



# Illinois Department of Transportation

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To: Anthony J. Quigley                      Attn: John Baczek  
From: Jack A. Elston                      By: Michael Brand *Michael Brand*  
Subject: Pavement Design Approval  
Date: December 18, 2019

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Route: IL 62                                      Job No.: C-91-312-16  
Section: 16-00068-00-WR                      Contract No.: 61G20  
County: Cook                                      Target Letting: January 2020  
Limits: Plum Grove Road to IL 53

We have reviewed the pavement design for the above referenced project which was submitted on September 23, 2019. The scope of the project involves widening and resurfacing IL 62 at Meacham Road and at Thoreau Drive to provide additional channelization.

The design explored several widening options and analyzed them based upon first costs which resulted in a mechanistic Full-Depth HMA pavement being the preferred option.

In summary, the approved pavement design is as follows:

IL 62 Widening & Resurfacing  
11.5" Full-Depth HMA w/ Curb & Gutter  
12" Aggregate Subgrade Improvement

If you have any questions, please contact Michael Brand at (217) 782-7651.



# Illinois Department of Transportation

## Memorandum

To: Jack Elston

Attn: Michael Brand

From: Jose A. Dominguez

By: Ojas Patel

Subject: Pavement Analysis\*

Date: September 23, 2019

\*Route: IL 62

County: Cook

Limits: Plum Grove Road to IL 53

Contract No.: 61G20

Section: 16-00068-00-WR

Job No.: C-91-312-16

Current target: 01CY20

We have completed the pavement analysis for the above captioned location. Review by the Central Office is required since the total pavement area for reconstruction exceeds 4,750 Square Yards. The following is the scope of the project:

***As part of a Local Roads improvement, widening and resurfacing of IL 62 at Meacham Road and at Thoreau Drive to provide additional channelization.***

### **IL 62**

Widening

PCC Curb and Gutter

11 ½" Full Depth HMA<sup>5</sup>

1 ¾" Polymerized HMA Surface Course, SMA, 9.5, Mix "F", N80<sup>1</sup>

¾" Polymerized HMA Binder Course, IL-4.75, N50<sup>2</sup>

9" HMA Base Course, IL-19.0, N90<sup>3</sup>

12" Aggregate Subgrade Improvement<sup>4</sup>

### **IL 62 Pavement Resurfacing<sup>5</sup>**

Cold Milling of HMA Pavement

2 ½" minimum (more if necessary)

1 ¾" Polymerized HMA Surface Course, SMA, 9.5, Mix "F", N80<sup>1</sup>

¾" Polymerized HMA Binder Course, IL-4.75, N50<sup>2</sup>

**IL 62**

Temporary Pavement

Option 1<sup>6</sup>

- 10" Full Depth Temporary HMA Pavement <sup>7</sup>
- 2" HMA Surface Course, Mix "D", N70
- 8" HMA Binder Course, IL-19.0, N70
- 4" Subbase Granular Material Type B (CA-6) <sup>8</sup>

Option 2<sup>6</sup>

- 8" Temporary PCC Pavement <sup>7</sup>
- 4" Subbase Granular Material Type B (CA-6) <sup>8</sup>

<sup>1</sup>Designer Note 1: Use pay item **40605026, POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, SMA, 9.5, Mix "F", N80** paid for in tons.

<sup>2</sup>Designer Note 2: Use pay item **40603200, POLYMERIZED HMA BINDER COURSE, IL-4.75, N50** paid for in tons.

<sup>3</sup>Designer Note 3: For widening of six feet or less use pay item **35600712, Hot-Mix Asphalt Base Course Widening, 9"**, paid for in square yards. For widening of greater than six feet use pay item **35501320, Hot-Mix Asphalt Base Course, 9"**, paid for in square yards.

<sup>4</sup>Designer Note 4: Use pay item **30300112, AGGREGATE SUBGRADE IMPROVEMENT, 12"**, paid in square yards.

<sup>5</sup>Designer Note 5: Refer to the District One, Bureau of Materials' "Hot-Mix Asphalt – Mix Selection" tables to determine the corresponding HMA mix table requirements for the plans.

<sup>6</sup>Designer Note 6: The contractor shall have the option of constructing either material type if both Portland cement concrete and HMA are shown in the plans. For quantity estimation purposes, excavation quantities should be estimated assuming the thicker design if both options are shown in the plans.

J. Elston  
September 23, 2019  
Page Three

<sup>7</sup>Designer Note 7: Use pay item **Z0062456, TEMPORARY PAVEMENT**, paid in square yards.

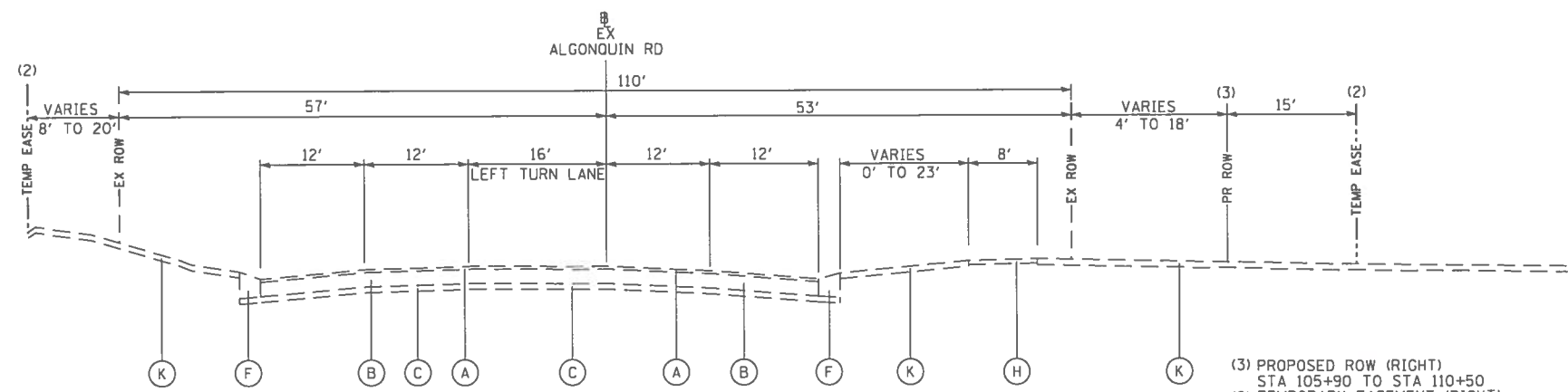
The HMA temporary pavement shall consist of two items, HMA binder course and HMA surface course. Include both items in the HMA mix table requirements.

When PC Temp Pavement is used as an option, the following note shall appear on the plans adjacent to the HMA mix table: "PC Concrete temporary pavement shall consist of Class PV Concrete meeting the requirements of Art.1020 of the Standard Specifications. Temporary PCC pavement does not require dowel bars.

<sup>8</sup>Designer Note 8: Use pay item **31101200, SUBBASE GRANULAR MATERIAL, TYPE B 4"**, paid in square yards

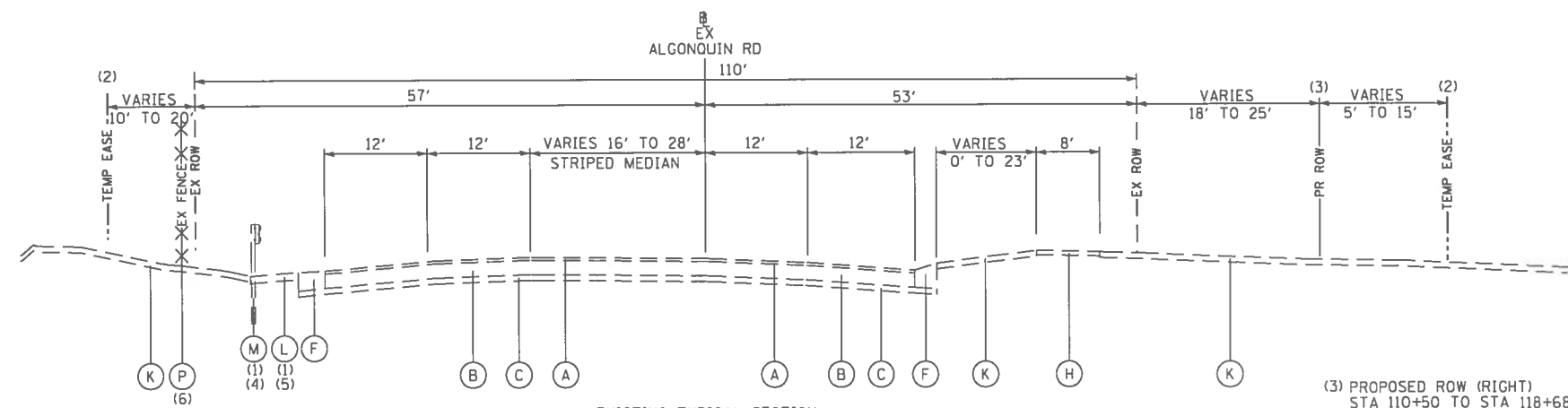
If you have any questions or need additional information, please contact Ojas Patel, Pavement Design Engineer, at (847)705-4550.

By:   
Jose A. Dominguez, P.E.  
Project Support Engineer



EXISTING TYPICAL SECTION  
IL ROUTE 62 (ALGONQUIN ROAD)  
STATION 105+90 TO STATION 110+50

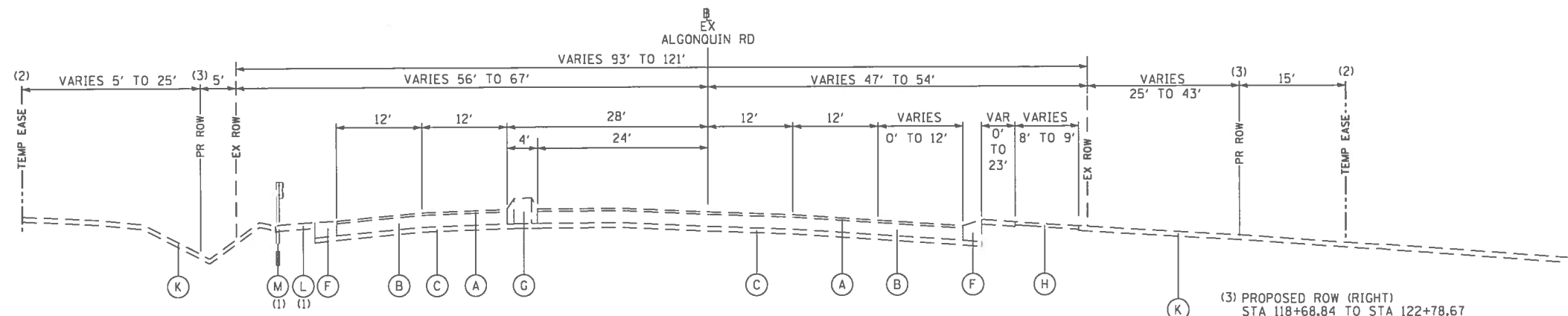
- (3) PROPOSED ROW (RIGHT)  
STA 105+90 TO STA 110+50
- (2) TEMPORARY EASEMENT (RIGHT)  
STA 105+90 TO STA 110+50
- (2) TEMPORARY EASEMENT (LEFT)  
STA 106+75 TO STA 108+00
- (2) TEMPORARY EASEMENT (LEFT)  
STA 110+00 TO STA 110+50



EXISTING TYPICAL SECTION  
IL ROUTE 62 (ALGONQUIN ROAD)  
STATION 110+50.00 TO STATION 118+68.84  
STATION 140+00.00 TO STATION 145+94.53

- (1) STATION 120+14.53 TO STATION 121+69.40
- (4) STATION 141+22.42 TO STATION 145+94.53
- (5) STATION 141+23.67 TO STATION 147+27.59
- (6) STATION 139+90.04 TO STATION 145+93.92

- (3) PROPOSED ROW (RIGHT)  
STA 110+50 TO STA 118+68.84
- (2) TEMPORARY EASEMENT (RIGHT)  
STA 110+50 TO STA 118+68.84
- (2) TEMPORARY EASEMENT (LEFT)  
STA 110+50 TO STA 112+80



EXISTING TYPICAL SECTION  
IL ROUTE 62 (ALGONQUIN ROAD)  
STATION 118+68.84 TO STATION 123+00.00

- (1) STATION 120+16.00 TO STATION 121+70.00

- (3) PROPOSED ROW (RIGHT)  
STA 118+68.84 TO STA 122+78.67
- (3) PROPOSED ROW (LEFT)  
STA 121+00.00 TO STA 122+12.41
- (2) TEMPORARY EASEMENT (RIGHT)  
STA 118+68.84 TO STA 122+97.06
- (2) TEMPORARY EASEMENT (LEFT)  
STA 118+75.00 TO STA 122+08.10

- EXISTING**
- (A) HOT-MIX ASPHALT (HMA) SURFACE COURSE AND LEVELING BINDER, 1.5" TO 2.5" AND VARIES
  - (B) PCC BASE COURSE, 8" TO 13.5" AND VARIES
  - (C) AGGREGATE BASE COURSE
  - (D) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.12
  - (E) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.18
  - (F) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.24
  - (G) STABILIZED MEDIAN SURFACE, 12" +/- / PC CONCRETE MEDIAN /PCC CORRUGATED MEDIAN
  - (H) HOT-MIX ASPHALT (HMA) MULTI-USE PATH, 3" OVER 6" AGGREGATE BASE COURSE
  - (I) PORTLAND CEMENT CONCRETE (PCC) SIDEWALK, 5"
  - (J) HOT-MIX ASPHALT (HMA) PARKING LOT
  - (K) TOPSOIL (ASSUMED TO BE 6" IN DEPTH)
  - (L) HOT-MIX ASPHALT (HMA) SHOULDER
  - (M) EXISTING GUARDRAIL
  - (N) LANDSCAPED MEDIAN
  - (O) CONCRETE CURB, TYPE B
  - (P) FENCE
  - (Q) HOT-MIX ASPHALT BINDER AND SURFACE COURSE - 9"
  - (R) PCC PAVEMENT 12" AND VARIES

