

General:

- A. Workmanship and materials shall conform to the building code of the County of Maui (amended UBC, 1991 Edition). However, where reference is made to performance conforming to other standards the more stringent shall apply.
- B. The contractor shall compare all the contract documents with each other and report in writing to the engineer all inconsistencies and omissions.
- C. The contractor shall take field measurements and verify field conditions and shall compare such field measurements and conditions with the drawings before commencing work. Report in writing to the engineer all inconsistencies and omissions.
- D. The contractor shall be responsible for coordinating the work of all trades.
- E. The contractor shall be responsible for methods of construction, workmanship and job safety. The contractor shall provide temporary shoring and bracing as required for stability of structural members and systems.
- F. The contractor shall be responsible for protection of the adjacent properties, structures, streets and utilities during the construction period.
- G. Details noted as typical on the structural drawings shall apply in all conditions unless specifically shown or noted

Design Criteria:

- A. Seismic _____ Zone 2B
- B. Basic wind speed and exposure _____ 80 Mph, Exposure C
- C. Design live loads
- a. Roof _____ 20 psf
- b. Offices _____ 50 psf
- c. Stairs and corridors _____ 100 psf
- d. Light storage _____ 125 psf
- D. Allowable foundation bearing capacities
- a. Dead load + live load _____ 2,000 psf
- b. Dead load + live load + lateral load _____ 2,700 psf

Foundation:

- A. Contractor shall provide for de-watering of excavation from surface water, ground water or seepage.
- B. Contractor shall provide for design and installation of all cribbing, sheeting, and shoring necessary to preserve excavations and earth banks.
- C. Footings shall bear on undisturbed in-situ firm soils. Bottom of footings shall be compacted to provide a relatively firm and smooth bearing surface prior to placement of reinforcing steel and concrete. If soft and/or loose materials are encountered at the bottom of footing excavations, they shall be over-excavated to expose the underlying firm materials. The over-excavation shall be backfilled with select granular material compacted to a minimum of 95% relative compaction or the footing bottom may be extended down to the underlying competent material.
- D. Excavations for footings shall be observed by a qualified geotechnical engineer prior to placement of concrete and reinforcing.

- E. Contractor shall brace or protect all walls below grade from lateral loads until attaching floors are completely in place and have attained their full design strength.

Concrete:

- A. Concrete construction shall conform to American Concrete Institute ACI 318R-89.
- B. Concrete shall be regular weight hard rock concrete and shall have the following minimum 28 day compressive strengths:
- a. Footings, tie beams _____ 3,000 psi
- b. Slabs on grade _____ 3,000 psi
- c. Columns _____ 3,000 psi
- d. All other concrete _____ 3,000 psi
- C. Concrete delivery tickets shall record all free water in the mix: at batching by plant, for consistency by driver, and any additional request by contractor if permitted by the mix design.
- D. All inserts, anchor bolts, plates, and other items to be cast in the concrete shall be hot-dipped galvanized unless otherwise noted.
- E. Reinforcing bars, anchor bolts, inserts, and other items to be cast in the concrete shall be secured in position prior to placement of concrete.
- F. Conduits, pipes, and sleeves passing through a slab or footing and not conforming to typical details shall be located and submitted to the engineer for approval.
- G. Conduits, pipes, and sleeves embedded within a slab or wall (other than those merely passing through) shall be:
- a. No larger in outside dimensions than one third the overall slab or wall thickness in which they are embedded.
- b. Placed in the middle one third of slab or wall thickness
- c. Spaced no closer than three diameters or widths on center.
- H. The contractor shall locate construction joints so as not to impair the strength of the structure and to minimize shrinkage stresses. Submit location of construction joints to the engineer for approval, unless otherwise noted.
- I. See architectural drawings for chamfers, edge radii, drips, reglets, finishes and other non-structural items not shown or specified on the structural drawings.
- J. Non-shrink grout shall be a premixed non-metallic formula, capable of developing a minimum compressive strength of 3,000 psi in 1 day and 5,000 psi in 28 days.

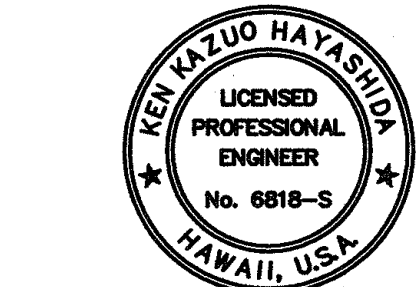
Reinforcing Steel:

- A. Reinforcing steel shall be deformed bars conforming to ASTM A615, Grade 60.
- B. Welded wire fabric shall conform to ASTM A185, galvanized.

- C. Clear concrete cover for reinforcing bars shall be as follows, unless otherwise noted:
- a. Footings, grade beams, etc. Cast against earth _____ 3"
- b. Footings, grade beams, etc. Formed and exposed to earth or weather _____ 2"
- c. Walls
1. Faces exposed to earth or weather
- #5 bars and smaller _____ 1 1/2"
- #6 bars and larger _____ 2"
2. Interior faces _____ 1"
- d. Beams and columns
- primary reinforcement, stirrups, ties and spirals _____ 1 1/2"
- e. Structural slabs
1. Faces exposed to earth or weather _____ 1 1/2"
2. Interior faces _____ 1"
- D. Reinforcing steel shall be spliced where indicated on plans. Provide lap splice length per typical details and schedule, unless otherwise noted.
- E. Welded wire fabric shall be lapped 8 inches or one full mesh plus 2 inches, whichever is greater.
- F. Mechanical splice connectors shall develop in tension 125 percent of the specified minimum yield strength of reinforcing bars.
- G. Bar bends and hooks shall be "standard hooks" in accordance with ACI 318.

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HAWAII	HAW.	HWY-M-09-02	2002	220	221

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ORIGINAL PLAN	
NOTE BOOK	
NO.	



EXPIRATION DATE OF THE LICENSE: 4/30/2002
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
GENERAL NOTES
MAINTENANCE BLDG
REPAIR SHOP
GARAGE SHED
MAUI DISTRICT BASEYARD
Project No. HWY-M-09-02
Scale: AS SHOWN Date: Feb. 2002
SHEET No. S1.0 OF 2 SHEETS

Structural Steel:

- A. Fabrication and erection of structural steel shall conform to the American Institute of Steel Construction Manual of Steel Construction, Ninth Edition.
- B. Structural steel shall conform to ASTM A36 unless otherwise noted.
- C. Steel pipes shall conform to ASTM A53, Grade B.
- D. Steel tubes shall conform to ASTM A500, Grade B.
- E. Bolts shall conform to ASTM A307, grade a unless otherwise noted.
- F. High-strength bolts shall conform to ASTM A325, Type N. Use load indicator washers.
- G. Welds and welding procedures shall conform to the structural welding code AWS D1.1 of the American Welding Society.
- H. Welding shall be performed by welders prequalified for welding procedures to be used.
- I. Welding electrodes shall be E70XX.
- J. All steel shall be prime painted in the shop.
- K. Exposed steel shall be hot-dipped galvanized.

Cold-Formed Steel Purlins:

- A. Fabrication and erection of gage metal structures shall be in accordance with the American Iron and Steel Institute Specifications, latest edition.
- B. Cold-formed steel purlins and accessories shall be of the type and gage called for on the contract documents.
- C. Purlins shall span over two or more supports.
- D. Cold-formed steel purlins shall meet the requirements of ASTM A 570. Minimum yield strength of steel shall be 55,000 psi.
- E. Cold formed steel purlins shall have the following minimum section properties:
a. Z-purlin: $I_{xx} = 17.1 \text{ in}^4$
b. Eave strut: $I_{xx} = 14.21 \text{ in}^4$
- F. Contractor shall submit shop drawings to the engineer for approval prior to fabrication. Shop drawings shall indicate layout, framing and supports with dimensions, sections, type and location of attachments and details of accessories.

Pre-engineered Metal Buildings:

- A. Design of the pre-engineered building shall conform to the 1997 uniform building code as adopted and/or amended by the County of Maui or the Metal Building Manufacturer's Association (MBMA) "Design Practices Manual", whichever is more restrictive.
- B. Shop drawings and calculations shall be submitted to the engineer for approval a minimum of four (4) weeks prior to fabrication. These drawings and calculations shall be stamped and signed by a structural engineer registered to practice in the State of Hawaii.

- C. Basic design loads:
- a. Dead loads include structural framing, ceiling framing, and mechanical, electrical, and plumbing loads.
- b. Roof live load 20 psf
- c. Wind loads
Exposure C
Basic wind speed 80 mph
- d. Seismic loads Zone 2B

Structural Cold-Formed Metal Framing:

- A. Fabrication and erection of gage metal structures shall be in accordance with the American Iron and Steel Institute Specifications, Latest Edition.
- B. Cold-formed steel members and accessories shall be of the type and gage called for on the drawings. Member designations are per Metal Stud Manufacturer's Association.
- C. All members 16,14, and 12 gage shall meet the requirements of ASTM A 653 Grade 50. All members 20 and 18 gage shall meet the requirements of ASTM A 653 SQ Grade 33.
- D. Prefabricated framing hardware shall be Simpson Strong Tie galvanized, or approved equal. Install per manufacturer's recommendations.

- E. Screws shall be #10 self-drilling, self-tapping, gage metal screws. Minimum edge distance and center spacing shall be 3/4 inch.
- F. Place a layer of 30# roofing felt between all cold-formed metal members and concrete surfaces.

Lumber:

- A. Lumber shall be termite and rot pressure preservative treated coastal douglas fir conforming with standard grading and dressing rules of the West Coast Lumber Bureau (WCLB).
- B. Unless otherwise noted, structural members shall have the following grades or better:
a. 2x joists and rafters _____ Grade no. 1
b. 4x beams except 4x14 _____ Grade no.2
c. 4x14 beams _____ Select structural
- C. Sheathing shall be identified with the appropriate trademark of the american plywood association, and shall meet the requirements of the latest edition of U.S. Product standard PS 1 or APA's performance standards.
a. Floor sheathing shall be 3/4" tongue and groove CDX APA rated sheathing, exposure 1, 48/24 span rating.

- D. Provide minimum nailing per table 25Q of the Uniform Building Code.

- E. Nails shall be galvanized common nails.

- F. Bolts shall conform to ASTM A307.

- G. Prefabricated framing hardware shall be Simpson strong tie galvanized, or approved equal. Install per manufacturer's recommendations.

- H. Place a layer of 30# roofing felt between all wood members and concrete surfaces.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-09-02	2002	29	39

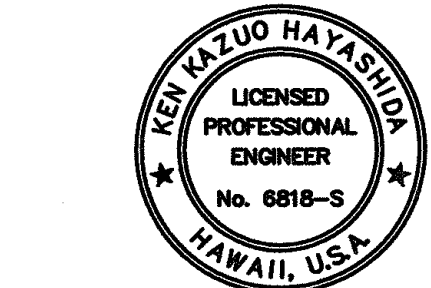
Glued Laminated Timber:

- A. All materials, fabrication, and quality control shall conform to the American National Standard ANSI/AITC A190.1.
- B. Glued laminated timber shall be termite and rot pressure treated douglas fir.
- C. Simple span glued laminated timber shall be 24F-V4 with 1,600 foot radius camber.
- D. Cantilever or continuous glued laminated timber shall be 24F-V8 with camber as shown on the drawings.
- E. Adhesive shall be for wet condition of use.
- F. Exposed and partially exposed members shall be architectural appearance grade. Concealed members shall be industrial appearance grade.

Special Inspection:

- A. Contractor shall be responsible for ensuring that special inspection of portions of the work, as required by the building code of the County of Kauai, be made at the appropriate time. The contractor shall give timely notice of when and where inspections are to be made and provide access for the inspector. The contractor shall correct defective work at no additional cost to the owner and pay for re-inspection.
- B. The following structural work requires special inspection:
a. Structural welding
b. High strength bolting
c. Concrete
d. Reinforcing steel

