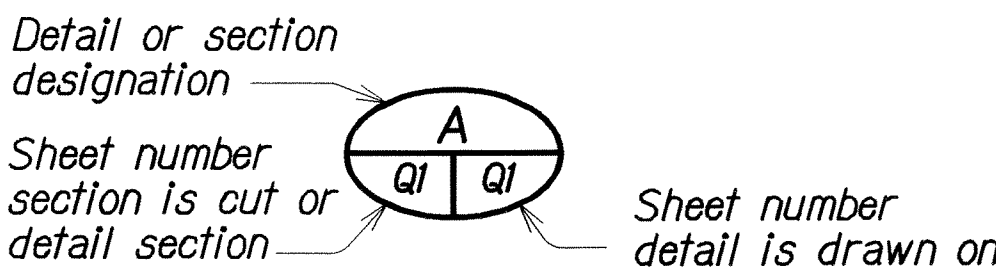


INDEX TO DRAWINGS	
SHEET	DESCRIPTION
Q1	Index, Abbreviations, Symbols and Bridge General Notes
Q2	Bridge General Notes
Q3	Retaining Wall Repair and Extension - Existing Site Plan
Q4	Retaining Wall Repair and Extension - Partial Location Plan
Q5	Retaining Wall Repair and Extension - Partial Location Plan
Q6	Partial Retaining Wall Repair and Extension - Plan and Elevation
Q7	Partial Retaining Wall Repair and Extension - Plan and Elevation
Q8	Retaining Wall Repair and Extension - Structure Excavation Pay Limits
Q9	Retaining Wall Repair - Wall, Anchor and Bearing Plate Schedule
Q10	Retaining Wall Repair - Wall "AA" to "GG" Details
Q11	Retaining Wall Repair - Wall "B", "C" and "D" Details
Q12	Retaining Wall Repair - Wall "E" Details
Q13	Retaining Wall Repair - Wall "A", "F" and "G" Details
Q14	Retaining Wall Repair - Wall "G" at C.B. #64-F Plan and Section
Q15	Retaining Wall Repair - Wall "G" at C.B. #64-F Sections
Q16	Retaining Wall Repair - Section D5
Q17	Retaining Wall Repair - Wall "H" and "O" Details
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Q19	Retaining Wall Repair - Wall "I", "M", and "N" Details
Q20	Retaining Wall Repair - Wall "J", "K" and "L" Details
Q21	Retaining Wall Repair and Extension - Test Wall, School St. End Post and Wall "P" Details
Q22	Retaining Wall Repair - Wall "P" Sections
Q23	Retaining Wall Repair - Permanent Tieback Anchor Detail and Notes
Q24	Retaining Wall Repair - Permanent Tieback Coupler Detail
Q25	Retaining Wall Repair - Tieback Anchor Placement Details
Q26	Retaining Wall Repair - Slot-Out Details for Tieback Anchor and Light Standard @ Sta. 5+60 Details
Q27	Retaining Wall Repair - Alternate Footing Dowel Placement, Weep Hole and Light Standard @ Sta. 10+09 Details
Q28	Retaining Wall Repair - Light Standard Details at Sta. 7+01.50
Q29	Retaining Wall Repair - Light Standard Details at Sta. 8+50
Q30	Retaining Wall Extension - School St. to Liliha Separation End Post Plan and Elevation
Q31	Retaining Wall Extension - Liliha Separation Abutment No. 2 Upgrade and Typical Retaining Wall Extension Details
Q32	Retaining Wall Repair and Extension - Unified Soil Classification System (USCS), Geotechnical Notes & Boring Logs
Q33	Boring Logs
Q34	Boring Logs

△ ABBREVIATIONS

Add. Approx.	Additional Approximate	F.F. Fin. Ftg.	Front Face Finish Footing	Reinf. Sch.	Reinforcement Schedule Sheet
B.F.	Back Face	Galv.	Galvanized	Sp.c'g	Spacing
Bm.	Beam	GDI	Ground Drain Inlet	Sta.	Station
Brg.	Bearing	Gr., gr.	Grade	STD., Std.	Standard
Btwn.	Between				
¢	Center line	Inv.	Invert	T.O.F.	Top of Footing
Cl. Stirrup	Closed Stirrup	Jt.	Joint	T.O.W.	Top of Wall
Cl.	Clearance			Typ.	Typical
Conc.	Concrete				
Cont.	Continuous	Max. Min., min.	Maximum Minimum	Vert.	Vertical
Dia., ø	Diameter			W.P.	Working Point
E.F.	Each Face	O.C., o.c.	On Center		
Eq.	Equal	O/S	Offset		
E.W.	Each Way				
Elev.	Elevation				
Exist.	Existing				
Exp.	Expansion				

SYMBOLS



BRIDGE GENERAL NOTES

GENERAL SPECIFICATIONS:

Hawaii Department of Transportation, Hawaii Standard Specification for Road, Bridge and Public Works Construction, 2005, together with Special Provisions prepared for this contract.

DESIGN SPECIFICATIONS:

(A) AASHTO 2007 LRFD Bridge Design Specifications (Fourth Edition) and its subsequent interim specifications with interim supplements and modifications by the HDOT Highway Division.

(B) "Design Criteria for Bridges and Structures" dated April 15, 2008.

MATERIALS:

(A) All concrete strengths shall be noted below:

Item No.	Structural Parts	Compressive Strength f'c (28 Days)	Maximum W/C Ratio
(1)	Stressing Block (Performance Test Wall)	5000 PSI	0.40
(2)	Concrete Wall (Including Build Up of Existing)	4500 PSI	0.40
(3)	Footing Concrete/Concrete Barrier Wall Closure (Wall Extension)	4500 PSI	0.40
(4)	Except as noted otherwise, all others	4000 PSI	0.40

(B) For Permanent Tieback Anchors, refer to Section 68I of the Special Provisions.

(C) A shrinkage reducing admixture (SRA) shall be added to all concrete mixes. The required dosage shall be 128 ounces per cubic yard of concrete and follow all manufacturer's recommendations.

(D) A migrating corrosion inhibitor amine carboxylate water-base admixture shall be added to the concrete mix for all concrete mixes. The minimum dosage shall be 1.5 pints per cubic yard of concrete. The admixture shall not affect the set time of the concrete.

(E) The use of any calcium chloride in any concrete is prohibited.

(F) All reinforcing steel shall be ASTM A615, Grade 60 unless otherwise noted.

(G) All anchor bolts, washers and nuts shall be ASTM A193 (UNS S31600) stainless steel unless otherwise specified.

(H) All structural steel shapes and plates shall be ASTM A36 hot dip galvanized after fabrication, unless otherwise noted.

(I) All dowels secured with neat epoxy into existing wall footings shall be ASTM A955 UNS S31603, Grade 60 deformed stainless steel reinforcement. All other dowels secured with neat epoxy shall be ASTM A615, Grade 60.

(J) Hydrophilic rubber waterstop shall have a minimum dimensions of 20 mm x 10 mm. It shall be composed of non-vulcanized rubber and urethane polymer hydrophilic agent. It shall have a stainless steel wire mesh embedded in the product to direct expansion in the thickness direction and to restrict expansion in the longitudinal direction. It shall develop no less than 400 psi expansion pressure and withstand a minimum 150 foot hydrostatic head.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-08	2009	ADD. 9	73

REINFORCEMENT:

(A) The covering measured from the surface of the concrete to the face of any reinforcing bars shall be as follows, except as otherwise shown:

(1) Concrete cast against and permanently exposed to earth = 3"

(2) All others unless otherwise noted = 2"

(B) Reinforcing bars shall be detailed in accordance with the latest edition of the AASHTO LRFD bridge design specifications unless otherwise noted.

(C) Minimum clear spacing between parallel bars shall be 1½ times the diameter of bars (for non bundled bars). In no case shall the clear distance between the bars be less than 1½ times the maximum size of the coarse aggregate or 1½".

(D) All dimensions relating to reinforcing bars are to centers of bars unless otherwise noted.

(E) Reinforcing bars shall be securely tied at all intersections and lap splices except where the spacing of intersections is less than one foot in each direction, in which case alternate intersections shall be tied.

CONSTRUCTION NOTES:

(A) The Contractor shall verify all dimensions and site conditions and shall report any discrepancies in writing to the Engineer before commencing work or ordering materials.

(B) The Contractor shall verify all site conditions and not rely upon these plans for existing dimensions, elevations and azimuths, stream channel location, roads, roadway gutters, curbs and sidewalks, etc. Conditions may differ from those shown on these Plans.

(C) The Contractor shall be solely responsible for the protection of adjacent properties, utilities and existing and new structures from damage due to construction. Repairing any damage shall be at the Contractor's own expense, to the satisfaction of the Engineer.

(D) The Contractor shall verify the location of all utility lines and notify the respective owners before commencing with excavation, and any temporary piling or sheeting.

(E) Except as otherwise noted, all vertical dimensions are measured plumb.

(F) Before starting any tieback work, Contractor shall have successfully completed the Performance and Extended Creep Test on the Test Panel located at Sta. 10+42.50 See Plan Sheet Q31 and Section 68I of the Special Provisions.

(G) For concrete finish, see Standard Specifications and Special Provisions.

(H) Construction joints may be relocated or additional ones added subject to the approval of the Engineer.

(I) Unless otherwise noted, all exposed concrete edges shall be chamfered ¾" x ¾".

(J) The Contractor shall verify the location and size of all existing reinforcing bars prior to drilling. Drilled holes maybe moved 1" in any direction to nullify damage to existing reinforcing.

(K) Drilled holes in existing concrete for reinforcing steel dowels shall not be left unfilled for more than 8 hours. Neat epoxy in drilled holes shall be able to develop the full strength of the dowels prior to pouring concrete around reinforcing steel dowels. Follow all manufacturer's recommendations for dowel and epoxy placement.

(L) Contractor shall unplug, clean, maintain and extend existing drains/weepholes during construction of the project. This work shall be incidental to the various Contract items.

SURVEY PLOTTED BY	DATE
DRAWN BY	XXX 2008
TRACED BY	XXX 2008
NOTED BY	XXX 2008
QUANTITIES BY	XXX 2008
CHECKED BY	XXX 2008
ORIGINAL PLAN	
NOTE BOOK	
DATE	

△	Revised Index to Drawings and Added to Abbreviations
3/31/09	
DATE	REVISION
SHEET No. Q1 OF 34 SHEETS	

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
INDEX, ABBREVIATIONS, SYMBOLS and BRIDGE GENERAL NOTES	
INTERSTATE ROUTE H1 EXTENSION AND REPAIR OF SCHOOL STREET ON-RAMP RETAINING WALL Project No. H11-01-08	
Scale: As Noted	Date: Feb. 2009

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-08	2009	ADD. 10	73

CONSTRUCTION NOTES (Cont.):

- (M) Location of drilled holes shown in plans are approximate. Prior to placing holes in concrete, the Contractor shall locate all reinforcing steel, anchor bolts, thru bolts holes, etc. and adjust the location of the drilled holes to clear them. Final hole locations are subject to the approval of the Engineer. Locations of 5"Ø holes for anchors shall be as shown in these Plans.
- (N) Existing guardrail and posts shall be removed and disposed of as directed by the Engineer and shall be incidental to Pay Item 202.0100.
- (O) When only portions of concrete are to be demolished, the intersections between the demolished concrete and the concrete that is to remain shall have a 3/4 inch deep sawcut around the entire perimeter of the demolished area.
- (P) At the time concrete is placed, reinforcing shall be free from mud, oil, laitance or other coatings adversely affecting bond capacity.
- (Q) The concrete surfaces which new concrete is poured against shall be roughened to a full amplitude of 1/4 of an inch and cleaned.
- (R) All exposed existing reinforcing shall remain in place and shall not be damaged in any way unless otherwise noted.
- (S) All existing reinforcing that is to remain in place shall have a minimum concrete cover of 2".
- (T) New concrete surfaces shall match the finish of the existing structure. Any reveals, patterns, or decorative features shall also match the existing structure.
- (U) All existing walls shall be braced to prevent failure during all phases of construction until rock anchors have been tensioned and the lock-off load is in place. See Section 681 of the Special Provisions.
- (V) Backfilling of all new or built-up retaining walls shall not take place until the concrete 28 day strength is attained and rock-anchor lock-off loads are in place.
- (W) For all walls being repaired, expansion and contraction joint locations shall be extended and maintained.
- (X) Final wall appearance shall present a continuous surface without any deflections except for the transition areas specified in these plans. Additional wall thickness shall vary according to the existing wall deflections.
- (Y) Existing protruding drips on all walls shall be demolished at the top of all existing walls that are being thickened. New and heightened retaining walls shall have the top of the wall sloped 1/4:12 toward the backfill.

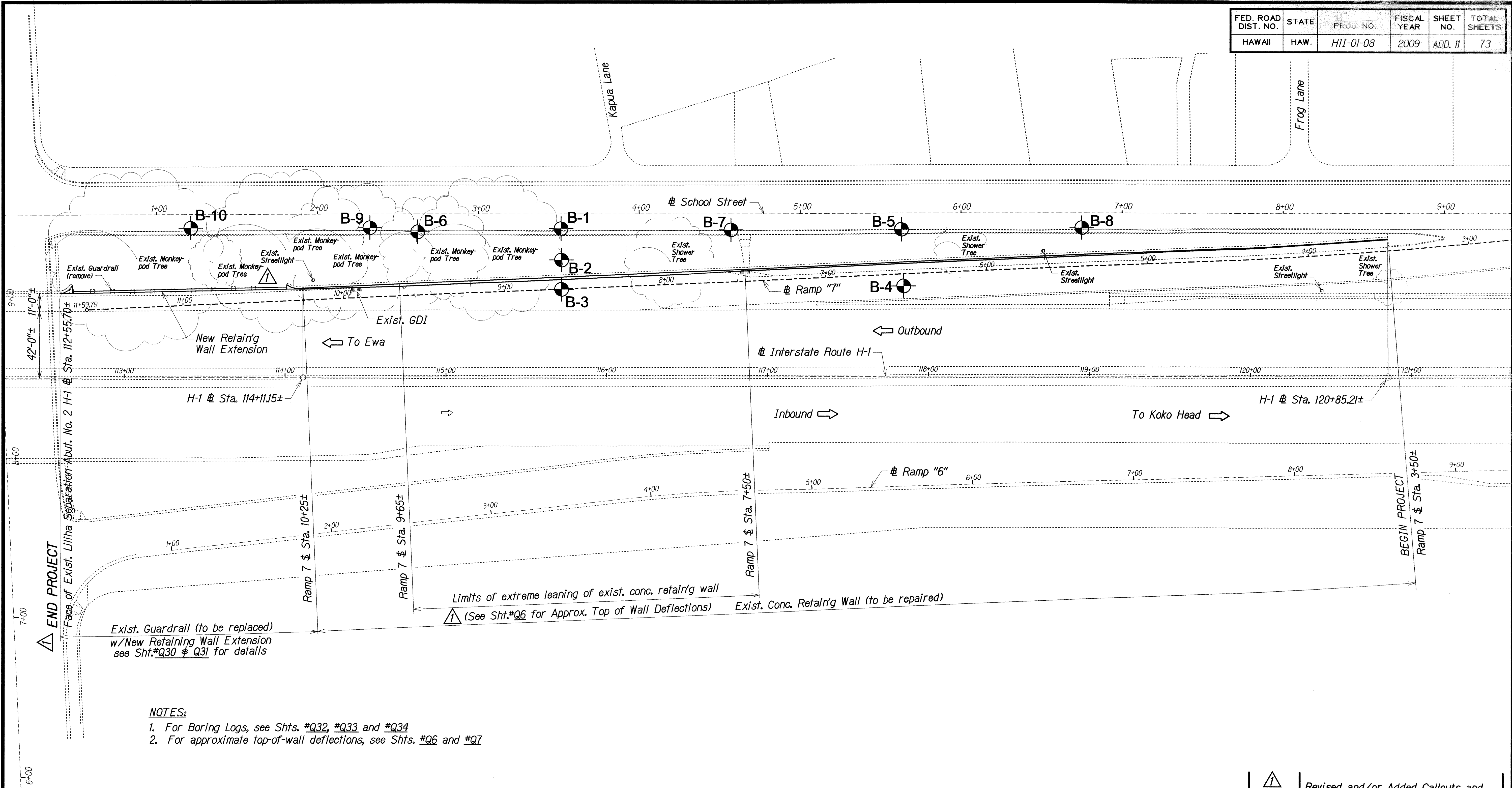
GENERAL:

- (A) All items noted incidental will not be paid for separately.
- (B) Standard Plans refer to all structures in general, except for modifications as may be required for special conditions. For such modifications refer to the corresponding detailed drawings.
- (C) Plans of the existing walls are available for review from the Highways Division Design Branch located at the State Department of Transportation, Highways Division Kakuhihewa Building, Room 609, 601 Kamokila Boulevard, Kapolei, HI 96707 (phone number 692-7586).
- (D) Temporarily relocate highway lighting conduit, pullboxes, etc. obstructing contract items. Care shall be taken to not damage existing tree roots and the existing retaining wall.
- (E) Located approximately 2'-0" in back of the existing retaining wall is a 2" PVC Schedule 40 Conduit supplying power to Highway Lighting. It is at a depth of 3'-0"± because the exact depth is unknown. The Contractor is advised to use extreme caution in drilling the anchor holes. Existing Lighting Standard Supports are located at Ramp 7 Sta. 11+37, Sta. 10+09, Sta. 8+57, Sta. 7+05 and Sta. 5+57.
- (F) All cracked and loose concrete portions of the existing retaining wall shall be removed prior to the placing of new concrete facing.

SURVEY PLOTTED BY	DATE
DRAWN BY	XXX 2009
TRACED BY	XXX 2009
DESIGNED BY	XXX 2009
QUANTITIES BY	XXX 2009
CHECKED BY	XXX 2009
ORIGINAL PLAN	
NOTE BOOK	
IN	

	3/31/09	Added General Note (F)
DATE	REVISION	
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION BRIDGE GENERAL NOTES INTERSTATE ROUTE H-1 EXTENSION AND REPAIR OF SCHOOL STREET ON-RAMP RETAINING WALL Project No. H11-01-08 Scale: As Noted Date: Feb., 2009		

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-08	2009	ADD. 11	73



- NOTES:**
1. For Boring Logs, see Shts. #Q32, #Q33 and #Q34
 2. For approximate top-of-wall deflections, see Shts. #Q6 and #Q7

LEGEND

Approximate Boring Location

3/31/09	Revised and/or Added Callouts and Legend
DATE	REVISION

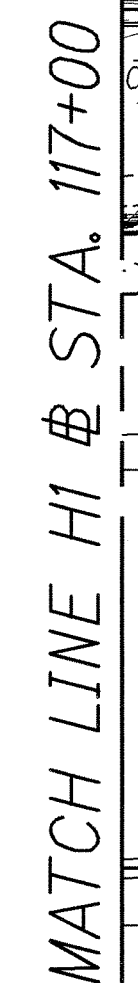
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RETAINING WALL REPAIR and EXTENSION

EXISTING SITE PLAN
INTERSTATE ROUTE H-1
EXTENSION and REPAIR of
SCHOOL STREET ON-RAMP RETAINING WALL
Project No. H11-01-08

