08-02-13 LETTING ITEM 049

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
776	124B-1	HAMILTON	10	1
	ILLINOIS	CONTRACT NO. 78310		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROPOSED
HIGHWAY PLANS

FAP ROUTE 776 (IL 142)
SECTION 124B-1
PROJECT F-0776(029)
BOX CULVERT REPLACEMENT
HAMILTON COUNTY

C-99-041-12

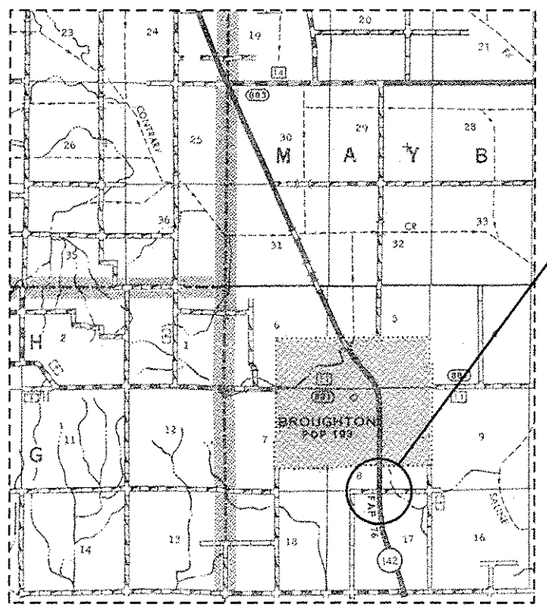
FOR INDEX OF SHEETS, SEE SHEET NO. 2

TRAFFIC DATA
2011 ADT = 1420
WITH 8.7% TRUCKS

TOWNSHIP
MAYBERRY

D-99-034-12

LOCATION OF SECTION INDICATED THUS: –



IMPROVEMENT LOCATION
STRUCTURE NO. 033-7023(E)
STRUCTURE NO. 033-7035(P)
IL 142 OVER DITCH

GROSS LENGTH = 34 FT. = 0.006 MILE
NET LENGTH = 34 FT. = 0.006 MILE

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED April 29 20 13
Jeffrey L. Kern
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER
June 28 20 13
John D. Baranzelli, P.E. /a
acting ENGINEER OF DESIGN AND ENVIRONMENT
June 28 20 13
Omer Osman, P.E. /a
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
OR 811

PROJECT ENGINEER: ADRIAN ADAMS
PROJECT MANAGER: DAVID PICHE (618) 351-5227

CONTRACT NO. 78310

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

4/22/2013 10:41:13 AM

GENERAL NOTES

1) THE THICKNESS OF HOT-MIX ASPHALT MIXTURE SHOWN ON THE PLANS IS THE NOMINAL THICKNESS. DEVIATIONS FROM THE NOMINAL THICKNESS WILL BE PERMITTED WHEN SUCH DEVIATIONS OCCUR DUE TO IRREGULARITIES IN THE EXISTING SURFACE OR BASE ON WHICH THE HOT-MIX ASPHALT MIXTURE IS PLACED.

2) FACTORS USED FOR ESTIMATING PLAN QUANTITIES ARE AS FOLLOWS AND SHALL NOT BE USED FOR THE BASIS OF FINAL QUANTITIES:

ALL HOT MIX ASPHALT	2.016 TONS/CU YD
BITUMINOUS MATERIALS ON PAVEMENT:	0.09 GAL /SQ YD
ALL AGGREGATE	2.05 TONS/CU YD
RIP RAP	1.50 TONS/CU YD

3) AT ALL LOCATIONS WHERE EXISTING HOT-MIX ASPHALT OR CONCRETE PAVEMENT JOINS AN EXISTING HOT-MIX ASPHALT OR CONCRETE PAVEMENT, A FULL DEPTH SAWED JOINT SHALL BE CONSTRUCTED. THE COST OF THIS JOINT WILL BE INCLUDED IN THE COST OF THE TYPE OF PAVEMENT BEING CONSTRUCTED. NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

4) THE CONTRACTOR MAY USE P.C.C. PAVEMENT 10" AS PER HIGHWAY STANDARD 420601 IN LIEU OF THE HMA PAVEMENT SHOWN IN THE PLANS. NO ADDITIONAL COMPENSATION WILL BE ALLOWED. A CALCIUM CHLORIDE ACCELERATOR WILL BE ALLOWED. THE CONCRETE SHALL BE CLASS PP-1 OR PP-2 PER ARTICLE 1020 OF THE STANDARD SPECS.

5) COMMITMENTS: NONE AS OF AUGUST 2, 2013.

INDEX OF SHEETS

MIXTURE REQUIREMENTS

LOCATION(S):	HOT-MIX ASPHALT SURFACE COURSE
MIXTURE USES(S):	HOT-MIX ASPHALT SURFACE COURSE, MIX C, N90
AC/PG:	PG64-22
ABR % (MAX):	SEE BDE SPECIAL PROVISION
DESIGN AIR VOIDS:	4.0%, 90 GYRATION DESIGN
MIXTURE COMPOSITION: (GRADATION MIXTURE)	IL-9.5 mm
FRICTION AGGREGATE:	C SURFACE

LOCATION(S):	HOT-MIX ASPHALT BINDER COURSE
MIXTURE USES(S):	HOT-MIX ASPHALT BINDER COURSE, N90, IL-19.0 MM FINE-GRADE
AC/PG:	PG64-22
ABR% (MAX):	SEE BDE SPECIAL PROVISION
DESIGN AIR VOIDS:	4.0%, 90 GYRATION DESIGN
MIXTURE COMPOSITION: (GRADATION MIXTURE)	IL-19.0 mm FINE-GRADE
FRICTION AGGREGATE:	NONE

