I-8

J-2

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	H.I.F.	1950

1/21

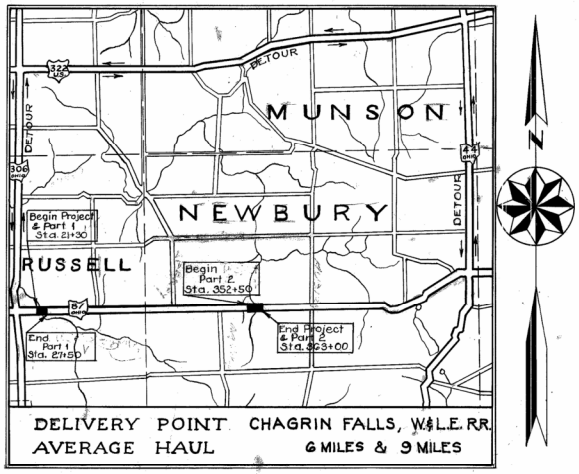
GEA-87-(3.16)-(6.78)
GEAUGA COUNTY

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
GEA-87-(3.16)-(6.78)
GEAUGA COUNTY
RUSSELL & NEWBURY TOWNSHIPS

CONVENTIONAL SIGNS

Township Line
Property Line
Railroad

INDEX OF SHEETS



LOCATION PLAN

PORTION TO BE IMPROVED
STATE HIGHWAY
OTHER ROADS
DETOUR

LINE DATA

PART 1

Begin Project And Part 1	Sta. 21+30
End Part 1	Sta. 27+50
Total Length of Part 1	620 lin. ft. = 0.117 Miles

PART 2

Begin Part 2	Sta. 352+50
End Project And Part 2	Sta. 363+00
Total Length of Part 2	1050 lin. ft. = 0.198 Miles
Total Length of Project	1670 lin. ft. = 0.316 Miles

SCALE

PLAN	1" = 50'
PROFILE-HOR.	1" = 50'
PROFILE-VER.	1" = 10'

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

I hereby approve these plans and declare that the making of this improvement will require the closing of the highway to traffic and that detours will be provided as indicated on the plans.

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

Approved Louis E. Brasler
Date 12/5/49 Division Deputy Director

Approved
Date Chief Engineer, Bureau of Maintenance

Approved Richard Orth
Date 2-18-52 Chief Engineer, Bureau of Bridges & R.R Crossings

Approved
Date 1-20-50 Chief Engineer, Bureau of Location & Design

Approved
Date 1-30-52 First Ass't. Director & Chief Engineer

Approved
Date 1-30-52 Director of Highways

STANDARD DRAWINGS

CS-1-47	1-20-48	LBC-49 Sh. 1&2	9-18-47
A-1-49	7-27-49	L-2	10-1-45
P-1-49	7-27-49	L-3	2-1-47
I-15 No. 1	3-1-47	S-27 B.C. 3	2-20-45
I-15 No. 2	6-17-49	S-1, 2, 3, 4 & 5	2-20-45
G-8.07	2-1-47		

SUPPLEMENTAL SPECIFICATIONS

31	6-13-49		

File No.	Geauga County Gea-87-(3.16)-(6.78) Sec. Russell & Newbury Townships Date of Letting _____ 194__ Contract No. _____

CONSTRUCTION BUREAU
APR 4 1956
GROUND PHOTOLAB

994

TITLE SHEET

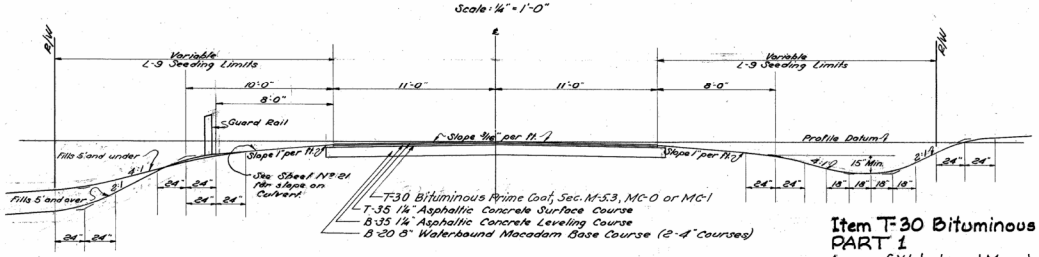
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO	H.I.F.	1949

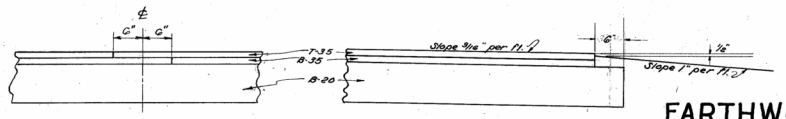
2/21

GEA-87-(3.16)-(6.78)
GEAUGA COUNTY

PART 2 TYPICAL SECTION TYPE T-35

Scale: ¼" = 1'-0"





METHOD OF LAPPING LONGITUDINAL JOINTS

PAVEMENT EDGE DETAIL

Item T-30 Bituminous Prime Coat

PART 1
Area of Waterbound Macadam = 915 Sq.Yd.
915 x .35 = 320 Gal.

PART 2
Area of Waterbound Macadam = 2639 Sq.Yd.
2639 x .35 = 924 Gal.

EARTHWORK QUANTITIES

PART 1

	Excavation	Embankment +22%	Borrow
Roadway Excavation Sta 21+30 to Sta 23+07.75	713 Cu.Yds.	228 Cu.Yds.	
Roadway Excavation Sta 24+13.27 to Sta 27+50	144 Cu.Yds.	1366 Cu.Yds.	
Private Driveways		5 Cu.Yds.	
Total	857 Cu.Yds.	1599 Cu.Yds.	742 Cu.Yds.

PART 2

Roadway Excavation Sta 352+50 to Sta 358+88	2552 Cu.Yds.	3041 Cu.Yds.	
Roadway Excavation Sta 358+88 to Sta 359+02		18 Cu.Yds.	
Roadway Excavation Sta 359+02 to Sta 363+00	621 Cu.Yds.	3027 Cu.Yds.	
Private Driveways		31 Cu.Yds.	
Concrete Steps at Sta. 356+85	2 Cu.Yds.	2 Cu.Yds.	
Total	3175 Cu.Yds.	6119 Cu.Yds.	2944 Cu.Yds.

PAVEMENT CALCULATIONS

PART 1

ITEM B-20 WATERBOUND MACADAM BASE COURSE

Sta. 22+30 to Sta 23+07.75 = (77.75 x 23) ÷ 9 =	198.69	Sq. Yds.
Sta. 24+13.25 to Sta 26+50 = (236.75 x 23) ÷ 9 =	605.03	Sq. Yds.
Extra Area = 1000 ÷ 9 =	111.11	Sq. Yds.
Total =	914.83	Sq. Yds. Use 915 Sq. Yds.

ITEM T-35 ASPHALTIC CONCRETE SURFACE COURSE

Sta. 22+30 to Sta. 23+07.75 = (77.75 x 22) ÷ 9 =	190.06	Sq. Yds.
Sta. 24+13.25 to Sta 26+50 = (236.75 x 22) ÷ 9 =	578.72	Sq. Yds.
Extra Area = 4000 ÷ 9 =	444.44	Sq. Yds.
Total =	1213.72	Sq. Yds.

1213.72 x 1.25 ÷ 36 = 42.14 Cu.Yds. Use 42 Cu.Yds.

ITEM B-35 ASPHALTIC CONCRETE LEVELING COURSE

1213.72 x 1.50 ÷ 36 = 50.57 Cu.Yds. Use 51 Cu.Yds.

PART 2

ITEM B-20 WATERBOUND MACADAM BASE COURSE

Sta. 353+50 to Sta 362+00 = (850 x 23) ÷ 9 =	2172.22	Sq. Yds.
Extra Area = 4200 ÷ 9 =	466.67	Sq. Yds.
Total =	2638.89	Sq. Yds. Use 2639 Sq Yds.

ITEM B-35 ASPHALTIC CONCRETE LEVELING COURSE

Sta. 353+50 to Sta 362+00 = (850 x 22) ÷ 9 =	2077.78	Sq. Yds.
Extra Area = 4000 ÷ 9 =	444.44	Sq. Yds.
Total =	2522.22	Sq. Yds.

2522.22 x* 1.50 ÷ 36 = 105.09 Cu. Yds. Use 105 Cu. Yds.

ITEM T-35 ASPHALTIC CONCRETE SURFACE COURSE

2522.22 x 1.25 ÷ 36 = 87.58 Cu.Yds. Use 88 Cu. Yds.

GENERAL NOTES

Item L-9 Seeding and Protecting Areas, Type "A"

Seeding quantities are calculated for all areas within the Right-of-Way Lines. All areas disturbed outside these limits are to be seeded at the contractors own expense and as specified. The grass seed mixture shall be composed of the following mixture for all areas:

60% Kentucky 31 Fescue
15% Perrennial Rye Grass
15% Alsike Clover
10% Hairy Vetch

Seed shall be sown at the rate of 4 pounds per 1000 sq. ft. All legumes shall be inoculated.

Item L-9 Commercial Fertilizer (10-6-4)

Commercial Fertilizer shall be applied at the rate of 20 pounds per 1000 sq. ft. and incorporated into the soil to a depth of not less than one inch.

Commercial Fertilizer shall be applied to all areas to be seeded or sodded.

Trees

Cost of removal and disposal of approximately 3 trees 12" or more in diameter shall be included in unit price bid for "Item E-1 Roadway Excavation" Trees are shown on the plans for the benefit of the contractor only, and the State of Ohio does not guarantee the accuracy hereof.

Item E-3 Channel Excavation

Channel Excavation shall be used to fill existing channel as indicated on plans. Balance of suitable material to be used in lieu of Borrow.

Item S-24 Removal of Existing Structures

This Item consists of removal and disposal of Bridge No GE-87-68A and existing 12" V.S.P. and Headwalls at Sta. 354+98 and existing concrete Steps at Sta. 356+85 as specified.

* ¼ of the 1½" thickness used in the calculations shall be considered as extra leveling material to fill the voids and irregularities in the waterbound macadam.

Seeding and Protecting (Continued) — Optional Method of Holding Mulch in Place: *The method of tying down the mulching material as shown on Standard Drawing L-3 may be replaced over suitable areas, as directed, by the use of an approved power driven rotary type mixing machine to incorporate the mulching material with the soil. Any area not treated with the machine shall have the mulching material secured by the usual method shown in the Standard Drawing.*

PART 2

Item E-2 Excavation for Structures

Bridge No GE-87-68A	58 Cu.Yds.
Roadway Culvert at Sta. 354+98	25 Cu.Yds.
Total	83 Cu.Yds.

Item E-11 Water

PART 1
1311 Cu.Yds. Embankment @ 5 Gals = 6555 Gals.

PART 2
5015 Cu.Yds. Embankment @ 5 Gals = 25075 Gals.

PART 1 ITEM L-10 Sodding

South Side Ditch
Sta. 23+00 to Sta. 23+32 = 32 lin. ft.
32 x 5/9 = 18 Sq.Yds.

North Side Ditch
Sta. 22+50 to Sta. 23+00 = 50 lin. ft.
50 x 5/9 = 28 Sq.Yds.
Total = 46 Sq.Yds.

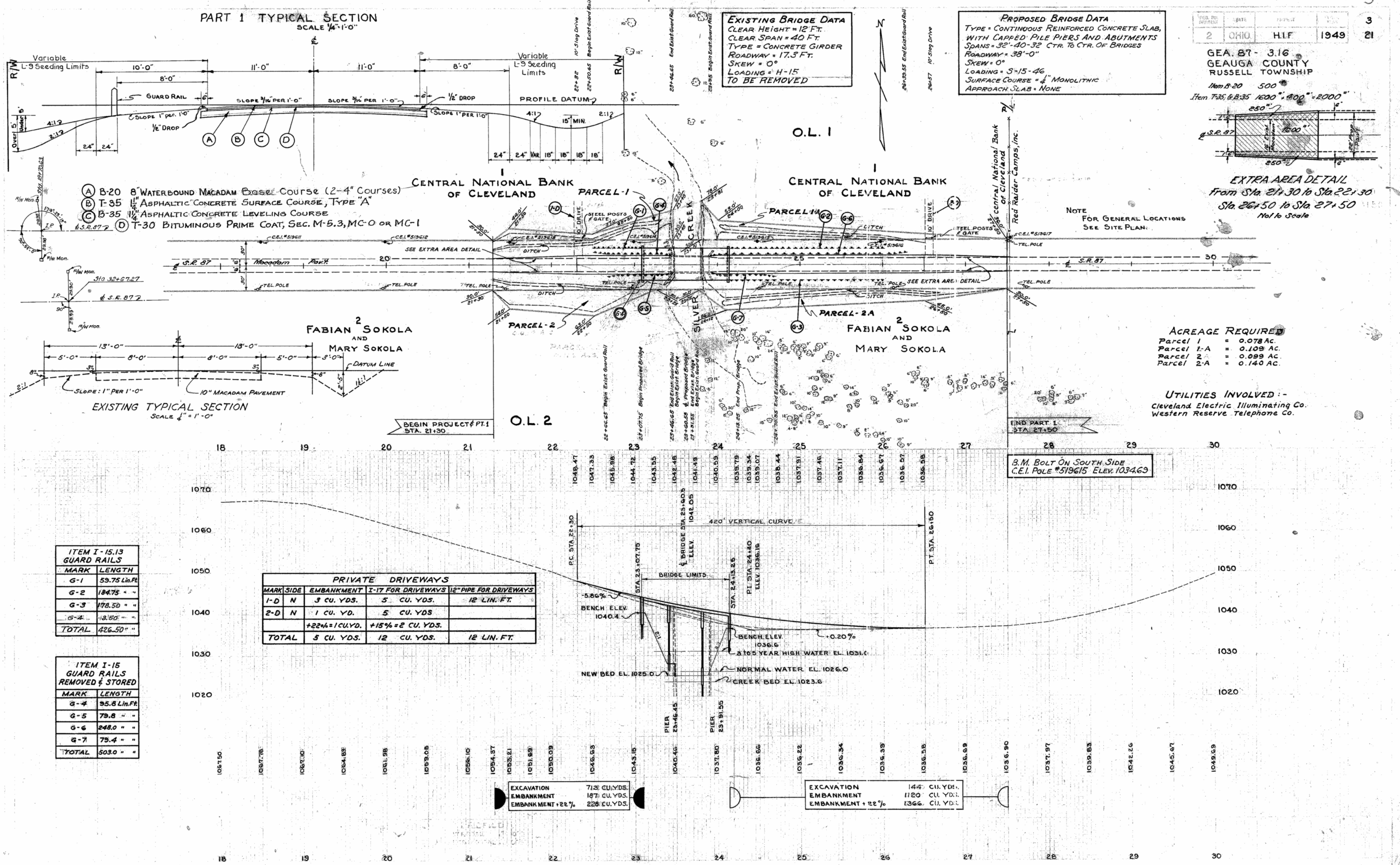
GENERAL SUMMARY

ITEM	PART 1	PART 2	TOTAL	UNIT	DESCRIPTION
E-1	857	3175	4032	Cu.Yds.	Roadway Excavation
E-4	742	2936	3678	Cu.Yds.	Borrow
E-11	7	25	32	M.Gals.	Water
B-20	915	2639	3554	Sq.Yds.	8" Waterbound Macadam Base Course (2-4" Courses)
B-35	51	105	156	Cu.Yds.	Asphaltic Concrete Leveling Course (70-80)
T-30	320	924	1244	Gals.	Bituminous Prime Coat, Sec. M-5.3, MC-0 or MC-1
T-35	42	88	130	Cu.Yds.	Asphaltic Concrete Surface Course, Type "A" (70-80)
I-1	12	66	78	Lin. Ft.	12" Pipe for Driveways
I-17	12	31	43	Cu. Yds.	Side Approaches, Mail Box Turnouts and Berm Material
I-15	503	266	769	Lin. Ft.	Guard Rail Removed and Stored
I-153	426.5	700	1126.5	Lin. Ft.	Guard Rail, Steel Beam, Type (Deep) as per plan
L-9	4773	9718	14491	Sq.Yds.	Seeding and Protecting, Type "A" as per plan
L-9	0.43	0.87	1.30	Tons	Commercial Fertilizer (10-6-4)
L-10	46		46	Sq.Yds.	Sodding
E-2		83	83	Cu.Yds.	Excavation for Structures
E-3		284	284	Cu.Yds.	Channel Excavation
S-1		120	120	Cu.Yds.	Concrete for Structures (Class "C")
S-4		16488	16488	Lbs.	Reinforcing Steel
S-24		Lump	Lump	Lump	Removal of Existing Structures
S-27		76	76	Lin. Ft.	18" Pipe for Roadway Culverts
I-10		6	6	Sq.Yds.	Riprap, (Type "A")
I-13		57	57	Lin. Ft.	Concrete Steps

Structures Over 20' Span.
Estimated Quantities (Bridge No GE-87-32) See Sheet No 9.

FED. RD. DIVISION	STATE	PROJECT	YEAR	SHEET NO.	TOTAL SHEETS
2	OHIO	H.I.F.	1949	3	21

GEA. 87 - 3.16
GEAUGA COUNTY
RUSSELL TOWNSHIP



(A) B-20 8" Waterbound Macadam Base Course (2-4" Courses)
(B) T-35 1 1/2" Asphaltic Concrete Surface Course, Type "A"
(C) B-35 1 1/2" Asphaltic Concrete Leveling Course
(D) T-30 Bituminous Prime Coat, Sec. M-5.3, MC-0 or MC-1

EXISTING BRIDGE DATA
Clear Height = 12 Ft.
Clear Span = 40 Ft.
Type = Concrete Girder
Roadway = 17.3 Ft.
Skew = 0°
Loading = H-15
TO BE REMOVED

PROPOSED BRIDGE DATA
Type = Continuous Reinforced Concrete Slab, With Capped Pile Piers And Abutments
Spans = 32'-40-32 Ctr. To Ctr. Of Bridges
Roadway = 38'-0"
Skew = 0°
Loading = S-15-46
Surface Course = 1/4" Monolithic
Approach Slab = None

Item B-20 500
Item T-35, & B-35 1600 + 400 = 2000

NOTE
For General Locations See Site Plan.

ACREAGE REQUIRED

Parcel 1	= 0.078 Ac.
Parcel 1-A	= 0.109 Ac.
Parcel 2	= 0.099 Ac.
Parcel 2-A	= 0.140 Ac.

UTILITIES INVOLVED:-
Cleveland Electric Illuminating Co.
Western Reserve Telephone Co.

ITEM I-15.13 GUARD RAILS

MARK	LENGTH
G-1	59.75 Lin. Ft.
G-2	184.75 " "
G-3	178.50 " "
G-4	3.50 " "
TOTAL	426.50 " "

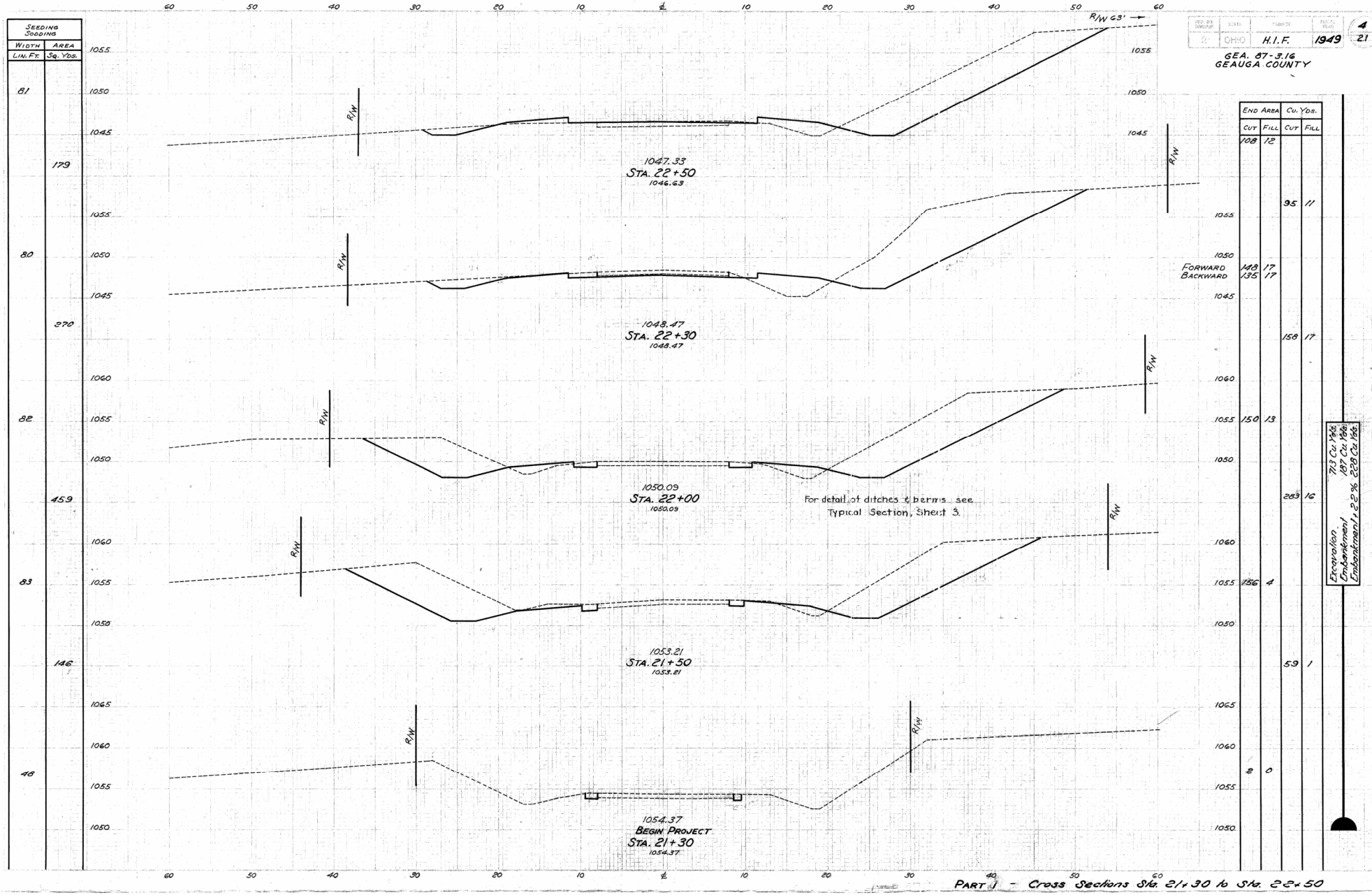
PRIVATE DRIVEWAYS

MARK	SIDE	EMBANKMENT	I-17 FOR DRIVEWAYS	12" PIPE FOR DRIVEWAYS
1-D	N	3 CU. YDS.	5 CU. YDS.	12 LIN. FT.
2-D	N	1 CU. YD.	5 CU. YDS	
		+22% = 1 CU. YD.	+15% = 2 CU. YDS.	
TOTAL		5 CU. YDS.	12 CU. YDS.	12 LIN. FT.

ITEM I-15 GUARD RAILS REMOVED & STORED

MARK	LENGTH
G-4	95.8 Lin. Ft.
G-5	79.8 " "
G-6	248.0 " "
G-7	79.4 " "
TOTAL	503.0 " "

PART 1 PLAN & PROFILE STA. 18+00 TO STA. 30+00

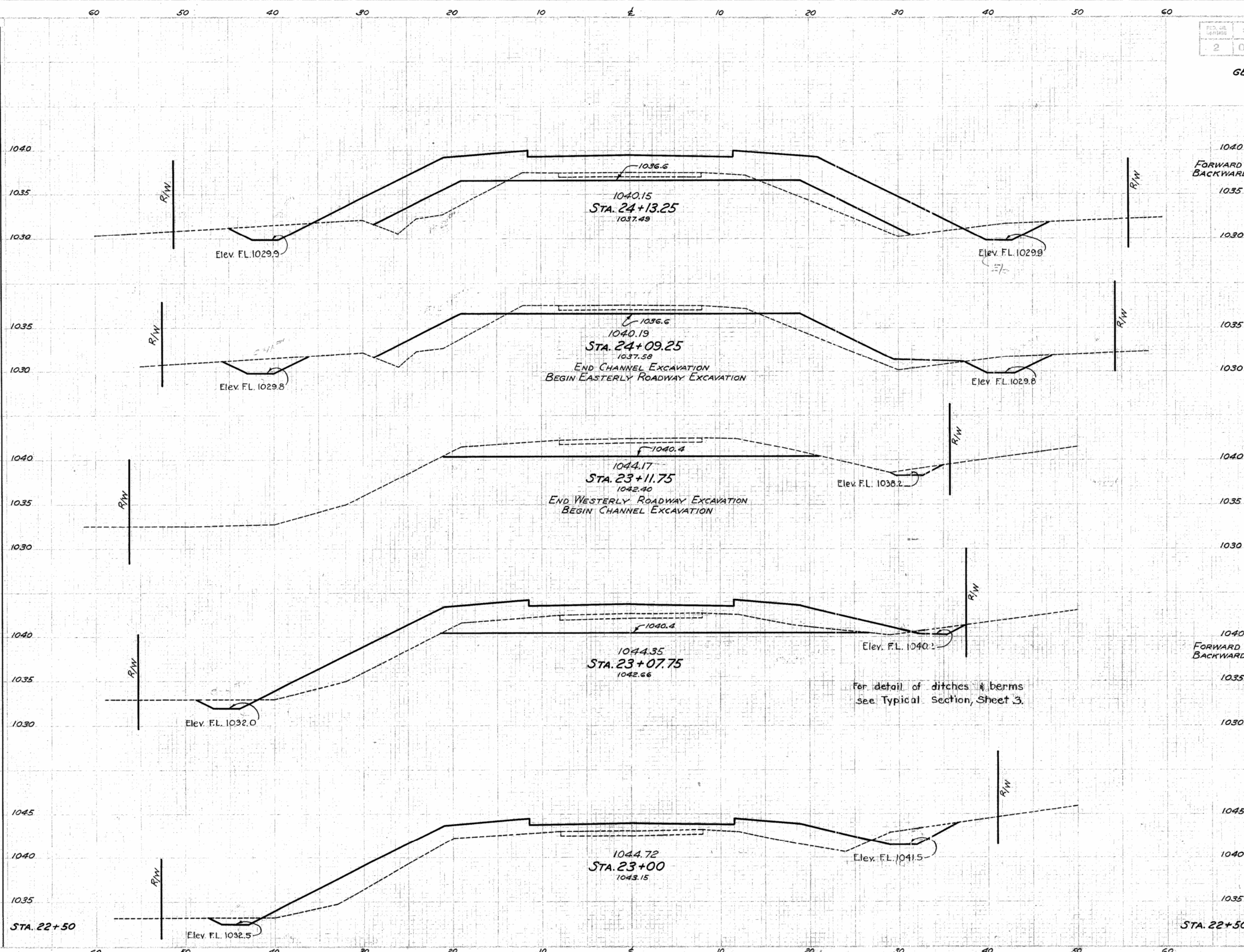


PART I - Cross Sections Sta. 21+30 to Sta. 22+50

Fed. Rd. Division	State	Project	Fiscal Year	Sheet
2	OHIO	H.I.F.	1949	5 / 21

GEA 87-3.16
GEAUGA COUNTY

Seeding Sodding Width Lin. Ft.	Area Sq. Yds.
91	
75	
	64
73	
	428
81	



60 50 40 30 20 10 ℄ 10 20 30 40 50 60
1040
1035
1030
R/W
1036.6
1040.15
Sta. 24+13.25
1037.49
Elev. F.L. 1029.9
Elev. F.L. 1029.9
1036.6
1040.19
Sta. 24+09.25
1037.58
End Channel Excavation
Begin Easterly Roadway Excavation
Elev. F.L. 1029.8
Elev. F.L. 1029.8
1040.4
1044.17
Sta. 23+11.75
1042.40
End Westerly Roadway Excavation
Begin Channel Excavation
Elev. F.L. 1038.2
1040.4
1044.35
Sta. 23+07.75
1042.66
Elev. F.L. 1040.1
Elev. F.L. 1032.0
For detail of ditches & berms see Typical Section, Sheet 3.
1045
1044.72
Sta. 23+00
1043.15
Elev. F.L. 1041.5
Elev. F.L. 1032.5
Sta. 22+50

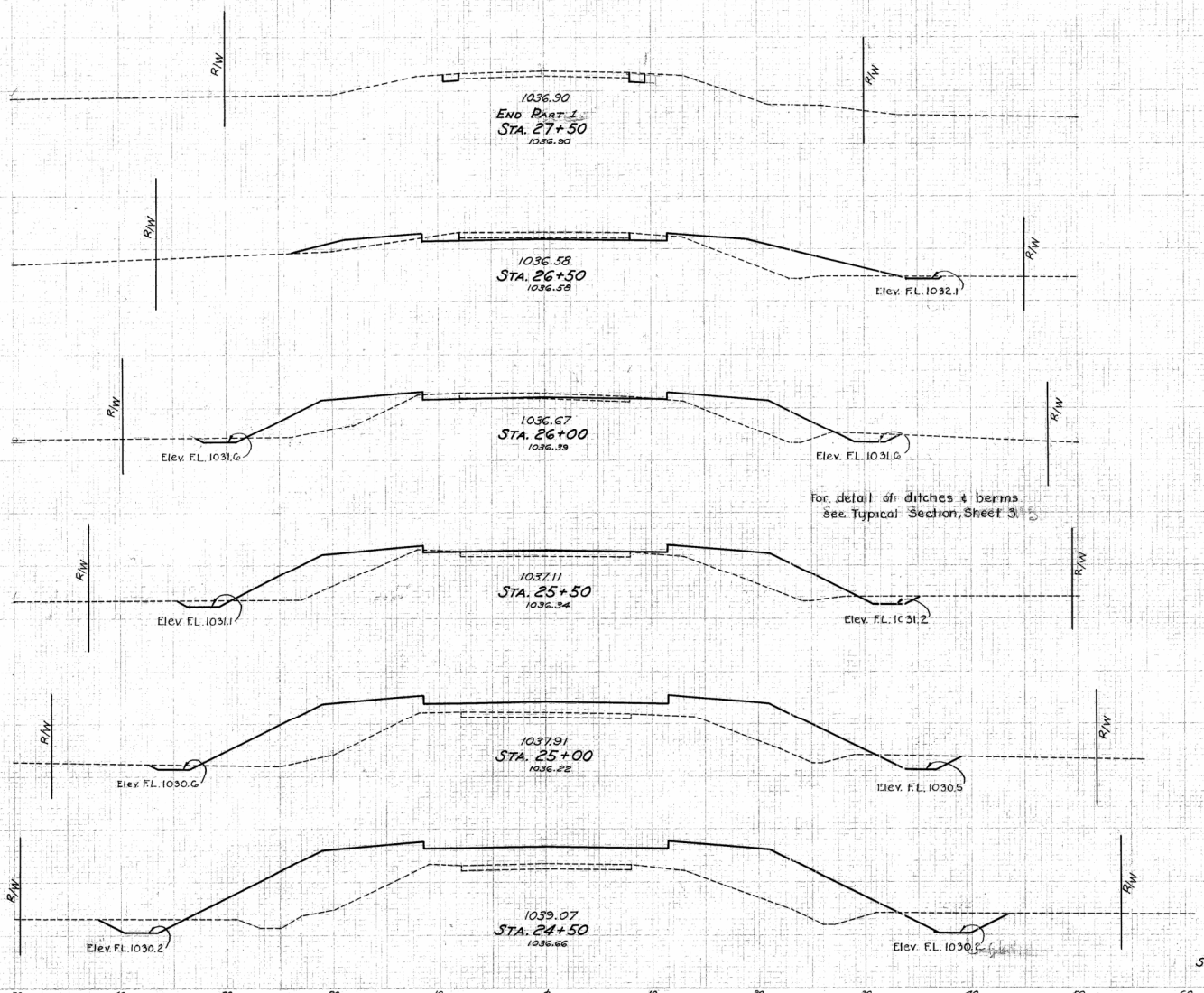
	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
Forward	19	242		
Backward	23	50		
			5	7
	44	51		
	68	0		
			10	0
Forward	73	0		
Backward	51	126		
			2	33
	6	106		
			106	109
Sta. 22+50	108	12		

Part 1 - Cross Sections Sta. 23+00 to Sta. 24+13.25

U.S. ROUTE	STATE	PROJECT	FISCAL YEAR	6
2	OHIO	H.I.F.	1949	21

GEA. 87-3.16
GEAUGA COUNTY

Seeding Sodding	
Width Lin. Ft.	Area Sq. Yds.
41	567
61	356
67	389
73	425
80	459
85	359
91	



	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
	2	0		
			26	76
Forward	12	41		
Backward	16	41		
			28	94
	14	61		
			18	126
	5	75		
			14	201
	10	142		
			27	316
	19	199		
			26	300
Sta. 24+13.25	19	242		

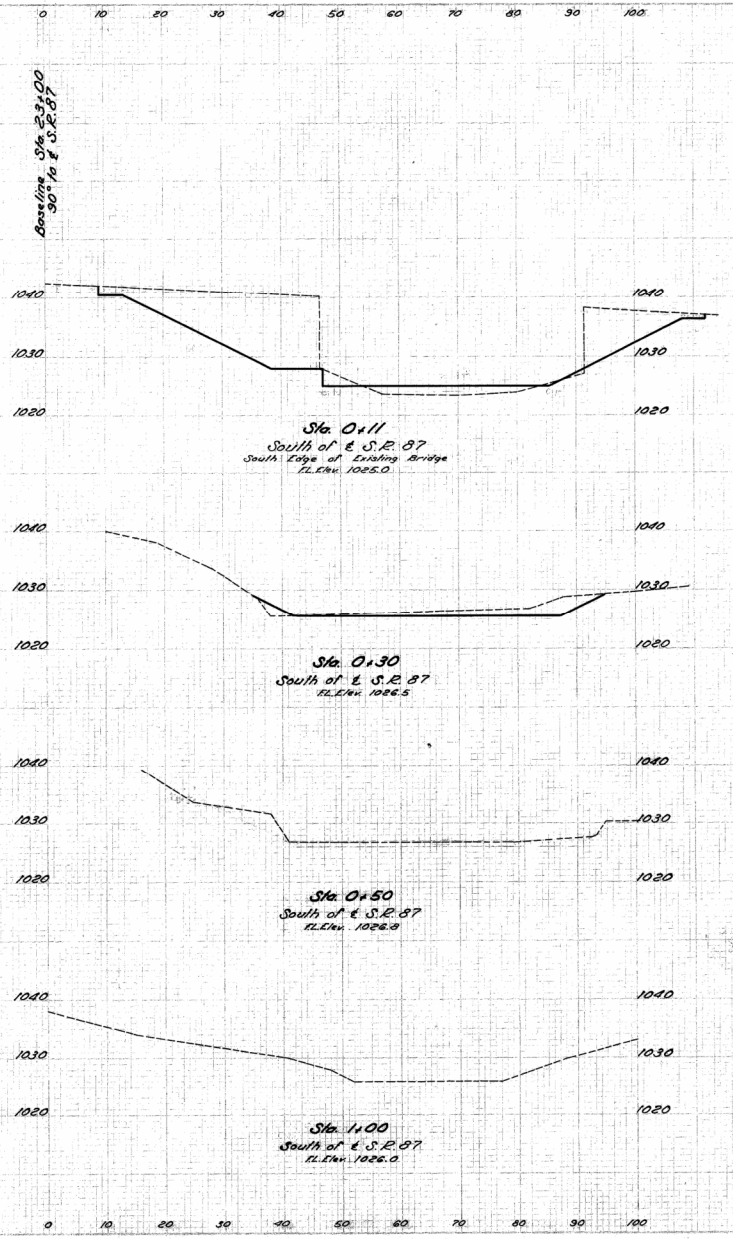
Excavation 144 Cu. Yds.
Embankment 1120 Cu. Yds.
Embankment reduced 22% 1386 Cu. Yds.

PART 1 - Cross Sections Sta. 24+50 to Sta. 27+50

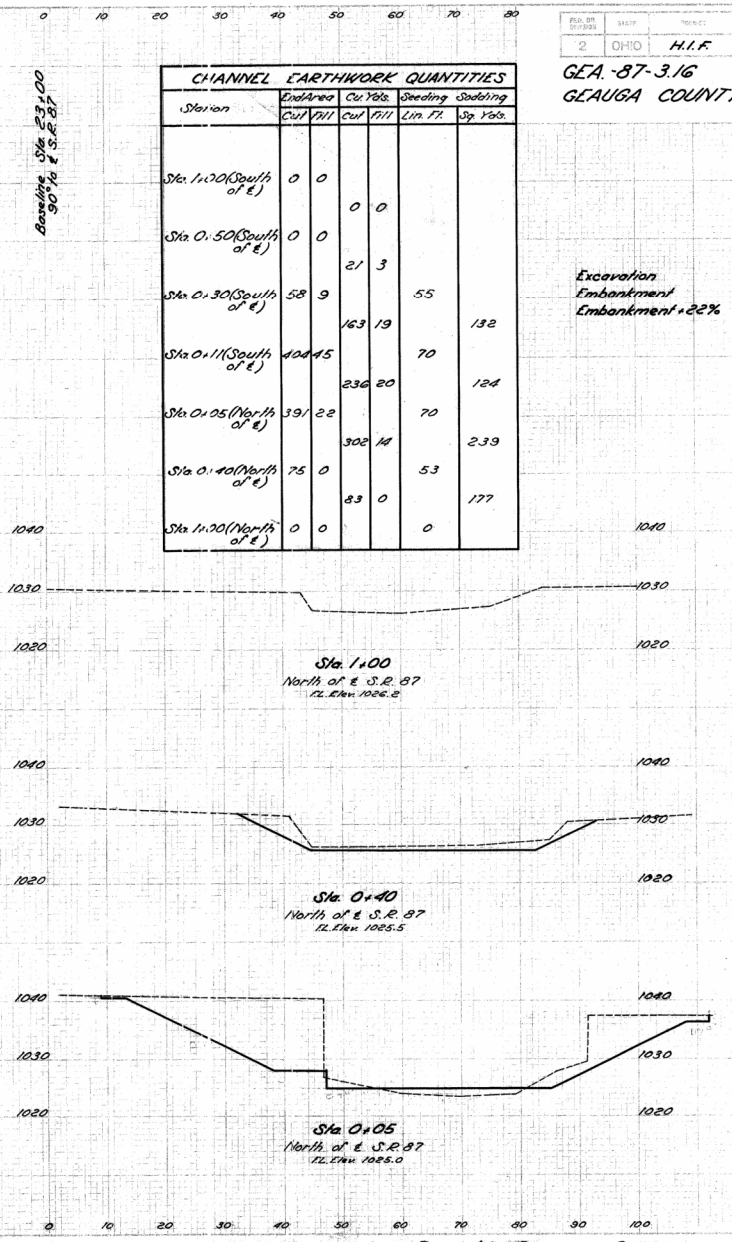
FED. DIV.	STATE	PROJECT	FED. YEAR	SHEET NO.
2	OHIO	H.I.F.	1949	7 / 21

GEA.-87-3.16
GEAUGA COUNTY

Baseline Sta. 23+00 90° to ℄ S.R. 87



Baseline Sta. 23+00 90° to ℄ S.R. 87



CHANNEL EARTHWORK QUANTITIES

Station	End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill	Seeding Lin. Ft.	Sodding Sq. Yds.
Sta. 1+30 (South of ℄)	0	0				
			0	0		
Sta. 0+50 (South of ℄)	0	0				
			21	3		
Sta. 0+30 (South of ℄)	58	9			55	
			163	19		132
Sta. 0+11 (South of ℄)	404	45			70	
			236	20		124
Sta. 0+05 (North of ℄)	391	22			70	
			302	14		239
Sta. 0+40 (North of ℄)	75	0			53	
			83	0		177
Sta. 1+30 (North of ℄)	0	0			0	

Excavation	805 Cu. Yds.
Embankment	56 Cu. Yds.
Embankment + 22%	68 Cu. Yds.