Scale: As Noted Date: Feb, 2009

SHEET No. Q3 OF 34 SHEETS



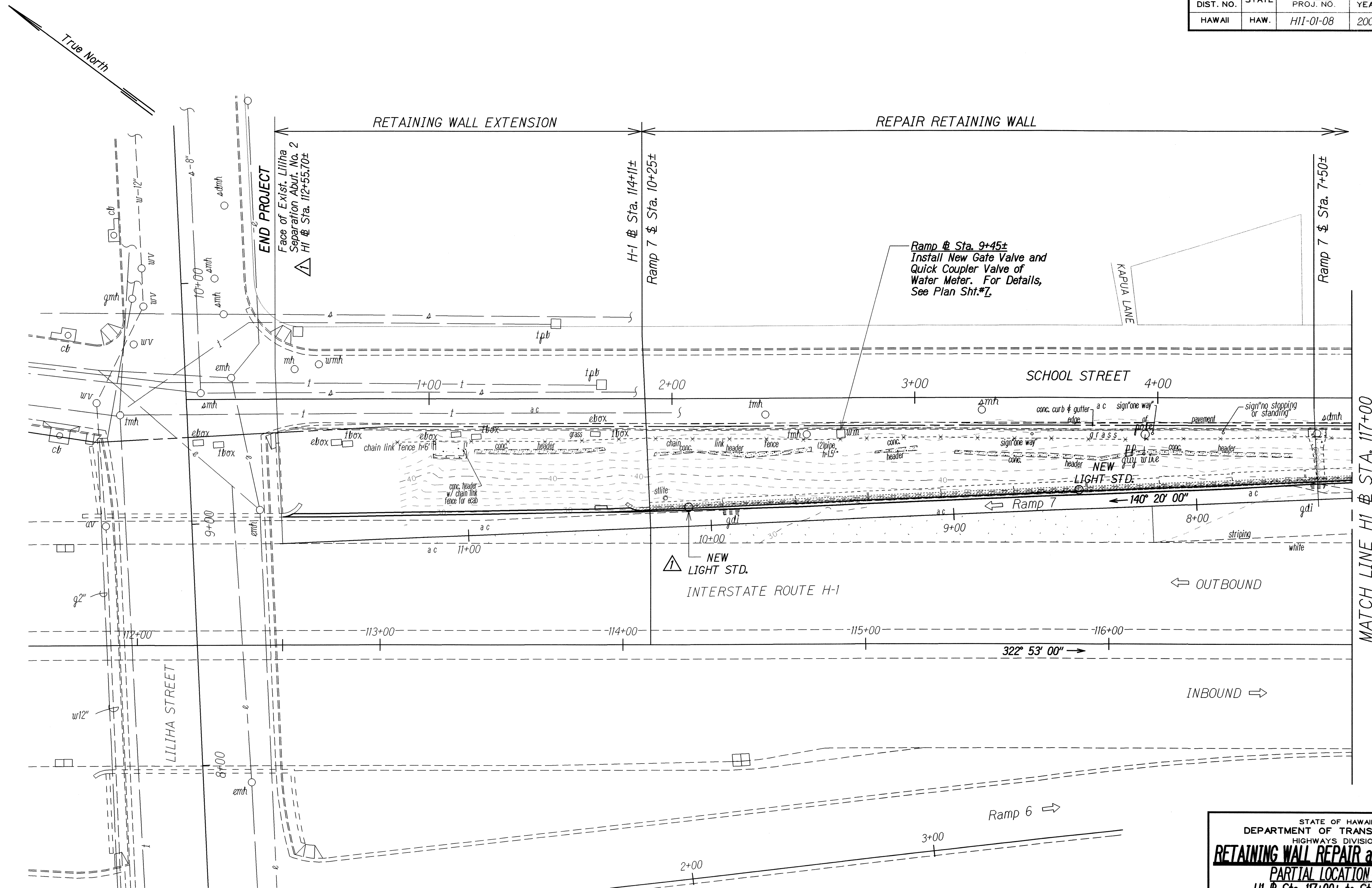
ORIGINAL PLAN	NOTE BOOK 1ah1bq4.dgn No. _____
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3/31/09	Added New Light Standard and Callout
DATE	REVISION

Scale: As Noted Date: Feb. 2009

ADD. 12

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-08	2009	ADD. 13	73



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
10/11/05 dgm	XXX	XXX 2005
	DRAWN BY	XXX
	TRACED BY	XXX 2005
	QUANTITIES BY	XXX 2005
	CHECKED BY	XXX 2005

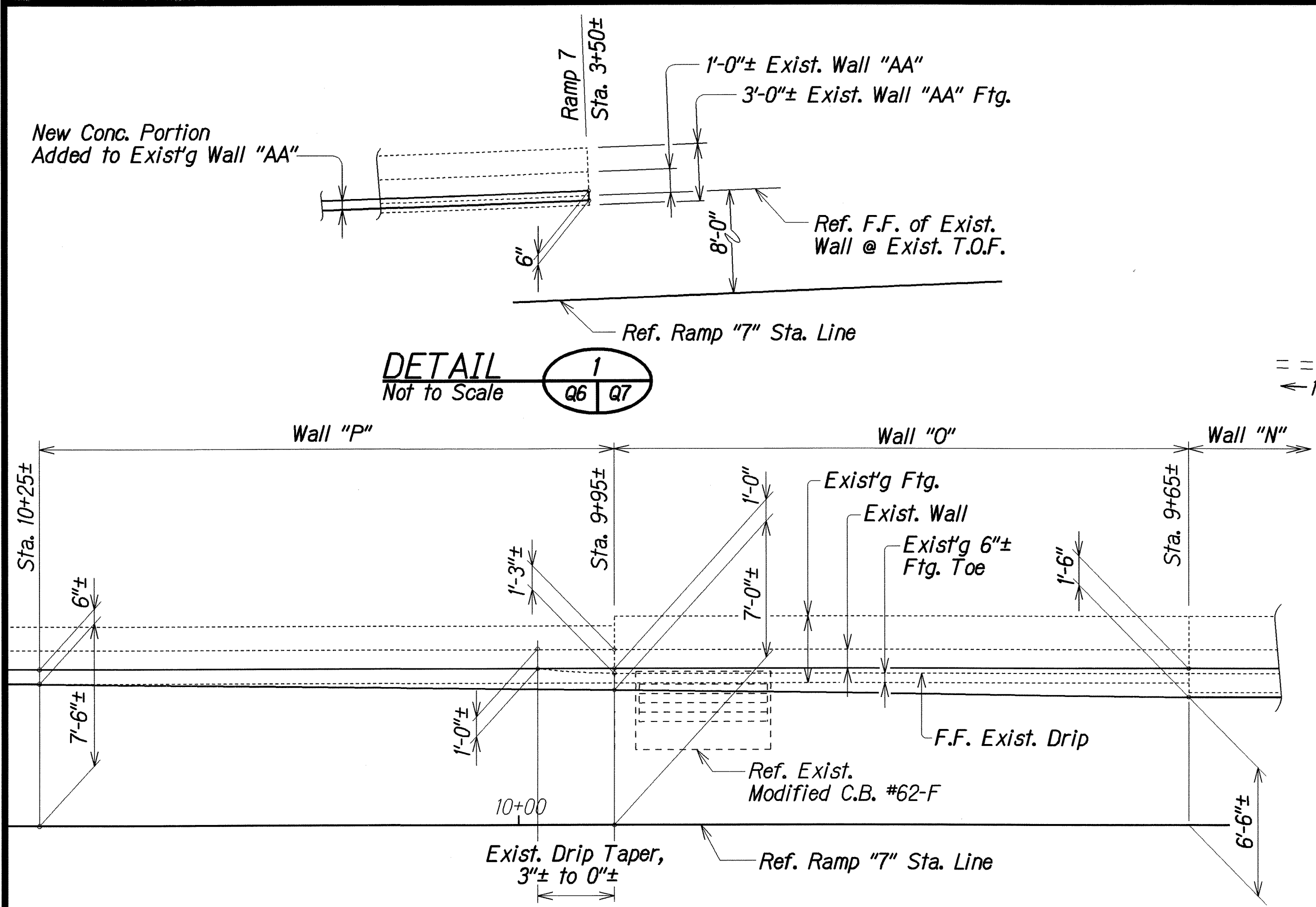
PARTIAL LOCATION PLAN
Scale: 1"=20'-0"

△	Revised End Project Station Number, Added New Light Standard and Callout
3/31/09	
DATE	REVISION

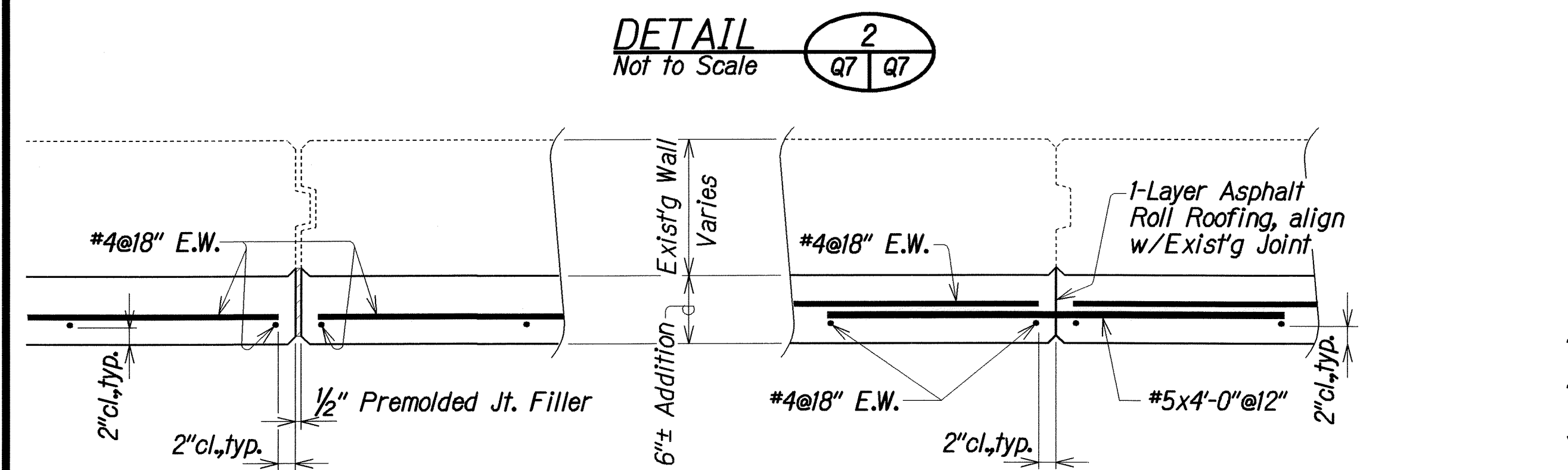
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
RETAINING WALL REPAIR and EXTENSION
PARTIAL LOCATION PLAN
H-1 @ Sta. 117+00± to Sta. 113+40±
INTERSTATE ROUTE H-1
EXTENSION AND REPAIR OF
SCHOOL STREET ON-RAMP RETAINING WALL
Project No. H11-01-08
Scale: As Noted Date: Feb., 2009

SHEET No. Q5 OF 34 SHEETS

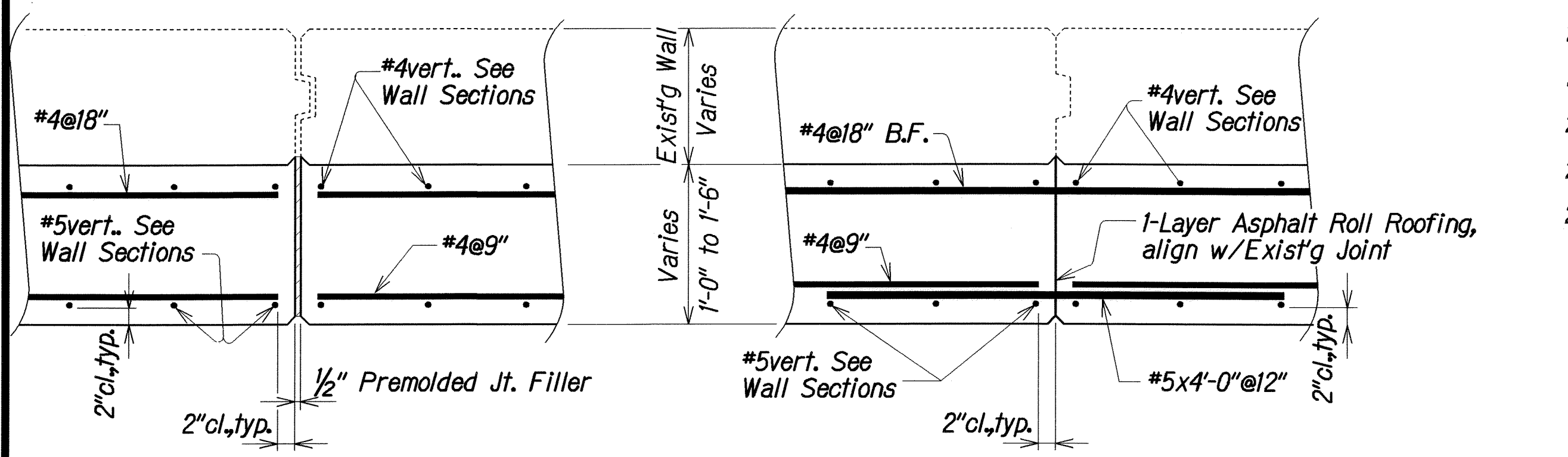
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-08	2009	ADD. 15	73



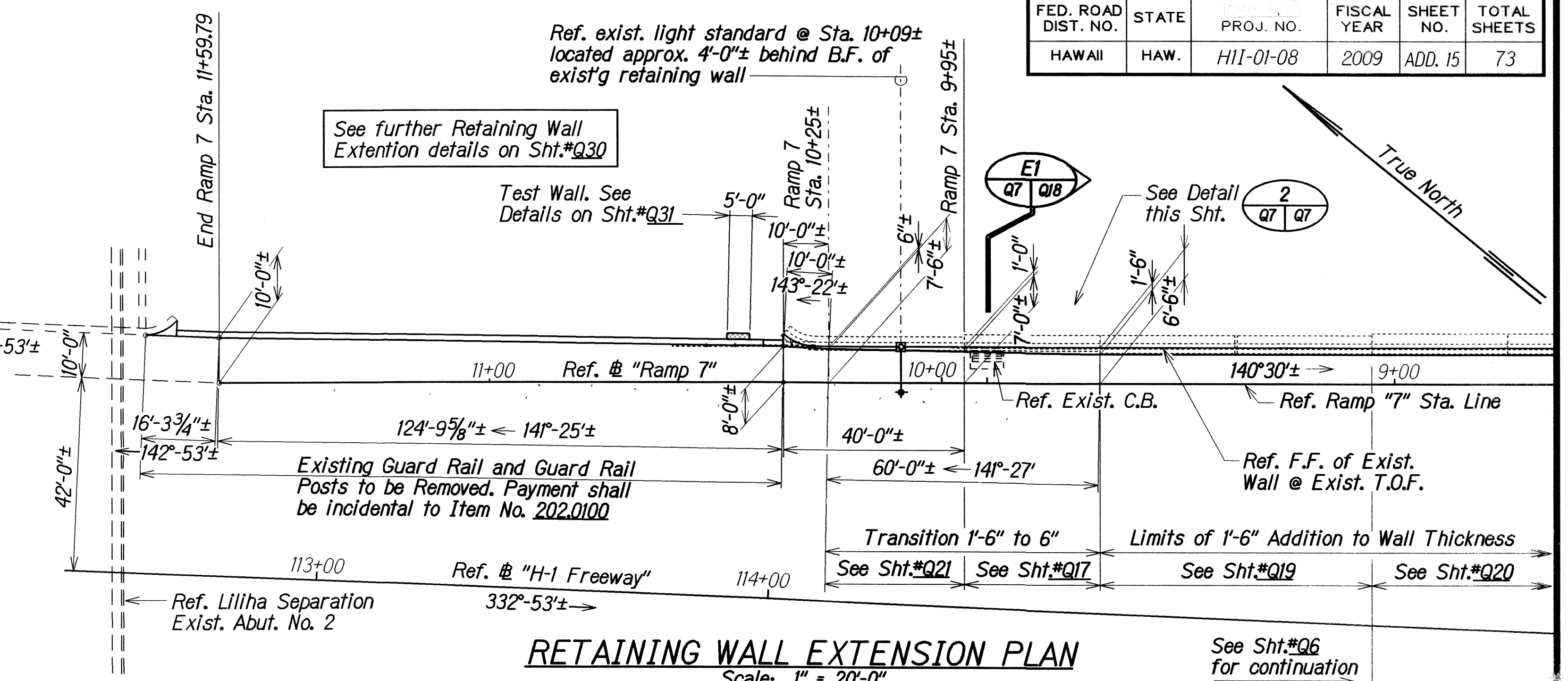
DETAIL 1
Not to Scale
Q6 Q7



AT EXPANSION JOINT
JOINT DETAILS FOR WALL "AA" TO WALL "FF"
Not to Scale

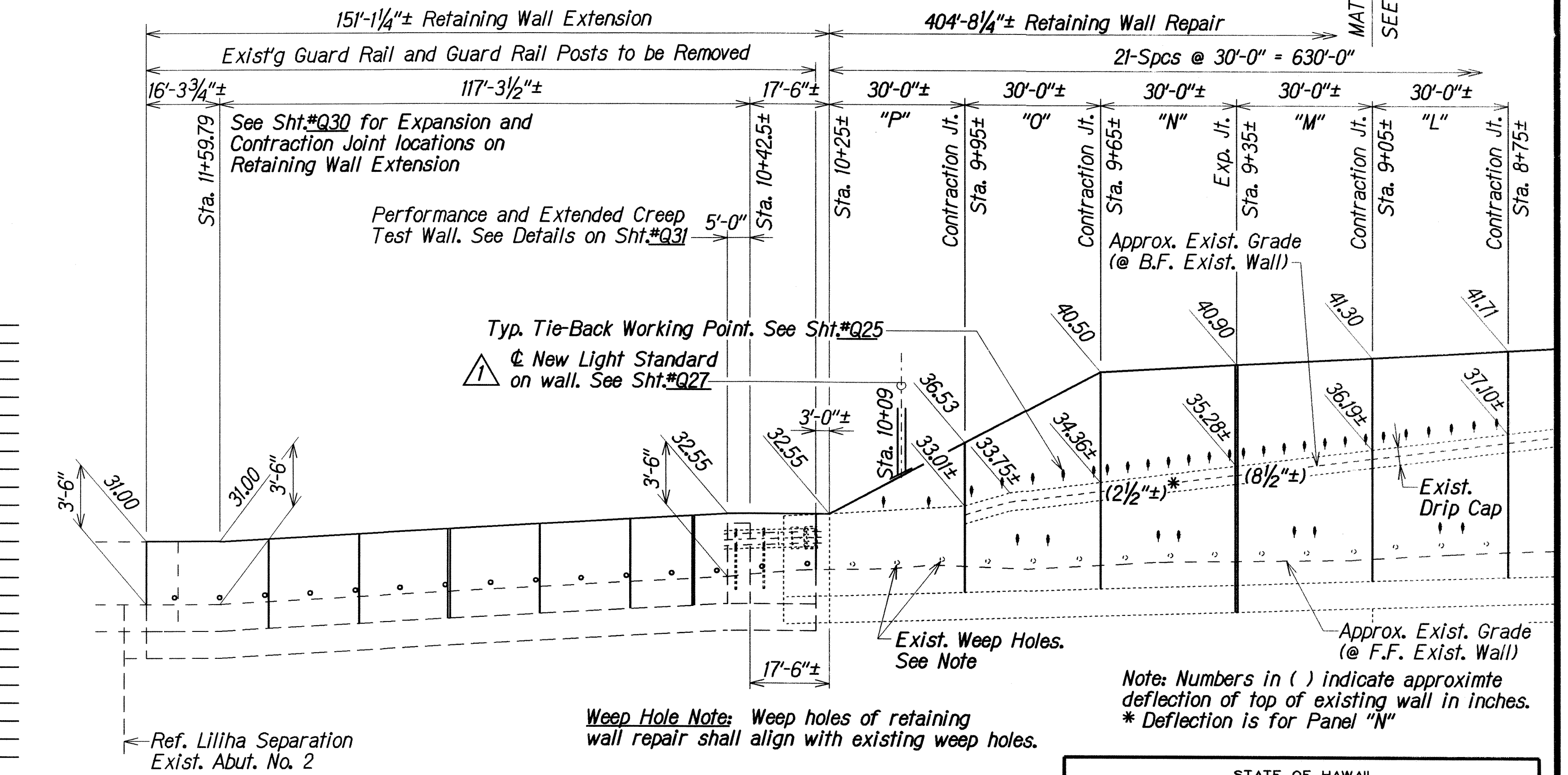


AT CONTRACTION JOINT
JOINT DETAILS FOR WALL "A" TO WALL "P"
Not to Scale



RETAINING WALL EXTENSION PLAN
Scale: 1" = 20'-0"

Note: Expansion and Contraction Joint locations on the existing walls shall be maintained in the repair of the walls. See this sheet for details. See Standard Plan B-01 for Joint details for Retaining Wall Extension.



