BENCHMARK:
TBM-3 cut [] on the west end of the NW vaulted wall of the West Abutment, Elev. 699.66

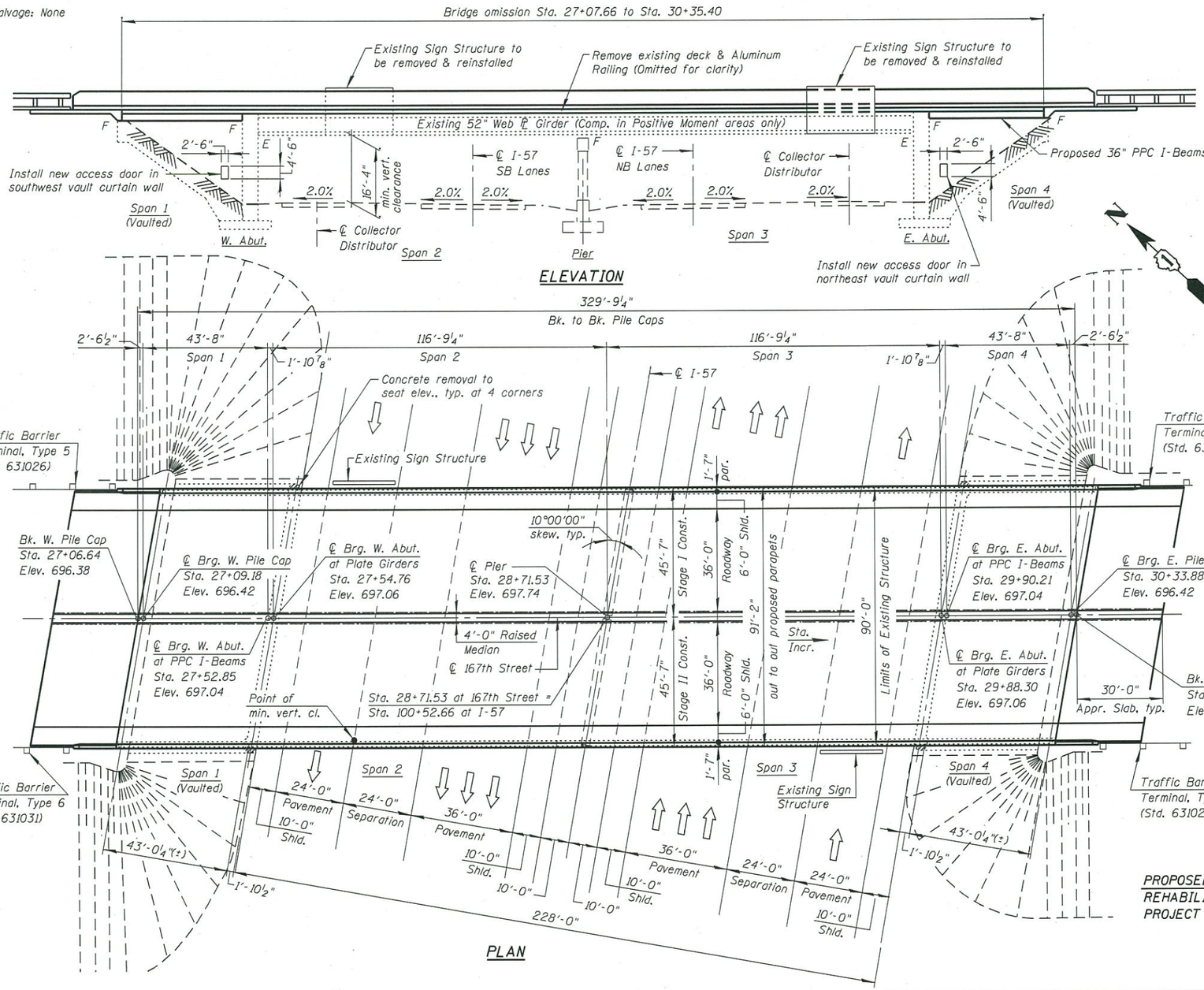
Existing Structure: S.N. 016-2125 carrying 167th Street over I-57 (Dan Ryan Expressway) was built in 1968 as part of F.A.I. Rte. 57 project I-57-7-162-348. Dan Ryan Expressway-West Leg Section 068-1011.3-CF. The four span structure consists of two 116'-9¼" continuous steel plate girder interior spans and two 43'-8", 36" Precast Prestressed Concrete Girder vaulted approach spans. The structure is skewed 10°-00'-00" and is 329'-9¼" back to back of pile caps and 90'-0" wide. 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 reinstalled and lighted after construction.

