BM: #454 - Cut Square South side of Westerly sign base for a 30MPH ramp 0.1 miles North of the Centerline of Linden Rd. - West side of I-39 Elevation = 850.53
#455 - Cut Square South side of Easterly sign base for a 30MPH ramp 0.1 miles North of the Centerline of Linden Rd. - East side of I-39 Elevation = 851.37

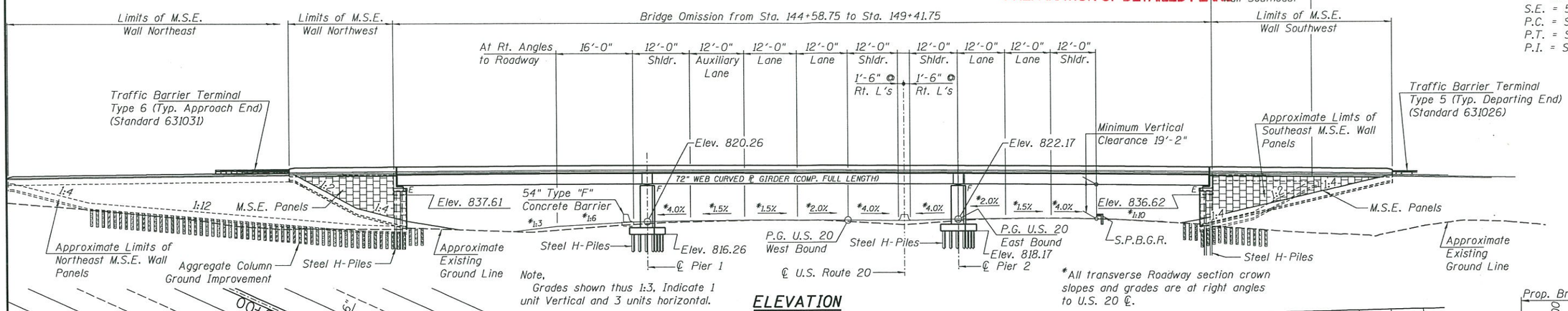
Existing Structure (SN 101-0136)

Originally constructed in 1981 as F.A. Route 194, Section 201-3HB-2.
The structure consists of a 3 Span, 56°-25'-55" Rt Fwd. Skewed, concrete deck on curved steel girders, supported on pile bent concrete abutments and 2 (4 Trapazoidal columns) concrete piers on pile supported foundations. The deck width is 28'-0", and the span lengths are 86'-0", 143'-6" and 155'-0" developing a back to back length of 397'-8½".
Traffic shall be maintained on the existing structure during construction of the new structure. See Maintenance of Traffic Plans for more staging information.
No Salvage.

APPROVED
APR 11 2017
AS A BASIS FOR PREPARATION OF DETAILED PLANS

CURVE DATA - I-39 SBL

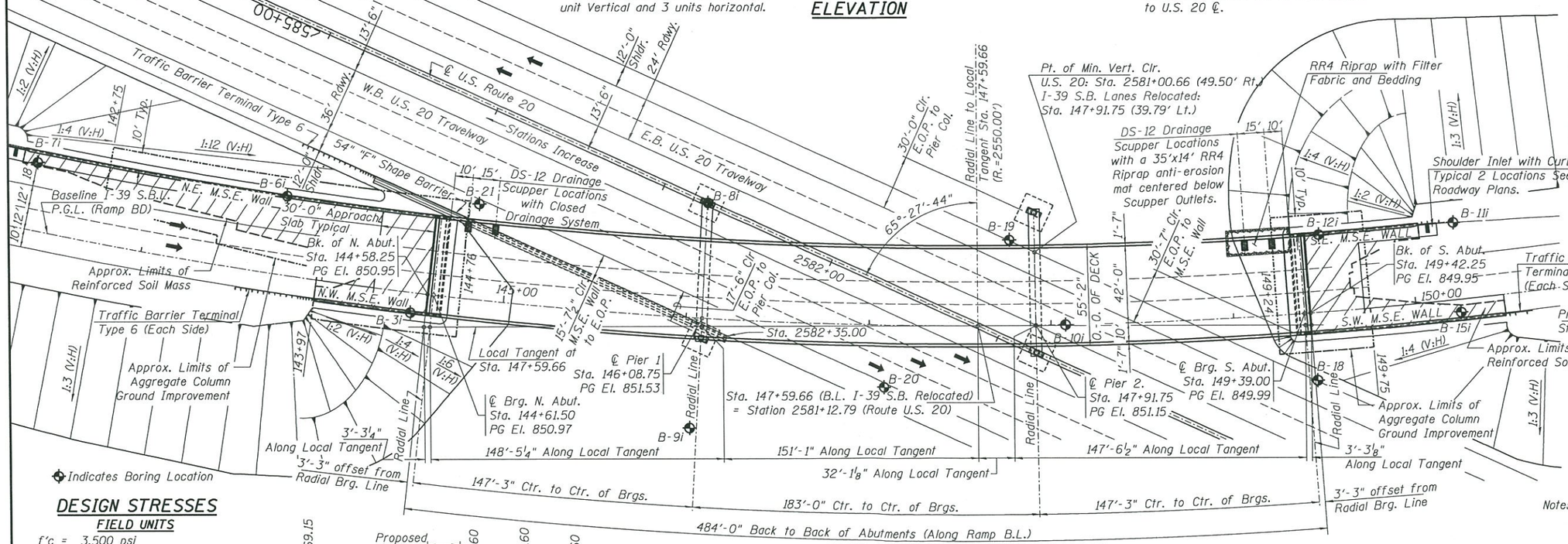
Δ = 107°00'-24" (Lt.)
D = 2°-14'-49"
T = 3446.54'
L = 4762.42'
E = 1737.32'
R = 2550.00'
S.E. = 5.75%
P.C. = Sta. 134+63.52
P.T. = Sta. 182+25.95
P.I. = Sta. 169+10.06