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50101-TYP-01.dgn  
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DATE 11/26/2019

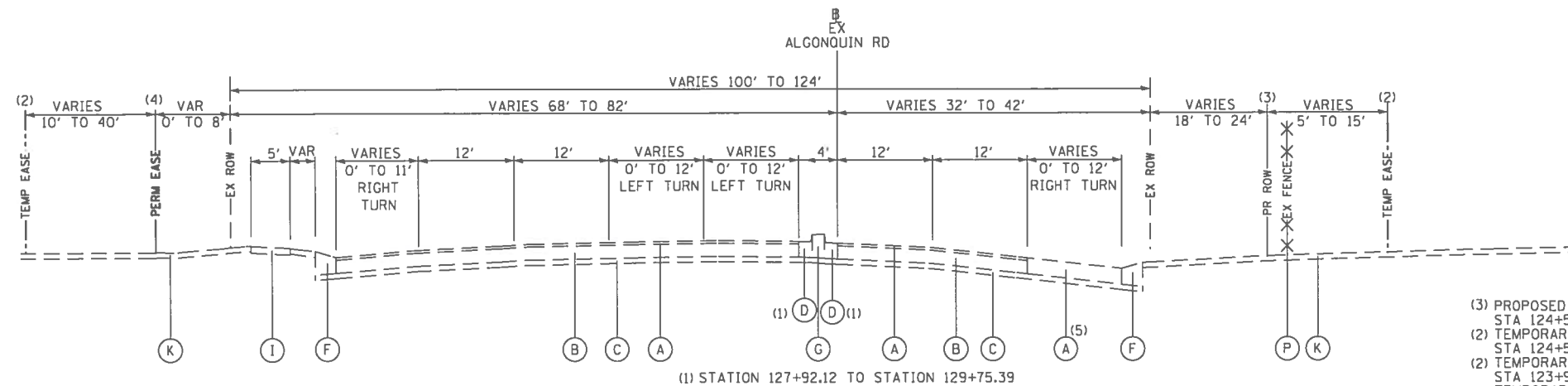
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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL 62 (ALGONQUIN ROAD) AND MEACHAM ROAD  
EXISTING TYPICAL SECTIONS**

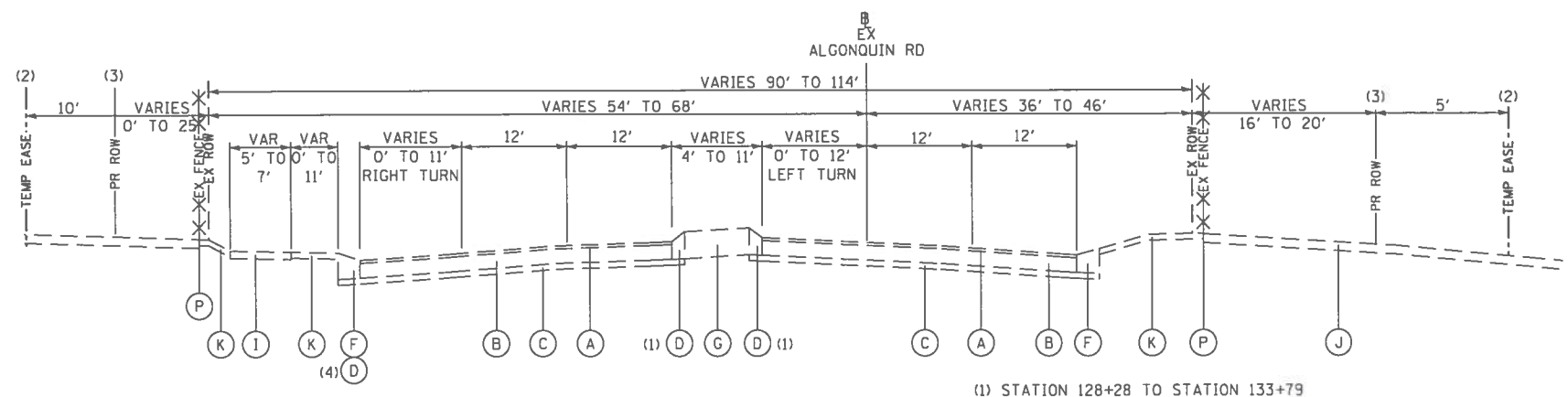
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0339	16-00068-00-WR	COOK	301	25
CONTRACT NO. 61G20				
ILLINOIS FED. AID PROJECT				



EXISTING TYPICAL SECTION  
IL ROUTE 62 (ALGONQUIN ROAD)  
STATION 123+00.00 TO STATION 129+75.39

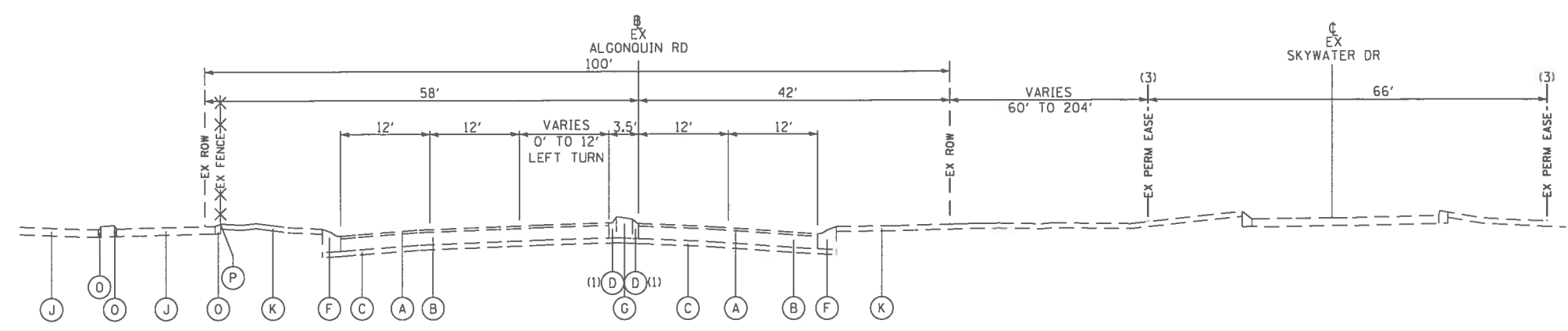
- (3) PROPOSED ROW (RIGHT)  
STA 124+57.77 TO STA 129+75.39
- (2) TEMPORARY EASEMENT (RIGHT)  
STA 124+57.77 TO STA 129+75.39
- (2) TEMPORARY EASEMENT (LEFT)  
STA 123+92.21 TO STA 125+00.00
- (2) TEMPORARY EASEMENT (LEFT)  
STA 126+67.98 TO STA 128+10.00
- (2) TEMPORARY EASEMENT (LEFT)  
STA 128+70.77 TO STA 129+75.39
- (4) PERMANENT EASEMENT (LEFT)  
STA 123+79.18 TO STA 126+23.43
- (5) RIGHT TURN LANE FULL DEPTH HMA-12.5"  
STA 125+85.99 TO STA 129+47.16



(4) STATION 128+50 TO STATION 130+59  
TRANSITIONS FROM TYPE B-6.12 TO TYPE B-6.24  
FROM STATION 130+59 TO STATION 132+61

EXISTING TYPICAL SECTION  
IL ROUTE 62 (ALGONQUIN ROAD)  
STATION 129+75.39 TO STATION 134+58.29

- (3) PROPOSED ROW (RIGHT)  
STA 129+75.39 TO STA 134+11.13
- (2) TEMPORARY EASEMENT (RIGHT)  
STA 129+75.39 TO STA 132+77.86
- (2) TEMPORARY EASEMENT (LEFT)  
STA 133+30.00 TO STA 133+43.64
- (3) PROPOSED ROW (LEFT)  
STA 133+62.31 TO STA 133+72.04



(1) STATION 135+07.49 TO STATION 136+17.97

EXISTING TYPICAL SECTION  
IL ROUTE 62 (ALGONQUIN ROAD)  
STATION 134+58.29 TO STATION 140+00.00

- (3) EXISTING PERMANENT EASEMENT (RIGHT)  
STA 135+46.49 TO STA 140+00.00

- EXISTING**
- (A) HOT-MIX ASPHALT (HMA) SURFACE COURSE AND LEVELING BINDER, 1.5" TO 2.5" AND VARIES
  - (B) PCC BASE COURSE, 8" TO 13.5" AND VARIES
  - (C) AGGREGATE BASE COURSE
  - (D) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.12
  - (E) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.18
  - (F) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.24
  - (G) STABILIZED MEDIAN SURFACE, 12" +/- / PC CONCRETE MEDIAN /PCC CORRUGATED MEDIAN
  - (H) HOT-MIX ASPHALT (HMA) MULTI-USE PATH, 3" OVER 6" AGGREGATE BASE COURSE
  - (I) PORTLAND CEMENT CONCRETE (PCC) SIDEWALK, 5"
  - (J) HOT-MIX ASPHALT (HMA) PARKING LOT
  - (K) TOPSOIL (ASSUMED TO BE 6" IN DEPTH)
  - (L) HOT-MIX ASPHALT (HMA) SHOULDER
  - (M) EXISTING GUARDRAIL
  - (N) LANDSCAPED MEDIAN
  - (O) CONCRETE CURB, TYPE B
  - (P) FENCE
  - (Q) HOT-MIX ASPHALT BINDER AND SURFACE COURSE - 9"
  - (R) PCC PAVEMENT 12" AND VARIES

FILE NAME 50101-TYP-01.dgn	USER NAME: Mibeering	DESIGNED - CEC	REVISED -
		DRAWN - CEC	REVISED -
		CHECKED - DWB	REVISED -
		DATE 11/26/2019	REVISED -

SCALE: 1/8" = 1'-0"	SHEET 2 OF 9 SHEETS	STA. TO STA.
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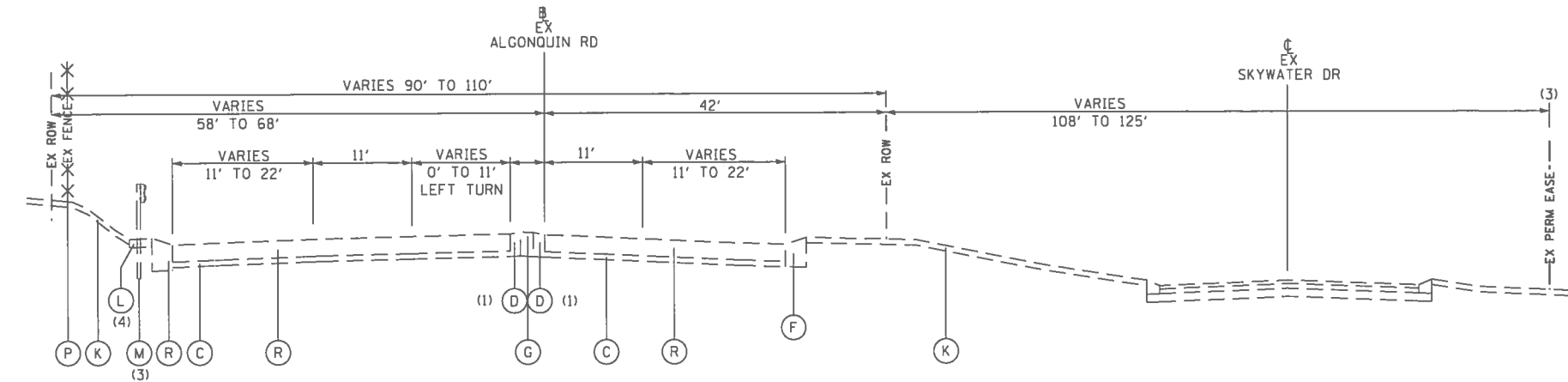
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL 62 (ALGONQUIN ROAD) AND MEACHAM ROAD  
EXISTING TYPICAL SECTIONS

F.A.U. RTE. 0339	SECTION 16-00068-00-WR	COUNTY COOK	TOTAL SHEETS 301	SHEET NO. 26
CONTRACT NO. 61G20				
ILLINOIS FED. AID PROJECT				

- EXISTING**
- (A) HOT-MIX ASPHALT (HMA) SURFACE COURSE AND LEVELING BINDER, 1.5" TO 2.5" AND VARIES
  - (B) PCC BASE COURSE, 8" TO 13.5" AND VARIES
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  - (D) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.12
  - (E) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.18
  - (F) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.24
  - (G) STABILIZED MEDIAN SURFACE, 12" +/- / PC CONCRETE MEDIAN /PCC CORRUGATED MEDIAN
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  - (K) TOPSOIL (ASSUMED TO BE 6" IN DEPTH)
  - (L) HOT-MIX ASPHALT (HMA) SHOULDER
  - (M) EXISTING GUARDRAIL
  - (N) LANDSCAPED MEDIAN
  - (O) CONCRETE CURB, TYPE B
  - (P) FENCE
  - (Q) HOT-MIX ASPHALT BINDER AND SURFACE COURSE - 9"
  - (R) PCC PAVEMENT 12" AND VARIES