Traffic will be maintained utilizing Stage Construction.

Salvage: None

SCOPE OF WORK:

1. Remove the existing deck (90'-0" out to out) including the ½" waterproofing membrane system, 1½" HMA surface course and the abutment vault slabs and then replace with an 8" reinforced concrete deck (91'-2" out to out).
2. Remove and replace West and East approach slabs.
3. Remove & replace PPC I-Beams in the two vaulted spans.
4. Replace fixed bearings under the PPC I-Beams girders.
5. Replace expansion bearings under the steel girders.
6. Install additional stud shear connectors.
7. Perform structural repair of concrete to the abutments, pile caps & the pier.
8. Reconstruct the abutment bridge seats backwall at pile caps and install a 4"Φ underdrain behind the pile caps.
9. Install concrete diaphragms at abutments to seal access.
10. Install new expansion joints and preformed joint seals.
11. Install one access door in northeast vault curtain wall and the southwest vault curtain wall.
12. Cleaning and Painting of existing structural steel to be under a separate contract.

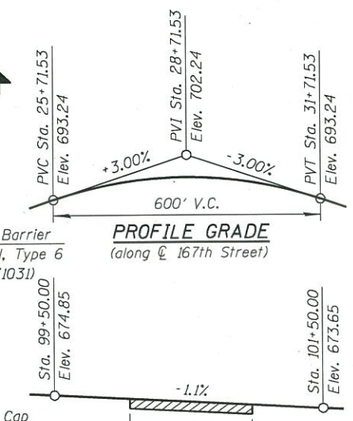


HIGHWAY CLASSIFICATION

167th Street - F.A.U. Rte. 1609
Functional Class: Other Principal Arterial
ADT: 17,300 (2015); 25,604 (2035)
ADTT: 900 (2015)
DHV: 2,816 (2035)
Design Speed: 50 m.p.h.
Posted Speed: 45 m.p.h.

HIGHWAY CLASSIFICATION

F.A.I. Rte. 57 - I-57
Functional Class: Interstate
ADT: 95,400 (2015); 141,192 (2035)
ADTT: 4,500 (2015)
DHV: 15,531 (2035)
Design Speed: 55 m.p.h.
Posted Speed: 55 m.p.h.



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
fy = 60,000 psi (Reinforcement)
fy = 36,000 psi (AASHTO M 270, Gr. 36)

PRECAST PRESTRESSED UNITS

f'c = 5,000 psi
f'ci = 4,000 psi
f's = 270,000 psi, (½"Φ low lax strands)
fsi = 201,960 psi, (½"Φ low lax strands)

DESIGN STRESSES

FIELD UNITS

(EXISTING CONSTRUCTION)

f'c = 3,500 psi
fy = 40,000 psi (Reinforcement)
fy = 36,000 psi (Structural Steel)