PART 1 - CHANNEL CLEANUP

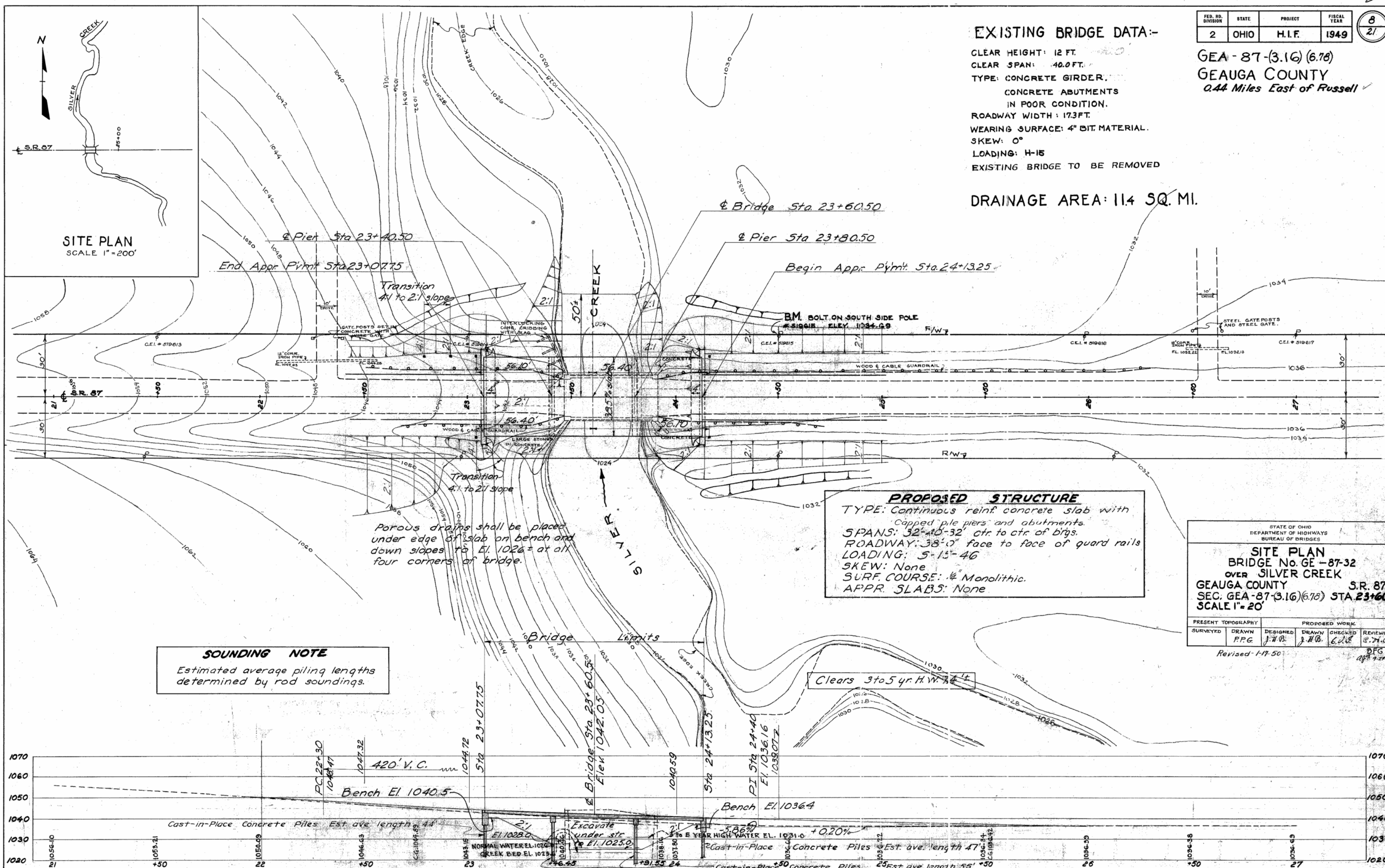
FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR	
2	OHIO	H.I.F.	1949	8/21

GEA-87-(3.16) (6.78)
GEAUGA COUNTY
0.44 Miles East of Russell

EXISTING BRIDGE DATA:-

CLEAR HEIGHT: 12 FT.
CLEAR SPAN: 40.0 FT.
TYPE: CONCRETE GIRDER, CONCRETE ABUTMENTS IN POOR CONDITION.
ROADWAY WIDTH: 17.3 FT.
WEARING SURFACE: 4" BIT. MATERIAL.
SKEW: 0°
LOADING: H-15
EXISTING BRIDGE TO BE REMOVED

DRAINAGE AREA: 11.4 SQ. MI.



SOUNDING NOTE

Estimated average piling lengths determined by rod soundings.

PROPOSED STRUCTURE

TYPE: Continuous reinf. concrete slab with capped pile piers and abutments.
SPANS: 32'-40'-32' ctr. to ctr. of brgs.
ROADWAY: 38'-0" face to face of guard rails
LOADING: S-15-46
SKEW: None
SURF. COURSE: ½" Monolithic.
APPR. SLABS: None

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

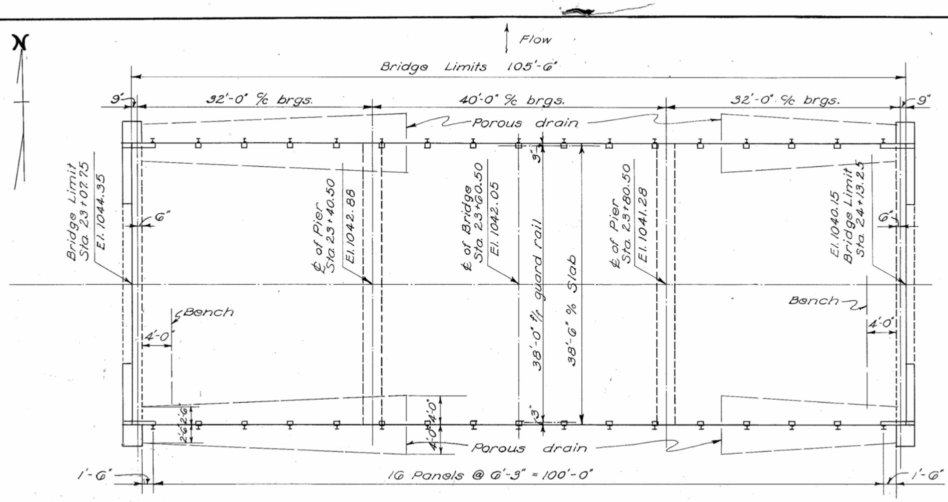
SITE PLAN
BRIDGE No. GE-87-32
OVER SILVER CREEK
GEAUGA COUNTY S.R. 87
SEC. GEA-87-(3.16)(6.78) STA. 23+60.5
SCALE 1" = 20'

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
	F.P.G.	J.H.B.	J.H.B.	C.J.S.	C.H.A.

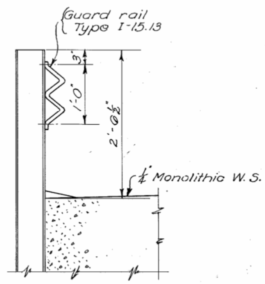
Revised - 1-17-50

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS	
2	OHIO	H.I.F.	1949	9 / 21

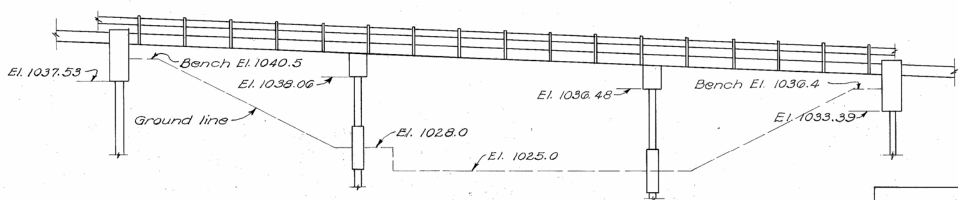
GEAUGA COUNTY
GEA - 87 - (3.16)(6.78)



PLAN



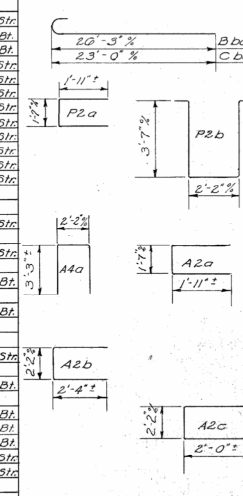
RAILING DETAIL



ELEVATION

REINFORCING STEEL LIST					
MARK	SIZE	NO.	LENGTH	WEIGHT	SH'P
Superstructure					
A	1⅛"□	93	37'-6"	15006	Str.
B	1⅛"□	30	27'-6"	3550	Bt.
C	1⅛"□	30	24'-3"	3130	Bt.
D	1⅛"□	15	24'-0"	1549	Str.
E	1⅛"□	15	19'-3"	1242	Str.
F	1⅛"□	78	24'-3"	8139	Str.
G	1⅛"□	38	12'-0"	1962	Str.
H	1⅛"□	38	7'-9"	1267	Str.
J	¾"φ	40	23'-0"	1382	Str.
K	¾"φ	20	20'-3"	608	Str.
L	¾"φ	123	38'-0"	7021	Str.
M	¾"φ	67	38'-0"	3824	Str.
Pier					
P0a	1¼"□	8	20'-11"	890	Str.
P7a	1"φ	32	20'-6"	1750	Str.
P2a	½"φ	72	5'-3"	252	Bt.
P2b	½"φ	56	10'-4"	388	Bt.
Abutment					
A7a	1"φ	48	23'-9"	3040	Str.
A4a	⅝"φ	124	8'-5"	1085	Bt.
A2a	½"φ	48	5'-3"	168	Bt.
A2b	½"φ	8	6'-8"	36	Bt.
A2c	½"φ	8	6'-0"	32	Bt.
A2d	½"φ	88	3'-6"	207	Str.
A2e	½"φ	8	9'-0"	48	Str.
Replacement Bars					
RE9	1⅛"□	2	7'-9"	66	Str.
RE7	1"φ	1	7'-4"	20	Str.
RE5	¾"φ	1	6'-6"	10	Str.
RE4	⅝"φ	1	6'-1"	6	Str.
RE2	½"φ	1	5'-8"	5	Str.
RE0	1¼"□	1	8'-2"	43	Str.

BENDING DIAGRAMS



ESTIMATED QUANTITIES									
Item	Total	Unit	Description	Abut.	Pier	Supers.	Genr'l.	As Built	
E-2	62	Cu.Yd.	Unclassified Excavation	62					
E-3	805	Cu.Yd.	Channel Excavation				805		
S-1	244	Cu.Yd.	Class "C" concrete, superstructure			244			
S-1	46	Cu.Yd.	Class "C" concrete, abutments	46					
S-4	56,726	Lb.	Reinforcing Steel	4616	3280	48680	150		
S-9	16	Sq.Ft.	¼" Premolded expansion joint filler			16			
S-14	211	Lin.Ft.	Railing (Type I-15.13 with steel posts)			211			
S-16	Lump	Sum	First test pile				Lump Sum		
S-18	~~1540~~	Lin.ft.	12" Cast-in-place concrete piling (inclu. encasement & painting)	~~550~~	~~990~~			+8.8	1548.8
S-24	Lump	Sum	Removal of Existing Structure				Lump Sum		
S-29	31	Cu.Yd.	Porous Drains on embankment slopes				31		

GENERAL NOTES

REFERENCE shall be made to Standard Drawings CS-1-47 (revised 1-20-48), A-1-49 (dated 7-27-49), P-1-49 (dated 7-27-49). A4b bars shown on A-1-49 shall be omitted.

EXISTING SUPERSTRUCTURE shall be removed. Suitable waste masonry may be used as bank protection at the direction of the Engineer.

EXISTING SUBSTRUCTURE - The west abutment shall be removed to Elev. 1028.0. The east abutment shall be removed to one ft. below finished ground.

EXCAVATION QUANTITY includes the removal of fill material between top of earth bench and bottom of abutment crossbeam.

PILING shall be driven to a minimum bearing capacity of 25 tons in the abutments and to a minimum bearing capacity of 35 tons in the piers.

POROUS DRAINS extending from face of abutment to Elev. 1026 shall be placed on and flush with embankment slopes at all four corners of the bridge. The drains shall be 8 ft. wide at the low end, tapering to 5 ft. wide at the face of the abutment, and one ft. thick. They shall be centered under edge of deck. They shall be composed of No. 1 gravel, stone or slag. Construction procedure shall conform essentially to Item I-9. Trench excavation shall be included for payment with the price per cu. yd. bid for "Porous drains on embankment slopes."

SUPERSTRUCTURE shall be same as shown on Standard Drawing CS-1-47 except the monolithic wearing surface shall be ¼ inch instead of ¾ inch.

SURFACE FINISH of CONCRETE. Fascia of deck slab shall receive a rubbed surface finish. All other exposed surfaces except roadway surface shall be governed by the provisions of Sec. S-1.22.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES AND RAILROAD CROSSINGS

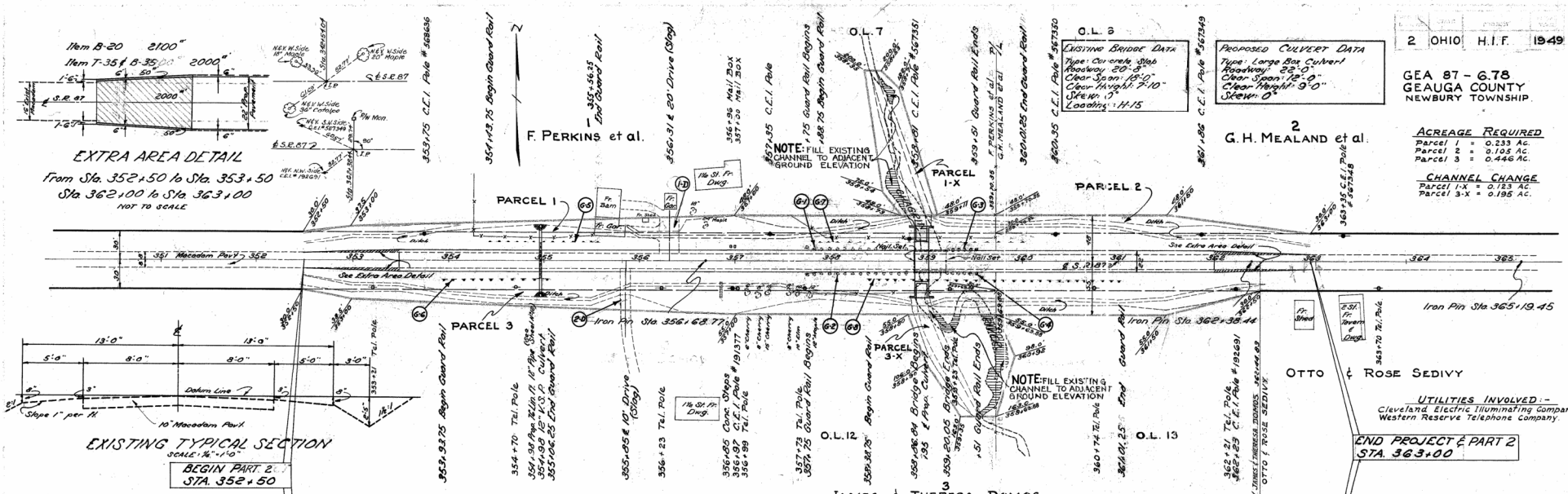
GENERAL PLAN & ELEVATION
NOTES, QUANTITIES & STEEL LIST

BRIDGE NO. GE - 87 - 32
over SILVER CREEK
GEAUGA COUNTY
SEC. GEA - 87 (3.16)(6.78).

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.D.J.	J.D.J.	J.D.J.	J.O.G.	BFG	9-29-49	11-8-49 / 1-18-50

Revised As Built CEJ 7/23/48

GEA 87 - 6.78
GEAUGA COUNTY
NEWBURY TOWNSHIP



B.M. "72 Spike N.W. roof of 1½ Elm on South side of road 20' East of C.E.I. Pole #367350 Sta. 360+54 Elev. 1163.690

PRIVATE DRIVEWAYS

Mark	Side	Embankment	Fill for Drive Ways	12" Pipe for Drive Ways
1-D	N	18 Cu. Yds.	17 Cu. Yds.	34 Lin. Ft.
2-D	S	9 Cu. Yds.	10 Cu. Yds.	20 Lin. Ft.
		22% = 6 Cu. Yds.	15% = 4 Cu. Yds.	
Total		31 Cu. Yds.	31 Cu. Yds.	54 Lin. Ft.

GUARD RAIL

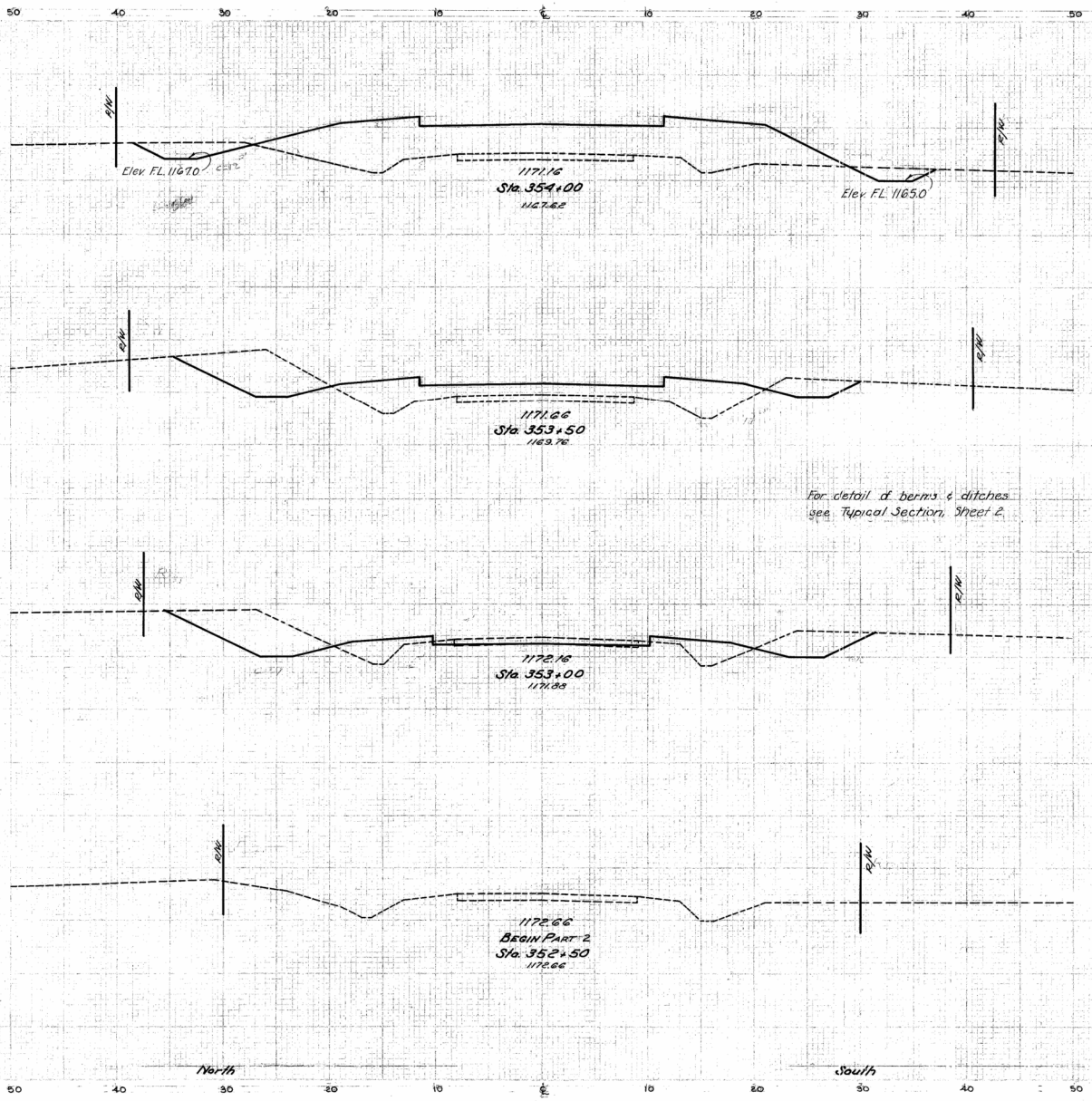
Mark	Side	Item 1-18 Guard Rail Removed & Stored	Item 1-15.12 Guard Rail
G-1	N	111.94 Lin. Ft.	
G-2	S	111.94 " "	
G-3	N	30.95 " "	
G-4	S	30.95 " "	
G-5	N		112.5 Lin. Ft.
G-6	S		112.5 " "
G-7	N		212.5 " "
G-8	S		262.5 " "
Total		285.78 Lin. Ft.	700.0 Lin. Ft.

PART 2 PLAN & PROFILE

STATE	PROJECT	PIPE TUNNEL	SHEET
OHIO	H.I.F. 1949		11 21

GEAUGA COUNTY
GEA. 87-6.78

Seeding & Sodding	
Length Lin. Ft.	Area Sq. Yds.
63	
	336
58	
	325
59	
	283
43	



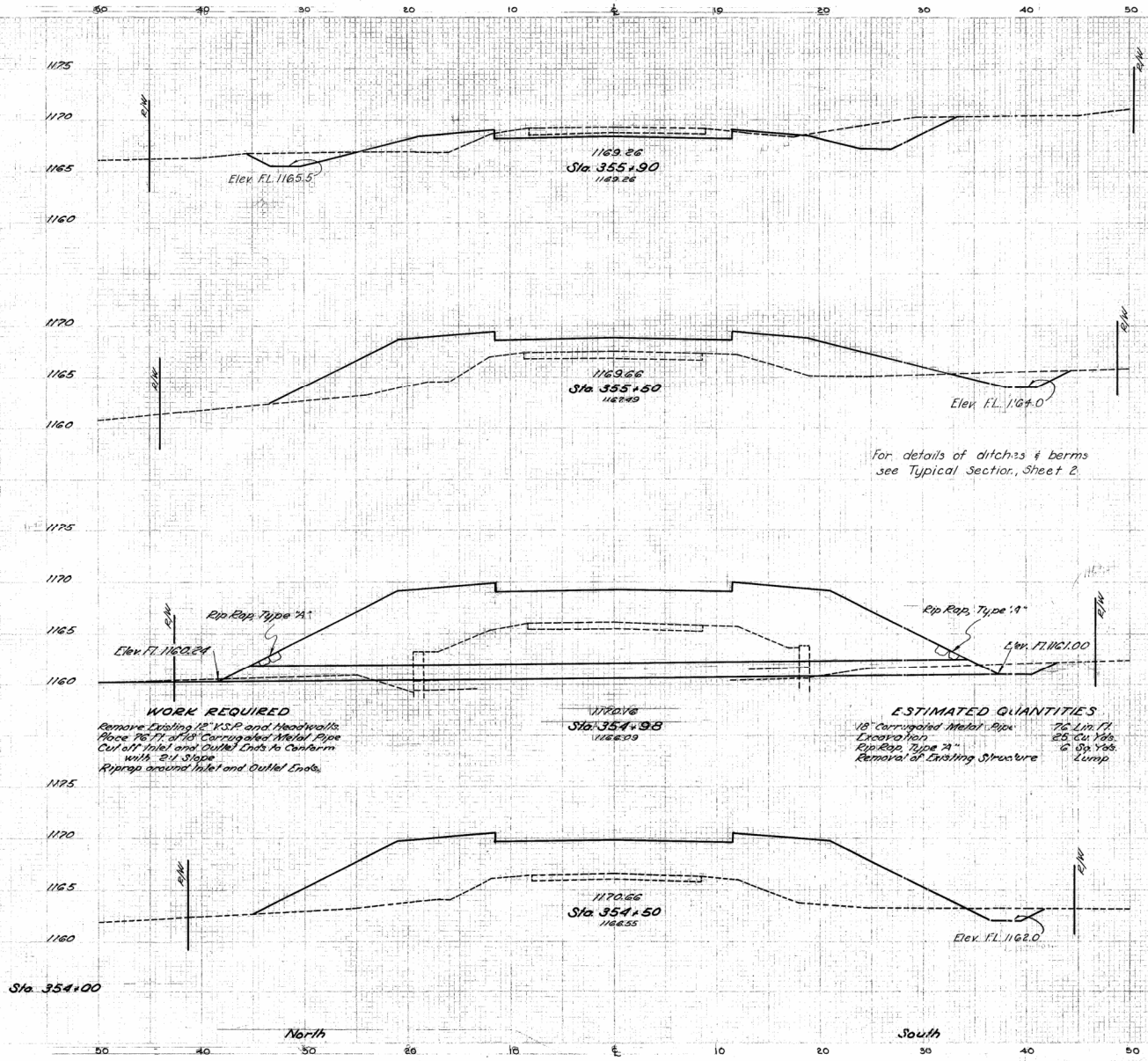
For detail of berms & ditches see Typical Section, Sheet 2.

End Area		Cu. Yds	
Cut	Fill	Cut	Fill
13	168		
		62	221
48	71		
		106	88
66	24		
		61	22
0	0		

PART 2 - CROSS SECTIONS STA. 352+50 TO STA. 354+00

STATE	PROJECT	TYPE	SHEET
OHIO	H.I.F.	1949	12 / 21

GEAUGA COUNTY
GEA. 87-6.78



Seeding & Sodding	
Length Lin. Ft.	Area Sq. Yds.
75	
	342
79	
	433
71	
	371
68	
	364
63	

End Area Cu. Yds.			
Cut	Fill	Cut	Fill
43	17		
		40	124
11	151		
		16	453
6	319		
		12	530
7	277		
		24	412
Sta. 354+00	19	168	

WORK REQUIRED

Remove Existing 12" V.S.P. and Headwalls.
Place 76 Ft. of 18" Corrugated Metal Pipe
Cut off Inlet and Outlet Ends to Conform with 2:1 Slope
Riprap around Inlet and Outlet Ends.

ESTIMATED QUANTITIES

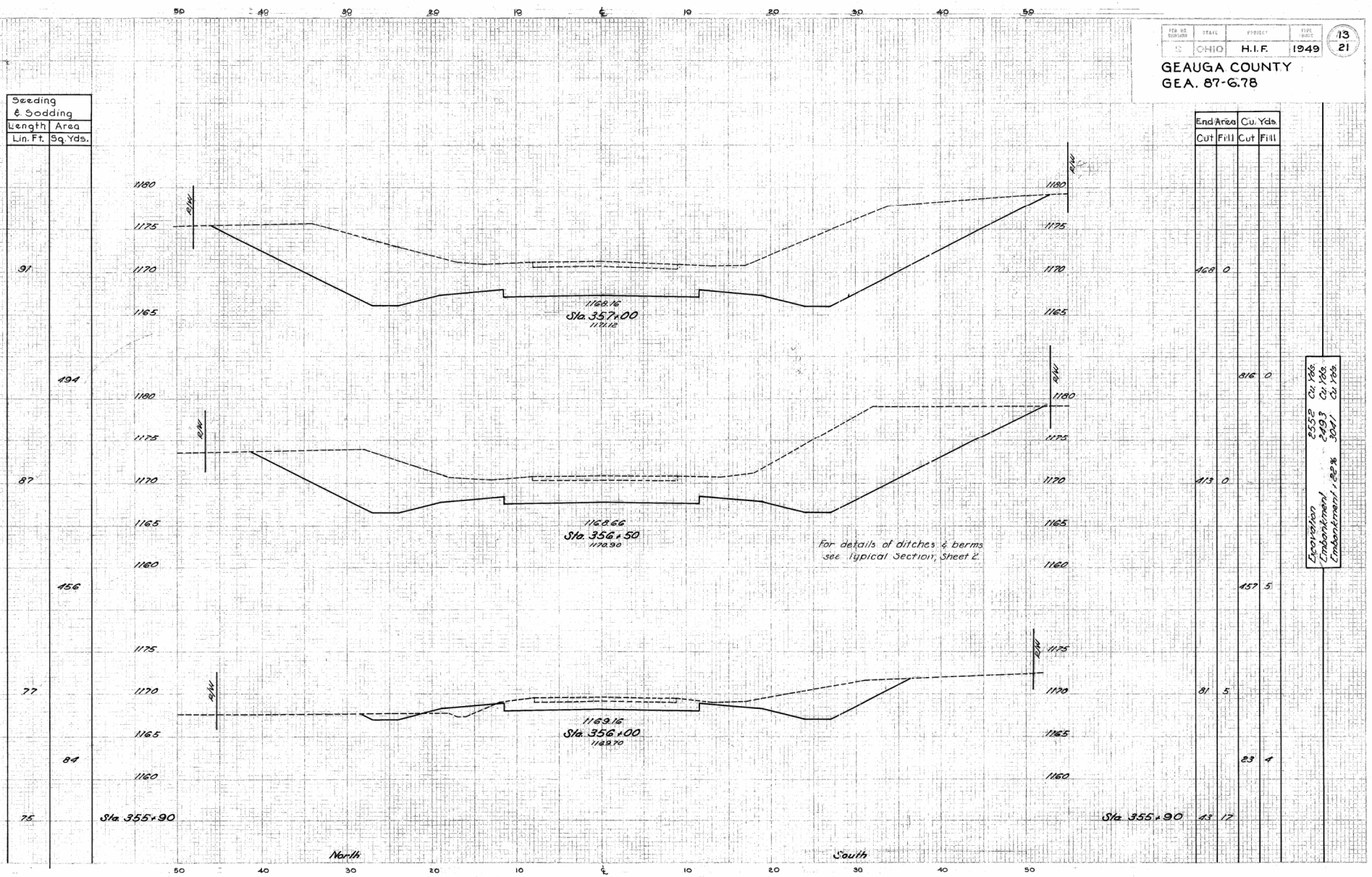
18" Corrugated Metal Pipe	76 Lin. Ft.
Excavation	25 Cu. Yds.
Rip Rap, Type "A"	6 Sq. Yds.
Removal of Existing Structure	Lump

PART 2. CROSS SECTIONS STA. 354+50 TO STA. 355+90

FED. AID PROJECT	STATE	PROJECT	FILE INDEX
S	OHIO	H.I.F.	1949

13
21

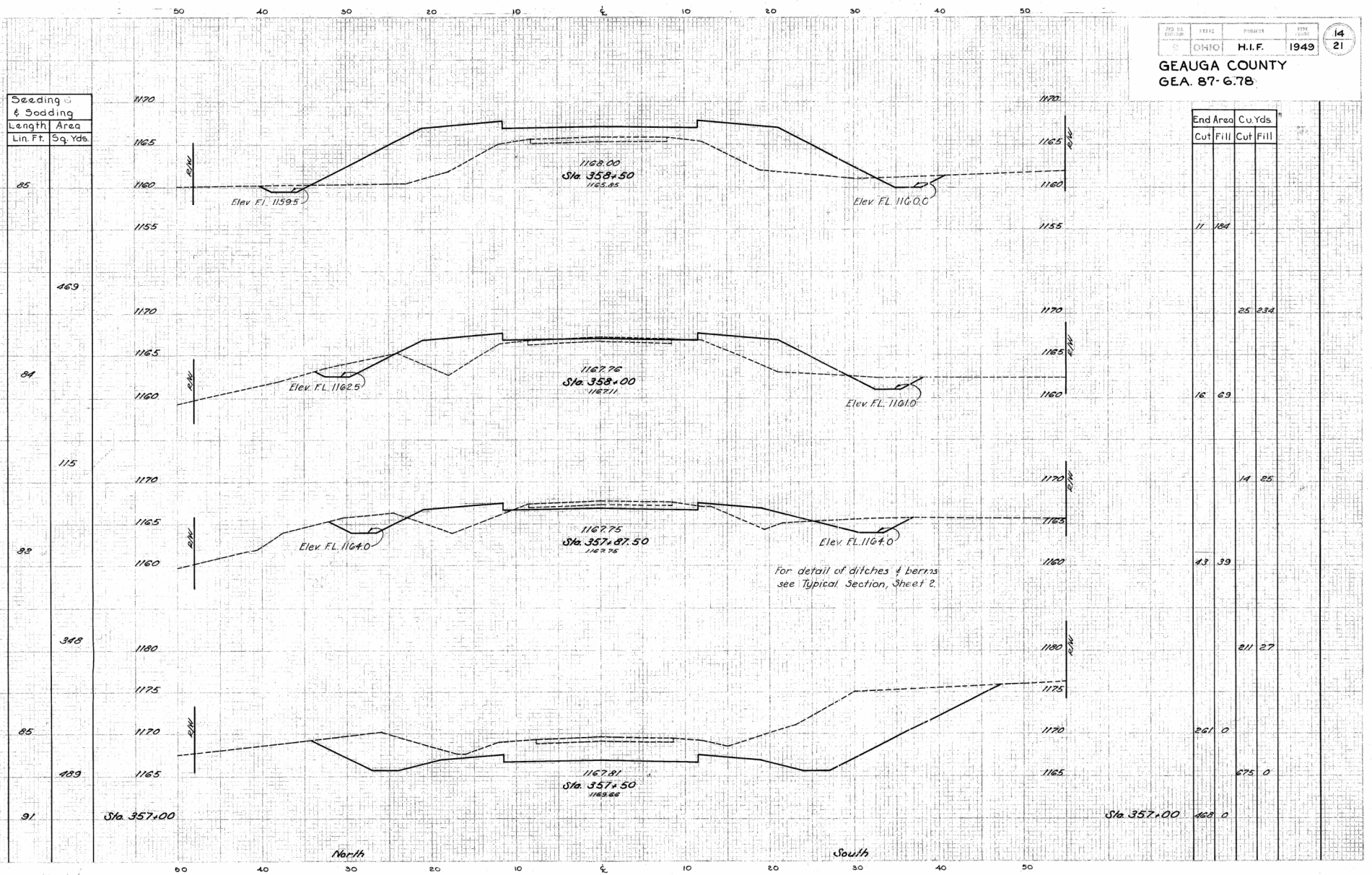
GEAUGA COUNTY
GEA. 87-6.78



PART 2 - CROSS SECTIONS STA. 356+00 TO STA. 357+00

STATE	PROJECT	TYPE	SHEET
OHIO	H.I.F.	1949	14 / 21

GEAUGA COUNTY
GEA. 87-6.78



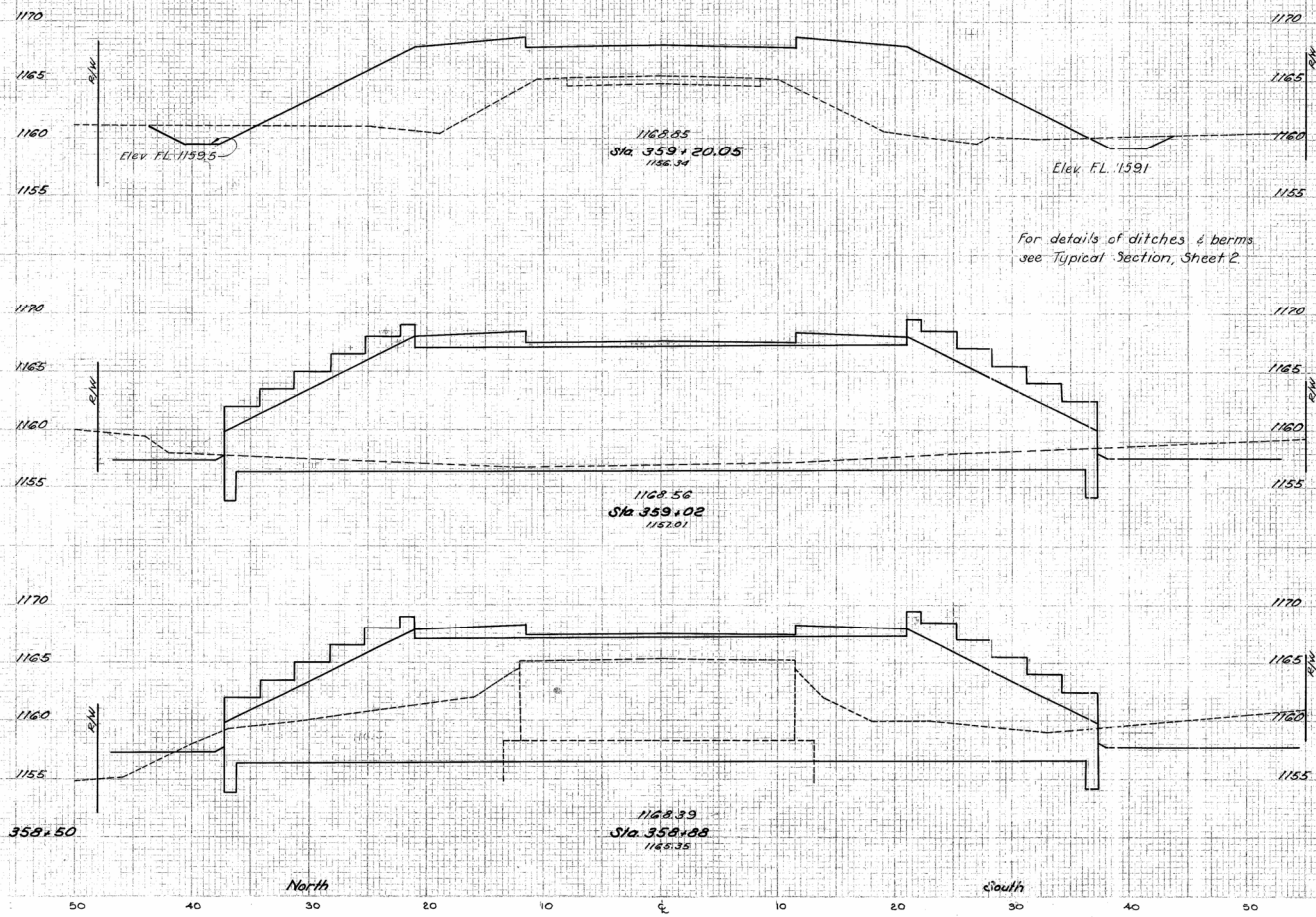
For detail of ditches & berms see Typical Section, Sheet 2.

