

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

F.A. RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1) FAP 397 2) FAU 1609	2020-230-BP	COOK	20	1
ILLINOIS CONTRACT NO. 62M89				

* 20 + 1 = 21 TOTAL SHEETS

PROPOSED HIGHWAY PLANS

FOR INDEX OF SHEETS, SEE SHEET NO. 2

THIS IMPROVEMENT IS LOCATED
IN THE CITIES OF CALUMET CITY & COUNTRY CLUB HILLS

TRAFFIC DATA

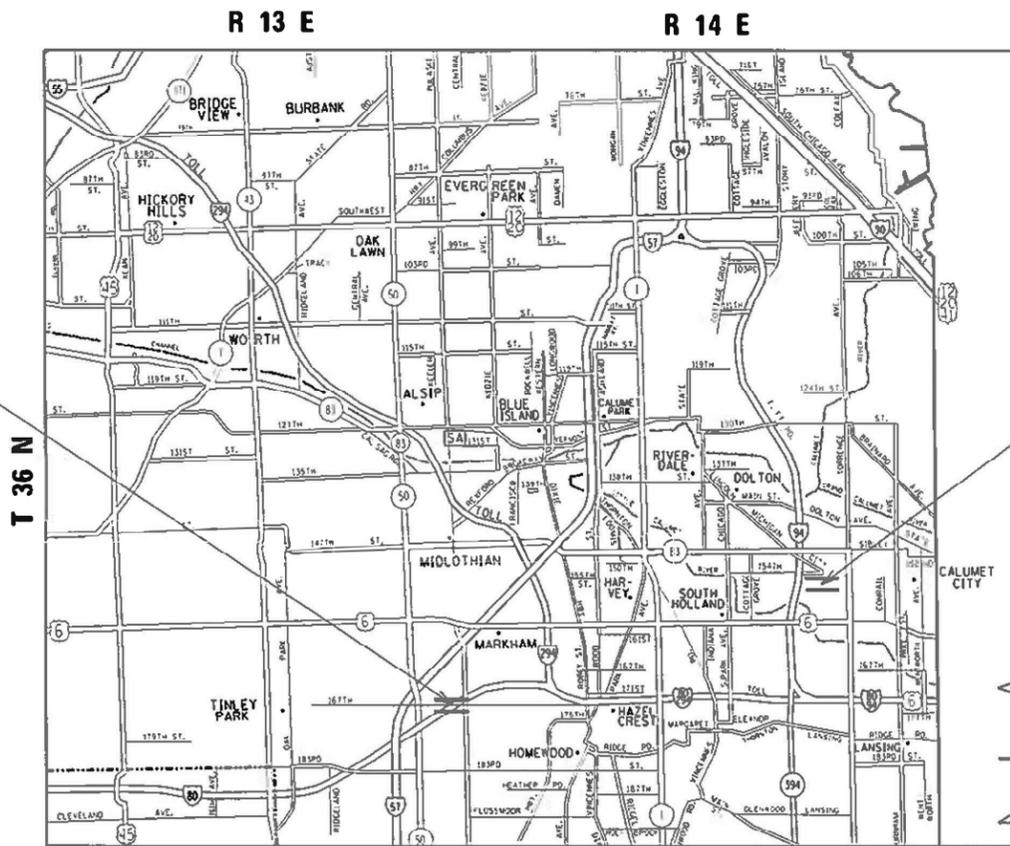
I-94 (BISHOP FORD)
2019 ADT = 137400
POSTED SPEED LIMIT = 55 MPH

I-57
2019 ADT = 118800
POSTED SPEED LIMIT = 55 MPH

IL-83 (SIBLEY BLVD)
2019 ADT = 27100
POSTED SPEED LIMIT = 35 MPH

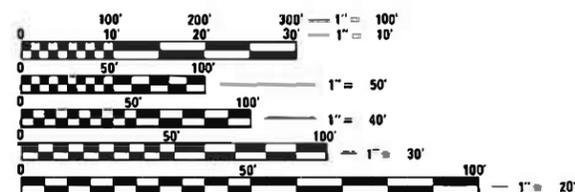
167TH STREET
2018 ADT = 16000
POSTED SPEED LIMIT = 35 MPH

1) FAP ROUTE 397: IL-83 (SIBLEY BLVD)
OVER I-94 (BISHOP FORD EXPY)
2) FAU ROUTE 1609: 167TH STREET
OVER I-57
SECTION
2020-230-BP
BRIDGE PAINTING
COOK COUNTY
C-91-016-21



LOCATION 2: (SN-016-2125)
167TH STREET OVER I-57

LOCATION 1: (SN-016-0956)
IL-83 (SIBLEY BLVD) OVER I-94
(BISHOP FORD EXPY)



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD
ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT
CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS
ON REDUCED PLANS THE ABOVE SCALES MAY BE USED.

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

PROJECT MANAGER: ALAIN MIDY (847) 221-3056

CONTRACT NO. 62M89

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED August 21, 2020

Anthony J. Danzig / OES REGIONAL ENGINEER

October 2, 2020

Eric A. Elk
ENGINEER OF DESIGN AND ENVIRONMENT

October 2, 2020

James J. Gu
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

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OF THE STATE OF ILLINOIS

INDEX OF SHEETS

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STATE STANDARDS

STANDARD NO.	DESCRIPTION
701101-05	OFF-RD OPERATIONS, MULTILANE, 15' (4.5m) TO 24" (600mm) FROM PAVEMENT EDGE
701106-02	OFF-RD OPERATIONS, MULTILANE, MORE THAN 15' (4.5m) AWAY
701400-09	APPROACH TO LANE CLOSURE, FREEWAY/EXPRESSWAY
701401-12	LANE CLOSURE, FREEWAY/EXPRESSWAY
701411-09	LANE CLOSURE, MUL TILANE, AT ENTRANCE OR EXIT RAMP, FOR SPEEDS > 45 MPH
701428-01	TRAFFIC CONTROL SETUP AND REMOVAL FREEWAY / EXPRESSWAY
701446-10	TWO LANE CLOSURE, FREEWAY / EXPRESSWAY
701901-08	TRAFFIC CONTROL DEVICES

GENERAL NOTES

BEFORE STARTING ANY EXCAVATION, THE CONTRACTOR SHALL CALL •C. U. A. N.• AT (312) 744-7000 FOR FIELD LOCATIONS OF BURIED ELECTRIC, TELEPHONE AND GAS UTILITIES. 48 HOUR NOTIFICATION IS REQUIRED.

THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH UTILITY COMPANIES, AND THE CITIES OF CALUMET CITY & COUNTRY CLUB HILLS.

THE CONTRACTOR WILL NOT BE ALLOWED TO SET UP A YARD OR FIELD OFFICE ON STATE PROPERTY WITHOUT WRITTEN PERMISSION FROM THE DEPARTMENT.

PLAN DIMENSIONS AND DETAILS RELATIVE TO EXISTING PLANS ARE SUBJECT TO NOMINAL CONSTRUCTION VARIATIONS. THE CONTRACTOR SHALL FIELD VERIFY EXISTING DIMENSIONS AND MAKE NECESSARY APPROVED ADJUSTMENTS PRIOR TO ORDERING OF MATERIALS. SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION FOR A CHANGE IN SCOPE OF THE WORK. HOWEVER, THE CONTRACTOR WILL BE PAID FOR THE QUANTITY ACTUALLY FURNISHED BASED AT THE UNIT PRICE BID FOR THE WORK.

THE CONTRACTOR SHALL CONTACT THE DISTRICT ONE TRAFFIC CONTROL SUPERVISOR FOR EXPRESSWAYS AT (847)705-4151 A MINIMUM OF 72 HOURS IN ADVANCE OF BEGINNING WORK.

THESE PLANS HAVE BEEN PREPARED FROM NOTES RECEIVED FROM THE BUREAU OF MAINTENANCE BRIDGE INSPECTORS.

DO NOT SCALE PLANS FOR CONSTRUCTION DIMENSIONS.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROTECT AND MAINTAIN THE EXISTING BRIDGE LIGHTING AT ANY LOCATIONS THAT LIGHTING IS ENCOUNTERED ADJACENT TO AN AREA TO BE CLEANED AND PAINTED.

THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ACCESS TO ABUTTING PROPERTY AT ALL TIMES DURING THE CONSTRUCTION OF THIS PROJECT.

WHEN ARTIFICIAL LIGHTING IS UTILIZED IN NIGHTTIME OPERATIONS, THE CONTRACTOR SHALL EXERCISE THE OUTMOST PRECAUTIONS PREVENTING ADVERSE VISIBILITY TO THE MOTORING PUBLIC AND ADJACENT RESIDENTIAL AREAS.

THE CONTRACTOR SHALL REQUEST AND GAIN THE APPROVAL FROM THE ILLINOIS DEPARTMENT OF TRANSPORTATION'S EXPRESSWAY TRAFFIC OPERATIONS ENGINEER AT WWW.IDOTLCS.COM TWENTY FOUR (24) HOURS IN ADVANCE OF ALL DA IL Y LANE, RAMP AND SHOULDER CLOSURES. THIS ADVANCE NOTIFICATION IS CALCULATED BASED ON WORKWEEK OF MONDAY THROUGH FRIDAY AND SHALL NOT INCLUDE WEEKENDS OR HOLIDAYS.

THE CONTRACTOR SHALL CLOSE LANES ON THE EXPRESSWAY IN ACCORDANCE WITH THE "KEEPING THE EXPRESSWAY OPEN TO TRAFFIC" CONTRACT SPECIAL PROVISIONS.

THE CONTRACTOR SHALL CONTACT DISTRICT 1 TRAFFIC CONTROL SUPERVISOR AT KALPANA.KANNAN-HOSADURGA@ILLINOIS.GOV FOR ARTERIALS A MINIMUM OF 72 HOURS IN ADVANCE OF BEGINNING WORK.

GENERAL PAINT NOTES

CLEANING AND PAINTING OF THE EXISTING STRUCTURAL STEEL SHALL BE AS SPECIFIED IN THE SPECIAL PROVISION FOR "CLEANING AND PAINTING EXISTING STEEL STRUCTURES".

ALL ITEMS (SUCH AS, BUT NOT LIMITED TO: CONDUITS, BRACKETS AND DECK DRAINS) ATTACHED TO OUTSIDE OF THE FASCIA BEAMS SHOULD BE CLEANED AND PAINTED.

