

FINAL REPORT



SAN ANTONIO WATER SYSTEM DOS RIOS WATER RECYCLING CENTER ELECTRICAL SYSTEM ASSESSMENT PROJECT SAWS JOB NO. 11-6501

APRIL, 2012



Final Submittal

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Date: April, 2012

Firm Registration No. F-2593

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Gupta & Associates, Inc.
consulting engineering

Volume V of V PLANT ONE-LINE DIAGRAMS

GAI

in association with

**CDM
Smith**

**San Antonio Water System
Dos Rios Water Recycling Center
Electrical System Assessment Project
SAWS JOB NO. 11-6501**

Prepared for

San Antonio Water System

Prepared by

GAI | Gupta & Associates, Inc.
consulting engineering

TBPE Reg. No. F-2593

In conjunction with

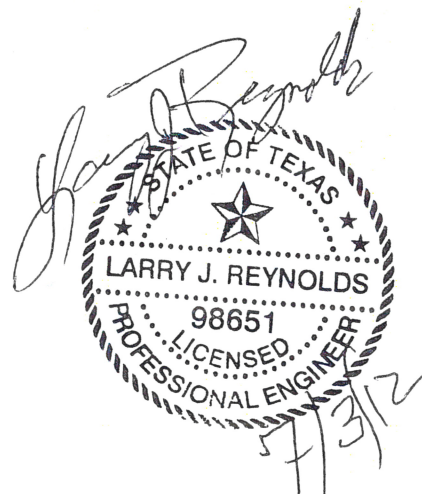
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July, 2012

**Electrical Distribution
& Controls**

Instrumentation & Controls



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DOS RIOS WATER RECYCLING CENTER
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Plant One-Line Diagrams

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MCC-AT-1	ELEVATION	FIG- 2. 6- 4
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MCC-FT-1	ELEVATION	FIG- 2. 8- 4
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MCC-PD-1	ELEVATION	FIG- 2. 8- 6
MCC-PD-1	ONE-LINE DIAGRAM	FIG- 2. 8- 7
MCC-PD-3	ELEVATION	FIG- 2. 8- 8
MCC-PD-3	ONE-LINE DIAGRAM	FIG- 2. 8- 9

SUBSTATION NO.6

MCC-PD-2	ELEVATION
MCC-PD-2	ONE-LINE DIAGRAM
MCC-FT-2	ELEVATION
MCC-FT-2	ONE-LINE DIAGRAM
MCC-OC-2	ELEVATION
MCC-OC-2	ONE-LINE DIAGRAM
MCC-PD-4	ELEVATION
MCC-PD-4	ONE-LINE DIAGRAM
MCC-STP	ELEVATION AND ONE-LINE DIAGRAM
MCC-BT-1	ELEVATION
MCC-BT-1	ONE-LINE DIAGRAM

SUBSTATION NO.7

MCC-DB-1	ELEVATION
MCC-DB-1	ONE-LINE DIAGRAM
MCC-EF-1	ELEVATION
MCC-EF-1	ONE-LINE DIAGRAM

SUBSTATION NO.8

MCC-DB-2	ELEVATION
MCC-DB-2	ONE-LINE DIAGRAM
MCC-EF-2	ELEVATION
MCC-EF-2	ONE-LINE DIAGRAM

SUBSTATION NO.9, 10, 13, 14, AND 15

MCC-CB-1	ELEVATION AND ONE-LINE DIAGRAM
MCC-CB-2	ELEVATION AND ONE-LINE DIAGRAM
MCC-CB-6	ELEVATION AND ONE-LINE DIAGRAM

SUBSTATION NO.11**SUBSTATION NO.12**

MCC-CAB-2	ELEVATION AND ONE-LINE DIAGRAM
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SUBSTATION NO.16

MCC-BFP-1	ELEVATION
MCC-BFP-1	ONE-LINE DIAGRAM
MCC-BFP-1	ONE-LINE DIAGRAM

SUBSTATION NO.17

MCC-BFP-2	ELEVATION
MCC-BFP-2	ONE-LINE DIAGRAM
MCC-BFP-2	ONE-LINE DIAGRAM

SUBSTATION NO.19

BLDG 19 MCC	ELEVATION AND ONE-LINE DIAGRAM
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FEB-SUB-01

MCC-A, MDP-A1, & MCC-E	ELEVATIONS
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SO. W. SIDE OF DIGESTERS NEAR SUP 5	FIG- 2. 9- 1
MCC-PD-2 BLDG BETWEEN DIGESTERS 2 & 4	FIG- 2. 9- 2
MCC-PD-2 BLDG BETWEEN DIGESTERS 2 & 4	FIG- 2. 9- 3
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POLYMER BUILDING ELECTRICAL BUILDING	FIG- 2. 9- 5
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ELECTRICAL BLDG N.W. SIDE DIGESTER NO. 8	FIG- 2. 9- 9
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EAST SIDE OF DIGESTER 2	FIG- 2. 9- 11
EAST SIDE OF DIGESTER 2	FIG- 2. 9- 12

DISINFECTION BUILDING	FIG- 2. 10 1
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DISINFECTION BUILDING ELECTRICAL ROOM	FIG- 2. 10 2
DISINFECTION BUILDING ELECTRICAL ROOM	FIG- 2. 10 3
WASTE BACKWASH RETURN PS ELECTRICAL ROOM	FIG- 2. 10 4
WASTE BACKWASH RETURN PS ELECTRICAL ROOM	FIG- 2. 10 5

DISINFECTION BUILDING	FIG- 2. 11 1
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DISINFECTION BUILDING ELECTRICAL ROOM	FIG- 2. 11 2
DISINFECTION BUILDING ELECTRICAL ROOM	FIG- 2. 11 3
WASTE BACKWASH RETURN PS ELECTRICAL ROOM	FIG- 2. 11 4
WASTE BACKWASH RETURN PS ELECTRICAL ROOM	FIG- 2. 11 5

N. SIDE OF COMPRESSOR BLDG	FIG- 2. 12 1
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COMPRESSOR BUILDING	FIG- 2. 12 2
COMPRESSOR BUILDING	FIG- 2. 12 3
COMPRESSOR BUILDING	FIG- 2. 12 4

WEST OF PRIMARY SETTLING TANKS 1 & 2	FIG- 2. 13 1
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(MV) PRE-AERATION AND CHANNEL AER BLOWERS	FIG- 2. 13 2
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WEST OF PRIMARY SETTLING TANKS 1 & 2	FIG- 2. 13 3
(MV) PRE-AERATION AND CHANNEL AER BLOWERS	FIG- 2. 13 3
CHANNEL AERATION BLOWERS	FIG- 2. 13 3

EAST OF BELT FILTER PRESS BLDG.	FIG- 2. 14 1
---------------------------------	--------------

BELT FILTER PRESS BUILDING	FIG- 2. 14 2
BELT FILTER PRESS BUILDING	FIG- 2. 14 3
BELT FILTER PRESS BUILDING	FIG- 2. 14 4

EAST OF BELT FILTER PRESS BLDG.	FIG- 2. 15 1
---------------------------------	--------------

BELT FILTER PRESS BUILDING	FIG- 2. 15 2
BELT FILTER PRESS BUILDING	FIG- 2. 15 3
BELT FILTER PRESS BUILDING	FIG- 2. 15 4

SO W. PLANT AREA DISINFECTION AREA	FIG- 2. 16 1
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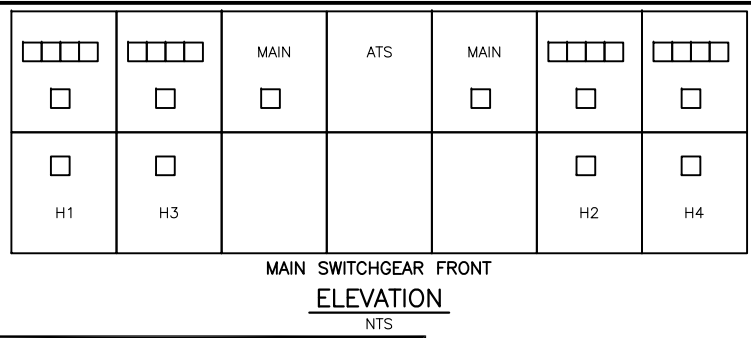
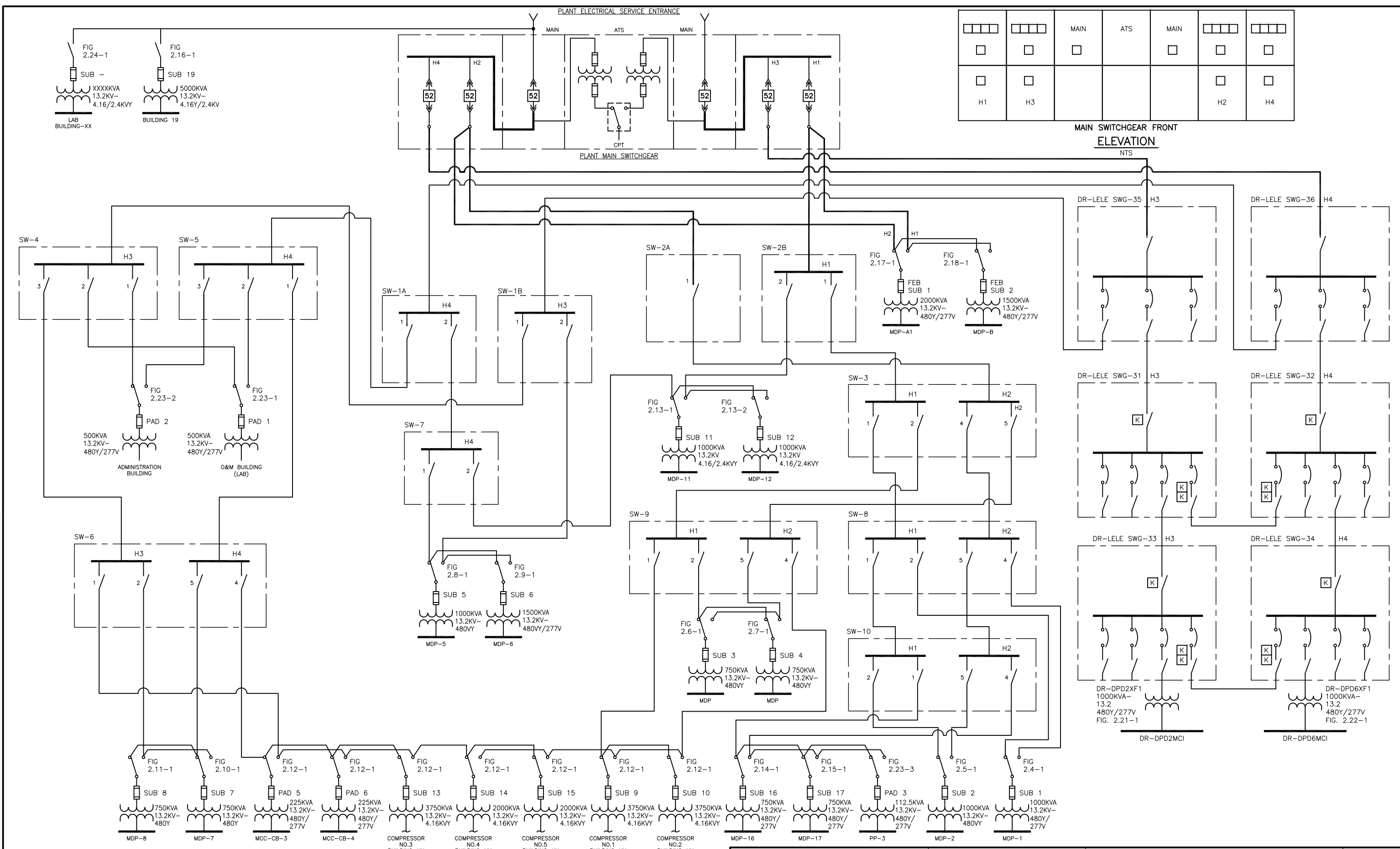
BUILDING 19	FIG- 2. 16 2
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N.W CORNER OF PLANT NEAR SLUDGE HAUL ROAD	FIG- 2. 17 1
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PRE-AERATION	FIG- 2. 17 2
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MCC-A, MDP-A1, & MCC-E	ONE-LINE DIAGRAM	PRE-AERATION	FIG- 2. 173
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<u>SWITCHGEAR DR-LELE SWG-33</u>		N.W. OF DIGESTER 10	FIG- 2. 211
MCC-DR-DPD2MCI	ELEVATION AND ONE-LINE DIAGRAM	DIGESTER 2 NEW ELECTRICAL BLDG.	FIG- 2. 212
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MCC-CB-4	ONE-LINE DIAGRAM	COMPRESSOR BUILDING	FIG- 2. 236
MCC-CB-5	ONE-LINE DIAGRAM	COMPRESSOR BUILDING	FIG- 2. 237

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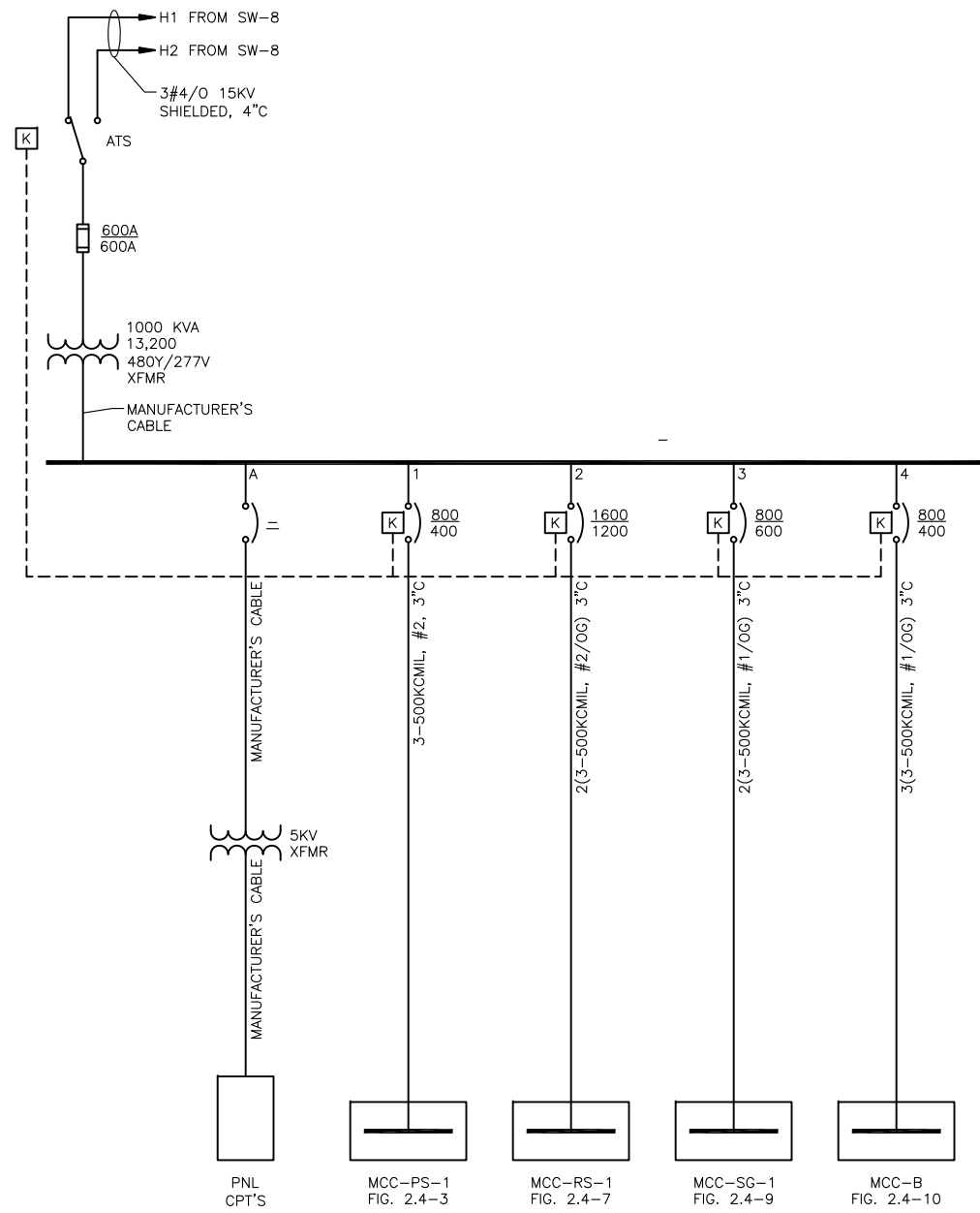


PLANT ELECTRICAL POWER DISTRIBUTION ONE-LINE DIAGRAM

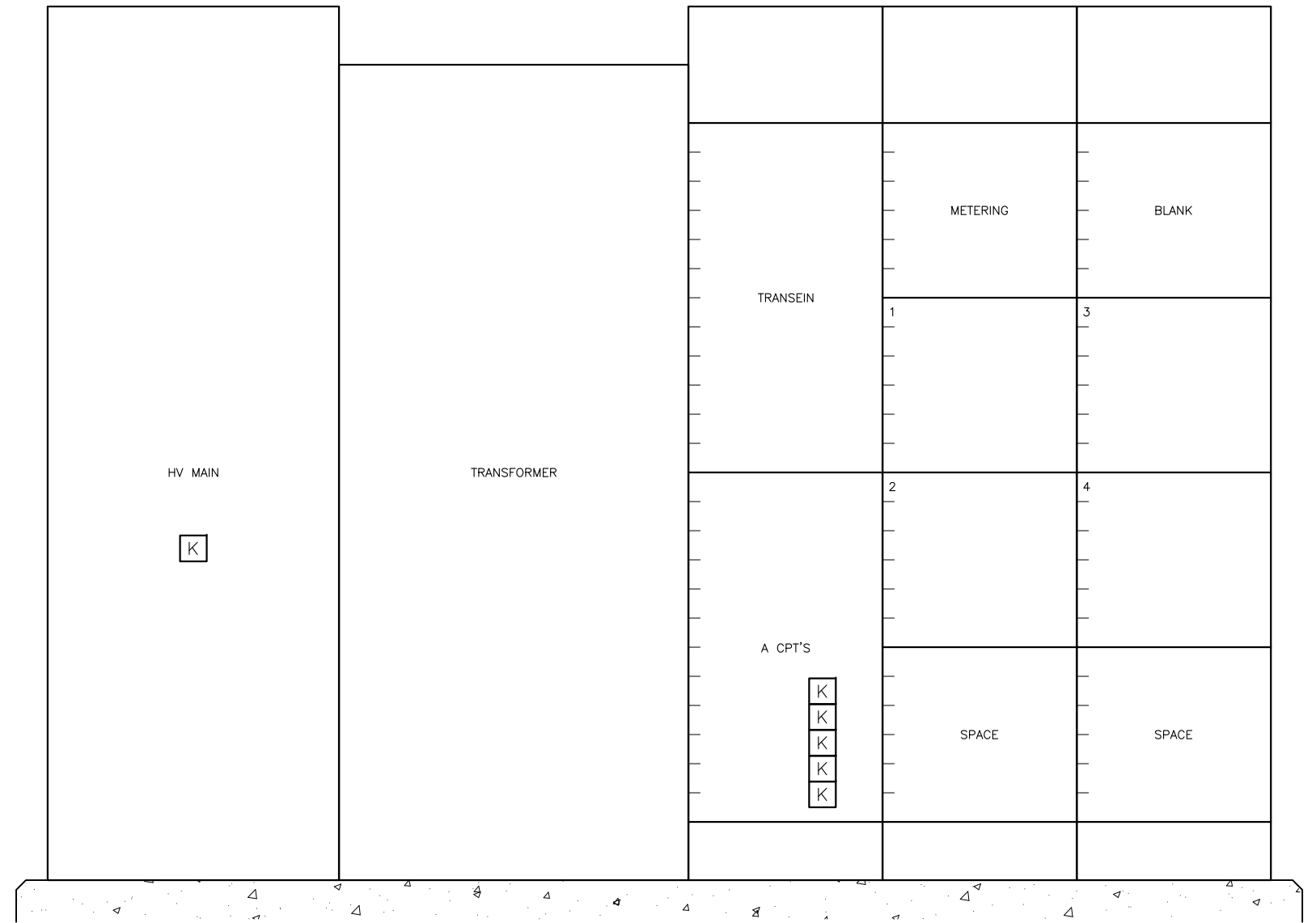
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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT
PLANT ELECTRICAL POWER DISTRIBUTION ONE-LINE DIAGRAM

DATE
01-XX-12
FIG-2.1-1



MDP-1
ONE-LINE
DIAGRAM



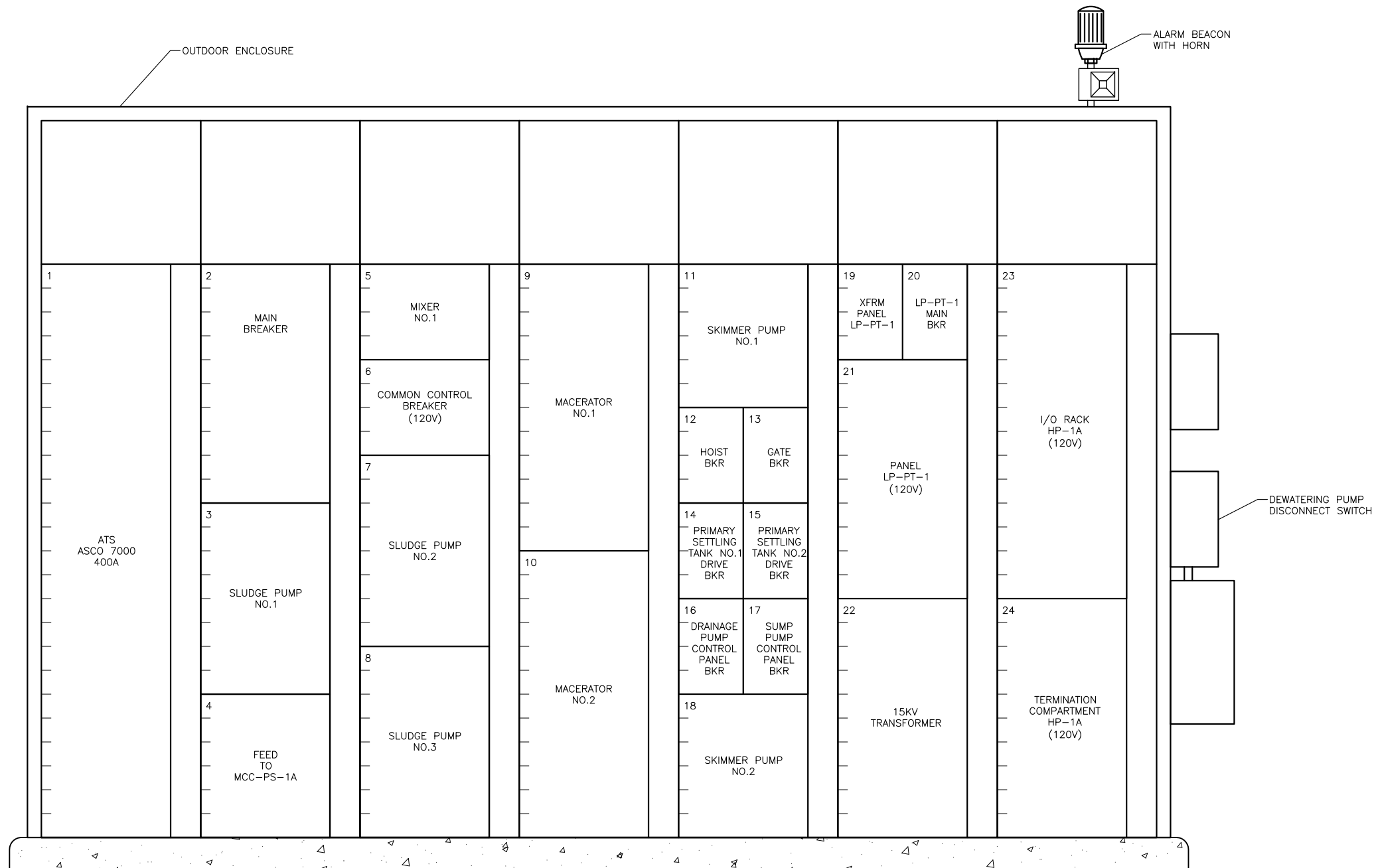
MDP-1
ELEVATION
SCALE: NTS

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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT
SUBSTATION NO.1
ONE-LINE DIAGRAM
& ELEVATION

DATE
01-XX-12
FIG-2.4-1



MCC-PS-1
ELEVATION
 SCALE: NTS

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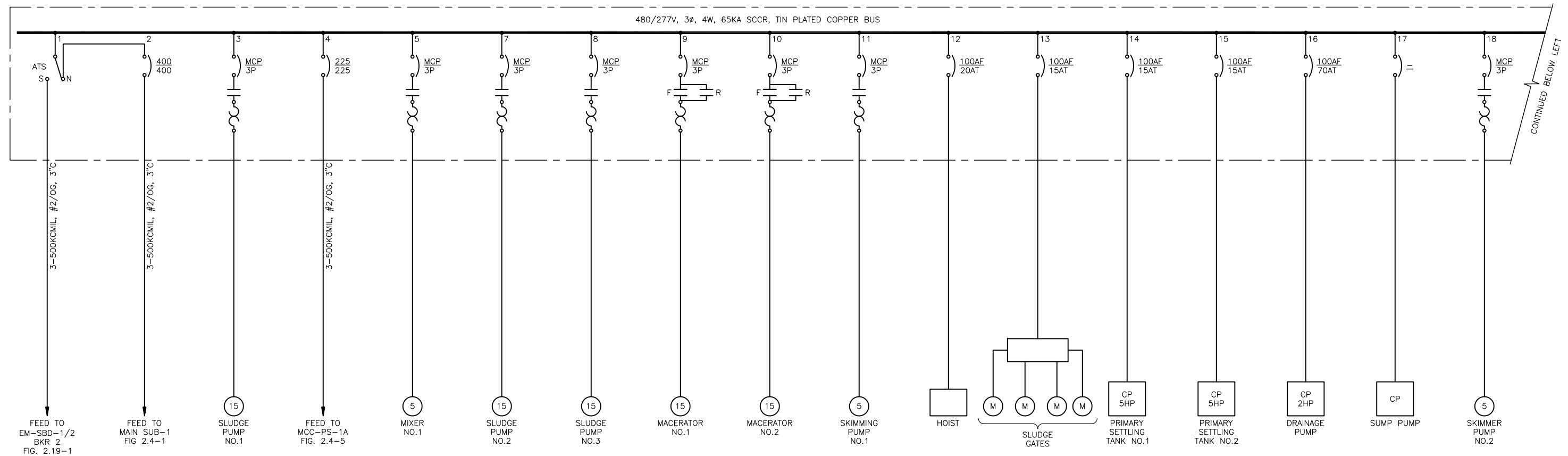
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SAN ANTONIO WATER SYSTEM
 CITY OF SAN ANTONIO, TEXAS
 DOS RIOS ELECTRICAL ASSESSMENT

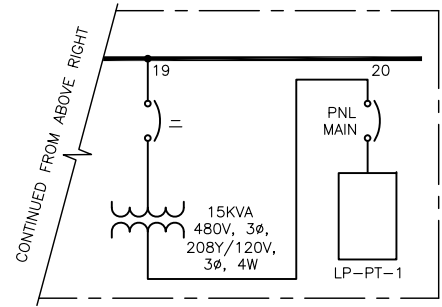
MCC-PS-1
 ELEVATION

DATE
 01-XX-12

FIG-2.4-2



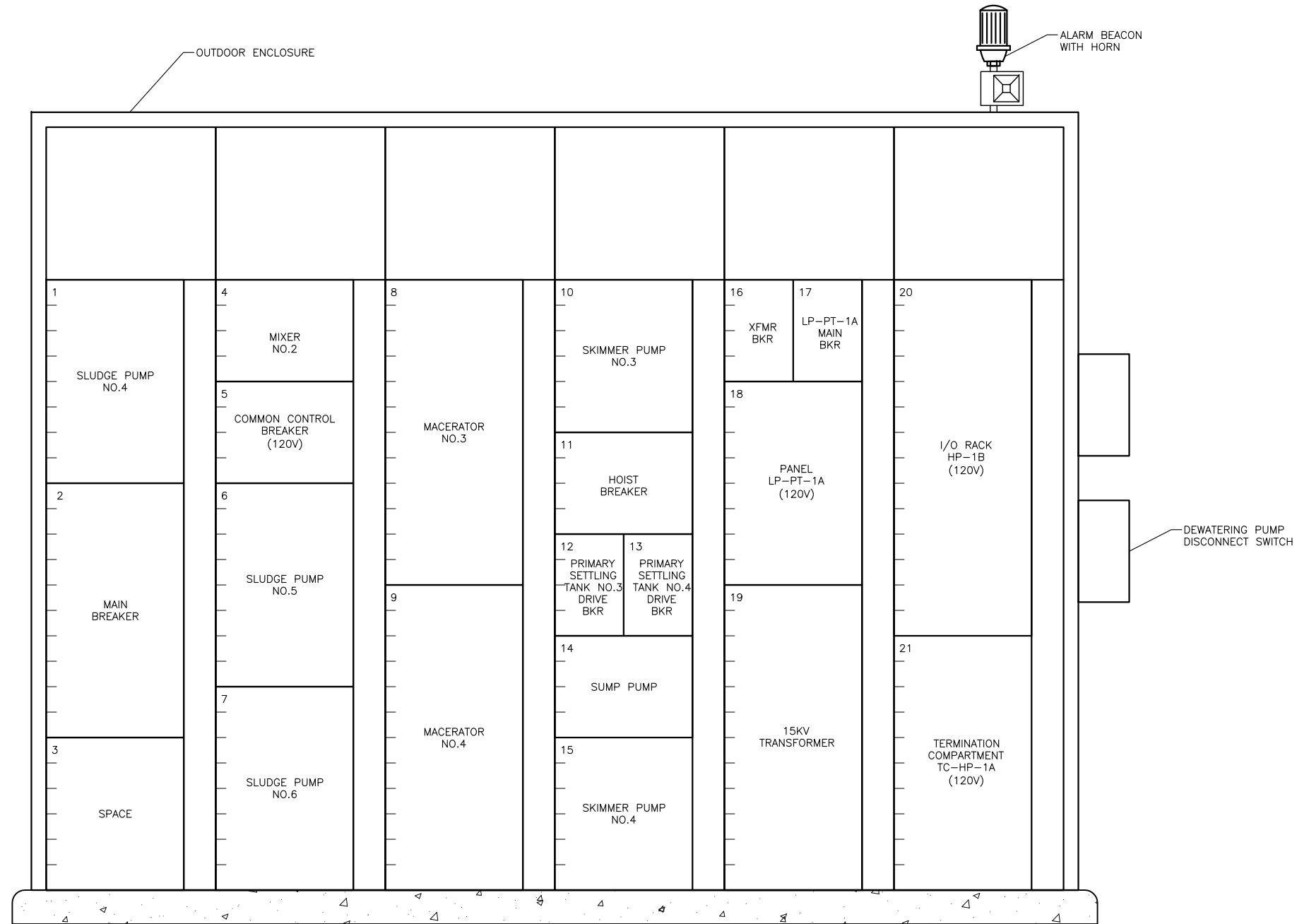
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**MCC-PS-1
ONE-LINE
DIAGRAM**

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	<p>GAI Gupta & Associates, Inc. <i>consulting engineering</i> Registration No. F-2593</p>	<p>SAN ANTONIO WATER SYSTEM CITY OF SAN ANTONIO, TEXAS DOS RIOS ELECTRICAL ASSESSMENT</p> <p>MCC-PS-1 ONE-LINE DIAGRAM</p>	<p>DATE 01-XX-12</p> <p>FIG-2.4-3</p>
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MCC-PS-1A
ELEVATION
 SCALE: NTS

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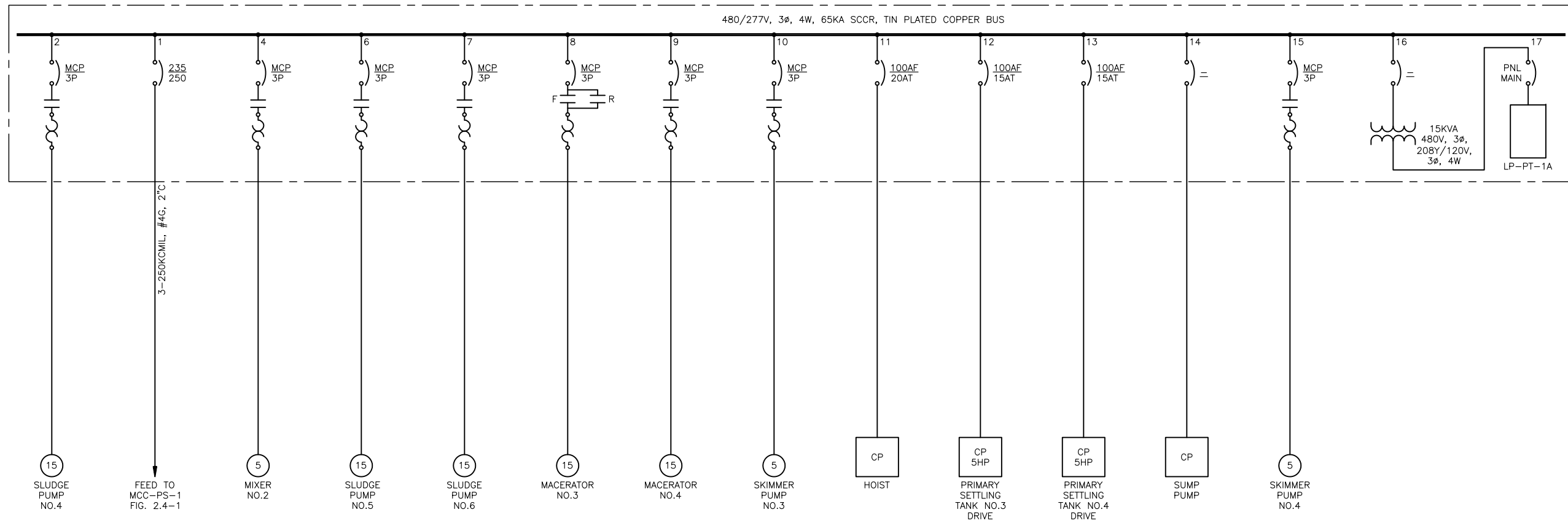
SAN ANTONIO WATER SYSTEM
 CITY OF SAN ANTONIO, TEXAS
 DOS RIOS ELECTRICAL ASSESSMENT

MCC-PS-1A
ELEVATION

DATE
 01-XX-12

FIG-2.4-4

480/277V, 3 ϕ , 4W, 65KA SCCR, TIN PLATED COPPER BUS



MCC-PS-1A
ONE-LINE
DIAGRAM

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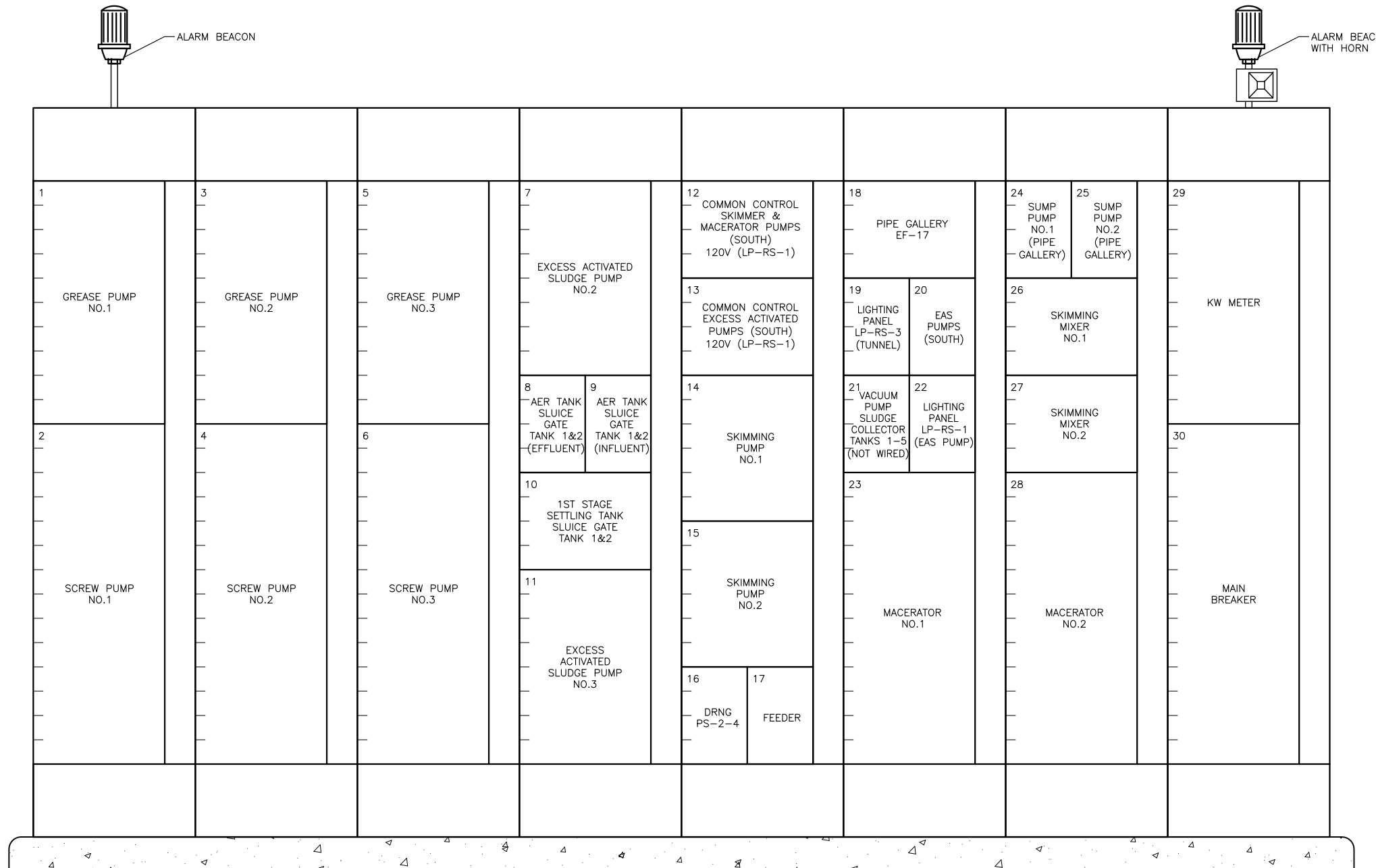
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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT

MCC-PS-1A
ONE-LINE DIAGRAM

DATE
01-XX-12

FIG-2.4-5



MCC-RS-1
ELEVATION
 SCALE: NTS

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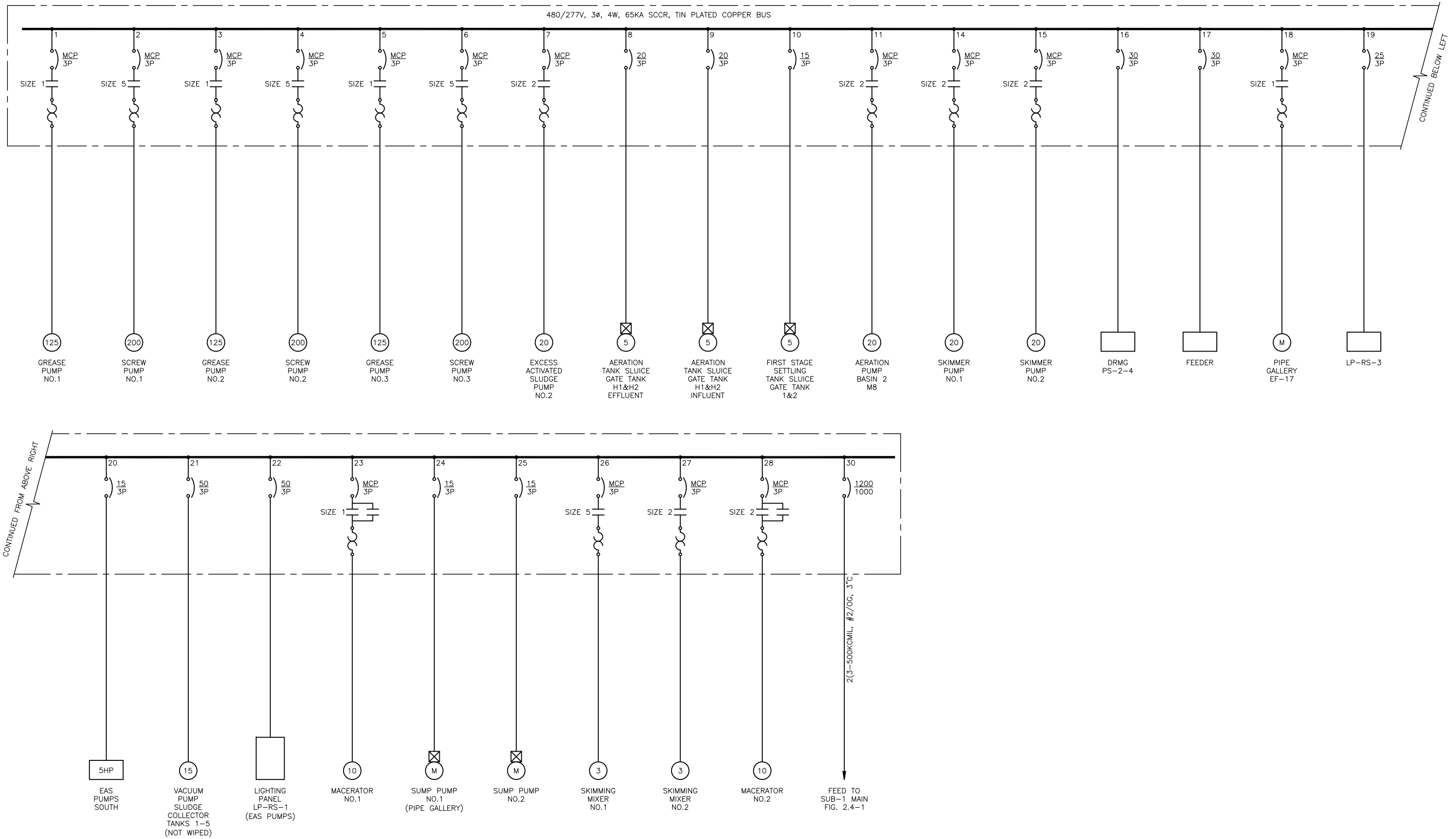
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SAN ANTONIO WATER SYSTEM
 CITY OF SAN ANTONIO, TEXAS
 DOS RIOS ELECTRICAL ASSESSMENT

MCC-RS1
 ELEVATION

DATE
 01-XX-12

FIG-2.4-6



MCC-RS-1
ONE-LINE
DIAGRAM

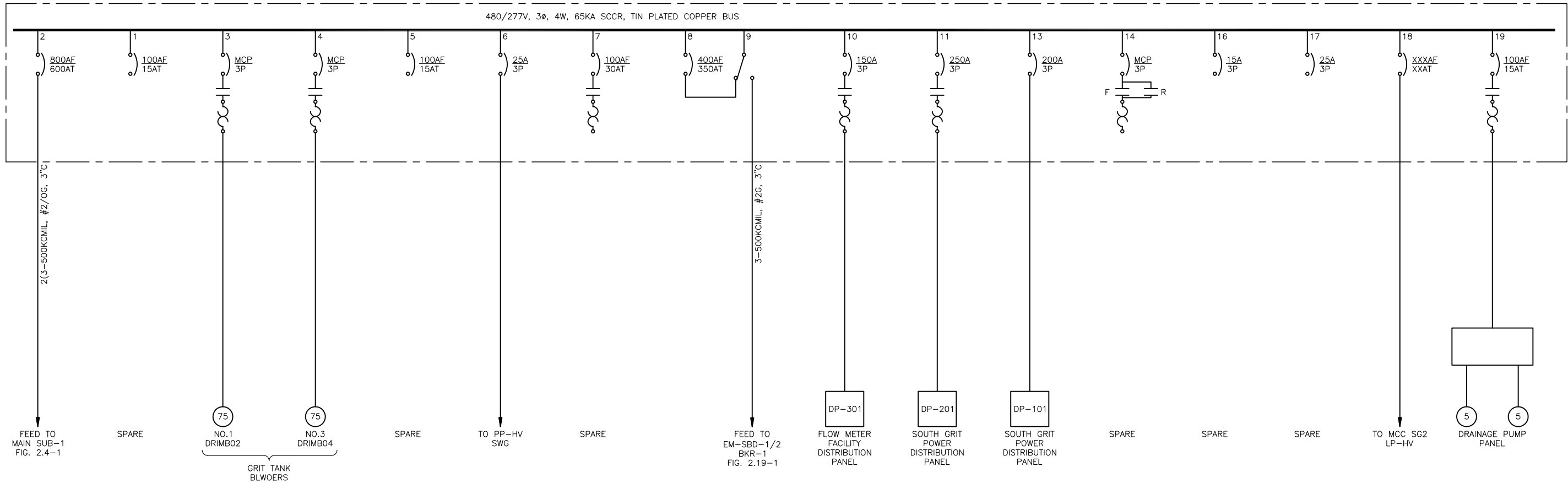
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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT

MCC-RS-1
ONE-LINE DIAGRAM

DATE
01-XX-12

FIG-2.4-7



MCC-SG-1
 ONE-LINE
 DIAGRAM

Z:\1922_SAWS - Dos Rios\Report Phase\Report\Figures\FIG-2_4-09.dwg, 2/8/2012 10:36:48 AM, Adobe PDF, JH

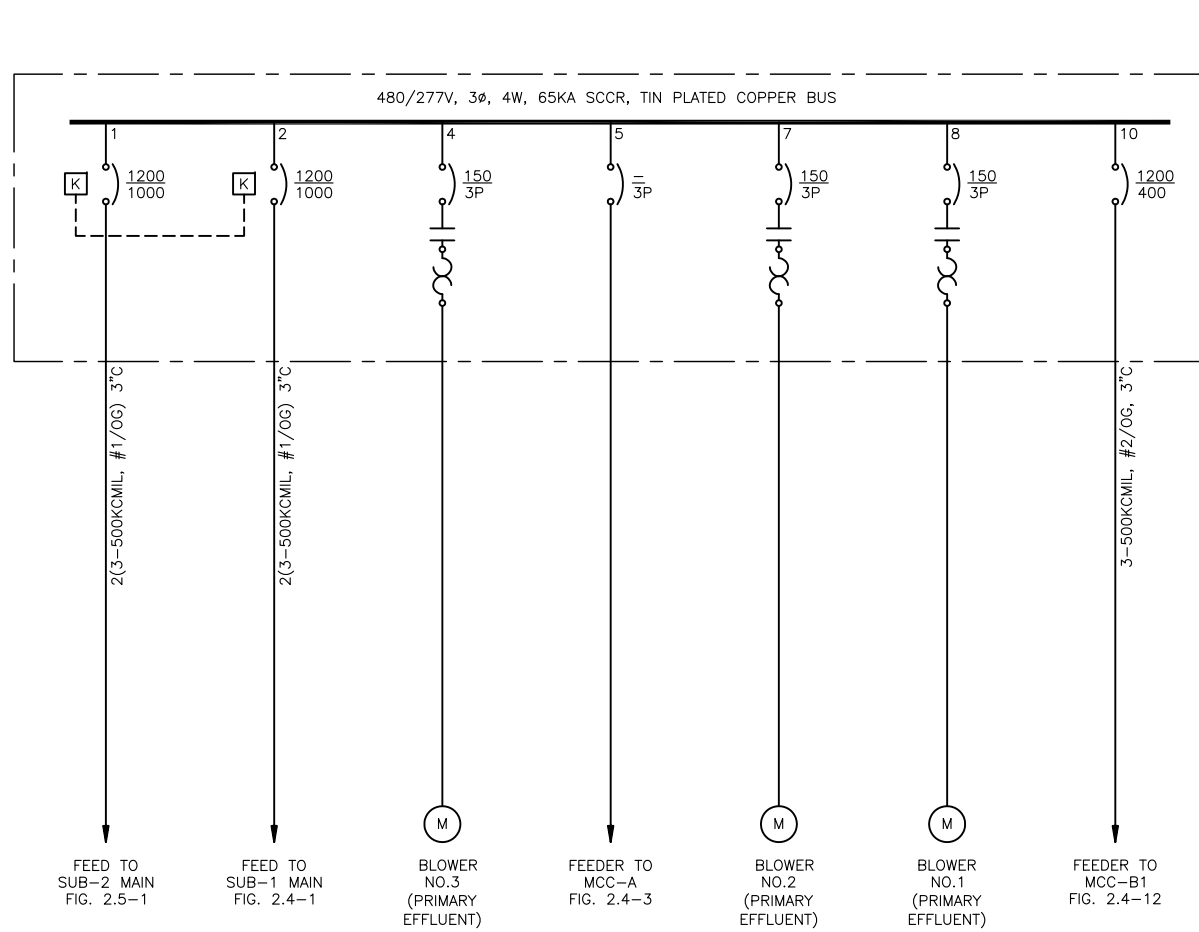
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SAN ANTONIO WATER SYSTEM
 CITY OF SAN ANTONIO, TEXAS
 DOS RIOS ELECTRICAL ASSESSMENT

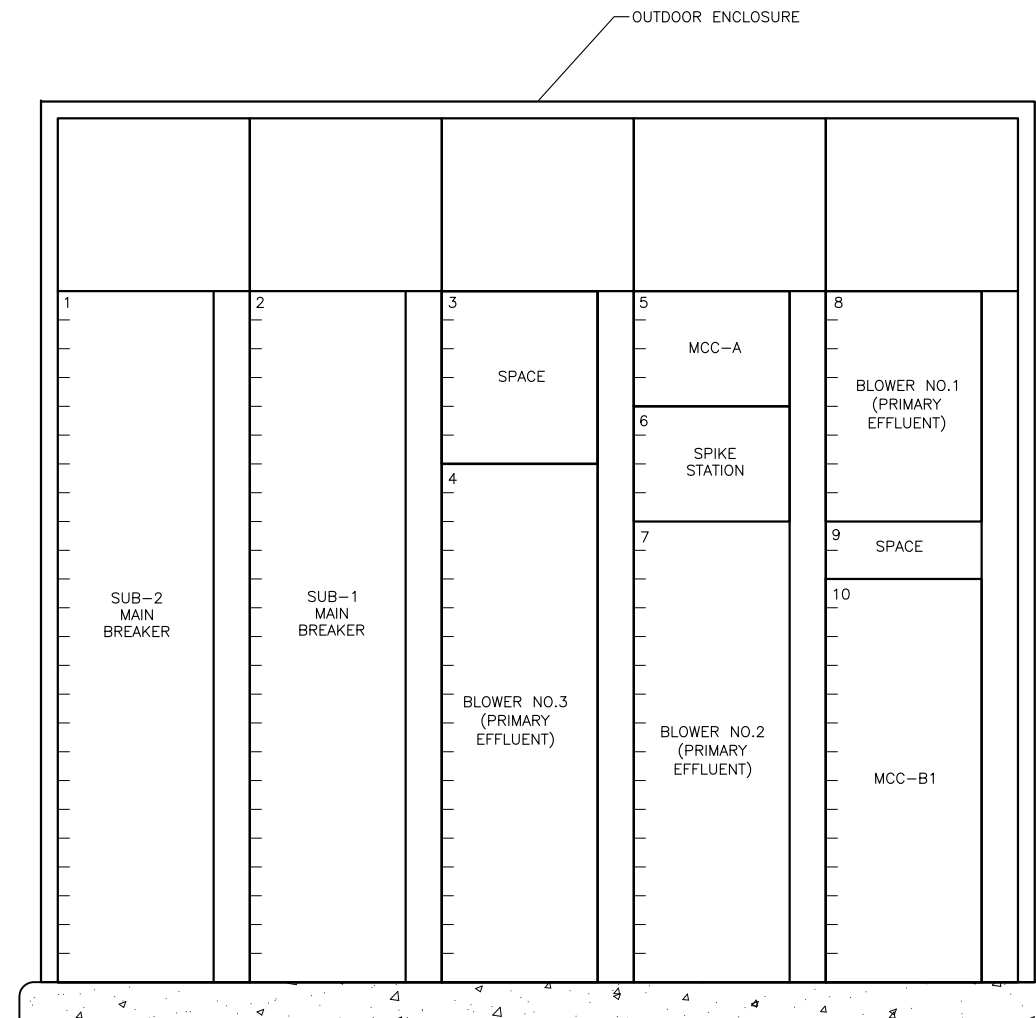
MCC-SG-1
 ONE-LINE DIAGRAM

DATE
 01-XX-12

FIG-2.4-9



MCC-B
ONE-LINE
DIAGRAM



MCC-B
ELEVATION
SCALE: NTS

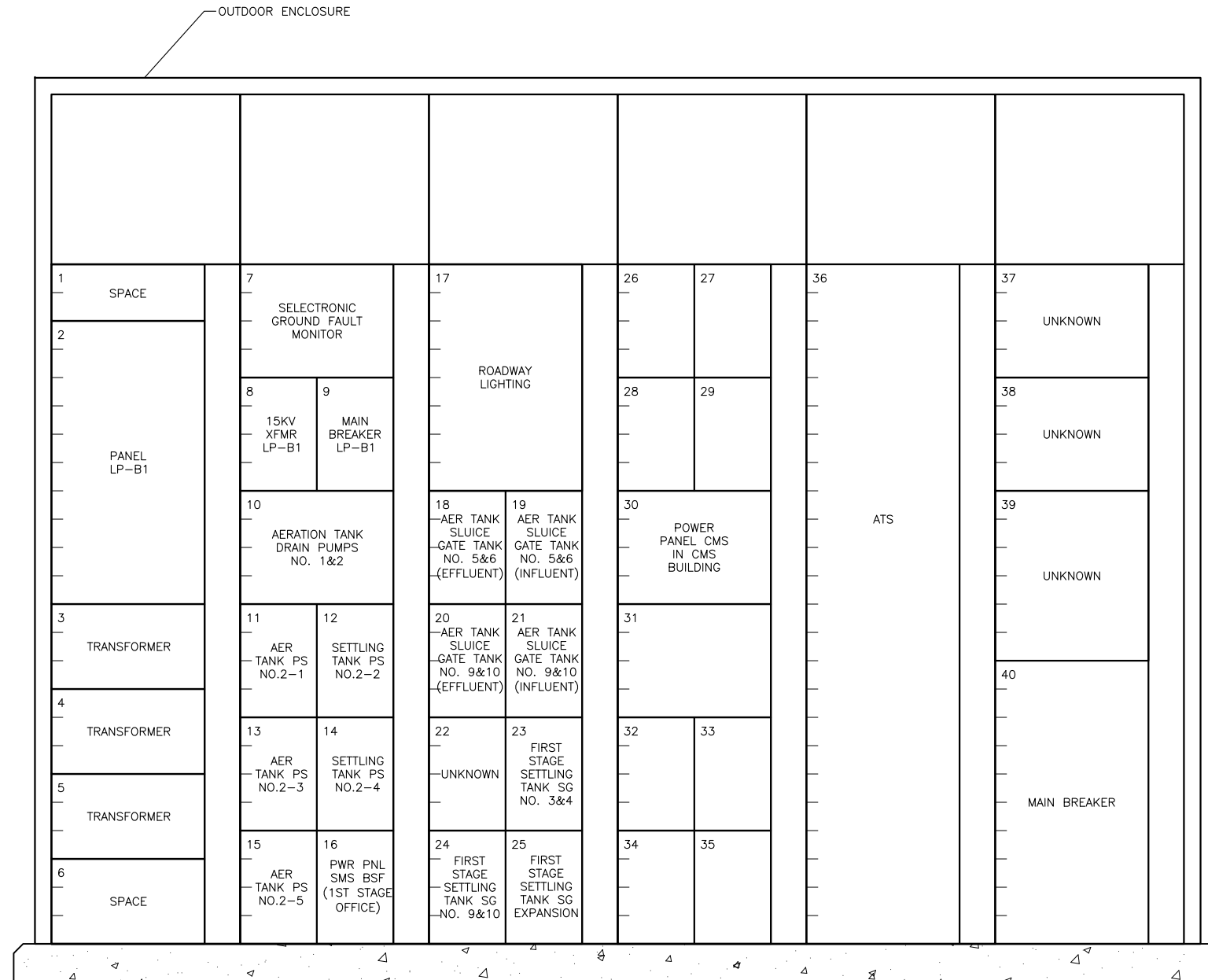
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DOS RIOS ELECTRICAL ASSESSMENT
MCC-B
ELEVATION AND
ONE-LINE DIAGRAM

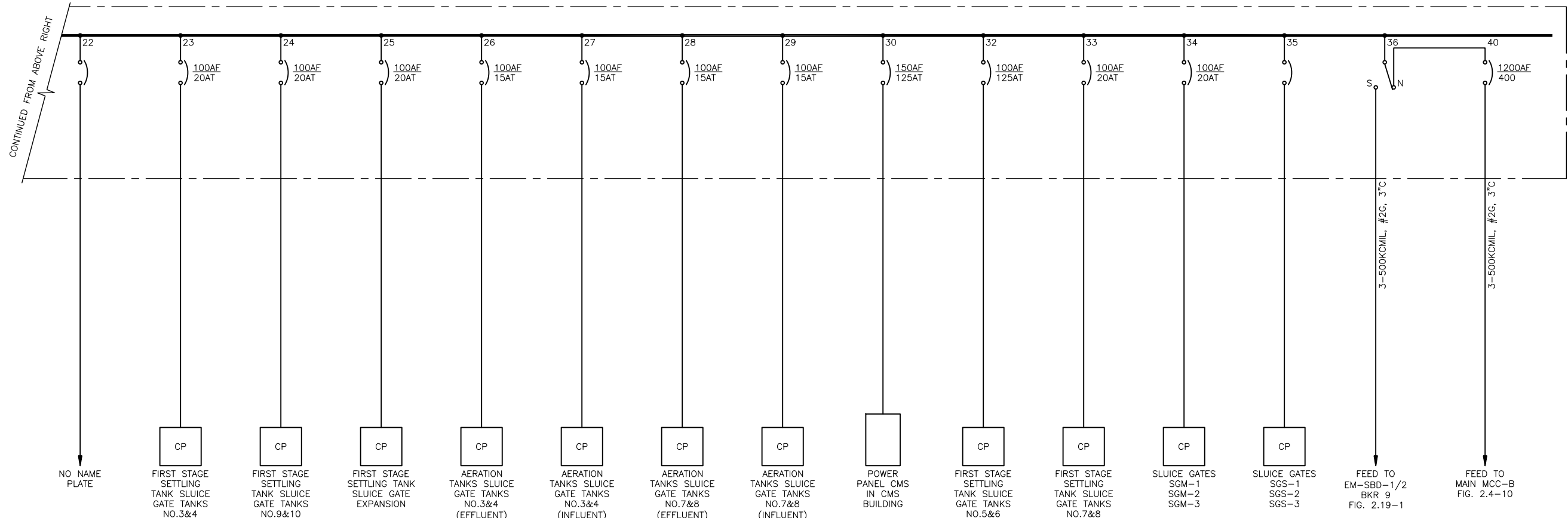
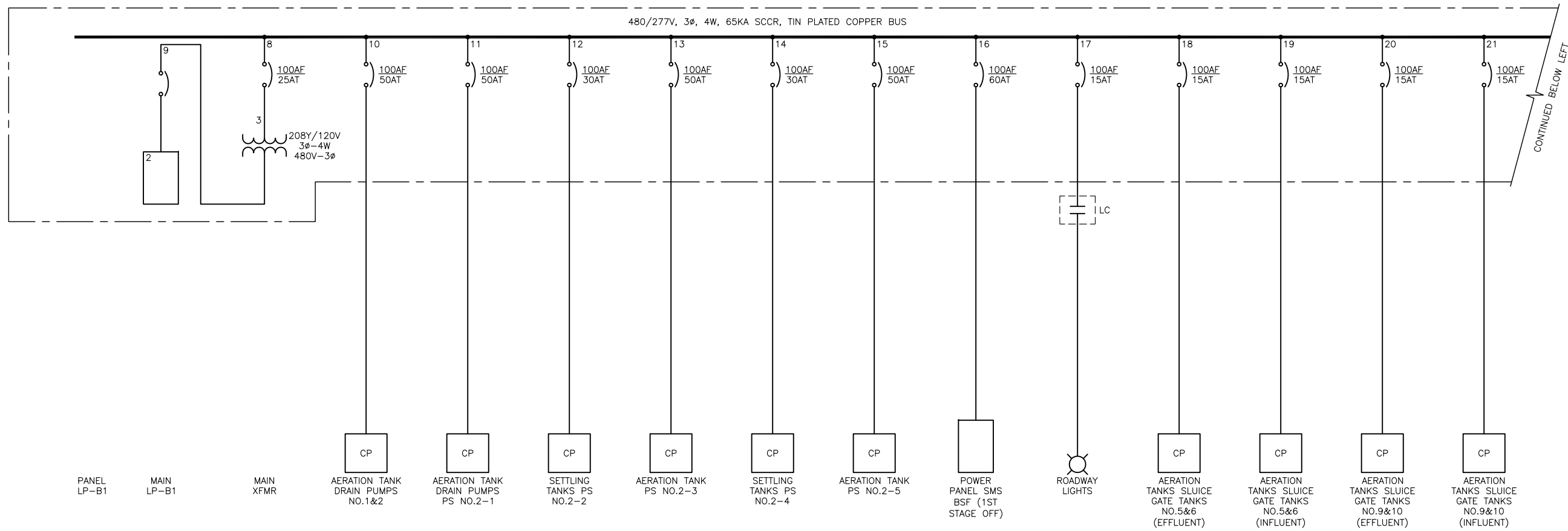
DATE
01-XX-12

FIG-2.4-10



MCC-B1
ELEVATION
SCALE: NTS

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MCC-B1
ONE-LINE
DIAGRAM

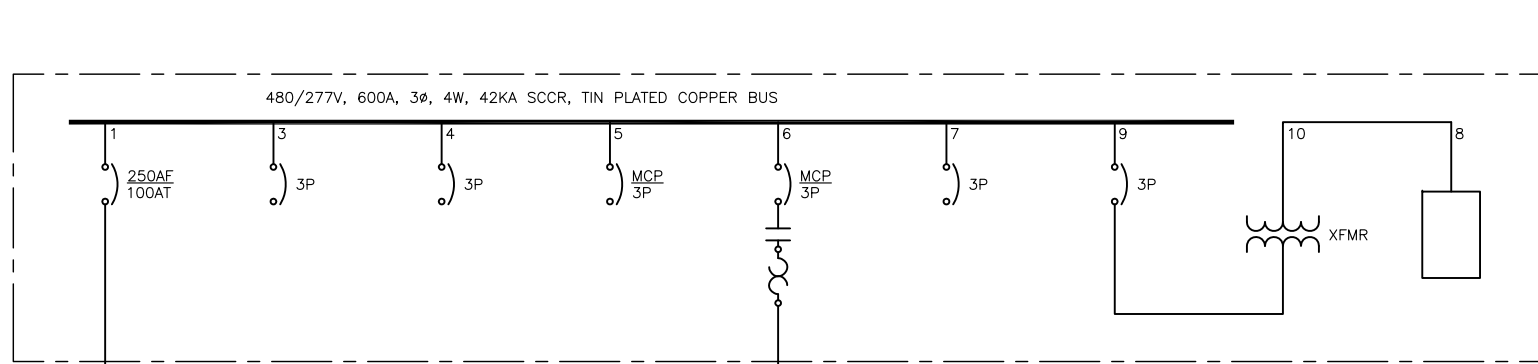
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CITY OF SAN ANTONIO, TEXAS
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MCC-B1
ONE-LINE DIAGRAM

DATE
01-XX-12

FIG-2.4-12



FEED TO
MCC-B
FIG. 2.4-10

SPARE

SPARE

SPARE

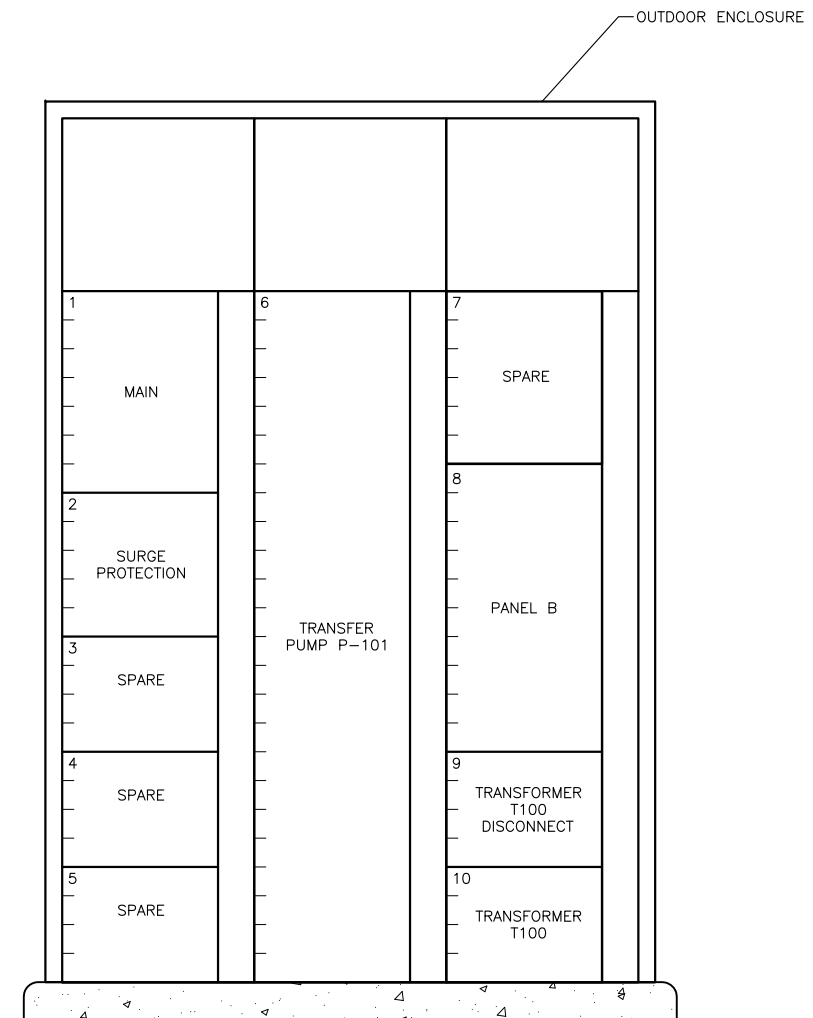
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TRANSFER
PUMP
P-101

SPARE

TRANSFORMER
T100

PANEL B

MCC-A
ONE-LINE
DIAGRAM



MCC-A
ELEVATION
SCALE: NTS

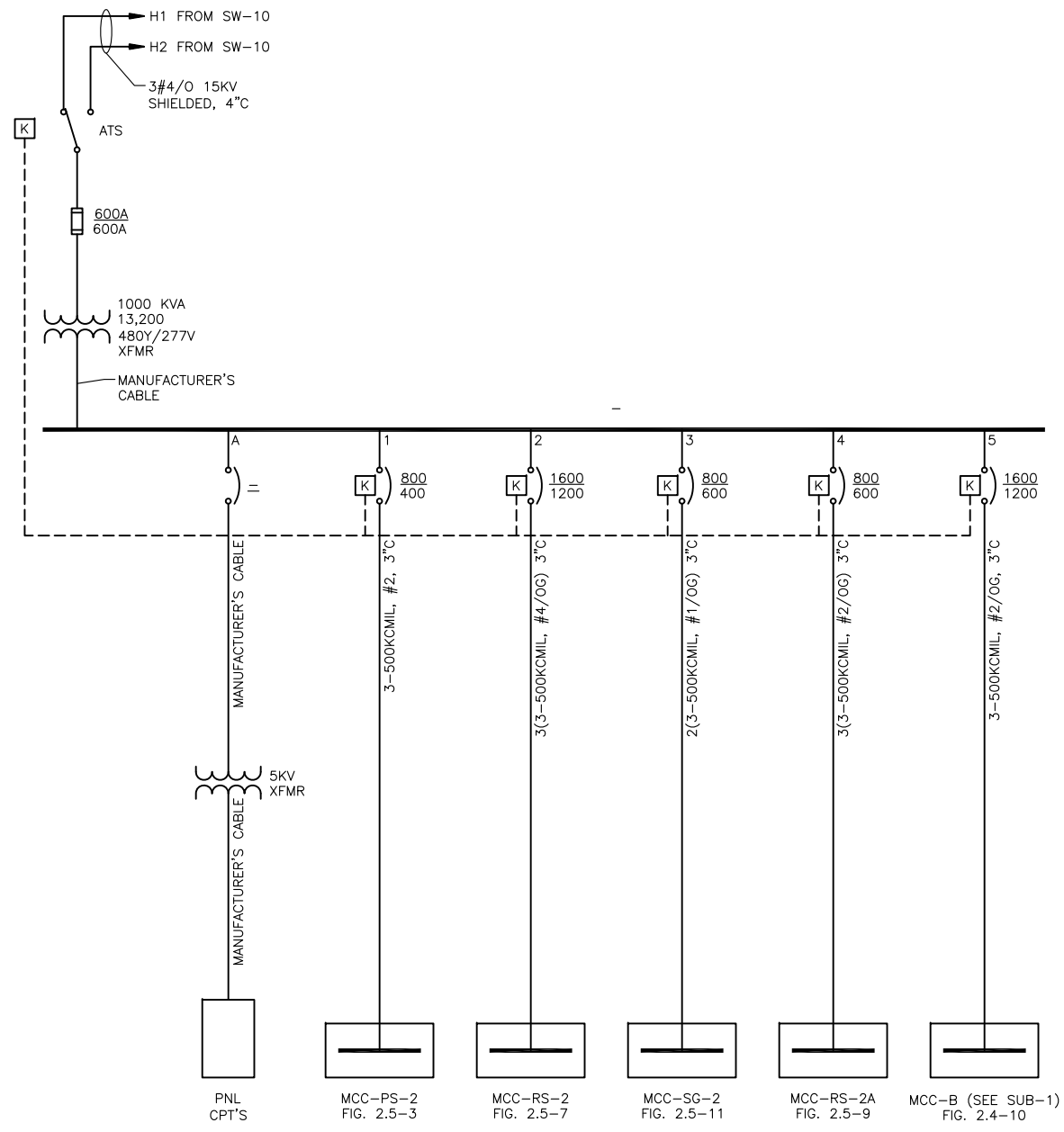
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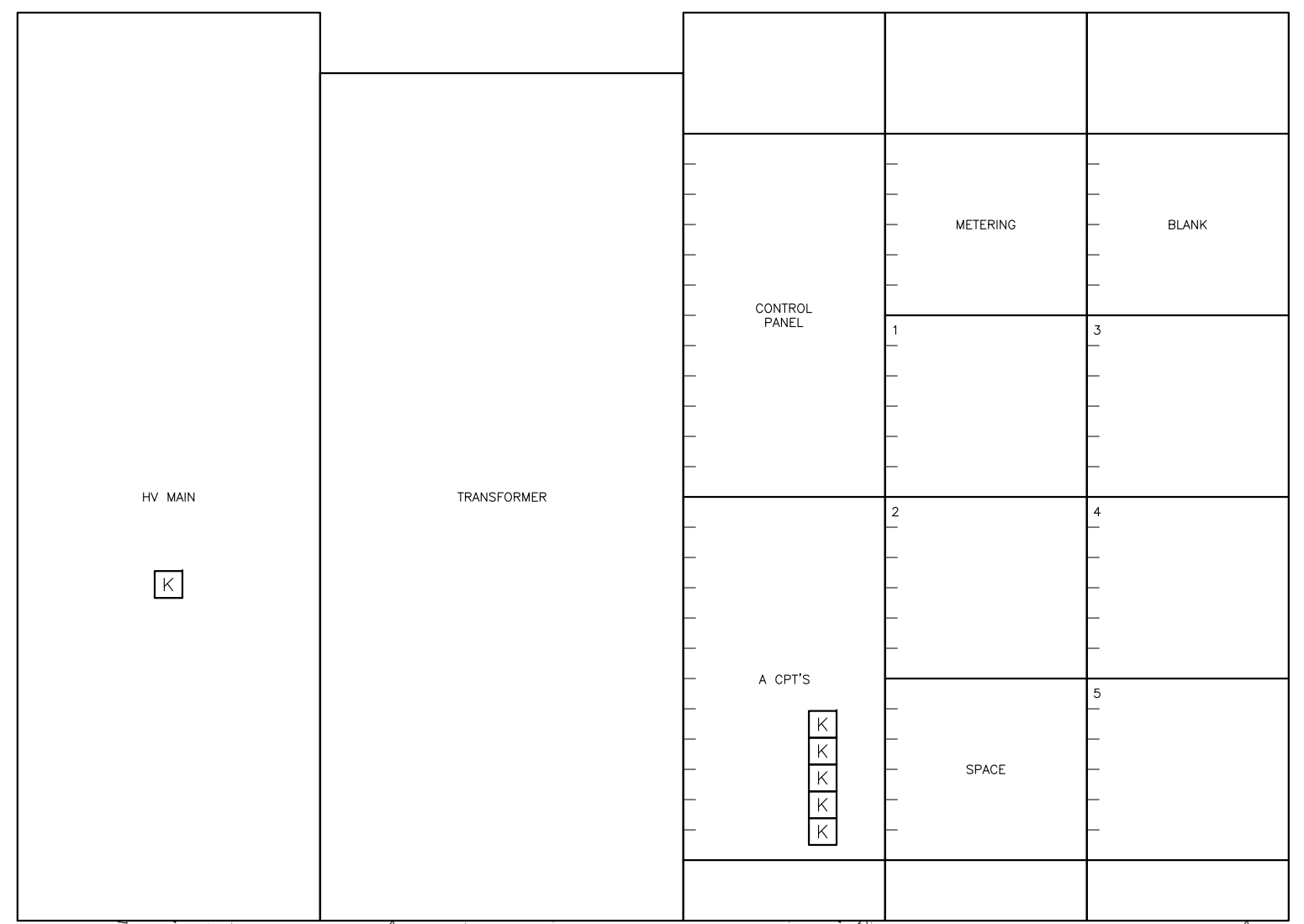
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MCC-A
ELEVATION AND
ONE-LINE DIAGRAM

DATE
01-XX-12

FIG-2.4-13



MDP-2
ONE-LINE
DIAGRAM



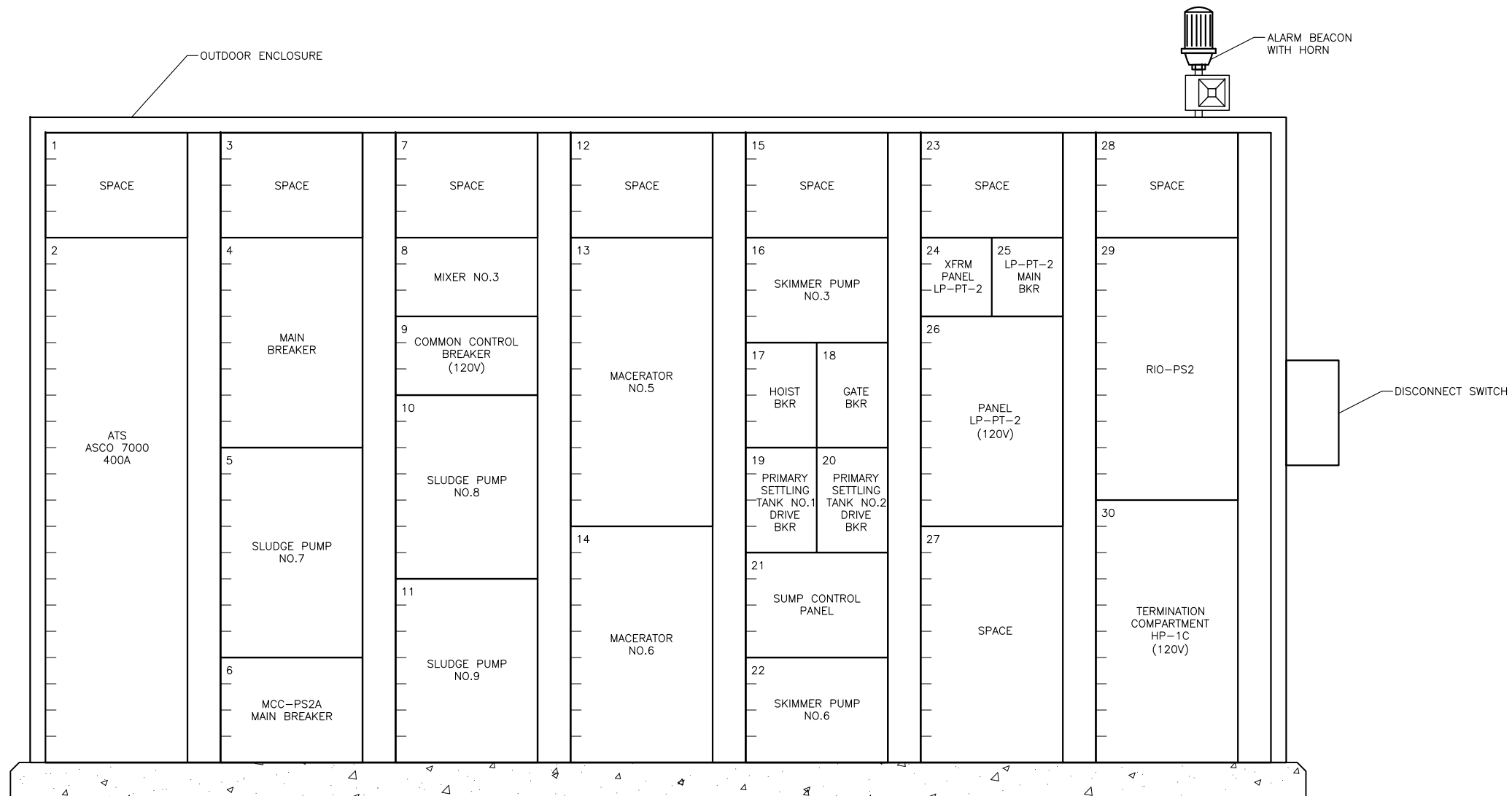
MDP-2
ELEVATION
SCALE: NTS

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SUBSTATION NO.2
ONE-LINE DIAGRAM
& ELEVATION