PART 2 - CROSS SECTIONS STA. 357+50 TO STA. 358+50

FED. ROAD DESIGNATION	STATE	PROJECT	TYPE YEARS	15
S	OHIO	H.I.F.	1949	21

GEAUGA COUNTY
GEA. 87-6.78

Seeding & Sodding	
Length Lin. Ft.	Area Sq. Yds.
85	
	170
85	
	359
85	



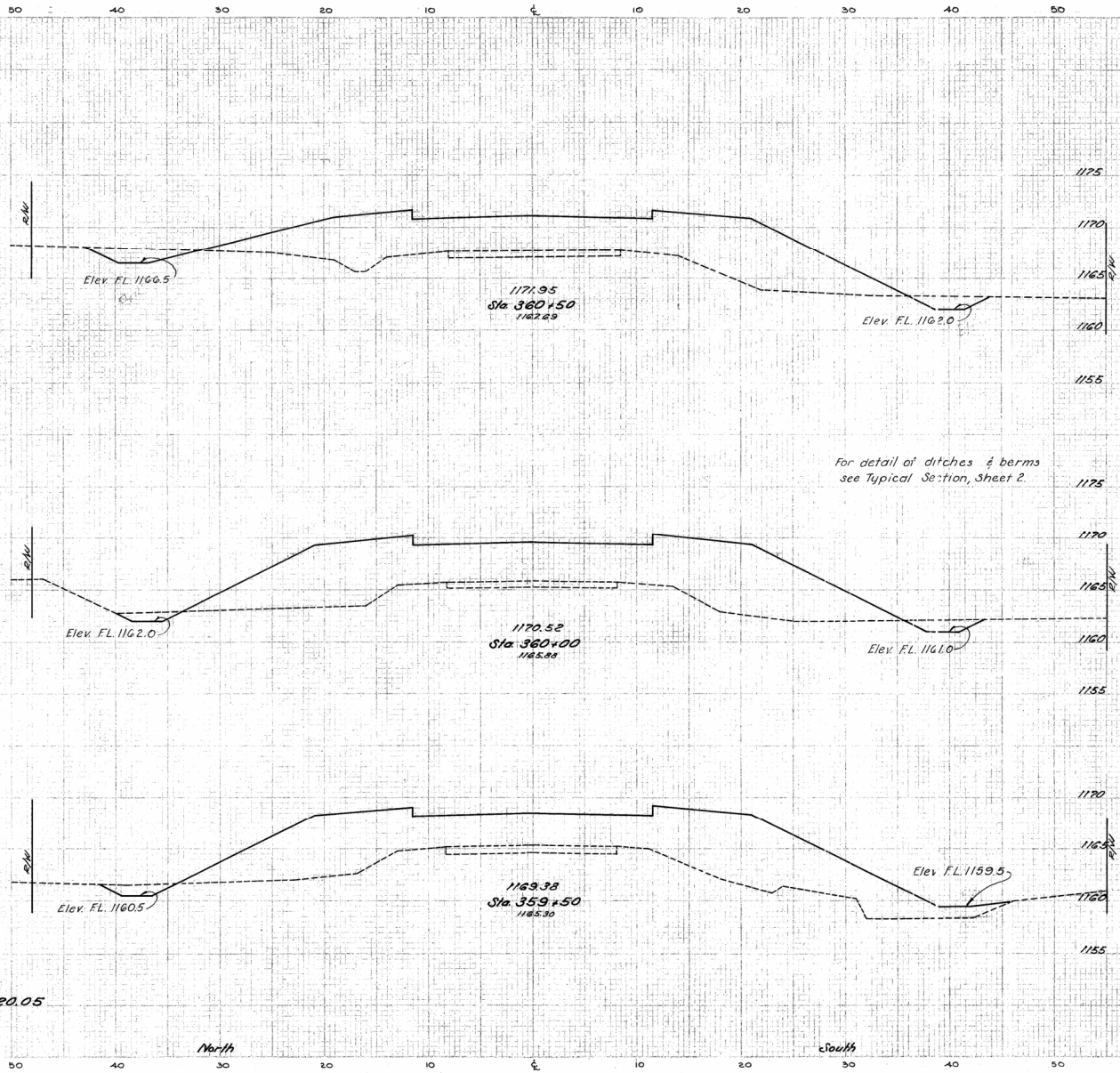
End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
15	295		
		5	321
0	665		
3	310		
		10	348
11	184		

PART 2 - CROSS SECTIONS STA. 358+88 TO STA. 359+20.05

FED. DIV. REGION	STATE	PROJECT	TYPE PROJ.	
5	OHIO	H.I.F.	1949	16 / 21

GEAUGA COUNTY
GEA. 87-6.78

Seeding & Sodding	
Length Lin. Ft.	Area Sq. Yds.
84	469
85	478
87	286
85	



For detail of ditches & berms see Typical Section, Sheet 2.

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
12	243		
		23	494
8	290		
		12	549
5	303		
		11	332
15	295		

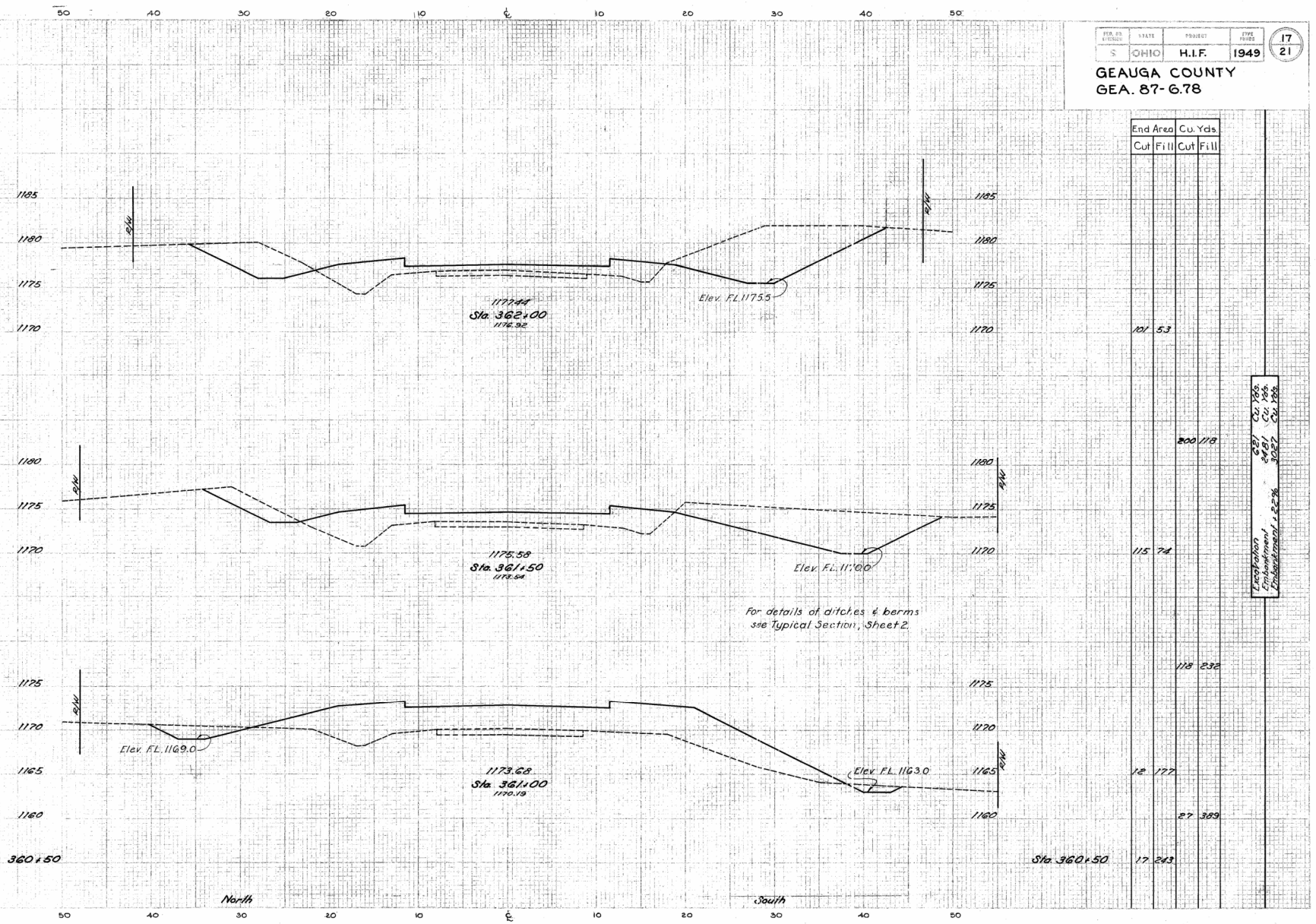
PART 2 - CROSS SECTIONS STA. 359+50 TO STA. 360+50

FED. AID PROJECT	STATE	PROJECT	TYPE WORK
S	OHIO	H.I.F.	1949

17
21

GEAUGA COUNTY
GEA. 87-6.78

Seeding & Sodding	
Length Lin. Ft.	Area Sq. Yds.
69	
	425
84	
	467
84	
	467
84	



End Area		Cu. Yds.		
Cut	Fill	Cut	Fill	
101	53			
		300	178	Excavation 639 Cu. Yds.
115	74			Embankment 2481 Cu. Yds.
		118	232	Embankment x 22% 3027 Cu. Yds.
12	177			
		27	389	
17	243			

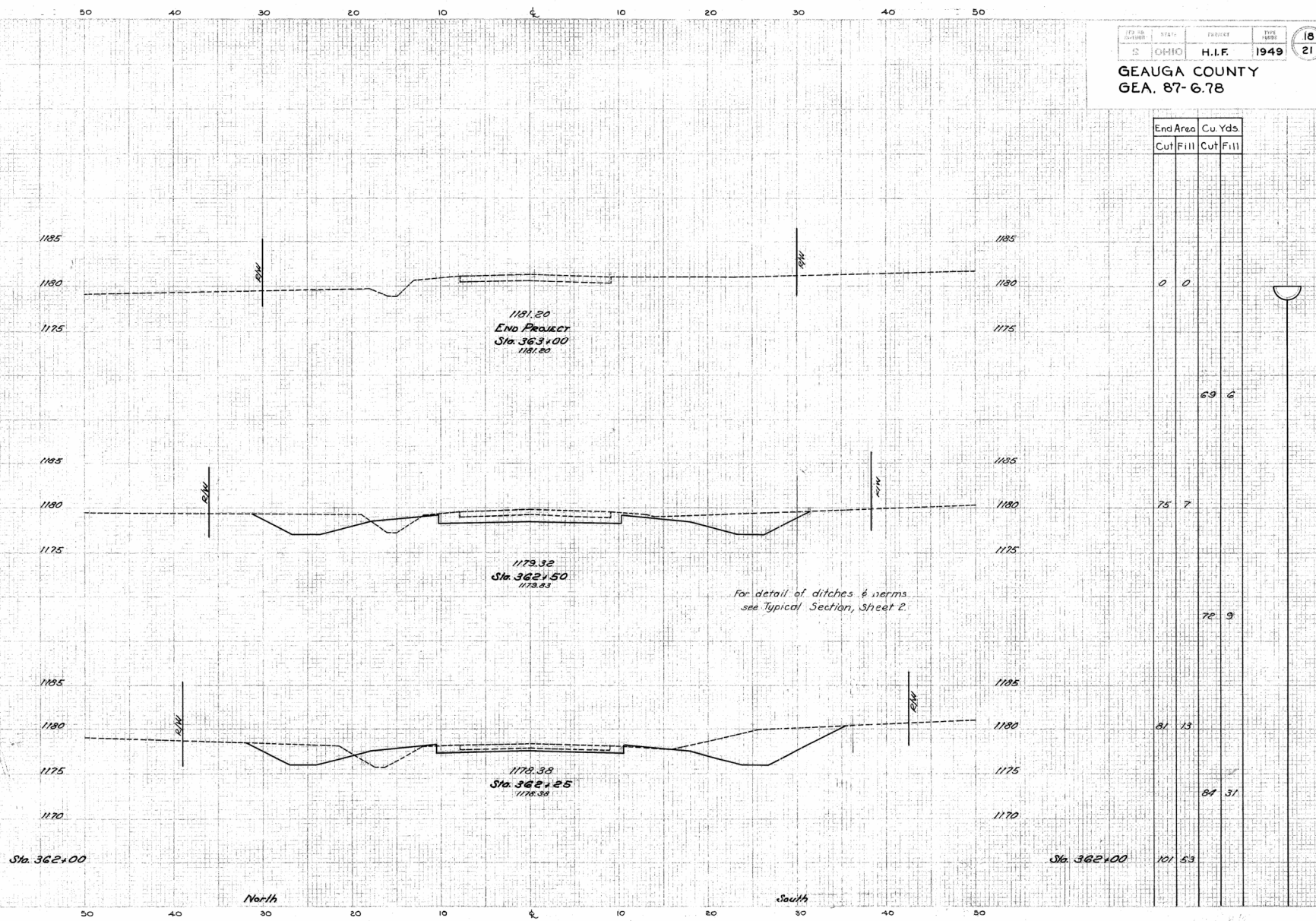
Sta. 360+50

PART 2 - CROSS SECTIONS STA. 361+00 TO STA. 362+00

ITEM NO. SECTION	STATE	PROJECT	TYPE WORK	
S	OHIO	H.I.F.	1949	18 / 21

GEAUGA COUNTY
GEA. 87-6.78

Seeding & Sodding	
Length Lin. Ft.	Area Sq. Yds.
43	
	278
57	
	167
63	
	183
69	



End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
0	0		
		69	6
75	7		
		72	9
81	13		
		84	31
101	53		

Sta. 362+00

PART 2 - CROSS SECTIONS STA. 362+25 TO STA. 363+00

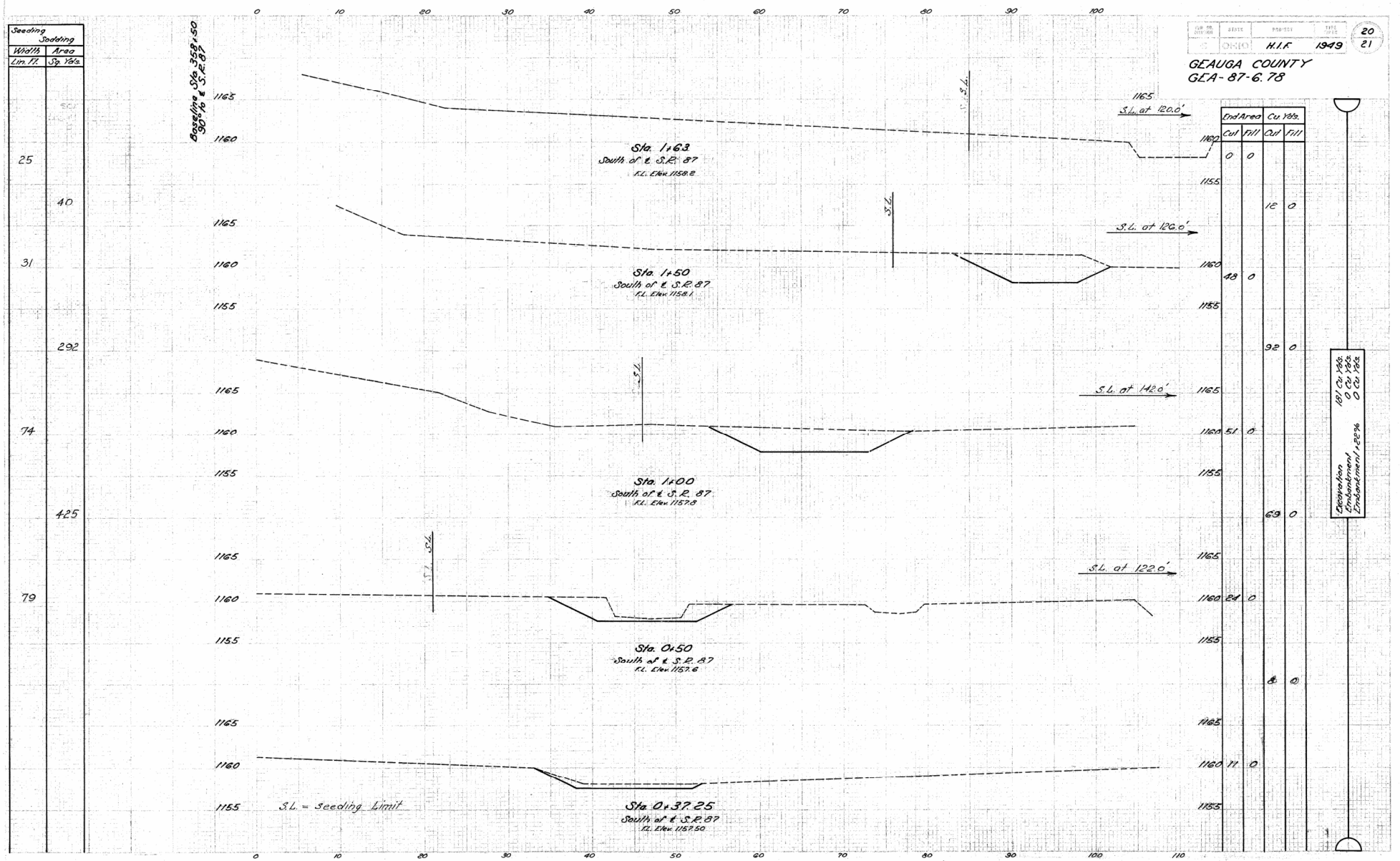
GEAUGA COUNTY
GEA-87-6.78

Seeding Width Lin. Ft.	Sodding Area Sq Yds.
6	
	72
20	
	128
26	
	103
11	

End Area Cut	End Area Fill	Cu. Yds. Cut	Cu. Yds. Fill
0	0		
		18	0
19	0		
		44	0
29	0		
		35	30
9	32		
		6	8
16	0		

Excavation 103 Cu. Yds.
Embankment 38 Cu. Yds.
Embankment +22% 46 Cu. Yds.

PART 2 CHANNEL CLEANUP (NORTH SIDE)



OHIO H.I.F. 1949

20
21

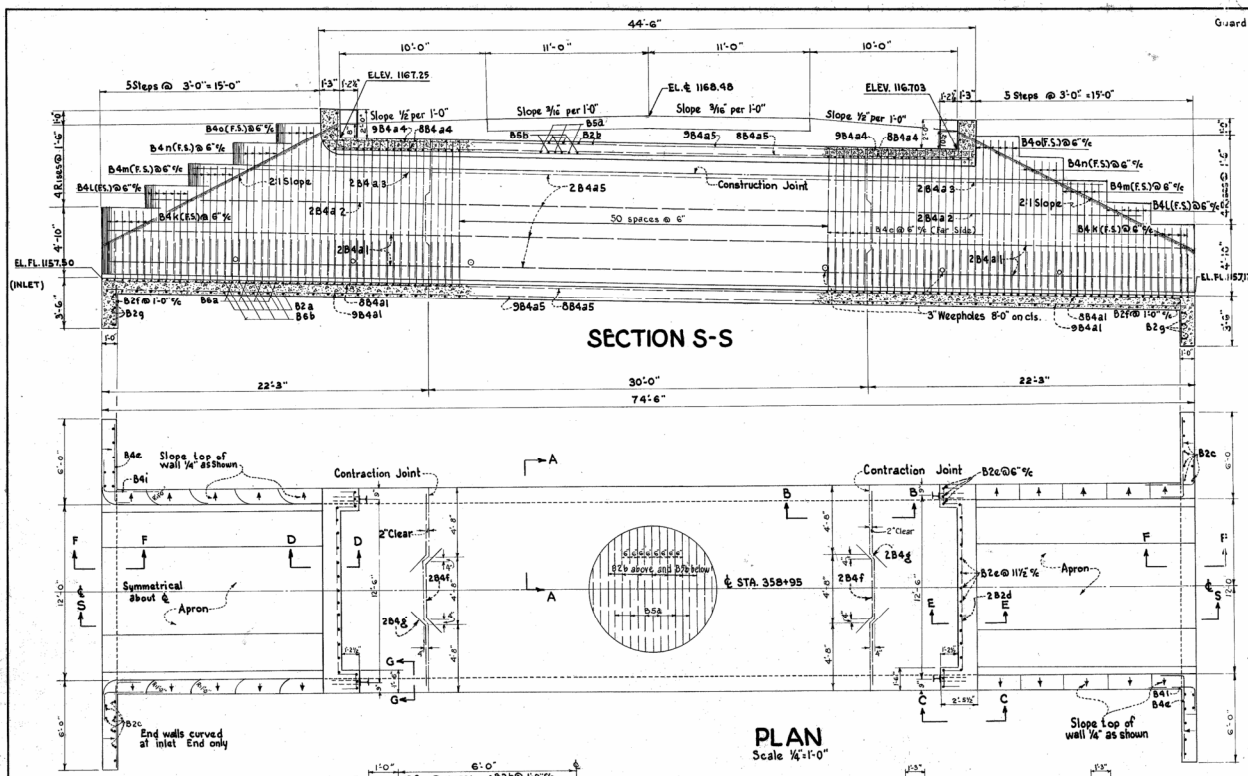
GEAUGA COUNTY
GEA-87-6.78

PART 2 CHANNEL CLEANUP (SOUTH SIDE)

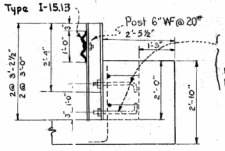
FED. RD. DIVISION	STATE	PROJECT	YEAR
2	OHIO	H.I.F.	1949

21
21

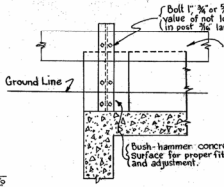
GEAUGA COUNTY
GEA-87-6.78



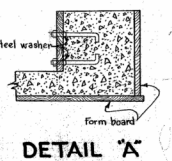
Guard Rail Type I-15.13



SECTION C-C
Scale ½"=1'-0"



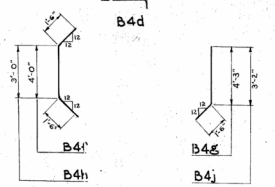
SECTION G-G
Scale ½"=1'-0"



DETAIL "A"

BAR SCHEDULE

MARK	SIZE	NO.	LENGTH	TOTAL	WEIGHT	SHAPE
B 2a	½" ø	75	18'-7"	1393'-9"	931	Bt.
B 2b	½" ø	45	13'-6"	607'-6"	406	St.
B 2c	½" ø	28	7'-10"	219'-4"	147	St.
B 2d	½" ø	4	17'-3"	69'-0"	46	Bt.
B 2e	½" ø	38	3'-0"	114'-0"	76	Bt.
B 2f	½" ø	28	3'-8"	102'-8"	69	Bt.
B 2g	½" ø	6	23'-6"	141'-0"	94	St.
B4a1	⅜" ø	50	21'-6"	1075'-0"	1121	St.
B4a2	⅜" ø	8	18'-6"	148'-0"	154	St.
B4a3	⅜" ø	8	15'-9"	126'-0"	131	St.
B4a4	⅜" ø	34	6'-6"	221'-0"	231	St.
B4a5	⅜" ø	50	29'-6"	1475'-0"	1538	St.
B4b	⅝" ø	38	9'-3"	351'-6"	367	St.
B 4c	⅝" ø	180	10'-4"	1860'-0"	1940	Bt.
B 4d	⅝" ø	60	3'-10"	230'-0"	240	Bt.
B 4e	⅝" ø	20	7'-0"	140'-0"	146	Bt.
B 4f	⅝" ø	8	7'-0"	56'-0"	58	Bt.
B 4g	⅝" ø	16	5'-9"	92'-0"	96	Bt.
B 4h	⅝" ø	8	6'-0"	48'-0"	50	Bt.
B 4i	⅝" ø	20	5'-0"	100'-0"	104	Bt.
B 4J	⅝" ø	16	4'-8"	74'-8"	78	Bt.
B 4k	⅝" ø	24	4'-7"	110'-0"	115	St.
B 4l	⅝" ø	24	6'-1"	146'-0"	152	St.
B 4m	⅝" ø	24	7'-7"	182'-0"	190	St.
B 4n	⅝" ø	24	9'-1"	218'-0"	227	St.
B 4o	⅝" ø	24	10'-7"	254'-0"	265	St.
B 5a	¾" ø	45	15'-9"	708'-9"	1065	Bt.
B 5b	¾" ø	45	13'-6"	607'-6"	912	St.
B 6a	⅞" ø	75	19'-9"	1481'-3"	3028	Bt.
B 6b	⅞" ø	75	13'-6"	1012'-6"	2070	St.
B 6c	⅞" ø	6	15'-2"	91'-0"	186	Bt.
B 6d	⅞" ø	6	18'-0"	108'-0"	221	St.
REPLACEMENT BARS						
R 2	½" ø	1	5'-8"		4	St.
R 4	⅝" ø	1	6'-1"		6	St.
R 5	¾" ø	1	6'-6"		10	St.
R 6	⅞" ø	1	6'-11"		14	St.
Item S-4 Reinforcing Steel					16488	Lbs.
Item S-2 Structural Excavation					58	Cu. Yds.
Item S-1 Concrete for Structures					120	Cu. Yds.



FOUNDATION MATERIAL of approximately uniform bearing capacity is contemplated. Spots of soft earth shall be removed and be replaced with thoroughly compacted granular material.

EMBANKMENT shall be placed symmetrically on both sides of the culvert after the top slab is in place.

CONCRETE shall be Class "C".

NOTE: Cost of furnishing, preparing and erecting all incidentals necessary for placing guard rails on structure shall be included in unit price bid for Item 1-15 Guard Rails.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

12×9 BOX CULVERT

NO GE-87-68A

GEAUGA COUNTY — SR. 87
GEA-87-6.78 — STA. 359+03.42

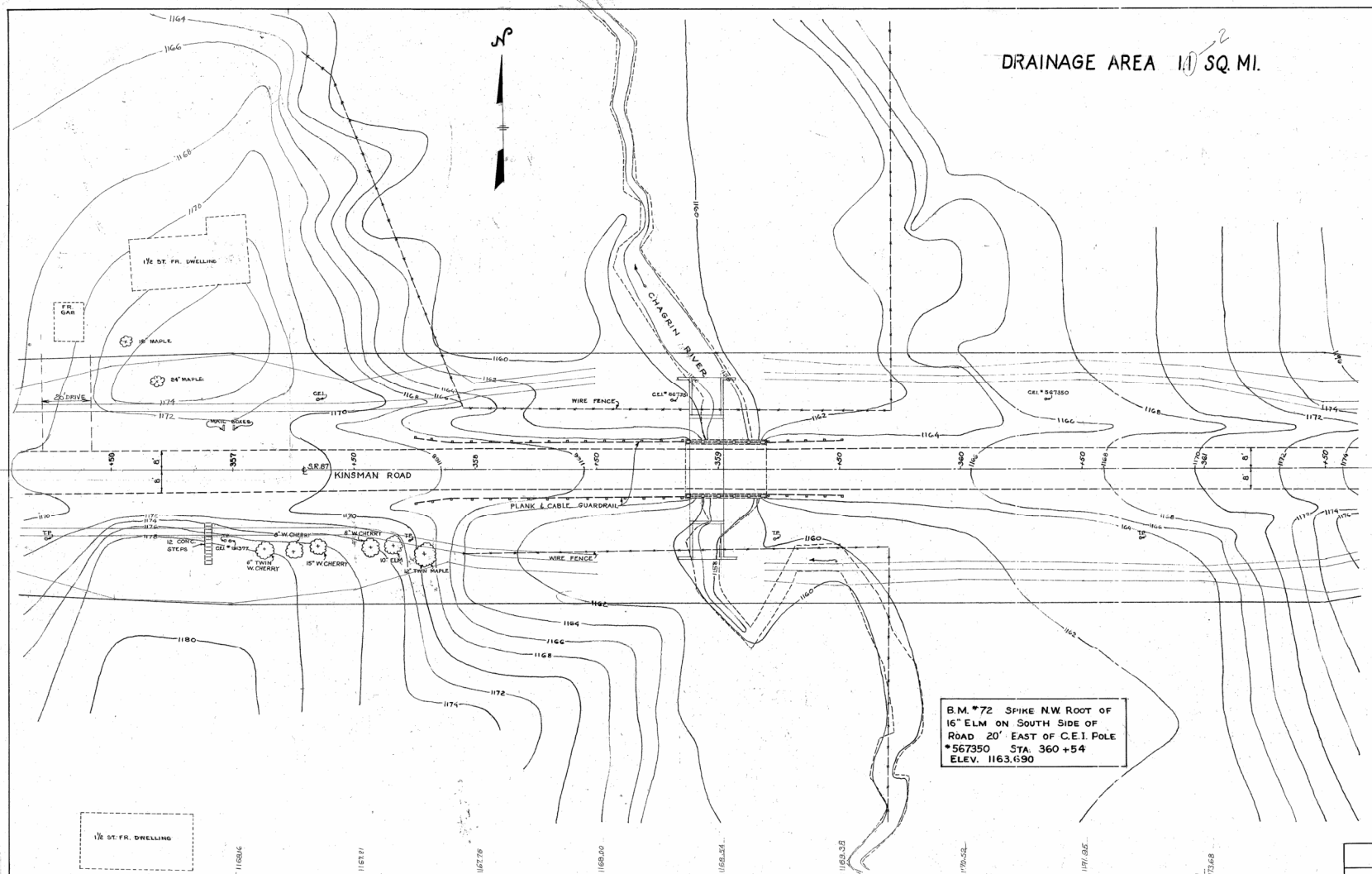
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
P.F.G.	P.F.G.					

PART 2 CULVERT PLANS

FED. RD. DIVISION	STATE	PROJECT	FISCAL YEAR
2	OHIO	H. I. F	1949

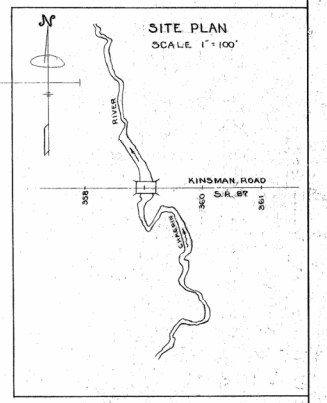
GEAUGA COUNTY
S.R.87 BRIDGE GEA-87-68A

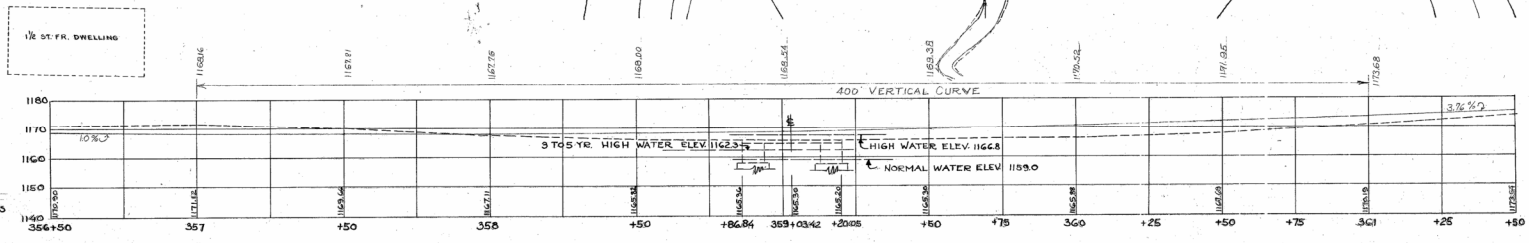
DRAINAGE AREA 1.1 SQ. MI.



EXISTING BRIDGE DATA

TYPE: CONCRETE SLAB, CONCRETE SUBSTRUCTURE, ROADWAY WIDTH 20'-8"
LOADING: H-15
CLEAR SPAN: 18'-0"
CLEAR HEIGHT: 7'-10"
SKEW: 0°
CONDITION: POOR





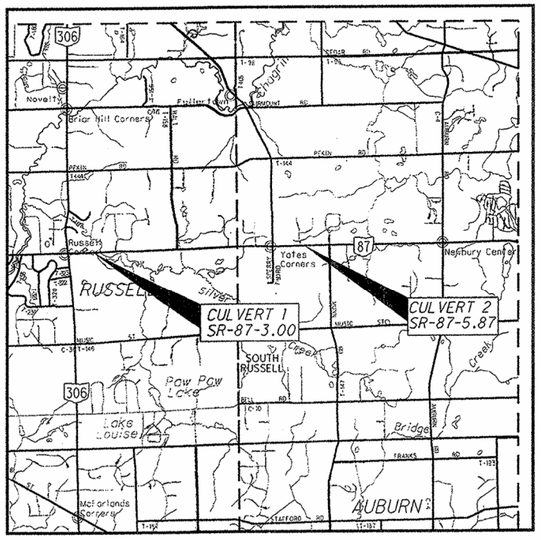
Typical Section, Line & Grade OK
[illegible] 7-6-49

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

SITE PLAN
KINSMAN RD. S.R. 87
A BRANCH OF CHAGRIN RIVER
BRIDGE No. GEA-87-68A

SCALE 1" = 20'

EXISTING TOPO.		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED



LOCATION MAP

LATITUDE: 41°27'45" LONGITUDE: 81°20'3"

SCALE IN MILES

0 1 2 3 4

N

PORTION TO BE IMPROVED

INTERSTATE HIGHWAY

STATE & FEDERAL ROUTES

COUNTY & TOWNSHIP ROADS

OTHER ROADS

STATE OF OHIO

DEPARTMENT OF TRANSPORTATION

GEA-87-3.00/5.87

NEWBURY TOWNSHIP

RUSSELL TOWNSHIP

PROJECT DESCRIPTION

THE PROJECT INCLUDES THE REPLACEMENT OF TWO ROADWAY CULVERT PIPES AND HEADWALLS WITH PAVEMENT RESTORATION AND MINOR GUARDRAIL WORK.

PROJECT EARTH DISTURBED AREA: N/A (MAINTENANCE PROJECT)
ESTIMATED CONTRACTOR EARTH DISTRUBED AREA: N/A (MAINTENANCE PROJECT)
NOTICE OF INTENT EARTH DISTURBED AREA: N/A (MAINTENANCE PROJECT)

INDEX OF SHEETS:

2010 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 REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT DETOURS WILL BE PROVIDED AS INDICATED ON SHEETS 9 AND 10.

FEDERAL PROJECT NO. NON-FEDERAL

PID NO. 87428

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT NONE

GEA-87-3.00/5.87

1/14

GEA - SR-87-3.00/5.87
110336 PID - 87428
Dist 12 5/19/2011

I:\PROJECTS\PID87428\Plo 001.dgn 15-FEB-2

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG

CALL
1-800-362-2764
(TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

OIL & GAS PRODUCERS PROTECTIVE SERVICE CALL: 1-800-925-0988

PLAN PREPARED BY:
ODOT District 12

ENGINEERS SEAL:

STATE OF OHIO
MICHAEL KING MORIARTY
E-67496
REGISTERED PROFESSIONAL ENGINEER

MICHAEL KING MORIARTY
SIGNED: Michael King Moriarty
DATE: 2-15-11

STANDARD CONSTRUCTION DRAWINGS

BP-3.1	10/19/07	MT-97.10	10/15/10				
		MT-97.11	10/15/10				
DM-1.1	1/21/11	MT-99.20	1/16/09				
DM-1.4	4/21/06	MT-101.60	4/17/09				
DM-4.3	4/17/09	MT-105.10	1/16/09				
DM-4.4	4/17/09						
		TC-73.10	1/19/01				
GR-1.1	7/16/04						
GR-2.1	1/16/04						
GR-2.4	4/18/03						
HW-1.1	7/30/07						
HW-2.1	7/30/07						
HW-2.2	7/30/07						

SUPPLEMENTAL SPECIFICATIONS

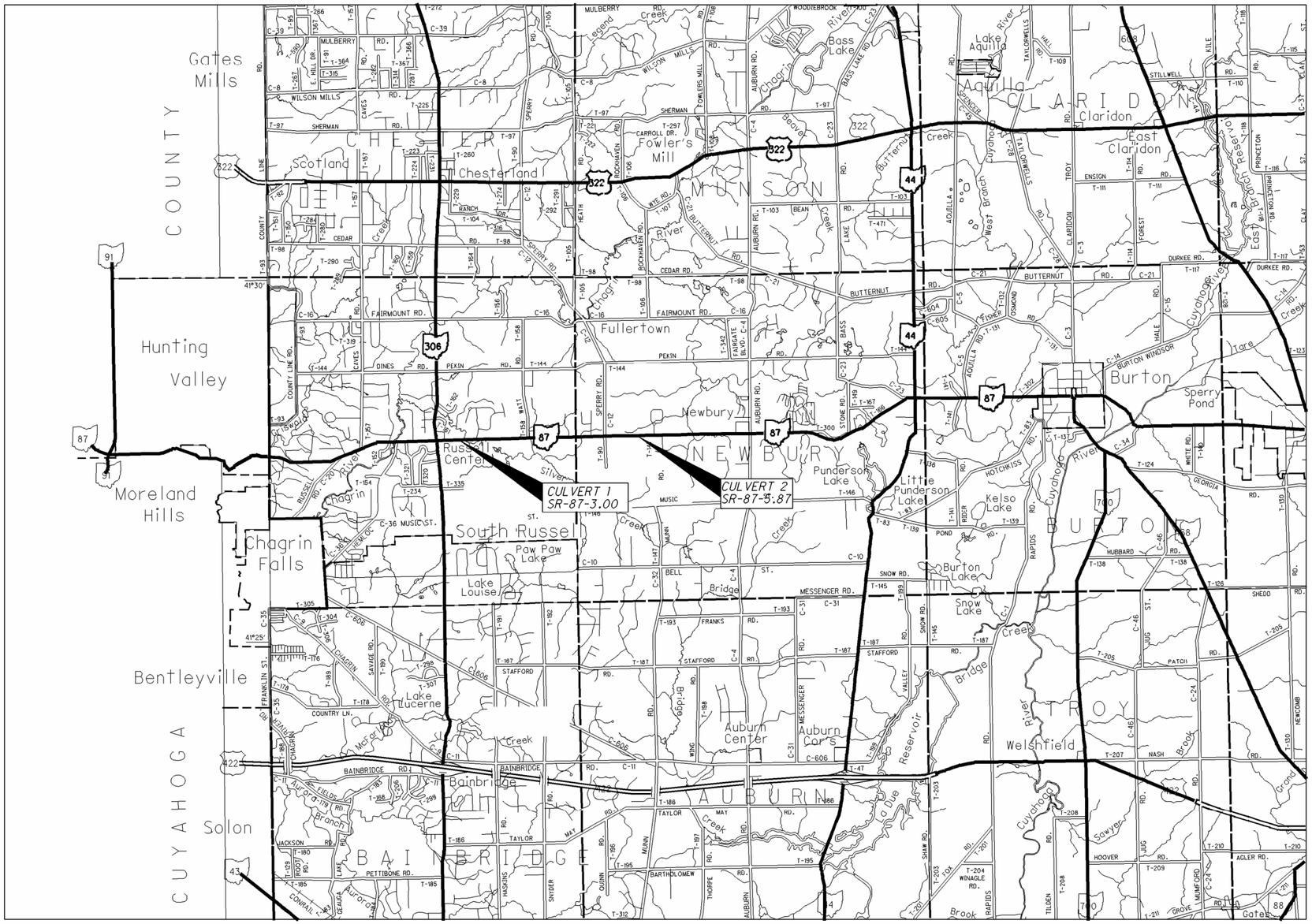
800	1/21/11
832	5/5/09

SPECIAL PROVISIONS

WATERWAY PERMIT 2-18-2011

APPROVED _____
DATE 2-15-11 DISTRICT DEPUTY DIRECTOR

APPROVED _____
DATE 3-9-11 DIRECTOR, DEPARTMENT OF TRANSPORTATION



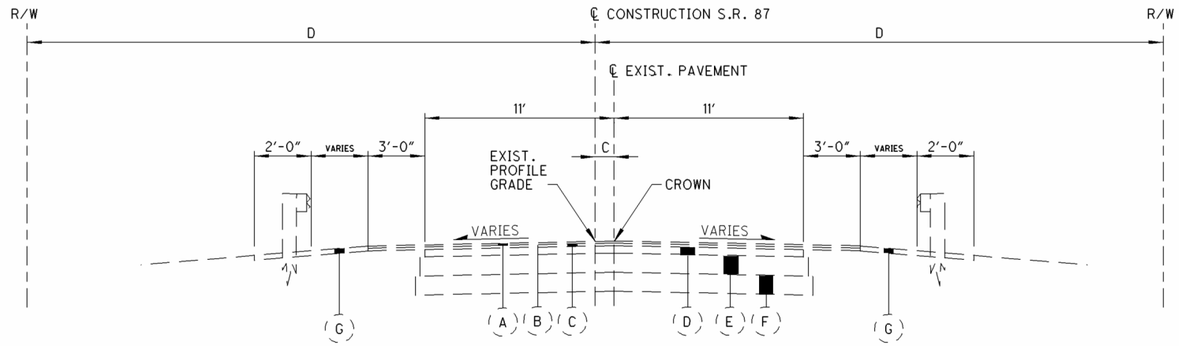
DESIGN DESIGNATION

DESIGN DESIGNATION	GEA-87-3.0	GEA-87-5.87
CURRENT ADT (2007)	6250	6250
DESIGN YEAR ADT (2029)	11300	7600
DESIGN HOURLY VOLUME (2029)	1130	1040
DIRECTIONAL DISTRIBUTION	55%	55%
TRUCKS (24 HOUR B&C)	2.72%	2.72%
DESIGN SPEED	55 MPH	55 MPH
LEGAL SPEED	50 MPH	50 MPH
DESIGN FUNCTIONAL CLASSIFICATION:	50 MPH	50 MPH
RURAL MAJOR COLLECTOR		

