT 15 FT. BELOW EXISTING GRADE AT ELEVATION 634.

LEGEND

- ○ AUGER BORING LOCATION-PLAN VIEW.
- ◎ PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION-PLAN VIEW.
- CAPPED PILE
- FOOTING
- FOOTING ON PILE
- TR TOP OF ROCK
- H HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH (MEDIAN) AT WHICH THE SAMPLE WAS TAKEN.
- X/Y FIGURES BESIDE THE BORING LOG IN PROFILE INDICATES THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST.
  X= NUMBER OF BLOWS FOR FIRST 6-INCHES.
  Y= NUMBER OF BLOWS FOR SECOND 6-INCHES.
- INDICATES PRESS (SHELBY-TUBE) SAMPLE.
- 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 Sample Borings – Drive-Press Sample Borings – Core 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 2.5 and/or 5-ft. depth intervals driven by means of a 140-lb. drop hammer with a free fall of 30-inches. For each sample obtained the sampler is driven a total of 18-inches except where a condition of refusal (less than 6-inches penetration under 50-blows) is met before obtaining a penetration of 18-inches. The first 6-inches of drive is considered setting the sampler while the number of blows required to drive the sampler the final 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.

Core borings in rock are made by means of a rotary-type drill rig employing an NXM-series type, double tube core barrel and diamond bit, obtaining a continuous core having a nominal diameter of 2-1/8". The core barrel is removed from the test hole at maximum intervals of 5-ft. and the entire core recovered retained.

When necessary to stabilize the bore hole in caving material or simply as a means of advancing the boring, hollow stem augers or flush joint casing is used, each having an inside diameter of 3-1/2". Water under pressure is employed to advance the test hole in non-caving materials or to wash out the casing when hollow stem augers are not used. When hollow stem augers are used, water is introduced into the hole as necessary to maintain the water level inside the hollow stem auger at or above the level first encountered in the ground. The methods employed in advancing the boring are shown on the boring logs. All of the sampling above described is accomplished in undisturbed material below the bottom of the casing or hollow stem augers.

The boring log sheets show a graphic plot of the information obtained including depth and elevation of the sample, the number of blows for the Standard Penetration Test for each 6-inch drive, the depth of press samples, field sample number, sample description-based on laboratory tests and the Casagrande A.C. Classification System, gradation, plasticity and moisture content determinations. The 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 cannot be driven a wash sample is procur ed for visual classification in order to determine the general character of the material. These are not considered sufficiently representative to warrant laboratory testing.

Particle Size Definitions

8"	3"	2.0mm		0.42mm		0.074mm	0.005mm
Boulders	Cobbles	Gravel	Coarse Sand		Fine Sand	Silt	Clay
		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.

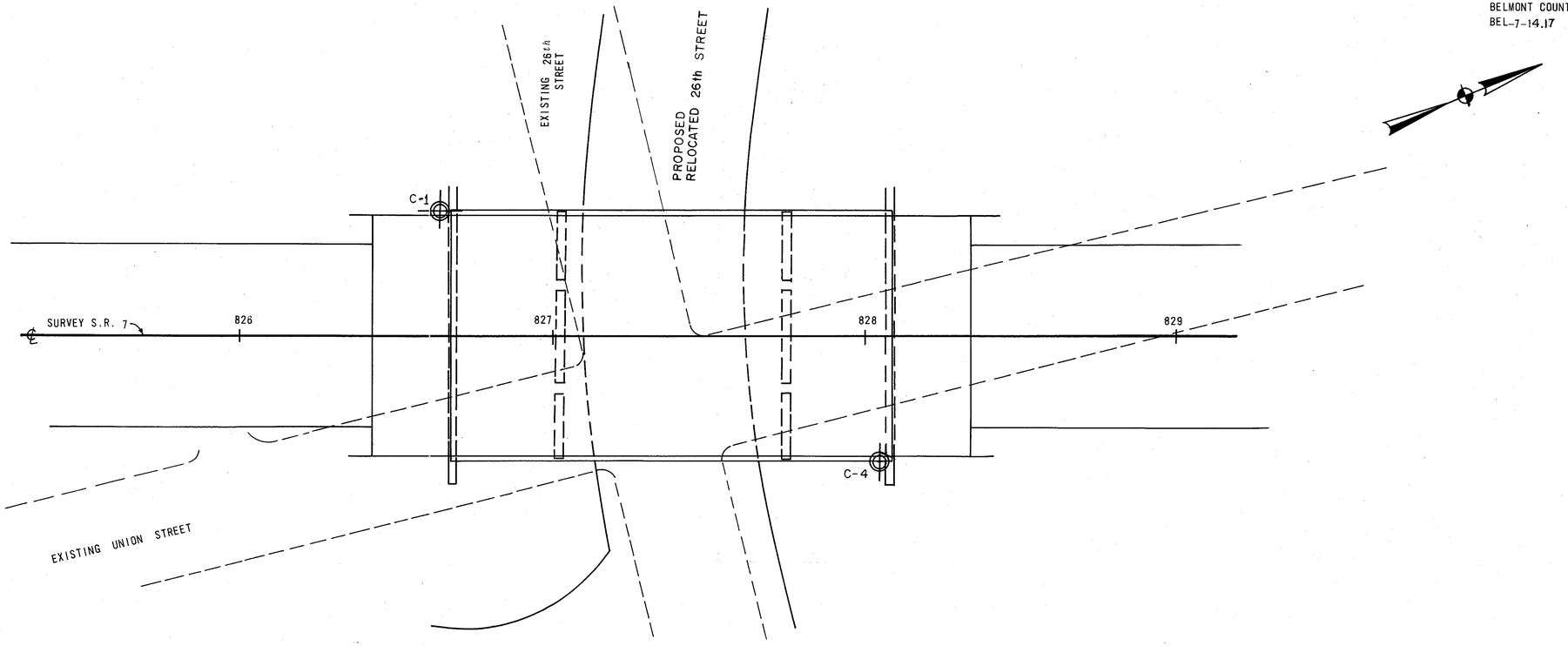
THE H. C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT ROAD CINCINNATI, OHIO 45226

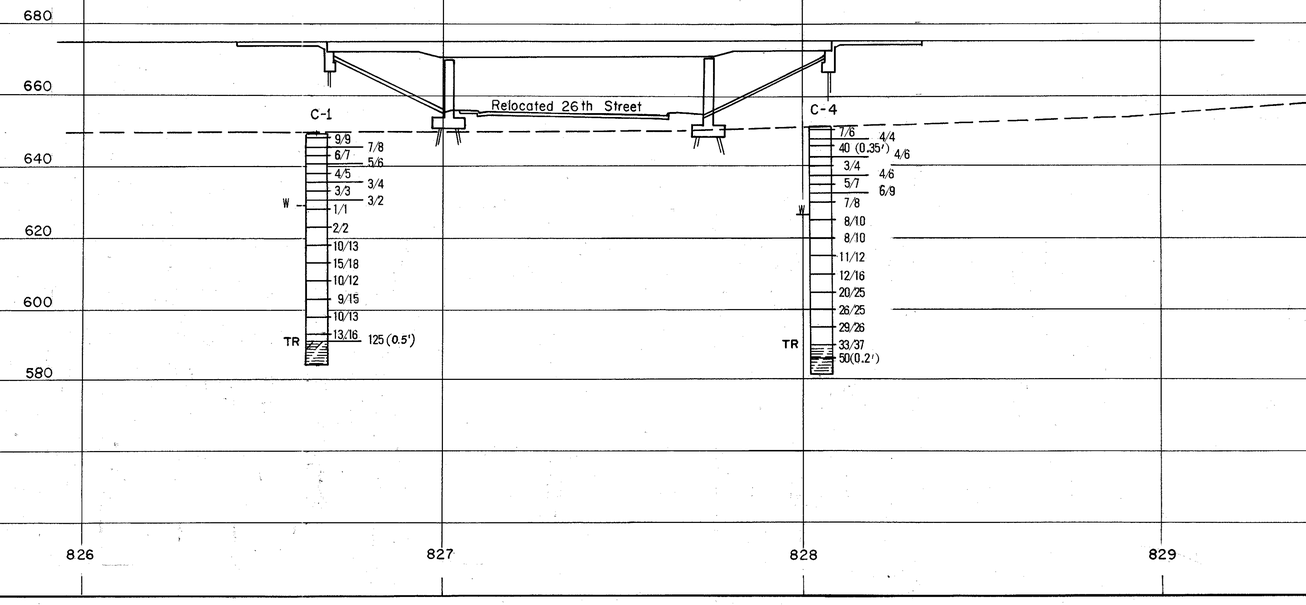
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. BEL-7-1560 L/R
OVER 26th STREET
SEC. BEL-7-14.17

CHECKED BY	REVIEWED BY	DATE
S.J.B.	J.B.K.	8/5/83.

BELMONT COUNTY
BEL-7-14.17

31/40
2/3





SCALE: 1" = 20 '

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT ROAD, CINCINNATI, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. BEL-7-1560 L/R
S.R. 7 OVER 26th STREET

SEC: BELMONT 7-14.17

PLAN AND PROFILE

CHECKED BY		REVIEWED BY	DATE
S.J.B.		J.B.K.	AUGUST, 1983

BELMONT COUNTY
BEL-7-14.17

32/40
3/3

DATE STARTED 4/23/83. SAMPLE TYPE S.S. DIA. 2.0" O.D. WATER ELEVATION
DATE COMPLETED 4/23/83. CASING TYPE H.S.A. DIA. 3.25" I.D. IMMEDIATE 629.1
BORING NUMBER C-1 CORE BARREL NXM SIZE 2⅛" AFTER 19 DAYS 634.1
STATION & OFFSET 826+65, 40' LT. SURFACE ELEVATION 649.1