DATE
01-XX-12
FIG-2.5-1



MCC-PS-2
ELEVATION
 SCALE: NTS

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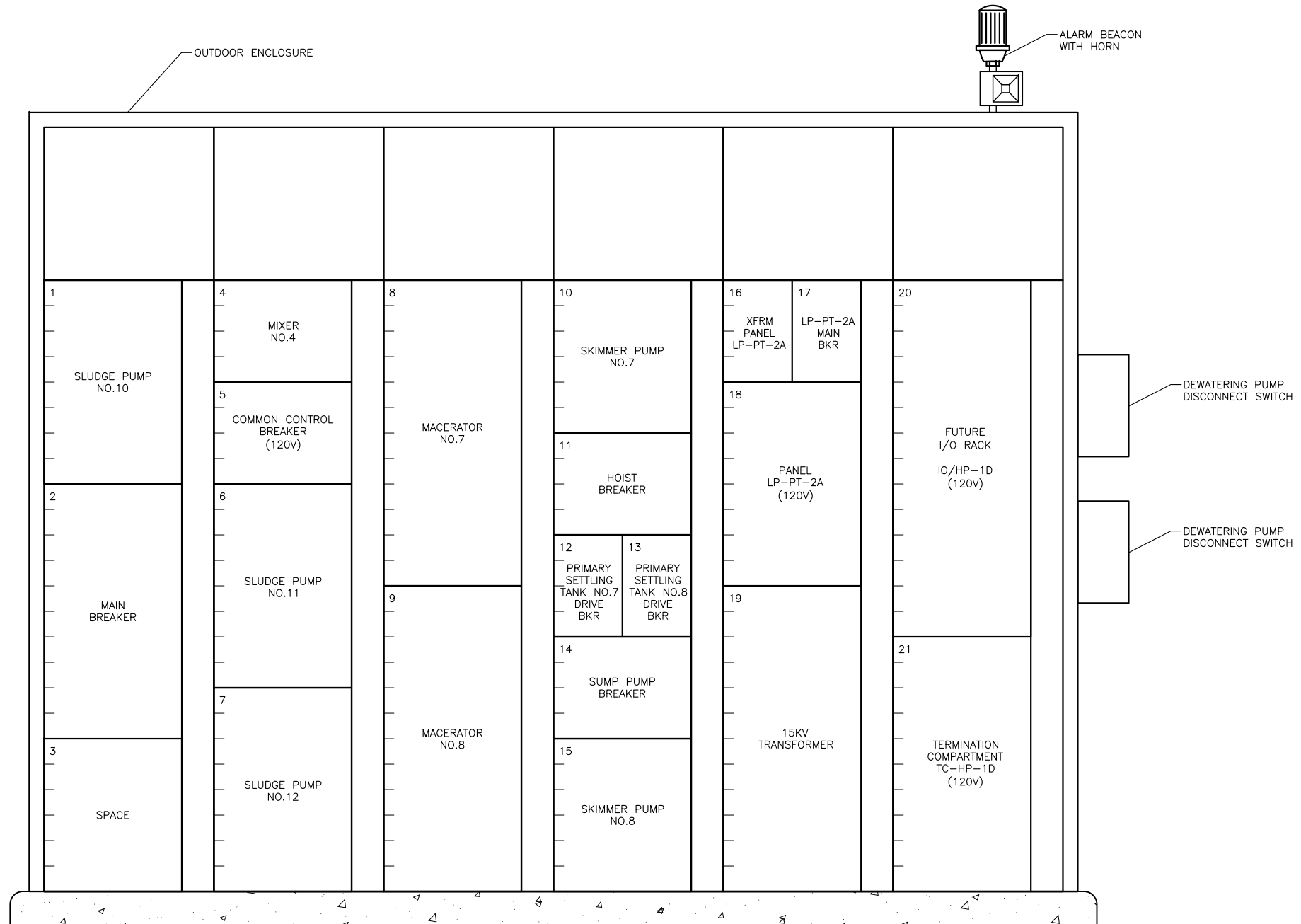
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 DOS RIOS ELECTRICAL ASSESSMENT

MCC-PS-2
ELEVATION

DATE
 01-XX-12

FIG-2.5-2



MCC-PS-2A
ELEVATION
 SCALE: NTS

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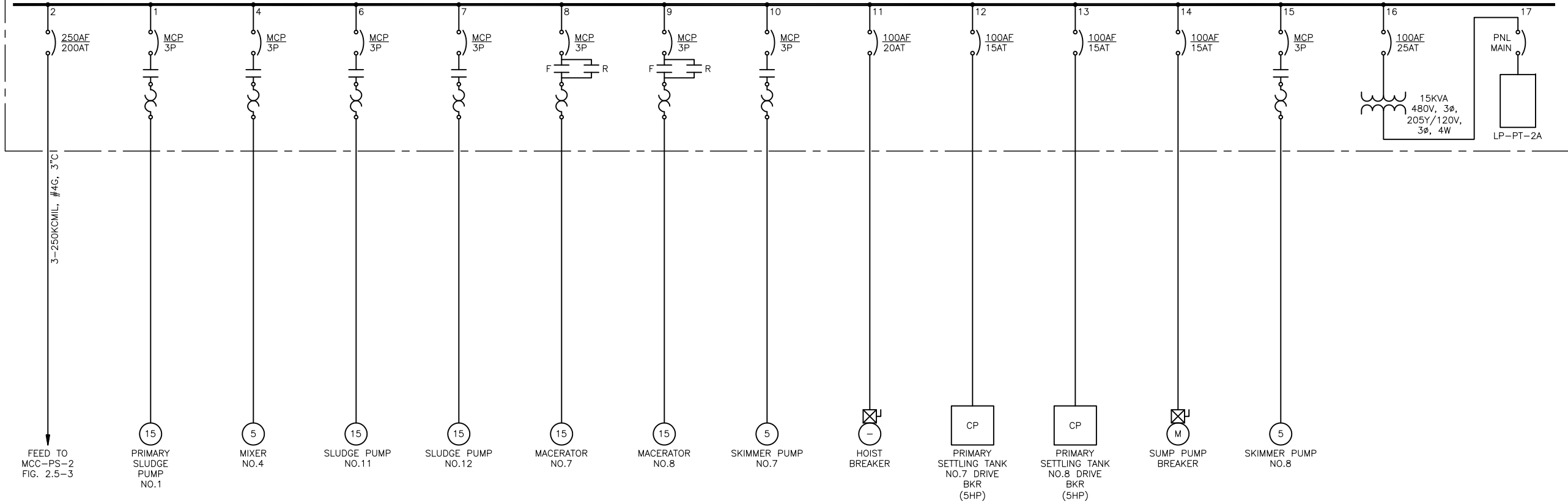
SAN ANTONIO WATER SYSTEM
 CITY OF SAN ANTONIO, TEXAS
 DOS RIOS ELECTRICAL ASSESSMENT

MCC-PS-2A
 ELEVATION

DATE
 01-XX-12

FIG-2.5-4

480/277V, 3 ϕ , 4W, 65KA SCCR, TIN PLATED COPPER BUS



MCC-PS-2A
ONE-LINE
DIAGRAM

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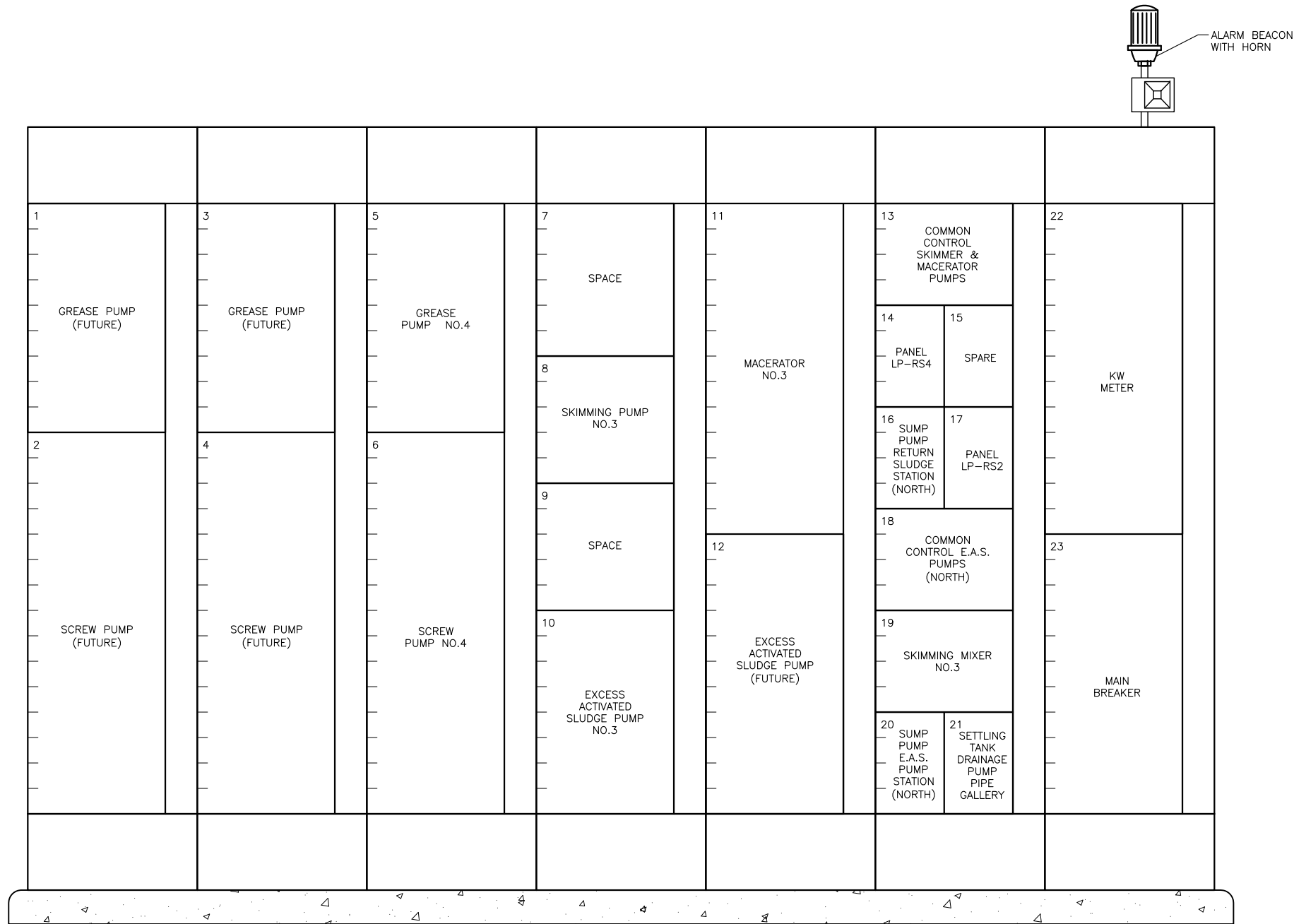
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DOS RIOS ELECTRICAL ASSESSMENT

MCC-PS-2A
ONE-LINE DIAGRAM


DATE
01-XX-12

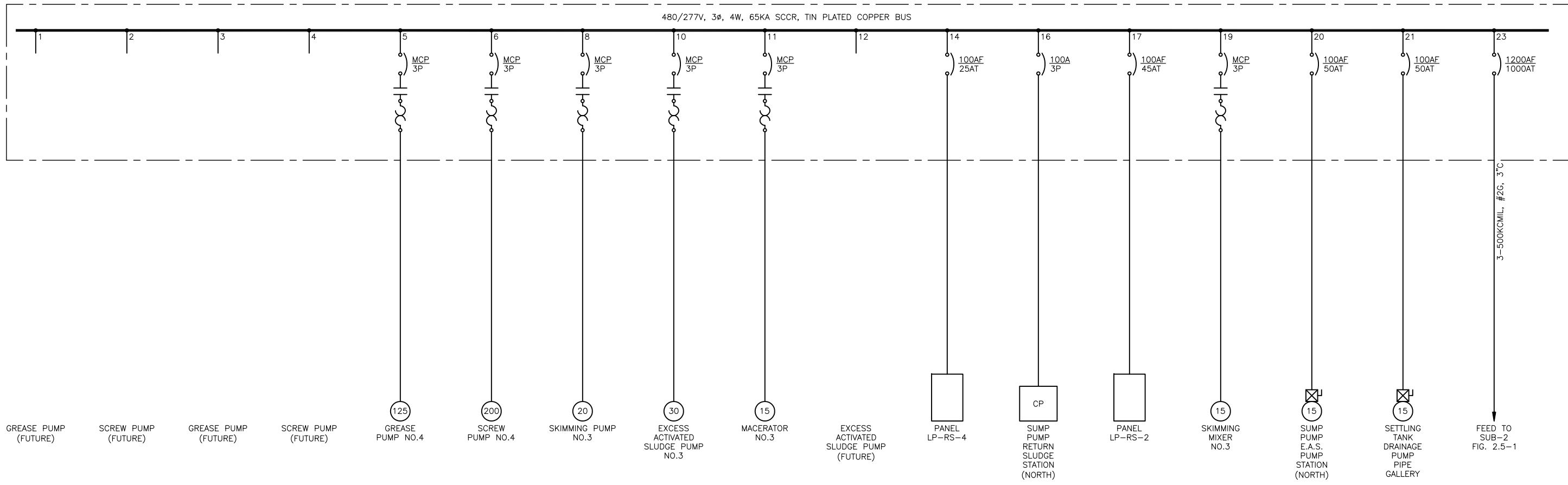
FIG-2.5-5



MCC-RS-2
ELEVATION
 SCALE: NTS

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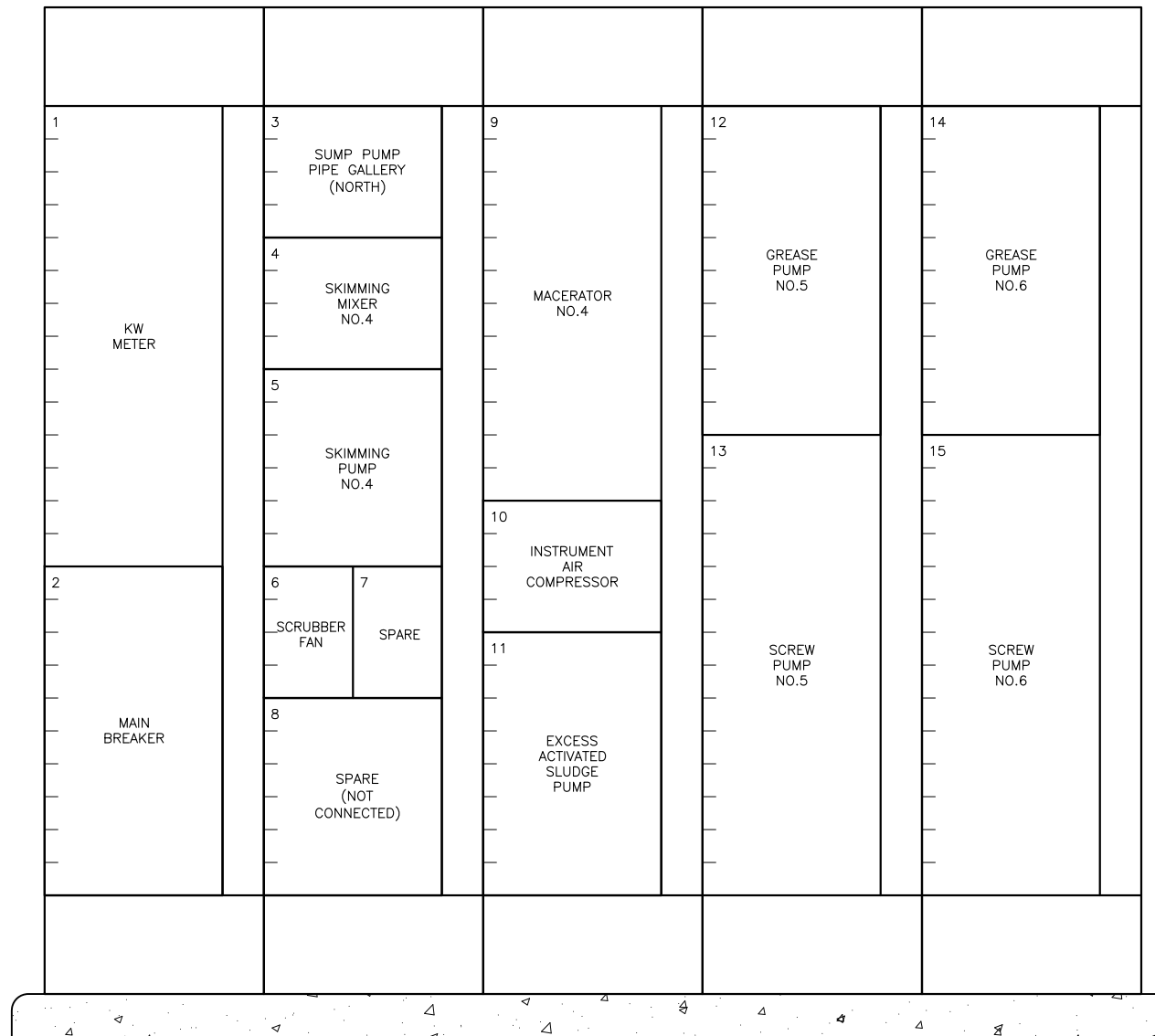
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	MCC-RS-2 ELEVATION	FIG-2.5-6



MCC-RS-2
ONE-LINE
DIAGRAM

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	<p>MCC-RS-2 ONE-LINE DIAGRAM</p>	<p>FIG-2.5-7</p>



MCC-RS-2A
ELEVATION
 SCALE: NTS

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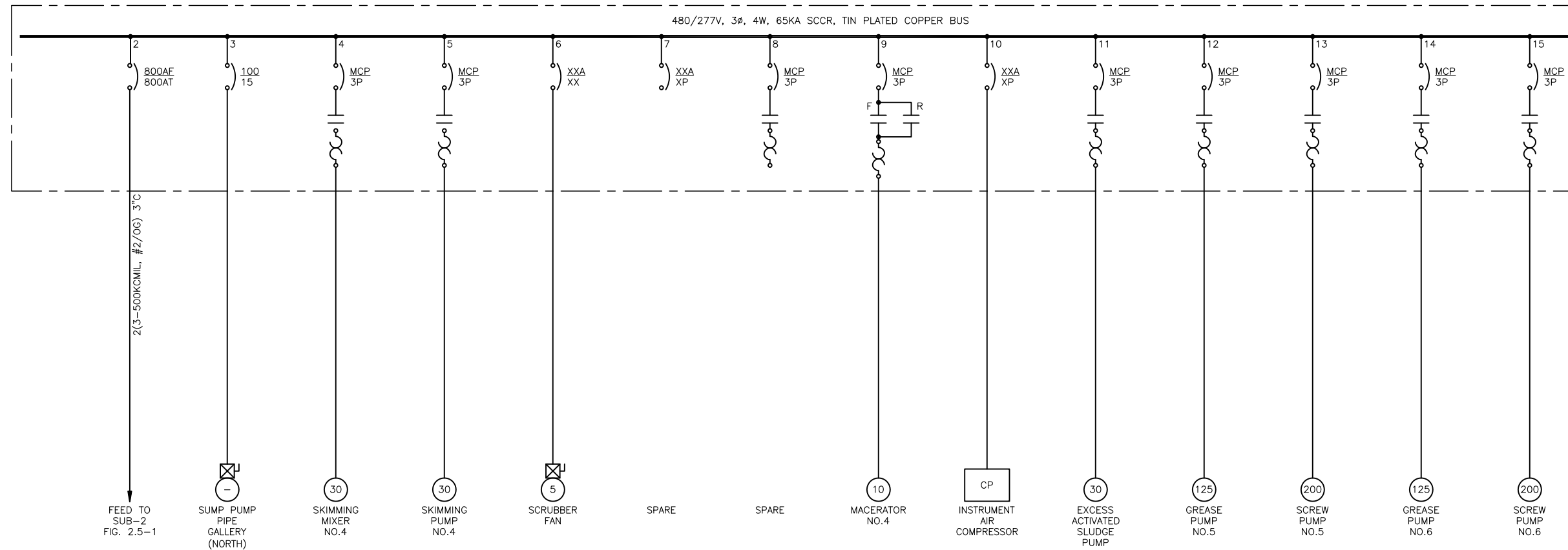
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SAN ANTONIO WATER SYSTEM
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 DOS RIOS ELECTRICAL ASSESSMENT

MCC-RS-2A
 ELEVATION

DATE
 01-XX-12

FIG-2.5-8



MCC-RS-2A
ONE-LINE
DIAGRAM

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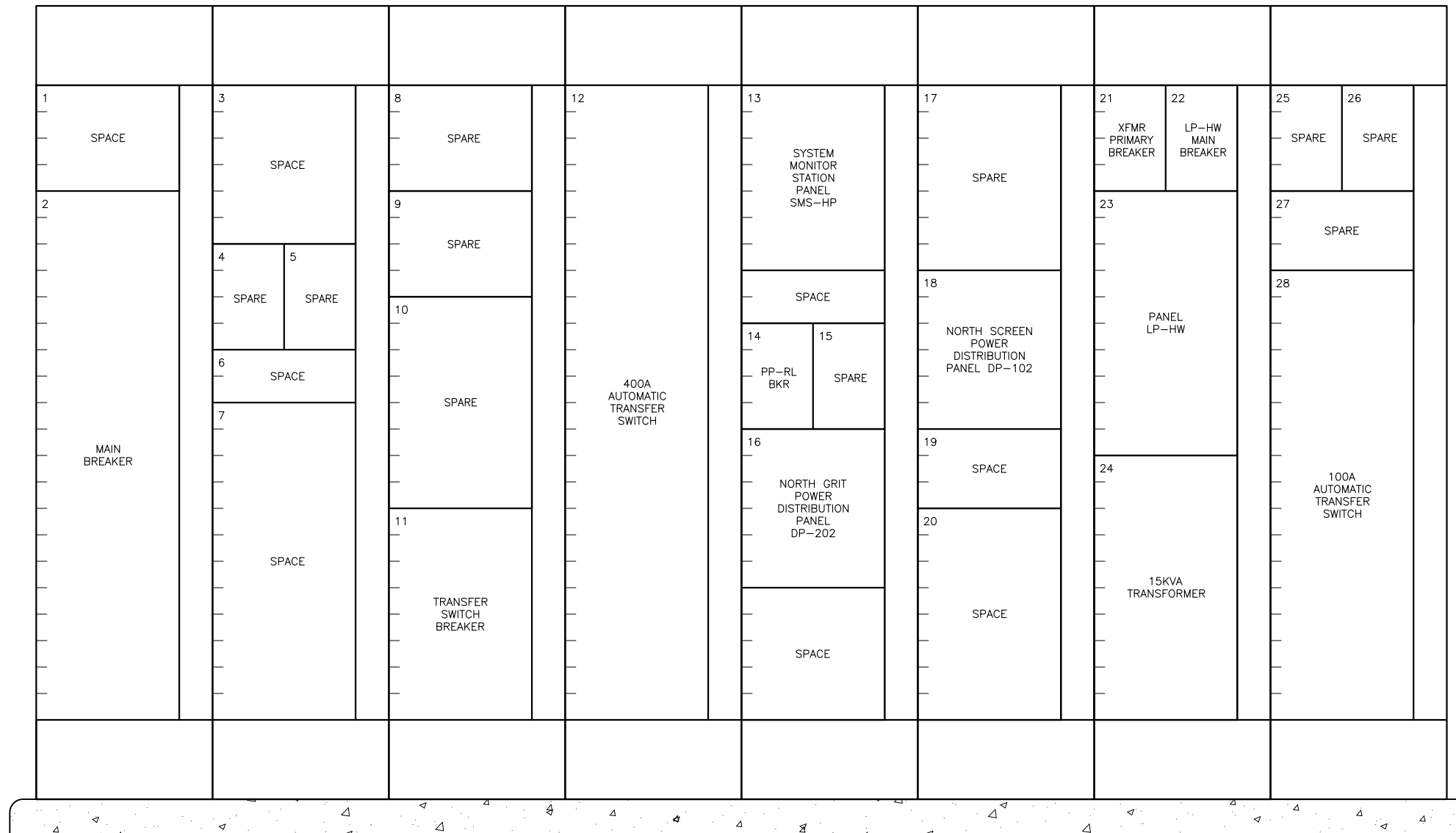
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DOS RIOS ELECTRICAL ASSESSMENT

MCC-RS-2A
ONE-LINE DIAGRAM

DATE
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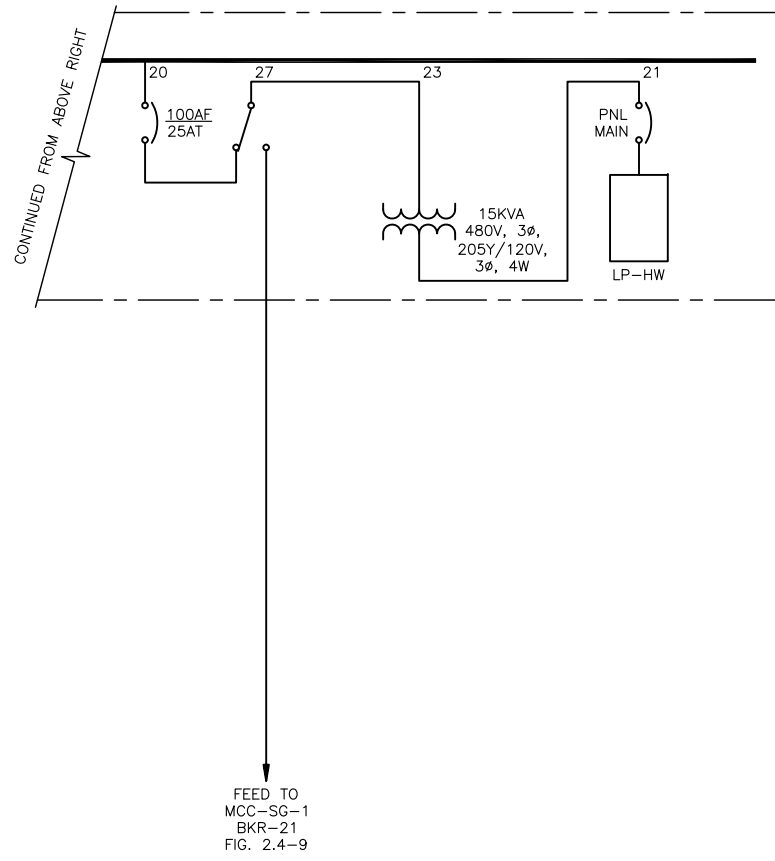
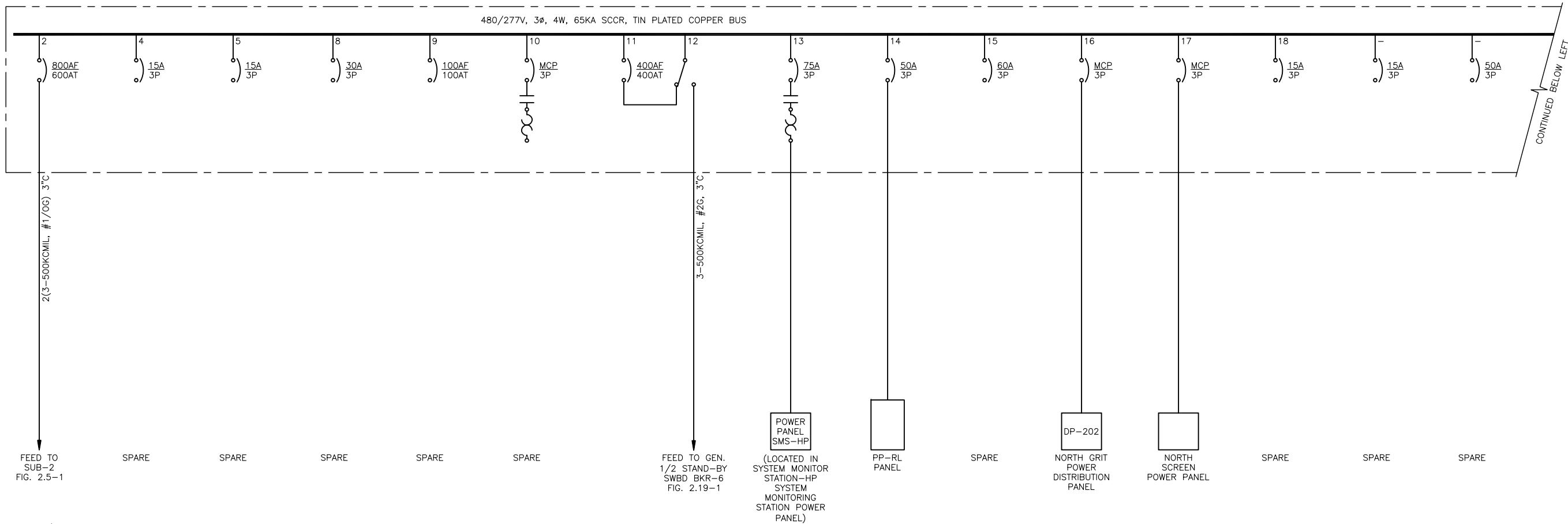
FIG-2.5-9



MCC-SG-2
ELEVATION
 SCALE: NTS

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		MCC-SG-2 ELEVATION	FIG-2.5-10



MCC-SG-2
ONE-LINE
DIAGRAM

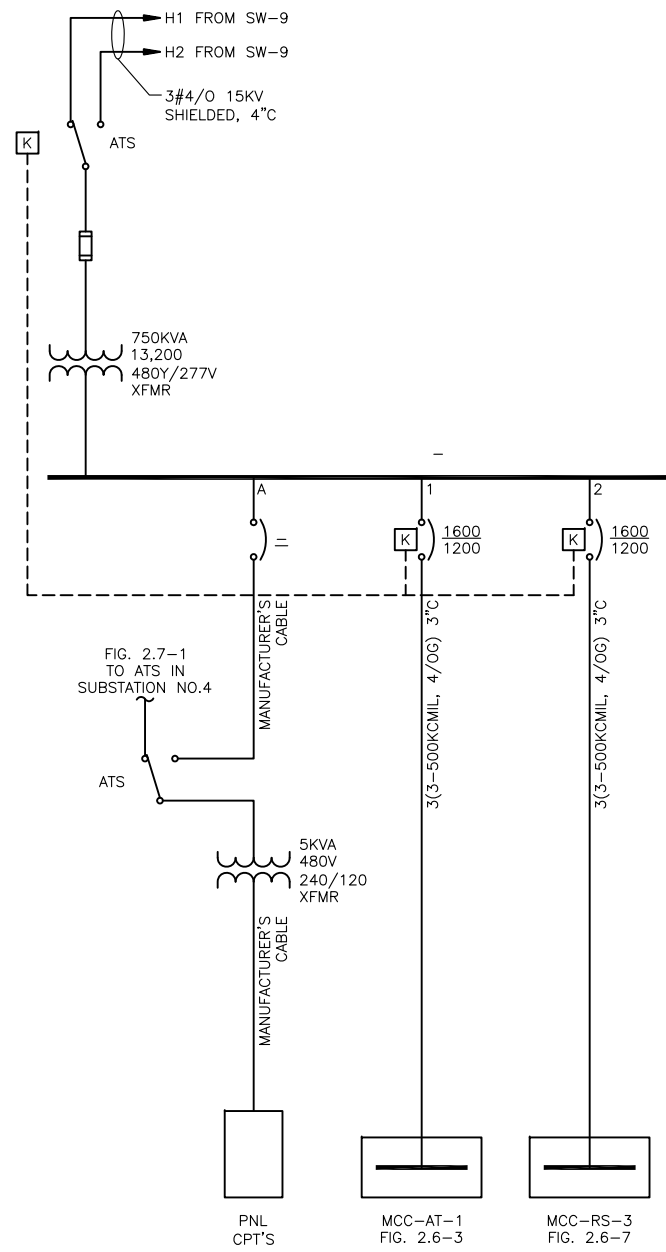
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DOS RIOS ELECTRICAL ASSESSMENT

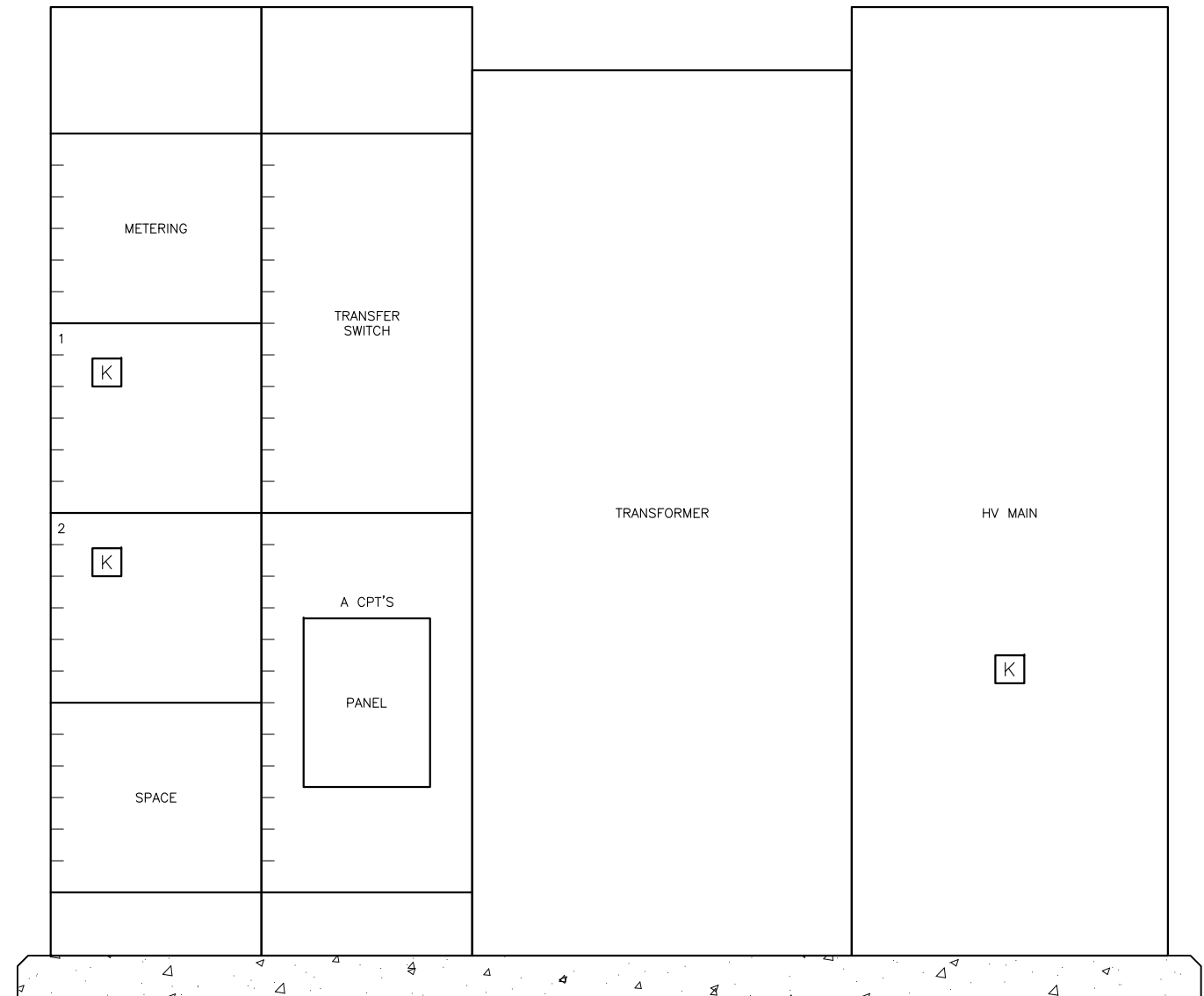
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MCC-SG-2
ONE-LINE DIAGRAM

FIG-2.5-11



MDP-3
ONE-LINE
DIAGRAM



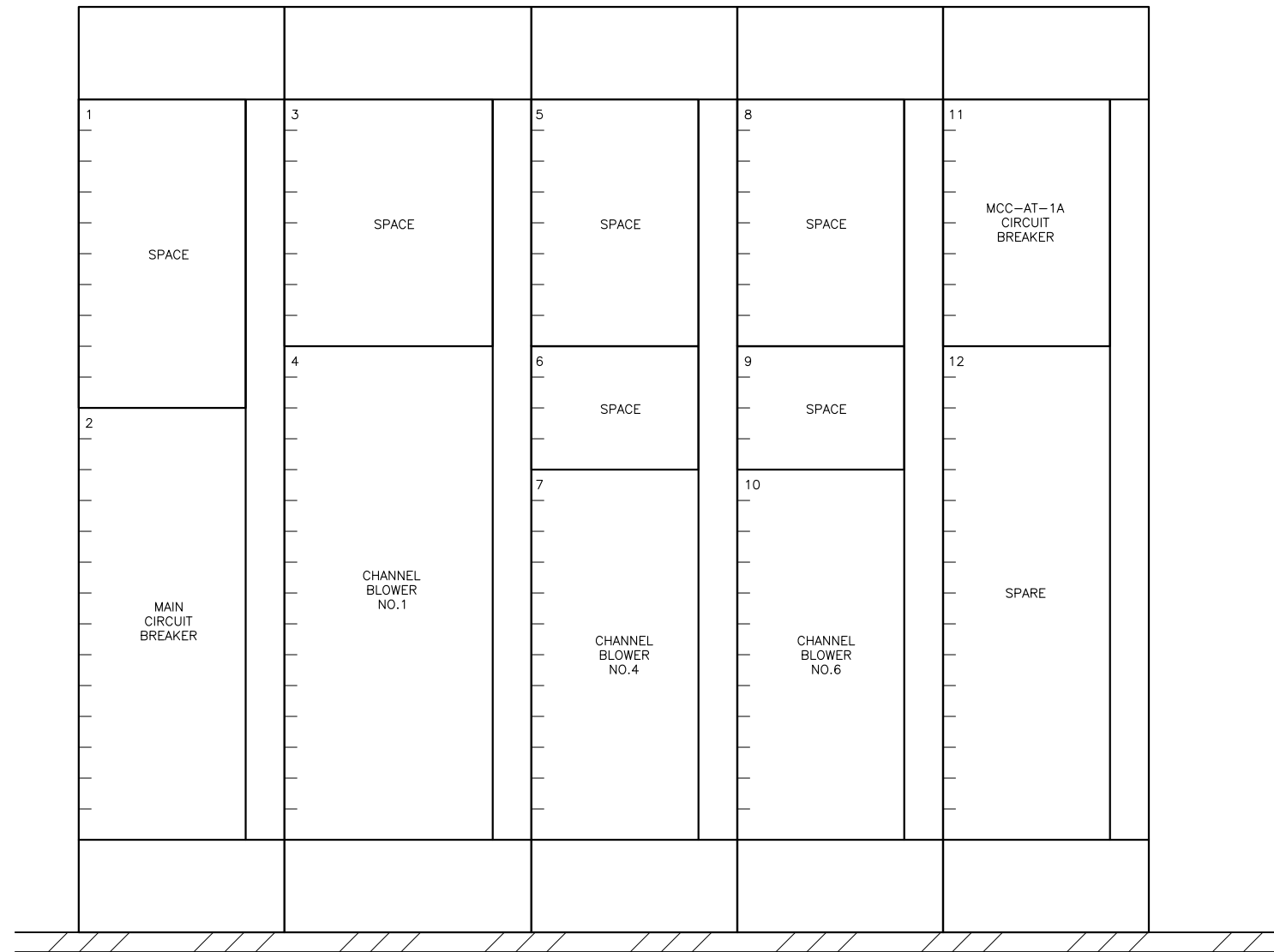
MDP-3
ELEVATION
SCALE: NTS

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SUBSTATION NO.3
ONE-LINE DIAGRAM
& ELEVATION

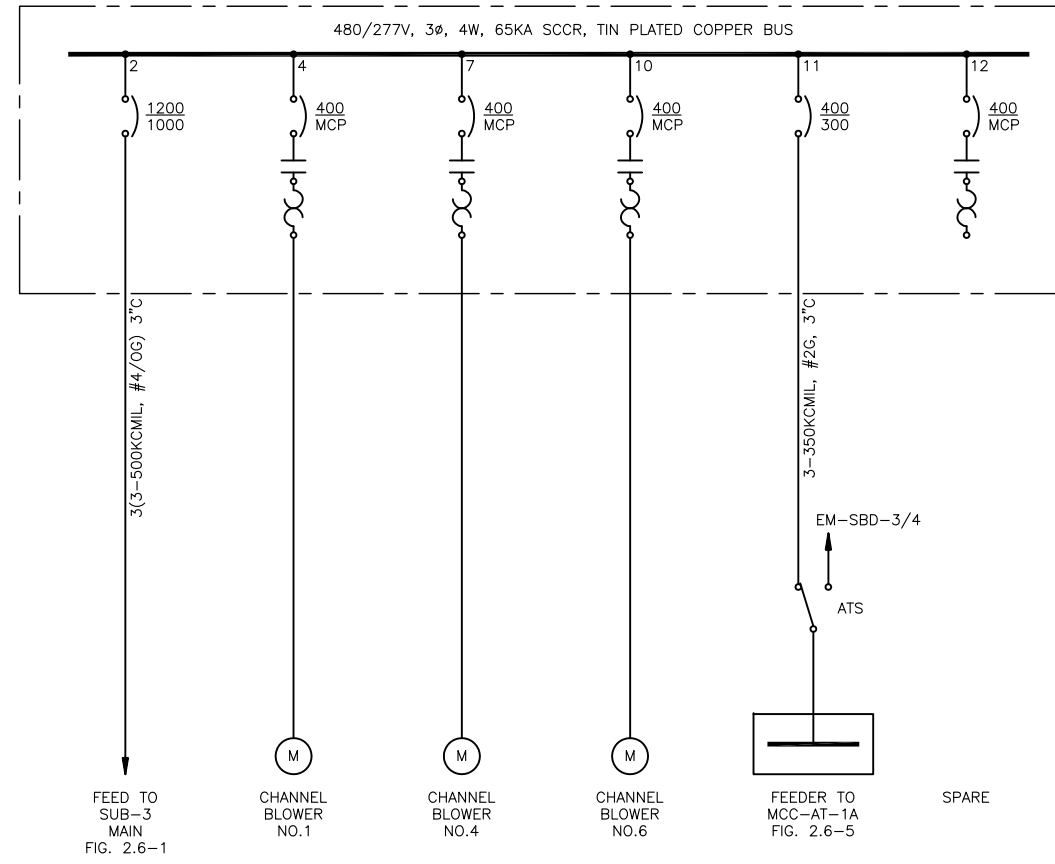
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FIG-2.6-1