STANDARDS

000001-06	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF AN INCH AND OF A FOOT
420601-05	24' PCC PAVEMENT
701001-02	OFF-RD OPERATIONS, 2L, 2W, MORE THAN 15' AWAY
701006-04	OFF-RD OPERATIONS, 2L, 2W, 15' TO 24" FROM PAVEMENT EDGE
701201-04	LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS $\geq$ 45 MPH
701901-02	TRAFFIC CONTROL DEVICES
780001-03	TYPICAL PAVEMENT MARKINGS
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

Prepared By: DISTRICT STUDIES & PLANS ENGINEER

Examined By: DISTRICT LAND ACQUISITION ENGINEER

Examined By: DISTRICT PROGRAM DEVELOPMENT ENGINEER

Examined By: DISTRICT OPERATIONS ENGINEER

Examined By: DISTRICT PROJECT IMPLEMENTATION ENGINEER

Examined By: DISTRICT CONSTRUCTION ENGINEER

Examined By: DISTRICT MATERIALS ENGINEER

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES, INDEX OF SHEETS, MIX REQUIREMENTS, AND STANDARDS

SCALE: _____ | SHEET ___ OF ___ SHEETS | STA. _____ | TO STA. _____

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
776	1248-1	HAMILTON	10	2
		CONTRACT NO. 78310		
	ILLINOIS FED. AID PROJECT			

4/22/2013 10:41:22 AM

	CODE NUMBER	PAY ITEM	SN 033-7023 (E), 033-7035 (P) 80%FED 20%ST - HAMILTON COUNTY CONSTRUCTION TYPE CODE - 0040 UNIT	TOTAL QUANTITY
	20200100	EARTH EXCAVATION	CU YD	140
	20700220	POROUS GRANULAR EMBANKMENT	CU YD	158
*	25000200	SEEDING, CLASS 2	ACRE	0.25
*	25000400	NITROGEN FERTILIZER NUTRIENT	POUND	23
*	25000500	PHOSPHOROUS FERTILIZER NUTRIENT	POUND	23
*	25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	23
*	25000700	AGRICULTURAL GROUND LIMESTONE	TON	0.5
	25100630	EROSION CONTROL BLANKET	SQ YD	64
	28100107	STONE RIPRAP, CLASS A4	SQ YD	57
	28200200	FILTER FABRIC	SQ YD	57
	40603090	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N90	TON	60
	40603320	HOT-MIX ASPHALT SURFACE COURSE, MIX 'C', N90	TON	8
	40800010	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	9
	44000100	PAVEMENT REMOVAL	SQ YD	99

	CODE NUMBER	PAY ITEM	SN 033-7023 (E), 033-7035 (P) 80%FED 20%SF HAMILTON COUNTY CONSTRUCTION TYPE CODE - 0040 UNIT	TOTAL QUANTITY
	48101600	AGGREGATE SHOULDERS, TYPE B	SQ YD	21
	50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
	50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	740
	54003000	CONCRETE BOX CULVERTS	CU YD	17.1
	54011005	PRECAST CONCRETE BOX CULVERTS 10' X 5'	FOOT	42
	67100100	MOBILIZATION	L SUM	1
	70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	L SUM	1
	70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1
	70106800	CHANGEABLE MESSAGE SIGN	CAL MO	1
*	78001110	PAINT PAVEMENT MARKING - LINE 4''	FOOT	78
	78300100	PAVEMENT MARKING REMOVAL	SQ FT	26

*SPECIALTY ITEM

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

SCALE: | SHEET OF SHEETS | STA. | TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
776	124B-1	HAMILTON	10	3
		CONTRACT NO. 78310		
	ILLINOIS FED. AID PROJECT			

663+00

CHAIN IL142

℄ EXISTING SN 033-7023
& PROPOSED SN 033-7035,
STA 663+75,

664+00

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GEOPAK ELEMENTS
IDENTIFICATION SHEET

