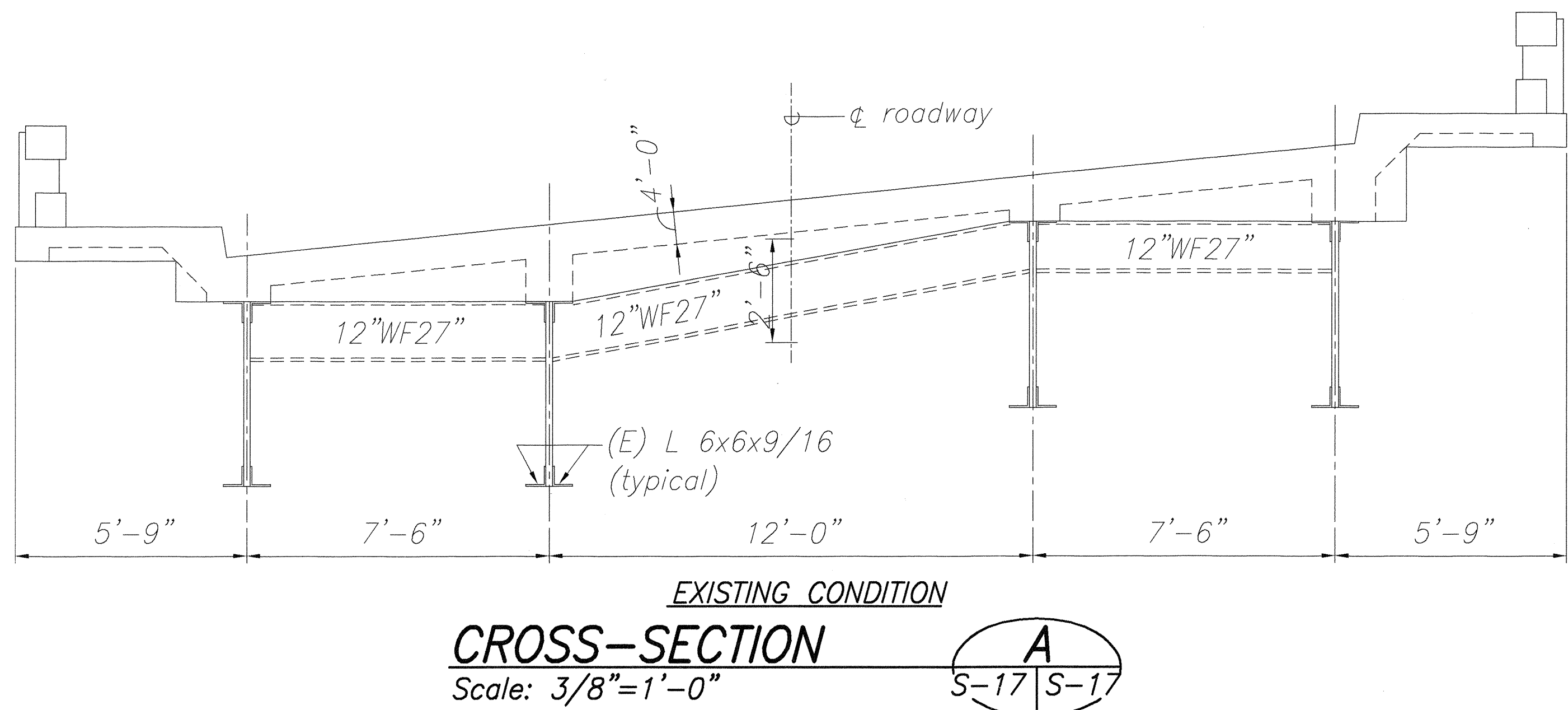
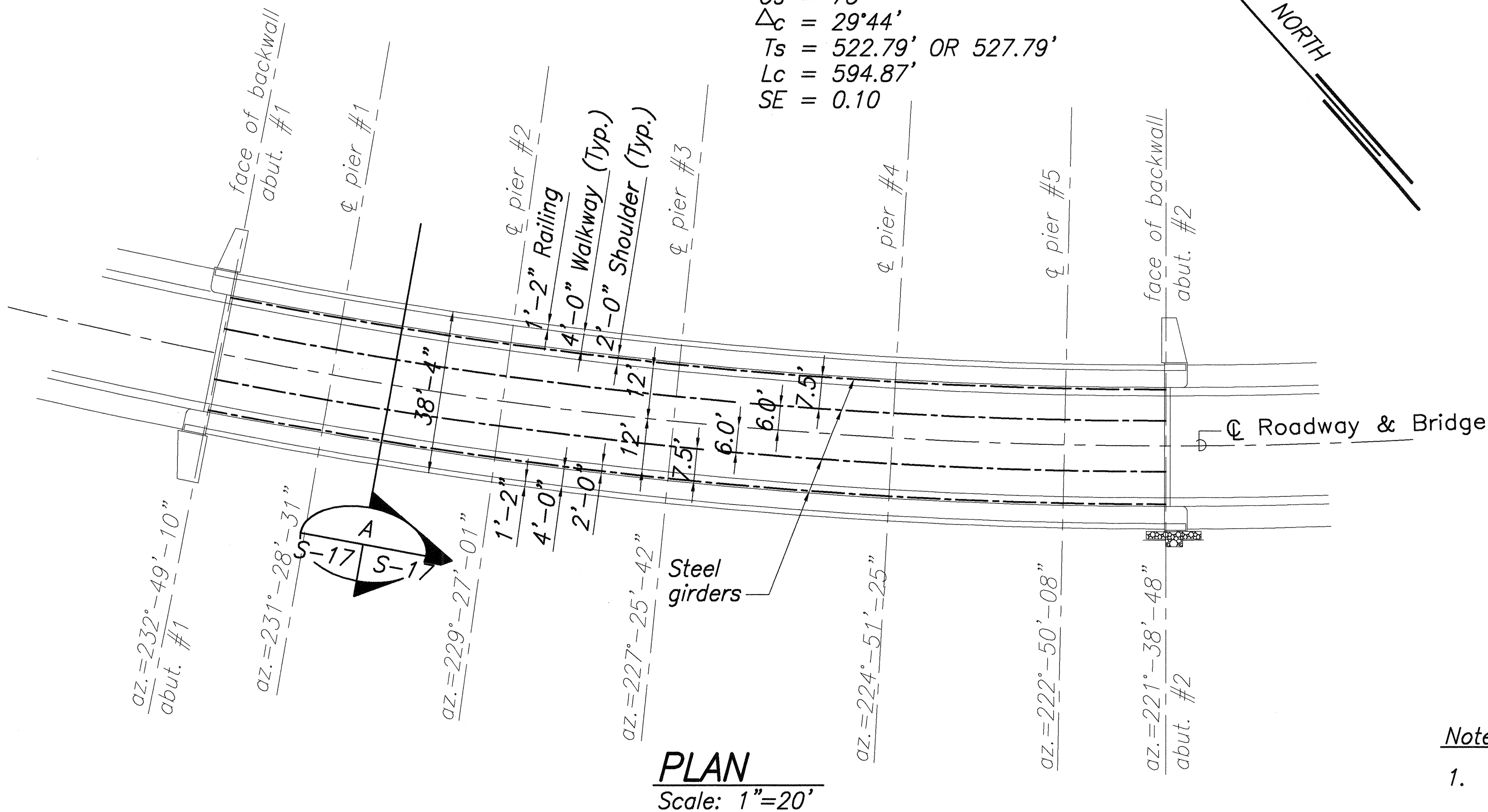
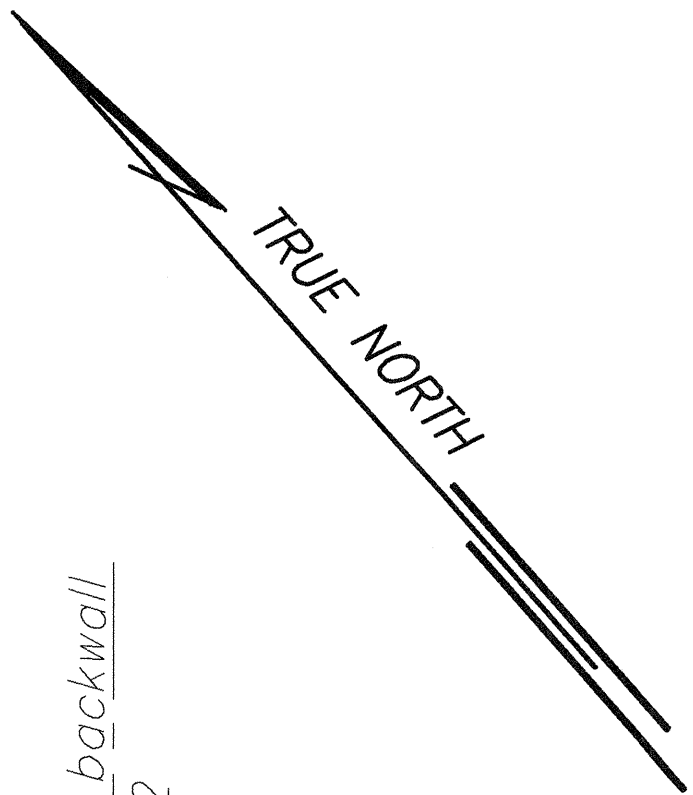