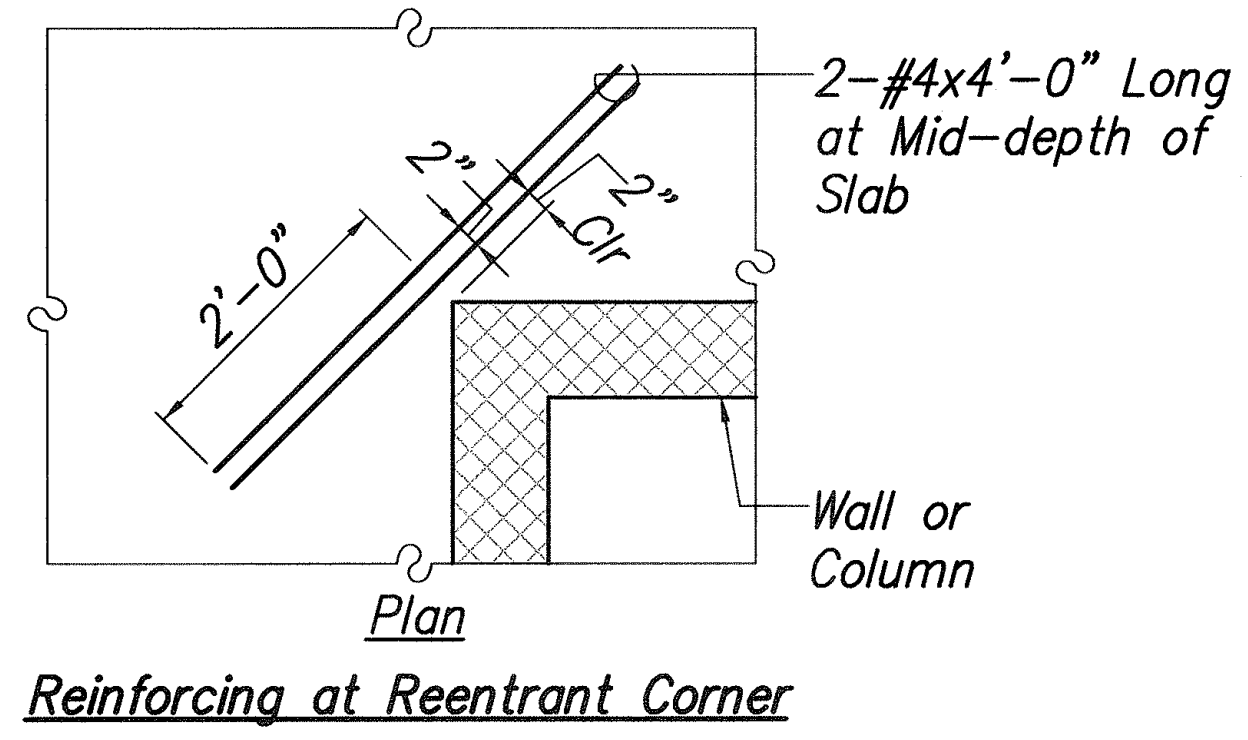
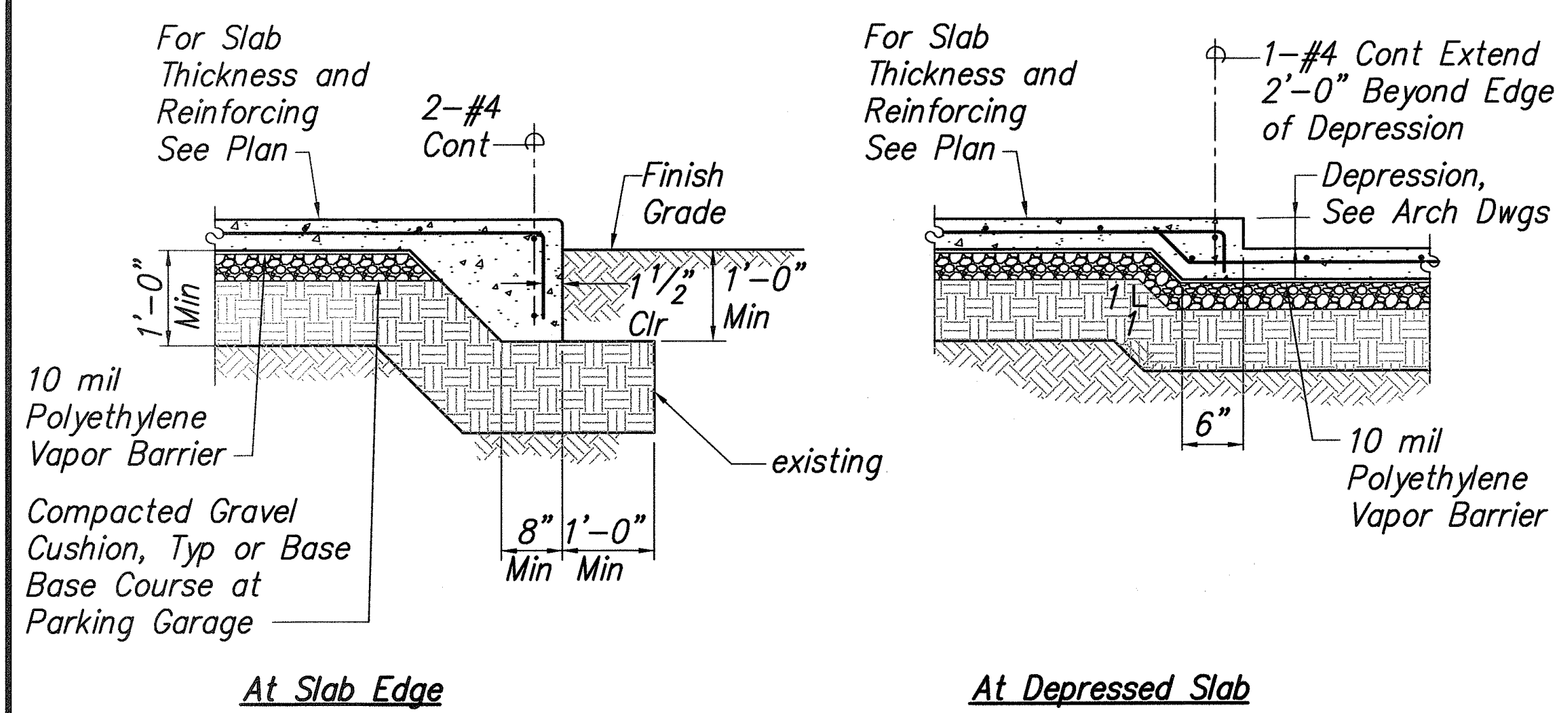
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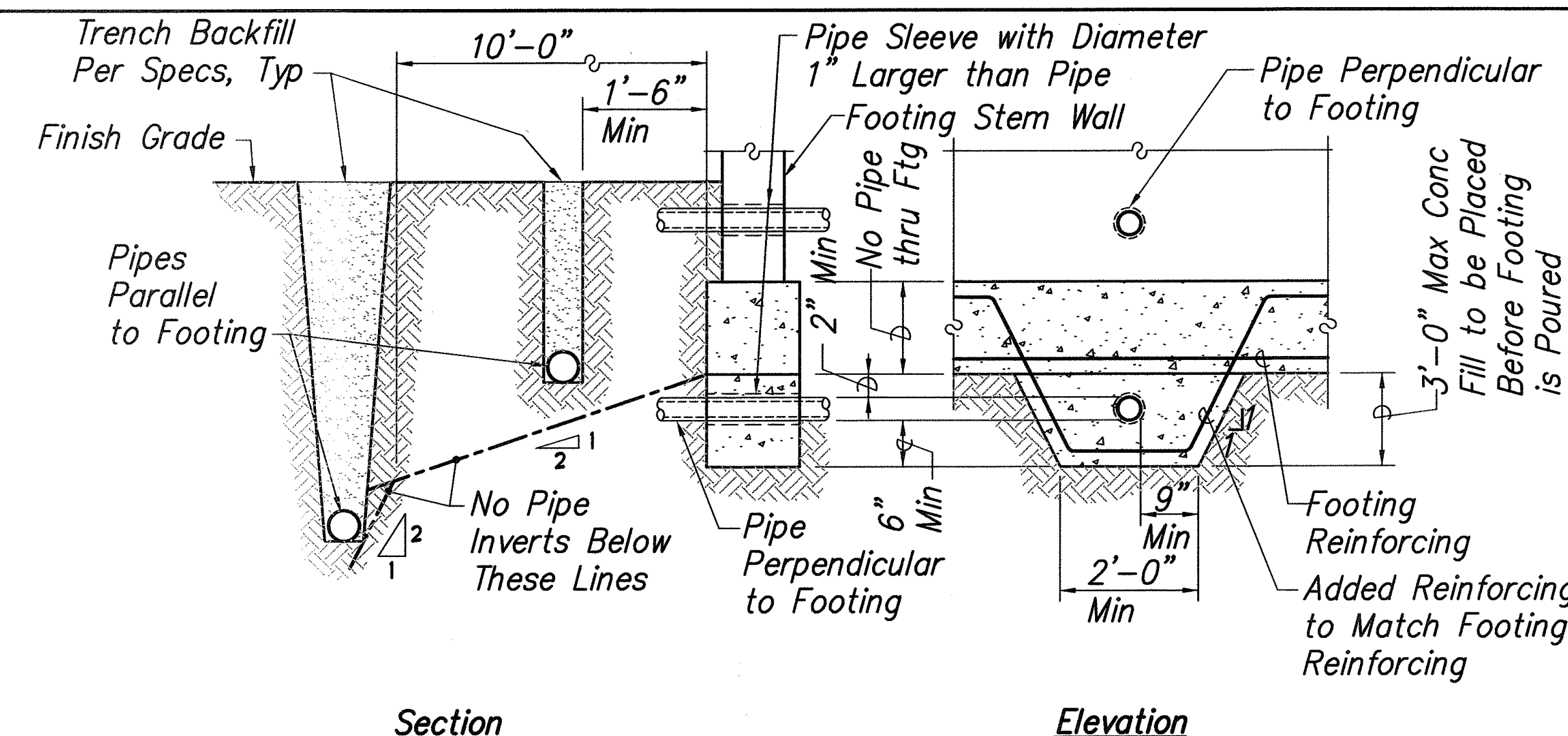
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STATE OF HAWAII	
DEPARTMENT OF TRANSPORTATION	
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GENERAL NOTES	
MAINTENANCE BLDG	
REPAIR SHOP	
GARAGE SHED	
MAUI DISTRICT BASEYARD	
Project No. HWY-M-09-02	
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HAWAII	HAW.	HWY-M-09-02	2002	30	39

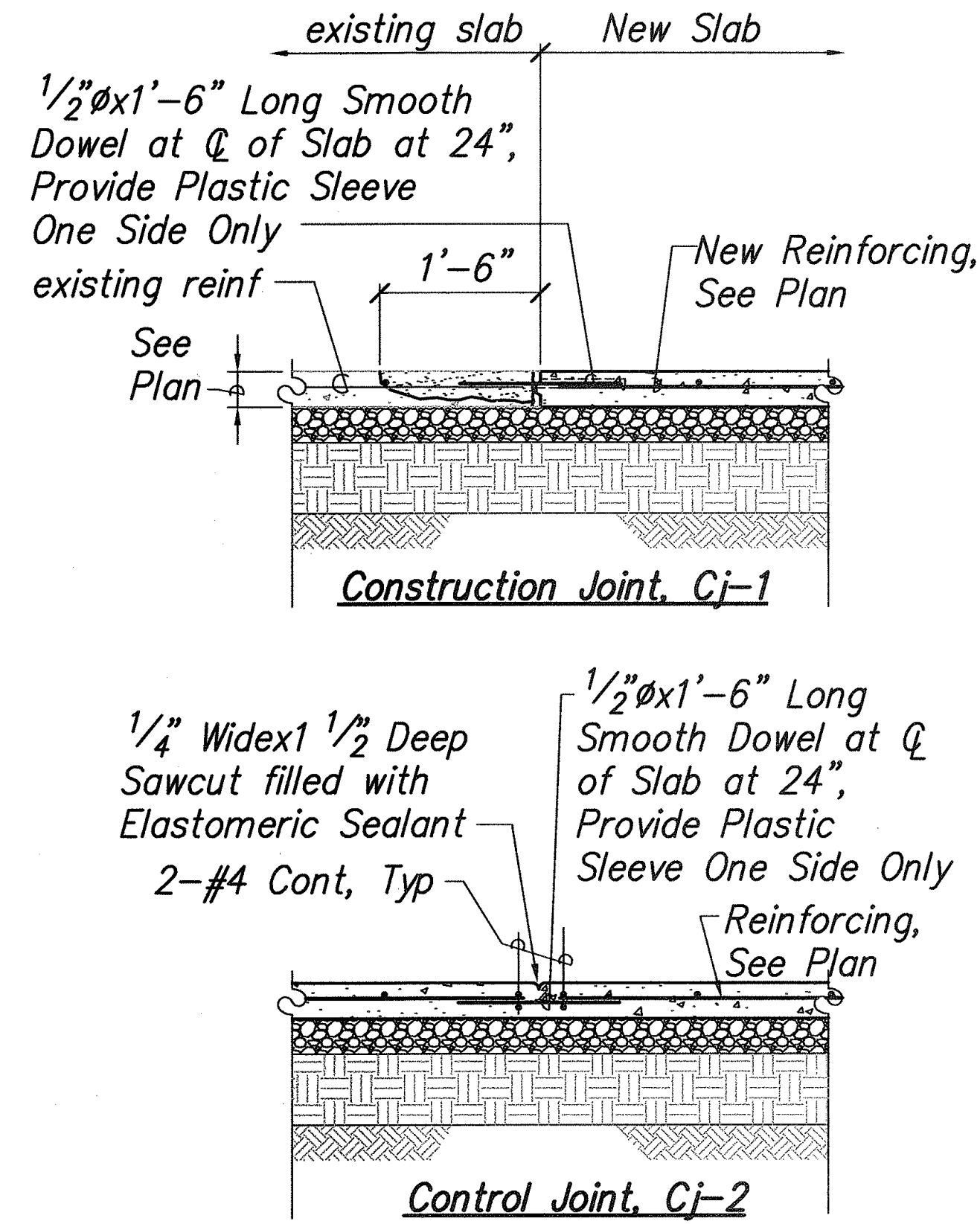


TYPICAL SLAB-ON-GRADE DETAILS 1
Not To Scale S1.2 S1.2



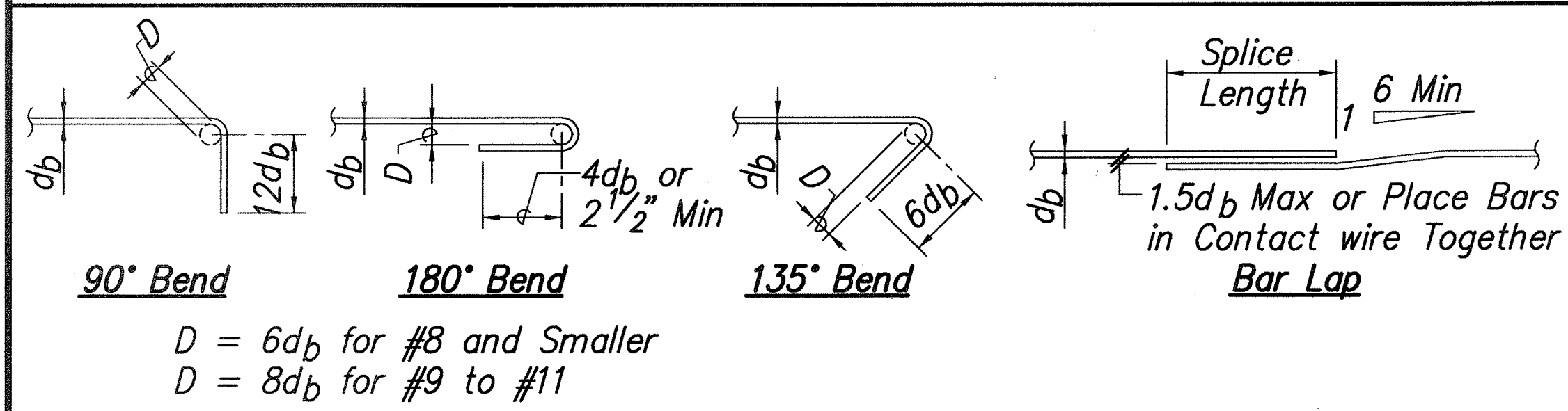
- Note:**
- For pipe perpendicular to footing more than 3'-0" below bottom of footing, trench may be backfilled with compacted fill. See Specifications.
 - Depth of footing may be affected by location of pipes. General Contractor shall determine exact depth and location of pipes prior to excavation for footings.