CALCULATED AJS
CHECKED MKM

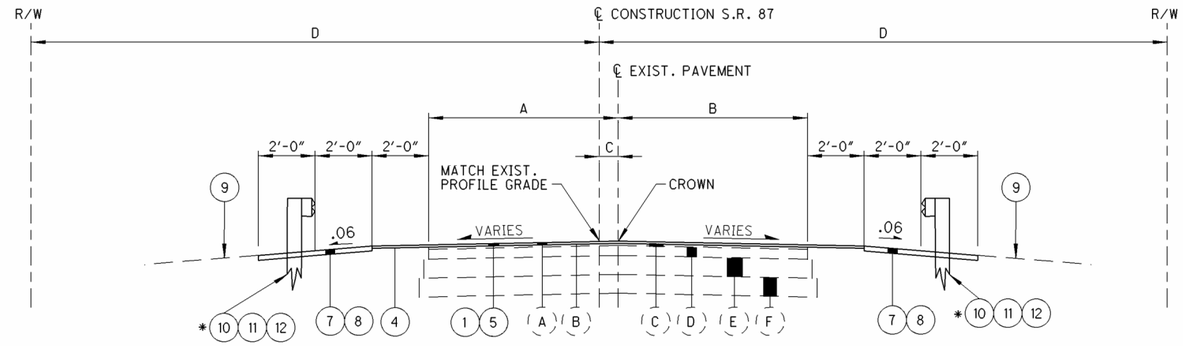
LOCATION MAP

GEA-3.00/ 5.87



EXISTNG SECTION

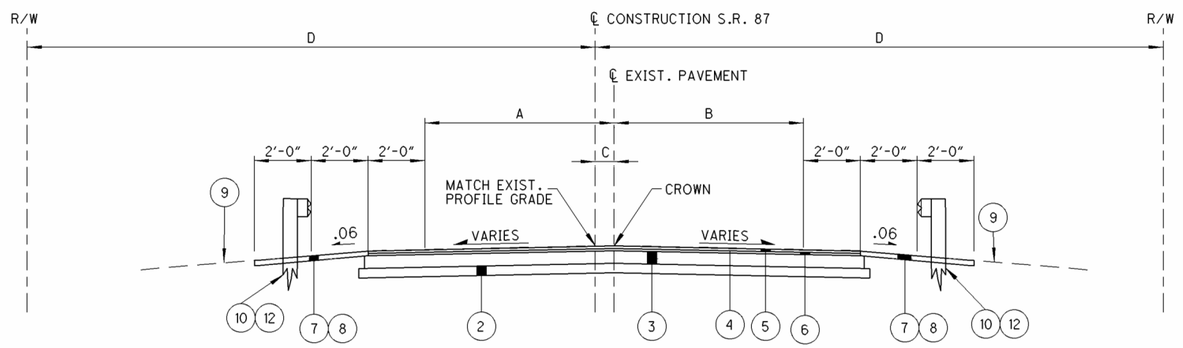
GEA-87-3.00



RESURFACING SECTION

STA. 158+09 TO STA. 158+30, SR 87 - 3.00
STA. 158+38 TO STA. 158+59, SR 87 - 3.00

* TYPE 5 GUARDRAIL, LONG SPAN BEGINS AT APPROX. STA 158+21.5 LT/RT AND ENDS AT STA 158+46.5 LT/RT



FULL DEPTH REPLACEMENT SECTION

STA. 158+30 TO STA. 158+38, SR 87 - 3.00

LEGEND - EXISTING

- (A) ASPHALT CONCRETE SURFACE COURSE, TYPE 1 (1.5")
- (B) ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-22 (0"-.5")
- (C) ASPHALT CONCRETE PAVEMENT SURFACE HEATER RECYCLING (2")
- (D) 3" ASPHALT CONCRETE BASE
- (E) 5" GRANULATED SLAG
- (F) 18" SUBBASE COURSE
- (G) ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG 64-22, UNDER GUARDRAIL

LEGEND - PROPOSED

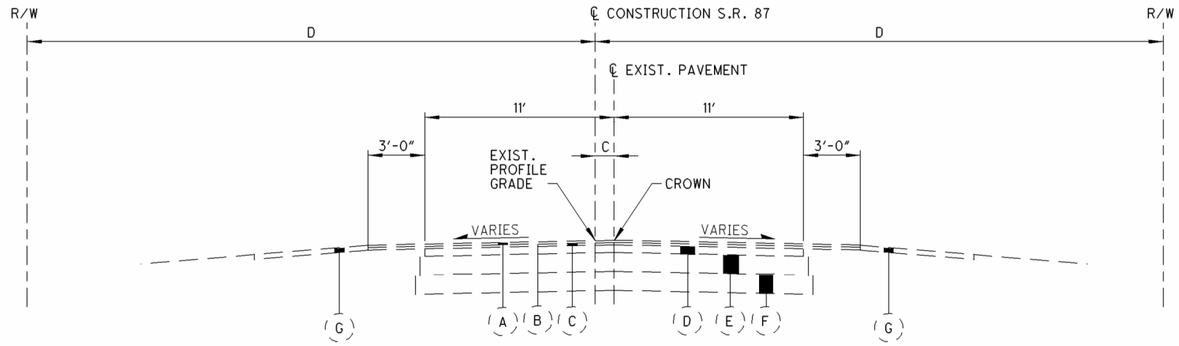
- (1) ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE, (T= 1½" NOMINAL)
- (2) ITEM 304 - 6" AGGREGATE BASE
- (3) ITEM 301 - 9" ASPHALT CONCRETE BASE, PG64-22
- (4) ITEM 407 - TACK COAT
- (5) ITEM 448 - 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 64-22, AS PER PLAN
- (6) ITEM 448 - 1½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG 64-22
- (7) ITEM 448-3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG 64-22, UNDER GUARDRAIL, AS PER PLAN
- (8) ITEM 209 - LINEAR GRADING, AS PER PLAN
- (9) ITEM 659 - SEEDING AND MULCHING
- (10) ITEM 606 - GUARDRAIL, TYPE 5, LONG SPAN
- (11) ITEM 606 - GUARDRAIL, TYPE 5
- (12) ITEM 202 - GUARDRAIL REMOVED

DIMENSION TABLE				
LOCATION	A	B	C	D
GEA-87-3.00	11'-0"±	11'-0"±	6'-4"±	47'-6"±

CALCULATED AJS CHECKED MKM

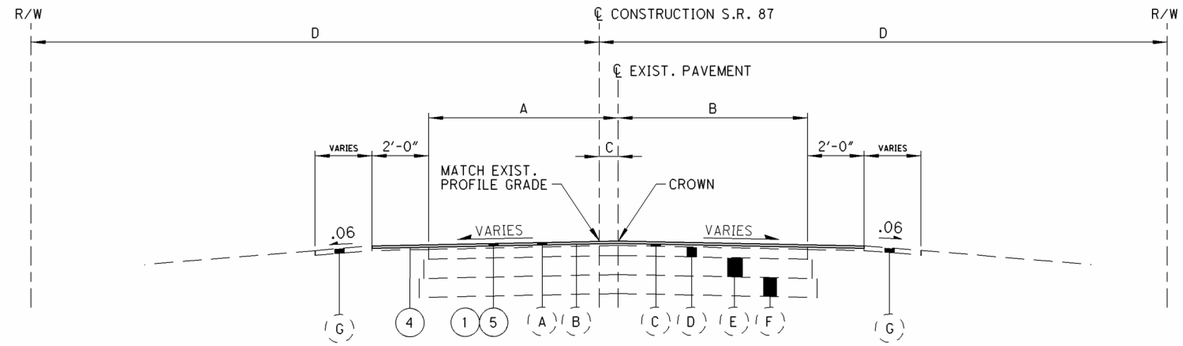
TYPICAL SECTIONS - GEA-87-3.00

GEA-87-3.00 / 5.87



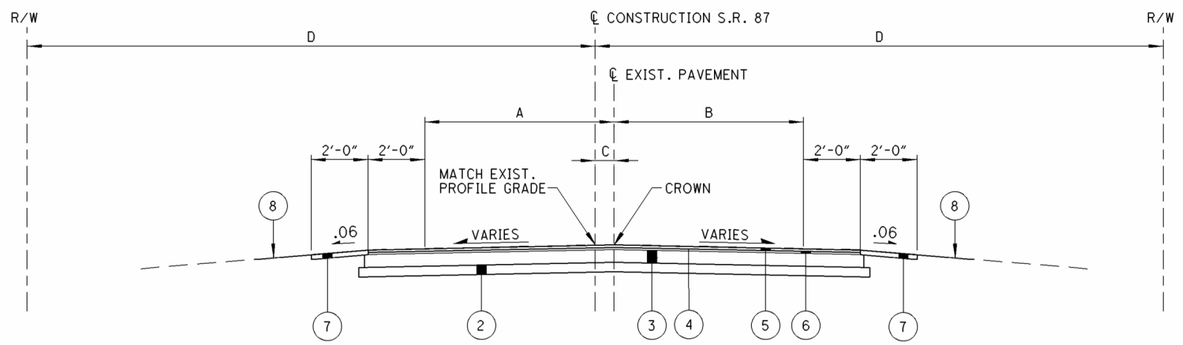
EXISTNG SECTION

GEA-87-5.87



RESURFACING SECTION

STA. 309+95 TO STA. 310+12.5 , SR 87 - 5.87
STA. 310+17.5 TO STA. 310+35, SR 87 - 5.87



FULL DEPTH REPLACEMENT SECTION

STA. 310+12.5 TO STA. 310+17.5, SR 87 - 5.87

LEGEND - EXISTING

- (A) ASPHALT CONCRETE SURFACE COURSE, TYPE 1 (1.5")
- (B) ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-22 (0"-.5")
- (C) ASPHALT CONCRETE PAVEMENT SURFACE HEATER RECYCLING (2")
- (D) 3" ASPHALT CONCRETE BASE
- (E) 5" GRANULATED SLAG
- (F) 18" SUBBASE COURSE
- (G) ITEM 617 COMPACTED AGGREGATE

LEGEND - PROPOSED

- (1) ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE, AS PER PLAN (T= 1½" NOMINAL)
- (2) ITEM 304 - 6" AGGREGATE BASE
- (3) ITEM 301 - 9" ASPHALT CONCRETE BASE, PG64-22
- (4) ITEM 407 - TACK COAT
- (5) ITEM 448 - 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 64-22, AS PER PLAN
- (6) ITEM 448 - 1½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG 64-22
- (7) ITEM 617 - 4" COMPACTED AGGREGATE
- (8) ITEM 659 - SEEDING AND MULCHING

DIMENSION TABLE				
LOCATION	A	B	C	D
GEA-87-5.87	11'-0"±	11'-0"±	6'-4"±	47'-6"±

CALCULATED A.JS CHECKED MKM

TYPICAL SECTIONS - GEA-87-5.87

GEA-87-3.00 / 5.87

UTILITIES

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR REPECTIVE OWNERS;

DOMINION EAST OHIO
320 SPRINGSIDE DR.
FAIRLAWN, OHIO 44333
PH: (330) 664-2488
ATTN: MIKE ANTONIUS

TIME WARNER CABLE
14300 SOUTH INDUSTRIAL PKWY.
MAPLE HEIGHTS, OHIO 44137
PH: (216) 663-4003
ATTEN: KIP EIGER

ILLUMINATING COMPANY
6896 MILLER RD.
BRECKSVILLE, OHIO 44141
PH: (440) 717-6845
ATTN: MARK ROBINSON

THE LOCATION OF THE UNDERGROUND UTILTIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

RIGHT-OF-WAY

ALL WORK SHALL BE PERFORMED WITHIN THE EXISTING RIGHT OF WAY.

EXISTING TYPICAL SECTIONS

EXISTING TYPICAL SECTIONS HAVE BEEN TAKEN FROM THE RECORDS AND ARE BELIEVED TO REPRESENT THE EXISTING PAVEMENT BUT THE STATE OF OHIO DOES NOT GUARANTEE THE ACCURACY OF THE SAME.

FOR FURTHER INFORMATION IN REGARD TO THE EXISTING TYPICAL SECTIONS, THE CONTRACTOR SHALL REFER TO THE PREVIOUS CONSTRUCTION PLANS.

THESE PLANS MAY BE REVIEWED AT THE FOLLOWING LOCATION:

OHIO DEPARTMENT OF TRANSPORTATION
DISTRICT 12 OFFICE
5500 TRANSPORTATION BLVD.
GARFIELD HEIGHTS, OHIO 44125

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 THE COMPLETION OF THIS PROJECT.

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 THE WORK LIMITS.

CLEARING AN GRUBBING

ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE PROJECT, A LUMP SUM QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

GUARDRAIL REPLACEMENT

NO HAZARD SHALL BE LEFT UNPROTECTED EXCEPT FOR THE ACTUAL TIME NECESSARY TO REMOVE THE EXISTING GUARDRAIL, PREPARE THE SITE AND INSTALL NEW GUARDRAIL IN A CONTINUOUS OPERATION. THE REMOVAL OF ALL GUARDRAIL SHALL, AT ALL TIMES, BE AS DIRECTED BY THE ENGINEER. NO GUARDRAIL SHALL BE REMOVED UNTIL THE REPLACEMENT MATERIAL IS ONSITE AND READY FOR INSTALLATION. FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL BE DEEMED SUFFICIENT CAUSE TO ORDER WORK SUSPENDED UNTIL SUCH TIME AS THE ENGINEER IS ASSURED OF COMPLIANCE.

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 W-BEAM RAIL SPLICE AS SHOWN IN AASHTO M 180. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

BENCHING OF FOUNDATION SLOPES

ALTHOUGH CROSS SECTIONS INDICATE SPECIFIC DIMENSIONS FOR PROPOSED BENCHING OF THE EMBANKMENT FOUNDATIONS IN CERTAIN AREAS, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. ALL OTHER SLOPED EMBANKMENT AREAS SHALL BE BENCHED AS SET FORTH IN 203.05.

EQUIPMENT AND MATERIAL STORAGE

IN ORDER TO PROVIDE FOR THE SAFETY OF THE TRAVELING PUBLIC, THE CONTRACTOR'S ATTENTION IS DIRECTED TO 614.03. IN ADDITION, THE FOLLOWING PROVISIONS SHALL APPLY:

1. ANY REMOVED ITEMS SHALL NOT BE STORED ON THE RIGHT OF WAY FOR MORE THAN THIRTY (30) DAYS.
2. THE STORAGE OF EQUIPMENT, MATERIALS AND VEHICLES WITHIN THE HIGHWAY RIGHT OF WAY WILL BE PERMITTED. THE NUMBER OF AREAS AND EXACT LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
3. ALL DISTURBED AREAS SHALL BE RETURNED TO THEIR ORIGINAL CONDITION AT NO EXPENSE TO THE STATE.

ITEM 619 FIELD OFFICE, TYPE B

A TYPE B FIELD OFFICE IS REQUIRED FOR THIS PROJECT. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 619-FIELD OFFICE, TYPE B 3 MONTHS

ITEM 603 – 54" CONDUIT, TYPE A, APP

THE FOLLOWING CONDUITS ARE PERMISSIBLE:
54" 706.02 (D-LOAD 1250)
54" 707.04 (0.109) 1/2" CORR.
60" 707.04 (0.109) 1" CORR.
54" 707.04 (0.079) 1/2" CORR., PAVED PER 707.07
60" 707.04 (0.079) 1" CORR., PAVED PER 707.07
60" 707.02 (0.064) 1" CORR., CONCRETE FIELD PAVING

ITEM 603 – 33" CONDUIT, TYPE A, APP

THE FOLLOWING CONDUITS ARE PERMISSIBLE:
33" 706.02 (D-LOAD 1000)
33" 707.05 (0.109) 1/2" CORR.
33" 707.04 (0.109) 1/2" CORR.
36" 707.04 (0.109) 1" CORR.
33" 707.04 (0.079) 1/2" CORR., PAVED PER 707.07
36" 707.04 (0.079) 1" CORR., PAVED PER 707.07

ITEM 202 - PIPE REMOVED, OVER 24", AS PER PLAN
ITEM 202 - PIPE REMOVED, 24" AND UNDER, AS PER PLAN

IN ADDITION TO THE REMOVAL OF THE EXISTING CONDUIT, THIS ITEM SHALL INCLUDE REMOVAL OF THE PAVEMENT AND PAVED SHOULDERS WITHIN THE LIMITS SHOWN ON THE PLANS. ALL WORK SHALL BE IN ACCORDANCE WITH SECTION 202 OF THE CMS.

STREAM CHANNEL EXCAVATION

THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT ANY INCIDENTAL HAULING OF MATERIAL FROM THE STREAM CHANNEL. THIS PERTAINS TO ANY EXCAVATION OPERATIONS (I.E. CHANNEL CLEANOUT, EXCAVATION FOR ROCK CHANNEL PROTECTION AND REMOVAL OF ANY TEMPOARARY FILL ASSOCIATED WITH CONSTRUCTION OPERATIONS).

CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, 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 THE LAY OF THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT OR EXISTING APPERTANANCE 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 PORTION 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 INTERFERENCE WITH AN EXISTING FACILITY.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 ITEM.

CALCULATED AJS
CHECKED MKM

GENERAL NOTES

GEA-87-3.00/ 5.87

ITEM 448 - ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 1, PG 64-22, UNDER GUARDRAIL AS PER PLAN.

THIS OPERATION SHALL INCLUDE PREPERATION OF THE GRADED SHOULDER USING ITEM 209, LINEAR GRADING AS PER PLAN AND PAVING UNDER THE GUARDRAIL USING 448 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG 64-22, UNDER GUARDRAIL AS PER PLAN.

ITEM 209, LINEAR GRADING AS PER PLAN, SHALL CONSIST OF EXCAVATION TOPSOIL AND PLACING GRANULAR MATERIAL.

ALL COLLECTED DEBRIS AND TOPSOIL, INCLUDING RHIZOMES, ROOTS AND OTHER VEGETATED MATERIAL SHALL BE REMOVED AND DISPOSED OF AS SPECIFIED IN 105.17.

THE REMOVED MATERIAL SHALL BE REPLACED WITH COMPACTABLE GRANULAR MATERIAL CONFORMING TO 703.16 PLACED TO GRADE AS DETAILED ON THE TYPICAL SECTION OR AS APPROVED BY THE ENGINEER.

ALL EQUIPMENT, MATERIALS AND LABOR REQUIRED TO PERFORM THE WORK OUTLINED ABOVE SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 209, LINEAR GRADING AS PER PLAN.

PAVING UNDER GUARDRAIL SHALL CONSIST OF PLACING ITEM 448 TO THE DEPTH SPECIFIED USING ONE OF THE FOLLOWING METHODS:

METHOD A:

1. SET GUARDRAIL POSTS
2. PLACE ITEM 448

METHOD B:

1. PLACE ITEM 448
2. BORE ASPHALT AT POST LOCATIONS (MAY BE OMITTED IF STEEL POSTS ARE USED)
3. SET GUARDRAIL POSTS
4. PATCH AROUND POSTS. THE MATERIALS USED FOR PATCHING SHALL BE AN ASPHALT CONCRETE APPROVED BY THE ENGINEER. PATCHED AREAS SHALL BE COMPACTED USING EITHER HAND OR MECHANICAL METHODS. FINISHED SURFACES SHALL BE SMOOTH AND SLOPED TO DRAIN AWAY FROM POSTS.

ALL EQUIPMENT, MATERIALS AND LABOR REQUIRED TO PERFORM THE WORK OUTLINED ABOVE, WITH THE EXCEPTION OF SETTING GUARDRAIL POSTS, SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 448, ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 1, PG 64-22, UNDER GUARDRAIL AS PER PLAN.

ITEM 448- ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 64-22, AS PER PLAN

THE COURSE AGGREGATE FOR THIS ITEM SHALL BE LIMITED TO CRUSHED CARBONATE STONE, AIR COOLED BLAST FURNACE SLAG OR A 50/50 BLEND OF AIR COOLED BLAST FURNACE SLAG (ACBFS) AND LIMESTONE (CCS).

ELEVATION DATUM

ALL ELEVATIONS ARE BASED ON ASSUMED DATUMS.

COOPERATION BETWEEN CONTRACTORS

THE CONTRACTOR SHALL COOPERATE AND COORDINATE HIS OPERATIONS WITH THE CONTRACTORS ON OTHER PROJECTS THAT MAY BE IN FORCE DURING THE LIFE OF THE CONTRACT. NO WAIVER OF ANY PROVISIONS OF 105.08 OF THE CMS IS INTENDED.

DRIVEWAY ACCESS

INGRESS AND EGRESS TO ALL RESIDENTIAL AND COMMERCIAL DRIVEWAYS WITHIN THE PROJECT AREA SHALL BE MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT.

INTERIM COMPLETION DATE

THE CONTRACTOR WILL BE ALLOTED SEVEN (7) CONSECUTIVE CALENDAR DAYS FOR ALL CULVERT REPLACEMENT WORK EXCEPT PAVING SURFACE COURSE, CULVERT HEADWALL INSTALLATION, SLOPE STABILIZATION AND FINAL PAVEMENT MARKINGS. THE WORK SHALL BE COMPLETED WITHIN SEVEN (7) CONSECUTIVE DAYS FROM THE START OF THE SIGNED ROAD CLOSURE ON SR 87.

THE DEPARTMENT WILL ASSESS ROAD USER COSTS OF **$5,000 PER DAY** FOR EACH DAY BEYOND THE SEVEN DAY ROAD CLOSURE WHERE THE AFOREMENTIONED REQUIREMENTS ARE NOT MET.

HOLIDAY AND EVENT CLOSURES

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

MEMORIAL DAY - MAY 30, 2011
MESPO DAY INCLUDING INDEPENDENCE DAY – JULY 2 THROUGH JULY 4, 2011
GEAUGA COUNTY FAIR – SEPTEMBER 1 THROUGH SEPTEMBER 5, 2011
COLUMBUS DAY – OCTOBER 10, 2011

THE PERIOD OF TIME THAT THE LANES SHALL BE OPEN ARE FROM SIX (6) AM OF THE MORNING OF THE EVENT TO TEN (10) PM OF THE LAST DAY OF THE EVENT.

THE DEPARTMENTWILL ASSESS ROAD USER COSTS IN ACCORDANCE WITH 108.07 OF THE CMS FOR FAILING TO MEET THESE REQUIREMENTS.

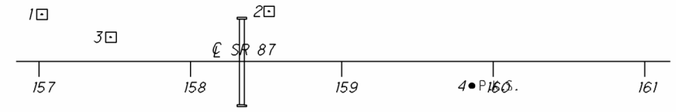
WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THE WORK LIMITS.

REFERENCE	STA.	OFFSET	ELEVATION
1	313+09.13	20.83' LT	1234.01
2	309+77.41	32.81' LT	1233.57
3	311+18.63	30.07' LT	1232.85
4	309+18.67	30.15' LT	1236.92

GEA-87-5.87

P.F. PIN FOUND
I.P.F. IRON PIN FOUND
WOOD HUB
P.K.S. PK NAIL SET



REFERENCE	STA.	OFFSET	ELEVATION
1	157+02.14	31.88' LT	1063.63
2	158+52.03	33.09' LT	1056.42
3	157+45.93	16.38' LT	1053.23
4	159+86.14	16.98' RT	1057.13

GEA-87-3.00

P.F. PIN FOUND
I.P.F. IRON PIN FOUND
WOOD HUB
P.K.S. PK NAIL SET

CALCULATED AJS
CHECKED MKM

BENCHMARKS AND REFERENCES

GEA-87-3.00/VAR

7
14

ITEM 614 - MAINTENANCE OF TRAFFIC

SET UP TEMPORARY TRAFFIC CONTROL AS DESCRIBED BELOW AND AS SHOWN.

THE CONTRACTOR SHALL CLOSE THE ROADWAY TO ALL TRAFFIC PER THE DETOUR PLAN. THE CONTRACTOR SHALL CLOSE STATE ROUTE 87 TO THROUGH TRAFFIC AT SPECIFIC CULVERT LOCATIONS PER SCD MT-101.60 AND AS SHOWN ON SHEETS 9 AND 10. ONLY ONE CULVERT LOCATION, EITHER GEA-87-3.00 OR GEA-87-5.87, CAN BE CLOSED TO THROUGH TRAFFIC AT A TIME. WHERE STATE ROUTE 87 IS CLOSED TO THROUGH TRAFFIC AT ONE CULVERT LOCATION, STATE ROUTE 87 SHALL REMAIN OPEN TO THROUGH TRAFFIC AT THE OTHER CULVERT LOCATION.

THE CONTRACTOR SHALL NOTIFY THE ENGINEER, THE GEAUGA COUNTY SHERIFFS OFFICE AND THE OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 12 PUBLIC INFORMATION OFFICE BY EMAIL AT D12.PUBLICINFORMATION@DOT.STATE.OH.US OR BY FAX AT 216-584-3524 NOT LESS THAN TWENTY FOUR (24) HOURS PRIOR TO A SCHEDULED DISRUPTION OF TRAFFIC.

NOTICE OF CLOSURE SIGNS AS DETAILED IN THESE PLANS SHALL BE ERECTED BY THE CONTRACTOR AT LEAST TWO WEEKS IN ADVANCE OF THE SCHEDULED CLOSURE. THE SIGNS SHALL BE ERECTED ON THE RIGHT HAND SIDE OF THE ROAD FACING TRAFFIC. THEY SHALL BE PLACED AS TO NOT INTERFERE WITH THE VISIBILITY OF ANY OTHER TRAFFIC CONTROL SIGNS. THEY SHOULD BE ERECTED AT THE POINT OF CLOSURE.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN 48 INCH X 30 INCH ROAD CLOSED SIGNS, SIGN SUPPORTS, BARRICADES, GATES AND LIGHTS, AS DETAILED IN SCD MT-101.60, AT THE LOCATIONS SHOWN ON SHEETS 9 AND 10, DURING PERIODS OF WHEN STATE ROUTE 87 IS CLOSED TO TRAFFIC.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN DETOUR SIGNS AND SIGN SUPPORTS AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND AS SHOWN ON THE DETOUR MAP.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH CMS 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, MAINTENANCE OF TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

TRENCH FOR PIPE REMOVAL AND CULVERT CONSTRUCTION

THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH DRUMS OR BARRICADES AT ALL TIMES. PLACEMENT OF PROPOSED BACKFILL AND BASE MATERIAL SHALL FOLLOW CLOSELY AS POSSIBLE BEHIND THE EXCAVATION AND CONDUIT LAYING OPERATIONS. THE LENGTH OF TRENCH OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL, AT ALL TIMES, BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

THE RIDING SURFACE OVER THE TRENCH SHALL BE RESTORED TO THE SAME LEVEL AS THE EXISTING PAVEMENT AT THE END OF EACH WORK DAY BY THE USE OF TEMPORARY OR PERMANENT SURFACES. ROAD PLATES SECURED IN PLACE AND OVERLAID WITH ASPHALT CONCRETE MAY BE USED FOR OVERNIGHT TRENCH CLOSURES WHERE WORK IS TO RESUME THE NEXT DAY. NO PORTION OF THE TRENCH SHALL BE LEFT OPEN OVERNIGHT.

ALL COSTS ASSOCIATED WITH THESE REQUIREMENTS SHALL BE INCLUDED FOR PAYMENT IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC.

ITEM 614 – MAINTAINING TRAFFIC (CONTINGENCY QUANTITIES)

THE FOLLOWING QUANTITES ARE PROVIDED FOR USE AS DIRECTED BY THE ENGINEER FOR MAINTENANCE OF TRAFFIC.

ITEM 410 – TRAFFIC COMPACTED SURFACE, TYPE A OR B	20 CU YD
ITEM 614 – ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	50 CU YD
ITEM 616 – WATER	10 MGAL

CALCULATED AJS
CHECKED MKM

MAINTENANCE OF TRAFFIC NOTES

GEA-87-3.00 / 5.87

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1 DETOUR M4-8-24 — 87 MI-5-30-3

2 DETOUR M4-8-24 — 87 MI-5-30-3 — M5-1R-21

3 DETOUR M4-8-24 — 87 MI-5-30-3 — M5-1L-21

4 DETOUR M4-8-24 — 87 MI-5-30-3 — M6-1-21

5 DETOUR M4-8-24 — 87 MI-5-30-3 — M6-1-21

6 DETOUR M4-8-24 — 87 MI-5-30-3 — M6-3-21

7 ROAD CLOSED 0.25 MILES AHEAD LOCAL TRAFFIC ONLY — R11-3-60 — DETOUR M4-10L-48

8 ROAD CLOSED 5 MILES AHEAD LOCAL TRAFFIC ONLY — R11-3-60 — DETOUR M4-10R-48

9 ROAD CLOSED — R11-2-48

10 DETOUR AHEAD — W20-2-36

11 ROAD CLOSED AHEAD — W20-3-36

12 ROAD CLOSED 5 MILES AHEAD LOCAL TRAFFIC ONLY — R11-3A-60

13 ROAD CLOSED 0.25 MILES AHEAD LOCAL TRAFFIC ONLY — R11-3A-60

14 END DETOUR — M4-8A-24

HORIZONTAL SCALE IN FEET 0

CALCULATED AJS CHECKED MKM

MAINTENANCE OF TRAFFIC
DETOUR MAP - GEA-87-3.00

GEA-87-3.00 / 5.87

9 / 14

1 DETOUR
M4-8-24
87
MI-5-30-3

2 DETOUR
M4-8-24
87
MI-5-30-3
M5-1R-21

3 DETOUR
M4-8-24
87
MI-5-30-3
M5-1L-21

4 DETOUR
M4-8-24
87
MI-5-30-3
M6-1-21

5 DETOUR
M4-8-24
87
MI-5-30-3
M6-1-21

6 DETOUR
M4-8-24
87
MI-5-30-3
M6-3-21

7 ROAD CLOSED
3 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3-60
DETOUR
M4-10L-48

8 ROAD CLOSED
3 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3-60
DETOUR
M4-10R-48

9 ROAD CLOSED
R11-2-48

10 DETOUR AHEAD
W20-2-36

11 ROAD CLOSED AHEAD
W20-3-36

12 ROAD CLOSED
3 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3A-60

13 ROAD CLOSED
3 MILES AHEAD
LOCAL TRAFFIC ONLY
R11-3A-60

14 END DETOUR
M4-8A-24

N

HORIZONTAL SCALE IN FEET
0

CALCULATED AJS
CHECKED MKM

MAINTENANCE OF TRAFFIC
DETOUR MAP - GEA-87-5.87

GEA-87-3.00 / 5.87

10
14

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SHEET NUMBER												PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
5	8	12	13	14															
																		ROADWAY	
LUMP														201	11000	LUMP		CLEARING AND GRUBBING	
			2	2										202	20010	4	EACH	HEADWALL REMOVED	
				63										202	35101	63	FT	PIPE REMOVED, 24" AND UNDER, AS PER PLAN	
			88											202	35201	88	FT	PIPE REMOVED, OVER 24", AS PER PLAN	
			100											202	38001	100	FT	GUARDRAIL REMOVED, AS PER PLAN	
		0.02												209	60501	0.02	MILE	LINEAR GRADING, AS PER PLAN	
			50											606	13000	50	FT	GUARDRAIL, TYPE 5	
			50											606	17290	50	FT	GUARDRAIL, TYPE 5, LONG-SPAN	
																		EROSION CONTROL	
			8.33											601	32104	8.33	CU YD	ROCK CHANNEL PROTECTION, TYPE B WITH FABRIC FILTER	
		400												659	10000	400	SQ YD	SEEDING AND MULCHING	
		0.04												659	20000	0.04	TON	COMMERCIAL FERTILIZER	
		0.09												659	31000	0.09	ACRE	LIME	
		1.08												659	35000	1.08	MGAL	WATER	
														832	30000	2000	EACH	EROSION CONTROL	
																		DRAINAGE	
			24.6	1.52										602	20000	26.12	CU YD	CONCRETE MASONRY	
				16										603	01800	16	FT	8" CONDUIT, TYPE B	
				55										603	14701	55	FT	33" CONDUIT, TYPE A, AS PER PLAN	
			88											603	22201	88	FT	54" CONDUIT, TYPE A, AS PER PLAN	
		218												613	41200	218	CU YD	LOW STRENGTH MORTAR BACKFILL	
																		PAVEMENT	
		260												254	01000	260	SQ YD	PAVEMENT PLANING, ASPHALT CONCRETE (T=1.5")	
		10												301	46000	10	CU YD	ASPHALT CONCRETE BASE, PG64-22	
		7												304	20000	7	CU YD	AGGREGATE BASE	
		26												407	10000	26	GALLON	TACK COAT	
		11												448	47021	11	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22, AS PER PLAN	
		8												448	46061	8	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, UNDER GUARDRAIL, PG64-22, AS PER PLAN	
		2												448	46020	2	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG 64-22	
		2												617	10100	2	CU YD	COMPACTED AGGREGATE	
																		TRAFFIC CONTROL	
		0.04												642	00090	0.04	MILE	EDGE LINE	
		0.02												642	00290	0.02	MILE	CENTER LINE	
																		RETAINING WALLS	
			LUMP	LUMP										503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING	
																		MAINTENANCE OF TRAFFIC	
	20													410	12000	20	CU YD	TRAFFIC COMPACTED SURFACE, TYPE A OR B	
	50													614	13000	50	CU YD	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	
	10													616	10000	10	MGAL	WATER	
	LUMP													614	11000	LUMP		MAINTAINING TRAFFIC	
3														619	16010	3	MONTH	FIELD OFFICE, TYPE B	
														623	10000	LUMP		CONSTRUCTION LAYOUT STAKES	
														624	10000	LUMP		MOBILIZATION	

CALCULATED AJS CHECKED MKM

GENERAL SUMMARY

GEA-87-3.00/ 5.87

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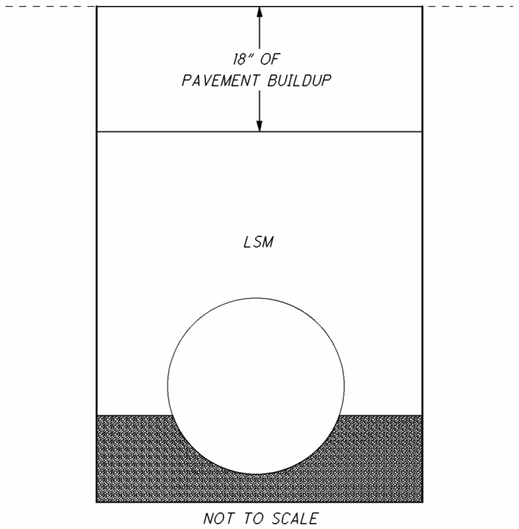
LOCATION	STATION TO STATION FROM	TO	SIDE	LENGTH L	AVERAGE WIDTH W	SURFACE AREA A A=L x W	AREAS BY CAD	209 LINEAR GRADING, AS PER PLAN L / 5280 / MILE	254 PAVEMENT PLANING, ASPHALT CONCRETE (T=1 1/2") A / 9 / SY	301 ASPHALT CONCRETE BASE (T=9") A x (9/12) / 27 / CY	304 AGGREGATE BASE A x (6/12) / 27 / CY	407 TACK COAT A x 0.10 / 9 / GAL	448 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, UNDER GUARDRAIL, PG64-22, APP A x(3.0/12) / 27 / CY	448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22, APP A x(1.5/12) / 27 / CY	448 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG64-22 A x(1.5/12) / 27 / CY	617 COMPACTED AGGREGATE A x (4/12) / 27 / CY	642 CENTER LINE L / 5280 / MILE	642 EDGE LINE L x 2 / 5280 / MILE	613 LOW STRENGTH MORTAR BACKFILL L x ABC / 27 / CY	
GEA-87-5.87	309+95	310+12.5	CL	17.5	26	455			50.56			5.06		2.11		0.86	0.003	0.007		
	310+12.5	310+17.5	CL	5	26	130	180		14.44	3.61	2.41	1.44		0.60	0.60	0.25	0.001	0.002	33.33	
	310+17.5	310+35	CL	17.5	26	455			50.56			5.06		2.11		0.86	0.003	0.007		
GEA-87-3.00	158+09	158+30	CL	21	26	546		0.008	60.67			6.07	3.11	2.53			0.004	0.008		
	158+30	158+38	CL	8	26	208	623	0.003	23.11	5.78	3.85	2.31	1.19	0.96	0.96		0.002	0.003	184.59	
	158+38	158+59	CL	21	26	546		0.008	60.67			6.07	3.11	2.53			0.004	0.008		
TOTALS								0.019	260.00	9.39	6.26	26.00	7.41	10.83	1.56	1.98	0.02	0.034	217.93	
TOTALS CARRIED TO GENERAL SUMMARY								0.020	260	10	7	26	8	11	2	2	0.02	0.04	218	

PAVEMENT REPAIR DETAIL



NOT TO SCALE

LOCATION	STATION TO STATION FROM	TO	AREAS BY CAD	659 SEEDING AND MULCHING A / 9 / SY	659 COMMERCIAL FERTILIZER A x 0.00009 / 9 / TON	659 LIME A / 43560 / ACRE	659 WATER A x 0.0027 / 9 / MGAL
GEA-87-5.87	309+95	310+35	1600	177.78	0.016	0.037	0.48
GEA-87-3.00	158+09	158+59	2000	222.22	0.020	0.046	0.60
TOTALS				400.00	0.036	0.083	1.08
TOTALS CARRIED TO GENERAL SUMMARY				400	0.04	0.09	1.08

CALCULATED AJS
CHECKED MKM

CALCULATIONS

GEA-87-3.00 / 5.87

EXISTING STRUCTURE

TYPE: 48" CIRCULAR CONCRETE PIPE

SKEW: 1°25'21" RT

ALIGNMENT: TANGENT

PROPOSED STRUCTURE

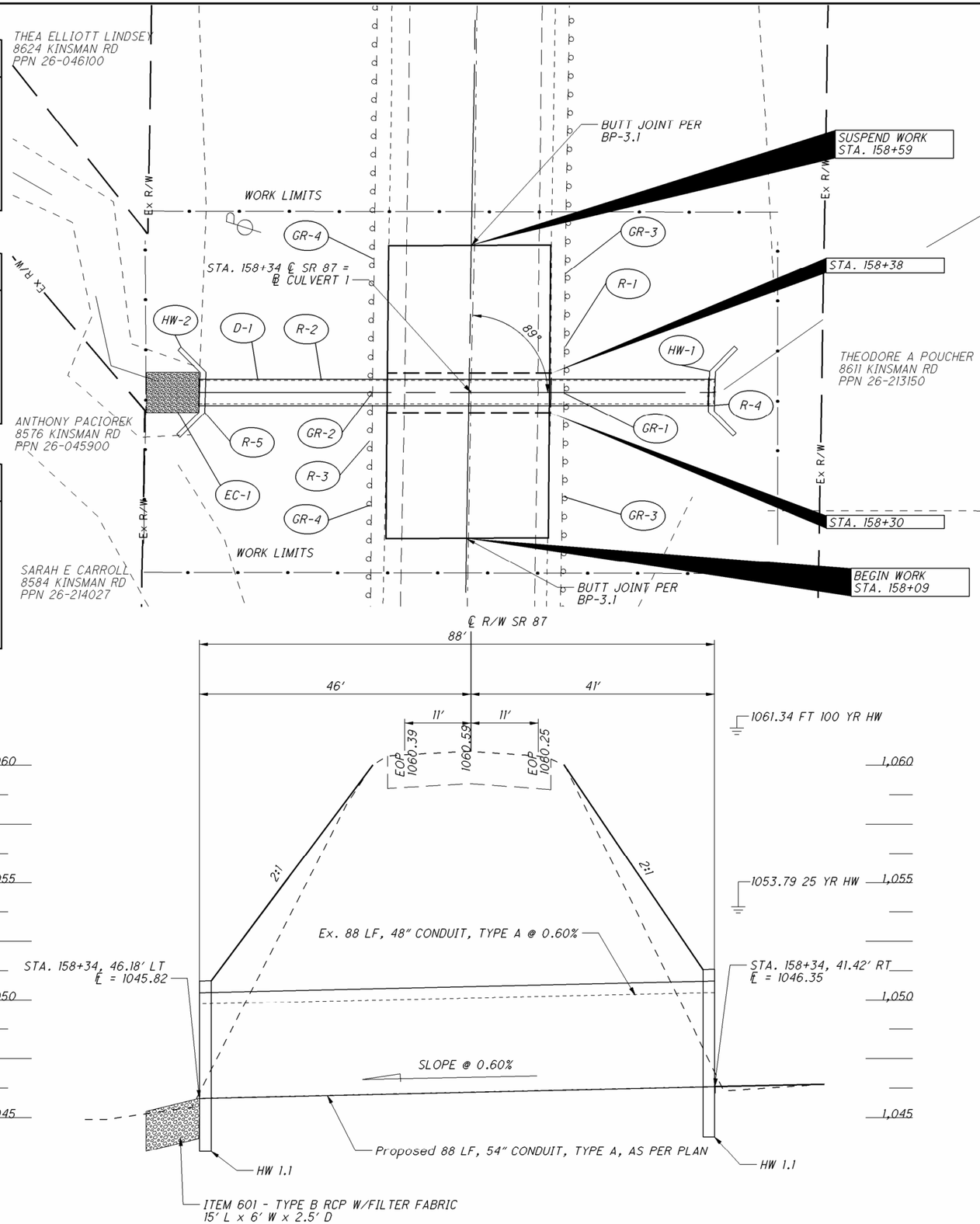
TYPE: 54" CONDUIT, TYPE A, APP

SKEW: 1°25'21" RT

ALIGNMENT: TANGENT

HYDRAULIC DESIGN DATA

DRAINAGE AREA: 94.40 ACRES
Q(25): 168.00 CFS
HW(25): 1053.79 FT
V(25): 11.84 FT/S
Q(100): 276.00 CFS
HW(100): 1061.34 FT
V(100): 16.80 FT/S



