CMB Drawings

PETRO-CHEM ENGINEERING DRAWINGS - CONTAINER MANAGEMENT BUILDING

DRAWING NUMBER	DRAWING DESCRIPTION
ARCHITECTURAL AND STRUCTURAL	
A-1	Container Management Bldg. - Floor Plan
A-2	Container Management Bldg. - Exterior Elevations
A-3	Container Management Bldg. - Exterior Elevations and Sections
A-4	Container Management Bldg. - Floor Plan, Schedules and Details
A-9	Details
ELECTRICAL	
E-1	Legend
E-2	Site Plan
E-3	Container Management Bldg. and Heel Management Buildings - One-Lines
E-4	Container Management Bldg. - Lighting Floor Plan
E-5	Container Management Bldg. - Power Floor Plan
E-7	Details
FIRE PROTECTION	
F-1	Container Management Bldg. - Fire Protection Flow Diagram
F-2	Container Management Bldg. - Fire Protection Floor Plan
GENERAL	
G-1	Existing Site Plan
G-2	Proposed Site Plan
G-3	Site Details & Schedules
G-4	Details
G-5	Container Management Bldg. - Containment Areas
MECHANICAL	
M-1	Container Management Bldg. - Heating and Ventilating Flow Diagram
M-2	Container Management Bldg. and Heel Management Building - Flow Diagram

PETRO-CHEM ENGINEERING DRAWINGS - CONTAINER MANAGEMENT BUILDING

DRAWING NUMBER	DRAWING DESCRIPTION
M-3	Container Management Bldg. - Floor Plan
M-3A	Pump Room Enlarged Plan
M-4	Container Management Bldg. - Details and Schedules
STRUCTURAL	
S-1	Container Management Bldg. - Partial Foundation Plan
S-2	Container Management Bldg. - Partial Foundation Plan
S-4	Container Management Bldg. - Detail Sheet
S-5	Container Management Bldg. & Heel Management - Detail Sheet
S-6	Container Management Bldg. & Heel Management - Detail Sheet
71	BB Inspection
72	BB Inspection
73	BB Inspection
TK001	Asbuilt Drawing Clawson Tank TK001
TK002	Asbuilt Drawing Clawson Tank TK002
SUPA1	Lab/Office Drawings
SUPA2	Lab/Office Drawings
SUPA3	Lab/Office Drawings
SUPA4	Lab/Office Drawings

PSC ENVIRONMENTAL SERVICES DIVISION
DETROIT FACILITY REBUILD

515 LYCASTE AVE., DETROIT, MICHIGAN

142-17450-07-01

SHEET INDEX:	
SHEET NO.	SHEET TITLE
GENERAL	
G–1	EXISTING SITE PLAN
G–2	PROPOSED SITE PLAN
G–3	SITE DETAILS & SCHEDULES
G–4	DETAILS
G–5	CONTAINER MANAGEMENT BLDG. – CONTAINMENT AREAS
ARCHITECTURAL AND STRUCTURAL	
A–1	CONTAINER MANAGEMENT BLDG. – FLOOR PLAN
A–2	CONTAINER MANAGEMENT BLDG. – EXTERIOR ELEVATIONS
A–3	CONTAINER MANAGEMENT BLDG. – EXTERIOR ELEVATIONS AND SECTIONS
A–4	CONTAINER MANAGEMENT BLDG. – FLOOR PLANS, SCHEDULES AND DETAILS
A–5	HEEL MANAGEMENT BLDG – PLAN AND SECTION
A–6	HEEL MANAGEMENT BLDG – EXTERIOR ELEVATIONS
A–7	SDG/ELECTRICAL BLDG – FLOOR & ROOF PLAN
A–8	SDG/ELECTRICAL BLDG – ELEVATIONS
A–9	DETAILS
STRUCTURAL	
S–1	CONTAINER MANAGEMENT BLDG. – PARTIAL FOUNDATION PLAN
S–2	CONTAINER MANAGEMENT BLDG. – PARTIAL FOUNDATION PLAN
S–3	HEEL MANAGEMENT BLDG – FOUNDATION PLAN
S–4	CONTAINER MANAGEMENT BLDG. – DETAIL SHEET
S–5	CONTAINER MANAGEMENT BLDG. & HEEL MANAGEMENT – DETAIL SHEET
S–6	CONTAINER MANAGEMENT BLDG. & HEEL MANAGEMENT – DETAIL SHEET
MECHANICAL	
M–1	CONTAINER MANAGEMENT BLDG. – HEATING AND VENTILATING FLOW DIAGRAM
M–2	CONTAINER MANAGEMENT BLDG. AND HEEL MANAGEMENT BUILDING – FLOW DIAGRAM
M–3	CONTAINER MANAGEMENT BLDG. – FLOOR PLAN
M–4	HEEL MANAGEMENT BUILDING – FLOOR PLAN AND SECTION
M–5	CONTAINER MANAGEMENT BLDG. – DETAILS AND SCHEDULES
M–6	CONTAINER MANAGEMENT BLDG. & HEEL BLDG. PROCESS FLOW DIAGRAMS
FIRE PROTECTION	
F–1	CONTAINER MANAGEMENT BLDG. – FIRE PROTECTION FLOW DIAGRAM
F–2	CONTAINER MANAGEMENT BLDG. – FIRE PROTECTION FLOOR PLAN
ELECTRICAL	
E–1	LEGEND
E–2	SITE PLAN
E–3	CONTAINER MANAGEMENT BLDG. AND HEEL MANAGEMENT BUILDINGS – ONE–LINES
E–4	CONTAINER MANAGEMENT BLDG. – LIGHTING FLOOR PLAN
E–5	CONTAINER MANAGEMENT BLDG. – POWER FLOOR PLAN
E–6	HEEL MANAGEMENT BUILDING – FLOOR PLAN
E–7	DETAILS

LOCATION MAP
SCALE: 1"=2000'

TETRA TECH

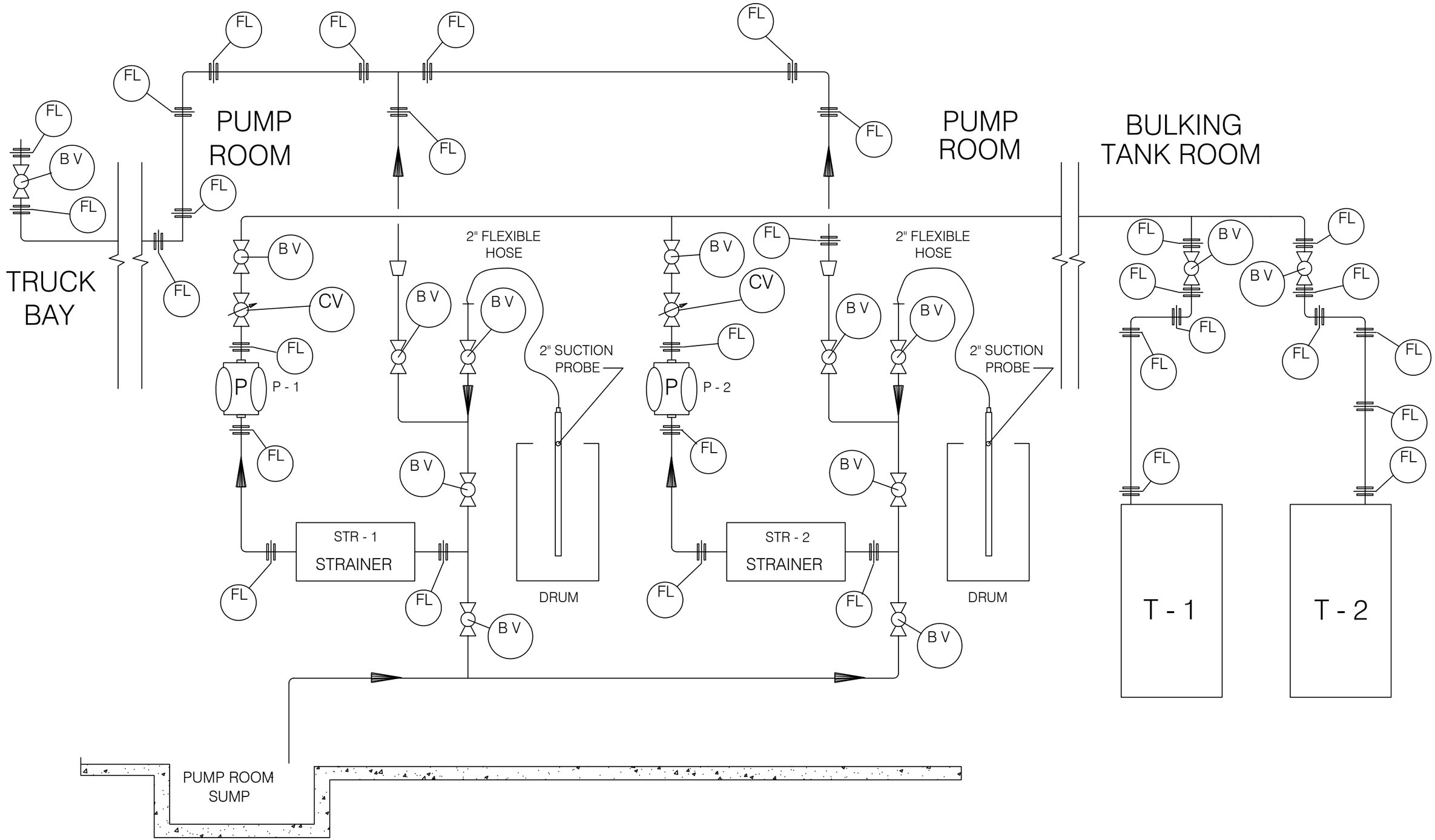
Ann Arbor, Michigan Office
710 Avis Drive
Ann Arbor, Michigan 48108
Tel. 734.665.6000 Fax: 734.665.2570

ISSUED:
2/13/2007

FOR BID
(NOT FOR CONSTRUCTION)

SIGNATURE OF LICENSEE

VOLUME I OF I



PSC

DATE: 09/28/06

DRAWN BY: LEWIS KRYK

APPROVED BY: BRIAN CAPE

O71

TO PC 16-30

PUMP ROOM (INSIDE)

BULKING TANKS (OUTSIDE AREA)

T - 1

T - 2

PUMP

FL

B V

F V

PSC	DATE: 09/28/06	072
	DRAWN BY: LEWIS KRYK / APPROVED BY: BRIAN CAPE	

PUMP ROOM

CMB DRUM STORAGE

TO PC 16-30

FL

BACK DOCK

BACK DOCK

PIPE TRESTLE

BACK TANK FARM

BV

CONTAINMENT WALL

PSC	DATE: 09/28/06	073
	DRAWN BY: LEWIS KRYK / APPROVED BY: BRIAN CAPE	

PCPG
DRUM
STAGING

F1
F2
F3

DOCK #4

EXIST.
LOADING DOCK

100.00+

T-76

SDG STORAGE
400

SDG BULK
STORAGE
401

S-1 S-2 S-3 S-4
S-5 S-6 S-7 S-8

LUWA ROOM
402

PROCESS
EQ RM #1
403

PROCESS
EQ RM #2
404

3000 GAL.
WASTE TANK
WATER TANK

1000 GAL.
TIPPIN TANK
FEED TANK

SCRUBBER
SCRUBBER

CHILLER
CHILLER

ELECTRICAL ROOM
405

FRAC.
PAD

R1 R2 R3

EXIST'G
LOAD'G
DOCK

5 @ 30'-4"= 151'-8" BUILDING

B
A-2

10'W ROLL CURB
SEE G-2

LINE OF CANOPY ABOVE

99.40

RAMP UP
1"/FT.

2'-4"

+
100.55

4'-4"

96.75
+
+100.75

+100.75

+
100.75

+ 101.00

4"H X 8"W CURB

2 @ 30'-0"= 60'-0" CANOPY

LOADING DOCK

7'W X 6'D DOCK
LEVELER (TYP.)

SLOPE

1"/FT
RAMP DN

+101.00

103

+101.00

102

101

100

+ 101.33

+101.00
+
98.85

4'-0"

DEPACK
AREA
102

PALLETS OF
55 -GAL
DRUMS (TYP.)

+101.33

+101.00 100.85+

DRUM CONVEYORS

37'-2"

41'-2"

25'-0"

1/2"/FT SLOPE

1/2"/FT
SLOPE

+100.85

33'-2"

+
101.33 (TYP.)

+ 101.00

SLOPE

STAGING AREA

10'W ROLL CURB
SEE G-2

104

A
A-3

CONTAINER
STORAGE
100

12"W CURB
(TYP.)

+
101.00

115

114

113

3 @ 30'-0"= 90'-0"

131'-0" BUILDING

TWO COLOR FLOOR
SCHEME AISLE AND
PERIMETER STRIPING
OF PALLET ROWS

PUMP
ROOM
101

MOD

97.00
+
100.92

101.25

111

112

4"H X 8"W
CONC. CURB

+
98.85
+101.00

MOVABLE
SECTION

MOVABLE
SECTION

FLIP-UP
SECTION

101.33

97.50 +

110

108

109

+
101.00

+
101.00

ELECT
103

107

STAIR
104

105

106

DECON ROOM
105

LIQUID WASTE
STORAGE
106

POTASSIUM
PERMANGANATE
107

+
101.00

+
100.00

16'-8"

SEE SHEET A-4
FOR ENLARGED
PLAN OF THIS
AREA

3.5 4 5 6 7

D E F G H

2003 MI BLDG CODE NOTES:

CONTAINER MANAGEMENT BLDG

1. USE GROUP/BLDG SF
   H2/(21118 SF)
   B/(2 @ 768= 1536 SF)
   (RMS 103, 104, 105, 200, 201, 202)

2. 2HR FIRE SEPARATION WALL: B/H2
   (TABLE 302.3.2)

3. TYPE OF CONSTRUCTION: 1B
   (16,000 SF ALLOWABLE INCREASED BY
   59.7% AS PER SECTION 503 TO 26350SF)

4. FIRE PROTECTION: SPRINKLED BY 903.2.4
   (GROUP H)

5. FIRE-RATED: STRUCTURAL FRAME – 2 HR
   (TABLE 601): ROOF CONSTR. – 1 HR
   (INCLUDING SUPPORT BMS AND JOISTS)

REV	DESCRIPTION	BY	DATE	CHK'D
B	ISSUED FOR BID		02/13/07	DEN
A	ISSUED TO MDEQ		1/09/07	DEN

TETRA TECH

DESIGNED	B. CLARK	CHECKED	.
SCALE	3/32" = 1'-0"	CADD DATE	3/2/2007 1:58 PM
PART	P:\142-17450-07-001\CAD\142-17450-07-001\A\FLOORPLAN.DWG		

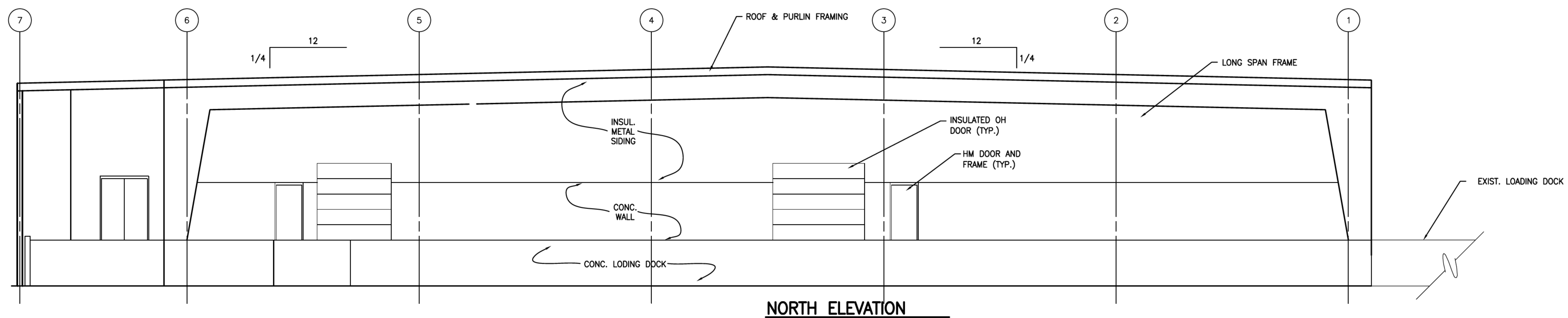
PSC ENVIROMENTAL SERVICES
515 LYCASLE DETROIT, MI
DETROIT FACILITY REBUILD

ARCHITECTURAL

CONTAINER MANAGEMENT BLDG FLOOR PLAN

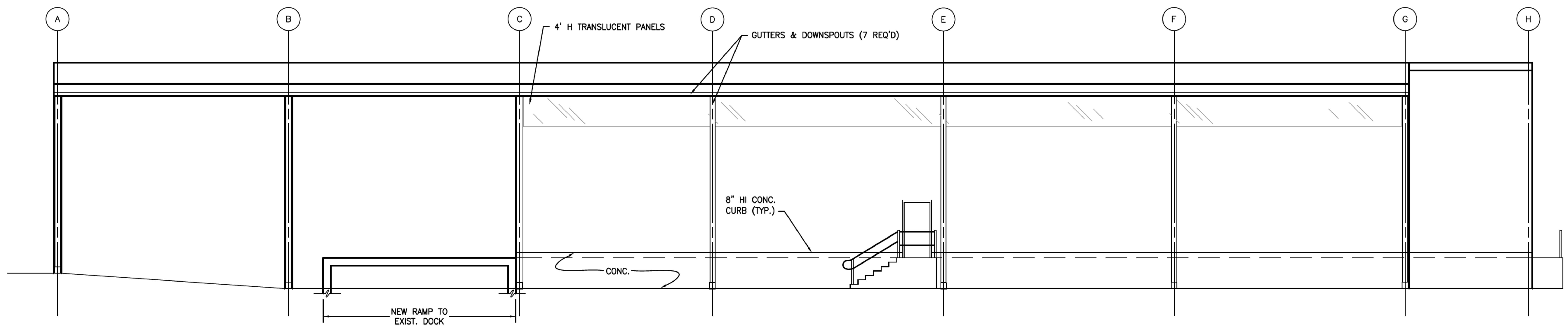
DIVISION	CONTRACT	SHEET
.	.	A-1
		OF

PLOT DATE: 3/5/2007 11:08 AM LAST EDITED BY: KDILLBEY PLOT DEVICE: XES 8830 - Plotter.pc3



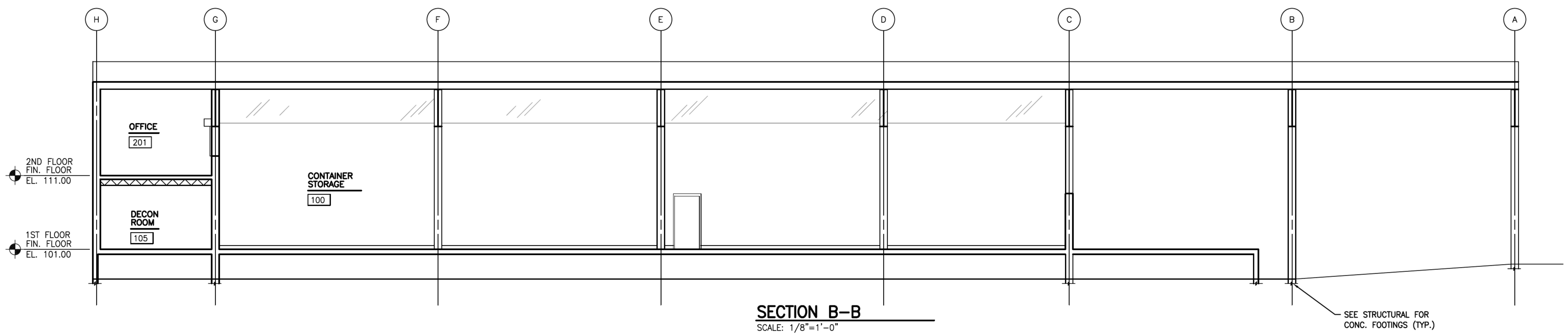
NORTH ELEVATION

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



WEST ELEVATION

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



SECTION B–B

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

REV	DESCRIPTION	BY	DATE	CHK'D
B	ISSUED FOR BID		02/13/07	DEN
A	ISSUED TO MDEQ		1/09/07	DEN

TETRA TECH

DESIGNED B. CLARK	CHECKED .
SCALE 1/8" = 1'–0"	CADD DATE 3/2/2007 1:58 PM

PART P:\142–17450–07–001\CAD\142–17450–07–001\A\FLOORPLAN.DWG

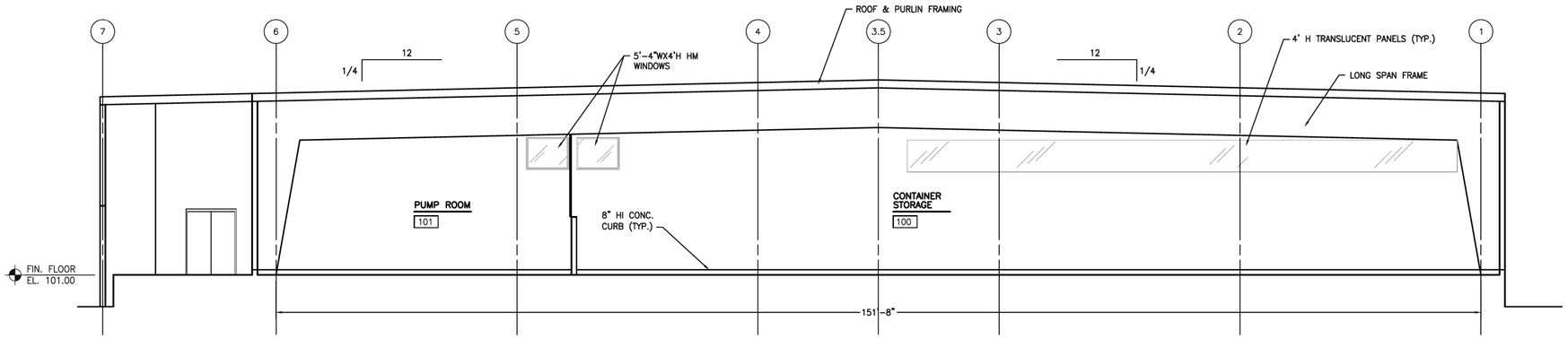
PSC ENVIROMENTAL SERVICES
515 LYCASLE DETROIT, MI
DETROIT FACILITY REBUILD

ARCHITECTURAL

CONTAINER MANAGEMENT BLDG SECTION & ELEVATIONS

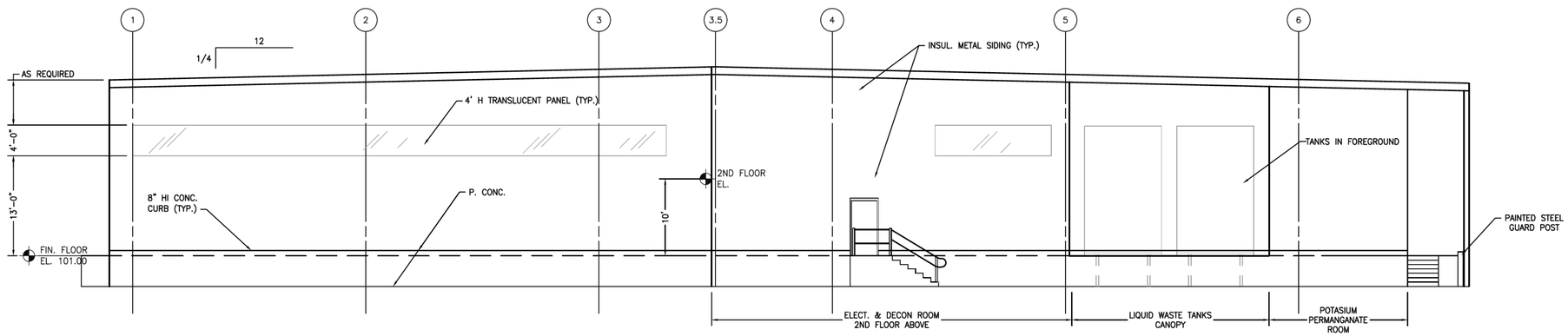
DIVISION	CONTRACT	SHEET
.	. .	A–2 OF

PLOT DATE: 3/5/2007 11:09 AM LAST EDITED BY: KEN.ULREY PLOT DEVICE: XES 8830 – Plotter.pc3



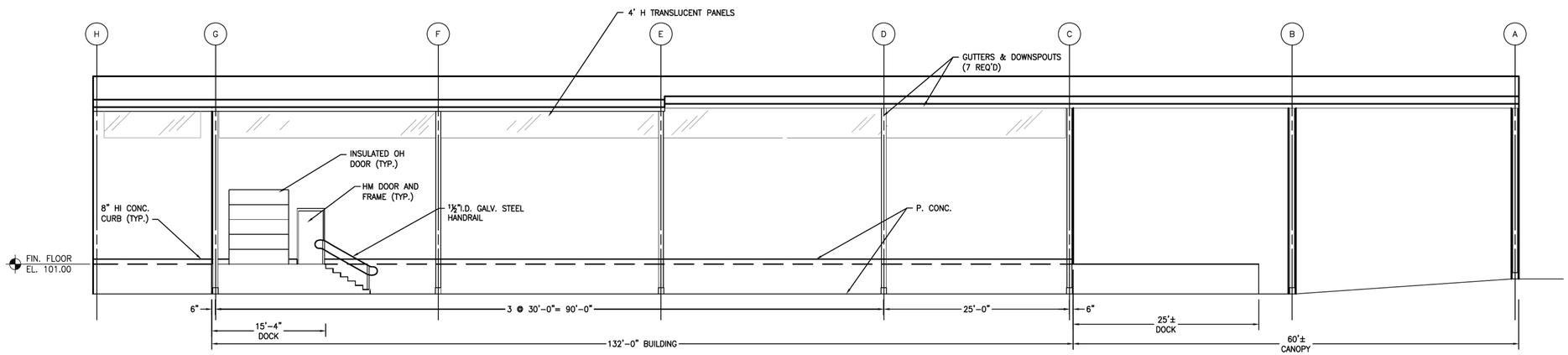
SECTION A-A

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



SOUTH ELEVATION

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



EAST ELEVATION

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

REV	DESCRIPTION	BY	DATE	CHK'D
B	ISSUED FOR BID		02/13/07	DEN
A	ISSUED TO MDEQ		1/09/07	DEN

TETRA TECH

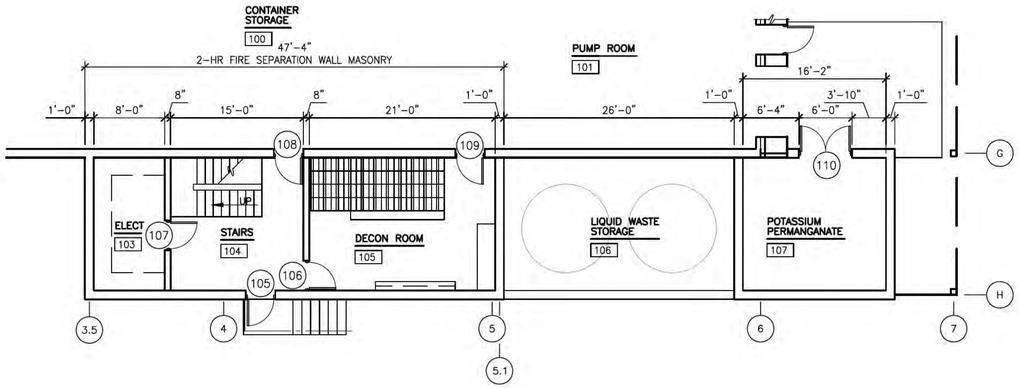
DESIGNED B. CLARK	CHECKED .
SCALE 1/8" = 1'-0"	CADD DATE 3/2/2007 1:58 PM
PART P:\142-17450-07-001\CAD\142-17450-07-001\A\FLOORPLAN.DWG	

PSC ENVIROMENTAL SERVICES
515 LYCASLE DETROIT, MI
DETROIT FACILITY REBUILD

ARCHITECTURAL

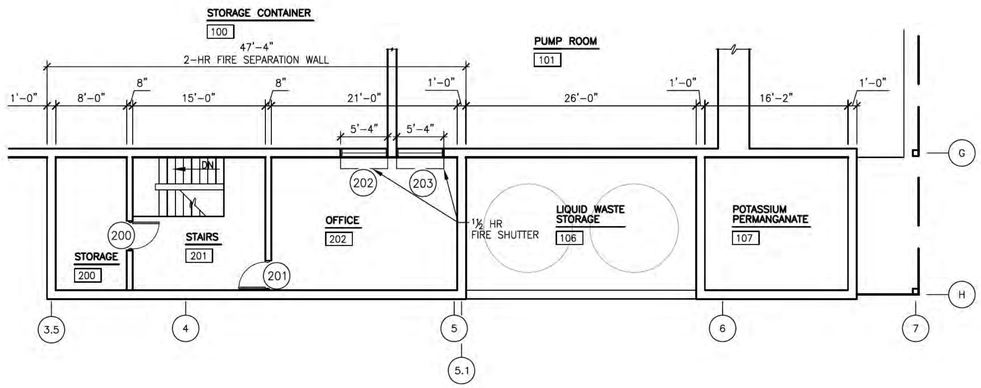
CONTAINER WAREHOUSE SECTION & ELEVATIONS

DIVISION	CONTRACT	SHEET
.	.	A-3
		OF



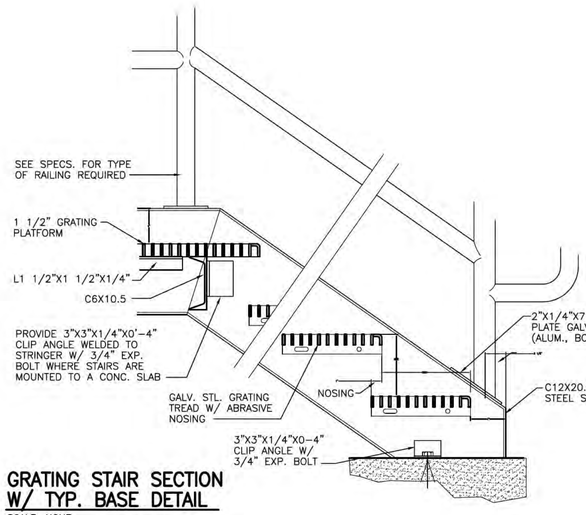
1ST FLOOR

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



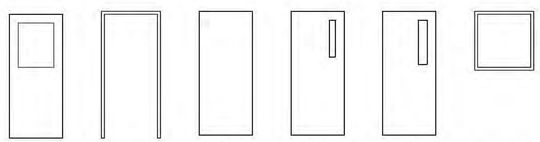
2ND FLOOR

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



GRATING STAIR SECTION W/ TYP. BASE DETAIL

SCALE: NONE



DOOR & WINDOW ELEVATIONS

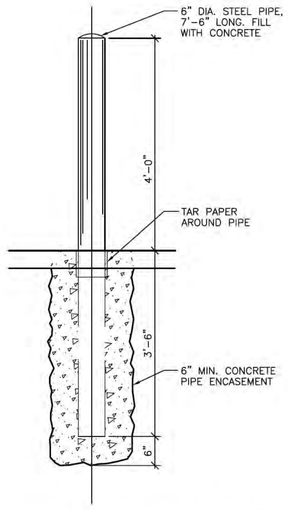
SCALE: NONE

LINTEL SCHEDULE

WALL THICKNESS	OPENING LENGTH	DESCRIPTION (INCHES & POUNDS)	REMARKS
8"	UP TO 3'-6"	(2) L'S 3 1/2"X3 1/2"X5/16"	SEE NOTES 2 & 3

NOTES:

1. FOR OPENINGS LARGER THAN 12'-6", SEE STRUCTURAL DRAWINGS FOR SIZE AND SHAPE.
2. SEE SPECIFICATIONS FOR COPING REQUIREMENTS.
3. PROVIDE 5/16" X (WALL THICKNESS – 1 1/2") PLATE, WHEN SEAM IS EXPOSED TO VIEW.
4. SLH = SHORT LEG HORIZONTAL
5. LLH = LONG LEG HORIZONTAL
6. LOADING CONDITION IMPOSED ON LINTELS FROM ROOF AND/OR ELEVATED STRUCTURES ARE NOT INCLUDED IN THE LINTEL SIZE CALCULATION.



STEEL GUARD POST DETAIL

SCALE: NONE

FINISH SCHEDULE

NO.	ROOM NAME	FLOOR SUB/FIN	BASE SUB/FIN	N. WALL SUB/FIN	E. WALL SUB/FIN	S. WALL SUB/FIN	W. WALL SUB/FIN	CEILING SUB/FIN	HGT.	SPECIAL CONDITIONS FLOOR	WALL	CLG.	MISC.
CONTAINER WAREHOUSE BLDG													
	LOADING DOCK	CNC/P-2	CNC/P-2	-	-	CNC/HAR	-						
100	CONTAINER STOR.	CNC/P-2	CNC/P-2	CNC/HAR	MLP/ FAC	MLP/ FAC	MLP/ FAC	EXP/NON	-	8	1, 3,4		
				EXP/NON	EXP/NON	EXP/NON	EXP/NON						
101	PUMP ROOM	CNC/SC2	-	CNC/SC2	CNC/SC2	CNC/SC2	CNC/SC2				6		
		CNC/SC1	CNC/SC1	BLK/P-1	BLK/P-1	MLP/ FAC	MLP/ FAC	EXP/NON	-		2, 3, 4		
				MLP/ FAC	MLP/ FAC						5		
102	DEPACK AREA	CNC/SC2	-	CNC/SC2	CNC/SC2	CNC/SC2	CNC/SC2				6		
		CNC/P-2	CNC/P-2	CNC/HAR	MLP/ FAC	BLK/P-1	MLP/ FAC	EXP/NON	-		1, 3, 4		
				EXP/NON	EXP/NON	EXP/NON	EXP/NON						
103	ELECT ROOM	CNC/HAR	CNC/HAR	BLK/P-1	BLK/P-1	MLP/ FAC	MLP/ FAC	EXP/NON	-		7		
104	STAIR	CNC/HAR	CNC/HAR	BLK/P-1	BLK/P-1	MLP/ FAC	BLK/P-1	EXP/NON	-		7		
105	DECON ROOM	CNC/P-2	CNC/P-2	BLK/P-1	MLP/ FAC	MLP/ FAC	BLK/P-1	EXP/P-1	-		7		
106	LIQUID WASTE STOR.	CNC/HAR	CNC/HAR	CNC/HAR	CNC/HAR	CNC/HAR	CNC/HAR	EXP/FAC					
				EXP/FAC	EXP/FAC	EXP/FAC	EXP/FAC						
107	POTASSIUM PERM.	CNC/SC1	CNC/SC1	MLP/ FAC	MLP/ FAC	MLP/ FAC	MLP/ FAC	EXP/NON	-		3, 4		
				EXP/NON	EXP/NON	EXP/NON	EXP/NON						
200	STOR.	CNC/HAR	CNC/HAR	MLP/ FAC	MLP/ FAC	MLP/ FAC	MLP/ FAC	EXP/NON			1		
201	STAIR.	CNC/HAR	CNC/HAR	MLP/ FAC	MLP/ FAC	MLP/ FAC	MLP/ FAC	EXP/NON			1		
202	OFFICE	CNC/VCT	GYP/VBC	GYP/P-1	GYP/P-1	GYP/P-1	GYP/P-1	ACM/FAC	8-8				
HEEL MANAGEMENT BLDG													
300	WASH AREA	CNC/SC1	CNC/SC1	MLP/ FAC	MLP/ FAC	MLP/ FAC	MLP/ FAC	EXP/NON	-				
		ECN/SC1	ECN/SC1										
SDG BLDG													
400	SDG STORAGE												
401	SDG BULK STORAGE												
402	LUWA ROOM	CNC/P-2	BLK/P-1	BLK/P-1	BLK/P-1	BLK/P-1	BLK/P-1	EXP/P-1	-				
403	PROCESS EQ RM #1	CNC/P-2	BLK/P-1	BLK/P-1	BLK/P-1	BLK/P-1	BLK/P-1	EXP/P-1	-				
404	PROCESS EQ RM #2	CNC/P-2	BLK/P-1	BLK/P-1	BLK/P-1	BLK/P-1	BLK/P-1	EXP/P-1	-				
405	ELECT RM	CNC/P-2	BLK/P-1	BLK/P-1	BLK/P-1	BLK/P-1	BLK/P-1	EXP/P-1	-				
LAB/OFFICE													
500	LAB	CNC/CTU	BLK/CTU	BLK/P-1	BLK/P-1	BLK/P-1	BLK/P-1	ACC/FAC	8-8				
501	OFF	CNC/VCT	GYP/VBC	GYP/P-1	GYP/P-1	GYP/P-1	GYP/P-1	ACM/FAC	8-8				
502	OFF	CNC/VCT	GYP/VBC	GYP/P-1	GYP/P-1	GYP/P-1	GYP/P-1	ACM/FAC	8-8				
503	OFF	CNC/VCT	GYP/VBC	GYP/P-1	GYP/P-1	GYP/P-1	GYP/P-1	ACM/FAC	8-8				
504	CORR.	CNC/VCT	GYP/VBC	BLK/P-1	BLK/P-1	GYP/P-1	BLK/P-1	ACM/FAC	8-8				
505	UTILITY	CNC/P-2	BLK/P-1	BLK/P-1	BLK/P-1	BLK/P-1	BLK/P-1	ACC/FAC	8-8				
506	UNISEX TOILET	CNC/CTU	BLK/CTU	BLK/P-1	BLK/P-1	GYP/P-1	BLK/P-1	ACC/FAC	8-8				
507	UNISEX SHOWER	CNC/CTU	BLK/CTU	BLK/P-1	BLK/P-1	BLK/P-1	BLK/P-1	ACC/FAC	8-8				
		CNC/CTU	BLK/CTG	BLK/CTG	BLK/CTG	-	BLK/CTG	GYP/P-1			9		

FINISH SCHEDULE LEGEND

ACM	LAY IN TILE - MINERAL	HAR	HARDENER
ACC	LAY IN TILE - CERAMIC	MLP	METAL LINER PANEL
CNC	CAST-IN- PLACE CONCRETE	NON	NONE
ECN	EXISTING CONCRETE	P-1	EPOXY SEMI-GLOSS PAINT
CTU	CERAMIC TILE UNGLAZED	P-2	EPOXY NON-SLIP PAINT
CTG	CERAMIC TILE GLAZED	SC1	SPECIAL COATING, SEE SPEC
EXP	EXPOSED CONSTRUCTION	SC2	SPECIAL COATING, SEE SPEC
FAC	FACTORY	VBC	VINYL BASE COVED
GYP	GYPSUM BOARD	VCT	VINYL COMP. TILE

SPECIAL CONDITIONS

1 - CONC EXTENDS TO 7'-4" ABOVE FINISH FLOOR
2 - CONC BLOCK EXTENDS 7'-4" ABOVE FINISH FLOOR
3 - CONCRETE CURB BASE EXTENDS 8" ABOVE FINISH FLOOR
4 - MLP EXTENDS TO 7'-4" ABOVE FINISH FLOOR
5 - MLP EXTENDS FROM 7'-4" TO ROOF DECK
6 - FLOOR AND WALLS OF RECESSED SUMP. SEE CONTAINMENT DWG.
7 - NORTH BLOCK WALL IS 2 HR FIRE SEP. WALL
8 - TWO COLOR SCHEME, BASE COLOR AND STRIPING OF PALLET ROWS
9 - CTG IN SHOWER ONLY

DOOR AND FRAME SCHEDULE

MARK	LOCATION		STRUCTURAL		DOOR								FRAME							
	ROOM NAME OR NUMBER	OPEN'G SIZE (FT & IN)					SIZE (FT. &/OR INCHES)			GLASS (IN.)			SIZE (INCHES)				U.L. LABEL (H-R)	HARD WARE SET NO./ STOP	REMARKS
	SEE PLANS	KEY	FROM	W	H	MATERIAL	TYPE	QUANTITY	W	H	T	NOMINAL SIZE	TYPE	MATERIAL	TYPE	W	D			
CONTAINER WAREHOUSE																				
100	EXT	102	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	-	3.10	2	
101	EXT	102	10-0	12-0	GST	SOH	1	10-0	12-0	1.75	-	-	STL	-	-	-	-	-	2	
102	EXT	100	12-0	12-0	GST	SOH	1	12-0	12-0	1.75	-	-	STL	-	-	-	-	-		
103	EXT	100	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	-	3.10		
104	EXT	100	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	-	3.10		
105	EXT	104	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	-	3.00		
106	104	105	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	-	1.00		
107	104	103	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	-	1.00		
108	104	100	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	1.5	1.20		
109	105	101	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	1.5	1.20		
110	EXT	107	6-4	8-0	HM	N1	2	3-0	7-10	1.75	6x24	SAF	HM	2	2	5.75	-	4.10		
111	EXT	101	8-0	8-0	HM	SOH	1	8-0	8-0	1.75	-	-	STL	-	-	-	-	-		
112	EXT	101	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	-	3.10	2	
113	100	101	3-4	7-4	HM	N2	1	3-0	7-0	1.75	5x20	W	HM	2	2	5.75	-	3.10		
114	100	101	12-0	12-0	GST	COH	1	12-0	12-0	1.75	-	-	STL	-	-	-	-	-	5	
115	102	101	6-0	7-4	HM	N2	2	2-10	7-0	1.75	5x20	W	HM	2	2	5.75	-	2.00		
200	200	201	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	-	1.00		
201	202	201	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	-	1.00		
202	202	100	5-4	4-0	-	-	-	-	-	-	60 x 44	W	HM	9	2	5.75	1.5	-	4	
203	201	101	5-4	4-0	-	-	-	-	-	-	60 x 44	W	HM	9	2	5.75	1.5	-	4	
HEEL MANAGEMENT																				
300	EXT	200	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	-	3.10		
301	EXT	200	16-0	14-0	GST	SOH	1	16-0	14-0	1.75	-	-	STL	-	-	-	-	-		
302	EXT	200	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	-	3.10		
303	EXT	200	16-0	14-0	GST	SOH	1	16-0	14-0	1.75	-	-	STL	-	-	-	-	-		
SDG BLDG																				
400	EXT	405	6-0	7-4	HM	N1	2	2-10	7-0	1.75	6x24	SAF	HM	2	2	5.75	-	3.10		
401	EXT	405	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	-	3.00		
402	EXT	403	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	-	3.10		
403	EXT	403	8-0	12-0	GST	COH	1	8-0	12-0	1.75	-	-	STL	-	-	-	-	-		
404	403	404	8-0	12-0	GST	COH	1	8-0	12-0	1.75	-	-	STL	-	-	-	1.5	-	5	
405	404	403	3-4	7-4	HM	N1	1	3-0	7-0	1.75	5x20	SAF	HM	2	2	5.75	1.5	3.10		
406	EXT	404	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	-	3.00		
407	403	403	8-0	12-0	GST	COH	1	8-0	12-0	1.75	-	-	STL	-	-	-	-	-	5	
408	EXT	402	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	-	3.10		
409	401	402	8-0	12-0	GST	COH	1	8-0	12-0	1.75	-	-	STL	-	-	-	-	-	5	
410	402	401	6-8	7-5	GST	COH	1	6-8	7-5	1.75	-	-	STL	-	-	-	-	-		
411	EXT	402	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	-	3.10		
412	EXT	401	8-11	10-9	GST	COH	1	8-11	10-9	1.75	-	-	STL	-	-	-	-	-		
413	EXT	401	3-4	7-4	HM	N1	1	3-0	7-0	1.75	6x24	SAF	HM	2	2	5.75	-	3.10		
LAB / OFFICE																				
500	EXT	500	3-4	7-4	HM	N1	1	3-0	7-2	1.75	6x24	SAF	HM	1	2	5.75	-	3.10		
501	504	500	3-4	7-4	HM	HG	1	3-0	7-2	1.75	24 x 30	SAF	HM	1	2	5.75	-	1.2/B		
502	504	501	3-4	7-4	HM	N1	1	3-0	7-2	1.75	6x24	SAF	HM	1	2	5.75	-	1.1/B		
503	504	502	3-4	7-4	HM	N1	1	3-0	7-2	1.75	6x24	SAF	HM	1	2	5.75	-	1.1/B		
504	504	503	3-4	7-4	HM	N1	1	3-0	7-2	1.75	6x24	SAF	HM	1	2	5.75	-	1.1/B		
505	EXT	504	3-4	7-4	HM	N1	1	3-0	7-2	1.75	6x24	SAF	HM	1	2	5.75	-	3.00		
506	504	505	3-4	7-4	HM	F	1	3-0	7-2	1.75	-	-		1	2	5.75	-	1.00		
507	504	506	3-4	7-4	HM	F	1	3-0	7-2	1.75	-	-		1	2	5.75	-	1.30		
508	504	507	3-4	7-4	HM	F	1	3-0	7-2	1.75	-	-		1	2	5.75	-	1.30		

DOOR SCHEDULE LEGEND

COH	COILING OVERHEAD
EXT	EXTERIOR
HM	HOLLOW METAL
GST	GALV. STEEL
SAF	SAFETY
SLD	SLIDING
SOH	SECTIONAL OVERHEAD
STL	STEEL

REMARKS

1. HI-LIFT
2. VERTICAL LIFT
3. SLIDING
4. FIRE SHUTTER
5. WITH FUSIBLE LINK

REV	DESCRIPTION	BY	DATE	CHK'D
B	ISSUED FOR BID		02/13/07	DEN

TETRA TECH

DESIGNED B. CLARK	CHECKED .
SCALE 1/8" = 1'-0"	CADD DATE 3/2/2007 1:58 PM

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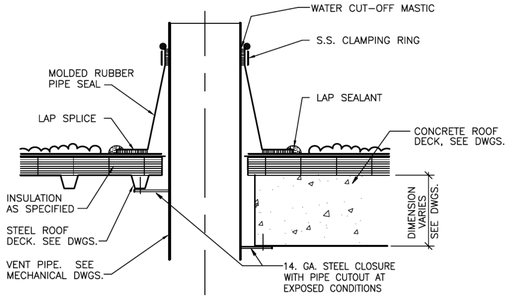
PSC ENVIROMENTAL SERVICES
515 LYCASLE DETROIT, MI
DETROIT FACILITY REBUILD

ARCHITECTURAL

CONTAINER MANAGEMENT BLDG FLOOR PLANS, SCHEDULES & DETAILS

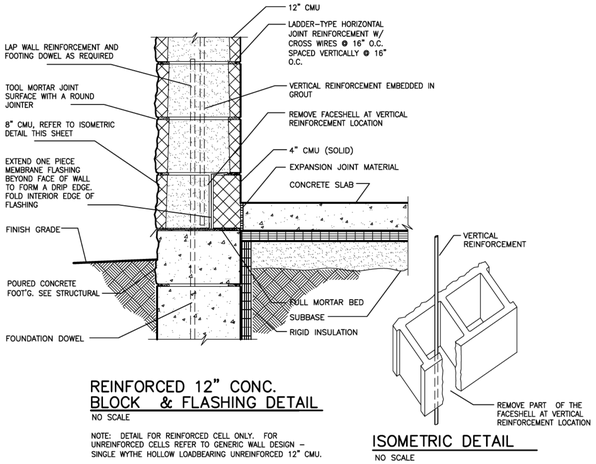
DIVISION	CONTRACT	SHEET
.	.	A-4
	.	OF

PLOT DATE: 3/5/2007 11:10 AM LAST EDITED BY: KDAUBERT PLOT DEVICE: XES 8830 - Plotter.pc3



6"ø OR LESS PIPE PENETRATION THROUGH SINGLE-PLY ROOFING

NO SCALE



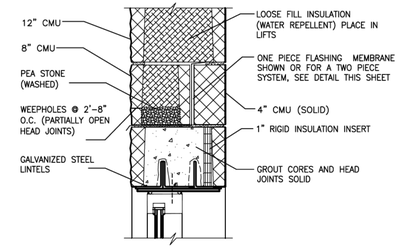
REINFORCED 12" CONC. BLOCK & FLASHING DETAIL

NO SCALE

NOTE: DETAIL FOR REINFORCED CELL ONLY. FOR UNREINFORCED CELLS REFER TO GENERIC WALL DESIGN - SINGLE WYTHE HOLLOW LOADBEARING UNREINFORCED 12" CMU.

