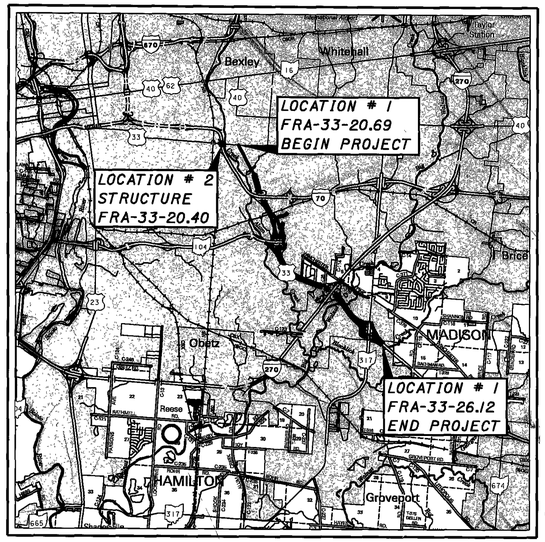
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

FRA-33-20.69

CITY OF COLUMBUS
FRANKLIN COUNTY



LOCATION MAP

LATITUDE N 39°55'07" LONGITUDE W 82°55'22"

SCALE IN MILES

0 1 2 3 4

PORTION TO BE IMPROVED

INTERSTATE & DIVIDED HIGHWAY

UNDIVIDED STATE & FEDERAL ROUTES

OTHER ROADS

DESIGN DESIGNATION

CURRENT ADT (2004)	41,873
DESIGN YEAR ADT (2014)	54,848
DESIGN HOURLY VOLUME (2014)	2,285
DIRECTIONAL DISTRUBUTION	50%
TRUCKS (24 HOUR B & C)	10%
DESIGN SPEED	65
LEGAL SPEED	60
LANE ADTT	1,843

INDEX OF SHEETS:

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

EARTH DISTURBANCE AREA

PROJECT EARTH DISTURBED AREA = 2.15 ACRES
N/A MAINTENANCE PROJECT

EST. CONTRACTOR EARTH DISTURBED AREA
N/A MAINTENANCE PROJECT

NOTICE OF INTENT EARTH DISTURBED AREA
N/A MAINTENANCE PROJECT

DESIGN EXCEPTIONS

DESIGN FEATURE	APPROVAL DATE
LANE WIDTH	3/23/2004
HORIZIONTAL ALIGNMENT	3/23/2004
SUPERELEVATION	3/23/2004

DESIGN FUNCTIONAL CLASSIFICATION

FRA 33 (20.69 TO 21.91)	URBAN MINOR ARTERIAL
FRA 33 (21.91 TO 26.12)	URBAN FREEWAY

PROJECT DESCRIPTION

LOCATION #1

THIS PROJECT CONSISTS OF THE MINOR REHABILITATION AND RESURFACING OF 5.43 MILES OF FRANKLIN 33, FROM JUST WEST OF THE INTERSECTION OF LIVINGSTON AVE. AND COLLEGE AVE. TO JUST SOUTH OF THE STATE ROUTE 317 AND US 33 INTERCHANGE.

LOCATION #2

THE PAINTING OF LIVINGSTON AVE. STRUCTURE FRA-33-20.40 OVER ALUM CREEK.

UNDERGROUND UTILITIES

TWO WORKING DAYS
BEFORE YOU DIG
CALL 1-800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

PLANS CERTIFIED BY:

NAME Robert D. Kinsell DATE 3/11/05

DISTRICT 6

OHIO DEPT. OF TRANSPORTATION

2002 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 TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

STANDARD DRAWINGS								SUPPLEMENTAL SPECIFICATIONS	
BP-2.1	7/16/2004	RM-4.4	4/18/2003	TC-32.10	4/19/2002	MT-95.32	7/16/2004	802	7/19/2002
BP-2.2	7/16/2004	RM-4.5	4/18/2003	TC-32.11	10/19/2001	MT-95.61	4/19/2002	832	4/17/2004
BP-2.5	7/28/2000	RM-4.6	1/16/2004	TC-41.20	1/19/2001	MT-97.10	4/19/2002	833	2/12/2003
BP-3.1	7/16/2004	CB-1.1	7/19/2002	TC-41.50	7/16/2004	MT-97.12	4/19/2002	841	4/19/2002
BP-4.1	7/16/2004	CB-2.3	7/19/2002	TC-42.10	1/19/2001	MT-98.12	4/19/2002	848	2/8/2002
BP-9.1	10/17/2003	CB-3.3	7/19/2002	TC-42.20	7/16/2004	MT-98.13	4/19/2002	864	7/11/2000
GR-1.1	7/16/2004	DM-1.1	1/21/2005	TC-51.11	4/20/2001	MT-98.14	4/19/2002	902	7/19/2002
GR-2.1	1/16/2004	DM-4.3	7/19/2002	TC-51.12	4/20/2001	MT-98.15	7/16/2004	908	4/18/2003
GR-2.2	4/18/2003	DM-4.4	7/19/2002	TC-52.10	4/20/2001	MT-98.16	4/19/2002		
GR-3.1	4/18/2003	I-2.4	7/16/2004	TC-52.20	4/20/2001	MT-98.17	10/18/2002		
GR-3.2	4/18/2003	MH-1.1	7/19/2002	TC-65.10	1/21/2005	MT-98.18	10/18/2002		
GR-3.4	4/18/2003	MH-1.2	7/19/2002	TC-65.11	1/21/2005	MT-98.19	10/18/2002		
GR-4.2	10/17/2003	TC-07.65	7/18/2003	TC-71.10	1/21/2005	MT-99.20m	1/30/1995		
GR-5.1	4/18/2003	TC-12.30	1/19/2001	TC-72.20	1/21/2005	MT-99.50	10/18/2002		
GR-5.2	1/16/2004	TC-17.10	1/19/2001	TC-73.10	1/19/2001	MT-99.60	10/18/2002		
GR-5.3	1/16/2004	TC-21.10	1/19/2001	TC-82.10	4/19/2002	MT-105.10	10/18/2002		
GR-6.1	4/18/2003	TC-21.20	1/19/2001	MT-35.10	4/20/2001	MT-105.11	10/18/2002		
RM-3.1	4/18/2003	TC-22.20	1/19/2001	MT-95.30	7/16/2004				
RM-4.3	4/18/2003	TC-31.21	4/20/2001	MT-95.31	7/16/2004				

STATE OF OHIO
DAVID P. POLING
56872
REGISTERED PROFESSIONAL ENGINEER

Signed: David P. Poling

Date: 3-11-05

PLAN PREPARED BY:
O.D.O.T.
DISTRICT SIX
IN-HOUSE DESIGN

Approved Jack R. Marshall
Date 3/11/05 District Deputy Director of Transportation

Approved Gordon Proctor
Date 3-31-05 Director, Department of Transportation

Approved
Date 3/8/05 City Engineer, City of Columbus

Approved Henry Guzman by David J. Beal
Date 3/8/05 Director of Public Service City of Columbus

FEDERAL PROJECT NO. E 035(202)

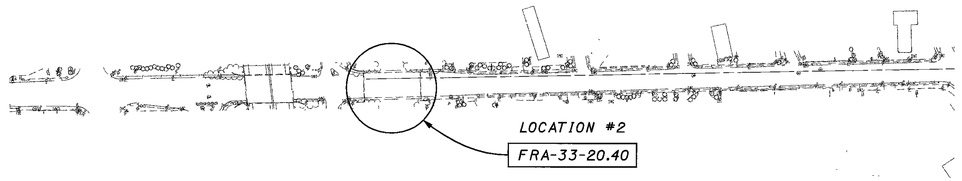
PID NO. 24653

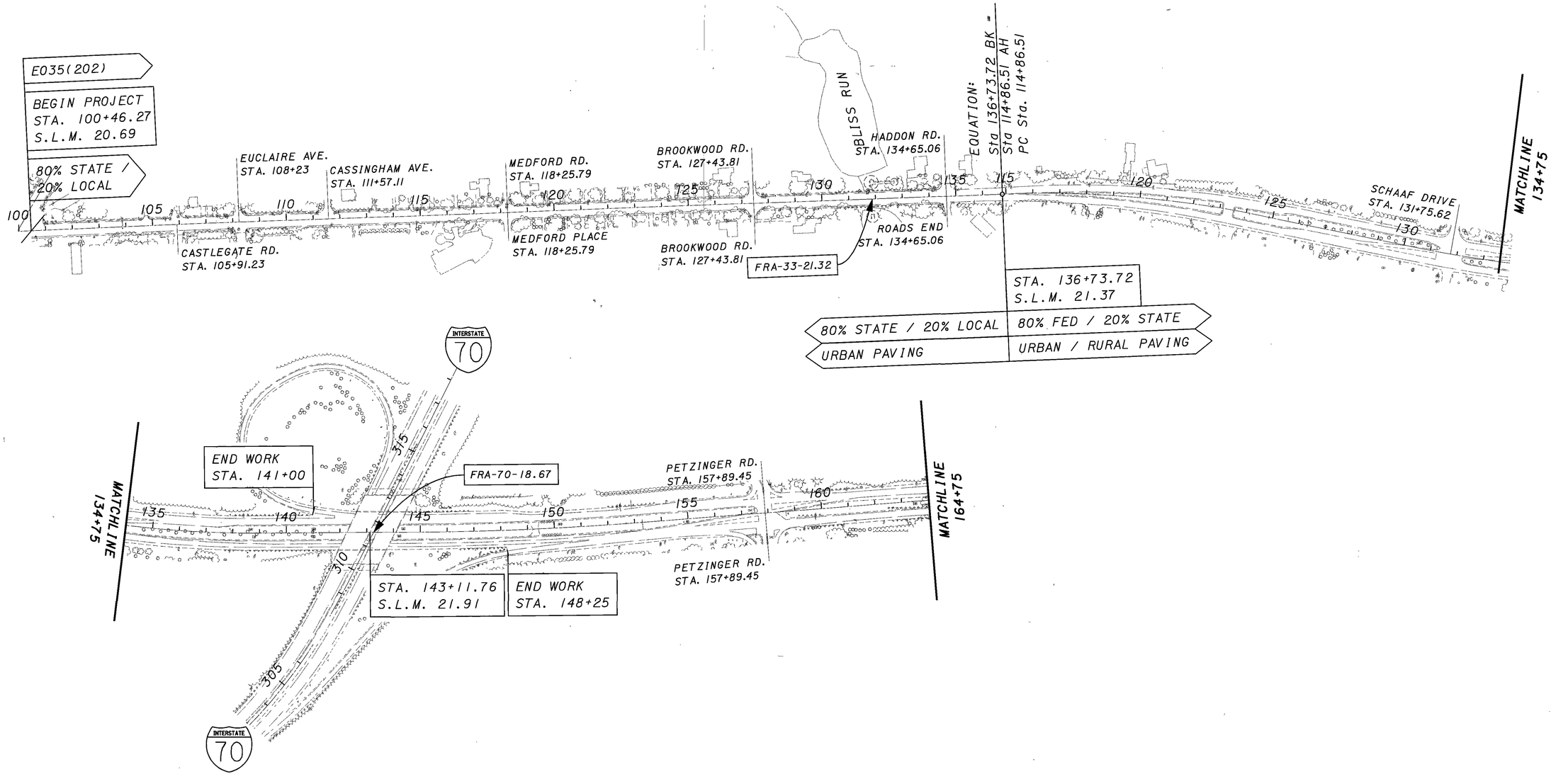
CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT NONE

FRA-33-20.69

1/230



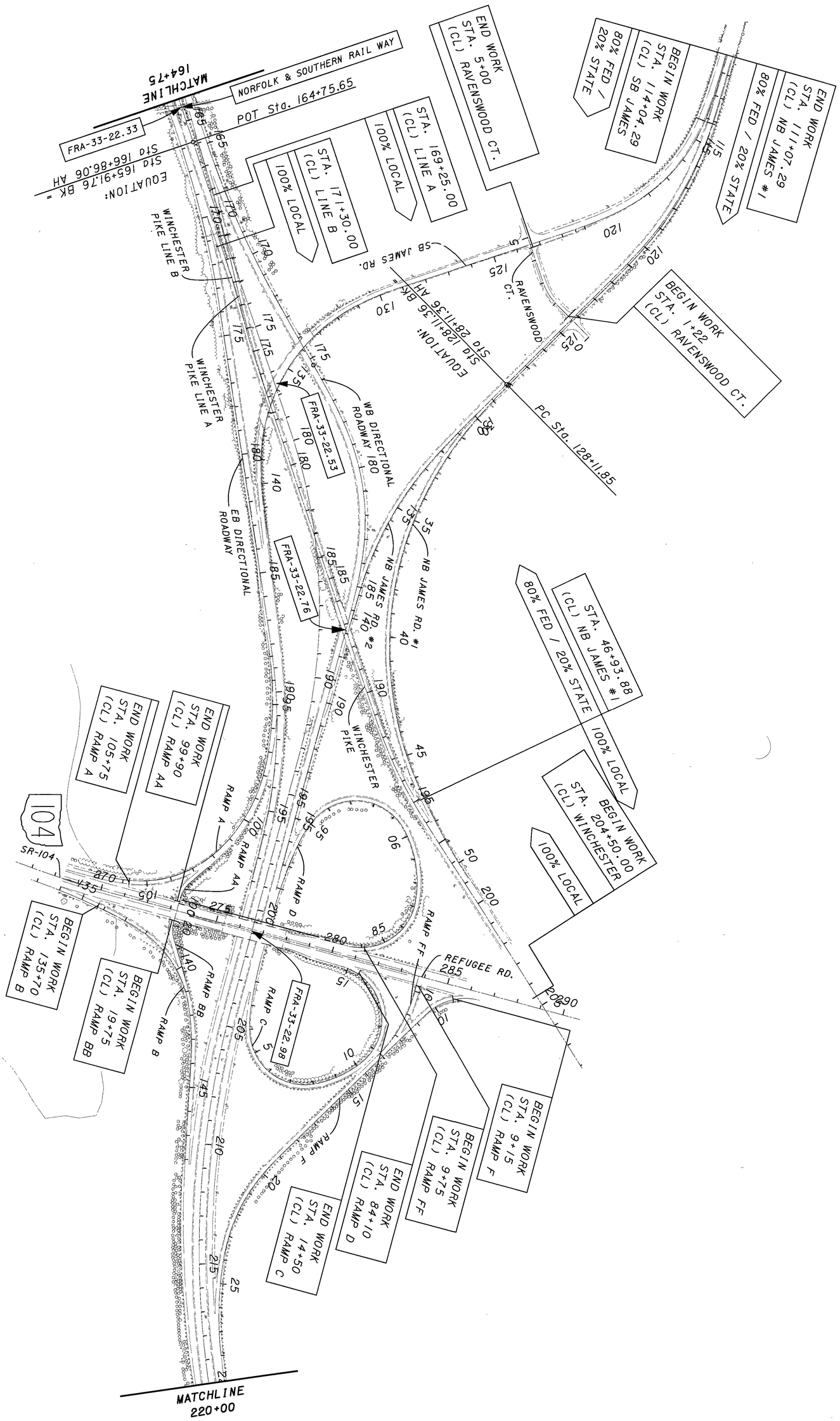


HORIZONTAL SCALE IN FEET
0 100 200 400

CALCULATED: RDK / JW FAY / HG
CHECKED: MATT

SCHEMATIC PLAN

FRA-33-20.69



3 / 230	FRA-33-20.69	SCHEMATIC PLAN	CALCULATED RDK / LW FAY / HG; CHECKED MATT	0 200 100 400 HORIZONTAL SCALE IN FEET

MATCHLINE 220+00

MATCHLINE 275+00

BEGIN WORK STA. 289+75 (CL) US 33

BEGIN WORK STA. 297+80 (CL) US 33

FRA-270-46.13 A

FRA-270-46.13 L

FRA-270-46.13 R

FRA-33-24.56

FRA-33-25.03 R

FRA-33-25.03 L

FRA-33-25.09 L

FRA-33-25.09 R

END WORK STA. 282+45 (CL) US 33

END WORK STA. 289+15 (CL) US 33

END WORK STA. 303+50 (CL) US 33

END WORK STA. 303+45 (CL) US 33

END WORK STA. 297+95 (CL) US 33

BEGIN WORK STA. 280+65 (CL) US 33

WATKINS RD.

BIG WALNUT CREEK

BIG WALNUT C

MATCHLINE 335+00

270

HORIZONTAL SCALE IN FEET

0 100 200 400

CALCULATED BDK / LW
DAY / HG
CHECKED MATT

SCHEMATIC PLAN

FRA-33-20.69

4
230

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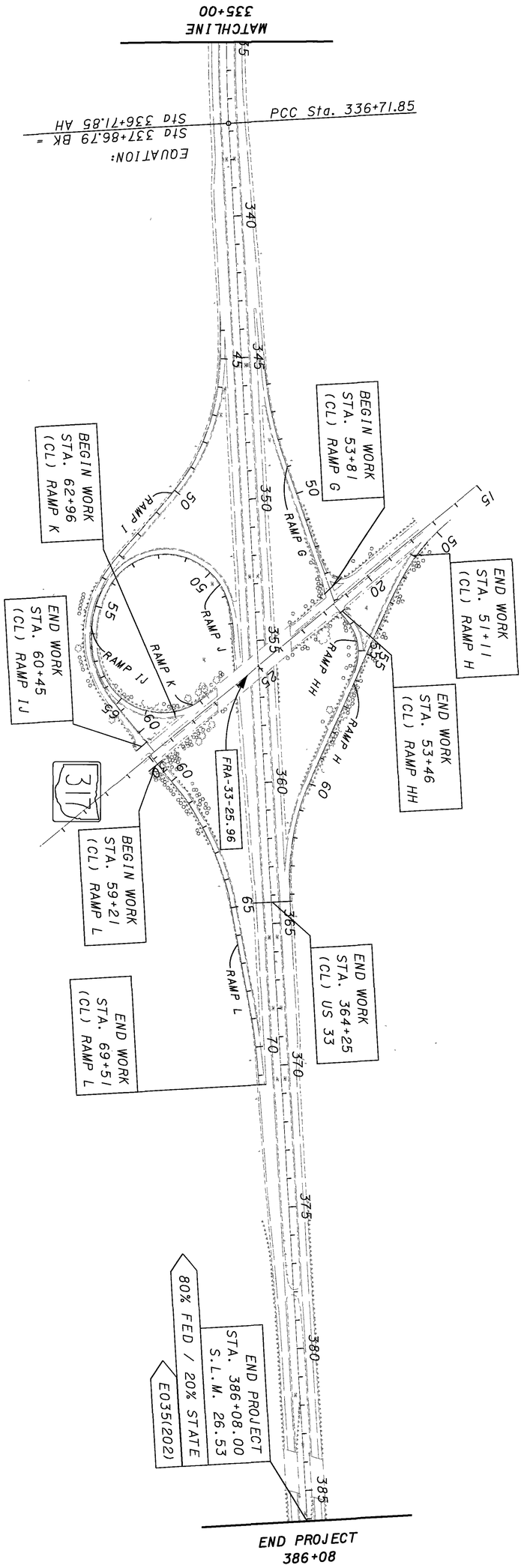
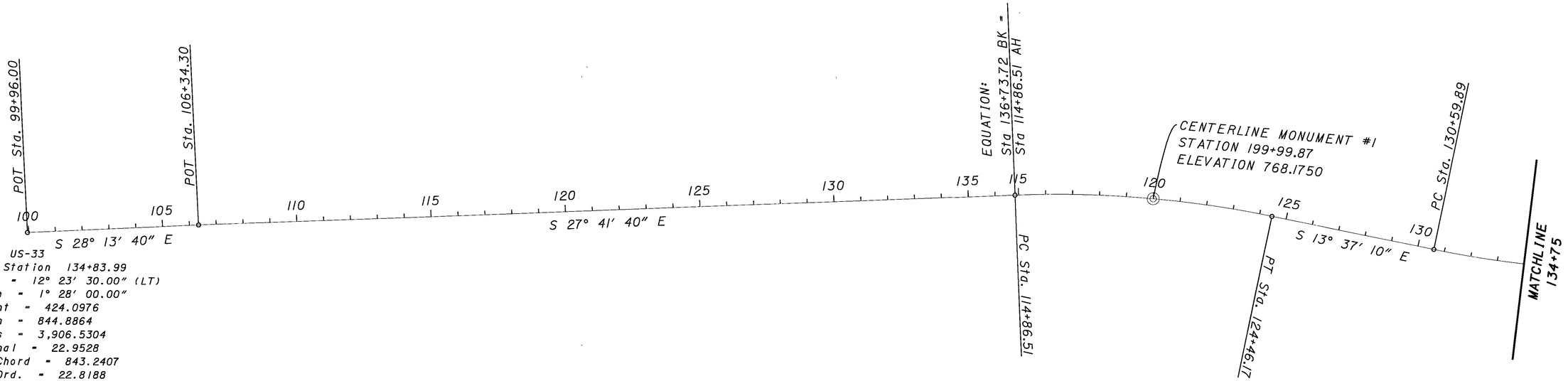
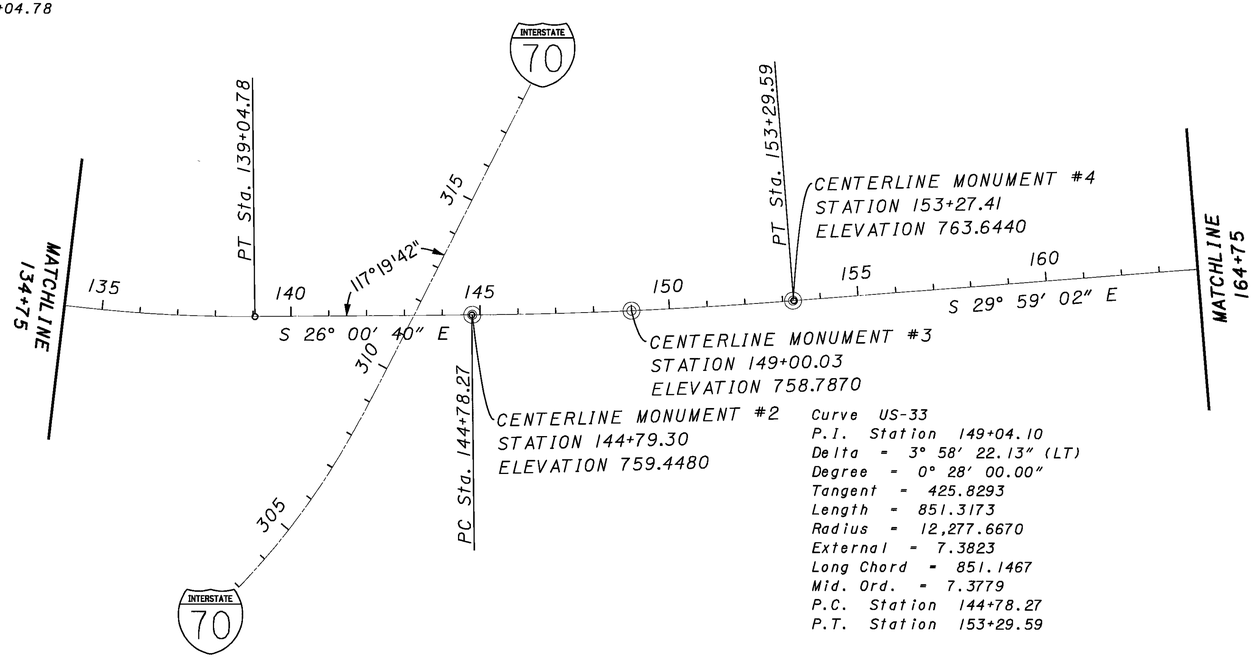

MATCHLINE
335+00
PCC Sta. 336+71.85
Sta 337+86.79 BK =
Sta 336+71.85 AH
EQUATION:
340
345
350
355
360
365
370
375
380
385
BEGIN WORK
STA. 53+81
(CL) RAMP G
BEGIN WORK
STA. 62+96
(CL) RAMP K
END WORK
STA. 51+11
(CL) RAMP H
END WORK
STA. 60+45
(CL) RAMP IJ
END WORK
STA. 53+46
(CL) RAMP HH
FRA-33-25.96
BEGIN WORK
STA. 59+21
(CL) RAMP L
END WORK
STA. 364+25
(CL) US 33
END WORK
STA. 69+51
(CL) RAMP L
END PROJECT
STA. 386+08.00
S.L.M. 26.53
80% FED / 20% STATE
E035(202)
RAMP I
RAMP J
RAMP K
RAMP IJ
RAMP G
RAMP H
RAMP HH
RAMP L
31
END PROJECT
386+08



Curve Data US-33
P.I. Station 119+68.77
Delta = 14° 04' 30.00" (RT)
Degree = 1° 28' 00.00"
Tangent = 482.2572
Length = 959.6591
Radius = 3,906.5304
External = 29.6545
Long Chord = 957.2479
Mid. Ord. = 29.4311
P.C. Station 114+86.51 N
P.T. Station 124+46.17 N

Curve US-33
P.I. Station 134+83.99
Delta = 12° 23' 30.00" (LT)
Degree = 1° 28' 00.00"
Tangent = 424.0976
Length = 844.8864
Radius = 3,906.5304
External = 22.9528
Long Chord = 843.2407
Mid. Ord. = 22.8188
P.C. Station 130+59.89
P.T. Station 139+04.78



Curve US-33
P.I. Station 149+04.10
Delta = 3° 58' 22.13" (LT)
Degree = 0° 28' 00.00"
Tangent = 425.8293
Length = 851.3173
Radius = 12,277.6670
External = 7.3823
Long Chord = 851.1467
Mid. Ord. = 7.3779
P.C. Station 144+78.27
P.T. Station 153+29.59

SUPERELEVATION RATE OF TRANSITION
WB STA. 115+75 TO WB STA. 116+75
RATE OF TRANSITION = 1:205 (NDC 1:233)

HORIZONTAL SCALE IN FEET
0 100 200 400

CALCULATED BDK / LW
PAY / WG
CHECKED MATT

GEOMETRIC LAYOUT

FRA-33-20.69

Curve US-33
P.I. Station 186+57.62
Delta = 33° 50′ 15.00″ (RT)
Degree = 2° 30′ 00.00″
Tangent = 697.1308
Length = 1,353.5000
Radius = 2,291.8312
External = 103.6816
Long Chord = 1,333.9158
Mid. Ord. = 99.1941
P.C. Station 179+60.49
P.T. Station 193+13.99

Curve US-33
P.I. Station 233+53.33
Delta = 73° 46′ 13.88″ (LT)
Degree = 1° 27′ 58.00″
Tangent = 2,932.6457
Length = 5,031.7142
Radius = 3,908.0107
External = 977.9854
Long Chord = 4,691.2893
Mid. Ord. = 782.2310
P.C. Station 204+20.68
P.T. Station 254+52.40

Curve EB DIR 1 SPIRAL 1
Defl = 1° 44′ 59.55″
Deg = 3° 00′ 00.00″
Angle = 5° 15′ 00.00″ (RT)
LS = 350.0000
R = 1,909.8593
YS = 10.6837
XS = 349.7063
P = 2.6717
K = 174.9510
LT = 233.4360
ST = 116.7600
LC = 349.8694

Curve EB DIR 1
P.I. Station 192+39.08
Delta = 13° 20′ 15.00″ (RT)
Degree = 3° 00′ 00.00″
Tangent = 223.3009
Length = 444.5833
Radius = 1,909.8593
External = 13.0099
Long Chord = 443.5802
Mid. Ord. = 12.9218
P.C. Station 190+15.78
P.T. Station 194+60.36

Curve EB DIR 1 SPIRAL 2
Defl = 1° 44′ 59.55″
Deg = 3° 00′ 00.00″
Angle = 5° 15′ 00.00″ (RT)
LS = 350.0000
R = 1,909.8593
YS = 10.6837
XS = 349.7063
P = 2.6717
K = 174.9510
LT = 233.4360
ST = 116.7600
LC = 349.8694

Curve WB DIR 1
P.I. Station 168+79.37
Delta = 10° 59′ 59.47″ (LT)
Degree = 1° 28′ 00.00″
Tangent = 376.1510
Length = 749.9900
Radius = 3,906.5304
External = 18.0676
Long Chord = 748.8387
Mid. Ord. = 17.9844
P.C. Station 165+03.22
P.T. Station 172+53.21

Curve WB DIR 2 SPIRAL 1
Defl = 3° 59′ 54.65″
Deg = 6° 00′ 00.00″
Angle = 12° 00′ 00.00″ (RT)
LS = 400.0000
R = 954.9297
YS = 27.8379
XS = 398.2490
P = 6.9704
K = 199.7079
LT = 267.2820
ST = 133.8929
LC = 399.2207

Curve WB DIR 2
P.I. Station 181+04.56
Delta = 20° 50′ 14.47″ (RT)
Degree = 6° 00′ 00.00″
Tangent = 175.5842
Length = 347.2892
Radius = 954.9297
External = 16.0083
Long Chord = 345.3785
Mid. Ord. = 15.7443
P.C. Station 179+28.98
P.T. Station 182+76.27

Curve WB DIR 2 SPIRAL 2
Defl = 3° 59′ 54.65″
Deg = 6° 00′ 00.00″
(NDC Deg = Max 3° 30′)
Angle = 12° 00′ 00.00″ (RT)
LS = 400.0000
R = 954.9297
YS = 27.8379
XS = 398.2490
P = 6.9704
K = 199.7079
LT = 267.2820
ST = 133.8929

Curve LINE A 1 (WIN PIKE)
P.I. Station 167+94.15
Delta = 5° 00′ 00.00″ (RT)
Degree = 1° 00′ 00.00″
Tangent = 250.1588
Length = 500.0000
Radius = 5,729.5780
External = 5.4585
Long Chord = 499.8414
Mid. Ord. = 5.4533
P.C. Station 165+43.99
P.T. Station 170+43.99

Curve LINE A 2 (WIN PIKE)
P.I. Station 175+18.28
Delta = 5° 00′ 00.00″ (LT)
Degree = 1° 00′ 00.00″
Tangent = 250.1588
Length = 500.0000
Radius = 5,729.5780
External = 5.4585
Long Chord = 499.8414
Mid. Ord. = 5.4533
P.C. Station 172+68.12
P.T. Station 177+68.12

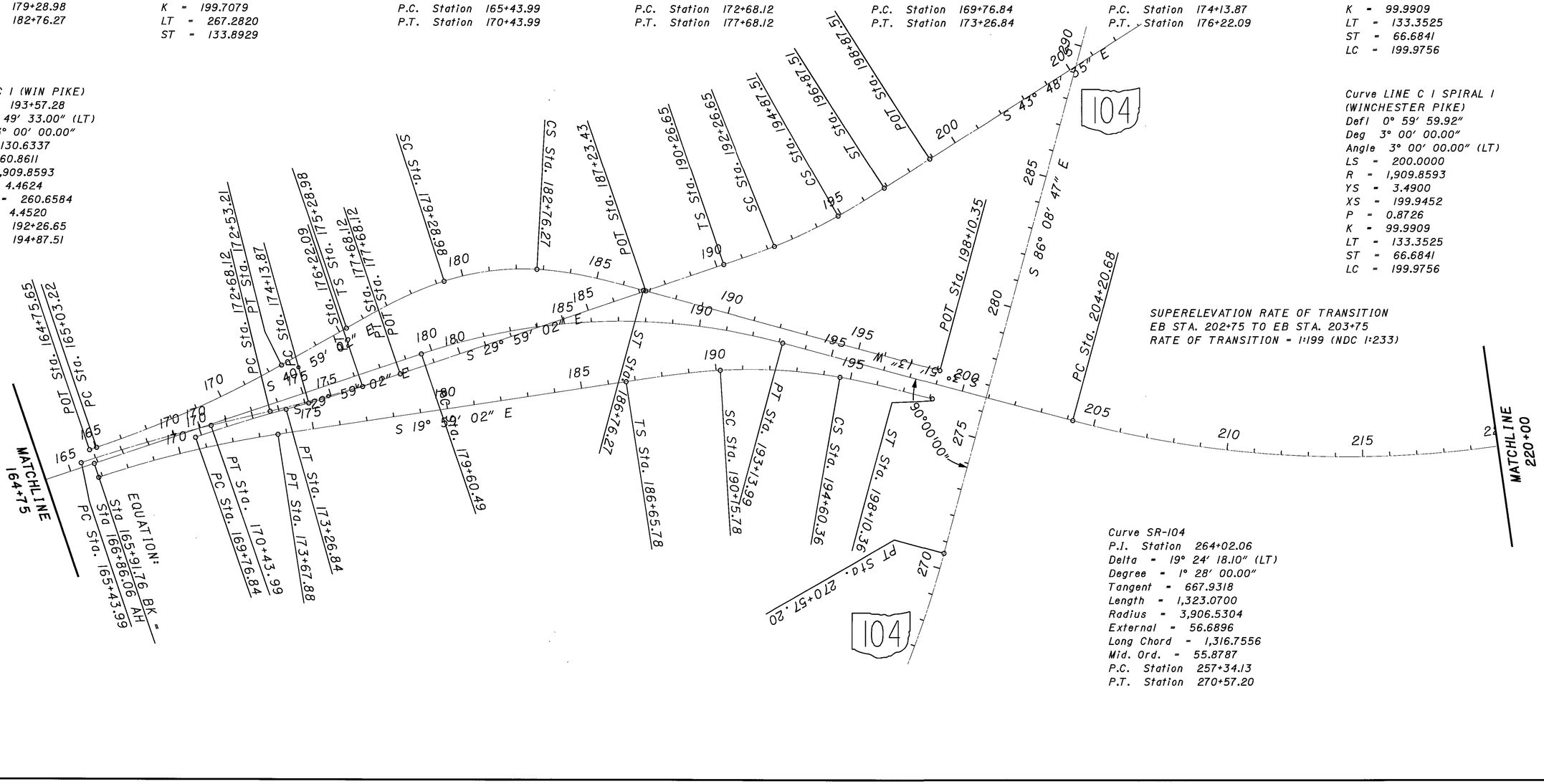
Curve LINE B 1 (WIN PIKE)
P.I. Station 171+51.89
Delta = 3° 30′ 00.00″ (RT)
Degree = 1° 00′ 00.00″
Tangent = 175.0544
Length = 350.0000
Radius = 5,729.5780
External = 2.6736
Long Chord = 349.9456
Mid. Ord. = 2.6723
P.C. Station 169+76.84
P.T. Station 173+26.84

Curve LINE B 2 (WIN PIKE)
P.I. Station 175+18.00
Delta = 3° 03′ 14.00″ (LT)
Degree = 1° 28′ 00.00″
Tangent = 104.1345
Length = 208.2197
Radius = 3,906.5304
External = 1.3877
Long Chord = 208.1951
Mid. Ord. = 1.3872
P.C. Station 174+13.87
P.T. Station 176+22.09

Curve LINE C 1 SPIRAL 1 (WINCHESTER PIKE)
Defl 0° 59′ 59.92″
Deg 3° 00′ 00.00″
Angle 3° 00′ 00.00″ (LT)
LS = 200.0000
R = 1,909.8593
YS = 3.4900
XS = 199.9452
P = 0.8726
K = 99.9909
LT = 133.3525
ST = 66.6841
LC = 199.9756

Curve LINE C 1 (WIN PIKE)
P.I. Station 193+57.28
Delta = 7° 49′ 33.00″ (LT)
Degree = 3° 00′ 00.00″
Tangent = 130.6337
Length = 260.8611
Radius = 1,909.8593
External = 4.4624
Long Chord = 260.6584
Mid. Ord. = 4.4520
P.C. Station 192+26.65
P.T. Station 194+87.51

Curve LINE C 1 SPIRAL 1 (WINCHESTER PIKE)
Defl 0° 59′ 59.92″
Deg 3° 00′ 00.00″
Angle 3° 00′ 00.00″ (LT)
LS = 200.0000
R = 1,909.8593
YS = 3.4900
XS = 199.9452
P = 0.8726
K = 99.9909
LT = 133.3525
ST = 66.6841
LC = 199.9756



SUPERELEVATION RATE OF TRANSITION
EB STA. 202+75 TO EB STA. 203+75
RATE OF TRANSITION = 1:199 (NDC 1:233)

Curve SR-104
P.I. Station 264+02.06
Delta = 19° 24′ 18.10″ (LT)
Degree = 1° 28′ 00.00″
Tangent = 667.9318
Length = 1,323.0700
Radius = 3,906.5304
External = 56.6896
Long Chord = 1,316.7556
Mid. Ord. = 55.8787
P.C. Station 257+34.13
P.T. Station 270+57.20

HORIZONTAL SCALE IN FEET
0 100 200 400

CALCULATED: BDK / LW FAY / HG
CHECKED: MATT

GEOMETRIC LAYOUT

FRA-33-20.69

7
230

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Curve RAMP A 1
P.I. Station 94+93.67
Delta = 17° 52′ 26.00″ (RT)
Degree = 4° 00′ 00.00″
Tangent = 225.2533
Length = 446.8472
Radius = 1,432.3945
External = 17.6031
Long Chord = 445.0375
Mid. Ord. = 17.3894
P.C. Station 92+68.42
P.T. Station 97+15.27

Curve RAMP A 2
P.I. Station 98+76.24
Delta = 25° 20′ 06.16″ (RT)
Degree = 8° 00′ 00.00″
Tangent = 160.9755
Length = 316.6881
Radius = 716.1972
External = 17.8679
Long Chord = 314.1144
Mid. Ord. = 17.4330
P.C. Station 97+15.27
P.T. Station 100+31.96

Curve RAMP A 3 SPIRAL 1
D 1 = 8° 00′ 00.00″
D 2 = 12° 00′ 00.00″
LS = 150.0000
Angle = 15° 00′ 00.00″ (RT)
DEFL = 6° 59′ 57.94″
DEL 1 = 5° 59′ 48.14″
DEL 2 = 9° 00′ 11.86″
P = 0.6539
LT = 80.4335
ST = 70.4222
LC = 149.5709
R 1 = 716.1972
R 2 = 477.4648

Curve RAMP A 3
P.I. Station 103+70.96
Delta = 41° 49′ 10.01″ (RT)
Degree = 12° 00′ 00.00″
Tangent = 182.4189
Length = 348.4954
Radius = 477.4648
External = 33.6607
Long Chord = 340.8111
Mid. Ord. = 31.4440
P.C. Station 101+88.54
P.T. Station 105+37.03

Curve RAMP A SPIRAL 2
D 1 = 1° 29′ 21.00″
D 2 = 12° 00′ 00.00″
LS = 200.0000
Angle = 13° 29′ 21.00″ (RT)
DEFL = 4° 59′ 28.11″
DEL 1 = 1° 29′ 07.28″
DEL 2 = 12° 00′ 13.72″
P = 3.0530
LT = 126.3993
ST = 74.4168
LC = 199.5198
R 1 = 3,847.5062
R 2 = 477.4648

Curve RAMP AA 1
P.I. Station 99+39.71
Delta = 35° 38′ 58.00″ (LT)
Degree = 39° 30′ 52.00″
Tangent = 46.6233
Length = 90.2188
Radius = 144.9996
External = 7.3113
Long Chord = 88.7705
Mid. Ord. = 6.9604
P.C. Station 98+93.09
P.T. Station 99+83.31

Curve RAMP B 1
P.I. Station 134+52.93
Delta = 7° 10′ 26.00″ (RT)
Degree = 2° 00′ 00.00″
Tangent = 179.5819
Length = 358.6944
Radius = 2,864.7890
External = 5.6231
Long Chord = 358.4602
Mid. Ord. = 5.6121
P.C. Station 132+73.35
P.T. Station 136+32.04

Curve RAMP B 2 SPIRAL 1
D 1 = 2° 00′ 00.00″
D 2 = 12° 00′ 00.00″
LS = 200.0000
Angle = 14° 00′ 00.00″ (RT)
DEFL = 5° 19′ 53.97″
DEL 1 = 1° 59′ 42.46″
DEL 2 = 12° 00′ 17.53″
P = 2.9047
LT = 124.2775
ST = 76.6214
LC = 199.4860
R 1 = 2,864.7890
R 2 = 477.4648

Curve RAMP B 2
P.I. Station 139+56.52
Delta = 29° 13′ 29.00″ (RT)
Degree = 12° 00′ 00.00″
Tangent = 124.4803
Length = 243.5394
Radius = 477.4648
External = 15.9599
Long Chord = 240.9079
Mid. Ord. = 15.4437
P.C. Station 138+32.04
P.T. Station 140+75.58

Curve RAMP B 2 SPIRAL 2
Def l = 4° 44′ 51.03″
Deg = 19° 00′ 00.00″
Angle = 14° 15′ 00.00″ (RT)
LS = 150.0000
R = 301.5567
YS = 12.3806
XS = 149.0748
P = 3.1020
K = 74.8456
LT = 100.3259
ST = 50.2964
LC = 149.5880

Curve RAMP SPIRAL 3
Def l = 2° 19′ 58.94″
Deg = 7° 00′ 00.00″
Angle = 7° 00′ 00.00″ (RT)
LS = 200.0000
R = 818.5111
YS = 8.1362
XS = 199.7017
P = 2.0351
K = 99.9503
LT = 133.4377
ST = 66.7616
LC = 199.8674

Curve RAMP BB 1
P.I. Station 20+23.53
Delta = 31° 50′ 59.59″ (LT)
Degree = 45° 50′ 12.00″
Tangent = 35.6660
Length = 69.4856
Radius = 124.9999
External = 4.9887
Long Chord = 68.5944
Mid. Ord. = 4.7973
P.C. Station 19+87.86
P.T. Station 20+57.35

Curve RAMP F 1
P.I. Station 9+39.51
Delta = 59° 00′ 00.00″ (LT)
Degree = 24° 54′ 40.00″
Tangent = 130.1282
Length = 236.8421
Radius = 230.0009
External = 34.2599
Long Chord = 226.5157
Mid. Ord. = 29.8183
P.C. Station 8+09.38
P.T. Station 10+46.22

Curve RAMP F 2
P.I. Station 22+10.27
Delta = 27° 39′ 45.00″ (LT)
Degree = 8° 00′ 00.00″
Tangent = 176.3292
Length = 345.7812
Radius = 716.1972
External = 21.3870
Long Chord = 342.4327
Mid. Ord. = 20.7668
P.C. Station 20+33.94
P.T. Station 23+79.72

Curve RAMP F 3
P.I. Station 25+92.65
Delta = 16° 54′ 37.00″ (LT)
Degree = 4° 00′ 00.00″
Tangent = 212.9263
Length = 422.7569
Radius = 1,432.3945
External = 15.7393
Long Chord = 421.2242
Mid. Ord. = 15.5683
P.C. Station 23+79.72
P.T. Station 28+02.48

Curve RAMP FF 1
P.I. Station 11+67.59
Delta = 31° 00′ 00.00″ (RT)
Degree = 10° 00′ 00.00″
Tangent = 158.8953
Length = 310.0000
Radius = 572.9578
External = 21.6247
Long Chord = 306.2326
Mid. Ord. = 20.8382
P.C. Station 10+08.69
P.T. Station 13+18.69

Curve RAMP F 2 SPIRAL 1
Def l = 2° 39′ 58.41″
Deg = 8° 00′ 00.00″
Angle = 8° 00′ 00.00″ (LT)
LS = 200.0000
R = 716.1972
YS = 9.2955
XS = 199.6104
P = 2.3255
K = 99.9351
LT = 133.4697
ST = 66.7907
LC = 199.8268

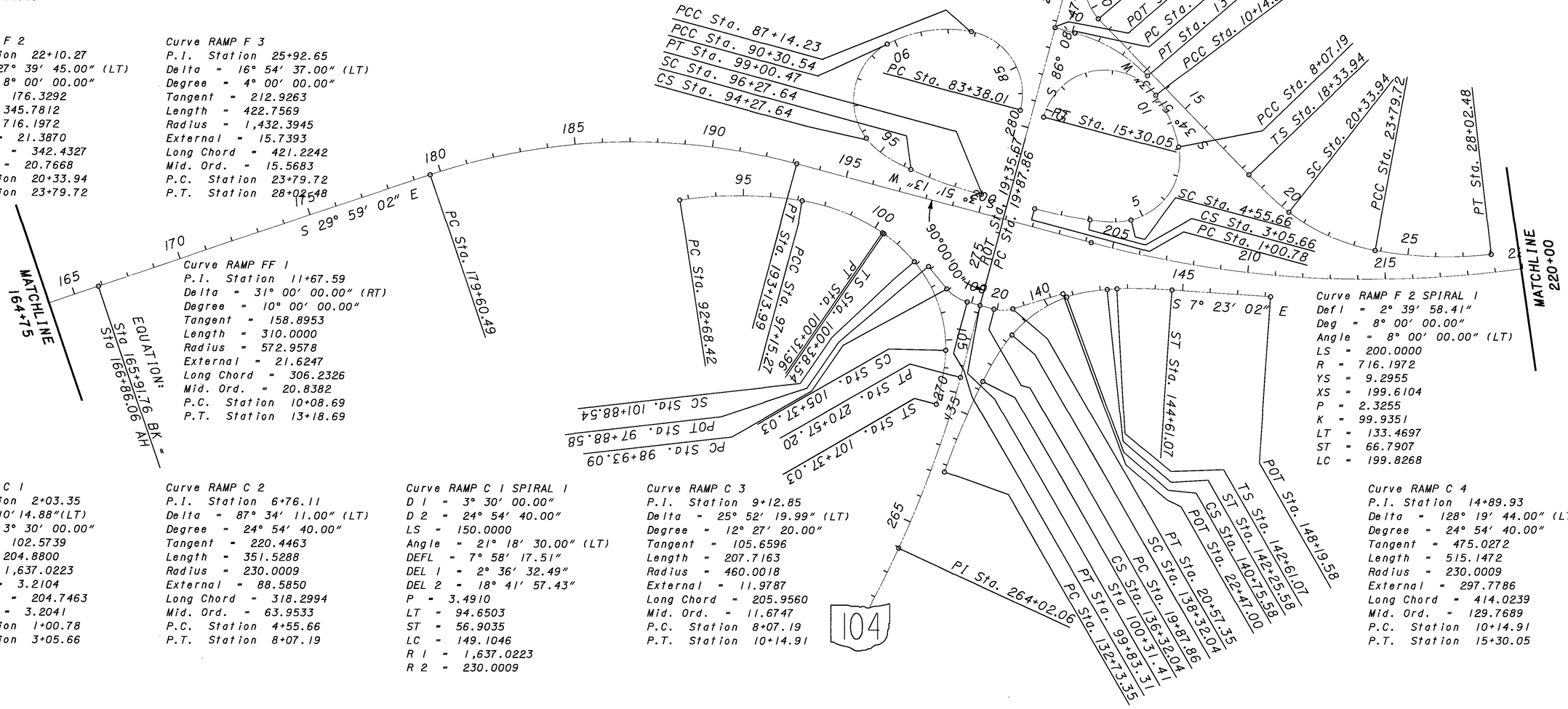
Curve RAMP C 1
P.I. Station 2+03.35
Delta = 7°10′14.88″(LT)
Degree = 3° 30′ 00.00″
Tangent = 102.5739
Length = 204.8800
Radius = 1,637.0223
External = 3.2104
Long Chord = 204.7463
Mid. Ord. = 3.2041
P.C. Station 1+00.78
P.T. Station 3+05.66

Curve RAMP C 2
P.I. Station 6+76.11
Delta = 87° 34′ 11.00″ (LT)
Degree = 24° 54′ 40.00″
Tangent = 220.4463
Length = 351.5288
Radius = 230.0009
External = 88.5850
Long Chord = 318.2994
Mid. Ord. = 63.9533
P.C. Station 4+55.66
P.T. Station 8+07.19

Curve RAMP C 1 SPIRAL 1
D 1 = 3° 30′ 00.00″
D 2 = 24° 54′ 40.00″
LS = 150.0000
Angle = 21° 18′ 30.00″ (LT)
DEFL = 7° 58′ 17.51″
DEL 1 = 2° 36′ 32.49″
DEL 2 = 18° 41′ 57.43″
P = 3.4910
LT = 94.6503
ST = 56.9035
LC = 149.1046
R 1 = 1,637.0223
R 2 = 230.0009

Curve RAMP C 3
P.I. Station 9+12.85
Delta = 25° 52′ 19.99″ (LT)
Degree = 12° 27′ 20.00″
Tangent = 105.6596
Length = 207.7163
Radius = 460.0018
External = 11.9787
Long Chord = 205.9560
Mid. Ord. = 11.6747
P.C. Station 8+07.19
P.T. Station 10+14.91

Curve RAMP C 4
P.I. Station 14+89.93
Delta = 128° 19′ 44.00″ (LT)
Degree = 24° 54′ 40.00″
Tangent = 475.0272
Length = 515.1472
Radius = 230.0009
External = 297.7786
Long Chord = 414.0239
Mid. Ord. = 129.7689
P.C. Station 10+14.91
P.T. Station 15+30.05



HORIZONTAL SCALE IN FEET
0 100 200 400

CALCULATED RDK / LW FAY / HG
CHECKED MATT

GEOMETRIC LAYOUT

FRA-33-20.69

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Curve RAMP D 1
P.I. Station 85+83.46
Delta = 93° 43′ 17.00″ (LT)
Degree = 24° 54′ 40.00″
Tangent = 245.4466
Length = 376.2232
Radius = 230.0009
External = 106.3686
Long Chord = 335.6603
Mid. Ord. = 72.7321
P.C. Station 83+38.01
P.T. Station 87+14.23
See Plan Sheet 5/??

Curve RAMP D 2
P.I. Station 88+78.93
Delta = 39° 23′ 52.00″ (LT)
Degree = 12° 27′ 20.00″
Tangent = 164.6944
Length = 316.3069
Radius = 460.0018
External = 28.5941
Long Chord = 310.1121
Mid. Ord. = 26.9206
P.C. Station 87+14.23
P.T. Station 90+30.54
See Plan Sheet 5/??

Curve RAMP D 3
P.I. Station 92+99.46
Delta = 98° 55′ 15.00″ (LT)
Degree = 24° 54′ 40.00″
Tangent = 268.9200
Length = 397.0952
Radius = 230.0009
External = 123.8612
Long Chord = 349.5816
Mid. Ord. = 80.5065
P.C. Station 90+30.54
P.T. Station 94+27.64
See Plan Sheet 5/??

Curve RAMP D 4 SPIRAL 1
D 1 = 3° 30′ 00.00″
D 2 = 24° 54′ 40.00″
LS = 200.0000
Angle = 28° 24′ 40.00″ (LT)
DEFL = 10° 37′ 19.90″
DEL 1 = 3° 27′ 43.82″
DEL 2 = 24° 56′ 55.87″
P = 6.1890
LT = 127.0607
ST = 76.6629
LC = 197.8809
R 1 = 1,637.0223
R 2 = 230.0009
See Plan Sheet 5/??

Curve RAMP D 4
P.I. Station 97+64.37
Delta = 9° 32′ 56.58″ (LT)
Degree = 3° 30′ 00.00″
Tangent = 136.7316
Length = 272.8300
Radius = 1,637.0223
External = 5.7003
Long Chord = 272.5144
Mid. Ord. = 5.6805
P.C. Station 96+27.64
P.T. Station 99+00.47
See Plan Sheet 5/??

Curve WB JAMES #1
SPIRAL 1 / C 1
Defl = 1° 39′ 59.61″
Deg = 4° 00′ 00.00″
Angle = 5° 00′ 00.00″ (RT)
LS = 250.0000
R = 1,432.3945
YS = 7.2683
XS = 249.8097
P = 1.8176
K = 124.9683
LT = 166.7332
ST = 83.3938
LC = 249.9154
See Plan Sheet 5/??

Curve WB JAMES #1 C 1
P.I. Station 117+62.12
Delta = 19° 25′ 00.00″ (RT)
Degree = 4° 00′ 00.00″
Tangent = 245.0581
Length = 485.4167
Radius = 1,432.3945
External = 20.8114
Long Chord = 483.0972
Mid. Ord. = 20.5134
P.C. Station 115+17.06
P.T. Station 120+02.48
See Plan Sheet 5/??

Curve WB JAMES #1
SPIRAL 2 / C 1
Defl = 1° 39′ 59.61″
Deg = 4° 00′ 00.00″
Angle = 5° 00′ 00.00″ (RT)
LS = 250.0000
R = 1,432.3945
YS = 7.2683
XS = 249.8097
P = 1.8176
K = 124.9683
LT = 166.7332
ST = 83.3938
LC = 249.9154
See Plan Sheet 5/??

Curve WB JAMES #1 C 2-1
P.I. Station 128+12.66
Delta = 0° 01′ 55.68″ (LT)
Degree = 2° 00′ 00.00″
Tangent = 0.8033
Length = 1.6067
Radius = 2,864.7890
External = 0.0001
Long Chord = 1.6067
Mid. Ord. = 0.0001
P.C. Station 128+11.85
P.T. Station 128+13.46
See Plan Sheet 5/??

Curve WB JAMES #1 C 2-2
P.I. Station 29+14.13
Delta = 4° 06′ 32.32″ (LT)
Degree = 2° 00′ 00.00″
Tangent = 102.7685
Length = 205.4489
Radius = 2,864.7890
External = 1.8427
Long Chord = 205.4049
Mid. Ord. = 1.8415
P.C. Station 28+11.36
P.T. Station 30+16.81
See Plan Sheet 5/??

Curve WB JAMES #1 C 3
P.I. Station 39+27.08
Delta = 64° 52′ 12.00″ (LT)
Degree = 4° 00′ 00.00″
Tangent = 910.2531
Length = 1,621.7500
Radius = 1,432.3945
External = 264.7545
Long Chord = 1,536.5080
Mid. Ord. = 223.4529
P.C. Station 30+16.82
P.T. Station 46+38.57
See Plan Sheet 5/??

Curve WB JAMES #1 C 4
P.I. Station 48+56.46
Delta = 8° 41′ 56.00″ (LT)
Degree = 2° 00′ 00.00″
Tangent = 217.8909
Length = 434.9444
Radius = 2,864.7890
External = 8.2743
Long Chord = 434.5268
Mid. Ord. = 8.2504
P.C. Station 46+38.57
P.T. Station 50+73.52
See Plan Sheet 5/??

Curve WB JAMES #2
SPIRAL 2 / C 5
Defl = 1° 39′ 59.61″
Deg = 4° 00′ 00.00″
Angle = 5° 00′ 00.00″ (RT)
LS = 250.0000
R = 1,432.3945
YS = 7.2683
XS = 249.8097
P = 1.8176
K = 124.9683
LT = 166.7332
ST = 83.3938
LC = 249.9154
See Plan Sheet 5/??

Curve WB JAMES #2 C 5
P.I. Station 117+45.83
Delta = 19° 25′ 00.00″ (RT)
Degree = 4° 00′ 00.00″
Tangent = 245.0581
Length = 485.4167
Radius = 1,432.3945
External = 20.8114
Long Chord = 483.0972
Mid. Ord. = 20.5134
P.C. Station = 115+00.77
P.T. Station = 119+86.19
See Plan Sheet 5/??

Curve WB JAMES #2
SPIRAL 2 / C 5
Defl = 1° 39′ 59.61″
Deg = 4° 00′ 00.00″
Angle = 5° 00′ 00.00″ (RT)
LS = 250.0000
R = 1,432.3945
YS = 7.2683
XS = 249.8097
P = 1.8176
K = 124.9683
LT = 166.7332
ST = 83.3938
LC = 249.9154
See Plan Sheet 5/??

Curve WB JAMES #2
SPIRAL 3 / C 6
Defl = 1° 59′ 59.33″
Deg = 4° 00′ 00.00″
Angle = 6° 00′ 00.00″ (LT)
LS = 300.0000
R = 1,432.3945
YS = 10.4638
XS = 299.6712
P = 2.6170
K = 149.9452
LT = 200.1150
ST = 100.1046
LC = 299.8538
See Plan Sheet 5/??

Curve WB JAMES #2 C 6
P.I. Station 135+39.33
Delta = 18° 02′ 48.00″ (LT)
Degree = 4° 00′ 00.00″
Tangent = 227.4670
Length = 451.1667
Radius = 1,432.3945
External = 17.9486
Long Chord = 449.3040
Mid. Ord. = 17.7265
P.C. Station 133+11.86
P.T. Station 137+63.03
See Plan Sheet 5/??

Curve WB JAMES #2
SPIRAL 4 / C 6
Defl = 1° 59′ 59.33″
Deg = 4° 00′ 00.00″
Angle = 6° 00′ 00.00″ (LT)
LS = 300.0000
R = 1,432.3945
YS = 10.4638
XS = 299.6712
P = 2.6170
K = 149.9452
LT = 200.1150
ST = 100.1046
LC = 299.8538
See Plan Sheet 5/??

HORIZONTAL SCALE IN FEET
0 100 200 400

CALCULATED RDK / LW FAY / HG
CHECKED MATT

GEOMETRIC LAYOUT

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Curve EB JAMES 1 SPIRAL 1
Defl = 5° 19′ 47.30″
Deg = 8° 00′ 00.00″
Angle = 16° 00′ 00.00″
LS = 400.0000
R = 716.1972
YS = 37.0268
XS = 396.8920
P = 9.2825
K = 199.4812
LT = 267.7641
ST = 134.3316
LC = 398.6154

Curve EB JAMES 1
P.I. Station 116+89.79
Delta = 24° 02′ 25.00″ (RT)
Degree = 8° 00′ 00.00″
Tangent = 152.4956
Length = 300.5035
Radius = 716.1972
External = 16.0550
Long Chord = 298.3040
Mid. Ord. = 15.7030
P.C. Station 115+37.29
P.T. Station 118+37.79

Curve EB JAMES 1 SPIRAL 2
Defl = 5° 19′ 47.30″
Deg = 8° 00′ 00.00″
Angle = 16° 00′ 00.00″ (RT)
K = 199.4812
R = 716.1972
YS = 37.0268
XS = 396.8920
P = 9.2825
K = 199.4812
LT = 267.7641
ST = 134.3316
LC = 398.6154

Curve EB JAMES 2 SPIRAL 3
Defl = 5° 19′ 47.30″
Deg = 8° 00′ 00.00″
Angle = 16° 00′ 00.00″
LS = 400.0000
R = 716.1972
YS = 37.0268
XS = 396.8920
P = 9.2825
K = 199.4812
LT = 267.7641
ST = 134.3316
LC = 398.6154

Curve EB JAMES 2
P.I. Station 135+15.98
Delta = 47° 04′ 32.00″ (LT)
Degree = 8° 00′ 00.00″
Tangent = 311.9731
Length = 588.4444
Radius = 716.1972
External = 64.9978
Long Chord = 572.0320
Mid. Ord. = 59.5898
P.C. Station 132+04.00
P.T. Station 137+92.45

Curve EB JAMES 2 SPIRAL 4
Defl = 5° 19′ 47.30″
Deg = 8° 00′ 00.00″
Angle = 16° 00′ 00.00″ (LT)
LS = 400.0000
R = 716.1972
YS = 37.0268
XS = 396.8920
P = 9.2825
K = 199.4812
LT = 267.7641
ST = 134.3316
LC = 398.6154

Curve RAVENSWOOD 1
P.I. Station 2+49.13
Delta = 25° 37′ 25.39″ (RT)
Degree = 27° 01′ 35.00″
Tangent = 48.2112
Length = 94.8100
Radius = 211.9994
External = 5.4128
Long Chord = 94.0219
Mid. Ord. = 5.2780
P.C. Station 2+00.92
P.T. Station 2+95.73

HORIZONTAL SCALE IN FEET
0 200 400
100

CALCULATED RBK / LW PAY / HG
CHECKED MATT

GEOMETRIC LAYOUT

FRA-33-20.69

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Curve US-33
P.I. Station 233+53.33
Delta = 73° 46′ 13.88″ (LT)
Degree = 1° 27′ 58.00″
Tangent = 2,932.6457
Length = 5,031.7142
Radius = 3,908.0107
External = 977.9854
Long Chord = 4,691.2893
Mid. Ord. = 782.2310
P.C. Station 204+20.68
P.T. Station 254+52.40

SUPERELEVATION RATE OF TRANSITION
WB STA. 253+50 TO WB STA. 254+50
RATE OF TRANSITION = 1:195 (NDC 1:233)

MATCHLINE 220+00

220 225 230 235 240 245 250 255 260 265 270 275

PT Sta. 254+52.40

CENTERLINE MONUMENT #5
STATION 254+51.96
ELEVATION 745.6530

CENTERLINE MONUMENT #6
STATION 261+91.69
ELEVATION 747.9890

S 69° 55′ 01″ E

CENTERLINE MONUMENT #7
STATION 269+91.68
ELEVATION 750.9960

MATCHLINE 275+00

270

CENTERLINE MONUMENT #9
STATION 288+92.33
ELEVATION 749.2430

CENTERLINE MONUMENT #8
STATION 275+97.93
ELEVATION 753.2730

275 280 285 290 295 300 305 310 315 320 325 330 335

94°04′10″ 1850

845

PC Sta. 283+22.48

PT Sta. 307+48.58

CENTERLINE MONUMENT #10
STATION 300+92.37
ELEVATION 743.7890

PC Sta. 322+74.48

S 34° 20′ 03″ E

CENTERLINE MONUMENT #11
STATION 322+76.58
ELEVATION 742.9120

MATCHLINE 335+00

270

SUPERELEVATION RATE OF TRANSITION
WB & EB STA. 306+00 TO WB & EB STA. 307+50
RATE OF TRANSITION = 1:201 (NDC 1:233)

Curve US-33
P.I. Station 295+76.08
Delta = 35° 34′ 58.28″ (RT)
Degree = 1° 28′ 00.00″
Tangent = 1,253.6051
Length = 2,426.1039
Radius = 3,906.5304
External = 196.2132
Long Chord = 2,387.3031
Mid. Ord. = 186.8294
P.C. Station 283+22.48
P.T. Station 307+48.58

Curve US-33
P.I. Station 330+35.05
Delta = 15° 07′ 23.28″ (LT)
Degree = 1° 00′ 00.00″
Tangent = 760.5775
Length = 1,512.3133
Radius = 5,729.5780
External = 50.2613
Long Chord = 1,507.9271
Mid. Ord. = 49.8242
P.C. Station 322+74.48
P.T. Station 337+86.79

0 100 200 400
HORIZONTAL SCALE IN FEET

CALCULATED RJK / LW
FAY / RG
CHECKED MATT

GEOMETRIC LAYOUT

FRA-33-20.69

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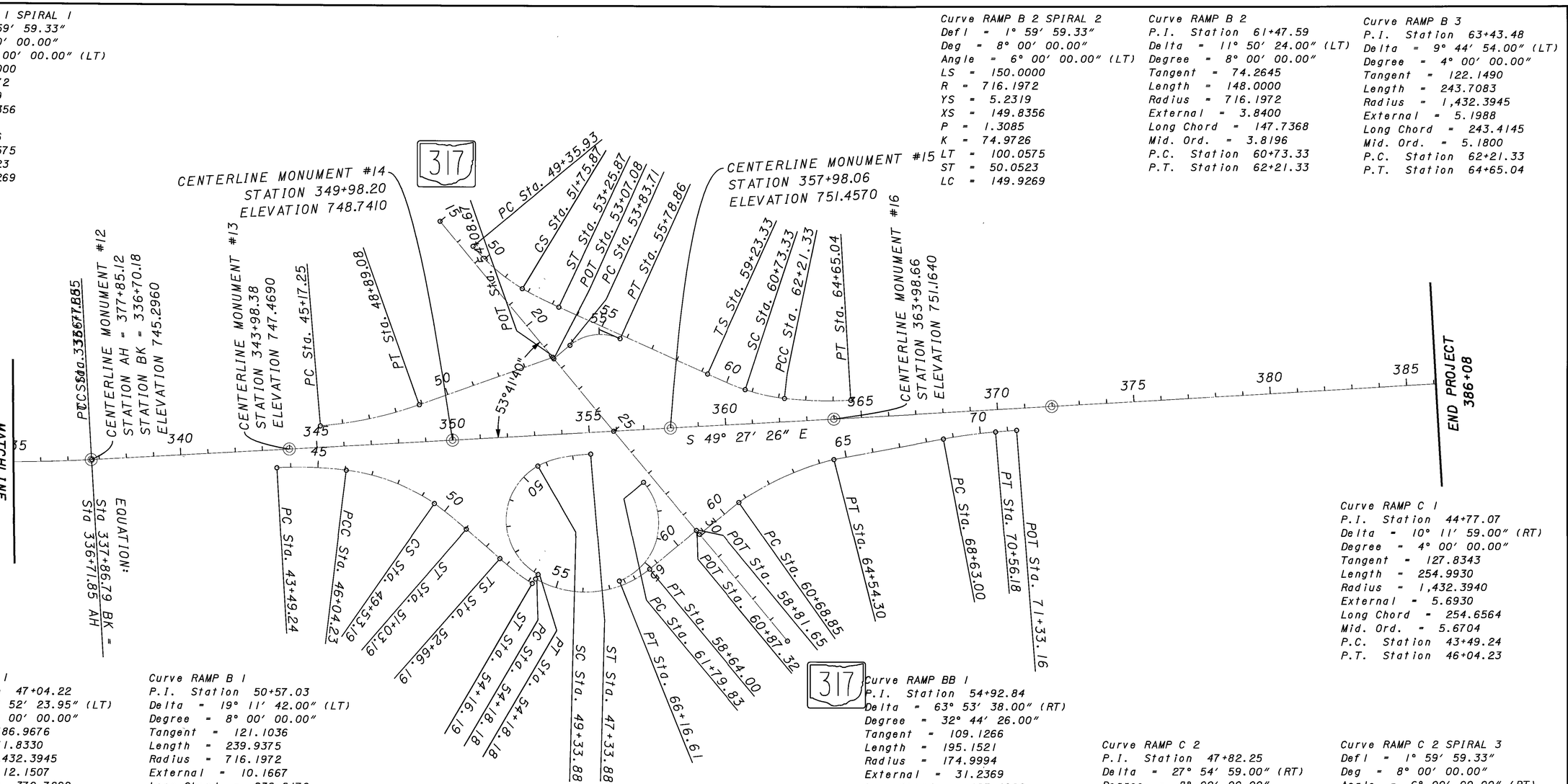

Curve RAMP B 1 SPIRAL 1
Defl = 1° 59′ 59.33″
Deg = 8° 00′ 00.00″
Angle = 6° 00′ 00.00″ (LT)
LS = 150.0000
R = 716.1972
YS = 5.2319
XS = 149.8356
P = 1.3085
K = 74.9726
LT = 100.0575
ST = 50.0523
LC = 149.9269

Curve RAMP B 2 SPIRAL 2
Defl = 1° 59′ 59.33″
Deg = 8° 00′ 00.00″
Angle = 6° 00′ 00.00″ (LT)
LS = 150.0000
R = 716.1972
YS = 5.2319
XS = 149.8356
P = 1.3085
K = 74.9726
LT = 100.0575
ST = 50.0523
LC = 149.9269

Curve RAMP B 2
P.I. Station 61+47.59
Delta = 11° 50′ 24.00″ (LT)
Degree = 8° 00′ 00.00″
Tangent = 74.2645
Length = 148.0000
Radius = 716.1972
External = 3.8400
Long Chord = 147.7368
Mid. Ord. = 3.8196
P.C. Station 60+73.33
P.T. Station 62+21.33

Curve RAMP B 3
P.I. Station 63+43.48
Delta = 9° 44′ 54.00″ (LT)
Degree = 4° 00′ 00.00″
Tangent = 122.1490
Length = 243.7083
Radius = 1,432.3945
External = 5.1988
Long Chord = 243.4145
Mid. Ord. = 5.1800
P.C. Station 62+21.33
P.T. Station 64+65.04

Curve RAMP C 1
P.I. Station 44+77.07
Delta = 10° 11′ 59.00″ (RT)
Degree = 4° 00′ 00.00″
Tangent = 127.8343
Length = 254.9930
Radius = 1,432.3940
External = 5.6930
Long Chord = 254.6564
Mid. Ord. = 5.6704
P.C. Station 43+49.24
P.T. Station 46+04.23

Curve RAMP A 1
P.I. Station 47+04.22
Delta = 14° 52′ 23.95″ (LT)
Degree = 4° 00′ 00.00″
Tangent = 186.9676
Length = 371.8330
Radius = 1,432.3945
External = 12.1507
Long Chord = 370.7899
Mid. Ord. = 12.0485
P.C. Station 45+17.25
P.T. Station 48+89.08

Curve RAMP B 1
P.I. Station 50+57.03
Delta = 19° 11′ 42.00″ (LT)
Degree = 8° 00′ 00.00″
Tangent = 121.1036
Length = 239.9375
Radius = 716.1972
External = 10.1667
Long Chord = 238.8170
Mid. Ord. = 10.0244
P.C. Station 49+35.93
P.T. Station 51+75.87

Curve RAMP BB 1
P.I. Station 54+92.84
Delta = 63° 53′ 38.00″ (RT)
Degree = 32° 44′ 26.00″
Tangent = 109.1266
Length = 195.1521
Radius = 174.9994
External = 31.2369
Long Chord = 185.1962
Mid. Ord. = 26.5057
P.C. Station 53+83.71
P.T. Station 55+78.86

Curve RAMP C 2
P.I. Station 47+82.25
Delta = 27° 54′ 59.00″ (RT)
Degree = 8° 00′ 00.00″
Tangent = 178.0131
Length = 348.9549
Radius = 716.1972
External = 21.7913
Long Chord = 345.5134
Mid. Ord. = 21.1479
P.C. Station 46+04.23
P.T. Station 49+53.19

Curve RAMP C 2 SPIRAL 3
Defl = 1° 59′ 59.33″
Deg = 8° 00′ 00.00″
Angle = 6° 00′ 00.00″ (RT)
LS = 150.0000
R = 716.1972
YS = 5.2319
XS = 149.8356
P = 1.3085
K = 74.9726
LT = 100.0575
ST = 50.0523
LC = 149.9269

Curve RAMP C SPIRAL 4
Defl = 3° 42′ 00.36″
Deg = 14° 48′ 18.40″
Angle = 11° 06′ 13.80″ (LT)
LS = 150.0000
R = 387.0000
YS = 9.6640
XS = 149.4376
P = 2.4192
K = 74.9062
LT = 100.1974
ST = 50.1795
LC = 149.7498

Curve RAMP CD 1
P.I. Station 56+72.95
Delta = 69° 19′ 04.00″ (LT)
Degree = 15° 32′ 54.00″
Tangent = 254.7713
Length = 445.8213
Radius = 368.5011
External = 79.4961
Long Chord = 419.1254
Mid. Ord. = 65.3897
P.C. Station 54+18.18
P.T. Station 58+64.00

Curve RAMP D 1 SPIRAL 5
Defl = 8° 17′ 25.28″
Deg = 24° 54′ 40.00″
Angle = 24° 54′ 40.00″
K = 99.3732
R = 230.0000
YS = 28.5964
XS = 196.2523
P = 7.1976
K = 99.3732
LT = 134.6779
ST = 67.8907
LC = 198.3247

Curve RAMP D 1
P.I. Station 53+37.48
Delta = 120° 38′ 40.00″ (LT)
Degree = 24° 54′ 40.00″
Tangent = 403.5981
Length = 484.2997
Radius = 230.0009
External = 234.5331
Long Chord = 399.6604
Mid. Ord. = 116.1225
P.C. Station 49+33.88
P.T. Station 54+18.18

Curve RAMP E 1
P.I. Station 65+01.13
Delta = 108° 48′ 21.00″ (RT)
Degree = 24° 54′ 40.00″
Tangent = 321.2964
Length = 436.7763
Radius = 230.0009
External = 165.1343
Long Chord = 374.0414
Mid. Ord. = 96.1216
P.C. Station 61+79.83
P.T. Station 66+16.61

Curve RAMP F 1
P.I. Station 62+63.74
Delta = 20° 52′ 43.74″ (RT)
Degree = 5° 25′ 00.16″
Tangent = 194.8873
Length = 385.4518
Radius = 1,057.7594
External = 17.8037
Long Chord = 383.3227
Mid. Ord. = 17.5090
P.C. Station 60+68.85
P.T. Station 64+54.30

Curve RAMP F 2
P.I. Station 69+59.68
Delta = 5° 57′ 34.09″ (RT)
Degree = 3° 05′ 05.50″
Tangent = 96.6793
Length = 193.1843
Radius = 1,857.3210
External = 2.5145
Long Chord = 193.0972
Mid. Ord. = 2.5111
P.C. Station 68+63.00
P.T. Station 70+56.18

HORIZONTAL SCALE IN FEET
0 100 200 400

CALCULATED RSK / JW FAY / KG
CHECKED MATT

GEOMETRIC LAYOUT

FRA-33-20.69

12
230

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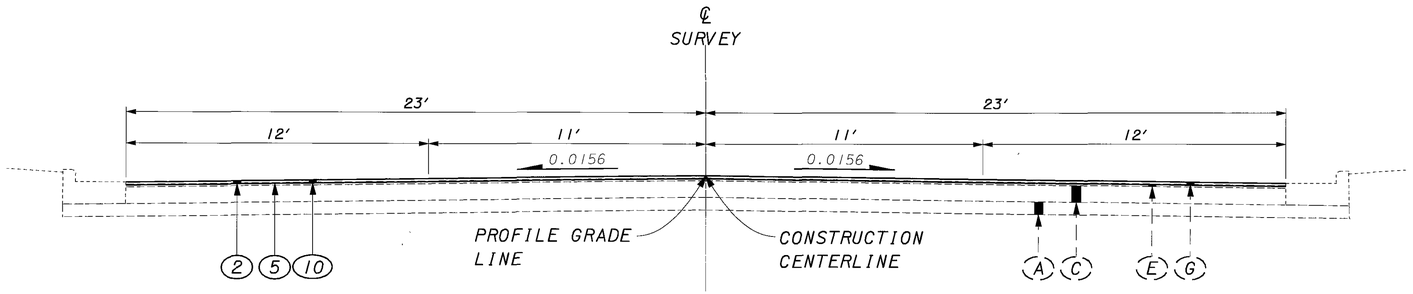
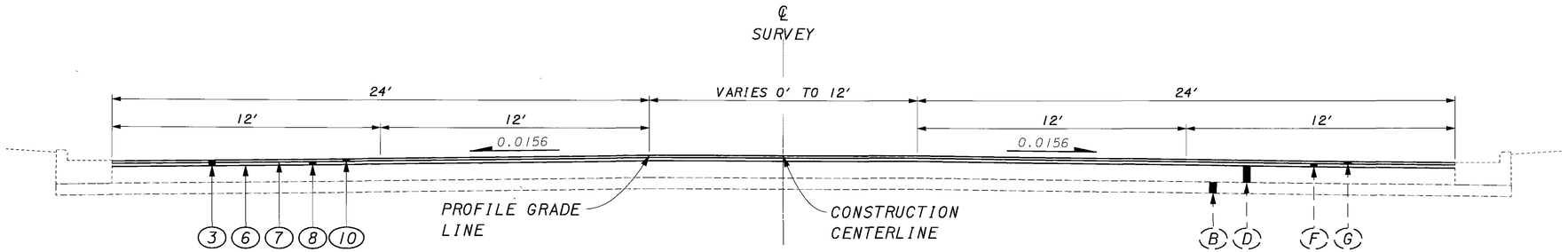
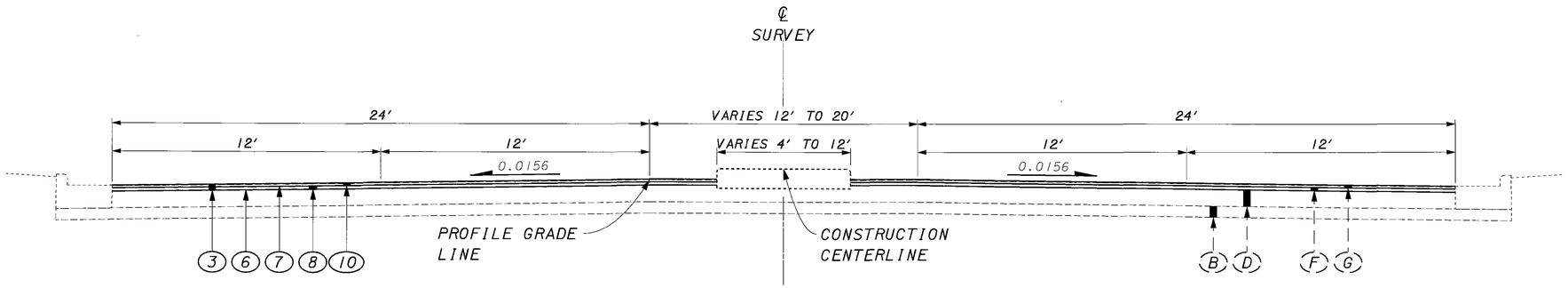


TYPICAL #1
WB & EB STA. 100+46.27 TO STA. 136+73.72 BK / 114+86.51 AH



TYPICAL #2
WB & EB 136+73.72 BK / 114+86.51 AH TO STA. 116+90.00



TYPICAL #3
WB & EB STA. 116+90.00 TO STA. 118+20.00

PROPOSED LEGEND

1. ITEM 204 - SUBGRADE COMPACTION
2. ITEM 254 - 1.5″ PAVEMENT PLANING, ASPHALT CONCRETE
3. ITEM 254 - 2.75″ PAVEMENT PLANING, ASPHALT CONCRETE
4. ITEM 301 - 9″ ASPHALT CONCRETE BASE, PG64-22
5. ITEM 407 - TACK COAT, @ 0.075 GAL. PER SY. YD.
6. ITEM 407 - TACK COAT, 702.13, @ 0.075 GAL. PER SY. YD.
7. ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE, @ 0.050 GAL. PER SY. YD.
8. ITEM 442 - 1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)
9. ITEM 442 - 3.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446) (2 LIFTS)
10. ITEM 442 - 1.5″ ASPHALT CONCRETE SURFACE COURSE, 12MM, TYPE A (446)
11. ITEM 617 - COMPACTED AGGREGATE, TYPE A
12. ITEM 254 - 3.0″ PAVEMENT PLANING, ASPHALT CONCRETE
13. ITEM 203 - 12.25″ EXCAVATION
14. ITEM 203 - 12.0″ EXCAVATION
15. ITEM 203 - 13.0″ EXCAVATION

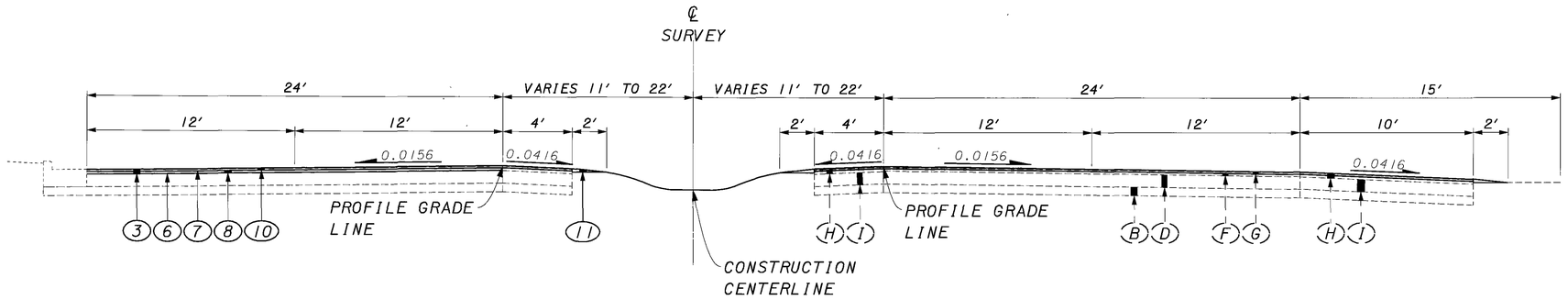
EXISTING LEGEND

- A. 6″ SUBBASE, TYPE II, AS PER PLAN
- B. SUBBASE, VARIABLE DEPTH, A OR B GRADING, AS PER PLAN
- C. 8″ CONCRETE BASE, AS PER PLAN
- D. 9″ REINFORCED CONCRETE PAVEMENT
- E. 1.25″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, AC-20
- F. 1.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20
- G. 1.25″ ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20
- H. 3″ WATERPROOFED AGGREGATE BASE COURSE
- I. POROUS BASE COURSE
- J. APPROACH SLAB
- K. 1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE

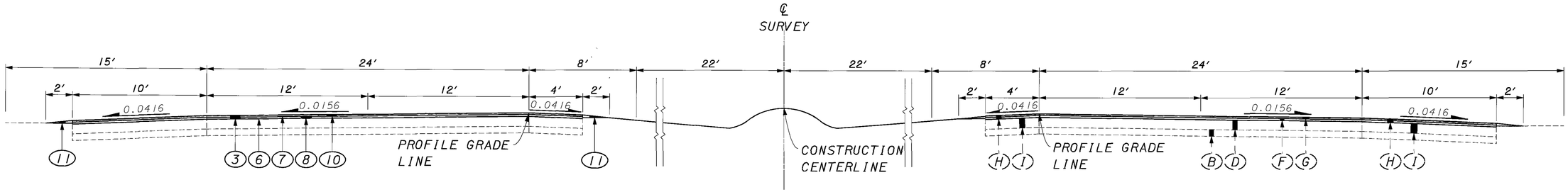
CALCULATED RDK / LW
PAY / HG
CHECKED MATT

TYPICAL SECTIONS

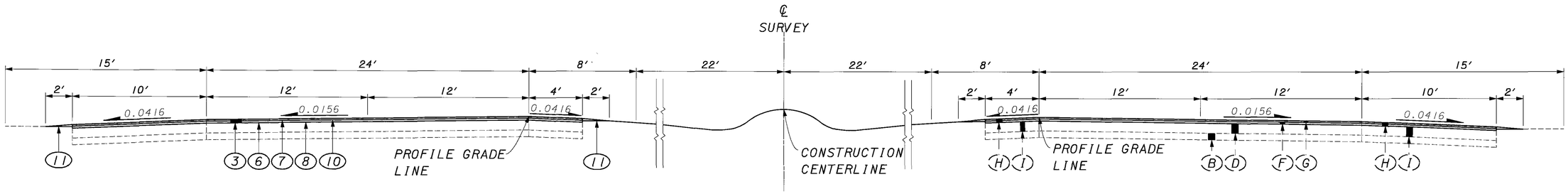
FRA-33-20.69



TYPICAL #4
WB & EB STA. 118+20.00 TO STA. 122+75.00



TYPICAL #5
WB & EB STA. 122+75.00 TO STA. 123+13.00



TYPICAL #6
EB STA. 123+13.00 TO STA. 125+35.00 / WB & EB STA. 131+33.00 TO STA. 132+20.00 / WB STA. 138+30.00 TO STA. 141+00.00
EB STA. 132+20.00 TO STA. 148+25.00 / EB STA. 153+30.00 TO STA. 157+60.00 / EB STA. 158+65.00 TO STA. 165+91.76 BK / 166+86.00 AH
*WB & EB STA. 157+60.00 TO STA. 158+65.00**/ WB & EB STA. 158+65.00 TO STA. 161+30.00** / WB STA. 161+30.00 TO STA. 165+91.76 BK / 166+86.00** AH*

***SEE TYPICAL #20*

PROPOSED LEGEND

(1) *ITEM 204 - SUBGRADE COMPACTION*
(2) *ITEM 254 - 1.5″ PAVEMENT PLANING, ASPHALT CONCRETE*
(3) *ITEM 254 - 2.75″ PAVEMENT PLANING, ASPHALT CONCRETE*
(4) *ITEM 301 - 9″ ASPHALT CONCRETE BASE, PG64-22*
(5) *ITEM 407 - TACK COAT, @ 0.075 GAL. PER SY. YD.*
(6) *ITEM 407 - TACK COAT, 702.13, @ 0.075 GAL. PER SY. YD.*
(7) *ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE, @ 0.050 GAL. PER SY. YD.*
(8) *ITEM 442 - 1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)*
(9) *ITEM 442 - 3.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446) (2 LIFTS)*
(10) *ITEM 442 - 1.5″ ASPHALT CONCRETE SURFACE COURSE, 12MM, TYPE A (446)*
(11) *ITEM 617 - COMPACTED AGGREGATE, TYPE A*
(12) *ITEM 254 - 3.0″ PAVEMENT PLANING, ASPHALT CONCRETE*
(13) *ITEM 203 - 12.25″ EXCAVATION*
(14) *ITEM 203 - 12.0″ EXCAVATION*
(15) *ITEM 203 - 13.0″ EXCAVATION*

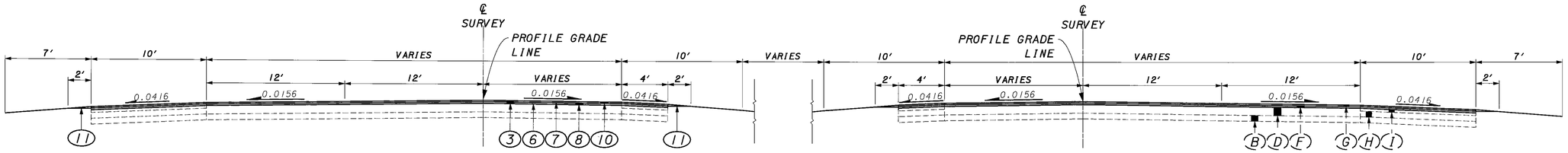
EXISTING LEGEND

(A) *6″ SUBBASE, TYPE II, AS PER PLAN*
(B) *SUBBASE, VARIABLE DEPTH, A OR B GRADING, AS PER PLAN*
(C) *8″ CONCRETE BASE, AS PER PLAN*
(D) *9″ REINFORCED CONCRETE PAVEMENT*
(E) *1.25″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, AC-20*
(F) *1.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20*
(G) *1.25″ ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20*
(H) *3″ WATERPROOFED AGGREGATE BASE COURSE*
(I) *POROUS BASE COURSE*
(J) *APPROACH SLAB*
(K) *1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE*

CALCULATED RDK / JW
PAY / HG
CHECKED MATT

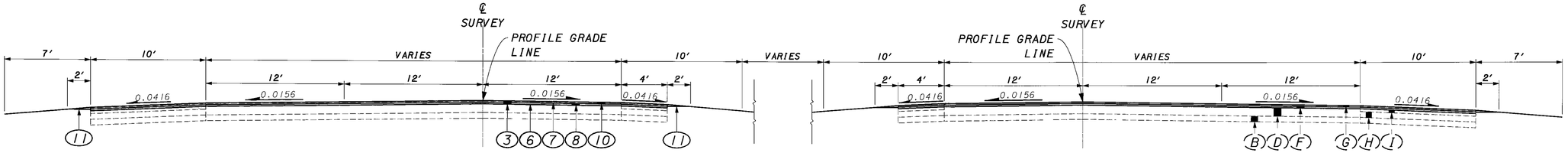
TYPICAL SECTIONS

FRA-33-20.69



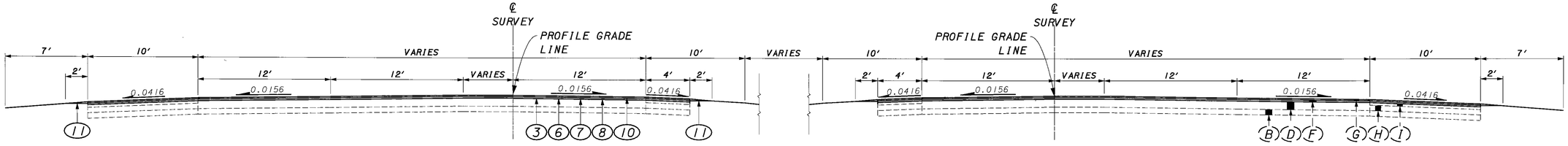
TYPICAL #7

WB STA. 125+03.00 TO WB STA. 125+65.00 / EB STA. 125+35.00 TO EB STA. 126+25.00 / WB STA. 137+40.00 TO WB STA. 138+30.00 / EB STA. 153+30.00 TO EB STA. 157+60.00
*WB STA. 158+65.00 TO WB STA. 161+30.00***



TYPICAL #8

WB STA. 125+65.00 TO WB STA. 130+85.00 / EB STA. 126+25.00 TO EB STA. 128+25.00 / WB STA. 135+25.00 TO WB STA. 137+40.00



TYPICAL #9

EB STA. 128+25.00 TO EB STA. 131+33.00 / WB STA. 132+20.00 TO WB STA. 132+65.00 / WB STA. 132+65.00 TO WB STA. 135+25.00

***SEE TYPICAL #20*

PROPOSED LEGEND

(1) *ITEM 204 - SUBGRADE COMPACTION*
(2) *ITEM 254 - 1.5″ PAVEMENT PLANING, ASPHALT CONCRETE*
(3) *ITEM 254 - 2.75″ PAVEMENT PLANING, ASPHALT CONCRETE*
(4) *ITEM 301 - 9″ ASPHALT CONCRETE BASE, PG64-22*
(5) *ITEM 407 - TACK COAT, @ 0.075 GAL. PER SY. YD.*
(6) *ITEM 407 - TACK COAT, 702.13, @ 0.075 GAL. PER SY. YD.*
(7) *ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE, @ 0.050 GAL. PER SY. YD.*
(8) *ITEM 442 - 1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)*
(9) *ITEM 442 - 3.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446) (2 LIFTS)*
(10) *ITEM 442 - 1.5″ ASPHALT CONCRETE SURFACE COURSE, 12MM, TYPE A (446)*
(11) *ITEM 617 - COMPACTED AGGREGATE, TYPE A*
(12) *ITEM 254 - 3.0″ PAVEMENT PLANING, ASPHALT CONCRETE*
(13) *ITEM 203 - 12.25″ EXCAVATION*
(14) *ITEM 203 - 12.0″ EXCAVATION*
(15) *ITEM 203 - 13.0″ EXCAVATION*

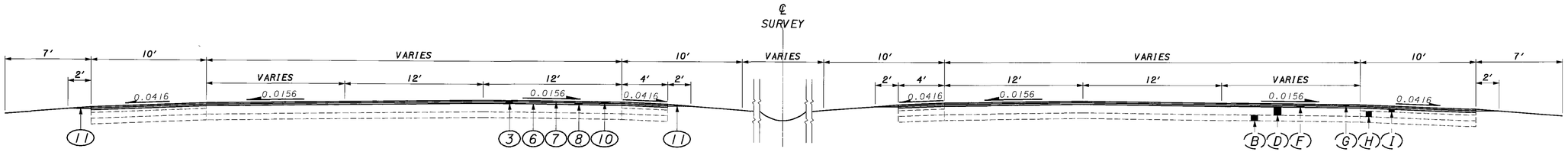
EXISTING LEGEND

(A) *6″ SUBBASE, TYPE II, AS PER PLAN*
(B) *SUBBASE, VARIABLE DEPTH, A OR B GRADING, AS PER PLAN*
(C) *8″ CONCRETE BASE, AS PER PLAN*
(D) *9″ REINFORCED CONCRETE PAVEMENT*
(E) *1.25″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, AC-20*
(F) *1.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20*
(G) *1.25″ ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20*
(H) *3″ WATERPROOFED AGGREGATE BASE COURSE*
(I) *POROUS BASE COURSE*
(J) *APPROACH SLAB*
(K) *1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE*

CALCULATED RDK / LW
FAY / HG
CHECKED MATT

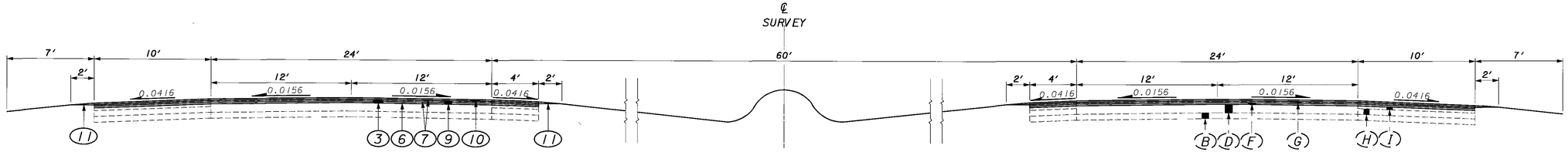
TYPICAL SECTIONS

FRA-33-20.69



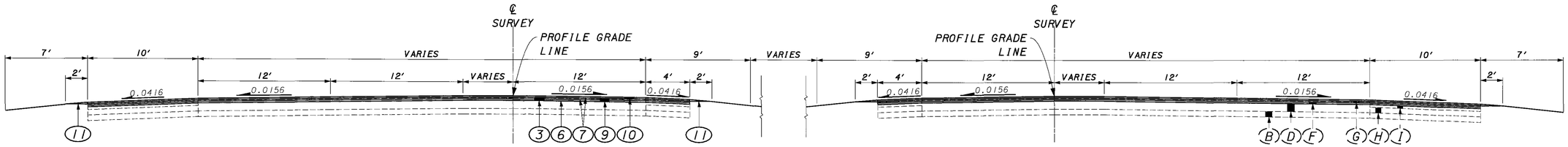
TYPICAL #10

WB STA. 141+00.00 TO WB STA. 149+10.00 / EB STA. 148+25.00 TO EB STA. 151+25.00 / WB STA. 153+30.00 TO WB STA. 157+60.00 / EB STA. 338+00.00 TO EB STA. 339+00.00



TYPICAL #11

EB STA. US-33 199+00.00 TO EB STA.STA. 208+90.00 / WB STA. 204+75.00 TO WB STA. 215+55.00 / WB STA. 223+65.00 TO WB STA. 272+50.00
EB STA. 220+00.00 TO EB STA. 272+50.00 / WB STA. 282+45.00 TO WB STA. 289+75.00 / EB STA. 280+65.00 TO EB STA. 289+15.00 / WB STA. 297+80.00 TO WB STA. 303+50.00
EB STA. 298+00.00 TO EB STA. 303+45.00 / WB STA. 315+04.00 TO WB STA. 337+00.00 / EB STA. 314+34.00 TO EB STA. 337+86.76 BK / 336+71.85 AH
EB STA. 337+86.76 BK / 336+71.85 AH TO EB STA. 338+00.00 / WB STA. 346+75.00 TO WB STA. 362+05.00 / EB STA. 346+15.00 TO EB STA. 353+55.00



TYPICAL #12

*EB STA. 165+91.76 BK / 166+86.00 AH TO EB STA. 171+30.00 / EB STA. 182+25.00 TO EB STA. 189+00.00 / WB STA. 165+91.76 BK / 166+86.00 AH TO WB STA. 169+25.00***

***SEE TYPICAL #20*

PROPOSED LEGEND

1. *ITEM 204 - SUBGRADE COMPACTION*
2. *ITEM 254 - 1.5″ PAVEMENT PLANING, ASPHALT CONCRETE*
3. *ITEM 254 - 2.75″ PAVEMENT PLANING, ASPHALT CONCRETE*
4. *ITEM 301 - 9″ ASPHALT CONCRETE BASE, PG64-22*
5. *ITEM 407 - TACK COAT, @ 0.075 GAL. PER SY. YD.*
6. *ITEM 407 - TACK COAT, 702.13, @ 0.075 GAL. PER SY. YD.*
7. *ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE, @ 0.050 GAL. PER SY. YD.*
8. *ITEM 442 - 1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)*
9. *ITEM 442 - 3.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446) (2 LIFTS)*
10. *ITEM 442 - 1.5″ ASPHALT CONCRETE SURFACE COURSE, 12MM, TYPE A (446)*
11. *ITEM 617 - COMPACTED AGGREGATE, TYPE A*
12. *ITEM 254 - 3.0″ PAVEMENT PLANING, ASPHALT CONCRETE*
13. *ITEM 203 - 12.25″ EXCAVATION*
14. *ITEM 203 - 12.0″ EXCAVATION*
15. *ITEM 203 - 13.0″ EXCAVATION*

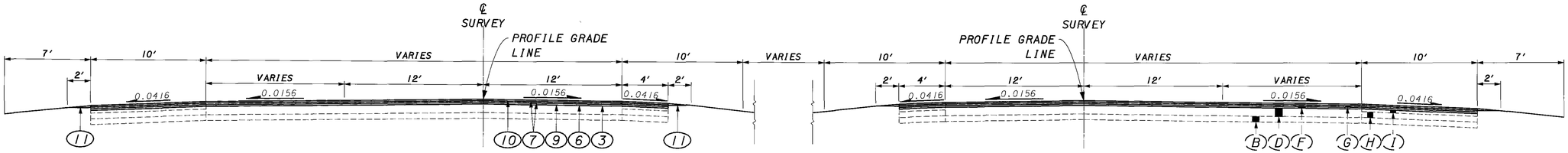
EXISTING LEGEND

- A. *6″ SUBBASE, TYPE II, AS PER PLAN*
- B. *SUBBASE, VARIABLE DEPTH, A OR B GRADING, AS PER PLAN*
- C. *8″ CONCRETE BASE, AS PER PLAN*
- D. *9″ REINFORCED CONCRETE PAVEMENT*
- E. *1.25″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, AC-20*
- F. *1.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20*
- G. *1.25″ ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20*
- H. *3″ WATERPROOFED AGGREGATE BASE COURSE*
- I. *POROUS BASE COURSE*
- J. *APPROACH SLAB*
- K. *1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE*

CALCULATED RDK / LW
PAY / HG
CHECKED MATT

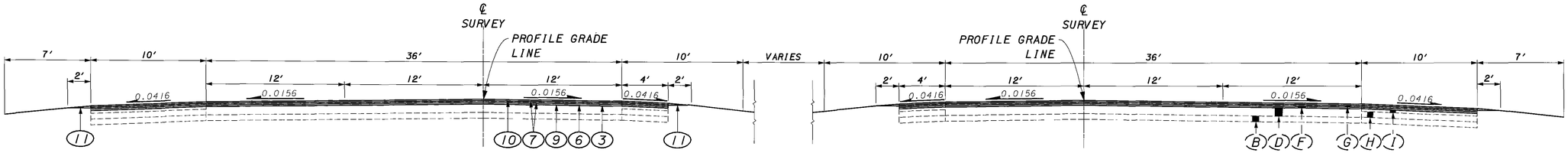
TYPICAL SECTIONS

FRA-33-20.69



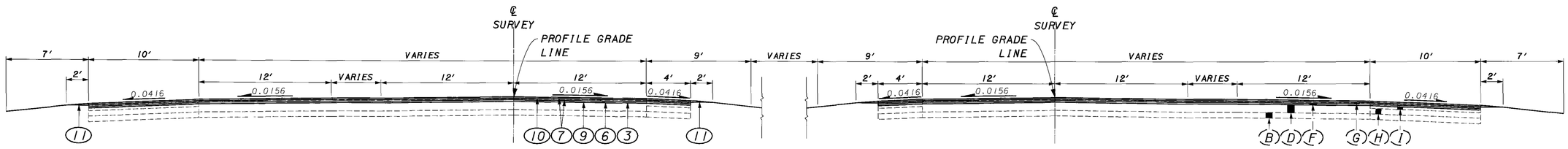
TYPICAL #13

WB STA. 222+00.00 TO WB STA. 223+65.00 / EB STA. 272+50.00 TO EB STA. 273+70.00 / EB STA. 338+00.00 TO EB STA. 339+00.00 / EB STA. 306+92.00 EB STA. 307+65.00
WB STA. 190+25.00 TO WB STA. 191+00.00**



TYPICAL #14

WB STA. 201+32.26 TO WB STA. 202+60.00 / WB STA. 218+30.00 TO WB STA. 222+00.00 / EB STA. 273+70.00 TO EB STA. 277+65.00 / WB STA. 291+30.00 TO WB STA. 296+25.00
EB STA. 290+85.00 TO EB STA. 295+70.00 / WB STA. 306+10.00 TO WB STA. 307+65.00 / EB STA. 339+00.00 TO EB STA. 343+75.00 / EB STA. 305+10.00 TO EB STA. 306+92.00
WB STA. 187+00.00 TO WB STA. 190+25.00** / WB STA. 198+10.00 TO WB STA. 201+32.26**



TYPICAL #15

EB STA. 189+00.00 TO EB STA. 193+75.00 / WB STA. 202+60.00 TO WB STA. 204+75.00 / EB STA. 208+90.00 TO EB STA. 220+00.00 / WB STA. 215+15.00 TO WB STA. 218+30.00
WB STA. 272+50.00 TO WB STA. 275+90.00 / WB STA. 275+90.00 TO WB STA. 282+45.00 / EB STA. 277+65.00 TO EB STA. 280+65.00 / WB STA. 289+75.00 TO WB STA. 291+30.00
WB STA. 296+25.00 TO WB STA. 297+80.00 / EB STA. 289+15.00 TO EB STA. 290+85.00 / WB STA. 337+00.00 TO WB STA. 337+86.00 / WB STA. 337+86.00 TO WB STA. 346+75.00
EB STA. 343+75.00 TO EB STA. 346+15.00 / WB STA. 362+05.00 TO WB STA. 364+25.00 / EB STA. 303+45.00 TO EB STA. 305+10.00 / EB STA. 353+55.00 TO EB STA. 364+25.00
WIN PIKE STA 195+00.00 TO JAMES RD. #1 STA. 197+00.00 / WB STA. 183+85.00 TO WB STA. 187+00.00** / WB STA. 195+65.00 TO WB STA. 198+10.00**

**SEE TYPICAL #20

PROPOSED LEGEND

1. ITEM 204 - SUBGRADE COMPACTION
2. ITEM 254 - 1.5″ PAVEMENT PLANING, ASPHALT CONCRETE
3. ITEM 254 - 2.75″ PAVEMENT PLANING, ASPHALT CONCRETE
4. ITEM 301 - 9″ ASPHALT CONCRETE BASE, PG64-22
5. ITEM 407 - TACK COAT, @ 0.075 GAL. PER SY. YD.
6. ITEM 407 - TACK COAT, 702.13, @ 0.075 GAL. PER SY. YD.
7. ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE, @ 0.050 GAL. PER SY. YD.
8. ITEM 442 - 1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)
9. ITEM 442 - 3.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446) (2 LIFTS)
10. ITEM 442 - 1.5″ ASPHALT CONCRETE SURFACE COURSE, 12MM, TYPE A (446)
11. ITEM 617 - COMPACTED AGGREGATE, TYPE A
12. ITEM 254 - 3.0″ PAVEMENT PLANING, ASPHALT CONCRETE
13. ITEM 203 - 12.25″ EXCAVATION
14. ITEM 203 - 12.0″ EXCAVATION
15. ITEM 203 - 13.0″ EXCAVATION

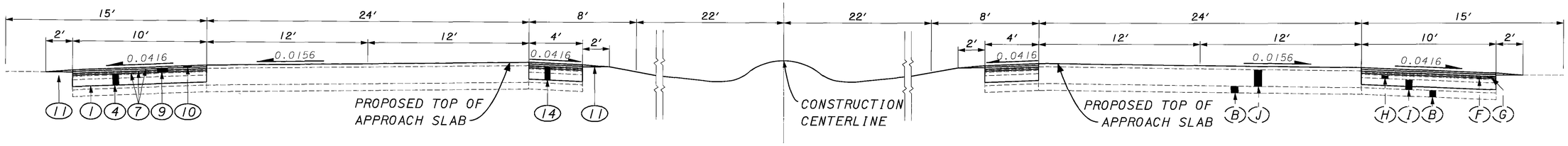
EXISTING LEGEND

A. 6″ SUBBASE, TYPE II, AS PER PLAN
B. SUBBASE, VARIABLE DEPTH, A OR B GRADING, AS PER PLAN
C. 8″ CONCRETE BASE, AS PER PLAN
D. 9″ REINFORCED CONCRETE PAVEMENT
E. 1.25″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, AC-20
F. 1.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20
G. 1.25″ ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20
H. 3″ WATERPROOFED AGGREGATE BASE COURSE
I. POROUS BASE COURSE
J. APPROACH SLAB
K. 1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE

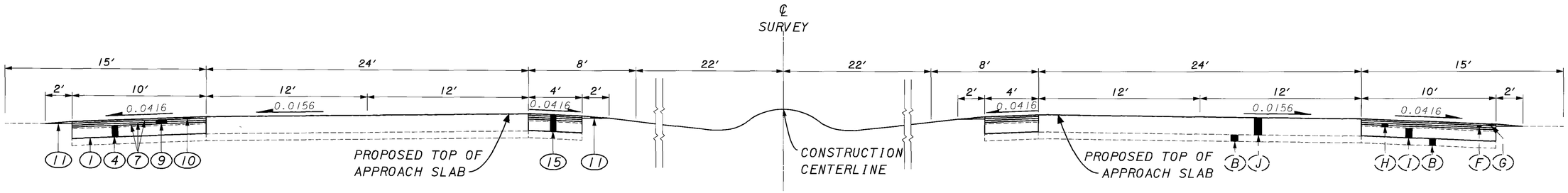
CALCULATED RDK / LW
PAY / HG
CHECKED MATT

TYPICAL SECTIONS

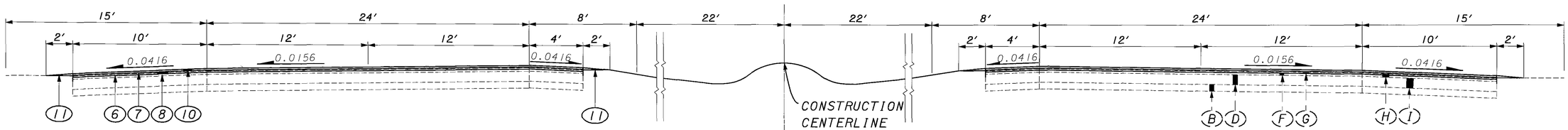
FRA-33-20.69



TYPICAL #16
SHOULDERS ONLY
WB & EB STA. 307+64.79 TO STA. 307+89.79 / WB & EB STA. 308+82.29 TO STA. 309+07.29



TYPICAL #17
SHOULDERS ONLY
EB STA. 310+80.58 TO STA. 311+05.58 / EB STA. 314+08.76 TO STA. 314+33.76
WB STA. 311+51.07 TO STA. 311+76.07 / WB STA. 314+79.25 TO STA. 315+04.25



TYPICAL #18
EB STA. 309+07.29 TO SB STA. 310+80.58
WB STA. 309+07.29 TO WB STA. 311+51.07

PROPOSED LEGEND

(1) ITEM 204 - SUBGRADE COMPACTION
(2) ITEM 254 - 1.5″ PAVEMENT PLANING, ASPHALT CONCRETE
(3) ITEM 254 - 2.75″ PAVEMENT PLANING, ASPHALT CONCRETE
(4) ITEM 301 - 9″ ASPHALT CONCRETE BASE, PG64-22
(5) ITEM 407 - TACK COAT, @ 0.075 GAL. PER SY. YD.
(6) ITEM 407 - TACK COAT, 702.13, @ 0.075 GAL. PER SY. YD.
(7) ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE, @ 0.050 GAL. PER SY. YD.
(8) ITEM 442 - 1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)
(9) ITEM 442 - 3.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446) (2 LIFTS)
(10) ITEM 442 - 1.5″ ASPHALT CONCRETE SURFACE COURSE, 12MM, TYPE A (446)
(11) ITEM 617 - COMPACTED AGGREGATE, TYPE A
(12) ITEM 254 - 3.0″ PAVEMENT PLANING, ASPHALT CONCRETE
(13) ITEM 203 - 12.25″ EXCAVATION
(14) ITEM 203 - 12.0″ EXCAVATION
(15) ITEM 203 - 13.0″ EXCAVATION

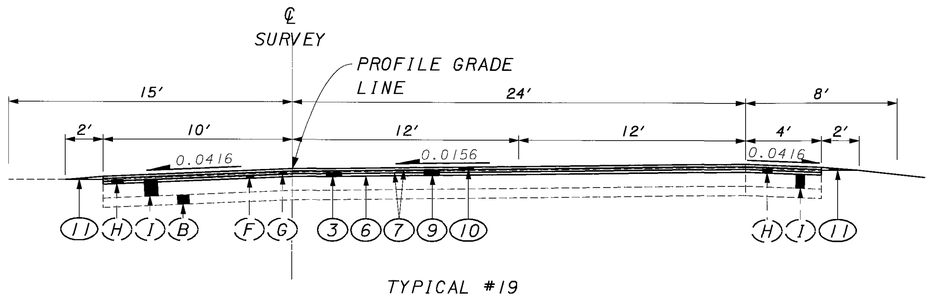
EXISTING LEGEND

(A) 6″ SUBBASE, TYPE II, AS PER PLAN
(B) SUBBASE, VARIABLE DEPTH, A OR B GRADING, AS PER PLAN
(C) 8″ CONCRETE BASE, AS PER PLAN
(D) 9″ REINFORCED CONCRETE PAVEMENT
(E) 1.25″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, AC-20
(F) 1.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20
(G) 1.25″ ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20
(H) 3″ WATERPROOFED AGGREGATE BASE COURSE
(I) POROUS BASE COURSE
(J) APPROACH SLAB
(K) 1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE

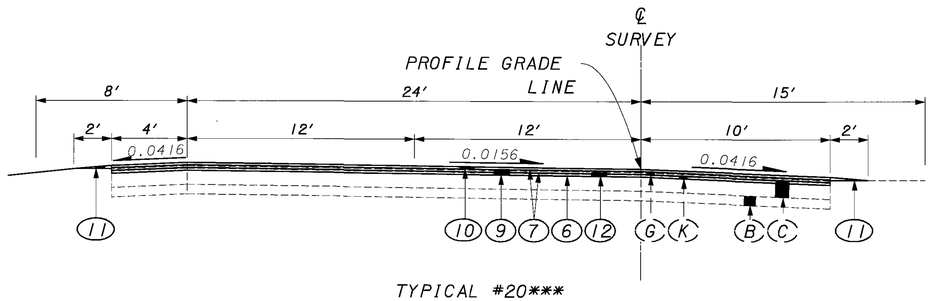
CALCULATED RDK / LW PAT / HG
CHECKED Matt

TYPICAL SECTIONS

FRA-33-20.69



TYPICAL #19
EASTBOUND DIRECTIONAL ROADWAY
STA. 171+30.00 TO STA. 182+25.00 / STA. 193+75.00 TO 198+10.00



TYPICAL #20***
WESTBOUND DIRECTIONAL ROADWAY
STA. 169+25.00 TO STA. 183+85.00 / STA. 191+00.00 TO STA. 195+65.00
STA. 175+28.98 TO STA. 186+76.27 [12′ (NDC 13.75′)]

***THE EXISTING PAVEMENT COURSE DEPTH AND PROPOSED 3.0″ PLANING IS REPRESENTATIVE OF THE WESTBOUND ROADWAY FROM SLM 22.11 TO SLM 23.01

PROPOSED LEGEND

(1) ITEM 204 - SUBGRADE COMPACTION
(2) ITEM 254 - 1.5″ PAVEMENT PLANING, ASPHALT CONCRETE
(3) ITEM 254 - 2.75″ PAVEMENT PLANING, ASPHALT CONCRETE
(4) ITEM 301 - 9″ ASPHALT CONCRETE BASE, PG64-22
(5) ITEM 407 - TACK COAT, @ 0.075 GAL. PER SY. YD.
(6) ITEM 407 - TACK COAT, 702.13, @ 0.075 GAL. PER SY. YD.
(7) ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE, @ 0.050 GAL. PER SY. YD.
(8) ITEM 442 - 1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)
(9) ITEM 442 - 3.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446) (2 LIFTS)
(10) ITEM 442 - 1.5″ ASPHALT CONCRETE SURFACE COURSE, 12MM, TYPE A (446)
(11) ITEM 617 - COMPACTED AGGREGATE, TYPE A
(12) ITEM 254 - 3.0″ PAVEMENT PLANING, ASPHALT CONCRETE
(13) ITEM 203 - 12.25″ EXCAVATION
(14) ITEM 203 - 12.0″ EXCAVATION
(15) ITEM 203 - 13.0″ EXCAVATION

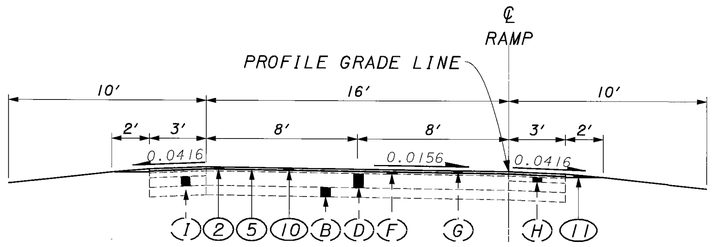
EXISTING LEGEND

(A) 6″ SUBBASE, TYPE II, AS PER PLAN
(B) SUBBASE, VARIABLE DEPTH, A OR B GRADING, AS PER PLAN
(C) 8″ CONCRETE BASE, AS PER PLAN
(D) 9″ REINFORCED CONCRETE PAVEMENT
(E) 1.25″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, AC-20
(F) 1.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20
(G) 1.25″ ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20
(H) 3″ WATERPROOFED AGGREGATE BASE COURSE
(I) POROUS BASE COURSE
(J) APPROACH SLAB
(K) 1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE

CALCULATED RDK / LW FAY / HG
CHECKED MATT

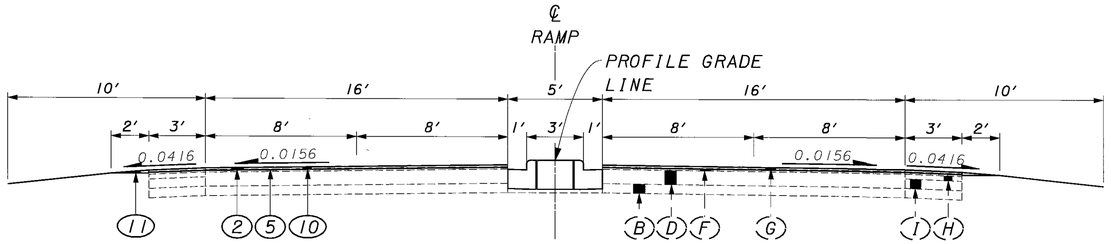
TYPICAL SECTIONS

FRA-33-20.69

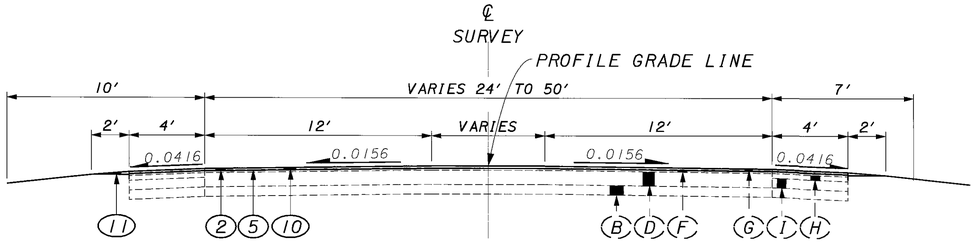


TYPICAL #21

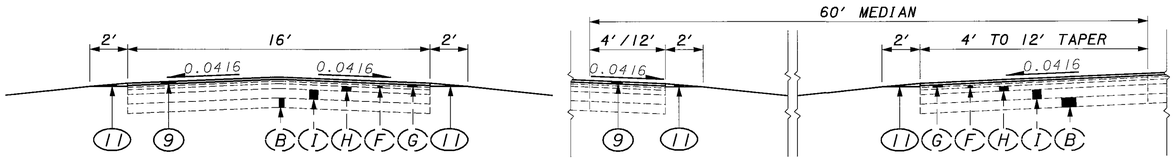
REFUGEE RD. RAMPS A, AA, B, BB, C, F, FF / REFUGEE RD. RAMP D STA. 84+13.00 TO STA. 94+58.50
NB JAMES RD. #2 STA. 136+37.50 TO STA. 131+60.00 / NB JAMES RD. #1 STA. 31+55.00 TO STA. 46+93.00
HAMILTON RD. RAMPS G, H, HH, I, J, L / SB JAMES RD. STA. 138+05.00 TO STA. 140+90.00
REFUGEE RD. RAMP D STA. 95+71.00 TO 94+58.50** / NB JAMES RD. #2 STA. 137+50.00 TO STA. 136+37.50**
WIN. PIKE RD. LINE A STA. 168+25.00 TO STA. 169+37.50 / 270 RAMP A STA. 49+51.75 TO STA. 48+39.25
270 RAMP B STA. 94+07.00 TO STA. 92+94.50 / 270 RAMP D STA. 48+26.67 TO STA. 47+13.50
270 RAMP E STA. 58+23.19 TO STA. 57+10.69 / 270 RAMP F STA. 54+67.78 TO STA. 53+55.28
270 RAMP G STA. 56+40.94 TO STA. 55+28.44 / 270 RAMP H STA. 59+95.22 TO STA. 58+82.72



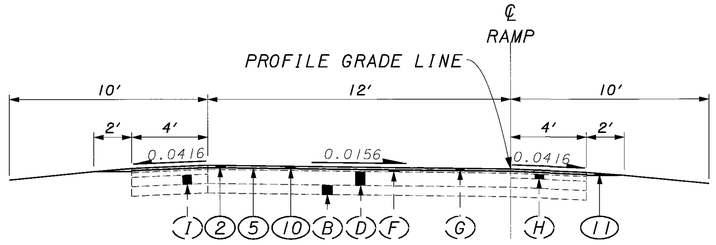
TYPICAL #23
HAMILTON ROAD RAMP IJ



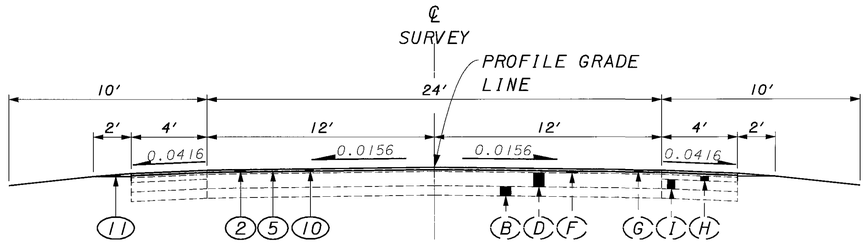
TYPICAL #25
WIN. PIKE RD. LINE A & LINE B STA. 170+90.00 TO STA. 177+68.00
WIN. PIKE RD. STA. 192+00.00 TO STA. 204+50.00
NB JAMES RD. #1 STA. 127+00.00 TO STA. 31+55.00



TYPICAL #22
PAVED CROSSOVERS



TYPICAL #24
WIN. PIKE RD. LINE A STA. 168+25.00 TO STA. 170+90.00 (WB)
WIN. PIKE RD. LINE B STA. 170+35.00 TO STA. 170+90.00



TYPICAL #26
WIN. PIKE RD. STA. 177+68.00 TO STA. 192+00.00

**SEE TYPICAL #20

PROPOSED LEGEND

(1) ITEM 204 - SUBGRADE COMPACTION
(2) ITEM 254 - 1.5″ PAVEMENT PLANING, ASPHALT CONCRETE
(3) ITEM 254 - 2.75″ PAVEMENT PLANING, ASPHALT CONCRETE
(4) ITEM 301 - 9″ ASPHALT CONCRETE BASE, PG64-22
(5) ITEM 407 - TACK COAT, @ 0.075 GAL. PER SY. YD.
(6) ITEM 407 - TACK COAT, 702.13, @ 0.075 GAL. PER SY. YD.
(7) ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE, @ 0.050 GAL. PER SY. YD.
(8) ITEM 442 - 1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)
(9) ITEM 442 - 3.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446) (2 LIFTS)
(10) ITEM 442 - 1.5″ ASPHALT CONCRETE SURFACE COURSE, 12MM, TYPE A (446)
(11) ITEM 617 - COMPACTED AGGREGATE, TYPE A
(12) ITEM 254 - 3.0″ PAVEMENT PLANING, ASPHALT CONCRETE
(13) ITEM 203 - 12.25″ EXCAVATION
(14) ITEM 203 - 12.0″ EXCAVATION
(15) ITEM 203 - 13.0″ EXCAVATION

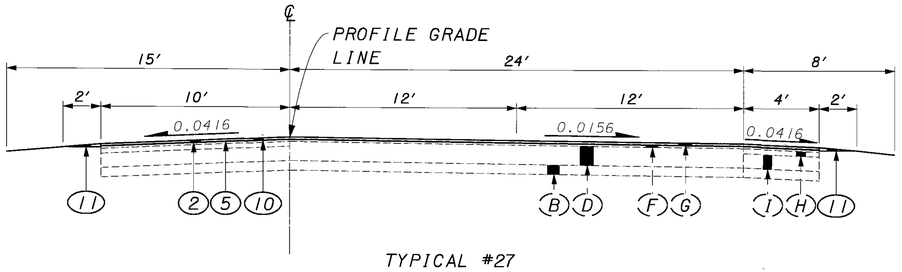
EXISTING LEGEND

(A) 6″ SUBBASE, TYPE II, AS PER PLAN
(B) SUBBASE, VARIABLE DEPTH, A OR B GRADING, AS PER PLAN
(C) 8″ CONCRETE BASE, AS PER PLAN
(D) 9″ REINFORCED CONCRETE PAVEMENT
(E) 1.25″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, AC-20
(F) 1.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20
(G) 1.25″ ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20
(H) 3″ WATERPROOFED AGGREGATE BASE COURSE
(I) POROUS BASE COURSE
(J) APPROACH SLAB
(K) 1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE

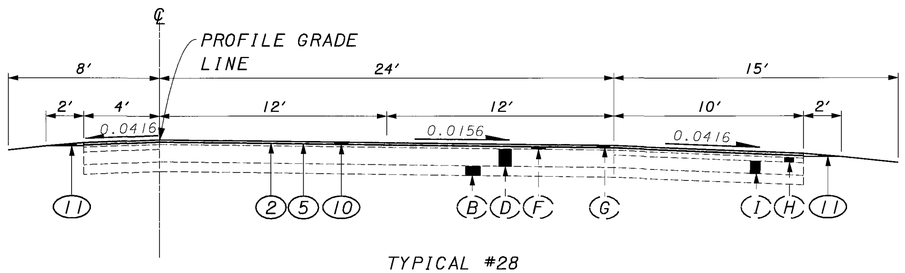
CALCULATED RDK / LW
PAY / HG
CHECKED MA.TT

TYPICAL SECTIONS

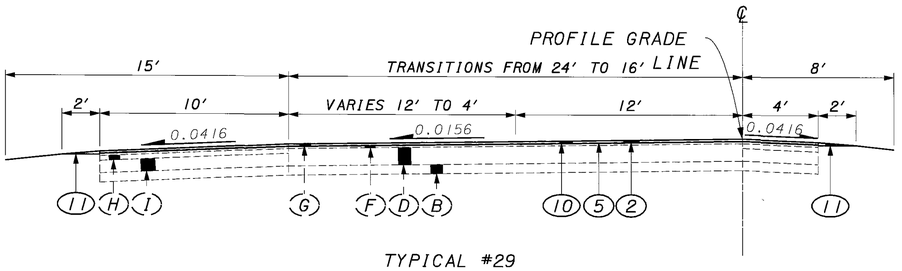
FRA-33-20.69



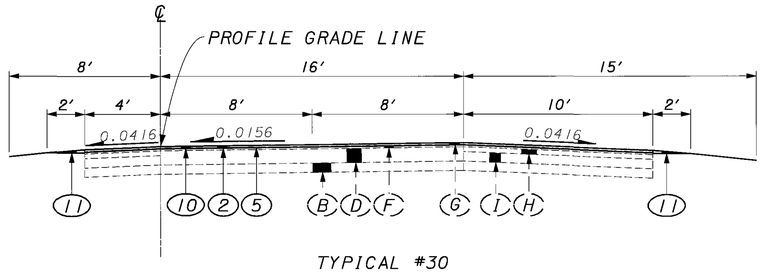
TYPICAL #27
SB JAMES RD. STA. 114+15.00 TO STA. 123+50.00



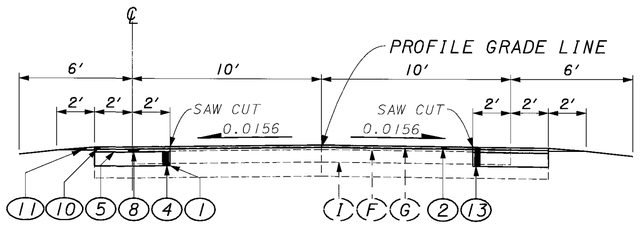
TYPICAL #28
NB JAMES RD. #1 STA. 114+10.00 TO STA. 127+00.00



TYPICAL #29
SB JAMES RD. STA. 123+50.00 TO STA. 131+00.00



TYPICAL #30
SB JAMES RD. STA. 131+00.00 TO STA. 133+00.00



TYPICAL #31
SERVICE ROAD A STA. 1+22.00 TO STA. 4+55.00

PROPOSED LEGEND

(1) ITEM 204 - SUBGRADE COMPACTION
(2) ITEM 254 - 1.5″ PAVEMENT PLANING, ASPHALT CONCRETE
(3) ITEM 254 - 2.75″ PAVEMENT PLANING, ASPHALT CONCRETE
(4) ITEM 301 - 9″ ASPHALT CONCRETE BASE, PG64-22
(5) ITEM 407 - TACK COAT, @ 0.075 GAL. PER SY. YD.
(6) ITEM 407 - TACK COAT, 702.13, @ 0.075 GAL. PER SY. YD.
(7) ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE, @ 0.050 GAL. PER SY. YD.
(8) ITEM 442 - 1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)
(9) ITEM 442 - 3.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446) (2 LIFTS)
(10) ITEM 442 - 1.5″ ASPHALT CONCRETE SURFACE COURSE, 12MM, TYPE A (446)
(11) ITEM 617 - COMPACTED AGGREGATE, TYPE A
(12) ITEM 254 - 3.0″ PAVEMENT PLANING, ASPHALT CONCRETE
(13) ITEM 203 - 12.25″ EXCAVATION
(14) ITEM 203 - 12.0″ EXCAVATION
(15) ITEM 203 - 13.0″ EXCAVATION

EXISTING LEGEND

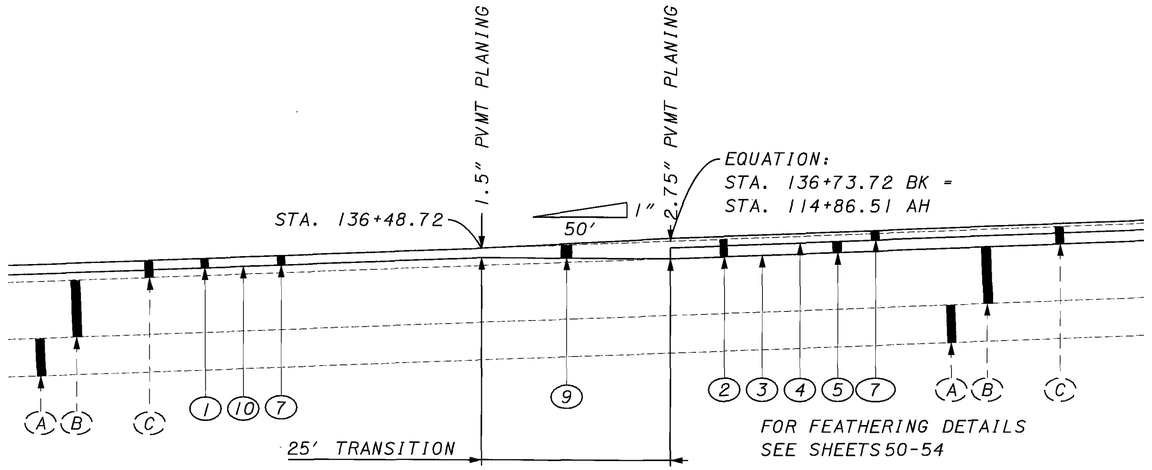
(A) 6″ SUBBASE, TYPE II, AS PER PLAN
(B) SUBBASE, VARIABLE DEPTH, A OR B GRADING, AS PER PLAN
(C) 8″ CONCRETE BASE, AS PER PLAN
(D) 9″ REINFORCED CONCRETE PAVEMENT
(E) 1.25″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, AC-20
(F) 1.5″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, AC-20
(G) 1.25″ ASPHALT CONCRETE SURFACE COURSE, TYPE 1, AC-20
(H) 3″ WATERPROOFED AGGREGATE BASE COURSE
(I) POROUS BASE COURSE
(J) APPROACH SLAB
(K) 1.75″ ASPHALT CONCRETE INTERMEDIATE COURSE