Note, Grades shown thus 1:3, Indicate 1 unit Vertical and 3 units horizontal.

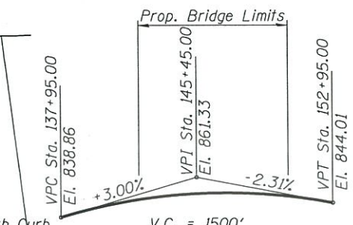
*All transverse Roadway section crown slopes and grades are at right angles to U.S. 20 ℄.

ELEVATION



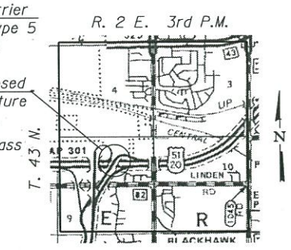
Indicates Boring Location

PLAN



PROPOSED PROFILE

Along B.L. I-39 S.B.L. Relocated. The Profile Grade shows the Final Elevations after grinding.



LOCATION SKETCH

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
f'c = 4,000 psi (Superstructure Concrete)
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)

PRECAST UNITS

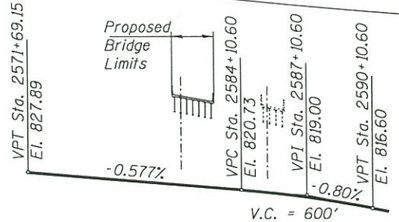
f'c = 4,500 psi (Precast Panels)

LOADING HL-93

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

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, 7th Edition, with 2015 and 2016 Interims



PROPOSED PROFILE

Along US-20 Inside E.O.P.

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.056
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.101
Soil Site Class = C

HIGHWAY CLASSIFICATION

F.A.I. Rte. 39 - I-39 S.B. Lanes
Functional Class: Interstate
ADT: 10,000 (2013); 28,000 (2040)
ADTT: 4,200 (2013); 11,700 (2040)
DHV: 2250 (2040)
Design Speed: 70 m.p.h.
Posted Speed: 70 m.p.h.
1 -Way Traffic

HIGHWAY CLASSIFICATION

FAP Rte 301 - U.S. Route 20
Functional Class: Freeway and Expressway (Urban)
ADT: 33,400 (2013); 50,050 (2040)
ADTT: 6,000 (2013); 9,000 (2040)
DHV: 5970 (2040)
Design Speed: 70 m.p.h.
Posted Speed: 65 m.p.h.
2 -Way Traffic
Directional Distribution: 50:50

Notes: All Structural Steel shall be Metalized. Up to ¼" may be ground off of the bridge deck and the approach slab.

GENERAL PLAN
I-39 S.B.L. (Ramp BD) over U.S.20
F.A.I. 39 - SECTION (201-3)K & (4-1, 5)R
WINNEBAGO COUNTY
STA. 147+59.66
STRUCTURE NUMBER -101-0215

DESIGNED			
DRAWN			
REVIEWED			

HANSON

© Copyright Hanson Professional Services Inc. 2017

I:\06jobs\8652855\CADD\Struct\Model\118519.139.SB.Ramp-BD_over_US20_TSL.dgn

USER NAME =	DESIGNED - MNM	REVISED -	
	CHECKED - TEH	REVISED -	
PLOT SCALE =	DRAWN - ROD	REVISED -	
PLOT DATE =	CHECKED - MNM	REVISED -	