SCALE: | SHEET OF SHEETS | STA. | TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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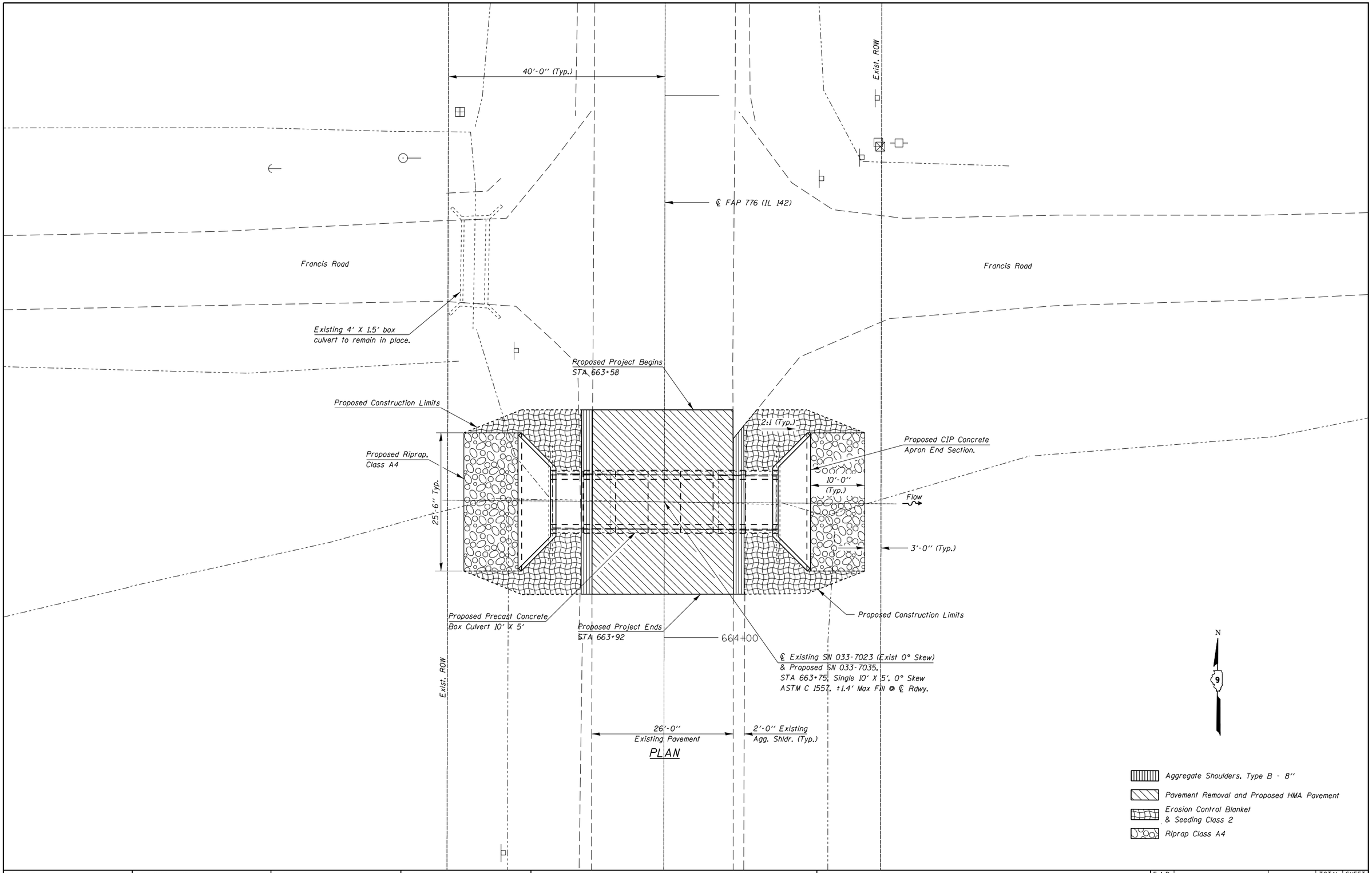
		CONTRACT NO. 78310		
	ILLINOIS FED. AID PROJECT			



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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

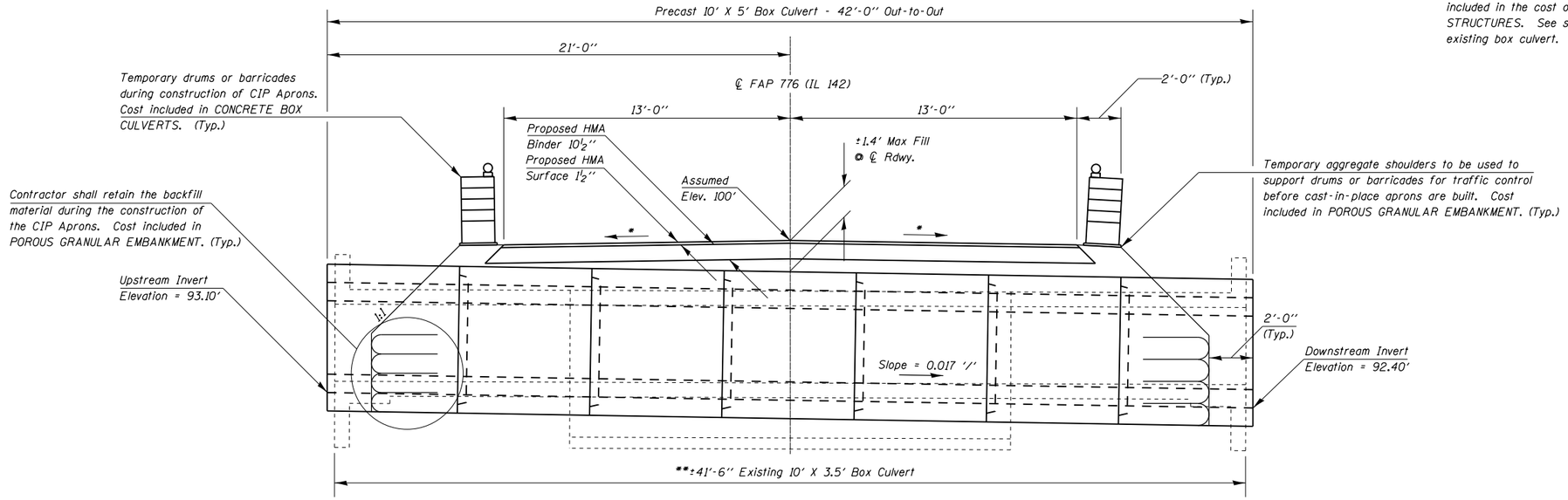
GENERAL PLAN
SN 033-7035

SCALE: | SHEET OF SHEETS | STA. | TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
776	124B-1	HAMILTON	10	5
		CONTRACT NO. 78310		
	ILLINOIS FED. AID PROJECT			

TEMPORARY SECTION PRIOR TO CONSTRUCTION OF CAST-IN-PLACE APRONS

* Match Existing Cross Slopes
** The removal of the existing box culvert is to be included in the cost of REMOVAL OF EXISTING STRUCTURES. See sheet 9 of 9 for details of existing box culvert.