CALCULATED RDK / LW
P.V. / HG
CHECKED MATT

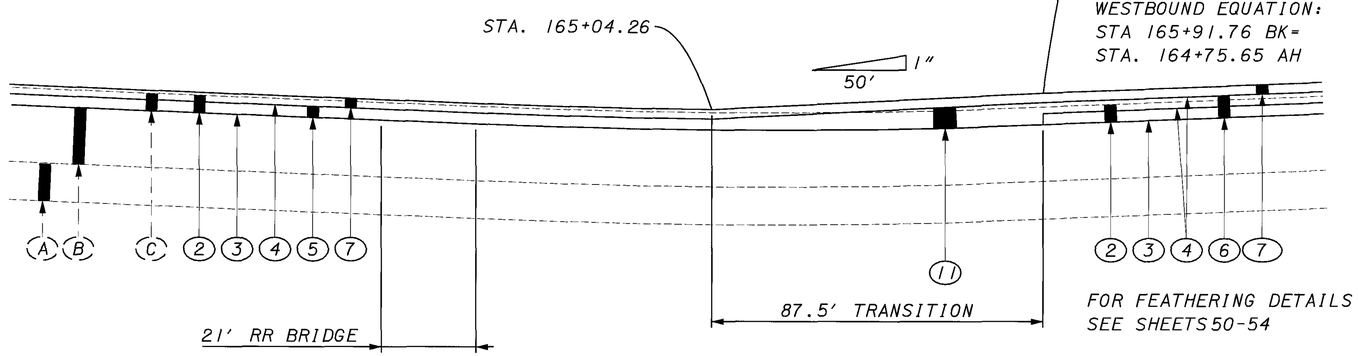
TYPICAL SECTIONS

FRA-33-20.69

FEATHERING DETAIL #1
WESTBOUND AND EASTBOUND DIRECTION
STA. 136+48.72 TO STA. 136+73.72 BK



FEATHERING DETAIL #2
EASTBOUND AND WESTBOUND* DIRECTION
STA. 165+04.26 TO 165+91.76 BK



*SEE FEATHERING DETAILS ON SHEET 23 FOR EXISTING AND PROPOSED PAVEMENT SPECIFICATIONS

PROPOSED LEGEND

(1) ITEM 254 - 1.5" PAVEMENT PLANING, ASPHALT CONCRETE
(2) ITEM 254 - 2.75" PAVEMENT PLANING, ASPHALT CONCRETE
(3) ITEM 407 - TACK COAT, 702.13, @ 0.075 GAL. PER SY. YD.
(4) ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE, @ 0.050 GAL. PER SY. YD.
(5) ITEM 442 - 1.75" ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)
(6) ITEM 442 - 3.5" ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446) (2 LIFTS)
(7) ITEM 442 - 1.5" ASPHALT CONCRETE SURFACE COURSE, 12MM, TYPE A (446)
(8) ITEM 254 - 3.0" PAVEMENT PLANING, ASPHALT CONCRETE
(9) ITEM 254 - VARIABLE DEPTH PAVEMENT PLANING, ASPHALT CONCRETE
(10) ITEM 407 - TACK COAT @ 0.075 GAL. PER SY. YD.
(11) ITEM 442 - VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)
(12) ITEM 442 - VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, 12MM, TYPE A (446)

EXISTING LEGEND

(A) SUBBASE, VARIABLE DEPTH, A OR B GRADING, AS PER PLAN
(B) 9" REINFORCED CONCRETE PAVEMENT

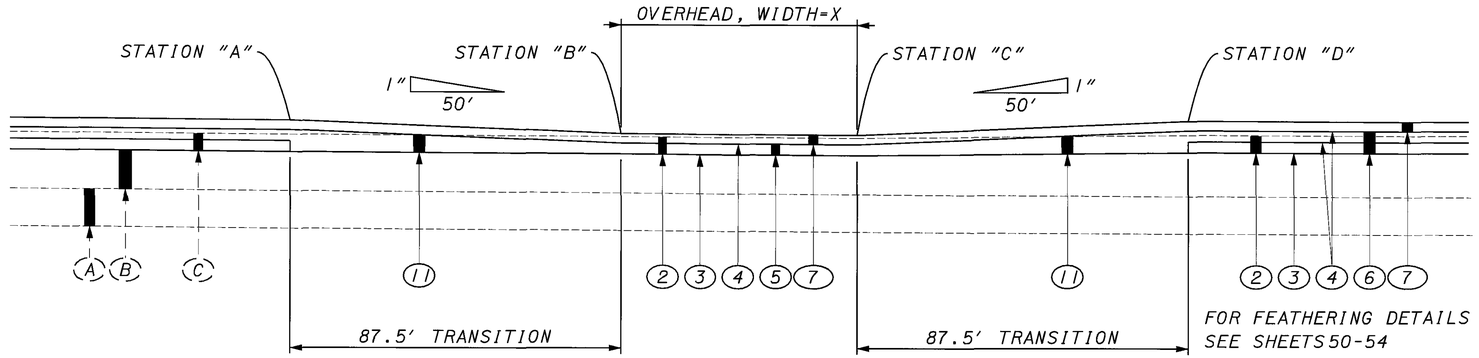
(C) 2.5" ASPHALT CONCRETE
(D) 8" REINFORCED CONCRETE PAVEMENT
(E) 3" ASPHALT CONCRETE
(F) EXISTING PAVEMENT

CALCULATED RDK / LW
PAY / HG
CHECKED MATT

FEATHERING DETAILS

FRA-33-20.69

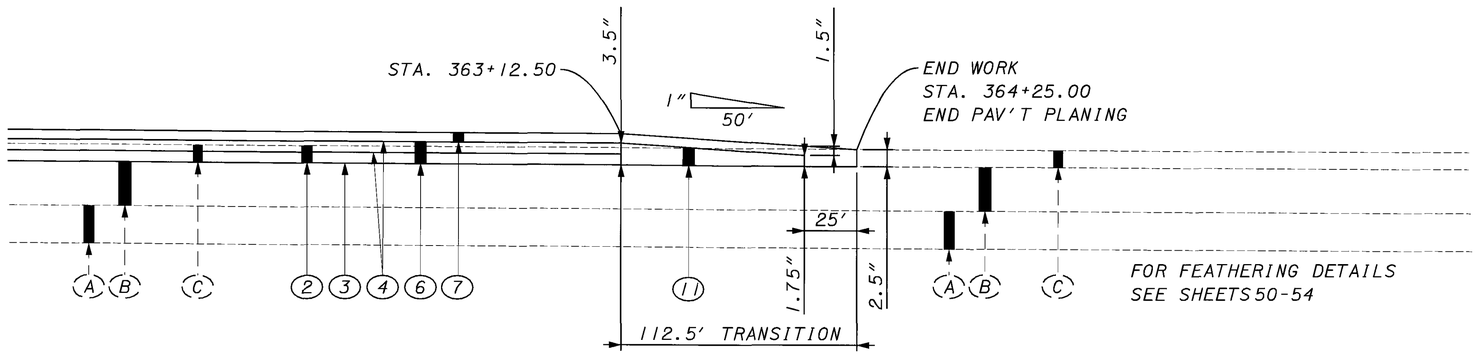
FEATHERING DETAIL #3
FOR OVERHEAD STRUCTURE CROSSINGS



STRUCTURE NO.	US-33 AT	WIDTH, X	STATION "A"	STATION "B"	STATION "C"	STATION "D"	DIRECTION
FRA-33-2253*	JAMES RD	72.2'	173+10.24	173+97.74	174+69.92	175+57.42	WB
FRA-33-2276*	WINCHESTER	157.3'	185+10.87	185+98.37	187+55.64	188+43.14	WB
FRA-33-2298*	REFUGEE RD	97.1'	199+55.20	200+42.70	201+39.77	202+27.27	EB & WB
FRA-33-2456	WATKINS RD	69.6'	281+51.38	282+38.88	283+08.44	283+95.94	EB
FRA-33-2456	WATKINS RD	63.1'	281+79.11	282+66.61	283+29.71	284+17.21	WB
FRA-33-2475	I-270	211.5'	291+89.54	292+77.04	294+88.50	295+76.00	EB & WB
FRA-33-2596	S.R. 317	142.8'	353+95.56	354+83.06	356+25.90	357+13.40	WB
FRA-33-2596	S.R. 317	155.7'	354+61.15	355+48.65	357+04.32	357+91.82	EB

*SEE FEATHERING DETAILS ON SHEET 23 FOR EXISTING AND PROPOSED PAVEMENT SPECIFICATIONS

FEATHERING DETAIL #4
WESTBOUND AND EASTBOUND DIRECTION
STA. 363+12.50 TO STA. 364+25.00



PROPOSED LEGEND

(1) ITEM 254 - 1.5" PAVEMENT PLANING, ASPHALT CONCRETE
(2) ITEM 254 - 2.75" PAVEMENT PLANING, ASPHALT CONCRETE
(3) ITEM 407 - TACK COAT, 702.13, @ 0.075 GAL. PER SY. YD.
(4) ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE, @ 0.050 GAL. PER SY. YD.
(5) ITEM 442 - 1.75" ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)
(6) ITEM 442 - 3.5" ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446) (2 LIFTS)
(7) ITEM 442 - 1.5" ASPHALT CONCRETE SURFACE COURSE, 12MM, TYPE A (446)
(8) ITEM 254 - 3.0" PAVEMENT PLANING, ASPHALT CONCRETE
(9) ITEM 254 - VARIABLE DEPTH PAVEMENT PLANING, ASPHALT CONCRETE
(10) ITEM 407 - TACK COAT @ 0.075 GAL. PER SY. YD.
(11) ITEM 442 - VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)
(12) ITEM 442 - VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, 12MM, TYPE A (446)

EXISTING LEGEND

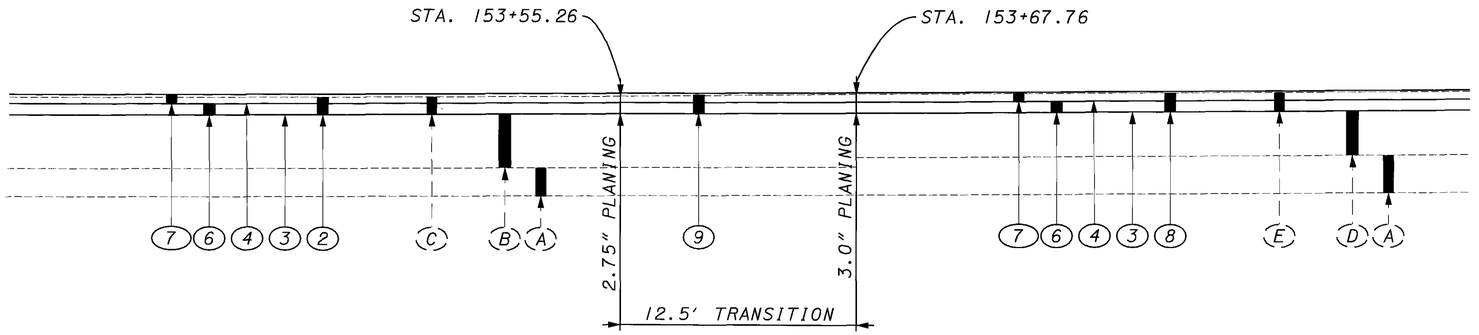
(A) SUBBASE, VARIABLE DEPTH, A OR B GRADING, AS PER PLAN
(B) 9" REINFORCED CONCRETE PAVEMENT
(C) 2.5" ASPHALT CONCRETE
(D) 8" REINFORCED CONCRETE PAVEMENT
(E) 3" ASPHALT CONCRETE
(F) EXISTING PAVEMENT

CALCULATED RDK / LW
PAY / HG
CHECKED MATT

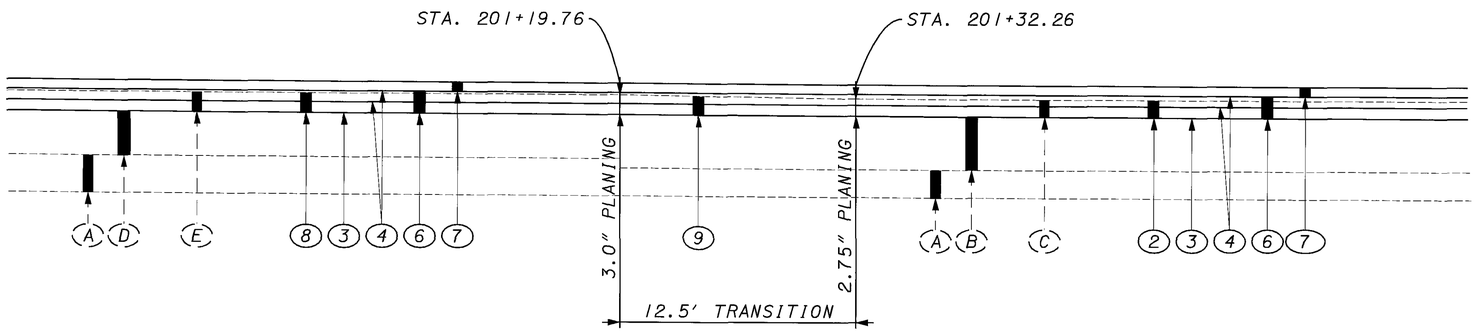
FEATHERING DETAILS

FRA-33-20.69

FEATHERING DETAIL #5
WESTBOUND DIRECTION
STA. 153+55.26 TO STA. 153+67.76



FEATHERING DETAIL #6
WESTBOUND DIRECTION
STA. 201+19.76 TO STA. 201+32.26



PROPOSED LEGEND

1. ITEM 254 - 1.5" PAVEMENT PLANING, ASPHALT CONCRETE
2. ITEM 254 - 2.75" PAVEMENT PLANING, ASPHALT CONCRETE
3. ITEM 407 - TACK COAT, 702.13, @ 0.075 GAL. PER SY. YD.
4. ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE, @ 0.050 GAL. PER SY. YD.
5. ITEM 442 - 1.75" ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)
6. ITEM 442 - 3.5" ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446) (2 LIFTS)
7. ITEM 442 - 1.5" ASPHALT CONCRETE SURFACE COURSE, 12MM, TYPE A (446)
8. ITEM 254 - 3.0" PAVEMENT PLANING, ASPHALT CONCRETE
9. ITEM 254 - VARIABLE DEPTH PAVEMENT PLANING, ASPHALT CONCRETE
10. ITEM 407 - TACK COAT @ 0.075 GAL. PER SY. YD.
11. ITEM 442 - VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)
12. ITEM 442 - VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, 12MM, TYPE A (446)

EXISTING LEGEND

- A. SUBBASE, VARIABLE DEPTH, A OR B GRADING, AS PER PLAN
- B. 9" REINFORCED CONCRETE PAVEMENT
- C. 2.5" ASPHALT CONCRETE
- D. 8" REINFORCED CONCRETE PAVEMENT
- E. 3" ASPHALT CONCRETE
- F. EXISTING PAVEMENT

CALCULATED RDK / LW
PAY / HG
CHECKED MATT

FEATHERING DETAILS

FRA-33-20.69

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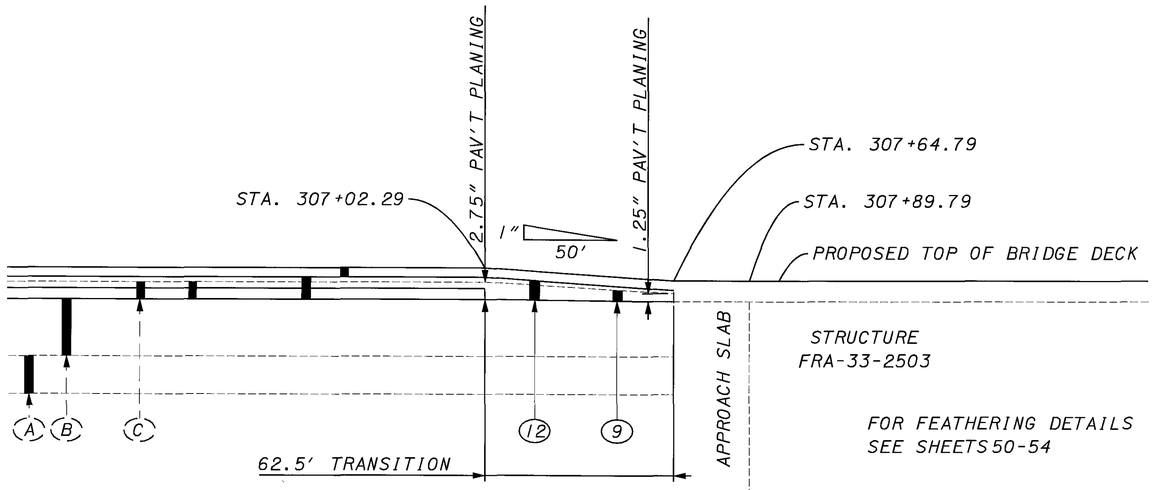
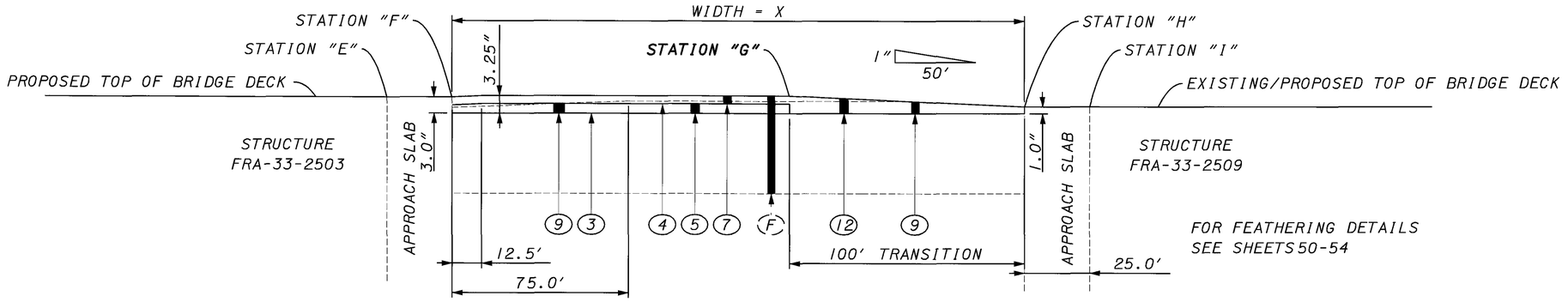
FEATHERING DETAIL #7
WESTBOUND AND EASTBOUND DIRECTION
STA. 307+02.29 TO STA. 307+64.79



FEATHERING DETAIL #8



STRUCTURE NO.	WIDTH, X	STATION "E"	STATION "F"	STATION "G"	STATION "H"	STATION "I"	DIRECTION
FRA-33-2503	243.8'	308+82.29	309+07.29	310+51.07	311+51.07	311+76.07	WB
FRA-33-2503	173.3'	308+82.29	309+07.29	309+80.58	310+80.58	311+05.58	EB

PROPOSED LEGEND

(1) ITEM 254 - 1.5" PAVEMENT PLANING, ASPHALT CONCRETE
(2) ITEM 254 - 2.75" PAVEMENT PLANING, ASPHALT CONCRETE
(3) ITEM 407 - TACK COAT, 702.13, @ 0.075 GAL. PER SY. YD.
(4) ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE, @ 0.050 GAL. PER SY. YD.
(5) ITEM 442 - 1.75" ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)
(6) ITEM 442 - 3.5" ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446) (2 LIFTS)
(7) ITEM 442 - 1.5" ASPHALT CONCRETE SURFACE COURSE, 12MM, TYPE A (446)
(8) ITEM 254 - 3.0" PAVEMENT PLANING, ASPHALT CONCRETE
(9) ITEM 254 - VARIABLE DEPTH PAVEMENT PLANING, ASPHALT CONCRETE
(10) ITEM 407 - TACK COAT @ 0.075 GAL. PER SY. YD.
(11) ITEM 442 - VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)
(12) ITEM 442 - VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, 12MM, TYPE A (446)

EXISTING LEGEND

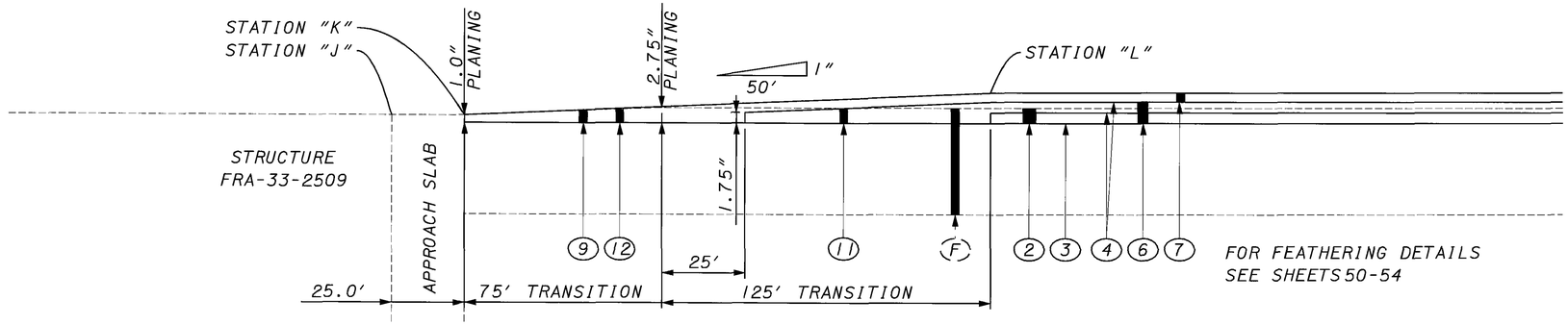
(A) SUBBASE, VARIABLE DEPTH, A OR B GRADING, AS PER PLAN
(B) 9" REINFORCED CONCRETE PAVEMENT
(C) 2.5" ASPHALT CONCRETE
(D) 8" REINFORCED CONCRETE PAVEMENT
(E) 3" ASPHALT CONCRETE
(F) EXISTING PAVEMENT

CALCULATED RDK / LW
PAY / ING
CHECKED MaTT

FEATHERING DETAILS

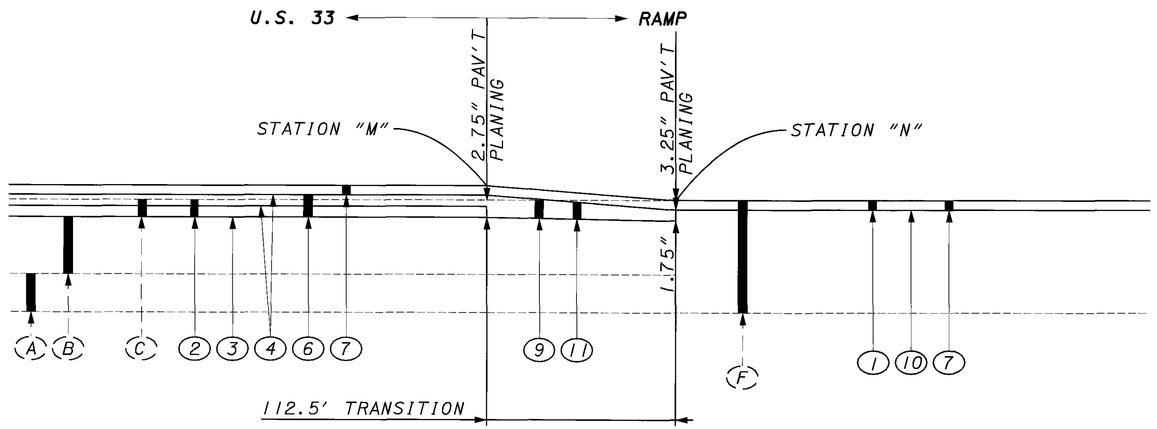
FRA-33-20.69

FEATHERING DETAIL #9



STRUCTURE NO.	STATION "J"	STATION "K"	STATION "L"	DIRECTION
FRA-33-2509	314+79.25	315+04.25	317+04.25	WB
FRA-33-2509	314+08.76	314+33.76	316+33.76	EB

FEATHERING DETAIL #10 FOR RAMPS



US-33 AT	STATION "M"	STATION "N"	US-33 AT	STATION "M"	STATION "N"	US-33 AT	STATION "M"	STATION "N"
LINE A (WIN. PIKE)	168+25.00	169+37.50	REFUGEE RD - RAMP D*	95+71.00	94+58.50	270 RAMP G	56+40.94	55+28.44
LINE B (WIN. PIKE)	170+35.00	171+47.50	REFUGEE RD - RAMP F	24+75.00	23+62.50	270 RAMP H	59+95.22	58+82.72
NB JAMES RD #2*	137+50.00	136+37.50	270 RAMP A	49+51.75	48+39.25	HAMILTON RD - RAMP G	46+75.00	45+62.50
SB JAMES RD	140+90.00	139+77.50	270 RAMP B	94+07.00	92+94.50	HAMILTON RD - RAMP H	62+05.00	63+17.50
REFUGEE RD - RAMP A	98+15.00	99+27.50	270 RAMP D	48+26.67	47+14.17	HAMILTON RD - RAMP I	46+10.00	44+97.50
REFUGEE RD - RAMP B	146+15.00	145+02.50	270 RAMP E	58+23.19	57+10.69	HAMILTON RD - RAMP J	48+78.00	49+90.50
REFUGEE RD - RAMP C	3+81.00	4+93.50	270 RAMP F	54+67.78	53+55.28			

*SEE FEATHERING DETAILS ON SHEET 23 FOR EXISTING AND PROPOSED PAVEMENT SPECIFICATIONS

PROPOSED LEGEND

(1) ITEM 254 - 1.5" PAVEMENT PLANING, ASPHALT CONCRETE
(2) ITEM 254 - 2.75" PAVEMENT PLANING, ASPHALT CONCRETE
(3) ITEM 407 - TACK COAT, 702.13, @ 0.075 GAL. PER SY. YD.
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EXISTING LEGEND

(A) SUBBASE, VARIABLE DEPTH, A OR B GRADING, AS PER PLAN
(B) 9" REINFORCED CONCRETE PAVEMENT

(C) 2.5" ASPHALT CONCRETE
(D) 8" REINFORCED CONCRETE PAVEMENT
(E) 3" ASPHALT CONCRETE
(F) EXISTING PAVEMENT

CALCULATED RDK / LW
FAY / HG
CHECKED MATT

FEATHERING DETAILS

FRA-33-20.69

CONSTRUCTION INITIATION:
THE CONTRACTOR SHALL ADVISE THE DISTRICT OFFICE OF COMMUNICATIONS AT 740-363-1251, EXT. 469 AND THE DISTRICT TRAFFIC MANAGEMENT ENGINEER AT 740-363-1251, EXT. 323, FOURTEEN (14) DAYS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. THE CONTRACTOR WILL IMMEDIATELY INFORM THE DISTRICT OFFICE OF COMMUNICATIONS AND THE DISTRICT TRAFFIC MANAGEMENT ENGINEER OF ANY AND ALL DELAYS AND/OR CHANGES REGARDING THE CONSTRUCTION PROJECT. THE PROJECT ENGINEER WILL PROVIDE CLARIFICATION FOR ANY QUESTIONS ABOUT THIS NOTIFICATION REQUIREMENT.

COORDINATION WITH O.D.O.T.'S CENTRAL OHIO TRAFFIC MANAGEMENT PROGRAM (COTMP):
THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES ON A WEEKLY BASIS. WHEN DETOURS ARE PLANNED, THIS NOTIFICATION SHALL BE AT THE PRE CONSTRUCTION MEETING OR 30 DAYS IN ADVANCE ONCE CONSTRUCTION HAS BEGUN. LANE AND RAMP CLOSURES FOR 2 OR MORE WEEKS SHALL BE REPORTED 2 WEEKS IN ADVANCE OF CLOSURE. LANE AND RAMP CLOSURES OF LESS THAN 2 WEEKS DURATION AND MORE THAN 2 DAYS SHALL BE REPORTED AT LEAST 3 WORKING DAYS IN ADVANCE. FOR SHORT TERM, LANE OR RAMP CLOSURES (2 DAYS OR LESS) NOTIFICATION SHALL BE MADE AT LEAST 1 WORKING DAY IN ADVANCE. INFORMATION SHALL INCLUDE BUT NOT BE LIMITED TO ALL CONSTRUCTION ACTIVITIES THAT IMPACT TRAFFIC AT PRESENT AND IN THE NEXT 30 DAYS. THE CONTRACTOR SHALL DESIGNATE AN INDIVIDUAL WHO WILL BE RESPONSIBLE FOR PREPARING THIS REPORT AT THE PRE-CONSTRUCTION MEETING. ANY UNFORESEEN IMPACTS TO TRAFFIC SHALL BE REPORTED TO THE PROJECT ENGINEER AS SOON AS POSSIBLE. THE PROJECT ENGINEER SHALL PROVIDE THIS INFORMATION TO COTMP. ALL CONSTRUCTION ACTIVITIES THAT INTERFERE WITH TRAFFIC SHALL BE REPORTED TO COTMP. THIS INFORMATION SHALL BE PROVIDED TO COTMP AT (614) 644-6584 OR BY FAX AT (614) 466-1768.

COORDINATION WITH PAVING THE WAY PROGRAM (PTWP):
THE CONTRACTOR SHALL NOTIFY THE CITY OF COLUMBUS, TRANSPORTATION DIVISION - TEMPORARY TRAFFIC CONTROL COORDINATOR (614-645-5845) AND THE PAVING THE WAY PROGRAM (614-645-3970) A MINIMUM OF FIVE WORKING DAYS PRIOR TO STARTING WORK AND/OR PRIOR TO EACH PHASE OR MAJOR CHANGE IN TRAFFIC PATTERNS EITHER PERMANENT OR TEMPORARY WITHIN THE ROADWAY RIGHT-OF-WAY. WHEN DETOURS ARE PLANNED, THIS NOTIFICATION SHALL BE AT THE PRE-CONSTRUCTION MEETING OR 30 DAYS IN ADVANCE ONCE CONSTRUCTION HAS BEGUN. INFORMATION SHALL INCLUDE BUT NOT BE LIMITED TO ALL CONSTRUCTION ACTIVITIES THAT IMPACT TRAFFIC AT PRESENT AND IN THE NEXT 30 DAYS. THE CONTRACTOR SHALL DESIGNATE AN INDIVIDUAL WHO WILL BE RESPONSIBLE FOR PREPARING THIS REPORT AT THE PRE-CONSTRUCTION MEETING. ANY UNFORESEEN IMPACTS TO TRAFFIC SHALL BE REPORTED TO THE PROJECT ENGINEER AS SOON AS POSSIBLE. THE PROJECT ENGINEER SHALL PROVIDE THIS INFORMATION TO THE PTWP. ALL CONSTRUCTION ACTIVITIES THAT INTERFERE WITH TRAFFIC SHALL BE REPORTED TO THE PTWP. THIS INFORMATION SHALL BE PROVIDED TO THE PROGRAM COORDINATOR AT (614-645-3970) OR BY FAX AT (614-645-5844).

COOPERATION WITH C.O.T.A.:
THE CONTRACTOR SHALL COOPERATE WITH THE CENTRAL OHIO TRANSIT AUTHORITY TO FACILITATE BUS MOVEMENTS 24 HOURS A DAY.

GENERAL:
THE CONTRACTOR SHALL SUBMIT IN WRITING A SCHEDULE OF OPERATIONS TO THE ENGINEER (SEE 101.18) AND RECEIVE APPROVAL IN WRITING BEFORE WORK IS STARTED ON THIS PROJECT. ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED, AND REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

ALIGNMENT AND PROFILE:
THE WORK PROPOSED BY THIS PROJECT IS FOR THE RESURFACING OF THE EXISTING PAVEMENT. THE ALIGNMENT OF THE EXISTING PAVEMENT WILL NOT BE CHANGED, AND THE PROFILE OF THE PROPOSED SURFACE WILL BE SIMILAR TO THAT OF THE EXISTING PAVEMENT.

CONTRACTORS EQUIPMENT - OPERATION AND STORAGE:
THE CONTRACTORS EQUIPMENT SHALL BE OPERATED IN THE DIRECTION OF TRAFFIC WHERE PRACTICAL. EQUIPMENT SHALL HAVE AT LEAST ONE AMBER FLASHING LIGHT. WHEN PARKED ALONG THE HIGHWAY, THE EQUIPMENT SHALL BE LOCATED EITHER A MINIMUM OF THIRTY FEET FROM THE EDGE OF PAVEMENT OR SIX FEET BEHIND GUARDRAIL WITH A MINIMUM OF 125 FEET OF GUARDRAIL PRECEDING THE EQUIPMENT. ALL OTHER EQUIPMENT, INCLUDING PRIVATE VEHICLES, SHALL BE STORED AT AN APPROVED CONTRACTORS STORAGE AREA.

CONTINGENCY QUANTITIES:
THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED FOR SUCH ITEMS SHALL BE INCORPORATED INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

PART-WIDTH CONSTRUCTION:
BECAUSE OF THE NECESSITY TO BUILD THIS PROJECT UNDER TRAFFIC AND TO CONSTRUCT THE FULL PAVEMENT WIDTH IN STAGES, EXTREME CARE SHALL BE TAKEN TO PREVENT THE CONSTRUCTION OF A BUTT JOINT IN THE BASE COURSES. LONGITUDINAL JOINTS SHALL BE LAPPED AS SHOWN ON STANDARD CONSTRUCTION DRAWING BP-3.1.

WORK LIMITS:
THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE INSTALLATION AND OPERATION OF ALL TEMPORARY TRAFFIC CONTROL AND TEMPORARY TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

A.D.A. RAMPS:
A.D.A. RAMPS ARE NOT BEING CONSTRUCTED AS PART OF THIS PLAN. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN WORKING OR OPERATING AROUND ADA COMPLIANT RAMPS ACCEPTED BY THE CITY OF COLUMBUS. IF THE CONTRACTOR DAMAGES ANY A.D.A. CURB RAMPS OR RENDERS AN EXISTING A.D.A. COMPLIANT RAMP TO BE NON-COMPLIANT AS A RESULT OF NEGLIGENCE OR INADEQUATE CONSTRUCTION PRACTICE, THEN THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CORRECTION OF THE DEFICIENCY AT THE CONTRACTORS EXPENSE. THIS MAY INCLUDE, BUT IS NOT LIMITED TO, FULL REMOVAL AND REPLACEMENT OF THE RAMP, MILLING AND RESURFACING, ETC. NO EXCEPTIONS WILL BE GRANTED.

ANY QUESTIONS REGARDING ADA COMPLIANCE FOR CITY OF COLUMBUS CURB RAMPS MAY BE DIRECTED TO THE CITY OF COLUMBUS, TRANSPORTATION DIVISION - A.D.A. SUPPORT GROUP, (614) 645-8241.

TREES AND OVERHEAD INTERFERENCES:
THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL TREES, OVERHEAD LINES AND TRAFFIC SIGNALS. IN SOME CASES IT MAY BE NECESSARY TO ADJUST EQUIPMENT HEIGHTS TO MAKE CLEARANCE. IF TREE TRIMMING IS REQUIRED, A PERMIT MUST BE ACQUIRED FROM THE CITY FORESTER 1-614-645-6640 AT THE DEPARTMENT OF RECREATION AND PARKS.

UNDERGROUND UTILITIES:
THE IDENTITY AND THE LOCATION OF SOME OF THE EXISTING UNDERGROUND FACILITIES KNOWN TO BE LOCATED IN THE CONSTRUCTION AREA HAVE BEEN IDENTIFIED. THE CONTRACTOR SHALL GIVE NOTICE OF INTENT TO CONSTRUCT TO THE OHIO UTILITIES PROTECTION SERVICE, PRODUCERS UNDERGROUND PROTECTION SERVICE, AND OWNERS OF UNDERGROUND FACILITIES THAT ARE NOT MEMBERS OF A REGISTERED PROTECTION SERVICE IN ACCORDANCE WITH SECTION 153.64 OF THE OHIO REVISED CODE. THE ABOVE, MENTIONED NOTICE SHALL BE GIVEN AT LEAST TWO WORKING DAYS PRIOR TO THE START OF CONSTRUCTION THE FOLLOWING UTILITIES ARE LOCATED WITHIN THE WORK LIMITS OF THE PROJECT AND THE OWNERS SUBSCRIBE TO REGISTERED UNDERGROUND PROTECTION SERVICE.

IT IS THE CONTRACTORS RESPONSIBILITY TO HAVE ANY UNDERGROUND UTILITIES MARKED.

OHIO UTILITY PROTECTION SERVICE 1-800-362-2764
PRODUCERS UNDERGROUND PROTECTION SERVICE 1-614-587-0486
NON-MEMBERS MUST BE CALLED DIRECTLY.

CALCULATED RBK / LW
FAY / NG
CHECKED MATT

GENERAL NOTES

FRA-33-20.69

UTILITIES OWNERSHIP:
LISTED BELOW ARE THE KNOWN UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS.

AEP
850 TECH CENTER DRIVE
GAHANNA, OH 43230-6605
614-883-6829

SBC
150 EAST GAY STREET-ROOM 6C
COLUMBUS, OH 43215
614-223-7162

COLUMBIA GAS OF OHIO
920 WEST GOODALE BOULEVARD
COLUMBUS, OH 43212
614-460-2170

INSIGHT COMMUNICATIONS
3770 EAST LIVINGSTON AVENUE
COLUMBUS, OH 43227
614-236-1292 - EXT. 453

CITY OF COLUMBUS
DIVISION OF WATER
910 DUBLIN ROAD
COLUMBUS, OH 43215
614-645-7788

CITY OF COLUMBUS
DIVISION OF ELECTRICITY
910 DUBLIN ROAD
COLUMBUS, OH 43215
614-645-7627

REVIEW OF DRAINAGE FACILITIES:
BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE OF THE PROJECT BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR, ALONG WITH LOCAL REPRESENTATIVES, SHALL INSPECT ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCE SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION 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. THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER SHALL CORRECT ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS.

DRAINAGE AT INTERSECTING STREETS:
AT INTERSECTING STREETS WHERE THE DRAINAGE IS TOWARD OR INTO THE PROJECT, SPECIAL CARE SHALL BE TAKEN BY THE CONTRACTOR TO MAINTAIN PROPER GRADE ALONG THE EDGE OF PAVEMENT SO THAT WATER WILL NOT POND. AT INTERSECTING STREETS, WHERE THE EDGE OF PAVEMENT CONTINUES ACROSS THE STREET, CARE SHALL BE TAKEN TO FEATHER DOWN AND FORM A NEAT SEAM WITH THE PROPER GRADE.

DRAIN PIPES:
AT ALL DRAIN PIPES LOCATED IN THE CURB AND THAT DRAIN INTO THE GUTTER, SPECIAL CARE SHALL BE TAKEN BY THE CONTRACTOR SO THAT THESE DRAINS WILL NOT BE CLOSED OR OTHERWISE RENDERED INOPERATIVE. ANY DAMAGE DONE TO THE DRAIN PIPE WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

MANHOLES AND OTHER CASTINGS:
THE CASTING TOPS OF MANHOLES, VALVE BOXES, AND OTHER STRUCTURES OWNED BY PUBLIC SERVICE CORPORATIONS OTHER THAN THE CITY OF COLUMBUS WILL BE ADJUSTED TO GRADE BY THEIR RESPECTIVE OWNERS. THE WORK MAY BE DONE PRIOR TO THE CONSTRUCTION OF THE SURFACE COURSE. THE CONTRACTOR SHALL NOTIFY SUCH PUBLIC SERVICE CORPORATIONS AT LEAST ONE WEEK IN ADVANCE OF WORK OPERATIONS SO THAT WORK MAY BE PROPERLY SCHEDULED. CASTINGS OWNED BY THE CITY OF COLUMBUS SHALL BE ADJUSTED TO GRADE BY THE CONTRACTOR. THESE INCLUDE SEWER, WATER, TRAFFIC AND MELP MANHOLES. HOWEVER, ANY ADDITIONAL CASTINGS IDENTIFIED DURING THE VARIOUS CONSTRUCTION OPERATIONS BY THE PROJECT ENGINEER AND/OR CONTRACTOR SHALL BE RAISED BY THE CONTRACTOR AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THAT RESPECTIVE ITEM.

FIRE HYDRANTS:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PERMITS AND FEES THAT ARE REQUIRED FOR THE USE OF ANY FIRE HYDRANTS. A SIAMESE VALVE IS TO BE USED ON THE HYDRANT OUTLET IF A HOSE IS TO BE LEFT CONNECTED AND UNATTENDED. THIS PERMIT CAN BE OBTAINED FROM THE CITY OF COLUMBUS, WATER DIVISION.

WATER VALVES ON PLANED STREETS:
BEFORE ANY MILLING BEGINS ON A STREET, THE PROJECT ENGINEER WILL IDENTIFY ALL THE WATER VALVE CASTINGS BY MARKING THE CASTINGS OR CREATING A LIST OF THE CASTINGS THAT WILL NEED TO BE ADJUSTED TO GRADE AFTER THE RESURFACING IS COMPLETE, ANY CASTINGS THAT NEED TO BE ADJUSTED TO GRADE THAT WERE NOT IDENTIFIED TO BE RAISED PRIOR TO THE RESURFACING SHALL BE ADJUSTED TO GRADE BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE THIS DOES NOT APPLY TO BURIED WATER VALVES.

BURIED WATER VALVES:
THE CITY OF COLUMBUS TRANSPORTATION DIVISION MUST APPROVE IN WRITING ANY BURIED WATER VALVES TO BE ADJUSTED TO GRADE BY THE CONTRACTOR. IF THE CONTRACTOR RAISES ANY BURIED WATER VALVES WITHOUT WRITTEN APPROVAL FROM THE CITY OF COLUMBUS TRANSPORTATION DIVISION THE WORK COMPLETED WILL BE AT THE CONTRACTOR'S EXPENSE.

THE CONTRACTOR SHALL REVIEW THE PROJECT ENGINEER'S LIST OF CASTINGS TO BE ADJUSTED TO GRADE BEFORE RESURFACING. ANY DISPUTES SHOULD BE BROUGHT TO THE PROJECT ENGINEER'S ATTENTION BEFORE THE PAVEMENT MILLING BEGINS; OTHERWISE THE CONTRACTOR ACCEPTS FULL RESPONSIBILITY FOR RAISING THE CASTINGS (EXCEPT THE BURIED WATER VALVES) THAT DO NOT MEET THE TOLERANCES DESCRIBED ABOVE.

ADJUSTING CASTINGS:
THE CONTRACTOR MAY USE AN EXTENSION RING OF THE TYPE APPROVED BY THE CITY TO RAISE MANHOLES THESE EXTENSION RINGS SHALL BE SECURED IN PLACE BY ASPHALT MASTIC. PROBLEM SITUATIONS, SUCH AS BROKEN CASTINGS OR CASTINGS FOR WHICH THERE ARE NO RINGS AVAILABLE, WILL BE RESOLVED BY ADJUSTING THE STRUCTURE TO GRADE WITHOUT A RING AFTER THE RESURFACING PROCESS.

FOR A CASTING THAT IS ADJUSTED TO GRADE AFTER THE RESURFACING IS COMPLETED, THE PAVEMENT REPLACEMENT SHALL BE PORTLAND CEMENT CONCRETE BASE WITH 2 INCHES OF ASPHALT WEARING COURSE. THE FINISHED SURFACE AFTER THE ADJUSTMENT HAS BEEN COMPLETED SHALL BE HEAT - WELDED AS PER CITY OF COLUMBUS REQUIREMENTS. PAYMENT FOR THESE ITEMS ARE TO BE INCLUDED IN THE PRICE BID FOR THE RESPECTIVE ITEM 604.

VALVE BOXES:
THE MINIMUM DIMENSION FOR SAW CUTTING THE PROPOSED VALVE BOX IS TWO FEET (WIDTH) BY FOUR FEET (LENGTH) ALL SAW CUTTING NECESSARY TO PERFORM THIS TASK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR THE ITEM NECESSITATING THE WORK. THE PRICE SHALL INCLUDE ALL SERVICES, MATERIALS, LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM OF WORK.

IF A VALVE BOX IS BROKEN, THE CONTRACTOR IS RESPONSIBLE TO CONTACT THE CITY OF COLUMBUS, DIVISION OF WATER AT 645-7788 TO OBTAIN THE NECESSARY MATERIALS. PRIOR TO THE CONTRACTOR PURCHASING ANY MATERIALS, THE CONTRACTOR MUST NOTIFY THE PROJECT ENGINEER AND RECEIVE WRITTEN PERMISSION TO PURCHASE THE MATERIALS OTHERWISE, ANY UNAUTHORIZED PURCHASE OF MATERIALS ARE AT THE CONTRACTOR'S EXPENSE.

ALL CASTINGS THAT ARE IN THE PROCESS OF BEING RAISED SHALL BE PLATED OR OTHERWISE BE MADE SUITABLE TO CARRY TRAFFIC DURING NON - WORKING HOURS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO POINT OUT ANY ADDITIONAL MANHOLES AND WATER VALVES TO THE PROJECT ENGINEER THAT ARE OUT OF TOLERANCE PRIOR TO MILLING OR THE COST OF ADJUSTING THESE WILL BE AT THE CONTRACTOR'S EXPENSE.

A TOLERANCE OF MINUS 1/2" WILL BE THE ACCEPTED TOLERANCE ON ALL MANHOLES AND WATER VALVES ADJUSTED TO GRADE PRIOR TO THE RESURFACING PROCESS. A TOLERANCE OF MINUS 1/4" WILL BE THE ACCEPTED TOLERANCE ON ALL MANHOLES AND WATER VALVES ADJUSTED TO GRADE AFTER THE RESURFACING PROCESS AS PART OF THIS CONTRACT.

CROSSING AND CONNECTIONS TO EXISTING PIPES AND UTILITIES:
WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT. IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PART OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS. IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN IN THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFACE WITH THE EXISTING FACILITY. PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE OF THE PERTINENT 603 CONDUIT ITEM.

CALCULATED RDK / JW
FAY / HG
CHECKED MATT

WATER QUALITY PROTECTION:
NO TOXIC OR HAZARDOUS MATERIALS SUCH AS SEALANTS, PAINT, SOLVENTS, CLEANING AGENTS, EARTHEN MATERIALS, WASTE-WATER, FUELS OR DEBRIS OF ANY KIND SHALL BE DISCHARGED TO ANY STREAMS, DRAINAGE COURSES, OR BODIES OF WATER. ALL ASPHALT OR CONCRETE GRINDINGS, EXCESS ASPHALTIC OR CONCRETE MATERIALS OR ANY OTHER DEBRIS GENERATED DURING RESURFACING OR OTHER SIMILAR ACTIVITIES SHALL BE NOT BE DISPOSED OF WITHIN A FLOOD PLAIN BELOW THE 100-YEAR FLOOD ELEVATION. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT LIQUIDS USED TO REPAIR, CLEAN, SEAL, OR TREAT ANY BRIDGE STRUCTURE (I.E. PAINT, SEALER, SOLVENT) FROM ENTERING STREAMS, WETLANDS OR OTHER WATERS OF THE UNITED STATES AND TAKE THE APPROPRIATE ACTIONS IN THE EVENT OF A RELEASE.

CONNECTING EXISTING CONDUITS TO PROPOSED CATCH BASINS OR MANHOLES:
THE CONTRACTOR SHALL VERIFY AND MATCH THE EXISTING CONDUIT SIZE AND FLOW LINE. THE PROPOSED FLOW LINE ELEVATIONS ARE CALCULATED USING THE EXISTING PLAN ELEVATIONS AND THE GRADES SHOWN IN THE ORIGINAL CONSTRUCTION PLAN. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY THE FLOW LINE OF THE EXISTING CONDUITS PRIOR TO THE PLACEMENT OF THE PROPOSED CONDUIT, CATCH BASIN INLET OR MANHOLES. THE PROPOSED CONDUIT SHALL BE PLACED WITH THE SAME FLOW LINE ELEVATIONS AS THE EXISTING CONDUIT WITH IN THE PROPOSED CATCH BASIN, INLET OR MANHOLE. PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE OF THE PERTINENT 603 CONDUIT ITEM. IF THE EXISTING CONDUIT IS DAMAGED DURING THE REMOVAL OR PLACEMENT OF THE PROPOSED CATCH BASINS OR MANHOLES, THE DAMAGED EXISTING CONDUIT SHALL BE REPLACED AS DIRECTED BY THE PROJECT ENGINEER.

CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL:
WHEN IT IS NECESSARY TO SPLICE PROPOSED GUARDRAIL TO EXISTING GUARDRAIL, ONLY THE EXISTING GUARDRAIL SHALL BE CUT, DRILLED, OR PUNCHED. THE CONNECTION SHALL BE MADE USING A "W-BEAM RAIL SPLICE" AS SHOWN IN AASHTO M 180. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

GUARDRAIL REPLACEMENT:
NO HAZARD SHALL BE LEFT UNPROTECTED EXCEPT FOR THE ACTUAL TIME NECESSARY TO REMOVE, GRADE AND REINSTALL GUARDRAIL IN A CONTINUOUS OPERATION. THE ENGINEER SHALL AT ALL TIMES DIRECT THE REMOVAL OF ALL EXISTING GUARDRAIL RUNS. NO GUARDRAIL SHALL BE REMOVED UNTIL THE REPLACEMENT MATERIAL IS ON THE SITE, READY FOR INSTALLATION.

PROPOSED GUARDRAIL LOCATIONS:
THE LOCATION OF GUARDRAIL RUNS AS SHOWN IN THESE PLANS, ARE SUBJECT TO ADJUSTMENT TO ASSURE THAT THE PLANNED INSTALLATION WILL AFFORD THE MAXIMUM PROTECTION FOR TRAFFIC. THE OFFSET OF THE PROPOSED GUARDRAIL FROM THE EDGE OF TRAVEL LANE SHALL BE THE SAME AS THE EXISTING GUARDRAIL RUNS.

ITEM 203 - EXCAVATION:
GREAT CARE SHALL BE GIVEN SO AS TO NOT DISTURB THE EXISTING DITCH AND PROPOSED CATCH BASINS. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN PROVIDED FOR THE REMOVAL OF THE EXISTING MEDIAN IN THE AREAS NEAR THE EXISTING OVERHEAD STRUCTURES MEDIAN PIER COLUMNS AND TO PROVIDE ADEQUATE GRADING FOR THE PLACEMENT OF ITEM 606 - IMPACT ATTENUATOR, TYPE 2-98, BI-DIRECTIONAL AND ITEM 622 - CONCRETE BARRIER, TYPE A, AS PER PLAN AS SHOWN ON PLAN SHEETS 117/230 AND 118/230.

OVERHEAD STRUCTURE FRA-70-17.19
STA. 141+87 TO STA. 143+82 = 139 CU.YDS.

OVERHEAD STRUCTURE FRA-33-22.98
STA. 200+47 TO STA. 201+37 = 92 CU.YDS.

OVERHEAD STRUCTURE FRA-33-24.56
STA. 282+32 TO STA. 282+52 = 75 CU.YDS.

OVERHEAD STRUCTURES FRA-270-46.13L, R, AND A
STA. 292+49 TO STA. 294+59 = 146 CU.YDS.

OVERHEAD STRUCTURE FRA-33-25.46
STA. 355+02 TO STA. 356+07 = 99 CU.YDS.

ITEM 203 - EXCAVATION: = 551 CU.YDS.

ITEM 202 - ANCHOR ASSEMBLY REMOVED, TYPE A, AS PER PLAN:
THIS ITEM OF WORK SHALL CONSIST OF REMOVING ANY TYPE A ANCHOR ASSEMBLY CONCRETE POST ENCASEMENTS AND END ASSEMBLIES WHICH WERE LEFT IN PLACE THROUGHOUT THE PROJECT LIMITS. THE FOLLOWING QUANTITY HAS BEEN PROVIDED AND THE TOTAL HAS BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 202 - ANCHOR ASSEMBLY REMOVED, TYPE A, AS PER PLAN:
= 53 EACH

ITEM 203 - EMBANKMENT:
THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN PROVIDED AND THE TOTAL HAS BEEN CARRIED TO THE GENERAL SUMMARY.

US-33
STA. 152+75 TO STA. 158+85 = 70 CU.YDS.

ITEM SPECIAL - RESHAPING BERM = 20 CU.YDS.

REFUGEE ROAD RAMP F (PAVEMENT REMOVAL AREA)
STA. 9+20 TO STA. 11+30 = 210 FT.
210 FT. X 21 FT. X 1.5 FT DEPTH / 27 = 245 CU.YD.

ITEM 203 - EMBANKMENT: = 335 CU.YDS.

ITEM 209 - RESHAPING BERM:
THIS ITEM OF WORK SHALL CONSIST OF GRADING THE BERM AFTER THE REMOVAL OF EXISTING GUARDRAIL AND THE PLACEMENT OF ANY EMBANKMENT PRIOR TO THE PLACEMENT OF THE PROPOSED GUARDRAIL. PAYMENT FOR THIS ITEM SHALL INCLUDE ALL LABOR, EQUIPMENT, AND MATERIAL NECESSARY TO GRADE THE EXISTING BERM OR EMBANKMENT AND PROVIDE POSITIVE DRAINAGE FOR THE PROPOSED ROADWAY. EMBANKMENT MATERIALS SHALL BE PAID FOR UNDER ITEM 203 - EMBANKMENT.

ITEM 209 - RESHAPING BERM: = 44,381.5 FT.

ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR, A.P.P.:
ALL AREAS TO BE REPAIRED SHALL BE LOCATED BY THE ENGINEER AND THE WORK PERFORMED PRIOR TO THE PLACEMENT OF THE ITEM 442 - ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446) OR ITEM 442 - ASPHALT CONCRETE INTERMEDIATE COURSE, 19 MM, TYPE A (446). THE REPAIR AREAS SHALL BE OF VARYING LENGTH AND THE AVERAGE WIDTH SHALL NOT BE LESS THAN 4 FEET IN WIDTH. THE DEPTH OF REPAIRS SHALL NOT EXCEED AN AVERAGE DEPTH OF 4 INCHES. ALL AREAS SHALL BE REFILLED WITH 4 INCHES OF ITEM 301 - ASPHALT CONCRETE BASE. NO MORE PARTIAL DEPTH PAVEMENT REPAIR SHALL BE PREFORMED THAN CAN BE COMPLETED IN THE SAME WORKING DAY. THE FOLLOWING QUANTITY HAS BEEN PROVIDED AND THE TOTAL HAS BEEN CARRIED TO THE GENERAL SUMMARY.

100% LOCAL FUNDING
WINCHESTER PIKE = 50 SQ.YD.

80% FEDERAL / 20% STATE FUNDING
VARIOUS RAMPS = 200 SQ.YD.

ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR, A.P.P.:
= 250 SQ.YD.

ITEM 252 - FULL DEPTH PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT:
THIS ITEM OF WORK SHALL CONSIST OF THE FULL DEPTH REMOVAL OF THE EXISTING COMPOSITE PAVEMENT, WHICH CONSISTS OF A 9" CONCRETE BASE PAVEMENT WITH A 2.75", ASPHALT OVERLAY, AND THE REPLACEMENT WITH APPROXIMATELY 12 INCHES OF 301 BITUMINOUS AGGREGATE BASE. THE REPAIR AREAS SHALL TRAVERSE THE EXISTING LANE OF TRAFFIC AND SHOULDER FOR AN AVERAGE WIDTH 6 FEET.

US-33 AND SR - 317 RAMPS
JAMES ROAD CONNECTORS AND US-33
REFUGEE ROAD RAMPS

THE FOLLOWING QUANTITY HAS BEEN PROVIDED AND THE TOTAL HAS BEEN CARRIED TO THE GENERAL SUMMARY.
ITEM 252 - FULL DEPTH PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT: = 400 SQ. YD.

CALCULATED RDK / JW
FAY / MG
CHECKED MATT

GENERAL NOTES

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ITEM 252 - FULL DEPTH PAVEMENT SAWING:
THE FOLLOWING QUANTITY HAS BEEN PROVIDED AND THE TOTAL HAS BEEN CARRIED TO THE GENERAL SUMMARY.

32 FEET PER JOINT X 37 JOINTS = 1,184 FT.
PAVEMENT REMOVAL REFUGEE ROAD RAMP F = 128 FT.

ITEM 252 - FULL DEPTH PAVEMENT SAWING: = 1,312 FT.

ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE:
THE CONTRACTOR SHALL BE TOTALLY RESPONSIBLE FOR ANY AND ALL DAMAGE THAT MAY RESULT FROM THE PLANING OPERATION, INCLUDING CASTINGS AND LOOP DETECTORS. THE DEPTH OF PLANING CLOSE TO THE CASTINGS SHALL BE AS DIRECTED; TO ACHIEVE A SMOOTH RIDING FINISHED PAVEMENT. GREAT CARE SHALL BE TAKEN TO PREVENT THE REMOVAL OF THE EXISTING PAVEMENT CROSS-SLOPE (CROWN) DURING THE PLANING OPERATIONS.

ITEM 255 - FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS MS:
THIS ITEM OF WORK SHALL BE PLACED IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING BP-2.5 (7/16/2004). THE PROJECT ENGINEER SHALL LOCATE ALL JOINTS TO BE REPAIRED PRIOR TO THE WORK BEING PREFORMED.

ITEM 255 - FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS MS: = 200 SQ. YD.

ITEM 255 - FULL DEPTH PAVEMENT SAWING:
THE FOLLOWING QUANTITY HAS BEEN PROVIDED AND THE TOTAL HAS BEEN CARRIED TO THE GENERAL SUMMARY.

24 FEET PER JOINT X 25 JOINTS = 600 FT.

ITEM 252 - FULL DEPTH PAVEMENT SAWING: = 600 FT.

ITEM 407 - TACK COAT:
THE RATE OF APPLICATION OF THE 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENT AS DIRECTED BY THE ENGINEER. FOR ESTIMATING PURPOSES ONLY, THE PLAN INDICATES AN AVERAGE APPLICATION RATE OF TACK COAT AT 0.075 GALLON PER SQUARE YARD. A COVER AGGREGATE SHALL BE USED IF HEAVY TRACKING OF THE TACK COAT ONTO THE EXISTING PAVEMENT SHOULD OCCUR DURING THE PAVING OPERATIONS. THE COST OF THE COVER AGGREGATE SHALL BE INCLUDED IN THE COST OF THIS ITEM.

ITEM 407 - TACK COAT, 702.13:
THE RATE OF APPLICATION OF THE 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENT AS DIRECTED BY THE ENGINEER. FOR ESTIMATING PURPOSES ONLY, THE PLAN INDICATES AN AVERAGE APPLICATION RATE OF TACK COAT AT 0.075 GALLON PER SQUARE YARD. A COVER AGGREGATE SHALL BE USED IF HEAVY TRACKING OF THE TACK COAT ONTO THE EXISTING PAVEMENT SHOULD OCCUR DURING THE PAVING OPERATIONS. THE COST OF THE COVER AGGREGATE SHALL BE INCLUDED IN THE COST OF THIS ITEM.

ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE:
THE RATE OF APPLICATION OF THE 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENT AS DIRECTED BY THE ENGINEER. FOR ESTIMATING PURPOSES ONLY, THE PLAN INDICATES AN AVERAGE APPLICATION RATE OF TACK COAT AT 0.050 GALLON PER SQUARE YARD. A COVER AGGREGATE SHALL BE USED IF HEAVY TRACKING OF THE TACK COAT ONTO THE EXISTING PAVEMENT SHOULD OCCUR DURING THE PAVING OPERATIONS. THE COST OF THE COVER AGGREGATE SHALL BE INCLUDED IN THE COST OF THIS ITEM.

ITEM 442 - ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446):
GREAT CARE SHALL BE TAKEN TO MAINTAIN THE EXISTING PAVEMENT CROSS-SLOPE (CROWN) AND INTERSECTION CROSS-SLOPES (CROWN) DURING THE PAVING OPERATIONS.

ITEM - 603 CONDUITS:
THE CONTRACTOR SHALL VERIFY AND MATCH THE EXISTING CONDUIT (UNDERDRAIN OUTLET) SIZE AND FLOW LINE. THE PROPOSED FLOW LINE ELEVATIONS AND LOCATIONS ARE CALCULATED USING THE EXISTING PLAN ELEVATIONS AND THE GRADES SHOWN IN THE ORIGINAL CONSTRUCTION PLAN. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY THE FLOW LINE AND LOCATIONS OF THE EXISTING CONDUITS (UNDERDRAIN OUTLET) PRIOR TO THE PLACEMENT OF THE PROPOSED CONDUIT (UNDERDRAIN OUTLET). THE PROPOSED CONDUIT (UNDERDRAIN OUTLET) SHALL BE PLACED WITH THE SAME FLOW LINE ELEVATIONS AS THE EXISTING CONDUIT (UNDERDRAIN OUTLET). ALL CONNECTION BETWEEN THE EXISTING CONDUIT AND THE PROPOSED CONDUIT SHALL BE MADE SHOWN IN STANDARD DRAWING DM-1.1 (1/21/2005). PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE OF THE PERTINENT 603 CONDUIT ITEM.

ITEM - 604 MANHOLES, CATCH BASINS AND INLETS:
THE CONTRACTOR SHALL VERIFY AND MATCH THE EXISTING CONDUIT SIZE AND FLOW LINE. THE PROPOSED FLOW LINE ELEVATIONS ARE CALCULATED USING THE EXISTING PLAN ELEVATIONS AND THE GRADES SHOWN IN THE ORIGINAL CONSTRUCTION PLAN. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY THE SIZE AND FLOW LINE OF THE EXISTING CONDUITS PRIOR TO THE PLACEMENT OF THE PROPOSED CONDUIT, CATCH BASIN INLET OR MANHOLES. THE PROPOSED CONDUIT SHALL BE PLACED WITH THE SAME FLOW LINE ELEVATIONS AS THE EXISTING CONDUIT WITHIN THE PROPOSED CATCH BASIN, INLET OR MANHOLE. PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE OF THE PERTINENT 604 AND 603 CONDUIT ITEM.

ITEM 606 - GUARDRAIL, TYPE 5 WITH TUBULAR BACKUP, AS PER PLAN:
THIS ITEM OF WORK SHALL CONSIST OF REMOVING AND REPLACING ANY BENT OR DAMAGED GUARDRAIL, TYPE 5 WITH TUBULAR BACKUP ON STRUCTURES FRA-33-2503 LT AND RT AND FRA-33-2509 LT AND RT. AS DETERMINED BY THE PROJECT ENGINEER. ALL SPLICES SHALL BE MADE IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING GR-2.2 (4/18/2003).

ITEM 606 - ANCHOR ASSEMBLY, TYPE B-98:
THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING EITHER OF THE FOLLOWING GUARDRAIL END TERMINALS.

1.) THE SRT-350, GUARDRAIL END TERMINAL AS MANUFACTURED BY TRINITY INDUSTRY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330-346-0721).

THE LENGTH OF THE SRT-350 SYSTEM IS CONSIDERED TO BE 37'-6", INCLUSIVE OF THREE 12'-6" LONG RAIL ELEMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DWG. NO.	DRAWING NAME	DWG. REV. DATE	ODOT APPROVAL DATE
SS444	SLOTTED RAIL TERMINAL POST LAYOUT AND ERECTION DETAILS SRT-350 (12.5, 8 POST)	7/12/99 Rev. 1	8/27/99
SS425M	SLOTTED RAIL TERMINAL SRT-350 POST LAYOUT AND ERECTION DETAILS (12.5, 9 POST)	6/21/97 Rev. 1	3/6/98

2.) THE FLEAT-350 MANUFACTURED BY ROAD SYSTEMS, INC., 2516 MALLORY LANE, STOW, OHIO, 44224,(TELEPHONE: 815-464-5917).

THE LENGTH OF THE FLEAT-350 IS CONSIDERED TO BE 37'-6", INCLUSIVE OF THREE 12'-6" LONG RAIL ELEMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DWG. NO.	DRAWING NAME	DWG. REV. DATE	ODOT APPROVAL DATE
FLT-M	FLARED ENERGY ABSORBING TERMINAL (FLEAT-350) ASSEMBLY	4/16/98	7/31/98

REFER TO THE MANUFACTURER'S INSTRUCTION REGARDING THE INSTALLATION OF, AND THE GRADING AROUND, THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY FOUNDATION TUBE SHOULD BE LESS THAN 4-INCHES ABOVE THE GROUND. THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 27-3/4-INCHES FROM THE EDGE OF THE SHOULDER. ON-SITE GRADING IS REQUIRED IF THE TOP OF THE FOUNDATION TUBES OR TOP OF THE GROUND STRUT DOES PROJECT MORE THAN 4 INCHES ABOVE THE GROUND LINE.
THE FACE OF THE TYPE B-98 IMPACT HEAD SHALL BE COVERED WITH TYPE G REFLECTIVE SHEETING, PER CMS 730.19: APPROXIMATELY 36" W X 12" H FOR THE SRT-350 AND 14" W X 20" H FOR THE FLEAT.

CALCULATED RDK / LW PAY / NG
CHECKED MATT

GENERAL NOTES

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PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, TYPE B-98, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING REFLECTIVE SHEETING AND ALL RELATED HARDWARE, GRADING, EMBANKMENT AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

ITEM 606 - ANCHOR ASSEMBLY, TYPE E-98:

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING EITHER OF THE FOLLOWING GUARDRAIL END TERMINALS.

1.) THE ET-2000 (1997) MANUFACTURED BY TRINITY INDUSTRY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330-545-4373).

THE LENGTH OF THE ET-2000 (1997) SYSTEM IS CONSIDERED TO BE 50'-0", INCLUSIVE OF TWO 25'-0" LONG RAIL ELEMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DWG. NO.	DRAWING NAME	DWG. REV. DATE	ODOT APPROVAL DATE
SSS265M	ET-2000 (1997) PLAN, ELEVATION AND SECTIONS	6/20/97	3/6/98
SS142	ET2000 PLUS 50'-0" PLAN, ELEVATION AND SECTION 25'-0" RAIL, SLEEVE W/PL POSTS 1-4	4/12/00	7/31/00
SS141	ET2000 PLUS PLAN, ELEVATION AND SECTION 25'-0" RAIL, HBA POSTS 1-4	2/29/00	7/31/00
SS158	ET2000 PLUS 50'-0" WITH 12'-6" PANELS AND HBA POSTS 1-4 PLAN, ELEVATION AND SECTION	5/22/00	7/31/00

2.) THE SKT-350 MANUFACTURED BY ROAD SYSTEMS, INC., 2516 MALLORY LANE, STOW, OHIO, 44224, (TELEPHONE: 330-346-0721).

THE LENGTH OF THE SKT-350 SYSTEM IS CONSIDERED TO BE 50'-0", INCLUSIVE OF FOUR 12'-6" LONG RAIL ELEMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DWG. NO.	DRAWING NAME	DWG. REV. DATE	ODOT APPROVAL DATE
SKT-4M	SEQUENTIAL KINKING TERMINAL (SKT-350) ASSEMBLY WITH 4 FOUNDATION TUBES	12/11/97	3/6/98

THE FACE OF THE TYPE E-98 IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER CMS 730.19, APPROXIMATELY 18" X 18".

REFER TO THE MANUFACTURER'S INSTRUCTION REGARDING THE INSTALLATION OF, AND THE GRADING AROUND, THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY FOUNDATION TUBE SHOULD BE LESS THAN 4-INCHES ABOVE THE GROUND. THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 27-3/4-INCHES FROM THE EDGE OF THE SHOULDER.

ON-SITE GRADING IS REQUIRED IF THE TOP OF THE FOUNDATION TUBES OR TOP OF THE GROUND STRUT DOES PROJECT MORE THAN 4-INCHES ABOVE THE GROUND LINE.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, TYPE E-98, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING ALL RELATED TRANSITIONS, REFLECTIVE SHEETING, HARDWARE, GRADING, EMBANKMENT AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

CALCULATED RDK / LW
PAY / MG
CHECKED MATT

GENERAL NOTES

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ITEM 606 - IMPACT ATTENUATOR, TYPE 2-98

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING EITHER ONE OF THE FOLLOWING IMPACT ATTENUATORS.

1.) A QUADGUARD IMPACT ATTENUATOR MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC., 35 EAST WACKER DRIVE, CHICAGO, IL 60601 (TELEPHONE: 312-467-6750) AND DISTRIBUTED BY BALDWIN AND SOURS, INC. (614-851-8800). INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DWG. NO.	DRAWING NAME	DWG. REV. DATE	ODOT APPROVAL DATE
QSTSCVR-U	QUADGUARD SYSTEM WITH TENSION STRUT BACKUP	7/10/96 Rev. A	3/6/98
QSCBCVR-U	QUADGUARD SYSTEM WITH CONCRETE BACKUP	4/28/97 Rev. E	3/6/98
QFTSCVR-U	QUADGUARD SYSTEM W/ 69" & 90" TENSION STRUT BACKUPS	9/5/97 Rev. C	3/6/98
QFCBCVR-U	QUADGUARD SYSTEM W/ 69" & 90" CONCRETE BACKUPS	9/4/97 Rev. D	3/6/98
35-40-20	DEFLECTOR ASSEMBLY, CONCRETE BACKUP RETROFIT, QG	11/14/97 Rev. B	7/31/98
35-40-03	QUADGUARD SYSTEM BACKUP ASSEMBLY, TS, QG	3/19/99 Rev. F	8/27/99
35-40-08 2 SHEETS	QUADGUARD SYSTEM CONCRETE BACKUP, QG ON GRADE & ON EXISTING CONCRETE STRUCTURE	10/14/97 Rev. F 10/14/97 Rev. F	8/27/99 8/27/99
35-40-21 2 SHEETS	TRANSITION ASSEMBLY QUAD-BEAM TO W-BEAM	11/6/97 Rev. B 7/14/97 Rev. A	8/27/99 8/27/99
35-40-22 2 SHEETS	TRANSITION ASSEMBLY QUAD-BEAM TO THRIE-BEAM	7/15/97 Rev. A 7/11/97 Rev. A	8/27/99 8/27/99
35-40-15	QUADGUARD SYSTEM END SHOE ASSEMBLY, QG	9/11/98 Rev. F	8/27/99
3540211 2 SHEETS	QG TRANSITION ASSEMBLY QUAD-BEAM TO W-BEAM-WIDE	8/29/97 Rev. A 8/29/97 Rev. A	8/27/99 8/27/99
3540221 2 SHEETS	QG TRANSITION ASSEMBLY QUAD-BEAM TO THRIE-BEAM-WIDE	8/29/97 Rev. A 8/29/97 Rev. A	8/27/99 8/27/99
3540498	QG SYSTEM NOSE ASSEMBLY, QG, 24, 30, 36, W/BELTING	12/30/98	8/27/99
3540150	QUADGUARD TRANSITION TO VERTICAL CONCRETE BARRIER	9/96	8/27/99

2.) THE BARRIER SYSTEMS, INC. TAU-II IMPACT ATTENUATOR DISTRIBUTED BY ROAD SYSTEMS, INC., SALES SUPPORT, 2183 ELM TRACE, AUSTINTOWN, OH 44515 TELEPHONE: (330) 799-9291. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DWG. NO.	DRAWING NAME	DWG. REV. DATE	ODOT APPROVAL DATE
SYSTEM CAPACITY	UNIVERSAL TAU-II CRASH CUSHION SYSTEM CONFIGURATION CHART	10/6/04	10/16/04
A040416	UNIVERSAL TAU-II PARTS LIST	4/22/04	10/16/04
A040420	UNIVERSAL TAU-II FOUNDATION, FLUSH MOUNT BACKSTOP PCC PAD	4/28/04	10/16/04
A040105	UNIVERSAL TAU-II FOUNDATION, PCB BACKSTOP (REFERENCED ON A040420)	1/07/04	10/16/04
A040108	UNIVERSAL TAU-II FOUNDATION, WIDE FLANGE BACKSTOP	1/07/04	10/16/04
A040113	FOUNDATION SPECIFICATIONS (REFERENCED ON A040420 AND A040108) REV. A	1/09/04	10/16/04
B010537	COMPACT BACKSTOP, TAU-II	3/25/02	10/16/04
B040219	FLUSH MOUNT BACKSTOP ASSEMBLY	4/19/04	10/16/04
B040239	APPLICATION, FLUSH MOUNT BACKSTOP (TYPICAL FOR PARALLEL SYSTEM, 60 & 70 MPH, UP TO 36" HAZARD WIDTH, CONNECTED TO SCD RM-4.6)	4/21/04	10/16/04
B033004	WIDE TAU-II 60 MPH, 60" BACKSTOP (TYPICAL FOR 60 MPH COMBINATION SYSTEM)	12/21/03	10/16/04
B033101	WIDE TAU-II 70 MPH, 66" BACKSTOP (TYPICAL FOR 70 MPH COMBINATION SYSTEM)	2/13/04	10/16/04
B033009	WIDE TAU-II 60 MPH, 90" BACKSTOP (TYPICAL FOR 60 MPH FLARED SYSTEM)	11/26/03	10/16/04
B033105	WIDE TAU-II 70 MPH, 90" BACKSTOP (TYPICAL FOR 70 MPH FLARED SYSTEM)	2/17/04	10/16/04

WHEN BI-DIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS. PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, IMPACT ATTENUATOR, TYPE 2-98 [(SPEED (IN MPH),HAZARD WIDTH (IN INCHES)), (UNIDIRECTIONAL OR BIDIRECTIONAL)], EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS/BACKSTOPS, TRANSITIONS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

ITEM 617 - WATER:

THIS ITEM SHALL BE USED AS DIRECTED BY THE ENGINEER. THE FOLLOWING QUANTITY HAS BEEN PROVIDED AND THE TOTAL HAS BEEN CARRIED TO THE GENERAL SUMMARY.

100% LOCAL FUNDING (WINCHESTER PIKE)
LINE A STA. 169+25/LINE B 171+30 TO STA. 197+00 = 1 M/GAL.

80% FEDERAL / 20% STATE FUNDING
STA. 136+73 BK / 114+86 AH TO STA. 370+65 = 10 M/GAL.

ITEM 617 - WATER: = 11 M/GAL.

ITEM 618 - RUMBLE STRIPS, TYPE 2 (ASPHALT CONCRETE):

THE FOLLOWING QUANTITY HAS BEEN PROVIDED:

WB DIR. RDWY. STA. 166+97 TO WB DIR. RDWY. STA. 198+07
3,110 X 2 SHOULDERS = 6,220 FT.

EB DIR. RDWY. STA. 169+07 TO EB DIR. RDWY. STA. 198+07
2,900 X 2 SHOULDERS = 5,800 FT.

EB US-33 STA. 199+07 TO EB US-33 STA. 364+25
16,518 X 2 SHOULDERS = 33,036 FT.

WB US-33 STA. 199+07 TO WB US-33 STA. 364+25
16,518 X 2 SHOULDERS = 33,036 FT.

ITEM 618 - RUMBLE STRIPS, TYPE 2 = 78,092 FT.

ITEM 622 - CONCRETE BARRIER, SINGLE SLOPE, TYPE A, AS PER PLAN:

THIS ITEM OF WORK SHALL CONSIST OF ENCASING THE MEDIAN PIER COLUMNS OF VARIOUS OVERHEAD STRUCTURES AS SHOWN IN STANDARD CONSTRUCTION DRAWING RM-4.4 (4/18/2003). THE WIDTH OF THE CONCRETE BARRIER, SINGLE SLOPE, TYPE A, AS PER PLAN SHALL VARY IN ACCORDANCE WITH THE MANUFACTURERS WIDTH REQUIREMENTS OF THE ITEM 606 - IMPACT ATTENUATOR, TYPE 2-98 BI-DIRECTIONAL. SEE GUARDRAIL DETAILS ON PLAN SHEETS 117/230 AND 118/230.

CALCULATED RDK / JW FAY / NG CHECKED MATT

GENERAL NOTES

FRA-33-20.69

ITEM 623 - CONSTRUCTION LAYOUT STAKES, AS PER PLAN:

THIS ITEM SHALL CONSIST OF STATIONING USING 3 FT LATH STAKES OR PAINT MARKINGS. THE STAKES OR PAINT MARKINGS SHALL BE SPACED AT 100 FT INTERVALS AND EXTEND THROUGHOUT THE LENGTH OF THE PROJECT. PLACEMENT OF THE STAKES OR PAINT MARKINGS SHALL BE AS DIRECTED BY THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR REPLACING ANY DAMAGED, MISSING STAKES, OR PAINT MARKINGS. PAINT MARKINGS SHALL BE PLACED ON CURBS AND USED IN AREAS WERE THE PLACEMENT OF STAKES IS NOT POSSIBLE AND APPROVED BY THE PROJECT ENGINEER.

CONSTRUCTION LAYOUT STAKES, AS PER PLAN WILL BE PAID FOR AT THE CONTRACT LUMP SUM BID, WHICH PRICE SHALL BE FULL COMPENSATION FOR ALL SERVICES, MATERIALS, LABOR, EQUIPMENT, TOOLS, AND INCIDENTALS, INCLUDING THE REMOVAL, NECESSARY TO COMPLETE THIS ITEM.

ITEM 659 - SEEDING AND MULCHING, CLASS 2:

THE FOLLOWING QUANTITY HAS BEEN PROVIDED AND THE TOTAL HAS BEEN CARRIED TO THE GENERAL SUMMARY.

OVERHEAD STRUCTURE FRA-70-17.19
STA. 141+87 TO STA. 143+82 = 195 FT.
195 FT. X 6 FT. WIDTH / 9 = 130 SQ.YD.

OVERHEAD STRUCTURE FRA-33-22.98
STA. 200+47 TO STA. 201+37 = 90 FT.
90 FT. X 6 FT. WIDTH / 9 = 60 SQ.YD.

OVERHEAD STRUCTURE FRA-33-24.56
STA. 282+32 TO STA. 282+52 = 50 FT.
50 FT. X 6 FT. WIDTH / 9 = 33 SQ.YD.

OVERHEAD STRUCTURES FRA-270-46.13L, R, AND A
STA. 292+49 TO STA. 294+59 = 210 FT.
210 FT. X 6 FT WIDTH / 9 = 140 SQ.YD.

OVERHEAD STRUCTURE FRA-33-25.46
STA. 355+02 TO STA. 356+07 = 105 FT.
105 FT. X 6 FT. WIDTH / 9 = 70 SQ.YD.

US-33
STA. 152+75 TO STA. 158+85 = 610 FT.
610 FT. X 10FT. AVG. WIDTH / 9 = 678 SQ.YD.

REFUGEE ROAD RAMP F (PAVEMENT REMOVAL AREA)
STA. 9+20 TO STA. 11+30 = 210 FT.
210 FT. X 21 FT WIDTH / 9 = 490 SQ.YD.

VARIOUS DRAINAGE STRUCTURES
20 FT. X 20 FT. = 44 SQ.YD.
92 STRUCTURES X 44 SQ.YDS. = 4,048 SQ.YDS.

AS DIRECTED BY THE PROJECT ENGINEER = 500 SQ.YDS.

ITEM 659 - SEEDING AND MULCHING = 6,149 SQ.YDS.

ITEM 659 - COMMERCIAL FERTILIZER:

THE FOLLOWING QUANTITY HAS BEEN PROVIDED AND THE TOTAL HAS BEEN CARRIED TO THE GENERAL SUMMARY.

AREA OF SEEDING AND MULCHING = 6,161 SQ.YDS.
APPLICATION #1
6,161 / 1000 X 20 / 2000 = 0.06 TON

APPLICATION #2
6,161 / 1000 X 10 / 2000 = 0.03 TON

ITEM 659 - COMMERCIAL FERTILIZER: = 0.09 TON

ITEM 659 - WATER:

THE FOLLOWING QUANTITY HAS BEEN PROVIDED AND THE TOTAL HAS BEEN CARRIED TO THE GENERAL SUMMARY.

AREA OF SEEDING AND MULCHING = 6,161 SQ.YDS.
6,161 SQ.YDS. / 1000 X 300 GAL = 1,848 GALLONS
1,848 GALLONS X 2 APPLICATIONS = 3,697 GALLONS

ITEM 659 - WATER: = 4 M/GAL

CALCULATED RJK / LW FAY / NG
CHECKED MATT

GENERAL NOTES

FRA-33-20.69

GENERAL:
ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED, AND REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (CURRENT EDITION). COPIES ARE AVAILABLE FROM,

THE OHIO DEPARTMENT OF TRANSPORTATION
BUREAU OF TRAFFIC,
1980 WEST BROAD STREET
COLUMBUS, OHIO 43223.

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK LISTED IN THE GENERAL SUMMARY FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER.

CONSTRUCTION OPERATIONS SHALL NOT BEGIN UNTIL ALL TRAFFIC CONTROL IS IN PLACE AND APPROVED BY ODOT PERSONNEL. ALL TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE APPROVED FOR CONDITION AND LOCATION BY THE CONSTRUCTION INSPECTOR BEFORE THE CONTRACTOR WILL BE ALLOWED TO BEGIN WORK. IF THE CONTRACTOR DOES NOT COMPLY WITH THE STANDARDS, HIS PERMIT SHALL BE REVOKED AND ALL WORK SHALL BE TERMINATED.

WHEN MORE THAN ONE THROUGH LANE IS CLOSED AND/OR IF THE MAINLINE IS REDUCED TO ONE LANE, ALL ENTRANCE RAMPS WITHIN, AND LEADING INTO THE WORK AREA SHALL BE CLOSED. ALSO, ALL TURN SLOTS, LANE CLOSURES, ETC., LEADING INTO THESE ENTRANCE RAMPS SHALL BE CLOSED USING THE STANDARDS SET FORTH IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND THE TYPICAL DETAIL FOR SEE SHEET 42/230.

USE OF STANDARD DRAWINGS:
FOR THE PURPOSE OF THIS PROJECT, "MOVING OPERATION" SHALL BE LIMITED TO PAVEMENT MARKING STRIPING.

IT MAY BE NECESSARY TO EXTEND THE ADVANCE WARNING AND BUFFER ZONES BEYOND THE MINIMUM DISTANCES SHOWN ON THE STANDARD DRAWINGS. THIS MAY BE DUE TO HORIZONTAL ALIGNMENT, VERTICAL ALIGNMENT, RAMP LOCATIONS, OR OTHER SIGHT OBSTRUCTIONS. LOCATIONS OF THE TAPER ZONES MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER, BUT TAPER LENGTHS MUST MEET THE MINIMUM STANDARDS. TAPERS SHOULD BE PLACED IN TANGENT SECTIONS WHENEVER POSSIBLE. ADDITIONAL YIELD SIGNS MAY BE REQUIRED FOR RAMPS WITHIN 1000 FEET OF A WORK ZONE. PAYMENT SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614-MAINTAINING TRAFFIC.

FOR ANY MULTILANE HIGHWAY, DEVICE SPACING SHALL BE A MAXIMUM OF 40' CENTER ON CENTER IN THE TAPERS AND 80' CENTER ON CENTER IN THE TANGENT SECTIONS.

TEMPORARY TRAFFIC CONTROL PLAN:
A TEMPORARY TRAFFIC CONTROL PLAN INCLUDING PEDESTRIAN CONTROL SHALL BE SUBMITTED TO THE CITY OF COLUMBUS TEMPORARY TRAFFIC CONTROL COORDINATOR AT THE PRE-CONSTRUCTION MEETING OR A MINIMUM OF TEN WORKING DAYS PRIOR TO BEGINNING WORK. COPIES OF THE APPROVED TEMPORARY TRAFFIC CONTROL PLAN SHALL BE GIVEN TO THE PROJECT ENGINEER AND KEPT ON SITE ALONG WITH THE STREET CLOSURE/OCCUPANCY PERMIT.

PUBLIC NOTIFICATION:
THE CONTRACTOR IS TO BE RESPONSIBLE FOR NOTIFYING, BY LETTER WITH HIS COMPANY LETTERHEAD, RESIDENTS, AND BUSINESSES ON STREETS TO BE RESURFACED. ADVANCED NOTICE SHALL BE TWO WEEKS PRIOR TO THE FIRST DAY OF WORK ON THAT STREET. A COPY OF THE LETTER TO BE CIRCULATED SHALL BE PRESENTED AT THE PRE-CONSTRUCTION MEETING. THE CONTRACTOR IS TO NOTIFY THE PROJECT ENGINEER OF THE DATES WHEN THIS NOTIFICATION IS DISTRIBUTED.

THE CONTRACTOR IS RESPONSIBLE TO POST "EMERGENCY - NO PARKING" SIGNS, PER CITY OF COLUMBUS SIGN DESIGN, 72 HOURS PRIOR TO BEGINNING ANY WORK ON THE STREET. THE "EMERGENCY - NO PARKING" SIGNS CAN BE POSTED FOR A MAXIMUM DURATION OF FOUR DAYS IF THE WORK IS NOT COMPLETED WITHIN THE FOUR DAY PERIOD, THE CONTRACTOR IS RESPONSIBLE FOR REMOVING THE SIGNS AND REPOSTING THEM AT A LATER DATE. ALL COSTS FOR REPOSTING THE SIGNS SHALL BE PAID FOR BY THE CONTRACTOR.

STREET OCCUPATION PERMIT:
PRIOR TO THE CLOSURE OF ANY PORTION OF THE ROADWAYS WITHIN THE CITY OF COLUMBUS, THE CONTRACTOR SHALL OBTAIN AND SUBMIT "THE PERMIT FOR STREET OPENING AND/OR BARRICADING" PERMIT TO THE CITY OF COLUMBUS ENGINEER FOR COMPLETION AND ISSUING. THE ABOVE SUBMISSION SHALL BE MADE A MINIMUM OF FIVE WORKING DAYS PRIOR TO THE ANTICIPATED DATE OF BARRICADING. THE PERMIT SHOWS THE REQUIREMENTS FOR SPECIAL DUTY POLICE. A COPY OF THIS PERMIT SHALL ALSO BE GIVEN TO THE PROJECT ENGINEER.

OCCUPANCY PERMITS MUST BE OBTAINED BY THE CONTRACTOR AT LEAST FIVE DAYS PRIOR TO BEGINNING WORK FROM THE CITY OF COLUMBUS TRANSPORTATION DIVISION (614) 645-5660. DETAILED MAINTENANCE OF TRAFFIC DRAWINGS MAY BE REQUIRED AS PART OF THE PERMIT PROCESS.

USE OF WEIGHTED CHANNELIZER:
THE WEIGHTED CHANNELIZER MAY BE USED IN ACCORDANCE WITH THIS SECTION. THE WEIGHTED CHANNELIZER SHALL BE PREDOMINANTLY ORANGE IN COLOR AND SHALL BE MADE OF LIGHTWEIGHT, FLEXIBLE, AND DEFORMABLE MATERIAL. THEY SHALL BE AT LEAST 42 INCHES IN HEIGHT WITH A WEIGHTED BASE. THEY MAY HAVE A HANDLE OR LIFTING DEVICE, WHICH EXTENDS ABOVE THE 42" MINIMUM HEIGHT.

THE MARKINGS ON THE WEIGHTED CHANNELIZER SHALL BE HORIZONTAL, CIRCUMFERENTIAL, ALTERNATING ORANGE AND WHITE RETRO REFLECTIVE STRIPES 6 INCHES WIDE. EACH WEIGHTED CHANNELIZER SHALL HAVE A MINIMUM OF TWO ORANGE AND TWO WHITE STRIPES. ANY NON-RETRO REFLECTIVE SPACES BETWEEN THE HORIZONTAL ORANGE AND WHITE STRIPES SHALL NOT EXCEED 2 INCHES WIDE. THE WEIGHTED CHANNELIZER SHALL HAVE A 4-INCH MINIMUM WIDTH, REGARDLESS OF ORIENTATION.

USE OF WEIGHTED CHANNELIZERS ON FREEWAYS AND MULTILANE HIGHWAYS SHALL BE LIMITED TO SHORT-TERM OPERATION FOR EITHER DAY OR NIGHT. UPON COMPLETION OF WORK, THE WEIGHTED CHANNELIZERS SHALL BE REMOVED. THE WEIGHTED CHANNELIZERS MAY AGAIN BE PLACED ON THE HIGHWAY WHEN THE WORK IS TO RESUME ON THE FOLLOWING DAY OR NIGHT. ANY LANE CLOSURE USING CHANNELIZATION DEVICES, EXPECTED TO REMAIN FOR MORE THAN TWELVE HOURS, SHALL REQUIRE THE USE OF DRUMS OR BARRIERS. WORK IS TO RESUME ON THE FOLLOWING DAY OR NIGHT. ANY LANE CLOSURE USING CHANNELIZATION DEVICES, EXPECTED TO REMAIN FOR MORE THAN TWELVE HOURS, SHALL REQUIRE THE USE OF DRUMS OR BARRIERS.

WHEN USED AT NIGHT, WEIGHTED CHANNELIZERS SHALL ONLY BE PLACED IN THE TANGENT AREA. THE TANGENT AREA IS DEFINED AS THE AREA AFTER THE TRANSITION TAPER WHERE THE WORK TAKES PLACE. DRUMS SHALL BE USED IN THE TRANSITION TAPERS FOR NIGHT OPERATIONS.

MAXIMUM SPACING OF THE WEIGHTED CHANNELIZER SHALL BE 40 FEET.

STEPS SHOULD BE TAKEN TO ENSURE THAT THE WEIGHTED CHANNELIZERS WILL NOT BE BLOWN OVER OR DISPLACED BY WIND OR MOVING TRAFFIC. BALLASTS SHOULD NOT PRESENT A HAZARD IF THE WEIGHTED CHANNELIZERS ARE INADVERTENTLY STRUCK, NOR SHOULD THEY AFFECT THE VISIBILITY OF THE WEIGHTED CHANNELIZERS. ALL BALLASTS USED SHOULD BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

PROTECTION VEHICLE:
DURING LANE CLOSURES SHOWN ON SHEETS 39/230, 40/230, 41/230, THE WORK ZONES SHALL UTILIZE A PROTECTION VEHICLE AS SHOWN. THE PROTECTION VEHICLE SHALL BE EQUIPPED WITH A TRUCK MOUNTED ATTENUATOR COMPLIANT WITH NCHRP 350 FRO A SPEED OF 35 MPH. THE WEIGHT AND SIZE OF THE TRUCK SHALL MEET THE MANUFACTURES SPECIFICATIONS. PAYMENT SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614-MAINTAINING TRAFFIC.

CALCULATED RDK / LM
FAY / HG
CHECKED MAT

MAINTENANCE OF TRAFFIC GENERAL NOTES

FRA-33-20.69

ITEM 614 - MAINTAINING TRAFFIC:
A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING AND COMPLETED PAVEMENT. WORK ZONES SHALL BE LIMITED IN LENGTH TO THE AMOUNT OF WORK THAT CAN BE PERFORMED WITHIN THE ALLOWABLE CLOSURE. FAILURE TO COMPLY SHALL SUBJECT THE CONTRACTOR TO LIQUIDATED DAMAGES DESCRIBED BELOW.

STRUCTURE FRA-33-20.40:
FOR DETAILS OF MOT SETUP FOR THE PAINTING OF THIS STRUCTURE SEE SHEETS 39/230,40/230, AND 41/230.

LANE RESTRICTIONS FRA-33-20.40
LANE RESTRICTIONS SHALL NOT BE PERMITTED ON US 33 (LIVINGSTON AVE.) FOR WORK BEING PERFORMED ON FRA-33-20.40 BETWEEN THE HOURS OF,

WEEKDAYS
FROM 2:00 PM TO 7:00PM MONDAY THRU FRIDAY EASTBOUND.
FROM 6:00 AM TO 9:30AM MONDAY THRU FRIDAY WESTBOUND.

WEEKENDS
NO RESTRICTIONS.

URBAN PAVING AREA PLANING RESTRICTIONS:
ALL PLANED PAVEMENT SHALL BE RESURFACED ALONG WITH PLACEMENT OF ALL TEMPORARY PAVEMENT MARKINGS AND OPENED TO TRAFFIC WITHIN FIVE CONSECUTIVE DAYS OF THE START OF THE PLANING OPERATIONS FROM STATION 100+46 TO BACK STATION 136+73 / AHEAD STATION 114+86.

LANE RESTRICTIONS IN URBAN PAVING AREA
LANE RESTRICTIONS SHALL ONLY BE PERMITTED ON US 33 FROM STATION 100+46 TO BACK STATION 136+73 / AHEAD STATION 114+86 BETWEEN THE HOURS OF,

WEEKDAYS
FROM 6:00 AM TO 3:00PM MONDAY THRU FRIDAY EASTBOUND.
FROM 9:00 AM TO 8:00PM MONDAY THRU FRIDAY WESTBOUND.

NO WORK SHALL BE PERFORMED AND ALL EXISTING LANES SHALL BE OPEN TO TRAFFIC BETWEEN THE HOURS OF,

WEEKENDS
FROM 8:00 PM FRIDAY TO 6:00 AM MONDAY EASTBOUND & WESTBOUND.

URBAN/RURAL PAVING AREA PLANING RESTRICTIONS:
ALL PLANED PAVEMENT SHALL BE RESURFACED WITH THE FIRST INTERMEDIATE COURSE ALONG WITH THE PLACEMENT OF ALL TEMPORARY PAVEMENT MARKINGS PRIOR TO BEING OPENED TO TRAFFIC. THE SECOND INTERMEDIATE COURSE SHALL BE PLACED ALONG WITH THE PLACEMENT OF ALL TEMPORARY PAVEMENT MARKINGS WITHIN FIVE CONSECUTIVE DAYS FROM BACK STATION 136+73 / AHEAD STATION 114+86 TO STATION 364+25.

LANE RESTRICTIONS IN URBAN/RURAL PAVING AREA
LANE RESTRICTIONS AND RAMP CLOSURES SHALL NOT BE PERMITTED ON US 33 FROM BACK STATION 136+73 / AHEAD STATION 114+86 TO STATION 386+06 OR BETWEEN THE HOURS OF,

WEEKDAYS
FROM 2:00 PM TO 7:00PM MONDAY THRU FRIDAY EASTBOUND.
FROM 6:00 AM TO 9:30AM MONDAY THRU FRIDAY WESTBOUND.

WEEKENDS
NO RESTRICTIONS.

LIQUIDATED DAMAGES:
FAILURE TO COMPLY WITH ANY OF THE REQUIREMENTS MENTIONED SHALL RESULT IN THE CONTRACTOR BEING ASSESSED LIQUIDATED DAMAGES IN ACCORDANCE WITH SCHEDULE BELOW. TIME KEEPING WILL BE AS DIRECTED BY THE ENGINEER.

LANE RESTRICTIONS OR LANE REDUCTIONS SHALL NOT BE PERMITTED OUTSIDE OF THE NORMAL WORKING HOURS GIVEN ON SHEET 34/230 OR LIQUIDATED DAMAGES WILL BE ASSESSED AS FOLLOWS.

$300 FOR THE FIRST HALF HOUR OR ANY PART THEREOF EXCEEDING ALLOWABLE HOURS RESTRICTIONS.

$50/MINUTE THEREAFTER UNTIL ALL LANES OF TRAFFIC ARE AVAILABLE.

FULL DEPTH PAVEMENT REPAIRS:
ITEM 255 - FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, ITEM 253 - FULL DEPTH PAVEMENT REPAIR AND ITEM 252 - FULL DEPTH RIGID PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT SHALL ONLY BE PERMITTED ON US 33 FROM BACK STATION 136+73 / AHEAD STATION 114+86 TO STATION 386+06 BETWEEN THE HOURS OF:

WEEKENDS
FROM 7:00 PM FRIDAY THRU 2:00PM MONDAY EASTBOUND.
FROM 9:30 AM FRIDAY THRU 6:00AM MONDAY WESTBOUND.

RAMPS:
ALL RAMPS SHALL BE OPEN TO TRAFFIC DURING THE SAME TIMES AS SET UP FOR MAINLINE (US-33) ADJACENT TO THE RAMP. ALL RAMP CLOSURES DURATIONS WILL BE KEPT TO A MINIMUM, AND WILL ONLY BE PERMITTED WHEN WORK IS BEING PERFORMED EITHER ON THE RAMP OR ON THE ADJACENT PAVEMENT. NO MORE THAN ONE RAMP SHALL BE CLOSED AT A TIME. RAMPS K AND J, OF THE US 33 AND HAMILTON ROAD INTERCHANGE SHALL BE CLOSED AT THE SAME TIME AND AN ELEVEN FOOT LANE WIDTH MAINTAINED ON RAMP IJ AND I WHILE RAMPS K AND J ARE CLOSED. FORTY-EIGHT HOURS IN ADVANCE TO ANY EXIT OR ENTRANCE RAMP CLOSURE, A PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE PLACED ONE ALONG THE RAMP, OR AS DIRECTED BY THE ENGINEER, TO WARN MOTORISTS OF THE IMPENDING CLOSURE. DURING THE CLOSURE, THE SAME PCMS SHALL BE PLACED ONE MILE IN ADVANCE OF THE RAMP TO ALERT TRAFFIC TO THE CLOSURE AND PROVIDE AN ALTERNATE ROUTE.

SHORT DURATION ROAD CLOSURES:
SHORT DURATION ROAD CLOSURES OF FIFTEEN MINUTES WILL BE PERMITTED FOR THE ERECTION OF SPAN TYPE OVERHEAD SUPPORTS, REFURBISHING OF EXISTING TRUSS SECTIONS OF SIGN SUPPORTS, REMOVING AND ERECTING OVERHEAD SIGNS AND SIGN LIGHTING AND WIRING OF THE OVERHEAD STRUCTURES WITH THE FOLLOWING RESTRICTIONS.

SET UP WILL BE WITH THE AID OF AN LAW ENFORCEMENT OFFICER (L.E.O.).

ADVANCE NOTICE IS GIVEN AS DIRECTED IN THE COORDINATION WITH O.D.O.T.'S CENTRAL OHIO TRAFFIC MANAGEMENT PROGRAM NOTE LISTED IN THE GENERAL NOTES FOR THIS PROJECT.

NO MORE THAN ONE SHORT DURATION ROAD CLOSURE IN EITHER DIRECTION IS PERMITTED WITHIN ANY CONSECUTIVE THIRTY-MINUTE PERIOD.

IF THE TRAFFIC BACKUP EXCEEDS ONE MILE WORK SHALL CEASE UNTIL TRAFFIC CLEARS.

CALCULATED RSK / LW FAY / HG
CHECKED MAT

MAINTENANCE OF TRAFFIC GENERAL NOTES

FRA-33-20.69

35
230

THIS ITEM OF WORK SHALL BE ACCOMPLISHED IN SUCH A MANNER THAT COMPLETE TRAFFIC STOPPAGE ON ALL LANES OF ANY DIRECTIONAL ROADWAY IS NOT MORE THAN FIFTEEN MINUTES IN ANY CONSECUTIVE THIRTY-MINUTE PERIOD. A MINIMUM OF ONE LAW ENFORCEMENT PATROL VEHICLE PER LANE SHALL BE USED TO SLOW AND STOP MOTORISTS. AS TRAFFIC IS BEING SLOWED, ONE (1) PATROL VEHICLE SHALL TRAVEL ALONG THE ROADWAY SHOULDER 500 BEHIND THE BACK UP OF STOPPED VEHICLES. SEE PLAN SHEET DETAIL 43/230. WHEN A STOPPAGE OCCURS NEAR FREEWAY ENTRANCES, THE CONTRACTOR SHALL PLACE FLAG PERSON ON THE RAMPS TO STOP TRAFFIC. PATROL VEHICLES SHALL HAVE HIGH RISE FLASHING BEACONS TO PROVIDE ADEQUATE VISIBILITY TO APPROACHING MOTORISTS. WHEN THE ENGINEER DEEMS APPROPRIATE, THE CONTRACTOR SHALL ERECT AND MAINTAIN "ROAD WORK AHEAD" "PREPARE TO STOP" AND "STOP AHEAD" SIGN WITH FLASHING 12" TRAFFIC SIGNAL HEADS IN ACCORDANCE WITH 632.05. THESE SIGNS SHALL BE ILLUMINATED DURING NIGHT OPERATIONS. PATROL VEHICLES AND SIGNS SHALL BE LOCATED IN ACCORDANCE WITH THE FOLLOWING SKETCH. ERECTION OF SIGN SPANS SHALL BE DONE AT NIGHT BETWEEN THE HOURS OF MIDNIGHT AND 5:00 A.M.

IF A STOPPAGE COULD OCCUR ON 2 INTERSTATES AT ONCE THE OTHER INTERSTATE SHALL NOT BE CONSIDERED AS A RAMP. IT SHALL BE CONSIDERED AS A SHORT DURATION CLOSING ALSO.

PERIODS OF NO WORK:

NO WORK SHALL BE PERFORMED AND ALL EXISTING LANES SHALL BE OPEN TO TRAFFIC DURING THE FOLLOWING DESIGNATED HOLIDAYS OR EVENTS:

EASTER
MEMORIAL DAY
INDEPENDENCE DAY
LABOR DAY
THANKSGIVING DAY

THE PERIOD OF TIME THAT THE LANES ARE TO BE OPEN DEPENDS ON THE DAY OF THE WEEK ON WHICH THE HOLIDAY FALLS. THE FOLLOWING SCHEDULE SHALL BE USED TO DETERMINE THE PERIOD:

DAY OF THE WEEK	TIME ALL LANES MUST BE OPEN TO TRAFFIC
SUNDAY	12 NOON FRIDAY THRU 12 NOON MONDAY
MONDAY	12 NOON FRIDAY THRU 12 NOON TUESDAY
TUESDAY	12 NOON MONDAY THRU 12 NOON WEDNESDAY
WEDNESDAY	12 NOON TUESDAY THRU 12 NOON THURSDAY
THURSDAY	12 NOON WEDNESDAY THRU 12 NOON MONDAY
FRIDAY	12 NOON THURSDAY THRU 12 NOON MONDAY
SATURDAY	12 NOON FRIDAY THRU 12 NOON MONDAY

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED LIQUIDATED DAMAGES AS PREVIOUSLY LISTED IN THIS PLAN.

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN, WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

FLOODLIGHTING FOR THE WORK SITE FOR OPERATIONS DURING NIGHTTIME PERIODS SHALL BE ACCOMPLISHED SO THAT THE LIGHTS DO NOT CAUSE GLARE TO THE DRIVERS ON THE HIGHWAY. TO ENSURE THE ADEQUACY OF THE FLOODLIGHT PLACEMENT, THE CONTRACTOR, AND THE ENGINEER SHALL DRIVE THROUGH THE WORK SITE EACH NIGHT WHEN THE LIGHTING IN IS PLACE AND OPERATIVE AND PRIOR TO COMMENCING ANY WORK. IF GLARE IS DETECTED, THE LIGHT PLACEMENT AND SHIELDS SHALL BE ADJUSTED TO THE SATISFACTION OF THE ENGINEER BEFORE WORK PROCEEDS.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614 - MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL, TO THE DISTRICT SIX MAINTENANCE OF TRAFFIC COORDINATOR, THE CONTRACTOR'S MAINTENANCE OF TRAFFIC PLAN WITH CONSTRUCTION PHASING DESCRIPTIONS, PRIOR TO BEGINNING WORK.

ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR, AS PER PLAN:

IN ADDITION TO THE REQUIREMENTS OF 614 AND THE LATEST EDITION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD), A UNIFORMED LAW ENFORCEMENT OFFICER AND OFFICIAL PATROL CAR WITH WORKING TOP MOUNTED EMERGENCY FLASHING LIGHTS SHALL BE PROVIDED FOR CONTROLLING TRAFFIC FOR THE FOLLOWING TASKS:

LAW ENFORCEMENT OFFICERS (L.E.O.) SHALL BE PRESENT DURING INITIAL SET-UP AND TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT, AND WORKING NEAR A SIGNALIZED INTERSECTION OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED.

LAW ENFORCEMENT OFFICERS (L.E.O.) SHALL BE PRESENT DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.

LAW ENFORCEMENT OFFICERS (L.E.O.) SHALL BE PRESENT AT ALL TIMES WHILE WORK IS BEING PERFORMED ON US 33 FROM 100+46 TO BACK STATION 136+73 / AHEAD STATION 114+86.

LAW ENFORCEMENT OFFICERS (L.E.O.) SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED. THE LAW ENFORCEMENT OFFICERS ARE CONSIDERED AN EMPLOYEE OF THE CONTRACTOR AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR ACTIONS. ALTHOUGH THE CONTRACTOR EMPLOYS THEM, THE PROJECT ENGINEER SHALL HAVE CONTROL OVER THEIR PLACEMENT. THE OFFICIAL PATROL CAR SHALL BE A PUBLIC SAFETY VEHICLE AS REQUIRED THE OHIO REVISED CODE. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THESE SERVICES WITH,

THE COLUMBUS POLICE DEPARTMENT: 614-645-4661
OR
THE OHIO HIGHWAY PATROL: 614-466-2660

LAW ENFORCEMENT OFFICERS WITH PATROL CAR REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE HOURLY BASIS UNDER ITEM SPECIAL - LAW ENFORCEMENT OFFICER WITH PATROL CAR. IF THE CONTRACTOR WISHES TO UTILIZE THE L.E.O. FOR FLAGGING AND TRAFFIC CONTROL OTHER THAN FOR THAT REQUIRED IN THESE PLANS, THE CONTRACTOR MAY DO SO AT THE CONTRACTOR'S OWN EXPENSE. PAYMENT FOR THE EXCESS ABOVE THE CONTRACT REQUIREMENTS WILL BE INCLUDED UNDER ITEM 614-MAINTAINING TRAFFIC.

URBAN PAVING AREA
(80% STATE / 20% LOCAL FUNDING)
ITEM 614 - L.E.O. WITH PATROL CAR = 200 HOURS

URBAN/RURAL PAVING AREA
(80% FEDERAL / 20% STATE FUNDING)
ITEM 614 - L.E.O. WITH PATROL CAR = 900 HOURS

SHORT DURATION ROAD CLOSURES
ITEM 614 - L.E.O. WITH PATROL CAR
(80% FEDERAL / 20% STATE FUNDING) = 100 HOURS

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN PROVIDED:
ITEM SPECIAL - L.E.O. WITH PATROL CAR = 1200 HOURS

CALCULATED RDK / LW
FAY / NG
CHECKED MATT

MAINTENANCE OF TRAFFIC GENERAL NOTES

FRA-33-20.69

CALCULATED RDK / LN PAY / MG CHECKED MGT

MAINTENANCE OF TRAFFIC GENERAL NOTES

<u>ITEM 614 - PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN:</u>
THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, AND REMOVE WHEN NO LONGER NEEDED, CHANGEABLE MESSAGE SIGNS, ON SITE, FOR THE DURATION OF THE PROJECT. THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS MAINTAINED BY THE DIRECTOR. ONLY CLASS I OR II SIGNS WILL BE PERMITTED.

EACH SIGN SHALL BE TRAILER MOUNTED AND EQUIPPED WITH A FUNCTIONAL DIMMING MECHANISM TO DIM THE SIGN DURING DARKNESS AND A TEMPER AND VANDAL PROOF ENCLOSURE. EACH SIGN SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ON-SITE PERSONNEL TO OPERATE AND TROUBLE SHOOT THE UNIT. THE SIGN SHALL ALSO BE CAPABLE OF BEING POWERED BY AN ELECTRICAL SERVICE DROP FROM A LOCAL UTILITY COMPANY.

A PCMS SHALL BE PLACED ON OR NEAR THE FOLLOWING INTERSECTIONS AND A PCMS SHALL BE USED FOR SHORT TERM LANE CLOSURES AS SHOWN ON PLAN INSERT SHEET 43/230.

ON LIVINGSTON AVENUE (US-33) NEAR THE INTERSECTION OF	
LIVINGSTON AVENUE AND COLLEGE AVENUE	= 2 EACH
ON IR 70 NEAR US 33	= 2 EACH
ON SR 104 NEAR US 33	= 2 EACH
ON IR 270 NEAR US 33	= 2 EACH
ON SR 317 NEAR US 33	= 2 EACH
ON US 33 NEAR THE INTERSECTION OF EBRIGHT ROAD	= 1 EACH
VARIOUS RAMP AND SHORT TERM CLOSURES	= 1 EACH

THE EXACT PLACEMENT OF THE SIGNS SHALL BE AS DIRECTED BY THE ENGINEER. THE MESSAGES SHALL BE AS DIRECTED BY THE ENGINEER.

PLACEMENT, OPERATION, MAINTENANCE, AND ALL ACTIVATION OF THE SIGNS BY THE CONTRACTOR SHALL BE AS DIRECTED BY THE ENGINEER. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS WILL BE OFF, FACING AWAY FROM ALL TRAFFIC, AND SHALL DISPLAY ONE OR MORE HIGH INTENSITY YELLOW REFLECTIVE SHEETING SURFACES OF 9" BY 15" MINIMUM, FACING TRAFFIC.

THE ENGINEER SHALL BE PROVIDED ACCESS TO EACH SIGN UNIT AND SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ODOT PERSONNEL TO OPERATE AND TROUBLE SHOOT THE UNIT AND TO REVISE SIGN MESSAGES, IF NEEDED.

THE SIGN SHALL HAVE THE CAPABILITY TO STORE UP TO 99 MESSAGES. MESSAGE MEMORY OR PRE-PROGRAMMED DISPLAYS SHALL NOT BE LOST AS A RESULT OF POWER FAILURES TO THE ON BOARD COMPUTER. THE SIGN LEGEND SHALL BE CAPABLE OF BEING CHANGED IN THE FIELD. THREE-LINE PRESENTATION FORMATS WITH UP TO SIX MESSAGE PHASES SHOULD BE SUPPORTED, BUT NORMALLY, NOT MORE THAT TWO MESSAGE PHASES SHOULD BE EMPLOYED, ALTHOUGH THREE PHASES MAY BE USED IN UNUSUAL CONDITIONS. PCMS FORMAT SHALL PERMIT THE COMPLETE MESSAGE FOR EACH PHASE TO BE READ AT LEAST ONCE. THE PCMS SHALL CONTAIN AN ACCURATE CLOCK AND PROGRAMMING LOGIC, WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DEACTIVATED, OR MESSAGES CHANGED AUTOMATICALLY AT DIFFERENT TIMES FOR DIFFERENT DAYS OF THE WEEK.

THE CONTRACTOR IN ACCORDANCE WITH THE PROVISIONS OF 614.03 SHALL MAINTAIN THE PCMS UNIT IN GOOD WORKING ORDER. THE CONTRACTOR SHALL, PRIOR TO ACTIVATING THE UNIT, MAKE ARRANGEMENTS WITH AN AUTHORIZED SERVICE AGENT FOR THE PCMS TO ASSURE PROMPT SERVICE IN THE EVENT OF A FAILURE. ANY FAILURE SHALL NOT RESULT IN AN ORDER TO STOP WORK AND OPEN ALL TRAFFIC LANES AND/OR IN THE DEPARTMENT TAKING APPROPRIATE ACTION TO SAFELY CONTROL TRAFFIC AND THE ENTIRE COST TO CONTROL TRAFFIC ACCRUED BY THE DEPARTMENT WILL BE DEDUCTED FROM MONEYS DUE, OR TO BECOME DUE THE CONTRACTOR ON THE CONTRACT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR 24 HOURS PER DAY OPERATIONS AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THE PHASES WHEN THE PLAN REQUIRES THEIR USE.

THE REQUIREMENT TO FURNISH, INSTALL, MAINTAIN, AND REMOVE A PCMS UNIT ON THIS PROJECT SHALL NOT IN ANY WAY RELIEVE THE CONTRACTOR OF ITS RESPONSIBILITIES AS OUTLINED IN 104.04.

PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT BID PRICE PER MONTH FOR EACH ITEM 614 - PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN AND SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE, AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK.

THE FOLLOWING QUANTITY HAS BEEN PROVIDED:
ITEM 614 - PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN:
12 PCMS @ 5 MONTHS = 60 SIGN MONTH

<u>ITEM 614 - ASPHALT CONCRETE FOR MAINTAINING TRAFFIC:</u>
THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE "AS DIRECTED BY THE ENGINEER" AND AS SHOWN FOR THE "OPTIONAL WEDGE TREATMENT" ON SHEET 44/230. THE "OPTIONAL WEDGE TREATMENT" SHALL BE REMOVED AND ALL LANES OF TRAFFIC SHALL BE RESTORED TO AN EQUAL PAVEMENT ELEVATION WITHIN FIVE CONSECUTIVE DAYS.

DROP-OFF WEDGES
FROM US-33 STA. 165+04 TO US-33 STA. 364+25 = 13,879 FT.
FROM EB DIR. RDWY. STA. 166+86 TO EB DIR. RDWY. STA. 198+10 = 3,124 FT.
FROM WB DIR. RDWY. STA. 165+04 TO WB DIR. RDWY. STA. 364+25 = 3,335 FT.
TOTAL = 20,338 FT.

20,338 FT. X 0.5 INCHES X 0.5 INCHES IN DEPTH / 27
= 188 CU. YD.

MAINTENANCE OF TRAFFIC = 20 CU.YD.

ITEM 614 - ASPHALT CONCRETE FOR MAINTAINING TRAFFIC:
= 208 CU.YD.

<u>WORK ZONE MARKINGS:</u>
THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AT LOCATIONS IDENTIFIED BY THE ENGINEER FOR WORK ZONE PAVEMENT MARKINGS PER THE REQUIREMENTS 614.04 AND 614.11. THE FOLLOWING QUANTITIES HAVE BEEN PROVIDED AND THE TOTALS HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

<u>ITEM 614 - WORK ZONE EDGE LINE, CLASS I:</u>

80% FEDERAL / 20% STATE FUNDING
STA. 136+73 BK / 114+86 AH TO STA. 370+65
29.11 MILES X 3 APPLICATIONS = 87.33 MI.

100% LOCAL FUNDING (WINCHESTER PIKE)
LINE A STA. 169+25 / LINE B 171+30 TO STA. 197+00
0.76 MILES X 2 APPLICATIONS = 1.52 MI.

ITEM 614 - WORK ZONE EDGE LINE, CLASS I = 88.85 MI.

<u>ITEM 614 - WORK ZONE CENTER LINE CLASS I:</u>

80% STATE / 20% LOCAL FUNDING
STA. 100+46 TO STA. 136+73 BK / 114+86 AH
0.36 X 2 APPLICATIONS = 0.72 MI.

100% LOCAL FUNDING (WINCHESTER PIKE)
LINE A STA. 169+25 / LINE B 171+30 TO STA. 197+00
0.48 MILES X 2 APPLICATIONS = 0.96 MI.

ITEM 614 - WORK ZONE CENTER LINE, CLASS I = 1.68 MI.

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MAINTENANCE OF TRAFFIC GENERAL NOTES

ITEM 614 - WORK ZONE LANE LINE CLASS I:

80% STATE / 20% LOCAL FUNDING
STA. 100+46 TO STA. 136+73 BK / 114+86 AH
1.20 X 2 APPLICATIONS = 2.40 MI.

80% FEDERAL / 20% STATE FUNDING
STA. 136+73 BK / 114+86 AH TO STA. 364+25
10.91 MILES X 3 APPLICATIONS = 32.73 MI.

ITEM 614 - WORK ZONE LANE LINE CLASS I: = 35.13 MI.

ITEM 614 - WORK ZONE CHANNELIZING LINE CLASS II:

80% FEDERAL / 20% STATE FUNDING
STA. 136+73 BK / 114+86 AH TO STA. 370+65
10,629 FEET X 3 APPLICATIONS = 31,887 FT.

80% STATE / 20% LOCAL FUNDING
STA. 100+46 TO STA. 136+73 BK / 114+86 AH
658 FEET X 2 APPLICATIONS = 1,316 FT.

100% LOCAL FUNDING (WINCHESTER PIKE)
LINE A STA. 169+25 / LINE B 171+30 TO STA. 197+00
879 FEET X 2 APPLICATIONS = 854 FT.

ITEM 614 - WORK ZONE CHANNELIZING LINE CLASS II:
= 34,057 FT.

ITEM 614 - WORK ZONE GORE MARKINGS CLASS II:

80% FEDERAL / 20% STATE FUNDING
STA. 136+73 BK / 114+86 AH TO STA. 370+65
5,015 FEET X 3 APPLICATIONS = 15,045 FT.

ITEM 614 - WORK ZONE GORE MARKINGS CLASS II: = 15,045 FT.

ITEM 614 - WORK ZONE STOP LINE CLASS I:

80% STATE / 20% LOCAL FUNDING
STA. 100+46 TO STA. 136+73 BK / 114+86 AH
80 FEET X 2 APPLICATIONS = 160 FT.

80% FEDERAL / 20% STATE FUNDING
STA. 136+73 BK / 114+86 AH TO STA. 370+65
323 FEET X 2 APPLICATIONS = 534 FT.

ITEM 614 - WORK ZONE STOP LINE CLASS I: = 694 FT.

ITEM 614 - WORK ZONE LANE ARROW CLASS I:

80% STATE / 20% LOCAL FUNDING
STA. 100+46 TO STA. 136+73 BK / 114+86 AH
6 EACH X 2 APPLICATIONS = 12 EACH

80% FEDERAL / 20% STATE FUNDING
STA. 136+73 BK / 114+86 AH TO STA. 370+65
23 EACH X 2 APPLICATIONS = 46 EACH

ITEM 614 - WORK ZONE LANE ARROW CLASS I: = 58 EACH

ITEM 614 - WORK ZONE MARKING SIGN:

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AT LOCATIONS IDENTIFIED BY THE ENGINEER FOR WORK ZONE MARKING SIGNS PER THE REQUIREMENTS OF THE DROPOFFS IN WORK ZONES PLAN INSERT SHEET 44/230, 614.04 AND 614.11.

OW-167-36 "NO EDGE LINES" = 46 EACH

ITEM 614 - WORK ZONE MARKING SIGN = 46 EACH

ITEM 614 - REPLACEMENT SIGN:

FLATSHEET SIGNS FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS, SPECIFICATIONS, AND PROPOSAL, WHICH BECOME DAMAGED BY TRAFFIC FOR REASONS BEYOND THE CONTROL OF THE CONTRACTOR, SHALL BE REPLACED IN KIND WHEN ORDERED BY THE ENGINEER. REPLACEMENT SIGNS SHALL BE NEW. OTHER MATERIALS MAY BE IN USED, BUT GOOD, CONDITION SUBJECT TO APPROVAL BY THE ENGINEER.

PAYMENT FOR THE NEW SIGNS SHALL BE MADE AT THE CONTRACT PRICE PER SQUARE FOOT FOR ITEM 614, REPLACEMENT SIGN, AND SHALL INCLUDE THE COST OF REMOVING AND DISPOSING OF DAMAGED SIGNS, HARDWARE AND SUPPORTS, AND PROVIDING THE NECESSARY REPLACEMENT HARDWARE, SUPPORTS, ETC.

AN ESTIMATED QUANTITY OF 90 SQUARE FEET HAS BEEN PROVIDED IN THE GENERAL SUMMARY.

ITEM 614 - REPLACEMENT SIGN = 90 SQ.FT.

ITEM 614 - REPLACEMENT DRUM:

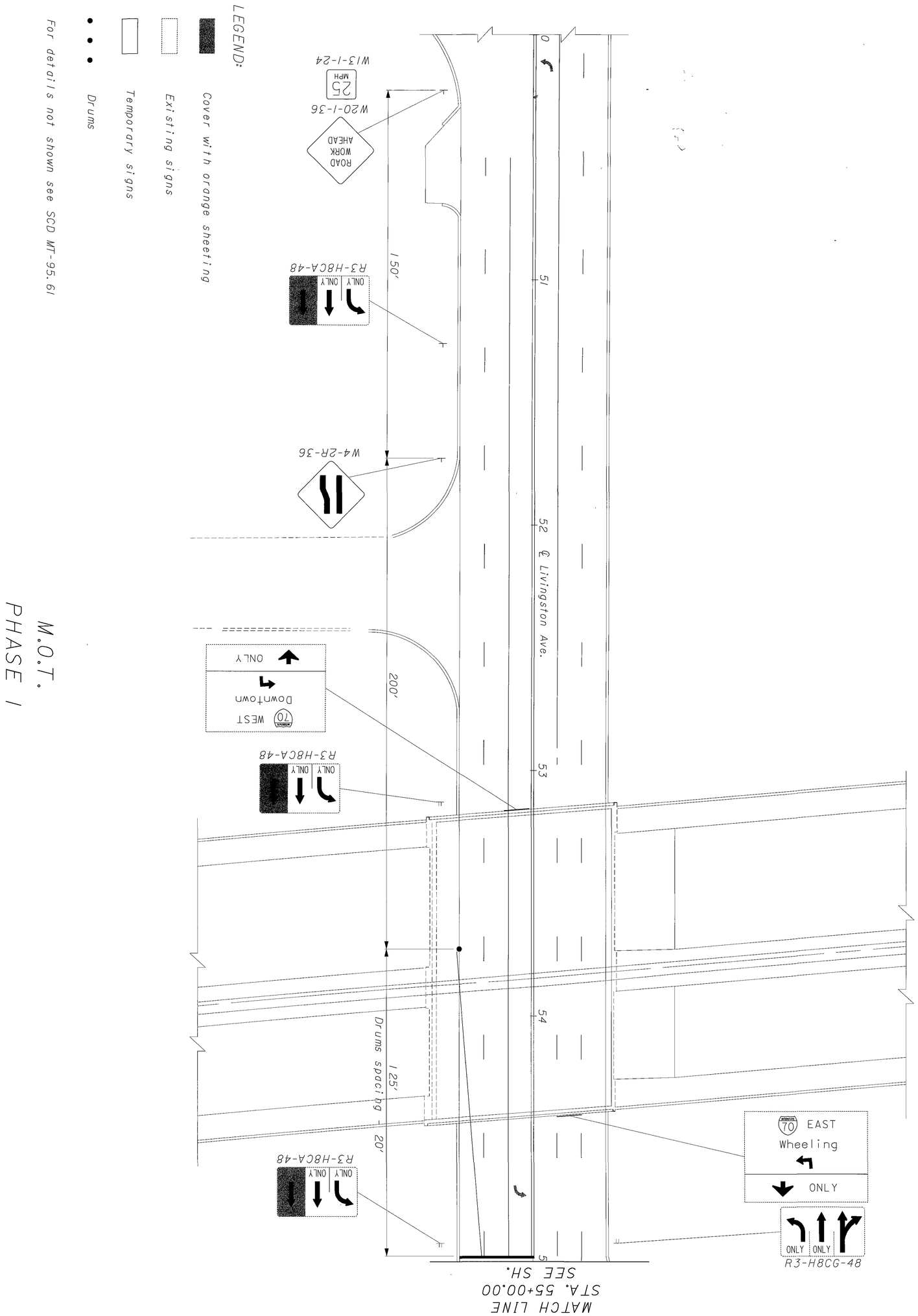
DRUMS FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS, SPECIFICATIONS AND PROPOSAL WHICH BECOME DAMAGED BY TRAFFIC FOR REASONS BEYOND THE CONTROL OF THE CONTRACTOR SHALL BE REPLACED IN KIND WHEN ORDERED BY THE ENGINEER. REPLACEMENT DRUMS SHALL BE NEW.

PAYMENT FOR THE NEW DRUMS SHALL BE MADE AT THE CONTRACT PRICE PER EACH FOR ITEM 614, REPLACEMENT DRUM, AND SHALL INCLUDE THE COST OF REMOVING AND DISPOSING OF THE DAMAGED DRUM, AND PROVIDING AND MAINTAINING THE REPLACEMENT DRUM IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS FOR THE ORIGINAL DRUM.

AN ESTIMATED QUANTITY OF 100 EACH HAS BEEN PROVIDED IN THE GENERAL SUMMARY.