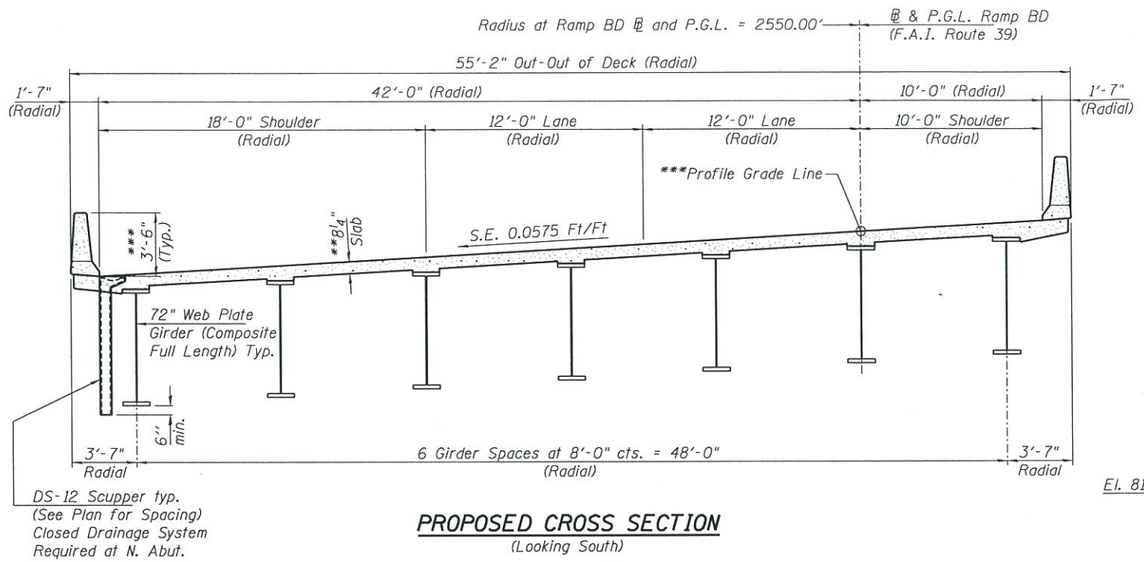
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE NO. 101-0215

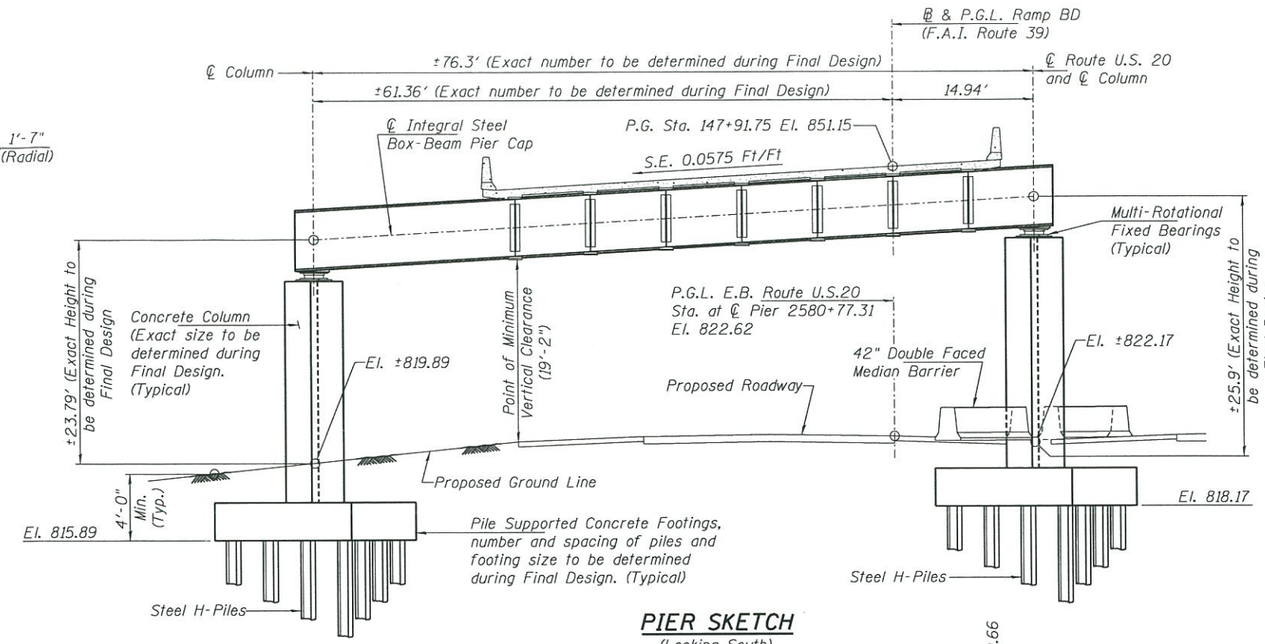
SHEET NO. 01 OF 04 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1, 5)R	WINNEBAGO	4	1
		CONTRACT NO. 64C62		
		ILLINOIS FED. AID PROJECT		