ELEV.	DEPTH FEET	STN PEN (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
649.1	0												
	2	8-9-9	GRAY SILTY CLAY (RESIDUAL OF SHALE) WITH COAL, SHALE BRICK, ROCK, WOOD FRAGMENTS AND GRAVEL (FILL), MOIST-MEDIUM DENSE	1		V	I	S	U	A	L		
644.1	4	6-7-8	" "	2		V	I	S	U	A	L		
	6	5-6-7	BROWN SANDY CLAYEY SILT WITH SAND LENSES MOIST STIFF.	3		V	I	S	U	A	L		A-4a
	8	5-5-6	" "	4		V	I	S	U	A	L		A-4a
639.1	10												
	12	4-4-5	BROWN SANDY CLAYEY SILT WITH SAND LENSES MOIST TO WET -STIFF TO MEDIUM STIFF	5		V	I	S	U	A	L	23.0	A-4a
	14	4-3-4	" "	6		V	I	S	U	A	L		A-4a
	16	3-3-3	" "	7		V	I	S	U	A	L	24.7	A-4a
	18	2-3-2	" "	8		V	I	S	U	A	L		A-4a
629.1	20												
	22	1-1-1	BROWN SANDY CLAYEY SILT WITH SAND SEAMS AND LENSES, WET-SOFT	9		V	I	S	U	A	L		A-4a
624.1	24												
	26	1-2-2	BROWN SANDY SILT TO SANDY CLAYEY SILT WITH SAND SEAMS AND SANDY SILTY CLAY SEAMS, VERY MOIST-LOOSE	10		V	I	S	U	A	L	24.4	A-4a
619.1	30												
	32	8-10-13	BROWN FINE TO COARSE SANDY GRAVEL, WET-MEDIUM DENSE TO DENSE	11		V	I	S	U	A	L		A-1-a
	34												
	36	10-15-18	" "	12	67	12	10	- II -				13.0	A-1-a (0)
609.1	38												
	40												
	42	9-10-12	BROWN FINE TO COARSE SAND WITH GRAVEL, WET-MEDIUM DENSE	13		V	I	S	U	A	L		A-1-b
604.1	44												
	46	11-9-15	BROWN AND BLACK FINE TO COARSE SAND WITH FINE GRAVEL, COBBLES AND CLAYEY SAND LAYERS, WET-MEDIUM DENSE	14		V	I	S	U	A	L		A-1-b
	48												
	50	14-10-13	" "	15		V	I	S	U	A	L		A-1-b
594.1	52												
	54												
	56	12-13-16	BROWN FINE TO COARSE SAND AND GRAVEL WITH COBBLES WET-MEDIUM DENSE	16		V	I	S	U	A	L		A-1-a
591.1	58												
589.1	60	-125-	GRAY VERY SOFT WEATHERED SHALE	17		V	I	S	U	A	L		
	62	CORE RECOVERY 86 %	DARK GRAY SHALE, SANDY, MICACEOUS, SOME SANDSTONE LENSES, CROSS BEDDING, POSSIBLE SLICKEN SIDES, MEDIUM TOUGH TO TOUGH										
584.1	64												
	66												

BOTTOM OF BORING

DATE STARTED 4/20/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/21/83 CASING TYPE H.S.A. DIA. 3.25 I.D. IMMEDIATE 626.1
BORING NUMBER C-4 CORE BARREL N.X.M. SIZE 2⅛" AFTER 21 DAYS CAVED DRY @ 633.1
STATION & OFFSET 828 + 05, 40' RT. SURFACE ELEVATION 651.1

ELEV.	DEPTH FEET	STN PEN (N)	DESCRIPTION	SA NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
651.1	0												
	2	3-7-6	BROWN AND BLACK SANDY CLAYEY SILT, TRACE OF BRICK, MORTAR AND COAL FRAGMENTS (FILL), MOIST-LOOSE	1			V	I	S	U	A	L	
646.1	4	3-4-4	" "	2			V	I	S	U	A	L	
645.6	6	-40-	BROWN SILTY SAND, TRACE OF COAL FRAGMENTS (FILL), VERY MOIST-VERY DENSE	3			V	I	S	U	A	L	
644.1	8	4-4-6	CONCRETE FOOTING										
	10		BROWN FINE TO MEDIUM SAND WITH SILTY SAND LAYERS AND CLAYEY SAND LAYERS,										
	12	3-3-4	MOIST TO VERY MOIST-LOOSE TO MEDIUM DENSE	4			V	I	S	U	A	L	A-3
	14	3-4-6	" "	5			V	I	S	U	A	L	A-3
	16	3-5-7		6			V	I	S	U	A	L	A-3
	18	3-6		7								21.8	A-3
632.6	20	-9-	BROWN FINE TO MEDIUM SAND, TRACE OF FINE GRAVEL, MOIST-MEDIUM DENSE	8			V	I	S	U	A	L	A-3
	22	5-7-8	" "	9			V	I	S	U	A	L	A-3
626.1	24			10			V	I	S	U	A	L	A-3
	26	6-8-10	BROWN FINE TO COARSE SAND WITH GRAVEL, WET - MEDIUM DENSE	11			V	I	S	U	A	L	A-1-b
	28												
	30	6-8-10	" "	12	25	33	38	- 4 -				21.1	A-1-b(0)
	32												
	34												
	36	9-11-12	" "	13			V	I	S	U	A	L	A-1-b
611.1	38												
	40												
	42	10-12-16	BROWN FINE TO MEDIUM SAND WITH SILTY SAND SEAMS, WET-MEDIUM DENSE	14			V	I	S	U	A	L	A-3
606.1	44												
	46	16-20-25	BROWN SILTY SANDY FINE TO COARSE GRAVEL AND ROCK FRAGMENTS, WET-DENSE	15			V	I	S	U	A	L	A-1-a
601.1	48												
	50	15-26-25	BROWN FINE TO MEDIUM SAND, WET-VERY DENSE.	16			V	I	S	U	A	L	A-3
	52												
596.1	54												
	56	19-29-26	BROWN SILTY SANDY FINE TO COARSE GRAVEL, AND ROCK FRAGMENTS WET -VERY DENSE,	17			V	I	S	U	A	L	A-1-a
	58												
	60												
588.6	62	22-33-37	" "	18			V	I	S	U	A	L	A-1-a
	64	-50-	GRAY SOFT SHALE WITH LIMESTONE LAYERS	19			V	I	S	U	A	L	
586.1	66												
	68	CORE RECOVERY 50%	GRAY SHALE, SANDY, MICACEOUS BROKEN RECOVERY, MEDIUM TOUGH										
581.1	70												

BOTTOM OF BORING

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT ROAD, CINCINNATI, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. BEL-7-1560 L/R
S.R. 7 OVER 26th STREET
SEC: BEL 7-14.17

BORING DATA

CHECKED BY	REVIEWED BY	DATE
S.J.B.	J.B.K.	AUGUST 1983.

INTRODUCTION

THIS INFORMATION IS FOR THE PROPOSED RELOCATED STATE ROUTE 7 BRIDGE OVER McMAHON CREEK. THE BRIDGE CONSISTS OF TWO RAMPS AND THE BRIDGE FOR MAIN LINE RELOCATED STATE ROUTE 7. THE PROJECT IS LOCATED IN BELLAIRE, OHIO IN BELMONT COUNTY.

RAMP G, LOCATED WEST OF MAIN LINE, SERVES AS AN ENTRANCE TO STATE ROUTE 7 FROM RELOCATED TWENTY-SIXTH STREET FOR TRAFFIC HEADING SOUTHWARD. RAMP F, LOCATED EAST OF MAIN LINE STATE ROUTE 7, SERVES AS AN EXIT FROM STATE ROWTE 7 TO RELOCATED TWENTY-SIXTH STREET FOR TRAFFIC HEADING NORTHWARD. RELOCATED TWENTY-SIXTH STREET IS AT THE SOUTH EDGE OF DOWNTOWN BELLAIRE, OHIO.

THIS BRIDGE IS LOCATED A FEW HUNDRED YARDS WEST OF THE MOUTH OF McMAHON CREEK WHERE IT ENTERS THE OHIO RIVER. THE BRIDGE WILL BE APPROXIMATELY 42 TO 46 FT. ABOVE NORMAL FLOW LINE OF McMAHON CREEK.

EACH STRUCTURE HAS 3 SPANS. THE PROJECT LIMITS OF THE RELOCATED STATE ROUTE 7 BRIDGE IS FROM 820+29.55 TO 823+07.57 FOR A LENGTH OF 278 FT. RAMP F BEGINS AT STATION 820+92.43 "RAMP F" AND EXTENDS TO 823+31.57 FOR A DISTANCE OF 239 FT. RAMP G BEGINS AT STATION 819+91.51 "RAMP G" AND EXTENDS TO STATION 822+66.67 FOR A LENGTH OF 275 FT.

GEOLOGY OF THE SITE

THE AREA LIES WITHIN THE UNGLACIATED ALLEGHENY PLATEAU REGION OF THE STATE. SOILS TO BE ENCOUNTERED WILL BE FILL MATERIAL UNDERLAIN BY ALLUVIAL DEPOSITS OF SILT, CLAYEY AND SANDY SILT AND SILTY CLAY WHICH IS UNDERLAIN BY SAND AND GRAVEL. THE AREA IS UNDERLAIN AT ABOUT ELEVATION 600 BY PERMIAN SHALES, SANDSTONES AND COAL OF THE DUNKARD GROUP. THE WASHINGTON NO. 12 COAL BED IS IN THE DUNKARD GROUP.

EXPLORATION

SIXTEEN TEST BORINGS WERE DRILLED FOR THIS BRIDGE CROSSING MCMAHON CREEK. ONE BORING WAS DRILLED FOR EACH ABUTMENT AND FOR EACH PIER FOR RAMPS F AND G AND FOR THE STATE ROUTE 7 MAIN LINE BRIDGE. THE SIX HOLES DRILLED FOR THE ABUTMENTS WERE DRILLED USING A TRUCK-MOUNTED DRILLING RIG. THE SIX HOLES DRILLED FOR THE PIERS WERE DRILLED BY A DRILL RIG MOUNTED ON A SKID WHICH WAS POSITIONED ON A SMALL RAFT SITTING IN MCMAHON CREEK. THE HOLES FOR THE PIERS WERE DRILLED AS CLOSE AS FEASIBLE. IN INSTANCES, THE HOLES HAD TO BE OFFSET SOMEWHAT, DUE EITHER TO EXISTING TOPOGRAPHY OR OBSTRUCTIONS IN THE CREEK. IN ADDITION, FOUR BORINGS, NAMELY B-5 THRU B-8, WERE DRILLED ALONG THE SOUTH AND NORTH SIDE OF MCMAHON CREEK ALONG THE MAIN LINE BRIDGE ALIGNMENT. THESE BORINGS WERE DRILLED AS CLOSE AS FEASIBLE TO THE TOP EDGE OF THE CREEK BANK, TO OBTAIN ADDITIONAL INFORMATION REGARDING THE FOUNDATION SOILS IN REGARD TO THE SPILL-THRU SLOPE AREAS.

THE HOLES WERE DRILLED BETWEEN MARCH 25, 1983 TO JUNE 17, 1983. BORINGS B-5 THRU B-8 WERE DRILLED JUNE 19-21, 1984. BORING DEPTHS RANGED BETWEEN 27.5 TO 62.5 FT. BELOW EXISTING GRADE. ALL BORINGS, EXCEPT B-5 THRU B-8, WERE DRILLED TO BEDROCK. FIVE-FEET CORE SAMPLES OF THE ROCK WERE OBTAINED IN THESE BORINGS.

EXISTING SITE CONDITIONS

SIX BORINGS WERE DRILLED AT THE PROPOSED ABUTMENTS FOR THESE STRUCTURES. THESE BORINGS ARE LOCATED ON EMBANKMENTS LEADING TO MCMAHON CREEK. THE ABUTMENT OR END BENT BORINGS ARE LABELED AS B-1, B-4, D-1, D-4, E-1 AND E-4. SIX BORINGS WERE ALSO DRILLED DOWN IN THE CREEK CHANNEL, ONE AT EACH PROPOSED PIER. THESE BORINGS ARE B-2, B-3, D-2, D-3, E-2 AND E-3. BORINGS B-5 AND B-6 WERE DRILLED NEAR THE TOP EDGE OF THE SOUTH CREEK BANK ALONG MAIN LINE S.R. 7 WHILE B-7 AND B-8 WERE DRILLED ON THE NORTH BANK.