ISOMETRIC DETAIL

NO SCALE



12" CONC. BLOCK LINTEL FLASHING DETAIL

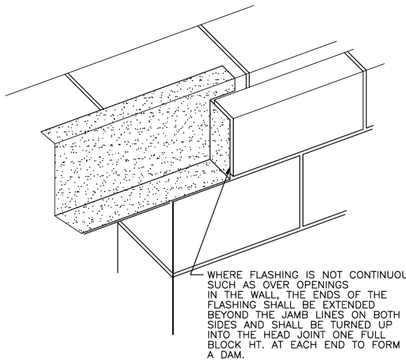
NO SCALE

LINTEL SCHEDULE

WALL THICKNESS	OPENING LENGTH	DESCRIPTION (INCHES & POUNDS)	REMARKS
12"	UP TO 3'-6"	(3) L'S 3 1/2"X3 1/2"X5/16"	SEE NOTES 2 & 3
	3'-6" TO 6'-6"	(3) L'S 4"X3 1/2"X5/16"	SEE NOTES 2 & 3
	6'-6" TO 12'-6"	W8X10 (1) 5/16"X10 1/2" PLATE	SEE NOTES 2 & 3
8"	UP TO 3'-6"	(2) L'S 3 1/2"X3 1/2"X5/16"	SEE NOTES 2 & 3

NOTES:

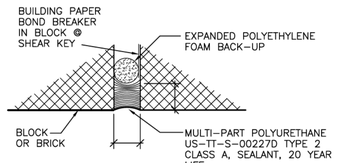
1. FOR OPENINGS LARGER THAN 12'-6", SEE STRUCTURAL DRAWINGS FOR SIZE AND SHAPE.
2. SEE SPECIFICATIONS FOR COPING REQUIREMENTS.
3. PROVIDE 5/16" X (WALL THICKNESS - 1 1/2") PLATE, WHEN SEAM IS EXPOSED TO VIEW.
4. SLH = SHORT LEG HORIZONTAL
5. LLH = LONG LEG HORIZONTAL
6. LOADING CONDITION IMPOSED ON LINTELS FROM ROOF AND/OR ELEVATED STRUCTURES ARE NOT INCLUDED IN THE LINTEL SIZE CALCULATION.



WHERE FLASHING IS NOT CONTINUOUS, SUCH AS OVER OPENINGS IN THE WALL, THE ENDS OF THE FLASHING SHALL BE EXTENDED BEYOND THE JAMB LINES ON BOTH SIDES AND SHALL BE TURNED UP INTO THE HEAD JOINT ONE FULL BLOCK HT. AT EACH END TO FORM A DAM.

TYP. FLASHING END DAM DETAIL

NO SCALE

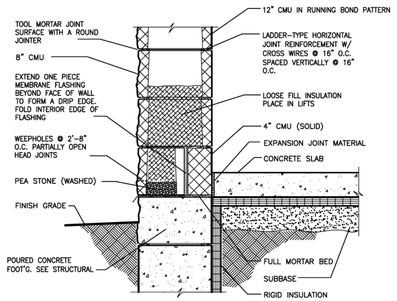


NOTES:

1. 'X' DIMENSION TO EQUAL TYPICAL MASONRY JOINT
2. 'Y' DIMENSION TO EQUAL 'X'

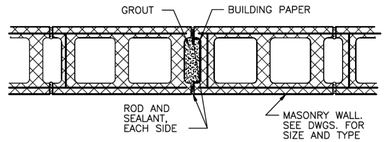
EXTERIOR CONTROL JOINT

NO SCALE



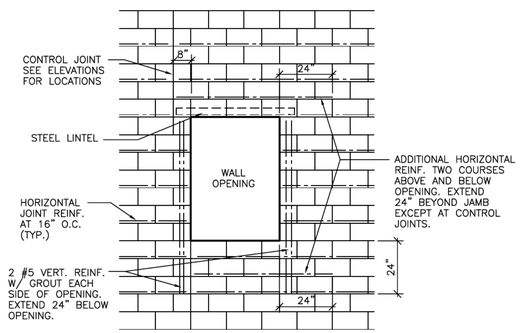
INSULATED 12" CONC. BLOCK WEEP HOLE & FLASHING DETAIL

NO SCALE



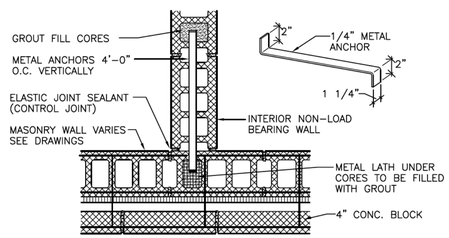
TYPICAL SINGLE WYTHE CONTROL JOINT DETAIL

NO SCALE



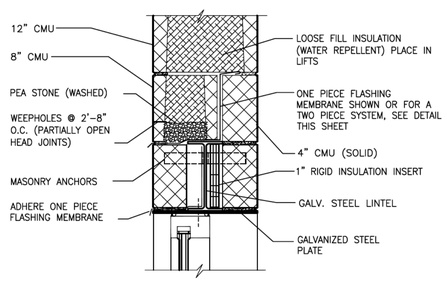
TYP. REINFORCING AT WALL OPENING

NO SCALE



INTER-SECTION OF EXTERIOR LOAD BEARING WALL W/ INTERIOR NON-LOAD BEARING WALL

NO SCALE



12" CONC. BLOCK LINTEL FLASHING DETAIL

NO SCALE

REV	DESCRIPTION	BY	DATE	CHK'D

TETRA TECH

DESIGNED D. NAVARRE	CHECKED
SCALE AS NOTED	CADD DATE 2/19/2007 9:43 AM
PART P:\142-17450-07-001\CAD\142-17450-07-001\A\DET.DWG	

PSC ENVIROMENTAL SERVICES
515 LYCASLE DETROIT, MI
DETROIT FACILITY REBUILD

ARCHITECTURAL

DETAILS

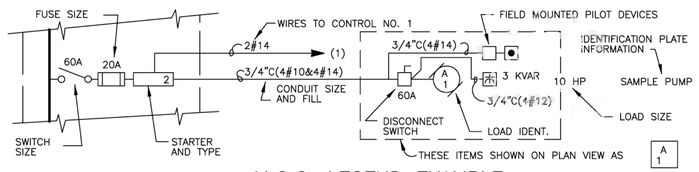
DIVISION	CONTRACT	SHEET
.	.	A-9 OF

PLOT DATE: 3/5/2007 11:05 AM LAST EDITED BY: KOLLBURY PLOT DEVICE: XES 8830 - Plotter.pc3

BACKGROUND PLAN AND ONE LINE SYMBOLS

SYMBOL	DESCRIPTION
●	CONTROL SWITCH (SEL. OR P.B.) SEE CIRCUITS FOR SPECIFIC TYPE
F FL	SEE CIRCUITS FOR SPECIFIC TYPE FLOAT SWITCH – FLOW SWITCH
T M	TEMPERATURE – HUMIDISTAT SWITCH (SUBSCRIPT = NO. OF STAGES)
L P V	LIMIT – PRESSURE – VACUUM SWITCH
ALT	ELECTRICAL OR MECHANICAL ALTERNATOR (SEE WIRING)
OS	OVERLOAD SWITCH OR DEVICE
TB	TERMINAL BOX
⊗	SOLENOID VALVE
PC	PHOTOCELL LINE VOLTAGE
□ —(M)	ITEM NO. INTERCOM EQUIPMENT
A WS LB	INTERCOMMUNICATION SYSTEM AMPLIFIER – WALL STATION – LINE BALANCE
DS	INTERCOMMUNICATION DESK SET
	INTERCOM. SPEAKER (SURFACE MTD.)
	INTERCOM. SPEAKER (CEILING LAY–IN)
	TELEPHONE OUTLET OR JUNCTION BOX
	WELDING RECEPTACLE – NEMA L9–50R 600V, 2P, 3W, SIMPLEX
HS	INTERCOM HANDSET – SURFACE MOUNTED WITH REMOTE SPEAKER AMPLIFIER
VC	INTERCOM VOLUME CONTROL
	INTERCOM SPEAKER – SURFACE MOUNTED
HS	INTERCOM HANDSET – FLUSH MOUNTED WITH REMOTE SPEAKER AMPLIFIER
	AS NOTED (LIGHTING PANEL, CONTROL PANEL, DISTRIBUTION PANEL ETC.) WALL MOUNTED
JB	JUNCTION BOX
	HEATER
	TRANSFORMER
——■——	CONDUIT WITH CONDUIT SEAL FITTING
————	CONDUIT EXPOSED
— — —	CONDUIT CONCEALED
——E——	DIRECT BURIED CONDUIT
——UG——	DIRECT BURIED CABLE
——OH——	OVERHEAD LINE
——DB——	UNDERGROUND DUCT BANK
1 2 3 4 5 6	CONCRETE ENCASED DUCT BANK, WITH CABLE LOCATIONS AND SPARE DUCTS AS INDICATED ON DRAWINGS
	CABLE REEL

SYMBOL	DESCRIPTION
	LOW VOLTAGE DISCONNECT SWITCH
	LOW VOLTAGE FUSE (BELOW 600V)
1 RV 2 FVR 3 2S,2W	ALL STARTERS SHALL BE FULL VOLTAGE NON–REVERSING UNLESS OTHERWISE INDICATED (FVR) FULL VOLTAGE REVERSING (RV) REDUCED VOLTAGE (2S,2W) TWO SPEED, TWO WINDING
	600V, 3 POLE MOLDED CASE CIRCUIT BREAKER, FRAME & RATING AS SHOWN
1/2 A–3	SINGLE PHASE, FRACTIONAL HP MOTOR TO LOCATION INDICATED (SEE GEN. NOTE 4)
A 1	THREE PHASE LOAD WITH IDENTIFICATION
	HIGH VOLTAGE FUSE (ABOVE 600 V)
—(TB)—	TAG NO. (BALLOON) FOR DEVICE INDICATED
A–3 (TB) MCP OR CP–1	FOR POWER (SEE GEN. NOTE 4) 3/4"C(2/C#1B SHLD.)CONDUIT AND WIRE RUN FROM DEVICE INDICATED TO LOCATION INDICATED
	CAPACITOR, 3 PHASE, SIZE AS INDICATED
F C	DISCONNECT SWITCH (F) = FUSED (C) = CIRCUIT BREAKER
	MAGNETIC STARTER (BACKGROUND DRAWINGS ONLY)
SIZE 2	COMBINATION MAGNETIC STARTER FUSED UNLESS NOTED (CIRCUIT BREAKER)
LC	COMBINATION LIGHTING CONTACTOR WITH HAND–OFF–AUTO SWITCH
	MANUAL STARTER (R) = REVERSING
CP	CONTROL PANEL
TCP	TEMPERATURE CONTROL PANEL
1/8 UH–19	UNIT HEATER, 1/8 HORSEPOWER
BUS DUCT	600 VOLT FEEDER BUS DUCT (AMPERAGE AS INDICATED)
	LIGHTNING ARRESTOR
A–3	LOW VOLTAGE HOME RUNS 120/208 V 120/240 V (SEE GEN. NOTE 4)
NEMA 4	WATERTIGHT
NEMA 4X	WATERTIGHT AND CORROSION PROOF
NEMA 7	EXPLOSION PROOF – CLASS I, DIVISION I, GROUP D
NEMA 9	EXPLOSION PROOF – CLASS II, DIVISION 1
K	KEYLOCK
SD	SMOKE DETECTOR
E	EXIT LIGHT
	FLUORESCENT LUMINAIRE
	INCANDESCENT LUMINAIRE
	HIGH INTENSITY DISCHARGE LIGHT
EM	EMERGENCY BATTERY PACK



M.C.C. LEGEND EXAMPLE

GENERAL NOTES:

1. ELECTRICAL MATERIALS AND EQUIPMENT ITEMS SHOWN IN LIGHT LINE WEIGHTS ON THE DRAWINGS ARE EXISTING ITEMS TO REMAIN. ELECTRICAL MATERIALS AND EQUIPMENT ITEMS SHOWN IN HEAVY LINE WEIGHTS ARE NEW THIS CONTRACT.

2. ITEMS SHOWN CROSSHATCHED ON THE DRAWINGS ARE EXISTING ITEMS TO BE REMOVED.

3. FOR ITEMS INDICATED AS "FIELD LOCATE" CHECK DRAWINGS OF OTHER TRADES (IN PARTICULAR PIPING AND STRUCTURAL) FOR INTERFERENCE AND FOR LOCATIONS OF MOUNTING FLANGES, CONNECTION POINTS, ETC.

4. INSTALL A SINGLE CONDUCTOR INSULATED (RHW, THHN, OR XHHW) COPPER GROUND WIRE IN EACH CONDUIT, SIZE AS SHOWN ON DRAWINGS OR AS A MINIMUM PER THE NATIONAL ELECTRICAL CODE. THIS GROUND WIRE SHALL BE CONNECTED AT EACH END TO THE EQUIPMENT GROUND. CONDUIT SHALL BE 3/4" MIN.

5. THE FOLLOWING COMPONENT IDENTIFICATION SHALL BE USED AS APPROPRIATE:
   (F) FIELD MOUNTED, NOT AT STARTER OR OTHER CONTROL PANELS.
   (S) STARTER PANEL MOUNTED.
   (MCP) AT MAIN CONTROL PANEL.
   (1) AT CONTROL PANEL NO. 1
   (2) AT CONTROL PANEL NO. 2
   (TCP) AT TEMPERATURE CONTROL PANEL.

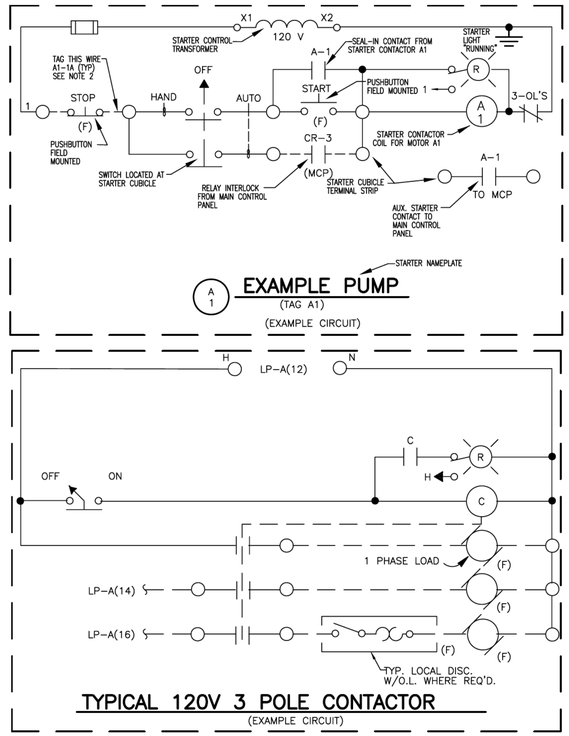
CONTROL CIRCUIT & PILOT DEVICE LEGEND

SYMBOL	DESCRIPTION
	PRESS. ACTUATED SWITCH
	FLOAT ACTUATED SWITCH
	FLOW ACTUATED SWITCH
	TEMP. ACTUATED SWITCH
	LIMIT SWITCH– NORMALLY OPEN
	LIMIT SWITCH– NORMALLY CLOSED
	LIMIT SWITCH–NORMALLY CLOSED–HELD OPEN
	LIMIT SWITCH–NORMALLY OPEN–HELD CLOSED
	LATCHING CABLE SWITCH
	TIME–DELAY FUSE
CR	CONTROL RELAY COIL
	CONTROL RELAY CONTACT–NORMALLY OPEN
	CONTROL RELAY CONTACT–NORMALLY CLOSED
CR L CR U	TWO COIL LATCHING RELAY
T	TIMING RELAY COIL
	TIMED CLOSED CONTACT ON ENERGIZATION
	TIMED OPEN CONTACT ON ENERGIZATION
	TIMED OPEN CONTACT ON DE–ENERGIZATION
	TIMED CLOSED CONTACT ON DE–ENERGIZATION
X1 X2	120 VAC TRANSFORMER

SYMBOL	DESCRIPTION
H O A	SELECTOR SWITCH OPERATOR WITH FUNCTION SHOWN
	MOMENTARY PUSHBUTTON OPERATOR–NORMALLY OPEN
	MOMENTARY PUSHBUTTON OPERATOR–NORMALLY CLOSED
	PUSHBUTTON OPERATOR WITH MUSHROOM HEAD
(F)	FIELD LOCATED STOP BUTTON
	MAINTAINED PUSH–PULL OPERATOR
	MAINTAINED STOP–START PUSHBUTTON OPERATOR
	SOLENOID OR CLUTCH
R	PUSH–TO–TEST INDICATING LIGHT
	MAINTAINED STOP– MOMENTARY START PUSHBUTTON (JOG)
	ZERO SPEED OR ANTI– PLUGGING SWITCH
	LOCAL TERMINALS WITH EXTERNAL WIRING
ETI	ELAPSED TIME INDICATOR
INST. INST.	TIMING RELAY INSTANTANEOUS CONTACTS

WIRING DEVICE SCHEDULE

SYMBOL	DESCRIPTION	NEMA TYPE
	125V, 2P, SIMPLEX, CLOCK HANGER	1–15 R
	125V, 2P, SIMPLEX, 3W	5–20 R
	125V, 2P, DUPLEX, 3W	5–20 R
	125/250V, 3P, SIMPLEX, 3W, RANGE TYPE	10–50 R
S	20A, 120/277 V SWITCH	SPST
S 2P	20A, 120/277 V SWITCH	2PDT
S 3	20A, 120/277 V SWITCH	3 WAY
S 4	20A, 120/277 V SWITCH	4 WAY
S D	20A, 120/277 V DIMMER SWITCH	
S XP	20A, 120/277 V EXPLOSION–PROOF SWITCH	7
	250V, 2P, SIMPLEX, 3W, 50A	6–50R
	125V, 2P, MULTI–RECEPTACLE	5–15R
	250V, 2P, SIMPLEX, 3W, 20A	6–20R
	600V, 2P, 3W, SIMPLEX WELDING	L9–50R
	208V, 3P, SIMPLEX, 4W, LOCKING	L14–20R
	277V, 2P, DUPLEX, 3W	7–15R



NOTES:

1. THE FOLLOWING COMPONENT IDENTIFICATION SHALL BE USED AS APPROPRIATE:
   (F) FIELD MOUNTED NOT AT STARTER OR OTHER CONTROL PANELS.
   (S) STARTER PANEL MOUNTED.
   (TCP) AT TEMPERATURE CONTROL PANEL.
   (MCP) AT MAIN CONTROL PANEL.
   (1) AT CONTROL PANEL NO. 1.
   (2) AT CONTROL PANEL NO. 2.

2. WIRE NUMBERS (1,3 & 5) ETC. SHALL BE PREFIXED WITH STARTER TAG NUMBERS. THE WIRE NUMBER AFTER THE PREFIX, MAY BE THE MANUFACTURERS WIRE NUMBERING SYSTEM. WIRE MARKERS MAY BE USED AT EACH WIRE TERMINATION POINT.

REV	DESCRIPTION	BY	DATE	CHK'D
B	ISSUED FOR BID	FWY	02/13/07	DEN
A	ISSUED TO MDEQ	FWY	01/09/07	DEN

TETRA TECH

DESIGNED FWY	CHECKED WAP
SCALE NONE	CADD DATE 2/12/2007 2:20 PM
FILE P:\142–17450–07–001\CAD\142–17450–07–001\E\E–1 LEGEND.DWG	

PSC ENVIRONMENTAL SERVICES DIVISION
515 LYCASTE DETROIT, MICHIGAN
DETROIT FACILITY REBUILD

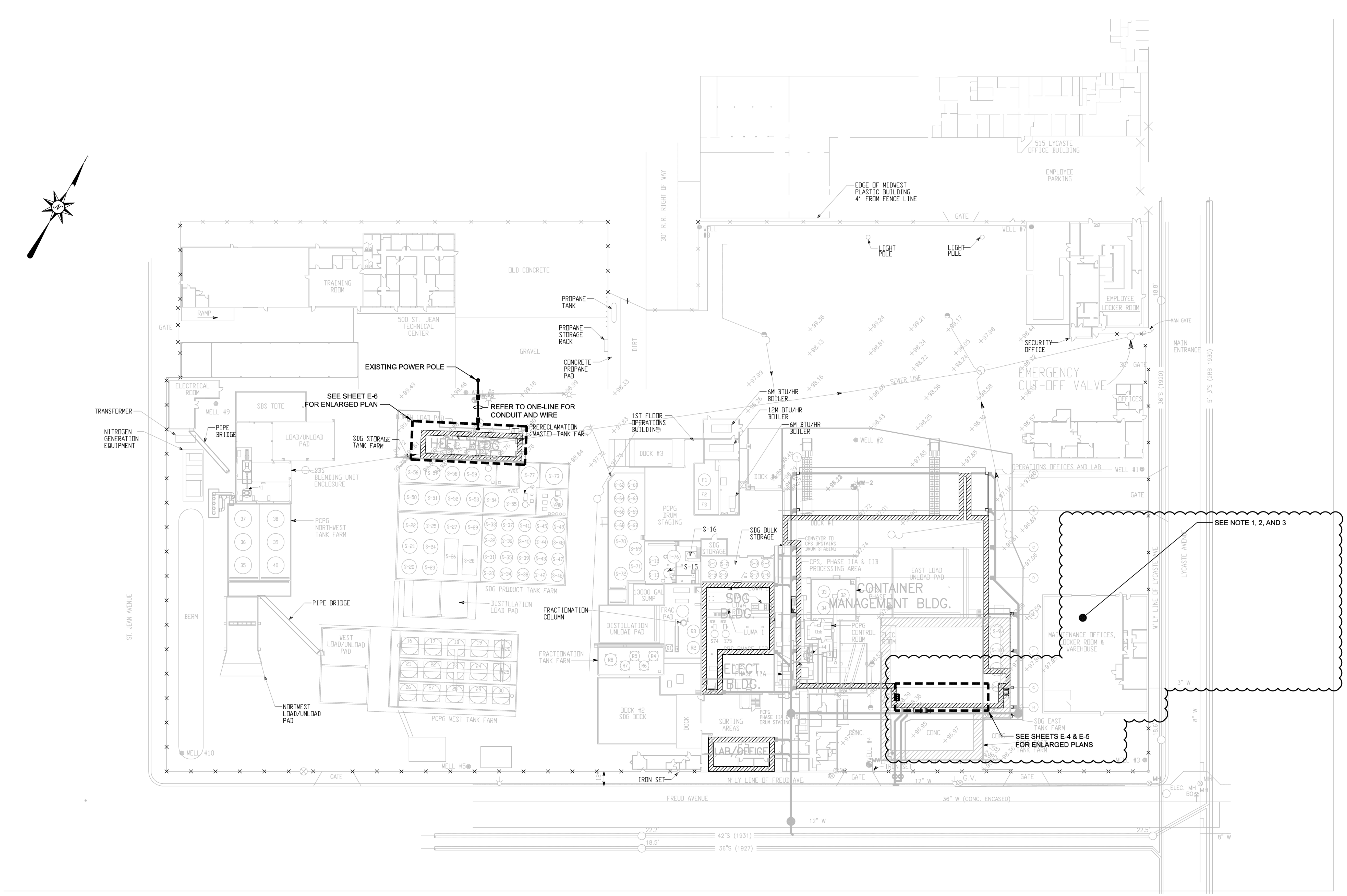
ELECTRICAL

LEGEND

DIVISION	CONTRACT	SHEET
.	. .	E–1 OF

MPS\E\FRM\5–1M

PLOT DATE: 3/5/2007 11:17 AM | LAST EDITED BY: ——— | PLOT DEVICE: XES 8830 – Plotter to FILE.plt



NOTES:

1. PROVIDE 2"C(3#2/0, 1#6) AND 175A COMBINATION MOTOR STARTER FROM EXISTING 240V PANEL FOR AIR COMPRESSOR WITHIN MAINTENANCE BUILDING, FOR EXACT LOCATIONS COORDINATE WITH OWNER AND MECHANICAL CONTRACTOR.
2. PROVIDE 3/4"C(3#10), 30A CIRCUIT BREAKER WITHIN EXISTING 120V PANEL, AND APPROPRIATE RECEPTACLE FOR HEATLESS DRYER WITHIN MAINTENANCE BUILDING, FOR EXACT LOCATIONS COORDINATE WITH OWNER AND MECHANICAL CONTRACTOR.
3. PROVIDE 3/4"C(3#10), 30A CIRCUIT BREAKER WITHIN EXISTING 120V PANEL, AND APPROPRIATE ELECTRICAL CONNECTION FOR CONDENSATE REMOVER WITHIN MAINTENANCE BUILDING, FOR EXACT LOCATIONS COORDINATE WITH OWNER AND MECHANICAL CONTRACTOR.

REV	DESCRIPTION	BY	DATE	CHK'D
B	ISSUED FOR BID	FWY	02/13/07	DEN
A	ISSUED TO MDEQ	FWY	01/09/07	DEN

TETRA TECH

DESIGNED FWY	CHECKED WAP
SCALE 1" = 40'-0"	CADD DATE 3/1/2007 6:07 PM

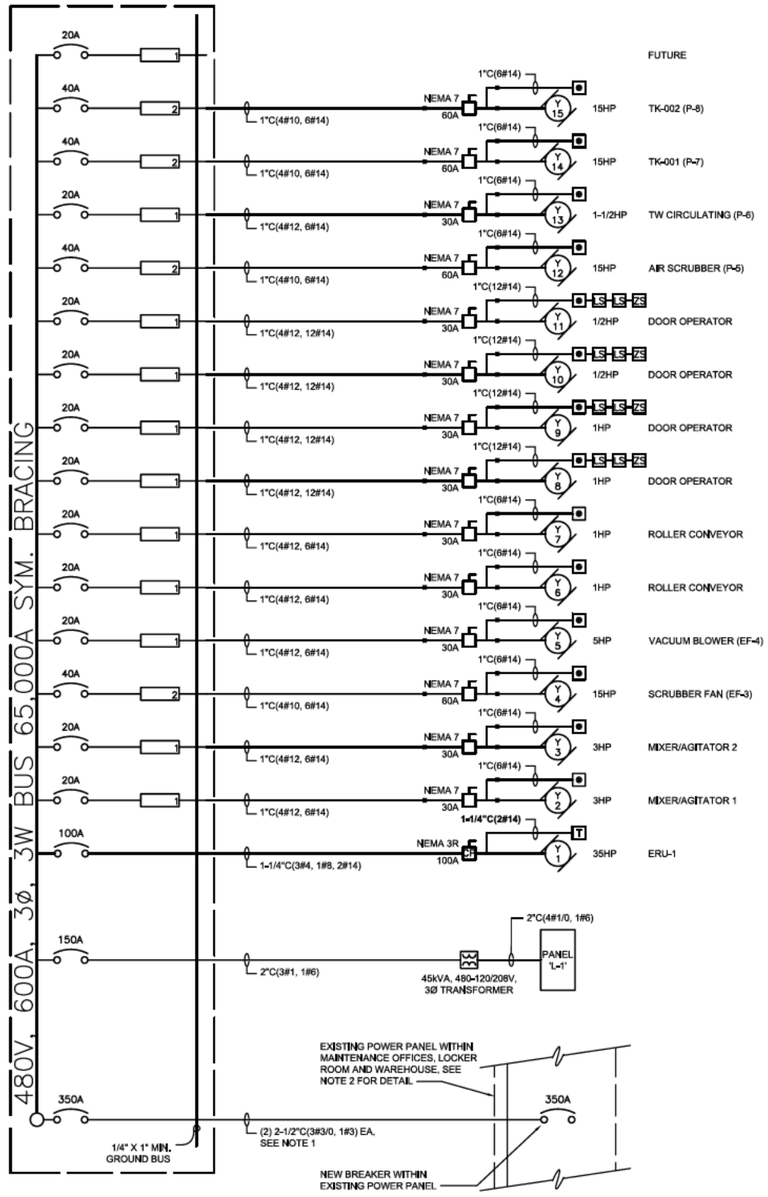
FILE P:\142-17450-07-001\CAD\142-17450-07-001\E\E-2 SITE PLAN.DWG

PSC ENVIRONMENTAL SERVICES DIVISION
515 LYCASTE DETROIT, MICHIGAN
DETROIT FACILITY REBUILD

ELECTRICAL

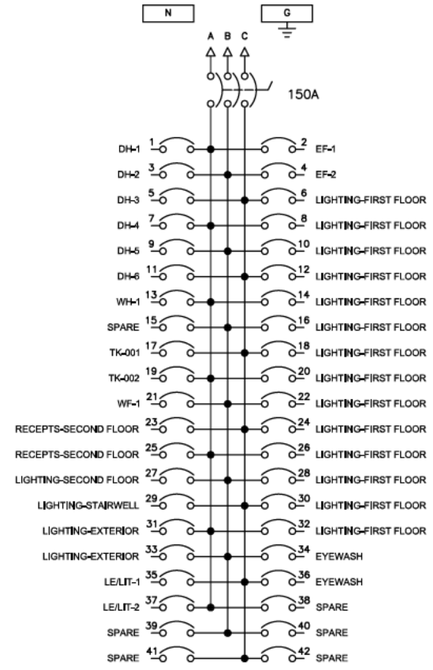
SITE PLAN

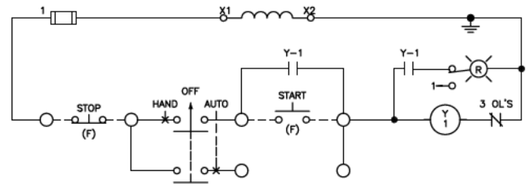
DIVISION	CONTRACT	SHEET
.	. .	E-2 OF



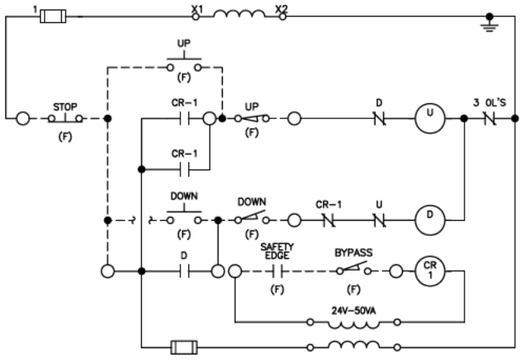
MCC-Y ONE-LINE
LOCATION: CONTAINER WAREHOUSE

PANELBOARD 'L-1'
LOCATION: WAREHOUSE
VOLTAGE: 120/208V
BUS RATING: 225A



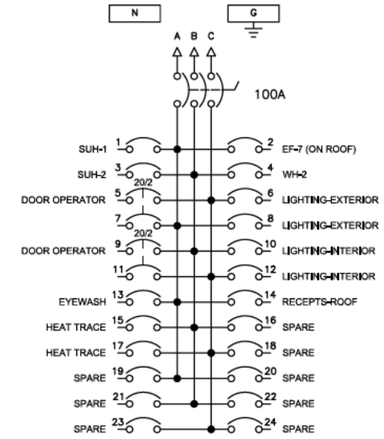


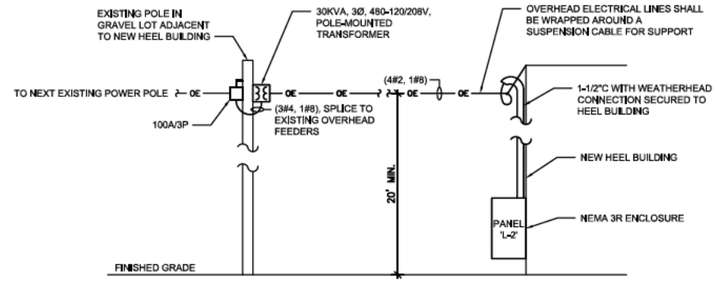
Y 1 Y 2 Y 3 Y 4 Y 5 Y 6 Y 7 Y 12 Y 13 Y 14 Y 15 **STARTER WIRING DIAGRAM**
(TYP. OF 11)



Y 8 Y 9 Y 10 Y 11 **DOOR OPERATOR WIRING DIAGRAM**
(TYP. OF 4)

PANELBOARD 'L-2'
LOCATION: HEEL
VOLTAGE: 120/208V
BUS RATING: 225A





PANEL L-2 ONE-LINE
LOCATION: HEEL BUILDING

NOTES:
1. MAIN POWER FEED CONDUIT IS ONLY FROM THE EXISTING PANEL UP TO THE CABLE TRAY AND FROM THE CABLE TRAY DOWN TO MCC-Y. SEAL CONDUIT UPON ENTERING AND EXITING THE CABLE TRAY. FULL-LENGTH OF CONDUCTORS FROM EXISTING PANEL TO MCC-Y SHALL BE CABLE TRAY RATED.
2. FIELD VERIFY AND COORDINATE WITH OWNER FOR LOCATION OF POWER PANEL WITHIN MAINTENANCE OFFICE LOCKER ROOM AND WAREHOUSE AREA.

REV	DESCRIPTION	BY	DATE	CHK'D
3				
2				
1				
2	ISSUED FOR BID	FWY	02/13/07	DEN
1	ISSUED TO MDEQ	FWY	01/09/07	DEN

TETRA TECH

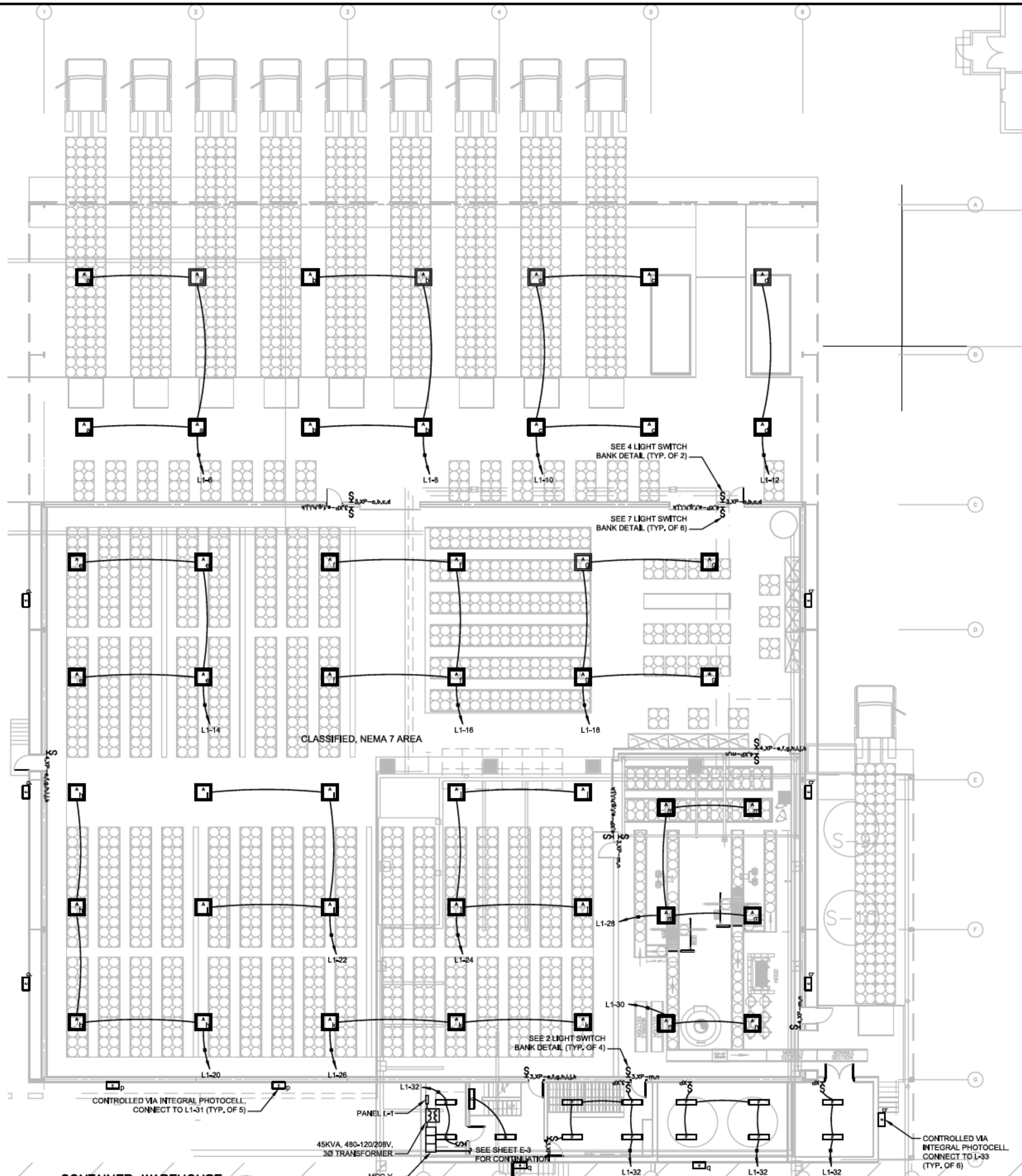
DESIGNED FWY	CHECKED WAP
SCALE NONE	CADD DATE 2/12/2007 2:19 PM
FILE P:\142-17450-07-001\CAD\142-17450-07-001\E\E-3 ONE-LINE.DWG	

PSC ENVIRONMENTAL SERVICES DIVISION
515 LYCASTE DETROIT, MICHIGAN
DETROIT FACILITY REBUILD

ELECTRICAL

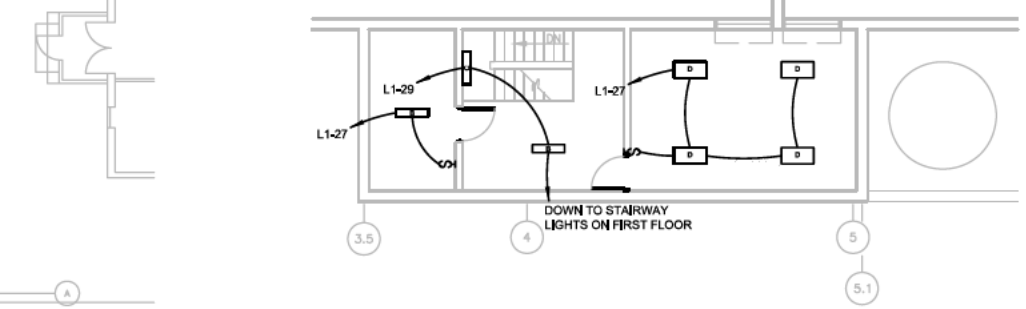
CONTAINER AND HEEL MANAGEMENT BLDG ONE-LINES

DIVISION	CONTRACT	SHEET
-	-	E-3



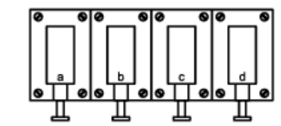
CONTAINER WAREHOUSE LIGHTING FLOOR PLAN

SCALE: 3/32"=1'-0"



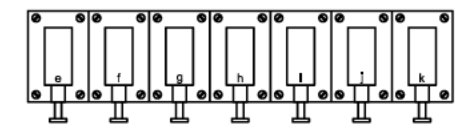
CONTAINER WAREHOUSE LIGHTING SECOND FLOOR PLAN

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



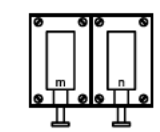
4 LIGHT SWITCH BANK DETAIL

SCALE: NTS



7 LIGHT SWITCH BANK DETAIL

SCALE: NTS



2 LIGHT SWITCH BANK DETAIL

SCALE: NTS

LUMINAIRE SCHEDULE			
SYMBOL	MANUFACTURER	MODEL	NOTES
A	HUBBELL	EZ-P-40-0-A2-SU103 WITH HRD-400	NOTES: 1. MANUFACTURER AND MODELS LISTED ARE THE BASIS OF THE DESIGN. 2. OR APPROVED EQUAL.
B	LITHONIA	LB-3-32-MVOLT-1/3-GEB10IS	
C	LITHONIA	WP-2-32-MVOLT-GEB10IS	
D	LITHONIA	2PM3N-G-B-4-32-18-LD-MVOLT-1/4-GEB10IS	
E	LITHONIA	WFL3-250M-HPW-TB-CR-PE-LPI	
F	HUBBELL	HL-HFX-265-1-3-WL	

REV	DESCRIPTION	BY	DATE	CHK'D
B	ISSUED FOR BID	FWY	02/13/07	DEN
A	ISSUED TO MDEQ	FWY	01/09/07	DEN

TETRA TECH

DESIGNED FWY | CHECKED WAP

SCALE AS SHOWN | CADD DATE 2/12/2007 2:18 PM

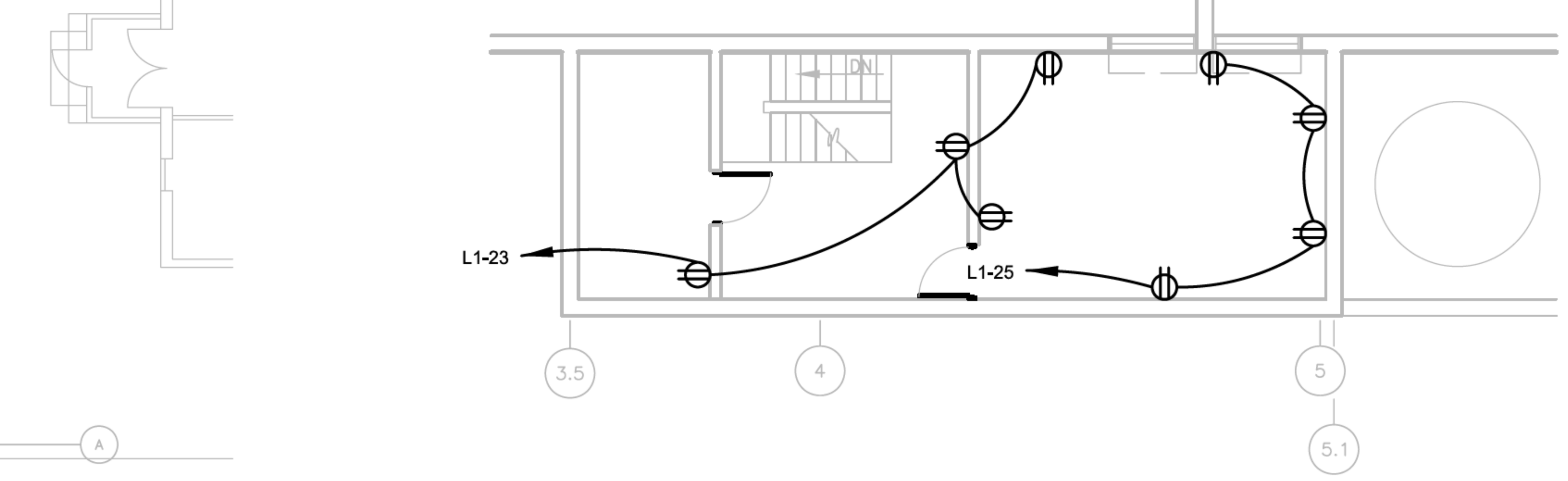
FILE P:\142-17450-07-001\CAD\142-17450-07-001\E\E-4 WAREHOUSE-LIGHTING.DWG