TYPICAL PIPE AT FOOTING DETAIL 3
Not To Scale S1.2 S1.2



- Note:**
- Saw Cutting Shall Occur as Soon as Concrete Surface is Firm Enough not be Torn by Cutting Blade and Before Shrinkage Cracking Occurs, But no Later than 12 Hours After Concrete Has Been Poured.
 - Remove 1'-6"x6" wide x 3" deep portion of existing slab.
 - Clean Reinforcing Steel, remove Grease, Oil and other Bond-Inhibiting Matter.
 - Apply Bonding Bridge Coating.
 - Fill with Concrete Epoxy (Sika 222 or Equivalent).

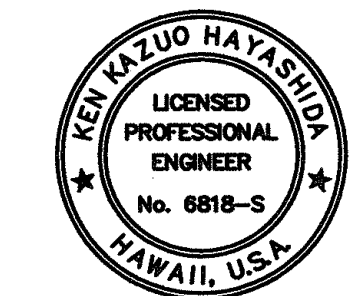
TYPICAL SLAB JOINT DETAILS 2
Not To Scale S1.2 S1.2



- Notes:**
- Length are concrete with rebar spaced 6 bar diameters min oc. Increase bar length 25% for bars spaced less than 6 bar diameters.
 - "Top Bars" are horizontal bars with 12" or more of concrete cast below.

TYPICAL REBAR SPLICE AND EMBEDMENT LENGTH SCHEDULE 4
Not To Scale S1.2 S1.2

MINIMUM SPLICE and EMBEDMENT LENGTHS										
Bar Size	Concrete Strength = 3,000 psi					Concrete Strength = 2,500 psi				
	Lap Splice		Embedment			Lap Splice		Embedment		
	Bottom Bar or Wall Bar	Top Bar	Bottom Bar or Wall Bar	Top Bar	with Std Hook	Bottom Bar or Wall Bar	Top Bar	Bottom Bar or Wall Bar	Top Bar	with Std Hook
#3	24"	28"	17"	22"	8"	24"	32"	18"	24"	9"
#4	24"	28"	17"	22"	8"	32"	42"	24"	32"	12"
#5	28"	36"	21"	27"	10"	39"	51"	30"	39"	15"
#6	32"	42"	25"	32"	12"	47"	62"	36"	47"	18"
#7	38"	50"	29"	38"	14"	55"	72"	42"	55"	21"
#8	44"	56"	33"	43"	16"	63"	82"	48"	63"	24"
#9	48"	64"	37"	48"	18"	72"	94"	55"	71"	28"
#10	58"	76"	45"	58"	20"	80"	104"	61"	80"	31"
#11	72"	93"	55"	71"	22"	89"	115"	68"	88"	34"



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS
MAINTENANCE BLDG
REPAIR SHOP
GARAGE SHED

MAUI DISTRICT BASEYARD
Project No. HWY-M-09-02

Scale: AS SHOWN Date: Feb. 2002

SHEET No. S1.2 OF 3 SHEETS

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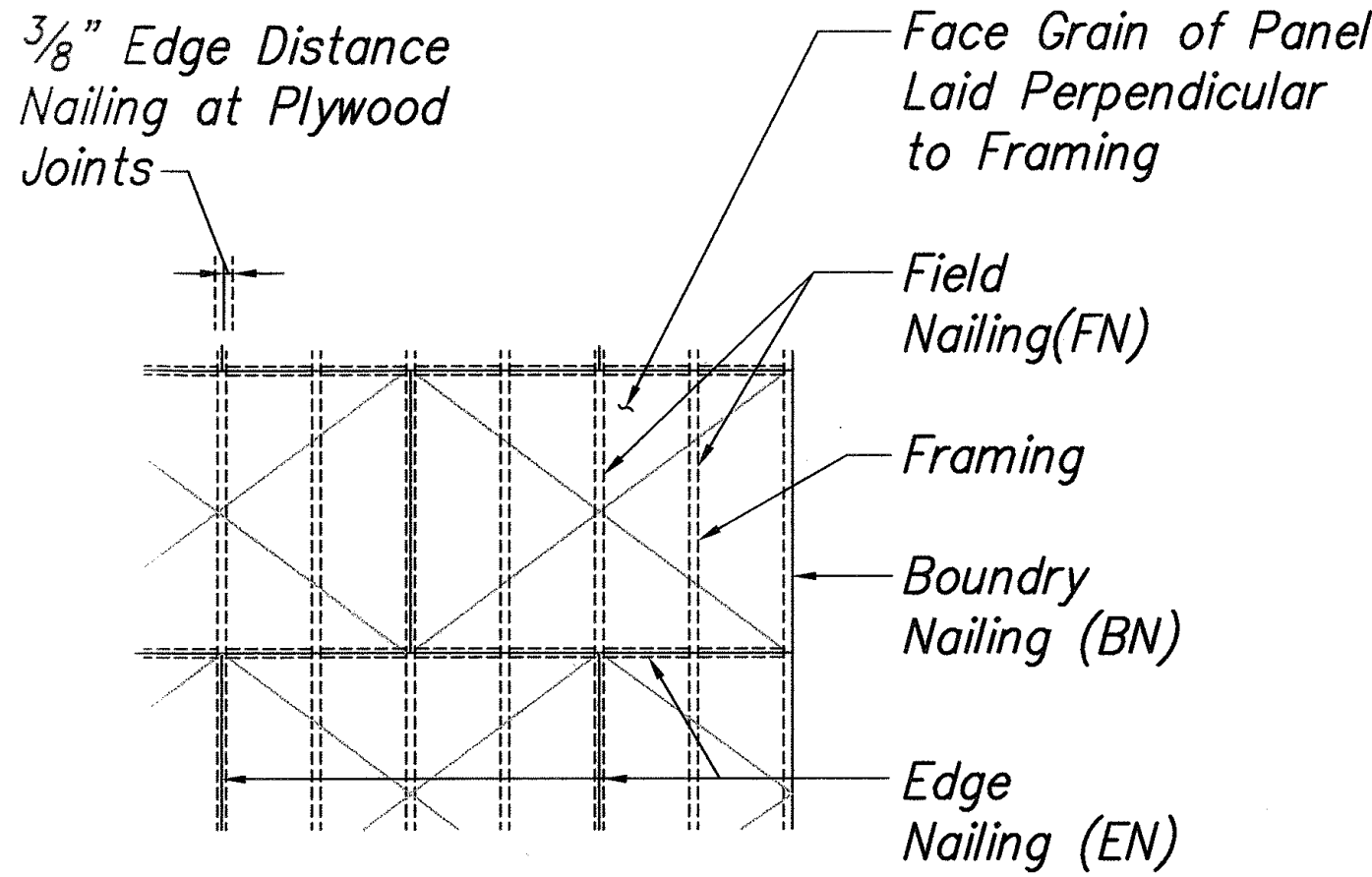
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-09-02	2002	21	29

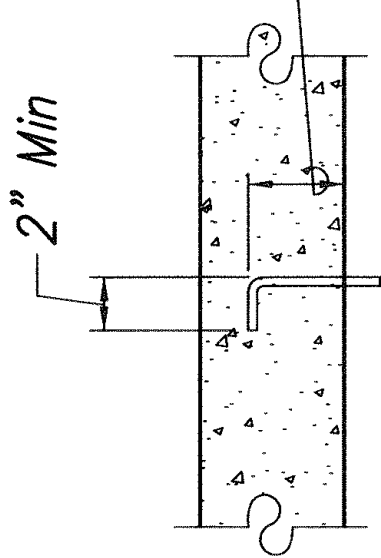


FLOOR SHEATHING				
TYPE	BOUNDARY NAILING	EDGE NAILING	FIELD NAILING	REMARKS
FLOOR	10d AT 6"	10d AT 6"	10d AT 12"	

PLYWOOD FLOOR SHEATHING
Not To Scale

1
S1.3 | S1.3

Min Embedment
See Schedule

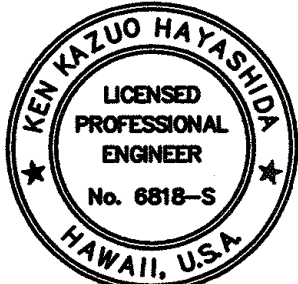


At Concrete

BOLT DIAMETER	MINIMUM EMBEDMENT
1/2"	4"
5/8"	5"
3/4"	6"
7/8"	7"
1"	7"

