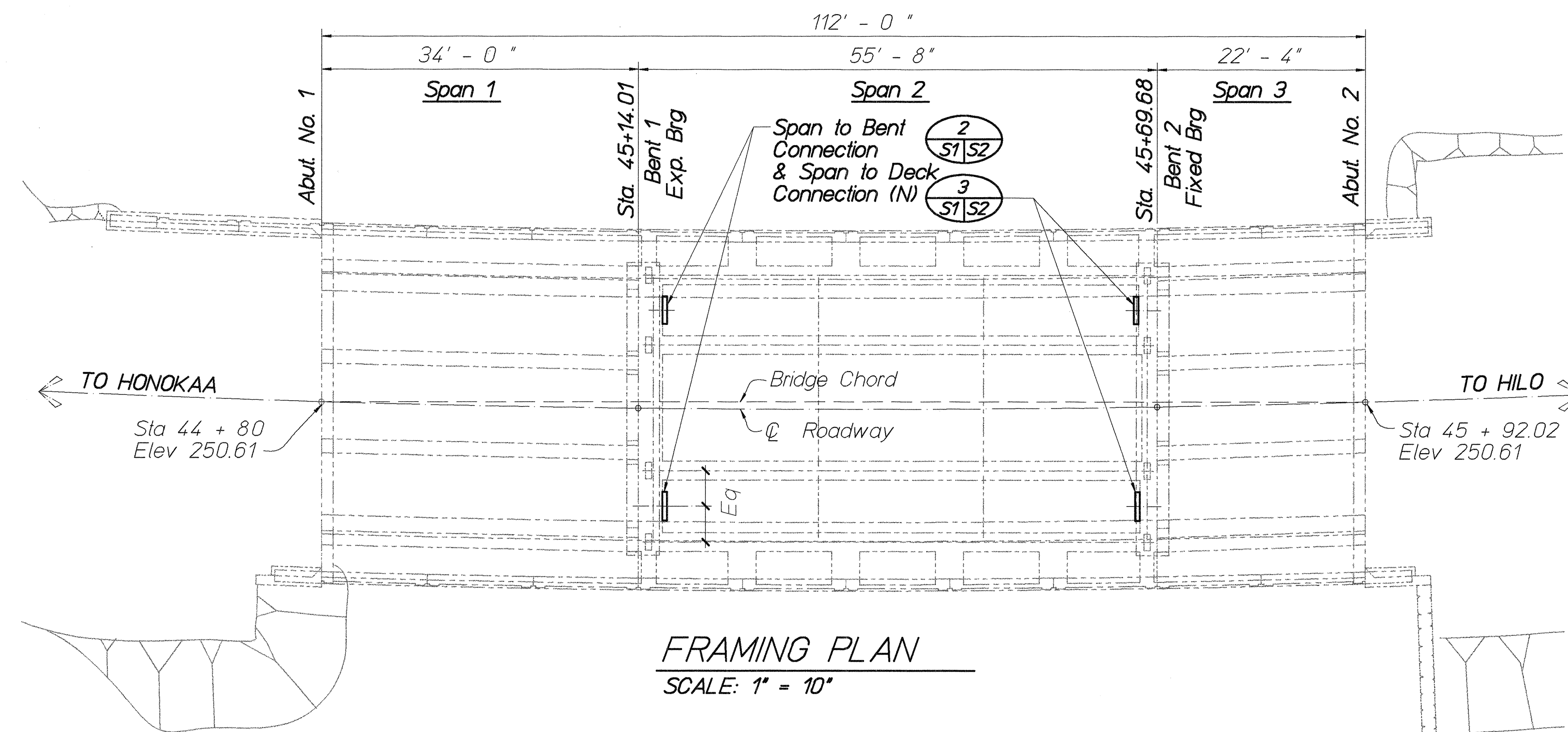


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(47)	1999	5	20

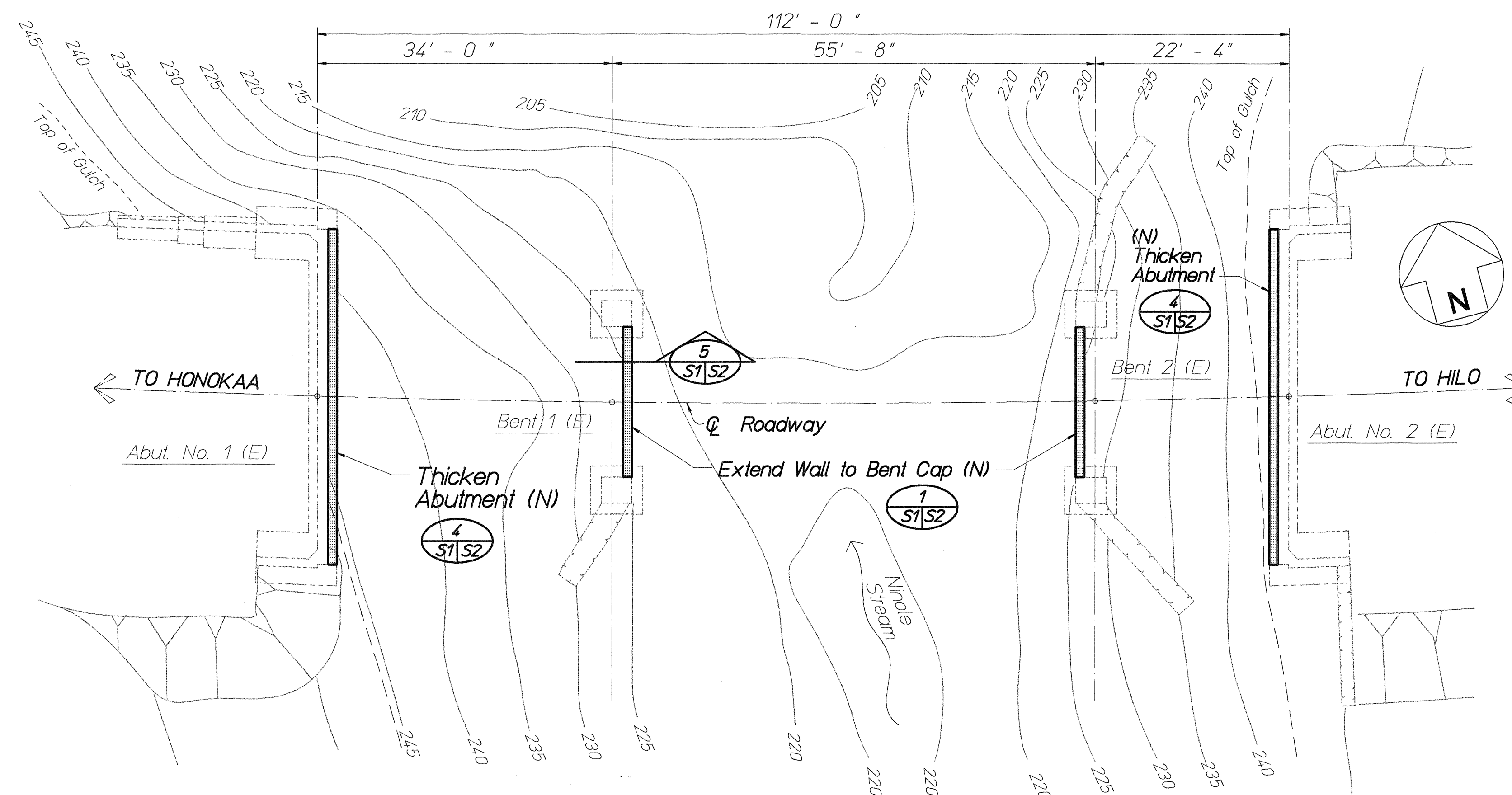


FRAMING PLAN

SCALE: 1" = 10'

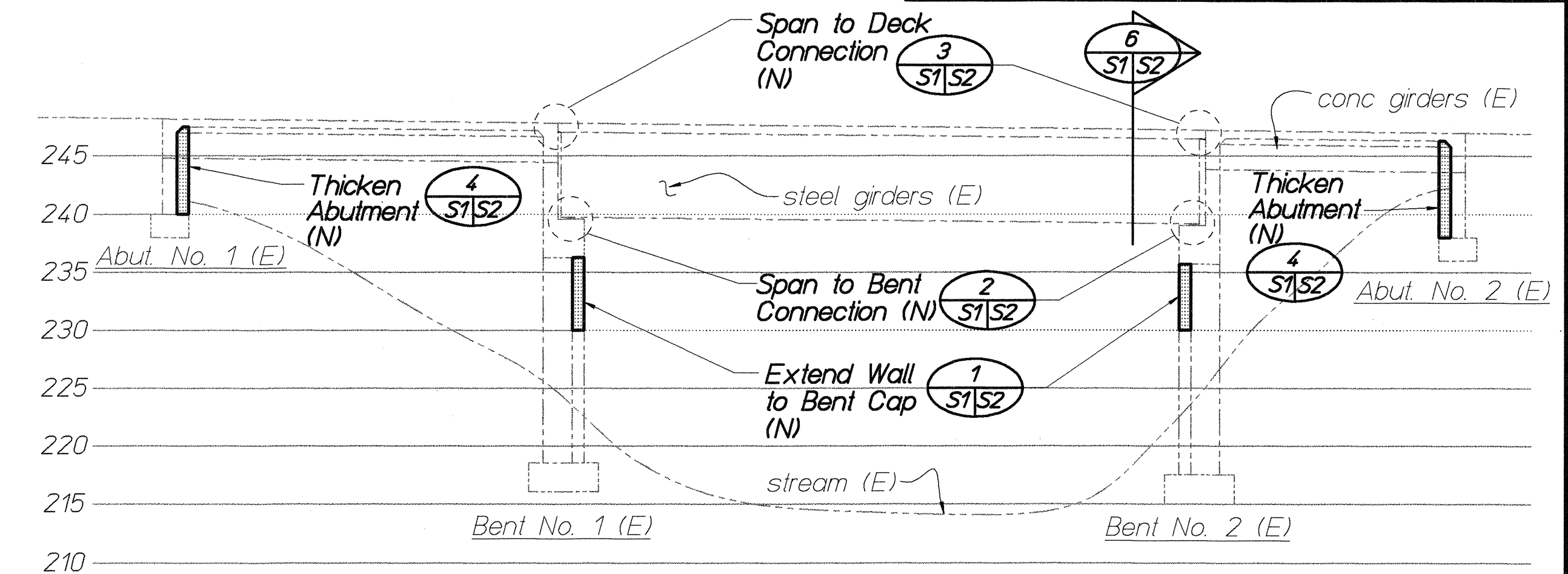
Note:

All finish elevations, stations and azimuths are approximate only. They are based on the original contract drawings dated August 1949. Contractor shall verify elevations, stations and azimuths as required.



FOUNDATION PLAN

SCALE: 1" = 10'



LONGITUDINAL SECTION

SCALE: 1" = 10'

GENERAL:

- The existing bridge information shown in these drawings was obtained from the original bridge drawings and is presented for reference purposes only. No responsibility is assumed for the accuracy of the existing information presented. It is the Contractor's responsibility to verify independently all of the as-built information.
- The Contractor shall visit the construction site and shall verify all dimensions and conditions prior to starting any work and shall be Responsible for Coordination of all work and Materials including those furnished by Sub-Contractors. The Hawaii Department of Transportation (D.O.T.) Representative shall be notified immediately of any discrepancies found.
- The Contract Structural Drawings and Specifications represent the finished structure. They do not indicate the method of construction. The Contractor shall provide all measures necessary to protect the structure during construction.
- The Contractor shall provide adequate shoring for all existing adjacent structures. Shoring for construction loads shall be designed by a Hawaii Licensed Structural Engineer experienced in this kind of work.

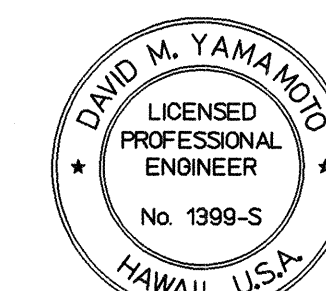
BASIS FOR SEISMIC RETROFIT:

- The intent of the project is to retrofit the structures to prevent collapse due to a seismic event with a maximum acceleration coefficient of 0.4.
- Steel angle seats shall be installed to strengthen the connection between Span 2 and the Bents. Bolts shall be installed to take the transverse shear at the outer diaphragms.
- Abutment walls shall be thickened to increase its Shear and Flexural capacities.
- "In-fill" walls shall be extended to the Bent Cap as a means of strengthening the Bent Caps and the Columns.