PSC ENVIRONMENTAL SERVICES DIVISION
515 LYCASTE DETROIT, MICHIGAN
DETROIT FACILITY REBUILD

ELECTRICAL

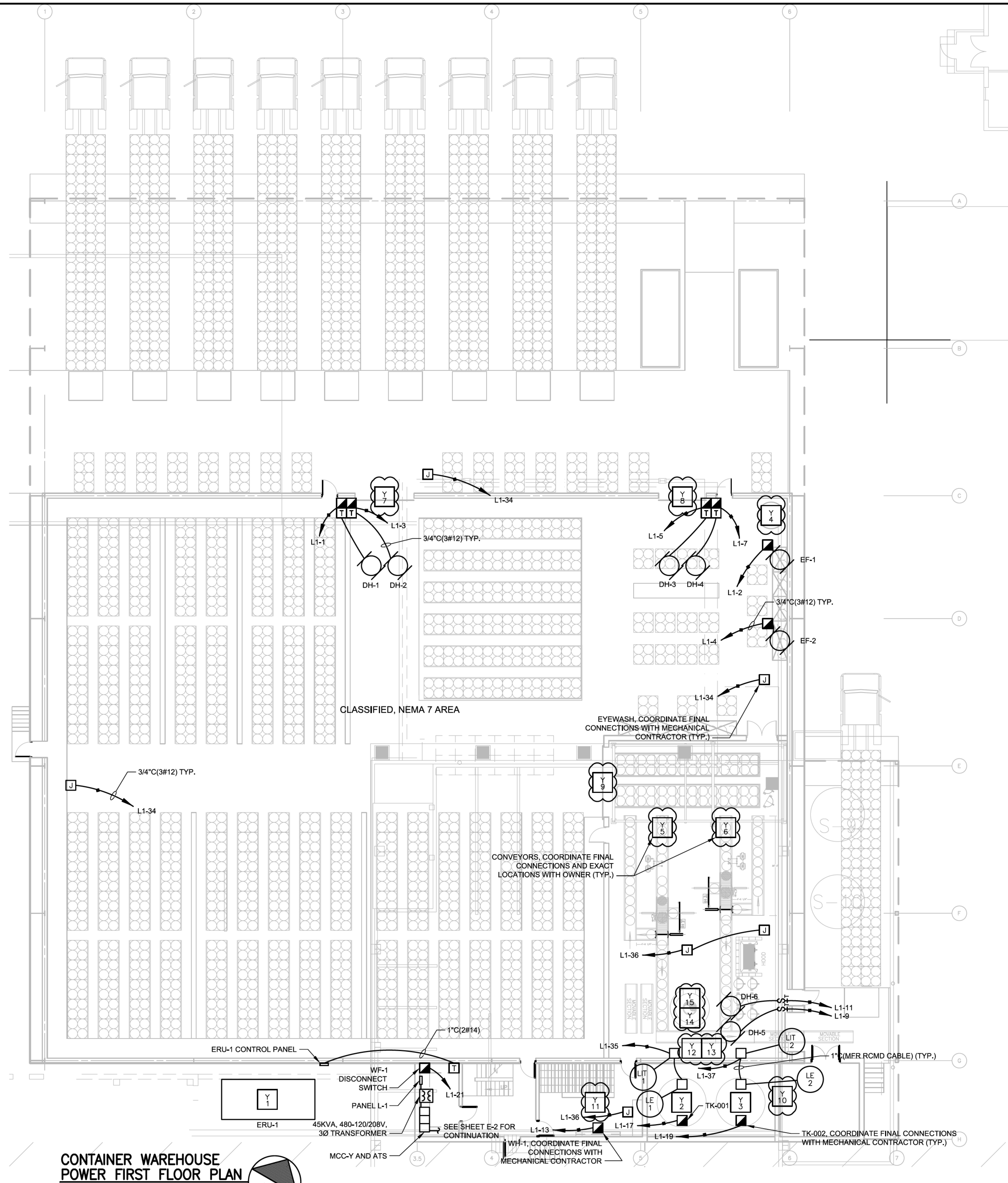
CONTAINER MANAGEMENT BLDG
LIGHTING FLOOR PLAN

DIVISION . | CONTRACT . . | SHEET E-4 OF



CONTAINER WAREHOUSE POWER SECOND FLOOR PLAN

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



CONTAINER WAREHOUSE POWER FIRST FLOOR PLAN

SCALE: 3/32"=1'-0"

REV	DESCRIPTION	BY	DATE	CHK'D
B	ISSUED FOR BID	FWY	02/13/07	DEN
A	ISSUED TO MDEQ	FWY	01/09/07	DEN

TETRA TECH

DESIGNED FWY | CHECKED WAP

SCALE AS SHOWN | CADD DATE 3/1/2007 6:05 PM

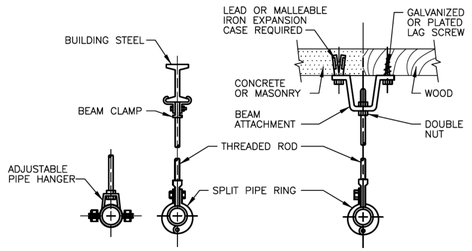
FILE P:\142-17450-07-001\CAD\142-17450-07-001\E\E-5 WAREHOUSE-POWER.DWG

PSC ENVIRONMENTAL SERVICES DIVISION
515 LYCASTE DETROIT, MICHIGAN
DETROIT FACILITY REBUILD

ELECTRICAL

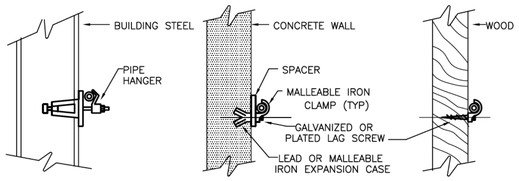
CONTAINER MANAGEMENT BLDG POWER FLOOR PLAN

DIVISION . | CONTRACT . . | SHEET E-5 OF



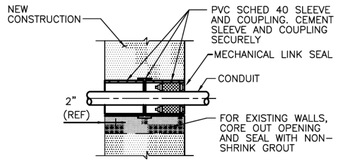
SINGLE CONDUIT HANGERS

NO SCALE



VERTICAL AND HORIZONTAL CONDUIT RACKS AND HANGERS

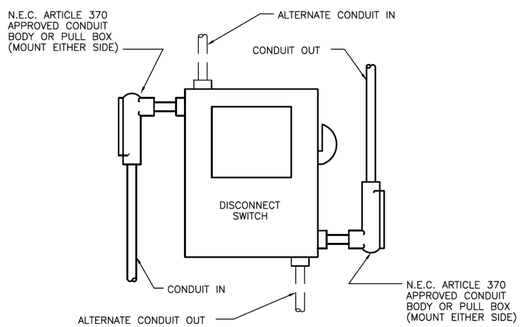
NO SCALE



EXTERIOR WALL CONDUIT SLEEVE DETAIL

DO NOT USE BELOW GRADE

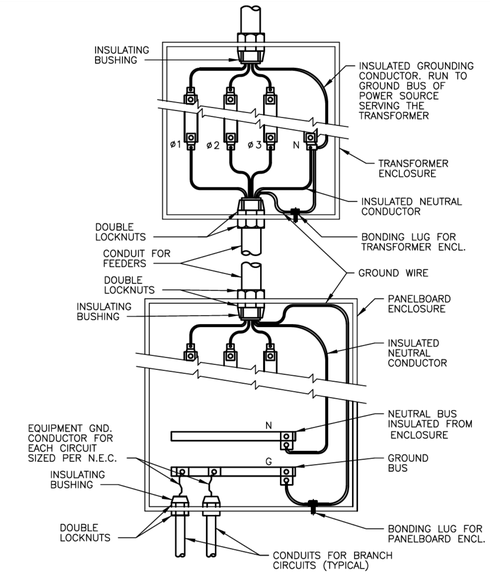
NO SCALE



SERVICE ENTRANCE & DISCONNECT SWITCHES

FOR NO. 4 WIRE & LARGER

NO SCALE

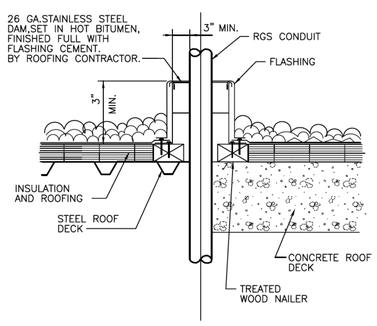


CONDUIT GROUNDING DETAILS FOR TRANSFORMERS,DISTRIBUTION PANELS, AND WALL MOUNTED ENCLOSURES

NO SCALE

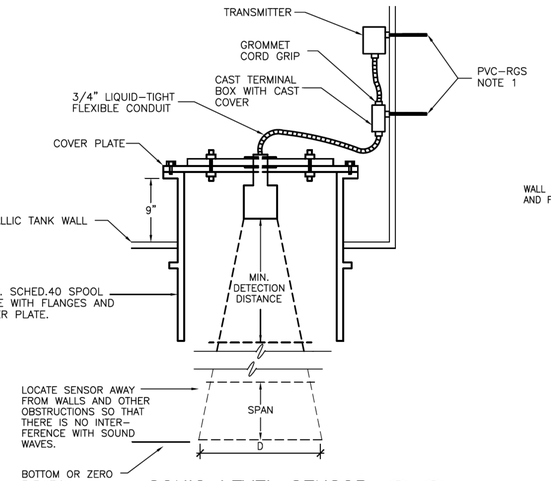
RACK MOUNTED EQUIPMENT DETAIL

NO SCALE



CONDUIT ROOF PENETRATION DETAIL

NO SCALE



SONIC LEVEL SENSOR E/LIT 1 E/LIT 2

NO SCALE

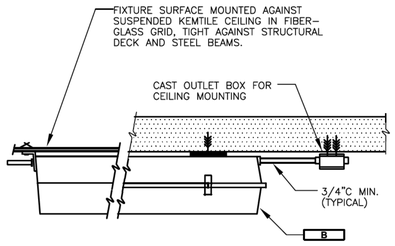
NOTE:
1. PROVIDE ONE CONDUIT ENTRANCE ABOVE, IN, OR BELOW CONCRETE AS SHOWN ON THE BACK-GROUND DRAWINGS. (MANUFACTURED SUPPLIED CABLE). PROVIDE CONDUIT SEALS AS REQUIRED FOR NEMA 7 AREAS.
2. ALL STEEL SHALL BE COATED WITH EPOXY BASE PAINT. ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL.

NOTE:
FLEXIBLE FIXTURE SUPPORT TO BE USED IN HAZARDOUS LOCATIONS WHERE FIXTURE MUST HANG MORE THAN 12' FROM IT'S SUPPORTING JUNCTION BOX.

HAZARDOUS LOCATION LIGHTING FIXTURES

PENDANT MOUNTING DETAIL

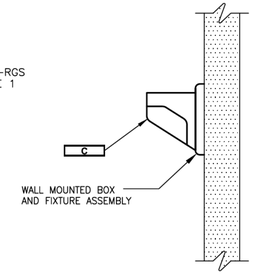
NO SCALE



FLUORESCENT LIGHTING FIXTURE

CEILING SURFACE MOUNTING

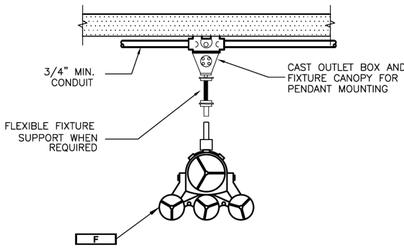
NO SCALE



STAIRWAY LIGHT FIXTURE

WALL MOUNTING DETAIL

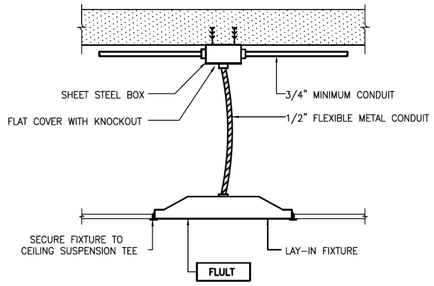
NO SCALE



EXPLOSION-PROOF LIGHT FIXTURE

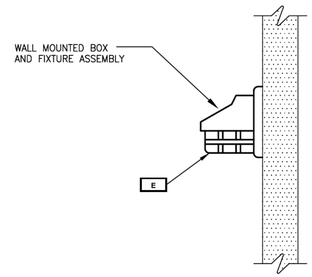
PENDANT MOUNTING DETAIL

NO SCALE



LAY-IN MOUNTED FLUORESCENT LIGHT DETAIL

NO SCALE



VAPORTIGHT OR WEATHERPROOF FIXTURE

WALL MOUNTING DETAIL

NO SCALE

REV	DESCRIPTION	BY	DATE	CHK'D
3	ISSUED FOR BID	FWY	02/13/07	DEN
2	ISSUED TO MDEQ	FWY	01/09/07	DEN

TETRA TECH

DESIGNED FWY	CHECKED WAP
SCALE NONE	CADD DATE 2/12/2007 2:14 PM
FILE P:\142-17450-07-001\CAD\142-17450-07-001\E\E-7 DETAILS.DWG	

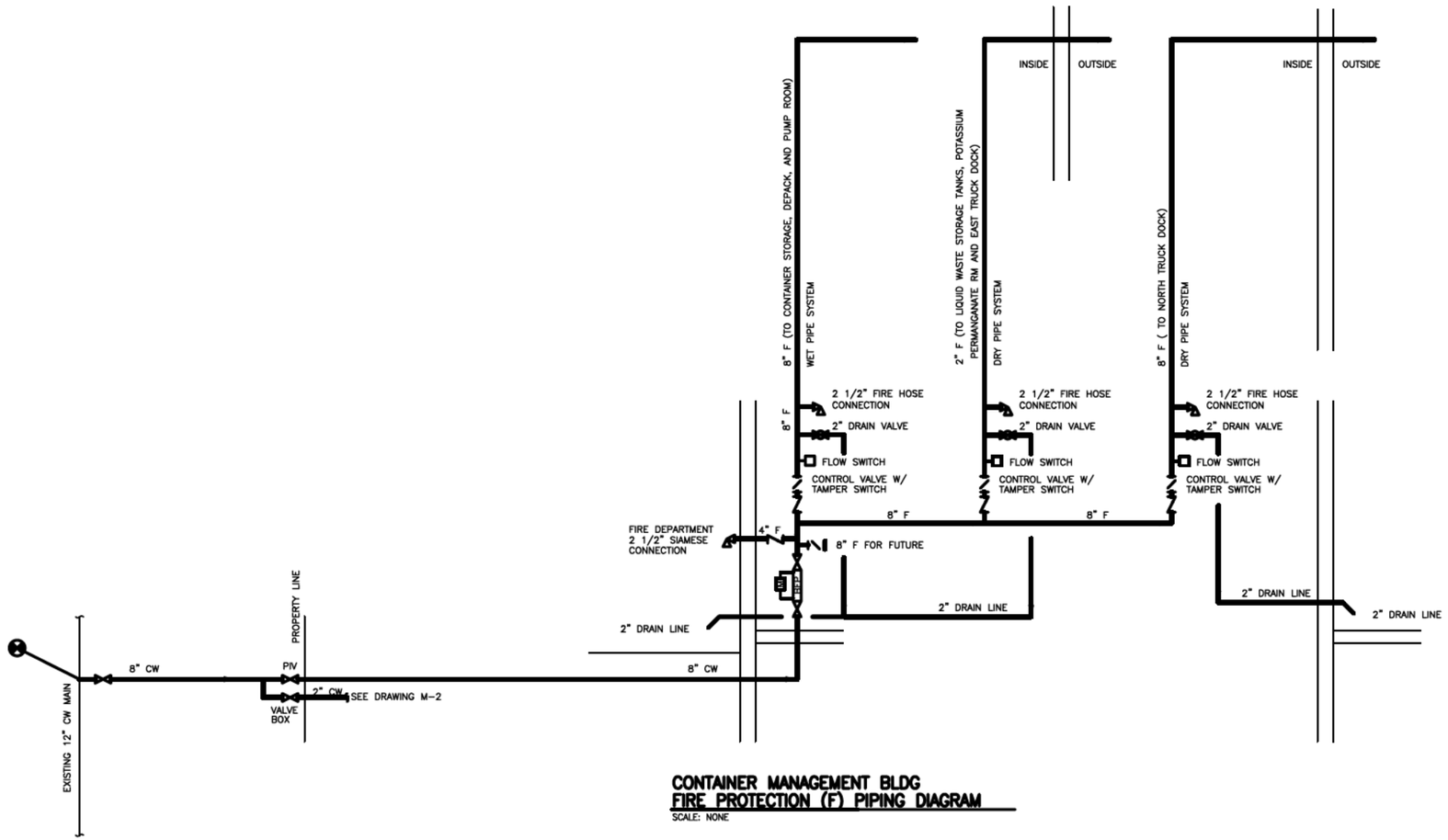
PSC ENVIRONMENTAL SERVICES DIVISION
515 LYCASTE DETROIT, MICHIGAN
DETROIT FACILITY REBUILD

ELECTRICAL

DETAILS

DIVISION	CONTRACT	SHEET
-	-	E-7
		OF

PLOT DATE: 3/5/2007 11:19 AM | LAST EDITED BY: ------ | PLOT DEVICE: XES 8830 - Plotter to FILE.ps3



CONTAINER MANAGEMENT BLDG
FIRE PROTECTION (F) PIPING DIAGRAM
SCALE: NONE

REV	DESCRIPTION	BY	DATE	CHK'D
1	ISSUED FOR BID	DCW	02/13/07	DEN
0	ISSUED TO MDEQ	DCW	01/09/07	DEN

TETRA TECH

DESIGNED D. WALZER	CHECKED DEN
SCALE AS NOTED	CADD DATE 2/16/2007 9:10 AM

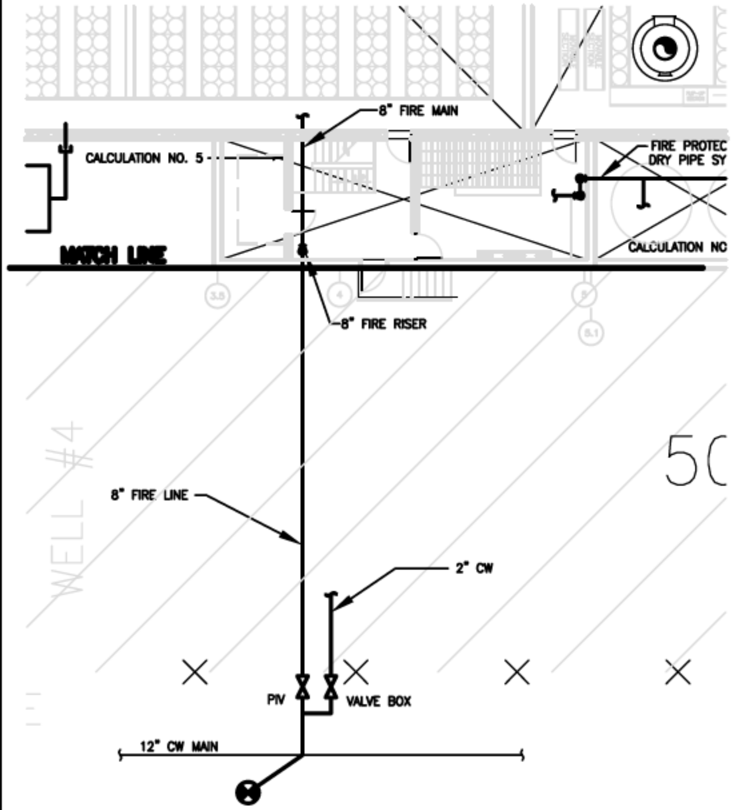
FILE P:\142-17450-07-001\CAD\142-17450-07-001\F\CW FIRE PROTECTION FLOW DIAGRAM.DWG

PSC ENVIRONMENTAL SERVICES DIVISION
515 LYCASTE DETROIT, MICHIGAN
DETROIT FACILITY REBUILD

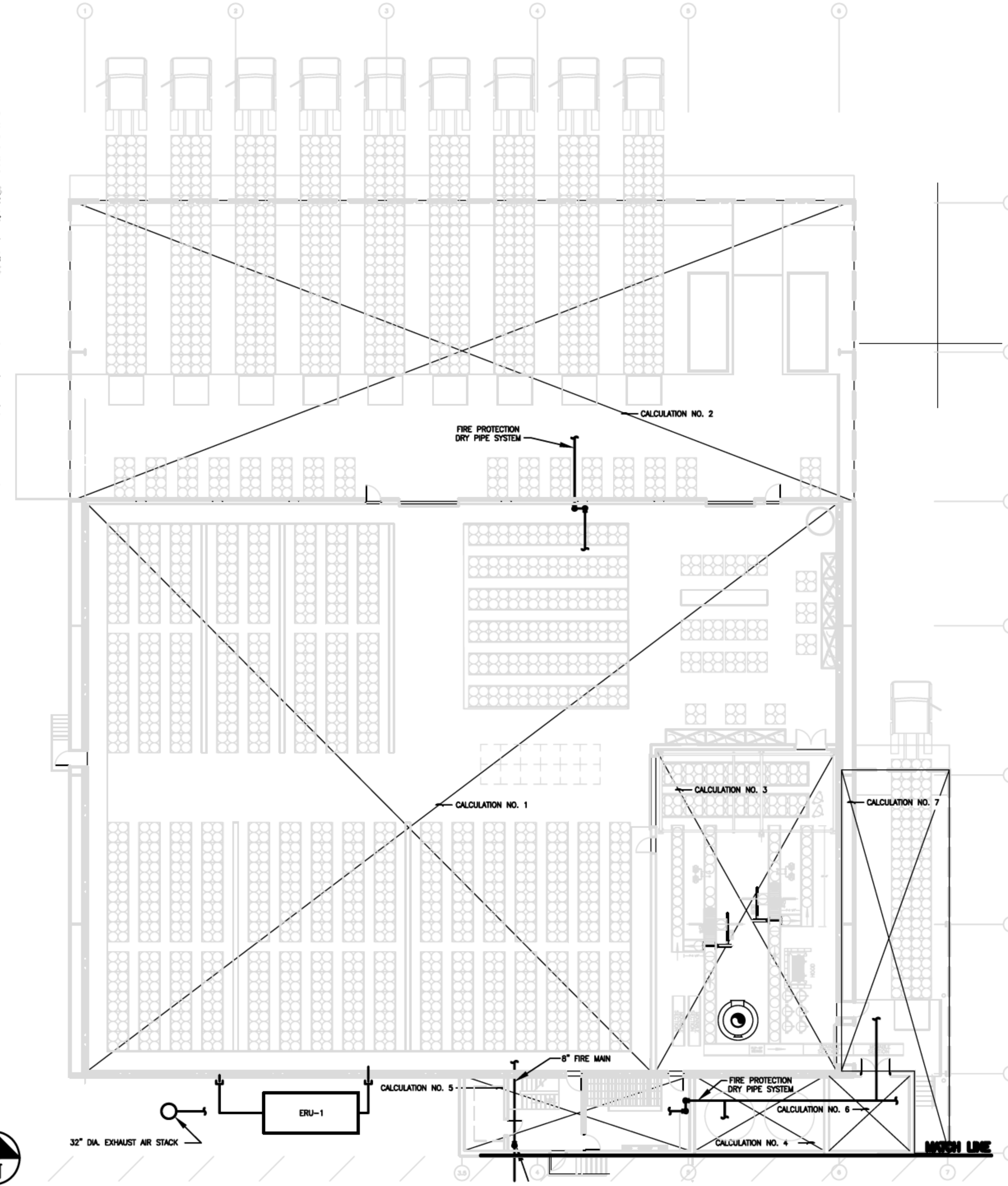
MECHANICAL

CONTAINER MANAGEMENT BLDG
FIRE PROTECTION
FLOW DIAGRAM

DIVISION	CONTRACT	SHEET
	-	F-1 OF 2



PARTIAL PLAN
SCALE: 3/32"=1'-0"



PLAN
SCALE: 3/32"=1'-0"

CALCULATION SUMMARY

	CALCULATION NO. 1	CALCULATION NO. 2	CALCULATION NO. 3	CALCULATION NO. 4	CALCULATION NO. 5	CALCULATION NO. 6	CALCULATION NO. 7
HAZARD CLASSIFICATION	HIGH HAZARD GROUP II	HIGH HAZARD GROUP II	HIGH HAZARD GROUP II	HIGH HAZARD GROUP II	HIGH HAZARD GROUP II	HIGH HAZARD GROUP II	HIGH HAZARD GROUP II
SYSTEM TYPE	WET SYSTEM	DRY PIPE SYSTEM	WET SYSTEM	DRY PIPE SYSTEM	WET SYSTEM	WET SYSTEM	DRY PIPE SYSTEM
DENSITY	0.4/2500 GPM/SQ.FT.	0.4/2500 GPM/SQ.FT.	0.4/2500 GPM/SQ.FT.	0.4/2500 GPM/SQ.FT.	0.4/2500 GPM/SQ.FT.	0.4/2500 GPM/SQ.FT.	0.4/2500 GPM/SQ.FT.
CALCULATED AREA	2500 SQ.FT.	2500 SQ.FT.	2500 SQ.FT.	2500 SQ.FT.	2500 SQ.FT.	2500 SQ.FT.	2500 SQ.FT.
AREA PER SPRINKLER	1?? SQ.FT.	1?? SQ.FT.	1?? SQ.FT.	1?? SQ.FT.	1?? SQ.FT.	1?? SQ.FT.	1?? SQ.FT.
SYSTEM DEMAND	1000 GPM @ ??.?? PSI	1000 GPM @ ??.?? PSI	1000 GPM @ ??.?? PSI	1000 GPM @ ??.?? PSI	1000 GPM @ ??.?? PSI	1000 GPM @ ??.?? PSI	1000 GPM @ ??.?? PSI
PRESSURE @ MAIN	??.?? PSI	??.?? PSI	??.?? PSI	??.?? PSI	??.?? PSI	??.?? PSI	??.?? PSI
HOSE ALLOWANCE	??? GPM @ FC	??? GPM @ FC	??? GPM @ FC	??? GPM @ FC	??? GPM @ FC	??? GPM @ FC	??? GPM @ FC

REV	DESCRIPTION	BY	DATE	CHK'D
A	ISSUED FOR BID	DCW	02/13/07	DEN
A	ISSUED TO MDEQ	DCW	01/09/07	DEN

TETRA TECH

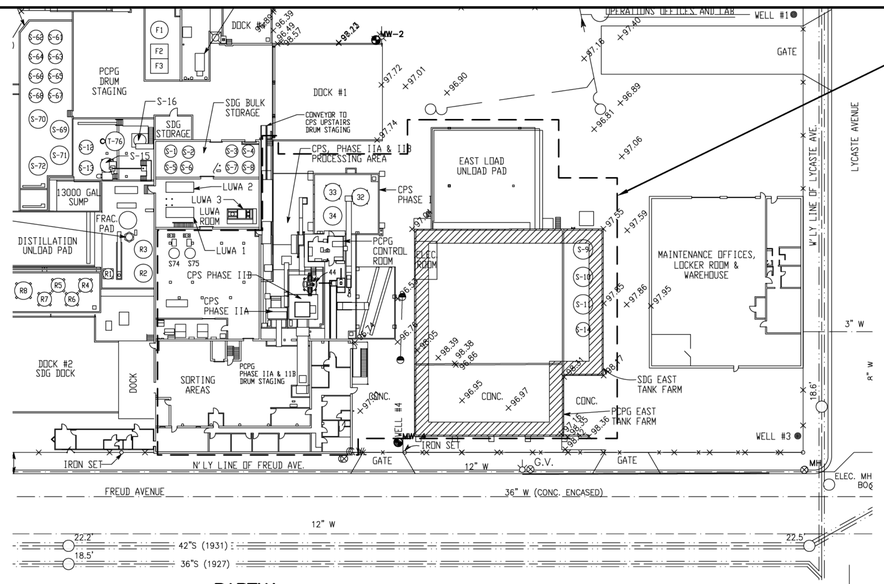
DESIGNED D. WALZER | CHECKED DEN
SCALE 3/32" = 1'-0" | CADD DATE 2/16/2007 8:43 AM
FILE P:\142-17450-07-001\CAD\142-17450-07-001\F\CW FIRE PROTECTION FLOOR PLAN_F-2.DWG

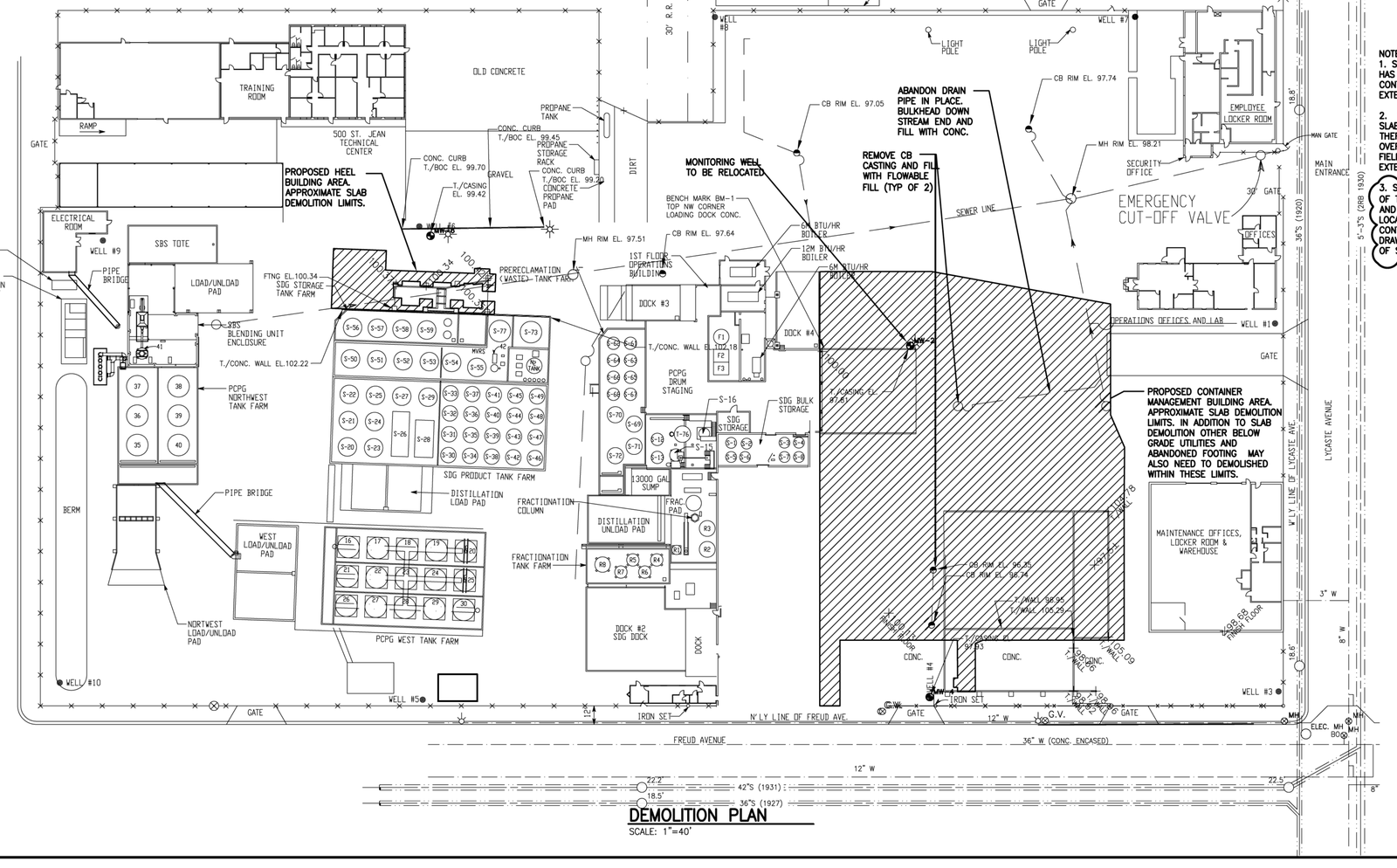
PSC ENVIRONMENTAL SERVICES DIVISION
515 LYCASTE DETROIT, MICHIGAN
DETROIT FACILITY REBUILD

MECHANICAL

CONTAINER WAREHOUSE FIRE PROTECTION FLOOR PLAN

DIVISION	CONTRACT	SHEET
.	.	F-2 OF 2





LEGEND – SITE IMPROVEMENTS

(NOTE: HEAVIER LINE WEIGHTS INDICATE PROPOSED WORK.)

	PROPOSED SUPERSTRUCTURE
	STRUCTURE (TANKS, ETC.)
▨	EXISTING SUPERSTRUCTURE
	EXISTING UNDERGROUND STRUCTURE
	FUTURE STRUCTURE
12" S	PROPOSED UTILITY 35" AND SMALLER
12" W	PROPOSED WATER MAIN
8" FM	PROPOSED SANITARY FORCE MAIN
36" S	PROPOSED UTILITY 36" AND LARGER
12"W	EXISTING UTILITY 35" AND SMALLER
36" S	EXISTING UTILITY 36" AND LARGER
640	PROPOSED ELEVATION CONTOUR LINE
640	EXISTING ELEVATION CONTOUR LINE
640	EX. APPROXIMATE CONTOUR (GROUND OBSCURED)
(120.00)	FINISH GRADE AT STRUCTURE
+100.00	PROPOSED SPOT ELEVATION
+100.00	EXISTING SPOT ELEVATION
	PROPERTY/R.O.W. LINE
√	ADJACENT PROPERTY W/ SAME OWNER
	EASEMENT/SETBACK LINE
	FENCE LINE
	GUARDRAIL
○	MANHOLE
●	PROPOSED MANHOLE
S	SANITARY SEWER LINE
C	COMBINED SEWER LINE
FM	FORCE MAIN LINE
□CO	CLEAN OUT
R	STORM SEWER LINE
ED	EDGE DRAIN LINE
◐	EXISTING DRAINAGE STRUCTURE
■	PROPOSED DRAINAGE STRUCTURE
W	WATER LINE
⊗MH	VALVE MANHOLE
⊗	VALVE BOX
⊗WELL	WELL
	FIRE HYDRANT ASSEMBLY
SM	STEAM LINE
G	GAS LINE
⊗G	GAS VALVE BOX
□G	GAS LINE MARKER
–○–	UTILITY, POWER, OR TEL. POLE
–○–)	GUY ANCHOR
✳	LIGHT – POLE OR FIXED TO STRUCTURE
○TP	TRAFFIC SIGNAL POLE
DCB	UNDERGROUND DUCT BANK
E	UNDERGROUND ELECTRIC CONDUIT
UG	UNDERGROUND ELECTRIC CABLE
OH	OVERHEAD ELECTRIC LINE
□EB	ELECTRIC BOX
T	UNDERGROUND TELEPHONE LINE
FO	UNDERGROUND FIBER OPTIC LINE
OT	OVERHEAD TELEPHONE LINE
□TB	TELEPHONE BOX
□TEL	TELEPHONE
TV	UNDERGROUND CABLE LINE
□TV	CABLE BOX
⊕	SECTION CORNER
●FI	PROPERTY IRON– FOUND
●FM	PROPERTY MONUMENT– FOUND
●SI	PROPERTY IRON– SET
●SM	PROPERTY MONUMENT– SET
△	SURVEY CONTROL POINT
+100	STAKEOUT COORDINATE POINT
⑤	HORIZONTAL CURVE NUMBER
⊕B–12	SOIL BORING LOCATION AND NUMBER
23	SOIL EROSION CONTROL MEASURE

PARTIAL EXISTING SITE PLAN
SCALE: 1"=40'

APPROXIMATE LIMITS OF SUPERSTRUCTURE DEMOLITION BY OWNER. BUILDING SUPERSTRUCTURES, EQUIPMENT, UTILITIES AND OTHER ABOVE GRADE FEATURES HAVE BEEN OR WILL BE REMOVED BY OWNER. FOOTINGS, SLABS, RETAINING WALLS ALONG WITH BELOW GRADE UTILITIES AND ELECTRICAL LINES WILL REMAIN AND, IF REQUIRED, SHALL BE DEMOLISHED BY CONTRACTOR TO PERFORM THE WORK. CONTRACTOR IS RESPONSIBLE TO VISIT AND EXPLORE THE SITE TO DETERMINE THE EXTENT OF REMAINING ITEMS THAT NEED TO BE DEMOLISHED.

DEMOLITION PLAN
SCALE: 1"=40'

▨ HATCHING DENOTES DEMOLITION

NOTES:

1. SINCE THIS DRAWING WAS CREATED THE OWNER HAS PERFORMED SOME DEMOLITION WORK. CONTRACTOR MUST VISIT THE SITE TO DETERMINE THE EXTENT OF DEMOLITION WORK REMAINING.

2. THERE ARE TWO LEVELS OF EXISTING CONCRETE SLAB IN THE AREA OF THE CONTAINER MGMT. BLDG. THERE IS AN ORIGINAL SLAB THAT WAS LATER BUILT OVER. THE LOWER SLAB SHALL REMAIN IN PLACE. FIELD INVESTIGATION IS REQUIRED TO DETERMINE THE EXTENT AND ELEVATION OF THE LOWER SLAB. △C

3. SLAB DEMOLITION IS REQUIRED FOR INSTALLATION OF THE SDG AND LAB/OFFICE BUILDING FOUNDATIONS AND DRAIN PIPING. REFER TO SHEET G–2 FOR THE LOCATION OF THESE BUILDINGS ON THE SITE. CONTRACTOR SHALL COORDINATE WITH STRUCTURAL DRAWINGS TO DETERMINE THE EXTENT AND LOCATION OF SLAB DEMOLITION.

REV	DESCRIPTION	BY	DATE	CHK'D
△				
△				
△C	ADDENDUM NO. 1		02/07	
△B	ISSUED FOR BID		02/13/07	DEN
△A	ISSUED TO MDEQ		1/09/07	DEN

TETRA TECH

DESIGNED RGK
CHECKED .
SCALE 1"=40'
CADD DATE 2/27/2007 8:32 AM
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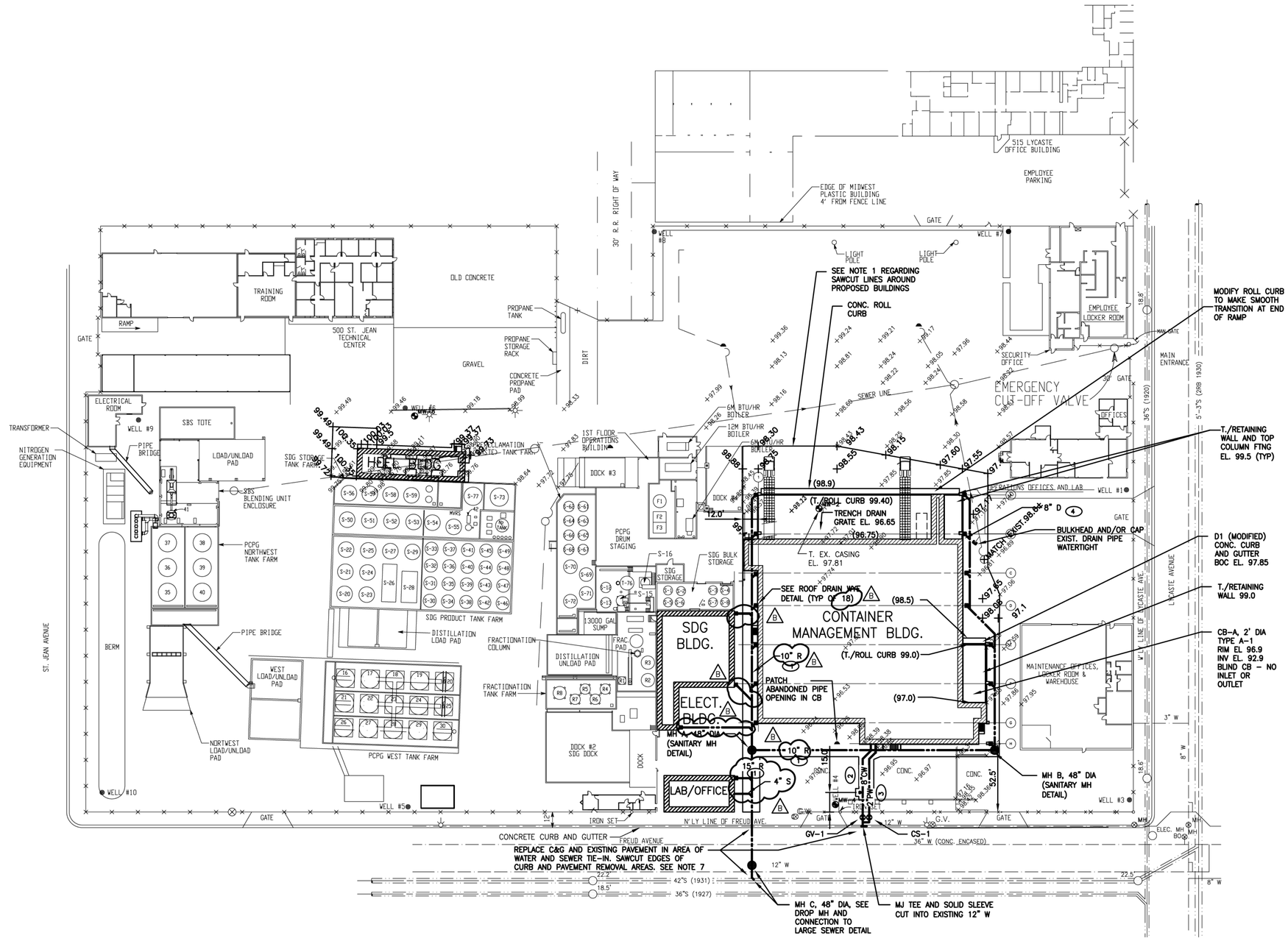
PSC ENVIRONMENTAL SERVICES DIVISION
515 LYCASTE DETROIT, MICHIGAN
DETROIT FACILITY REBUILD

GENERAL

EXISTING SITE PLAN DEMOLITION PLAN AND LEGEND

DIVISION .
CONTRACT .
.
SHEET G–1
OF

PLOT DATE: 3/5/2007 11:12 AM | LAST EDITED BY: KEN.ULREY | PLOT DEVICE: XES 8830 – Plotter to FILE.pc3



NOTES:

1. ADJUSTMENTS TO THE EXACT SAWCUT LOCATIONS MAY BE REQUIRED TO MATCH EXISTING GRADE.

2. CONTRACTOR RESPONSIBLE TO OBTAIN WATER SERVICE PERMIT FROM DWSD AND A ROW PERMIT FROM DETROIT CITY ENGINEERS DEPARTMENT AND TO PAY ALL PERMIT AND INSPECTION FEES.

3. CONTRACTOR RESPONSIBLE TO OBTAIN DWSD SEWER PERMIT AND DETROIT CITY ENGINEER ROW PERMIT AND PAY ALL INSPECTION FEES.

4. CONCRETE SLABS SHALL BE REMOVED BY SAWING A STRAIGHT CUT PARALLEL OR PERPENDICULAR TO EXISTING BUILDING LINES OR EXISTING SLAB JOINTS UNLESS SHOWN OTHERWISE. NO CUTTING SHALL BE DONE LESS THAN 4' FROM AN EXISTING JOINT. IF THE SLAB SECTION TO BE REMOVED IS LESS THAN 4' FROM AN EXISTING JOINT THE REMOVAL AND REPLACEMENT SHALL BE EXTENDED TO SAID JOINT.

5. AT CORNERS OF CONCRETE SLAB REMOVAL, SAW BLADE OVERCUTS SHALL BE SEALED.

6. UNLESS OTHERWISE INDICATED LIMIT EXISTING CONCRETE DEMOLITION TO MINIMUM REQUIRED TO ACCOMMODATE NEW BUILDING CONSTRUCTION.

7. FREUD AVENUE IS LIKELY HMA OVERLAY OVER BRICK ON CONCRETE BASE. EXSIT. PAVEMENT MATERIALS AND THICKNESS WILL NEED TO BE FIELD VERIFIED. CONTRACTOR SHALL ASSUME ROAD RESTORATION WILL NEED TO BE EXTENDED TO THE NEAREST CONCRETE BASE JOINT AND THAT BRICK SHALL BE REPLACED WITH EQUIVALENT THICKNESS OF HMA.

REV	DESCRIPTION	BY	DATE	CHK'D
B	ADDENDUM NO. 1		02/07	
A	ISSUED FOR BID		02/13/07	DEN

TETRA TECH

DESIGNED RGK	CHECKED .
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PSC ENVIRONMENTAL SERVICES DIVISION
515 LYCASTE DETROIT, MICHIGAN
DETROIT FACILITY REBUILD

GENERAL

PROPOSED SITE PLAN

DIVISION	CONTRACT	SHEET
.	.	G-2 OF

PLOT DATE: 3/5/2007 11:14 AM | LAST EDITED BY: KENLEBRY | PLOT DEVICE: XES 8830 – Plotter to FILE.ps3

1ST FLOOR OPERATIONS BUILDING

DOCK #3

DOCK #4

DOCK #5

F1

F2

F3

PCPG DRUM STAGING

S-62 S-61 S-64 S-63 S-66 S-65 S-68 S-67 S-70 S-69 S-71 S-72

T-76 S-12 S-13

SDS STORAGE 420

SDS BULK STORAGE 421

S-1 S-2 S-5 S-6 S-3 S-4 S-7 S-8

13000 GAL SUMP

LUNCH ROOM 423

PROCESS EQ. REF #1 424

PROCESS EQ. REF #2 425

ELECTRICAL ROOM 426

FRAC. PAD

DISTILLATION UNLOAD PAD

R3 R2 R1 R8 R5 R4 R7 R6

EXIST'G LOAD'G DOCK

DOCK #2 SDG DOCK

DOCK

12'

IRON SET

N'LY LINE OF FREUD AVE.

FREUD AVENUE

WELL #2

WELL #4

GATE

50' NO FLAMMABLES EASEMENT

GATE

WELL #1

GATE

MAINTENANCE OFFICES, LOCKER ROOM & WAREHOUSE

REV	DESCRIPTION	BY	DATE	CHK'D
6	ISSUED TO MDEQ		1/09/07	DEN

TETRA TECH

DESIGNED B. CLARK CHECKED .