ITEM 614 - REPLACEMENT DRUM = 100 EACH

FRA-33-20.69



39 / 230	**FRA-33-20.69**	*MAINTENANCE OF TRAFFIC DETAIL (PHASE I)* *BRIDGE NO. FRA-33-20.40* *OVER ALUM CREEK*	DESIGNED	DRAWN	REVIEWED	DATE	DESIGN AGENCY **DISTRICT SIX PRODUCTION**
			CHECKED	REVISED	STRUCTURE FILE NUMBER 2501635		

M.O.T.
PHASE I

LEGEND:

- Cover with orange sheeting
- Existing signs
- Temporary signs
- • • • Drums

For details not shown see SCD MT-95.61

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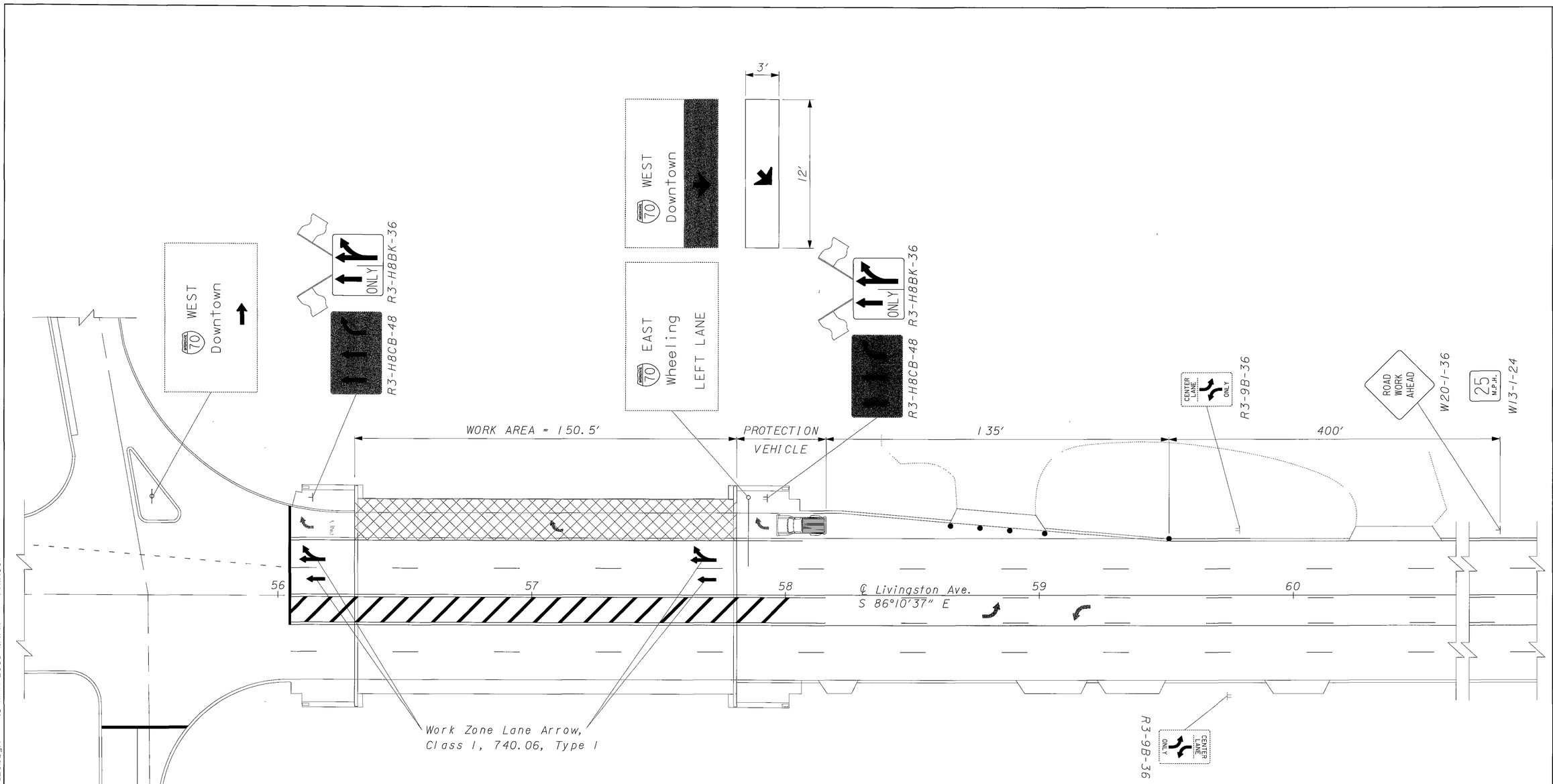
DESIGNED | DRAWN | REVISED | DATE
CHECKED | REVISED | STRUCTURE FILE NUMBER 250 1635

DESIGN AGENCY
DISTRICT SIX
PRODUCTION

MAINTENANCE OF TRAFFIC DETAIL (PHASE I)
BRIDGE NO. FRA-33-20.40
OVER ALUM CREEK

FRA-33-20.69

40
230



LEGEND:

- Cover with orange sheeting
- Existing signs
- Temporary signs
- Drums

For details not shown see SCD MT-95.61

M.O.T.
PHASE 2

NOTE:
For temporary striping use Item 614:
Work Zone Lane Arrow, Class 1, 740.06, Type 1

DESIGN AGENCY
DISTRICT SIX
PRODUCTION

DESIGNED	DRAWN	REVIEWED	DATE
CHECKED	REVISED	STRUCTURE FILE NUMBER 250635	

MAINTENANCE OF TRAFFIC DETAIL (PHASE 2)
BRIDGE NO. FRA-33-20.40
OVER ALUM CREEK

FRA-33-20.69

41
230

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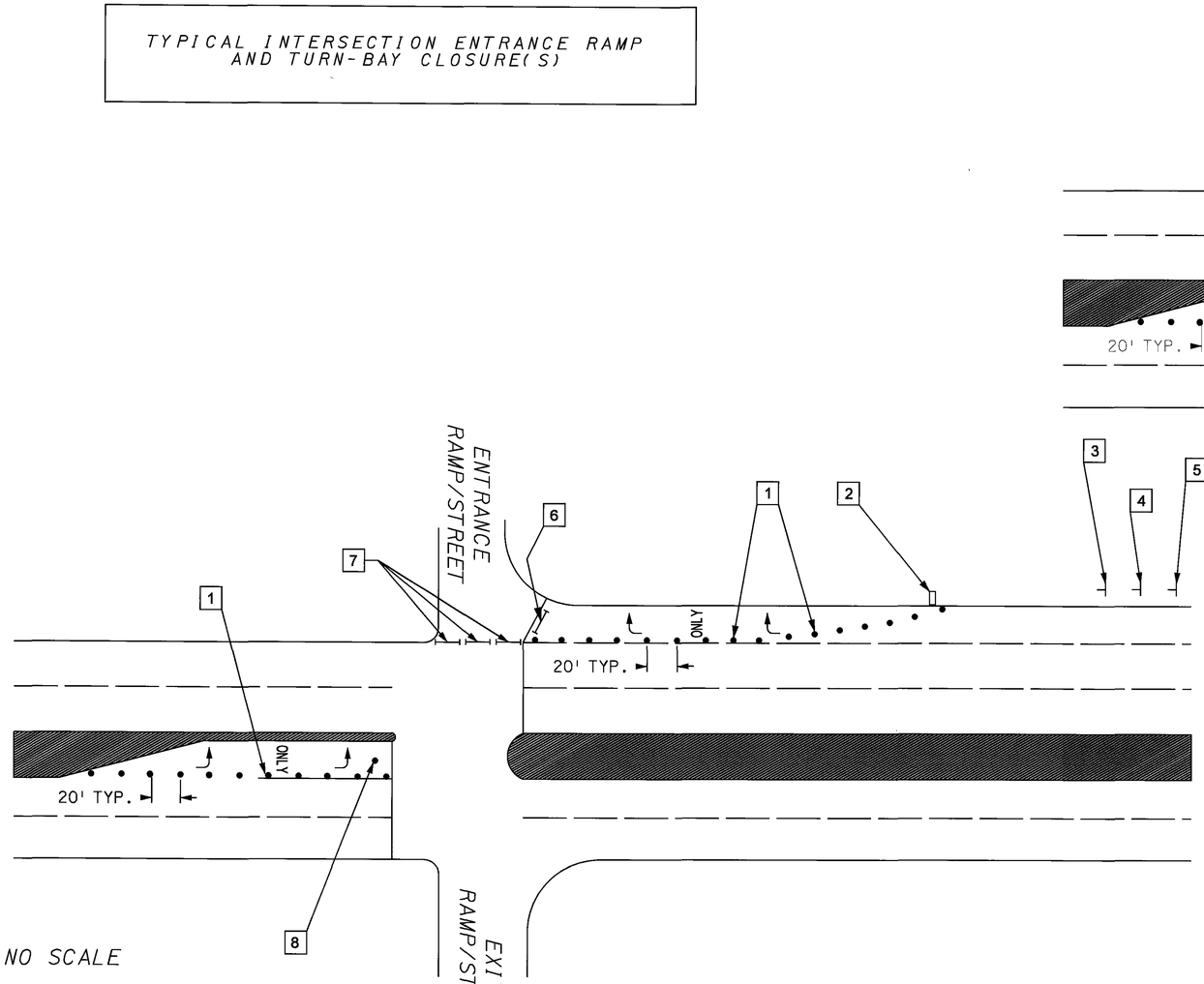
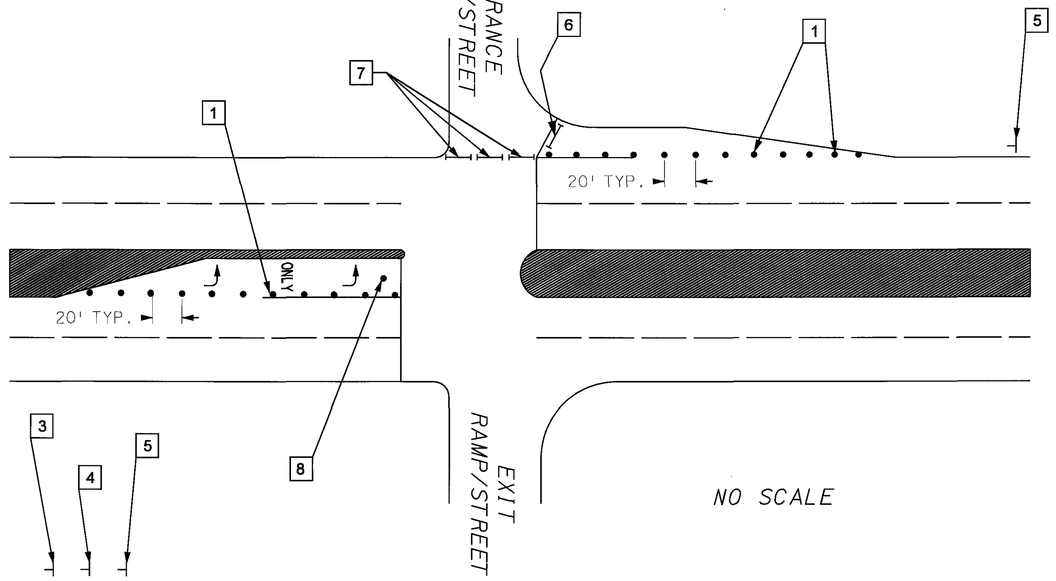
TYPICAL INTERSECTION ENTRANCE RAMP AND TURN-BAY CLOSURE(S)



NO SCALE

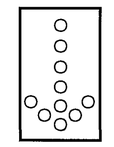


NO SCALE

1

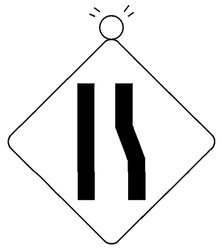
DRUM SPACING
20 FT CENTER TO CENTER

2



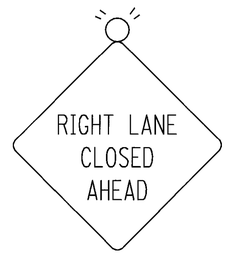
TYPE "C"
FLASHING ARROW PANEL

3



OW-60C-48

4

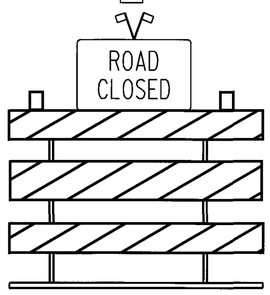


OW-122-48

5

OW-134-48

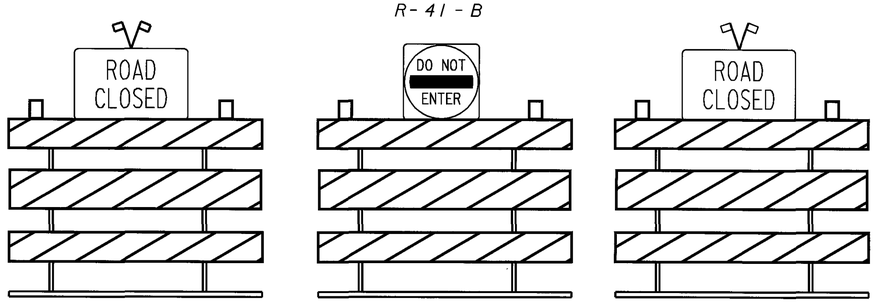
6



10' TYPE III BARRICADE SOLID

7

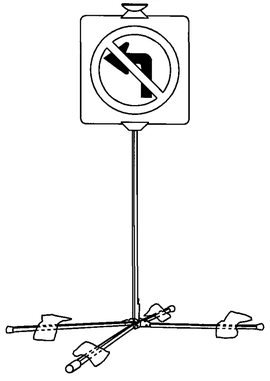
R-41-B



SOLID ACROSS INTERSECTION
10' TYPE III BARRICADE

8

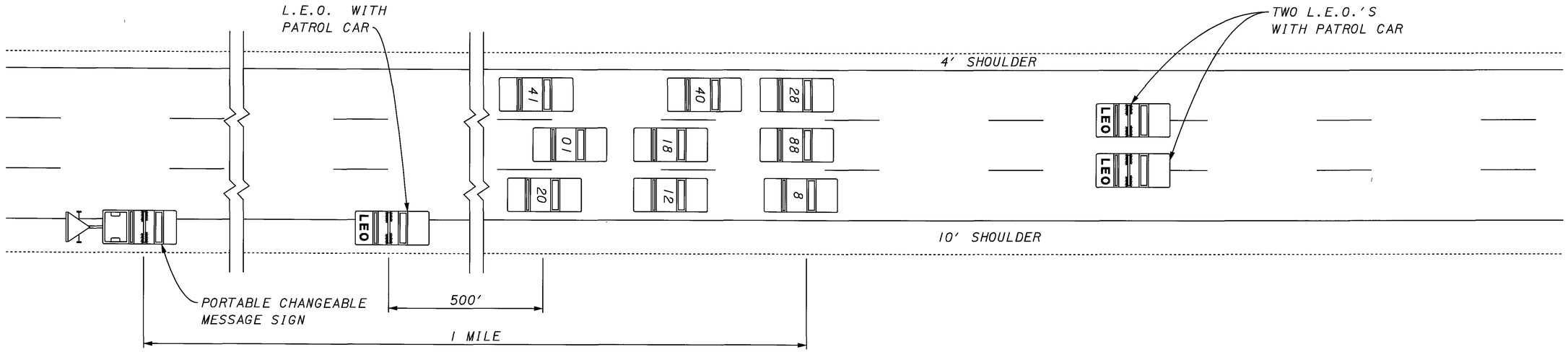
R-121-24



RAMPS AND STREET CLOSURE DETAIL

CALCULATED: RDK / LW
PAY / HG
CHECKED: MATT

FRA-33-20.69



ROAD WORK AHEAD	PREPARE TO STOP	EXPECT 15 MIN. DELAY	(BLANK)
FRAME 1 0.8 SEC.	FRAME 2 0.8 SEC.	FRAME 3 0.8 SEC.	FRAME 4 0.3 SEC.

SHORT TERM CLOSURE

PORTABLE CHANGEABLE MESSAGE SIGN

CALCULATED RBK / LW
PAY / HG
CHECKED MATT

SHORT TERM CLOSURE DETAIL

FRA-33-20.69

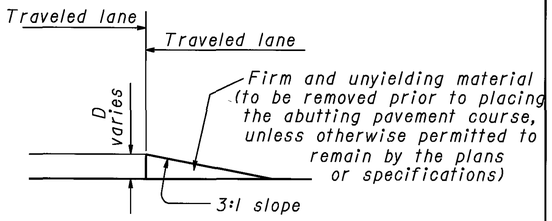
GENERAL NOTES

1. It is intended that this drawing be used for treatment of drop-offs that develop during construction operations, and that are not otherwise provided for in the construction plans. Where the plans do not provide specific items for labor, equipment, or materials to implement the drop-off treatments specified hereon, they shall be included for payment in the lump sum bid for Item 614 - Maintaining Traffic.
2. While the need for certain advisory signing is noted hereon, it is not intended that this be indicative of all signing that may be required to advise or warn motorists, and all requirements of the Ohio Manual of Uniform Traffic Control Devices (OMUTCD) must be fulfilled.
3. In urban or otherwise heavily developed areas where pedestrians and/or bicyclists may be present in significant numbers, additional signing and protective measures other than those shown hereon may be required.
4. The drop-off treatment selected for use at any given location shall be as appropriate for the prevailing conditions at the site.
5. Where concrete barrier is specified, it shall be in accordance with Standard Construction Drawing MC-9.2 and Item 622.
6. When drums are specified for a dropoff condition, a minimum number of four drums shall be used. Spacing shall be as indicated in the plans or as specified in the OMUTCD.
7. When OW-151 (Low Shoulder) signs or OW-171 (Uneven Lanes) and OWP-171 signs are required, they shall be placed 750' in advance of the condition, on all intersecting entrance ramps within the limits of the condition and immediately beyond all intersecting roadways within the limits of the condition. When the dropoff condition extends more than one-half mile, additional signs should be erected at intervals of one mile or less.
8. For locations, such as at ramps, lane shifts, lane closures, etc., where traffic is required to negotiate any difference in elevation between pavements, a 3:1 slope treatment similar to the Optional Wedge Treatment shall be provided.
9. Portable concrete barrier shall be placed on the same level as the traffic surface and shall not encroach on lane width(s) designated as the minimum required for traffic use. Where drums are used, and their presence would reduce traveled lane widths to less than 10', drums may be placed on the opposite level from that of traffic provided the dropoff depth does not exceed 5" and approval is granted by the Project Engineer.
10. Pavement Repairs (or similar work):
    a. Lengths greater than 60 feet - utilize appropriate treatment from Condition I.
    b. Lengths of 60 feet or less - repairs shall be effected in accordance with 255.08. Drums may be used as a separator adjacent to the traveled lane.

OPTIONAL WEDGE TREATMENT

(MILLING OR RESURFACING)

1. This treatment may be used when permitted for Condition I only.
2. OW-171 and OWP-171 signs required.



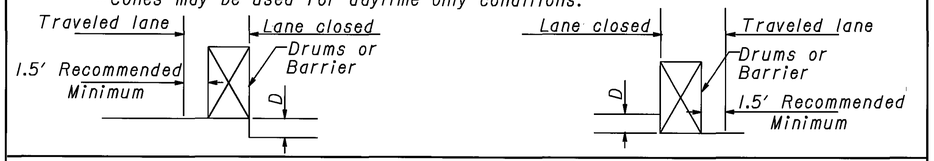
CONDITION I

DROPOFFS BETWEEN TRAVELED LANES

1. These treatments are to be used for resurfacing, pavement planing, excavation, etc. between or within traveled lanes.

D (In.)	Treatment
≤1½	Erect OW-171 and OWP-171 signs.
>1½-3	1) Lane closure utilizing drums* as shown below OR 2) Optional Wedge Treatment
>3-5	Lane closure utilizing drums as shown below.
>5	Lane closure utilizing portable concrete barrier as shown below.

*Cones may be used for daytime only conditions.



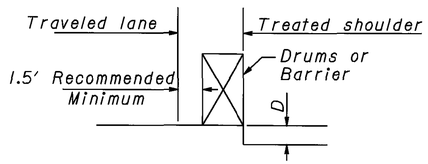
CONDITION II

DROPOFFS WITHIN GRADED SHOULDER AREA

1. The treatments indicated below are for use in conjunction with resurfacing, planing, or excavations within the graded shoulder area.
2. The graded shoulder area is that flat or gradually sloping area between the edge of a normally traveled lane and the more steeply sloping ditch foreslope or embankment slope. Its surface may be soil or turf, and/or it may be inclusive of a "treated" area (improved with aggregates, asphaltic materials, or concrete). For the purposes herein, its maximum width shall be considered to be twelve (12) feet.

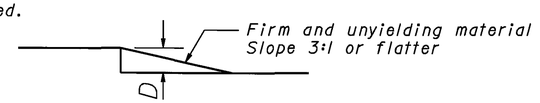
D (In.)	Treatment
≤1½	1) If edgelines are present, no treatment necessary OR 2) Erect OW-171 and OWP-171 signs.
>1½-5	1) If min. lane width* requirements can be met, maintain lanes utilizing drums as shown below OR 2) If min. lane width* requirements cannot be met, close adjacent lane utilizing drums OR 3) Optional Shoulder Treatment.
>5-12 Daylight only	If min. lane width* requirements can be met, maintain lanes utilizing drums as shown below.
>5-24	1) If min. lane width* requirements can be met, maintain lanes utilizing portable concrete barrier as shown below. OR 2) If min. lane width* requirements cannot be met, close adjacent lane utilizing drums.
>24	Lane closure utilizing portable concrete barrier as shown below.

*Minimum lane widths shall be 10' unless otherwise specified in the plans.



OPTIONAL SHOULDER TREATMENT

1. This treatment may not be used within a bituminous shoulder where a hot longitudnal joint per 401.15 is required.
2. OW-151 signs required.



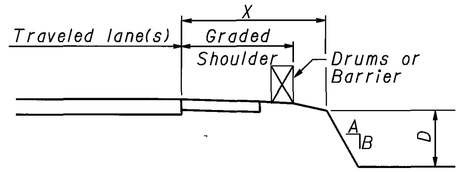
CONDITION III

DROPOFFS BEYOND GRADED SHOULDER OR BACK OF CURB

1. See Note 2 under Condition II.
2. Use Chart A or B below, as applicable.

CHART A

USE FOR:
1. Uncurbed Facilities.
2. Curbed Facilities, where:
   a. Curbs are less than 6" in height.
   b. Curbs are 6" or greater in height and the legal speed is greater than 40 mph.

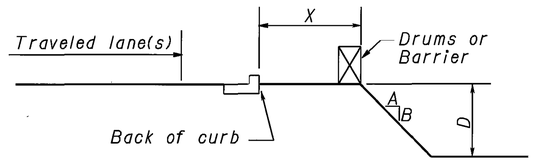


X (Ft.)	D (In.)	A/B	Treatment Required	
			Day	Night
0-4	Any	Any	(a)	(a)
4-30	Any	3:1 or Flatter	None	None
4-12	≤3	Steeper than 3:1	None	None
4-12	>3-<12	Steeper than 3:1	Drums	Drums
4-12	>12	Steeper than 3:1	Drums	Barrier
>12-20	≤12	Steeper than 3:1	None	None
>12-20	>12-<24	Steeper than 3:1	Drums	Drums
>12-20	>24	Steeper than 3:1	Drums	Barrier
>20-30	≤24	Steeper than 3:1	None	Drums
>20-30	>24	Steeper than 3:1	Drums	Barrier
>30	Any	Any	None	None

(a) Use treatment specified under Condition II.

CHART B

USE FOR: Curbed facilities, where the curb is 6" or greater in height and the legal speed is 40 mph or less.



X (Ft.)	D (In.)	A/B	Treatment Required	
			Day	Night
0-10	<12	Any	None	Drums
0-10	>12	Any	Drums	Drums
>10	Any	Any	None	None

CALCULATED RDK / LW
PAY / MG
CHECKED MaTT

DROPOFFS IN WORK ZONES

FRA-33-20.69

SHEET NUMBER						PARTICIPATION			ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
27-33	34-44	50-54	122-154			80% FED. 20% LOCAL	100% LOCAL	80% FED. 20% STATE						
													ROADWAY	
		534						534	202	23000	534	SQ YD	PAVEMENT REMOVED	
		199						199	202	30500	199	FT	CONCRETE MEDIAN REMOVED	
		2,121						2,121	202	32000	2,121	FT	CURB REMOVED	
		39,273						39,273	202	38000	39,273	FT	GUARDRAIL REMOVED	
		250						250	202	38300	250	FT	GUARDRAIL REMOVED, BARRIER DESIGN	
		20						20	202	42000	20	EACH	ANCHOR ASSEMBLY REMOVED, TYPE A	
53								53	202	42001	53	EACH	ANCHOR ASSEMBLY REMOVED, TYPE A, AS PER PLAN	30
		55						55	202	42040	55	EACH	ANCHOR ASSEMBLY REMOVED, TYPE T	
		6						6	202	42210	6	EACH	ANCHOR ASSEMBLY REMOVED, BARRIER DESIGN	
		14						14	202	42610	14	EACH	ANCHOR ASSEMBLY REMOVED FOR REUSE, TYPE B-98	
		24						24	202	42620	24	EACH	ANCHOR ASSEMBLY REMOVED FOR REUSE, TYPE E-98	
		24						24	202	47000	24	EACH	BRIDGE TERMINAL ASSEMBLY REMOVED	
		2						2	202	47001	2	EACH	BRIDGE TERMINAL ASSEMBLY REMOVED, AS PER PLAN	
			1,291			235	101	955	202	54000	1,291	EACH	RPM REMOVED AND DISPOSED	
551		300						851	203	10000	851	CU YD	EXCAVATION	
335								335	203	20000	335	CU YD	EMBANKMENT	
		568						568	204	10000	568	SQ YD	SUBGRADE COMPACTION	
44,381.5								44,381.5	209	15060	44,381.5	FT	RESHAPING UNDER GUARDRAIL	32
		44,381.5						44,381.5	606	13000	44,381.5	FT	GUARDRAIL, TYPE 5	
		200						200	606	13011	200	FT	GUARDRAIL, TYPE 5 WITH TUBULAR BACKUP, AS PER PLAN	30
		62.5						62.5	606	13050	62.5	FT	GUARDRAIL, TYPE 5A	
		3						3	606	22000	3	EACH	ANCHOR ASSEMBLY, TYPE B-98	
		14						14	606	22010	14	EACH	ANCHOR ASSEMBLY, TYPE E-98	
		39						39	606	26500	39	EACH	ANCHOR ASSEMBLY, TYPE T	
		14						14	606	28000	14	EACH	ANCHOR ASSEMBLY REBUILT, TYPE B-98	
		24						24	606	28050	24	EACH	ANCHOR ASSEMBLY REBUILT, TYPE E-98	
		1						1	606	31500	1	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE D	
		1						1	606	34000	1	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE J	
		31						31	606	35000	31	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 1	
		12						12	606	35100	12	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 2	
		16						16	606	35140	16	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE 4	
		2						2	606	60020	2	EACH	IMPACT ATTENUATOR, TYPE 2-98 (65 MPH, 36" WIDE)(UNIDIRECTIONAL)	
		[2]						[2]	606	60024	[2]	EACH	IMPACT ATTENUATOR, TYPE 2-98 (65 MPH, 36" WIDE)(BIDIRECTIONAL)	
		[10]						[10]	606	60024	[10]	EACH	IMPACT ATTENUATOR, TYPE 2-98 (65 MPH, 69" WIDE)(BIDIRECTIONAL)	
		14						14	606	60600	14	EACH	QUADGARD WHEEL DEFLECTOR ASSEMBLY	
		765						765	622	10000	765	FT	CONCRETE BARRIER, SINGLE SLOPE, TYPE A	
		730						730	622	10001	730	FT	CONCRETE BARRIER, SINGLE SLOPE, TYPE A, AS PER PLAN	32
		2,140						2,140	622	10160	2,140	FT	CONCRETE BARRIER, SINGLE SLOPE, TYPE D	
													EROSION CONTROL	
6,149								6,149	659	00510	6,149	SQ YD	SEEDING AND MULCHING, CLASS 2	
0.09								0.09	659	20000	0.09	TON	COMMERCIAL FERTILIZER	
4								4	659	35000	4.0	M GAL	WATER	
								??	832	30000	1,000	EACH	EROSION CONTROL	

CALCULATED: BDK / LW
PAY / HG
CHECKED: MATT

GENERAL SUMMARY

FRA-33-20.69

SHEET NUMBER						PARTICIPATION			ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
27-33		50-54				80% FED. 20% LOCAL	100% LOCAL	80% FED. 20% STATE						
													DRAINAGE	
		2,840						2,840	202	35100	2,840	FT	PIPE REMOVED, 24" AND UNDER	
		240						240	202	35200	240	FT	PIPE REMOVED, OVER 24"	
		9						9	202	58000	9	EACH	MANHOLE REMOVED	
		83						83	202	58100	83	EACH	CATCH BASIN REMOVED	
		1,430						1,430	603	01500	1,430	FT	6" CONDUIT, TYPE F	
		260						260	603	04600	260	FT	12" CONDUIT, TYPE C	
		790						790	603	06100	790	FT	15" CONDUIT, TYPE C	
		170						170	603	07600	170	FT	18" CONDUIT, TYPE C	
		40						40	603	09100	40	FT	21" CONDUIT, TYPE C	
		140						140	603	10600	140	FT	24" CONDUIT, TYPE C	
		20						20	603	13600	20	FT	30" CONDUIT, TYPE C	
		200						200	603	16600	200	FT	36" CONDUIT, TYPE C	
		20						20	603	19600	20	FT	42" CONDUIT, TYPE C	
		2						2	604	01200	2	EACH	CATCH BASIN, NO. 4	
		1						1	604	01600	1	EACH	CATCH BASIN, NO. 5	
		7						7	604	02000	7	EACH	CATCH BASIN, NO. 6	
		70						70	604	02800	70	EACH	CATCH BASIN, NO. 8	
		2						2	604	04500	2	EACH	CATCH BASIN, NO. 2-2B	
		1						1	604	05300	1	EACH	CATCH BASIN, NO. 2-4	
		2						2	604	06100	2	EACH	CATCH BASIN, NO. 2-6	
		10						10	604	31500	10	EACH	MANHOLE, NO. 3	
		58						58	604	36600	58	EACH	PRECAST REINFORCED CONCRETE OUTLET	
													PAVEMENT	
250							50	200	251	01001	250	SQ YD	PARTIAL DEPTH PAVEMENT REPAIR, AS PER PLAN	
400								400	252	01000	400	SQ YD	FULL DEPTH RIGID PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT	
1,312								1,312	252	01500	1,312	FT	FULL DEPTH PAVEMENT SAWING	
		83,581				18,542	16,352	48,687	254	01000	83,581	SQ YD	PAVEMENT PLANING, ASPHALT CONCRETE (1.5" DEPTH)	
		207,506					647	206,859	254	01000	207,506	SQ YD	PAVEMENT PLANING, ASPHALT CONCRETE (2.75" DEPTH)	
		23,063						23,063	254	01000	23,063	SQ YD	PAVEMENT PLANING, ASPHALT CONCRETE (3" DEPTH)	
200								200	255	10150	200	SQ YD	FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS MS	
600								600	255	20000	600	FT	FULL DEPTH PAVEMENT SAWING	
		269						269	301	46000	269	CU YD	ASPHALT CONCRETE BASE, PG64-22	
		6,704				1,391	1,275	4,038	407	10000	6,704	GALLON	TACK COAT	
		18,266						18,266	407	13900	18,266	GALLON	TACK COAT, 702.13	
		21,460					33	21,427	407	14000	21,460	GALLON	TACK COAT FOR INTERMEDIATE COURSE	
		13,898				772	707	12,419	442	10000	13,898	CU YD	ASPHALT CONCRETE SURFACE COURSE, 12.5MM, TYPE A (446)	
		20,808					48	20,760	442	10100	20,808	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)	
		2,659					91	2,568	617	10100	2,659	CU YD	COMPACTED AGGREGATE, TYPE A	
11							1	10	617	25000	11	M GAL	WATER	
78,092								78,092	618	40100	78,092	FT	RUMBLE STRIPS, TYPE 2 (ASPHALT CONCRETE)	

CALCULATED RDK / LW
CHECKED MATT

GENERAL SUMMARY

FRA-33-20.69

SHEET NUMBER						PARTICIPATION			ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
122	124	125	126	32		80% FED. 20% LOCAL	100% LOCAL	80% FED. 20% STATE						
													TRAFFIC CONTROL	
			1,271			126	52	1,093	621	00100	1,271	EACH	RPM	
2								2	625	00800	2	EACH	CONNECTOR KIT, TYPE V	122
250								250	625	23900	250	FT	1-1/2" DUCT CABLE WITH TWO NO. 6 AWG 5000 VOLT CABLES	122
250								250	625	29002	250	FT	TRENCH, 24" DEEP	122
1								1	625	30600	1	EACH	PULL BOX, 725.09, 24"	122
		7						7	625	32000	7	EACH	GROUND ROD	122
				904				904	626	00100	904	EACH	BARRIER REFLECTOR, TYPE A	122
				101				101	626	00200	101	EACH	BARRIER REFLECTOR, TYPE B	122
		88						88	630	02100	88	FT	GROUND MOUNTED SUPPORT, NO. 2 POST	
		751.5						751.5	630	03100	751.5	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
		78						78	630	06400	78	FT	GROUND MOUNTED SUPPORT, S4X7.7 BEAM	
		45						45	630	07500	45	FT	GROUND MOUNTED SUPPORT, W10X22 BEAM	
		2						2	630	08004	2	FT	ONE WAY SUPPORT, NO. 3 POST	
		8						8	630	09000	8	EACH	BREAKAWAY BEAM CONNECTION	
		2						2	630	20601	2	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-12.30, DESIGN 6, AS PER PLAN	122
		1						1	630	35501	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-7.65, DESIGN 6, AS PER PLAN	123
		1						1	630	45500	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-7.65, DESIGN 8	
		4						4	630	79000	4	EACH	SIGN HANGER ASSEMBLY, SPAN WIRE	
		28						28	630	79500	28	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED	
		1,243.5						1,243.5	630	80100	1,243.5	SQ FT	SIGN, FLAT SHEET	
		1771.5						1,771.5	630	80200	1,771.5	SQ FT	SIGN, GROUND MOUNTED EXTRUSHEET	
		4,240						4,240	630	80224	4,240	SQ FT	SIGN, OVERHEAD EXTRUSHEET	
		12						12	630	80400	12	SQ FT	SIGN, PERMANENT OVERLAY	
		8						8	630	84500	8	EACH	GROUND MOUNTED BEAM SUPPORT FOUNDATION	
		8						8	630	84510	8	EACH	RIGID OVERHEAD SIGN SUPPORT FOUNDATION	
	109							109	630	84900	109	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
	29							29	630	85400	29	EACH	REMOVAL OF GROUND MOUNTED MAJOR SIGN AND DISPOSAL	
	87							87	630	86002	87	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
	5							5	630	86310	5	EACH	REMOVAL OF STRUCTURE MOUNTED SIGN AND DISPOSAL	
	31							31	630	87400	31	EACH	REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL	
	32							32	630	87500	32	EACH	REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL	
	1							1	630	89100	1	EACH	REMOVAL OF OVERHEAD SIGN SUPPORT AND REERECTION, TYPE TC-12.30	
	1							1	630	89702	1	EACH	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL	
	3							3	630	89703	3	EACH	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL, AS PER PLAN	123
	2							2	630	89902	2	EACH	REMOVAL OF MISCELLANEOUS TRAFFIC CONTROL ITEM	

CALCULATED RDK / LW
PAY / HQ
CHECKED MATT

GENERAL SUMMARY

FRA-33-20.69

SHEET NUMBER						PARTICIPATION			ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
124	125	126				80% FED. 20% LOCAL	100% LOCAL	80% FED. 20% STATE						
													TRAFFIC CONTROL	
	12							12	631	84000	12	EACH	SIGN SERVICE	
	15							15	631	84300	15	EACH	SIGN WIRED	
	2							2	631	84400	2	EACH	SIGN WIRED, OVERPASS STRUCTURE	
	10							10	631	85100	10	EACH	DISCONNECT SWITCH WITH ENCLOSURE, TYPE X	
	2							2	631	87102	2	EACH	BALLAST, TYPE CMRI-100-480	
	26							26	631	87202	26	EACH	BALLAST, TYPE CMRI-175-480	
	4							4	631	87302	4	EACH	BALLAST, TYPE CMRI-250-480	
	2							2	631	89100	2	EACH	MERCURY VAPOR LUMINAIRE, TYPE TC-31.21 WITH 100 WATT LAMP	
	26							26	631	89200	26	EACH	MERCURY VAPOR LUMINAIRE, TYPE TC-31.21 WITH 175 WATT LAMP	
	4							4	631	89300	4	EACH	MERCURY VAPOR LUMINAIRE, TYPE TC-31.21 WITH 250 WATT LAMP	
55								55	631	94200	55	EACH	REMOVAL OF LUMINAIRE AND DISPOSAL	
20								20	631	94304	20	EACH	REMOVAL OF DISCONNECT SWITCH AND DISPOSAL	
54								54	631	94404	54	EACH	REMOVAL OF BALLAST AND DISPOSAL	
31								31	631	94408	31	EACH	REMOVAL OF SIGN WIRING AND DISPOSAL	
19								19	631	94412	19	EACH	REMOVAL OF SIGN SERVICE AND DISPOSAL	
		23				3		20	632	26500	23	EACH	DETECTOR LOOP	
		23				3		20	632	27200	23	EACH	LOOP DETECTOR TIE IN	
		28.36					0.76	27.63	644	00100	28.39	MILE	EDGE LINE	
		12.10				1.20		10.91	644	00200	12.10	MILE	LANE LINE	
		1.50				0.68	0.49	0.33	644	00300	1.50	MILE	CENTER LINE	
		11,811				658	427	10,726	644	00400	11,811	FT	CHANNELIZING LINE	
		379				80		299	644	00500	379	FT	STOP LINE	
		184				184			644	00600	184	FT	CROSSWALK LINE	
		4,356					284	4,072	644	00700	4,356	FT	TRANSVERSE LINE	
		29				6		23	644	01300	29	EACH	LANE ARROW	
		10				2		8	644	01400	10	EACH	WORD ON PAVEMENT, 72"	

CALCULATED RDK / LM
PAY / WG
CHECKED MATT

GENERAL SUMMARY

FRA-33-20.69

SHEET NUMBER						PARTICIPATION			ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
27-33	34-44					80% FED. 20% LOCAL	100% LOCAL	80% FED. 20% STATE						
													STRUCTURE	
													SEE STRUCTURE QUANTITIES ON PLAN SHEETS 222/ 230	
													MAINTENANCE OF TRAFFIC	
	1,200					200		1,000	614	11100	1,200	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR	
	46							92	614	12460	92	EACH	WORK ZONE MARKING SIGN	
	90							90	614	12510	90	SQ FT	REPLACEMENT SIGN	
	100							100	614	12600	100	EACH	REPLACEMENT DRUM	
	208							208	614	13000	208	CU YD	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	
	60							60	614	18601	60	SGN MNTH	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	32
	35.13					2.40		32.73	614	20000	35.13	MILE	WORK ZONE LANE LINE, CLASS I	
	1.68					0.72	0.96		614	21000	1.68	MILE	WORK ZONE CENTER LINE, CLASS I	
	88.85						1.52	87.33	614	22000	88.85	MILE	WORK ZONE EDGE LINE, CLASS I	
	34,057					854	1,316	31,887	614	23650	34,057	FT	WORK ZONE CHANNELIZING LINE, CLASS II	
	694					160		534	614	26000	694	FT	WORK ZONE STOP LINE, CLASS I	
	15,045							15,045	614	28000	15,045	FT	WORK ZONE GORE MARKING, CLASS II	
	58					12		46	614	30000	58	EACH	WORK ZONE LANE ARROW, CLASS I	
	LUMP								614	11000	LUMP		MAINTAINING TRAFFIC	
									619	16010	12	MONTH	FIELD OFFICE, TYPE B	
LUMP									623	10001	LUMP		CONSTRUCTION LAYOUT STAKES, AS PER PLAN	32
									624	10000	LUMP		MOBILIZATION	

CALCULATED RDK / LW FAY / NG
CHECKED MATT

GENERAL SUMMARY

FRA-33-20.69

SHEET NO.	202 CATCH BASIN REMOVED	202 MANHOLE REMOVED	202 PIPE REMOVED, 24" AND UNDER	202 PIPE REMOVED, OVER 24"	603 6" CONDUIT TYPE F	603 12" CONDUIT TYPE C	603 15" CONDUIT TYPE C	603 18" CONDUIT TYPE C	603 21" CONDUIT TYPE C	603 24" CONDUIT TYPE C	603 30" CONDUIT TYPE C	603 36" CONDUIT TYPE C	603 42" CONDUIT TYPE C	604 CATCH BASIN NO. 5	604 CATCH BASIN NO. 6	604 CATCH BASIN NO. 8	604 CATCH BASIN NO. 2-2B	604 CATCH BASIN NO. 2-4	604 CATCH BASIN NO. 2-6
	EACH	EACH	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	EACH	EACH	EACH	EACH	EACH	EACH
63	4	1	140		20		40	10	20	50				1		3			
66	7	4	340	60	150		110	20	10	40		50	10		1	4			
69	4		190		100			60	10	20					1	3			
72	1		20	20	10	10						20				1			
74			60		60														
76	6	1	180	20	70	40	70				20					6			
78	1		20		10		10								1				
80	1		20		10		10								1				
85			20		20														
86			20		20														
87	1		30	20	20					10		10	10					1	
89			20		20														
90	4		120		50	60	10									4			
92	5		150		70	60	20									5			
93			10		10														
94	6		230		130		90	10								6			
95	2		50		20		30									2			
96	2		70		40		30									2			
99	1		40		30		10									1			
101	4		120		60		60									4			
103	4		110		60		50									4			
104	3		90		60		30									3			
106	5		190		90	60	40									6			
107	2		80		50		30									2			
108	8	2	210	70	90	10	60	50				70			3	5			
109	5	1	130	50	70		20	20		20		50							
110																6			
111	3		90		50	20	20									3			
113	2		60		30		30										1		1
115	1		10				10										1		
116	1		20		10		10												1
TOTAL	83	9	2,840	240	1,430	260	790	170	40	140	20	200	20	1	7	70	2	1	2

CALCULATED RDK / LW FAY / MS
CHECKED MATT

ROADWAY & DRAINAGE SUBSUMMARY

FRA-33-20.69

50
230

SHEET NO.	604 MANHOLE NO. 3	604 PRECAST REINFD CONC. OUTLET	604 CATCH BASIN NO. 4																
	EACH	EACH	EACH																
63	1																		
66	5	2																	
67			2																
69	1	2																	
72		1																	
74		6																	
76	1	1																	
80		1																	
85		2																	
86		2																	
87		1																	
89		2																	
90		2																	
92		4																	
93		1																	
94		6																	
96		2																	
99		1																	
101		2																	
103		3																	
104		3																	
106		5																	
107		3																	
108	2	1																	
111		2																	
113		2																	
116		1																	
TOTAL	10	58	2																

CALCULATED RDK / LW FAY / HG
CHECKED MATT

ROADWAY & DRAINAGE SUBSUMMARY

FRA-33-20.69

SHEET NO.	202 GUARDRAIL REMOVED	202 GUARDRAIL REMOVED BARRIER DESIGN	202 ANCHOR ASSEMBLY REMOVED TYPE A	202 ANCHOR ASSEMBLY REMOVED TYPE T	202 ANCHOR ASSEMBLY REMOVED BARRIER DESIGN	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE B-98	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE E-98	202 BRIDGE TERMINAL ASSEMBLY REMOVED	202 BRIDGE TERMINAL ASSEMBLY REMOVED, AS PER PLAN	202 CONCRETE MEDIAN REMOVED	202 CURB REMOVED	606 GUARDRAIL TYPE 5	606 GUARDRAIL TYPE 5A	606 ANCHOR ASSEMBLY TYPE T	606 ANCHOR ASSEMBLY REBUILT, TYPE B-98	606 ANCHOR ASSEMBLY REBUILT, TYPE E-98	606 BRIDGE TERM. ASSEMBLY TYPE 1	606 BRIDGE TERM. ASSEMBLY TYPE 2	606 IMPACT ATTN. TYPE 2-98 BI-DIRECT. (69")
	FT.	FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	SQ. YD.	FT.	FT.	FT.	EACH	EACH	EACH	EACH	EACH	FT.	EACH
61	428					1						512.5		3	1					
62																				2
63	131						1													
64												37.5	12.5	1		1				
65	1,371.5	25	3	5	1	2	1	2	2											
67												1,750	12.5	1	4	2	4			
69	1,316		2	5	2	3	2	1												
70												2,287.5	25		2	3	3	2		
72	2,713			3		1		4				3,244	12.5	2	4		2	2		
74	3,344		2	3			2	2				4,437.5		1		2				
76	2,003			5			2					1,937.5		3		2	2			2
78	2,202			3			2					2,087.5		1		3	2	1		
80	898		1			2	1			49	204	1,262.5		3	2	2				
82	2,386		1	3			1	1			426	2,425		2			1	1		
83	1,219		2			2						1,025		7	1	1				
84	531											575								
85	889					1						987.5					1	1		
86											150									
87	217			1								250		1						
88	457											450		1						
89	510											1,250				2				
90	1,171		1	1			2													
91												1,200				2	1			
92	1,467			1								1,462.5		1						
93	2,000											2,000								
94	1,366			1			1					1,550		1		1				
95												62.5				1				
96	1,583		1	1			2													
97												1,825		1		2	1	1		
99	991	125	2	7	1		1					937.5		1			6	1		2
101	1,082		3	3			2					287.5					2			2
103	1,307			2		1		8				1,400					2	1		
104	1,656	100		2	2	1		6												
105												2,200		2			1	1		
106	1,196						1					1,487.5								
107	487			1								475		1						
109	425		1	2			1													
110												450		2			2			2
111	471			1			2					337.5		1						
113	665		1	1						150	1,341	1,537.5		2			1	1		
115	2,005			2								1,862.5								
116	785			2								787.5		1						
TOTAL'S	39,273	250	20	55	6	14	24	24	2	199	2,121	44,381.5	62.5	39	14	24	31	12	10	

CALCULATED RBK / JM
FAY / MG
CHECKED Matt

ROADWAY & DRAINAGE SUBSUMMARY

FRA-33-20.69

SHEET NO.	606 IMPACT ATTN. TYPE 2-98 BI-DIRECT. (36") EACH	606 IMPACT ATTN. TYPE 2-98 UNI DIRECT. (36") EACH	606 BRIDGE TERM. ASSEMBLY TYPE D EACH	606 BRIDGE TERM. ASSEMBLY TYPE J EACH	606 BRIDGE TERM. ASSEMBLY TYPE 4 EACH	606 GUARDRAIL TYPE 5 WITH TUBULAR BACK UP A.P.P. EACH	606 ANCHOR ASSEMBLY TYPE B-98 EACH	606 ANCHOR ASSEMBLY TYPE E-98 EACH	622 CONCRETE BARRIER TYPE D FT.	622 CONCRETE BARRIER SINGLE SLOPE TYPE A FT.	622 CONCRETE BARRIER SINGLE SLOPE TYPE A A.P.P. FT.
62											215
67									435		
70	1								105		
72									245		
74		1							15		
76									200		110
78									50		
80	1										
82										175	
84			1	1							
85							1		30		
91									15		
97									30		
99		1						2	285		70
101								2	420		210
103					8	100		2	45		
105					8	100	2		30		
106								1			
110								2	235		125
111								3			
113								2		590	
TOTAL'S	2	2	1	1	16	200	3	14	2,140	765	730

CALCULATED RDK / JW FAY / WE
CHECKED MATT

ROADWAY & DRAINAGE SUBSUMMARY

FRA-33-20.69

SHEET NO.	202 PAVEMENT REMOVED	203 EX-CAVATION 12"	203 EX-CAVATION 12.25"	203 EX-CAVATION 13"	204 SUBGRADE COMPACT	254 PAVEMENT PLANING ASPHALT CONCRETE 1.5"	254 PAVEMENT PLANING ASPHALT CONCRETE 2.75"	254 PAVEMENT PLANING ASPHALT CONCRETE 3.0"	301 ASPHALT CONCRETE BASE PG64-28	407 TACK COAT 0.075 GAL. PER SQ. YD.	407 TACK COAT 0.075 GAL. PER SQ. YD. 702.13	407 TACK COAT INTERMED. COURSE 0.05 GAL. PER SQ. YD.	442 ASPHALT CONCRETE INTERMED. 19MM TYPE A (446) 1.75"	442 ASPHALT CONCRETE INTERMED. 19MM TYPE A (446) 2 @ 1.75"	442 ASPHALT CONCRETE SURFACE 12.5MM TYPE A (446) 1.5"	617 COMPACTED AGG. TYPE A 2"			
	SQ.YD.	CU.YD.	CU.YD.	CU.YD.	SQ.YD.	SQ.YD.	SQ.YD.	SQ.YD.	CU.YD.	GAL.	GAL.	GAL.	CU.YD.	CU.YD.	CU.YD.	CU.YD.			
55						18,542	41,518	5,157		1,391	3,503	2,357	2,250	27	2,718	257			
56							98,397	17,906			8,725	11,537	116	10,975	4,846	1,182			
57		52		42	272		31,334		70		2,351	2,693	195	2,498	1,331	303			
58		14					30,558		10		3,687	4,583	79	4,418	2,029	369			
59						38,752	3124			3,145		159		250	1,743	269			
60			101		296	26,287	2,575		74	2,168		131		187	1,231	280			
80									25										
82	534			91					12										
86									4										
113									74										
		66	101	133									2,640	18,168					
TOTAL'S	534	300			568	83,580	204,383	23,063	269	6,704	18,266	21,460	20,808		13,898	2,659			

CALCULATED RDK / LW FAY / HG
CHECKED Matt

ROADWAY & PAVEMENT SUBSUMMARY

FRA-33-20.69

LOCATION / PAVEMENT CALCULATIONS / REMARKS

COUNTY	ROUTE	STATION FROM	STATION TO	LENGTH	SHOULDER	PAVEMENT	SHOULDER	SIDE	TYPICAL	254 PAVEMENT PLANING ASPHALT CONCRETE 1.5" SQ.YD.	254 PAVEMENT PLANING ASPHALT CONCRETE 2.75" SQ.YD.	254 PAVEMENT PLANING ASPHALT CONCRETE 3.0" SQ.YD.	407 TACK COAT 0.075 GAL. PER SQ. YD. GAL.	407 TACK COAT 0.075 GAL. PER SQ. YD. 702.13 GAL.	407 TACK COAT 0.05 GAL. PER SQ. YD. GAL.	442 ASPHALT CONCRETE INTERMED. 19MM TYPE A (446) 1.75" CU.YD.	442 ASPHALT CONCRETE INTERMED. 19MM TYPE A (446) 2 @ 1.75" CU.YD.	442 ASPHALT CONCRETE SURFACE 12.5MM TYPE A (446) 1.5" CU.YD.	617 COMPACTED AGG. TYPE A 2" CU.YD.	REMARKS
FRA	33	100+46	136+49	3,603'		46'		R/L	1	18,414			1,381					767		(BEGIN URBAN PAVING)
FRA	33	136+49	136+74	25'		46'		R/L	1	128*			10					5		80% STATE / 20% LOCAL FUNDING
																				80% STATE / 20% LOCAL FUNDING
																				(END URBAN PAVING)
																				(BEGIN RURAL) 100% STATE FUNDING
FRA	33	114+86	116+90	204'		54'		R/L	2		1,224			92	61	59		51		EB & WB MAINLINE
FRA	33	116+90	118+20	130'		24'	4'	LT	3		404			30	20	20		17		WB MAINLINE
FRA	33	116+90	118+20	130'	4'	24'		RT	3		404			30	20	20		17		EB MAINLINE
FRA	33	118+20	122+75	455'		24'	4'	LT	4		1,416			106	71	69		59	6	WB MAINLINE
FRA	33	118+20	122+75	455'	4'	24'	10'	RT	4		1,921			144	96	93		80	12	EB MAINLINE
FRA	33	122+75	123+13	38'	4'	24'	10'	LT	5		160			12	8	8		7	1	WB MAINLINE
FRA	33	122+75	123+13	38'	4'	24'	10'	RT	5		160			12	8	8		7	1	EB MAINLINE
FRA	33	123+13	123+50	37'		60'		R/L	6		247			19	12	12		10	1	DRIVE CROSSOVER
FRA	33	123+50	125+03	153'	1'	36'	10'	LT	8		799			60	40	39		33	4	WB LT TURN LANE
FRA	33	125+03	125+65	62'	1'	30'	10'	LT	7		282			21	14	14		12	2	WB LT TURN LANE TAPER
FRA	33	123+13	125+35	222'	4'	24'	10'	RT	6		937			70	47	46		39	5	EB MAINLINE
FRA	33	125+35	126+25	90'	1'	30'	10'	RT	7		410			31	21	20		17	2	EB LT TURN LANE TAPER
FRA	33	126+25	128+25	200'	1'	36'	10'	RT	8		1,044			78	52	51		44	5	EB LT TURN LANE
FRA	33	128+25	131+33	308'	1'	48'	10'	RT	9		2,019			151	101	98		84	8	EB LT TURN LANE TAPER
FRA	33	131+33	132+20	87'		60'		R/L	6		580			44	29	28		24	2	SCHAAF DRIVE CROSSOVER
FRA	33	130+85	131+32	47'		15'		LT	6		78			6	4	4		3		EXTRA AREA SCHAFF DRIVE
FRA	33	132+20	132+35	15'		10'		RT	6		17			1	1	1		1		EXTRA AREA SCHAFF DRIVE
FRA	33	132+20	132+65	45'	1'	60'	10'	LT	9		355			27	18	17		15	1	WB LT TURN LANE
FRA	33	132+65	135+25	260'	1'	46'	10'	LT	9		1,647			124	82	80		69	6	WB LT TURN LANE TAPER
FRA	33	135+25	137+40	215'	1'	36'	10'	LT	8		1,123			84	56	55		47	5	WB LT TURN LANE
FRA	33	137+40	138+30	90'	1'	30'	10'	LT	7		410			31	21	20		17	2	WB LT TURN LANE TAPER
FRA	33	138+30	141+00	270'	4'	24'	10'	LT	6		1,140			86	57	55		48	7	WB MAINLINE
FRA	33	132+20	148+25	1,605'	4'	24'	10'	RT	6		6,777			508	339	329		282	40	EB MAINLINE
FRA	33	141+00	148+05	705'	4'	36'	10'	LT	10		3,917			294	196	190		163	17	WB 33 TO WB 70 RAMP
FRA	33	148+05	149+10	105'	4'	30'	10'	LT	10		513			39	26	25		21	3	WB 33 TO WB 70 RAMP TAPER
FRA	33	148+25	151+25	300'		28'	8'	RT	10		1,200			90	60	58		50	7	EB 70 RAMP TAPER TO SB 33
FRA	33	151+25	157+60	635'		12'	10'	RT	10		1,552			116	78	75		65	16	EB 70 / SB 33 RT TURN LANE
FRA	33	148+25	153+30	505'	4'	24'		RT	10		1,571			118	79	76		65	12	EB MAINLINE (MEDIAN SHOULDER)
FRA	33	153+30	157+60	430'		24'		RT	6		1,147			86	57	56		48	11	EB MAINLINE (THRU LANES)
FRA	33	153+30	157+60	430'		20'	1'	RT	7		1,003			75	50	49		42	11	EB LT TURN LANE TAPER
FRA	33	149+10	152+77	367'	4'	24'	10'	LT	6		1,550			116	77	75		65	9	WB MAINLINE
FRA	33	152+77	153+55	78'	4'	30'	10'	LT	10		383			29	19	19		16	2	WB RT TURN LANE TAPER
FRA	33	153+55	153+68	13'	4'	30'	10'	LT	10			61*		5	3	3		3		WB RT TURN LANE TAPER (FEATHER)
FRA	33	153+68	154+54	86'	4'	30'	10'	LT	10			422		32	21	20		18	2	WB RT TURN LANE TAPER
FRA	33	154+54	157+60	306'	4'	36'	10'	LT	8		1,700			128	85	83		71	8	WB RT TURN LANE
FRA	33	157+60	158+65	105'		146'		R/L	6		852	852		128	85	83		71	3	PETZINGER ROAD INTERSECTION
FRA	33	158+65	161+30	265'		20'	1'	LT	7			618		46	31	30		26	7	WB LT TURN LANE TAPER
FRA	33	158+65	161+30	265'		24'		LT	6			707		53	35	34		29	7	WB MAINLINE (THRU LANES)
FRA	33	158+65	159+50	85'		15'	1'	LT	6			151		11	8	7		6	2	WB RT TURN LANE
FRA	33	159+50	160+50	100'		14'	1'	LT	6			167		13	8	8		7	2	WB RT TURN LANE TAPER
FRA	33	161+30	164+75	345'	10'	24'	10'	LT	6			1687		127	84	82		70	9	WB MAINLINE
FRA	33	158+65	164+75	610'	4'	24'	10'	RT	6		2,576			193	129	125		107	15	EB MAINLINE
FRA	33	164+75	165+04	29'	4'	24'	10'	LT	6			124		9	12	6		5	1	WB MAINLINE
FRA	33	165+04	165+92	88'	4'	24'	10'	LT	6			369		28	36		27**	15	4	WB MAINLINE (FEATHER)
																				* VAR. DEPTH, PAV'T PLANING
																				** VAR. DEPTH, INTERMEDIATE
										18,542	41,518	5,157	1,391	3,503	2,357	2,250	27	2,718	257	

CALCULATED RDK / LW PAY / HG
CHECKED MATT

PAVEMENT CALCULATIONS

FRA-33-20.69

LOCATION										PAVEMENT CALCULATIONS											REMARKS
COUNTY	ROUTE	STATION FROM	STATION TO	LENGTH	SHOULDER	PAVEMENT	SHOULDER	SIDE	TYPICAL	254 PAVEMENT PLANING ASPHALT CONCRETE 2.75"	254 PAVEMENT PLANING ASPHALT CONCRETE 3.0"	407 TACK COAT 0.075 GAL. PER SQ. YD. 702.13	407 TACK COAT 0.05 GAL. PER SQ. YD.	442 ASPHALT CONCRETE INTERMED. 19MM TYPE A (446) 1.75"	442 ASPHALT CONCRETE INTERMED. 19MM TYPE A (446) 2 @ 1.75"	442 ASPHALT CONCRETE SURFACE 12.5MM TYPE A (446) 1.5"	617 COMPACTED AGG. TYPE A 2"				
										SQ.YD.	SQ.YD.	GAL.	GAL.	CU.YD.	CU.YD.	CU.YD.	CU.YD.				
FRA	33	164+75	165+04	29'	4'	24'	10'	RT	6	124		9	12	6		5	1				EB MAINLINE
FRA	33	165+04	165+92	88'	4'	24'	10'	RT	6	369		28	36		36	15	4				EB MAINLINE (FEATHER)
FRA	33	164+76	169+25	449'	4'	38'	10'	LT	12		2596	195	260		252	108	22				WB DIRECTIONAL ROADWAY TAPER
FRA	33	166+86	168+00	114'	4'	38'	10'	RT	6	658		49	66		64	27	6				EB DIRECTIONAL ROADWAY TAPER
FRA	33	169+25	173+10	385'	4'	24'	10'	LT	20		1627	122	162		158	68	19				WB DIRECTIONAL ROADWAY
FRA	33	173+10	173+98	88'	4'	24'	10'	LT	20		369	28	36		27**	15	4				WB DIRECTIONAL RD (FEATHER)
FRA	33	173+98	174+70	72'	4'	24'	10'	LT	20		305	23	30	15		13	4				WB DIR. (JAMES RD.#2 OVERHEAD)
FRA	33	174+70	175+57	88'	4'	24'	10'	LT	20		369	28	36		27**	15	4				WB DIRECTIONAL RD (FEATHER)
FRA	33	175+57	183+85	828'	4'	24'	10'	LT	20		3494	262	350		340	146	41				WB DIRECTIONAL ROADWAY
FRA	33	183+85	185+11	126'	4'	48'	10'	LT	15		867	65	86		84	36	6				WB DIR. / JAMES RD.#2 TAPER
FRA	33	185+11	185+98	88'	4'	48'	10'	LT	15		603	45	60		44**	25	4				WB DIR. / JAMES RD.#2 (FEATHER)
FRA	33	185+98	187+00	102'	4'	48'	10'	LT	15		700	53	70	34		29	5				WB DIR. (WIN. PIKE OVERHEAD)
FRA	33	187+00	187+56	56'	4'	36'	10'	LT	14		309	23	30	15		13	3				WB DIR. (WIN. PIKE OVERHEAD)
FRA	33	187+56	188+43	88'	4'	36'	10'	LT	14		486	36	48		35**	20	4				WB RT TURN LANE (FEATHER)
FRA	33	188+43	190+25	182'	4'	36'	10'	LT	14		1010	76	102		98	42	9				WB RT TURN LANE
FRA	33	190+25	191+00	75'	4'	30'	10'	LT	13		367	28	36		36	15	4				WB RT TURN LANE TAPER
FRA	33	191+00	195+65	465'	4'	24'	10'	LT	20		1963	147	196		190	82	23				WB DIRECTIONAL ROADWAY
FRA	33	195+65	198+10	245'	4'	43'	10'	LT	15		1552	116	156		150	65	12				WB DIRECTIONAL / RAMP D TAPER
FRA	33	199+00	199+55	55'	4'	36'	10'	LT	14		304	23	30		30	13	3				WB MAINLINE AND WEAVE AREA
FRA	33	199+55	200+43	88'	4'	36'	10'	LT	14		486	36	48		35**	20	4				WB MAINLINE (FEATHER)
FRA	33	200+43	201+20	77'	4'	36'	10'	LT	14		428	32	42	21		18	4				WB MAINLINE (REFUGEE RD. OVERHEAD)
FRA	33	201+20	201+32	13'	4'	36'	10'	LT	14		69*	5	6	3		3	1				WB MAINLINE (REFUGEE RD. OVERHEAD)
FRA	33	201+32	201+40	8'	4'	36'	10'	LT	14	42		3	4	2		2	1				WB MAINLINE (REFUGEE RD. OVERHEAD)
FRA	33	201+40	202+27	88'	4'	36'	10'	LT	14	486		36	48		35**	20	4				WB MAINLNE (FEATHER)
FRA	33	202+27	202+60	33'	4'	36'	10'	LT	14	182		14	18		18	8	2				WB MAINLINE AND WEAVE AREA
FRA	33	202+60	204+75	215'	4'	49'	10'	LT	15	1,505		113	150		146	63	11				WB DIRECTIONAL / RAMP C TAPER
FRA	33	168+00	171+30	330'	4'	38'	10'	RT	12	1,907		143	190		186	79	16				EB DIRECTIONAL TAPER
FRA	33	171+30	182+25	1,095'	4'	38'	10'	RT	19	6,327		475	632		614	264	54				EB DIRECTIONAL
FRA	33	171+30	182+25	1,095'	4'	38'	10'	RT	19	6,327		475	632		614	264	54				EB DIRECTIONAL
FRA	33	182+25	189+00	675'	4'	50'	10'	RT	12	4,800		360	480		466	200	33				EB DIR./RAMP A/SB JAMES TRANS.
FRA	33	189+00	193+75	475'	4'	60'	10'	RT	15	3,906		293	390		380	163	24				EB DIR./RAMP A/SB JAMES TRANS.
FRA	33	193+75	198+10	435'	4'	24'	10'	RT	19	1,837		138	184		178	77	22				EB DIRECTIONAL
FRA	33	199+00	199+55	55'	4'	24'	10'	RT	11	231		17	24		22	10	3				EB DIRECTIONAL TO EB MAINLINE
FRA	33	199+55	200+43	88'	4'	24'	10'	RT	11	369		28	18		27**	15	4				EB MAINLINE (FEATHER)
FRA	33	200+43	201+40	97'	4'	24'	10'	RT	11	410		31	20	20		17	5				EB MAINLINE (REFUGEE RD. OVERHEAD)
FRA	33	201+40	202+27	87'	4'	24'	10'	RT	11	369		28	18		27**	15	4				EB MAINLINE (FEATHER)
FRA	33	202+27	204+75	248'	4'	24'	10'	RT	11	1,046		78	104		102	44	12				EB MAINLINE
FRA	33	204+75	215+55	1,080'	4'	24'	10'	LT	11	4,560		342	456		444	190	53				WB MAINLINE
FRA	33	204+75	208+90	415'	4'	24'	10'	RT	11	1,752		131	176		170	73	21				EB MAINLINE
FRA	33	215+55	218+30	275'	4'	48'	10'	LT	15	1,894		142	190		184	79	14				WB MAINLINE / RAMP F TAPER
FRA	33	218+30	222+00	370'	4'	36'	10'	LT	14	2,056		154	206		200	86	18				WB MAINLINE / RAMP F
FRA	33	222+00	223+65	165'	4'	30'	10'	LT	13	807		61	80		78	34	8				WB MAINLINE / RAMP F TAPER
FRA	33	208+90	220+00	1,110'	4'	24'	10'	RT	15	4,687		352	468		456	195	55				EB MAINLINE / RAMP B TAPER
FRA	33	223+65	272+50	4,885'	4'	24'	10'	LT	11	20,626		1,547	2,062		2004	859	242				WB MAINLINE
FRA	33	220+00	272+50	5,250'	4'	24'	10'	RT	11	22,167		1,663	2,216		2154	924	260				EB MAINLINE
FRA	33	272+50	275+90	340'	4'	30'	10'	LT	15	1,662		125	166		162	69	17				270 SB RAMP TO WB MAINLINE TAPER
FRA	33	275+90	281+79	589'	4'	48'	10'	LT	15	4,058		304	406		394	169	29				270 SB RAMP TO WB MAINLINE TAPER
FRA	33	281+79	282+45	66'	4'	48'	10'	LT	15	454		34	23		36**	19	3				270 SB RAMP/WB MAINLINE (FEATHER)
FRA	33	272+50	273+70	120'	4'	30'	10'	RT	13	587		44	58		58	24	6				EB MAINLINE TO SB 270 RAMP TAPER
FRA	33	273+70	277+65	395'	4'	36'	10'	RT	14	2,194		165	220		214	91	20				EB MAINLINE TO SB 270 RAMP
																					* VAR. DEPTH, PAV'T PLANING
																					** VAR. DEPTH, INTERMEDIATE
										98,397	17,906	8,725	11,537	116	10,975	4,846	1,182				

CALCULATED RDK / LW FAY / NG
CHECKED MATT

PAVEMENT CALCULATIONS

FRA-33-20.69

PAVEMENT CALCULATIONS

LOCATION										PAVEMENT CALCULATIONS											REMARKS
COUNTY	ROUTE	STATION FROM	STATION TO	LENGTH	SHOULDER	PAVEMENT	SHOULDER	SIDE	TYPICAL	203 EXCAVATION 12.0"	203 EXCAVATION 13.0"	204 SUBGRADE COMPACT	254 PAVEMENT PLANING ASPHALT CONCRETE 2.75"	407 TACK COAT 0.075 GAL. PER SQ. YD. 702.13	407 TACK COAT 0.05 GAL. PER SQ. YD.	301 ASPHALT CONCRETE BASE PG64-28	442 ASPHALT CONCRETE INTERMED. 19MM TYPE A (446) 1.75"	442 ASPHALT CONCRETE INTERMED. 19MM TYPE A (446) 2 @ 1.75"	442 ASPHALT CONCRETE SURFACE 12.5MM TYPE A (446) 1.5"	617 COMPACTED AGG. TYPE A 2"	
										CU.YD.	CU.YD.	SQ.YD.	SQ.YD.	GAL.	GAL.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	
FRA	33	277+65	280+65	300'	4'	48'	10'	RT	15				2067	155	206			200	86	15	EB MAINLINE TO SB 270 RAMP TAPER
FRA	33	282+45	282+67	22'	4'	24'	10'	LT	11				91	7	5			5**	4	1	WB MAINLINE (FEATHER)
FRA	33	282+67	283+30	63'	4'	24'	10'	LT	11				266	20	13		13		11	3	WB MAINLINE (WATKINS RD. OVERHEAD)
FRA	33	283+30	284+17	88'	4'	24'	10'	LT	11				369	28	18			27**	15	4	WB MAINLINE (FEATHER)
FRA	33	284+17	289+75	558'	4'	24'	10'	LT	11				2355	177	236			228	98	28	WB MAINLINE
FRA	33	280+65	281+51	86'	4'	24'	10'	RT	11				365	27	36			36	15	4	EB MAINLINE
FRA	33	281+51	282+39	88'	4'	24'	10'	RT	11				369	28	18			27**	15	4	EB MAINLINE (FEATHER)
FRA	33	282+39	283+08	70'	4'	24'	10'	RT	11				294	22	15		14		12	3	EB MAINLINE (WATKINS RD. OVERHEAD)
FRA	33	283+08	283+96	88'	4'	24'	10'	RT	11				369	28	18			27**	15	4	EB MAINLINE (FEATHER)
FRA	33	283+96	289+15	519'	4'	24'	10'	RT	11				2192	164	220			214	91	26	EB MAINLINE
FRA	33	289+75	291+30	155'	4'	55'	10'	LT	15				1188	89	118			116	50	8	WB MAINLINE TO SB 270 RAMP TAPER
FRA	33	291+30	291+90	60'	4'	36'	10'	LT	14				331	25	34			32	14	3	WB MAINLINE AND WEAVE AREA
FRA	33	291+90	292+77	88'	4'	36'	10'	LT	14				486	36	24			35**	20	4	WB MAINLINE (FEATHER)
FRA	33	292+77	294+89	211'	4'	36'	10'	LT	14				1175	88	59		57		49	10	WB MAINLINE (270 OVERHEAD)
FRA	33	294+89	295+76	88'	4'	36'	10'	LT	14				486	36	24			35**	20	4	WB MAINLINE (FEATHER)
FRA	33	295+76	296+25	49'	4'	36'	10'	LT	14				272	20	28			26	11	2	WB MAINLINE AND WEAVE AREA
FRA	33	296+25	297+80	155'	4'	48'	10'	LT	15				1068	80	106			104	44	8	NB 270 RAMP TO WB MAINLINE TAPER
FRA	33	289+15	290+85	170'	4'	48'	10'	RT	15				1171	88	118			114	49	8	SB 270 RAMP TO EB MAINLINE TAPER
FRA	33	290+85	291+90	105'	4'	36'	10'	RT	14				581	44	58			56	24	5	EB MAINLNE AND WEAVE AREA
FRA	33	291+90	292+77	88'	4'	36'	10'	RT	14				486	36	24			35**	20	4	EB MAINLNE (FEATHER)
FRA	33	292+77	294+89	211'	4'	36'	10'	RT	14				1175	88	59		57		49	10	EB MAINLNE (270 OVERHEAD)
FRA	33	294+89	295+70	82'	4'	36'	10'	RT	14				453	34	23			32**	19	4	EB MAINLNE (FEATHER)
FRA	33	295+70	295+76	6'	4'	55'	10'	RT	15				46	3	2			4**	2	1	EB MAINLNE (FEATHER)
FRA	33	295+76	298+00	224'	4'	55'	10'	RT	15				1717	129	172			166	72	11	EB MAINLINE TO NB 270 RAMP TAPER
FRA	33	297+80	303+50	570'	4'	24'	10'	LT	11				2407	181	240			234	100	28	WB MAINLINE
FRA	33	298+00	303+45	545'	4'	24'	10'	RT	11				2301	173	230			224	96	27	EB MAINLINE
FRA	33	303+50	306+10	260'	4'	50'	10'	LT	15				1849	139	184			180	77	13	WB MAINLINE TO NB 270 RAMP TAPER
FRA	33	306+10	307+02	92'	4'	36'	10'	LT	14				513	38	52			50	21	5	WB MAINLINE TO NB 270 RAMP
FRA	33	307+02	307+65	63'	4'	36'	10'	LT	14				347*	26	17			25**	14	3	WB MAINLINE (FEATHER)
FRA	33	307+65	307+90	25'	4'		10'	LT	16	13		39			6	10		4	2	1	WB MAINLINE SHOULDERS ONLY
																					FRA-33-25.03 WB
FRA	33	308+82	309+07	25'	4'		10'	LT	16	13		39			6	10		4	2	1	WB MAINLINE SHOULDERS ONLY
FRA	33	309+07	310+25	118'	4'	36'	10'	LT	18				654*	49	33		32		27	6	WB MAINLINE
FRA	33	310+25	310+51	26'	4'	30'	10'	LT	18				127*	10	6		6		5	1	WB MAINLINE
FRA	33	310+51	311+51	100'	4'	30'	10'	LT	18				489*	37					29***	5	WB MAINLINE (FEATHER)
FRA	33	311+51	311+76	25'	4'		10'	LT	17		14	39			6	10		4	2	1	WB MAINLINE SHOULDERS ONLY
																					FRA-33-25.09 WB
FRA	33	314+79	315+04	25'	4'		10'	LT	17		14	39			6	10		4	2	1	WB MAINLINE SHOULDERS ONLY
FRA	33	303+45	305+10	165'	4'	48'	10'	RT	15				1137	85	114			110	47	8	NB 270 RAMP TO EB MAINLINE TAPER
FRA	33	305+10	306+92	182'	4'	36'	10'	RT	14				1011	76	102			98	42	9	NB 270 RAMP TO EB MAINLINE
FRA	33	306+92	307+02	10'	4'	34'	10'	RT	13				55	4	6			6	2	1	NB 270 RAMP TO EB MAINLINE TAPER
FRA	33	307+02	307+65	63'	4'	34'	10'	RT	13				333*	25	17			24**	14	3	EB MAINLINE (FEATHER)
FRA	33	307+65	307+90	25'	4'		10'	RT	16	13		39			6	10		4	2	1	EB MAINLINE SHOULDERS ONLY
																					FRA-33-25.03 EB
FRA	33	308+82	309+07	25'	4'		10'	RT	16	13		39			6	10		4	2	1	EB MAINLINE SHOULDERS ONLY
FRA	33	309+07	309+68	61'	4'	25'	10'	RT	18				263*	20	13		13		11	3	EB MAINLINE
FRA	33	309+68	309+81	13'	4'	24'	10'	RT	18				53*	4	3		3		2	1	EB MAINLINE
FRA	33	309+81	310+81	100'	4'	24'	10'	RT	18				422*	32					25***	5	EB MAINLINE (FEATHER)
FRA	33	310+81	311+06	25'	4'		10'	RT	17		14	39			6	10		4	2	1	EB MAINLINE SHOULDERS ONLY
																					* VAR. DEPTH, PAV'T PLANING
																					** VAR. DEPTH, INTERMEDIATE
																					*** VAR. DEPTH, SURFACE
										52	42	272	31,334	2,351	2,693	70	195	2,498	1,331	303	

CALCULATED RDK / LW PAY / MG
CHECKED MATT

PAVEMENT CALCULATIONS

FRA-33-20.69

LOCATION / PAVEMENT CALCULATIONS / REMARKS

COUNTY	ROUTE	STATION FROM	STATION TO	LENGTH	SHOULDER	PAVEMENT	SHOULDER	SIDE	TYPICAL	203 EXCAVATION 13.0" CU.YD.	204 SUBGRADE COMPACT SQ.YD.	254 PAVEMENT PLANING ASPHALT CONCRETE 2.75" SQ.YD.	407 TACK COAT 0.075 GAL. PER SQ. YD. 702.13 GAL.	407 TACK COAT 0.05 GAL. PER SQ. YD. GAL.	301 ASPHALT CONCRETE BASE PG64-28 CU.YD.	442 ASPHALT CONCRETE INTERMED. 19MM TYPE A (446) 1.75" CU.YD.	442 ASPHALT CONCRETE INTERMED. 19MM TYPE A (446) 2 @ 1.75" CU.YD.	442 ASPHALT CONCRETE SURFACE 12.5MM TYPE A (446) 1.5" CU.YD.	617 COMPACTED AGG. TYPE A 2" CU.YD.	REMARKS
																				FRA-33-25.09 EB
FRA	33	314+09	314+34	25'	4'		10'	RT	17	14	39			6	10		4	4	1	EB MAINLINE SHOULDERS ONLY
FRA	33	315+04	317+04	200'	4'	24'	10'	LT	11			63*	63	42			31**	031**	10	WB MAINLINE (FEATHER)
FRA	33	317+04	337+00	1,996'	4'	24'	10'	LT	11			632	632	842			820	0820	99	WB MAINLINE
FRA	33	314+34	316+34	200'	4'	24'	10'	RT	11			63*	63	42			31**	31**	10	EB MAINLINE (FEATHER)
FRA	33	316+34	337+86	2,152'	4'	24'	10'	RT	11			682	682	908			884	884	106	EB MAINLINE
FRA	33	336+71	338+00	213'	4'	24'	10'	RT	11			67	67	90			88	88	11	EB MAINLINE
FRA	33	337+00	337+86	86'	4'	25'	10'	LT	15			373	28	38			36	36	2	WB MAINLINE / RAMP G TAPER
FRA	33	337+86	346+75	889'	4'	44'	10'	LT	15			5729	430	572			556	556	22	WB MAINLINE / RAMP G TAPER
FRA	33	338+00	339+00	100'	4'	30'	10'	RT	13			489	37	48			48	48	2	EB MAINLINE / RAMP I TAPER
FRA	33	339+00	343+75	475'	4'	36'	10'	RT	14			2639	198	264			256	256	12	EB MAINLINE / RAMP I
FRA	33	343+75	346+15	240'	4'	50'	10'	RT	15			1707	128	170			166	166	6	EB MAINLINE / RAMP I TAPER
FRA	33	346+75	353+96	721'	4'	24'	10'	LT	11			3042	228	304			296	296	18	WB MAINLINE
FRA	33	353+96	354+83	88'	4'	24'	10'	LT	11			369	28	18			27**	27**	2	WB MAINLINE (FEATHER)
FRA	33	354+83	356+26	143'	4'	24'	10'	LT	11			603	45	30		29		29	4	WB MAINLINE (S.R. 317 OVERHEAD)
FRA	33	356+26	357+13	88'	4'	24'	10'	LT	11			369	28	18			27**	027**	2	WB MAINLINE (FEATHER)
FRA	33	357+13	362+05	492'	4'	24'	10'	LT	11			2076	156	208			202	202	12	WB MAINLINE
FRA	33	346+15	353+55	740'	4'	24'	10'	RT	11			3124	234	312			304	304	18	EB MAINLINE
FRA	33	362+05	363+13	108'	4'	48'	10'	LT	15			741	56	74			72	72	3	WB MAINLINE / RAMP H TAPER
FRA	33	363+13	364+25	113'	4'	48'	10'	LT	15			775	58	39			44**	44**	3	WB MAINLINE (FEATHER)
FRA	33	353+55	354+61	106'	4'	45'	10'	RT	15			696	52	70			68	68	3	EB MAINLINE / RAMP J TAPER
FRA	33	354+61	355+49	88'	4'	45'	10'	RT	15			574	43	29			42**	42**	2	EB MAINLINE (FEATHER)
FRA	33	355+49	357+04	156'	4'	45'	10'	RT	15			1021	77	51		50		50	4	EB MAINLINE (S.R. 317 OVERHEAD)
FRA	33	357+04	357+92	88'	4'	45'	10'	RT	15			574	43	29			42**	42**	2	EB MAINLINE (FEATHER)
FRA	33	357+92	363+13	521'	4'	45'	10'	RT	15			3413	256	342			332	332	13	EB MAINLINE / RAMP J TAPER
FRA	33	363+13	364+25	113'	4'	45'	10'	RT	15			738	55	37			42**	42**	3	EB MAINLINE (FEATHER)
																				* VAR. DEPTH, PAV'T PLANING
																				** VAR. DEPTH, INTERMEDIATE
																				*** VAR. DEPTH, SURFACE
										14	39	30,558	3,687	4,583	10	79	4,418	2,029	369	

CALCULATED RDK / JW
CHECKED MATT

PAVEMENT CALCULATIONS

FRA-33-20.69

LOCATION / PAVEMENT CALCULATIONS

COUNTY	ROUTE	STATION FROM	STATION TO	LENGTH	SHOULDER	PAVEMENT	SHOULDER	SIDE	TYPICAL	254 PAVEMENT PLANING ASPHALT CONCRETE 1.5" SQ.YD.	254 PAVEMENT PLANING ASPHALT CONCRETE 2.75" SQ.YD.	407 TACK COAT 0.075 GAL. PER SQ. YD. GAL.	407 TACK COAT 0.05 GAL. PER SQ. YD. GAL.	442 ASPHALT CONCRETE INTERMED. 19MM TYPE A (446) 2 @ 1.75" CU.YD.	442 ASPHALT CONCRETE SURFACE 12.5MM TYPE A (446) 1.5" CU.YD.	617 COMPACTED AGG. TYPE A 2" CU.YD.	REMARKS
																	WIN. PIKE (100% LOCAL FUNDING)
FRA	33	168+25	169+38	113'	4'	12'	4'	LT	24		250*	19	13	21**	10	3	WB / WIN. PIKE - LINE A (FEATHER)
FRA	33	169+38	170+90	153'	4'	12'	4'	LT	24	339		25			14	4	WB / WIN. PIKE - LINE A
FRA	33	170+35	170+90	55'	4'	12'	4'	RT	24		122*	9	6	10**	5	1	EB / WIN. PIKE - LINE B (FEATHER)
FRA	33	170+90	171+48	58'	4'	35'	4'	RT	25		275*	21	14	17**	11	1	TAPER LINE A / LINE B (FEATHER)
FRA	33	171+48	177+68	621'	4'	35'	4'	RT	25	2,965		222			124	15	TAPER LINE A / LINE B
FRA	33	177+68	192+00	1,432'	4'	24'	4'	R/L	26	5,092		382			212	35	WIN. PIKE MAINLINE
FRA	33	192+00	195+00	300'	4'	28'	4'	R/L	25	1,200		90			50	7	WIN. PIKE TAPER
FRA	33	195+00	204+50	950'	4'	56'	4'	R/L	25	6,756		507			281	23	WIN. PIKE / JAMES RD. #1 TAPER
																	NB JAMES ROAD #1
FRA	33	112+27	127+00	1,473'	4'	24'	10'	R/L	28	6,219		466			259	36	NB JAMES RD #1
FRA	33	127+00	128+11	111'	3'	25'	10'	R/L	25	469		35			20	3	NB JAMES RD #1 & #2 TAPER
FRA	33	28+11	31+55	344'	3'	38'	6'	R/L	25	1,796		135			75	8	NB JAMES RD #1 & #2 TAPER
FRA	33	31+55	46+93	1,538'	3'	16'	3'	R/L	21	3,760		282			157	38	NB JAMES RD #1
																	NB JAMES ROAD #2
FRA	33	137+50	136+38	113'	3'	16'	3'	R/L	21		275*	21	14	20**	11	3	WB / NB JAMES RD #2 (FEATHER)
FRA	33	136+38	131+60	478'	3'	16'	3'	R/L	21	1,167		88			49	12	NB JAMES RD #2
																	SB JAMES ROAD
FRA	33	112+27	120+00	773'	4'	24'	10'	R/L	27	3,264		245			136	19	SB JAMES RD
FRA	33	120+00	121+40	140'	4'	30'	10'	R/L	27	684		51			29	3	SB JAMES RD LT TURN TAPER
FRA	33	121+40	123+50	210'	2'	36'	10'	R/L	27	1,120		84			47	5	SB JAMES RD LT TURN LANE
FRA	33	123+50	131+00	750'	4'	20'	10'	R/L	29	2,833		213			118	19	SB JAMES RD TAPER
FRA	33	131+00	133+00	200'	4'	16'	10'	R/L	30	667		50			28	5	SB JAMES RD
																	FRA-33-22.53
FRA	33	138+05	139+78	173'	3'	16'	3'	R/L	21	422		32			18	4	EB DIRECTIONAL TO SB JAMES RD
FRA	33	139+78	140+90	113'	3'	16'	3'	R/L	21		275*	21	14	20**	11	3	EB / SB JAMES RD (FEATHER)
																	I-270 RAMPS
FRA	33	48+39	49+52	113'	3'	16'	3'	R/L	21		275*	21	14	23**	11	3	RAMP A
FRA	33	92+95	94+07	113'	3'	16'	3'	R/L	21		275*	21	14	23**	11	3	RAMP B
FRA	33	47+14	48+27	113'	3'	16'	3'	R/L	21		277*	21	14	24**	12	3	RAMP D
FRA	33	57+11	58+23	113'	3'	16'	3'	R/L	21		275*	21	14	23**	11	3	RAMP E
FRA	33	53+55	54+68	113'	3'	16'	3'	R/L	21		275*	21	14	23**	11	3	RAMP F
FRA	33	55+28	56+41	113'	3'	16'	3'	R/L	21		275*	21	14	23**	11	3	RAMP G
FRA	33	58+83	59+95	113'	3'	16'	3'	R/L	21		275*	21	14	23**	11	3	RAMP H
																	* VAR. DEPTH, PAV'T PLANING
																	** VAR. DEPTH, INTERMEDIATE
										38,752	3124	3,145	159	250	1,743	269	

CALCULATED RBK / LW PLANS RBK CHECKED MATT

PAVEMENT CALCULATIONS

FRA-33-20.69

59
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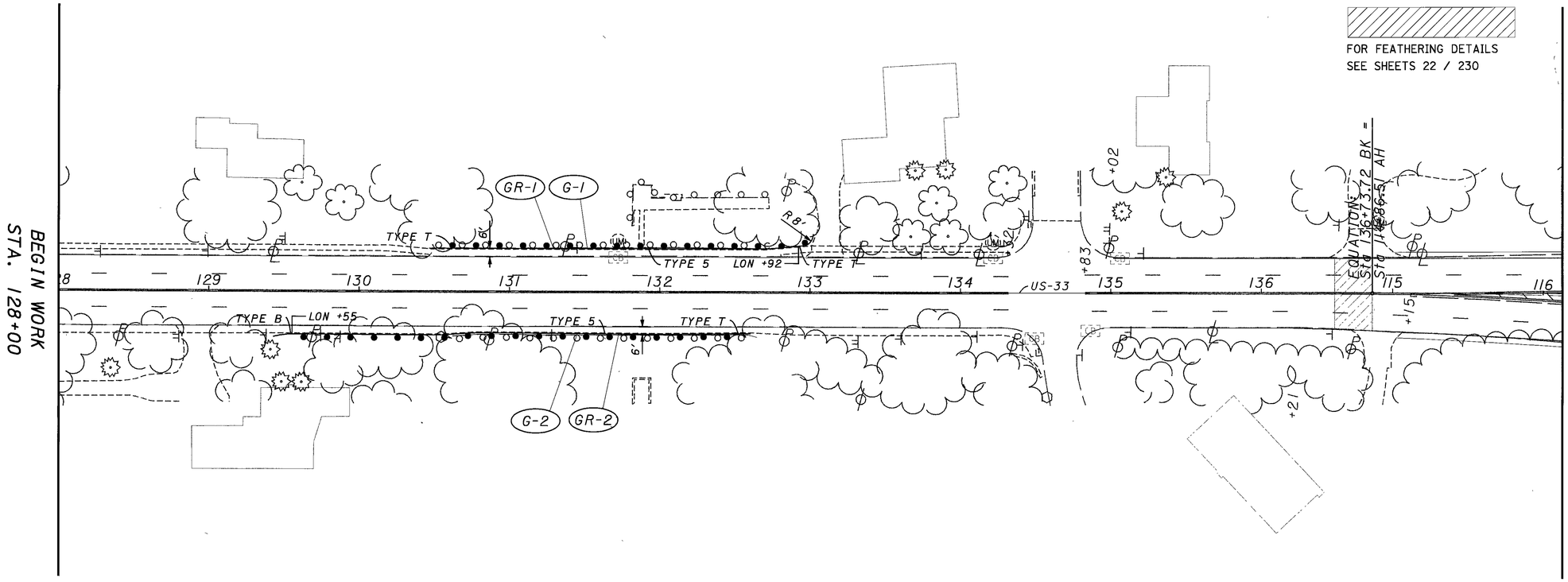
PAVEMENT CALCULATIONS

LOCATION										203	204	254	254	407	407	301	442	442	617	REMARKS
COUNTY	ROUTE	STATION FROM	STATION TO	LENGTH	SHOULDER	PAVEMENT	SHOULDER	SIDE	TYPICAL	EX-CAVATION 12.25"	SUBGRADE COMPACT	PAVEMENT PLANING ASPHALT CONCRETE 1.5"	PAVEMENT PLANING ASPHALT CONCRETE 2.75"	TACK COAT 0.075 GAL. PER SQ. YD.	TACK COAT 0.05 GAL. PER SQ. YD.	ASPHALT CONCRETE BASE PG64-28	ASPHALT CONCRETE INTERMED. 19MM TYPE A (446) 2 @ 1.75"	ASPHALT CONCRETE SURFACE 12.5MM TYPE A (446) 1.5"	COMPACTED AGG. TYPE A 2"	
										CU.YD.	SQ.YD.	SQ.YD.	SQ.YD.	GAL.	GAL.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	
FRA	33	98+15	99+28	113'	3'	24'	3'	CL	21				375*	28	19		27**	16	3	REFUGEE ROAD RAMPS RAMP A (FEATHER)
FRA	33	99+28	102+00	273'	3'	24'	3'	CL	21			908		68				38	7	RAMP A
FRA	33	102+00	103+35	135'	3'	38'	3'	CL	21			660		50				28	3	RAMP A / RAMP AA
FRA	33	103+35	105+75	240'	3'	16'	3'	CL	21			587		44				24	6	RAMP A TO SR 104
FRA	33	98+99	99+90	91'	3'	16'	3'	CL	21			222		17				9	2	RAMP AA
FRA	33	135+70	139+35	365'	3'	16'	3'	CL	21			892		67				37	9	RAMP B
FRA	33	139+35	140+65	130'	3'	34'	3'	CL	21			578		43				24	3	RAMP B / RAMP BB
FRA	33	140+65	145+03	438'	3'	16'	3'	CL	21			1,069		80				45	11	RAMP B
FRA	33	145+03	146+15	113'	3'	16'	3'	CL	21				275*	21	14		20**	11	3	RAMP B (FEATHER)
FRA	33	19+75	21+15	140'	3'	16'	3'	CL	21			342		26				14	3	RAMP BB
FRA	33	3+81	4+94	113'	3'	16'	3'	CL	21				275*	21	14		20**	11	3	RAMP C (FEATHER)
FRA	33	4+94	14+50	957'	3'	16'	3'	CL	21			2,338		175				97	24	RAMP C
FRA	33	84+13	94+59	1,046'	3'	16'	3'	CL	21			2,556		192				106	26	RAMP D
FRA	33	94+59	95+71	113'	3'	16'	3'	CL	21				275*	21	14		20**	11	3	RAMP D (FEATHER)
FRA	33	11+30	13+00	170'	3'	32'	3'	CL	21			718		54				30	4	RAMP F / RAMP FF
FRA	33	13+00	23+63	1,063'	3'	16'	3'	CL	21			2,597		195				108	26	RAMP F
FRA	33	23+63	24+75	113'	3'	16'	3'	CL	21				275*	21	14		20**	11	3	RAMP F (FEATHER)
FRA	33	9+75	11+35	160'	3'	16'	3'	CL	21			391		29				16	4	RAMP FF
																				HAMILTON ROAD RAMPS
FRA	33	46+75	47+88	113'	3'	16'	3'	LT	21				275*	21	14		20**	11	3	RAMP G (FEATHER)
FRA	33	47+88	49+75	188'	3'	16'	3'	LT	21			458		34				19	5	RAMP G
FRA	33	49+75	53+81	406'	3'	16'	3'	LT	21			992		74				41	10	RAMP G
FRA	33	51+11	54+75	364'	3'	16'	3'	LT	21			890		67				37	9	RAMP H
FRA	33	54+75	55+50	75'	3'	30'	3'	LT	21			300		23				13	2	RAMP H / RAMP HH
FRA	33	55+50	60+93	543'	3'	16'	3'	LT	21			1,326		99				55	13	RAMP H
FRA	33	60+93	62+05	113'	3'	16'	3'	LT	21				275*	21	14		20**	11	3	RAMP H (FEATHER)
FRA	33	46+10	47+23	113'	3'	16'	3'	RT	21				275*	21	14		20**	11	3	RAMP I (FEATHER)
FRA	33	47+23	54+16	694'	3'	16'	3'	RT	21			1,695		127				71	17	RAMP I
FRA	33	54+18	60+45	627'	3'	16'	3'	RT	23			1,533		115				64	15	RAMP IJ
FRA	33	48+78	49+91	113'	3'	16'	3'	LT	21				275*	21	14		20**	11	3	RAMP J (FEATHER)
FRA	33	49+91	54+18	428'	3'	16'	3'	LT	21			1,045		78				44	11	RAMP J
FRA	33	62+96	66+16	320'	3'	16'	3'	RT	21			782		59				33	8	RAMP K
FRA	33	59+21	69+51	1,030'	3'	16'	3'	RT	21			2,518		189				105	25	RAMP L
																				MEDIAN CROSS-OVERS
FRA	33	232+50		60'		16'		CL	22									4	1	CROSS-OVER
FRA	33	230+50	232+50	200'	6'			CL	22									6		WB APPROACH TAPER
FRA	33	232+50	234+50	200'			6'	CL	22									6		EB APPROACH TAPER
FRA	33	323+50		60'		16'		CL	22									4	1	CROSS-OVER
FRA	33	321+50	323+50	200'	6'			CL	22									6		WB APPROACH TAPER
FRA	33	323+50	325+50	200'			6'	CL	22									6		EB APPROACH TAPER
FRA	33	1+22	4+55	333'	4'		4'	R/L	31	101	296					74				RAVENSWOOD CT. (WIDENING)
FRA	33	1+22	4+55	333'	2'	20'	2'	R/L	31			888		67				37	8	RAVENSWOOD CT. (RESURFACE)
																				* VAR. DEPTH, PAV'T PLANING
																				** VAR. DEPTH, INTERMEDIATE
										101	296	26,287	2,575	2,168	131	74	187	1,231	280	

CALCULATED RDK / JW
CHECKED MATT

PAVEMENT CALCULATIONS

FRA-33-20.69



HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED RDK / LM
PAT / NS
CHECKED MATT

PLAN VIEW FRA. US-33
STA. 128+00 TO STA. 116+12

FRA-33-20.69

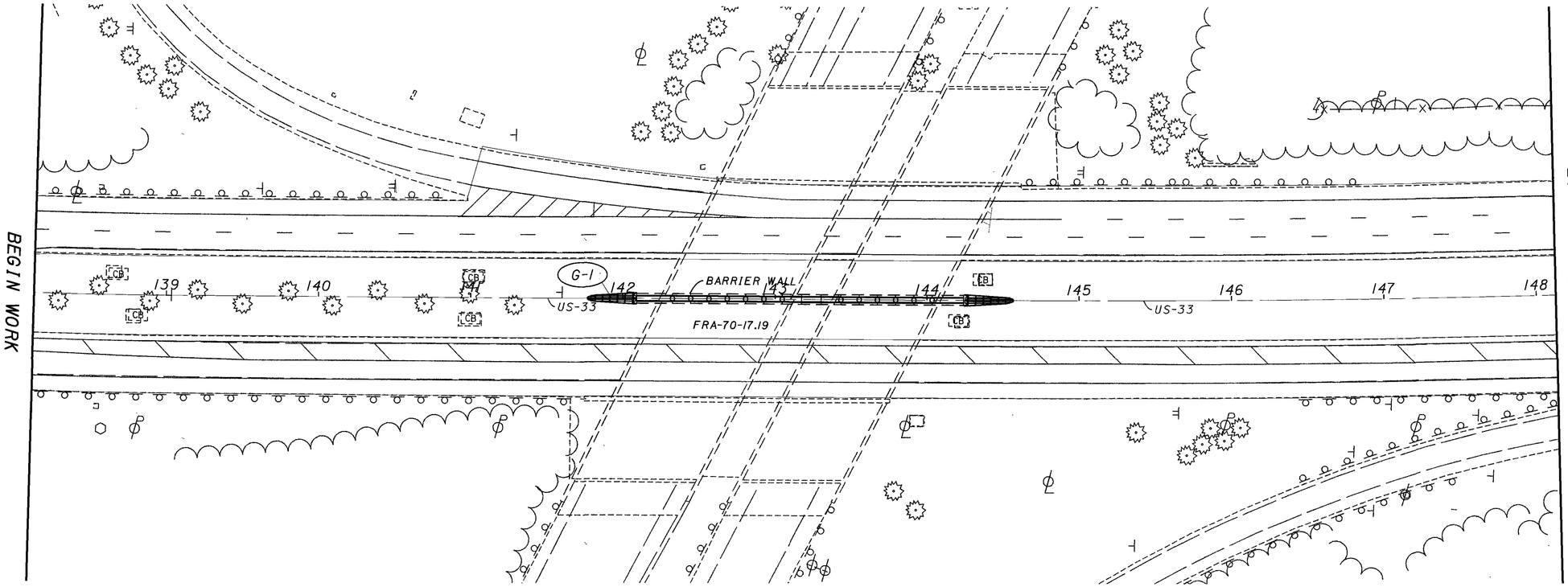
61
230

LOCATION

QUANTITIES

REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 GUARDRAIL REMOVED FT.	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE B-98 EACH	606 GUARDRAIL TYPE 5 FT.	606 ANCHOR ASSEMBLY TYPE T EACH	606 ANCHOR ASSEMBLY REBUILT, TYPE B-98 EACH
GR-1	130+48	132+73	LT	225				
GR-2	130+62	132+65	RT	203	1			
G-1	130+46	133+02	LT			237.5	2	
G-2	129+43	132+60	RT			275	1	1
TOTALS CARRIED TO SUB SUMMARY				428	1	512.5	3	1



HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED RDK / LW
CHECKED MTT

PLAN VIEW FRA. US-33 STA. 138+13 TO STA. 148+13

FRA-33-20.69

62
230

LOCATION

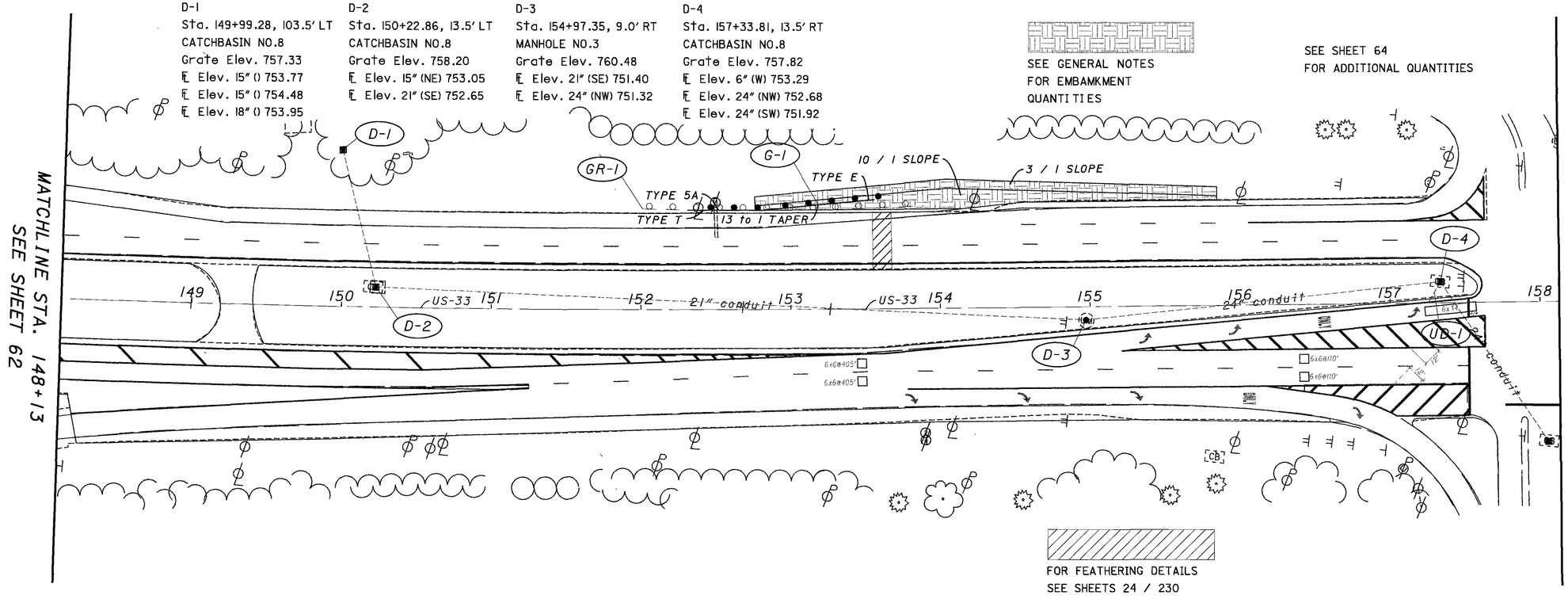
REF NO.	STATION FROM	STATION TO	SIDE
G-1	141+76	144+56	CL
TOTALS CARRIED TO SUB SUMMARY			

QUANTITIES

606 IMPACT ATTN. TYPE 2-98 BI-DIRECT. (69") EACH	622 CONCRETE BARRIER SINGLE SLOPE TYPE A A.P.P. FT.
2	215
2	215

REMARKS

SEE SHEETS 117 AND 118 FOR DETAILS



LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 CATCH BASIN REMOVED EACH	202 MANHOLE REMOVED EACH	202 PIPE REMOVED, 24" AND UNDER FT.	202 GUARDRAIL REMOVED FT.	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE E-98 EACH	603 6" CONDUIT TYPE F FT.	603 15" CONDUIT TYPE C FT.	603 18" CONDUIT TYPE C FT.	603 21" CONDUIT TYPE C FT.	603 24" CONDUIT TYPE C FT.	604 CATCH BASIN NO. 5 EACH	604 CATCH BASIN NO. 8 EACH	604 MANHOLE NO. 3 EACH	REMARKS
D-1	149+99		LT	1		30				20	10				1		
D-2	150+23		LT	1		20				10		10			1		
D-3	154+97		RT		1	20						10	10			1	
D-4	157+34		LT	1		20							20		1		
UD-1	157+34		LT			10			10								
D-5	158+05		RT	1		40			10	10			20	1			
GR-1	152+01	153+83	LT				131	1									
TOTALS CARRIED TO SUB SUMMARY				4	1	140	131	1	20	40	10	20	50	1	3	1	

HORIZONTAL SCALE IN FEET
0 20 40 80
CALCULATED RDK / LW FAT / MB
CHECKED MATT

PLAN VIEW FRA. US-33 STA. 148+13 TO STA. 158+13

FRA-33-20.69

63
230

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LOCATION				QUANTITIES												REMARKS
REF NO.	STATION FROM	STATION TO	SIDE	606 GUARDRAIL TYPE 5 FT.	606 GUARDRAIL TYPE 5A FT.	606 ANCHOR ASSEMBLY TYPE T EACH	606 ANCHOR ASSEMBLY REBUILT, TYPE E-98 EACH									
G-1	152+31	153+29	LT	37.5	12.5	1	1									
TOTALS CARRIED TO SUB SUMMARY				37.5	12.5	1	1									

LOCATION				QUANTITIES												REMARKS
TOTALS CARRIED TO SUB SUMMARY																

QUANTITIES FRA. US-33
STA. 148+13 TO STA. 158+13

FRA-33-20.69

64
230

CALCULATED RSK / LW PAT / HG
CHECKED MATT

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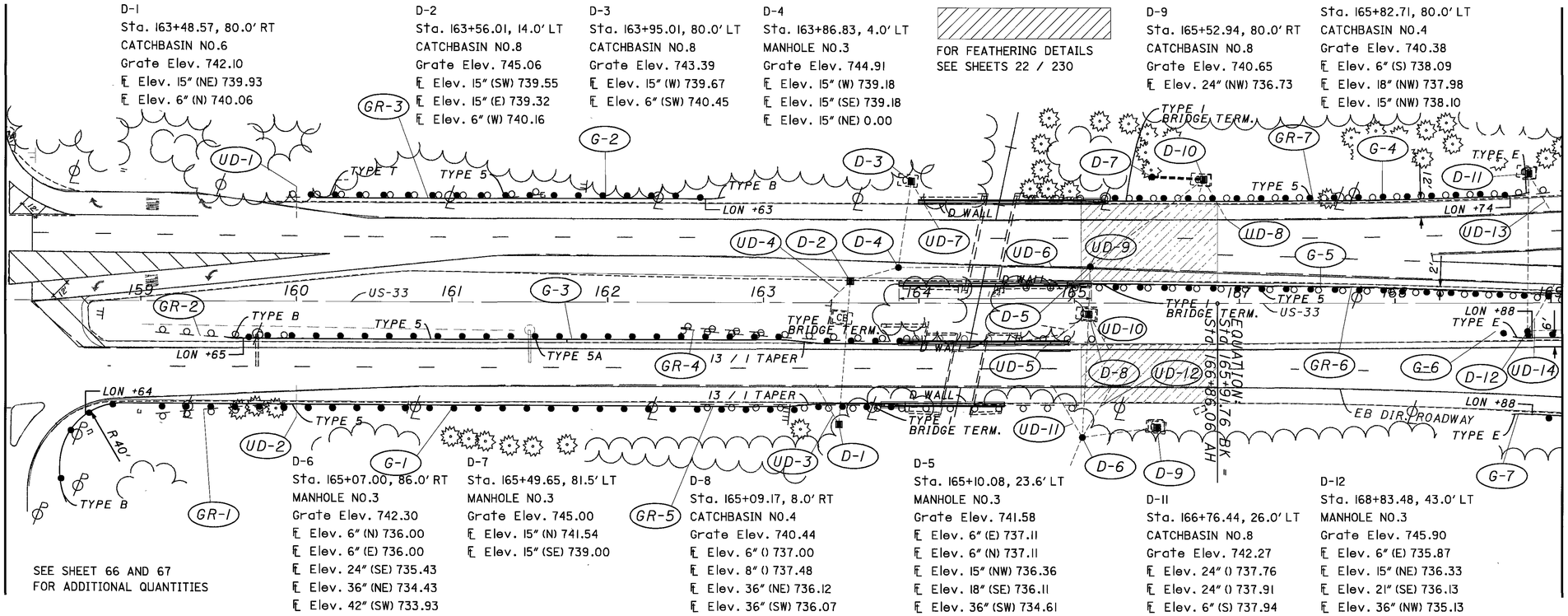

LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 GUARDRAIL REMOVED FT.	202 GUARDRAIL REMOVED BARRIER DESIGN FT.	202 ANCHOR ASSEMBLY REMOVED TYPE A EACH	202 ANCHOR ASSEMBLY REMOVED TYPE T EACH	202 ANCHOR ASSEMBLY REMOVED BARRIER DESIGN EACH	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE B-98 EACH	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE E-98 EACH	202 BRIDGE TERMINAL ASSEMBLY REMOVED EACH	202 BRIDGE TERMINAL ASSEMBLY REMOVED AS PER PLAN EACH	REMARKS
GR-1	159+09	160+75	RT OUT	125			1		1				
GR-2	159+09	160+07	RT IN	50			1		1				
GR-3	159+93	161+58	LT OUT	125		1	1						
GR-4	162+47	165+13	RT IN	203	25		1	1			1		
GR-5	162+59	165+03	RT OUT	206			1			1	1		
GR-6	164+54	168+15	LT IN	337.5		1						1	
GR-7	164+68	167+04	LT OUT	325.0		1						1	
TOTALS CARRIED TO SUB SUMMARY				1,371.5	25	3	5	1	2	1	2	2	

PLAN VIEW FRA.US-33
STA. 158+13 TO STA. 169+07

FRA-33-20.69

65
230

HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED RDK / LW PAY / AG
CHECKED MATT

10-MAR-2005 1:00PM rkinsell
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LOCATION				QUANTITIES												REMARKS
				202	202	202	202	603	603	603	603	603	603	604	604	604	
REF NO.	STATION	STATION	SIDE	CATCH BASIN REMOVED	MANHOLE REMOVED	PIPE REMOVED, 24" AND UNDER	PIPE REMOVED, OVER 24"	6" CONDUIT TYPE F	15" CONDUIT TYPE C	18" CONDUIT TYPE C	24" CONDUIT TYPE C	36" CONDUIT TYPE C	42" CONDUIT TYPE C	CATCH BASIN NO. 6	CATCH BASIN NO. 8	MANHOLE NO. 3	
	FROM	TO		EACH	EACH	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	EACH	EACH	EACH	
UD-1	160+00		LT			10		10									
UD-2	160+00		RT			10		10									
D-1	163+49		RT	1		10			10					1			
UD-3	163+49		RT			10		10									
D-2	163+56		LT	1		20			20						1		
UD-4	163+56		LT			10		10									
D-4	163+87		LT		1	30			30							1	
D-3	163+95		LT	1		10			10						1		
D-5	165+10		LT		1	20	10		10	10		10				1	
UD-5	165+09		RT			10		10									
UD-6	165+10		LT			10		10									
UD-9	165+10		LT			10		10									
D-6	165+07		RT		1	10	20				10	10	10			1	
UD-11	165+07		RT			10		10									
UD-12	165+07		RT			10		10									
D-7	165+50		LT			20			20							1	
UD-7	163+95		LT			10		10									
UD-8	165+83		LT			10		10									
D-8	165+09		RT	1			20					20					
UD-10	165+09		RT			20		20									
D-9	165+53		RT	1		10					10				1		
TOTALS CARRIED TO SUB SUMMARY				5	3	260	50	130	100	10	20	40	10	1	3	4	

LOCATION				QUANTITIES												REMARKS
				202	202	202	202	603	603	603	603	603	603	604	604	604	
REF NO.	STATION	STATION	SIDE	CATCH BASIN REMOVED	MANHOLE REMOVED	PIPE REMOVED, 24" AND UNDER	PIPE REMOVED, OVER 24"	6" CONDUIT TYPE F	15" CONDUIT TYPE C	18" CONDUIT TYPE C	21" CONDUIT TYPE C	24" CONDUIT TYPE C	36" CONDUIT TYPE C	CATCH BASIN NO. 8	MANHOLE NO. 3	PRECAST REINFD CONCRETE OUTLET	
	FROM	TO		EACH	EACH	FT.	FT.	FT.	FT.	FT.	FT.	FT.	FT.	EACH	EACH	EACH	
D-10	165+83		LT	1		20				10							
D-11	166+76		LT	1		20						20		1			
UD-13	166+76		LT			10		10									
D-12	168+83		LT		1	20	10		10		10		10		1		
UD-14	168+83		LT			10		10									
UD-1	160+00		LT													1	
UD-2	160+00		RT													1	
TOTALS CARRIED TO SUB SUMMARY				2	1	80	10	20	10	10	10	20	10	1	1	2	

CALCULATED RDK / LW
CHECKED MATT

QUANTITIES FRA. US-33
STA. 158+13 TO STA. 169+07

FRA-33-20.69

LOCATION				QUANTITIES												REMARKS
REF NO.	STATION FROM	STATION TO	SIDE	606 GUARDRAIL TYPE 5 FT.	606 GUARDRAIL TYPE 5A EACH	606 ANCHOR ASSEMBLY TYPE T EACH	606 ANCHOR ASSEMBLY REBUILT, TYPE B-98 EACH	606 ANCHOR ASSEMBLY REBUILT, TYPE E-98 EACH	606 BRIDGE TERM. ASSEMBLY TYPE I EACH	622 CONCRETE BARRIER TYPE D FT.						
G-1	158+48	164+55	RT OUT	587.5			1		1	80						
G-2	160+13	162+63	LT OUT	212.5		1	1									
G-3	159+54	164+96	RT IN	400	12.5		1		1	110						
G-4	164+00	168+86	LT OUT	250			1		1	120						
G-5	163+87	169+07	LT IN	300					1	125						169+07/168+10 WIN. LINE A
G-6	168+75	169+07	RT IN					1								169+07/169+76 WIN. LINE B
G-7	168+75	169+07	RT OUT					1								169+07/169+07 EB DIR. RDWY
TOTALS CARRIED TO SUB SUMMARY				1,750	12.5	1	4	2	4	435						

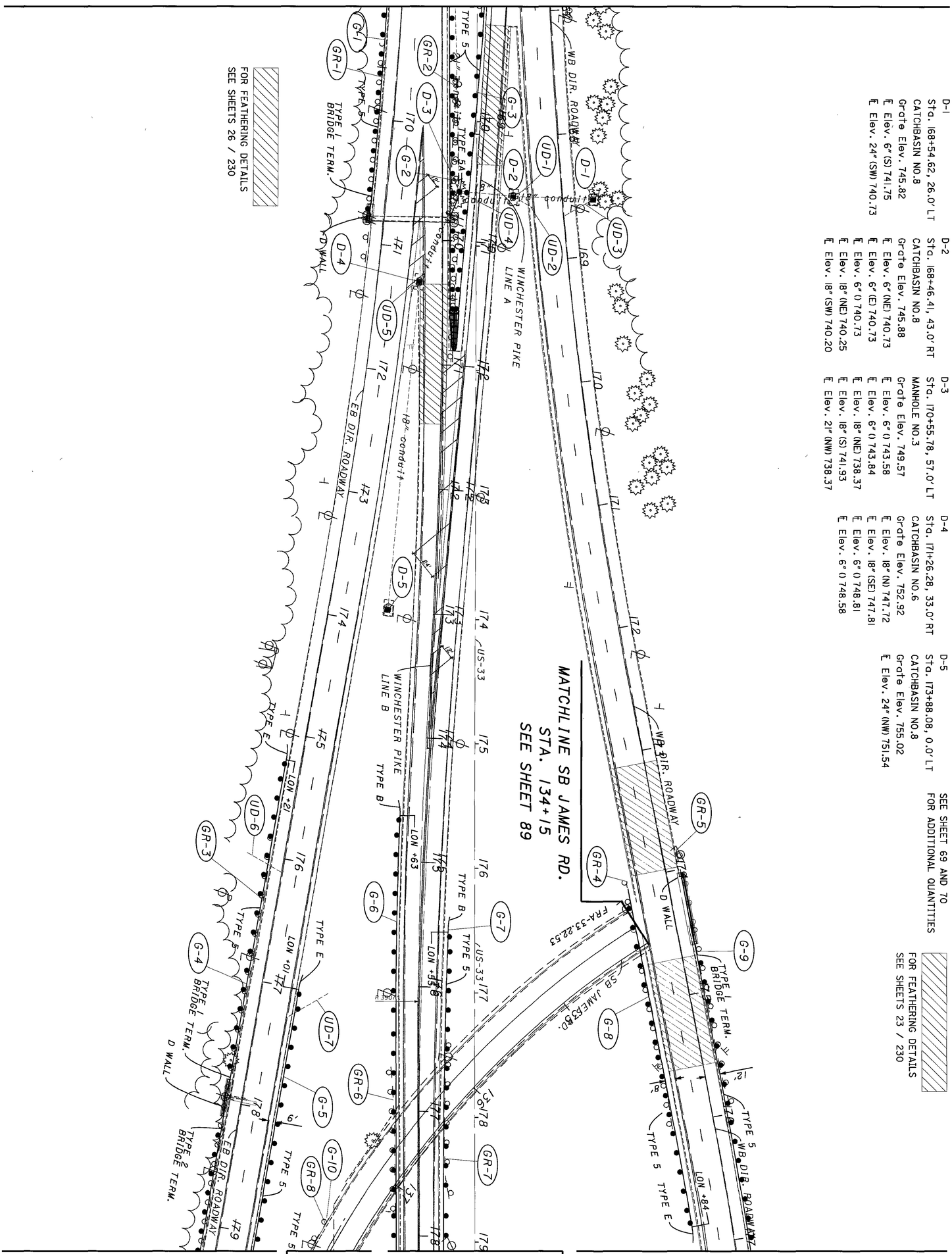
LOCATION				QUANTITIES												REMARKS
REF NO.	STATION FROM	STATION TO	SIDE	604 CATCH BASIN NO. 4 EACH												
D-10	165+83		LT	1												
D-8	165+09		RT	1												
TOTALS CARRIED TO SUB SUMMARY				2												

CALCULATED RDK / LW
PAY / HG
CHECKED MATT

QUANTITIES FRA. US-33
STA. 158+13 TO STA. 169+07

FRA-33-20.69

MATCHLINE STA. 169+07
WB DIR. ROADWAY STA. 166+97
LINE A STA. 168+10
EB DIR. ROADWAY STA. 169+07
SEE SHEET 68



D-1
Sta. 168+54.62, 26.0' LT
CATCHBASIN NO.8
Grate Elev. 745.82
℄ Elev. 6" (S) 741.75
℄ Elev. 24" (SW) 740.73

D-2
Sta. 168+46.41, 43.0' RT
CATCHBASIN NO.8
Grate Elev. 745.88
℄ Elev. 6" (NE) 740.73
℄ Elev. 6" (E) 740.73
℄ Elev. 6" () 740.73
℄ Elev. 18" (NE) 740.25
℄ Elev. 18" (SW) 740.20

D-3
Sta. 170+55.78, 57.0' LT
MANHOLE NO.3
Grate Elev. 749.57
℄ Elev. 6" () 743.58
℄ Elev. 6" () 743.84
℄ Elev. 18" (NE) 738.37
℄ Elev. 18" (S) 741.93
℄ Elev. 21" (NW) 738.37

D-4
Sta. 171+26.28, 33.0' RT
CATCHBASIN NO.6
Grate Elev. 752.92
℄ Elev. 18" (N) 747.72
℄ Elev. 18" (SE) 747.81
℄ Elev. 6" () 748.81
℄ Elev. 6" () 748.58

D-5
Sta. 173+88.08, 0.0' LT
CATCHBASIN NO.8
Grate Elev. 755.02
℄ Elev. 24" (NW) 751.54

MATCHLINE EB DIR. ROADWAY
STA. 179+20
SEE SHEET 71

MATCHLINE WB DIR. ROADWAY
STA. 177+10
SEE SHEET 71

MATCHLINE SB JAMES RD.
STA. 137+63
SEE SHEET 71

MATCHLINE WINCHESTER PIKE
STA. 178+12
SEE SHEET 71

68
230

FRA-33-20.69

**PLAN VIEW FRA. US-33 / EB DIR. RD.
WIN. PIKE / SB JAMES / WB DIR. RD.**

CALCULATED RDK / LW
FAY / HG
CHECKED MATT

0 20 40 80
HORIZONTAL SCALE IN FEET

N

LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 CATCH BASIN REMOVED EACH	202 PIPE REMOVED, 24" AND UNDER FT.	202 GUARDRAIL REMOVED FT.	202 ANCHOR ASSEMBLY REMOVED TYPE A EACH	202 ANCHOR ASSEMBLY REMOVED TYPE T EACH	202 ANCHOR ASSEMBLY REMOVED BARRIER DESIGN EACH	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE B-98 EACH	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE E-98 EACH	202 BRIDGE TERMINAL ASSEMBLY REMOVED EACH	603 6" CONDUIT TYPE F FT.	603 18" CONDUIT TYPE C FT.	603 21" CONDUIT TYPE C FT.	603 24" CONDUIT TYPE C FT.	REMARKS
D-2	168+46		RT	1	20									20			
UD-1	168+46		RT		10								10				
UD-2	168+46		RT		20								20				
D-1	168+55		LT	1	10											10	
UD-3	168+55		LT		10								10				
D-3	170+56		RT		30									20	10		
UD-4	170+56		RT		20								20				
D-4	171+26		RT	1	20									20			
UD-5	171+26		RT		20								20				
GR-1	169+38	171+16	RT			112.5		1			1						EB DIR. RDWY.
GR-2	169+62	170+97	LT			350			2								WIN. PIKE
D-5	173+88		LT	1	10											10	
UD-6	176+00		RT		10								10				
GR-3	175+81	179+20	RT			289					1						EB DIR. RDWY.
UD-7	177+00		LT		10								10				
GR-5	173+84	175+93	LT			162.5	1	1									WB DIR. RDWY.
GR-4	174+01	176+04	RT			162.5	1	1									WB DIR. RDWY.
GR-8	137+51	137+63	RT			12						1					SB JAMES RD.
GR-7	176+42	177+55	LT			64		1		1							WIN. PIKE
GR-6	176+58	177+68	RT			76				1							WIN. PIKE
GR-9	176+57	177+82	RT			87.5		1		1							
TOTALS CARRIED TO SUB SUMMARY				4	190	1,316	2	5	2	3	2	1	100	60	10	20	

REF NO.	STATION FROM	STATION TO	SIDE	604 CATCH BASIN NO. 6 EACH	604 CATCH BASIN NO. 8 EACH	604 MANHOLE NO. 3 EACH	604 PRECAST REINFD CONCRETE OUTLET EACH	REMARKS
D-2	168+46		RT		1			
UD-1	168+46		RT					
UD-2	168+46		RT					
D-1	168+55		LT		1			
UD-3	168+55		LT					
D-3	170+56		RT			1		
UD-4	170+56		RT					
D-4	171+26		RT	1				
UD-5	171+26		RT					
GR-1	169+38	171+16	RT					
GR-2	169+62	170+97	LT					
D-5	173+88		LT		1			
UD-6	176+00		RT				1	
GR-3	175+81	179+20	RT					
UD-7	177+00		LT				1	
GR-5	173+84	175+93	LT					
GR-4	174+01	176+04	RT					
GR-8	137+51	137+63	RT					
GR-7	176+42	177+55	LT					
GR-6	176+58	177+68	RT					
TOTALS CARRIED TO SUB SUMMARY				1	3	1	2	

CALCULATED RDK / LW FAY / MG
CHECKED MATT

QUANTITIES FRA. US-33 / EB DIR. RD.
WIN. PIKE / SB JAMES / WB DIR. RD.

FRA-33-20.69

LOCATION				QUANTITIES												REMARKS
				606	606	606	606	606	606	606	622					
REF NO.	STATION FROM	STATION TO	SIDE	GUARDRAIL TYPE 5	GUARDRAIL TYPE 5A	ANCHOR ASSEMBLY REBUILT, TYPE B-98	ANCHOR ASSEMBLY REBUILT, TYPE E-98	BRIDGE TERM. ASSEMBLY TYPE 1	BRIDGE TERM. ASSEMBLY TYPE 2	IMPACT ATTN. TYPE 2-98 BI-DIRECT. (36")	CONCRETE BARRIER TYPE D					
				FT.	EACH	EACH	EACH	EACH	EACH	EACH	FT.					
G-1	169+07	170+83	RT OUT	162.5				1			15					169+07 / 169+07 US-33
G-2	169+07	170+56	LT	237.5	12.5											169+07 US-33
G-3	168+10	170+55	RT	237.5	12.5					1						WIN. PIKE LINE A
G-4	175+09	179+20	RT	337.5			1	1	1		30					EB DIR. RDWY.
G-5	176+89	179+20	LT	187.5			1									EB DIR. RDWY.
G-6	174+51	178+12	RT	337.5		1										LINE B TO WIN. PIKE
G-7	175+43	178+12	RT	250		1										LINE A TO WIN. PIKE
G-8	174+07	176+96	RT	250			1									WB DIR. RDWY.
G-9	174+02	177+10	LT	250				1			60					WB DIR. RDWY.
G-10	137+27	137+63	RT	37.5					1							SB JAMES RD.
TOTALS CARRIED TO SUB SUMMARY				2,287.5	25	2	3	3	2	1	105					

LOCATION				QUANTITIES												REMARKS
TOTALS CARRIED TO SUB SUMMARY																

CALCULATED RDK / LW
FAY / MS
CHECKED MATT

QUANTITIES FRA. US-33 / EB DIR. RD.
WIN. PIKE / SB JAMES / WB DIR. RD.

FRA-33-20.69

D-1
Sta. 186+62.14, 0.0' LT
CATCHBASIN NO.8
Grate Elev. 746.43
℄ Elev. 36" () 741.08
℄ Elev. 36" () 741.08
℄ Elev. 12" () 745.91

SEE SHEET 72
FOR ADDITIONAL QUANTITIES

FOR FEATHERING DETAILS
SEE SHEETS 26 / 230

MATCHLINE NB JAMES RD.
STA. 137+00
SEE SHEET 87

MATCHLINE WINCHESTER PIKE
STA. 188+50
SEE SHEET 73

MATCHLINE WB DIR. ROADWAY
STA. 177+10
SEE SHEET 68

MATCHLINE WINCHESTER PIKE
STA. 178+12
SEE SHEET 68

MATCHLINE SB JAMES RD.
STA. 137+63
SEE SHEET 68

MATCHLINE EB DIR. ROADWAY
STA. 179+20
SEE SHEET 68

MATCHLINE WB DIR. ROADWAY
STA. 188+03
SEE SHEET 73

MATCHLINE EB DIR. ROADWAY
STA. 188+30
SEE SHEET 73

WB DIR. ROADWAY
EB DIR. ROADWAY
NB JAMES RD. #2
SB JAMES RD. 141
WINCHESTER PIKE
US-33
TYPE E
TYPE B
TYPE 5
TYPE 1 BRIDGE TERM.
TYPE 2 BRIDGE TERM.
TYPE 5A BRIDGE TERM.
D WALL
BLEND TO EXISTING GUARDRAIL
LON +21
LON +69
LON +73
LON +90
LON +15
FRA-33-22.76
G-1
G-2
G-3
G-4
G-5
G-6
G-7
G-8
G-9
G-10
G-11
GR-1
GR-2
GR-3
GR-4
GR-5
GR-6
GR-7
GR-8
D-1
UD-1

FOR FEATHERING DETAILS
SEE SHEETS 23 / 230

HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED RDK / JW
CHECKED MATT

PLAN VIEW NB JAMES / US-33 / EB DIR. RD.
SB JAMES / WB DIR. RD.
WIN. PIKE / SB JAMES / WB DIR. RD.

FRA-33-20.69

71
230

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LOCATION				QUANTITIES												REMARKS
REF NO.	STATION FROM	STATION TO	SIDE	202 CATCH BASIN REMOVED EACH	202 PIPE REMOVED, 24" AND UNDER FT.	202 PIPE REMOVED, OVER 24" FT.	202 GUARDRAIL REMOVED FT.	202 ANCHOR ASSEMBLY REMOVED TYPE T EACH	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE B-98 EACH	202 BRIDGE TERMINAL ASSEMBLY REMOVED EACH	603 6" CONDUIT TYPE F FT.	603 12" CONDUIT TYPE C FT.	603 36" CONDUIT TYPE C FT.	604 CATCH BASIN NO. 8 EACH	604 PRECAST REINFD CONCRETE OUTLET EACH	
GR-3	179+20	188+30	RT				910									EB DIR. RDWY.
GR-2	138+00	188+30	LT				900			1						SB JAMES RD TO EB DIR. RD
UD-1	187+99		LT		10						10				1	
D-1	186+62		LT	1	10	20						10	20	1		
GR-6	185+77	188+03	RT				214	1								WB DIR. RDWY.
GR-7	186+62	188+03	LT				128	1								WB DIR. RDWY.
GR-4	183+27	186+00	RT				236		1	1						WIN. PIKE
GR-5	184+47	185+34	LT				74			1						WIN. PIKE
GR-8	188+27	188+50	LT				23			1						WIN. PIKE
GR-1	137+63	140+07	RT				228	1								SB JAMES RD.
TOTALS CARRIED TO SUB SUMMARY				1	20	20	2,713	3	1	4	10	10	20	1	1	

LOCATION				QUANTITIES												REMARKS
REF NO.	STATION FROM	STATION TO	SIDE	606 GUARDRAIL TYPE 5 FT.	606 GUARDRAIL TYPE 5A EACH	606 ANCHOR ASSEMBLY TYPE T EACH	606 ANCHOR ASSEMBLY REBUILT, TYPE B-98 EACH	606 BRIDGE TERM. ASSEMBLY TYPE 1 EACH	606 BRIDGE TERM. ASSEMBLY TYPE 2 EACH	622 CONCRETE BARRIER TYPE D FT.						
G-1	179+20	188+30	RT	875				1	1	30						EB DIR. RDWY.
G-2	179+20	181+50	LT	212.5		1										EB DIR. RDWY.
G-3	137+63	140+21	RT	250		1										SB JAMES RD.
G-4	137+80	188+30	LT	919					1							SB JAMES RD. / EB DIR. RDWY
G-5	178+12	178+85	RT	50			1									WIN. PIKE
G-6	178+12	179+81	LT	150			1									WIN. PIKE
G-7	181+02	185+80	RT	450			1									BLEND TO EXISTING GUARDRAIL
G-8	182+77	185+20	LT	212.5			1									BLEND TO EXISTING GUARDRAIL
G-9	188+27	188+50	LT	25												BLEND TO EXISTING GUARDRAIL
G-10	186+03	188+03	RT	100	12.5			1		90						WB DIR. RDWY.
G-11	186+75	188+03	LT							125						WB DIR. RDWY.
TOTALS CARRIED TO SUB SUMMARY				3,244	12.5	2	4	2	2	245						

CALCULATED RDK / LW PAY / MG
CHECKED MATT

QUANTITIES NB JAMES / US-33 / EB DIR. RD.
WIN. PIKE / SB JAMES / WB DIR. RD.