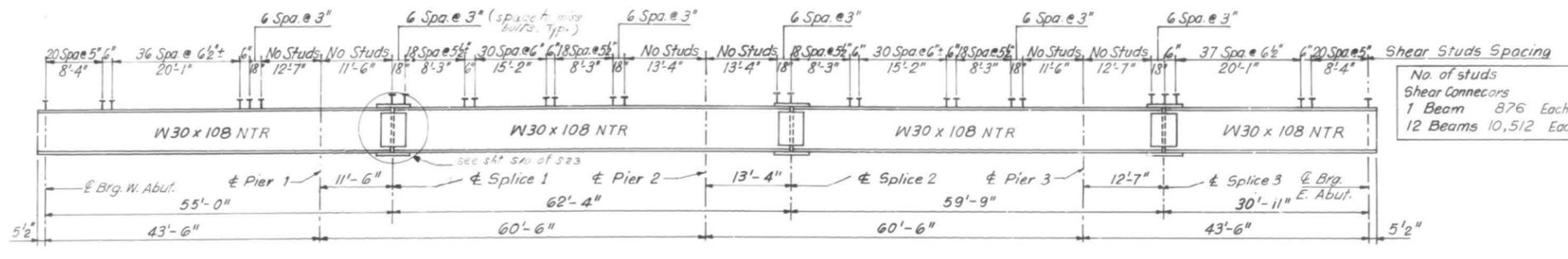
ALL BEAMS, BEARINGS AND OTHER STRUCTURAL STEEL SHALL BE CLEANED PER NEAR WHITE BLAST CLEANING SSPC-SPIO.

THE AREAS SHALL BE PAINTED ACCORDING TO THE REQUIREMENTS OF PAINT SYSTEM 1 -OZ/E/U. THE COLOR OF THE FINAL FINISH COAT FOR ALL INTERIOR STEEL SURFACES SHALL BE GRAY, MUNSELL NO 5B 7/1, THE COLOR OF THE FINAL FINISH COAT FOR THE EXTERIOR AND BOTTOM FLANGE OF THE FASCIA BEAMS SHALL BE REDDISH BROWN, MUNSELL NO 2. 5YR 3/4.

A MINIMUM OF 2 AIR MONITORS FOR STRUCTURE (SN-016-2125) WILL BE REQUIRED TO MONITOR ABRASIVE BLASTING OPERATIONS AT THESE SITES. SEE SPECIAL PROVISION FOR "CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES".

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PLOT SCALE = 100.0000 ' / in.	DRAWN -	REVISED -		SCALE:	SHEET	OF	SHEETS	STA.	TO	STA.	20	2
PLOT DATE = 9/18/2020	CHECKED -	REVISED -		CONTRACT NO. 62M89								
	DATE -	REVISED -		ILLINOIS FED. AID PROJECT								

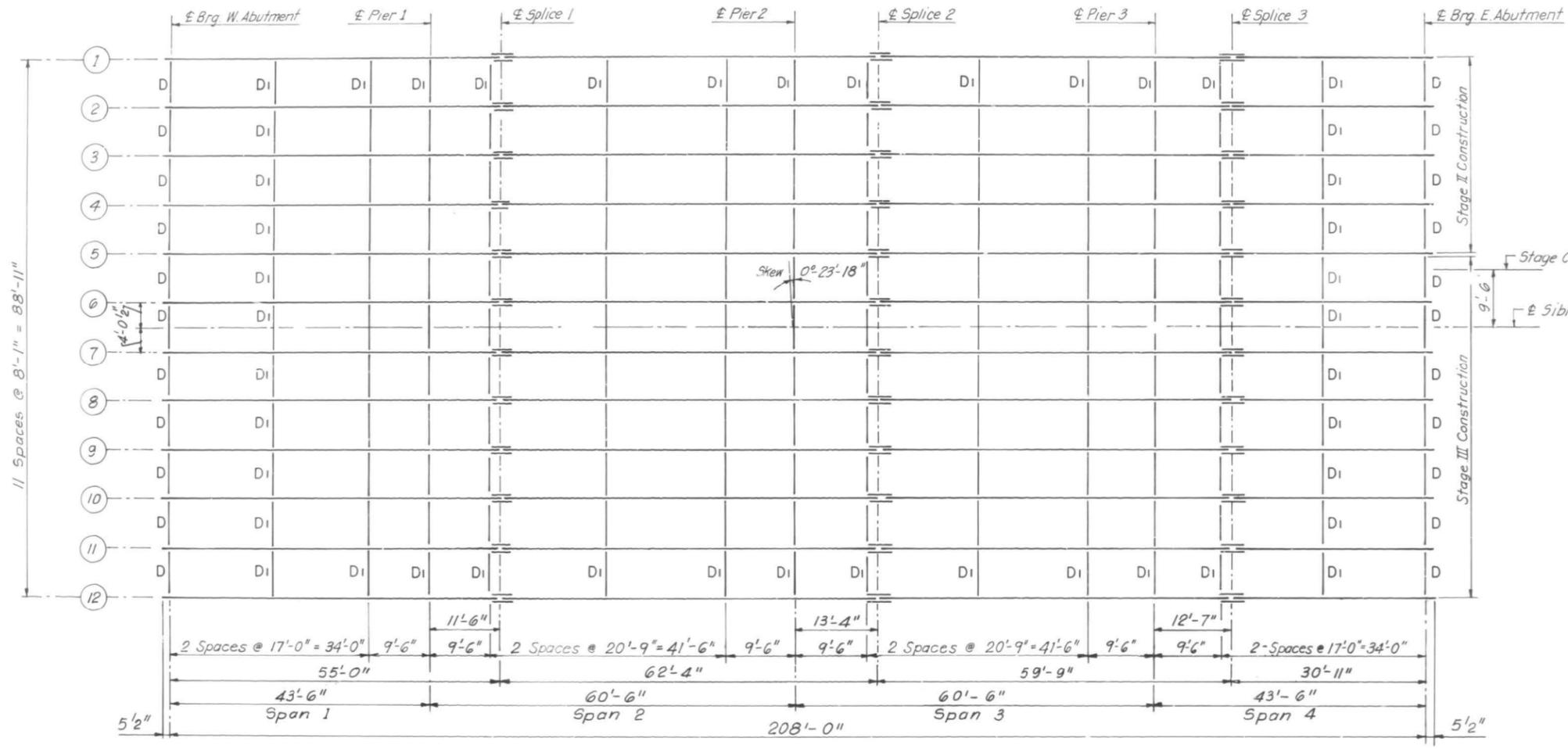


No. of studs
Shear Connectors
1 Beam 876 Each
12 Beams 10,512 Each

INTERIOR BEAM ELEVATION
All Beams Are M223 Gr. 50

INTERIOR BEAM MOMENT TABLE				
	0.4 sp 1	PIER 1 or 3	0.5 sp 2	PIER 2
I_s (in ⁴)	4470	4470	4470	4470
I_c (in ⁴)	12707	12707	12707	12707
S_s (in ³)	299	299	299	299
S_c (in ³)	452.1	—	452.1	—
Z (in ³)	—	346	—	346
DL (K/ft)	.88	1.173	.88	1.173
M_D (K)	104.1	304.9	141.5	362.9
M_S (K/ft)	.293	—	.293	—
M_{SD} (K)	40.0	—	61.0	—
M_L (K)	319.2	205.3	432.1	233.0
M_{Imp} (K)	92.6	57.5	116.7	63
$\frac{5}{8}(M_L+I)$	686.3	438.0	914.7	493.3
M_a (K)	1079.6	965.9	1452.3	1113.1
M_u (K)	2550	1441.7	2550	1441.7
f_s (NON-COMP) (KSI)	4.2	12.2	5.7	14.6
f_s (COMP) (KSI)	1.1	—	1.6	—
f_s (L+I) (KSI)	13.2	17.6	24.3	13.1
f_s (OVERLOAD) (KSI)	23.5	29.8	31.6	27.7
f_s (TOTAL) (KSI)	30.6	38.7	41.1	36
V_r (K)	57.7	—	62.3	—

M_a = (Applied Moment) $1.3[M_D + M_{SD} + \frac{5}{8}(M_L + I)]$.
 M_u = Full Plastic Moment Capacity For Compact, Braced Section.
 f_s (Overload) is the Sum of the Stresses Due to $M_D + M_{SD} + \frac{5}{8}(M_L + I)$.
 I_s and S_s are the Moment of Inertia and Section Modulus of the steel section used in computing f_s (Total and Overload).
 I_c and S_c are the Moment of Inertia and Section Modulus of composite Section used in computing f_s (Total and Overload).
 ** V_r is the Maximum $\frac{1}{2}$ + Impact Shear Range in Span.
 Z is the plastic section modulus used to determine the Fully Plastic Moments in the non-composite areas.
 The Fully Plastic Moment capacity (M_u) is computed according to AASHTO 10.48.1 & 10.50.1.1.
 M_D - Moment due to dead loads on non-composite section.
 M_{SD} - Moment due to dead loads on composite section.
 M_L - Moment due to live load on non-composite or composite section.
 I - Live load impact.
 f_s (Total) is the sum of the stresses due to $1.3[M_D + M_{SD} + \frac{5}{8}(M_L + I)]$.
 ** V_r used for computing Shear Conn.
 NTR denotes Notch Toughness Requirements.