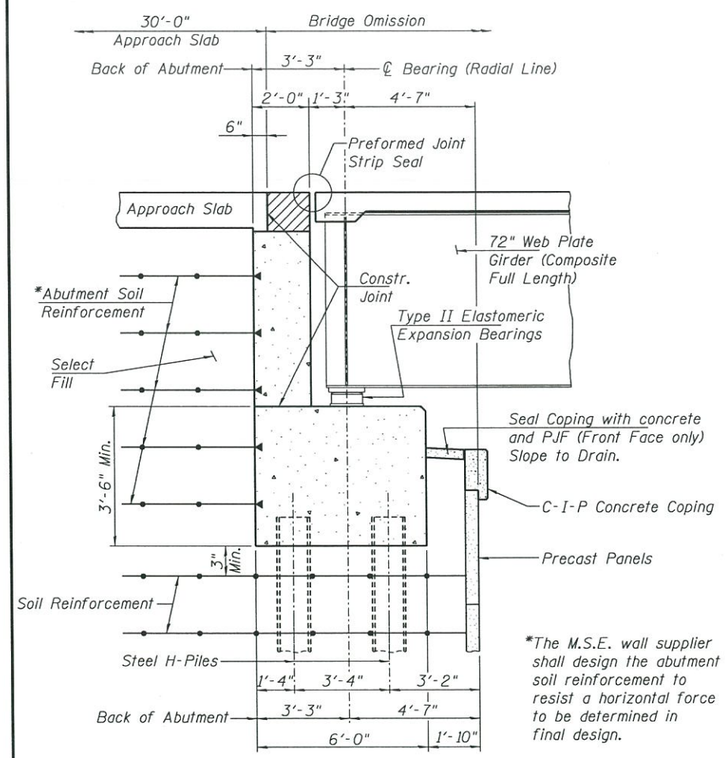
** Prior to Grinding
*** After Grinding



PROPOSED CROSS SECTION
(Looking South)

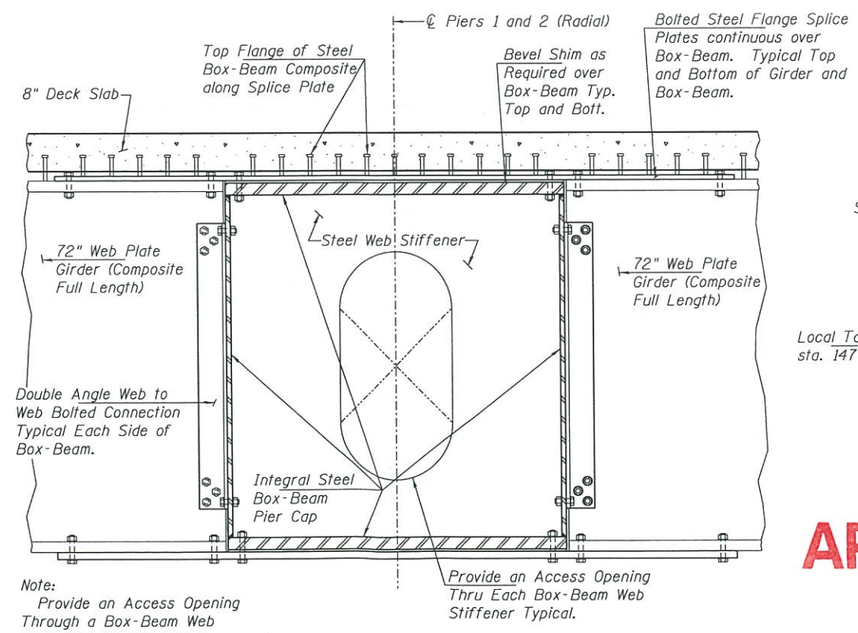


PIER SKETCH
(Looking South)
(Pier No. 2 Dimensions and Elevations Shown, Pier No. 1 Similar)