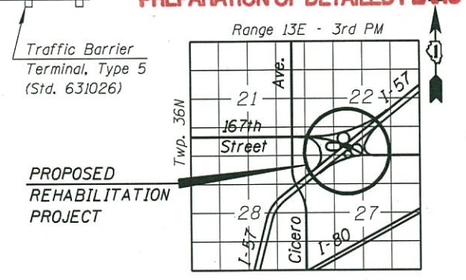
APPROVED
MAR 12 2015
AS A BASIS FOR PREPARATION OF DETAILED PLANS

LOADING HS20-44

Allow 50#/sq. ft. for future wearing surface

SEISMIC DATA

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



LOCATION SKETCH

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

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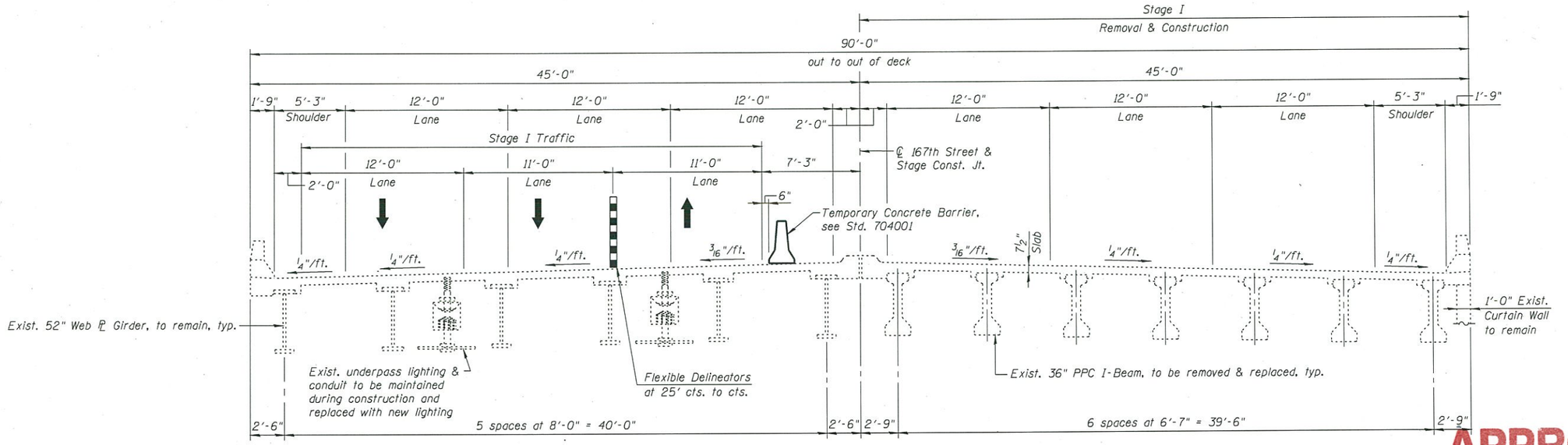
CHRISTIAN-ROGE & ASSOCIATES, INC.	USER NAME = IDOT	DESIGNED - B.N.S./J.W.	REVISED -
		CHECKED - J.W./B.N.S.	REVISED -
	PLOT SCALE = 99.9999 ' / IN.	DRAWN - F.M.	REVISED -
	PLOT DATE = 3/12/2015	DATE - MARCH, 2015	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. S1 OF S3 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	1011.3-BR	COOK	3	1
		CONTRACT NO. 60T43		
		ILLINOIS FED. AID PROJECT		