FRAMING PLAN

INTERIOR BEAM REACTION TABLE			
	ABUTMENT	PIER 1	PIER 2
R_D (K)	18.5	67	72.8
R_L (K)	40.2	49.6	50.2
IMP (K)	11.7	13.9	13.5
R_{tot} (K)	70.4	130.5	136.5

FOR INFORMATION ONLY

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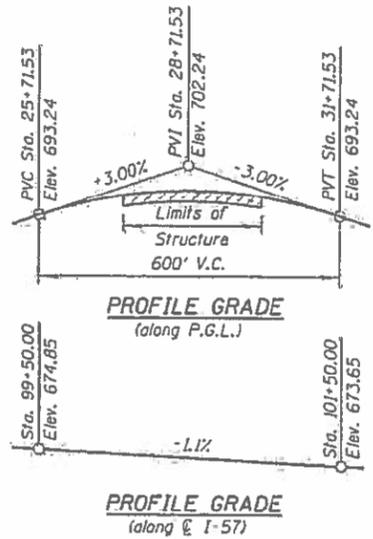
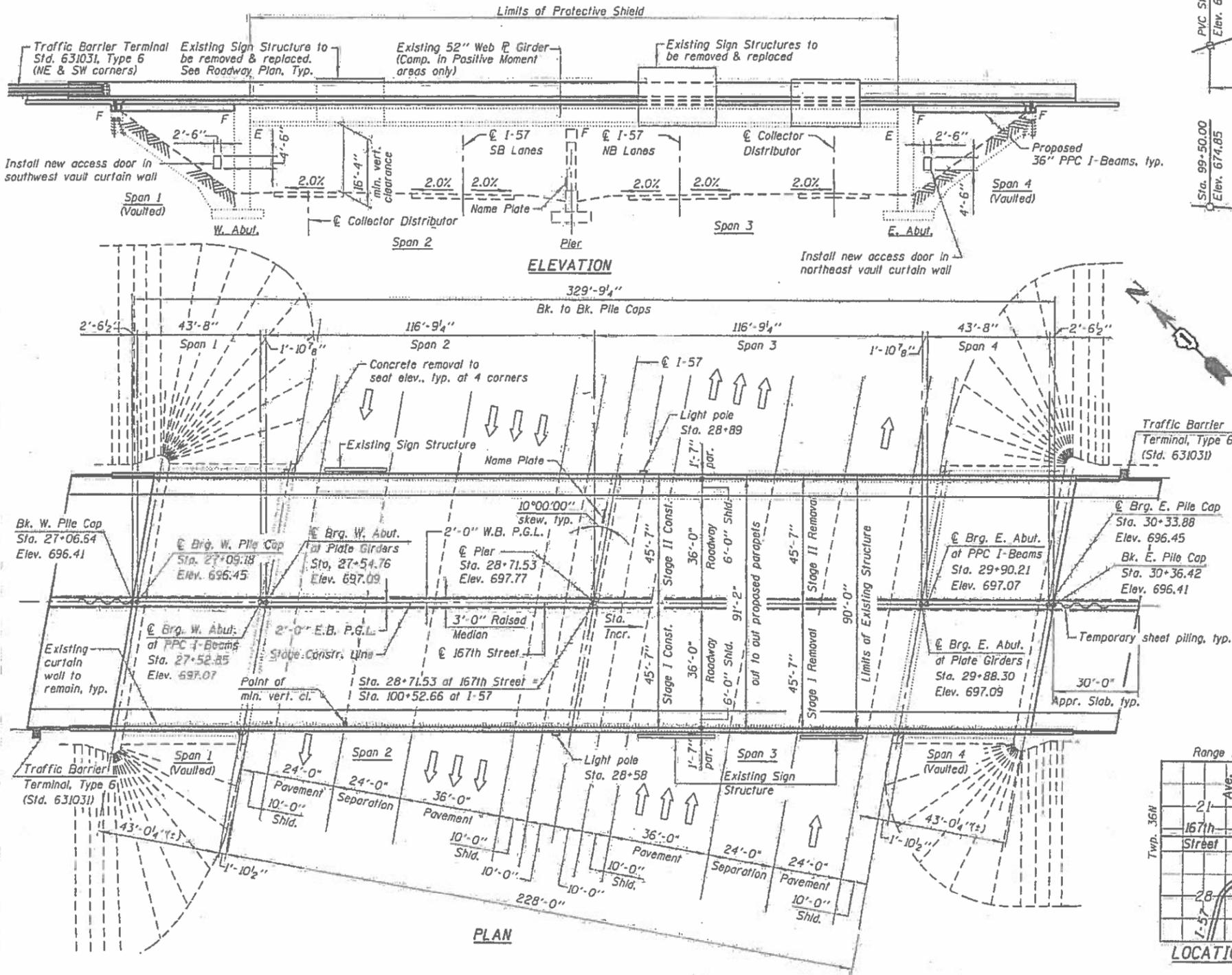
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PLOT DATE = 8/25/2020	CHECKED -	REVISED -
	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING BRIDGE PLANS (SN-016-0956)
IL-83 (SIBLEY BLVD.) OVER I-94 (BISHOP FORD EXPY)
SCALE: SHEET 6 OF 7 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
397	2020-030-BP	COOK	20	8
CONTRACT NO. 62M89				
ILLINOIS FED. AID PROJECT				

BENCHMARK:
 TBM-3 cut [] on the west end of the NW vaulted wall of the West Abutment, Elev. 699.66
 Existing Structure: S.N. 016-2125 carrying 167th Street over I-57 was built in 1968 as part of F.A.I. Rte. 57 Project I-57-7-162-348, I-57 West Leg Section 068-1011.3-CF. The four span structure consists of two 116'-9 1/4" continuous steel plate girder interior spans and two 43'-8", 36" Precast Prestressed Concrete I-Beams vaulted approach spans. The structure is skewed 10°-00'-00" and is 329'-9 1/4" back to back of pile caps and 90'-0" wide. In 2008 the overlay and the expansion joints were replaced and repairs were made to the deck slab, the parapets and the abutments.
 The existing bridge has underpass lighting and sign lighting. The underpass lighting will need to be maintained during rehabilitation and new underpass lighting will need to be installed when the repairs are completed. There are large signs attached to the bridge, these are lighted and they will need to be reinstated and lighted after construction. Traffic will be maintained utilizing Stage Construction.
 Salvage: Aluminum handrails and posts will be sent to the District Bridge Yard in Elk Grove Village.



DESIGN SPECIFICATIONS
 2002 AASHTO Bridge Standard Specifications,
 1995 FHWA Seismic Retrofitting Manual for
 Highway Bridges

DESIGN STRESSES
FIELD UNITS
 (NEW CONSTRUCTION)
 $f'_c = 3,500$ psi
 $f_y = 60,000$ psi (Reinforcement)
 $f_y = 36,000$ psi (AASHTO M270, Gr. 36)

PRECAST PRESTRESSED UNITS
 $f'_c = 5,000$ psi
 $f'_{ci} = 4,000$ psi
 $f'_s = 270,000$ psi, (1/2" ϕ low lax strands)
 $f_{sl} = 201,960$ psi, (1/2" ϕ low lax strands)

DESIGN STRESSES
FIELD UNITS
 (EXISTING CONSTRUCTION)
 $f'_c = 3,500$ psi
 $f_y = 40,000$ psi (Reinforcement)
 $f_y = 36,000$ psi (Structural Steel A36, Gr 36)
 $f_y = 50,000$ psi (Structural Steel A441, Gr 50)

LOADING HS20-44
 Allow 50#/sq. ft. for future wearing surface

SEISMIC DATA
 Seismic Performance Category (SPC) = A
 Horizontal Bedrock Acceleration coefficient (A) = 0.04g
 Site Coefficient (S) = 1.0

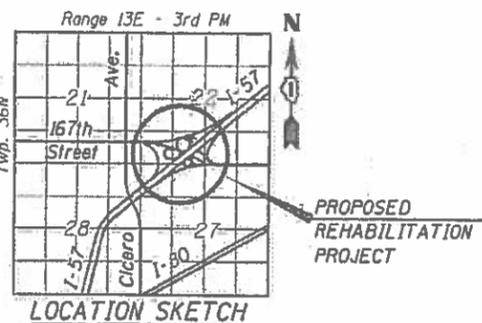
APPROVED
 For Structural Adequacy Only
[Signature]
 Engineer of Bridges & Structures



EXPIRES: 11-30-18 Shts S26 & 27



EXPIRES: 11-30-18 Shts S1 to S25 and S28 to S43



GENERAL PLAN & ELEVATION
167TH STREET OVER I-57
 F.A.I. RTE. 57
 SEC. 1011.3-BR
 COOK COUNTY
 STATION 28+71.53
 STRUCTURE NO. 016-2125

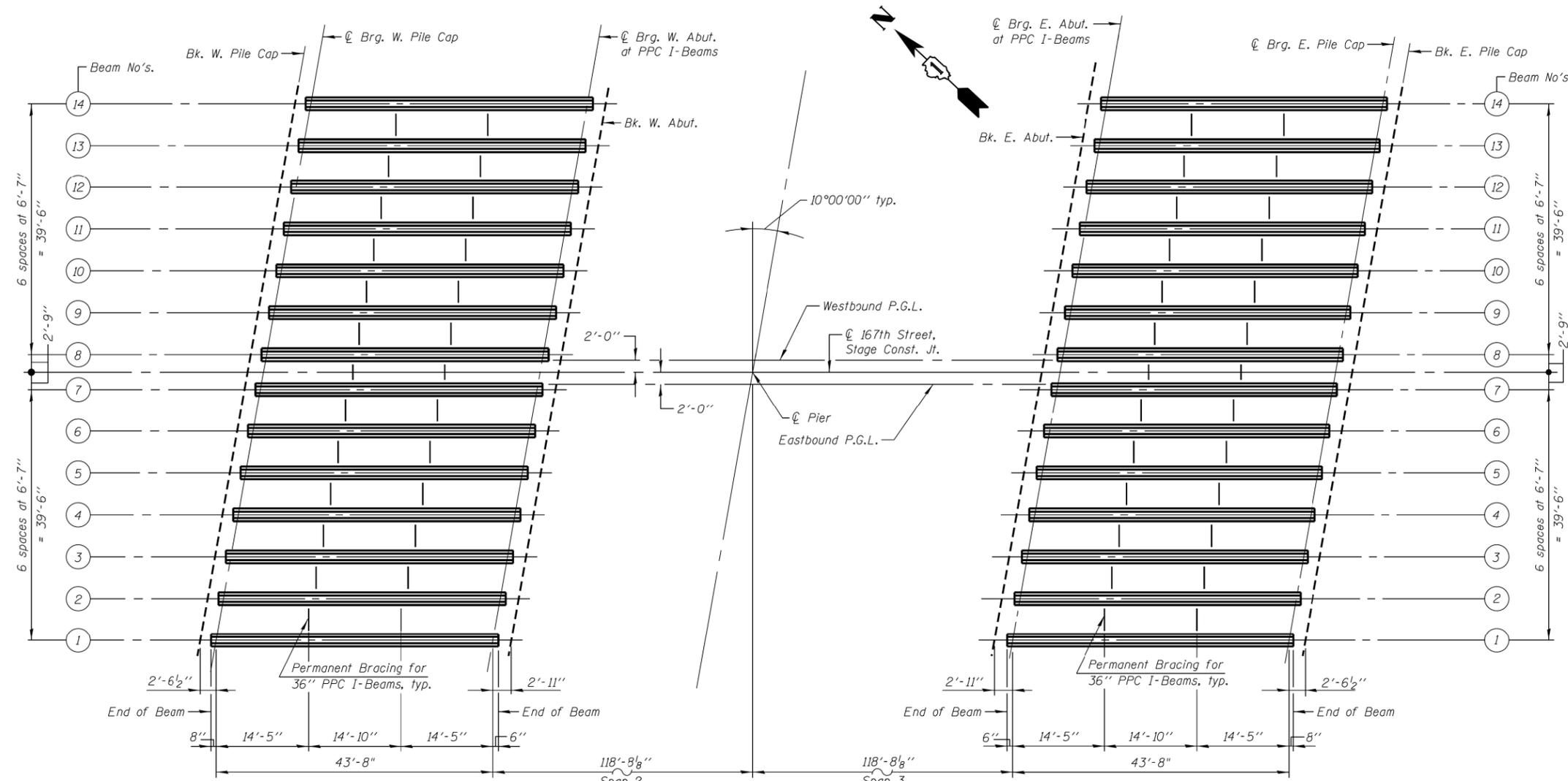
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	DATE -	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