RETAINING WALL EXTENSION ELEVATION
Scale: Horizontal 1" = 20'-0" Vertical 1" = 5'-0"

EXTENSION and REPAIR of SCHOOL STREET ON-RAMP RETAINING WALL

- LEGEND**
- Indicates Permanent Tie-back Anchor
 - Indicates Existing Weep Hole
 - Indicates New Weep Hole

DATE	DESCRIPTION
3/31/09	Added Legend for Permanent Tie-Back Anchor & Exist. Weep Hole and Revised New Light Standard Callout

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
RETAINING WALL REPAIR and EXTENSION
PARTIAL PLAN, ELEVATION and DETAILS
INTERSTATE ROUTE H-1 EXTENSION and REPAIR
of SCHOOL STREET ON-RAMP RETAINING WALL
Project No. H11-01-08

Scale: As Noted Date: Feb. 2009
SHEET No. Q7 OF 34 SHEETS

ORIGINAL PLAN	DATE	XXX 2002
DRAWN BY	XXX	
CHECKED BY	XXX	
NOTED BY	XXX	
QUANTITIES BY	XXX	
CHECKED BY	XXX	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-08	2009	ADD. 17	73

WALL SCHEDULE									
PANEL	STATION	NO. OF ANCHOR ****		∠ OF ANCHORS FROM HORIZ. ***	APPROX. O/S FROM SCHOOL ST. CURB TO FACE OF EXISTING RETAINING WALLS	TOP OF OLD WALL ELEV.	TOP OF NEW WALL ELEV.	DIFF. IN HEIGHT	ELEV. TOP OF EXIST. FTG.
		UPPER	LOWER						
	5+15				12.27'	45.84'	46.24'	0.40'	31.97'
"GG"	STA. 5+15 to STA. 5+45	-	-	-					
	5+45				13.56'	45.08'	45.89'	0.81'	31.73'
"A"	STA. 5+45 to STA. 5+75	4	-	60°			△	△	
	5+75				14.83'	44.31'	45.54'	1.23'	31.50'
"B"	STA. 5+75 to STA. 6+05	5	-	60°					
	6+05				16.11'	43.55'	45.18'	1.63'	31.27'
"C"	STA. 6+05 to STA. 6+35	5	-	60°					
	6+35				17.39'	42.79'	44.82'	2.03'	31.03'
"D"	STA. 6+35 to STA. 6+65	5	-	60°					
	6+65				18.67'	42.03'	44.46'	2.43'	30.80'
"E"	STA. 6+65 to STA. 6+95	3	-	45°					
	6+95				19.94'	41.26'	44.11'	2.85'	30.57'
"F"	STA. 6+95 to STA. 7+25	4	-	45°					
	7+25				21.22'	40.50'	43.75'	3.25'	30.33'
"G"	STA. 7+25 to STA. 7+55	4	-	45°					
	7+55				22.50'	39.50'	43.34'	3.84'	30.10'
"H"	STA. 7+55 to STA. 7+85	5	2	30°					
	7+85				23.78'	38.50'	42.94'	4.44'	29.87'
"I"	STA. 7+85 to STA. 8+15	7	2	30°					
	8+15				24.06'	37.50'	42.53'	5.03'	29.63'
"J"	STA. 8+15 to STA. 8+45	6	2	20°					
	8+45				25.34'	37.30'	42.12'	4.82'	29.40'
"K"	STA. 8+45 to STA. 8+75	6	2	20°					
	8+75				26.62'	37.10'	41.71'	4.61'	29.17'
"L"	STA. 8+75 to STA. 9+05	6	2	20°					
	9+05				27.90'	36.19'	41.30'	5.11'	28.93'
"M"	STA. 9+05 to STA. 9+35	7	2	20°				△	
	9+35				29.18'	35.28'	40.90'	5.62'	28.70'
"N"	STA. 9+35 to STA. 9+65	7	2	20°					
	9+65				30.46'	34.36'	40.50'	6.14'	28.47'
"O"	STA. 9+65 to STA. 9+95	5	2	20°					
	9+95				31.74'	33.01'	36.53'	3.52'	28.23'
"P"	STA. 9+95 to STA. 10+25	2	-	20°					
	10+25				33.02'	32.55'	32.55'	-	28.00'

NOTE:
Elevations shown are +/-.

LEGEND

- Ⓒ39.75' Indicates Proof Test Anchors
Ⓜ33.00' Lower Anchors 1/2 Proof Test Loaded in conjunction with Proof Test.
* For Walls "A" through "G" Anchor Elevation Location, See Tieback Anchor Placement Detail on Sht.*Q25.
** For Walls "H" through "P" Anchor Elevation Location, See Tieback Anchor Placement Detail on Sht.*Q25.
*** ∠ of All Lower Anchors from Horizontal Shall Be 20°.
**** For Location & Dimension of Anchors on Walls, See Sht.*Q6 & Q7 which refers to the sht. where the details are drawn.

Ⓒ ELEVATION LOCATION OF TIE-BACK AT BEARING PLATE (W.P.)*					
PANEL	ANCHOR				
	NO. 1	NO. 2	NO.3	NO. 4	NO. 5
"A"	44.89'	44.99'	Ⓒ45.09'	45.19'	
"B"	44.54'	44.61'	Ⓒ44.69'	44.76'	44.83'
"C"	44.18'	44.25'	Ⓒ44.33'	44.40'	44.48'
"D"	43.82'	43.90'	Ⓒ43.97'	44.04'	44.12'
"E"	43.47'	Ⓒ43.62'	43.76'		
"F"	43.11'	43.21'	Ⓒ43.31'	43.42'	
"G"	42.70'	42.82'	Ⓒ42.93'	43.05'	

Ⓒ ELEVATION LOCATION OF TIE-BACK AT WORKING POINT (W.P.)**								
PANEL	ANCHOR							
		NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6	NO. 7
"H"	UPPER	39.30'	39.53'	Ⓒ39.75'	39.98'	40.20'		
	LOWER	Ⓜ33.00'	Ⓜ33.00'					
"I"	UPPER	38.32'	38.46'	38.61'	Ⓒ38.75'	38.89'	39.04'	39.18'
	LOWER	Ⓜ32.75'	Ⓜ32.75'					
"J"	UPPER	38.07'	38.10'	38.13'	Ⓒ38.17'	38.20'	38.23'	
	LOWER	Ⓜ32.50'	Ⓜ32.50'					
"K"	UPPER	37.87'	37.90'	37.93'	Ⓒ37.97'	38.00'	38.03'	
	LOWER	Ⓜ32.25'	Ⓜ32.25'					
"L"	UPPER	37.02'	37.17'	37.32'	Ⓒ37.47'	37.62'	37.77'	
	LOWER	Ⓜ32.00'	Ⓜ32.00'					
"M"	UPPER	36.08'	36.22'	36.35'	Ⓒ36.49'	36.63'	36.76'	36.89'
	LOWER	Ⓜ31.75'	Ⓜ31.75'					
"N"	UPPER	35.16'	35.29'	35.43'	Ⓒ35.57'	35.71'	35.85'	35.98'
	LOWER	Ⓜ31.50'	Ⓜ31.50'					
"O"	UPPER	33.91'	34.39'	Ⓒ34.65'	34.85'	35.05'		
	LOWER	Ⓜ31.25'	Ⓜ31.25'					
"P"	UPPER	33.30'	33.30'					
	LOWER							

△	Revised Top of New Wall Elevation and Difference in Height
3/31/09	
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RETAINING WALL REPAIR
WALL, ANCHOR AND BEARING PLATE
SCHEDULES

INTERSTATE ROUTE H-1 EXTENSION AND
REPAIR OF SCHOOL STREET ON-RAMP RETAINING WALL
Project No. H11-01-08

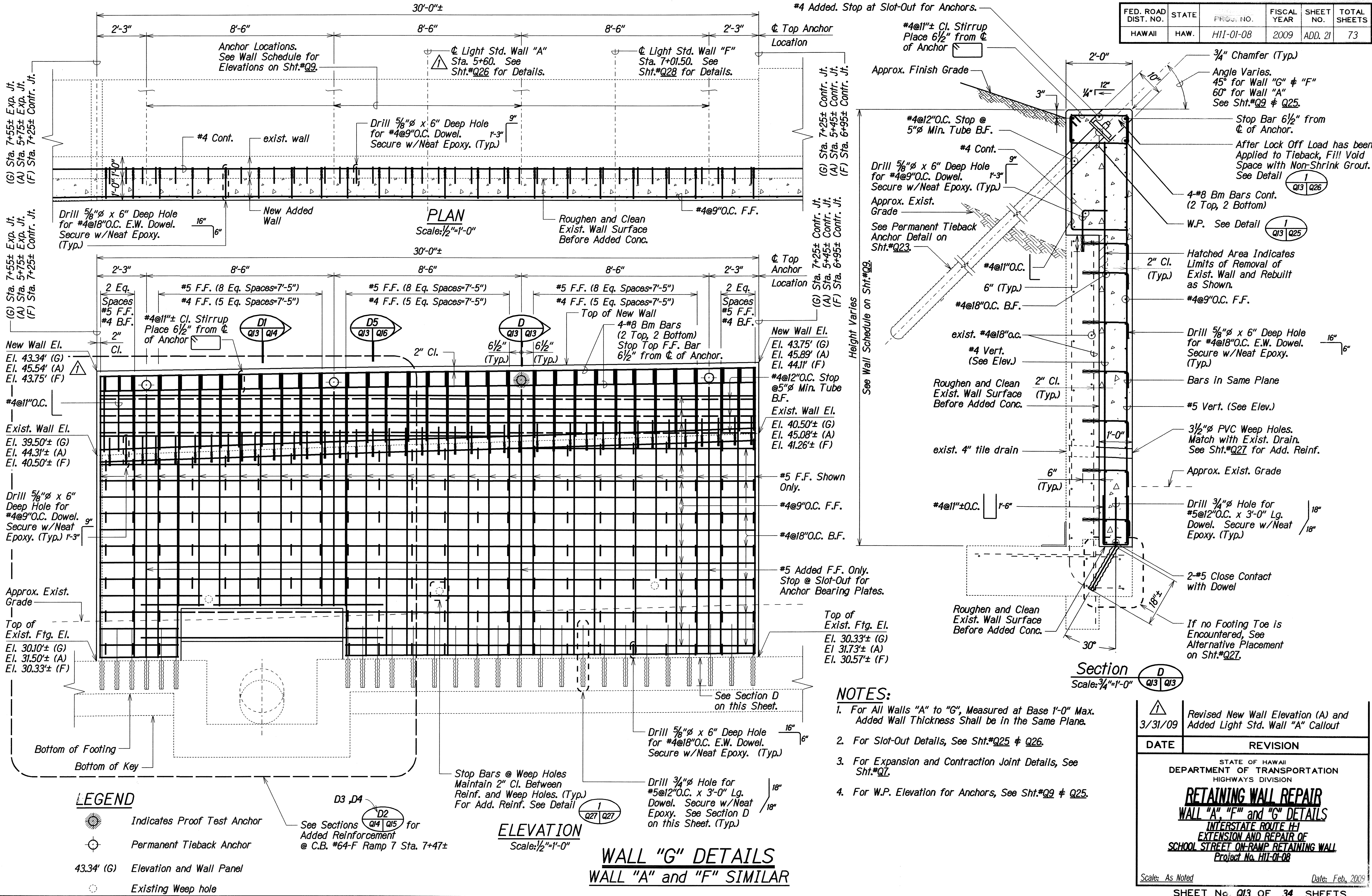
Scale: As Noted

Date: Feb., 2009

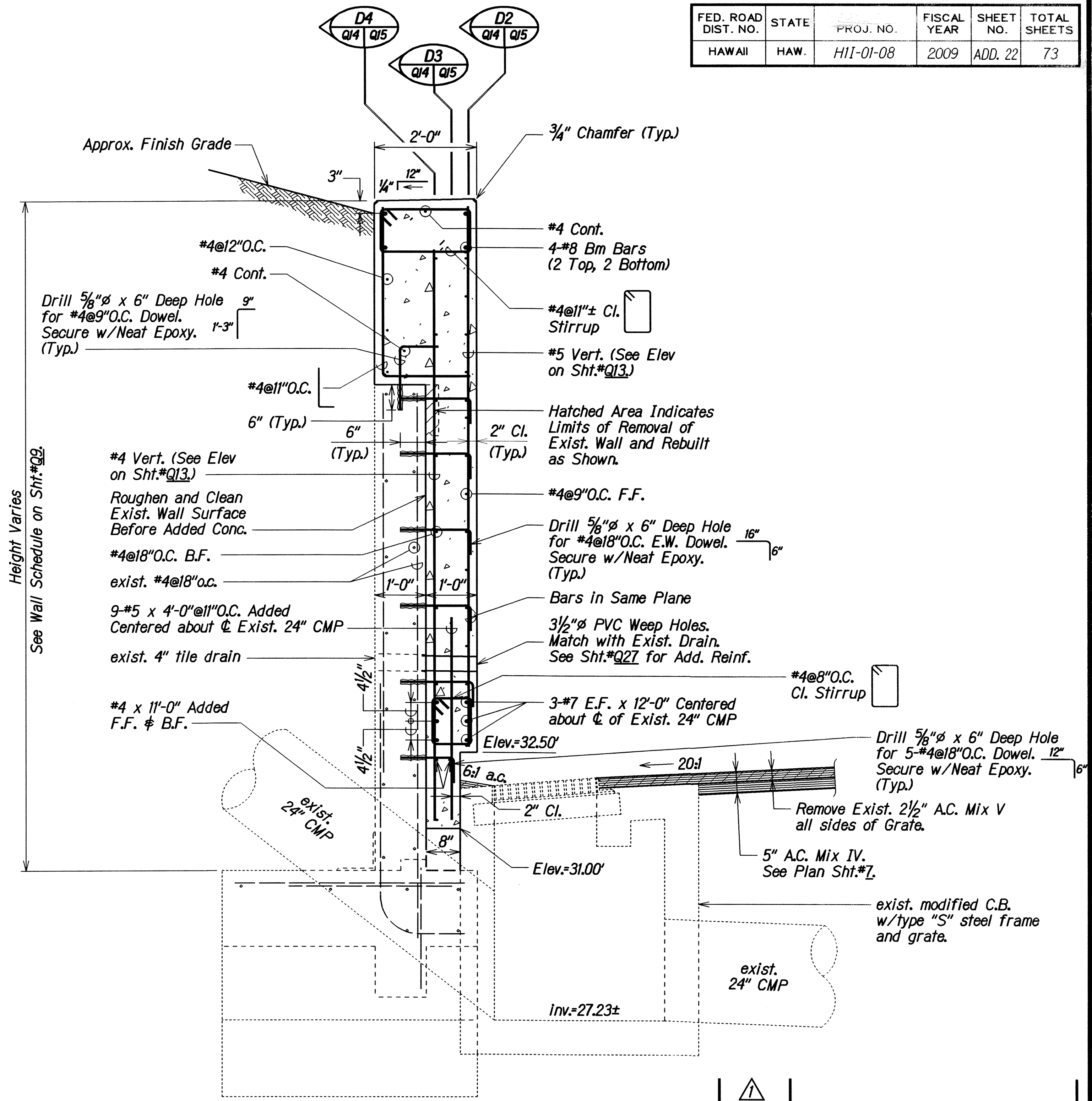
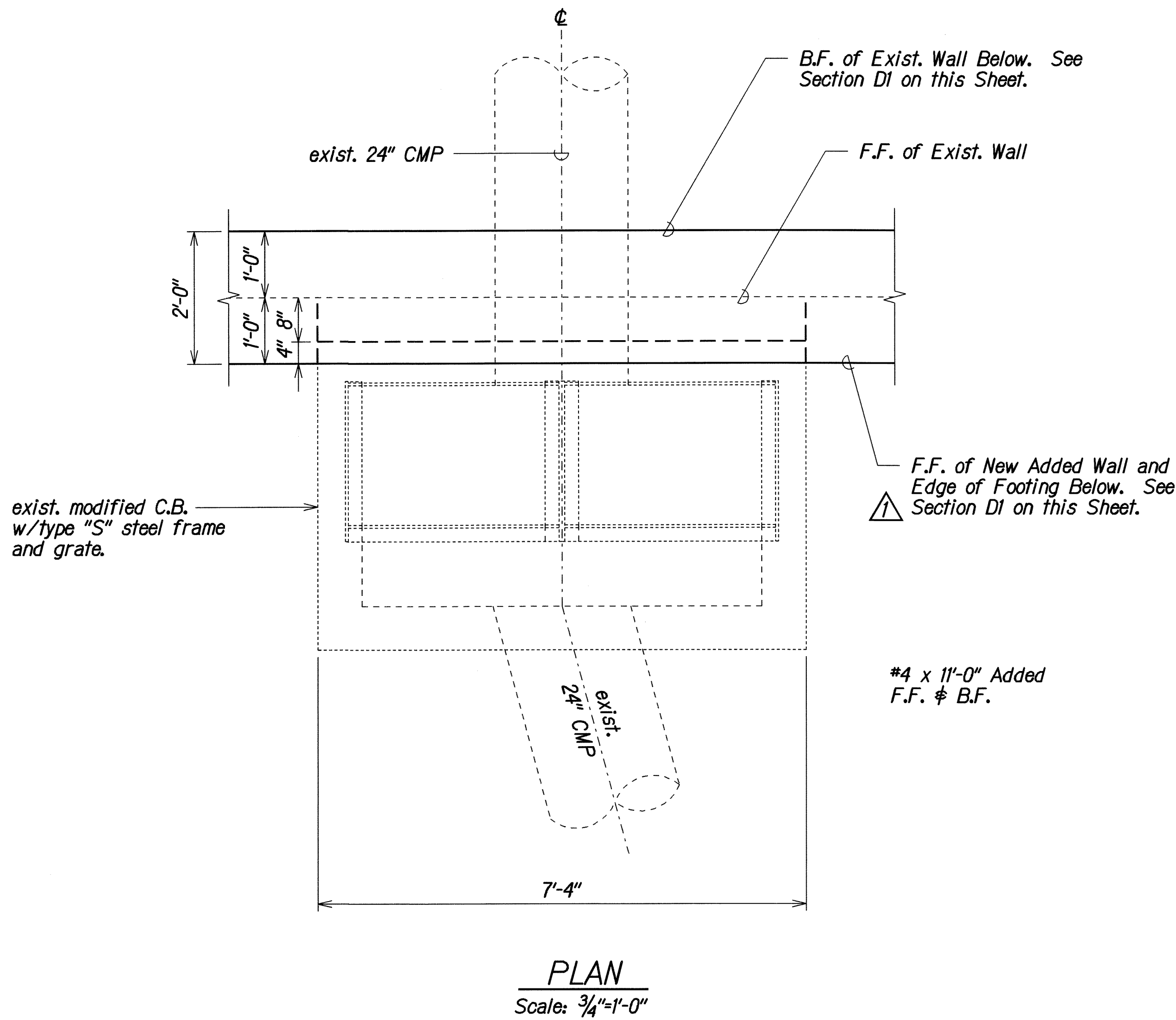
SHEET No. Q9 OF 34 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	XXX 2008
TRACED BY	XXX 2008
CHECKED BY	XXX 2008
QUANTITIES BY	XXX 2008
CHECKED BY	XXX 2008
ORIGINAL PLAN	
NOTE BOOK	
NAME	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-08	2009	ADD. 21	73