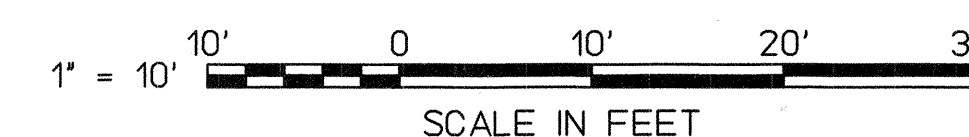
GENERAL NOTES

- General Specifications: Hawaii Department of Transportation, Standard Specification for Road, Bridge and Public Works Construction, 1994 together with Special Provisions prepared for this contract.
- Design Specifications: AASHTO, Standard Specifications For Highway Bridges, 16th Edition (1996)
- Caltrans Memo To Designers 20-4.
- Seismic Loading:
 - Seismic Performance Category D
 - Acceleration Coefficient 0.40
- Concrete:
 - Existing All Concrete (Assumed) $f'_c = 3,900$ PSI
 - New Walls $f'_c = 4,000$ PSI
- Reinforcing Steel:
 - Existing All Reinforcing Steel (Assumed) $f_y = 44,000$ PSI
 - New All Bars, Dowels & Stirrups $f_y = 60,000$ PSI
- Structural Steel:
 - Existing (assumed ASTM A7) $f_y = 33,000$ PSI
 - New (ASTM A36 Galvanized) $f_y = 36,000$ PSI
- New Anchor Bolts to be A325, Galvanized

(E) Existing
(N) New



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
David M. Yamamoto
SATA & ASSOCIATES, INC.



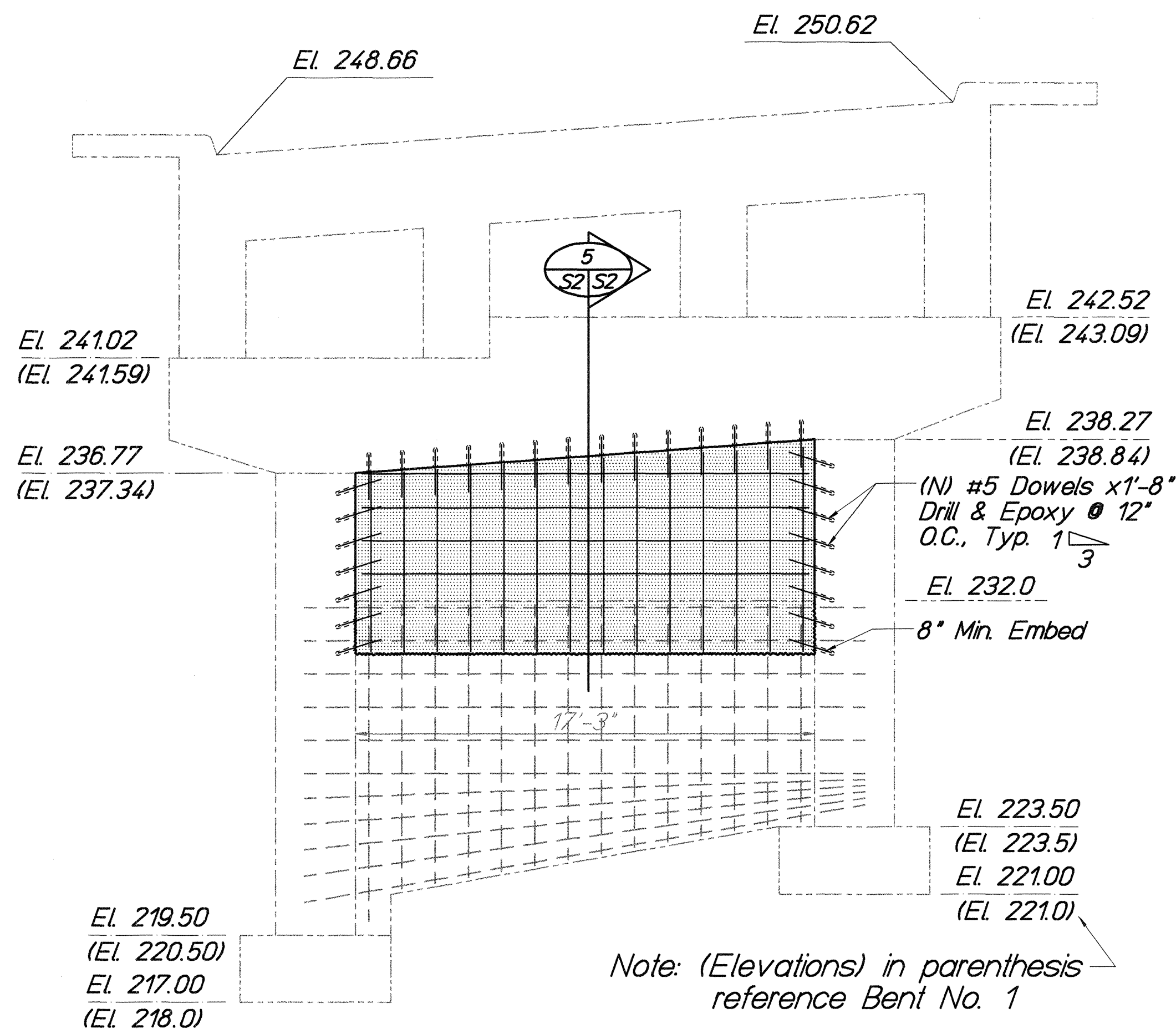
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NINOLE BRIDGE - FOUNDATION AND FRAMING PLANS AND LONGITUDINAL SECTION

