

INDEX TO DRAWINGS

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REFERENCE PLANS

SHEET NO.	DESCRIPTION
EB1 to EBS	EXISTING KALIHI STREAM BRIDGE

GENERAL STRUCTURAL NOTES

DESIGN SPECIFICATIONS:

AASHTO, Standard Specifications for Highway Bridges (12th edition) including Interim Specifications Bridges, 1978, 1979, 1980, 1981 & 1982

DESIGN LIVE LOAD:

H5-20-44 For Roadway, B5 psf. for Pedestrian Structures.

MATERIALS AND ALLOWABLE DESIGN STRESS:

MATERIAL	LOCATION	Fc @ 28 days
1. Reinf. Concrete	a. Composite Deck Slabs	4000 psi.
	b. Piers	4000 psi.
	c. Abut., wing walls, ret. walls & Ftgs.	3000 psi.
2. Prestressed Concrete	Girders	6000 psi.
	fcl at release	4500 psi.
3. Reinforcing Steel - ASTM A 615 grade 60 for #5 and larger dia. bars. grade 40 for #4 and smaller dia. bars		
4. Admixtures in Concrete - see Special Provisions		
5. Elastomeric (Neoprene) Bearing Pads	Pedestrian Structure and Pedestrian Ramp	Laminated bearing of hard-ness Duro 60. Laminates ASTM A 36 Grade C.

CONSTRUCTION METHODS:

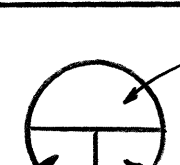
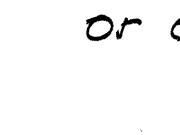
- Refer to Standard Specifications for Road and Bridge Construction (Hawaii 1976) and Special Provisions.
- Refer to Standard Detailed Drawings for additional details not covered by details and typical drawings.
- The Contractor shall verify all grades and dimensions before commencing with any work.
- Except as otherwise noted, all vertical dimensions are measured on the plumb.
- All footings shall be excavated and poured neat against undisturbed ground. In case of over-excavation, the space between the footing and the ground shall be filled with concrete of Class D minimum quality as directed by the Engineer, at the Contractor's expense.
- Excavation for all footings and stems shall be accomplished by maintaining as near a vertical cut as possible, and it shall be the Contractor's responsibility to maintain the stability of the existing roadway prism & adjacent ground throughout the course of work.
- All items designated for removal shall be removed in such a manner as to preclude any damage to the existing structure. Large impacting or vibratory types of equipment will not be permitted in the removal operation, nor in drilling holes for dowels. Small vibratory tools approved by the Engineer will be permitted.
- All existing reinforcing that can be incorporated in the new work shall be cleaned and utilized as required in the new work as directed by the Engineer.
- All existing reinforcing that cannot be incorporated in the new work shall be removed to a minimum depth of 1" beneath finish surface and the resultant depression patched with mortar.
- Unless noted otherwise, all concrete areas left exposed due to the removal of existing concrete shall be ground smooth and grooved to extend the existing roadway grade.
- See Special Provisions for concrete finish. Girder concrete seats and creep blocks shall be poured monolithically with the abutments.
- In general, new finish grade and concrete deck shall be constructed to follow the existing roadway vertical and horizontal curves and grades.
- The Contractor shall shore the existing exterior girder for contributory dead load and construction loads to minimize deflection. Method of shoring, including calculations and shop drawings, shall be approved by the Engineer.
- All costs involved in maintaining the integrity of the roadway and shoring or bracing shall be incidental to the respective concrete or to concrete in footing, whichever the case may be, and will not be paid for separately.

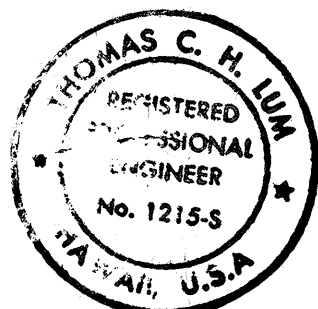
- The Contractor shall be solely responsible for the protection of the adjacent property, utilities, and existing and new structures from damage due to construction and shall repair any damage at his own expense to the satisfaction of the Engineer. He shall conduct his work in such a manner and provide such temporary shoring or other measures as may be necessary to insure the safety of all concerned.
- The lane adjacent to the new deck shall be closed during concrete pour. The deck pour shall be scheduled to occur during non-peak traffic hours as determined by the Engineer. The lane may be opened after the concrete has attained initial set or as directed by the Engineer.
- The existing 12" main shall remain in service at all times. The Contractor shall provide the necessary support during the widening operations on the median side of the bridge. The cost of providing temporary support shall be considered incidental to Removal of Portion of Existing Kalihi Stream Bridge and will not be paid for separately. The Contractor shall be responsible for the repair of any damage to the water main at no cost to BWS or the State.
- The Contractor shall make provisions for the safe passage of pedestrians using the existing pedestrian structure under the Kalihi Stream Bridge and its adjacent pedestrian walkways. The existing pedestrian facilities will be utilized until the new pedestrian structures are complete.
- The removal of the existing pedestrian structure and walkways will commence after the new pedestrian structures are in use.
- Clear concrete cover over reinf. shall be as follows unless otherwise shown:
 - Concrete poured directly against earth. 3"
 - Formed concrete w/earth backfill. 2"
 - Beams, columns: Primary reinforcement, stirrups, ties. 1 1/2"
 - Slab, top and bottom. 3/4"

GENERAL NOTES:

- Bearing pads and premolded joint fillers shall be incidental to concrete. All items noted incidental will not be paid for separately.
- The Contractor shall verify locations of all existing utilities and notify their respective owners before commencing with the work.
- The Contractor shall obtain a park use permit from the C&C Dept. of Parks and Recreation before entering Kalihi Valley Park for construction work.

SYMBOLS:

-  Detail or section designation
-  Sheet no. detail is drawn on
-  Sheet no. section is cut or detail located.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Signature

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**KALIHI STREAM BRIDGE WIDENING
AND PEDESTRIAN STRUCTURE
INDEX TO DRAWINGS
AND GENERAL NOTES**
LIKELIKE HIGHWAY IMPROVEMENTS
KAM IV ROAD TO VICINITY OF KALIHI STREET
F.A. PROJ. NO. F-063-1(17)

SHEET No. 1 OF 22 SHEETS

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

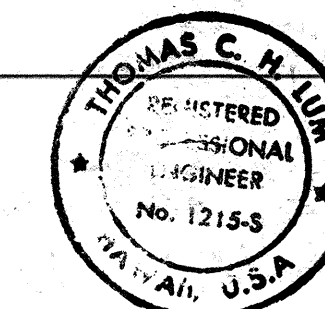
Scale: 1" = 20'

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Signature

APPROVED: _____ DATE 2-7-84
 REAPPROVAL: R. Hagato 7-16-84
 _____ DATE
R. Hagato
 Chief, Planning & Engineering, BWS



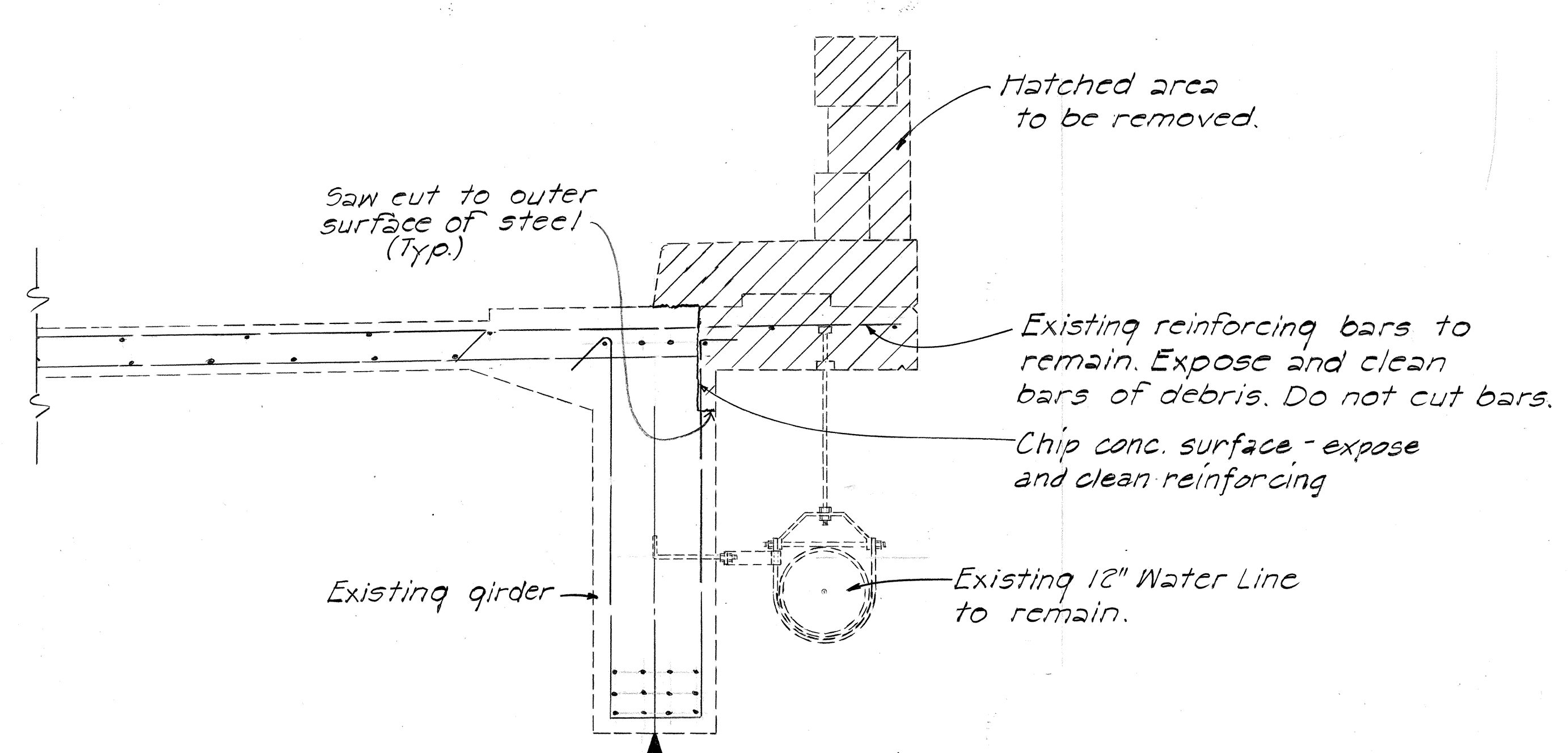
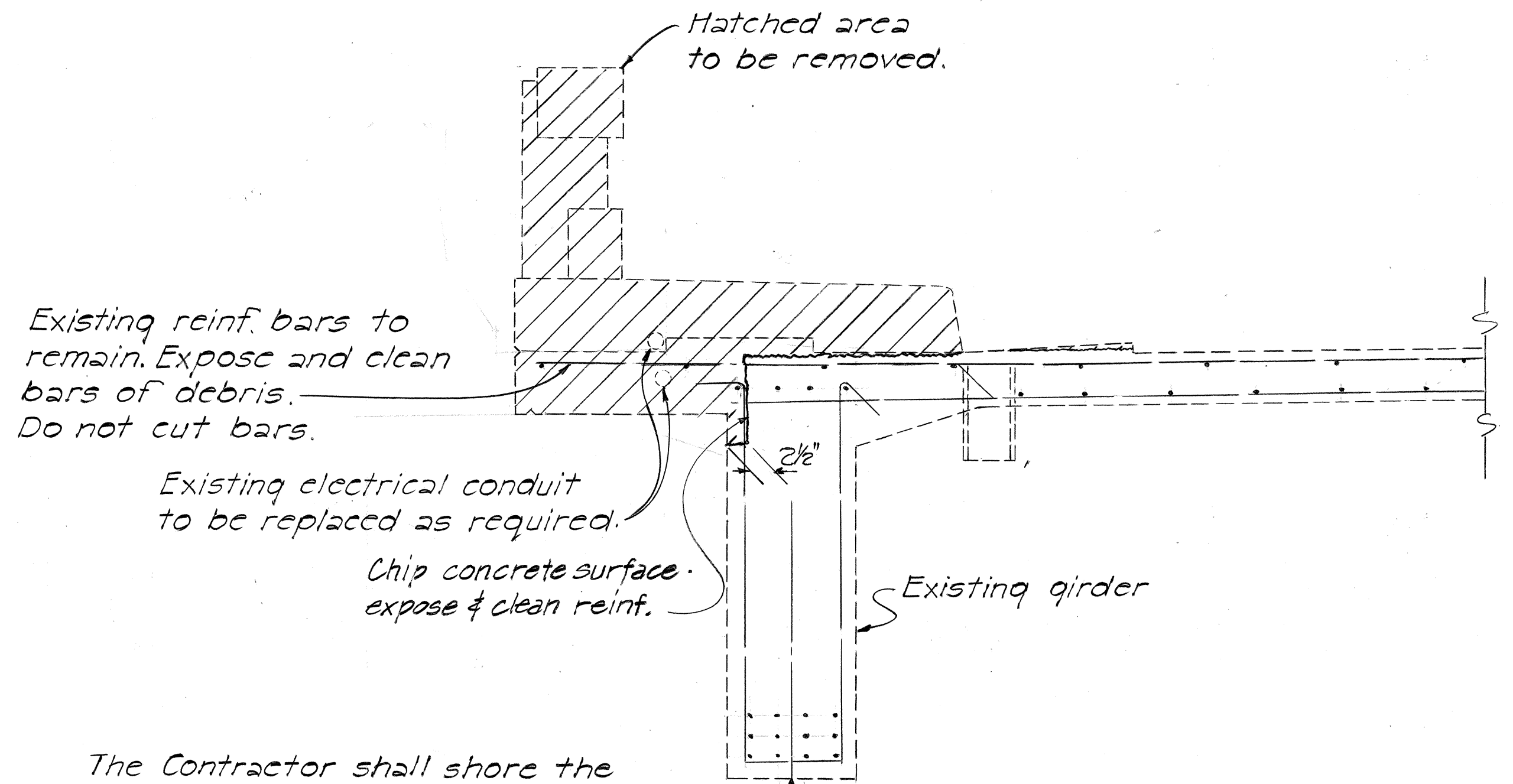
LIKELIKE HIGHWAY IMPROVEMENTS
KAM IV ROAD TO VICINITY OF KALIHI STREET
F.A. PROJ. NO. F-063-1(17) Scale as shown

ADD. 87

2-5-85	Cold Planning Limits Added
DATE	REVISION

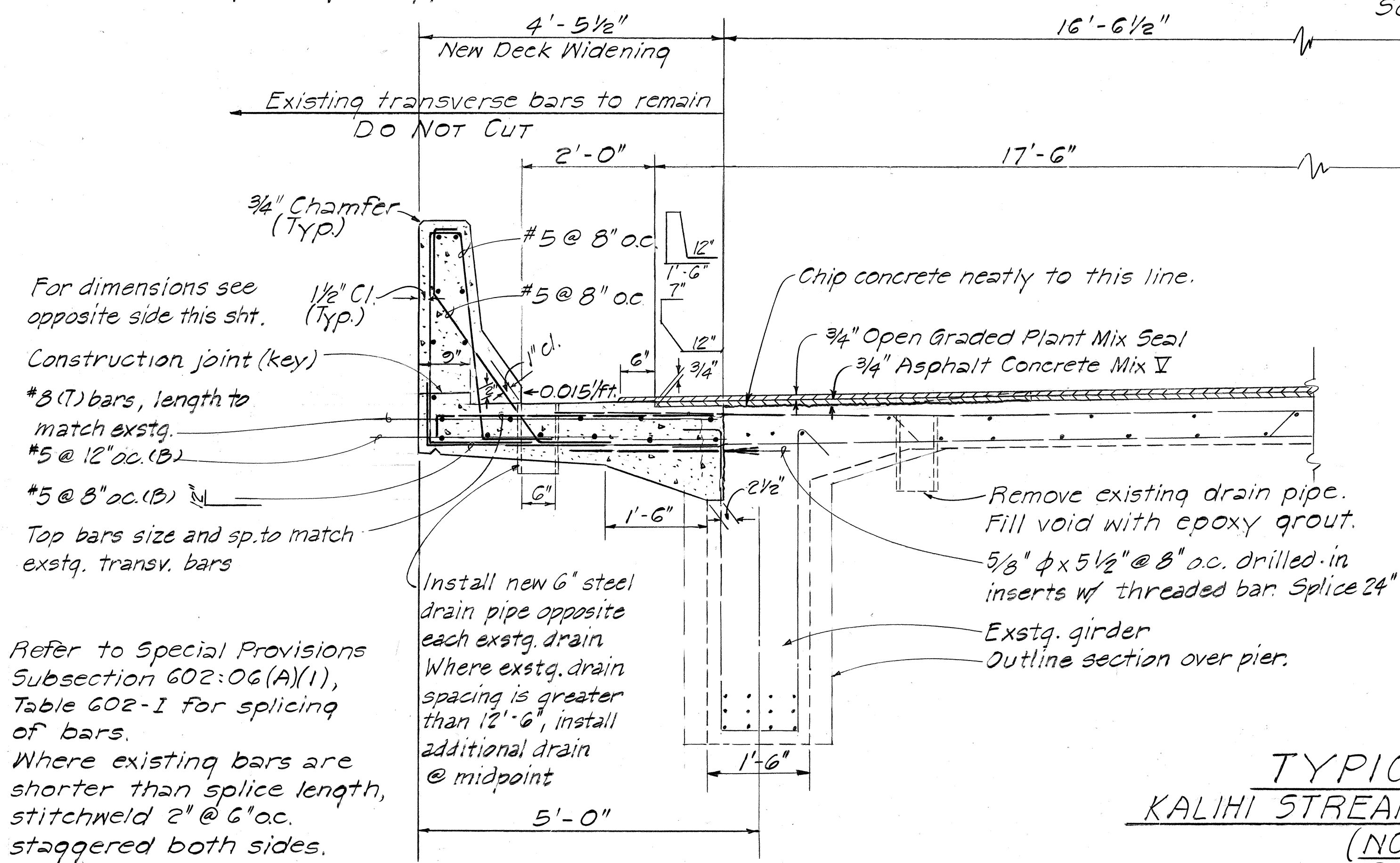
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	QUANTITIES BY _____
	CHECKED BY _____
No. _____	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-063-1(17)	1984	88	156



The Contractor shall shore the existing girder prior to removal of sidewalk and railing areas. The shoring shall remain in place until the widening is completed, and the Engineer gives approval for removal.

TYPICAL SECTION
EXISTING KALIHI STREAM BRIDGE
 (NORTH LANE)
 Scale: 3/4"=1'-0"

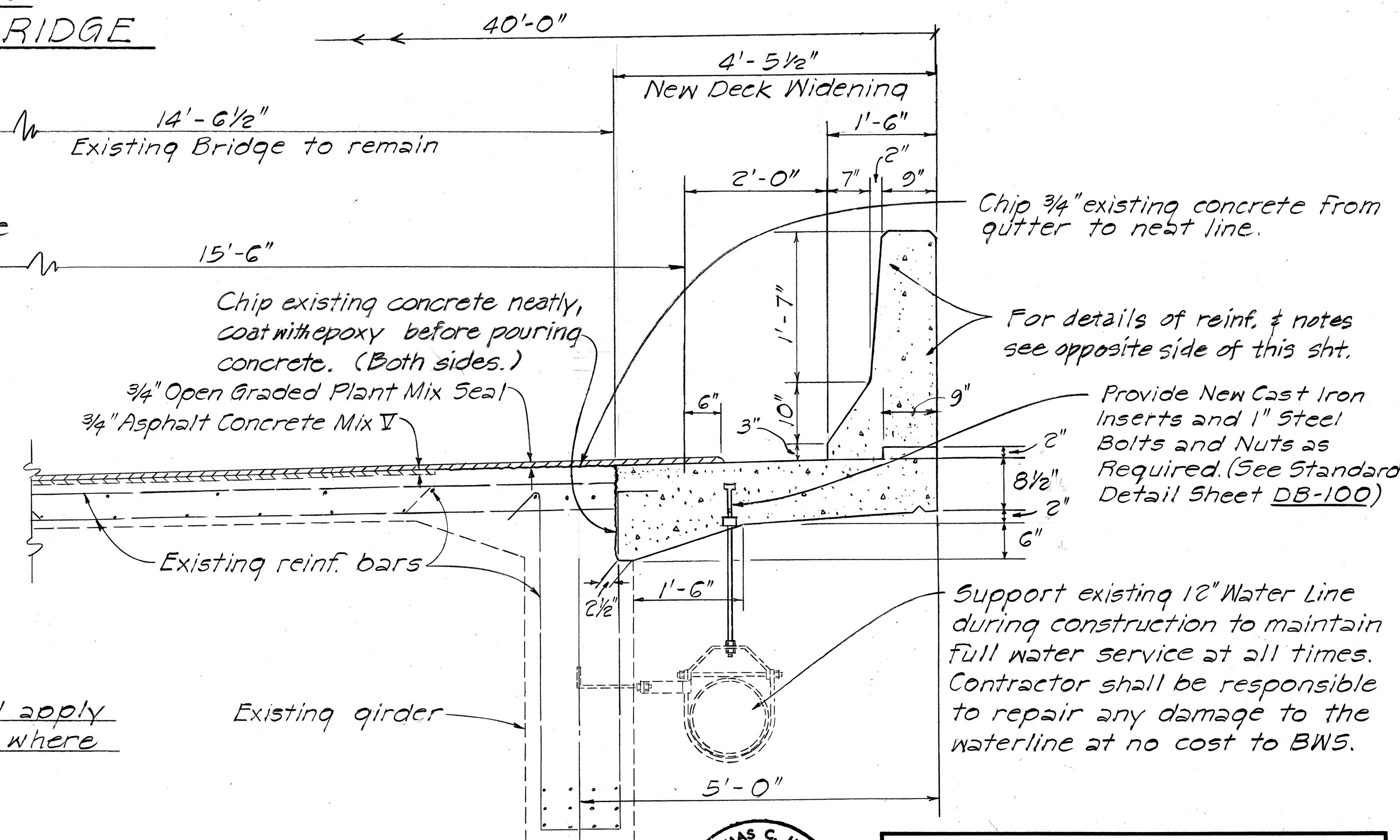


Refer to Special Provisions Subsection 602:06(A)(1), Table 602-1 for splicing of bars. Where existing bars are shorter than splice length, stitchweld 2" @ 6" o.c. staggered both sides.

All notes shall apply to both sides where applicable.

TYPICAL SECTION
KALIHI STREAM BRIDGE-WIDENING
 (NORTH LANE)
 Scale: 3/4"=1'-0"

NOTE: Reinforcing Steel to be Gr. 40.



For details of reinf. & notes see opposite side of this sht. Provide New Cast Iron Inserts and 1" Steel Bolts and Nuts as Required. (See Standard Detail Sheet DB-100)

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APPROVED: *R. Nagato* DATE: 2-7-84
 REAPPROVAL: *R. Nagato* 7-16-85
 Chief, Planning & Engineering, BWS

THOMAS C. H. JUNG
 REGISTERED PROFESSIONAL ENGINEER
 No. 1215-S
 HAWAII, U.S.A.

