



**INVITATION FOR BID (IFB) No. PAG-CIP-024-002
WELDER SHOP UPGRADES AND REPAIRS PROJECT**

**AMENDMENT No. 2
Date: August 29, 2024**

ALL BIDDERS MUST ACKNOWLEDGE RECEIPT OF THIS AMENDMENT ON THE AREA PROVIDED BELOW AND RETURN A COPY TO PAG PROCUREMENT OFFICE: Fax: (671) 472-1439 or Email: pagprocurement@portofguam.com, Annie L.G. Sablan algsablan@portofguam.com, Steven Muna spmuna01@portofguam.com and Pia Castro pacastro@portofguam.com.

NOTICE TO BIDDERS: The IFB documents of the above-referenced project are hereby **AMENDED TO INCLUDE** the following as part of IFB documents:

1. **Amendment to IFB 024-002. This Amendment No. 2 is hereby issued and revises and changes the original Scope of Work issued in the original IFB packet. Please refer to the New Scope of Work attached to this Amendment No. 2.**

***** END OF AMENDMENT No. 2, ALL OTHERS REMAIN THE SAME *****

Issued by:

**RORY J. RESPICIO
GENERAL MANAGER**

Acknowledgement Receipt

COMPANY NAME: _____
AUTHORIZED SIGNATURE: _____
PRINT NAME: _____
DATE / TIME _____ / _____

Welding Shop Building Repair

A. Project Location:

This project is located at Jose D. Leon Guerrero Commercial Port Welding Shop, Piti, Guam.

B. Project Description:

The Port Authority of Guam in conjunction with the Department of Insular Affairs, is interested in soliciting an Invitation for Bid for the repair and hardening of the Welding Shop. The Welding Shop is located on the east side of the Port's container yard. The building is a reinforced concrete structure with four grids (grid 1~4, transverse frame spanning 20' typically) along E-W axis, and three grids (grid A ~ C, spanning 30' typically) along S-N axis, cantilevered canopy extended from the south elevation. Some overall metrics describing the building are listed below; detailed typical sections have been extracted from as-built drawings of the structure.

- Date of construction: 1968 – 1969
- Number of floors: 1
- Building footprint: 61 ft. by 60 ft.
- Roof projection 80 ft. by 70 ft.
- Building floor area: 3,600 sq. ft.
- Height of roof eave above ground: Approx. 22 ft.

This project will repair concrete spalls and cracks throughout the building, apply a protective coating on the roof and walls, install three new roll-up doors, and replace existing light fixtures. A more detailed scope of work is described below. Upon the completion of this project, the Welding Shop will be in a state of good repair and hardened against the Port's naturally corrosive environment and the ever-present threat of typhoons.

All work shall meet the standard compliance of organizations such as the American National Standard Institute (ANSI), American Society for Testing and materials (ASTM), American Concrete Institute (ACI), National Electrical Code (NEC), Underwriter Laboratories (UL) and the Occupational Safety and Health Association (OSHA).

C. PERIOD OF PERFORMANCE:

The contractor has a total of 365 calendar days to complete this project upon receipt of an Official Notice to Proceed (NTP). The issuance of the NTP and start of construction will be dependent upon the approval of PAG's HABS / HAER documentation.

D. General Requirements

1. The contractor shall investigate the project sites, verify existing conditions and measurements prior to submitting his or her bid cost proposals. Failure to do so shall not be a cause for additional claims against PAG;
2. Contractor shall provide all labors, materials, tools and equipment required to complete the scope of work;

3. Official notice to proceed (NTP) will be issued to the contractor upon signing the project purchase order;
4. Contractor to submit within 7 days after NTP issuance, the insurance coverage regarding Comprehensive General Liability Policy, Excess Liability Policy of (\$1 Million dollars as a minimum), and Performance/Payment Bond. PAG shall be an additional insured to the policy.
5. Contractor to submit within 10 days after the NTP issuance, submittal register, material submittals, schedule of values, construction schedule, safety plan, and personnel listing for approval by the PAG Engineering and Safety Divisions.
6. All submittals shall be approved by the Port Engineering office/ CIP Division.
7. Contractor shall coordinate all works with the Port's Engineering/CIP Division.
8. Contractor's personnel assigned to this project are required to have a Transportation Worker Identification Card (TWIC) and attend the mandatory Maritime Security (MARSEC) Level briefing. Contractor to inquire with the Port Police Office regarding these requirements. No work will Commence without TWIC cards;
9. Contractor shall be responsible for the daily clean-up of the project site. All construction debris shall be disposed at a designated government approved dumpsite at no cost to PAG.
10. Contractor shall abide by the OSHA regulations, provide safety warning signs, warning lights, barricades within the work area. All workers shall have a proper Personal Protective Equipment (PPE) to be utilized at all times;
11. PAG Engineers and PAG Safety Divisions will conduct daily inspections and/or random checks of the project site.
12. Request in writing for pre - final /final inspection to PAG Engineering/CIP Division;
13. Upon completion of all punch list, contractor shall submit the final billing with the As-built Drawings in hard copy and electronic file in PDF format, Certificate of Completion, Warranty Certificate and Release of Liabilities to the Port Authority of Guam associated with this project
14. The contractor must obtain a hot work permit prior to conducting any hot work. Hot work permits are issued by Port Police on a daily basis. The contractor should include the cost of obtaining the hot work permit when providing a quotation.
15. Liquidated Damages may apply for everyday the project exceeds the period of performance (POP).

E. SCOPE OF WORK:

In general, the Contractor shall provide all labor, materials, and equipment necessary to complete the project. The Contractor shall investigate the project site, verify existing conditions and measurements prior to submitting his or her bid cost proposals. Failure to do so shall not be a cause for additional claims against PAG. The contractor shall be responsible for daily site clean-up, documenting the progress of the project (generating reports that document daily tasks, man hours, equipment hours, progress photos, etc.). Project specifications will be based on the specifications prepared by N.C. Macario for the "EQMR Building Maintenance Project" & "Warehouse 1 Upgrades Project". Contractor should request for an electronic copy prior to providing a bid. The scope of work for the above-mentioned project is described below:

1. Concrete Spall and Crack Repair

- a. Contractor shall repair spalled concrete throughout the welding shop building. Locations include: roof, exterior walls, interior walls, ceilings/overhangs, columns, beams, base of bathroom foundation, and any area of the welding shop building where spalled concrete have been identified.
 - b. Contractor shall repair cracks throughout the welding shop building. Locations include: roof, exterior walls, interior walls, ceilings/overhangs, columns, beams, and any area of the welding shop building where cracks in the concrete have been identified.
 - c. See attached sketch of approximate locations. Sketch is for reference only and does not define all spalls and cracks that need to be prepared.
 - d. Repairs will be based on a methodology approved by the PAG Engineering Division. The contractor shall submit a repair methodology for the various locations in need of repair for review and approval.
 - e. In general, spall repair includes saw cutting concrete, chipping, grinding, drilling, surface preparation, applying rust-inhibitor, epoxy coating, form work, and masonry work.
 - f. Replacement of reinforced steel, if needed, is included in concrete spall repair. Reinforcing steel that has lost 20% of its original size must be replaced.
 - g. In general, crack repair includes surface preparation, drilling, saw cutting, epoxy injection.
 - h. PAG requires a minimum of two inspections for each repair made. First inspection will take place when all preparatory work has been completed. Final inspection will take place after repaired area has cured.
 - i. Contractor must provide drawings that clearly track repairs made. Monthly payments for spall repair will be based on repairs that have been inspected and accepted by a PAG Engineer.
 - j. Repaired concrete must be given time to cure prior to final inspection by PAG.
- 2. Remove and Replace Existing Roof Drain and Down Spout**
- a. Remove existing roof drain.
 - b. Remove existing down spout and mounting hardware.
 - c. Supply and install new 6" roof drain.
 - d. Supply and install new down spout and mounting hardware.
 - e. Contractor must provide a submittal for all materials utilized. All materials utilized must be approved by the PAG Engineering Division.
- 3. Refurbish Existing Exhaust Vent**
- a. Removal and refurbish existing exhaust vent.
 - b. Apply two (2) coats of epoxy coating to the refurbished exhaust vent. Color to be coordinated with PAG.
 - c. Any repair work required to re-install the exhaust vent is included in the scope of work.
 - d. Contractor to retrofit a cover to close the vent during storm conditions.
- 4. Retrofit existing exhaust vent with a window fan.**
- a. Contractor shall retrofit the existing exhaust vent with a window fan.

- b. Window fan provided shall have reversible airflow controls. (Blows air in and out)
 - c. Fan must be suitable for the Port's environment.
 - d. PAG must approve and accept the proposed fan prior to procurement of the equipment.
 - e. Manufacturer Drawings and Data are required.
5. Supply and Installation of Roll-Up Doors
- a. Supply and installation of new roll-up doors.
 - b. Any surface preparation or repair work required to install the new roll-up door is included in the scope of work.
 - c. Roll-up door material shall comply with the attached specifications.
 - d. Roll-up door must be epoxy coated.
 - e. All bolts, nuts, washers, chains, and other hardware needed for installation must be 316 stainless-steel.
 - f. Roll-up door must be motorized, but still capable of being manually opened.
 - g. Designed to with stand a minimum wind velocity of 175 MPH
 - h. Roll-up door must be tested to ensure the system is functioning properly.
 - i. Contractor must provide operation and maintenance manual for each roll-up door.
 - j. As-Built Drawings/Plans required.
 - k. Bay opening approximate dimensions (L x H): 17'-10" x 19'-11"
 - l. PAG will be referencing the specifications prepared by N.C. Macario for the "Warehouse 1 Upgrade Project". Contractor should request a copy prior to bidding.
6. Install power supply for new roll-up doors
- a. Contractor shall install electrical conduit, wiring, and appurtenances to supply the new roll-up doors with power.
 - b. Contractor shall install the controls for the new roll-up doors and connect to the new power supply.
 - c. The connection point and exact location of the electrical conduit and controls shall be coordinated with the PAG Engineering Division.
 - d. Contractor must provide a submittal for all materials utilized. All materials utilized must be approved by the PAG Engineering Division.
7. Remove All Corroded Fall Protection Anchors
- a. Corroded anchors must be removed.
 - b. Concrete to be repaired.
8. Relocate Existing Electrical Lines Located on the Roof.
- a. Remove and dispose of existing electrical conduit located on the roof and walls of the welding shop. Estimated Length. (120 ft).
 - b. Install new electrical lines and conduit. Location to be determined by PAG Engineering.
 - c. Contractor must provide a submittal for all materials utilized. All materials utilized must be approved by the PAG Engineering Division.
 - d. Concrete must be repaired.
9. Replacement of Electrical Pendant Light
- a. Removal and disposal of existing lights and light fixtures. Must be disposed of at a GEPA approved facility.