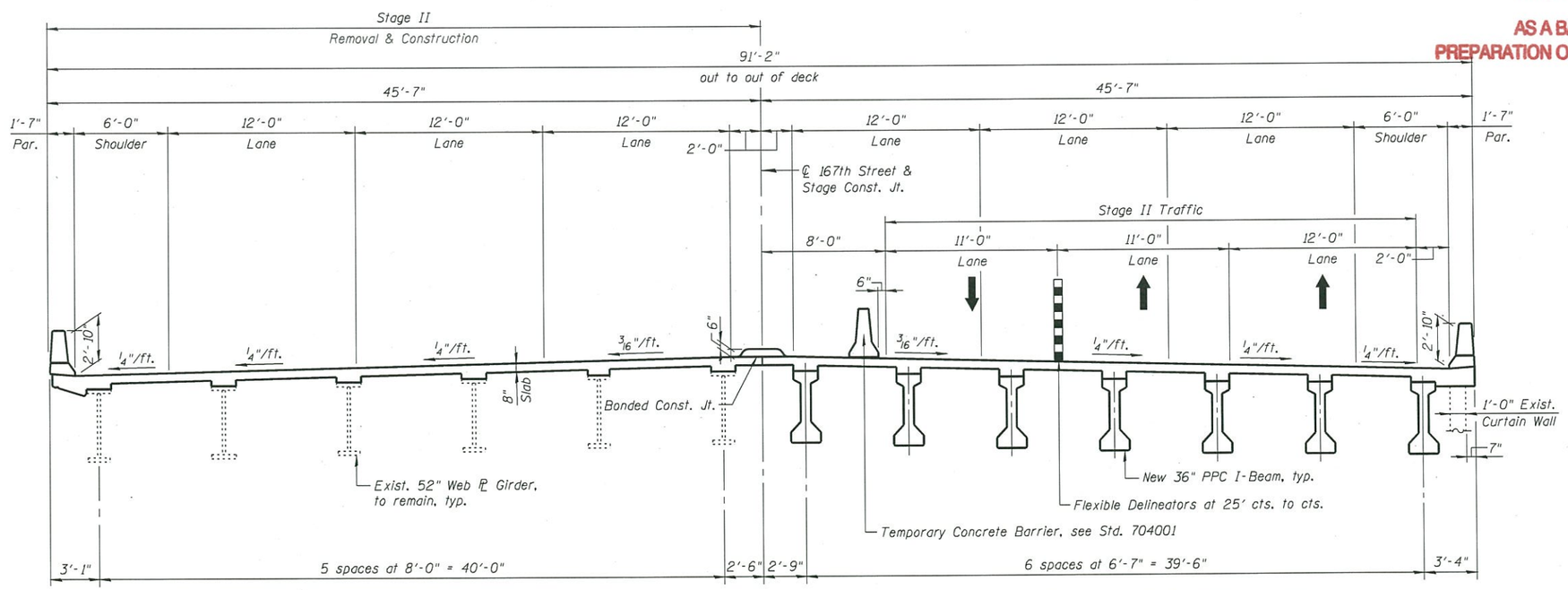


CROSS SECTION AT ROADWAY SPANS
(Spans 2 & 3)

CROSS SECTION THRU VAULTED APPROACH SPANS
(Spans 1 & 4)

CROSS SECTION
(Existing)

APPROVED
MAR 12 2015
AS A BASIS FOR
PREPARATION OF DETAILED PLANS



Note:
Cross Sections are looking East.

CROSS SECTION AT ROADWAY SPANS
(Spans 2 & 3)

CROSS SECTION THRU VAULTED APPROACH SPANS
(Spans 1 & 4)

CROSS SECTION
(Proposed)