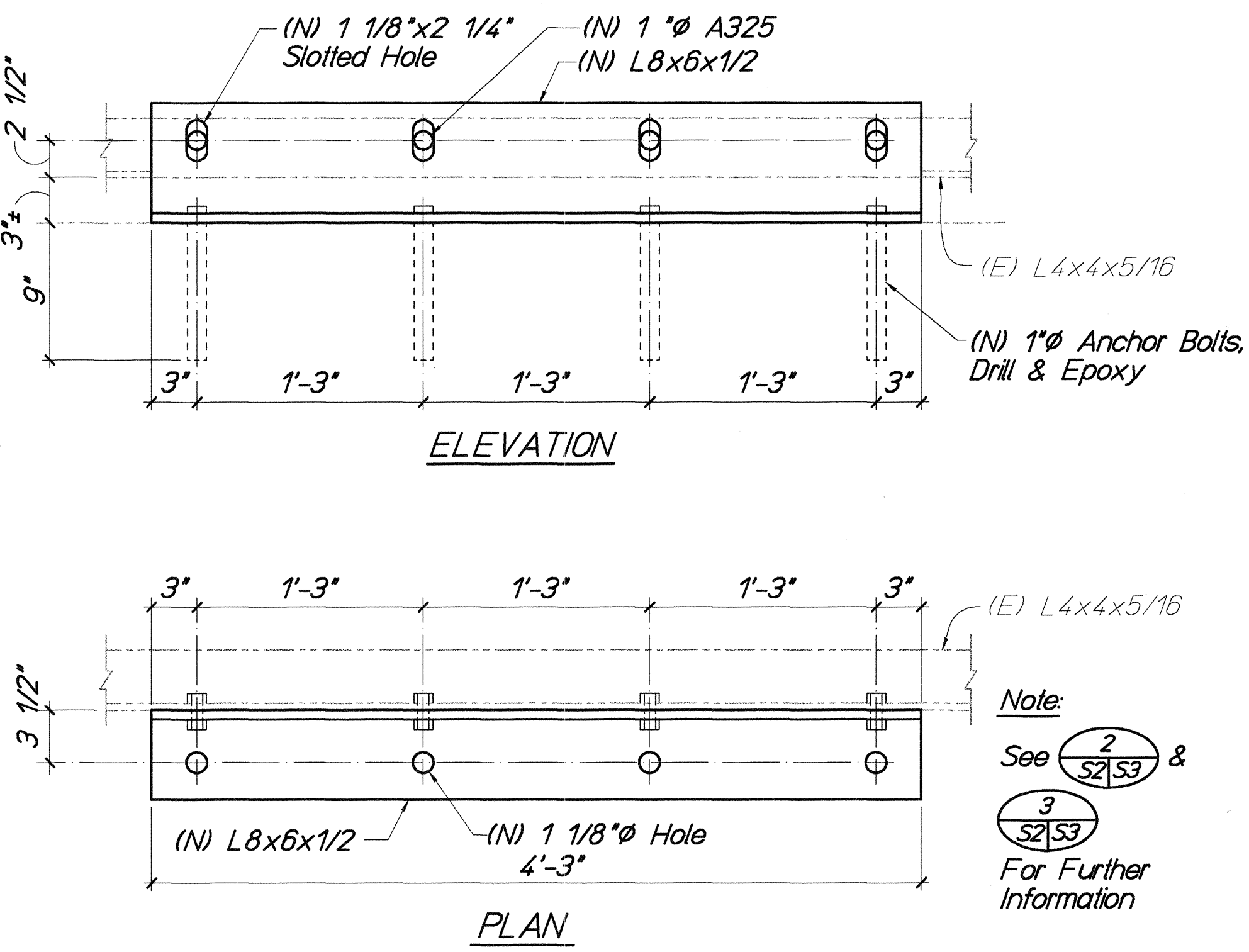
HAWAII BELT ROAD, SEISMIC RETROFIT OF VARIOUS BRIDGES, WEST OF NINOLE
FEDERAL AID PROJECT NO. BR-019-2(47)
SCALE: 1" = 10' DATE: November 1998

SHEET No. S1 OF 16 SHEETS

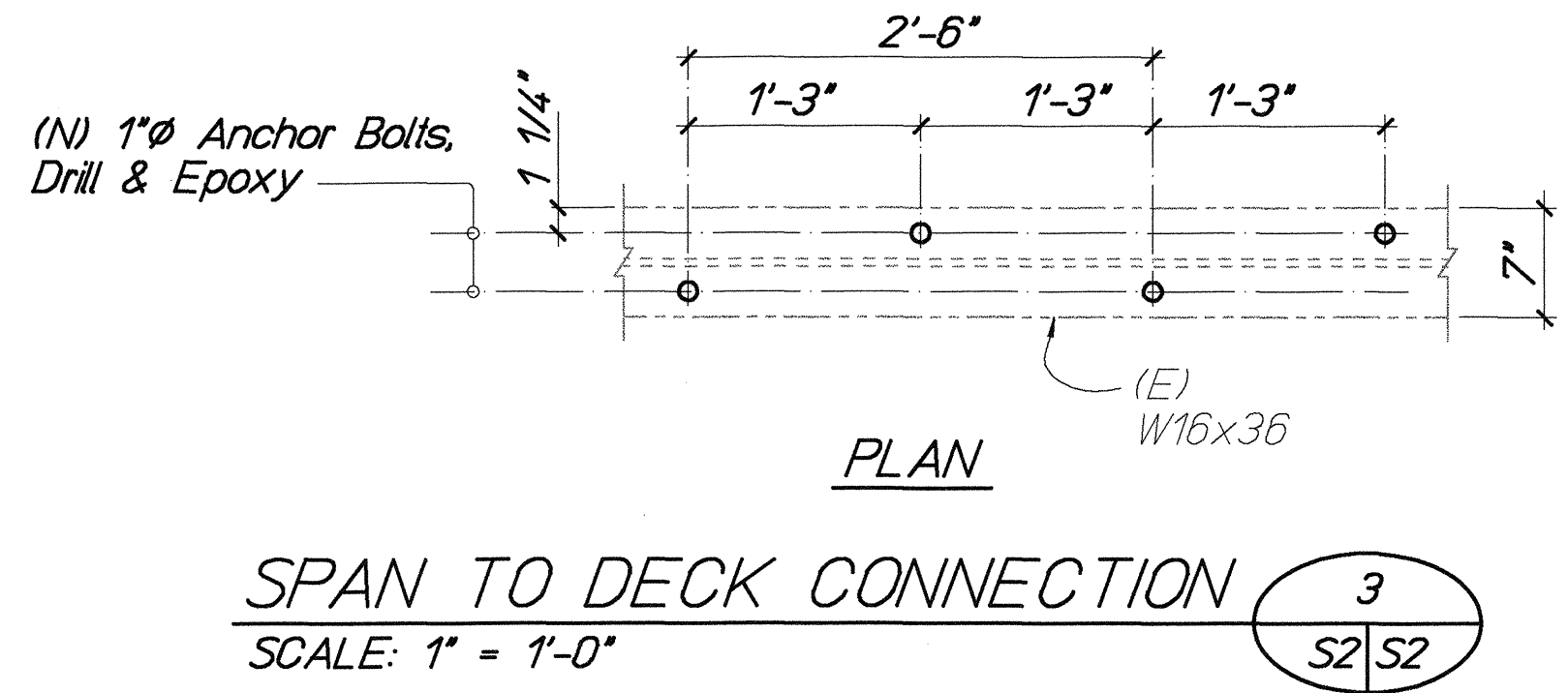
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(47)	1999	6	20