- b. PAG Facility maintenance will inspect lights that have been removed and determine if they can be kept as spares.
 - c. Supply of LED equivalent light fixture. Must be suitable for marine environments.
 - d. Installation of LED equivalent light fixture.
 - e. Removal of corroded electrical conduit and lines. (Est. 260 ft)
 - f. Supply and install new electrical conduit and lines.
 - g. Must be inspected and certified by a registered master electrician.
 - h. As-Built Drawings/Plans Required.
 - i. Contractor must provide a submittal for all materials utilized. All materials utilized must be approved by the PAG Engineering Division.
10. Replace Roof Hatch
- a. Remove and dispose of existing roof hatch.
 - b. Supply and install new roof hatch.
 - c. See attached detail of roof hatch.
 - d. Roof hatch must be made of 18-gauge aluminum
 - e. Roof hatch must include the following: 1" fiber glass insulation, inside/outside handles, padlock HASP, 1" rigid fiber insulation all around curb, 3/8" x 4" anchor bolts with nuts and washers spaced at 18" on center, continuous neoprene seal all around cover, 3" beaded welded flange, 18-gauge aluminum cap flashing, counter flashing, sheet clips.
 - f. Contractor must provide a submittal for all materials utilized. All materials utilized must be approved by the PAG Engineering Division.
11. Surface Preparation and Painting
- a. The Contractor will supply and paint the welding shop building in its entirety. This includes the roof, exterior walls, interior walls, ceilings/overhangs, columns, and beams. The existing office building is not included in the scope of work.
 - b. The Contractor shall prepare all surfaces prior to painting. This includes removing all protruding screws/bolts from the building, pressure washing all surfaces, plastering rough surfaces, removing dust and any foreign substance that may prevent the paint from adhering properly to the concrete surface.
 - c. The Contractor must seal all construction joints located on the roof top of the welding shop prior to applying any paint.
 - d. In general, sealing the joint includes, removing any existing joint material protruding from the roof, applying sealant, fabric reinforcement, and a second coat of sealant. See attached detail for construction joint.
 - e. The Contractor shall apply silicone roof coating. Must meet the manufacturer specifications and the above-mentioned specification requirements prepared by N.C. Macario for the "Warehouse 1 Upgrades Project".
 - f. The Contractor must warranty the roof coating for a minimum of 10-years.
 - g. The Contractor shall apply primer and exterior paint to the exterior walls, interior walls, ceilings/overhangs, columns, and beams. Primer and top coat must meet the specified requirements.

h. Primer shall be a different tone from the main finished paint. Two different paints shall be used.

****Authorized Signatures Appear Below****

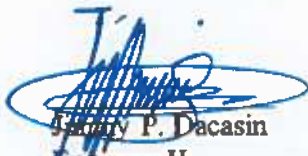
The scope of work for the Welding Shop Building Repair Project has been prepared, reviewed, and approved by:


Clarence V. Lagutong
CIP Manager

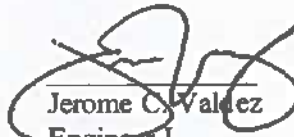
8/29/2024
Date/Time


Iremar C. Gutierrez
Engineer III

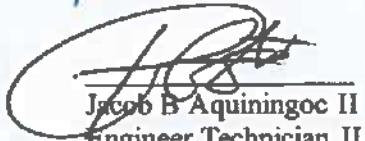
8/28/24 3:00pm
Date/Time


Henry P. Dacasin
Engineer II

8/28/24 - 1604H
Date/Time


Jerome C. Valdez
Engineer I

08.28.24 3:45 PM
Date/Time


Jacob B. Aquiningoc II
Engineer Technician II

8/28/24 15:00
Date/Time

F. Bid Schedule

Item	Description	QTY	Unit	Unit Cost	Extended Cost
1	Spall Repair	500	CF		
2	Crack Repair	100	LF		
3	Remove Existing Roof Drain	4	EA		
4	Supply & Install New Roof Drain	4	EA		
5	Remove Existing Down Spout and Mounting Hardware	4	EA		
6	Supply & Install New Down Spout and Mounting Hardware	4	EA		
7	Removal of Exhaust Vent	1	EA		
8	Refurbish Exhaust Vent and supply retrofitted storm cover.	1	EA		
9	Install Exhaust vent	1	EA		
10	Supply New Window Fan	1	EA		
11	Install New Window Fan	1	EA		
12	Remove Fall Protection Anchors	10	EA		
13	Remove Existing Electrical Lines from Rooftop	3	EA		
14	Supply and Install New Electrical Lines	3	EA		
15	Removal of Existing Lights, Light Fixtures, and Conduits	1	LS		
16	Supply & Install New LED Pendant Light Fixtures	8	EA		
17	Supply and Install New Electrical Conduit and Lines for Light Fixtures	1	LS		
18	Supply & Install New Roll-up Doors	3	EA		
19	Supply and Install New Roll-up Door Power Supply/ Controls	1	LS		
20	Surface Preparation for Painting (Pressure Washing & Cleaning Surface)	25,810	SF		
21	Surface Preparation for Painting (Plastering)	1000	SF		
22	Roof Coating	6,160	SF		
23	Exterior/Interior Painting (Prime & Paint All Concrete Surfaces) Color Varies.	19,650	SF		
24	Equipment	1	LS		
25	Mobilization	1	LS		
	Grand Total				
<p>Note: Unit Costs must be filled out and submitted. The total project cost needs to be all inclusive. Labor, Materials, Tools and Equipment, Hot Work Permit Fees, Overhead, Profit, Tax, Shipping Cost.</p>					

G. Attachments





Figure 1: Exhaust Vent to be Removed and Replaced

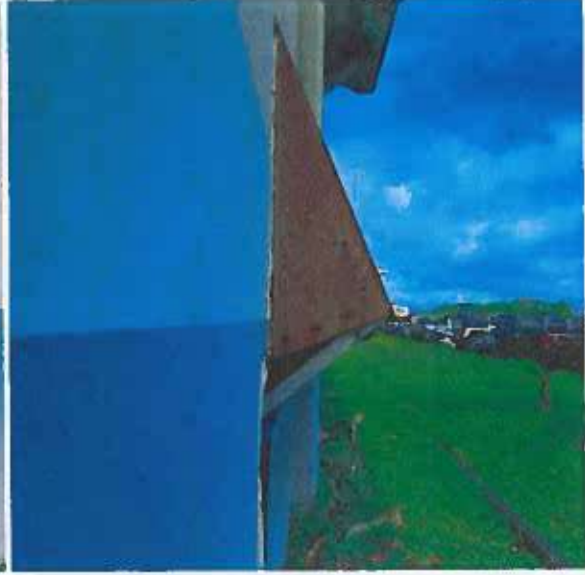


Figure 2: Exhaust Vent to be Removed and Replaced



Figure 3: Exhaust Vent to be Removed and Replaced

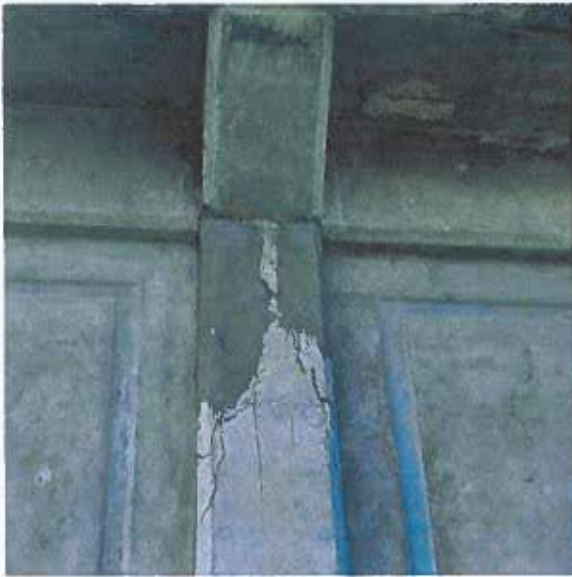


Figure 4: Concrete Spalls to be Repaired (North Elevation)



Figure 5: Concrete Spalls to be Repaired (North Elevation)



Figure 6: Concrete Spalls to be Repaired (East Overhang)



Figure 7: Concrete Spalls to be Repaired (South Elevation)



Figure 8: Concrete Spalls to be Repaired (Interior Ceiling)



Figure 9: Fall Protection Anchor to be removed (Rooftop)



Figure 10: Roof Drain to be Removed and Replaced



Figure 11: Downspout Location (West)