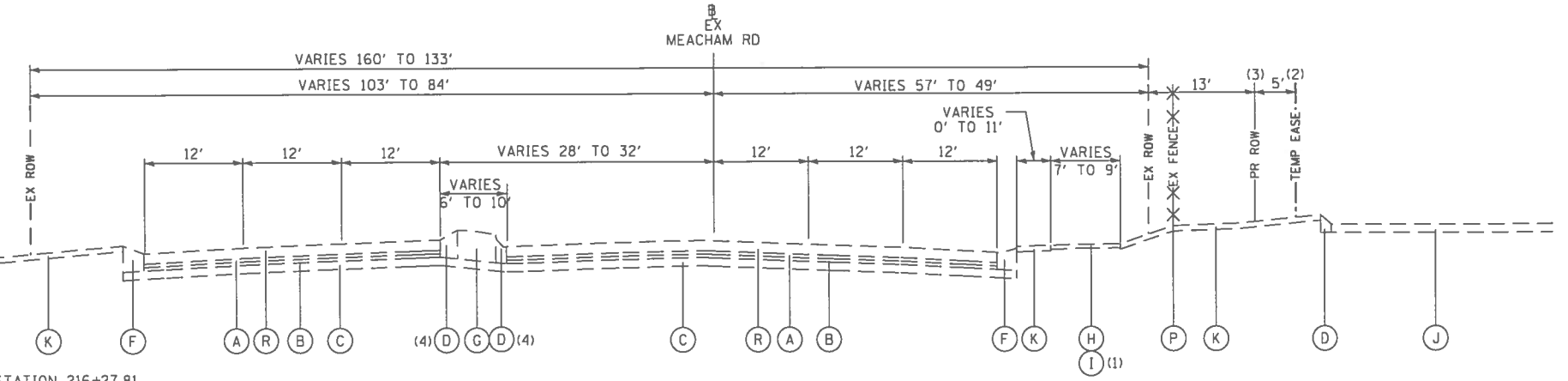
(1) STATION 147+67.46 TO STATION 148+57.33  
 (3) STATION 145+93.92 TO STATION 146+88.49  
 (4) STATION 148+57.34 TO STATION 150+69.41



**EXISTING TYPICAL SECTION**  
 IL ROUTE 62 (ALGONQUIN ROAD)  
 STATION 145+94.53 TO STATION 150+69.41

(3) EXISTING PERMANENT EASEMENT (RIGHT)  
 STA 145+94.53 TO STA 150+69.41

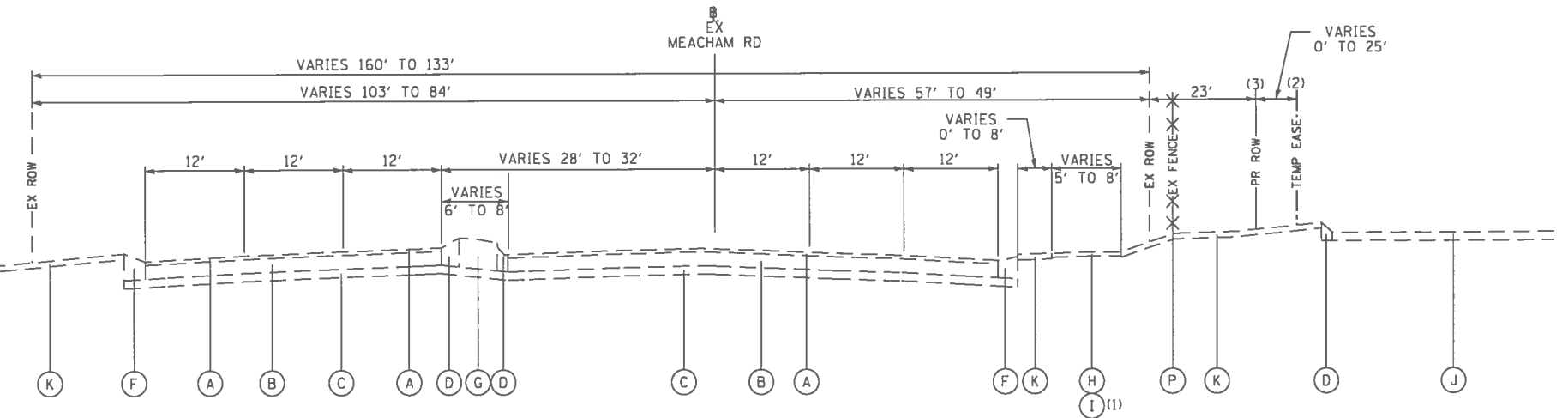
(1) STATION 215+66.49 TO STATION 216+27.81  
 (4) STATION 208+33.83 TO STATION 209+48.04



**EXISTING TYPICAL SECTION**  
 MEACHAM ROAD  
 STATION 208+33.83 TO STATION 212+35.06  
 STATION 215+66.34 TO STATION 216+67.19

(3) PROPOSED ROW (RIGHT)  
 STA 208+60.00 TO STA 212+35.06  
 (2) TEMPORARY EASEMENT (RIGHT)  
 STA 208+60.00 TO STA 212+35.06

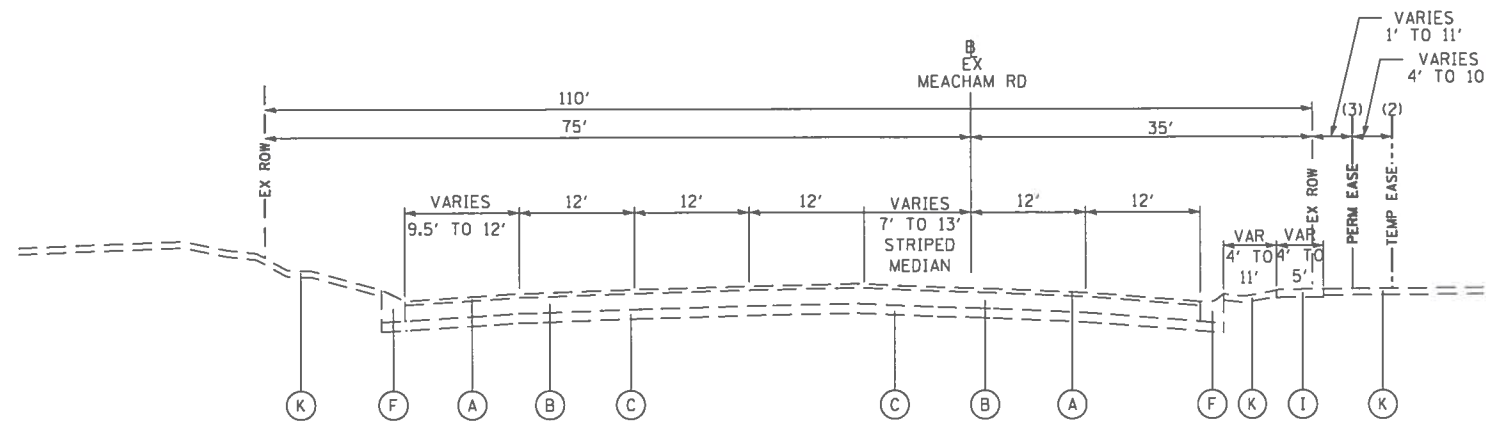
(1) STATION 215+31.42 TO STATION 215+66.34



**EXISTING TYPICAL SECTION**  
 MEACHAM ROAD  
 STATION 212+35.06 TO STATION 215+66.34

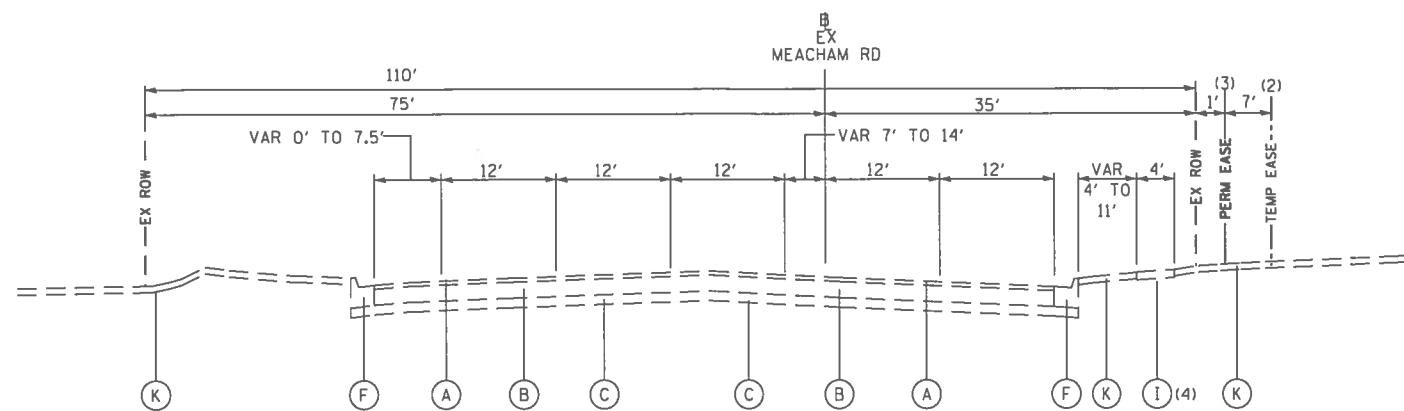
(3) PROPOSED ROW (RIGHT)  
 STA 212+35.06 TO STA 215+66.34  
 (2) TEMPORARY EASEMENT (RIGHT)  
 STA 212+35.06 TO STA 215+66.34

FILE NAME 50101-TYP-01.dgn	USER NAME: Mibeering	DESIGNED - CEC	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>IL 62 (ALGONQUIN ROAD) AND MEACHAM ROAD EXISTING TYPICAL SECTIONS</b>		F.A.U. RTE. 0339	SECTION 16-00068-00-WR	COUNTY COOK	TOTAL SHEETS 301	SHEET NO. 27
	PLOT SCALE: 100.0000' / in.	CHECKED - DWB	REVISED -				CONTRACT NO. 61G20				
Default	PLOT DATE: 11/26/2019	DATE 11/26/2019	REVISED -	SCALE: N.T.S.		SHEET 3 OF 9 SHEETS	STA. TO STA.	ILLINOIS FED. AID PROJECT			



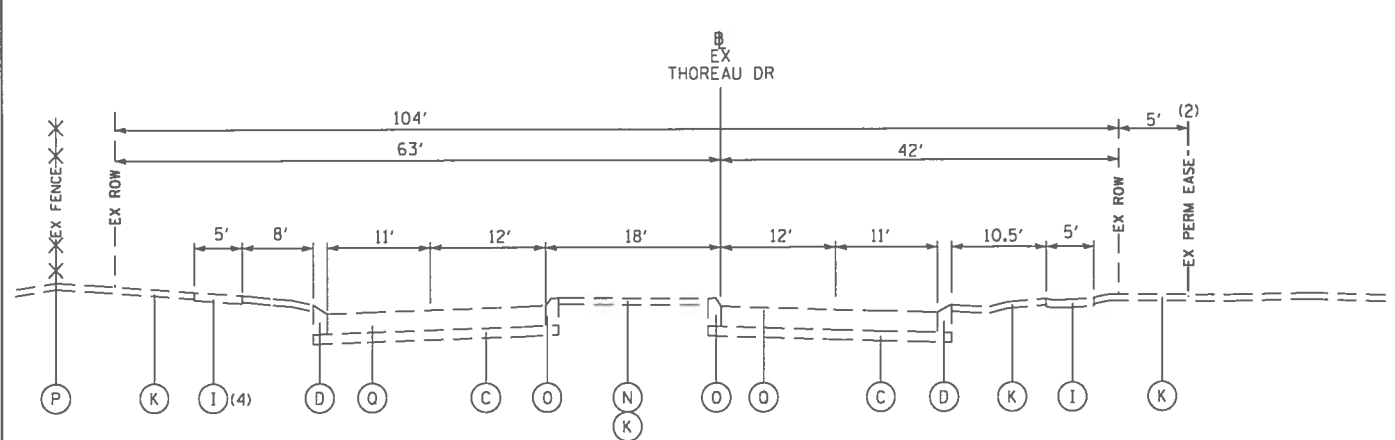
EXISTING TYPICAL SECTION  
MEACHAM ROAD  
STATION 217+33.80 TO STATION 220+63.68

(2) TEMPORARY EASEMENT (RIGHT)  
STA 218+00.00 TO STA 220+63.68  
(3) PERMANENT EASEMENT (RIGHT)  
STA 218+10.51 TO STA 220+63.68