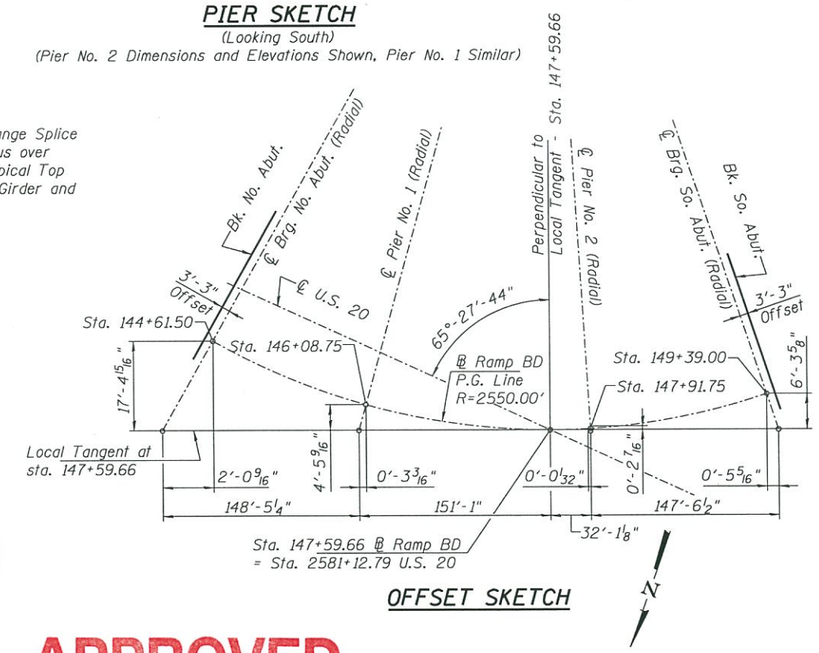
*The M.S.E. wall supplier shall design the abutment soil reinforcement to resist a horizontal force to be determined in final design.

SECTION THRU ABUTMENT
(Horiz. dim. @ Rt. L's)



Note:
Provide an Access Opening Through a Box-Beam Web or Flange Member with a Bolted and Sealed Cover.
Provide Drain Hole in the Bottom Flange of the Box-Beam at the low end. Bird screens are required over the drain hole.

SECTION THRU BOX-BEAM PIER CAP
(Horiz. dim. @ Rt. L's)



OFFSET SKETCH

APPROVED
APR 11 2017
AS A BASIS FOR PREPARATION OF DETAILED PLANS

DETAILS
I-39 S.B.L. (Ramp BD) over U.S.20
F.A.I. 39 - SECTION (201-3)K & (4-1, 5)R
WINNEBAGO COUNTY
STA. 147+59.66
STRUCTURE NUMBER -101-0215

I:\BGjobs\B652055\CADD\Struct\Model\118519_139_SB_Ramp-BD_over_US20_TSL.dgn

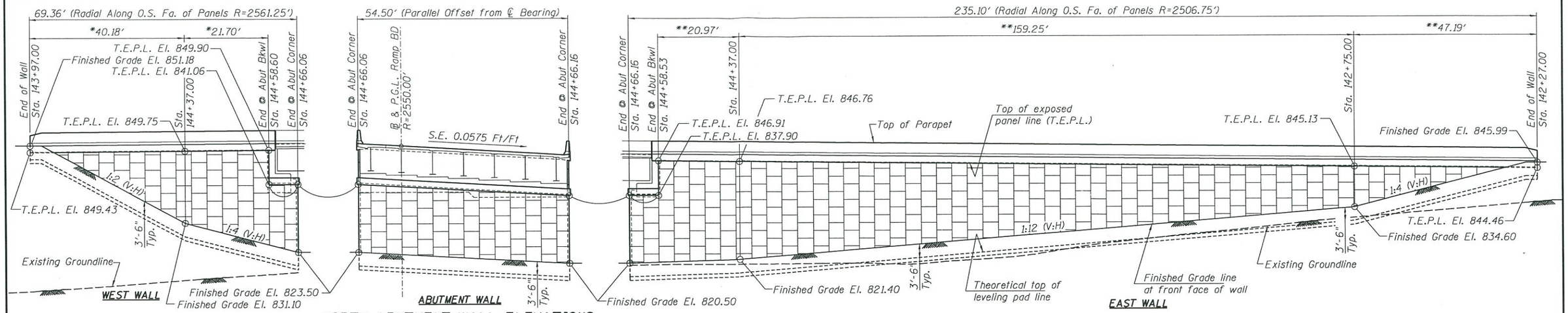
HANSON
© Copyright Hanson Professional Services Inc. 2017

USER NAME =	DESIGNED - MNM	REVISED -	
	CHECKED - TEH	REVISED -	
PLOT SCALE =	DRAWN - ROD	REVISED -	
PLOT DATE =	CHECKED - MNM	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE NO. 101-0215
SHEET NO. 02 OF 04 SHEETS