SCALE 1/16"= 1'-0" CADD DATE 2/15/2007 5:01 PM

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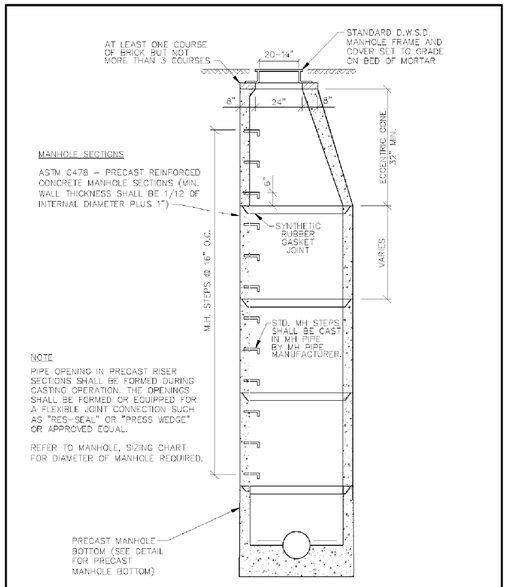
PSC ENVIROMENTAL SERVICES
515 LYCASLE DETROIT, MI
DETROIT FACILITIY REBUILD

CIVIL

PARTIAL SITE PLAN

DIVISION . CONTRACT . SHEET G-3 OF

PLOT DATE: 3/5/2007 11:13 AM LAST EDITED BY: KDILLBURY PLOT DEVICE: XES 8830 - Plotter.pc3



C						
B						
A						
	DESCRIPTION	DRW	CKD	APP	DATE	
REVISIONS						

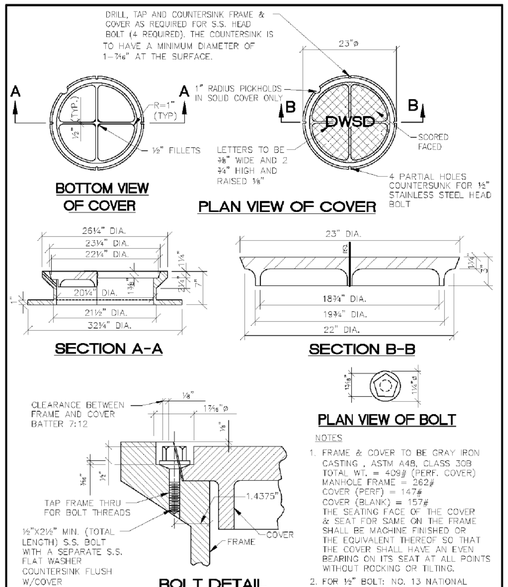
MANHOLE, PRECAST

CITY OF DETROIT
WATER AND SEWERAGE DEPARTMENT
ENGINEERING DIVISION

DRAWN BY: S.D.A.
CHECKED BY: S.D.A.
APPROVED:

SCALE: NONE

SHEET 1 OF 1
DWG No. 02600-01



C						
B						
A						
	DESCRIPTION	DRW	CKD	APP	DATE	
REVISIONS						

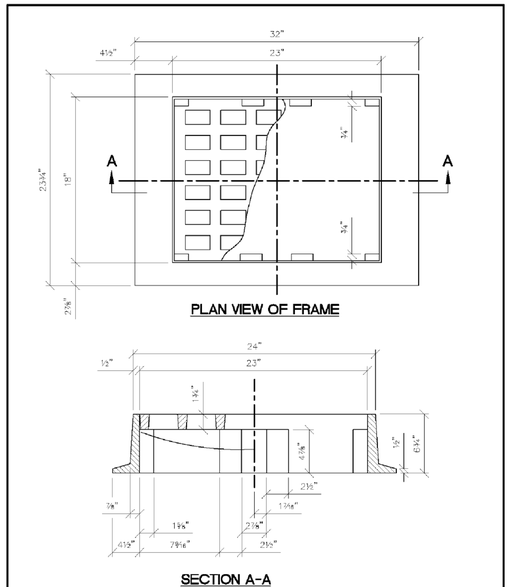
MANHOLE, COVER WITH FRAME

CITY OF DETROIT
WATER AND SEWERAGE DEPARTMENT
ENGINEERING DIVISION

DRAWN BY: S.D.A.
CHECKED BY: S.D.A.
APPROVED:

SCALE: NONE

SHEET 1 OF 1
DWG No. 02600-07



C						
B						
A						
	DESCRIPTION	DRW	CKD	APP	DATE	
REVISIONS						

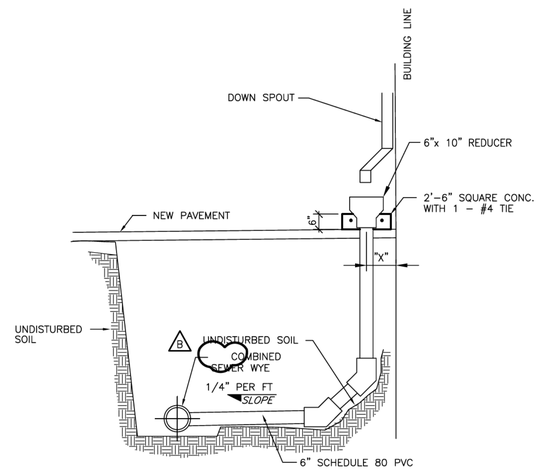
GRATE, FLAT WITH FRAME

CITY OF DETROIT
WATER AND SEWERAGE DEPARTMENT
ENGINEERING DIVISION

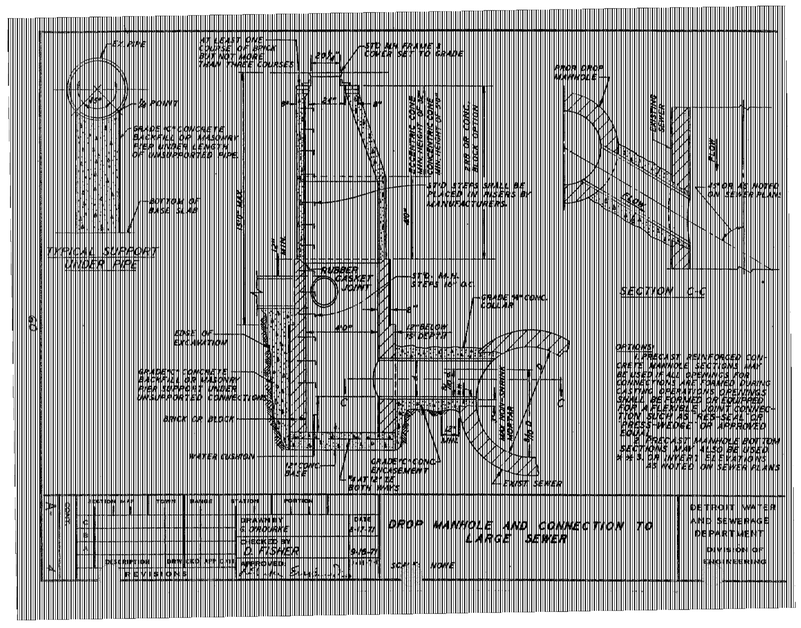
DRAWN BY: S.D.A.
CHECKED BY: S.D.A.
APPROVED:

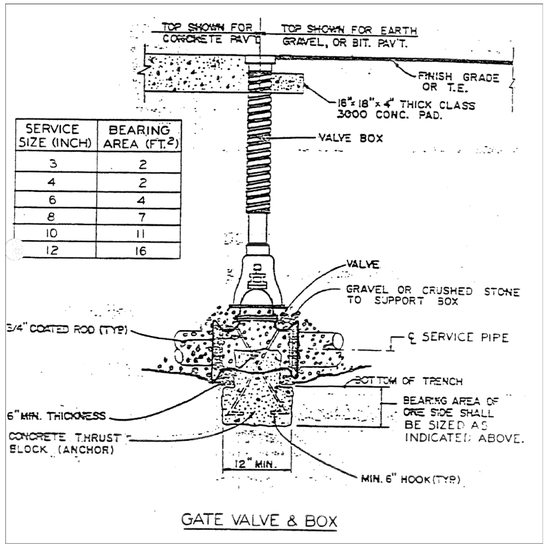
SCALE: NONE

SHEET 1 OF 1
DWG No. 02630-01



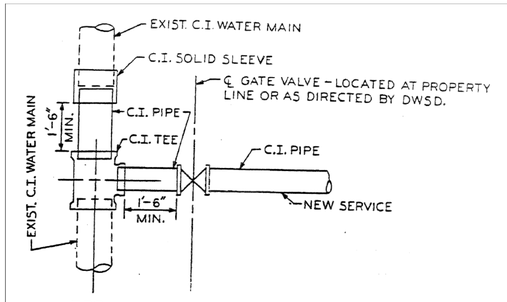
ROOF DRAIN WYE DETAIL
NO SCALE





SERVICE SIZE (INCH)	BEARING AREA (FT.²)
3	2
4	2
6	4
8	7
10	11
12	16

GATE VALVE & BOX



TEE CUT INTO MAIN

NOTES:

1. CONCRETE CLASS DESIGNATIONS ON DWSD DETAILS REFER TO DWSD STANDARD CONCRETE CLASSES AND ARE NOT NECESSARILY THE SAME AS THE CONCRETE CLASS DESIGNATIONS IN THE PROJECT SPECIFICATIONS

REV	DESCRIPTION	BY	DATE	CHK'D
B	ADDENDUM NO. 1		02/07	
A	ISSUED FOR BID		02/13/07	DEN

TETRA TECH

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SCALE AS NOTED	CADD DATE 2/27/2007 8:31 AM
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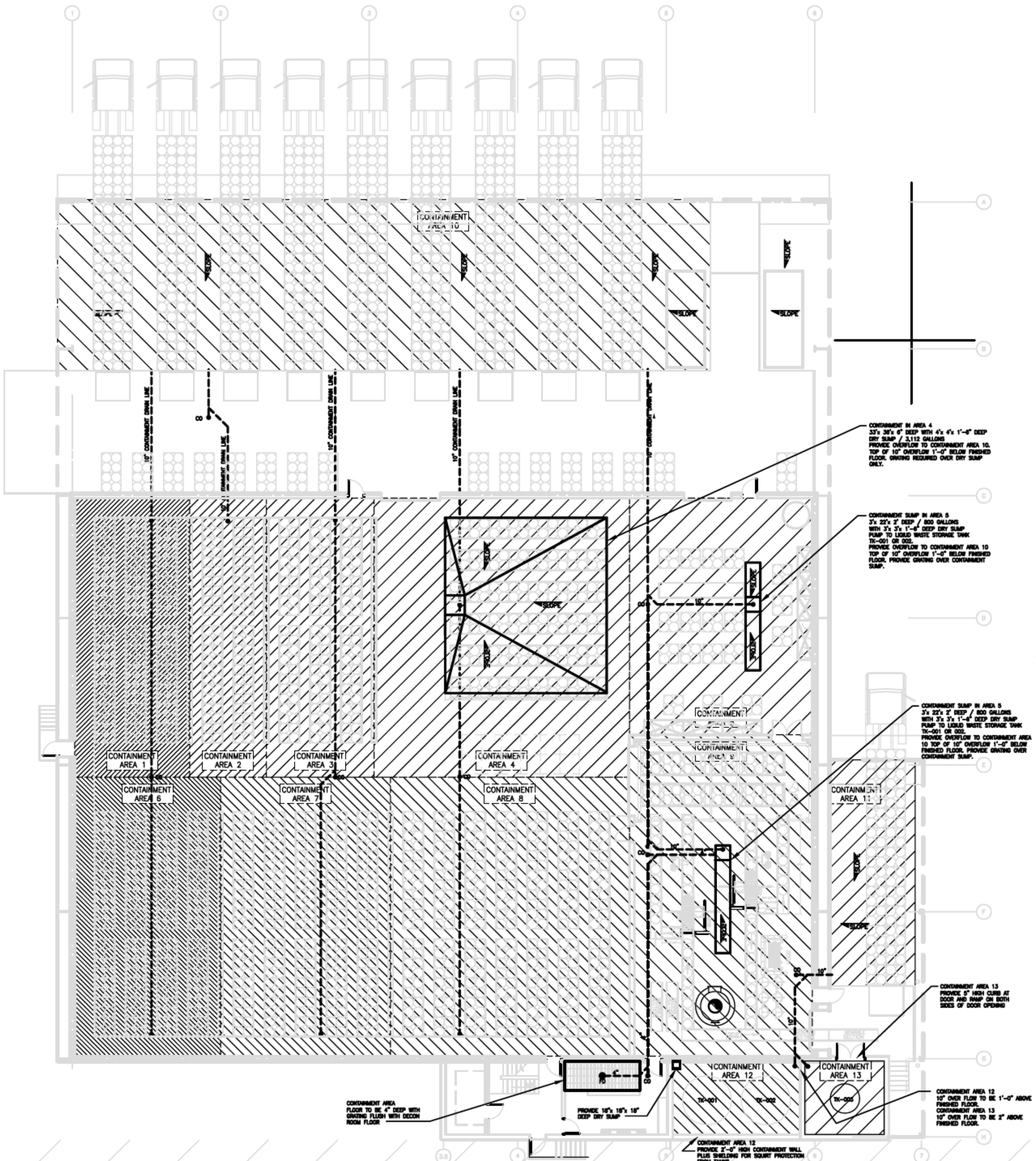
PSC ENVIRONMENTAL SERVICES DIVISION
515 LYCASTE DETROIT, MICHIGAN
DETROIT FACILITY REBUILD

GENERAL
DETAILS

DIVISION	CONTRACT	SHEET
.	.	G-4 OF

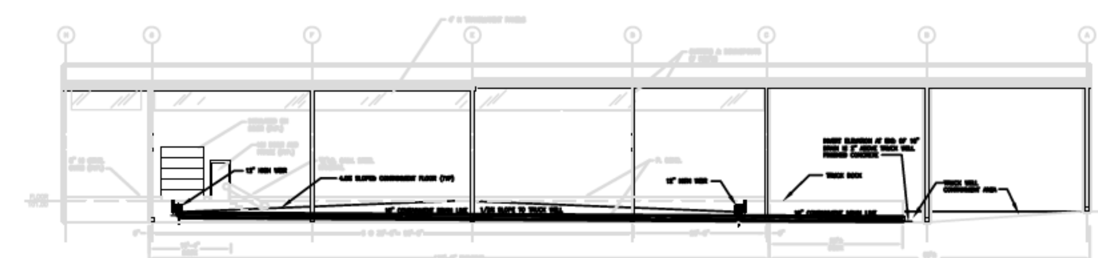
PLOT DATE: 3/5/2007 11:15 AM | LAST EDITED BY: KENLEBRY | PLOT DEVICE: XES 8830 - Plotter to FILE.ps3



PLAN
CONTAINMENT AREAS
SCALE: 3/32" = 1'-0"

CONTAINMENT AREA LEGEND							
AREA	HATCHING	TOTAL AVAILIBLE CONTAINMENT VOLUME BY AREAS +(GAL)	REQUIRED CONTAINMENT VOLUMES: 10% STORAGE VOLUME −(GAL)	REQUIRED CONTAINMENT VOLUMES: FIRE WATER VOLUME −(GAL)	REQUIRED CONTAINMENT VOLUMES: PALLATS / DRUMS VOLUME −(GAL)	TOTAL REQUIRED VOLUME −(GAL) SEE NOTE 1	RE'Q CONTAINMENT VOLUME IN AREA 10 (GAL)
1		6,537	1,452	10,944	1,878	14,272	−7,737
2		5,161	968	7,296	1,252	9,516	−4,355
3		7,225	1,452	10,032	1,878	13,362	−6,137
4		4,443	2,112	23,712	0	25,824	−21,381
5		800	517	14,504	0	15,021	−14,221
6		8,602	1,936	13,680	2,504	18,120	−9,518
7		11,698	2,420	15,960	3,130	21,510	−9,812
8		15,139	3,388	22,344	4,382	30,114	−14,975
9		800	627	18,720	0	19,347	−18,547
10		34,819	1,408	20,000	0	21,408	13,411
11		6,881	0	10,736	0	10,736	−3,855
12		5,834	5,000	3,120	0	8,120	−2,286
13		748	615	1,920	0	2,535	−1,9787

NOTES:
1. TOTAL REQUIRED VOLUME = 10% VOLUME OF DRUM STORAGE + FIRE WATER VOLUME (BASED ON SQUARE FOOTAGE OF CONTAINMENT AREA TIMES 0.40 GPM/FT² x 20 MIN) + PALLATS/DRUMS DISPLACEMENT VOLUME.
2. FIRE WATER VOLUME FOR CONTAINMENT AREA 10 IS BASED ON 2500 SQUARE FEET x 0.40 GPM/FT² x 20 MIN.



BUILDING PROFILE
CONTAINMENT AREAS
SCALE: NONE

REV	DESCRIPTION	BY	DATE	CHK'D
B	ISSUED FOR BID	DCW	01/13/07	DEN
A	ISSUED TO MDEQ	DCW	01/09/07	DEN

TETRA TECH

DESIGNED D. WALZER — CHECKED DEN
SCALE 3/32" = 1'-0" — CADD DATE 2/12/2007 3:14 PM
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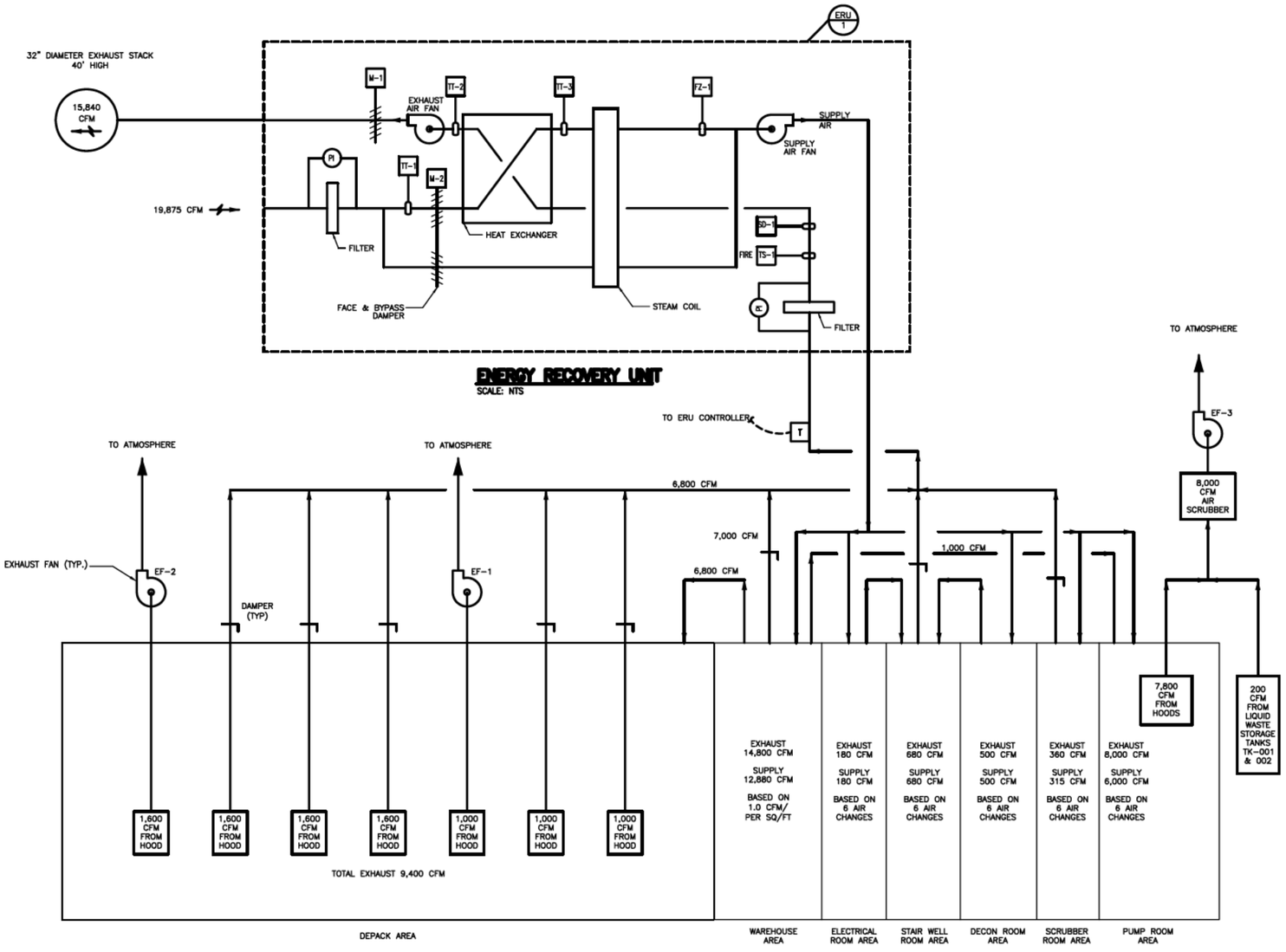
PSC ENVIRONMENTAL SERVICES DIVISION
515 LYCASTE DETROIT, MICHIGAN
DETROIT FACILITY REBUILD

GENERAL

CONTAINER MANAGEMENT BLDG
CONTAINMENT AREAS

DIVISION . — CONTRACT . — SHEET G-5 OF 5



ENERGY RECOVERY UNIT
SCALE: NTS

NEW CONTAINER WAREHOUSE & PROCESS BUILDING
SCALE: NTS

STEAM UNIT HEATERS (120 PSI STEAM) (DH)

MARK	LOCATION	CFM	MIN / FPM	HP / RPM	VOLTS / PHASE	MODEL MODEL NO.	REMARKS
DH-1- 6	CONTAINER STORAGE	4480	540 / 610	0.5 / 1075	115 / 1	MODINE SDH296S	SUPPLIED BY CONTRACTOR INSTALLED BY CONTRACTOR

NOTES:
1. INTERLOCK DH-1 THRU 6 WITH AUTOMATIC DOOR OPENERS. DH-1 THRU 6 SHALL ENERGIZE WHEN DOOR OPENER ENERGIZES AND STAY ENERGIZED WHILE DOOR IS OPEN AND DENERGIZE WHEN DOOR CLOSER IS DENERGIZED.

STEAM TRAP SCHEDULE (ST)

MARK	LOCATION (EQUIP. OR DWG. NO.)	TYPE OF TRAP	WORK PRESS. (PSIG)	CAPACITY (PPH)	TRAP DIFF. PRESS. (PSI)	COIL ROWS	REMARKS
ST-1	ERU-1 CONTAINER BUILDING	INVERTED BUCKET 21SSS 11/32"	150	6843	120	N/A	SUPPLIED BY CONTRACTOR INSTALLED BY CONTRACTOR
ST-2	DH-1 THRU 6 CONTAINER BUILDING	INVERTED BUCKET 21ZSS 5/32"	150	1735	120	N/A	SUPPLIED BY CONTRACTOR INSTALLED BY CONTRACTOR
ST-3	.	.	.	.	.	.	.

EXHAUST FANS

MARK	LOCATION	CFM	SP	MOTOR HP	VOLTS / PHASE	ROOF OPENING	GREENHECK MODEL NO.	REMARKS: FURNISH ALL FANS WITH DISCONNECT SWITCHES
EF-1	HOOD EXHAUST FAN DEPACK ROOM	1000	0.5"	0.5	115 / 1	---	TCB-1-13	SUPPLIED BY CONTRACTOR INSTALLED BY CONTRACTOR
EF-2	HOOD EXHAUST FAN DEPACK ROOM	1600	0.5"	0.5	115 / 1	---	TCB-1-13	SUPPLIED BY CONTRACTOR INSTALLED BY CONTRACTOR
EF-3	SCRUBBER FAN PUMP ROOM	8000	6.0"	15	480 / 3	---	NEW YORK BLOWER AFC/PLR 22 CW	SUPPLIED BY OWNER INSTALLED BY CONTRACTOR
EF-4	VACUUM BLOWER DEPACK ROOM	250	30"	5	480 / 3	---	NEW YORK BLOWER	SUPPLIED BY OWNER INSTALLED BY CONTRACTOR

PUMP SCHEDULE (P)

MARK	QUANTITY	LOCATION	TYPE	CAPACITY (GPM)	TOTAL HEAD (FT)	DESIGN TEMP.	HP	MOTOR DESCRIPTION	SERVICE	REMARKS
P-1 - 4	4	CONTAINER PUMP OUT PUMP ROOM	AIR DIAPHRAM	80	60	70	N/A	PLANT AIR (100 PSI)	LIQUID WASTE .	SUPPLIED BY OWNER INSTALLED BY OWNER
P-5	1	AIR SCRUBBER PUMP ROOM	CENTRIFUGAL PUMP	320	70	70	15	480V 3/60	RECIRCULATION SCRUBBER	SUPPLIED BY OWNER INSTALLED BY OWNER
P-6	1	TW CIRCULATING PUMP DECON ROOM	CENTRIFUGAL PUMP	20	60	120	1.5	460V 3-PH	RECIRCULATION TW	SUPPLIED BY CONTRACTOR INSTALLED BY CONTRACTOR
P-7 & 8	2	TK-001 AND TK-002 PUMP ROOM	CENTRIFUGAL PUMP	200	80	70	15	480V 3/60	LIQUID WASTE .	SUPPLIED BY OWNER INSTALLED BY OWNER

NOTES:
1. PUMPS P-1 THRU 4 SHALL BE ALL-FLO MODEL ST-20E, 2"x 2" FLANGED, 316SS W/ SANTOPRENE.
2. PUMP P-5 SHALL BE PEERLESS MODEL8196 MTP, 316SS, 3x4-10 WITH 15HP 1800R 254TEXPPRF.
3. PUMP P-6 SHALL BE GRUNDFOS MODEL TP40-240/2, 1-1/2"x 1 1/2" FLANGED, CAST IRON WITH 1 1/2HP TEFC, 3/60/208-230-460V MOTOR.
4. PUMP P-7 & 8 SHALL BE GORMAN RUPP SUPER T SERIES SELF-PRIMING CENTRIFUGAL PUMP, MODEL T3A61S-B/F, SIZE 3"x 3", TRASH PUMP W/ GRAY IRON CASING AND SS FITTED INTERNALS. BELT DRIVEN @ APPROX. 1900 RPM W/ 1750 RPM, 254T FRAME, 3/60/230-460V, EXPLOSION PROOF MOTOR, MOUNTED ON A STEEL VERTICAL FABRICATED V-BELT BASEPLATE ASSEMBLY W/BELT GUARD.

ENERGY RECOVERY UNIT (ERU) - PLATE HX

MARK	LOCATION	SUPPLY CFM	SUPPLY ESP	SUPPLY HP	EXHAUST CFM	EXHAUST ESP	EXHAUST HP	HX MIN	HX %EFF	HX EXT	SHEAV MIN	SHEAV PMN	.	.	VOLTS / PHASE	MODEL NO.	REMARKS
ERU-1	OUTSIDE CONTAINER BLDG	19,875	3.46	20	15,840	2.47	15	60		40	1534	1768			460 / 3	SEE NOTES BELOW	SEE NOTES BELOW

NOTES:
1. PLATE TYPE COUNTER FLOW HEAT EXCHANGER FOR SENSIBLE HEAT RECOVERY.
2. PROVIDE HX FACE AND BYPASS DAMPERS ON FRESH AIR SIDE FOR FROST PREVENTION AND SUMMER OPERATION
3. ERU-1 EXHAUST PLENUM TO BE CLASS 1, DIVISION 2, GROUP D AREA.
4. PROVIDE FLANGED CONNECTION AT EXHAUST DISCHARGE FROM ERU-1
5. ERU-1 MANUFACTURE: INNOVENT AIR HANDLING EQUIPMENT, MODEL: RHXC-1F-1010-19000-ST/FR-A-1
6. ERU-1 SHALL BE SUPPLIED BY OWNER, INSTALLED BY CONTRACTOR.

RETURN GRILLE (RG) AND SUPPLY REGISTER (SR) SCHEDULE

MARK	LOCATION	CFM RANGE	NECK	STYLE	REMARKS
SR-1	CONTAIER WAREHOUSE	1610	24X14	TITUS 300FS	SUPPLIEDBYCONTRACTOR INSTALLEDBYCONSTRACTOR
SR-2	PUMP ROOM	3000	35X18	TITUS 300FS	SUPPLIEDBYCONTRACTOR INSTALLEDBYCONSTRACTOR
SR-3	ELECTRICAL ROOM	180	8X6	TITUS 300FS	SUPPLIEDBYCONTRACTOR INSTALLEDBYCONSTRACTOR
SR-4	DECON ROOM	500	12X10	TITUS 300FS	SUPPLIEDBYCONTRACTOR INSTALLEDBYCONSTRACTOR
SR-5	KMNO4 ROOM	315	12X6	TITUS 300FS	SUPPLIEDBYCONTRACTOR INSTALLEDBYCONSTRACTOR
RG-1	CONTAIER WAREHOUSE	500	12X12	TITUS 350ZFL	SUPPLIEDBYCONTRACTOR INSTALLEDBYCONSTRACTOR
RG-2	STAIRWELL ROOM	340	10X10	TITUS 350ZFL	SUPPLIEDBYCONTRACTOR INSTALLEDBYCONSTRACTOR
RG-3	KMNO4 ROOM	180	8X8	TITUS 350ZFL	SUPPLIEDBYCONTRACTOR INSTALLEDBYCONSTRACTOR

NOTES:
1. SEE DRAWING M-4 FOR EQUIPMENT AND PUMP SCHEDULE.
2. SEE MECHANICAL SPECIFICATIONS 15050 THROUGH 15905 FOR MATERIAL AND INSTALLATION REQUIREMENTS OF MECHANICAL EQUIPMENT.
3. SEE SCHEDULES FOR MATERIALS AND EQUIPMENT SUPPLIED BY OWNER/CONTRACTOR AND INSTALLED BY OWNER/CONTRACTOR.
4. CONTRACTOR SHALL SUPPLY ALL PIPING MATERIALS, VALVES, FITTINGS, HANGERS, ETC. FOR ALL PIPING SYSTEMS SHOWN ON THE DESIGN DRAWINGS.
5. COORDINATE FINAL LOCATION OF EQUIPMENT AND PIPING WITH OWNER.
6. AIR COMPRESSOR, DRYER, AND FILTERS SHALL BE INSTALLED IN THE MANAGEMENT OFFICE, LOCKER RM, WAREHOUSE BUILDING. SEE OWNER FOR LOCATION.
7. THE CONTRACTOR IS ALSO RESPONSIBLE FOR ANY ADDED VALUE REVIEWS/CHANGES TO THE DESIGN DRAWINGS TO MEET ALL CODES AND REQUIREMENTS, AND PROVIDE THE OWNER WITH ANY POTENTIAL COST SAVINGS. THE CONTRACTOR IS ENCOURAGED TO FURTHER EXPLORE OTHER OPTIONS THAT MAY MEET PROJECT OBJECTIVES WHILE REDUCING COST.

REV	DESCRIPTION	BY	DATE	CHK'D
1	ISSUED FOR BID	DCW	02/13/07	DEN
2	ISSUED TO MDEQ	DCW	01/09/07	DEN

TETRA TECH

DESIGNED	D. WALZER	CHECKED	DEN
SCALE	.	CADD DATE	2/14/2007 4:51 PM

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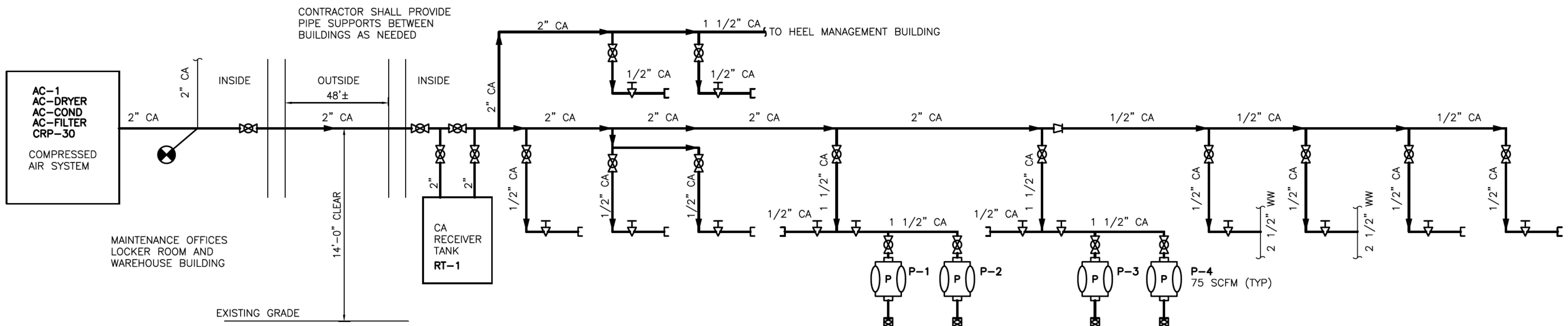
PSC ENVIRONMENTAL SERVICES DIVISION
515 LYCASTE DETROIT, MICHIGAN
DETROIT FACILITY REBUILD

MECHANICAL

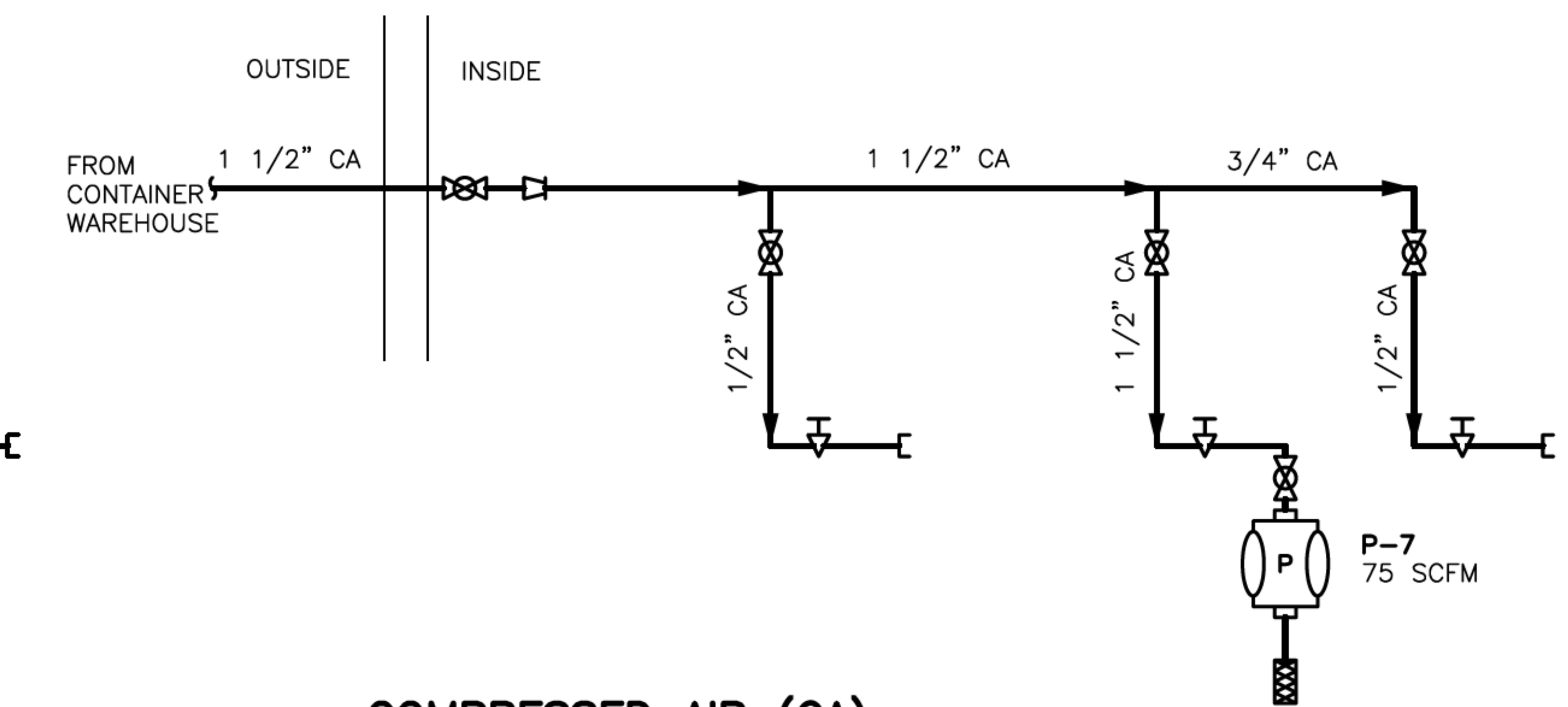
CONTAINER MANAGEMENT BLDG HEATING AND VENTILATING FLOW DIAGRAM

DIVISION	CONTRACT	SHEET
.	.	M-1 OF 6



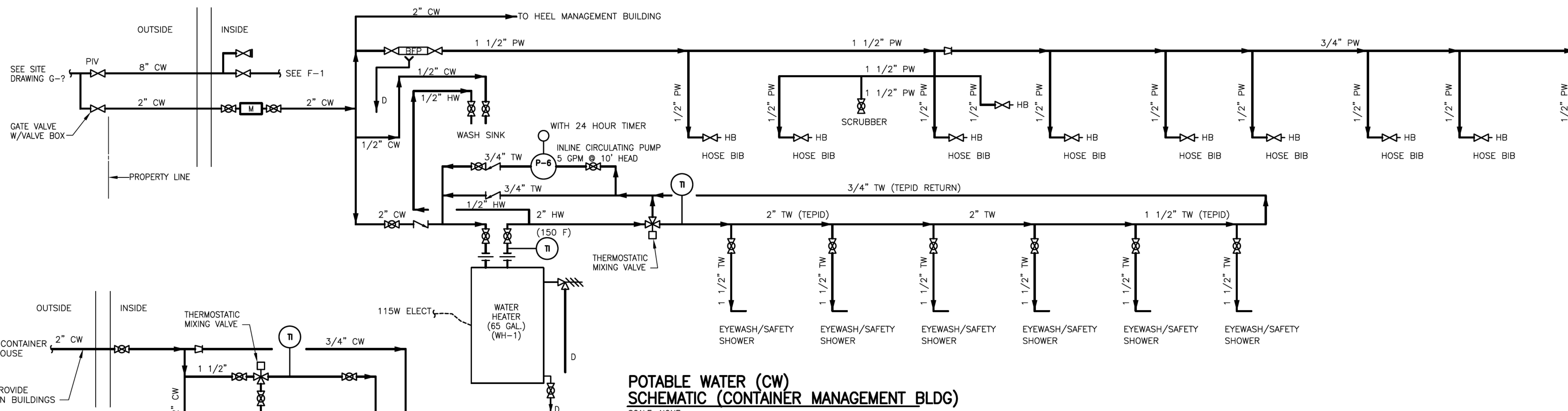
COMPRESSED AIR (CA) SCHEMATIC (CONTAINER MANAGEMENT BLDG)

SCALE: NONE SYMBOL: SEE M-5 FOR DETAILS



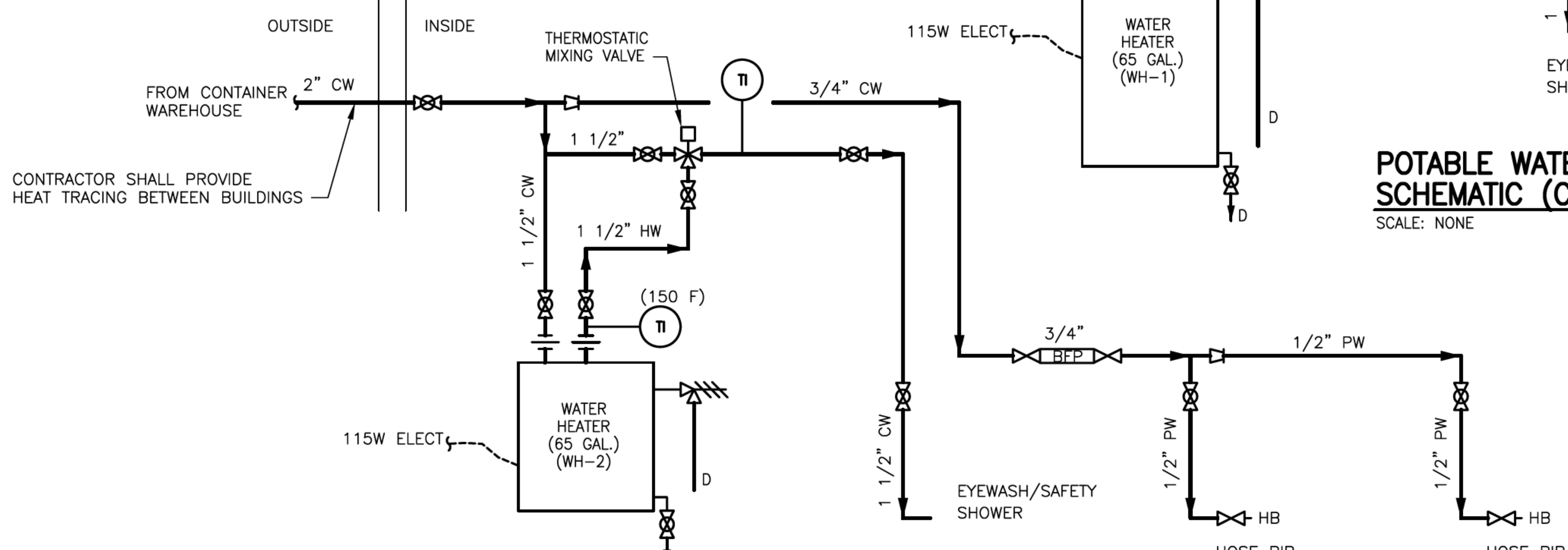
COMPRESSED AIR (CA) SCHEMATIC (HEEL MANAGEMENT BLDG)

SCALE: NONE SYMBOL: SEE M-5 FOR DETAILS



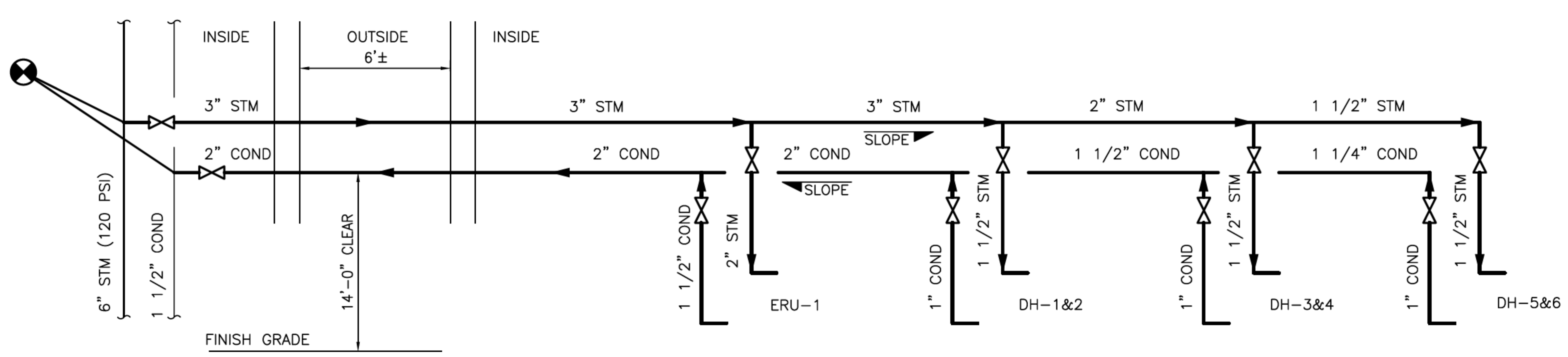
POTABLE WATER (CW) SCHEMATIC (CONTAINER MANAGEMENT BLDG)

SCALE: NONE



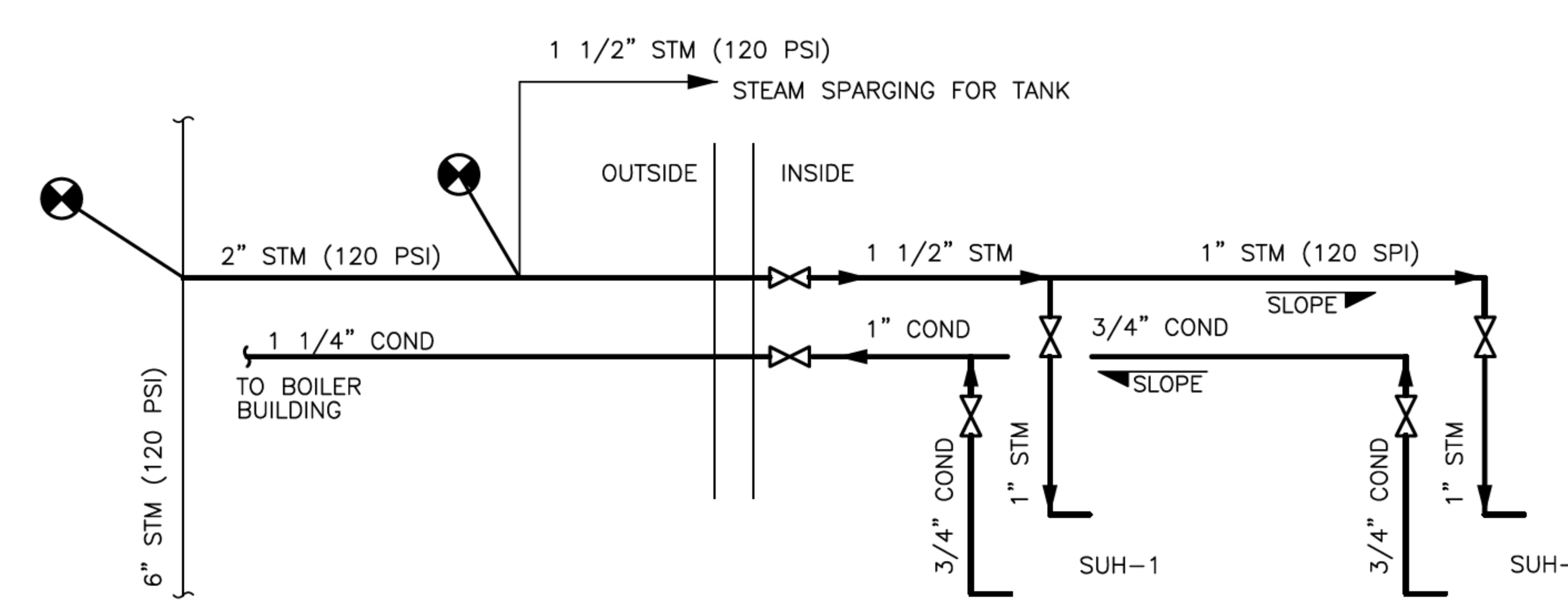
POTABLE WATER (CW) SCHEMATIC (HEEL MANAGEMENT BLDG)

SCALE: NONE



STEAM (STM) AND CONDENSATE (COND) SCHEMATIC (CONTAINER MANAGEMENT BLDG)

SCALE: NONE



STEAM (STM) AND CONDENSATE (COND) SCHEMATIC (HEEL MANAGEMENT BLDG)