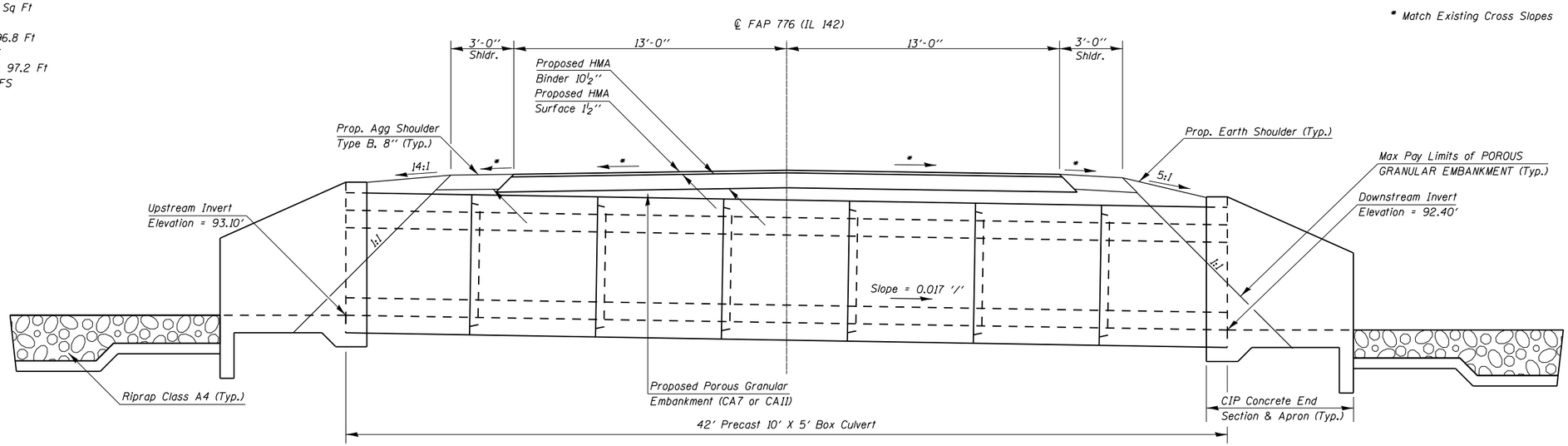
ELEVATION
(Looking North)

Precast Box Loading HL-93.
ASTM C 1557

HYDRAULIC DATA
Drainage Area = 0.5 Sq Mi
Design Waterway Opening = 37 Sq Ft
Design Discharge = 169 CFS
Design Headwater Elevation = 96.8 Ft
100 Year Discharge = 203 CFS
100 Year Headwater Elevation = 97.2 Ft
Overtopping > 500 Yr = 456 CFS

FINAL SECTION AFTER CONSTRUCTION OF CAST-IN-PLACE APRONS

* Match Existing Cross Slopes



PRECAST BOX CULVERT SCHEDULE (ASTM C 1557)

STATION	SIZE	SKEW	DESIGN FILL (FT.)		PGE BACKFILL REQUIRED
			EDGE OF SHLD. (MIN)	MAXIMUM	
663+75.00	SINGLE 10'X5'	0	±1.0'	±1.4'	158 CU YD

ELEVATION
(Looking North)

Precast Box Loading HL-93.
ASTM C 1557

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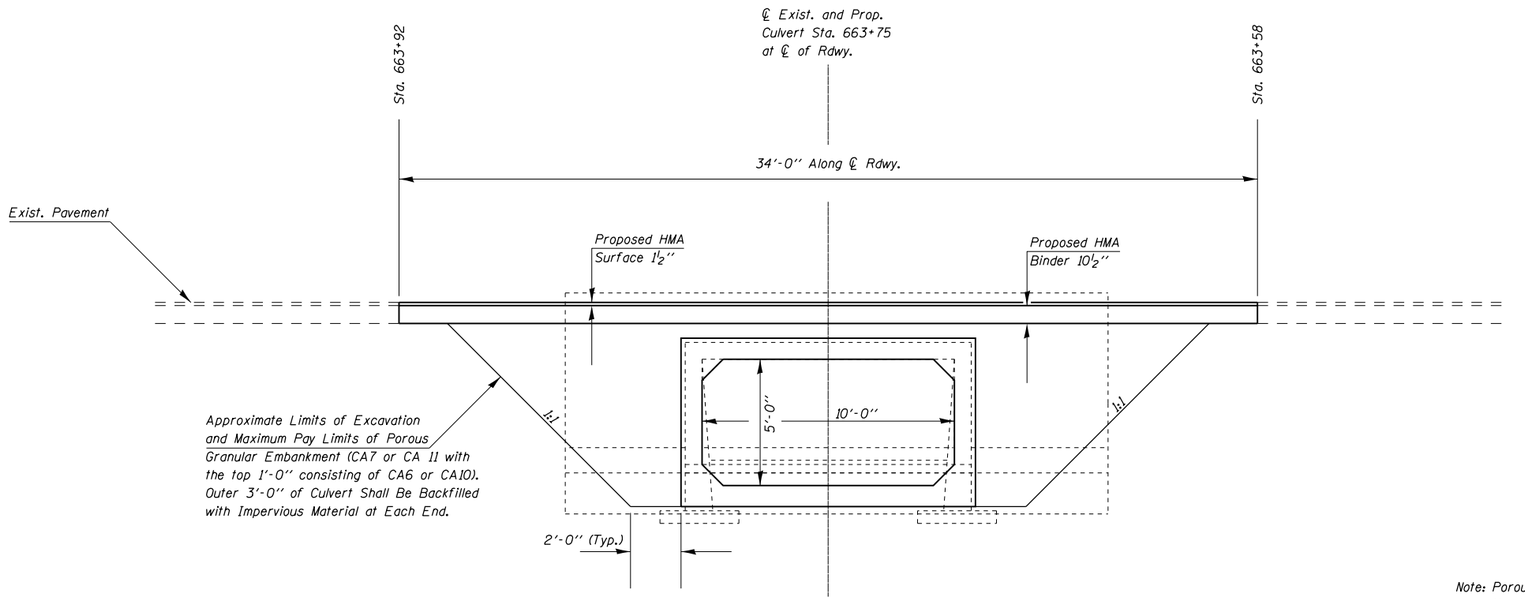
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TEMPORARY AND FINAL SECTIONS

SCALE: | SHEET OF SHEETS | STA. | TO STA.