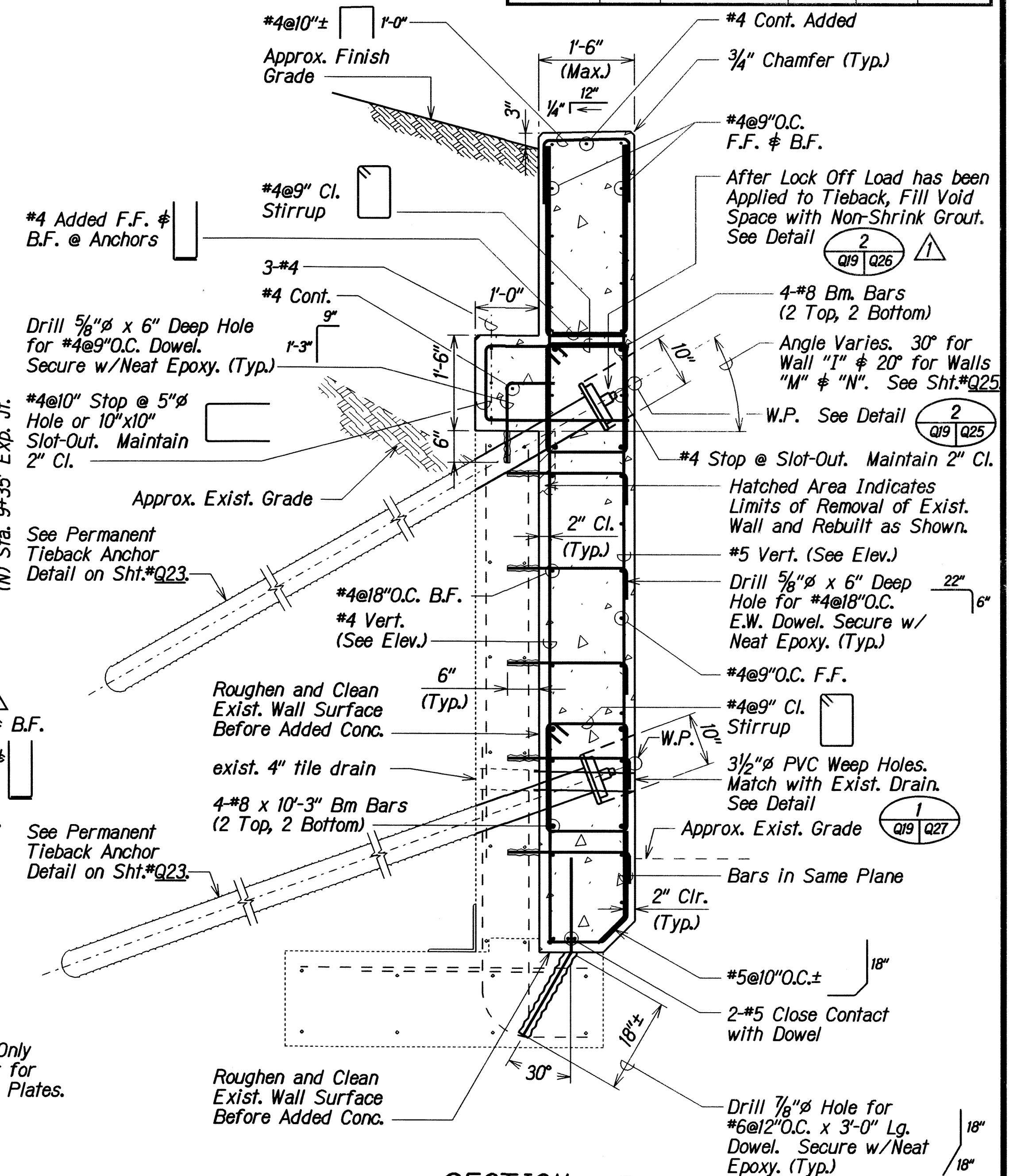
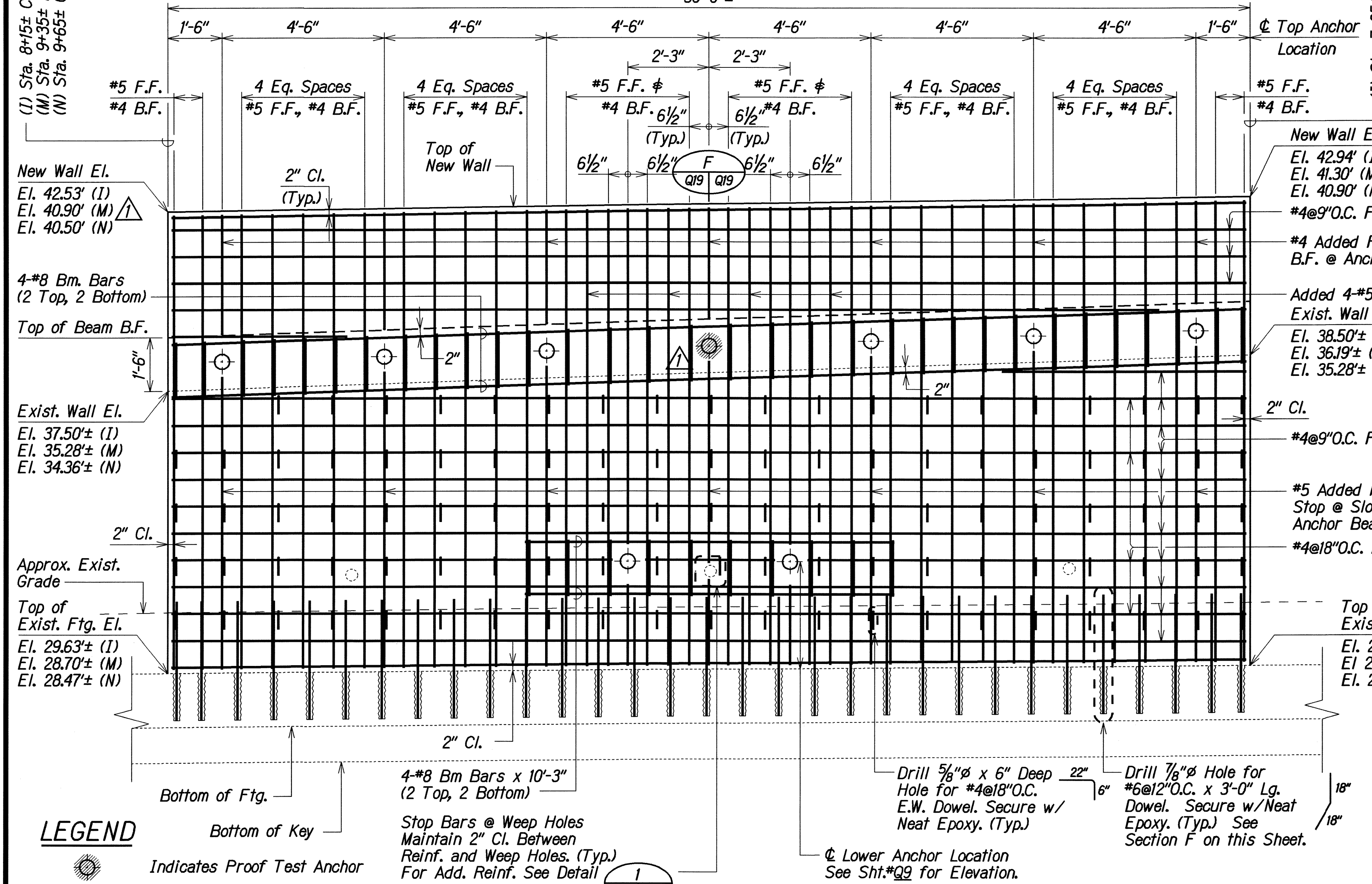
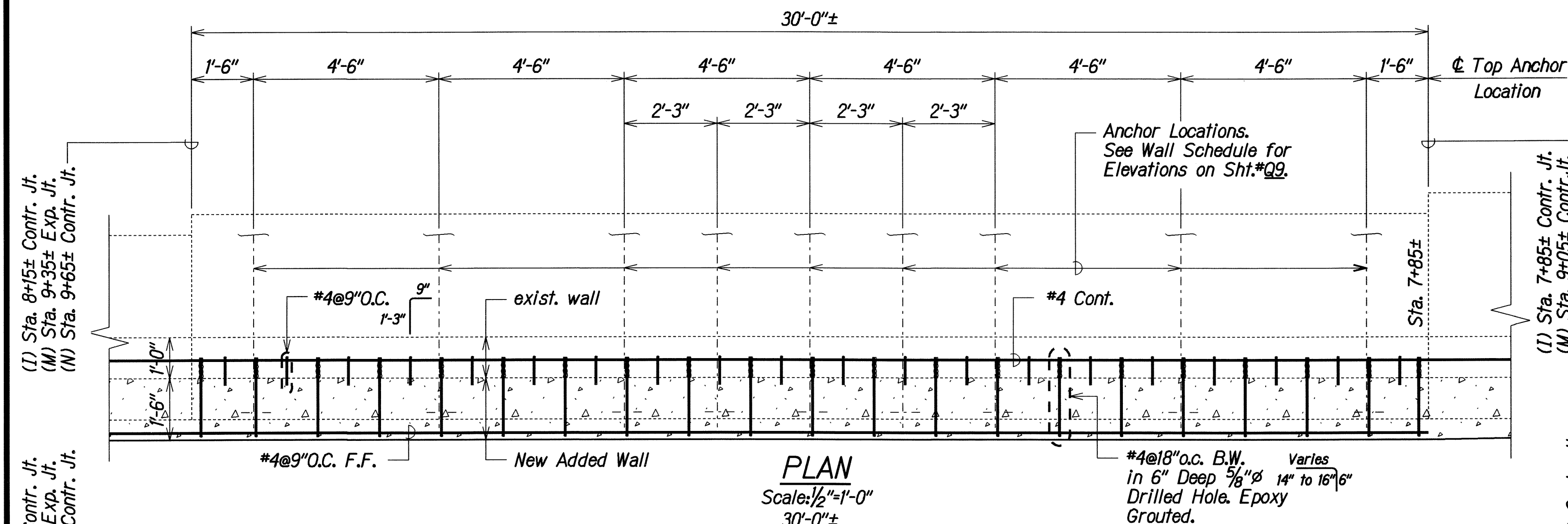
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-08	2009	ADD. 22	73



WALL "G" AT MODIFIED C.B.#64-F - RAMP 7 & STA. 7+47±

3/31/09	Revised Section Designation
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION RETAINING WALL REPAIR WALL "G" AT MODIFIED C.B. #64-F PLAN AND SECTION INTERSTATE ROUTE 11 EXTENSION AND REPAIR OF SCHOOL STREET ON-RAMP RETAINING WALL Scale: As Noted Date: Feb., 2009 Project No. H11-01-08	
SHEET No. 014 OF 34 SHEETS	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-08	2009	ADD. 27	73

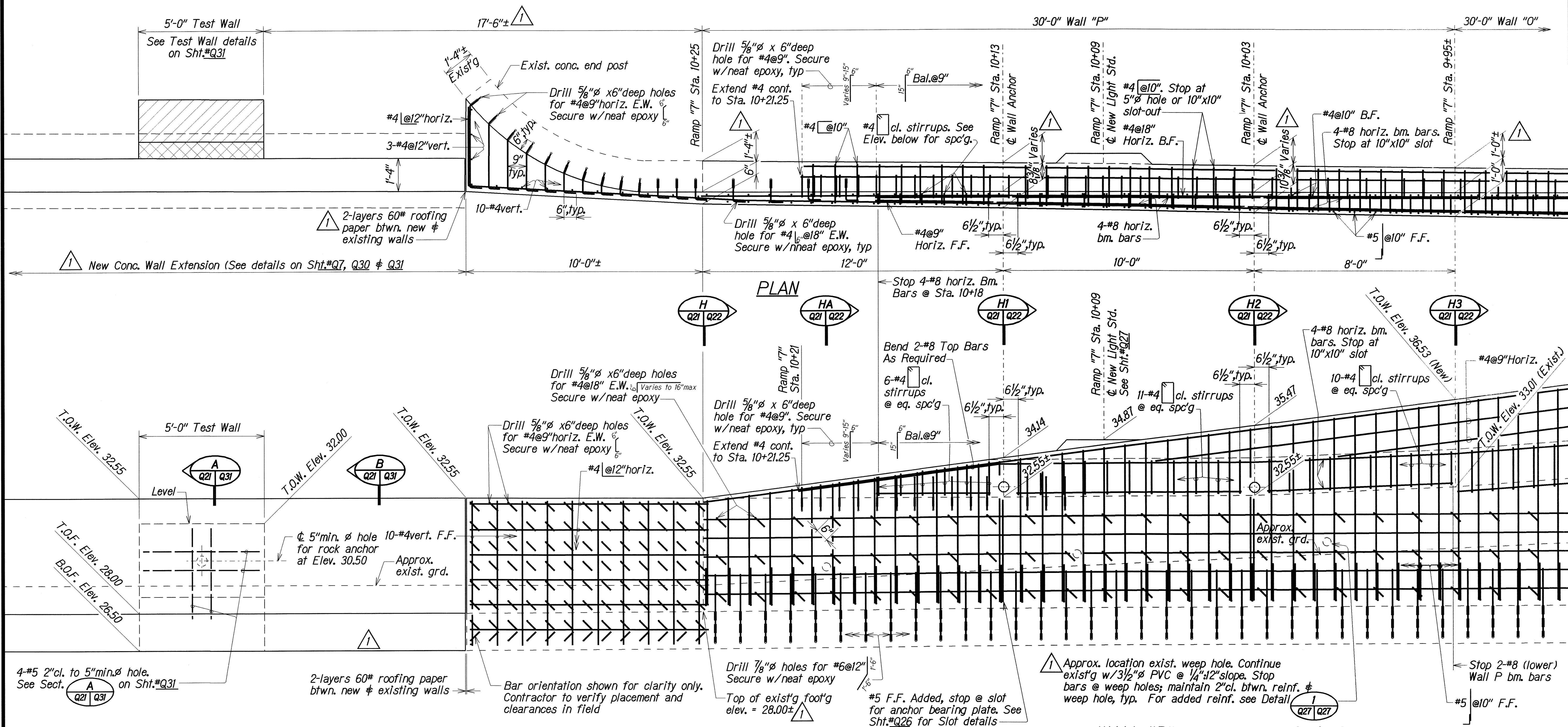


NOTES:

1. $\angle$ of All Lower Anchors from Horizontal Shall be 20°.
2. For Slot-Out Details, Sse Sheets Q25 & Q26.
3. For Expansion & Contraction Joint Details, See Sht.*Q7.

DATE	REVISION
3/31/09	Revised New Wall Elevations (M) & (N), Revised Detail Designation and Hatched Proof Test Anchor
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION RETAINING WALL REPAIR WALL "I" "M" AND "N" DETAILS INTERSTATE ROUTE H-1 EXTENSION AND REPAIR OF SCHOOL STREET ON-RAMP RETAINING WALL Project No. H11-01-08 Scale: As Noted Date: Feb., 2009	
SHEET No. Q19 OF 34 SHEETS	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-08	2009	ADD. 29	73



TEST WALL

LEGEND

- Indicates Permanent Tieback Anchor
- Indicates Existing Weep Hole

SCHOOL STREET END POST

WALL "P"

ELEVATION

TEST WALL, SCHOOL STREET END POST and WALL "P" DETAILS

REPAIR of SCHOOL STREET ON-RAMP RETAINING WALL

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

Revised callouts and/or added dimension(s). Added note(s). Relocate test wall fig. lines. Added legend. Added Sec

DATE DESCRIPTION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RETAINING WALL REPAIR

TEST WALL, SCHOOL ST. END POST and WALL "P" DETAILS

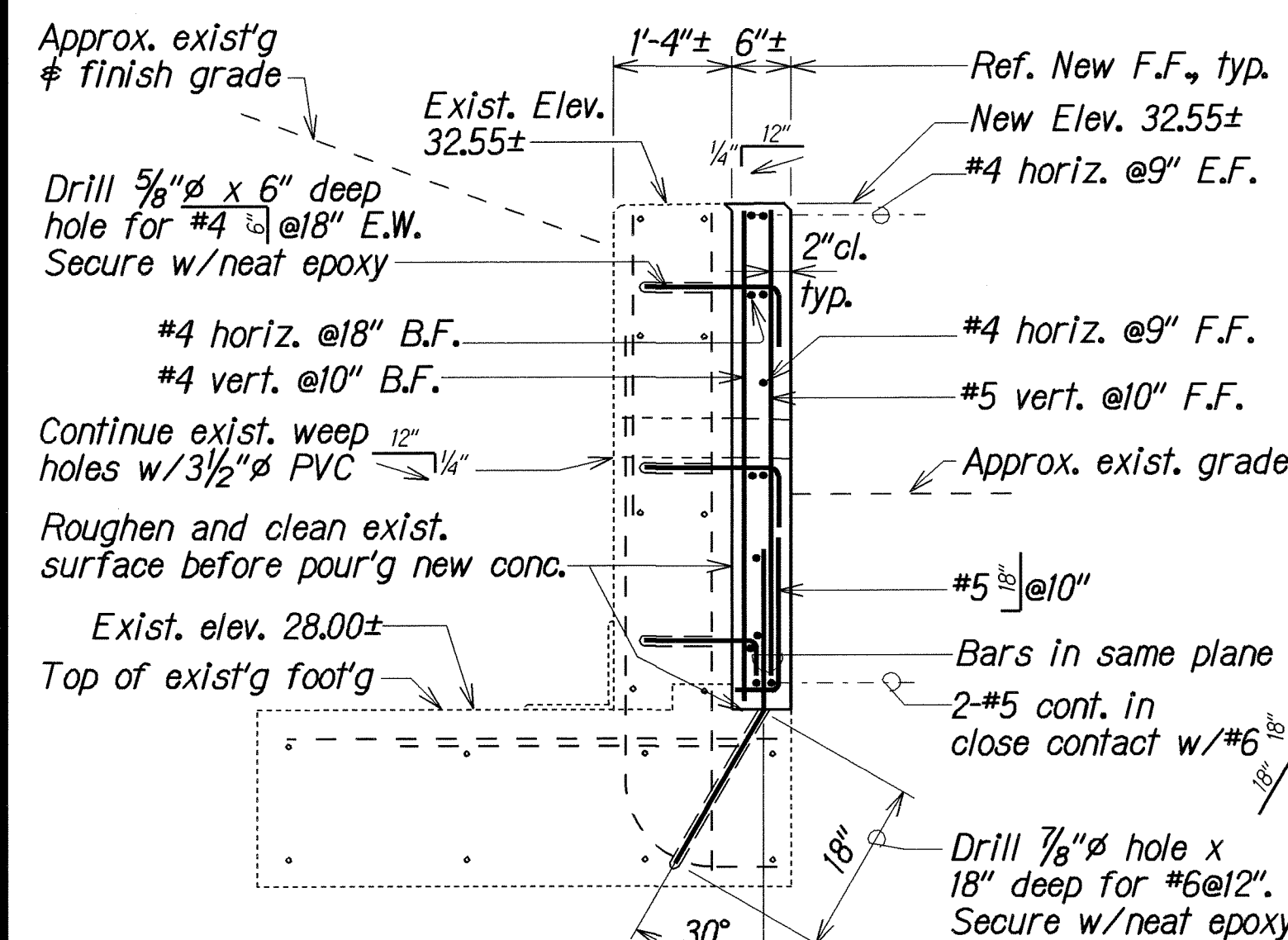
INTERSTATE ROUTE H-1, EXTENSION and REPAIR of SCHOOL STREET ON-RAMP RETAINING WALL