FRA-33-20.69

72
230

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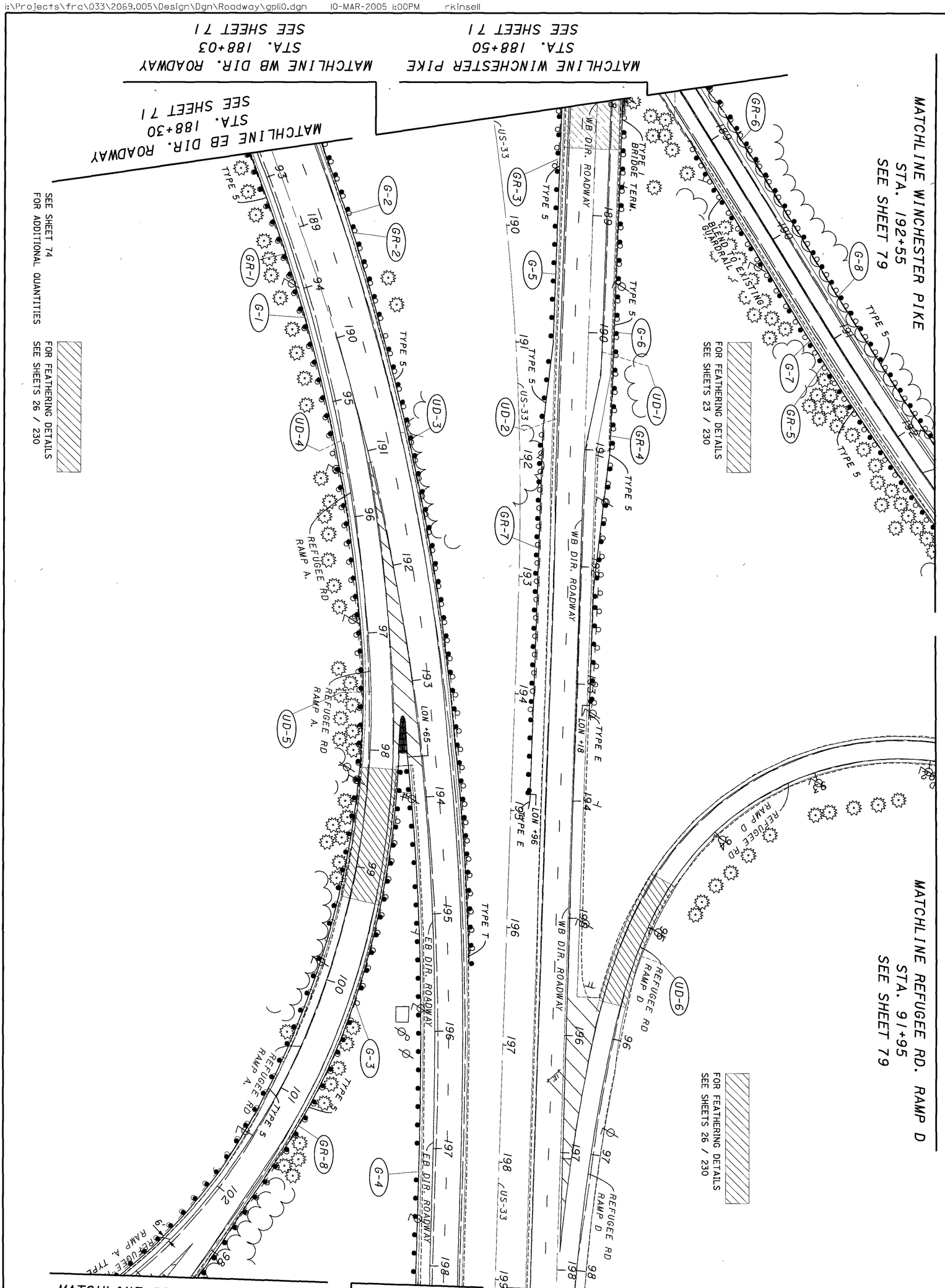

73 / 230	FRA-33-20.69	PLAN VIEW US-33 / EB DIR. RD. / WIN. PIKE WB DIR. RD. / REFUGEE RD. RAMPS	CALCULATED RDK / LW FAY / RG; CHECKED MATT	0 40 20 80 HORIZONTAL SCALE IN FEET

LOCATION				QUANTITIES												REMARKS
				202	202	202	202	202	202	603	604					
REF NO.	STATION FROM	STATION TO	SIDE	PIPE REMOVED, 24" AND UNDER	GUARDRAIL REMOVED	ANCHOR ASSEMBLY REMOVED TYPE A	ANCHOR ASSEMBLY REMOVED TYPE T	ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE E-98	BRIDGE TERMINAL ASSEMBLY REMOVED	6" CONDUIT TYPE F	PRECAST REINFD CONCRETE OUTLET					
	FROM	TO		FT.	FT.	EACH	EACH	EACH	EACH	FT.	EACH					
UD-4	190+90		RT	10						10	1					REF. RAMP A
UD-3	191+01		LT	10						10	1					EB DIR. RDWY.
GR-2	188+30	194+60	LT		488		1									EB DIR. RDWY.
GR-1	188+30	103+07	RT		1,033											EB DIR. RDWY. / REF. RAMP A
UD-5	97+50		RT	10						10	1					REF. RAMP A
GR-3	188+03	188+70	RT		36	1										WB DIR. RDWY.
GR-4	188+03	193+20	LT		472		1	1								WB DIR. RDWY.
UD-1	190+27		LT	10						10	1					WB DIR. RDWY.
UD-2	190+86		RT	10						10	1					WB DIR. RDWY.
GR-7	190+62	193+27	RT		225	1	1									WB DIR. RDWY.
UD-6	95+25		LT	10						10	1					REF. RAMP D
GR-6	188+50	192+55	LT		367				1							WIN. PIKE
GR-5	188+93	192+55	RT		337				1							WIN. PIKE
GR-8	98+71	103+07	LT		386			1								REF. RAMP A
TOTALS CARRIED TO SUB SUMMARY				60	3,344	2	3	2	2	60	6					

LOCATION				QUANTITIES												REMARKS
				606	606	606	606	622								
REF NO.	STATION FROM	STATION TO	SIDE	GUARDRAIL TYPE 5	ANCHOR ASSEMBLY TYPE T	ANCHOR ASSEMBLY REBUILT, TYPE E-98	IMPACT ATTN. TYPE 2-98 UNI DIRECT. (36")	CONCRETE BARRIER TYPE D								
	FROM	TO		FT.	EACH	EACH	EACH	FT.								
G-1	92+77	103+07	RT	1025												EB DIR. RDWY. STA. 188+30
G-2	188+30	195+42	LT	700	1											EB DIR. RDWY.
G-3	98+02	102+71	LT	475												REF. RAMP AA STA. 98+30
G-4	193+65	199+07	RT	450			1									EB DIR. RDWY. STA. 198+16
G-5	188+03	194+08	RT	562.5		1										WB DIR. RDWY.
G-6	188+03	193+30	LT	475		1		15								WB DIR. RDWY.
G-7	188+91	192+55	RT	350												BLEND TO EXISTING GUARDRAIL
G-8	188+50	192+55	LT	400												WIN. PIKE
TOTALS CARRIED TO SUB SUMMARY				4,437.5	1	2	1	15								

CALCULATED RJK / LW
CHECKED MATT

QUANTITIES US-33 / EB DIR. RD. / WIN. PIKE
WB DIR. RD. / REFUGEE RD. RAMPS

FRA-33-20.69

D-1
Sta. 199+78.36, 20.0' RT
MANHOLE NO.3
Grate Elev. 744.38
℄ Elev. 15" (SE) 738.43
℄ Elev. 30" (E) 734.42
℄ Elev. 30" (W) 734.42
℄ Elev. 6" (NW) 738.80
℄ Elev. 6" (NE) 738.80

D-2
Sta. 200+39.53, 13.5' LT
CATCHBASIN NO.8
Grate Elev. 742.82
℄ Elev. 15" (W) 739.92

D-3
Sta. 200+40.49, 13.5' RT
CATCHBASIN NO.8
Grate Elev. 743.05
℄ Elev. 15" (E) 739.68
℄ Elev. 15" (NW) 739.65

D-4
Sta. 205+39.07, 13.5' LT
CATCHBASIN NO.8
Grate Elev. 741.94
℄ Elev. 12" (W) 738.79

D-5
Sta. 205+41.25, 13.5' RT
CATCHBASIN NO.8
Grate Elev. 741.59
℄ Elev. 12" (E) 738.44
℄ Elev. 15" (S) 738.27

D-6
Sta. 206+42.47, 13.5' LT
CATCHBASIN NO.8
Grate Elev. 741.70
℄ Elev. 6" (E) 736.73
℄ Elev. 12" (W) 736.02

D-7
Sta. 203+42.25, 13.5' RT
CATCHBASIN NO.8
Grate Elev. 741.61
℄ Elev. 12" (E) 735.95
℄ Elev. 15" (N) 735.70
℄ Elev. 15" (W) 735.66
℄ Elev. 6" (NW) 738.75
℄ Elev. 6" (SW) 738.75

MATCHLINE WB DIR. ROADWAY
STA. 199+07
MATCHLINE REFUGEE RD. RAMP D
STA. 98+16
SEE SHEET 73

MATCHLINE REFUGEE RD. RAMP C
STA. 7+83
SEE SHEET 81

MATCHLINE MAINLINE US-33
STA. 209+07
MATCHLINE REFUGEE RD. RAMP B
STA. 146+32
SEE SHEET 77

MATCHLINE MAINLINE US-33
STA. 199+07
MATCHLINE REFUGEE RD. RAMP D
STA. 98+16
SEE SHEET 73

MATCHLINE REFUGEE RD. RAMP B
STA. 139+30
MATCHLINE REFUGEE RD. RAMP BB
STA. 21+40
SEE SHEET 83

FOR FEATHERING DETAILS
SEE SHEETS 24 / 230

FOR FEATHERING DETAILS
SEE SHEETS 26 / 230

FOR FEATHERING DETAILS
SEE SHEETS 23 / 230

FOR FEATHERING DETAILS
SEE SHEETS 26 / 230

SEE SHEET 76
FOR ADDITIONAL QUANTITIES

GR-1, GR-2, GR-3, GR-4, GR-5, GR-6
G-1, G-2, G-3, G-4, G-5, G-6, G-7, G-8
UD-1, UD-2, UD-3, UD-4, UD-5, UD-6, UD-7
D-1, D-2, D-3, D-4, D-5, D-6, D-7
D WALL
TYPE I BRIDGE TERM.
TYPE 5
TYPE T
BARRIER WALL
FRA-33-22.98
REFUGEE RD RAMP B
REFUGEE RD RAMP C
LON +15
LON +77 TYPE E
US-33

N

HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED RDK / FAY / HC
CHECKED MATT

PLAN VIEW US-33 / EB DIR. RD. / WIN. PIKE
WB DIR. RD./ REFUGEE RD. RAMPS

FRA-33-20.69

75
230

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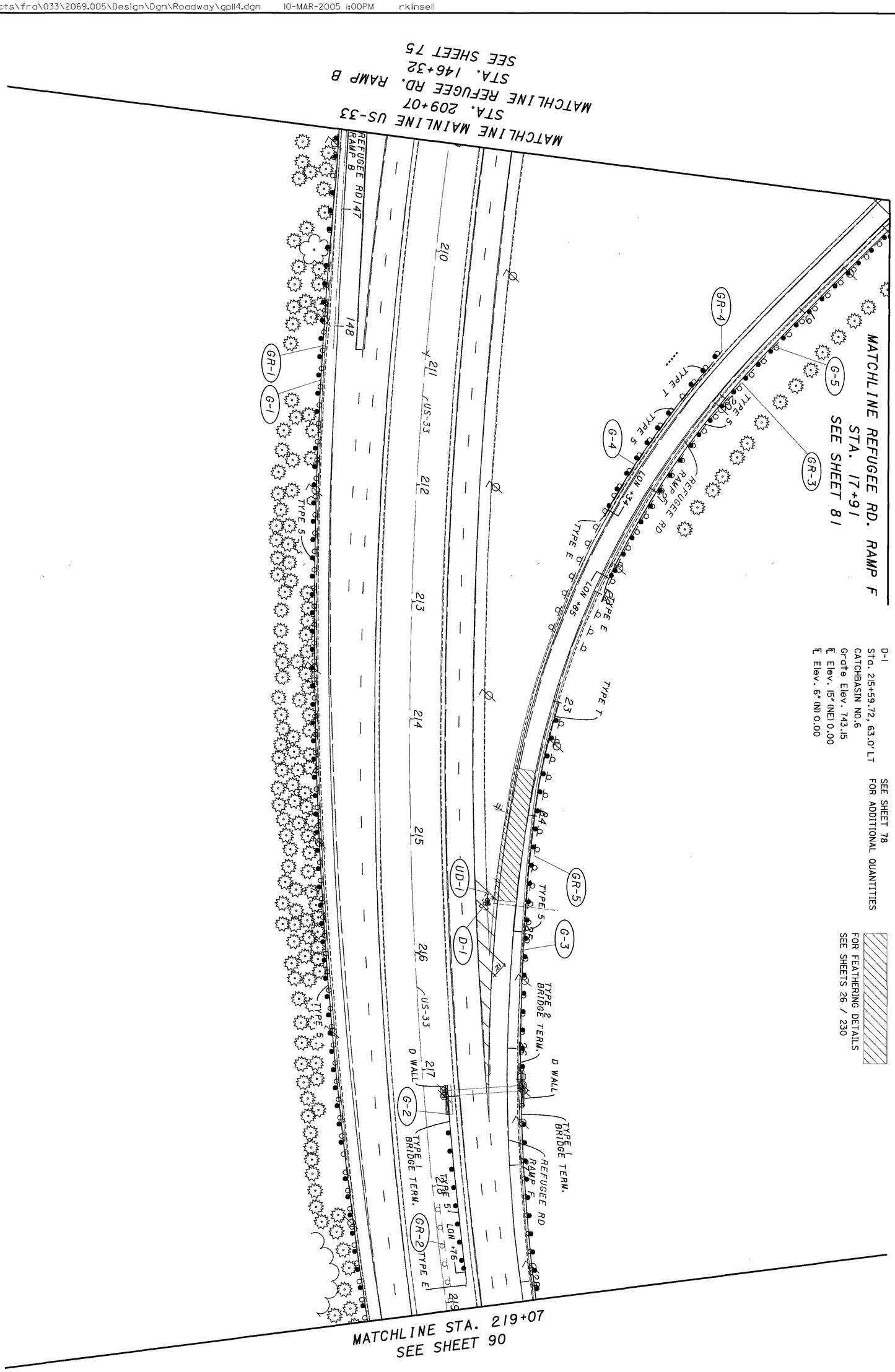
LOCATION				QUANTITIES												REMARKS
				202	202	202	202	202	202	202	603	603	603	603	604	604	
REF NO.	STATION FROM	STATION TO	SIDE	CATCH BASIN REMOVED	MANHOLE REMOVED	PIPE REMOVED, 24" AND UNDER	PIPE REMOVED, OVER 24"	GUARDRAIL REMOVED	ANCHOR ASSEMBLY REMOVED TYPE T	ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE E-98	6" CONDUIT TYPE F	12" CONDUIT TYPE C	15" CONDUIT TYPE C	30" CONDUIT TYPE C	CATCH BASIN NO. 8	MANHOLE NO. 3	
				EACH	EACH	FT.	FT.	FT.	EACH	EACH	FT.	FT.	FT.	FT.	EACH	EACH	
UD-1	199+69		LT			10					10						
UD-4	199+71		RT			10					10						
D-1	199+78		RT		1	10	20						10	20		1	
UD-2	199+78		RT			10					10						
UD-3	199+78		RT			10					10						
D-2	200+40		LT	1		10							10		1		
D-3	200+40		RT	1		20							20		1		
GR-1	199+05	201+66	RT					200	1	1							
GR-2	199+81	202+37	LT					200	1	1							
D-5	205+41			1		20						10	10		1		
D-4	205+39			1		10						10			1		
D-7	206+42			1		30						10	20		1		
UD-5	206+42					10					10						
UD-7	206+42					10					10						
D-6	206+42			1		10						10			1		
UD-6	206+42					10					10						
GR-4	21+40	143+37	LT					372	1								REFUGEE RD. RAMP BB / RAMP B
GR-3	139+40	209+07	RT					715									REFUGEE RD. RAMP B
GR-5	4+01	7+83	RT					369	1								REFUGEE RD. RAMP C
GR-6	6+24	7+83	LT					147	1								REFUGEE RD. RAMP C
TOTALS CARRIED TO SUB SUMMARY				6	1	180	20	2,003	5	2	70	40	70	20	6	1	

LOCATION				QUANTITIES												REMARKS
				604	606	606	606	606	606	622	622					
REF NO.	STATION FROM	STATION TO	SIDE	PRECAST REINFD CONCRETE OUTLET	GUARDRAIL TYPE 5	ANCHOR ASSEMBLY TYPE T	ANCHOR ASSEMBLY REBUILT, TYPE E-98	BRIDGE TERM. ASSEMBLY TYPE 1	IMPACT ATTN. TYPE 2-98 BI-DIRECT. (69")	CONCRETE BARRIER TYPE D	CONCRETE BARRIER SINGLE SLOPE TYPE A A.P.P.					
				EACH	FT.	EACH	EACH	EACH	EACH	FT.	FT.					
UD-1	199+69		LT	1												
G-1	199+07	201+35	RT		125			1		100						EB DIR. RDWY.
G-3	200+49	204+17	LT		225		1	1		100						REF. RAMP C STA.3+28
G-4	139+68	144+05	LT		437.5	1										REF. RAMP BB STA.21+40
G-5	139+30	146+32	RT		700											REF. RAMP B
G-6	6+08	7+83	LT		150	1										REF. RAMP C
G-7	4+55	7+83	RT		300	1										REF. RAMP C
G-8	17+65	17+91	RT				1									REF. RAMP F
G-2	200+04	201+77	CL						2		110					US-33 MEDIAN
																SEE SHEETS 117 AND 118
																FOR DETAILS
TOTALS CARRIED TO SUB SUMMARY				1	1,937.5	3	2	2	2	200	110					

CALCULATED RDK / LW FAY / RG
CHECKED MATT

QUANTITIES US-33 / EB DIR. RD. / WIN. PIKE
WB DIR. RD./ REFUGEE RD. RAMPS

FRA-33-20.69



77 / 230	FRA-33-20.69	PLAN VIEW US-33 / EB DIR. RD. WB DIR. RD./ REFUGEE RD. RAMPS	CALCULATED RDK / LW FAY / MG CHECKED MATT	0 40 20 80 HORIZONTAL SCALE IN FEET

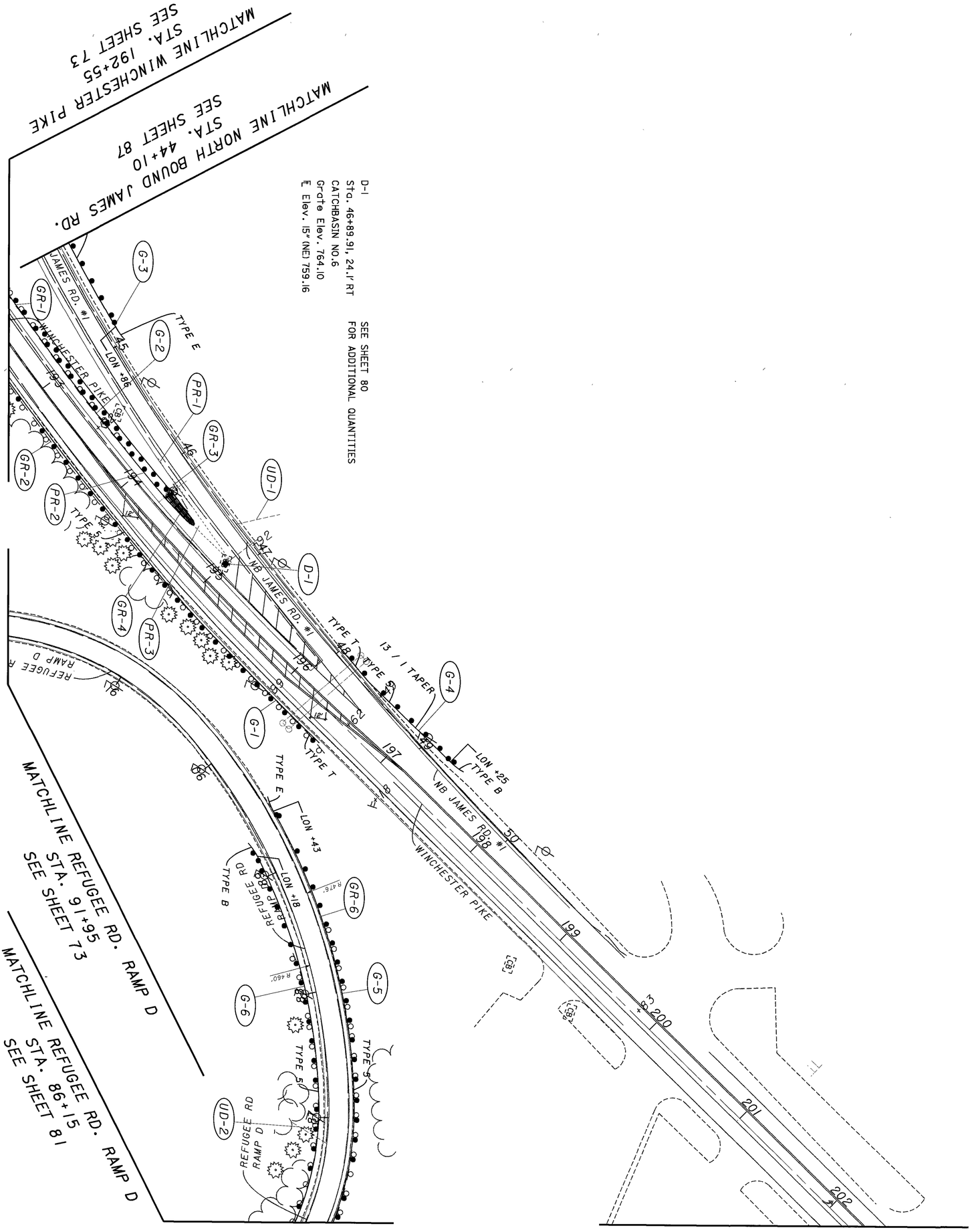
LOCATION				QUANTITIES													REMARKS
				202	202	202	202	202	603	603	604						
REF NO.	STATION	STATION	SIDE	CATCH BASIN REMOVED	PIPE REMOVED, 24" AND UNDER	GUARDRAIL REMOVED	ANCHOR ASSEMBLY REMOVED TYPE T	ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE E-98	6" CONDUIT TYPE F	15" CONDUIT TYPE C	CATCH BASIN NO. 6						
	FROM	TO		EACH	FT.	FT.	EACH	EACH	FT.	FT.	EACH						
GR-1	209+07	214+07	RT			1000											
UD-1	215+60		LT		10				10								
D-1	215+60		LT	1	10					10	1						
GR-2	218+16	219+07	LT			79	1										
GR-5	23+13	219+07	LT			487	1										REF. RD RAMP F TO US 33
GR-3	17+91	22+52	LT			411		1									REF.RD. RAMP F
GR-4	19+70	22+45	RT			225	1	1									REF.RD. RAMP F
TOTALS CARRIED TO SUB SUMMARY				1	20	2,202	3	2	10	10	1						

LOCATION				QUANTITIES													REMARKS
				606	606	606	606	606	622								
REF NO.	STATION	STATION	SIDE	GUARDRAIL TYPE 5	ANCHOR ASSEMBLY TYPE T	ANCHOR ASSEMBLY REBUILT, TYPE E-98	BRIDGE TERM. ASSEMBLY TYPE 1	BRIDGE TERM. ASSEMBLY TYPE 2	CONCRETE BARRIER TYPE D								
	FROM	TO		FT.	EACH	EACH	EACH	EACH	FT.								
G-1	209+07	219+07	RT OUT	1,000													
G-2	217+15	218+89	LT IN	112.5		1	1		20								REF.RD. RAMP B STA. 146+32
G-3	23+00	219+07	LT OUT	487.5			1	1	30								MEDIAN US-33
G-4	19+82	21+46	RT	112.5	1	1											REF.RD. RAMP F
G-5	17+91	21+98	LT	375		1											REF.RD. RAMP F
TOTALS CARRIED TO SUB SUMMARY				2,087.5	1	3	2	1	50								

CALCULATED RDK / LW FAY / HG
CHECKED MATT

QUANTITIES US-33 / EB DIR. RD. WB DIR. RD./ REFUGEE RD. RAMPS

FRA-33-20.69



79/230	FRA-33-20.69	PLAN VIEW US-33 / NB JAMES WIN. PIKE / REFUGEE RD. RAMPS	CALCULATED RDK / LW FAY / HG CHECKED MATT	0 40 20 80 HORIZONTAL SCALE IN FEET

LOCATION				QUANTITIES												REMARKS
				202	202	202	202	202	202	202	202	603	603	604	604	
REF NO.	STATION	STATION	SIDE	CATCH BASIN REMOVED	PIPE REMOVED, 24" AND UNDER	GUARDRAIL REMOVED	ANCHOR ASSEMBLY REMOVED TYPE A	ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE B-98	ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE E-98	CONCRETE MEDIAN REMOVED	CURB REMOVED	6" CONDUIT TYPE F	15" CONDUIT TYPE C	CATCH BASIN NO. 6	PRECAST REINFD CONCRETE OUTLET	
	FROM	TO		EACH	FT.	FT.	EACH	EACH	EACH	SQ. YD.	FT.	FT.	FT.	EACH	EACH	
GR-1	192+55	193+79	LT			86		1								
GR-2	192+55	196+63	RT			383	1									
GR-3	194+25	194+52	LT			27										
GR-4	194+25	194+52	LT			27										
PR-1	45+92	46+92	RT								102					
PR-2	45+92	46+92	RT								102					
PR-3	46+18	46+92	RT							49						
UD-1	46+90		LT		10							10			1	
D-1	46+85		RT	1	10								10	1		
GR-6	86+15	88+48	RT			183			1							
GR-5	86+15	88+44	LT			192		1								
UD-2	86+95		LT													
TOTALS CARRIED TO SUB SUMMARY				1	20	898	1	2	1	49	204	10	10	1	1	

LOCATION				QUANTITIES						REMARKS
				606	606	606	606	606	301	
REF NO.	STATION	STATION	SIDE	GUARDRAIL TYPE 5	ANCHOR ASSEMBLY TYPE T	ANCHOR ASSEMBLY REBUILT, TYPE B-98	ANCHOR ASSEMBLY REBUILT, TYPE E-98	IMPACT ATTN. TYPE 2-98 BI-DIRECT. (36")	ASPHALT CONCRETE BASE PG64-28 (9"DEPTH)	
	FROM	TO		FT.	EACH	EACH	EACH	EACH	CU. YD.	
G-1	192+55	196+54	RT	387.5	1					WIN. PIKE
G-2	192+55	194+27	LT	175				1		WIN. PIKE
G-3	44+10	44+99	LT	37.5	1		1			NB. JAMES #1
G-4	47+95	49+37	LT	87.5	1	1				NB. JAMES #1
G-5	86+15	89+55	RT	300			1			REF.RD. RAMP D
G-6	86+15	89+31	LT	275		1				REF.RD. RAMP D
PR-1	45+92	46+92							3	
PR-2	45+92	46+92							3	
PR-3	46+18	46+92							19	
TOTALS CARRIED TO SUB SUMMARY				1,262.5	3	2	2	1	25	

CALCULATED RDK / LW FAY / HG
CHECKED MATT

QUANTITIES US-33 / EB DIR. RD.
WB DIR. RD./ REFUGEE RD. RAMPS

FRA-33-20.69

80
230

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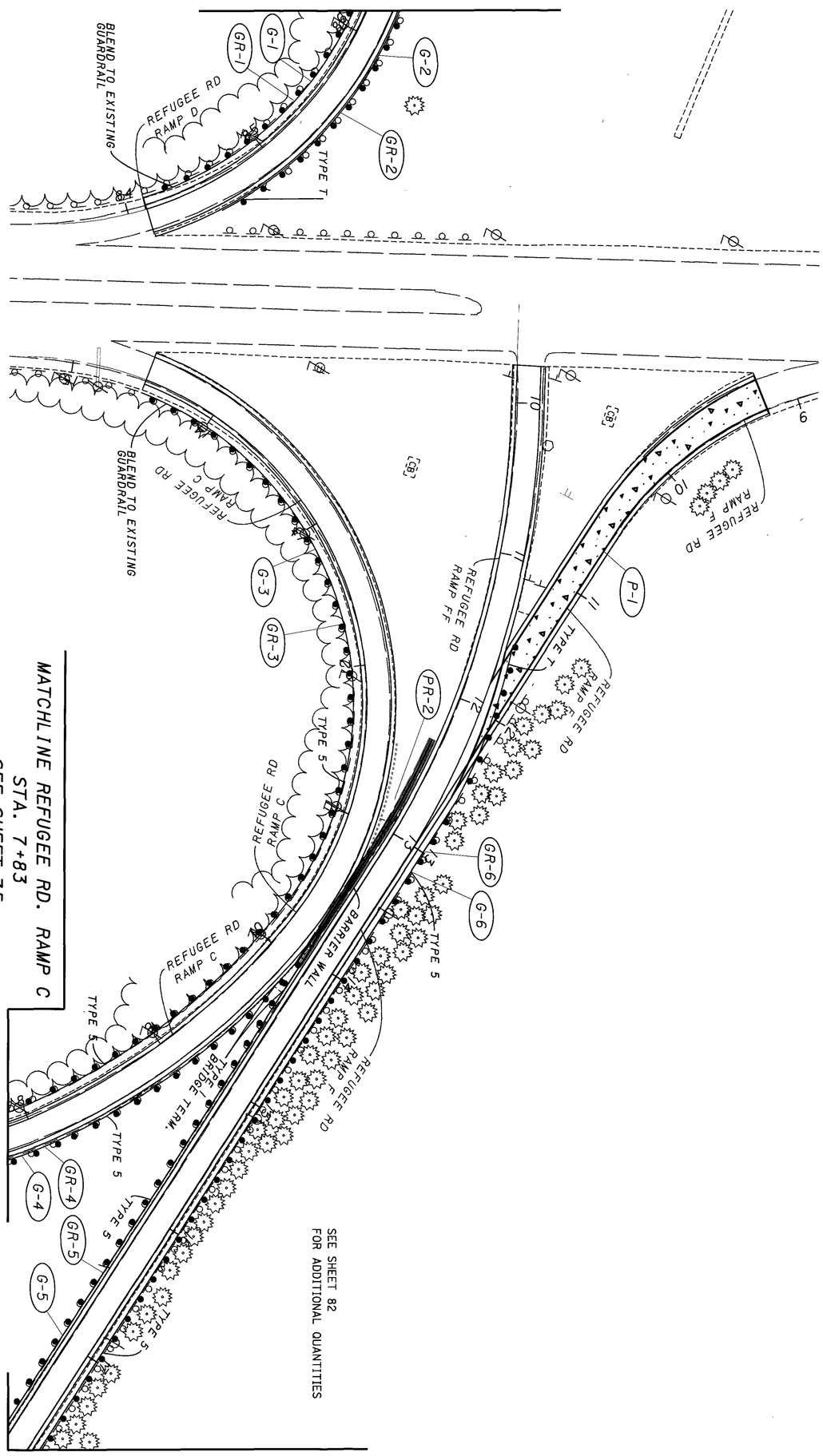

MATCHLINE REFUGEE RD. RAMP D
STA. 86+15
SEE SHEET 79
BLEND TO EXISTING GUARDRAIL
REFUGEE RD RAMP D
GR-1
G-1
G-2
GR-2
TYPE T
REFUGEE RD RAMP C
BLEND TO EXISTING GUARDRAIL
G-3
GR-3
REFUGEE RD RAMP FF
REFUGEE RD RAMP F
P-1
PR-2
TYPE 5
REFUGEE RD RAMP C
REFUGEE RD RAMP C
BARRIER WALL
TYPE 5
REFUGEE RD RAMP F
GR-6
G-6
TYPE 5
TYPE 5 BRIDGE TERM.
GR-4
G-4
GR-5
G-5
TYPE 5
SEE SHEET 82 FOR ADDITIONAL QUANTITIES
MATCHLINE REFUGEE RD. RAMP C
STA. 7+83
SEE SHEET 75
MATCHLINE REFUGEE RD. RAMP F
STA. 17+91
SEE SHEET 77

QUANTITIES US-33 / NB JAMES WIN. PIKE / REFUGEE RD. RAMPS

CALCULATED: RDK / LW, PAY / NG — CHECKED: MATT

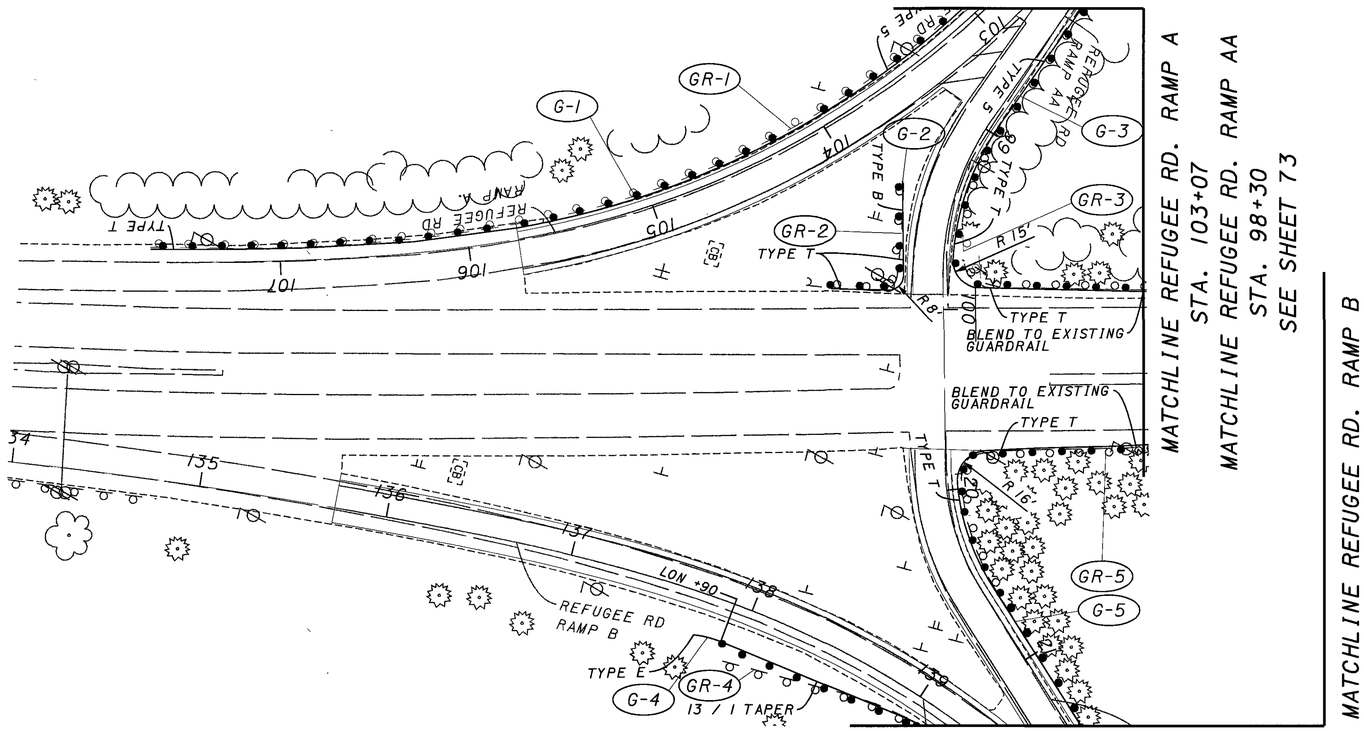
LOCATION

REF NO.	STATION FROM	STATION TO	SIDE	202 GUARDRAIL REMOVED FT.	202 ANCHOR ASSEMBLY REMOVED TYPE A EACH	202 ANCHOR ASSEMBLY REMOVED TYPE T EACH	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE E-98 EACH	202 BRIDGE TERMINAL ASSEMBLY REMOVED EACH	202 CURB REMOVED FT.	202 PAVEMENT REMOVED SQ.YD.	202 EXCAVATION CU.YD.	301 ASPHALT CONCRETE BASE PG64-28 (9"DEPTH) CU. YD.	REMARKS
GR-1	84+13	86+15	LT	191				1					TIE INTO EX. GUARDRAIL
GR-2	84+98	86+15	RT	325		1							REF. RD. RAMP D
GR-4	7+83	9+61	RT	244	1								REF. RD. RAMP C
GR-3	7+83	14+49	LT	662									TIE INTO EX. GUARDRAIL
PR-1	9+50	11+50	RT						213			6	REF. RD. RAMP C
GR-6	11+74	17+91	LT	739		1							REF. RD. RAMP F
GR-5	14+34	17+40	RT	225		1	1						REF. RD. RAMP F
P-1	9+20	13+00								534	91		REF. RD. RAMP F
													REMOVAL
PR-2	9+50	11+50	LT						213			6	REF. RD. RAMP F
TOTALS CARRIED TO SUB SUMMARY				2,386	1	3	1	1	426	534	91	12	

LOCATION

REF NO.	STATION FROM	STATION TO	SIDE	606 GUARDRAIL TYPE 5 FT.	606 ANCHOR ASSEMBLY TYPE T EACH	606 BRIDGE TERM. ASSEMBLY TYPE 1 EACH	622 BRIDGE TERM. ASSEMBLY TYPE 2 EACH	622 CONCRETE BARRIER SINGLE SLOPE TYPE A FT.	REMARKS
G-1	84+12	86+15	LT	200					REF.RD. RAMP D
G-2	84+56	86+15	RT	150	1				REF.RD. RAMP D
G-3	7+83	14+51	LT	662.5					REF.RD. RAMP C
G-4	7+83	10+00	RT	212.5			1		REF.RD. RAMP C
G-5	12+30	17+91	LT	562.5		1		175	REF.RD. RAMP FF
G-6	11+35	17+91	LT	637.5	1				REF.RD. RAMP F
TOTALS CARRIED TO SUB SUMMARY				2,425	2	1	1	175	

FRA-33-20.69



LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 GUARDRAIL REMOVED (FT.)	202 ANCHOR ASSEMBLY REMOVED TYPE A (EACH)	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE B-98 (EACH)	606 GUARDRAIL TYPE 5 (FT.)	606 ANCHOR ASSEMBLY TYPE T (EACH)	606 ANCHOR ASSEMBLY REBUILT, TYPE B-98 (EACH)	606 ANCHOR ASSEMBLY REBUILT, TYPE E-98 (EACH)	REMARKS
GR-1	103+07	269+06	LT	474	1						RAMP A TO REFUGEE RD
GR-2	99+40	272+56	RT	39	1	1					RAMP AA TO REFUGEE RD
GR-3	103+07	274+87	LT	331							TIE INTO EX. GUARDRAIL
GR-4	137+95	139+30	RT	73		1					REFUGEE RD TO RAMP BB
GR-5	274+83	21+40	RT	302							TIE INTO EX. GUARDRAIL
G-1	103+07	107+67	RT				450	1			REF. RD. RAMP A
G-2	99+39	99+87	RT				12.5	2	1		REF. RD. RAMP AA
G-3	98+30	99+87	LT				225	2			REF. RD. RAMP AA
G-4	137+75	139+30					112.5			1	REF. RD. RAMP B
G-5	19+80	21+40	LT				225	2			REF. RD. RAMP BB
TOTALS CARRIED TO SUB SUMMARY				1,219	2	2	1,025	7	1	1	

HORIZONTAL SCALE IN FEET 0 20 40 80

CALCULATED RDK / LW PAY / HG
CHECKED MATT

PLAN VIEW REFUGEE RD. RAMPS A & AA
REFUGEE RD. RAMPS B & BB

FRA-33-20.69

83
230

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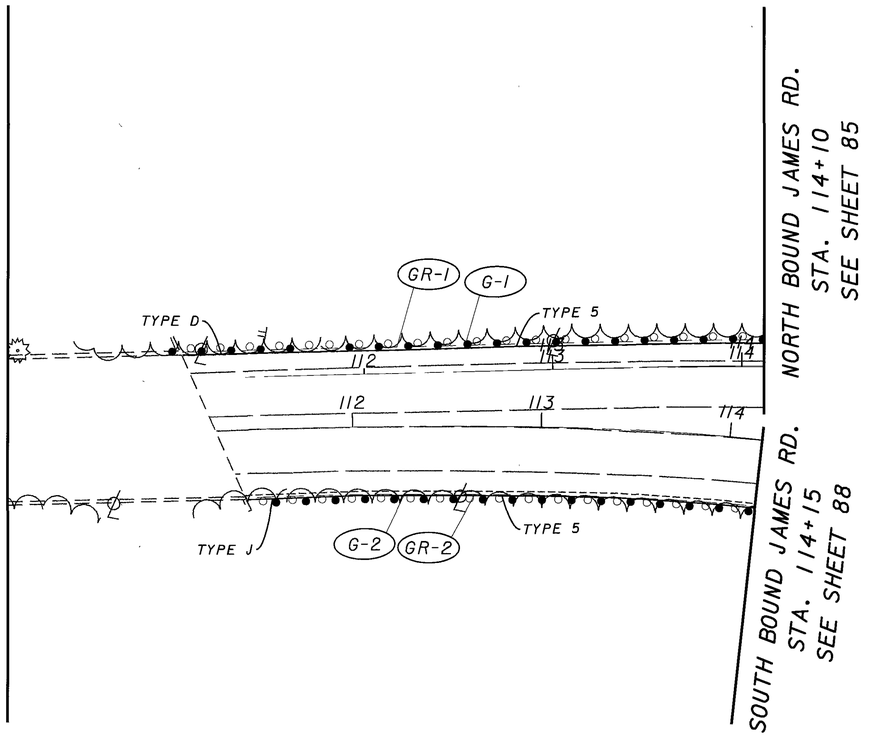


PLAN VIEW NB JAMES
STA. 111+27 TO STA. 114+10

HORIZONTAL SCALE IN FEET
0 20 40 80

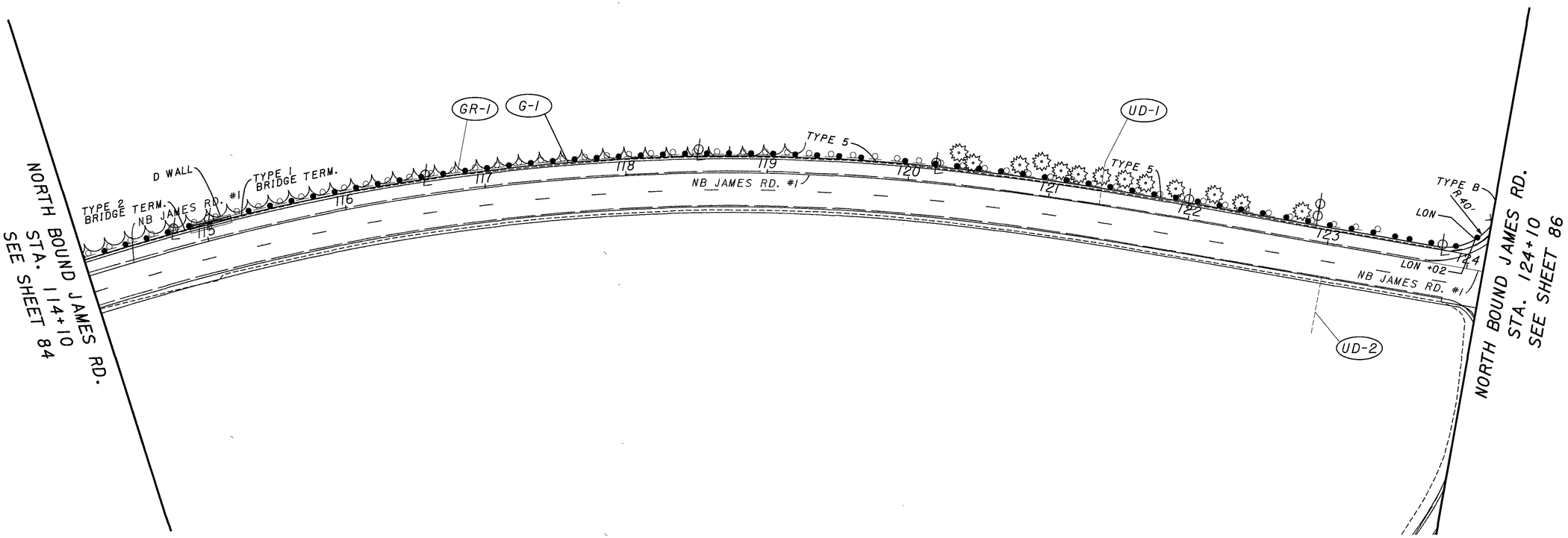
CALCULATED: RBK / JW, FAY / HG
CHECKED: MATT

FRA-33-20.69

84
230

LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 GUARDRAIL REMOVED (FT.)	606 GUARDRAIL TYPE 5 (FT.)	606 BRIDGE TERM. ASSEMBLY TYPE D (EACH)	606 BRIDGE TERM. ASSEMBLY TYPE J (EACH)	REMARKS
GR-1	111+45	114+10	LT	265				TIE INTO EX. GUARDRAIL
GR-2	111+49	114+15	RT	266				TIE INTO EX. GUARDRAIL
G-1	111+27	114+10	LT		287.5	1		CONNECT TO STRUCTURE
G-2	111+27	114+15	RT		287.5		1	CONNECT TO STRUCTURE
TOTALS CARRIED TO SUB SUMMARY				531	575	1	1	



HORIZONTAL SCALE IN FEET 0 20 40 80

CALCULATED RDK / LM FAY / HS
CHECKED MATT

PLAN VIEW NB JAMES STA. 114+10 TO STA. 124+10

FRA-33-20.69

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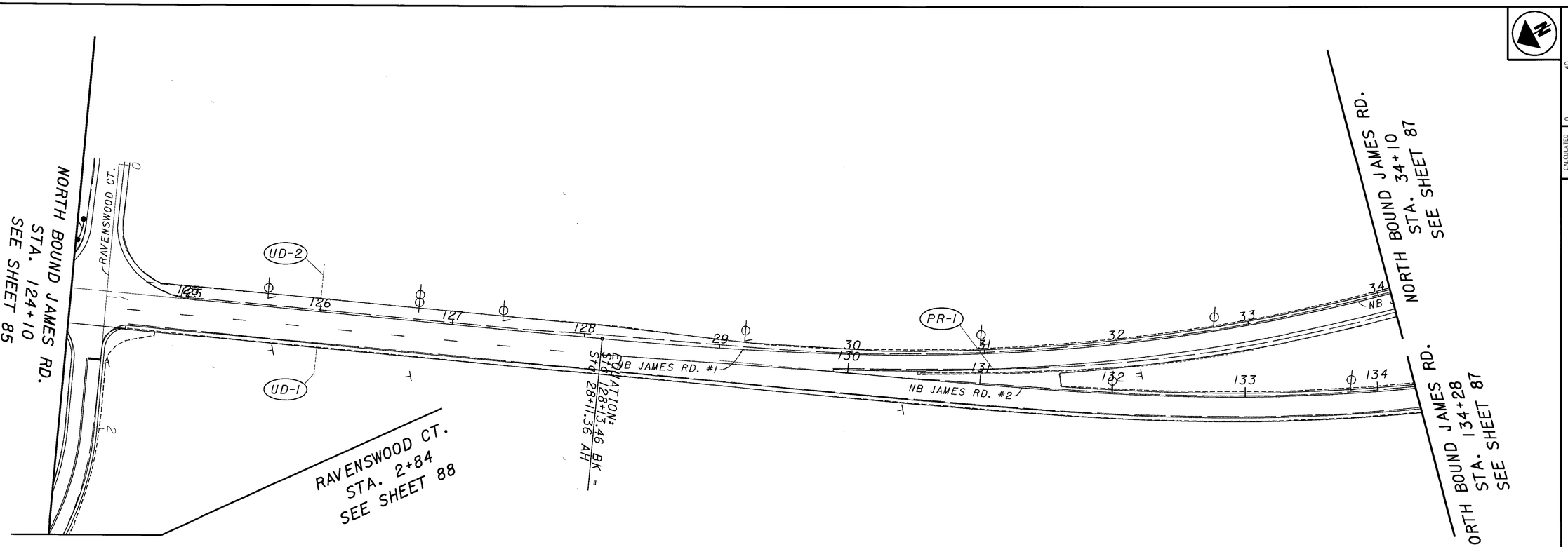
LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 PIPE REMOVED, 24" AND UNDER (FT.)	202 GUARDRAIL REMOVED (FT.)	202 ANCHOR ASSEMBLY REMOVED TYPE B-98 (EACH)	603 6" CONDUIT TYPE F (FT.)	604 PRECAST REINFD CONCRETE OUTLET (EACH)	606 GUARDRAIL TYPE 5 (FT.)	606 BRIDGE TERM. ASSEMBLY TYPE 1 (EACH)	622 BRIDGE TERM. ASSEMBLY TYPE 2 (EACH)	606 ANCHOR ASSEMBLY REBUILT, TYPE B-98 (EACH)	622 CONCRETE BARRIER TYPE D (FT.)	REMARKS
GR-1	114+10	123+36	LT		889	1								
UD-1	121+36		LT	10			10	1						
UD-2	123+00		RT	10			10	1						
G-1	114+10	124+10	LT						987.5	1	1	1	30	
TOTALS CARRIED TO SUB SUMMARY				20	889	1	20	2	987.5	1	1	1	30	



HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED - RBK / LW
PAY / HG
CHECKED - MATT

PLAN VIEW NB JAMES STA. 124+10 TO STA. 34+10

FRA-33-20.69

86
230

LOCATION

REF NO.	STATION FROM	STATION TO	SIDE
UD-1	126+00		RT
UD-2	126+00		LT
PR-1	30+48	33+02	RT
TOTALS CARRIED TO SUB SUMMARY			

QUANTITIES

202 PIPE REMOVED, 24" AND UNDER (FT.)	202 CURB REMOVED (FT.)	603 6" CONDUIT TYPE F (FT.)	604 PRECAST REINFD CONCRETE OUTLET (EACH)
10		10	1
10		10	1
	150		
20	150	20	2

REMARKS

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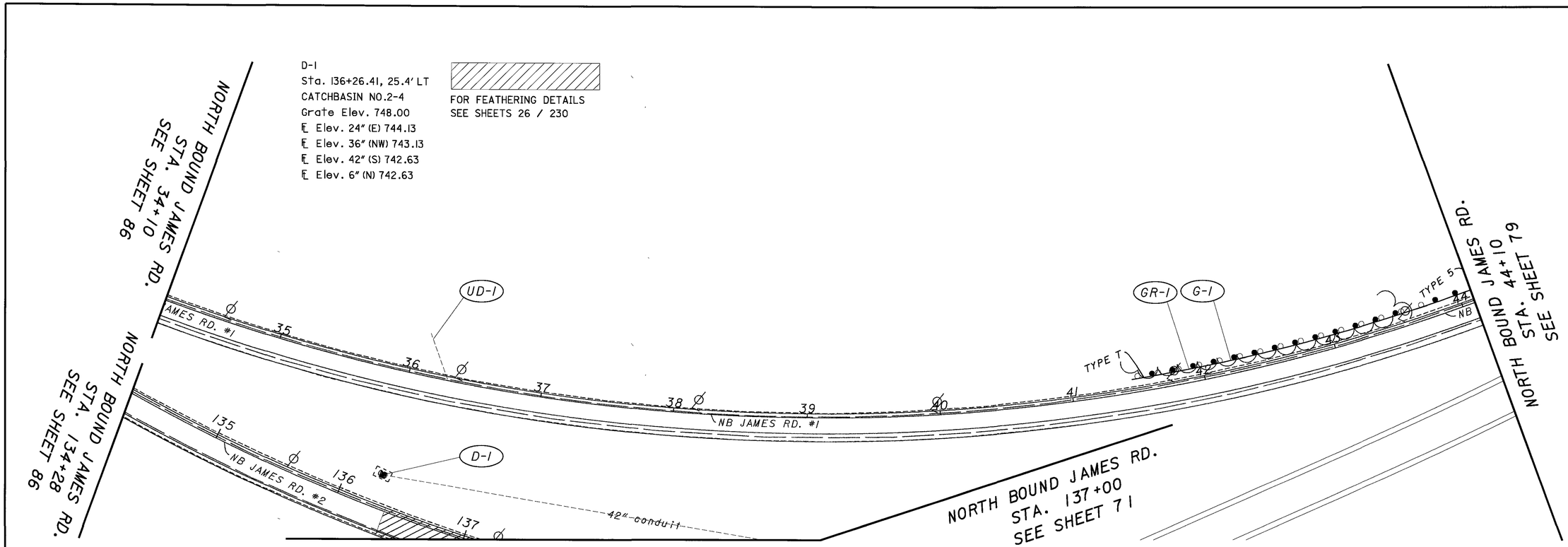

LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 CATCH BASIN REMOVED EACH	202 PIPE REMOVED, 24" AND UNDER FT.	202 PIPE REMOVED, OVER 24" FT.	202 GUARDRAIL REMOVED FT.	202 ANCHOR ASSEMBLY REMOVED TYPE T EACH	603 6" CONDUIT TYPE F FT.	603 24" CONDUIT TYPE C FT.	603 36" CONDUIT TYPE C FT.	603 42" CONDUIT TYPE C FT.	604 CATCH BASIN NO. 2-4 EACH	604 PRECAST REINFD CONCRETE OUTLET EACH	606 GUARDRAIL TYPE 5 FT.	606 ANCHOR ASSEMBLY TYPE T EACH	REMARKS
GR-1	41+46	43+76	LT				217	1									
UD-1	36+10		LT		10				10					1			
D-1	136+26		LT	1	20	20			10	10	10	10	1				
G-1	41+46	44+10	LT												250	1	NB JAMES RD.
TOTALS CARRIED TO SUB SUMMARY				1	30	20	217	1	20	10	10	10	1	1	250	1	

PLAN VIEW NB JAMES
STA. 34+10 TO STA. 44+10

FRA-33-20.69

87
230

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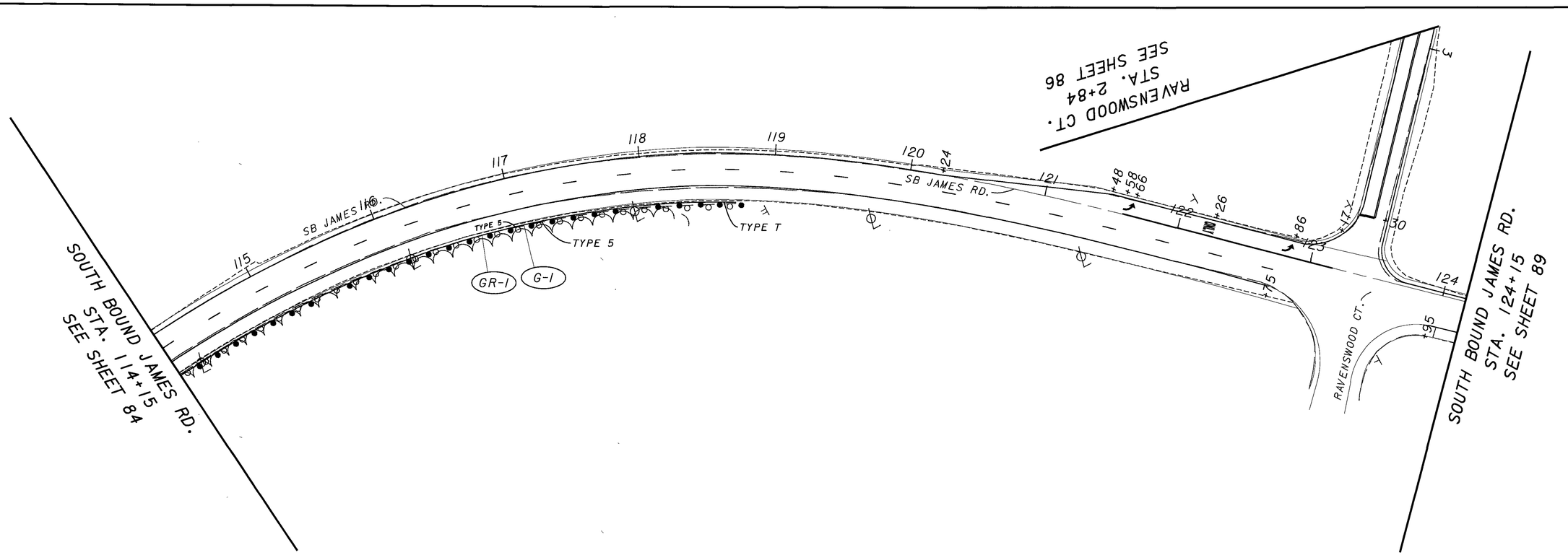


HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED: RDK / LW / MG
CHECKED: MATT

PLAN VIEW SB JAMES STA. 114+15 TO STA. 124+15

FRA-33-20.69

88
230

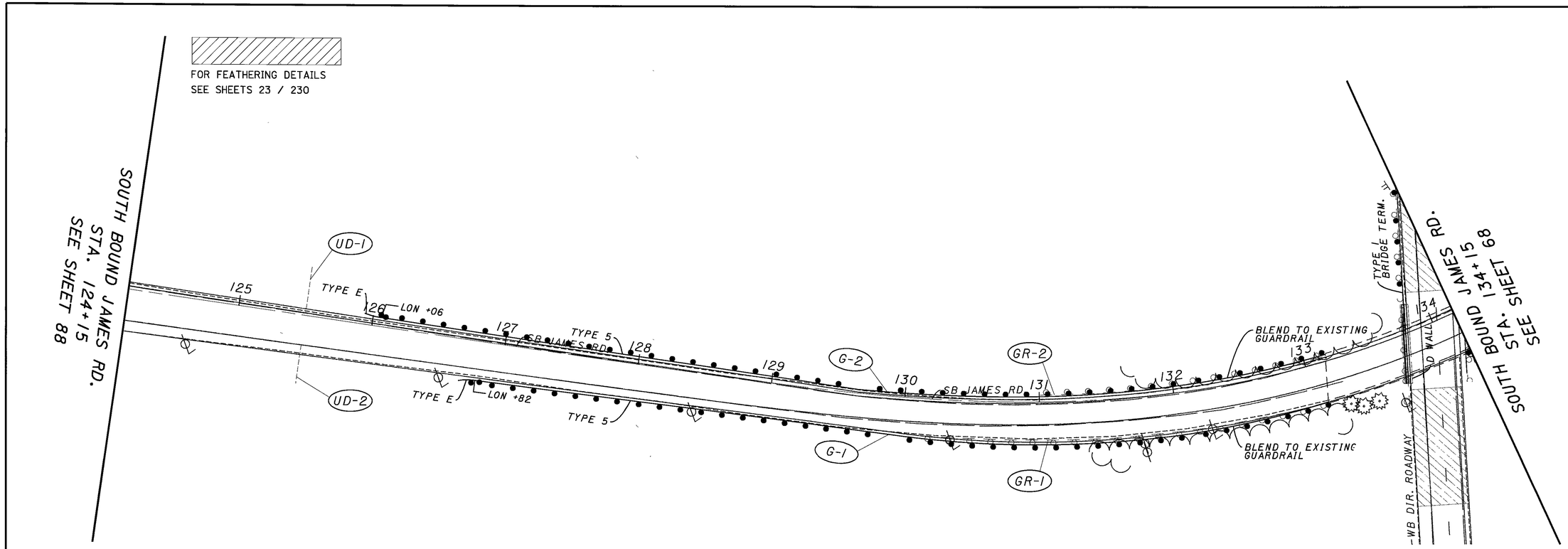
LOCATION

REF NO.	STATION FROM	STATION TO	SIDE
GR-1	114+15	118+72	RT
G-1	114+15	118+72	RT
TOTALS CARRIED TO SUB SUMMARY			

QUANTITIES

202 GUARDRAIL REMOVED (FT.)	606 GUARDRAIL TYPE 5 (FT.)	606 ANCHOR ASSEMBLY TYPE T (EACH)
457		
	450	1
457	450	1

REMARKS



LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 PIPE REMOVED, 24" AND UNDER (FT.)	202 GUARDRAIL REMOVED (FT.)	603 6" CONDUIT TYPE F (FT.)	604 PRECAST REINFD CONCRETE OUTLET (EACH)	606 GUARDRAIL TYPE 5 (FT.)	606 ANCHOR ASSEMBLY REBUILT, TYPE E-98 (EACH)	REMARKS
GR-1	130+17	133+09	RT		293					
GR-2	131+01	133+17	LT		217					
UD-1	125+50		LT	10		10	1			
UD-2	125+50		RT	10		10	1			
G-1	126+69	133+09	RT					587.5	1	SB JAMES RD.
G-2	125+93	133+17	LT					662.5	1	SB JAMES RD.
TOTALS CARRIED TO SUB SUMMARY				20	510	20	2	1,250	2	

HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED RJK / LM FAY / MG
CHECKED MAYT

PLAN VIEW SB JAMES
STA. 124+15 TO STA. 134+15

FRA-33-20.69

89
230

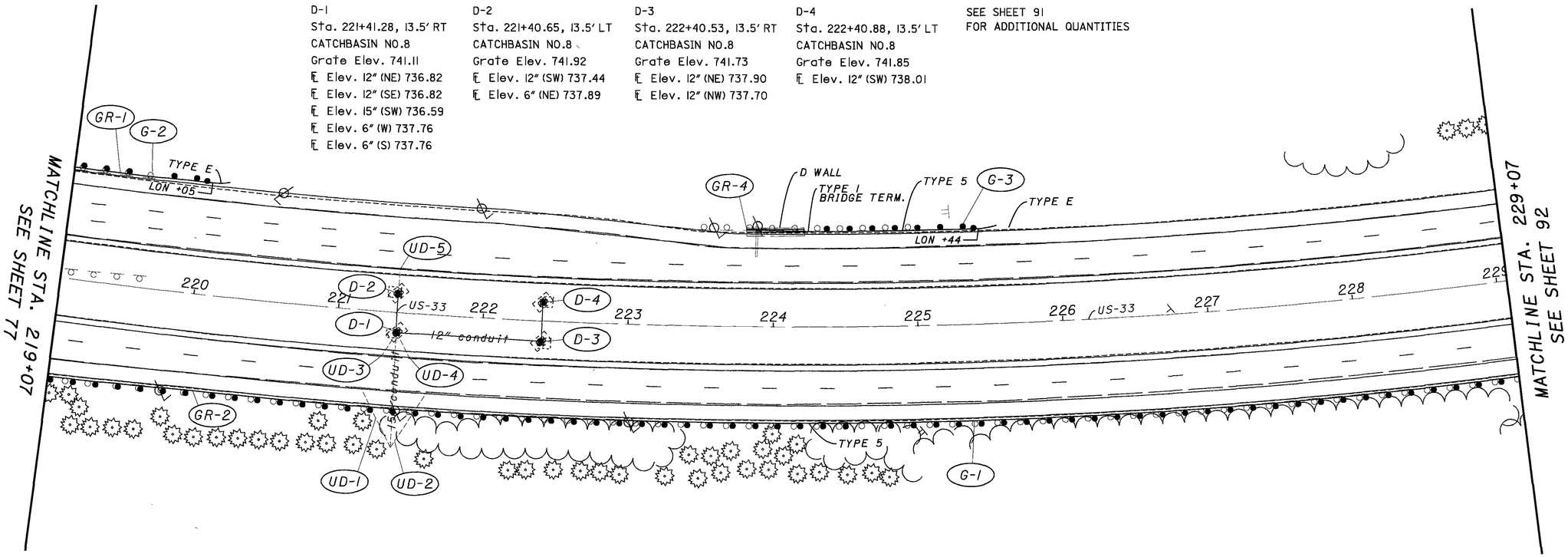
D-1
Sta. 221+41.28, 13.5' RT
CATCHBASIN NO.8
Grate Elev. 741.11
℄ Elev. 12" (NE) 736.82
℄ Elev. 12" (SE) 736.82
℄ Elev. 15" (SW) 736.59
℄ Elev. 6" (W) 737.76
℄ Elev. 6" (S) 737.76

D-2
Sta. 221+40.65, 13.5' LT
CATCHBASIN NO.8
Grate Elev. 741.92
℄ Elev. 12" (SW) 737.44
℄ Elev. 6" (NE) 737.89

D-3
Sta. 222+40.53, 13.5' RT
CATCHBASIN NO.8
Grate Elev. 741.73
℄ Elev. 12" (NE) 737.90
℄ Elev. 12" (NW) 737.70

D-4
Sta. 222+40.88, 13.5' LT
CATCHBASIN NO.8
Grate Elev. 741.85
℄ Elev. 12" (SW) 738.01

SEE SHEET 91
FOR ADDITIONAL QUANTITIES



LOCATION

QUANTITIES

REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 CATCH BASIN REMOVED EACH	202 PIPE REMOVED, 24" AND UNDER FT.	202 GUARDRAIL REMOVED FT.	202 ANCHOR ASSEMBLY REMOVED TYPE A EACH	202 ANCHOR ASSEMBLY REMOVED TYPE T EACH	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE E-98 EACH	603 6" CONDUIT TYPE F FT.	603 12" CONDUIT TYPE C FT.	603 15" CONDUIT TYPE C FT.	604 CATCH BASIN NO. 8 EACH	604 PRECAST REINFD CONCRETE OUTLET EACH			
UD-5	221+41		LT		10					10							
D-2	221+41		LT	1	10						10		1				
D-1	221+41		RT	1	30						20	10	1				
UD-3	221+41		RT		10					10							
UD-4	221+41		RT		10					10							
UD-1	221+42		RT		10					10				1			
UD-2	221+42		RT		10					10				1			
D-3	222+41		RT	1	20						20		1				
D-4	222+41		LT	1	10						10		1				
GR-1	219+07	219+66	LT			12.5			1								
GR-2	219+07	229+07	RT			1000											
GR-3	219+07	219+66	LT			46	1										
GR-4	223+47	225+01	LT			112.5		1	1								
TOTALS CARRIED TO SUB SUMMARY				4	120	1,171	1	1	2	50	60	10	4	2			

HORIZONTAL SCALE IN FEET
0 20 40 60

CALCULATED RDK / LW
PAY / RG
CHECKED MATT

PLAN VIEW FRA. US-33
STA. 219+07 TO STA. 229+07

FRA-33-20.69

LOCATION				QUANTITIES													REMARKS
REF NO.	STATION FROM	STATION TO	SIDE	606 GUARDRAIL TYPE 5 FT.	606 ANCHOR ASSEMBLY REBUILT, TYPE E-98 EACH	606 BRIDGE TERM. ASSEMBLY TYPE 1 EACH	622 CONCRETE BARRIER TYPE D FT.										
G-1	219+07	229+07	RT OUT	1000													
G-2	219+07	220+17	LT OUT	75	1												
G-3	223+81	225+57	LT OUT	125	1	1	15										
TOTALS CARRIED TO SUB SUMMARY				1,200	2	1	15										

LOCATION				QUANTITIES													REMARKS
TOTALS CARRIED TO SUB SUMMARY																	

CALCULATED RBK / JW PAY / HG
CHECKED MATT

QUANTITIES FRA. US-33
STA. 219+07 TO STA. 229+07

FRA-33-20.69

91
230

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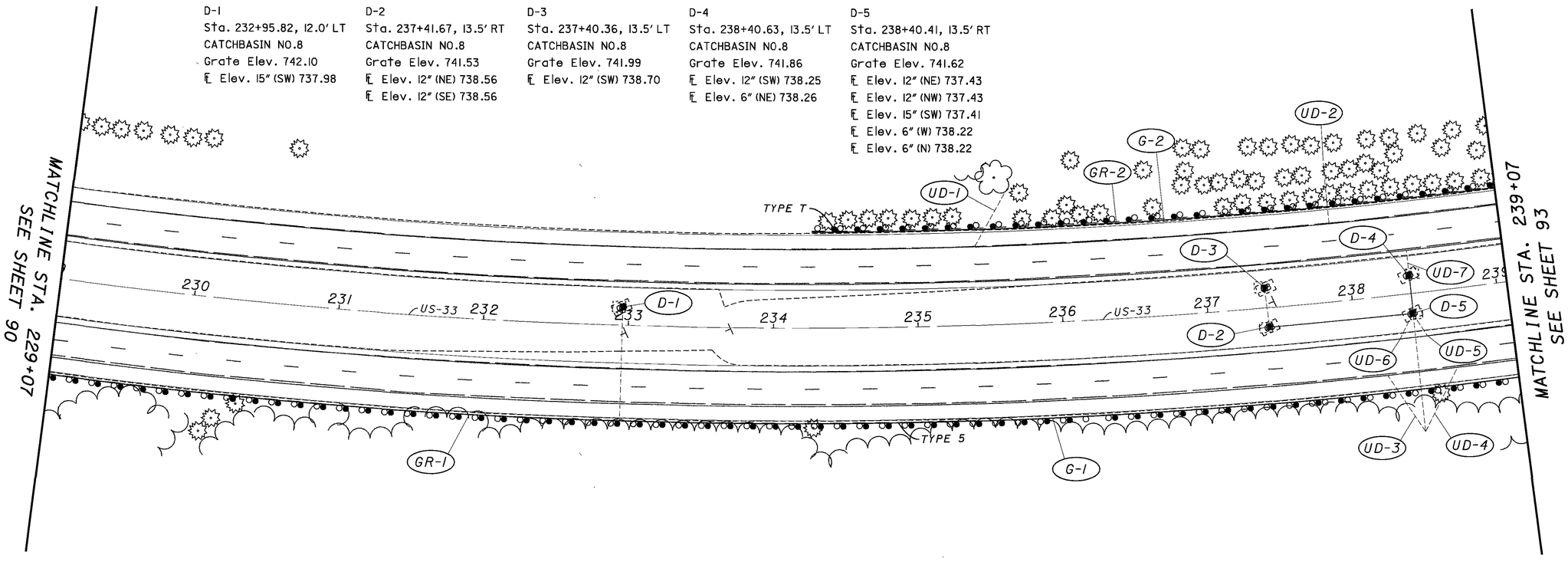
D-1
Sta. 232+95.82, 12.0' LT
CATCHBASIN NO.8
Grate Elev. 742.10
℄ Elev. 15" (SW) 737.98

D-2
Sta. 237+41.67, 13.5' RT
CATCHBASIN NO.8
Grate Elev. 741.53
℄ Elev. 12" (NE) 738.56
℄ Elev. 12" (SE) 738.56

D-3
Sta. 237+40.36, 13.5' LT
CATCHBASIN NO.8
Grate Elev. 741.99
℄ Elev. 12" (SW) 738.70

D-4
Sta. 238+40.63, 13.5' LT
CATCHBASIN NO.8
Grate Elev. 741.86
℄ Elev. 12" (SW) 738.25
℄ Elev. 6" (NE) 738.26

D-5
Sta. 238+40.41, 13.5' RT
CATCHBASIN NO.8
Grate Elev. 741.62
℄ Elev. 12" (NE) 737.43
℄ Elev. 12" (NW) 737.43
℄ Elev. 15" (SW) 737.41
℄ Elev. 6" (W) 738.22
℄ Elev. 6" (N) 738.22



LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 CATCH BASIN REMOVED EACH	202 PIPE REMOVED, 24" AND UNDER FT.	202 GUARDRAIL REMOVED FT.	202 ANCHOR ASSEMBLY REMOVED TYPE T EACH	603 6" CONDUIT TYPE F FT.	603 12" CONDUIT TYPE C FT.	603 15" CONDUIT TYPE C FT.	604 CATCH BASIN NO. 8 EACH	604 PRECAST REINFD CONCRETE OUTLET EACH	606 GUARDRAIL TYPE 5 FT.	606 ANCHOR ASSEMBLY TYPE T EACH			REMARKS
D-1	232+96		LT	1	10					10	1						
GR-1	229+07	239+07	RT			1000											
UD-1	235+65		LT		10			10				1					
D-3	237+40		LT	1	10				10		1						
D-2	237+42		RT	1	20				20		1						
UD-2	237+89		LT		10			10				1					
UD-3	238+40		RT		10			10				1					
UD-4	238+40		RT		10			10				1					
D-5	238+40		RT	1	30				20	10	1						
UD-5	238+40		RT		10			10									
UD-6	238+40		RT		10			10									
D-4	238+41		LT	1	10				10		1						
UD-7	238+41		LT		10			10									
GR-2	234+27	239+07	LT			467	1										
G-1	229+07	239+07	RT OUT										1000				
G-2	234+27	239+07	LT OUT										462.5	1			
TOTALS CARRIED TO SUB SUMMARY				5	150	1,467	1	70	60	20	5	4	1,462.5	1			

HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED RDK / JM FAY / HG
CHECKED MATT

PLAN VIEW FRA. US-33
STA. 229+07 TO STA. 239+07

FRA-33-20.69

92
230

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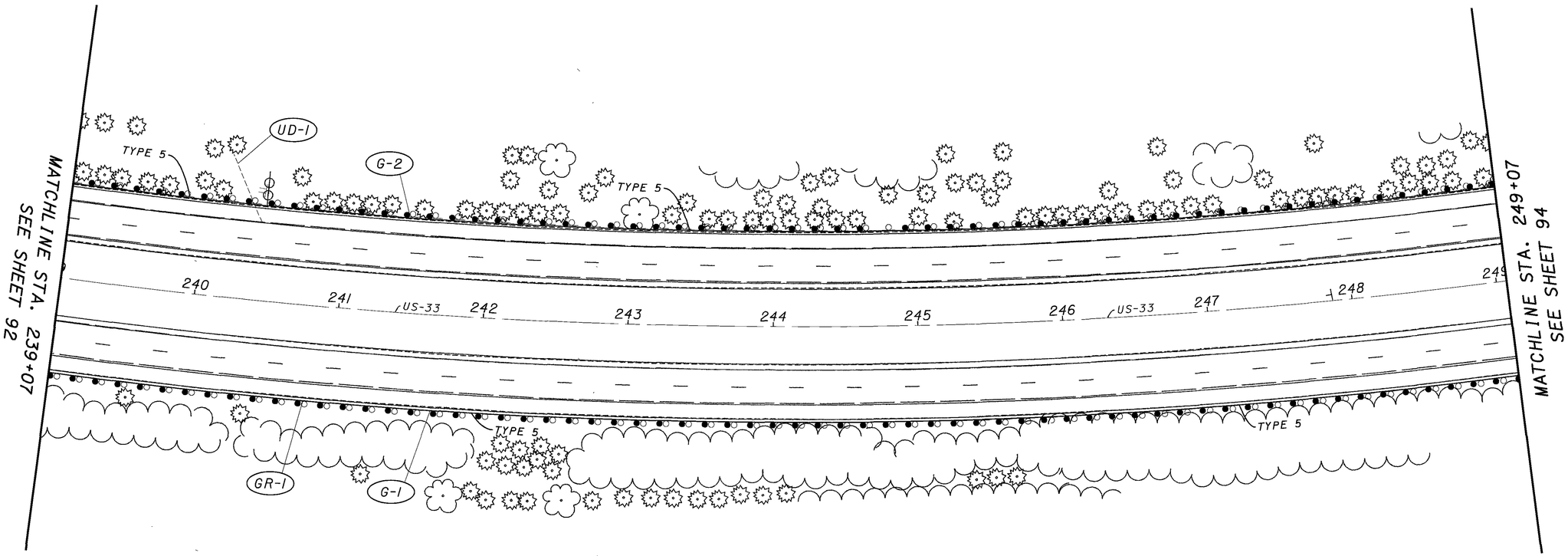

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0 20 40 80
HORIZONTAL SCALE IN FEET

CALCULATED RDK / LW FAY / HG
CHECKED MATT

PLAN VIEW FRA. US-33 STA. 239+07 TO STA. 249+07

FRA-33-20.69

93
230

LOCATION

REF NO.	STATION FROM	STATION TO	SIDE
UD-1	240+17		LT
GR-1	239+07	249+07	RT
GR-2	239+07	249+07	LT
G-1	239+07	249+07	RT
G-2	239+07	249+07	LT
TOTALS CARRIED TO SUB SUMMARY			

QUANTITIES

202 PIPE REMOVED, 24" AND UNDER FT.	202 GUARDRAIL REMOVED FT.	603 6" CONDUIT TYPE F FT.	604 PRECAST REINFD CONCRETE OUTLET EACH	606 GUARDRAIL TYPE 5 FT.
10		10	1	
	1000			
	1000			
				1,000
				1,000
10	2,000	10	1	2,000

REMARKS

D-1
Sta. 251+41.47, 13.5' RT
CATCHBASIN NO.8
Grate Elev. 742.17
℄ Elev. 15" (NE) 738.16
℄ Elev. 15" (SW) 738.12
℄ Elev. 6" (E) 738.45

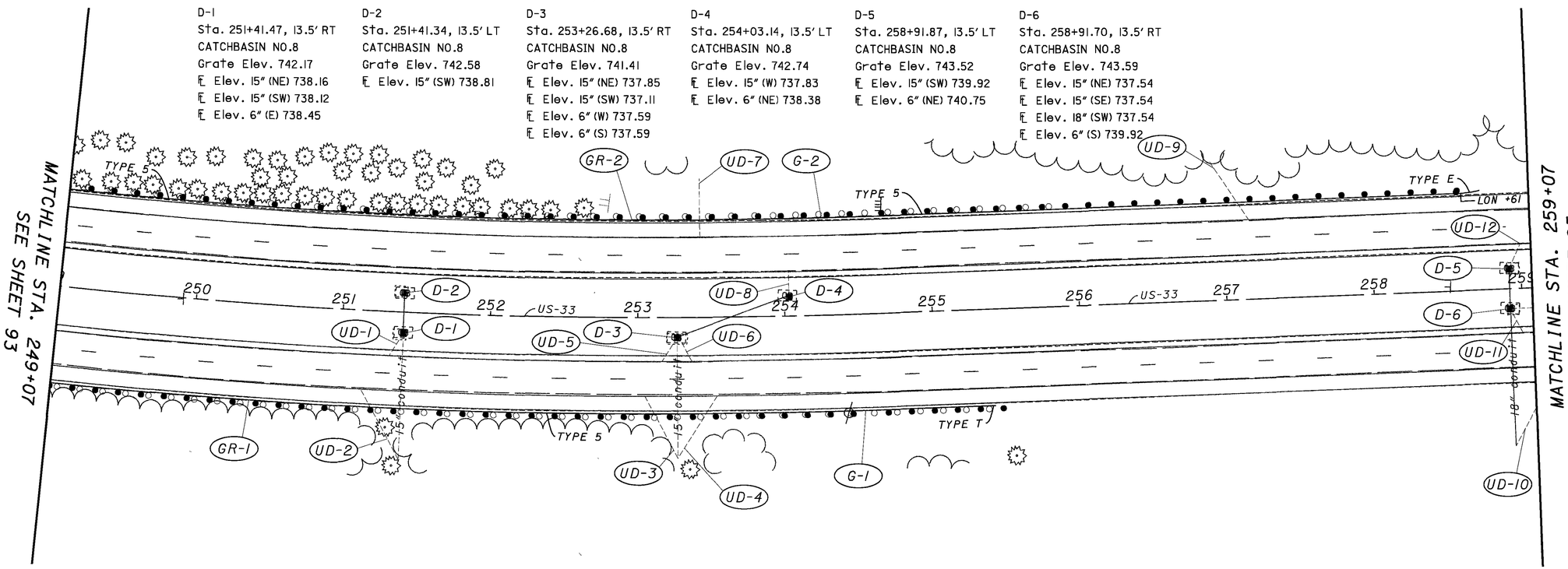
D-2
Sta. 251+41.34, 13.5' LT
CATCHBASIN NO.8
Grate Elev. 742.58
℄ Elev. 15" (SW) 738.81

D-3
Sta. 253+26.68, 13.5' RT
CATCHBASIN NO.8
Grate Elev. 741.41
℄ Elev. 15" (NE) 737.85
℄ Elev. 15" (SW) 737.11
℄ Elev. 6" (W) 737.59
℄ Elev. 6" (S) 737.59

D-4
Sta. 254+03.14, 13.5' LT
CATCHBASIN NO.8
Grate Elev. 742.74
℄ Elev. 15" (W) 737.83
℄ Elev. 6" (NE) 738.38

D-5
Sta. 258+91.87, 13.5' LT
CATCHBASIN NO.8
Grate Elev. 743.52
℄ Elev. 15" (SW) 739.92
℄ Elev. 6" (NE) 740.75

D-6
Sta. 258+91.70, 13.5' RT
CATCHBASIN NO.8
Grate Elev. 743.59
℄ Elev. 15" (NE) 737.54
℄ Elev. 15" (SE) 737.54
℄ Elev. 18" (SW) 737.54
℄ Elev. 6" (S) 739.92



LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 CATCH BASIN REMOVED EACH	202 PIPE REMOVED, 24" AND UNDER FT.	202 GUARDRAIL REMOVED FT.	202 ANCHOR ASSEMBLY REMOVED TYPE T EACH	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE E-98 EACH	603 6" CONDUIT TYPE F FT.	603 15" CONDUIT TYPE C FT.	603 18" CONDUIT TYPE C FT.	604 CATCH BASIN NO. 8 EACH	604 PRECAST REINFD CONCRETE OUTLET EACH	606 GUARDRAIL TYPE 5 FT.	606 ANCHOR ASSEMBLY TYPE T EACH	606 ANCHOR ASSEMBLY REBUILT, TYPE E-98 EACH	REMARKS
UD-2	251+35		RT		10				10				1				
D-2	251+41		LT	1	10					10		1					
D-1	251+41		RT	1	20					20		1					
UD-1	251+41		RT		10				10								
D-3	253+27		RT	1	20					20		1					
UD-5	253+27		RT		10				10								
UD-6	253+27		RT		10				10								
UD-3	253+27		RT		10				10				1				
UD-4	253+27		RT		10				10				1				
UD-7	253+43		LT		10				10				1				
D-4	254+03		LT	1	10					10		1					
UD-8	254+03		LT		10				10								
GR-1	249+07	255+47	RT			758	1										
GR-2	249+07	255+86	LT			608		1									
UD-9	256+92		LT		10				10				1				
D-6	258+92		RT	1	30					20	10	1					
UD-11	258+92		RT		10				10								
D-5	258+92		LT	1	10					10		1					
UD-12	258+92		LT		20				20								
UD-10	258+96		RT		10				10				1				
G-1	249+07	255+41	RT OUT											625	1		
G-2	249+07	258+74	LT OUT											925		1	
TOTALS CARRIED TO SUB SUMMARY				6	230	1,366	1	1	130	90	10	6	6	1,550	1	1	

HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED RDK / JLW FAY / MG
CHECKED MATT

PLAN VIEW FRA. US-33
STA. 249+07 TO STA. 259+07

FRA-33-20.69

94
230

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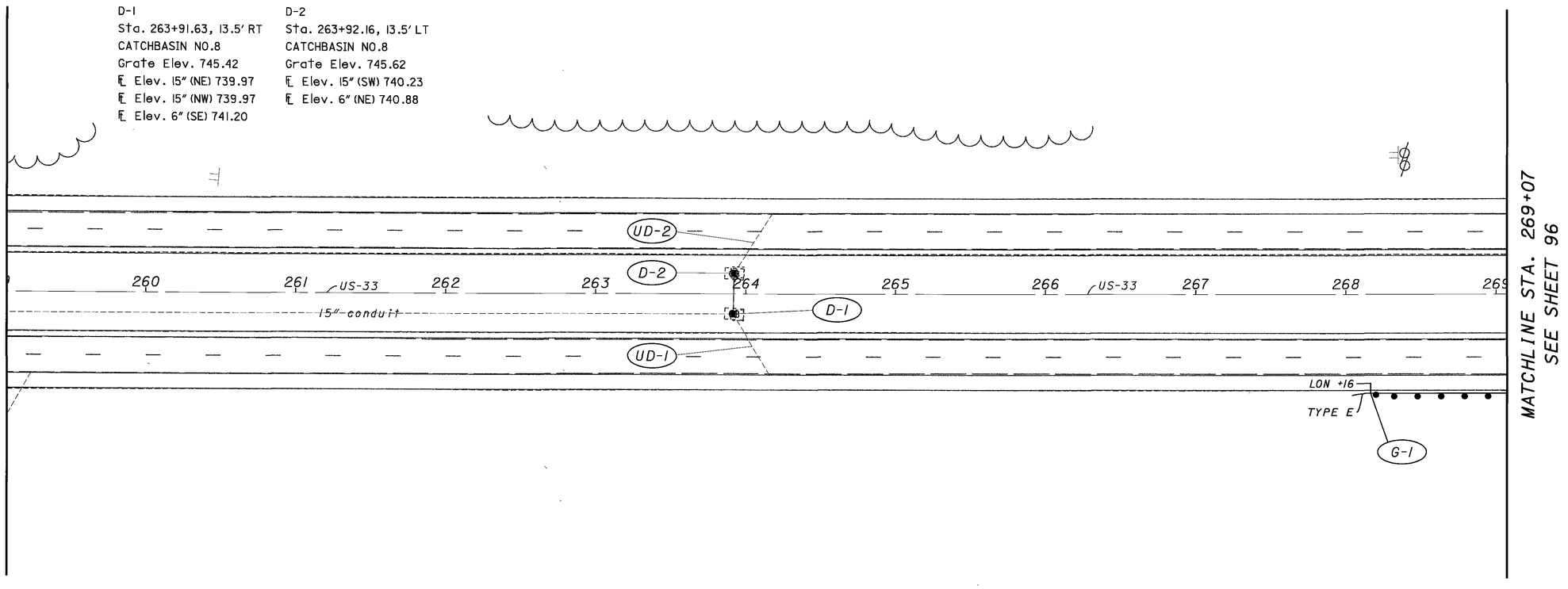
D-1
Sta. 263+91.63, 13.5' RT
CATCHBASIN NO.8
Grate Elev. 745.42
℄ Elev. 15" (NE) 739.97
℄ Elev. 15" (NW) 739.97
℄ Elev. 6" (SE) 741.20

D-2
Sta. 263+92.16, 13.5' LT
CATCHBASIN NO.8
Grate Elev. 745.62
℄ Elev. 15" (SW) 740.23
℄ Elev. 6" (NE) 740.88



LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 CATCH BASIN REMOVED (EACH)	202 PIPE REMOVED, 24" AND UNDER (FT.)	603 6" CONDUIT TYPE F (FT.)	603 15" CONDUIT TYPE C (FT.)	604 CATCH BASIN NO. 8 (EACH)	606 GUARDRAIL TYPE 5 (FT.)	606 ANCHOR ASSEMBLY REBUILT, TYPE E-98 (EACH)	REMARKS
D-1	263+92		RT	1	20		20	1			
UD-1	263+92		RT		10	10					
D-2	263+92		LT	1	10		10	1			
UD-2	263+92		LT		10	10					
G-1	268+04	269+07	RT OUT						62.5	1	
TOTALS CARRIED TO SUB SUMMARY				2	50	20	30	2	62.5	1	

HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED: RDK / LW FAY / MG
CHECKED: MATT

PLAN VIEW FRA. US-33
STA. 259+07 TO STA. 269+07

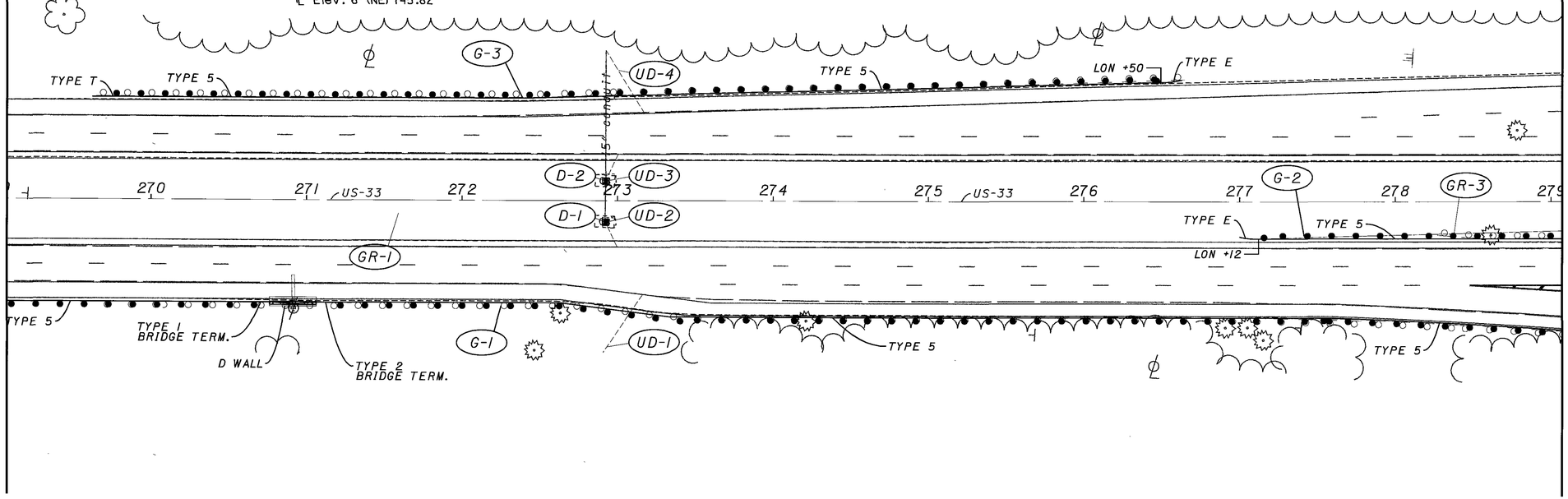
FRA-33-20.69

95
230

D-1
Sta. 272+92.33, 13.5' RT
CATCHBASIN NO.8
Grate Elev. 749.08
℄ Elev. 15" (NE) 746.05
℄ Elev. 6" (SE) 746.04

D-2
Sta. 272+92.44, 13.5' LT
CATCHBASIN NO.8
Grate Elev. 748.99
℄ Elev. 15" (SW) 744.97
℄ Elev. 15" (NE) 744.94
℄ Elev. 6" (NE) 745.82

SEE SHEET 97
FOR ADDITIONAL QUANTITIES



LOCATION

REF NO.	STATION FROM	STATION TO	SIDE
UD-1	272+91		RT
D-1	272+92		RT
UD-2	272+92		RT
UD-4	272+92		LT
D-2	272+92		LT
UD-3	272+92		LT
GR-1	269+67	274+07	RT
GR-2	269+65	276+65	LT
GR-3	278+27	279+07	RT IN
TOTALS CARRIED TO SUB SUMMARY			

QUANTITIES

202 CATCH BASIN REMOVED (EACH)	202 PIPE REMOVED, 24" AND UNDER (FT.)	202 GUARDRAIL REMOVED (FT.)	202 ANCHOR ASSEMBLY REMOVED TYPE A (EACH)	202 ANCHOR ASSEMBLY REMOVED TYPE T (EACH)	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE E-98 (EACH)	603 6" CONDUIT TYPE F (FT.)	603 15" CONDUIT TYPE C (FT.)	604 CATCH BASIN NO. 8 (EACH)	604 PRECAST REINFD CONCRETE OUTLET (EACH)
	10					10			1
1	10						10	1	
	10					10			
	10					10			1
1	20						20	1	
	10					10			
		890			1				
		638		1	1				
		55	1						
2	70	1,583	1	1	2	40	30	2	2

REMARKS

HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED RDK / LW PAY / HG
CHECKED MATT

PLAN VIEW FRA. US-33
STA. 269+07 TO STA. 279+07

FRA-33-20.69

96
230

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LOCATION				QUANTITIES													REMARKS
REF NO.	STATION FROM	STATION TO	SIDE	606 GUARDRAIL TYPE 5 FT.	606 ANCHOR ASSEMBLY TYPE T EACH	606 ANCHOR ASSEMBLY REBUILT, TYPE E-98 EACH	606 BRIDGE TERM. ASSEMBLY TYPE 1 EACH	606 BRIDGE TERM. ASSEMBLY TYPE 2 EACH	622 CONCRETE BARRIER TYPE D FT.								
G-1	269+07	279+07	RT OUT	1000			1	1	30								
G-2	277+00	279+07	RT IN	175		1											
G-3	269+62	276+65	LT OUT	650	1	1											
TOTALS CARRIED TO SUB SUMMARY				1,825	1	2	1	1	30								

LOCATION				QUANTITIES													REMARKS
TOTALS CARRIED TO SUB SUMMARY																	

CALCULATED RDK / LW PAY / MG
CHECKED MATT

QUANTITIES FRA. US-33
STA. 269+07 TO STA. 279+07

FRA-33-20.69

97
230

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D-1
Sta. 281+02.22, 13.5' LT
CATCHBASIN NO.8
Grate Elev. 749.52
℄ Elev. 15" (NE) 743.71
℄ Elev. 6" (N) 745.69
℄ Elev. 6" (SW) 745.69

SEE SHEET 99
FOR ADDITIONAL QUANTITIES

MATCHLINE STA. 279+07
SEE SHEET 96

MATCHLINE STA. 289+07
SEE SHEET 100

FOR FEATHERING DETAILS
SEE SHEETS 26 / 230

FOR FEATHERING DETAILS
SEE SHEETS 26 / 230

FOR FEATHERING DETAILS
SEE SHEETS 23 / 230

FOR FEATHERING DETAILS
SEE SHEETS 26 / 230

FOR FEATHERING DETAILS
SEE SHEETS 26 / 230

UD-1
UD-2
UD-3
D-1
GR-1
GR-2
GR-3
GR-4
GR-7
G-1
G-2
G-3
G-4
G-5
G-6
G-7
D WALL
TYPE 1 BRIDGE TERM.
TYPE 2 BRIDGE TERM.
TYPE 5
TYPE E
TYPE T
BARRIER WALL
FRA-33-24.56
LON +01
LON +09
LON +97
US-33
280
281
282
284
285
286
287
288
289

HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED BDK / LW
FAY / HG
CHECKED MATT

PLAN VIEW FRA.US-33
STA. 279+07 TO STA. 289+07

FRA-33-20.69

98
230

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LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 CATCH BASIN REMOVED EACH	202 PIPE REMOVED, 24" AND UNDER FT.	202 GUARDRAIL REMOVED FT.	202 GUARDRAIL REMOVED BARRIER DESIGN FT.	202 ANCHOR ASSEMBLY REMOVED TYPE A EACH	202 ANCHOR ASSEMBLY REMOVED TYPE T EACH	202 ANCHOR ASSEMBLY REMOVED BARRIER DESIGN EACH	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE E-98 EACH	603 6" CONDUIT TYPE F FT.	REMARKS
UD-1	280+97		LT		10							10	
D-1	281+02		LT	1	10								
UD-2	281+02		LT		10							10	
UD-3	281+02		LT		10							10	
GR-1	279+07	282+89	RT OUT			421			1				
GR-2	279+07	279+77	RT IN			58			1				
GR-3	281+38	283+03	RT OUT			46	75		1	1			
GR-4	281+69	283+34	RT IN			127		1	1				
GR-5	282+43	284+07	LT IN			127		1	1				
GR-6	282+61	284+07	LT OUT			110	50		1		1		
GR-7	282+62	283+73	LT OUT			102			1				
TOTALS CARRIED TO SUB SUMMARY				1	40	991	125	2	7	1	1	30	

REF NO.	STATION FROM	STATION TO	SIDE	603 15" CONDUIT TYPE C FT.	604 CATCH BASIN NO. 8 EACH	604 PRECAST REINFD CONCRETE OUTLET EACH	606 GUARDRAIL TYPE 5 FT.	606 ANCHOR ASSEMBLY TYPE T EACH	606 ANCHOR ASSEMBLY TYPE E-98 EACH	606 BRIDGE TERM. ASSEMBLY TYPE 1 EACH	606 BRIDGE TERM. ASSEMBLY TYPE 2 EACH	606 IMPACT ATTN. TYPE 2-98 UNI DIRECT. (36") EACH	606 IMPACT ATTN. TYPE 2-98 BI-DIRECT. (69") EACH	622 CONCRETE BARRIER TYPE D FT.	REMARKS
UD-1	280+97		LT			1									
D-1	281+02		LT	10	1										
UD-2	281+02		LT												
UD-3	281+02		LT												
GR-1	279+07	282+89	RT OUT												
GR-2	279+07	279+77	RT IN												
GR-3	281+38	283+03	RT OUT												
GR-4	281+69	283+34	RT IN												
GR-5	282+43	284+07	LT IN												
GR-6	282+61	284+07	LT OUT												
GR-7	282+62	283+73	LT OUT												
G-1	279+07	282+62	RT OUT				262.5			2	1			90	ENDING SB 270 RAMP B
G-2	281+13	282+33	RT OUT				112.5	1							
G-3	280+81	282+91	RT OUT				150			1		1		60	
G-4	279+07	279+49	RT IN				25			1				15	
G-6	282+80	286+21	LT OUT				262.5		1	1				45	
G-7	282+80	285+19	LT OUT				125.0		1	1				75	BEGINNING SB 270 RAMP C
G-5	282+22	283+53	MED										2		MEDIAN BARRIER
															SEE SHEETS 117 AND 118
															FOR DETAILS
TOTALS CARRIED TO SUB SUMMARY				10	1	1	937.5	1	2	6	1	1	2	285	

CALCULATED RDK / LW PAY / HG
CHECKED MA TT

QUANTITIES FRA. US-33
STA. 279+07 TO STA. 289+07

FRA-33-20.69

99
230

D-1
Sta. 291+93.32, 13.5' RT
CATCHBASIN NO.8
Grate Elev. 745.04
℄ Elev. 15" (NE) 737.35
℄ Elev. 15" (SE) 737.35
℄ Elev. 6" (SW) 738.47

D-2
Sta. 291+92.88, 13.5' LT
CATCHBASIN NO.8
Grate Elev. 744.48
℄ Elev. 15" (SW) 739.39
℄ Elev. 6" (NE) 740.56

D-3
Sta. 296+91.92, 13.5' LT
CATCHBASIN NO.8
Grate Elev. 742.14
℄ Elev. 15" (SW) 738.44
℄ Elev. 6" (N) 739.10

D-4
Sta. 296+92.16, 13.5' RT
CATCHBASIN NO.8
Grate Elev. 742.29
℄ Elev. 15" (NE) 735.29
℄ Elev. 15" (SW) 735.29
℄ Elev. 6" (W) 735.58

SEE SHEET 101
FOR ADDITIONAL QUANTITIES

FOR FEATHERING DETAILS
SEE SHEETS 23 / 230

FOR FEATHERING DETAILS
SEE SHEETS 26 / 230

FOR FEATHERING DETAILS
SEE SHEETS 26 / 230

FOR FEATHERING DETAILS
SEE SHEETS 26 / 230

FOR FEATHERING DETAILS
SEE SHEETS 26 / 230

MATCHLINE STA. 289+07
SEE SHEET 98

MATCHLINE STA. 299+07
SEE SHEET 102

D WALL
BARRIER WALL
TYPE I BRIDGE TERM.
TYPE 5
TYPE E
G-1
G-2
G-3
GR-2
LON +63
LON +93
FRA-270-46.13 L,R,A
PCC Sta. 60+81.27
PC Sta. 61+97.43
PC Sta. 47+89.58
PC Sta. 44+17.00
CS Sta. 59+94.33
CS Sta. 57+98.63
CS Sta. 41+67.42
CS Sta. 56+64.55
ST Sta. 45+35.25
SC Sta. 47+35.25
UD-1
UD-2
UD-3
UD-4
UD-5
UD-6
D-1
D-2
D-3
D-4
US-33
290
291
292
293
294
295
296
297
298
299
CB

HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED: RDK / LW
PAY / HG
CHECKED: MATT

PLAN VIEW
STA. 289+07 TO STA. 299+07

FRA-33-20.69

100
230

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LOCATION				QUANTITIES													REMARKS
				202	202	202	202	202	202	603	603	604	604				
REF NO.	STATION FROM	STATION TO	SIDE	CATCH BASIN REMOVED	PIPE REMOVED, 24" AND UNDER	GUARDRAIL REMOVED	ANCHOR ASSEMBLY REMOVED TYPE A	ANCHOR ASSEMBLY REMOVED TYPE T	ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE E-98	6" CONDUIT TYPE F	15" CONDUIT TYPE C	CATCH BASIN NO. 8	PRECAST REINFD CONCRETE OUTLET				
				EACH	FT.	FT.	EACH	EACH	EACH	FT.	FT.	EACH	EACH				
D-2	291+93		LT	1	10						10	1					
UD-1	291+93		LT		10					10							
D-1	291+93		RT	1	20						20	1					
UD-2	291+93		RT		10					10							
GR-1	291+65	295+10	RT			282		1	1								
GR-2	291+95	295+04	RT			272	1	1									
GR-3	292+60	295+75	LT			265	2										
GR-4	292+67	295+93	LT			263		1	1								
D-3	296+92		LT	1	10						10	1					
UD-5	296+92		LT		10					10							
D-4	296+92		RT	1	20						20	1					
UD-4	296+92		RT		10					10							
UD-3	296+92		RT		10					10			1				
UD-6	297+39		LT		10					10			1				
TOTALS CARRIED TO SUB SUMMARY				4	120	1,082	3	3	2	60	60	4	2				

LOCATION				QUANTITIES													REMARKS
				606	606	606	606	622	622								
REF NO.	STATION FROM	STATION TO	SIDE	GUARDRAIL TYPE 5	ANCHOR ASSEMBLY TYPE E-98	BRIDGE TERM. ASSEMBLY TYPE 1	IMPACT ATTN. TYPE 2-98 BI-DIRECT. (69")	CONCRETE BARRIER TYPE D	CONCRETE BARRIER SINGLE SLOPE TYPE A A.P.P.								
				FT.	EACH	EACH	EACH	FT.	FT.								
G-1	290+81	294+81	RT OUT	150	1	1		210									
G-3	292+87	296+75	LT OUT	137.5	1	1		210									
G-2	292+39	295+26	MED				2		210								
TOTALS CARRIED TO SUB SUMMARY				287.5	2	2	2	420	210								

CALCULATED: RDK / LW PAY / NG
CHECKED: MATT

QUANTITIES FRA. US-33
STA. 289+07 TO STA. 299+07

FRA-33-20.69

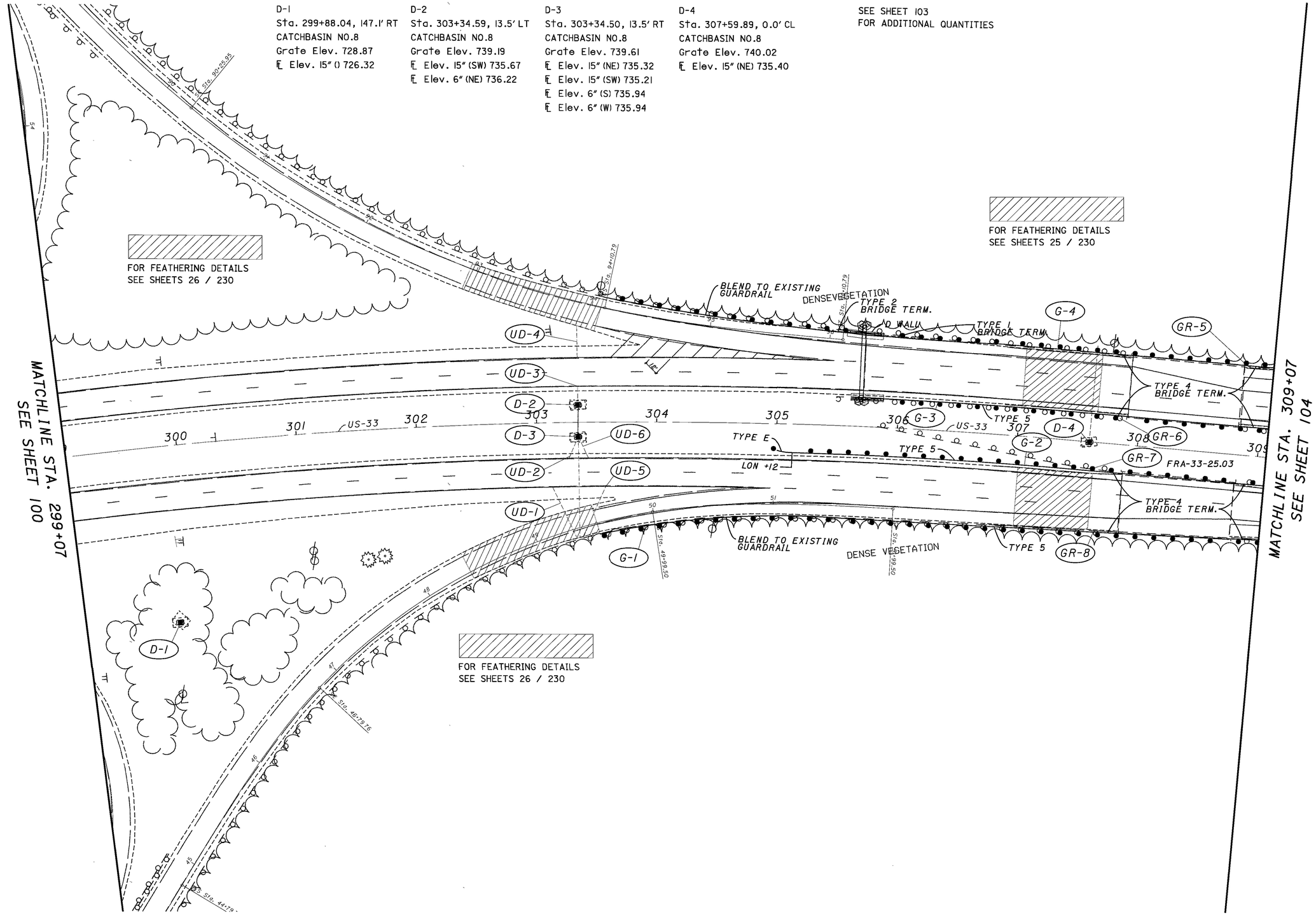
D-1
Sta. 299+88.04, 147.1' RT
CATCHBASIN NO.8
Grate Elev. 728.87
℄ Elev. 15" () 726.32

D-2
Sta. 303+34.59, 13.5' LT
CATCHBASIN NO.8
Grate Elev. 739.19
℄ Elev. 15" (SW) 735.67
℄ Elev. 6" (NE) 736.22

D-3
Sta. 303+34.50, 13.5' RT
CATCHBASIN NO.8
Grate Elev. 739.61
℄ Elev. 15" (NE) 735.32
℄ Elev. 15" (SW) 735.21
℄ Elev. 6" (S) 735.94
℄ Elev. 6" (W) 735.94

D-4
Sta. 307+59.89, 0.0' CL
CATCHBASIN NO.8
Grate Elev. 740.02
℄ Elev. 15" (NE) 735.40

SEE SHEET 103
FOR ADDITIONAL QUANTITIES



PLAN VIEW
STA. 299+07 TO STA. 309+07

FRA-33-20.69

102
230

CALCULATED RDK / JW FAY / MG
CHECKED MATT

HORIZONTAL SCALE IN FEET
0 20 40 80

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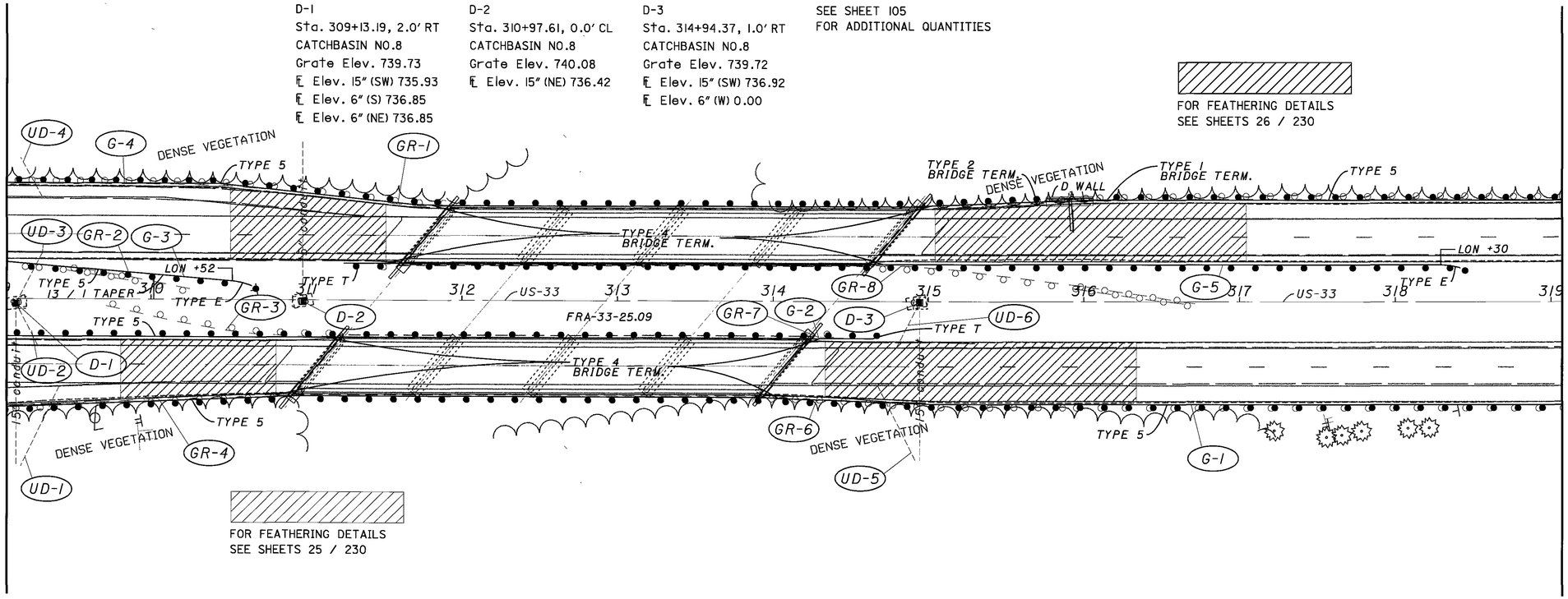
LOCATION				QUANTITIES													REMARKS
				202	202	202	202	202	202	603	603	604	604				
REF NO.	STATION FROM	STATION TO	SIDE	CATCH BASIN REMOVED	PIPE REMOVED, 24" AND UNDER	GUARDRAIL REMOVED	ANCHOR ASSEMBLY REMOVED TYPE T	ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE B-98	BRIDGE TERMINAL ASSEMBLY REMOVED	6" CONDUIT TYPE F	15" CONDUIT TYPE C	CATCH BASIN NO. 8	PRECAST REINFD CONCRETE OUTLET				
				EACH	FT.	FT.	EACH	EACH	EACH	FT.	FT.	EACH	EACH				
UD-1	303+31		RT		10					10			1				
D-1	299+90		RT	1	10						10	1					
D-3	303+35		RT	1	20						20	1					
UD-2	303+35		RT		10					10							
UD-6	303+35		RT		10					10							
UD-4	303+35		LT		10					10			1				
D-2	303+35		LT	1	10						10	1					
UD-3	303+35		LT		10					10							
UD-5	303+38		RT		10					10			1				
D-4	307+60		CL	1	10						10	1					
GR-1	303+57	307+86	LT			439			1								TIE INTO EX. GUARDRAIL
GR-2	303+52	307+86	RT			427			1								TIE INTO EX. GUARDRAIL
GR-3	305+48	307+88	LT			227	1		1								
GR-4	305+83	307+82	RT			158		1	1								
GR-5	308+86	309+07	LT			21			1								
GR-6	308+86	309+07	LT			21			1								
GR-7	308+91	309+07	RT				1		1								
GR-8	308+93	309+07	RT			14			1								
TOTALS CARRIED TO SUB SUMMARY				4	110	1,307	2	1	8	60	50	4	3				

LOCATION				QUANTITIES													REMARKS
				606	606	606	606	606	606	622							
REF NO.	STATION FROM	STATION TO	SIDE	GUARDRAIL TYPE 5	GUARDRAIL TYPE 5 WITH TUBULAR BACK UP A.P.P.	ANCHOR ASSEMBLY TYPE E-98	BRIDGE TERM. ASSEMBLY TYPE 1	BRIDGE TERM. ASSEMBLY TYPE 2	BRIDGE TERM. ASSEMBLY TYPE 4	CONCRETE BARRIER TYPE D							
				FT.	EACH	EACH	EACH	EACH	EACH	FT.							
G-1	303+52	309+07	RT OUT	462.5	25				2								
G-2	305+00	309+07	RT IN	275.0	25	1			2								
G-3	305+61	309+07	LT IN	237.5	25	1	1		2	15							
G-4	303+57	309+07	LT OUT	425	25		1	1	2	30							
TOTALS CARRIED TO SUB SUMMARY				1,400	100	2	2	1	8	45							

CALCULATED: RDK / LW PAY / HG
CHECKED: MATT

QUANTITIES FRA. US-33
STA. 299+07 TO STA. 309+07

FRA-33-20.69



LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 CATCH BASIN REMOVED (EACH)	202 PIPE REMOVED, 24" AND UNDER (FT.)	202 GUARDRAIL REMOVED (FT.)	202 GUARDRAIL REMOVED BARRIER DESIGN (FT.)	202 ANCHOR ASSEMBLY REMOVED TYPE T (EACH)	202 ANCHOR ASSEMBLY REMOVED BARRIER DESIGN (EACH)	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE B-98 (EACH)	202 BRIDGE TERMINAL ASSEMBLY REMOVED (EACH)	603 6" CONDUIT TYPE F (FT.)	603 15" CONDUIT TYPE C (FT.)	604 CATCH BASIN NO. 8 (EACH)	604 PRECAST REINFD CONCRETE OUTLET (EACH)	REMARKS
D-1	309+13		RT	1	10								10	1		
UD-3	309+13		LT		10							10				
UD-2	309+13		RT		10							10				
UD-4	309+16		LT		10							10			1	
UD-1	309+16		RT		10							10			1	
D-2	310+98		CL	1	10								10	1		
GR-1	309+07	311+90	LT OUT			283					1					
GR-2	309+07	310+26	LT IN			45	50		1							
GR-3	309+70	311+19	RT IN			113				1	1					
GR-4	309+07	310+80	RT OUT			173					1					
GR-5	311+45	311+54	LT IN					1								
GR-6	313+94	319+07	RT OUT			513					1					
UD-5	314+91		RT		10							10			1	
D-3	314+94		CL	1	10								10	1		
UD-6	314+94		CL		10							10				
GR-7	314+30	314+39	RT IN					1								
GR-8	314+66	316+71	LT IN			125	50		1		1					
GR-9	315+03	319+07	LT OUT			404					1					
TOTALS CARRIED TO SUB SUMMARY				3	90	1,656	100	2	2	1	6	60	30	3	3	

HORIZONTAL SCALE IN FEET 0 20 40 80

CALCULATED RDK / LW FAY / MG CHECKED MATT

PLAN VIEW FRA. US-33
STA. 309+07 TO STA. 319+07

FRA-33-20.69

104
230

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LOCATION				QUANTITIES													REMARKS
REF NO.	STATION FROM	STATION TO	SIDE	606 GUARDRAIL TYPE 5 FT.	606 GUARDRAIL TYPE 5 WITH TUBULAR BACK UP A.P.P. EACH	606 ANCHOR ASSEMBLY TYPE T EACH	606 ANCHOR ASSEMBLY TYPE B-98 EACH	606 BRIDGE TERM. ASSEMBLY TYPE 1 EACH	606 BRIDGE TERM. ASSEMBLY TYPE 2 EACH	606 BRIDGE TERM. ASSEMBLY TYPE 4 EACH	622 CONCRETE BARRIER TYPE D FT.						
G-1	309+07	319+07	RT OUT	700	25					2							DEDUCT 300 FT FOR STRUCTURE
G-2	309+07	314+64	RT IN	237.5	25	1				2							
G-3	309+07	310+65	LT IN	125			1			1							
G-4	309+07	319+07	LT OUT	675	25			1	1	2	30						
G-5	311+24	319+07	LT IN	462.5	25	1	1			1							
TOTALS CARRIED TO SUB SUMMARY				2,200	100	2	2	1	1	8	30						

LOCATION				QUANTITIES													REMARKS
TOTALS CARRIED TO SUB SUMMARY																	

QUANTITIES FRA. US-33
STA. 309+07 TO STA. 319+07

FRA-33-20.69

105
230

CALCULATED RJK / LW PAY / HG
CHECKED MaTT

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D-1
Sta. 322+92.15, 13.5' LT
CATCHBASIN NO.8
Grate Elev. 739.71
℄ Elev. 12" (SW) 735.79
℄ Elev. 12" (SE) 735.75

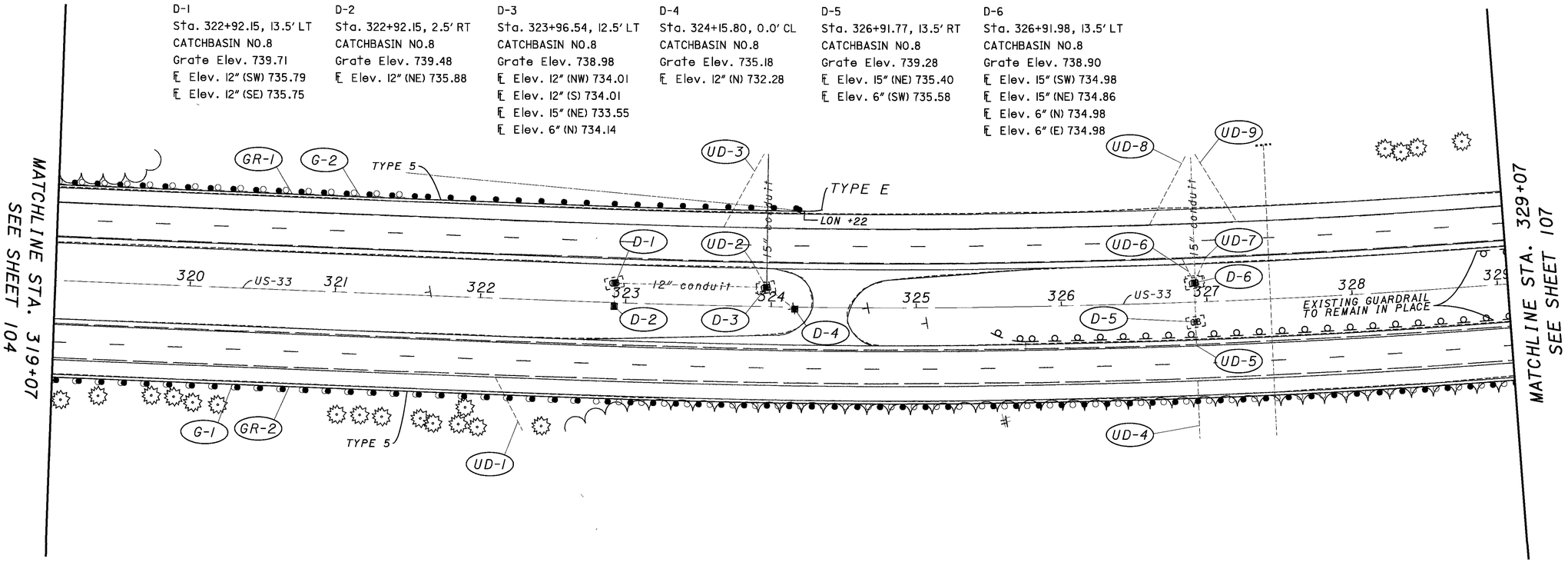
D-2
Sta. 322+92.15, 2.5' RT
CATCHBASIN NO.8
Grate Elev. 739.48
℄ Elev. 12" (NE) 735.88

D-3
Sta. 323+96.54, 12.5' LT
CATCHBASIN NO.8
Grate Elev. 738.98
℄ Elev. 12" (NW) 734.01
℄ Elev. 12" (S) 734.01
℄ Elev. 15" (NE) 733.55
℄ Elev. 6" (N) 734.14

D-4
Sta. 324+15.80, 0.0' CL
CATCHBASIN NO.8
Grate Elev. 735.18
℄ Elev. 12" (N) 732.28

D-5
Sta. 326+91.77, 13.5' RT
CATCHBASIN NO.8
Grate Elev. 739.28
℄ Elev. 15" (NE) 735.40
℄ Elev. 6" (SW) 735.58

D-6
Sta. 326+91.98, 13.5' LT
CATCHBASIN NO.8
Grate Elev. 738.90
℄ Elev. 15" (SW) 734.98
℄ Elev. 15" (NE) 734.86
℄ Elev. 6" (N) 734.98
℄ Elev. 6" (E) 734.98



LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 CATCH BASIN REMOVED (EACH)	202 PIPE REMOVED, 24" AND UNDER (FT.)	202 GUARDRAIL REMOVED (FT.)	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE E-98 (EACH)	603 6" CONDUIT TYPE F (FT.)	603 12" CONDUIT TYPE C (FT.)	603 15" CONDUIT TYPE C (FT.)	604 CATCH BASIN NO. 8 (EACH)	604 PRECAST REINFD CONCRETE OUTLET (EACH)	606 GUARDRAIL TYPE 5 (FT.)	606 ANCHOR ASSEMBLY TYPE E-98 (EACH)	REMARKS
UD-1	322+32		RT		10			10				1			
D-1	322+92		LT	1	20				20		1				
D-2	322+92		RT		10				10		1				
UD-3	323+94		LT		10			10				1			
D-3	323+97		LT	1	30				20	10	1				
UD-2	323+97		LT		10			10							
GR-1	319+07	321+46	LT			196	1								
GR-2	319+07	329+07	RT			1000									
D-4	324+16		CL	1	10				10		1				
UD-8	326+90		LT		10			10				1			
D-6	326+92		LT	1	20					20	1				
UD-6	326+92		LT		10			10							
UD-7	326+92		LT		10			10							
D-5	326+92		RT	1	10					10	1				
UD-5	326+92		RT		10			10							
UD-4	326+92		RT		10			10				1			
UD-9	326+96		LT		10			10				1			
G-1	319+07	329+07	RT OUT										1,000		
G-2	319+07	324+35	LT OUT										487.5	1	
TOTALS CARRIED TO SUB SUMMARY				5	190	1,196	1	90	60	40	6	5	1,487.5	1	

HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED RDK / LW
PAY / MG
CHECKED MATT

PLAN VIEW FRA. US-33
STA. 319+07 TO STA. 329+07

FRA-33-20.69

106
230

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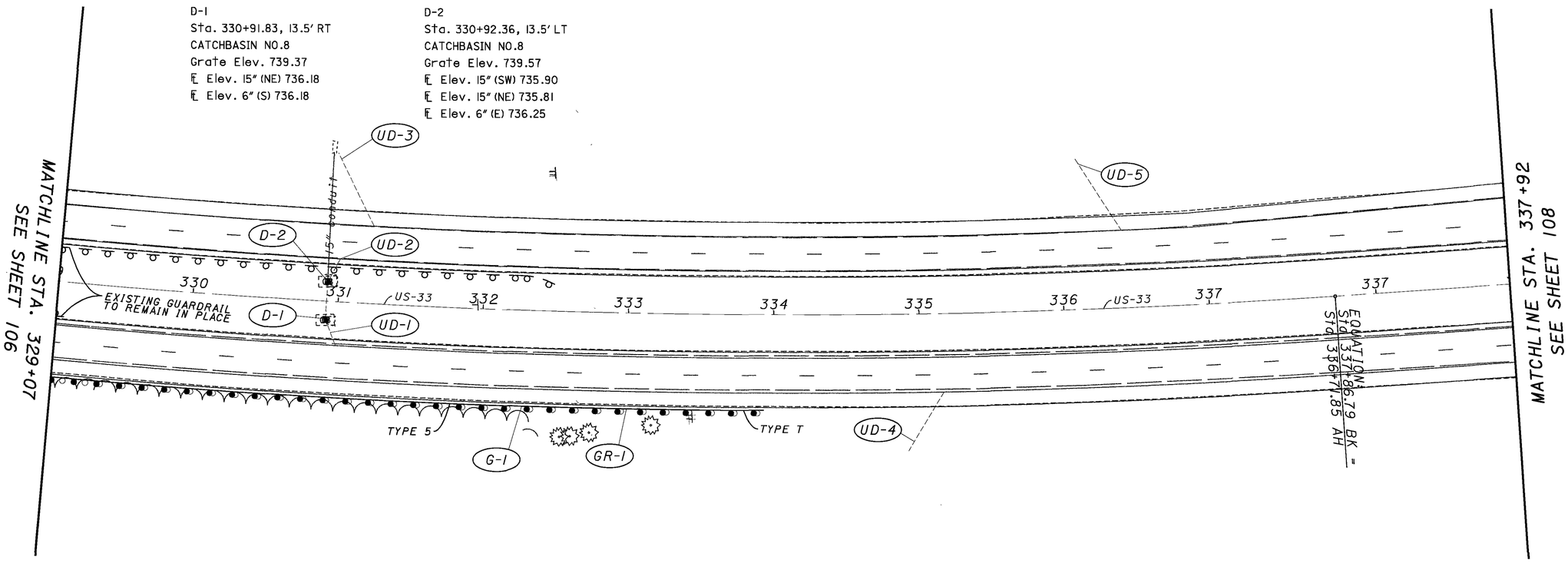


LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 CATCH BASIN REMOVED EACH	202 PIPE REMOVED, 24" AND UNDER FT.	202 GUARDRAIL REMOVED FT.	202 ANCHOR ASSEMBLY REMOVED TYPE T EACH	603 6" CONDUIT TYPE F FT.	603 15" CONDUIT TYPE C FT.	604 CATCH BASIN NO. 8 EACH	604 PRECAST REINFD CONCRETE OUTLET EACH	606 GUARDRAIL TYPE 5 FT.	606 ANCHOR ASSEMBLY TYPE T EACH	REMARKS
D-1	330+92		RT	1	10				10	1				
UD-1	330+92		RT		10			10						
D-2	330+92		LT	1	20				20	1				
UD-2	330+92		LT		10			10						
UD-3	330+95		LT		10			10			1			
GR-1	329+07	333+93	RT			487	1							
UD-4	334+92		RT		10			10			1			
UD-5	336+11		LT		10			10			1			
G-1	329+07	333+93	RT OUT									475	1	
TOTALS CARRIED TO SUB SUMMARY				2	80	487	1	50	30	2	3	475	1	

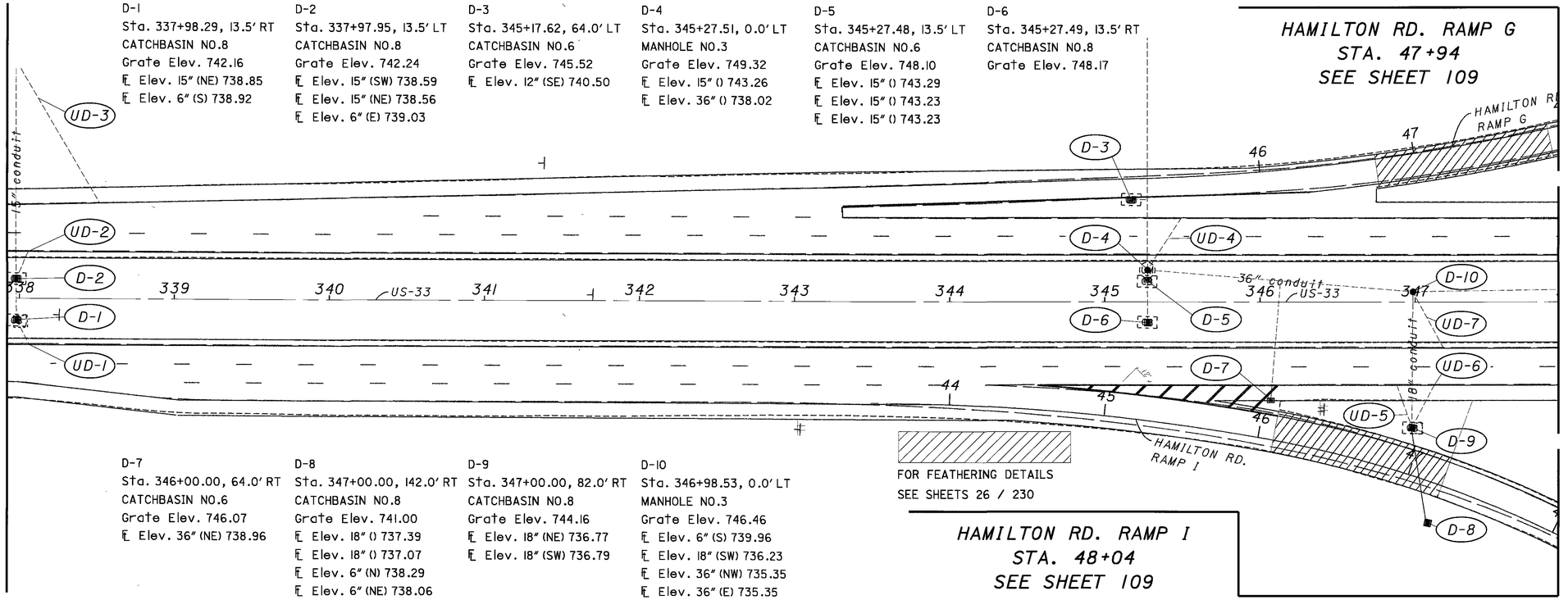
HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED RDK / LJK FAY / HG
CHECKED MATT

PLAN VIEW FRA. US-33
STA. 329+07 TO STA. 337+92

FRA-33-20.69

107
230



LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 CATCH BASIN REMOVED (EACH)	202 MANHOLE REMOVED (EACH)	202 PIPE REMOVED, 24" AND UNDER (FT.)	202 PIPE REMOVED, OVER 24" (FT.)	603 6" CONDUIT TYPE F (FT.)	603 12" CONDUIT TYPE C (FT.)	603 15" CONDUIT TYPE C (FT.)	603 18" CONDUIT TYPE C (FT.)	603 36" CONDUIT TYPE C (FT.)	604 CATCH BASIN NO. 6 (EACH)	604 CATCH BASIN NO. 8 (EACH)	604 MANHOLE NO. 3 (EACH)	604 PRECAST REINFD CONCRETE OUTLET (EACH)	REMARKS
UD-2	337+98		LT			10		10									
D-2	337+98		LT	1		20				20				1			
D-1	337+98		RT	1		10				10				1			
UD-1	337+98		RT			10		10									
UD-3	337+98		LT			10		10									
D-3	345+18		LT	1		10			10				1			1	
D-5	345+27		LT	1		20	10			20		10	1				
D-6	345+27		RT	1			10					10		1			
D-4	345+28		LT		1	10	20			10		20			1		
UD-4	345+28		LT			10		10									
D-10	346+99		LT		1	10	20				10	20			1		
UD-7	346+99		LT			10		10									
D-7	346+00		RT	1			10					10	1				
D-8	347+00		RT	1		40		20			20			1			
D-9	347+00		RT	1		20					20			1			
UD-5	347+00		RT			10		10									
UD-6	347+00		RT			10		10									
TOTALS CARRIED TO SUB SUMMARY				8	2	210	70	90	10	60	50	70	3	5	2	1	

HORIZONTAL SCALE IN FEET
0 20 40 60

CALCULATED RSK / LW PAY / MG
CHECKED MATT

PLAN VIEW FRA. US-33
STA. 337+92 TO STA. 347+92

FRA-33-20.69

108
230

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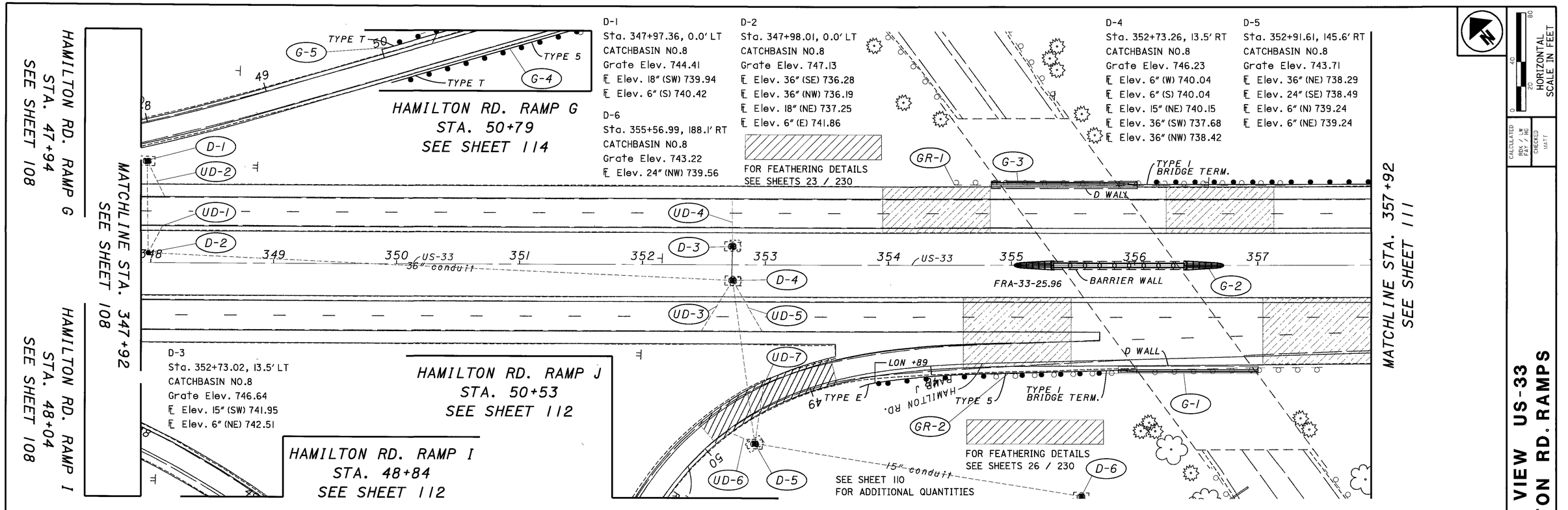