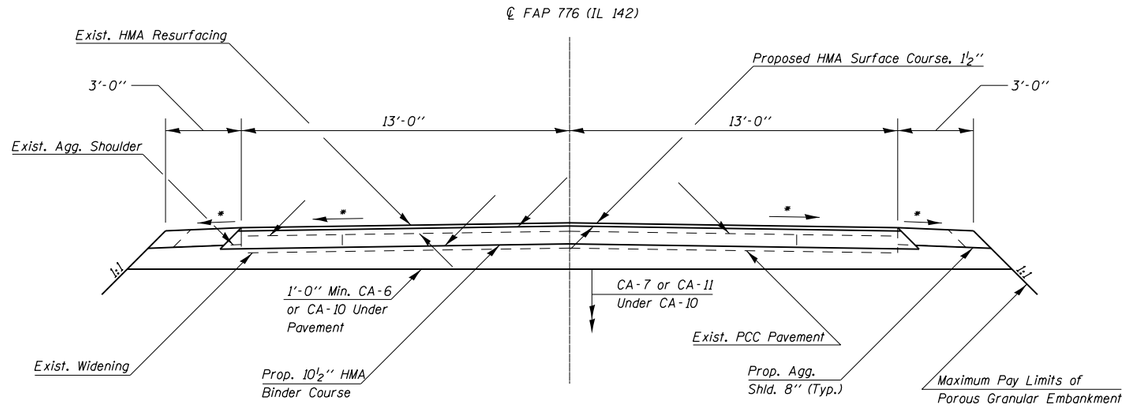
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
776	124B-1	HAMILTON	10	6
		CONTRACT NO. 78310		
	ILLINOIS FED. AID PROJECT			

LIMITS OF POROUS GRANULAR EMBANKMENT



Note: Porous Granular Embankment will be CA7 or CA 11 with the top 1' Consisting of CA6 or CA10.

SECTION WITHIN PAVEMENT REMOVAL



* Match Existing Cross Slopes

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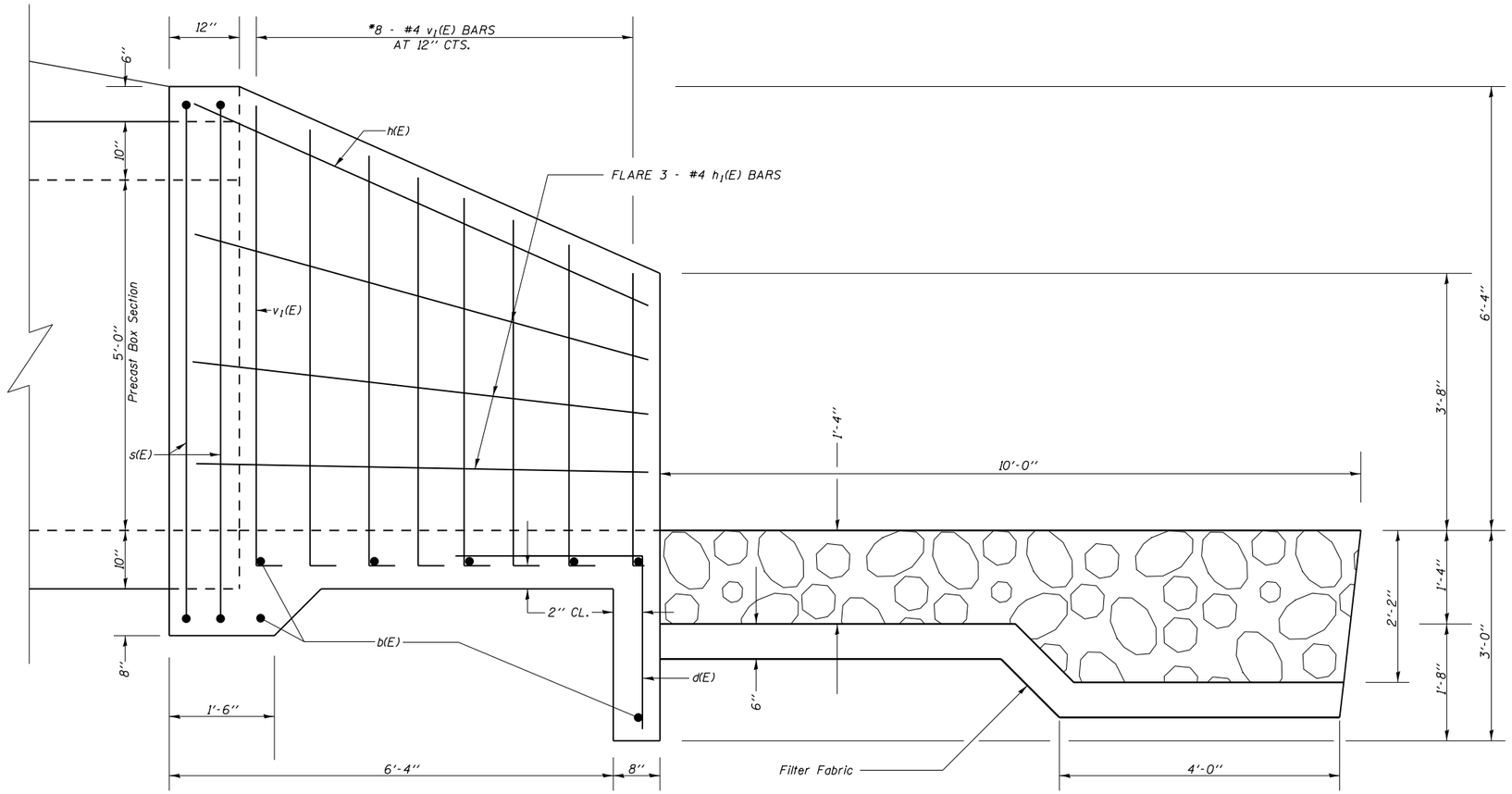
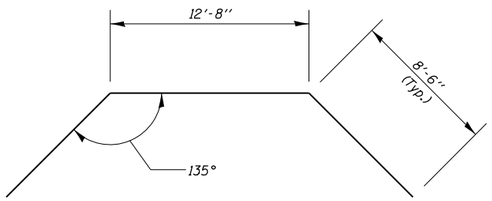
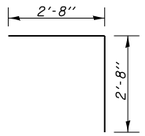