REF NO.	STATION FROM	STATION TO	SIDE	202 PIPE REMOVED, OVER 24", APP	202 GUARDRAIL REMOVED	202 HEADWALL REMOVED	503 COFFERDAMS AND EXCAVATION BRACING	601 RCP, TYPE B, W/ FF	602 CONCRETE MASONRY	603 54" CONDUIT, TYPE A, APP	606 GUARDRAIL, TYPE 5, LONG SPAN	606 GUARDRAIL, TYPE 5
				FT	FT	EACH	LUMP	CU YD	CU YD	FT	FT	FT
R-1	158+09	158+59	RT									
R-2	158+34	158+34	℄	88								
R-3	158+09	158+59	LT		50			8.33	12.3	88	25	25
R-4	158+34	158+34	RT			1			12.3		25	
R-5	158+34	158+34	LT			1						
D-1	158+34	158+34	℄									
EC-1	158+34	158+34	℄									25
HW-1	158+34	158+34	RT									25
HW-2	158+34	158+34	LT									
GR-1	158+21.5	158+46.5	RT									
GR-2	158+21.5	158+46.5	LT									
GR-3	158+09/158+46.5	158+21.5/158+59	RT									
GR-4	158+09/158+46.5	158+21.5/158+59	LT									
TOTALS CARRIED TO GENERAL SUMMARY				88	100	2	LUMP	8.33	24.6	88	50	50

HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED AJS
CHECKED MKM

CULVERT DETAIL
CULVERT #1 - GEA-87-3.00

GEA-87-3.00/ 5.87

13
14

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EXISTING STRUCTURE

TYPE: 2' X 2' CONCRETE BOX

SKEW: 0°44'59" RT

ALIGNMENT: TANGENT

PROPOSED STRUCTURE

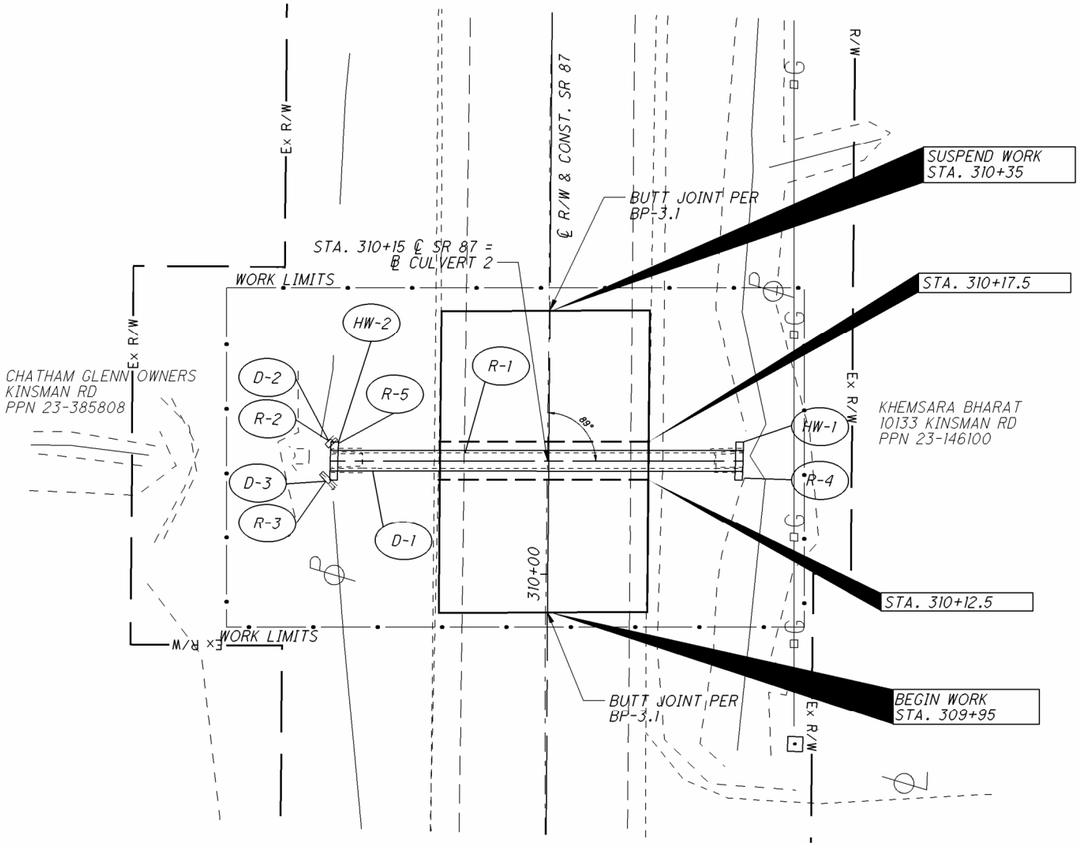
TYPE: 33" CONDUIT, TYPE A, APP

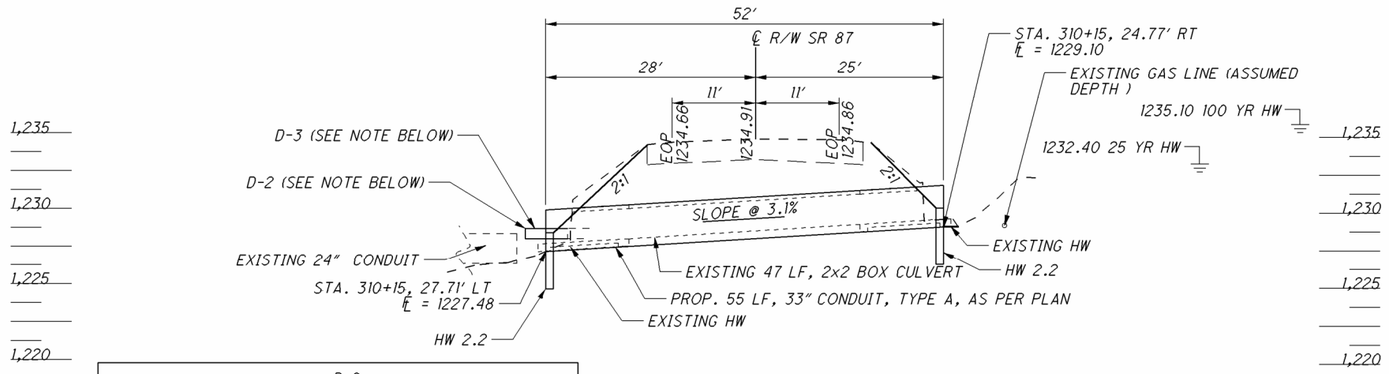
SKEW: 0°44'59" RT

ALIGNMENT: TANGENT

HYDRAULIC DESIGN DATA

DRAINAGE AREA: 21.43 ACRES
Q(25): 33.70 CFS
HW(25): 1232.40 FT
V(25): 15.69 FT/S
Q(100): 55.00 CFS
HW(100): 1235.10 FT
V(100): 17.77 FT/S





D-2
PROPOSED 8 LF, 8" CONDUIT, TYPE B @ EXISTING SLOPE
STA 310+16.9, 30' LT
℄ = 1228.00

D-3
PROPOSED 8 LF, 8" CONDUIT, TYPE B @ EXISTING SLOPE
STA 310+13.6, 30' LT
℄ = 1228.14

— ITEMS D-2 AND D-3 SHALL BE CONNECTED TO EXISTING CONDUIT USING MASONRY COLLARS AS PER SCD DM-1.1. MASONRY COLLARS SHALL BE INCLUDED IN UNIT BID PRICE FOR ITEM 603, 8" CONDUIT, TYPE B

REF NO.	STATION FROM	STATION TO	SIDE	202 PIPE REMOVED, 24" AND UNDER, APP	202 HEADWALL REMOVED	503 COFFERDAMS AND EXCAVATION BRACING	602 CONCRETE MASONRY	603 33" CONDUIT, TYPE A, APP	603 8" CONDUIT, TYPE B
				FT	EACH	LUMP	CU YD	FT	FT
R-1	310+15	310+15	℄	47.0					
R-2	310+16.9	310+16.9	LT	8.0					
R-3	310+13.6	310+13.6	LT	8.0					
R-4	310+15	310+15	RT		1				
R-5	310+15	310+15	LT		1				
D-1	310+15	310+15	℄					55.0	8.0
D-2	310+16.9	310+16.9	LT				0.76		8.0
D-3	310+13.6	310+13.6	LT				0.76		
HW-1	310+14.9	310+14.9	LT				1.52	55.0	16.0
HW-2	310+14.9	310+14.9	RT						
TOTALS CARRIED TO GENERAL SUMMARY				63.0	2	LUMP			

HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED gjs
CHECKED MKM

CULVERT DETAIL
CULVERT #2 - GEA-87-5.87

GEA-87-3.00 / 5.87

14
14

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SPECIAL PROVISIONS

404 PERMIT WATERWAY PERMITS

CRS: GEA – 87 – 3.00/5.87
PID: 87428

U.S. ARMY CORPS OF ENGINEERS
REGIONAL GENERAL PERMIT (RPG)
- Section B (maintenance)

- Effective 2/18/2011
- Expires 10/23/2014

1. Waterway Permit Time Restrictions:

Complete all work in streams and wetlands depicted in the plans, Special Provisions, and/or working drawings for temporary fill by **10/23/2014**.

For work on streams and wetlands, the Department will consider the Contractor's submission of an extension to the waterway permit end date based on project constraints. In order to be considered, the Contractor must submit a justification to the Engineer at least two months prior to the waterway permit end date.

The Engineer will submit the request for a time extension to ODOT- Office of Environmental Services- Waterway Permits Unit (614-466-7100) for consideration and coordination with the USACE and/or Ohio EPA.

2. Deviations from Permitted Construction Activities

No deviation from the requirements for work in streams and wetlands depicted in the plans, Special Provisions, and/or working drawings may be made unless a modification has been submitted to ODOT and approved by the appropriate agencies (i.e., USACE, Ohio EPA, USCG, ODNR, and USFWS).

For emergency situations resulting in unanticipated impacts to streams or wetlands, provide notification (verbal or written) to the Engineer as soon as possible following discovery of the situation. Written notification to the Engineer and notification to the ODOT- Office of Environmental Services- Waterway Permits Unit must be made within 24 hours.

For non-emergency situations, notify the Engineer in writing for submission to the ODOT- Office of Environmental Services- Waterway Permits Unit (614-466-7100) for consideration and coordination with the appropriate agencies. Notification must be made at least two months prior to planned non-permitted activities. Consideration of the requested deviation is at the discretion of the Director and must be coordinated with the appropriate regulatory agencies.

3. In-Stream Work Restrictions

Work in the following sensitive streams is further restricted as follows

Stream Name / Description	Location	Work Restriction Dates (No in-stream work permitted)
All are Unnamed Tributaries to Cuyahoga River (less than 1 square mile)		**No Work Restriction Dates** for all five culverts.

In-stream work has been defined as the placement and/or removal of fill materials (temporary or permanent) below ordinary high water of a stream. Examples of "fill" include (but are not limited to) bridge piers, abutments, culverts, rock channel protection, scour protection, and temporary work pads.

Fills (such as temporary work pads) placed within a stream identified in the above table outside of the

work restriction dates can continue to be worked from during the work restriction dates, but cannot be expanded, removed, or otherwise modified (below ordinary high water) until once again outside of the work restriction dates.

The Engineer will submit the request for a time extension to ODOT- Office of Environmental Services-Waterway Permits Unit (614-466-7100) for consideration and coordination with the USACE and/or Ohio EPA.

4. Materials:

Materials utilized in or adjacent to streams and wetlands on this project for temporary or permanent fill or bank protection shall consist of suitable material free from toxic contaminants in other than trace quantities. Broken asphalt is specifically excluded.

Cadmium, chromium, arsenate (CCA), creosote, and other pressure treated lumber shall not be used in structures that are placed in wetlands and streams.

5. Cultural Resources

If archeological sites or human remains are discovered, cease all work in the immediate area and notify the Engineer who will immediately contact the Office of Environmental Services – Cultural Resource Section (614-466-7100) and the Ohio Historic Preservation Office.

In the event of human remains are discovered the Engineer shall also contact the Geauga County Sherriff's Office. (440) 286-1234.

6. Water Resource Demarcation:

All streams, wetlands, lakes, and ponds indicated on the plans shall be demarcated in the field as per SS 832 prior to site disturbance. The fence shall remain in place and be maintained throughout the construction process. Following the completion of the project, the fence and posts shall be removed.

7. Spill containment:

Provide and Maintain an Oil Spill Kit with a minimum capacity of 65 gallons. The Spill Kit shall contain:

- 6 - 3 in. X 8 ft. Oil only socks
- 4 - 18 in. X18 in. Oil only pillows
- 2 - 5 in. X 10ft. Booms
- 50 - 16in. X 20 in. Oil only pads
- 10- Disposable Bags
- 1- 65 Gallon drum with lid
- 25 pounds of Granular Oil Absorbent

The Oil Spill Kit shall be located within 150 feet of any equipment working in a stream or wetland. The oil Spill Kit shall be maintained for the life of the contract. Any materials utilized during the project will be replaced within 48 hours.

All costs associated with furnishing and maintaining the above referenced spill containment kit is incidental to work.

Special Provisions / Plan Notes: March 8, 2010

8. Blasting:

State law requires notification to the Ohio Department of Natural Resources should blasting be required within or near stream channels (See ORC 1533.58 & CMS 107.09).

Notify Engineer, in writing, for submission to ODOT Office of Environmental Services – Waterway Permits Unit (614-466-7100) for coordination with the Ohio Department of Natural Resources.

9. Waterway Permits:

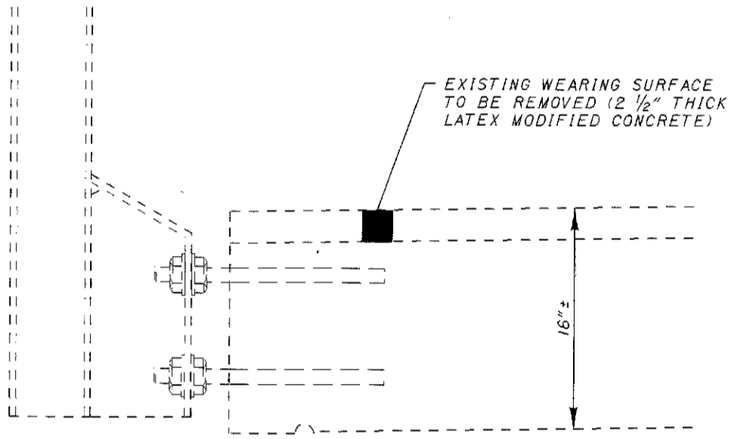
A copy of the waterway permits (i.e., USACE 404, USCG Section 9 Bridge Permit and the OEPA WQC and/or Isolated Wetland Permit) shall be kept at the work site at all times and made available to all contractors and subcontractors.

10. Bridge Inspection:

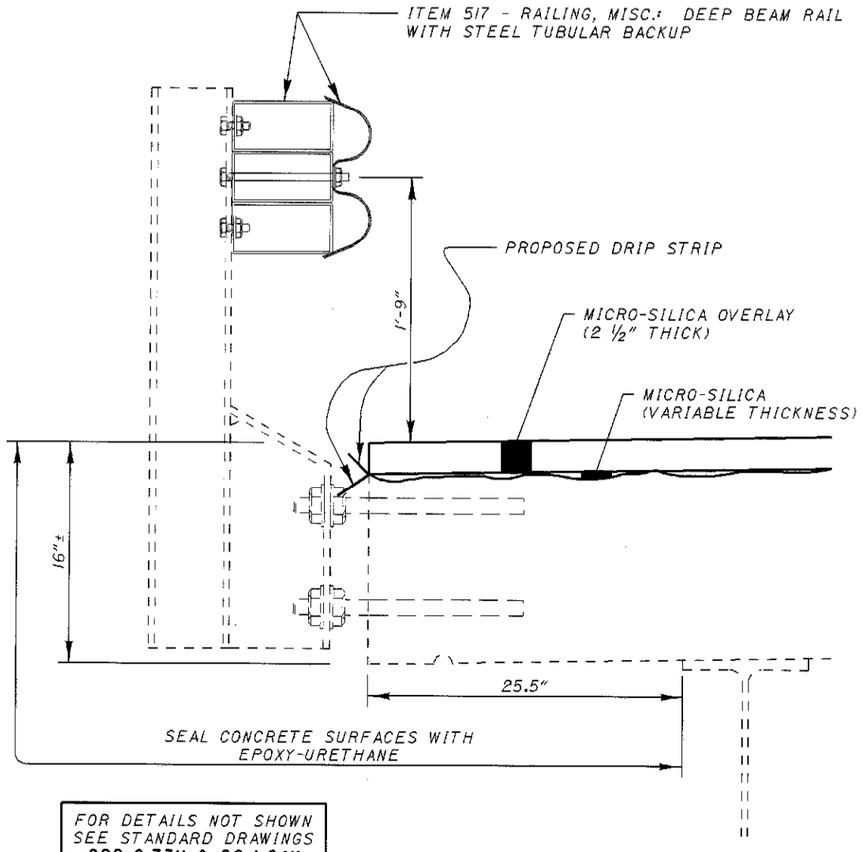
Prior to the removal of bridge structures, the underside must be carefully examined for the presence of birds and bats. Should any birds or bats be found roosting on the underside of the bridge, the Contractor is required to notify the Engineer for coordination with ODOT- Office of Environmental Services (614-466-7100).

11. Project Inspection:

Inspection of Work may include inspection by representatives of other government agencies or railroad corporations that pay a portion of the cost of the Work or regulate the Work through State and Federal law. Comments from the representatives of these agencies shall be directed to the Engineer. Please forward a copy to ODOT Office of Environmental Services. Waterway Permits Unit (614-466-7100).

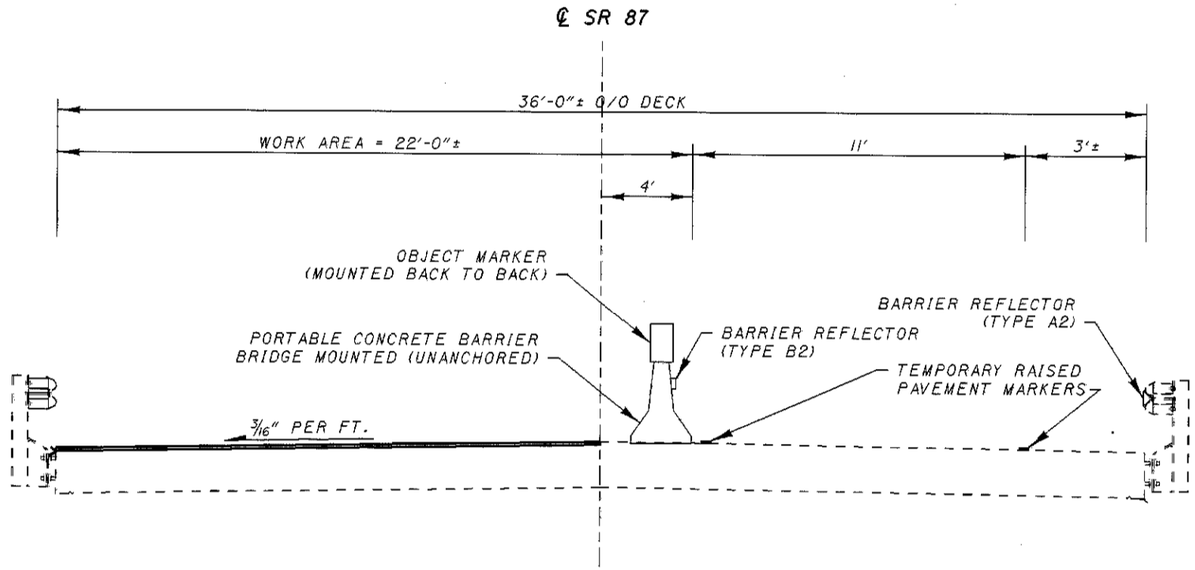


EXISTING OVERLAY DETAIL

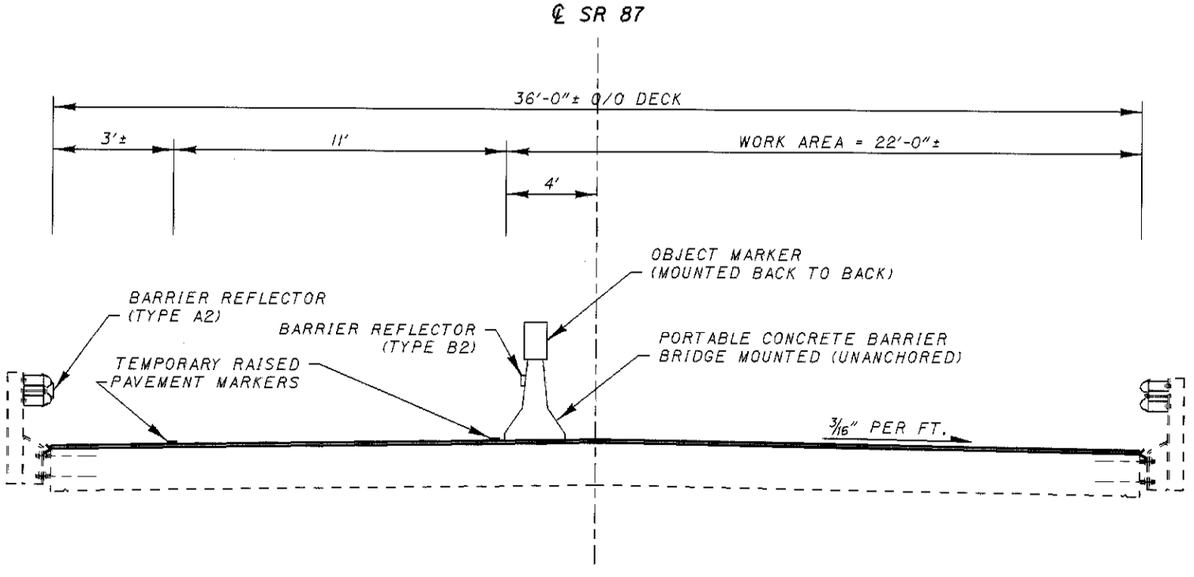


FOR DETAILS NOT SHOWN
SEE STANDARD DRAWINGS
DBR-2-73M & DS-1-94M

PROPOSED RAILING DETAIL



TYPICAL SECTION (PHASE A)



TYPICAL SECTION (PHASE B)

DESIGN AGENCY
DISTRICT TWELVE
PRODUCTION DEPARTMENT

DESIGNED	DRAWN	REVIEWED	DATE
NRC	NRC	JJL	2/99
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MJM		2800721	

TYPICAL SECTION & DETAILS

BRIDGE NO. GEA-87-1133
OVER CUYAHOGA RIVER

GEA-87-13.18/11.33/12.13)

4 / 4

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19

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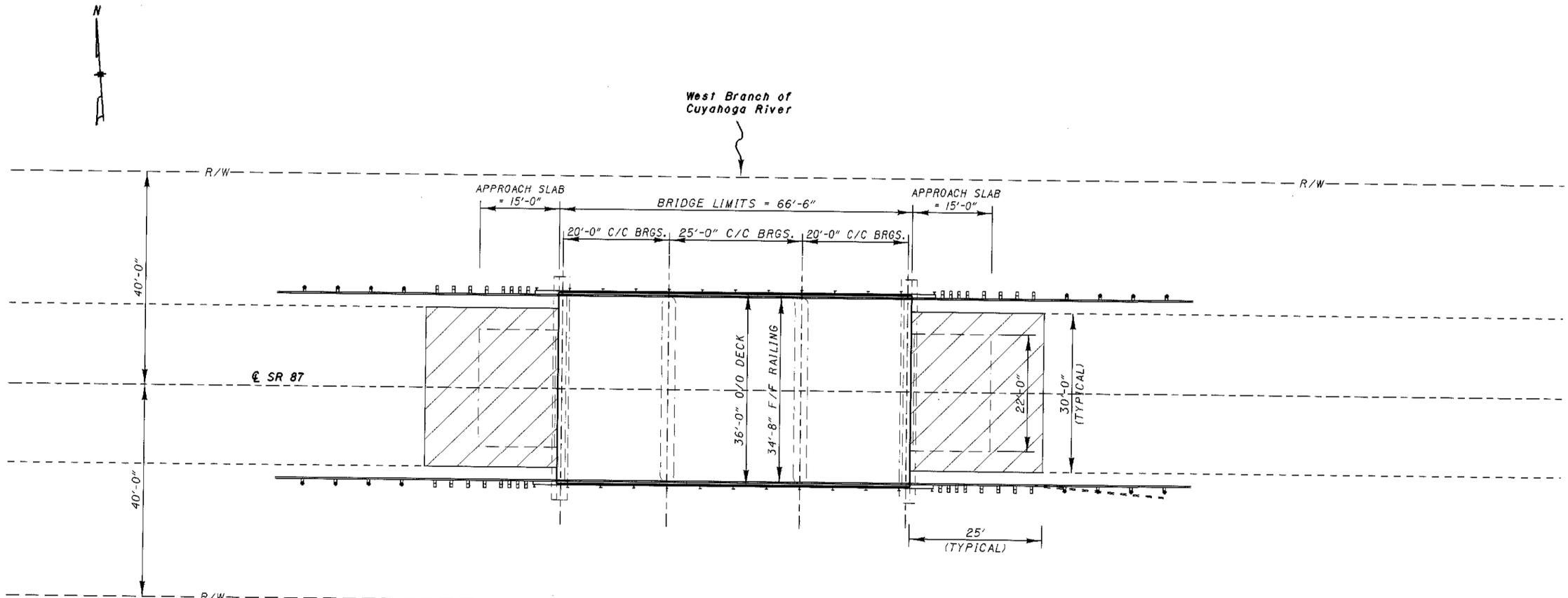
gea1133.dgn



GENERAL PLAN

1¼" OF ITEM 202 - WEARING COURSE REMOVED, ASPHALT AND RESURFACED WITH ITEM 448 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22 OVER ITEM 407 - TACK COAT. THE 25'-0" LENGTH MAY BE ADJUSTED TO FIT THE EXISTING CONDITIONS.

NOTES:

1. THE APPROACH GUARDRAIL IS NOT COMPLETELY SHOWN. FOR RAILING WORK SEE SHEET 17.
2. FOR MAINTENANCE OF TRAFFIC, SEE SHEET 18.
3. FOR ESTIMATED QUANTITIES SEE SHEET 7.

DESIGN AGENCY
DISTRICT TWELVE
PRODUCTION DEPARTMENT

DESIGNED NRC | DRAWN NRC | REVIEWED JJL | DATE 2/99
CHECKED MJM | REVISED | STRUCTURE FILE NUMBER 28007.56

GENERAL PLAN
BRIDGE NO. GEA-87-1213
OVER WEST BRANCH OF CUYAHOGA RIVER

GEA-87-(3.18)(11.33)(12.13)

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PLOTTED BY:nconley
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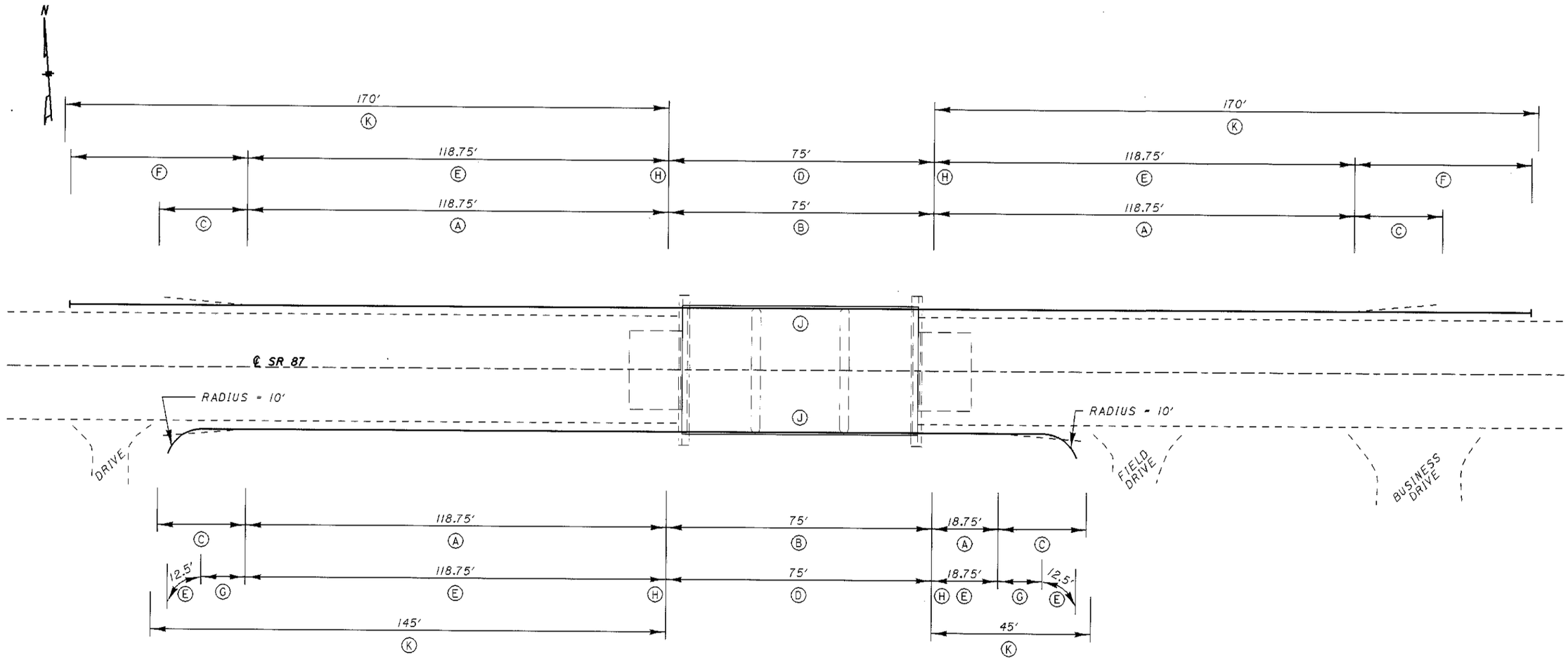
PLOT SUBMITTED:25-FEB-1999 08:19
gea1213.dgn



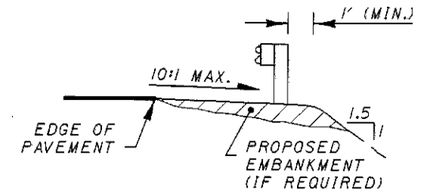
LOCATION	ITEM	DESCRIPTION	UNIT	QUANTITY		TOTAL QUANTITY
				LEFT	RIGHT	
Ⓐ	202	GUARDRAIL REMOVED	LF	237.5	137.5	375
Ⓑ	202	BRIDGE RAILING REMOVED, AS PER PLAN	LF	75	75	150 ★
Ⓒ	202	ANCHOR ASSEMBLY REMOVED, TYPE A	EA	2	2	4
Ⓓ	517	RAILING, MISC.: DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP	LF	75	75	150 ★
Ⓔ	606	GUARDRAIL, TYPE 5	LF	237.5	162.5	400
Ⓕ	606	ANCHOR ASSEMBLY, TYPE E-98	EA	2		2
Ⓖ	606	ANCHOR ASSEMBLY, TYPE T	EA		2	2
Ⓗ	606	BRIDGE TERMINAL ASSEMBLY, TYPE 4	EA	2	2	4
Ⓙ	802	BARRIER REFLECTOR, TYPE A	EA	5	4	9
Ⓚ	SPECIAL	RESHAPING BERM	LF	340	190	530

★ QUANTITY IS CARRIED TO THE STRUCTURE SUMMARY.

ALL QUANTITIES ARE CARRIED TO THE GENERAL SUMMARY.

NOTE:

FOR ITEM 517 - RAILING, MISC.: DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP DETAILS, SEE SHEET 19.



TYPICAL SECTION

DESIGN AGENCY
DISTRICT TWELVE
PRODUCTION DEPARTMENT

DESIGNED NRC | DRAWN NRC | CHECKED MJM | REVISED | REVIEWED JJL | DATE 2/99 | STRUCTURE FILE NUMBER 2800756

RAILING PLAN
BRIDGE NO. GEA-87-1213
OVER WEST BRANCH OF CUYAHOGA RIVER

GEA-87-13.80/11.33/12.13)

2 / 4

17 / 19

PLOTTED BY:nconley
PLOTTED FROM:\projects\pid18728\gea1213.dgn
PLOT SUBMITTED:25-FEB-1999 08:19
gea1213.dgn

NOTES:

PCB - PORTABLE CONCRETE BARRIER

FOR TYPICAL SECTION, SEE SHEET 19.

FOR DETAILS NOT SHOWN, SEE STANDARD DRAWINGS **MT-96.10M, MT-96.11M, MT-96.20M AND MT-96.25M.**

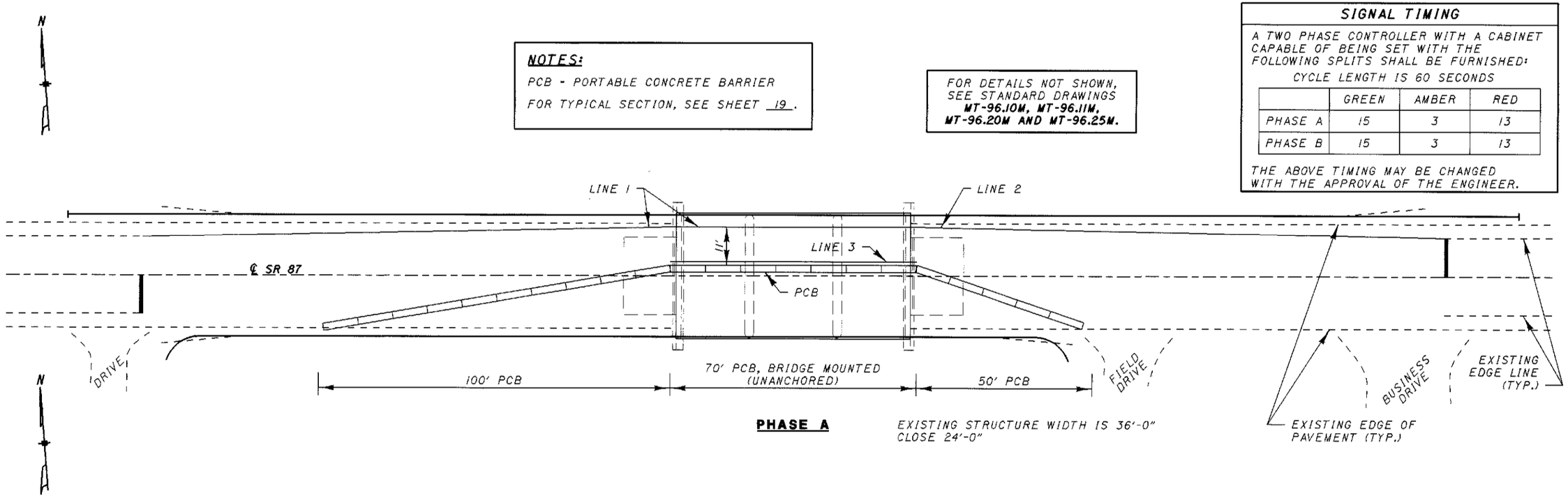
SIGNAL TIMING

A TWO PHASE CONTROLLER WITH A CABINET CAPABLE OF BEING SET WITH THE FOLLOWING SPLITS SHALL BE FURNISHED:

CYCLE LENGTH IS 60 SECONDS

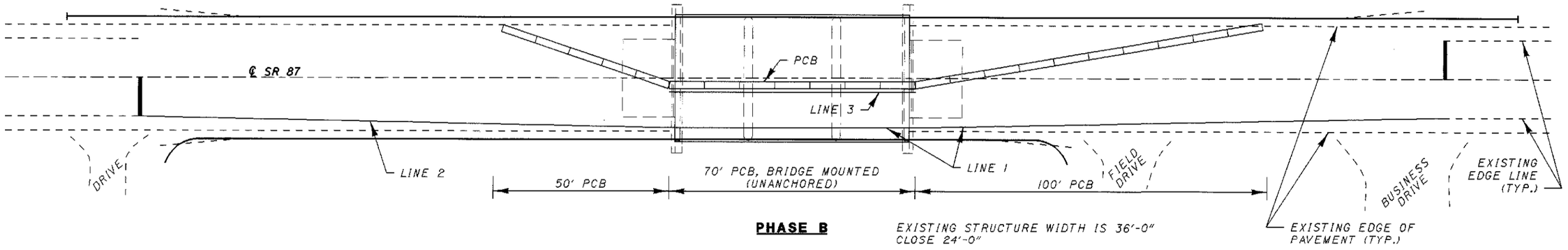
	GREEN	AMBER	RED
PHASE A	15	3	13
PHASE B	15	3	13

THE ABOVE TIMING MAY BE CHANGED WITH THE APPROVAL OF THE ENGINEER.



PHASE A

EXISTING STRUCTURE WIDTH IS 36'-0" CLOSE 24'-0"



PHASE B

EXISTING STRUCTURE WIDTH IS 36'-0" CLOSE 24'-0"

ITEM	DESCRIPTION	UNIT	QUANTITY		TOTAL QUANTITY
			PHASE A	PHASE B	
614	TEMPORARY RAISED PAVEMENT MARKER	EA	149	149	298
614	BARRIER REFLECTOR, TYPE A2	EA	17	11	28
614	BARRIER REFLECTOR, TYPE B2	EA	9	9	18
614	OBJECT MARKER	EA	10	10	20
614	TEMPORARY CENTER LINE, CLASS I	MI	0.06		0.06
614	TEMPORARY EDGE LINE, CLASS I	MI	0.02	0.02	0.04
614	TEMPORARY STOP LINE, CLASS I	LF	22		22
622	PORTABLE CONCRETE BARRIER, 32"	LF	150	150	300
622	PORTABLE CONCRETE BARRIER, 32", BRIDGE MOUNTED	LF	70	70	140
624	EDGE LINE, TYPE 2	MI			0.14
624	CENTER LINE, TYPE 2	MI			0.07

ALL QUANTITIES ARE CARRIED TO THE GENERAL SUMMARY.