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

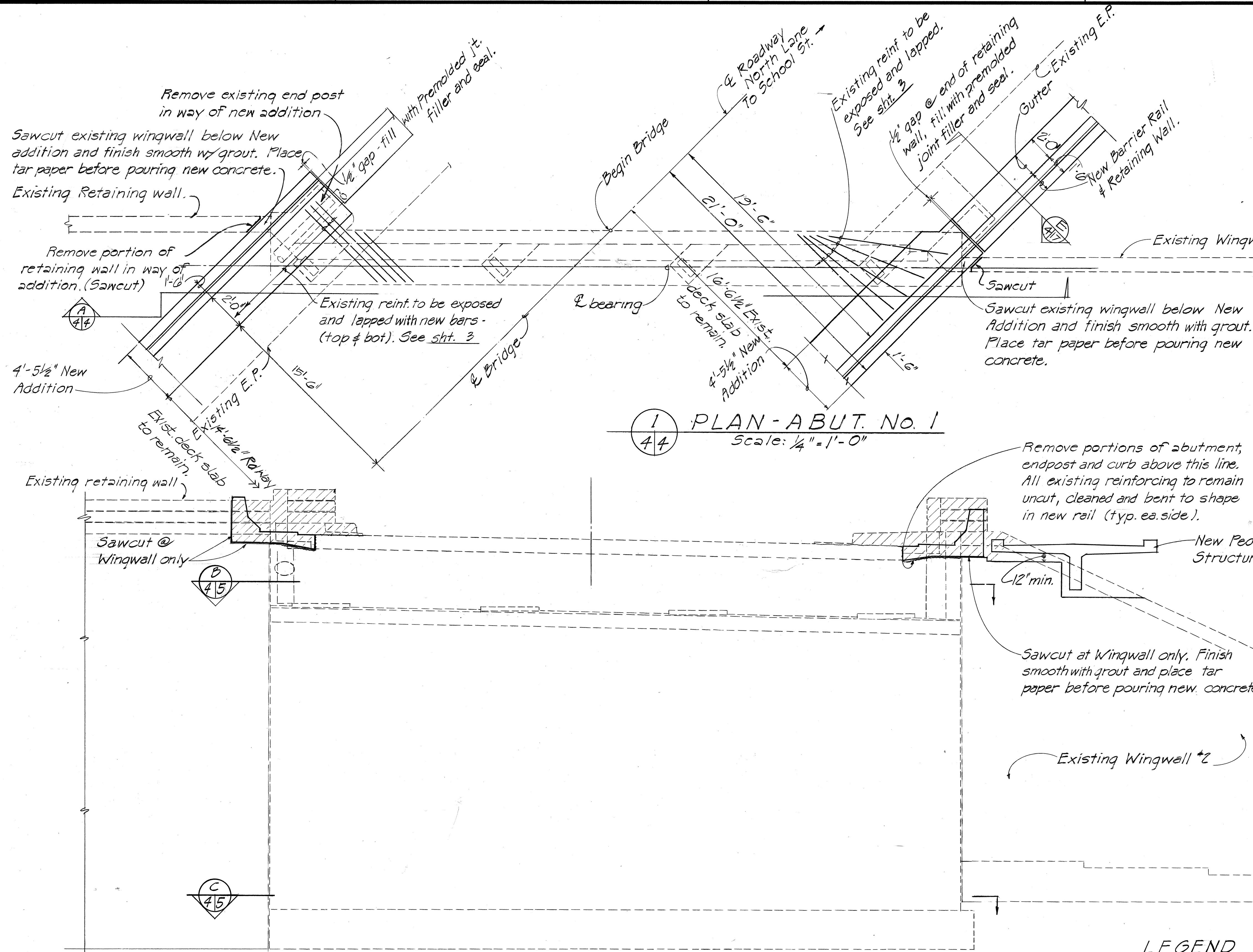
KALIHI STREAM BRIDGE WIDENING
TYPICAL SECTIONS

LIKELIKE HIGHWAY IMPROVEMENTS
 KAM IV ROAD TO VICINITY OF KALIHI STREET
 F.A. PROJ. NO. F-063-1(17) Scale as shown

SHEET No. 3 OF 22 SHEETS

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
DESIGNED BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
NO.	_____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-063-1(17)	1984	89	156



A
44
SECTION/ELEVATION - ABUT. NO. 1
Scale: 1/4" = 1'-0"

LEGEND

- Existing structure.
- New Construction.
- Portion of existing to be removed.
- E.P. Edge of pavement.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ABUTMENT NO. 1 PLAN & ELEVATION

LIKELIKE HIGHWAY IMPROVEMENTS
KAM IV ROAD TO VICINITY OF KALIHI STREET
F.A. PROJ. NO. F-063-1(17) Scale as shown

SHEET NO. 4 OF 22 SHEETS

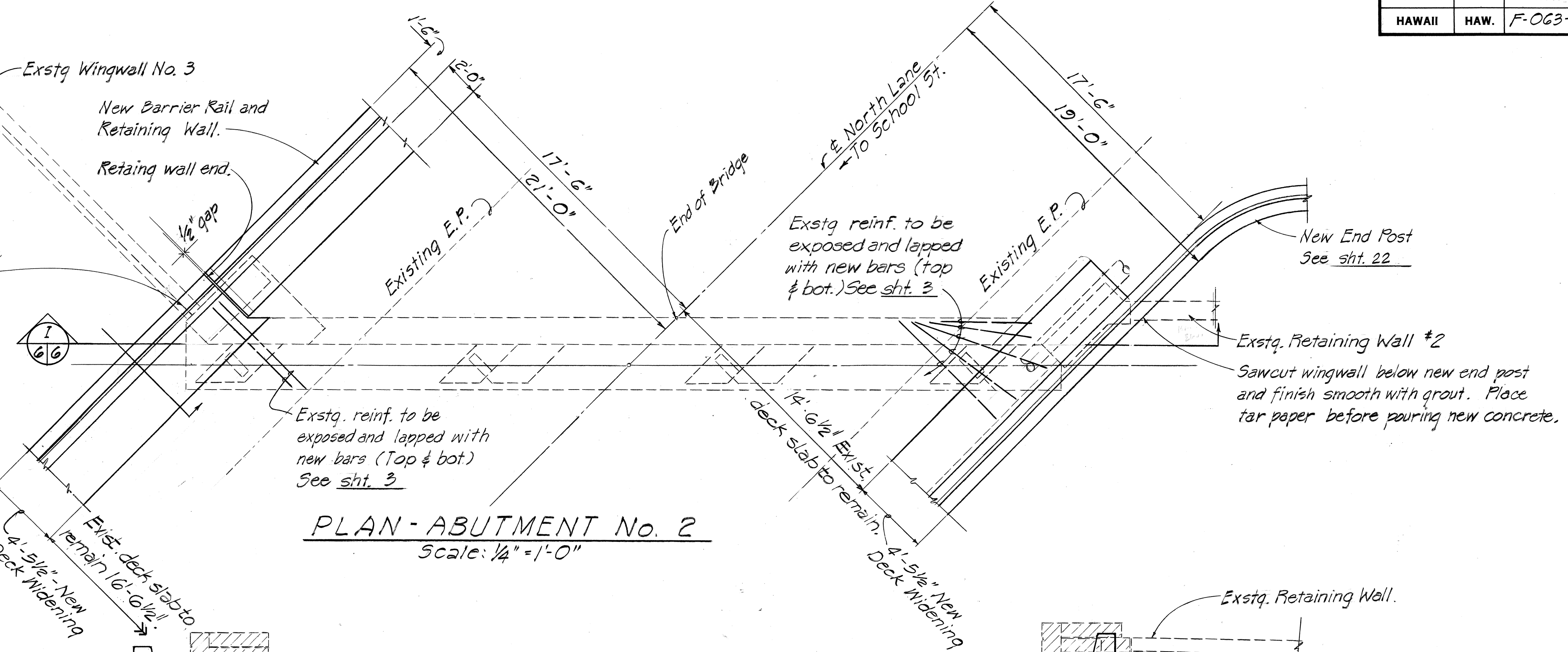
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DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
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ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE _____
NOTE BOOK	DRAWN BY _____	" _____
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	DESIGNED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

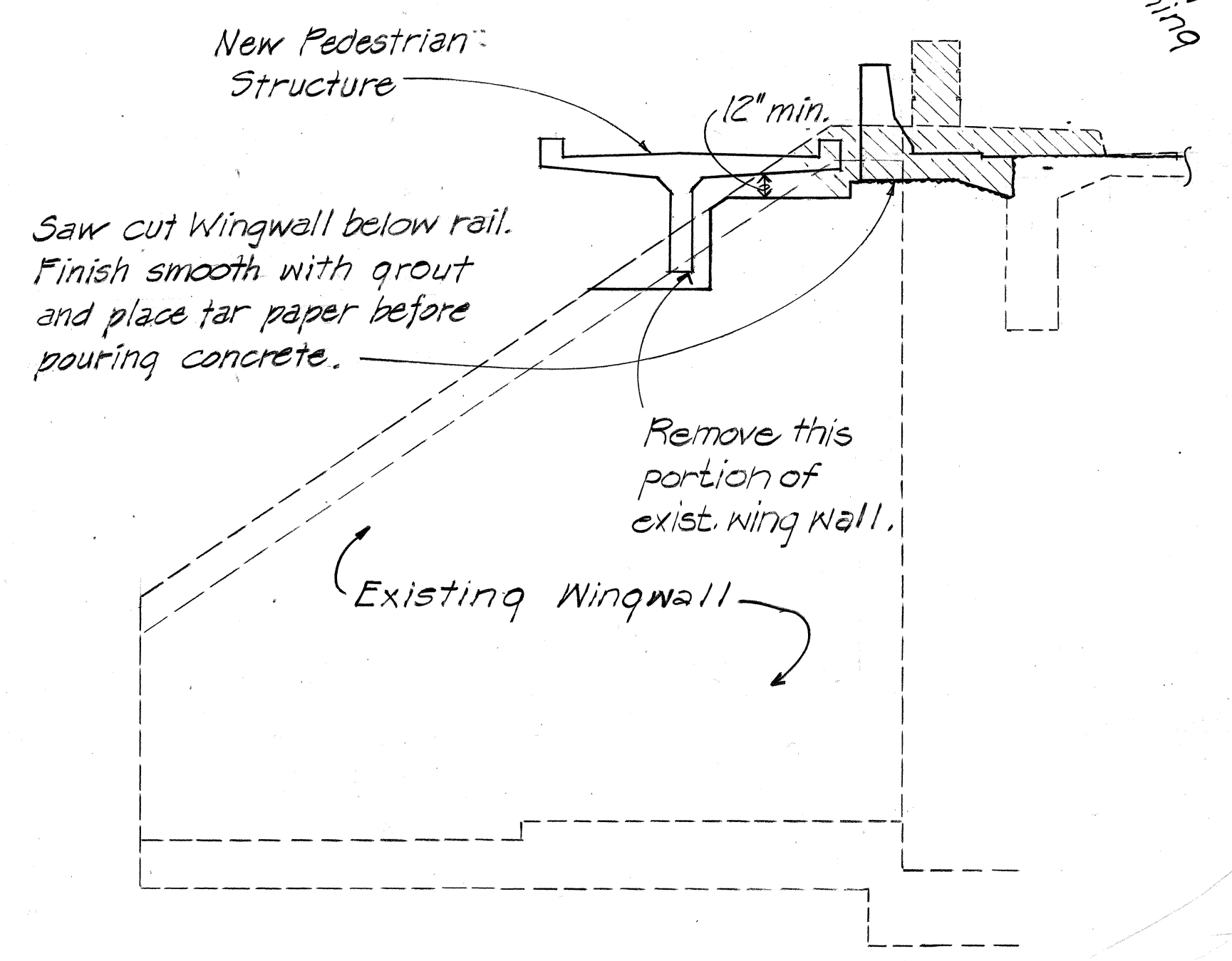


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-063-1(17)	1984	91	156

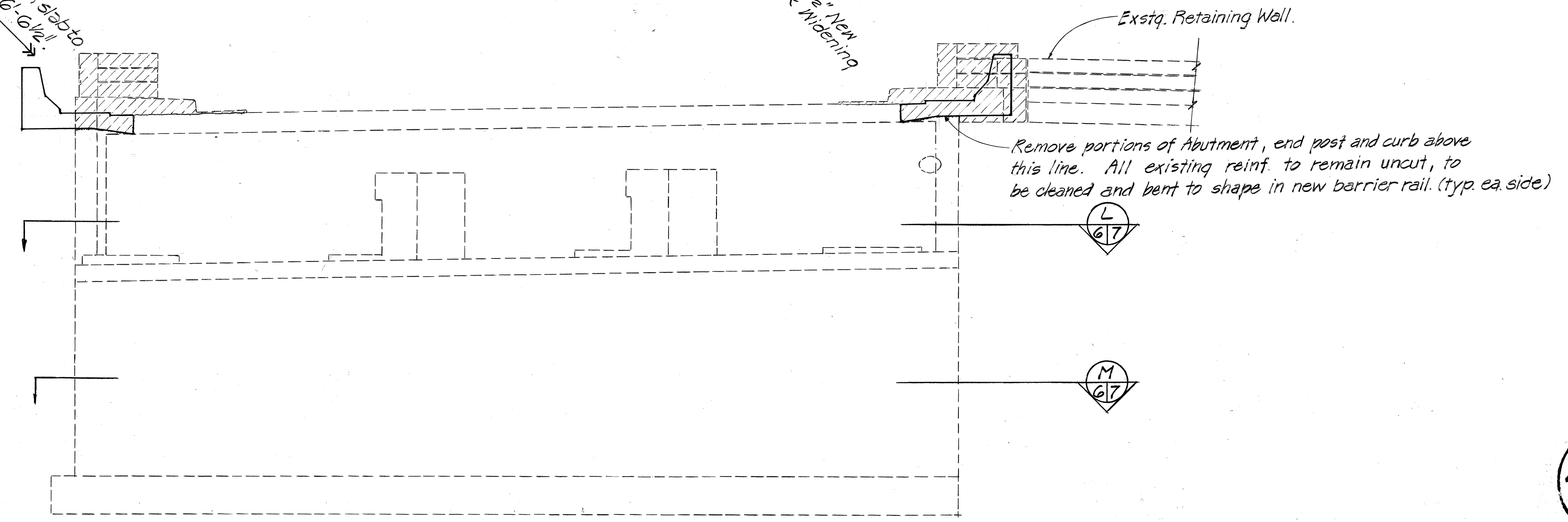
Sawcut Wingwall below new rail and finish smooth with grout. Place tar paper before pouring new concrete.



PLAN - ABUTMENT No. 2
Scale: 1/4" = 1'-0"



J 66 SECTION
ELEVATION - WINGWALL No 3
Scale: 1/4" = 1'-0"



I 66 SECTION
ELEVATION - ABUTMENT No. 2
Scale: 1/4" = 1'-0"

- LEGEND**
- Existing structure.
 - New construction.
 - Portion of existing to be removed.
 - E.P. Edge of pavement.



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HIGHWAYS DIVISION

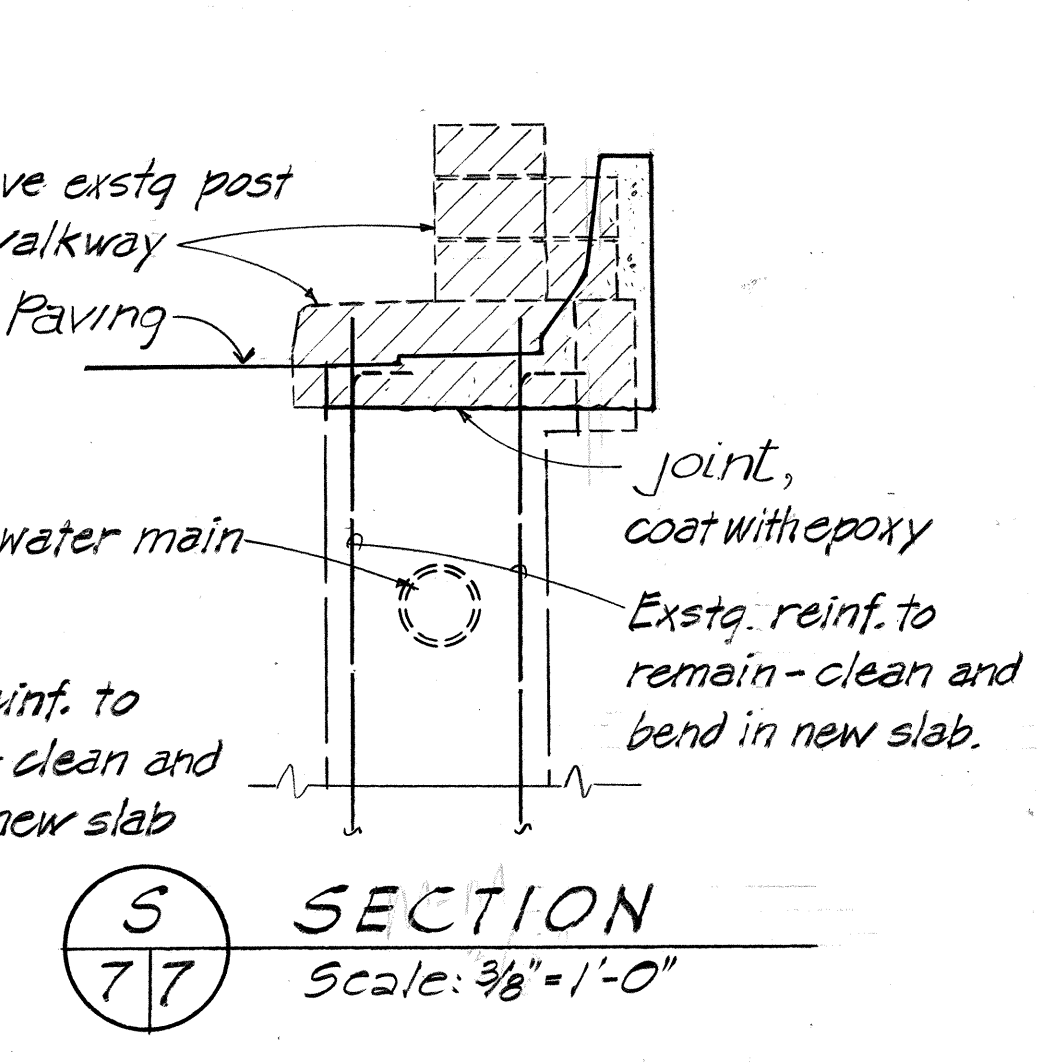
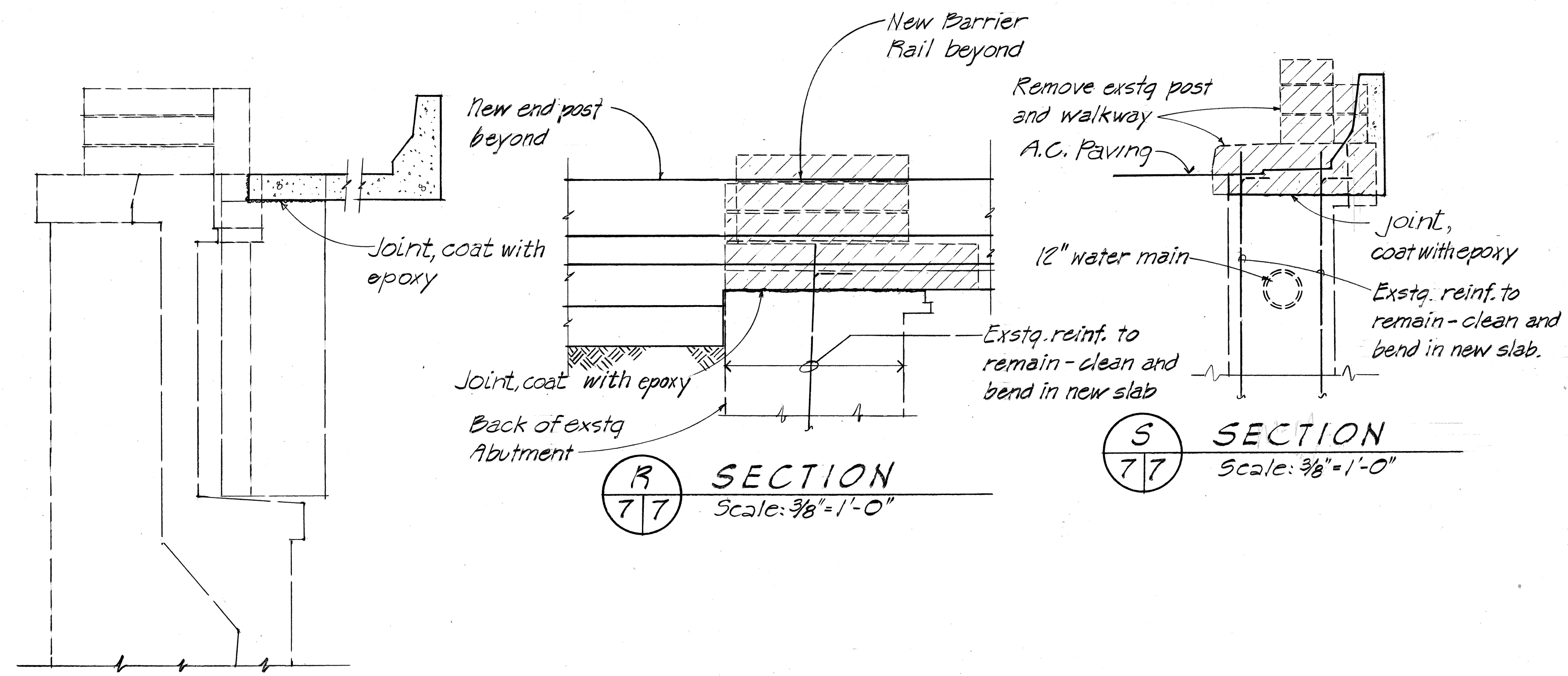
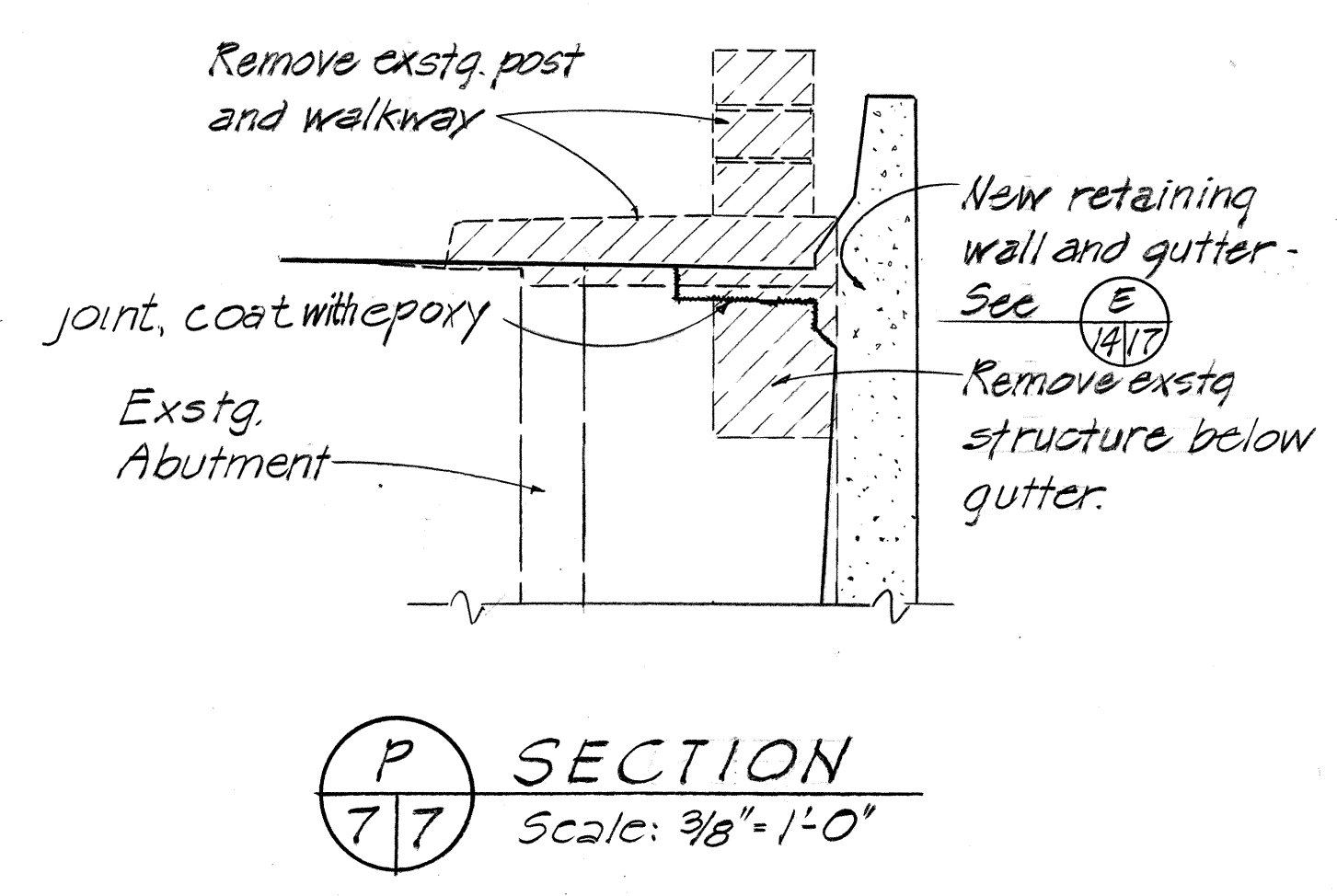
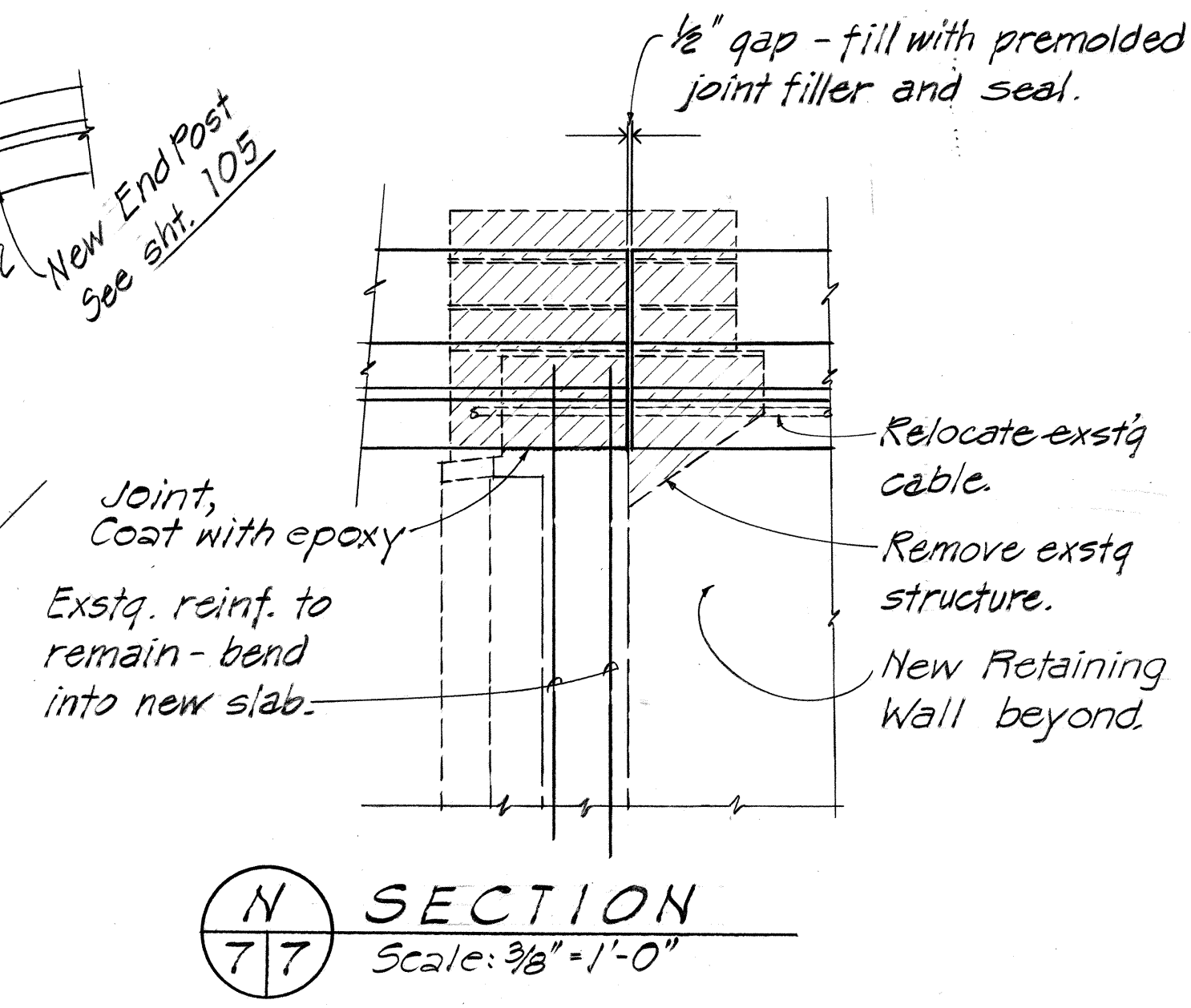
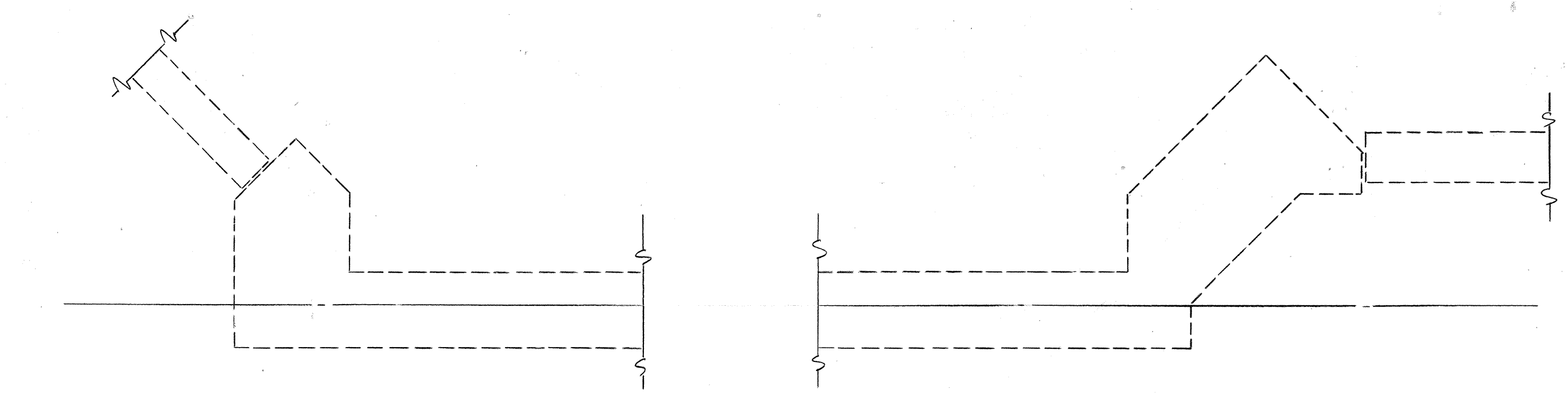
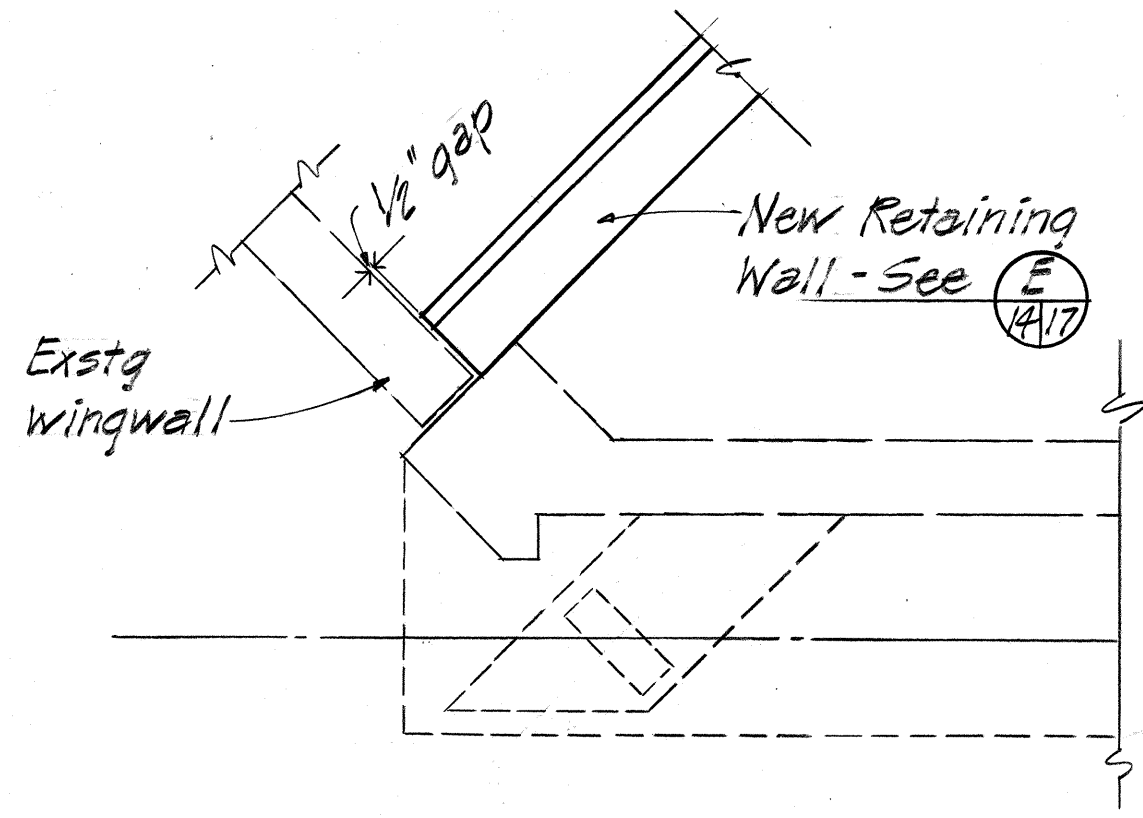
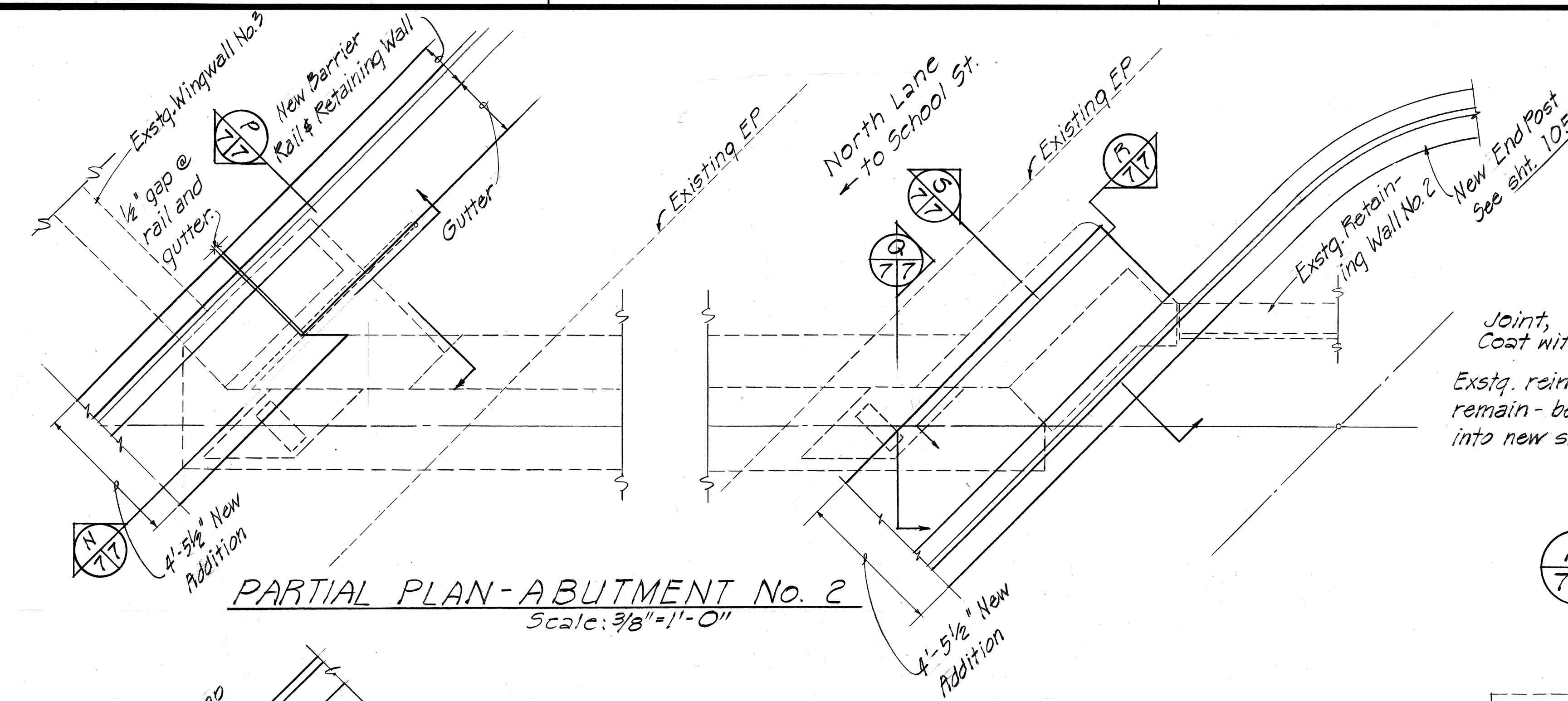
ABUTMENT NO. 2
PLAN & ELEVATION