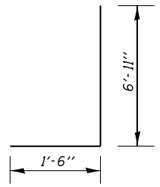
HALF SIDE ELEVATION



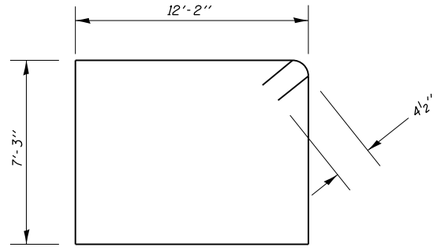
Bar h(E)



Bar d(E)



Bar v_1(E)



Bar s(E)

DESIGN STRESSES
f_y = 60,000 psi
f_c' = 3,500 psi

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
b(E)	14	#4	24'-1''	
d(E)	34	#4	5'-4''	
h(E)	2	#4	29'-8''	
h_1(E)	12	#4	8'-5''	
s(E)	4	#4	39'-7''	
v_1(E)	32	#4	8'-5''	
Concrete Box Culverts			Cu. Yd.	17.1
Reinforcement Bars, Epoxy Coated			Pound	740

Reinforcement bars designated (E) shall be epoxy coated.
* Cut or bend to fit.
Reinforcement bars shall conform to the requirements of ASTM A 706.
Exposed edges shall be beveled $\frac{3}{4}$''

Cast-in-Place Apron End Section Details Hamilton County SN 033-7035

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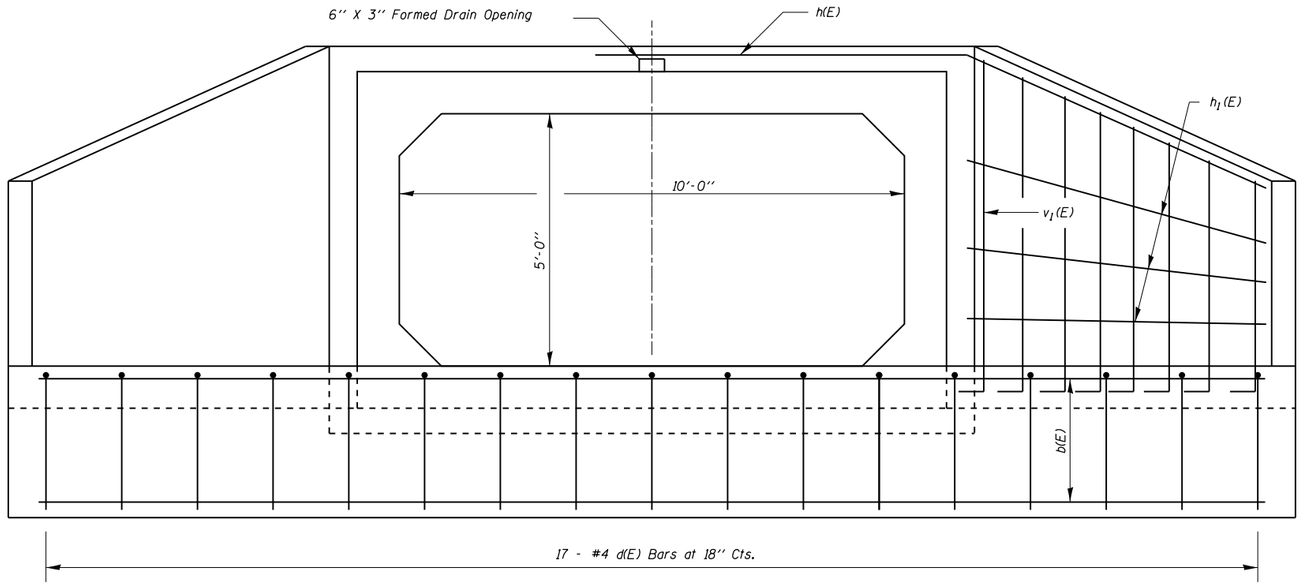
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