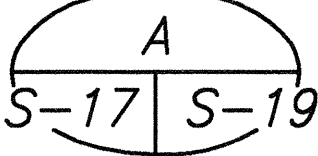
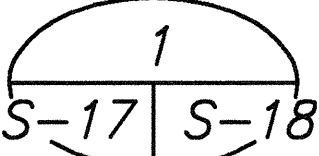
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(46)	2000	20	26

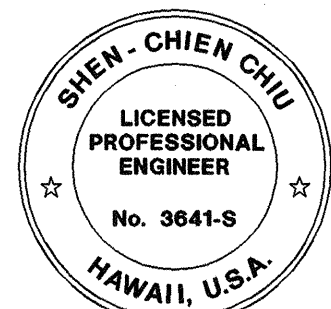
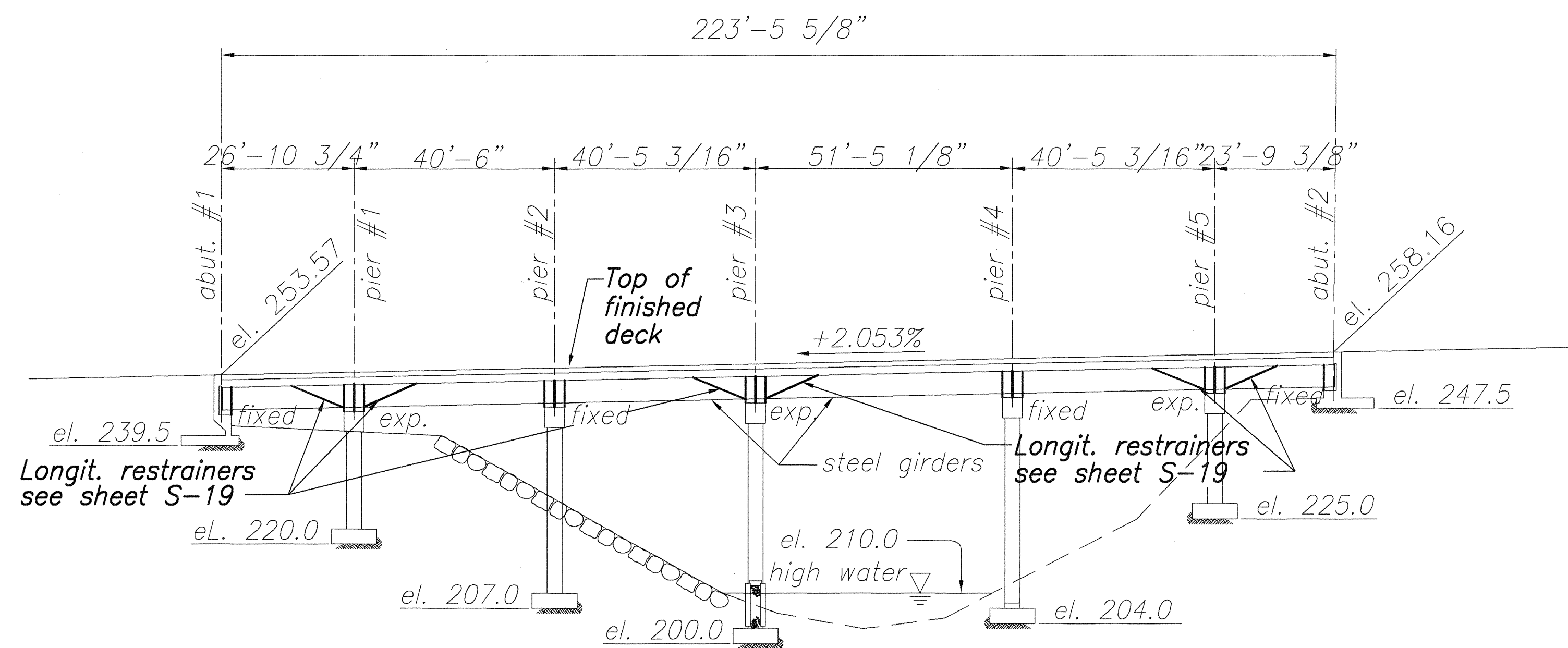
ROADWAY CURVE DATA