TYPICAL ANCHOR BOLT DETAIL
Not To Scale

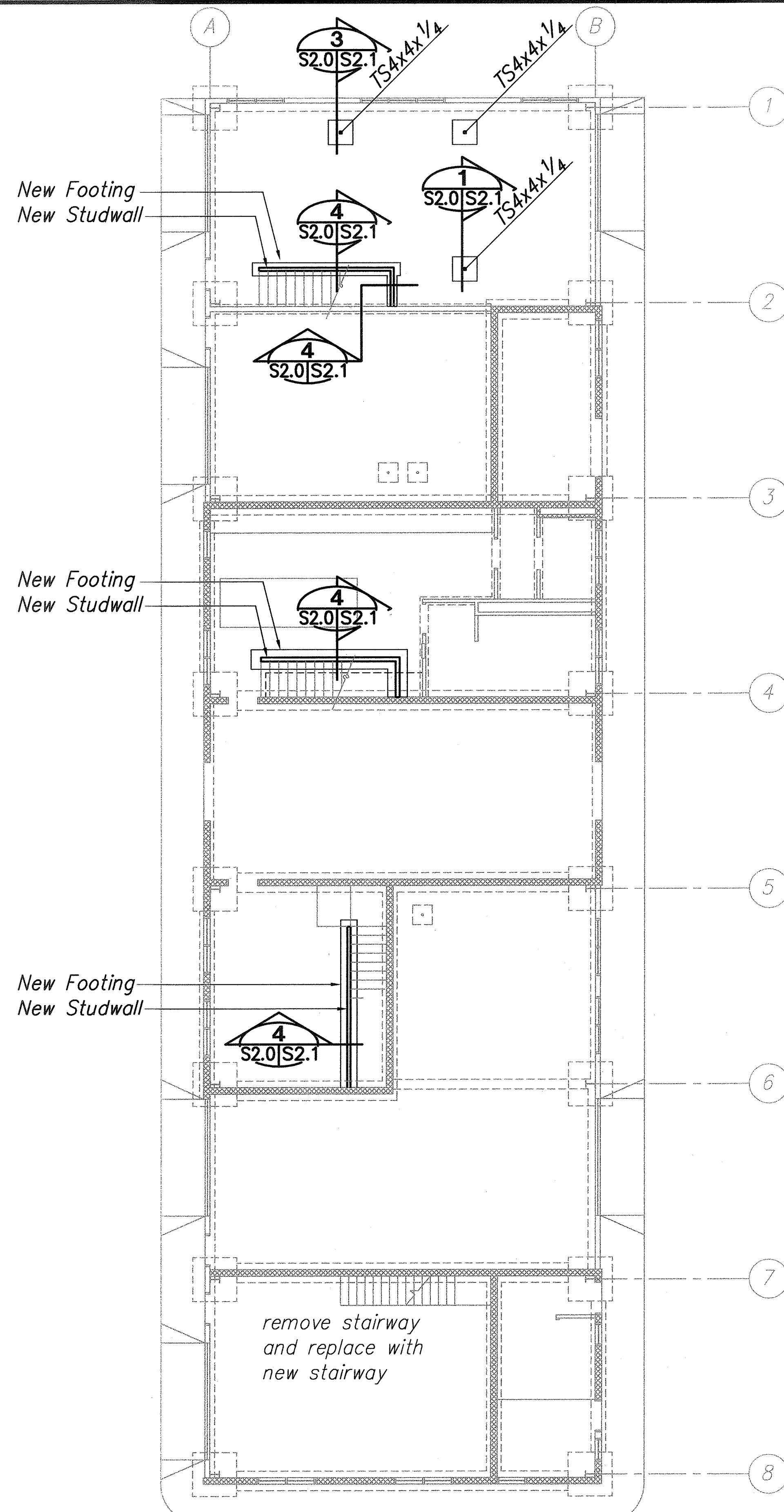
2
S1.3 | S1.3



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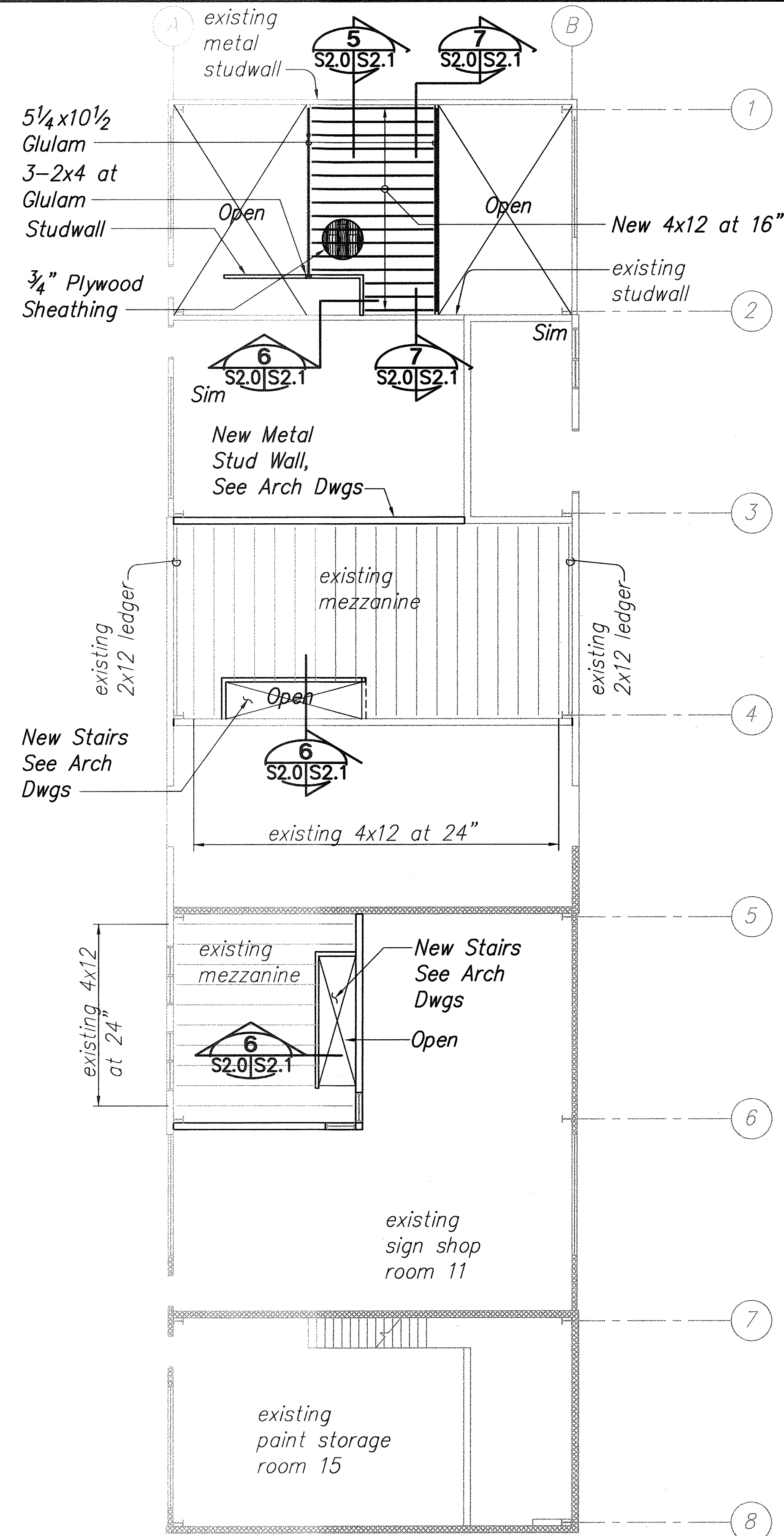
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPICAL DETAILS
MAINTENANCE BLDG
REPAIR SHOP
GARAGE SHED
MAUI DISTRICT BASEYARD
Project No. HWY-M-09-02
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HAWAII	HAW.	HWY-M-09-02	2002	22	29



**MAINTENANCE OFFICE AND SHOP
BUILDING FOUNDATION PLAN**

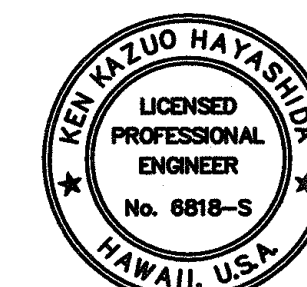
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**MAINTENANCE OFFICE AND SHOP
BUILDING FLOOR FRAMING PLAN**

Scale: 1/8" = 1'-0"

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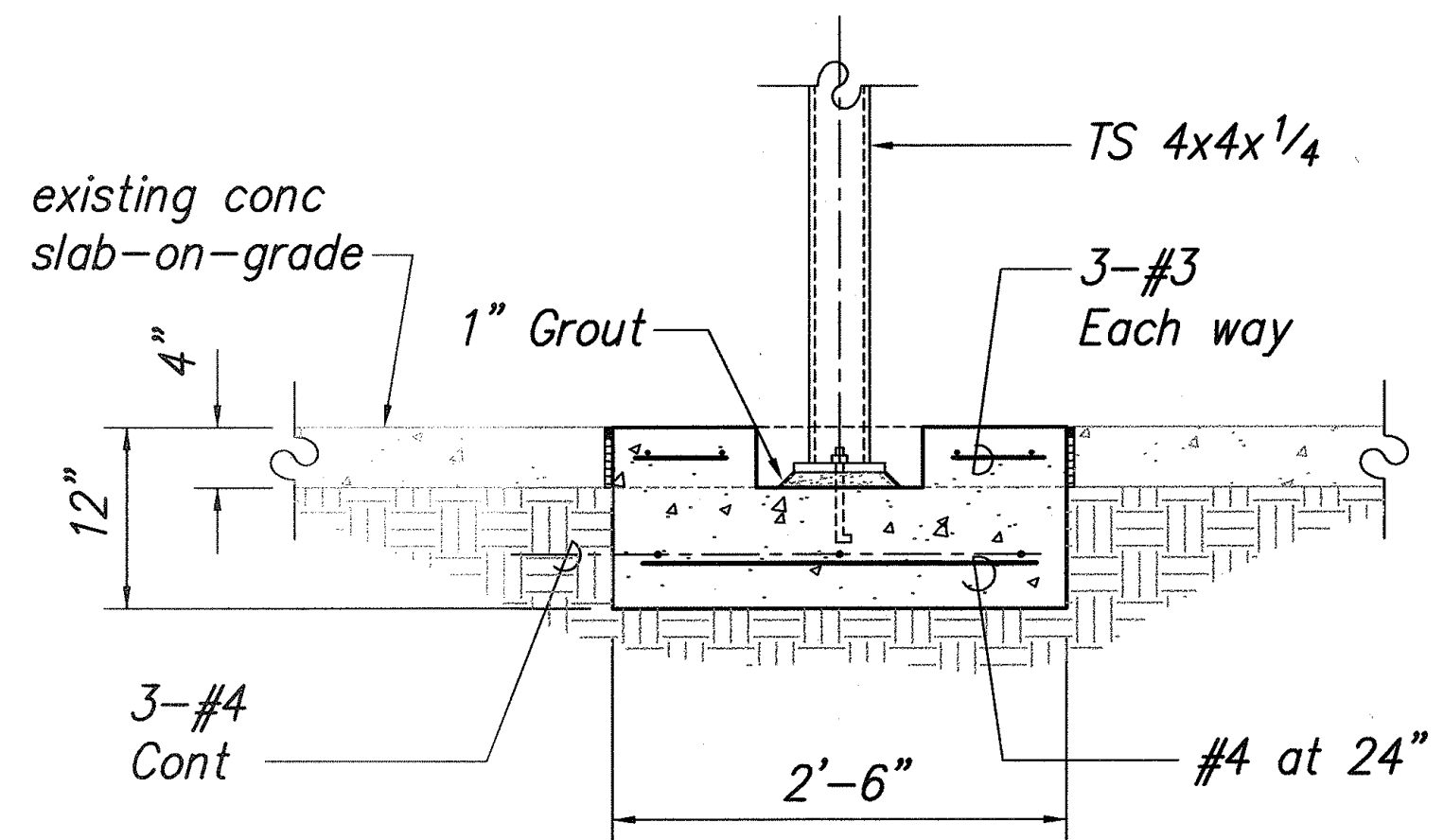
**MAINTENANCE BUILDING –
FOUNDATION AND
FLOOR FRAMING PLANS**

MAUI DISTRICT BASEYARD
Project No. HWY-M-09-02

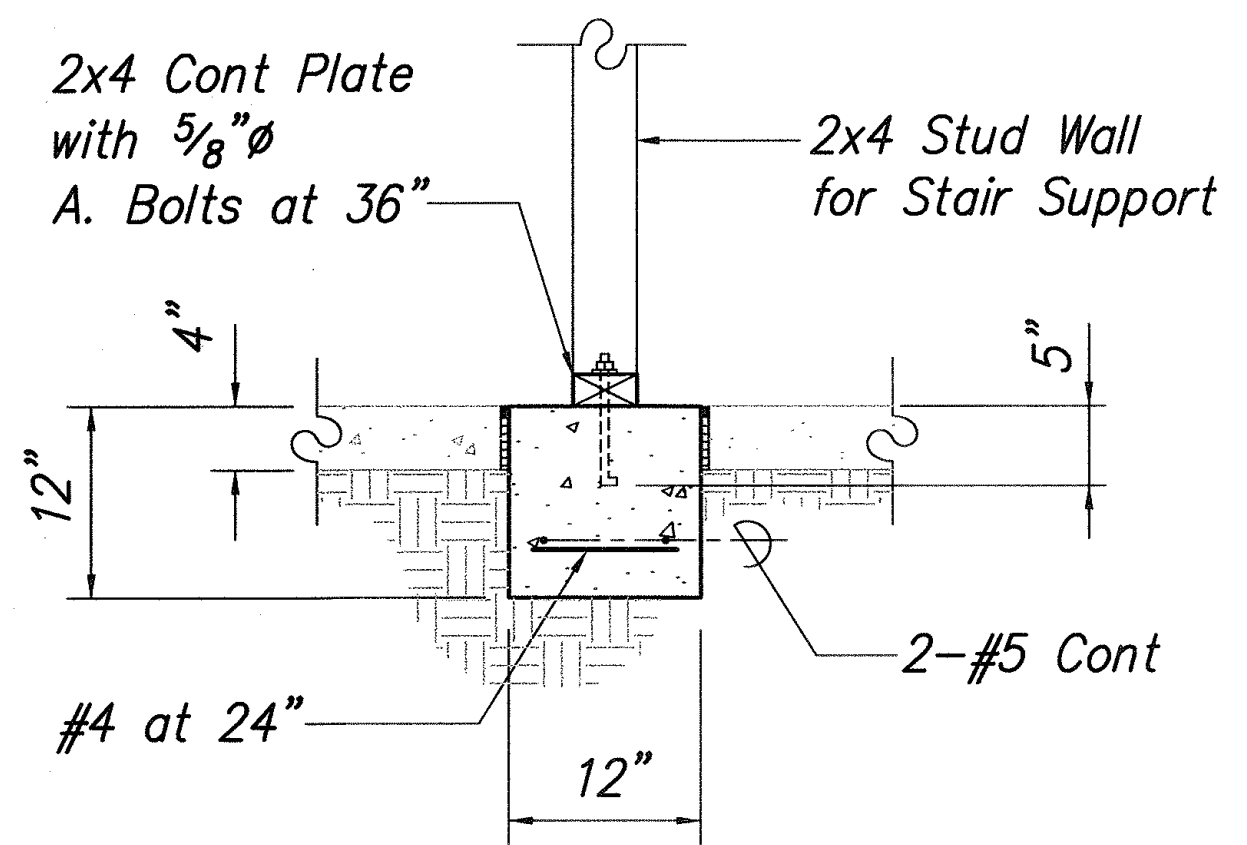
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SHEET No. S2.0 OF 2 SHEETS

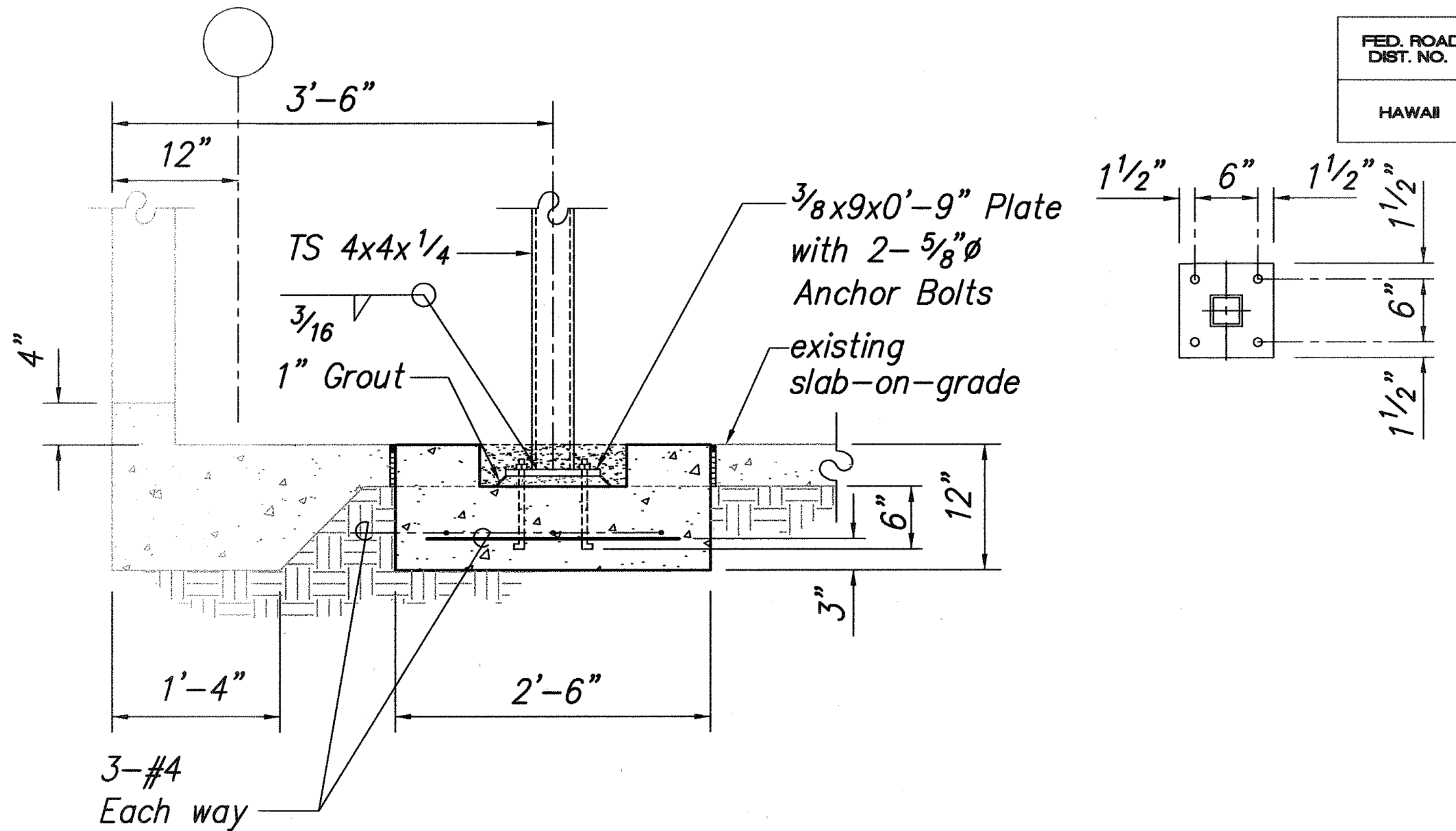
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-09-02	2002	22	29