NORMAL WATER FLOW ELEVATION IS 624. THE EMBANKMENTS ON BOTH SIDES OF THE CREEK ARE AT ABOUT ELEVATION 646, 22 FT. ABOVE FLOW LINE. WITHIN ALL OF THE BORINGS DRILLED FOR THE ABUTMENTS AND FOR THE SPILL-THRU EMBANKMENT SLOPES, FILL MATERIAL WAS FIRST ENCOUNTERED. THE FILL RANGES IN DEPTH FROM 5 TO 26 FT. THE GREATEST DEPTHS OF FILL WERE FOUND ON THE SOUTH SIDE OF THE CREEK WITHIN BORINGS B-1, D-1, E-1, B-5 AND B-6. FILL ENCOUNTERED ON THE SOUTH SIDE RANGED IN DEPTH FROM 12.5 FT. IN E-1 TO 25 FT. IN D-1. ON THE NORTH SIDE OF THE CREEK WITHIN BORINGS B-4, D-4, E-4, B-7 AND B-8, FILL DEPTHS RANGED BETWEEN 5 TO 12.5 FT. THE FILL ENCOUNTERED IS A HETEROGENEOUS MIXTURE CONTAINING CLAYEY SILT AND SILTY CLAY, SHALE, COAL, BRICK AND WOOD FRAGMENTS, CINDERS, SAND AND GRAVEL, AND LARGE PIECES OF ROCK OR CONCRETE.

SOUTH BRIDGE ABUTMENTS AND SPILL-THRU SLOPES - AT THE SOUTH END BENTS AND SPILL-THRU SLOPES, UNDERLYING THE FILL IS A 20 TO 28 FT. THICK STRATUM OF STIFF TO VERY STIFF SILTY CLAY. THIS WAS ENCOUNTERED TO ELEVATIONS 608 TO 601. THIS SILTY CLAY CLASSIFIES FROM AN A-6a TO AN A-7-6 SOIL. LOOSE TO MEDIUM DENSE SAND, GRAVEL AND ROCK FRAGMENTS WERE ENCOUNTERED BELOW THE SILTY CLAY TO BEDROCK. SHALE BEDROCK WAS PENETRATED BETWEEN ELEVATIONS 590 IN HOLE D-1 TO 598 IN E-1.

SOUTH PIERS - AT THE PROPOSED SOUTH BRIDGE PIERS, BORINGS B-2, D-2 AND E-2 WERE DRILLED OUT IN THE CREEK. ABOUT 2 FT. OF WATER WAS FIRST ENCOUNTERED. WATER ELEVATION AT THE TIME OF DRILLING WAS 623. APPROXIMATELY 23 FT. OF LOOSE TO SOFT ALLUVIAL DEPOSITS OF CLAYEY SILT, SILTY CLAY AND SAND AND GRAVEL WERE ENCOUNTERED. BEDROCK WAS ENCOUNTERED BETWEEN ELEVATIONS 596 TO 600, ABOUT 23 FT. BELOW WATER LINE.

NORTH BRIDGE PIERS - AT THE NORTH BRIDGE PIERS, BORINGS B-3, D-3 AND E-3 WERE DRILLED. BETWEEN 20 TO 27 FT. OF ALLUVIAL DEPOSITS WERE FIRST ENCOUNTERED ABOVE BEDROCK. SHALE BEDROCK WAS ENCOUNTERED BETWEEN ELEVATIONS 596 AT D-3 TO 603 AT E-3.

NORTH BRIDGE ABUTMENTS AND SPILL-THRU SLOPES - BORINGS B-4, D-4 AND E-4 WERE DRILLED FOR THE NORTH BRIDGE ABUTMENTS. BORINGS B-7 AND B-8 WERE DRILLED NEAR THE TOE OF THE PROPOSED SPILL-THRU BRIDGE SLOPE. BEDROCK WAS ENCOUNTERED WITHIN THE BORINGS BETWEEN ELEVATIONS 589 IN D-4 TO 601 IN E-4 BETWEEN 40 TO 57 FT. BELOW EXISTING GRADES. ABOVE THE BEDROCK, ALLUVIAL DEPOSITS OF SILTY CLAY AND CLAYEY SILT WERE ENCOUNTERED BELOW THE FILL TO ABOUT ELEVATION 615. THIS WAS UNDERLAIN TO BEDROCK BY A 13 TO 27 FT. THICK STRATUM OF WET, GENERALLY MEDIUM DENSE, SAND AND GRAVEL, SOMETIMES CONTAINING ROCK FRAGMENTS.

THE GROUNDWATER TABLE WAS AT THE CREEK SURFACE AT ELEVATION 623 AT THE TIME OF DRILLING. WITH DISTANCE AWAY FROM THE CREEK, SUCH AS AT THE ABUTMENTS, THE WATER LEVEL RISES SOMEWHAT TO ABOUT ELEVATION 627.

LEGEND

- AUGER BORING LOCATION-PLAN VIEW.
- PRESS AND/OR DRIVE SAMPLE AND/OR CORE BORING LOCATION-PLAN VIEW.
- CAPPED PILE
- FOOTING
- FOOTING ON PILE
- TR TOP OF ROCK
- HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH (MEDIAN) AT WHICH THE SAMPLE WAS TAKEN.
- X/Y FIGURES BESIDE THE BORING LOG IN PROFILE INDICATES THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST.
  X= NUMBER OF BLOWS FOR FIRST 6-INCHES.
  Y= NUMBER OF BLOWS FOR SECOND 6-INCHES.
- INDICATES PRESS (SHELBY-TUBE) SAMPLE.
- 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 Sample Borings – Drive-Press Sample Borings – Core 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 2.5 and/or 5-ft. depth intervals driven by means of a 140-lb. drop hammer with a free fall of 30-inches. For each sample obtained the sampler is driven a total of 18-inches except where a condition of refusal (less than 6-inches penetration under 50-blows) is met before obtaining a penetration of 18-inches. The first 6-inches of drive is considered setting the sampler while the number of blows required to drive the sampler the final 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.

Core borings in rock are made by means of a rotary-type drill rig employing an NXM-series type, double tube core barrel and diamond bit, obtaining a continuous core having a nominal diameter of 2-1/8". The core barrel is removed from the test hole at maximum intervals of 5-ft. and the entire core recovered retained.

When necessary to stabilize the bore hole in caving material or simply as a means of advancing the boring, hollow stem augers or flush joint casing is used, each having an inside diameter of 3-1/2". Water under pressure is employed to advance the test hole in non-caving materials or to wash out the casing when hollow stem augers are not used. When hollow stem augers are used, water is introduced into the hole as necessary to maintain the water level inside the hollow stem auger at or above the level first encountered in the ground. The methods employed in advancing the boring are shown on the boring logs. All of the sampling above described is accomplished in undisturbed material below the bottom of the casing or hollow stem augers.

The boring log sheets show a graphic plot of the information obtained including depth and elevation of the sample, the number of blows for the Standard Penetration Test for each 6-inch drive, the depth of press samples, field sample number, sample description-based on laboratory tests and the Casagrande A.C. Classification System, gradation, plasticity and moisture content determinations. The 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 cannot be driven a wash sample is procur ed for visual classification in order to determine the general character of the material. These are not considered sufficiently representative to warrant laboratory testing.

Particle Size Definitions

8"	3"	2.0mm		0.42mm		0.074mm	0.005mm
Boulders	Cobbles	Gravel	Coarse Sand		Fine Sand		Silt Clay
		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.

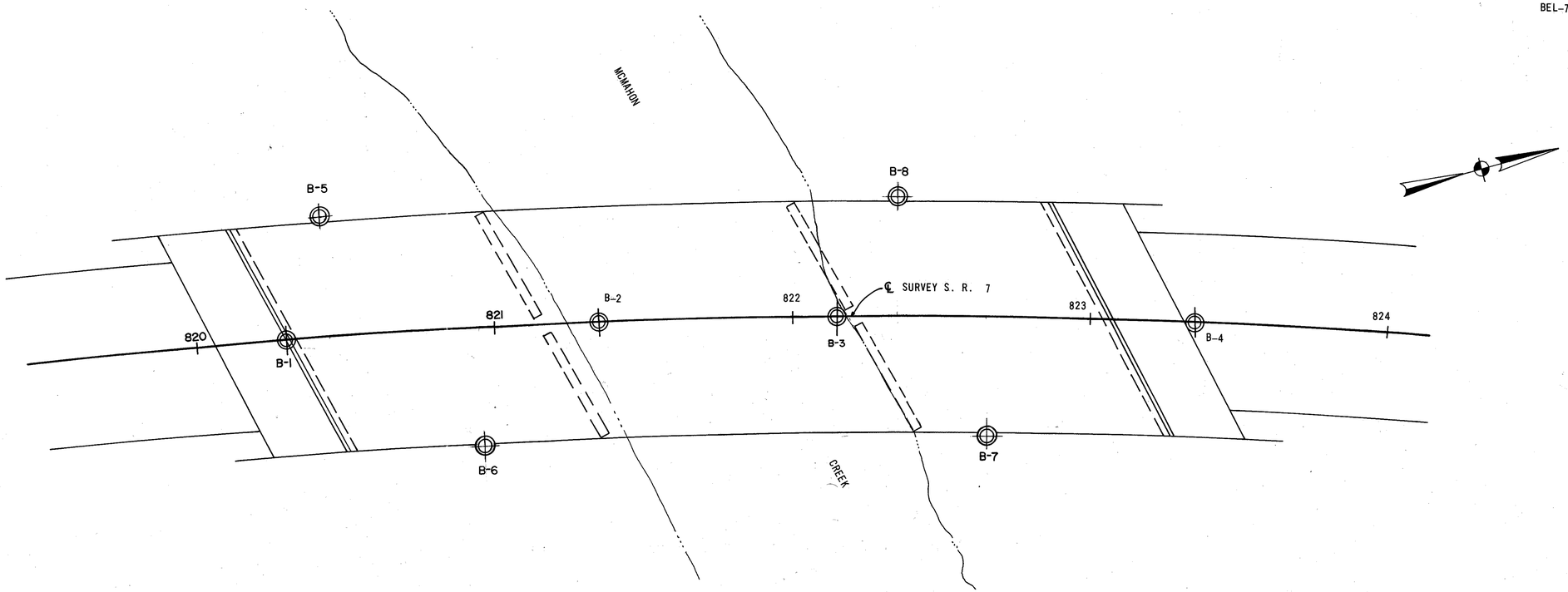
THE H. C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT ROAD · CINCINNATI, OHIO 45226