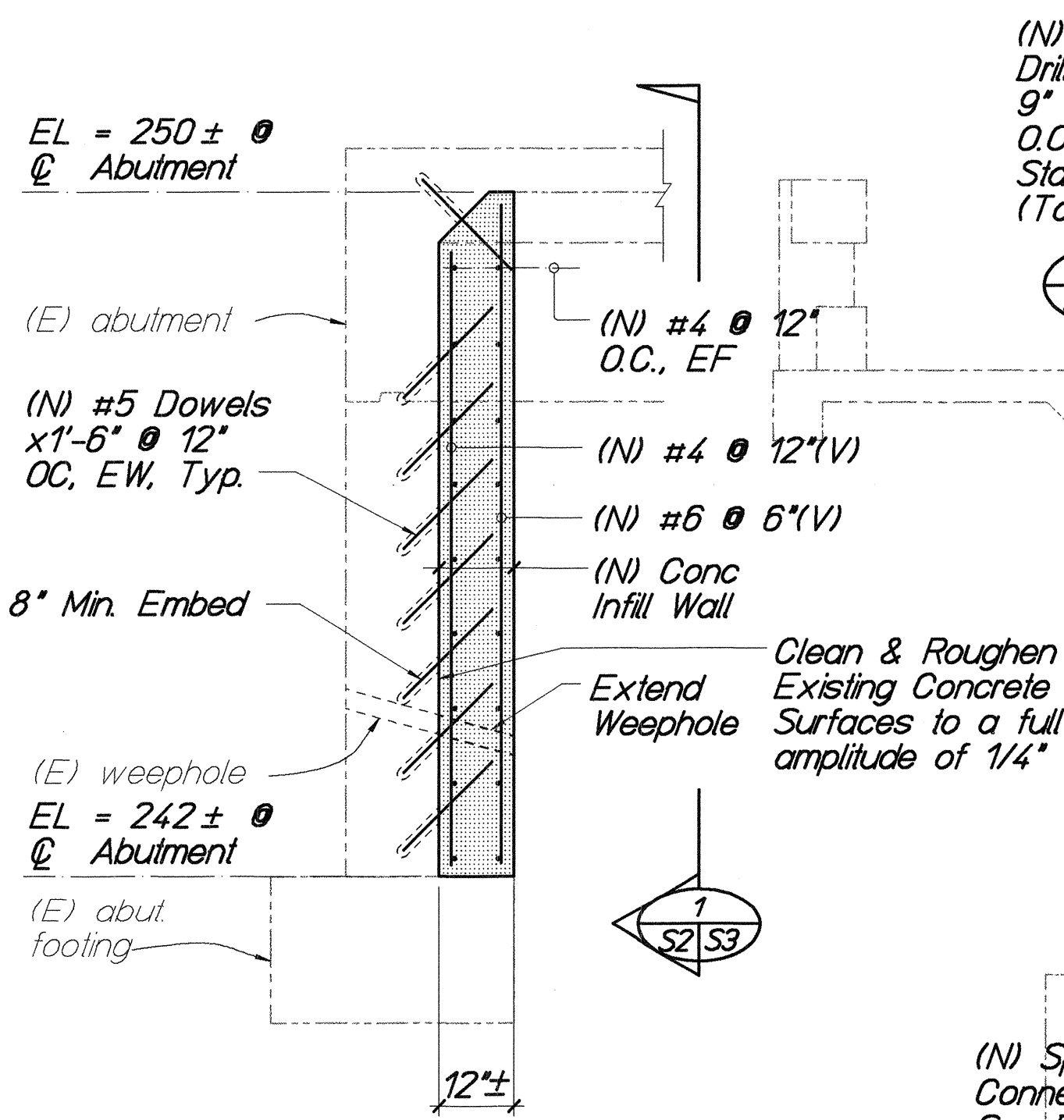
(BENT NO. 1 SIM.)
ELEVATION AT BENT NO. 2
SCALE: 1/4" = 1'-0"