Project No. H11-01-08

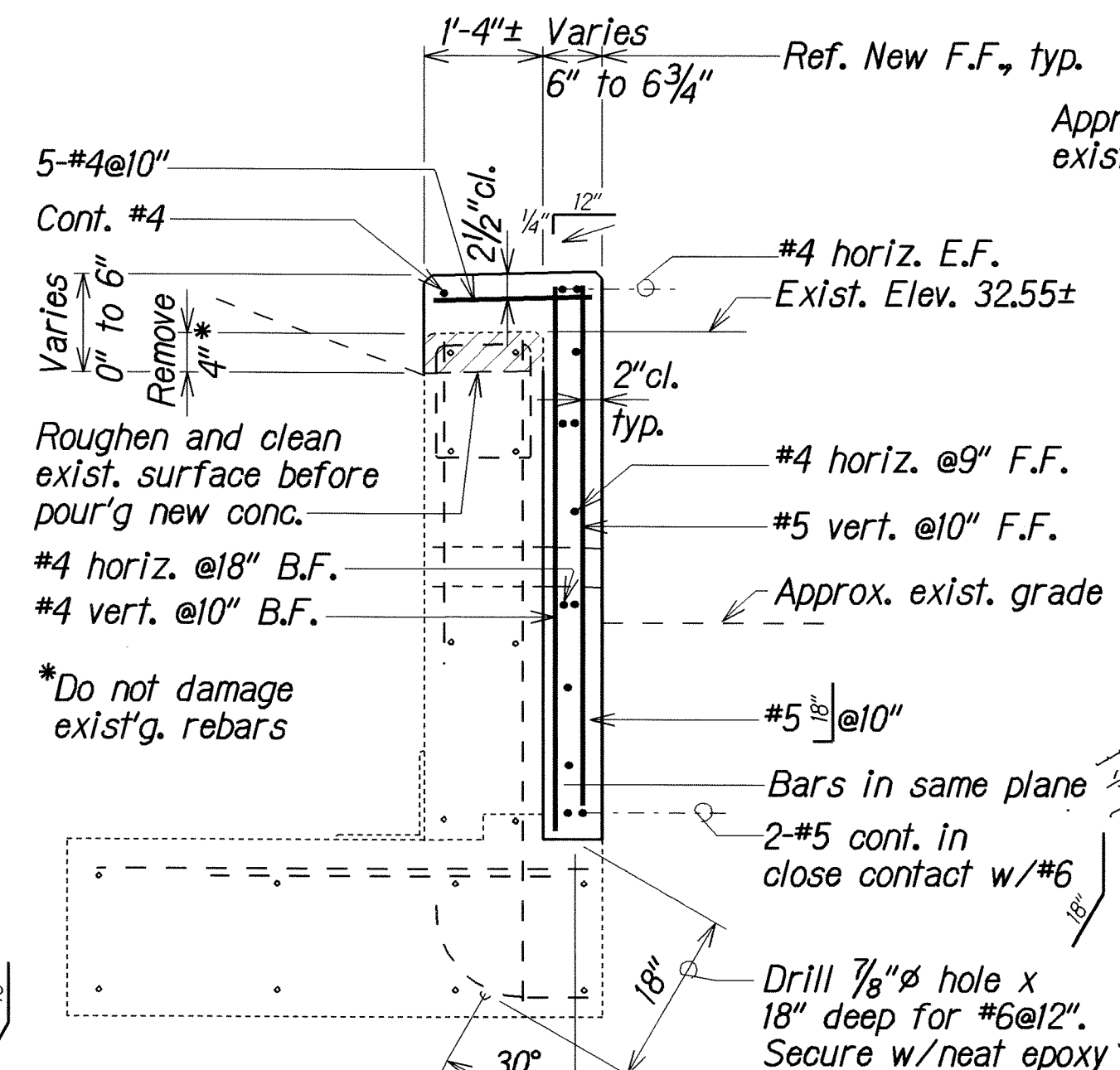
Scale: As Noted Date: Feb. 2009

SHEET No. Q21 OF 34 SHEETS

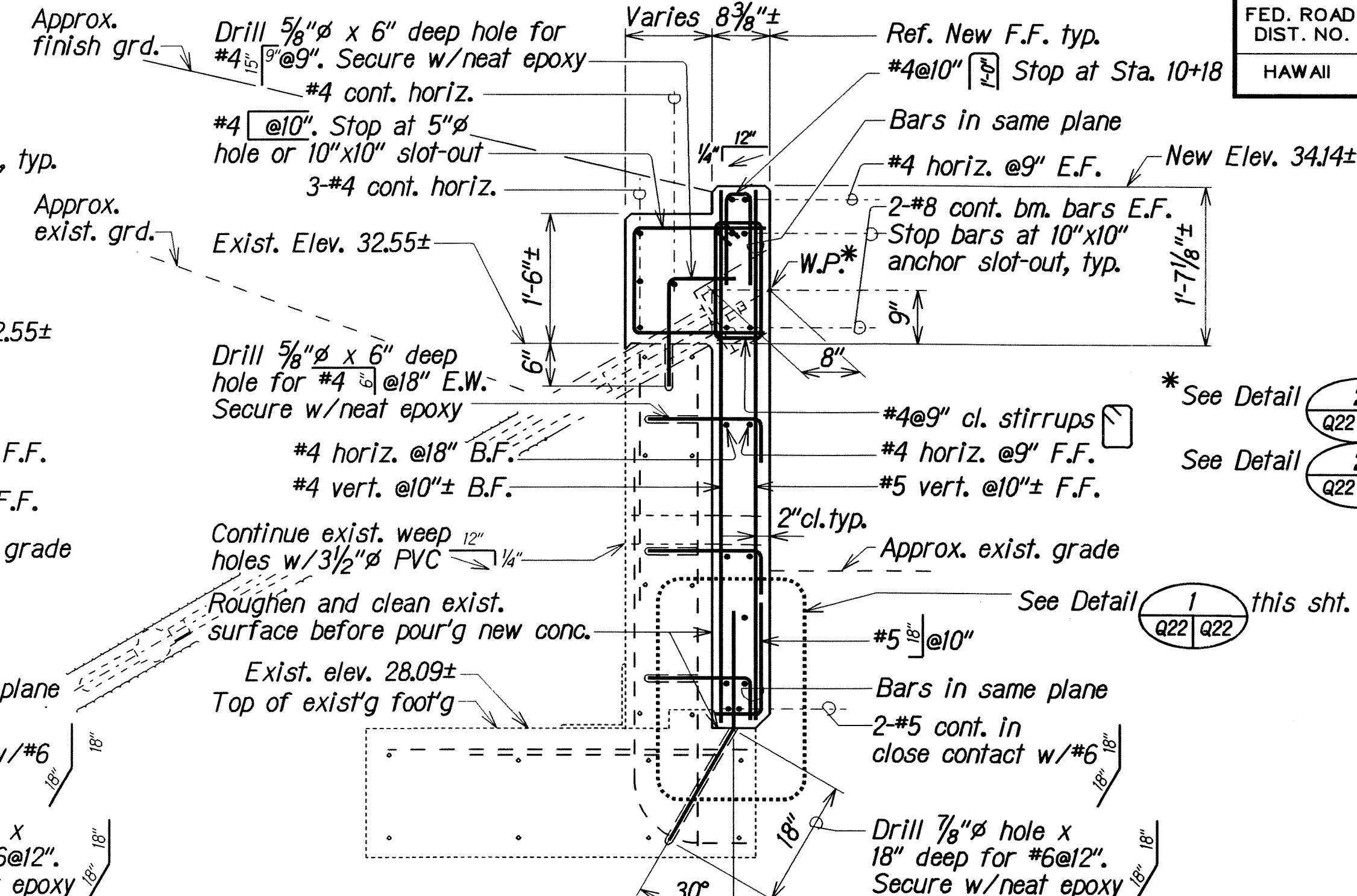
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-08	2009	ADD. 30	73



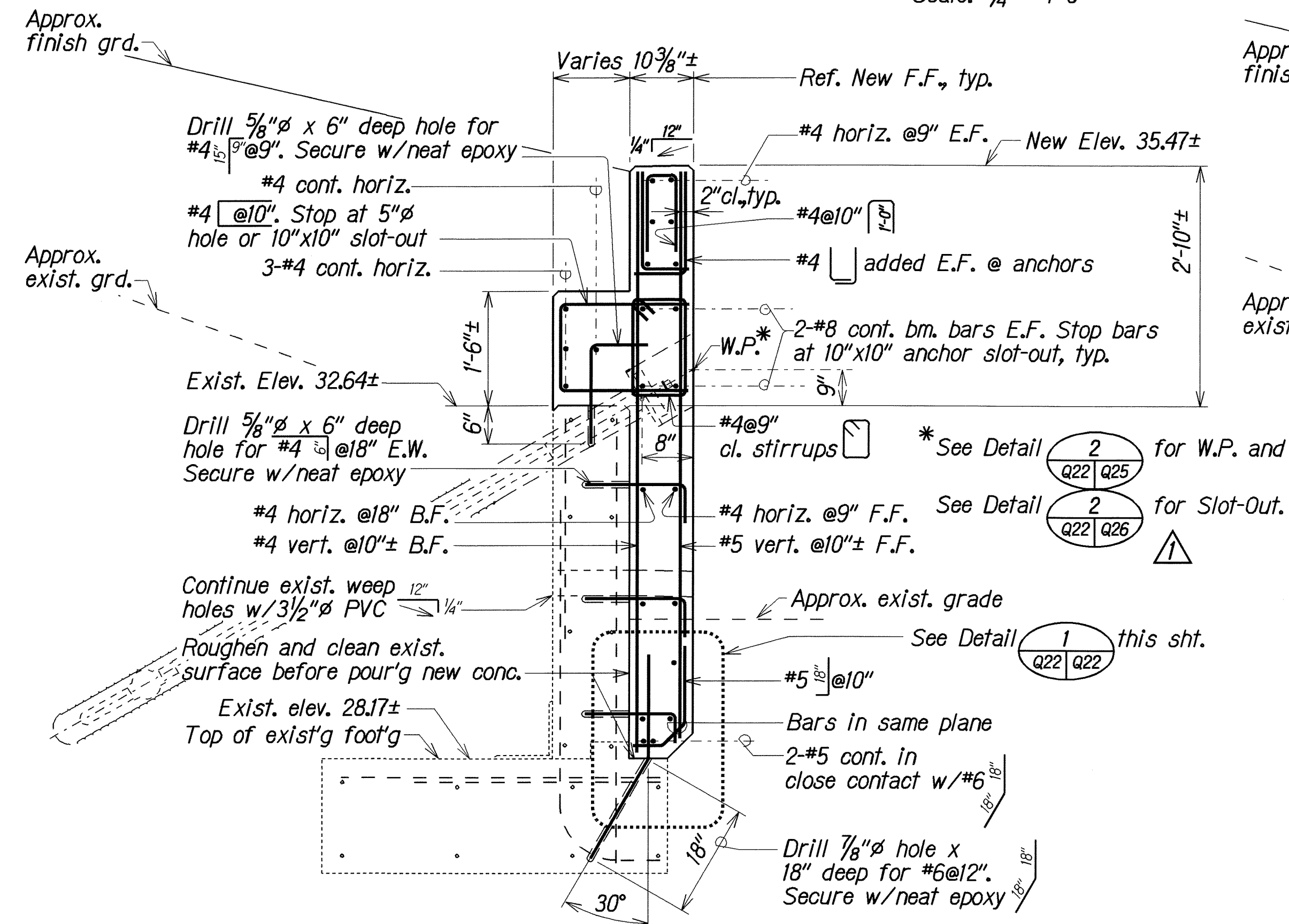
SECTION at RAMP 7 STA. 10+25± H
Q21 Q22
Scale: 3/4" = 1'-0"



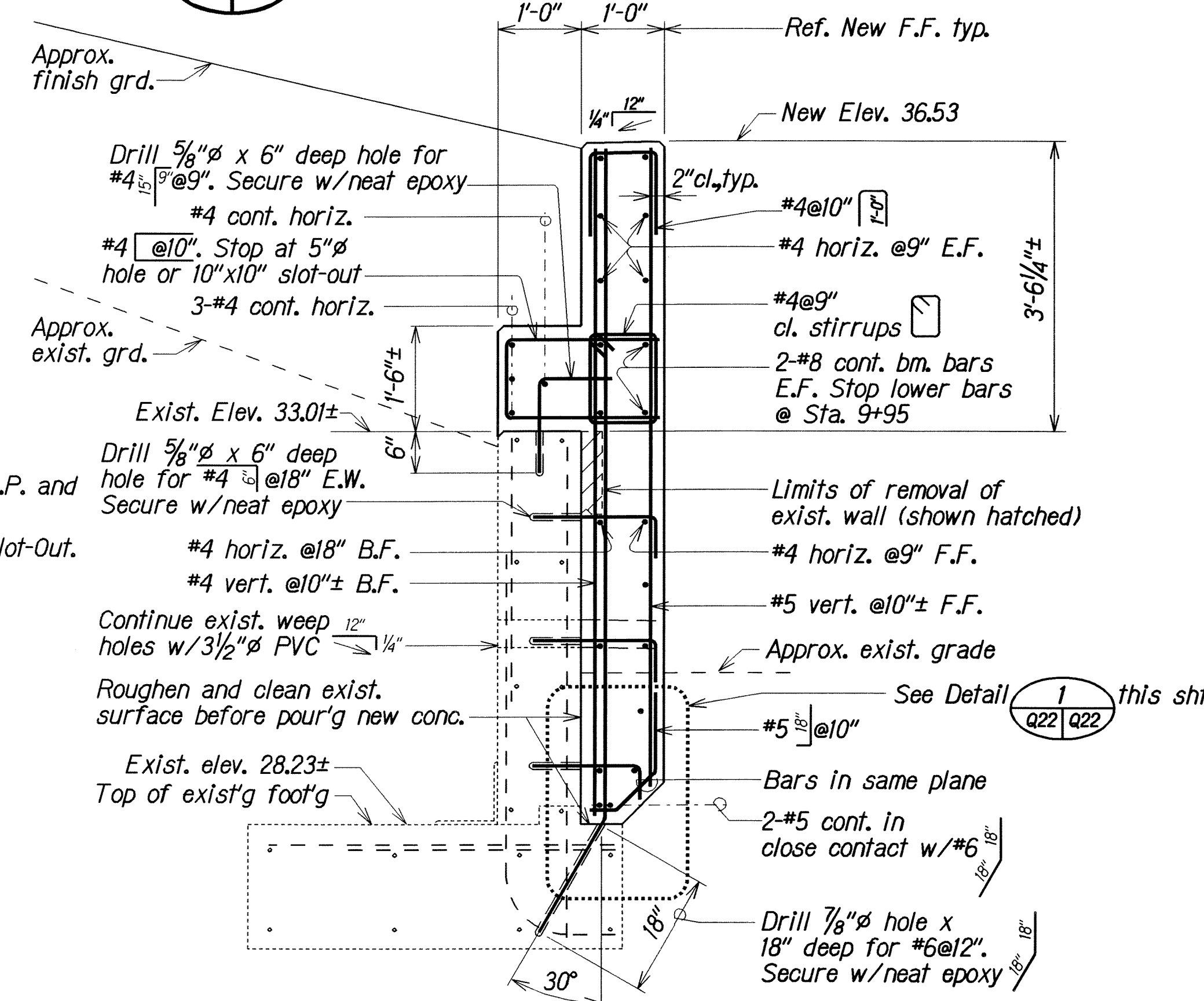
SECTION at RAMP 7 STA. 10+25± to 10+21.25 HA
Q21 Q22
Scale: 3/4" = 1'-0"



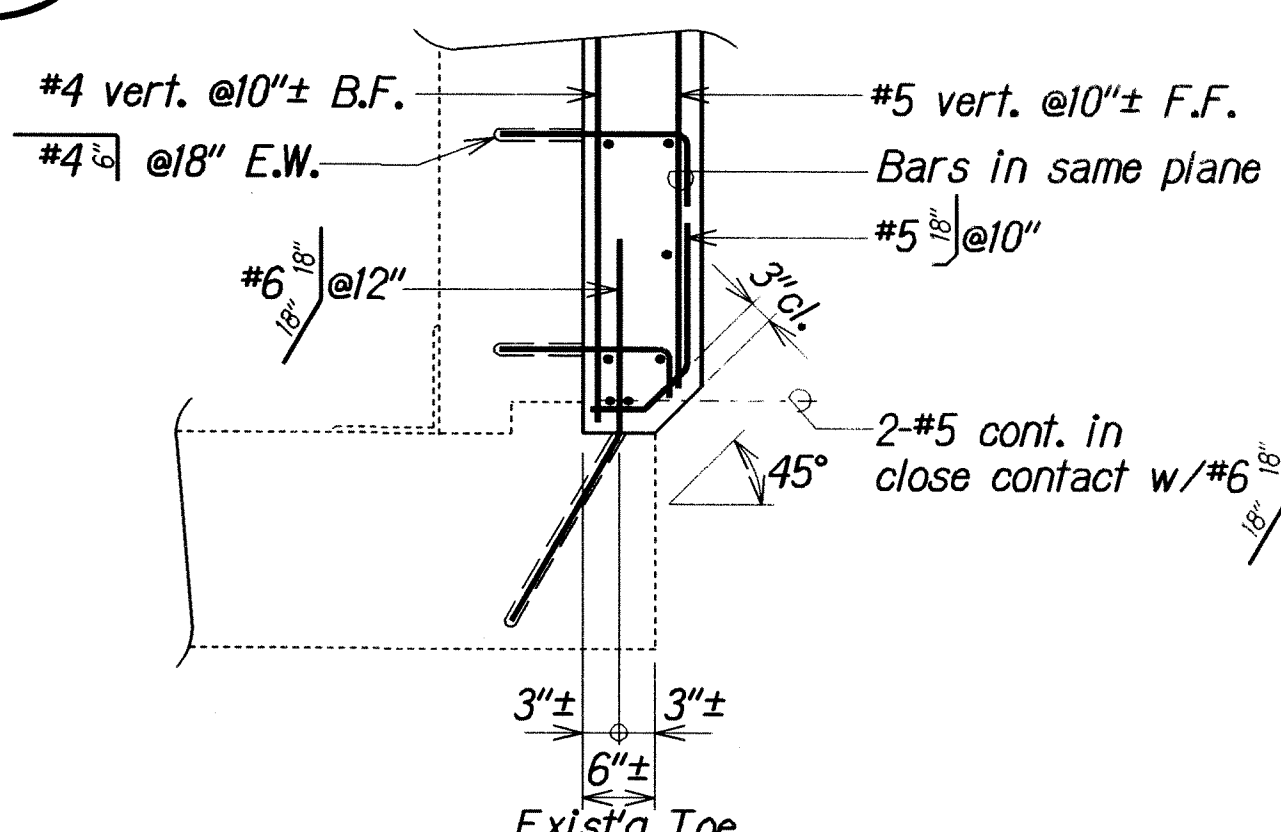
SECTION at RAMP 7 STA. 10+13± HI
Q21 Q22
Scale: 3/4" = 1'-0"



SECTION at RAMP 7 STA. 10+03± H2
Q21 Q22
Scale: 3/4" = 1'-0"



SECTION at RAMP 7 STA. 9+95± H3
Q21 Q22
Scale: 3/4" = 1'-0"



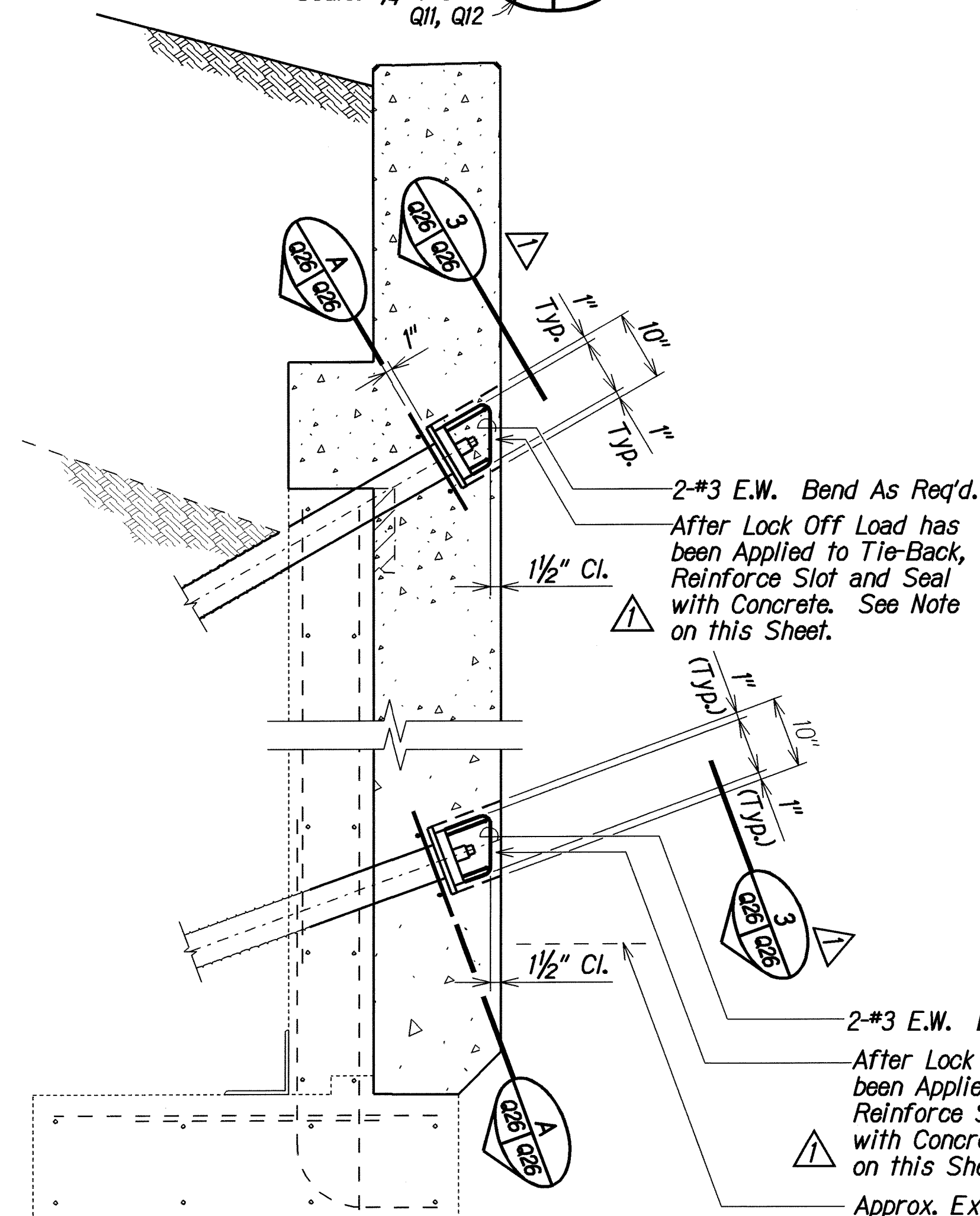
DETAIL 1 Q22 Q22
Scale: 3/4" = 1'-0"

DATE	XXX 2009
DRAWN BY	XXX
DESIGNED BY	XXX
CHECKED BY	XXX
ORIGINAL PLAN	XXX
NOTE BOOK	XXX
QUANTITIES BY	XXX
CHECKED BY	XXX

WALL "P" SECTIONS

Added Detail Symbol and Section HA Q21 Q22	
DATE	DESCRIPTION
3/31/09	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION RETAINING WALL REPAIR WALL "P" SECTIONS INTERSTATE ROUTE H1 EXTENSION and REPAIR of SCHOOL STREET ON-RAMP RETAINING WALL Project No. H11-01-08 Scale: As Noted Date: Feb. 2009

1 **DETAIL** **1**
Scale: $\frac{3}{4}" = 1'-0"$
Q13 Q26
Q11, Q12




DETAIL


Scale: $\frac{3}{4}" = 1'-0"$
 Q17, Q19, Q20

2-#3 Bend as Req'd.