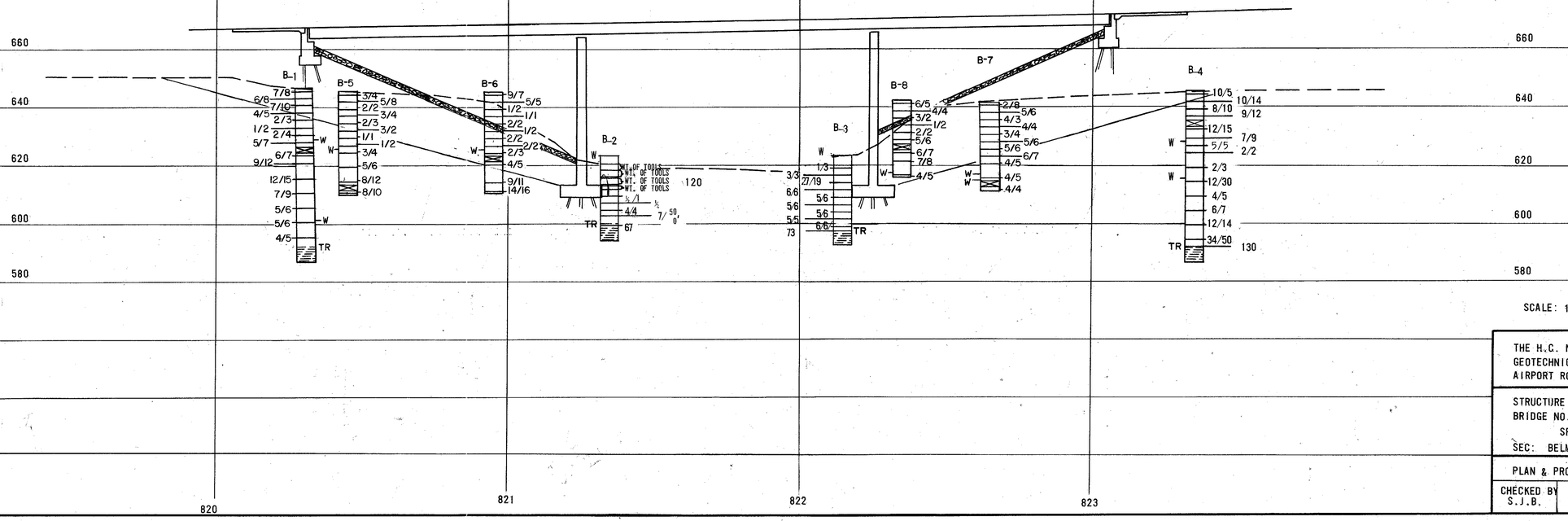
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. BEL-7-1549 F; BEL-1548 L/R; BEL-7-1547 G
RAMP F, S.R. 7, AND RAMP G OVER McMAHON CREEK
SEC. 7-14.17

CHECKED BY	REVIEWED BY	DATE
S.J.B.	J.B.K.	8/12/83

BELMONT COUNTY
BEL-7- 14,17

34
40
2
8





SCALE: 1" = 20'

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT ROAD CINCINNATI, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. BEL-7-1548 L/R
SR. 7 OVER MCMAHON CREEK
SEC: BELMONT 7-14.17

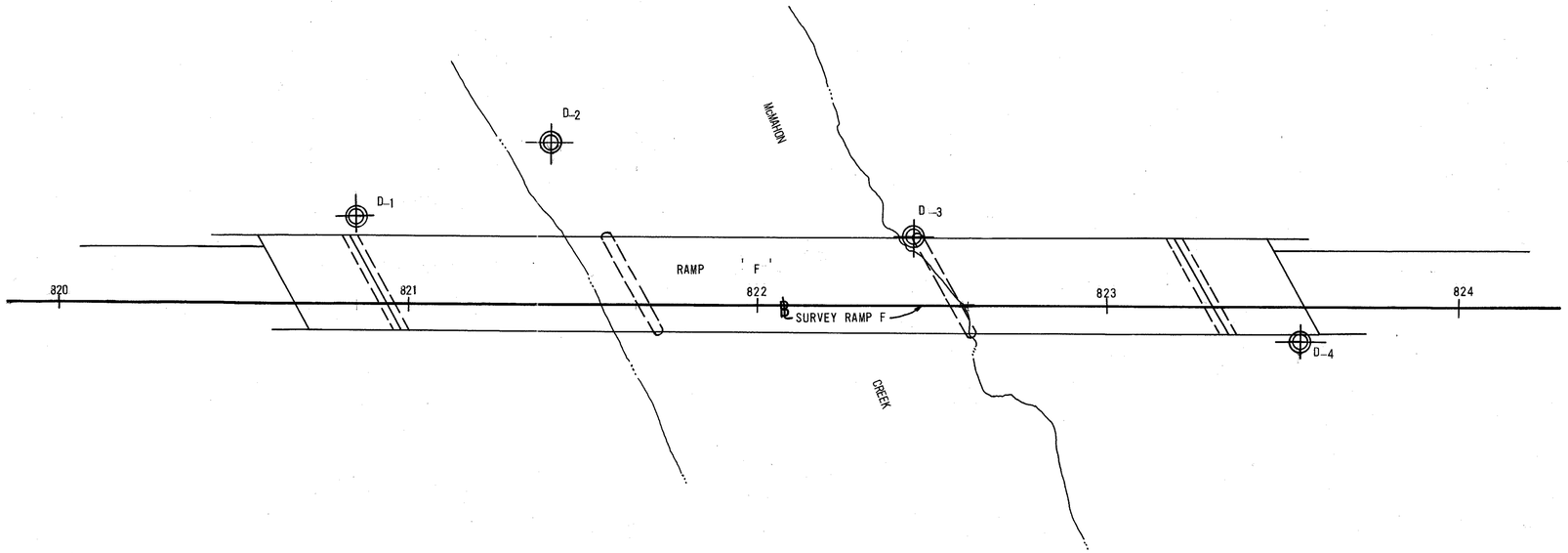
PLAN & PROFILE

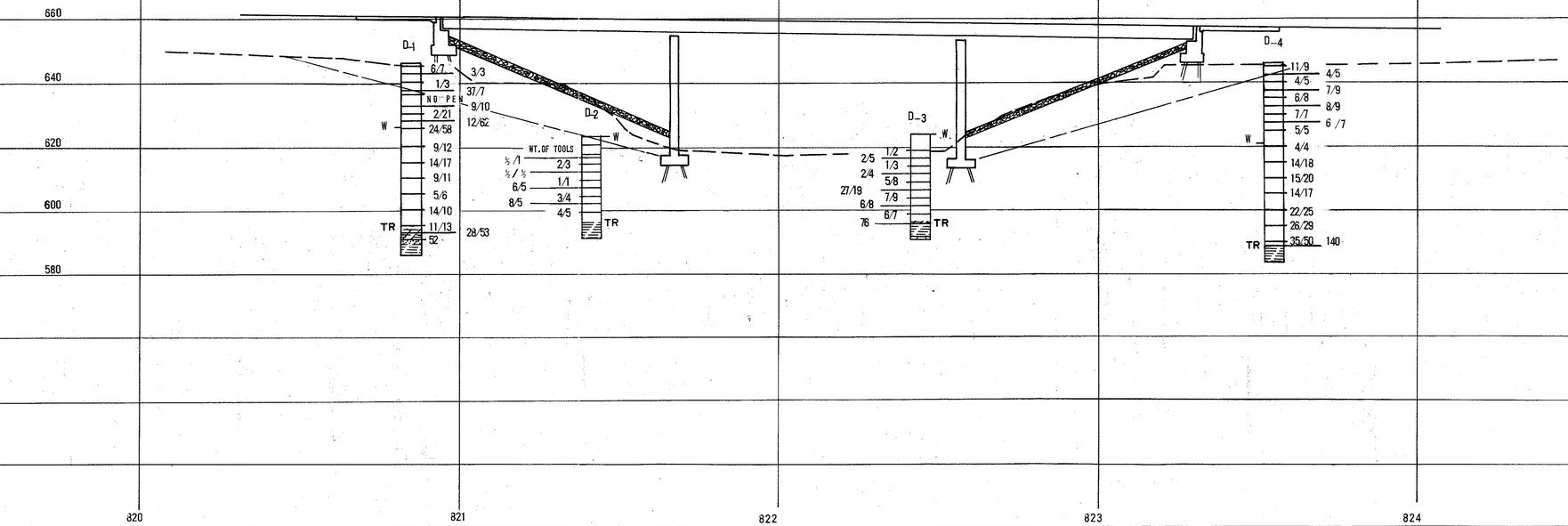
CHECKED BY		REVIEWED BY	DATE
S.J.B.		J.B.K.	AUGUST 1983

BELMONT COUNTY
BEL-7- 14,17

35/40

3/8





SCALE: 1" = 20'

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT, ROAD CINCINNATI, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. BEL-7-1549 F
RAMP F OVER McMAHON CREEK