MCC-AT-1
ELEVATION
 SCALE: NTS

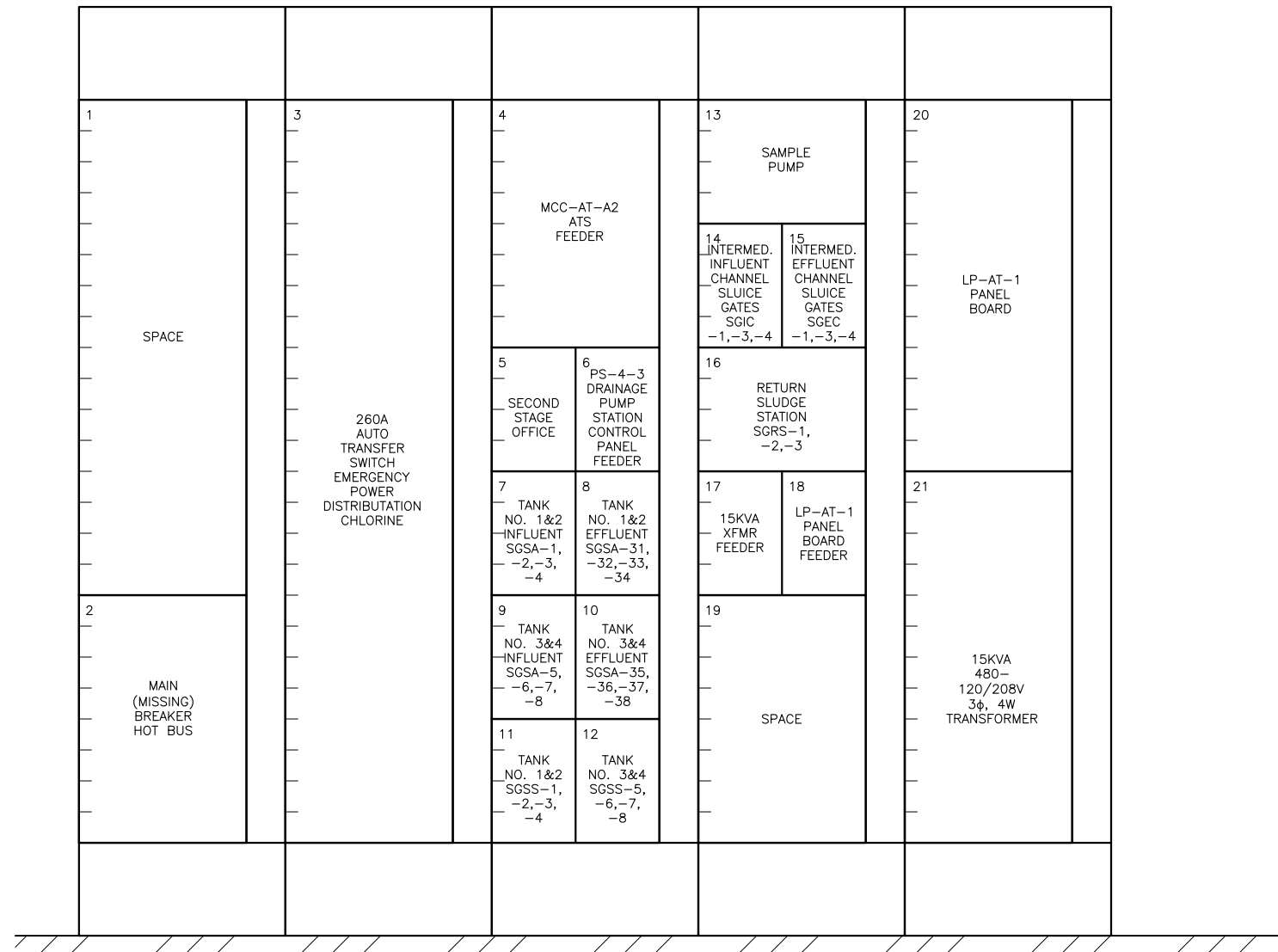
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		MCC-AT-1 ELEVATION	FIG-2.6-2



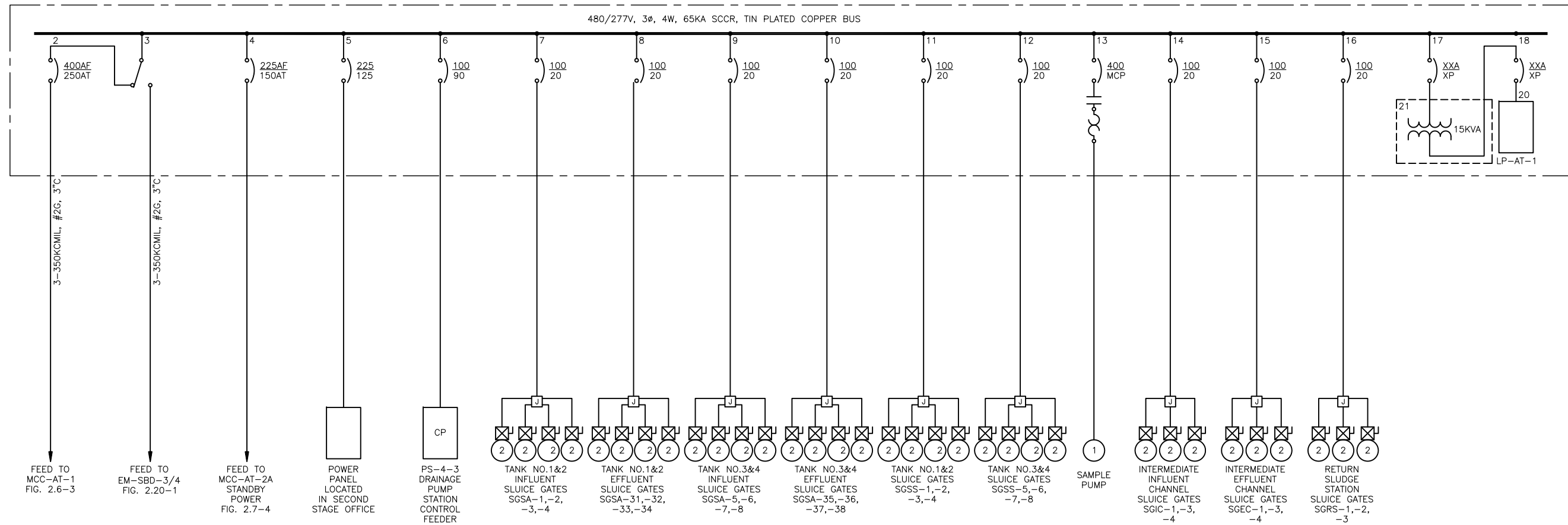
MCC-AT-1
ONE-LINE
DIAGRAM

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MCC-AT-1A
ELEVATION
 SCALE: NTS

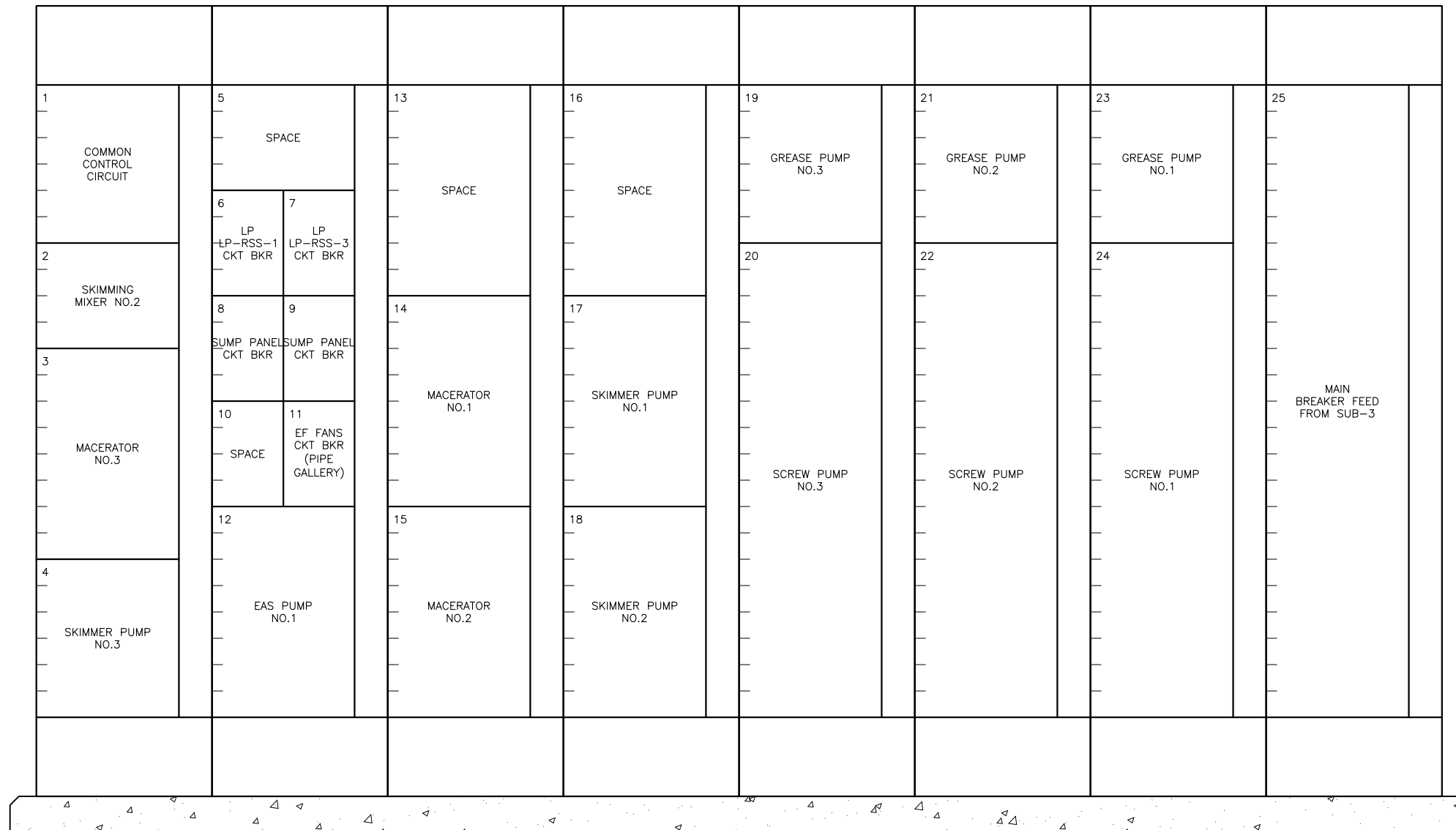
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MCC-AT-1A
ONE-LINE
DIAGRAM

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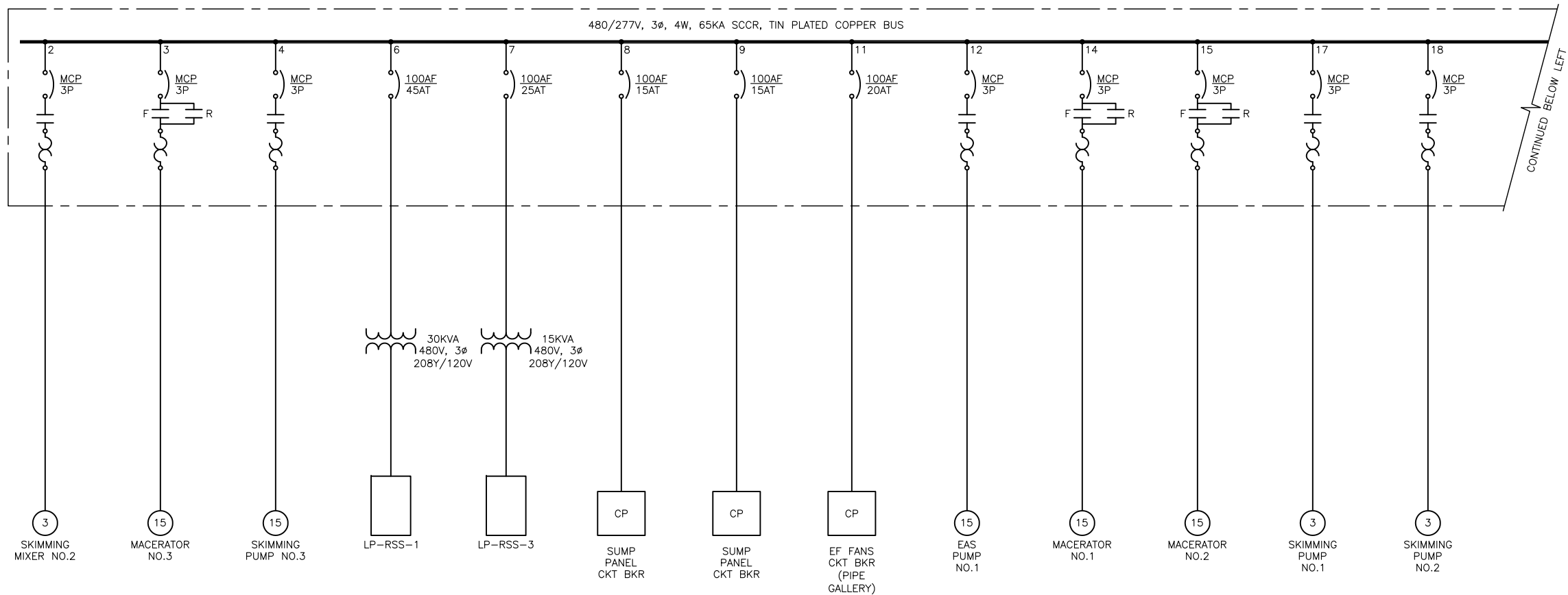
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	MCC-AT-1A ONE-LINE DIAGRAM	FIG-2.6-5



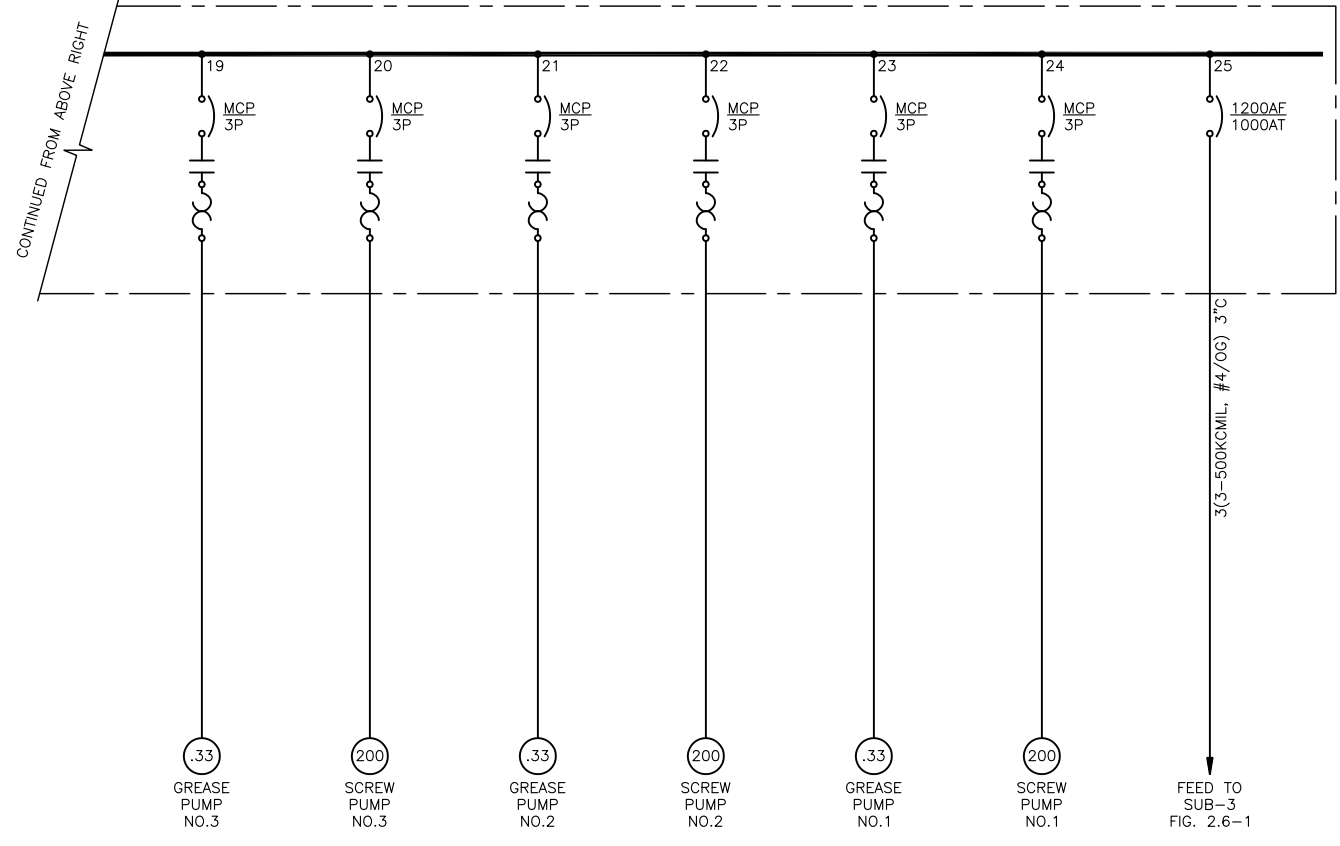
MCC-RS-3
ELEVATION
 SCALE: NTS

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		MCC-RS3 ELEVATION	FIG-2.6-6



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MCC-RS-3
ONE-LINE
DIAGRAM

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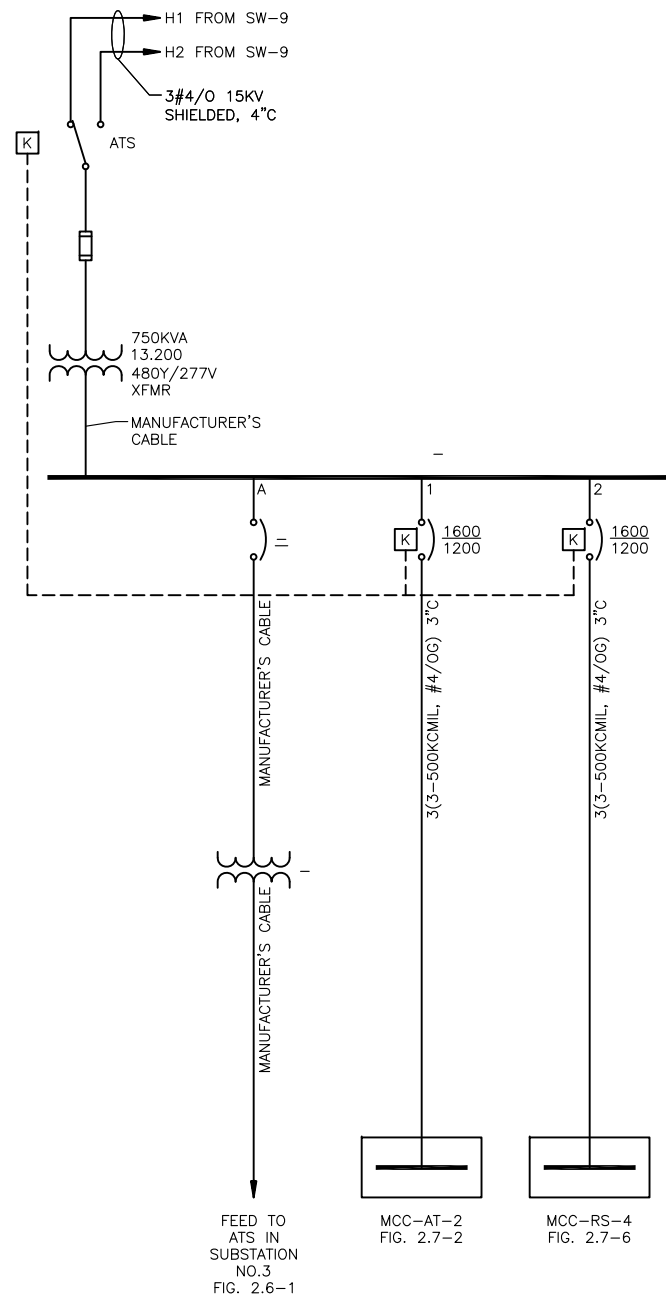
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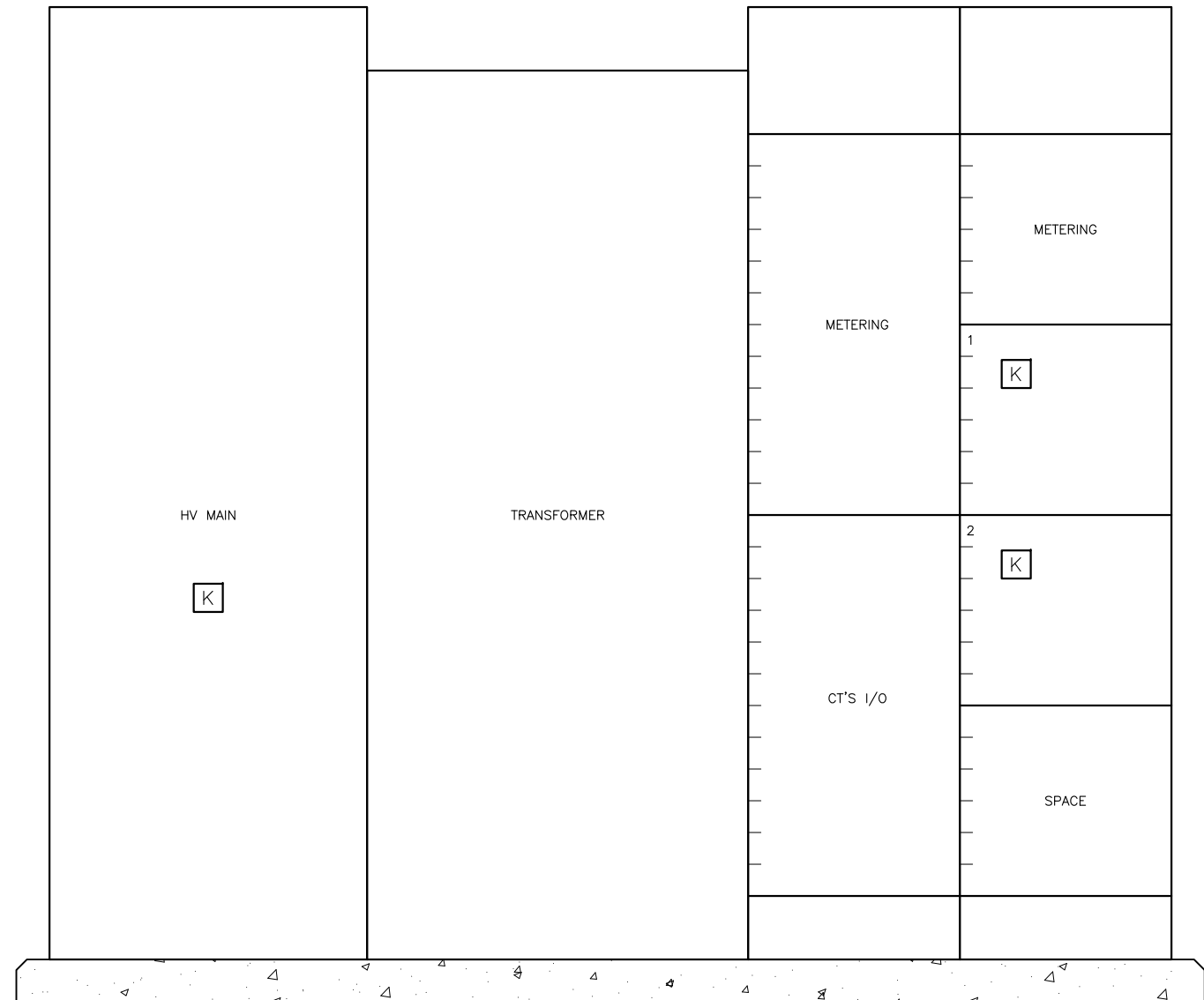
DATE
01-XX-12

MCC-RS-3
ONE-LINE DIAGRAM

FIG-2.6-7



MDP-4
ONE-LINE
DIAGRAM



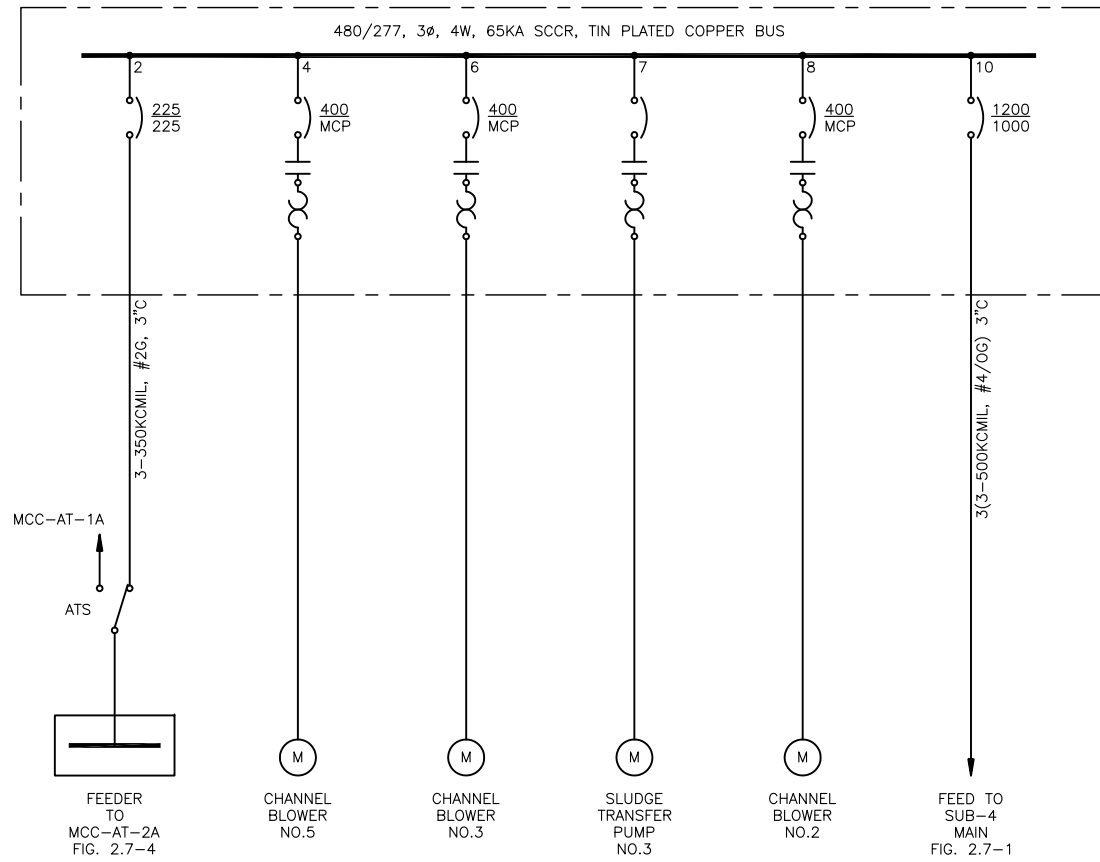
MDP-4
ELEVATION
SCALE: NTS

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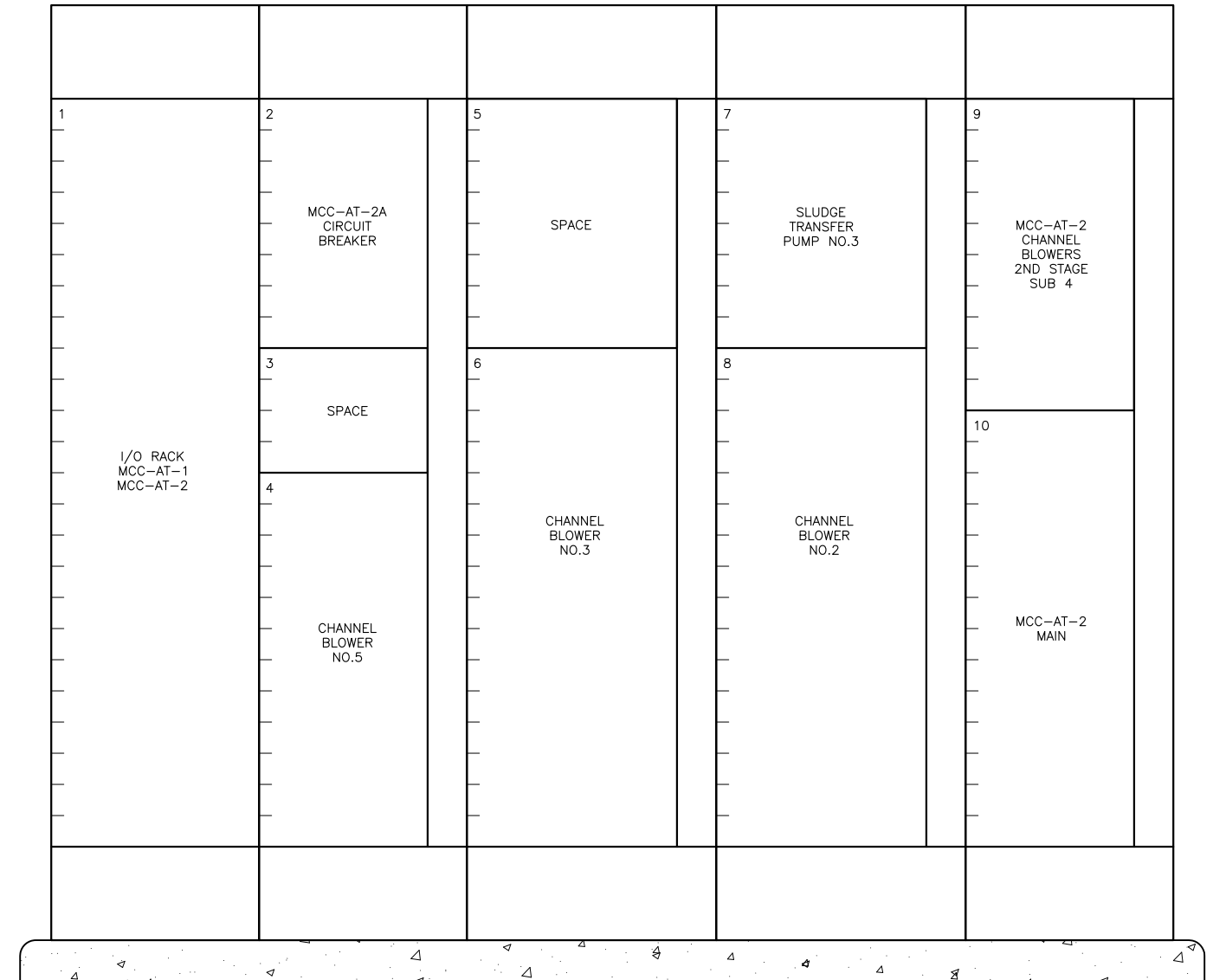
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SUBSTATION NO.4
ONE-LINE DIAGRAM
& ELEVATION

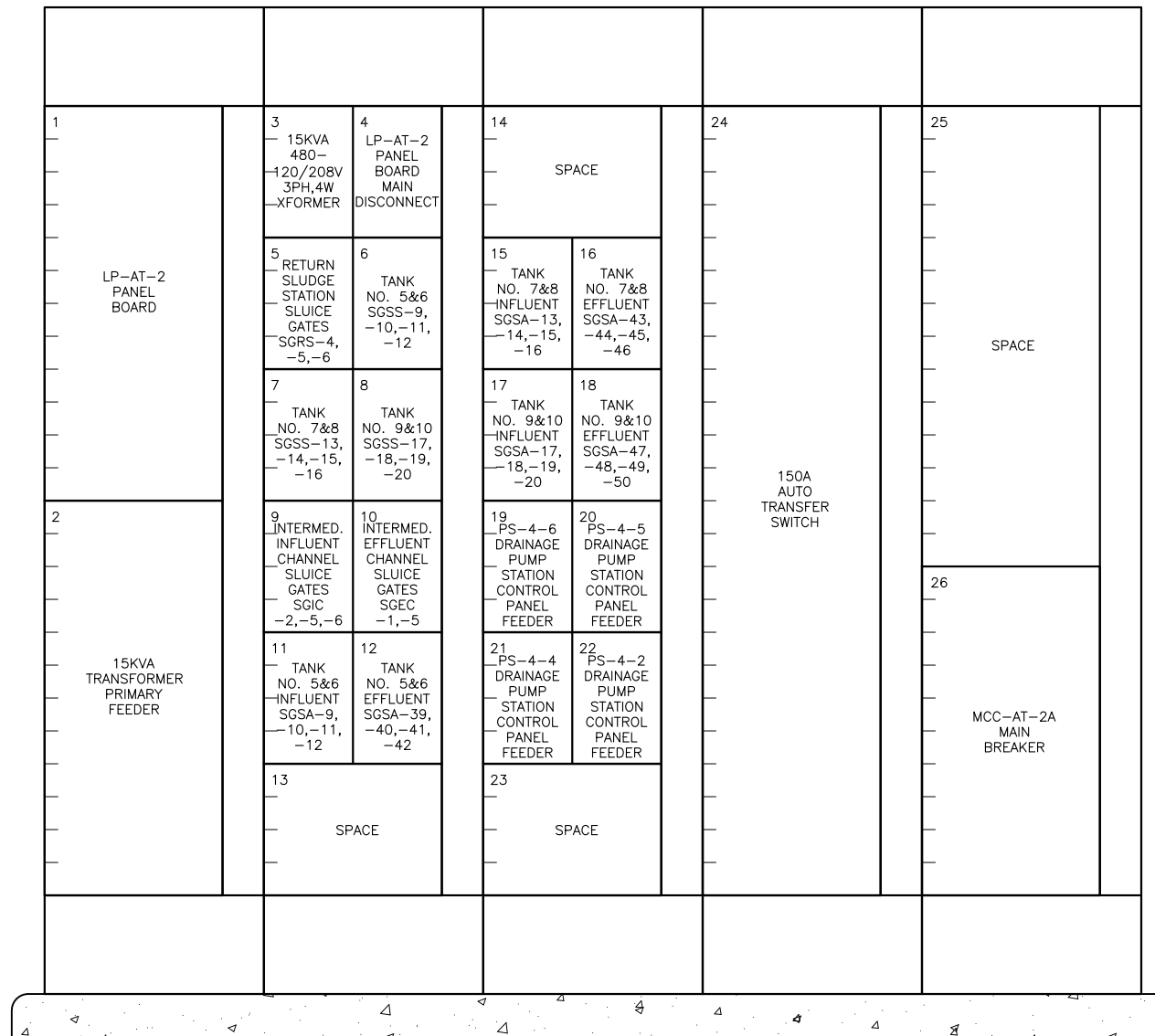
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01-XX-12
FIG-2.7-1