LIKELIKE HIGHWAY IMPROVEMENTS
KAM IV ROAD TO VICINITY OF KALIHI STREET
F.A. PROJ. NO. F-063-1(17) Scale as shown

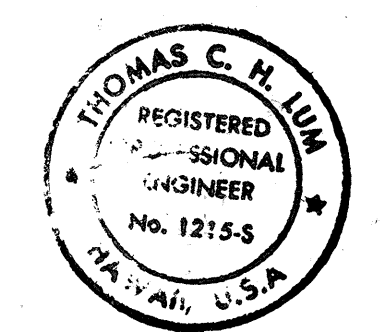
SHEET NO. 6 OF 22 SHEETS

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DRAWN BY	_____
DESIGNED BY	_____
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NOTE BOOK	_____
NO.	_____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-OG3-1(17)	1984	92	156



- LEGEND**
- Existing Structure.
 - Existing Structure in section.
 - New construction.
 - ////// Portion of existing to be removed.
 - E.P. Edge of pavement.



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**ABUTMENT NO. 2
DETAILS**

LIKELIKE HIGHWAY IMPROVEMENTS
KAM IV ROAD TO VICINITY OF KALIHI STREET
F.A.PROJ. NO. F-OG3-1(17) Scale as shown

SHEET NO. 7 OF 22 SHEETS

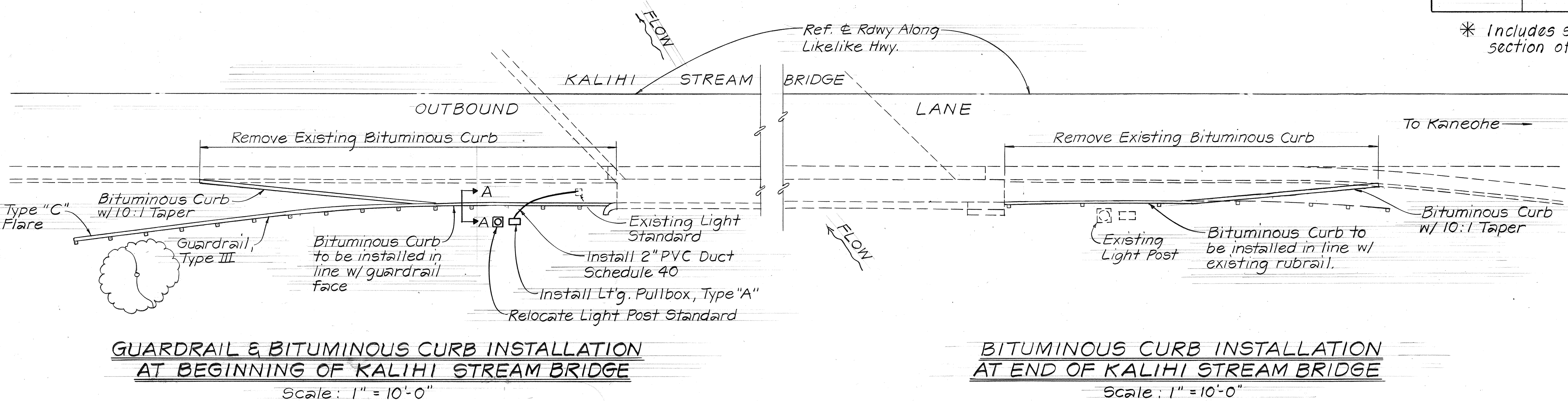
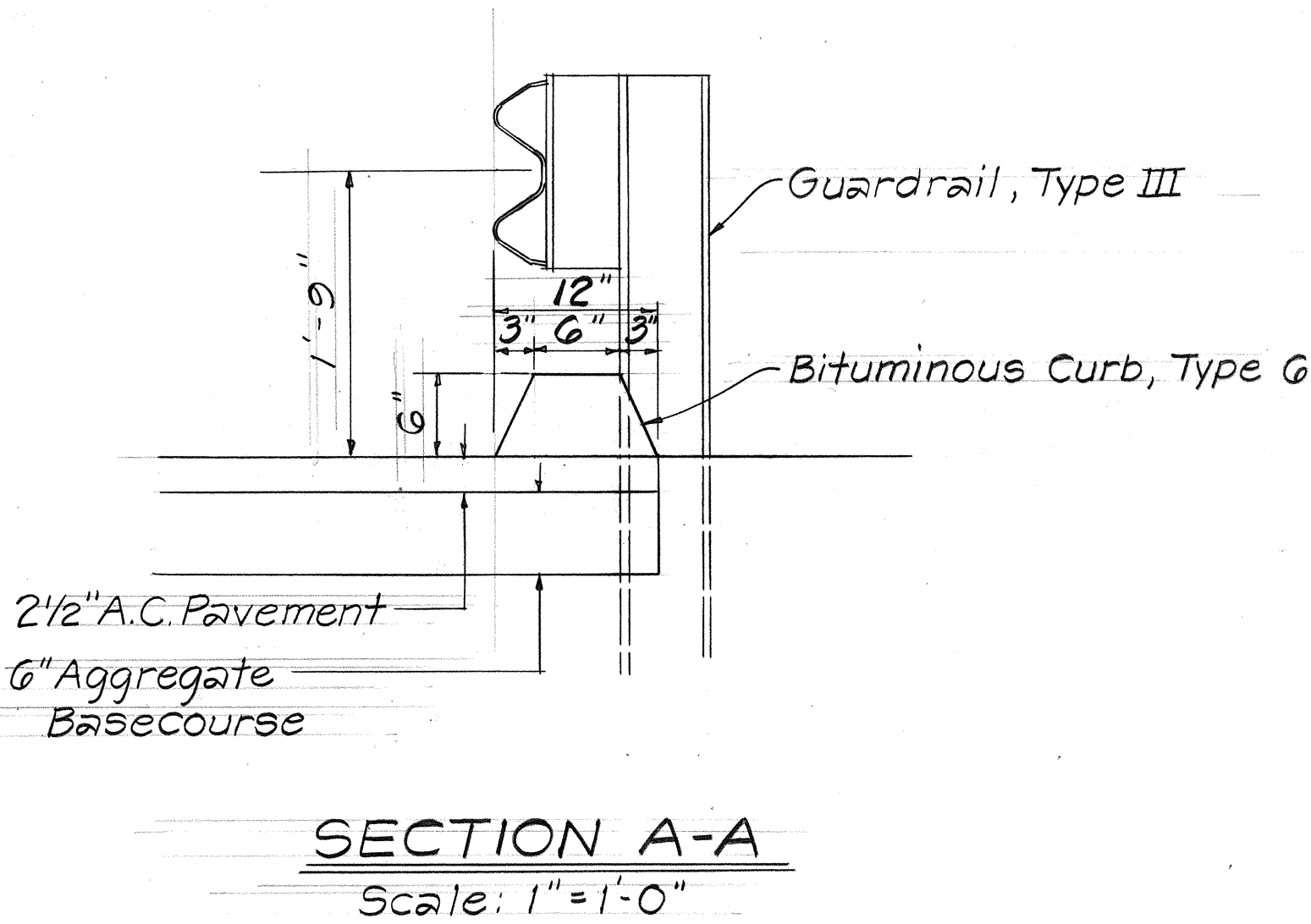
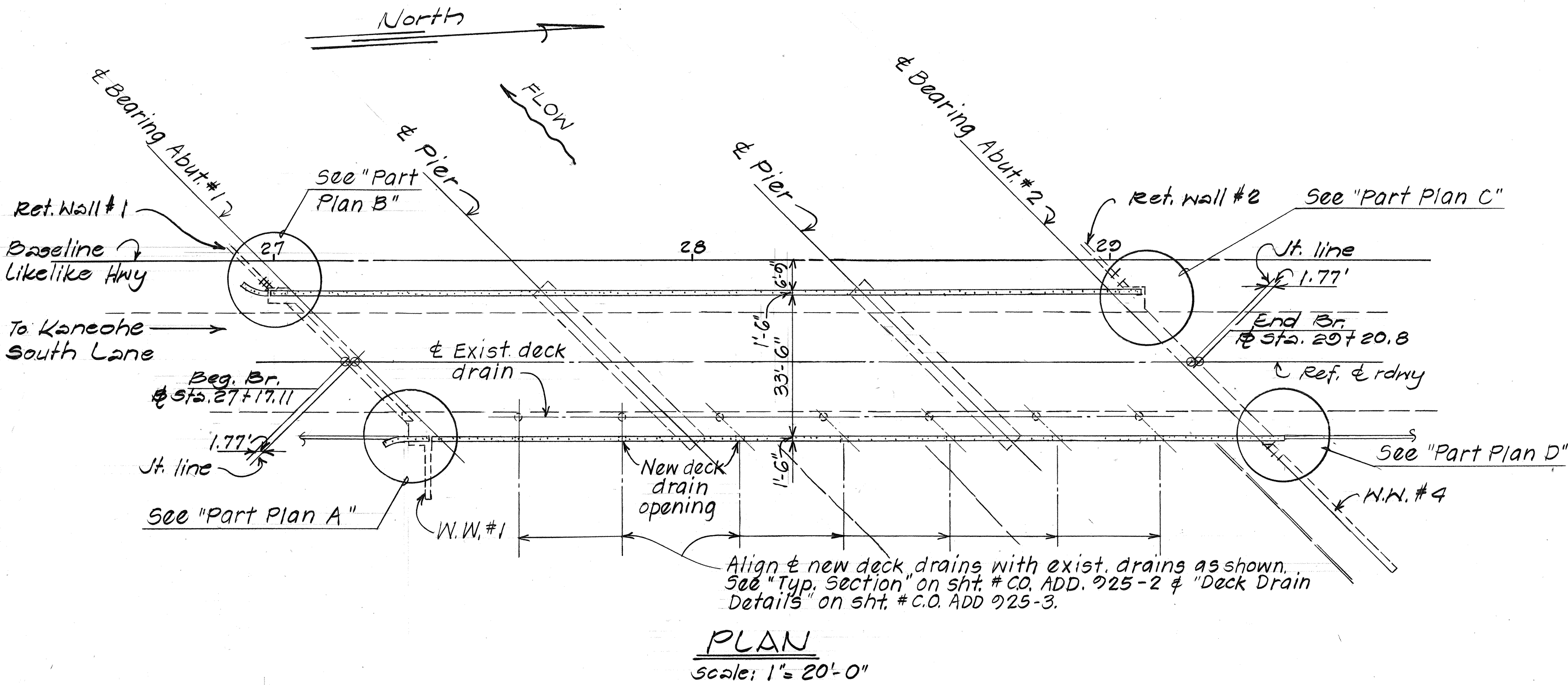
ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
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NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-063-1(17)	1987		

- NOTES:
- See applicable items of General Structural Notes, sheet #86.
 - Existing structure shown by dashed lines. Removal of existing structure shown by hatched areas.
 - The Contractor shall erect portable concrete barrier during the removal and reconstruction of the bridge rail.
 - Insert contraction or control joint and expansion joints as indicated on sheet C.O. ADD. 92S-3. If the control joint is to be saw cut, such cutting shall be performed within 3 to 5 days from concrete pour.
 - Place name and date (shown on existing end post) of bridge on the left (median) end post.
 - For curve end section of new concrete railing and connection details of metal guardrail (slot & intermediate metal support block), see sheet #C.O. ADD. 92S-4 and C.O. ADD. 92S-5.

ESTIMATED QUANTITIES			
ITEM NO.	ITEM	UNIT	QUANTITY
*202.0420	Removal of Existing Concrete Bridge Railing, Curb & Sidewalk	Lin. Ft.	434.5 L.F.
507.5010	Concrete Bridge Railing	Lin. Ft.	435.5 L.F.
507.9000	7/8" & Drilled Holes for Railing Reinf.	Each	1,228
507.9100	3/4" & Drilled Holes for Railing Reinf.	Each	614
203.0100	Excavation	Cu. Yd.	10 C.Y.
304.1110	Aggregate Base	Cu. Yd.	7 C.Y.
401.0500	A.C. Mix No. V	Ton	6 Ton
606.3110	Guard Rail	Lin. Ft.	90 L.F.
606.6000	Anchor Block	Each	1
609.6000	Bituminous Curb, Type G	Lin. Ft.	135 L.F.
622.0701	Relocate Light Post Standard	Each	1
622.5031	2-Inch P.V.C. Duct, Schedule 40	Lin. Ft.	12 L.F.
622.6211	Street Lighting Pullbox, Type "A"	Each	1

* Includes structure excavation & backfill for curved end section of railing & item in Note ③ above.



STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

KALIHI STREAM BRIDGE (OUTBOUND)

REMOVAL & RECONSTRUCTION OF RAILING

LIKELIKE HIGHWAY IMPROVEMENTS

KAM IV ROAD TO VICINITY OF KALIHI STREET

F.A. Proj. No. F-063-1 (17)

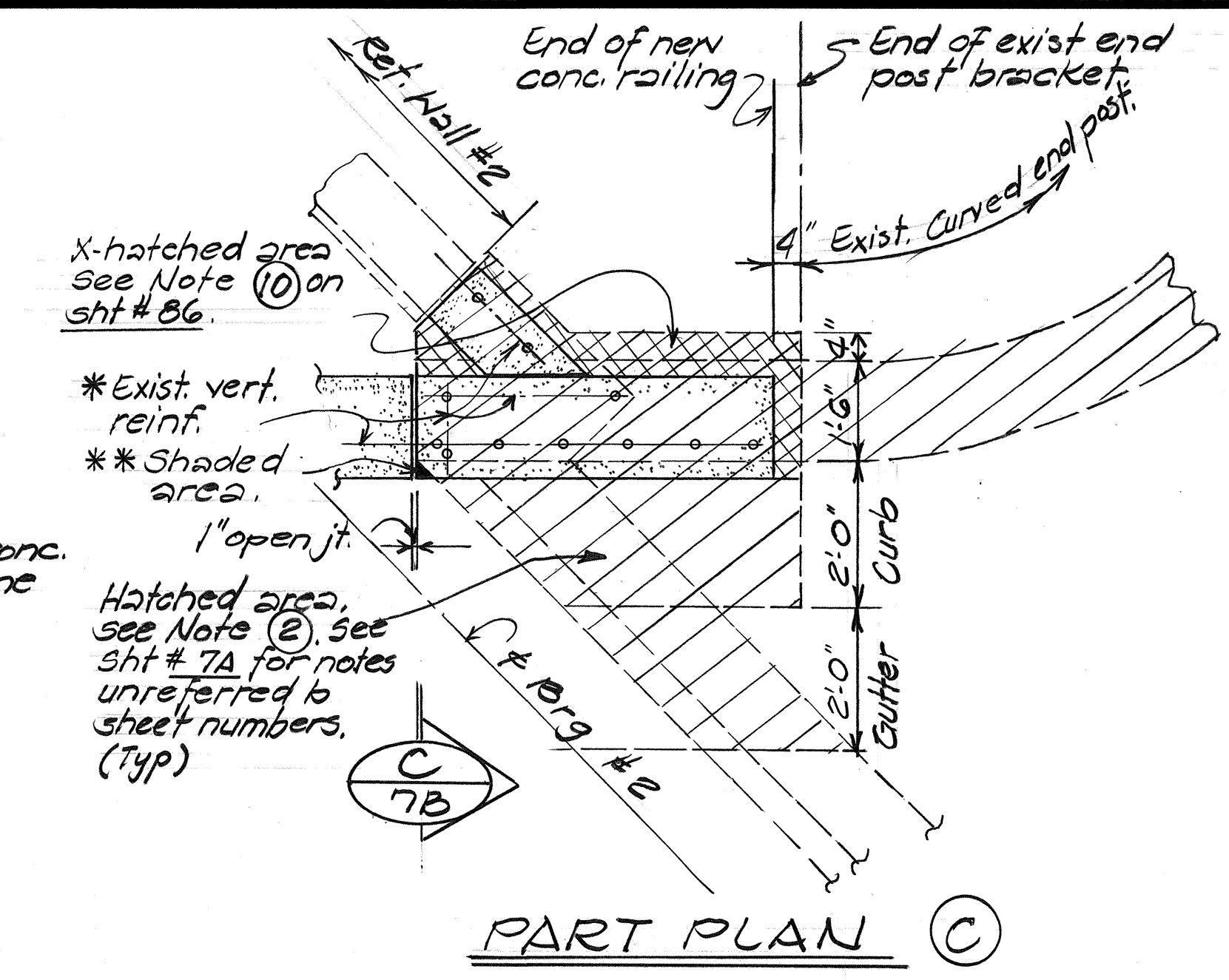
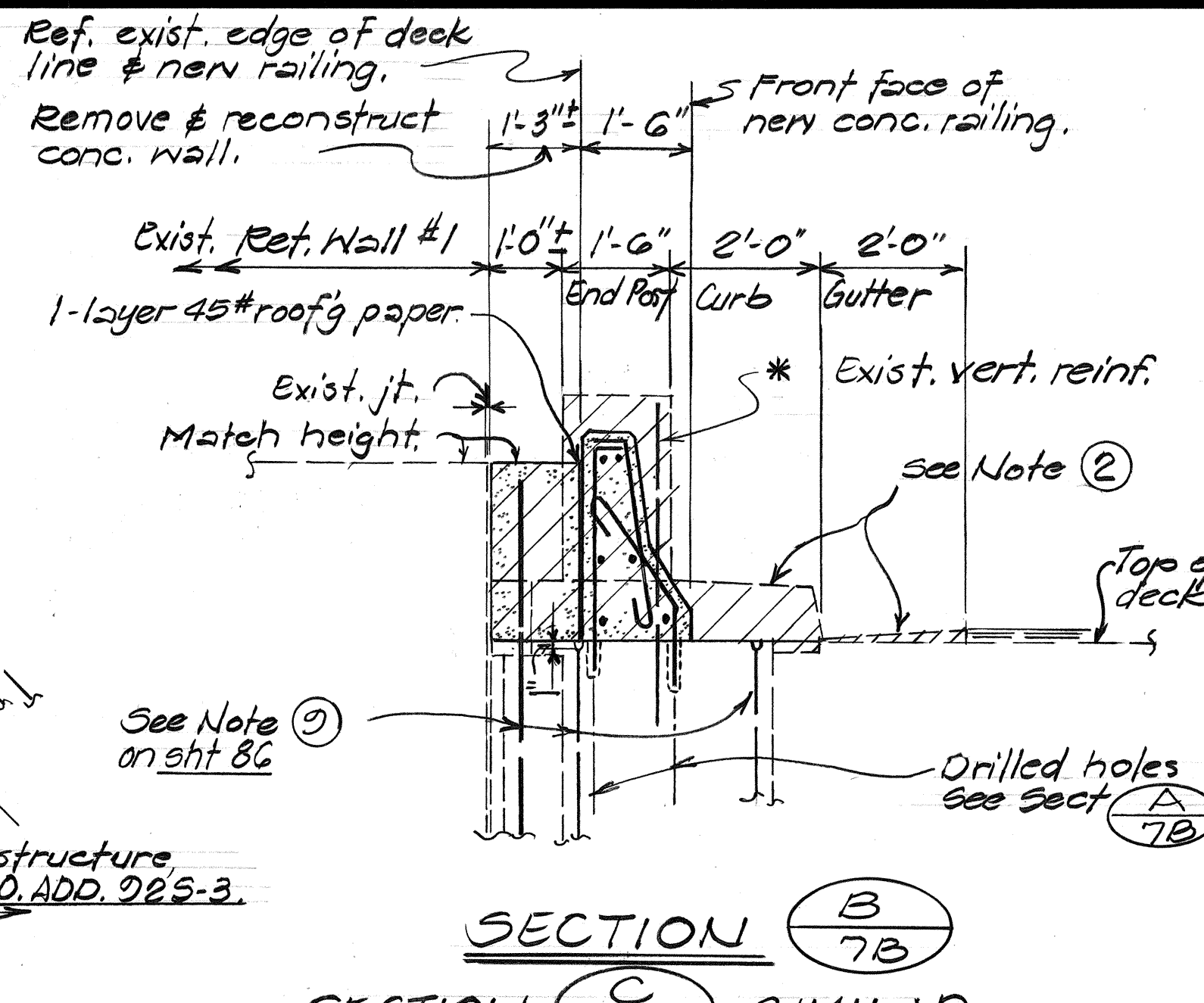
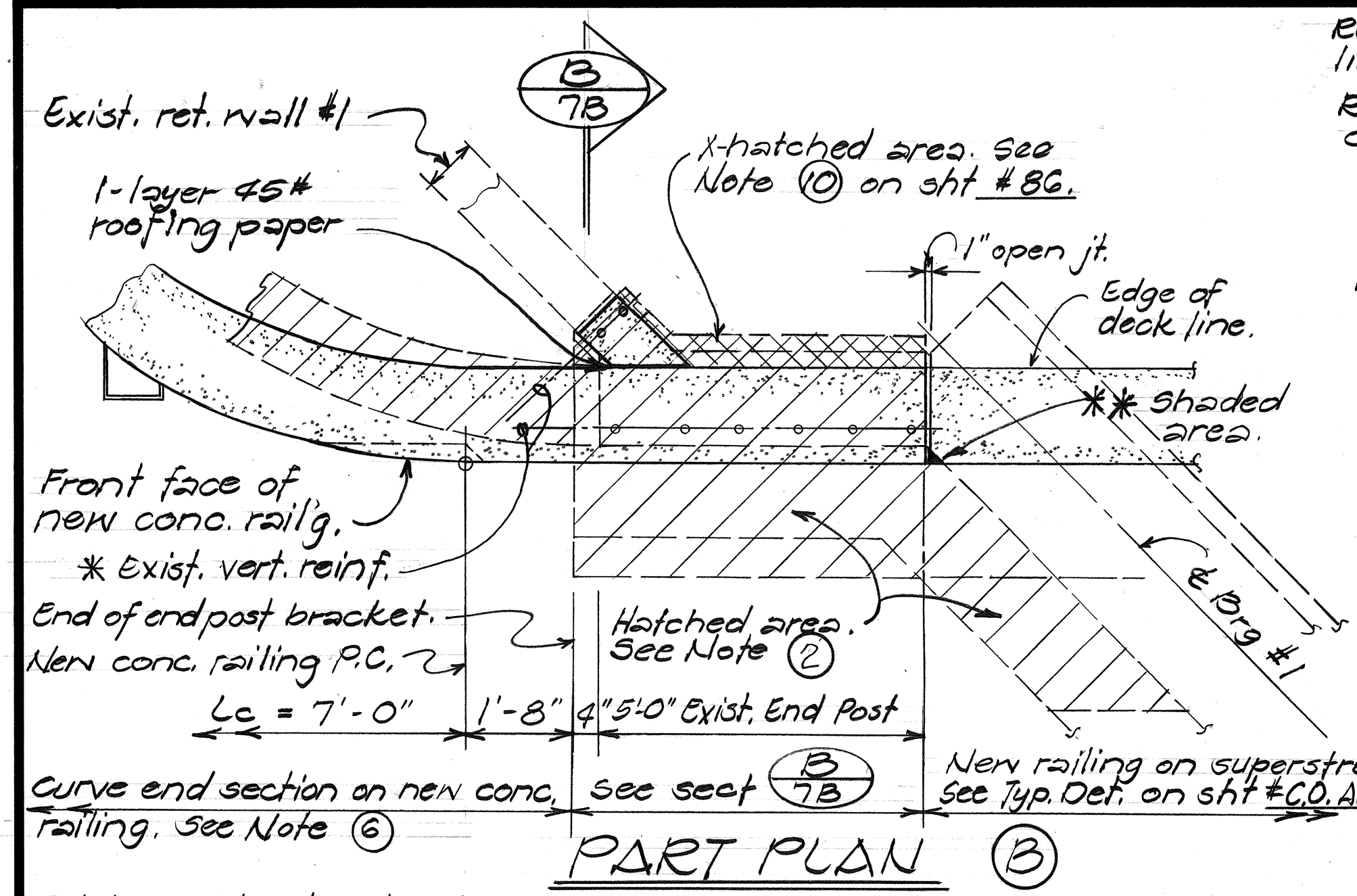
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Sept. 1986

SHEET No. 7A OF 22 SHEETS

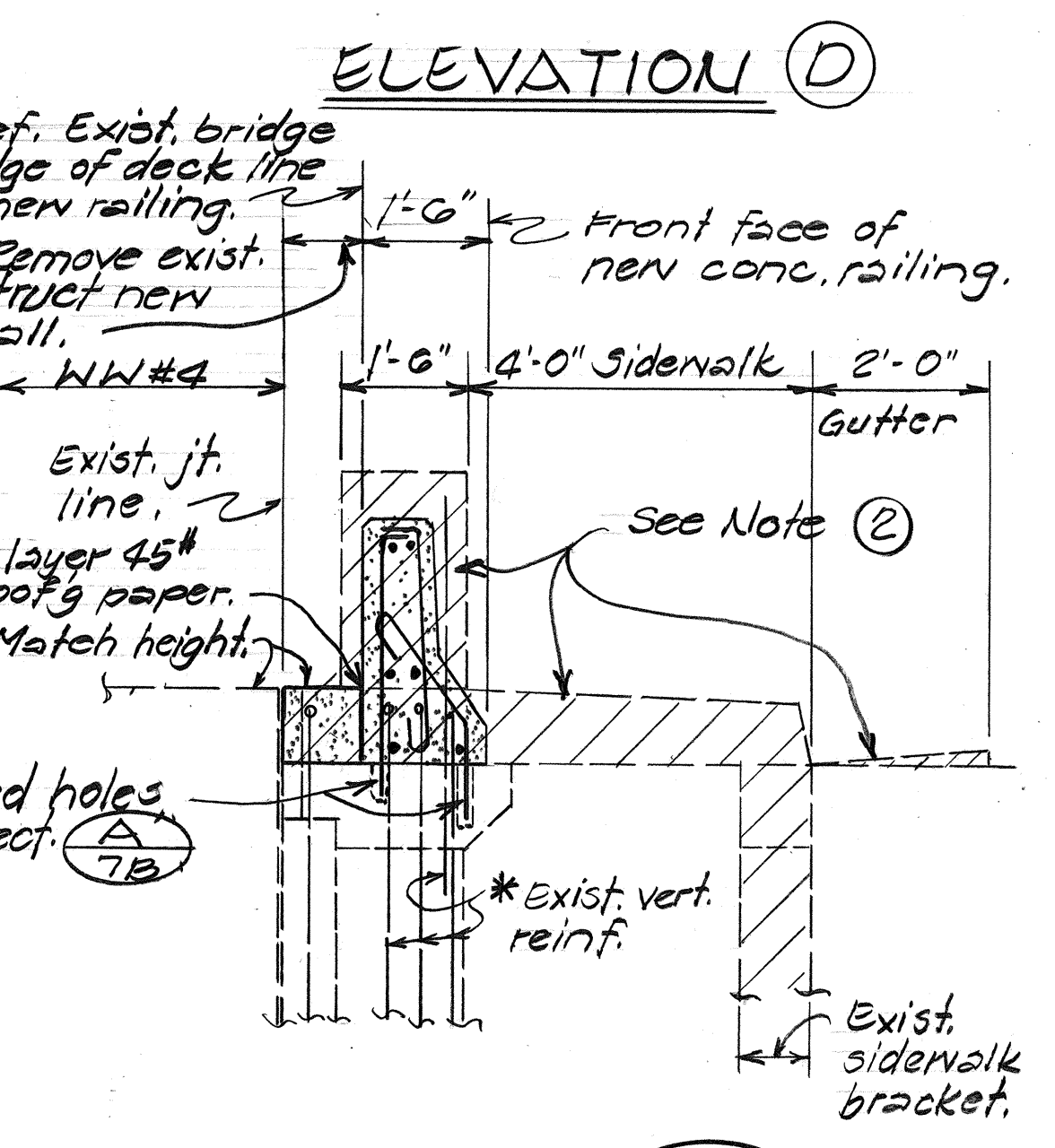
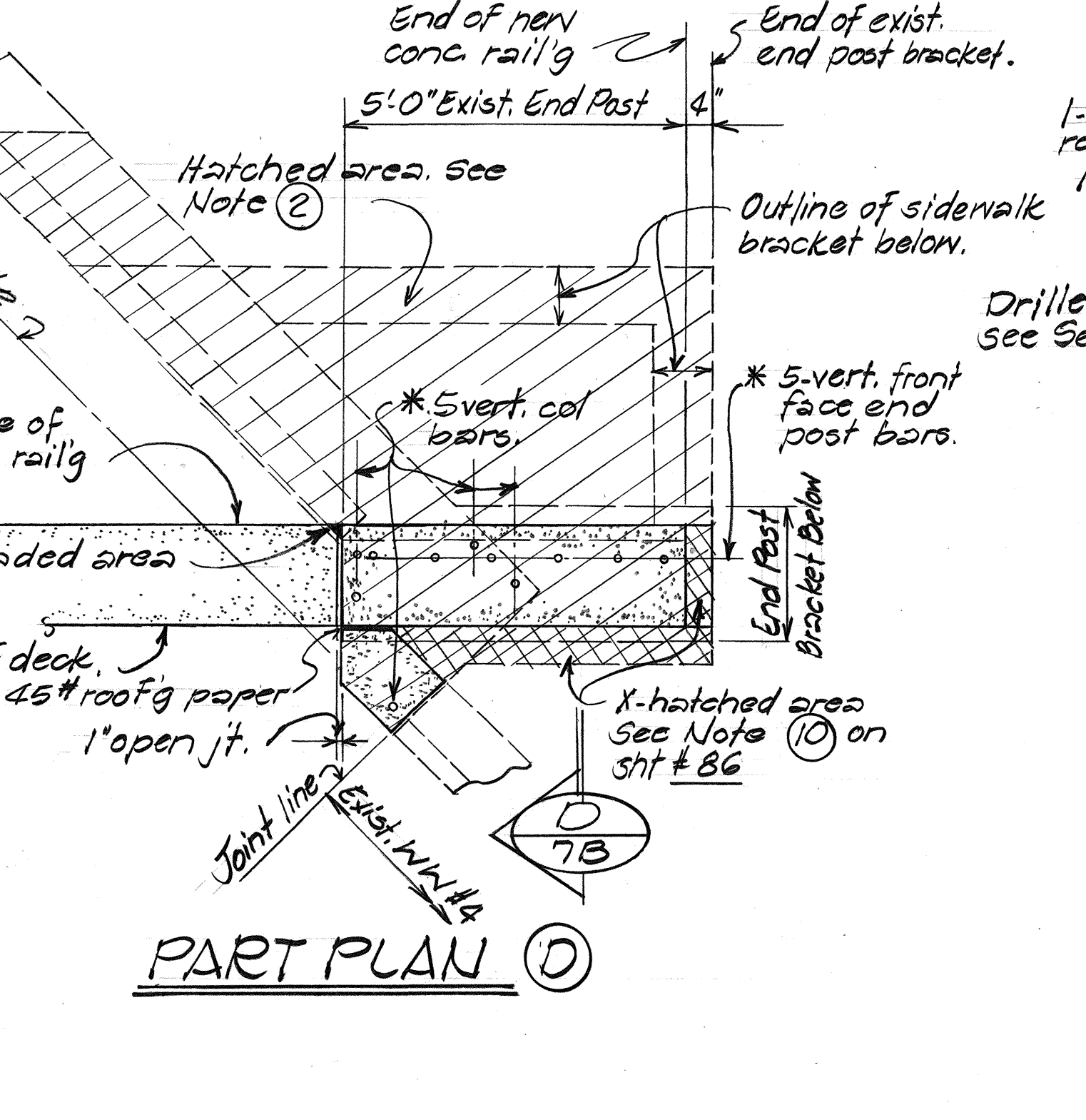
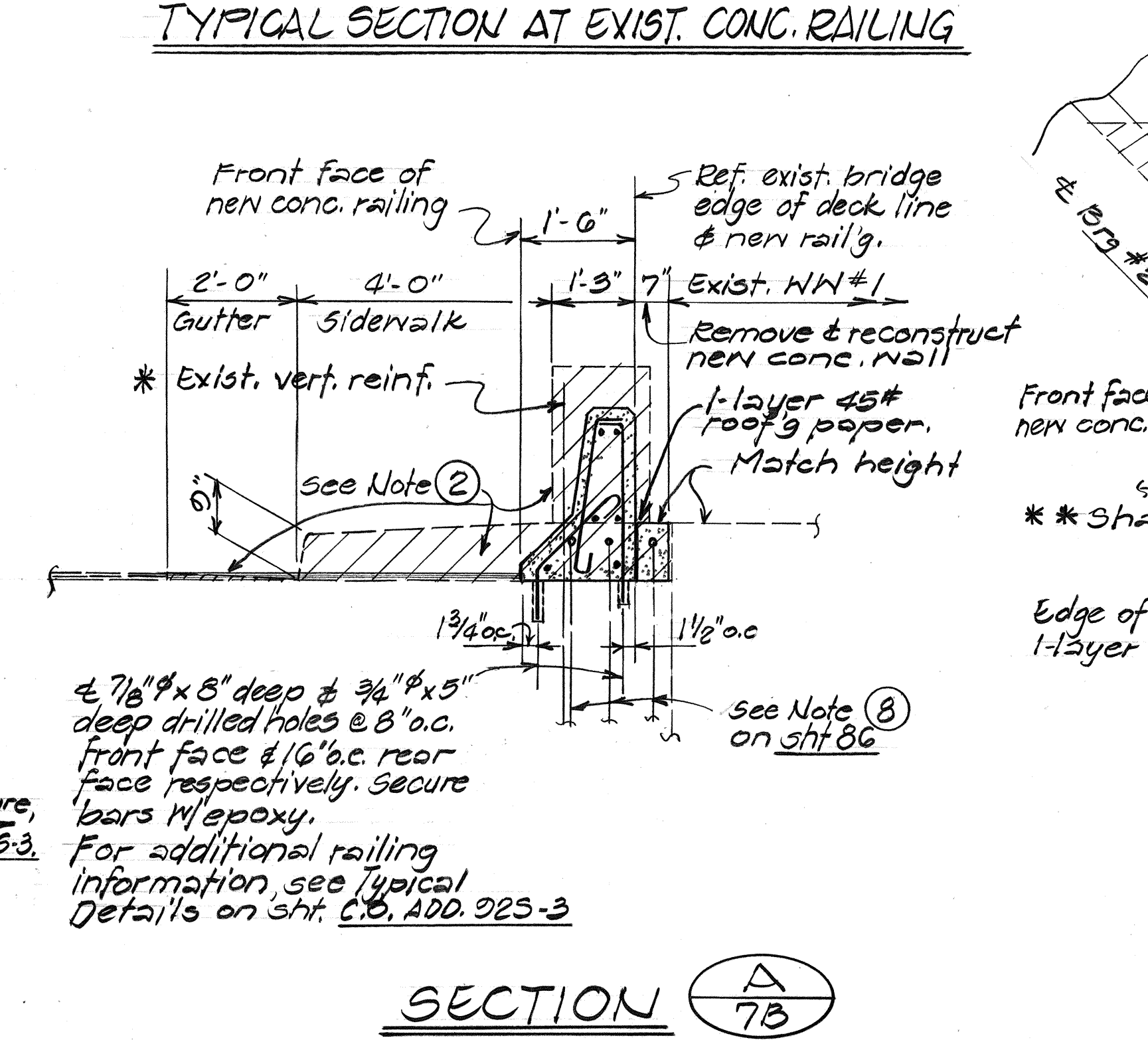
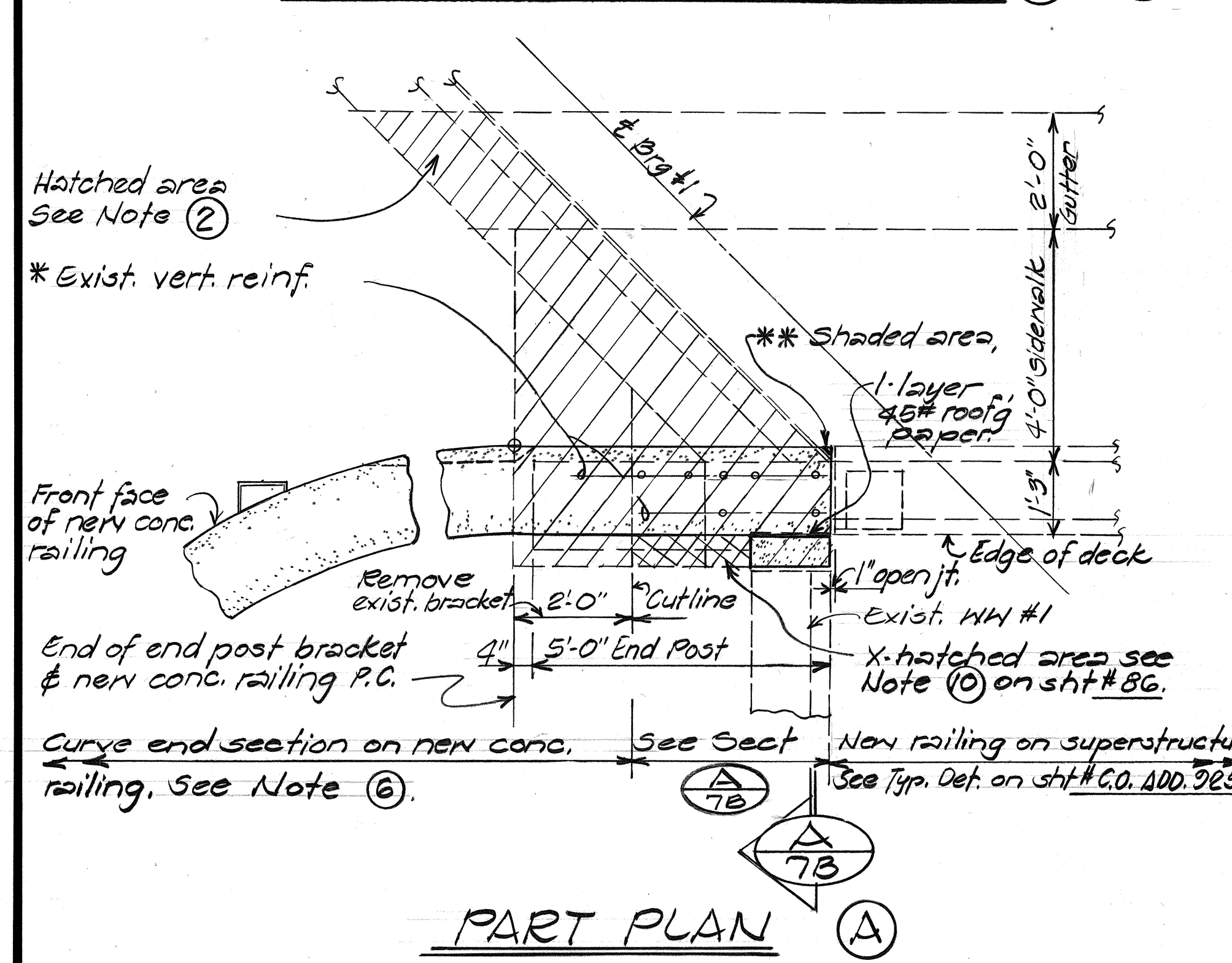
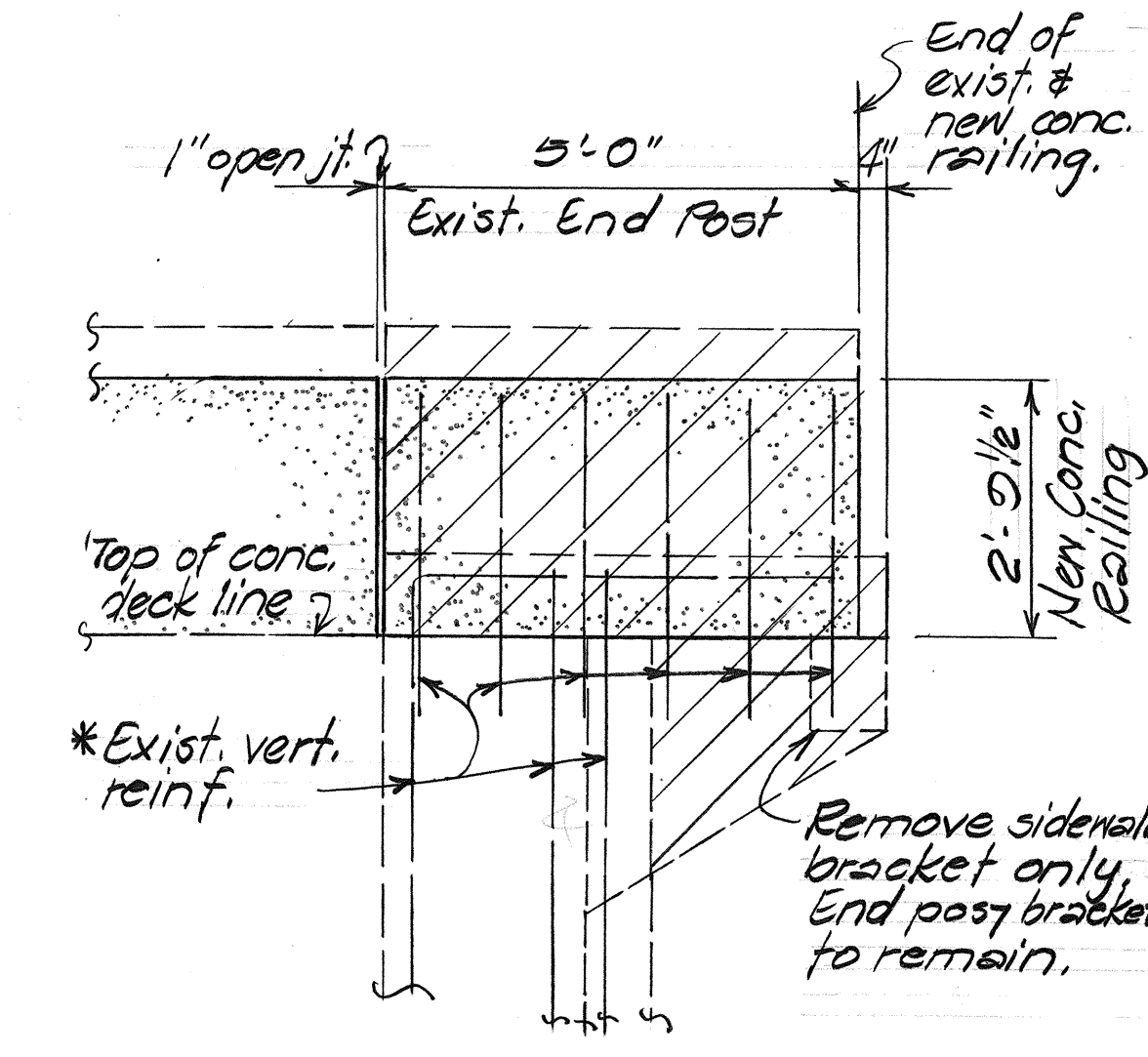
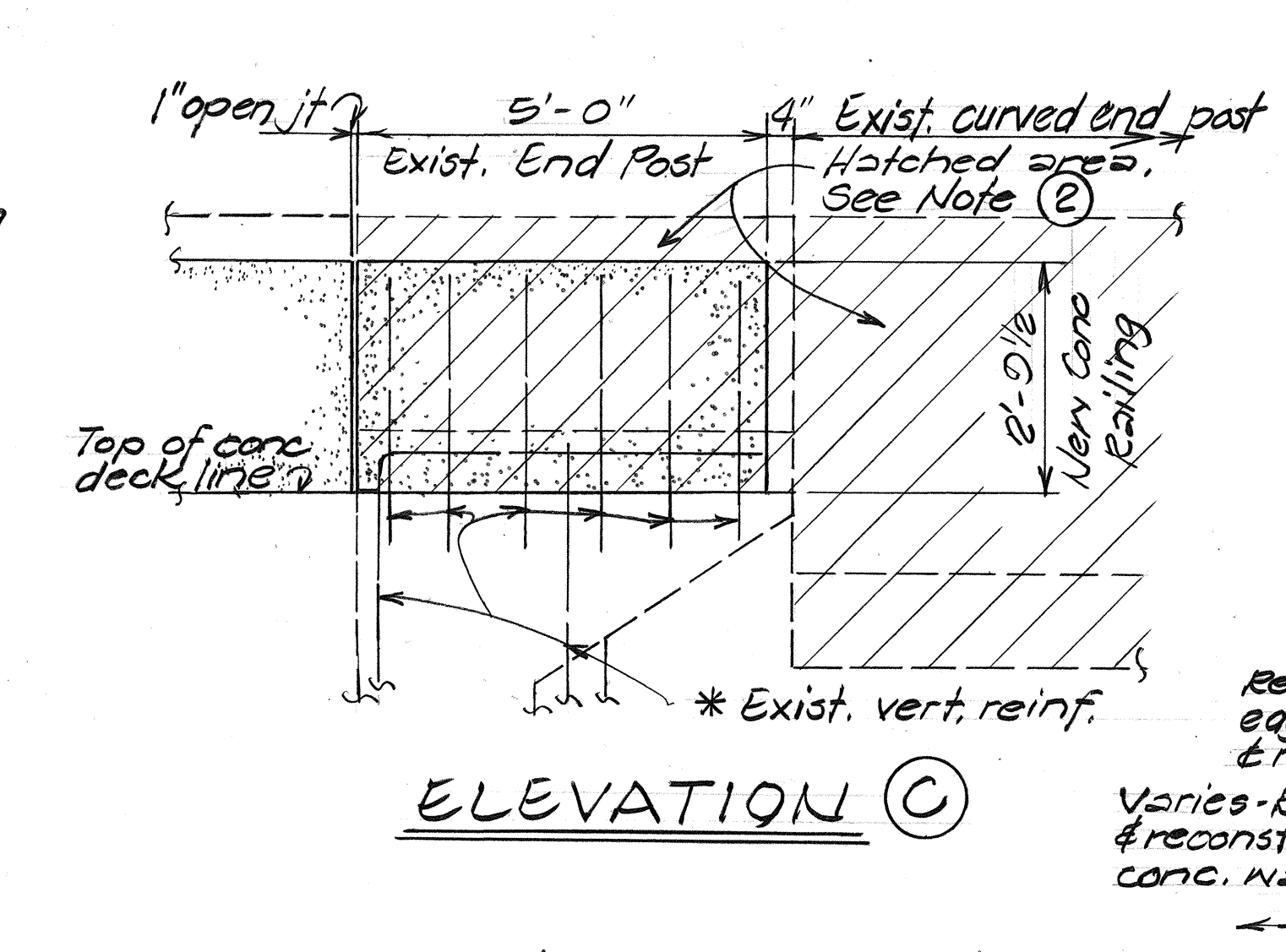
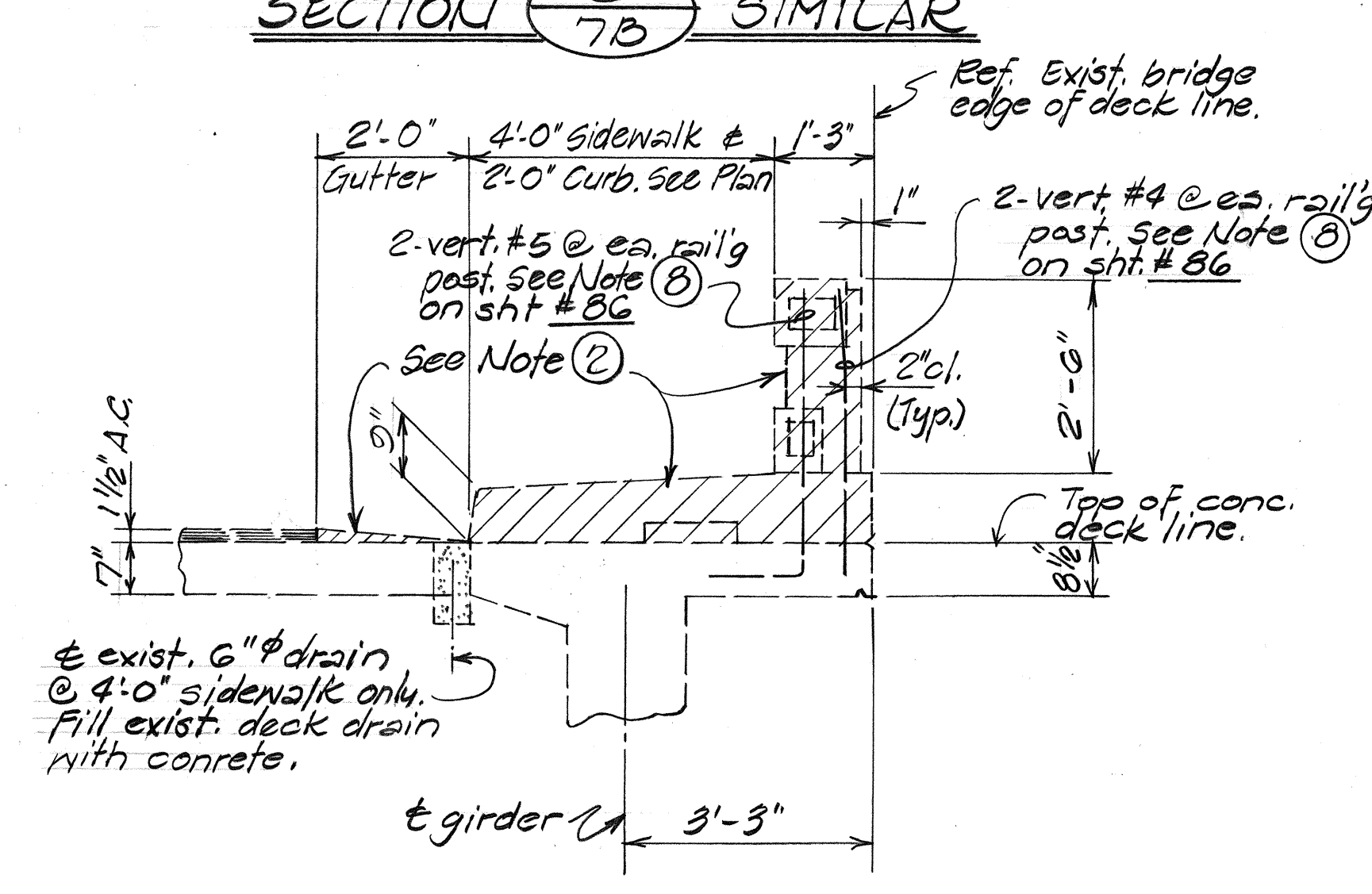
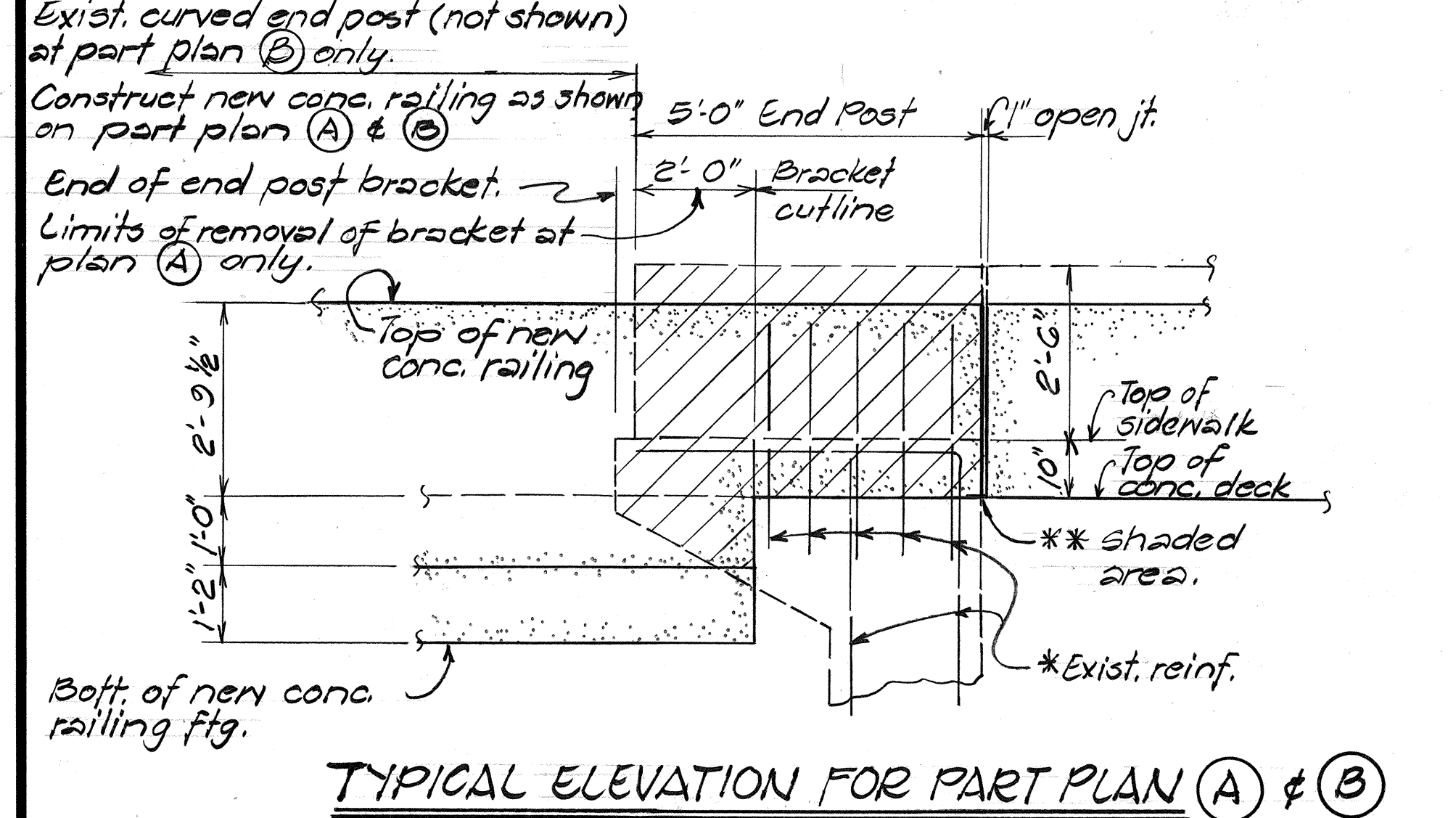
C.O. ADD. 92S-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-063-1(17)	1987		