$\Delta = 44^{\circ}44'$
 $D = 5'$
 $R = 1145.92'$
 $L_s = 300'$
 $O_s = 75'$
 $\Delta_c = 29^{\circ}44'$
 $T_s = 522.79'$ OR $527.79'$
 $L_c = 594.87'$
 $SE = 0.10$



Notes: Retrofit of Superstructure to Substructure

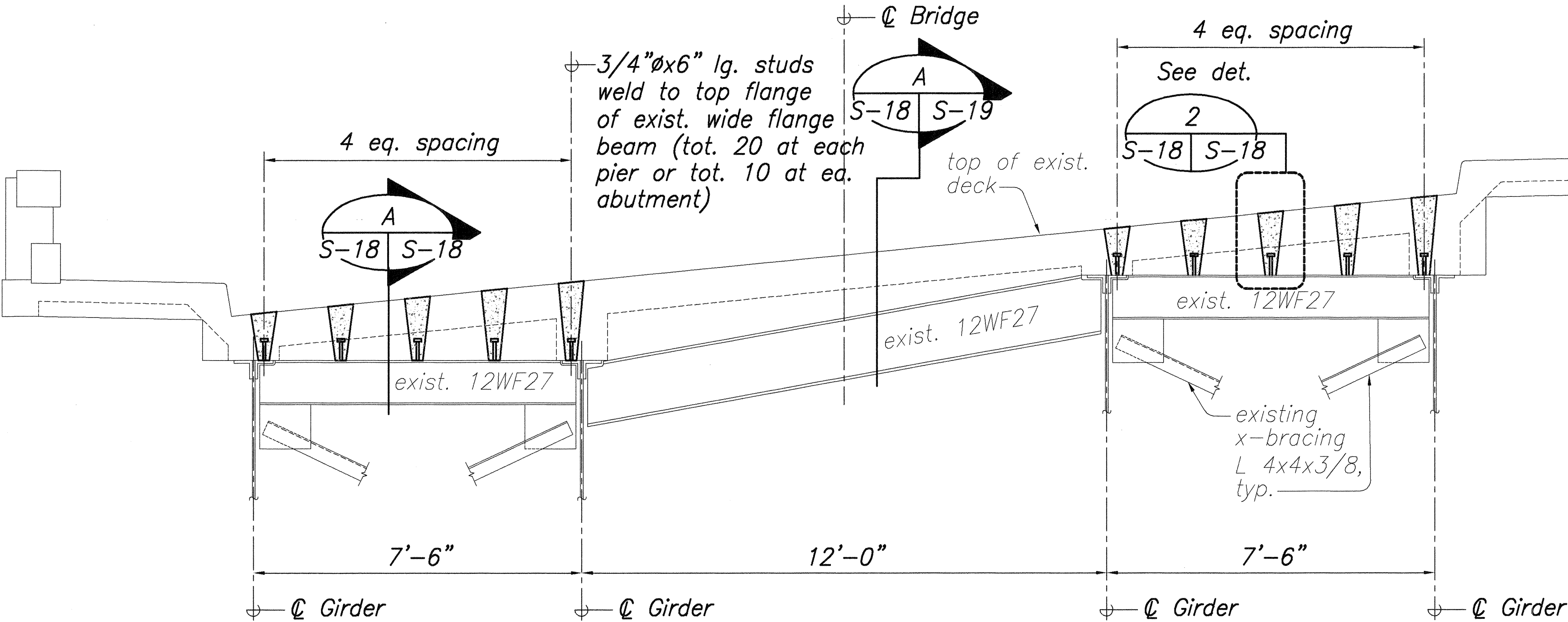
- Provide longitudinal restrainers at expansion joints over Piers #1, #3 & #5, and abutments #1 & #2. See 
- Add welded head studs to strengthen shear transfer of concrete deck and diaphragms at each span. See typ. elev. 



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Shen-Chien Chiu

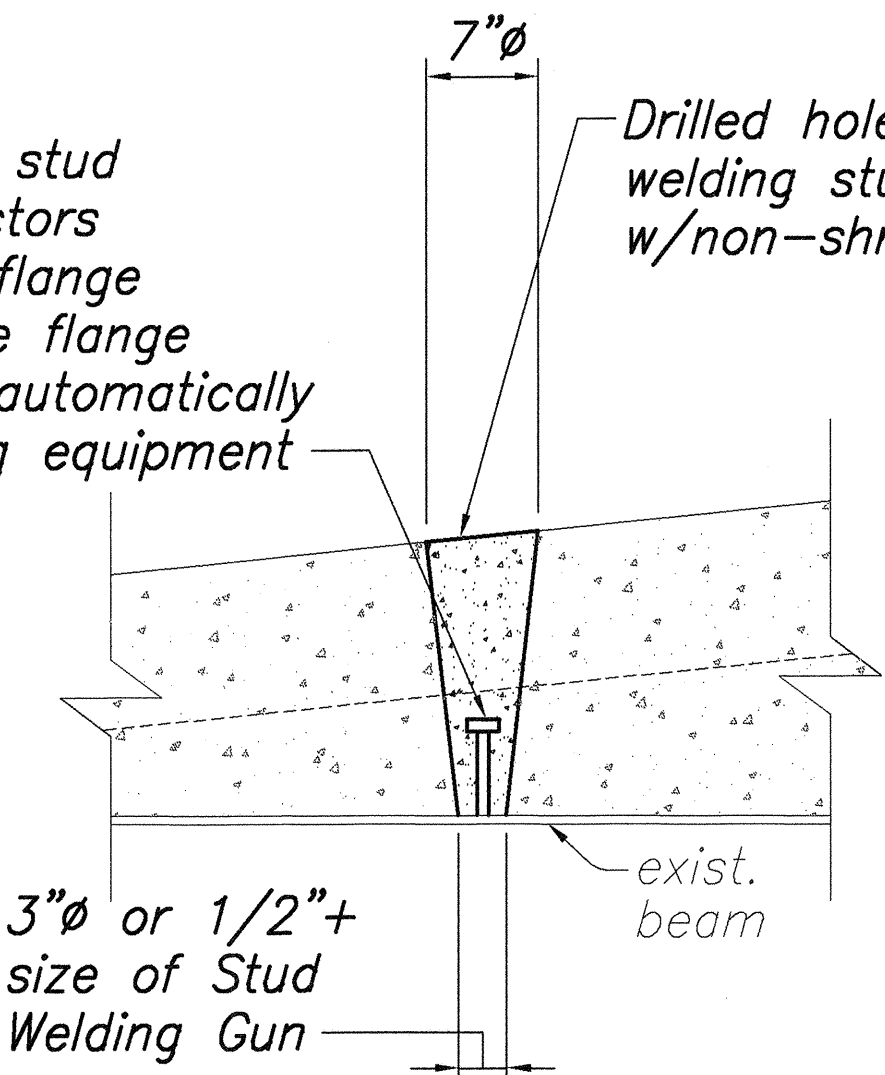
DATE	REVISION
	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION OPEA BRIDGE SUPERSTRUCT. & SUBSTRUCT. RETROFIT PLAN AND SECTIONS SEISMIC RETROFIT OF VARIOUS BRIDGES EAST OF NINOLE, HAWAII F.A. PROJECT NO. BR-019-2(46) Scale: As Noted Date: AUG. 17, 1999 SHEET No. S-17 OF 23 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(46)	2000	21	26