MCC-AT-2
ONE-LINE
DIAGRAM

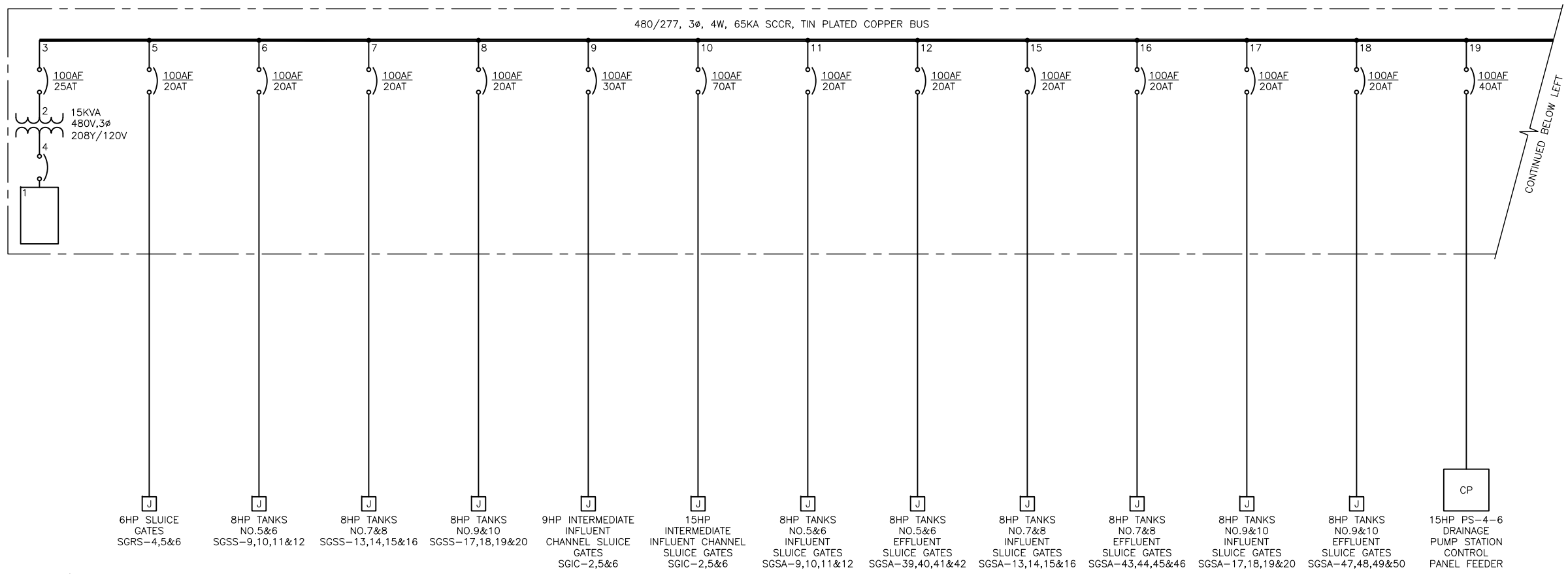


MCC-AT-2
ELEVATION
SCALE: NTS

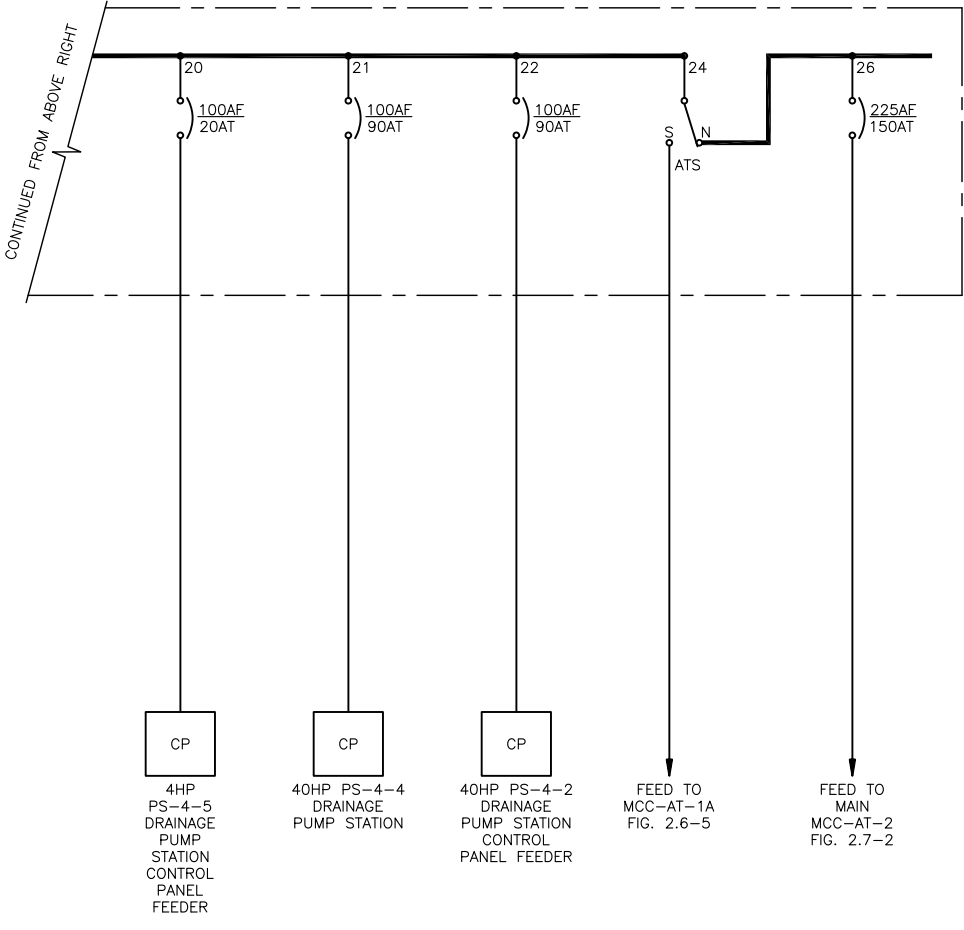


MCC-AT-2A
ELEVATION
SCALE: NTS

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MCC-AT-2A
ONE-LINE
DIAGRAM

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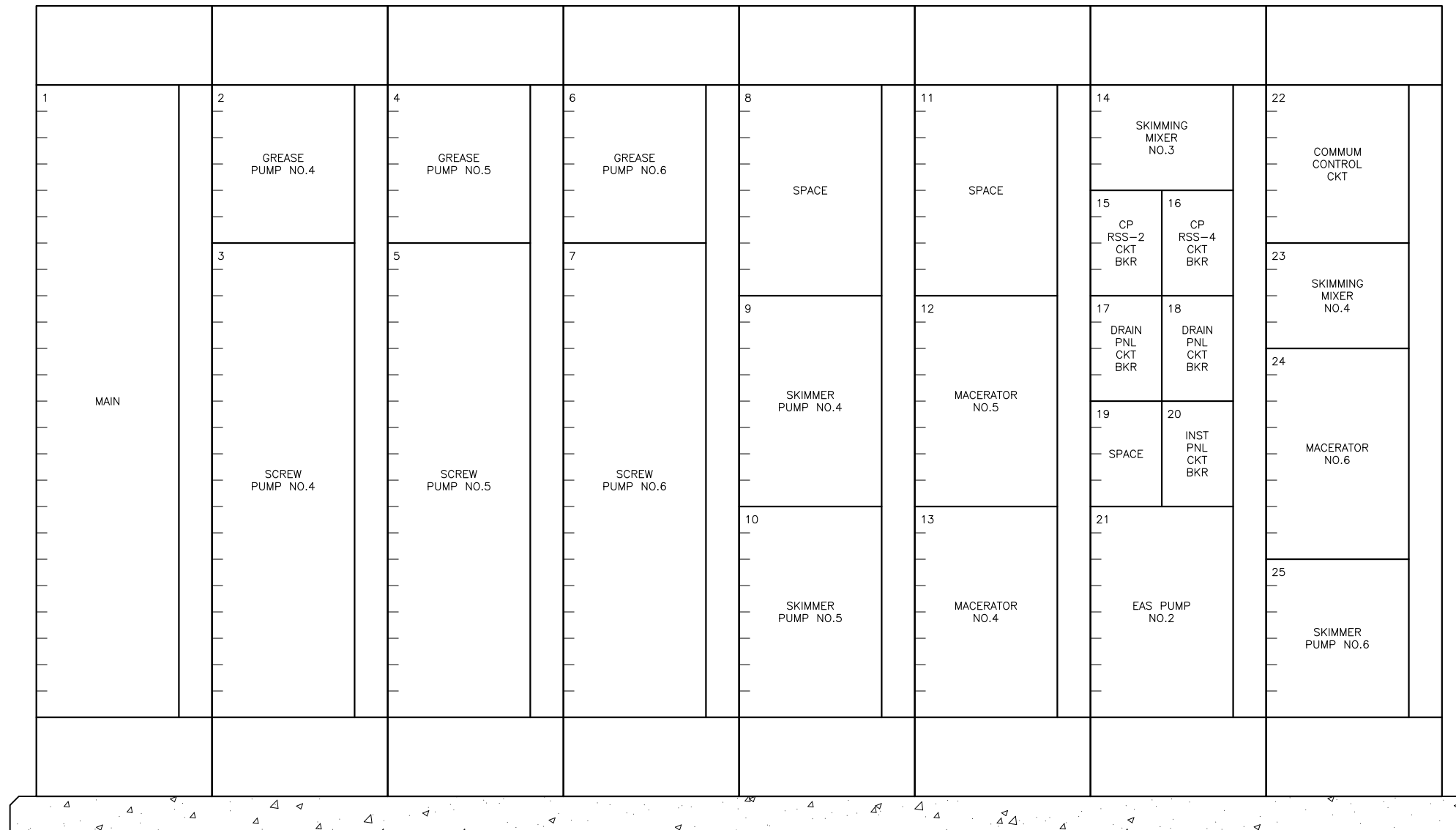
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ONE-LINE DIAGRAM

DATE
01-XX-12

FIG-2.7-4

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MCC-RS-4
ELEVATION
 SCALE: NTS

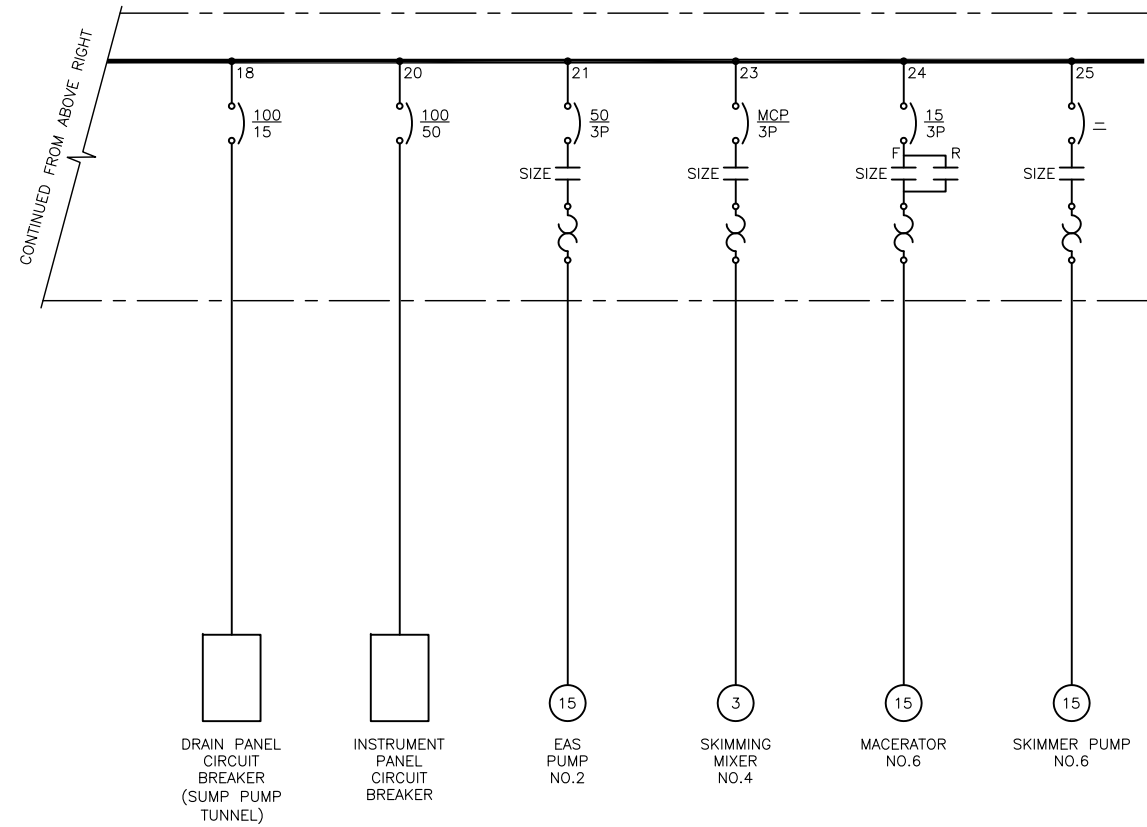
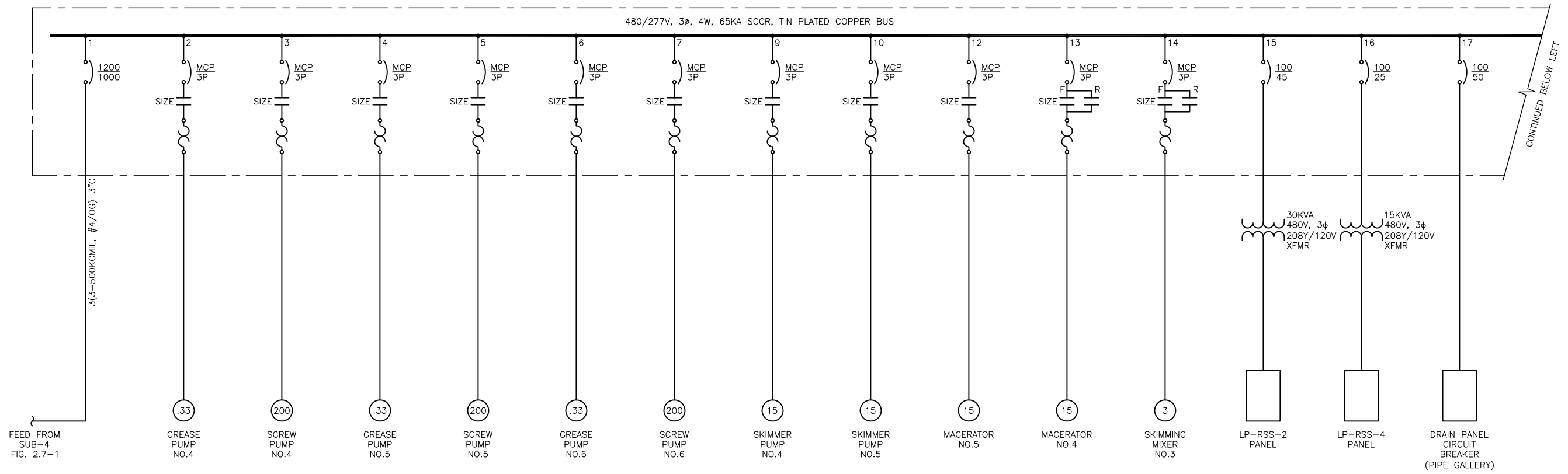
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MCC-RS-4
 ELEVATION

DATE
 01-XX-12

FIG-2.7-5



MCC-RS-4
ONE-LINE
DIAGRAM

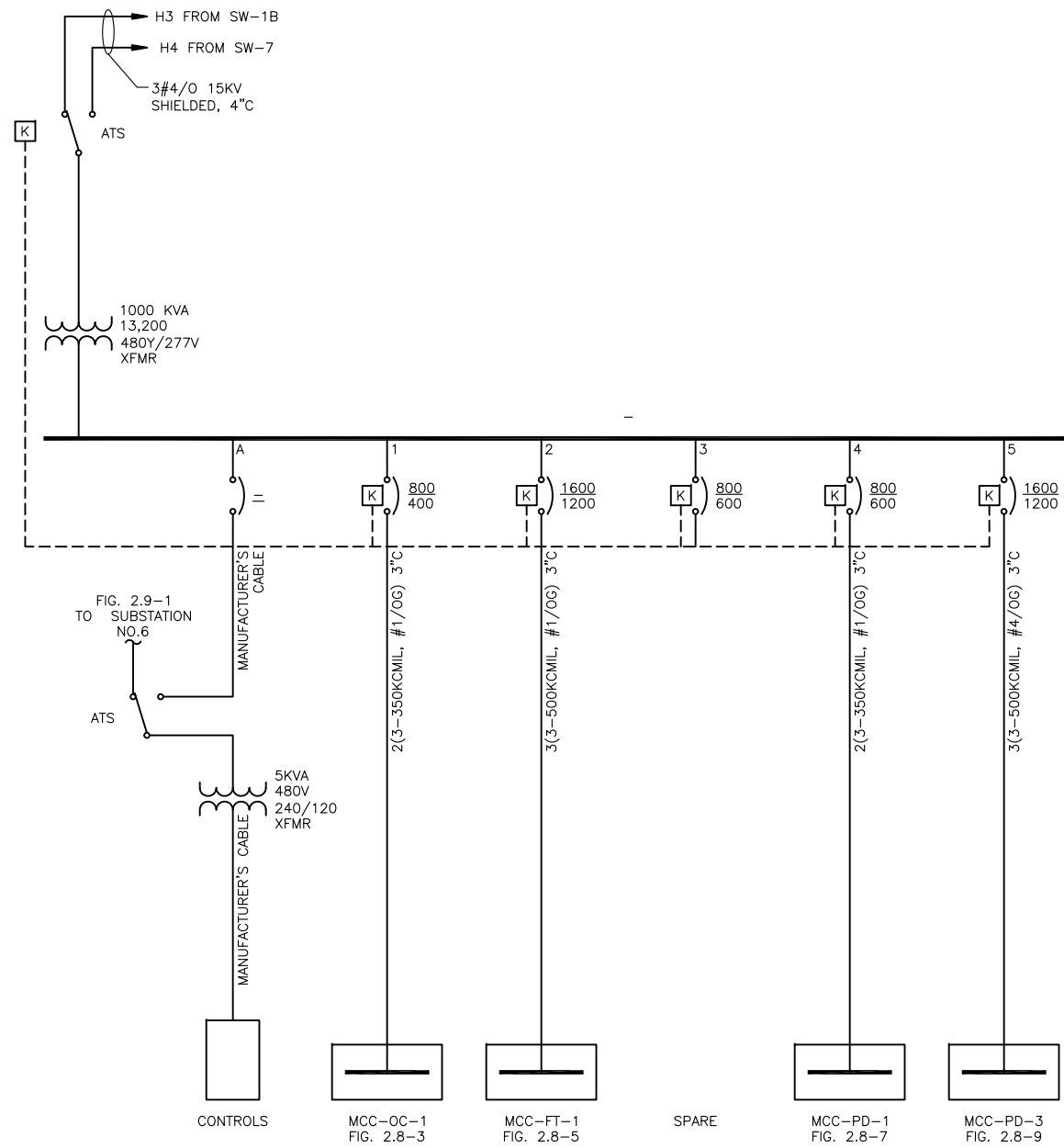
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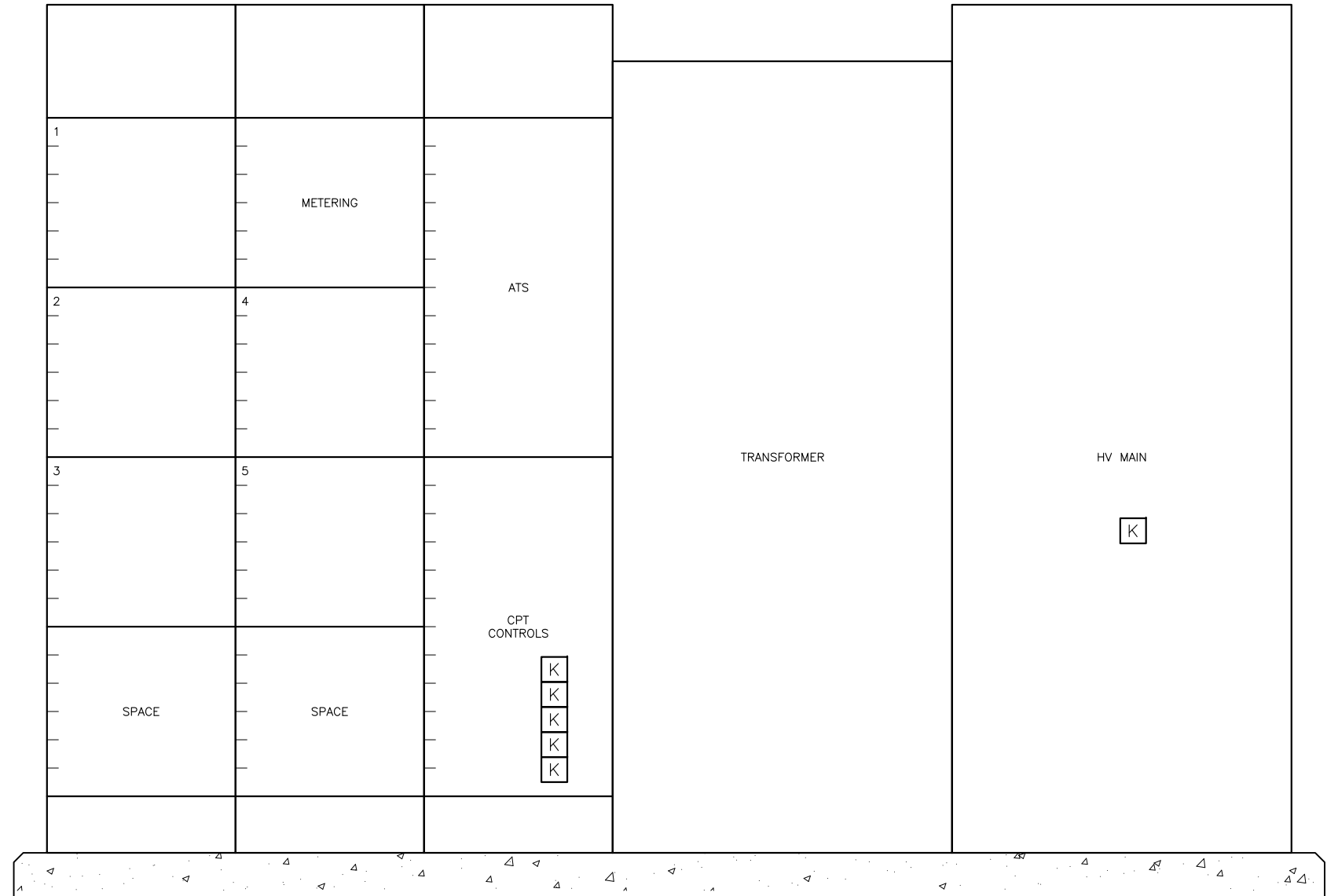
DATE
01-XX-12

MCC-RS-4
ONE-LINE DIGRAM

FIG-2.7-6



MDP-5
ONE-LINE
DIAGRAM



MDP-5
ELEVATION
SCALE: NTS

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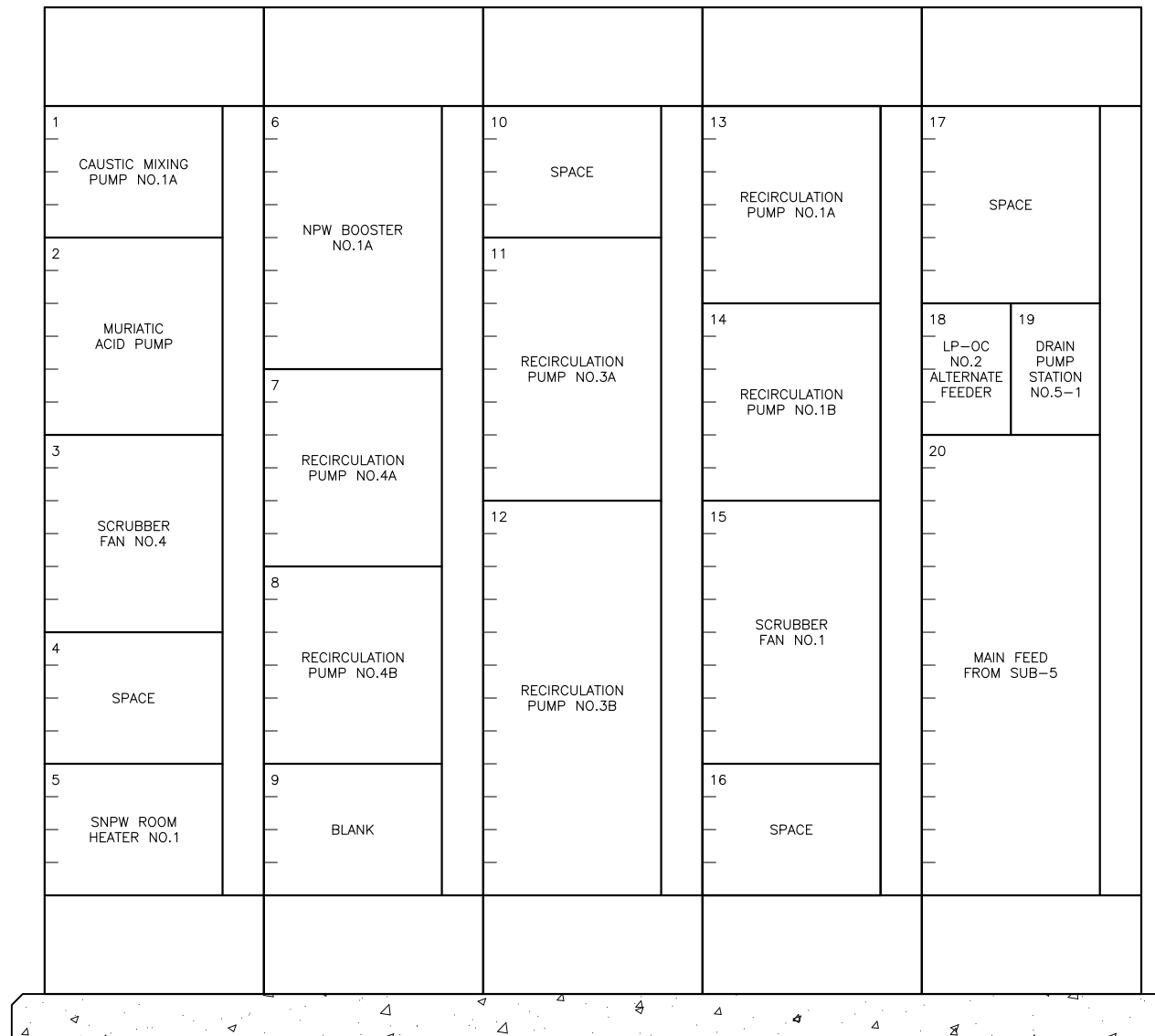
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SUBSTATION NO.5
ONE-LINE DIAGRAM
& ELEVATION

DATE
01-XX-12

FIG-2.8-1

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MCC-OC-1
ELEVATION
SCALE: NTS

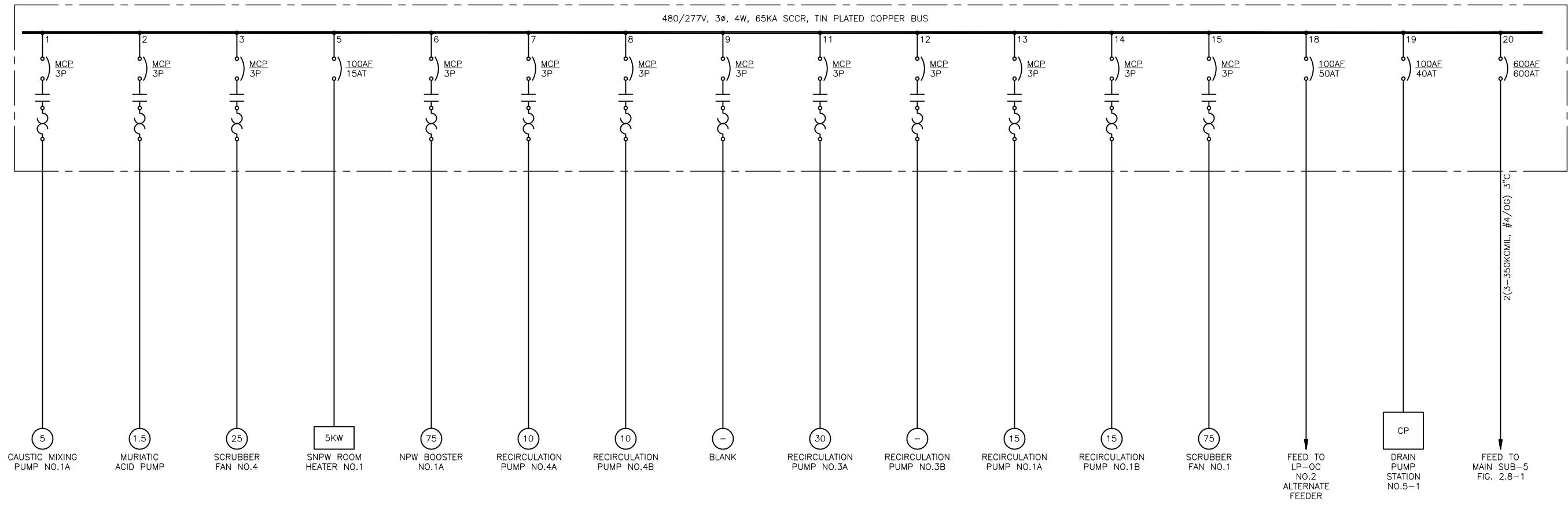
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DOS RIOS ELECTRICAL ASSESSMENT

MCC-OC-1 ELEVATION


DATE
01-XX-12

FIG-2.8-2

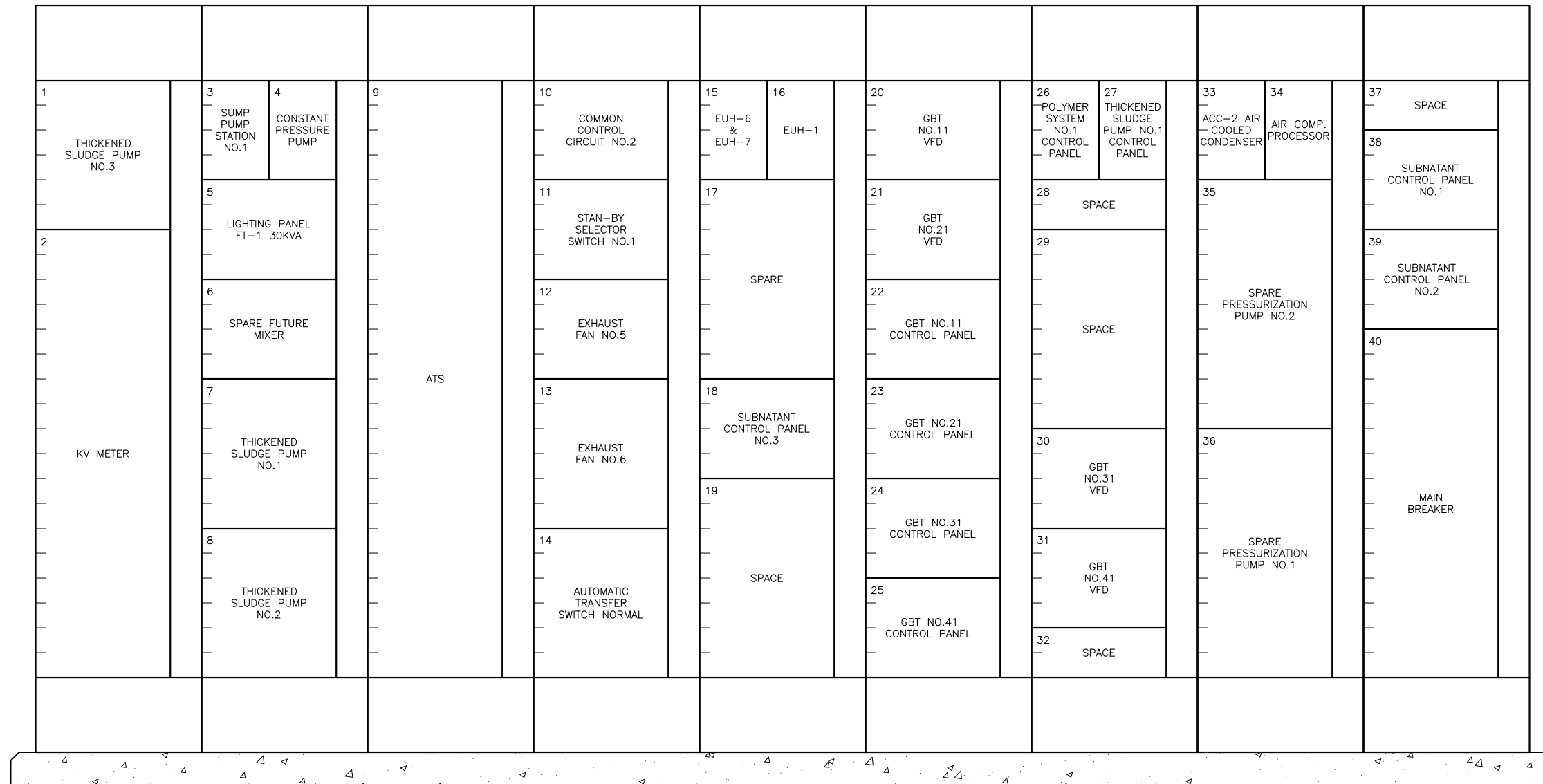


MCC-OC-1
ONE-LINE
DIAGRAM

Z:\1922_SAWS - Dos Rios\Report Phase\Report\Figures\FIG-2_8-3.dwg, 2/8/2012 10:37:33 AM, Adobe PDF, JH

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	MCC-OC-1 ONE-LINE DIAGRAM	FIG-2.8-3

Z:\1922_SAWS - Dos Rios\Report Phase\Report\Figures\FIG-2_8-04.dwg, 2/8/2012 10:37:35 AM, Adobe PDF, JH



MCC-FT-1
ELEVATION
 SCALE: NTS

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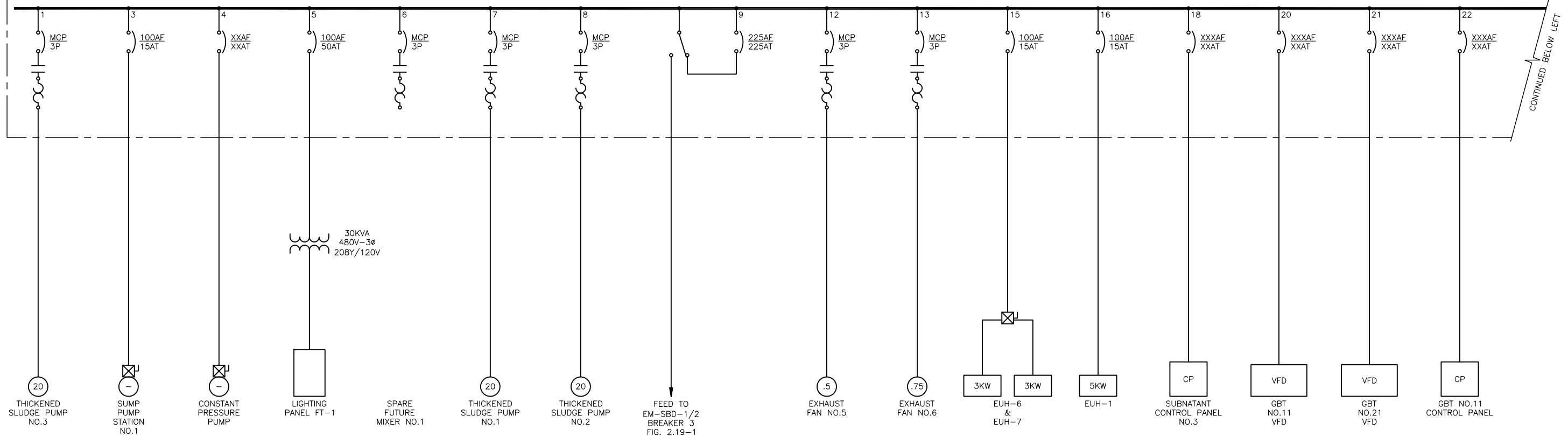
SAN ANTONIO WATER SYSTEM
 CITY OF SAN ANTONIO, TEXAS
 DOS RIOS ELECTRICAL ASSESSMENT

MCC-FT-1
 ELEVATION

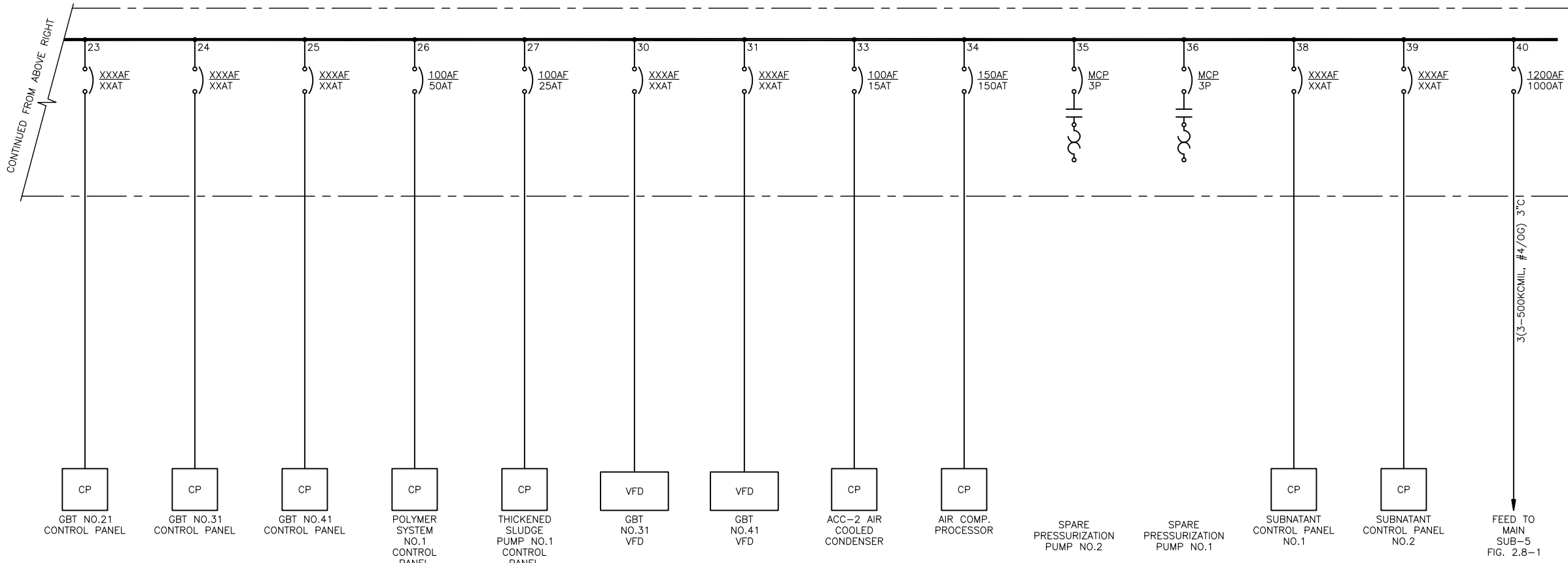
DATE
 01-XX-12

FIG-2.8-4

480/277V, 3Ø, 4W, 65KA SCCR, TIN PLATED COPPER BUS



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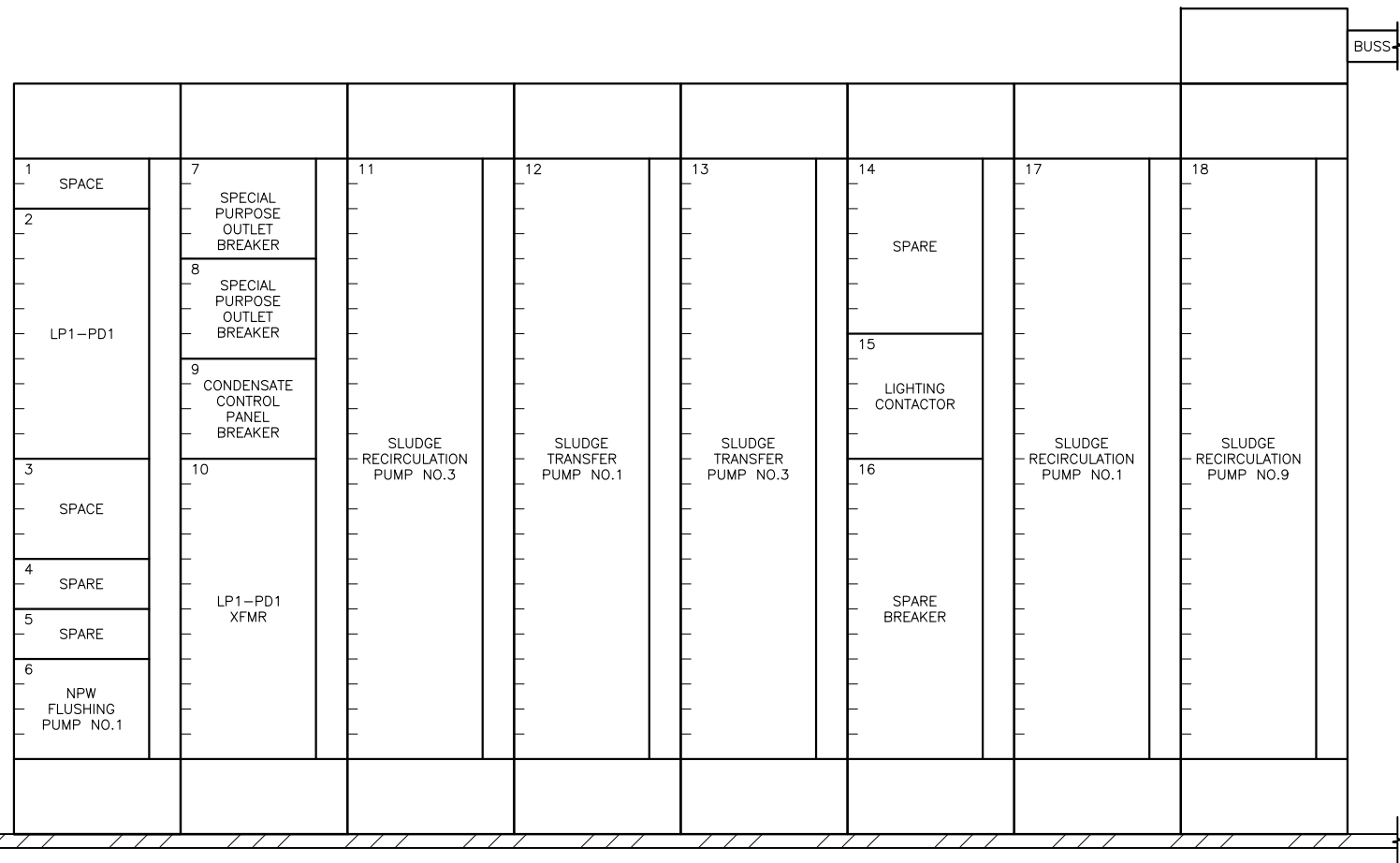
MCC-FEED-1 ONE-LINE DIAGRAM