* Only existing reinf. to be incorporated in the reconstruction shown in this detail. Others to be removed. See Note B & D on sht #86. For new conc. railing reinf. see Typ. Det. sht. #40, ADD. 92S-3

* Shaded area 1-layer 45# composition roofing paper between top of deck & bottom of new conc. railing.



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

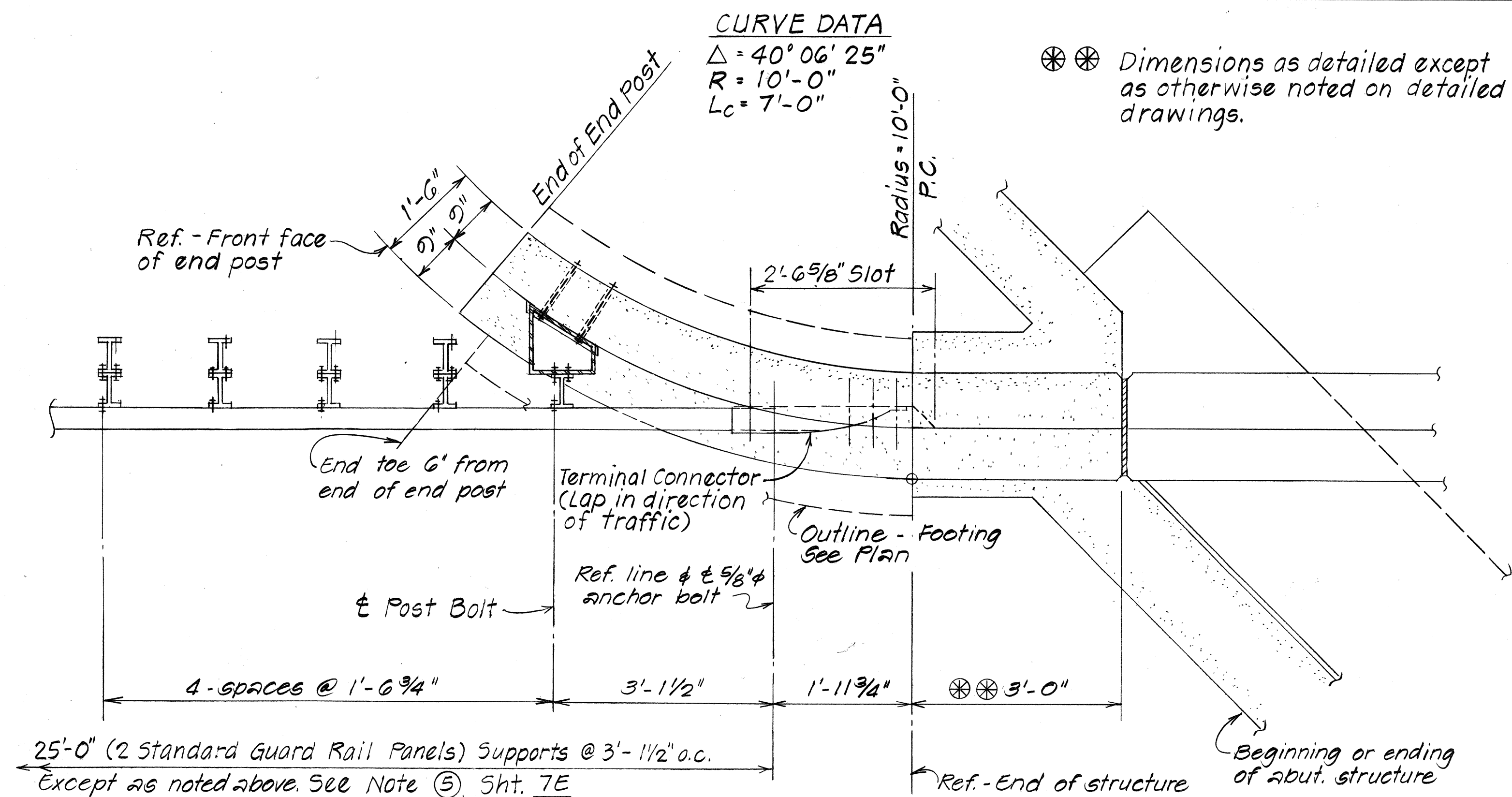
KAUHI STREAM BRIDGE (OUTBOUND)
REMOVAL & RECONSTRUCTION OF RAILING

LIKELIKE HIGHWAY IMPROVEMENTS
KAM IV ROAD TO VICINITY OF KAUHI STREET
F.A. Proj. No. F-063-1(17)
Scale: 1/8" = 1'-0" Sept. 1986
SHEET No. 78 OF 22 SHEETS

C.O. ADD. 92S-2

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

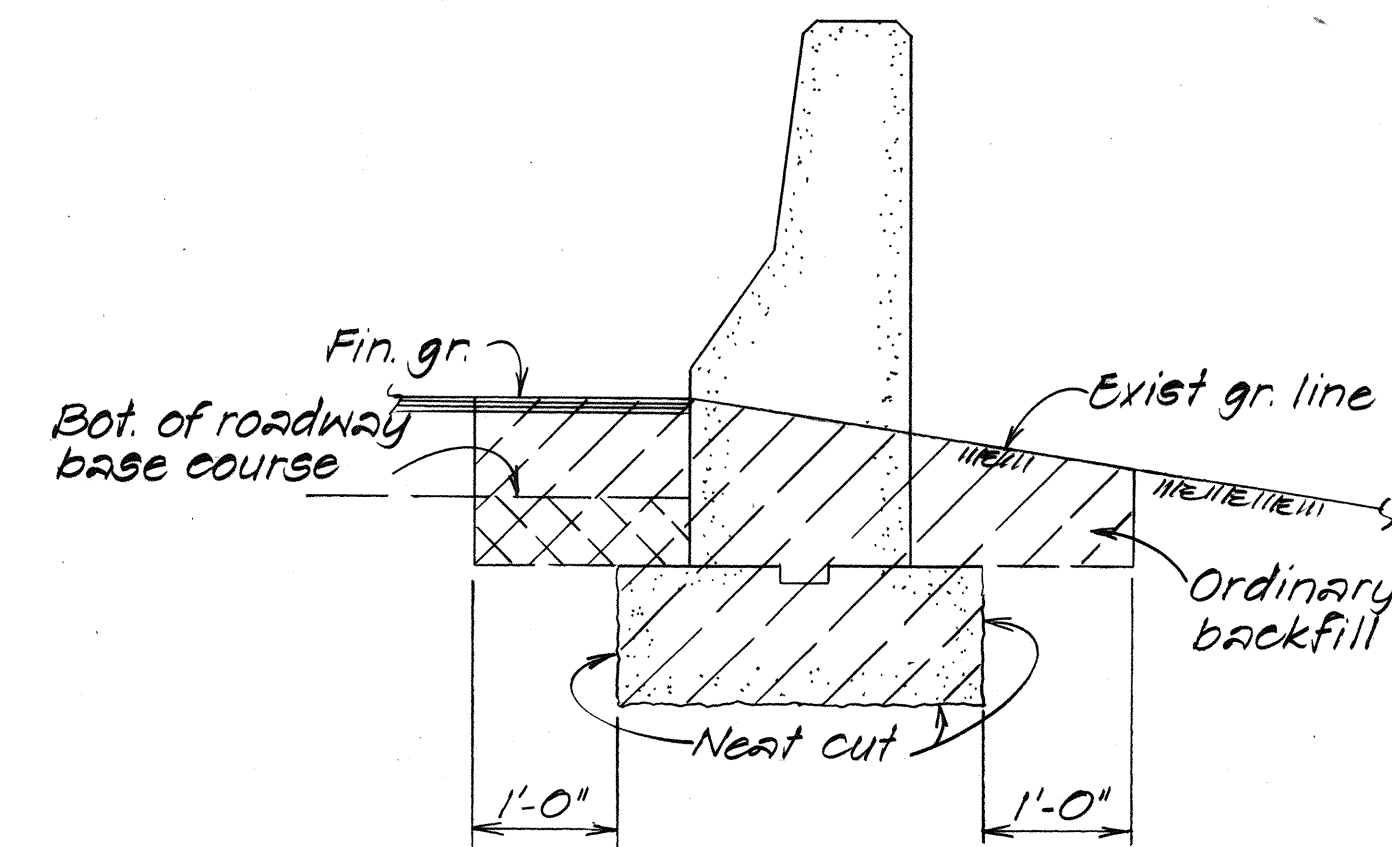
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-063-1(17)	1987		



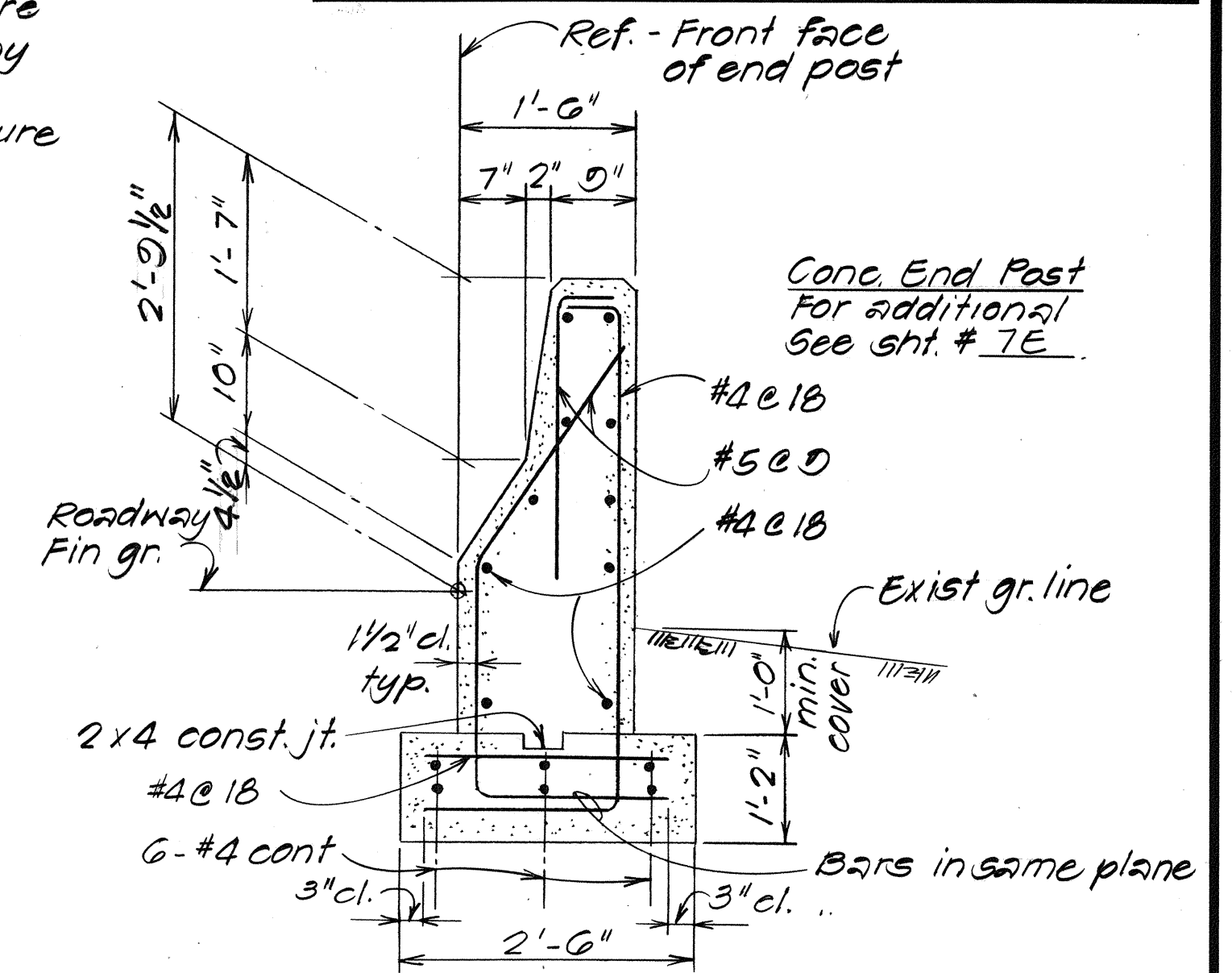
PLAN
Scale: $3/4" = 1'-0"$

NOTE: Hatched Area

1. Hatched area shown thus  denotes limits of structure excavation payline. All other excavation shall be roadway excavation.
2. Hatched area shown thus  denotes limits of structure backfill (or ordinary backfill).



