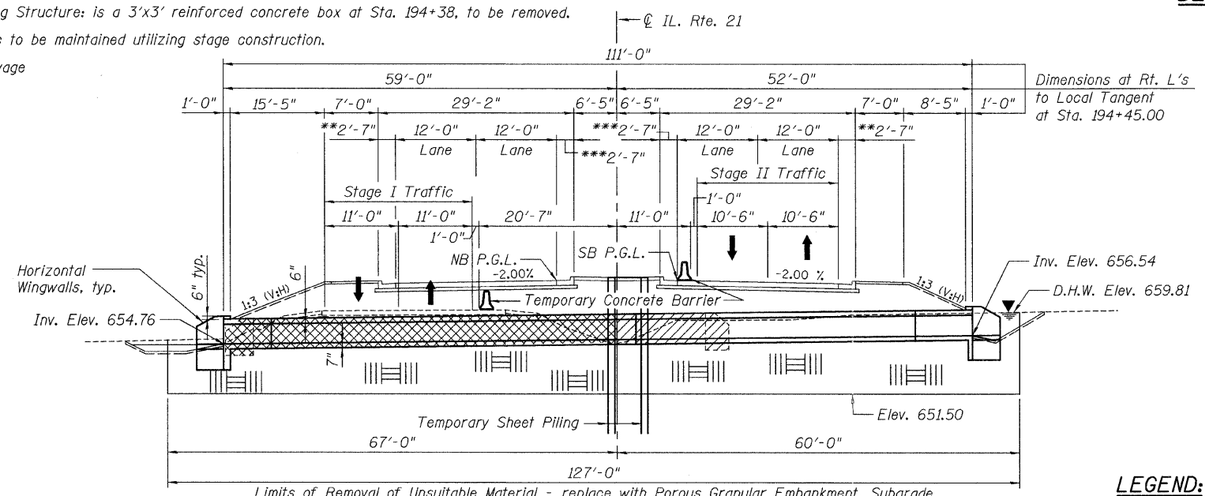
B.M.: Chiseled box on top of S.E. wingwall of bridge over Bull Creek. Elevation 669.64

Existing Structure: is a 3'x3' reinforced concrete box at Sta. 194+38, to be removed.

Traffic to be maintained utilizing stage construction.

No salvage

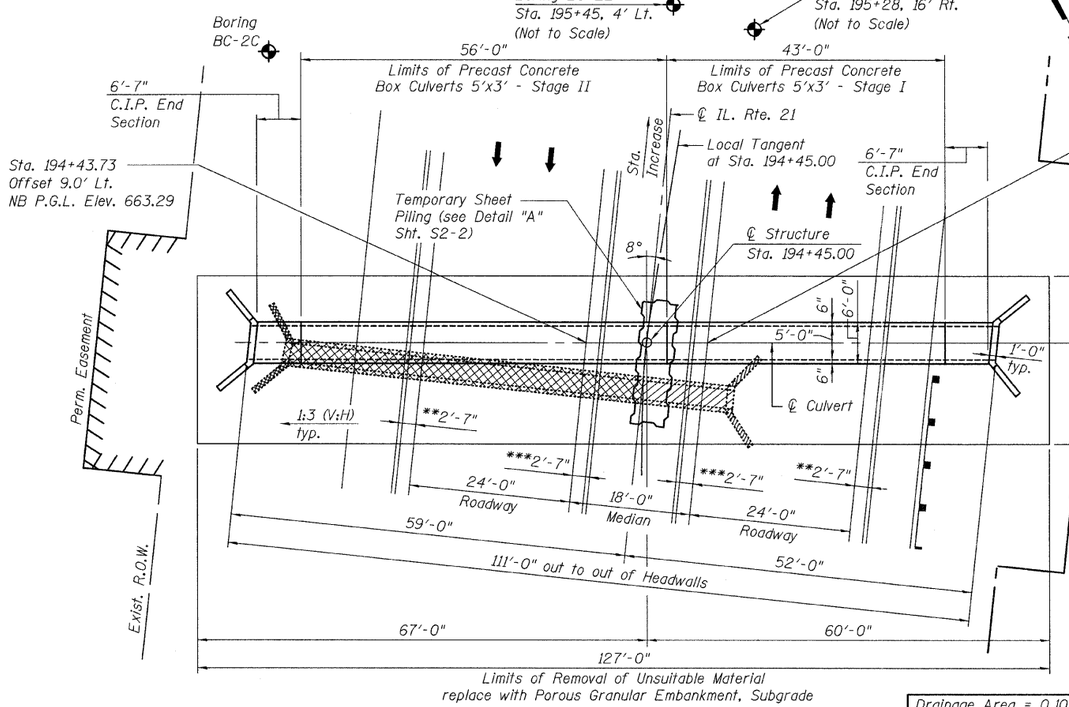


Limits of Removal of Unsuitable Material - replace with Porous Granular Embankment, Subgrade

LONGITUDINAL SECTION

Boring BC-2B
Sta. 195+45, 4' Lt.
(Not to Scale)

Boring BC-2A
Sta. 195+28, 16' Rt.
(Not to Scale)



Limits of Removal of Unsuitable Material replace with Porous Granular Embankment, Subgrade

PLAN

LEGEND:

C.I.P. = Cast-in-Place

Sta. 194+46.27
Offset 9.0' Rt.
SB P.G.L. Elev. 663.28

Removal of Existing Structures No. 2 - Stage I

Removal of Existing Structures No. 2 - Stage II

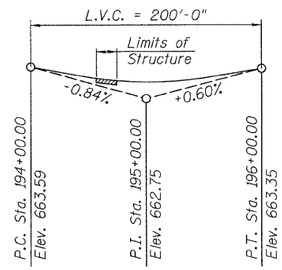
**B-6.24 Comb. Conc. Curb & Gutter

***B-6.24 Comb. Conc. Curb & Gutter (Special)

Indicates Boring Locations

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	Upstream	Downstream
	653.54	651.76



PROFILE GRADE

(Along NB & SB P.G.L.)

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications for Highway Bridges

LOADING HS20-44

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

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)

PRECAST UNITS

f'c = 5,000 psi
fy = 65,000 psi (Welded wire fabric)

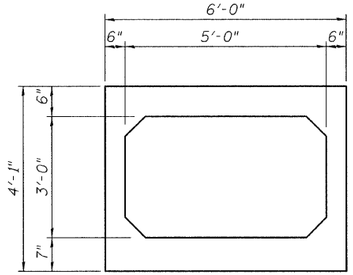
CURVE DATA

(℄ IL. Rte. 21)
Δ = 1°-11'-49" (Lt.)
D = 0°-15'-00"
T = 239.38'
L = 478.75'
E = 1.25'
S.E. = N/A
R = 22,918.31'
P.C. Sta. = 193+64.45
P.T. Sta. = 198+43.20
P.I. Sta. = 196+03.84

WATERWAY INFORMATION

Drainage Area = 0.107 Sq. Mi. Low Grade Elev. 663.26 @ Sta. 195+00.00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	50	76	9.0	9.0	659.78	2.0	0.0	660.89	659.81
Base	100	87	15.0	15.0	659.78	2.9	0.4	661.78	660.17
Overtopping								663.14	663.26
Max. Calc.									



SECTION THRU PRECAST CULVERT

(Wall and slab thickness may vary as per manufacturer)

GENERAL NOTES:

1. Reinforcement Bars shall conform to the requirements of ASTM A 706, Gr. 60. See Special Provisions.
2. All exposed concrete edges shall be chamfered 3/4" unless otherwise noted.
3. Reinforcement Bars designated (E) shall be Epoxy Coated.
4. The limits and quantities of removal and replacement shown are based on the boring data and may be modified by the District Geotechnical and Field Engineers for variable subsurface conditions encountered in the field.
5. The Porous Granular Embankment, Subgrade shall be capped with 6 in. of CA7 and satisfy the Standard Specifications unless otherwise indicated in the Special Provisions. The cost of the capping material shall be included in the Pay Item for "Porous Granular Embankment, Subgrade".

INDEX OF SHEETS

SC2-1 GENERAL PLAN & ELEVATION
SC2-2 STAGE CONSTRUCTION DETAILS
SC2-3 CAST-IN-PLACE END SECTION DETAILS
SC2-4 SOIL BORING LOGS

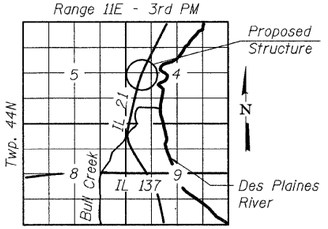
TOTAL BILL OF MATERIAL

DESCRIPTION	UNIT	QUANTITY
Removal of Existing Structures No. 2	Each	1
Removal and Disposal of Unsuitable Material for Structures	Cu. Yd.	900
Reinforcement Bars	Pound	1,200
Concrete Box Culverts	Cu. Yd.	9.9
Precast Concrete Box Culverts 5'x3'	Foot	99
Temporary Sheet Piling	Sq. Ft.	1,243
Porous Granular Embankment, Subgrade	Cu. Yd.	600

STATE OF ILLINOIS
BHADRESH N. SHAH
081-004476
CHICAGO
LICENSED STRUCTURAL ENGINEER

BN Shah AUG. 15, 2011

BHADRESH N. SHAH
LICENSED STRUCTURAL ENGINEER
STATE OF ILLINOIS LIC. No. 081-004476
EXPIRES: 11-30-12



LOCATION SKETCH

GENERAL PLAN & ELEVATION
ILLINOIS ROUTE 21
F.A.P. 330 SEC. 128R-3
LAKE COUNTY
STATION 194+45.00
STRUCTURE NO. 049-C004
OUTLET NO. 15

CHRISTIAN-ROGE & ASSOCIATES, INC.

FILE NAME = D160953-01-GPE.dgn	USER NAME =	DESIGNED - J.C.N./B.N.S.	REVISED -
		CHECKED - B.N.S.	REVISED -
	PLOT SCALE =	DRAWN - F.M.	REVISED -
	PLOT DATE =	CHECKED - B.N.S./J.C.N.	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION
STRUCTURE NO. 049-C004
SHEET NO. SC2-1 OF SC2-4 SHEETS

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	128R-3	LAKE	518	357
		CONTRACT NO. 60953		
	ILLINOIS FED. AID PROJECT			