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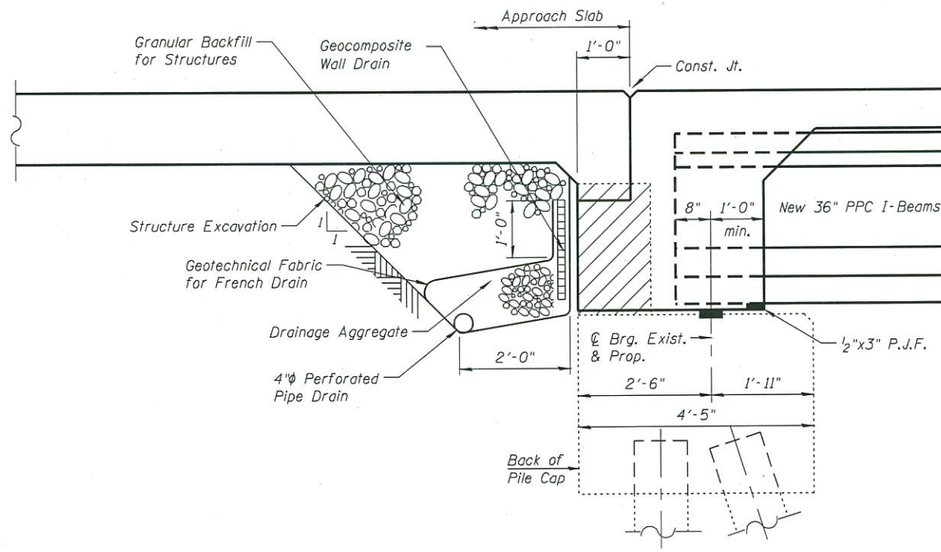
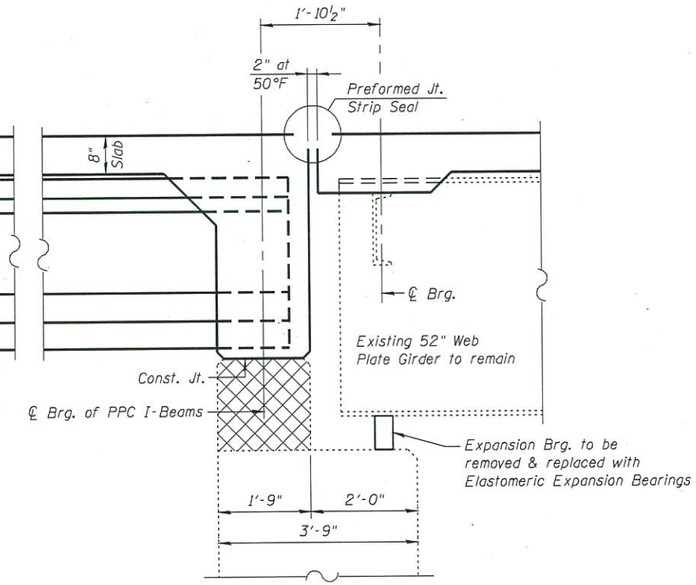
CHRISTIAN-ROGE & ASSOCIATES, INC.	USER NAME = IDOT	DESIGNED - B.N.S./J.W.	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STAGE CONSTRUCTION 167TH STREET OVER I-57 (DAN RYAN EXPRESSWAY) STRUCTURE NO. 016-2125	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS / SHEET NO.
		CHECKED - J.W./B.N.S.	REVISED -			57	1011.3-BR	COOK	3 / 2
	PLOT SCALE = 99.9999 '/ IN.	DRAWN - F.M.	REVISED -					CONTRACT NO. 60T43	
	PLOT DATE = 3/12/2015	DATE - MARCH, 2015	REVISED -		SHEET NO. S2 OF S3 SHEETS		ILLINOIS	FED. AID PROJECT	



SECTION AT PILE CAP



SECTION AT ABUTMENT

VAULTED ABUTMENT - SPAN 1 OR SPAN 4

(Span 1 shown - Span 4 opposite hand)
(Horiz. dimensions at Rt. L)

LEGEND:

Concrete Removal

Concrete Removal & Replacement

APPROVED

MAR 12 2015

AS A BASIS FOR PREPARATION OF DETAILED PLANS

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CHRISTIAN-ROGE & ASSOCIATES, INC.	USER NAME = IDOT	DESIGNED - B.N.S./J.W.	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED - J.W./B.N.S.	REVISED -	
	PLOT SCALE = 99.9999 ' / IN.	DRAWN - F.M.	REVISED -	
	PLOT DATE = 3/12/2015	DATE - MARCH, 2015	REVISED -	

VAULTED ABUTMENT MODIFICATIONS & MISC. DETAILS
167TH STREET OVER I-57 (DAN RYAN EXPRESSWAY)
STRUCTURE NO. 016-2125

SHEET NO. S3 OF S3 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	1011.3-BR	COOK	3	3
		CONTRACT NO. 60T43		
	ILLINOIS	FED. AID PROJECT		