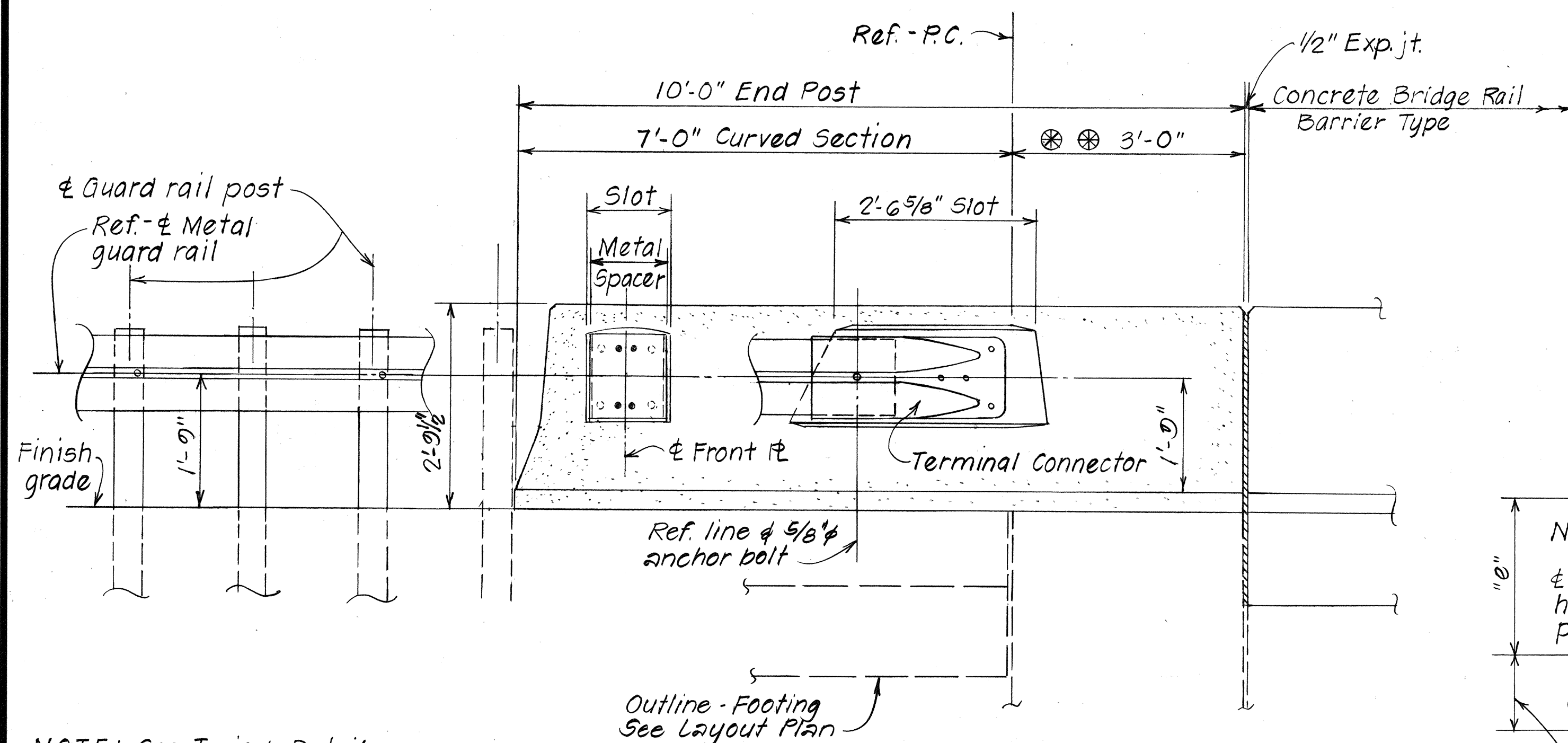
TYPICAL STRUCTURE EXCAVATION &
BACKFILL PAY LIMITS DETAIL



TYPICAL SECTION

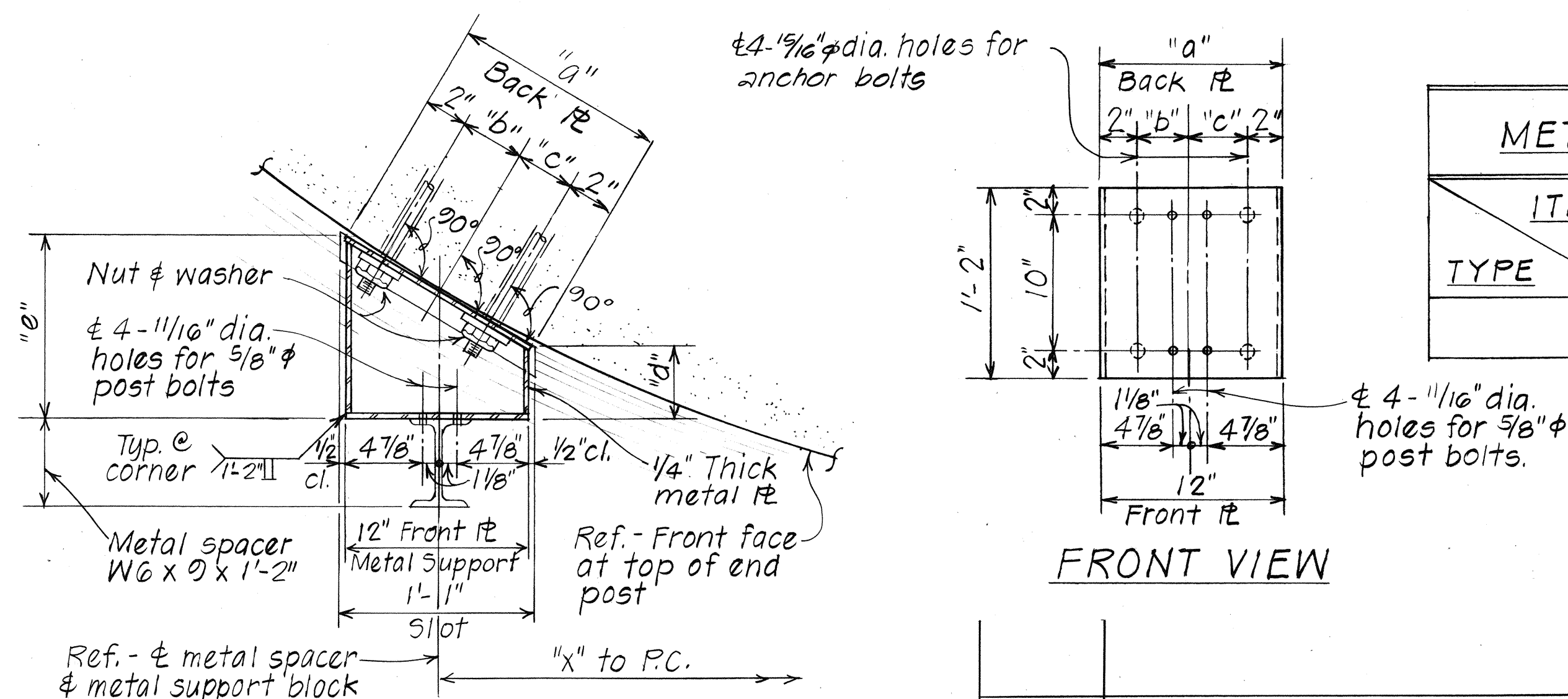
TYPICAL END POST DETAILS

Scale: $\frac{3}{4}" = 1'-0"$



NOTE: See Typical Details
sht. # 7E for additional
details & information.

ELEVATION
Scale: $3/4" = 1'-0"$



PLAN
METAL SUPPORT DETAIL Scale: 1 1/2" = 1'-0"
(GALVANIZED AFTER FABRICATION)

METAL SUPPORT BLOCK SCHEDULE						
ITEM TYPE	"x" Distance to P.C.	BACK R			SIDES	
		"a"	"b"	"c"	"d"	"e"
	5'-0 1/8"	1'-2 1/4"	5 1/4"	5"	43 1/8"	1'-0 1/8"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS
CONCRETE END POST
BARRIER TYPE

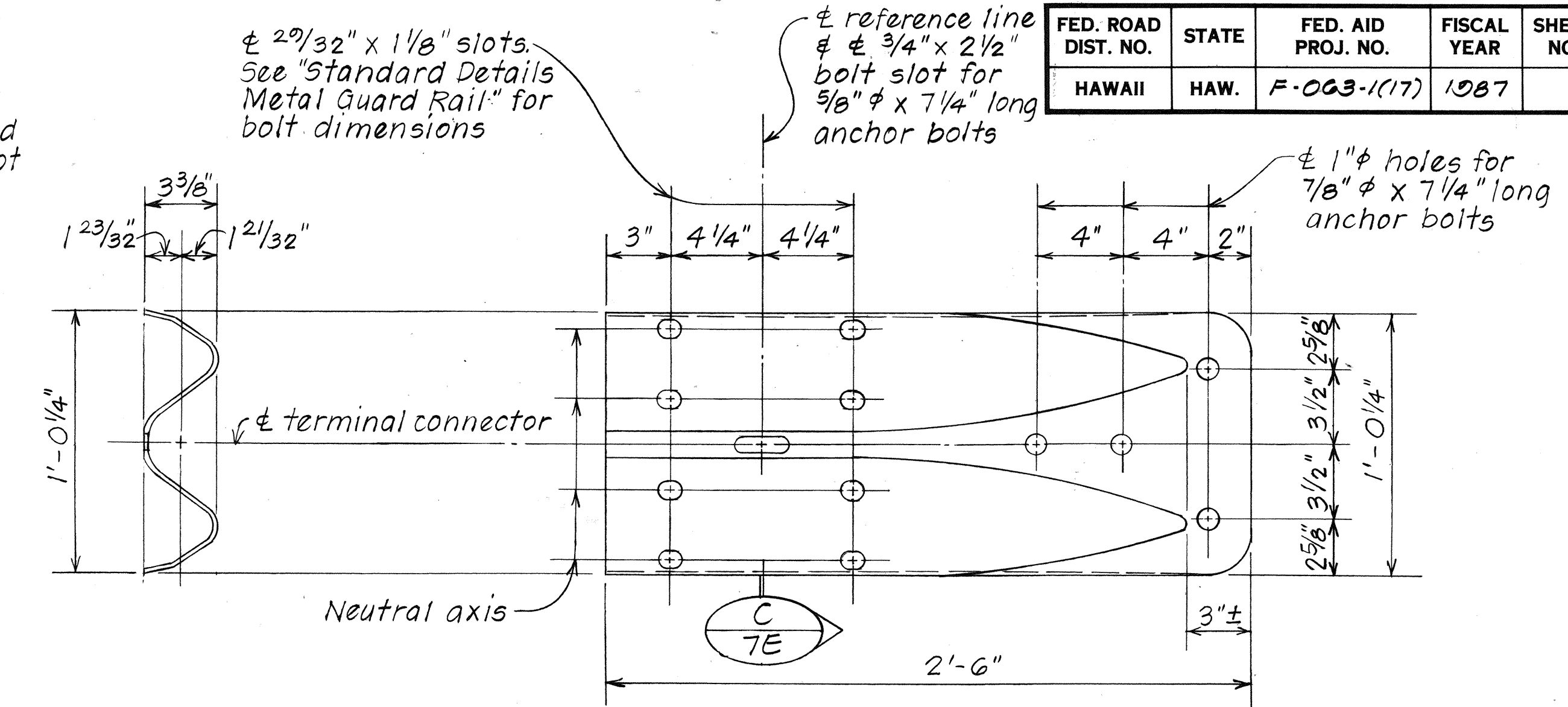
FAP NO. F-063-1(17)

Scale: As Noted Date: Sept 1986

C.O. ADD. 92S-4

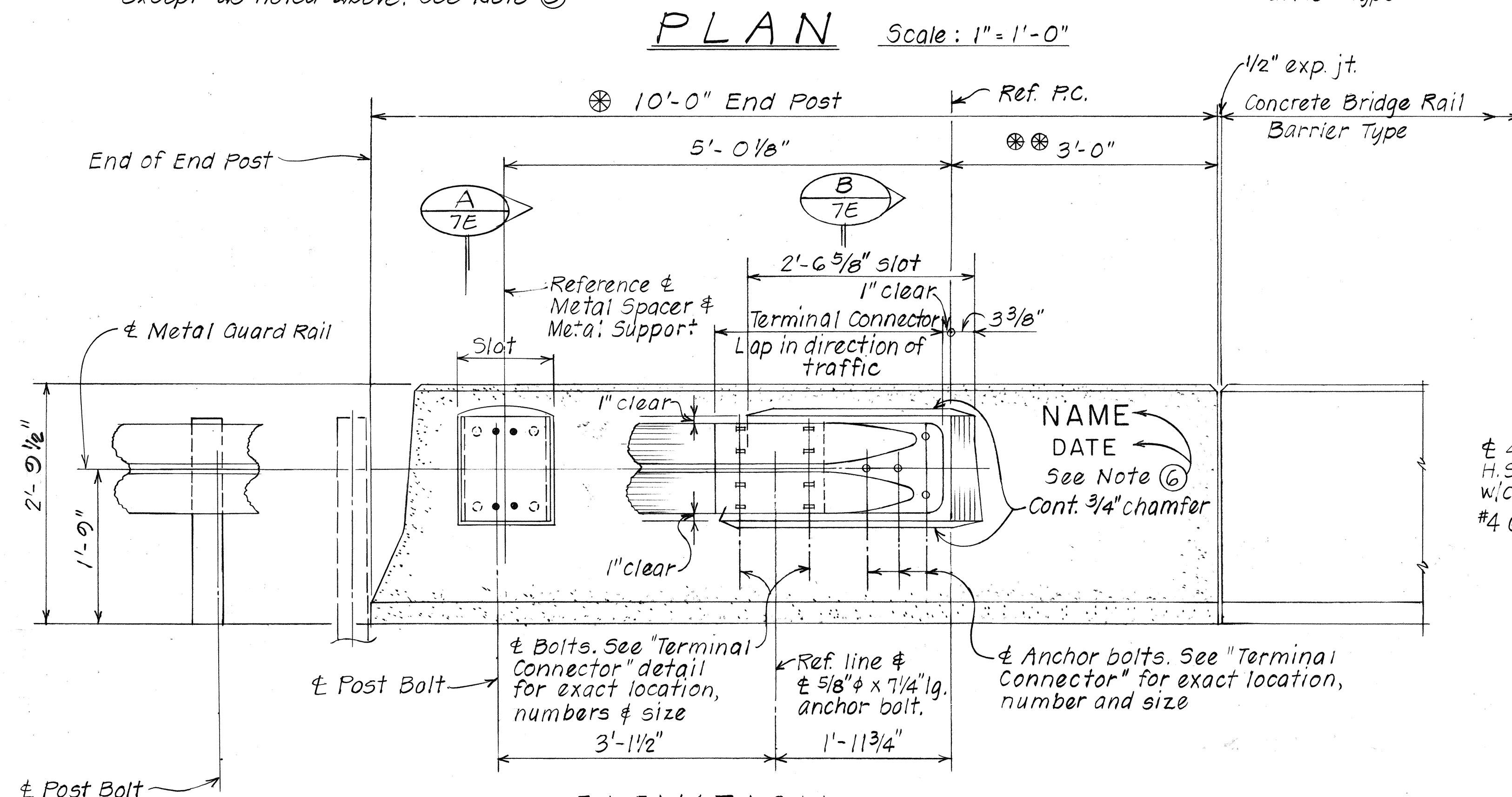
8/26/86	Railing on O.B. structure retrofitted to conform to the barrier type on the widened I.B. structure.
DATE	REVISION

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



SECTION  ELEVATION

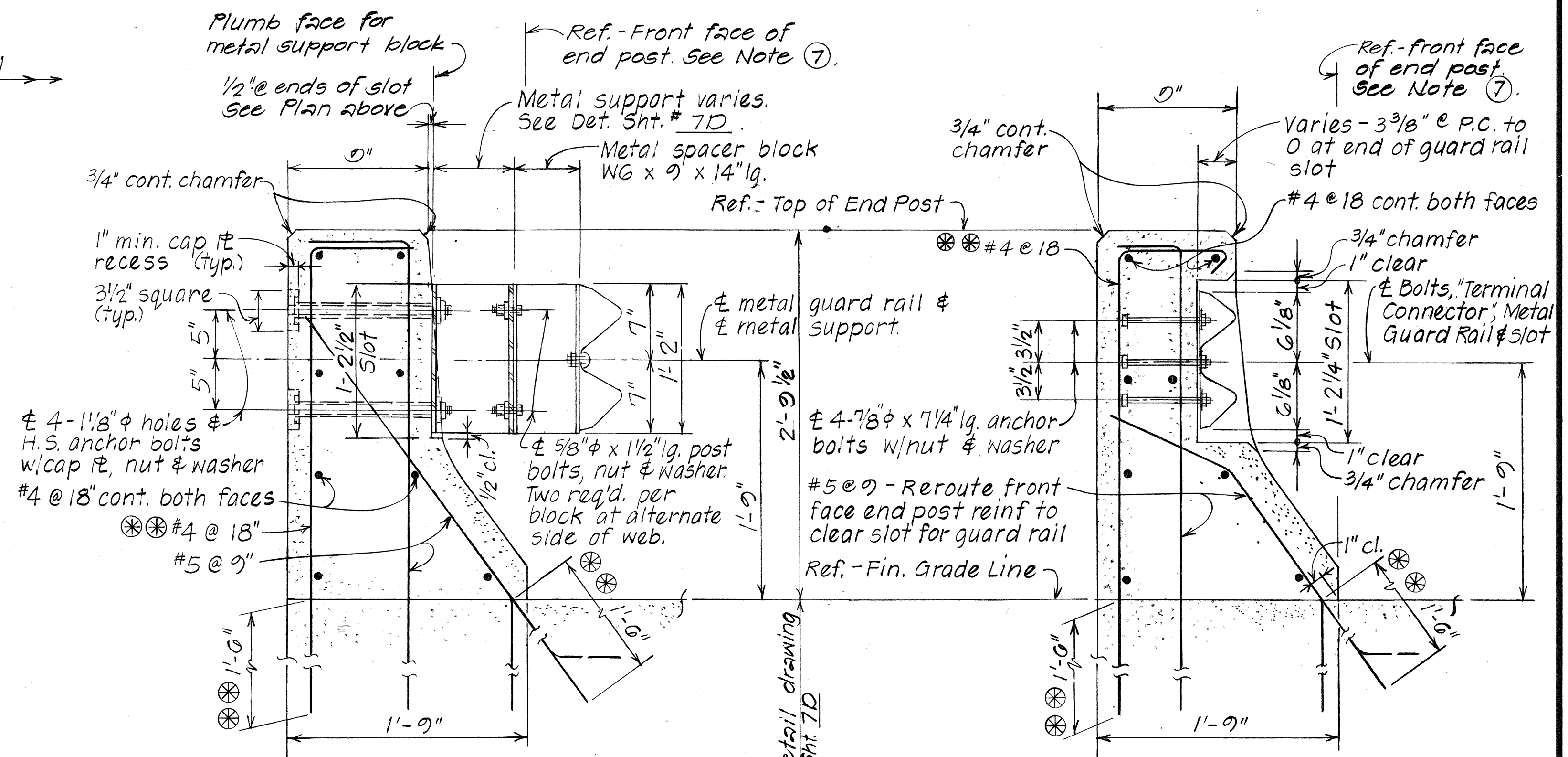
TERMINAL CONNECTOR DETAILS
Not to Scale



ELEVATION Scale: 1" = 1'-0"

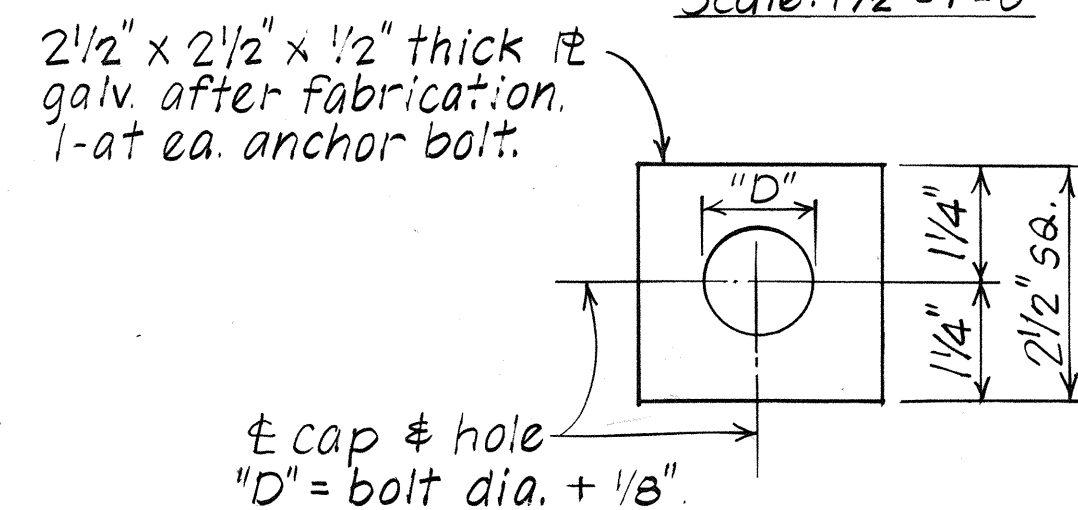
NOTES:

- ① All anchor bolts shall be high strength bolts conforming to the requirements of ASTM A325.
- ② All "Terminal Connector," including anchor bolts, nuts and washers shall be galvanized.
- ③ Anchor bolt length given from under bolt head. Embedment of bolts shall be such that a snug fit of the rail elements & full thread engagement plus 1/4 inch (max.) is attained, without any additional washers or fillers.
- ④ "Terminal Connector" shall be fabricated from 10 gage steel conforming to the requirements of AASHTO M180.
- ⑤ First 25'-0" of guard rail adjoining "Terminal Connector" shall be galvanized steel. (See Plan Sht. 7D.)
- ⑥ Place name of structure as shown. For location, see "Plan" on Contract Drawing. Date shown will be year structure is completed. Letter size and detail see Standard Drawing DB-100.
- ⑦ Front face of End Post to match front face of typical concrete bridge rail.



