

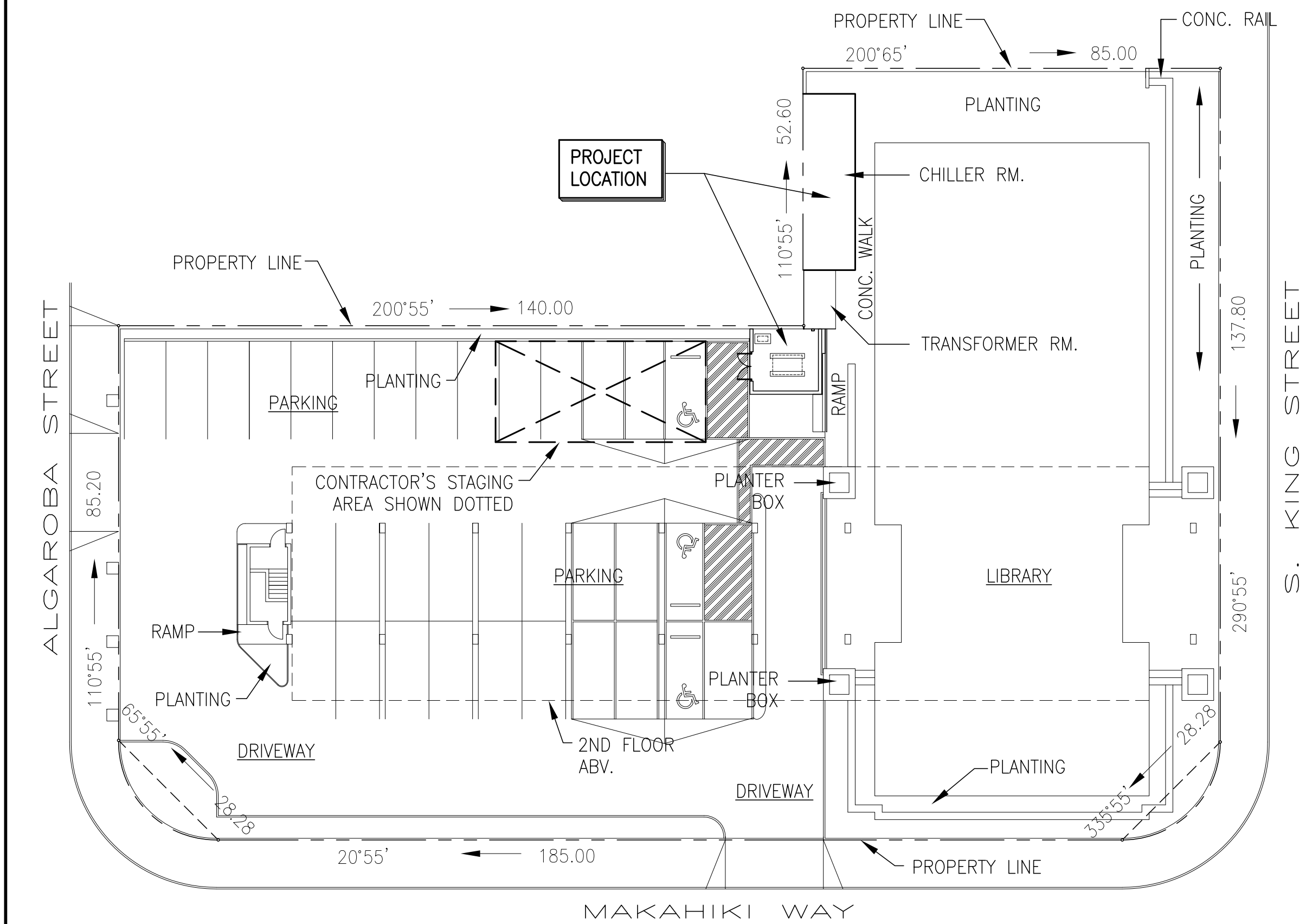
McCULLY MOILIILI PUBLIC LIBRARY

REPLACE AIR CONDITIONING CHILLER

FOR THE
HAWAII STATE PUBLIC LIBRARY SYSTEM
 STATE OF HAWAII

AND THE
DEPARTMENT OF ACCOUNTING & GENERAL SERVICES
 PUBLIC WORKS DIVISION
 STATE OF HAWAII
 D.A.G.S. Job No. 12-36-6408

2211 SOUTH KING STREET
 HONOLULU, HAWAII 96826
 T.M.K. 2 - 7 - 07 : 01



ADDRESS: 2211 S. KING STREET,
 HONOLULU, HAWAII 96826
 TMK: 2-7-07:01

CONSULTANTS

MECHANICAL ENGINEER:
 INTEGRATED ENGINEERING CORPORATION
 615 PIKOI STREET SUITE 1107
 HONOLULU, HAWAII 96814
 TEL 593-8388 FAX 593-3235

ARCHITECT:
 ROBERT E. FREEBURG A.I.A.
 627 SOUTH STREET, SUITE 201
 HONOLULU, HAWAII 96813
 TEL 383-7908 FAX 536-9521

STRUCTURAL ENGINEER:
 NAGAMINE OKAWA ENGINEERS INC.
 1003 BISHOP STREET, PAUAHI TOWER, SUITE 2025
 HONOLULU, HAWAII 96813
 TEL 536-2626 FAX 536-3926

ELECTRICAL ENGINEER:
 ELECTECH HAWAII INCORPORATED
 1100 WARD AVENUE SUITE 750
 HONOLULU, HAWAII 96814
 TEL 522-1866 FAX 521-4819

INDEX OF DRAWINGS

SHT. NO.	DESCRIPTION
T-1	SITE PLAN & INDEX OF DRAWINGS
A-1	COOLING TOWER ENCLOSURE & DEMOLITION PLANS
A-2	COOLING TOWER ENCLOSURE ELEVATIONS
A-3	DETAIL PLAN AT BIKE RACKS
A-4	METAL GATE DETAILS
S-1	FLOOR AND FOUNDATION PLAN AND NOTES
S-2	SECTIONS AND DETAILS
M-1	EQUIPMENT SCHEDULES & LEGENDS
M-2	PARTIAL REMOVAL FLOOR PLAN & NOTES
M-3	FLOOR PLAN
M-4	DETAIL FLOOR PLANS
M-5	PIPING DIAGRAMS
M-6	CONTROLS
M-7	DETAILS
E-1	PANEL SCHEDULE, DEMOLITION NOTES, ELECTRICAL SYMBOLS, SINGLE LINE DIAGRAM
E-2	ELECTRICAL DEMOLITION PLAN
E-3	ELECTRICAL PLAN, LUMINAIRE TYPE DETAIL

APPROVALS:

STATE LIBRARIAN
 HAWAII STATE PUBLIC LIBRARY SYSTEM
 STATE OF HAWAII

DATE

COMPTROLLER
 DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
 STATE OF HAWAII

DATE

PUBLIC WORKS ADMINISTRATOR
 DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
 STATE OF HAWAII

DATE

PROJECT DATA:

ZONING: BMX-3
 OCCUPANCY GROUP CATEGORY: A3 - LIBRARY
 OCCUPANCY GROUP: 13 - PUBLIC BUILDING
 TYPE OF CONSTRUCTION: MIN.: V-1Hr
 ACTUAL: V-1Hr
 STRUCTURE CODE: 74 - MUSEUM, LIBRARY
 FLOOR LEVEL:
 NUMBER OF EXISTING STORIES: 2
 NUMBER OF FINAL STORIES: 2
 EXISTING FLOOR AREA: 21,770 SQ. FT.
 NEW FLOOR AREA: 0
 TOTAL FLOOR AREA: 21,770 SQ. FT.
 SPRINKLED? NONE

SCOPE OF WORK:

Demolish existing air cooled chiller, air cooled condenser and replace them with a water-cooled packaged chiller, cooling tower, chilled water & condenser water pumps, piping, plus all pertaining air conditioning and plumbing accessories. Provide an exhaust air fan for the existing mechanical room.

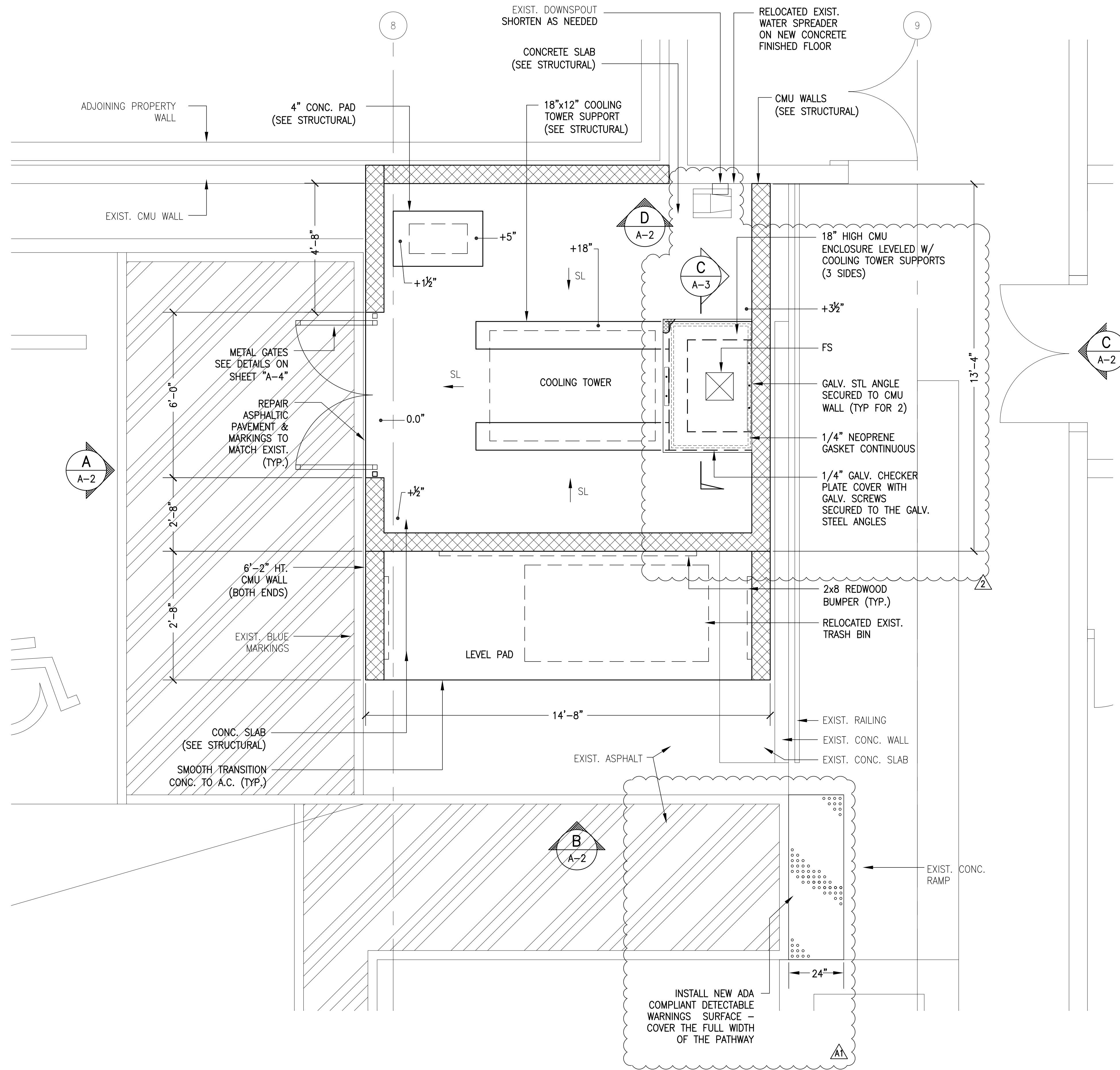
Architectural work includes a new gate, painting work, relocation of bike racks, striping of ADA access routing and other miscellaneous items in support of the new mechanical work.

Structural work includes demolishing an existing low wall, installation of new cmu cooling tower enclosure walls, new slabs and foundation work.

Electrical work includes demolishing existing power to the existing air cooled chiller and condenser, and providing power to the new chiller, cooling tower and all pertaining accessories.

Refer to project specifications and drawings for more details.

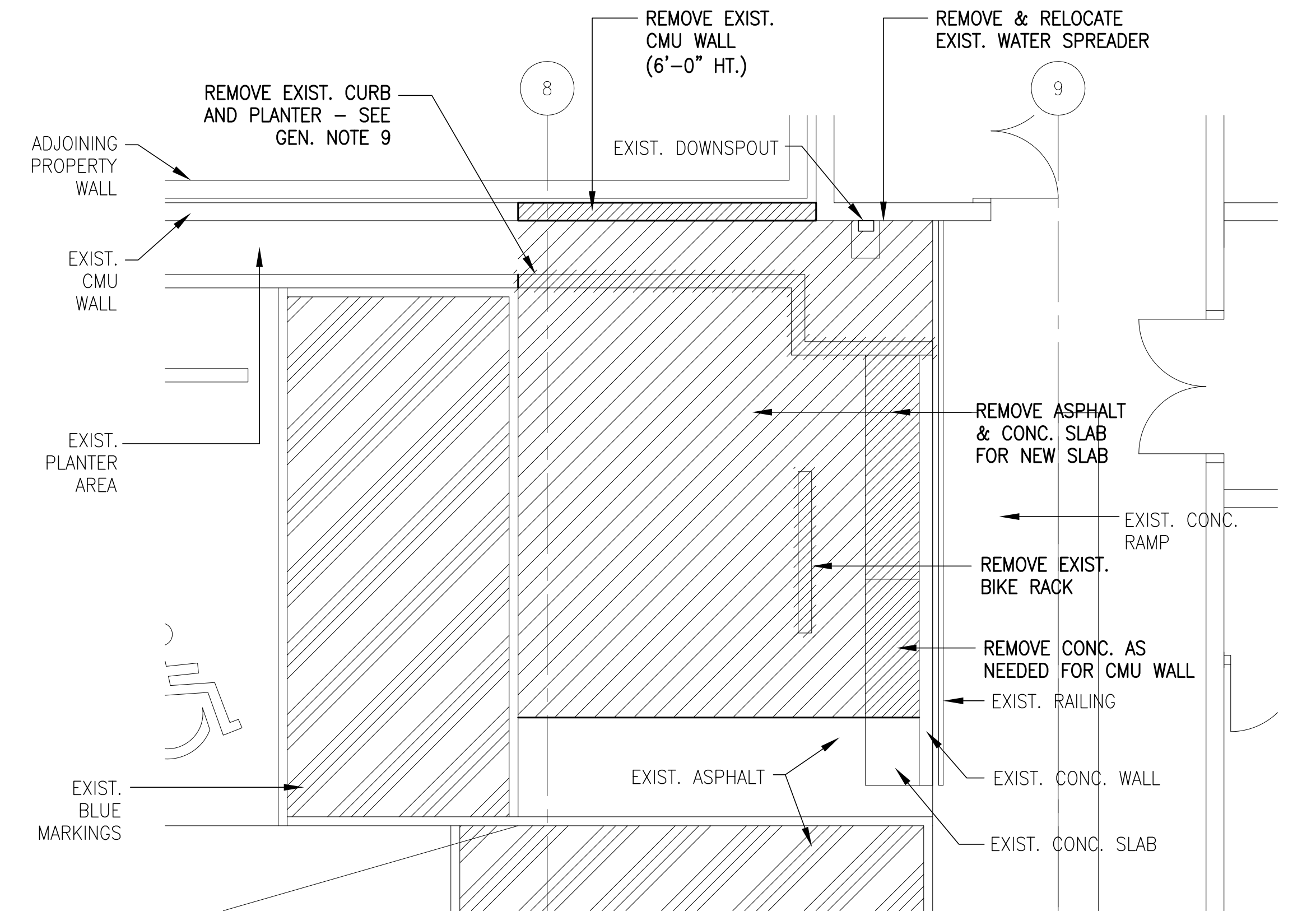
PCD-1	BLDG. DEPT. COMMENTS: ADD PROJ. DATA & SCOPE OF WORK SUMMARY	04/22/09	APPROVED: PUBLIC WORKS ADMINISTRATOR		
REVISION NO.	SYM	DESCRIPTION	SHT OF	DATE	APPROVED:
DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII McCULLY MOILIILI PUBLIC LIBRARY REPLACE AIR CONDITIONING CHILLER HONOLULU OAHU HAWAII SITE PLAN & INDEX OF DRAWINGS					
INTEGRATED ENGINEERING CORP.		DAGS Job No.	DRAWING NO.		
DESIGNED BY:	CHECKED BY:	12-36-6408	T-1		
DRAWN BY:	APPROVED:	DATE	SHEET		
SCALE: AS NOTED		NOV. 2008	1		
EXPIRATION DATE OF THE LICENSE: 04/30/2010		OF 17 SHEETS			
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION					



2 FLOOR PLAN
 SCALE: 1/2" = 1'-0"
 NOTE: SEE MECHANICAL DRAWING SHEET M-4 FOR ASSOCIATED SITE WORKS.

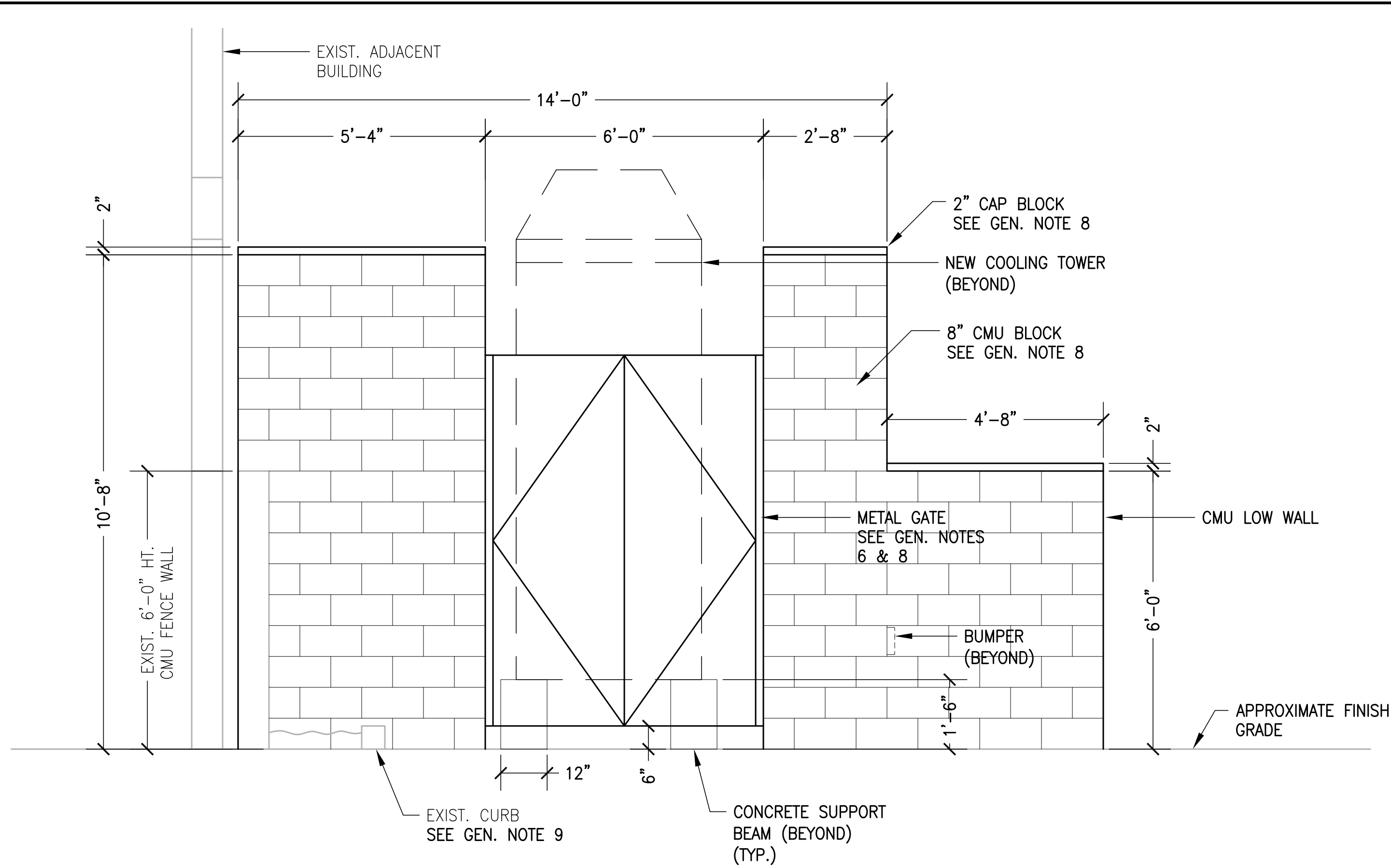
GENERAL NOTES:

1. THE CONTRACTOR SHALL EXAMINE THE DRAWINGS & SPECIFICATIONS & SHALL VISIT THE SITE PRIOR TO FABRICATION OR ORDERING MATERIAL. CONTRACTOR SHALL FULLY UNDERSTAND THE SCOPE OF WORK PRIOR TO SUBMISSION OF THE BID AS TO THE EXISTING CONDITIONS AND LIMITATIONS UNDER WHICH THE WORK IS TO BE PERFORMED.
 2. ALL CONSTRUCTION SHALL CONFORM TO THE 2003 INTERNATIONAL BUILDING CODE AND INTERNATIONAL EXISTING BUILDING CODE AND LATEST CITY AND COUNTY OF HONOLULU/STATE OF HAWAII AMENDMENTS AND ORDINANCES.
 3. FIRE SAFETY DURING CONSTRUCTION, ALTERATION, OR DEMOLITION SHALL COMPLY WITH ARTICLE 87 OF THE 1997 UNIFORM FIRE CODE, AS AMENDED.
 4. THE CONTRACTOR SHALL INCLUDE IN THE BID ALL MISCELLANEOUS ITEMS NECESSARY TO PERFORM THE WORK AS SET FORTH IN THE CONTRACT DOCUMENTS & FIELD VERIFY ALL DIMENSIONS PRIOR TO SUBMISSION OF SHOP DRAWINGS.
 5. PRIOR TO PLACING BIKE RACK CONCRETE PADS, MODIFY EXISTING LANDSCAPE SPRINKLERS AS REQUIRED BY NEW PADS. ADJUST PAD LOCATIONS FOR UNDERGROUND UTILITIES AND BIKE RACK FOOTINGS. FILL 2-INCH GAP BETWEEN PAD AND CURB AND PLANTER WALL WITH GRAVEL. CONCRETE BIKE PADS SHALL HAVE CROWN FOR DRAINAGE.
 6. MEASURE GATE OPENING PRIOR TO FABRICATION OF STEEL GATES. KEY GATE CYLINDER TO BUILDING KEY SYSTEM.
 7. SEAL ALL PIPE PENETRATIONS OF EXTERIOR WALLS WEATHERTIGHT.
 8. PAINT CMU ENCLOSURE FOR COOLING TOWER AND METAL GATES COLOR TO MATCH EXISTING LIBRARY EXTERIOR. PAINTING SHALL INCLUDE INTERIOR OF ENCLOSURE AND COMPLETE EXTERIOR OF THE ENCLOSURE.
 9. CUT EXISTING CURB AND REMOVE PLANTER INSIDE THE COOLING TOWER ENCLOSURE. MODIFY EXISTING SPRINKLER AND OTHER UTILITIES AS REQUIRED FOR NEW SLAB.
- NOTE: PROVIDE SHALL MEAN FURNISH AND INSTALL.