SCALE: NONE

REV	DESCRIPTION	BY	DATE	CHK'D
B	ISSUED FOR BID	DCW	02/13/07	DEN
A	ISSUED TO MDEQ	DCW	01/09/07	DEN

TETRA TECH

DESIGNED D. WALZER CHECKED DEN
SCALE AS NOTED CADD DATE 3/1/2007 4:24 PM
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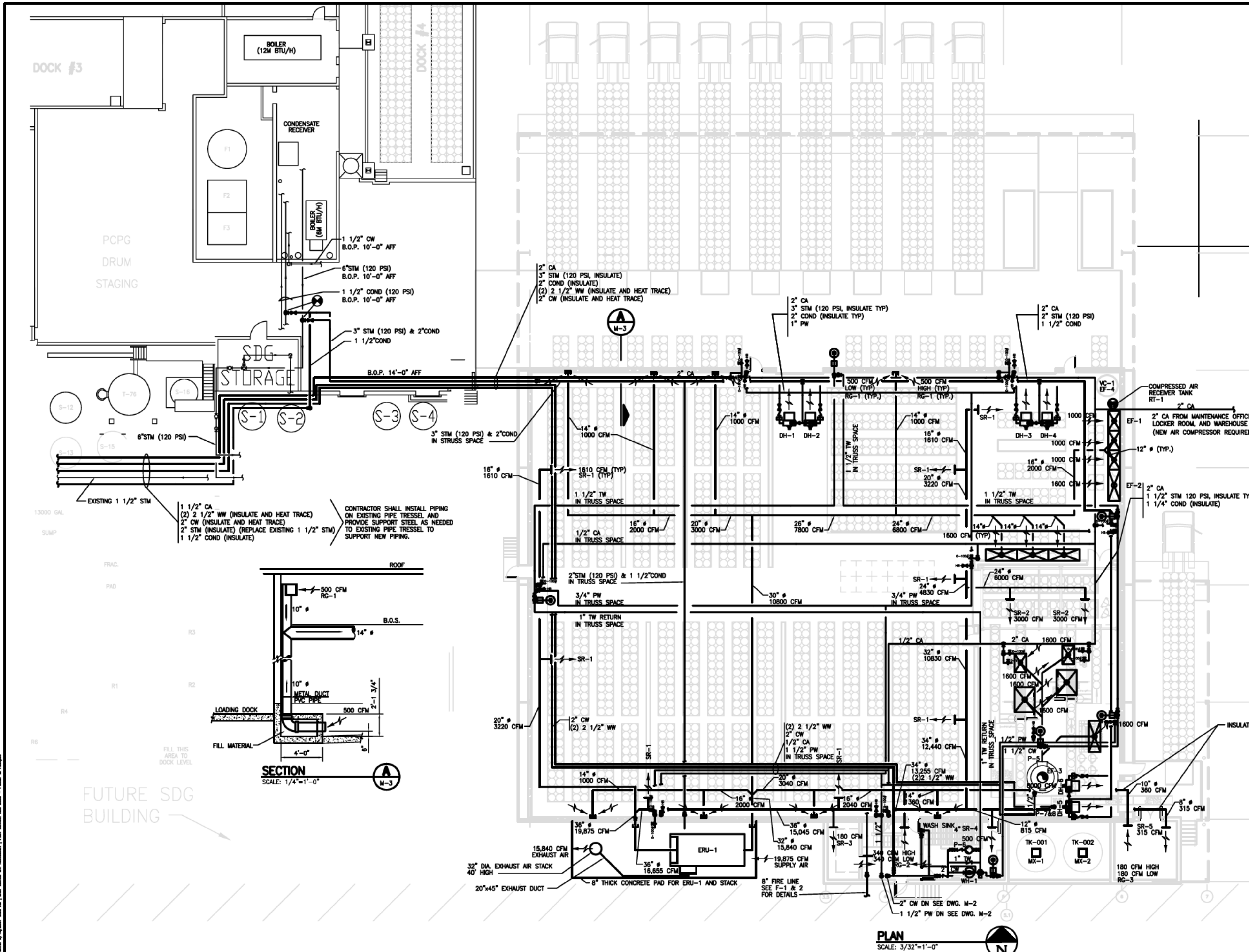
PSC ENVIRONMENTAL SERVICES DIVISION
515 LYCASTE DETROIT, MICHIGAN
DETROIT FACILITY REBUILD

MECHANICAL

CONTAINER MANAGEMENT BLDG AND HEEL MANAGEMENT BLDG FLOW DIAGRAM

DIVISION CONTRACT SHEET M-2 OF 9



DOCK #3
DOCK #4
BOILER (12M BTU/H)
CONDENSATE RECEIVER
BOILER (6M BTU/H)
PCPG DRUM STAGING
SDG STORAGE
1 1/2" CW B.O.P. 10'-0" AFF
6"STM (120 PSI) B.O.P. 10'-0" AFF
1 1/2" COND (120 PSI) B.O.P. 10'-0" AFF
3" STM (120 PSI) & 2"COND
1 1/2"COND
B.O.P. 14'-0" AFF
6"STM (120 PSI)
EXISTING 1 1/2" STM
1 1/2" CA
(2) 2 1/2" WW (INSULATE AND HEAT TRACE)
2" CW (INSULATE AND HEAT TRACE)
2" STM (INSULATE) (REPLACE EXISTING 1 1/2" STM)
1 1/2" COND (INSULATE)
CONTRACTOR SHALL INSTALL PIPING ON EXISTING PIPE TRESSEL AND PROVIDE SUPPORT STEEL AS NEEDED TO SUPPORT NEW PIPING.
2" CA
3" STM (120 PSI, INSULATE)
2" COND (INSULATE)
(2) 2 1/2" WW (INSULATE AND HEAT TRACE)
2" CW (INSULATE AND HEAT TRACE)
3" STM (120 PSI) & 2"COND IN STRUSS SPACE
2" CA
3" STM (120 PSI, INSULATE TYP)
2" COND (INSULATE TYP)
1" PW
2" CA
2" STM (120 PSI)
1 1/2" COND
COMPRESSED AIR RECEIVER TANK RT-1
2" CA FROM MAINTENANCE OFFICE, LOCKER ROOM, AND WAREHOUSE (NEW AIR COMPRESSOR REQUIRED)
2" CA
1 1/2" STM 120 PSI, INSULATE TYP)
1 1/4" COND (INSULATE)
DH-1 DH-2 DH-3 DH-4
EF-1 EF-2 EF-3 VC-1 EF-4
500 CFM LOW (TYP) RG-1 (TYP.)
500 CFM HIGH (TYP) RG-1 (TYP.)
1 1/2" TW IN TRUSS SPACE
1/2" CA IN TRUSS SPACE
2"STM (120 PSI) & 1 1/2"COND IN TRUSS SPACE
3/4" PW IN TRUSS SPACE
1" TW RETURN IN TRUSS SPACE
30" ø 10800 CFM
2" CW
(2) 2 1/2" WW
(2) 2 1/2" WW
2" CW
1/2" CA
1 1/2" PW
IN TRUSS SPACE
ERU-1
15,840 CFM EXHAUST AIR
32" DIA. EXHAUST AIR STACK 40' HIGH
20"x45" EXHAUST DUCT
8" THICK CONCRETE PAD FOR ERU-1 AND STACK
19,875 CFM SUPPLY AIR
8" FIRE LINE SEE F-1 & 2 FOR DETAILS
2" CW DN SEE DWG. M-2
1 1/2" PW DN SEE DWG. M-2
WASH SINK
TK-001 MX-1
TK-002 MX-2
180 CFM HIGH 180 CFM LOW RG-3
INSULATE
FUTURE SDG BUILDING
ROOF
500 CFM RG-1
B.O.S.
METAL DUCT
PVC PIPE
LOADING DOCK
FILL MATERIAL
SECTION
SCALE: 1/4"=1'-0"
PLAN
SCALE: 3/32"=1'-0"

REV	DESCRIPTION	BY	DATE	CHK'D
B	ISSUED FOR BID	DCW	02/13/07	DEN
A	ISSUED TO MDEQ	DCW	01/09/07	DEN

TETRA TECH

DESIGNED D. WALZER | CHECKED DEN

SCALE . | CADD DATE 2/14/2007 4:51 PM

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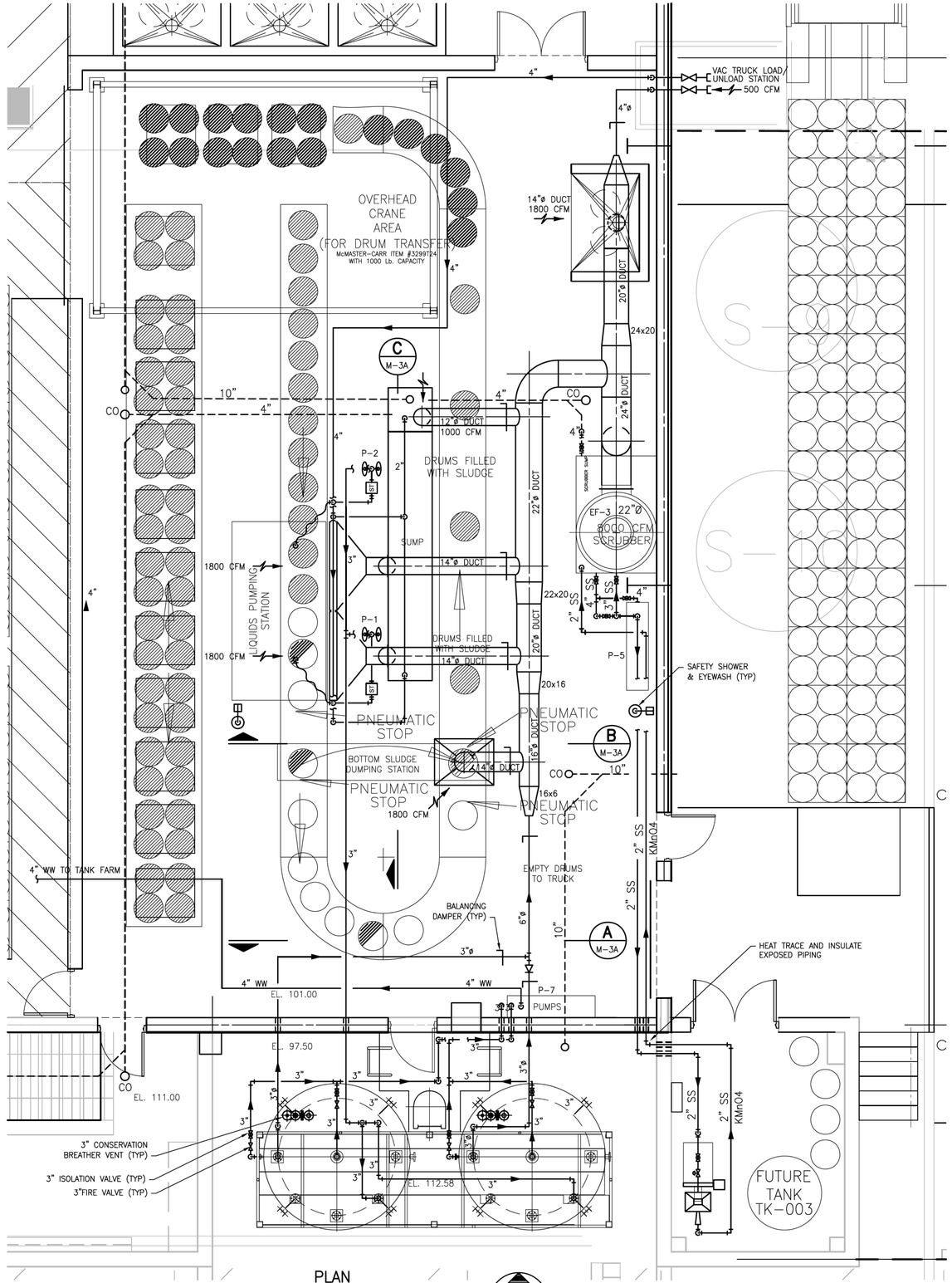
PSC ENVIRONMENTAL SERVICES DIVISION
515 LYCASTE DETROIT, MICHIGAN
DETROIT FACILITY REBUILD

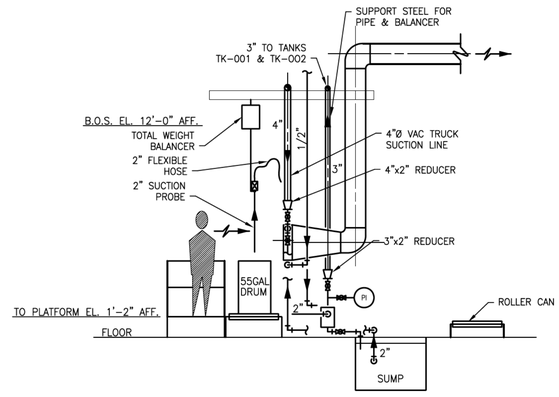
MECHANICAL

CONTAINER MANAGEMENT BLDG FLOOR PLAN

DIVISION . | CONTRACT . | SHEET M-3 OF 6



PLAN
CONTAINMENT AREAS
SCALE: 1/4" = 1'-0"



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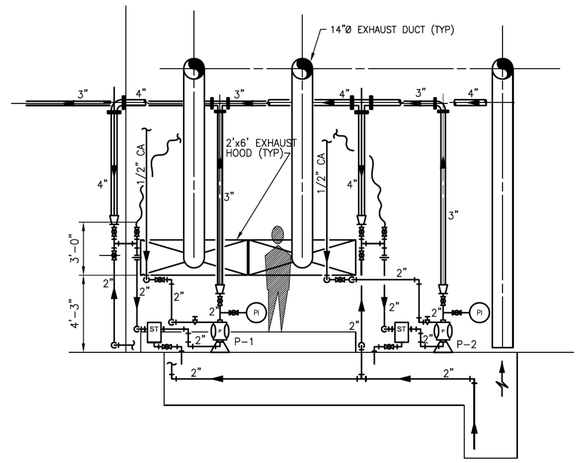

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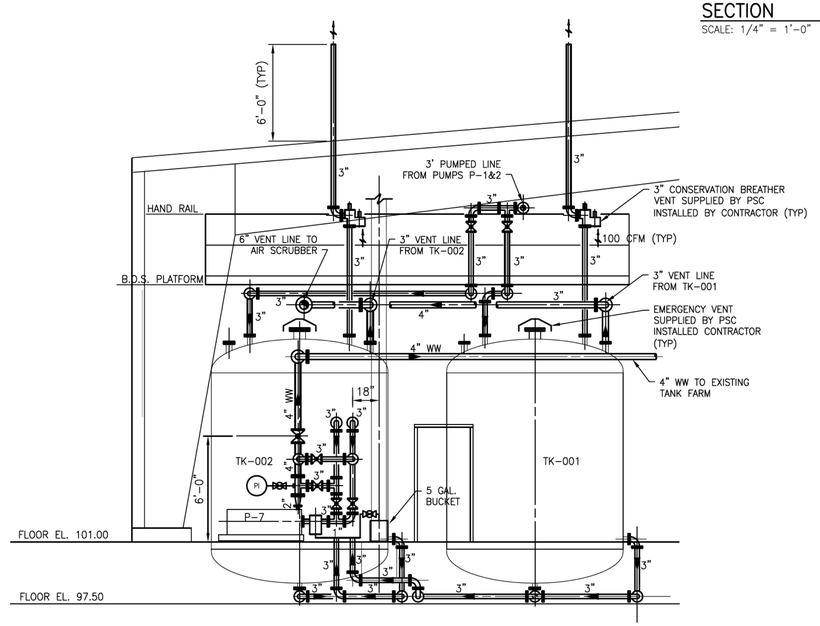

SECTION
SCALE: 1/4" = 1'-0"

REV	DESCRIPTION	BY	DATE	CHK'D
18	PR NUMBER 18	DCW	07/31/08	DEN

TETRA TECH

DESIGNED D. WALZER	CHECKED DEN
SCALE 1/4" = 1'-0"	CADD DATE 8/1/2008 1:45 PM
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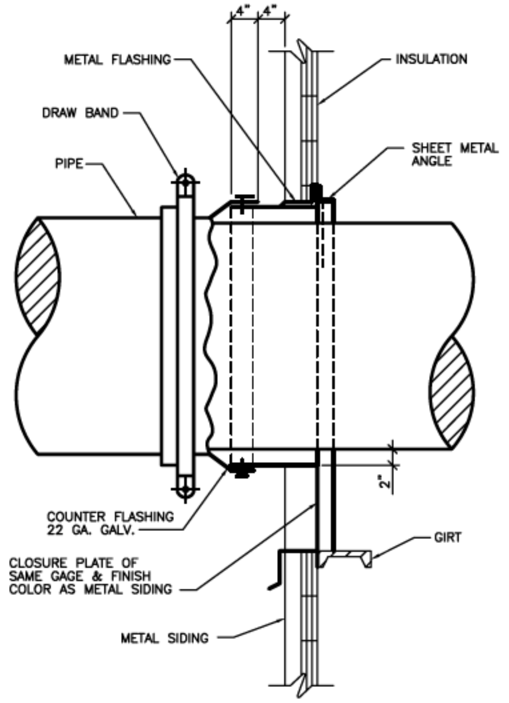
PSC ENVIRONMENTAL SERVICES DIVISION
515 LYCASTE DETROIT, MICHIGAN
DETROIT FACILITY REBUILD

GENERAL

PUMP ROOM ENLARGED PLAN

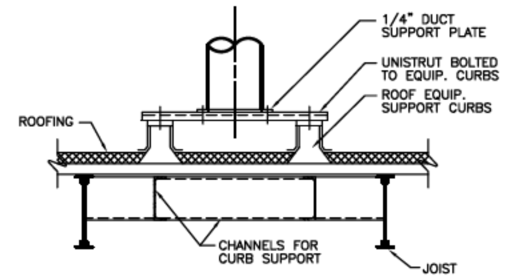
PHASE	CONTRACT	SHEET
2	.	M-3A OF

PLOT DATE: 8/1/2008 1:49 PM | LAST EDITED BY: DWEWALZER | PLOT DEVICE: XES 8830 - Plotter to FILE.plt3



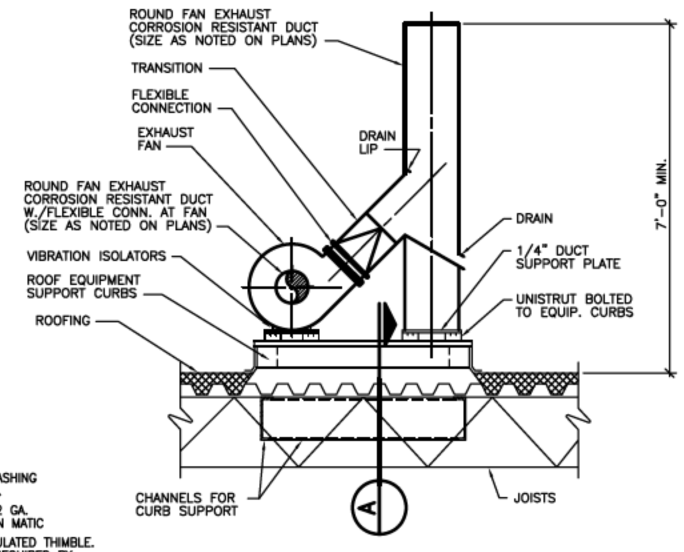
PIPE PENETRATION DETAIL

(THRU METAL WALL)

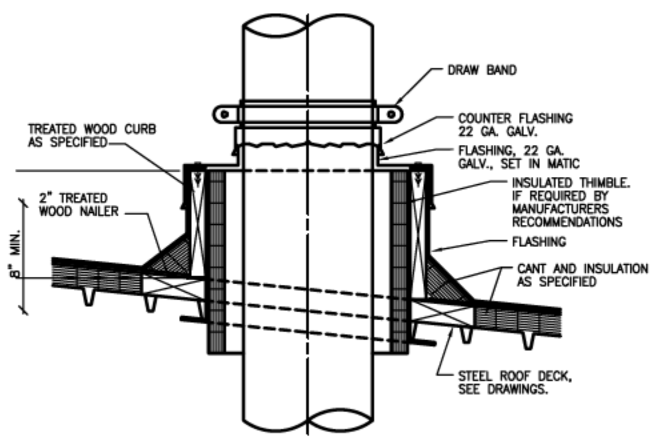


SECTION THRU EQUIPMENT CURB (A)

NO SCALE



TYPICAL CENTRIFUGAL ROOF EXHAUST FAN DETAIL



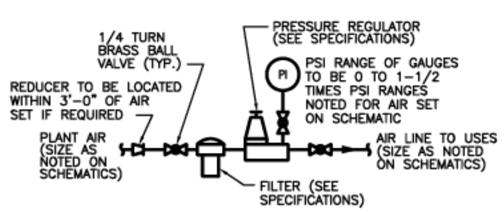
ROOF PENETRATIONS

STEEL ROOF DECK

EQUIPMENT SCHEDULE							
MARK	QUANTITY	DESCRIPTION	CONNECTIONS	CAPACITY	ELECTRICAL	MODEL MODEL NO.	REMARKS
MX-1	1	MIXER/ AGITATOR	ELECTRICAL .	3 HP MOTOR	480V 3-PH	????? ?????	SUPPLIED BY OWNER INSTALLED BY CONTRACTOR
MX-2	1	MIXER/ AGITATOR	ELECTRICAL .	3 HP MOTOR	480V 3-PH	???? ????	SUPPLIED BY OWNER INSTALLED BY CONTRACTOR
TK-001	1	LIQUID WASTE STORAGE TANK	2" WW ELECTICAL	6,000 GALLON	120V 1-PH	???? ?????	SUPPLIED BY OWNER INSTALLED BY CONTRACTOR
TK-002	1	LIQUID WASTE STORAGE TANK	2" WW ELECTICAL	6,000 GALLON	120V 1-PH	???? ?????	SUPPLIED BY OWNER INSTALLED BY CONTRACTOR
SCR-1	1	AIR SCRUBBER PUMP ROOM	EXHAUST DUCT MAKE-UP WATER	8,000 CFM	15 HP 480V 3-PH	???? ????	SUPPLIED BY OWNER INSTALLED BY CONTRACTOR
VC-1	1	VERMICULITE COLLECTION DEPACK ROOM	ELECTRICAL	.	:	???? ?????	SUPPLIED BY OWNER INSTALLED BY CONTRACTOR
AC-1	1	AIR COMPRESSOR MAINTENANCE BUILDING	2" .	200 SCFM	50 HP 48V 3-PH	QUINCY QSB50	SUPPLIED BY OWNER INSTALLED BY CONTRACTOR
AC-DRYER	1	DESICCANT HEATLESS DRYER MAINTENANCE BUILDING	INLET 2" OUTLET 2"	240 SCFM	110V 1-PH	QUINCY MXA102c	SUPPLIED BY OWNER INSTALLED BY CONTRACTOR
AC-COND1	1	CONDENSATE REMOVER MAINTENANCE BUILDING	INLET 2" OUTLET 2"	200 SCFM	115V 1-PH	QUINCY QMAT-1	SUPPLIED BY OWNER INSTALLED BY CONTRACTOR
AC-COND2	1	CONDENSATE REMOVER MAINTENANCE BUILDING	INLET 2" OUTLET 2"	200 SCFM	115V 1-PH	QUINCY QMAT-2	SUPPLIED BY OWNER INSTALLED BY CONTRACTOR
AC-FILTER1	1	0.1 MICRON 5PPM FILTER MAINTENANCE BUILDING	INLET 2" OUTLET 2"	200 SCFM	N/A	QUINCY AA040HNFX	SUPPLIED BY OWNER INSTALLED BY CONTRACTOR
AC-FILTER2	1	0.01 MICRON 1PPM FILTER MAINTENANCE BUILDING	INLET 2" OUTLET 2"	200 SCFM	N/A	QUINCY AA040HNFX	SUPPLIED BY OWNER INSTALLED BY CONTRACTOR
CRP-30	1	WATER/OIL SEPARATOR MAINTENANCE BUILDING	INLET 2" OUTLET 2"	200 SCFM	N/A	QUINCY CRP-30	SUPPLIED BY OWNER INSTALLED BY CONTRACTOR
RT-1	1	CA RECEIVER DEPACK ROOM	1" CA .	500 GALLON	N/A	ASME SEC-V111 DIV-1	SUPPLIED BY OWNER INSTALLED BY CONTRACTOR
WH-1	1	ELECTRIC WATER HEATER DECON ROOM	1 1/2" .	52 GALLON	115V 1-PH	AMERICAN STANDARD CE-52-AS	SUPPLIED BY CONTRACTOR INSTALLED BY CONTRACTOR
WH-2	1	ELECTRIC WATER HEATER DECON ROOM	1 1/2" .	52 GALLON	115V 1-PH	AMERICAN STANDARD CE-52-AS	SUPPLIED BY CONTRACTOR INSTALLED BY CONTRACTOR
EWSS-1	1	EYEWASH/SAFETY SHOWER OUTSIDE TRUCK DOCK	1 1/4" TW .	23 GPM	120V AC 1-PH	HAWS 8317CTFP	SUPPLIED BY CONTRACTOR INSTALLED BY CONTRACTOR
EWSS-2	1	EYEWASH/SAFETY SHOWER CONT/DEPACK/PUMP/DECON	1 1/4" TW .	23 GPM	120V AC 1-PH	HAWS 8309WC	SUPPLIED BY CONTRACTOR INSTALLED BY CONTRACTOR
RC-1&2	2	MOTOR DRIVEN ROLLER CONVEYOR PUMP ROOM	:	.	480V 3-PH 1HP	REVERSING STARTER	SUPPLIED BY OWNER INSTALLED BY OWNER

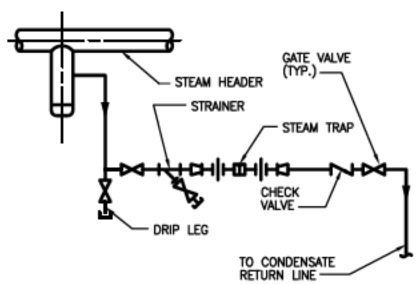
LEGEND

- NEW PIPE
- EXISTING PIPE
- CW — CITY WATER (POTABLE)
- CA — COMPRESSED AIR
- COND — CONDENSATE (STM)
- STM — STEAM (?? PSI)
- STO — STORM SEWER
- PW — PROCESS WATER
- WW — WASTE WATER
- RG — RETURN GRILL
- SR — SUPPLY REGISTER
- F — FIRE PROTECTION
- S — SUPPLY DUCT
- R — RETURN DUCT
- HOSE BIB
- GATE VALVE
- BALL VALVE
- ELBOW UP
- ELBOW DOWN
- REDUCER
- BREAK IN LINE
- CAP
- AIR FLOW
- AIR SET
- FLOW ARROW
- STEAM TRAP
- METER
- BFP — BACK FLOW PREVENTER
- EYEWASH/SAFETY SHOWER
- TIE-IN POINT
- SUPPLY DEFUSER
- RETURN GRILLE
- THERMOSTATE
- DOOR UNIT HEATER

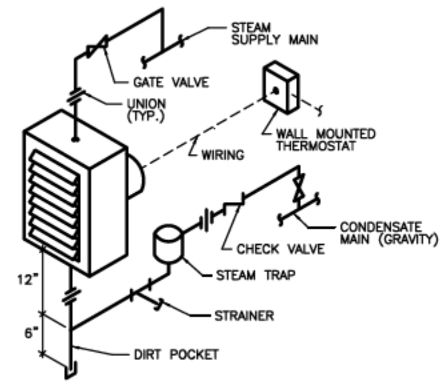


AIR SET DETAIL

SYMBOL:



TYPICAL STEAM LINE DRAIN



STEAM UNIT HEATER PIPING AND CONTROLS

REV	DESCRIPTION	BY	DATE	CHK'D
B	ISSUED FOR BID	DCW	02/13/07	DEN
A	ISSUED TO MDEQ	DCW	01/09/07	DEN

TETRA TECH

DESIGNED D. WALZER — CHECKED DEN

SCALE AS NOTED — CADD DATE 2/12/2007 2:26 PM

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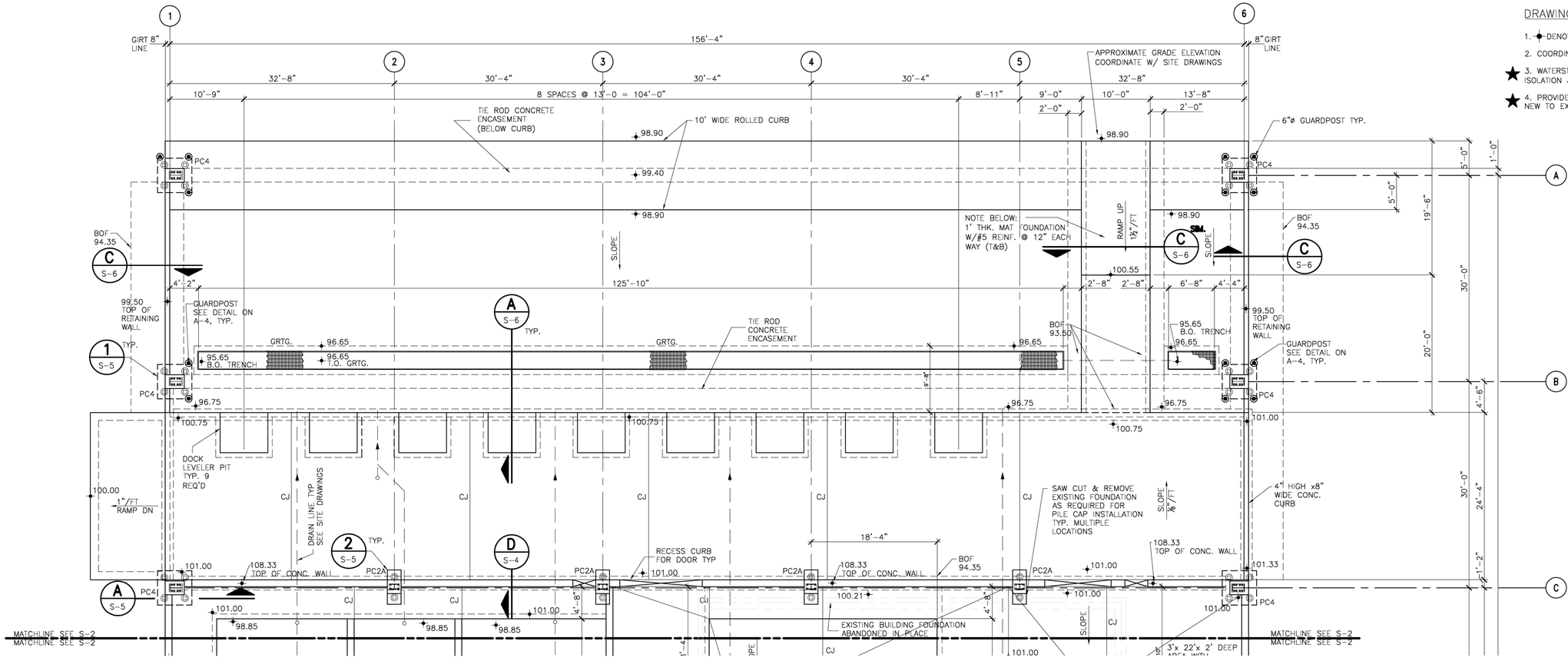
PSC ENVIRONMENTAL SERVICES DIVISION
515 LYCASTE DETROIT, MICHIGAN
DETROIT FACILITY REBUILD

MECHANICAL

CONTAINER MANAGEMENT DLDG DETAILS AND SCHEDULES

DIVISION — CONTRACT . — SHEET M-4 OF 6



DRAWING NOTES:

1. ✚ DENOTES TOP OF CONCRETE ELEVATION, UNLESS NOTED OTHERWISE.
2. COORDINATE CONCRETE DRAWINGS WITH ARCHITECTURAL AND SITE DRAWINGS.
3. ★ WATERSTOPS SHALL BE PROVIDED AT ALL CONSTRUCTION, CONTROL, AND ISOLATION JOINTS UTILIZING WESTEC STYLE #619, OR APPROVED EQUAL
4. ★ PROVIDE WESTEC RETROFIT TYPE WATERSTOP, OR APPROVED EQUAL AT ALL NEW TO EXISTING CONCRETE JOINTS.

PARTIAL FOUNDATION PLAN

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

1. GENERAL

A. THESE GENERAL NOTES PRESENT AND/OR SUMMARIZE KEY PROJECT INFORMATION FOR THE PLANS READER'S CONVENIENCE. SEE ALSO INDIVIDUAL PLAN NOTES AND PROJECT SPECIFICATIONS FOR FURTHER DETAILS AND REQUIREMENTS.

B. ALL REFERENCES TO REFERENCE STANDARDS HEREIN ARE TO MOST RECENT ISSUE IN EFFECT AS OF THE DATE OF THESE DOCUMENTS, UNLESS NOTED OTHERWISE IN PROJECT SPECIFICATIONS OR ON THE PLANS.

C. ELEVATIONS. ALL ELEVATIONS ARE REFERENCED TO EL. 100'-0"=_____ ALL ELEVATIONS SHOWN ON PLANS ARE REFERENCED TO THIS DATUM UNLESS NOTED.

D. ABBREVIATIONS:

B/ ..... BOTTOM OF
CONC ..... CONCRETE
CMU ..... CONCRETE MASONRY UNIT
DEMO ..... DEMOLITION
EF ..... EACH FACE
EL ..... ELEVATION
EMBED ..... EMBEDMENT
EW ..... EACH WAY
EXT. ..... EXISTING
GA ..... GAUGE
GB ..... GRADE BEAM
NF ..... NEAR FACE
N.W. ..... NORMAL WEIGHT
OC ..... ON CENTER
T/ ..... TOP OF
TOS ..... TOP OF STEEL
TYP ..... TYPICAL
UNO ..... UNLESS NOTED OTHERWISE
WWF ..... WELDED WIRE FABRIC

E. SUBMIT SHOP DRAWINGS, PROJECT DATA AND SAMPLES AS SPECIFIED IN PROJECT SPECIFICATIONS.

F. SPECIAL IDENTIFICATION: ★ INDICATES CONTRACT/CONSTRUCTION REQUIREMENTS THAT IN THE EXPERIENCE OF THE DESIGNER ARE (A) ESPECIALLY CRITICAL TO SAFE OR SATISFACTORY PERFORMANCE; AND/OR (B) FREQUENTLY NOT GIVEN ADEQUATE CONSTRUCTION QUALITY CONTROL BY THE CONTRACTOR OR SUBCONTRACTORS; AND/OR (C) NOT "STANDARD" OR COMMON CONSTRUCTION REQUIREMENTS AND THEREFORE MAY BE SUBJECT TO CONTRACTOR OVERSIGHT IN COSTING AND/OR CONSTRUCTION.

2. DESIGN CRITERIA

A. BUILDING CODE: 2003 MICHIGAN BUILDING CODE

B. BULDING CLASSIFICATION IN ACCORDANCE WITH IBC 2003, TABLE 1604.4. METAL BUILDING MFR'R TO APPLY APPROPRIATE IMPORTANCE FACTORS FOR SNOW, WIND, AND SEISMIC.

HEEL MANAGEMENT BUILDING: III
CONTAINER WAREHOUSE: IV

3. FOUNDATIONS

A. FOUNDATIONS SHALL BE A DEEP FOUNDATION SYSTEM UTILIZING TITAN MICROPILES (UNITED DYNAMICS (812)-282-2222, ERIC MINZENBERGER) OR APPROVED EQUAL. SEE PLANS FOR REQUIRED CAPACITIES. A MINIMUM OF 2 TEST PILES WILL BE REQUIRED. PROVISIONS SHALL BE MADE FOR ADDITIONAL TEST PILES IF SITE CONDITIONS WARRANT.

B. GEOTECHNICAL ENGINEER SHALL BE RETAINED TO PROVIDE OBSERVATION AND TESTING SERVICES DURING THE GRADING AND FOUNDATION PHASE OF CONSTRUCTION PER SOIL REPORT RECOMMENDATIONS. INSPECTION AND TESTING REPORTS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER.

★ C. SUBGRADE FOR ALL SHALLOW BEARING CONTINUOUS WALL FOUNDATIONS SHALL BE OVEREXCAVATED A MINIMUM OF 2'-0", COMPACTED, AND FILLED WITH CRUSHED STONE. THIS IS NOT REQUIRED AT THE PERIMETER GRADE BEAMS.

D. PROVIDE PROTECTION OF ALL EXISTING AND ADJOINING PUBLIC AND PRIVATE PROPERTY FROM DAMAGE DUE TO EXCAVATIONS.

E. DESIGN AND PROVIDE SHEETING AND SHORING AS REQUIRED TO CONTAIN BANKS AND SIDES OF EXCAVATIONS.

F. FURNISH AND INSTALL UNDERPINNING REQUIRED TO SUPPORT EXISTING STRUCTURES.

G. PREVENT HEAVY VEHICULAR TRAFFIC WITHIN 10 FEET OF SHORING BULKHEAD OR TOP OF EMBANKMENTS.

H. EMERGENCY TELEPHONE NUMBERS (FIRE, POLICE, TRAFFIC, UTILITY, SEWER MAINTENANCE, ETC.) SHALL BE POSTED AT THE JOB SITE AND ALL OTHER NECESSARY PRECAUTIONS SHALL BE TAKEN TO PROVIDE FOR EMERGENCIES.

4. CAST-IN-PLACE REINFORCED CONCRETE

A. REFERENCE STANDARD: ACI 301. COLD WEATHER PLACEMENT: ACI 306-1. HOT WEATHER PLACEMENT: ACI 305R. CONTRACTOR TO MAINTAIN COPIES OF THESE SPECIFICATIONS AT JOB SITE.

B. MIX DESIGN SHALL BE DOCUMENTED IN ACCORDANCE WITH SECTION 03300 OF THE PROJECT SPECS AND ACI 301, CHAPTER 3 "PROPORTIONING". MIX DESIGNS WHICH ARE SUBMITTED WITHOUT THE REQUIRED DOCUMENTATION WILL BE REJECTED. FIELD SLUMPS RECORDED AT JOB SITE SHALL NOT EXCEED THE SLUMP ESTABLISHED FOR THE MIX DESIGN.

C. TYPE CONCRETE. SEE CONCRETE SPECIFICAITON 03310
1. PILE CAPS, CONTINUOUS WALL FOUNDATIONS: CLASS A
2. ALL REMAINING CONCRETE STRUCTURES SHOWN: CLASS S
3. ALL CONCRETE EXPOSED TO THE ELEMENTS SHALL BE AIR-ENTRAINED 5 1/2% (±1 1/2%). SEE SPECS.
4. ALL CONCRETE IN 8" WALLS OR COLUMNS WITH TWO PLANES OF REINFORCEMENT SHALL HAVE MAXIMUM 3/4 INCH AGGREGATE. IT IS RECOMMENDED THAT THE CONTRACTOR CONSIDER SUPER-PLASTICIZED CONCRETE PER SPECS.
5. TYPICAL REINFORCING BARS LAP: TENSION "B" UNLESS NOTED OTHERWISE.

D. REINFORCEMENT:

1. REINFORCING BARS: DEFORMED, GRADE 60, ASTM A615, A616, A617 OR A706
A. FABRICATION: ACI 315-60 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT OR CRSI "REINFORCING BAR DETAILING" (MANUAL OF STANDARD PRACTICE).
2. WELDED SMOOTH WIRE FABRIC - ASTM A185 (SHEETS ONLY, ROLL FABRIC NOT ALLOWED)
3. WELDING - ACI 301, SECTION 5.3
4. ACCESSORIES: PROVIDE PROTECTED BAR SUPPORTS CLASS 1, MAXIMUM PROTECTION (CRSI MANUAL OF STANDARD PRACTICE) FOR ALL SLABS AND BEAMS WITH SOFFITS EXPOSED TO VIEW, INCLUDING PAINTED OR SPRAY-ON FINISHED SURFACES. MINIMUM BAR CLEARANCES/ COVERAGE MUST BE MAINTAINED. IF SOFFIT IS TO BE GROUND, PLASTIC DIPPED/COATED ACCESSORIES ARE NOT ACCEPTABLE. USE MOLDED PLASTIC LEGS, 1/4" MINIMUM LENGTH.
5. CORNER BARS: PROVIDE CORNER BARS SAME SIZE AND SPACING AS HORIZONTAL REINFORCEMENT AT INTERSECTIONS OF ALL WALLS, UPTURNED BEAMS AND GRADE BEAMS.
6. BEAMS: PROVIDE (2) #4 CARRYING BARS CONTINUOUS IN TOP OF ALL BEAMS, UNO
7. SPLICES: CONTINUOUS REINFORCING BARS SHALL BE PROVIDED WITH TENSION LAPS AT ALL SPLICES, U.N.O., INCLUDING CORNER BARS.
8. COVER FOR PROTECTION TYPICAL, U.N.O.:
A. UNFORMED SURFACE IN CONTACT WITH GROUND - 3"
B. FORMED SURFACE IN CONTACT WITH GROUND OR EXPOSED TO THE ELEMENTS - 2.5"
C. BEAMS & GIRDERS - 2 1/2"
D. COLUMN TIES, BEAM TIES & STIRRUPS - 2 1/2"
E. IN ALL CASES NOT LESS THAN THE DIAMETER OF THE BAR.
F. HOOKS INDICATED ARE ACI/CRSI STANDARD 90° OR 180° HOOKS. BAR LENGTHS SHOWN ARE OUT-TO-OUT AND DO NOT INCLUDE HOOK LENGTH.
G. PROVIDE HOOKS ON ALL TOP BARS IN SLABS AND BEAMS TYPICAL AT DISCONTINUOUS ENDS.

E. EMBEDDED PIPES OR CONDUIT. MAXIMUM DIAMETER -1/3 X SLAB OR WALL THICKNESS, SPACED MINIMUM OF 3 TIMES DIAMETER ON CENTER.

F. CURING AND PROTECTION: SEE SPECS.
1. STRIP CAST WITH CONTROL/CONSTRUCTION JOINTS TO ALIGN WITH COLUMN CENTERLINES AND/OR AT 15' O.C. MAX.
2. CONTROL JOINTS MADE BY ZIPSTRIP BY GREENSTREAK OR EQUAL. CONSTRUCTION JOINTS DETAILS SEE PLANS. (JOINTS MAY BE SAWED WITH ENGINEER'S APPROVAL AFTER REVIEW OF CONCRETE MIX DESIGN POUR SEQUENCE AND SAWING SCHEDULE.)

G. SHOP DRAWINGS: SUBMIT REBAR SHOP DRAWINGS. SEE SPECS.

SPECIAL INSPECTIONS

THE FOLLOWING ARE REQUIRED PER THE 2003 MICHIGAN BUILDING CODE, SECTION 1704.

CONCRETE CONSTRUCTION:

1. PERIODIC INSPECTION OF REINFORCING STEEL IN FOOTINGS, GRADE BEAMS, WALLS AND SLABS.
2. CONTINUOUS INSPECTION OF BOLTS TO BE INSTALLED IN CONCRETE (PRIOR TO AND DURING PLACEMENT OF CONCRETE).
3. PERIODIC VERIFICATION OF DESIGN MIX.
4. CONTINUOUS SAMPLING FOR STRENGTH TESTS, SLUMP AND AIR CONTENT AND TEMPERATURE TESTS FOR CAST-IN-PLACE CONCRETE.
5. PERIODIC INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURES AND TECHNIQUES.

STEEL CONSTRUCTION:

1. PERIODIC VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND MANUFACTURER'S CERTIFICATE OF COMPLIANCE.
2. PERIODIC INSPECTION OF BEARING TYPE BOLTED CONNECTIONS. CONTINUOUS INSPECTION OF SLIP-CRITICAL BOLTED CONNECTIONS.
3. CONTINUOUS INSPECTION OF COMPLETE AND PARTIAL PENETRATIONS GROOVE WELDS, MULTI-PASS FILLET WELDS, AND SINGLE-PASS FILLET WELDS > 3/16".
4. PERIODIC INSPECTION OF SINGLE-PASS FILLET WELDS < 3/16", AND FLOOR AND DECK WELDS.
5. PERIODIC INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS.

MASONRY CONSTRUCTION:

1. LEVEL 2 SPECIAL INSPECTION AS DELINEATED IN TABLE 1704.5.3 OF THE INTERNATIONAL BUILDING CODE.

REV	DESCRIPTION	BY	DATE	CHK'D
B	ISSUED FOR BID		02/13/07	DEN
A	ISSUED TO MDEQ		1/09/07	DEN

TETRA TECH

DESIGNED BRF	CHECKED CDC
SCALE 1/8" = 1'-0"	CADD DATE 1/17/2007 10:36 AM
PART P:\142-17450-07-001\CAD\142-17450-07-001\A\FLOORPLAN.DWG	

PSC ENVIRONMENTAL SERVICES
515 LYCASTE DETROIT, MI
DETROIT FACILITY REBUILD

STRUCTURAL

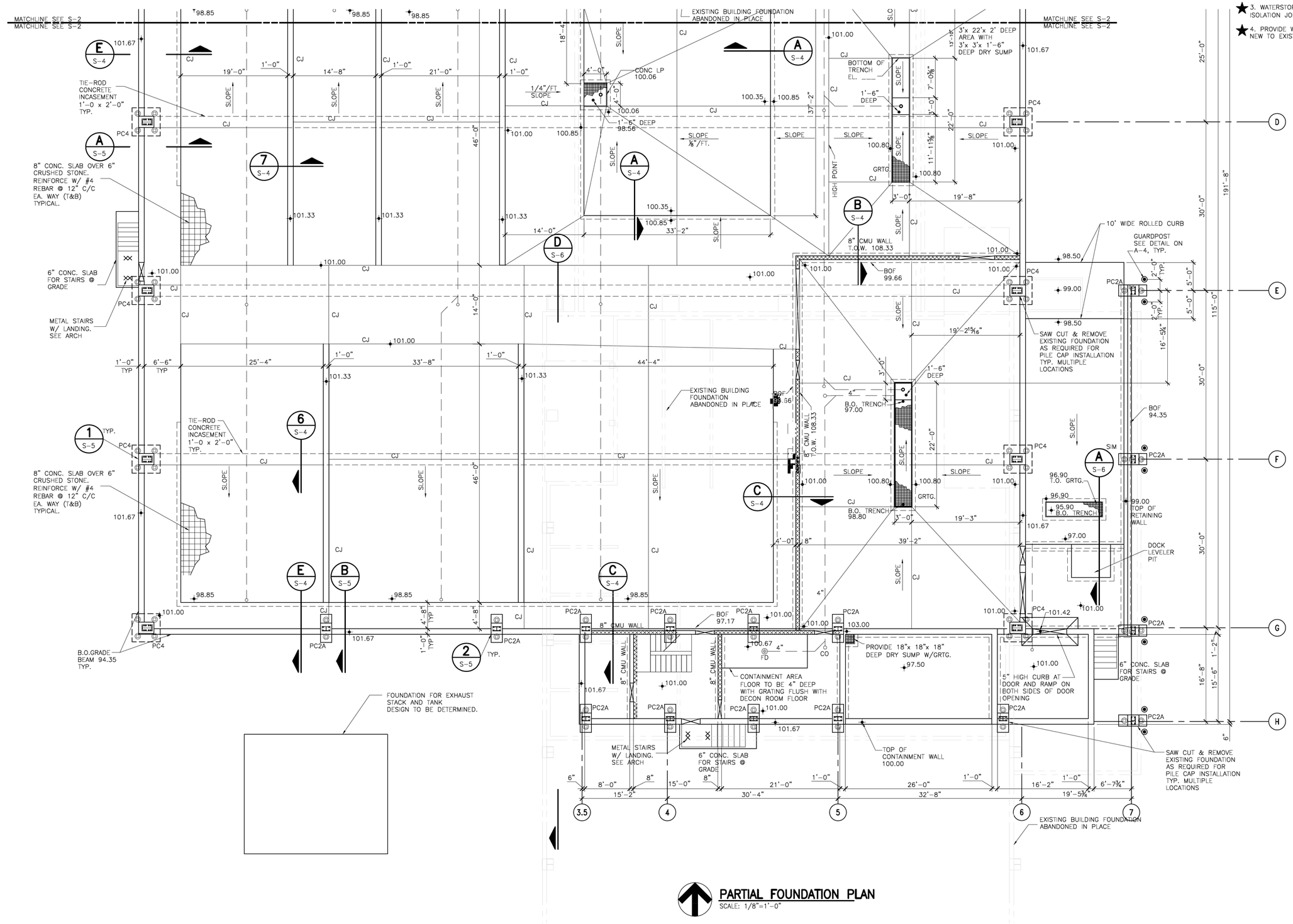
CONTAINER MANAGEMENT BLDG. PARTIAL FOUNDATION PLAN

DIVISION	CONTRACT	SHEET
.	. .	S-1 OF

PLOT DATE: 1/16/2007 12:51 PM LAST EDITED BY: KONLEY PLOT DEVICE: BIS 8830 - Plotter.pc3

DRAWING NOTES:

1. ✦ DENOTES TOP OF CONCRETE ELEVATION, UNLESS NOTED OTHERWISE.
2. COORDINATE CONCRETE DRAWINGS WITH ARCHITECTURAL AND SITE DRAWINGS.
3. ★ WATERSTOPS SHALL BE PROVIDED AT ALL CONSTRUCTION, CONTROL, AND ISOLATION JOINTS UTILIZING WESTEC STYLE #619, OR APPROVED EQUAL.
4. ★ PROVIDE WESTEC RETROFIT TYPE WATERSTOP, OR APPROVED EQUAL AT ALL NEW TO EXISTING CONCRETE JOINTS.