10"

10"

10"x10" Slot-Out

1 1/2"x8"x8" Bearing Plate

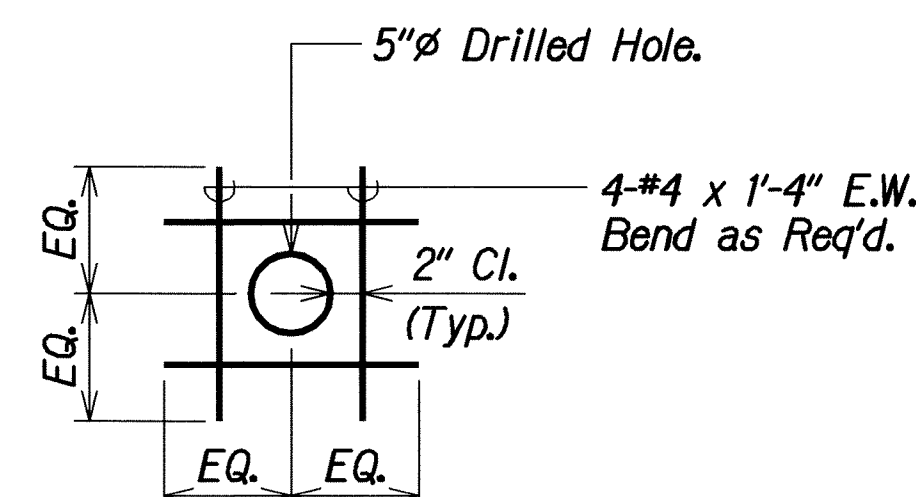
2-#3 Bend as Req'd.

1" Cl. (Typ.)

1" Cl. (Typ.)

DETAIL  

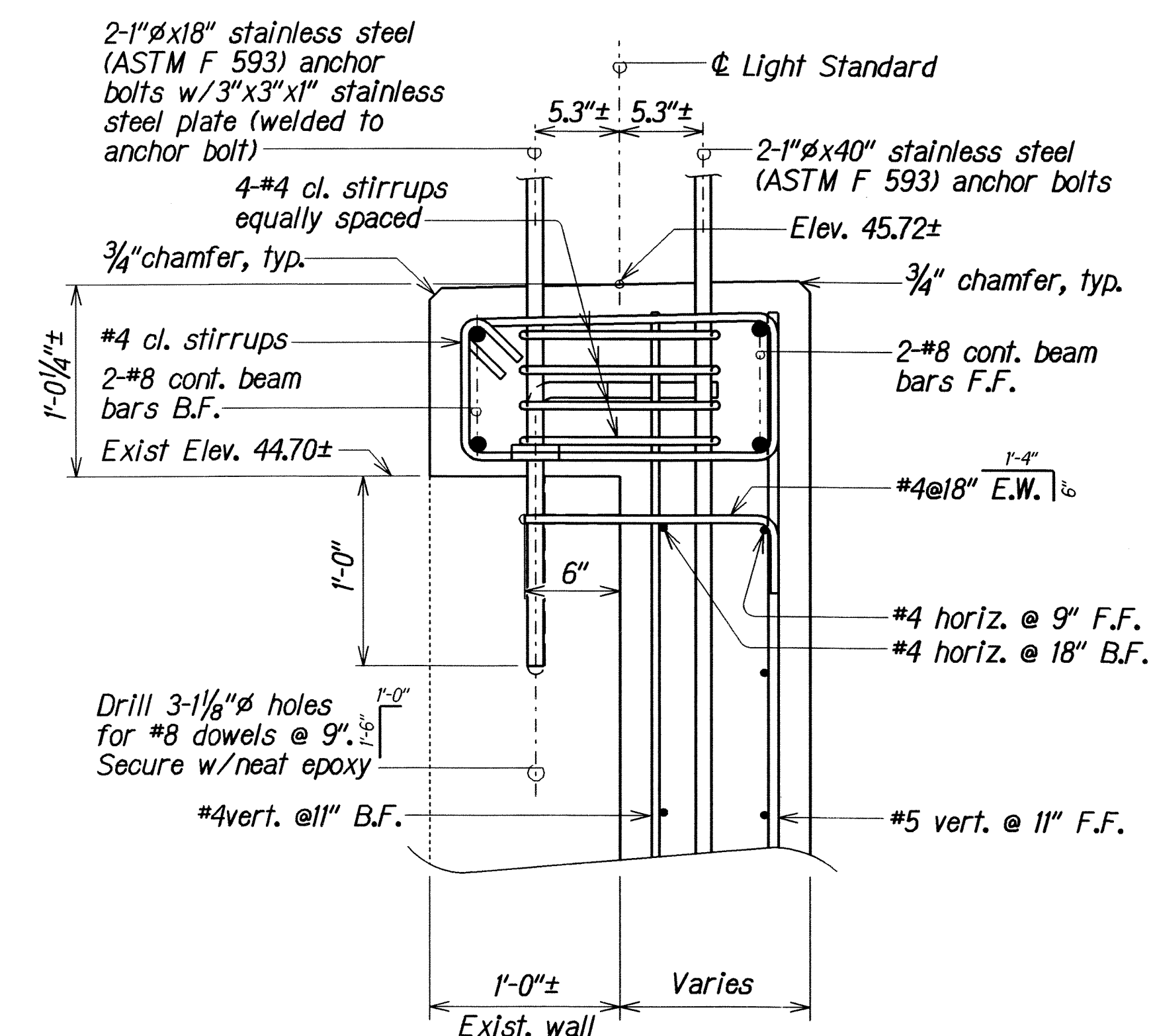
Scale: 3"=1'-0"



SECTION A
Scale: 1"=1'-0" Q26 | Q26

[illegible]

PLAN



NOTE: For wall reinforcing not shown here, see Sht.#Q13

TYPICAL SECTION

△ LIGHT STANDARD CONCRETE SEAT
on WALL "A" at RAMP 7 STA. 5+60
Scale: $1\frac{1}{2}" = 1'-0"$

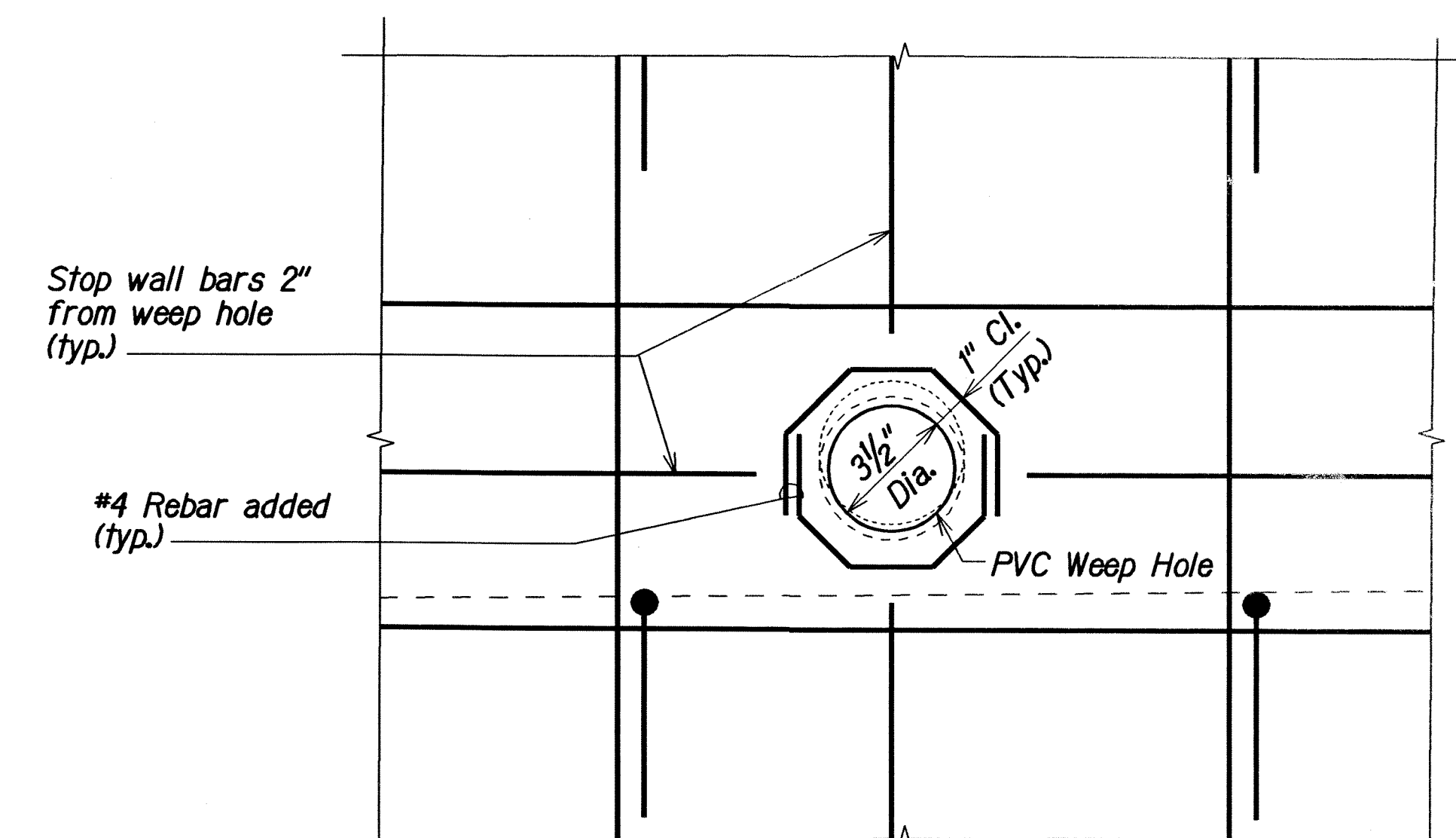
ORIGINAL PLAN	SURVEY PLOTTED BY _____ DATE _____
	DRAWN BY _____ XXXX _____
	TRACED BY _____ XXXX _____
	DESIGNED BY _____ XXXX _____
	QUANTITIES BY _____ XXXX _____
	CHECKED BY _____ XXXX _____

For Wall Reinf. See Appropriate Wall Details

Add Reinf. at Weep Hole See Detail

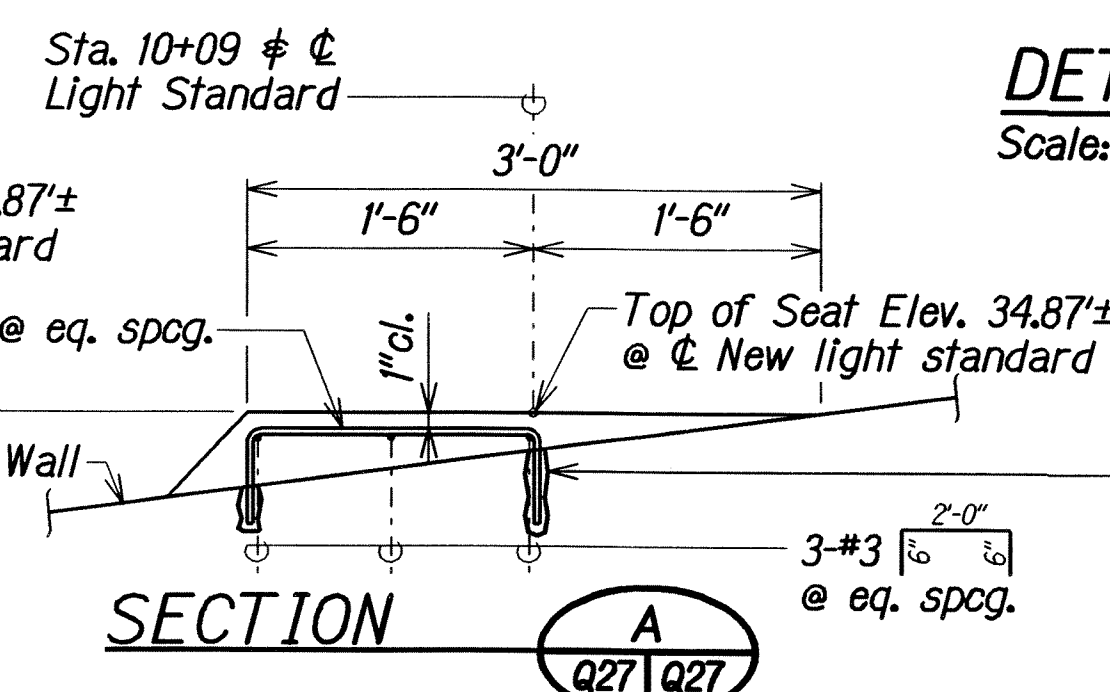
1
Q27/Q27

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

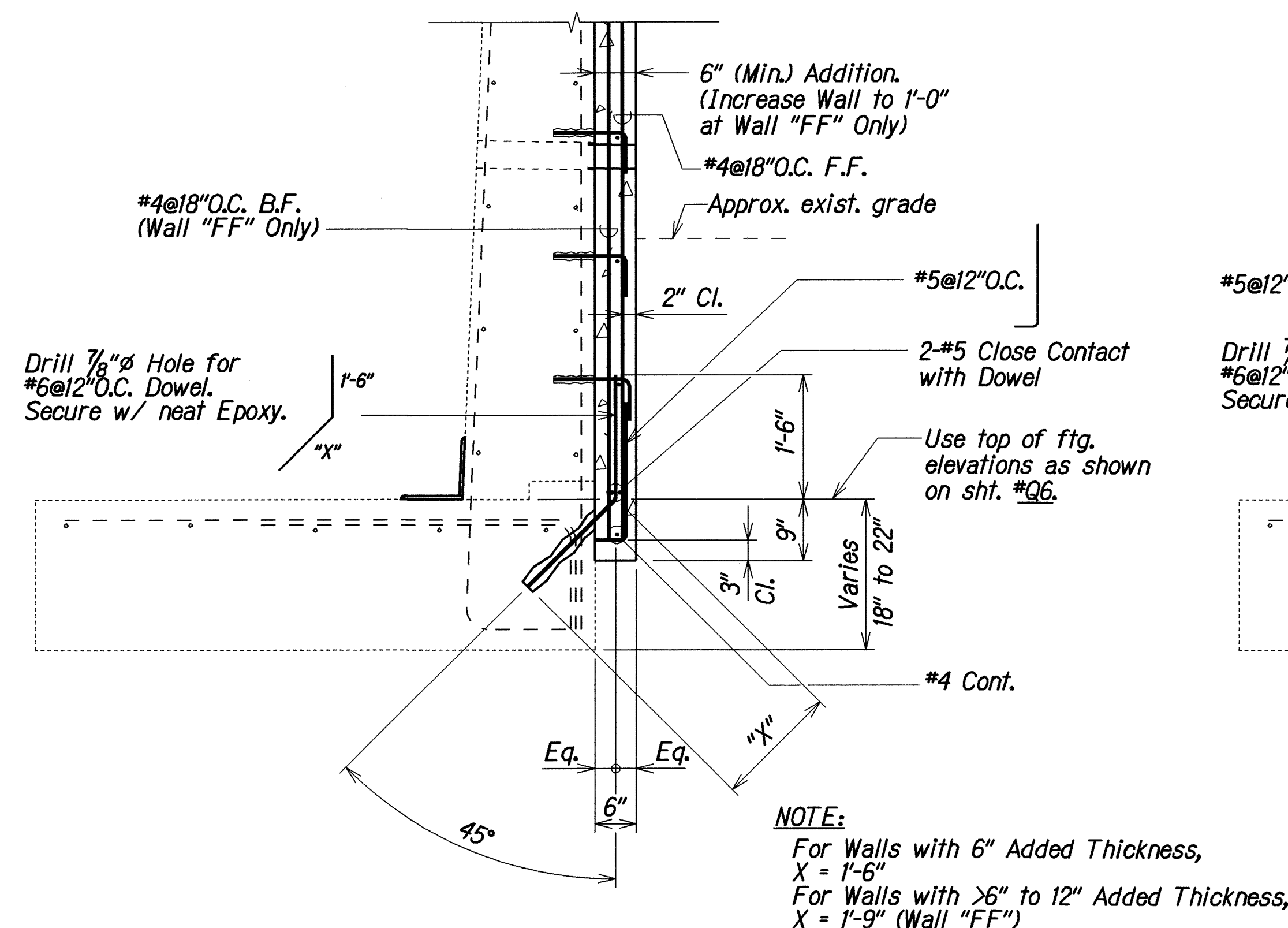


DETAIL 

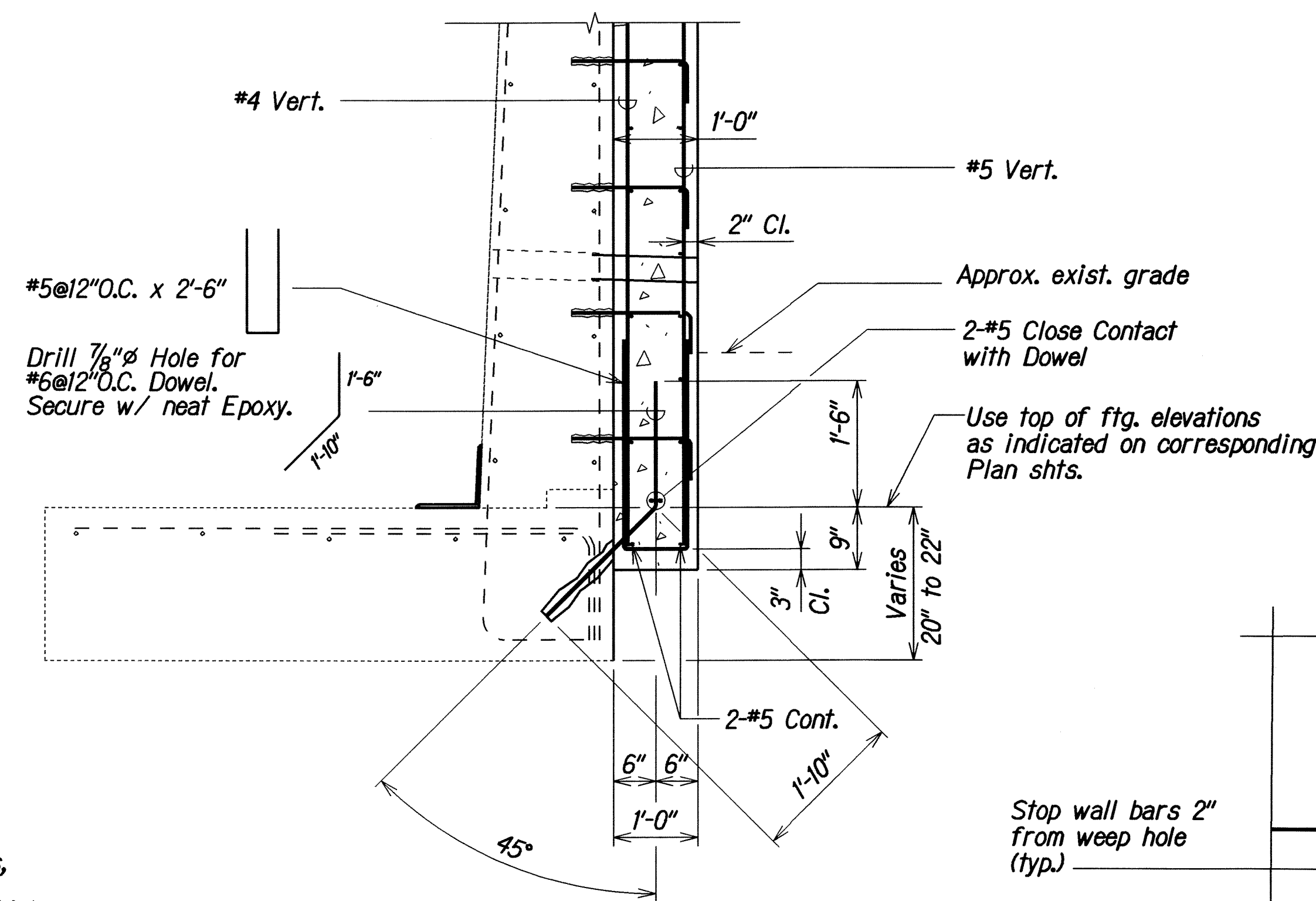
Scale: 3"=1'-0"