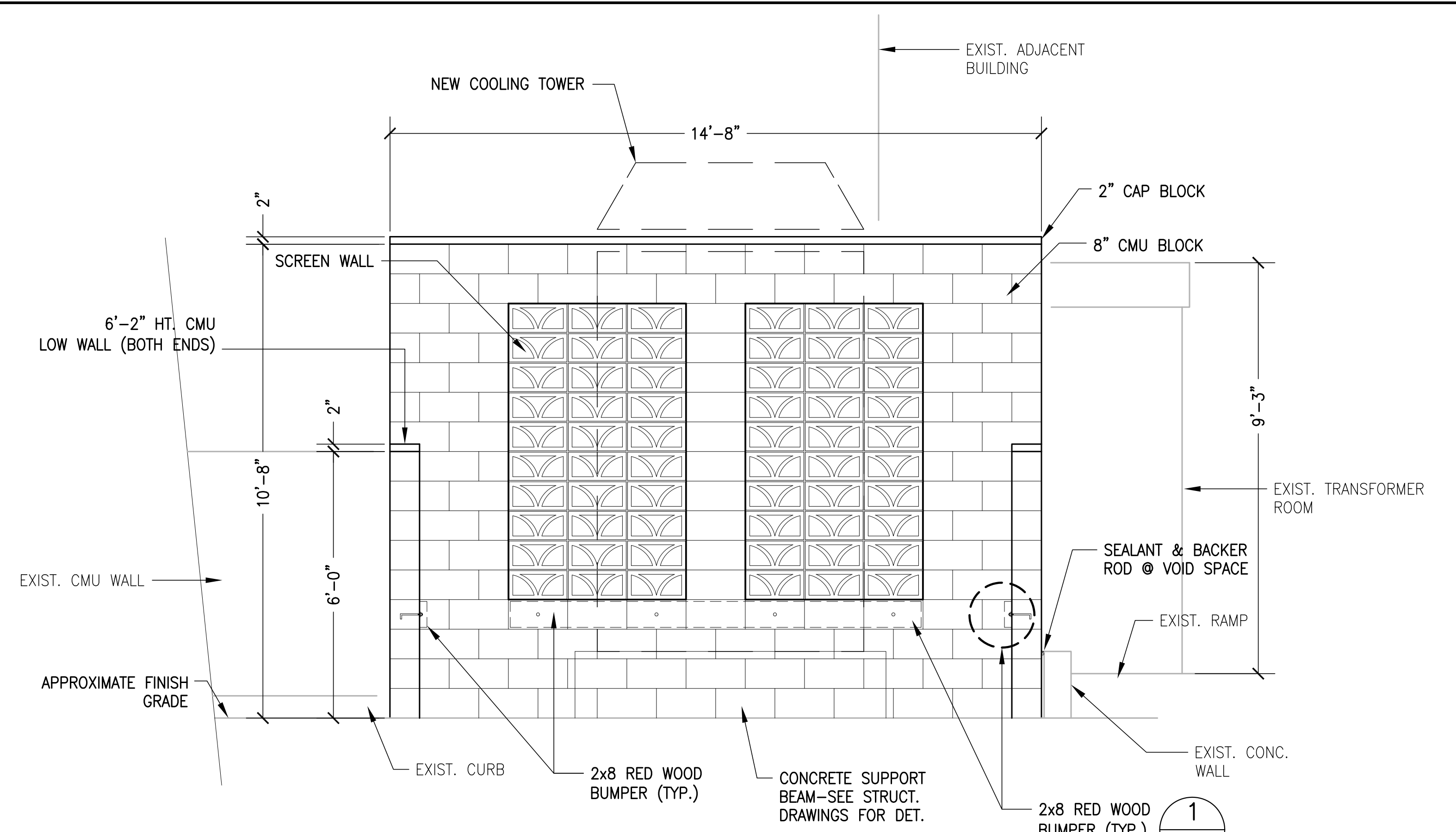


1 DEMO PLAN
 SCALE: 1/4" = 1'-0"
 NOTE: SEE MECHANICAL DRAWING SHEET M-2 FOR ASSOCIATED SITE WORKS.

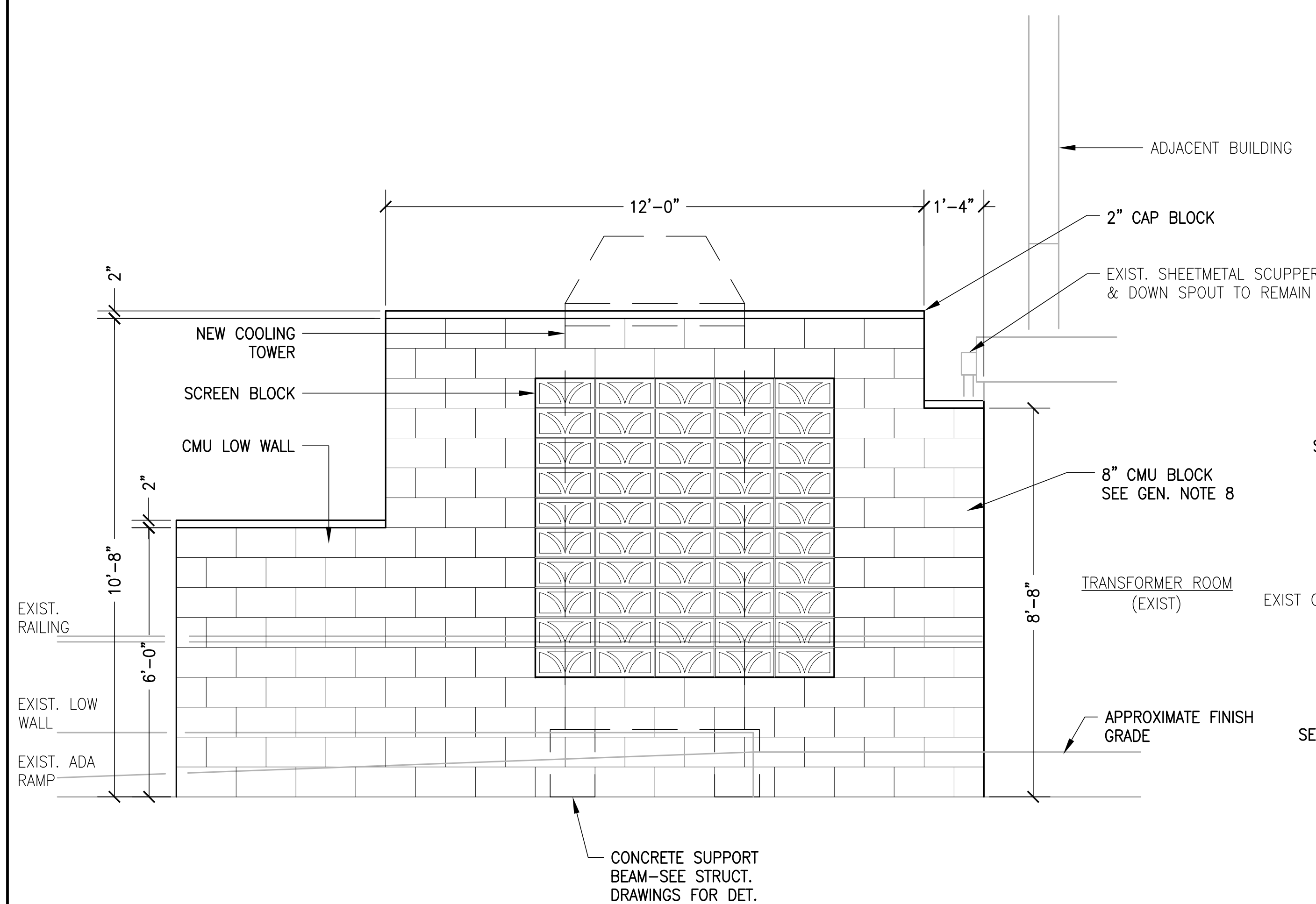
PCD	INSPECTOR'S COMMENTS	1 OF 2	12/31/09	
ADD-1	DCAB COMMENTS	1 OF 2	03/10/09	
REVISION NO.	SYM	DESCRIPTION	SHT OF	DATE
				APPROVED: PUBLIC WORKS ADMINISTRATOR
DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII				
McCULLY MOILILI PUBLIC LIBRARY REPLACE AIR CONDITIONING CHILLER HONOLULU OAHU HAWAII				
COOLING TOWER ENCLOSURE & DEMOLITION PLANS				
INTEGRATED ENGINEERING CORP.		DAGS Job No.		DRAWING NO.
DESIGNED BY:	CHECKED BY:	12-36-6408		A-1
EXPIRATION DATE OF THE LICENSE: 04/30/2010	DRAWN BY:	APPROVED:	DATE	SHEET
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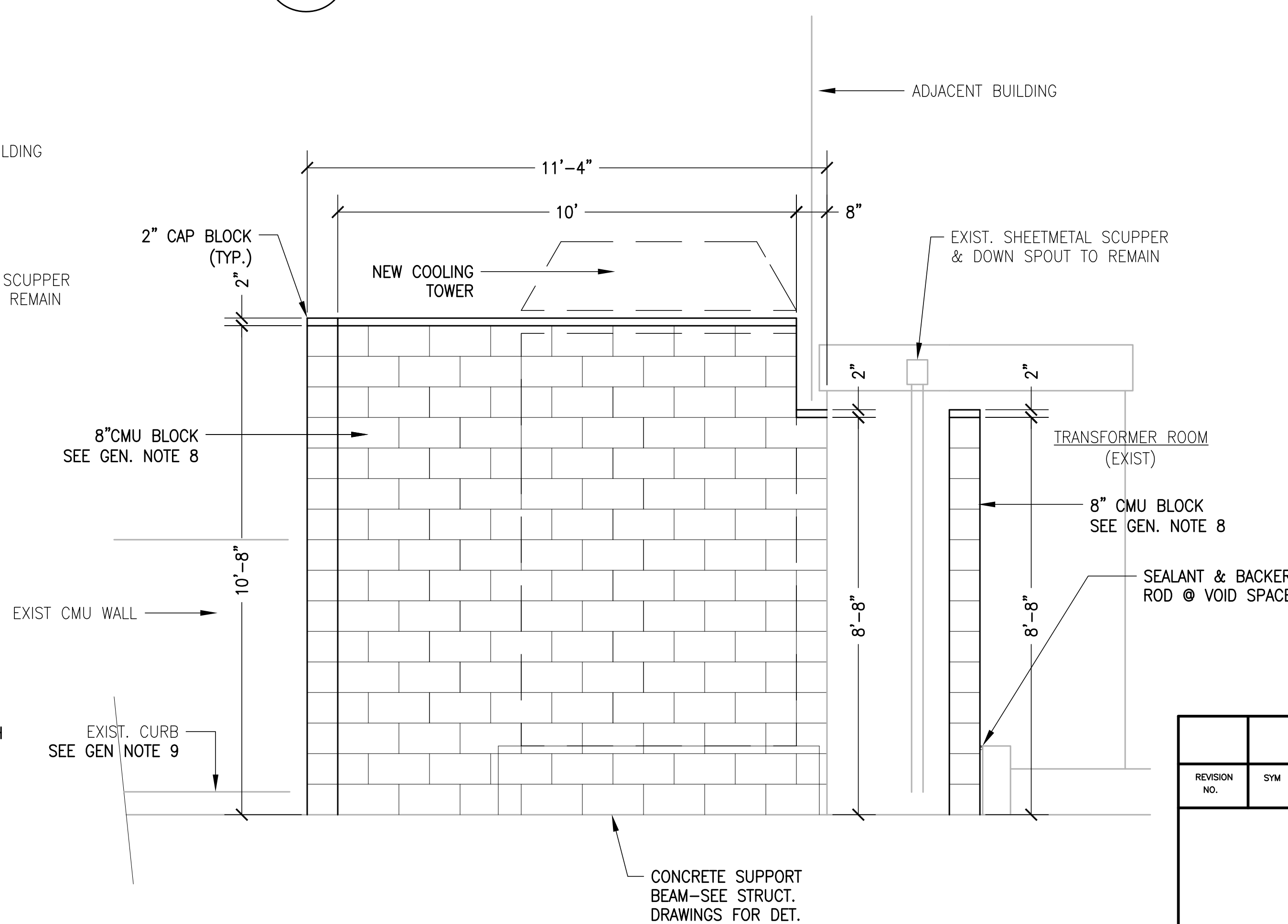
A COOLING TOWER ENCLOSURE ELEVATION
A-2 SCALE: 1/2" = 1'-0"



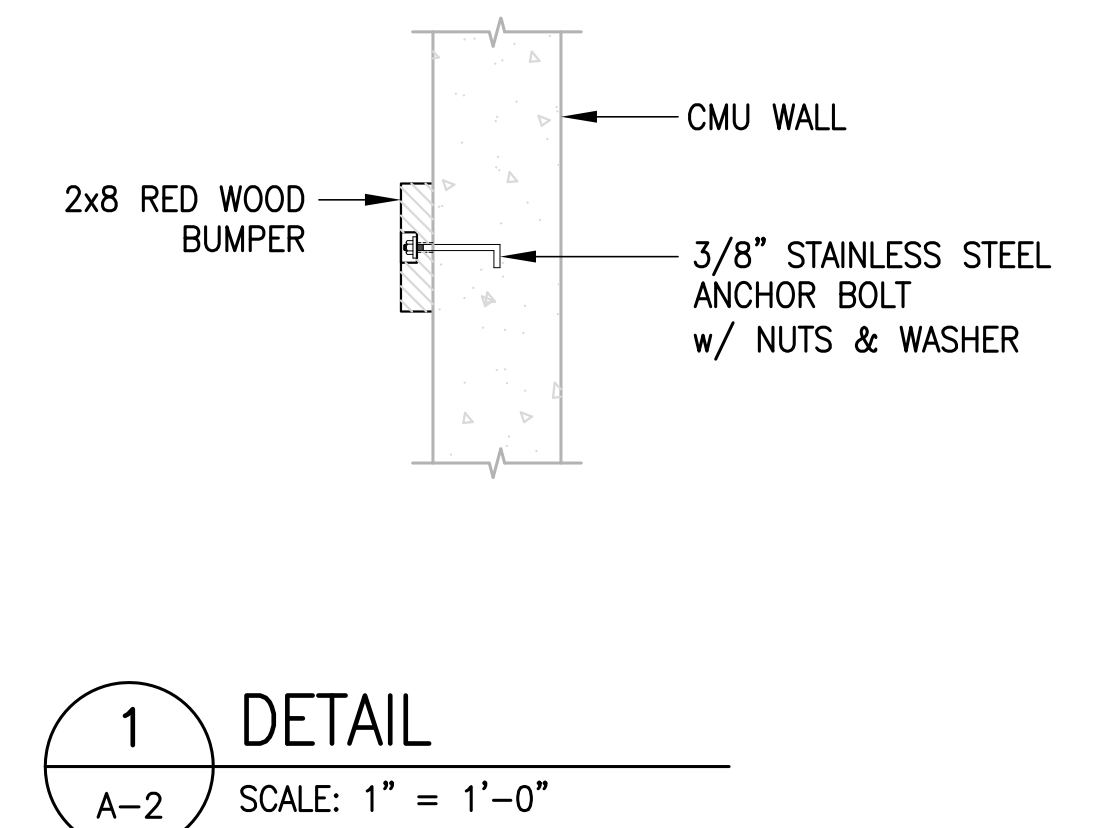
B COOLING TOWER ENCLOSURE ELEVATION
A-2 SCALE: 1/2" = 1'-0"



C COOLING TOWER ENCLOSURE ELEVATION
A-2 SCALE: 1/2" = 1'-0"

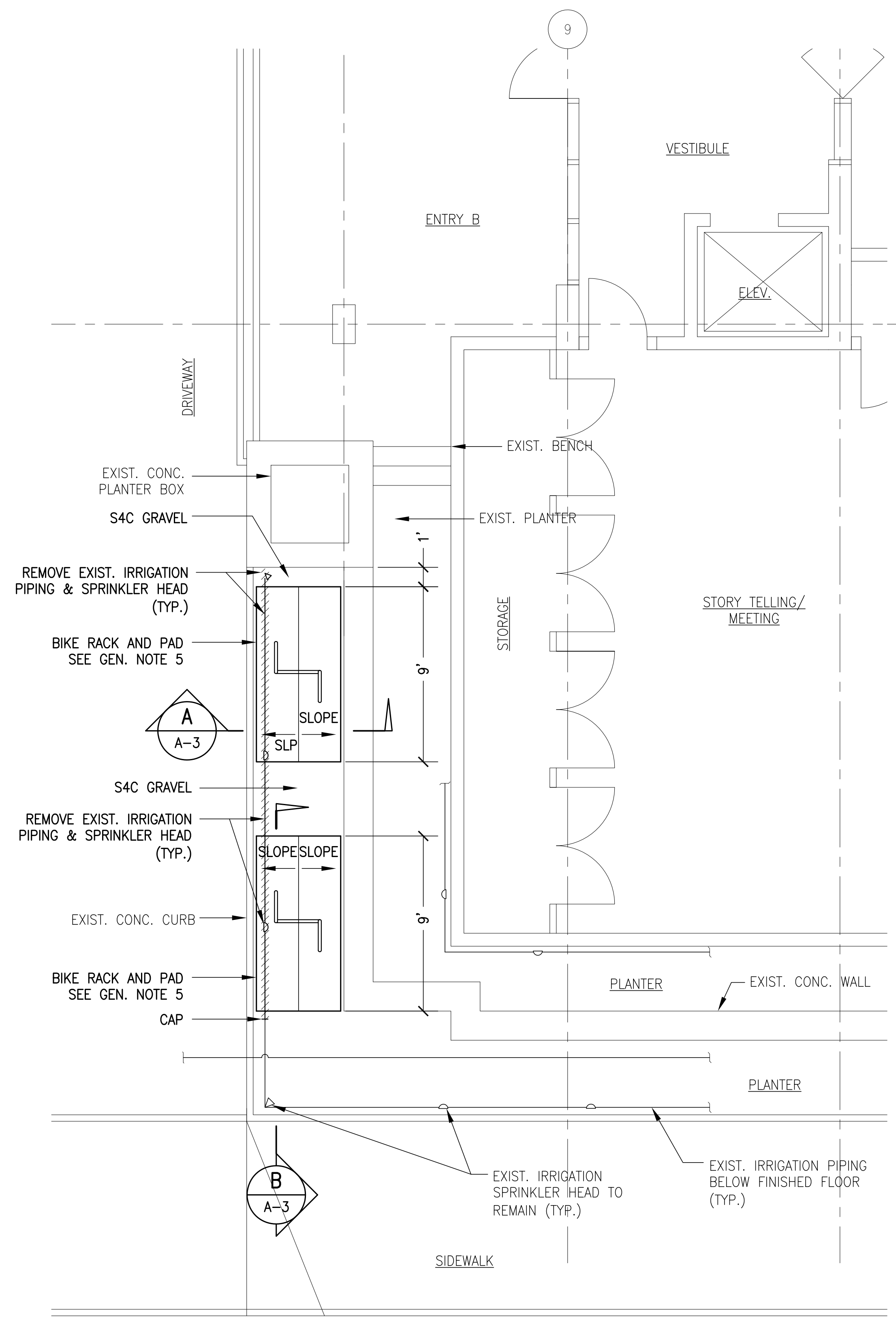


D COOLING TOWER ENCLOSURE ELEVATION
A-2 SCALE: 1/2" = 1'-0"

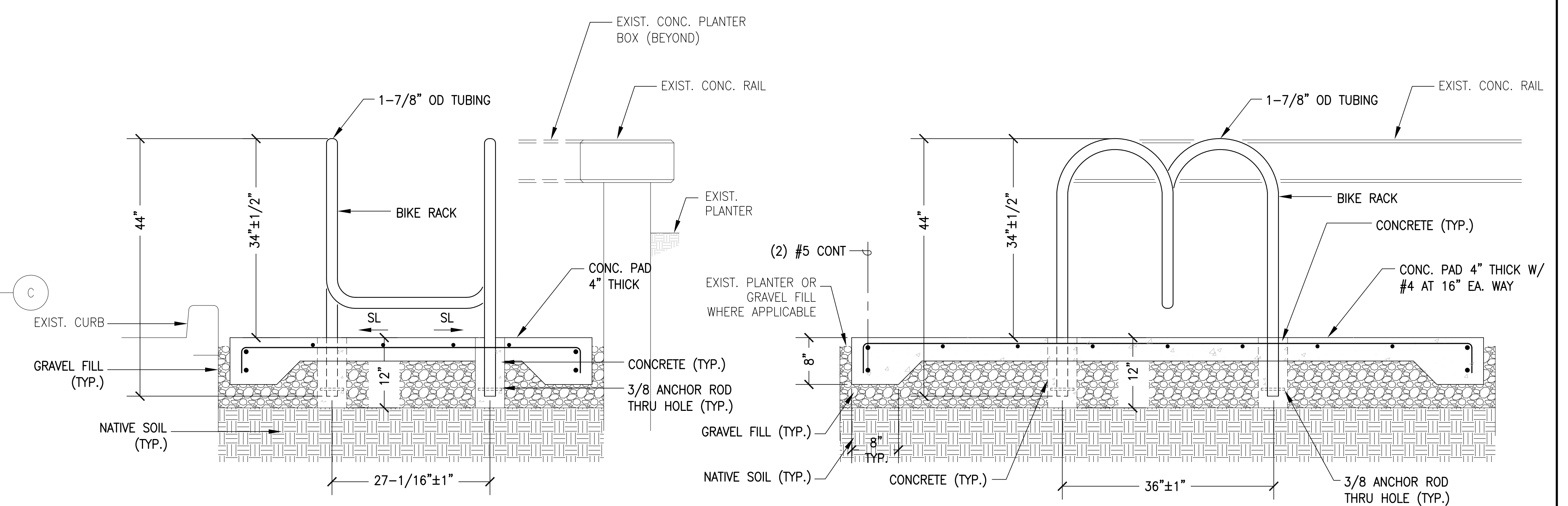


1 DETAIL
A-2 SCALE: 1" = 1'-0"

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COOLING TOWER ENCLOSURE ELEVATIONS					
INTEGRATED ENGINEERING CORP.			DAGS Job No.	DRAWING NO.	
DESIGNED BY:			12-36-6408	A-2	
DRAWN BY:			APPROVED:	DATE	SHEET
EXPIRATION DATE OF THE LICENSE: 04/30/2010				NOV. 2008	3
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION			SCALE:	AS NOTED	OF 17 SHES

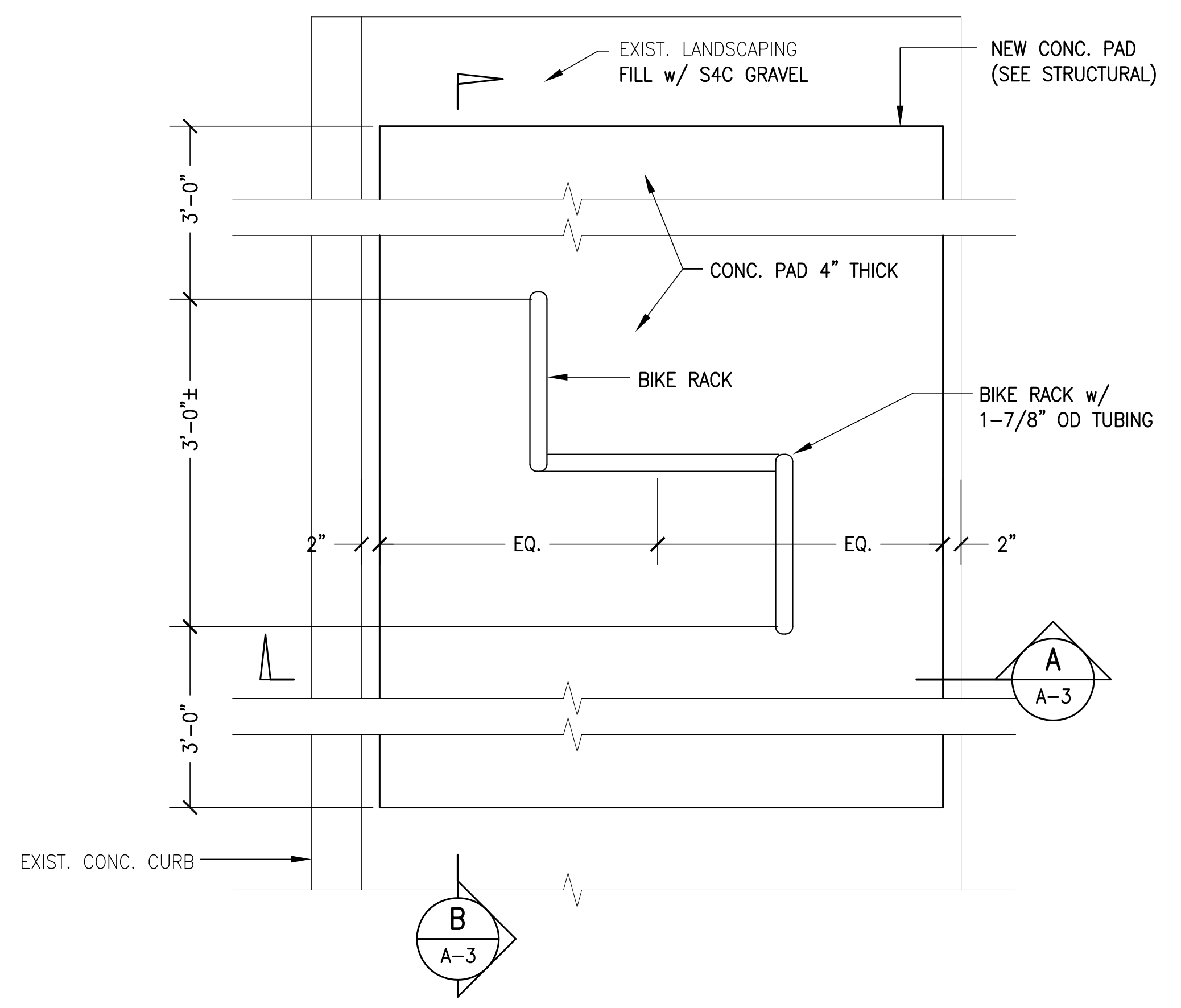


1 DETAIL FLOOR PLAN
A-3 SCALE: 1/4" = 1'-0"

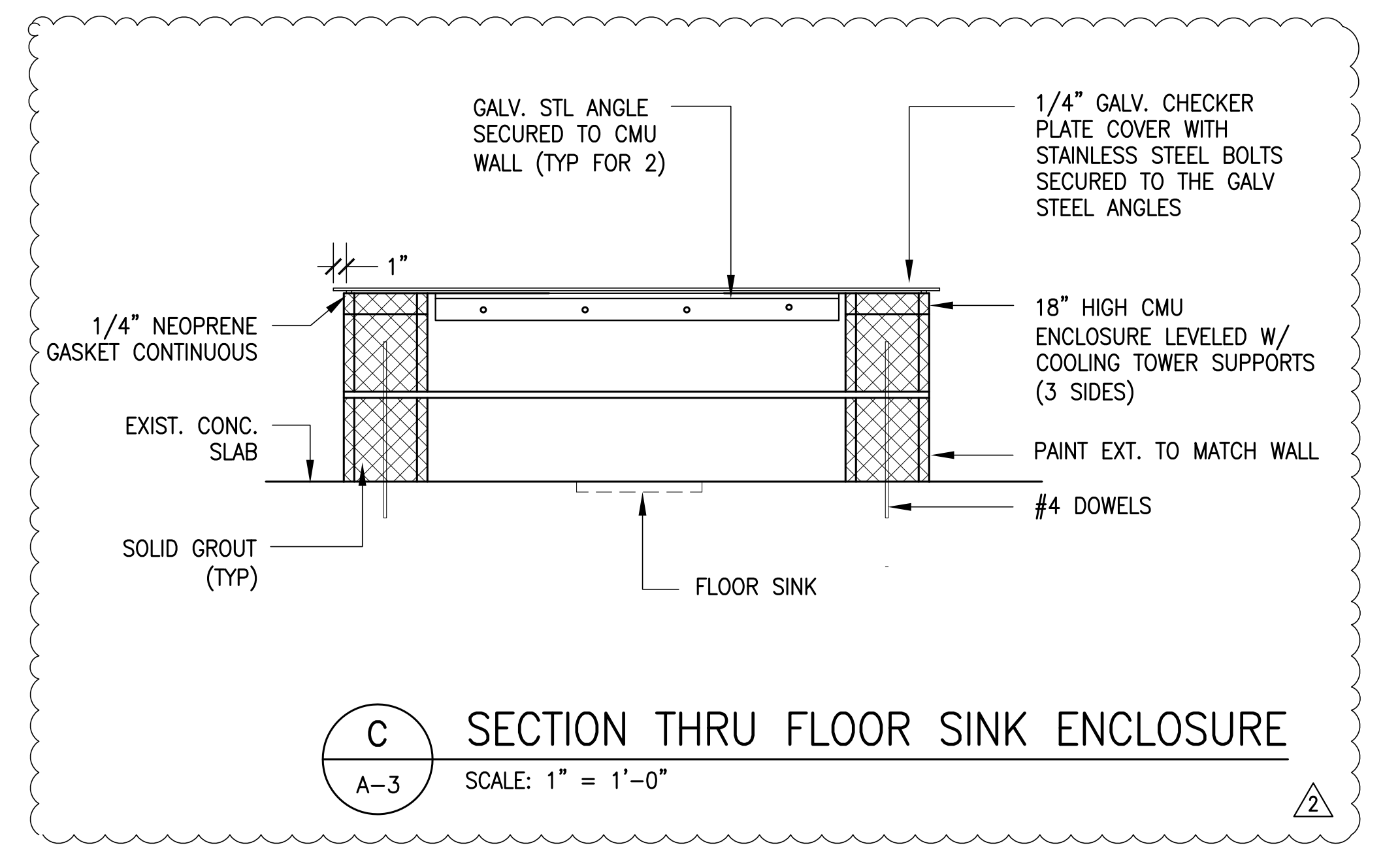


A SECTION A
A-3 SCALE: 1" = 1'-0"

B SECTION B
A-3 SCALE: 1" = 1'-0"

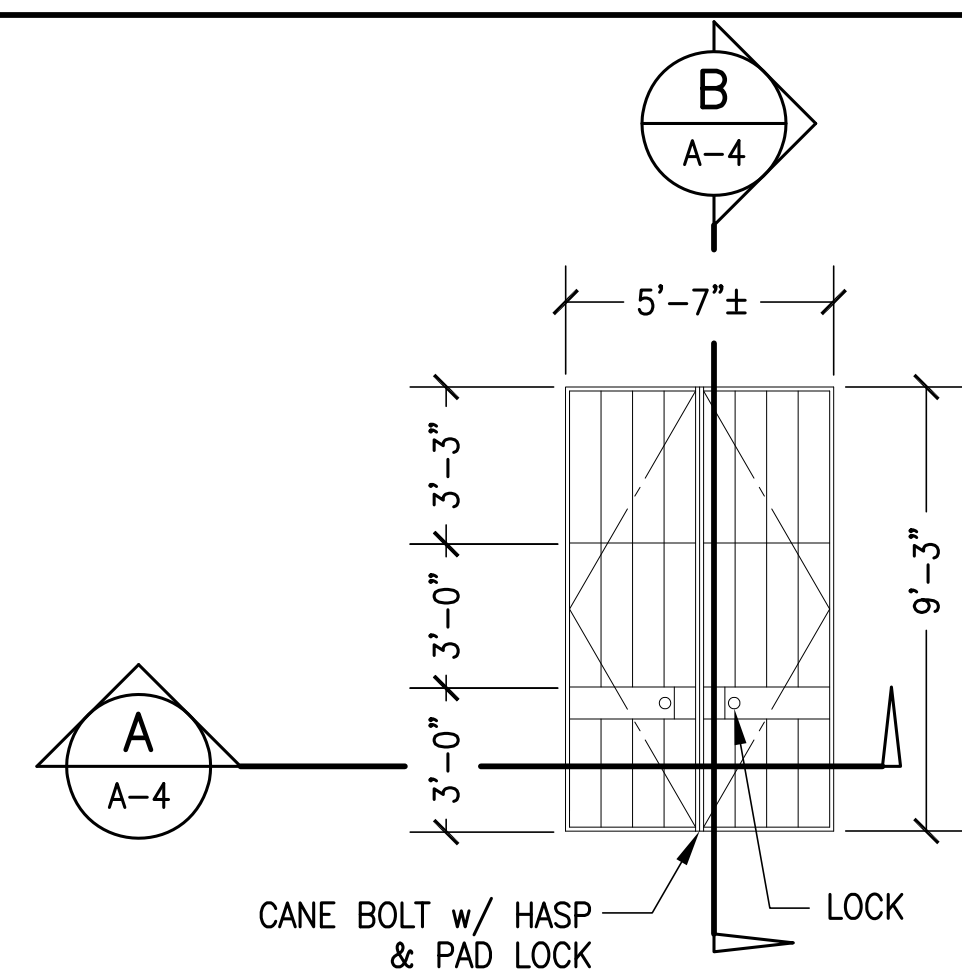


2 DETAIL PLAN AT BIKE RACKS
A-3 SCALE: 1" = 1'-0"

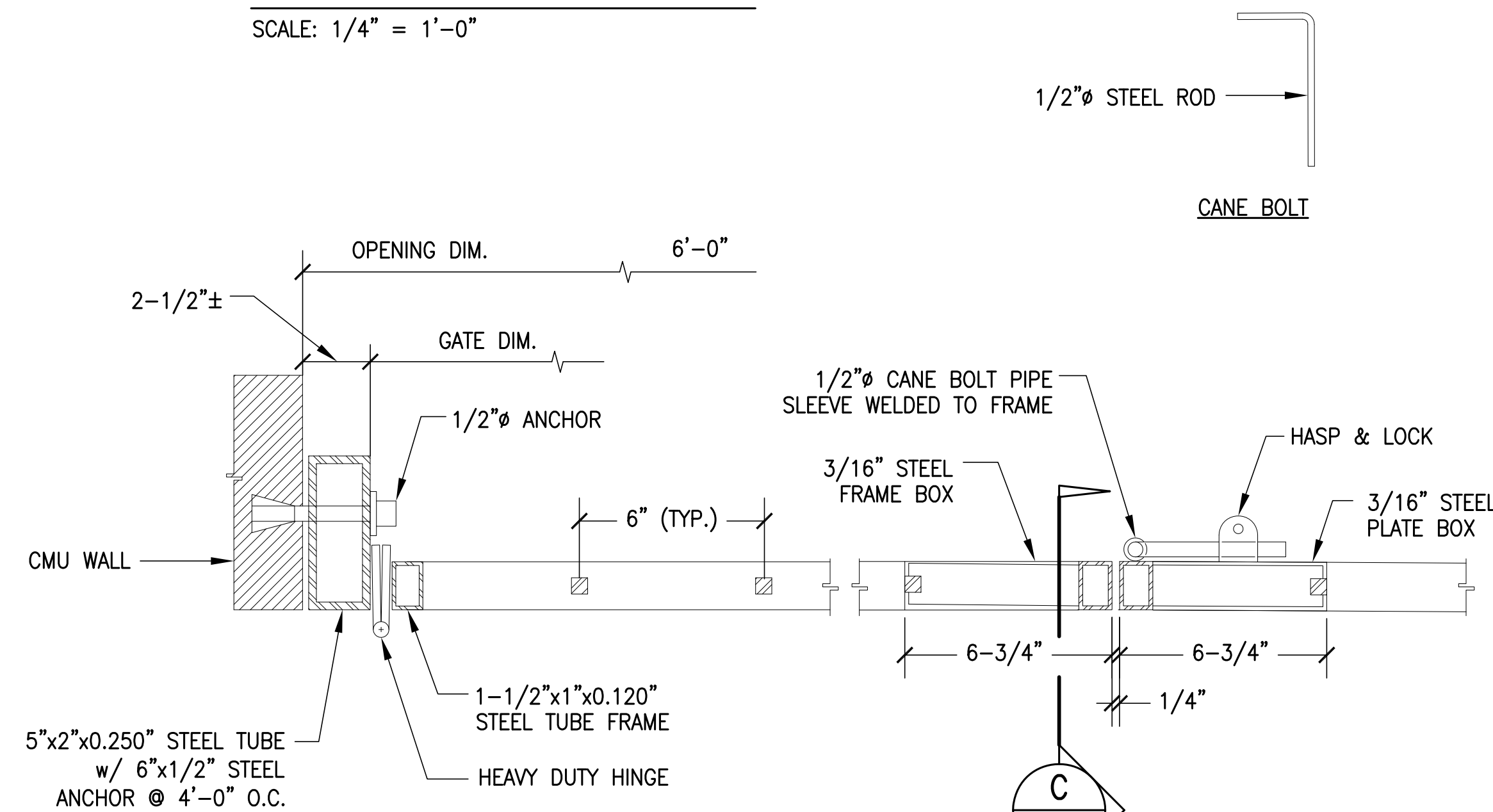


C SECTION THRU FLOOR SINK ENCLOSURE
A-3 SCALE: 1" = 1'-0"