EXISTING BRIDGE PLANS (SN-016-2125)	
167TH STREET OVER I-57	
SCALE:	SHEET 1 OF 6 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1609	2020-030-BP	COOK	20	11
ILLINOIS FED. AID PROJECT			CONTRACT NO. 62M89	

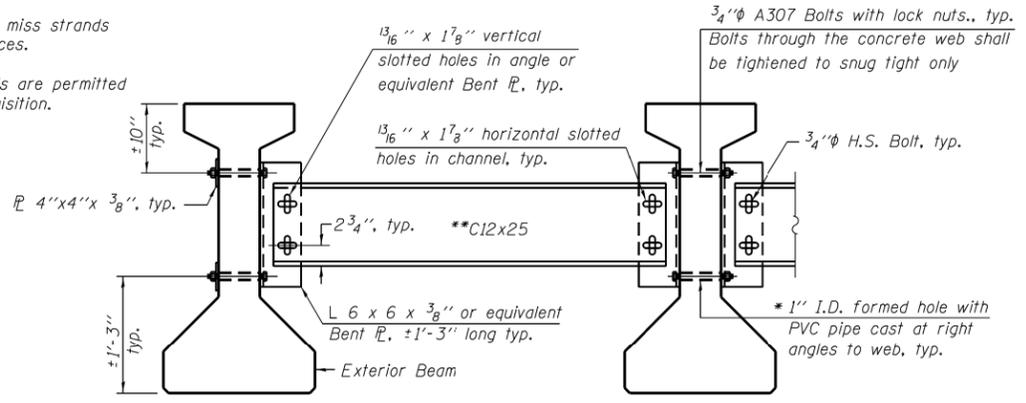


**FRAMING PLAN
SPAN 1**

**FRAMING PLAN
SPAN 4**

*Fabricator shall locate to miss strands within permissible tolerances.
 ** Alternate C12x30 channels are permitted to facilitate material acquisition.

Notes:
 All material for bracing shall be hot dip galvanized according to AASHTO M111 unless otherwise noted. Two hardened washers are required for each set of oversized holes.
 All holes shall be 1/16" φ unless otherwise noted. 5/16" x 3" x 3" plate washers are required over all slotted holes.
 All bolts shall be galvanized according to AASHTO M232. Bracing shall be installed as beams are erected and tightened as soon as possible during erection.
 Permanent bracing shall not be paid for separately, but shall be included in the cost of Furnishing and Erecting Precast Prestressed Concrete I-Beams.



**PERMANENT BRACING DETAILS
FOR 36" PPC I-BEAMS**

Legend:
 I: Non-composite moment of inertia of beam section (in⁴).
 I': Composite moment of inertia of beam section (in⁴).
 S_b: Non-composite section modulus for the bottom fiber of the prestressed beam (in³).
 S_b': Composite section modulus for the bottom fiber of the prestressed beam (in³).
 S_t: Non-composite section modulus for the top fiber of the prestressed beam (in³).
 S_t': Composite section modulus for the top fiber of the prestressed beam (in³).
 Q: Un-factored non-composite dead load (kips/ft.).
 M_Q: Un-factored moment due to non-composite dead load conservatively taken at 0.5 of the span (kip-ft.).
 s_Q: Un-factored long-term composite (superimposed) dead load (kips/ft.).
 M_{sQ}: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
 M_L: Un-factored live load moment on the composite section (kip-ft.).
 M_I: Un-factored moment due to impact on the composite section (kip-ft.).

INTERIOR BEAM MOMENT TABLE		
0.5 Span		
I	(in ⁴)	48,648
I'	(in ⁴)	191,465
S _b	(in ³)	3,165
S _b '	(in ³)	6,243
S _t	(in ³)	2,358
S _t '	(in ³)	35,922
Q	(k/ft.)	1.042
M _Q	(k)	249
s _Q	(k/ft.)	0.400
M _{sQ}	(k)	96
M _L	(k)	303
M _I	(k)	91

INTERIOR BEAM REACTION TABLE		
Abutment		
R _Q	(k)	22.8
R _{sQ}	(k)	8.7
R _L	(k)	34.0
R _I	(k)	11.1
R _{Total}	(k)	76.6

FOR INFORMATION ONLY

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 PROJECT: 167th St. I-57
 OFFICE: 167th St. I-57
 DESIGNED: dumachia
 DRAWN: dumachia
 CHECKED: dumachia
 DATE: 8/25/2020

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PLOT SCALE = 100.0000' / in.	DRAWN -	REVISED -
PLOT DATE = 8/25/2020	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**EXISTING BRIDGE PLANS (SN-016-2125)
167TH STREET OVER I-57**

SCALE: SHEET 3 OF 6 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1609	2020-030-BP	COOK	20	13
CONTRACT NO. 62M89				
ILLINOIS FED. AID PROJECT				

INTERIOR GIRDER MOMENT TABLE		
	0.4 Sp. 2 or 0.6 Sp. 3	Pier
I_s	(in ⁴) 25,474	64,025
$I_c(n)$	(in ⁴) 78,972	-
$I_c(3n)$	(in ⁴) 55,434	-
S_s	(in ³) 1,328	2,266
$S_c(n)$	(in ³) 1,813	-
$S_c(3n)$	(in ³) 1,686	-
Q	(k/ft) 1.017	1,664
M_Q	(k) 814	2,889
S_Q	(k/ft) 0.467	-
M_{S_Q}	(k) 413	-
M_L	(k) 1,327	1,456
M_I	(k) 274	301
$^5_3 [M_L + I]$	(k) 2,674	2,935
M_σ	(k) 5,073	7,570
M_u	(k) 6,246	-
$f_s \text{ } Q \text{ non-comp}$	(ksi) 7.36	15.30
$f_s \text{ } Q \text{ (comp)}$	(ksi) 2.94	-
$f_s \text{ } ^5_3 [M_L + M_I]$	(ksi) 17.70	15.54
$f_s \text{ (Overload)}$	(ksi) 28.01	30.83
$f_s \text{ (Total)}$	(ksi) -	40.08
V_r	(k) 62.56	65.39

INTERIOR GIRDER REACTION TABLE		
	Abutment	Pier
R_Q	(k) 62.10	223.10
R_L	(k) 47.30	85.10
R_I	(k) 9.78	17.60
R_{Total}	(k) 119.18	325.80

*Compact section
 **Braced non-compact and partially braced section

I_s, S_s : Non-composite moment of inertia and section modulus of the steel section used for computing $f_s(Total \text{ and Overload})$ due to non-composite dead loads (in⁴ and in³).

$I_c(n), S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing $f_s(Total \text{ and Overload})$ due to short-term composite live loads (in⁴ and in³).

$I_c(3n), S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing $f_s(Total \text{ and Overload})$ due to long-term composite (superimposed) dead loads (in⁴ and in³).

Q : Un-factored non-composite dead load (kips/ft.).

M_Q : Un-factored moment due to non-composite dead load (kip-ft.).

S_Q : Un-factored long-term composite (superimposed) dead load (kips/ft.).

M_{S_Q} : Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).

M_L : Un-factored live load moment (kip-ft.).

M_I : Un-factored moment due to impact (kip-ft.).

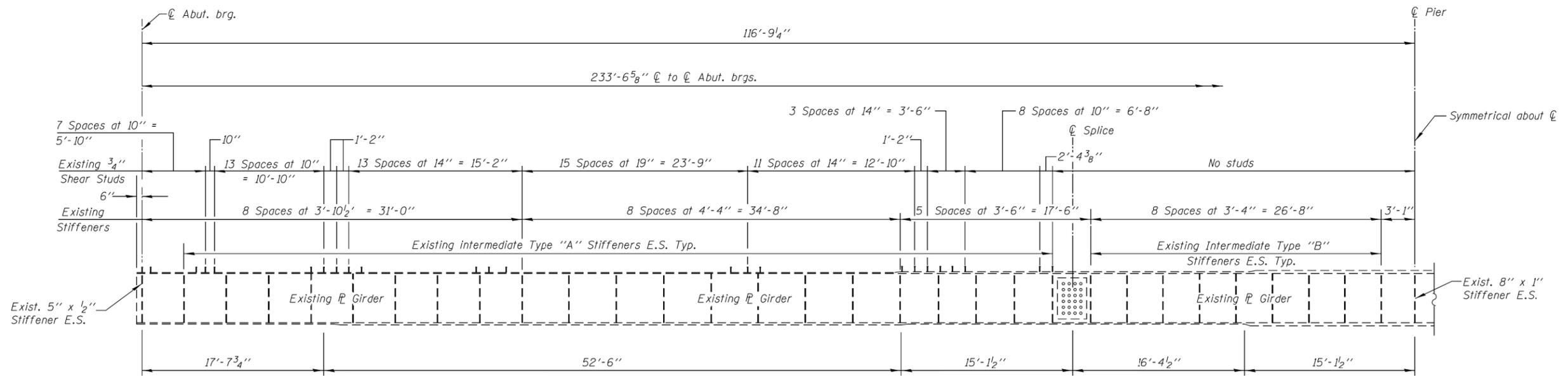
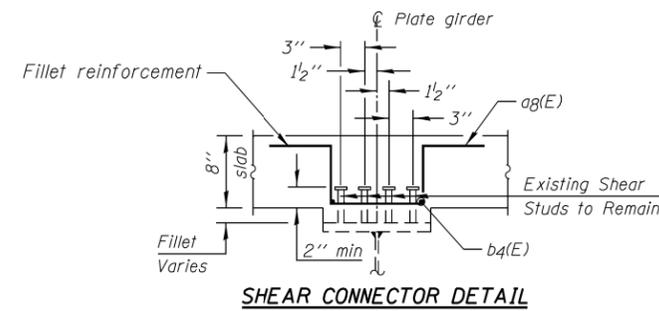
M_σ : Factored design moment (kip-ft.).