Figure 12: Electrical line to be Removed and Relocated



Figure 13: Electrical Line to be Removed and Relocated



Figure 14: Roof Hatch to be Removed and Replaced



Figure 15: Concrete Collar to be Repaired



Figure 16: Welding Shop Roof Top

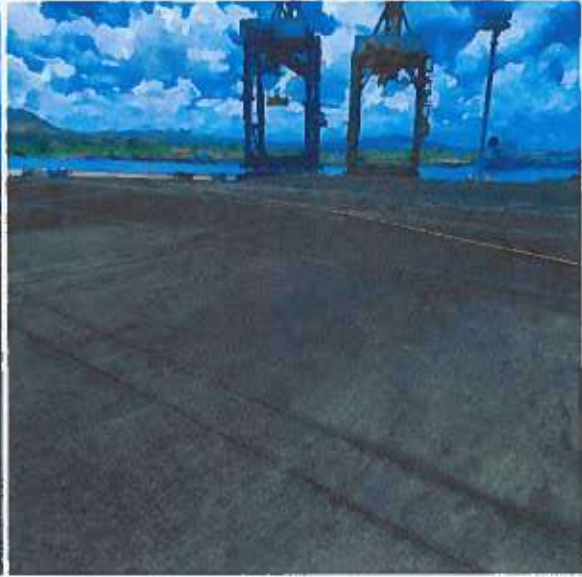


Figure 17: Welding Shop Roof Top



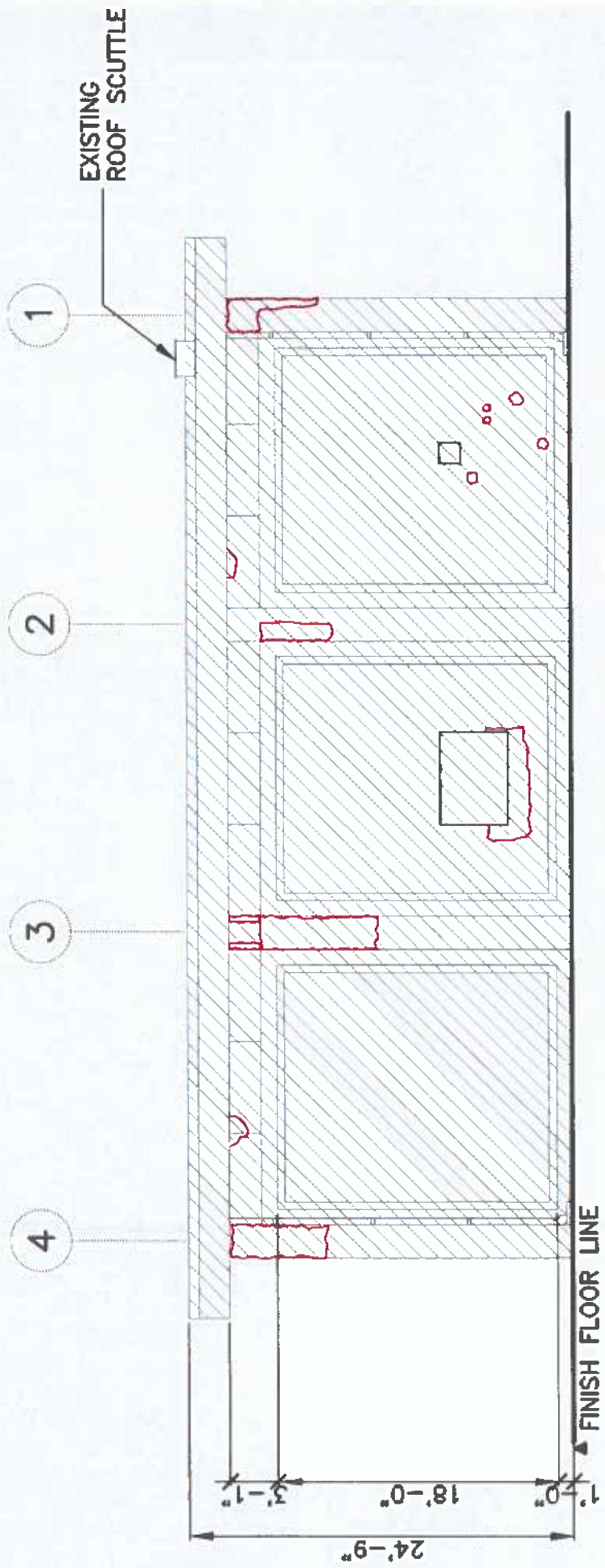
Figure 18: Welding Shop Roof Top



Figure 19: Bathroom Foundation to be Repaired

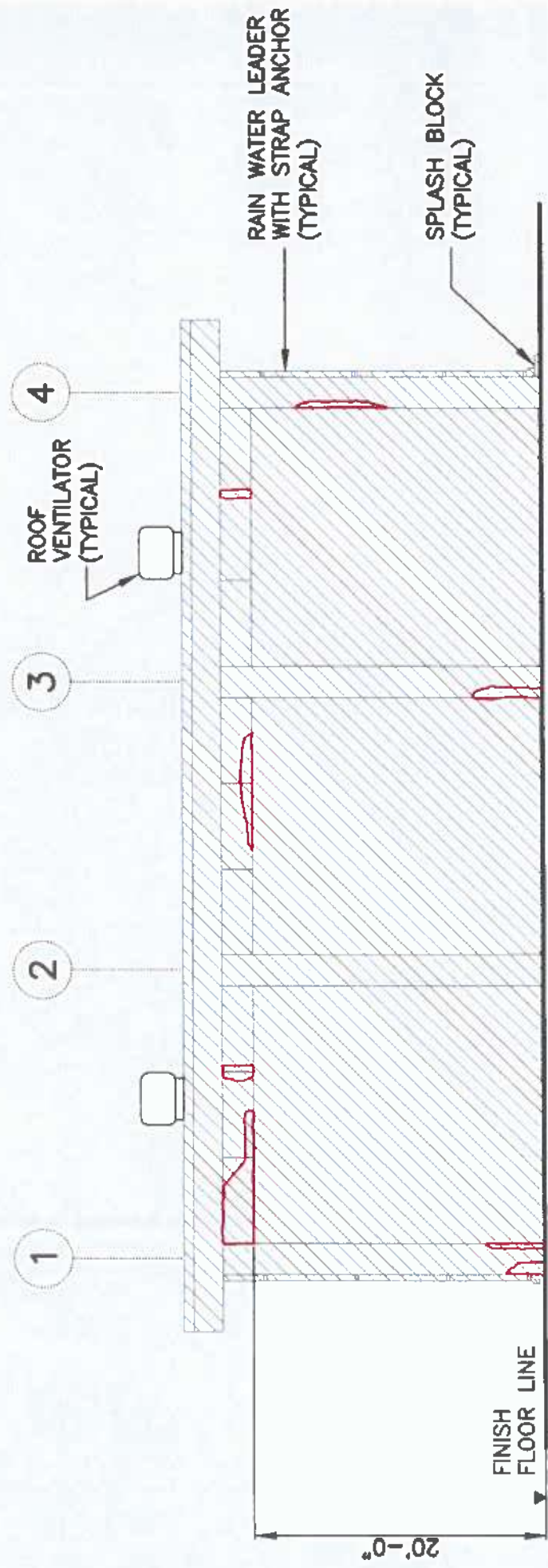


Figure 20: Light Fixture and Conduit to be Replaced



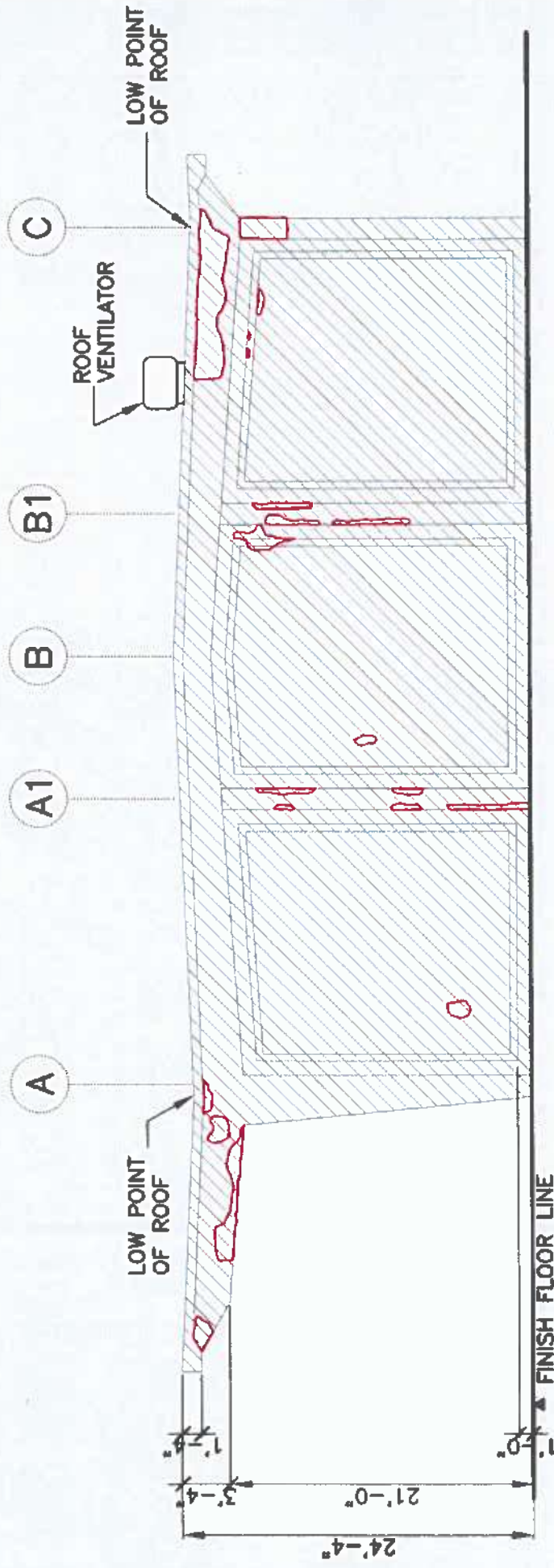
NORTH ELEVATION 

SCALE:

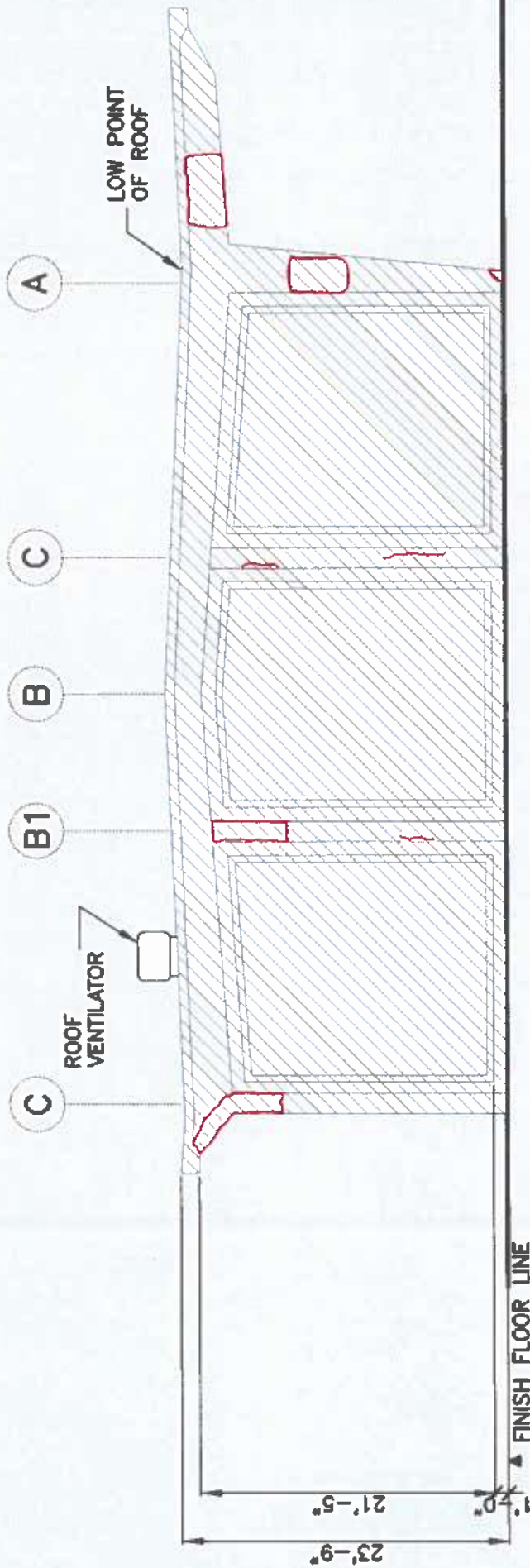


SOUTH ELEVATION ○

SCALE:

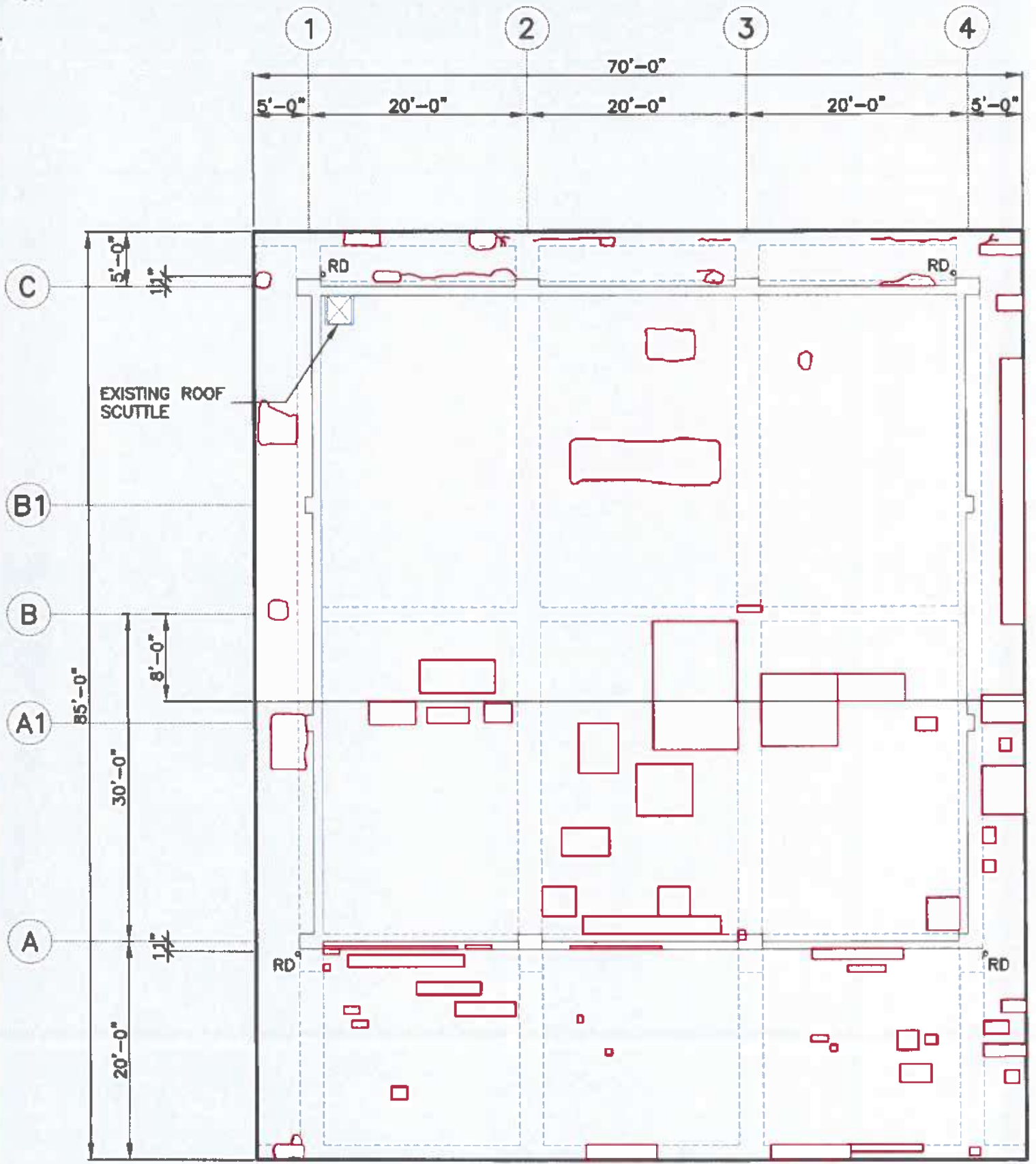


EAST ELEVATION ○
SCALE:



WEST ELEVATION 

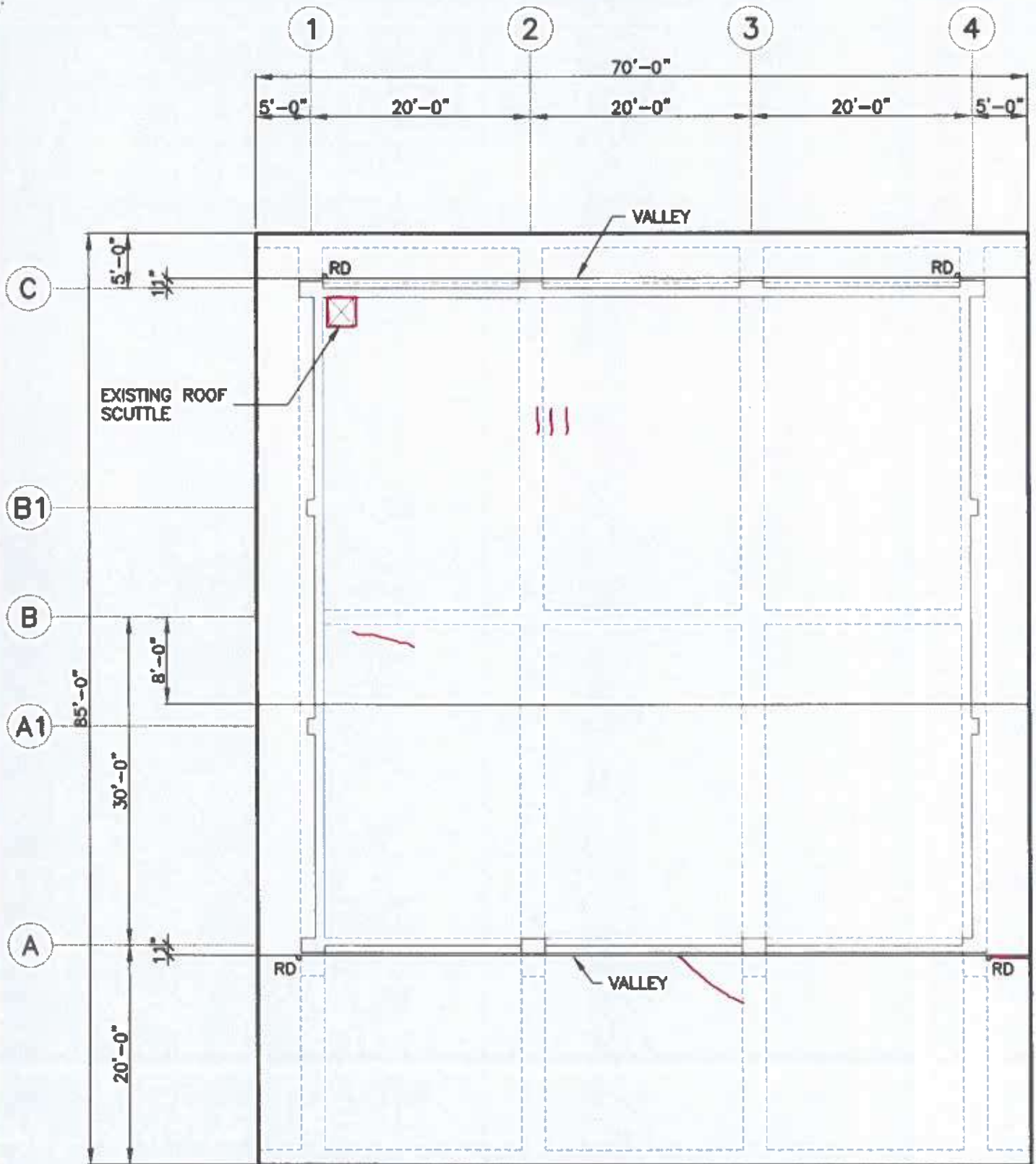
SCALE:



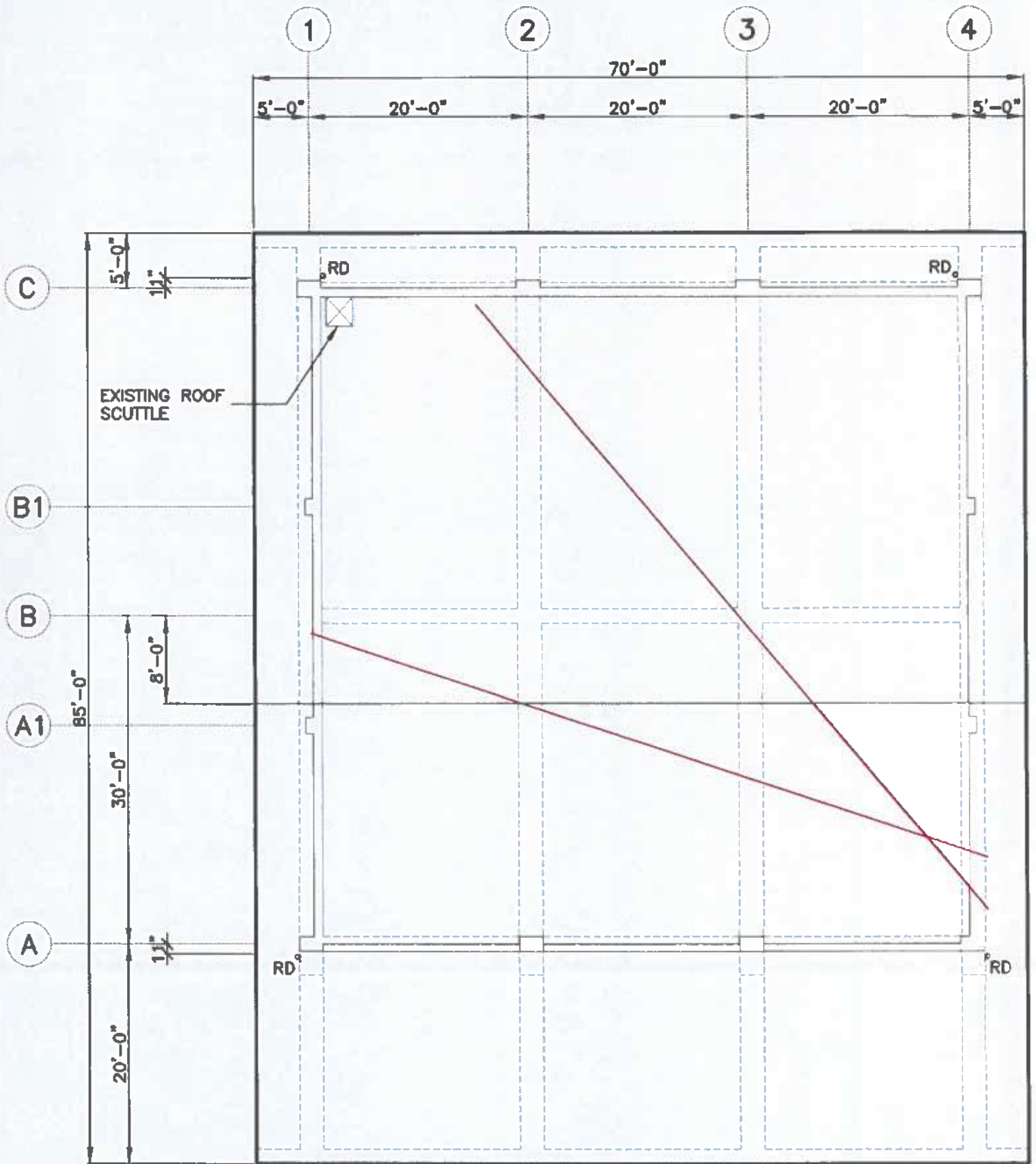
CEILING PLAN (EXISTING)

SCALE:



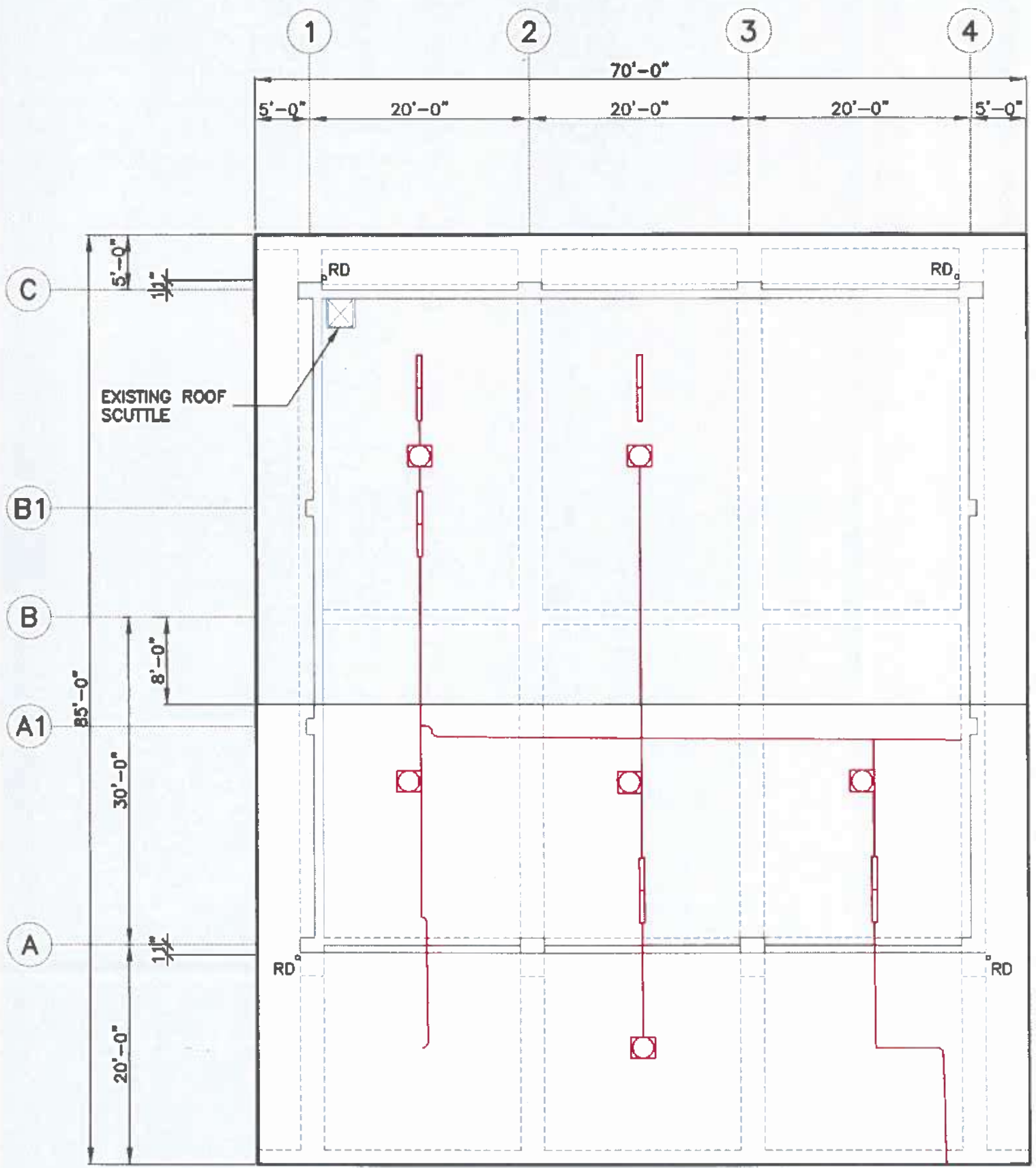


ROOF PLAN (EXISTING) ○
 SCALE:



Ceiling

Lights and Conduit to be Removed from ceiling



REINFORCING
FABRIC

WATERPROOF
SEALANT

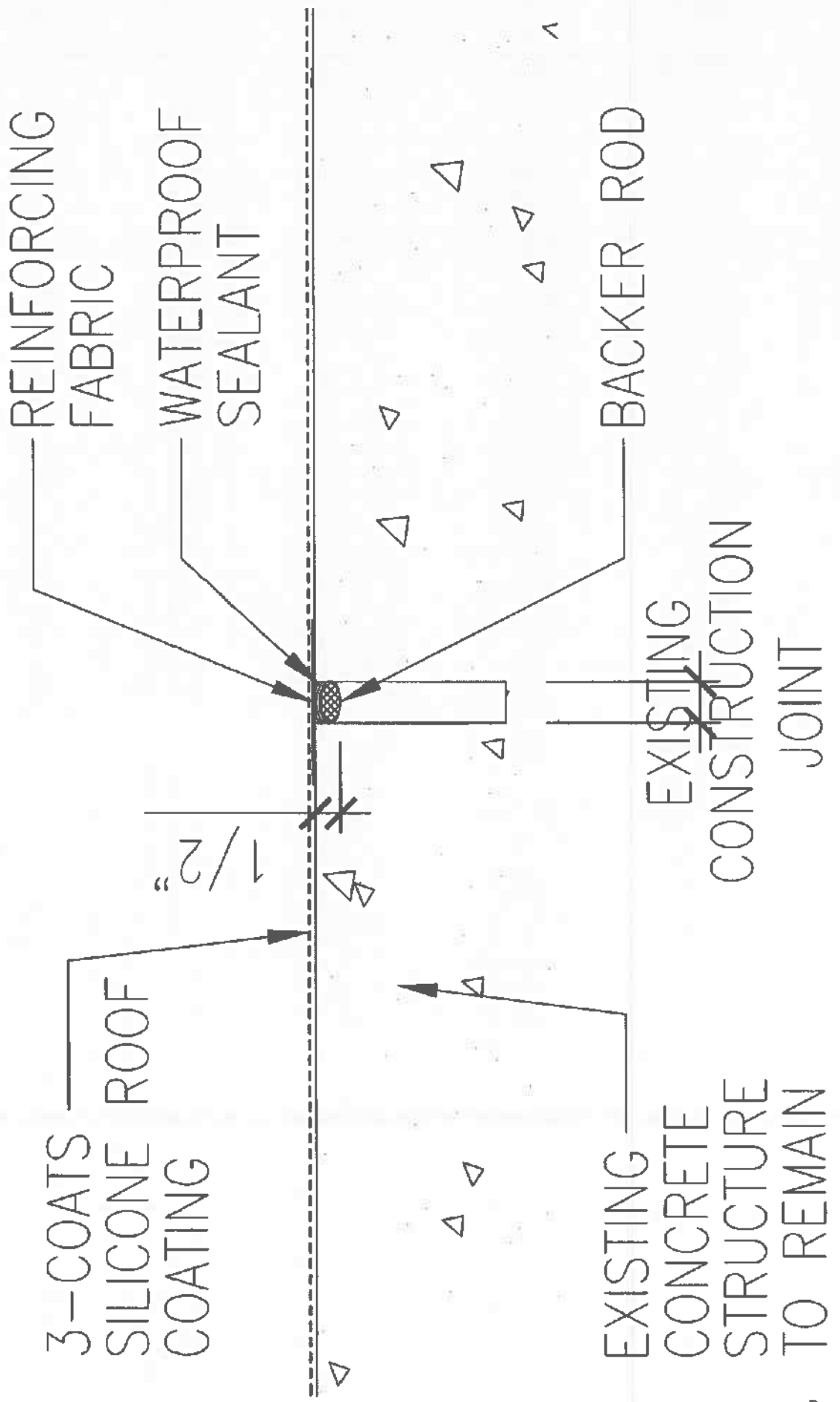
3-COATS
SILICONE
ROOF
COATING

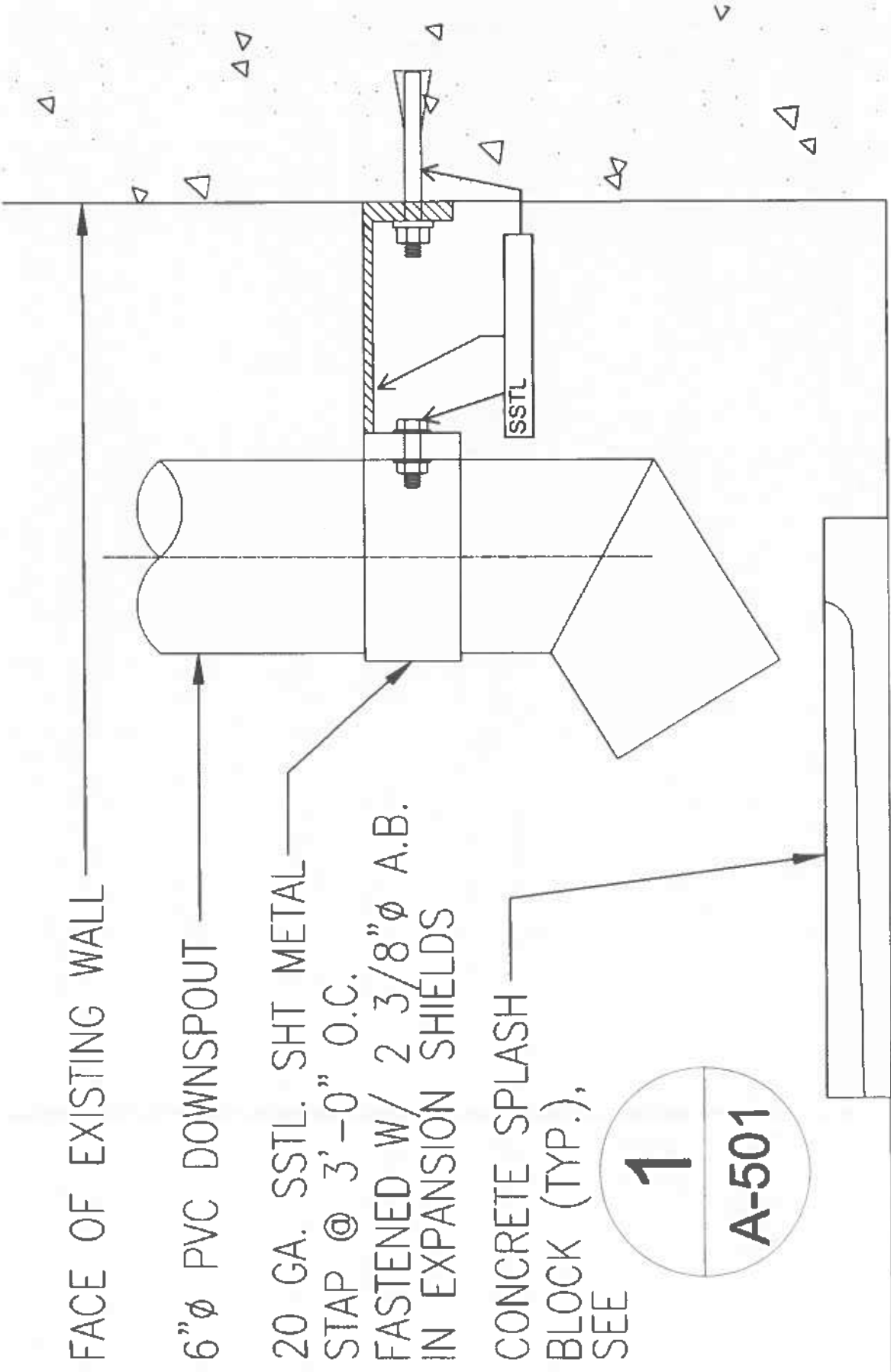
1/2"

BACKER ROD

EXISTING
CONSTRUCTION
JOINT

EXISTING
CONCRETE
STRUCTURE
TO REMAIN





FACE OF EXISTING WALL

6" ϕ PVC DOWNSPOUT

20 GA. S.S.T.L. S.H.T. METAL
 STAP @ 3'-0" O.C.
 FASTENED W/ 2 3/8" ϕ A.B.
 IN EXPANSION SHIELDS

CONCRETE SPLASH
 BLOCK (TYP.),
 SEE

1
 A-501



11"