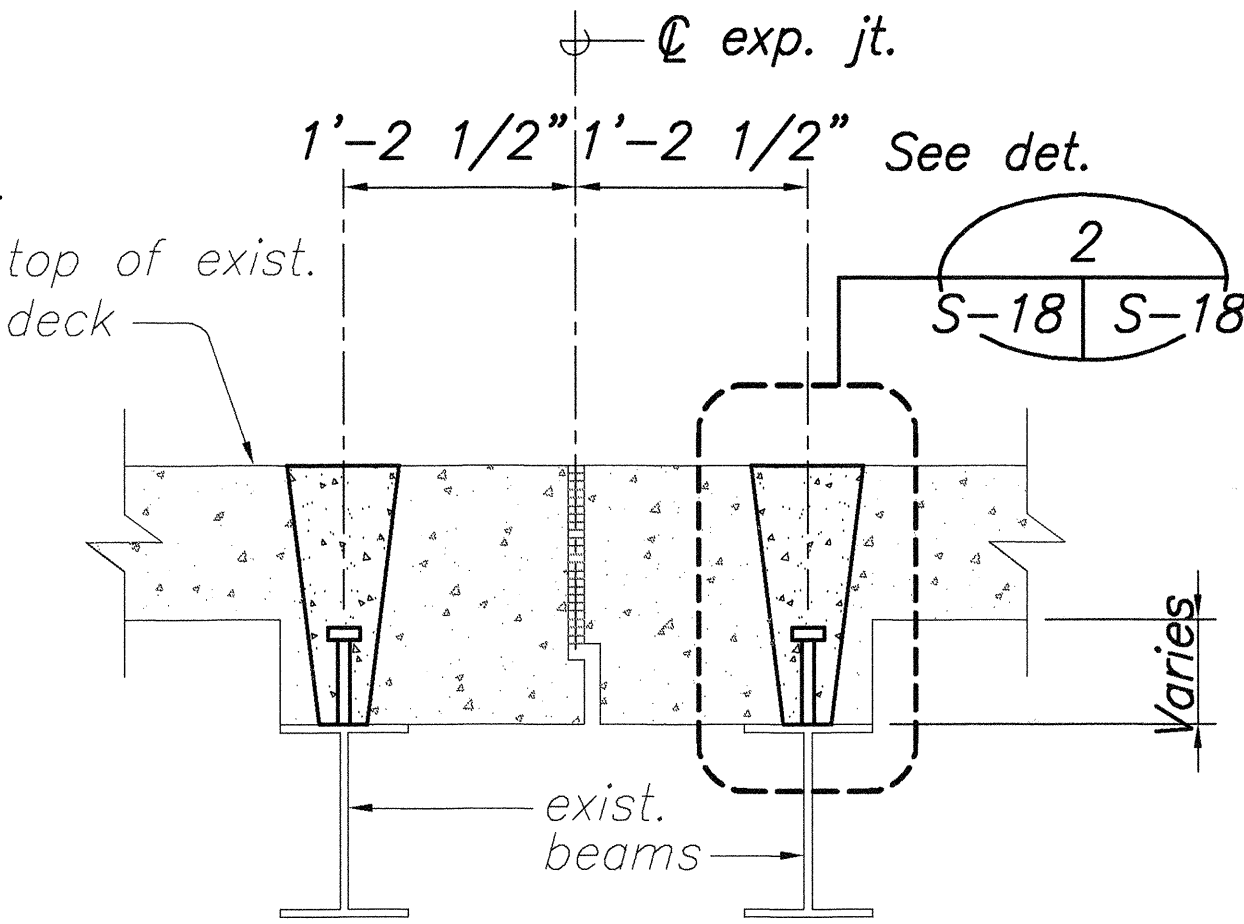


TYPICAL ELEVATION – GIRDER END AT BEARING FIXED & EXPANSION
 Scale: 1/2"=1'-0"
 Section 1
 S-18 S-18
 S-17

3/4"Øx6" lg. stud shear connectors weld to top flange of exist. wide flange beam using automatically timed welding equipment



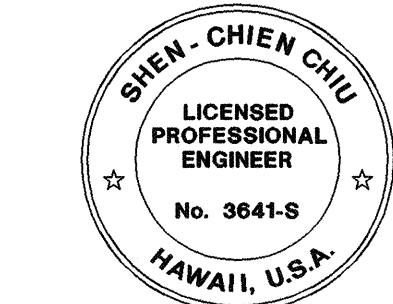
SECTION 2
 Scale: 1"=1'-0"
 S-18 S-18



SECTION A
 Scale: 1"=1'-0"
 S-18 S-18

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
DRAWN BY		
TRACED BY		
DESIGNED BY		
CHECKED BY		
No.		