M_u : Compact composite moment capacity according to AASHTO LFD 10.50 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).

$f_s \text{ (Overload)}$: Sum of stresses as computed from the moments below (ksi). $M_Q + M_{S_Q} + \frac{5}{3} (M_L + M_I)$

$f_s \text{ (Total)}$: Sum of stresses as computed from the moments below on non-compact section (ksi). $1.3 [M_Q + M_{S_Q} + \frac{5}{3} (M_L + M_I)]$

V_r : Maximum L_t + impact shear range within the composite portion of the span for stud shear connector design (kips).



Notes:
 Contractor to field verify all dimensions.
 For existing stiffener details see existing bridge plans.

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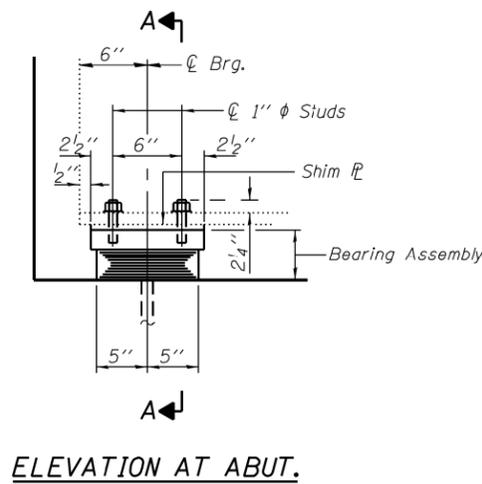
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STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

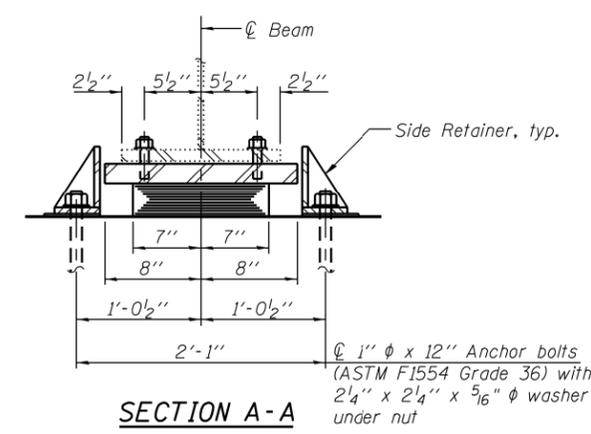
EXISTING BRIDGE PLANS (SN-016-2125)
 167TH STREET OVER I-57

SCALE: SHEET 5 OF 6 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1609	2020-030-BP	COOK	20	15
CONTRACT NO. 62M89				
ILLINOIS FED. AID PROJECT				

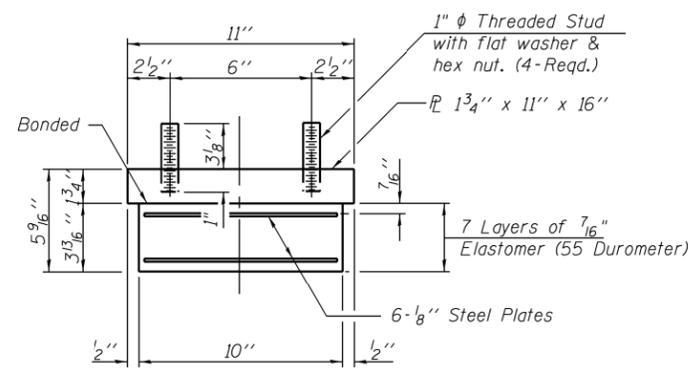


ELEVATION AT ABUT.



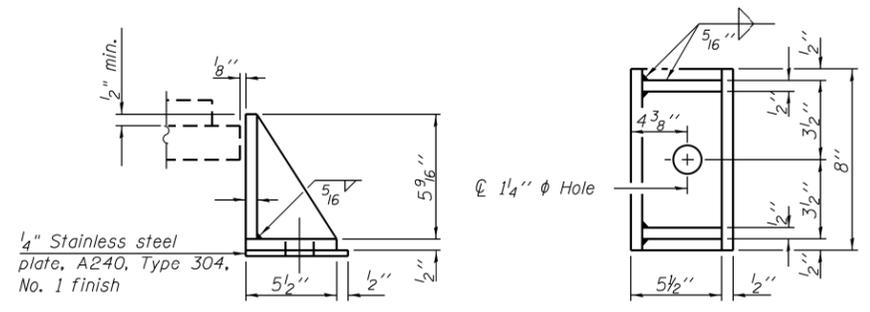
SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.



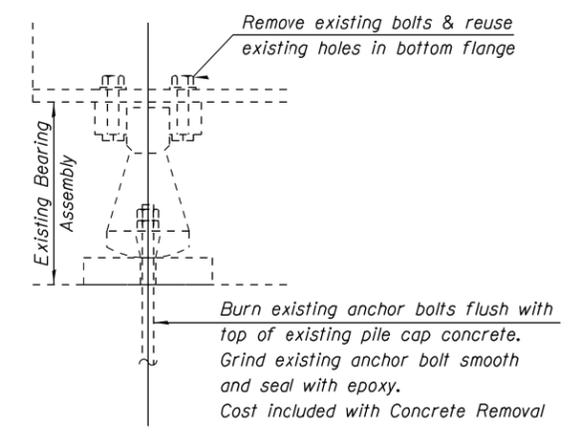
BEARING ASSEMBLY

Note:
Shim plates shall not be placed under Bearing Assembly.



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



EXISTING BEARING REMOVAL DETAIL

Notes:
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.
Existing diaphragms shall not be used for jacking.
Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions. Minimum jack capacity = 7.5 tons.
Existing bearings shall be removed and replaced after the deck has been removed.
Diaphragm removal and reinstallation may be required to facilitate removing bolts & reusing holes. Cost included with Jack and Remove Existing Bearing.
Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
Beam reactions at abutment = 9.47 kips (steel alone)

BILL OF MATERIAL

Item	Unit	Total
Jack and Remove Existing Bearing	Each	24
Elastomeric Bearing Assembly Type I	Each	24
Anchor Bolts, 1"	Each	48

FOR INFORMATION ONLY

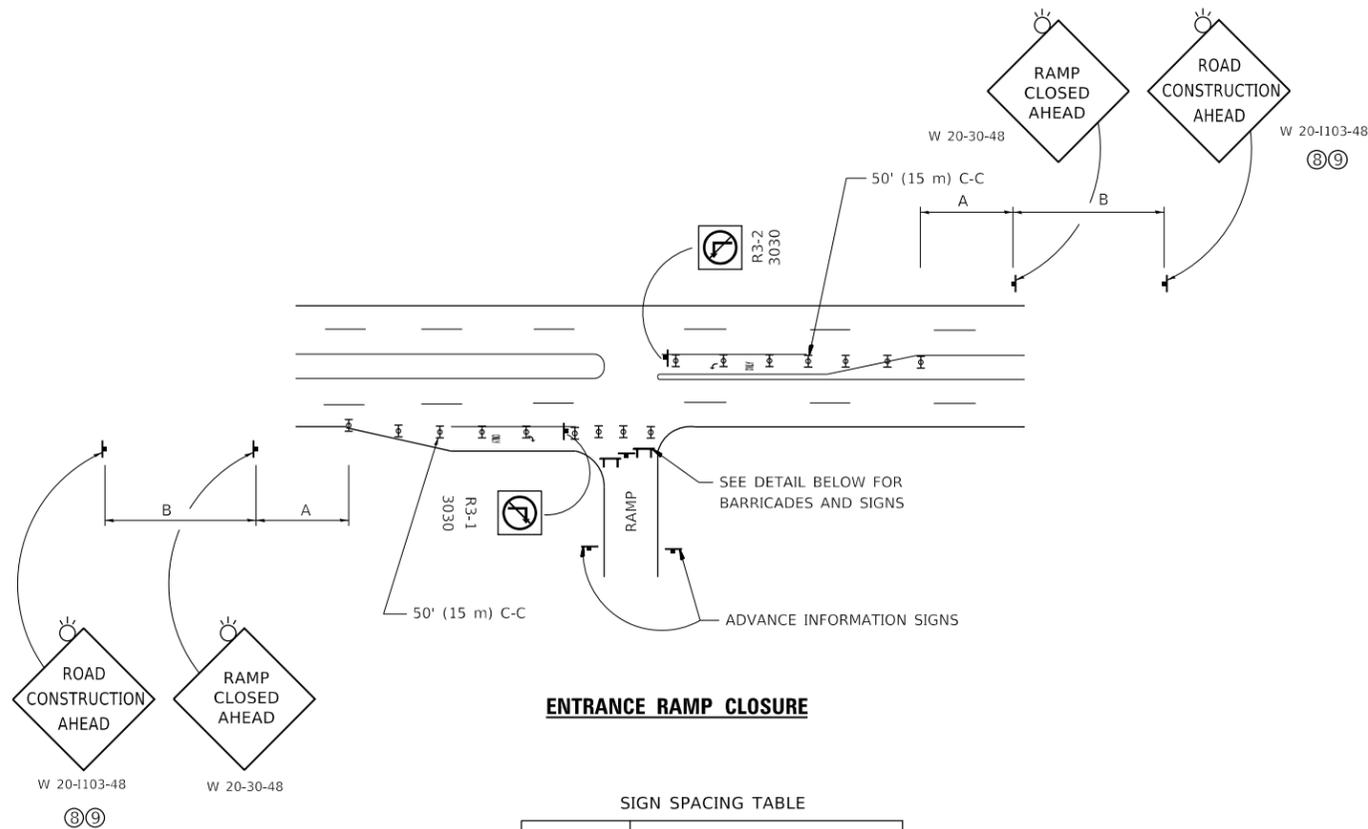
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING BRIDGE PLANS (SN-016-2125)			
167TH STREET OVER I-57			
SCALE:	SHEET 6	OF 6 SHEETS	STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 62M89				
ILLINOIS FED. AID PROJECT				