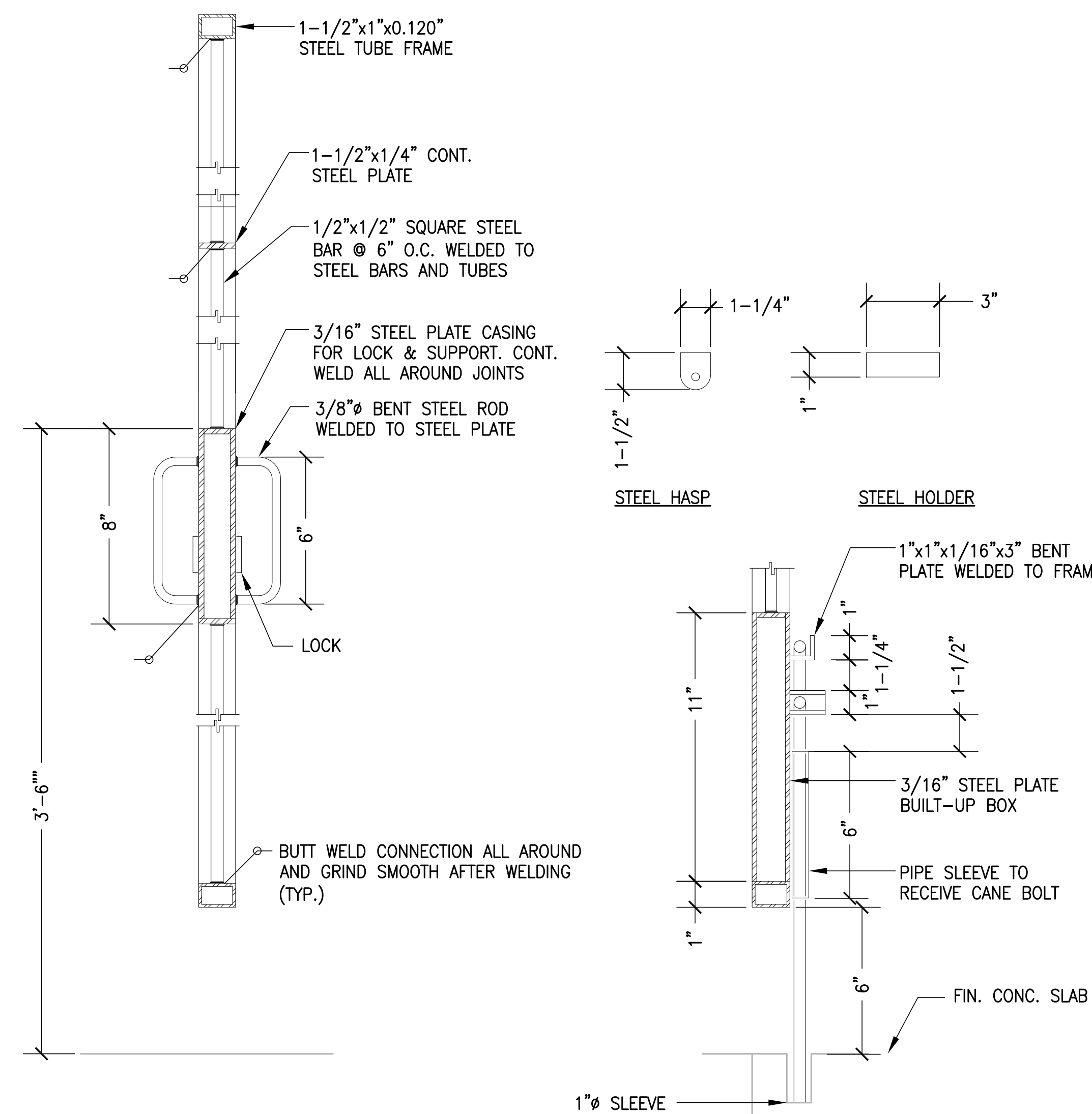
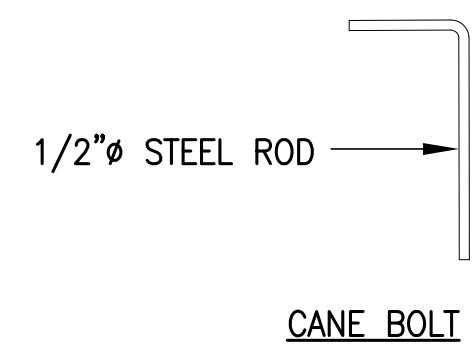
PCD	2	INSPECTOR'S COMMENTS	1 OF 2	12/31/09	APPROVED: PUBLIC WORKS ADMINISTRATOR
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DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII					
McCULLY MOILIILI PUBLIC LIBRARY REPLACE AIR CONDITIONING CHILLER HONOLULU OAHU HAWAII					
DETAIL PLAN AT BIKE RACKS					
INTEGRATED ENGINEERING CORP.			DAGS Job No.	DRAWING NO.	
DESIGNED BY:	CHECKED BY:		12-36-6408	A-3	
EXPIRATION DATE OF THE LICENSE: 04/30/2010			DRAWN BY:	APPROVED:	DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION					NOV. 2008
SCALE: AS NOTED					SHEET 4 OF 17 SHTS



METAL GATE ELEVATION
SCALE: 1/4" = 1'-0"

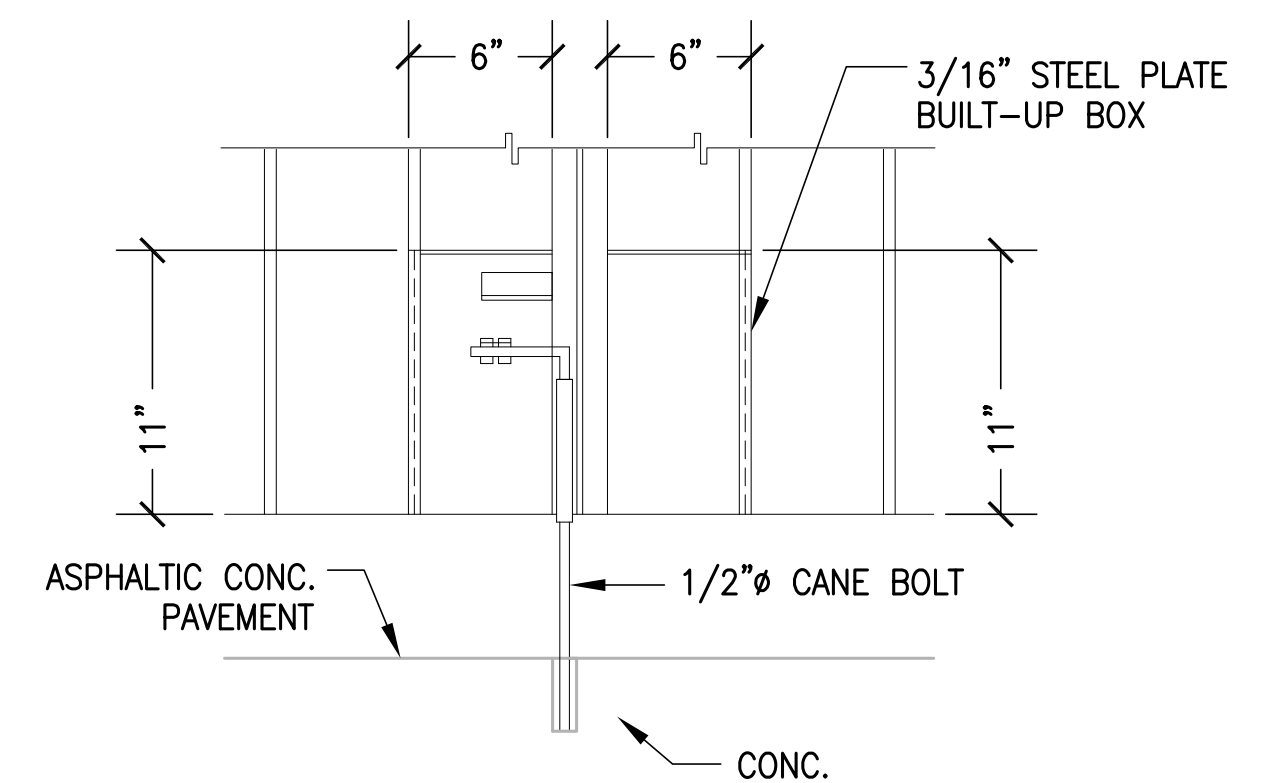


A PARTIAL PLAN SECTION OF GATE
SCALE: 3" = 1'-0"
NOTE:
SEE KAIMUKI PUBLIC LIBRARY FOR
SIMILAR METAL GATE



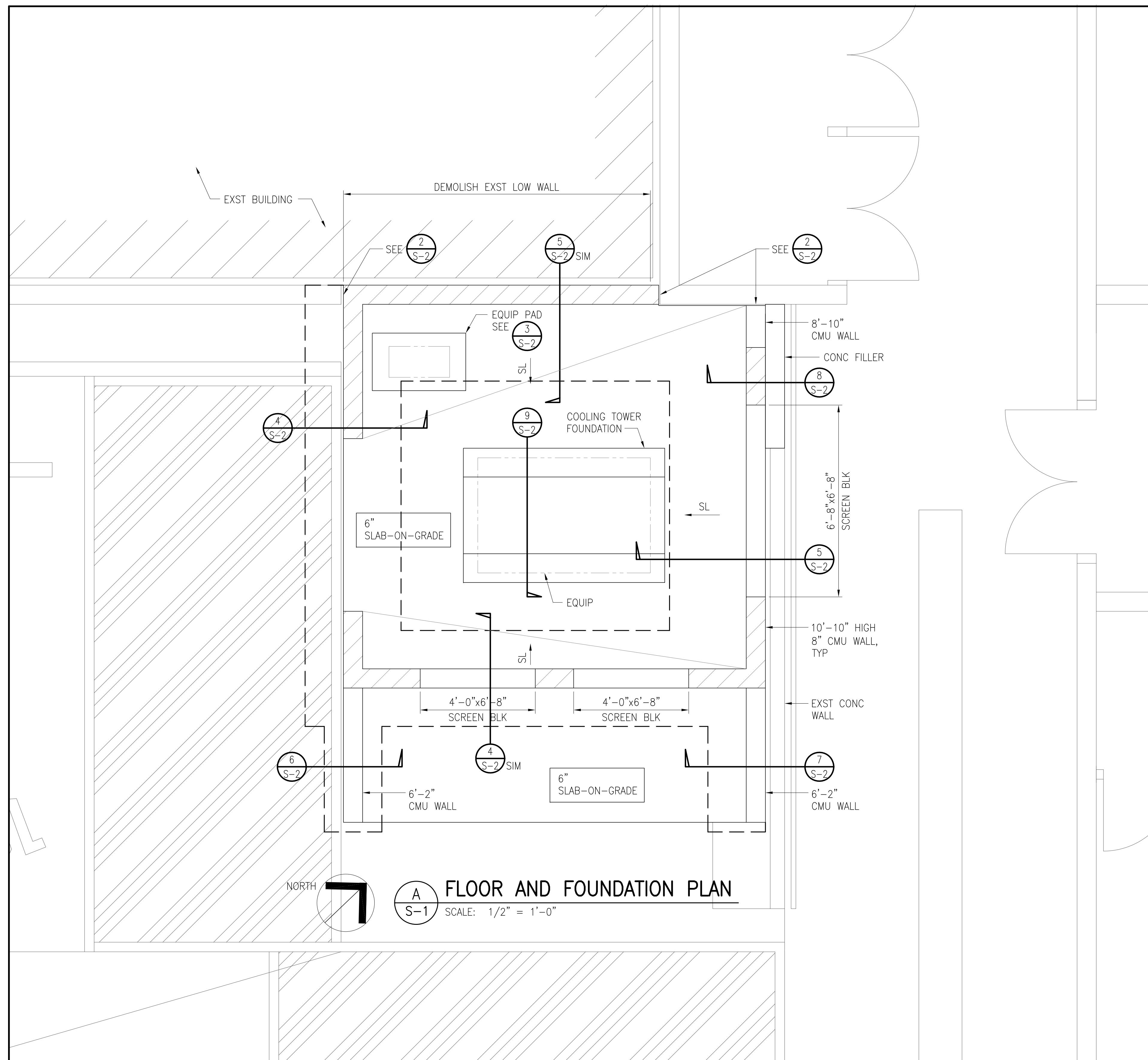
B SECTION
SCALE: 3" = 1'-0"

C METAL GATE DETAILS
SCALE: 3" = 1'-0"
NOTE:
GALVANIZE AFTER FABRICATION, GRIND
ALL WELDS SMOOTH, CLEAN & PAINT



D PARTIAL ELEVATION
SCALE: 1-1/2" = 1'-0"

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DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII McCULLY MOILIILI PUBLIC LIBRARY REPLACE AIR CONDITIONING CHILLER HONOLULU OAHU HAWAII METAL GATE DETAILS					
INTEGRATED ENGINEERING CORP. DESIGNED BY: _____ CHECKED BY: _____ DRAWN BY: _____ APPROVED: _____			DAGS Job No. 12-36-6408	DRAWING NO. A-4	SHEET 5 OF 17 SHTS
EXPIRATION DATE OF THE LICENSE: 04/30/2010 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION SCALE: AS NOTED DATE: NOV. 2008					



REINFORCING STEEL

1. TYPICAL CONCRETE WORK AND CMU: REINFORCING BARS SHALL BE ASTM A-615 GRADE 60.
2. DOWELS BETWEEN FOOTING AND WALL OR COLUMNS SHALL BE THE SAME GRADE, SIZE AND SPACING OR NUMBER AS THE VERTICAL REINFORCING RESPECTIVELY.
3. ALL REINFORCING BAR BENDS SHALL BE MADE COLD.
4. PROVIDE STANDARD HOOKS AND BENDS. AT SLAB END, CANT HOOK AS REQUIRED.

SPECIAL INSPECTION

- | | |
|----------------------|---------------|
| 1. CONCRETE | NO |
| 2. REINFORCING STEEL | YES |
| 3. CMU | YES (LEVEL 1) |

GENERAL

1. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING AND PROTECTION OF ADJACENT STRUCTURES, AND UTILITIES.
2. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AND SHALL CHECK ALL DIMENSIONS. ALL DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE CONTRACTING OFFICER AND BE RESOLVED BEFORE PROCEEDING WITH THE WORK.
3. DESIGN CRITERIA:

CODES	=2003 IBC
WIND SPEED	=105 MPH EXPOSURE B
ALLOWABLE SOIL BEARING PRESSURE	=2,000 PSF
4. ASSUMED ELEVATION = 0.0 AT FINISH GRADE INSIDE ENCLOSURE.

FOUNDATION NOTES

1. THE STRUCTURAL FILL AND COMPACTED BASE, WHERE REQUIRED, SHALL BE NON-EXPANSIVE, IMPORTED GRANULAR FILL AND SHALL BE FREE OF VEGETATION, DEBRIS AND OVERSIZED PARTICLES IN EXCESS OF 6 INCHES, WITH 100% PASSING 1/2", 90-100% PASSING 3/8", 25-45% PASSING #16 AND 5-15% PASSING #100 WHEN TESTED IN ACCORDANCE WITH ASTM D1140 (PERCENTAGES BY WEIGHT). THE STRUCTURAL FILL AND COMPACTED BASE SHALL BE PLACED IN 6-INCH THICK LOOSE LIFTS, MOISTURE CONDITIONED TO NEAR OPTIMUM MOISTURE CONTENT AND COMPACTED TO AT LEAST 95% OF MAXIMUM DRY DENSITY BASED ON ASTM D-1557.

CONCRETE

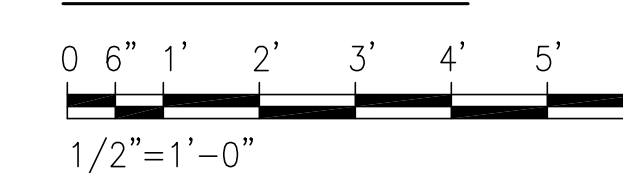
1. SCHEDULE OF STRUCTURAL CONCRETE 28-DAY STRENGTH AND TYPES: 3,000 PSI WITH MAXIMUM WATER CEMENT RATIO OF 0.50.
2. CLEAR COVERAGE OF CONCRETE OVER OUTER REINFORCING BARS SHALL BE AS FOLLOWS, UON:

A. CONCRETE POURED DIRECTLY AGAINST EARTH	3" CLEAR
B. FORMED AND EXPOSED TO EARTH OR WEATHER	2" CLEAR
C. SLAB ON GRADE	1" CLEAR AT TOP AND BOTTOM
3. ALL REINFORCING BARS, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE.
4. PROJECTING CORNERS OF BEAMS, WALLS, COLUMNS, ETC., SHALL BE FORMED WITH 3/4" CHAMFER, UNLESS OTHERWISE NOTED ON ARCHITECTURAL DRAWINGS.

CONCRETE MASONRY (CMU)

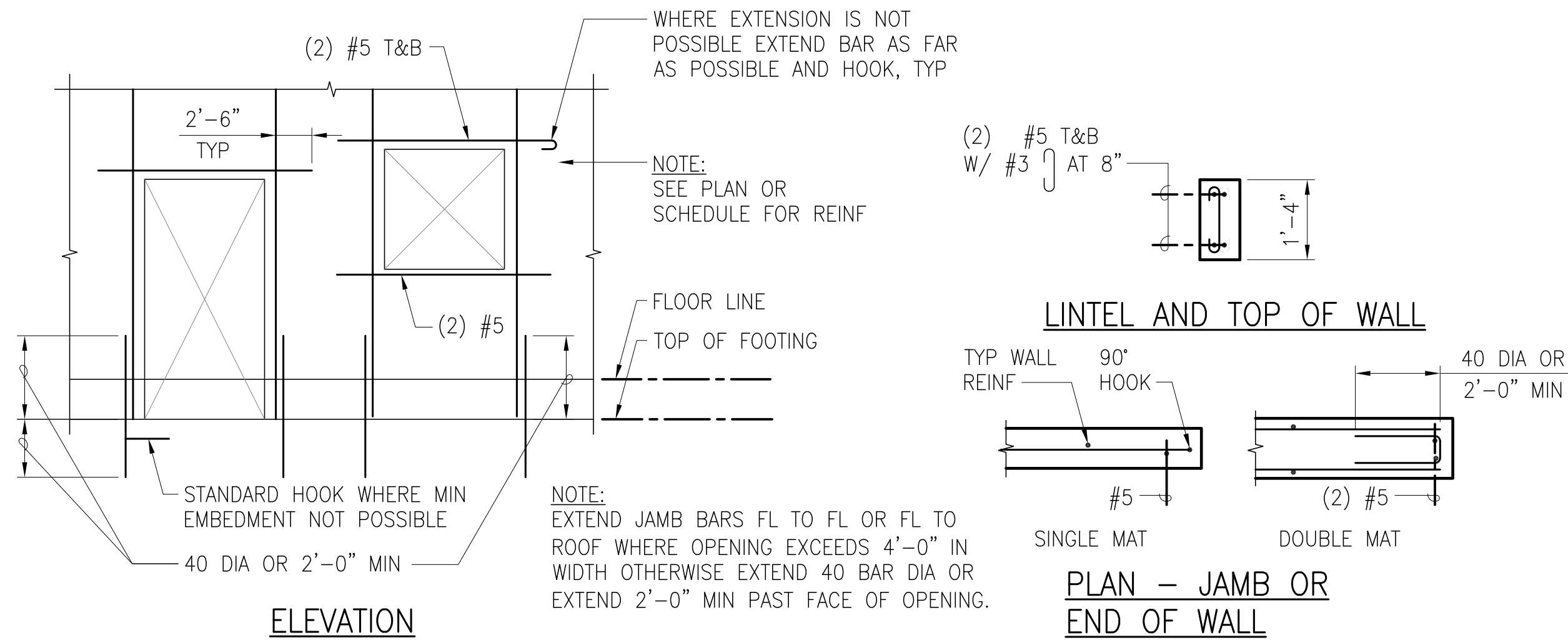
1. CONCRETE BLOCK SHALL BE HOLLOW LOAD-BEARING CONCRETE MASONRY UNITS CONFORMING TO ASTM C 90 NORMAL WEIGHT.
2. ALL WALLS SHALL BE CONSTRUCTED IN RUNNING BOND WITH TYPE M MORTAR UNLESS INDICATED OTHERWISE. MORTAR SHALL ATTAIN COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS.
3. GROUT SHALL FLOW INTO ALL JOINTS OF THE MASONRY WITHOUT SEGREGATION. COMPRESSIVE STRENGTH AT 28 DAYS = 3,000 PSI.
4. REINFORCING BARS - SEE NOTES UNDER 'REINFORCING STEEL' FOR REQUIREMENTS.
5. PROVIDE A MINIMUM OF 1/2" GROUT BETWEEN MAIN REINFORCING AND MASONRY UNITS.
6. GROUT SOLID ALL CELLS.
7. PROVIDE HORIZONTAL JOINT REINFORCEMENT AT 24" OC AT SCREEN BLOCK AND PAST 24" INTO 8" CMU.

GRAPHIC SCALES:

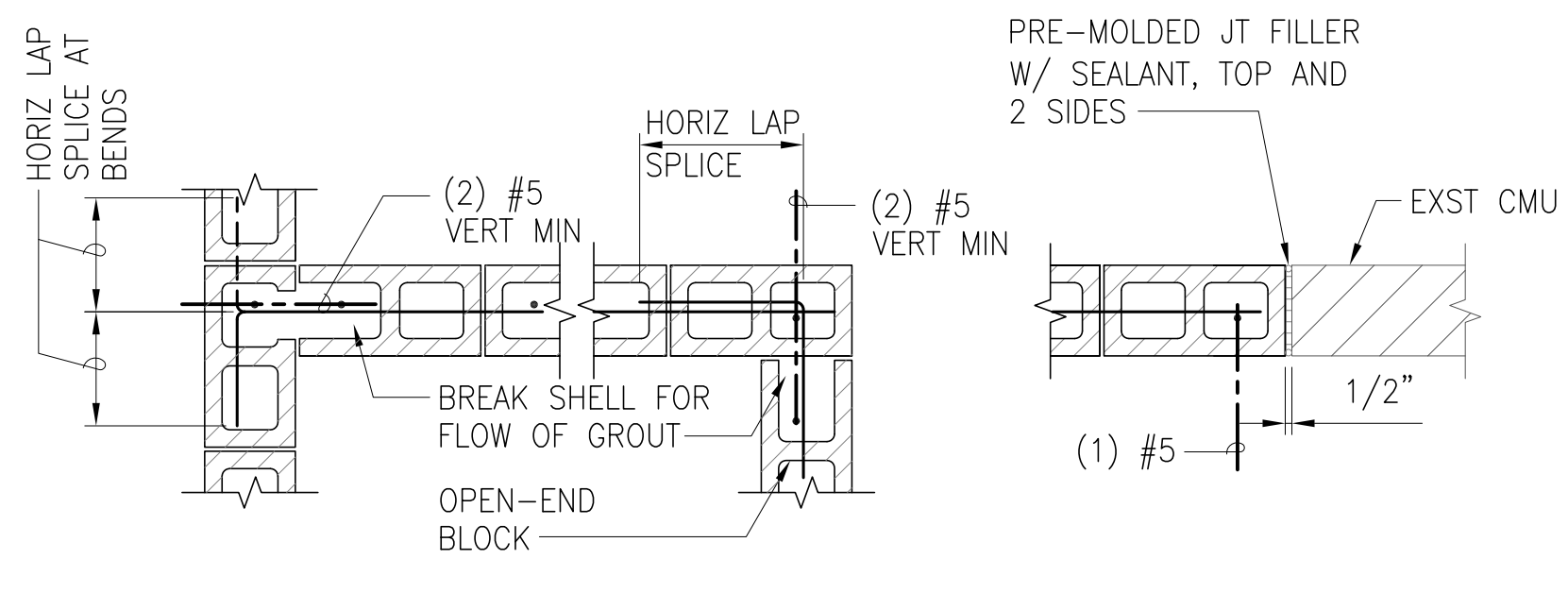


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DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII McCULLY MOILIILI PUBLIC LIBRARY REPLACE AIR CONDITIONING CHILLER HONOLULU OAHU HAWAII FLOOR AND FOUNDATION PLAN AND NOTES					
INTEGRATED ENGINEERING CORP.			IAMS Job No.		S-1
DESIGNED BY: SO	CHECKED BY: NN	12-36-6408			
DRAWN BY: FK			DATE	SHEET	6
SCALE: AS NOTED			NOV 2008	OF 17 SHEETS	