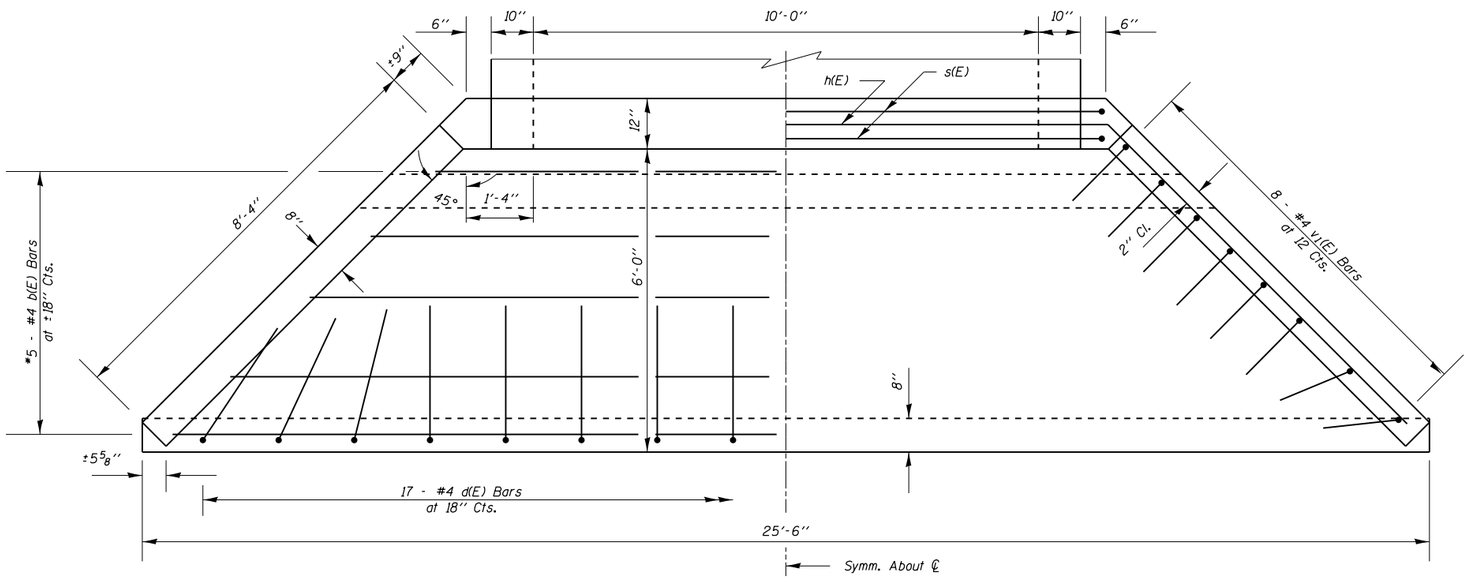
CAST IN PLACE APRON
END SECTION SN 033-7035

SCALE: | SHEET OF SHEETS | STA. | TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
776	124B-1	HAMILTON	10	8
		CONTRACT NO. 78310		
	ILLINOIS	FED. AID PROJECT		



END ELEVATION



PLAN

* Cut or Bend to Fit

Work this sheet with Sheet 8 of 10.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CAST IN PLACE APRON
END SECTION SN 033-7035

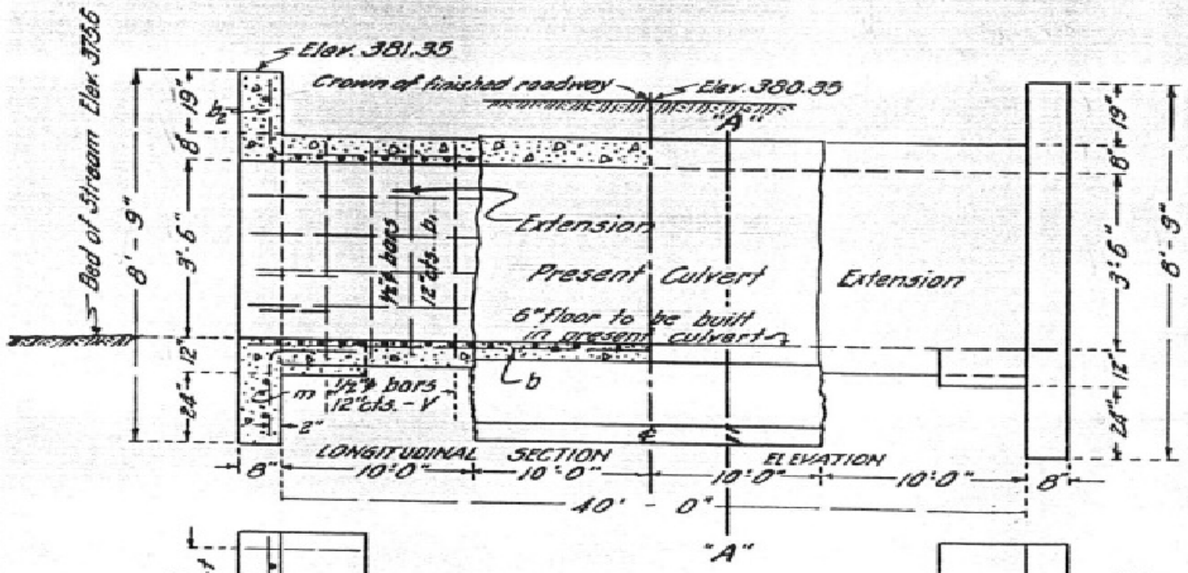
SCALE: | SHEET OF SHEETS | STA. | TO STA.