SECTION 
Scale: 1 1/2" = 1'-0"

SECTION 
Scale: 1 1/2" = 1'-0"



CAP & DETAIL
Not to Scale

8/26/86	Railing on O.B. structure retrofitted to conform to the barrier type on the widen I.B. structure
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DATE	REVISION
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS

METAL GUARDRAIL CONNECTION
AT CONCRETE BRIDGE RAILING END POST

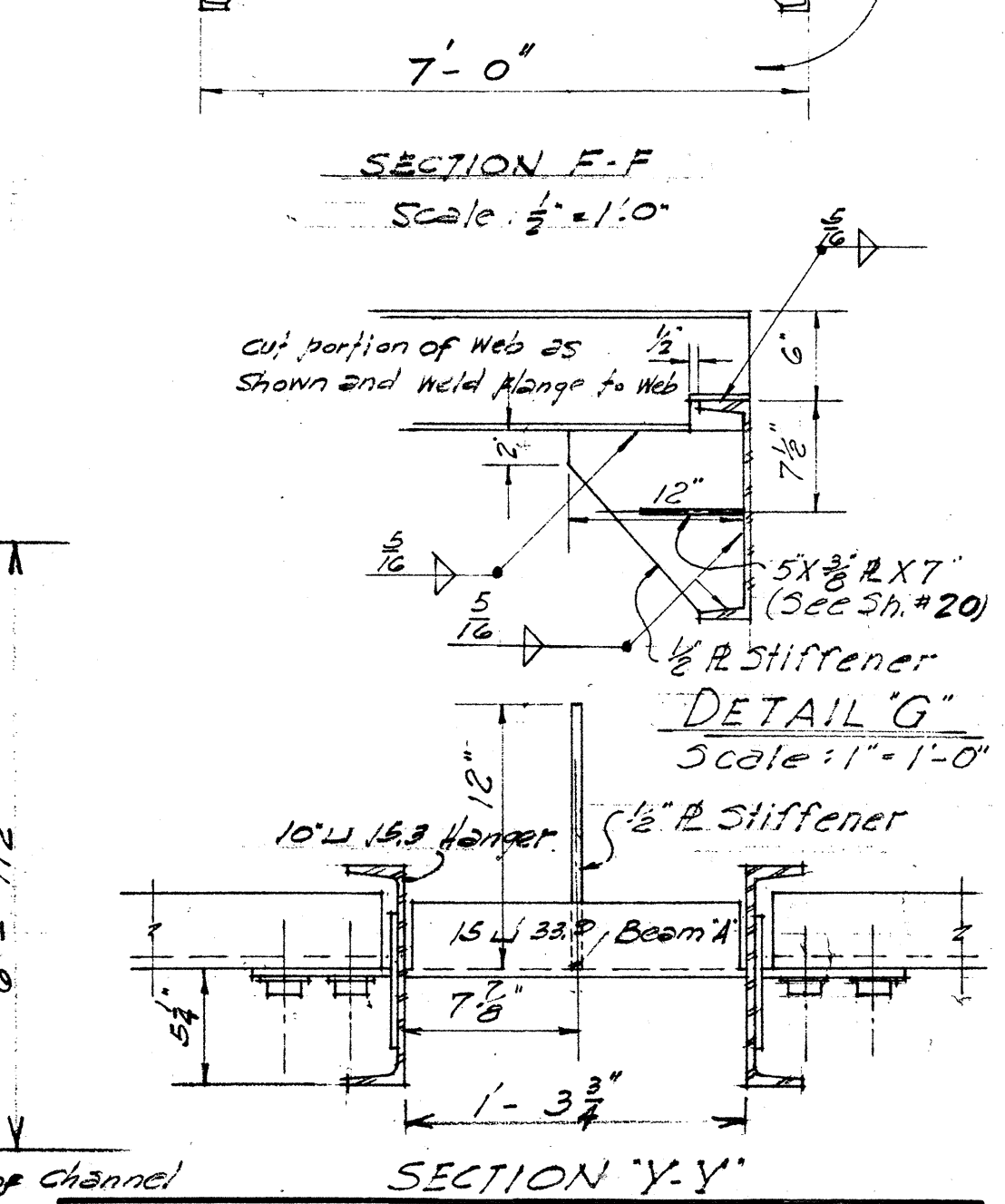
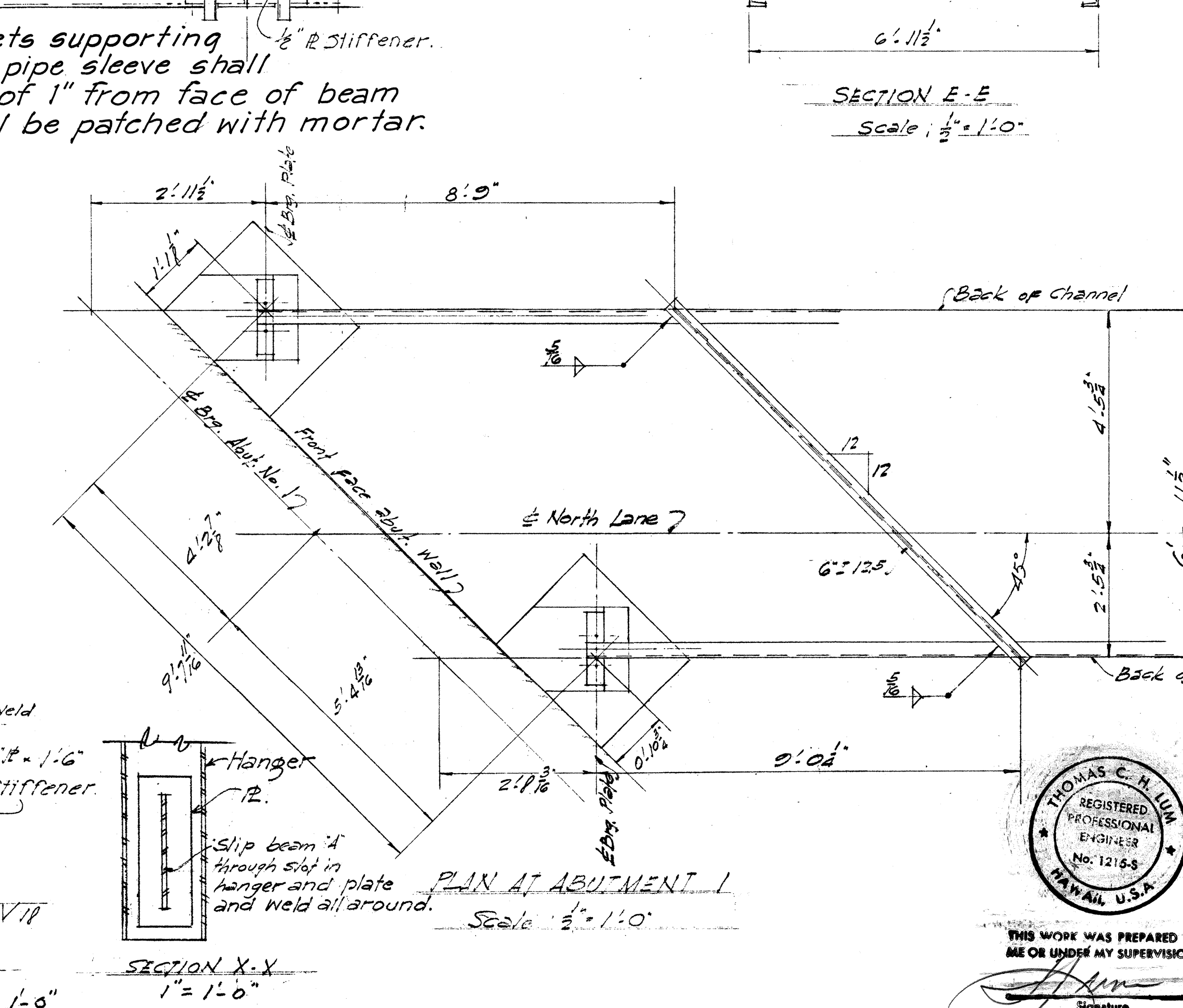
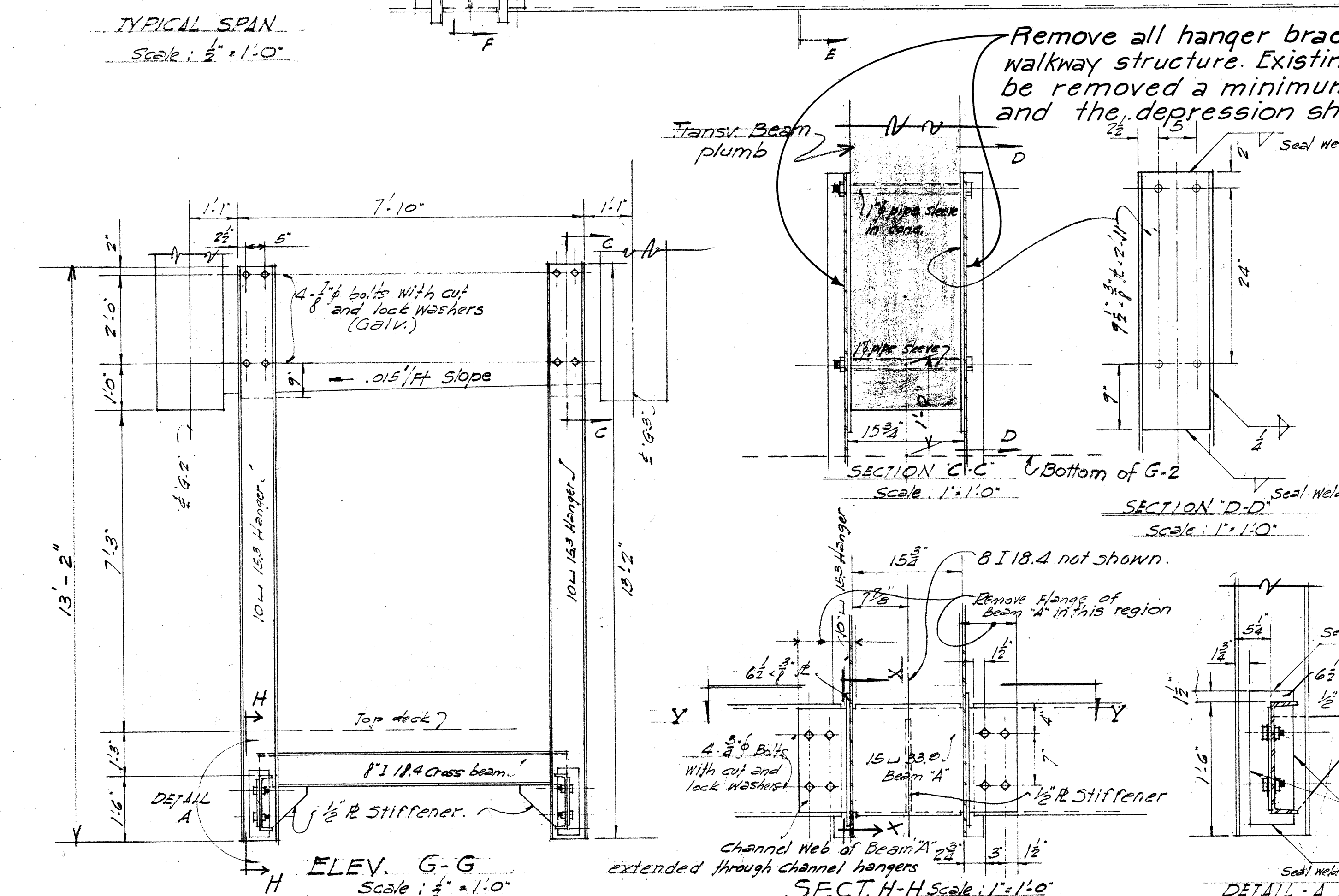
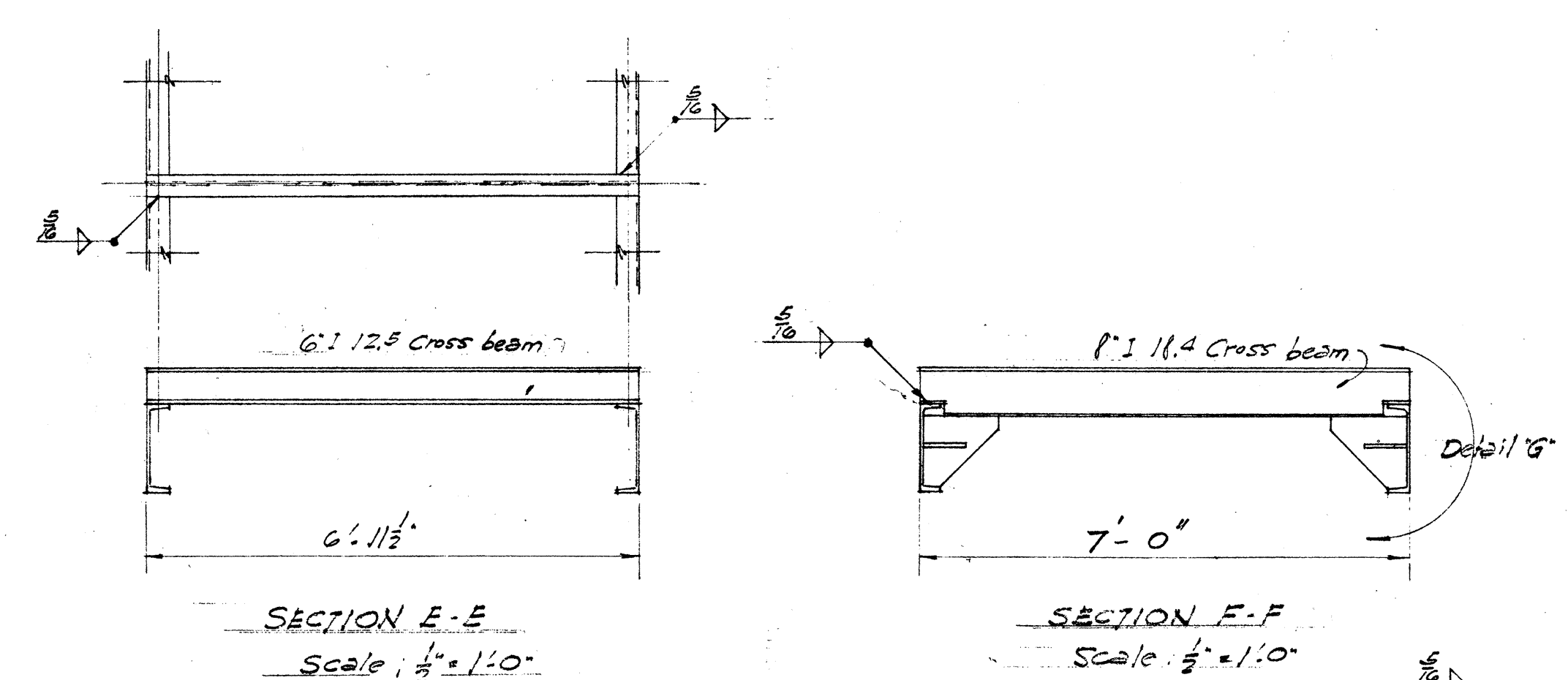
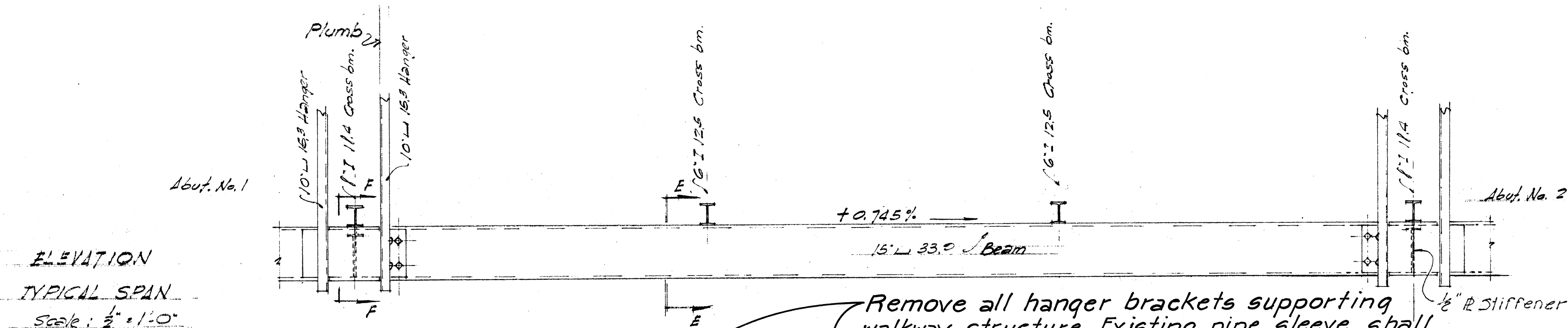
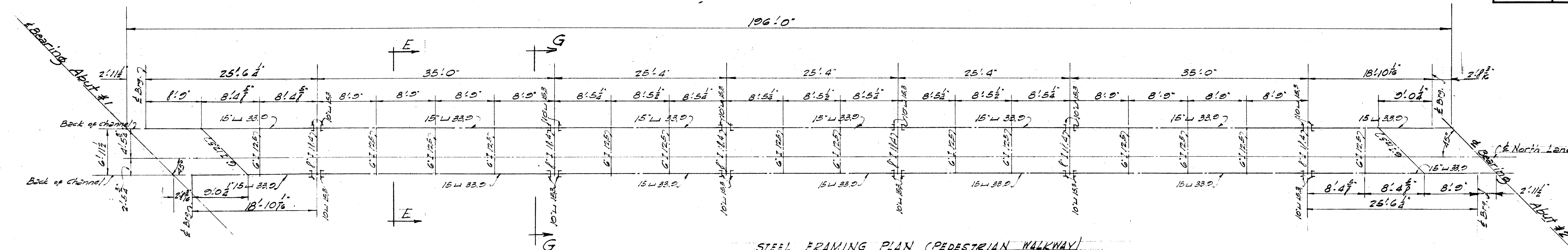
FAP NO. F-063-1(17)

Scale: As Noted Date: Sept. 1986

SHEET No. 7E OF 22 SHEETS

C.O. ADD. 92S-5

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-063-1(17)	1984	94	156



ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

THOMAS C. H. LUM
REGISTERED PROFESSIONAL ENGINEER
No. 1215-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Signature

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

REMOVAL OF WALKWAY STRUCTURE
KALIHI STREAM BRIDGE
LIKELIKE HIGHWAY IMPROVEMENTS
KAM IV ROAD TO VICINITY OF KALIHI STREET
F. A. PROJ. NO. F-063-1(17)

SHEET NO. 9 OF 22 SHEETS

GENERAL NOTE 5:
TIMBER:
All timber shall be Douglas Fir Coast Region and shall be graded according to the standard grading and dressing rules of the West Coast Lumbermen's Association.
All timber shall be salt treated according to Sec. 54 of the Standard Specifications.
STRUCTURAL STEEL:
Structural steel shall be Structural Carbon Steel, A.S.T.M. Designation A-7
HARDWARE:
All bolts, washers, nuts, nails and spikes shall be galvanized.
PAINTING
Steel: See Special Provisions
METAL RAILING
See Special Provisions.
TREATMENT OF WALKWAY
Top surface of conc. walkway at abutments and ramps shall have a rough wearing surface produced by sprinkling $\frac{1}{2}$ lbs. per sq. ft. of #8, #6 "Aloxide" or equal on fresh concrete and finishing it with a wood trowel. This item is incidental to Class A-1 concrete and will not be paid for separately.
NOTE!
No work shall be done on ramps for Pedestrian Walkway until roadway embankment behind abutments and wing walls is complete in place. This requirement does not apply to footings.
WELDING:
All welding shall conform to the latest specifications for Welded Highway & Railway Bridges, Design Construction & Repair of the American Welding Society.
Surfaces within two inches of any weld location shall be free of any paint or other material that would prevent proper welding or produce objectionable fumes while welding.

12.5 cross beam
Abut #2
Extra strong pipe (galv)
1 1/2" x 8" Plank.
5/8" ϕ bolts w/ cut washers
ld all around.
5 x 33.9

Plank.
Planks.
ER DECK

6" 6" 6" 6" 6"
3"
E
1 1/2" 1 1/2"
1 1/2" Pipe rail post

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
REMOVAL OF WALKWAY STRUCTURE
KALIHI STREAM BRIDGE
LIKELIKE HIGHWAY IMPROVEMENTS
KAM IV ROAD TO VICINITY OF KALIHI STREET
F. A. PROJ. NO. F-063-1(I7)
SHEET NO. 10 OF 22 SHEETS

TIMBER:
All timber shall be Douglas Fir Coast Region and shall be graded according to the standard grading and dressing rules of the West Coast Lumbermen's Association.
All timber shall be salt treated according to Sec. 54 of the Standard Specifications.

STRUCTURAL STEEL:
Structural steel shall be Structural Carbon Steel, A.S.T.M. Designation A-7

HARDWARE:
All bolts, washers, nuts, and spikes shall be galvanized.

METAL RAILING
See Special Provisions.