TEMPORARY RAISED PAVEMENT MARKERS (TYPE A)				
		SPACING	QUANTITY (WHITE)	QUANTITY (YELLOW)
PHASE A	LINE 1 - 220'	5'	45	45
	LINE 2 - 150'	5'	31	
	LINE 3 - 70'	5'	14	14
PHASE B	LINE 1 - 220'	5'	45	45
	LINE 2 - 150'	5'	31	
	LINE 3 - 70'	5'	14	14
		TOTAL	180	180

DESIGN AGENCY: DISTRICT TWELVE PRODUCTION DEPARTMENT

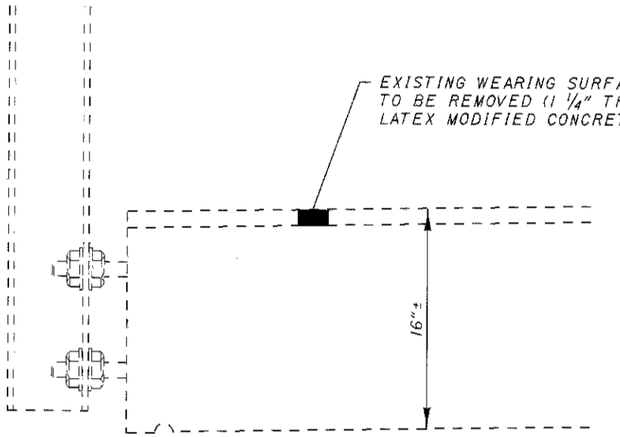
DESIGNED: NRC | DRAWN: NRC | CHECKED: MJM | REVISED:

DATE: 2/99 | REVIEWED: JJL | STRUCTURE FILE NUMBER: 2800756

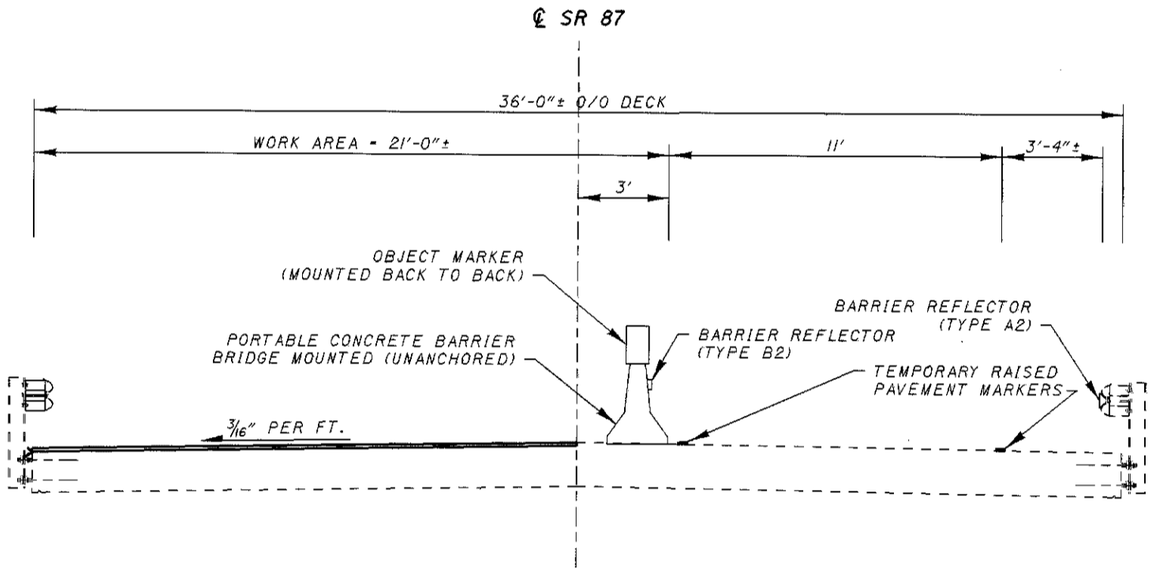
MAINTENANCE OF TRAFFIC

BRIDGE NO. GEA-87-1213
OVER WEST BRANCH OF CUYAHOGA RIVER

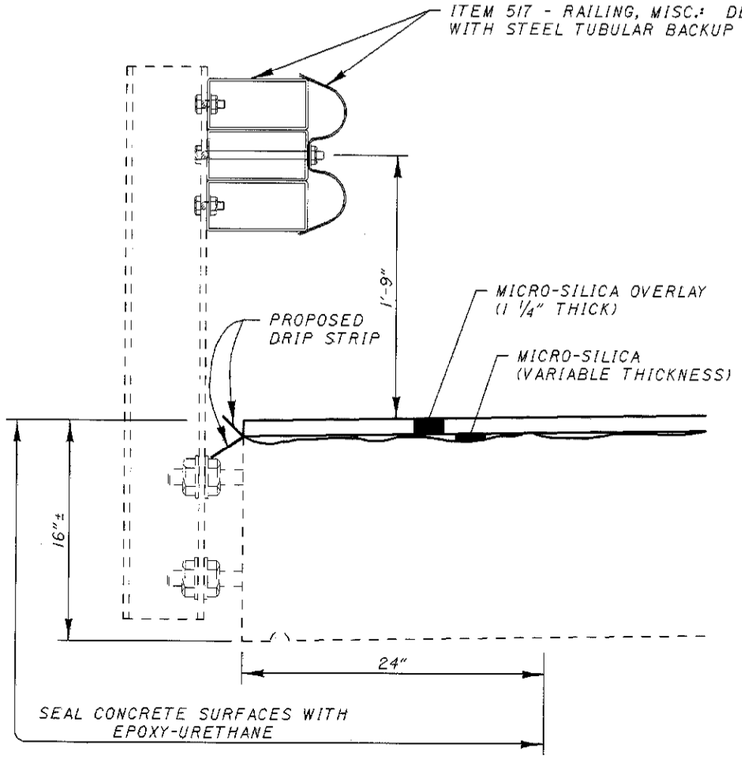
GEA-87-(13.18)(11.33)(12.13)



EXISTING OVERLAY DETAIL

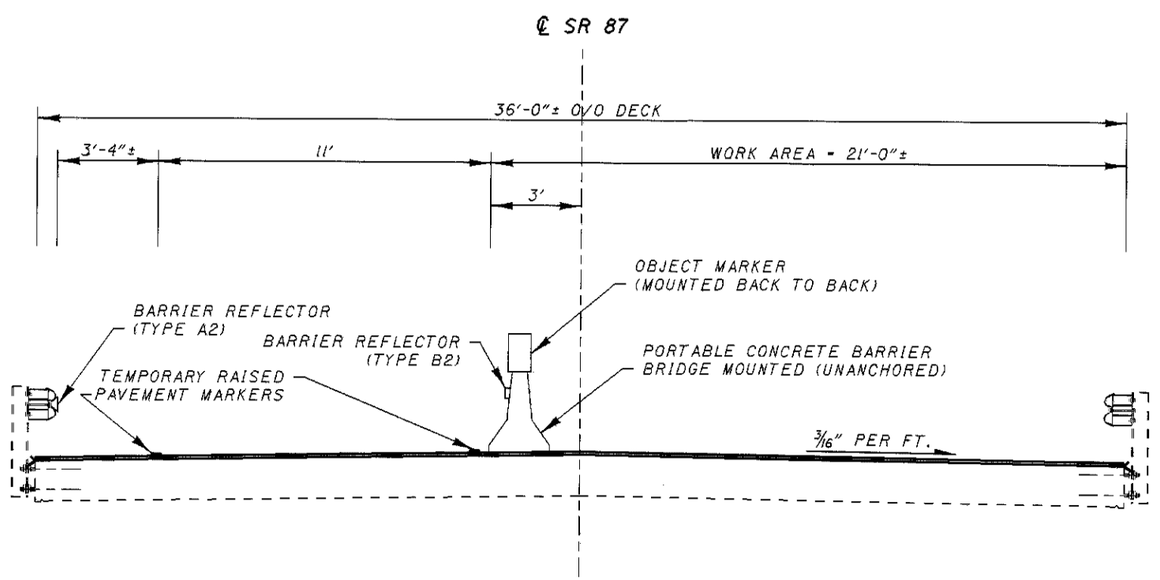


TYPICAL SECTION



FOR DETAILS NOT SHOWN
SEE STANDARD DRAWINGS
DBR-2-73M & DS-1-94M

PROPOSED RAILING DETAIL



TYPICAL SECTION

DESIGN AGENCY
DISTRICT TWELVE
PRODUCTION DEPARTMENT

DESIGNED	DRAWN	REVIEWED	DATE
NRC	NRC	JJL	2/99
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MJM		2800756	

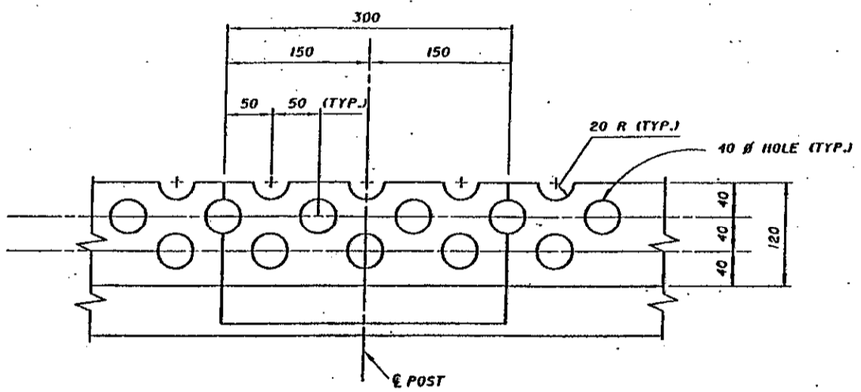
TYPICAL SECTION & DETAILS

BRIDGE NO. GEA-87-1213
OVER WEST BRANCH OF CUYAHOGA RIVER

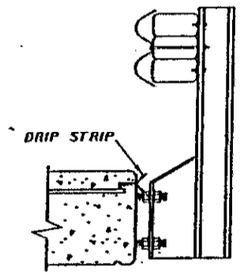
GEA-87-13.18/11.33/12.13

4/4

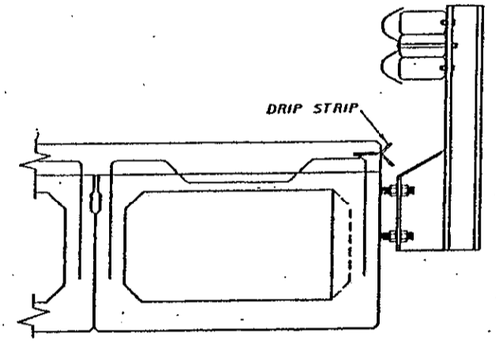
19
19



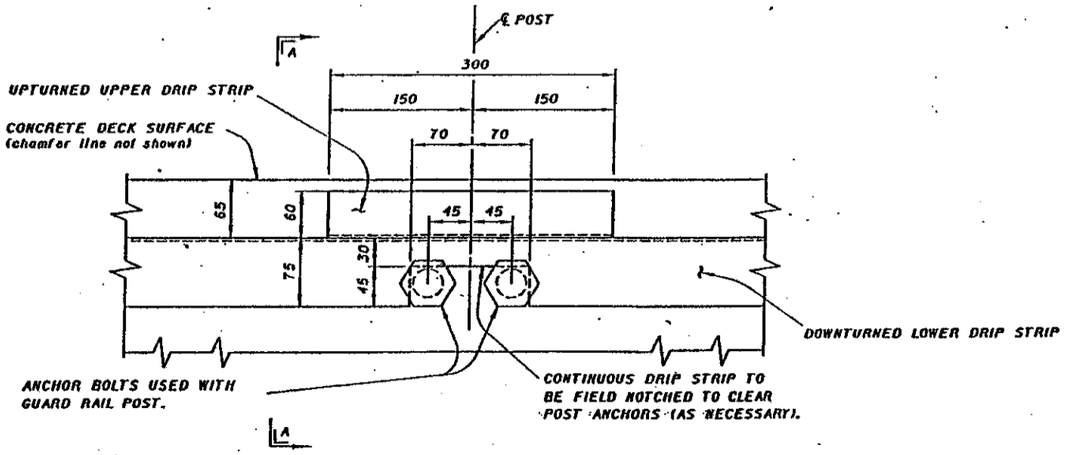
PARTIAL PLAN



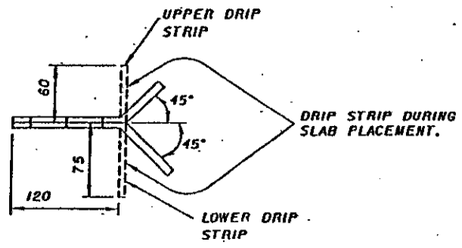
SECTION AT EDGE OF CONCRETE DECK SLAB



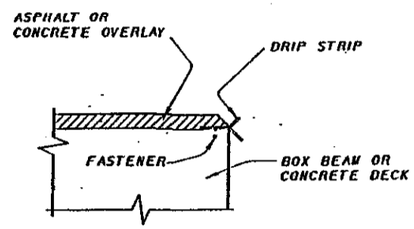
SECTION AT EDGE OF COMPOSITE PRESTRESSED BOX BEAM DECK



ELEVATION



SECTION A-A



✡ SECTION AT EDGE OF ASPHALT OR CONCRETE OVERLAY

✡ PRIOR TO PLACING AN ASPHALT OR CONCRETE OVERLAY, THE BENT DRIP STRIPS SHALL BE INSTALLED ALONG THE EDGE OF THE SLAB OR PRESTRESSED BOX BEAM AS SHOWN. THE DRIP STRIPS SHALL BE FASTENED WITH (32 mm length, 3 mm shank diameter) BUTTON HEAD SPIKES WITH DEFORMED SHANKS OR EXPANSION ANCHORS AT 450 mm C/C MAX. ALL INSTALLATION DEVICES SHALL EITHER BE GALVANIZED OR STAINLESS STEEL.

OTHER SIMILAR DEVICES WHICH WILL NOT DAMAGE THE CONCRETE MAY BE USED SUBJECT TO THE APPROVAL OF THE ENGINEER.

DRIP STRIP NOTES:

LOWER STAINLESS STEEL DRIP STRIP, AS DETAILED, SHALL BE INSTALLED ALONG THE FULL LENGTH OF EACH SIDE OF THE BRIDGE. IF SPLICES ARE REQUIRED IN THE LOWER DRIP STRIP, THE INDIVIDUAL PIECES SHALL BE BUTTED TIGHTLY TOGETHER, NOT LAPPED. A 300 mm LONG UPPER DRIP STRIP SHALL BE INSTALLED AT EACH RAILING POST. STRIPS SHALL BE BENT UP AT 90° AGAINST THE INSIDE FACE OF THE FORMS BEFORE CONCRETE IS PLACED. AFTER THE FORMS ARE REMOVED, THE DRIP STRIPS SHALL BE BENT TO A FINAL POSITION OF 45° AS SHOWN IN SECTION A-A.

STAINLESS STEEL SHALL BE A MINIMUM OF 0.8 mm ASTM A167, TYPE 304, MILL FINISH.

CARE SHALL BE USED WHEN STRIPPING FORMWORK SO AS NOT TO DAMAGE OR WRINKLE THE STAINLESS STEEL DRIP STRIP. TO FURTHER ENSURE THAT WRINKLING OF THE STRIPS DOES NOT OCCUR, AN ADEQUATE LENGTH BACKUP BAR SHALL BE USED DURING THE BENDING OUT OPERATION.

TOTAL QUANTITY FOR BID ITEM SHALL INCLUDE LINEAR FOOTAGE OF BOTH LOWER AND UPPER DRIP STRIPS.

PAYMENT SHALL BE AT THE CONTRACT PRICE BID FOR ITEM SPECIAL, LIN. FT. STEEL DRIP STRIP AND SHALL INCLUDE ALL MATERIALS, LABOR, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

DESIGN AGENCY
BUREAU OF BRIDGES AND STRUCTURAL DESIGN

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
Richard L. Engel 12-15-94
ENGINEER OF BRIDGES — DATE

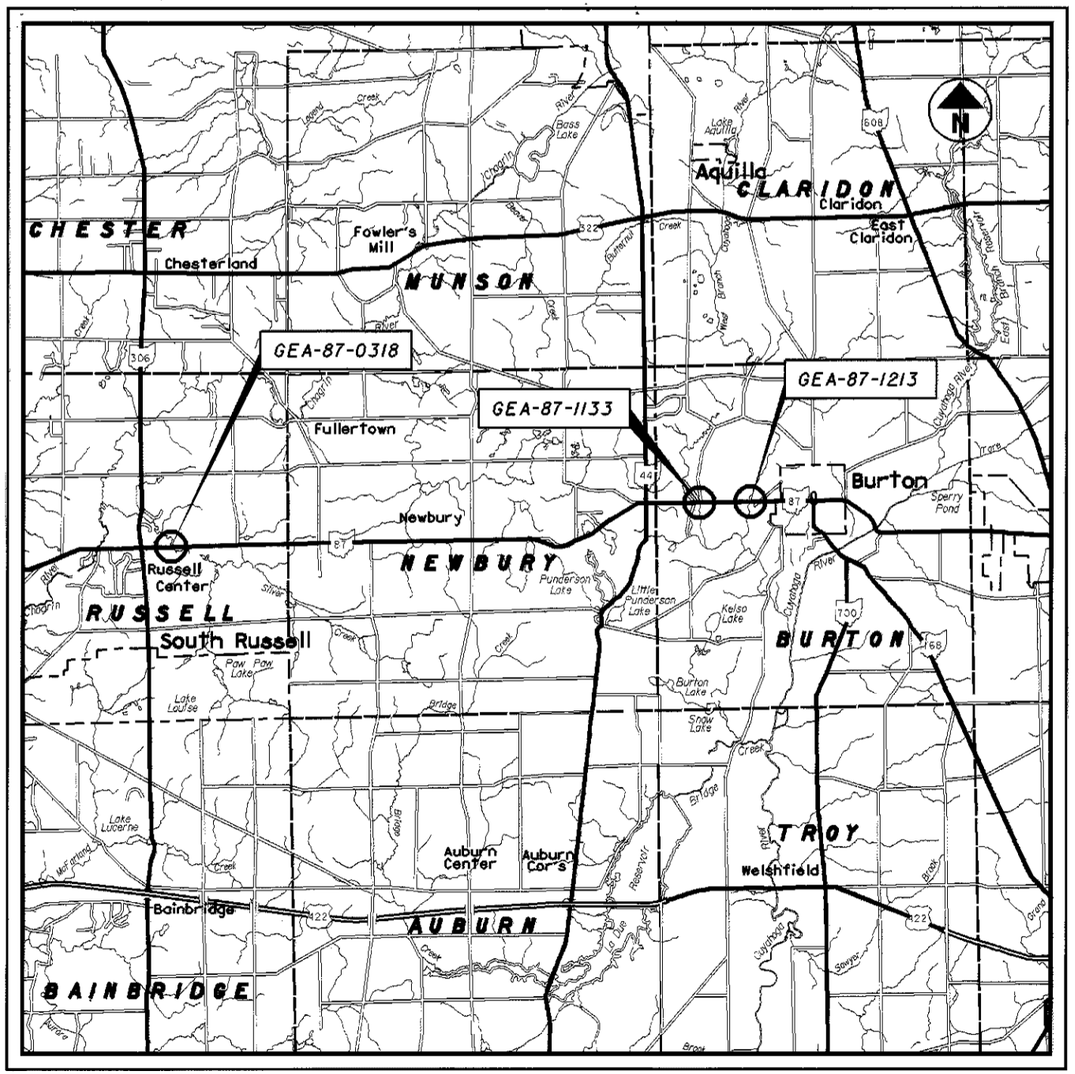
REVISIONS	DESIGNED REZA	DRAWN REZA	CHECKED JS	REVISED LWH	DS-1-94M

STANDARD
DRIP STRIP DETAIL FOR STRUCTURES WITH OVER THE SIDE DRAINAGE

1 / 1

EA - 87 -(3.18)(11.33)(12.13)
30460
IST 12

PID# 18728
06-02-99



LOCATION MAP

GEA-87-0318	LATITUDE:	N41°27'48"	LONGITUDE:	W81°19'54"
GEA-87-1133	LATITUDE:	N41°28'12"	LONGITUDE:	W81°10'42"
GEA-87-1213	LATITUDE:	N41°28'12"	LONGITUDE:	W81°09'48"

INTERSTATE & DIVIDED HIGHWAY _____
UNDIVIDED STATE & FEDERAL ROUTES _____
OTHER ROADS _____

PLAN PREPARED BY:
ODOT - DISTRICT TWELVE
PRODUCTION DEPARTMENT
5500 TRANSPORTATION BLVD.
GARFIELD HEIGHTS, OHIO 44125

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

PLOTTED BY:nconley
PLOTTED FROM:i:\projects\pid18728\title.dgn

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

GEA-87-(3.18)(11.33)(12.13)

RUSSELL AND BURTON TOWNSHIPS

GEAUGA COUNTY

INDEX OF SHEETS:

PROJECT DESCRIPTION

THIS PROJECT INVOLVES REPAIRING THE EXISTING CONCRETE BRIDGE DECKS WITH A MICRO-SILICA OVERLAY, AND UPDATING EXISTING RAILING.

1997 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 THE PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

STATE OF OHIO
MICHAEL J. MALLOY
E-60048
REGISTERED
PROFESSIONAL ENGINEER

STANDARD CONSTRUCTION DRAWINGS

						SUPPLEMENTAL SPECIFICATIONS	
BP-3.1M	10/28/98	DBR-2-73M	8/18/95	MT-96.10M	1/30/95	848	06/30/98
GR-1.1M	10/21/97	DS-1-94M	12/15/94	MT-96.11M	1/30/95		
GR-1.2M	1/3/96	PCB-91M	3/20/95	MT-96.20M	1/30/95		
GR-1.3M	11/30/94			MT-96.25M	1/30/95		
GR-2.1M	4/14/98			MT-97.10M	4/25/94		
GR-2.2M	10/21/97			MT-105.10M	4/25/94		
GR-3.4M	10/21/97			MT-105.11M	4/25/94		
GR-4.2M	10/21/97			TC-41.10M	3/31/94		
RM-4.2M	10/21/97			TC-41.20M	7/1/94		
				TC-52.10M	7/29/94	*SPECIAL PROVISIONS*	
				TC-52.20M	7/29/94		

APPROVED _____ DISTRICT DEPUTY DIRECTOR
DATE 2/26/99

APPROVED Gordon Proctor
DATE 3-3-99 DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO. NON-FEDERAL
PID NO. 18728
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT NONE
GEA-87-(3.18)(11.33)(12.13)
1 / 19

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

LISTED ON THE TITLE SHEET.

AND TO SUPPLEMENTAL SPECIFICATIONS:

LISTED ON THE TITLE SHEET.

AND TO PROPOSAL NOTES:

SEALING OF CONCRETE SURFACES

CONVERSION OF METRIC STANDARD DRAWINGS:

THE METRIC STANDARD DRAWINGS REFERENCED IN THIS PLAN SHALL BE CONVERTED TO ENGLISH UNITS USING THE SI (METRIC) TO ENGLISH CONVERSION FACTORS PROVIDED IN SECTION 109.011 OF THE CMS. THE APPENDIX OF ASTM E 380 SHALL BE UTILIZED FOR ANY ADDITIONAL CONVERSION FACTORS REQUIRED. CONVERSIONS SHALL BE APPROXIMATELY PRECISE AND SHALL REFLECT STANDARD INDUSTRY ENGLISH VALUES WHERE SUITABLE.

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 C.M.S. SECTIONS 102.05 AND 105.02. THE ORIGINAL CONSTRUCTION PLANS OF THE EXISTING BRIDGE ARE AVAILABLE UPON REQUEST AT THE DISTRICT 12 OFFICE OF THE OHIO DEPARTMENT OF TRANSPORTATION, GARFIELD HEIGHTS, OHIO.

CONTRACT BID PRICES SHALL BE BASED UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PRE-BID EXAMINATION OF THE EXISTING STRUCTURE BY THE CONTRACTOR. HOWEVER, ALL PROJECT WORK SHALL BE BASED ON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED BY THE CONTRACTOR IN THE FIELD.

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1992, INCLUDING THE 1993, 1994, 1995, 1996, 1997 AND 1998 INTERIM SPECIFICATIONS, AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN DATA:

DECK PROTECTION METHOD:
MICRO-SILICA OVERLAY
STEEL DRIP STRIP

PLACING ASPHALT CONCRETE FEATHERING ON APPROACHES TO BRIDGES:

SPECIAL CARE SHALL BE TAKEN, WHEN PLACING THE ASPHALT CONCRETE FEATHERING TO EFFECT A SMOOTH TRANSITION FROM THE EXISTING APPROACH PAVEMENT TO THE BRIDGE DECK OR APPROACH SLAB. THE CONTRACTOR'S ATTENTION IS CALLED TO SECTION 404.16 OF THE CMS AND TO STANDARD DRAWING BP-3.1M FOR THE REQUIRED TOLERANCES.

LOCATIONS OF GUARDRAIL:

THE GUARDRAIL PROTECTION PROVIDED IN THIS PLAN SHALL BE LOCATED IN THE FIELD TO ASSURE THAT THE INSTALLATION WILL AFFORD THE MAXIMUM PROTECTION FOR TRAFFIC. THIS LOCATION SHALL BE POSITIONED AS FAR AS POSSIBLE FROM THE EDGE OF PAVEMENT WHILE MAINTAINING PROPER GRADE IN FRONT OF THE GUARDRAIL AS PER STANDARDS.

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 REMOVAL OF ALL GUARDRAIL SHALL AT ALL TIMES BE AS DIRECTED BY THE ENGINEER. NO GUARDRAIL SHALL BE REMOVED UNTIL THE REPLACEMENT MATERIAL IS ON THE SITE, READY FOR INSTALLATION. FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL BE DEEMED SUFFICIENT CAUSE TO ORDER WORK SUSPENDED ON THIS PROJECT UNTIL SUCH TIME THAT THE ENGINEER IS ASSURED OF SAID COMPLIANCE.

ITEM 202 - WEARING COURSE REMOVED, ASPHALT:

THIS ITEM OF WORK SHALL BE USED TO REMOVE THE EXISTING APPROACH SURFACE ASPHALT AS DESIGNATED IN THE PLANS.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER SQUARE YARD FOR ITEM 202 - WEARING COURSE REMOVED, ASPHALT AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 202 - BRIDGE RAILING REMOVED, AS PER PLAN:

THIS ITEM SHALL BE USED TO REMOVE THE EXISTING DEEP BEAM RAIL AND TYPE I POSTS ON STRUCTURE GEA-87-0318 AS DETAILED IN THE PLANS. CARE SHALL BE TAKEN NOT TO DAMAGE THE EXISTING BRIDGE DECK. IF DAMAGE IS DONE IT SHALL BE REPAIRED AS PER THE ENGINEER AND AT THE CONTRACTOR'S EXPENSE.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER LINEAR FOOT FOR ITEM 202 - BRIDGE RAILING REMOVED, AS PER PLAN AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 202 - BRIDGE RAILING REMOVED, AS PER PLAN:

THIS ITEM SHALL BE USED TO REMOVE THE EXISTING DEEP BEAM RAIL AND STEEL TUBULAR BACKUP ON STRUCTURES GEA-87-1133 AND GEA-87-1213. THE EXISTING STEEL POSTS SHALL REMAIN. THE STEEL TUBULAR BACKUP AND DEEP BEAM RAIL SHALL BE CAREFULLY DISMANTLED IN SUCH A MANNER AS TO NOT DAMAGE THE EXISTING STEEL POSTS AND THE EXISTING BRIDGE DECK. IF DAMAGE IS DONE, IT SHALL BE REPAIRED OR REPLACED WITH NEW STEEL POSTS AS PER THE ENGINEER AT THE CONTRACTOR'S EXPENSE.

THE DEEP BEAM RAIL, STEEL TUBULAR BACKUP AND ANY MISCELLANEOUS HARDWARE SHALL BECOME PROPERTY OF THE CONTRACTOR.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER LINEAR FOOT FOR ITEM 202 - BRIDGE RAILING REMOVED, AS PER PLAN AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 202 - ANCHOR ASSEMBLY REMOVED, TYPE A:

THIS ITEM SHALL INCLUDE THE REMOVAL OF THE EXISTING TYPE A ANCHOR ASSEMBLY INCLUDING ALL POSTS, HARDWARE, RAIL ELEMENT, AND CONCRETE ANCHORS. ALL ITEMS REMOVED BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF.

THE EXISTING CONCRETE ANCHOR AND POSTS SHALL BE REMOVED ENTIRELY. ALL HOLES REMAINING SHALL BE FILLED WITH GRANULAR MATERIAL OR EXCESS MATERIAL RESULTING FROM GUARDRAIL CONSTRUCTION. ALL FILL MATERIAL SHALL BE THOROUGHLY COMPACTED AND LEVELED AS DIRECTED BY THE ENGINEER.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER EACH FOR ITEM 202 - ANCHOR ASSEMBLY REMOVED, TYPE A AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 202 - REMOVAL, MISC.: DRIP STRIP

THIS ITEM SHALL BE USED TO REMOVE THE EXISTING DRIP STRIP FROM EACH STRUCTURE.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER LINEAR FOOT FOR ITEM 202 - REMOVAL, MISC.: DRIP STRIP AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

DESIGN AGENCY: DISTRICT TWELVE PRODUCTION DEPARTMENT

DESIGNED	DRAWN	REVIEWED	DATE
NRC	NRC	JJL	2/99
CHECKED	REVISED		STRUCTURE FILE NUMBER
MJM			

GENERAL NOTES

GEA-87-(3.80)(11.33)(12.13)

ITEM 203 - EMBANKMENT, AS PER PLAN:

EMBANKMENT SHALL BE PLACED AT LOCATIONS AS DIRECTED BY THE ENGINEER AS TO PROVIDE A SUITABLE AREA TO CONSTRUCT THE GUARDRAIL.

AREAS WHERE EMBANKMENT MATERIALS ARE TO BE PLACE SHALL BE SCALPED. THE REQUIREMENTS FOR MOISTURE, DENSITY CONTROL AND BENCHING SHALL BE WAIVED. THE DEPTH OF LAYERS IN WHICH THE EMBANKMENTS ARE PLACED AND THE METHOD OF COMPACTION SHALL BE DETERMINED BY THE ENGINEER. AFTER THE EMBANKMENT HAS BEEN PLACED, THE AREAS SHALL BE FERTILIZED, SEEDED, MULCHED, AND WATERED AS PER ITEM 659. THE COST SHALL BE INCLUDED IN THIS ITEM FOR PAYMENT. THE METHOD OF MEASUREMENT FOR EMBANKMENT MATERIAL SHALL BE THE NUMBER OF CUBIC YARDS MEASURED BY LOOSE VOLUME IN THE CARRIER AT THE WORK SITE, IN LIEU OF THE REQUIREMENTS OF 203.15, AND PAYMENT FOR ACCEPTED QUANTITIES WILL BE MADE AT THE CONTRACT PRICE BID PER CUBIC YARD FOR ITEM 203 - EMBANKMENT, AS PER PLAN AND SHALL INCLUDE ALL WORK DESCRIBED ABOVE AND AT ALL TIMES BE AS DIRECTED BY THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 203 - EMBANKMENT, AS PER PLAN 100 CY

ITEM 407 - TACK COAT:

THE RATE OF APPLICATION OF THE 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENT AS DIRECTED BY THE ENGINEER. PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF 0.10 GALLONS PER SQUARE YARD OF TACK COAT FOR ESTIMATING PURPOSES ONLY.

ITEM SPECIAL - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE):

SEAL AS PER THE DETAILS IN THE PLANS. SEE PROPOSAL NOTE "SEALING OF CONCRETE SURFACES" FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS, AND APPLICATION PROCEDURES.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER SQUARE YARD FOR ITEM SPECIAL - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 517 - RAILING (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP AND TYPE 2 STEEL POSTS AND ANCHOR BOLTS), AS PER PLAN:

THIS ITEM SHALL BE USED FOR STRUCTURE GEA-87-0318 AS PER DETAILS IN THE PLAN.

ALL ITEMS REQUIRED TO CONSTRUCT THE PROPOSED BRIDGE RAIL AS SHOWN IN THE PLAN ARE INCIDENTAL TO THIS ITEM.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER LINEAR FOOT FOR ITEM 517 - RAILING (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP AND TYPE STEEL POSTS AND ANCHOR BOLTS), AS PER PLAN AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 517 - RAILING, MISC.: DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP:

THIS ITEM SHALL BE USED ON STRUCTURES GEA-87-1133 AND GEA-87-1213.

THE BRIDGE RAILING SHALL BE CONSTRUCTED AS PER STANDARD DRAWING DBR-2-73M USING NEW DEEP BEAM RAIL, NEW TUBULAR BACKUP AND THE EXISTING STEEL POSTS. THE CONTRACTOR SHALL FURNISH NEW HARDWARE NECESSARY TO REBUILD THE RAIL.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER LINEAR FOOT FOR ITEM 517 - BRIDGE RAILING REBUILT AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 517 - RAILING POST, WINGWALL MOUNTED:

THIS ITEM SHALL BE USED ON STRUCTURE GEA-87-0318 AS DETAILED IN THE PLANS.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER EACH FOR ITEM 517 - RAILING POST, WINGWALL MOUNTED AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM SPECIAL - STRUCTURE, MISC.: DRAINAGE HOLE:

THIS ITEM SHALL BE USED ON STRUCTURE GEA-87-1133 AS DETAILED IN THE PLANS.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER EACH FOR ITEM SPECIAL - STRUCTURE, MISC.: DRAINAGE HOLES AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 673 - SEEDING AND EROSION CONTROL BLANKET, TYPE E:

THIS ITEM SHALL BE USED NEAR STRUCTURE GEA-87-0318 AT THE LOCATION DESIGNATED ON THE RAILING PLAN.

THE AREA SHALL FIRST RECEIVE ITEM 203 - EMBANKMENT, AS PER PLAN AS DIRECTED BY THE ENGINEER. THE EROSION CONTROL BLANKET LIMITS MAY BE ADJUSTED TO FIT THE CONDITIONS OF THE DITCH AND CREEK. THE DITCH SHALL BE LINED WITH THE EROSION CONTROL BLANKET AS WELL AS THE SLOPES. THIS ITEM MUST REMAIN WITHIN THE EXISTING RIGHT-OF-WAY.

THE FOLLOWING ESTIMATED QUANTITY SHALL BE USED AS DIRECTED BY THE ENGINEER:

ITEM 673 - SEEDING AND EROSION CONTROL BLANKET, TYPE E 45 SY

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER SQUARE YARD FOR ITEM 673 - SEEDING AND EROSION CONTROL BLANKET, TYPE E WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

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 SYRO INC., 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. #	DRAWING NAME	DWG./REV. DATE	ODOT APPROVAL DATE
SS265M	ET-2000 (1997) PLAN, ELEVATIONS & SECTIONS	6/20/97	3/6/98

2) THE SKT-350 MANUFACTURED BY ROAD SYSTEMS, INC., 7631 NEW CASTLE DRIVE, FRANKFORT, IL 60423 (TELEPHONE: 815-464-5917).

   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. #	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 1'-6" X 1'-6".

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 AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

ITEM SPECIAL - RESHAPING BERM:

BERMS AND SHOULDERS AT LOCATIONS WHERE EXISTING GUARDRAIL IS REMOVED OR WHERE GUARDRAIL IS TO BE BUILT, SHALL BE RESHAPED AS DIRECTED BY THE ENGINEER TO INSURE A SMOOTH SURFACE FREE OF IRREGULARITIES. EXCESS MATERIAL RESULTING SHALL BE USED ELSEWHERE FOR THIS ITEM IF SO DIRECTED OR DISPOSED OF. THIS WORK SHALL NOT BE STARTED UNTIL AFTER THE RESURFACING AND BERM WORK HAS BEEN COMPLETED.

THE AREA IN FRONT OF THE GUARDRAIL SHALL BE GRADED AND RESHAPED TO PROVIDE AN AREA THAT HAS A SLOPE OF 10:1 MAX.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER LIN. FT. FOR ITEM SPECIAL - RESHAPING BERM WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

DESIGN AGENCY: DISTRICT TWELVE PRODUCTION DEPARTMENT
DESIGNED: NRC | DETAILED: | REVIEWED: JJL | DATE: 2/99
DRAWN: NRC | CHECKED: MJM | REVISED: | STRUCTURE FILE NUMBER:

GENERAL NOTES

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ITEM SPECIAL - STRUCTURE, MISC.: SEALING CONCRETE WEARING SURFACE CONSTRUCTION JOINTS WITH HMWM:

A. DESCRIPTION

THIS ITEM SHALL CONSIST OF THE LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE APPLICATION OF SEALER TO NEW CONCRETE WEARING SURFACE CONSTRUCTION JOINTS IN ACCORDANCE WITH THESE SPECIFICATIONS, IN REASONABLY CLOSE CONFORMITY WITH THE PLANS AND THE MANUFACTURER'S RECOMMENDATIONS AND AS DIRECTED BY THE ENGINEER.

THIS WORK ITEM SHALL NOT BE PERFORMED DURING THE PERIOD BEGINNING NOVEMBER 1st AND ENDING MARCH 31st.

B. MATERIALS

THE MATERIAL USED FOR TREATING THE CONSTRUCTION JOINTS SHALL BE A LOW VISCOSITY, NON-FUMING, HIGH MOLECULAR WEIGHT METHACRYLATE (HMWM) RESIN CONFORMING TO THE FOLLOWING:

1. VISCOSITY SHALL BE LESS THAN 25 CPS (BROOKFIELD VISCOMETER, MODEL RVT WITH UL ADAPTER OR MODEL LVF, #1 SPINDLE AND UL ADAPTER @ 25 DEGREES CELSIUS (77 DEGREES FAHRENHEIT) ASTM D 1824)
2. DENSITY SHALL BE GREATER THAN 1.0 kg/L (8.4 LBS/GAL) @ 25 DEGREES CELSISUS (77 DEGREES FAHRENHEIT) (ASTM D 2849)
3. FLASH POINT SHALL BE GREATER THAN 93 DEGREES CELSIUS (200 DEGREES FAHRENHEIT) (PENSKY-MARTENS CC) (ASTM D 93)
4. VAPOR PRESSURE SHALL BE LESS THAN 1.0 mm Hg @ 25 DEGREES CELSIUS (77 DEGREES FAHRENHEIT) (ASTM D 323)
5. TG (DSL) SHALL BE GREATER THAN 58 DEGREES CELSIUS (135 DEGREES FAHRENHEIT) (ASTM D 3418)
6. SHELF LIFE SHALL BE 1 YEAR MINIMUM AT MANUFACTURER'S RECOMMENDED ENVIRONMENTAL CONSIDERATIONS.
7. GEL TIME SHALL BE GREATER THAN 40 MINUTES - 100 G MASS (ASTM D 2471) (THIN FILM)
8. PERCENT SOLIDS SHALL BE GREATER THAN 90% BY WEIGHT
9. BOND STRENGTH SHALL BE GREATER THAN 1500 PSI (ASTM 882)

THE RESIN MAY BE OBTAINED FROM ONE OF THE FOLLOWING SUPPLIERS:

3M COMPANY
3M CENTER
ST. PAUL, MN 55144-1000
PHONE: 1-612-733-7119

ADHESIVE ENGINEERING COMPANY
CONCRESIVE 2075
1411 INDUSTRIAL ROAD
SAN CARLOS, CA 94070
PHONE: 1-415-592-7900

SIKA CORPORATION
201 POLITO AVENUE
LYNDHURST, NJ 07071
PHONE: 1-201-933-8800

TRANSPO INDUSTRIES, INC.
20 JONES STREET
NEW ROCHELLE, NY 10801
PHONE: 1-914-636-1000

A COMPATIBLE PROMOTOR/INITIATOR SYSTEM CAPABLE OF PROVIDING THE SAME PHYSICAL QUALITIES OF THE HARDENED RESIN AS IF PROMOTED/INITIATED WITH 2% COBALT NAPHTHANATE (6%) AND 2% CUMENE HYDROPEROXIDE SHALL ALSO BE PROVIDED. MATERIALS SHALL BE STORED AT 18-27 DEGREES CELSIUS (65-80 DEGREES FAHRENHEIT). THE SYSTEM SHALL PROVIDE A RESIN SET TIME OF NOT LESS THAN 40 MINUTES TO NOT MORE THAN 1-1/2 HOURS AT THE TIME AND TEMPERATURE OF APPLICATION. THE GEL TIME SHALL BE ADJUSTED TO COMPENSATE FOR THE CHANGE IN TEMPERATURE THROUGHOUT THE DAY. THE TEMPERATURE OF THE SURFACES TO BE TREATED MAY RANGE FROM 10 DEGREES CELSIUS (50 DEGREES FAHRENHEIT) TO 50 DEGREES CELSIUS (120 DEGREES FAHRENHEIT). THE CONTRACTOR SHALL ARRANGE TO HAVE A TECHNICAL REPRESENTATIVE ON SITE TO PROVIDE MIXING PROPORTIONS, EQUIPMENT SUITABILITY, AND SAFETY ADVICE TO THE CONTRACTOR AND ENGINEER. ANY CONFLICT BETWEEN THESE PROVSIONS AND REPRESENTATIVE'S ADVICE SHALL BE RESOLVED AT THE JOB SITE. THE TECHNICAL REPRESENTATIVE SHALL REMAIN AT THE JOB SITE UNTIL SUCH TIME AS HE AND THE ENGINEER AGREE THAT THE CONTRACTOR IS QUALIFIED IN ALL ASPECTS OF THE APPLICATION OF THE SEALER.