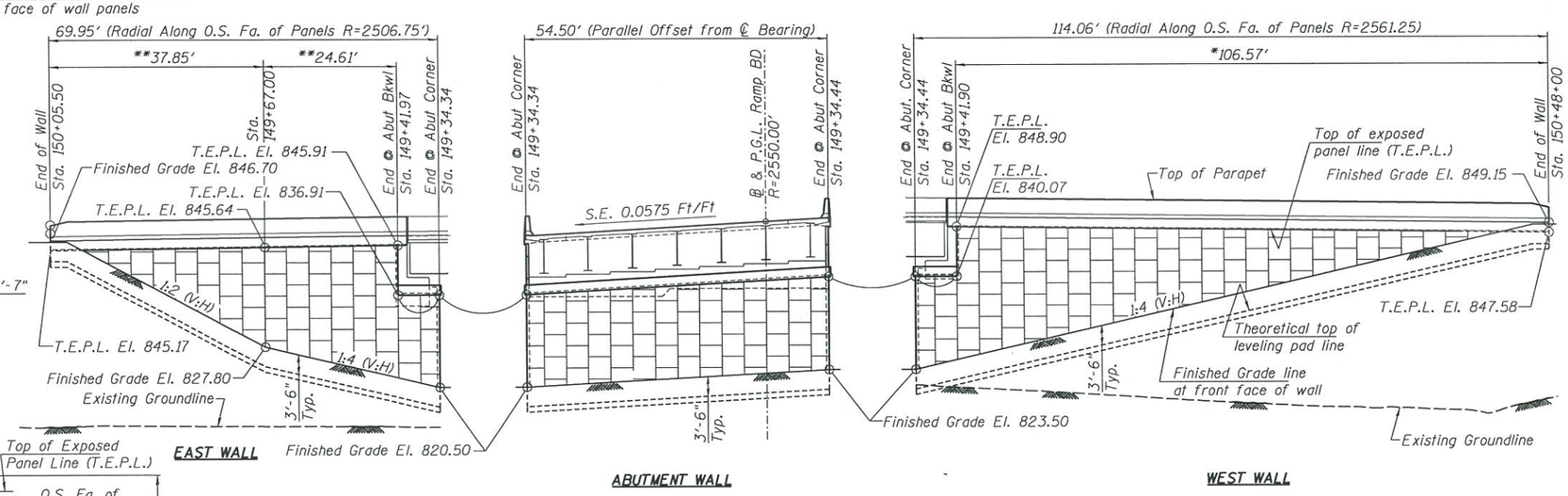
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1, 5)R	WINNEBAGO	4	2
		CONTRACT NO. 64C62		
		ILLINOIS FED. AID PROJECT		



NORTH ABUTMENT WALL ELEVATIONS

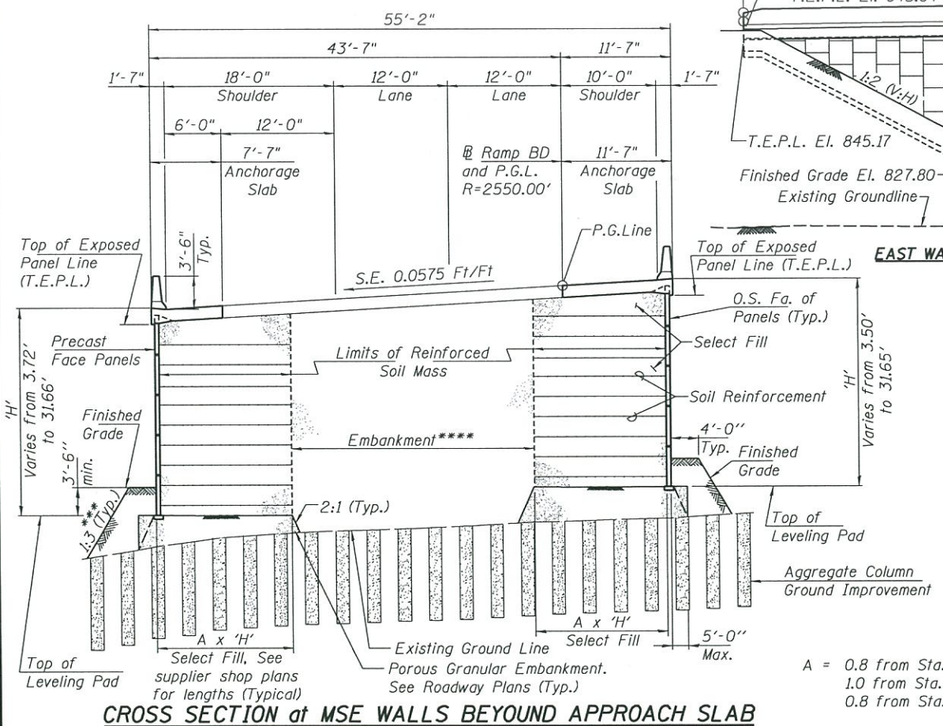
Developed along front face of wall panels