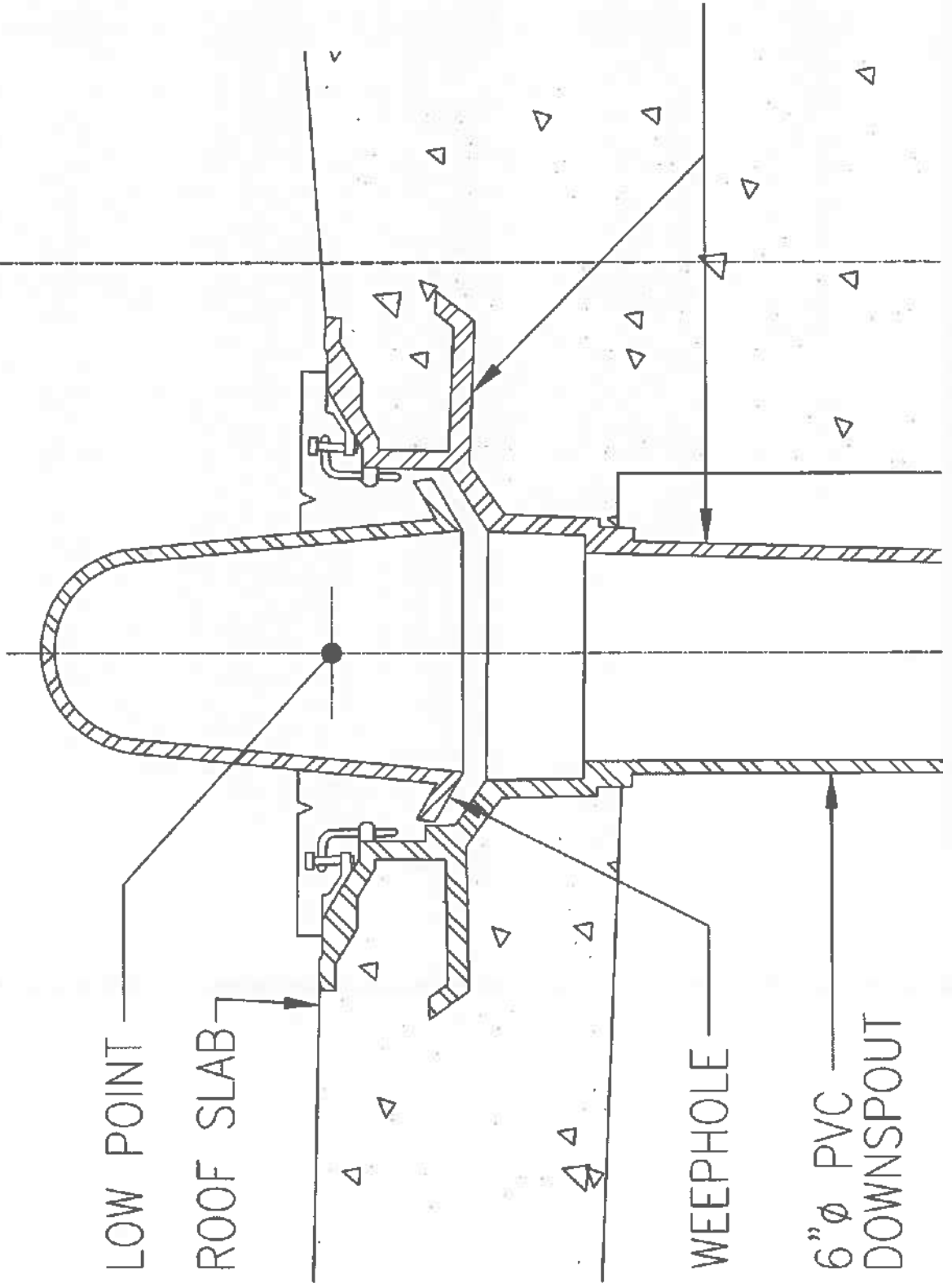
LOW POINT

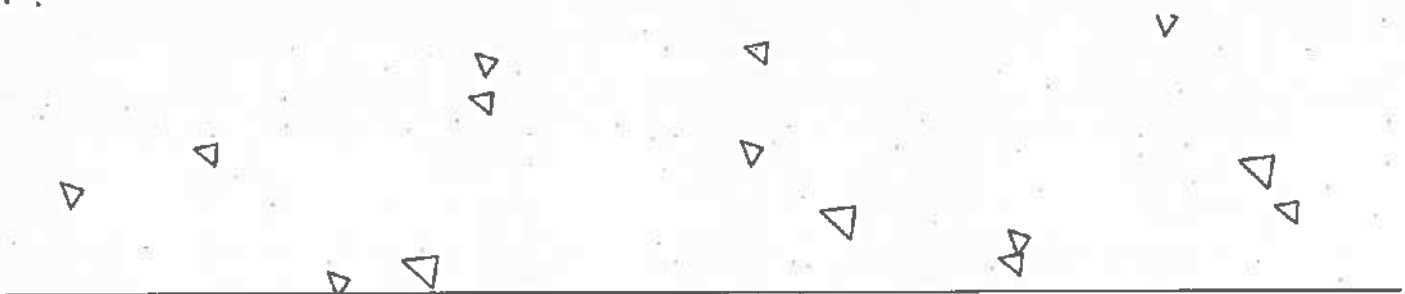
ROOF SLAB

DOUBLE
DRAINAGE
FLANGE

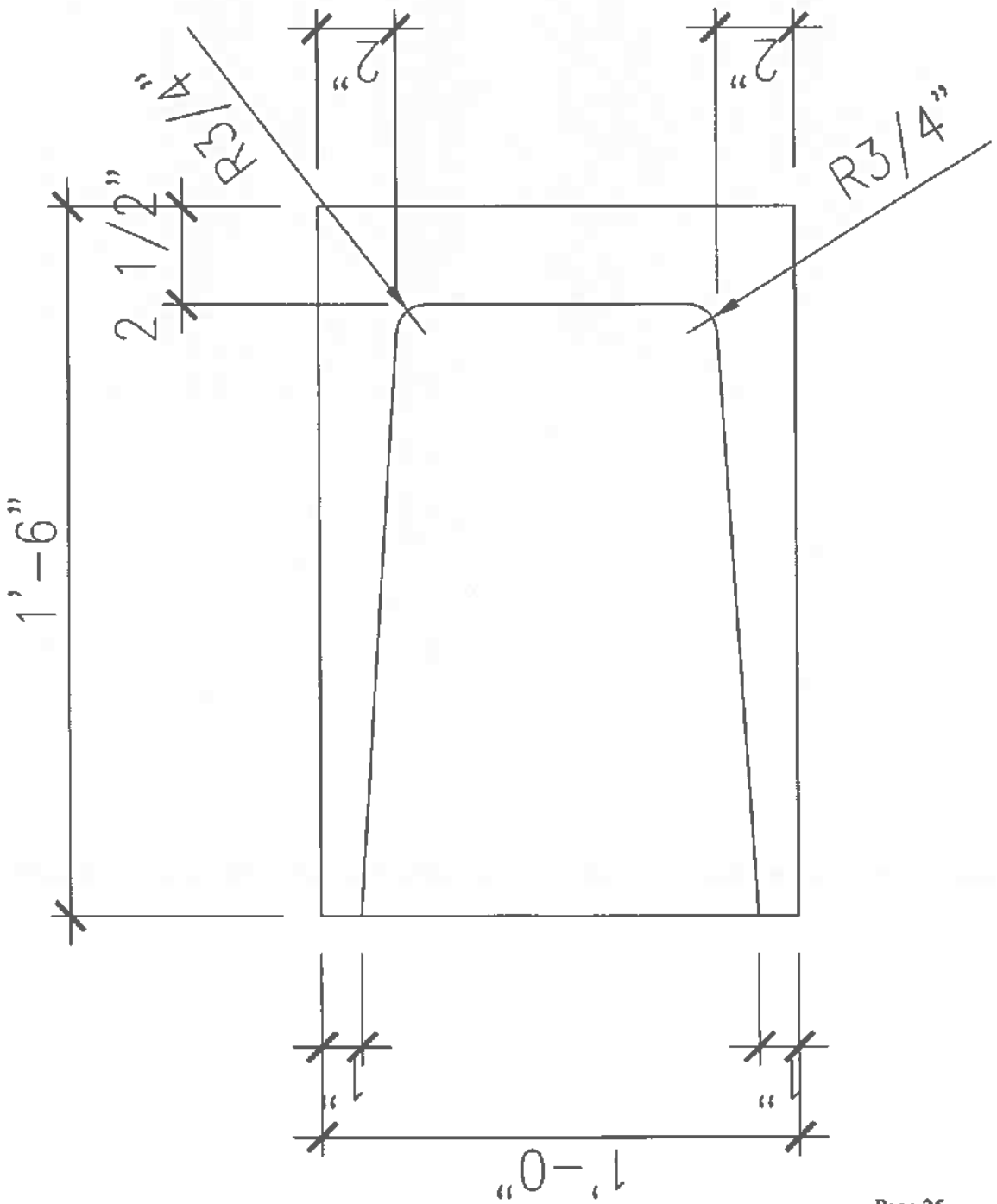
WEEPHOLE

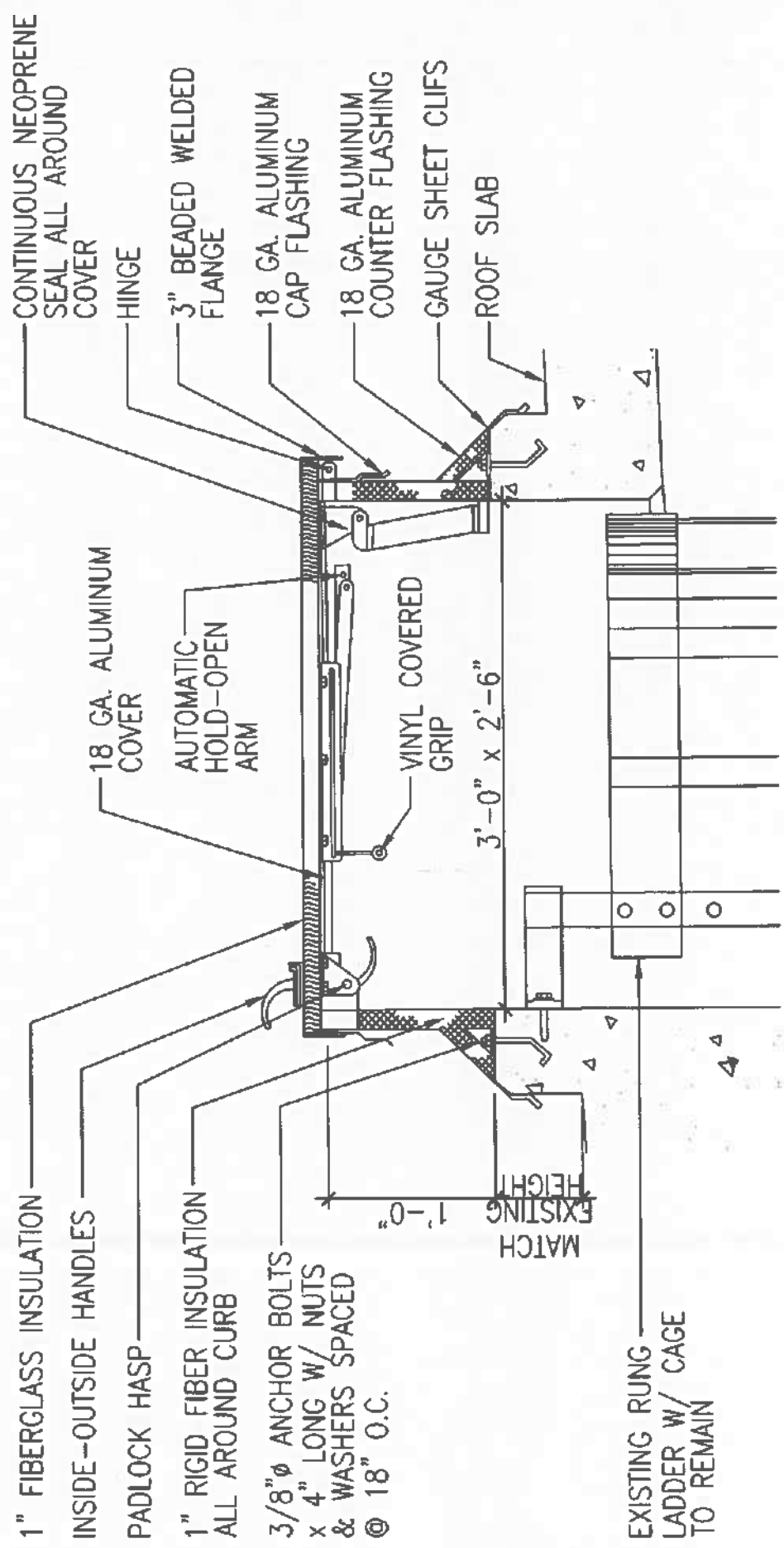
6" ϕ PVC
DOWNSPOUT





FACE OF EXISTING WALL





CONTINUOUS NEOPRENE SEAL ALL AROUND COVER

HINGE

3" BEADED WELDED FLANGE

18 GA. ALUMINUM CAP FLASHING

18 GA. ALUMINUM COUNTER FLASHING

GAUGE SHEET CLIPS

ROOF SLAB

18 GA. ALUMINUM COVER

AUTOMATIC HOLD-OPEN ARM

VINYL COVERED GRIP

3'-0" x 2'-6"

1" FIBERGLASS INSULATION

INSIDE-OUTSIDE HANDLES

PADLOCK HASP

1" RIGID FIBER INSULATION ALL AROUND CURB

3/8" ANCHOR BOLTS x 4" LONG W/ NUTS & WASHERS SPACED @ 18" O.C.