SEC: BELMONT 7-14.17

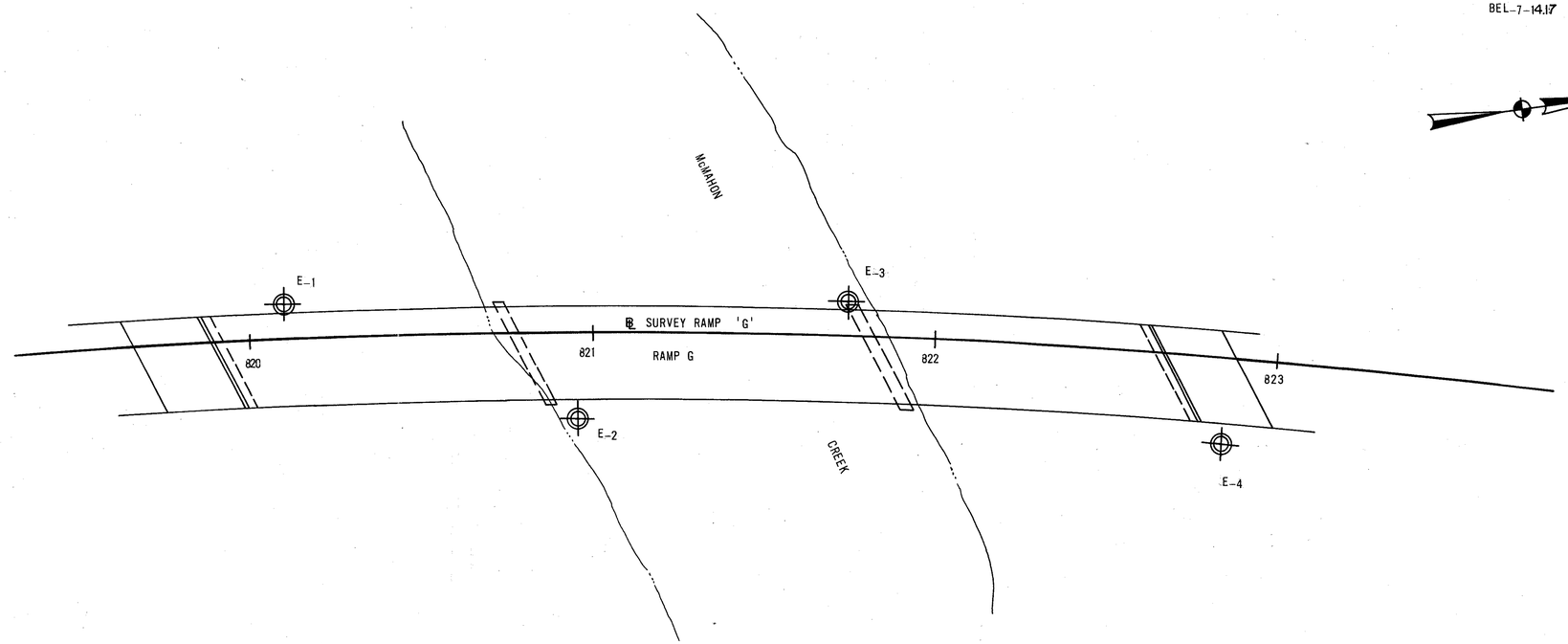
PLAN AND PROFILE

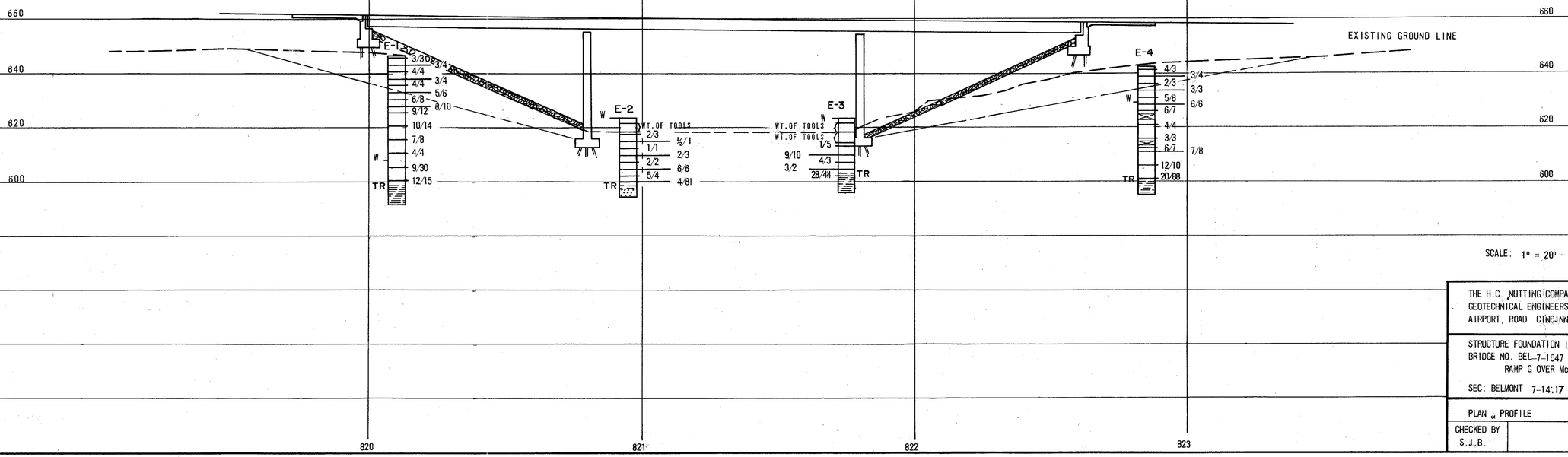
CHECKED BY		REVIEWED BY	DATE
S.J.B		J.B..K.	8/1983

BELMONT COUNTY
BEL-7-14.17

36/40

4/8





SCALE: 1" = 20'

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT, ROAD CINCINNATI, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. BEL-7-1547 G
RAMP G OVER McMAHON CREEK

SEC: BELMONT 7-14.17

PLAN & PROFILE

CHECKED BY		REVIEWED BY	DATE
S.J.B.		J.B.K.	AUGUST 1983

DATE STARTED 3/26/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 3/26/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 629.0 AND 601.5
BORING NUMBER B-1 CORE BARREL N.X.M. SIZE 2 1/8" O.D. AFTER 25 DAYS 619.5
STATION & OFFSET 820+30, CL. (MAINLINE S.R.7) SURFACE ELEVATION 646.5

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA NO	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
646.5	0												
644.0	2	11-7-8	GRAY AND BROWN SILTY CLAY WITH SHALE, CONCRETE COAL AND BRICK FRAGMENTS, (FILL), MOIST-MED. DENSE.	1		V	I	S	U	A	L		
641.5	4	4-6-8	BROWN SILTY SAND WITH FINE CINDERS, AND FINE GRAVEL (FILL), MOIST- MEDIUM DENSE	2		V	I	S	U	A	L		A-3-a
639.0	6	6-7-10	DARK GRAY AND BROWN SILTY CINDERS/SAND WITH SILTY CLAY AND BRICK FRAGMENTS(FILL), MOIST-MEDIUM DENSE	3		V	I	S	U	A	L	31.8	
	8	3-4-5	DARK GRAY, BLACK AND BROWN CINDERS, TRACE OF SAND AND FINE GRAVEL (FILL), MOIST-LOOSE TO VERY LOOSE	4		V	I	S	U	A	L		
	10												
	12	2-2-3	" "	5		V	I	S	U	A	L		
	14	1-1-2	" "	6		V	I	S	U	A	L	25.7	
	16	2-2-4	" "	7		V	I	S	U	A	L		
629.0	18												
	20	3-5-7	BROWN SILTY CLAY, MOIST-STIFF TO VERY STIFF	8		V	I	S	U	A	L	26.5	A-7-6
	22	S.T.	" "	S1	0	0	4	47	49	41	15	26.1	A-7-6(10)
	24	5-6-7	" "	9		V	I	S	U	A	L		
	26												
	28	6-9-12	" "	10		V	I	S	U	A	L	22.8	A-7-6
	30												
	32	8-12-15	" "	11		V	I	S	U	A	L		A-7-6
	34												
	36	5-7-9	" "	12		V	I	S	U	A	L	24.0	A-7-6
606.5	38												
	40												
	42	3-5-6	BROWN AND GRAY SILTY CLAY, MOIST-STIFF	13		V	I	S	U	A	L		A-7-6
601.5	44												
	46	8-5-6	GRAY AND BROWN SILTY CLAY, SANDSTONE AND SHALE FRAGMENTS, TRACE OF GRAVEL, MOIST-LOOSE	14		V	I	S	U	A	L	21.1	A-2-6
596.5	48												
	50												
	52	3-4-5	GRAY AND BROWN SANDY CLAYEY SILT WITH SAND LENSES TO LAYERS, WET- LOOSE	15		V	I	S	U	A	L		A-4-a
592.0	54												
	56	CORE RECOVERY 100%	GRAY SHALE, FISSILE TO SUBFISSILE, FRACTURE SET, SLIGHTLY CARBONACEOUS, SANDY, SOFT LAYER 55.3' TO 57.2', INCLINED BEDDING, MEDIUM TOUGH										
587.0	58												
	60												

BOTTOM OF BORING

DATE STARTED 6/16/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/16/83. CASING TYPE H.S.A. DIA. 3.25" I.D. IMMEDIATE SURFACE
BORING NUMBER B-2 CORE BARREL N.X.M. SIZE 2 1/8" AFTER 24 HRS. SURFACE
STATION & OFFSET 821+30, C.L. (MAINLINE S.R.7) SURFACE ELEVATION 623.5

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA NO	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
623.5	0												
621.0	2		WATER										
	4	WT. OF TLS.	GRAY SILTY CLAY TRACE OF ORGANICS, WET TO VERY MOIST/VERY SOFT TO SOFT	1		V	I	S	U	A	L		A-6-a
	6	WT. OF TLS.	" "	2		V	I	S	U	A	L		A-6-a
	8												
	10	WT. OF TLS.	" "	3	1	7	15	50	27	44	15	76.2	A-6-a(11)
	12	WT. OF TLS.	" "	4		V	I	S	U	A	L		A-6-a
	14	½-½-1		5		V	I	S	U	A	L		A-6-a
	16	1-1-2	" "	6		V	I	S	U	A	L	47.4	A-6-a
606.0	18												
603.5	20	5-4-4	GRAY FINE TO COARSE SAND AND GRAVEL, WET-LOOSE	7		V	I	S	U	A	L		A-1-a
603.0		7-5/6	GRAY SILTY FINE TO COARSE SAND AND GRAVEL, WET-MEDIUM DENSE	8		V	I	S	U	A	L		A-1-b
	22		SANDSTONE - FLOATER										
600.0	24	CORE 17% RECOVERY	GRAY CLAYEY SILT WITH ROCK FRAGMENTS, MOIST-SOFT	9		V	I	S	U	A	L		A-4-b
		57											
	26	CORE RECOVERY 90%	GRAY SHALE, FISSILE TO SUBFISSILE, SANDY, SLIGHTLY CARBONACEOUS, THIN INTERLAYERED SANDSTONE/SHALE SEQUENCE 27.4' TO 28.0', INCLINED BEDDING, MEDIUM TOUGH										
594.5	28												
	30												

BOTTOM OF BORING

DATE STARTED 6/14/83. SAMPLE TYPE S.S. DIA 2" O.D. WATER ELEVATION
DATE COMPLETED 6/15/83. CASING TYPE H.S.A. DIA 3.2.5" I.D. IMMEDIATE SURFACE
BORING NUMBER B-3 CORE BARREL N.X.M. SIZE 2 1/8" AFTER 24 HRS. SURFACE
STATION & OFFSET 822+17 C.L. SURFACE ELEVATION 623.5

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA NO	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
623.5	0												
620.5	2		WATER										
	4	1-1-3	GRAY CLAYEY SAND, TRACE OF BRICK AND GLASS FRAGMENTS AND GRAVEL (POSSIBLE FILL), WET-VERY LOOSE	1		V	I	S	U	A	L		A-3-a
618.0	6												
	8	2-3-3	BROWN AND GRAY SILTY CLAY WITH CLAYEY SILT LAYER, TRACE OF BRICK FRAGMENTS AND ORGANICS (POSSIBLE FILL), WET-SOFT	2		V	I	S	U	A	L		A-7-6
615.5	10	11-27-19	GRAY AND BROWN CLAYEY SAND, ROCK AND SHALE FRAGMENTS WITH SILTY CLAY SEAM, TRACE OF GRAVEL AND CONCRETE FRAGMENTS (POSSIBLE FILL), WET-DENSE	3		V	I	S	U	A	L		A-1-b
613.0	12	5-6-6	BROWN AND BLACK CLAY, SAND, GRAVEL AND ROCK FRAGMENTS TRACE OF ORGANIC MATTER, VERY MOIST-LOOSE	4		V	I	S	U	A	L		A-1-b
610.5	14	4-5-6	BROWN SILTY CLAY, VERY MOIST-STIFF	5		V	I	S	U	A	L	23.2	A-4-b
608.0	16	3	GRAY SILTY CLAY, TRACE OF ROCK FRAGMENTS & ORG. VERY MOIST-MEDIUM STIFF	6		V	I	S	U	A	L		A-6-a
607.5		5-6	GRAY CLAYEY SAND WITH ROCK FRAGMENTS FINE GRAVEL AND										
605.5	18		SAND LAYERS, WET-MEDIUM DENSE	7		V	I	S	U	A	L		A-1-b
	20	7-5-6	GRAY CLAYEY SANDY GRAVEL AND ROCK FRAGMENTS WITH SMALL FLOATERS - WET- MEDIUM DENSE TO LOOSE	8		V	I	S	U	A	L		A-1-a
	22	6-5-5	"	9	67	8	11	-1	4-			-	A-1-a(0)
600.5	24												
		8-6-6	GRAY FINE TO COARSE SAND, AND FINE GRAVEL, WET- MEDIUM DENSE	10		V	I	S	U	A	L		A-1-a
598.0	26	73		11		V	I	S	U	A	L		A-1-a
	28	CORE RECOVERY 92%	GRAY SHALE, FISSILE TO SUBFISSILE, SANDY, SLIGHTLY CARBONACEOUS, INCLINED BEDDING, MEDIUM TOUGH										
593.0	30												
	32												