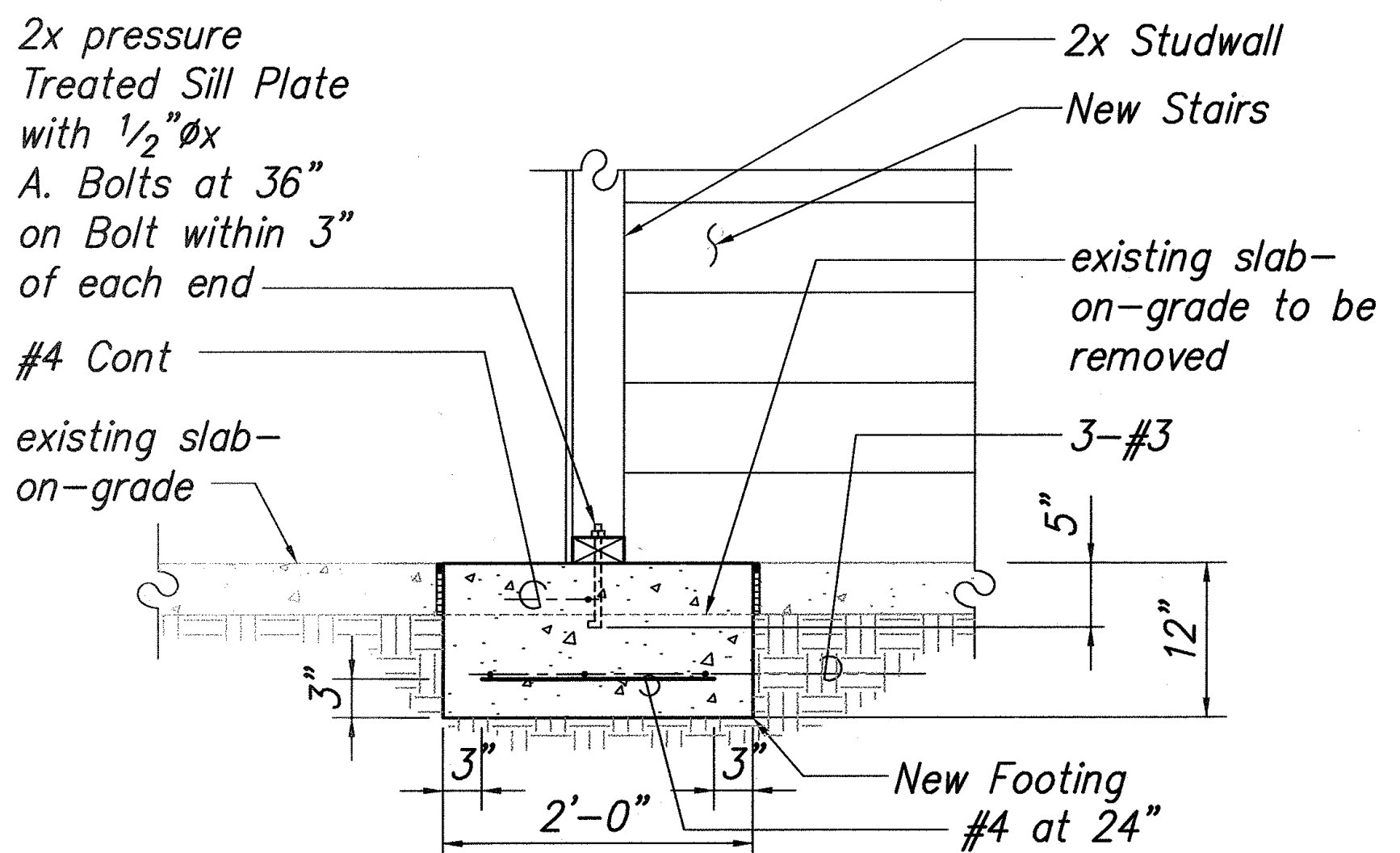
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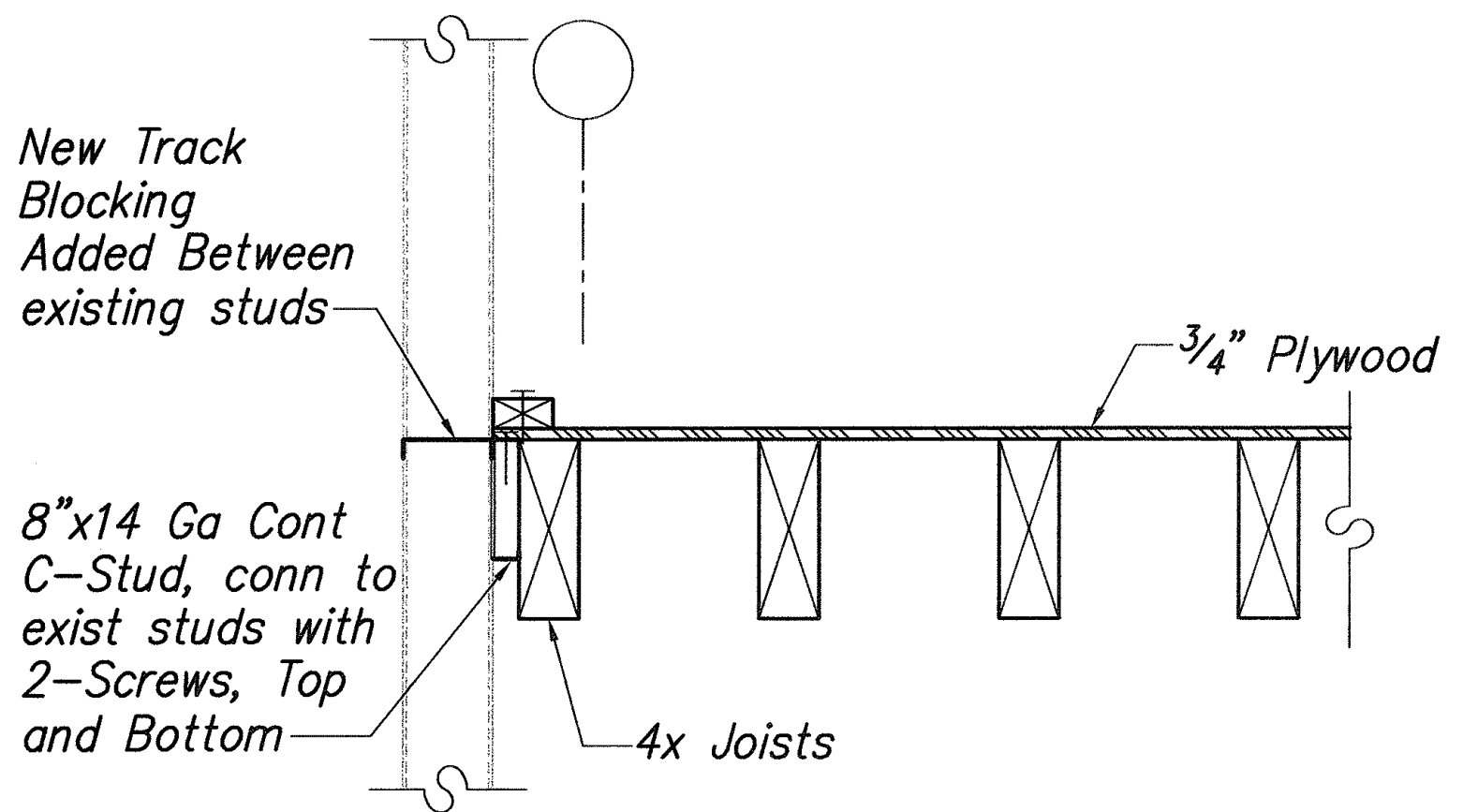
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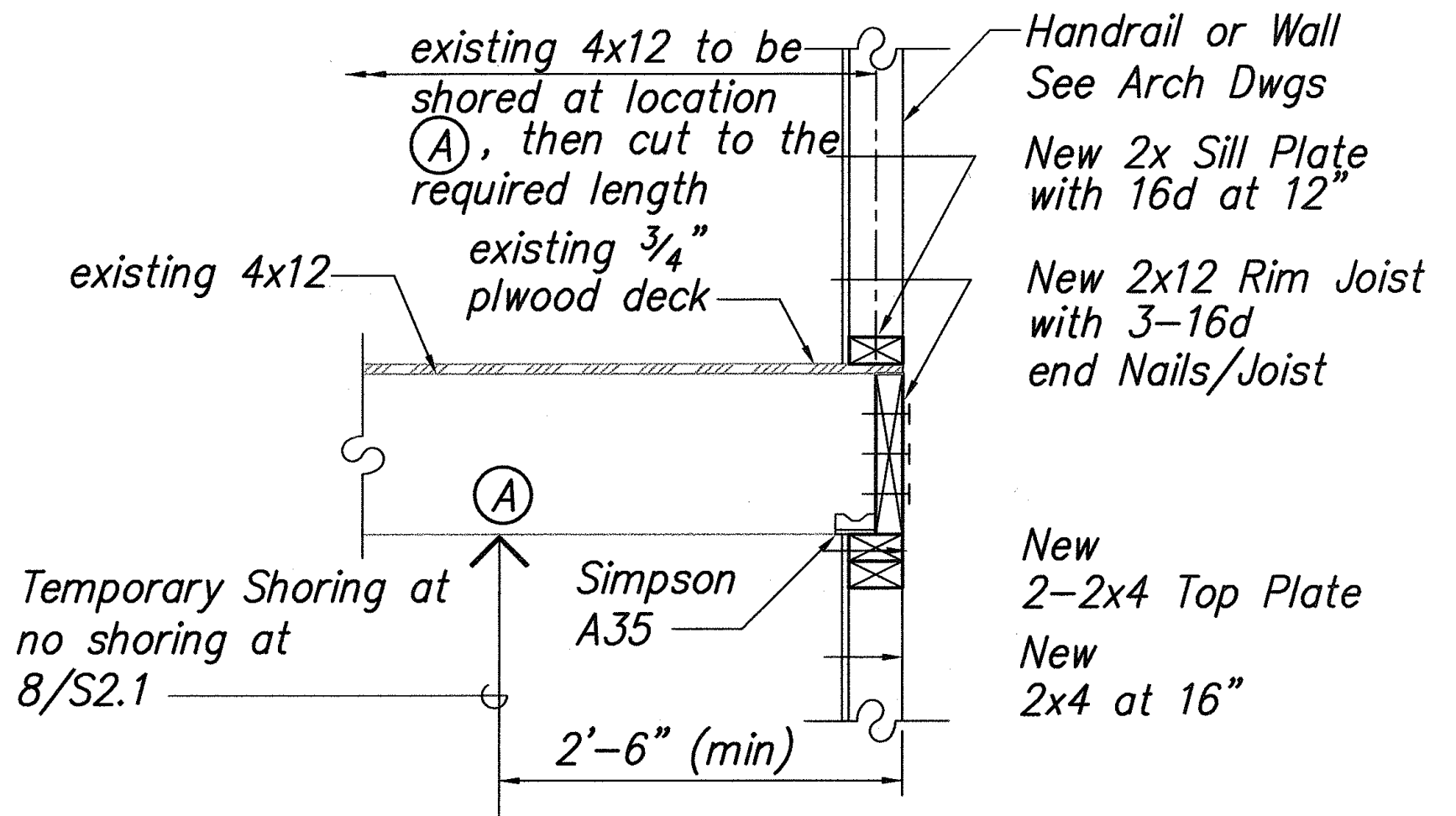
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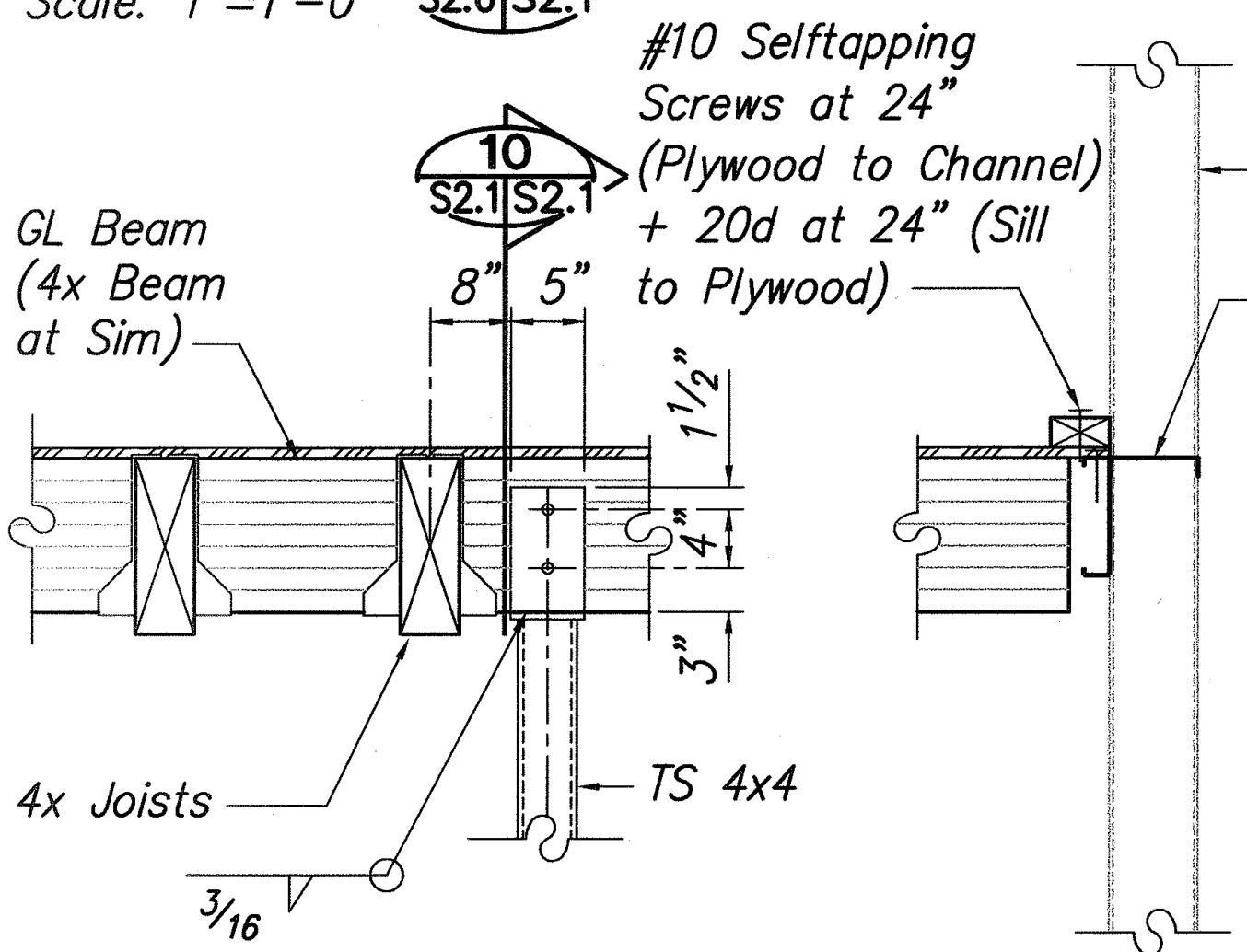
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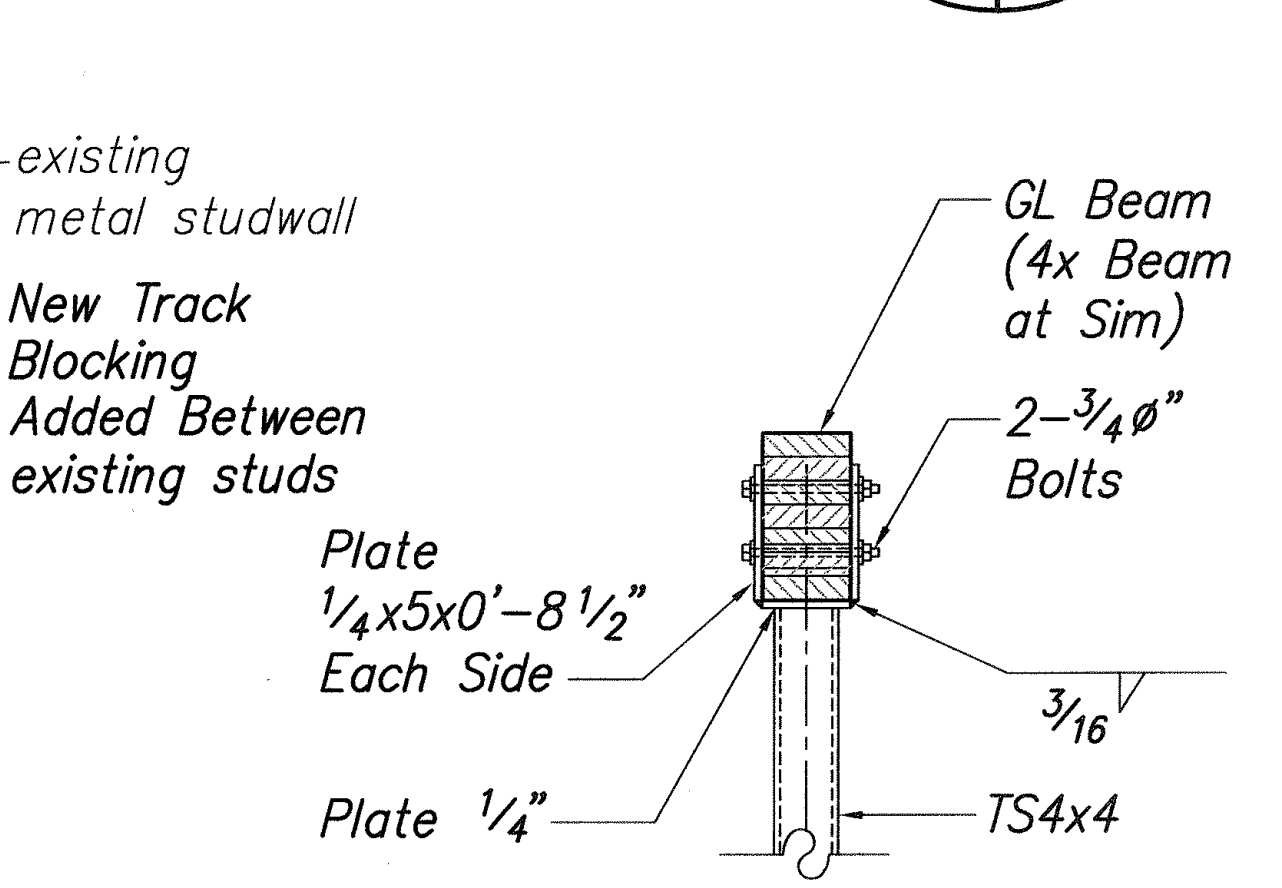
SECTION 5
Scale: 1"=1'-0" S2.0/S2.1