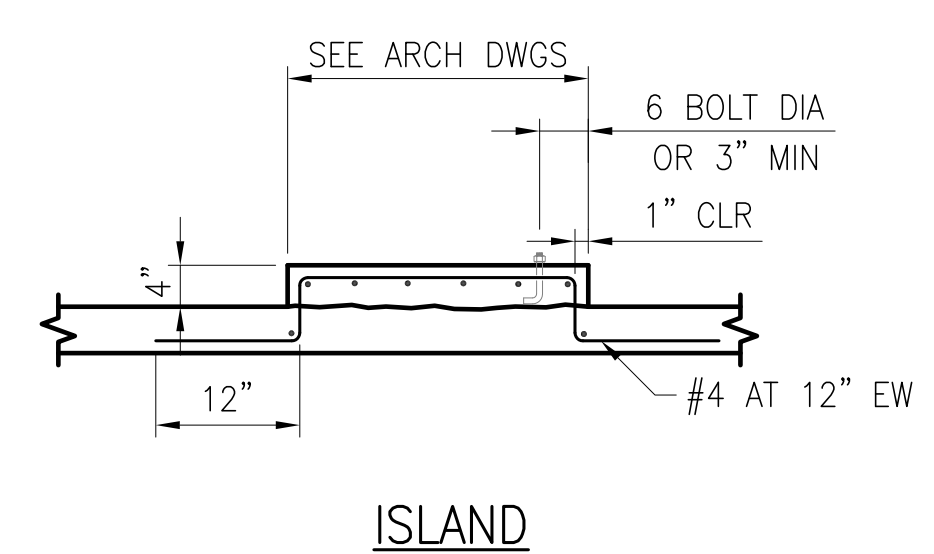
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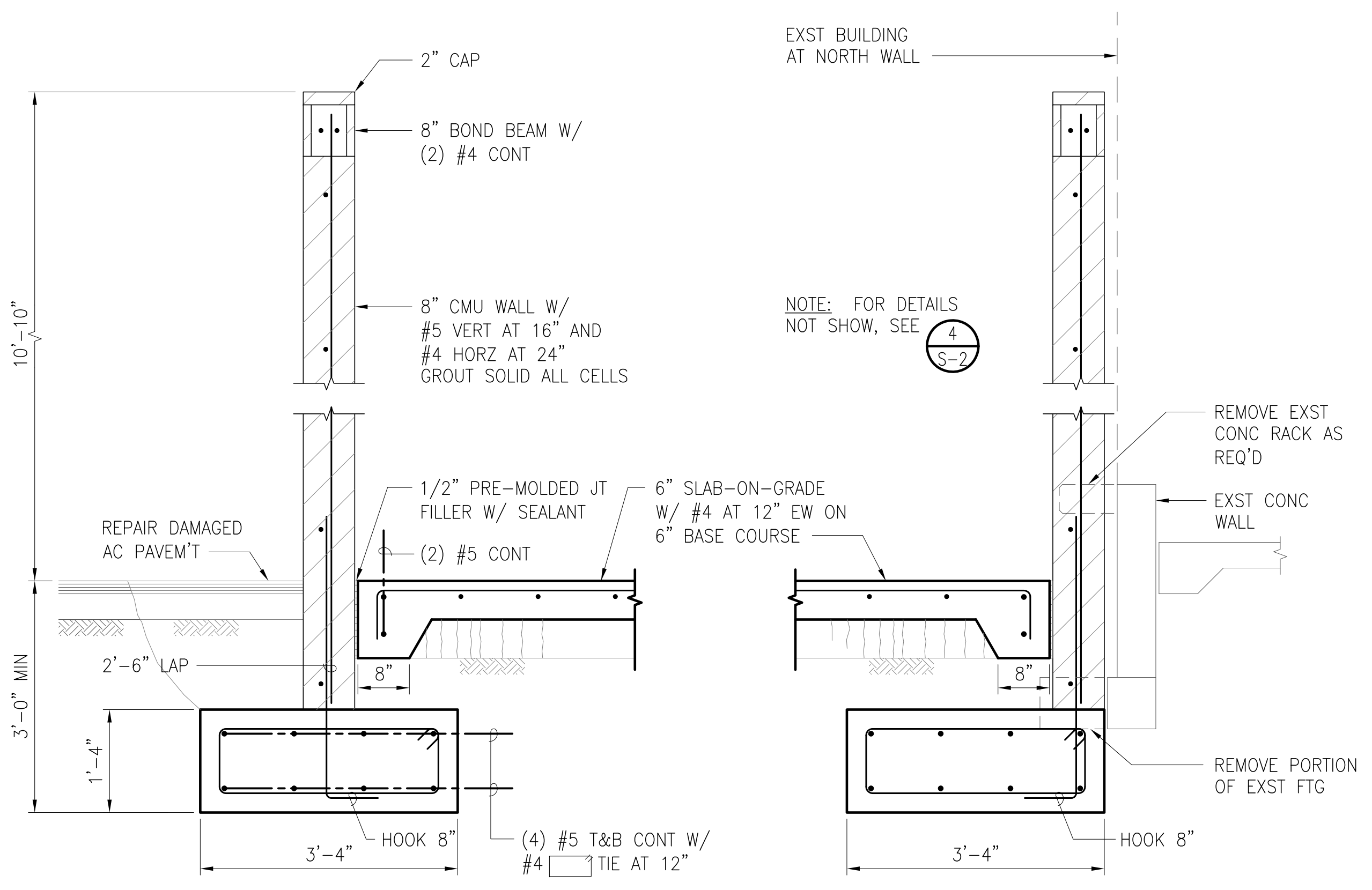
1 MINIMUM REINFORCING AT MASONRY WALL OPENINGS
S-2 NOT TO SCALE



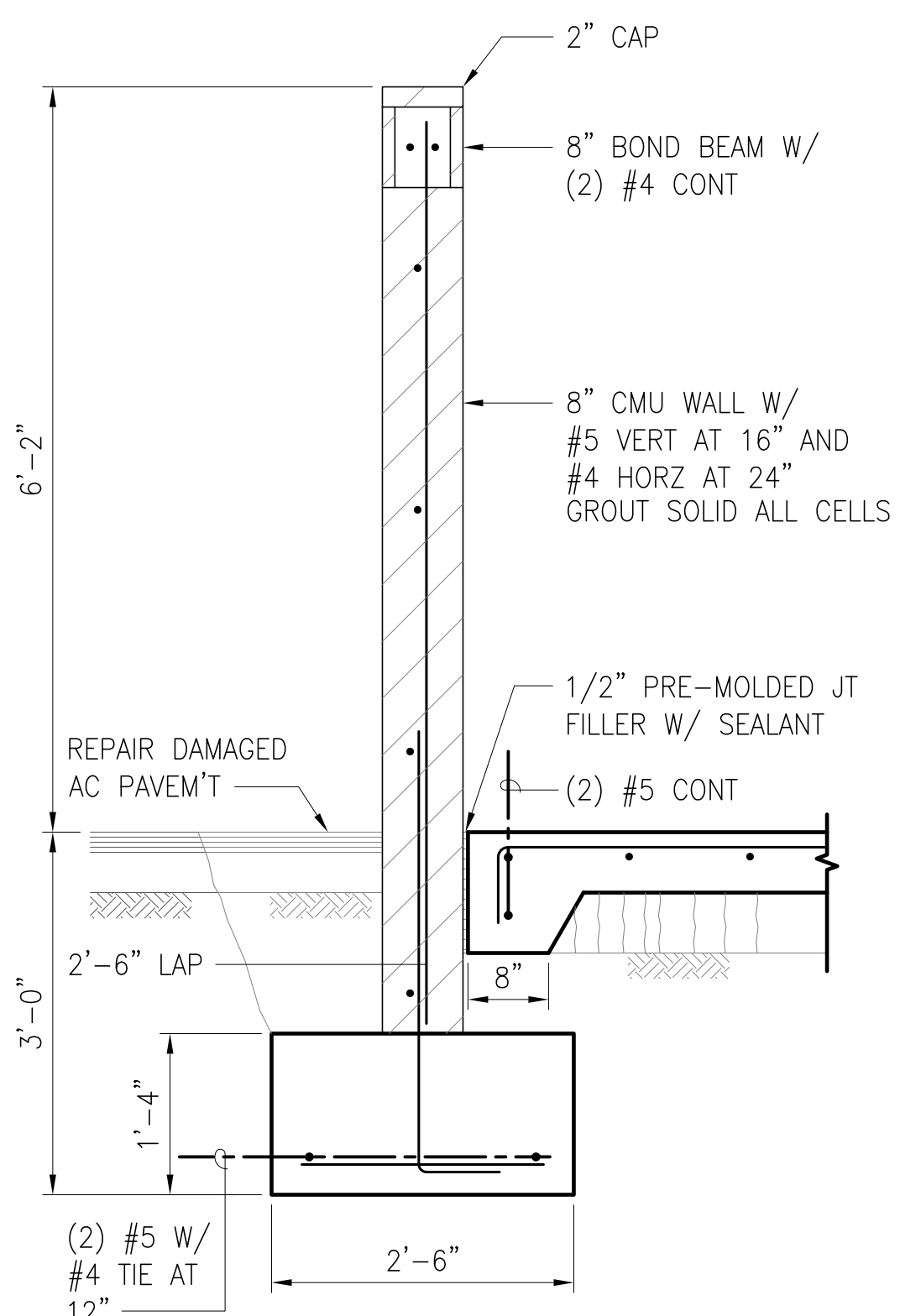
2 CONCRETE MASONRY WALL INTERSECTIONS
S-2 NOT TO SCALE



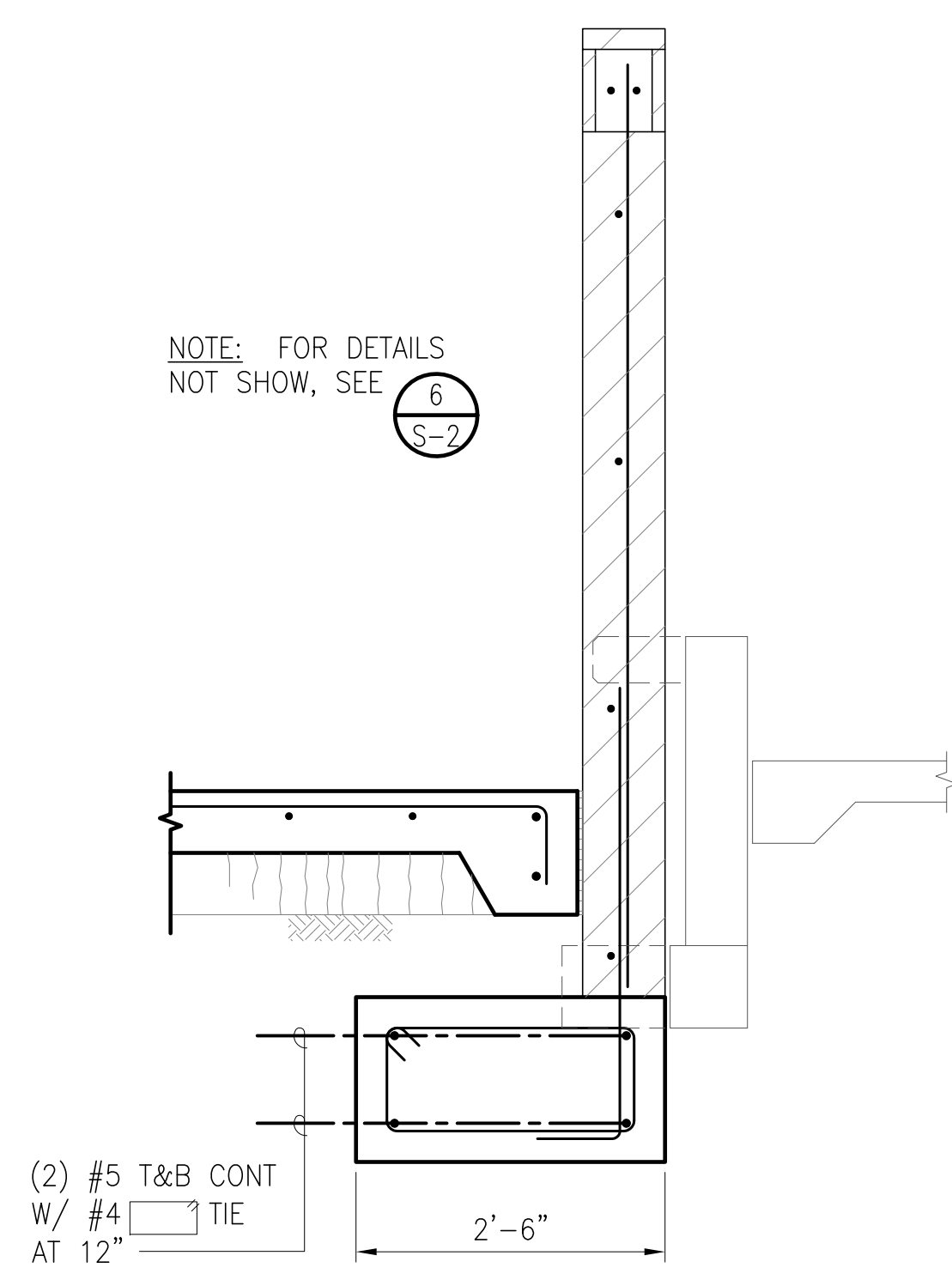
3 CONCRETE ISLAND
S-2 NOT TO SCALE



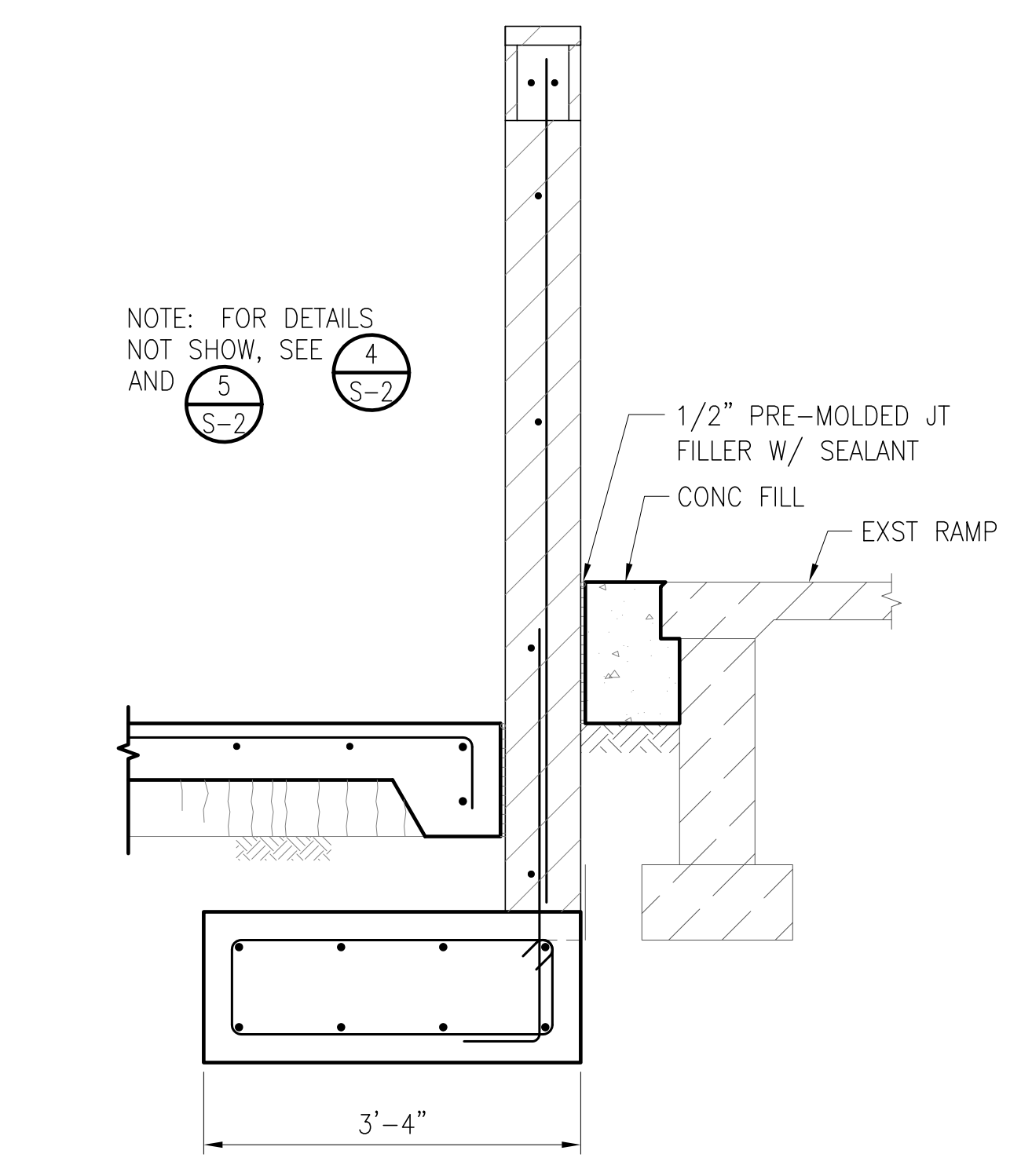
4 SECTION S-2 SCALE: 3/4" = 1'-0"
5 SECTION S-2 SCALE: 3/4" = 1'-0"



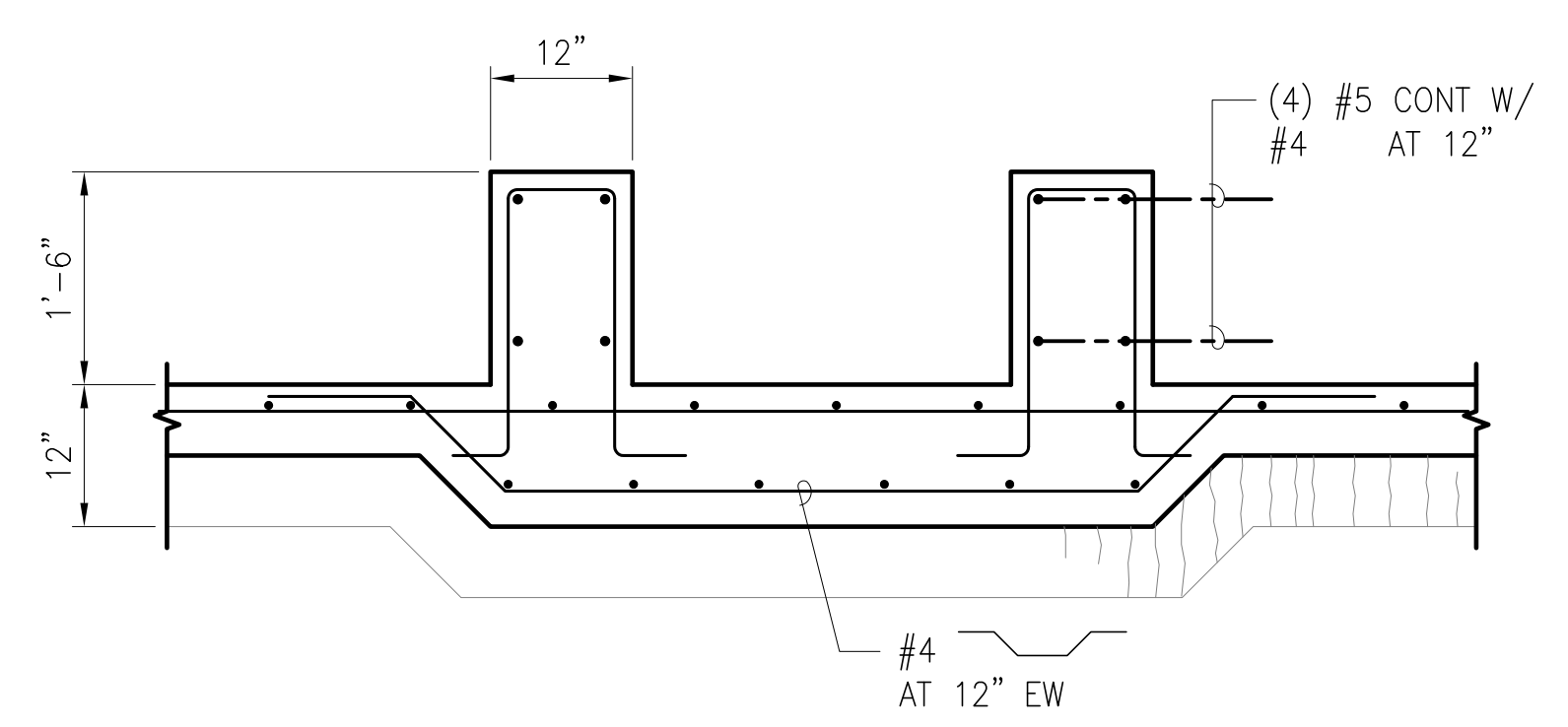
6 SECTION S-2 SCALE: 3/4" = 1'-0"



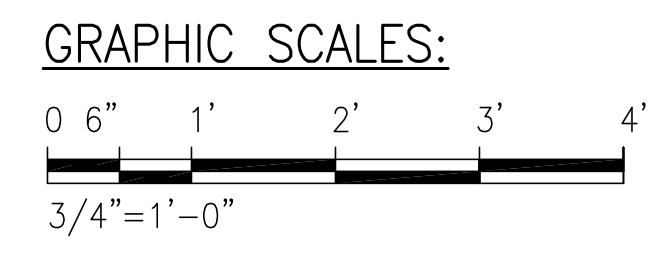
7 SECTION S-2 SCALE: 3/4" = 1'-0"



8 SECTION S-2 SCALE: 3/4" = 1'-0"



9 SECTION AT COOLING TOWER S-2 SCALE: 3/4" = 1'-0"



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SECTIONS AND DETAILS					
INTEGRATED ENGINEERING CORP.			BAGS Job No.	DRAWING NO.	
DESIGNED BY: SO	CHECKED BY: NN		12-36-6408	S-2	
DRAWN BY: FK	APPROVED:		DATE: NOV 2008	SHEET: 7	
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION			SCALE: AS NOTED	NOV 2008	OF 17 SHEETS

EQUIPMENT SCHEDULES:

CHILLERS 

UNIT NO.	TOTAL CAP. TONS MIN.	CHILLER EER	EER/IPLV	CHILLED WATER COND.				VOLTS	PHASE	HERTZ	COMPRESSOR			MCA	MOCP	CONDENSER WATER				CONTROL STEPS (MIN.)	OPER. WEIGHT LBS.	REFRIGERANT		REMARKS
				GPM	EWT °F	LWT °F	PD. (FT)				NO	RLA (EA)	LRA (EA)			GPM	EWT °F	LWT °F	PD. (FT)			TYPE	WEIGHT LBS.	
1	52.4	16.1	21.3	140	54	44	13	208	3	60	4	51.3	300	218	250	162	85	95	11	4	3,600	R410A	120	YORK YCWL0056SE OR APPROVED EQUAL

ACCESSORIES: 1. CONTROL PANEL DISPLAY LCD & KEYPAD 4. FINAL PAINT OVERSPRAY
 2. CONTROL TRANSFORMER 5. COMPRESSOR ACOUSTIC SOUND BLANKET
 3. EVAPORATOR FLOW SWITCH 6. NEOPRENE ISOLATORS w/ TOP & BOTTOM GALV. STEEL PLATES

COOLING TOWER 

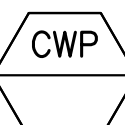
* WITH PREMIUM EFFICIENCY MOTOR

UNIT NO.	TOTAL CAP. TONS MIN.	WATER GPM	E.W.T. °F	L.W.T. °F	E.A.T. °F WB	E.S.P. I.W.G.	FAN MOTOR HP *	FAN SPEED CONTROL	VOLTS	PHASE	HERTZ	WEIGHT LB	REMARKS
1	54	162	95	85	78	-	10/3	2 MOTORS	208	3	60	1,800	BAC-VT0-57-K

TYPE A FORCED-DRAFT, CENTRIFUGAL FAN, COUNTERFLOW, COOLING TOWER

NOTES:
 1. STAINLESS STEEL CONSTRUCTION
 2. VERTICAL DISCHARGE HOOD (TAPERED) w/ ACCESS PANEL
 3. FACTORY INSTALLED CONTROL CENTER IN NEMA-4X ENCLOSURE MOUNTED ON TOWER CASING
 4. NEOPRENE SUPPORTING PADS W/ STEEL PLATES AS RECOMMENDATED BY MANUFACTURER
 5. 2-SINGLE SPEED MOTORS (BAC - ENERGY MISER SYSTEM)

6. EXTERNAL LADDER & SAFETY CAGE PACKAGE TO MEET OSHA REQUIREMENTS
 7. VIBRATION CUT OUT SWITCH

PUMP  & 

UNIT NO.	PUMP TYPE	MEDIA	GPM	TOTAL HEAD FT.	EFF. %	RPM	BHP	HP	SERVICE FACTOR	VOLTS	PHASE	HERTZ	PUMP SIZE, IN.	CONTROL	REMARKS
CHWP-1	END SUCTION, CLOSED COUPLED	CHILLED WATER	140	80	68	1750	4.2	7.5	1.1	208	3	60	2 x 2.5 x 9	CONSTANT VOLUME	AURORA 340 ENCL. OR APPROVED EQUIVALENT
CWP-1	END SUCTION, CLOSED COUPLED	CONDENSER WATER	162	50	71	1750	2.9	5	1.1	208	3	60	2.5 x 3 x 9	CONSTANT VOLUME	AURORA 340 ENCL. OR APPROVED EQUIVALENT

ACCESSORIES: 1. NEOPRENE PADS
 2. PREMIUM EFFICIENCY MOTOR
 3. CAST IRON BASE PLATE
 4. TEFC MOTOR


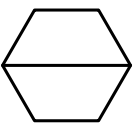

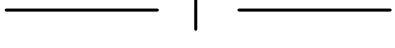
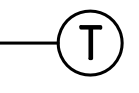
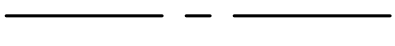
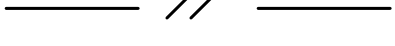



EXHAUST FANS 

UNIT NO.	FAN TYPE	AREA SERVED	CFM	T.S.P.	FAN RPM.	MOTOR		DRIVE TYPE	MAX. SONES	VOLTS	PHASE	HERTZ	WEIGHT LB.	REMARKS	ACCESSORIES
						BHP	HP.								
1	A	CHILLER ROOM	380	0.375	1,050	-	224 w	DIRECT	5.0	115	1	60	40	GREENHECK SP-A510 OR APPROVED EQUAL	1, 2, 3, 4

FAN TYPE: A. CEILING EXHAUST FAN

ACCESSORIES: 1. SPEED CONTROLLER
 2. BACKDRAFT DAMPER (GRAVITY TYPE)
 3. DUCT ADAPTORS
 4. OTHERS-SEE SPECIFICATIONS

MECHANICAL SYMBOLS AND ABBREVIATIONS LIST

SYMBOLS	ABBREV.	DEFINITIONS	SYMBOLS	ABBREV.	DEFINITIONS	SYMBOLS	ABBREV.	DEFINITIONS
	A/C	AIR CONDITIONING/AIR CONDITIONER		FLEX. CONN.	FLEXIBLE CONNECTION		SW. (H-O-A)	SWITCHES (ON/OFF SWITCH OR HAND-OFF-AUTO SWITCH)
	ADJ	ADJUST		FLR	FLOOR		TEMP. T'STAT.	TEMPERATURE TEMPERATURE CONTROLLER OR THERMOSTAT
	A.F.F.	ABOVE FINISHED FLOOR		GAL.	GALLONS		VD	VOLUME DAMPER
	AHU	AIR HANDLER UNIT		GPM	GALLONS PER MINUTE		W	WATTS
	BHP	BRAKE HORSEPOWER		HG	REFRIGERANT HOT GAS PIPING		w/	WITH
	BP	BYPASS		HP	HORSE POWER			
	B.T.U.	BRITISH THERMAL UNIT		HZ.	HERTZ			
	C	CHILLER		IPLV	INTEGRATED PART-LOAD VALUE			
	CAP.	CAPACITIES		LRA	LOCKED ROTOR AMPS			
	CD	CEILING DIFFUSER		LWT	LEAVING WATER TEMPERATURE			
	C.F.M.	CUBIC FEET PER MINUTE		MCA	MINIMUM CIRCUIT AMPS			
	CHWR	CHILLED WATER RETURN		MOCP	MAXIMUM OVERCURRENT PROTECTION			
	CHWS	CHILLED WATER SUPPLY			MECHANICAL EQUIPMENT/PLUMBING FIXTURE DESIGNATION			
	CONC.	CONCRETE		N.T.S.	NOT TO SCALE			
	CONT.	CONTINUATION/CONTINUOUS		OA	OUTSIDE AIR			
	CW	COLD WATER PIPE		P.D.	PRESSURE DROP			
	CWR	CONDENSER WATER RETURN		P.O.C.	POINT OF CONNECTION			
	CWS	CONDENSER WATER SUPPLY		P.O.R.	POINT OF REMOVAL			
	CT	COOLING TOWER		RA	RETURN AIR			
	DET	DETAILS		RAD	RETURN AIR DUCT			
	DIA. (I.D.)	DIAMETER (INSIDE DIAMETER)		RAR	RETURN AIR REGISTER			
	DWGS.	DRAWINGS		RL	REFRIGERANT LIQUID PIPING			
	EA.	EACH		RLA	RATED LOAD AMPS			
	EAR	EXHAUST AIR REGISTER		RS	REFRIGERANT SUCTION PIPING			
	EAT	ENTERING AIR TEMPERATURE		SA	SUPPLY AIR			
	EER	ENERGY EFFICIENCY RATIO		SAD	SUPPLY AIR DUCT			
	EFF.	EFFICIENCY		SAR	SUPPLY AIR REGISTER			
	EXIST. or (E)	EXISTING		SOV	SHUT OFF VALVE			
	EWT	ENTERING WATER TEMPERATURE						

REVISED ORDINANCES OF HONOLULU CHAPTER 32

THE BUILDING ENERGY EFFICIENCY STANDARDS HAVE BEEN REVIEWED AND TO THE BEST OF MY KNOWLEDGE THIS DESIGN SUBSTANTIALLY CONFORMS TO THE MECHANICAL REQUIREMENTS OF SECTIONS 9.3 & 10.3.

 Signature

REVISION NO.	SYM	DESCRIPTION	SHT OF	DATE	APPROVED: PUBLIC WORKS ADMINISTRATOR
DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII McCULLY MOILIILI PUBLIC LIBRARY REPLACE AIR CONDITIONING CHILLER HONOLULU OAHU HAWAII EQUIPMENT SCHEDULES & LEGENDS					
INTEGRATED ENGINEERING CORP.			DAGS Job No.	DRAWING NO.	
DESIGNED BY:		CHECKED BY:	12-36-6408	M-1	
DRAWN BY:		APPROVED:	DATE	SHEET	
SCALE: AS NOTED			NOV. 2008	8	
EXPIRATION DATE OF THE LICENSE: 04/30/2010			OF 17 SHETS		
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION					

8

9

SITE WORK NOTES

DEMOLITION

- Demolish and remove all irrigation sprinkler heads, irrigation piping and drainage utilities on the construction drawings and detailed specifications prepared for this project, unless indicated to remain or to be relocated.
- The Contractor shall protect all existing utilities, data/communications wiring etc., whether or not shown on the plans, at all times unless indicated to be abandoned.
- The Contractor, at his expense, shall keep the project and surrounding area free from dust nuisance. The work shall be done in conformance with the Air Pollution Control Standards and Regulations of the State Department of Health.
- The Contractor shall be required to dispose of the demolished materials away from the project area at the Contractor's expense.