1'-0"

MATCH EXISTING HEIGHT

EXISTING RUNG LADDER W/ CAGE TO REMAIN

STRUCTURAL NOTES

- GENERAL NOTES AND SPECIAL INSTRUCTIONS SHALL APPLY TO ALL DETAILS UNLESS OTHERWISE SHOWN OR NOTED OTHERWISE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR THIS PROJECT.
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FOUNDATION NOTES

- ALL FOUNDATIONS AND RETAINERS SHALL BE AS PER REQUIREMENTS OF THE DESIGN.
- ALL FOUNDATIONS SHALL BE CONCRETE ON A 4" MINIMUM THICKNESS OF COMPACTED GRANULAR FILL.
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CONCRETE MASONRY WALL NOTES

- CONCRETE MASONRY WALLS SHALL BE CONSTRUCTED TO THE FOLLOWING REQUIREMENTS:
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REINFORCED CONCRETE NOTES

- ALL CONCRETE SHALL BE CAST IN PLACE UNLESS OTHERWISE NOTED.
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REINFORCING STEEL

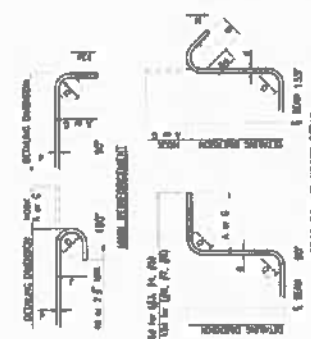
- ALL REINFORCING STEEL SHALL BE AS PER THE DESIGN.
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BASIC DESIGN CRITERIA (NEW CONSTRUCTION)

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LEGEND & ABBREVIATIONS:

1	AD	ADJUST
2	AP	APPLY
3	AS	AS PER
4	AT	AT THE
5	BE	BEHIND
6	BT	BE TIE
7	BY	BY
8	CA	CASING
9	CC	CONCRETE
10	CD	CONCRETE DETAIL
11	CE	CONCRETE ELEMENT
12	CF	CONCRETE FINISH
13	CG	CONCRETE GROUT
14	CH	CONCRETE HOLE
15	CI	CONCRETE INTERIOR
16	CJ	CONCRETE JOINT
17	CK	CONCRETE KEY
18	CL	CONCRETE LIFT
19	CM	CONCRETE MASS
20	CO	CONCRETE OUTLET
21	CP	CONCRETE PILE
22	CQ	CONCRETE QUANTITY
23	CR	CONCRETE REINFORCEMENT
24	CS	CONCRETE SURFACE
25	CT	CONCRETE TIE
26	CU	CONCRETE UNION
27	CV	CONCRETE VERTICAL
28	CW	CONCRETE WALL
29	CX	CONCRETE WINDOW
30	CY	CONCRETE YIELD
31	CZ	CONCRETE ZONE
32	DA	CONCRETE DETAIL AREA
33	DB	CONCRETE DETAIL BOUNDARY
34	DC	CONCRETE DETAIL CENTER
35	DD	CONCRETE DETAIL DIMENSION
36	DE	CONCRETE DETAIL ELEVATION
37	DF	CONCRETE DETAIL FINISH
38	DG	CONCRETE DETAIL GROUT
39	DH	CONCRETE DETAIL HOLE
40	DI	CONCRETE DETAIL INTERIOR
41	DJ	CONCRETE DETAIL JOINT
42	DK	CONCRETE DETAIL KEY
43	DL	CONCRETE DETAIL LIFT
44	DM	CONCRETE DETAIL MASS
45	DN	CONCRETE DETAIL OUTLET
46	DO	CONCRETE DETAIL QUANTITY
47	DP	CONCRETE DETAIL REINFORCEMENT
48	DQ	CONCRETE DETAIL SURFACE
49	DR	CONCRETE DETAIL TIE
50	DS	CONCRETE DETAIL UNION
51	DT	CONCRETE DETAIL VERTICAL
52	DU	CONCRETE DETAIL WALL
53	DV	CONCRETE DETAIL WINDOW
54	DW	CONCRETE DETAIL YIELD
55	DX	CONCRETE DETAIL ZONE
56	EA	CONCRETE ELEMENT AREA
57	EB	CONCRETE ELEMENT BOUNDARY
58	EC	CONCRETE ELEMENT CENTER
59	ED	CONCRETE ELEMENT DIMENSION
60	EE	CONCRETE ELEMENT ELEVATION
61	EF	CONCRETE ELEMENT FINISH
62	EG	CONCRETE ELEMENT GROUT
63	EH	CONCRETE ELEMENT HOLE
64	EI	CONCRETE ELEMENT INTERIOR
65	EJ	CONCRETE ELEMENT JOINT
66	EK	CONCRETE ELEMENT KEY
67	EL	CONCRETE ELEMENT LIFT
68	EM	CONCRETE ELEMENT MASS
69	EN	CONCRETE ELEMENT OUTLET
70	EO	CONCRETE ELEMENT QUANTITY
71	EP	CONCRETE ELEMENT REINFORCEMENT
72	EQ	CONCRETE ELEMENT SURFACE
73	ER	CONCRETE ELEMENT TIE
74	ES	CONCRETE ELEMENT UNION
75	ET	CONCRETE ELEMENT VERTICAL
76	EU	CONCRETE ELEMENT WALL
77	EV	CONCRETE ELEMENT WINDOW
78	EW	CONCRETE ELEMENT YIELD
79	EX	CONCRETE ELEMENT ZONE
80	FA	CONCRETE FINISH AREA
81	FB	CONCRETE FINISH BOUNDARY
82	FC	CONCRETE FINISH CENTER
83	FD	CONCRETE FINISH DIMENSION
84	FE	CONCRETE FINISH ELEVATION
85	FF	CONCRETE FINISH FINISH
86	FG	CONCRETE FINISH GROUT
87	FH	CONCRETE FINISH HOLE
88	FI	CONCRETE FINISH INTERIOR
89	FJ	CONCRETE FINISH JOINT
90	FK	CONCRETE FINISH KEY
91	FL	CONCRETE FINISH LIFT
92	FM	CONCRETE FINISH MASS
93	FN	CONCRETE FINISH OUTLET
94	FO	CONCRETE FINISH QUANTITY
95	FP	CONCRETE FINISH REINFORCEMENT
96	FQ	CONCRETE FINISH SURFACE
97	FR	CONCRETE FINISH TIE
98	FS	CONCRETE FINISH UNION
99	FT	CONCRETE FINISH VERTICAL
100	FU	CONCRETE FINISH WALL
101	FV	CONCRETE FINISH WINDOW
102	FW	CONCRETE FINISH YIELD
103	FX	CONCRETE FINISH ZONE



RECOMMENDED BAR SIZES AT CORNERS OF STEEL

BAR SIZE	MIN. BAR LENGTH	MIN. BAR AREA
1/4"	12"	0.31
3/8"	18"	0.71
1/2"	24"	1.10
5/8"	30"	1.57
3/4"	36"	2.04
7/8"	42"	2.51
1"	48"	3.14
1 1/8"	54"	3.77
1 1/4"	60"	4.40
1 3/8"	66"	5.03
1 1/2"	72"	5.66
1 5/8"	78"	6.29
1 3/4"	84"	6.92
1 7/8"	90"	7.55
2"	96"	8.18
2 1/8"	102"	8.81
2 1/4"	108"	9.44
2 3/8"	114"	10.07
2 1/2"	120"	10.70
2 5/8"	126"	11.33
2 3/4"	132"	11.96
2 7/8"	138"	12.59
3"	144"	13.22
3 1/8"	150"	13.85
3 1/4"	156"	14.48
3 3/8"	162"	15.11
3 1/2"	168"	15.74
3 5/8"	174"	16.37
3 3/4"	180"	17.00
3 7/8"	186"	17.63
4"	192"	18.26
4 1/8"	198"	18.89
4 1/4"	204"	19.52
4 3/8"	210"	20.15
4 1/2"	216"	20.78
4 5/8"	222"	21.41
4 3/4"	228"	22.04
4 7/8"	234"	22.67
5"	240"	23.30

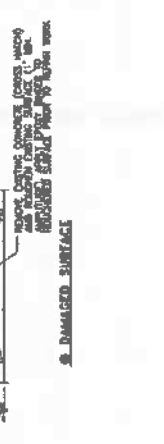
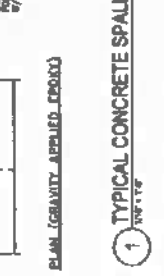
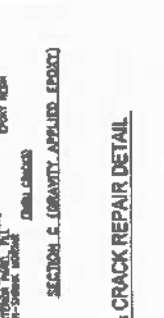
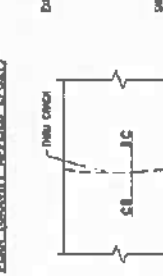
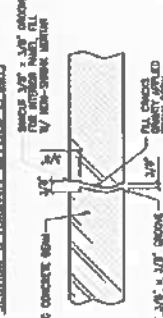
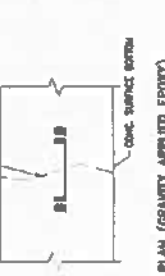
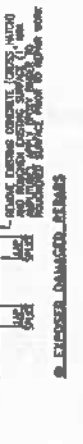
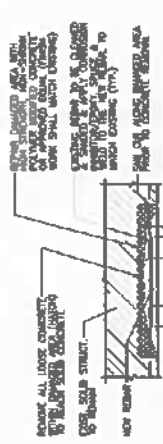
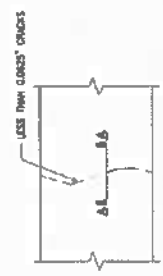
3 SPLICE AND ANCHORAGE DETAIL

GOVERNMENT OF GUAM
PORT AUTHORITY OF GUAM

PROJECT NO. _____
DRAWING NO. _____
DATE _____
SCALE _____

DESIGNED BY _____
CHECKED BY _____
APPROVED BY _____

CONTRACT NO. _____
S-001



NOTE: REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS FOR CONCRETE REPAIRS AND SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS FOR CONCRETE REPAIRS AND SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS FOR CONCRETE REPAIRS.

1 TYPICAL CONCRETE SPALL & CRACK REPAIR DETAIL

ECOMER BUILDING MAINTENANCE CARRAS ISLAND, PRT, GUAM	
GOVERNMENT OF GUAM PORT AUTHORITY OF GUAM	
DRAWN BY: [Name] CHECKED BY: [Name] APPROVED BY: [Name]	DATE: [Date] SCALE: [Scale]
SHEET NO. S-502	