PLAN VIEW US-33 HAMILTON RD. RAMPS

FRA-33-20.69

109
230

LOCATION

REF NO.	STATION FROM	STATION TO	SIDE
D-1	347+97		LT
UD-2	347+97		LT
D-2	347+98		LT
UD-1	347+98		LT
D-3	352+73		LT
UD-4	352+73		LT
D-4	352+73		RT
UD-3	352+73		RT
UD-5	352+73		RT
UD-6	352+92		RT
D-5	352+92		RT
UD-7	352+92		RT
D-6	355+57		RT
GR-1	354+54	357+23	LT
GR-2	354+83	357+53	RT
TOTALS CARRIED TO SUB SUMMARY			

QUANTITIES

REF NO.	202 CATCH BASIN REMOVED EACH	202 MANHOLE REMOVED EACH	202 PIPE REMOVED, 24" AND UNDER FT.	202 PIPE REMOVED, OVER 24" FT.	202 GUARDRAIL REMOVED FT.	202 ANCHOR ASSEMBLY REMOVED TYPE A EACH	202 ANCHOR ASSEMBLY REMOVED TYPE T EACH	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE E-98 EACH	603 6" CONDUIT TYPE F FT.	603 15" CONDUIT TYPE C FT.	603 18" CONDUIT TYPE C FT.	603 24" CONDUIT TYPE C FT.	603 36" CONDUIT TYPE C FT.
D-1	1		10								10		
UD-2			10						10				
D-2		1	10	20							10		20
UD-1			10						10				
D-3	1		10							10			
UD-4			10						10				
D-4	1		10	20						10			20
UD-3			10						10				
UD-5			10						10				
UD-6			10						10				
D-5	1		10	10								10	10
UD-7			10						10				
D-6	1		10									10	
GR-1					212.5		1	1					
GR-2					212.5	1	1						
TOTALS CARRIED TO SUB SUMMARY	5	1	130	50	425	1	2	1	70	20	20	20	50

REMARKS

LOCATION				QUANTITIES												REMARKS
REF NO.	STATION FROM	STATION TO	SIDE	606 GUARDRAIL TYPE 5 FT.	606 ANCHOR ASSEMBLY TYPE T EACH	606 ANCHOR ASSEMBLY TYPE E-98 EACH	606 BRIDGE TERM. ASSEMBLY TYPE I EACH	606 IMPACT ATTN. TYPE 2-98 BI-DIRECT. (69") EACH	622 CONCRETE BARRIER TYPE D FT.	622 CONCRETE BARRIER SINGLE SLOPE TYPE A A.P.P. FT.						
G-1	353+77	357+00	RT OUT	175		1	1		115							
G-3	354+84	357+92	LT OUT	150		1	1		120							
G-4	50+00	50+79	RT	62.5	1											HAM. RD RAMP G
G-5	50+00	50+79	LT	62.5	1											HAM. RD RAMP G
G-2	354+92	356+83	MED					2		125						US-33 MEDIAN SEE SHEETS 117 AND 118 FOR DETAILS
TOTALS CARRIED TO SUB SUMMARY				450	2	2	2	2	235	125						

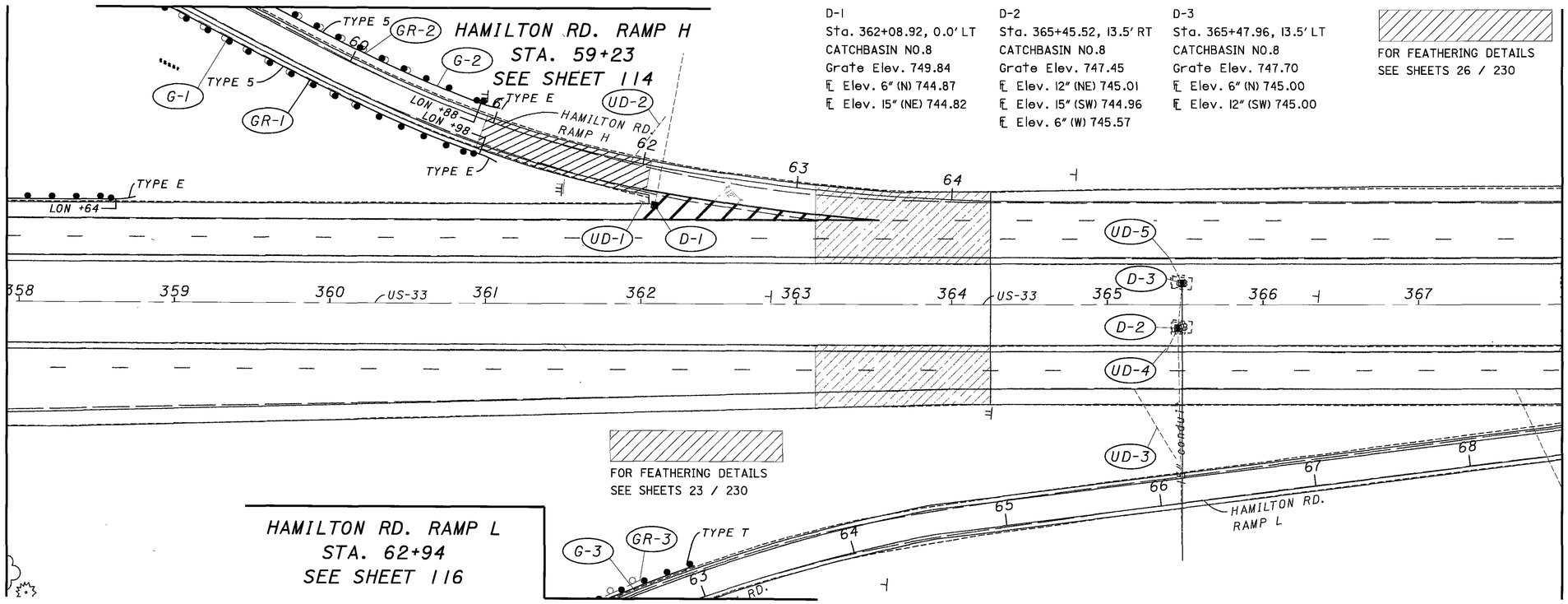
LOCATION				QUANTITIES												REMARKS
REF NO.	STATION FROM	STATION TO	SIDE	604 CATCH BASIN NO. 8 EACH												
D-1	347+97		LT	1												
D-2	347+98		LT	1												
D-3	352+73		LT	1												
D-4	352+73		RT	1												
D-5	352+92		RT	1												
D-6	355+57		RT	1												
TOTALS CARRIED TO SUB SUMMARY				6												

CALCULATED RDK / LW PAY / MG
CHECKED MATT

QUANTITIES FRA. US-33
HAMILTON RD. RAMPS

FRA-33-20.69

110
230



LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 CATCH BASIN REMOVED (EACH)	202 PIPE REMOVED, 24" AND UNDER (FT.)	202 GUARDRAIL REMOVED (FT.)	202 ANCHOR ASSEMBLY REMOVED TYPE T (EACH)	202 ANCHOR ASSEMBLY REMOVED FOR REUSE TYPE E-98 (EACH)	603 6" CONDUIT TYPE F (FT.)	603 12" CONDUIT TYPE C (FT.)	603 15" CONDUIT TYPE C (FT.)	604 CATCH BASIN NO. 8 (EACH)	604 PRECAST REINFD CONCRETE OUTLET (EACH)	606 GUARDRAIL TYPE 5 (FT.)	606 ANCHOR ASSEMBLY TYPE T (EACH)	606 ANCHOR ASSEMBLY TYPE E-98 (EACH)	REMARKS
D-1	362+09		LT	1	10						10	1					
UD-1	362+09		LT		10				10								
UD-2	62+10		LT		10				10				1				HAM. RD RAMP H
UD-3	365+44		RT		10				10				1				
D-2	365+46		RT	1	20					10	10	1					
UD-4	365+46		RT		10				10								
D-3	365+48		LT	1	10					10		1					
UD-5	365+48		LT		10				10								
GR-2	59+41	60+40	LT			243		1									HAM. RD RAMP H
GR-1	58+82	60+19	RT			212		1									HAM. RD RAMP H
GR-3	62+37	62+65	LT			16	1										HAM. RD RAMP L
G-1	59+23	61+10	RT											150		1	HAM. RD RAMP H
G-2	59+23	61+00	LT											137.5		1	HAM. RD RAMP H
G-3	62+94	63+00	LT												1		HAM. RD RAMP L
G-4	357+92	358+75	LT OUT											50		1	
TOTALS CARRIED TO SUB SUMMARY				3	90	471	1	2	50	20	20	3	2	337.5	1	3	

HORIZONTAL SCALE IN FEET 0 20 40 60

CALCULATED RBK / LM FAY / HG CHECKED MAIT

PLAN VIEW US-33 HAMILTON RD. RAMPS

FRA-33-20.69

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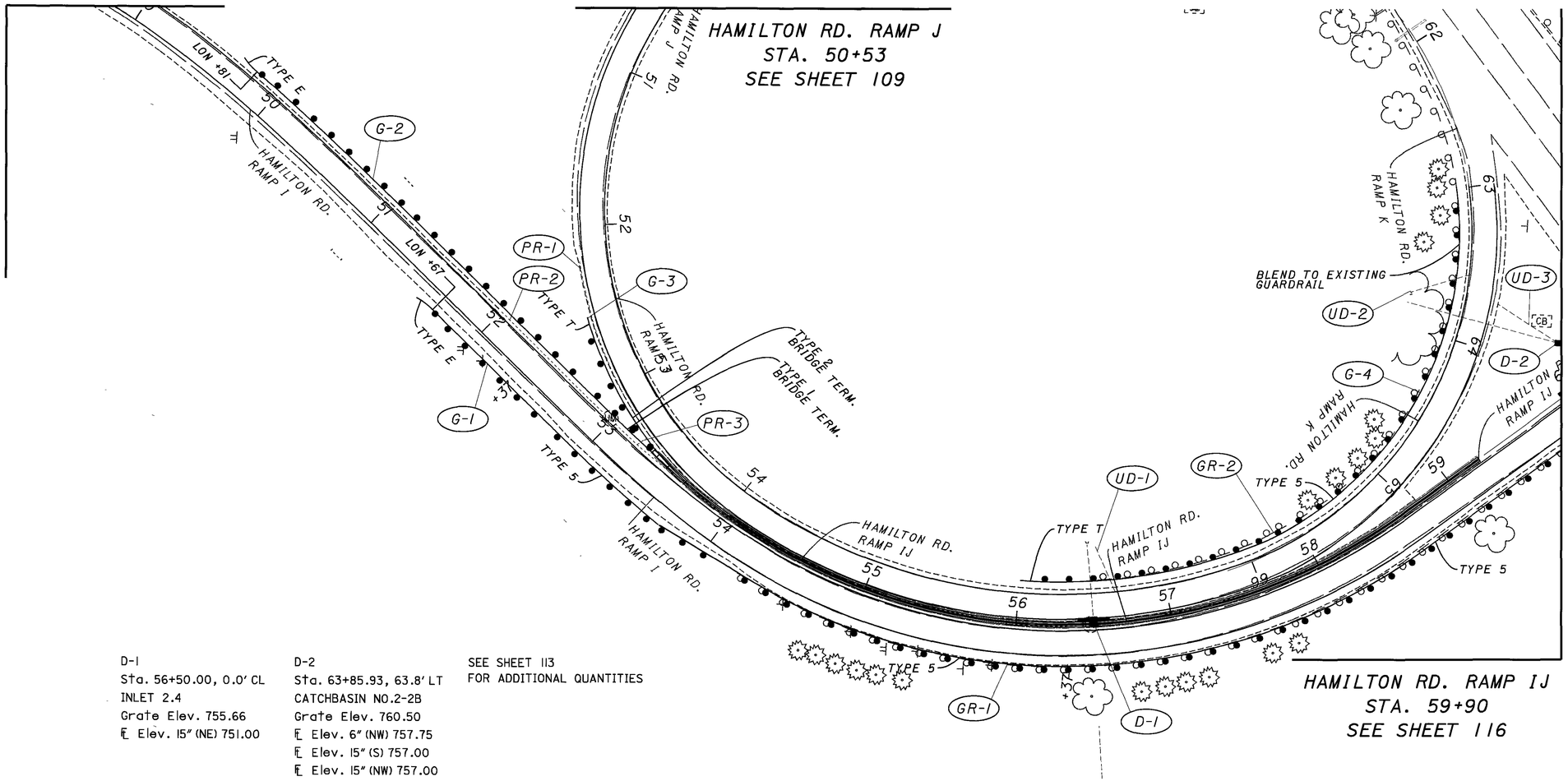

D-1
Sta. 56+50.00, 0.0' CL
INLET 2.4
Grate Elev. 755.66
℄ Elev. 15" (NE) 751.00

D-2
Sta. 63+85.93, 63.8' LT
CATCHBASIN NO.2-2B
Grate Elev. 760.50
℄ Elev. 6" (NW) 757.75
℄ Elev. 15" (S) 757.00
℄ Elev. 15" (NW) 757.00

SEE SHEET 113
FOR ADDITIONAL QUANTITIES

PLAN VIEW
HAMILTON RD. RAMPS

HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED BJK / LW
PAT / HG
CHECKED MATT

FRA-33-20.69

LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	202 CATCH BASIN REMOVED EACH	202 PIPE REMOVED, 24" AND UNDER FT.	202 GUARDRAIL REMOVED FT.	202 ANCHOR ASSEMBLY REMOVED TYPE A EACH	202 ANCHOR ASSEMBLY REMOVED TYPE T EACH	202 CONCRETE MEDIAN REMOVED SQ. YD.	202 CURB REMOVED FT.	603 6" CONDUIT TYPE F FT.	603 15" CONDUIT TYPE C FT.	604 CATCH BASIN NO. 2-2B EACH	604 CATCH BASIN NO. 2-6 EACH	604 PRECAST REINFD CONCRETE OUTLET EACH	301 ASPHALT CONCRETE BASE PG64-28 (9"DEPTH) CU. YD.	REMARKS
GR-1	54+24	59+70	RT			282	1										HAM. RD RAMP I / RAMP IJ
PR-1	52+23	58+75	RT							668						19	HAM. RD RAMP J
PR-2	52+00	58+75	LT							673						19	HAM. RD RAMP I / RAMP IJ
PR-3	53+22	58+75	LT						150							37	HAM. RD RAMP I / RAMP IJ
GR-2	56+45	62+99	LT			383		1									TIE INTO EX. GUARDRAIL
D-1	56+50		CL	1	10							10		1			HAM. RD RAMP I / RAMP IJ
UD-1	56+53		LT		10						10				1		HAM. RD RAMP I / RAMP IJ
UD-2	63+75		RT		10						10				1		HAM. RD RAMP K
D-2	63+86		LT	1	20							20	1				
UD-3	63+86		LT		10						10						
TOTALS CARRIED TO SUB SUMMARY				2	60	665	1	1	150	1,341	30	30	1	1	2	74	

LOCATION / QUANTITIES / REMARKS

REF NO.	STATION FROM	STATION TO	SIDE	606 GUARDRAIL TYPE 5 FT.	606 ANCHOR ASSEMBLY TYPE T EACH	606 ANCHOR ASSEMBLY TYPE E-98 EACH	606 BRIDGE TERM. ASSEMBLY TYPE 1 EACH	606 BRIDGE TERM. ASSEMBLY TYPE 2 FT.	622 CONCRETE BARRIER SINGLE SLOPE TYPE A FT.	REMARKS
G-1	51+54	60+31	RT	837.5		1				HAM. RD RAMP I / RAMP IJ
G-2	49+70	59+24	LT	325		1	1		590	HAM. RD RAMP I / RAMP IJ
G-3	52+55	53+42	RT	75	1			1		HAM. RD RAMP J
G-4	62+99	66+17	RT	300	1					HAM. RD RAMP K
TOTALS CARRIED TO SUB SUMMARY				1,537.5	2	2	1	1	590	

CALCULATED: RDK / LW FAY / MG
CHECKED: MATT

PLAN VIEW
HAMILTON RD. RAMPS

FRA-33-20.69

113
230

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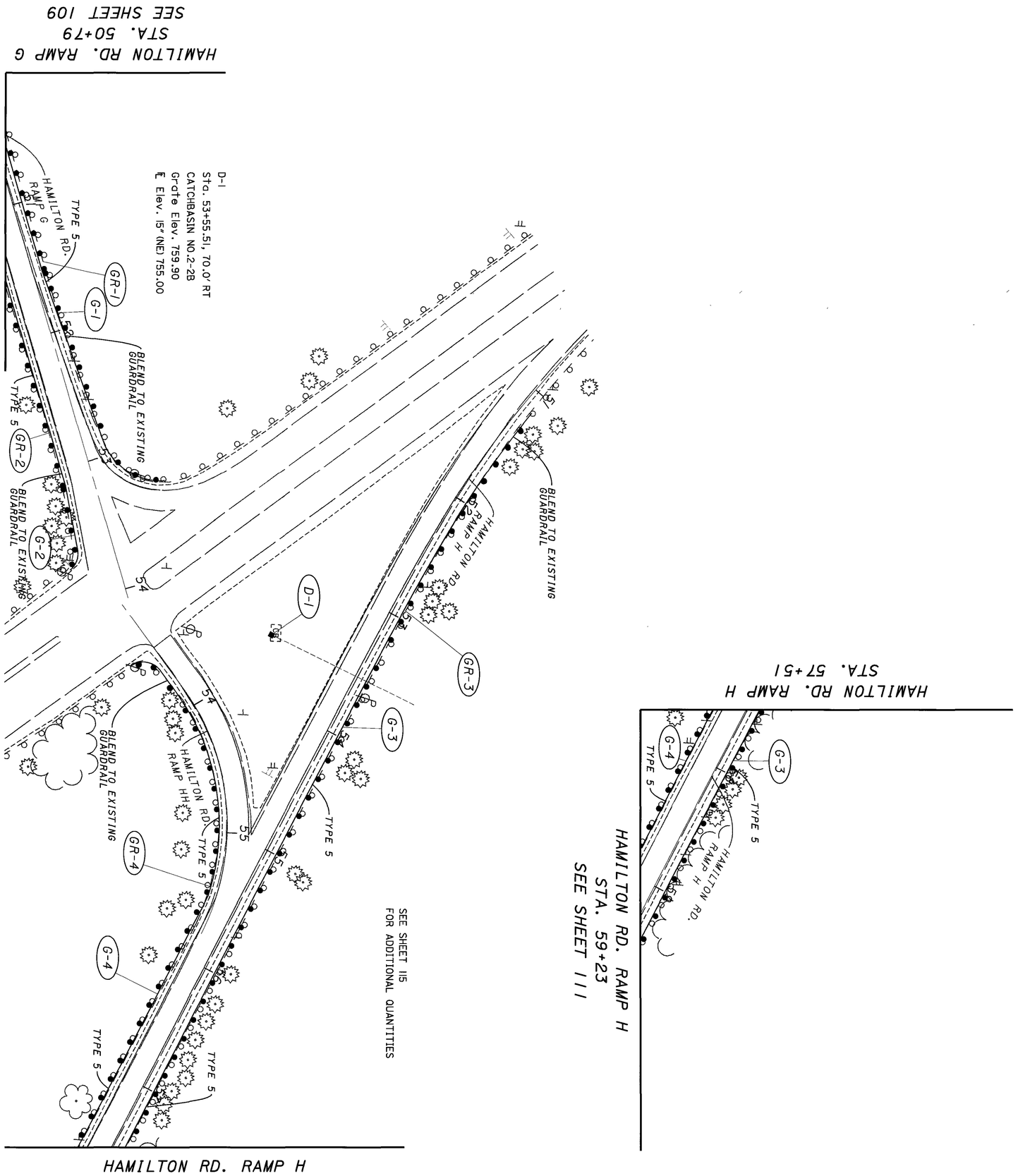


PLAN VIEW
HAMILTON RD. RAMPS

CALCULATED RDK / LW FAY / HG
CHECKED MATT

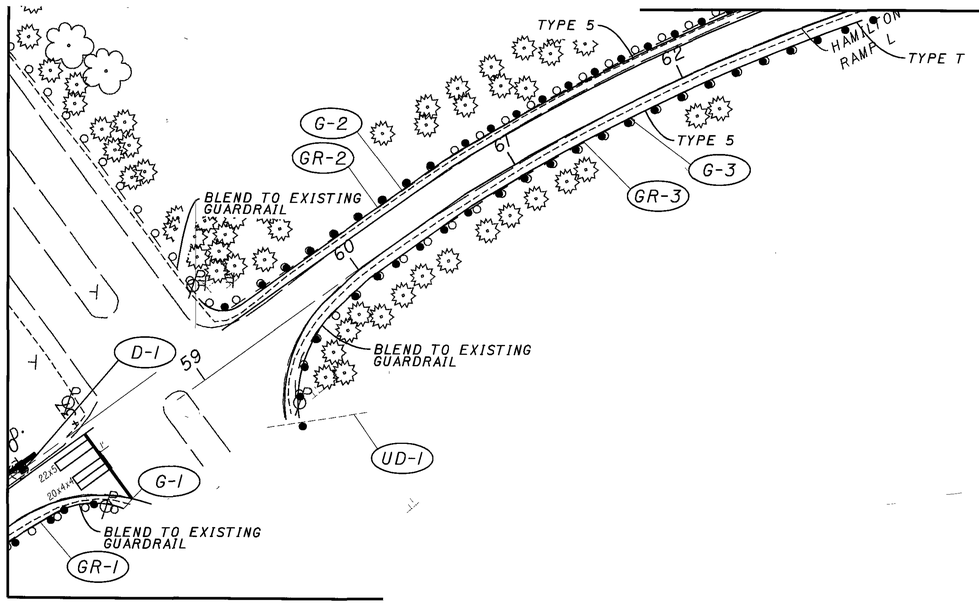
0 20 40 80
HORIZONTAL SCALE IN FEET

LOCATION				QUANTITIES													REMARKS
				202	202	202	202	603	604	606							
REF NO.	STATION	STATION	SIDE	CATCH BASIN REMOVED	PIPE REMOVED, 24" AND UNDER	GUARDRAIL REMOVED	ANCHOR ASSEMBLY REMOVED TYPE T	15" CONDUIT TYPE C	CATCH BASIN NO. 2-2B	GUARDRAIL TYPE 5							
	FROM	TO		EACH	FT.	FT.	EACH	FT.	EACH	FT.							
GR-1	50+34	53+30	LT			258	1										HAM. RD. RAMP G
GR-2	51+57	53+91	RT			303	1										HAM. RD. RAMP G
GR-4	54+25	58+82	RT			537											HAM. RD. RAMP HH / H
GR-3	50+43	59+41	LT			907											HAM. RD. RAMP H
D-1	53+56		RT	1	10			10	1								HAM. RD. RAMP H
G-1	50+79	53+30	LT							250							HAM. RD. RAMP G
G-2	50+79	53+75	RT							300							HAM. RD. RAMP G
G-3	51+15	59+23	LT							812.5							HAM. RD. RAMP H
G-4	54+25	59+23	RT							500							HAM. RD. RAMP HH / H
TOTALS CARRIED TO SUB SUMMARY				1	10	2,005	2	10	1	1,862.5							

CALCULATED RDK / LM PAY / HG
CHECKED MATT

PLAN VIEW
HAMILTON RD. RAMPS

FRA-33-20.69



HAMILTON RD. RAMP IJ
STA. 59+90
SEE SHEET 112

HAMILTON RD. RAMP L
STA. 62+94
SEE SHEET 111

D-1
Sta. 60+00.00, 0.0' CL
CATCHBASIN NO.2-6
Grate Elev. 764.78
℄ Elev. 15" (N) 759.00

HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED RDK / LM
CHECKED MJTT

PLAN VIEW
HAMILTON RD. RAMPS

FRA-33-20.69

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LOCATION				QUANTITIES													REMARKS
				202	202	202	202	603	603	604	604	606	606				
REF NO.	STATION FROM	STATION TO	SIDE	CATCH BASIN REMOVED	PIPE REMOVED, 24" AND UNDER	GUARDRAIL REMOVED	ANCHOR ASSEMBLY REMOVED TYPE T	6" CONDUIT TYPE F	15" CONDUIT TYPE C	CATCH BASIN NO. 2-6	PRECAST REINFD CONCRETE OUTLET	GUARDRAIL TYPE 5	ANCHOR ASSEMBLY TYPE T				
				EACH	FT.	FT.	EACH	FT.	FT.	EACH	EACH	FT.	EACH				
GR-1	59+70	60+31	RT			67											
GR-2	59+22	62+37	LT			400											
GR-3	59+32	62+64	RT			318	2										
UD-1	59+61		RT		10			10			1						
D-1	60+00		LT	1	10				10	1							
G-1	59+70	60+31	RT									62.5					
G-2	59+22	62+94	LT									375					
G-3	59+29	62+94	RT									350	1				
TOTALS CARRIED TO SUB SUMMARY				1	20	785	2	10	10	1	1	787.5	1				

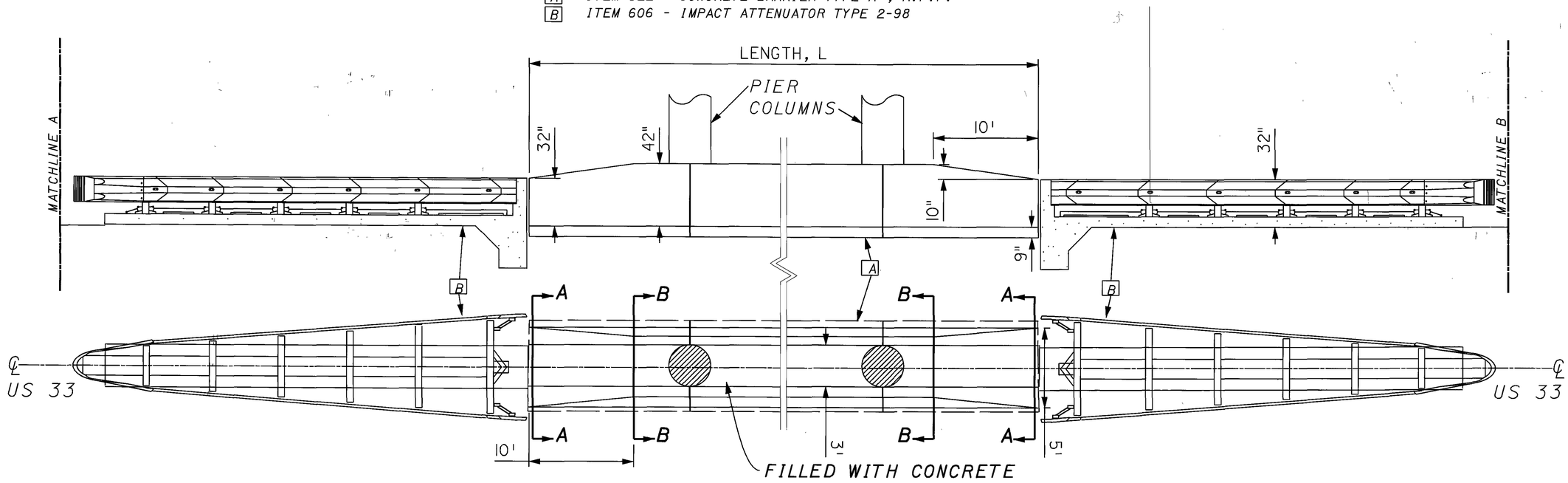
NOT TO SCALE

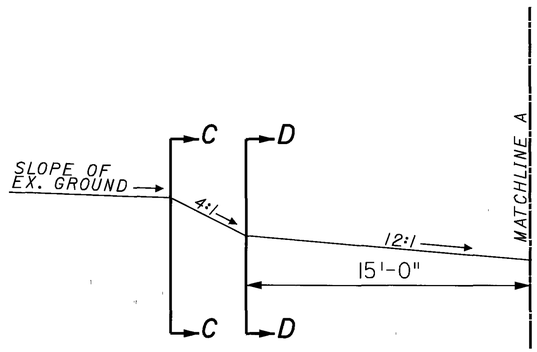
CALCULATED RDK / LW PAY / MG
CHECKED MATT

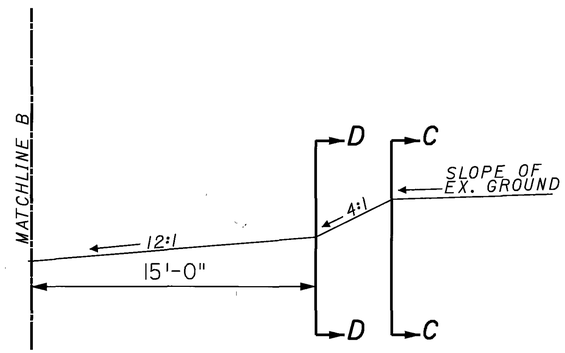
GUARDRAIL DETAILS

LEGEND

A ITEM 622 - CONCRETE BARRIER TYPE A , A.P.P.
B ITEM 606 - IMPACT ATTENUATOR TYPE 2-98







STATION FROM	STATION TO	LENGTH, L FT.	LOCATION US 33 AT
141+57	144+98	215	I-70
199+73	202+09	110	REFUGEE RD
281+92	283+88	70	WATKINS RD
292+09	295+65	230	I-270
354+62	357+13	125	HAMILTON RD

FOR MORE INFORMATION INVOLVING CONCRETE BARRIER SEE STANDARD DRAWINGS, RM-4.3 AND RM-4.4

SEE PLAN VIEW SHEETS 61 THROUGH FOR 116 GUARDRAIL QUANTITIES.

SEE SHEET 29 FOR EXCAVATION QUANTITIES.

SEE SHEET 117 FOR GUARDRAIL PLAN & PROFILE VIEWS

SEE SHEET 118 FOR GUARDRAIL SECTION VIEWS

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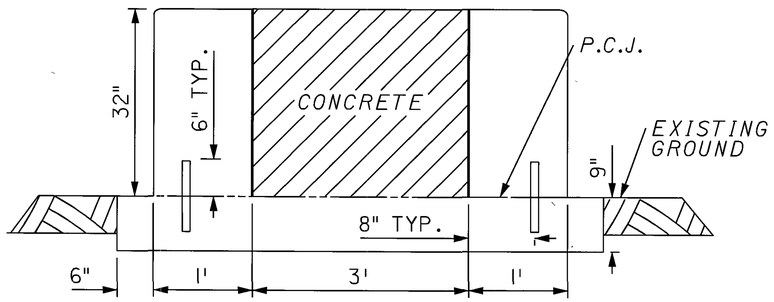
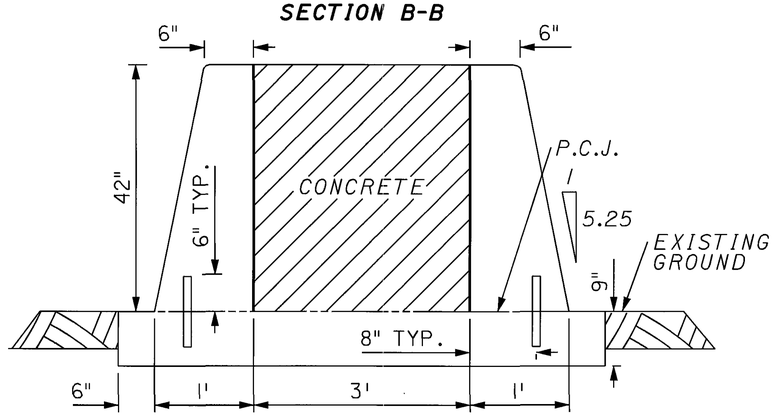
NOT TO SCALE

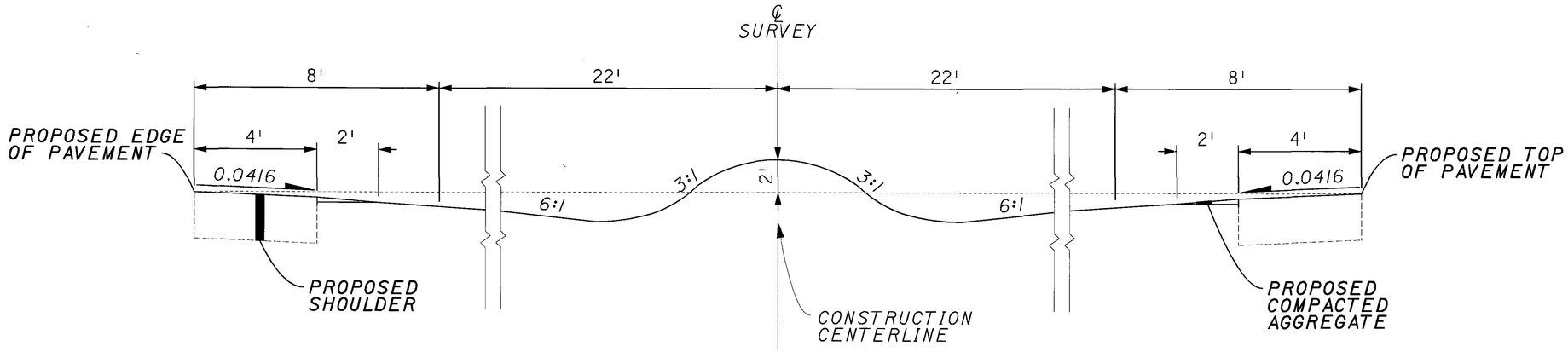
SECTION A-A



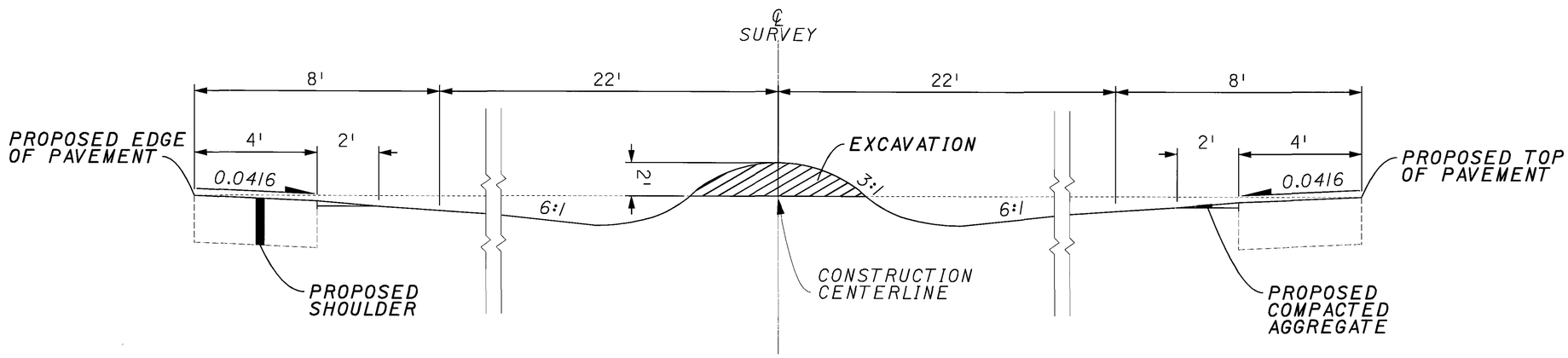
SECTION B-B



SECTION C-C



SECTION D-D



FOR MORE INFORMATION INVOLVING CONCRETE BARRIER SEE STANDARD DRAWINGS, RM-4.3 AND RM-4.4

SEE SHEET 117 FOR GUARDRAIL PLAN & PROFILE VIEWS

SEE SHEET 29 FOR EXCAVATION QUANTITIES.

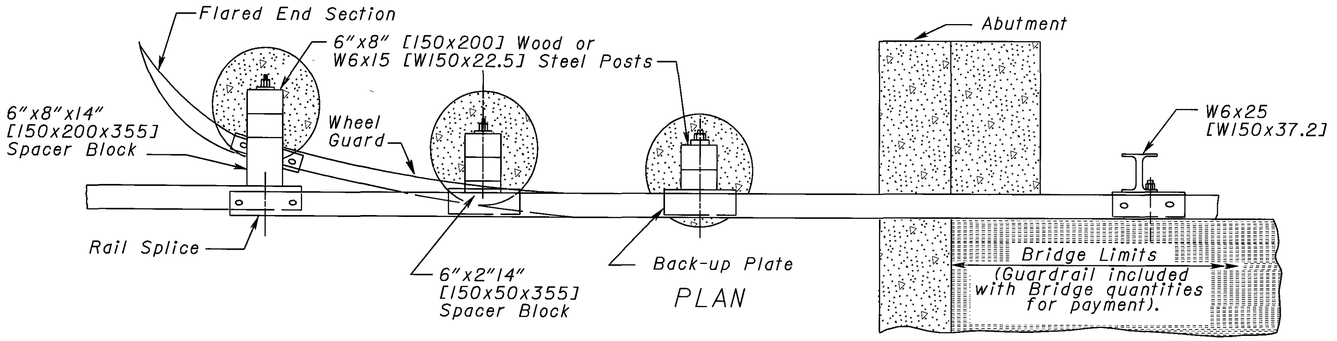
SEE PLAN VIEW SHEETS 61 THROUGH FOR 116 GUARDRAIL QUANTITIES.

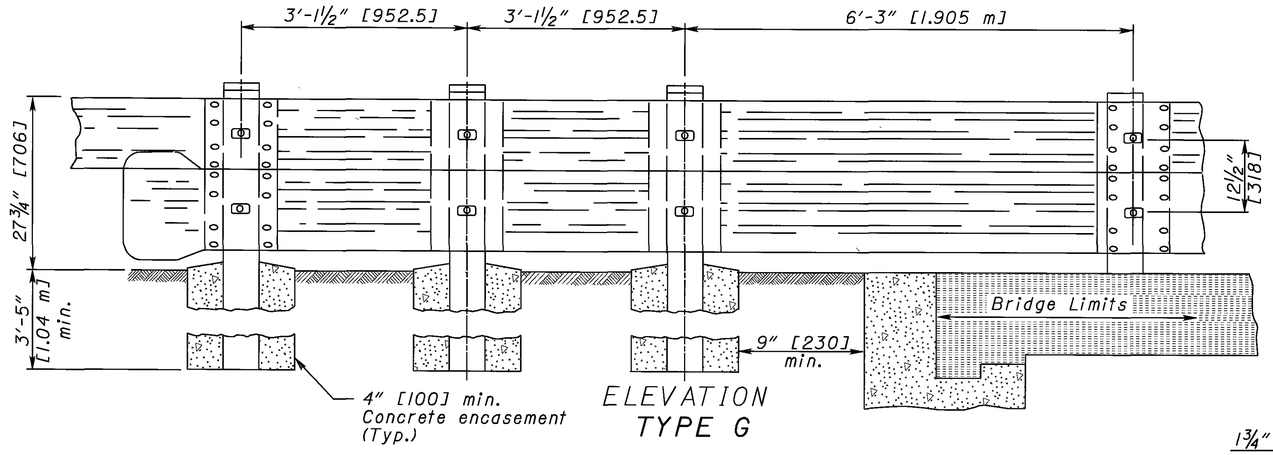
SEE SHEET 117 FOR GUARDRAIL PLAN & PROFILE VIEWS

CALCULATED RDK / LW
PAY / WG
CHECKED MATT

GUARDRAIL DETAILS

FRA-33-20.69





NOTES

PAYMENT: *Item 606 - Bridge Terminal Assembly, Type _____, Each, shall include the additional cost in excess of normal guardrail cost, such as: additional or heavier posts, concrete, encasement, wheelguard beyond bridge limits, extra rail, terminal connector, anchors and other hardware, etc.*

FOR DETAILS NOT SHOWN: *See SCD GR-1.1 and other Drawings pertaining to design of specific Guardrail types.*

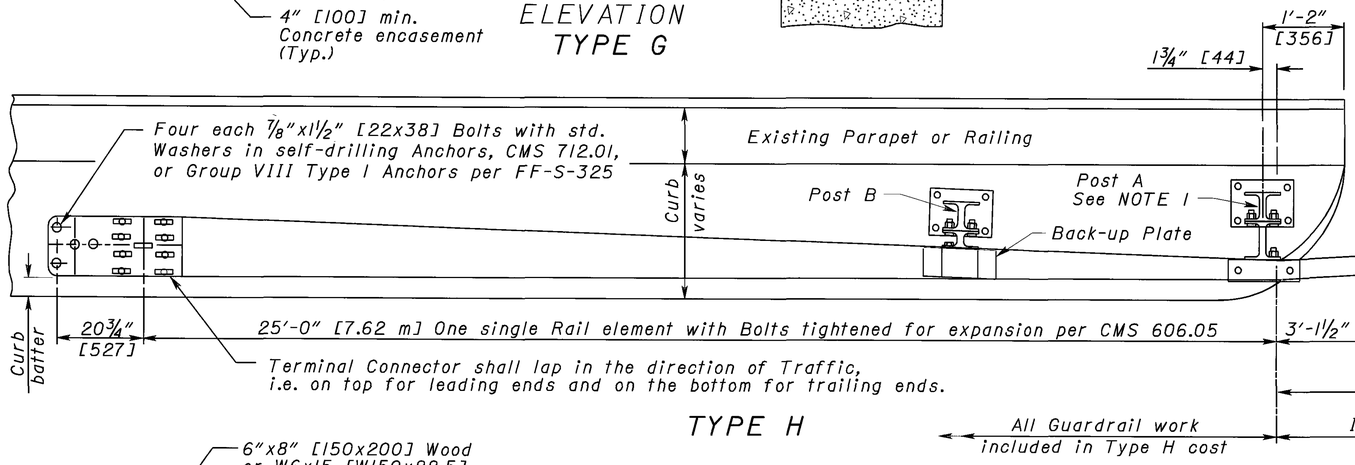
GUARDRAIL TERMINATION: *Terminate as directed by the Engineer. The 12'-6" [3.81 m] normal rail section may vary as shown to facilitate connection or reconstruction of existing approach guardrail. The 20¾" [527] terminal connector or 1'-2" [356] Post A location dimensions may be increased to avoid existing parapet steel.*

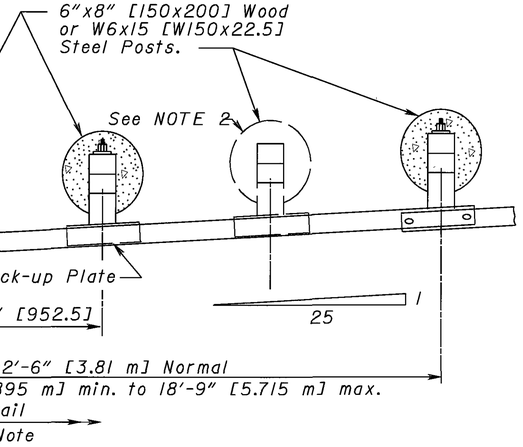
SPACER BLOCK: *Size may be increased if necessary to locate Posts beyond wide approach slab.*

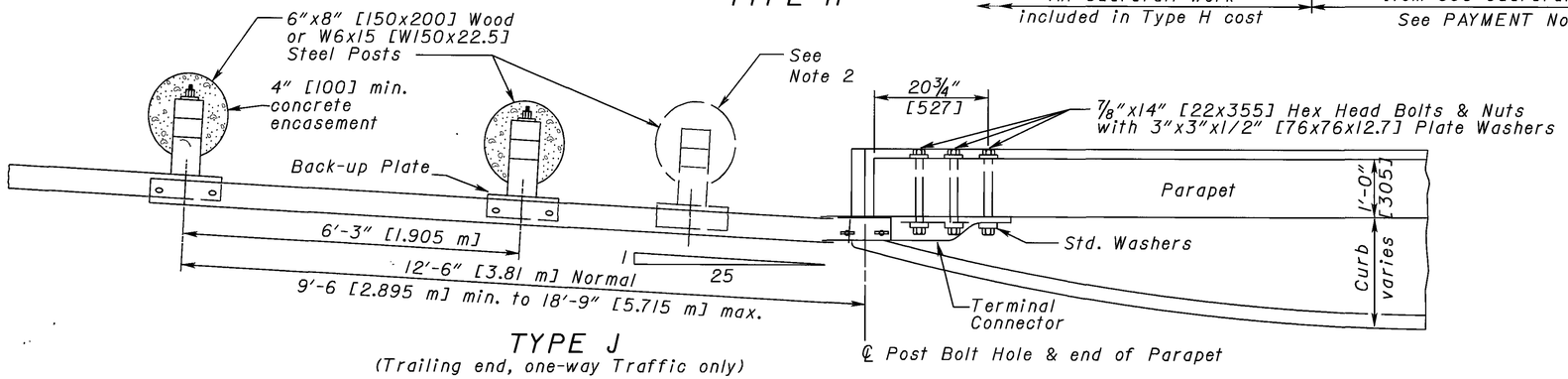
POSTS: *Posts shall be 6"x8" [150x200] wood or W6x15 [W150x22.5] steel (except posts A and B of Type H) of the same material type as used on approach guardrail, with 4" [100] minimum concrete encasement.*

NOTE 1: *These posts correspond with posts A and B as detailed on SCD GR-4.1, except that they are mounted on plates as detailed on GR-1.1. The top of rail at Post A shall be 27¾" [706] above the bridge deck*

NOTE 2: *Place one additional encased post halfway between 2nd and 3rd Posts (Type H) or 1st post and bridge parapet (Type J) when panel length exceeds 12'-6" [3.81 m].*







All metric dimensions (in brackets [ ]) are in millimeters unless otherwise noted.

CALCULATED RDK / LJW FAY / HG
CHECKED MattT

BRIDGE TERMINAL ASSEMBLIES (Types G, H & J)

FRA-33-20.69

REMOVAL OF EXISTING SIGN SERVICE:

AT LOCATIONS WERE THE SIGN SERVICE IS BEING REMOVED AND NOT REPLACED ALL WIRING AND EQUIPMENT SHALL BE REMOVED STARTING AT THE EXISTING PULL BOX WHICH DIRECTLY FEEDS THE EXISTING SIGN SERVICE. BOTH LOAD WIRES SHALL BE COMPLETELY REMOVED FROM THE EXISTING SPLICE OR CONNECTOR KIT IN THE FEEDER PULL BOX. THE EXISTING LINE CABLE CONNECTORS SHALL BE REPLACED WITH A TYPE V (725.15-4) UN-FUSED IN-LINE CONNECTOR KIT IF THE EXISTING CONNECTOR WAS A 3-WAY OR A CABLE SPLICING KIT (725.15-E) IF THE LINE CABLE IS TO BE CAPPED OFF. THE EXISTING CABLES SHALL BE RE-LABELED BY MEANS OF AN INDELIBLE MARKER ON A PLASTIC TAG WITH THE CIRCUIT NUMBER, AC+ OR AC- AND THAT THE CABLE IS HOT.

REMOVAL OF OVERHEAD SIGN SUPPORT, AND RE-ERECTION, TYPE TC 12.30:

THE SIGN STRUCTURE AT STATION 159+80 WILL BE MOVED TO STATION 161+50, THE FOLLOWING QUANTITIES HAVE BEEN PROVIDED FOR SPLICING INTO THE EXISTING PULL BOX AT STATION 159+00 TO PROVIDE POWER FOR THE RE-ERECTED STRUCTURE. THE FOLLOWING QUANTITY HAS BEEN PROVIDED AND THE TOTAL HAS BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 625 - CONNECTOR KIT, TYPE V = 2 EACH
ITEM 625 - 1.5" DUCT CABLE WITH TWO NO. 6 AWG 5000 VOLT CABLES = 250 FEET
ITEM 625 - TRENCH, 24" DEEP = 250 FEET
ITEM 625 - PULLBOX, 725.08, 24" 1 EACH

ITEM 626 - BARRIER REFLECTOR TYPE A:

THE FOLLOWING QUANTITY HAS BEEN PROVIDED AND THE TOTAL HAS BEEN CARRIED TO THE GENERAL SUMMARY.

44,381.5 FT. OF TYPE 5 GUARDRAIL / 50 SPACING = 888 EACH

792 FT. OF EXISTING TUBULAR BACK-UP OF EXISTING AT GRADE STRUCTURES / 50 SPACING = 16 EACH

ITEM 626 - BARRIER REFLECTOR TYPE A: = 904 EACH

ITEM 626 - BARRIER REFLECTOR TYPE B:

THE FOLLOWING QUANTITY HAS BEEN PROVIDED AND THE TOTAL HAS BEEN CARRIED TO THE GENERAL SUMMARY.

765 FT. OF CONCRETE BARRIER, SINGLE SLOPE, TYPE A / 50 SPACING X 2 SIDES = 32 EACH

650 FT. OF CONCRETE BARRIER, SINGLE SLOPE, TYPE A, A.P.P. / 50 SPACING X 2 = 26 EACH

2,140 FT. OF CONCRETE BARRIER, SINGLE SLOPE, TYPE D / 50 SPACING = 43 EACH

ITEM 626 - BARRIER REFLECTOR TYPE B: = 101 EACH

ITEM 630 - SIGNS, (FLATSHEET AND EXTRUSHEET):

THE CONTRACTOR IS RESPONSIBLE FOR REPLACEMENT OF PERMANENT TRAFFIC CONTROL SIGNS DAMAGED OR REMOVED DURING CONSTRUCTION. ANY SIGNS REMOVED FROM THEIR EXISTING LOCATION SHALL BE TEMPORARILY REPLACED IMMEDIATELY. THE CONTRACTOR WILL BE CHARGED IF IT BECOMES NECESSARY FOR THE TRANSPORTATION DIVISION TO PERFORM SIGN REPLACEMENT WORK. THE CONTRACTOR SHALL ASSUME ALL LIABILITY FOR MISSING, DAMAGED AND IMPROPERLY PLACED SIGNS WHERE THE PLANS CALL FOR A PERMANENT SIGN TO BE COVERED, THE CONTRACTOR SHALL DO IN SUCH A MANNER AS TO AVOID DAMAGING THE PERMANENT SIGN WHEN THE COVER IS REMOVED. THE COVER SHALL BE TOTALLY OPAQUE THE USE OF ADHESIVE TAPE APPLIED DIRECTLY TO A SIGN FACE IS STRICTLY PROHIBITED.

FOR SIGN POSITION UNLESS OTHERWISE DIRECTED BY THE ENGINEER THE FOLLOWING CONDITIONS SHALL APPLY. WHERE PHYSICAL CONDITIONS PERMIT, SIGNS SHALL HAVE THE CORRECT LATERAL AND VERTICAL CLEARANCE WITH RESPECT TO THE EDGE OF PAVEMENT IN ACCORDANCE WITH THE MINIMUM DISTANCE SHOWN ON THE STANDARD DRAWING. WHERE PHYSICAL CONDITIONS PERMIT SIGNS ERECTED ON NEW BEAM SUPPORT SHALL BE LOCATED LONGITUDINALLY TO THE ROADWAY IN THE SAME POSITION AS THE EXISTING SIGNS. THE STATIONS ARE APPROXIMATE TO SHOW THE ORDER OF SIGNS IN RELATIONSHIP TO EACH OTHER AND ARE NOT TO BE CONSIDERED EXACT LOCATIONS. SIGNS INDICATED AS NEW INSTALLATIONS SHALL BE LOCATED AS APPROVED BY THE ENGINEER. EXISTING SIGNS NOT SHOWN ON THE SCHEMATIC SHEETS OR LISTED ON THE SUB SUMMARY AS WORK LOCATIONS SHALL NOT BE DISTURBED. TYPE C ARROWS INCORPORATED INTO THE EXIT AND ACTION INFORMATION LEGEND ON OVERHEAD SIGNS SHALL BE LOCATED WITHIN 2 FEET OF THE CENTERLINE OF THE LANE.

ALL EXTRUSHEET SIGNS SHALL BE LAID OUT AND FABRICATED AS PROPOSED IN THE CONTRACT. IN NO CASE SHALL ANY SIGN LEGENDS BE CHANGED WITHOUT PRIOR NOTIFICATION TO THE DISTRICT SIX PRODUCTION DEPARTMENT.

ITEM 630 - OVERHEAD SIGN SUPPORT, BY TYPE, AS PER PLAN:

IN ADDITION TO ITEMS 630 AND 730, THE FOLLOWING SHALL APPLY: AS PART OF THESE PLANS EXISTING OVERHEAD SUPPORTS SHALL BE REPLACED AND NEW SUPPORTS INSTALLED ON THE EXISTING FOUNDATIONS AT THE LOCATIONS DESIGNATED IN THE PLANS. THE EXISTING ANCHOR BOLTS AND CONDUIT ELLS SHALL BE REUSED. SHOULD THE EXISTING ANCHOR BOLTS OR FOUNDATIONS BE DAMAGED BY THE CONTRACTOR DURING THE COURSE OF THE SIGN SUPPORT REPLACEMENT, THE CONTRACTOR SHALL REPLACE THE FOUNDATION AND ANCHOR BOLTS AT HIS OWN EXPENSE.

IT IS ASSUMED FOR THESE PLANS THAT THE EXISTING SIGN SUPPORTS WERE INSTALLED WITH THE SUPPORTS AND FOUNDATIONS IN CONFORMANCE WITH ITEM 816 FOR SUPPORTS AND DESIGNATED AS TYPE TC-12.30, AND TC-7.65. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE FOUNDATION ANCHOR BOLT SIZES, PATTERNS, ORIENTATIONS, AND BOLT CIRCLE RADII PRIOR TO ORDERING THE NEW SUPPORTS. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR FIELD VERIFICATION OF THE SPAN LENGTHS PRIOR TO ORDERING THE NEW SUPPORTS.

THE COST OF VERIFYING THESE FOUNDATION LAYOUTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THIS ITEM.

PAYMENT FOR THIS ITEM SHALL BE AT THE UNIT PRICE BID PER EACH, COMPLETE AND IN PLACE.

CALCULATED RDK / LW
PAY / HS
CHECKED MAIT

TRAFFIC CONTROL GENERAL NOTES

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ITEM 630 - REMOVAL OVERHEAD SIGN SUPPORT AND DISPOSAL, AS PER PLAN:

IN ADDITION TO ITEM 630, IT IS THE INTENT OF THESE PLANS THAT SOME OF THE EXISTING SIGN SUPPORT ANCHOR BOLTS AND FOUNDATIONS SHALL NOT BE REMOVED AS PART OF THE REMOVAL OF THE SIGN SUPPORTS. THE CONTRACTOR SHALL CAREFULLY REMOVE THE EXISTING SUPPORTS FROM THE ANCHOR BOLT FOUNDATIONS, AT LOCATIONS DESIGNATED IN THE PLANS AND SHALL DISPOSE OF THE SIGN SUPPORTS OFF THE PROJECT SITE.

SHOULD THE CONTRACTOR DAMAGE THE ANCHOR BOLTS OR FOUNDATIONS, AT LOCATIONS DESIGNATED IN THE PLANS DURING THE COURSE OF THE SIGN SUPPORT REMOVAL, THE CONTRACTOR SHALL REPLACE THE ANCHOR BOLTS AND FOUNDATIONS AT HIS OWN EXPENSE.

PAYMENT FOR THIS ITEM SHALL BE MADE AT THE UNIT BID PRICE PER REMOVAL OF SIGN OVERHEAD SIGN SUPPORT, BY TYPE, AS PER PLAN.

ITEM 632 - DETECTOR LOOP:

THE LOCATIONS, SIZES AND SHAPES OF PROPOSED LOOP DETECTORS WILL BE THE SAME AS EXISTING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION, SIZE AND SHAPE OF THE EXISTING LOOP DETECTORS LISTED IN THE PLAN BEFORE THE PAVEMENT PLANING DESTROYS THEM. ALL LOOP WIRE SHALL BE IDENTIFIED WITH A PLASTIC TAG (WBLT, EBRT, ETC.) AT THE SPLICE POINT OR AT ENTRANCE TO THE CONTROL CABINET. WHEN A PULLBOX IS NOT USED, THE SOLDERED SPLICE SHALL BE MADE IN AN ANCHOR BASE, STRAIN POLE OR A CONDUIT RISER SPECIFIED BY THE PROJECT ENGINEER, EXCEPT WHERE A CONTROLLER CABINET IS MOUNTED ON THAT POLE IN WHICH CASE THE LOOP WIRE SHALL BE ROUTED DIRECTLY INTO THE CABINET. THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER PRIOR TO THE COMMENCEMENT OF WORK, A COPY OF THE IMSA CERTIFICATION PAPERS FOR ALL SIGNAL TECHNICIANS WORKING ON THIS PROJECT. THE CONTRACTOR SHALL ALSO CONTACT THE TRANSPORTATION DIVISION SIGNALS MANAGEMENT ENGINEER AT LEAST FORTY-EIGHT HOURS (EXCLUDING SAT & SUN) IN ADVANCE OF THIS ITEM OF WORK.

CITY OF COLUMBUS
TRANSPORTATION DIVISION
SIGNAL MANAGEMENT ENGINEER
90 WEST BROAD STREET
COLUMBUS, OHIO 43230
1-614-645-7792

THE CONTRACTOR SHALL ADVISE THE ODOT CENTRAL OFFICE (TECH SERVICES) DAVE STEWART AT 614-275-1382 OR TONY MANCH AT 614-466-3075, TEN (10) DAYS PRIOR TO BEGINNING OF THE PLANING OPERATIONS IN THE AREA OF THE ATR-502 WHICH IS LOCATED AT SLM 24.02. THE LOOPS, WHICH ARE PART OF ATR-502, SHALL BE REPLACED BY ODOT AT A LATTER TIME.

ITEM 632 - LOOP DETECTOR TIE IN:

THIS ITEM SHALL BE USED TO CONNECT AND SPLICE THE PROPOSED LOOP DETECTORS TO THE APPROPRIATE EXISTING LEAD IN CABLE INSIDE THE PULL BOX.

ITEM 644 - THERMOPLASTIC PAVEMENT MARKING:

THE LOCATION OF STOP BARS, CROSSWALKS MAY NEED TO BE FIELD MODIFIED BASED ON THE FINAL LOCATION OF THE ADA WHEEL CHAIR RAMPS. PRIOR TO THE PLACEMENT OF ALL PERMANENT PAVEMENT MARKINGS THE CONTRACTOR SHALL NOTIFY THE CITY OF COLUMBUS PAVEMENT MARKING SECTION (614-645-8376) A MINIMUM OF SEVENTY-TWO HOURS (NOT INCLUDING SATURDAY AND SUNDAY) BEFORE PERMANENT MARKINGS ARE TO BE PLACED TO INSPECT AND APPROVE THE PERMANENT PAVEMENT-MARKING LAYOUT.

TRAFFIC CONTROL ITEMS

SHEET #	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	REMOVAL OF GROUND MOUNTED MAJOR SIGN AND DISPOSAL	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	REMOVAL OF STRUCTURE MOUNTED SIGN AND DISPOSAL	REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL	REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL	REMOVAL OF OVERHEAD SIGN SUPPORT AND RE-ERECTION TYPE TC-12.30	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL AS PER PLAN	REMOVAL OF MISC. TRAFFIC CONTROL ITEM (GROUND MOUNTED POLE SUPPORT)				
	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH				
125		21	6	5	24			1	3	2				
126							1							
127		8			3									
132	22		27		4	28								
133	52		33			2								
134	35		21			2								
	109	29	87	5	31	32	1	1	3	2				

TRAFFIC CONTROL ITEMS

SHEET #	REMOVAL OF LUMINAIRE AND DISPOSAL	REMOVAL OF DISCONNECT SWITCH AND DISPOSAL	REMOVAL OF BALLAST AND DISPOSAL	REMOVAL OF SIGN WIRING AND DISPOSAL	REMOVAL OF SIGN SERVICE AND DISPOSAL									
	EACH	EACH	EACH	EACH	EACH									
125	51	17	50											
126				28	16									
127	4	3	4	3	3									
	55	20	54	31	19									

CALCULATED RBK / LW PAT / HG
CHECKED Matt

TRAFFIC CONTROL SUBSUMMARY

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TRAFFIC CONTROL ITEMS

SHEET #	GROUND MOUNTED SUPPORT S 4X7.7 BEAM	GROUND MOUNTED SUPPORT W 10X22 BEAM	BREAKAWAY BEAM CONNECTION	SIGN, GROUND MOUNTED EXTRUSHEET	OVERHEAD SIGN SUPPORT TYPE TC-12.30 DESIGN 6 AS PER PLAN	OVERHEAD SIGN SUPPORT TYPE TC-7.65, DESIGN 6 AS PER PLAN	OVERHEAD SIGN SUPPORT TYPE TC-7.65, DESIGN 8	SIGN, OVERHEAD EXTRUSHEET	SIGN, PERMANENT OVERLAY	GROUND MOUNTED BEAM SUPPORT FOUNDATION	RIGID OVERHEAD SIGN SUPPORT FOUNDATION	GROUND MOUNTED SUPPORT NO. 2 POST	GROUND MOUNTED SUPPORT NO. 3 POST	SIGN SUPPORT ASSEMBLY POLE MOUNTED
	FT.	FT.	EACH	SQ. FT.	EACH	EACH	EACH	SQ. FT.	SQ. FT.	EACH	EACH	FT.	FT.	EACH
128	78	45	8	1,460	2	1	1	3,932	12	8				
129				311.5				308						
135												88	179.5	24
136													374	2
137													198	2
130											8			
	78	45	8	1,771.5	2	1	1	4,240	12	8	8	88	751.5	28

TRAFFIC CONTROL ITEMS

SHEET #	ONE WAY SUPPORT NO. 3 POST	SIGN HANGER ASSEMBLY SPAN WIRE	SIGN FLAT SHEET	SIGN SERVICE	SIGN WIRED	SIGN WIRED, OVERPASS STRUCTURE	DISCONNECT SWITCH WITH ENCLOSURE TYPE X	BALLAST TYPE CMRI 100-480	BALLAST TYPE CMRI 175-480	BALLAST TYPE CMRI 250-480	MERCURY VAPOR LUMINAIRE TYPE TC-31.21 WITH 100 WATT LAMP	MERCURY VAPOR LUMINAIRE TYPE TC-31.21 WITH 175 WATT LAMP	MERCURY VAPOR LUMINAIRE TYPE TC-31.21 WITH 250 WATT LAMP	GROUND ROD
	EACH	EACH	SQ. FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
135		4	492.25											
136	2		468.75											
137			282.50											
130				9	12	2	8		23	4		23	4	7
131				3	3		2	2	3		2	3		
	2	4	1,243.5	12	15	2	10	2	26	4	2	26	4	7

CALCULATED RDK / LW FAY / NG
CHECKED Matt

TRAFFIC CONTROL SUBSUMMARY

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SHEET NO.	644 EDGE LINE	644 LANE LINE	644 CENTER LINE	644 CHANNELIZING LINE	644 STOP LINE	644 CROSS WALK	644 TRANSVERSE LINE	644 LANE ARROW	644 WORD ON PAVEMENT 72"		202 RPM REMOVED AND DISPOSED	621 RPM		632 DETECTOR LOOP	632 DETECTOR LOOP TIE IN				
	MILE	MILE	MILE	FT.	FT.	FT.	FT.	EACH	EACH		EACH	EACH		EACH	EACH				
138	0.21	1.32	0.75	658	80	184	63	6	2										
139	1.59	0.68		3,771	38		668	15	5										
140	1.86	1.17		576	150		1,339	4	2										
141	3.05	0.24	0.06	334	21			2	1										
142	2.66	1.34	0.40	2,031			452	2											
143	3.54	0.91	0.08	740			726												
144	2.49	0.43	0.29	1133	56		334	5	1										
145	4.17	2.41		660			127												
146	2.76	1.83		1,204			414												
147	3.14	1.78		1,051			233												
148	3.08			105	58														
149												308							
150												296							
151												322							
152												279							
153											1,291	86							
154														23	23				
	28.54	12.10	1.58	12,263	403	184	4,356	34	11		1,291	1,291		23	23				

CALCULATED RDK / LW
CHECKED MATT

PAVEMENT MARKIING AND RPM SUBSUMMARY

FRA-33-20.69

LOCATION / 630 & 631 REMOVALS

SHEET #	LOCATION	SIDE	STATION	CODE	SIZE	BRACKET ARM LENGTH	REMOVAL OF GROUND MOUNTED MAJOR SIGN AND DISPOSAL	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL	REMOVAL OF STRUCTURE MOUNTED SIGN AND DISPOSAL	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL AS PER PLAN	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL	REMOVAL OF MISC. TRAFFIC CONTROL ITEM (GROUND MOUNTED POLE SUPPORT)	REMOVAL OF LUMINAIRE AND DISPOSAL	REMOVAL OF DISCONNECT SWITCH AND DISPOSAL	REMOVAL OF BALLAST AND DISPOSAL
					INCHES	FT.-IN.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
158	US-33	R	153+88	D-3-H3-144	144X36		1	2								
159		L	159+80	E1-2	180X114	4'-3"										
159	US-33	R	159+80	E1-2	180X114	4'-3"			1					1	1	1
159	US-33	L	161+74	D-3-H3-36	144X36		1	2								
162	US-33	R	171+75	E5-H1-72	72X60		1	2								
162	US-33	R	170+75	E1-H3	216X78	3'-3"			1		1			1	1	1
162		R		E6-2	168X102	4'-3"										
162		R		E1-1	180X126	4'-3"			1					1		1
162	US-33	R	178+00	E1-1A	180X114	4'-3"			1		1			1	1	1
163	US-33	L	182+60	M2-H5	108X48		1									
163	US-33	R	185+00	E1-H3	216X102	4'-3"			1					2	1	1
163	US-33	L	187+75	E6-H2	132X96				1					2	1	2
163				E1-1A	168X108				1					2		2
163				E1-H3	204X120				1					2		2
164	US-33	R	194+00	E5-H1-72	72X60		1									
164	US-33	L	195+00	E5-H1-72	72X60		1									
165	US-33	R	200+50	E1-1A	168X144					1				2	1	2
165	US-33	L	201+25	E1-1A	180X144	5'-9"				1				2	1	2
165				E1-H3	216X126	4'-3"				1				2		2
166	US-33	L	214+75	E5-H1-72	72X60		1									
166	US-33	L	217+25	E1-1A	168X138	5'-9"			1					2	1	2
166				E1-1A	192X114	4'-3"			1					2		2
166				E1-H3	216X78	3'-3"			1					2		2
169	US-33	L	223+75	E1-H3	180X102	4'-3"			1		1			2	1	2
171	US-33	L	268+50	E1-1A	180X120		1									
172	US-33	R	271+00	E1-1A	168X108				1					2	1	2
173	US-33	R	279+40	E6-2A	168X96				1					1	1	1
173				E1-H1	156X108				1					1		1
173				E1-3	204X96				1					2		2
173	US-33	R	281+50	E5-H1-72	72X60		1									
174	US-33	L	289+25	E5-H1-72	72X60		1									
174	US-33	R	292+90	E1-H3	192X96					1				2	1	2
174	US-33	L	294+80	E1-H3	228X96					1				2	1	2
174	US-33	R	298+25	E5-H1-72	72X60		1									
175	US-33	L	303+00	E5-H1-72	72X60		1									
175	US-33	L	305+75	E6-2	168X96				1					2	1	2
175				E1-H1	192X108				1					2		2
175				E1-H3	228X96				1					2		2
176	US-33	R	310+00	E1-H1	192X108		1									
176	US-33	L	316+00	E1-H1	192X108				1					2	1	2
177	US-33	L	332+50	SPECIAL	228X120		1									
177	US-33	R	333+50	E1-H1	192X108		1						2			
177	US-33	R	343+00	E1-H3	216X96		1									
177	US-33	R	346+50	E5-H1-72	72X60		1									
178	US-33	L	361+50	E5-H1-72	72X60		1									
	US-33	L	370+00	E1-H3	216X96		1									
161	S JAMES		131+75	M2-H6	120X48		1									
167	N JAMES		195+25						2			1		4	1	4
167	N JAMES		196+20	E6-H2	156X102	4'-3"										
167				M2-H6	156x102	4'-3"										
167	N JAMES		201+00	M2-H6	144X96		1									
165	REF.		275+00	M2-H6	144X78				1					2	1	2
165	REF.		281+00	M2-H6	120X102				1					1		1
TOTALS CARRIED TO GEN. SUMMARY							21	6	24	5	3	1	2	51	17	50

CALCULATED RDK / LW FAY / MG
CHECKED MATT

EXTRUSHEET SIGNING

FRA-33-20.69

LOCATION / 630 & 631 REMOVALS

SHEET #	LOCATION	SIDE	STATION	CODE	SIZE	BRACKET ARM LENGTH	REMOVAL OF SIGN WIRING AND DISPOSAL	REMOVAL OF SIGN SERVICE AND DISPOSAL	REMOVAL OF OVERHEAD SIGN SUPPORT AND REERECTION, TYPE TC-12.30							
					INCHES	FT.-IN.	EACH	EACH	EACH							
158	US-33	R	153+88	D-3-H3-144	144X36											
159		L	159+80	E1-2	180X114	4'-3"			1							
159	US-33	R	159+80	E1-2	180X114	4'-3"	1	1								
159	US-33	L	161+74	D-3-H3-36	144X36											
162	US-33	R	171+75	E5-H1-72	72X60											
162	US-33	R	170+75	E1-H3	216X78	3'-3"	1	1								
162		R		E6-2	168X102	4'-3"	1									
162		R		E1-1	180X126	4'-3"	1									
162	US-33	R	178+00	E1-1A	180X114	4'-3"	1	1								
163	US-33	L	182+60	M2-H5	108X48											
163	US-33	R	185+00	E1-H3	216X102	4'-3"	1	1								
163	US-33	L	187+75	E6-H2	132X96		1	1								
163				E1-1A	168X108		1									
163				E1-H3	204X120		1									
164	US-33	R	194+00	E5-H1-72	72X60											
164	US-33	L	195+00	E5-H1-72	72X60											
165	US-33	R	200+50	E1-1A	168X144		1	1								
165	US-33	L	201+25	E1-1A	180X144	5'-9"	1	1								
165				E1-H3	216X126	4'-3"	1									
166	US-33	L	214+75	E5-H1-72	72X60											
166	US-33	L	217+25	E1-1A	168X138	5'-9"	1	1								
166				E1-1A	192X114	4'-3"	1									
166				E1-H3	216X78	3'-3"	1									
169	US-33	L	223+75	E1-H3	180X102	4'-3"	1	1								
171	US-33	L	268+50	E1-1A	180X120											
172	US-33	R	271+00	E1-1A	168X108		1	1								
173	US-33	R	279+40	E6-2A	168X96		1	1								
173				E1-H1	156X108		1									
173				E1-3	204X96		1									
173	US-33	R	281+50	E5-H1-72	72X60											
174	US-33	L	289+25	E5-H1-72	72X60											
174	US-33	R	292+90	E1-H3	192X96		1	1								
174	US-33	L	294+80	E1-H3	228X96		1	1								
174	US-33	R	298+25	E5-H1-72	72X60											
175	US-33	L	303+00	E5-H1-72	72X60											
175	US-33	L	305+75	E6-2	168X96		1	1								
175				E1-H1	192X108		1									
175				E1-H3	228X96		1									
176	US-33	R	310+00	E1-H1	192X108											
176	US-33	L	316+00	E1-H1	192X108		1	1								
177	US-33	L	332+50	SPECIAL	228X120											
177	US-33	R	333+50	E1-H1	192X108											
177	US-33	R	343+00	E1-H3	216X96											
177	US-33	R	346+50	E5-H1-72	72X60											
178	US-33	L	361+50	E5-H1-72	72X60											
	US-33	L	370+00	E1-H3	216X96											
161	S JAMES		131+75	M2-H6	120X48											
167	N JAMES		195+25				2	1								
167	N JAMES		196+20	E6-H2	156X102	4'-3"										
167				M2-H6	156x102	4'-3"										
167	N JAMES		201+00	M2-H6	144X96											
165	REF.		275+00	M2-H6	144X78											
165	REF.		281+00	M2-H6	120X102											
TOTALS CARRIED TO GEN. SUMMARY							28	16	1							

CALCULATED RDK / LW PAY / HG
CHECKED MATT

EXTRUSHEET SIGNING

FRA-33-20.69

LOCATION

630 & 631 REMOVALS

SHEET #	LOCATION	SIDE	STATION	CODE	SIZE	BRACKET ARM LENGTH	REMOVAL OF GROUND MOUNTED MAJOR SIGN AND DISPOSAL	REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL	REMOVAL OF LUMINAIRE AND DISPOSAL	REMOVAL OF DISCONNECT SWITCH AND DISPOSAL	REMOVAL OF BALLAST AND DISPOSAL	REMOVAL OF SIGN WIRING AND DISPOSAL	REMOVAL OF SIGN SERVICE AND DISPOSAL			
					INCHES	FT.-IN.	EACH	EACH	EACH	EACH	EACH	EACH	EACH			
165	HAM.		17+50	M2-H4	108X36		1									
180	HAM.		18+75	D1-H6A	156X60		1									
180	HAM.		21+65	M2-H7	66X24		1									
180	HAM.		21+65	M2-H6	108X84		1									
180	HAM.		27+00	M2-H6	144X60	2'-9"		1	1	1	1	1	1			
179	HAM.		29+60	D1-2-84	84X30		1									
181	HAM.		29+65	M2-H5	108X48		1									
181	HAM.		30+50	D1-H6A	156X60		1									
181	HAM.		31+00	M2-H4	108X36		1									
181	SR 104		281+00	M2-H6	120X102	4'-3"		1	1	1	1	1	1			
165	SR 104		275+00	M2-H6	144X78	2'-9"		1	2	1	2	1	1			
TOTALS CARRIED TO GEN. SUMMARY							8	3	4	3	4	3	3			

CALCULATED RDK / LW
FAY / HG
CHECKED MATT

EXTRUSHEET SIGNING

FRA-33-20.69

LOCATION							630									
SHEET #	LOCATION	SIDE	STATION	CODE	SIZE	BRACKET ARM LENGTH	GROUND MOUNTED SUPPORT S 4X7.7 BEAM	GROUND MOUNTED SUPPORT W 10X22 BEAM	BREAKAWAY BEAM CONNECTION	SIGN, GROUND MOUNTED EXTRUSHEET	OVERHEAD SIGN SUPPORT TYPE TC-12.30 DESIGN 6 AS PER PLAN	OVERHEAD SIGN SUPPORT TYPE TC-7.65, DESIGN 6 AS PER PLAN	OVERHEAD SIGN SUPPORT TYPE TC-7.65, DESIGN 8	SIGN, OVERHEAD EXTRUSHEET	SIGN, PERMANENT OVERLAY	GROUND MOUNTED BEAM SUPPORT FOUNDATION
					INCHES	FT.-IN.	FT.	FT.	EACH	SQ. FT.	EACH	EACH	EACH	SQ. FT.	SQ. FT.	EACH
158	US-33	R	153+88	D-3-H3-144	144X36		12/12		2	36						2
159		L	159+80	E1-2	180X114	4'-3"										
159	US-33	R	159+80	E1-2	180X114	4'-3"								142.5	12	
159	US-33	L	161+74	D-3-H3-36	144X36		12/12		2	36						2
162	US-33	R	171+75	E5-H1-72	72X60		15/15		2	30						2
162	US-33	R	170+75	E1-H3	216X78	3'-3"						1		117		
162		R		E6-2	168X102	4'-3"								119		
162		R		E1-1	180X126	4'-3"								157.5		
162	US-33	R	178+00	E1-1A	180X114	4'-3"					1			142.5		
163	US-33	L	182+60	M2-H5	108X48					36						
163	US-33	R	185+00	E1-H3	216X102	4'-3"								153		
163	US-33	L	187+75	E6-H2	132X96									88		
163				E1-1A	168X108									126		
163				E1-H3	204X120									170		
164	US-33	R	194+00	E5-H1-72	72X60					30						
164	US-33	L	195+00	E5-H1-72	72X60					30						
165	US-33	R	200+50	E1-1A	168X144									168		
165	US-33	L	201+25	E1-1A	180X144	5'-9"								180		
165				E1-H3	216X126	4'-3"								189		
166	US-33	L	214+75	E5-H1-72	72X60					30						
166	US-33	L	217+25	E1-1A	168X138	5'-9"								161		
166				E1-1A	192X114	4'-3"								152		
166				E1-H3	216X78	3'-3"								117		
169	US-33	L	223+75	E1-H3	180X102	4'-3"					1			127.5		
171	US-33	L	268+50	E1-1A	180X120					150						
172	US-33	R	271+00	E1-1A	168X108									126		
173	US-33	R	279+40	E6-2A	168X96									112		
173				E1-H1	156X108									117		
173				E1-3	204X96									136		
173	US-33	R	281+50	E5-H1-72	72X60					30						
174	US-33	L	289+25	E5-H1-72	72X60					30						
174	US-33	R	292+90	E1-H3	192X96									128		
174	US-33	L	294+80	E1-H3	228X96									152		
174	US-33	R	298+25	E5-H1-72	72X60					30						
175	US-33	L	303+00	E5-H1-72	72X60					30						
175	US-33	L	305+75	E6-2	168X96									112		
175				E1-H1	192X108									144		
175				E1-H3	228X96									152		
176	US-33	R	310+00	E1-H1	192X108					144						
176	US-33	L	316+00	E1-H1	192X108									144		
177	US-33	L	332+50	SPECIAL	228X120			45		190						
177	US-33	R	333+50	E1-H1	192X108				2	144						2
177	US-33	R	343+00	E1-H3	216X96					144						
177	US-33	R	346+50	E5-H1-72	72X60					30						
178	US-33	L	361+50	E5-H1-72	72X60					30						
	US-33	L	370+00	E1-H3	216X96					144						
167	S JAMES		131+75	M2-H6	120X48					40						
167	N JAMES		195+25													
167	N JAMES		196+20	E6-H2	156X102	4'-3"										
167				M2-H6	156x102	4'-3"							1	110.5		
165	N JAMES		201+00	M2-H6	144X96					96				110.5		
165	REF.		275+00	M2-H6	144X78									78		
TOTALS CARRIED TO GEN. SUMMARY							78	45	8	1,460	2	1	1	3,932	12	8

CALCULATED RDK / LW FAY / HG
CHECKED MATT

EXTRUSHEET SIGNING

FRA-33-20.69

128
230

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LOCATION							630	
SHEET #	LOCATION	SIDE	STATION	CODE	SIZE	BRACKET ARM LENGTH	SIGN, GROUND MOUNTED EXTRUSHEET	SIGN, OVERHEAD EXTRUSHEET
					INCHES	FT.-IN.	SQ. FT.	SQ. FT.
165	REF.		281+00	M2-H6	120X102			85
180	HAM.		17+50	M2-H4	108X36		27	
180	HAM.		18+75	D1-H6A	156X60		65	
180	HAM.		21+65	M2-H7	66X24		11	
180	HAM.		21+65	M2-H6	108X84		63	
179	HAM.		27+00	M2-H6	144X60	2'-9"		60
181	HAM.		29+60	D1-2-84	84X30		17.5	
181	HAM.		29+65	M2-H5	108X48		36	
181	HAM.		30+50	D1-H6A	156X60		65	
181	HAM.		31+00	M2-H4	108X36		27	
165	SR 104		281+00	M2-H6	120X102	4'-3"		85
165	SR 104		275+00	M2-H6	144X78	2'-9"		78
TOTALS CARRIED TO GEN. SUMMARY							311.5	308

LOCATION

631

SHEET #	LOCATION	SIDE	STATION	CODE	SIZE	BRACKET ARM LENGTH	SIGN SERVICE	SIGN WIRED	SIGN WIRED, OVERPASS STRUCTURE	DISCONNECT SWITCH WITH ENCLOSURE TYPE X	BALLAST TYPE CMRI 175-480	BALLAST TYPE CMRI 250-480	MERCURY VAPOR LUMINAIRE TYPE TC-31.21 WITH 175 WATT LAMP	MERCURY VAPOR LUMINAIRE TYPE TC-31.21 WITH 250 WATT LAMP	GROUND ROD	RIGID OVERHEAD SIGN SUPPORT FOUNDATION
					INCHES	FT.-IN.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
158	US-33	R	153+88	D-3-H3-144	144X36											
159		L	159+80	E1-2	180X114	4'-3"										1
159	US-33	R	159+80	E1-2	180X114	4'-3"	1	1		1	2		2		1	1
159	US-33	L	161+74	D-3-H3-36	144X36											
162	US-33	R	171+75	E5-H1-72	72X60											
162	US-33	R	170+75	E1-H3	216X78	3'-3"	1	1		1	1		1		2	2
162		R		E6-2	168X102	4'-3"		1			2		2			
162		R		E1-1	180X126	4'-3"		1			2		2			
162	US-33	R	178+00	E1-1A	180X114	4'-3"	1	1		1	2		2		1	1
163	US-33	L	182+60	M2-H5	108X48											
163	US-33	R	185+00	E1-H3	216X102	4'-3"	1	1		1	2		2			
163	US-33	L	187+75	E6-H2	132X96											
163				E1-1A	168X108											
163				E1-H3	204X120											
164	US-33	R	194+00	E5-H1-72	72X60											
164	US-33	L	195+00	E5-H1-72	72X60											
165	US-33	R	200+50	E1-1A	168X144											
165	US-33	L	201+25	E1-1A	180X144	5'-9"	1		1	1		2		2		
165				E1-H3	216X126	4'-3"	1		1		2		2			
166	US-33	L	214+75	E5-H1-72	72X60											
166	US-33	L	217+25	E1-1A	168X138	5'-9"	1	1		1		2		2		
166				E1-1A	192X114	4'-3"		1			2		2			
166				E1-H3	216X78	3'-3"		1			2		2			
169	US-33	L	223+75	E1-H3	180X102	4'-3"	1	1		1	2		2		1	1
171	US-33	L	268+50	E1-1A	180X120											
172	US-33	R	271+00	E1-1A	168X108											
173	US-33	R	279+40	E6-2A	168X96											
173				E1-H1	156X108											
173				E1-3	204X96											
173	US-33	R	281+50	E5-H1-72	72X60											
174	US-33	L	289+25	E5-H1-72	72X60											
174	US-33	R	292+90	E1-H3	192X96											
174	US-33	L	294+80	E1-H3	228X96											
174	US-33	R	298+25	E5-H1-72	72X60											
175	US-33	L	303+00	E5-H1-72	72X60											
175	US-33	L	305+75	E6-2	168X96											
175				E1-H1	192X108											
175				E1-H3	228X96											
176	US-33	R	310+00	E1-H1	192X108											
176	US-33	L	316+00	E1-H1	192X108											
177	US-33	L	332+50	SPECIAL	228X120											
177	US-33	R	333+50	E1-H1	192X108											
177	US-33	R	343+00	E1-H3	216X96											
177	US-33	R	346+50	E5-H1-72	72X60											
178	US-33	L	361+50	E5-H1-72	72X60											
	US-33	L	370+00	E1-H3	216X96											
161	S JAMES		131+75	M2-H6	120X48											
167	N JAMES		195+25													
167	N JAMES		196+20	E6-H2	156X102	4'-3"	1	1		1	2		2		2	2
167				M2-H6	156X102	4'-3"		1			2		2			
167	N JAMES		201+00	M2-H6	144X96											
165	REF.		275+00	M2-H6	144X78											
165	REF.		281+00	M2-H6	120X102											
TOTALS CARRIED TO GEN. SUMMARY							9	12	2	8	23	4	23	4	7	8

CALCULATED RJK / LW PAY / HG
CHECKED MATT

EXTRUSHEET SIGNING

FRA-33-20.69

130
230

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LOCATION

631

SHEET #	LOCATION	SIDE	STATION	CODE	SIZE	BRACKET ARM LENGTH	SIGN SERVICE	SIGN WIRED	DISCONNECT SWITCH WITH ENCLOSURE TYPE X	BALLAST TYPE CMRI 100-480	BALLAST TYPE CMRI 175-480	MERCURY VAPOR LUMINAIRE TYPE TC-31.21 WITH 100 WATT LAMP	MERCURY VAPOR LUMINAIRE TYPE TC-31.21 WITH 175 WATT LAMP			
					INCHES	FT.-IN.	EACH	EACH	EACH	EACH	EACH	EACH	EACH			
165	HAM.		17+50	M2-H4	108X36											
180	HAM.		18+75	D1-H6A	156X60											
180	HAM.		21+65	M2-H7	66X24											
180	HAM.		21+65	M2-H6	108X84											
180	HAM.		27+00	M2-H6	144X60	2'-9"	1	1		2						
179	HAM.		29+60	D1-2-84	84X30							2				
181	HAM.		29+65	M2-H5	108X48											
181	HAM.		30+50	D1-H6A	156X60											
181	HAM.		31+00	M2-H4	108X36											
181	SR 104		281+00	M2-H6	120X102	4'-3"	1	1	1		1		1			
165	SR 104		275+00	M2-H6	144X78	2'-9"	1	1	1		2		2			
TOTALS CARRIED TO GEN. SUMMARY							3	3	2	2	3	2	3			

CALCULATED RSK / LW PAY / MG
CHECKED MATT

EXTRUSHEET SIGNING

FRA-33-20.69

131
230

LOCATION

630 REMOVALS

SHEET #	LOCATION	SIDE	STATION	CODE	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL	REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL							
					EACH	EACH	EACH	EACH							
158	US-33	R	144+67	W4-1R-48	1	2									
158	US-33	R	145+79	W3-3-48			1								
158	RAMP		146+80	W3-3-48			1								
158	RAMP		147+23	R3-4-36			1								
158	RAMP		147+23	R5-10C-24			1								
158	US-33	R	153+95	R3-7R-30			1								
158	US-33	R	153+95	R5-1A-36			1								
158	US-33	R	154+95	R3-H8DA-54	1	2									
158	US-33	M	154+95	R3-H8DA-54	1	2									
158	US-33	L	156+05	R5-10C-24			1								
158	US-33	L	156+63	R2-1-36	1										
158	US-33	M	157+45	R3-7L-30	1										
158	US-33	M	157+45	R3-4-SPECIAL	1	1									
158	US-33	M	157+45	R4-7B-36	1	2									
158	US-33	M	157+63	R3-5L-30				1							
158	US-33	M	157+63	R10-10L-24				1							
159	US-33	M	158+17	R3-5L-30				1							
159	US-33	M	158+17	R10-10L-24				1							
159	US-33	M	158+70	R4-7B-36	1	2									
159	US-33	R	159+25	R5-H10E-30			1								
159	US-33	L	160+92	R5-1A-36			1								
159	US-33	R	163+26	R2-H2B-36	1	2									
159	US-33	L	166+77	W3-3-48			1								
159	US-33	M	166+77	W3-3-48			1								
162	US-33		168+10	R1-2-48	1	2									
162	US-33	L	168+58	W4-1L-48	1										
162	US-33	R	169+89	M3-2-36			1								
162	US-33	R	169+89	M1-4-36			1								
162	US-33	R	169+89	M6-2-30			1								
159	US-33	M	158+70	R4-7B-36	1	2									
162	US-33	R	173+50	R2-H5D-36			1								
162	US-33	R	171+00	M1-4-36			1								
162	US-33	R	171+00	M6-2-30			1								
162	US-33	L	171+80	W4-1L-48	1										
162	US-33	M	170+82	R4-7B-36			1								
162	WIN. P	R	173+05	R4-7-36			1								
163	US-33	L	177+60	W1-8L-30			1								
163	US-33	L	179+51	W1-8L-30	1										
163	US-33	M	180+76	W4-1L-48			1								
163	US-33	L	180+76	W1-8L-30			1								
163	US-33	L	182+62	W1-8L-30			1								
163	WIN. P	L	182+11	R4-1-36			1								
164	US-33	L	188+15		2	1									
164	US-33	R	194+00	M1-4-36		1	1								
164	US-33	R	194+00	M3-2-36		1	1								
165	US-33	L	201+73	W13-2-48	1										
165	US-33	R	206+97	W4-1R-48	1	2									
169	US-33	L	208+37	W4-1R-48	1	2									
169	US-33	R	223+00	M1-4-36			1								
170	US-33	R	223+00	M3-2-36			1								
170	US-33	R	223+72	R2-H2B-36	1	2									
170	US-33	M	233+10	R3-H4A-24	1	1									
170	US-33	M	233+10	R3-4-36	1										
TOTALS CARRIED TO GEN. SUMMARY					22	27	28	4							

CALCULATED: RBK / LJR
PAY / NG
CHECKED: MATT

FLAT SHEET SIGNING

FRA-33-20.69

132
230

LOCATION

630 REMOVALS

SHEET #	LOCATION	SIDE	STATION	CODE	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL								
					EACH	EACH	EACH								
170	US-33	M	233+62	R3-H4A-24	1	1									
170	US-33	M	233+62	R3-4-36	1										
171	US-33	L	254+65	R2-H2B-36	1	2									
173	US-33	R	286+55	W4-1R-48	1	2									
173	US-33	L	283+25	R1-2-48	1	2									
173	US-33	L	283+86	W4-1R-48	1	2									
175	US-33	R	299+92	W4-1R-48	1	2									
175	US-33	L	299+94	W4-1R-48	1										
175	US-33	R	303+15	R1-2-48	1										
176	US-33	R	318+50	M3-2-36	1										
176	US-33	R	318+50	M1-4-36	1										
176	US-33	M	324+24	R3-H4A-24	1	1									
176	US-33	M	324+24	R3-4-36	1										
176	US-33	M	324+65	R3-H4A-24	1	1									
176	US-33	M	324+65	R3-4-36	1										
176	US-33	L	327+90	R2-H2B-36	1	2									
177	US-33	R	340+10		2	2									
178	US-33	L	348+85	W4-1R-48	1										
178	US-33	R	352+00	W4-1R-48	1										
178	US-33	L	355+75	R5-10E-30	1										
178	US-33	R	364+36	W4-1R-48	1	2									
178	US-33	M	366+35	D10-2-12	1										
178	US-33	M	366+35	D10-2-12	1										
178	US-33	M	366+35	D10-2-12	1										
182	US-33	L	370+54	I-H2C-36	1										
182	US-33	L	369+76	E8-H2-84	1										
182	US-33	R	371+07	E8-H2-84	1										
182	US-33	R	375+39	D-1	1	2									
182	US-33	L	386+08	E8-H2-84	2	2									
174		M	294+80	R14-2-48											
160		L	132+17	R2-1-36			1								
160		L	126+73	D3-H2A-96	1	2									
160		L	126+73	D3-H2A-96	1										
160		L	126+73	R5-1A-36	1										
160		R	126+73	R5-1A-36	1										
160		R	124+45	R-1-36	1	2									
160		R	124+45	R6-1R-36	1										
160		R	124+45	R6-1L-36	1										
159		L	124+12	R-1-36	1	2									
159		L	124+12	R6-1R-36	1										
159		L	124+12	R6-1L-36	1										
159		L	116+55	W13-3-36	1										
161		R	114+66	R4-8-36	1	2									
161		R	119+00	R5-1A-36	1										
161		R	119+73	W4-2L-36			1								
161		R	122+50	D3-H2A-96	1	2									
161		R	122+50	D3-H2A-96	1										
161		R	123+26	R-1-36	1										
161		R	123+26	R6-1R-36	1										
161		R	123+26	R6-1L-36	1										
161		R	123+65	R-1-36	1										
161		R	123+65	R6-1R-36	1										
161		R	123+65	R6-1L-36	1										
161		R	122+04	R5-1A-36	1										
TOTALS CARRIED TO GEN. SUMMARY					52	33	2								

CALCULATED RDK / LW
PAY / HG
CHECKED MATT

FLAT SHEET SIGNING

FRA-33-20.69

133
230

LOCATION

630 REMOVALS

SHEET #	LOCATION	SIDE	STATION	CODE	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL								
					EACH	EACH	EACH								
	REF. RD.														
169	RAMP AA		99+50	D3-H5-108	1	2									
169	RAMP AA		99+50	M1-5-3-36	1										
169	RAMP AA		99+50	M6-2-30	1										
179	HAM. RD.														
179	RAMP J		54+33	R5-1A-36	1	1									
179	RAMP I		54+33	R5-1A-36	1	1									
179	RAMP I		55+52	W1-8L-36	1	1									
179	RAMP I		55+94	W1-8L-36	1	1									
179	RAMP I		55+30		1	2									
179	RAMP J		55+35	R5-10A-30	1	1									
179	RAMP I		55+78	W1-8L-36		1									
179	RAMP I		56+00		1	2									
179	RAMP I		56+47	W1-8L-36	1	1									
179		R	63+00	M3-2-36	1										
179		R	63+00	M1-4-36	1										
179		R	63+00	M6-1-30	1										
180	RAMP H		52+27	R1-2-48	1										
180		L	21+38	R6-1L-36	1	1									
180		L	21+38	R6-1R-36	1										
180		L	21+38	R5-1-36	1										
180		R	17+50	M3-4-36	1										
180		R	17+50	M1-4-36	1										
180		R	17+50	M6-2-30	1										
181		R	29+52	R6-1L-36			1								
181		R	29+52	R6-1R-36			1								
181		L	30+25	R6-1L-36	1										
181		L	30+40	R3-2-36	1										
181	RAMP L		64+13	R5-H10-30	1	1									
181	RAMP G		52+27	R5-10B-30	1	2									
180	RAMP H		54+46	M3-3-36	1	2									
180	RAMP H		54+46	M1-5-36	1										
180	RAMP H		54+46	M6-2-30	1										
180	RAMP H		54+46	M3-1-36	1										
180	RAMP H		54+46	M1-5-36	1										
180	RAMP H		54+46	M6-3-30	1										
180	RAMP H		57+56	R5-1A-36	1										
180	RAMP H		57+56	R5-H10E-30	1										
180	RAMP H		57+56	R5-1A-36	1										
180	RAMP H		57+56	D1-H6-96	1	2									
TOTALS CARRIED TO GEN. SUMMARY					35	21	2								

CALCULATED RDK / LW
CHECKED MATT
FAX / HG

FLAT SHEET SIGNING

FRA-33-20.69

134
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LOCATION					630									
SHEET #	LOCATION	SIDE	STATION	CODE	GROUND MOUNTED SUPPORT NO. 2 POST	GROUND MOUNTED SUPPORT NO. 3 POST	SIGN SUPPORT ASSEMBLY POLE MOUNTED	SIGN HANGER ASSEMBLY SPAN WIRE	SIGN FLAT SHEET						
					FT.	FT.	EACH	EACH	SQ. FT.						
158	US-33	R	144+67	W4-1R-48		12/12			16						
158	US-33	R	145+79	W3-3-48			1		16						
158	RAMP		146+80	W3-3-48			1		16						
158	RAMP		147+23	R3-4-36			1		9						
158	RAMP		147+23	R5-10C-24			1		2						
158	US-33	R	153+95	R3-7R-30			1		6.25						
158	US-33	R	153+95	R5-1A-36			1		6.00						
158	US-33	R	154+95	R3-H8DA-54	9.5/9.5				11.25						
158	US-33	M	154+95	R3-H8DA-54	9.5/9.5				11.25						
158	US-33	L	156+05	R5-10C-24			1		2						
158	US-33	L	156+63	R2-1-36					12.00						
158	US-33	M	157+45	R3-7L-30					6.25						
158	US-33	M	157+45	R3-4-SPECIAL		11.5			9						
158	US-33	M	157+45	R4-7B-36	12.5/12.5				12						
158	US-33	M	157+63	R3-5L-30				1	6.25						
158	US-33	M	157+63	R10-10L-24				1	5						
159	US-33	M	158+17	R3-5L-30				1	6.25						
159	US-33	M	158+17	R10-10L-24				1	5						
159	US-33	M	158+70	R4-7B-36	12.5/12.5				12						
159	US-33	R	159+25	R5-H10E-30			1		6.25						
159	US-33	L	160+92	R5-1A-36			1		6						
159	US-33	R	163+26	R2-H2B-36					18						
159	US-33	L	166+77	W3-3-48			1		16						
159	US-33	L	166+77	W3-3-48			1		16						
159	US-33	M	166+77	W3-3-48			1		16						
162	US-33		168+10	R1-2-48		12/12			8						
162	US-33	L	168+58	W4-1L-48					16						
162	US-33	R	169+89	M3-2-36											
	US-33	R	169+89	M1-4-36											
162	US-33	R	169+89	M6-2-30											
159	US-33	M	158+70	R4-7B-36											
162	US-33	R	173+50	R2-H5D-36		12/12			13.50						
162	US-33	R	171+00	M1-4-36			1		9						
162	US-33	R	171+00	M6-2-30			1		5						
162	US-33	L	171+80	W4-1L-48					16						
162	US-33	M	170+82	R4-7B-36			1		12						
162	WIN. P	R	173+05	R4-7-36			1		12						
163	US-33	L	177+60	W1-8L-30			1		7.50						
	US-33	L	179+51	W1-8L-30					7.50						
163	US-33	M	180+76	W4-1L-48			1		16						
163	US-33	L	180+76	W1-8L-30			1		7.50						
163	US-33	L	182+62	W1-8L-30			1		7.50						
163	WIN. P	L	182+11	R4-1-36			1		12						
164	US-33	L	188+15												
164	US-33	R	194+00	M1-4-36			1		9						
164	US-33	R	194+00	M3-2-36			1		4.50						
165	US-33	L	201+73	W13-2-48					20						
165	US-33	R	206+97	W4-1R-48		12/12			16						
169	US-33	L	208+37	W4-1R-48		12/12			16						
169	US-33	R	223+00	M1-4-36			1		9						
170	US-33	R	223+00	M3-2-36			1		4.50						
170	US-33	R	223+72	R2-H2B-36		12/12			18						
170	US-33	M	233+10	R3-H4A-24		12			5						
170	US-33	M	233+10	R3-4-36					9						
TOTALS CARRIED TO GEN. SUMMARY					88	179.5	24	4	492.25						

CALCULATED RDK / LM FAY / HG
CHECKED MATT

FLAT SHEET SIGNING

FRA-33-20.69

LOCATION					630									
SHEET #	LOCATION	SIDE	STATION	CODE	GROUND MOUNTED POST SUPPORT NO. 3	ONE WAY SUPPORT NO. 3 POST	SIGN SUPPORT ASSEMBLY POLE MOUNTED	SIGN FLAT SHEET							
					FT.	EACH	EACH	SQ. FT.							
170	US-33	M	233+62	R3-H4A-24	12			5							
170	US-33	M	233+62	R3-4-36	12/12			9							
171	US-33	L	254+65	R2-H2B-36	12/12			18							
173	US-33	R	286+55	W4-1R-48	12/12			16							
173	US-33	L	283+25	R1-2-48	12/12			8							
173	US-33	L	283+86	W4-1R-48	12/12			16							
175	US-33	R	299+92	W4-1R-48	12/12			16							
175	US-33	L	299+94	W4-1R-48				16							
175	US-33	R	303+15	R1-2-48				8							
176	US-33	R	318+50	M3-2-36				4.50							
176	US-33	R	318+50	M1-4-36				9							
176	US-33	M	324+24	R3-H4A-24	12			5							
176	US-33	M	324+24	R3-4-36				9							
176	US-33	M	324+65	R3-H4A-24	12			5							
176	US-33	M	324+65	R3-4-36				9							
176	US-33	L	327+90	R2-H2B-36	12/12			18							
177	US-33	R	340+10												
178	US-33	L	348+85	W4-1R-48				16							
178	US-33	R	352+00	W4-1R-48				16							
178	US-33	L	355+75	R5-10E-30				6.25							
178	US-33	R	364+36	W4-1R-48	12/12			16							
178	US-33	M	366+35	D10-2-12				3							
178	US-33	M	366+35	D10-2-12				3							
182	US-33	L	370+54	I-H2C-36				6							
182	US-33	L	369+76	E8-H2-84				21							
182	US-33	R	371+07	E8-H2-84				21							
182	US-33	R	375+39	D-1											
182	US-33	L	386+08	E8-H2-84	13/13			21							
174		M	294+80	R14-2-48				16							
160		L	132+17	R2-1-36			1	12							
160		L	126+73	D3-H2A-96	15/15			8							
160		L	126+73	D3-H2A-96				8							
160		L	126+73	R5-1A-36				6							
160		R	126+73	R5-1A-36				6							
160		R	124+45	R-1-36	12/12	1		9							
160		R	124+45	R6-1R-36				3							
160		R	124+45	R6-1L-36				3							
159		L	124+12	R-1-36	12/12	1		9							
159		L	124+12	R6-1R-36				3							
159		L	124+12	R6-1L-36				3							
159		L	116+55	W13-3-36				12							
161		R	114+66	R4-8-36	12/12			12							
161		R	119+00	R5-1A-36				6							
161		R	119+73	W4-2L-36			1								
161		R	122+50	D3-H2A-96	15/15			8							
161		R	122+50	D3-H2A-96				8							
161		R	123+26	R-1-36				9							
161		R	123+26	R6-1R-36				3							
161		R	123+26	R6-1L-36				3							
161		R	123+65	R-1-36				9							
161		R	123+65	R6-1R-36				3							
161		R	123+65	R6-1L-36				3							
161		R	122+04	R5-1A-36				6							
TOTALS CARRIED TO GEN. SUMMARY					374	2	2	468.75							

CALCULATED RDK / LW
PLANS / MG
CHECKED MATT

FLAT SHEET SIGNING

FRA-33-20.69

136
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LOCATION

630

SHEET #	LOCATION	SIDE	STATION	CODE	GROUND MOUNTED POST SUPPORT NO. 3	SIGN SUPPORT ASSEMBLY POLE MOUNTED	SIGN FLAT SHEET								
					FT.	EACH	SQ. FT.								
	REF. RD.														
169	RAMP AA	O	99+50	D3-H5-108	13/13		27.00								
169	RAMP AA	O	99+50	M1-5-3-36			9.00								
169	RAMP AA	O	99+50	M6-2-30			5.00								
179	HAM. RD.														
179	RAMP J	O	54+33	R5-1A-36	12		6.00								
179	RAMP I	O	54+33	R5-1A-36	12		6.00								
179	RAMP I	O	55+52	W1-8L-36	12		12.00								
179	RAMP I	O	55+94	W1-8L-36	12		12.00								
179	RAMP I	O	55+30												
179	RAMP J	O	55+35	R5-10A-30	12		6.25								
179	RAMP I	O	55+78	W1-8L-36	12		12.00								
179	RAMP I	O	56+00												
179	RAMP I	O	56+47	W1-8L-36	12		12.00								
179		R	63+00	M3-2-36			4.50								
179		R	63+00	M1-4-36			9.00								
179		R	63+00	M6-1-30			5.00								
180	RAMP H		52+27	R1-2-48			8.00								
180		L	21+38	R6-1L-36	14		3.00								
180		L	21+38	R6-1R-36			3.00								
180		L	21+38	R5-1-36			9.00								
180		R	17+50	M3-4-36			4.50								
180		R	17+50	M1-4-36			9.00								
180		R	17+50	M6-2-30			5.00								
181		R	29+52	R6-1L-36		1	3.00								
181		R	29+52	R6-1R-36		1	3.00								
181		L	30+25	R6-1L-36			3.00								
181		L	30+40	R3-2-36			9.00								
181	RAMP L		64+13	R5-H10-30	12		6.25								
181	RAMP G		52+27	R5-10B-30	12		3.75								
180	RAMP H		54+46	M3-3-36	12		4.50								
180	RAMP H		54+46	M1-5-36			9.00								
180	RAMP H		54+46	M6-2-30			5.00								
180	RAMP H		54+46	M3-1-36	12		4.50								
180	RAMP H		54+46	M1-5-36			9.00								
180	RAMP H		54+46	M6-3-30			5.00								
180	RAMP H		57+56	R5-1A-36			6.00								
180	RAMP H		57+56	R5-H10E-30			6.25								
180	RAMP H		57+56	R5-1A-36			6.00								
180	RAMP H		57+56	D1-H6-96	13/13		32.00								
TOTALS CARRIED TO GEN. SUMMARY					198	2	282.5								

CALCULATED RPK / JW
DRAWN RPK / MG
CHECKED MATT

FLAT SHEET SIGNING

FRA-33-20.69

137
230

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PAVEMENT MARKING SUBSUMMARY

CALCULATED: RDK / LW 24 JAN 05
CHECKED: MATT

LOCATION

LONG LINES — 644

AUXILIARY MARKINGS — 644

SHEET #	REF #	BEGIN STA.	END STA.	LENGTH FT.	SIDE	DESCRIPTION	EDGE LINE WHITE MILE	EDGE LINE YELLOW MILE	LANE LINE WHITE MILE	CENTER LINE MILE	EQUIV SOLID CENTER LINE (INFO) MILE	CHANNELIZING LINE FT.	STOP LINE FT.	CROSS WALK FT.	TRANSVERSE LINE YELLOW FT.	TRANSVERSE LINE WHITE FT.	RAIL ROAD SYMBOL MARKING EACH	SCHOOL MARKING 96" EACH	LANE ARROWS LT EACH	LANE ARROWS LT THRU EACH	LANE ARROWS STR EACH	LANE ARROWS RT THRU EACH	LANE ARROWS RT EACH	WORD ON PAVEMENT 72" EACH
155	A-1	101+30			RT														1					
	A-2	101+30			LT														1					
	A-3	102+64			RT														1					
	A-4	102+64			LT														1					
	A-5	104+06			RT														1					
	A-6	104+06			LT														1					
	W-1	101+98			RT																			1
	W-2	101+98			LT																			1
	CH-1	101+00	104+29	329	CL							329												
	CH-2	101+00	104+29	329	LT							329												
	LL-1	105+19	110+00	481	LT				0.09															
	LL-2	105+19	110+00	481	RT				0.09															
	LL-3	110+00	120+00	1000	LT				0.19															
	LL-4	110+00	120+00	1000	RT				0.19															
	SL-1	101+00			LT/RT								34											
	SL-2	107+92			RT								23											
	SL-3	108+62			LT								23											
	CW-1	107+96			LT/RT									46										
	CW-2	108+06			LT/RT									46										
	CW-3	108+49			LT/RT									46										
	CW-4	108+59			LT/RT									46										
	CL-1	101+00	110+00	900	RT/CL					0.17	0.34													
	CL-2	110+00	120+00	1000	CL					0.19	0.38													
156	LL-1	120+00	130+00	1000	LT				0.19															
	LL-2	120+00	130+00	1000	RT				0.19															
	LL-3	130+00	136+74	674	LT				0.13															
	LL-4	130+00	136+74	674	RT				0.13															
	LL-5	114+87	118+13	326	LT				0.06															
	LL-6	114+87	118+13	326	RT				0.06															
	CL-1	120+00	130+00	1000	CL					0.19	0.38													
	CL-2	130+00	136+74	674	CL					0.13	0.26													
	CL-3	114+87	115+15	28	CL					0.01	0.02													
	CL-4	115+15	116+86	171	LT					0.03	0.06													
	CL-5	115+15	116+86	171	RT					0.03	0.06													
	TY-1	115+15	116+86		LT/RT										63									
	YE-1	116+86	118+13	127	LT			0.02																
	YE-2	116+86	118+13	127	RT			0.02																
	WE-1	135+02	136+74	172	LT		0.03																	
	WE-2	114+87	118+13	326	LT		0.06																	
	WE-3	136+21	136+74	53	RT		0.01																	
	WE-4	114+87	118+13	326	RT		0.06																	
TOTALS CARRIED TO GEN. SUMMARY							0.17	0.05	1.32	0.75	1.50	658	80	184	63				6					2

FRA-33-20.69

PAVEMENT MARKING SUBSUMMARY

CALCULATED RDK / LM PAT / MS
CHECKED MATT

FRA-33-20.69

LOCATION							LONG LINES					AUXILIARY MARKINGS												
							644					644												
SHEET #	REF #	BEGIN	END	LENGTH	SIDE	DESCRIPTION	EDGE LINE WHITE	EDGE LINE YELLOW	LANE LINE WHITE	CENTER LINE	EQUIV SOLID CENTER LINE (INFO)	CHANNELIZING LINE	STOP LINE	CROSS WALK	TRANSVERSE LINE YELLOW	TRANSVERSE LINE WHITE	RAIL ROAD SYMBOL MARKING	SCHOOL MARKING 96"	LANE ARROWS LT	LANE ARROWS LT THRU	LANE ARROWS STR	LANE ARROWS RT THRU	LANE ARROWS RT	WORD ON PAVEMENT 72"
		STA.	STA.	FT.			MILE	MILE	MILE	MILE	MILE	FT.	FT.	FT.	FT.	FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
157	A-1	123+56			LT														1					
	A-2	124+88			LT														1					
	A-3	129+56			RT														1					
	A-4	130+91			CL														1					
	A-5	132+65			CL														1					
	A-6	133+98			LT														1					
	A-7	137+44			LT														1					
	A-8	126+23			LT														1					
	W-1	124+26			LT																			1
	W-2	130+25			RT																			1
	W-3	133+31			LT																			1
	CH-1	123+56	124+95	139	LT							139												
	CH-2	126+23	128+13	190	RT							190												
	CH-3	128+13	131+25	312	RT							302												
	CH-4	132+31	137+44	513	LT							513												
	CH-5	132+31	135+05	274	LT							274												
	CH-6	128+13	131+25	312	RT							312												
	LL-1	118+13	128+13	1000	LT				0.19															
	LL-2	118+13	128+13	1000	RT				0.19															
	LL-3	128+13	138+13	1000	LT				0.19															
	LL-4	128+13	133+85	572	RT				0.11															
	SL-1	123+13	123+32		RT								19											
	SL-2	123+32	123+51		LT								19											
	TY-1	134+23	138+13		RT										73									
	TW-1	128+23	131+25		RT											316								
	TW-2	132+31	135+05		LT											279								
	YE-1	118+13	128+13	1000	LT			0.19																
	YE-2	118+13	128+13	1000	RT			0.19																
	YE-3	128+13	138+13	1000	CL/LT			0.19																
	YE-4	128+13	138+13	1000	RT/CL			0.19																
	YE-5	134+23	138+13	390	RT			0.07																
	WE-1	118+13	128+13	1000	LT		0.19																	
	WE-2	118+13	128+13	1000	RT		0.19																	
	WE-3	128+13	138+13	1000	LT		0.19																	
	WE-4	128+13	138+13	1000	RT		0.19																	
158	A-1	153+85			RT																		1	
	A-2	154+60			RT																		1	
	A-3	155+35			RT																		1	
	A-4	156+82			RT																		1	
	A-5	155+41			RT														1					
	A-6	156+00			RT														1					
	A-7	157+20			RT														1					
	W-1	156+10			RT																			1
	W-2	156+60			RT																			1
	CH-1	141+00	142+87	187	LT	RAMPS TO I-70						187												
	CH-2	141+00	144+88	388	LT							388												
	CH-3	148+19	151+25	306	RT	RAMPS FROM I-70						306												
	CH-4	156+06	157+63	157	LT							157												
	CH-5	153+78	157+52	374	RT							374												
	CH-6	156+16	157+04	91	RT							91												
	CH-7	155+21	157+63	242	RT							242												
	CH-8	155+21	157+63	242	RT							242												
	CH-9	157+09	157+63	54	LT							54												
TOTALS CARRIED TO GEN. SUMMARY							0.76	0.83	0.68			3,771	38		73	595			11			4	5	

PAVEMENT MARKING SUBSUMMARY

CALCULATED RDK / LW
FAT / HG
CHECKED MATT

LOCATION							LONG LINES					AUXILIARY MARKINGS												
							644					644												
SHEET #	REF #	BEGIN	END	LENGTH	SIDE	DESCRIPTION	EDGE LINE WHITE	EDGE LINE YELLOW	LANE LINE WHITE	CENTER LINE	EQUIV SOLID CENTER LINE (INFO)	CHANNELIZING LINE	STOP LINE	CROSS WALK	TRANSVERSE LINE YELLOW	TRANSVERSE LINE WHITE	RAIL RD. SYMBOL MARKING	SCHOOL MARKING 96"	LANE ARROWS LT	LANE ARROWS LT THRU	LANE ARROWS STR	LANE ARROWS RT THRU	LANE ARROWS RT	WORD ON PAVEMENT 72"
		STA.	STA.	FT.			MILE	MILE	MILE	MILE	MILE	FT.	FT.	FT.	FT.	FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
158	LL-1	138+13	148+13	1000	LT				0.19															
	LL-2	144+88	148+13	325	LT				0.06															
	LL-3	148+13	158+13	1000	LT				0.19															
	LL-4	154+54	156+06	152	LT				0.03															
	LL-5	151+25	157+52	627	RT				0.12															
	SL-1	157+52			RT/CL								13											
	SL-2	157+52			RT								46											
	SL-3	157+76	158+17		RT	PETZINGER RD.							41											
	TY-1	138+13	148+13		RT										336									
	TY-2	148+13	153+51		RT										149									
	TW-1	141+00	142+87		LT											140								
	TW-2	156+16	157+52		RT											155								
	TW-3	155+21	157+63		RT											225								
	TW-4	157+09	157+63		LT											33								
	YE-1	138+13	148+13	1000	LT			0.19																
	YE-2	138+13	148+13	1000	RT			0.19																
	YE-3	138+13	148+13	1000	RT			0.19																
	YE-4	148+13	158+13	1000	LT			0.19																
	YE-5	148+13	158+13	1000	RT/CL			0.19																
	YE-6	148+13	153+51	538	RT			0.10																
	WE-1	138+13	148+13	1000	LT		0.19																	
	WE-2	138+13	148+13	1000	RT		0.19																	
	WE-3	148+13	158+13	1000	LT		0.19																	
	WE-4	148+13	151+25	312	RT		0.06																	
	WE-5	148+19	157+52	933	RT		0.18																	
	WE-6	157+04	157+52	48	RT		0.01																	
159	A-1	158+68			LT																		1	
	A-2	159+37			LT																		1	
	A-3	158+68			LT														1					
	A-4	159+41			LT														1					
	W-1	159+03			LT																			1
	W-2	159+03			LT																			1
	CH-1	158+15	158+55	40	LT							40												
	CH-2	158+15	159+37	122	LT							122												
	CH-3	158+15	160+22	207	LT							207												
	CH-4	158+15	160+22	207	LT							207												
	LL-1	158+30	165+92	762	LT				0.14															
	LL-2	158+60	165+92	732	RT				0.14															
	LL-3	165+89	167+27	138	LT	WIN. PIKE LINE A			0.03															
	LL-4	164+76	166+97	221	RT	WB DIR. RD.WAY			0.04															
	LL-5	166+86	169+07	221	LT	EB DIR. RD.WAY			0.04															
	LL-6	114+10	124+10	1000	RT	NB JAMES RD. #1			0.19															
	SL-1	158+30			LT/CL								12											
	SL-2	158+30			LT								24											
	SL-3	158+30			LT								14											
	TY-1	158+30	158+79		CL/RT										85									
	TW-1	158+15	160+22		LT										188									
	TW-2	158+15	158+55		LT										28									
TOTALS CARRIED TO GEN. SUMMARY							0.81	1.05	1.17			576	150		786	553			2			2	2	

FRA-33-20.69

140
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LOCATION							LONG LINES 644					AUXILIARY MARKINGS 644											
SHEET #	REF #	BEGIN	END	LENGTH	SIDE	DESCRIPTION	EDGE LINE WHITE	EDGE LINE YELLOW	LANE LINE WHITE	CENTER LINE	EQUIV SOLID CENTER LINE (INFO)	CHANNELIZING LINE	STOP LINE	CROSS WALK	TRANSVERSE LINE YELLOW	TRANSVERSE LINE WHITE	RAIL RD. SYMBOL MARKING	SCHOOL MARKING 96"	LANE ARROWS LT	LANE ARROWS LT THRU	LANE ARROWS STR	LANE ARROWS RT THRU	LANE ARROWS RT	WORD ON PAVEMENT 72"
		STA.	STA.	FT.			MILE	MILE	MILE	MILE	MILE	FT.	FT.	FT.	FT.	FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
159	YE-1	158+30	165+92	762	CL/LT			0.14															
	YE-2	158+60	165+92	732	RT			0.14															
	YE-3	166+13	166+97	84	RT	WB DIR. RD.WAY		0.02															
	YE-4	166+86	169+07	221	LT	EB DIR. RD.WAY/WIN. PIKE LINE B		0.04															
	YE-5	165+89	168+10	221	CL	WIN. PIKE LINE A		0.04															
	YE-6	114+10	124+10	1000	RT	NB JAMES RD. #1		0.19															
	WE-1	158+13	165+92	779	RT		0.15																
	WE-2	158+13	165+92	779	LT		0.15																
	WE-3	164+76	166+97	221	CL	WB DIR. RD.WAY	0.04																
	WE-4	167+27	168+10	83	LT	WIN. PIKE LINE A	0.02																
	WE-5	166+86	169+07	221	CL	EB DIR. RD.WAY	0.04																
	WE-6	114+10	124+10	1000	CL	NB JAMES RD. #1	0.19																
160	CH-1	28+11	29+86	175	RT	NB JAMES RD. #1						175											
	LL-1	124+55	128+13	358	RT	NB JAMES RD.			0.07														
	SL-1	1+48			CL/RT	RAVENSWOOD CT.							10										
	CL-1	1+48	2+84	136	RT	RAVENSWOOD CT.				0.03	0.06												
	YE-1	124+55	128+13	358	RT	NB JAMES RD.		0.07															
	YE-2	128+13	134+28	615	RT	NB JAMES RD. #2		0.12															
	YE-3	29+86	34+10	424	RT	NB JAMES RD. #1		0.08															
	YE-4	34+10	44+10	1000	RT	NB JAMES RD. #1		0.19															
	YE-5	134+28	137+00	272	RT	NB JAMES RD. #2		0.05															
	WE-1	124+69	128+13	344	CL	NB JAMES RD.	0.07																
	WE-2	28+11	34+10	599	CL	NB JAMES RD. #1	0.11																
	WE-3	129+89	134+28	439	CL	NB JAMES RD. #2	0.08																
	WE-4	1+20	2+84	164	CL	RAVENSWOOD CT.	0.03																
	WE-5	1+20	2+84	164	RT	RAVENSWOOD CT.	0.03																
	WE-6	34+10	44+10	1000	CL	NB JAMES RD. #1	0.19																
	WE-7	134+28	137+00	272	CL	NB JAMES RD. #2	0.05																
161	A-1	121+66			LT	SB JAMES RD.													1				
	A-2	122+86			LT	SB JAMES RD.													1				
	W-1	122+26			LT	SB JAMES RD.																	1
	CH-1	121+58	123+17	159	CL	SB JAMES RD.						159											
	LL-1	114+15	123+17	902	RT	SB JAMES RD.			0.17														
	SL-1	4+30			RT	RAVENSWOOD CT.							11										
	CL-1	2+84	4+30	146	RT	RAVENSWOOD CT.				0.03	0.06												
	YE-1	114+15	124+15	1000	CL	SB JAMES RD.		0.19															
	YE-2	124+15	134+15	1000	CL	SB JAMES RD.		0.19															
	WE-1	114+15	124+15	1000	RT	SB JAMES RD.	0.19																
	WE-2	2+84	4+66	182	CL	RAVENSWOOD CT.	0.03																
	WE-3	2+84	4+66	182	RT	RAVENSWOOD CT.	0.03																
	WE-4	124+15	134+15	1000	RT	SB JAMES RD.	0.19																
TOTALS CARRIED TO GEN. SUMMARY							1.60	1.46	0.24	0.06	0.12	334	21						2				1

CALCULATED RDK / LW PAT / MG
CHECKED MATT

PAVEMENT MARKING SUBSUMMARY

FRA-33-20.69

PAVEMENT MARKING SUBSUMMARY

CALCULATED RDK / LW FAY / HG
CHECKED MATT

LOCATION							LONG LINES 644					AUXILIARY MARKINGS 644												
SHEET #	REF #	BEGIN	END	LENGTH	SIDE	DESCRIPTION	EDGE LINE WHITE	EDGE LINE YELLOW	LANE LINE WHITE	CENTER LINE	EQUIV SOLID CENTER LINE (INFO)	CHANNELIZING LINE	STOP LINE	CROSS WALK	TRANSVERSE LINE YELLOW	TRANSVERSE LINE WHITE	RAIL RD. SYMBOL MARKING	SCHOOL MARKING 96"	LANE ARROWS LT	LT THRU	STR	RT THRU	RT	WORD ON PAVEMENT 72"
		STA.	STA.	FT.			MILE	MILE	MILE	MILE	MILE	FT.	FT.	FT.	FT.	FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
																			1					
162	CH-1	170+02	171+32	130	LT	EB DIR. RD.WAY						130												
	CH-2	169+07	170+40	133	RT	WIN. PIKE LINE B						133												
	LL-1	169+07	179+20	1013	LT	EB DIR. RD.WAY			0.19															
	LL-2	166+97	177+10	1013	RT	WB DIR. RD.WAY			0.19															
	CL-1	170+88	178+12	724	CL	WIN. PIKE LINE B				0.14	0.28													
	CL-2	170+88	174+08	320	CL	WIN. PIKE LINE A				0.06	0.12													
	TY-1	170+88	174+08		CL	WIN. PIKE									232									
	TW-1	170+02	171+32		LT	EB DIR. RD.WAY										88								
	YE-1	171+32	179+20	788	LT	EB DIR. RD.WAY		0.15																
	YE-2	134+15	137+63	348	CL	JAMES RD.		0.07																
	YE-3	168+10	170+88	278	CL	WIN. PIKE LINE B		0.05																
	YE-4	168+10	170+88	278	CL	WIN. PIKE LINE A		0.05																
	YE-5	166+97	177+10	1013	RT	WB DIR. RD.WAY		0.19																
	WE-1	169+07	179+20	1013	CL	EB DIR. RD.WAY	0.19																	
	WE-2	170+40	178+12	772	RT	WIN. PIKE LINE B	0.15												1					
	WE-3	168+10	178+12	1002	LT	WIN. PIKE LINE A	0.19																	
	WE-4	166+97	177+10	1013	CL	WB DIR. RD.WAY	0.19																	
	WE-5	134+15	137+63	348	RT	JAMES RD.	0.07																	
163	CH-1	137+47	139+47	200	RT	NB JAMES RD. #2						200												
	CH-2	183+80	185+78	198	CL	WB DIR. RD.WAY						198												
	CH-3	140+93	142+69	176	RT	SB JAMES RD.						176												
	LL-1	177+10	188+03	1093	RT	WB DIR. RD.WAY			0.21															
	LL-2	185+78	188+03	225	CL	WB DIR. RD.WAY			0.04															
	LL-3	183+99	188+30	431	LT	EB DIR. RD.WAY			0.08															
	LL-4	179+20	188+30	910	LT	EB DIR. RD.WAY			0.17															
	CL-1	178+12	188+50	1038	CL	WIN. PIKE				0.20	0.40													
	TW-1	183+80	185+78		LT	WB DIR. RD.WAY										132								
	YE-1	177+10	188+03	1093	RT	WB DIR. RD.WAY		0.21																
	YE-2	137+00	137+47	47	RT	NB JAMES RD. #2		0.01																
	YE-3	137+63	188+30	937	CL/LT	SB JAMES / EB DIR. RDWY		0.18																
	YE-4	179+20	183+99	479	LT	EB DIR. RD.WAY		0.09																
	WE-1	177+10	183+80	670	CL	WB DIR. RD.WAY	0.13																	
	WE-2	137+00	141+69	469	CL	NB JAMES RD. #2	0.09																	
	WE-3	178+12	188+50	1038	LT	WIN. PIKE	0.20																	
	WE-4	178+12	188+50	1038	RT	WIN. PIKE	0.20																	
	WE-5	137+63	142+69	506	RT	SB JAMES RD.	0.10																	
	WE-6	179+20	188+30	910	CL	EB DIR. RD.WAY	0.17																	
164	CH-1	95+70	97+86	216	RT	REFUGEE RD. RAMP D						216												
	CH-2	195+58	197+75	217	LT	WB DIR. RD.WAY						217												
	CH-3	95+10	98+13	303	LT	REFUGEE RD. RAMP A						303												
	CH-4	189+95	193+71	376	CL	EB DIR. RD.WAY						376												
	CH-5	102+50	103+07	57	LT	REFUGEE RD. RAMP A						57												
	CH-6	98+05	98+30	25	RT	REFUGEE RD. RAMP AA						25												
	LL-1	188+03	198+10	1007	RT	WB DIR. RD.WAY			0.19															
	LL-2	188+03	190+35	232	CL	WB DIR. RD.WAY			0.04															
	LL-3	188+30	198+17	987	LT	EB DIR. RD.WAY			0.19															
	LL-4	188+30	189+95	165	CL	EB DIR. RD.WAY			0.03															
TOTALS CARRIED TO GEN. SUMMARY							1.66	1.00	1.34	0.40	0.80	2,031			232	220			2					

FRA-33-20.69

PAVEMENT MARKING SUBSUMMARY

CALCULATED: RDK / LW
FAY / HG
CHECKED: MATT

LOCATION							LONG LINES 644					AUXILIARY MARKINGS 644												
SHEET #	REF #	BEGIN	END	LENGTH	SIDE	DESCRIPTION	EDGE LINE WHITE	EDGE LINE YELLOW	LANE LINE WHITE	CENTER LINE	EQUIV SOLID CENTER LINE (INFO)	CHANNELIZING LINE	STOP LINE	CROSS WALK	TRANSVERSE LINE YELLOW	TRANSVERSE LINE WHITE	RAIL RD. SYMBOL MARKING	SCHOOL MARKING 96"	LANE ARROWS LT	LANE ARROWS LT THRU	LANE ARROWS STR	LANE ARROWS RT THRU	LANE ARROWS RT	WORD ON PAVEMENT 72"
		STA.	STA.	FT.			MILE	MILE	MILE	MILE	MILE	FT.	FT.	FT.	FT.	FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
164	CL-1	188+50	192+55	405	CL	WINCHESTER PIKE				0.08	0.16													
	TW-1	95+70	97+86		RT	REFUGEE RD. RAMP D										248								
	TW-2	95+10	98+13		LT	REFUGEE RD. RAMP A										291								
	TW-3	102+50	103+07		LT	REFUGEE RD. RAMP A										5								
	YE-1	91+95	95+70	375	RT	REFUGEE RD. RAMP D		0.07																
	YE-2	188+03	198+10	1007	RT	WB DIR. RD.WAY		0.19																
	YE-3	188+30	198+17	987	LT	EB DIR. RD.WAY		0.19																
	YE-4	98+13	98+30	494	LT/CL	REF. RD RAMP A / RAMP AA		0.09																
	WE-1	188+50	192+55	405	LT	WINCHESTER PIKE	0.08																	
	WE-2	188+50	192+55	405	RT	WINCHESTER PIKE	0.08																	
	WE-3	91+25	98+16	691	CL	REFUGEE RD. RAMP D	0.13																	
	WE-4	188+03	195+58	755	CL	WB DIR. RD.WAY	0.14																	
	WE-5	92+77	103+07	1030	CL	REFUGEE RD. RAMP A	0.20																	
	WE-6	193+71	198+17	446	CL	EB DIR. RD.WAY	0.08																	
165	CH-1	2+47	3+82	135	RT	REFUGEE RD. RAMP C						135												
	LL-1	199+07	203+38	431	LT				0.08															
	LL-2	199+07	209+07	1000	LT				0.19															
	LL-3	199+07	209+07	1000	RT				0.19															
	YE-1	3+82	7+83	401	RT	REFUGEE RD. RAMP C		0.08																
	YE-2	199+07	209+07	1000	LT			0.19																
	YE-3	199+07	209+07	1000	RT			0.19																
	YE-4	21+40	146+32	735	CL/LT	REFUGEE RD RAMP BB / RAMP B		0.14																
	YE-5	139+30	139+92	62	LT	REFUGEE RD. RAMP B		0.01																
	WE-1	98+16	7+83	1066	CL	REFUGEE RD. RAMP C	0.20																	
	WE-2	203+38	209+07	569	LT		0.11																	
	WE-3	199+07	209+07	1000	RT		0.19																	
	WE-4	139+30	146+32	702	CL	REFUGEE RD. RAMP B	0.13																	
	WE-5	21+40	21+71	31	RT	REFUGEE RD. RAMP BB	0.01																	
166	CH-1	146+32	148+20	188	LT	REFUGEE RD. RAMP B						188												
	CH-2	24+57	26+63	206	RT	REFUGEE RD. RAMP F						206												
	CH-3	215+38	217+49	211	LT							211												
	LL-1	209+07	219+07	1000	LT				0.19															
	LL-2	209+07	219+07	1000	RT				0.19															
	LL-3	210+89	212+98	209	RT				0.04															
	LL-4	217+49	219+07	158	LT				0.03															
	TW-1	24+57	26+63		RT	REFUGEE RD. RAMP F										182								
	YE-1	17+91	24+57	666	RT	REFUGEE RD. RAMP F		0.13																
	YE-2	209+07	219+07	1000	LT			0.19																
	YE-3	209+07	219+07	1000	RT			0.19																
	WE-1	17+91	28+17	1026	CL	REFUGEE RD. RAMP F	0.19																	
	WE-2	209+07	215+38	631	LT		0.12																	
	WE-3	209+07	210+89	182	RT		0.03																	
	WE-4	146+32	219+07	1000	CL/RT	REFUGEE RD. RAMP B / US-33	0.19																	
TOTALS CARRIED TO GEN. SUMMARY							1.88	1.65	0.91	0.08	0.16	740				726								