CONTRACTOR'S RESPONSIBILITY FOR EXISTING UTILITY LINES, PIPES AND SERVICES

- Information regarding the site of the work given on the drawings or specifications has been obtained by the Engineer and is believed to be reasonably correct; however, it is the responsibility of the Contractor to verify all such information. The Contractor shall tone the area to be excavated to ascertain the location of uncharted utilities.
- Any utilities that the Contractor encounters during the progress of the work, such as telephone ducts, electric ducts, water lines, sewer lines, electric lines, irrigation pipes and drainage pipes, whether shown or not on the contract plans, shall not be disturbed or damaged unless otherwise instructed in the plans and specifications.
- In the event the utilities are damaged or disturbed by the Contractor, the Contractor shall be held liable for the damaged or disturbed utilities.
- The Contractor shall repair the damaged or disturbed utilities to the existing condition at no cost to the State. Any damage claims due to the disruption of service caused by the utilities being damaged shall be paid by the Contractor, who shall hold harmless the State and Engineer from all suits, actions or claims of any character brought on account of such damages.
- In the event utilities which were not shown on the plans and specifications are damaged or disturbed by the Contractor, the Contractor shall be held liable. The Contractor shall contact all utility companies and expose all utility lines prior to any excavation and/or installation of lines.

TEMPORARY DUST CONTROL MEASURES

- Excavation, embankment and imported materials shall be kept dampened with water during the grading operations.
- The Contractor shall maintain a suitable water system and dampen the graded or grubbed site with water.
- At the end of each day, seven (7) days a week, the project site shall be kept damp with water. The site shall be sufficiently dampened so that the site will remain moistened during the night.

NOTES FOR ENVIRONMENTAL PROTECTION

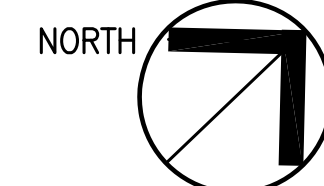
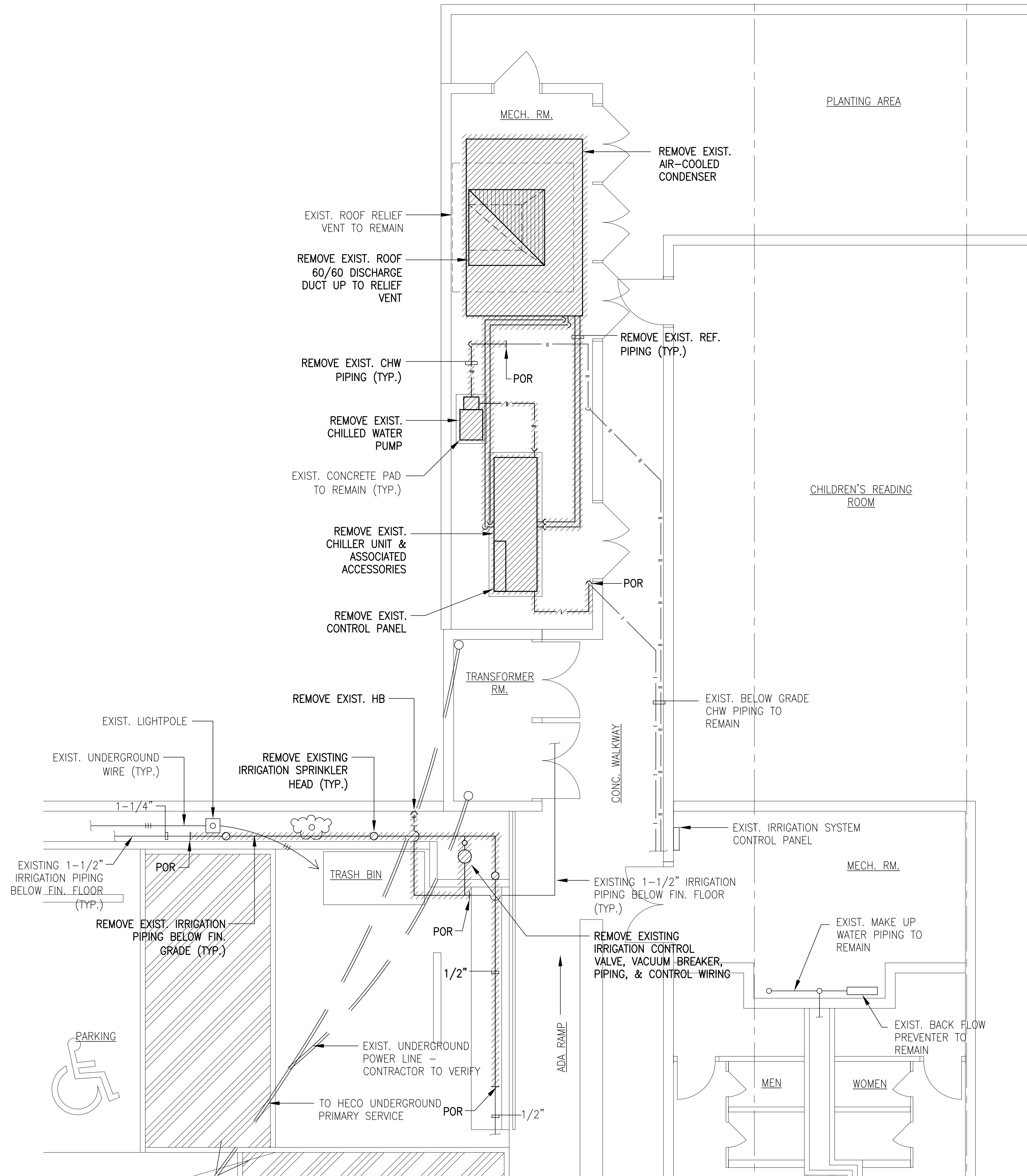
- The Contractor, at his own expense, shall provide effective measures for the control of fugitive dust emissions from the project and surrounding areas caused by his operations. These measures shall meet the requirements of State Administrative Rules, Department of Health, Air Pollution Control (11-60.1).
- All grading operations shall be performed in conformance with the applicable provisions of the grading ordinance to prevent violation of the State Administrative Rules, Department of Health, Water Pollution Control and Water Quality Standards (11-54, 11-55) due to erosion and runoff to State waters.
- Grub material, demolition wastes, and construction wastes shall be disposed of at an authorized site having a Department of Health Solid Waste Management Permit. Open burning is prohibited.
- Environmental protection notes pertaining to air and water pollution shall be administered and monitored by the Department of Health.

REPAIR WORKS

- Contractor to repair or replace any damaged landscaping to meet or exceed the original conditions.
- Contractor to replace any damaged architectural finished concrete pavement and walkway to meet or exceed the original conditions.
- Contractor responsible to match the architectural finished pattern of the original pavement.
- Contractor responsible to repair damages to existing parking stall's striping to match with existing.

GENERAL NOTES

- Existing systems shown are based on available existing design drawings and limited field observation. Contractor shall be responsible to verify and coordinate all existing conditions and make necessary adjustments for a complete installation. Contractor shall notify the Contracting Officer for any discrepancies found on the job site before commencement of work.
- Conform to all applicable codes, requirements and all Agencies having jurisdiction. Contractor shall obtain and pay for all permits and licenses.
- Arrange and expedite the work on existing system to minimize shut-down time. Coordinate with the Librarian and Contracting Officer for shut-down or down time of any building utilities.
- Do all removal, demolition, relocation or rearranging of existing building elements, including but not be limited to ceiling, mechanical & electrical items, as necessary, to facilitate installation of new work.
- All works shown on drawings are new except where noted.
- Contractor shall be responsible for cutting and patching of all holes necessary for installation of his work. All patch work shall match with existing or new work where applicable.
- Contractor shall verify the required delivery time for all equipment in order to meet the construction schedule. Contractor shall be responsible to provide storage for all equipment. No equipment shall be stored on site without a written approval from the Contracting Officer.
- Except where noted on the drawings, paint all exposed new work & disturbed existing work including, piping, structural steel & pipe supports, conduits, etc. Color to be selected by the Contracting Officer.
- Contractor to repair/replace all existing building elements damaged by him and/or caused by the construction works.
- Contractor shall take all precaution to protect all existing utilities (above ground and underground) during the entire construction period. Contractor to verify existing field conditions.
- There are existing water piping, sewer piping, irrigation piping, electrical conduits, and other utilities under the existing floor. Contractor shall tone and locate all underground utilities before saw cut existing concrete floor and/or A.C. pavement. Contractor shall take all precautionary measures during all excavation work. Contractors shall be responsible to repair all damages to any existing underground utilities.
- Contractor shall erect temporary barricades as required, to prevent unauthorized persons from entering and to prevent dust escaping from the construction areas. Coordinate with the Contracting Officer & Librarian for barricaded areas. The work shall be accomplished at no extra cost to the State.
- Label all condenser water & chilled water piping inside the Chiller Room and Cooling Tower Enclosure. See specifications for details.
- Contractor shall reclaim all refrigerant of the demolished systems per EPA regulations. Recharge new system with adequate refrigerant amount as needed per manufacturer recommendations upon completion.
- Upon completion of A/C system replacement works, Contractor shall test the chemical residual concentration of chilled water and recharge the existing chilled water system with chemicals to a residual concentration of 800-1,000 ppm. Provide a written service report indicating residual concentration before and after charging and the amount of chemicals (gals.) used (include MSDS sheets for the chemicals used).
- Contractor shall re-balance the entire A/C system's chilled water system as indicated on drawings.



1 PARTIAL REMOVAL FLOOR PLAN
M-2 SCALE: 1/4" = 1'-0"

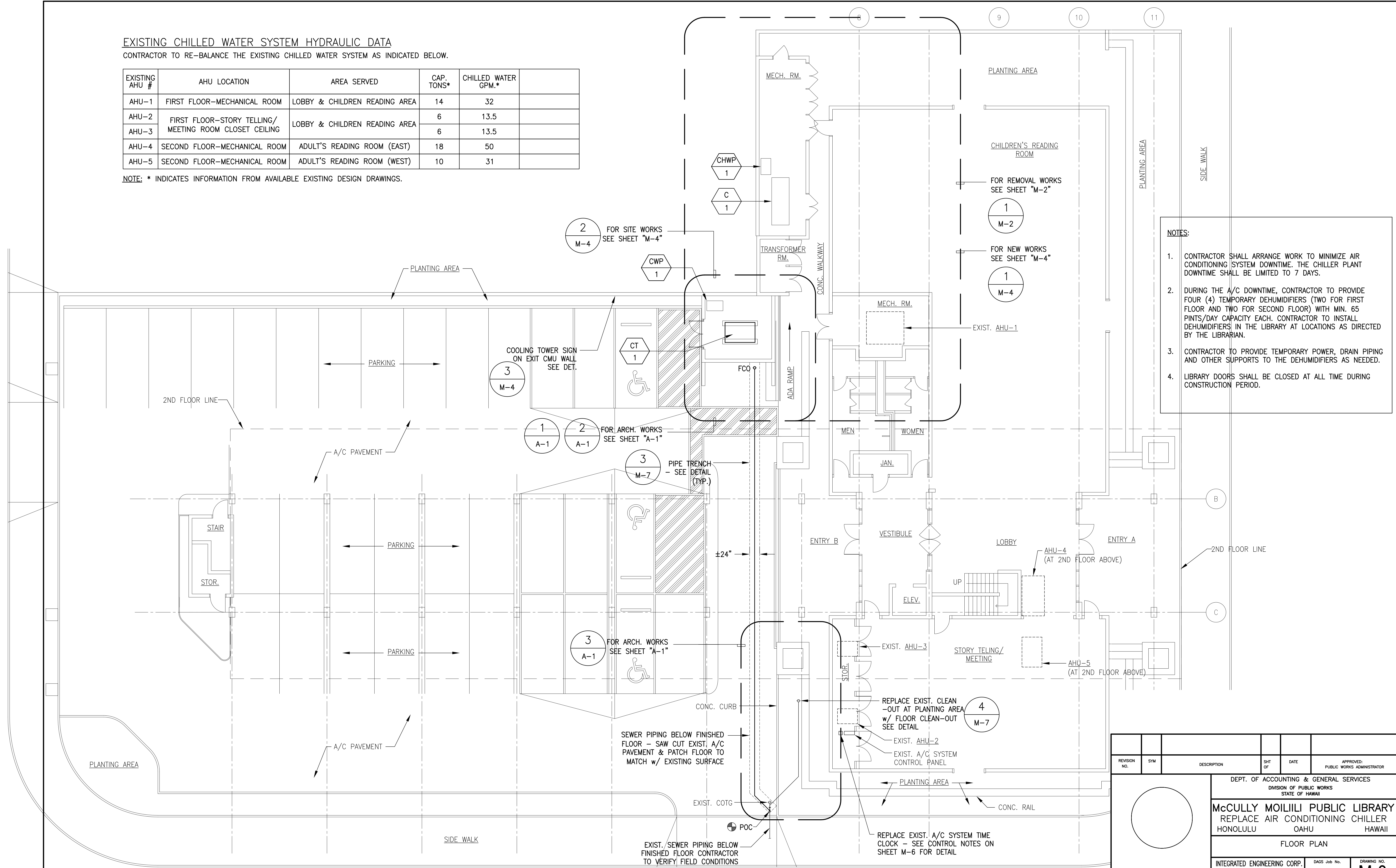
REVISION NO.	SYM	DESCRIPTION	SHT OF	DATE	APPROVED: PUBLIC WORKS ADMINISTRATOR
DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII McCULLY MOILIILI PUBLIC LIBRARY REPLACE AIR CONDITIONING CHILLER HONOLULU OAHU HAWAII PARTIAL REMOVAL FLOOR PLAN & NOTES INTEGRATED ENGINEERING CORP. DASH Job No. 12-36-6408 DRAWING NO. M-2 DESIGNED BY: CHECKED BY: DATE: NOV. 2008 SHEET 9 OF 17 SHTS EXPIRATION DATE OF THE LICENSE: 04/30/2010 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION SCALE: AS NOTED					

EXISTING CHILLED WATER SYSTEM HYDRAULIC DATA

CONTRACTOR TO RE-BALANCE THE EXISTING CHILLED WATER SYSTEM AS INDICATED BELOW.

EXISTING AHU #	AHU LOCATION	AREA SERVED	CAP. TONS*	CHILLED WATER GPM.*
AHU-1	FIRST FLOOR-MECHANICAL ROOM	LOBBY & CHILDREN READING AREA	14	32
AHU-2	FIRST FLOOR-STORY TELLING/MEETING ROOM CLOSET CEILING	LOBBY & CHILDREN READING AREA	6	13.5
AHU-3			6	13.5
AHU-4	SECOND FLOOR-MECHANICAL ROOM	ADULT'S READING ROOM (EAST)	18	50
AHU-5	SECOND FLOOR-MECHANICAL ROOM	ADULT'S READING ROOM (WEST)	10	31

NOTE: * INDICATES INFORMATION FROM AVAILABLE EXISTING DESIGN DRAWINGS.



- NOTES:**
1. CONTRACTOR SHALL ARRANGE WORK TO MINIMIZE AIR CONDITIONING SYSTEM DOWNTIME. THE CHILLER PLANT DOWNTIME SHALL BE LIMITED TO 7 DAYS.
 2. DURING THE A/C DOWNTIME, CONTRACTOR TO PROVIDE FOUR (4) TEMPORARY DEHUMIDIFIERS (TWO FOR FIRST FLOOR AND TWO FOR SECOND FLOOR) WITH MIN. 65 PINTS/DAY CAPACITY EACH. CONTRACTOR TO INSTALL DEHUMIDIFIERS IN THE LIBRARY AT LOCATIONS AS DIRECTED BY THE LIBRARIAN.
 3. CONTRACTOR TO PROVIDE TEMPORARY POWER, DRAIN PIPING AND OTHER SUPPORTS TO THE DEHUMIDIFIERS AS NEEDED.
 4. LIBRARY DOORS SHALL BE CLOSED AT ALL TIME DURING CONSTRUCTION PERIOD.

REVISION NO.	SYM	DESCRIPTION	SHT OF	DATE	APPROVED: PUBLIC WORKS ADMINISTRATOR

DEPT. OF ACCOUNTING & GENERAL SERVICES
DIVISION OF PUBLIC WORKS
STATE OF HAWAII

McCULLY MOILILI PUBLIC LIBRARY
REPLACE AIR CONDITIONING CHILLER
HONOLULU OAHU HAWAII

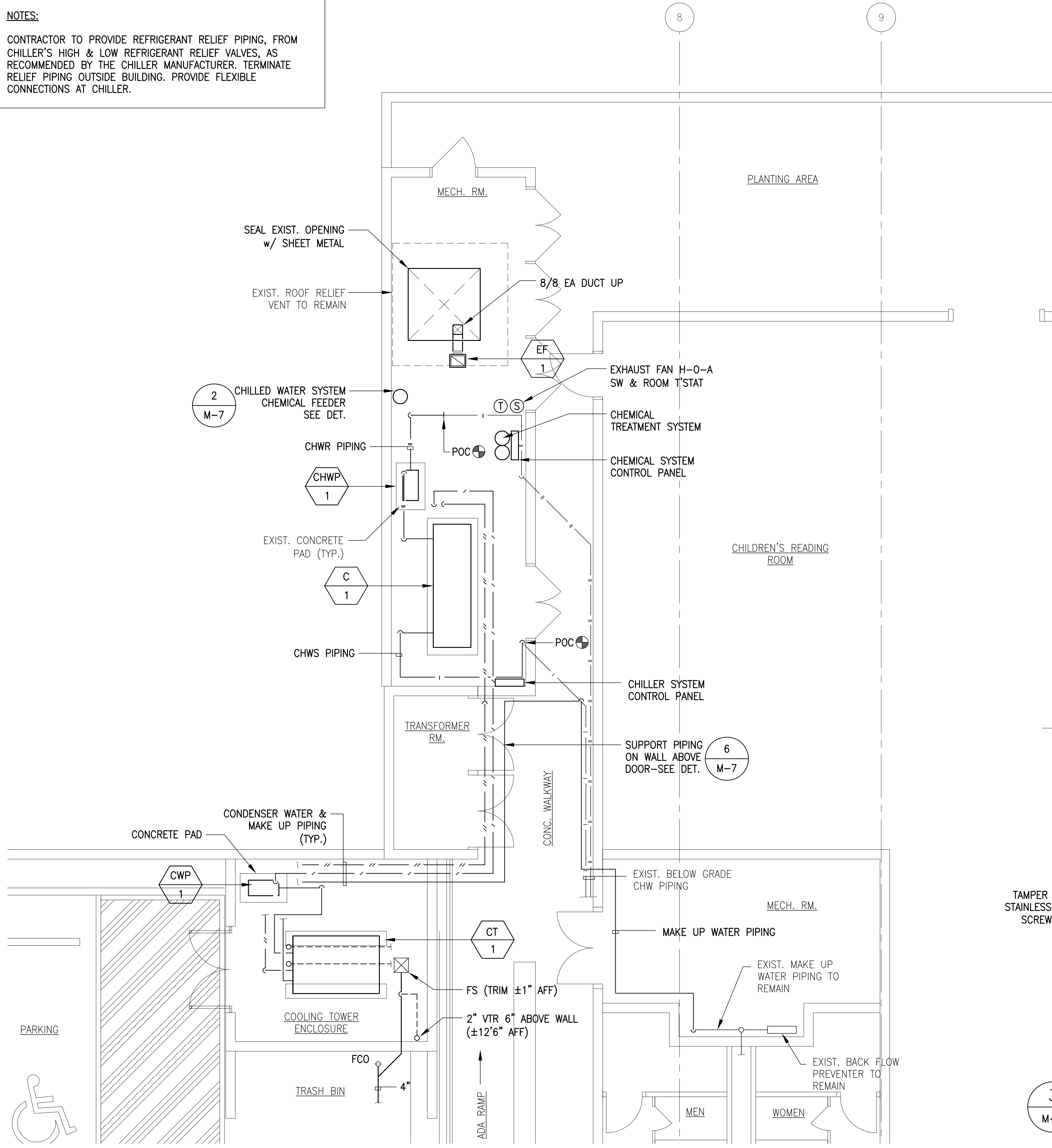
FLOOR PLAN

DESIGNED BY:	CHECKED BY:	DAGS Job No. 12-36-6408	DRAWING NO. M-3
DRAWN BY:	APPROVED:	DATE NOV. 2008	SHEET 10
SCALE: AS NOTED		OF 17 SHEETS	

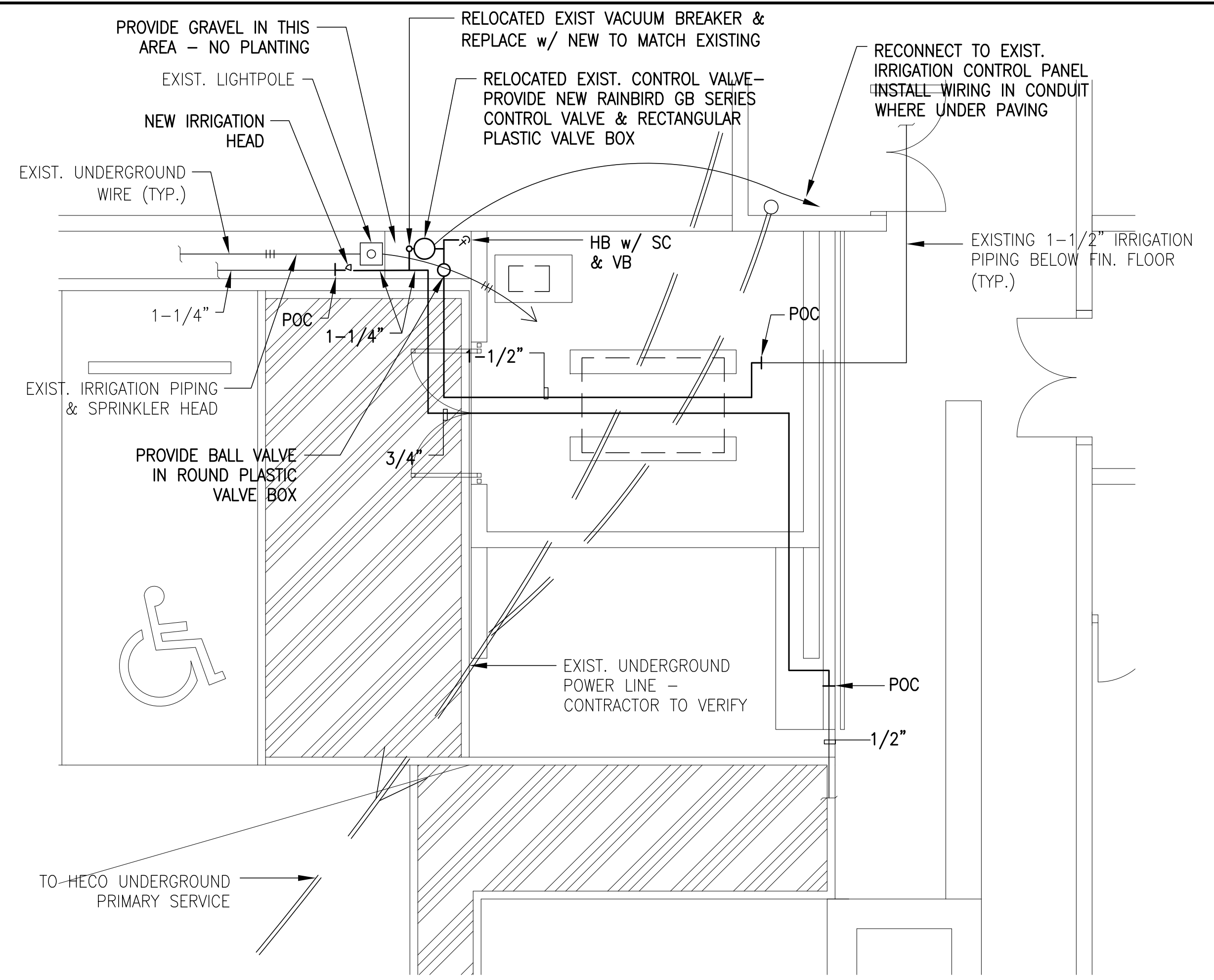
EXPIRATION DATE OF THE LICENSE: 04/30/2010
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

NORTH **FLOOR PLAN**
SCALE: 1/8" = 1'-0"

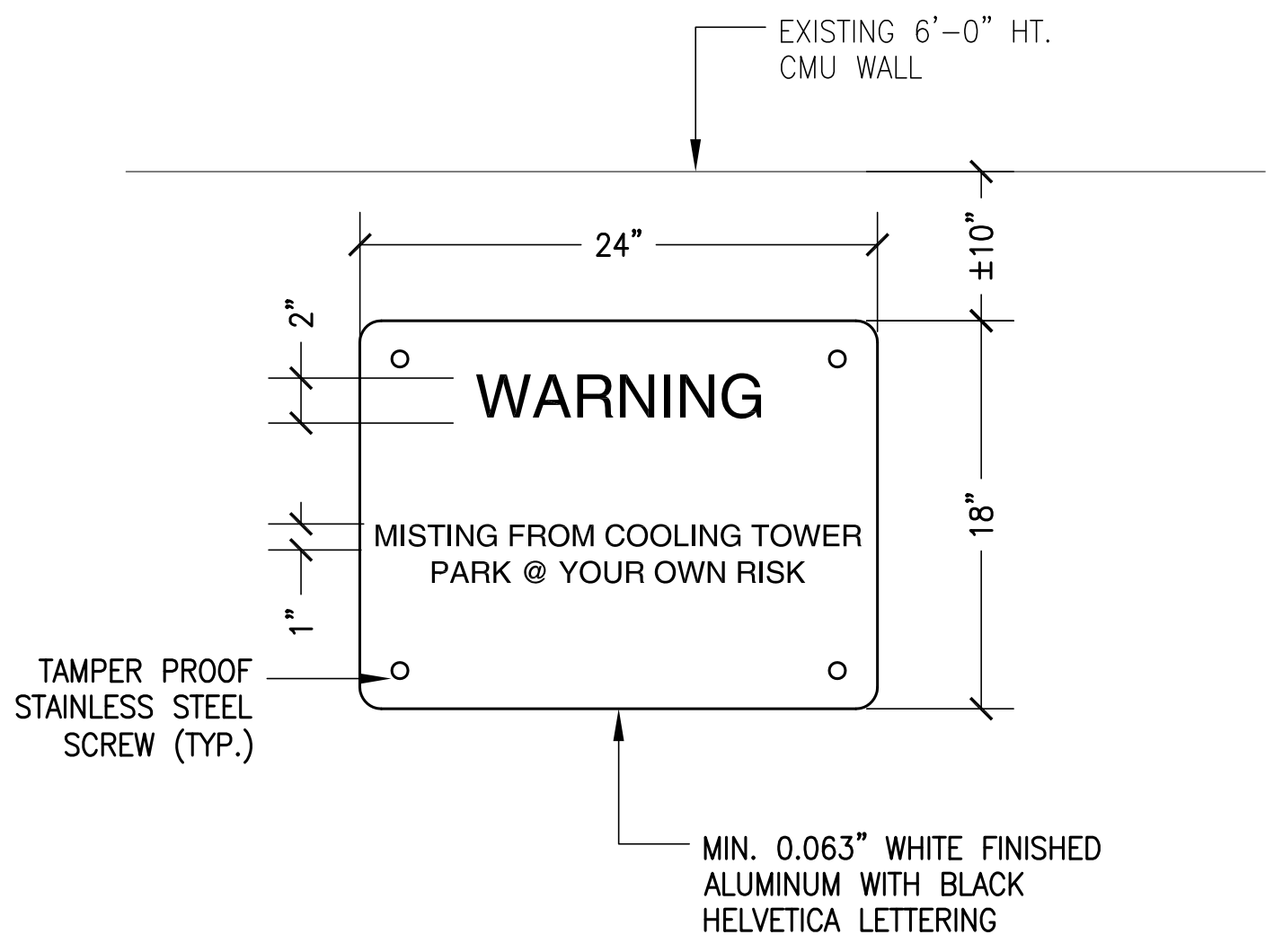
NOTES:
 CONTRACTOR TO PROVIDE REFRIGERANT RELIEF PIPING, FROM CHILLER'S HIGH & LOW REFRIGERANT RELIEF VALVES, AS RECOMMENDED BY THE CHILLER MANUFACTURER. TERMINATE RELIEF PIPING OUTSIDE BUILDING. PROVIDE FLEXIBLE CONNECTIONS AT CHILLER.