SECTION 6
Scale: 1"=1'-0" S2.0/S2.1 S2.0/S2.1 Sim (No Shoring)



SECTION 7
Scale: 1"=1'-0" S2.0/S2.1



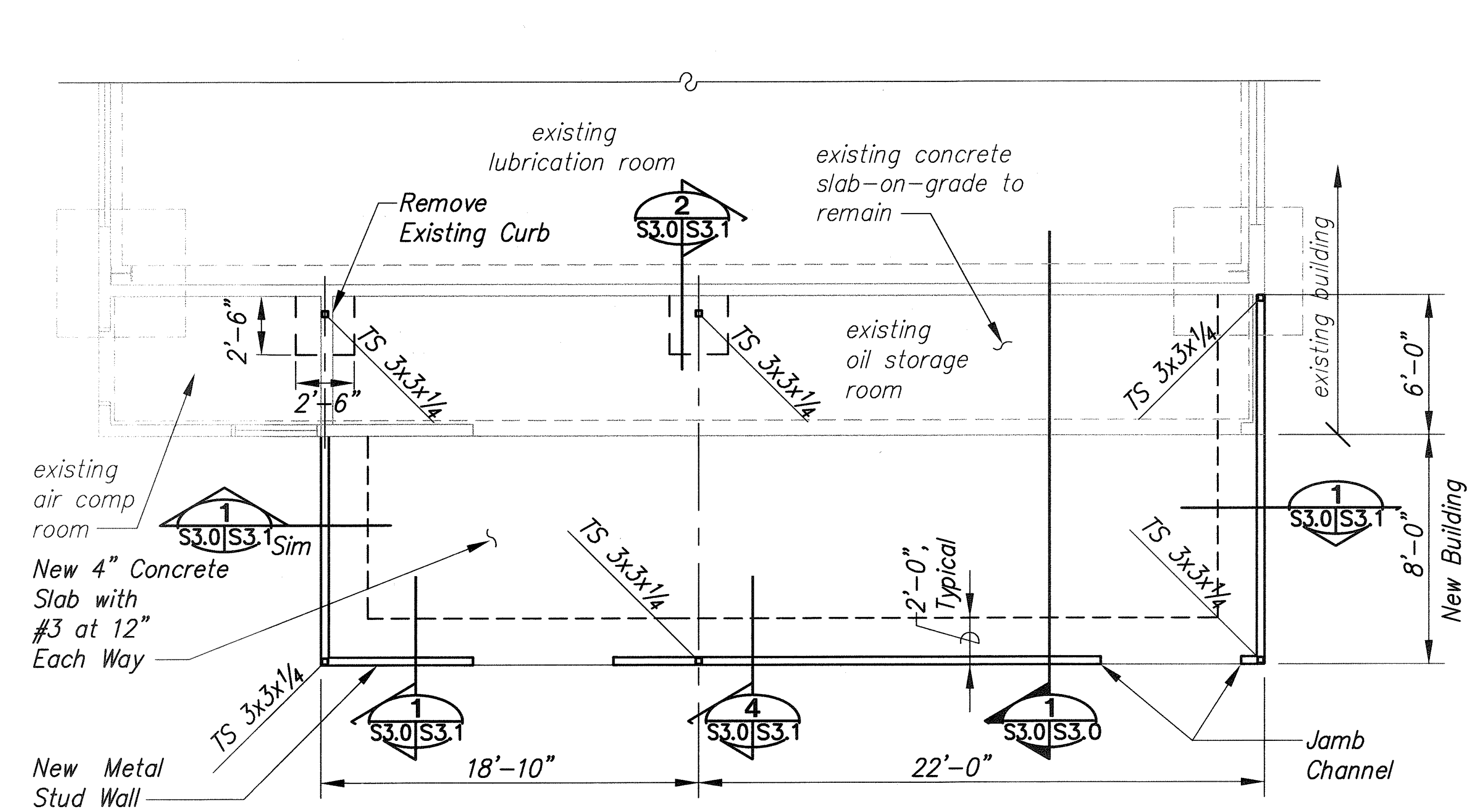
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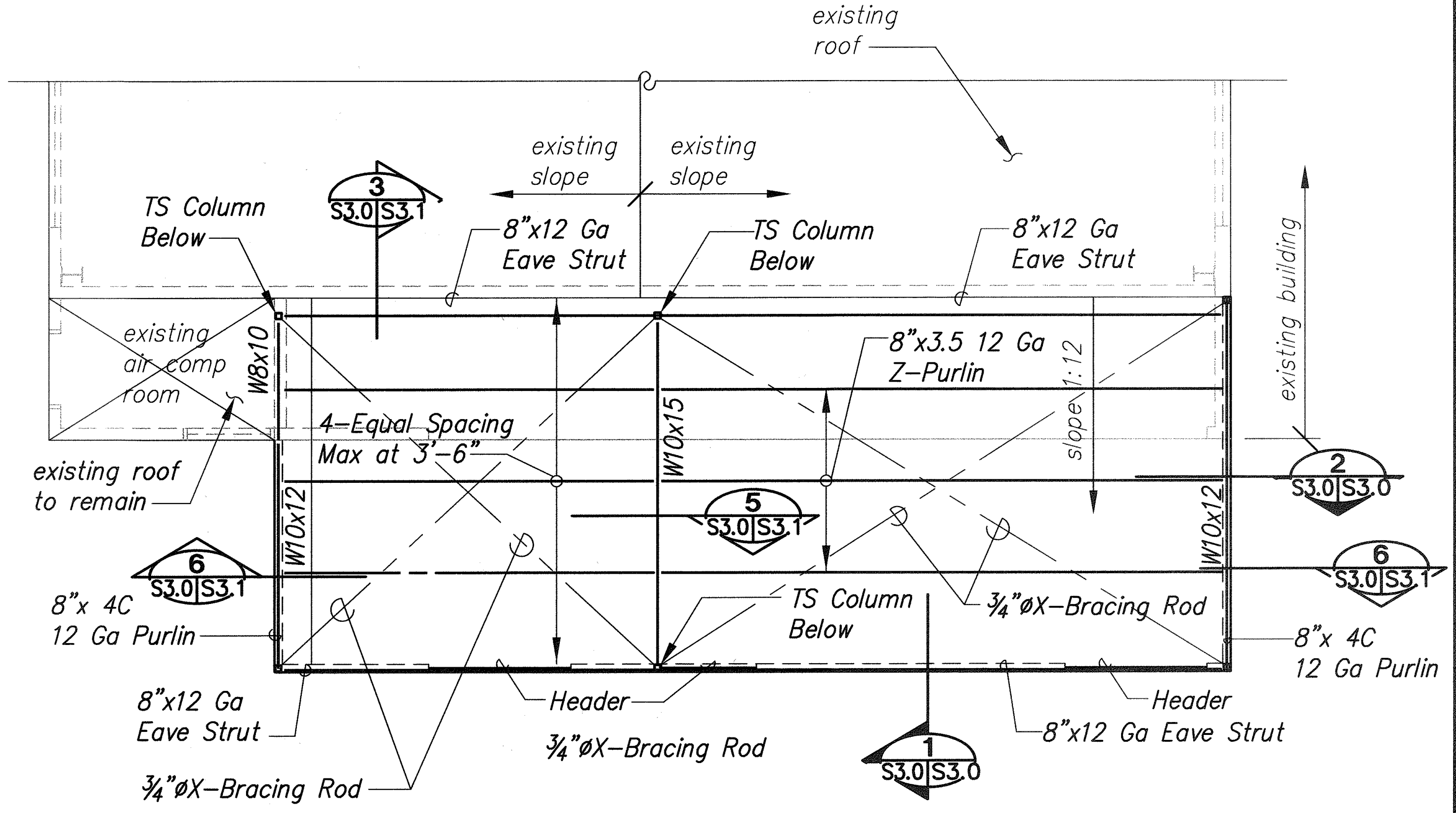
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STATE OF HAWAII
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MAINTENANCE BUILDING DETAILS
 MAUI DISTRICT BASEYARD
 Project No. HWY-M-09-02
 Scale: AS SHOWN Date: Feb. 2002
 SHEET No. S2.1 OF 2 SHEETS