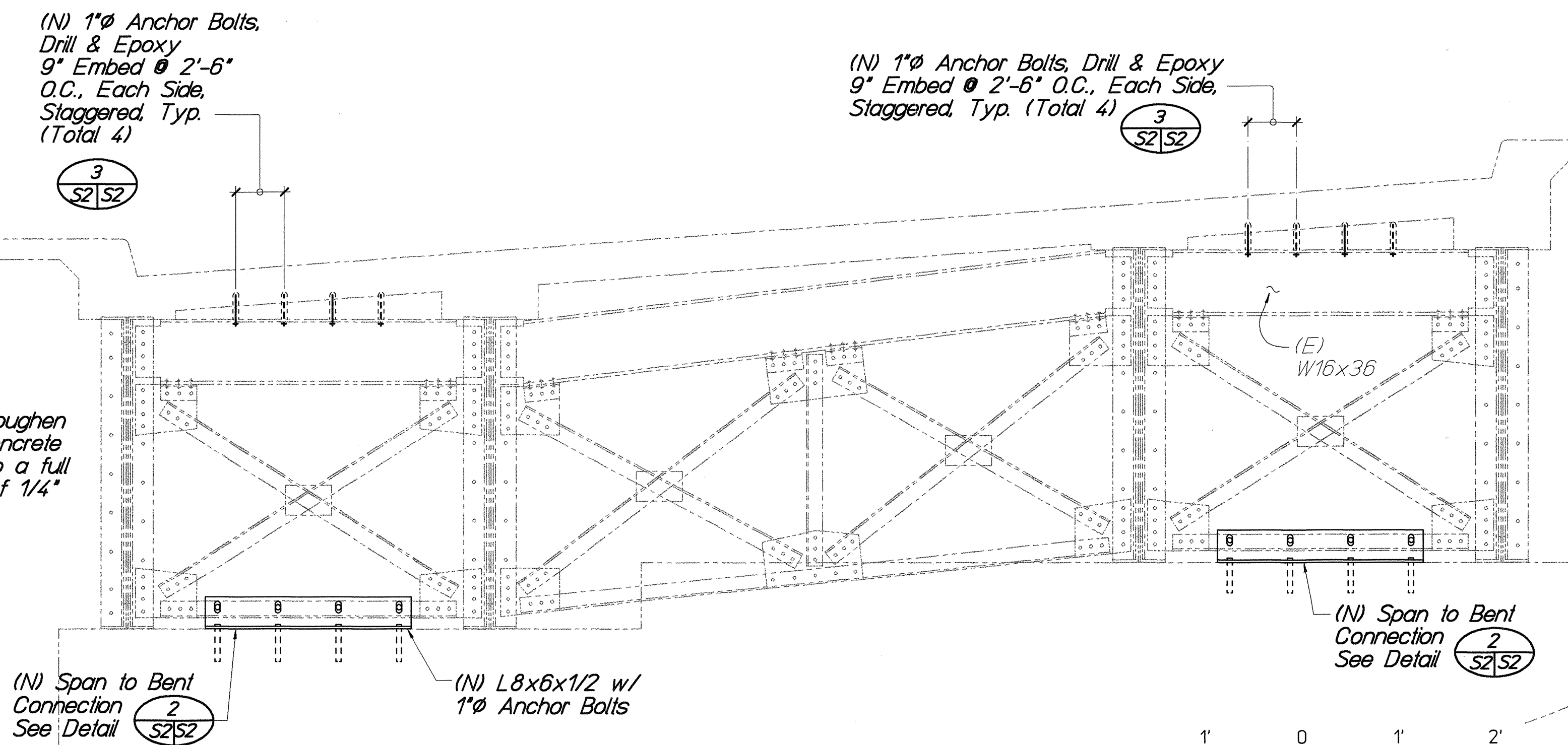
SPAN TO BENT CONNECTION DETAIL



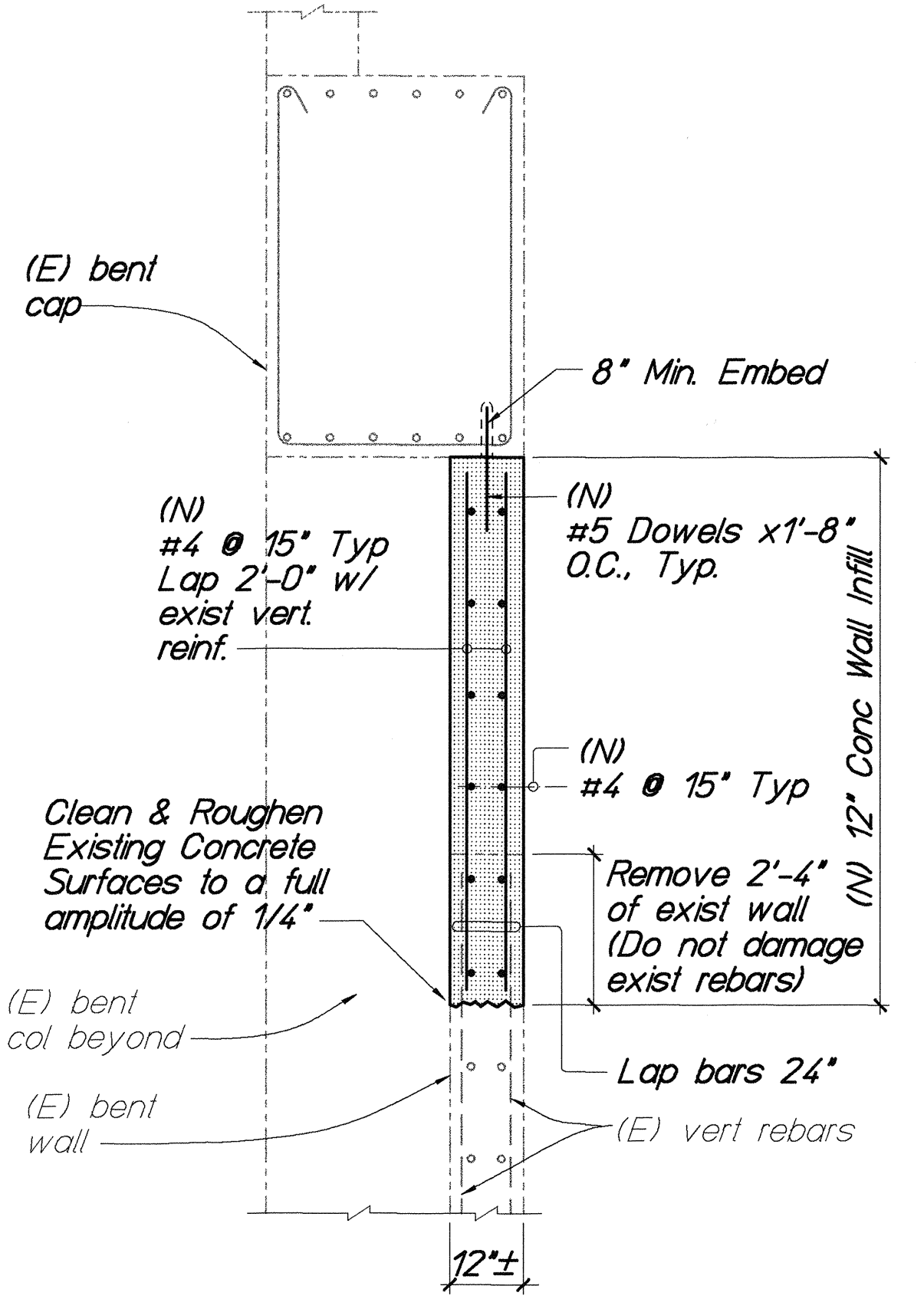
SPAN TO DECK CONNECTION
SCALE: 1" = 1'-0"