BOTTOM OF BORING

DATE STARTED 3-30-83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 3-30-83 CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 627.8 AND 615.3
BORING NUMBER B-4 CORE BARREL: N.X.M. SIZE 2 1/8" AFTER 31 DAYS 628.3
STATION & OFFSET 823+35, CL. (MAINLINE S.R.7) SURFACE ELEVATION 645.3

ELEV.	DEPTH	STN. PEN (N)	DESCRIPTION	SA NO	% AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
645.3	0												
642.8	2	8-10-5	GRAY CLAYEY SILT, CINDERS AND SHALE FRAGMENTS (FILL) MOIST-MEDIUM DENSE	1		V	I	S	U	A	L		
640.3	4	9-10-14	BLACK SILTY CINDERS / SAND (FILL), MOIST-MEDIUM DENSE	2		V	I	S	U	A	L		
	6	4-8-10	BROWN CLAYEY SILT, MOIST-STIFF	3		V	I	S	U	A	L		A-4-a
	8												
	10	6-9-12	" "	4		V	I	S	U	A	L		A-4-a
	12	S.T.	" "	S1		V	I	S	U	A	L	21.4	A-4-a
	14	8-12-15	" "	5		V	I	S	U	A	L	24.1	A-4-a
	16												
627.8	18	5-7-9	" "	6		V	I	S	U	A	L		A-4-a
625.3	20	4-5-5	BROWN, CLAYEY SILT WITH SAND LENSES, VERY MOIST-MEDIUM STIFF	7		V	I	S	U	A	L		A-4-b
	22	2-2-2	BROWN AND GRAY CLAYEY SILT, VERY MOIST-SOFT	8	0	0	14	54	32	29	7	27.1	A-4-b(8)
620.3	24												
	26	2-2-3	GRAY CLAYEY SILT WITH FINE SAND LENSES AND SILT LENSES, VERY MOIST-MEDIUM STIFF	9		V	I	S	U	A	L		A-4-b
615.3	28												
	30												
	32	9-12-30	BROWN CLAYEY SANDY GRAVEL AND ROCK FRAGMENTS, WET-DENSE	10		V	I	S	U	A	L		A-1-a
610.3	34												
	36	3-4-5	BROWN SANDY SILT WITH SAND LENSES, WET-LOOSE	11		V	I	S	U	A	L		A-4-a
605.3	38												
	40												
	42	4-6-7	BROWN AND GRAY CLAYEY SAND AND GRAVEL, WET MEDIUM DENSE	12		V	I	S	U	A	L		A-1-b
	44												
	46	10-12-14	" "	13		V	I	S	U	A	L		A-1-b
595.3	48												
	50												
592.3	52	14-34-50	GRAY AND BROWN CLAYEY SAND AND GRAVEL, WET-VERY DENSE	14		V	I	S	U	A	L		A-1-b
591.8	54	130	GRAY VERY SOFT SANDY SHALE	15		V	I	S	U	A	L		
	56	CORE RECOVERY 100%	GRAY SHALE, FISSILE TO SUBFISSILE, SLIGHTLY SANDY, SOME FRACTURES SOFT SEAM 57.6', MEDIUM TOUGH.										
587.3	58		CONGLOMERATE, POORLY SORTED, MEDIUM TOUGH										
586.8	60												

BOTTOM OF BORING

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT, ROAD CINCINNATI, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. BEL-7-1549
S.R. 7 OVER McMAHON CREEK
SEC. BEL -7- 14,17

BORING DATA

CHECKED BY S.J.B. | REVIEWED BY J.B.K. | DATE AUGUST 1983

BELMONT COUNTY
BEL-7-14.17

38/40 — 6/8

DATE STARTED 6/19/84. SAMPLE TYPE S.S. DIA. 2"O.D. WATER ELEVATION
DATE COMPLETED 6/20/84. CASING TYPE H.S.A. DIA. 3.5"I.D. IMMEDIATE WET AT 625.4
BORING NUMBER B-5 CORE BARREL SIZE AFTER 7 DAYS 625.4
STATION & OFFSET 820+45 40' LT. SURFACE ELEVATION 645.4

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
645.4	0												
	2	3-3-4	MOTTLED GRAYS TO BLACK SILTY CLAY AND CINDERS, ROCK AND BRICK FRAGMENTS (FILL), MOIST -STIFF AND LOOSE TO MEDIUM DENSE	1		V	I	S	U	A	L		
	4	4-5-8		2		V	I	S	U	A	L		
	6	2-2-2		3		V	I	S	U	A	L		
637.9	8												
	10	2-3-4	BLACK AND BROWN CINDERS WITH SILT SAND, GRAVEL, ROCK, BRICK, CONCRETE AND GLASS FRAGMENTS (FILL), MOIST-LOOSE TO VERY LOOSE	4		V	I	S	U	A	L		
	12	2-2-3		5		V	I	S	U	A	L		
	14	2-3-2		6		V	I	S	U	A	L		
	16	1-1-1		7		V	I	S	U	A	L		
	18	2-1-2		8		V	I	S	U	A	L		
625.4	20												
	22	2-3-4	GRAY SILTY CLAY, TRACE OF ORGANIC MATTER, MOIST - MEDIUM STIFF TO STIFF	9		V	I	S	U	A	L	33	A-6a
	24												
	26	3-5-6		10		V	I	S	U	A	L		A-6a
	28												
615.4	30												
	32	6-8-12	BROWN AND GRAY SILTY CLAY WITH SAND LENSES, MOIST -VERY STIFF TO STIFF	11		V	I	S	U	A	L		A-6b
	34	S.T.		S.T.									
	36	7-8-10		12		V	I	S	U	A	L		A-6b

DATE STARTED 6/21/84. SAMPLE TYPE S.S. DIA. 2"O.D. WATER ELEVATION
DATE COMPLETED 6/21/84. CASING TYPE H.S.A. DIA. 3.5"I.D. IMMEDIATE 614.3, WET @ 616.3
BORING NUMBER B-7 CORE BARREL SIZE AFTER 6 DAYS 621.3
STATION & OFFSET 822+65 40' RT. SURFACE ELEVATION 641.3

ELEV.	DPETH	STN. PEN.	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS AGG	CS	FS	SILT	CLAY	LL	PI	WC	CLASS
641.3	0	(N)											
	2	5-2-8	BROWN AND GRAY SANDY SILTY LEAN CLAY WITH CINDERS, GRAVEL, BRICK, GLASS ROCK FRAGMENTS (FILL), MOIST- STIFF TO MEDIUM STIFF OR LOOSE	1		V	I	S	U	A	L		
	4	4-5-6		2		V	I	S	U	A	L		
	6	2-4-3		3		V	I	S	U	A	L		
	8												
631.3	10	3-4-4		4		V	I	S	U	A	L		
	12	2-3-4	GRAY SILTY CLAY AND SHALE FRAGMENTS (FILL), MOIST- MEDIUM STIFF TO SOFT	5		V	I	S	U	A	L		A-6b
628.8	14	4-5-6	BROWN SILTY CLAY , MOIST - STIFF	6		V	I	S	U	A	L		A-6b
	16	4-5-6		7		V	I	S	U	A	L		
	18	4-6-7		8		V	I	S	U	A	L		
621.3	20												
	22	3-4-5	BROWN SILTY CLAY, MOIST-STIFF	9		V	I	S	U	A	L	25	A-6a
	24												
616.3	26	4-4-5	GRAY SILTY CLAY WITH SAND LENSES, MOIST TO VERY MOIST, MEDIUM STIFF	10		V	I	S	U	A	L		A-6a
613.3	28	S.T.	BROWN SILTY TO CLAYEY SAND AND GRAVEL-WET, LOOSE	S.T.									
610.8	30	3-4-4		11		V	I	S	U	A	L		A-1a
	32												

DATE STARTED 6/20/84. SAMPLE TYPE S.S. DIA. 2"O.D. WATER ELEVATION
DATE COMPLETED 6/20/84. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE WET AT 625.2
BORING NUMBER B-6 CORE BARREL SIZE AFTER 7 DAYS 625.2
STATION & OFFSET 820+95 40' RT. SURFACE ELEVATION 645.2

ELEV.	DEPTH	STN. PEN	DESCRIPTION	SA NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
645.2	0	(N)											
	2	6-7-9	GRAY TO BLACK SANDY SILTY CLAY AND CINDERS WITH GRAVEL, ROCK, BRICK, MORTAR AND GLASS FRAGMENTS (FILL), MOIST-MEDIUM DENSE (VERY LOOSE FROM 5.0' TO 10.0'	1		V	I	S	U	A	L		
	4	4-5-5		2		V	I	S	U	A	L		
	6	2-1-2		3		V	I	S	U	A	L		
	8												
635.2	10	1-1-1		4		V	I	S	U	A	L		
	12	1-2-2	BLACK CINDERS WITH SILT, COAL AND BRICK FRAGMENTS, (FILL), MOIST-VERY LOOSE	5		V	I	S	U	A	L		
	14	1-1-2		6		V	I	S	U	A	L		
	16	2-2-2		7		V	I	S	U	A	L		
	18	1-2-2		8		V	I	S	U	A	L		
625.2	20												
	22	2-2-3	GRAY SILTY CLAY , TRACE OF ORGANIC MATTER, MOIST- MEDIUM STIFF	9		V	I	S	U	A	L	30	A-6a
	24	S.T.		S.T.								29	
	26	3-4-5		10		V	I	S	U	A	L		
	28												
615.2	30												
	32	7-9-11	MOTTLED BROWN SILTY CLAY, MOIST-VERY STIFF	11		V	I	S	U	A	L	23	A-6b
	34												
610.2	36	8-14-16		12		V	I	S	U	A	L		A-6b

DATE STARTED 6/21/84. SAMPLE TYPE S.S. DIA. 2"O.D. WATER ELEVATION
DATE COMPLETED 6/12/84. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE WET @ 617.1
BORING NUMBER B-8 CORE BARREL SIZE AFTER 6 DAYS 623.1
STATION & OFFSET 822+35 40' LT. SURFACE ELEVATION 642.1

ELEV.	DEPTH	STN. PEN.	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
642.1	0	(N)											
	2	5-6-5	BROWN AND GRAY SANDY SILTY CLAY AND CLAYEY SAND, CINDERS, GRAVEL, BRICK, SLAG AND MORTAR FRAGMENTS (FILL), MOIST- LOOSE TO VERY LOOSE	1		V	I	S	U	A	L		
	4	4-4-4		2		V	I	S	U	A	L		
	6	2-3-2		3		V	I	S	U	A	L		
	8												
	10	2-1-2		4		V	I	S	U	A	L		
	12	1-2-2		5		V	I	S	U	A	L		
629.6	14	7-5-6	BROWN SILTY CLAY WITH SAND LENSES MOIST- STIFF	6		V	I	S	U	A	L		A-4b
	16	S.T.		ST								22	
	18	5-6-7		7		V	I	S	U	A	L		
	20												
	22	5-7-8		8		V	I	S	U	A	L		
	24												
615.6	26	4-4-5		9		V	I	S	U	A	L	27	A-4b
	28												

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT RD. CINCINNATI, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. BEL-7-1548
S.R. 7 OVER MCMAHON CREEK

SEC: BEL-7-14.17

BORING DATA

CHECKED BY	REVIEWED BY	DATE
T.T.	J.B.K.	7-26-84.