FRA-33-20.69

PAVEMENT MARKING SUBSUMMARY

CALCULATED: RBK / LW TAY / MG
CHECKED: MATT

LOCATION

SHEET #	REF #	BEGIN STA.	END STA.	LENGTH FT.	SIDE	DESCRIPTION
167	CH-1	197+18	204+35	717	RT	WIN. PIKE
	CH-2	195+00	196+62	162	LT	WIN. PIKE
	CH-3	46+92	48+49	157	RT	NB JAMES RD. #1
	CL-1	192+55	204+35	1180	CL/LT	WIN. PIKE
	CL-2	193+52	197+18	366	LT/RT	WIN. PIKE
	TY-1	193+52	197+18		LT/RT	WIN. PIKE
	TW-1	195+00	196+62		LT	WIN. PIKE
	YE-1	44+10	46+92	282	RT	NB JAMES RD. #1
	YE-2	86+15	91+95	580	RT	REF. RD. RAMP D
	WE-1	44+10	204+50	1226	CL/LT	NB JAMES RD #1 / WIN. PIKE
	WE-2	192+55	204+50	1195	RT	WIN. PIKE
	WE-3	192+55	195+00	245	LT	WIN. PIKE
	WE-4	86+15	091+95	580	CL	REF. RD. RAMP D
	A-1	202+50				WIN. PIKE
	A-2	202+50				WIN. PIKE
	A-3	204+00				WIN. PIKE
	A-4	204+00				WIN. PIKE
	A-5	202+00				WIN. PIKE
	W-1	203+50				WIN. PIKE
	SL-1	204+35			RT	WIN. PIKE
168	YE-1	84+12	86+15	203	RT	REF. RD. RAMP D
	YE-2	7+83	14+50	667	RT	REF. RD. RAMP C
	YE-3	9+75	17+91	816	CL/LT	REF. RD. RAMP FF / RAMP F
	SL-1	9+75			RT	REF. RD. RAMP FF
	WE-1	84+12	86+15	203	CL	REF. RD. RAMP D
	WE-2	7+83	14+50	667	CL	REF. RD. RAMP C
	WE-3	9+21	13+00	379	CL	REF. RD. RAMP F
	WE-4	9+75	13+00	325	LT	REF. RD. RAMP FF
169	CH-1	103+07	103+39	32	LT	REF. RD. RAMP A
	CH-2	98+30	98+95	65	RT	REF. RD. RAMP AA
	LL-1	219+07	221+59	252	LT	
	LL-2	219+07	229+07	1000	LT	
	LL-3	219+07	229+07	1000	RT	
	TW-1	98+30	98+95		RT	REF. RD. RAMP AA
	YE-1	103+39	105+73	234	LT	REF. RD. RAMP A
	YE-2	98+30	99+83	153	CL	REF. RD. RAMP AA
	YE-3	19+78	21+40	162	CL	REF. RD. RAMP BB
	YE-4	135+72	139+30	358	LT	REF. RD. RAMP B
	YE-5	219+07	229+07	1000	LT	
	YE-6	219+07	229+07	1000	RT	
	WE-1	103+07	105+73	266	CL	REF. RD. RAMP A
	WE-2	98+95	99+83	88	RT	REF. RD. RAMP AA
	WE-3	19+78	21+40	162	RT	REF. RD. RAMP BB
	WE-4	135+72	139+30	358	CL	REF. RD. RAMP B
	WE-5	219+07	229+07	1000	LT	
	WE-6	219+07	229+07	1000	RT	
	SL-1	99+83			RT	REF. RD. RAMP BB
TOTALS CARRIED TO GEN. SUMMARY						

LONG LINES — 644

EDGE LINE WHITE MILE	EDGE LINE YELLOW MILE	LANE LINE WHITE MILE	CENTER LINE MILE	EQUIV SOLID CENTER LINE (INFO) MILE
			0.22	0.44
			0.07	0.14
	0.05			
	0.11			
0.23				
0.23				
0.05				
0.11				
	0.04			
	0.13			
	0.15			
0.04				
0.13				
0.07				
0.06				
		0.05		
		0.19		
		0.19		
	0.04			
	0.03			
	0.03			
	0.07			
	0.19			
	0.19			
0.05				
0.02				
0.03				
0.07				
0.19				
0.19				
1.46	1.03	0.43	0.29	0.58

AUXILIARY MARKINGS — 644

CHANNELIZING LINE FT.	STOP LINE FT.	CROSS WALK FT.	TRANSVERSE LINE YELLOW FT.	TRANSVERSE LINE WHITE FT.	RAIL RD. SYMBOL MARKING EACH	SCHOOL MARKING 96" EACH	LANE ARROWS: LT EACH	LANE ARROWS: LT THRU RT EACH	LANE ARROWS: STR EACH	LANE ARROWS: RT THRU EACH	LANE ARROWS: RT EACH	WORD ON PAVEMENT 72" EACH
717												
162												
157												
			149									
				135								
							1					
								1				
							1					
										1		
							1					
												1
	24											
	16											
32												
65												
				50								
	16											
1133	56		149	185			3	1		1		1

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LOCATION							LONG LINES 644					AUXILIARY MARKINGS 644							LANE ARROWS					
SHEET #	REF #	BEGIN STA.	END STA.	LENGTH FT.	SIDE	DESCRIPTION	EDGE LINE WHITE MILE	EDGE LINE YELLOW MILE	LANE LINE WHITE MILE	CENTER LINE MILE	EQUIV SOLID CENTER LINE (INFO) MILE	CHANNELIZING LINE FT.	STOP LINE FT.	CROSS WALK FT.	TRANSVERSE LINE YELLOW FT.	TRANSVERSE LINE WHITE FT.	RAIL ROAD SYMBOL MARKING EACH	SCHOOL MARKING 96″ EACH	LT EACH	LT THRU EACH	STR EACH	RT THRU EACH	RT EACH	WORD ON PAVEMENT 72″ EACH
170	LL-1	229+07	239+07	1000	LT				0.19															
	LL-2	229+07	239+07	1000	RT				0.19															
	LL-3	239+07	249+07	1000	LT				0.19															
	LL-4	239+07	249+07	1000	RT				0.19															
	YE-1	229+07	239+07	1000	LT			0.19																
	YE-2	229+07	239+07	1000	RT			0.19																
	YE-3	239+07	249+07	1000	LT			0.19																
	YE-4	239+07	249+07	1000	RT			0.19																
	WE-1	229+07	239+07	1000	LT		0.19																	
	WE-2	229+07	239+07	1000	RT		0.19																	
	WE-3	239+07	249+07	1000	LT		0.19																	
	WE-4	239+07	249+07	1000	RT		0.19																	
171	LL-1	249+07	259+07	1000	LT				0.19															
	LL-2	249+07	259+07	1000	RT				0.19															
	LL-3	259+07	269+07	1000	LT				0.19															
	LL-4	259+07	269+07	1000	RT				0.19															
	YE-1	249+07	259+07	1000	LT			0.19																
	YE-2	249+07	259+07	1000	RT			0.19																
	YE-3	259+07	269+07	1000	LT			0.19																
	YE-4	259+07	269+07	1000	RT			0.19																
	WE-1	249+07	259+07	1000	LT		0.19																	
	WE-2	249+07	259+07	1000	RT		0.19																	
	WE-3	259+07	269+07	1000	LT		0.19																	
	WE-4	259+07	269+07	1000	RT		0.19																	
172	CH-1	278+48	279+07	59	RT							59												
	CH-2	278+48	279+07	59	RT							59												
	LL-1	269+07	279+07	1000	LT				0.19															
	LL-2	277+61	279+07	146	LT				0.03															
	LL-3	269+07	279+07	1000	RT				0.19															
	LL-4	273+60	278+48	488	RT				0.09															
	TW-1	278+48	279+07		RT											7								
	YE-1	269+07	279+07	1000	LT			0.19																
	YE-2	269+07	279+07	1000	RT			0.19																
	WE-1	269+07	279+07	1000	LT		0.19																	
	WE-2	269+07	279+07	1000	RT		0.19																	
173	CH-1	280+15	282+47	232	LT							232												
	CH-2	279+07	280+62	155	RT							155												
	CH-3	279+07	280+62	155	RT							155												
	LL-1	279+07	280+15	108	LT				0.02															
	LL-2	279+07	289+07	1000	LT				0.19															
	LL-3	279+07	289+07	1000	RT				0.19															
	TW-1	279+07	280+62		RT											120								
	YE-1	279+07	289+07	1000	LT			0.19																
	YE-2	279+07	289+07	1000	RT			0.19																
TOTALS CARRIED TO GEN. SUMMARY							1.89	2.27	2.41			660				127								

CALCULATED RDK / LW FAY / HG
CHECKED MATT

PAVEMENT MARKING SUBSUMMARY

FRA-33-20.69

PAVEMENT MARKING SUBSUMMARY

CALCULATED: RDK / LW TAT / RG
CHECKED: MATT

LOCATION							LONG LINES 644					AUXILIARY MARKINGS 644												
SHEET #	REF #	BEGIN	END	LENGTH	SIDE	DESCRIPTION	EDGE LINE WHITE	EDGE LINE YELLOW	LANE LINE WHITE	CENTER LINE	EQUIV SOLID LINE	CHANNELIZING LINE	STOP LINE	CROSS WALK	TRANSVERSE LINE YELLOW	TRANSVERSE LINE WHITE	RAIL ROAD SYMBOL MARKING	SCHOOL MARKING 96"	LANE ARROWS LT	LANE ARROWS LT THRU	LANE ARROWS STR	LANE ARROWS RT THRU	LANE ARROWS RT	WORD ON PAVEMENT 72"
		STA.	STA.	FT.			MILE	MILE	MILE	MILE	MILE	FT.	FT.	FT.	FT.	FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
177	WE-1	279+07	282+47	340	LT		0.06				0.06													
	WE-2	280+15	289+07	892	LT		0.17				0.17													
	WE-3	279+07	280+62	155	RT		0.03				0.03													
	WE-4	280+62	289+07	845	RT		0.16				0.16													
178	CH-1	289+73	290+73	100	LT							100												
	CH-2	289+73	290+73	100	LT							100												
	CH-3	296+79	297+82	103	LT							103												
	CH-4	289+16	290+13	97	RT							97												
	CH-5	296+30	297+87	157	RT							157												
	CH-6	296+30	297+87	157	RT							157												
	LL-1	290+73	296+73	600	LT				0.11		0.03													
	LL-2	289+07	299+07	1000	LT				0.19		0.05													
	LL-3	289+07	299+07	1000	RT				0.19		0.05													
	LL-4	290+13	296+30	617	RT				0.12		0.03													
	TW-1	289+73	290+73	100	LT											100								
	TW-2	296+30	297+87	113	RT											113								
	YE-1	289+07	299+07	1000	LT			0.19			0.19													
	YE-2	289+07	299+07	1000	RT			0.19			0.19													
	WE-1	289+07	289+73	66	LT		0.01				0.01													
	WE-2	289+73	297+82	809	LT		0.15				0.15													
	WE-3	296+79	299+07	228	LT		0.04				0.04													
	WE-4	289+07	290+13	106	RT		0.02				0.02													
	WE-5	289+16	297+87	871	RT		0.16				0.16													
	WE-6	297+87	299+07	120	RT		0.02				0.02													
179	CH-1	303+62	305+33	171	LT							171												
	CH-2	303+62	305+33	171	LT							171												
	CH-3	303+48	304+96	148	RT							148												
	LL-1	299+07	309+07	1000	LT				0.19		0.05													
	LL-2	305+33	307+63	230	LT				0.04		0.01													
	LL-3	299+07	309+07	1000	RT				0.19		0.05													
	LL-4	304+96	307+20	224	RT				0.04		0.01													
	TW-1	303+62	305+33	139	LT											139								
	YE-1	299+07	309+07	1000	LT			0.19			0.19													
	YE-2	299+07	309+07	1000	RT			0.19			0.19													
	WE-1	299+07	309+07	1000	LT		0.19				0.19													
	WE-2	299+07	304+96	589	RT		0.11				0.11													
	WE-3	303+48	309+07	559	RT		0.11				0.11													
180	LL-1	309+07	319+07	1000	LT				0.19		0.05													
	LL-2	309+07	319+07	1000	LT				0.19		0.05													
	LL-3	319+07	329+07	1000	RT				0.19		0.05													
	LL-4	319+07	329+07	1000	RT				0.19		0.05													
	YE-1	309+07	319+07	1000	LT			0.19			0.19													
	YE-2	309+07	319+07	1000	LT			0.19			0.19													
	YE-3	319+07	329+07	1000	RT			0.19			0.19													
	YE-4	319+07	329+07	1000	RT			0.19			0.19													
TOTALS CARRIED TO GEN. SUMMARY							1.25	1.52	1.83			1,204				352								

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PAVEMENT MARKING SUBSUMMARY

FRA-33-20.69

CALCULATED RDK / LW
CHECKED MaTT

LOCATION							LONG LINES 644					AUXILIARY MARKINGS 644												
SHEET #	REF #	BEGIN	END	LENGTH	SIDE	DESCRIPTION	EDGE LINE WHITE	EDGE LINE YELLOW	LANE LINE WHITE	CENTER LINE	EQUIV SOLID CENTER LINE (INFO)	CHANNELIZING LINE	STOP LINE	CROSS WALK	TRANSVERSE LINE YELLOW	TRANSVERSE LINE WHITE	RAIL RD. SYMBOL MARKING	SCHOOL MARKING 96"	LANE ARROWS LT	LANE ARROWS LT THRU	LANE ARROWS STR	LANE ARROWS RT THRU	LANE ARROWS RT	WORD ON PAVEMENT 72"
		STA.	STA.	FT.			MILE	MILE	MILE	MILE	MILE	FT.	FT.	FT.	FT.	FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
176	WE-1	309+07	319+07	1000	LT		0.19																	
	WE-2	309+07	319+07	1000	RT		0.19																	
	WE-3	319+07	329+07	1000	LT		0.19																	
	WE-4	319+07	329+07	1000	RT		0.19																	
177	CH-1	43+31	46+31	300	RT	HAMILTON RD. RAMP G						300												
	CH-2	344+57	346+11	154	RT							154												
	CH-3	44+57	46+10	153	LT	HAMILTON RD. RAMP I						153												
	LL-1	329+07	337+87	880	LT				0.17															
	LL-2	329+07	337+87	880	RT				0.17															
	LL-3	337+92	347+92	1000	LT				0.19															
	LL-4	340+61	343+31	270	LT				0.05															
	LL-5	337+92	347+92	1000	RT				0.19															
	LL-6	339+02	344+57	555	RT				0.11															
	LL-7	336+72	337+92	120	LT				0.02															
	LL-8	336+72	337+92	120	RT				0.02															
	TW-1	344+57	346+11		RT											115								
	YE-1	329+07	337+87	880	LT			0.17																
	YE-2	329+07	337+87	880	RT			0.17																
	YE-3	337+92	347+92	1000	LT			0.19																
	YE-4	46+31	47+94	163	RT	HAMILTON RD. RAMP G		0.03																
	YE-5	337+92	347+92	1000	RT			0.19																
	YE-6	46+10	48+04	194	LT	HAMILTON RD. RAMP I		0.04																
	YE-7	336+72	337+92	120	LT			0.02																
	YE-8	336+72	337+92	120	RT			0.02																
	WE-1	329+07	337+87	880	LT		0.17																	
	WE-2	329+07	337+87	880	RT		0.17																	
	WE-3	337+92	47+94	1002	LT/CL	US-33 / HAMILTON RD. RAMP G	0.19																	
	WE-4	337+92	48+04	1012	RT/CL	US-33 / HAMILTON RD. RAMP I	0.19																	
	WE-5	336+72	337+92	120	LT		0.02																	
	WE-6	336+72	337+92	120	RT		0.02																	
	WE-7	343+31	347+92	461	LT		0.09																	
	WE-8	346+11	347+92	181	RT		0.03																	
178	CH-1	47+34	48+75	141	RT	HAMILTON RD. RAMP J						141												
	CH-2	62+03	63+54	151	RT	HAMILTON RD. RAMP H						151												
	CH-3	362+02	363+54	152	LT							152												
	LL-1	347+92	357+92	1000	LT				0.19															
	LL-2	347+92	357+92	1000	RT				0.19															
	LL-3	355+01	357+92	291	RT				0.06															
	LL-4	357+92	367+92	1000	LT				0.19															
	LL-5	363+54	366+13	259	LT				0.05															
	LL-6	357+92	367+92	1000	RT				0.19															
	TW-1	362+02	363+54		LT											118								
	YE-1	47+94	50+79	285	RT	HAMILTON RD. RAMP G		0.05																
	YE-2	347+92	357+92	1000	LT			0.19																
	YE-3	347+92	357+92	1000	RT			0.19																
	YE-4	48+75	50+53	178	RT	HAMILTON RD. RAMP J		0.03																
	YE-5	48+04	48+84	80	LT	HAMILTON RD. RAMP I		0.02																
	YE-6	357+92	367+92	1000	LT			0.19																
TOTALS CARRIED TO GEN. SUMMARY							1.64	1.50	1.78			1,051				233								

PAVEMENT MARKING SUBSUMMARY

CALCULATED: RJK / LW
CHECKED: MATT

FRA-33-20.69

LOCATION							LONG LINES					AUXILIARY MARKINGS												
							644					644												
SHEET #	REF #	BEGIN	END	LENGTH	SIDE	DESCRIPTION	EDGE LINE WHITE	EDGE LINE YELLOW	LANE LINE WHITE	CENTER LINE	EQUIV SOLID CENTER LINE (INFO)	CHANNELIZING LINE	STOP LINE	CROSS WALK	TRANSVERSE LINE YELLOW	TRANSVERSE LINE WHITE	RAIL RD. SYMBOL MARKING	SCHOOL MARKING 96"	LANE ARROWS LT	LANE ARROWS LT THRU	LANE ARROWS STR	LANE ARROWS RT THRU	LANE ARROWS RT	WORD ON PAVEMENT 72"
		STA.	STA.	FT.			MILE	MILE	MILE	MILE	MILE	FT.	FT.	FT.	FT.	FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
178	YE-7	59+23	62+03	280	RT	HAMILTON RD. RAMP H		0.05																
	YE-8	357+92	367+92	1000	RT			0.19																
	YE-9	62+94	68+59	565	LT	HAMILTON RD. RAMP L		0.11																
	WE-1	47+94	50+79	285	CL	HAMILTON RD. RAMP G	0.05																	
	WE-2	347+92	357+92	1000	LT		0.19																	
	WE-3	347+92	355+72	780	RT		0.15																	
	WE-4	50+53	357+92	601	CL/RT	HAMILTON RD. RAMP J / US-33	0.11																	
	WE-5	48+04	48+84	80	CL	HAMILTON RD. RAMP I	0.02																	
	WE-6	357+92	362+02	410	LT		0.08																	
	WE-7	59+23	367+92	869	CL/LT	HAMILTON RD. RAMP H / US-33	0.16																	
	WE-8	357+92	367+92	1000	RT		0.19																	
	WE-9	62+94	68+59	565	CL	HAMILTON RD. RAMP L	0.11																	
179	YE-1	50+53	63+00	1113	RT/LT	HAMILTON RD. RAMP J / RAMP K		0.21																
	YE-2	48+84	59+90	1106	LT/RT	HAMILTON RD. RAMP I / RAMP IJ		0.21																
	WE-1	50+53	63+00	1113	CL/CL	HAMILTON RD. RAMP J / RAMP K	0.21																	
	WE-2	48+84	59+90	1106	CL/RT	HAMILTON RD. RAMP I / RAMP IJ	0.21																	
180	YE-1	50+79	53+67	288	RT	HAMILTON RD. RAMP G		0.05																
	YE-2	53+48	57+71	423	CL/RT	HAMILTON RD. RAMP HH / RAMP H		0.08																
	YE-3	51+15	54+97	382	RT	HAMILTON RD. RAMP H		0.07																
	YE-4	57+51	59+23	172	RT	HAMILTON RD. RAMP H		0.03																
	WE-1	50+79	53+36	257	CL/LT	HAMILTON RD. RAMP G	0.05																	
	WE-2	53+48	55+01	153	LT	HAMILTON RD. RAMP HH	0.03																	
	WE-3	51+15	57+51	636	CL	HAMILTON RD. RAMP H	0.12																	
	WE-4	57+51	59+23	172	CL	HAMILTON RD. RAMP H	0.03																	
	SL-1	53+48			RT	HAMILTON RD. RAMP HH							16											
181	SL-1	60+37			RT	HAMILTON RD. RAMP IJ							42											
	YE-1	59+90	60+37	47	RT	HAMILTON RD. RAMP IJ		0.01																
	YE-2	59+23	62+94	371	LT	HAMILTON RD. RAMP L		0.07																
	WE-1	59+90	60+37	47	RT	HAMILTON RD. RAMP IJ	0.01																	
	WE-2	59+23	62+49	326	CL	HAMILTON RD. RAMP L	0.06																	
182	CH-1	69+51	70+56	105	LT	HAMILTON RD. RAMP L						105												
	YE-1	68+59	69+51	92	LT	HAMILTON RD. RAMP L		0.02																
	WE-2	68+59	377+92	1000	CL/RT	HAMILTON RD. RAMP L / US-33	0.19																	
TOTALS CARRIED TO GEN. SUMMARY							1.97	1.11				105	58											

RAISED PAVEMENT MARKERS DETAILS (STANDARD DRAWING TC-65.11 & TC-65.12)

1	TYPICAL CENTERLINE	7	ONE LANE BRIDGE
2	ACCELERATION LANE	8	STOP APPROACH
3	DECELERATION LANE	9	TWO WAY LEFT TURN LANE
4	FOUR LANE DIVIDED TO TWO LANE DIVIDED	10	APPROACH WITH LEFT TURN LANE
5	FOUR LANE DIVIDED TO TWO LANE TRANSITION	11	HORIZONTAL CURVE WITH RADIUS LESS THAN 1250 FEET
6	MULTILANE DIVIDED - CONTROLLED ACCESS	12	HORIZONTAL CURVE WITH RADIUS LESS THAN 820 FEET

CALCULATED: ROK / LW, FAY / HG
CHECKED: MATT

LOCATION					REFLECTOR TYPE												TOTAL		REMARKS
SHEET #	REF #	BEGIN	END	DETAIL	ONE-WAY RIGHT EDGE LINE WHITE	ONE-WAY RIGHT EDGE LINE WHITE	ONE-WAY LANE LINE WHITE	ONE-WAY LEFT EDGE LINE YELLOW	TWO-WAY RIGHT EDGE LINE WHITE RED	TWO-WAY RIGHT EDGE LINE WHITE RED	TWO-WAY CHANNELIZING LINE WHITE RED	TWO-WAY CHANNELIZING LINE WHITE RED	TWO-WAY LANE LINE WHITE RED	TWO-WAY LEFT EDGE LINE YELLOW RED	TWO-WAY CENTER LINE YELLOW YELLOW	TWO-WAY CENTER LINE YELLOW YELLOW	TWO-WAY CENTER LINE YELLOW YELLOW	202 RPM REMOVED AND DISPOSED	621 RPM	
		STA.	STA.		40'	80'	120'	80'	40'	80'	40'	80'	80'	80'	20'	40'	80'	EACH	EACH	
183	RPM 1	101+00	104+29								9								9	
	RPM 2	101+00	104+29								9								9	
	RPM 3	101+00	105+54														7		7	
	RPM 4	106+30	107+96														3		3	
	RPM 5	105+19	107+96										3						3	
	PRM 6	105+19	107+96										3						3	
	RPM 7	108+62	110+00										2						2	
	RPM 8	108+62	110+00										2						2	
	RPM 9	108+62	110+00														2		2	
	RPM10	110+00	120+00														11		11	
	RPM11	110+00	120+00										11						11	
	RPM12	110+00	120+00										11						11	
184	RPM 1	120+00	130+00										12						12	
	RPM 2	120+00	130+00														12		12	
	RPM 3	120+00	130+00										12						12	
	RPM 4	130+00	136+73										8						8	
	RPM 5	130+00	136+73														8		8	
	PRM 6	130+00	136+73										8						8	
	RPM 7	114+86	116+86														3		3	
	RPM 8	115+15	116+86														2		2	
	RPM 9	114+86	118+13										4						4	
	RPM10	114+86	118+13										4						4	
185	RPM 1	118+13	128+13										12						12	
	RPM 2	118+13	128+13										12						12	
	RPM 3	123+56	124+95								4								4	
	RPM 4	126+23	128+13								5								5	
	RPM 5	128+13	131+25								8								8	
	PRM 6	128+13	133+85										6						6	
	RPM 7	128+13	138+13										11						11	
	RPM 8	132+31	137+44								13								13	
	RPM 9	132+31	135+05								7								7	
	RPM10	134+23	138+13					5											5	
	RPM11	128+23	131+25								8								8	
186	RPM 1	141+00	142+87								23								23	
	RPM 2	141+00	144+88								4								4	
	RPM 3	138+13	148+13										13						13	
	RPM 4	138+13	148+13					12											12	
	RPM 5	148+13	157+52										12						12	
	RPM 6	156+06	157+63								5								5	
	RPM 7	157+09	157+63								2								2	
TOTALS CARRIED SUB SUMMARY																			308	

RAISED PAVEMENT MARKER SUBSUMMARY AND DETAILS

FRA-33-20.69

RAISED PAVEMENT MARKER SUBSUMMARY AND DETAILS

FRA-33-20.69

CALCULATED RDK / LW
PAY / HB
CHECKED MATT

LOCATION					REFLECTOR TYPE												TOTAL		REMARKS
SHEET #	REF #	BEGIN	END	DETAIL	ONE-WAY RIGHT EDGE LINE WHITE	ONE-WAY RIGHT EDGE LINE WHITE	ONE-WAY LANE LINE WHITE	ONE-WAY LEFT EDGE LINE YELLOW	TWO-WAY RIGHT EDGE LINE WHITE RED	TWO-WAY RIGHT EDGE LINE WHITE RED	TWO-WAY CHANNELIZING LINE WHITE RED	TWO-WAY CHANNELIZING LINE WHITE RED	TWO-WAY LANE LINE WHITE RED	TWO-WAY LEFT EDGE LINE YELLOW RED	TWO-WAY CENTER LINE YELLOW YELLOW	TWO-WAY CENTER LINE YELLOW YELLOW	TWO-WAY CENTER LINE YELLOW YELLOW	202 RPM REMOVED AND DISPOSED	621 RPM	
		SLM	SLM		40′	80′	120′	80′	40′	80′	40′	80′	80′	80′	20′	40′	80′	EACH	EACH	
186	RPM 8	148+13	153+51					6												
	RPM 9	148+19	151+25								8								6	
	RPM10	151+25	157+52										8						8	
	RPM11	153+78	157+52								10								8	
	RPM12	155+21	157+63								7								10	
	RPM13	155+21	157+63								6								7	
	RPM14	156+16	157+04								3								6	
	RPM15	153+51	157+52																3	
														6					6	
187	RPM 1	158+15	159+37								4								4	
	RPM 2	158+15	158+55								1								1	
	RPM 3	158+15	160+22								6								6	
	RPM 4	158+15	160+22								5								5	
	RPM 5	158+30	169+07										13						13	
	RPM 6	158+30	162+30											6					6	
	RPM 7	158+60	169+07										12						12	
	RPM 8	114+10	124+10										12						12	NB JAMES ROAD #1
	RPM 9	167+12	168+10											1					1	WINCHESTER PIKE LINE A
	RPM10	167+12	168+10											1					1	WINCHESTER PIKE LINE B
188	RPM 1	124+10	128+13										5						5	
	RPM 2	128+13	129+86								4								4	
	RPM 3	129+89	134+28											6					6	NB JAMES ROAD #2
	RPM 4	29+86	34+10											6					6	NB JAMES ROAD #1
	RPM 5	134+28	137+00											3					3	NB JAMES ROAD #2
	RPM 6	34+10	44+10											13					13	NB JAMES ROAD #1
189	RPM 1	114+15	122+75										11						11	SB JAMES ROAD
	RPM 2	121+58	123+17								5								5	SB JAMES ROAD
	RPM 3	123+95	124+15											1					1	SB JAMES ROAD
	RPM 4	124+15	134+15											13					13	SB JAMES ROAD
190	RPM 1	166+97	177+10										13						13	WB DIRECTIONAL ROADWAY
	RPM 2	169+07	179+20										13						13	EB DIRECTIONAL ROADWAY
	RPM 3	170+88	174+08														4		4	WINCHESTER PIKE LINE A
	RPM 4	170+88	178+12														9		9	WINCHESTER PIKE LINE B / WINCHESTER PIKE
	RPM 5	170+02	171+32								4								4	EB DIRECTIONAL ROADWAY
	RPM 6	170+02	171+32								3								3	WINCHESTER PIKE LINE B
	RPM 7	134+15	137+63											4					4	SB JAMES ROAD
	RPM 8	168+10	170+88											4					4	WINCHESTER PIKE LINE A
	RPM 9	168+10	170+88											4					4	WINCHESTER PIKE LINE B
191	RPM 1	177+10	188+03										14						14	WB DIRECTIONAL ROADWAY
	RPM 2	137+47	139+47								6								6	NB JAMES ROAD #2
	RPM 3	183+80	185+78								5								5	WB DIRECTIONAL ROADWAY
	RPM 4	178+12	188+50														13		13	WINCHESTER PIKE
	RPM 5	179+20	188+30										12						12	EB DIRECTIONAL ROADWAY
	RPM 6	137+63	142+69											7					7	SB JAMES ROAD
TOTALS CARRIED TO THE SUB SUMMARY																			296	

LOCATION / REFLECTOR TYPE / TOTAL / REMARKS

SHEET #	REF #	BEGIN SLM	END SLM	DETAIL	ONE-WAY RIGHT EDGE LINE WHITE 40'	ONE-WAY RIGHT EDGE LINE WHITE 80'	ONE-WAY LANE LINE WHITE 120'	ONE-WAY LEFT EDGE LINE YELLOW 80'	TWO-WAY RIGHT EDGE LINE WHITE RED 40'	TWO-WAY RIGHT EDGE LINE WHITE RED 80'	TWO-WAY CHANNELIZING LINE WHITE RED 40'	TWO-WAY CHANNELIZING LINE WHITE RED 80'	TWO-WAY LANE LINE WHITE RED 80'	TWO-WAY LEFT EDGE LINE YELLOW RED 80'	TWO-WAY CENTER LINE YELLOW YELLOW 20'	TWO-WAY CENTER LINE YELLOW YELLOW 40'	TWO-WAY CENTER LINE YELLOW YELLOW 80'	202 RPM REMOVED AND DISPOSED EACH	621 RPM EACH	REMARKS
192	RPM 1	188+03	198+10										13						13	WB DIRECTIONAL ROADWAY
	RPM 2	95+70	97+86								5								5	REFUGEE ROAD RAMP D
	RPM 3	195+58	197+75								6								6	WB DIRECTIONAL ROADWAY
	RPM 4	188+30	199+07										12						12	EB DIRECTIONAL ROADWAY
	RPM 5	189+95	193+71								10								10	EB DIRECTIONAL ROADWAY
	RPM 6	95+10	98+13								7								7	REFUGEE ROAD RAMP A
	RPM 7	98+05	98+30								1								1	REFUGEE ROAD RAMP AA
	RPM 8	102+50	103+07								1								1	REFUGEE ROAD RAMP A
	RPM 9	188+50	192+55														5		5	WINCHESTER PIKE
	RPM10	91+95	95+70											5					5	REFUGEE ROAD RAMP D
	RPM11	98+13	98+30											6					6	REFUGEE ROAD RAMP A / RAMP AA
193	RPM 1	198+10	209+07										13						13	
	RPM 2	198+10	209+07										12						12	
	RPM 3	2+47	3+82								4								4	REFUGEE ROAD RAMP C
	RPM 4	3+82	7+83											5					5	REFUGEE ROAD RAMP C
	RPM 5	21+40	146+32											8					8	REFUGEE ROAD RAMP BB / B
194	RPM 1	209+07	219+07										12						12	
	RPM 2	209+07	219+07										13						13	
	RPM 3	24+57	26+63								5								5	REFUGEE ROAD RAMP F
	RPM 4	215+38	217+49								6								6	
	RPM 5	146+32	148+19								5								5	REFUGEE ROAD RAMP B
	RPM 6	17+91	24+57											8					8	REFUGEE ROAD RAMP F
195	RPM 1	46+92	48+49								4								4	NB JAMES ROAD #1
	RPM 2	195+00	196+62								5								5	WINCHESTER PIKE
	RPM 3	192+55	199+83														9		9	WINCHESTER PIKE
	RPM 4	193+52	204+35														14		14	WINCHESTER PIKE
	RPM 5	197+18	204+35								18								18	WINCHESTER PIKE
	RPM 6	44+10	46+92											3					3	NB JAMES ROAD #1
	RPM 7	86+15	91+95											7					7	REFUGEE ROAD RAMP D
196	RPM 1	84+12	86+15											3					3	REFUGEE ROAD RAMP D
	RPM 2	7+83	14+50											9					9	REFUGEE ROAD RAMP C
	RPM 3	9+75	17+91											10					10	REFUGEE ROAD RAMP FF / RAMP F
	RPM 4	9+75	13+00						8										8	REFUGEE ROAD RAMP FF
197	RPM 1	103+07	103+39								2								2	REFUGEE ROAD RAMP A
	RPM 2	98+30	99+95								4								4	REFUGEE ROAD RAMP AA
	RPM 3	219+07	229+07				8												8	
	RPM 4	219+07	229+07				9												9	
	RPM 5	103+39	105+13											3					3	REFUGEE ROAD RAMP A
	RPM 6	98+30	99+38											2					2	REFUGEE ROAD RAMP AA
	RPM 7	135+72	139+30											5					5	REFUGEE ROAD RAMP B
	RPM 8	19+78	21+40											2					2	REFUGEE ROAD RAMP BB
	RPM 9	98+95	99+83						3										3	REFUGEE ROAD RAMP AA
198	RPM 1	229+07	239+07				9												9	
	RPM 2	229+07	239+07				8												8	
	RPM 3	239+07	249+07				8												8	
	RPM 4	239+07	249+07				8												8	
TOTALS CARRIED TO THE SUB SUMMARY																			322	

CALCULATED RBK / LW
PAY / HG
CHECKED MATT

RAISED PAVEMENT MARKER SUBSUMMARY AND DETAILS

FRA-33-20.69

RAISED PAVEMENT MARKER SUBSUMMARY AND DETAILS

LOCATION: SHEET #	REF #	BEGIN SLM	END SLM	DETAIL	ONE-WAY RIGHT EDGE LINE WHITE 40′	ONE-WAY RIGHT EDGE LINE WHITE 80′	ONE-WAY LANE LINE WHITE 120′	ONE-WAY LEFT EDGE LINE YELLOW 80′	TWO-WAY RIGHT EDGE LINE WHITE RED 40′	TWO-WAY RIGHT EDGE LINE WHITE RED 80′	TWO-WAY CHANNELIZING LINE WHITE RED 40′	TWO-WAY CHANNELIZING LINE WHITE RED 80′	TWO-WAY LANE LINE WHITE RED 80′	TWO-WAY LEFT EDGE LINE YELLOW RED 80′	TWO-WAY CENTER LINE YELLOW YELLOW 20′	TWO-WAY CENTER LINE YELLOW YELLOW 40′	TWO-WAY CENTER LINE YELLOW YELLOW 80′	TOTAL: 202 RPM REMOVED AND DISPOSED EACH	TOTAL: 621 RPM EACH	REMARKS
199	RPM 1	249+07	259+07				9												9	
	RPM 2	249+07	259+07				9												9	
	RPM 3	259+07	269+07				9												9	
	RPM 4	259+07	269+07				9												9	
200	RPM 1	269+07	279+07				8												8	
	RPM 2	269+07	279+07				8												8	
	RPM 3	278+48	279+07								2								2	
	RPM 4	278+48	279+07								1								1	
201	RPM 1	279+07	289+07				9												9	
	RPM 2	279+07	289+07				8												8	
	RPM 3	280+15	282+47								6								6	
	RPM 4	279+07	280+62								4								4	
	RPM 5	279+07	280+62								4								4	
202	RPM 1	289+07	299+07				9												9	
	RPM 2	289+07	299+07				9												9	
	RPM 3	289+73	290+73								2								2	
	RPM 4	289+73	290+73								3								3	
	RPM 5	289+16	290+13								3								3	
	RPM 6	296+79	297+82								3								3	
	RPM 7	296+30	297+87								4								4	
	RPM 8	296+30	297+87								3								3	
203	RPM 1	299+07	309+07				9												9	
	RPM 2	299+07	309+07				9												9	
	RPM 3	303+62	305+33								4								4	
	RPM 4	303+62	305+33								5								5	
	RPM 5	303+48	304+96								4								4	
204	RPM 1	309+07	319+07				8												8	
	RPM 2	309+07	319+07				8												8	
	RPM 3	319+07	329+07				8												8	
	RPM 4	319+07	329+07				8												8	
205	RPM 1	329+07	337+92				8												8	
	RPM 2	329+07	337+92				8												8	
	RPM 3	337+92	347+92				9												9	
	RPM 4	337+92	347+92				9												9	
	RPM 5	43+31	46+31								8								8	HAMILTON ROAD RAMP G
	RPM 6	344+57	346+11								4								4	
	RPM 7	44+57	46+10								3								3	HAMILTON ROAD RAMP I
206	RPM 1	347+92	357+92				9												9	
	RPM 2	347+92	357+92				8												8	
	RPM 3	357+92	367+92				8												8	
	RPM 4	357+92	367+92				8												8	
	RPM 5	47+34	48+75								4								4	HAMILTON ROAD RAMP J
	RPM 6	62+03	63+54								3								3	HAMILTON ROAD RAMP H
	RPM 7	362+02	363+54								4								4	
	RPM 8	47+94	50+79											4					4	HAMILTON ROAD RAMP G
TOTALS CARRIED TO THE SUB SUMMARY																			279	

CALCULATED RDK / LW FAY / HG CHECKED MATT

FRA-33-20.69

RAISED PAVEMENT MARKER SUBSUMMARY AND DETAILS

CALCULATED: RDK / JW
PAY / HG
CHECKED: MATT

LOCATION					REFLECTOR TYPE										TOTAL		REMARKS
SHEET #	REF #	BEGIN	END	DETAIL	ONE-WAY RIGHT EDGE LINE WHITE	ONE-WAY RIGHT EDGE LINE WHITE	ONE-WAY LANE LINE WHITE	ONE-WAY LEFT EDGE LINE YELLOW	TWO-WAY RIGHT EDGE LINE WHITE RED	TWO-WAY RIGHT EDGE LINE WHITE RED	TWO-WAY CHANNELIZING LINE WHITE RED	TWO-WAY CHANNELIZING LINE WHITE RED	TWO-WAY LANE LINE WHITE RED	TWO-WAY LEFT EDGE LINE YELLOW RED	TWO-WAY CENTER LINE YELLOW YELLOW	TWO-WAY CENTER LINE YELLOW YELLOW	TWO-WAY CENTER LINE YELLOW YELLOW	202 RPM REMOVED AND DISPOSED	621 RPM	
		SLM	SLM		40′	80′	120′	80′	40′	80′	40′	80′	80′	80′	20′	40′	80′	EACH	EACH	
206	RPM 9	48+04	48+84											1					1	HAMILTON ROAD RAMP I
	RPM10	48+75	50+53											2					2	HAMILTON ROAD RAMP J
	RPM11	59+23	62+03											4					4	HAMILTON ROAD RAMP H
	RPM12	62+94	68+59											8					8	HAMILTON ROAD RAMP L
207	RPM 1	50+53	63+00											13					13	HAMILTON ROAD RAMP J / RAMP K
	RPM 2	48+84	59+90											14					14	HAMILTON ROAD RAMP I / RAMP IJ
	RPM 3	52+37	56+37						5										5	HAMILTON ROAD RAMP IJ
	RPM 4	56+37	59+90						10										10	HAMILTON ROAD RAMP IJ
208	RPM 1	57+51	59+23											2					2	HAMILTON ROAD RAMP H
	RPM 2	51+15	54+97											5					5	HAMILTON ROAD RAMP H
	RPM 3	53+48	57+51											5					5	HAMILTON ROAD RAMP HH / RAMP H
	RPM 4	50+79	53+67											3					3	HAMILTON ROAD RAMP G
	RPM 5	53+48	55+00						4										4	HAMILTON ROAD RAMP HH
209	RPM 1	59+90	60+37											1					1	HAMILTON ROAD RAMP IJ
	RPM 2	59+23	62+94											5					5	HAMILTON ROAD RAMP L
	RPM 3	59+90	60+37						1										1	HAMILTON ROAD RAMP IJ
210	RPM 1	69+51	70+56								3								3	HAMILTON ROAD RAMP L
ALL		100+46	136+73															235		URBAN PAVING
ALL		136+73	364+25															955		NON URBAN PAVING
ALL		169+25	48+45															101		WINCHESTER PIKE (INCLUDES ALL DIRECTIONAL ROADWAYS AND RAMPS)
TOTALS CARRIED TO THE SUB SUMMARY																		1,291	86	

FRA-33-20.69

DETECTOR LOOP DESCRIPTIONS AND REMARKS

LOCATION					TOTAL		DETECTOR LOOP DESCRIPTIONS AND REMARKS
SHEET #	REF #	BEGIN STA.	END STA.	SIDE	632 DETECTOR LOOP EACH	632 DETECTOR LOOP TIE IN EACH	
183	DL-1	101+00		RT	1	1	2.5' X 2.5' X 2.5' X 36' QUADRUPOLE @ STA. 100+84 / US-33 AND LIVINGSTON AVENUE
183	DL-1	101+00		LT	1	1	2.5' X 2.5' X 2.5' X 36' QUADRUPOLE @ STA. 100+85 / US-33 AND LIVINGSTON AVENUE
183	DL-1	100+00		LT	1	1	5' X 34' @ STA. 100+86 / US-33 AND LIVINGSTON AVENUE
183	DL-2	107+92		RT	1	1	6' X 6' @ STA. 104+78 / US-33 AND EUCLAIRE AVENUE
183	DL-2	107+92		RT	2	2	6' X 6' @ STA. 106+95 / US-33 AND EUCLAIRE AVENUE
183	DL-2	108+62		LT	2	2	6' X 6' @ STA. 109+54 / US-33 AND EUCLAIRE AVENUE
183	DL-2	108+62		LT	2	2	6' X 6' @ STA. 111+76 / US-33 AND EUCLAIRE AVENUE
186	DL-3	157+52		RT	2	2	6' X 6' @ STA. 153+47 / US-33 AND PETZINGER ROAD
186	DL-3	157+52		RT	2	2	6' X 6' @ STA. 156+42 / US-33 AND PETZINGER ROAD
186	DL-3	157+52		RT	1	1	6' X 34' @ STA. 157+57 / US-33 AND PETZINGER ROAD
187	DL-4	158+30		LT	2	2	6' X 6' @ STA. 159+40 / US-33 AND PETZINGER ROAD
187	DL-4	158+30		LT	1	1	18' X 6' @ STA. 162+35 / US-33 AND PETZINGER ROAD
187	DL-4	158+30		LT	1	1	5' X 25' @ STA. 158+75 / US-33 AND PETZINGER ROAD
197	DL-5	99+89		RT	1	1	15' X 6' @ STA. 99+69 / REFUGEE ROAD AA AND STATE ROUTE 104
208	DL-6	53+46		LT	1	1	12' X 6' @ STA. 53+26 / HAMILTON ROAD HH AND STATE ROUTE 317
209	DL-7	60+37		RT	1	1	5' X 22' @ STA. 60+37 / HAMILTON ROAD IJ AND STATE ROUTE 317
209	DL-7	60+37		RT	1	1	4' X 4' X 20' QUADRUPOLE @ STA. 60+38 / HAMILTON ROAD AND STATE ROUTE 317
TOTALS CARRIED TO THE GEN. SUMMARY					23	23	

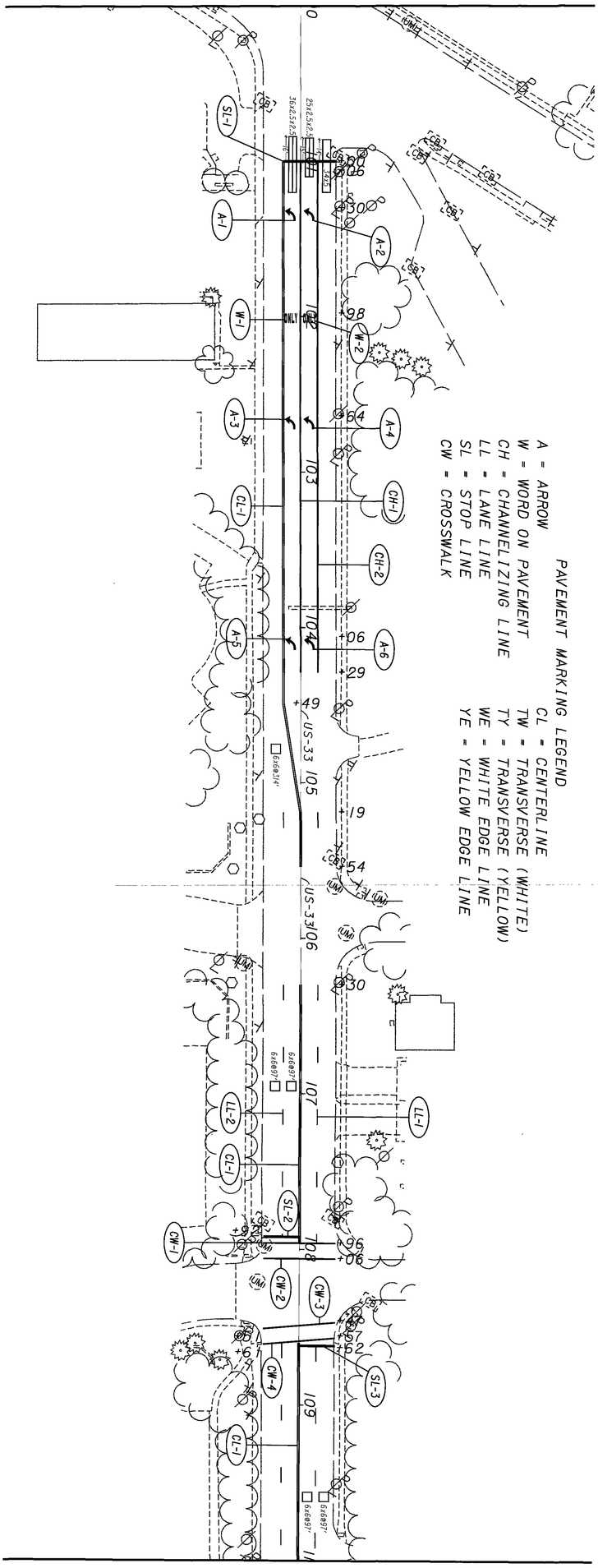
CALCULATED RDK / KW
F.A.Y. / HG
CHECKED MATT

DETECTOR LOOP SUBSUMMARY AND DETAILS

FRA-33-20.69

BEGIN PROJECT
STA. 100+00

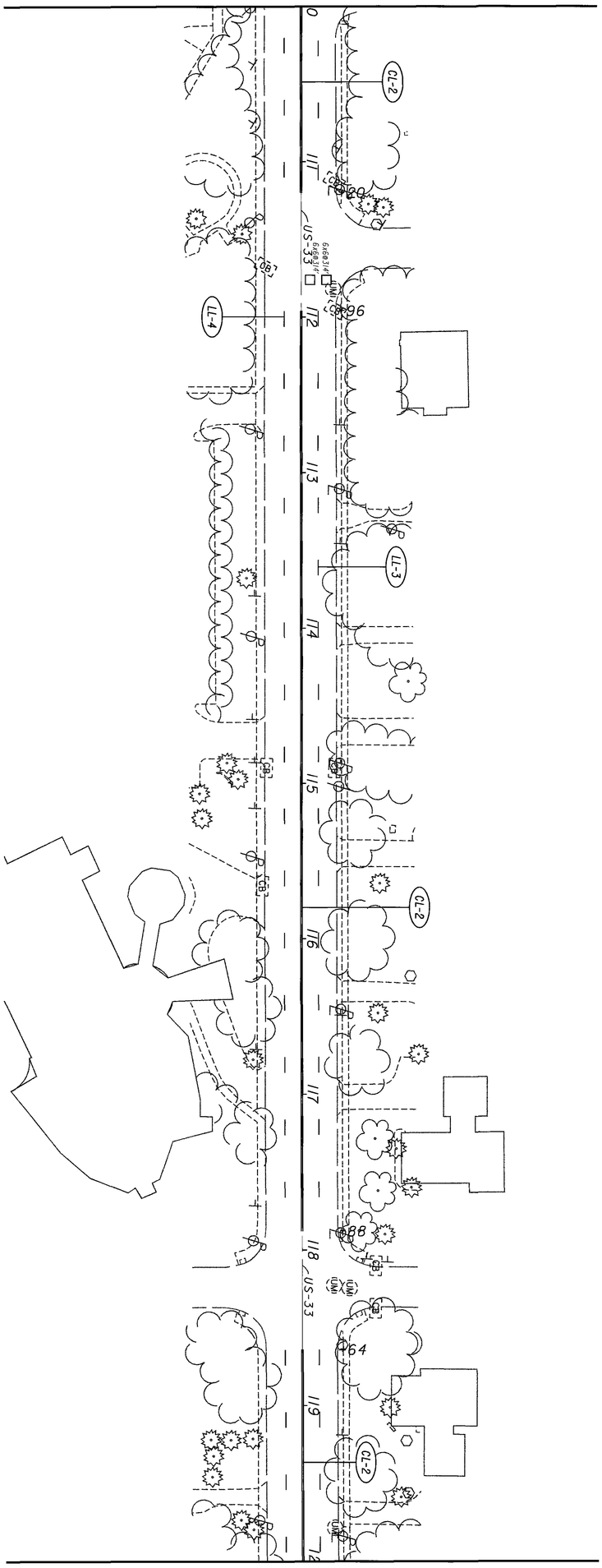
MATCHLINE STA. 110+00



PAVEMENT MARKING LEGEND

A = ARROW
W = WORD ON PAVEMENT
CH = CHANNELIZING LINE
LL = LANE LINE
SL = STOP LINE
CW = CROSSWALK
CL = CENTERLINE
TW = TRANSVERSE (WHITE)
TY = TRANSVERSE (YELLOW)
WE = WHITE EDGE LINE
YE = YELLOW EDGE LINE

MATCHLINE STA. 120+00
SEE SHEET 156



FRA-33-20.69

SIGNING AND PAVEMENT MARKING DETAILS

CALCULATED RDK / LW FAY / HG
CHECKED MATT

0 40
20 80
HORIZONTAL SCALE IN FEET

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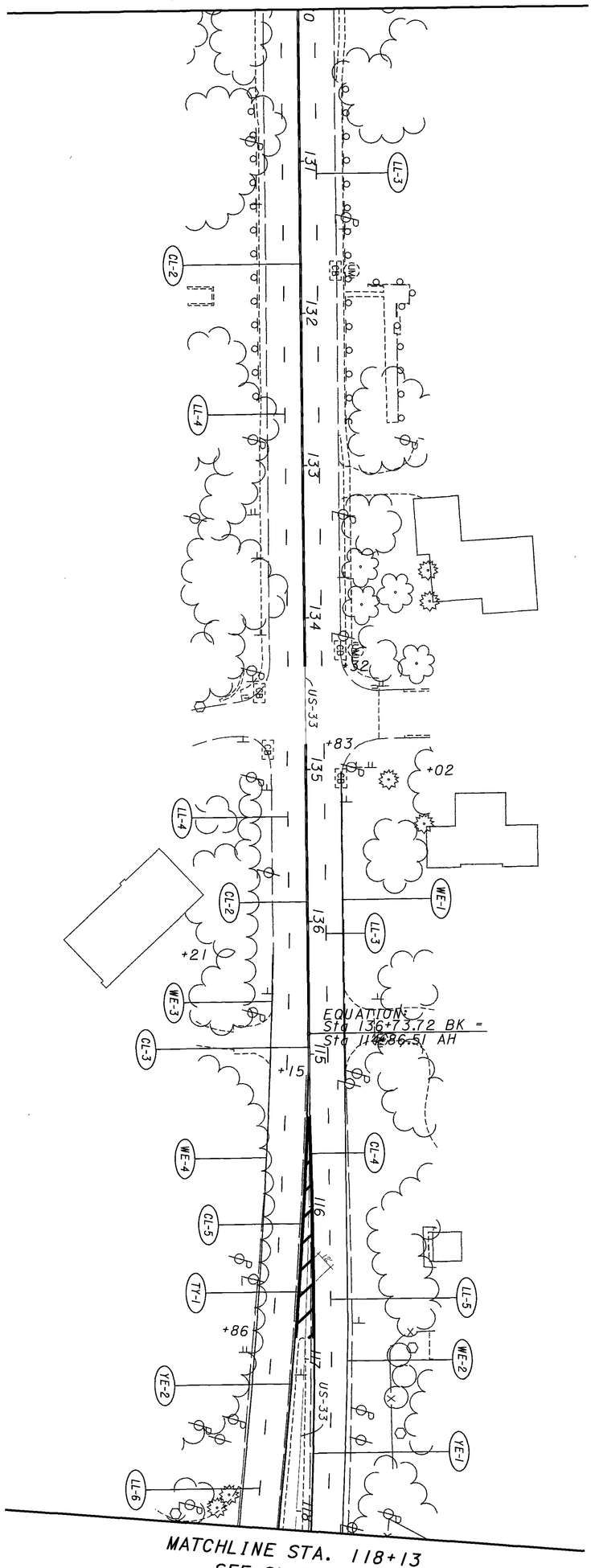
MATCHLINE STA. 130+00

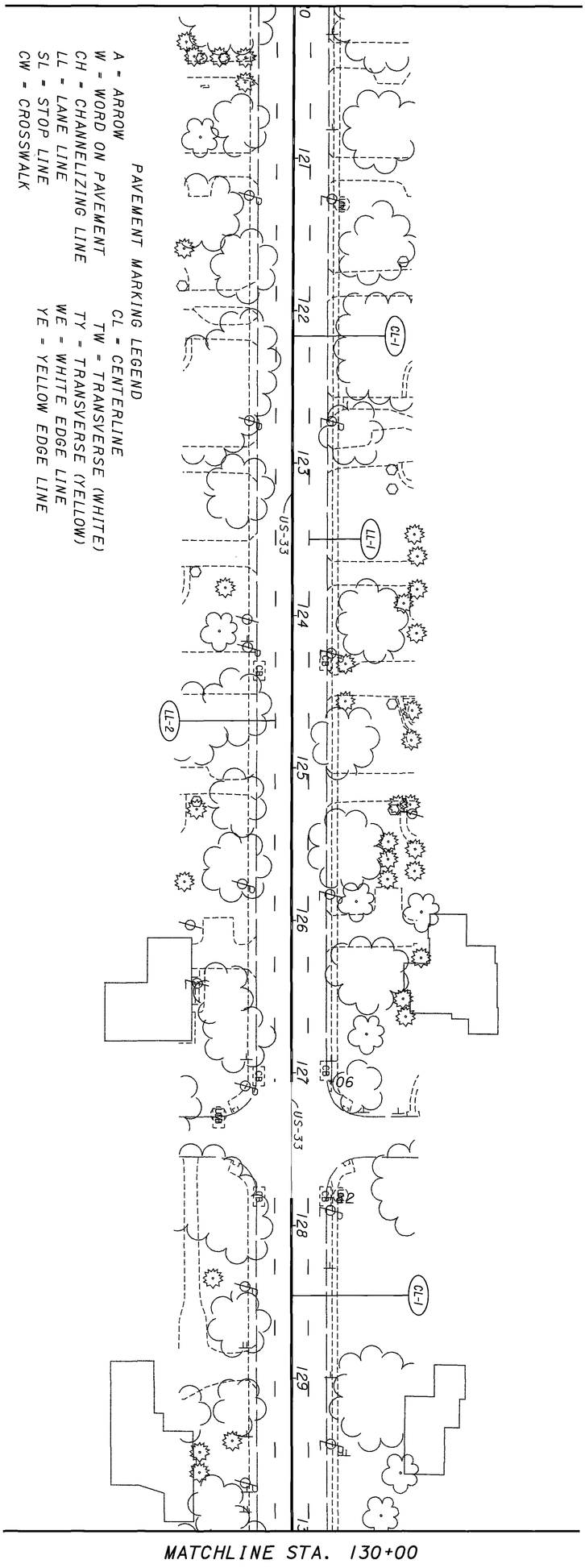


MATCHLINE STA. 118+13
SEE SHEET 157

MATCHLINE STA. 120+00
SEE SHEET 155

PAVEMENT MARKING LEGEND

A - ARROW
W - WORD ON PAVEMENT
CH - CHANNELIZING LINE
LL - LANE LINE
SL - STOP LINE
CW - CROSSWALK
CL - CENTERLINE
TW - TRANSVERSE (WHITE)
TY - TRANSVERSE (YELLOW)
WE - WHITE EDGE LINE
YE - YELLOW EDGE LINE



MATCHLINE STA. 130+00

N

N

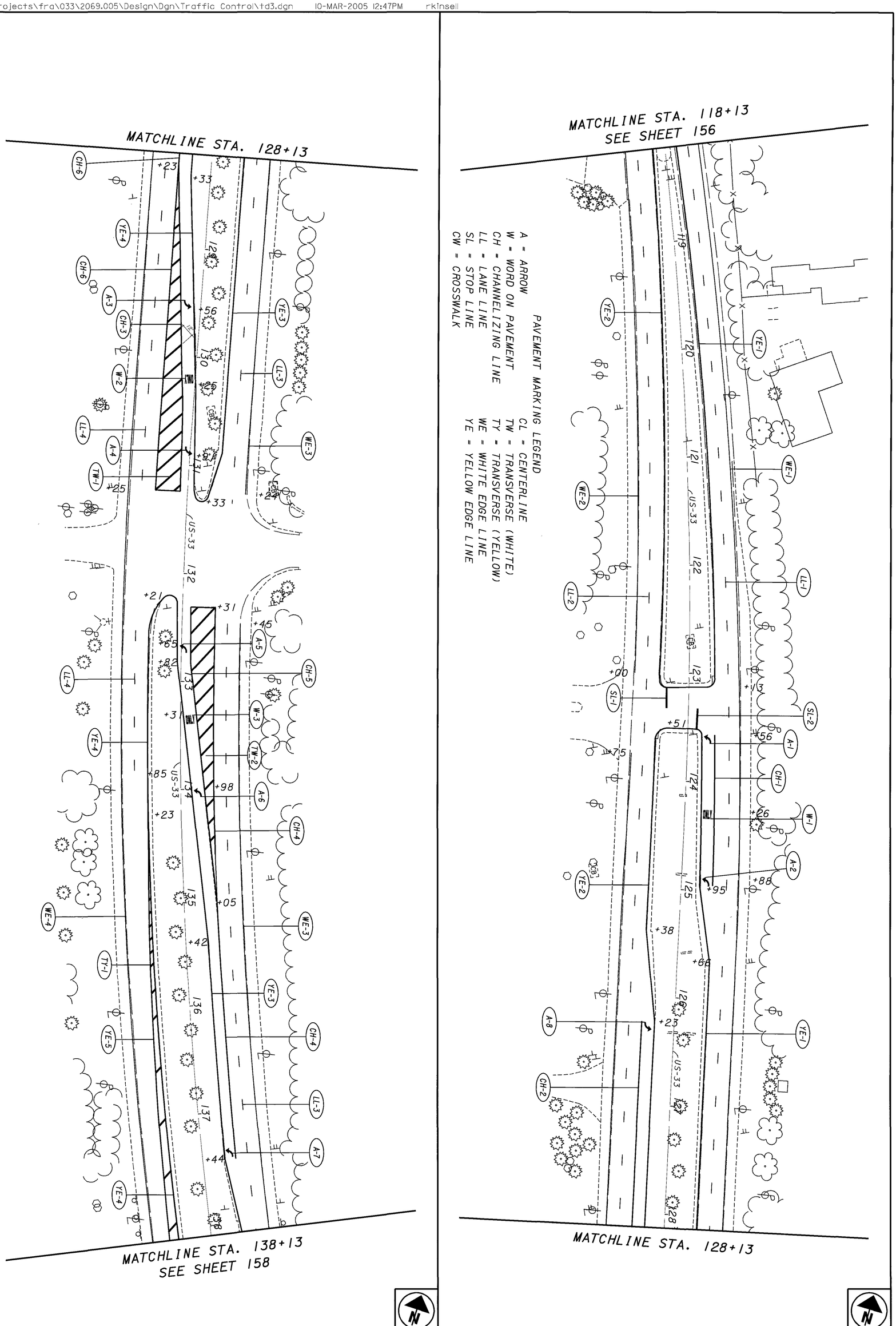
156
230

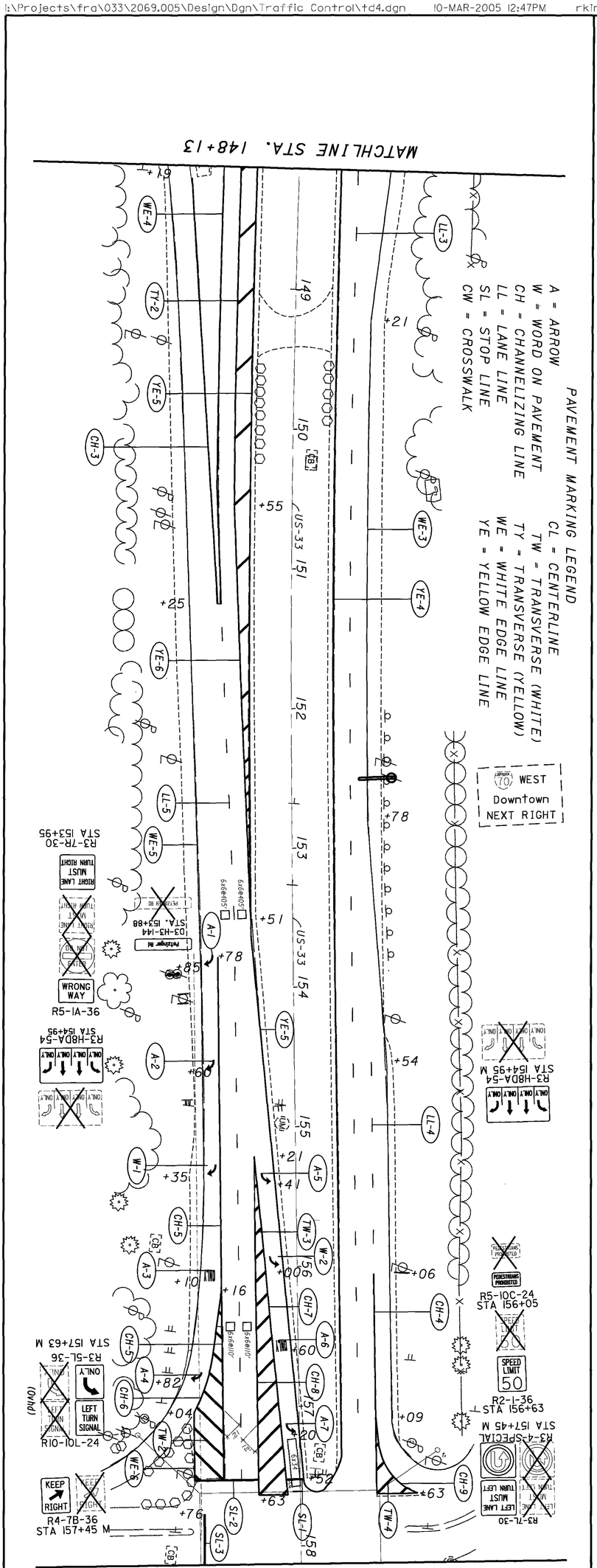
FRA-33-20.69

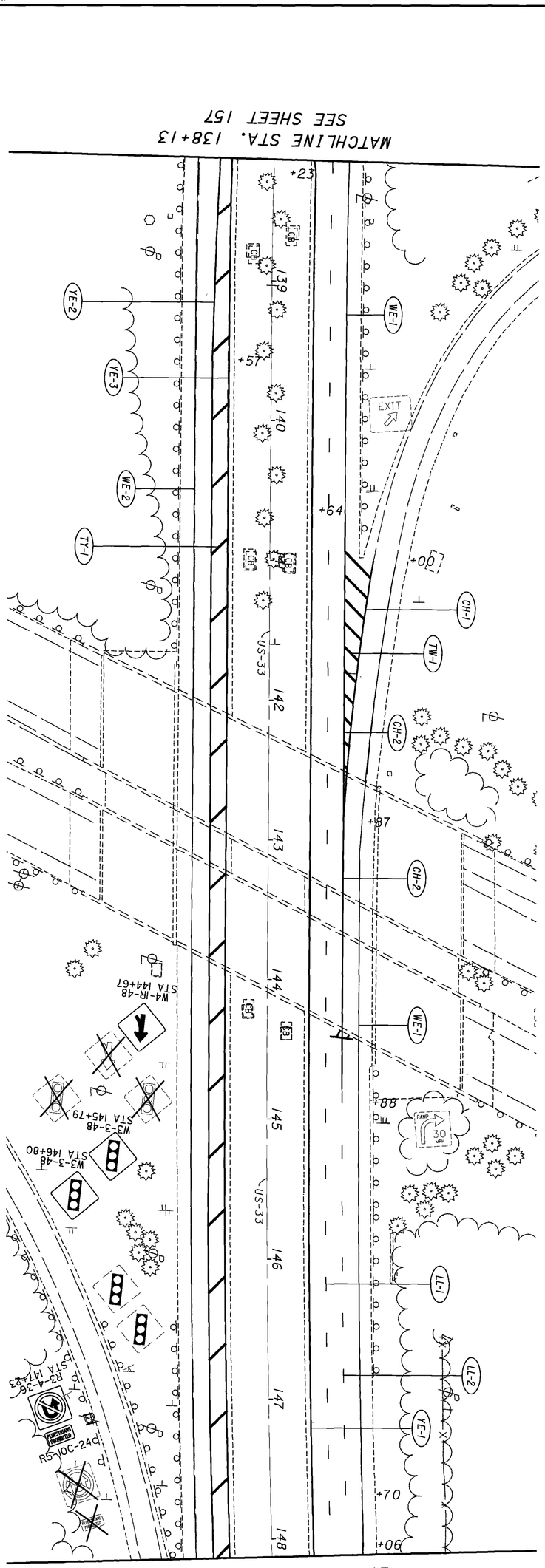
SIGNING AND PAVEMENT MARKING DETAILS

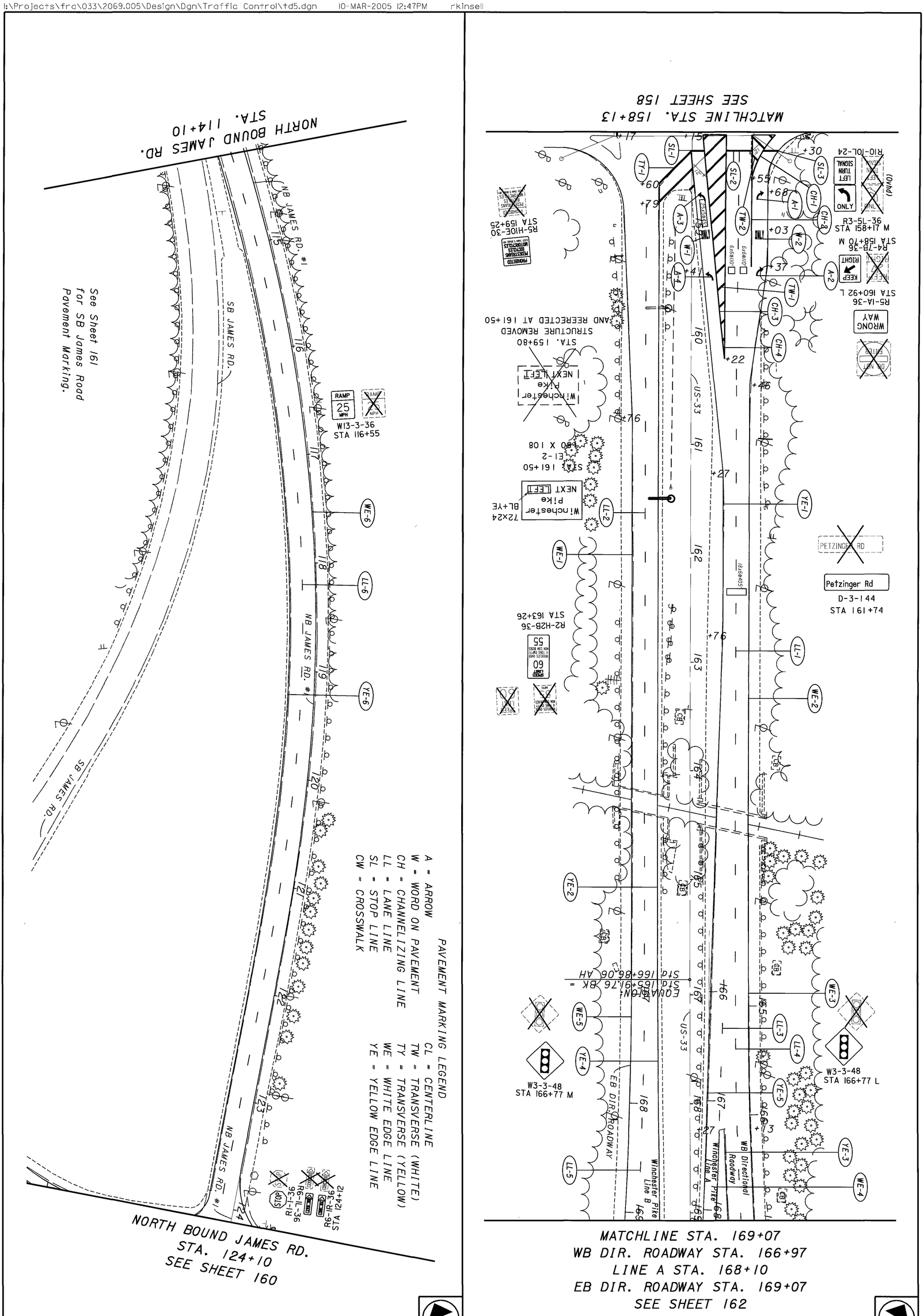
CALCULATED RDK / LW FAY / HG
CHECKED MATT

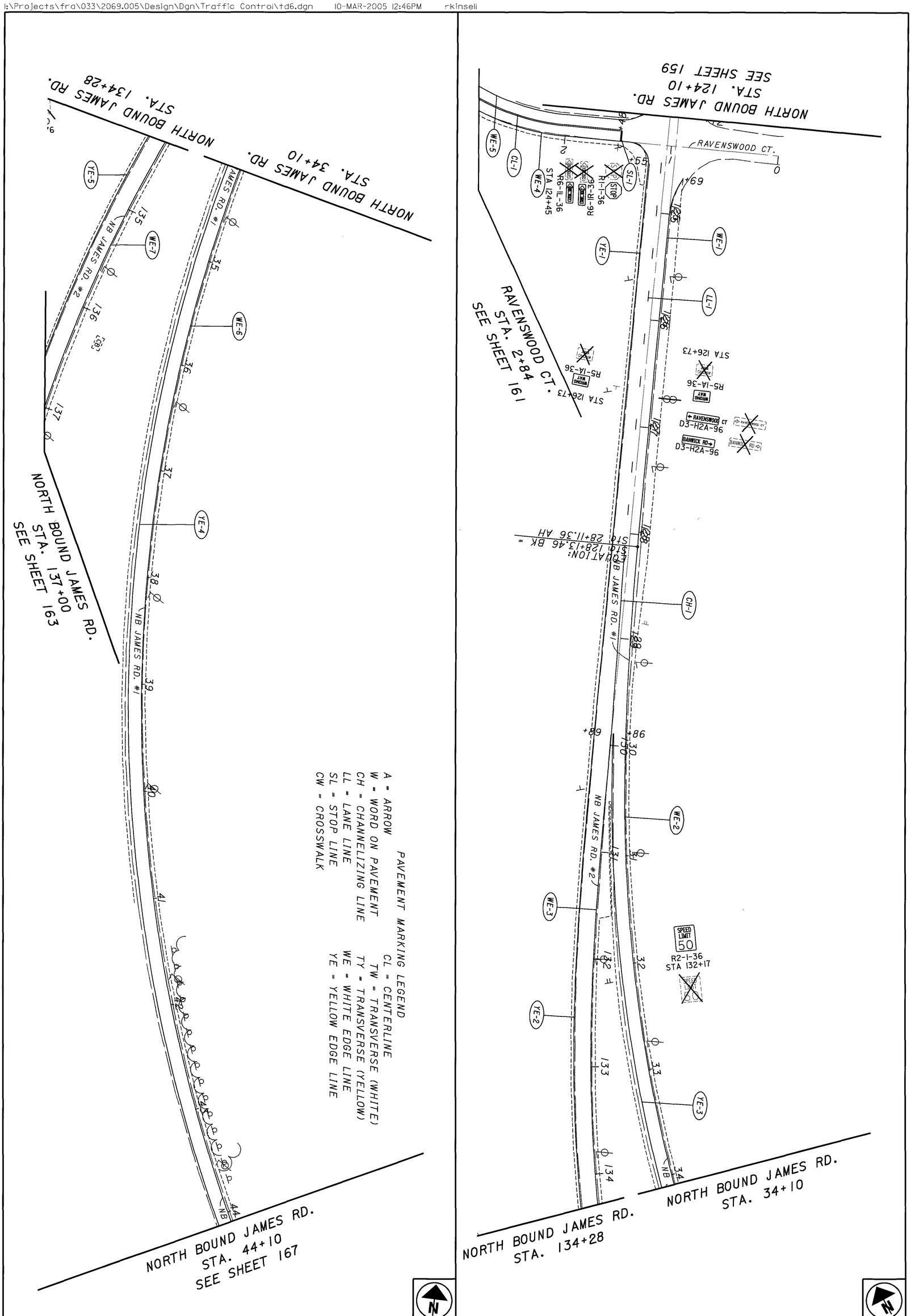
0 40
20 80
HORIZONTAL SCALE IN FEET


MATCHLINE STA. 128+13
MATCHLINE STA. 138+13
SEE SHEET 158
MATCHLINE STA. 118+13
SEE SHEET 156
MATCHLINE STA. 128+13
PAVEMENT MARKING LEGEND
A - ARROW
W - WORD ON PAVEMENT
CH - CHANNELIZING LINE
LL - LANE LINE
SL - STOP LINE
CW - CROSSWALK
CL - CENTERLINE
TW - TRANSVERSE (WHITE)
TY - TRANSVERSE (YELLOW)
WE - WHITE EDGE LINE
YE - YELLOW EDGE LINE
US-33
ONLY
N


MATCHLINE STA. 148+13
PAVEMENT MARKING LEGEND
A = ARROW
W = WORD ON PAVEMENT
CH = CHANNELIZING LINE
LL = LANE LINE
SL = STOP LINE
CW = CROSSWALK
CL = CENTERLINE
TW = TRANSVERSE (WHITE)
TY = TRANSVERSE (YELLOW)
WE = WHITE EDGE LINE
YE = YELLOW EDGE LINE
WEST
Downtown
NEXT RIGHT
R5-1A-36
WRONG WAY
R3-7R-30
STA 153+95
R3-8DA-54
STA 154+95
R5-10C-24
STA 156+05
R2-1-36
STA 156+63
R10-10L-24
LEFT TURN SIGNAL
R3-5L-36
STA 157+63 M
R4-7B-36
STA 157+45 M
R3-4SPECIAL
R3-7L-30
MATCHLINE STA. 158+13
SEE SHEET 159


MATCHLINE STA. 138+13
SEE SHEET 157
EXIT
W4-1R-48
STA 144+67
W3-3-48
STA 145+79
W3-3-48
STA 146+80
R3-4-36
STA 147+23
R5-10C-24
MATCHLINE STA. 148+13

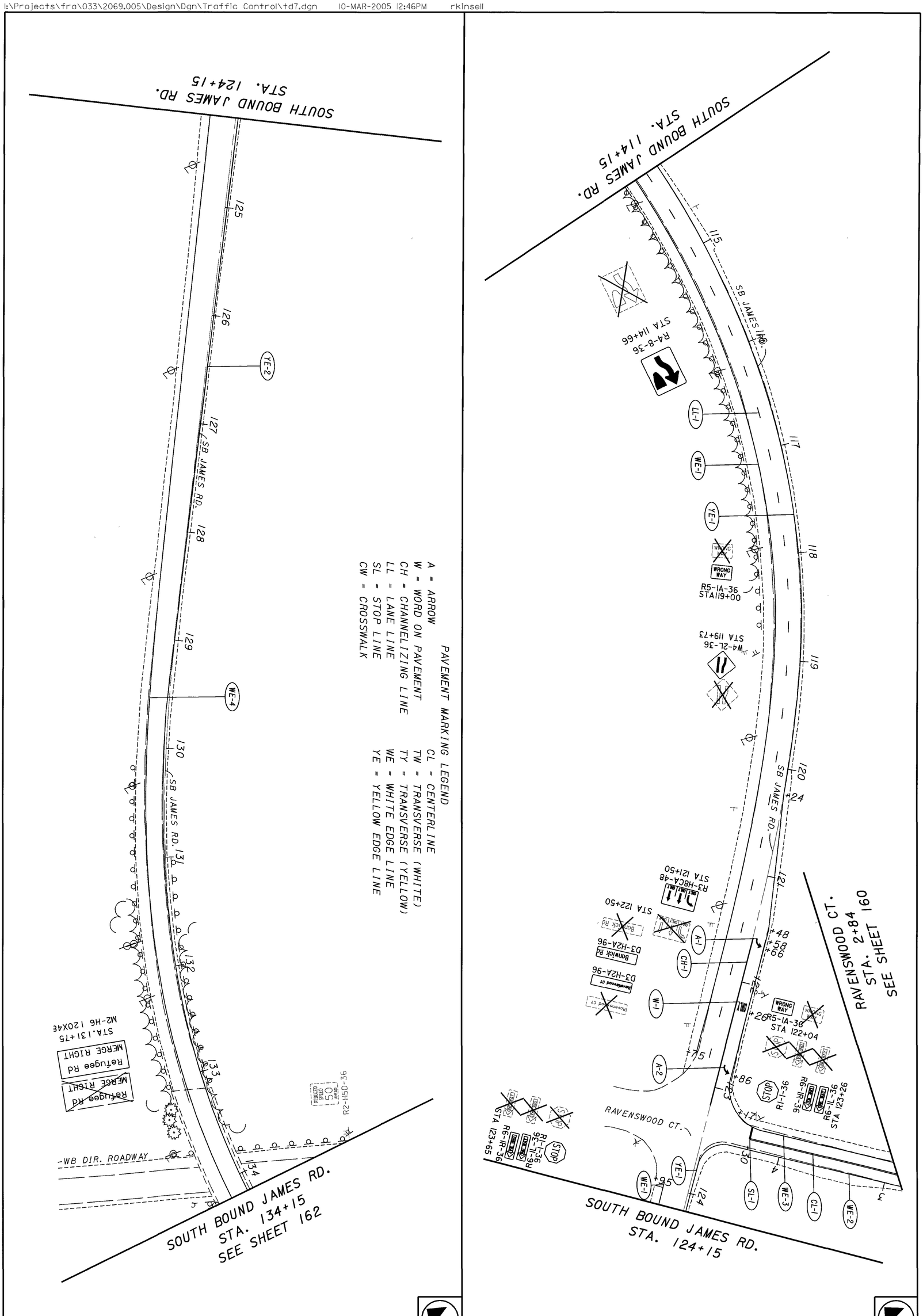

NORTH BOUND JAMES RD.
STA. 114+10
See Sheet 161
for SB James Road
Pavement Marking.
SB JAMES RD.
NB JAMES RD. #1
W13-3-36
STA 116+55
RAMP
25
MPH
WE-6
LL-6
YE-6
R6-IR-36
STA 124+12
R1-1-36
R6-1L-36
NORTH BOUND JAMES RD.
STA. 124+10
SEE SHEET 160
PAVEMENT MARKING LEGEND
A - ARROW
W - WORD ON PAVEMENT
CH - CHANNELIZING LINE
LL - LANE LINE
SL - STOP LINE
CW - CROSSWALK
CL - CENTERLINE
TW - TRANSVERSE (WHITE)
TY - TRANSVERSE (YELLOW)
WE - WHITE EDGE LINE
YE - YELLOW EDGE LINE
MATCHLINE STA. 158+13
SEE SHEET 158
R10-10L-24
R3-5L-36
STA 158+17 M
R4-7B-36
STA 158+70 M
R5-1A-36
STA 160+92 L
WRONG WAY
R5-H10E-30
STA 159+25
STRUCTURE REMOVED
AND REERECTED AT 161+50
STA. 159+80
Winchester Pike
NEXT LEFT
161+50
EI-2
60 X 108
12X24
BL+YE
Winchester Pike
NEXT LEFT
R2-H2B-36
STA 163+26
PETZINGER RD
Petzinger Rd
D-3-144
STA 161+74
FOUNDATION
Sta 165+91.76 BK =
Sta 166+86.06 AH
W3-3-48
STA 166+77 M
W3-3-48
STA 166+77 L
EB DIR. ROADWAY
WB Directional Roadway
Winchester Pike Line A
Winchester Pike Line B
US-33
MATCHLINE STA. 169+07
WB DIR. ROADWAY STA. 166+97
LINE A STA. 168+10
EB DIR. ROADWAY STA. 169+07
SEE SHEET 162



PAVEMENT MARKING LEGEND

A = ARROW
W = WORD ON PAVEMENT
CH = CHANNELIZING LINE
LL = LANE LINE
SL = STOP LINE
CW = CROSSWALK
CL = CENTERLINE
TW = TRANSVERSE (WHITE)
TY = TRANSVERSE (YELLOW)
WE = WHITE EDGE LINE
YE = YELLOW EDGE LINE

160/230	FRA-33-20.69	SIGNING AND PAVEMENT MARKING DETAILS	CALCULATED: RDK / LW FAY / HG; CHECKED: MATT	0 40 20 80 HORIZONTAL SCALE IN FEET



FRA-33-20.69

SIGNING AND PAVEMENT MARKING DETAILS

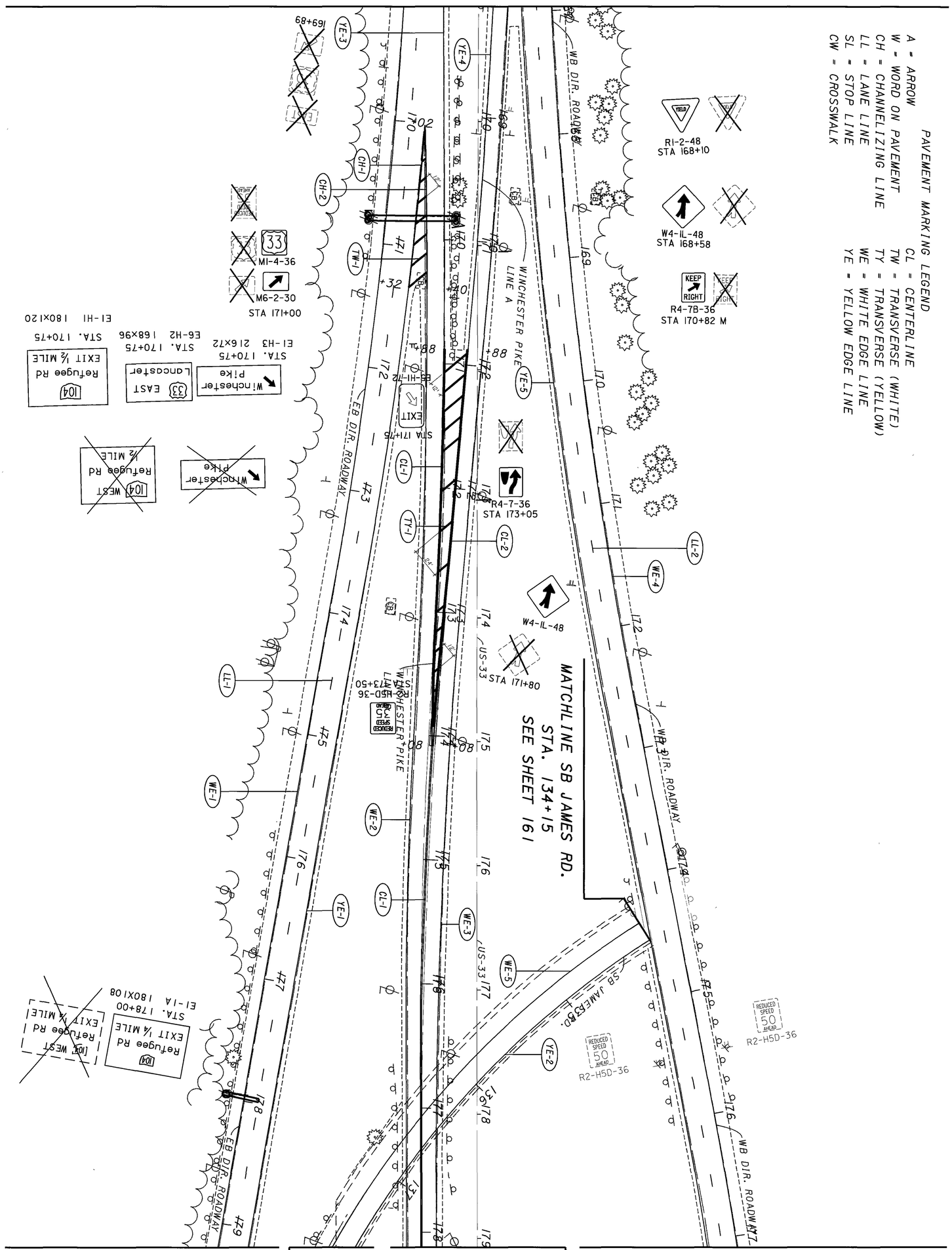
CALCULATED RDK / LW
PAT / MG
CHECKED MATT

HORIZONTAL SCALE IN FEET
0 40
20 80

MATCHLINE STA. 169+07
WB DIR. ROADWAY STA. 166+97
LINE A STA. 168+10
EB DIR. ROADWAY STA. 169+07
SEE SHEET 159

PAVEMENT MARKING LEGEND

A = ARROW
W = WORD ON PAVEMENT
CH = CHANNELIZING LINE
LL = LANE LINE
SL = STOP LINE
CW = CROSSWALK
CL = CENTERLINE
TW = TRANSVERSE (WHITE)
TY = TRANSVERSE (YELLOW)
WE = WHITE EDGE LINE
YE = YELLOW EDGE LINE

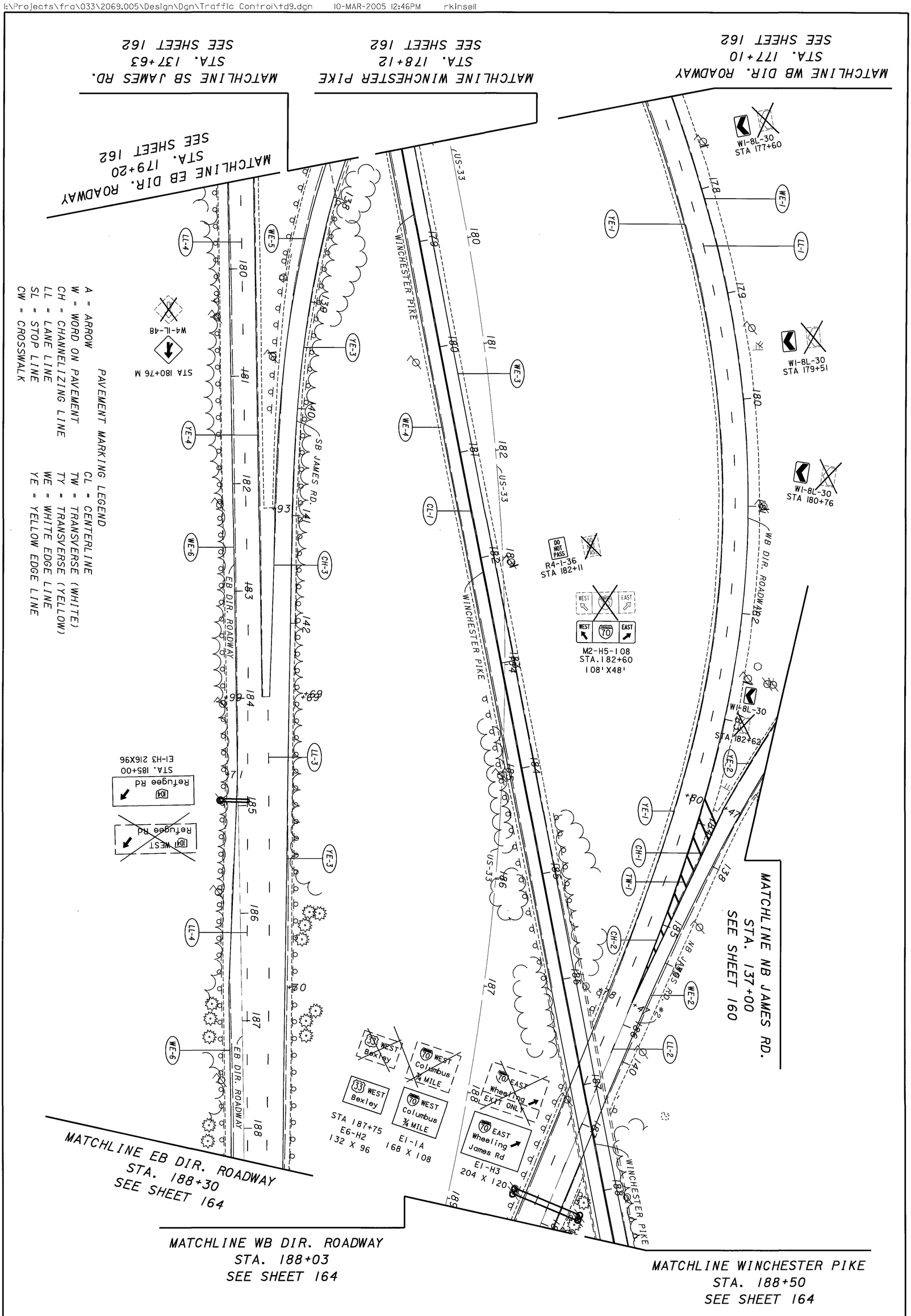


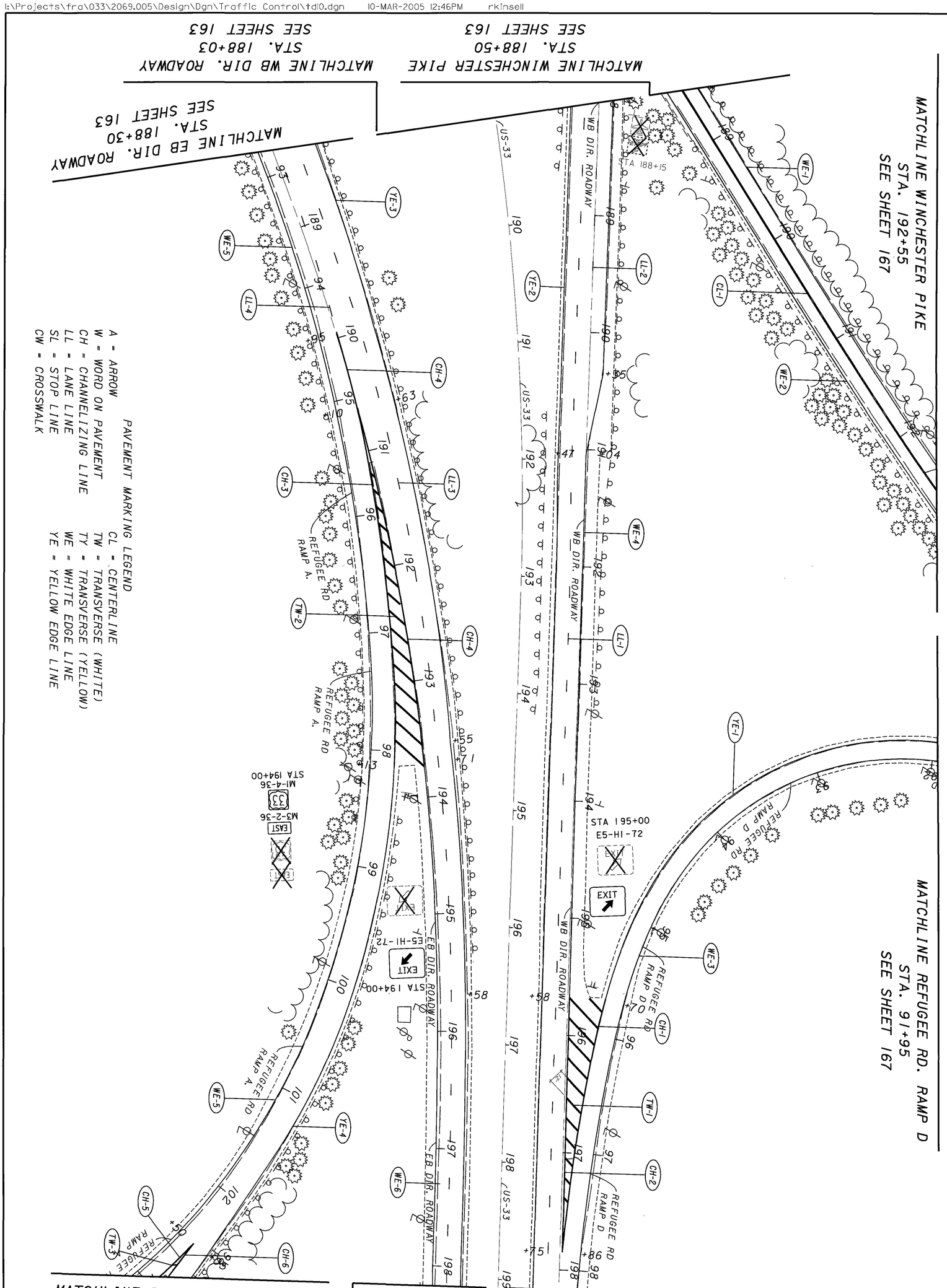
MATCHLINE EB DIR. ROADWAY
STA. 179+20
SEE SHEET 163

MATCHLINE WB DIR. ROADWAY
STA. 177+10
SEE SHEET 163

MATCHLINE SB JAMES RD.
STA. 137+63
SEE SHEET 163

MATCHLINE WINCHESTER PIKE
STA. 178+12
SEE SHEET 163


MATCHLINE WB DIR. ROADWAY
STA. 177+10
SEE SHEET 162
MATCHLINE WINCHESTER PIKE
STA. 178+12
SEE SHEET 162
MATCHLINE SB JAMES RD.
STA. 137+63
SEE SHEET 162
MATCHLINE EB DIR. ROADWAY
STA. 179+20
SEE SHEET 162
PAVEMENT MARKING LEGEND
A = ARROW
W = WORD ON PAVEMENT
CH = CHANNELIZING LINE
LL = LANE LINE
SL = STOP LINE
CW = CROSSWALK
CL = CENTERLINE
TW = TRANSVERSE (WHITE)
TY = TRANSVERSE (YELLOW)
WE = WHITE EDGE LINE
YE = YELLOW EDGE LINE
WINCHESTER PIKE
US-33
SB JAMES RD.
EB DIR. ROADWAY
WB DIR. ROADWAY
NB JAMES RD.
W4-1L-48
STA 180+76 M
W1-8L-30
STA 177+60
W1-8L-30
STA 179+51
W1-8L-30
STA 180+76
W1-8L-30
STA 182+62
DO NOT PASS
R4-1-36
STA 182+11
M2-H5-108
STA.182+60
108"X48"
Refugee Rd
104
STA. 185+00
E1-H3 216X96
WEST
Bexley
WEST
Columbus
¾ MILE
STA 187+75
E6-H2
132 X 96
E1-1A
168 X 108
EAST
Wheeling
COL EXIT ONLY
EAST
Wheeling
James Rd
E1-H3
204 X 120
MATCHLINE EB DIR. ROADWAY
STA. 188+30
SEE SHEET 164
MATCHLINE WB DIR. ROADWAY
STA. 188+03
SEE SHEET 164
MATCHLINE NB JAMES RD.
STA. 137+00
SEE SHEET 160
MATCHLINE WINCHESTER PIKE
STA. 188+50
SEE SHEET 164


MATCHLINE WINCHESTER PIKE
STA. 188+50
SEE SHEET 163
MATCHLINE WB DIR. ROADWAY
STA. 188+03
SEE SHEET 163
MATCHLINE EB DIR. ROADWAY
STA. 188+30
SEE SHEET 163
MATCHLINE WINCHESTER PIKE
STA. 192+55
SEE SHEET 167
MATCHLINE REFUGEE RD. RAMP D
STA. 91+95
SEE SHEET 167
PAVEMENT MARKING LEGEND
A - ARROW
W - WORD ON PAVEMENT
CH - CHANNELIZING LINE
LL - LANE LINE
SL - STOP LINE
CW - CROSSWALK
CL - CENTERLINE
TW - TRANSVERSE (WHITE)
TY - TRANSVERSE (YELLOW)
WE - WHITE EDGE LINE
YE - YELLOW EDGE LINE
US-33
WB DIR. ROADWAY
EB DIR. ROADWAY
REFUGEE RD RAMP A.
REFUGEE RD RAMP D
STA 188+15
STA 194+00
E5-HI-72
EXIT
M3-2-36
EAST
M1-4-36
STA 195+00
MATCHLINE REFUGEE RD. RAMP A
STA. 103+07
MATCHLINE REFUGEE RD. RAMP AA
STA. 98+30
SEE SHEET 169
MATCHLINE MAINLINE US-33
STA. 199+07
SEE SHEET 165
MATCHLINE WB DIR. ROADWAY
STA. 198+10
MATCHLINE REFUGEE RD. RAMP D
STA. 98+16
SEE SHEET 165

MATCHLINE WB DIR. ROADWAY
STA. 199+07
MATCHLINE REFUGEE RD. RAMP D
STA. 98+16
SEE SHEET 164

STA. 281+00
M2-H6 120X96
33 EAST Lancaster

EAST Lancaster 33

104 Refugee RD WEST

E1-H3
216 X 120
104 WEST Refugee RD

EAST 70 Wheeling James Rd NEXT RIGHT

STA. 201+25
E1-1A 180 X 144
EAST 70 James Rd Wheeling NEXT RIGHT

EXIT 25 MPH
W13-2-48
STA 201+73

MATCHLINE REFUGEE RD. RAMP C
STA. 7+83
SEE SHEET 168

W4-IR-48
STA 208+37

MATCHLINE MAINLINE US-33
STA. 209+07
MATCHLINE REFUGEE RD. RAMP B
STA. 146+32
SEE SHEET 166

MATCHLINE MAINLINE US-33
STA. 199+07
SEE SHEET 165

STA. 200+50
E1-1 168X144
270 Cincinnati Wheeling EXIT 1 ½ MILES

270 Cincinnati Wheeling 1 ½ MILES

STA. 275+00
M2-H6 144X72
WEST TO 133 70
WEST TO 33 70

MATCHLINE REFUGEE RD. RAMP B
STA. 139+30
MATCHLINE REFUGEE RD. RAMP BB
STA. 21+40
SEE SHEET 169

W4-IR-48
STA 206+97

REFUGEE RD RAMP C
REFUGEE RD RAMP B
REFUGEE RD RAMP BB
US-33

WE-1 WE-2 WE-3 WE-4 WE-5
LL-1 LL-2 LL-3
CH-1
YE-1 YE-2 YE-3 YE-4 YE-5
CB

PAVEMENT MARKING LEGEND

A = ARROW	CL = CENTERLINE
W = WORD ON PAVEMENT	TW = TRANSVERSE (WHITE)
CH = CHANNELIZING LINE	TY = TRANSVERSE (YELLOW)
LL = LANE LINE	WE = WHITE EDGE LINE
SL = STOP LINE	YE = YELLOW EDGE LINE
CW = CROSSWALK	

N

0 20 40 80
HORIZONTAL SCALE IN FEET

CALCULATED RDK / LW FAY / MG
CHECKED MATT

SIGNING AND PAVEMENT MARKING DETAILS

FRA-33-20.69

165
230

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MATCHLINE REFUGEE RD. RAMP F
STA. 17+91
SEE SHEET 168

MATCHLINE MAINLINE US-33
STA. 209+07
MATCHLINE REFUGEE RD. RAMP B
STA. 146+32
SEE SHEET 165

MATCHLINE MAINLINE US-33 STA. 219+07
SEE SHEET 169

REFUGEE RD RAMP F

EXIT

ES-HI-72
STA. 214+75

Refugee Rd EAST

Refugee Rd EAST
EI-H3 216X72

104 WEST
Refugee Rd WEST
EXIT → 1/4 MILE

104
Refugee Rd WEST
EXIT → 1/4 MILE
EI-I 192XI08

70
Columbus
Wheeling
1/4 MILE

70
Columbus
Wheeling
EXIT 3/4 MILE
STA. 217+25
EI-IA 168XI32

YE-1 WE-1 LL-1 WE-2 YE-2 CH-2 TW-1 CH-3 LL-4

WE-3 CH-1 LL-3 WE-4 YE-3 LL-2

US-33

PAVEMENT MARKING LEGEND

A = ARROW	CL = CENTERLINE
W = WORD ON PAVEMENT	TW = TRANSVERSE (WHITE)
CH = CHANNELIZING LINE	TY = TRANSVERSE (YELLOW)
LL = LANE LINE	WE = WHITE EDGE LINE
SL = STOP LINE	YE = YELLOW EDGE LINE
CW = CROSSWALK	

HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED RDK / LW
FAT / MG
CHECKED MATT

SIGNING AND PAVEMENT MARKING DETAILS

FRA-33-20.69

166
230

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PAVEMENT MARKING LEGEND

A = ARROW
W = WORD ON PAVEMENT
CH = CHANNELIZING LINE
LL = LANE LINE
SL = STOP LINE
CW = CROSSWALK
CL = CENTERLINE
TW = TRANSVERSE (WHITE)
TY = TRANSVERSE (YELLOW)
WE = WHITE EDGE LINE
YE = YELLOW EDGE LINE

MATCHLINE WINCHESTER PIKE
STA. 202+61

MATCHLINE WINCHESTER PIKE
STA. 204+50
END WORK

MATCHLINE NORTH BOUND JAMES RD.
STA. 44+10
SEE SHEET 160

MATCHLINE WINCHESTER PIKE
STA. 192+55
SEE SHEET 164

MATCHLINE REFUGEE RD. RAMP D
STA. 91+95
SEE SHEET 164

MATCHLINE REFUGEE RD. RAMP D
STA. 86+15
SEE SHEET 168

MATCHLINE WINCHESTER PIKE
STA. 202+21

EAST James Rd Wheeling

WEST Columbus Bexley

STA. 195+25
OVERHEAD SIGN STRUCTURE TO BE REMOVED

EAST Wheeling James Rd

M2-H6 156X96

WEST Columbus Bexley

STA. 196+20
E6-H2 156X96

EAST James Rd Wheeling

EAST James Rd NEXT RIGHT

STA. 201+00
M2-H6 144X96

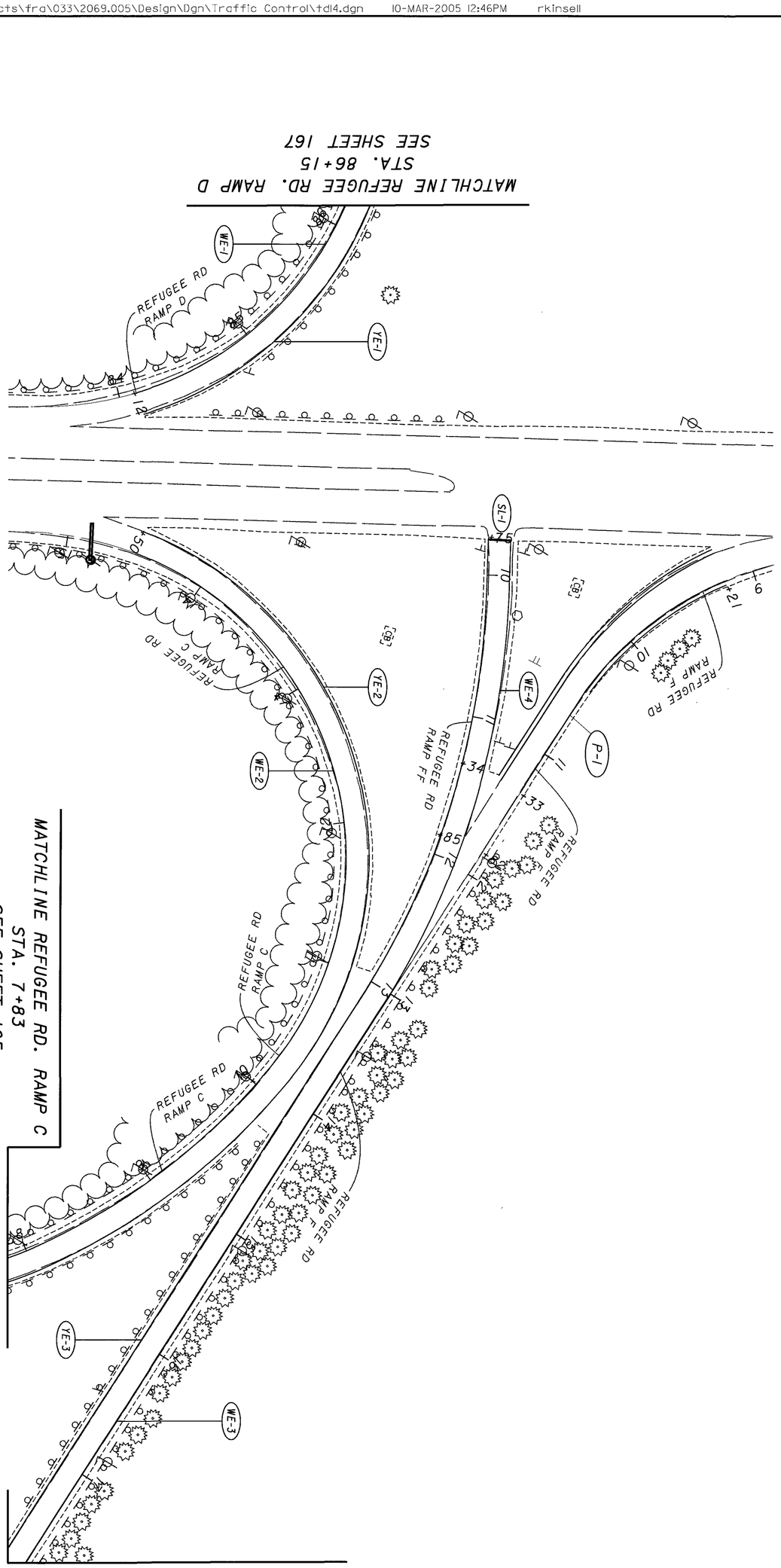
JAMES RD. #1

WINCHESTER PIKE

NB JAMES RD. #1

REFUGEE RD RAMP D

167 / 230	FRA-33-20.69	SIGNING AND PAVEMENT MARKING DETAILS	CALCULATED RDK / LW FAY / MC; CHECKED MATT	0 20 40 80 HORIZONTAL SCALE IN FEET	N



PAVEMENT MARKING LEGEND

A = ARROW	CL = CENTERLINE
W = WORD ON PAVEMENT	TW = TRANSVERSE (WHITE)
CH = CHANNELIZING LINE	TY = TRANSVERSE (YELLOW)
LL = LANE LINE	WE = WHITE EDGE LINE
SL = STOP LINE	YE = YELLOW EDGE LINE
CW = CROSSWALK	

PAVEMENT MARKING LEGEND

A = ARROW
W = WORD ON PAVEMENT
CH = CHANNELIZING LINE
LL = LANE LINE
SL = STOP LINE
CW = CROSSWALK
CL = CENTERLINE
TW = TRANSVERSE (WHITE)
TY = TRANSVERSE (YELLOW)
WE = WHITE EDGE LINE
YE = YELLOW EDGE LINE

MATCHLINE STA. 219+07
SEE SHEET 166

Refugee Rd
EAST

104
Refugee Rd
NEXT RIGHT

STA. 223+75
EI-H3 180X96

MATCHLINE STA. 229+07
SEE SHEET 170

MATCHLINE REFUGEE RD. RAMP A
STA. 103+07
MATCHLINE REFUGEE RD. RAMP AA
STA. 98+30
SEE SHEET 164

MATCHLINE REFUGEE RD. RAMP B
STA. 139+30
MATCHLINE REFUGEE RD. RAMP BB
STA. 21+40
SEE SHEET 165

FRA-33-20.69

SIGNING AND PAVEMENT MARKING DETAILS

CALCULATED RDK / LW
FAY / WC
CHECKED MATT

0 20 40 80
HORIZONTAL SCALE IN FEET

PAVEMENT MARKING LEGEND

A = ARROW	CL = CENTERLINE
W = WORD ON PAVEMENT	TW = TRANSVERSE (WHITE)
CH = CHANNELIZING LINE	TY = TRANSVERSE (YELLOW)
LL = LANE LINE	WE = WHITE EDGE LINE
SL = STOP LINE	YE = YELLOW EDGE LINE
CW = CROSSWALK	

GAS NEXT RIGHT

MATCHLINE STA. 229+07
SEE SHEET 169

R3-4-36
R3-HAA-2A
STA 233+62

R3-4-36
R3-HAA-2A
STA 233+10

LL-1 WE-1 YE-1 LL-2 WE-2 YE-2

230 231 US-33 232 233 234 235 236 US-33 237 238 239

MATCHLINE STA. 239+07

Fender Bender
Drive Damaged
Vehicles To
Shoulder

LL-3 WE-3 YE-3 LL-4 WE-4 YE-4

240 241 US-33 242 243 244 245 246 US-33 247 248 249

MATCHLINE STA. 239+07
SEE SHEET 171

HORIZONTAL
SCALE IN FEET
0 20 40 80

CALCULATED RDK / LW
PAY / AG
CHECKED MATT

SIGNING AND PAVEMENT MARKING DETAILS

FRA-33-20.69

170
230

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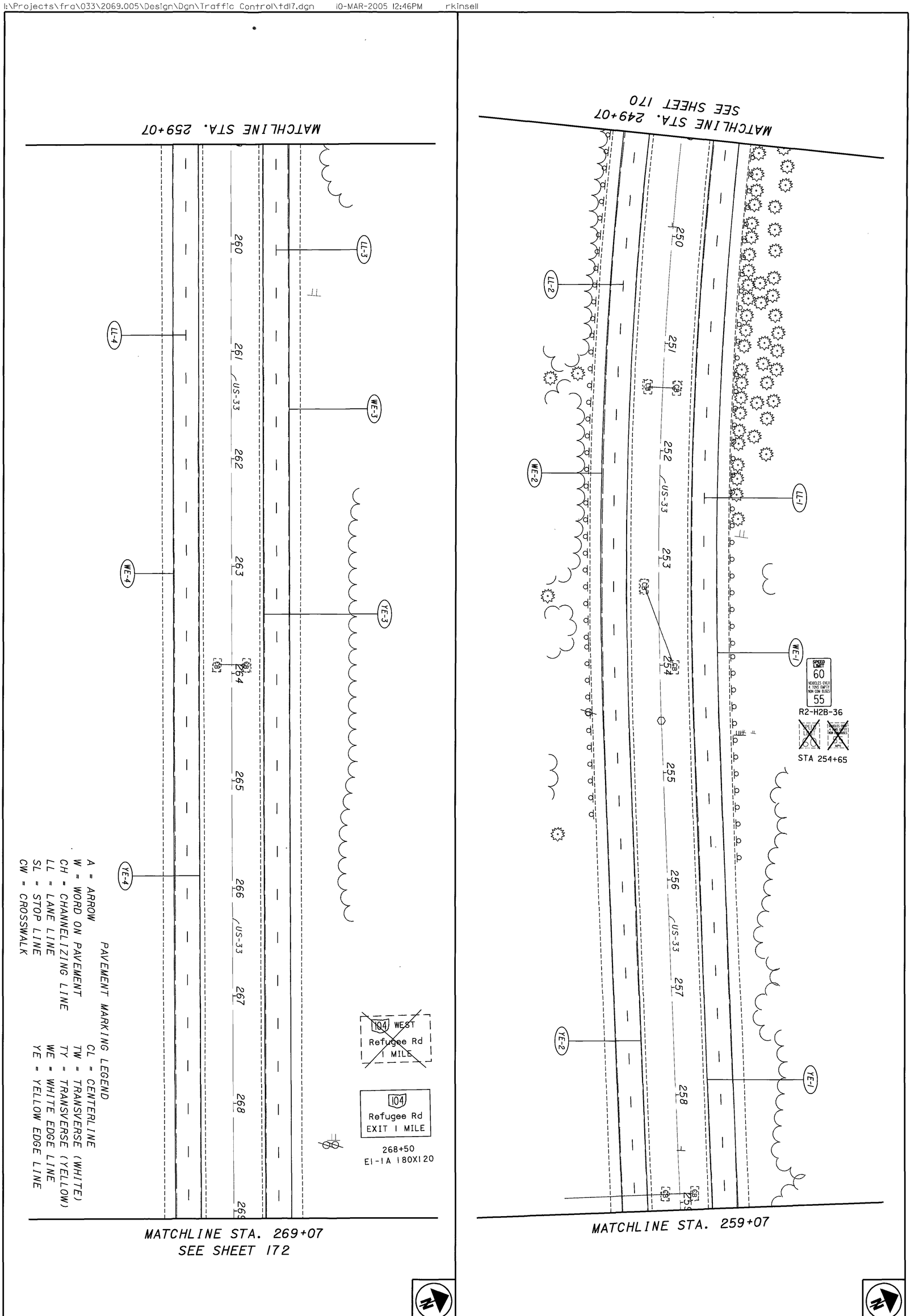
I:\Projects\fra\033\2069.005\Design\Dgn\Traffic Control\tdl7.dgn 10-MAR-2005 12:46PM rkinsell



PAVEMENT MARKING LEGEND

A = ARROW
W = WORD ON PAVEMENT
CH = CHANNELIZING LINE
LL = LANE LINE
SL = STOP LINE
CW = CROSSWALK
CL = CENTERLINE
TW = TRANSVERSE (WHITE)
TY = TRANSVERSE (YELLOW)
WE = WHITE EDGE LINE
YE = YELLOW EDGE LINE

FRA-33-20.69

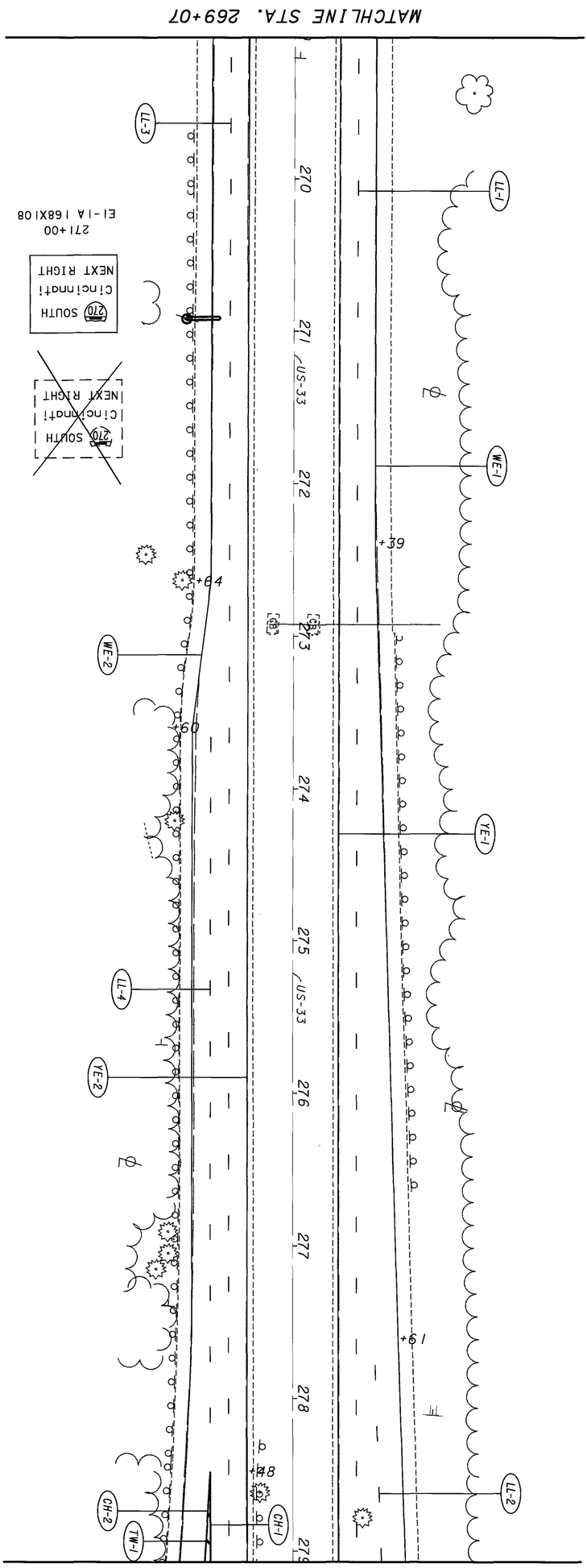
SIGNING AND PAVEMENT MARKING DETAILS

CALCULATED ROK / LW FAY / HG
CHECKED MATT

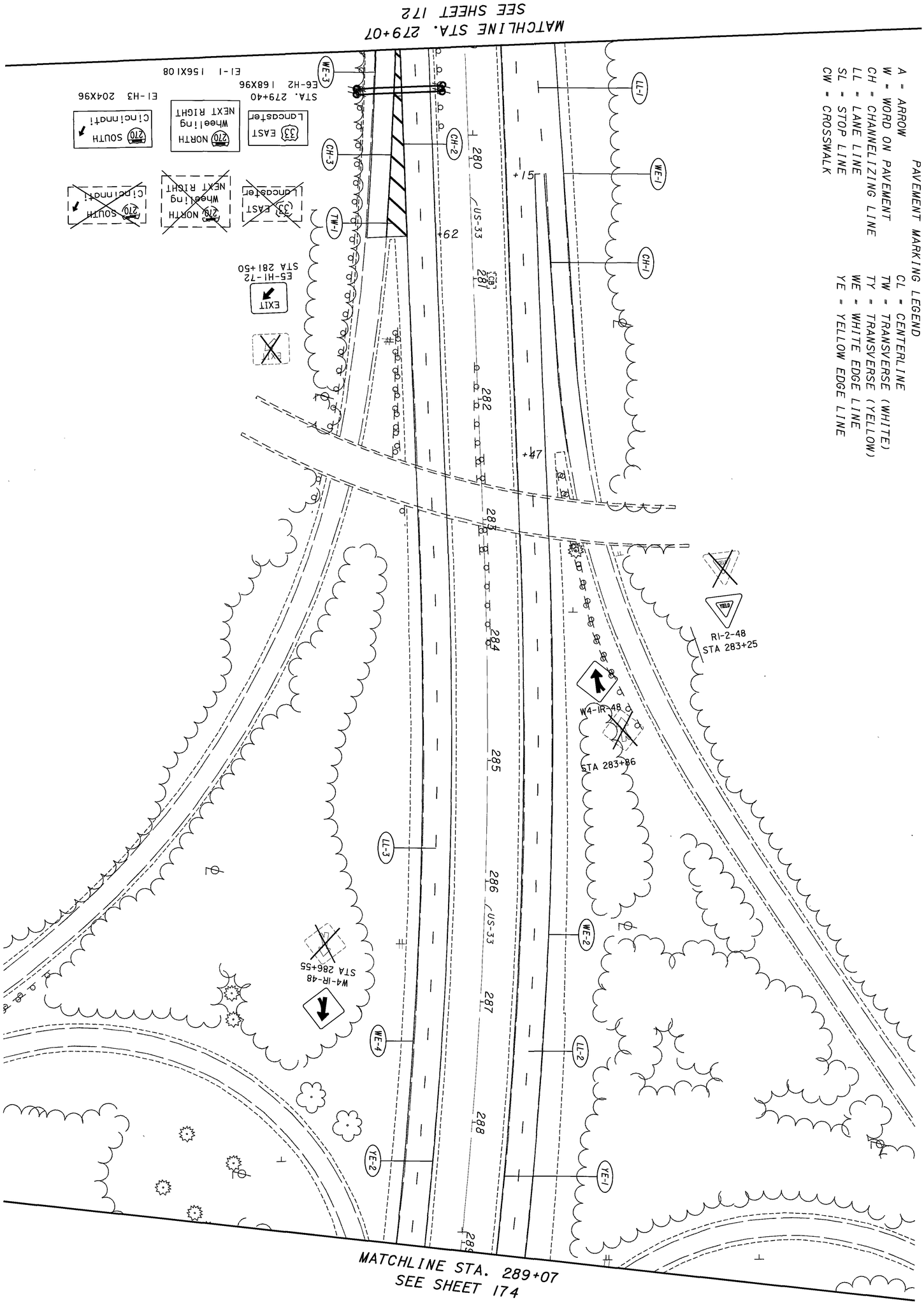
0 40
20 80
HORIZONTAL SCALE IN FEET

PAVEMENT MARKING LEGEND

A = ARROW
W = WORD ON PAVEMENT
CH = CHANNELIZING LINE
LL = LANE LINE
SL = STOP LINE
CW = CROSSWALK
CL = CENTERLINE
TW = TRANSVERSE (WHITE)
TY = TRANSVERSE (YELLOW)
WE = WHITE EDGE LINE
YE = YELLOW EDGE LINE