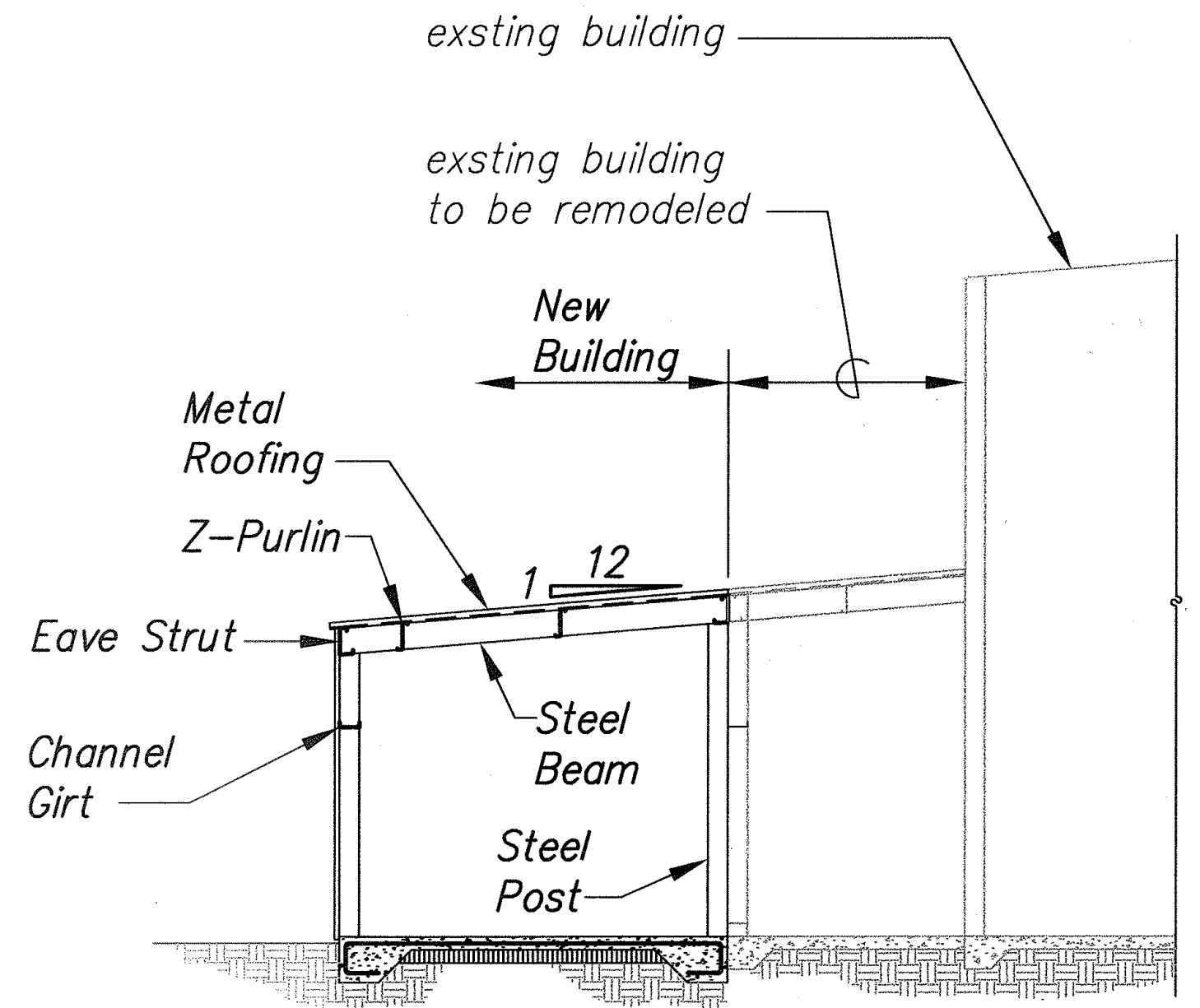
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-09-02	2002	34	37



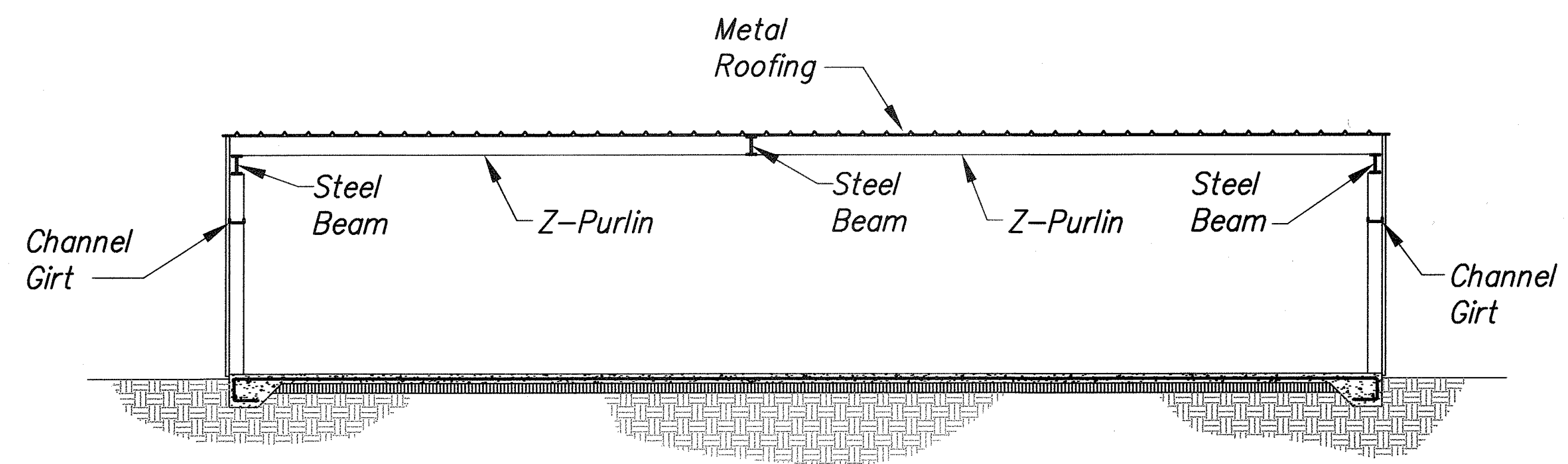
**PARTIAL REPAIR SHOP BUILDING
FOUNDATION PLAN**
Scale: 1/4" = 1'-0"



**PARTIAL REPAIR SHOP BUILDING
ROOF FRAMING PLAN**
Scale: 1/4" = 1'-0"



SECTION 1
Scale: 1/4" = 1'-0"
S3.0/S3.0



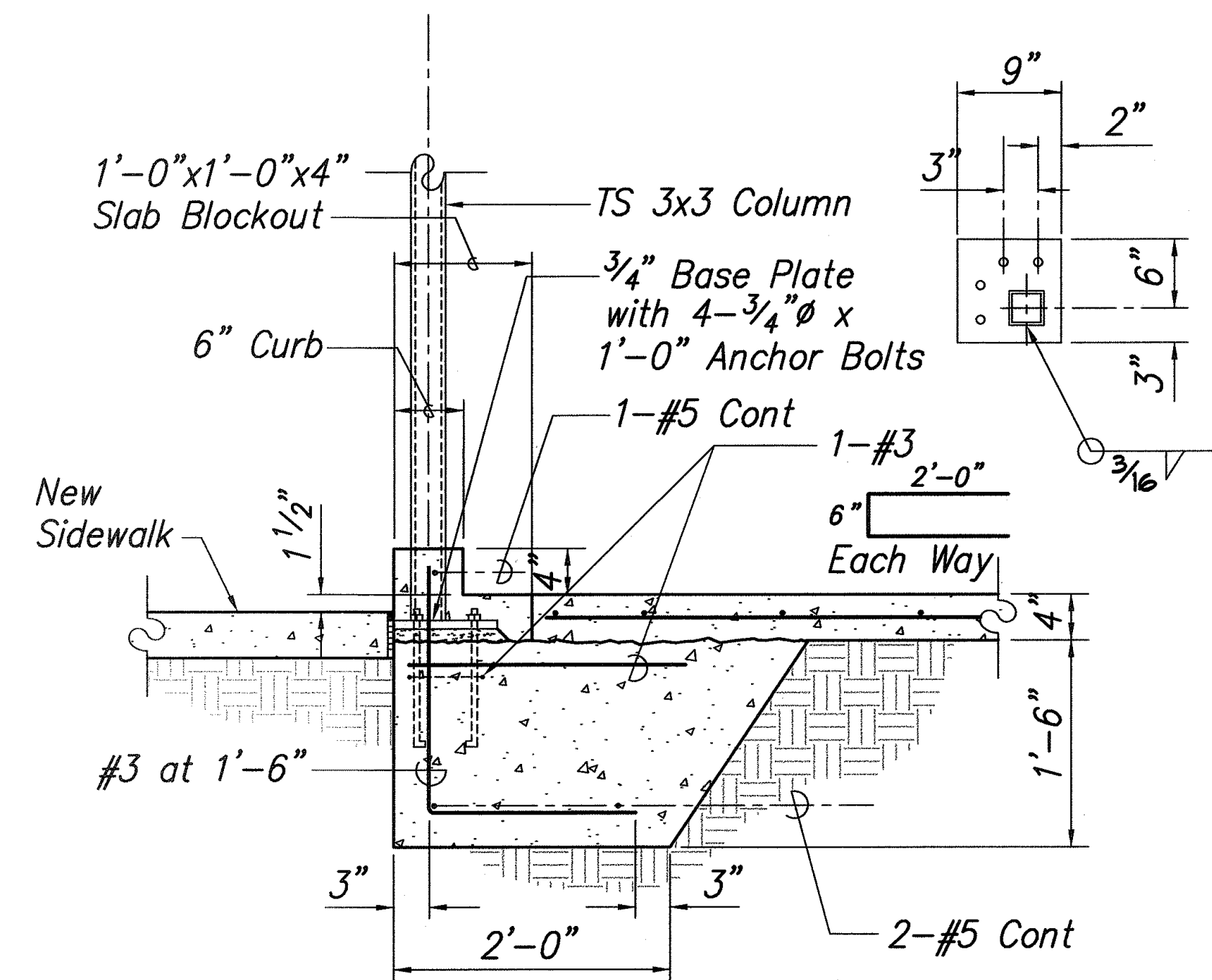
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S3.0/S3.0

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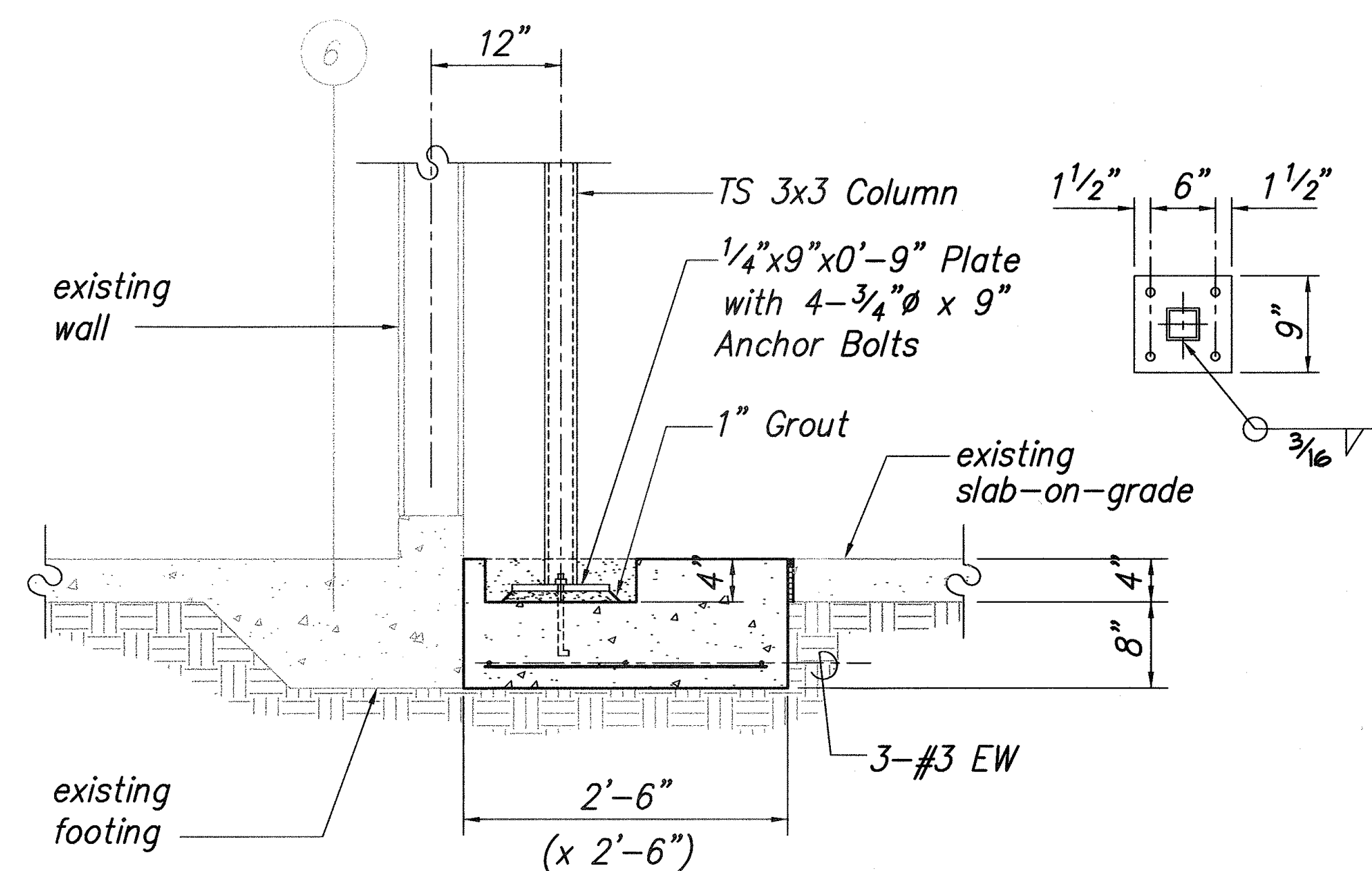
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**PARTIAL REPAIR SHOP
FOUNDATION AND
ROOF FRAMING PLANS**
 MAUI DISTRICT BASEYARD
 Project No. HWY-M-09-02
 Scale: AS SHOWN Date: Feb. 2002
 SHEET No. S3.0 OF 3 SHEETS