TYP. ABUTMENT RETROFIT
SCALE: 1/2" = 1'-0"

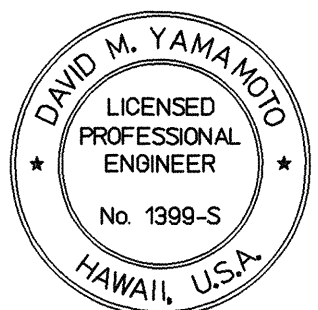
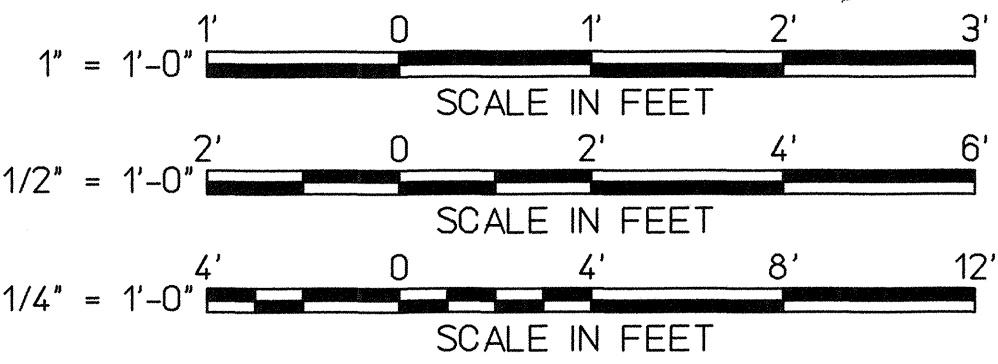


ELEVATION - RETROFIT AT END DIAPHRAGM
SCALE: 1/2" = 1'-0"



(BENT NO. 1 SIM.)
SECTION AT BENT NO. 2
SCALE: 1/2" = 1'-0"

SURVEY PLOTTED BY	DATE
DESIGNED BY	
NOTED BY	
CHECKED BY	
NO.	



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
SATO & ASSOCIATES, INC.

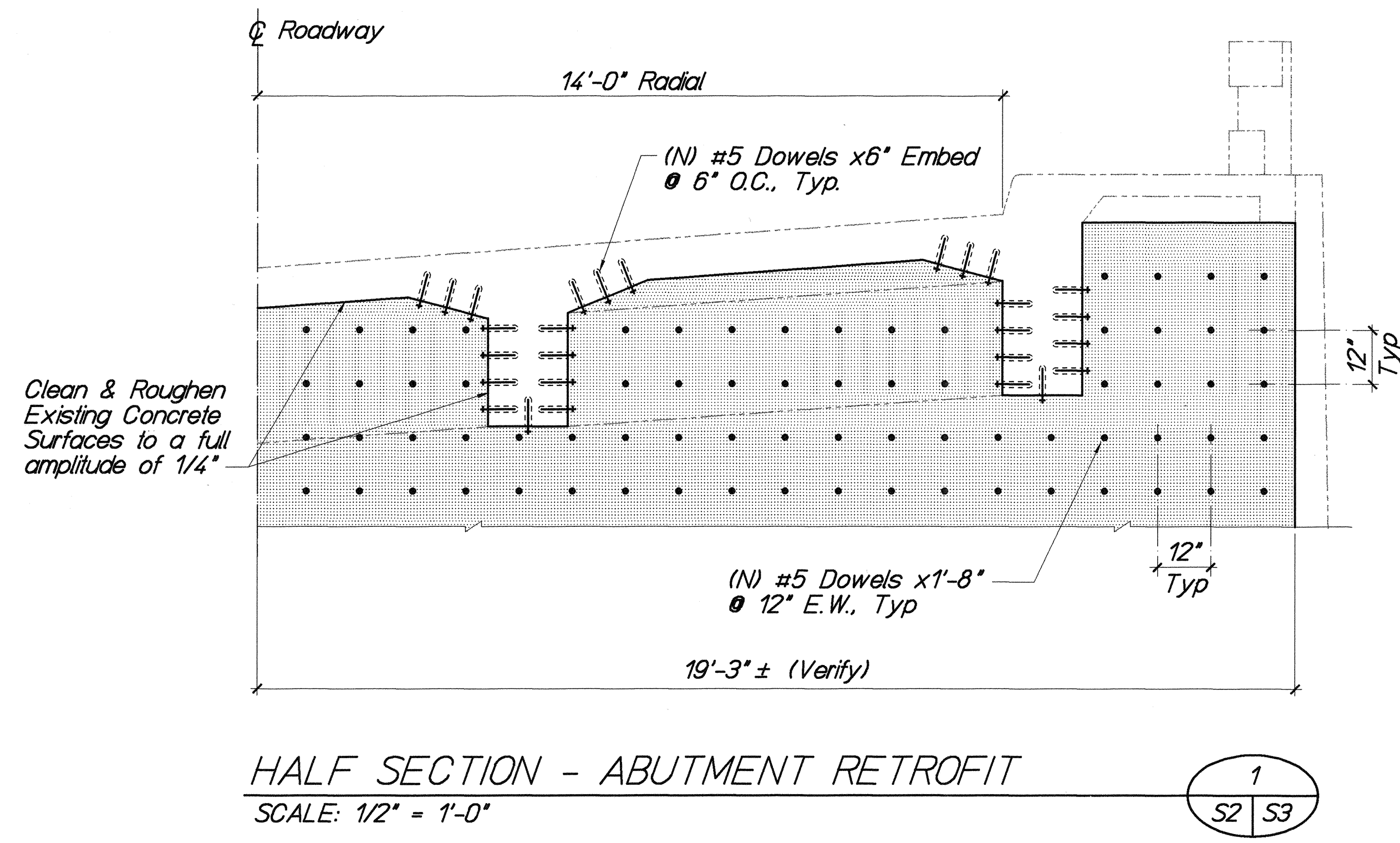
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NINOLE BRIDGE
ELEVATIONS, SECTIONS & DETAILS