PARTIAL FOUNDATION PLAN

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

REV	DESCRIPTION	BY	DATE	CHK'D
B	ISSUED FOR BID		02/13/07	DEN
A	ISSUED TO MDEQ		1/09/07	DEN

TETRA TECH

DESIGNED BRF	CHECKED CDC
SCALE 1/8" = 1'-0"	CADD DATE 1/17/2007 10:36 AM
PART P:\142-17450-07-001\CAD\142-17450-07-001\A\FLOORPLAN.DWG	

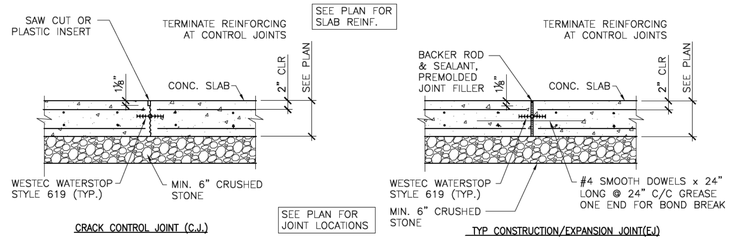
PSC ENVIRONMENTAL SERVICES
515 LYCASTE, DETROIT, MI
DETROIT FACILITY REBUILD

STRUCTURAL

CONTAINER MANAGEMENT BLDG. PARTIAL FOUNDATION PLAN

DIVISION	CONTRACT	SHEET
.	.	S-2 OF

PLOT DATE: 1/16/2007 12:51 PM LAST EDITED BY: KCNULSEY PLOT DEVICE: KCS 8830 - Plotter.pc3

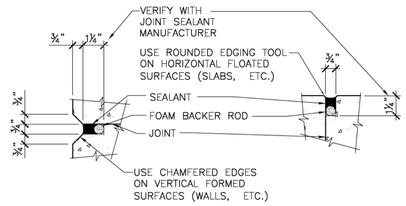


CRACK CONTROL JOINT (C.J.)

TYP CONSTRUCTION/EXPANSION JOINT(EJ)

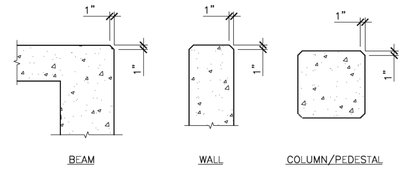
DETAIL 1 S-4
SCALE: 3/4"=1'-0"

TYPICAL JOINT DETAILS



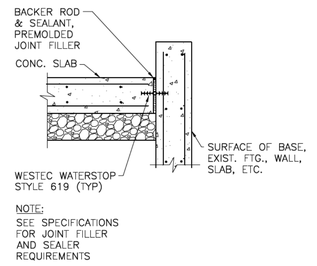
DETAIL 2 S-4
SCALE: N.T.S

TYPICAL JOINT SEALANT DETAILS



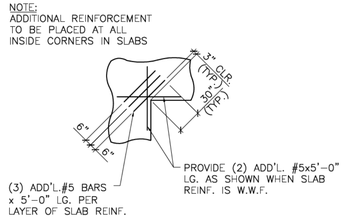
DETAIL 3 S-4
SCALE: N.T.S

TYP. CHAMFER DETAILS



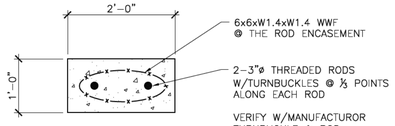
DETAIL 4 S-4
SCALE: 3/4"=1'-0"

TYP. SLAB TO WALL ISOLATION JOINT



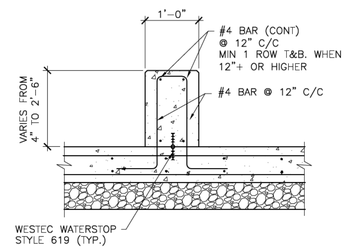
DETAIL 5 S-4
SCALE: 3/4"=1'-0"

TYP. REINF. @ RE-ENTRANT CORNER DETAIL



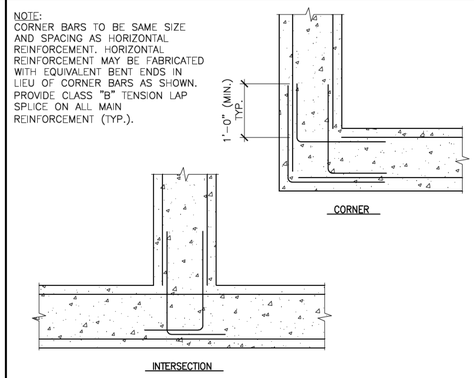
SECTION 6 S-4
SCALE: 3/4"=1'-0"

TYPICAL THRUST ROD DETAILS



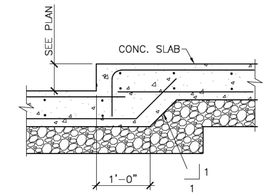
DETAIL 7 S-4
SCALE: 3/4"=1'-0"

TYPICAL CONTINUOUS CURB DETAIL



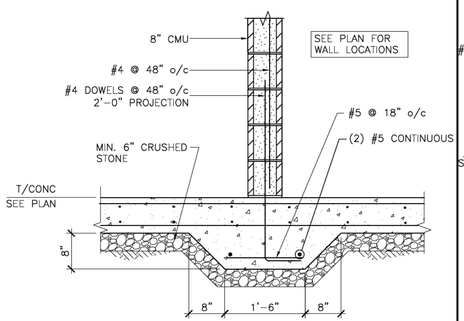
DETAIL 8 S-4
SCALE: N.T.S

TYPICAL WALL CORNER BARS DETAIL



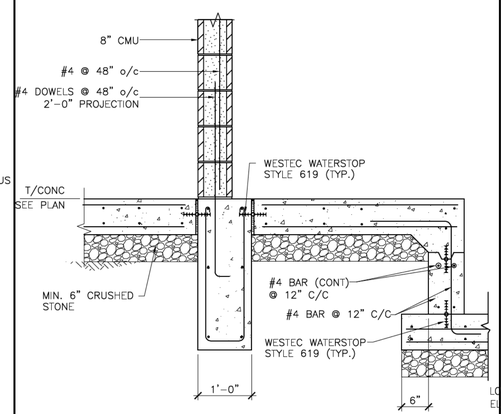
SECTION A S-4
SCALE: 3/4"=1'-0"

TYPICAL SLAB STEP DETAIL



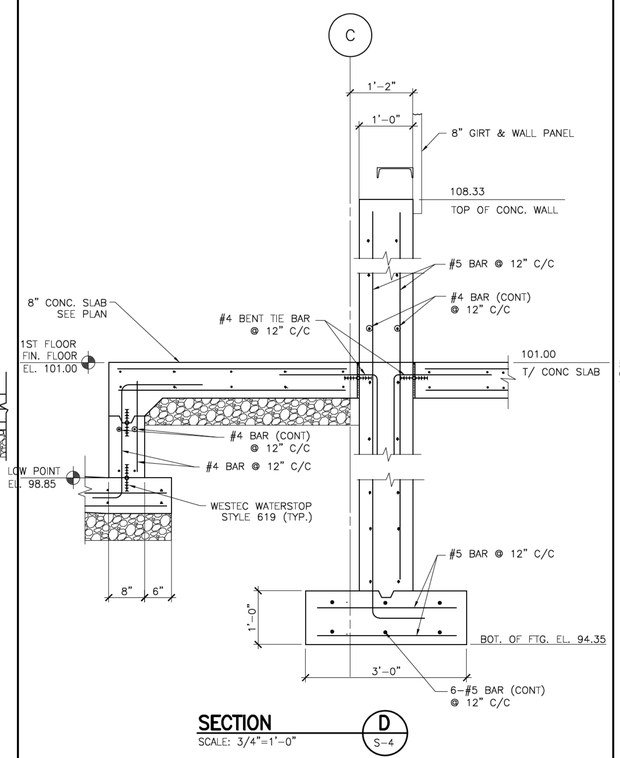
SECTION B S-4
SCALE: 3/4"=1'-0"

TYPICAL SECTION @ CMU WALL



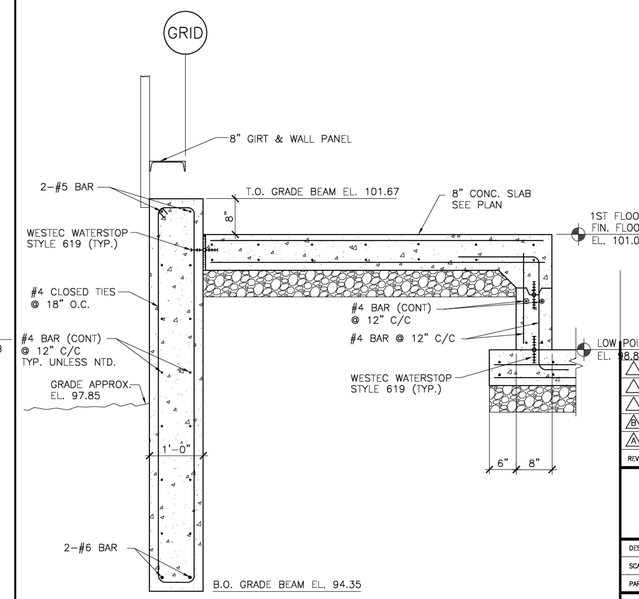
SECTION C S-4
SCALE: 3/4"=1'-0"

WALL SECTION



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

WALL LEVELER SECTION



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

TYPICAL GRADE BEAM SECTION

REV	DESCRIPTION	BY	DATE	CHK'D
B	ISSUED FOR BID		02/13/07	DEN
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TETRA TECH

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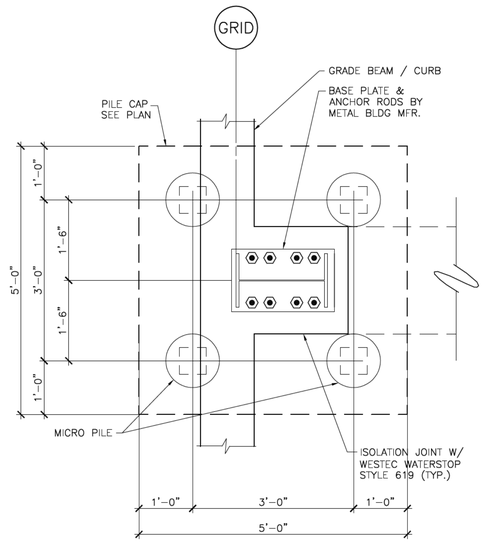
PSC ENVIRONMENTAL SERVICES
515 LYCASTE DETROIT, MI
DETROIT FACILITY REBUILD

STRUCTURAL

CONTAINER MANAGEMENT BLDG. & HEEL MANAGEMENT BLDG. DETAIL SHEET

DIVISION	CONTRACT	SHEET
.	.	S-4 OF .

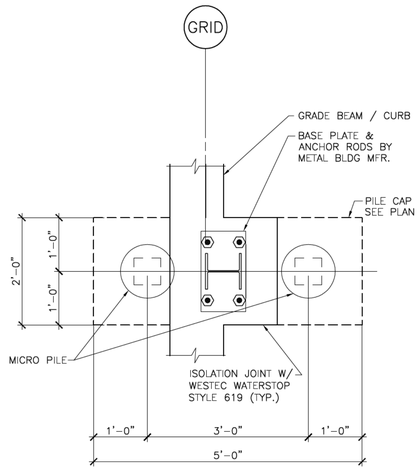
PLOT DATE: 1/16/2007 12:51 PM LAST EDITED BY: KONLIKEY PLOT DEVICE: KCS 8830 - Plotter.pc3



SEE DETAIL 4/S-5 FOR PIER REINF.

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

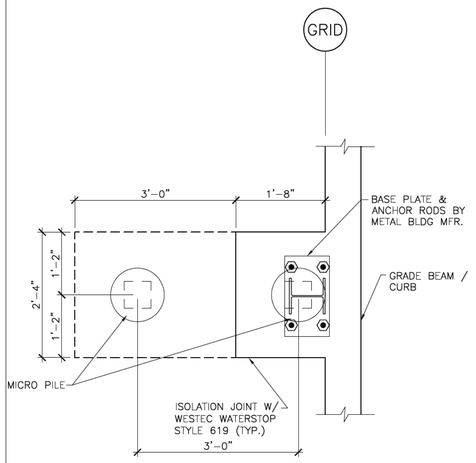
PC4 COLUMN PIER DETAIL



SEE DETAIL 5/S-5 FOR PIER REINF.

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

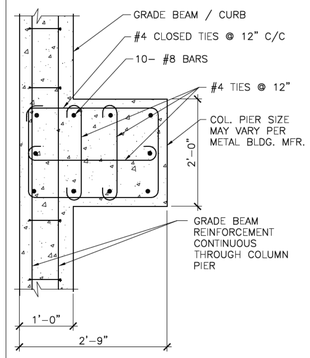
PC2A COLUMN PIER DETAIL



SEE DETAIL 6/S-5 FOR PIER REINF.

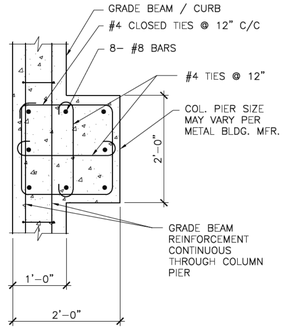
DETAIL 3 S-5
SCALE: 3/4"=1'-0"

PC2B COLUMN PIER REINF. DETAIL



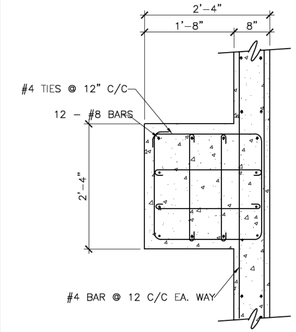
DETAIL 4 S-5
SCALE: 3/4"=1'-0"

PC4 COLUMN PIER REINF. DETAIL



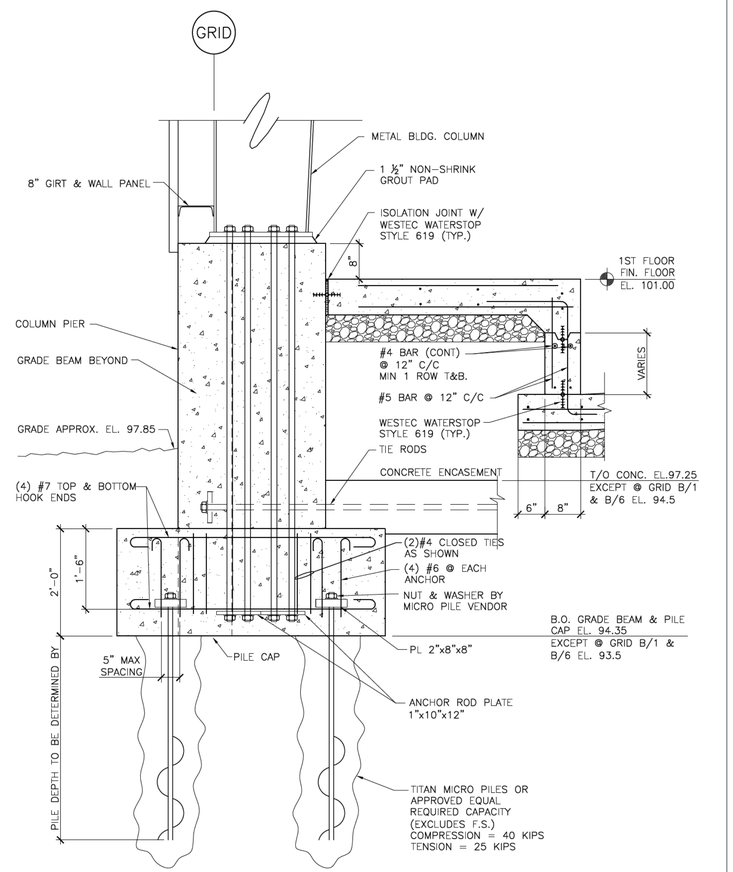
DETAIL 5 S-5
SCALE: 3/4"=1'-0"

PC2A COLUMN PIER REINF. DETAIL



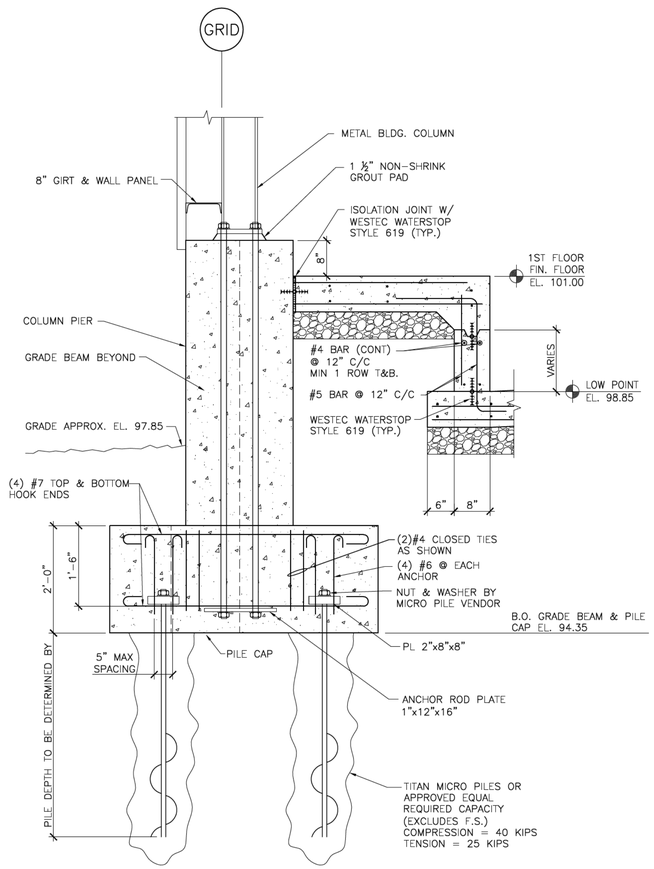
DETAIL 6 S-5
SCALE: 3/4"=1'-0"

PC2B COLUMN PIER REINF. DETAIL



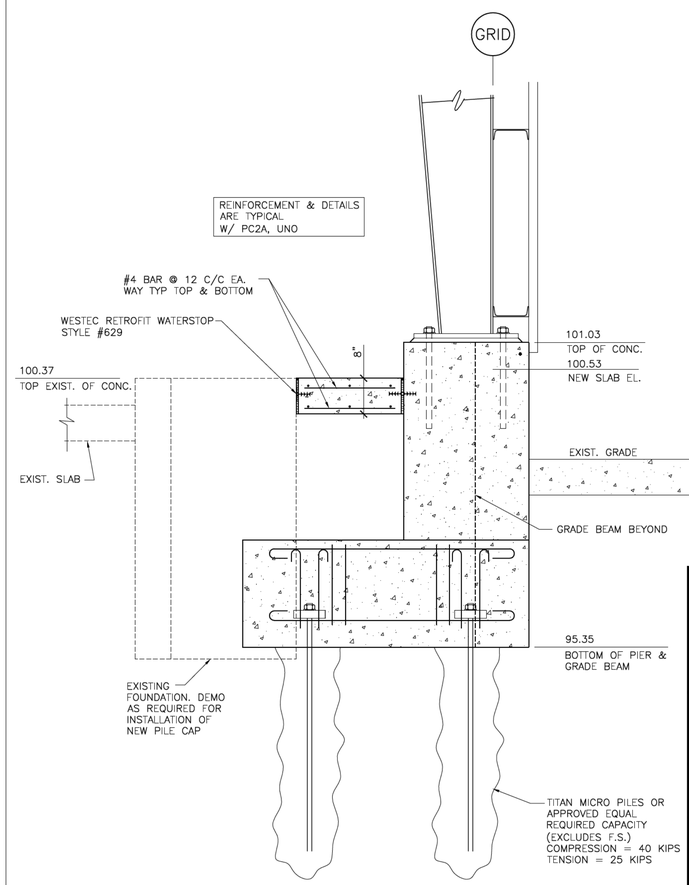
SECTION A S-5
SCALE: 3/4"=1'-0"

WALL SECTION @ PC1 PIER



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

WALL SECTION @ PC2A PIER



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

WALL SECTION @ PC2B PIER

REV	DESCRIPTION	BY	DATE	CHK'D
B	ISSUED FOR BID		02/13/07	DEN
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SCALE AS NTD	CADD DATE 1/17/2007 10:36 AM
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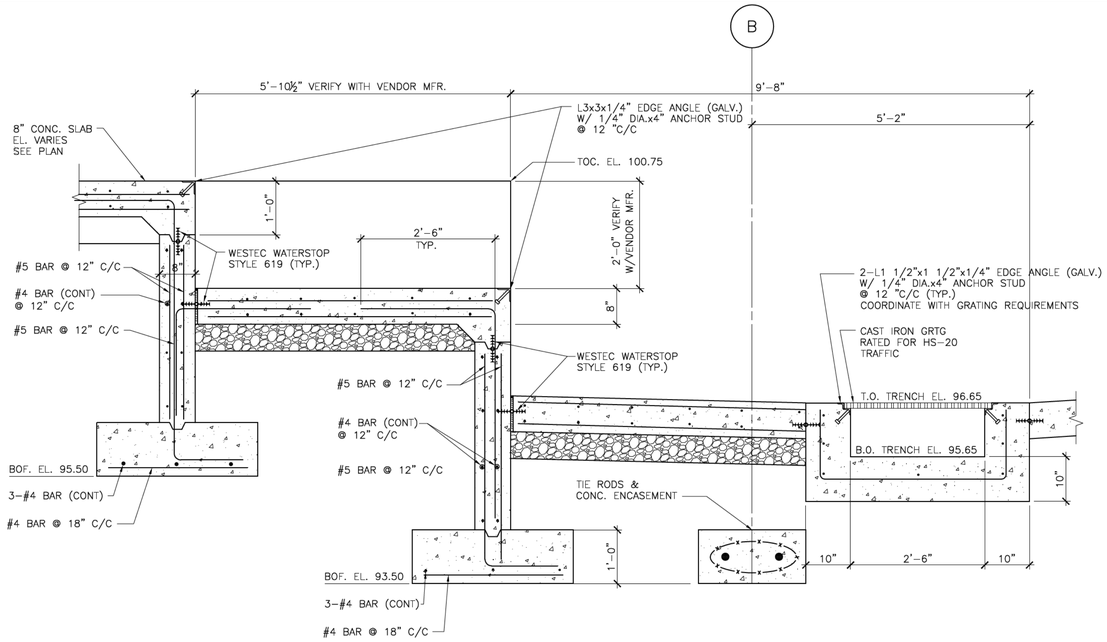
PSC ENVIRONMENTAL SERVICES
515 LYCASTE DETROIT, MI
DETROIT FACILITY REBUILD

STRUCTURAL

CONTAINER MANAGEMENT BLDG. & HEEL MANAGEMENT BLDG. DETAIL SHEET

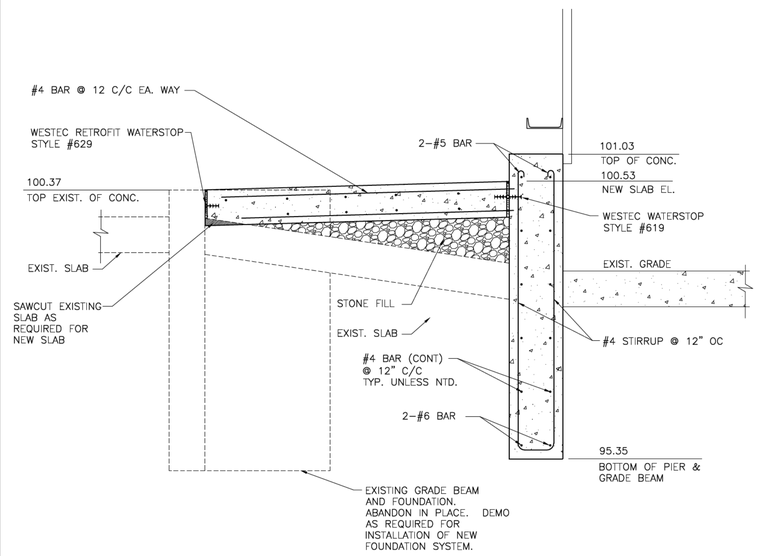
DIVISION	CONTRACT	SHEET
.	. .	S-5 OF

PLOT DATE: 1/16/2007 12:51 PM LAST EDITED BY: KONJUKEY PLOT DEVICE: XES 8830 - Plotter.pc3



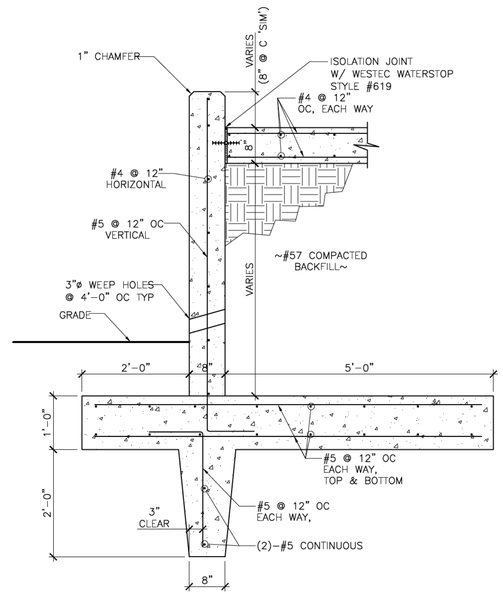
SECTION A (S-6)
SCALE: 3/4"=1'-0"

WALL SECTION @ LOADING DOCK



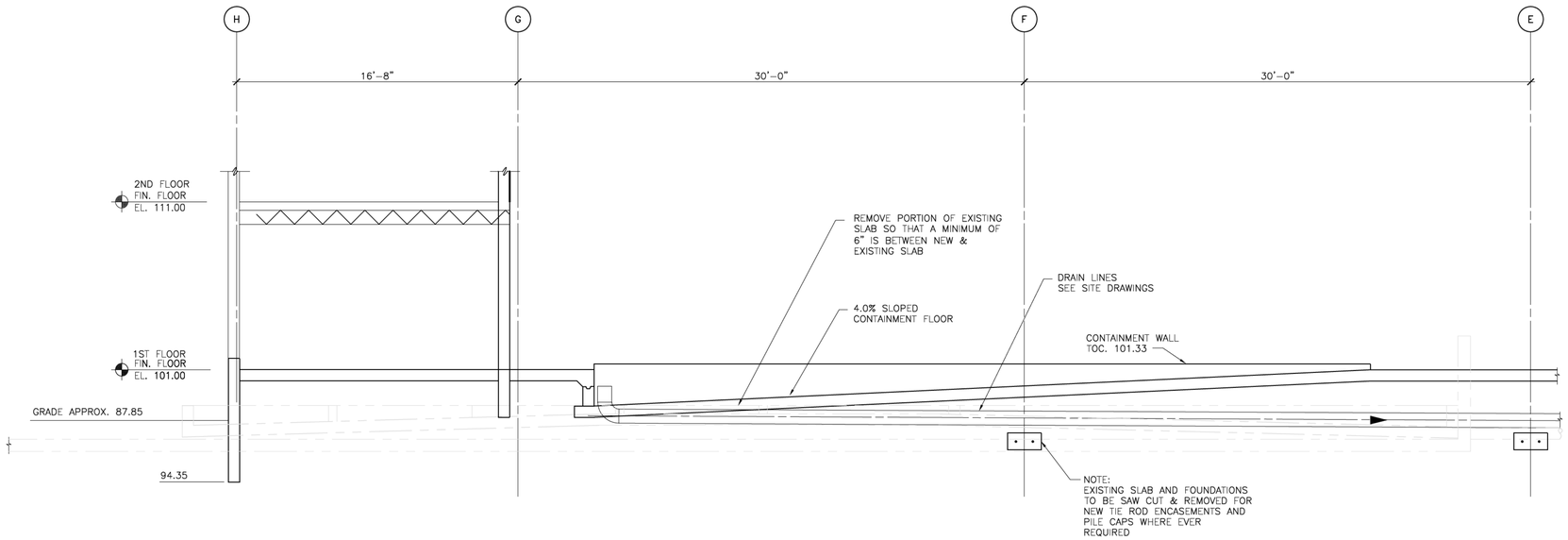
SECTION B (S-6)
SCALE: 3/4"=1'-0"

WALL SECTION @ HEEL BLDG. GRADE BEAM



SECTION C (S-6)
SCALE: 3/4"=1'-0"

RETAINING WALL SECTION



SECTION D (S-6)
SCALE: 3/4"=1'-0"

PARTIAL BUILDING SECTION

REV	DESCRIPTION	BY	DATE	CHK'D
B	ISSUED FOR BID		02/13/07	DEN
A	ISSUED TO MDEQ		1/09/07	DEN

TETRA TECH

DESIGNED BRF	CHECKED CDC
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PSC ENVIRONMENTAL SERVICES
515 LYCASTE DETROIT, MI
DETROIT FACILITY REBUILD

STRUCTURAL

CONTAINER MANAGEMENT BLDG & HEEL MANAGEMENT BLDG DETAIL SHEET

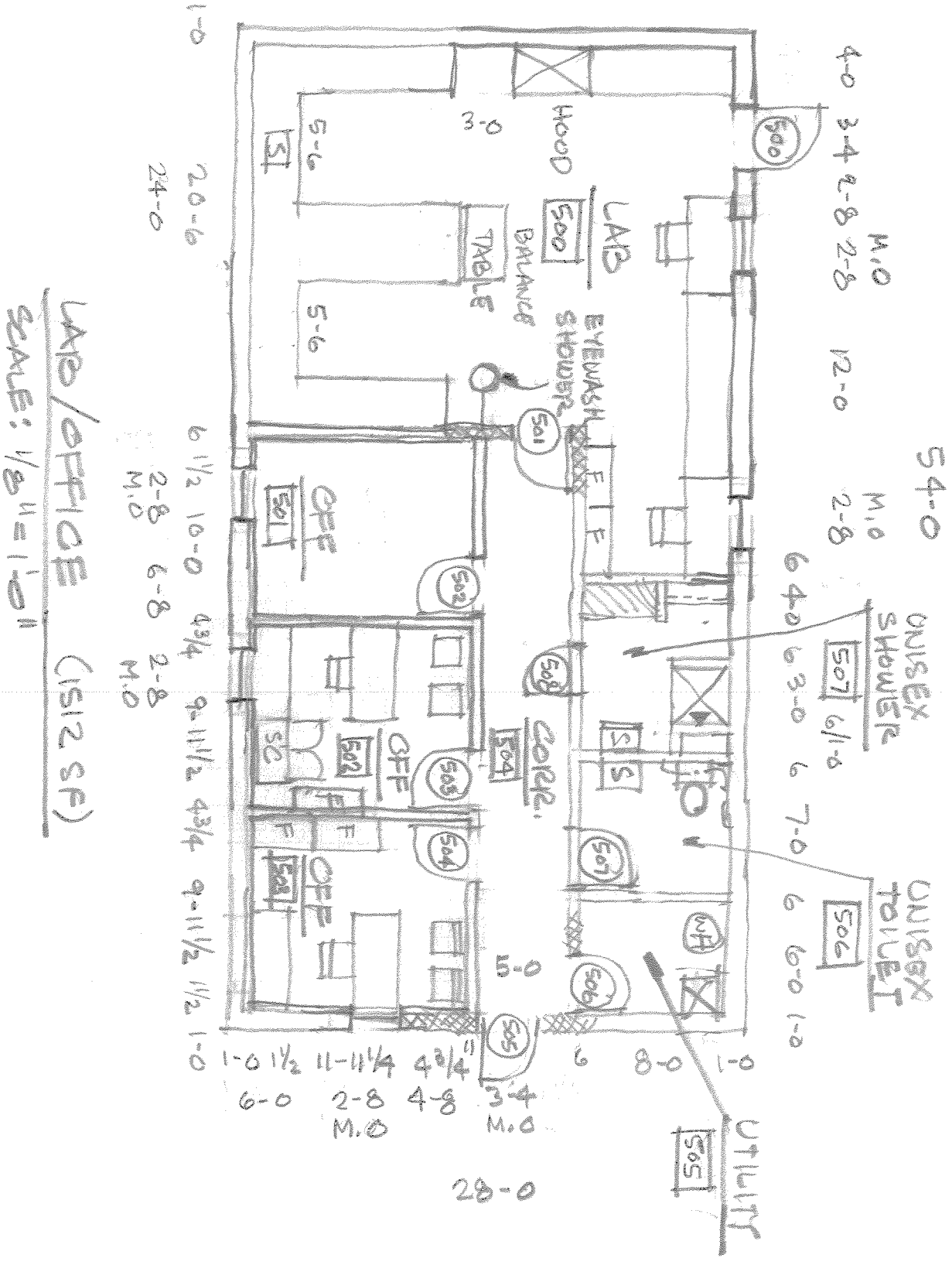
DIVISION	CONTRACT	SHEET
.	. .	S-6 OF

TETRA TECH, INC.

JOB PSC ENVIRONMENTAL SERVICES SHEET NO. SUP A1

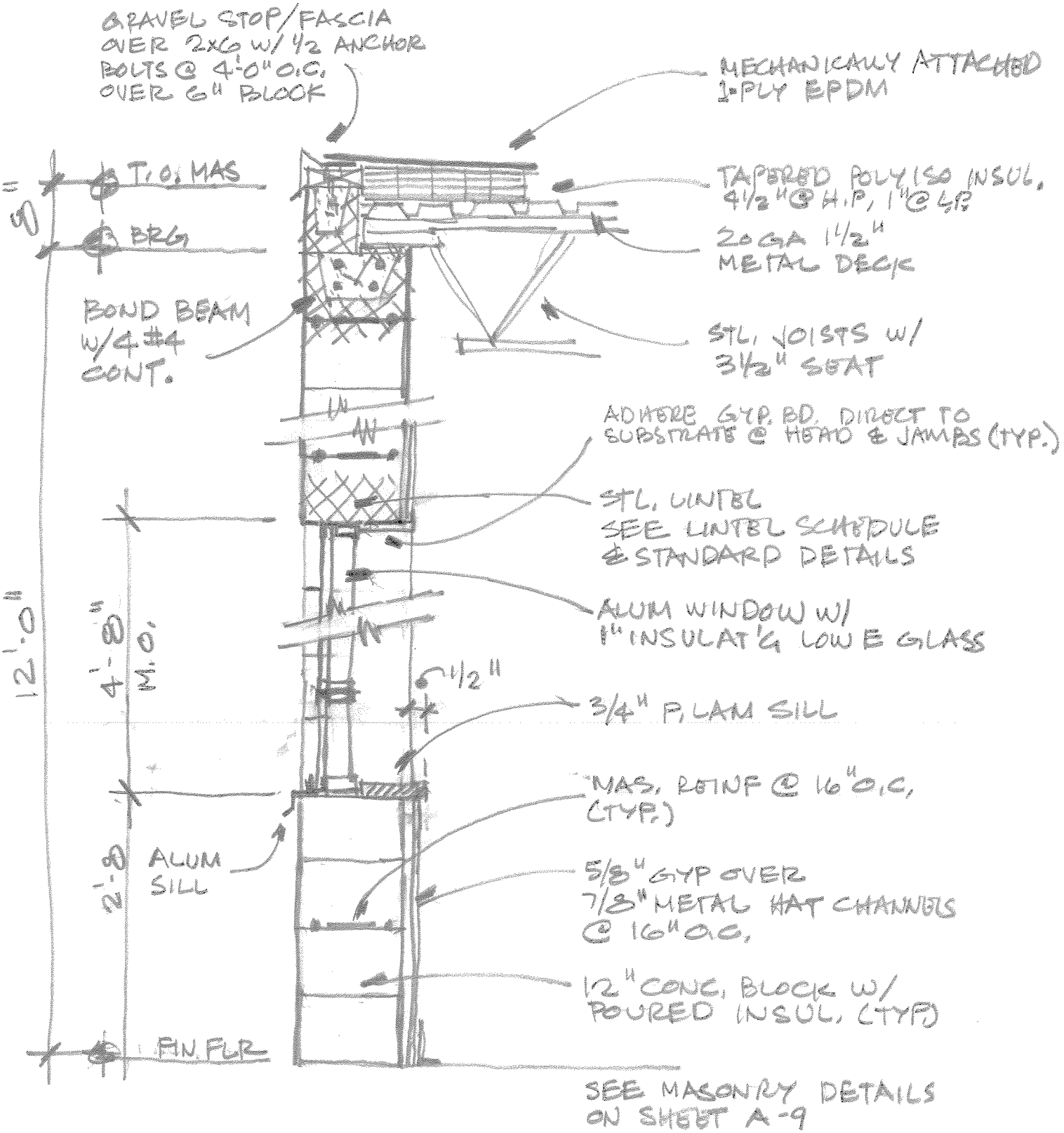
SUBJECT LAB/OFF SUPPLEMENTAL DWGS FILE NO.

COMPUTED BY BTC DATE 2/13/07 CHK. BY DATE



TETRA TECH, INC.

JOB PSC ENVIRONMENTAL SERVICES SHEET NO. SUP A2
SUBJECT LAB/OFF SUPPLEMENTAL DWGS FILE NO.
COMPUTED BY BTC DATE 2/13/07 CHK. BY DATE



WALL SECTION

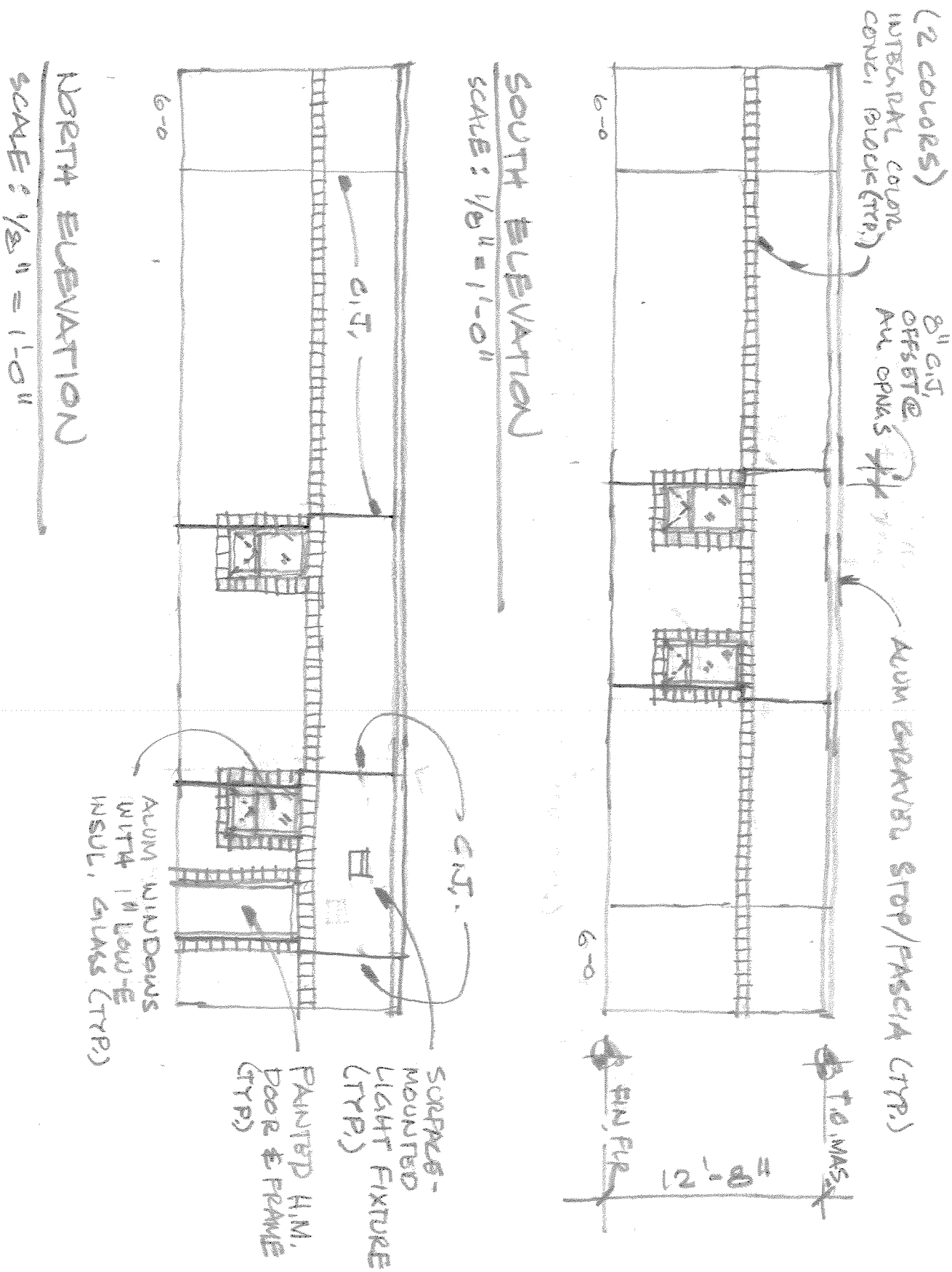
SCALE: 3/4" = 1'-0"

TETRA TECH, INC.

JOB PSC ENVIRONMENTAL SERVICES SHEET NO. SUP A3

SUBJECT CAB/OFF SUPPLEMENTAL DWGS FILE NO.

COMPUTED BY BTC DATE 2/13/07 CHK. BY DATE

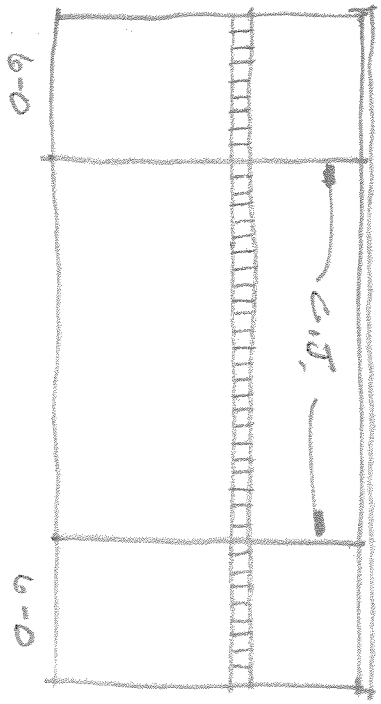


TETRA TECH, INC.

JOB PSC ENVIRONMENTAL SERVICES SHEET NO. SUP A4

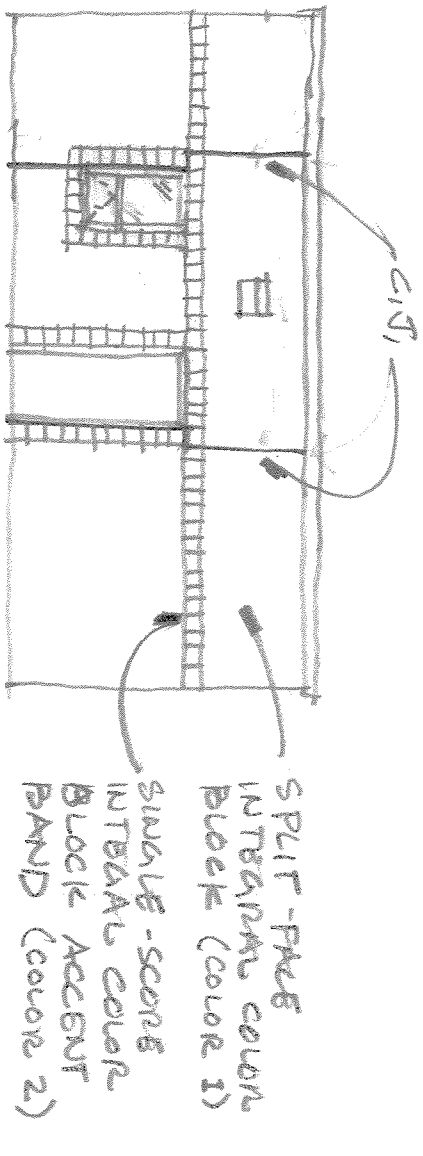
SUBJECT LAB/OFF SUPPLEMENTAL DWGS FILE NO.