EXISTING TYPICAL SECTION  
MEACHAM ROAD  
STATION 220+63.38 TO STATION 223+06.64

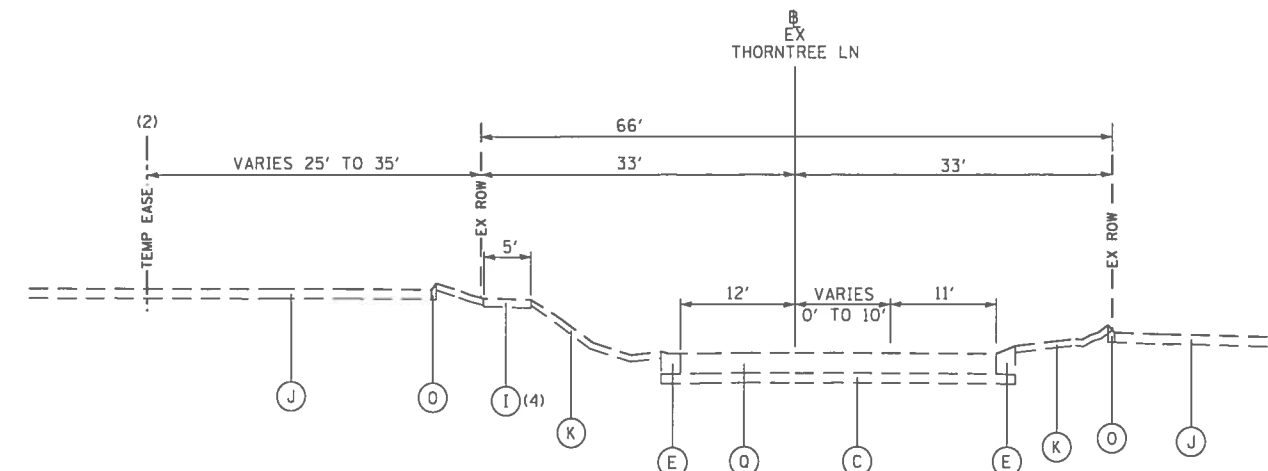
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STA 220+63.68 TO STA 220+68.69  
(3) PERMANENT EASEMENT (RIGHT)  
STA 220+63.68 TO STA 220+68.92  
(4) EXISTING SIDEWALK  
STATION 220+63.38 TO STATION 221+66.95



(4) EXISTING SIDEWALK  
STATION 401+05.00 TO STATION 403+08.36

EXISTING TYPICAL SECTION  
THOREAU DRIVE  
STATION 401+05.00 TO STATION 403+08.36

(2) EXISTING PERMANENT EASEMENT (RIGHT)  
STA 400+92.15 TO STA 402+27.68



(2) TEMPORARY EASEMENT (LEFT)  
STA 501+14.08 TO STA 503+38.57  
(4) STATION 503+41.87 TO 504+95.34

EXISTING TYPICAL SECTION  
THORNTREE LANE  
STATION 500+00.00 TO STATION 504+95.34

- EXISTING**
- (A) HOT-MIX ASPHALT (HMA) SURFACE COURSE AND LEVELING BINDER, 1.5" TO 2.5" AND VARIES
  - (B) PCC BASE COURSE, 8" TO 13.5" AND VARIES
  - (C) AGGREGATE BASE COURSE
  - (D) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.12
  - (E) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.18
  - (F) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.24
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  - (I) PORTLAND CEMENT CONCRETE (PCC) SIDEWALK, 5"
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  - (K) TOPSOIL (ASSUMED TO BE 6" IN DEPTH)
  - (L) HOT-MIX ASPHALT (HMA) SHOULDER
  - (M) EXISTING GUARDRAIL
  - (N) LANDSCAPED MEDIAN
  - (O) CONCRETE CURB, TYPE B
  - (P) FENCE
  - (Q) HOT-MIX ASPHALT BINDER AND SURFACE COURSE - 9"
  - (R) PCC PAVEMENT 12" AND VARIES

FILE NAME 50101-TYP-01.dgn	USER NAME: Mibeening	DESIGNED - CEC	REVISED -
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		DATE 11/26/2019	REVISED -

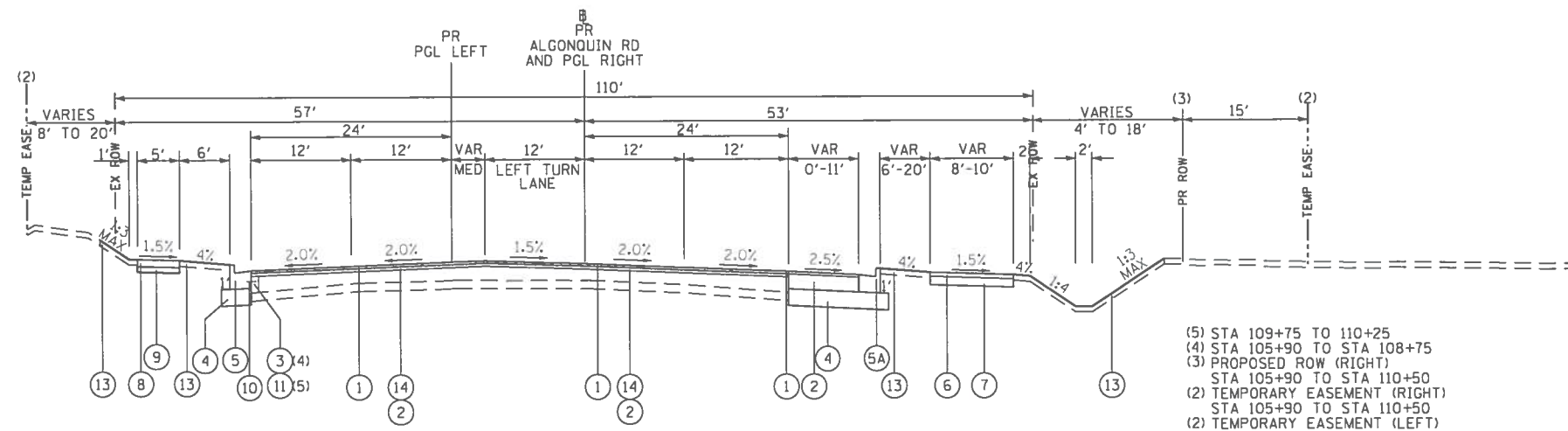
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL 62 (ALGONQUIN ROAD) AND MEACHAM ROAD  
EXISTING TYPICAL SECTIONS

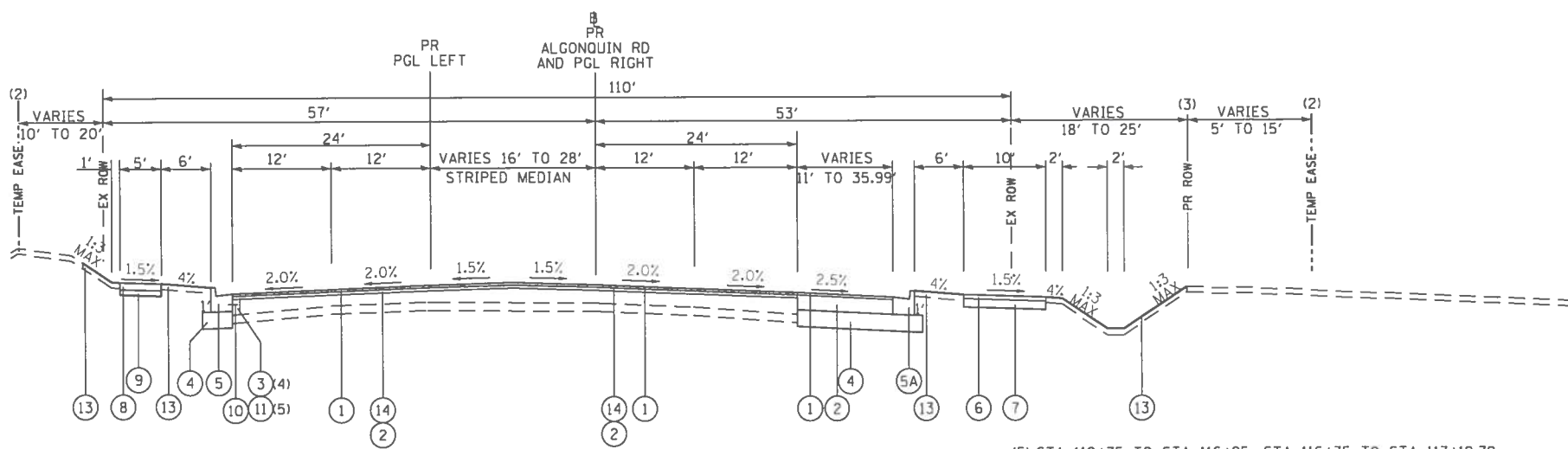
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F.A.U. RTE. 0339	SECTION 16-00068-00-WR	COUNTY COOK	TOTAL SHEETS 301	SHEET NO. 28
CONTRACT NO. 61G20				ILLINOIS FED. AID PROJECT

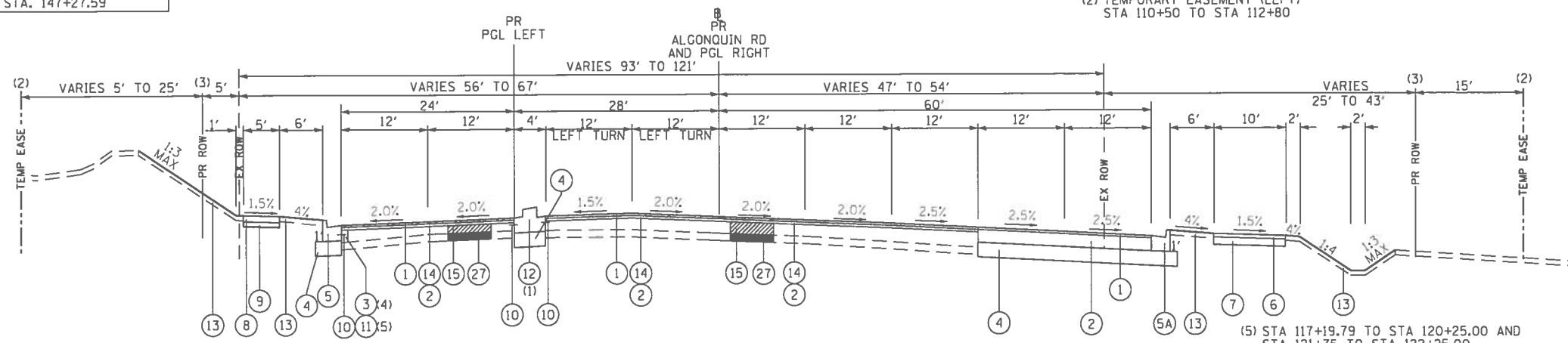




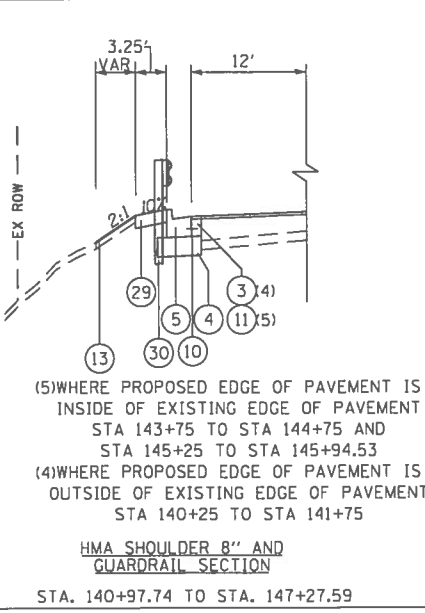
PROPOSED TYPICAL SECTION  
IL ROUTE 62 (ALGONQUIN ROAD)  
STATION 105+90 TO STATION 110+50



PROPOSED TYPICAL SECTION  
IL ROUTE 62 (ALGONQUIN ROAD)  
STATION 110+50.00 TO STATION 117+19.79  
STATION 140+00.00 TO STATION 145+94.53



PROPOSED TYPICAL SECTION  
IL ROUTE 62 (ALGONQUIN ROAD)  
STATION 117+19.79 TO STATION 123+00.00

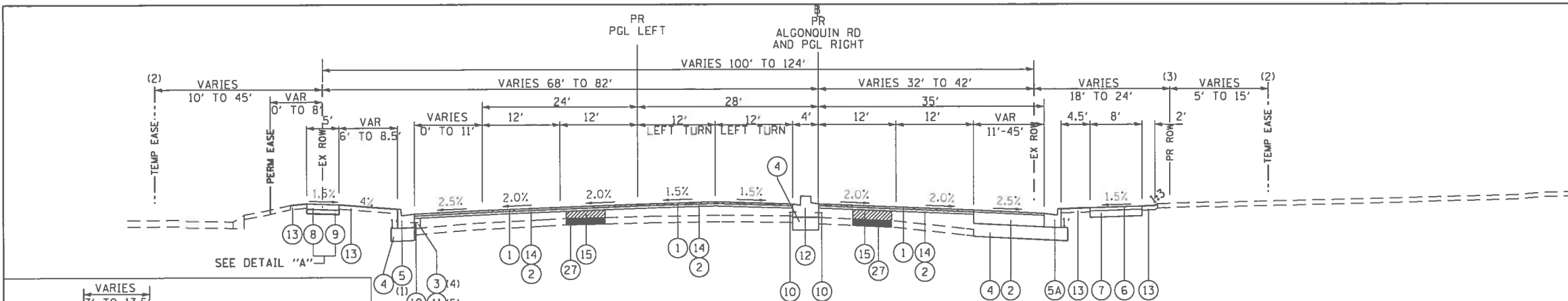


(5) WHERE PROPOSED EDGE OF PAVEMENT IS INSIDE OF EXISTING EDGE OF PAVEMENT STA 143+75 TO STA 144+75 AND STA 145+25 TO STA 145+94.53  
(4) WHERE PROPOSED EDGE OF PAVEMENT IS OUTSIDE OF EXISTING EDGE OF PAVEMENT STA 140+25 TO STA 141+75  
**HMA SHOULDER 8' AND GUARDRAIL SECTION**  
STA. 140+97.74 TO STA. 147+27.59