1 **DETAIL FLOOR PLAN**
 M-4 SCALE: 1/4" = 1'-0" (CHILLER SYSTEM)

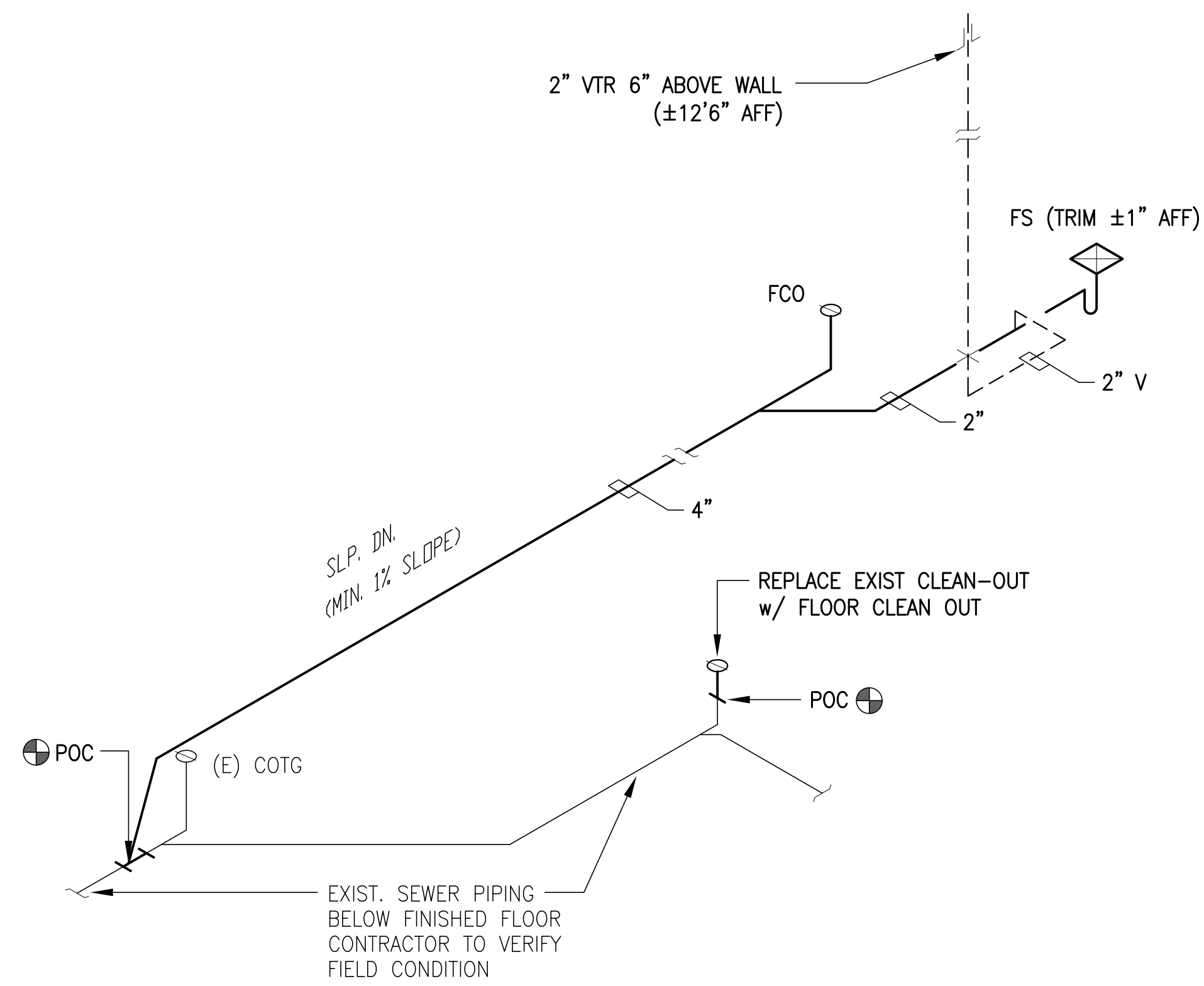


2 **DETAIL FLOOR PLAN**
 M-4 SCALE: 1/4" = 1'-0" (SITE WORKS)

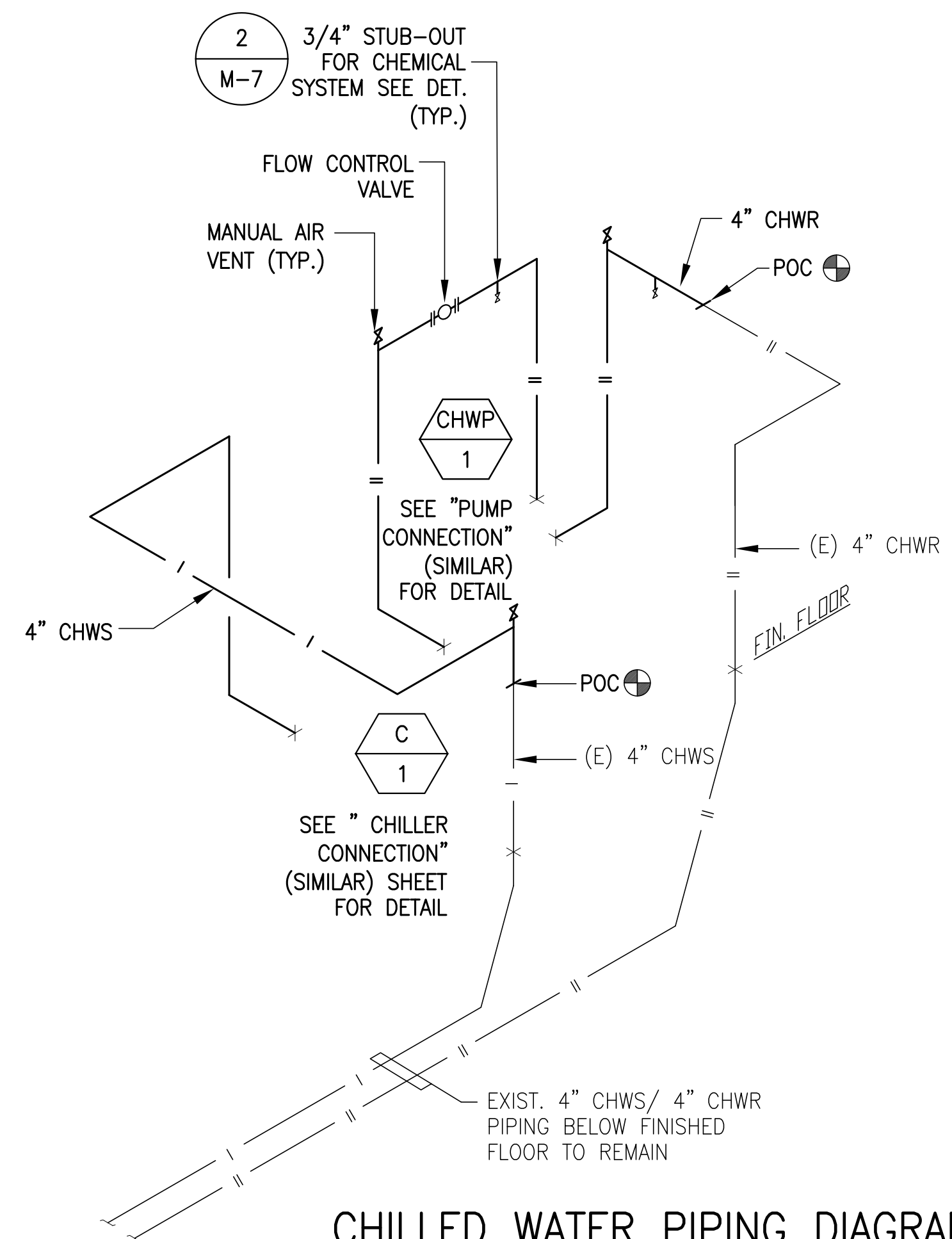


3 **PARKING WARNING SIGN**
 M-4 SCALE: 1-1/2" = 1'-0"

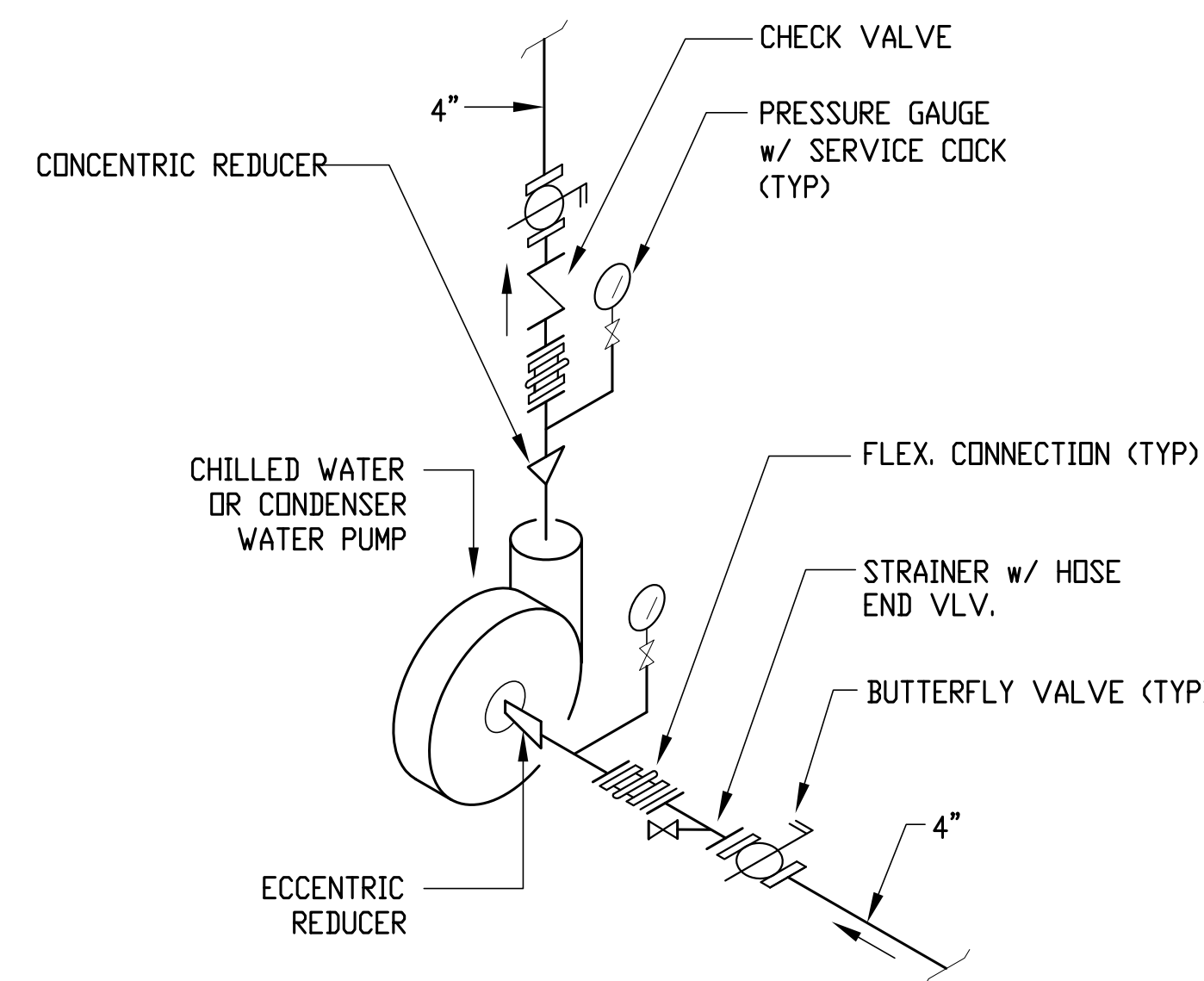
REVISION NO.	SYM	DESCRIPTION	SHT OF	DATE	APPROVED: PUBLIC WORKS ADMINISTRATOR
DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII					
McCULLY MOILIILI PUBLIC LIBRARY REPLACE AIR CONDITIONING CHILLER HONOLULU OAHU HAWAII					
DETAIL FLOOR PLANS					
INTEGRATED ENGINEERING CORP.			DAGS Job No.	DRAWING NO.	
DESIGNED BY:	CHECKED BY:	12-36-6408	M-4		
EXPIRATION DATE OF THE LICENSE: 04/30/2010	DRAWN BY:	APPROVED:	DATE	SHEET	
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION	SCALE: AS NOTED	NOV. 2008	11 OF 17 SHES		



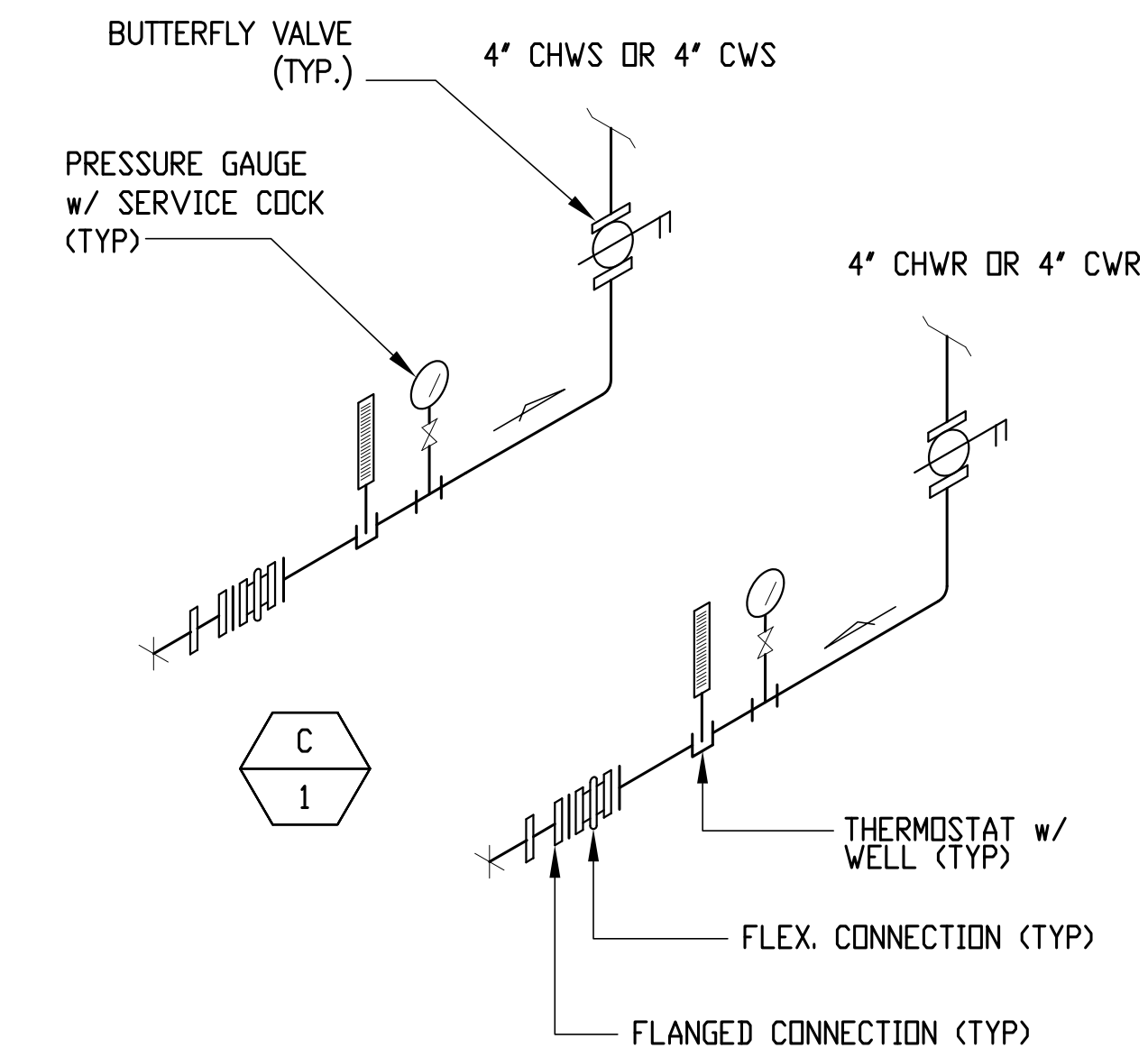
SANITARY PIPING DIAGRAM
NOT TO SCALE



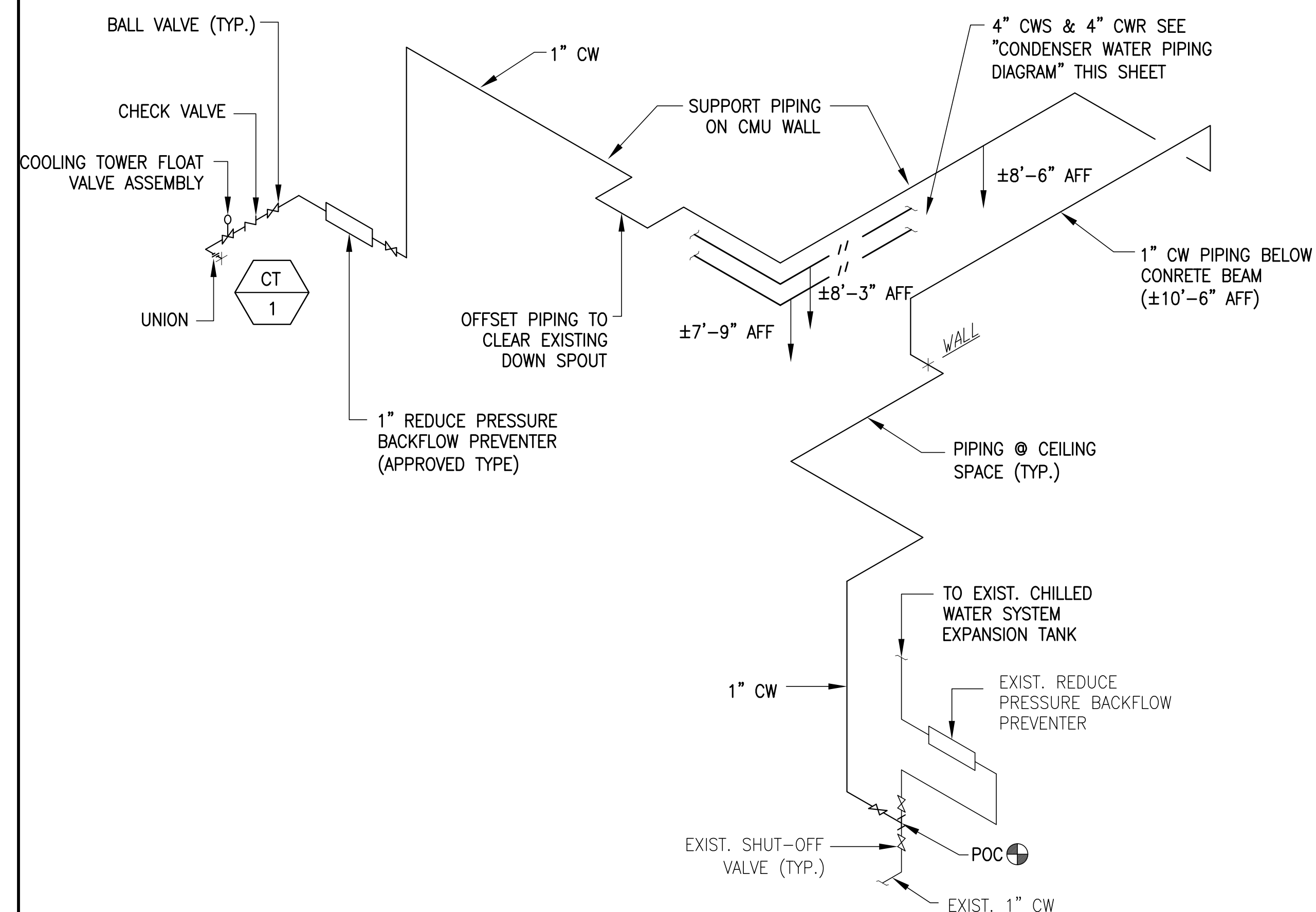
CHILLED WATER PIPING DIAGRAM
NOT TO SCALE



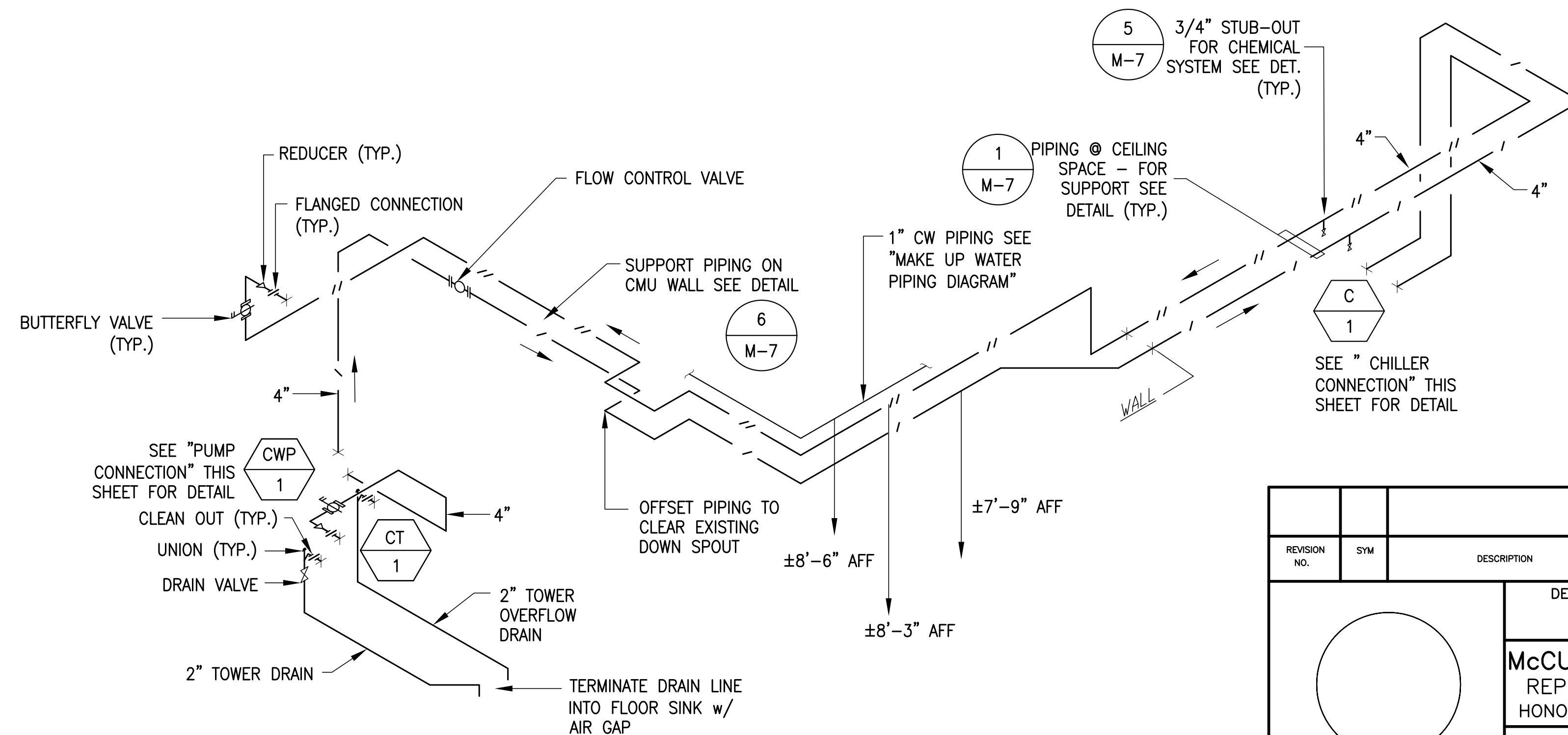
PUMP CONNECTION DETAIL
NOT TO SCALE



CHILLER CONNECTION DETAIL
NOT TO SCALE



MAKE UP WATER PIPING DIAGRAM
NOT TO SCALE



CONDENSER WATER PIPING DIAGRAM
NOT TO SCALE

REVISION NO.	SYM	DESCRIPTION	SHT OF	DATE	APPROVED: PUBLIC WORKS ADMINISTRATOR
DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII					
McCULLY MOILIILI PUBLIC LIBRARY REPLACE AIR CONDITIONING CHILLER HONOLULU OAHU HAWAII					
PIPING DIAGRAMS					
INTEGRATED ENGINEERING CORP.			DAGS Job No.	DRAWING NO.	
DESIGNED BY:			12-36-6408	M-5	
CHECKED BY:				SHEET	
DRAWN BY:				12	
APPROVED:				OF 17 SHTS	
EXPIRATION DATE OF THE LICENSE: 04/30/2010					
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION					
SCALE: AS NOTED					

CONTROL NOTES:

- Contractor to provide control system for all mechanical system to function as indicated.
- Contractor to verify the existing building air conditioning control system. Provide all necessary components for the existing air handler units (5 each) and tie into the new chiller plant to function as indicated.
- All control components shall meet NEMA requirements and all other applicable codes.
- Contractor shall provide conduits for control wiring per electrical specifications.
- All control wiring and conduits inside building shall be concealed inside wall and ceiling space.
- All control components exposed to weather shall be housed in a NEMA 4X enclosure & insulated as required to prevent condensation on or within component. Provide sheet metal cover for all control components exposed to weather. See drawings for details.
- All time delays shall be of adjustable type.
- Label all control components.
- Provide step down transformer for control circuit where required.
- Contractor shall provide control shop drawings showing details of control components, control diagrams with sequence of operation.
- Provide disconnect switches for any control circuits with separate voltages from the equipment.
- The entire air conditioning system shall be able to reset and re-start automatically after a power interruption.
- Provide phase & voltage protection for chiller and chilled water pump.
- Provide surge protection for chiller controls.

CONTROL SEQUENCES:

1. AIR HANDLER UNITS: (Existing)

(5 each)

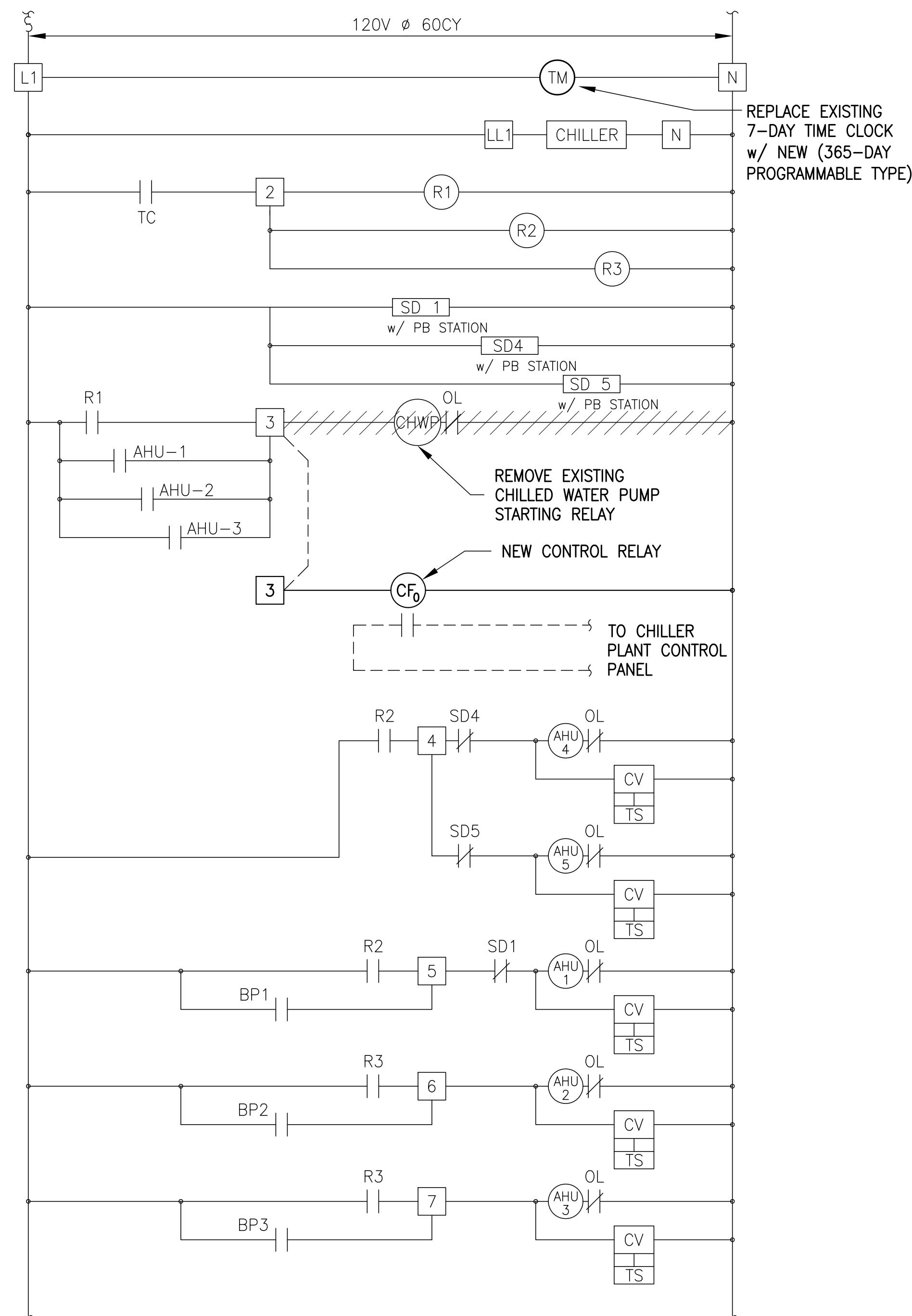
- The existing building air conditioning system, including five (5) air handler units and a chiller plant, is controlled by the electronic time clock (7-day).
- Each of the three (3) existing first floor air handler units (AHU-1, AHU-2 & AHU-3) is also controlled by a programmable electronic bypass switch. Activate any of the bypass switch will activate the building chilled water plant.
- Replace existing time clock with new. The new time clock shall be 365-day programmable type. The new time clock shall have large LCD display and simple keypad, holiday programming, built-in capacitors back-up. The new time clock shall be UL listed with NEMA 1 enclosure & knockouts.