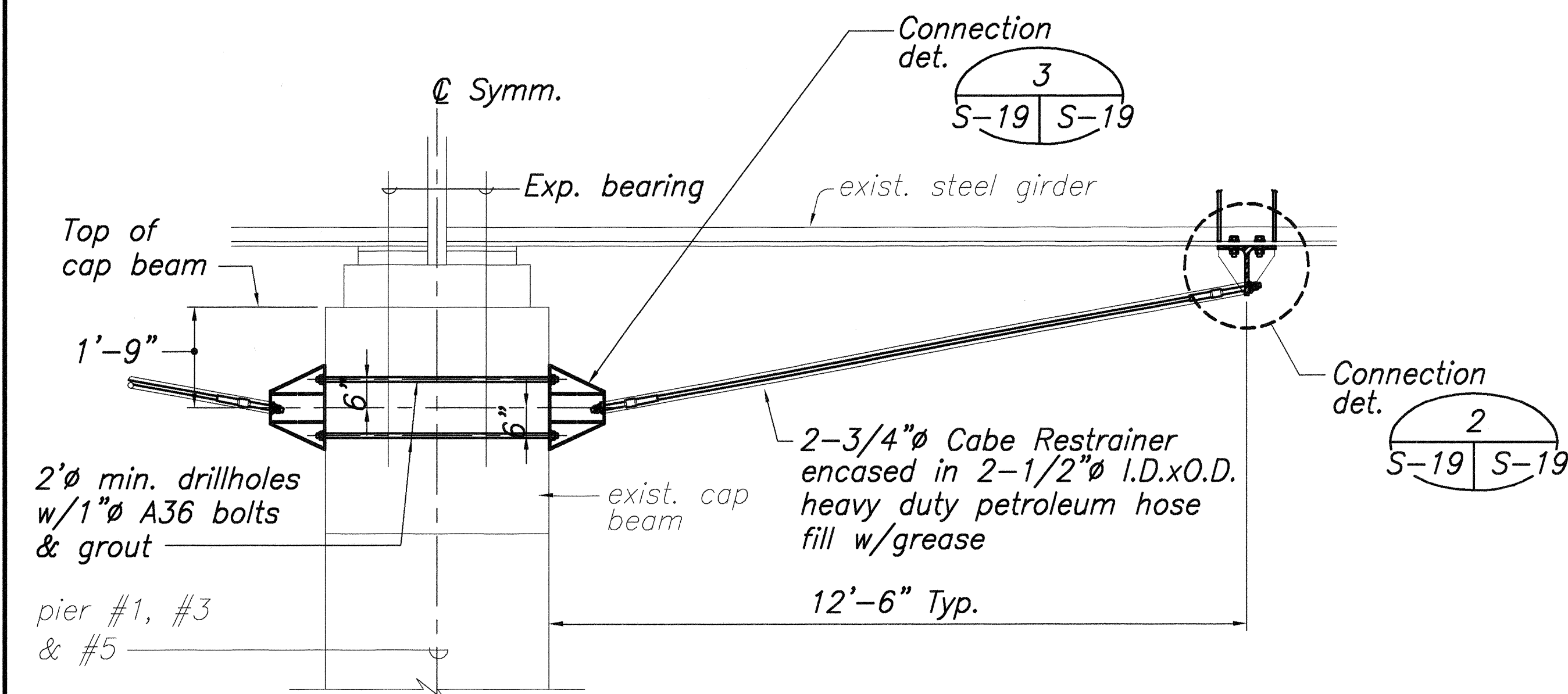
OS1-2.DWG 08/04/99 16:30 FINAL L:\DWG\6041-01\NEWSTRUCT\OPEA



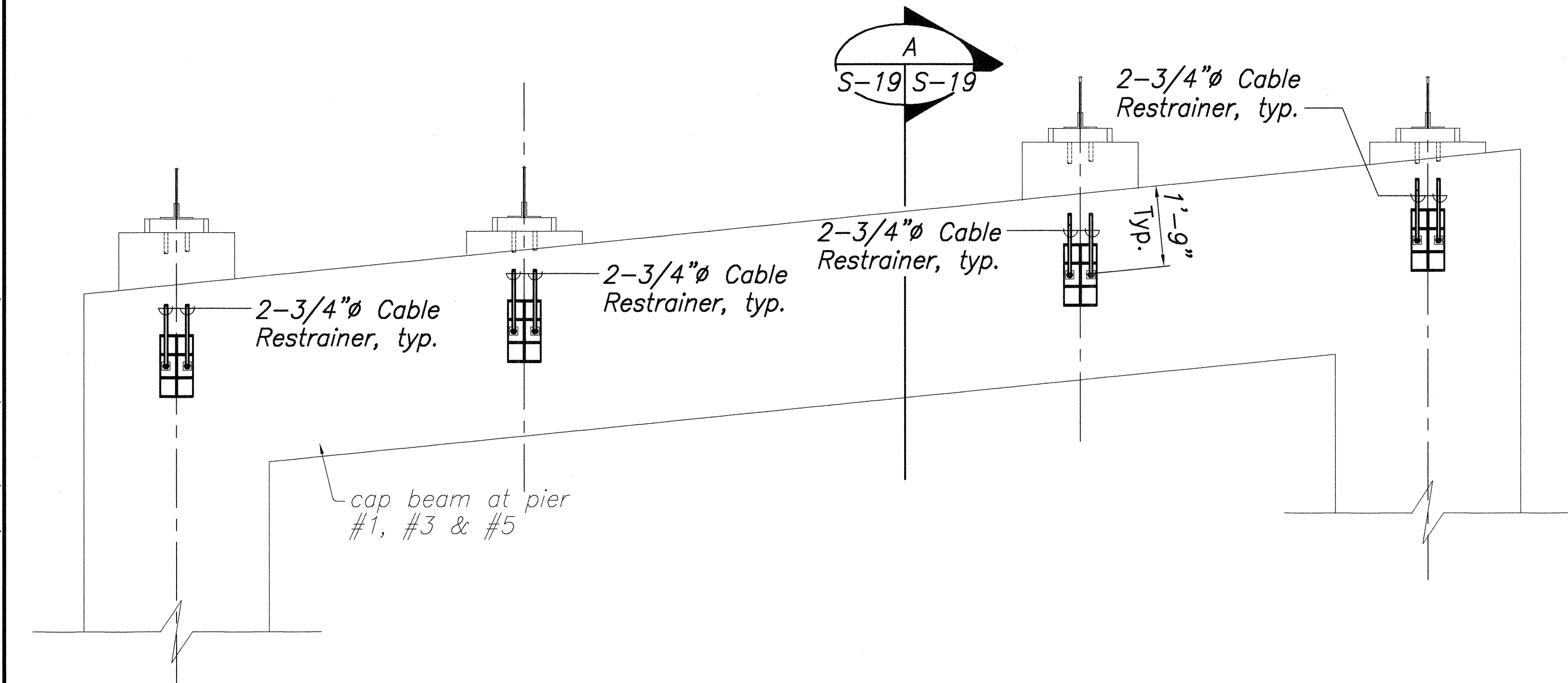
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Shien-Chien Chiu

DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION OPEA BRIDGE SUPERSTRUCT. & SUBSTRUCT. RETROFIT SECTIONS AND DETAILS SEISMIC RETROFIT OF VARIOUS BRIDGES EAST OF NINOLE, HAWAII F.A. PROJECT NO. BR-019-2(46)	
Scale: As Noted	Date: AUG. 17, 1999
SHEET No. S-18 OF 23 SHEETS	

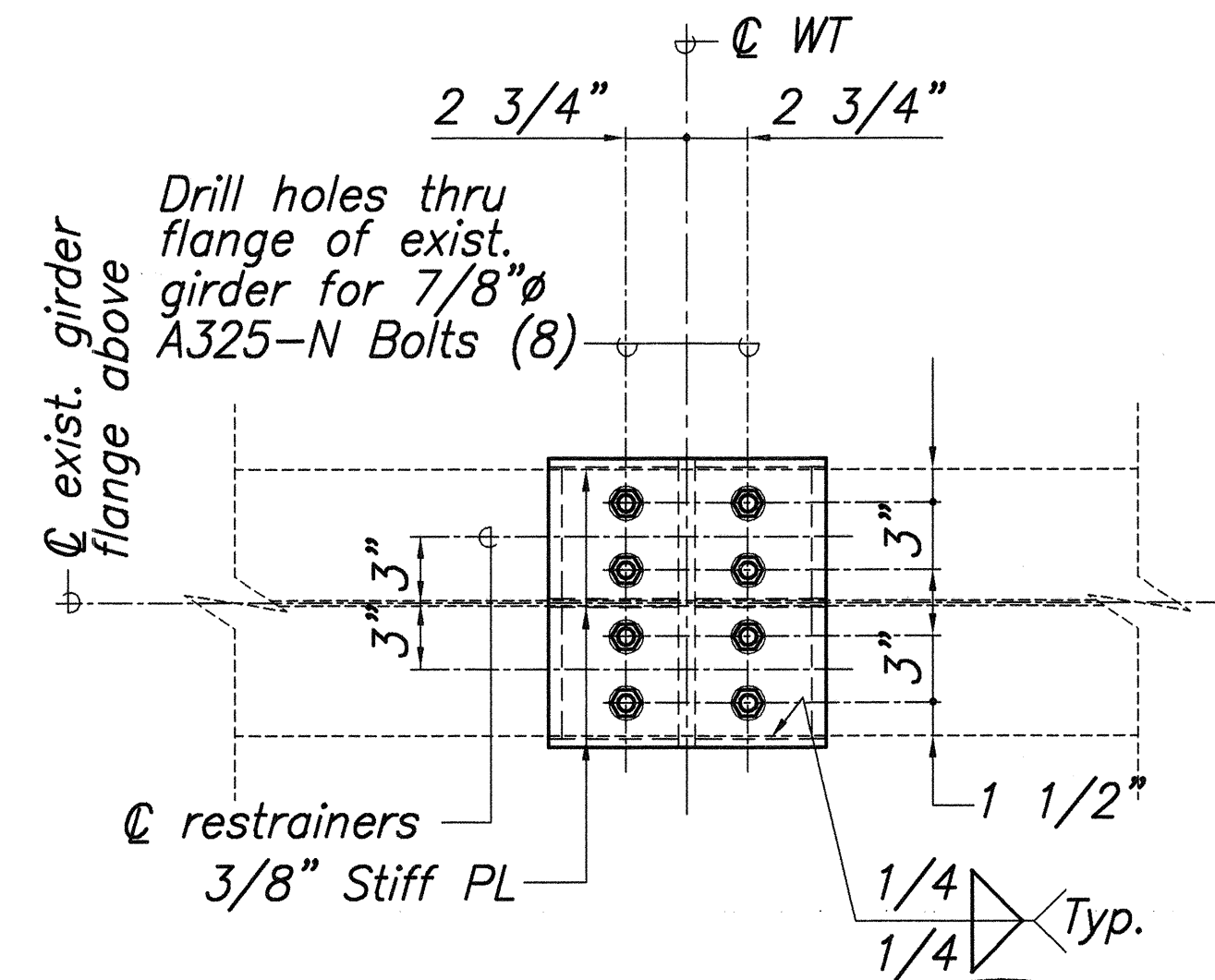
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(46)	2000	22	26



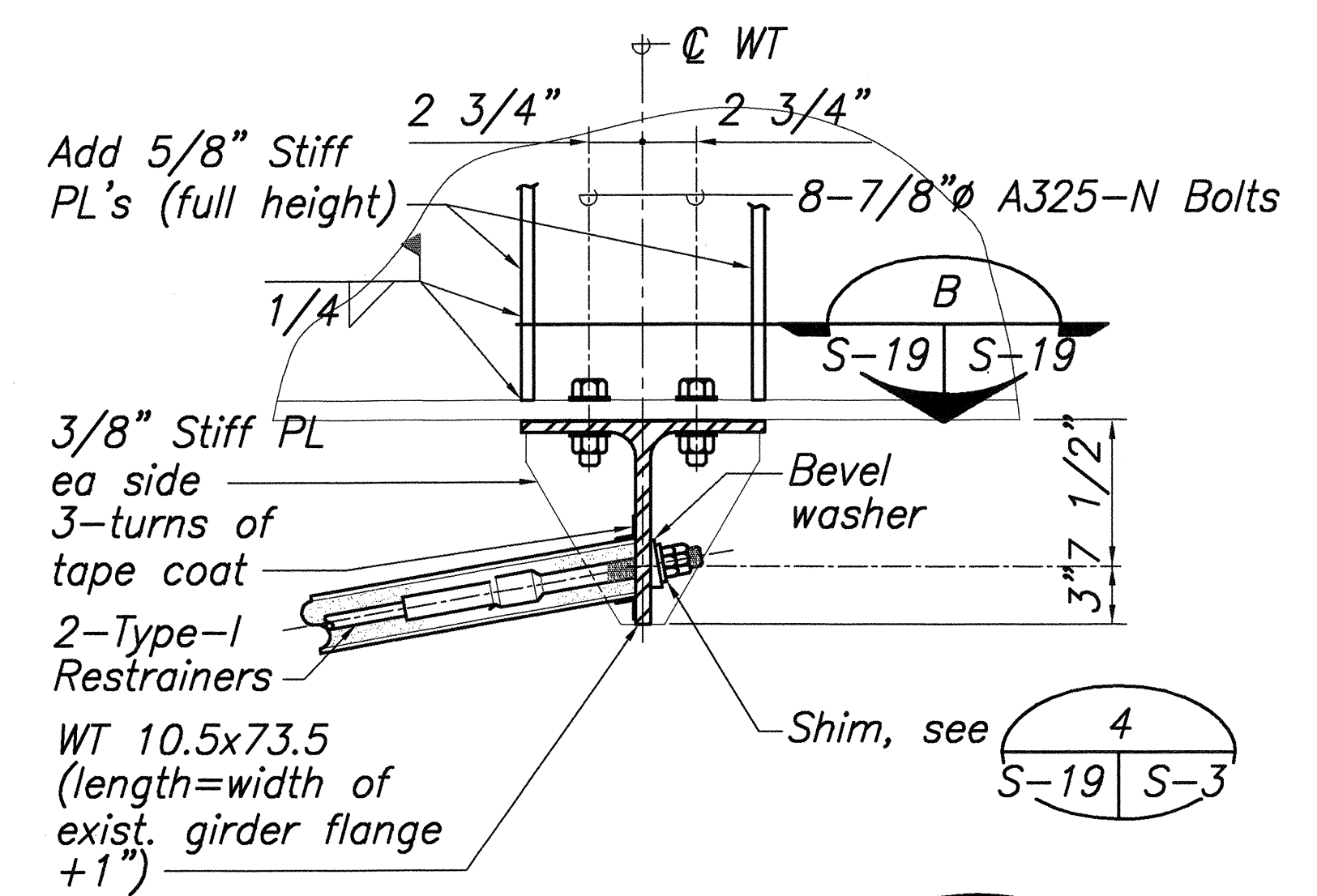
RESTRAINER LAYOUT - TYPICAL SECTION
Scale: 1/2"=1'-0"
S-17, S-18