**NOTE:**  
1. SEE INTERSECTION DETAIL SHEETS FOR DETAILED PAVEMENT ELEVATIONS AND CROSS SLOPES AT INTERSECTIONS OF ALGONQUIN ROAD AT MEACHAM ROAD, ALGONQUIN ROAD AT THOREAU DRIVE/THORNTREE LANE  
2. SEE PAVING DETAILS SHEETS FOR MILLING DEPTHS, BINDER IL-9.5 DEPTHS, BINDER IL-19.0 DEPTHS, AND SURFACE COURSE DEPTHS

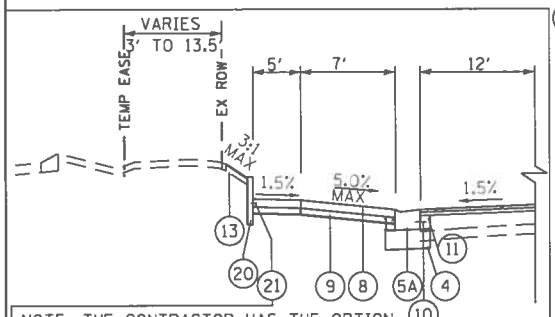
- PROPOSED**
- (1) POLYMERIZED HOT-MIX ASPHALT (HMA) SURFACE COURSE, STONE MATRIX ASPHALT, 9.5, MIX "F", N80 - VARIES 1 3/4" TO 3 1/4" (RESURFACING) AND 1 3/4" (WIDENING OR RECONSTRUCTION)
  - (2) HMA BINDER COURSE, IL-19.0, N90 - VARIES 2 1/4" TO 10 1/2" (RESURFACING), 9 3/4" (WIDENING OR RECONSTRUCTION)
  - (3) PCC BASE COURSE WIDENING 10"
  - (4) AGGREGATE SUBGRADE IMPROVEMENT 12"
  - (5) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.24 (SPECIAL) (SEE DETAIL "A" ON SHEET 40R 4#)
  - (5A) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.24
  - (6) HOT-MIX ASPHALT SURFACE COURSE, MIX "D", IL-9.5, N50 - 3" (BIKE PATH)
  - (7) AGGREGATE BASE COURSE, TYPE B 6"
  - (8) PORTLAND CEMENT CONCRETE SIDEWALK 5"
  - (9) AGGREGATE BASE COURSE, TYPE B 4"
  - (10) NO. 6 X 2' LONG DEFORMED TIE BARS GROUTED-IN-PLACE (EPOXY COATED) AT 2' C-C (STANDARD 606001) (INCLUDED IN THE COST OF COMBINATION CONCRETE CURB & GUTTER OR CONCRETE MEDIAN)
  - (11) PAVEMENT REMOVAL
  - (12) CONCRETE MEDIAN, TYPE SB-6.12 (SPECIAL)
  - (13) TOPSOIL FURNISH AND PLACE, 6" AND SEEDING, CLASS 2A AS NOTED ON THE PLANS
  - (14) HOT-MIX ASPHALT BINDER COURSE, IL-9.5, N70, VARIES 1 1/2" TO 2 1/4"
  - (15) CLASS D PATCHES, 10" (AS DIRECTED BY THE ENGINEER)
  - (16) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.12 (SPECIAL) (SEE DETAIL "A" ON SHEET 40R 4#)
  - (16A) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.12
  - (17) CONCRETE MEDIAN SURFACE, 4"
  - (18) CONC MED, TY SM-6.12 (SPECIAL) (SEE DETAIL SHEET 30)
  - (19) HOT-MIX ASPHALT SURFACE COURSE, MIX "D", IL-9.5, N50, VARIES 1 1/2" TO 3" (RESURFACING), 1 1/2" (WIDENING)
  - (20) CONC CURB, TY B (SPECIAL) (SEE DET SHEET 30R 33)
  - (21) NO. 4 X 12" EPOXY COATED TIE BARS @ 12" CTS
  - (22) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.18
  - (23) PORTLAND CEMENT CONCRETE PAVEMENT, 12" (JOINTED)
  - (24) HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50, VARIES 2 1/4" TO 8 1/2" (RESURFACING), 7 1/2" (WIDENING)
  - (25) HOT-MIX ASPHALT BINDER COURSE, IL-9.5, N50 - VARIES 1 1/2" TO 2 1/4"
  - (26) CLASS D PATCHES, 8" (AS DIRECTED BY THE ENGINEER)
  - (27) REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL AGGREGATE SUBGRADE IMPROVEMENT (AS DIRECTED BY ENGINEER)
  - (28) AGGREGATE BASE COURSE, TYPE B
  - (29) HOT-MIX ASPHALT SHOULDER, 8"
  - (30) STEEL PLATE BEAM GUARDRAIL, TYPE A, 9 FOOT POSTS

FILE NAME 50101-TYP-01.dgn	USER NAME Mibeering	DESIGNED - CEC	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>IL 62 (ALGONQUIN ROAD) AND MEACHAM ROAD PROPOSED TYPICAL SECTIONS</b>		F.A.U. RTE. 0339	SECTION 16-00068-00-WR	COUNTY COOK	TOTAL SHEETS 301	SHEET NO. 29	
PLOT SCALE 100.0000' = 1"	CHECKED - DWB	REVISOR -	REVISOR -		SCALE: N.T.S.	SHEET 5 OF 9 SHEETS	STA.	TO STA.	ILLINOIS FED. AID PROJECT			
PLOT DATE 11/26/2019	DATE 11/26/2019	REVISOR -	REVISOR -									
Default												



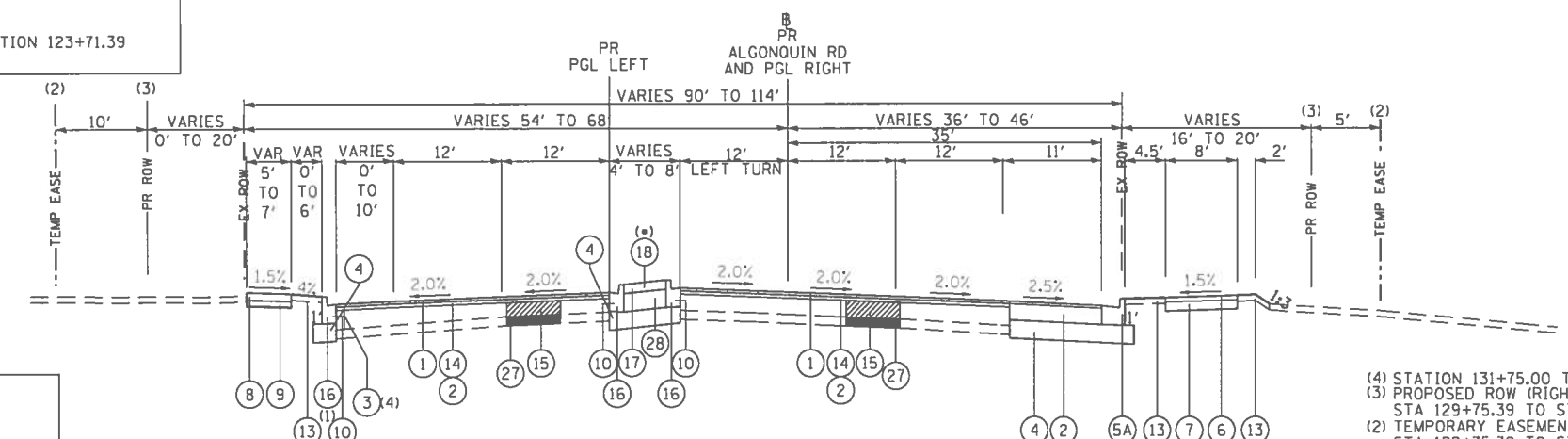
PROPOSED TYPICAL SECTION  
IL ROUTE 62 (ALGONQUIN ROAD)  
STATION 123+00.00 TO STATION 129+75.39

- (5) STA 123+25 TO STA 123+75, STA 124+75 TO STA 126+90, AND STA 128+25 TO STA 128+75
- (4) STA 124+25.00 TO STA 124+75.00 AND STA 127+00.00 TO STA 128+25.00
- (3) PROPOSED ROW (RIGHT)
- STA 124+57.77 TO STA 129+75.39
- (2) TEMPORARY EASEMENT (RIGHT)
- STA 124+57.77 TO STA 129+75.39
- (2) TEMPORARY EASEMENT (LEFT)
- STA 123+92.21 TO STA 128+10.12
- (1) COMB CONC CURB AND GUTTER, TYPE B-6.12
- STATION 128+49.71 TO STATION 129+75.39



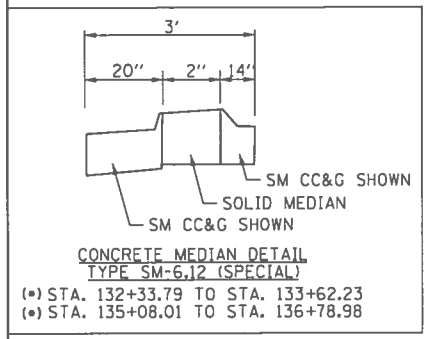
NOTE: THE CONTRACTOR HAS THE OPTION OF POURING THE CONCRETE CURB, TYPE B MONOLITHICALLY WITH THE SIDEWALK OR SEPARATELY. THE TIE BARS SHALL BE NO. 4 X 12" EPOXY COATED AT 12" CENTERS AND SHALL BE INCLUDED IN THE COST OF THE CONCRETE CURB, TYPE B (SPECIAL).

DETAIL "A"  
STATION 123+37.18 TO STATION 123+71.39  
LEFT SIDE

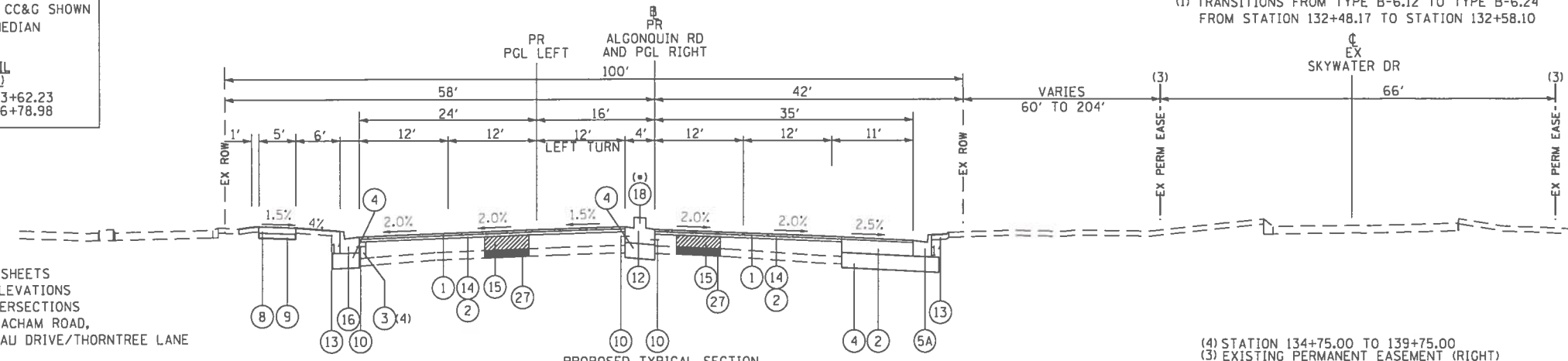


PROPOSED TYPICAL SECTION  
IL ROUTE 62 (ALGONQUIN ROAD)  
STATION 129+75.39 TO STATION 134+58.29  
(\*) STATION 132+33.79 TO STATION 133+62.23

- (4) STATION 131+75.00 TO 133+75.00
- (3) PROPOSED ROW (RIGHT)
- STA 129+75.39 TO STA 134+11.13
- (2) TEMPORARY EASEMENT (RIGHT)
- STA 129+75.39 TO STA 132+77.86
- (2) TEMPORARY EASEMENT (LEFT)
- STA 132+64.91 TO STA 133+43.64
- (3) PROPOSED ROW (LEFT)
- STA 133+62.31 TO STA 133+72.04
- (1) TRANSITIONS FROM TYPE B-6.12 TO TYPE B-6.24
- FROM STATION 132+48.17 TO STATION 132+58.10



CONCRETE MEDIAN DETAIL  
TYPE SM-6.12 (SPECIAL)  
(\*) STA. 132+33.79 TO STA. 133+62.23  
(\*) STA. 135+08.01 TO STA. 136+78.98