NOTE: For wall reinforcement not shown here, see Sht# Q21 & Q22



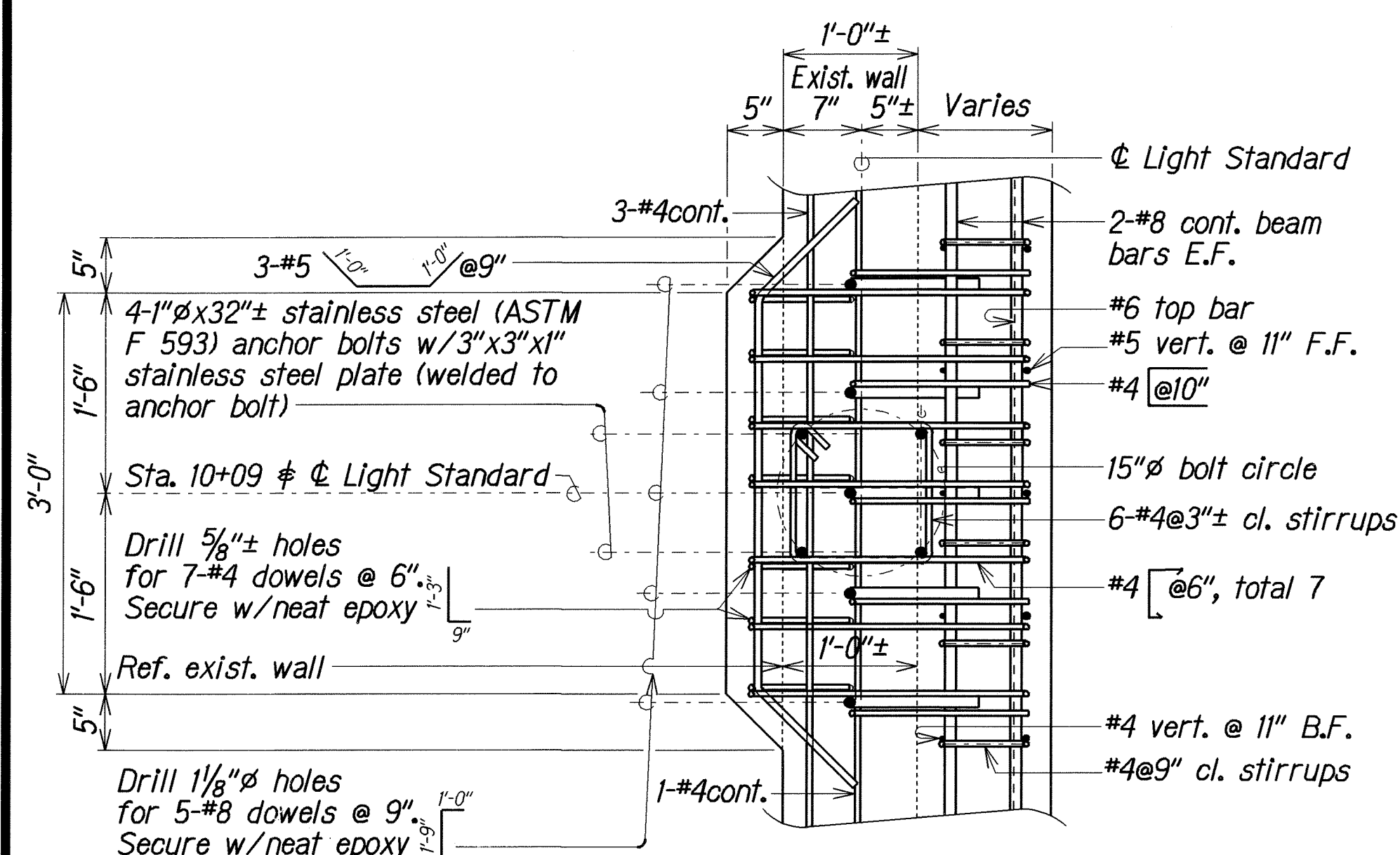
TYPE I
Walls "AA" to "FF"



TYPE II
Wall "GG" & Walls "A" to "F"

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

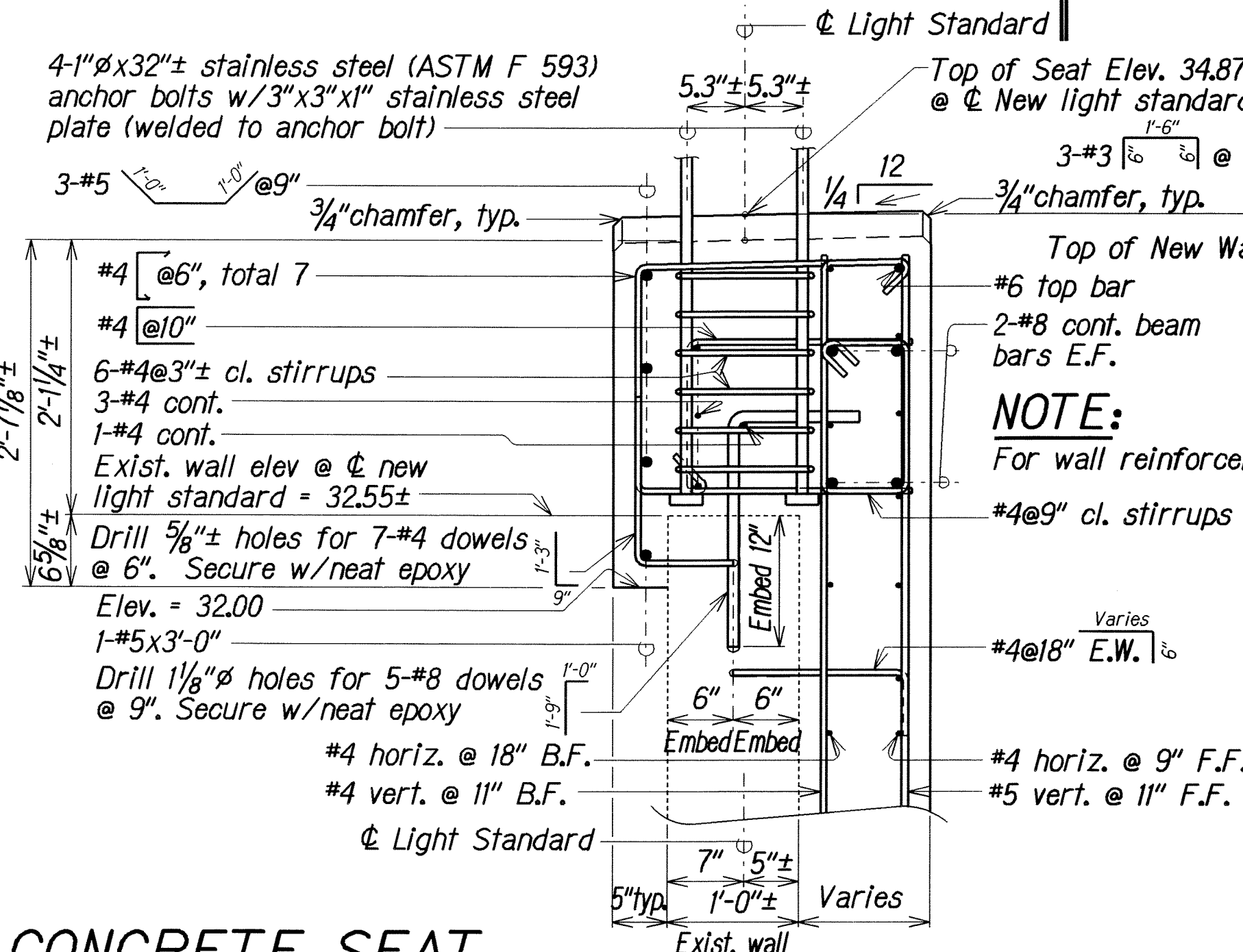
NOTE: See sht. #Q6 for limits.



PLAN

△ LIGHT STANDARD CONCRETE SEAT
on WALL "P" at RAMP 7 STA. 10+09

Scale: 1" = 1'-0"



TYPICAL SECTION

	Added Light Standard Concrete Seat on Wall "P" at Ramp 7 Sta. 10+09 Details	
	3/31/09	
DATE	REVISION	
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION		
<u>RETAINING WALL REPAIR</u> <u>ALTERNATE FOOTING DOWEL PLACEMENT,</u> <u>WEEP HOLE AND LIGHT STD. @ STA. 10+09 DETAILS</u> <u>INTERSTATE ROUTE 1H</u> <u>EXTENSION AND REPAIR OF</u> <u>SCHOOL STREET ON-RAMP RETAINING WALL</u>		
Scale: As Noted	Project No. H17-01-08	Date: Feb., 2009
SHEET No. 027 OF 34 SHEETS		

ORIGINAL PLAN	SURVEY PLOTTED BY _____ DATE _____
NOTE BOOK	DRAWN BY _____ DATE _____
	DESIGNED BY _____
	QUANTITIES BY _____
	CHECKED BY _____
	DATE _____

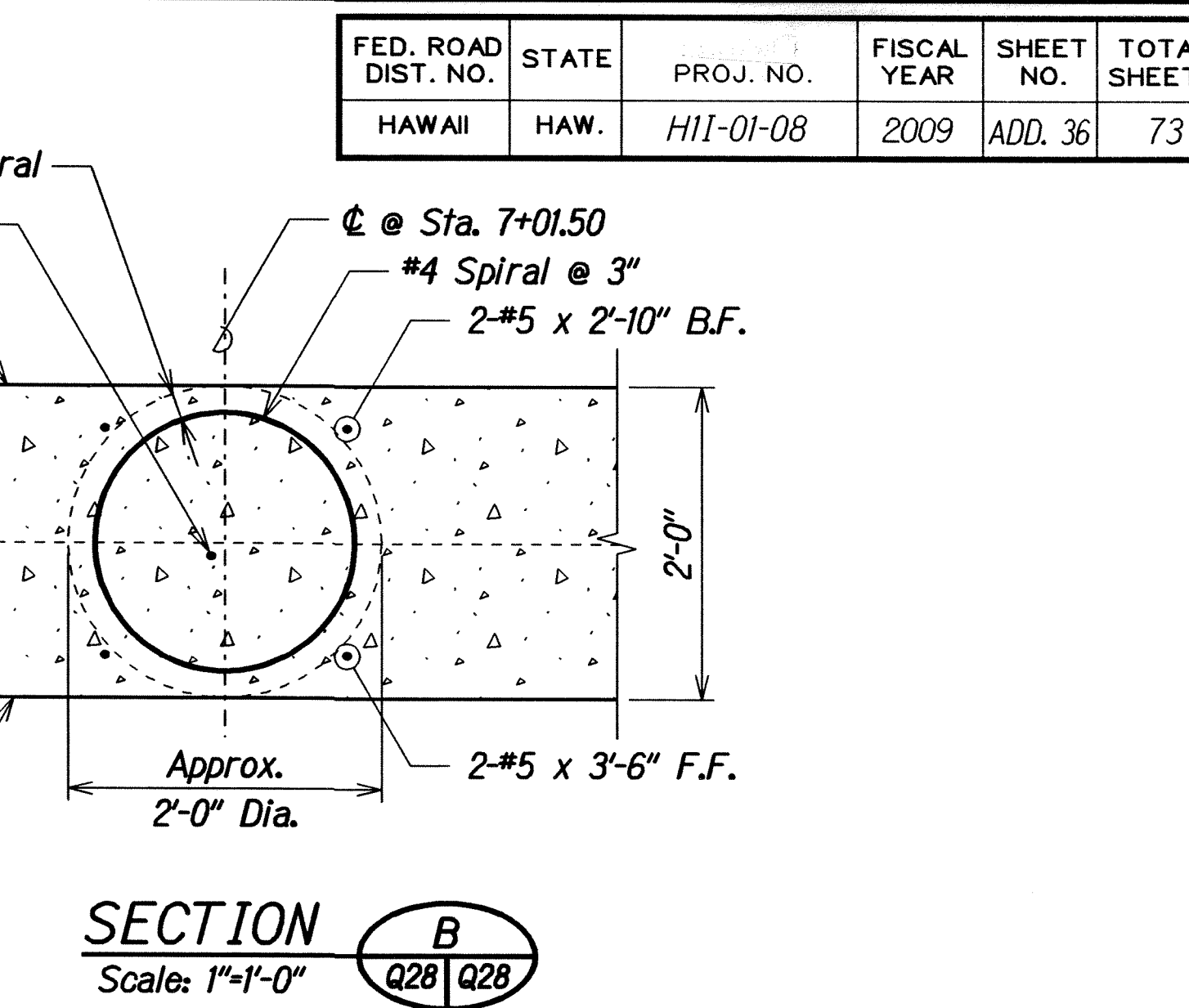
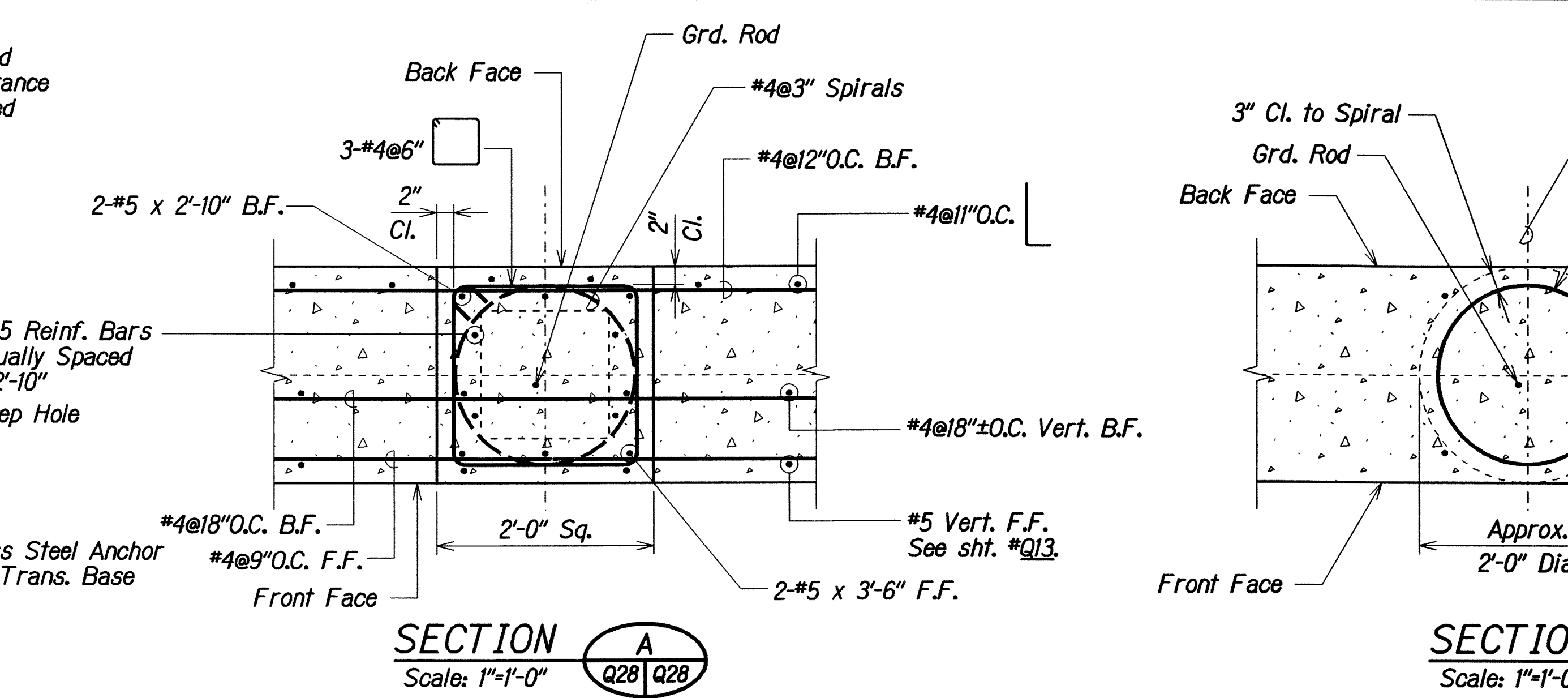
PLAN
Scale: 1"=1'-0"

SECTION
Scale: 1"=1'-0"

SECTION
Scale: 1"=1'-0"

Labels and Callouts:

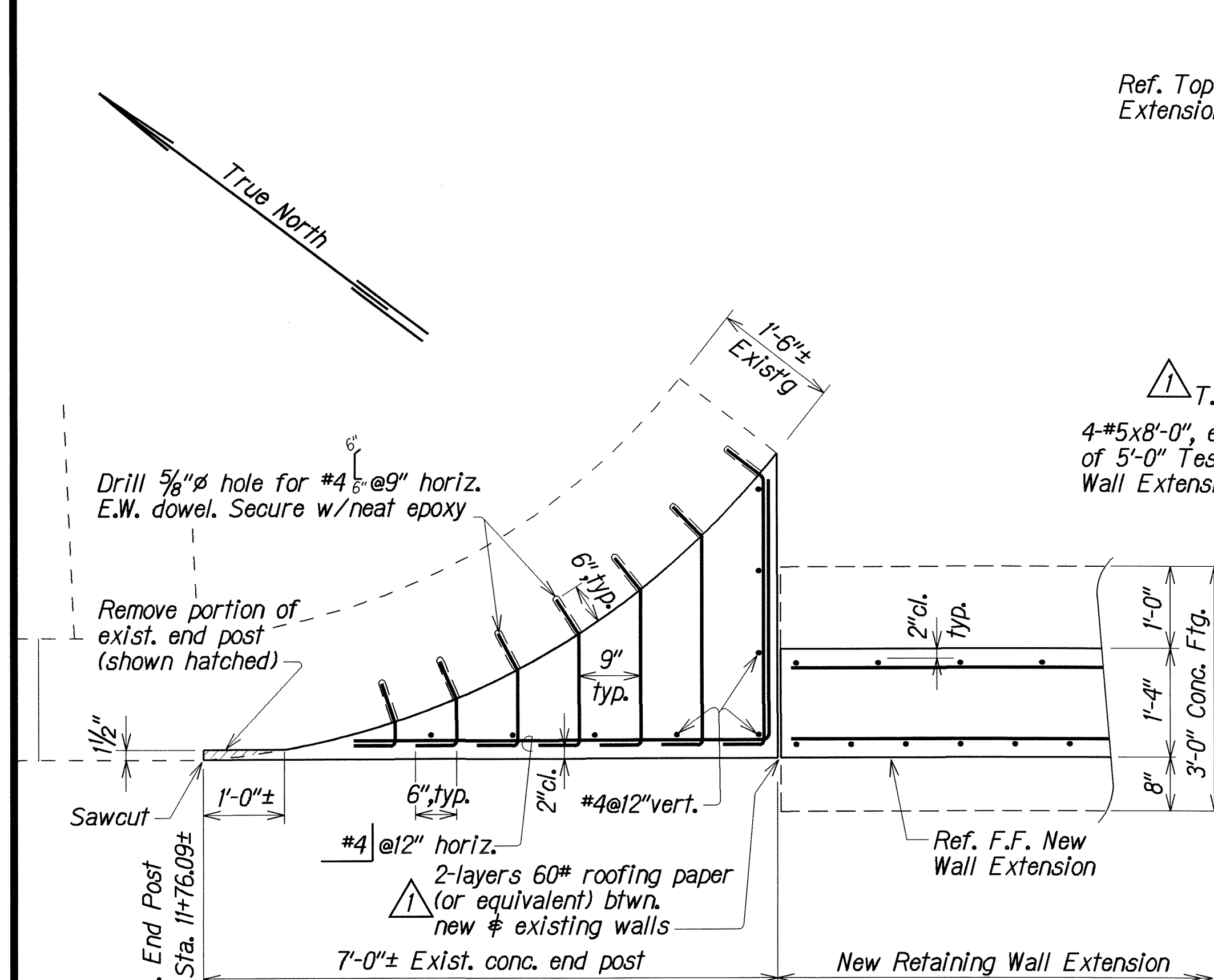
- Back Face
- 2" PVC Sch. 80 Conduit
- 3/4" x 10'-0" Copperweld Gnd. Rod. if gnd. resistance on Main Gnd. Rod exceed 25 OHMS Max.
- 1/2" x Weep Hole
- Grd. Rod
- 1'-0"
- 2'-0" Sq.
- Front Face of New Added Concrete Wall
- 6-#5 Reinf. Bars Equally Spaced x 2'-10"
- 4-1/2" x Weep Hole (Typ.)
- 4-1" x Stainless Steel Anchor Bolts to suit Trans. Base (Typ.)
- 1'-0"
- 2-#5 x 2'-10" B.F.
- 2" Cl.
- 3-#4@6"
- Back Face
- Grd. Rod
- #4@3" Spirals
- #4@12" O.C. B.F.
- #4@11" O.C.
- #4@18" O.C. Vert. B.F.
- #5 Vert. F.F. See sh. #Q13.
- 2-#5 x 3'-6" F.F.
- 2'-0" Sq.
- #4@9" O.C. F.F.
- Front Face
- 3" Cl. to Spiral
- Grd. Rod
- Back Face
- Front Face
- Approx. 2'-0" Dia.