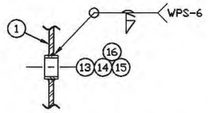
COMPUTED BY BTC DATE 2/13/07 CHK. BY DATE



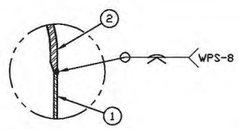
WEST ELEVATION
SCALE: 1/8" = 1'-0"

EAST ELEVATION
SCALE: 1/8" = 1'-0"

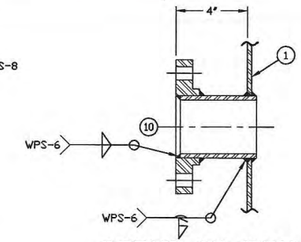




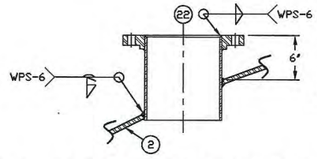
DETAIL OF ITEM #13-16
SCALE: 1/4"=1"



DETAIL "A"
SCALE: 3/16"=1"



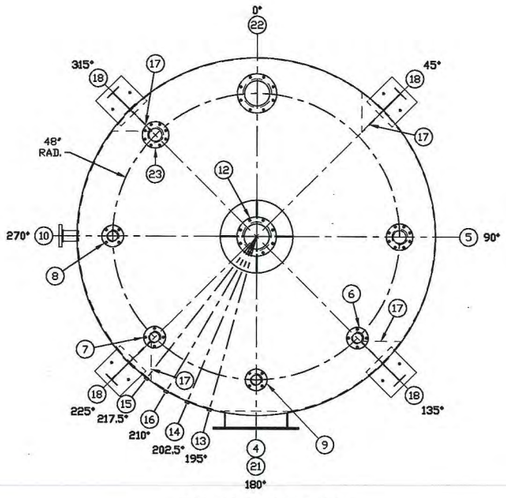
DETAIL OF ITEM #10
SCALE: 1/4"=1"



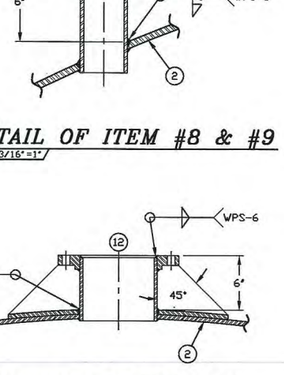
DETAIL OF ITEM #22
SCALE: 3/16"=1"

ITEMS SHIPPED LOOSE WITH TANK

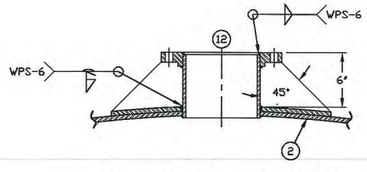
NO.	QTY.	PART NUMBER	DESCRIPTION
	1		2HP BRAWN MIXER W/2" DIA SHAFT, (1) 35" DIA IMPELLOR MODEL #BWG-2-68



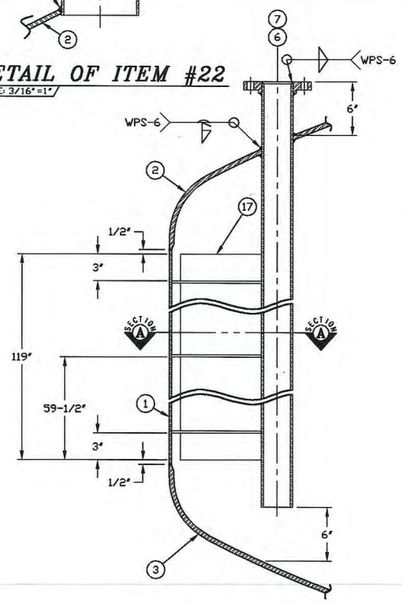
PLAN VIEW



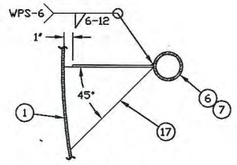
DETAIL OF ITEM #8 & #9
SCALE: 3/16"=1"



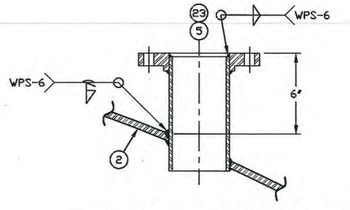
DETAIL OF ITEM #12
SCALE: 3/16"=1"



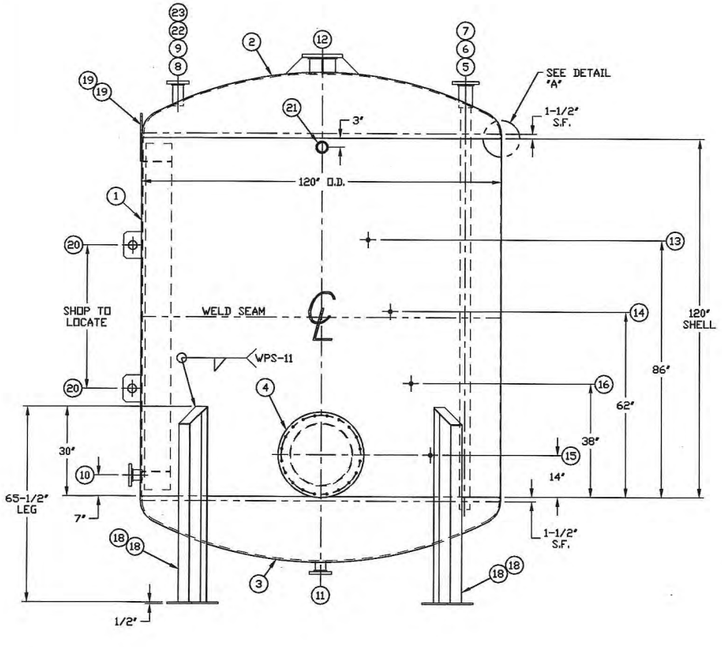
DETAIL OF ITEM #6&7
SCALE: 1/8"=1"



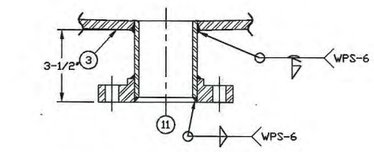
SECTION A-A
SCALE: 1/8"=1"



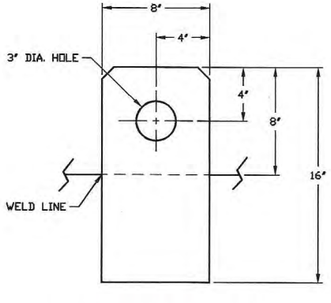
DETAIL OF ITEM #5,23
SCALE: 3/16"=1"



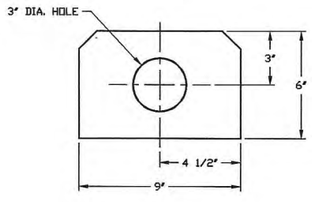
ELEVATION VIEW
SEE PLAN VIEW FOR TRUE ORIENTATION



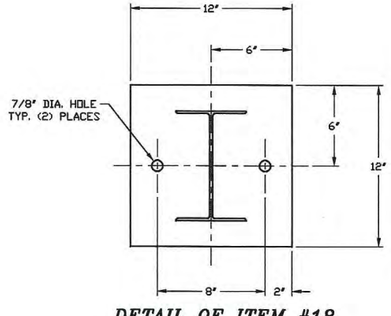
DETAIL OF ITEM #11
SCALE: 3/16"=1"



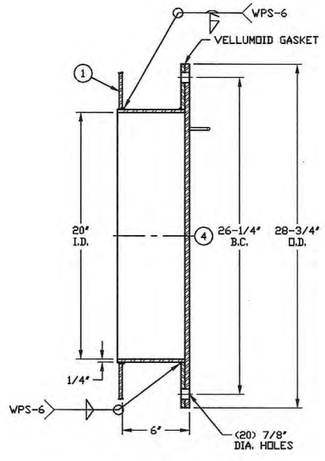
DETAIL OF ITEM #19
SCALE: 3/16"=1"



DETAIL OF ITEM #20
SCALE: 1/4"=1"



DETAIL OF ITEM #18
SCALE: 3/16"=1"



DETAIL OF ITEM #4
SCALE: 3/16"=1"

SCHEDULE

	NO.	QTY.	PART NUMBER	DESCRIPTION	
SA240-304L	1	2	PLTG60.3404	60" X 340" X 3/16" PLATE - SHELL	
SA240-304L	2	1	ASME120K4	120" O.D. X 1/2" ASME F&D HEAD W/ 1-1/2" S.F. - TOP	
SA240-304L	3	1	ASME120K4	120" O.D. X 1/2" ASME F&D HEAD W/ 1-1/2" S.F. - BOTTOM	
SA240-304L	4	1	DNJ28.75.0.4.20A	28-3/4" O.D. X 3/8" THICK COVER	
				(CUT (20) 7/8" HOLES AT 26-1/4" B.C.)	
SA240-304L		1	DNI28.8.20.7.4.20A	28-3/4" O.D. X 20-5/8" I.D. X 5/16" DONUT	
				(CUT (20) 7/8" HOLES AT 26-1/4" B.C.)	
SA240-304L		1	PLTH6.654	6" X 65" X 1/4" PLATE (ROLLED TO 20-1/2" O.D.)	
VELLUMOID		1	G27.5V20FF20	25-1/4" O.D. X 20" I.D. X 1/8" VELLUMOID RING GASKET	
SA-193 B8		20	BOLT.5.1.518	1/2" DIA. BOLT X 1-1/2" LG	
SA-194 B8		20	NUT.5.18	1/2" DIA NUT	
SA182-F304L	5	1	FLG4B4A	4" 150# R.F.S.O. FLANGE	
SA312-TP304L		1	P4B4A8.75	4" SCH 40 PIPE X 8-3/4" LG P.E.	
SA182-F304L	6	1	FLG3B4A	3" 150# R.F.S.O. FLANGE	
SA312-TP304L		1	P3B4A144	3" SCH 40 PIPE X 144" LG P.E.	
SA182-F304L	7	1	FLG3B4A	3" 150# R.F.S.O. FLANGE	
SA312-TP304L		1	P3B4A144	3" SCH 40 PIPE X 144" LG P.E.	
SA182-F304L	8	1	FLG3B4A	3" 150# R.F.S.O. FLANGE	
SA312-TP304L		1	P3B4A8.375	3" SCH 40 PIPE 8-3/8" LG P.E.	
SA182-F304L	9	1	FLG3B4A	3" 150# R.F.S.O. FLANGE	
SA312-TP304L		1	P3B4A8.375	3" SCH 40 PIPE 8-3/8" LG P.E.	
SA182-F304L	10	1	FLG3B4A	3" 150# R.F.S.O. FLANGE	
SA312-TP304L		1	P3B4A4.5	3" SCH 40 PIPE 4-1/2" LG P.E.	
SA182-F304L	11	1	FLG3B4A	3" 150# R.F.S.O. FLANGE	
SA312-TP304L		1	P3B4A5	3" SCH 40 PIPE 5" LG P.E.	
SA182-F304L	12	1	FLG8B4A	8" 150# R.F.S.O. FLANGE	
		1	P8B4A6.75	8" SCH 40 PIPE 6-3/4" LG P.E.	
SA240-304L		2	PLTJ5.5.84	5-1/2" X 8" X 3/8" PLATE - CUT IN HALF	
SA240-304L		1	PLTH25.254	25" X 25" X 1/4" PLATE - CUT TO 24-1/2" DIA REPAD	M
SA182-F304L	13	1	CPLGH.75A4A	3/4" 150# THREADED HALF COUPLING	
SA182-F304L	14	1	CPLGH.75A4A	3/4" 150# THREADED HALF COUPLING	
SA182-F304L	15	1	CPLGH.75A4A	3/4" 150# THREADED HALF COUPLING	
SA182-F304L	16	1	CPLGH.75A4A	3/4" 150# THREADED HALF COUPLING	
SA240-304L	17	4	PLTH9.1194	10" X 119" X 1/4" PLATE - BAFFLE	M
SA240-304L		12	PLTH9.25.104	9-1/4" X 10" X 1/4" PLATE - (CUT IN HALF) SUPPORT	
SA-36	18	1.1	BEAM8WX18#T1	8" X 18# WIDE FLANGE BEAM X 20" LG (CUT 4 PCS @ 65-1/2" LG) - LEG	
SA-36		4	PLTHK12.121	12" X 12" X 1/2" PLATE - BASE PLATE	
SA240-304L	19	2	PLTH8.164	8" X 16" X 1/4" PLATE - VERTICAL LIFT LUG	
SA240-304L	20	2	PLTH8.164	6" X 9" X 1/4" PLATE - HORIZONTAL LIFT LUG	
SA182-F304L	21	1	CPLGH3A4A	3" 150# THREADED HALF COUPLING	
SA182-F304L	22	1	FLG8B4A	8" 150# R.F.S.O. FLANGE	M
SA312-TP304L		1	P8B4A9.5	8" SCH 40 PIPE X 9-1/2" LG P.E.	M
SA182-F304L	23	1	FLG4B4A	4" 150# R.F.S.O. FLANGE	M
SA312-TP304L		1	P4B4A8.75	4" SCH 40 PIPE X 8-3/4" LG P.E.	M

NOTES:
1. TANK IS TO BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH API-650 AS SUPPLEMENTED.
2. TANK TO BE OF BUTT-WELDED CONSTRUCTION WITH FULL PENETRATION WELDS INSIDE AND OUT.
3. JOINT EFFICIENCY: 70%
4. X-RAY: NONE
5. TANK IS TO BE AIR TESTED AT 3-5 PSI.
6. INTERIOR IS TO BE CLEANED OF DIRT, WELD-SLAG, AND ETC.
7. EXTERIOR IS TO BE CLEANED OF DIRT, WELD-SLAG, AND ETC.
8. MANHOLE GASKET TO BE _____ (CUSTOMER TO SPECIFY).
9. CLAWSON TANK CANNOT BE RESPONSIBLE FOR THE PERFORMANCE OF ANY CUSTOMER SPECIFIED GASKET MATERIAL.
10. ALL BOLT HOLE PATTERNS ARE TO STRADDLE FLANGES NATURAL CENTER LINES.
11. NO FITTINGS TO BE PLACED IN ANY HORIZONTAL OR VERTICAL WELD SEAMS.
12. ALL FITTINGS TO BE COVERED PRIOR TO SHIPPING.
13. CONFIRM MIXER DIRECTION FOR BAFFLE LAYOUT.

CERTIFIED TANKS BUILT AS DRAWN 11-3-10

TANK #: TK-002

APPROXIMATE EMPTY TANK WEIGHT: 9,000 LBS

NO.	DATE	DESCRIPTION	BY	APPD.
5	7-21-08	REVISED ITEM #22,#23 IN SCHEDULE	LL	
4	7-07-08	ADD ITEMS #22, AND 23	KD	
3	9-19-07	REVISED BAFFLE SIZE AND DETAIL	LL	
2	9-10-07	REVISED REPAD SIZE ON ITEM #12 IN SCHEDULE	LL	
1	7-31-07	ADDED ITEM #10 TO PLAN VIEW	LL	

REVISION

CLAWSON TANK COMPANY

CUSTOMER: PHILIP SERVICES DETROIT, MI
JOB: PHILIP SERVICES DETROIT, MI
CAD VERSION: 2004
DATE:
JOB #:
SCALE: 1/2" = 12"
APPROVED BY:
DRAWN BY: J GROH
CHECKED BY:
DATE: 6-01-07
PRINT #:

Confidential Material Redacted

CLAWSON Tank

CLAWSON TANK COMPANY

CUSTOMER: PHILIP SERVICES DETROIT, MI		CAD VERSION: 2004	DATE:
JOB: PHILIP SERVICES DETROIT, MI			JOB #:
SCALE: 1/2" = 12"	APPROVED BY:	DRAWN BY: J GROH	PRINT #:
8-07		CHECKED BY:	
DESCRIPTION: 6,000 GAL VERTICAL S.S.			DRAWING NUMBER: 09507

CMB2 and QAQC Drawings 2022

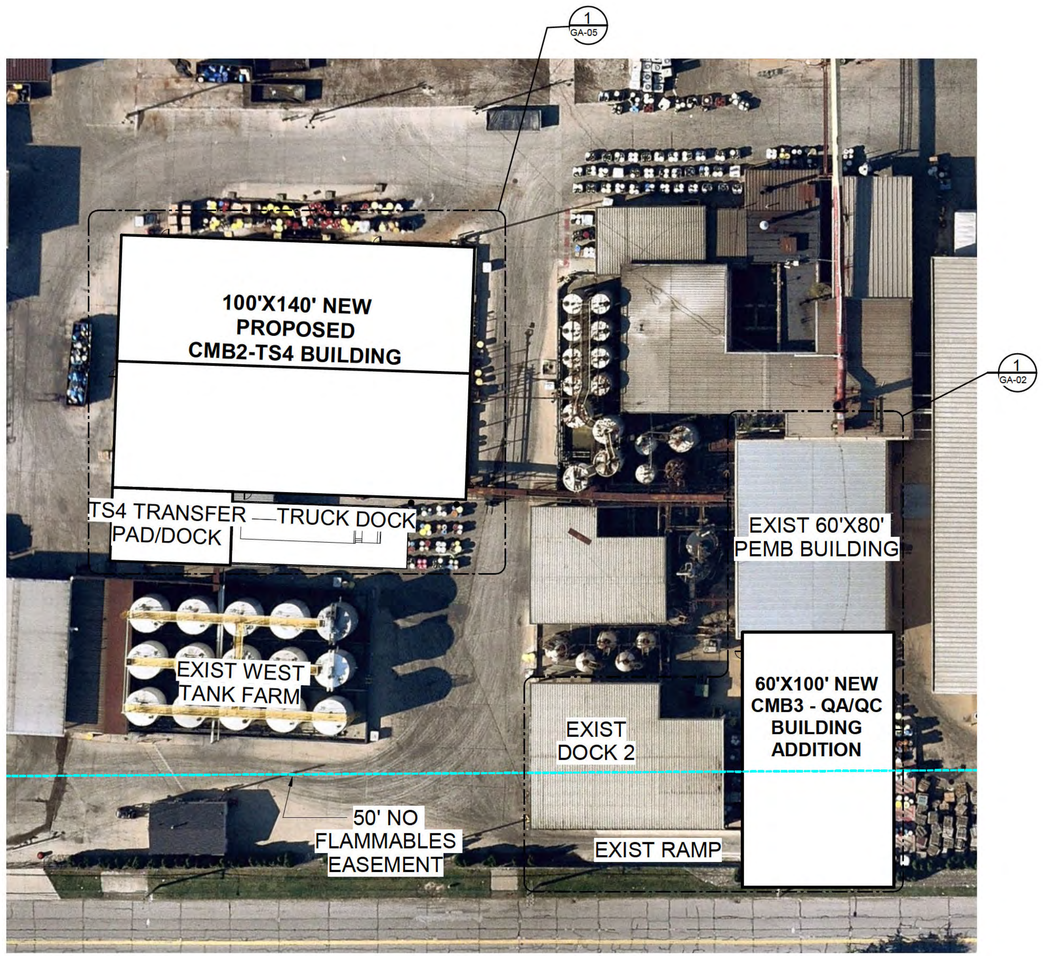
CMB2 and QAQC Drawings 2022

DRAWING NUMBER	DRAWING DESCRIPTION
GA-01	General Arrangement - Site Layout
GA-02	General Arrangement -QA/QC PEMB Building Addition
GA-03	General Arrangement - QA/QC PEMB Building Addition Elevations
GA-04	QA/QC PEMB Building Addition Elevations
GA-05	General Arrangement - Proposed TS4/CMB2 PEMB Building
GA-06	General Arrangement - Proposed TS4/CMB2 PEMB Building Elevations
GA-07	Proposed TS4/CMB2 PEMB Building Elevations
GA-08	Rendering - North West
GA-09	Rendering - North
GA-10	Rendering - South East
GA-11	Rendering - North East

1 EXISTING SITE LAYOUT

0 15 30 45 60 80 100

SCALE



2 PROPOSED SITE LAYOUT

0 15 30 45 60 80 100

SCALE

PRELIMINARY DRAFT- NOT FOR CONSTRUCTION

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D	DMH2	MBI	XXX	6/8/22	ISSUE FOR CLIENT REVIEW
C	DMH2	MBI	XXX	3/16/22	ISSUE FOR CLIENT REVIEW
B	DMH2	MBI	XXX	2/18/22	ISSUE FOR CLIENT REVIEW
A	DMH2	MBI	XXX	1/21/22	ISSUE FOR CLIENT REVIEW

CLIENT	1/24/22	2/18/22	3/16/22	6/8/22			
RELEASED TO/FOR	A	B	C	D			
	DATE RELEASED						

BARR
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MINNEAPOLIS, MN 55435
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

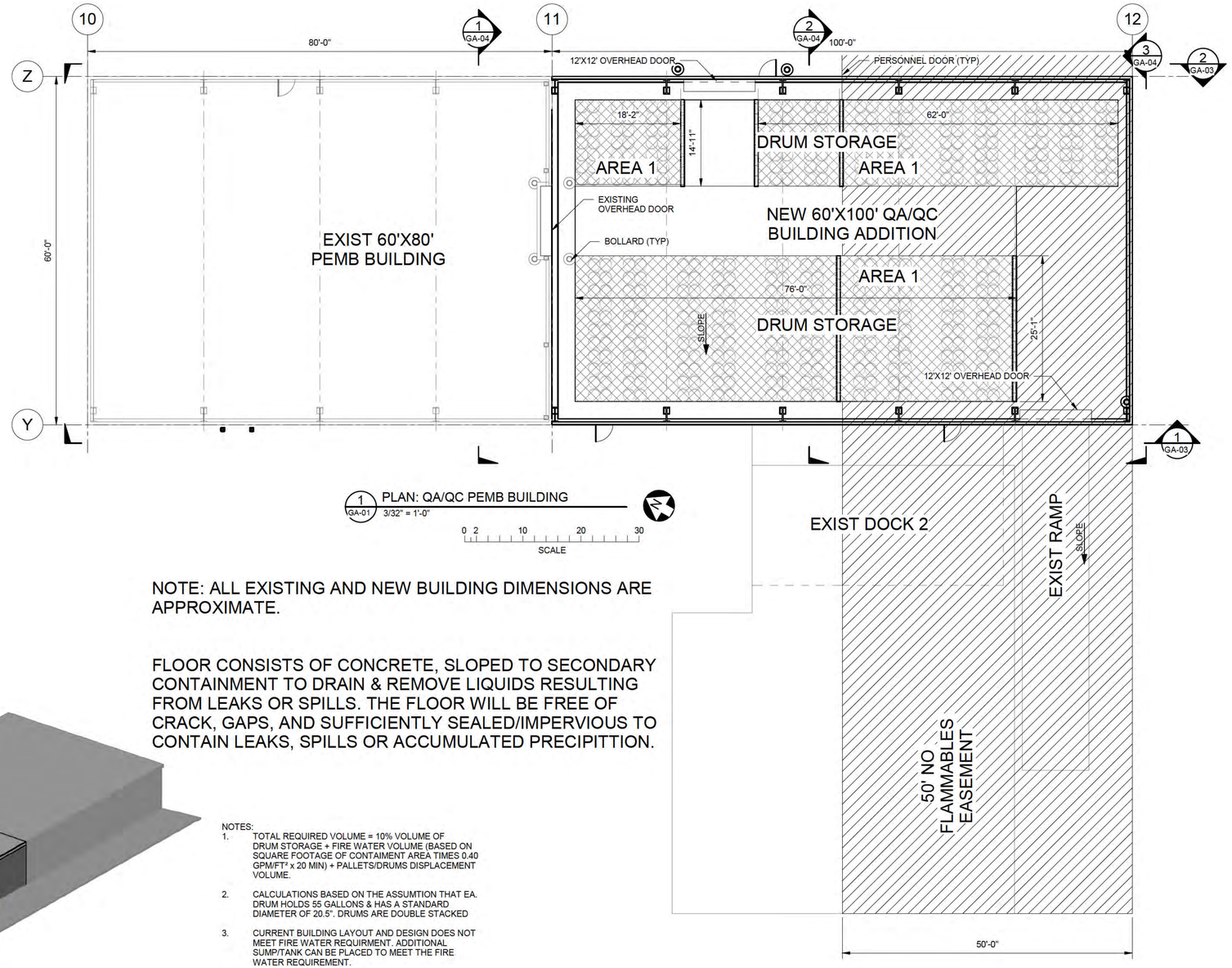
Scale	AS SHOWN
Date	1/12/2022
Drawn	DMH2
Checked	MBI
Designed	MBI/DMH2
Approved	MBI

CLEAN EARTH, LLC
DETROIT, MICHIGAN

CLEAN EARTH, LLC
DETRIOT, MICHIGAN

GENERAL ARRANGEMENT
SITE LAYOUT

BARR PROJECT NO.	
22821113.00	
CLIENT PROJECT NO.	
-	
DWG NO.	REV NO.
GA-01	D

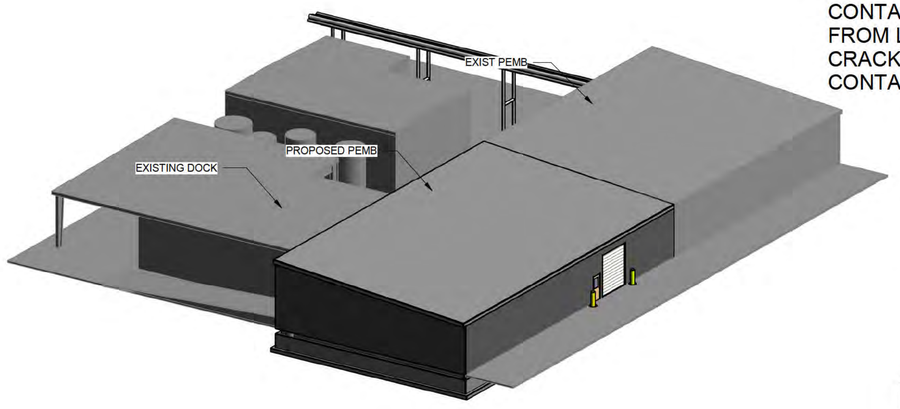


1 GA-01 PLAN: QA/QC PEMB BUILDING
3/32" = 1'-0"

SCALE 0 2 10 20 30

NOTE: ALL EXISTING AND NEW BUILDING DIMENSIONS ARE APPROXIMATE.

FLOOR CONSISTS OF CONCRETE, SLOPED TO SECONDARY CONTAINMENT TO DRAIN & REMOVE LIQUIDS RESULTING FROM LEAKS OR SPILLS. THE FLOOR WILL BE FREE OF CRACK, GAPS, AND SUFFICIENTLY SEALED/IMPERVIOUS TO CONTAIN LEAKS, SPILLS OR ACCUMULATED PRECIPITTION.



2 3D VIEW: QA/QC PEMB BUILDING

NOTE: 3D VIEW IS FOR CONCEPTUAL UNDERSTANDING ONLY. ALL ELEMENTS SHOWN IN ORTHOGRAPHIC VIEW ARE SUPERSEDED BY DESIGN INTENT SHOWN IN PLANS, SECTIONS AND DETAILS. 3D VIEW SHALL NOT BE SCALED.

NOTES:
1. TOTAL REQUIRED VOLUME = 10% VOLUME OF DRUM STORAGE + FIRE WATER VOLUME (BASED ON SQUARE FOOTAGE OF CONTAIMENT AREA TIMES 0.40 GPM/FT² x 20 MIN) + PALLETS/DRUMS DISPLACEMENT VOLUME.
2. CALCULATIONS BASED ON THE ASSUMTION THAT EA. DRUM HOLDS 55 GALLONS & HAS A STANDARD DIAMETER OF 20.5". DRUMS ARE DOUBLE STACKED
3. CURRENT BUILDING LAYOUT AND DESIGN DOES NOT MEET FIRE WATER REQUIRMENT. ADDITIONAL SUMP/TANK CAN BE PLACED TO MEET THE FIRE WATER REQUIREMENT.

CONTAINMENT AREA LEGEND								
AREA	HATCHING	TOTAL AVAILABLE CONTAINMENT VOLUME BY AREAS (GAL)	REQUIRED CONTAINMENT VOLUMES			TOTAL REQUIRED VOLUME (GAL) SEE NOTE 1	TOTAL REQUIRED VOLUME (GAL) W/O FIRE WATER	TOTAL NUMBER OF DRUMS
			10% STORAGE VOLUME (GAL)	FIRE WATER VOLUME (GAL)	PALLETS / DRUMS DISPLACEMENT VOLUME (GAL)			
1		10,111	4,268	24,817	2,846	31,931	7,114	776

PRELIMINARY DRAFT- NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
D	DMH2	MBI	XXX	6/8/22	ISSUE FOR CLIENT REVIEW
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B	DMH2	MBI	XXX	2/18/22	ISSUE FOR CLIENT REVIEW
A	DMH2	MBI	XXX	1/21/22	ISSUE FOR CLIENT REVIEW

CLIENT | 1/24/22 | 2/18/22 | 3/16/22 | 6/8/22

RELEASED TO/FOR | A | B | C | D | DATE RELEASED

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Corporate Headquarters:
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Scale	AS SHOWN
Date	1/12/2022
Drawn	DMH2
Checked	MBI
Designed	MBI/DMH2
Approved	MBI

CLEAN EARTH, LLC
DETROIT, MICHIGAN

CLEAN EARTH, LLC
DETRIOT, MICHIGAN

GENERAL ARRANGEMENT
QA/QC PEMB BUILDING ADDTION

BARR PROJECT NO. 22821113.00
CLIENT PROJECT NO. -
DWG NO. GA-02
REV NO. D

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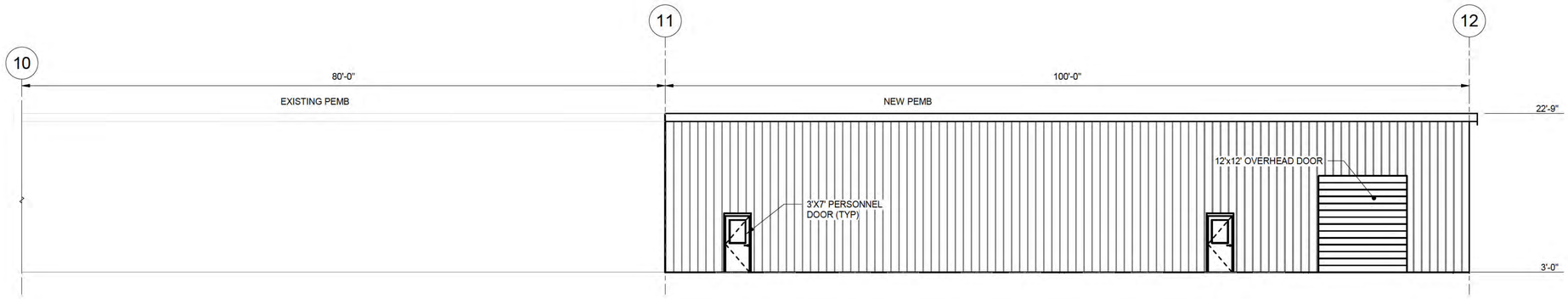
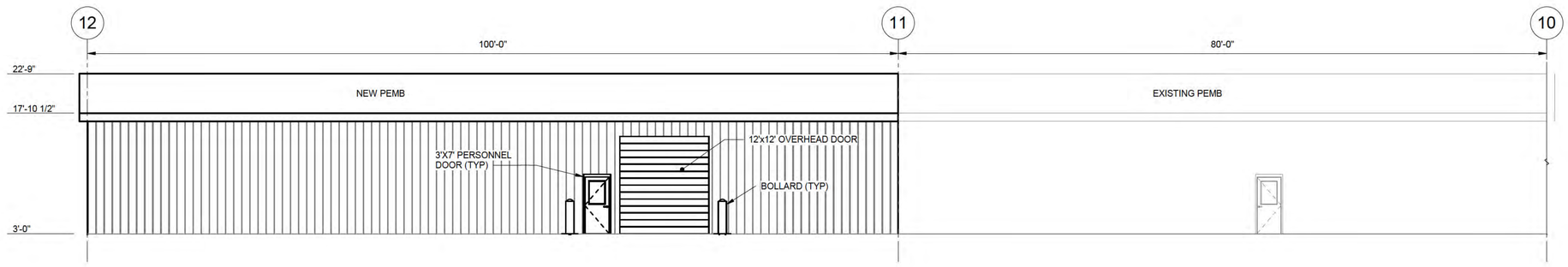


1 GA-02 ELEVATION: QA/QC PEMB BUILDING - FROM WEST

1/8" = 1'-0" 0 1 5 10 15 20

SCALE



2 GA-02 ELEVATION: QA/QC PEMB BUILDING - FROM EAST

1/8" = 1'-0" 0 1 5 10 15 20

SCALE

PRELIMINARY DRAFT- NOT FOR CONSTRUCTION

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NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION
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C	DMH2	MBI	XXX	3/16/22	ISSUE FOR CLIENT REVIEW
B	DMH2	MBI	XXX	2/18/22	ISSUE FOR CLIENT REVIEW
A	DMH2	MBI	XXX	1/21/22	ISSUE FOR CLIENT REVIEW

CLIENT	1/24/22	2/18/22	3/16/22	6/8/22			
RELEASED TO/FOR	A	B	C	D			
DATE RELEASED							

BARR

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www.barr.com

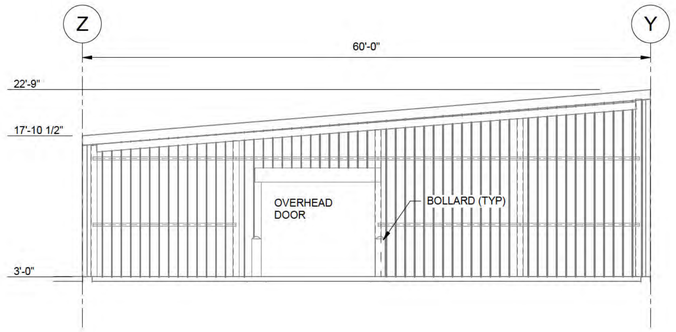
Scale	AS SHOWN
Date	1/12/2022
Drawn	DMH2
Checked	MBI
Designed	MBI/DMH2
Approved	MBI

CLEAN EARTH, LLC
DETROIT, MICHIGAN

CLEAN EARTH, LLC
DETRIOT, MICHIGAN

GENERAL ARRANGEMENT
QA/QC PEMB BUILDING ADDITION ELEVATIONS

BARR PROJECT NO.	
22821113.00	
CLIENT PROJECT NO.	
-	
DWG NO.	REV NO.
GA-03	D

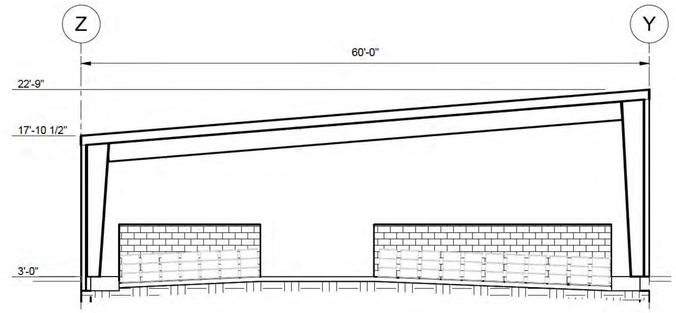


1 GA-02 SECTION: QA/QC PEMB BUILDING - EXIST

1/8" = 1'-0"

0 1 5 10 15 20

SCALE



2 GA-02 SECTION: QA/QC PEMB BUILDING - NEW

1/8" = 1'-0"

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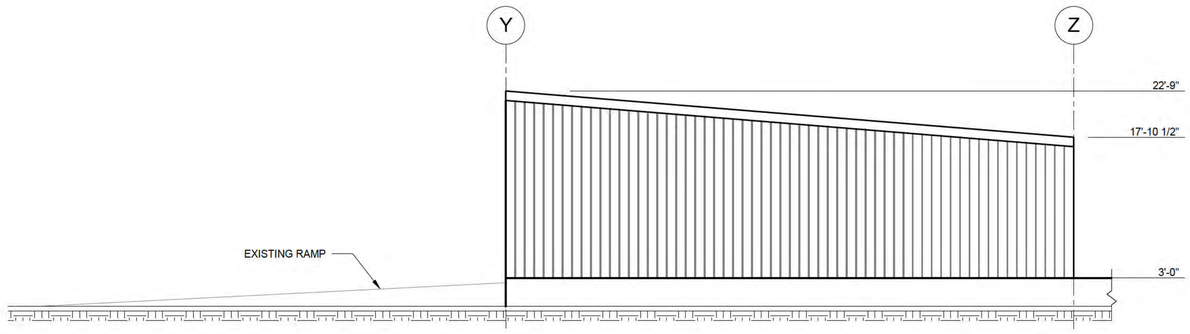

3 GA-02 ELEVATION: QA/QC PEMB BUILDING - FROM SOUTH

1/8" = 1'-0"

0 1 5 10 15 20

SCALE

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QA/QC PEMB BUILDING ADDITION ELEVATIONS

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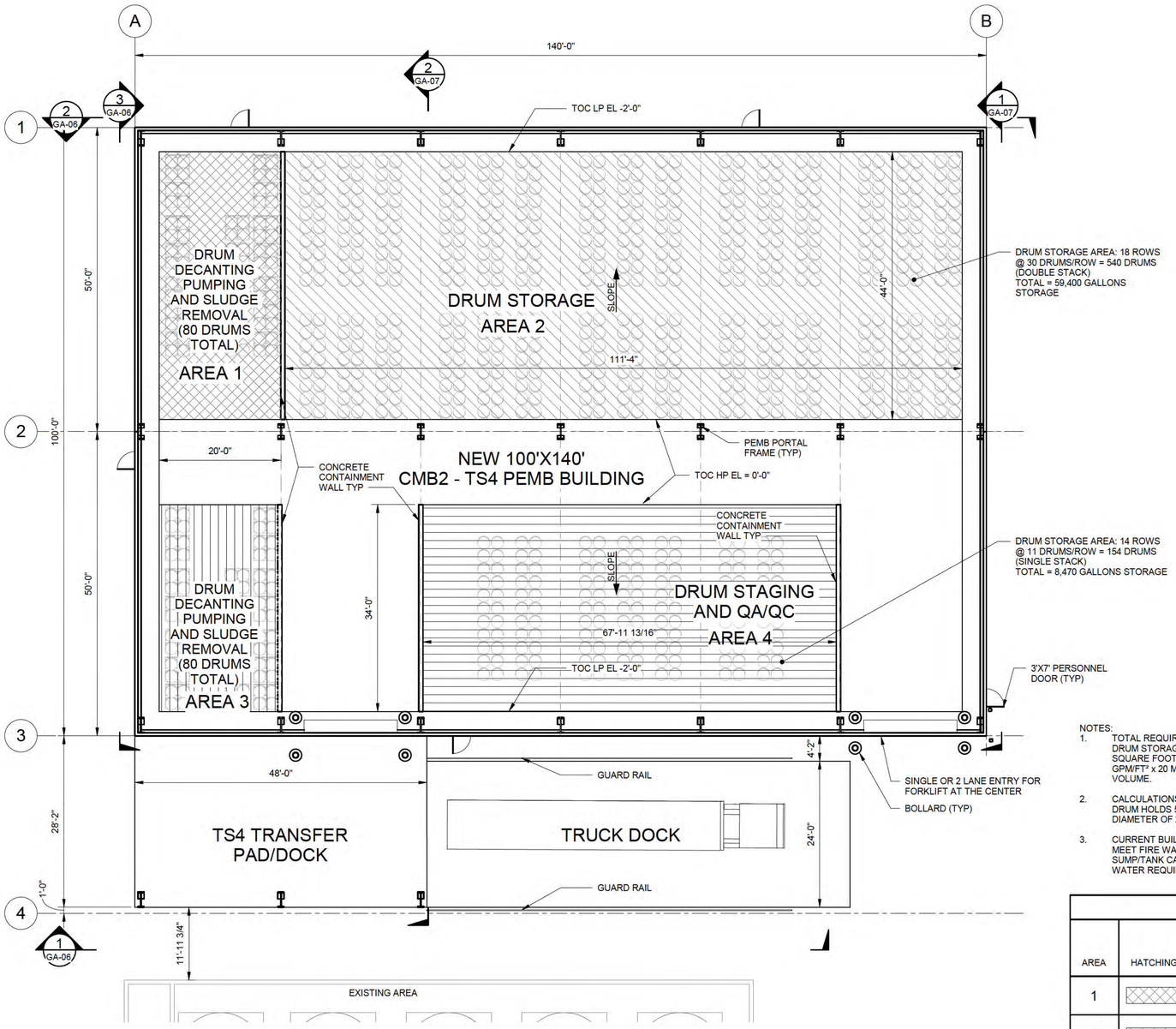
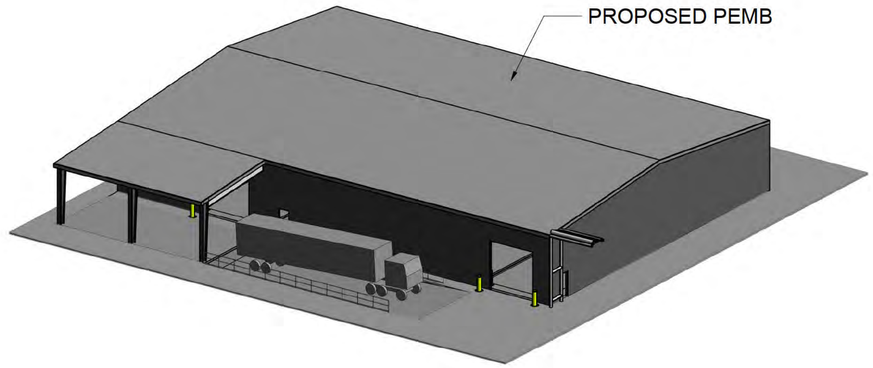
DWG NO.: GA-04

REV NO.: D



1 GA-01 PLAN: TS4/CMB2 PEMB BUILDING
3/32" = 1'-0"
0 2 10 20 30
SCALE

FLOOR CONSISTS OF CONCRETE, SLOPED TO SECONDARY CONTAINMENT TO DRAIN & REMOVE LIQUIDS RESULTING FROM LEAKS OR SPILLS. THE FLOOR WILL BE FREE OF CRACK, GAPS, AND SUFFICIENTLY SEALED/IMPERVIOUS TO CONTAIN LEAKS, SPILLS OR ACCUMULATED PRECIPITTION.



2 3D VIEW: TS4/CMB2 PEMB BUILDING

NOTE: 3D VIEW IS FOR CONCEPTUAL UNDERSTANDING ONLY. ALL ELEMENTS SHOWN IN ORTHOGRAPHIC VIEW ARE SUPERSEDED BY DESIGN INTENT SHOWN IN PLANS, SECTIONS AND DETAILS. 3D VIEW SHALL NOT BE SCALED.

NOTES:
1. TOTAL REQUIRED VOLUME = 10% VOLUME OF DRUM STORAGE + FIRE WATER VOLUME (BASED ON SQUARE FOOTAGE OF CONTAIMENT AREA TIMES 0.40 GPM/FT² x 20 MIN) + PALLETS/DRUMS DISPLACEMENT VOLUME.
2. CALCULATIONS BASED ON THE ASSUMTION THAT EA. DRUM HOLDS 55 GALLONS & HAS A STANDARD DIAMETER OF 20.5". DRUMS ARE DOUBLE STACKED.
3. CURRENT BUILDING LAYOUT AND DESIGN DOES NOT MEET FIRE WATER REQUIRMENT. ADDITIONAL SUMP/TANK CAN BE PLACED TO MEET THE FIRE WATER REQUIREMENT.