* Radial along O.S. Face - R=2561.25'
** Radial along O.S. Face - R=2506.75'
*** 1:2 max. Near End of Wall
**** Embankment Material between MSE Walls from Sta. 143+97 to Sta. 150+05.50 Shall be Restricted to the same material as used for select fill in MSE Wall.



SOUTH ABUTMENT WALL ELEVATIONS

Developed along front face of wall panels



A = 0.8 from Sta. 142+27 to 143+50
1.0 from Sta. 143+50 to 149+67
0.8 from Sta. 149+67 to 150+48

CROSS SECTION at MSE WALLS BEYOUND APPROACH SLAB

Looking South - Upstation
(Horizontal Dimensions Measured Radially)

APPROVED
APR 11 2017
AS A BASIS FOR PREPARATION OF DETAILED PLANS

M.S.E. WALL DETAILS
I-39 S.B.L. (Ramp BD) over U.S.20
F.A.I. 39 - SECTION (201-3)K & (4-1, 5)R
WINNEBAGO COUNTY
STA. 147+59.66
STRUCTURE NUMBER -101-0215

I:\06jobs\0652055\CADD\Struct\Model\110519_139_S8_Ramp-BD_over_US20_TSL.dgn

HANSON
© Copyright Hanson Professional Services Inc. 2017

USER NAME =	DESIGNED - MNM	REVISED -	
	CHECKED - TEH	REVISED -	
PLOT SCALE =	DRAWN - ROD	REVISED -	
PLOT DATE =	CHECKED - MNM	REVISED -	

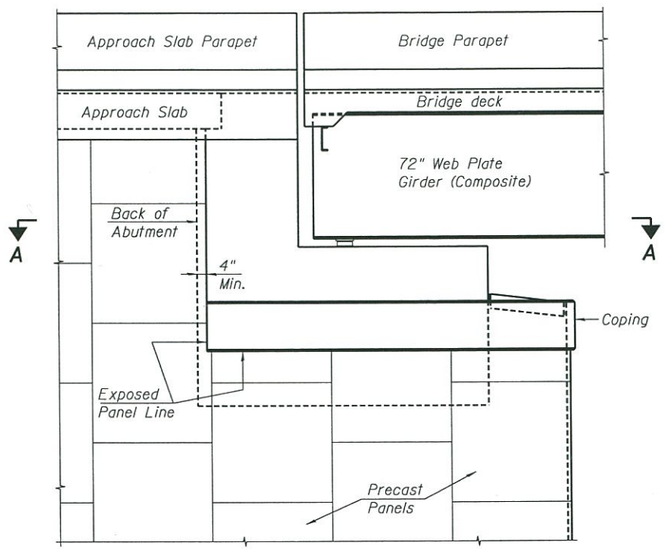
DESIGNED / DRAWN / REVIEWED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

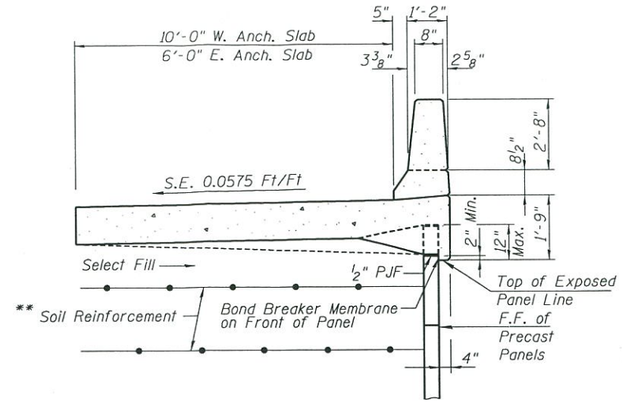
STRUCTURE NO. 101-0215

SHEET NO. 03 OF 04 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1, 5)R	WINNEBAGO	4	3
		CONTRACT NO. 64C62		
		ILLINOIS FED. AID PROJECT		