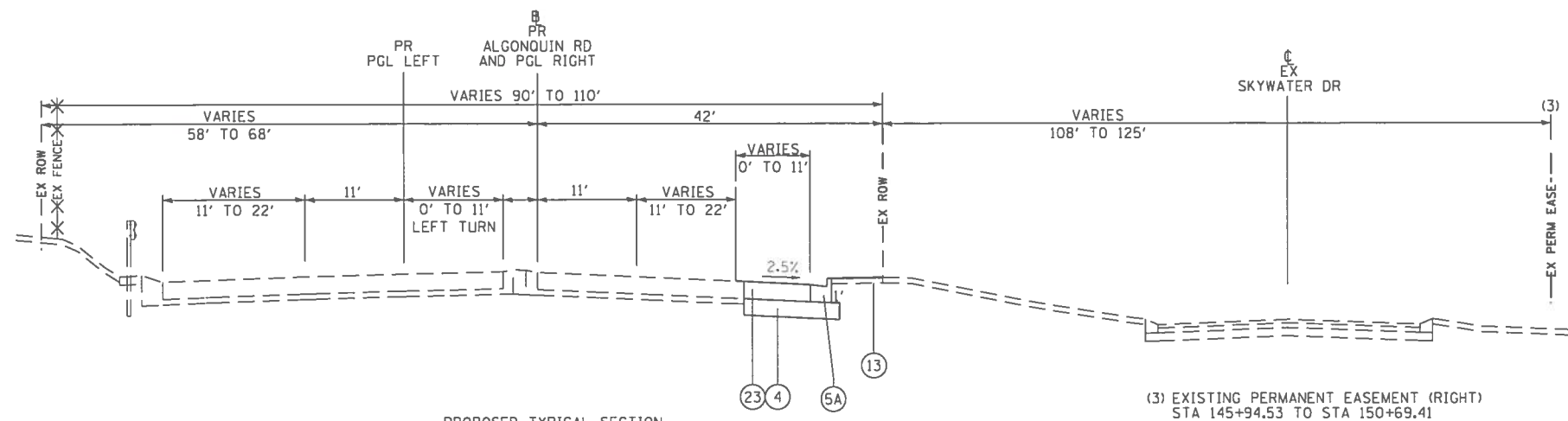


PROPOSED TYPICAL SECTION  
IL ROUTE 62 (ALGONQUIN ROAD)  
STATION 134+58.29 TO STATION 140+00.00  
(\*) STATION 135+08.01 TO STATION 136+78.98

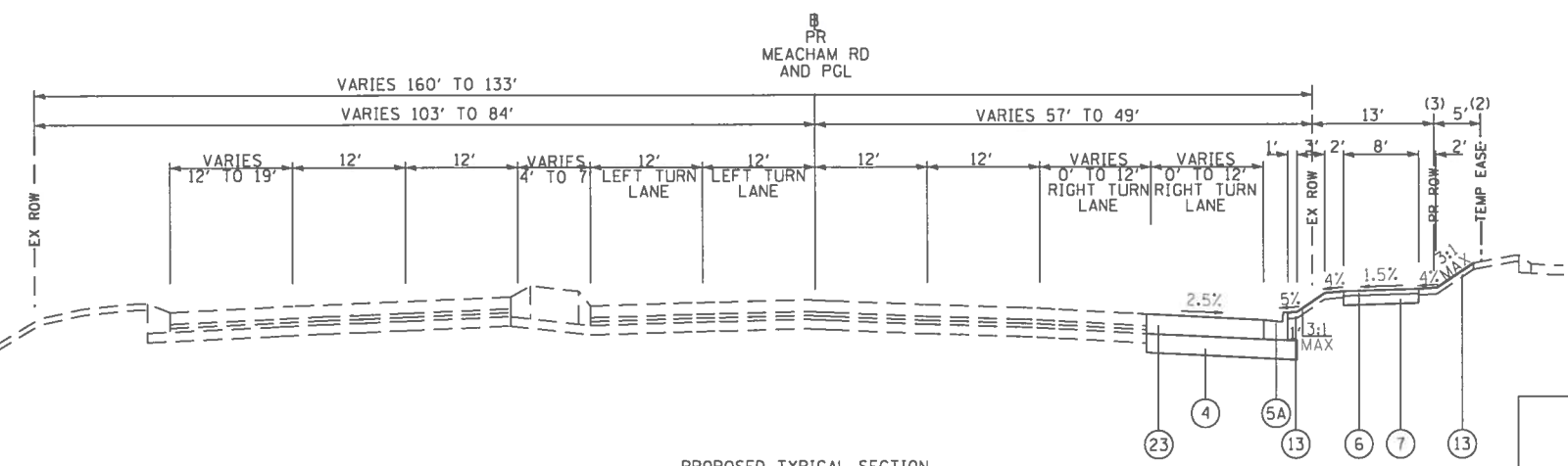
- (4) STATION 134+75.00 TO 139+75.00
- (3) EXISTING PERMANENT EASEMENT (RIGHT)
- STA 135+46.49 TO STA 140+00.00

NOTE:  
1. SEE INTERSECTION DETAIL SHEETS FOR DETAILED PAVEMENT ELEVATIONS AND CROSS SLOPES AT INTERSECTIONS OF ALGONQUIN ROAD AT MEACHAM ROAD, ALGONQUIN ROAD AT THOREAU DRIVE/THORNTREE LANE  
2. SEE PAVING DETAILS SHEETS FOR MILLING DEPTHS, BINDER IL-9.5 DEPTHS, BINDER IL-19.0 DEPTHS, AND SURFACE COURSE DEPTHS

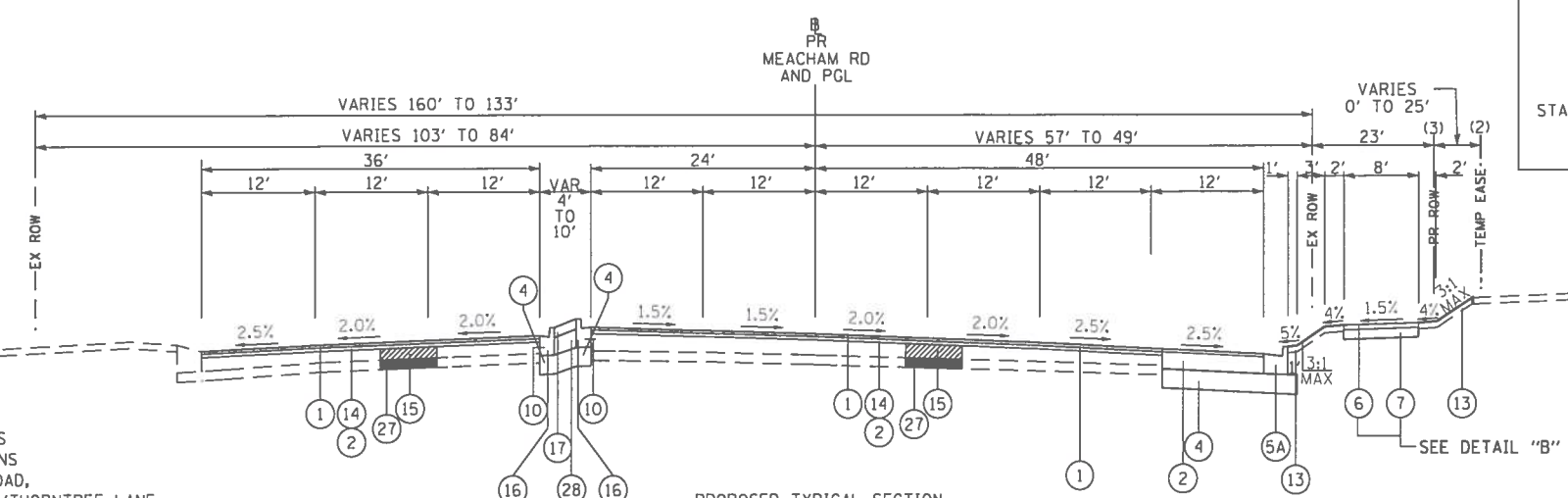
- PROPOSED**
- (1) POLYMERIZED HOT-MIX ASPHALT (HMA) SURFACE COURSE, STONE MATRIX ASPHALT, 9.5, MIX "F", N80 - VARIES 1 3/4" TO 3 1/4" (RESURFACING) AND 1 3/4" (WIDENING OR RECONSTRUCTION)
  - (2) HMA BINDER COURSE, IL-19.0, N90 - VARIES 2 1/4" TO 10 1/2" (RESURFACING), 9 3/4" (WIDENING OR RECONSTRUCTION)
  - (3) PCC BASE COURSE WIDENING 10"
  - (4) AGGREGATE SUBGRADE IMPROVEMENT 12"
  - (5) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.24 (SPECIAL) (SEE DETAIL "A" ON SHEET 40R 4R)
  - (5A) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.24
  - (6) HOT-MIX ASPHALT SURFACE COURSE, MIX "D", IL-9.5, N50 - 3" (BIKE PATH)
  - (7) AGGREGATE BASE COURSE, TYPE B 6"
  - (8) PORTLAND CEMENT CONCRETE SIDEWALK 5"
  - (9) AGGREGATE BASE COURSE, TYPE B 4"
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  - (12) CONCRETE MEDIAN, TYPE SB-6.12 (SPECIAL)
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  - (14) HOT-MIX ASPHALT BINDER COURSE, IL-9.5, N70, VARIES 1 1/2" TO 2 1/4"
  - (15) CLASS D PATCHES, 10" (AS DIRECTED BY THE ENGINEER)
  - (16) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.12 (SPECIAL) (SEE DETAIL "A" ON SHEET 40R 4R)
  - (16A) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.12
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  - (20) CONC CURB, TY B (SPECIAL) (SEE DET SHEET 30R 33)
  - (21) NO. 4 X 12" EPOXY COATED TIE BARS @ 12" CTS
  - (22) COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.18
  - (23) PORTLAND CEMENT CONCRETE PAVEMENT, 12" (JOINTED)
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  - (29) HOT-MIX ASHALT SHOULDER, 8"
  - (30) STEEL PLATE BEAM GUARDRAIL, TYPE A, 9 FOOT POSTS



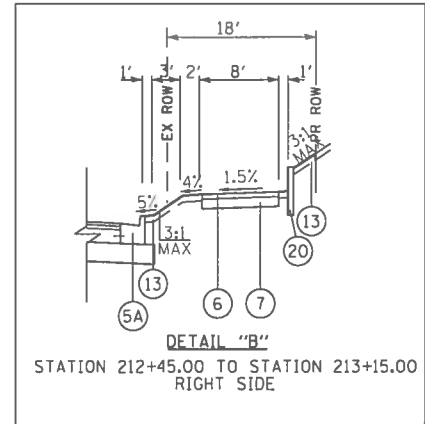
PROPOSED TYPICAL SECTION  
IL ROUTE 62 (ALGONQUIN ROAD)  
STATION 145+94.53 TO STATION 150+69.41



PROPOSED TYPICAL SECTION  
MEACHAM ROAD  
STATION 211+25.00 TO STATION 212+35.06



PROPOSED TYPICAL SECTION  
MEACHAM ROAD  
STATION 212+35.06 TO STATION 215+66.34



(3) PROPOSED ROW (RIGHT)  
STA 212+35.06 TO STA 215+66.34  
(2) TEMPORARY EASEMENT (RIGHT)  
STA 212+35.06 TO STA 215+66.34

- PROPOSED**
- 1 POLYMERIZED HOT-MIX ASPHALT (HMA) SURFACE COURSE, STONE MATRIX ASPHALT, 9.5, MIX "F", N80 - VARIES 1 3/4" TO 3 1/4" (RESURFACING) AND 1 3/4" (WIDENING OR RECONSTRUCTION)
  - 2 HMA BINDER COURSE, IL-19.0, N90 - VARIES 2 1/4" TO 10 1/2" (RESURFACING), 9 3/4" (WIDENING OR RECONSTRUCTION)
  - 3 PCC BASE COURSE WIDENING 10"
  - 4 AGGREGATE SUBGRADE IMPROVEMENT 12"
  - 5 COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.24 (SPECIAL) (SEE DETAIL "A" ON SHEET 40R 4R)
  - 5A COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.24
  - 6 HOT-MIX ASPHALT SURFACE COURSE, MIX "D", IL-9.5, N50 - 3" (BIKE PATH)
  - 7 AGGREGATE BASE COURSE, TYPE B 6"
  - 8 PORTLAND CEMENT CONCRETE SIDEWALK 5"
  - 9 AGGREGATE BASE COURSE, TYPE B 4"
  - 10 NO. 6 X 2' LONG DEFORMED TIE BARS GROUTED-IN-PLACE (EPOXY COATED) AT 2' C-C (STANDARD 606001) (INCLUDED IN THE COST OF COMBINATION CONCRETE CURB & GUTTER OR CONCRETE MEDIAN)
  - 11 PAVEMENT REMOVAL
  - 12 CONCRETE MEDIAN, TYPE SB-6.12 (SPECIAL)
  - 13 TOPSOIL FURNISH AND PLACE, 6" AND SEEDING, CLASS 2A AS NOTED ON THE PLANS
  - 14 HOT-MIX ASPHALT BINDER COURSE, IL-9.5, N70, VARIES 1 1/2" TO 2 1/4"
  - 15 CLASS D PATCHES, 10" (AS DIRECTED BY THE ENGINEER)
  - 16 COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.12 (SPECIAL) (SEE DETAIL "A" ON SHEET 40R 4R)
  - 16A COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.12
  - 17 CONCRETE MEDIAN SURFACE, 4"
  - 18 CONC MED, TY SM-6.12 (SPECIAL) (SEE DETAIL SHEET 30)
  - 19 HOT-MIX ASPHALT SURFACE COURSE, MIX "D", IL-9.5, N50, VARIES 1 1/2" TO 3" (RESURFACING), 1 1/2" (WIDENING)
  - 20 CONC CURB, TY B (SPECIAL) (SEE DET SHEET 30R 33)
  - 21 NO. 4 X 12" EPOXY COATED TIE BARS @ 12" CTS
  - 22 COMBINATION CONCRETE CURB & GUTTER, TYPE B-6.18
  - 23 PORTLAND CEMENT CONCRETE PAVEMENT, 12" (JOINTED)
  - 24 HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50, VARIES 2 1/4" TO 8 1/2" (RESURFACING), 7 1/2" (WIDENING)
  - 25 HOT-MIX ASPHALT BINDER COURSE, IL-9.5, N50 - VARIES 1 1/2" TO 2 1/4"
  - 26 CLASS D PATCHES, 8" (AS DIRECTED BY THE ENGINEER)
  - 27 REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL AGGREGATE SUBGRADE IMPROVEMENT (AS DIRECTED BY ENGINEER)
  - 28 AGGREGATE BASE COURSE, TYPE B
  - 29 HOT-MIX ASHALT SHOULDER, 8"
  - 30 STEEL PLATE BEAM GUARDRAIL, TYPE A, 9 FOOT POSTS