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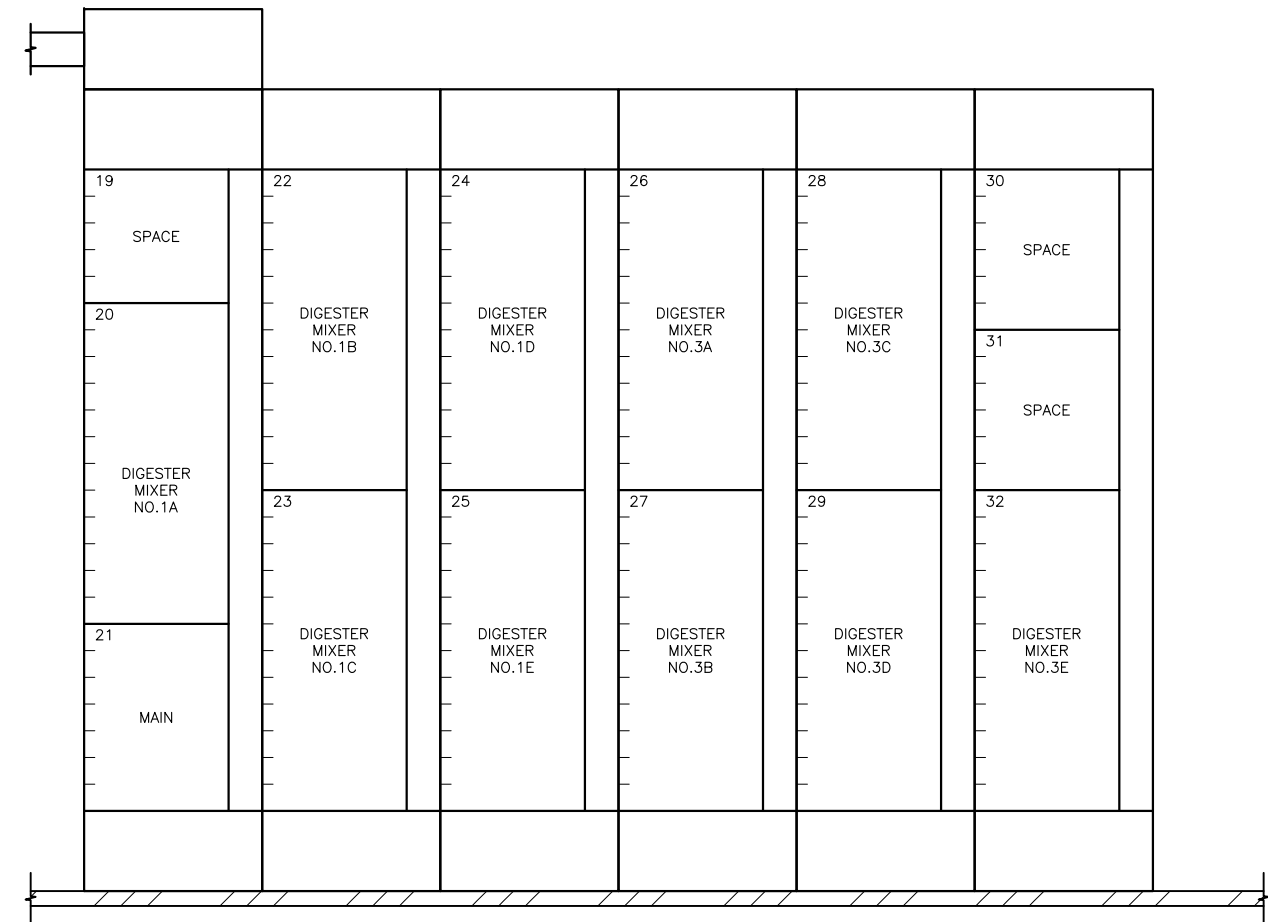
SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT

MCC-FEED-1
ONE-LINE DIAGRAM

DATE	01-XX-12
FIG-2.8-5	



FAST ELEVATION



WEST ELEVATION

MCC-PD-1
ELEVATION
SCALE: NTS

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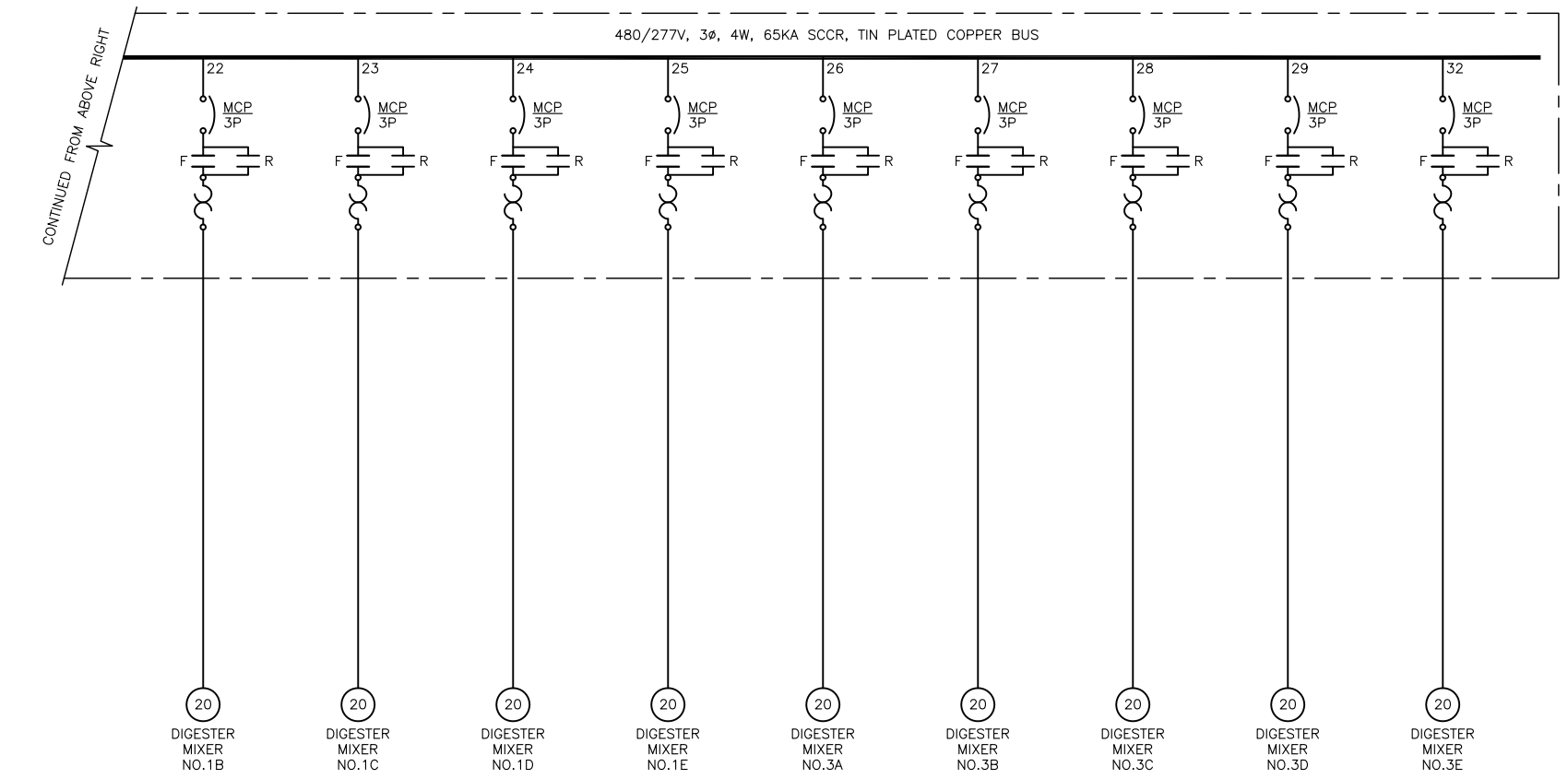
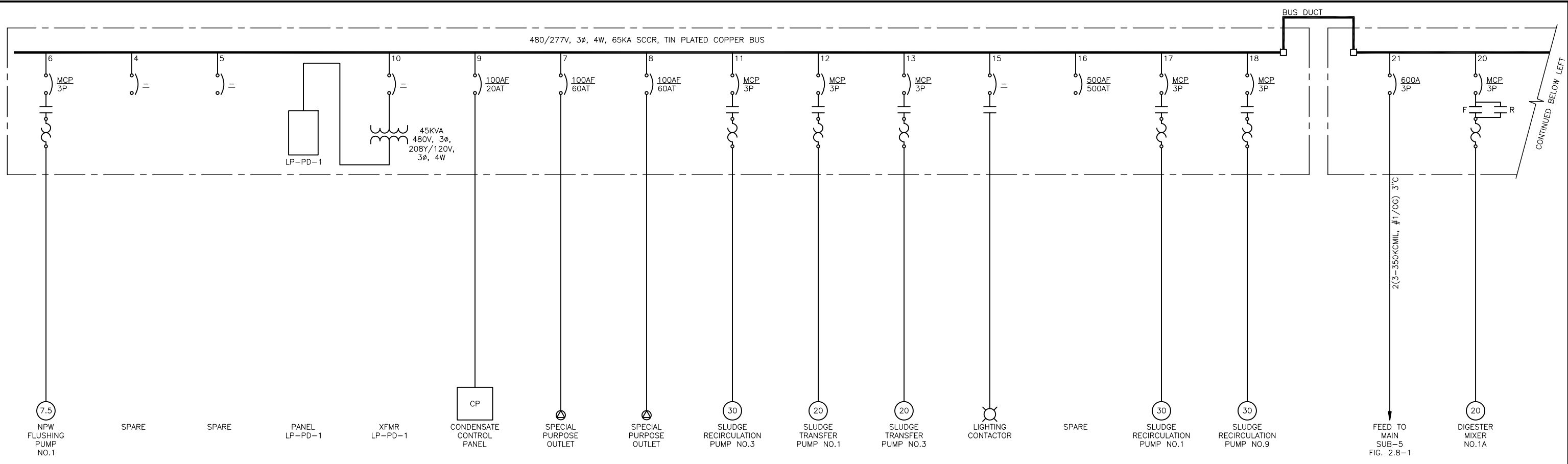
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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT

MCC-PD-1
ELEVATION

DATE
01-XX-12

FIG-2.8-6



MCC-PD-1
ONE-LINE
DIAGRAM

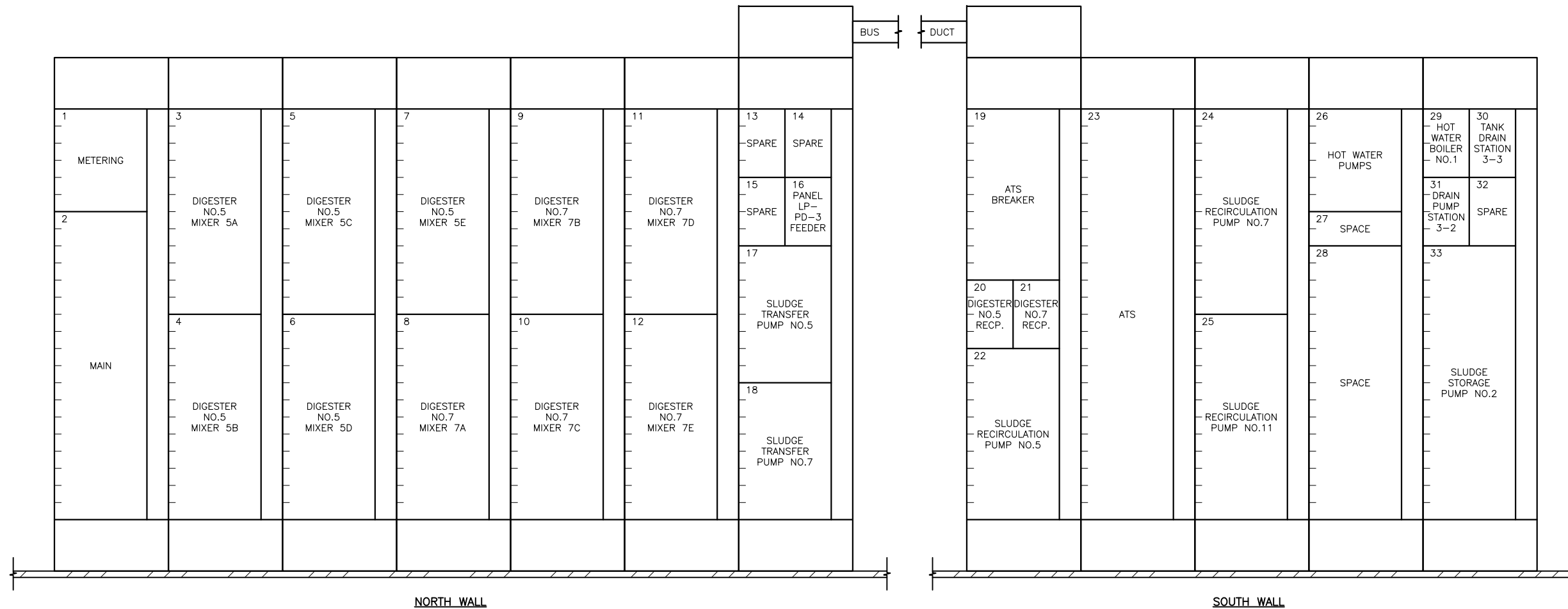
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CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT

DATE
01-XX-12

MCC-PD-1
ONE-LINE DIAGRAM

FIG-2.8-7

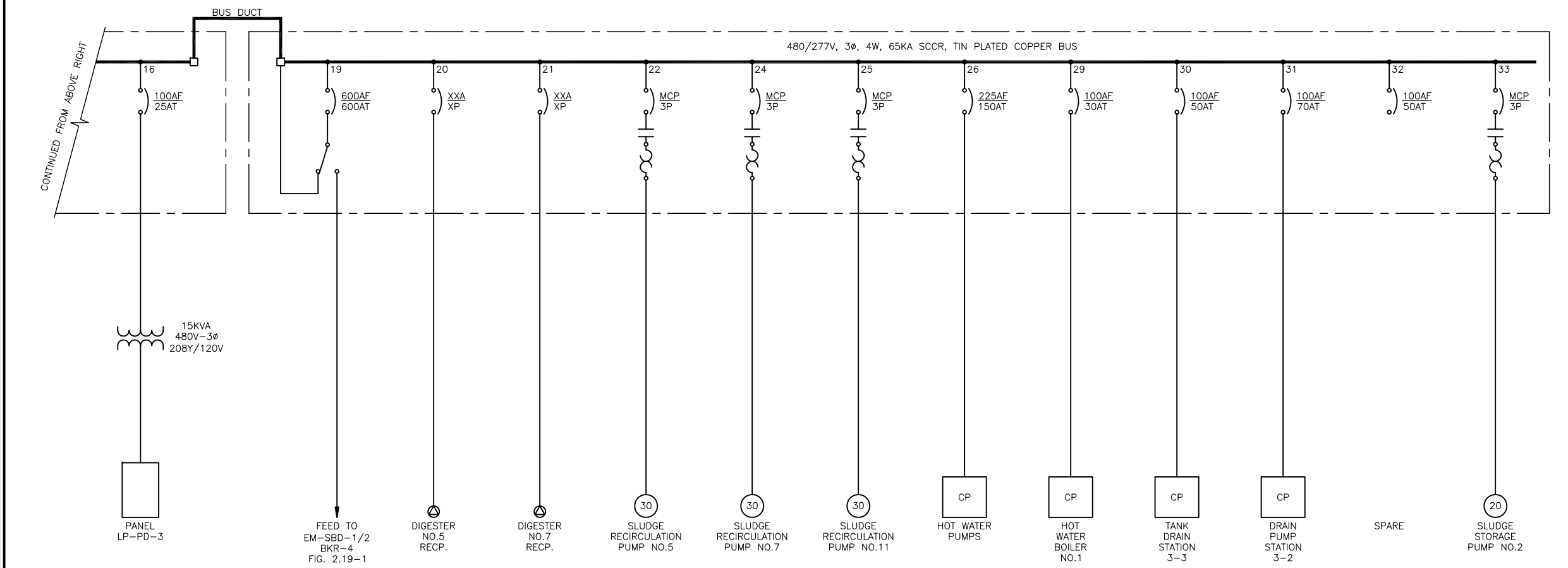
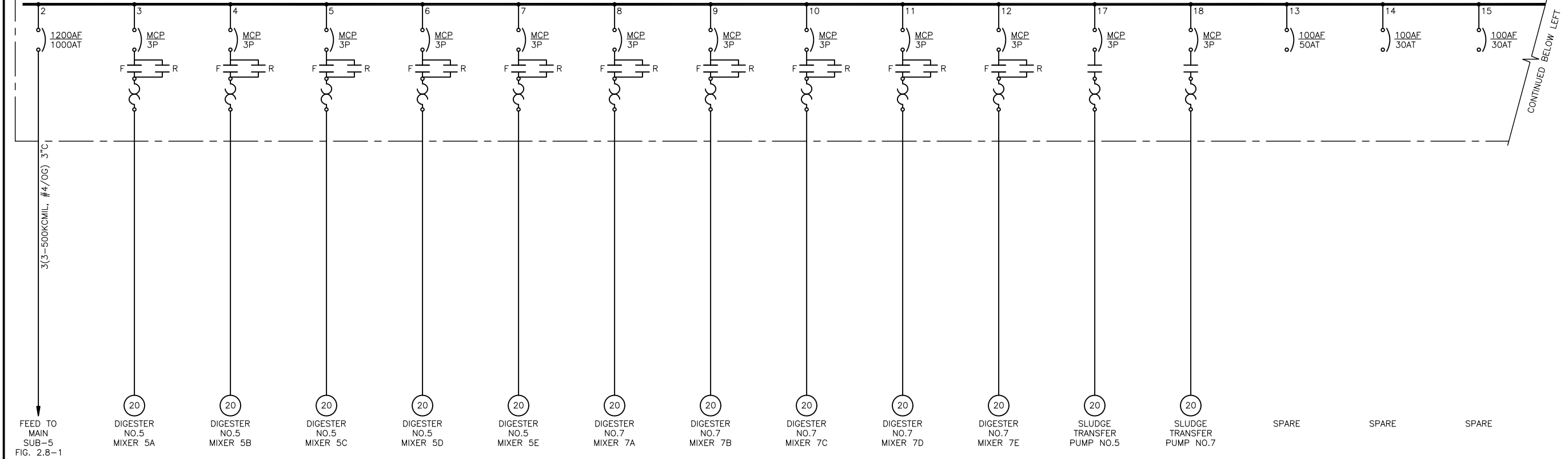


MCC-PD-3
ELEVATION
 SCALE: NTS

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	MCC-PD-3 ELEVATION	FIG-2.8-8

480/277V, 3 ϕ , 4W, 65KA SCCR, TIN PLATED COPPER BUS



MCC-PD-3
ONE-LINE
DIAGRAM

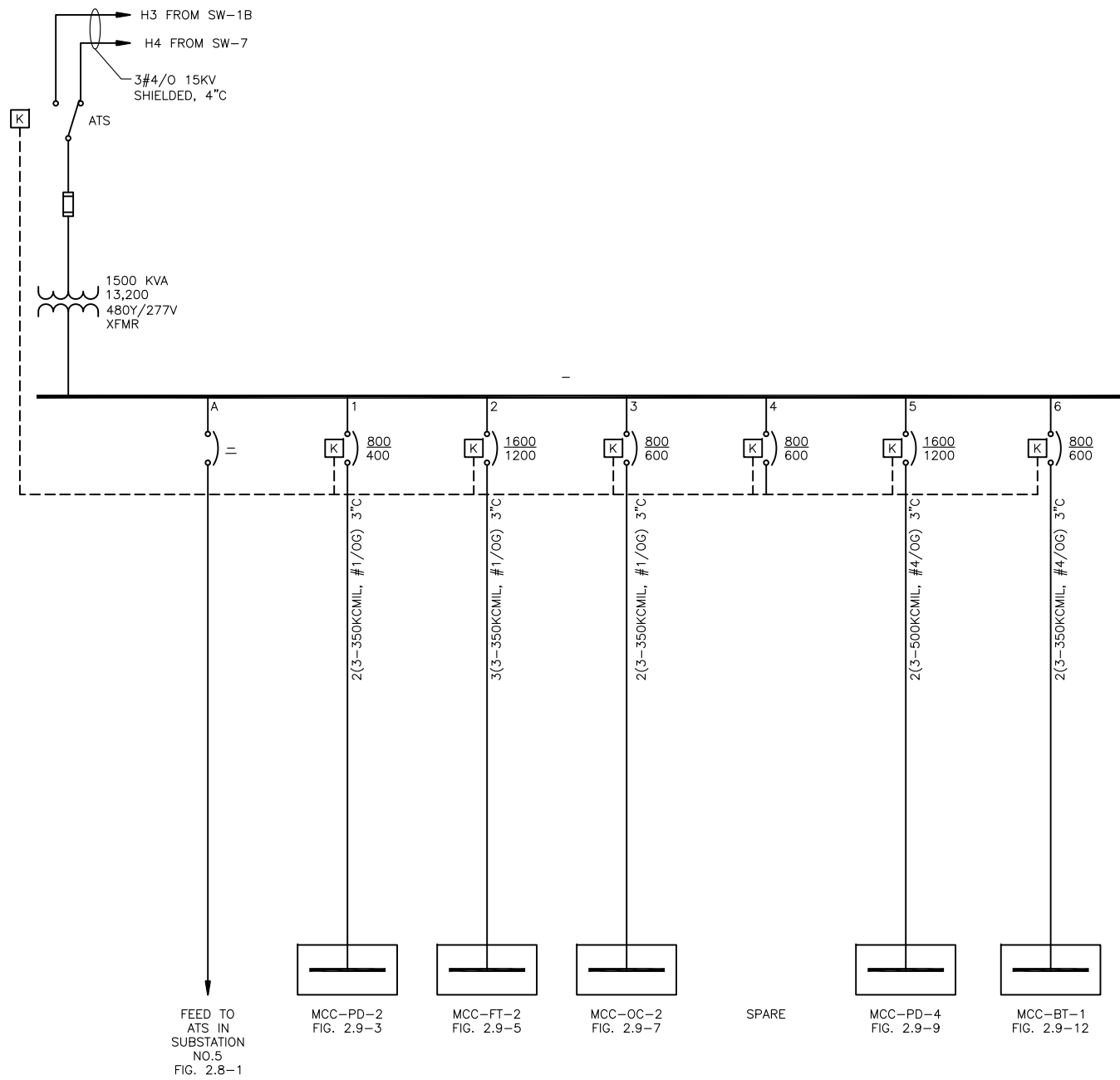
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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT

MCC-PD-3
ONE-LINE DIAGRAM

DATE
01-XX-12
FIG-2.8-9

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MDP-6
ONE-LINE
DIAGRAM



MDP-6
ELEVATION
SCALE: NTS

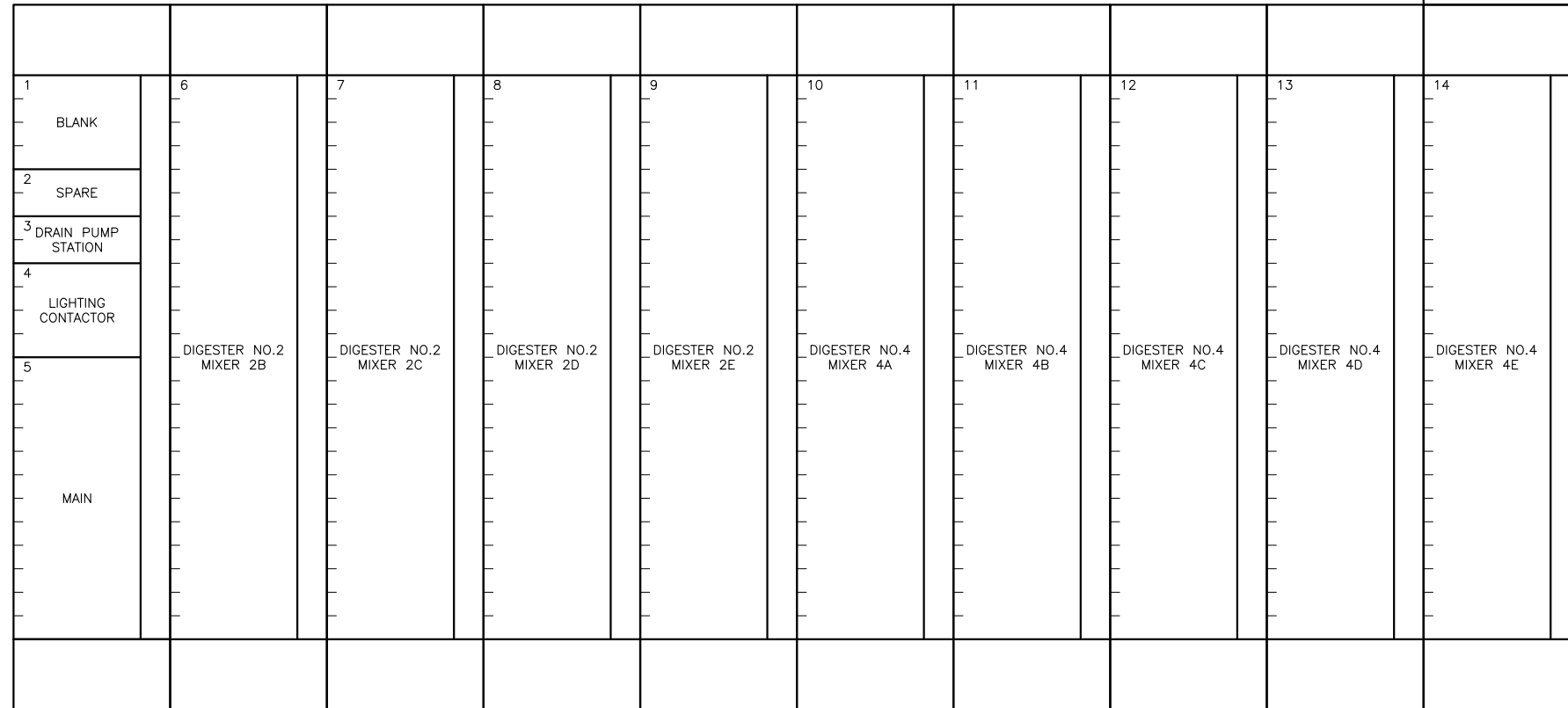
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DOS RIOS ELECTRICAL ASSESSMENT
SUBSTATION NO.6
ONE-LINE DIAGRAM
& ELEVATION

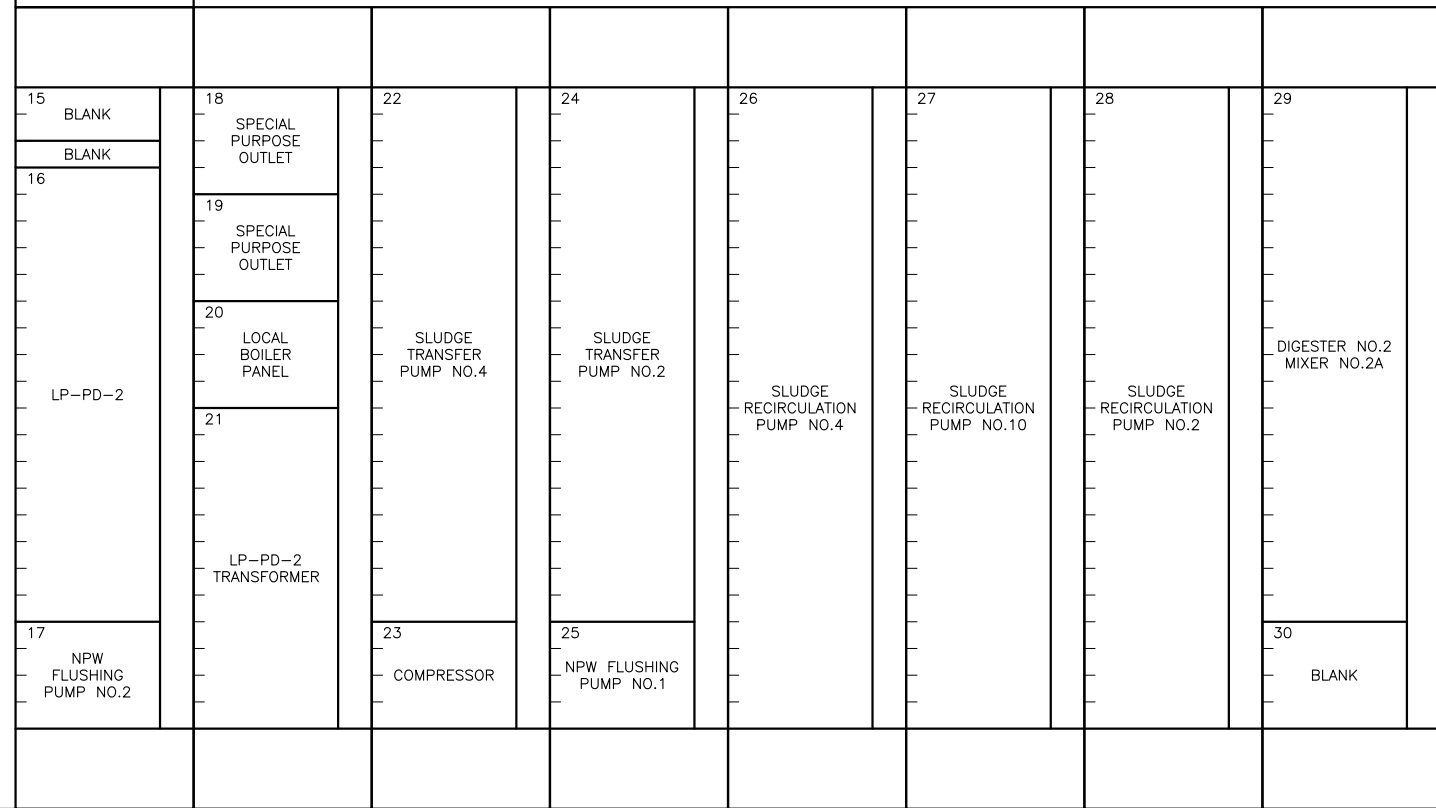
DATE
01-XX-12
FIG-2.9-1

BUS DUCT



WEST ELEVATION

BUS DUCT



EAST ELEVATION

MCC-PD-2
ELEVATION
SCALE: NTS

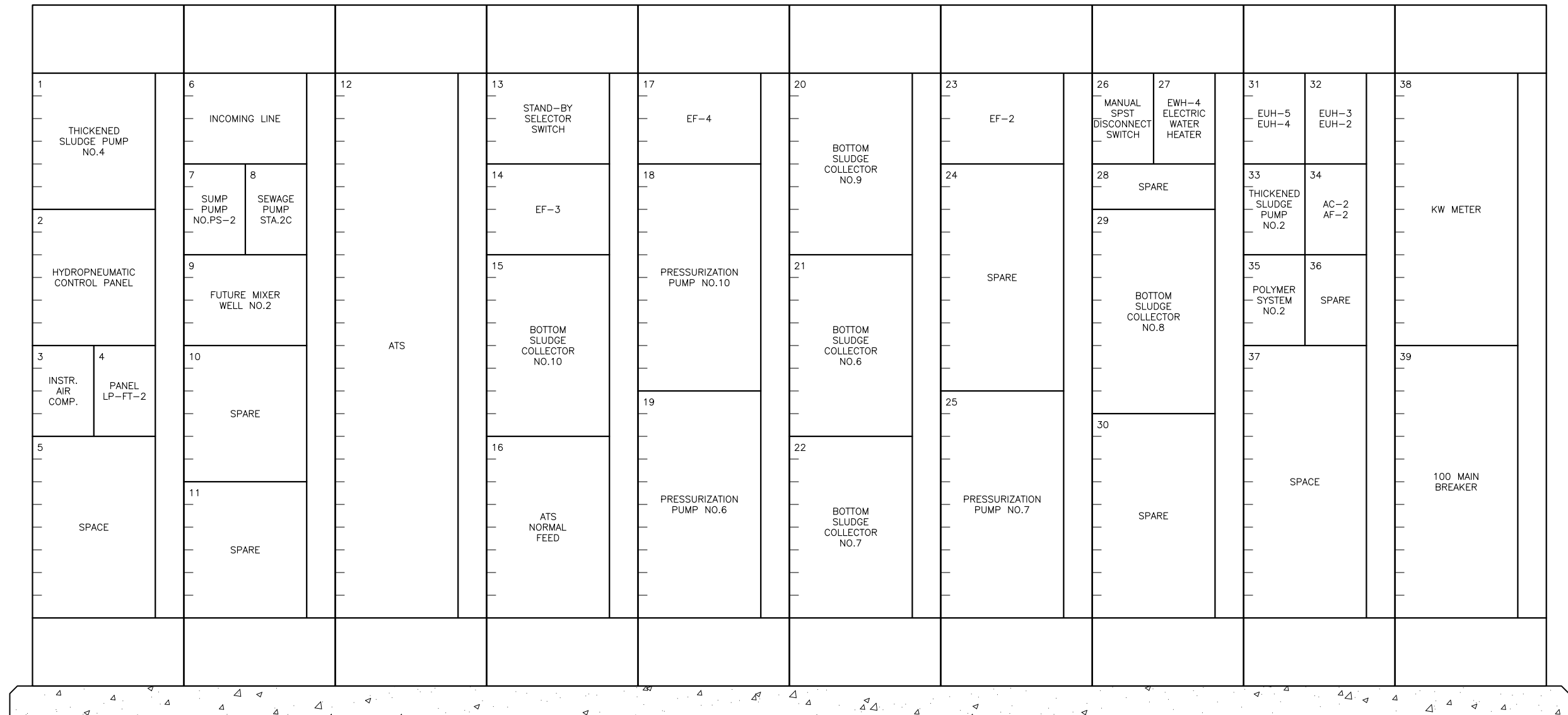
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CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT

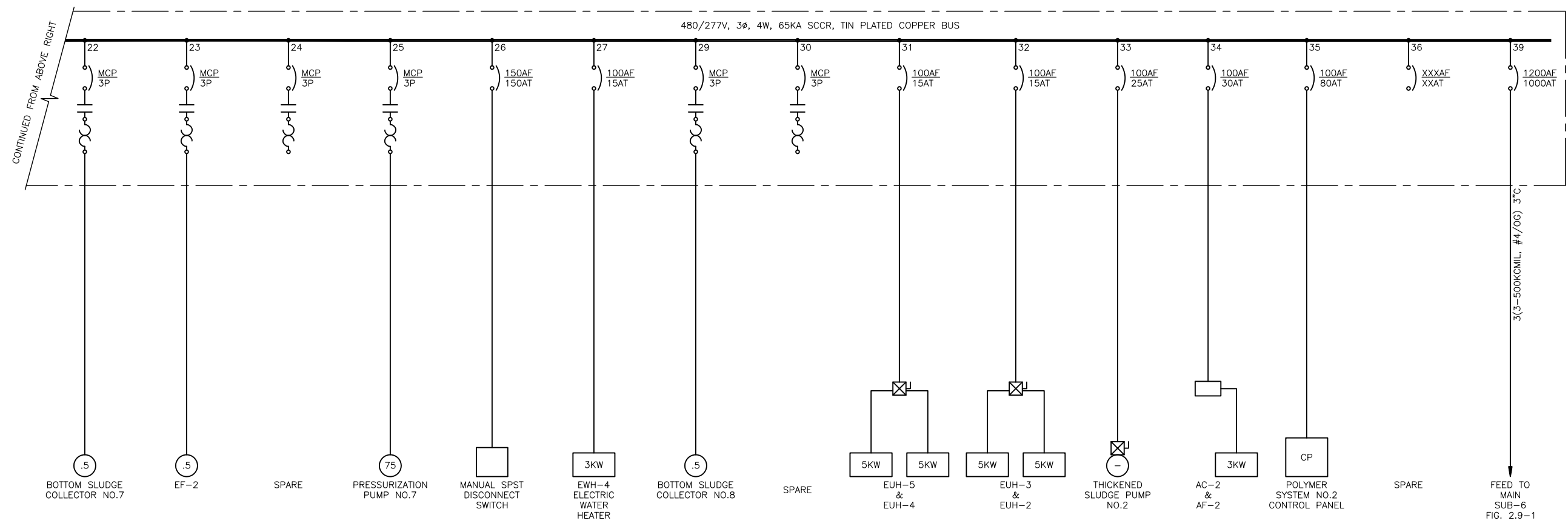
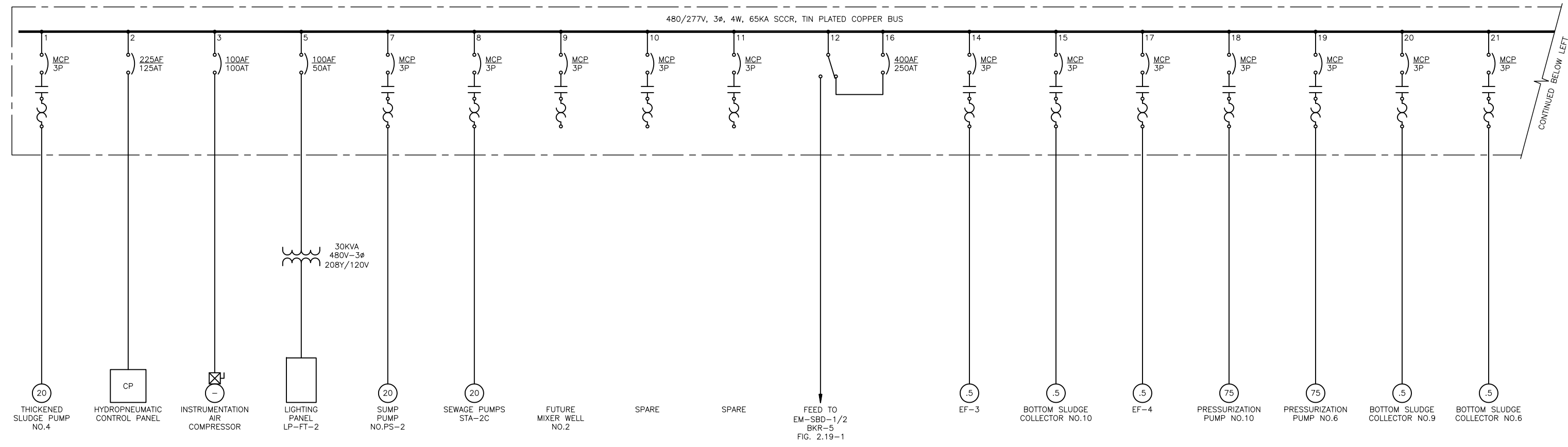
MCC-PD-2
ELEVATION

DATE
01-XX-12

FIG-2.9-2



MCC-FT-2
ELEVATION
SCALE: NTS



MCC-FT-2
ONE-LINE
DIAGRAM

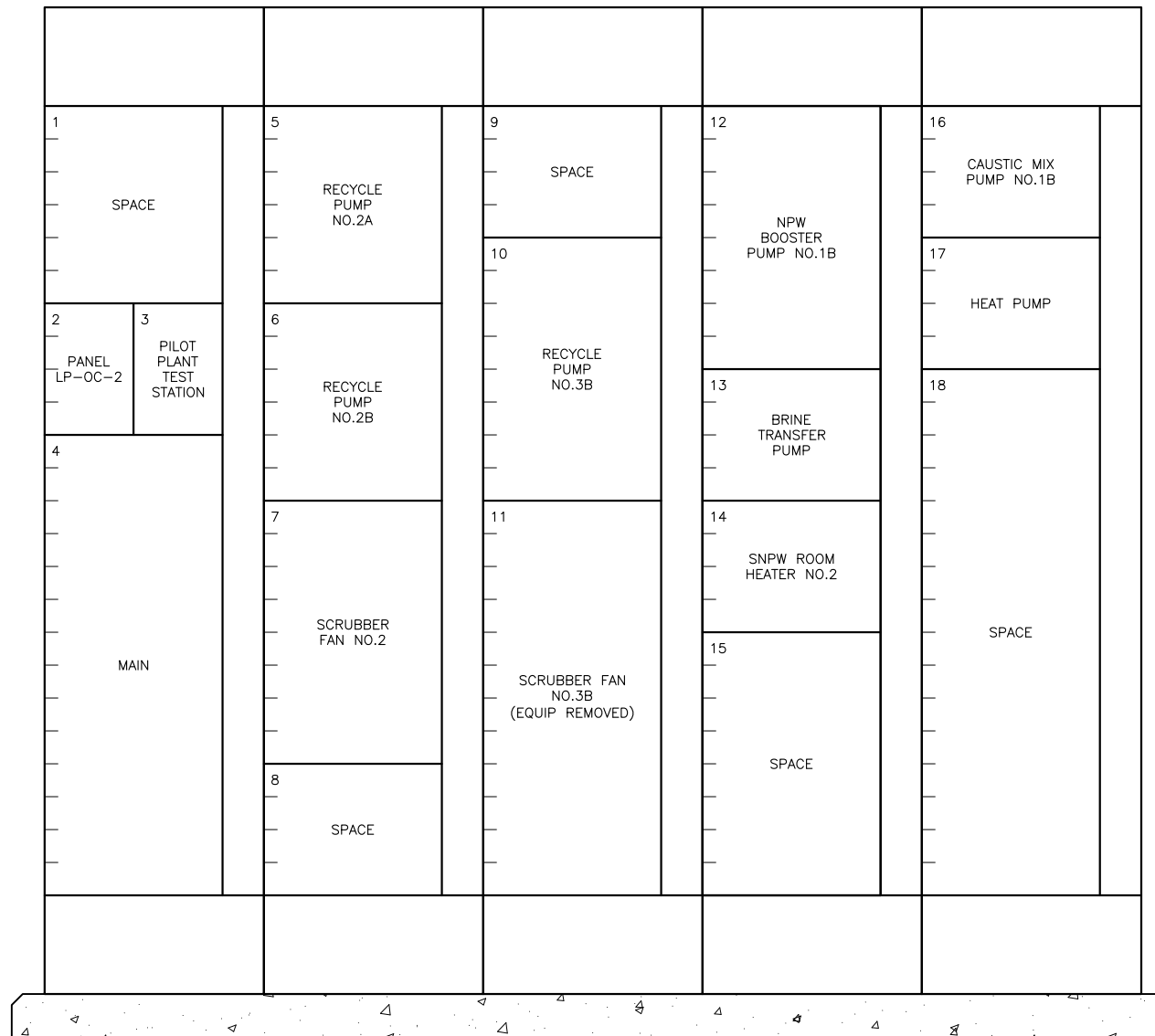
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CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT

MCC-FT-2
ONE-LINE DIAGRAM

DATE
01-XX-12

FIG-2.9-5



MCC-OC-2
ELEVATION
 SCALE: NTS

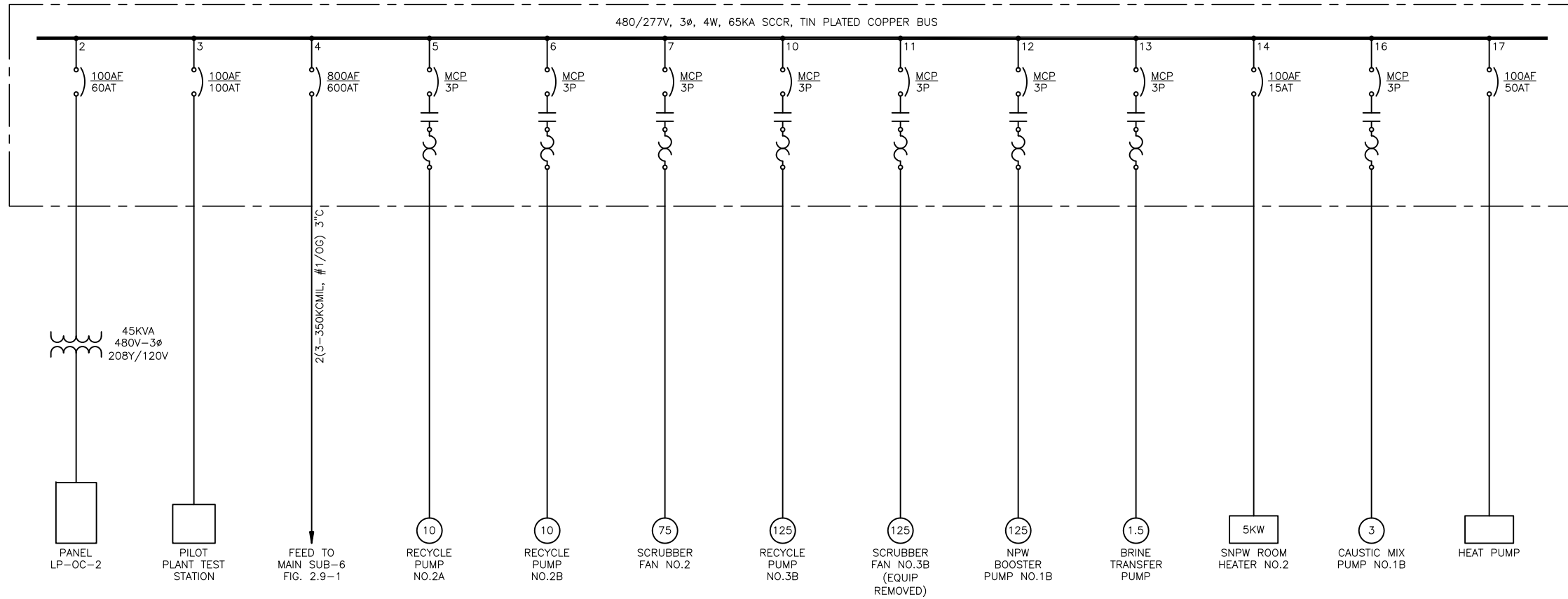
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SAN ANTONIO WATER SYSTEM
 CITY OF SAN ANTONIO, TEXAS
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 MCC-OC-2
 ELEVATION

DATE
 01-XX-12

FIG-2.9-6



MCC-OC-2
ONE-LINE
DIAGRAM

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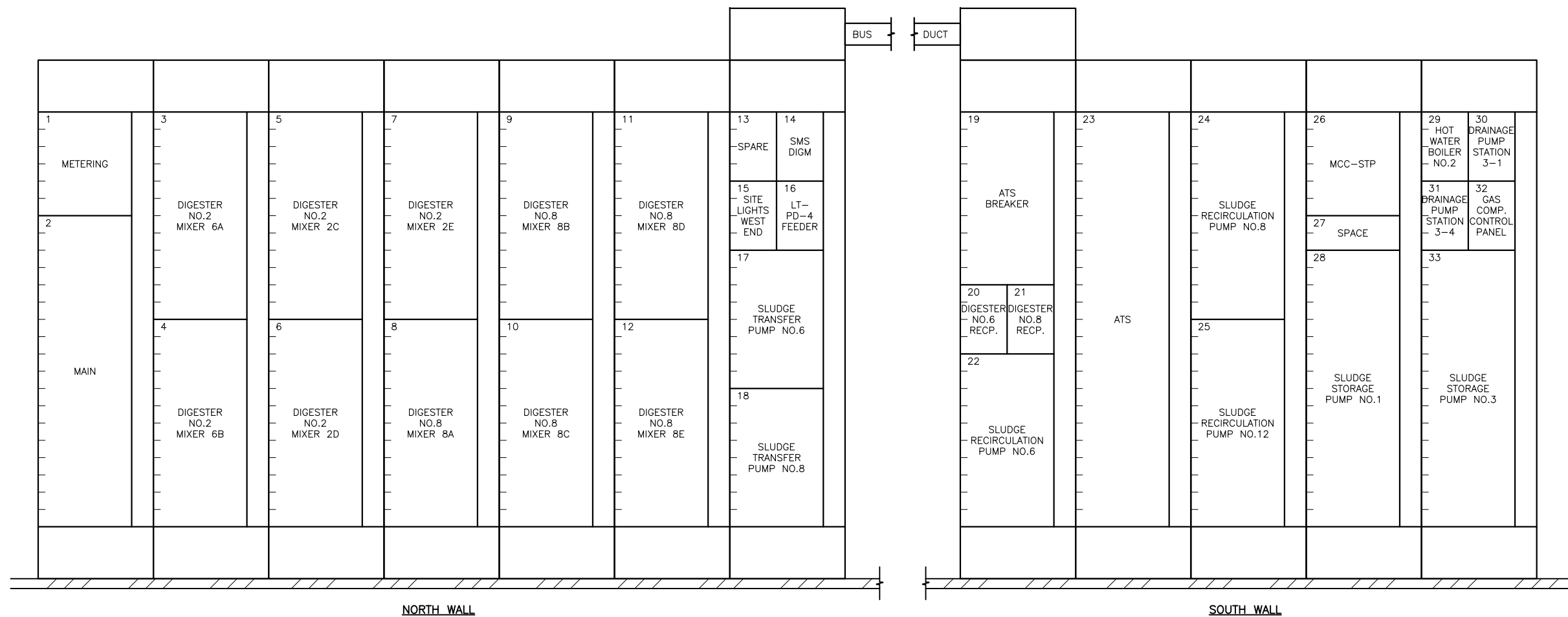
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SAN ANTONIO WATER SYSTEM
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DOS RIOS ELECTRICAL ASSESSMENT

MCC-OC-2
ONE-LINE DIAGRAM

DATE
01-XX-12

FIG-2.9-7

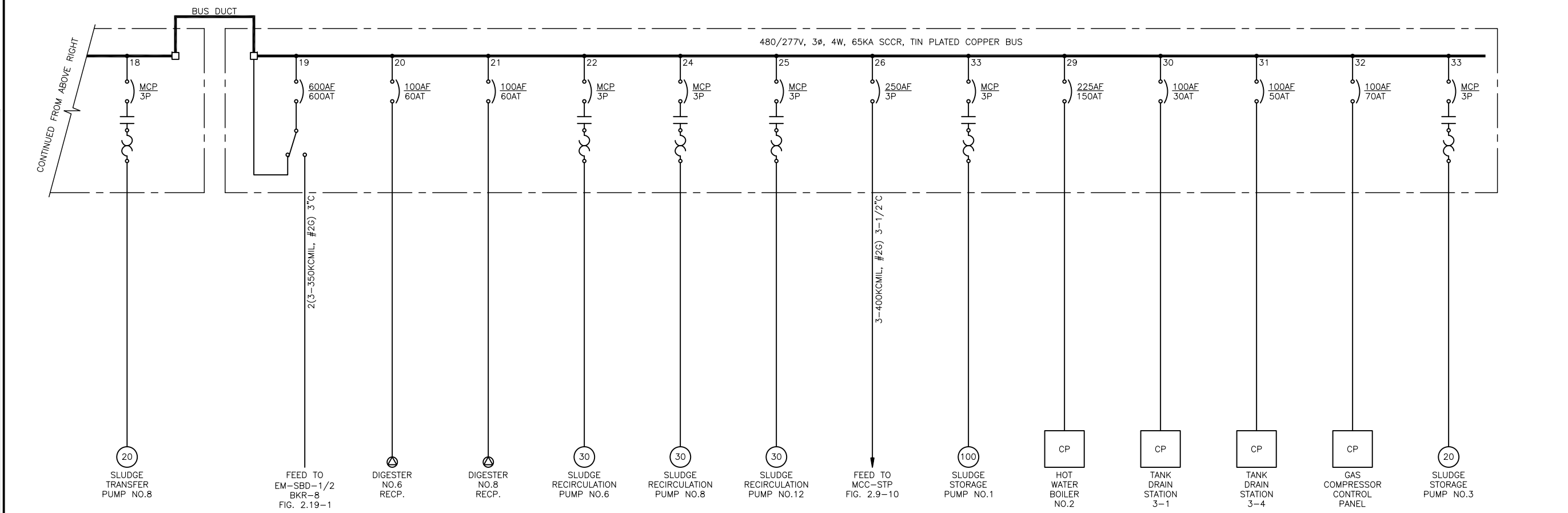
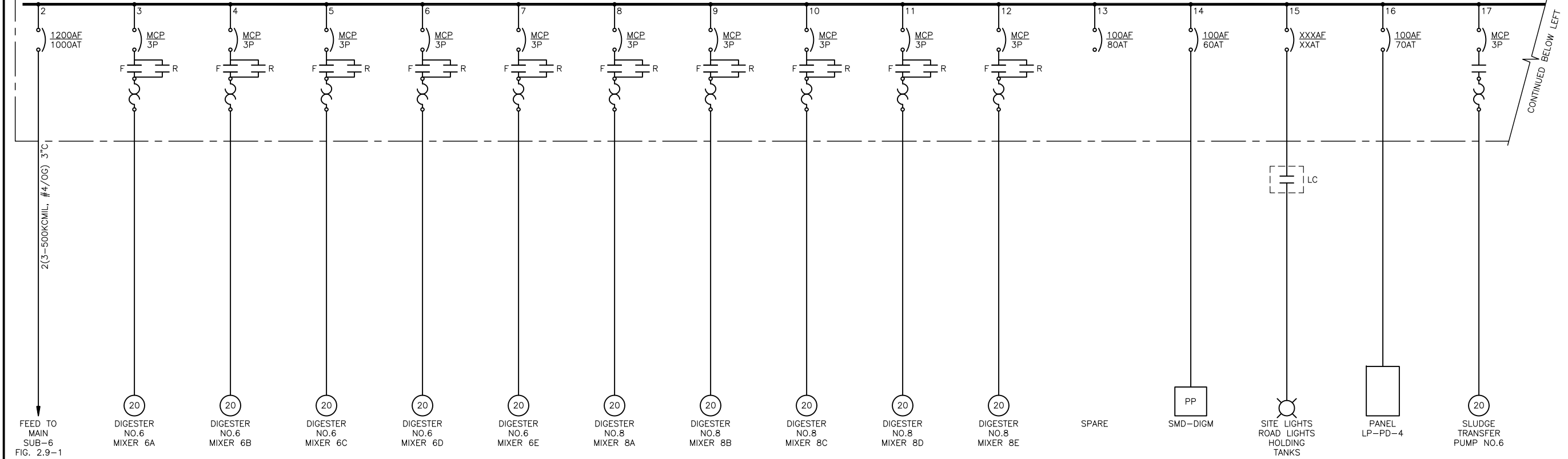


MCC-PD-4
ELEVATION
SCALE: NTS

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	<p>MCC-PD-4 ELEVATION</p>	<p>FIG-2.9-8</p>

480/277V, 3 ϕ , 4W, 65KA SCCR, TIN PLATED COPPER BUS



MCC-PD-4
ONE-LINE
DIAGRAM

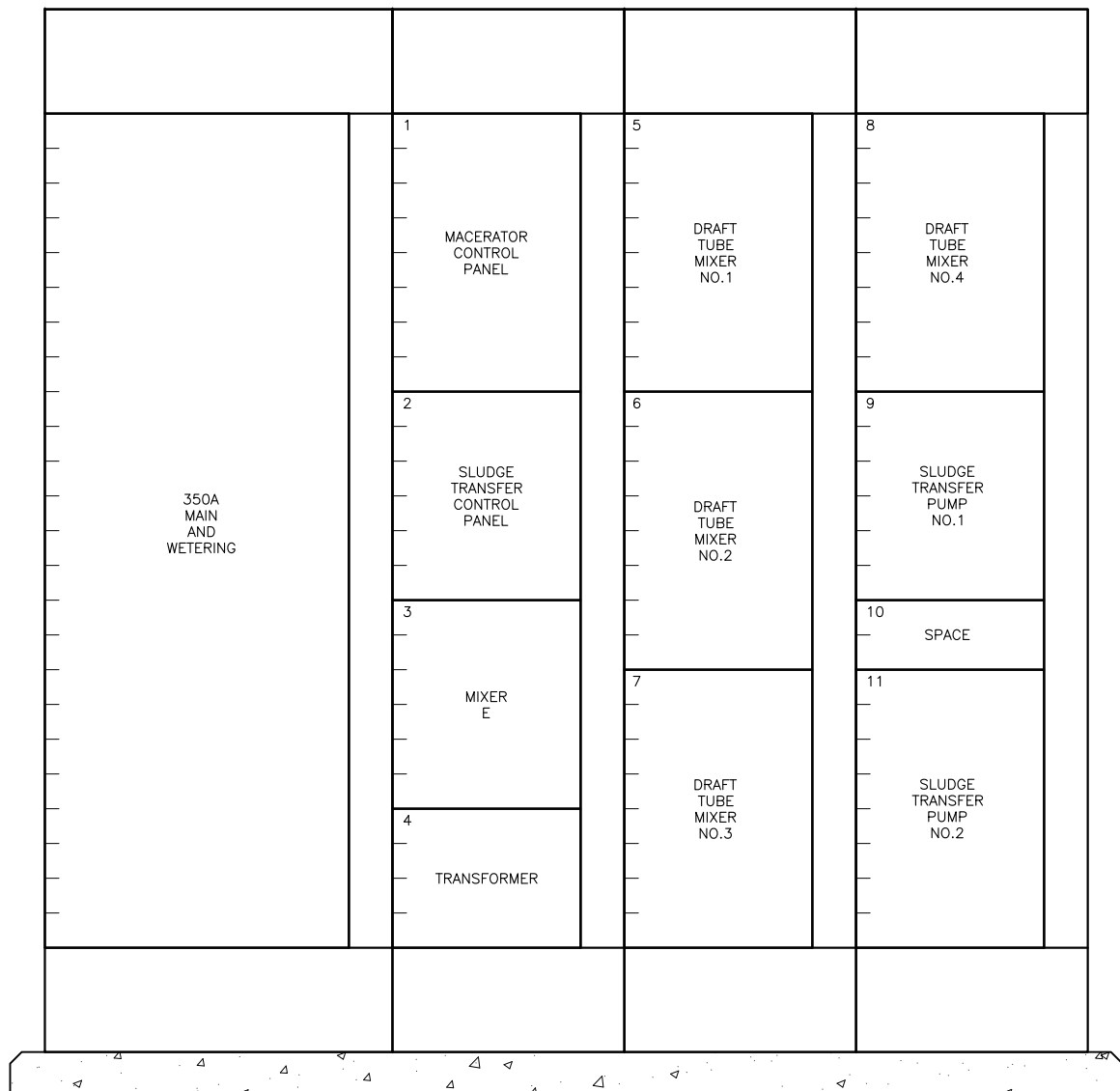
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CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT

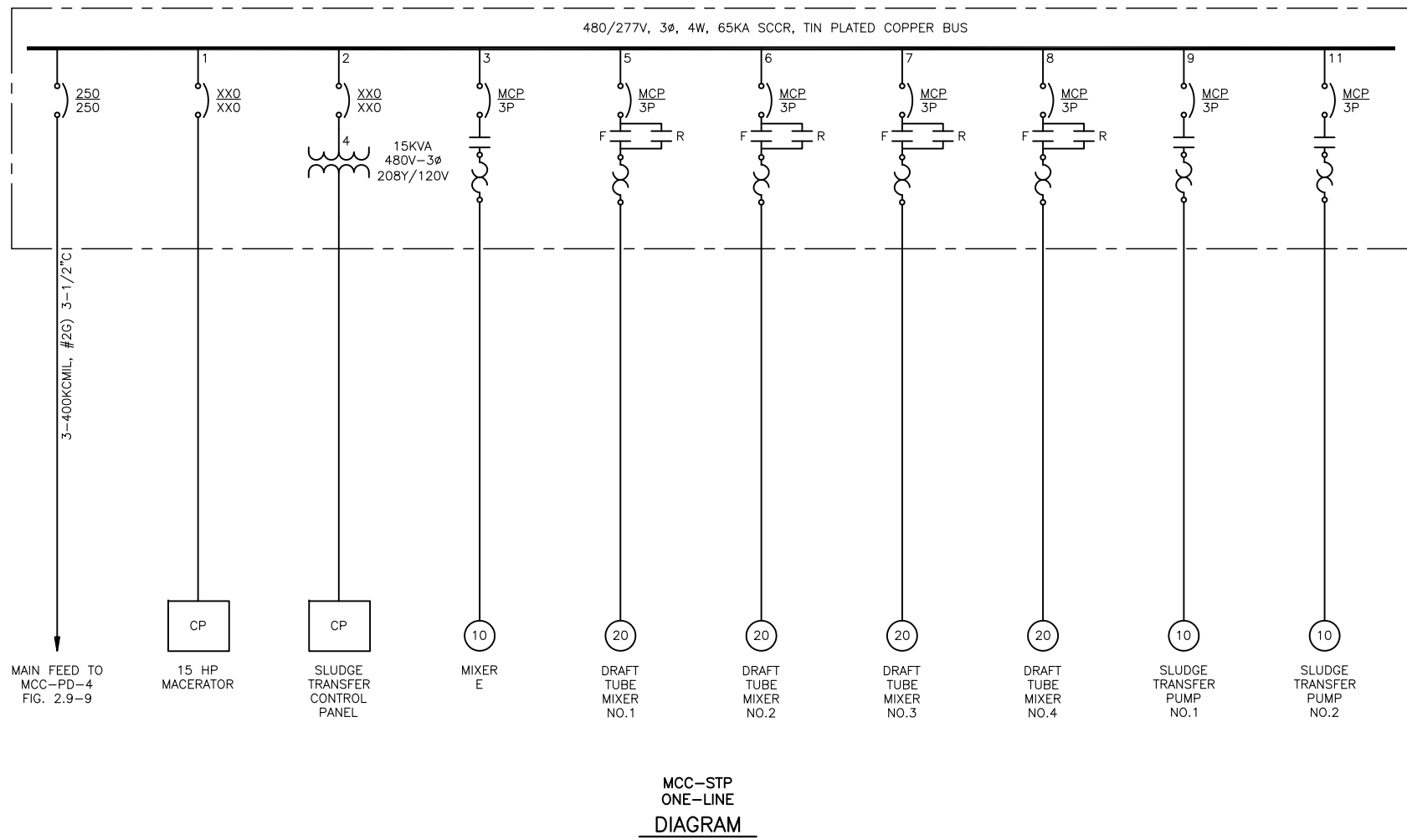
MCC-PD-4
ONE-LINE DIAGRAM

DATE
01-XX-12
FIG-2.9-9

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MCC-STP
ELEVATION
SCALE: NTS



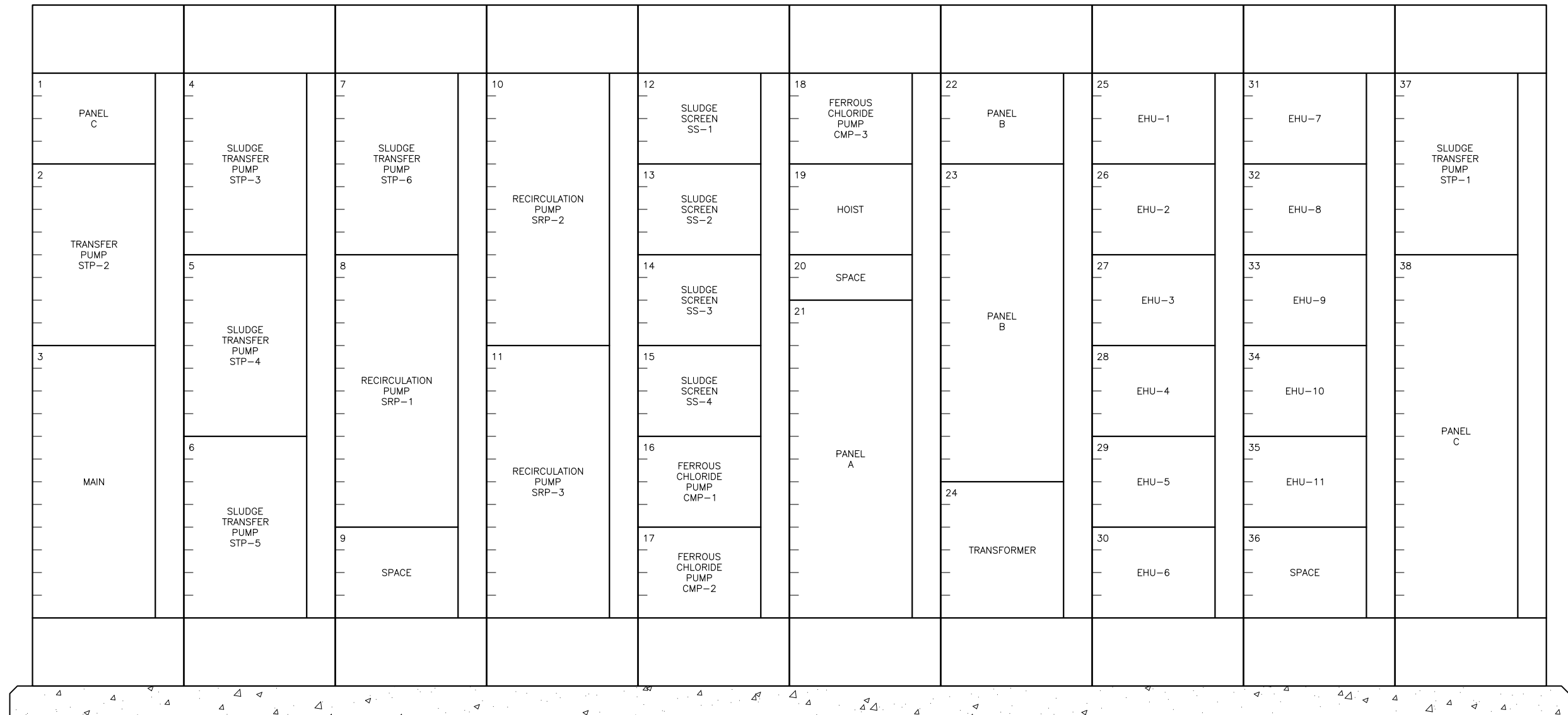
MCC-STP
ONE-LINE
DIAGRAM

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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT
MCC-STP
ELEVATION AND
ONE-LINE DIAGRAM

DATE
01-XX-12
FIG-2.9-10

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MCC-BT-1
ELEVATION
 SCALE: NTS

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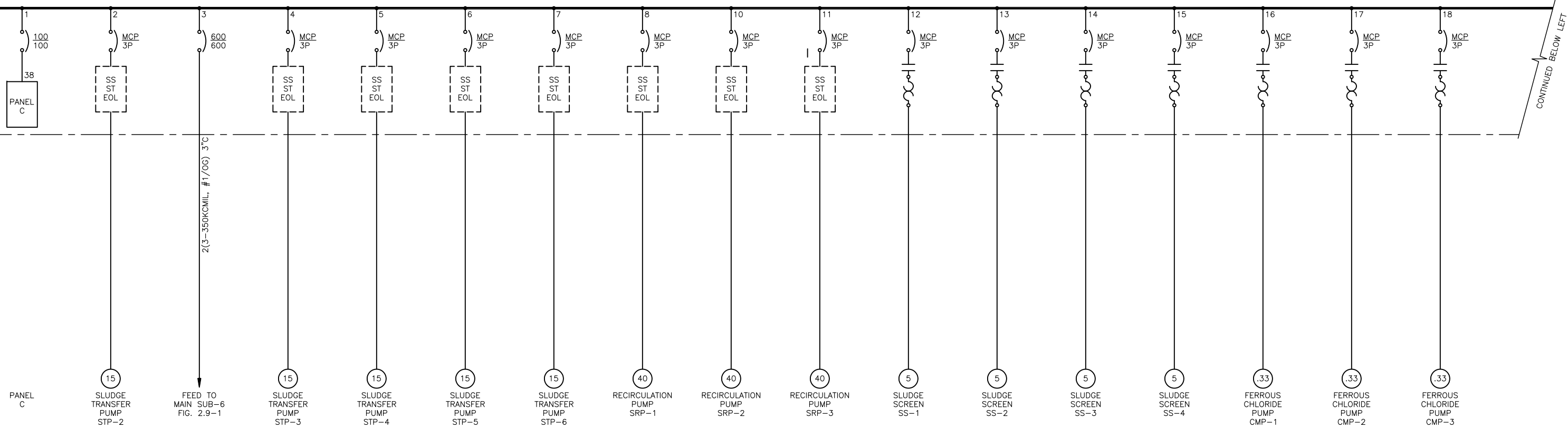
SAN ANTONIO WATER SYSTEM
 CITY OF SAN ANTONIO, TEXAS
 DOS RIOS ELECTRICAL ASSESSMENT

MCC-BT-1
 ELEVATION

DATE
 01-XX-12

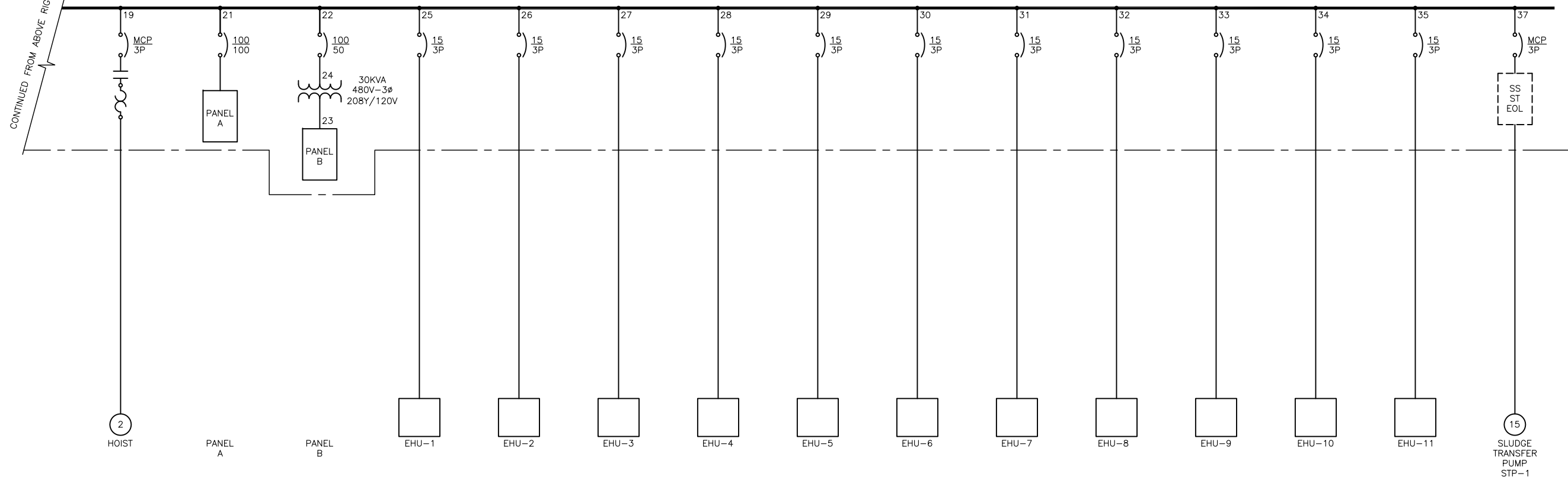
FIG-2.9-11

480/277V, 3 ϕ , 4W, 65KA SCCR, TIN PLATED COPPER BUS



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480/277V, 3 ϕ , 4W, 65KA SCCR, TIN PLATED COPPER BUS



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MCC-BT-1
ONE-LINE
DIAGRAM

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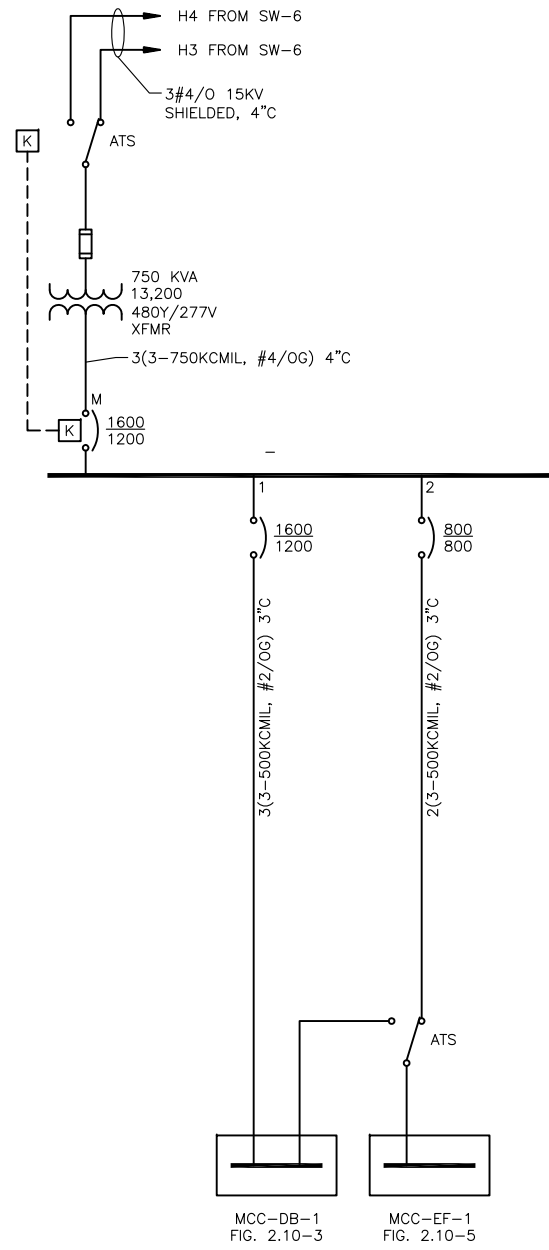
SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT

MCC-BT-1
ONE-LINE DIAGRAM

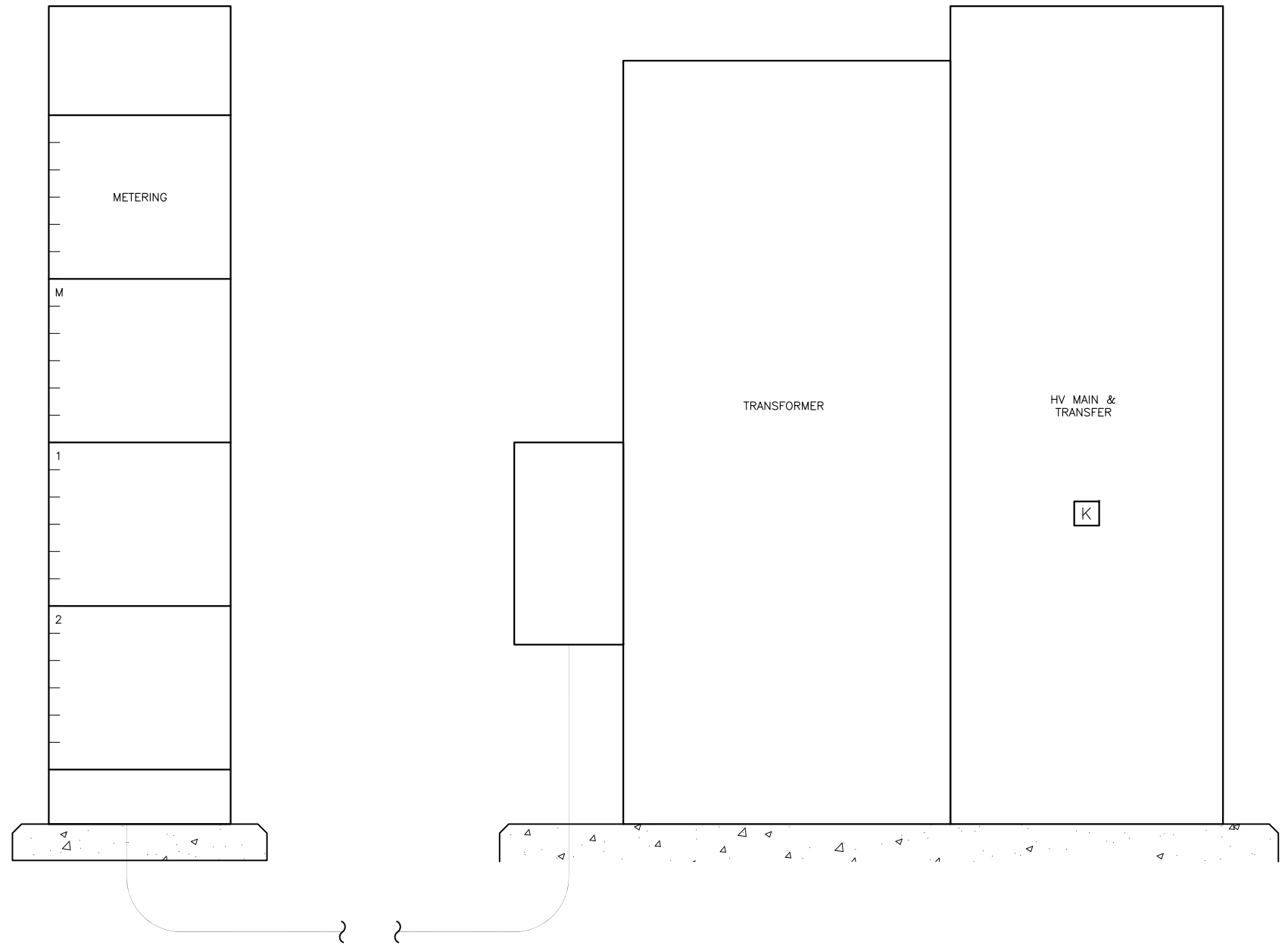
DATE
01-XX-12

FIG-2.9-12

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MDP-7
ONE-LINE
DIAGRAM



MDP-7
ELEVATION
SCALE: NTS

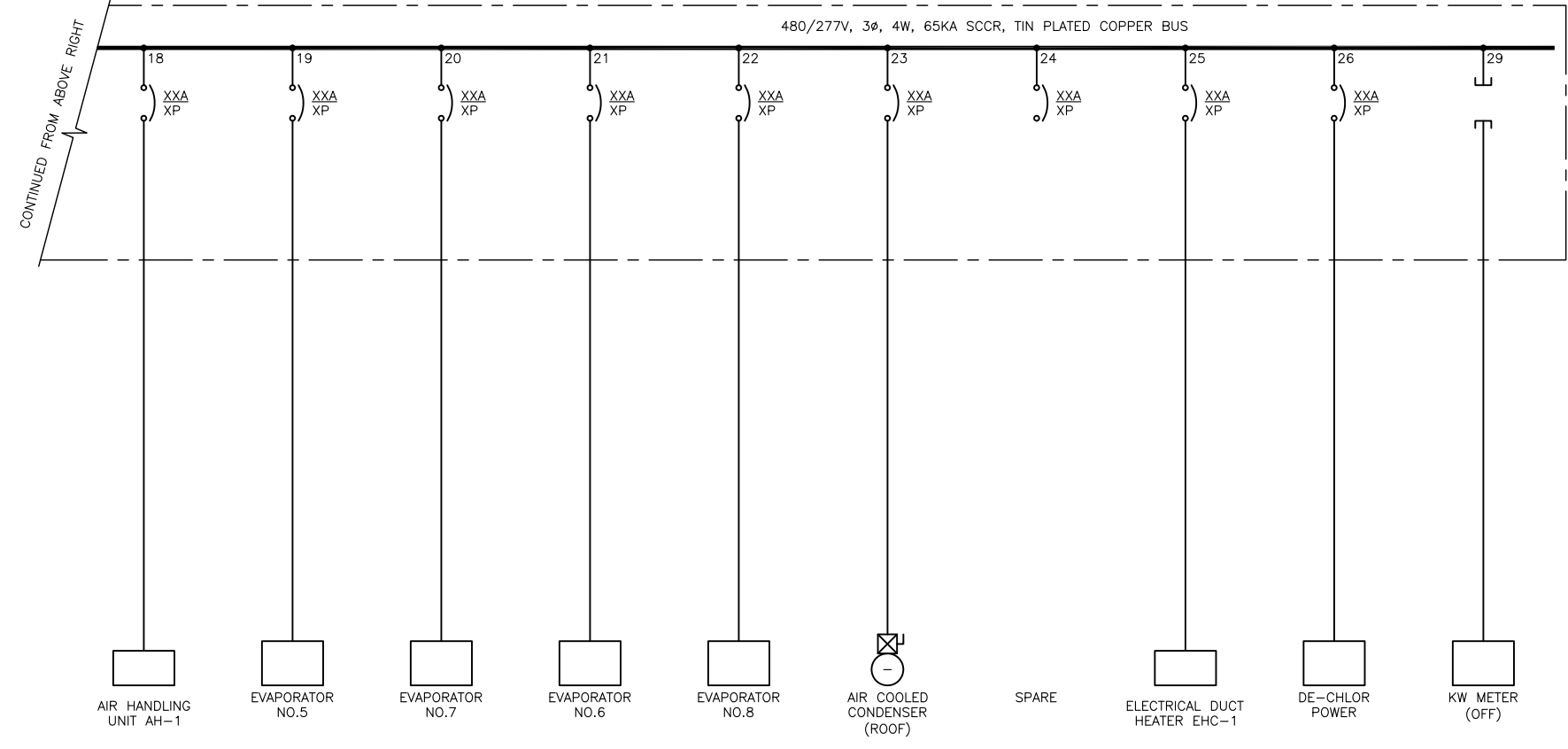
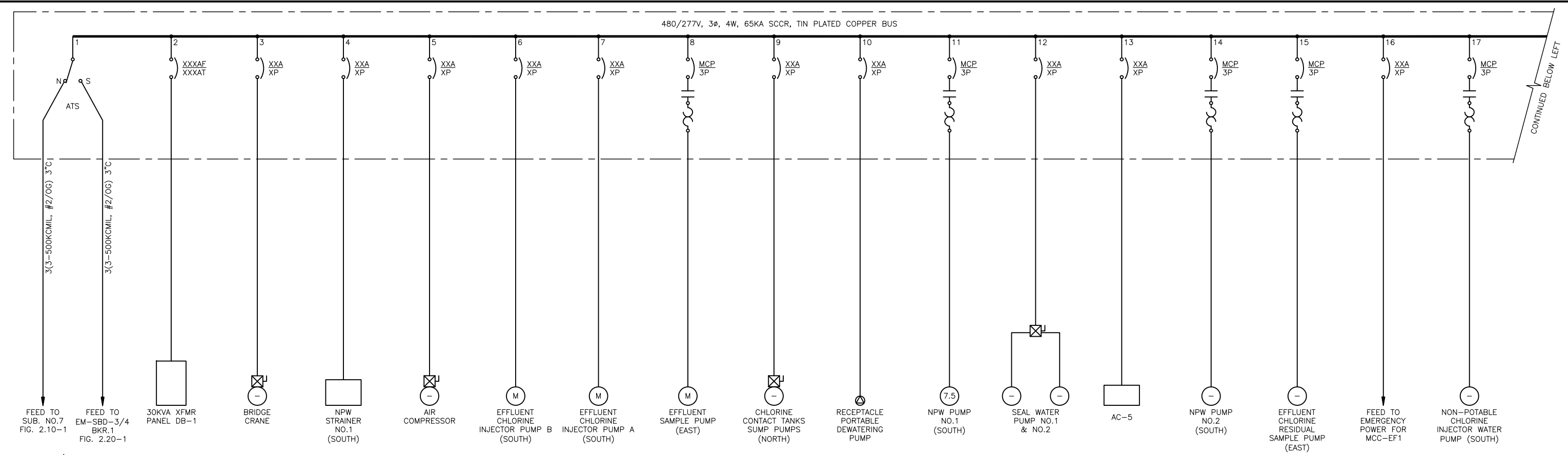
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SAN ANTONIO WATER SYSTEM
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 DOS RIOS ELECTRICAL ASSESSMENT
SUBSTATION NO.7
ONE-LINE DIAGRAM
& ELEVATION