THE PROMOTER AND INITIATOR, IF SUPPLIED SEPARATE FROM THE RESIN, SHALL NOT CONTACT EACH OTHER DIRECTLY. CONTAINERS OF PROMOTERS OR INITIATORS SHALL NOT BE STORED TOGETHER IN A MANNER THAT WILL ALLOW LEAKAGE OR SPILLAGE FROM ONE TO CONTACT THE CONTAINERS OR MATERIAL OF EACH OTHER.

BEFORE USING THE MATERIAL THE CONTRACTOR SHALL SUBMIT TO ODOT'S BUREAU OF TESTING COPIES OF THE MANUFACTURER'S CERTIFIED TEST DATA SHOWING THAT THE MATERIAL COMPLIES WITH THE QUALITATIVE AND QUANTITATIVE REQUIREMENTS OF THE SPECIFICATION. THE TEST DATA SHALL BE DEVELOPED BY AN INDEPENDENT APPROVED TESTING LABORATORY, AND SHALL INCLUDE THE BRAND NAME OF THE MATERIAL, NAME OF THE MANUFACTURER, NUMBER OF THE LOT TESTED AND DATE OF MANUFACTURE. WHEN THE MATERIAL HAS BEEN APPROVED BY THE DIRECTOR, FURTHER TESTING BY THE MANUFACTURER WILL NOT BE REQUIRED UNLESS THE FORMULATION OF MANUFACTURING PROCESS HAS BEEN CHANGED, IN WHICH CASE NEW CERTIFIED TEST RESULTS WILL BE REQUIRED. THE MANUFACTURER SHALL CERTIFY THAT THE FORMULATION IS THE SAME AS THAT FOR WHICH DATA HAS BEEN SUBMITTED. THE STATE RESERVES THE RIGHT TO SAMPLE AND TEST DELIVERED LOTS FOR COMPLIANCE.

C. APPLICATION

APPLICATION OF THE CONSTRUCTION JOINT SEALER MATERIAL SHALL BE IN STRICT ACCORDANCE WITH THE SUPPLIER'S CURRENT PUBLISHED INSTRUCTIONS AND/OR SPECIFIC INSTRUCTIONS OF THE MANUFACTURER'S TECHNICAL REPRESENTATIVE AND AS FOLLOWS. THE CONSTRUCTION JOINT AREA TO BE TREATED SHALL REMAIN DRY FOR A MINIMUM OF 8 HOURS AND ABOVE 10 DEGREES CELSIUS (50 DEGREES FAHRENHEIT) PRIOR TO APPLICATION. CONSTRUCTION JOINTS SHALL BE DIRECTLY SEALED WITH HMWM RESIN APPLIED WITH PLASTIC SQUEEZE BOTTLES, CAULKING OR OTHER EQUIPMENT CAPABLE OF DELIVERING A NARROW RESIN STREAM AND APPROVED BY THE ENGINEER. ADDITIONAL APPLICATION OF MATERIAL TO THE CONSTRUCTION JOINT AREA CAN BE ANTICIPATED IF THE INITIAL APPLICATION DISSIPATES FULLY INTO THE CONSTRUCTION JOINT. IN THESE AREAS, A SECOND COAT WILL BE REQUIRED AFTER THE FIRST COAT HAS STARTED TO CURE.

THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO PREVENT ANY RESIN FROM FLOWING INTO LANES OPEN TO TRAFFIC.

CLEANING AND FLUSHING OF EQUIPMENT, TOOLS, ETC. SHALL BE DONE WITH AN APPROPRIATE SOLVENT, AS APPROVED BY THE ENGINEER, IN SUCH A MANNER TO MINIMIZE PERSONAL AND ENVIRONMENTAL HAZARDS. WORKMEN SHOULD BE ADVISED THE RESIN WILL SOFTEN GUM RUBBER SOLES, AND A FACE-MASK SHOULD BE USED TO PROTECT FROM ACCIDENTAL SPLASHES. CLOTHING AND LEATHER SATURATED WITH RESIN WILL HARDEN AND BECOME USELESS.

A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER OR SUPPLIER MUST BE PRESENT ON SITE PRIOR TO STARTING APPLICATION.

E. RESTRICTIONS

TRAFFIC AND EQUIPMENT SHALL NOT BE PERMITTED ON THE SEALED CONSTRUCTION JOINTS UNTIL THE UNTIL THE HMWM IS TACK FREE AND A MINIMUM OF 6 HOURS HAVE ELAPSED SINCE APPLICATION. THE RESIN SHALL BE PROTECTED FROM MOISTURE FOR NOT LESS THAN 4 HOURS AFTER PLACEMENT.

F. METHOD OF MEASUREMENT

SEALING CONCRETE CONSTRUCTION JOINTS WITH HMWM RESIN SHALL BE MEASURED AS THE ACTUAL LENGTH IN LINEAR FOOT OF CONSTRUCTION JOINT SEALED.

G. BASIS OF PAYMENT

ACCEPTED QUANTITIES OF SEALING NEW CONCRETE WEARING SURFACE CONSTRUCTION JOINTS WITH HMWM RESIN SHALL BE PAID FOR AT THE UNIT PRICE BID PER LINEAR FOOT WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIAL, APPLICATION OF THE RESIN, PROVIDING MANUFACTURER'S TECHNICAL REPRESENTATIVE, PROTECTION OF WATERWAYS AND TRAFFIC BELOW BRIDGE, CLEAN UP AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

PAYMENT SHALL BE MADE UNDER:

ITEM	UNIT	DESCRIPTION
SPECIAL	LINEAR FOOT	STRUCTURE, MISC.: SEALING CONCRETE WEARING SURFACE CONSTRUCTION JOINTS WITH HMWM RESIN

ITEM 848:

REFER TO THE FOLLOWING SUPPLEMENTAL SPECIFICATION: "BRIDGE DECK REPAIR AND OVERLAY WITH CONCRETE USING HYDRODEMOLITION".

DESIGN AGENCY: DISTRICT TWELVE PRODUCTION DEPARTMENT
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ITEM 614 - TEMPORARY CENTER LINE, CLASS I:
ITEM 614 - TEMPORARY EDGE LINE, CLASS I:
ITEM 614 - TEMPORARY STOP LINE, CLASS I:

THE CONTRACTOR SHALL BE REQUIRED TO INSTALL VARIOUS TYPES OF PAVEMENT MARKINGS ACCORDING TO THE FOLLOWING CRITERIA CONTINGENT UPON THE SEQUENCE OF CONSTRUCTION. TEMPORARY PAVEMENT MARKINGS SHALL BE 740.05 TYPE C PREFORMED MATERIAL OR 642 PAINT APPLIED USING THE FOLLOWING CRITERIA: ALL TEMPORARY MARKINGS INSTALLED ON THE FINISHED ASPHALT SURFACE SHALL BE 740.05, TYPE C MATERIAL. PAINT MAY BE USED FOR TEMPORARY MARKINGS INSTALLED ON PAVEMENT THAT WILL BE RESURFACED IN THE PROJECT.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER MILE OR LIN. FT. FOR THE APPROPRIATE ITEM 614 WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

MAINTENANCE OF TRAFFIC:

FOR STRUCTURES GEA-87-0318, GEA-87-1133 AND GEA-87-1213:

TWO LANE, TWO WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES EXCEPT THAT THROUGH TRAFFIC ON THE ABOVE STRUCTURES SHALL HAVE A SIGNALIZED CLOSURE, AS SHOWN ON THE MAINTENANCE OF TRAFFIC SHEET (FOR EACH STRUCTURE), OF A MAXIMUM OF 20 CONSECUTIVE CALENDAR DAYS (TOTAL FOR BOTH PHASES). THE 20 CONSECUTIVE DAYS SHALL BE CONSIDERED AS AN INTERIM COMPLETION DATE (CMS 108) AND FOR EACH CALENDAR DAY BEYOND THE 20 CALENDAR DAYS THAT THE HIGHWAY REMAINS IN A SIGNALIZED CLOSURE, THE CONTRACTOR WILL BE ASSESSED LIQUIDATED DAMAGES AS PER CMS 108.07.

CLOSURES FOR STRUCTURES GEA-87-1133 AND GEA-87-1213 SHALL BE DONE CONCURRENTLY. GEA-87-0318 MAY BE DONE CONCURRENTLY.

THE LOCATION OF THE TRANSITION TAPER AND THE ADVANCE WARNING SIGNS SHOULD BE ADJUSTED TO PROVIDE FOR ADEQUATE SIGHT DISTANCE FOR THE EXISTING VERTICAL AND HORIZONTAL ROADWAY ALIGNMENT.

THE SPACING BETWEEN THE PROPOSED SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM CLEARANCE OF 200 FT TO EXISTING SIGNS.

A MINIMUM OF FIVE (5) DRUMS SHALL BE USED TO CLOSE THE SHOULDER.

THE CONTRACTOR SHALL COVER ALL EXISTING SIGNS WHICH CONFLICT WITH THE TRAFFIC CONTROL PHASES SHOWN IN THE PLAN PER 614.03.

THE EXISTING CONFLICTING PAVEMENT MARKINGS AND REFLECTORS FROM THE RAISED PAVEMENT MARKERS (RPMS) SHALL BE REMOVED AND THE APPROPRIATE COLOR TEMPORARY EDGE LINES SHALL BE APPLIED ALONG THE TAPER. TEMPORARY PAVEMENT MARKINGS WHICH WOULD CONFLICT WITH FINAL TRAFFIC LANES SHALL BE REMOVABLE (740.05 TYPE C) TAPE UNLESS THE AREA WILL BE RESURFACED IN THE NEXT WORK PHASE AFTER COMPLETION OF THE WORK, TEMPORARY MARKINGS SHALL BE REMOVED IN ACCORDANCE WITH 641.10 AND THE ORIGINAL MARKINGS AND RAISED PAVEMENT MARKER REFLECTORS SHALL BE RESTORED.

WITHIN THE LENGTH OF THE CLOSURE, PROVISION SHALL BE MADE TO CONTROL TRAFFIC ENTERING FROM INTERSECTING STREETS AND DRIVEWAYS. THREE (3) DRUMS SHALL BE PLACED ACROSS THE CLOSED LANE AT EACH INTERSECTION AND DRIVEWAY.

NO EQUIPMENT OR MATERIAL SHALL BE LOCATED OTHER THAN BEHIND THE PORTABLE CONCRETE BARRIER.

FOR STRUCTURE GEA-87-1133, SEE ADDITIONAL MAINTENANCE OF TRAFFIC NOTES ON SHEET 4A / 4 .

AT ALL OTHER LOCATIONS:

TWO WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES EXCEPT DURING WORKING HOURS, WHEN ONE LANE MAY BE CLOSED USING FLAGGERS AS PER STANDARD DRAWINGS MT-97.10M.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH 614 AND ALL OTHER APPLICABLE PORTIONS OF THE CMS AS WELL AS IN ACCORDANCE WITH PART 7 OF THE OMUTCD. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS TO PROVIDE THIS METHOD OF TRAFFIC CONTROL SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 - MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

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MAINTENANCE OF TRAFFIC FOR STRUCTURE GEA-87-1133:

GENERALLY THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS AS TO MAKE THE PROPOSED REPARIS WITH A MINIMUM OF HAZARD, DELAY AND INCONVINIENCE TO THE MOTORIST USING THE HIGHWAY AFFECTED BY THE WORK DONE UNDER THIS CONTRACT: FURTHERMORE, IN ADDITION TO THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, THE FOLLOWING SPECIFIC PROVISIONS ARE MANDATORY:

I. NOTIFICATION:

SINCE TRAFFIC AND MAINTENANCE IS A MAJOR CONCERN OF THIS PROJECT IT IS ESSENTIAL THAT THE MOTORING PUBLIC BE ADEQUATELY FOREWARNED OF FUTURE LANE CLOSURES AND TRAFFIC CONSTRICTIONS. THEREFORE, THE CONTRACTOR SHALL SUBMIT A SCHEDULE TO THE OHIO DEPARTMENT OF TRANSPORTATION INDICATING THE DATE OF EACH LANE CLOSURE AT LEAST THREE (3) DAYS PRIOR TO THE IMPLEMENTATION OF ANY SUCH CLOSURE.

II. MAINTENANCE OF TRAFFIC SYSTEMS:

A. MINIMUM PROVISIONS. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY TRAFFIC CONTROL DEVICES AS REQUIRED BY THE PLANS AND SPECIFICATIONS AND THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", HEREINAFTER REFERRED TO AS THE "MANUAL".

THE TRAFFIC OCNTROL SYSTEMS IN THE "MANUAL" AND THESE PLANS CONSTITUTE THE MINIMUM PROVISIONS FOR MAINTAINING TRAFFIC. WHENEVER THE ENGINEER DEEMS ADDITIONAL OR ALTERNATIVE DEVICES NECESSARY, HE MAY DIRECT THAT THEY BE USED.

B. CONDITIONS. TWO-WAY TRAFFIC ON ONE 11 FOOT MINIMUM LANE SHALL BE MAINTAINED 24 HOURS PER DAY DURING EACH CONSTRUCTION PHASE ON GEA-87-1133.

C. FLAGGERS. THE MAINTENANCE OF TRAFFIC PLANS REQUIRE THE CONCURRENT USE OF TWO (2) FLAGGERS. ADDITIONAL FLAGGERS SHALL BE USED AS DIRECTED BY THE ENGINEER IF DEEMED NECESSARY BY THE ENGINEER.

D. ADVANCE WARNING SIGNS. ALL ADVANCE WARNING SIGNS FOR ANY TRAFFIC RESTRICTION SHALL BE ERECTED BEFORE ANY SUCH RESTRICTION IS PUT INTO EFFECT. ALL SIGNS SHALL BE COVERED OR REMOVED FROM THE VIEW OF TRAFFIC WHENEVER THEY ARE NOT APPLICABLE.

E. FAILURE TO COMPLY. IF THERE IS ANY FAILURE TO COMPLY WITH THE PROVISIONS FOR TRAFFIC MAINTENANCE SET OUT IN THE PLANS, NOTES OR "MANUAL", THE HIGHWAY IN THE VICINITY OF THE WORK SHALL BE CONSIDERED IN A CONDITION FOR THE SAFE AND CONVENIENT USE BY THE TRAVELING PUBLIC, WHICH SHALL BE A BREACH OF THIS CONTRACT.

III. SIGNALIZED CLOSING:

A. DRUMS AND TEMPORARY BARRIERS SHALL BE PLACED AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS.

B. SIGNALS SHALL BE INSTALLED AND OPERATED IN ACCORDANCE WITH THESE PLANS AND THE REQUIREMENTS OF PART 6 OF THE "MANUAL".

C. ADEQUATE AREA ILLUINATION TO CLEARLY IDENTIFY THE WORK AREA AT NIGHT SHALL BE PROVIDED BY USING 150 WATT MINIMUM SODIUM LUMINAIRES OR 250 WATT MINIMUM MERCURY LUMINAIRES. ONE LUMINAIRE SHALL BE LOCATED ADJACENT TO EACH SIGNAL AS SHOWN IN THE MAINTENANCE OF TRAFFIC PLANS. THE MOUNTING HEIGHT FOR THE TEMPORARY LUMINAIRE SHALL BE A MINIMUM OF 27 FEET ABOVE THE PAVEMENT AND THE OVERHEAD CONDUCTOR CLEARANCE SHALL BE 20 FEET ABOVE THE PAVEMENT.

D. TEMPORARY NO PASSING LINES AND STOP LINES SHALL BE INSTALLED. REMOVABLE PAVEMENT MARKINGS MAY BE USED. EXISTING CONFLICTING PAVEMENT MARKINGS BETWEEN THE WORK AREA AND STOP LINE SHALL BE REMOVED. AFTER COMPLETEION OF WORK, TEMPORARY MARKINGS SHALL BE REMOVED IN ACCORDANCE WITH CMS 614.10.

E. THE TYPE "A" FLASHING BARRICADE WARNING LIGHTS SHALL BE MOUNTED ON DESIGNATED ADVANCE WARNING SIGNS AT ALL TIMES.

WORK SHALL BE SUSPENDED UNTIL THE CONTRACTOR COMPLIES WITH THE PROVISIONS OF THE AFOREMENTIONED ITEMS.

IV. MAINTENANCE OF TRAFFIC MATERIAL:

A. SIGNS. SIGN DIMENSIONS AND SPECIFICATIONS, INCLUDING LETTER SIZE, SHALL BE AS PROVIDED IN THE "MANUAL", OR IN SIGN DESIGN DRAWINGS PROVIDED BY THE DEPARTMENT OF TRANSPORTATION. THE SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER PRIOR TO THE START OF THE PROJECT.

B. SIGN SUPPORTS. SIGN SUPPORTS SHALL BE OF SUFFICIENT SIZE AND HEIGHT AS TO SUPPORT THE SIGNS AS THE HEIGHT INDICATED IN THE "MANUAL" ON PLATE C-1. SUPPORTS SHALL ALSO BE ADEQUATE IN MASS AND STABILITY TO PREVENT THE SIGNS FROM BEING BLOWN OVER BY THE WIND OR VEHICULAR GENERATED AIR TURBULENCE.

C. CONES. STANDARD RUBBER OR PLASTIC CONES SHALL BE USED. CONES SHALL BE AT LEAST 36" HIGH AND SHALL BE PREDOMINANTLY ORANGE IN COLOR. ALL CONES SHALL HAVE WEIGHTED BASES.

D. DRUMS. DRUMS SHALL CONFORM TO THE PERTINENT SECTIONS OF THE "MANUAL" ALL COSTS FOR INSTALLATION, MAINTENANCE AND SUBSEQUENT REMOVAL OF SAID DRUMS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 - MAINTAINING TRAFFIC.

E. TYPE "C" STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE MOUNTED ON ALL DRUMS AND TYPE "A" WARNING LIGHTS SHALL BE PLACED ON SIGNS AS SHOWN ON PLANS FOR OVERNIGHT CLOSURES.

F. CONTRACTOR MUST SUBMIT A SIGN PHASING DIAGRAM AND TIMING CHART ONE (1) WEEK PRIOR TO SIGNAL OPERATIONS FOR APPROVAL BY THE ENGINEER.

G. WHEN SIGNALS ARE NOT IN USE THEY MUST BE REMOVED OR BAGGED.

H. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE 24 HOUR PER DAY MAINTENANCE OF THE ONE LANE ROAD TRAFFIC SIGNALS. THE DAY AND NIGHT TELEPHONE NUMBERS OF THE CONTRACTOR'S SIGNAL MAINTENANCE ORGANIZATION MUST BE SUPPLIED TO THE LOCAL POLICE AGENCIES AND ODOT. THE ELAPSED TIME BETWEEN THE SIGNAL PROBLEM CALL AND SERVICEMAN'S ARRIVAL AT THE PROJECT SITE SHALL NOT EXCEED 60 MINUTES. SIGNAL INSTALLATION AND MAINTENANCE SHALL BE PERFORMED ONLY BY A QUALIFIED SIGNAL MAINTENANCE ORGANIZATION.

I. SIGNAL AND CLOSURE INSTALLATIONS SHALL BE MADE DURING DAYLIGHT ON MONDAY THROUGH THURSDAY.

J. THE CONTRACTOR, AT HIS COST, SHALL BE REQUIRED TO PROVIDE A SEPARATE POWER SERVICE CONNECTION POINT TO THE LOCAL POWER CONMANY TO PROVIDEE AND MAINTAIN ELECTRIC POWER TO HIS CONSTRUCTION SIGNAL.

K. SIGNAL WIRING OTHER THAN OVERHEAD AND UNDERGROUND MUST BE APPROVED BY THE ENGINEER. ALL WIRING ATTACHED TO POLE SHALL BE PROTECTED BY CONDUIT. ALL SPLICES SHALL BE MADE BY APPROVED SPLICE KITS INSTALLED IN PULL BOXES OR APPROVED ENCLOSURES.

L. ALL TRAFFIC SIGNALS AND EQUIPMENT USED IN THE SIGNAL INSTALLATIONS, SUCH AS A SIGNAL CANLE AND SIGNAL HEADS, SHALL BE IN CONFORMANCE WITH SPECIFICATIONS 632 AND 732. HOWEVER, THE PERFORMANCE TEST PROVISIONS NOTED IN SPECIFICATIONS 632.27, PARAGRAPH 6 AND THE WORKING DRAWNG REQUIREMENT OF 632.02 ARE WAIVED. THE CONTROLLER, FLASHERS, LOAD SWITCHES, CONFLICT MONITOR AND OTHER CONTROLLER ACCESSORIES SHALL COMPLY WITH SPECIFICATIONS 633 AND 733 EXCEPT THAT THE REQUIREMENTS OF 633.03 AND 633.05 ARE WAIVED. USED EQUIPMENT MEETING CURRENT ODOT SPECIFICATIONS IS ACCEPTABLE. THE CONTROLLER TO BE USED SHALL BE AN ACTUATED, 3-PHASE, SOLID STATE DIGITAL MICROPROCESSOR WITH POLE MOUNTED CABINET, IN WITH THE CMS. WHEN THE SIGNAL IS CHANGED TO A FLASH CONDITION EITHER MANUALLY OR AUTOMATICALLY, RED SHALL BE FLASHED TO ALL APPROACHED.

V. PAYMENT. TEMPORARY SIGNAL INSTALLATION IS TO BE COMPLETE AND OPERATIONAL AS PER THE PHASING DIAGRAM AND DETAILED SHEETS FOR PHASE A AND PHASE B. ALL MATERIAL, LABOR, AND EQUIPMENT REQUIRED TO INSTALL AND REMOVE THE TEMPORARY TRAFFIC CONTROL DEVICES AND SIGNALS SHALL BE INCLUDED IN THE LUMP SSUM PRICE BID FOR ITEM 614 - MAINTAINING TRAFFIC.

DESIGN AGENCY
DISTRICT TWELVE
PRODUCTION DEPARTMENT

DESIGNED NRC | DRAWN NRC | REVIEWED JJL | DATE 2/99 | CHECKED MJM | REVISED | STRUCTURE FILE NUMBER

GENERAL NOTES

GEA-87-13,18(111.33)(12.13)

4A / 4

5A / 19

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SHEET NO.												ITEM	EXTENSION	GRAND TOTAL	UNIT	DESCRIPTION
	3		8	9	10	12	13	14	16	17	18					
																ROADWAY
				243.75			175			375		202	38000	793.75	LF	GUARDRAIL REMOVED
				4			4			4		202	42000	12	EA	ANCHOR ASSEMBLY REMOVED, TYPE A
	100											203	20001	100	CY	EMBANKMENT, AS PER PLAN
				275			325			400		606	13000	1000	LF	GUARDRAIL, TYPE 5
							2					606	20000	2	EA	FLARED END SECTION
				3			2			2		606	22010	7	EA	ANCHOR ASSEMBLY, TYPE E-98
				1						2		606	26500	3	EA	ANCHOR ASSEMBLY, TYPE T
				4			4			4		606	35140	12	EA	BRIDGE TERMINAL ASSEMBLY, TYPE 4
				475			440			530		SPECIAL	60650000	1445	LF	RESHAPING BERM
	45											673	10000	45	SY	SEEDING AND EROSION CONTROL BLANKET, TYPE E
																PAVEMENT
			178			200			167			202	23500	545	SY	WEARING COURSE REMOVED, ASPHALT
			18			20			17			407	10000	55	GAL	TACK COAT
			6.2			7.0			5.8			448	47020	19	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE I, PG64-22
																MAINTENANCE OF TRAFFIC
					370			282			298	614	12800	950	EA	TEMPORARY RAISED PAVEMENT MARKER
					28			28			28	614	13202	84	EA	BARRIER REFLECTOR, TYPE A2
					22			24			18	614	13302	64	EA	BARRIER REFLECTOR, TYPE B2
					24			26			20	614	13350	70	EA	OBJECT MARKER
					0.06			0.06			0.06	614	21000	0.18	MI	TEMPORARY CENTER LINE, CLASS I
					0.04			0.03			0.04	614	22000	0.11	MI	TEMPORARY EDGE LINE, CLASS I
					22			32			22	614	26000	76	LF	TEMPORARY STOP LINE, CLASS I
					300			250			300	622	40020	850	LF	PORTABLE CONCRETE BARRIER, 32"
					220			260			140	622	40040	620	LF	PORTABLE CONCRETE BARRIER, 32", BRIDGE MOUNTED
																TRAFFIC CONTROL
				9			9			9		626	00100	27	EA	BARRIER REFLECTOR, TYPE A
					0.16			0.17			0.14	642	00102	0.47	MI	EDGE LINE, TYPE 2
					0.08			0.08			0.07	642	00302	0.23	MI	CENTER LINE, TYPE 2
								10				642	00502	10	LF	STOP LINE, TYPE 2
																GEA-87-0318, SFN 2800667
																SEE STRUCTURE SUMMARY ON SHEET 7
																GEA-87-1133, SFN 2800721
																SEE STRUCTURE SUMMARY ON SHEET 7
																GEA-87-1213, SFN 2800756
																SEE STRUCTURE SUMMARY ON SHEET 7
												614	11000	LUMP		MAINTAINING TRAFFIC
												624	10000	LUMP		MOBILIZATION

DESIGN AGENCY
DISTRICT TWELVE
PRODUCTION DEPARTMENT

DESIGNED NRC | DRAWN NRC | REVIEWED JJL | DATE 2/99 | REVISED | STRUCTURE FILE NUMBER | CHECKED MJM

GENERAL SUMMARY

GEA-87-(13,80)(11,33)(12,13)

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19

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ITEM	EXTENSION	QUANTITY	UNIT	DESCRIPTION
				STRUCTURE NO.: GEA-87-0318, SFN 2800667
202	38501	225	LF	BRIDGE RAILING REMOVED, AS PER PLAN
202	98200	208	LF	REMOVAL, MISC.: DRIP STRIP
SPECIAL	51267510	82	SY	SEALING OF CONCRETE SURFACE (EPOXY-URETHANE)
517	72301	237.5	LF	RAILING (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP AND TYPE 2 STEEL POSTS AND ANCHOR BOLTS), AS PER PLAN
517	76400	4	EA	RAILING POST, WINGWALL MOUNTED
SPECIAL	51822300	240	LF	STEEL DRIP STRIP
SPECIAL	53001300	106	LF	STRUCTURE, MISC.: SEALING CONCRETE WEARING SURFACE CONSTRUCTION JOINTS WITH HMWM RESIN
848	10000	452	SY	MICRO-SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION (1.25" THICK)
848	20000	452	SY	SURFACE PREPARATION USING HYDRODEMOLITION
848	30000	2	CY	MICRO-SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY
848	50000	3	SY	HAND CHIPPING
848	50100	LUMP		TEST SLAB
848	50320	452	SY	EXISTING CONCRETE OVERLAY REMOVED (1.25" THICK LMC)
				STRUCTURE NO.: GEA-87-1133, SFN 2800721
202	38501	262.5	LF	BRIDGE RAILING REMOVED, AS PER PLAN
202	98200	247	LF	REMOVAL, MISC.: DRIP STRIP
SPECIAL	51267510	99	SY	SEALING OF CONCRETE SURFACE (EPOXY-URETHANE)
517	76300	262.5	LF	RAILING, MISC.: DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP
SPECIAL	51822300	287	LF	STEEL DRIP STRIP
SPECIAL	53000400	16	EA	STRUCTURE, MISC.: DRAINAGE HOLE
SPECIAL	53001300	128	LF	STRUCTURE, MISC.: SEALING CONCRETE WEARING SURFACE CONSTRUCTION JOINTS WITH HMWM RESIN
848	10000	512	SY	MICRO-SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION (2.5" THICK)
848	20000	512	SY	SURFACE PREPARATION USING HYDRODEMOLITION
848	30000	2	CY	MICRO-SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY
848	50000	3	SY	HAND CHIPPING
848	50320	512	SY	EXISTING CONCRETE OVERLAY REMOVED (2.5" THICK LMC)
				STRUCTURE NO.: GEA-87-1213, SFN 2800756
202	38501	150	LF	BRIDGE RAILING REMOVED, AS PER PLAN
202	98200	130	LF	REMOVAL, MISC.: DRIP STRIP
SPECIAL	51267510	50	SY	SEALING OF CONCRETE SURFACE (EPOXY-URETHANE)
517	76300	150	LF	RAILING, MISC.: DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP
SPECIAL	51822300	152	LF	STEEL DRIP STRIP
SPECIAL	53001300	67	LF	STRUCTURE, MISC.: SEALING CONCRETE WEARING SURFACE CONSTRUCTION JOINTS WITH HMWM RESIN
848	10000	266	SY	MICRO-SILICA MODIFIED CONCRETE OVERLAY USING HYDRODEMOLITION (1.25" THICK)
848	20000	266	SY	SURFACE PREPARATION USING HYDRODEMOLITION
848	30000	1	CY	MICRO-SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY
848	50000	2	SY	HAND CHIPPING
848	50320	266	SY	EXISTING CONCRETE OVERLAY REMOVED (1.25" THICK LMC)

DESIGN AGENCY
DISTRICT TWELVE
PRODUCTION DEPARTMENT

DESIGNED NRC | DRAWN NRC | CHECKED MJM | REVISED | REVIEWED JJL | DATE 2/99 | STRUCTURE FILE NUMBER

STRUCTURE SUMMARY

GEA-87-(3,18)(11,33)(12,13)

1/1

7/19

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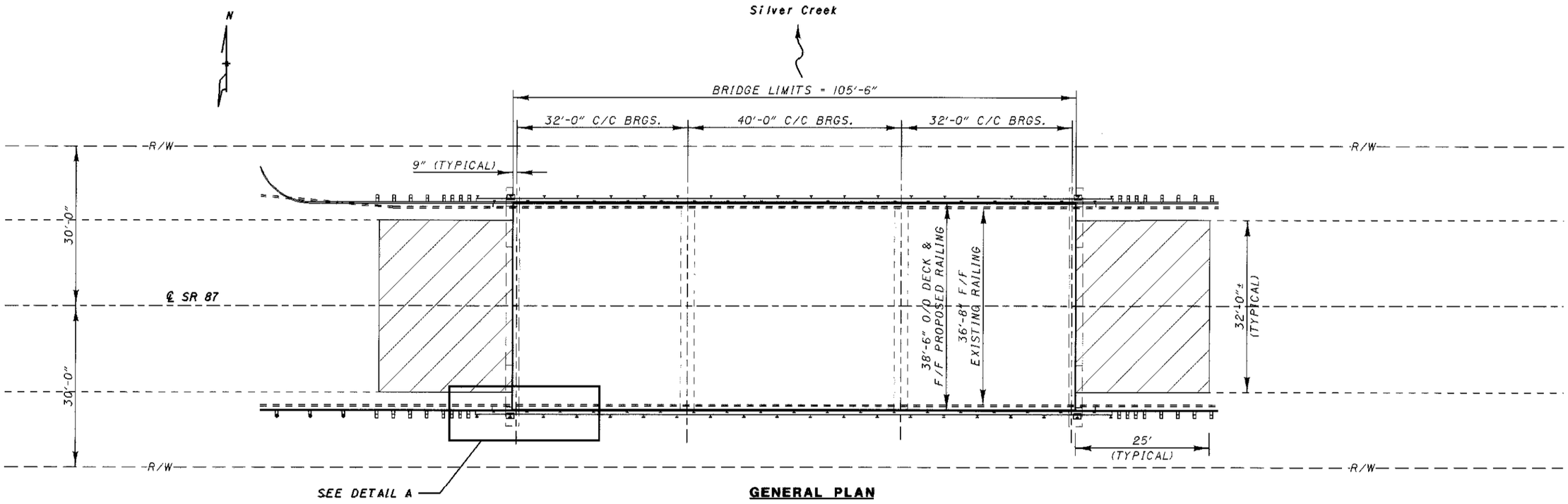
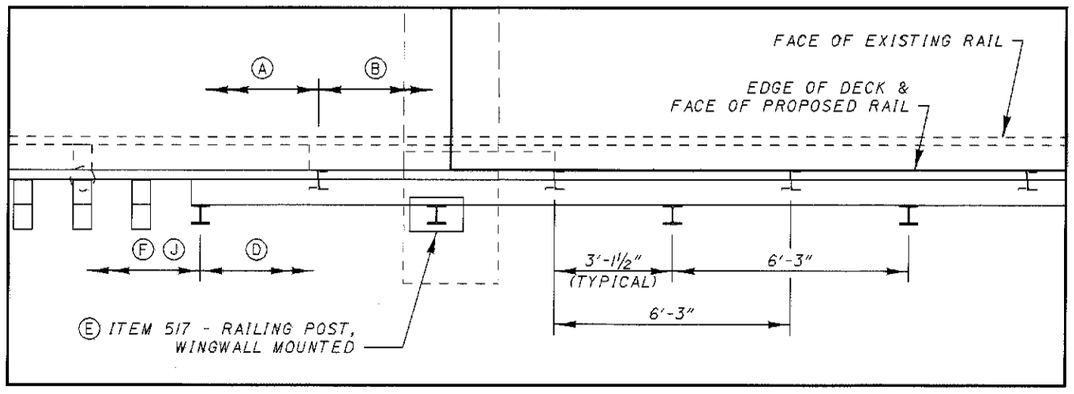


GENERAL PLAN

1¼" OF ITEM 202 - WEARING COURSE REMOVED, ASPHALT AND RESURFACED WITH ITEM 448 - ASPHALT CONCRETE SURFACE COURSE, TYPE I, PG64-22 OVER ITEM 407 - TACK COAT. THE 25'-0" LENGTH MAY BE ADJUSTED TO FIT THE EXISTING CONDITIONS.

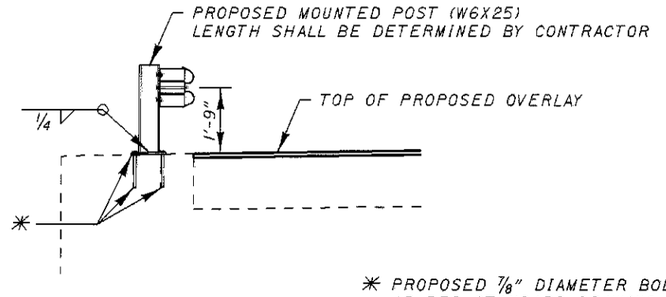
NOTES:

1. THE APPROACH GUARDRAIL IS NOT COMPLETELY SHOWN. FOR RAILING WORK SEE SHEET 9.
2. FOR MAINTENANCE OF TRAFFIC, SEE SHEET 10.
3. FOR ESTIMATED QUANTITIES SEE SHEET 7.



DETAIL A

Ⓐ Ⓑ Ⓓ Ⓔ Ⓕ Ⓙ - SEE RAILING PLAN FOR DETAILS



WINGWALL MOUNTED POST DETAIL

* PROPOSED ⅞" DIAMETER BOLTS AND ¾" STEEL PLATE AS PER STANDARD DRAWING GR-2.2M. THE BOLTS SHALL BE THREADED FOR THE ENTIRE LENGTH AND DOWELED A MINIMUM OF 10" INTO THE WINGWALL. ALL DOWEL HOLES SHALL BE GROUTED WITH ANY EPOXY MORTAR.

DESIGN AGENCY: DISTRICT TWELVE PRODUCTION DEPARTMENT
DESIGNED: NRC | DRAWN: NRC | CHECKED: MJM | REVISED: | REVIEWED: JJL | DATE: 2/99
STRUCTURE FILE NUMBER: 2800667

GENERAL PLAN
BRIDGE NO. GEA-87-0318
OVER SILVER CREEK

GEA-87-(3.18)(11.33)(12.13)

1 / 4

8 / 19

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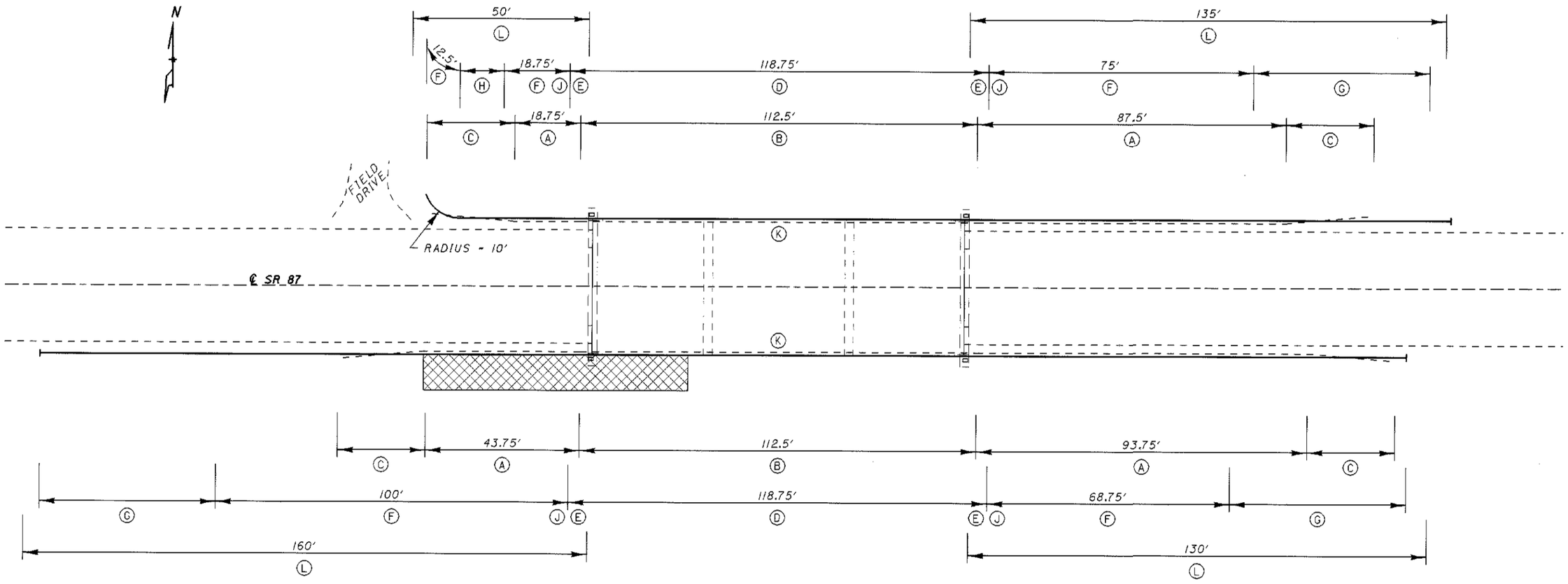


ITEM 673 - SEEDING AND EROSION CONTROL BLANKET AS DIRECTED BY THE ENGINEER

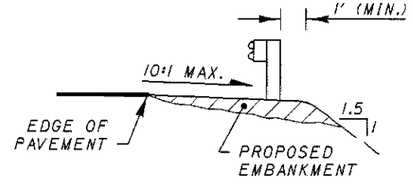
LOCATION	ITEM	DESCRIPTION	UNIT	QUANTITY		TOTAL QUANTITY
				LEFT	RIGHT	
(A)	202	GUARDRAIL REMOVED	LF	106.25	137.5	243.75
(B)	202	BRIDGE RAILING REMOVED, AS PER PLAN	LF	112.5	112.5	225 ★
(C)	202	ANCHOR ASSEMBLY REMOVED, TYPE A	EA	2	2	4
(D)	517	RAILING (DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP AND TYPE 2 STEEL POSTS AND ANCHOR BOLTS), AS PER PLAN	LF	118.75	118.75	237.5 ★
(E)	517	RAILING POST, WINGWALL MOUNTED	EA	2	2	4 ★
(F)	606	GUARDRAIL, TYPE 5	LF	106.25	168.75	275
(G)	606	ANCHOR ASSEMBLY, TYPE E-98	EA	1	2	3
(H)	606	ANCHOR ASSEMBLY, TYPE T	EA	1		1
(J)	606	BRIDGE TERMINAL ASSEMBLY, TYPE 4	EA	2	2	4
(K)	802	BARRIER REFLECTOR, TYPE A	EA	4	5	9
(L)	SPECIAL	RESHAPING BERM	LF	185	290	475

★ QUANTITY IS CARRIED TO THE STRUCTURE SUMMARY.