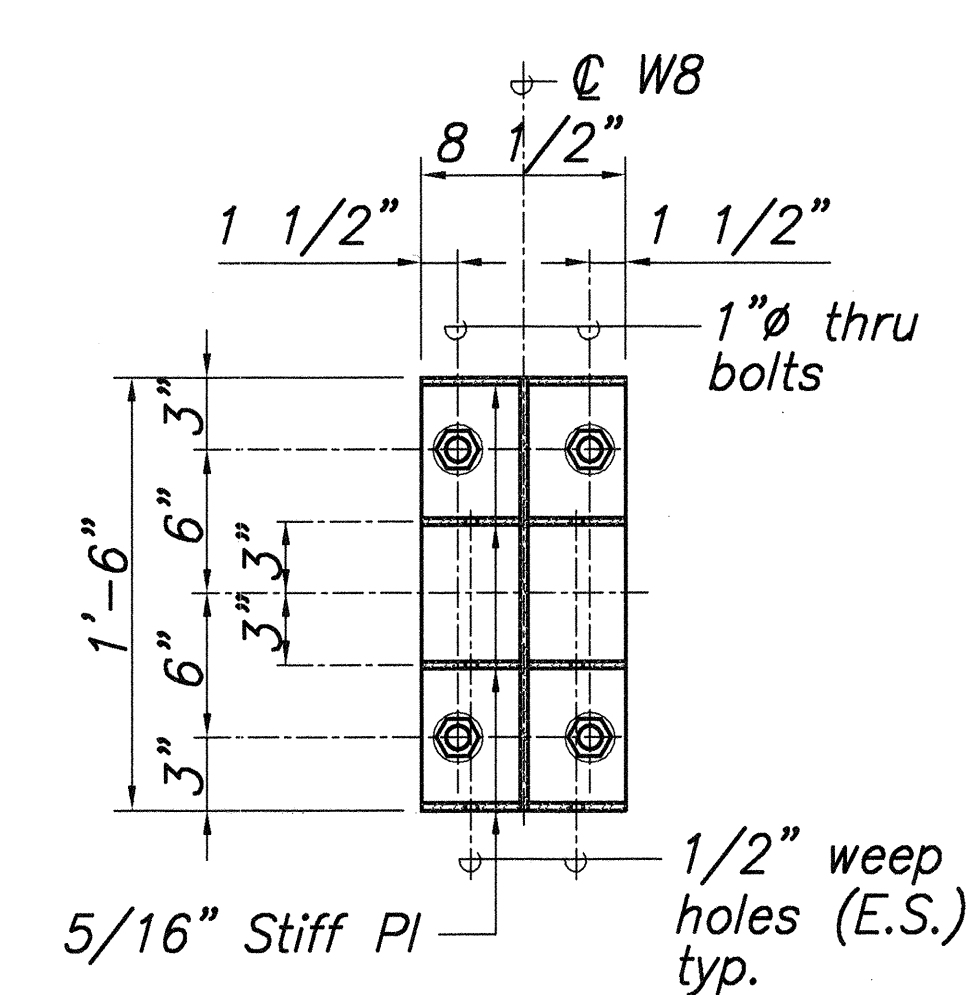
ELEVATION
Scale: 1/2"=1'-0"
S-19



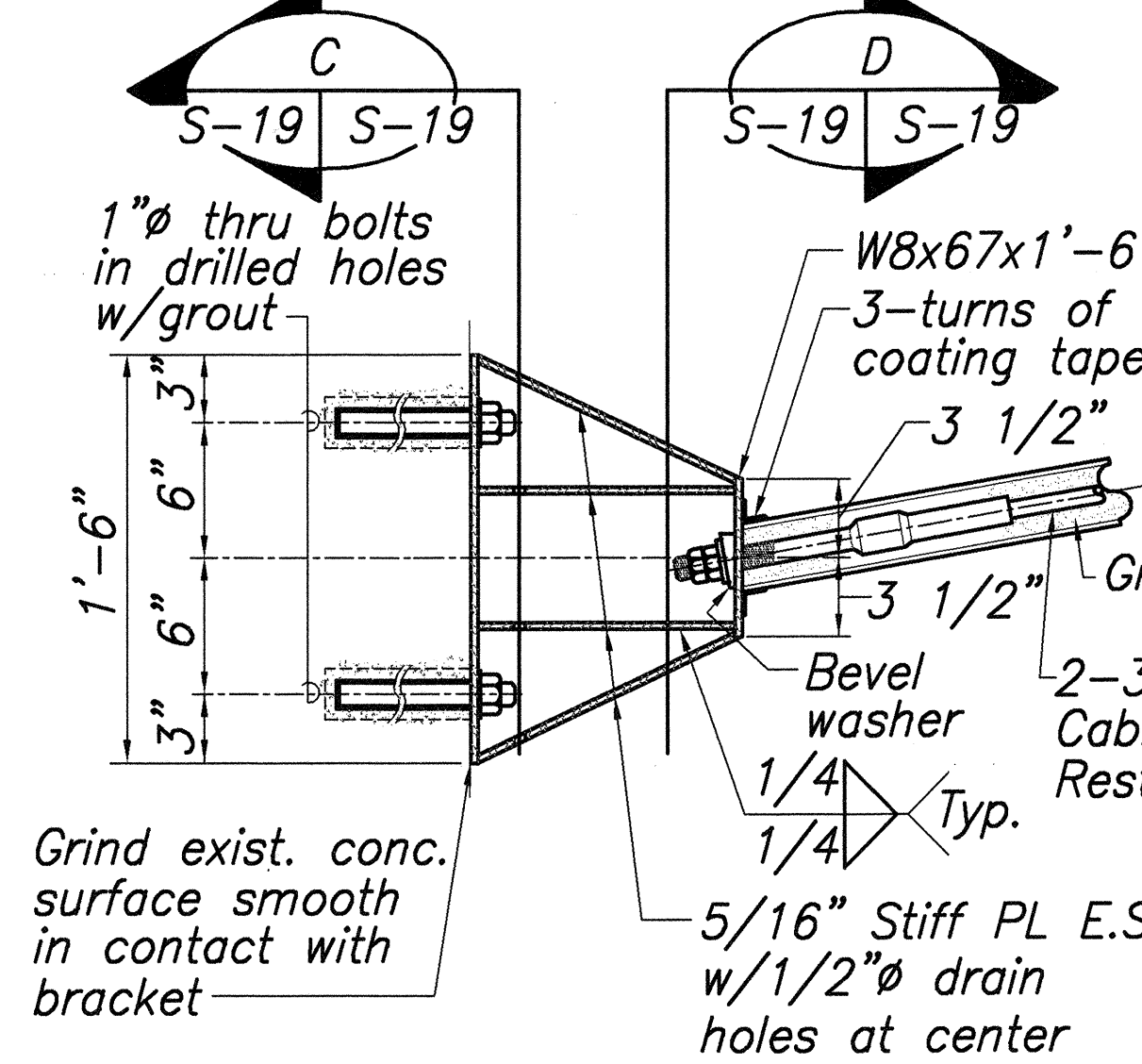
SECTION B
Scale: 1 1/2"=1'-0"
S-19



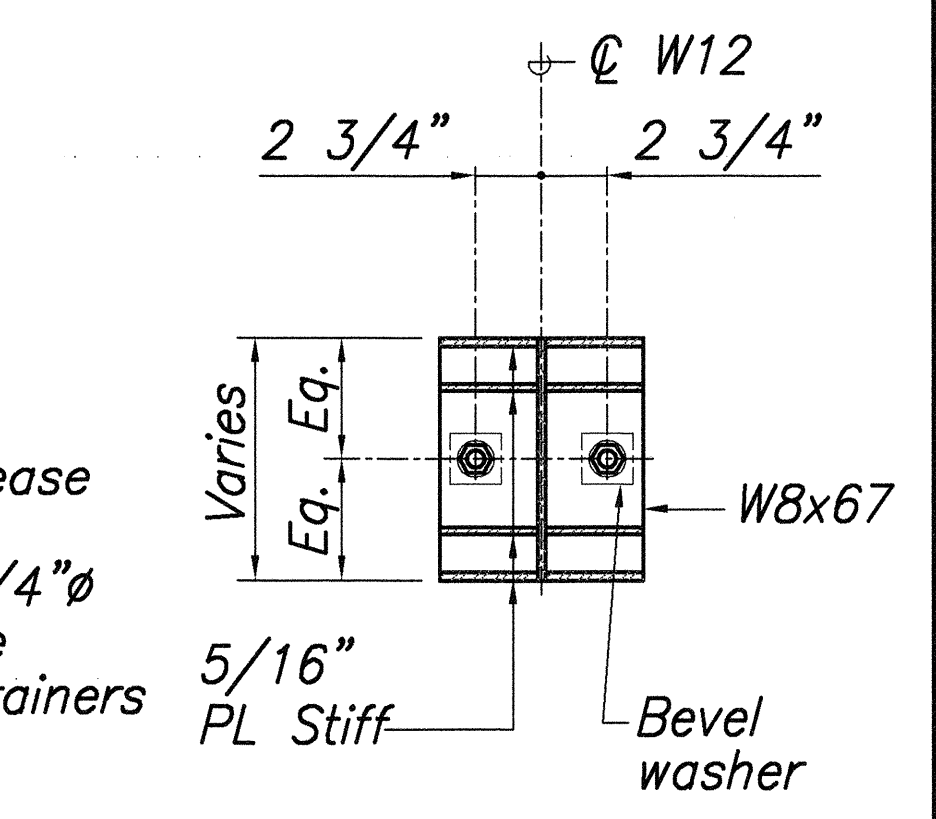
CONNECTION DETAIL 2
Scale: 1 1/2"=1'-0"
S-19



SECTION C
Scale: 1 1/2"=1'-0"
S-19



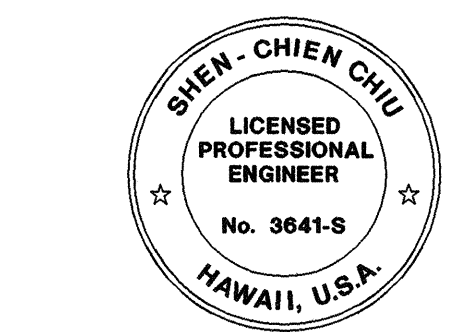
CONNECTION DETAIL 3
Scale: 1 1/2"=1'-0"
S-19



SECTION D
Scale: 1 1/2"=1'-0"
S-19

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
CHECKED BY	
ORIGINAL PLAN	
NO.	

OSI-3.DWG 08/05/99 08:40 FINAL L:\DWG\6041-01\NEWSTRUCT\OPEA



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Si Chen Chiu

DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
OPEA BRIDGE SUPERSTRUCT. & SUBSTRUCT. RETROFIT PLAN OF LONGITUDINAL RESTRAINERS	
SEISMIC RETROFIT OF VARIOUS BRIDGES EAST OF NINOLE, HAWAII F.A. PROJECT NO. BR-019-2(46)	
Scale: As Noted	Date: AUG. 17, 1999
SHEET No. S-19 OF 23 SHEETS	