2. CHILLER PLANT:

- The new building chilled water plant consists of an water-cooled packaged chiller, a cooling tower, a chilled water pump and a condenser water pump. The new chilled water plant shall be interlocked and controlled by the existing building air conditioning system's electronic time clock and the air handler units' bypass switches. Control Contractor to verify the existing building air conditioning control system and provide appropriate interface devices as needed.
- Each pump (chilled water pump & condenser water pump) shall have a hand-off-auto switch for manual start-up or shut down. Each pump's H-O-A switch shall have a pilot light to indicate the operational status of the unit. In automatic mode, the chilled water and condenser water pumps shall be controlled by the existing building air conditioning system control system.
- Activation of the existing building air conditioning system (through A/C time clock or air handler unit's bypass switch) shall initiate the chiller water system start-up sequences:
 - Turn on chilled water and condenser water pumps. The condenser water treatment system shall also be activated.
 - Turn on cooling tower after a time delay (initially set at 1 minute). The cooling tower start-up sequences and capacity controls shall be controlled by the cooling tower control panel as furnished by the cooling tower manufacturer. Control Contractor shall coordinate interface requirements with the manufacturer.
 - The chiller shall then start after a 120-second time delay, only if the pump (chilled water and condenser water) auxiliary contractors and the flow switches in the piping are closed, and if all the chiller safety switches are in normal position.
 - All equipments shall have overload protection.
- The chiller shall have a supply thermostat to control the compressor unloader to match the building cooling load requirements (thermostat maintains a constant chilled water supply temperature set at 45 degrees F.).
- All control components, including switches, pilot lights, control relays, time delays, etc., shall be housed in a lockable control panel. Switches and pilot light shall be mounted on the front cover of the control panel. Location of control panel as shown on drawings.

3. EXHAUST FAN:

- The Chiller Room exhaust fan (EF-1) shall be controlled by a Hand-Off-Auto switch. In "Auto" mode, the exhaust fan shall be activated by the room thermostat when the room temperature exceeds 85 °F. Provide pilot light on the switch to indicated the status of the fan. See drawings for thermostat and switch locations.

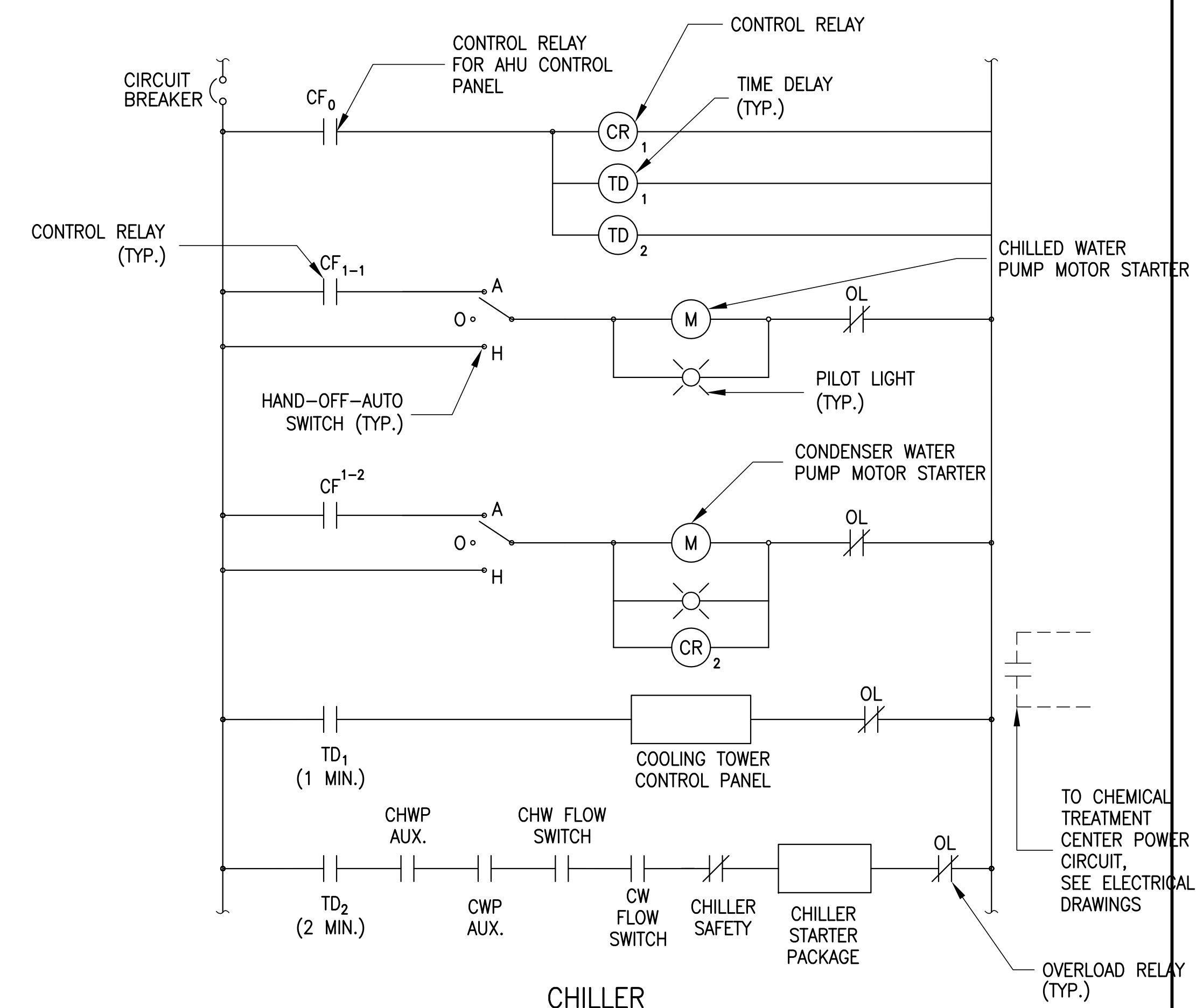


EXISTING A/C SYSTEM

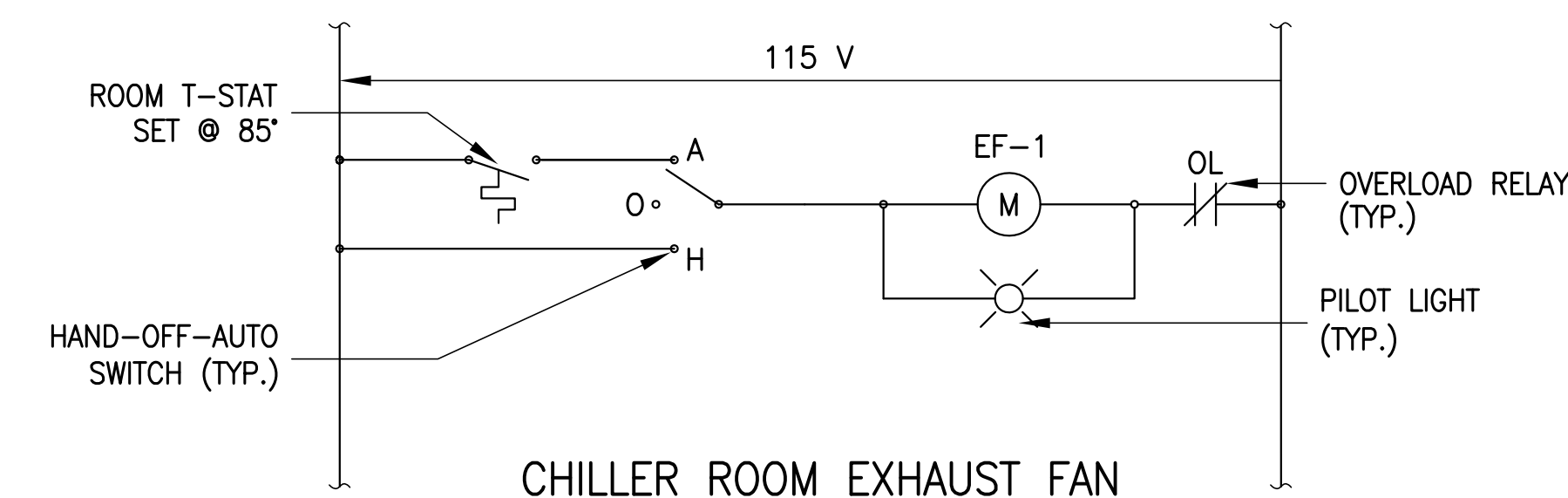
(REFERENCE TO THE AS-BUILT DRAWINGS OF THE EXISTING AIR CONDITIONING SYSTEM)

SCHMATIC CONTROL DIAGRAMS

NOT TO SCALE



CHILLER



CHILLER ROOM EXHAUST FAN

SCHMATIC CONTROL DIAGRAMS

NOT TO SCALE

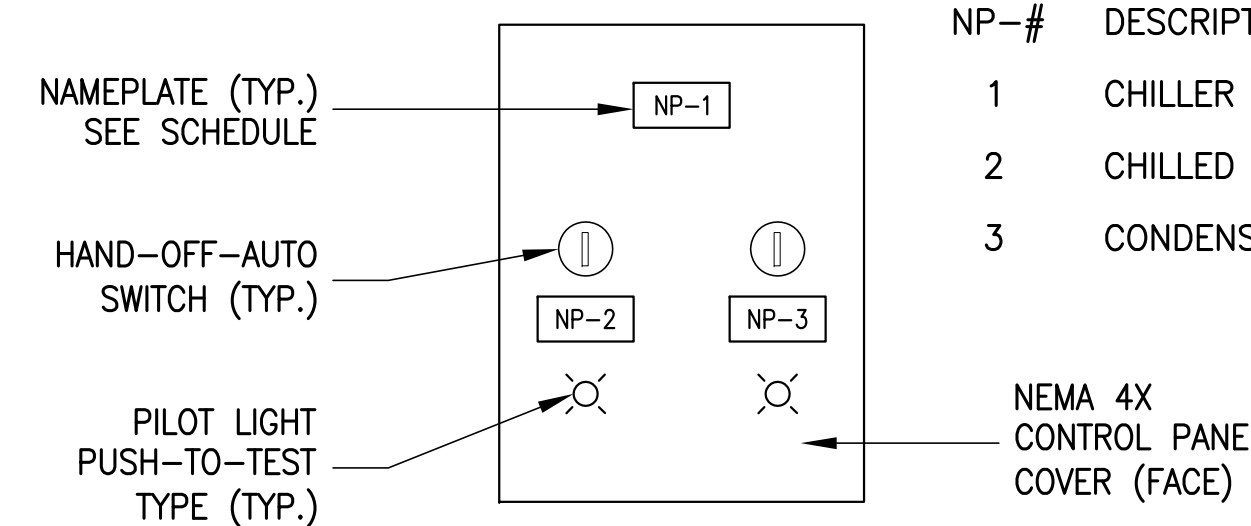
CONTROL LEGEND:

(EXISTING CONTROL SYSTEM)

□	TERMINALS
TM/TC	TIME CLOCK
R1,R2,R3	CONTROL RELAYS
SD	SMOKE DETECTORS
CHWP	CHILLED WATER PUMP
C.V.	CONTROL VALVES
T.S.	THERMOSTATS
BP1,2,3	BYPASS TIMER
OL	OVERLOADS
EF	EXHAUST FAN
MAF	MAKE-UP AIR FAN

NAMEPLATE SCHEDULE:

NP-#	DESCRIPTION
1	CHILLER PLANT CONTROL PANEL
2	CHILLED WATER PUMP (CHWP-1)
3	CONDENSER WATER PUMP (CWP-1)

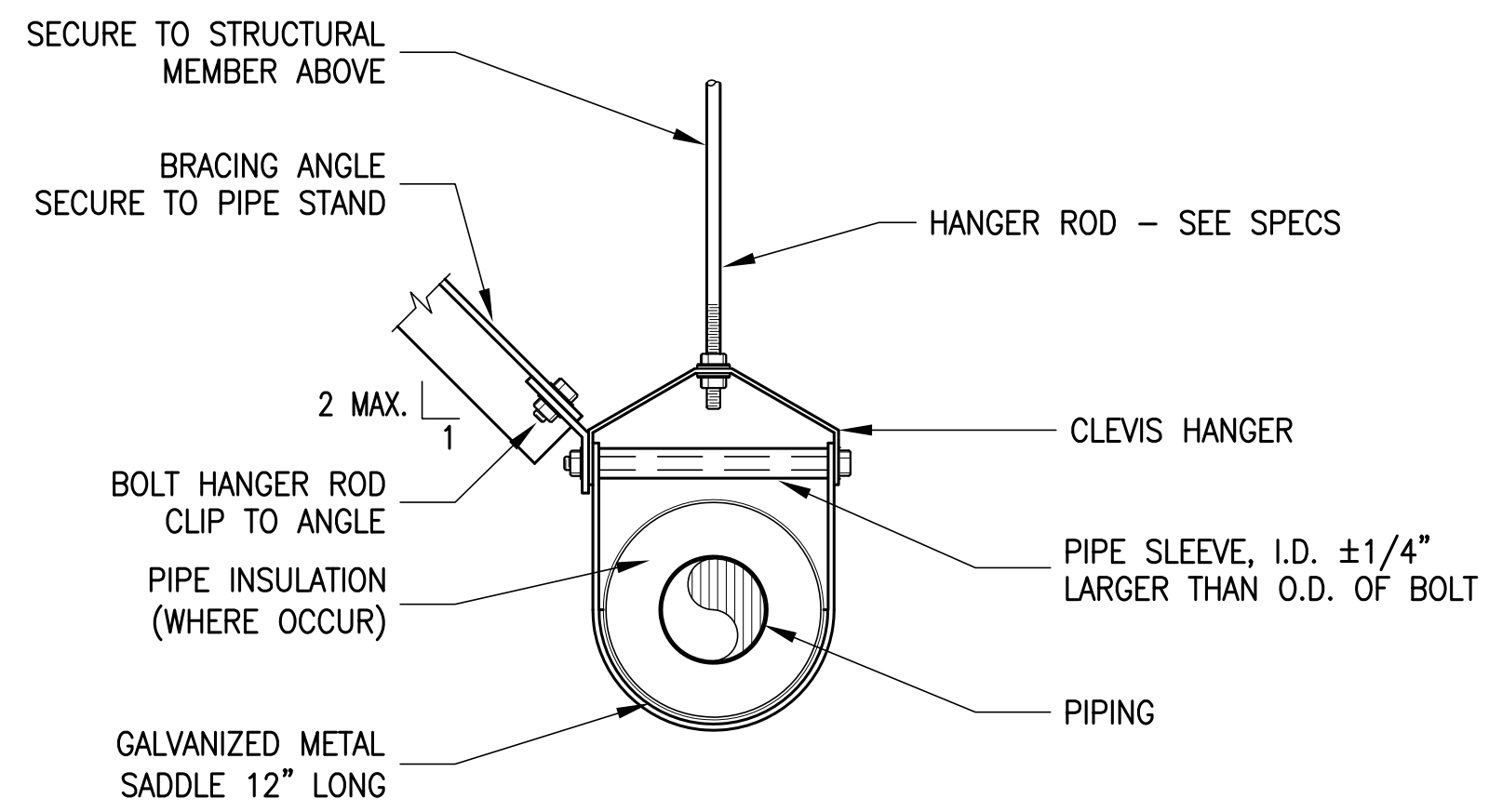


CONTROL PANEL DETAIL

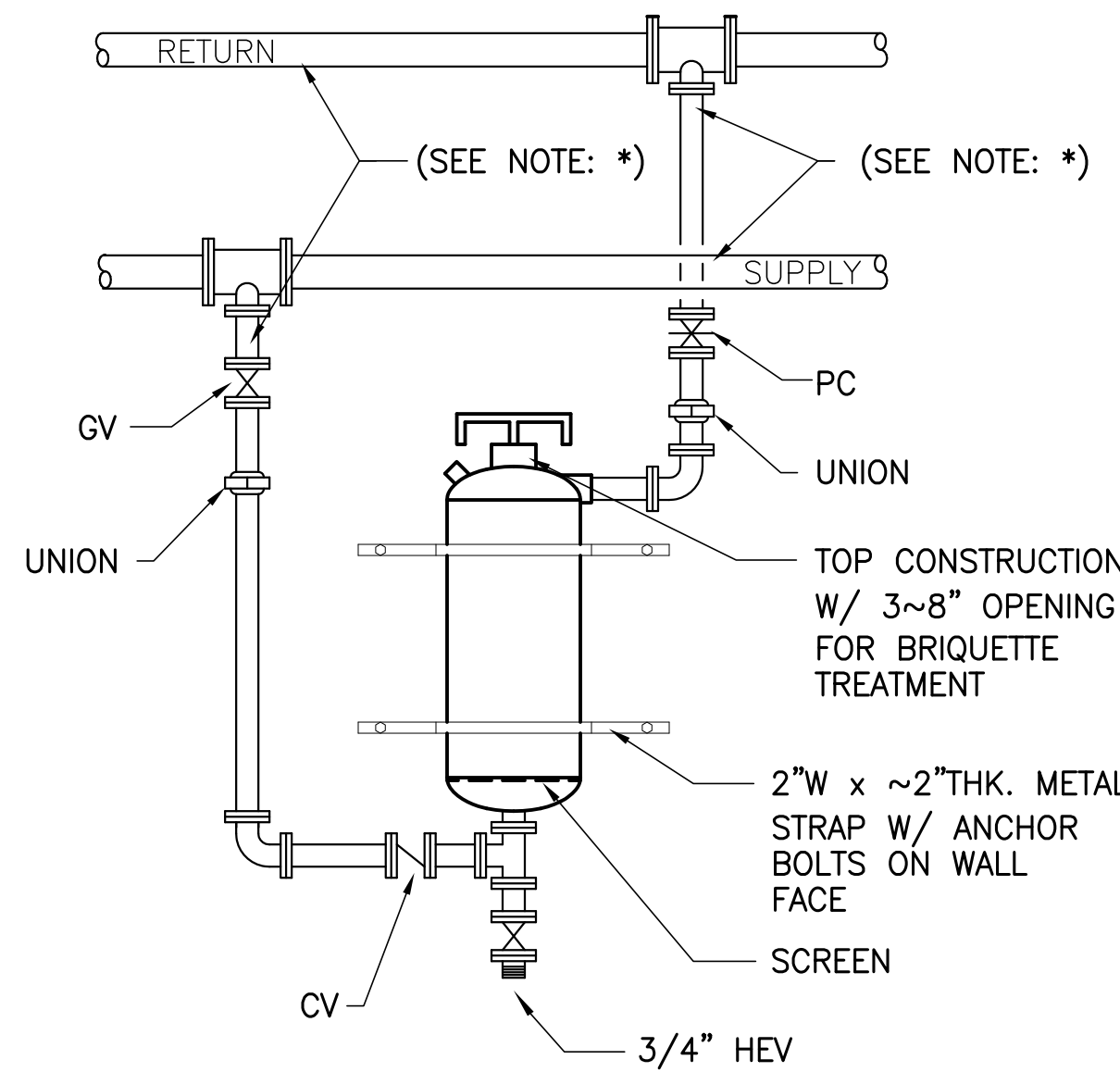
NOT TO SCALE

NOTE: CONTROL PANEL SHALL HAVE HINGED COVER AND CYLINDER LOCK.

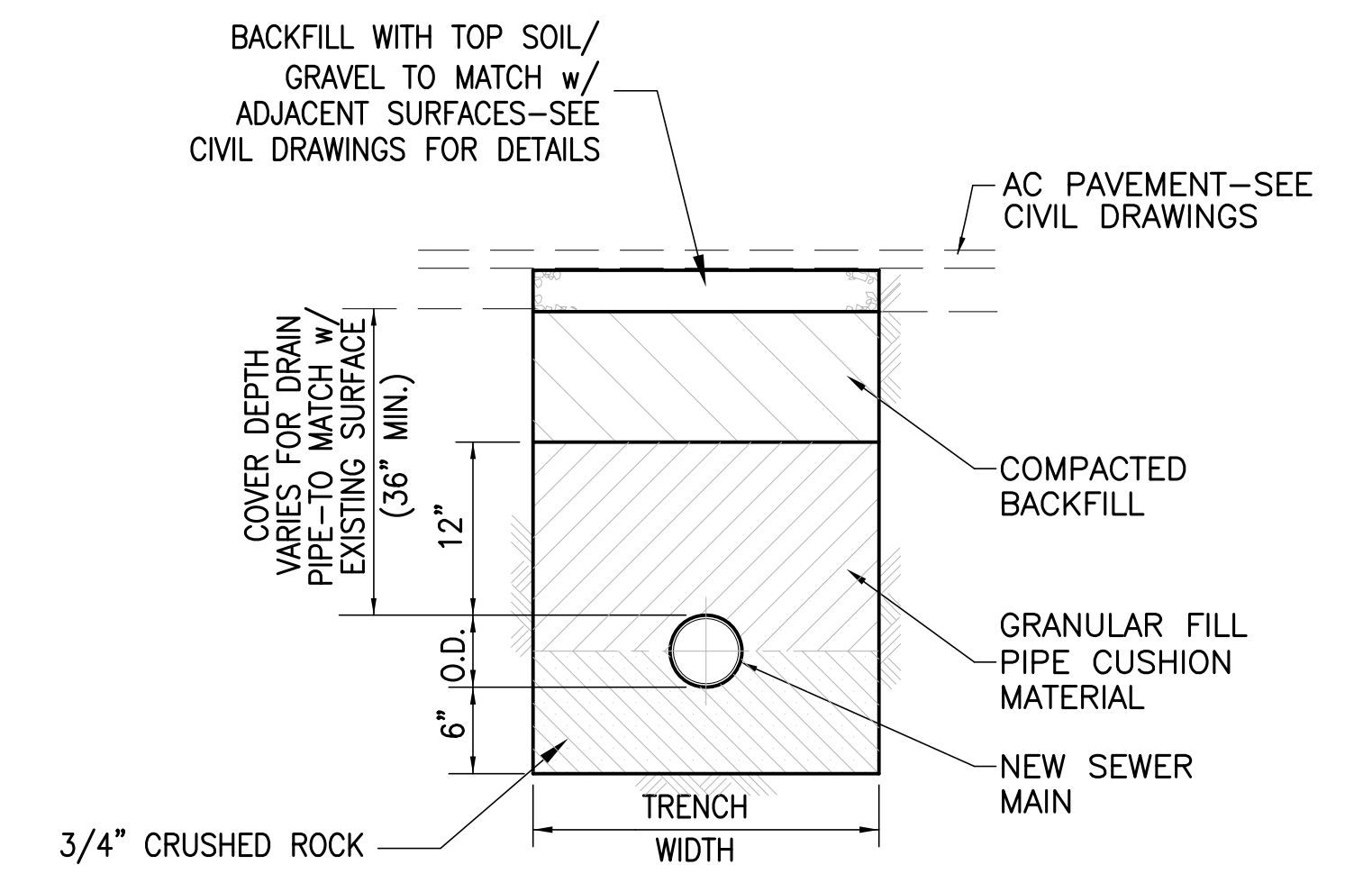
REVISION NO.	SYM	DESCRIPTION	SHT OF	DATE	APPROVED: PUBLIC WORKS ADMINISTRATOR
DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII					
McCULLY MOILILI PUBLIC LIBRARY REPLACE AIR CONDITIONING CHILLER HONOLULU OAHU HAWAII					
CONTROLS					
INTEGRATED ENGINEERING CORP.			DAGS Job No.		DRAWING NO.
DESIGNED BY:		CHECKED BY:		12-36-6408	
DRAWN BY:		APPROVED:		DATE	
SCALE: AS NOTED		NOV. 2008		SHEET 13 OF 17 SHTS	
EXPIRATION DATE OF THE LICENSE: 04/30/2010					
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION					



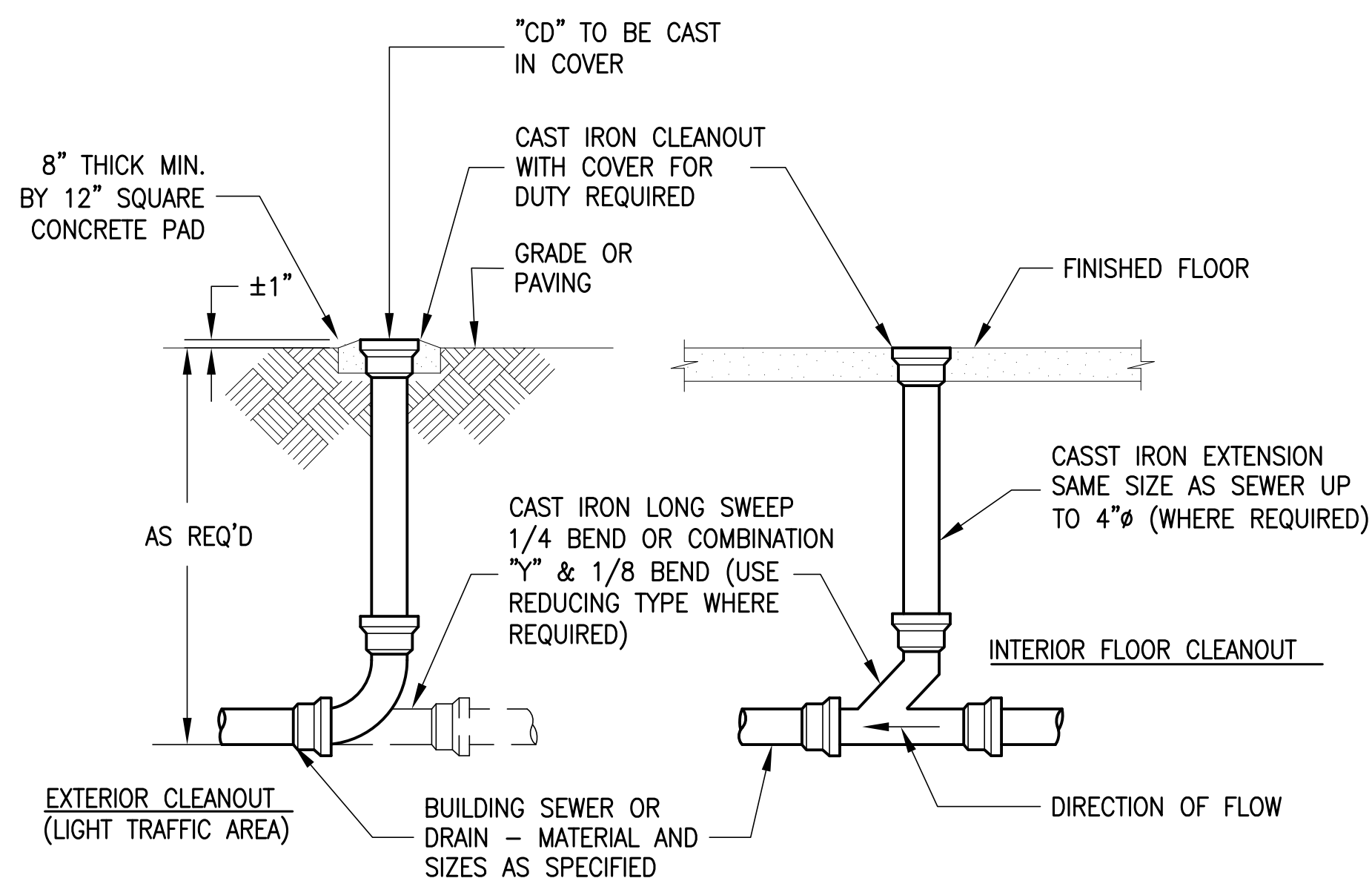
1 PIPE HANGER DETAIL
M-7 NOT TO SCALE



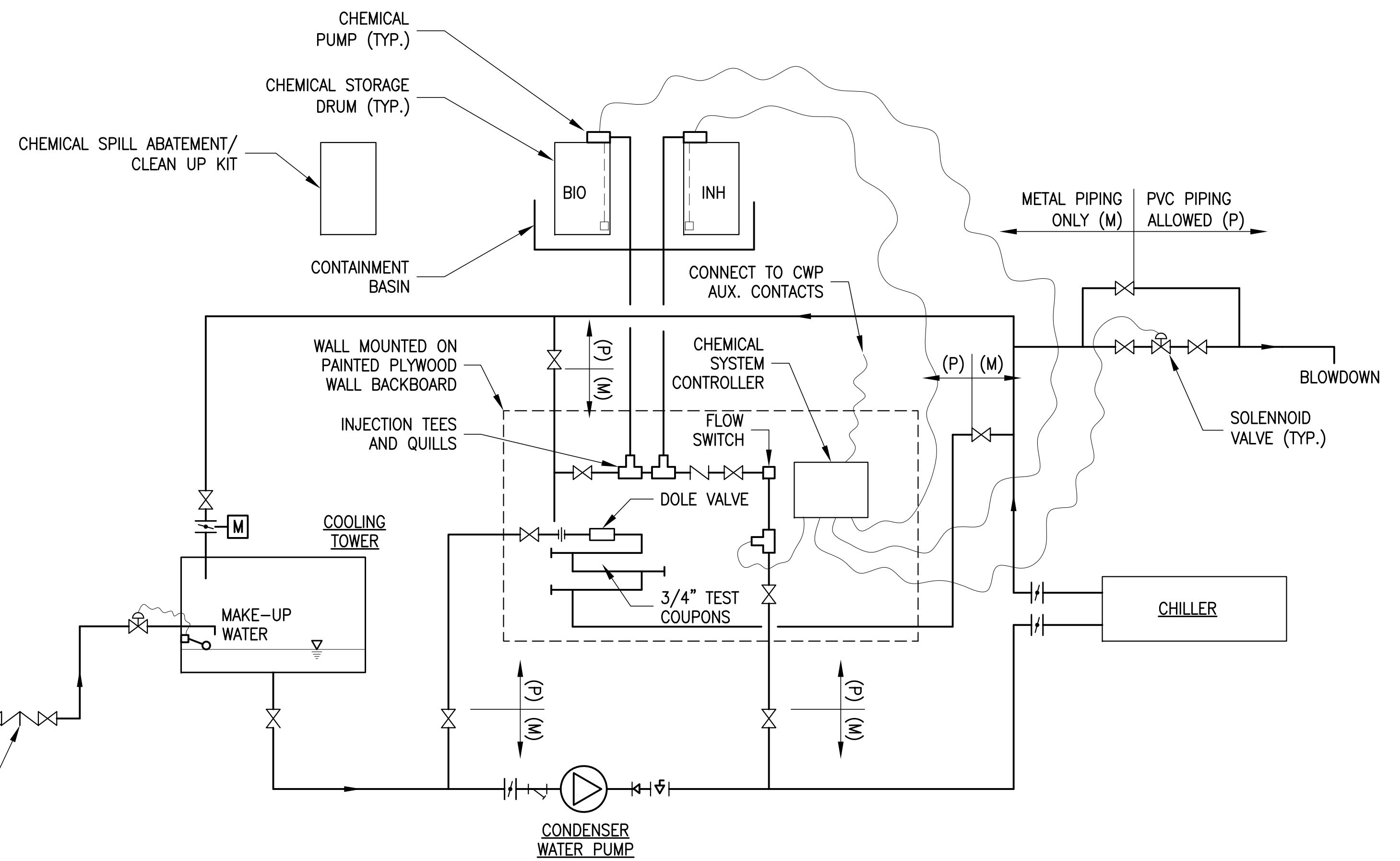
2 CHEMICAL BYPASS FEEDER DETAIL
M-7 NOT TO SCALE