MATCHLINE STA. 279+07
SEE SHEET 173

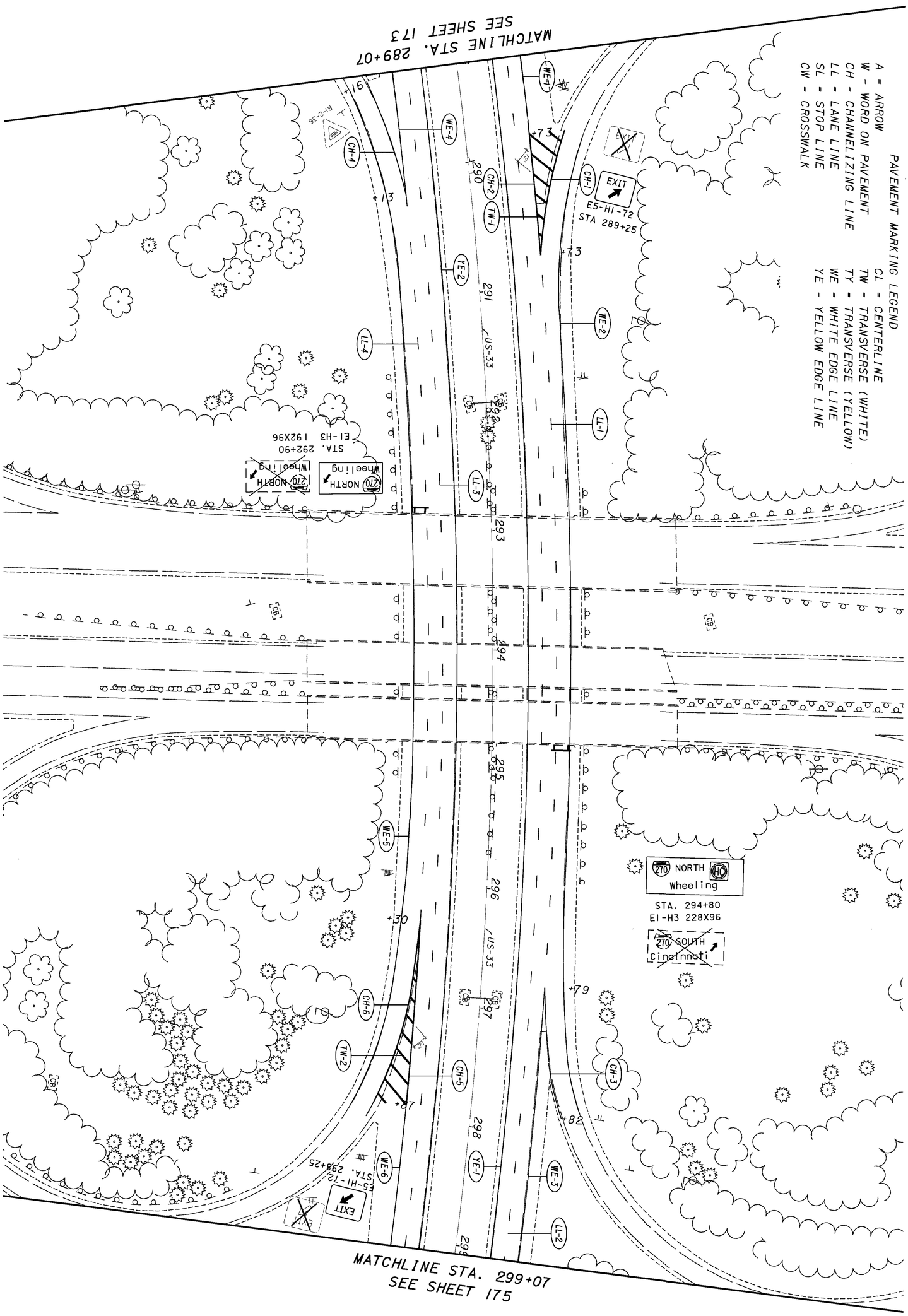


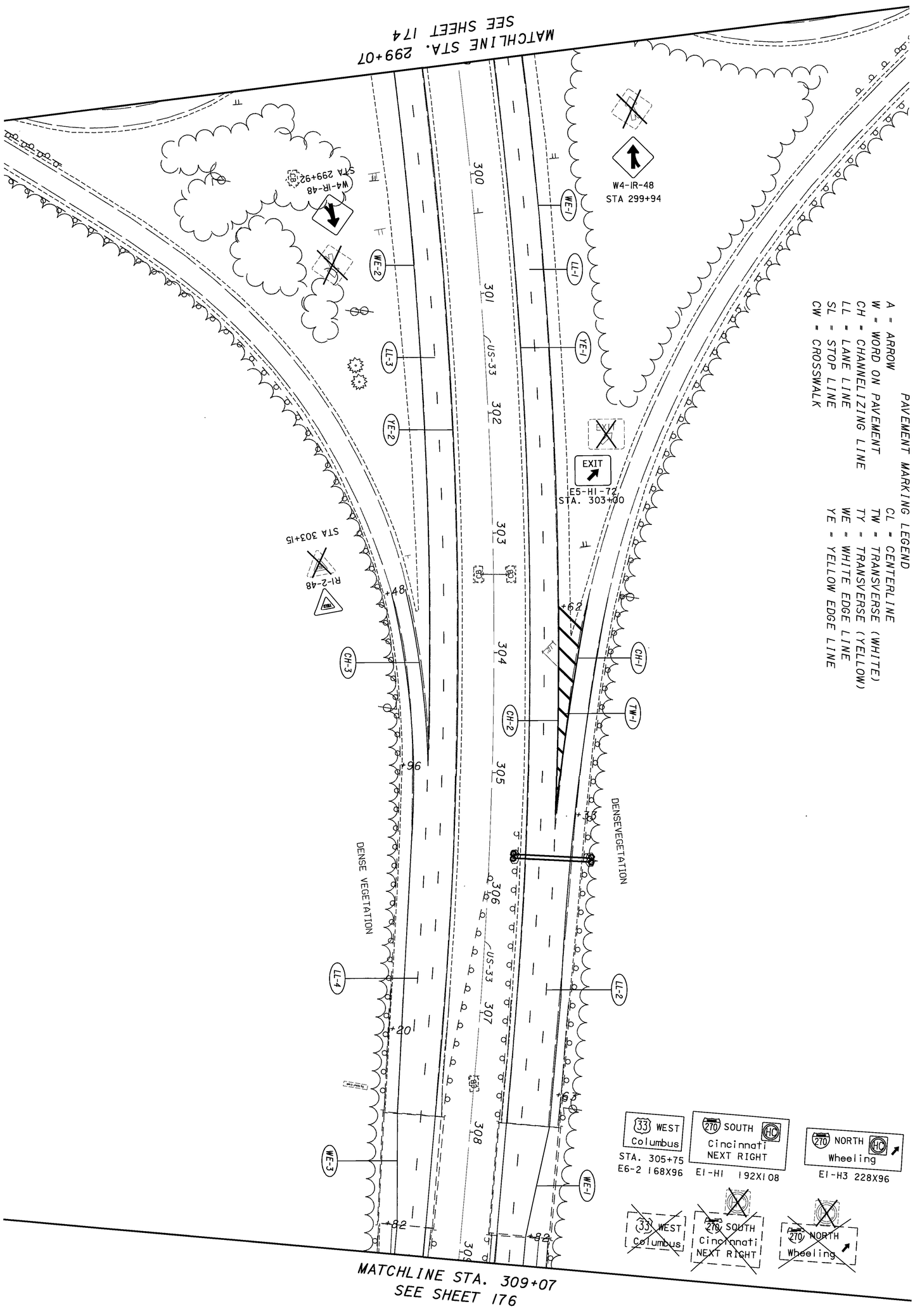
FRA-33-20.69

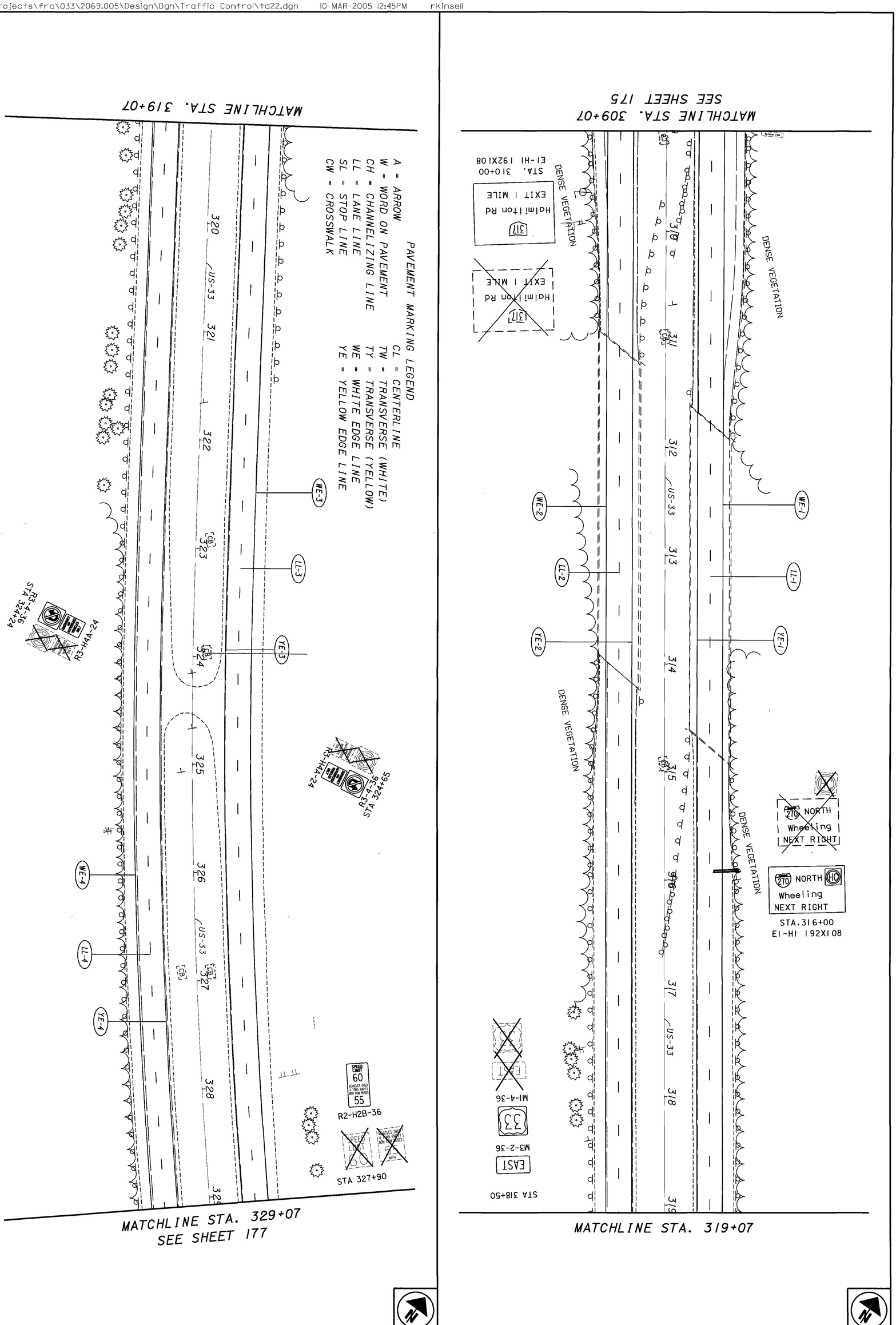
SIGNING AND PAVEMENT MARKING DETAILS

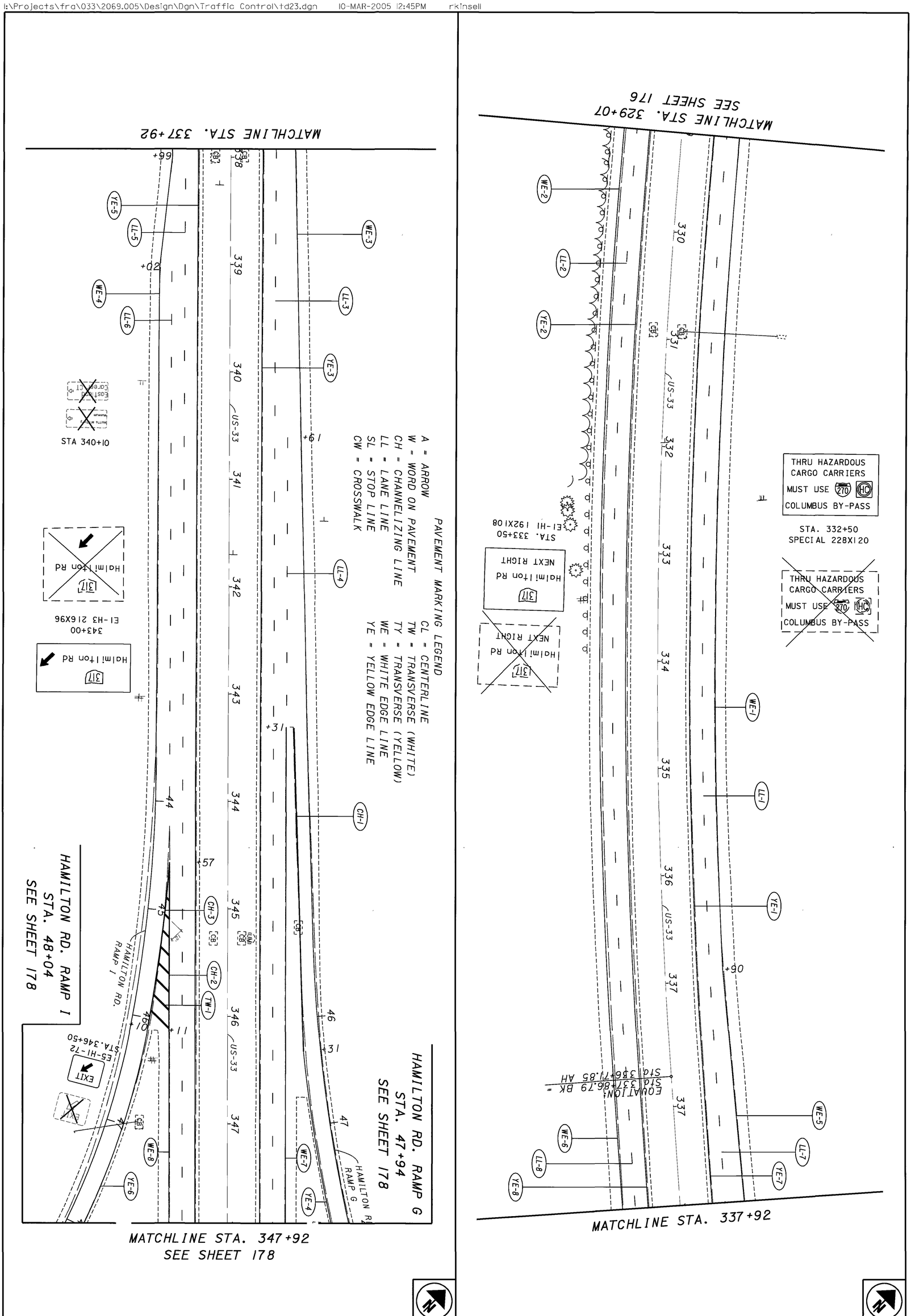
CALCULATED RDK / LW FAY / HG
CHECKED MATT

0 20 40 80
HORIZONTAL SCALE IN FEET


MATCHLINE STA. 289+07
SEE SHEET 173
PAVEMENT MARKING LEGEND
A = ARROW
W = WORD ON PAVEMENT
CH = CHANNELIZING LINE
LL = LANE LINE
SL = STOP LINE
CW = CROSSWALK
CL = CENTERLINE
TW = TRANSVERSE (WHITE)
TY = TRANSVERSE (YELLOW)
WE = WHITE EDGE LINE
YE = YELLOW EDGE LINE
EXIT
E5-HI-72
STA 289+25
STA. 292+90
EI-H3 192X96
NORTH
Wheeling
STA. 294+80
EI-H3 228X96
SOUTH
Cincinnati
US-33
MATCHLINE STA. 299+07
SEE SHEET 175


MATCHLINE STA. 299+07
SEE SHEET 174
W4-1R-48
STA 299+92
W4-1R-48
STA 299+94
EXIT
E5-1I-72
STA. 303+00
STA 303+15
R1-2-48
DENSE VEGETATION
DENSE VEGETATION
33 WEST Columbus
STA. 305+75
E6-2 168X96
270 SOUTH Cincinnati NEXT RIGHT
E1-1I 192X108
270 NORTH Wheeling
E1-1H3 228X96
MATCHLINE STA. 309+07
SEE SHEET 176
PAVEMENT MARKING LEGEND
A = ARROW
W = WORD ON PAVEMENT
CH = CHANNELIZING LINE
LL = LANE LINE
SL = STOP LINE
CW = CROSSWALK
CL = CENTERLINE
TW = TRANSVERSE (WHITE)
TY = TRANSVERSE (YELLOW)
WE = WHITE EDGE LINE
YE = YELLOW EDGE LINE


MATCHLINE STA. 309+07
SEE SHEET 175
DENSE VEGETATION
Halmilton Rd
EXIT 1 MILE
317
STA. 310+00
EI-HI 192X108
310
311
312
313
314
315
316
317
318
US-33
WE-1
WE-2
LL-1
LL-2
YE-1
YE-2
270 NORTH
Wheeling
NEXT RIGHT
HC
STA.316+00
EI-HI 192X108
MI-4-36
EAST
M3-2-36
STA 318+50
MATCHLINE STA. 319+07
MATCHLINE STA. 319+07
PAVEMENT MARKING LEGEND
A = ARROW
W = WORD ON PAVEMENT
CH = CHANNELIZING LINE
LL = LANE LINE
SL = STOP LINE
CW = CROSSWALK
CL = CENTERLINE
TW = TRANSVERSE (WHITE)
TY = TRANSVERSE (YELLOW)
WE = WHITE EDGE LINE
YE = YELLOW EDGE LINE
320
321
322
323
324
325
326
327
328
WE-3
LL-3
YE-3
WE-4
LL-4
YE-4
R3-H4A-24
R3-1-36
STA 324+24
R3-H4A-24
R3-1-36
STA 324+65
R2-H2B-36
STA 327+90
MATCHLINE STA. 329+07
SEE SHEET 177

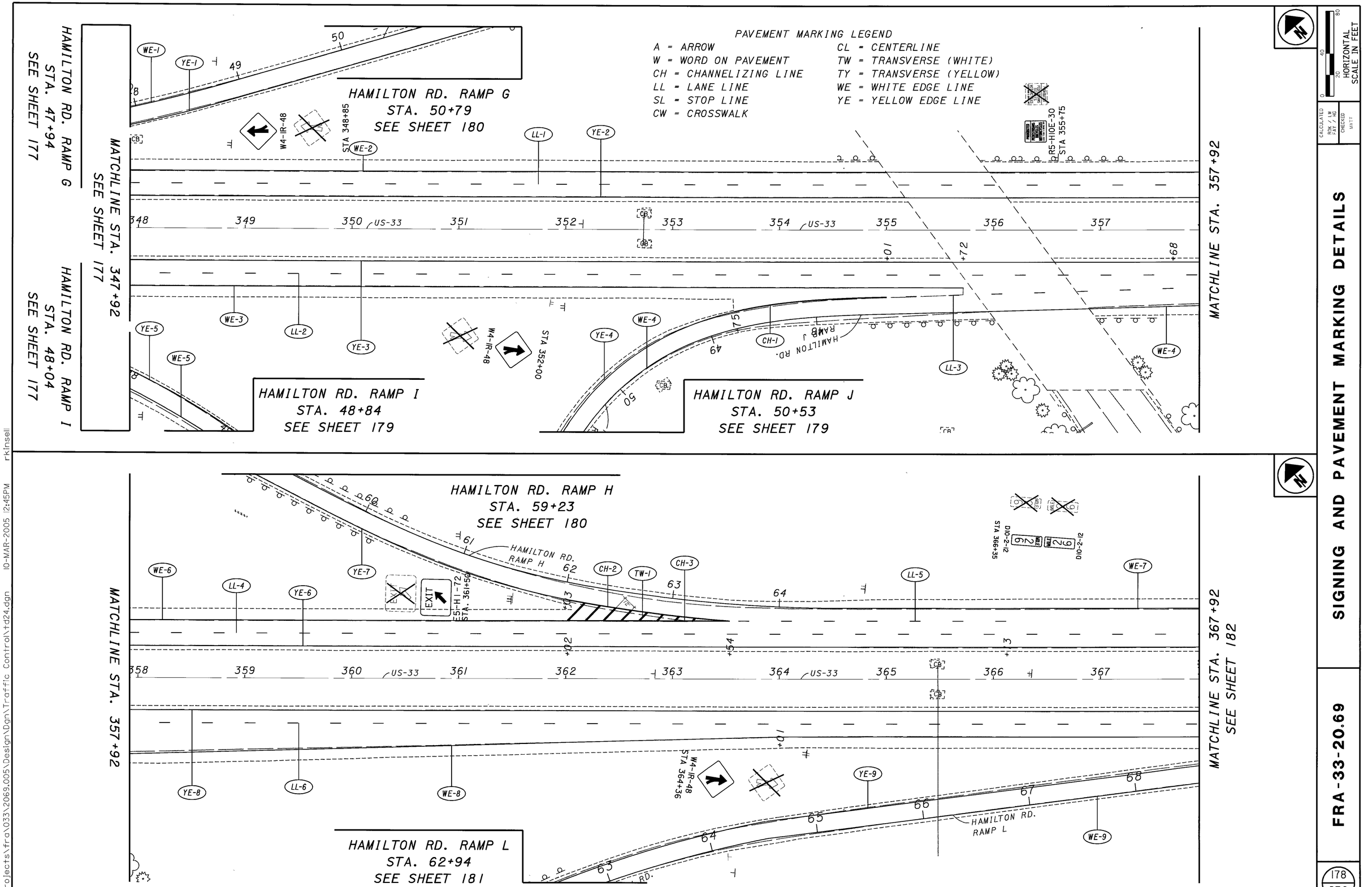


FRA-33-20.69

SIGNING AND PAVEMENT MARKING DETAILS

CALCULATED ROK / LW FAY / HC
CHECKED MATT

0 20 40 80
HORIZONTAL SCALE IN FEET



HAMILTON RD. RAMP I
STA. 48+84
SEE SHEET 178

HAMILTON RD. RAMP J
STA. 50+53
SEE SHEET 178

HAMILTON RD. RAMP IJ
STA. 59+90
SEE SHEET 181

PAVEMENT MARKING LEGEND

A = ARROW	CL = CENTERLINE
W = WORD ON PAVEMENT	TW = TRANSVERSE (WHITE)
CH = CHANNELIZING LINE	TY = TRANSVERSE (YELLOW)
LL = LANE LINE	WE = WHITE EDGE LINE
SL = STOP LINE	YE = YELLOW EDGE LINE
CW = CROSSWALK	

HAMILTON RD. RAMP I
HAMILTON RD. RAMP J
HAMILTON RD. RAMP IJ
HAMILTON RD. RAMP K
HAMILTON RD.
YE-1
WE-1
YE-2
WE-2
WRONG WAY
R5-1A-36 STA 54+33 J
R5-10A-30 STA 55+35 J
PEDESTRIANS BICYCLES MOTORCYCLES PROHIBITED
R5-1A-36 STA 54+33 I
WI-8L-36 STA 55+52 I
WI-8L-36 STA 55+94 I
STA 55+30 I
WI-8L-36 STA 55+78 I
STA 56+00 I
WI-8L-36 STA 56+47 I
LANCASTER EAST
M2-H6 144X60 STA 27+00
M6-1-30 STA 63+00
M1-4-36
M2-2-36
EAST
CB

FRA-33-20.69

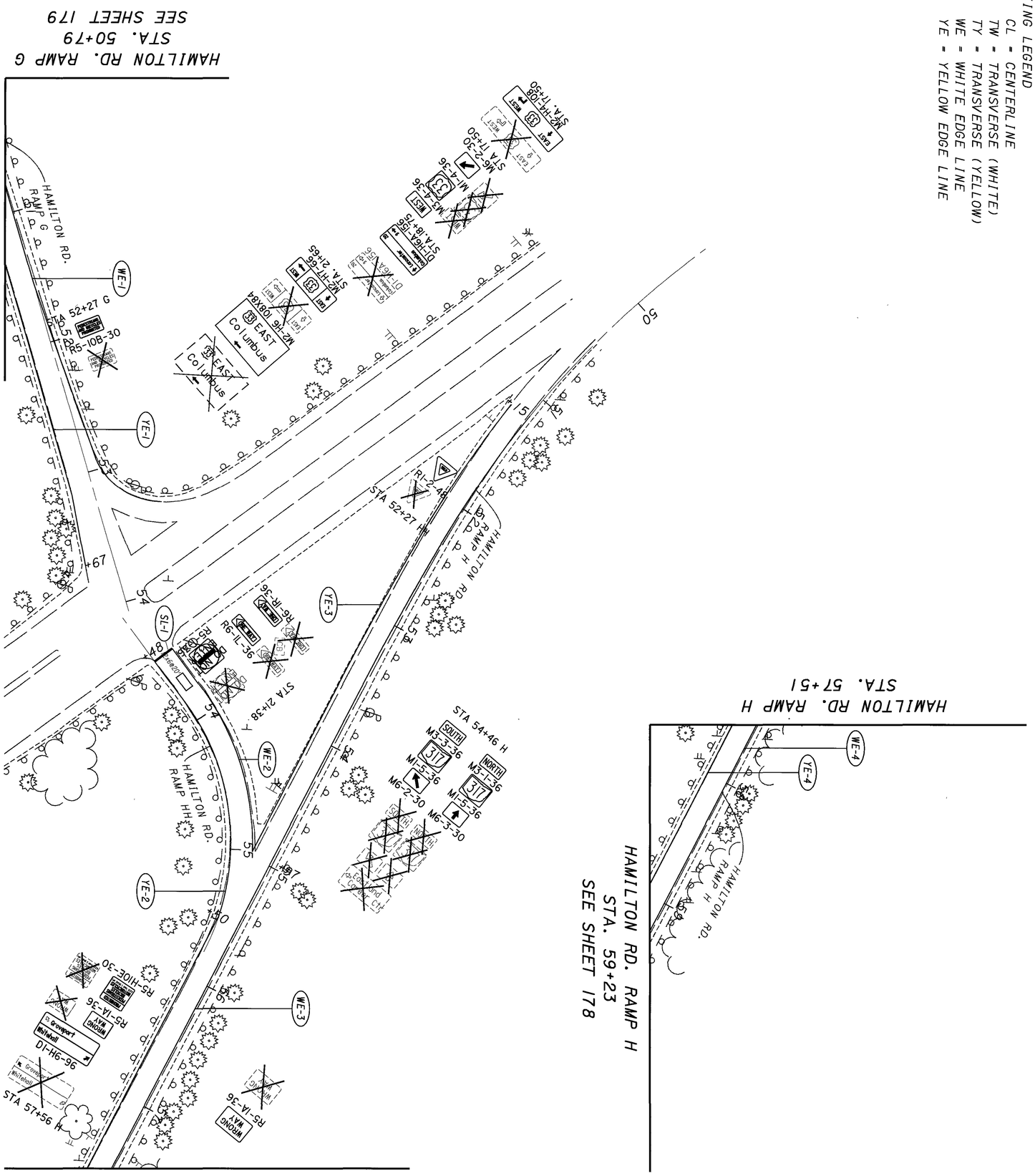
SIGNING AND PAVEMENT MARKING DETAILS

CALCULATED RDK / LW FAY / NG
CHECKED MATT

HORIZONTAL SCALE IN FEET
0 20 40 80

PAVEMENT MARKING LEGEND

A - ARROW
W - WORD ON PAVEMENT
CH - CHANNELIZING LINE
LL - LANE LINE
SL - STOP LINE
CW - CROSSWALK
CL - CENTERLINE
TW - TRANSVERSE (WHITE)
TY - TRANSVERSE (YELLOW)
WE - WHITE EDGE LINE
YE - YELLOW EDGE LINE



HAMILTON RD. RAMP L
STA. 62+94
SEE SHEET 178

HAMILTON RD. RAMP I J
STA. 59+90
SEE SHEET 179

PAVEMENT MARKING LEGEND

A = ARROW	CL = CENTERLINE
W = WORD ON PAVEMENT	TW = TRANSVERSE (WHITE)
CH = CHANNELIZING LINE	TY = TRANSVERSE (YELLOW)
LL = LANE LINE	WE = WHITE EDGE LINE
SL = STOP LINE	YE = YELLOW EDGE LINE
CW = CROSSWALK	

HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED RDK / LW
FAY / MS
CHECKED MATT

PAVEMENT MARKING DETAILS

FRA-33-20.69

SIGNING AND PAVEMENT MARKING

181
230

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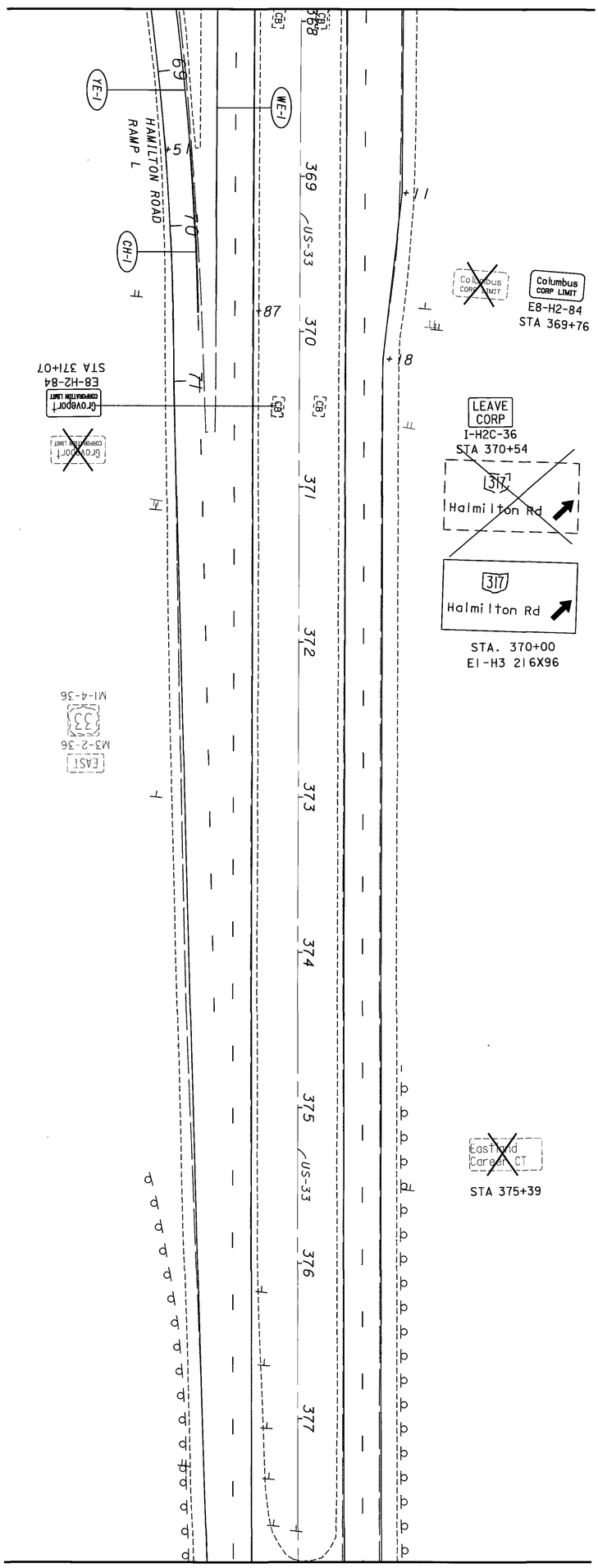
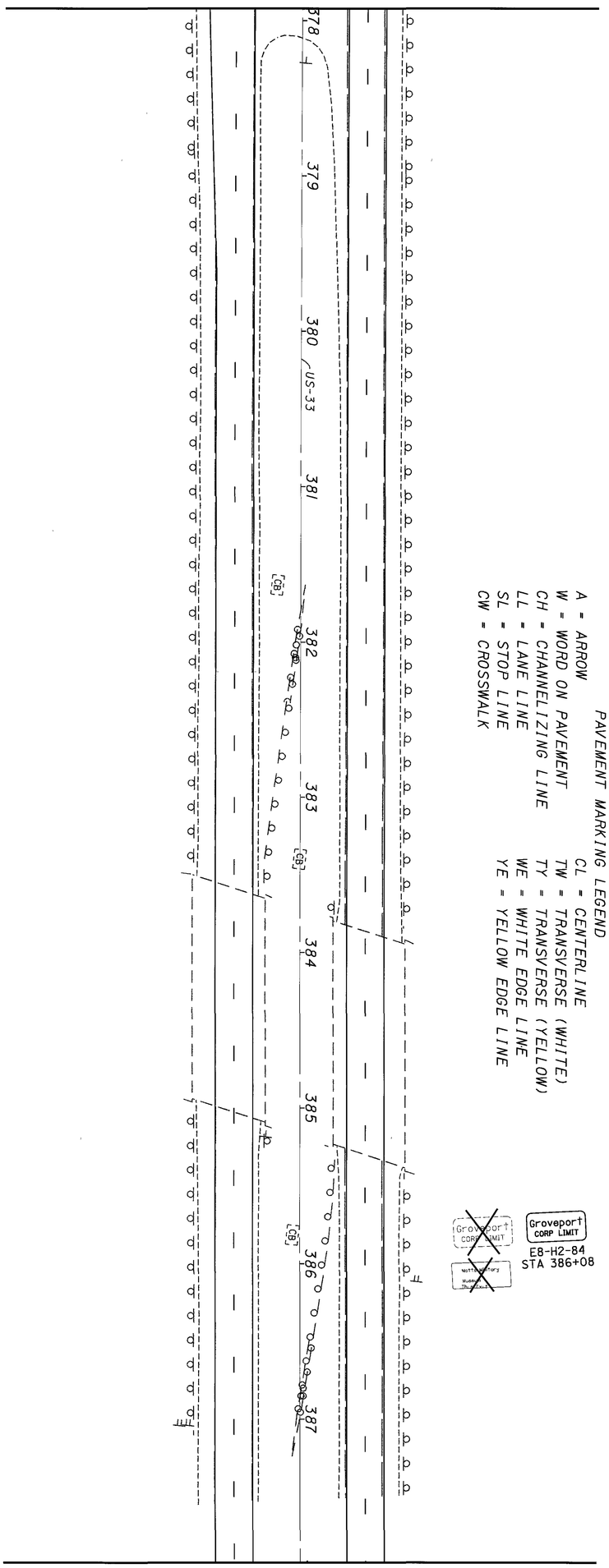
MATCHLINE STA. 367+92
SEE SHEET 178



MATCHLINE STA. 377+92

MATCHLINE STA. 377+92



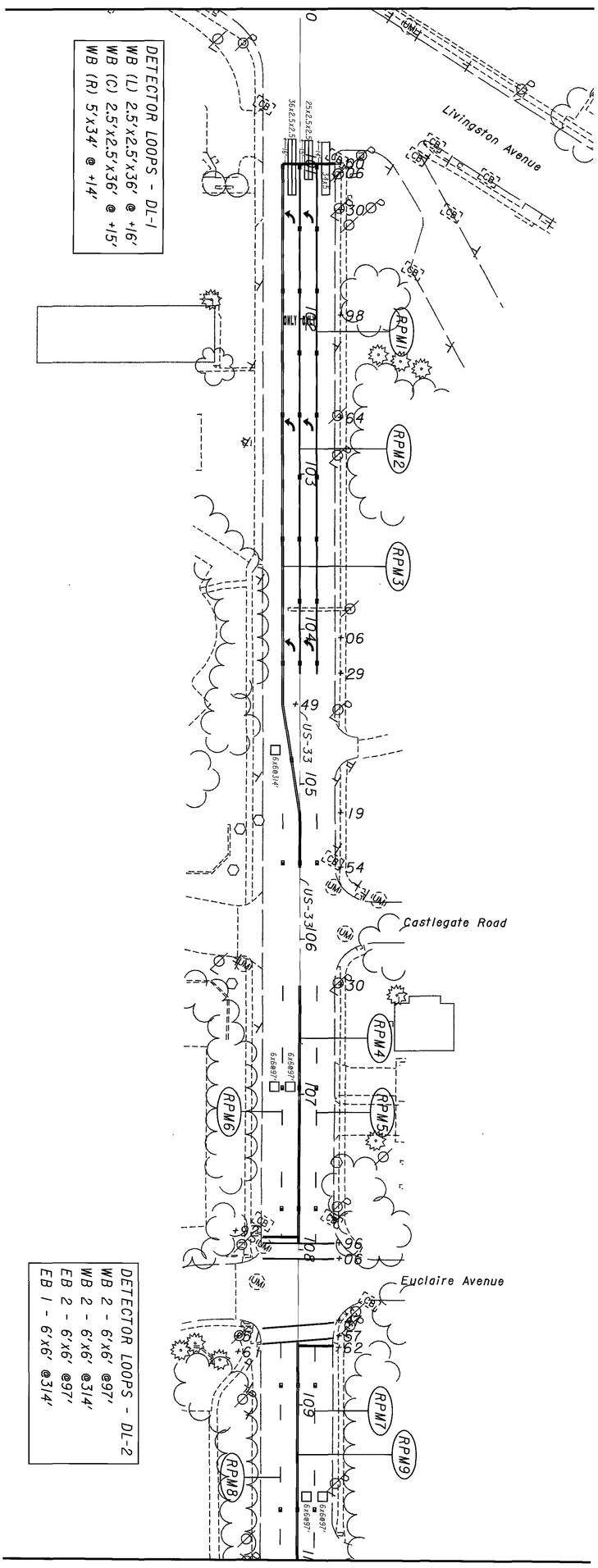
PAVEMENT MARKING LEGEND

A = ARROW
W = WORD ON PAVEMENT
CH = CHANNELIZING LINE
LL = LANE LINE
SL = STOP LINE
CW = CROSSWALK
CL = CENTERLINE
TW = TRANSVERSE (WHITE)
TY = TRANSVERSE (YELLOW)
WE = WHITE EDGE LINE
YE = YELLOW EDGE LINE

MATCHLINE STA. 387+92
END PROJECT

BEGIN PROJECT
STA. 100+00

DETECTOR LOOPS - DL-1
WB (L) 2.5'x2.5'x36' @ +16'
WB (C) 2.5'x2.5'x36' @ +15'
WB (R) 5'x34' @ +14'

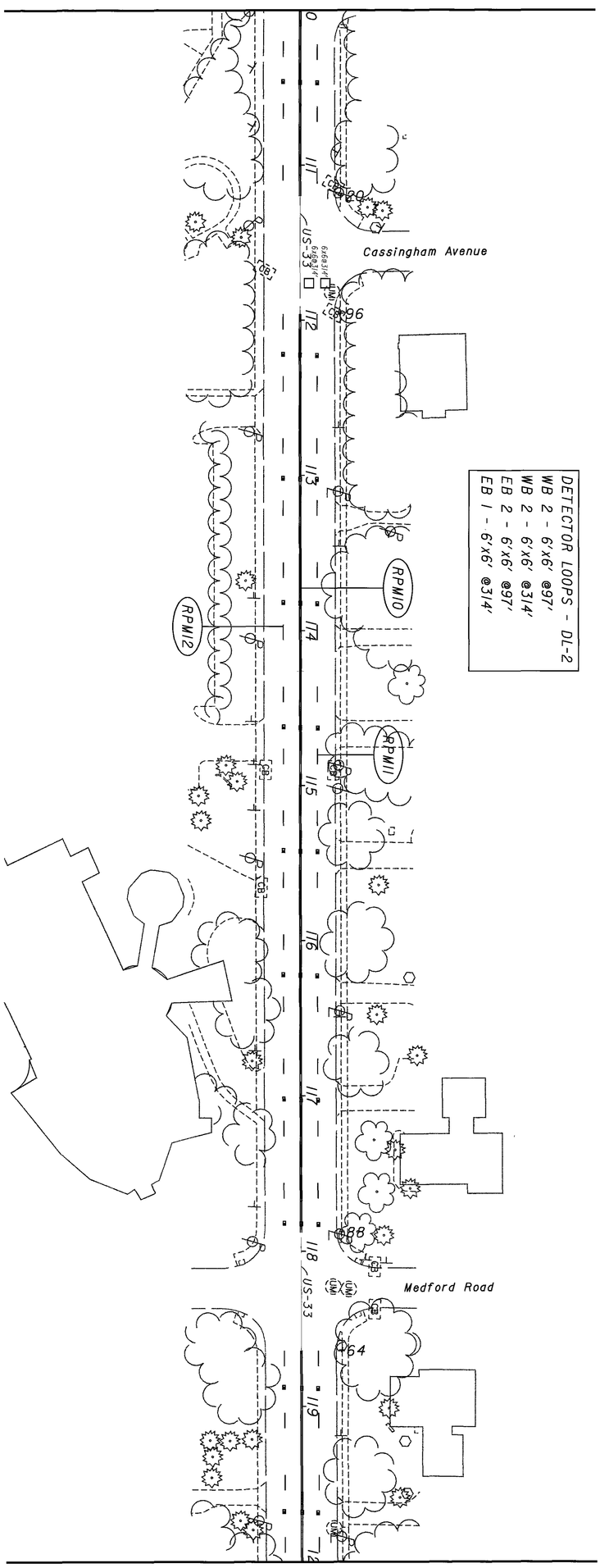


DETECTOR LOOPS - DL-2
WB 2 - 6'x6' @97'
WB 2 - 6'x6' @314'
EB 2 - 6'x6' @97'
EB 1 - 6'x6' @314'

MATCHLINE STA. 110+00

MATCHLINE STA. 110+00

DETECTOR LOOPS - DL-2
WB 2 - 6'x6' @97'
WB 2 - 6'x6' @314'
EB 2 - 6'x6' @97'
EB 1 - 6'x6' @314'



MATCHLINE STA. 120+00
SEE SHEET 184

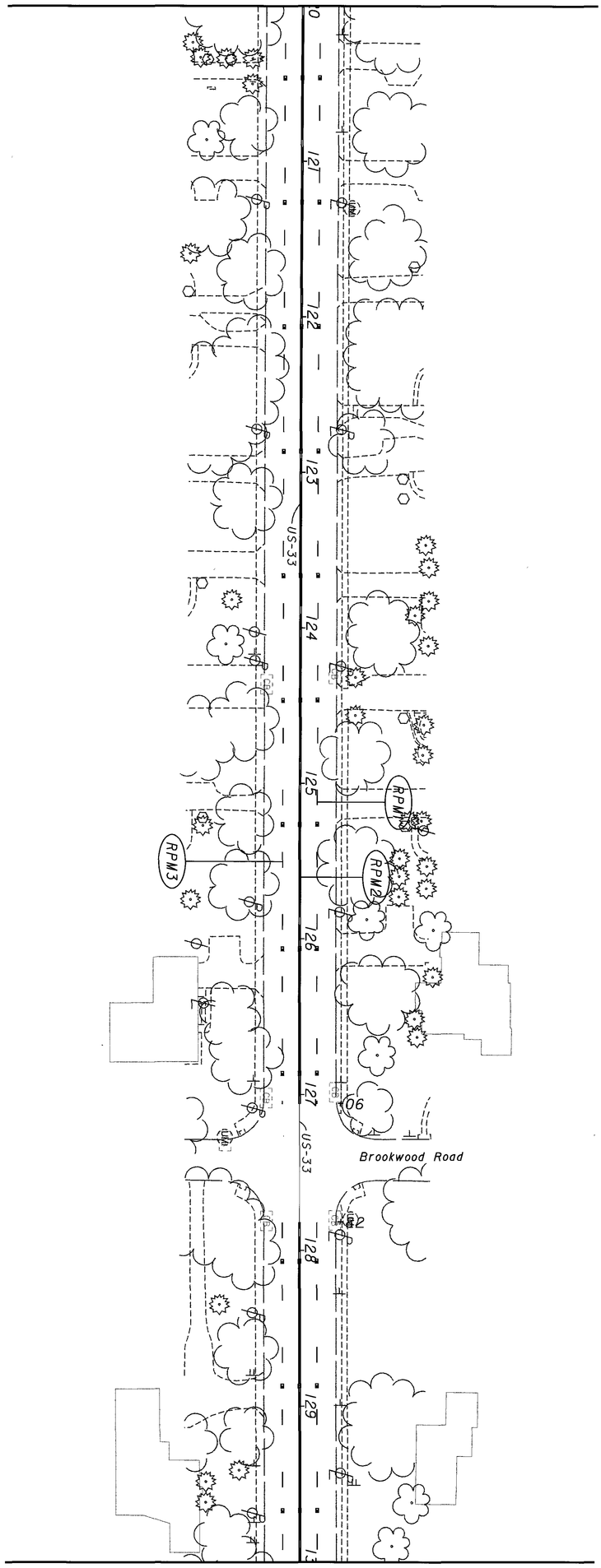
FRA-33-20.69

RPM AND LOOP DETECTOR DETAILS

CALCULATED: RDK / LW
FAY / IHG
CHECKED: MATT

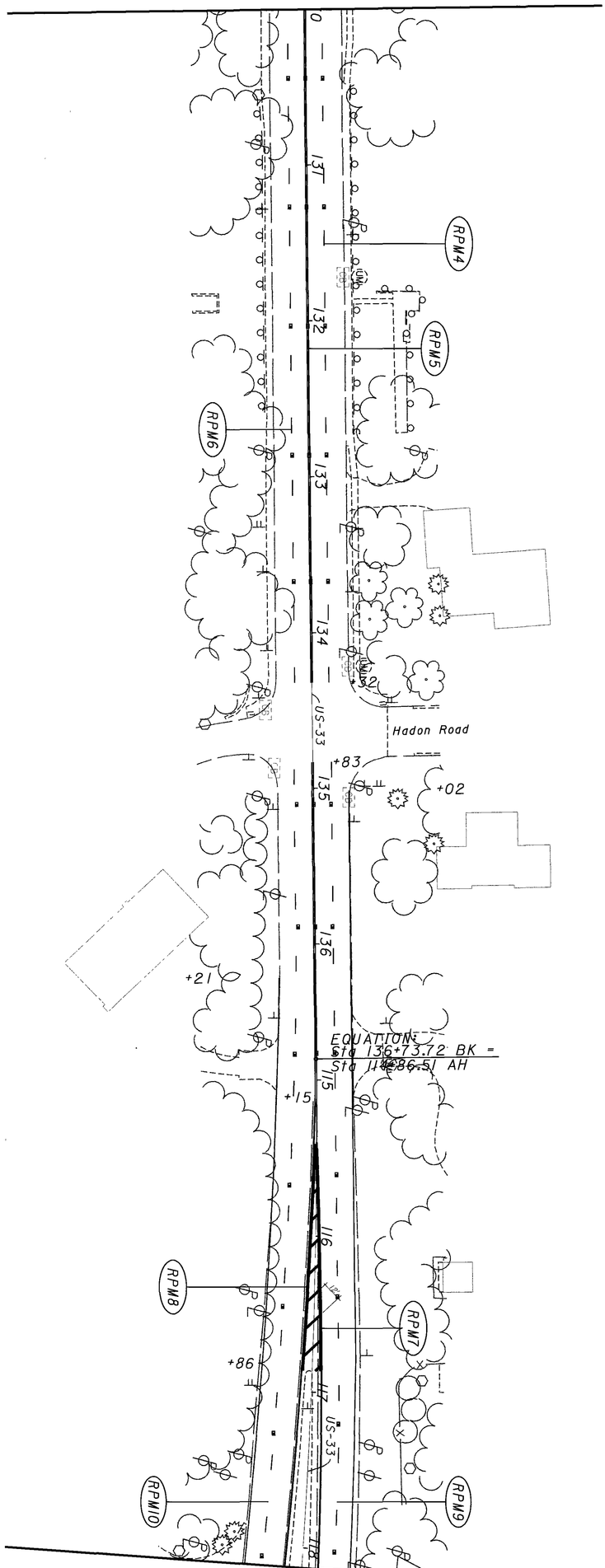
0 40
20 80
HORIZONTAL SCALE IN FEET

MATCHLINE STA. 130+00
SEE SHEET 183



MATCHLINE STA. 130+00

MATCHLINE STA. 118+13
SEE SHEET 185

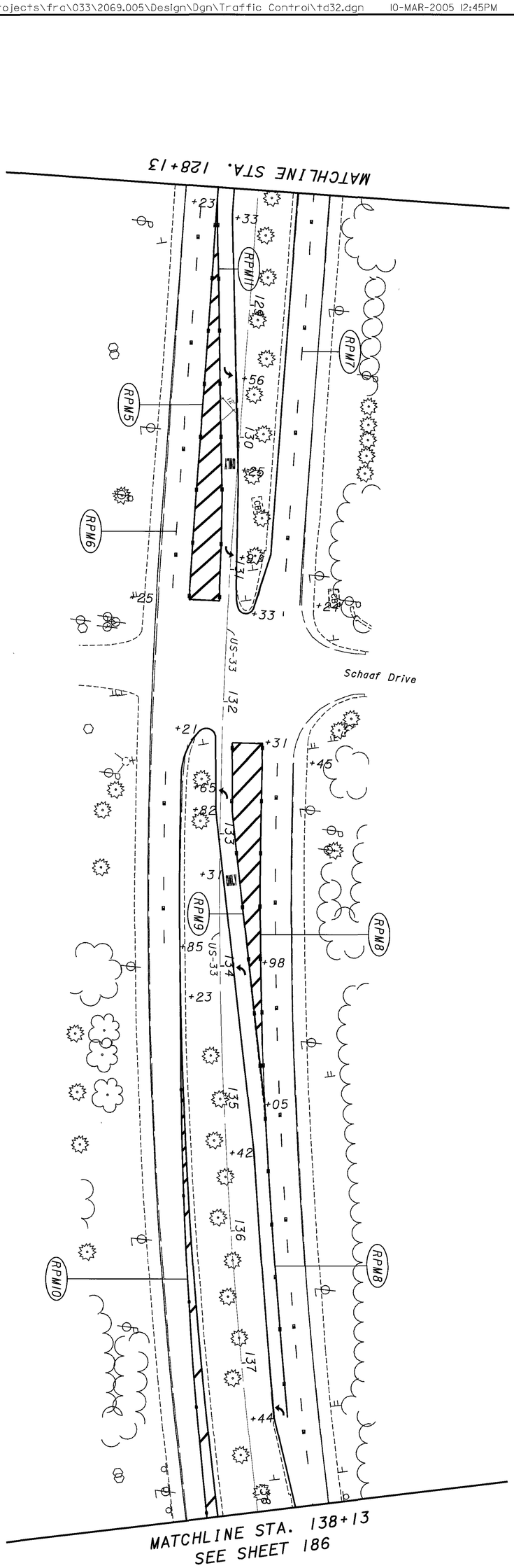


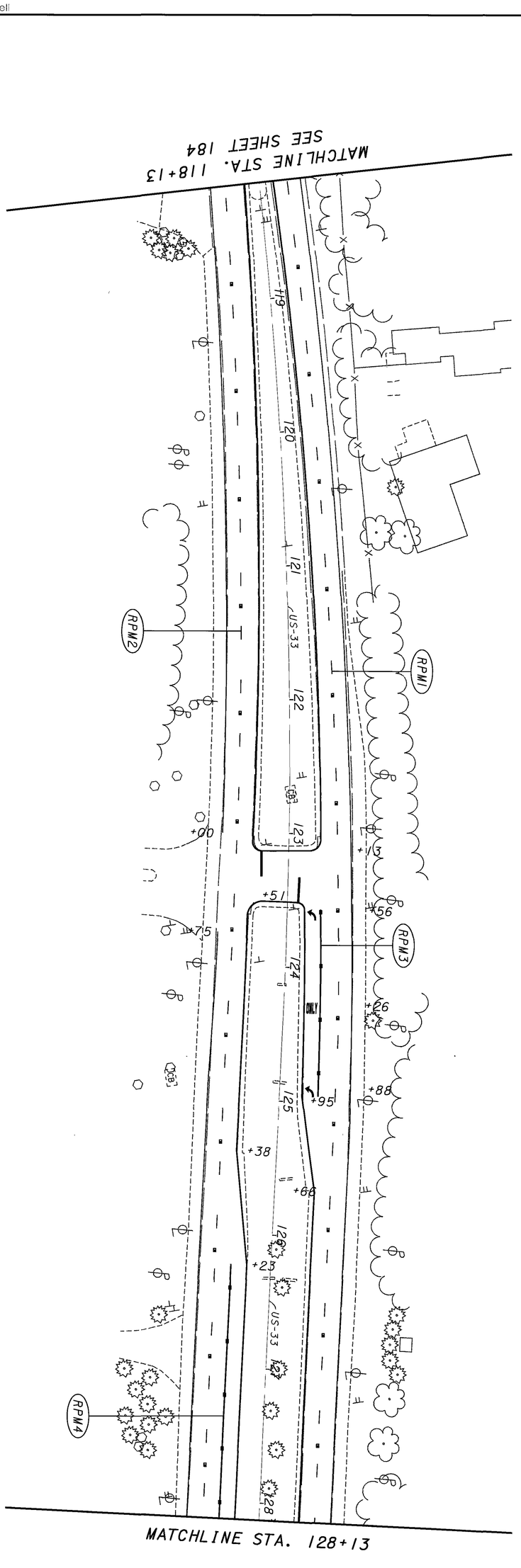
FRA-33-20.69

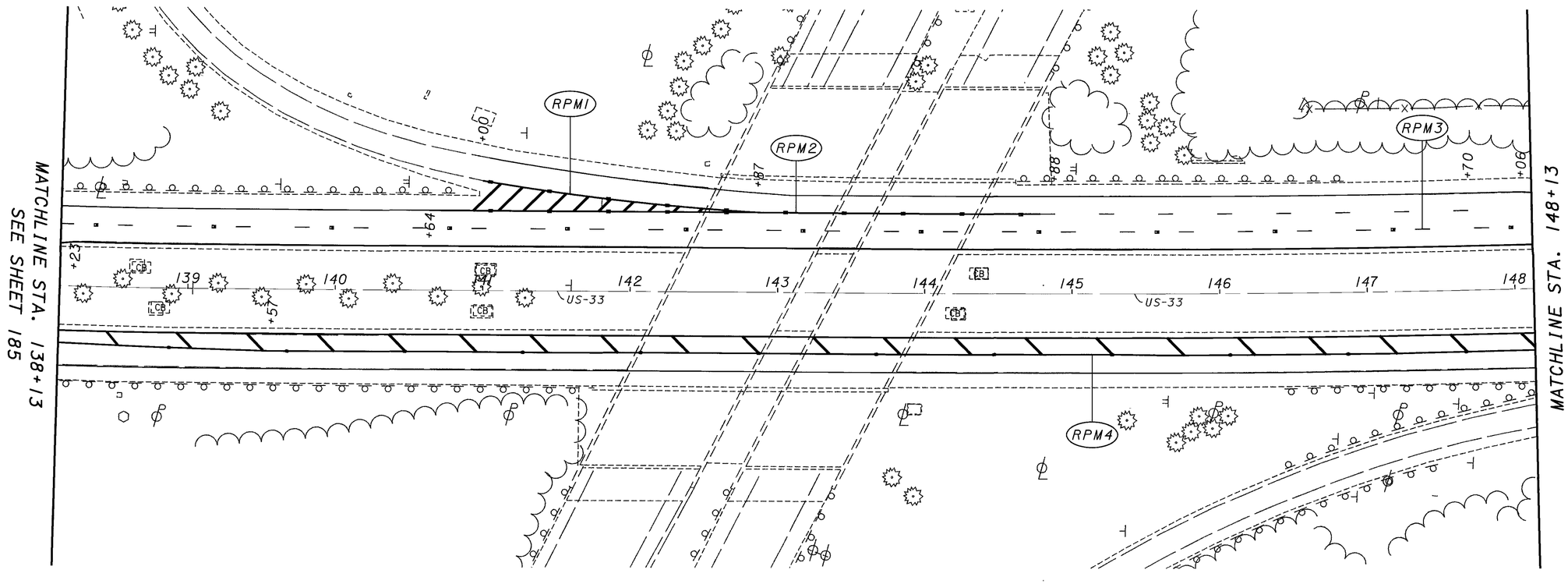
RPM AND LOOP DETECTOR DETAILS

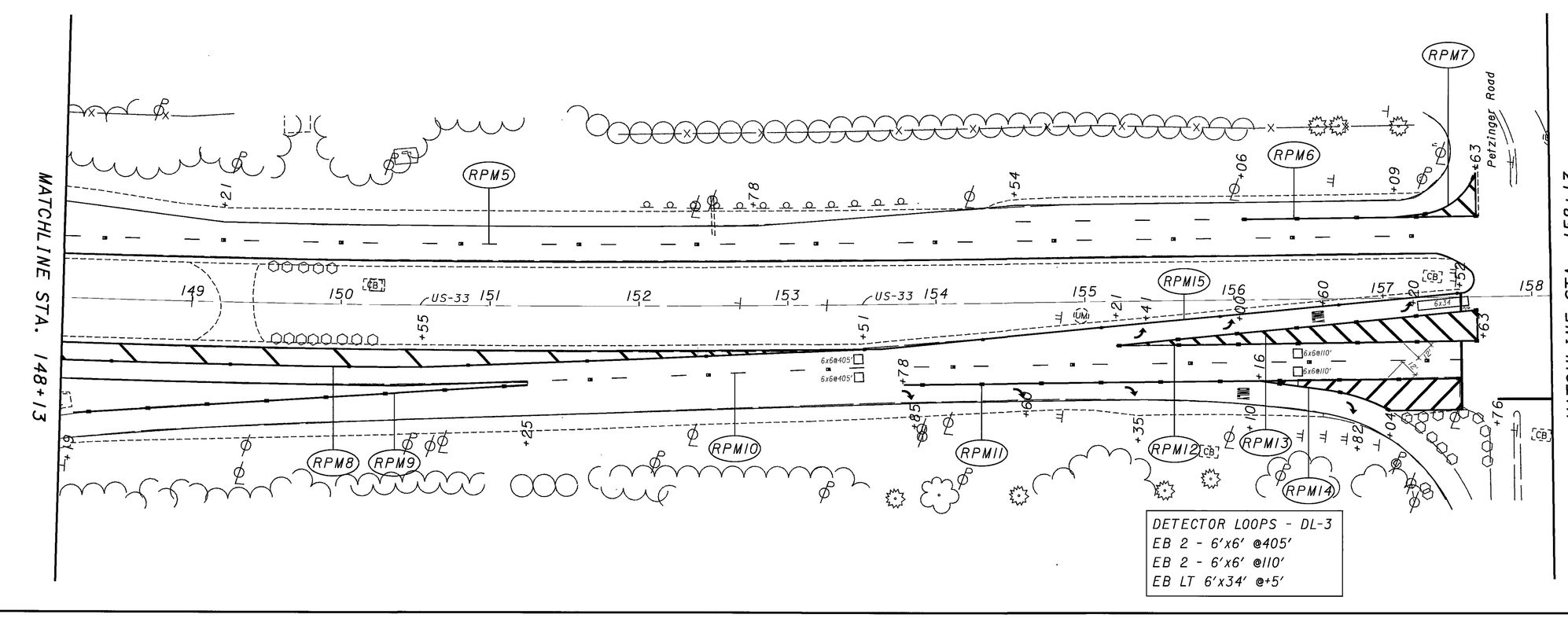
CALCULATED RDK / LW FAY / MG
CHECKED MATT

0 20 40 80
HORIZONTAL SCALE IN FEET


MATCHLINE STA. 128+13
RPM11
RPM7
RPM5
RPM6
US-33
Schaaf Drive
RPM9
RPM8
RPM10
MATCHLINE STA. 138+13
SEE SHEET 186


MATCHLINE STA. 118+13
SEE SHEET 184
RPM2
RPM1
US-33
RPM3
RPM4
MATCHLINE STA. 128+13





DETECTOR LOOPS - DL-3
EB 2 - 6'x6' @405'
EB 2 - 6'x6' @110'
EB LT 6'x34' @+5'

HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED RDK / LW
PAV / RG
CHECKED MATT

RPM AND LOOP DETECTOR DETAILS

FRA-33-20.69

186
230

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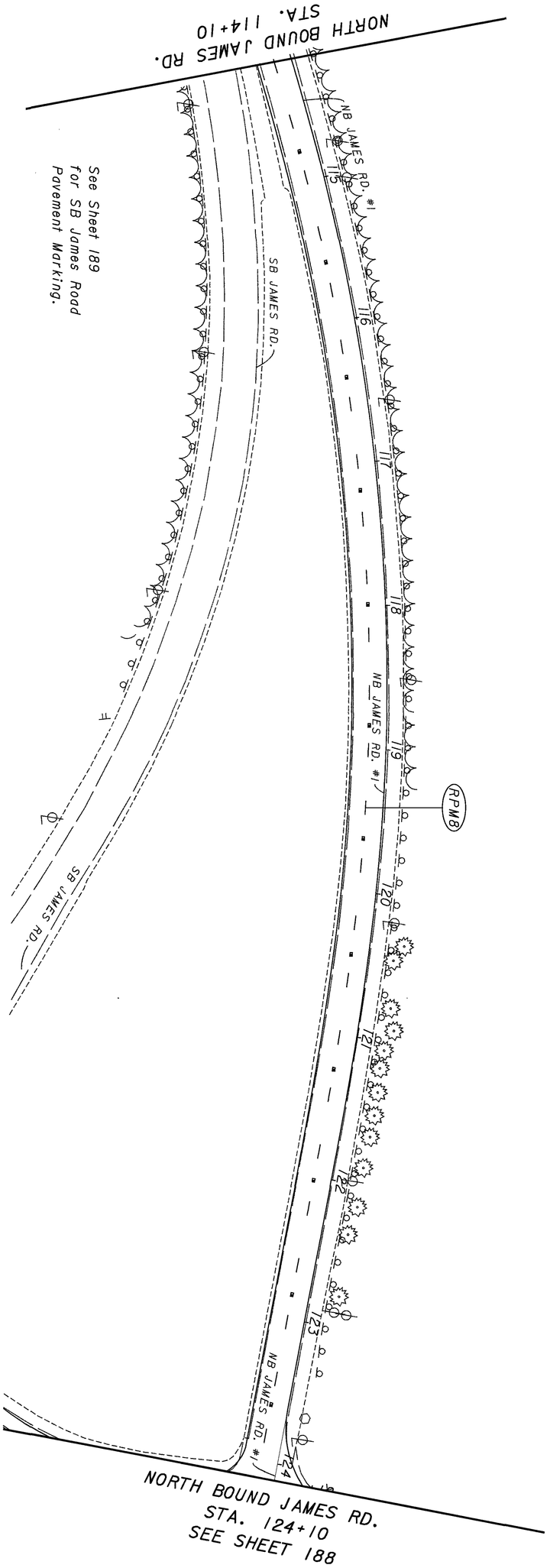

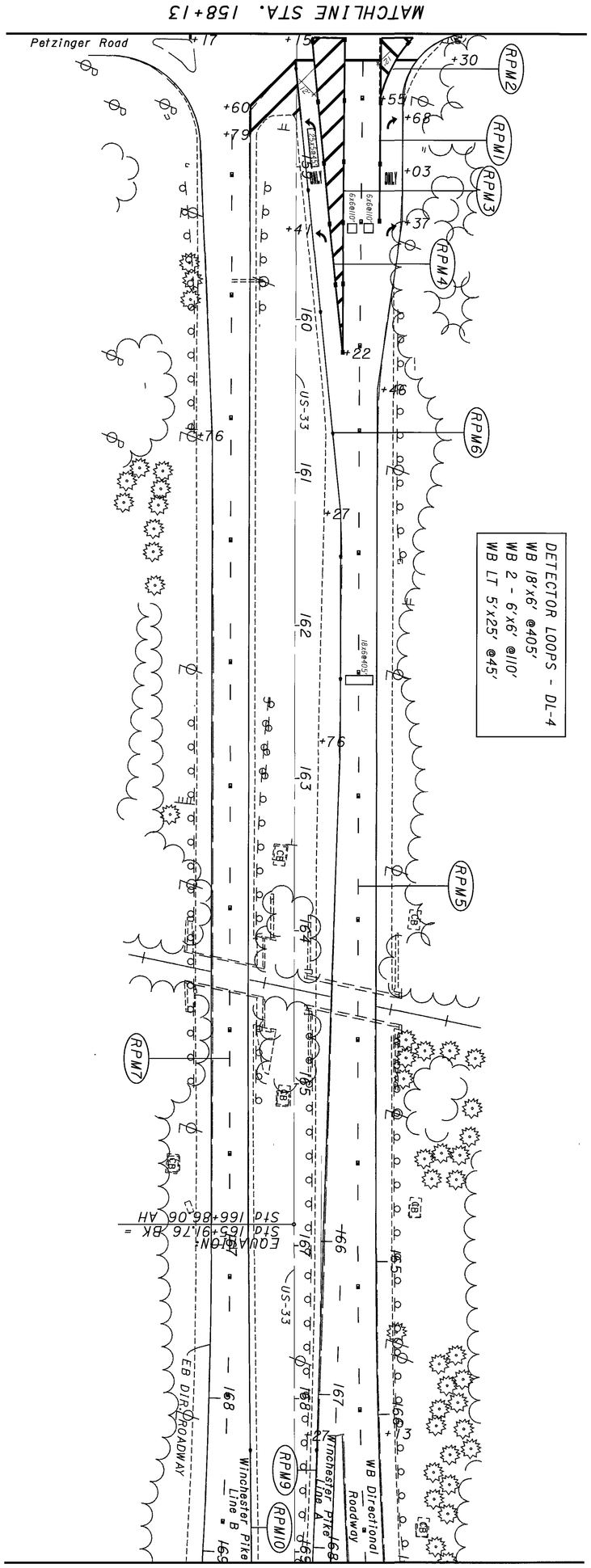

187 / 230	FRA-33-20.69	RPM AND LOOP DETECTOR DETAILS	CALCULATED RDK / LW FAY / HG; CHECKED MATT; 0 40 20 80 HORIZONTAL SCALE IN FEET

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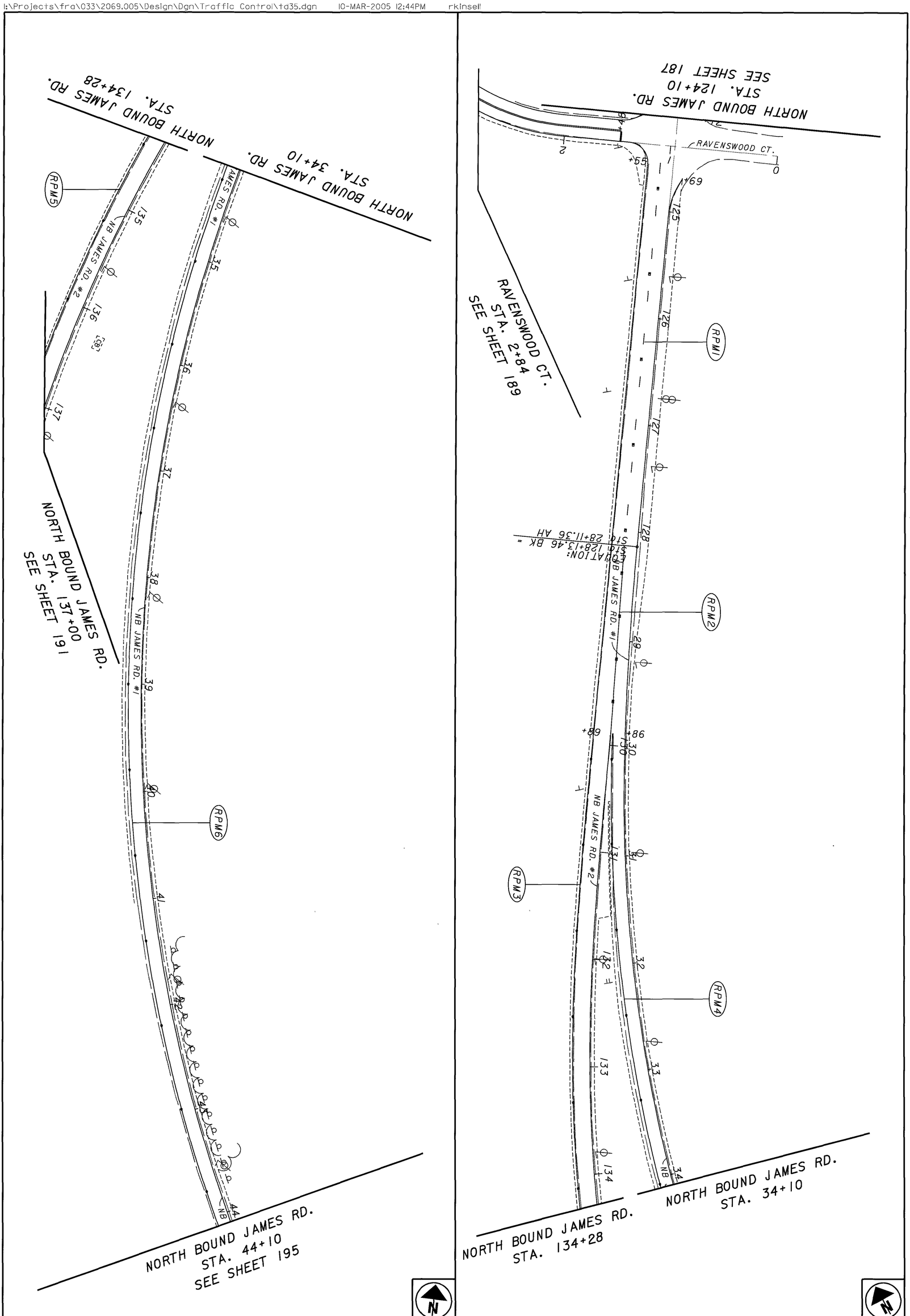
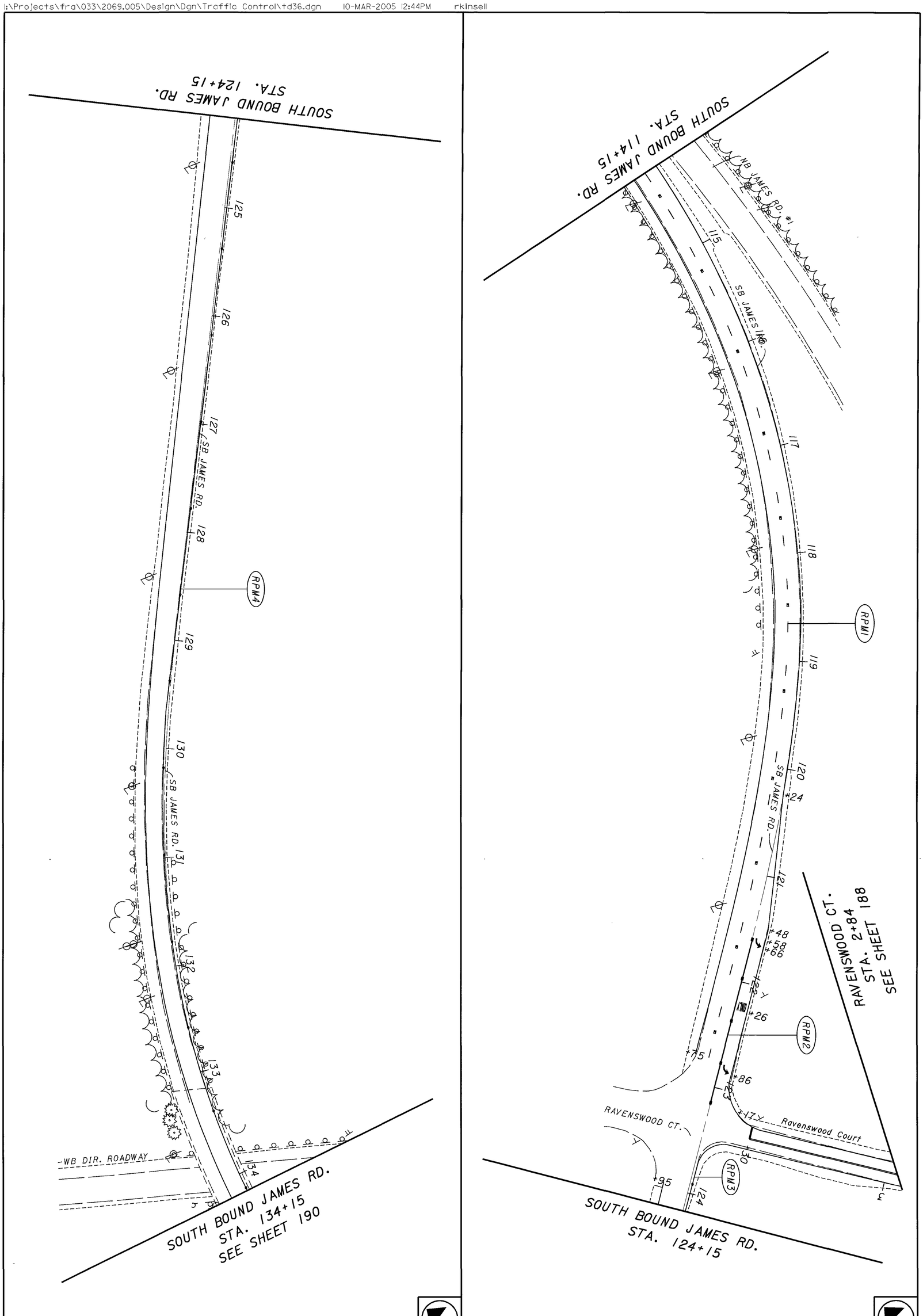
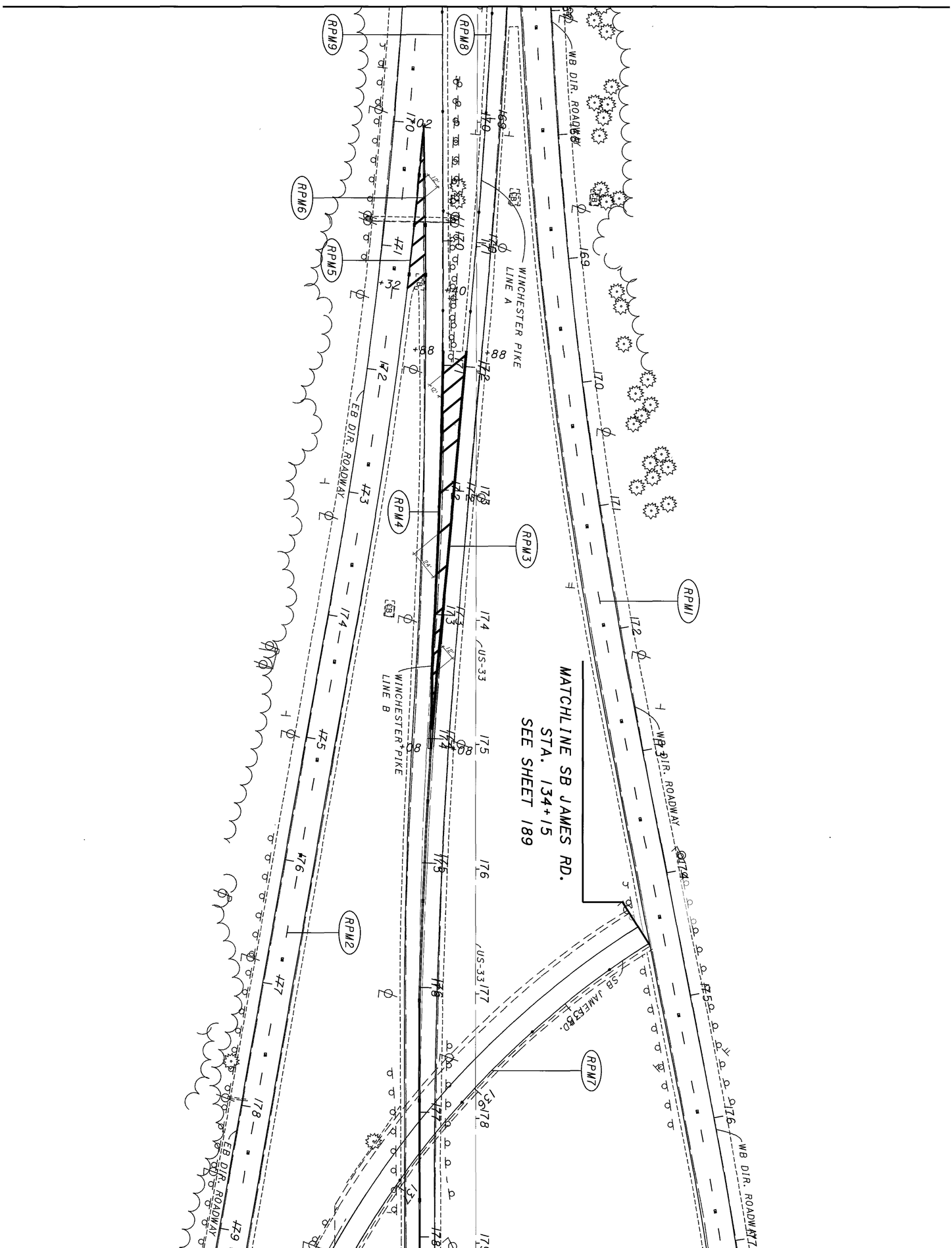


188 / 230	FRA-33-20.69	RPM AND LOOP DETECTOR DETAILS	CALCULATED RDK / LW TAY / MG CHECKED MATT	0 40 20 80 HORIZONTAL SCALE IN FEET



189/230	FRA-33-20.69	RPM AND LOOP DETECTOR DETAILS	CALCULATED RDK / LW FAY / MG CHECKED MATT	0 40 20 80 HORIZONTAL SCALE IN FEET

MATCHLINE STA. 169+07
WB DIR. ROADWAY STA. 166+97
LINE A STA. 168+10
EB DIR. ROADWAY STA. 169+07
SEE SHEET 187



MATCHLINE EB DIR. ROADWAY
STA. 179+20
SEE SHEET 191

MATCHLINE WB DIR. ROADWAY
STA. 177+10
SEE SHEET 191

MATCHLINE SB JAMES RD.
STA. 137+63
SEE SHEET 191

MATCHLINE WINCHESTER PIKE
STA. 178+12
SEE SHEET 191

190
230

FRA-33-20.69

RPM AND LOOP DETECTOR DETAILS

CALCULATED RDK / LW FAY / MG
CHECKED MATT

0 20 40 80
HORIZONTAL SCALE IN FEET

N

MATCHLINE WB DIR. ROADWAY
STA. 177+10
SEE SHEET 190

MATCHLINE WINCHESTER PIKE
STA. 178+12
SEE SHEET 190

MATCHLINE NB JAMES RD.
STA. 137+00
SEE SHEET 188

MATCHLINE WINCHESTER PIKE
STA. 188+50
SEE SHEET 192

MATCHLINE SB JAMES RD.
STA. 137+63
SEE SHEET 190

MATCHLINE EB DIR. ROADWAY
STA. 179+20
SEE SHEET 190

MATCHLINE WB DIR. ROADWAY
STA. 188+03
SEE SHEET 192

MATCHLINE EB DIR. ROADWAY
STA. 188+30
SEE SHEET 192

RPM1
RPM2
RPM3
RPM4
RPM5
RPM6

WB DIR. ROADWAY
NB JAMES RD. #2
WINCHESTER PIKE
US-33
SB JAMES RD.
EB DIR. ROADWAY

HORIZONTAL SCALE IN FEET
0 20 40 80

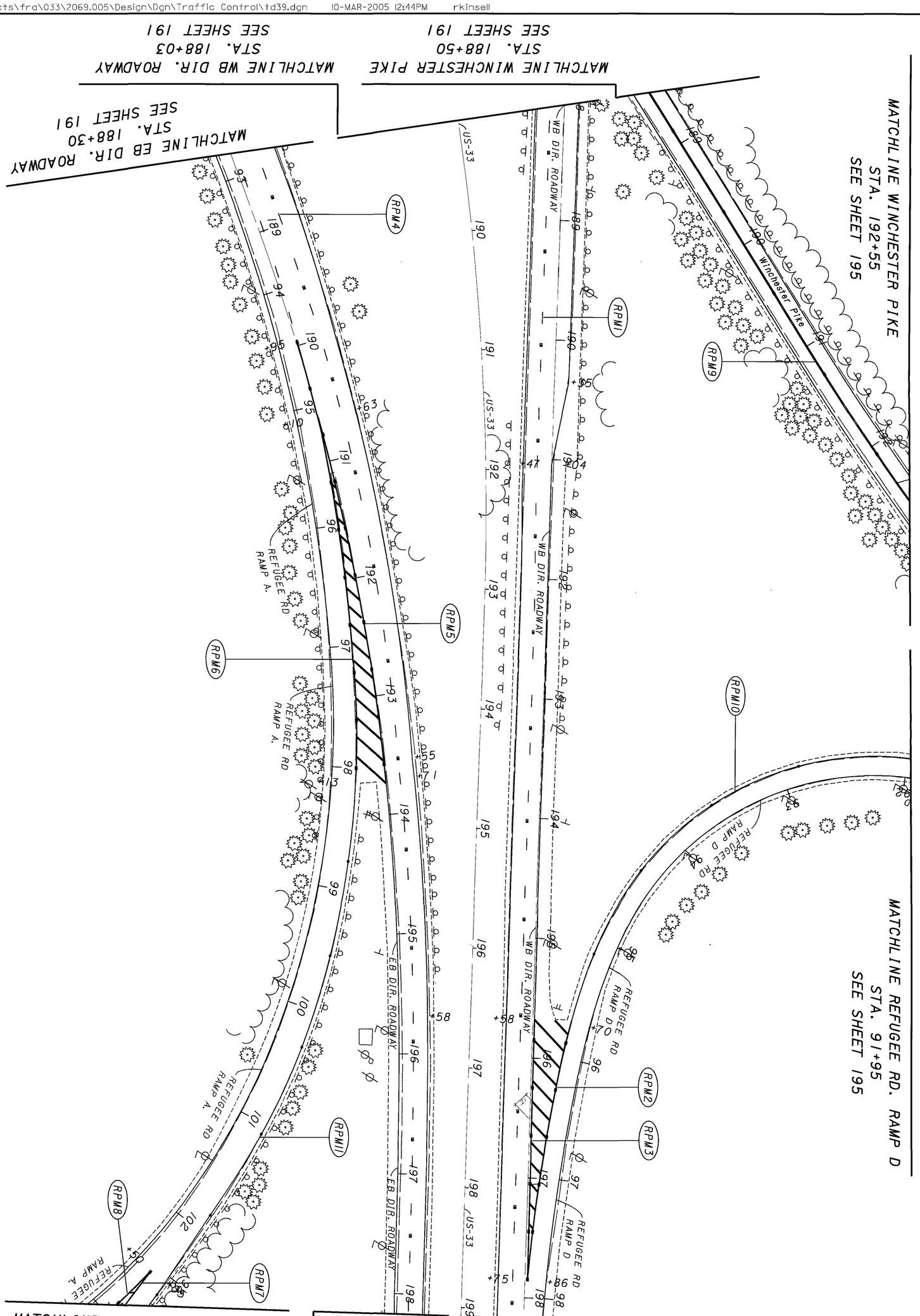
CALCULATED RDK / LW
FAY / MG
CHECKED MATT

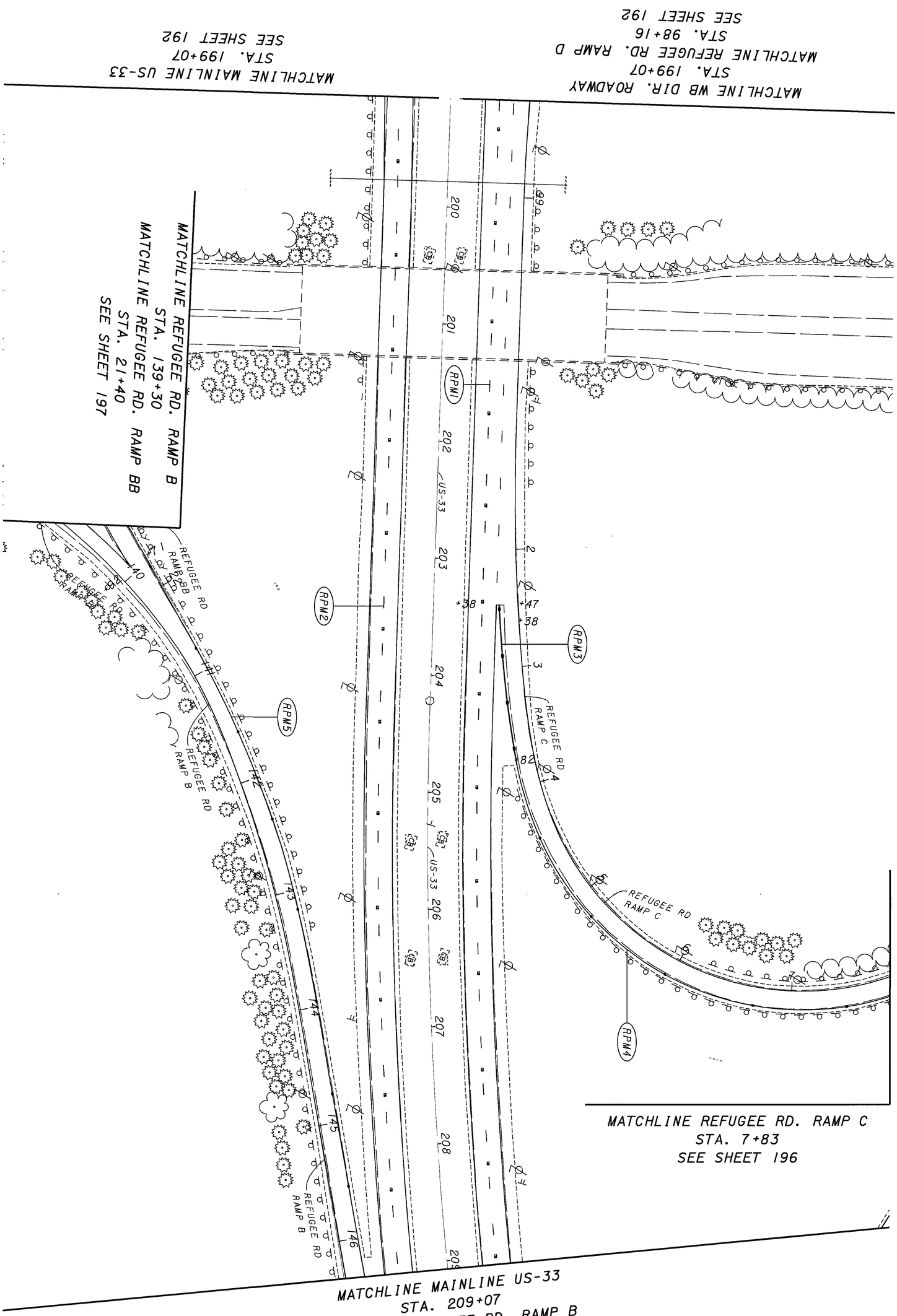
RPM AND LOOP DETECTOR DETAILS

FRA-33-20.69

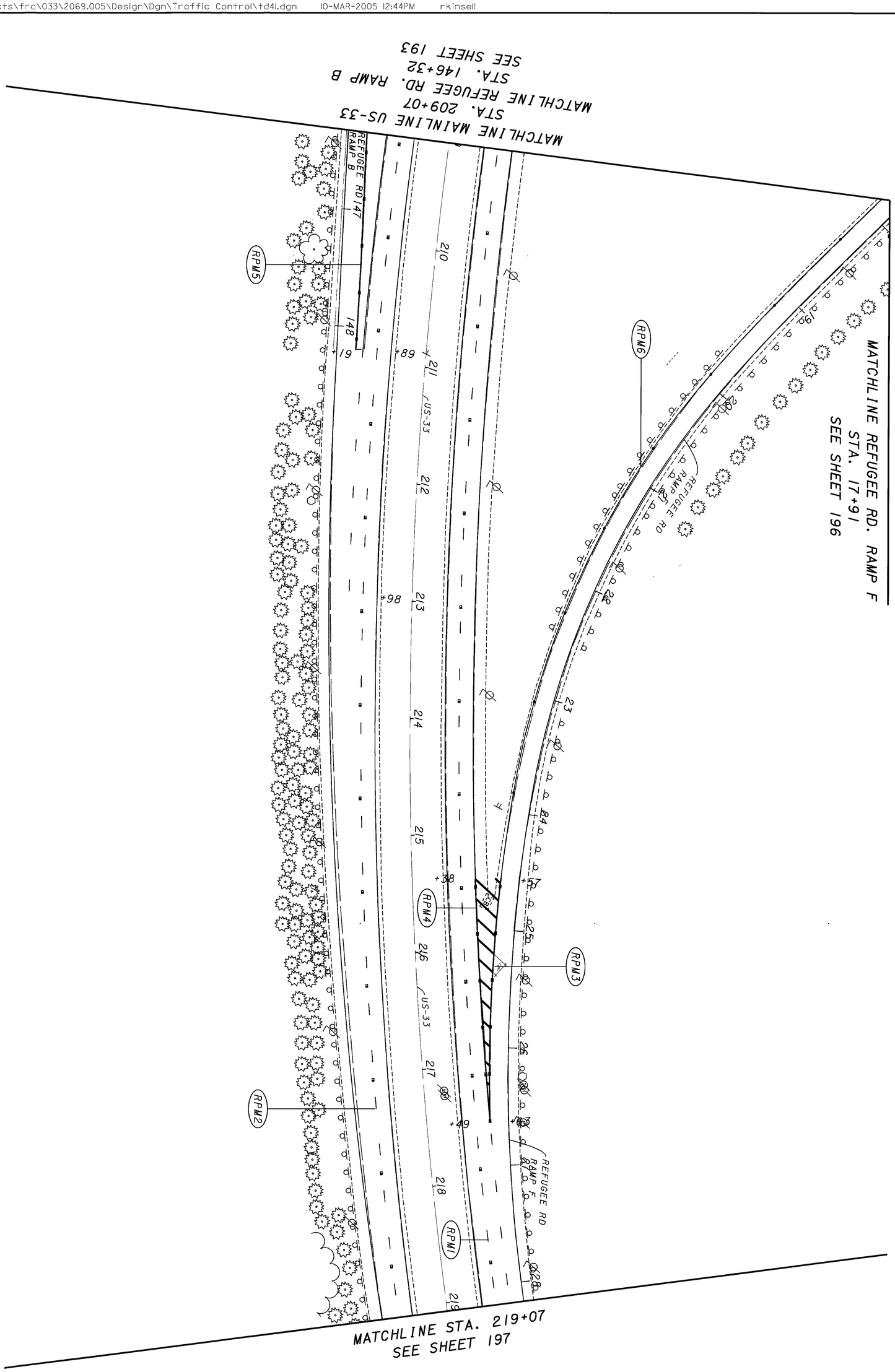
191
230

I:\Projects\fra\033\2069.005\Design\Dgn\Traffic Control\td38.dgn 10-MAR-2005 12:44PM rkinsell


MATCHLINE WINCHESTER PIKE
STA. 188+50
SEE SHEET 191
MATCHLINE WB DIR. ROADWAY
STA. 188+03
SEE SHEET 191
MATCHLINE EB DIR. ROADWAY
STA. 188+30
SEE SHEET 191
MATCHLINE WINCHESTER PIKE
STA. 192+55
SEE SHEET 195
MATCHLINE REFUGEE RD. RAMP D
STA. 91+95
SEE SHEET 195
RPM1
RPM2
RPM3
RPM4
RPM5
RPM6
RPM7
RPM8
RPM9
RPM10
RPM11
WB DIR. ROADWAY
EB DIR. ROADWAY
US-33
Winchester Pike
REFUGEE RD RAMP A.
REFUGEE RD RAMP D
MATCHLINE REFUGEE RD. RAMP A
STA. 103+07
MATCHLINE REFUGEE RD. RAMP AA
STA. 98+30
SEE SHEET 197
MATCHLINE MAINLINE US-33
STA. 199+07
SEE SHEET 193
MATCHLINE WB DIR. ROADWAY
STA. 199+07
MATCHLINE REFUGEE RD. RAMP D
STA. 98+16
SEE SHEET 193



193 / 230	FRA-33-20.69	RPM AND LOOP DETECTOR DETAILS	CALCULATED RDK / LW FAY / HG CHECKED MATT	0 40 20 80 HORIZONTAL SCALE IN FEET



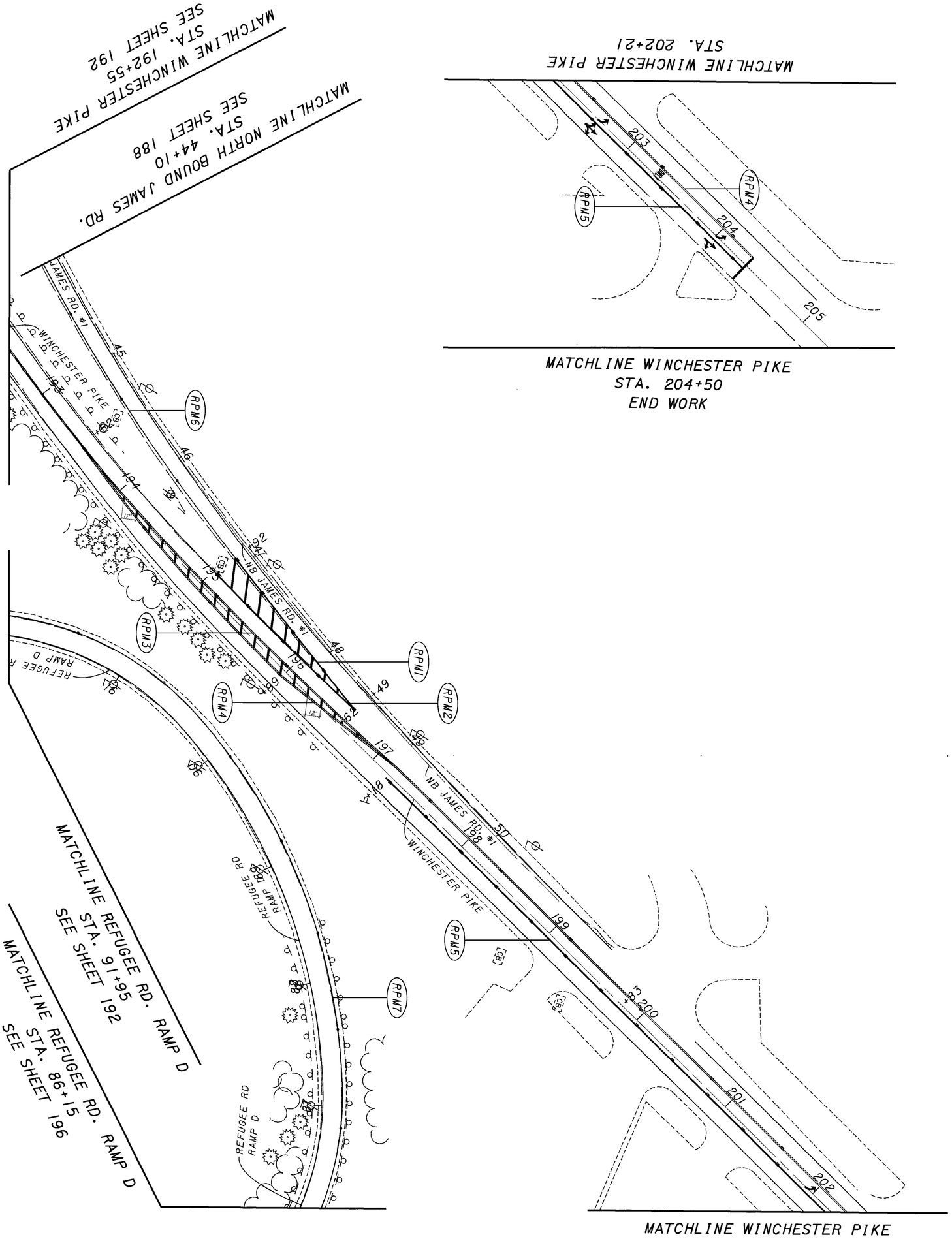
FRA-33-20.69

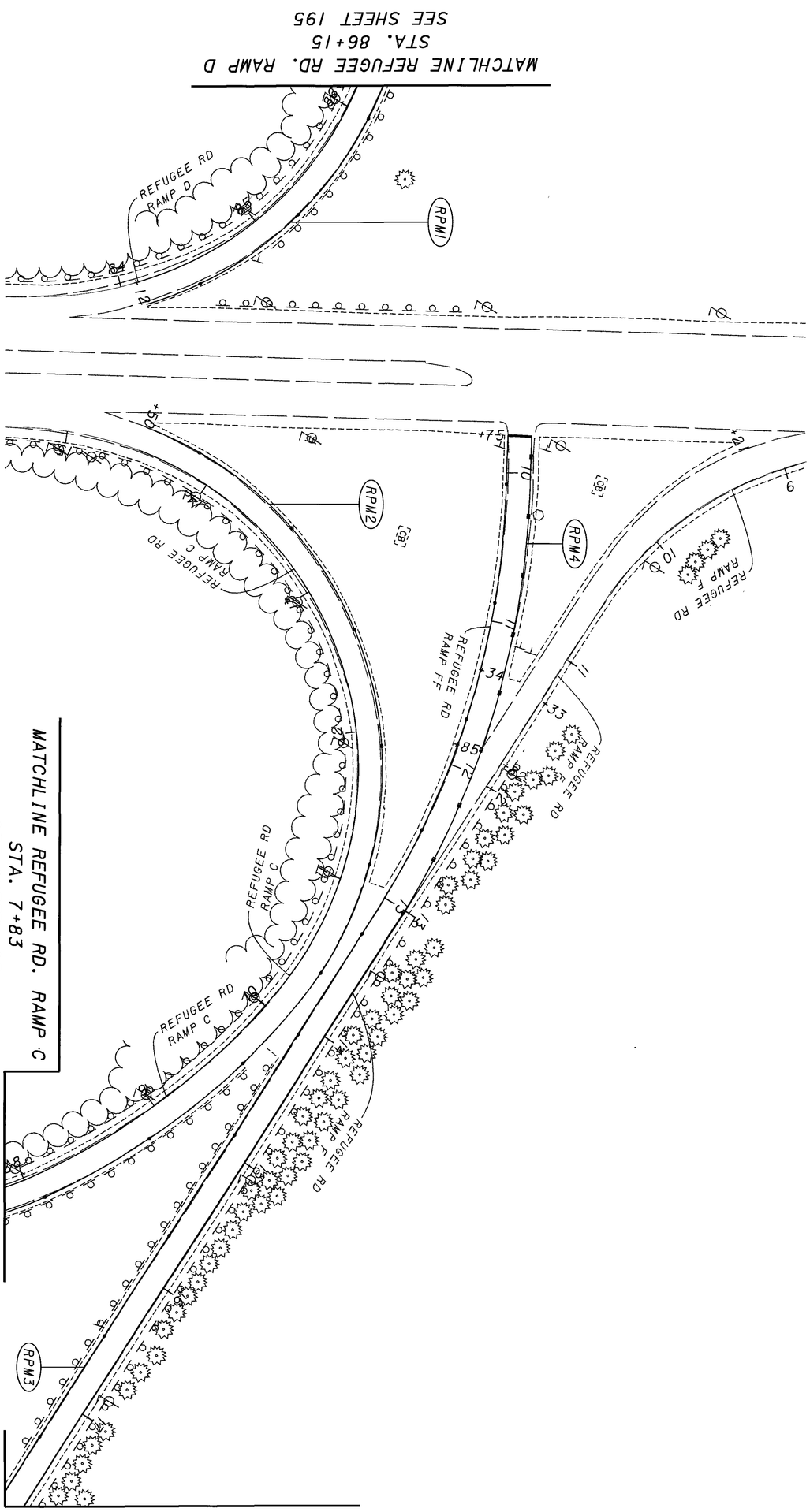
RPM AND LOOP DETECTOR DETAILS

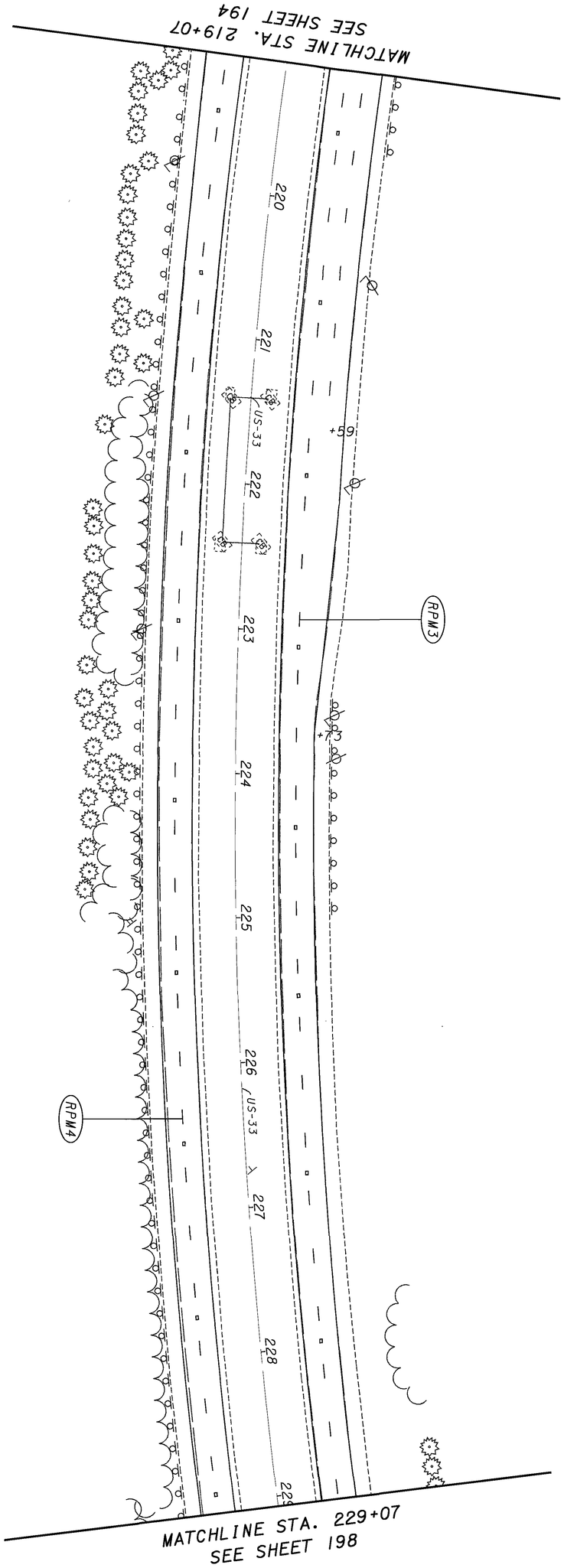
CALCULATED RDK / LW FAY / WG
CHECKED MATT

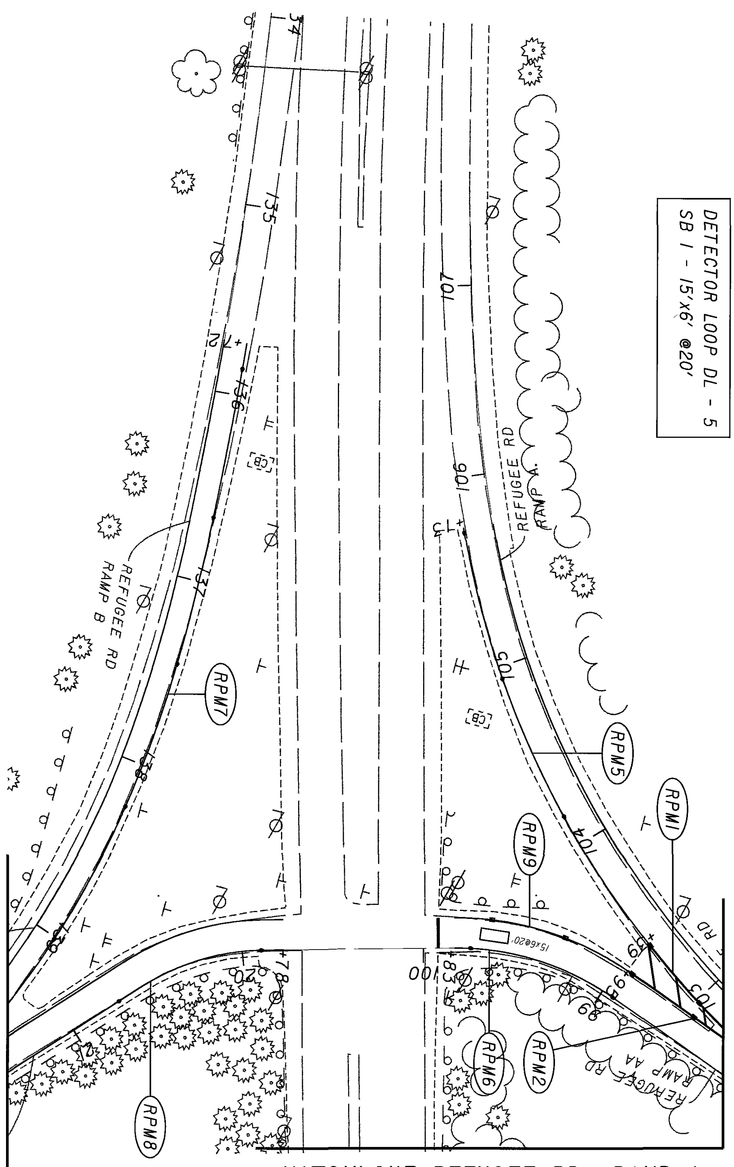
0 20 40 80
HORIZONTAL SCALE IN FEET

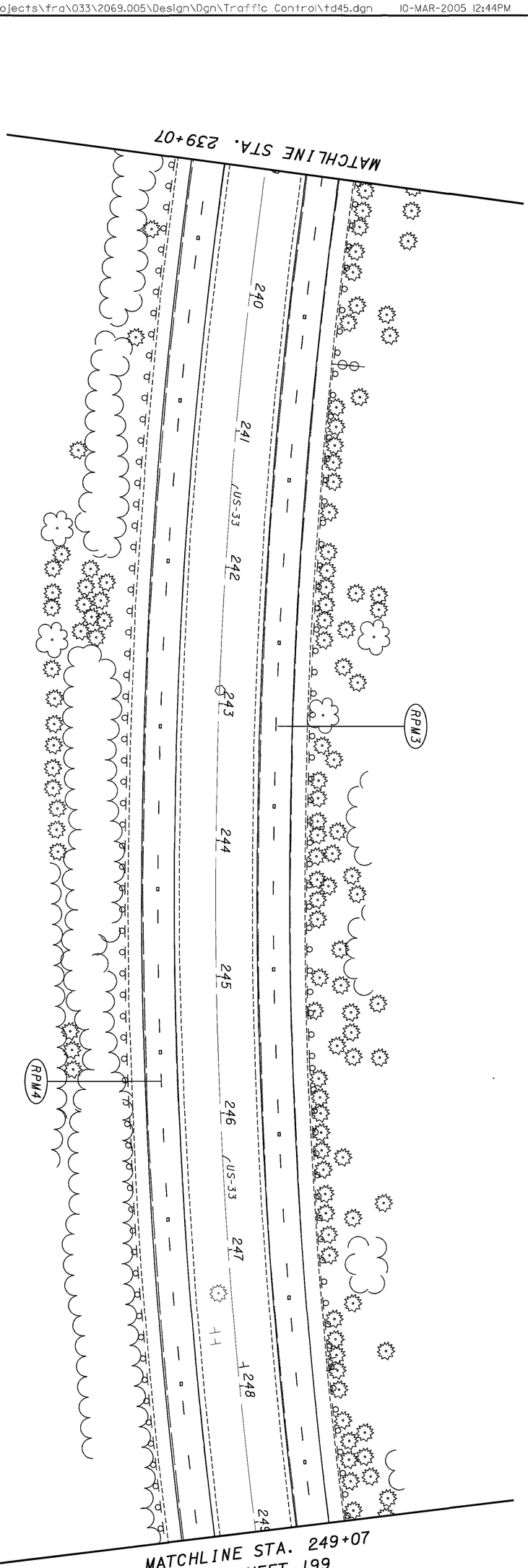
N


MATCHLINE NORTH BOUND JAMES RD.
STA. 44+10
SEE SHEET 188
MATCHLINE WINCHESTER PIKE
STA. 192+55
SEE SHEET 192
MATCHLINE WINCHESTER PIKE
STA. 202+21
JAMES RD. #1
WINCHESTER PIKE
NB JAMES RD. #1
WINCHESTER PIKE
REFUGEE RD RAMP D
REFUGEE RD RAMP D
RPM1
RPM2
RPM3
RPM4
RPM5
RPM6
RPM7
203
204
205
45
46
47
48
49
50
194
195
196
197
198
199
200
201
202
MATCHLINE WINCHESTER PIKE
STA. 204+50
END WORK
MATCHLINE REFUGEE RD. RAMP D
STA. 91+95
SEE SHEET 192
MATCHLINE REFUGEE RD. RAMP D
STA. 86+15
SEE SHEET 196
MATCHLINE WINCHESTER PIKE
STA. 202+21


MATCHLINE REFUGEE RD. RAMP D
STA. 86+15
SEE SHEET 195
REFUGEE RD RAMP D
RPM1
RPM2
RPM3
RPM4
REFUGEE RD RAMP C
REFUGEE RD RAMP F
REFUGEE RD RAMP F
MATCHLINE REFUGEE RD. RAMP C
STA. 7+83
SEE SHEET 193
MATCHLINE REFUGEE RD. RAMP F
STA. 17+91
SEE SHEET 194


MATCHLINE STA. 219+07
SEE SHEET 194
220
221
US-33
222
223
224
225
226
US-33
227
228
229
RPM3
RPM4
MATCHLINE STA. 229+07
SEE SHEET 198


DETECTOR LOOP DL - 5
SB 1 - 15'x6' @20'
REFUGEE RD RAMP A
REFUGEE RD RAMP B
REFUGEE RD RAMP AA
RPM1
RPM2
RPM3
RPM4
RPM5
RPM6
RPM7
RPM8
RPM9
MATCHLINE REFUGEE RD. RAMP A
STA. 103+07
MATCHLINE REFUGEE RD. RAMP AA
STA. 98+30
SEE SHEET 192
MATCHLINE REFUGEE RD. RAMP B
STA. 139+30
MATCHLINE REFUGEE RD. RAMP BB
STA. 21+40
SEE SHEET 193

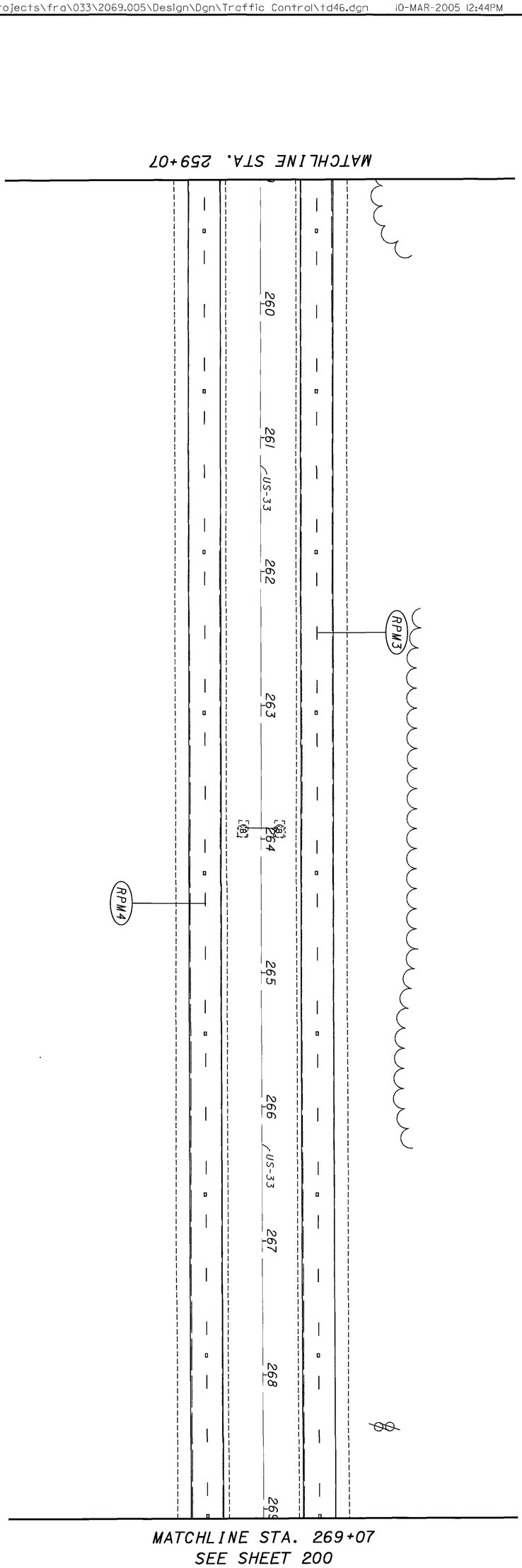


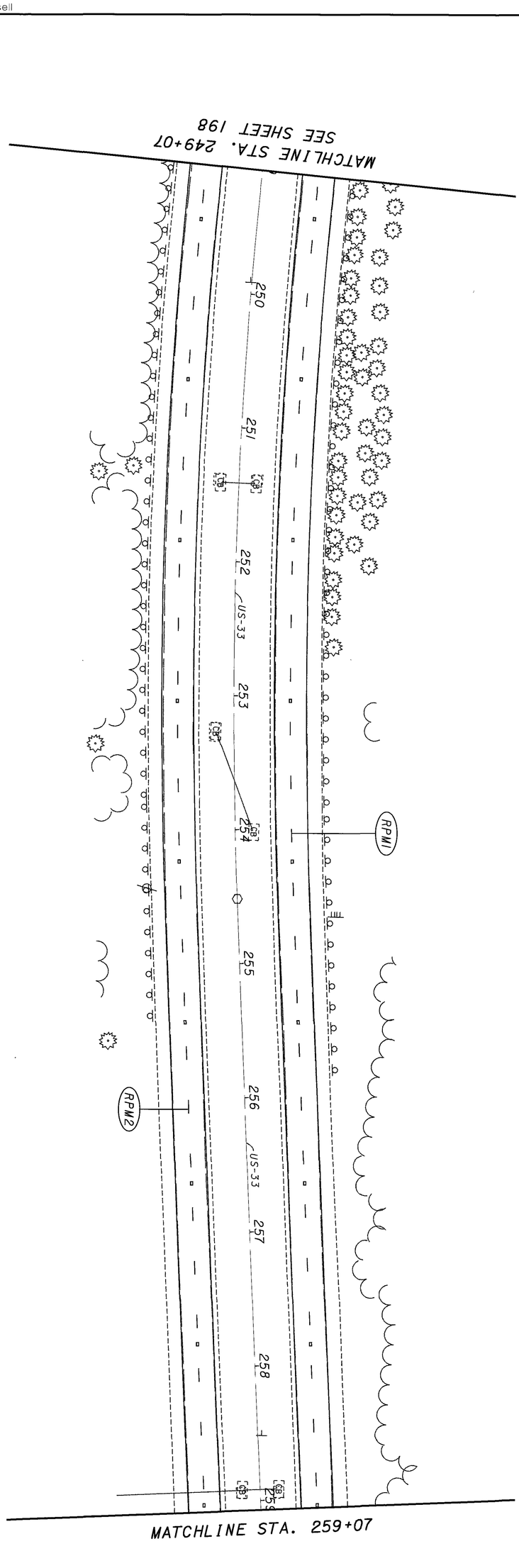
FRA-33-20.69

RPM AND LOOP DETECTOR DETAILS

CALCULATED RDK / LW FAY / MG
CHECKED MATT

0 40
20 80
HORIZONTAL SCALE IN FEET





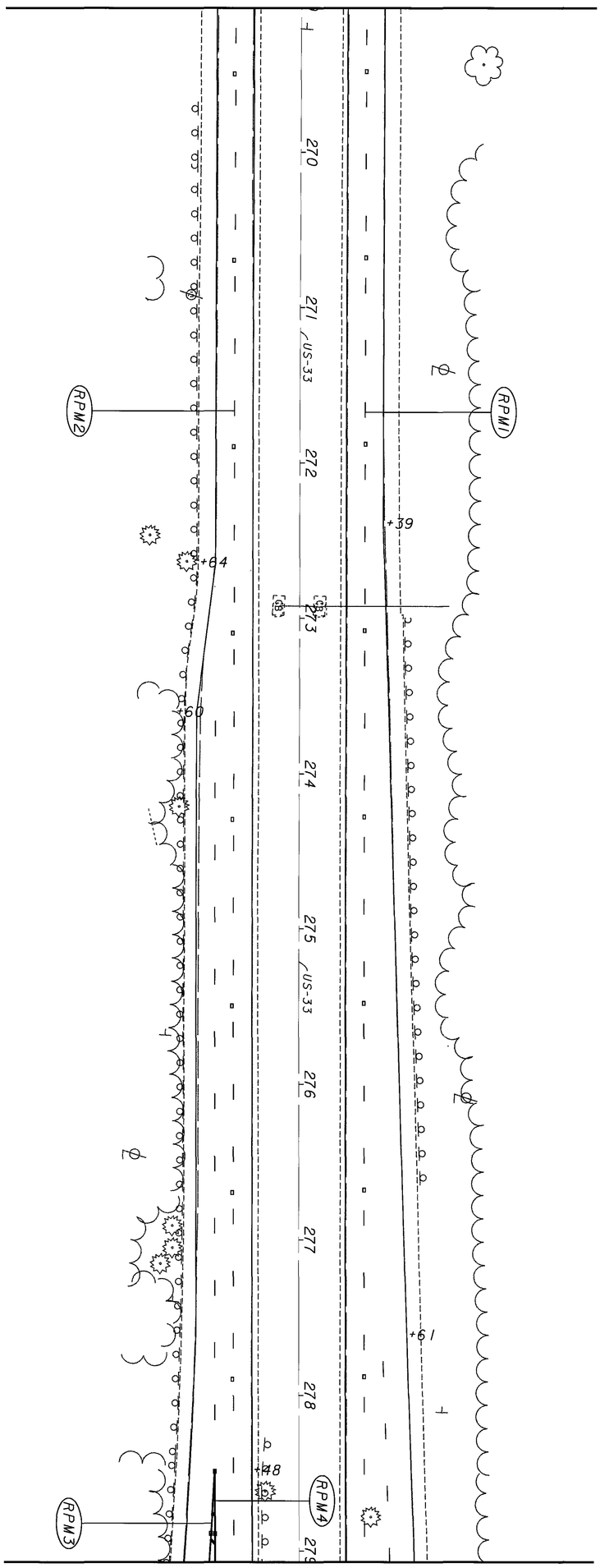
FRA-33-20.69

RPM AND LOOP DETECTOR DETAILS

CALCULATED RDK / LW FAY / HG
CHECKED MATT

0 40
20 80
HORIZONTAL SCALE IN FEET

MATCHLINE STA. 269+07
SEE SHEET 199



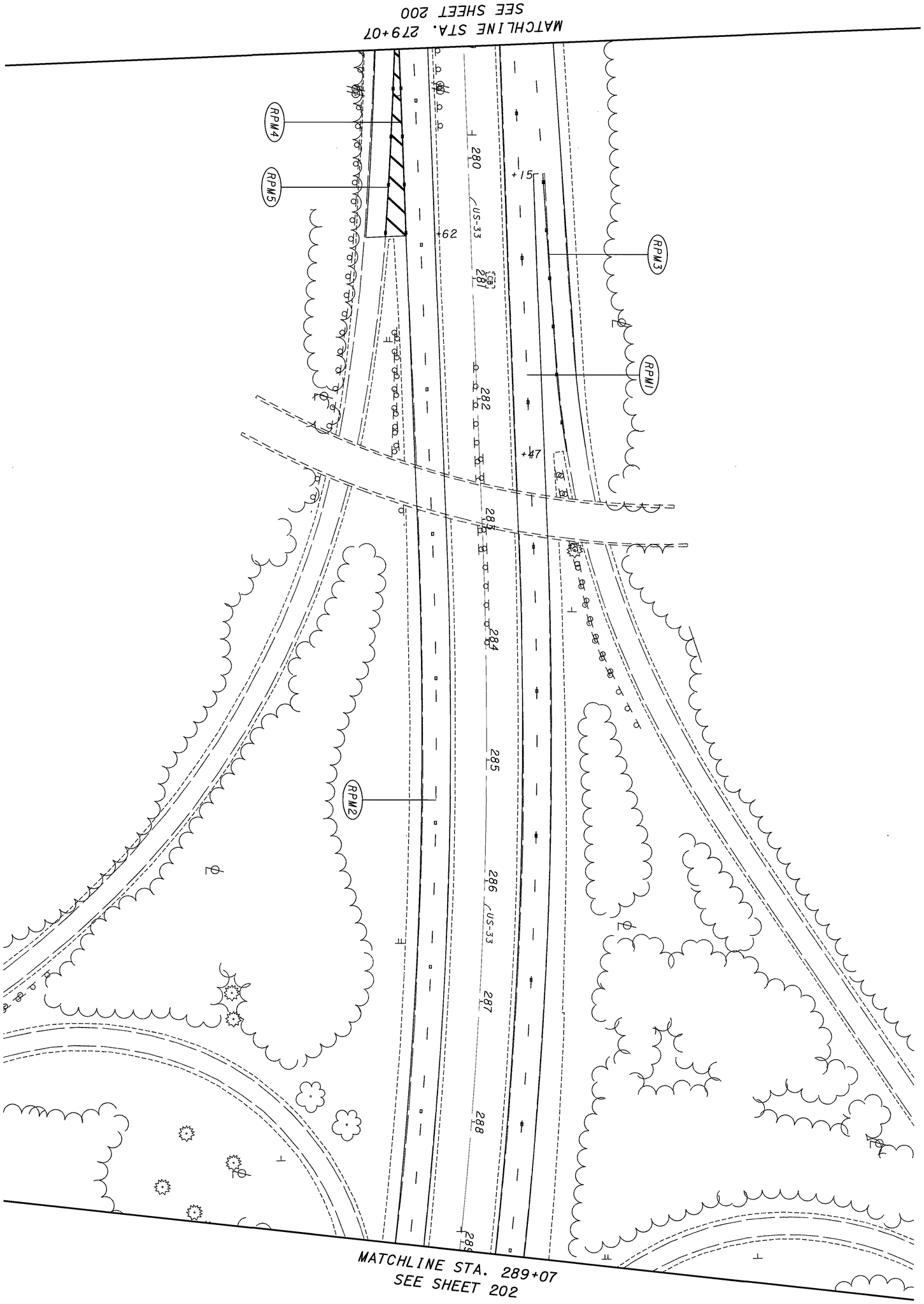
MATCHLINE STA. 279+07
SEE SHEET 201

FRA-33-20.69

RPM AND LOOP DETECTOR DETAILS

CALCULATED
ROK / LW
FAY / HG
CHECKED
MATT

0 40
20 80
HORIZONTAL
SCALE IN FEET



FRA-33-20.69

RPM AND LOOP DETECTOR DETAILS

CALCULATED RDK / LW FAY / HG
CHECKED MATT

0 40
20 80
HORIZONTAL SCALE IN FEET

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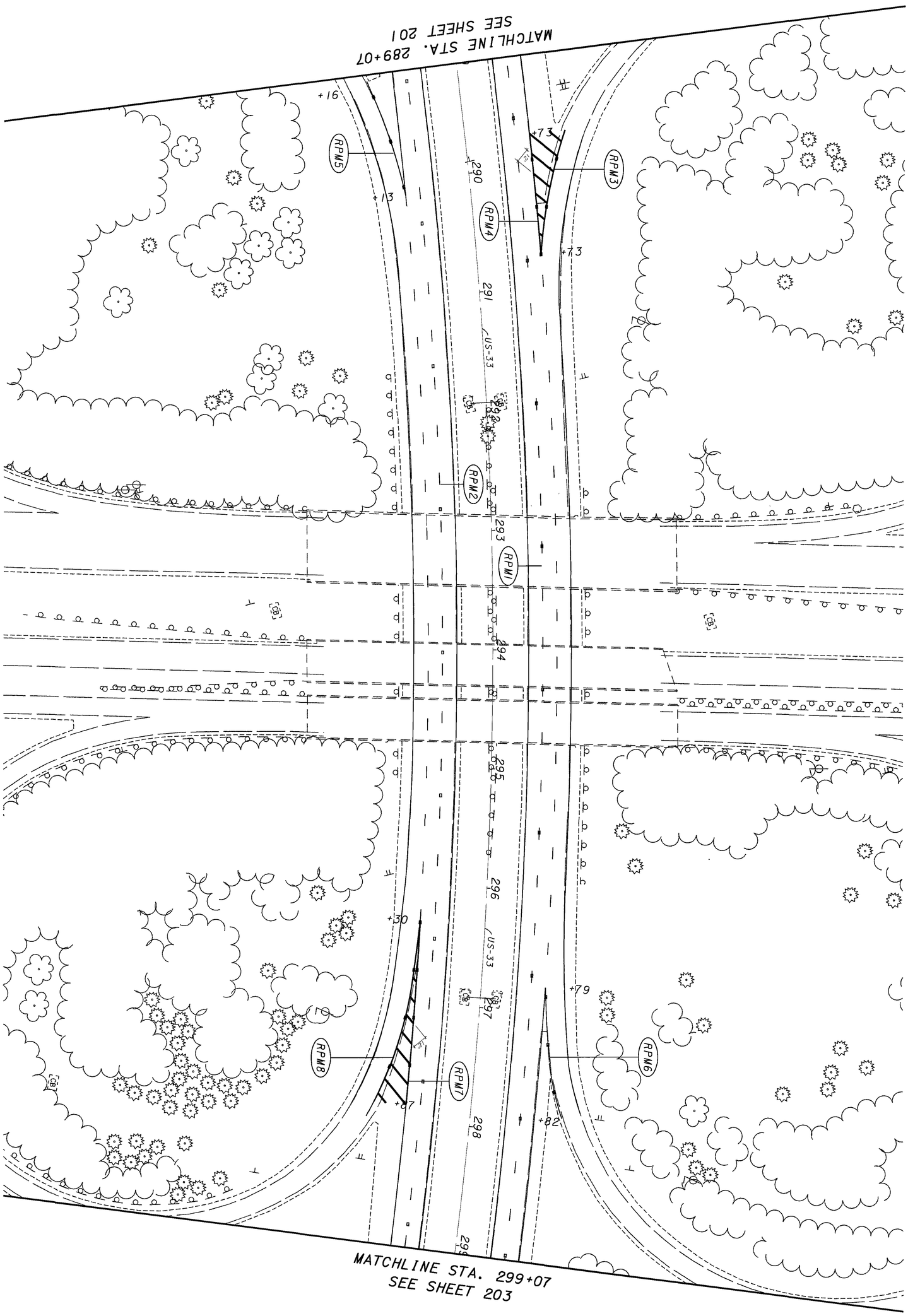
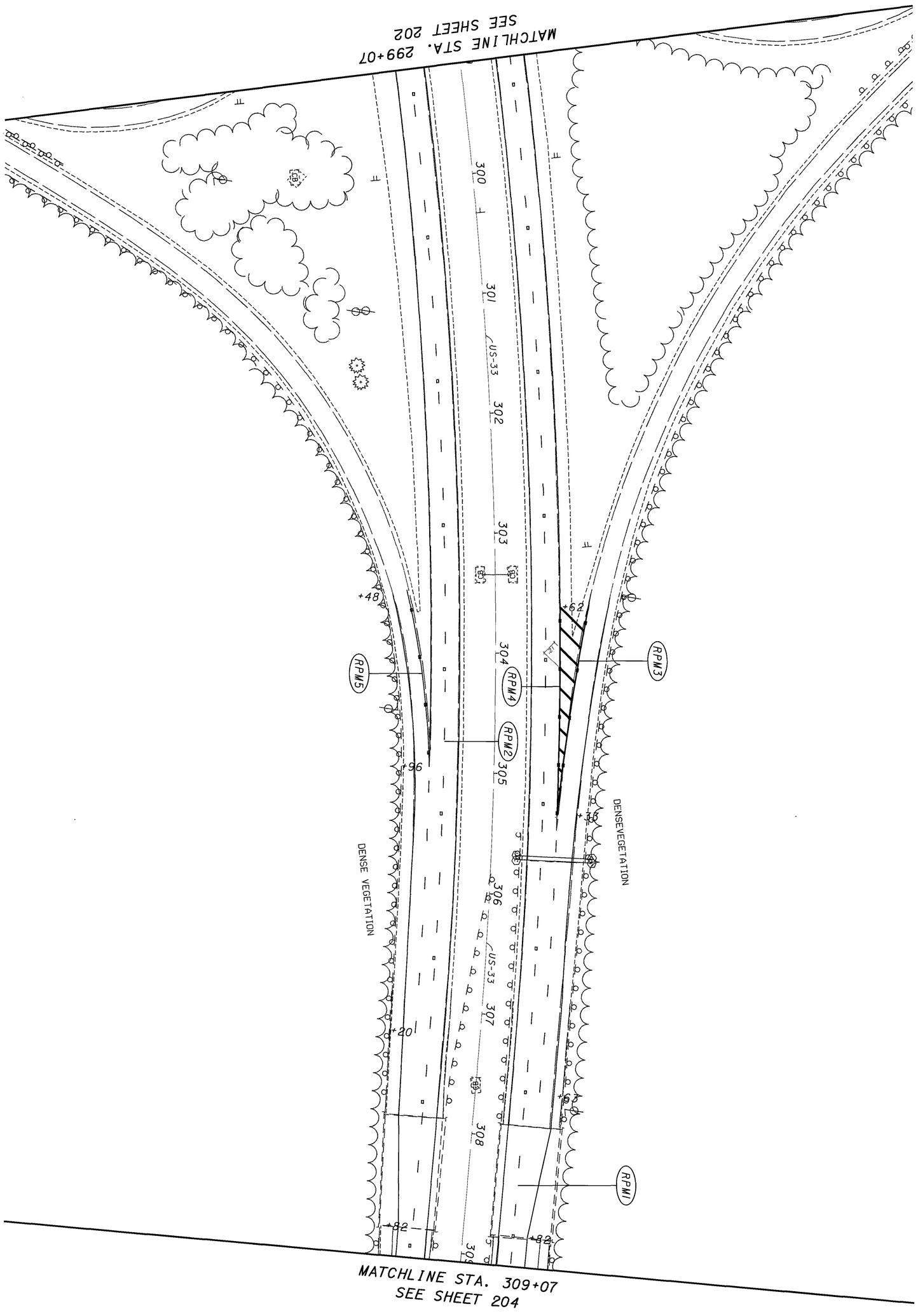


202 / 230	FRA-33-20.69	RPM AND LOOP DETECTOR DETAILS	CALCULATED RDK / LW FAY / HG CHECKED MATT	0 40 20 80 HORIZONTAL SCALE IN FEET