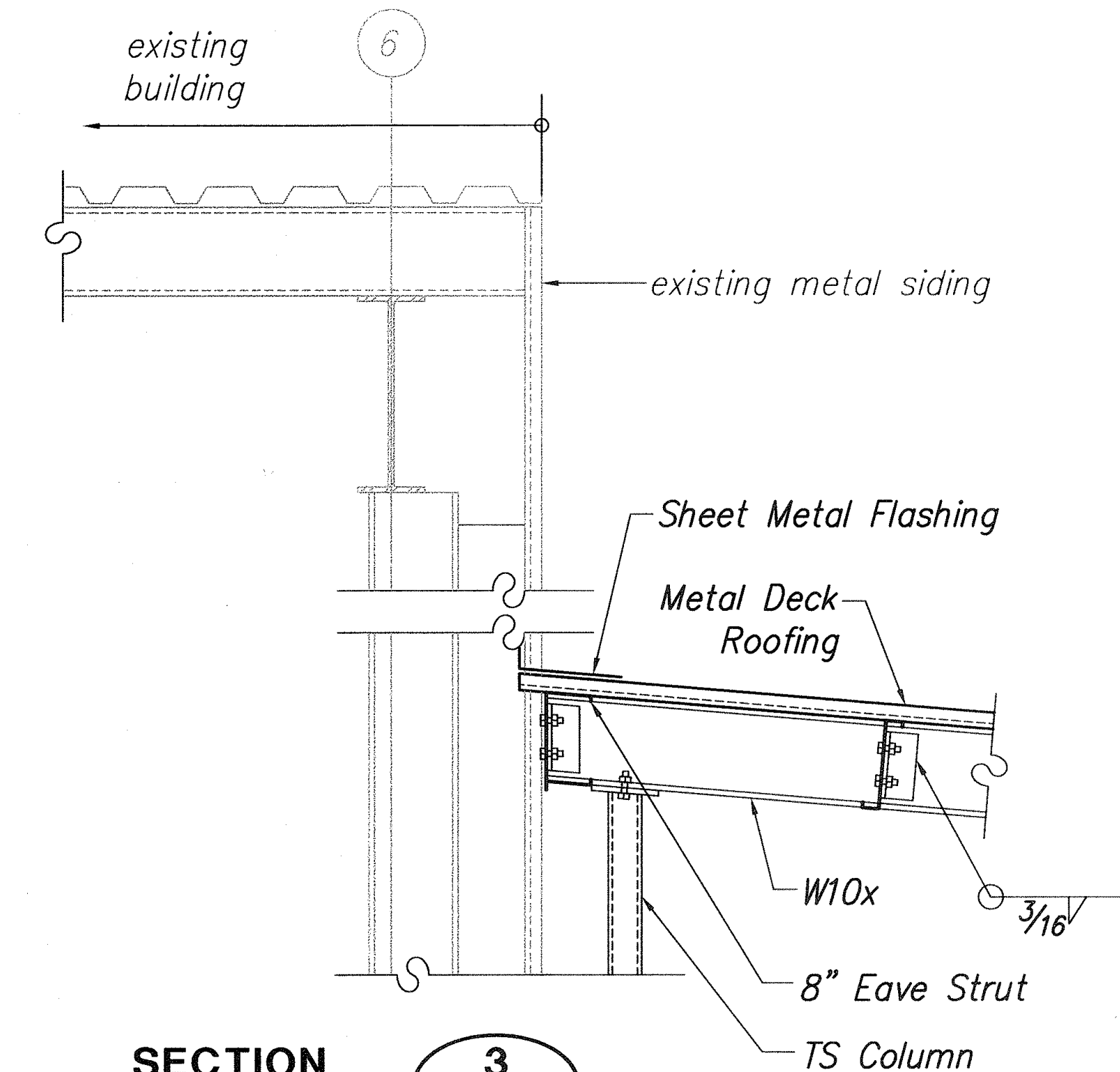
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-M-09-02	2002	31	39



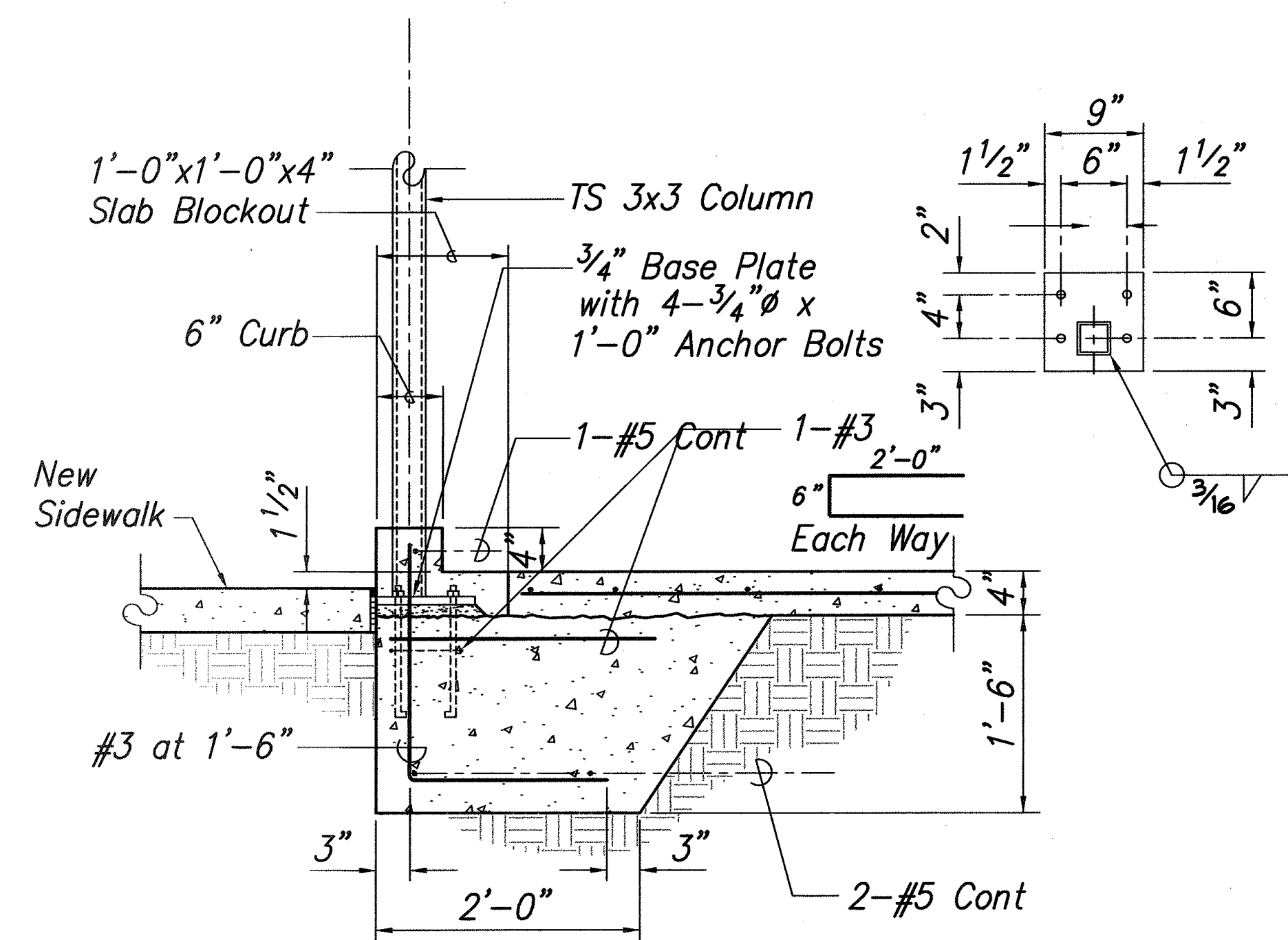
SECTION 1
Scale: 1"=1'-0" S3.0/S3.1



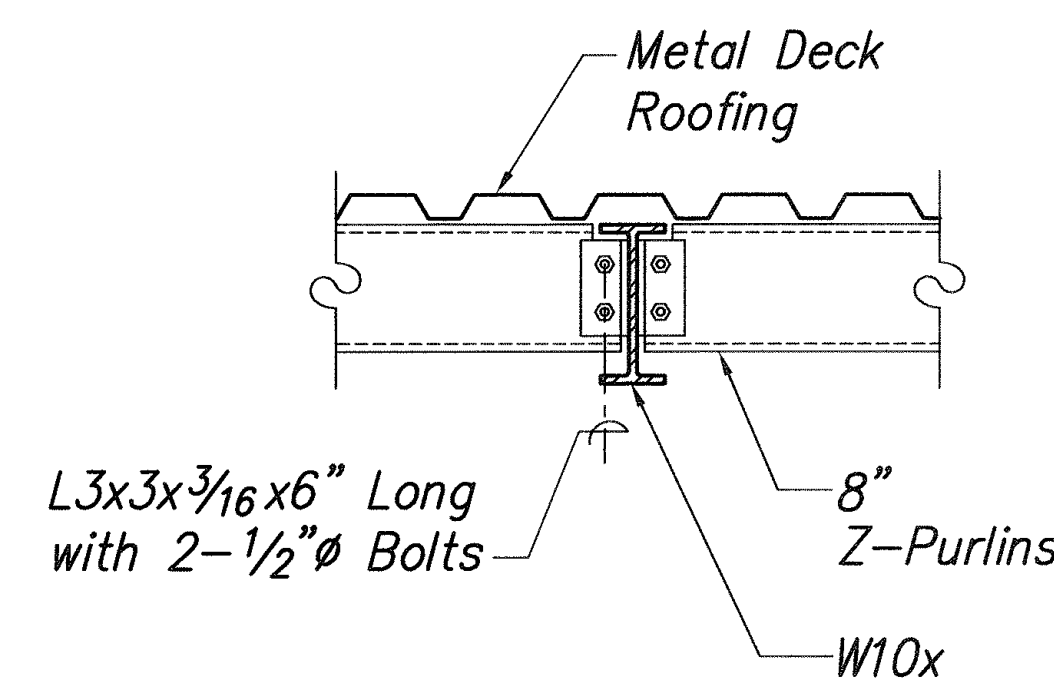
SECTION 2
Scale: 1"=1'-0" S3.0/S3.1



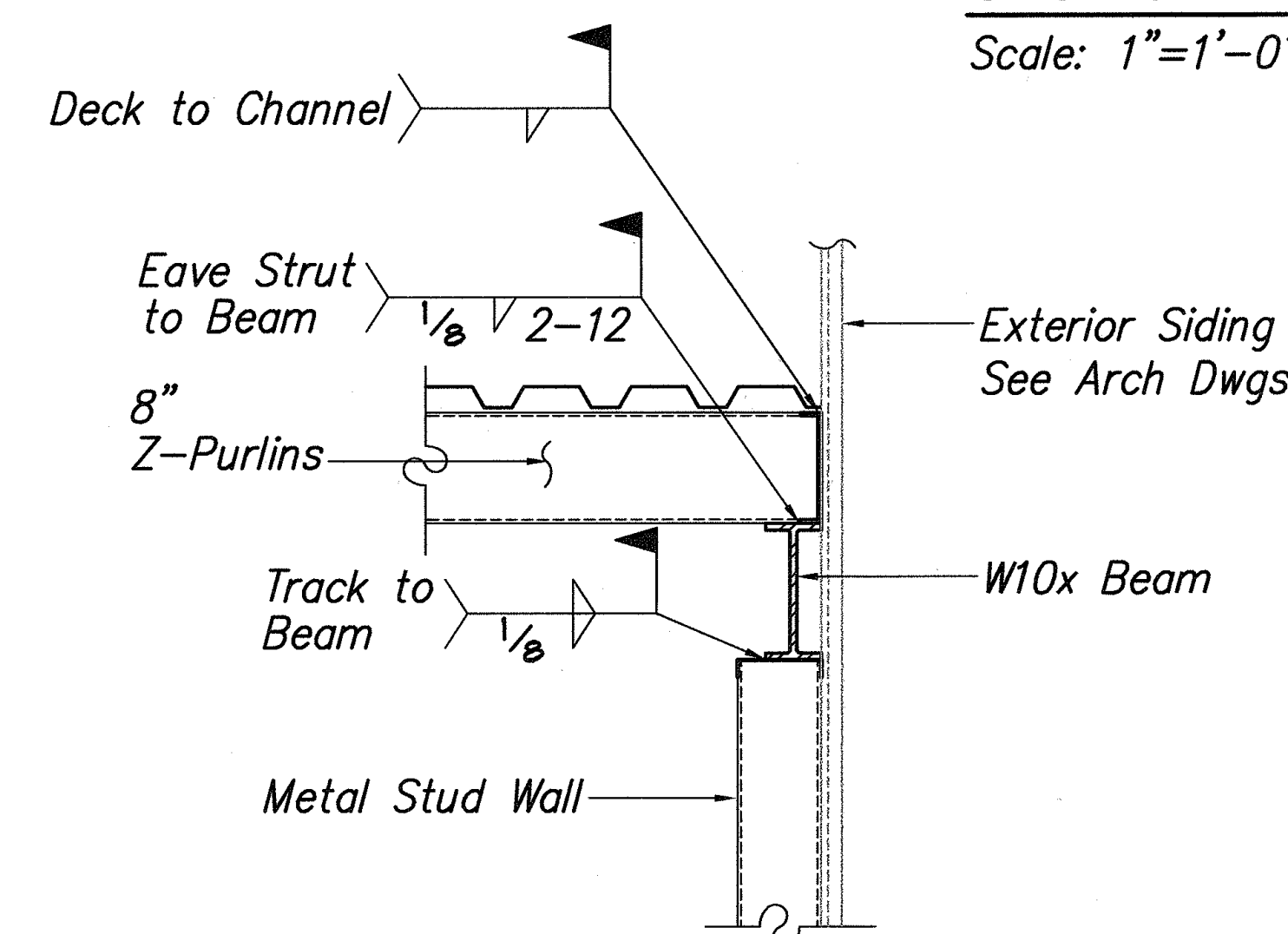
SECTION 3
Scale: 1"=1'-0" S3.0/S3.1



SECTION 4
Scale: 1"=1'-0" S3.0/S3.1

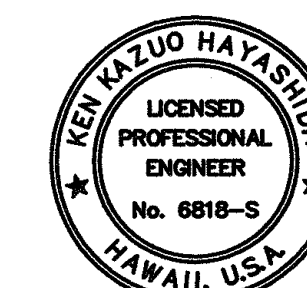


SECTION 5
Scale: 1"=1'-0" S3.0/S3.1



SECTION 6
Scale: 1"=1'-0" S3.0/S3.1

SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
QUANTITIES BY	
NO.	



MAUI DISTRICT BASEYARD
Project No. HWY-M-09-02
Scale: AS SHOWN Date: Feb. 2002
SHEET No. S3.1 OF 3 SHEETS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**REPAIR SHOP
DETAILS**
MAUI DISTRICT BASEYARD
Project No. HWY-M-09-02
Scale: AS SHOWN Date: Feb. 2002
SHEET No. S3.1 OF 3 SHEETS