BELMONT COUNTY
BEL -7-14.17

39
40

7
8

DATE STARTED 3/25/83 SAMPLER: TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 3/25/83 CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 626.5
BORING NUMBER D-1 CORE BARREL: TYPE N.X.M. SIZE 2-1/8" AFTER 26 DAYS 621.5
STATION & OFFSET 820+85, 25' LT RAMP F SURFACE ELEVATION 646.5

ELEV.	DEPTH	STN. PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	WC	SHTL CLASS.
646.5	0												
644.0	2	5-6-7	GRAY AND BLACK SILTY CLAY (RESIDUAL OF SHALE) AND COAL FRAGMENTS (FILL), MOIST - STIFF	1		V	I	S	U	A	L		
641.5	4	5-3-3	REDDISH BROWN CINDERS/SAND, WITH FINE GRAVEL (FILL), MOIST - LOOSE	2		V	I	S	U	A	L		
639.5	6	1-1-3	DARK GRAY AND ORANGE CINDERS WITH BRICK FRAGMENTS AND SAND (FILL), MOIST - VERY LOOSE	3		V	I	S	U	A	L		
	8	14-37-7	BROWN BRICK AND ROCK FRAGMENTS (LARGE PIECES OF ROCK OR CONCRETE TO 23") CLAY AND SAND (FILL), MOIST TO WET - MEDIUM DENSE TO VERY DENSE	4		V	I	S	U	A	L		
	10	NO PENETRATION											
	12												
	14	12-9-10		5		V	I	S	U	A	L		
	16												
	18	4-2-21		6		V	I	S	U	A	L		
	20	12-62		7		V	I	S	U	A	L		
	22	24-58		8		V	I	S	U	A	L		
621.5	24												
	26	6-9-12	BROWN SILTY CLAY, MOIST - VERY STIFF TO STIFF	9		V	I	S	U	A	L	22.4	A-6b
	28												
	30												
	32	8-14-17		10		V	I	S	U	A	L		A-6b
	34												
	36	5-9-11		11		V	I	S	U	A	L	24.4	A-6b
	38												
	40												
	42	4-5-6		12		V	I	S	U	A	L		A-6b
	44												
601.5	46	7-14-10	GRAY CLAYEY SAND, ROCK FRAGMENTS AND GRAVEL, WET - MEDIUM DENSE	13		V	I	S	U	A	L		A-1-b
	48												
596.5	50												
	52	7-11-13	GRAY CLAYEY SAND, GRAVEL AND ROCK FRAGMENTS WITH SILTY CLAY POCKETS, WET - MEDIUM DENSE	14		V	I	S	U	A	L		A-1-b
594.0	54	28-53	GRAY AND BROWN VERY SOFT TO SOFT WEATHERED SHALE	15		V	I	S	U	A	L		
	56	52		16		V	I	S	U	A	L		
590.0			GRAY AND BROWN SANDSTONE, FINE TO MEDIUM GRAINED, SLIGHTLY WEATHERED, INCLINED BEDDING, TOUGH TO MEDIUM TOUGH										
586.0	58	CORE REC. 91%	GRAY SHALE, SANDY, SOME FRACTURES, INCLINED BEDDING, MEDIUM TOUGH										
	60												
	62												

BOTTOM OF BORING

DATE STARTED 6/17/83 SAMPLER: TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/17/83 CASING TYPE H.S.A. DIA. 3.25" I.D. IMMEDIATE SURFACE
BORING NUMBER D-2 CORE BARREL: TYPE N.X.M. SIZE 2-1/8" AFTER 24 HOURS SURFACE
STATION & OFFSET 821+41, 46' LT RAMP F SURFACE ELEVATION 623.2

ELEV.	DEPTH	STN. PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	WC	SHTL CLASS.
623.2	0												
620.7	2		WATER										
	4	WT. OF TLS.	GRAY SILTY FINE TO COARSE SAND WITH GRAVEL AND CLAYEY SAND LAYER, TRACE OF BRICK FRAGMENTS AND ORGANICS (POSSIBLE FILL), WET - VERY LOOSE	1		V	I	S	U	A	L		A-1-b
	6	1-1-1		2		V	I	S	U	A	L		A-1-b
	8												
613.2	10	7-2-3		3		V	I	S	U	A	L		A-1-b
	12	1-1-1	GRAY CLAYEY SILT, SOME WOOD, VERY MOIST TO WET - SOFT	4		V	I	S	U	A	L		A-4b
	14			5		V	I	S	U	A	L	46.1	A-4b
608.2	16	5-6-5	GRAY SILTY TO CLAYEY SAND AND GRAVEL WITH ROCK FRAGMENTS AND SMALL FLOATERS, WET - MEDIUM DENSE TO LOOSE	6		V	I	S	U	A	L		A-1-a
	18	5-3-4		7		V	I	S	U	A	L		A-1-a
	20												
	22	17-8-5		8		V	I	S	U	A	L		A-1-a
	24	6-4-5		9		V	I	S	U	A	L		A-1-a
596.2	26												
591.2	28	CORE REC. 98%	GRAY SHALE, FISSILE, SANDY, SLIGHTLY CARBONACEOUS, BROKEN RECOVERY 27.0' TO 27.9', SOME FRACTURES, MEDIUM TOUGH										
	30												
	32												

BOTTOM OF BORING

DATE STARTED 6/14/83 SAMPLER: TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/14/83 CASING TYPE H.S.A. DIA. 3.25" I.D. IMMEDIATE SURFACE
BORING NUMBER D-3 CORE BARREL: TYPE N.X.M. SIZE 2-1/8" AFTER 24 HOURS SURFACE
STATION & OFFSET 822+45 20'LT RAMP F SURFACE ELEVATION 624.0

ELEV.	DEPTH	STN. PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	WC	SHTL CLASS.
624.0	0												
620.0	2		WATER										
	4												
	6	3-1-2	GRAY CLAYEY SILT, TRACE OF GRAVEL, WET - VERY SOFT	1		V	I	S	U	A	L		A-6a
	8	2-2-5		2		V	I	S	U	A	L		A-6a
	10	1-1-3		3		V	I	S	U	A	L		A-6a
612.5	12												
	14	2-2-4	GRAY AND BROWN SANDY SILT WITH SAND SEAMS, TRACE OF CINDERS AND ORGANICS, WET - LOOSE	4		V	I	S	U	A	L	63.3	A-4a
610.0	16	4-3-8	GRAY AND BROWN FINE TO COARSE SAND WITH FINE GRAVEL AND ROCK FRAGMENTS, WET - MEDIUM	5		V	I	S	U	A	L		A-1a
	18	12-27-19	DENSE TO DENSE	6		V	I	S	U	A	L		A-1a
605.0	20	5-7-9	GRAY AND BROWN CLAYEY SAND AND GRAVEL AND ROCK FRAGMENTS, WET - MEDIUM DENSE	7		V	I	S	U	A	L		A-1a
	22	5-6-8		8	66	17	7	-10-					A-1a(0)
600.0	24												
	26	5-6-7	GRAY CLAYEY SAND AND GRAVEL, WET - MEDIUM DENSE	9		V	I	S	U	A	L		A-1a
596.5	28												
596.0			GRAY VERY SOFT SLIGHTLY WEATHERED SHALE	10		V	I	S	U	A	L		
	30	76	GRAY SHALE, FISSILE, FRACTURE SET, SANDY, TRACE CARBONACEOUS, MEDIUM TOUGH TO TOUGH										
	32	CORE REC 83%											
591.0	34		DARK GRAY LIMESTONE, FINE GRAINED, VERY FINE VUGS, LAYERS TO 5-1/4", TOUGH TO HARD										

BOTTOM OF BORING

DATE STARTED 4/18/83 SAMPLER: TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/19/83 CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 621.0
BORING NUMBER D-4 CORE BARREL: TYPE N.X.M. SIZE 2-1/8" AFTER 24 HOURS BACKFILLED
STATION & OFFSET 823+55, 10' RT RAMP F SURFACE ELEVATION 646.0

ELEV.	DEPTH	STN. PEN. (N)	DESCRIPTION	SA. NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	WC	SHTL CLASS.
646.0	0												
643.5	2	10-11-9	DARK GRAY CLAYEY SAND WITH SILTY CLAY SEAMS, GRAVEL AND MORTAR FRAGMENTS, TRACE OF CINDERS (FILL), MOIST-	1		V	I	S	U	A	L		
641.0	4	5-4-5	LIGHT AND DARK GRAY SILTY CLAY, SAND AND MED. DENSE MORTAR FRAGMENTS (FILL) MOIST - MEDIUM STIFF	2		V	I	S	U	A	L		
638.5	6	4-4-5	GRAY AND BROWN SILTY CLAY, MOIST - STIFF	3		V	I	S	U	A	L		A-6a
636.0	8	5-7-9	BROWN SILTY CLAY, MOIST - STIFF	4		V	I	S	U	A	L	23.4	A-6b
	10	5-6-8	BROWN AND LIGHT BROWN LEAN SILTY CLAY, MOIST - VERY STIFF TO STIFF	5		V	I	S	U	A	L		A-6a
	12												
	14	5-8-9		6		V	I	S	U	A	L		A-6a
	16	5-7-7		7		V	I	S	U	A	L	21.7	A-6a
	18												
626.0	20	5-6-7		8		V	I	S	U	A	L		A-6a
	22	4-5-5	BROWN FINE TO MEDIUM SAND, WET - LOOSE	9		V	I	S	U	A	L		A-3
	24												
620.0	26	3-4		10		V	I	S	U	A	L		A-3
	28	4	BROWN SILTY CLAY WITH WET CLAYEY SAND SEAMS, VERY MOIST - SOFT	11		V	I	S	U	A	L	24.5	A-6a
616.0	30												
	32	10-14-18	BROWN FINE TO COARSE SANDY GRAVEL, WET - DENSE	12	68	12	10	-10-					A-1a(0)
611.0	34												
	36	16-15-20	BROWN FINE TO COARSE SAND WITH GRAVEL, WET - DENSE	13		V	I	S	U	A	L		A-1b
	38												
	40												
	42	12-14-17		14		V	I	S	U	A	L		A-1b
	44												
	46	20-22-25		15	35	32	24	-9-					A-1b(0)
	48												
596.0	50												
	52	18-26-29	GRAY FINE TO COARSE SAND, ROCK FRAGMENTS AND GRAVEL, WET - VERY DENSE	16		V	I	S	U	A	L		A-1a
	54												
	56	25-35-50		17		V	I	S	U	A	L		A-1a
589.0													
588.5	58	140	GRAY VERY SOFT SHALE	18		V	I	S	U	A	L		
	60	CORE REC 100%	GRAY SHALE, FISSILE TO SUBFISSILE, FRACTURE SET, SLIGHT CARBONACEOUS, MEDIUM TOUGH TO TOUGH										
	62												
583.5	64												

BOTTOM OF BORING

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT, ROAD CINCINNATI, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. BEL-7-1549 F
RAMP F OVER McMAHON CREEK

SEC: BEL -7-14.17

BORING DATA

CHECKED BY		REVIEWED BY	DATE
S.J.B.		J.B.K.	AUGUST 1983.