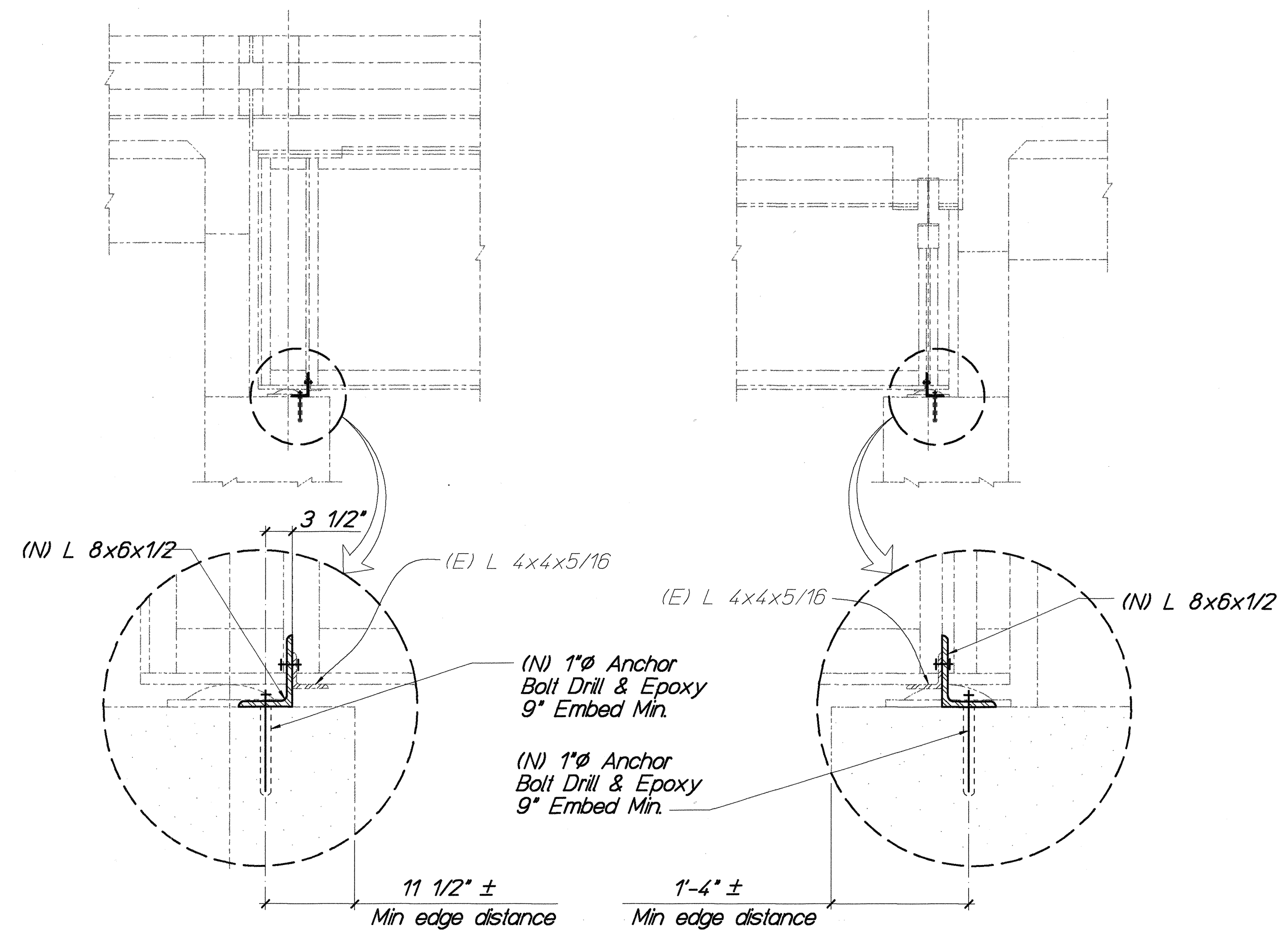
HAWAII BELT ROAD, SEISMIC RETROFIT OF VARIOUS BRIDGES, WEST OF NINOLE
FEDERAL AID PROJECT NO. BR-019-2(47)
SCALE: AS NOTED
DATE: November 1998

SHEET No. S2 OF 16 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(47)	1999	7	20



1
S2 S3



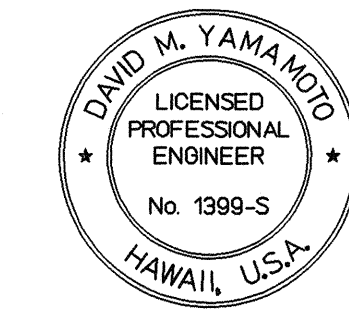
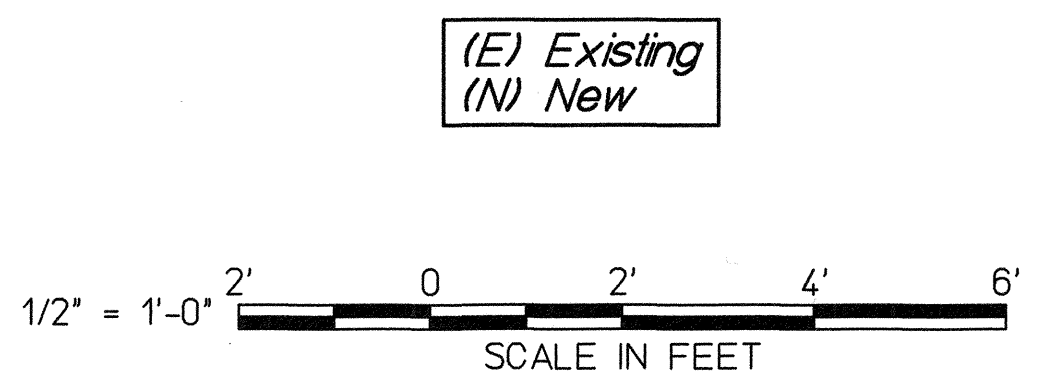
RETROFIT @ BENT 1
NO SCALE

2
S2 S3

RETROFIT @ BENT 2
NO SCALE

3
S2 S3

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	



STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

NINOLE BRIDGE
 RETROFIT DETAILS

HAWAII BELT ROAD, SEISMIC RETROFIT OF VARIOUS BRIDGES,
 WEST OF NINOLE
 FEDERAL AID PROJECT NO. BR-019-2(47)
 SCALE: AS NOTED
 DATE: November 1998

SHEET No. S3 OF 16 SHEETS