TREATMENT OF WALKWAY

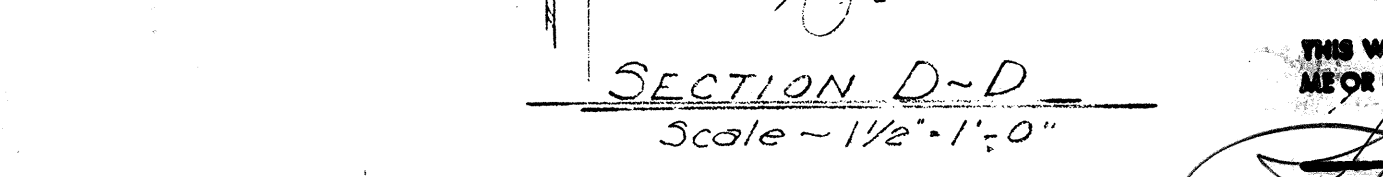
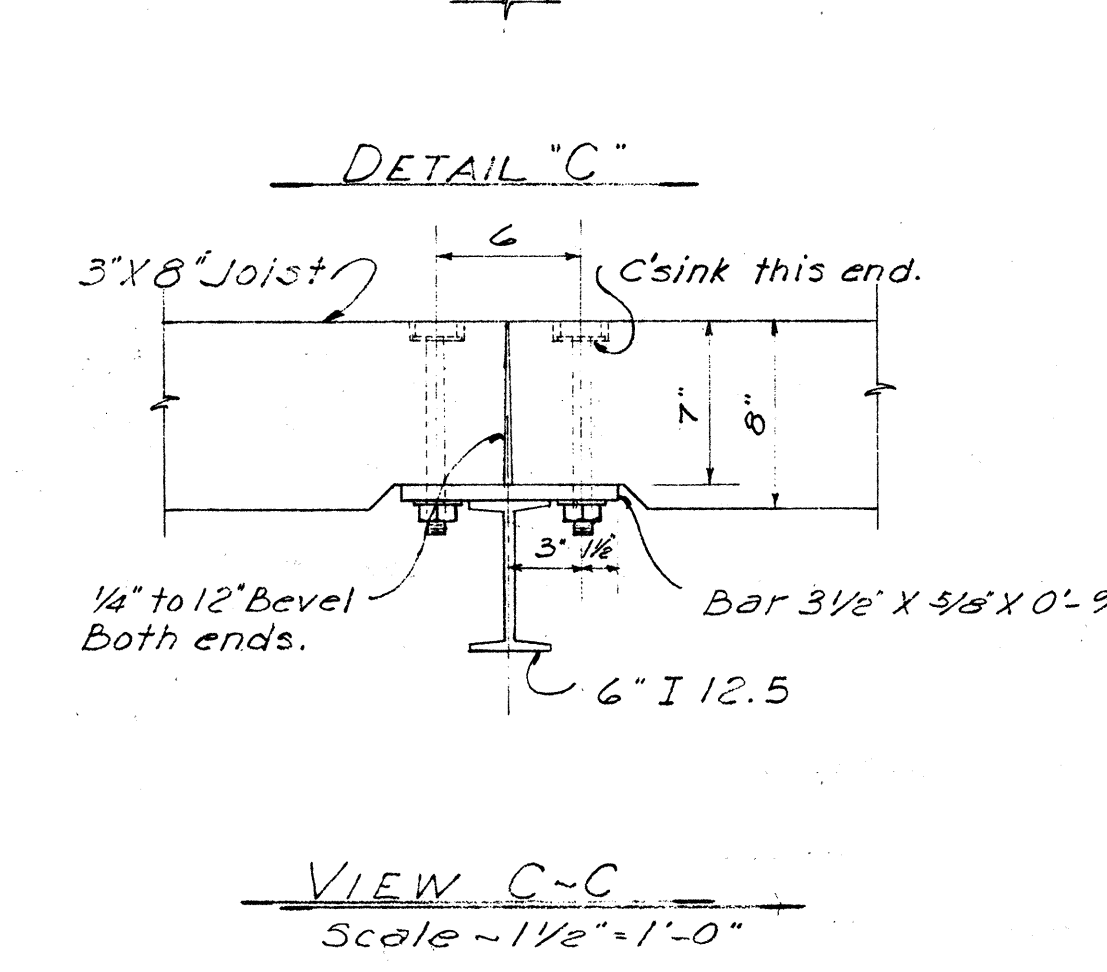
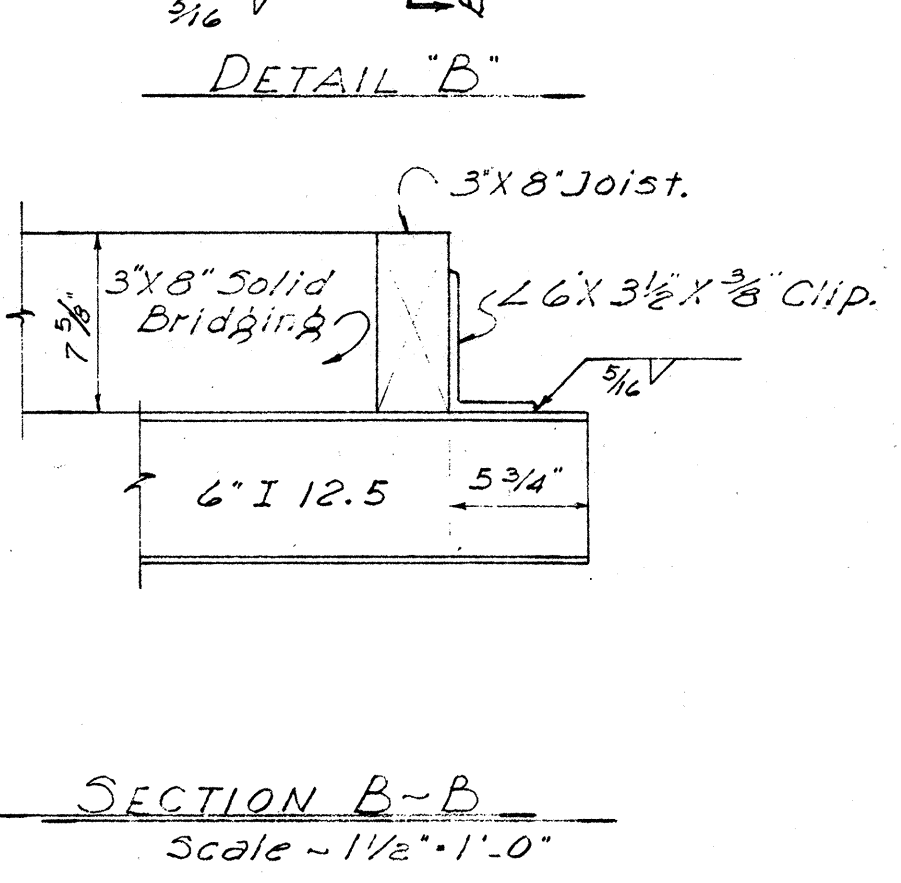
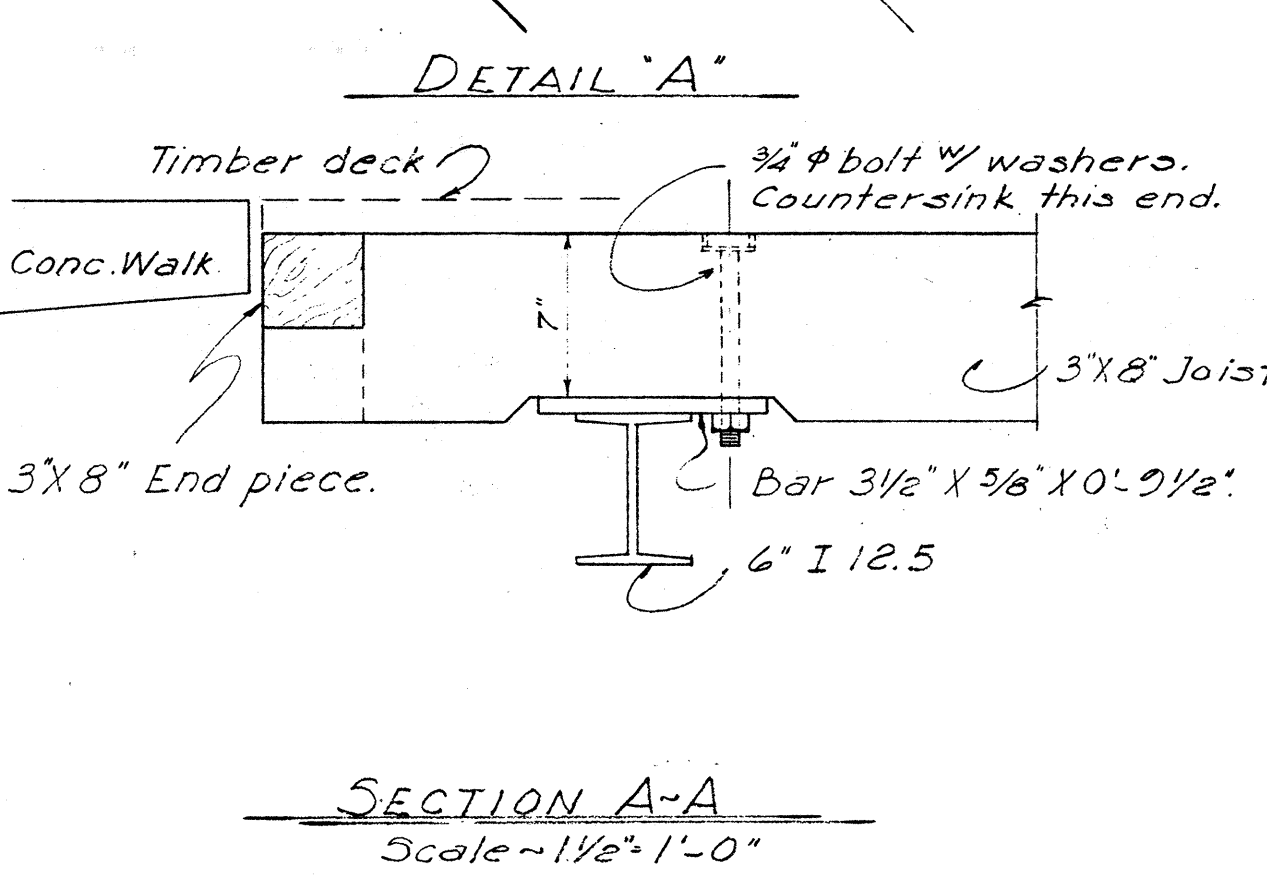
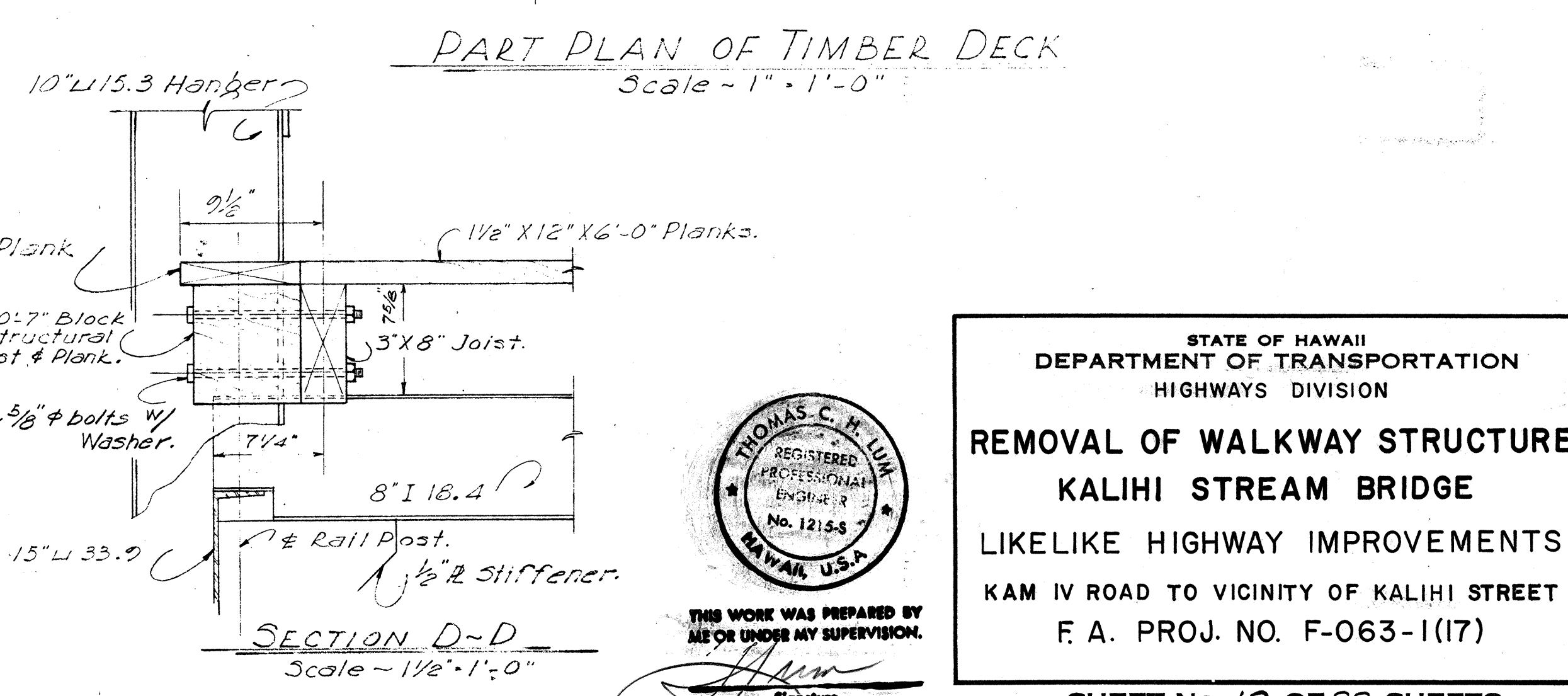
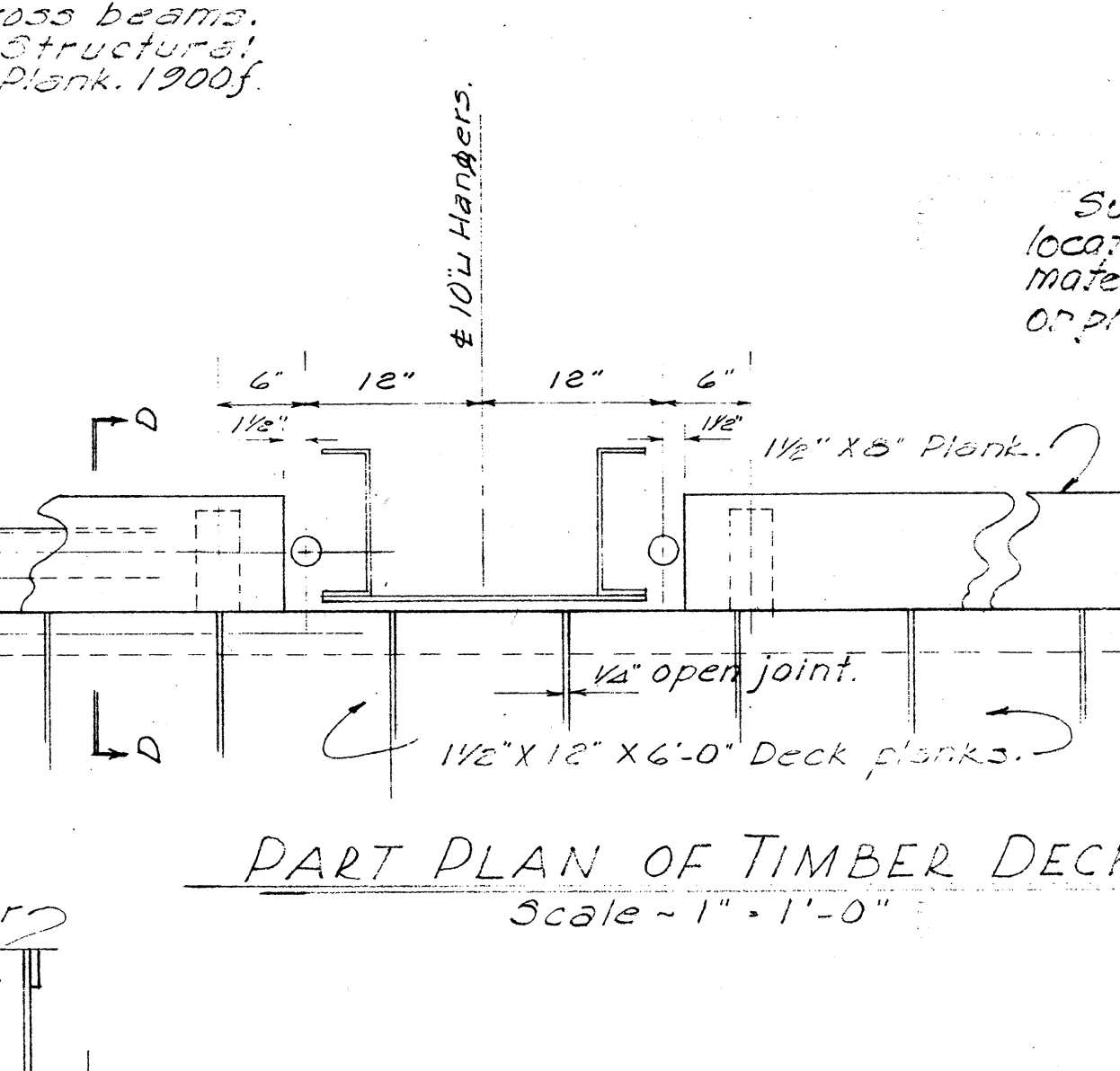
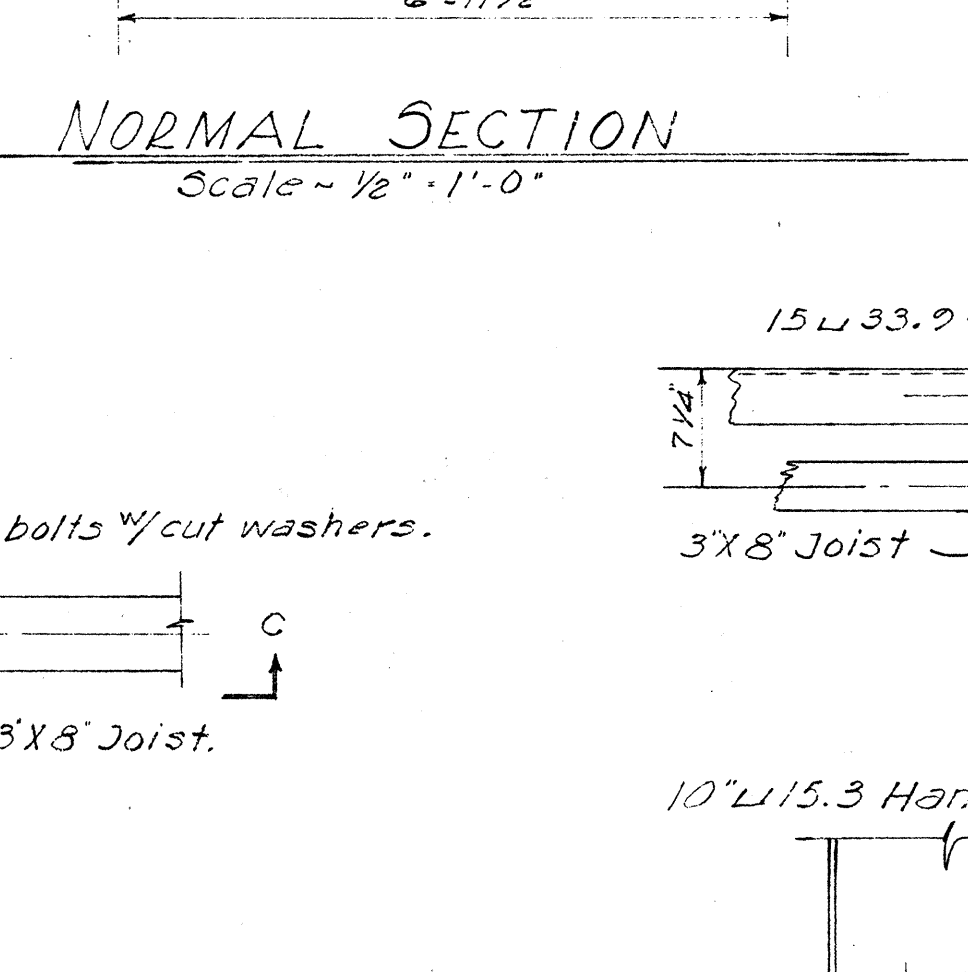
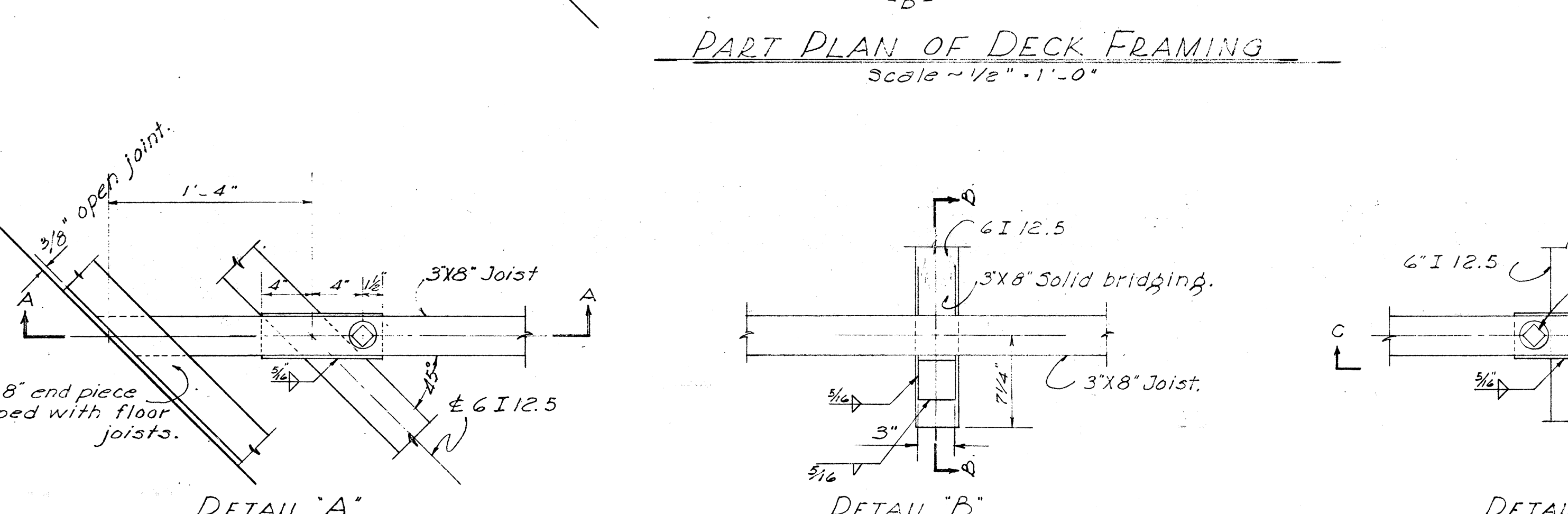
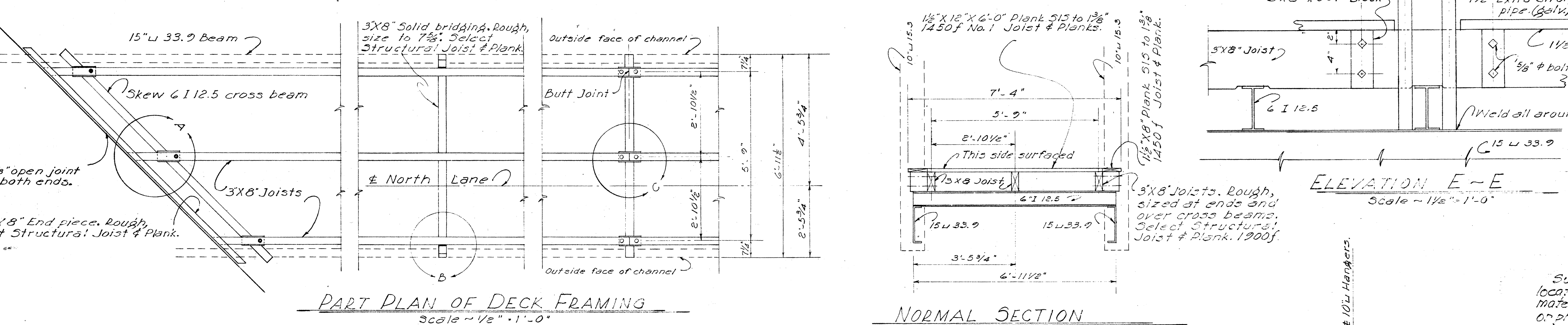
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Moxide* or equal on fresh concrete
and finishing it with a wood trowel.
This item is incidental to Class A-1
concrete and will not be paid for.
2. Separately.

No work shall be done on ramps for Pedestrian Walkway, roadway embankment, abutments and wing walls etc in place. This amendment does not apply to bridges.

WELDING:

All welding shall conform to the latest specifications for Welded Highway & Railway Bridges, Design, Construction & Repair of the American Welding Society.

Surfaces within two inches of any weld location shall be free of any paint or other material that would prevent proper welding or produce objectionable fumes while welding.



THOMAS C. H. LUM
REGISTERED
PROFESSIONAL
ENGINEER
No. 12158
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION

[Signature]

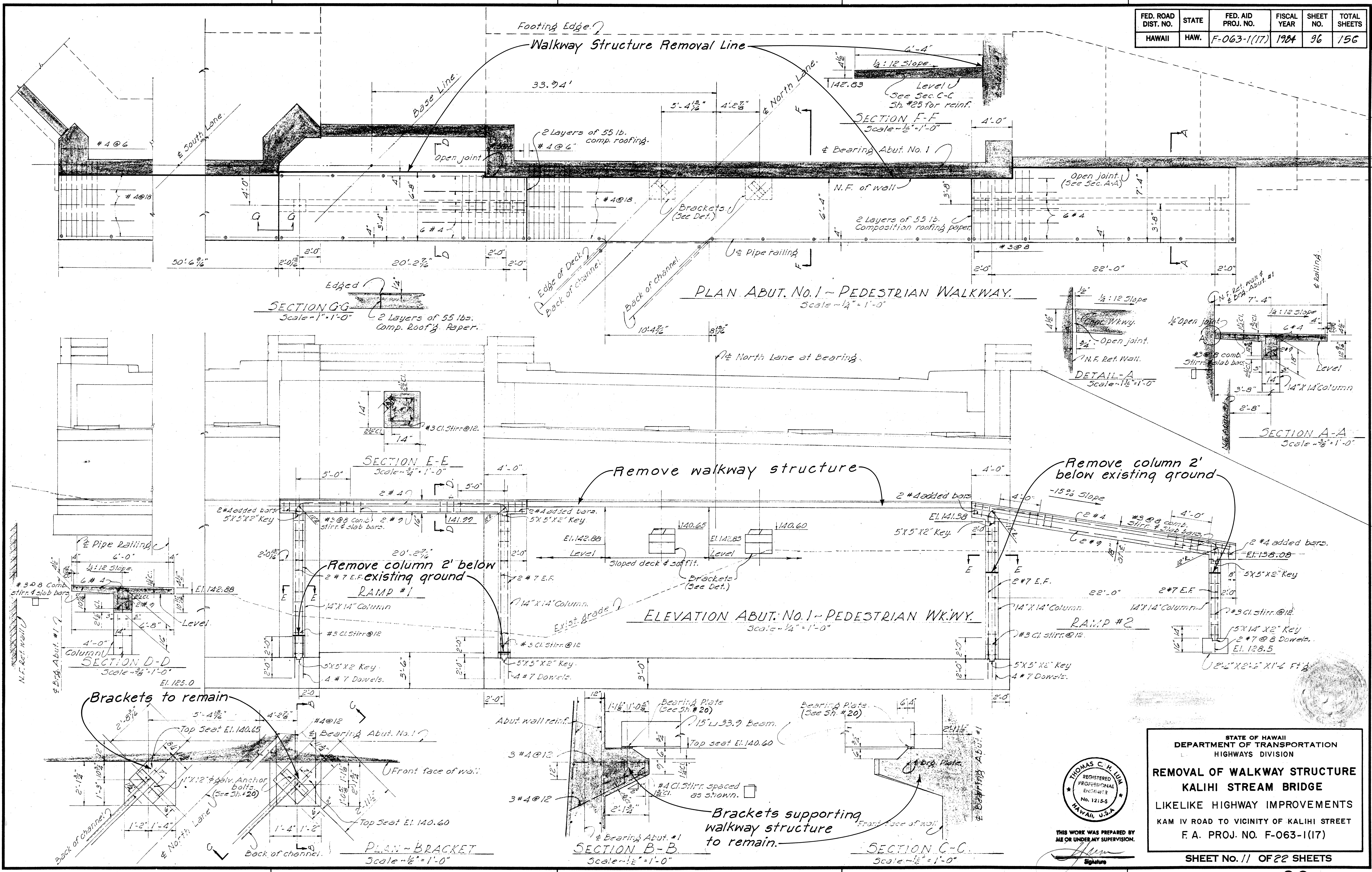
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**REMOVAL OF WALKWAY STRUCTURE
KALIHI STREAM BRIDGE**

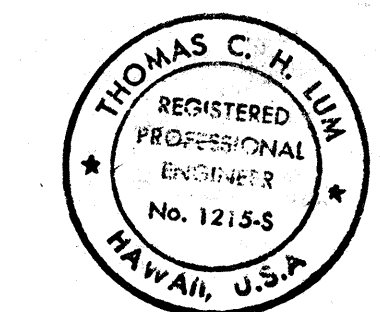
LIKELIKE HIGHWAY IMPROVEMENTS
KAM IV ROAD TO VICINITY OF KALIHI STREET
F A. PROJ. NO. F-063-1(17)

SHEET No. 10 OF 22 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-063-1(17)	1984	96	156



DATE	1984
DESIGNED BY	THOMAS C. H. LUM
CHECKED BY	THOMAS C. H. LUM
NO.	1



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**REMOVAL OF WALKWAY STRUCTURE
KALIHI STREAM BRIDGE**

LIKELIKE HIGHWAY IMPROVEMENTS
KAM IV ROAD TO VICINITY OF KALIHI STREET
F. A. PROJ. NO. F-063-1(17)

SHEET No. 11 OF 22 SHEETS