BELMONT COUNTY
BEL-7-14.17

40/40

8/8

DATE STARTED 3/29/83 SAMPLE TYPE S.S. DIA.. 2" O.D. WATER ELEVATION
DATE COMPLETED 3/29/83 CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 608.3
BORING NUMBER E-1 CORE BARREL N.X.M. SIZE 2 1/8" AFTER 22 DAYS 626.8
STATION & OFFSET 820+10 10' LT. RAMP G SURFACE ELEVATION 646.8

ELEV.	DEPTH	STN. PEN	DESCRIPTION	SA NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
646.8	0	(N)											
	2	2-3-3	BROWN AND DARK GRAY SANDY CLAYEY SILT, TRACE OF GRAVEL AND ORGANICS (FILL), MOIST-LOOSE	1		V	I	S	U	A	L		A-4-a
	4	2-3-4	" "	2		V	I	S	U	A	L		A-4-a
641.8	6	3-4-4	COAL FRAGMENTS (FILL), MOIST-LOOSE	3		V	I	S	U	A	L		
	8												
	10	2-3-4	" "	4		V	I	S	U	A	L		
636.8	12	4-4-4	GRAY CLAYEY SILT, COAL FRAGMENTS AND CINDERS, TRACE OF BRICK FRAGMENTS (FILL), MOIST-LOOSE	5		V	I	S	U	A	L		
634.3	14	3-5-6	BROWN AND GRAY SILTY CLAY, MOIST-STIFF	6		V	I	S	U	A	L	27.7	A-7-6
631.8	16	5-6-8	BROWN AND GRAY SILTY CLAY, MOIST-VERY STIFF TO STIFF	7		V	I	S	U	A	L		A-7-6
	18	5-8-10	" "	8		V	I	S	U	A	L	24.8	A-7-6
	20												
	22	6-9-12	" "	9	0	0	2	42	56	44	19	24.4	A-7-6(13)
	24												
	26	6-10-14	" "	10		V	I	S	U	A	L		A-7-6
	28												
	30												
	32	5-7-8	" "	11		V	I	S	U	A	L	24.9	A-7-6
611.8	34												
	36	3-4-4	GRAY SANDY SILTY CLAY, MOIST TO VERY MOIST-MEDIUM STIFF	12		V	I	S	U	A	L		A-6-b
608.3	38												
	40	6-9-30	GRAY AND BROWN CLAYEY FINE TO COARSE SAND AND GRAVEL, WET-DENSE TO MEDIUM DENSE	13	56	22	8	-1	4-			-	A-1-a(0)
	42												
	44												
	46	8-12-15	" "	14		V	I	S	U	A	L		A-1-a
598.8	48												
596.8	50		GRAY SHALE										
	52	CORE RECOVERY 98%	DARK GRAY SHALE, FISSILE TO SUBFISSILE, SANDY, SLIGHTLY CARBONACEOUS, SANDSTONE LENSES TOP OF SECTION, TOUGH										
591.8	54												
	56												

BOTTOM OF BORING

DATE STARTED 6/15/83 SAMPLE TYPE S.S. DIA.. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/16/83 CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 623.5 (SURFACE)
BORING NUMBER E-2 CORE BARREL N.X.M. SIZE AFTER 24 HRS. SURFACE
STATION & OFFSET 820 + 95 25' RT. RAMP G SURFACE ELEVATION 623.5

ELEV.	DEPTH	STN. PEN	DESCRIPTION	SA NO.	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
623.5	0	(N)											
621.5	2		WATER										
	4	WT. OF TLS	DARK GRAY CLAYEY SILT, TRACE OF ORGANICS, WET-VERY SOFT	1		V	I	S	U	A	L		A-6-a
618.5	6	1-2-3	DARK GRAY AND BROWN CLAYEY SILT WITH ORGANICS, WET-VERY SOFT	2		V	I	S	U	A	L		A-6-a
	8	½-½-1	" "	3		V	I	S	U	A	L	54.7	A-6-a
613.5	10	1-1-1	GRAY SILTY CLAY, TRACE OF ORGANIC MATTER, VERY MOIST TO WET VERY SOFT TO SOFT	4		V	I	S	U	A	L		A-6-a
	12												
	14	2-2-3	" "	5		V	I	S	U	A	L		A-6-a
	16	1-2-2	" "	6		V	I	S	U	A	L	40.6	A-6-a
606.0	18												
	20	5-6-6	GRAY CLAYEY SANDY GRAVEL, WET-MEDIUM DENSE TO LOOSE	7		V	I	S	U	A	L		A-1-a
	22	4-5-4	" "	8		V	I	S	U	A	L		A-1-a
600.0	24	5-4	" "	9		V	I	S	U	A	L		A-1-a
599.5	26	81	GRAY VERY SOFT SANDY SHALE	10		V	I	S	U	A	L		
597.5	28	CORE RECOVERY 93%	GRAY SHALE, FISSTILE TO SUBFISSTILE, SANDY, SLIGHTLY CARBONACEOUS, SOFT TO MEDIUM TOUGH										
594.5	30		GRAY SANDSTONE, FINE TO MEDIUM GRAINED, SHALE PARTINGS, LAYERS TO 9", MEDIUM TOUGH TO TOUGH										

DATE STARTED 6/15/83 SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 6/15/83 CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 623.5 (SURFACE)
BORING NUMBER E-3 CORE BARREL N.X.M. SIZE 2 1/8" AFTER 24 HRS. SURFACE
STATION & OFFSET 821+75 10' LT. RAMP G SURFACE ELEVATION 623.5

ELEV.	DEPTH	STN. PEN	DESCRIPTION	SA NO	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
623.5	0	(N)											
622.0	2		WATER										
	4	WT. OF TLS-	DARK GRAY AND BROWN CLAYEY SILT, TRACE OF ORGANICS AND WOOD FRAGMENTS, WET-VERY SOFT	1		V	I	S	U	A	L		A-6-a
	6												
	8	WT. OF TLS.	" "	2		V	I	S	U	A	L		A-6-a
614.5	10	1	BROWN AND GRAY CLAYEY SITT, TRACE O F ORGANICS WET-VERY SOFT	3		V	I	S	U	A	L	104.9	A-6-a
613.5	12	5	BROWN SILTY CLAY, MOIST- VERY STIFF TO STIFF	4		V	I	S	U	A	L		A-7-6
	14	7-9-10	" "	5		V	I	S	U	A	L	24.7	A-7-6
608.5	16	5	" "	6		V	I	S	U	A	L		A-7-6
	18	4-3	BROWN AND GRAY CLAYEY SAND AND GRAVEL, WET-LOOSE	7		V	I	S	U	A	L		A-1-a
	20	3-3-2	" "	8		V	I	S	U	A	L		A-1-a
603.5	22	14-28-44	GRAY VERY SOFT TO SOFT SANDY SHALE	9		V	I	S	U	A	L		
601.0	24												
	26	CORE RECOVERY 90%	DARK GRAY SHALE, FISSILE TO SUBFISSILE, SANDY, SLIGHTLY CARBONACEOUS, SANDSTONE SEAMS AND LENSES TOP OF SECTION SHOWING SLIGHT WEATHERING, TOUGH TO MEDIUM TOUGH.										
596.0	28												

DATE STARTED 4/26/83. SAMPLE TYPE S.S. DIA. 2" O.D. WATER ELEVATION
DATE COMPLETED 4/26/83. CASING TYPE H.S.A. DIA. 3.5" I.D. IMMEDIATE 613.9
BORING NO. E-4 CORE BARREL N.X.M. SIZE 2 1/8" AFTER 62 DAYS 629.4
STATION & OFFSET 822 + 85 25' RT. RAMP G SURFACE ELEVATION 642.4

ELEV.	DEPTH	STN. PEN	DESCRIPTION	SA NO	PHYSICAL CHARACTERISTICS % AGG	% CS	% FS	% SILT	% CLAY	LL	PI	% WC	SHTL CLASS
642.4	0	(N)											
	2	4-4-3	DARK GRAY SILTY CINDERS/SAND, AND FINE GRAVEL. TRACE OF BRICK FRAGMENTS (FILL), MOIST-LOOSE	1		V	I	S	U	A	L		
	4	3-3-4	" "	2		V	I	S	U	A	L		
	6	3-2-3	" "	3		V	I	S	U	A	L		
634.9	8												
	10	3-3-3	BROWN AND GRAY SILTY CLAY, TRACE OF WOOD FRAGMENTS (FILL), VERY MOIST-MEDIUM STIFF	4		V	I	S	U	A	L		A-6-a
632.4	12	4-5-6	BROWN AND LIGHT BROWN LEAN SILTY CLAY, MOIST TO VERY MOIST-STIFF	5		V	I	S	U	A	L	21.9	A-6-a
	14	5-6-6	" "	6		V	I	S	U	A	L		A-6-a
	16	5-6-7	" "	7		V	I	S	U	A	L	23.2	A-6-a
624.9	18												
	20	S.T.	BROWN AND LIGHT BROWN LEAN SILTY CLAY, MOIST TO VERY MOIST- STIFF	S1	0	0	13	64	23	27	6	23.6	A-4b(8)
	22	3-4-4	" "	8		V	I	S	U	A	L	26.6	A-4 b
617.4	24												
	26	2-3-3	GRAY SILTY CLAY WITH SAND LENSES, MOIST-MEDIUM STIFF	9		V	I	S	U	A	L		A-6-a
613.9	28	S.T.		S2		V	I	S	U	A	L		A-6-a
	30	5-6-7	BROWN AND GRAY CLAYEY SAND, GRAVEL AND ROCK FRAGMENTS WET-MEDIUM DENSE	10		V	I	S	U	A	L		A-1-a
	32	5-7-8	" "	11		V	I	S	U	A	L		A-1-a
607.4	34												
	36	8-12-10	BROWN FINE TO COARSE SAND, TRACE OF FINE GRAVEL, WET-MEDIUM DENSE	12		V	I	S	U	A	L		A-3-a
602.4	38												
601.4	40	14-20	BROWN SILTY FINE TO COARSE SAND AND ROCK FRAGMENTS SLIGHTLY MOIST-DENSE	13		V	I	S	U	A	L		A-1-a
600.4	42	88	GRAY VERY SOFT WEATHERED SANDY SHALE	14		V	I	S	U	A	L		
	44												
	46	CORE RECOVERY 100%	DARK GRAY SHALE, FISSILE TO SUBFISSILE, SANDY, SLIGHTLY CARBONACEOUS, SOME FRACTURES, MEDIUM TOUGH TO TOUGH										
595.4	48												

BOTTOM OF BORING

THE H.C. NUTTING COMPANY
GEOTECHNICAL ENGINEERS
AIRPORT ROAD CINCINNATI, OHIO

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. BEL-7-1549 G
RAMP G OVER McMAHON CREEK

SEC: BEL-7-14.17

BORING DATA

CHECKED BY		REVIEWED BY	DATE
S.J.B.		J.B.K.	AUGUST 1983