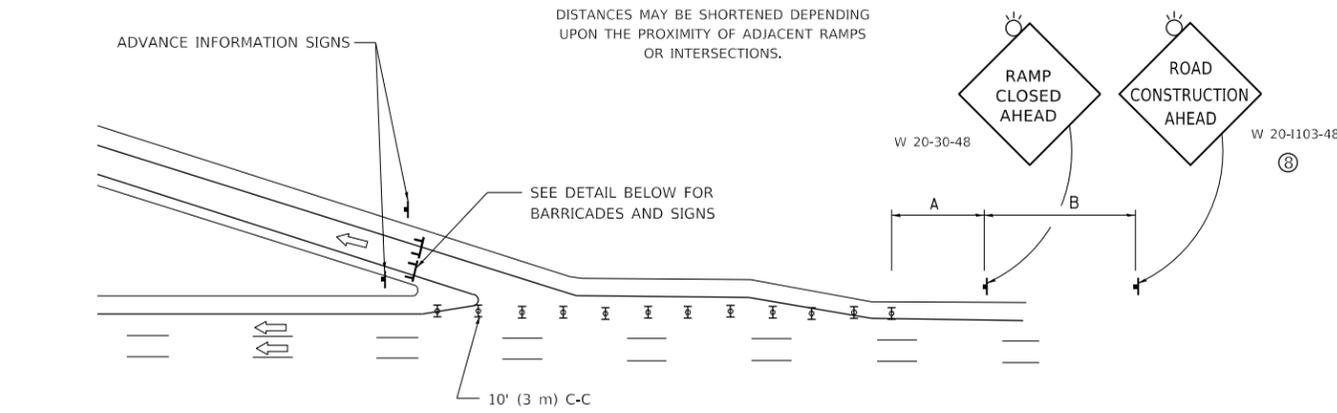


ENTRANCE RAMP CLOSURE

SIGN SPACING TABLE

FACILITY	DISTANCE BETWEEN SIGNS	
	A	B
EXPRESSWAY >24 HOURS	1000' (300 m)	1500' (450 m)
EXPRESSWAY ≤24 HOURS	500' (150 m)	500' (150 m)
ARTERIAL 55 MPH	500' (150 m)	500' (150 m)
ARTERIAL 50-45 MPH	350' (100 m)	350' (100 m)
ARTERIAL <45 MPH	200' (60 m)	200' (60 m)

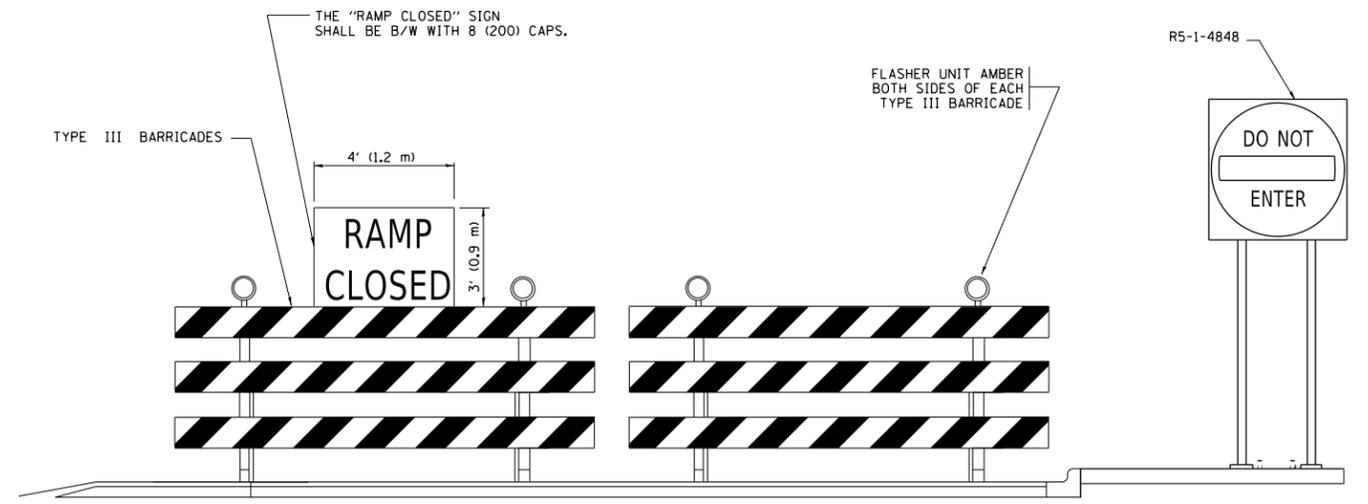
DISTANCES MAY BE SHORTENED DEPENDING UPON THE PROXIMITY OF ADJACENT RAMPS OR INTERSECTIONS.



EXIT RAMP CLOSURE

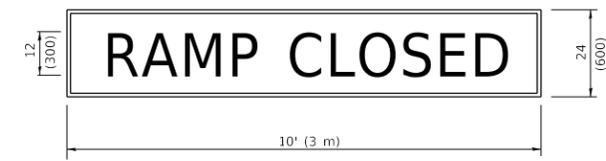
SYMBOLS

- ▬ TYPE II BARRICADE OR DRUM
- ▬ TYPE III BARRICADE WITH 2 FLASHING LIGHTS



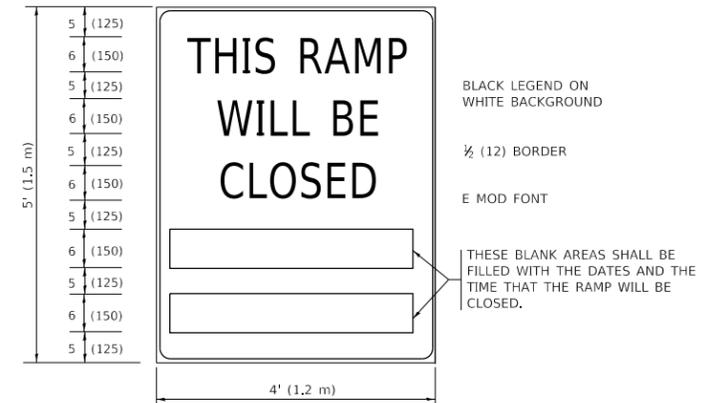
DETAIL FOR REQUIRED BARRICADES & SIGNS

RAMP CLOSURE ADVANCE WARNING SIGN



BLACK LEGEND ON ORANGE BACKGROUND MOUNTED DIAGONALLY
E MOD FONT
1 (25) BORDER
THESE SIGNS ARE REQUIRED ON ALL THE EXIT GUIDE SIGNS FOR EXIT RAMPS THAT WILL BE CLOSED FOR MORE THAN FOUR (4) CONSECUTIVE DAYS.

RAMP CLOSURE ADVANCE INFORMATION SIGN



THESE SIGNS ARE REQUIRED ON BOTH SIDES OF THE RAMP, MINIMUM OF 1 WEEK IN ADVANCE OF THE CLOSURE.
THESE SIGNS SHALL BE FABRICATED AND PAID FOR ACCORDING TO THE TEMPORARY INFORMATION SIGNING SPECIAL PROVISION

GENERAL NOTES:

- ① CONES MAY BE SUBSTITUTED FOR DRUMS OR TYPE II BARRICADES DURING DAY OPERATIONS. CONES SHALL BE A MINIMUM OF 28 (700) HIGH.
- ② VERTICAL BARRICADES SHALL NOT BE USED FOR RAMP CLOSURES.
- ③ A FLAGGER SHALL BE POSITIONED AT EACH CLOSED RAMP THAT IS OPEN TO CONSTRUCTION VEHICLES, PRECEDED BY A W20-7 FLAGGER WARNING SIGN.
- ④ ALL ROUTE MARKERS AND TRAILBLAZER ASSEMBLIES WHICH DIRECT MOTORISTS TO A CLOSED ENTRANCE RAMP SHALL BE COVERED WHEN THE RAMP IS CLOSED FOR MORE THAN FOUR (4) DAYS.
- ⑤ THE SIGNING AND BARRICADING WHICH IS REQUIRED BY THIS DETAIL SHALL BE INCLUDED IN THE COST OF TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS).
- ⑥ AUTHORIZATION FROM THE DISTRICT'S BUREAU OF TRAFFIC IS REQUIRED FOR ALL RAMP CLOSURES.
- ⑦ THE RAMP CLOSURE ADVANCE INFORMATION SIGNS SHALL BE ERECTED IF THE CLOSURE TIME EXCEEDS TWENTY-FOUR (24) HOURS. ADDITIONAL ADVANCE WARNING SIGNS ON EXIT GUIDE SIGNING WILL BE REQUIRED FOR EXIT RAMP CLOSURES THAT EXCEED FOUR (4) DAYS IN LENGTH.
- ⑧ ROAD CONSTRUCTION AHEAD SIGNS MAY BE OMITTED WHEN THIS DETAIL IS USED IN CONJUNCTION WITH OTHER TRAFFIC CONTROL THAT ALREADY INCLUDES A ROAD CONSTRUCTION AHEAD SIGN.
- ⑨ ARTERIAL ROAD CONSTRUCTION AHEAD SIGNS SHALL BE INSTALLED ON THE LEFT SIDE OF TRAFFIC IF THE MEDIAN IS MORE THAN 10 FT WIDE.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