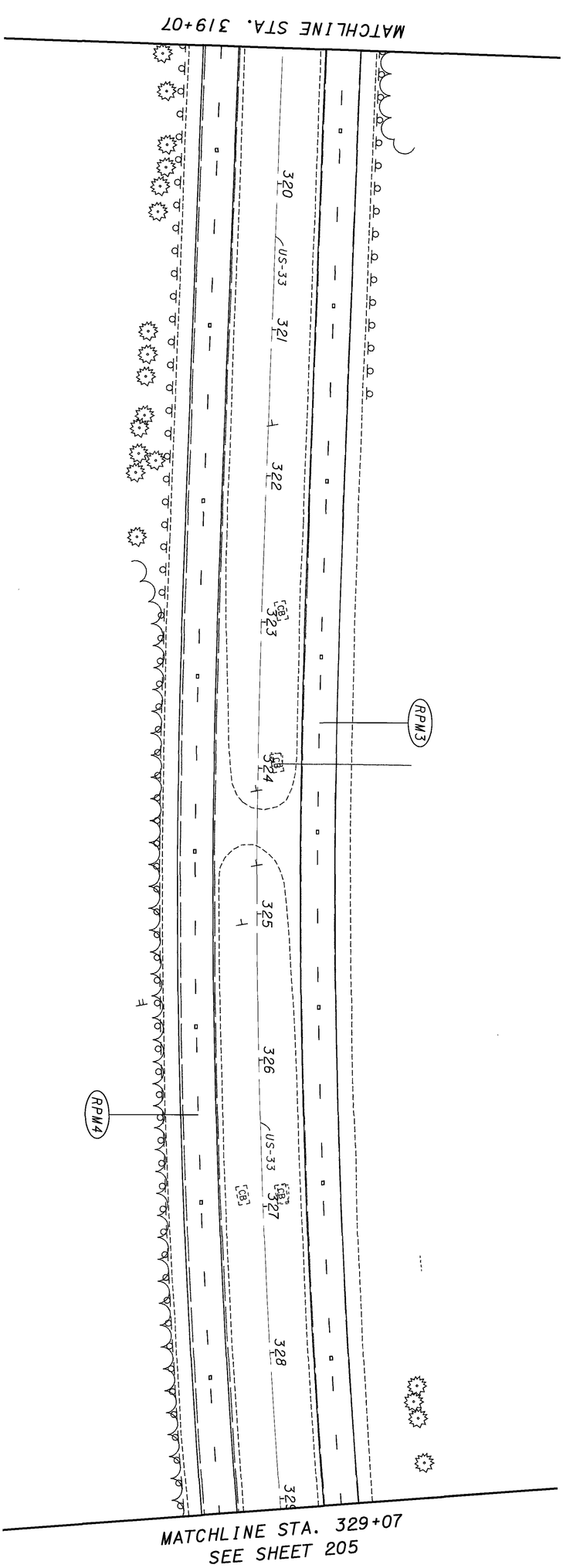


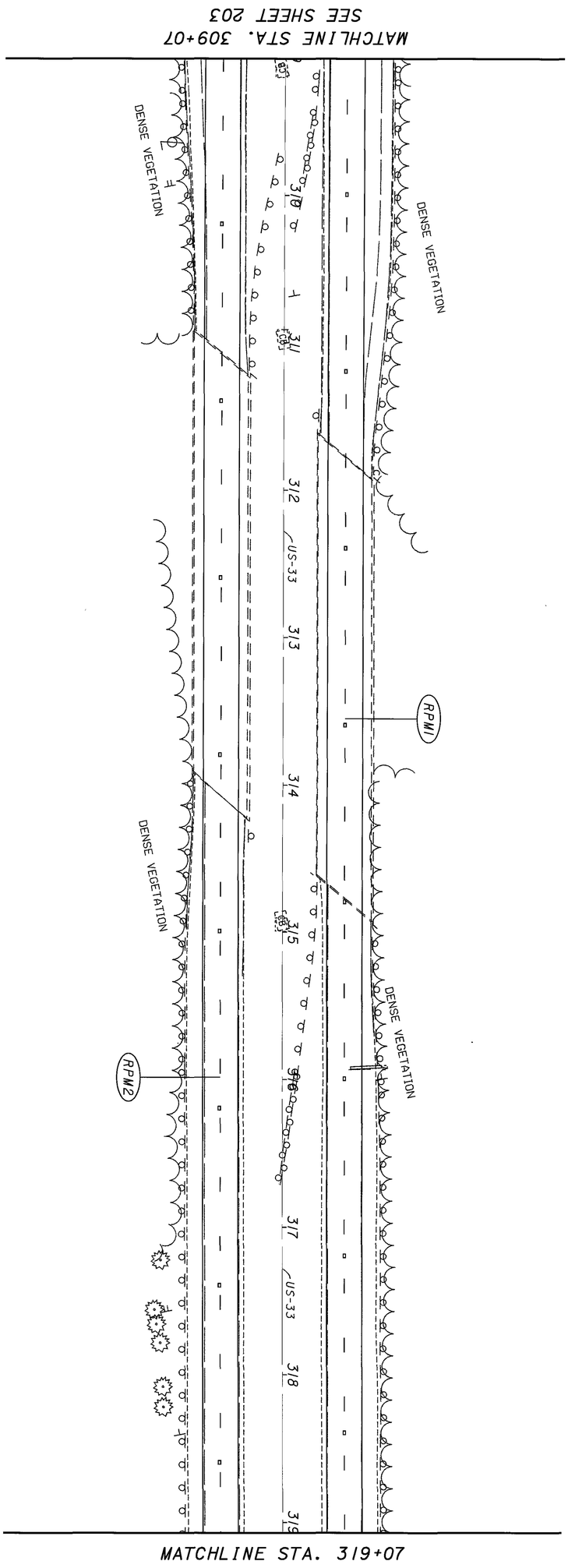
FRA-33-20.69

RPM AND LOOP DETECTOR DETAILS

CALCULATED RDK / LW
FAY / HG
CHECKED MATT

0 40
20 80
HORIZONTAL SCALE IN FEET





FRA-33-20.69

RPM AND LOOP DETECTOR DETAILS

CALCULATED RDK / LW FAY / HG
CHECKED MATT

0 40
20 80
HORIZONTAL SCALE IN FEET

CALCULATED RDK / LW
FAI / HG
CHECKED MATT

HORIZONTAL SCALE IN FEET
0 20 40 80

RPM AND LOOP DETECTOR DETAILS

FRA-33-20.69

205
230

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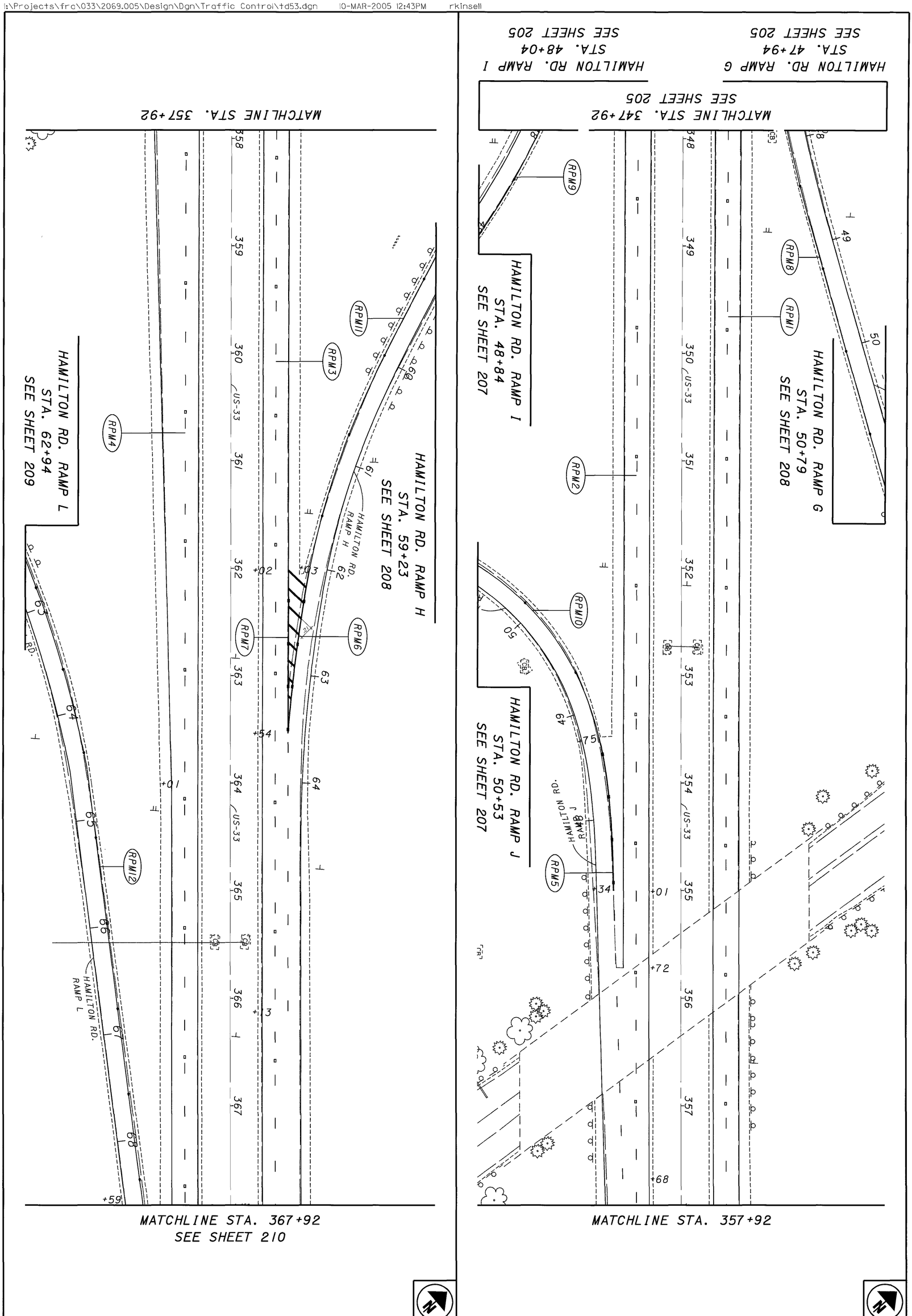


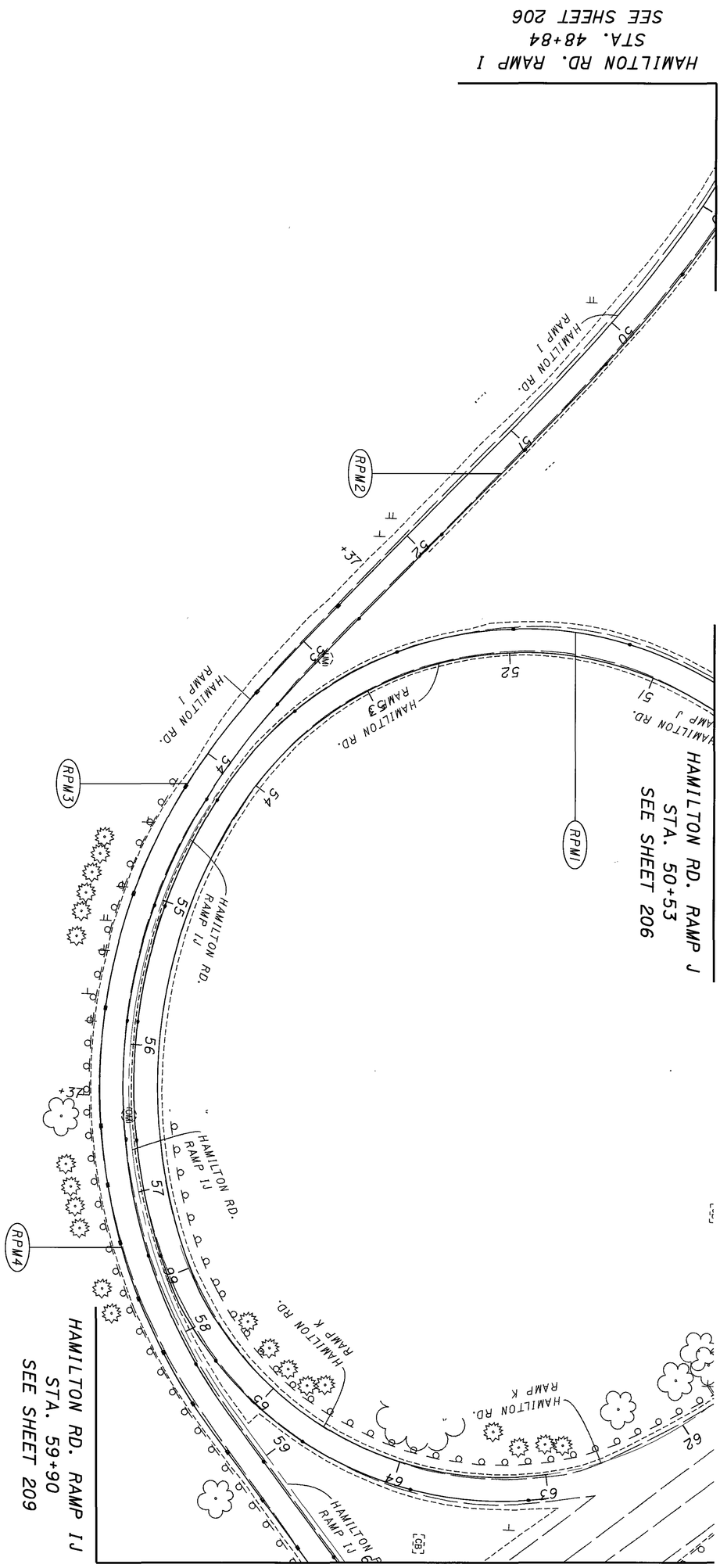
206
230

FRA-33-20.69

RPM AND LOOP DETECTOR DETAILS

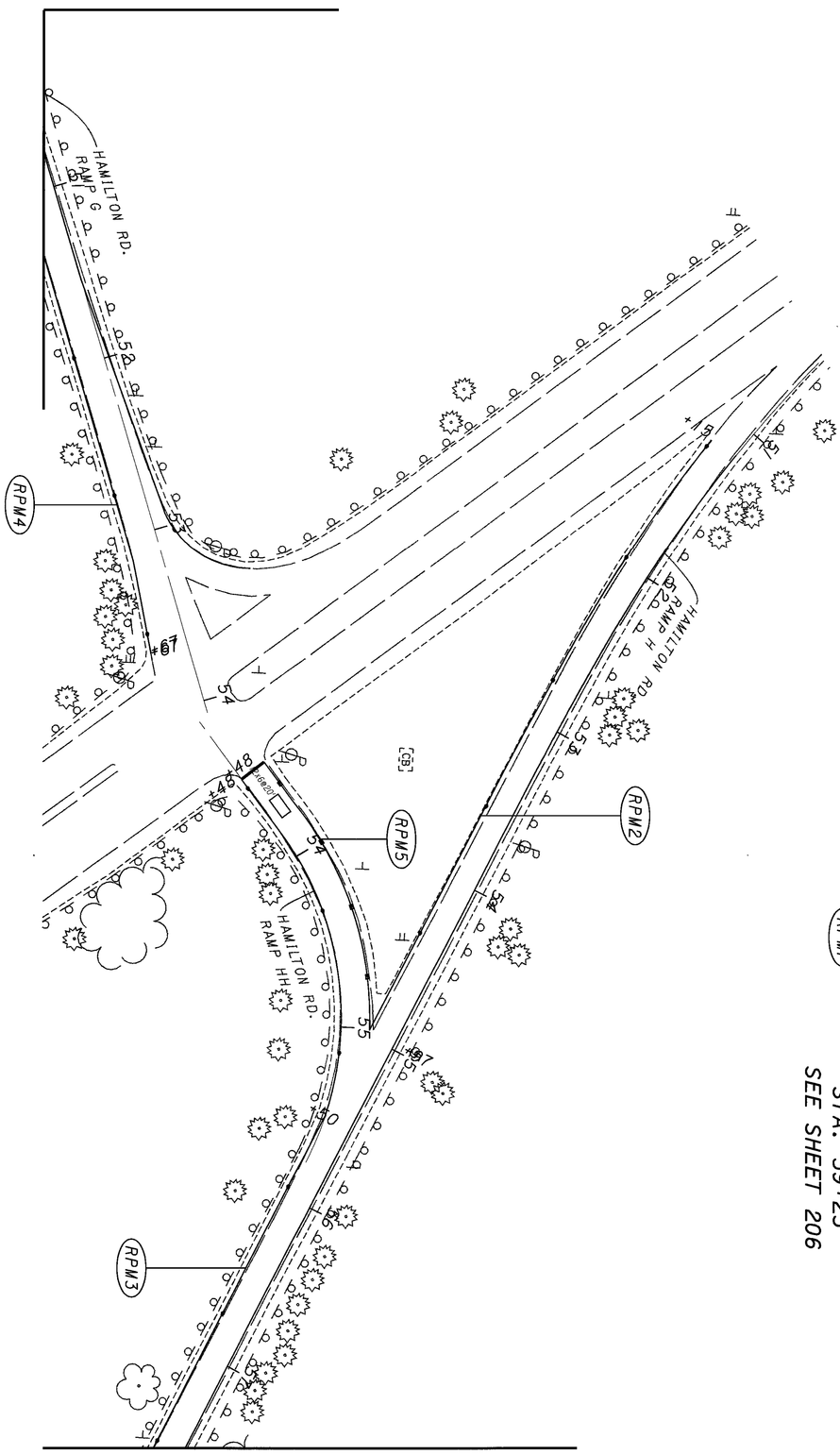
CALCULATED ROK / LW FAY / HG
CHECKED MATT

0 40
20 80
HORIZONTAL SCALE IN FEET

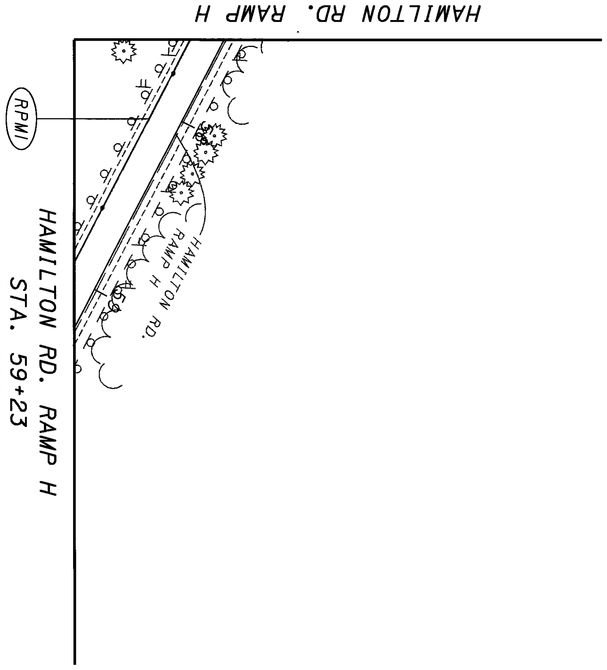

HAMILTON RD. RAMP I
STA. 48+84
SEE SHEET 206
HAMILTON RD. RAMP J
STA. 50+53
SEE SHEET 206
HAMILTON RD. RAMP I J
STA. 59+90
SEE SHEET 209
RPM1
RPM2
RPM3
RPM4
HAMILTON RD. RAMP I
HAMILTON RD. RAMP J
HAMILTON RD. RAMP J J
HAMILTON RD. RAMP K
HAMILTON RD. RAMP K
HAMILTON RD. RAMP I J
HAMILTON RD. RAMP I J
+37
+32
50
51
52
53
54
55
56
57
58
59
62
63
64
69

DETECTOR LOOP DL - 6
Hamilton Road Ramp HH
1 - 12'x6' @20'

HAMILTON RD. RAMP G
STA. 50+79
SEE SHEET 207



HAMILTON RD. RAMP H
STA. 57+51

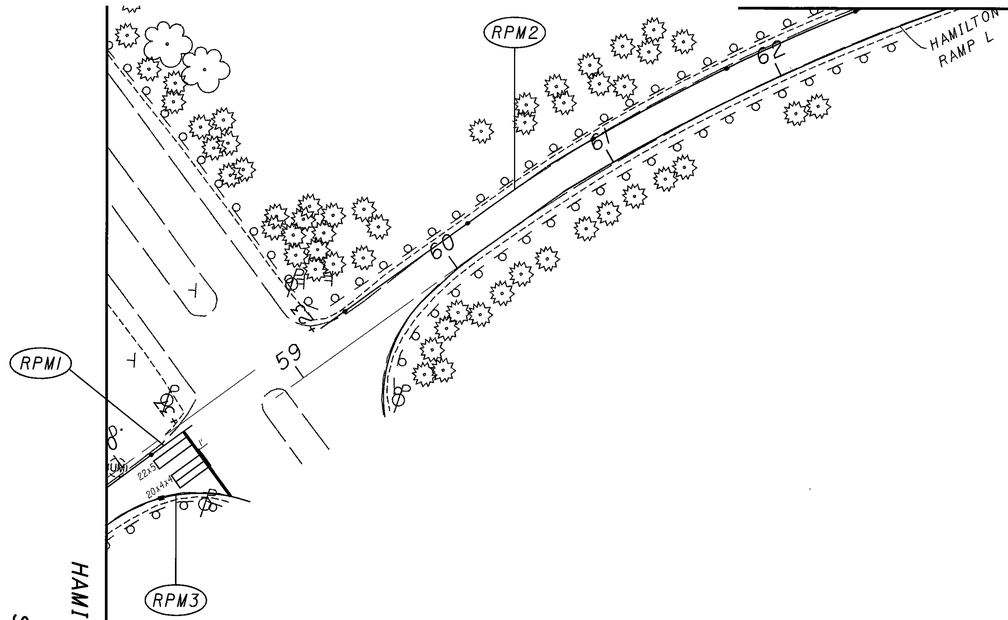


HAMILTON RD. RAMP H
STA. 59+23
SEE SHEET 206

HAMILTON RD. RAMP H
STA. 57+51

CALCULATED: ROK / LW FAY / HG
CHECKED: MATT

0 20 40 80
HORIZONTAL SCALE IN FEET



HAMILTON RD. RAMP L
STA. 62+94
SEE SHEET 206

HAMILTON RD. RAMP I J
STA. 59+90
SEE SHEET 207

DETECTOR LOOPS DL - 7
Ramp IJ 1 - 5'x22' @0'
Ramp IJ 1 - 4x4x20 @+1' (quad)

HORIZONTAL SCALE IN FEET
0 20 40 80

CALCULATED RDK / LW FAY / RG
CHECKED MATT

RPM AND LOOP DETECTOR DETAILS

FRA-33-20.69

209
230

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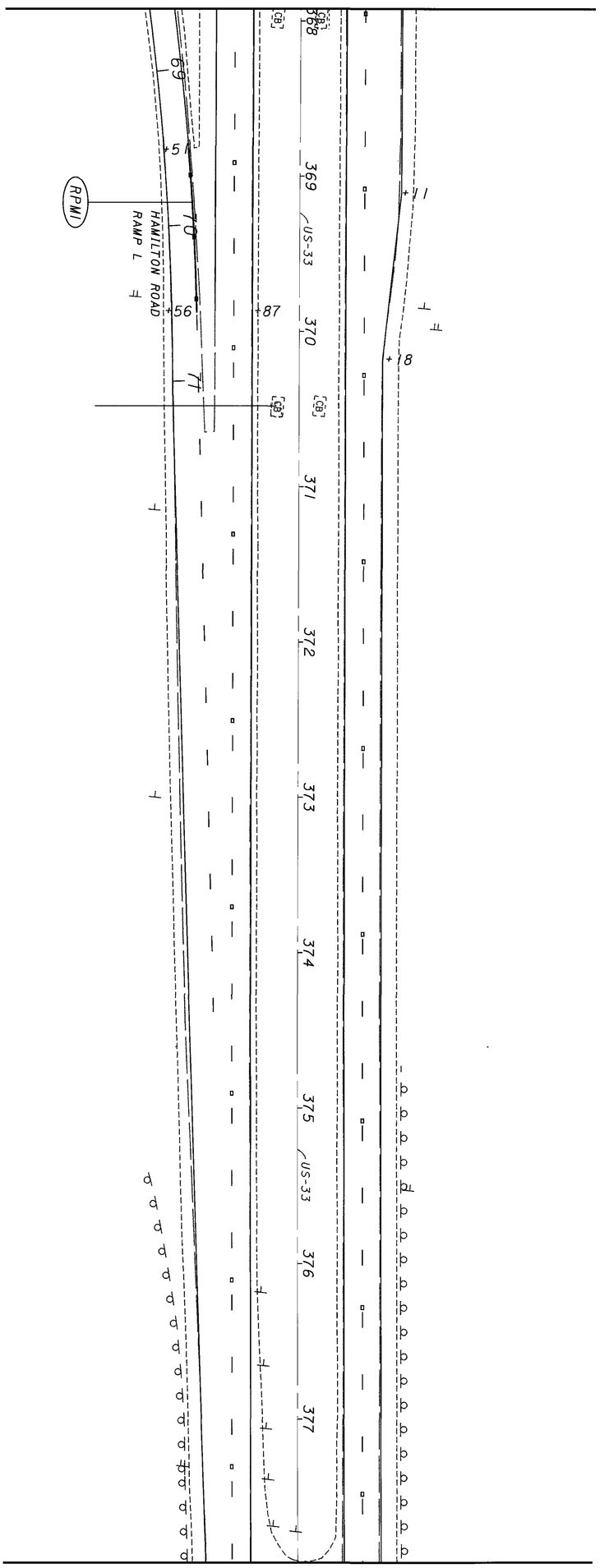
MATCHLINE STA. 367+92
SEE SHEET 206



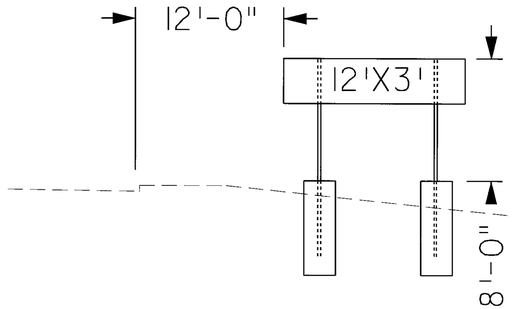
MATCHLINE STA. 377+92

FRA-33-20.69

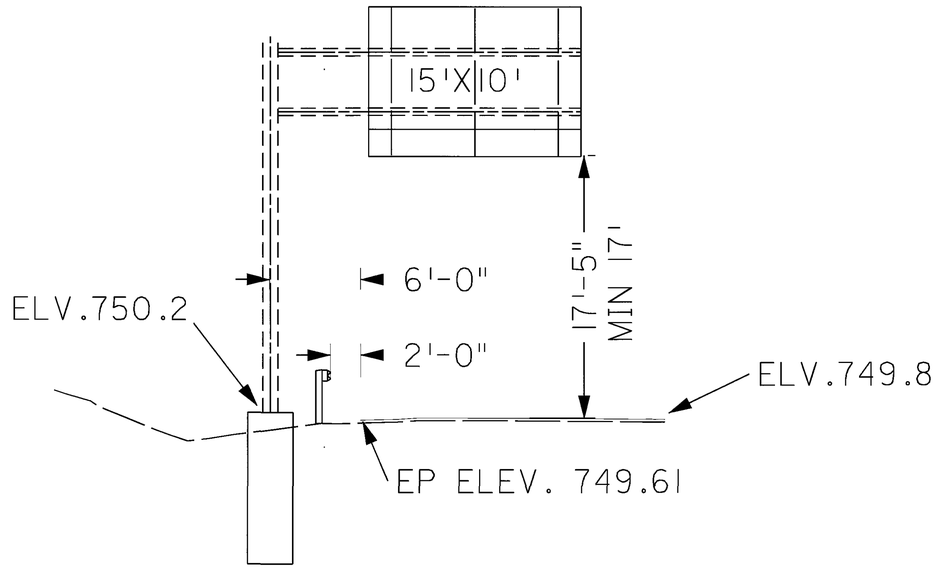
RPM AND LOOP DETECTOR DETAILS

CALCULATED RDK / LW FAY / HG
CHECKED MAJT

0 40
20 80
HORIZONTAL SCALE IN FEET



STA. 153+88, STA. 161+74
S4X7.7 BEAMS

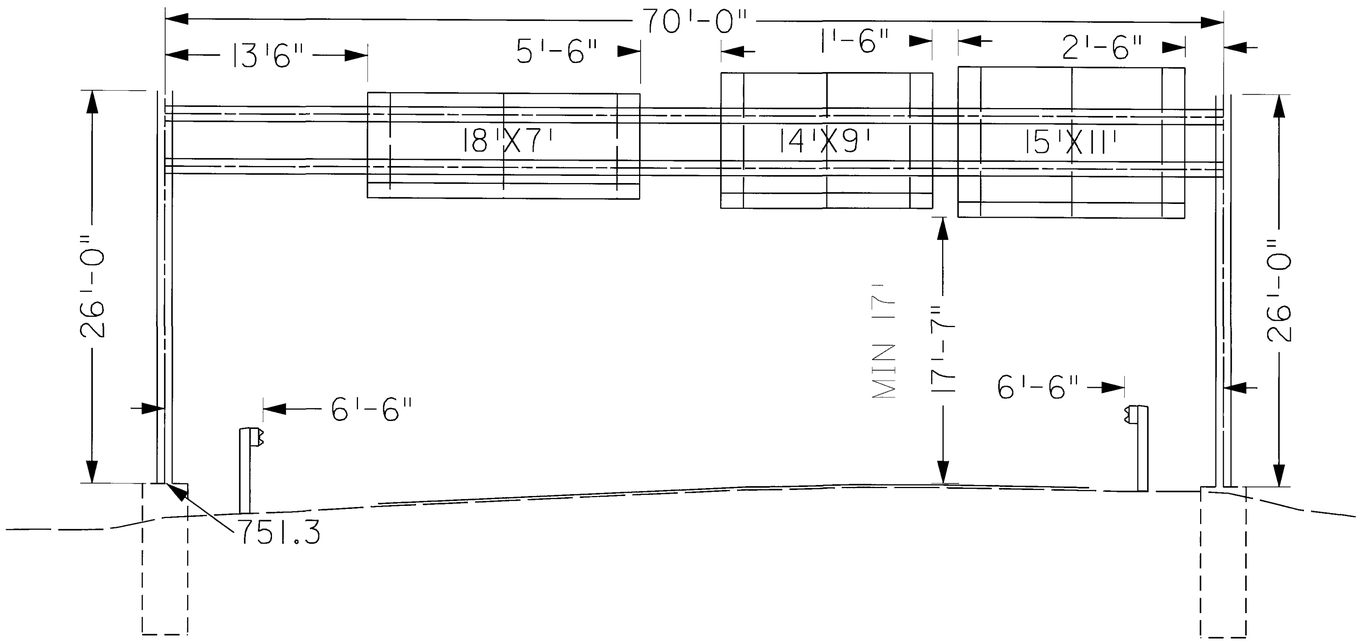


STA.161+50
REERECT EXISTING I-129 DES. 4
CURRENT DESIGN TYPE TC-12.30
TOTAL SIGN AREA= 150 SQ FT
2 175 WATT TC-31.21 LUMINAIRE

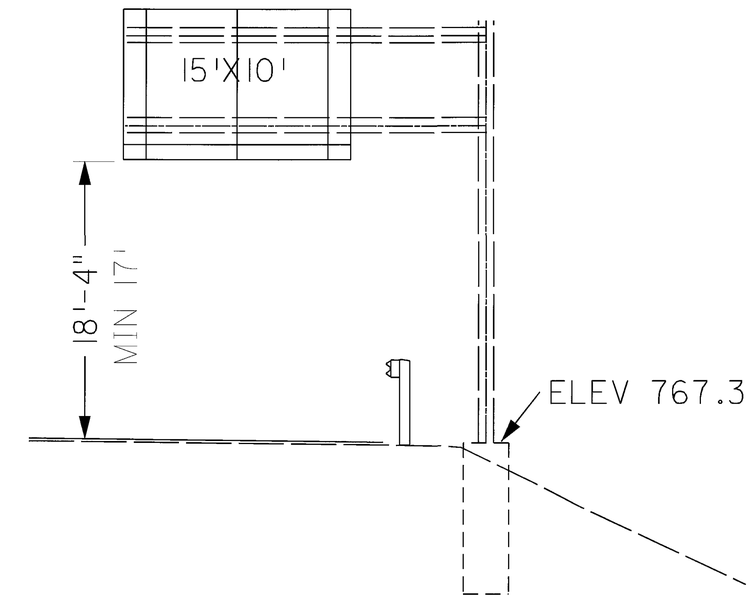
CALCULATED RDK / LW
FAY / IRG
CHECKED MATT

ELEVATION VIEW

FRA-33-20.69



STA.170+75
PROPOSED TC-7.65 DESIGN 6, AS PER PLAN
TOTAL SIGN AREA= 402 SQ FT
6-175 WATT TC-31.21 LUMINAIRE



STA.178+00
PROPOSED TC--12.30 DESIGN 6, AS PER PLAN
TOTAL SIGN AREA= 150 SQ FT
2-175 WATT TC-31.21 LUMINAIRE

CALCULATED
RDK / LW
PAY / BG
CHECKED
MATT

ELEVATION VIEW

FRA-33-20.69

212
230

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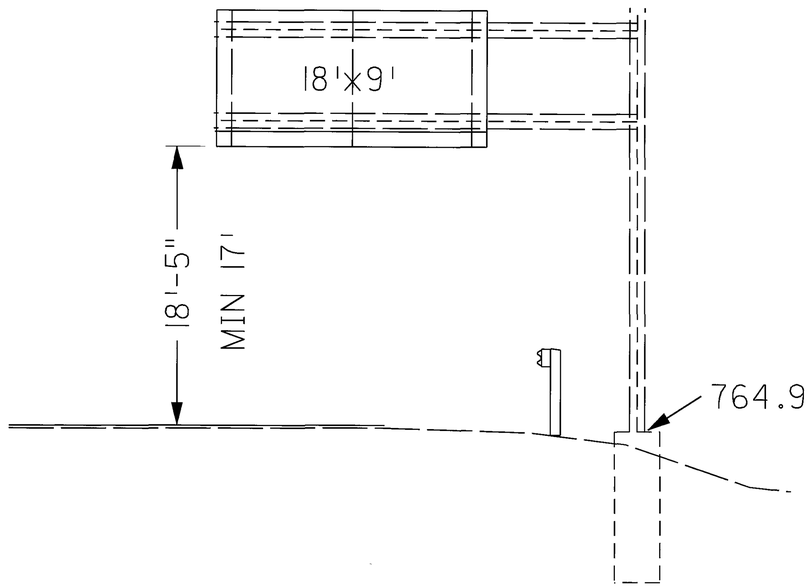
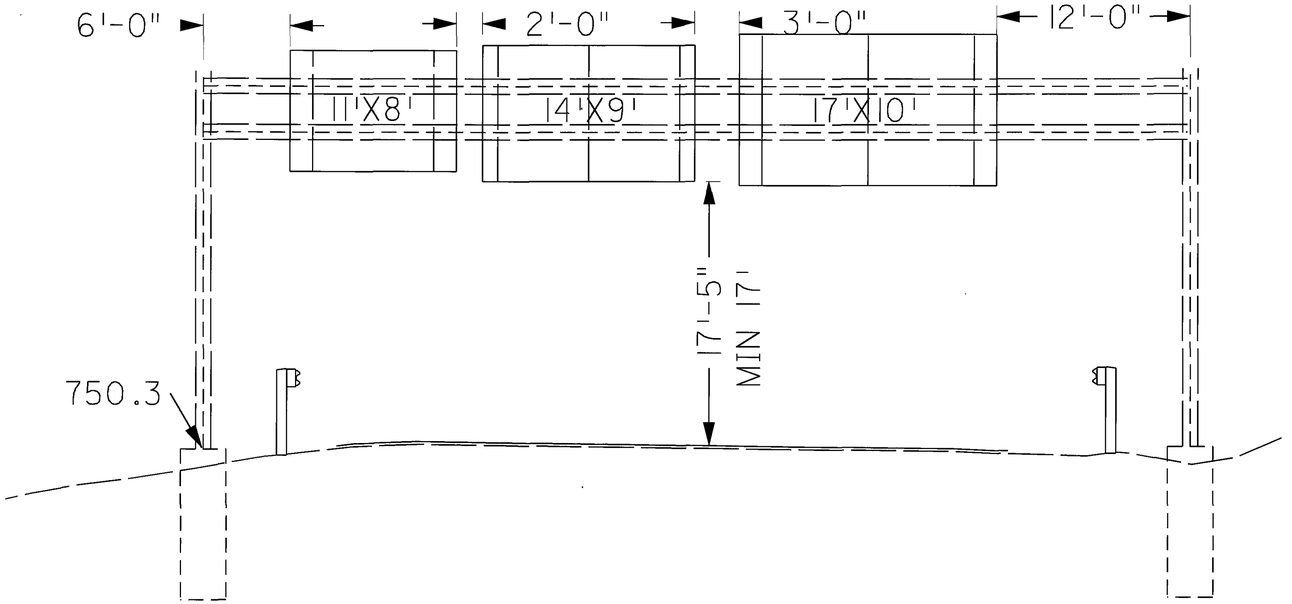


STA.185+00
TOTAL SIGN AREA= 162 SQ FT
2-175 WATT TC-31.21 LUMINAIRE



STA.187+75
EXISTING I-129 NO. 7.5 DESIGN I
CURRENT DESIGN TC-7.65
TOTAL SIGN AREA= 384 SQ FT
REMOVE ALL ELECTRICAL COMPONENTS TO PULL BOX

CALCULATED BY: R.K. PAY / NO
CHECKED: MATT

ELEVATION VIEW

FRA-33-20.69

213
230

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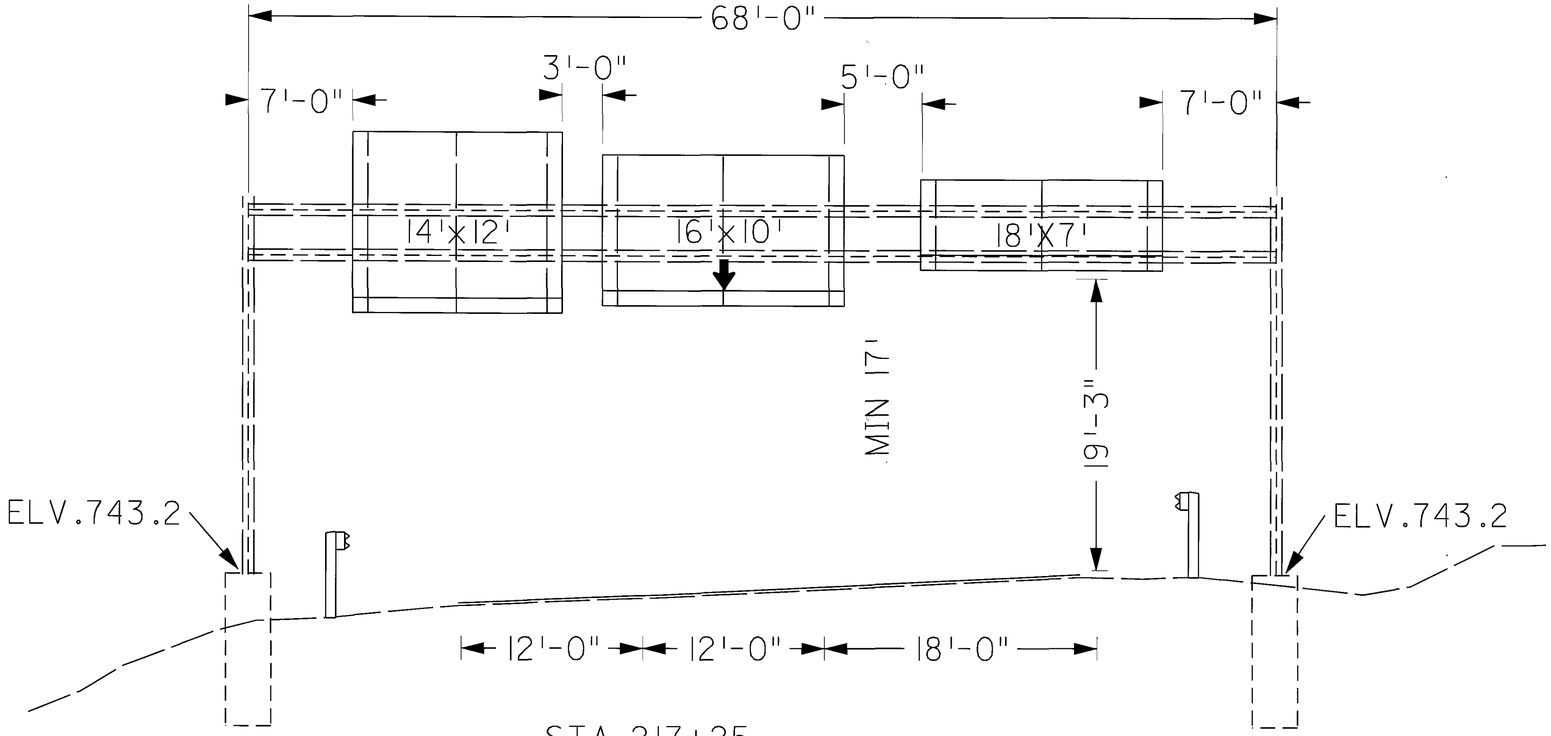
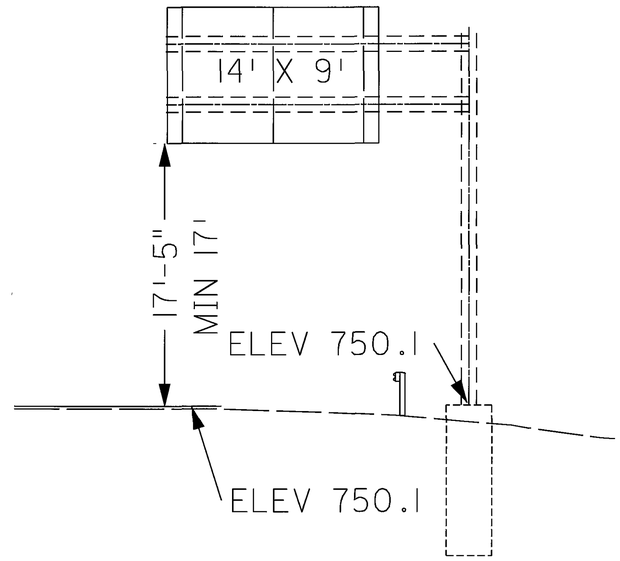


STA.217+25
EXISTING I-129 NO. 7.5 DESIGN 1
CURRENT DESIGN TC-7.65
TOTAL SIGN AREA= 454 SQ FT
4-175, 2-250 WATT TC-31.21 LUMINAIRE



STA.271+00
EXISTING 816 NO. 12.24 DESIGN 4
CURRENT DESIGN TC-12.30
TOTAL SIGN AREA= 126 SQ FT
REMOVE ALL ELECTRICAL
COMPONENTS TO PULL BOX

CALCULATED BY / R PAY / MG
CHECKED MaTT

ELEVATION VIEW

FRA-33-20.69

214
230

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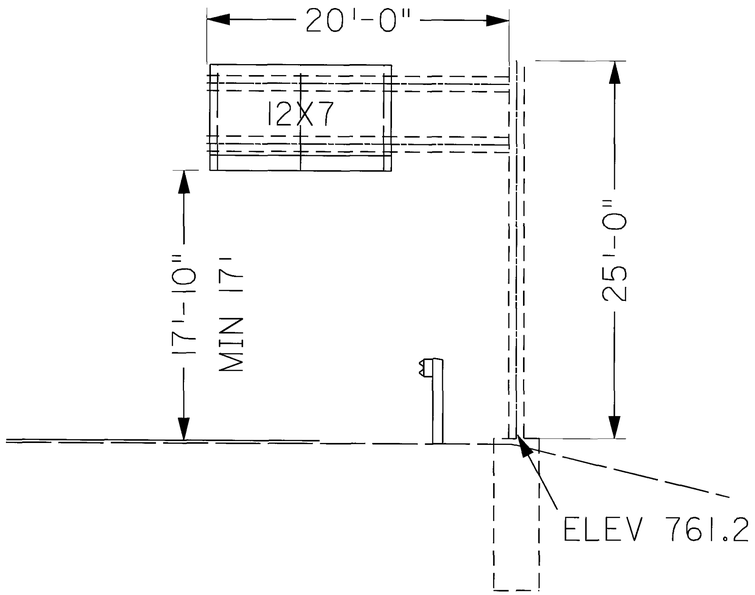
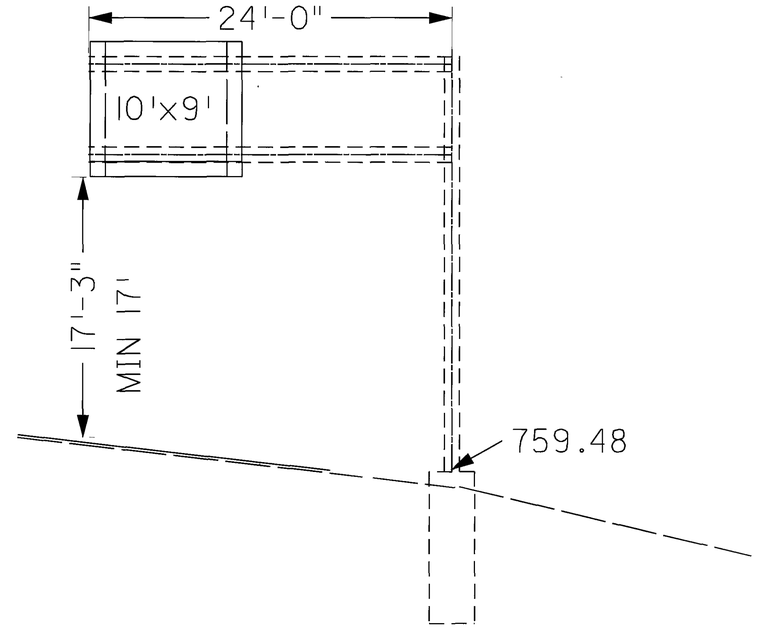


SR 104 STA.275+00
EXISTING NO. 12.30 DESIGN 6
TOTAL SIGN AREA= 84 SQ FT
2-175 WATT TC-31.21 LUMINAIRE



SR 104 STA.281+00
TOTAL SIGN AREA= 90 SQ FT
1-175 WATT TC-31.21 LUMINAIRE

CALCULATED
RW / LR
CHECKED
MATT

ELEVATION VIEW

FRA-33-20.69

215
230

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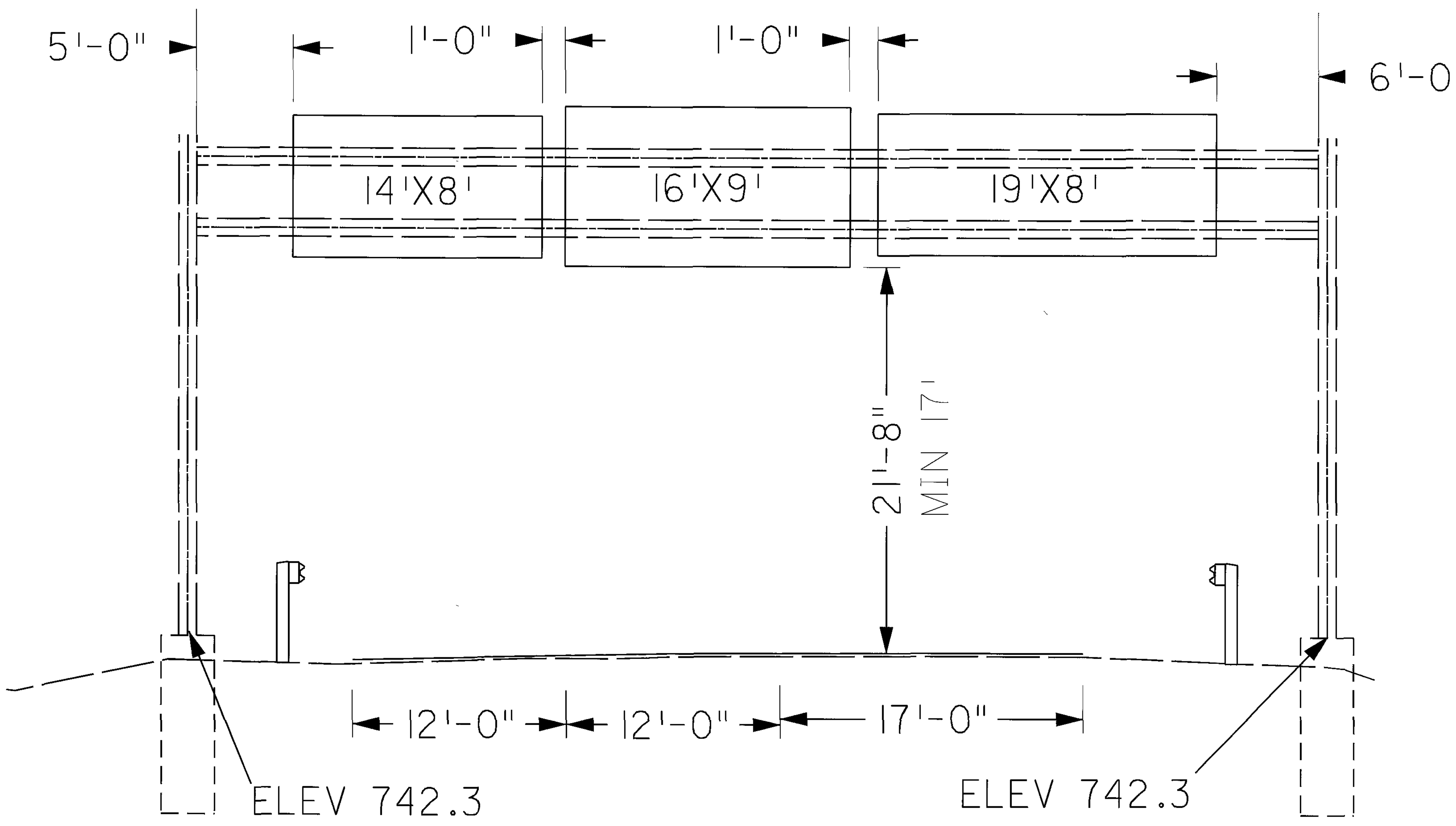
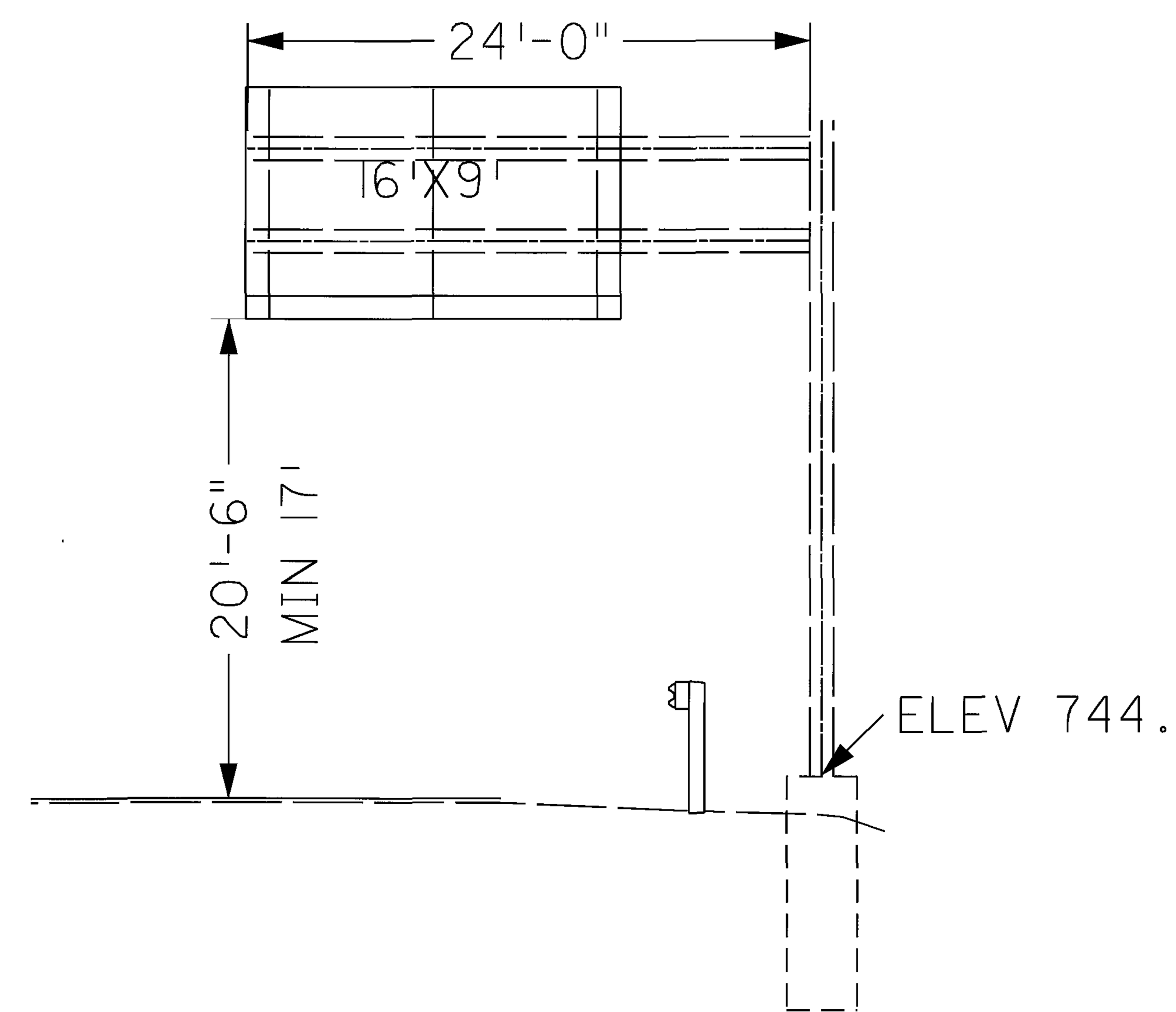


STA.305+75
EXISTING NO. 7.4 DESIGN 1
TOTAL SIGN AREA= 408 SQ FT
REMOVE ALL ELECTRICAL COMPONENTS TO PULLBOX

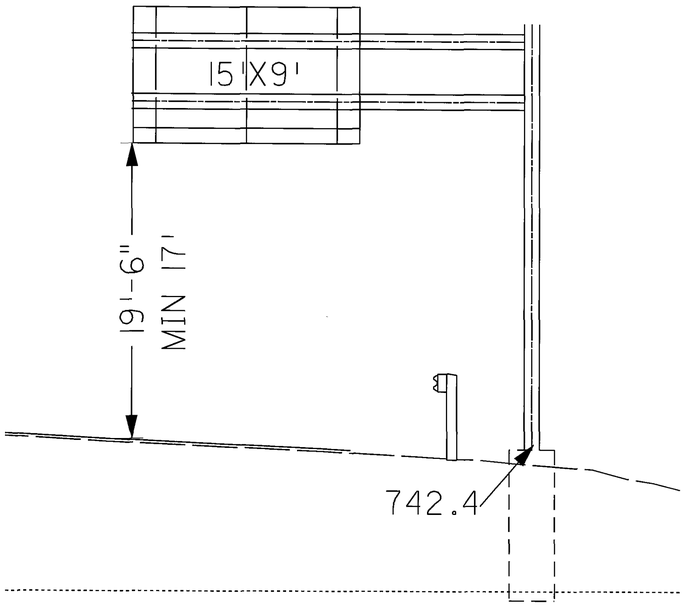


STA.316+00
EXISTING NO. 12.24 DESIGN 6 MODIFIED
TOTAL SIGN AREA= 144 SQ FT
REMOVE ALL ELECTRICAL COMPONENTS TO PULLBOX

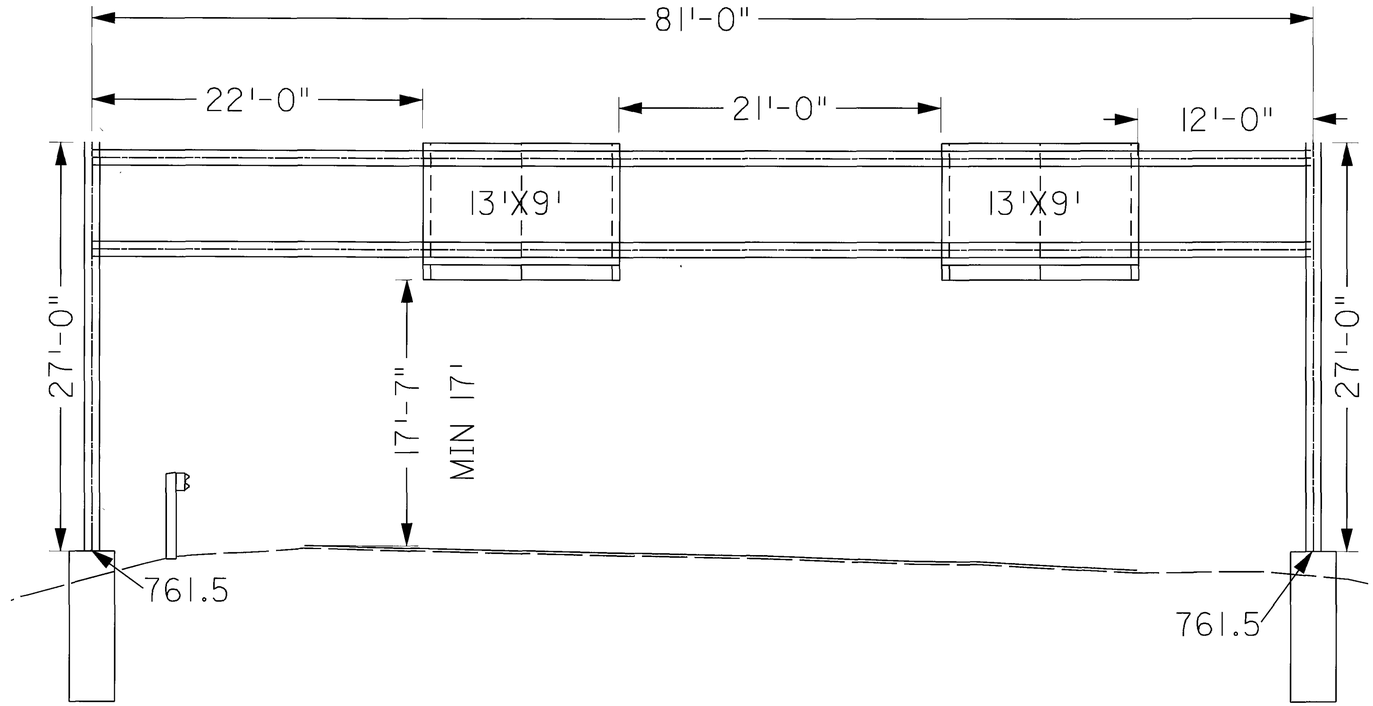
CALCULATED RDK / LW FAY / HG CHECKED MATT

ELEVATION VIEW

FRA-33-20.69



STA.223+75
PROPOSED OVERHEAD SIGN
SUPPORT TYPE TC-12.30,
DESIGN 6, AS PER PLAN
TOTAL SIGN AREA= 135 SQ FT
2-175 WATT TC-31.21 LUMINAIRE



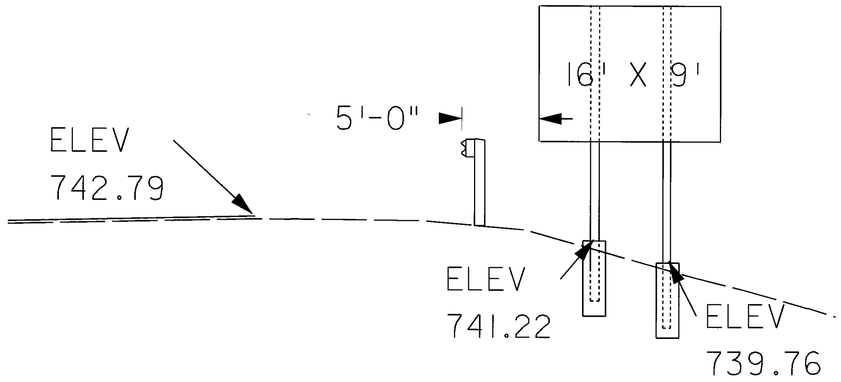
STA.196+20
PROPOSED OVERHEAD SIGN SUPPORT TYPE TC-7.65, DESIGN 8
TOTAL SIGN AREA= 234 SQ FT
4- 175 WATT TC-31.21 LUMINAIRE

CALCULATED RDK / LW
PLANS RDK
CHECKED MATT

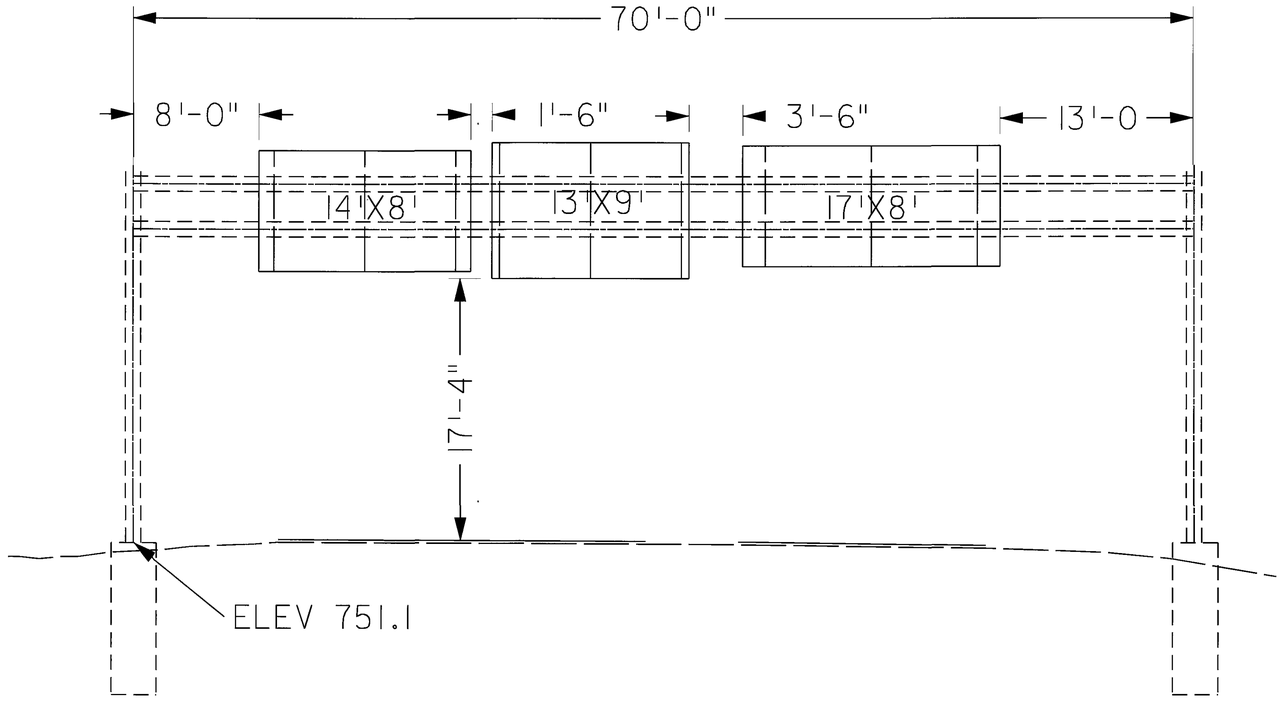
ELEVATION VIEW

FRA-33-20.69

217
230



STA.333+50
NEW GROUND MOUNTED
BEAM SUPPORTS W10 X 22,
TOTAL SIGN AREA= 144 SQ FT



STA.279+40
OVERHEAD SIGN SUPPORT TYPE 816, No 7.4, DESIGN I
TOTAL SIGN AREA= 365 SQ FT
REMOVE ALL ELECTRICAL COMPONENTS TO PULL BOX

CALCULATED BDK / LW
DRAWN BDK / MG
CHECKED MA TT

ELEVATION VIEW

FRA-33-20.69

218
230

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EXISTING STRUCTURE VERIFICATION:

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02 AND 513.02. CONTRACT BID PRICES SHALL BE BASED UPON RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE BY THE CONTRACTOR. HOWEVER, ALL PROJECT WORK SHALL BE BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED BY THE CONTRACTOR IN THE FIELD.

ITEM SPECIAL - POLYMER MODIFIED EXPANSION JOINT SYSTEM:

THIS ITEM WILL BE USED TO SEAL THE EXPANSION/CONTRACTION JOINTS AS PER THESE DETAILS AND THE MANUFACTURER'S REQUIREMENTS USING A POLYMER MODIFIED ASPHALT SYSTEM. THE PRIME CONTRACTOR WILL OBTAIN THE SERVICES OF ONE OF THE FOLLOWING APPROVED APPLICATORS WHO WILL FURNISH AND INSTALL THE NEW BRIDGE EXPANSION JOINT SYSTEM AFTER ALL PAVING ON THE AFFECTED BRIDGE(S) HAS BEEN COMPLETED.

D. S. BROWN COMPANY
300 E. CHERRY ST.
NORTH BALTIMORE, OH 45872
(419) 257-3561
LINEAR DYNAMICS INCORPORATED
79 MONTGOMERY ST.
MONTGOMERY, PA 17752
(570) 547-1621

SILICONE SPECIALTIES INC. (S.S.I.)
P. O. BOX 50009
TULSA, OK 74150
(918) 587-5567 OR
(800) 888-8909

WATSON BOWMAN ACME
95 PINEVIEW DR.
AMHERST, NY 14228
(716) 691-7566 OR
(800) 253-9226
MATERIALS:

BRIDGING PLATE: MILD STEEL 1/8" OR 1/4" THICK PLATE, 8" WIDE OR 18 GAUGE ALUMINUM, 8" WIDE.
BINDER:
TYPE: POLYMER MODIFIED ASPHALT
SOFTENING POINT: 180 DEGREES F MIN.
FLOW: 3 MM MAX. AT 140 DEGREES F
PENETRATION: 9 MM MAX. AT 77 DEGREES F
1 MM MIN. AT 0 DEGREES F
ASTM D 3407
DUCTILITY: 40 CM MIN. ASTM D 113
RESILIENCE: 60% MIN. AT 77 DEGREES F
TENSILE ADHESION: 700% MIN.
SPECIFIC GRAVITY: 1.10 * 0.05
POURING TEMP.: 350-390 DEGREES F

AGGREGATE:

TYPE: CRUSHED, DOUBLE WASHED, AND DRIED
GRANITE OR BASALT

GRADATION:

THE GRADATION OF THE AGGREGATE VARIES BY MANUFACTURER AND WILL BE AS PER THE MANUFACTURER'S RECOMMENDATIONS FOR THE SYSTEM MEETING USED ON THIS PROJECT BACKER ROD: THE BACKER SHALL BE A CLOSED CELL FOAM EXPANSION JOINT FILLER CAPABLE OF WITHSTANDING THE PLACEMENT TEMPERATURE OF THE POLYMER MODIFIED ASPHALT.

NOTE:

PRIOR TO PLACEMENT OF ANY PORTION OF THE JOINT SYSTEM, THE PROJECT ENGINEER MUST HAVE CERTIFIED TEST DATA MEETING ALL THE MINIMUM REQUIREMENTS OF ALL THE MATERIALS OF THE JOINT SYSTEM.

INSTALLATION PROCEDURES:

SAWING AND SURFACE PREPARATION:

AFTER ALL PAVING OPERATIONS ARE COMPLETE, THE ASPHALT OVERLAY IS TO BE TRANSVERSELY SAW CUT FULL DEPTH NO LESS THAN TWO INCHES DEEP (20" CENTERED OVER JOINT OPENING, UNLESS OTHERWISE NOTED), REMOVE ALL MATERIAL, INCLUDING WATER PROOFING MATERIAL, BETWEEN SAW CUTS. THOROUGHLY CLEAN AND DRY EXPOSED CONCRETE, STEEL, AND CUT SURFACES USING COMPRESSED AIR AND A HOT COMPRESSED AIR (HCA) LANCE. THE LANCE MUST PRODUCE A FLAME RETARDED AIR STREAM TEMPERATURE OF 3000 DEGREES F AT A VELOCITY OF 3000 FEET PER SECOND WITH 15 PSIG CHAMBER PRESSURE. IF THERE IS AN INTERRUPTION DUE TO WEATHER OR OTHER CAUSES, THE OPERATION WILL BE REPEATED WITH THE HCA LANCE IMMEDIATELY BEFORE THE BINDER COAT OPERATION. IN ADDITION, 6 INCHES OF THE ROAD SURFACE ON EITHER SIDE OF THE JOINT WILL BE DRIED SO THAT A SUITABLE SURFACE FOR BITUMEN ADHESION IS OBTAINED.

SEALING OF EXPANSION JOINT:

THE EXPANSION JOINT GAP IS TO BE SEALED AND A BRIDGING PLATE CENTERED ALONG IT. A VERY NARROW GAP WILL BE SEALED BY POURING HOT BINDER INTO THE GAP. GAPS OF 1/8" OR MORE WILL FIRST BE FILLED WITH AN APPROPRIATELY SIZED BACKER ROD. THE BACKER ROD WILL BE INSTALLED SO THAT IT IS BETWEEN 1/8" AND 1-1/8" BELOW THE TOP OF THE EXISTING GAP. THE GAP WILL THEN BE FILLED WITH BINDER.

BOND BREAKER:

SPREAD BINDER OVER SURFACE AREA WHERE THE METAL BRIDGING PLATE WILL BE PLACED. CENTER THE BRIDGING PLATE OVER THE EXISTING JOINT AND BED INTO THE HOT BINDER. BUTT JOINT THE BRIDGING PLATES TO ACCOMMODATE THE ENTIRE JOINT LENGTH. SPIKE HOLES WILL BE DRILLED AT 1 FOOT INTERVALS ALONG THE LONGITUDINAL CENTERLINE OF THE PLATES. SECURE BRIDGING PLATE WITH NAILS OR SPIKES. SEAL BUTT JOINTS WITH HOT BINDER AND ALLOW BINDER TO SETUP BEFORE NEXT OPERATION. WHEN ALUMINUM BRIDGING PLATES ARE USED, ONLY THE BINDER IS REQUIRED TO SECURE THE INDIVIDUAL PLATES.

BINDER COAT:

SEAL ALL PREPARED, EXPOSED SURFACES OF THE JOINT WITH BINDER. POUR THE HOT BINDER OVER THE FLOOR AREA OF THE JOINT AND SPREAD TO COAT ALL EXPOSED SURFACES. THE BINDER WILL BE A MINIMUM OF 1/32" THICK ON THE BOTTOM OF THE JOINT CAVITY, WITH POOLS OF GREATER THICKNESS WHERE SURFACE IRREGULARITIES EXIST. THE BINDER APPLICATION TEMPERATURE WILL BE BETWEEN 350 AND 390 DEGREES F. THE BINDER WILL NOT BE ALLOWED TO BE HEATED ABOVE 410 DEGREES F NOR ALLOWED TO EXCEED 390 DEGREES F FOR MORE THAN 1 HOUR. A DOUBLE JACKETED OIL MELTER WILL BE USED TO HEAT THE BINDER. THE MELTER WILL BE EQUIPPED WITH A CONTINUOUS AGITATION SYSTEM, TEMPERATURE CONTROLS, AND A CALIBRATED THERMOMETER. ALSO A SYSTEM FOR ACCURATELY MEASURING THE WEIGHTS OF THE BINDER AND THE AGGREGATE WILL BE REQUIRED.

BUILD-UP OF JOINT LAYERS:

AGGREGATE PREPARATION:

HEAT THE AGGREGATE TO A TEMPERATURE OF 275 TO 325 DEGREES F, WITH A SUITABLE ROTATING DRUM WITH ATTACHED HEAT SOURCE OR A HOT COMPRESSED AIR LANCE, TO REMOVE DUST AND MOISTURE.

AGGREGATE PROPORTION AND LAYER THICKNESS:

MIX THE AGGREGATE WITH THE BINDER SUCH THAT THE MINIMUM AGGREGATE CONTENT BY WEIGHT WILL BE 68%. THE HEATED AGGREGATE AND BINDER WILL BE COMBINED IN LAYERS, UNLESS PATENTED INSTALLATION REQUIRES DIFFERENTLY, NOT LESS THAN 3/4 OF AN INCH NOR EXCEEDING 2-1/2 INCHES. THE THICKNESS OF EACH LAYER CAN BE VARIED WITHIN THESE LIMITS, TO ACHIEVE THE REQUIRED JOINT THICKNESS (MIN. 2 INCHES).

THE OBJECTIVE IS TO COAT EACH STONE AND FILL THE VOIDS WHILE AVOIDING AN EXCESS OF BINDER. THIS WILL ACHIEVE THE MAXIMUM CONTENT OF STONE CONSISTENT WITH ALL STONES BEING COATED WITH BINDER. RAKE THE MIXTURE TO MIX AND LEVEL. THE TOP LAYER THICKNESS WILL VARY BETWEEN * INCH AND ONE (1) INCH. IN PREPARING THE TOP LAYER, THE RATIO OF AGGREGATE TO BINDER WILL BE APPROXIMATELY 6:1 BY WEIGHT. OVERFILL THE TOP LAYER AND COMPACT TO THE LEVEL OF THE ADJACENT SURFACES USING A ROLLER OR VIBRATORY PLATE COMPACTOR. IMMEDIATELY AFTER COMPLETION OF THE COMPACTION, POUR SUFFICIENT BINDER OVER THE JOINT TO FILL THE SURFACE VOIDS AND COAT THE SURFACE STONE. DUST THE FINISHED JOINT WITH A FINE, DRY AGGREGATE TO PREVENT TACKINESS.

MAINTENANCE OF TRAFFIC:

IF NECESSARY TO FACILITATE TRAFFIC MAINTENANCE, THE JOINT WILL BE INSTALLED IN TWO (2) HALF-WIDTH PHASES. DURING PHASE 1 APPROXIMATELY HALF OF THE TOTAL JOINT WILL BE INSTALLED. DURING PHASE 2, A MINIMUM OF TWO (2) INCHES OF THE PHASE 1 JOINT WILL BE REMOVED, AT OR NEAR THE CENTERLINE, WITH THE REMAINDER OF THE JOINT INSTALLED.

TESTING:

CERTIFICATION WILL BE SUPPLIED FOR EACH PROJECT SHOWING BINDER COMPLIANCE WITH REQUIRED PROPERTIES. A ONE QUART SAMPLE OF BINDER WILL BE RETRIEVED FROM EACH BRIDGE FOR FURTHER TESTING BY THE O.D.O.T. TESTING LABORATORY.

DESIGN AGENCY: DISTRICT SIX PRODUCTION
REVIEWED: KF DATE: 02.07.05 STRUCTURE FILE NUMBER
DRAWN: LS REVISED
DESIGNED: LS CHECKED: DP

STRUCTURE NOTES

FRA-33-20.69
PID 24653

PAYMENT:
PAYMENT FOR ALL THE ABOVE WILL BE AT THE UNIT PRICE BID PER LINEAR FOOT OF SEALED JOINT IN PLACE FOR ITEM SPECIAL 516 31300, POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM (3 3/4 INCHES THICK - FRA-33-25.03). THIS WILL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK. SEE SHEET 226/232 FOR QUANTITIES.

ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: PATCHING AND WRAPPING PIER COLUMNS:

THIS ITEM SHALL BE USED TO REPAIR THE EXISTING COLUMNS AT THE PIER INDICATED IN THE PLANS (SEE SHEET /). THE REPAIR SHALL CONSIST OF PATCHING THE COLUMNS AS PER 519 IN THE CMS (EXCEPT AS NOTED BELOW) AND WRAPPING THE COLUMNS WITH A FIBER WRAP COLUMN CASING SYSTEM USING HIGH STRENGTH, HYBRID FIBER/EPOXY COMPOSITES FIELD APPLIED TO THE COLUMNS.

ONLY LOOSE AND DISINTEGRATED CONCRETE SURROUNDING THE REINFORCING STEEL SHALL BE REMOVED. THE MINIMUM PATCH DEPTH REQUIREMENTS IN 519.03 SHALL NOT BE USED.

WITHIN TWENTY-FOUR (24) HOURS BEFORE PLACING CONCRETE, THE EXISTING SURFACES AGAINST WHICH THE CONCRETE SHALL BE PLACED AND THE EXISTING REINFORCING STEEL SHALL BE THOROUGHLY CLEANED BY ABRASIVE BLASTING. ABRASIVE BLASTING SHALL BE AT LEAST EQUAL TO SA2 "THOROUGH BLAST CLEANING" AS OUTLINED IN ASTM D-2200 OR SSPC-SP6. ALL LOOSE AND DETERIORATED CONCRETE SHALL BE REMOVED WITH HAND TOOLS BEFORE ABRASIVE BLASTING.

THE FIBER WRAP COLUMN CASING SYSTEM SHALL BE MANUFACTURED BY RJ WATSON, INC. (P.O. BOX 85 EAST AMHERST, NY 14051) OR AN APPROVED ALTERNATE.

FOR THE FIBER WRAP COLUMN CASING SYSTEM, THE MANUFACTURER SHALL DETERMINE THE NUMBER OF WRAPS NEEDED.

THE FABRIC FOR THE COMPOSITE CASING SHALL BE CONTINUOUS FILAMENT WOVEN FABRIC. PRIMARY FIBERS FOR THE FABRIC SHALL BE ELECTRICAL (E) GLASS FIBERS. POLYESTER RESIN SHALL NOT BE USED AS A SUBSTITUTE FOR EPOXY RESIN.

THE ULTIMATE TENSILE STRENGTH IN THE PRIMARY FIBER DIRECTION (BASED ON DRY FABRIC THICKNESS) SHALL BE 65 KSI (MIN.). THE ULTIMATE TENSILE STRENGTH AT 90 TO THE PRIMARY FIBERS SHALL BE 5.5 KSI (MIN.).

THE COLUMN SHALL BE SMOOTH AND FREE FROM FINS, SHARP EDGES, AND PROTRUSIONS THAT WILL CAUSE VOIDS BEHIND THE CASING OR THAT, IN THE OPINION OF THE ENGINEER, WILL DAMAGE THE FIBER. THE CONTACT SURFACES OF THE COLUMN SHALL BE COMPLETELY DRY AT THE TIME OF APPLICATION OF THE COMPOSITE. NEWLY PATCHED SURFACES SHALL HAVE CURED SUFFICIENTLY PRIOR TO APPLICATION OF THE COMPOSITE SYSTEM. THE AMBIENT TEMPERATURE AND THE TEMPERATURE OF THE EPOXY COMPONENTS SHALL BE BETWEEN 55 AND 95 DEGREES FAHRENHEIT AT THE TIME OF MIXING. THE COMPOSITE SHALL BE APPLIED WHEN THE RELATIVE HUMIDITY IS LESS THAN 85% AND THE SURFACE TEMPERATURE IS MORE THAN 37 DEGREES FAHRENHEIT. APPLICATION SHALL BEGIN WITHIN ONE HOUR AFTER THE EPOXY HAS BEEN MIXED. THE EPOXY SHALL BE MIXED WITH A MECHANICAL MIXER AND APPLIED UNIFORMLY TO THE FIBER AT A RATE THAT SHALL INSURE COMPLETE SATURATION OF THE FABRIC.

THE FABRIC-EPOXY COMPOSITE SHALL BE APPLIED TO THE SURFACE OF THE COLUMN BY WRAPPING USING METHODS THAT PRODUCE A UNIFORM FORCE THAT IS DISTRIBUTED ACROSS THE ENTIRE WIDTH OF THE FABRIC. THE PRIMARY FIBERS OF THE FABRIC SHALL NOT DEVIATE FROM A HORIZONTAL LINE BY MORE THAN 1/2 IN PER FOOT AND THE TRANSVERSE FIBERS SHALL BE PERPENDICULAR TO THE PRIMARY FIBERS. ENTRAPPED AIR SHALL BE REMOVED BEFORE THE EPOXY SETS.

SUCCESSIVE LAYERS OF COMPOSITE MATERIALS SHALL BE PLACED BEFORE POLYMERIZATION PREVENTS A COMPLETE BOND BETWEEN THE LAYERS. IF POLYMERIZATION DOES OCCUR BETWEEN THE LAYERS THE SURFACE MUST BE ROUGHENED USING A LIGHT ABRASIVE THAT WILL NOT DAMAGE THE FIBERS.

THE FINAL LAYER OF FABRIC SHALL BE COVERED WITH A MINIMUM 3/16 IN COAT OF EPOXY THAT PROVIDES A UNIFORM FINISHED SURFACE.

A FINAL COATING SYSTEM IS REQUIRED TO PROTECT THE FIBERS FROM THE ELEMENTS AND TO GIVE THE FINAL AESTHETIC EFFECT.

AFTER THE FINAL EPOXY COAT IS COMPLETELY POLYMERIZED THE EXTERIOR SURFACES OF THE COMPOSITE WRAP SHALL BE CLEANED AND ROUGHENED BY A LIGHT ABRASIVE. CARE SHALL BE TAKEN NOT TO DAMAGE THE FIBERS DURING THE ROUGHENING PROCESS. THE CLEANED AND ROUGHENED SURFACES SHALL BE DRY BEFORE PAINTING.

AREAS TO BE PAINTED SHALL RECEIVE A TOTAL DRY FILM THICKNESS OF NOT LESS THAN 1/32 IN.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER SQUARE FOOT FOR ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.

PATCHING AND WRAPPING PIER COLUMNS, WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 848 - MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION (1 3/4" THICK), APP:

ITEM 848 - MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION (3 3/4" THICK), APP:

ITEM 848 - SURFACE PREPARATION USING HYDRODEMOLITION, APP:

ITEM 848 - MICRO SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY, APP:

ITEM 848 - EXISTING CONCRETE OVERLAY REMOVED (1 1/4"), APP:

THESE ITEMS ARE BEING PROVIDED TO PLACE A NEW MICROSILICA OVERLAY ON STRUCTURES: FRA-33-25.03L&R AND FRA-33-25.09L&R WITH FOLLOWING REQUIREMENTS.

ALL OTHER RESTRICTIONS FROM THE PROJECT WILL REMAIN IN PLACE. LIQUIDATED DAMAGES WILL BE CHARGED AS SHOWN IN THE MAINTENANCE OF TRAFFIC NOTES. SEE PLAN SHEET 35/232.

THE CONSTRUCTION WILL BE COMPLETED IN 2 PHASES, AS SHOWN IN THE ATTACHED PLAN SHEETS, WITH EACH PHASE BEING COMPLETED IN ONE WEEKEND.

THESE ITEMS SHALL BE PERFORMED AS PER SUPPLEMENTAL SPECIFICATION: 848 "BRIDGE DECK REPAIR AND OVERLAY WITH CONCRETE USING HYDRO DEMOLITION" WITH THE FOLLOWING REVISIONS:

(SEE 848.18) THE REMOVAL OPERATIONS SHALL NOT BEGIN IF SUSTAINED RAINS (5 HOURS OR MORE WITH BREAKS BETWEEN SHOWERS LESS THAN 1 1/2 HOURS ARE PREDICTED WITHIN 48 HOURS OF COMMENCEMENT.

(SEE 848.21) THE FINAL SOUNDING MAY TAKE PLACE WITHIN 24 HOURS OF A RAIN, AND THE DECK DOES NOT HAVE TO BE COMPLETELY DRY.

(SEE 848.23) FULL DEPTH REPAIR IS NOT REQUIRED IF LESS THAN ONE HALF OF THE DECK ORIGINAL CONCRETE THICKNESS IS SOUND.

(SEE 848.29) THE CURE TIME IS REDUCED FROM 72 HOURS TO 24 HOURS. IMMEDIATELY AFTER THE 24-HOUR WET CURE, THE FINISHED OVERLAY SURFACE SHALL BE SEALED BY SPRAYING A UNIFORM APPLICATION, AND AFTER TWO TEST BEAMS HAVE ATTAINED AN AVERAGE MODULUS OF RUPTURE OF 650 PSI.

(SEE 848.30) THE OVERLAY SURFACE EVAPORATION RATE REQUIREMENTS ARE IN EFFECT FROM 9:30 AM TO 11:00 PM. THEY ARE NOT IN EFFECT FROM 11:00 PM TO 9:30 AM

(SEE 848.31) FOR EACH PHASE, THE CONTRACTOR SHALL PROVIDE ENOUGH MATERIAL FOR TWO BEAM BREAKS EACH AT 12 HOURS, 24 HOURS, 36 HOURS, AND 48 HOURS. THE DEPARTMENT WILL PERFORM THE BEAM BREAK TESTS AND DOCUMENT THE TIME OF THE POUR, THE TIME OF THE BEAM BREAK TESTS, AND THE MODULUS OF RUPTURE FOR EACH BEAM UNTIL THE MODULUS OF RUPTURE OF TWO TESTS IS NOT LESS THAN 650 PSI. (TRAFFIC IS ALLOWED ON THE OVERLAY AT 650 PSI. ALL OTHER REQUIREMENTS OF SS 848 REMAIN IN EFFECT.

DESIGN AGENCY: DISTRICT SIX PRODUCTION

DESIGNED	DRAWN	REVIEWED	DATE
LS	LS	KF	02.07.05
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DP			

NOTES

STRUCTURE

FRA-33-20.69
PID 24653

ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN: (FRA 33-20.40)

DESCRIPTION: THIS WORK CONSISTS OF THE REMOVAL OF WOOD FORMS UNDER THE NORTH SIDEWALK AND DISPOSE MATERIAL OFF THE PROJECT SITE. THIS WORK TO BE PERFORMED BEFORE BEGINNING THE SURFACE PREPARATION.

MEASUREMENT & PAYMENT: THE DEPARTMENT WILL MEASURE THE QUANTITY OF REMOVALS ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES OF REMOVALS AT THE CONTRACT PRICE FOR ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.

DESIGN AGENCY
DISTRICT SIX PRODUCTION

DESIGNED	DRAWN	REVIEWED	DATE
LS	LS	KF	02.07.05
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DP			

STRUCTURE NOTES

FRA-33-20.69
PID 24653

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ESTIMATED QUANTITIES

ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SFN	2501929	2501953	2501988	2502011	2501635	2514168	2514133	2514109	SEE SH.
				STRUCTURE:		25.03L	25.03R	25.09L	25.09R	20.40	46.13L	46.13R	46.13A	NO.
				CARRIED FROM SH. No.		5	5	7	7	10	8	8	8	
202	11201	LUMP		PORTIONS OF STRUCTURE REMOVED, AS PER PLAN						LUMP				2/11
513	90000	3203	POUND	STRUCTURAL STEEL, MISC.: REPLACEMENT OF DETERIORATED CROSSFRAMES							2059		1144	
514	00050	79664	SQ FT	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL						23,740	15,415	25,093	15415	
514	00056	79664	SQ FT	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT						23,740	15,415	25,093	15415	
514	00060	79664	SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT						23,740	15,415	25,093	15415	
514	00066	79664	SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT						23,740	15,415	25,093	15415	
514	10000	49	EACH	FINAL INSPECTION REPAIR							13	23	13	
SPECIAL	51631300	194	FT	POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM		100	94							2/11
SPECIAL	51822300	1838	FT	STEEL DRIP STRIP		215	215	704	704					DS-1-69
519	11100	314	SQ FT	PATCHING CONCRETE STRUCTURE		49	49	88	88		30		10	
SPECIAL	51911600	362	SQ FT	PATCHING CONCRETE STRUCTURE, MISC.: PATCHING AND WRAPPING PIER COLUMNS							246		116	2/11
841	10000	3514	SQ YD	TREATING OF CONCRETE SURFACES WITH SRS		647	617	1,125	1,125					
848	10001	2250	SQ YD	MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION (1 3/4"), AS PER PLAN				1,125	1,125					2/11
848	10001	1264	SQ YD	MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION (3 3/4"), AS PER PLAN		647	617							2/11
848	20001	3514	SQ YD	SURFACE PREPARATION USING HYDRODEMOLITION, AS PER PLAN		647	617	1,125	1,125					2/11
848	30001	12	CU YD	MICRO SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN		3	3	3	3					2/11
848	50200	68	CU YD	FULL-DEPTH REPAIR		23	21	12	12					
848	50300	516	SQ YD	WEARING COURSE REMOVED, ASPHALT		133	133	125	125					
848	50321	2998	SQ YD	EXISTING CONCRETE OVERLAY REMOVED (1 1/4"), AS PER PLAN		514	484	1,000	1,000					2/11
864	10100	3015	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)							954	1,114	947	

DESIGN AGENCY: DISTRICT SIX PRODUCTION

DESIGNED	DRAWN	REVIEWED	DATE
LS	LS	KF	02.07.05
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DP			

ESTIMATED QUANTITIES

BRIDGE NO. FRA-33-2503(L&R) OVER WALNUT CREEK OVERFLOW,
FRA-33-2509(L&R) OVER BIG WALNUT CREEK, FRA-33-2040
OVER ALUM CREEK AND FRA-270-46.31(L,R&A) UNDER I-270

FRA-33-20.69
PID 24653

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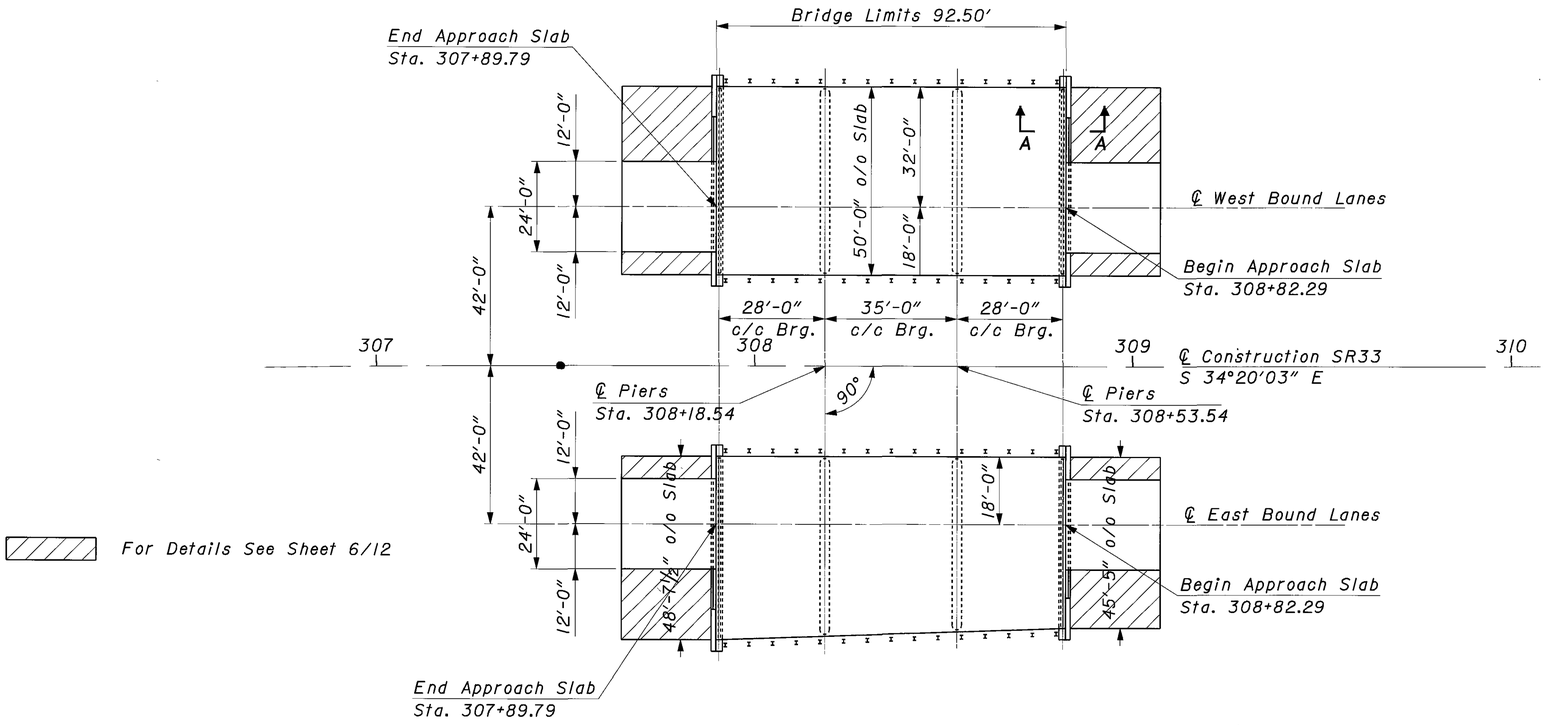

PLAN VIEW - FRA-33-25.03

INDEX OF STRUCTURAL WORK ITEMS

1. DECK: REMOVE 1¼" LATEX MODIFIED CONCRETE OVERLAY BY MILLING. REMOVE ADDITIONAL ½" BY HYDRO-DEMOLITION METHOD. REPLACE WITH MICRO SILICA CONCRETE OVERLAY AT A DEPTH OF 3¾". 15% VARIABLE DEPTH AND 10% FULL DEPTH - FRA-33-25.03L 10% VARIABLE DEPTH AND 10% FULL DEPTH - FRA-33-25.03R

2. APPROACH SLABS: REMOVE 1" WEARING COURSE BY MILLING. REMOVE ADDITIONAL ¾" BY HYDRO-DEMOLITION METHOD. REPLACE WITH MICRO SILICA CONCRETE OVERLAY AT A DEPTH OF 3¾".

3. INSTALL STEEL DRIP STRIP (BOTH SIDES).

4. INSTALL POLYMER MODIFIED EXPANSION JOINT SYSTEM AT BOTH ENDS FULL WIDTH.

5. PATCH DECK EDGES (20% OF TOTAL LENGTH).

EXISTING STRUCTURE

TYPE: CONTINUOUS REINFORCED CONCRETE SLAB WITH CAPPED PILE SUBSTRUCTURE
SPANS: 28', 35'-0", 28' C/C BRGS.
LOAD FREQUENCY: CF=2000(57)
ROADWAY: 50'-0" F/F GUARDRAIL W. B. LANES, VARIES E. B. LANES
SKEW: NONE
WEARING SURFACE: 1¼" LATEX MODIFIED CONCRETE OVERLAY
APPROACH SLAB: AS-1-54 (25' LONG)
TYPE OF JOINTS: ½" PREFORMED EXPANSION JOINT FILLER
ALIGNMENT: TANGENT

PROPOSED STRUCTURE

TYPE: NO CHANGE FROM EXISTING
SPAN: NO CHANGE FROM EXISTING
LOAD FREQUENCY RATING: NO CHANGE FROM EXISTING
ROADWAY: NO CHANGE FROM THE EXISTING
SKEW: NO CHANGE FROM THE EXISTING
WEARING SURFACE: 3¾" MICRO SILICA MODIFIED CONCRETE OVERLAY
APPROACH SLABS: NO CHANGE FROM EXISTING
TYPE OF JOINTS: POLYMER MODIFIED EXPANSION JOINT SYSTEM
ALIGNMENT: NO CHANGE FROM EXISTING

DESIGN AGENCY: DISTRICT SIX PRODUCTION
DESIGNED: LS | DRAWN: LS | REVIEWED: KF | DATE: 02.07.05
CHECKED: DP | REVISED: | STRUCTURE FILE NUMBER: 250/1929, 250/1953

PLAN VIEW
BRIDGE NO. FRA-33-2503L & R)
OVER WALNUT CREEK OVERFLOW

FRA-33-20.69
PID 24653

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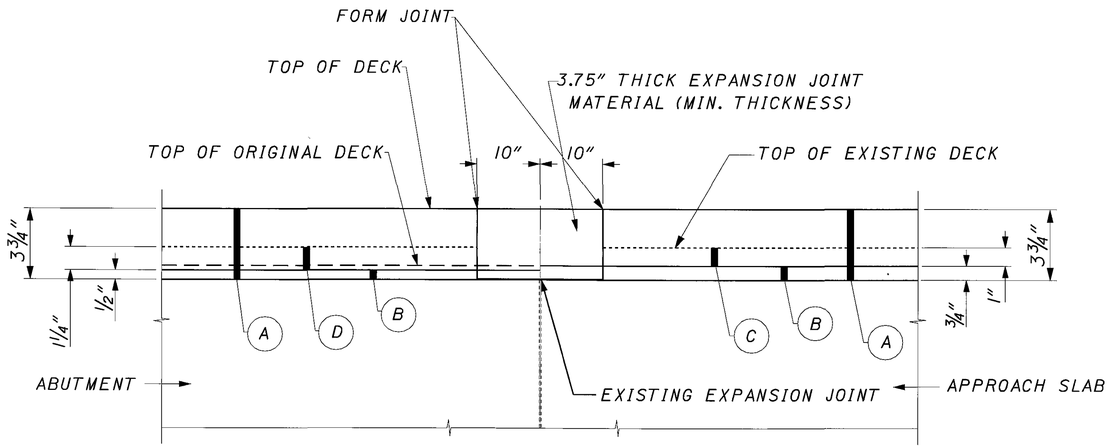

SECTION A-A

POLYMER MODIFIED ASPHALT EXPANSION JOINT DETAIL

(See Structure Notes For Additional Details)

(A) ITEM 848: MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION (3¾"), AS PER PLAN

(B) ITEM 848: SURFACE PREPARATION USING HYDRODEMOLITION, AS PER PLAN

(C) ITEM 848: WEARING COURSE REMOVED, ASPHALT

(D) ITEM 848: EXISTING CONCRETE OVERLAY REMOVED (1¼"), AS PER PLAN

ITEM	ITEM EXT.	UNIT	DESCRIPTION	FRA-33-25.03L			FRA-33-25.03R		
				APPR. SLAB	DECK	TOTAL	APPR. SLAB	DECK	TOTAL
SPECIAL	51631300	FT	POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM		100.0	100.0		94.0	94.0
SPECIAL	51822300	FT	STEEL DRIP STRIP		215	215		215	215
519	11100	SQ FT	PATCHING CONCRETE STRUCTURE		49	49		49	49
841	10000	SQ YD	TREATING OF CONCRETE SURFACES WITH SRS	133	514	647	133	484	617
848	10001	SQ YD	MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION (3 3/4"), AS PER PLAN	133	514	647	133	484	617
848	20001	SQ YD	SURFACE PREPARATION USING HYDRODEMOLITION, AS PER PLAN	133	514	647	133	484	617
848	30001	CU YD	MICRO SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN		3	3		3	3
848	50200	CU YD	FULL-DEPTH REPAIR		23	23		21	21
848	50300	SQ YD	WEARING COURSE REMOVED, ASPHALT	133		133	133		133
848	50321	SQ YD	EXISTING CONCRETE OVERLAY REMOVED (1 1/4"), AS PER PLAN		514	514		484	484
TOTALS FOR EACH STRUCTURE CARRIED TO THE ESTIMATED QUANTITIES SHEET 3/11									

DESIGN AGENCY: DISTRICT SIX PRODUCTION

DESIGNED	DRAWN	REVIEWED	DATE
LS	LS	KF	02.07.05
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DP		250/1929, 250/1953	

SUB-SUMMARIES
BRIDGE NO. FRA-33-2503L & R)
OVER WALNUT CREEK OVERFLOW

FRA-33-20.69
PID 24653

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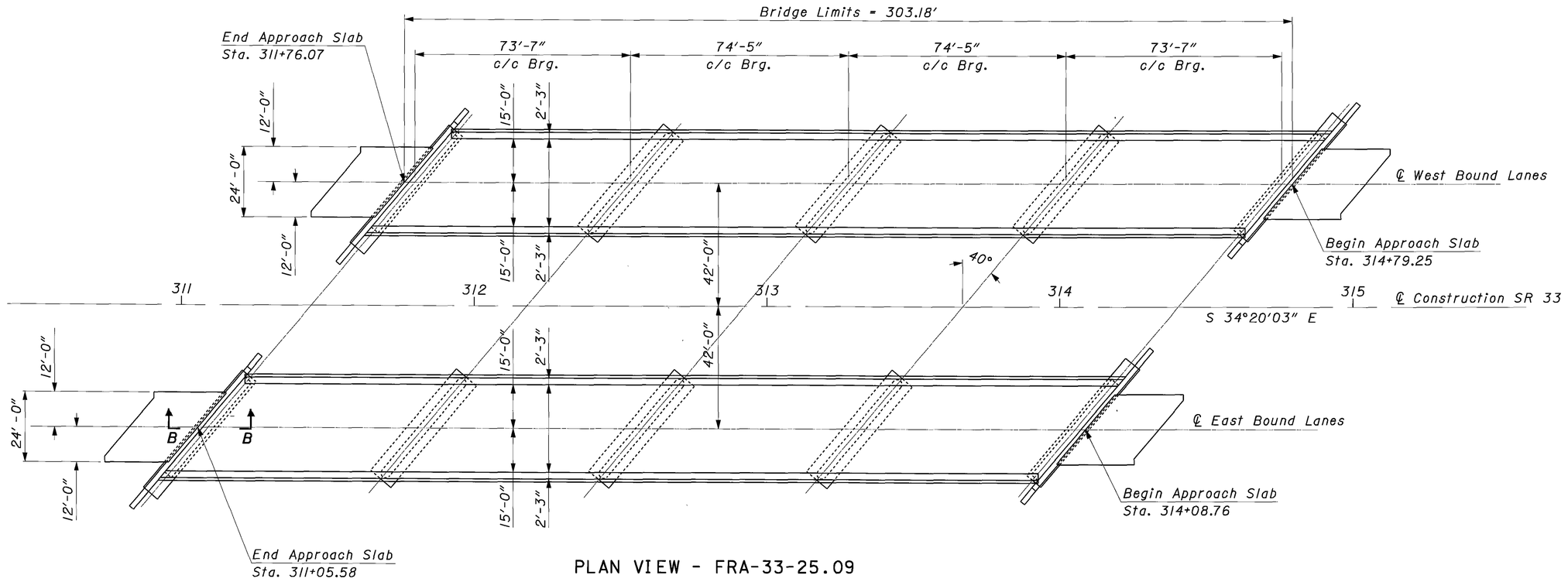

PLAN VIEW - FRA-33-25.09

INDEX OF STRUCTURAL WORK ITEMS

1. DECK/BACKWALL: REMOVE 1¼" LATEX MODIFIED CONCRETE OVERLAY BY MILLING. REMOVE ADDITIONAL ½" BY HYDRO-DEMOLITION METHOD. REPLACE WITH MICRO SILICA CONCRETE OVERLAY AT A DEPTH OF 1¾".
   5% VARIABLE DEPTH AND 5% FULL DEPTH - FRA-33-25.09L.
   5% VARIABLE DEPTH AND 5% FULL DEPTH - FRA-33-25.09R.

2. APPROACH SLABS: REMOVE 1" WEARING COURSE BY MILLING. REMOVE ADDITIONAL ¾" BY HYDRO-DEMOLITION METHOD. REPLACE WITH MICRO SILICA CONCRETE OVERLAY AT A DEPTH OF 1¾".

3. INSTALL STEEL DRIP STRIP (BOTH SIDES)

4. PATCH DECK EDGES (20% OF TOTAL LENGTH).

EXISTING STRUCTURE

TYPE: PRESTRESSED CONCRETE I-BEAMS, WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
SPANS: 73'-7", 74'-5", 74'-5" AND 73'-7" C/C BRGS.
LOADING: S20-60
ROADWAY: NORTH AND SOUTH BRIDGE 30'-0" F/F OF 2'-3" SAFETY CURBS
SKEW: 40°L.F.
WEARING SURFACE: 1¼" LATEX MODIFIED CONCRETE OVERLAY
APPROACH SLAB: AS-1-54 (25' LONG)
TYPE OF JOINTS: STEEL SLIDING PLATE
ALIGNMENT: TANGENT

PROPOSED STRUCTURE

TYPE: NO CHANGE FROM EXISTING
SPAN: NO CHANGE FROM EXISTING
LOAD FREQUENCY RATING: NO CHANGE FROM EXISTING
ROADWAY: NO CHANGE FROM THE EXISTING
SKEW: NO CHANGE FROM THE EXISTING
WEARING SURFACE: 1¾" MICRO SILICA MODIFIED CONCRETE OVERLAY
APPROACH SLABS: NO CHANGE FROM EXISTING
TYPE OF JOINTS: NO CHANGE FROM EXISTING
ALIGNMENT: NO CHANGE FROM EXISTING

DESIGN AGENCY
DISTRICT SIX PRODUCTION

DESIGNED	DRAWN	REVIEWED	DATE
LS	LS	KF	02-07-05
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DP		2501988, 2502011	

PLAN VIEW
BRIDGE NO. FRA-33-2509(L & R)
OVER BIG WALNUT CREEK

FRA-33-20.69
PID 24653

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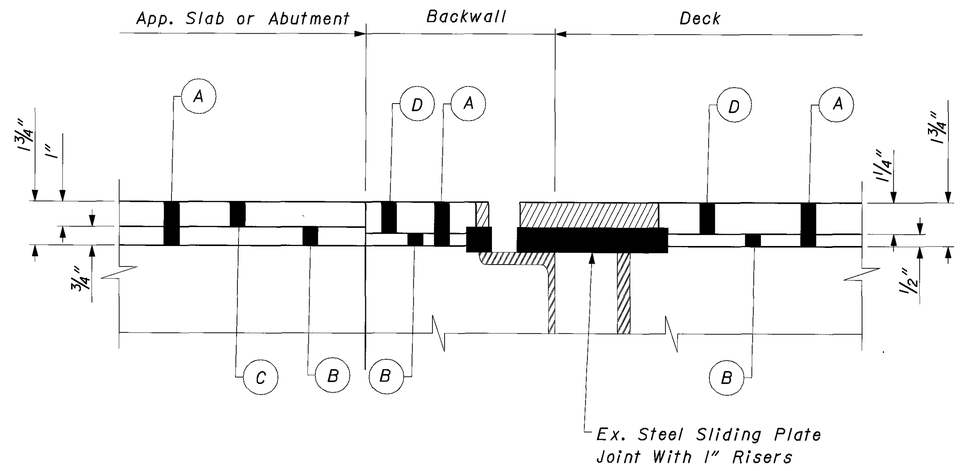

SECTION B-B
JOINT DETAIL

LEGEND:

(A) ITEM 848: MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION (1¾"), AS PER PLAN

(B) ITEM 848: SURFACE PREPARATION USING HYDRODEMOLITION, AS PER PLAN

(C) ITEM 848: WEARING COURSE REMOVED, ASPHALT

(D) ITEM 848: EXISTING CONCRETE OVERLAY REMOVED (1¼"), AS PER PLAN

ITEM	ITEM EXT.	UNIT	DESCRIPTION	FRA-33-25.09L			FRA-33-25.09R		
				APPR. SLAB	DECK	TOTAL	APPR. SLAB	DECK	TOTAL
SPECIAL	51822300	FT	STEEL DRIP STRIP		704	704		704	704
519	11100	SQ FT	PATCHING CONCRETE STRUCTURE		88	88		88	88
841	10000	SQ YD	TREATING OF CONCRETE SURFACES WITH SRS	125	1000	1125	125	1000	1125
848	10001	SQ YD	MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION (1 3/4"), AS PER PLAN	125	1000	1125	125	1000	1125
848	20001	SQ YD	SURFACE PREPARATION USING HYDRODEMOLITION, AS PER PLAN	125	1000	1125	125	1000	1125
848	30001	CU YD	MICRO SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY, AS PER PLAN		3	3		3	3
848	50200	CU YD	FULL-DEPTH REPAIR		12	12		12	12
848	50300	SQ YD	WEARING COURSE REMOVED, ASPHALT	125		125	125		125
848	50321	SQ YD	EXISTING CONCRETE OVERLAY REMOVED (1 1/4"), AS PER PLAN		1000	1000		1000	1000
TOTALS FOR EACH STRUCTURE CARRIED TO THE ESTIMATED QUANTITIES SHEET 3/11									

DESIGN AGENCY: DISTRICT SIX PRODUCTION
DESIGNED LS | DRAWN LS | REVIEWED KF | DATE 02.07.05
CHECKED DP | REVISED | STRUCTURE FILE NUMBER 2501988, 2502011

SUB-SUMMARIES
BRIDGE NO. FRA-33-2509(L & R)
OVER BIG WALNUT CREEK

FRA-33-20.69
PID 24653

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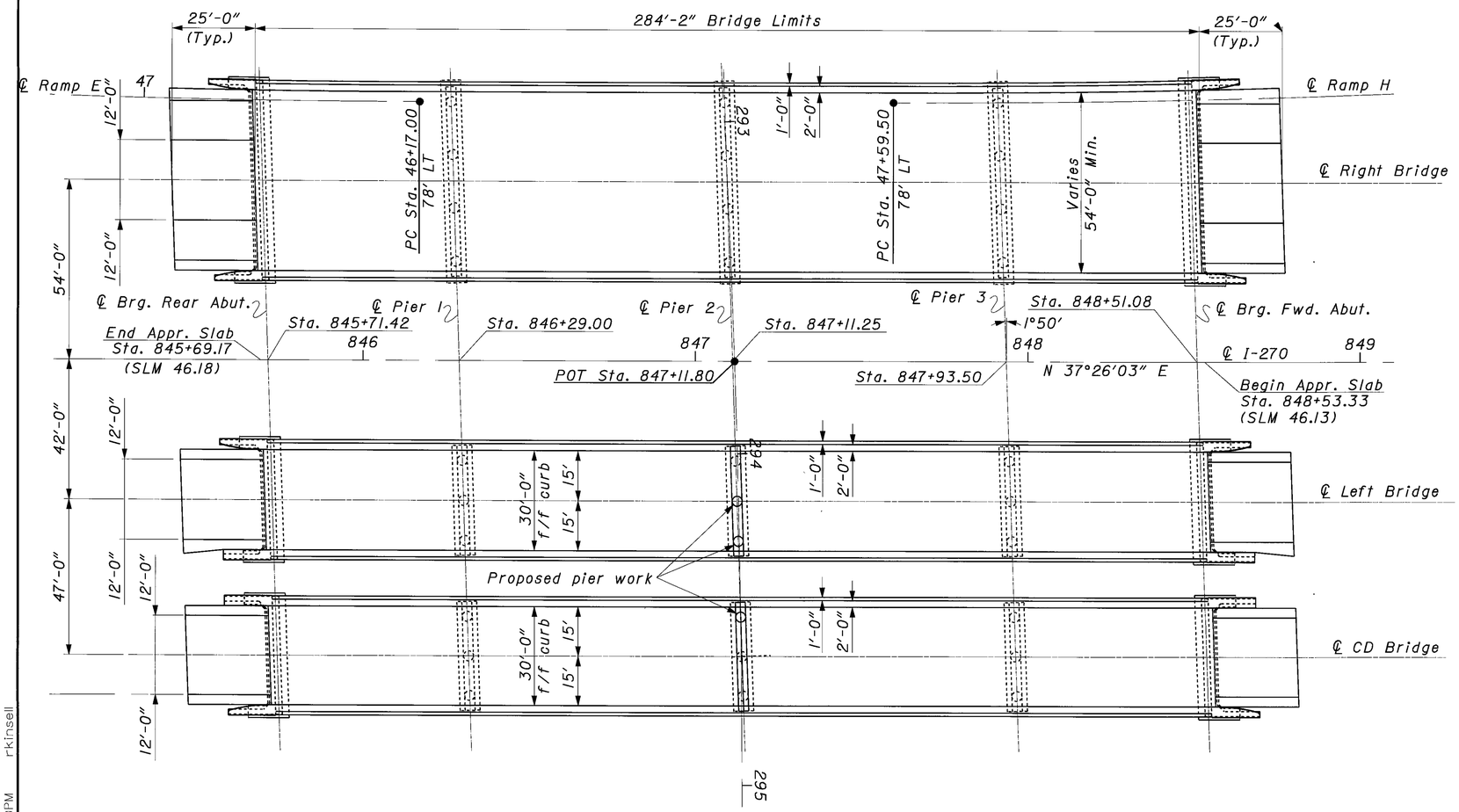

PLAN VIEW - FRA-270-46.13(L, R & A)

INDEX OF STRUCTURAL WORK ITEMS

1. Paint structural steel using OZEU, color to be federal # 15526 (blue) for FRA-270-46.13L, FRA-270-46.13A. and FRA-270-46.13R.
2. Seal all substructure concrete using epoxy urethane, color to be federal # 17778 (lt. neutral).
3. Fiber wrap northern-most column of Pier 2 for FRA-270-46.13A.
4. Fiber wrap southern-most (2) columns of Pier 2 for FRA-270-46.13L.
5. Patch concrete surface on Pier 2 columns and cap. Estimated: 40 s.f.-FRA-270-46.13L and 25 s.f.-FRA-270-46.13A.
6. Replace damaged crossframes. Estimated: 10%-FRA-270-46.13L and 10%-FRA-270-46.13A.

ITEM	ITEM EXT.	UNIT	DESCRIPTION	4613L	4613R	4613A
513	90000	POUND	STRUCTURAL STEEL, MISC.: REPLACEMENT OF DETERIORATED CROSSFRAMES	2059		1144
514	00050	SQ FT	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL	15415	25093	15415
514	00056	SQ FT	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT	15415	25093	15415
514	00060	SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT	15415	25093	15415
514	00066	SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT	15415	25093	15415
514	10000	EACH	FINAL INSPECTION REPAIR	13	23	13
519	11100	SQ FT	PATCHING CONCRETE STRUCTURE	30		10
SPECIAL	51911600	SQ FT	PATCHING CONCRETE STRUCTURE, MISC.: PATCHING AND WRAPPING PIER COLUMNS	246		116
864	10100	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	954	1114	947
TOTALS CARRIED TO THE GENERAL SUMMARY SHEET 3/9						

Curve Data for Ramp E

P.I. Station	46+92.22 N
Delta	2° 15′ 22.68″ (RT)
Degree	1° 30′ 00.00″
Tangent	75.2197
Length	150.4200
Radius	3,819.7186
External	0.7406
Long Chord	150.4103
Mid. Ord.	0.7404
S.E.	0.000
P.C. Station	46+17.00 N
P.T. Station	47+67.42 N
Back	S 37° 26′ 03.00″ W
Ahead	S 39° 41′ 25.68″ W
Chord Bear	S 38° 33′ 44.34″ W

Curve Data for Ramp H

P.I. Station	48+32.05 N
Delta	2° 10′ 34.32″ (LT)
Degree	1° 30′ 00.00″
Tangent	72.5487
Length	145.0800
Radius	3,819.7186
External	0.6889
Long Chord	145.0713
Mid. Ord.	0.6888
S.E.	0.000
P.C. Station	47+59.50 N
P.T. Station	49+04.58 N
Back	S 37° 26′ 03.00″ E
Ahead	S 35° 15′ 22.68″ E
Chord Bear	S 36° 20′ 45.84″ E

EXISTING STRUCTURE

TYPE: 4 SPAN CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK & SUBSTRUCTURE
SPANS: 57′-7″, 82′-3″, 82′-3″, 57′-7″ C/C BRGS.
ROADWAY: RIGHT-VARIABLE, LEFT-30′-0″ f/f OF 2′-0″ SAFETY CURB, C-D ROAD - 30′-0″ f/f OF 2′-0″ SAFETY CURB
LOAD FREQUENCY: CF=2000(57)
SKEW: 1°50′ RT. FWD
WEARING SURFACE: 1¼″ LATEX MODIFIED CONCRETE OVERLAY
APPROACH SLAB: AS-1-54 (25′ LONG)
ALIGNMENT: I-270, TANGENT US 33, 1°28′ CURVE TO RT.

PROPOSED STRUCTURE

TYPE: NO CHANGE FROM EXISTING
SPANS: NO CHANGE FROM EXISTING
ROADWAY: NO CHANGE FROM EXISTING
LOAD FREQUENCY: NO CHANGE FROM EXISTING
SKEW: NO CHANGE FROM EXISTING
WEARING SURFACE: 1 1/4 " LATEX MODIFIED CONCRETE OVERLAY
APPROACH SLAB: NO CHANGE FROM EXISTING
ALIGNMENT: NO CHANGE FROM EXISTING

DESIGN AGENCY: DISTRICT SIX PRODUCTION
DESIGNED LS | DRAWN LS | REVIEWED KF | DATE 02.07.05
CHECKED DP | REVISED | STRUCTURE FILE NUMBER 25414B, 25414S3, 25414D9

PLAN VIEW AND SUB-SUMMARIES
BRIDGE NO. FRA-270-46.13(L, R & A) UNDER I-270

FRA-33-20.69
PID 24653

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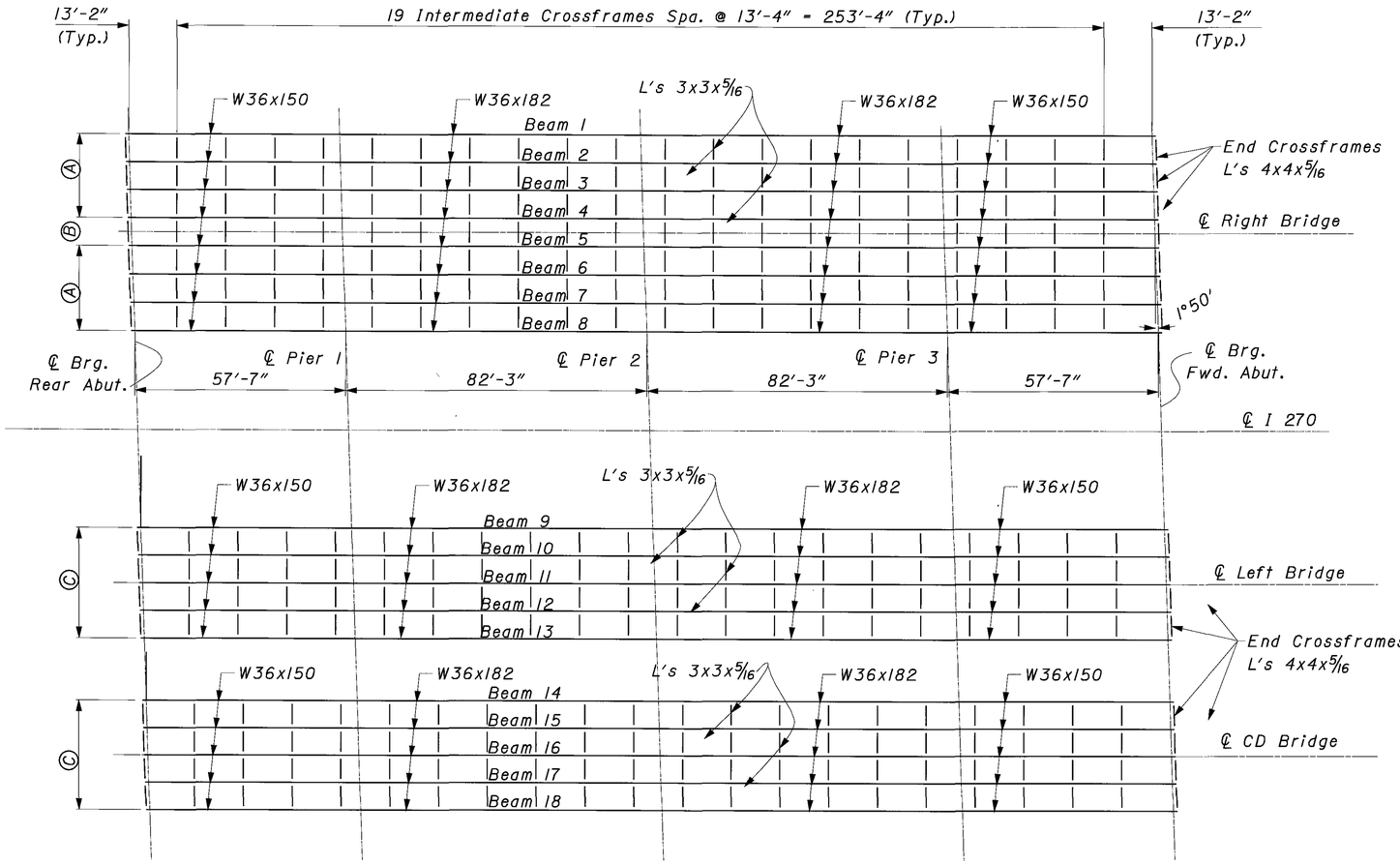
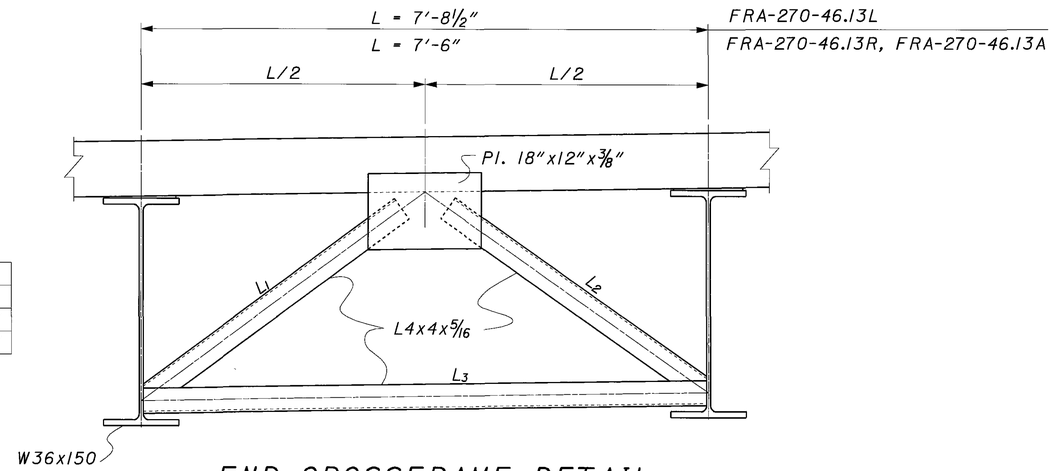
Ⓐ 3 Spa. @ 7′-8 9/16″ = 23′-1 11/16″
Ⓑ 7′-8 9/16″
Ⓒ 4 Spa. @ 7′-6 1/16″ = 30′-0 1/4″



FRAMING PLAN
FRA-270-46.13L, FRA-270-46.13R, FRA-270-46.13A

	L_1	L_2	L_3
FRA-270-46.13L	4.73′	4.66′	7.71′
FRA-270-46.13R	4.65′	4.58′	7.50′
FRA-270-46.13A	4.65′	4.58′	7.50′



END CROSSFRAME DETAIL

DESIGN AGENCY
DISTRICT SIX PRODUCTION

DESIGNED	DRAWN	REVIEWED	DATE
LS	LS	KF	02.07.05
CHECKED	REVISED	STRUCTURE FILE NUMBER 25141133, 25141134, 25141135	
DP			

SUPERSTRUCTURE DETAILS
BRIDGE NO. FRA-270-46.13L, R & A)
UNDER I-270

FRA-33-20.69
PID 24653

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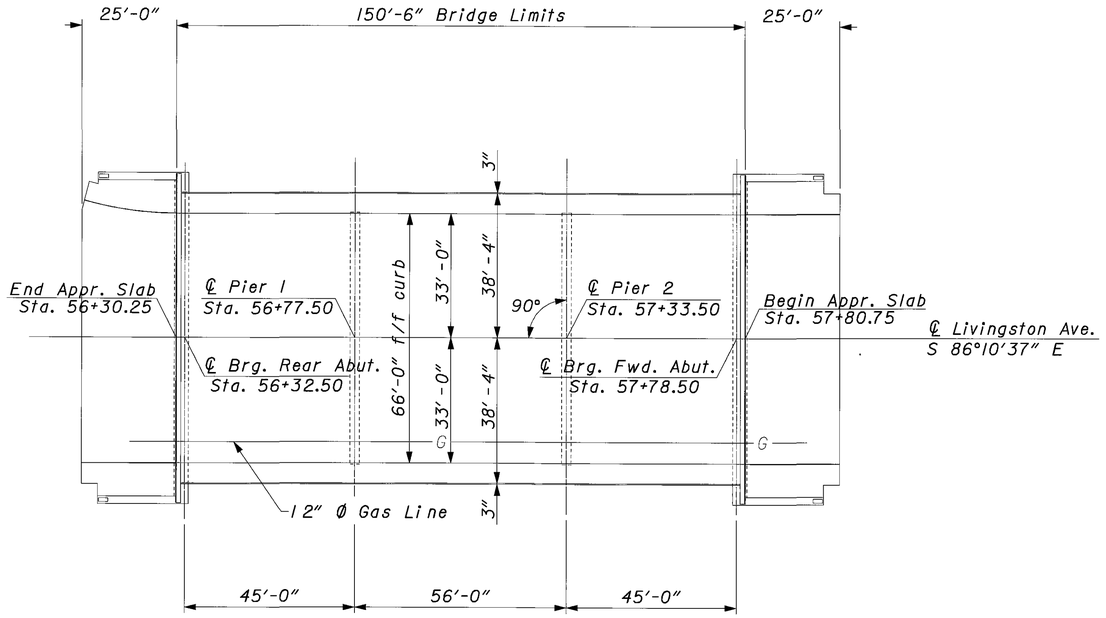

PLAN VIEW - FRA-33-20.40

INDEX OF STRUCTURAL WORK ITEMS

1. Paint structural steel (including utilities lines) using OZEU, color to be federal # 10324 (dark neutral).
2. Clean and paint all bearings in place.
3. Paint sidewalks and all railings (including the short railing off the ends of the bridge) using OZEU, color to be federal # 10324 (dark neutral).
4. Remove wood forms under the north sidewalks.

ITEM 514: FINAL INSPECTION REPAIR (EACH)
Beam length 2072'/150' = 14 Each
Number of crossframes 156X5% = 8 Each
Sidewalk area - 2 Each
Total: 24 Each

ITEM	ITEM EXT.	UNIT	DESCRIPTION	FRA-33- 2040
202	11201	LUMP	PORTIONS OF STRUCTURE REMOVED, AS PER PLAN	LUMP
514	00050	SQ FT	SURFACE PREPARATION OF EXISTING STRUCTURAL STEEL	23740
514	00056	SQ FT	FIELD PAINTING OF EXISTING STRUCTURAL STEEL, PRIME COAT	23740
514	00060	SQ FT	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT	23740
514	00066	SQ FT	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT	23740
TOTALS CARRIED TO THE ESTIMATED QUANTITIES SHEET 3/11				

EXISTING STRUCTURE

TYPE: CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK & SUBSTRUCTURE
SPANS: 45'-0", 56'-0", 45'-0" C/C BRGS.
ROADWAY: 66'-0" f/f OF 5'-1" STEEL SIDEWALKS WITH 6" STEEL POSTS AN METAL RAILING.
LOAD FREQUENCY: CF 2000
SKEW: NONE
WEARING SURFACE: 1" MONOLITHIC CONCRETE
APPROACH SLAB: 25' LONG
ALIGNMENT: TANGENT

PROPOSED STRUCTURE

TYPE: NO CHANGE FROM EXISTING
SPANS: NO CHANGE FROM EXISTING
ROADWAY: NO CHANGE FROM EXISTING
LOAD FREQUENCY: NO CHANGE FROM EXISTING
SKEW: NO CHANGE FROM EXISTING
WEARING SURFACE: NO CHANGE FROM EXISTING
APPROACH SLAB: NO CHANGE FROM EXISTING
ALIGNMENT: NO CHANGE FROM EXISTING

DESIGN AGENCY: DISTRICT SIX PRODUCTION
REVIEWED: KF
DATE: 02.07.05
STRUCTURE FILE NUMBER: 2501635
DRAWN: LS
REVISED:
DESIGNED: LS
CHECKED: DP

PLAN VIEW AND SUB-SUMMARIES
BRIDGE NO. FRA-33-20.40
OVER ALUM CREEK

FRA-33-20.69
PID 24653

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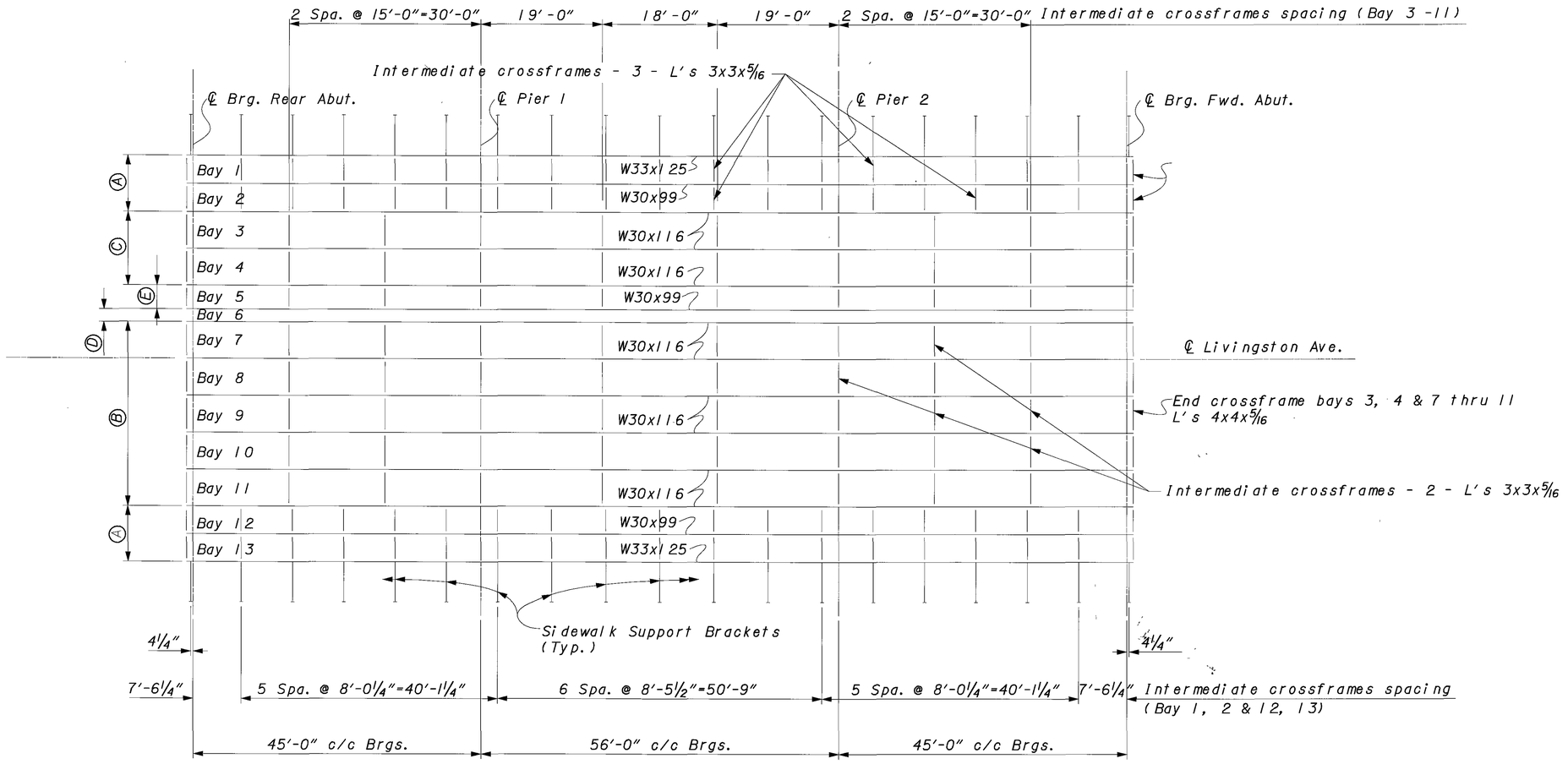
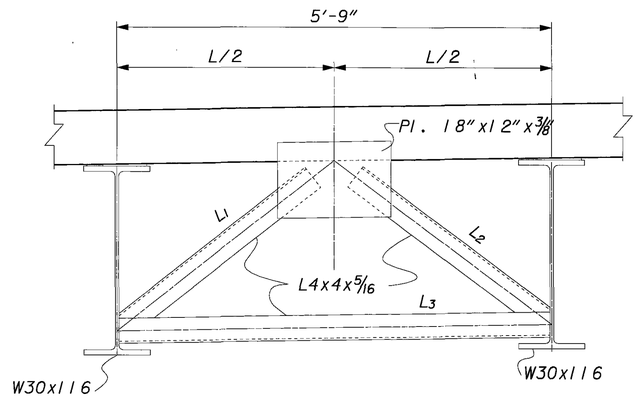
Ⓐ 2 Spa. @ 4′-4¾″ = 8′-9½″
Ⓑ 5 Spa. @ 5′-9″ = 28′-9″
Ⓒ 2 Spa. @ 5′-9″ = 11′-6″
Ⓓ 2′-0″
Ⓔ 3′-9″



FRAMING PLAN



End crossframe bays 3, 4 & 7 thru 11	L_1	L_2	L_3
	3.29′	3.25′	5.75′

END CROSSFRAME DETAIL

DESIGN AGENCY
DISTRICT SIX PRODUCTION

DESIGNED	DRAWN	REVIEWED	DATE
LS	LS	KF	02.07.05
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DP		2501635	

SUPERSTRUCTURE DETAILS
BRIDGE NO. FRA-33-2040
OVER ALUM CREEK

FRA-33-20.69
PID 24653

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