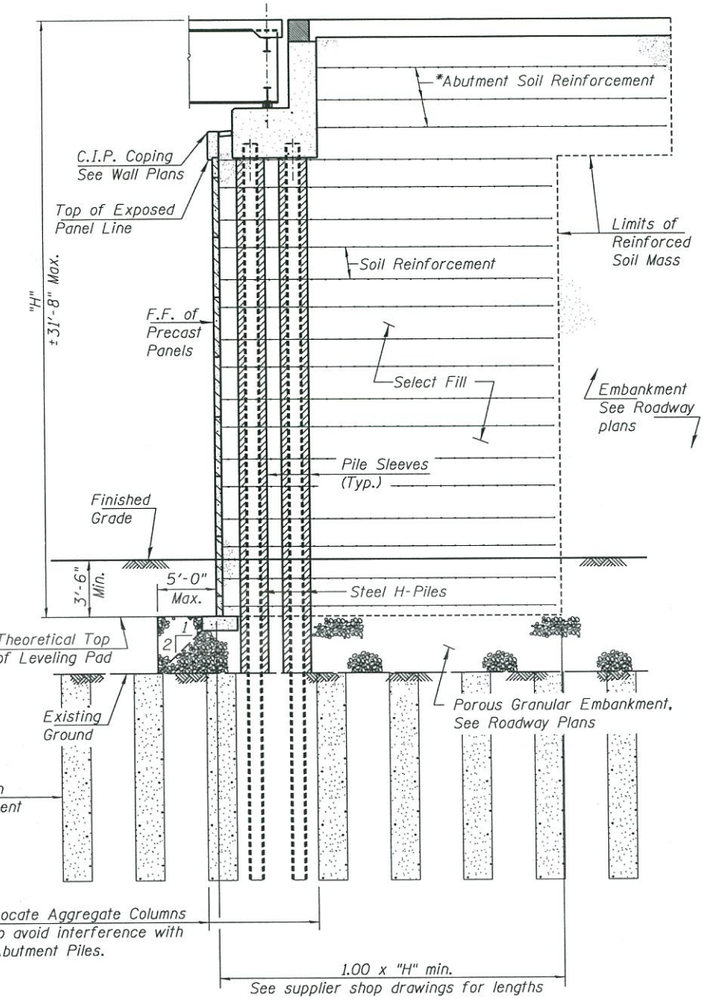


ABUTMENT END VIEW



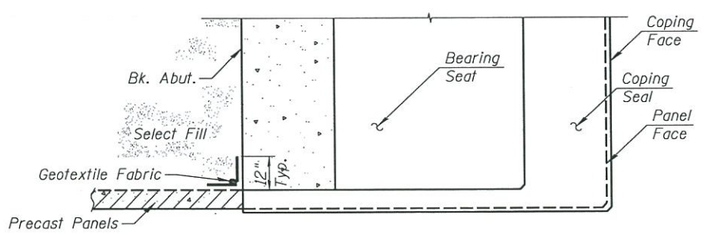
SECTION THRU C.I.P. PARAPET AND ANCHORAGE SLAB

** The M.S.E. Wall supplier's internal stability design shall account for the anchorage slab's bearing pressure surcharge of 1.0 ksf and horizontal sliding force of 0.5 kips/ft. of wall.

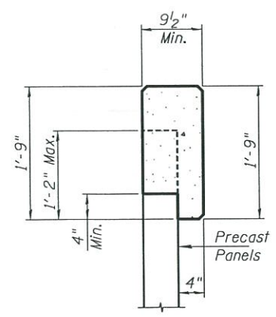


TYPICAL M.S.E. WALL SECTION AT ABUTMENT

(Section at Rt. L's)



SECTION A-A



SECTION THRU C.I.P. COPING

* The MSE wall supplier shall design the abutment soil reinforcement to resist a horizontal force to be determined during final design.

APPROVED

APR 11 2017

AS A BASIS FOR
PREPARATION OF DETAILED PLANS

M.S.E. WALL DETAILS
I-39 S.B.L. (Ramp BD) over U.S.20
F.A.I. 39 - SECTION (201-3)K & (4-1, 5)R
WINNEBAGO COUNTY
STA. 147+59.66
STRUCTURE NUMBER - 101-0215

DESIGNED	//	
DRAWN	//	
REVIEWED	//	

I:\06jobs\06S2055\CADD\Struct\Model\110519_139_SB_Ramp-BD_over_US20_TSL.dgn

HANSON

© Copyright Hanson Professional Services Inc. 2017

USER NAME =	DESIGNED - MNM	REVISED -	
	CHECKED - TEH	REVISED -	
PLOT SCALE =	DRAWN - ROD	REVISED -	
PLOT DATE =	CHECKED - MNM	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE NO. 101-0215

SHEET NO. 04 OF 04 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1, 5)R	WINNEBAGO	4	4
		CONTRACT NO. 64C62		
		ILLINOIS FED. AID PROJECT		