CONTAINMENT AREA LEGEND

AREA	HATCHING	TOTAL AVAILABLE CONTAINMENT VOLUME BY AREAS (GAL)	REQUIRED CONTAINMENT VOLUMES			TOTAL REQUIRED VOLUME (GAL) SEE NOTE 1	TOTAL REQUIRED VOLUME (GAL) W/O FIRE WATER	TOTAL NUMBER OF DRUMS
			10% STORAGE VOLUME (GAL)	FIRE WATER VOLUME (GAL)	PALLETS / DRUMS DISPLACEMENT VOLUME (GAL)			
1		5,760	440	7,040	1200	8,680	1,640	80
2		32,062	5940	39,189	8,101	53,230	14,041	1080
3		3,306	440	5,304	914	6,658	1,354	80
4		11,526	847	18,490	1,760	21,098	2,607	154
TOTAL		52,653	7,667	70,024	11,976	89,666	19,642	1,394

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A	DMH2	MBI	XXX	1/21/22	ISSUE FOR CLIENT REVIEW

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GENERAL ARRANGEMENT
PROPOSED TS4/CMB2 PEMB BUILDING

BARR PROJECT NO. 22821113.00
CLIENT PROJECT NO. -
DWG NO. GA-05
REV NO. D

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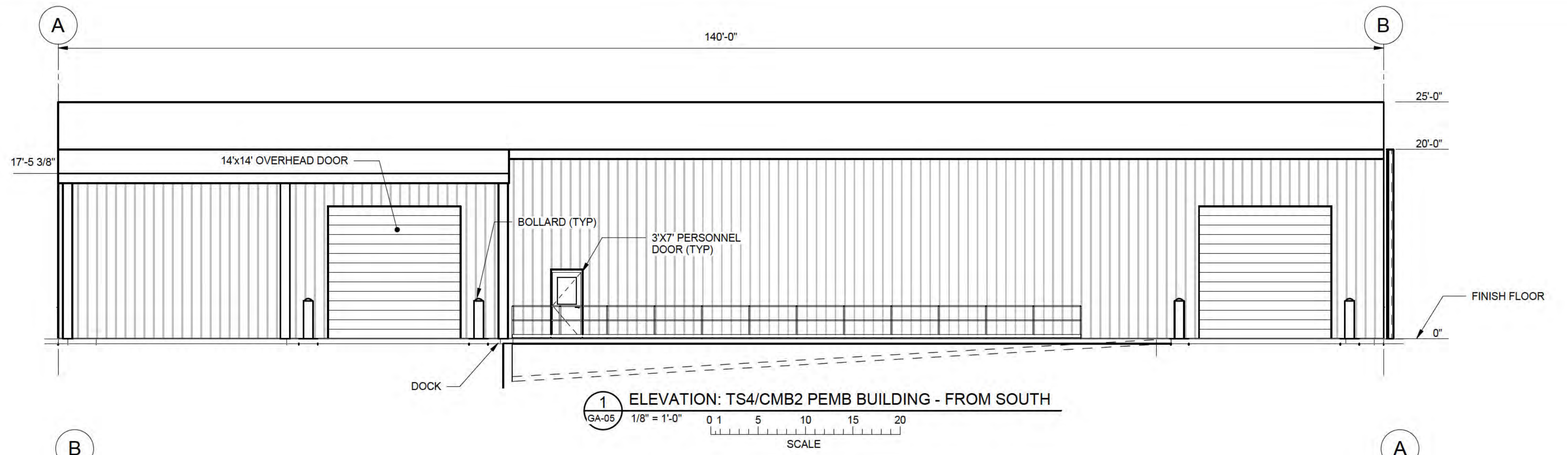
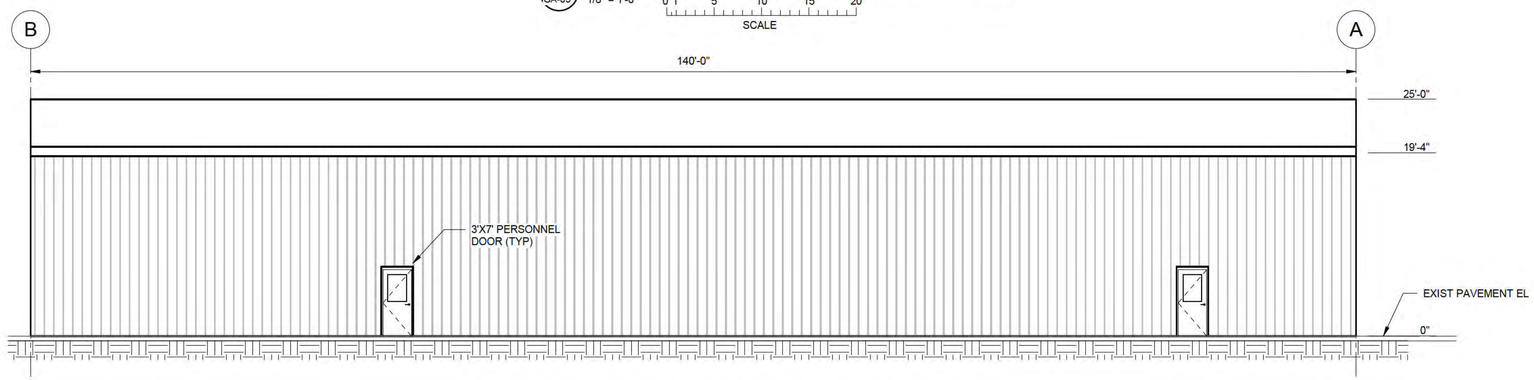


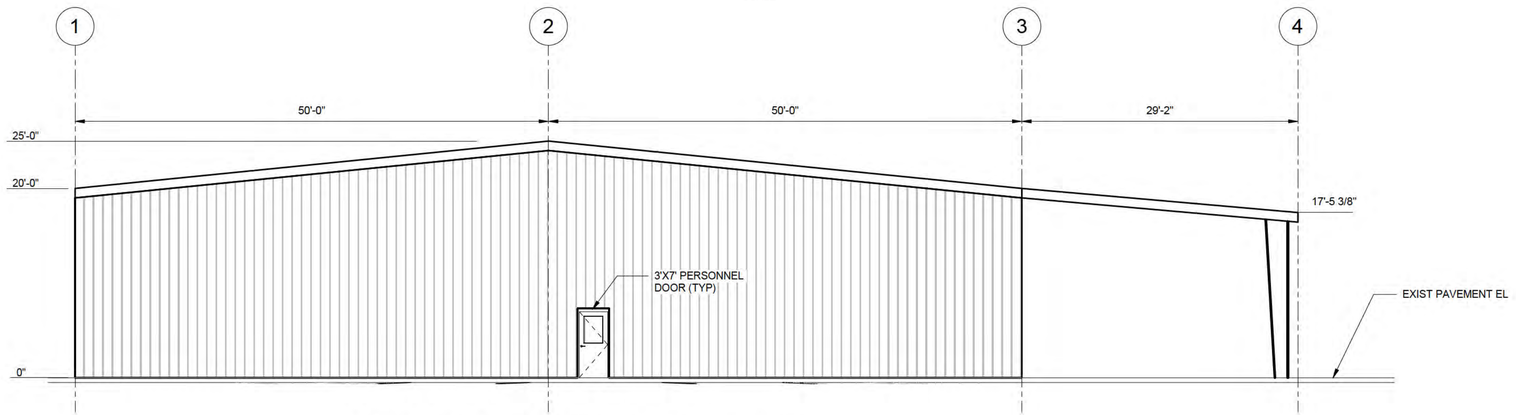
1 GA-05 ELEVATION: TS4/CMB2 PEMB BUILDING - FROM SOUTH

1/8" = 1'-0" 0 1 5 10 15 20 SCALE



2 GA-05 ELEVATION: TS4/CMB2 PEMB BUILDING - FROM NORTH

1/8" = 1'-0" 0 1 5 10 15 20 SCALE



3 GA-05 ELEVATION: TS4/CMB2 PEMB BUILDING - FROM WEST

1/8" = 1'-0" 0 1 5 10 15 20 SCALE

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GENERAL ARRANGEMENT
TS4/CMB2 PEMB BUILDING ELEVATIONS

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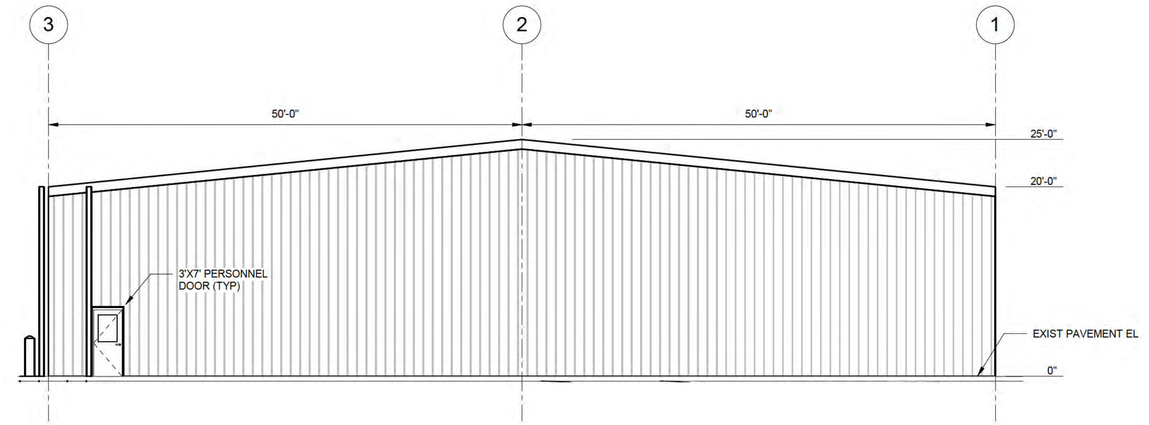
GA-06	D

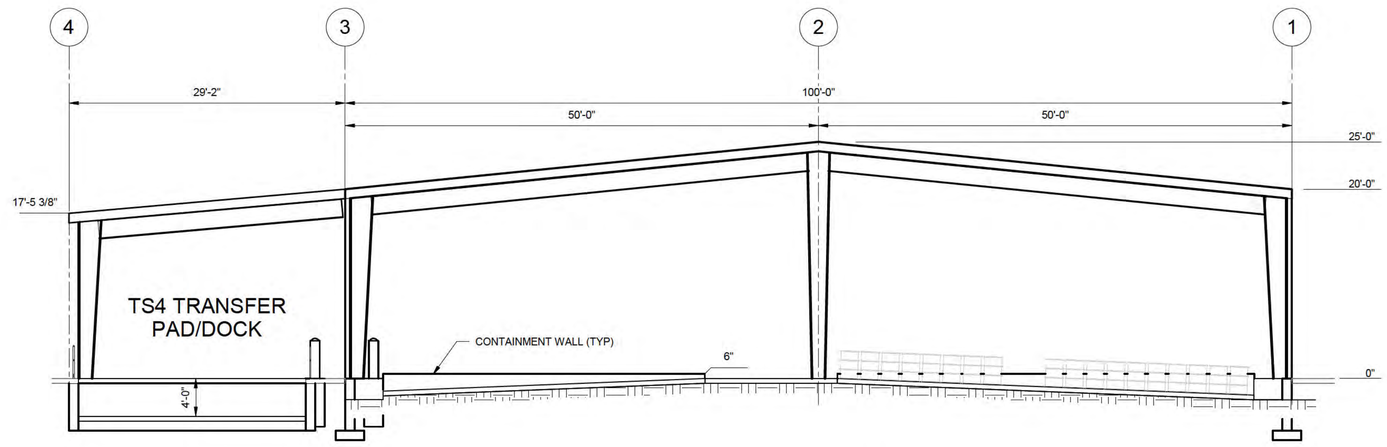


1 GA-05 ELEVATION: TS4/CMB2 PEMB BUILDING - FROM EAST

1/8" = 1'-0"

0 1 5 10 15 20

SCALE



2 GA-05 SECTION: TS4/CMB2 PEMB BUILDING

1/8" = 1'-0"

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SCALE

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TS4/CMB2 PEMB BUILDING ELEVATIONS

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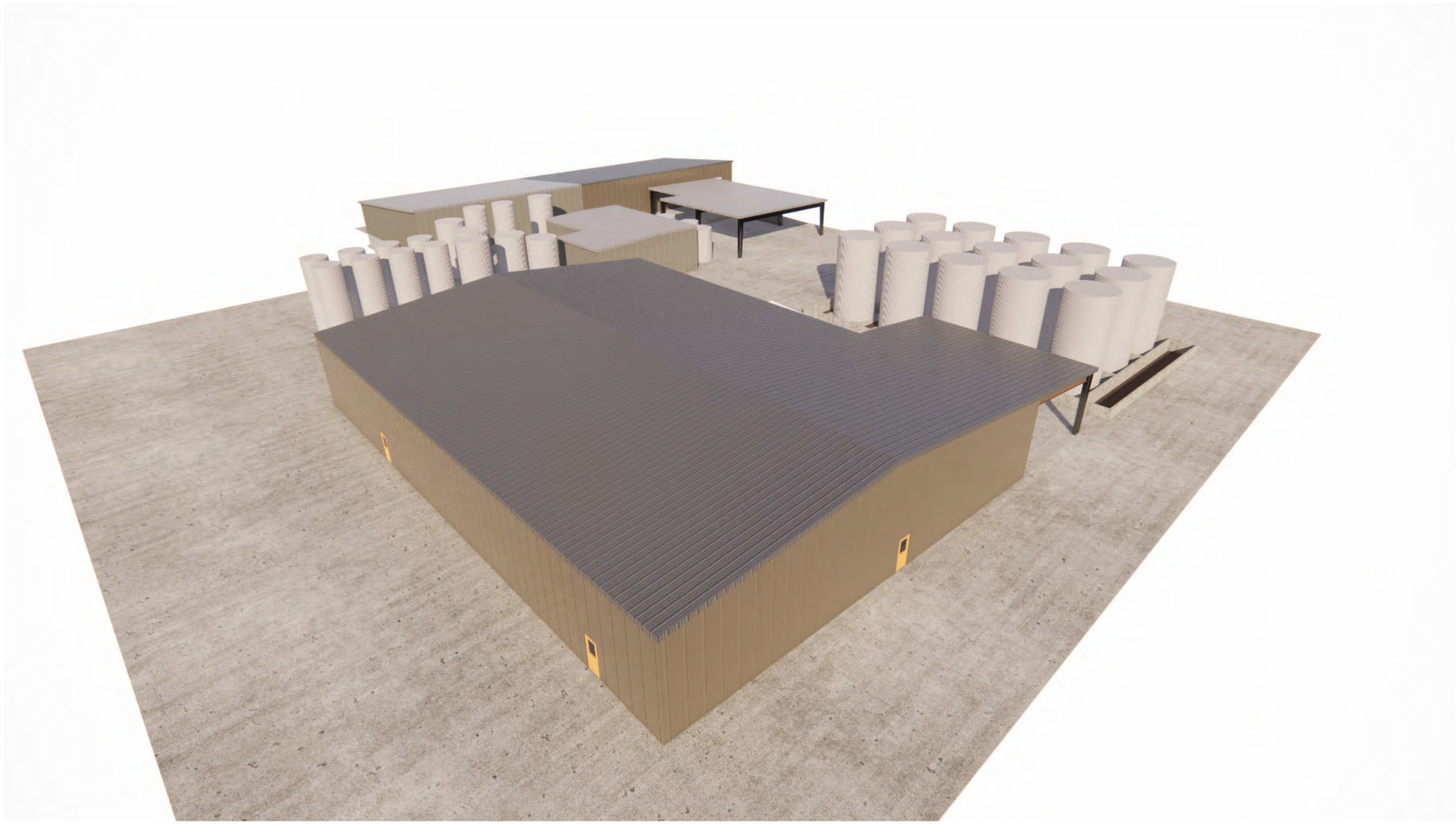

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A	DMH2	MBI	XXX	1/21/22	ISSUE FOR CLIENT REVIEW

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RENDERING - NORTH WEST

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CLIENT PROJECT NO.
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DWG NO.
GA-08
REV NO.
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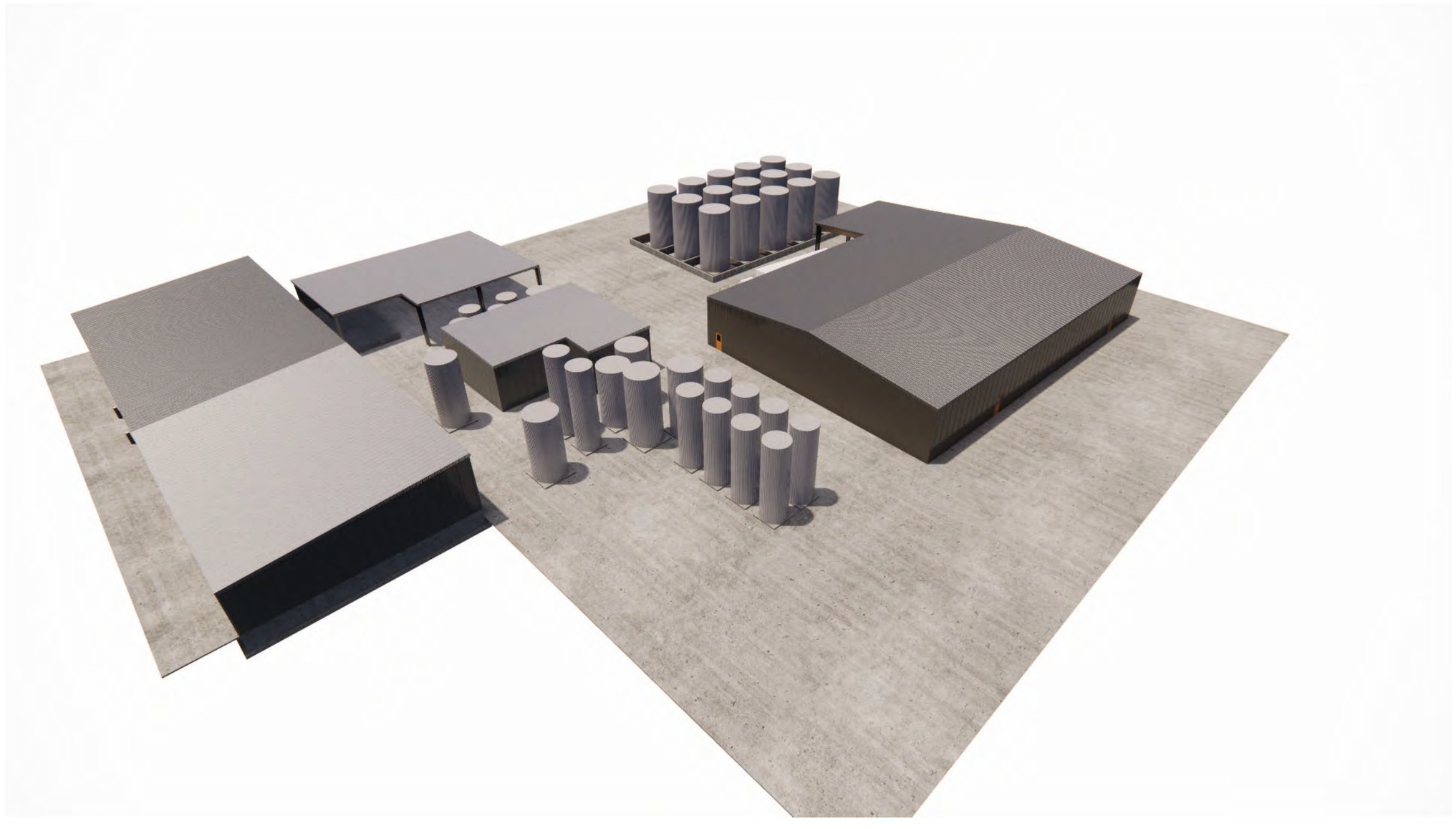

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RENDERING - NORTH

BARR PROJECT NO.: 22821113.00
CLIENT PROJECT NO.: -
DWG NO.: GA-09
REV NO.: D

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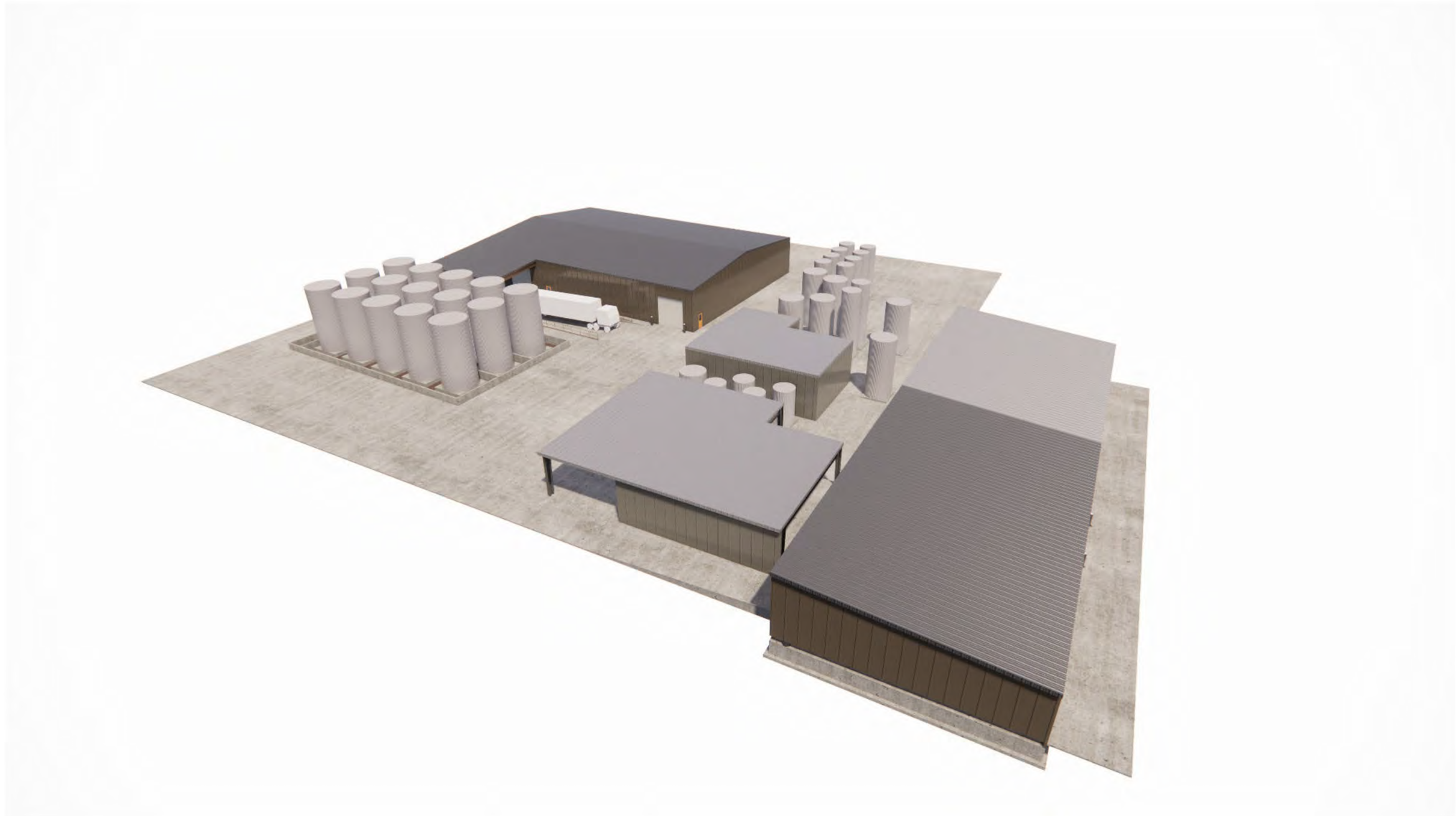

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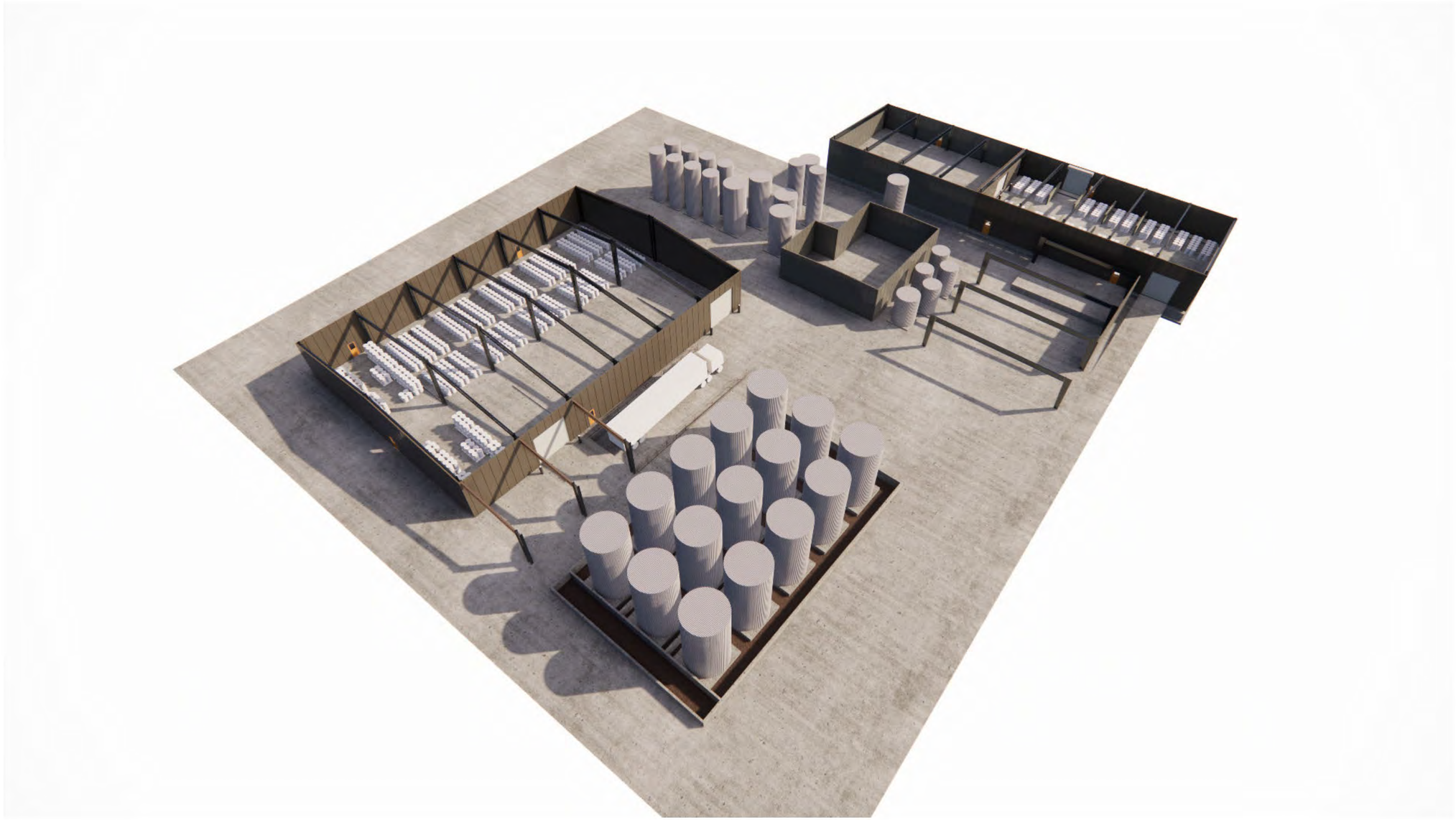
RENDERING - SOUTH EAST

BARR PROJECT NO.: 22821113.00
CLIENT PROJECT NO.: -
DWG NO.: GA-10
REV NO.: D



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Date	1/12/2022
Drawn	Author
Checked	Checker
Designed	Designer
Approved	Approver

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RENDERING - NORTH EAST

BARR PROJECT NO.: 22821113.00
CLIENT PROJECT NO.: -
DWG NO.: GA-11
REV NO.: D

Volume II - Photos & Drawings, Volume III - Hydrogeologic

Hazardous Waste Management Facility Operating License Renewal Application

Petro-Chem Processing Group of Nortru, LLC (Petro-Chem)
MID 980 615 298; Waste Data Systems Number 399102
421 Lycaste Street, Detroit, Michigan

Prepared for
Petro-Chem Processing Group of Nortru, LLC (Petro-Chem)

June 2022

Proj. no. 22821113.05

Section 1

Hydrogeological Report (B3)

FORM EQP 5111 ATTACHMENT TEMPLATE B3
HYDROGEOLOGIC REPORT

The administrative rules promulgated pursuant to Part 111, Hazardous Waste Management, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), R 299.9506, R 299.9508, and R 299.9612 and Title 40 of the Code of Federal Regulations (CFR) §§264.94, 264.95, 264.97, 264.98, 270.13(10)(l), and 270.14(b)(19) establish requirements for hydrogeologic reports for hazardous waste management facilities. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

This license application template addresses requirements for a hydrogeologic report for the hazardous waste management units and the hazardous waste management facility for the Petro-Chem facility in Detroit, Michigan. This template includes hydrogeologic report requirements, waiver demonstrations, and alternative information requests for operating license applications. This hydrogeologic report supplies information to support the groundwater monitoring program, or groundwater monitoring waiver request, proposed and included in Template B5, Environmental Monitoring Programs.

(Check as appropriate)

Applicant for Operating License for Existing Facility:

☒ R 299.9506 hydrogeologic report

☐ A waiver for the hydrogeologic report is requested for one or more units

☐ Alternative information is proposed for information required in the hydrogeologic report for one or more units

☐ A waiver is requested for groundwater monitoring requirements for one or more units, and is included in Template B5

☞ *More than one box may be checked, if waivers or alternative information apply to some of the units at the facility.*

Applicant for Operating License for New, Altered, Enlarged, or Expanded Facility:

☐ R 299.9506 hydrogeologic report

☐ A waiver is requested for groundwater monitoring requirements for one or more units, and is included in Template B5

☞ *Both boxes may be checked, if appropriate*

This template is organized as follows:

B3.A HYDROGEOLOGIC REPORT WAIVER REQUEST
B3.B SITE HYDROGEOLOGY
- B3.B.1 Summary of Existing Information
- B3.B.2 Identification of Aquifers and Their Uses
- B3.B.3 Topographic Map
  - B3.B.3(a) Waste Management Areas
  - B3.B.3(b) Property Boundaries
  - B3.B.3(c) Point of Compliance
  - B3.B.3(d) Groundwater Monitoring Wells
  - B3.B.3(e) Aquifer Information
  - B3.B.3(f) Extent of Contaminant Plume
- B3.B.4 Wells and Borings within One Mile
- B3.B.5 Contaminant Plume Description

B3.C ENGINEERING REPORT FOR PROPOSED GROUNDWATER MONITORING PROGRAM
- B3.C.1 Waiver or Alternate Information
- B3.C.2 Soil Borings, Sampling, and Testing
  - B3.C.2(a) Number and Location of Soil Borings
  - B3.C.2(b) Soil Sampling and Testing
  - B3.C.2(c) Soil Layer Evaluations
  - B3.C.2(d) Boring Log Information
  - B3.C.2(e) Borehole Completion
- B3.C.3 Observation Wells and Well Clusters
  - B3.C.3(a) Static Water Levels and Construction Details
  - B3.C.3(b) Groundwater Maps
  - B3.C.3(c) Justification for Observation Well Locations
  - B3.C.3(d) Logs for Borings Completed as Observation Wells

B3.D GROUNDWATER MONITORING PROGRAM
- Table B3.D.1 Unit-Specific Groundwater Monitoring Program

B3.E ADDITIONAL INFORMATION REQUIREMENTS
- B3.E.1 Additional Soil Boring Tests
- B3.E.2 Soil Borings to Define Bedrock
- B3.E.3 Additional Geotechnical Characteristics
- B3.E.4 Geologic Cross Sections
- B3.E.5 Water Budget Calculations

📖 EPA 1992. *RCRA Groundwater Monitoring Draft Technical Guidance Document.* Document Number 530-R-93-001. November.

The original Hydrogeological Report was submitted in support of Petro-Chem's original RCRA Part B Permit Application with MDEQ, dated September 24, 1996. Additional information is provided in the 2007 Part 201 exposure pathways determination related to the 2006 fire and the 2016 Corrective Measures Study, prepared by Bureau Veritas North America, Inc and submitted to EGEL. Petro-Chem continually monitors groundwater and the most recent 2021 Petro-Chem Processing Group of Nortru, LLC Annual Groundwater Report was submitted to EGLE on February 28, 2022. Petro-Chem will provide an electronic copy of the 463-page 2021 annual groundwater monitoring report, other historic groundwater monitoring reports, the 201exposure pathway evaluation or the 2019 upon request.

B3.A HYDROGEOLOGIC REPORT WAIVER REQUEST
[R 299.9508(2)]

Historically, transfer areas into the tank systems and some container management activities occur outside. Therefore, the facility is not requesting a waiver from the hydrogeologic reporting requirements.

With the new proposed container management building and enclosure of the QAQC area, the container storage areas will be located inside a building that provides protection from precipitation and run-on/runoff and is designed and operated in accordance with R 299.9604. Tanks used to store hazardous waste are located outside in secondary containment areas. These tanks are designed and operated in accordance with R 299.9604. Precipitation which falls on the tanks is collected in the secondary treatment system and inspected/tested before being discharged under the facilities indirect NPDES discharge permit. If the water is impacted, it is managed as a hazardous waste. The facility does not operate any landfills, surface impoundments, waste piles or land treatment units.

☒ The facility does not operate a landfill, surface impoundment, waste pile, or land treatment unit, all hazardous waste management activities take place inside or under a structure that provides protection from precipitation and run-on/run-off, and the unit is in compliance with the facility design and operating standards found in R 299.9604.

B3.B SITE HYDROGEOLOGY
[R 299.9506 (1)(a) through (g) and 40 CFR, Part 265, Subpart F, and §§270.13(l), 270.14(b)(19), and 264.97]

This section presents a summary of the Petro-Chem facility's unit-specific preapplication groundwater monitoring data, an identification of all aquifers, hydrogeologic information on topographic maps, and identification of any plumes of contamination.

B3.B.1 Summary of Existing Information
[R 299.9506(1)(a)]

The original Hydrogeological Report dated September 24, 1996 was submitted in support of Petro-Chem's original RCRA Part B Permit Application. The most recent 2021 Petro-Chem Processing Group of Nortru, LLC Annual Groundwater Report was submitted to EGLE on February 28, 2022 and is not included in this application. Petro-Chem will provide another copy of the 463-page 2021 annual groundwater monitoring report and other historic groundwater monitoring reports upon request. Additional information has been provided in the 2007 Part 201 exposure pathways determination related to the 2006 fire and the 2016 Corrective Measures Study, prepared by Bureau Veritas North America, Inc and submitted to EGEL November 17, 2016. Petro-Chem will provide electronic copies of these reports upon request.

B3.B.2 Identification of Aquifers and Their Uses
[R 299.9506(1)(b), (c), and (d)]

Section I. D thru K of the 1996 hydrogeologic report contain information on the aquifers and their uses. More current information is provided in the most recent 2021 Petro-Chem Processing Group of Nortru, LLC Annual Groundwater Report, which was submitted to EGLE on February 28, 2022.

Petro-Chem will provide another electronic copy of the 463-page 2021 annual groundwater monitoring report and other historic groundwater monitoring reports upon request.

B3.B.3 Topographic Map
[R 299.9506(1)(e)(i) through (v)]

Topographic maps, in accordance with 40 CFR §270.14(b)(19), are located in the Part A application in Volume I, Section 1. A topographic map is also included as a figure in Volume IV, Section 1 Figure B4.1 and Figure B4.2. This topographic map is at a scale of one inch equal to no more than 200 feet, showing a distance of 1000 feet around the facility perimeter. Additional topographical maps and maps with the information specified in B3.B.3 subsections are included in the groundwater monitoring reports. The most recent 2021 Petro-Chem Processing Group of Nortru, LLC Annual Groundwater Report was submitted to EGLE on February 28, 2022 and is not included in this application. Petro-Chem will provide another copy of the 463-page 2021 annual groundwater monitoring report and other historic groundwater monitoring reports upon request.

B3.B.3(a) Waste Management Area
[R 299.9506(1)(e)(i)]

A facility layout map, Figure 01, showing the locations of the waste management areas, property boundaries, points of compliance, and the location of groundwater monitoring wells has been included with the Part A application forms in Volume I, Section 1.

B3.B.3(b) Property Boundaries
[R 299.9506(1)(e)(ii)]

A facility layout map, Figure 01, showing the locations of the waste management areas, property boundaries, points of compliance, and the location of groundwater monitoring wells has been included with the Part A application forms in Volume I, Section 1.

B3.B.3(c) Point of Compliance
[R 299.9506(1)(e)(iii)]

A facility layout map, Figure 01, showing the locations of the waste management areas, property boundaries, points of compliance, and the location of groundwater monitoring wells has been included with the Part A application forms in Volume I, Section 1.

B3.B.3(d) Groundwater Monitoring Wells
[R 299.9506(1)(e)(iv)]

A facility layout map, Figure 01, showing the locations of the waste management areas, property boundaries, points of compliance, and the location of groundwater monitoring wells has been included with the Part A application forms in Volume I, Section 1.

B3.B.3(e) Aquifer Information
[R 299.9506(1)(e)(v)]

A topo map and maps with the information specified in B3.B.3(e) is included with the most recent 2021 Petro-Chem Processing Group of Nortru, LLC Annual Groundwater Report submitted to EGLE on February 28, 2022. Petro-Chem will provide a copy of the 463-page 2021 annual groundwater monitoring report and other historic groundwater monitoring reports upon request. A

monitoring well location and groundwater contour map has been provided in Volume IV, Section 2 Appendix B5.1 of this application. Additional information is located in the 1996 hydrogeologic report Sections I and II.

B3.B.3(f) Extent of Contaminant Plume
[R 299.9506(1)(g)(i)]

Information on the extent of contaminant plume is located in the 1996 hydrogeologic report Sections I. L. Information is provided in the most recent 2021 Petro-Chem Processing Group of Nortru, LLC Annual Groundwater Report was submitted to EGLE on February 28, 2022 application. Additional information has been provided in the 2007 Part 201 exposure pathways determination related to the 2006 fire and the 2016 Corrective Measures Study, prepared by Bureau Veritas North America, Inc and submitted to EGEL November 17, 2016. Petro-Chem will provide electronic copies of these reports upon request.

B3.B.4 Wells and Borings Within One Mile
[R 299.9506(1)(f)]

Data on wells located within a one-mile radius of the facility has been provided in Section I. B and C. in the 1996 hydrogeological report and as Figure I.1 in that report. Additional soil boring information is included in the most recent 2021 Petro-Chem Processing Group of Nortru, LLC Annual Groundwater Report submitted to EGLE on February 28, 2022. Petro-Chem will provide an electronic copy of the 463-page 2021 annual groundwater monitoring report and other historic groundwater monitoring reports upon request.

B3.B.5 Contaminant Plume Description
[R 299.9506(1)(g)]

Information on the extent of contaminant plume is located in the 1996 hydrogeologic report Sections I. L. The most recent 2021 Petro-Chem Processing Group of Nortru, LLC Annual Groundwater Report was submitted to EGLE on February 28, 2022. Additional information has been provided in the 2007 Part 201 exposure pathways determination related to the 2006 fire and the 2016 Corrective Measures Study, prepared by Bureau Veritas North America, Inc and submitted to EGEL November 17, 2016. Petro-Chem will provide electronic copies of these reports upon request.

B3.C ENGINEERING REPORT FOR PROPOSED GROUNDWATER MONITORING PROGRAM
[R 299.9506(2) and (7)]

The groundwater monitoring program engineering report is included in Section III of the 1996 hydrogeological report. Additional information has been provided Volume I, Section 8 Form B2 and Volume III, Section 2, Form B5 as well as in the 2007 Part 201 exposure pathways determination related to the 2006 fire and the 2016 Corrective Measures Study, prepared by Bureau Veritas North America, Inc and submitted to EGEL November 17, 2016. Petro-Chem will provide electronic copies of these reports upon request.

B3.C.1 Waiver or Alternate Information Request
[R 299.9506(7)]

The facility is not requesting a waiver for information required by R 299.9506(2) nor is the facility proposing to provide alternative information.

☐ Waiver is requested for R 299.9506(2)

☐ Alternate information is substituted for information requirements in R 299.9506(2)

B3.C.2 Soil Borings, Sampling, and Testing
[R 299.9506(2)(a)(i) through (vi)]

Soil boring, sampling, and testing information is discussed in Section II of the 1996 hydrogeological report. Boring, sampling and testing data and logs are located in the figures, tables and attachments to the 1996 report and are also provided in Volume IV, Section 1 Appendix B4.2 - 1.2 and 1.3.

The facility has also submitted the following reports to EGLE which contain information on soil borings, sampling and testing:

- RFI Report, Philip Environmental Services Division, Petro-Chem Processing Group Facility, 421 Lycaste Street, Detroit, Michigan, dated February 16, 2011
- Amended Corrective Action Investigation Report, Petro-Chem Processing Group of Nortru, LLC, 421 Lycaste Street, Detroit, Michigan, dated November 20, 2015
- Corrective Measures Study Investigation Report, Stericycle Environmental Solutions, Inc., Petro-Chem Processing Group Facility, 421 Lycaste Street, Detroit, Michigan, dated May 13, 2016
- Corrective Measures Study, Stericycle Environmental Solutions, Inc., Petro-Chem Processing Group Facility, 421 Lycaste Street, Detroit 48214, Michigan, dated November 17, 2016

Copies of these reports will be provided upon request.

B3.C.2(a) Number and Location of Soil Borings
[R 299.9506(2)(a)(i)]

Soil boring, sampling, and testing information is discussed in Section II of the 1996 hydrogeological report. Boring, sampling and testing data and logs are located in the figures, tables and attachments to the 1996 report and are also provided in Volume IV, Section 1 Appendix B4.2, Appendix 1.2 and 1.3. See section B3.C2 above for a list of additional reports with information on soil borings.

B3.C.2(b) Soil Sampling and Testing
[R 299.9506(2)(a)(ii) and R 299.9506(6)(a)}

Soil boring, sampling, and testing information is discussed in Section II of the 1996 hydrogeological report. Boring, sampling and testing data and logs are located in the figures, tables and attachments to the 1996 report and are also provided in Volume IV, Section 1 Appendix

B4.2, Appendix 1.2 and 1.3. See section B3.C2 above for a list of additional reports with information on soil borings.

☒ The facility does not operate a landfill, surface impoundment, waste pile, or land treatment area. Soil sampling and testing information to meet requirements of R 299.9506(2)(a)(ii) is included in this section.

B3.C.2(c) Soil Layer Evaluations
[R 299.9506(2)(a)(iii) and R 299.9506(6)(b)]

Soil boring, sampling, and testing information is discussed in Section II of the 1996 hydrogeological report and report attachments. Additional reports are provided in Volume IV, Section 1 Appendix B4.2, Appendix 1.2 and 1.3. Section B3.C2 above lists additional more recent reports with information on soil borings.

☒ The facility does not operate a landfill, surface impoundment, waste pile, or land treatment area. Soil layer evaluations are included to meet the requirements of R 299.9506(2)(a)(iii).

☐ The facility operates a unit that is a landfill, surface impoundment, waste pile, or land treatment area. Soil layer evaluations have been included to meet the requirements of R 299.9506(2)(a)(iii) and R 299.9506(6)(b).
(The facility is not required to conduct soil evaluates at the minimum 10-foot intervals.)

B3.C.2(d) Boring Log Information
[R 299.9506(2)(a)(iv) and (vi)]

Soil boring, sampling, and testing information is discussed in Section II of the 1996 hydrogeological report and report attachments. Additional reports are provided in Volume IV, Section 1 Appendix B4.2, Appendix 1.2 and 1.3. Section B3.C2 above lists additional more recent reports with information on soil borings.

B3.C.2(e) Borehole Completion
[R 299.9506(a)(2)(v)]

Soil boring, sampling, and testing information is discussed in Section II of the 1996 hydrogeological report and report attachments. Additional reports are provided in Volume IV, Section 1 Appendix B4.2, Appendix 1.2 and 1.3. Section B3.C2 above lists additional more recent reports with information on soil borings.

B3.C.3 Observation Wells, and Well Clusters
[R 299.9506(2)(b) through (f)]

Observation wells and well cluster information is discussed in Section II of the 1996 hydrogeological report.

The facility has also submitted the following reports to EGLE which contain information on observation wells:

- RFI Report, Philip Environmental Services Division, Petro-Chem Processing Group Facility, 421 Lycaste Street, Detroit, Michigan, dated February 16, 2011

- Amended Corrective Action Investigation Report, Petro-Chem Processing Group of Nortru, LLC, 421 Lycaste Street, Detroit, Michigan, dated November 20, 2015
- Corrective Measures Study Investigation Report, Stericycle Environmental Solutions, Inc., Petro-Chem Processing Group Facility, 421 Lycaste Street, Detroit, Michigan, dated May 13, 2016
- Corrective Measures Study, Stericycle Environmental Solutions, Inc., Petro-Chem Processing Group Facility, 421 Lycaste Street, Detroit 48214, Michigan, dated November 17, 2016

B3.C.3(a) Static Water Levels, and Construction Details
[R 299.9506(2)(b)]

Soil boring, sampling, and testing information is discussed in Section II of the 1996 hydrogeological report and report attachments. Additional reports are provided in Volume IV, Section 1 Appendix B4.2, Appendix 1.2 and 1.3. Section B3.C2 above lists additional more recent reports with information on soil borings.

B3.C.3(b) Groundwater Maps
[R 299.9506(2)(c) and (d)]

Soil boring, sampling, and testing information is discussed in Section II of the 1996 hydrogeological report. Ground water data is provided in the figures, tables and attachments to the 1996 report and the annual monitoring reports. The most recent 2021 Petro-Chem Processing Group of Nortru, LLC Annual Groundwater Report was submitted to EGLE on February 28, 2022. Petro-Chem will provide a copy of the 2021 annual groundwater monitoring report and other historic groundwater monitoring reports upon request. A groundwater contour map has been provided in Volume IV, Section 2, Appendix B5.1. See Section B3.C3 above for a list of additional reports with well information.

B3.C.3(c) Justification for Observation Well Locations
[R 299.9506(2)(e)]

Observation wells, sampling, and testing information is discussed in Section II of the 1996 hydrogeological report. Ground water data is provided in the figures, tables and attachments to the 1996 report and the annual monitoring reports. The most recent 2021 Petro-Chem Processing Group of Nortru, LLC Annual Groundwater Report was submitted to EGLE on February 28, 2022. Petro-Chem will provide a copy of the 2021 annual groundwater monitoring report and other historic groundwater monitoring reports upon request. A ground water contour map has been provided in Volume IV, Section 2, Appendix B5.1 and a monitoring well location map has been provided in Volume IV, Section 1, Appendix B4.2, Figure B4.2. See section B3.C3 above for a list of additional reports with well information.

B3.C.3(d) Logs for Borings Completed as Observation Wells
[R 299.9506(2)(f)]

Boring logs, sampling, and testing information for the observation wells is discussed in Section II of the 1996 hydrogeological report. Ground water data is provided in the figures, tables and attachments to the 1996 report and the annual monitoring reports. The most recent 2021 Petro-Chem Processing Group of Nortru, LLC Annual Groundwater Report was submitted to EGLE on February 28, 2022. Petro-Chem will provide a copy of the 2021 annual groundwater monitoring report and other historic groundwater monitoring reports upon request. A ground water contour

map has been provided in Volume IV, Section 2, Appendix B5.1 and a monitoring well location map has been provided in Volume IV, Section 1, Figure B4.2. See section B3.C3 above for a list of additional reports with well information.

B3.D GROUNDWATER MONITORING PROGRAM

[R 299.9506(3) through (5), R 299.9611(2)(b) and (3), R 299.9612, R 299.9629, and 40 CFR, Part 264, Subpart F, except 40 CFR §§264.94(a)(2) and (3), 264.94(b) and (c), 264.100, and 264.101]

The groundwater monitoring program is described in Section III of the 1996 hydrogeological report. Information on the current groundwater monitoring program has been provided in EGLE form B5 located Volume IV, Section 2 of this permit application. The most recent 2021 Petro-Chem Processing Group of Nortru, LLC Annual Groundwater Report was submitted to EGLE on February 28, 2022. Petro-Chem will provide a copy of the 2021 annual groundwater monitoring report and other historic groundwater monitoring reports upon request.

B3.E ADDITIONAL INFORMATION REQUIREMENTS

[R 299.9506(6)]

☒ The facility units will not include a landfill, surface impoundment, waste pile, or land treatment unit. The requirements of R 299.9506(6) do not apply.

☐ The *[Hazardous Waste Unit]* unit is a landfill, surface impoundment, waste pile, or land treatment unit. Additional information has been included to address requirements necessary to determine site suitability and facility design.

B3.E.1 Additional Soil Boring Tests

[R 299.9506(6)(a) and (b)]

The facility units will not include a landfill, surface impoundment, waste pile, or land treatment units. The requirements of R 299.9506(6) do not apply.

B3.E.2 Soil Borings to Define Bedrock

[R 299.9506(6)(c)]

The facility units will not include a landfill, surface impoundment, waste pile, or land treatment units. The requirements of R 299.9506(6) do not apply.

B3.E.3 Additional Geotechnical Characteristics

[R 299.9506(6)(d)]

The facility units will not include a landfill, surface impoundment, waste pile, or land treatment units. The requirements of R 299.9506(6) do not apply.

B3.E.4 Geologic Cross Sections

[R 299.9506(6)(e)]

The facility units will not include a landfill, surface impoundment, waste pile, or land treatment units. The requirements of R 299.9506(6) do not apply.

B3.E.5 Water Budget Calculations

[R 299.9506(6)(f)]

The facility units will not include a landfill, surface impoundment, waste pile, or land treatment units. The requirements of R 299.9506(6) do not apply.