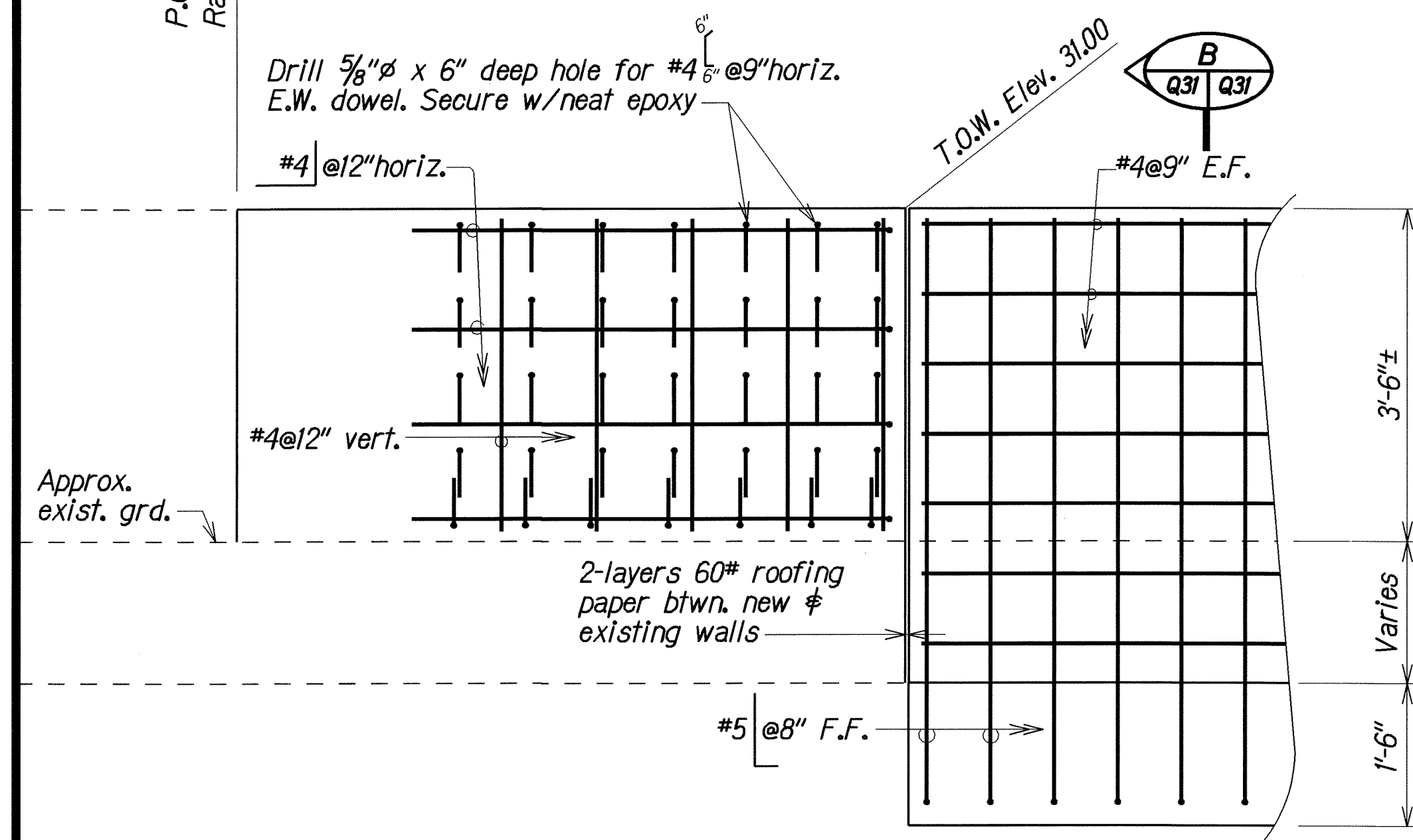
2. See B-01 for Additional Notes.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	XXX XXX 2009
	TRACED BY	-
	DESIGNED BY	XXX XXX 2009
	QUANTITIES BY	-
	CHECKED BY	XXX XXX 2009
		XXX XXX 2009

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-08M	2009	ADD. 39	73



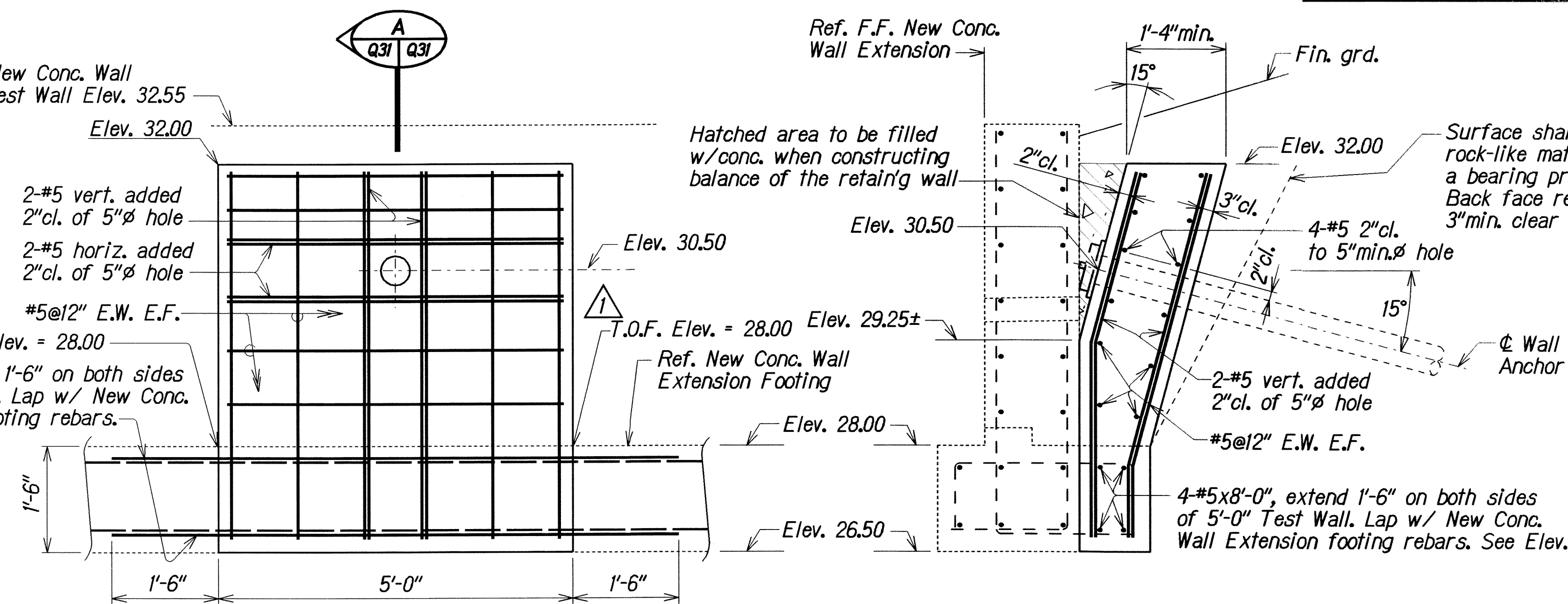
PLAN



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

LILIHA SEPARATION ABUTMENT NO. 2
END POST UPGRADE

NEW RETAINING WALL
EXTENSION DETAILS

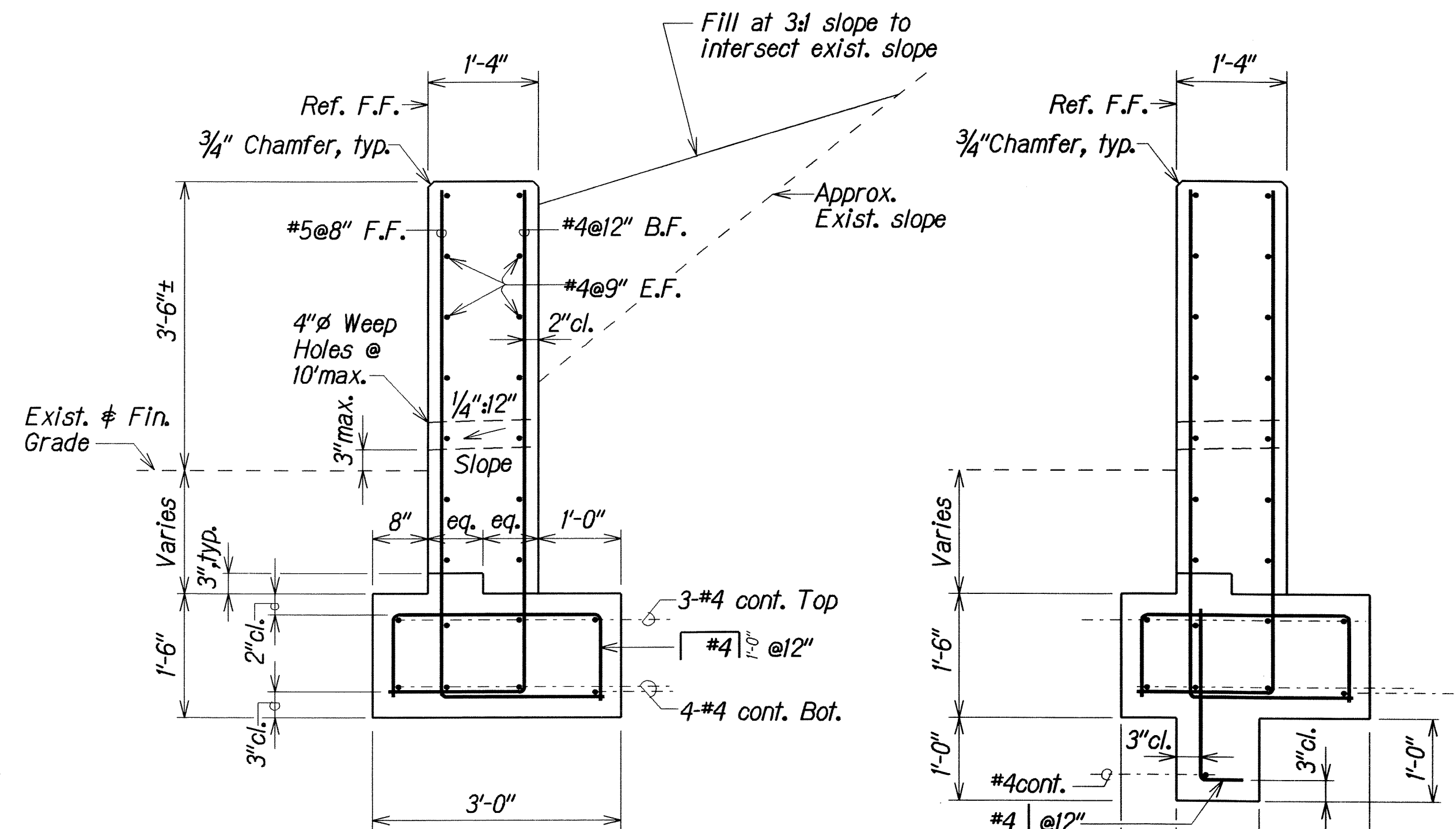


ELEVATION

TYPICAL SECTION

TEST WALL TYPICAL DETAILS

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



NEW RETAINING WALL EXTENSION
TYPICAL SECTION

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

OPTIONAL FOOTING KEY

(To be used only if foundation
material is not rock)
Scale: 3/4" = 1'-0"

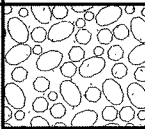
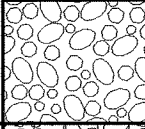
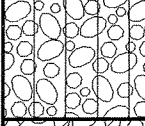
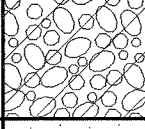
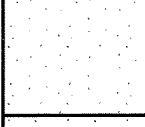
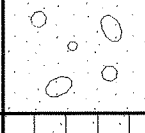
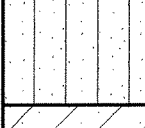
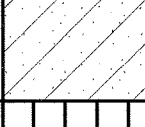
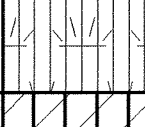
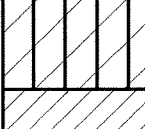
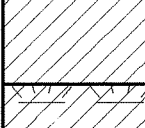
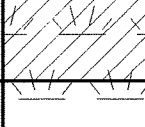
DATE	DESCRIPTION
3/31/09	Added & Modified Callouts for Details and Added Section Sheet Numbers.
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
RETAINING WALL EXTENSION	
LILIHA SEPARATION ABUTMENT NO. 2 UPGRADE	
and TYPICAL RETAINING WALL EXTENSION DETAILS	
INTERSTATE ROUTE H-1, EXTENSION and REPAIR of SCHOOL STREET ON-RAMP RETAINING WALL	
Project No. H11-01-08	
Scale: As Noted	Date: Feb. 2009

SHEET No. Q31 OF 34 SHEETS

ADD. 39

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H11-01-08	2009	ADD. 40	73

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

MAJOR DIVISIONS			USCS		TYPICAL DESCRIPTIONS
COURSE GRAINED SOILS MORE THAN 50% OF MATERIAL RETAINED ON NO. 200 SIEVE	GRAVELS MORE THAN 50% OF COURSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS LESS THAN 5% FINES		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES MORE THAN 12% FINES		GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SANDS 50% OR MORE OF COURSE FRACTION PASSING THROUGH NO. 4 SIEVE	CLEAN SANDS LESS THAN 5% FINES		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES MORE THAN 12% FINES		SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE-GRAINED SOILS 50% OR MORE OF MATERIAL PASSING THROUGH NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
			SILTS AND CLAYS LIQUID LIMIT 50 OR MORE		MH
		CH		INORGANIC CLAYS OF HIGH PLASTICITY	
		OH		ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
	HIGHLY ORGANIC SOILS				PT

NOTE: DUAL SYMBOLS ARE USED TO INDICATED BORDERLINE SOIL CLASSIFICATIONS

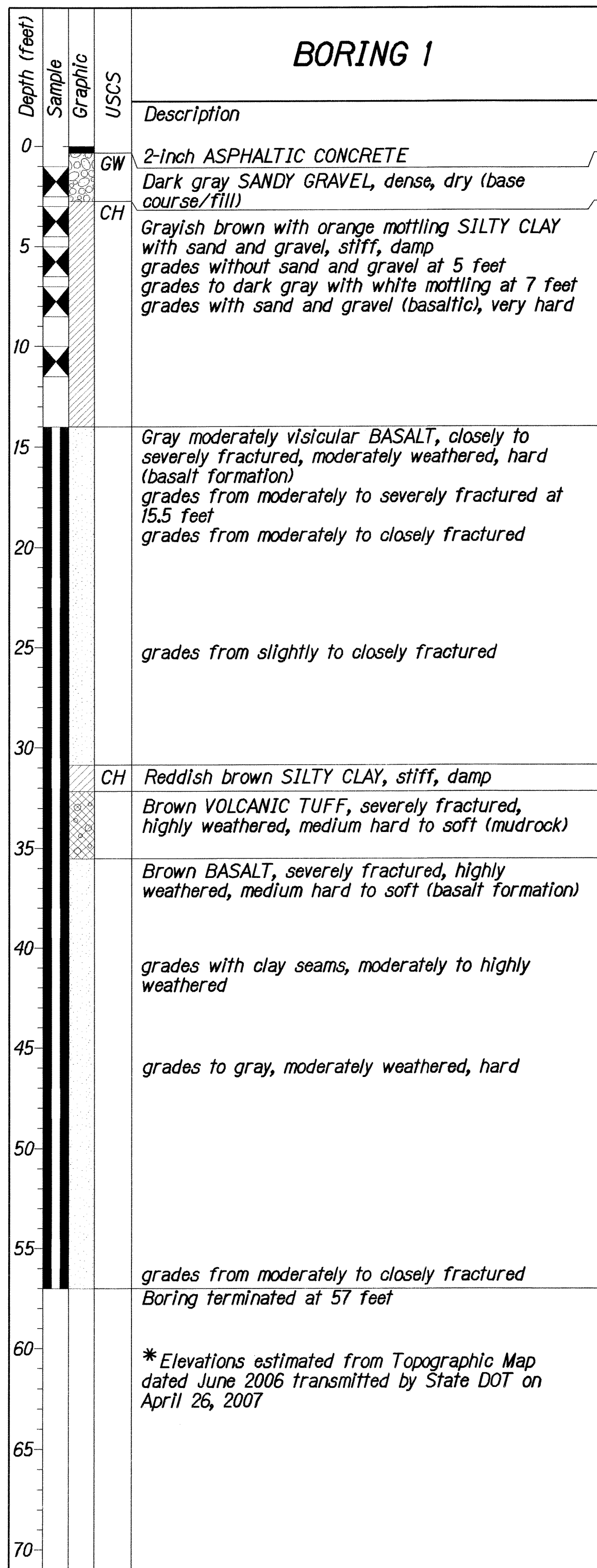
LEGEND

	(2-INCH) O.D. STANDARD PENETRATION TEST	LL	LIQUID LIMIT (NP-NON-PLASTIC)
	(3-INCH) O.D. MODIFIED CALIFORNIA SAMPLE	PI	PLASTICITY INDEX (NP-NON-PLASTIC)
	SHELBY TUBE SAMPLE	TV	TORVANE SHEAR (tsf)
	GRAB SAMPLE	PEN	POCKET PENETROMETER (tsf)
	CORE SAMPLE	UC	UNCONFINED COMPRESSION (psi)
	WATER LEVEL OBSERVED IN BORING	UU	UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION (ksf)

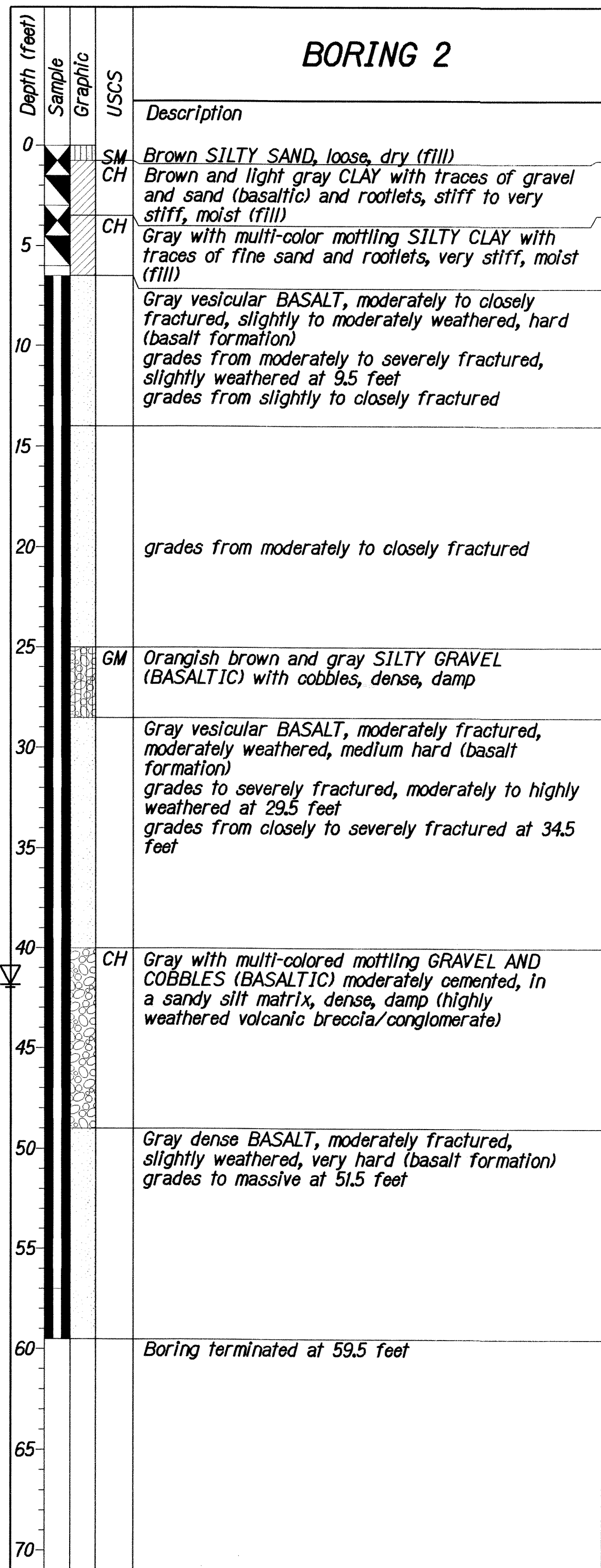
GEOTECHNICAL NOTES

- A geotechnical engineering report entitled "Geotechnical Engineering Exploration of Retaining Wall Distress at School Street On-Ramp, Interstate Route H-1 Highway, Honolulu, Oahu, Hawaii", dated March 7, 2008, has been prepared by Geolabs, Inc. A copy of the report is on file at the office of the Engineer for review by the Contractor.
- For boring locations, see Sheet #Q3.
- The information presented in the logs of borings depict the subsurface conditions encountered at that specified location and at the time of the field exploration only. Variations of subsol conditions from those depicted in the logs of borings may occur between and beyond the borings.
- The penetration resistance shown on the logs of borings indicate the number of blows required for the specific sampler type used. The blow counts may need to be factored to obtain the Standard Penetration Test (SPT) blow counts.
- The data given is for general information only. Bidders shall examine the site and the boring data and draw their own conclusions therefrom as to the character of materials to be encountered. The Engineer will not assume responsibility for variation of subsol quality or conditions other than at the boring locations shown and at the time the borings were taken.

BORING 1



BORING 2



3/31/09

Revised Boring Location Sheet Number

DATE

REVISION

Scale: As Noted

Date: Feb. 2009

SHEET No. Q32 OF 34 SHEETS

ADD. 40