**NOTE:**

1. SEE INTERSECTION DETAIL SHEETS FOR DETAILED PAVEMENT ELEVATIONS AND CROSS SLOPES AT INTERSECTIONS OF ALGONQUIN ROAD AT MEACHAM ROAD, ALGONQUIN ROAD AT THOREAU DRIVE/THORNTREE LANE
2. SEE PAVING DETAILS SHEETS FOR MILLING DEPTHS, BINDER IL-9.5 DEPTHS, BINDER IL-19.0 DEPTHS, AND SURFACE COURSE DEPTHS

FILE NAME 50101-TYP-01.dgn	USER NAME Mibeering	DESIGNED - CEC	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>IL 62 (ALGONQUIN ROAD) AND MEACHAM ROAD PROPOSED TYPICAL SECTIONS</b>			F.A.U. R.T.E. 0339	SECTION 16-00068-00-WR	COUNTY COOK	TOTAL SHEETS 301	SHEET NO. 31
Default	PLOT SCALE 100.0000' / in.	DRAWN - CEC	REVISED -					SCALE: N.T.S.	SHEET 7 OF 9 SHEETS	STA. TO STA.	CONTRACT NO. 61G20	
	PLOT DATE 11/26/2019	CHECKED - DWB	REVISED -					ILLINOIS FED. AID PROJECT				
		DATE 11/26/2019	REVISED -									







**PROJECT AND TRAFFIC INPUTS**

(Enter Data in Gray Shaded Cells)

Route: IL 62 (Algonquin Road)		Comments: Local Roads improvement	
Section: 16-00068-00-WR			
County: Cook	Design Date: 09/17/2019	ONP	<- BY
Location: Plum Grove Road to IL 53	Modify Date:		<- BY
Facility Type: Other Marked State Route			
# of Lanes = 4			
Road Class: 1			
Subgrade Support Rating (SSR): Poor			
Construction Year: 2019			
Design Period (DP) = 20 years			

	ADT	Year
Current:	36,700	2015
Future:	39,200	2040

	Structural Design Traffic		
	Minimum ADT	Actual ADT	Actual % of Total ADT
PV =	0	36,052	92.0%
SU =	250	1,715	4.5%
MU =	750	1,334	3.5%
	Struct. Design ADT =	38,100	(2029)

<b>TRAFFIC FACTOR CALCULATION</b>	
<b>FLEXIBLE PAVEMENT</b>	<b>RIGID PAVEMENT</b>
Cpv = 0.15	Cpv = 0.15
Csu = 132.5	Csu = 143.81
Cmu = 482.53	Cmu = 696.42
TF flexible (Actual) = 7.87 (Actual ADT)	TF rigid (Actual) = 10.61 (Actual ADT)
TF flexible (Min) = 3.56 (Min ADT Fig. 54-2.C)	TF rigid (Min) = 5.02 (Min ADT Fig. 54-2.C)

**NEW CONSTRUCTION / RECONSTRUCTION PAVEMENT DESIGN CALCULATIONS**

<b>Full-Depth HMA Pavement</b>		<b>JPC Pavement</b>	
Use TF flexible = 7.87		Use TF rigid = 10.61	
PG Grade Lower Binder Lifts = PG 64-22 (Fig. 53-4.R)		Edge Support = Tied Shoulder or C.&G.	
HMA Mixture Temp. = 74.0 deg. F (Fig. 54-5.C)		<b>Rigid Pavt Thick. = 10.00 in. (Fig. 54-4.E)</b>	
Design HMA Mixture Modulus (E <sub>HMA</sub> ) = 720 ksi (Fig. 54-5.D)		<b>CRC Pavement</b>	
Design HMA Strain (ε <sub>HMA</sub> ) = 67 (Fig. 54-5.E)		Use TF rigid = 10.61	
Full Depth HMA Design Thickness = 11.50 in. (Fig. 54-5.F)		IBR value = 3	
Limiting Strain Criterion Thickness = 14.50 in. (Fig. 54-5.I)		CRCP Thickness = 9.00 in. (Fig. 54-4.M)	
<b>Use Full-Depth HMA Thickness = 11.50 inches</b>		<b>TF MUST BE &gt; 60 FOR CRCP</b>	

**RECONSTRUCTION ONLY (SUPPLEMENTAL) PAVEMENT DESIGN CALCULATIONS**

<b>HMA Overlay of Rubblized PCC</b>		<b>Unbonded Concrete Overlay</b>	
Use TF flexible = 7.87		Review 54-4.03 for limitations and special considerations.	
HMA Overlay Design Thickness = 9.00 in. (Fig. 54-5.U)		<b>JPCP Thickness = NA inches</b>	
Limiting Strain Criterion Thickness = in. (Fig. 54-5.V)			
<b>Use HMA Overlay Thickness = 9.99 inches</b>		<b>CONTACT BMPR FOR ASSISTANCE</b>	

**DESIGN TABLES FROM BDE MANUAL CHAPTER 54 - PAVEMENT DESIGN**

Class I Roads	Class II Roads	Class III Roads	Class IV Roads
4 lanes or more Part of a future 4 lanes or more One-way Streets with ADT > 3500	2 lanes with ADT > 2000 One way Street with ADT <= 3500	2 Lanes (ADT 750 -2000)	2 Lanes (ADT < 750)

	Min. Str. Design Traffic (Fig 54-2.C)		
Facility Type	PV	SU	MU
Interstate or Freeway	0	500	1500
Other Marked State Route	0	250	750
Unmarked State Route	No Min	No Min	No Min

Class Table for One-Way Streets	
ADT	Class
0 - 3500	II
>3501	I

	Traffic Factor ESAL Coefficients			
	Rigid (Fig. 54-4.C)		Flexible (Fig. 54-5.B)	
Class	Csu	Cmu	Csu	Cmu
I	143.81	696.42	132.50	482.53
II	135.78	567.21	112.06	385.44
III	129.58	562.47	109.14	384.35
IV	129.58	562.47	109.14	384.35

Class Table for 2 or 3 lanes (not future 4 lane & not one-way street)	
ADT	Class
0 - 749	IV
750 - 2000	III
>2000	II

	Design Lane Distribution Factors For Structural Design Traffic (Fig. 54-2.B)					
	Rural			Urban		
Number of Lanes	P	S	M	P	S	M
1 Lane Ramp	100%	100%	100%	100%	100%	100%
2 or 3	50%	50%	50%	50%	50%	50%
4	32%	45%	45%	32%	45%	45%
6 or more	20%	40%	40%	8%	37%	37%

**LIFE-CYCLE COST ANALYSIS: NEW CONSTRUCTION / RECONSTRUCTION**

**FULL-DEPTH HMA PAVEMENT**

Standard Design

ROUTE  
SECTION  
COUNTY  
LOCATION

Job Route  
Job Section  
Job County  
Job Location

FACILITY TYPE INTERSTATE

PROJECT LENGTH 1000 FT ==> 0.19 Miles  
 # OF CENTERLINES 2 CL  
 # OF LANES 4 LANES  
 # OF EDGES 4 EP  
 LANE WIDTH - AVERAGE 12 FT  
 SHOULDER WIDTH HMA Inside 6 FT  
 HMA Outside 10 FT  
 Total Width of Paved Shoulders 32 FT

PAVEMENT THICKNESS (FLEXIBLE) 12.00 IN 17.00 IN MAX  
 SHOULDER THICKNESS 8.00 IN Standard Design  
 POLICY OVERLAY THICKNESS 3.75 IN

FLEX PAVEMENT	TRAFFIC FACTORS	MINIMUM	ACTUAL	USE
		7.11	1.00	7.11

HMA COST PER TON	UNIT PRICE	Read Met
HMA SURFACE	\$95.00 / TON	
HMA TOP BINDER	\$95.00 / TON	
HMA LOWER BINDER	\$80.00 / TON	
HMA BINDER (LEVELING)	\$85.00 / TON	
HMA SHOULDER	\$72.00 / TON	

INITIAL COSTS	THICKNESS	100% QUANTITY UNIT	UNIT PRICE	COST
HMA PAVEMENT ( FULL-DEPTH )	( 12.00" )	5,333 SQ YD	\$59.62 / SQ YD	\$317,988 -
HMA SURFACE COURSE	( 2.00" )	601 TONS	\$95.00 / TON	\$0
HMA TOP BINDER COURSE	( 2.25" )	687 TONS	\$95.00 / TON	\$0
HMA LOWER BINDER COURSE	( 7.75" )	2,445 TONS	\$80.00 / TON	\$0
HMA SHOULDER	( 8.00" )	1,593 TONS	\$72.00 / TON	\$114,688 -
CURB & GUTTER		0 LIN FT	\$30.00 /LIN FT	\$0
SUBBASE GRAN MATL TY C (TONS)		499 TONS	\$25.00 / TON	\$12,475
IMPROVED SUBGRADE:	Aggregate	9,556 SQ YD	\$7.00 / SQ YD	\$66,892
Reserved For User Supplied Item		0 UNITS	\$0.00 / UNITS	\$0
Reserved For User Supplied Item		0 UNITS	\$0.00 / UNITS	\$0
PAVEMENT REMOVAL		5,333 SQ YD	\$0.00 / SQ YD	\$0
SHOULDER REMOVAL		3,556 SQ YD	\$0.00 / SQ YD	\$0
Note: * Denotes User Supplied Quantity				
			FLEXIBLE CONSTRUCTION INITIAL COST	\$512,043
			FLEXIBLE CONSTRUCTION ANNUAL COST PER MILE	\$110,266

MAINTENANCE COSTS:	THICKNESS	MATERIAL	UNIT COST
ROUTINE MAINTENANCE ACTIVITY			\$0.00 LANE-MILE / YEAR
HMA OVERLAY PVMT SURF	( 2.00" )	Surface Mix	\$10.71 / SQ YD
HMA OVERLAY PVMT	( 3.75" )	Surface Mix	\$20.21 / SQ YD
HMA SURFACE MIX	( 1.50" )	Surface Mix	\$8.02 / SQ YD
HMA BINDER MIX	( 2.25" )	Top Binder Mix	\$12.19 / SQ YD
HMA OVERLAY SHLD (Year 30)	( 1.75" )	Shoulder Mix	\$7.06 / SQ YD
HMA OVERLAY SHLD	( 2.00" )	Shoulder Mix	\$8.06 / SQ YD
MILLING (2.00 IN)			\$3.00 / SQ YD
PARTIAL DEPTH PVMT PATCH (Mill & Fill Surf)		Surface Mix	\$80.64 / SQ YD
PARTIAL DEPTH SHLD PATCH (Mill & Fill Surf)		Shoulder Mix	\$78.06 / SQ YD
PARTIAL DEPTH PVMT PATCH (Mill & Fill +2.00")		Leveling Binder Mix	\$79.52 / SQ YD
PARTIAL DEPTH SHLD PATCH (Mill & Fill +2.00")		Shoulder Mix	\$78.06 / SQ YD
LONGITUDINAL SHOULDER JOINT ROUT & SEAL			\$2.00 / LIN FT
CENTERLINE JOINT ROUT & SEAL			\$2.00 / LIN FT
RANDOM / THERMAL CRACK ROUT & SEAL (100% Rehab = 110.00' / Station / Lane)			\$2.00 / LIN FT