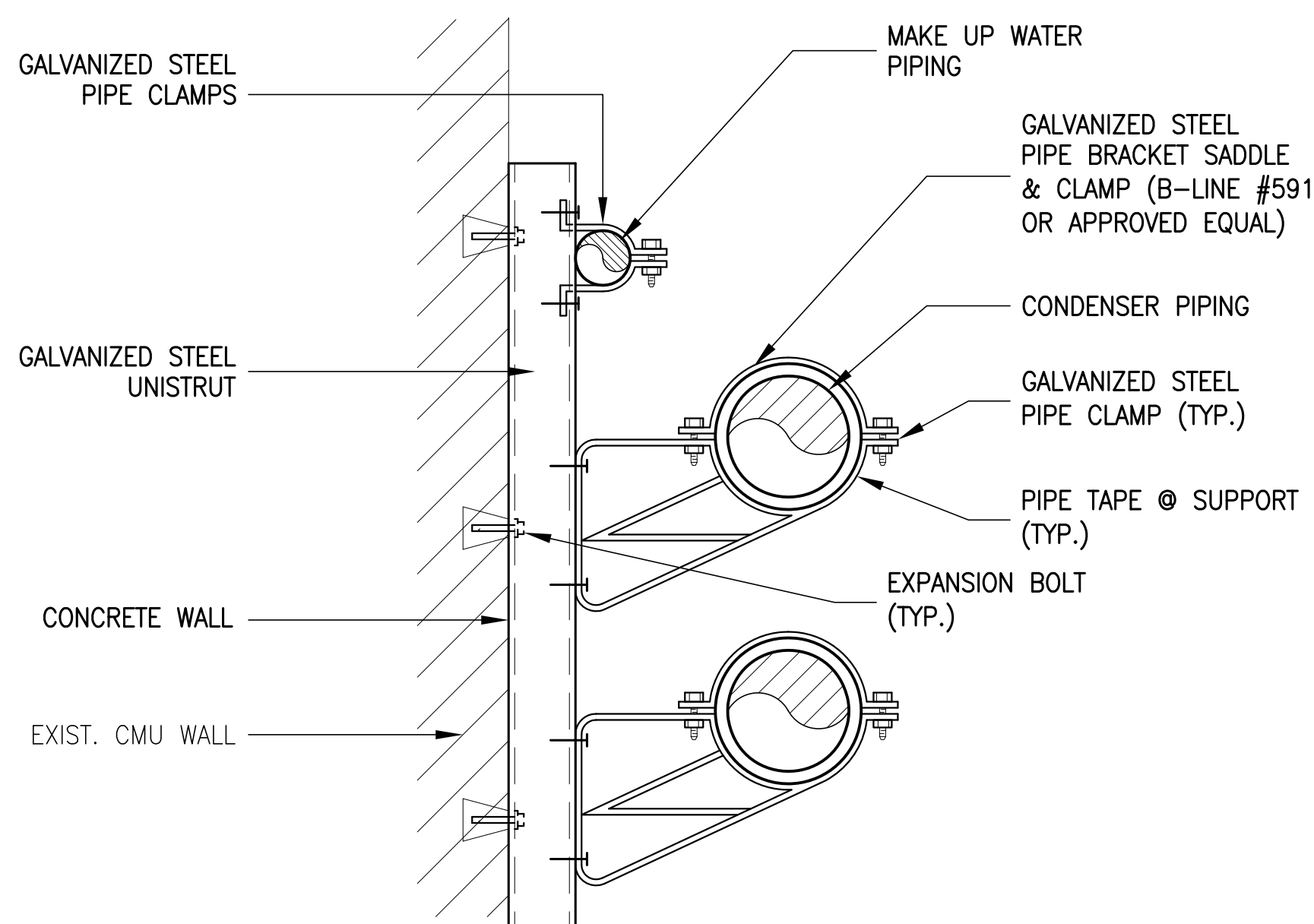
3 PIPE TRENCH DETAIL
M-7 NOT TO SCALE



4 FLOOR CLEANOUT DETAIL
M-7 NOT TO SCALE



5 CONDENSER WATER CHEMICAL TREATMENT SCHEMATIC DIAGRAM
M-7 NOT TO SCALE



6 PIPE SUPPORT DETAIL
M-7 NOT TO SCALE

GENERAL NOTES:

1. ALL SUPPORT MEMBERS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
2. PAINT COLD GALVANIZED ON ALL WELDED AREAS.
3. PROVIDE FINISH COAT AFTER INSTALLATION WITH EPOXY COATING. COLOR TO MATCH WITH EXISTING OR AS SELECTED BY THE CONTRACTING OFFICER.

REVISION NO.	SYM	DESCRIPTION	SHT OF	DATE	APPROVED: PUBLIC WORKS ADMINISTRATOR
DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII					
McCULLY MOILIILI PUBLIC LIBRARY REPLACE AIR CONDITIONING CHILLER HONOLULU OAHU HAWAII					
DETAILS					
INTEGRATED ENGINEERING CORP.			DAGS Job No.		DRAWING NO.
DESIGNED BY:	CHECKED BY:	12-36-6408		M-7	
DRAWN BY:	APPROVED:	DATE	SHEET		
SCALE: AS NOTED		NOV. 2008	14		
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION					
EXPIRATION DATE OF THE LICENSE: 04/30/2010					
OF 17 SHEETS					

PANEL "AC"		208Y/120 VOLTS	3Ø, 3W			
400A MAIN LUGS ONLY		BRANCH BKR I.C.			22,000 AMPS	
SURFACE, 20" WIDE CABINET, INDUSTRIAL-BOLTED						
CKT NO.	BKR	L O A D	KVA			WIRE
			A	B	C	
1	3P250A	CHILLER #1	24.6	24.6	24.6	#4/0
2	3P60A	PUMP #1	2.9	2.9	2.9	8
3	3P40A	PUMP #2	2.0	2.0	2.0	10
4	3P70A	COOLING TOWER #1	3.7	3.7	3.7	6
5	3P100A	P F B				
6	3P100A	P F B				
T O T A L			33.2	33.2	33.2	

DEMOLITION NOTES

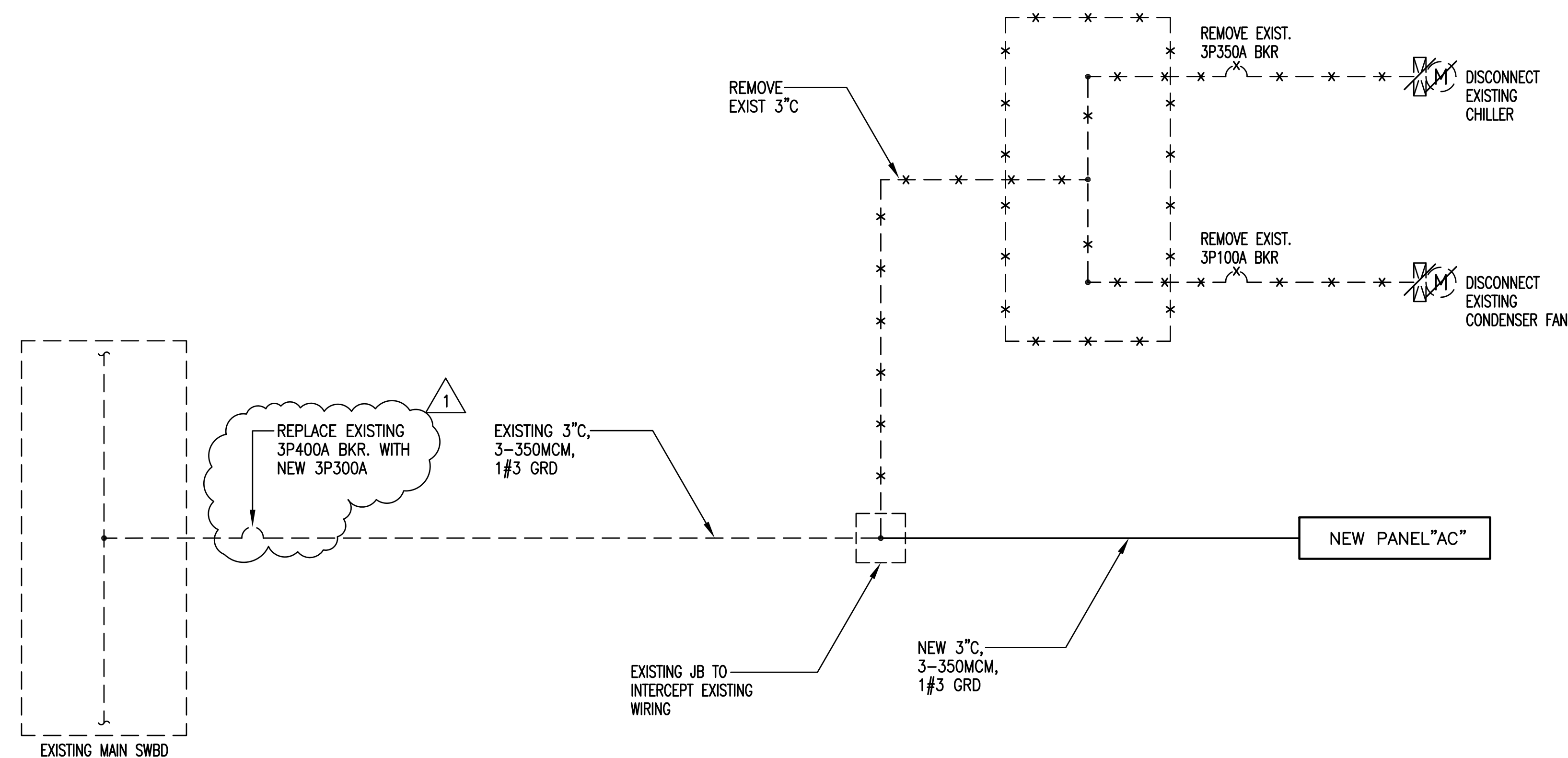
- EXISTING PLANS DO NOT INDICATE COMPLETE EXISTING WIRING CONDITIONS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO START OF WORK.
- BEFORE ANY WIRING IS CUT, CONTRACTOR SHALL VERIFY USAGE OF WIRING TO BE CUT TO ASSURE THAT SERVICES REQUIRED ARE NOT DISCONTINUED. PROVIDE ADDITIONAL WIRING DEVICES AND OTHER ACCESSORIES TO ENSURE CONTINUITY OF SERVICE TO OTHER PARTS OF INSTALLATION TO REMAIN.
- REMOVE ALL EXISTING WIRING NOT TO REMAIN IN SERVICE.
- REMOVE ALL CONDUITS NO LONGER REQUIRED.
- PHASE WORK TO ASSURE CONTINUITY OF ELECTRICAL, TELEPHONE AND SIGNAL SERVICES TO PARTS OF FACILITIES THAT WILL REMAIN IN USE.
- REMOVE ALL EXISTING EQUIPMENT CIRCUIT BREAKERS AND SWITCHES INDICATED TO BE REMOVED OR NO LONGER REQUIRED. BLANK OUTLETS AND PLUG ALL HOLES IN BOXES AND CABINETS.
- DELIVER ALL SALVAGEABLE MATERIAL AS DETERMINED BY ENGINEER AT NO ADDITIONAL COST TO STATE. PACK MATERIAL IN BOXES. COIL ALL CABLES AND TIE.

ELECTRICAL SYMBOLS

- EXISTING DUPLEX CONVENIENCE OUTLET TO REMAIN
- EXISTING JUNCTION BOX
- EXISTING MOTOR OUTLET TO BE DISCONNECTED
- EXISTING PANELBOARD
- MOTOR OUTLET
- MOTOR CONTROLLER
- SAFETY SWITCH
-
-
- WEATHERPROOF
- WALL LUMINAIRE
-

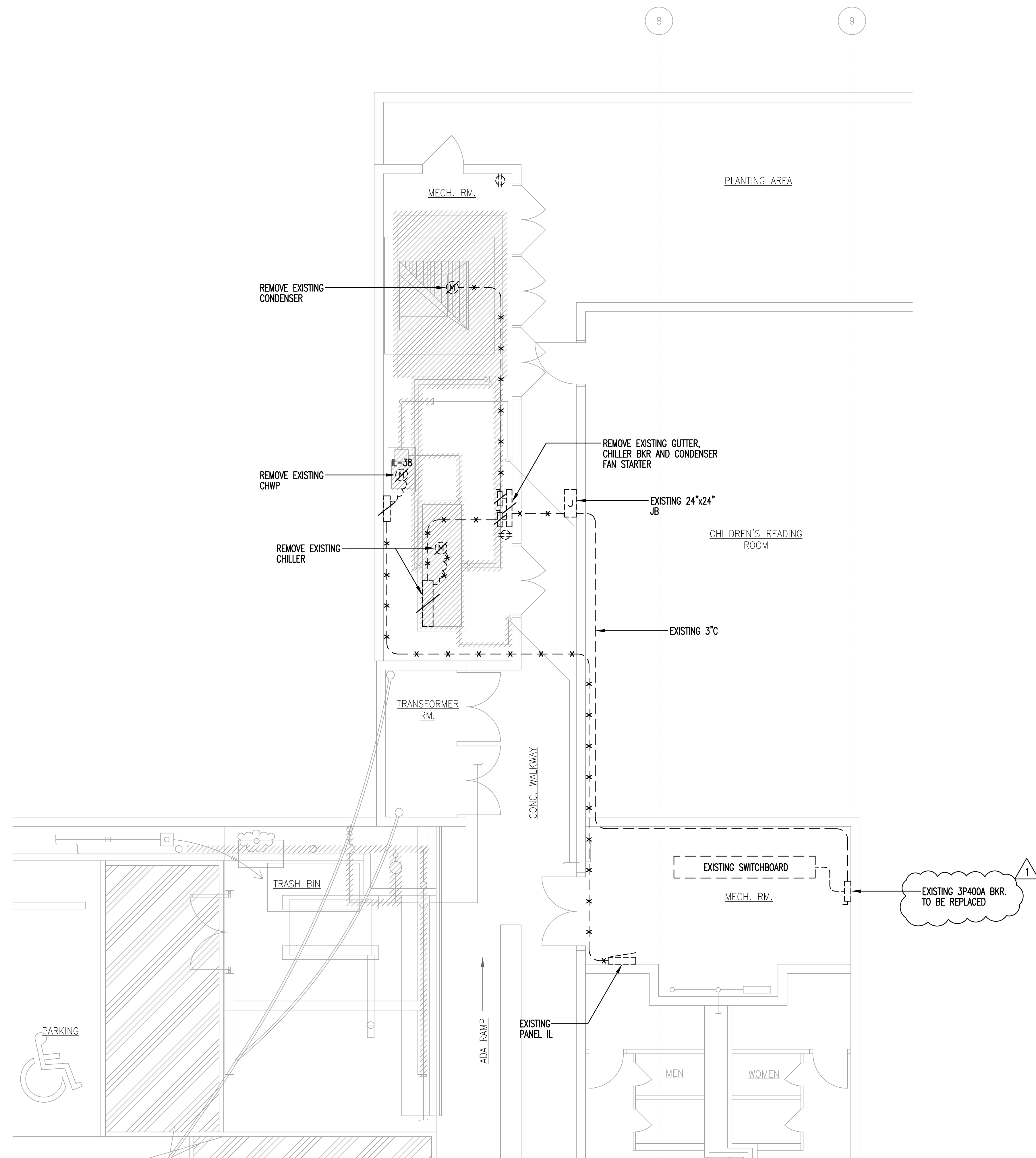
- WIRING IN EXISTING RACEWAY TO BE REMOVED
- WIRING IN EXISTING RACEWAY TO REMAIN
- WIRING IN EXPOSED RACEWAY

- NOTES:**
- ANY CIRCUIT WITH NO FURTHER DESIGNATION INDICATES A TWO WIRE CIRCUIT. CIRCUITS WITH ADDITIONAL WIRES ARE INDICATED AS FOLLOWS: , 3 WIRES: , 4 WIRES, ETC.
 - GROUND WIRE PER NATIONAL ELECTRICAL CODE INDICATED AS FOLLOWS: .
 - ALL EXPOSED CONDUIT AND BOXES SHALL BE PAINTED TO MATCH ADJACENT WALL OR CEILING SURROUNDING.



SINGLE LINE DIAGRAM

PCD #1	1	BLDG. DEPT. COMMENTS			
REVISION NO.	SYM	DESCRIPTION	SHT OF	DATE	APPROVED: FACILITIES PLANNING & CONSTRUCTION
DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII					
McCULLY MOILILI PUBLIC LIBRARY REPLACE AIR CONDITIONING CHILLER HONOLULU OAHU HAWAII					
PANEL SCHEDULE, DEMOLITION NOTES, ELECTRICAL SYMBOLS, SINGLE LINE DIAGRAM					
INTEGRATED ENGINEERING CORP.			DAGS Job No.	DRAWING NO.	
DESIGNED BY: CP	CHECKED BY: JY	12-36-6408		E-1	
DRAWN BY: ESB	APPROVED: CP	DATE	SHEET		
EXPIRATION DATE OF THE LICENSE: 04/30/2010			NOV. 2008	OF SHEETS	
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION			SCALE:	AS NOTED	

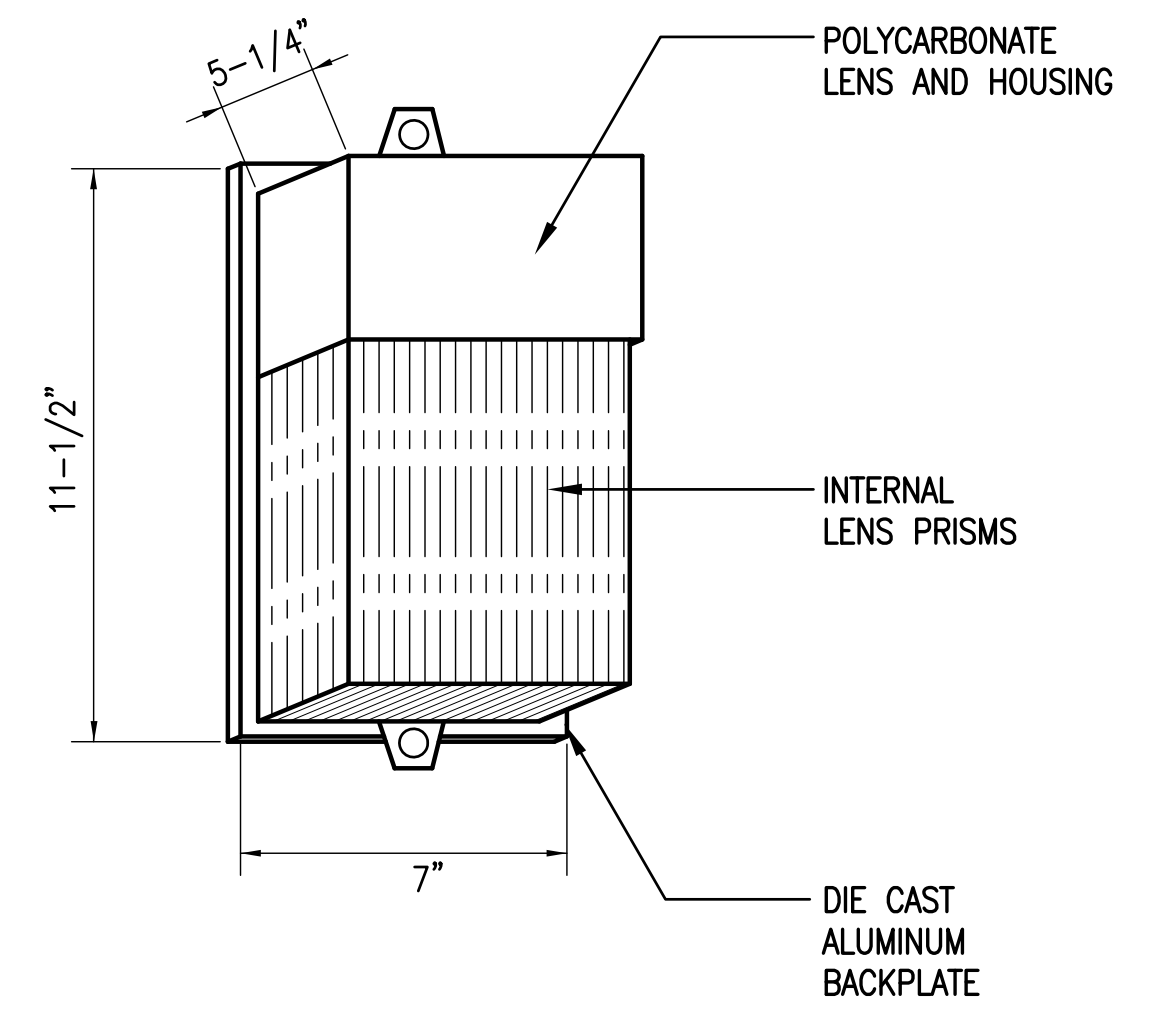
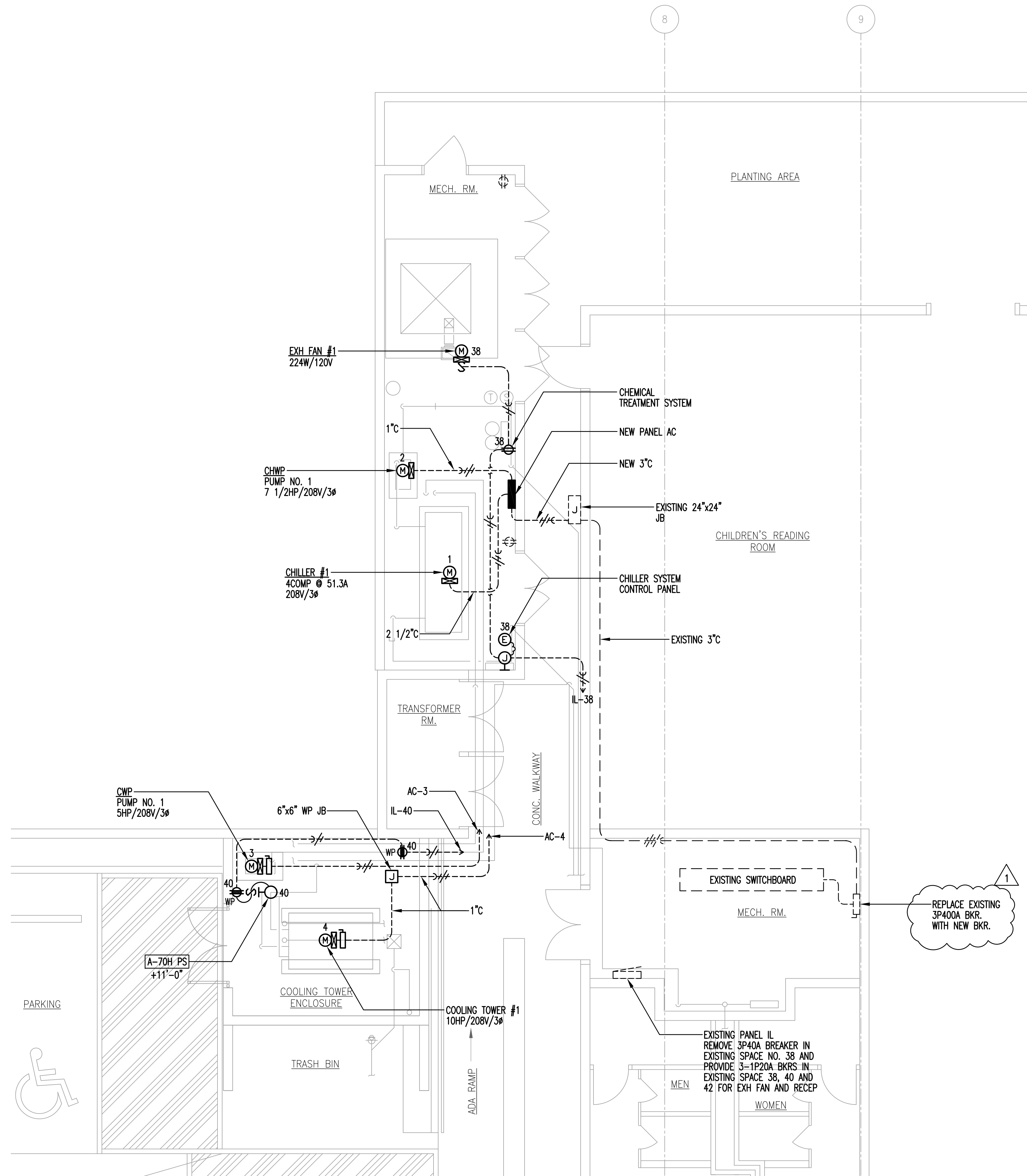


1
E-2

ELECTRICAL DEMOLITION PLAN

SCALE: 1/4" = 1'-0"

PCD #1	1	BLDG. DEPT. COMMENTS			
REVISION NO.	SYM	DESCRIPTION	SHT OF	DATE	APPROVED: FACILITIES PLANNING & CONSTRUCTION
		DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII			
		McCULLY MOILIILI PUBLIC LIBRARY REPLACE AIR CONDITIONING CHILLER HONOLULU OAHU HAWAII			
		ELECTRICAL DEMOLITION PLAN			
DESIGNED BY: CP		CHECKED BY: JY		DAGS Job No. 12-36-6408	DRAWING NO. E-2
DRAWN BY: ESB		APPROVED: CP		DATE NOV. 2008	SHEET OF
EXPIRATION DATE OF THE LICENSE: 04/30/2010		SCALE: AS NOTED			
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION					



DARK BRONZE ENAMEL FINISH
 AVAILABLE WITH PHOTOCONTROL
 AND TAMPER-PROOF SCREWS
 U.L. LISTED FOR WET LOCATIONS

LUMINAIRE TYPE A-70HPS - 70W HIGH PRESSURE SODIUM LAMP

1 ELECTRICAL PLAN
 E-3 SCALE: 1/4" = 1'-0"

PCD #1	1	BLDG. DEPT. COMMENTS			
REVISION NO.	SYM	DESCRIPTION	SHT OF	DATE	APPROVED: FACILITIES PLANNING & CONSTRUCTION
DEPT. OF ACCOUNTING & GENERAL SERVICES DIVISION OF PUBLIC WORKS STATE OF HAWAII McCULLY MOILIILI PUBLIC LIBRARY REPLACE AIR CONDITIONING CHILLER HONOLULU OAHU HAWAII ELECTRICAL PLAN, LUMINAIRE TYPE DETAIL					
INTEGRATED ENGINEERING CORP. DESIGNED BY: CP DRAWN BY: ESB			DABS Job No. 12-36-6408 CHECKED BY: JY APPROVED: CP		DRAWING NO. E-3 SHEET OF SHTS
EXPIRATION DATE OF THE LICENSE: 04/30/2010 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION				DATE NOV. 2008	SCALE: AS NOTED