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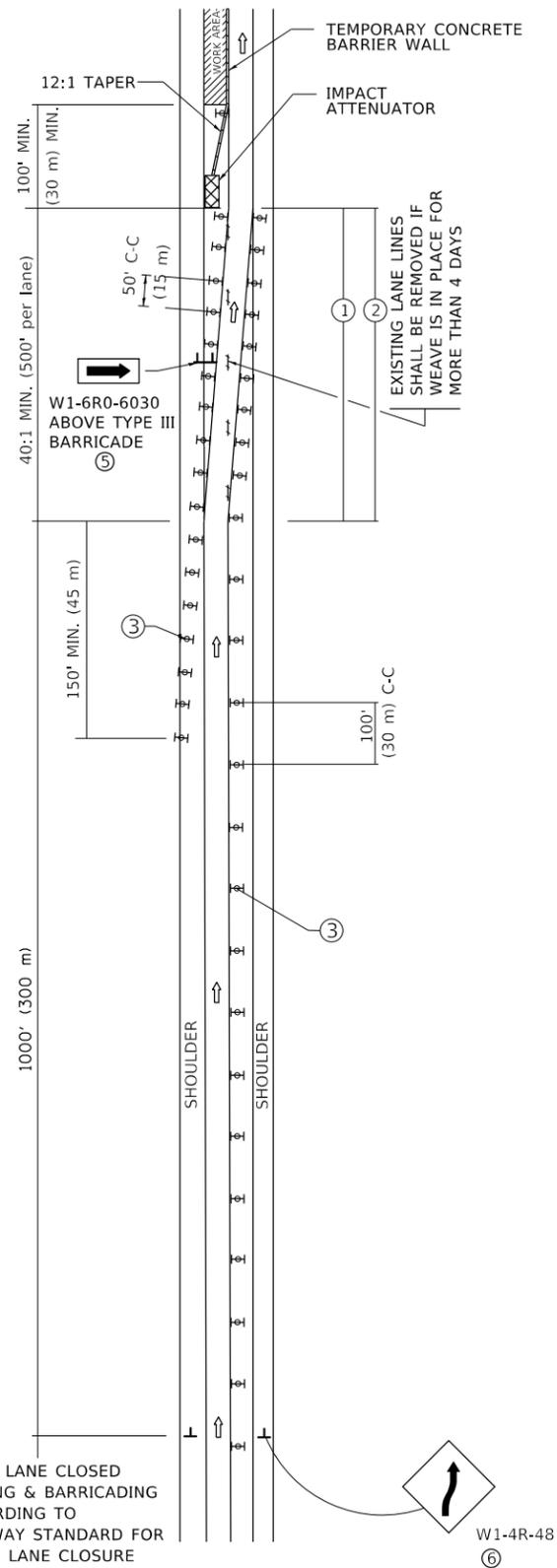
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**ENTRANCE_AND_EXIT_RAMP
CLOSURE_DETAILS**

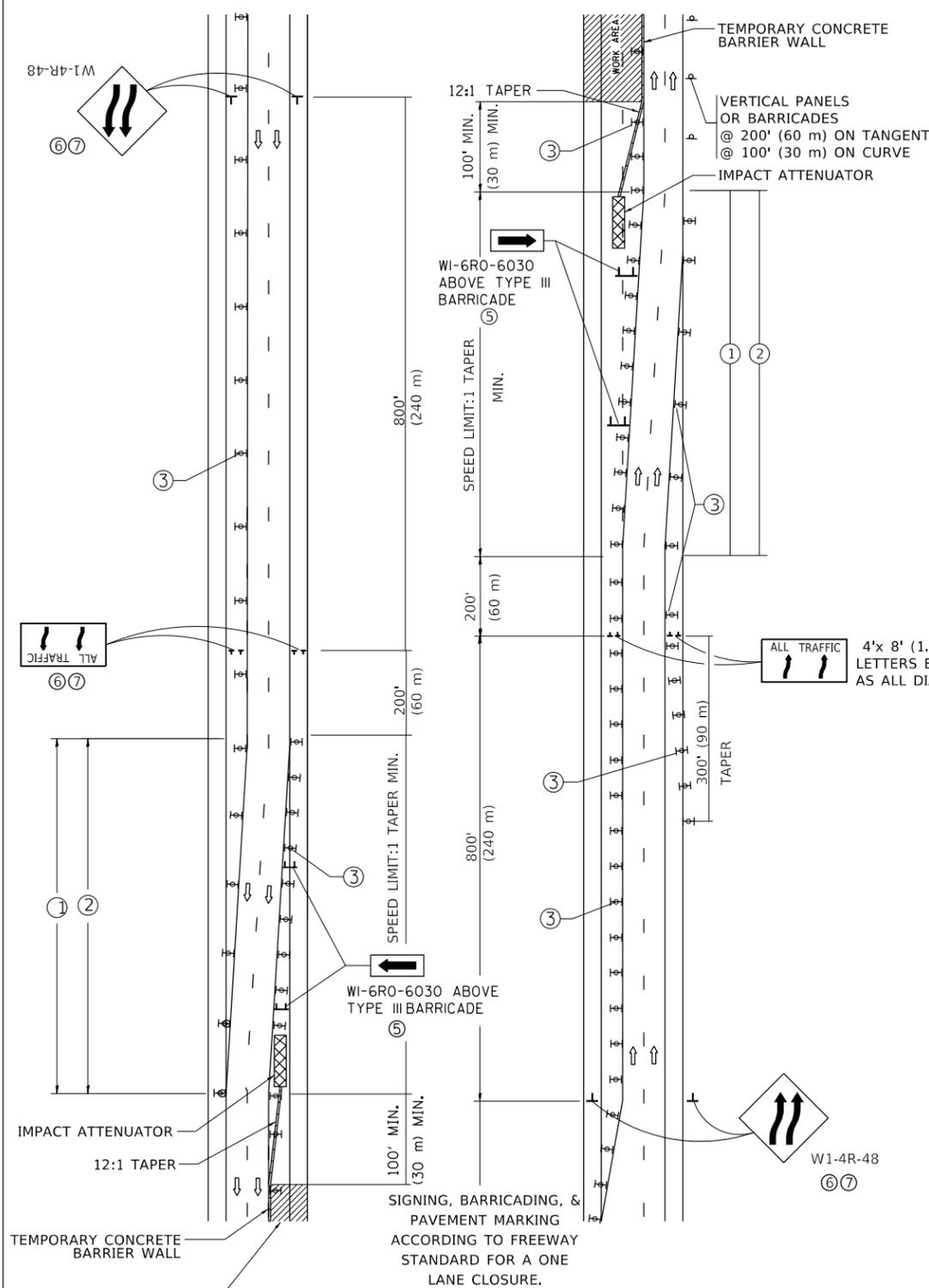
SCALE: NONE SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	2020-030-BP	COOK	20	17
	TC-08			CONTRACT NO. 62M89
		ILLINOIS	FED. AID PROJECT	

SINGLE LANE WEAVE

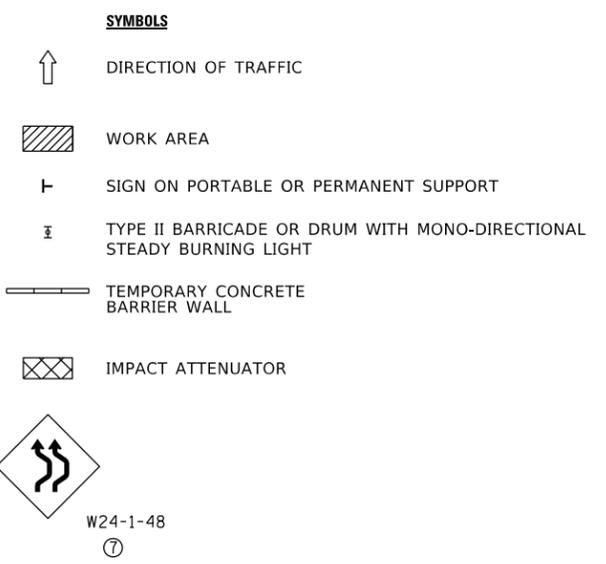


MULTI-LANE WEAVE



GENERAL NOTES:

- ① EXISTING CONFLICTING PAVEMENT MARKING LINES SHALL BE REMOVED. PAVEMENT MARKING REMOVAL SHALL NOT BE REQUIRED FOR SINGLE LANE WEAVES UNDER 4 DAYS IN DURATION.
- ② CONTINUOUS REFLECTIVE TEMPORARY PAVEMENT MARKING TAPE SHALL BE PLACED THROUGHOUT THE TAPER AND FOR 300' (90 m) ALONG SIDE THE WORK AREA WHERE THE CLOSURE TIME IS GREATER THAN FOURTEEN DAYS. THE LEFT EDGE LINE SHALL BE YELLOW AND THE RIGHT EDGE LINE SHALL BE WHITE. FOR MULTI-LANE WEAVES LANE LINES SHALL BE 5 INCH, 10'-30' (3 m-9 m) SKIP DASH, WHITE.
- ③ PLASTIC DRUMS WITH STEADY BURN LIGHTS AT 50' (15 m) C-C SPACING IN TAPERS AND 100' (30 m) C-C SPACING IN TANGENTS.
- ④ ALL SIGNS SHALL BE POST MOUNTED IF THE CLOSURE TIME EXCEEDS FOUR DAYS.
- ⑤ TYPE III BARRICADES MAY BE OMITTED FOR SINGLE-LANE WEAVES UNDER 24-HOURS IN DURATION. W1-6 SIGNS WILL STILL BE REQUIRED. IF THE WIDTH OF OFFSET IS LESS THAN 6' THEN THE TYPE III BARRICADE WITH ATTACHED ARROW SIGN PANEL CAN BE ELIMINATED IN THE TAPER AREAS.
- ⑥ WHEN THE LENGTH OF THE SHIFTED SEGMENT (DISTANCE BETWEEN WEAVE POINTS) IS LESS THAN 1500', DOUBLE REVERSE CURVE SIGNS (W24-1) SHOULD BE USED INSTEAD OF THE REVERSE CURVE (W1-4) SIGNS. ARROWS ON THE 4'X8' "ALL TRAFFIC" SIGNS SHALL BE THE SAME SHAPE.
- ⑦ THE NUMBER OF ARROWS ON THESE SIGNS SHALL MATCH THE NUMBER OF LANES OPEN TO TRAFFIC.



ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN

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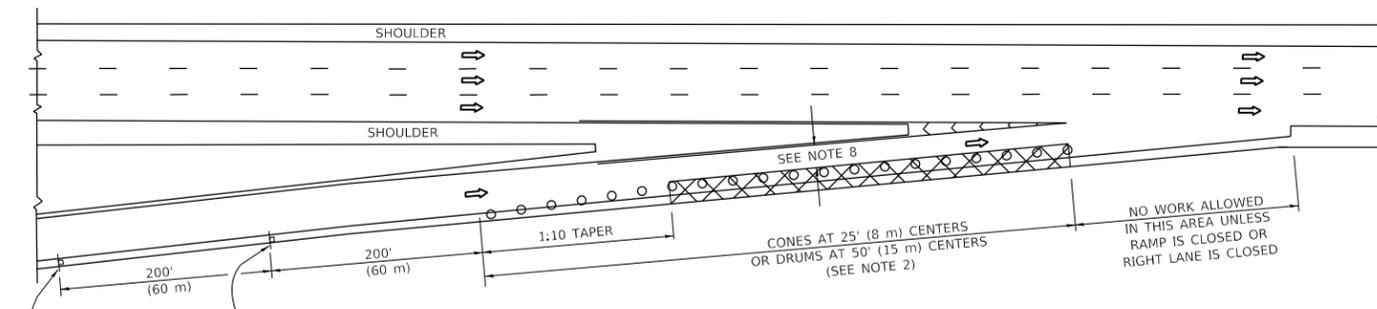
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**TRAFFIC CONTROL DETAILS FOR
FREEWAY SINGLE & MULTI-LANE WEAVE**

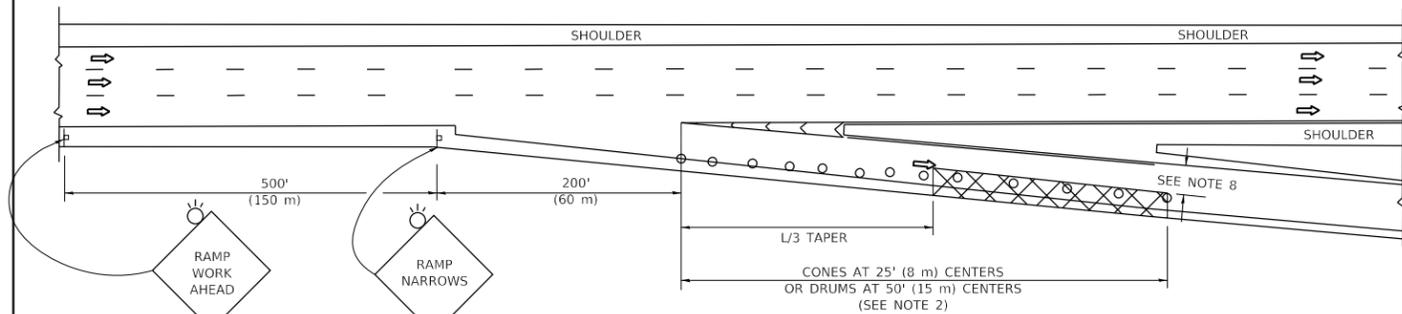
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TC-09		CONTRACT NO. 62M89		
ILLINOIS FED. AID PROJECT				

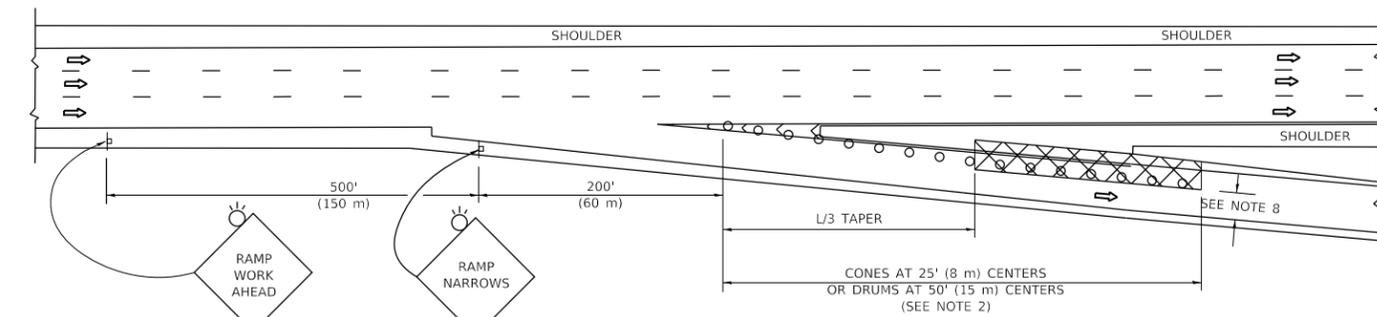
PARTIAL RAMP CLOSURE DETAILS



TYPICAL ENTRANCE RAMP



TYPICAL EXIT RAMP



TYPICAL EXIT RAMP

SYMBOLS

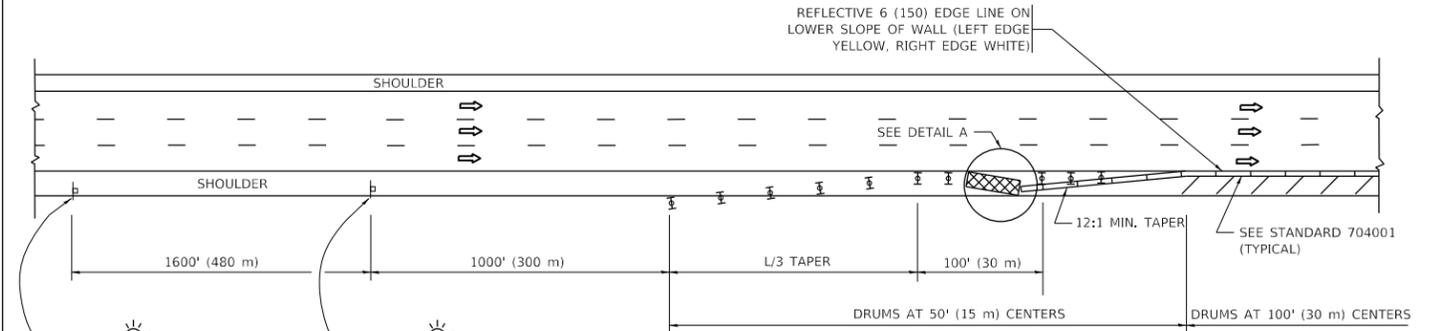
- ACTIVE WORK AREA
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- FLAGGER WITH CONTROL SIGN
- TYPE II BARRICADE OR DRUM
- CONE, DRUM OR BARRICADE
- IMPACT ATTENUATOR OF TYPE AND TEST LEVEL SPECIFIED

GENERAL NOTES:

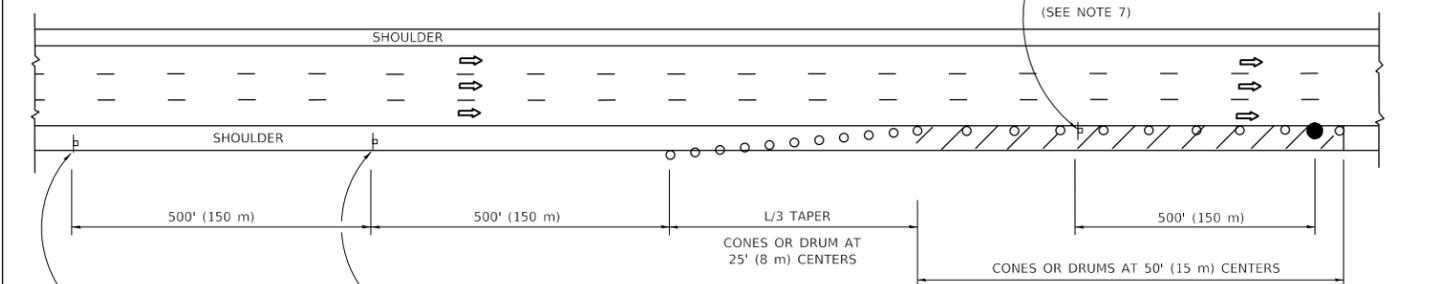
- THE "L" DISTANCE EQUALS:

SPEED LIMIT	FORMULAS
45 mph (80 km/h)	METRIC ENGLISH
OR GREATER:	$L=0.65(WXS)$ $L=(WXS)$
	$W =$ WIDTH OF OFFSET IN FEET (METERS)
	$S =$ NORMAL POSTED SPEED MPH (KM/H)
- TYPE II BARRICADES OR DRUMS ARE REQUIRED FOR ALL NIGHTTIME CLOSURES. TYPE II BARRICADES OR DRUMS WITH MONODIRECTIONAL STEADY BURN LIGHTS ARE REQUIRED FOR DELINEATING OBSTACLES, EXCAVATIONS, OR HAZARDS EXCEEDING 100 FT (30m) IN LENGTH AT NIGHT.
- ALL SIGNS SHALL BE POST MOUNTED IF THE CLOSURE TIME EXCEEDS FOUR DAYS.
- FLASHING LIGHTS SHALL BE USED DURING THE HOURS OF DARKNESS AND SHALL BE INSTALLED ABOVE THE FIRST TWO SETS OF SIGNS.

SHOULDER CLOSURE DETAILS

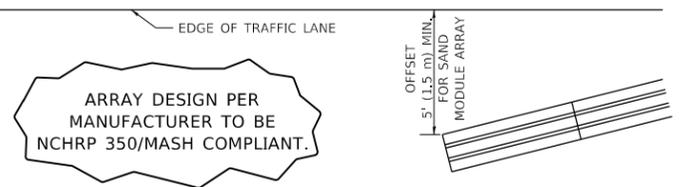


PERMANENT SHOULDER CLOSURE



DAYTIME SHOULDER CLOSURE

THIS DETAIL IS USED WHERE:
 1. VEHICLES, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCR OACH IN AN AREA CLOSER THAN 15' (4.5 m) TO THE EDGE OF PAVEMENT FOR A PERIOD IN EXCESS OF 15 MINUTES.



ARRAY DESIGN PER MANUFACTURER TO BE NCHRP 350/MASH COMPLIANT.

DETAIL "A"
IMPACT ATTENUATOR, TEMPORARY
 (SEE NOTE 5)

- THE IMPACT ATTENUATOR. TEMPORARY IS NOT REQUIRED WHEN THE TEMPORARY CONCRETE BARRIER WALL IS PROTECTED BY OR IS TIED INTO THE EXISTING GUARDRAIL. IF OFFSET IS LESS THAN 5 FEET USE NARROW USE TYPE DEVICE TO MEET NCHRP350/MASH.
- AUTHORIZATION FROM THE DISTRICT'S BUREAU OF TRAFFIC IS REQUIRED FOR ALL FREEWAY CLOSURES.
- THE FLAGGER AND FLAGGER SIGN ARE REQUIRED AT THE ABOVE WORK SITES WHEN:
 - FOUR OR MORE WORK VEHICLES ENTER THE TRAFFIC LANES IN A ONE HOUR PERIOD.
 - THE WORK AVTTIVITY REQUIRES FREQUENT ENCR OACHMENT INTO THE LANE OPEN TO TRAFFIC.
 THE FLAGGER SHALL BE STATIONED APPROXIMATELY 100' (30 m) TO 200' (60 m) IN ADVANCE OF THE WORKERS.
- 12' MIN. WIDTH TANGENT SECTION
 16' MIN. WIDTH CURVE SECTION.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

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PLOT DATE = 8/25/2020	DATE - 11-96	REVISED - M.D. 01-18

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DETAILS FOR FREEWAY
SHOULDER CLOSURES AND PARTIAL RAMP CLOSURES

SCALE: NONE SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	2020-030-BP	COOK	20	19
	TC-17			CONTRACT NO. 62M89
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