FLEXIBLE TOTAL LIFE-CYCLE COST \$711,101  
 FLEXIBLE TOTAL ANNUAL COST PER MILE \$153,133

MAINTENANCE AND REHABILITATION ACTIVITY SCHEDULE

12/20/19

FULL-DEPTH HMA PAVEMENT  
HMA OVERLAY OF RUBBLIZED PCC PAVEMENT  
Figure 54-7.C  
STANDARD DESIGN

MAINTENANCE COSTS:	ITEM	%	QUANTITY	UNIT	UNIT COST	COST	PRESENT WORTH
<b>YEAR 5</b>							
	LONG SHLD JT R&S	100.00%	4,000	LIN FT	\$2.00	\$8,000	
	CNTR LINE JOINT R&S	100.00%	2,000	LIN FT	\$2.00	\$4,000	
	RNDM / THRM CRACK R&S	50.00%	2,200	LIN FT	\$2.00	\$4,400	
	PD PVMT PATCH M&F SURF	0.10%	5	SQ YD	\$80.64	\$403	
		PWF <sub>n</sub> = 0.8626			PW = 0.8626 X	\$16,803	\$14,494
<b>YEAR 10</b>							
	LONG SHLD JT R&S	100.00%	4,000	LIN FT	\$2.00	\$8,000	
	CNTR LINE JOINT R&S	100.00%	2,000	LIN FT	\$2.00	\$4,000	
	RNDM / THRM CRACK R&S	50.00%	2,200	LIN FT	\$2.00	\$4,400	
	PD PVMT PATCH M&F SURF	0.50%	27	SQ YD	\$80.64	\$2,177	
		PWF <sub>n</sub> = 0.7441			PW = 0.7441 X	\$18,577	\$13,823
<b>YEAR 15</b>							
	MILL PVMT & SHLD 2.00"	100.00%	8,889	SQ YD	\$3.00	\$26,667	
	PD PVMT PATCH M&F ADD'L 2.00"	1.00%	53	SQ YD	\$79.52	\$4,215	
	HMA OVERLAY PVMT 2.00"	100.00%	5,333	SQ YD	\$10.71	\$57,141	
	HMA OVERLAY SHLD 2.00 "	100.00%	3,556	SQ YD	\$8.06	\$28,672	
		PWF <sub>n</sub> = 0.6419			PW = 0.6419 X	\$116,695	\$74,902
<b>YEAR 20</b>							
	LONG SHLD JT R&S	100.00%	4,000	LIN FT	\$2.00	\$8,000	
	CNTR LINE JOINT R&S	100.00%	2,000	LIN FT	\$2.00	\$4,000	
	RNDM / THRM CRACK R&S	50.00%	2,200	LIN FT	\$2.00	\$4,400	
	PD PVMT PATCH M&F SURF	0.10%	5	SQ YD	\$80.64	\$403	
		PWF <sub>n</sub> = 0.5537			PW = 0.5537 X	\$16,803	\$9,303
<b>YEAR 25</b>							
	LONG SHLD JT R&S	100.00%	4,000	LIN FT	\$2.00	\$8,000	
	CNTR LINE JOINT R&S	100.00%	2,000	LIN FT	\$2.00	\$4,000	
	RNDM / THRM CRACK R&S	50.00%	2,200	LIN FT	\$2.00	\$4,400	
	PD PVMT PATCH M&F SURF	0.50%	27	SQ YD	\$80.64	\$2,177	
		PWF <sub>n</sub> = 0.4776			PW = 0.4776 X	\$18,577	\$8,872
<b>HMA SD INTERSTATE</b>							
<b>YEAR 30</b>							
	MILL PVMT ONLY 2.00"	100.00%	5,333	SQ YD	\$3.00	\$15,999	
	PD PVMT PATCH M&F ADD'L 2.00"	2.00%	107	SQ YD	\$79.52	\$8,509	
	PD SHLD PATCH M&F SURF 2.00"	1.00%	36	SQ YD	\$78.06	\$2,810	
	HMA OVERLAY PVMT 3.75 "	100.00%	5,333	SQ YD	\$20.21	\$107,785	
	HMA OVERLAY SHLD 1.75 "	100.00%	3,556	SQ YD	\$7.06	\$25,088	
		PWF <sub>n</sub> = 0.4120			PW = 0.4120 X	\$160,191	\$65,997
<b>YEAR 35</b>							
	LONG SHLD JT R&S	100.00%	4,000	LIN FT	\$2.00	\$8,000	
	CNTR LINE JOINT R&S	100.00%	2,000	LIN FT	\$2.00	\$4,000	
	RNDM / THRM CRACK R&S	50.00%	2,200	LIN FT	\$2.00	\$4,400	
	PD PVMT PATCH M&F SURF	0.10%	5	SQ YD	\$80.64	\$403	
		PWF <sub>n</sub> = 0.3554			PW = 0.3554 X	\$16,803	\$5,972
<b>YEAR 40</b>							
	LONG SHLD JT R&S	100.00%	4,000	LIN FT	\$2.00	\$8,000	
	CNTR LINE JOINT R&S	100.00%	2,000	LIN FT	\$2.00	\$4,000	
	RNDM / THRM CRACK R&S	50.00%	2,200	LIN FT	\$2.00	\$4,400	
	PD PVMT PATCH M&F SURF	0.50%	27	SQ YD	\$80.64	\$2,177	
		PWF <sub>n</sub> = 0.3066			PW = 0.3066 X	\$18,577	\$5,695
							\$199,058
ROUTINE MAINTENANCE ACTIVITY				0.76 Lane Miles	0.00	\$0	\$0
						MAINTENANCE LIFE-CYCLE COST	\$199,058
45	YEAR LIFE CYCLE	CRF <sub>n</sub> = 0.0407852			MAINTENANCE ANNUAL COST PER MILE		\$42,866



**PCC PAVEMENT**

**JPCP**

ROUTE  
SECTION  
COUNTY  
LOCATION

Job Route  
Job Section  
Job County  
Job Location

FACILITY TYPE INTERSTATE

PROJECT LENGTH 1000 FT ==> 0.19 Miles  
 # OF CENTERLINES 2 CL  
 # OF LANES 4 LANES  
 # OF EDGES 4 EP  
 LANE WIDTH - AVERAGE 12 FT  
 SHOULDER WIDTH PCC Inside 6 FT  
 PCC Outside 10 FT  
 Total Width of Paved Shoulders 32 FT

PAVEMENT THICKNESS (RIGID) JPCP 10.00 IN TIED SHLD  
 SHOULDER THICKNESS 10.00 IN

POLICY OVERLAY THICKNESS 3.75 IN

RIGID PAVEMENT TRAFFIC FACTORS	MINIMUM	ACTUAL	USE
Worksheet Construction Type is New Construction	10.05	1.00	10.05
		The Pavement Type is	JPCP

**INITIAL COSTS**

ITEM	THICKNESS	100% QUANTITY UNIT	UNIT PRICE	COST
JPC PAVEMENT	( 10.00" )	5,333 SQ YD	\$50.00 / SQ YD	\$266,650
PAVEMENT REINFORCEMENT		0 SQ YD	\$22.00 / SQ YD	\$0
STABILIZED SUBBASE	( 4.00" )	6,000 SQ YD	\$19.00 / SQ YD	\$114,000
PCC SHOULDERS		3,556 SQ YD	\$40.00 / SQ YD	\$142,240
CURB & GUTTER		0 LIN FT	\$30.00 / LIN FT	\$0
SUBBASE GRAN MATL TY C	( ~ 3.98" )	418 TONS	\$25.00 / TON	\$10,450
IMPROVED SUBGRADE:	Aggregate	9,111 SQ YD	\$7.00 / SQ YD	\$63,777
Reserved For User Supplied Item		0 UNITS	\$0.00 / UNITS	\$0
Reserved For User Supplied Item		0 UNITS	\$0.00 / UNITS	\$0
PAVEMENT REMOVAL		5,333 SQ YD	\$0.00 / SQ YD	\$0
SHOULDER REMOVAL		3,556 SQ YD	\$0.00 / SQ YD	\$0

Note: \* Denotes User Supplied Quantity

RIGID CONSTRUCTION INITIAL COST \$597,117  
 RIGID CONSTRUCTION ANNUAL COST PER MILE \$128,587

**MAINTENANCE COSTS:**

ITEM	THICKNESS	MATERIAL	UNIT COST
ROUTINE MAINTENANCE ACTIVITY			\$0.00 / LANE-MILE / YEAR
HMA POLICY OVERLAY	( 3.75" )		\$0.00 / SQ YD
HMA POLICY OVERLAY PVMT	( 3.75" )		\$20.21 / SQ YD
HMA SURFACE MIX	( 1.50" )	Surface Mix	\$8.02 / SQ YD
HMA BINDER MIX	( 2.25" )	Top Binder Mix	\$12.19 / SQ YD
HMA POLICY OVERLAY SHLD	( 3.75" )	Shoulder Mix	\$15.12 / SQ YD
CLASS A PAVEMENT PATCHING			\$195.00 / SQ YD
CLASS B PAVEMENT PATCHING			\$150.00 / SQ YD
CLASS C SHOULDER PATCHING			\$145.00 / SQ YD
PARTIAL DEPTH PVMT PATCH (Mill & Fill HMA Surf)		Surface Mix	\$77.98 / SQ YD
PARTIAL DEPTH PVMT PATCH (Mill & Fill HMA 1.50")		Surface Mix	\$77.98 / SQ YD
LONGITUDINAL SHOULDER JOINT ROUT & SEAL			\$2.00 / LIN FT
CENTERLINE JOINT ROUT & SEAL			\$2.00 / LIN FT
REFLECTIVE TRANSVERSE CRACK ROUT & SEAL			\$2.00 / LIN FT
RANDOM CRACK ROUT & SEAL	(100% Rehab = 100.00' / Station / Lane)		\$2.00 / LIN FT

RIGID TOTAL LIFE-CYCLE COST \$727,263  
 RIGID TOTAL ANNUAL COST PER MILE \$156,613

MAINTENANCE AND REHABILITATION ACTIVITY SCHEDULE

12/20/19

JOINTED PLAIN CONCRETE PAVEMENT  
UNBONDED JOINTED PLAIN CONCRETE OVERLAY  
Figure 54-7.A

MAINTENANCE COSTS:	ITEM	%	QUANTITY	UNIT	UNIT COST	COST	PRESENT WORTH
<b>YEAR 10</b>							
	PAVEMENT PATCH CLASS B	0.10%	5	SQ YD	\$150.00	\$750	
		PWF <sub>n</sub> = 0.7441			PW = 0.7441 X	\$750	\$558
<b>YEAR 15</b>							
	PAVEMENT PATCH CLASS B	0.20%	11	SQ YD	\$150.00	\$1,650	
		PWF <sub>n</sub> = 0.6419			PW = 0.6419 X	\$1,650	\$1,059
<b>YEAR 20</b>							
	PAVEMENT PATCH CLASS B	2.00%	107	SQ YD	\$150.00	\$16,050	
	SHOULDER PATCH CLASS C	0.50%	18	SQ YD	\$145.00	\$2,610	
	LONGITUDINAL SHLD JT R&S	100.00%	4,000	LIN FT	\$2.00	\$8,000	
	CENTERLINE JT R&S	100.00%	2,000	LIN FT	\$2.00	\$4,000	
		PWF <sub>n</sub> = 0.5537			PW = 0.5537 X	\$30,660	\$16,976
<b>YEAR 25</b>							
	PAVEMENT PATCH CLASS B	3.00%	160	SQ YD	\$150.00	\$24,000	
	SHOULDER PATCH CLASS C	1.00%	36	SQ YD	\$145.00	\$5,220	
		PWF <sub>n</sub> = 0.4776			PW = 0.4776 X	\$29,220	\$13,956
<b>YEAR 30</b>							
	INTERSTATE						
	PAVEMENT PATCH CLASS B	4.00%	213	SQ YD	\$150.00	\$31,950	
	SHOULDER PATCH CLASS C	1.50%	53	SQ YD	\$145.00	\$7,685	
	HMA POLICY OVERLAY 3.75" (PVMT)	100.00%	5,333	SQ YD	\$20.21	\$107,785	
	HMA POLICY OVERLAY 3.75" (SHLD)	100.00%	3,556	SQ YD	\$15.12	\$53,760	
		PWF <sub>n</sub> = 0.4120			PW = 0.4120 X	\$201,180	\$82,883
<b>YEAR 35</b>							
	INTERSTATE						
	LONGITUDINAL SHLD JT R&S	100.00%	4,000	LIN FT	\$2.00	\$8,000	
	CENTERLINE JT R&S	100.00%	2,000	LIN FT	\$2.00	\$4,000	
	RANDOM CRACK R&S	50.00%	2,000	LIN FT	\$2.00	\$4,000	
	REFLECTIVE TRANSVERSE CRACK R&S	40.00%	1,286	LIN FT	\$2.00	\$2,572	
	PD PVMT PATCH M&F HMA SURF 1.50"	0.10%	5	SQ YD	\$77.98	\$390	
		PWF <sub>n</sub> = 0.3554			PW = 0.3554 X	\$18,962	\$6,739
<b>YEAR 40</b>							
	INTERSTATE						
	PAVEMENT PATCH CLASS B	0.50%	27	SQ YD	\$150.00	\$4,050	
	LONGITUDINAL SHLD JT R&S	100.00%	4,000	LIN FT	\$2.00	\$8,000	
	CENTERLINE JT R&S	100.00%	2,000	LIN FT	\$2.00	\$4,000	
	REFLECTIVE TRANSVERSE CRACK R&S	60.00%	1,930	LIN FT	\$2.00	\$3,860	
	RANDOM CRACK R&S	50.00%	2,000	LIN FT	\$2.00	\$4,000	
	PD PVMT PATCH M&F HMA SURF 1.50"	0.50%	27	SQ YD	\$77.98	\$2,105	
		PWF <sub>n</sub> = 0.3066			PW = 0.3066 X	\$26,015	\$7,975
							\$130,146
	ROUTINE MAINTENANCE ACTIVITY		0.76	Lane Miles	\$0.00	\$0	\$0
							MAINTENANCE LIFE-CYCLE COST \$130,146
45	YEAR LIFE CYCLE	CRF <sub>n</sub> = 0.0407852					MAINTENANCE ANNUAL COST PER MILE \$28,026

**LIFE-CYCLE COST ANALYSIS: NEW DESIGN**

Calculated / Revised : 9/5/13 9:40 AM

			JPCP	HMA
CONSTRUCTION	INITIAL COST	PRESENT WORTH	\$597,117	\$512,043
		ANNUAL COST PER MILE	\$128,587	\$110,266
MAINTENANCE	LIFE-CYCLE COST	PRESENT WORTH	\$130,146	\$199,058
		ANNUAL COST PER MILE	\$28,026	\$42,866
TOTAL	LIFE-CYCLE COST	PRESENT WORTH	\$727,263	\$711,101
		ANNUAL COST PER MILE	\$156,613	\$153,133

**LIFE-CYCLE COST ANALYSIS: FINAL SUMMARY**

LOWEST COST OPTION	=====>	HMA	\$153,133	
OTHER OPTIONS (LOWEST TO HIGHEST):	TYPE / PERCENTAGE	JPCP	\$156,613	2.3%