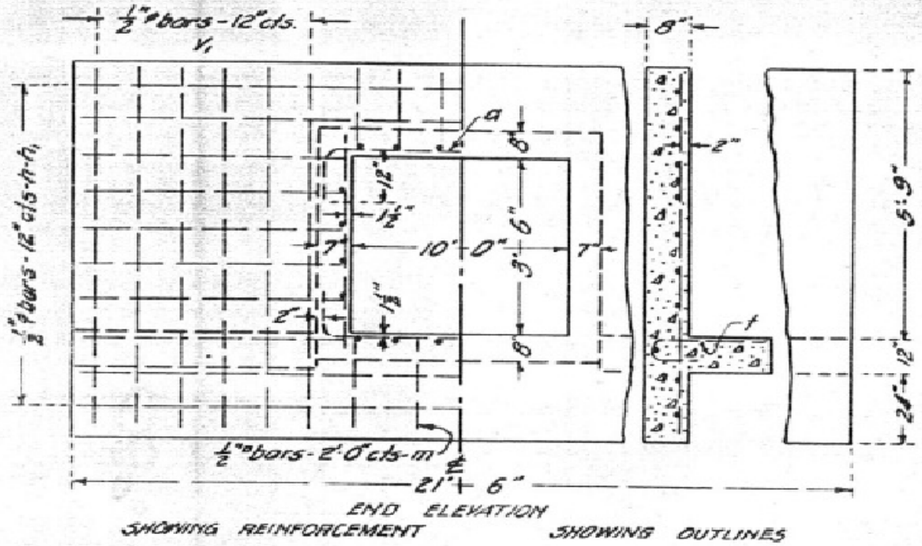
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
776	124B-1	HAMILTON	10	9
		CONTRACT NO. 78310		
	ILLINOIS FED. AID PROJECT			

STATE OF ILLINOIS
STATE HIGHWAY DEPARTMENT

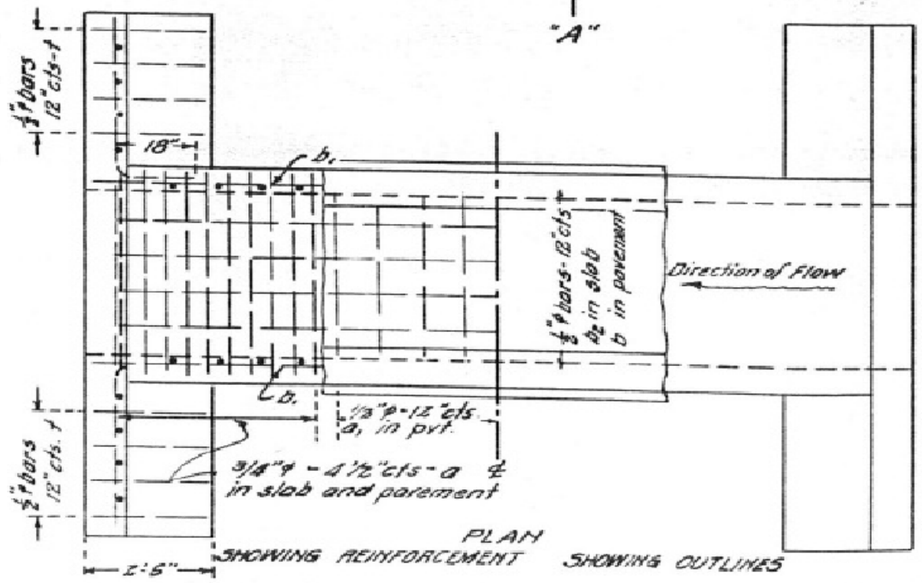
REINFORCED CONCRETE BOX CULVERT

BOND ISSUE ROUTE NO.	COUNTY	SEC.	TOTAL SHEETS	SHEET NO.
142	Hamilton	116A	46	37



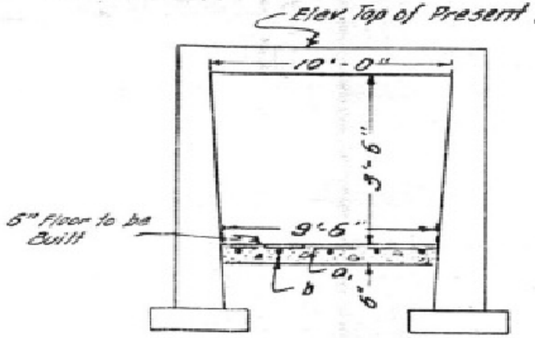


SHOWING REINFORCEMENT SHOWING OUTLINES



PLAN
SHOWING REINFORCEMENT SHOWING OUTLINES

Note :- Use "m" bars in downstream headwall only.
Remove headwalls on old culvert.
The old concrete surface shall be removed to the coarse aggregate, swept or washed and the surfaced thoroughly wetted and flushed with a thin 1 to 2 mortar.



SECTION "A-A"

BILL OF MATERIAL

Bars	No.	Size	Length
V	10	½"ϕ	4'-6"
V1	24	½"ϕ	8'-3"
h	10	½"ϕ	21'-0"
h1	16	½"ϕ	7'-0"
a	114	¾"ϕ	12'-9"
a1	20	½"ϕ	9'-3"
b	22	½"ϕ	21'-6"
b1	12	½"ϕ	10'-6"
b2	22	½"ϕ	12'-0"
t	24	½"ϕ	3'-0"
m	3	½"ϕ	5'-0"
Steel - Lbs.			3420
Concrete - Cu. Yds.			26.5

Class "A" concrete to be used throughout
Proportions 1:2½:4

DRAWING Sept. 13, 27
J. F. Buck
SPECIAL ENGINEER
PASSED
ENGINEER OF DESIGN
APPROVED
CHIEF HIGHWAY ENGINEER

SPECIAL	ASSEMBLED - R.K.H
	CHECKED - E.W.P

ADJUST HEIGHT OF HEAD-WALLS TO BE 12 INCHES ABOVE TANGENT TO CROWN OF PAVEMENT AT CENTER LINE

BUILD TOPS OF HEAD-WALLS PARALLEL TO GRADE LINE.

S.B.I. RT. 142 SEC. 116A
HAMILTON COUNTY
STA. 663+75

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING PLAN SHEET
(FOR INFORMATION ONLY)

SCALE: | SHEET OF SHEETS | STA. | TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
776	124B-1	HAMILTON	10	10
		CONTRACT NO. 78310		
	ILLINOIS FED. AID PROJECT			