ALL QUANTITIES ARE CARRIED TO THE GENERAL SUMMARY.

NOTE:

FOR ITEM 517 - RAILING POST, WINGWALL MOUNTED DETAILS, SEE SHEET 8.



TYPICAL SECTION

DESIGN AGENCY
DISTRICT TWELVE
PRODUCTION DEPARTMENT

DESIGNED NRC
DRAWN NRC
CHECKED MJM
REVIEWED JJL
DATE 2/99
REVISED
STRUCTURE FILE NUMBER 2800667

RAILING PLAN
BRIDGE NO. GEA-87-0318
OVER SILVER CREEK

GEA-87-13.18(11.33)(12.13)

2 / 4

9 / 19

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NOTES:

PCB - PORTABLE CONCRETE BARRIER

FOR TYPICAL SECTION, SEE SHEET 11.

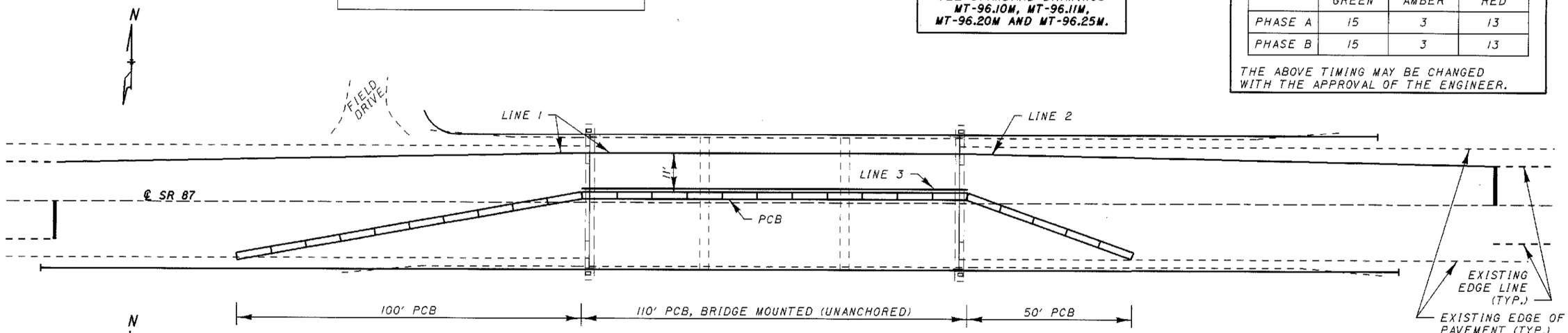
FOR DETAILS NOT SHOWN, SEE STANDARD DRAWINGS **MT-96.10M, MT-96.11M, MT-96.20M AND MT-96.25M.**

SIGNAL TIMING

A TWO PHASE CONTROLLER WITH A CABINET CAPABLE OF BEING SET WITH THE FOLLOWING SPLITS SHALL BE FURNISHED:

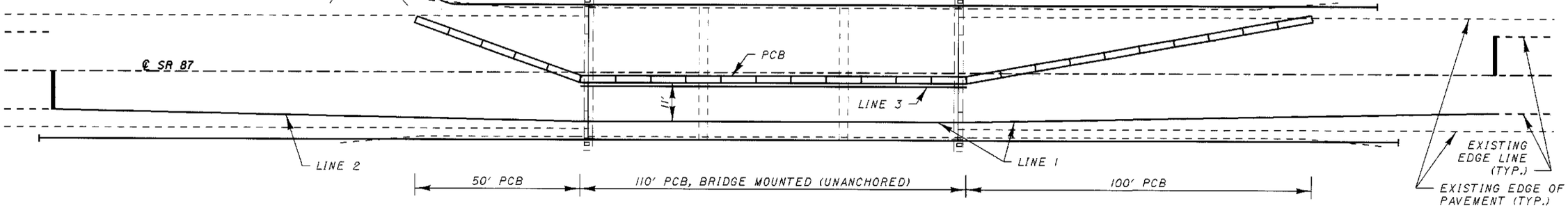
	GREEN	AMBER	RED
PHASE A	15	3	13
PHASE B	15	3	13

THE ABOVE TIMING MAY BE CHANGED WITH THE APPROVAL OF THE ENGINEER.



PHASE A

EXISTING STRUCTURE WIDTH IS 38'-6" CLOSE 22'-3"



PHASE B

EXISTING STRUCTURE WIDTH IS 38'-6" CLOSE 22'-3"

ITEM	DESCRIPTION	UNIT	QUANTITY		TOTAL QUANTITY
			PHASE A	PHASE B	
614	TEMPORARY RAISED PAVEMENT MARKER	EA	185	185	370
614	BARRIER REFLECTOR, TYPE A2	EA	12	16	28
614	BARRIER REFLECTOR, TYPE B2	EA	11	11	22
614	OBJECT MARKER	EA	12	12	24
614	TEMPORARY CENTER LINE, CLASS I	MI	0.06		0.06
614	TEMPORARY EDGE LINE, CLASS I	MI	0.02	0.02	0.04
614	TEMPORARY STOP LINE, CLASS I	LF	22		22
622	PORTABLE CONCRETE BARRIER, 32"	LF	150	150	300
622	PORTABLE CONCRETE BARRIER, 32", BRIDGE MOUNTED	LF	110	110	220
624	EDGE LINE, TYPE 2	MI			0.16
624	CENTER LINE, TYPE 2	MI			0.08

ALL QUANTITIES ARE CARRIED TO THE GENERAL SUMMARY.

TEMPORARY RAISED PAVEMENT MARKERS (TYPE A)				
		SPACING	QUANTITY (WHITE)	QUANTITY (YELLOW)
PHASE A	LINE 1 - 260'	5'	54	54
	LINE 2 - 150'	5'	31	
	LINE 3 - 110'	5'	23	23
PHASE B	LINE 1 - 260'	5'	54	54
	LINE 2 - 150'	5'	31	
	LINE 3 - 110'	5'	23	23
		TOTAL	216	154

DESIGN AGENCY: DISTRICT TWELVE PRODUCTION DEPARTMENT

DESIGNED NRC | DRAWN NRC | CHECKED MJM | REVISED | REVIEWED JJL | DATE 2/99 | STRUCTURE FILE NUMBER 2800667

MAINTENANCE OF TRAFFIC

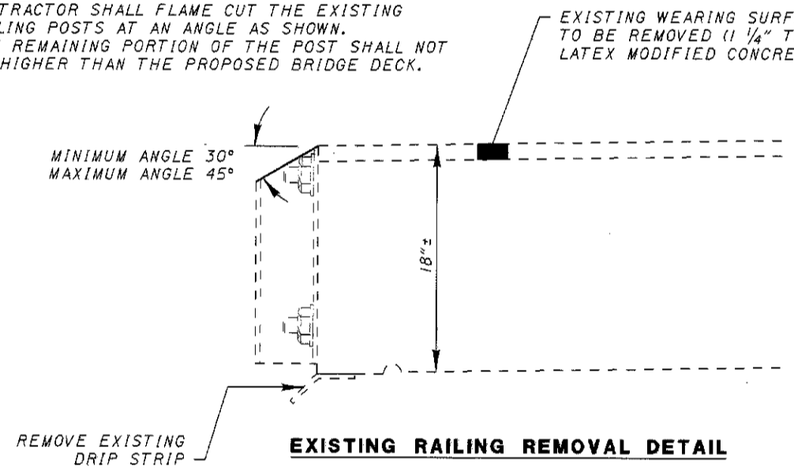
BRIDGE NO. GEA-87-0318
OVER SILVER CREEK

GEA-87-(3,18)(11,33)(12,13)

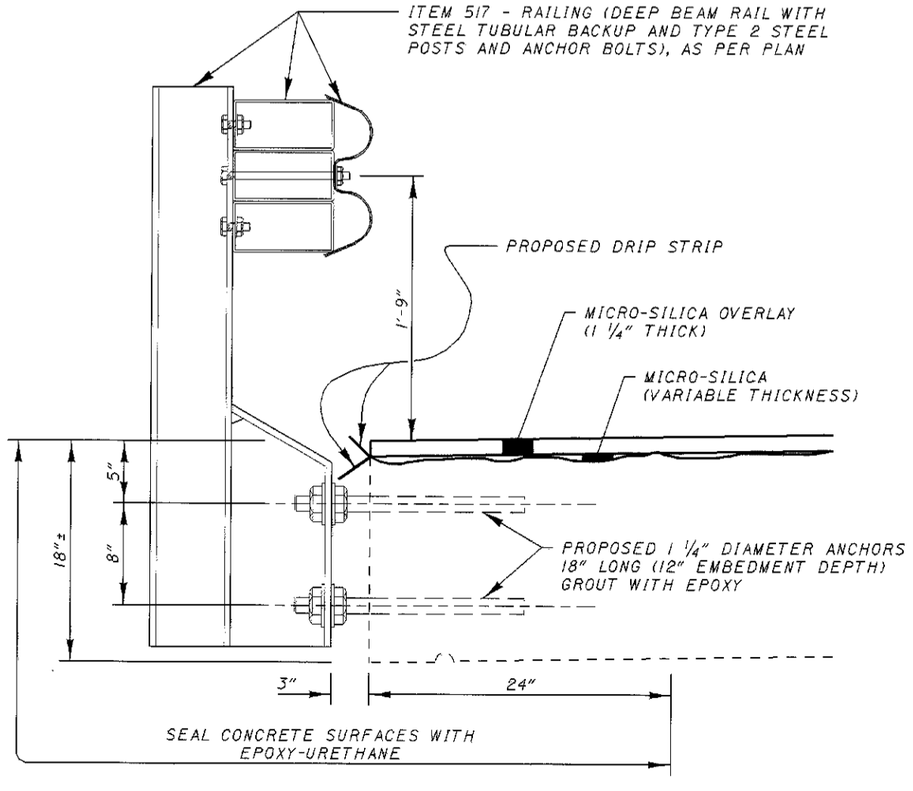
3/4

10/19

NOTE:
CONTRACTOR SHALL FLAME CUT THE EXISTING RAILING POSTS AT AN ANGLE AS SHOWN. THE REMAINING PORTION OF THE POST SHALL NOT BE HIGHER THAN THE PROPOSED BRIDGE DECK.

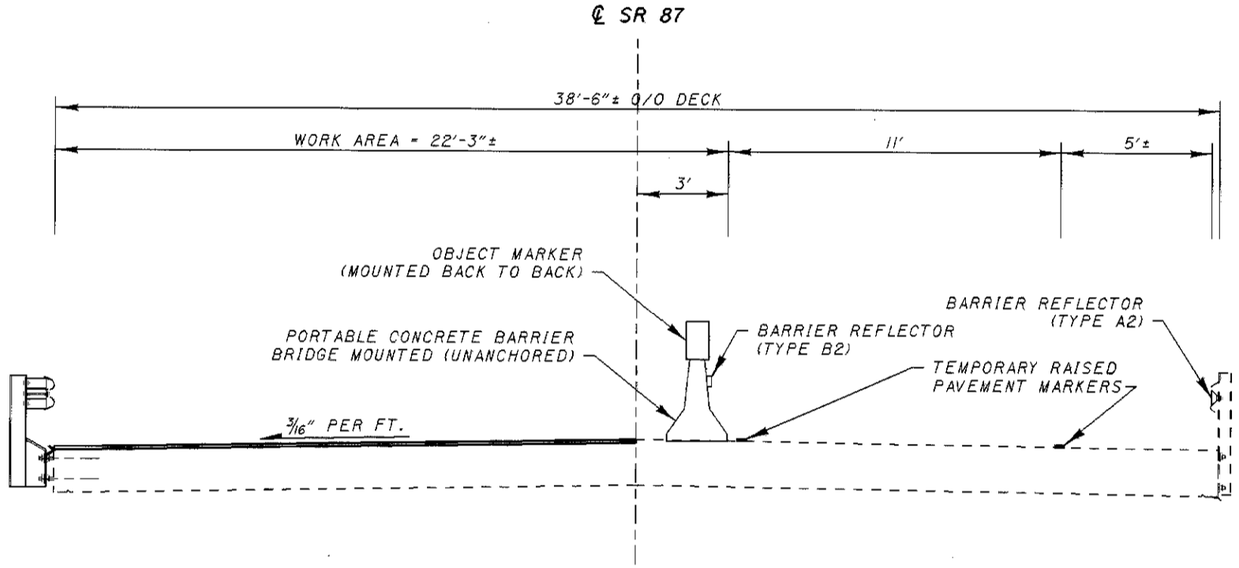


EXISTING RAILING REMOVAL DETAIL

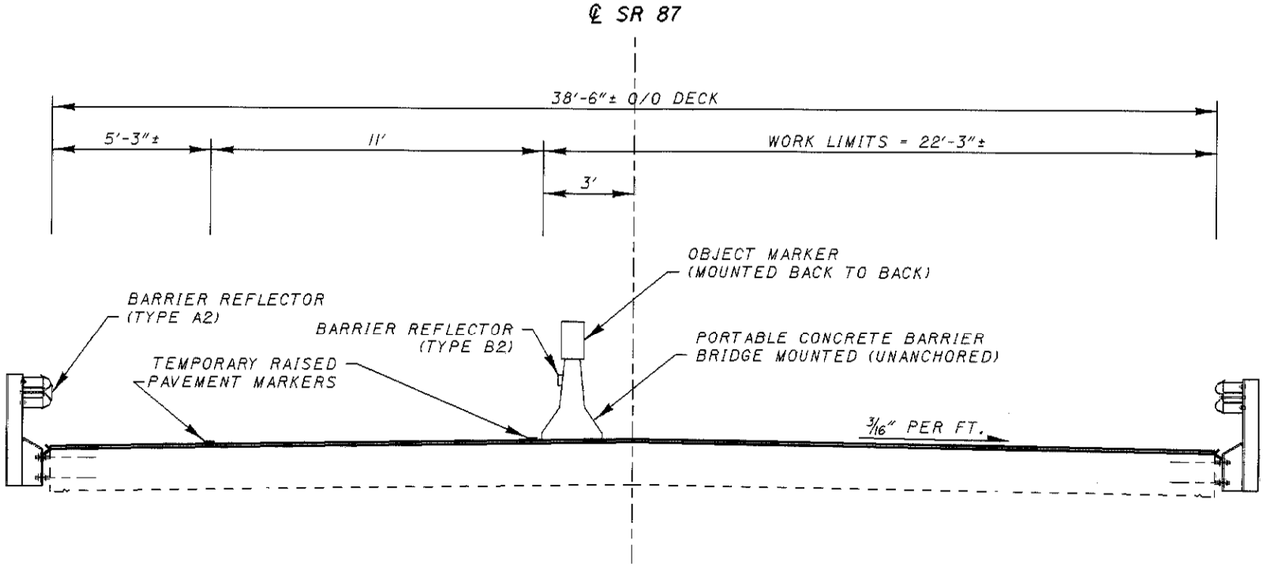


FOR DETAILS NOT SHOWN SEE STANDARD DRAWINGS **DBR-2-73M & DS-1-94M**

PROPOSED RAILING DETAIL



TYPICAL SECTION (PHASE A)



TYPICAL SECTION (PHASE B)

DESIGN AGENCY: DISTRICT TWELVE PRODUCTION DEPARTMENT
DESIGNED NRC | DRAWN NRC | REVIEWED JJL | DATE JJL
CHECKED MJW | REVISED | STRUCTURE FILE NUMBER 2800667

TYPICAL SECTION & DETAILS
BRIDGE NO. GEA-87-0318
OVER SILVER CREEK

GEA-87-13.18(11.33)(12.13)

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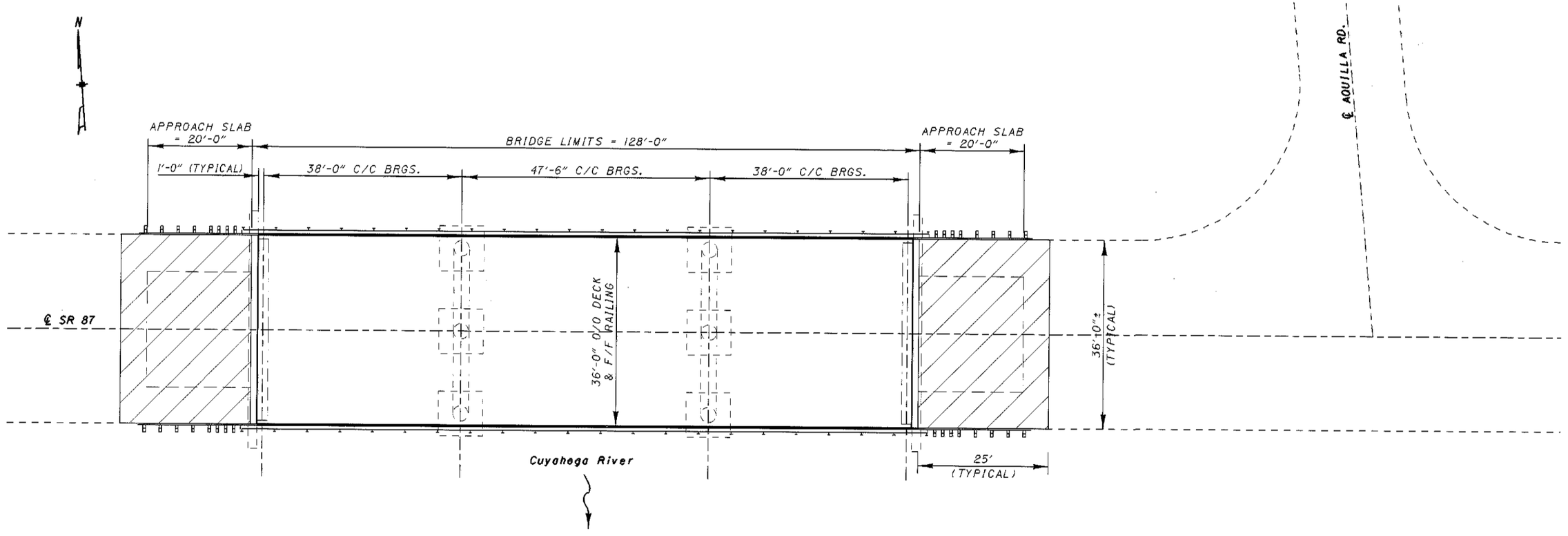
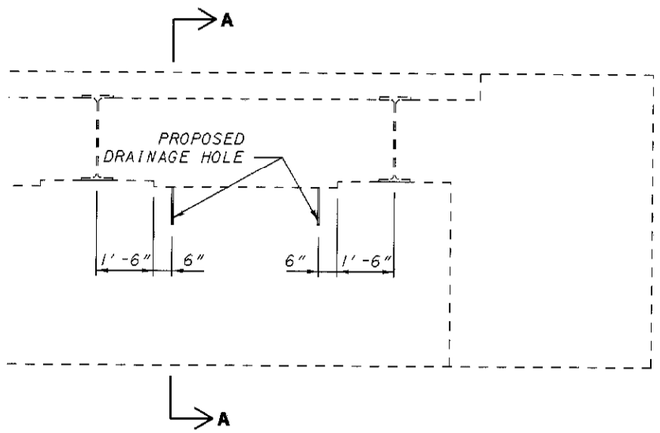


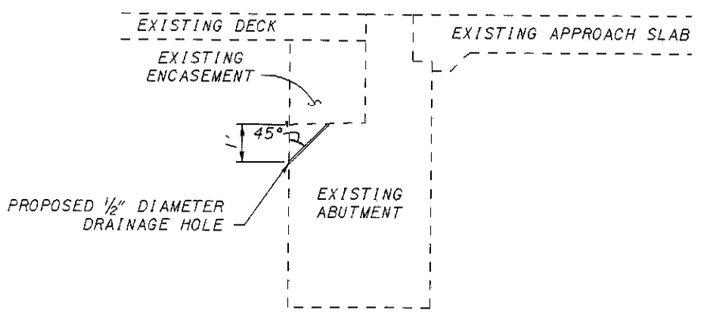
GENERAL PLAN

1¼" OF ITEM 202 - WEARING COURSE REMOVED, ASPHALT AND RESURFACED WITH ITEM 448 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22 OVER ITEM 407 - TACK COAT. THE 25'-0" LENGTH MAY BE ADJUSTED TO FIT THE EXISTING CONDITIONS.



DRAINAGE HOLE DETAIL

TYPICAL BETWEEN ALL BEAMS
TYPICAL FORWARD AND REAR ABUTMENTS
(8 DRAINAGE HOLES TOTAL - FORWARD
8 DRAINAGE HOLES TOTAL - REAR)



SECTION A-A

NOTES:

1. DRAINAGE HOLES SHALL BE CORED DRILLED AT THE LOCATIONS AND ANGLE SHOWN.
2. THE APPROACH GUARDRAIL IS NOT COMPLETELY SHOWN. FOR RAILING WORK, SEE SHEET 13.
3. FOR MAINTENANCE OF TRAFFIC, SEE SHEET 14.
4. FOR ESTIMATED QUANTITIES, SEE SHEET 7.

DESIGN AGENCY: DISTRICT TWELVE PRODUCTION DEPARTMENT

DESIGNED NRC | DRAWN NRC | REVIEWED JJL | DATE 2/99
CHECKED MJM | REVISED | STRUCTURE FILE NUMBER 2800721

GENERAL PLAN
BRIDGE NO. GEA-87-1133
OVER CUYAHOGA RIVER

GEA-87-(3.18)(11.33)(12.13)

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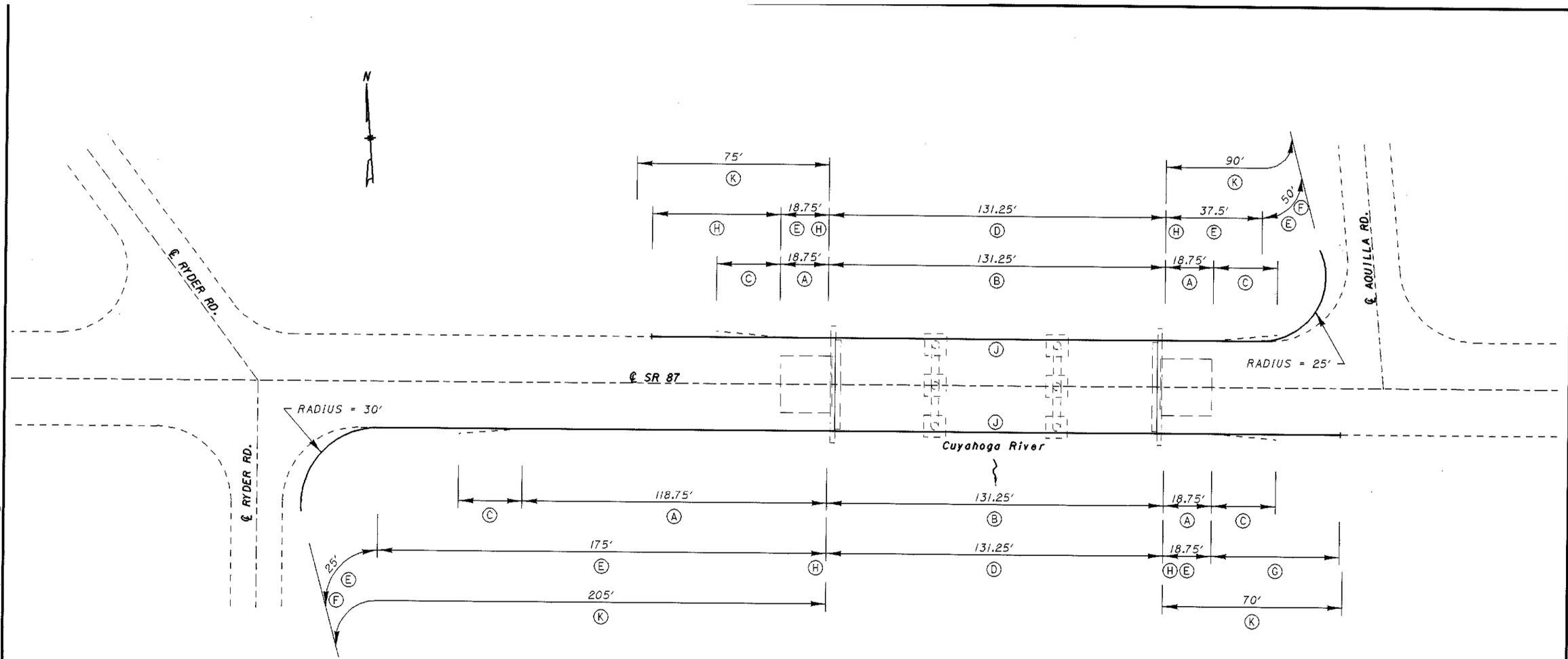


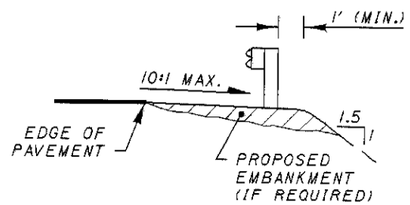
LOCATION	ITEM	DESCRIPTION	UNIT	QUANTITY		TOTAL QUANTITY
				LEFT	RIGHT	
(A)	202	GUARDRAIL REMOVED	LF	37.5	137.5	175
(B)	202	BRIDGE RAILING REMOVED, AS PER PLAN	LF	131.25	131.25	262.5 ★
(C)	202	ANCHOR ASSEMBLY REMOVED, TYPE A	EA	2	2	4
(D)	517	RAILING, MISC.: DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP	LF	131.25	131.25	262.5 ★
(E)	606	GUARDRAIL, TYPE 5	LF	106.25	218.75	325
(F)	606	FLARED END SECTION	EA	1	1	2
(G)	606	ANCHOR ASSEMBLY, TYPE E-98	EA	1	1	2
(H)	606	BRIDGE TERMINAL ASSEMBLY, TYPE 4	EA	2	2	4
(J)	802	BARRIER REFLECTOR, TYPE A	EA	4	5	9
(K)	SPECIAL	RESHAPING BERM	LF	165	275	440

★ QUANTITY IS CARRIED TO THE STRUCTURE SUMMARY.

ALL QUANTITIES ARE CARRIED TO THE GENERAL SUMMARY.

NOTE:

FOR ITEM 517 - RAILING MISC.: DEEP BEAM RAIL WITH STEEL TUBULAR BACKUP DETAILS, SEE SHEET 15.



TYPICAL SECTION

DESIGN AGENCY
DISTRICT TWELVE
PRODUCTION DEPARTMENT

DESIGNED NRC | DRAWN NRC | CHECKED MJM | REVIEWED JJL | DATE 2/99 | STRUCTURE FILE NUMBER 2800721 | REVISED

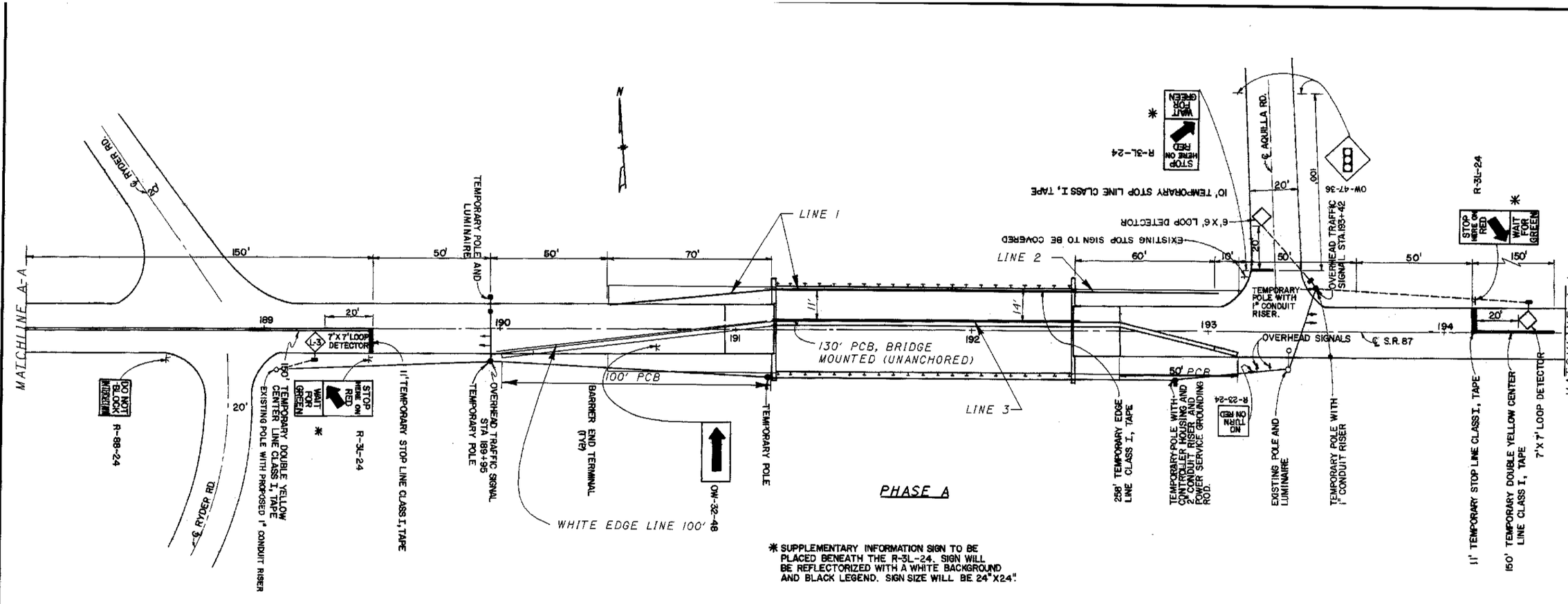
RAILING PLAN
BRIDGE NO. GEA-87-1133
OVER CUYAHOGA RIVER

GEA-87-13.18(11.33)(12.13)

2/4

13
19

PLOTTED BY:nconley
PLOTTED FROM:c:\projects\pid18728\gea1133.dgn
PLOT SUBMITTED:25-FEB-1999 08:15
gea1133.dgn



* SUPPLEMENTARY INFORMATION SIGN TO BE PLACED BENEATH THE R-3L-24. SIGN WILL BE REFLECTORIZED WITH A WHITE BACKGROUND AND BLACK LEGEND. SIGN SIZE WILL BE 24"X24".

FOR DETAILS NOT SHOWN, SEE STANDARD DRAWINGS **MT-96.10M, MT-96.11M, MT-96.20M AND MT-96.25M.**

ITEM	DESCRIPTION	UNIT	QUANTITY		TOTAL QUANTITY
			PHASE A	PHASE B	
614	TEMPORARY RAISED PAVEMENT MARKER	EA	154	128	282
614	BARRIER REFLECTOR, TYPE A2	EA	12	16	28
614	BARRIER REFLECTOR, TYPE B2	EA	12	12	24
614	OBJECT MARKER	EA	13	13	26
614	TEMPORARY CENTER LINE, CLASS I	MI	0.06		0.06
614	TEMPORARY EDGE LINE, CLASS I	MI	0.02	0.01	0.03
614	TEMPORARY STOP LINE, CLASS I	LF	22		22
622	PORTABLE CONCRETE BARRIER, 32"	LF	150	100	250
622	PORTABLE CONCRETE BARRIER, 32", BRIDGE MOUNTED	LF	130	130	260
624	EDGE LINE, TYPE 2	MI			0.17
624	CENTER LINE, TYPE 2	MI			0.08
624	STOP LINE, TYPE 2	LF			10

ALL QUANTITIES ARE CARRIED TO THE GENERAL SUMMARY.

NOTES:

PCB = PORTABLE CONCRETE BARRIER

FOR TYPICAL SECTION, SEE SHEET 15 .

FOR PHASE B AND DETAILS NOT SHOWN, SEE SHEET 14A .

TEMPORARY RAISED PAVEMENT MARKERS (TYPE A)				
		SPACING	QUANTITY (WHITE)	QUANTITY (YELLOW)
PHASE A	LINE 1 - 200'	5'	40	40
	LINE 2 - 60'	5'	12	
	LINE 3 - 130'	5'	26	26
PHASE B	LINE 1 - 180'	5'	36	36
	LINE 2 - 70'	5'	14	
	LINE 3 - 130'	5'	26	26
		TOTAL	154	128

DESIGN AGENCY: DISTRICT TWELVE, PRODUCTION DEPARTMENT
DESIGNED: NRC | DRAWN: NRC | REVIEWED: JJL | DATE: 2/99
CHECKED: MJM | REVISED: | STRUCTURE FILE NUMBER: 2800721

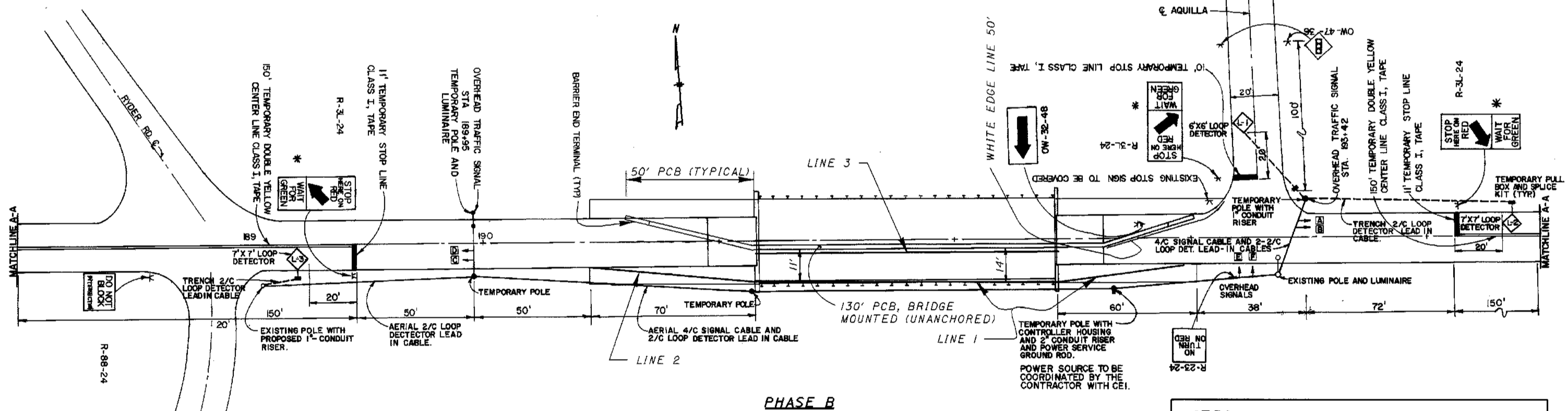
MAINTENANCE OF TRAFFIC - 1

BRIDGE NO. GEA-87-1133
OVER CUYAHOGA RIVER

GEA-87-13,18(11.33)(12.13)

3/4

14/19



PHASE B

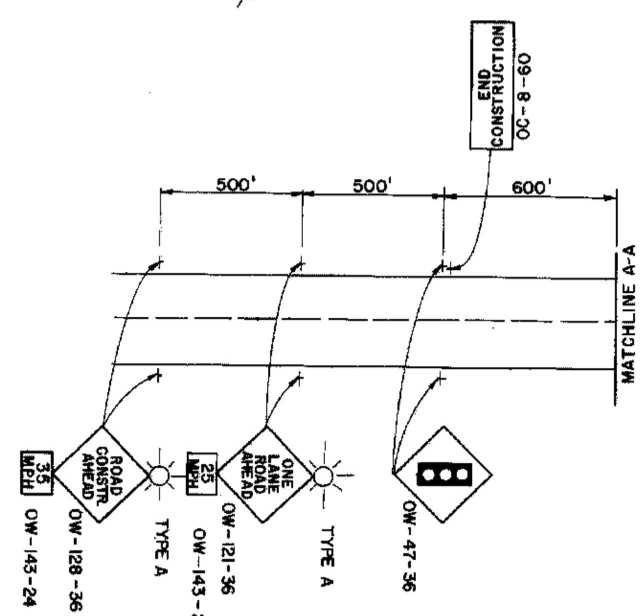
* SUPPLEMENTARY INFORMATION SIGN TO BE PLACED BENEATH THE R-3L-24. SIGN WILL BE REFLECTORIZED WITH A WHITE BACKGROUND AND BLACK LEGEND. SIGN SIZE WILL BE 24" x 24".

NOTES:

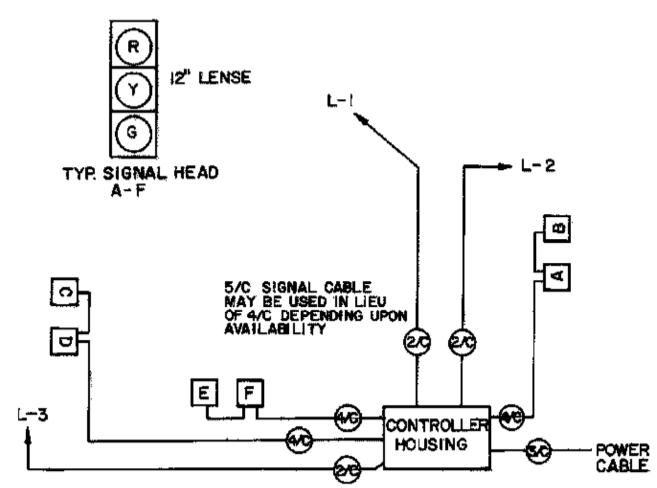
PCB - PORTABLE CONCRETE BARRIER

FOR TYPICAL SECTION, SEE SHEET 15 .

FOR PHASE A, SUMMARY QUANTITIES AND TEMPORARY RAISED PAVEMENT MARKERS, SEE SHEET 14 .

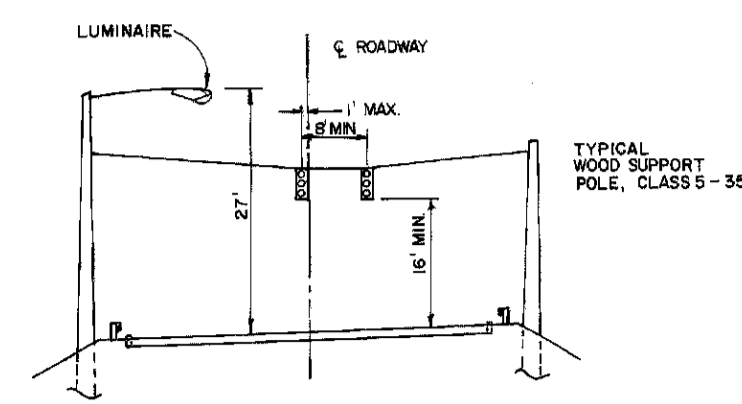


(TYPICAL TO BOTH PHASES)



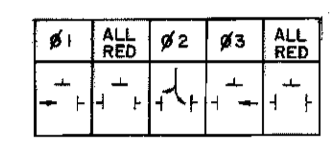
TYPICAL SIGNAL HEAD HOOK UP

(TYPICAL TO BOTH PHASES)



PLACEMENT OF TEMPORARY OVERHEAD TRAFFIC SIGNALS

(TYPICAL TO BOTH PHASES)



Ø	1	2	3
MINIMUM	15	12	15
EXTENSION	4	4	4
GAP	3	3	3
MAXIMUM	40	20	40
YELLOW	3	3	3
RED	13	1	13
RECALL	L	L	ON

PHASING AND TIMING SETTINGS

(TYPICAL TO BOTH PHASES)

DESIGN AGENCY: DISTRICT TWELVE PRODUCTION DEPARTMENT

REVIEWED	DATE
JJL	2/99
STRUCTURE FILE NUMBER	2800721
DRAWN NRC	REVISED
DESIGNED NRC	CHECKED MJM

MAINTENANCE OF TRAFFIC - II

BRIDGE NO. GEA-87-1133 OVER CUYAHOGA RIVER

GEA-87-(13.18)(11.33)(12.13)