DATE
01-XX-12

FIG-2.10-1



MCC-DB-1
ONE-LINE
DIAGRAM

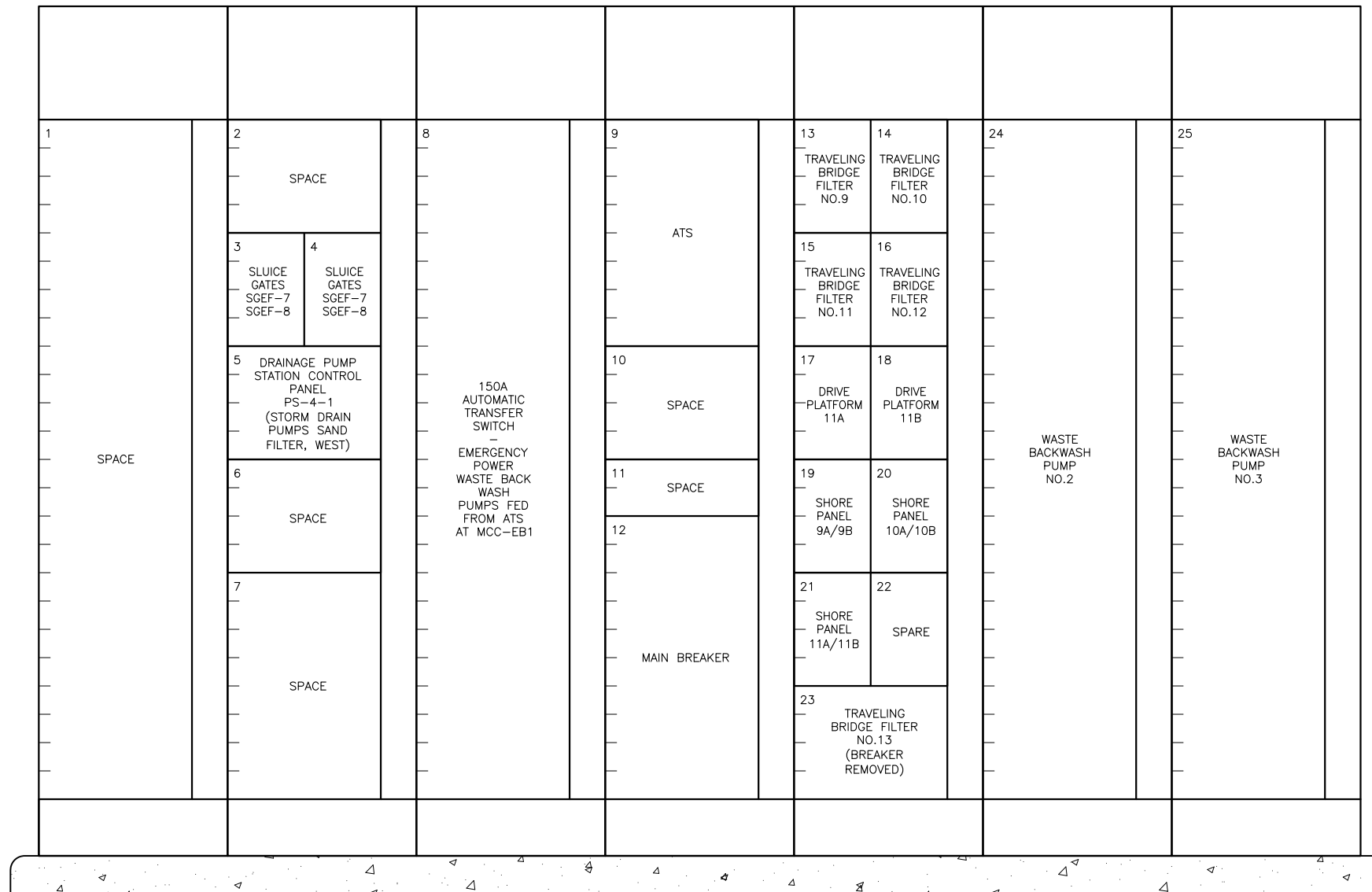
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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT

MCC-DB-1
ONE-LINE DIAGRAM

DATE
01-XX-12

FIG-2.10-3



MCC-EF-1
ELEVATION
 SCALE: NTS

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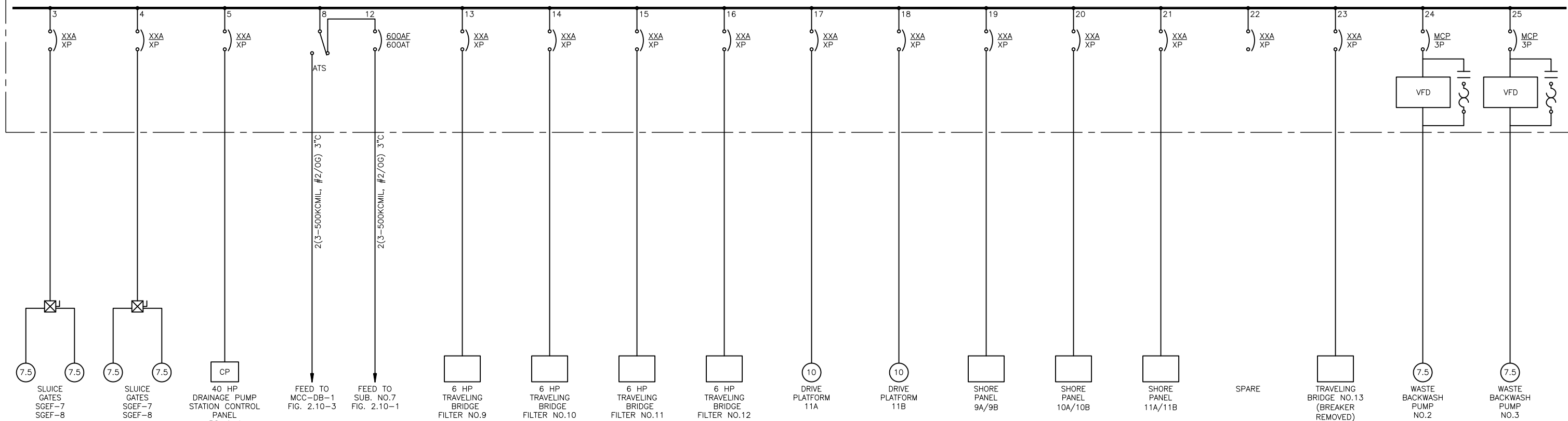
SAN ANTONIO WATER SYSTEM
 CITY OF SAN ANTONIO, TEXAS
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DATE
 01-XX-12

MCC-EF-1
 ELEVATION

FIG-2.10-4

480/277V, 3Ø, 4W, 65KA SCCR, TIN PLATED COPPER BUS



MCC-EF-1
ONE-LINE
DIAGRAM

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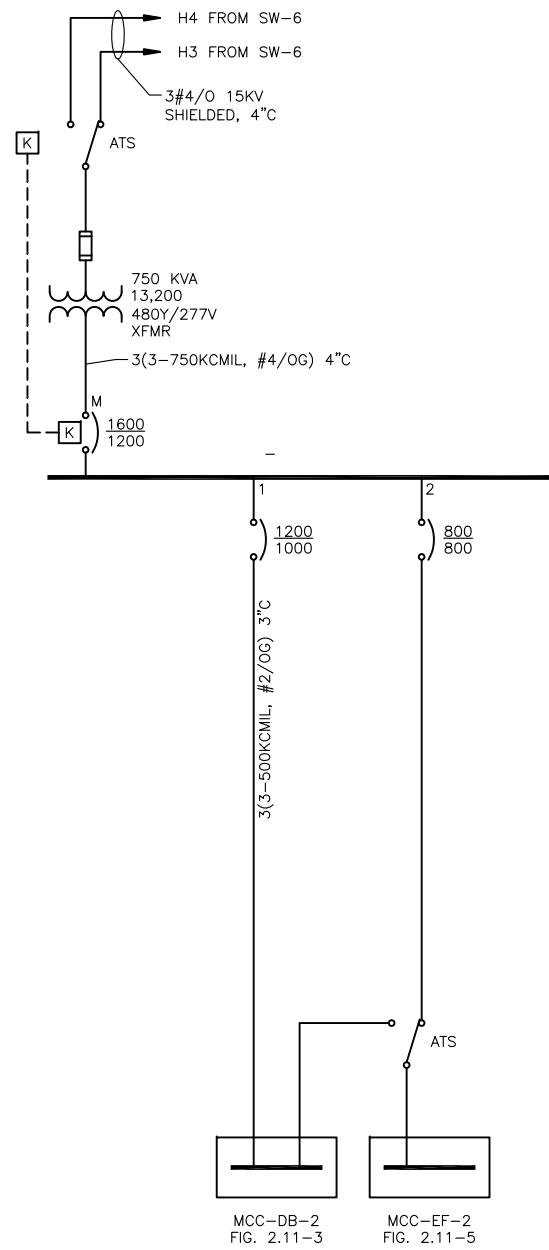
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DOS RIOS ELECTRICAL ASSESSMENT

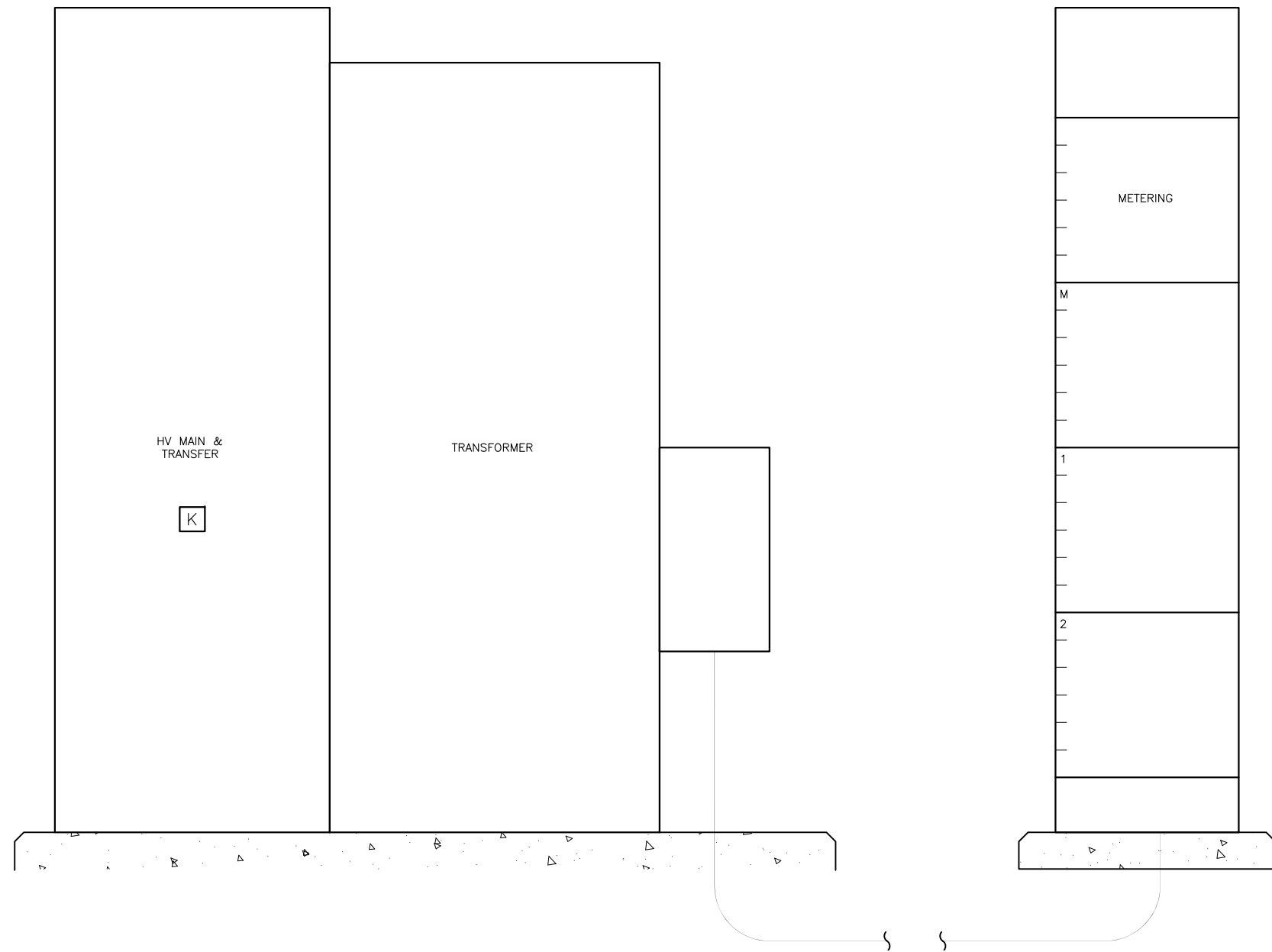
MCC-EF-1
ONE-LINE DIAGRAM

DATE
01-XX-12

FIG-2.10-5



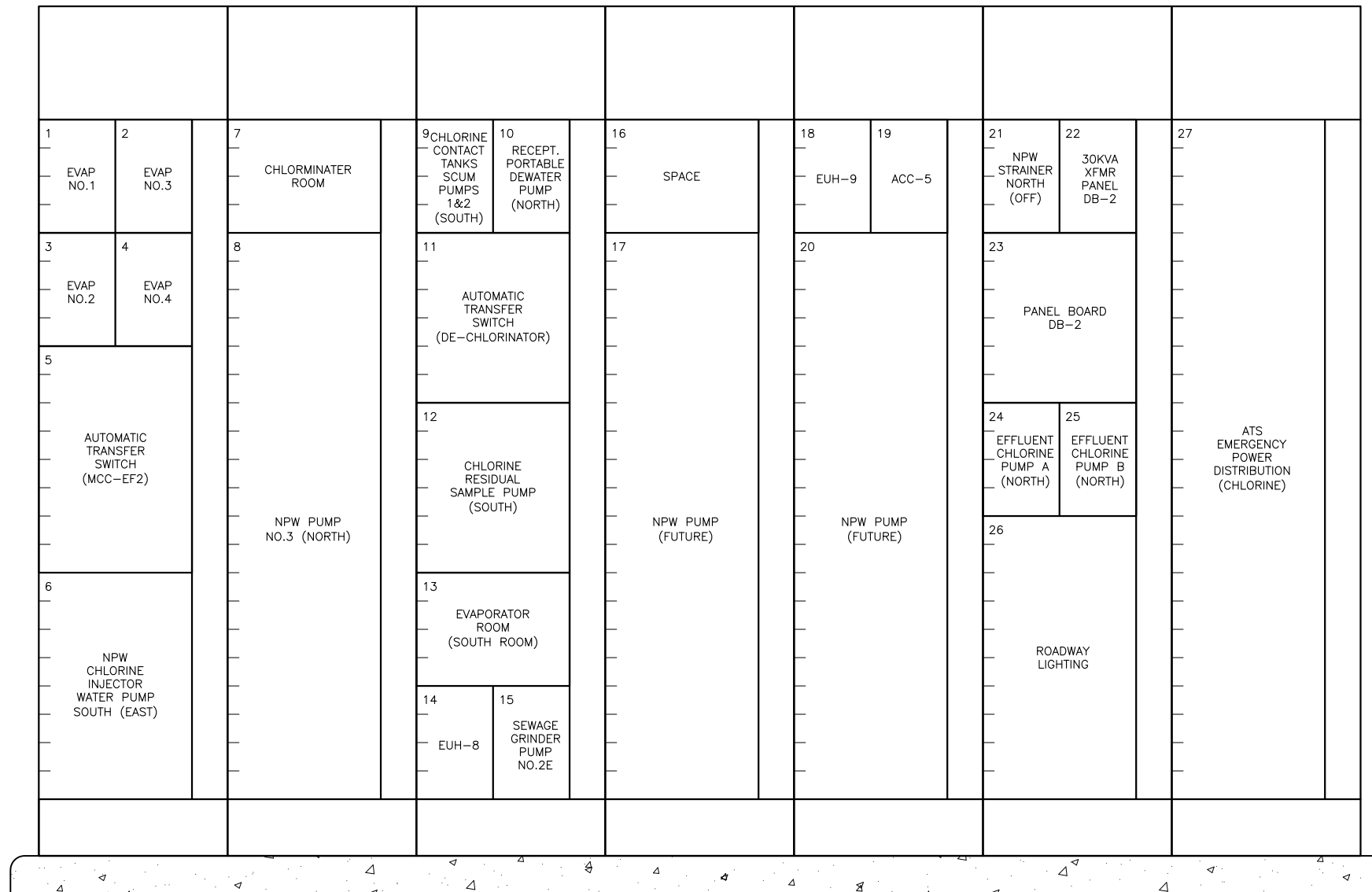
MDP-8
ONE-LINE
DIAGRAM



MDP-8
ELEVATION
SCALE: NTS

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		SUBSTATION NO.8 ONE-LINE DIAGRAM & ELEVATION	FIG-2.11-1



MCC-DB-2
ELEVATION
 SCALE: NTS

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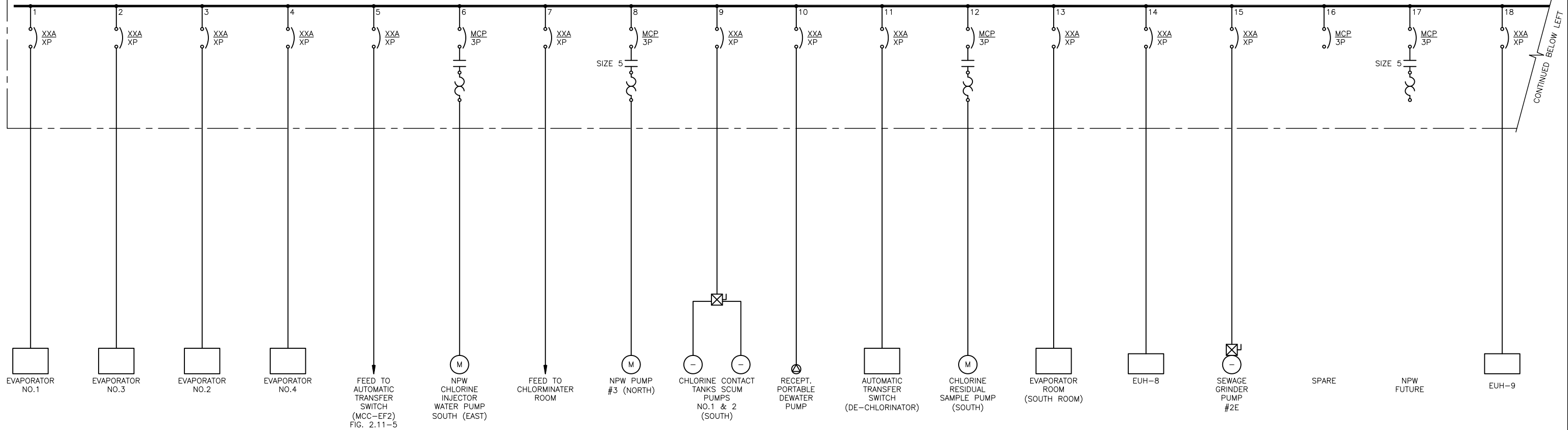
SAN ANTONIO WATER SYSTEM
 CITY OF SAN ANTONIO, TEXAS
 DOS RIOS ELECTRICAL ASSESSMENT

MCC-DB-2
 ELEVATION

DATE
 01-XX-12

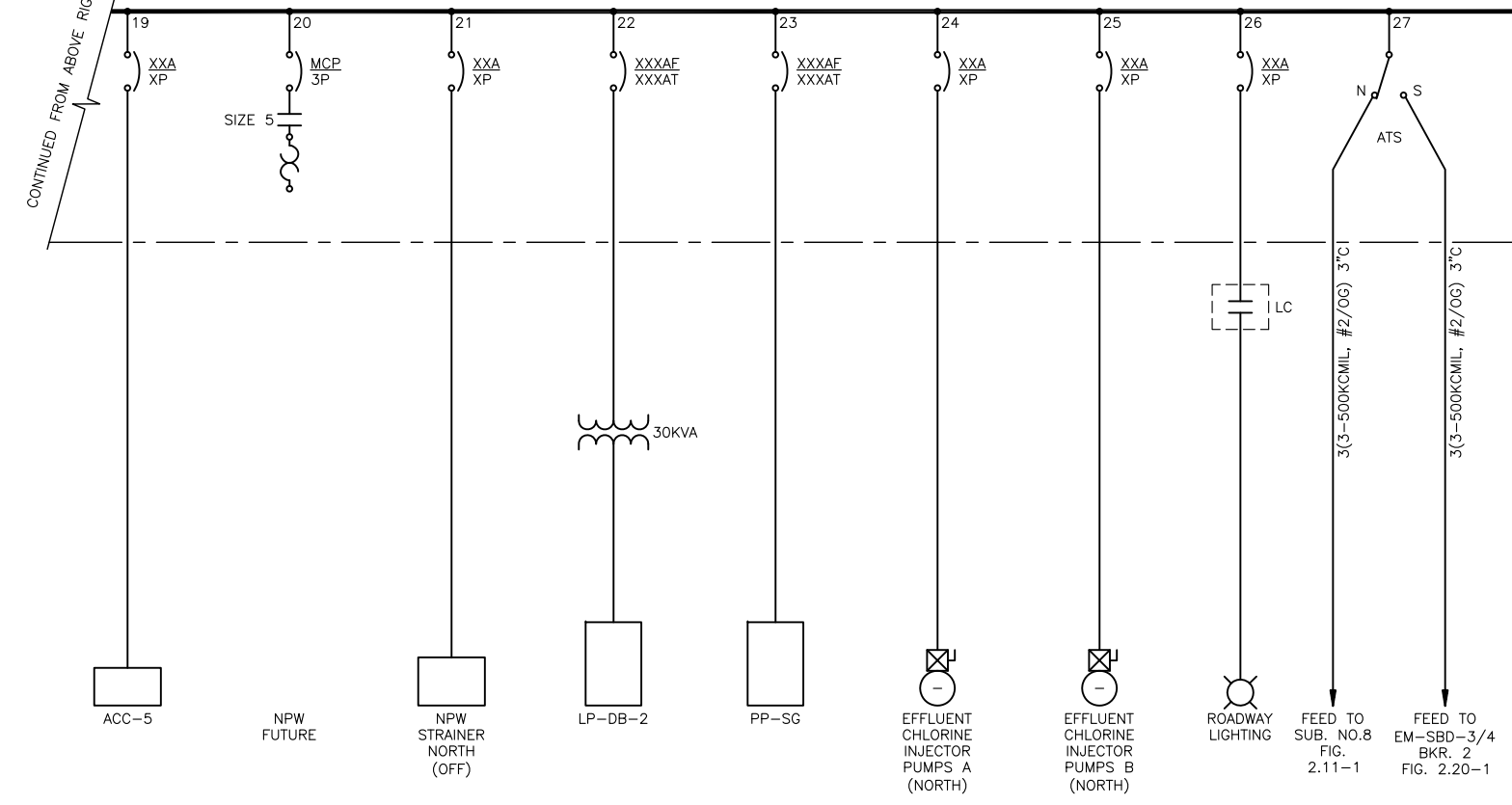
FIG-2.11-2

480/277V, 3 ϕ , 4W, 65KA SCCR, TIN PLATED COPPER BUS



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480/277V, 3 ϕ , 4W, 65KA SCCR, TIN PLATED COPPER BUS



CONTINUED FROM ABOVE RIGHT

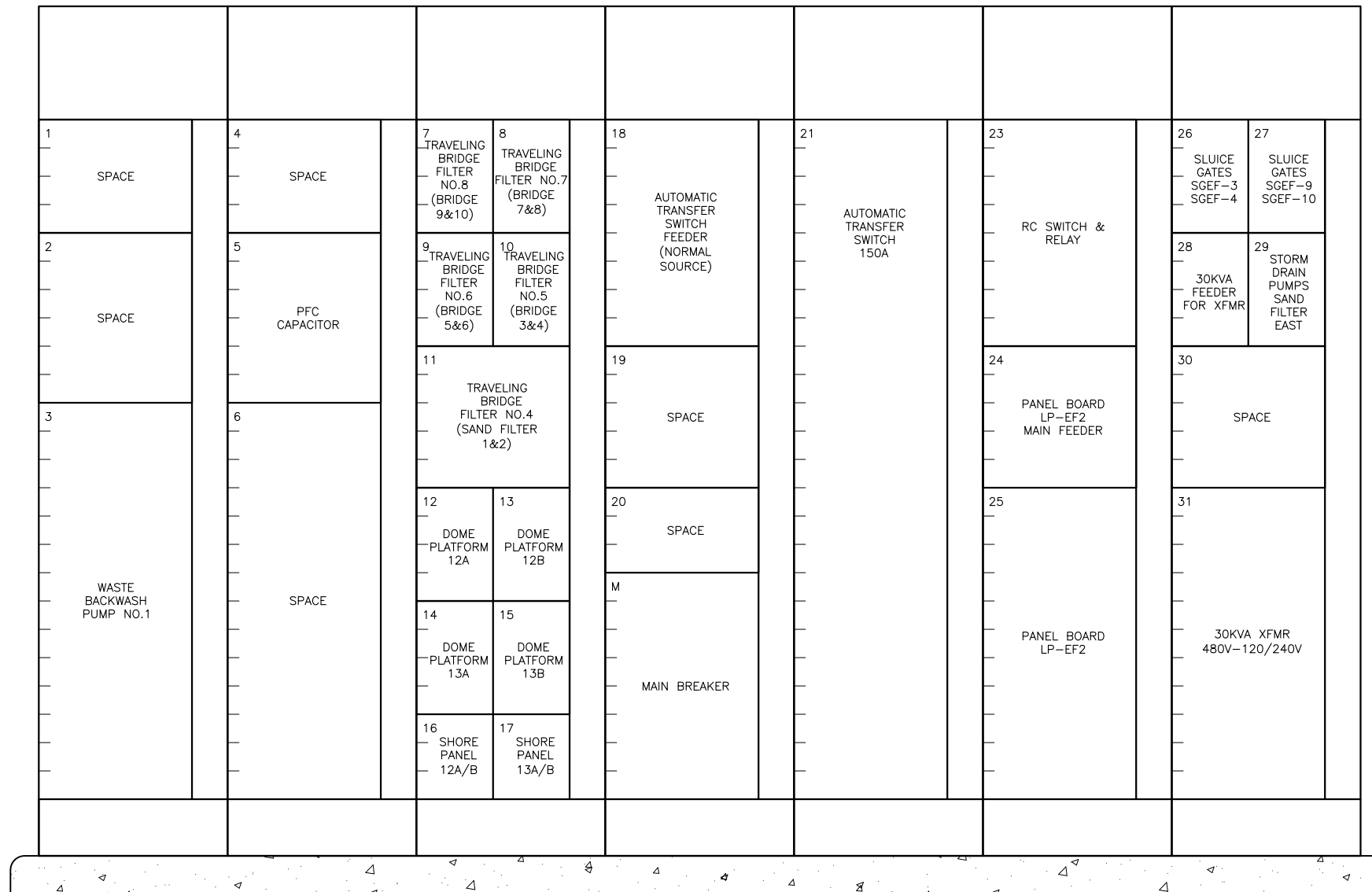
MCC-DB-2
ONE-LINE
DIAGRAM

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CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT

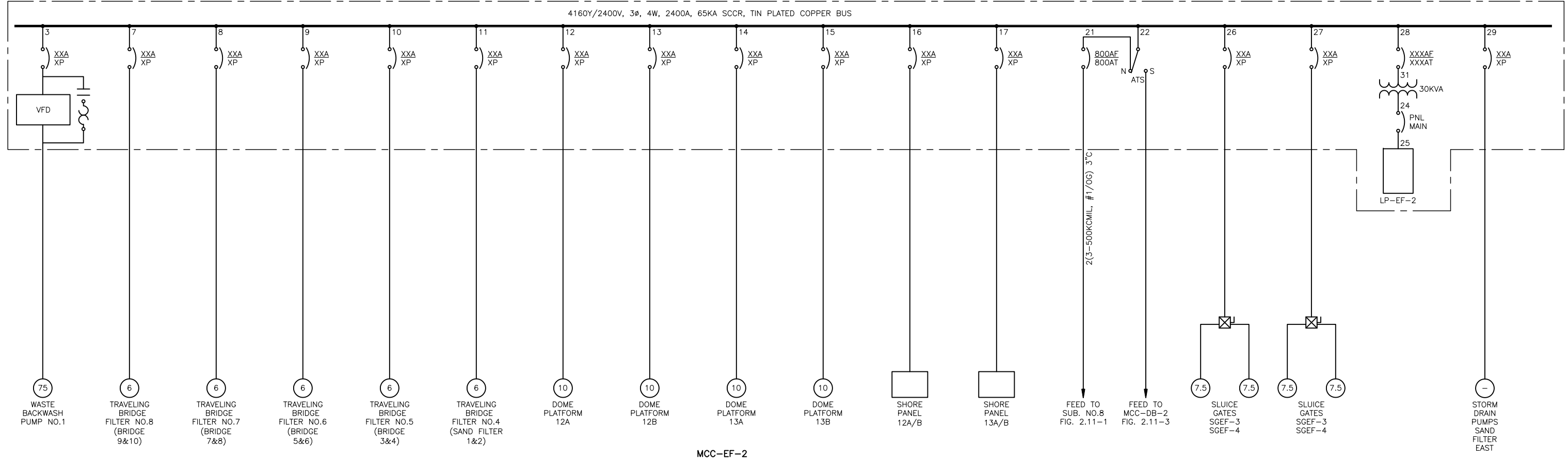
MCC-DB-2
ONE-LINE DIAGRAM

DATE
01-XX-12
FIG-2.11-3



MCC-EF-2
ELEVATION
 SCALE: NTS

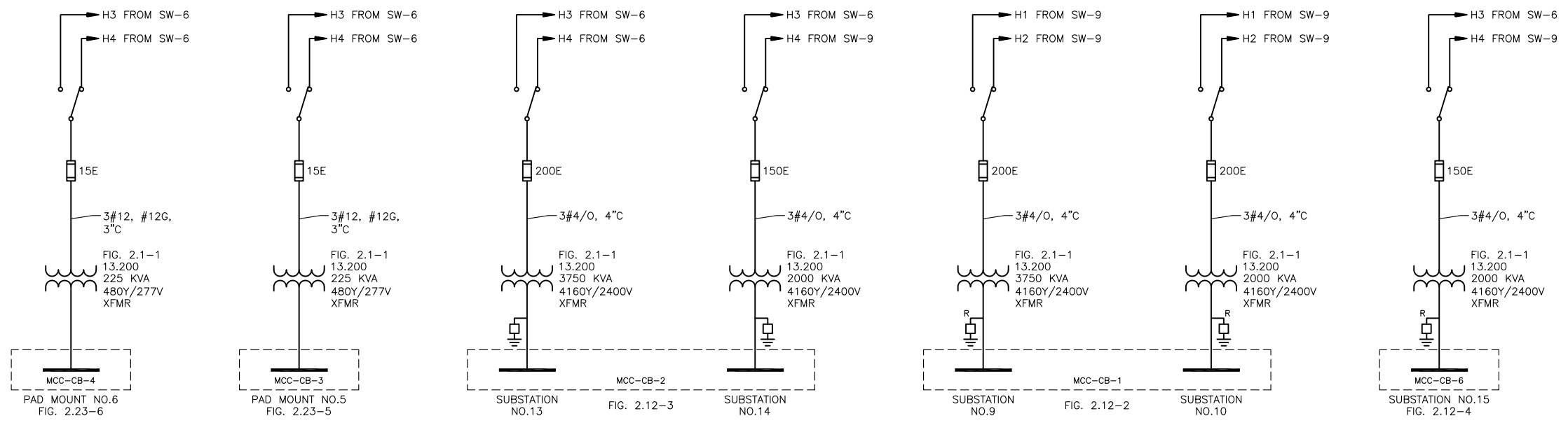
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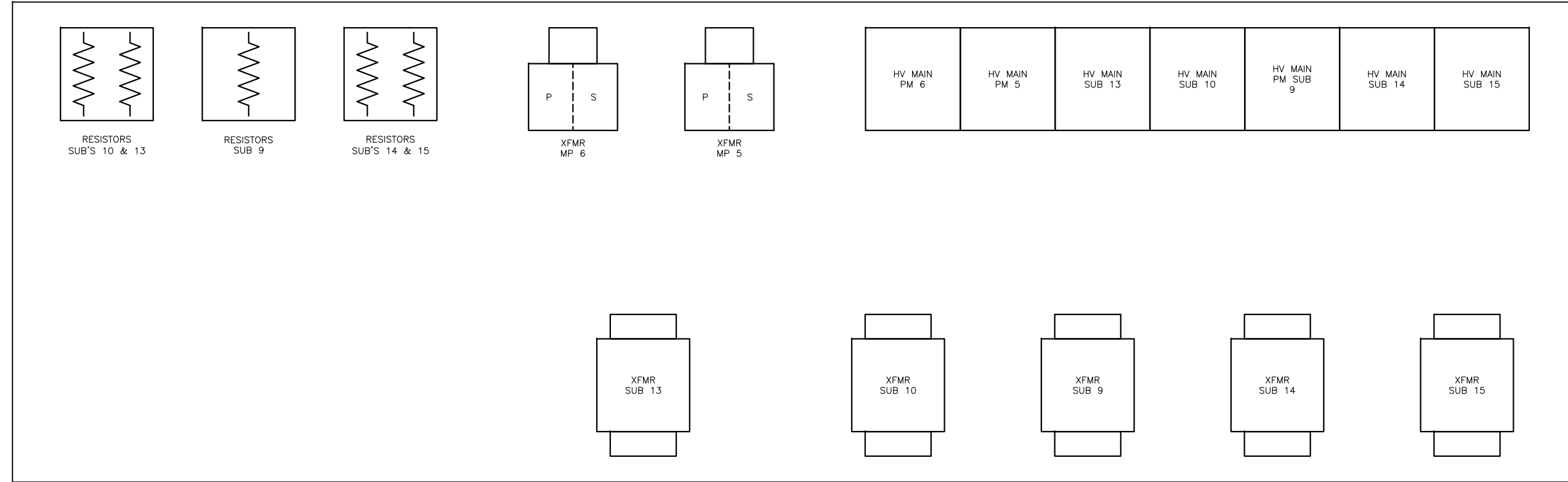
MCC-EF-2
ONE-LINE
DIAGRAM

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		MCC-EF2 ONE-LINE DIAGRAM	FIG-2.11-5



ONE-LINE
DIAGRAM

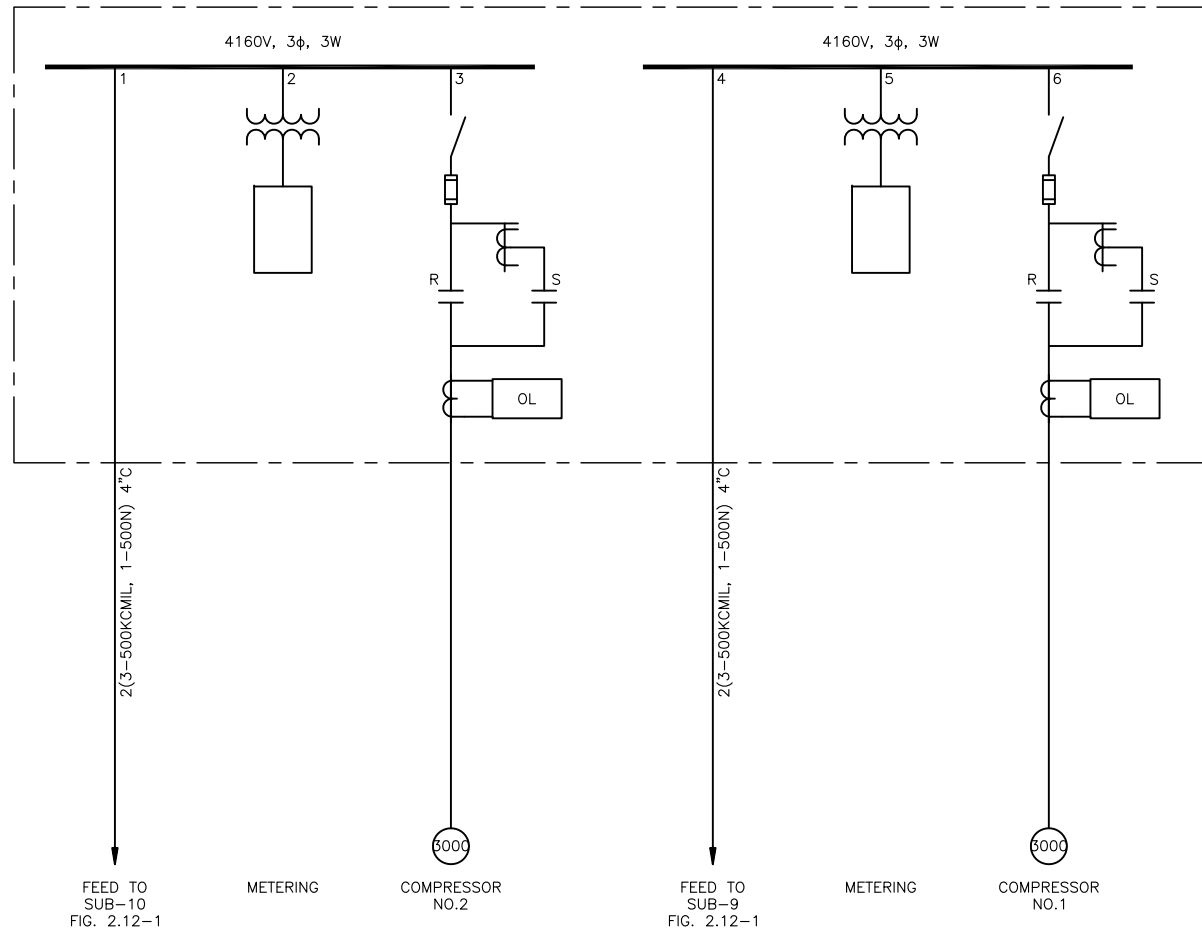


SUBSTATION
PLAN
NTS

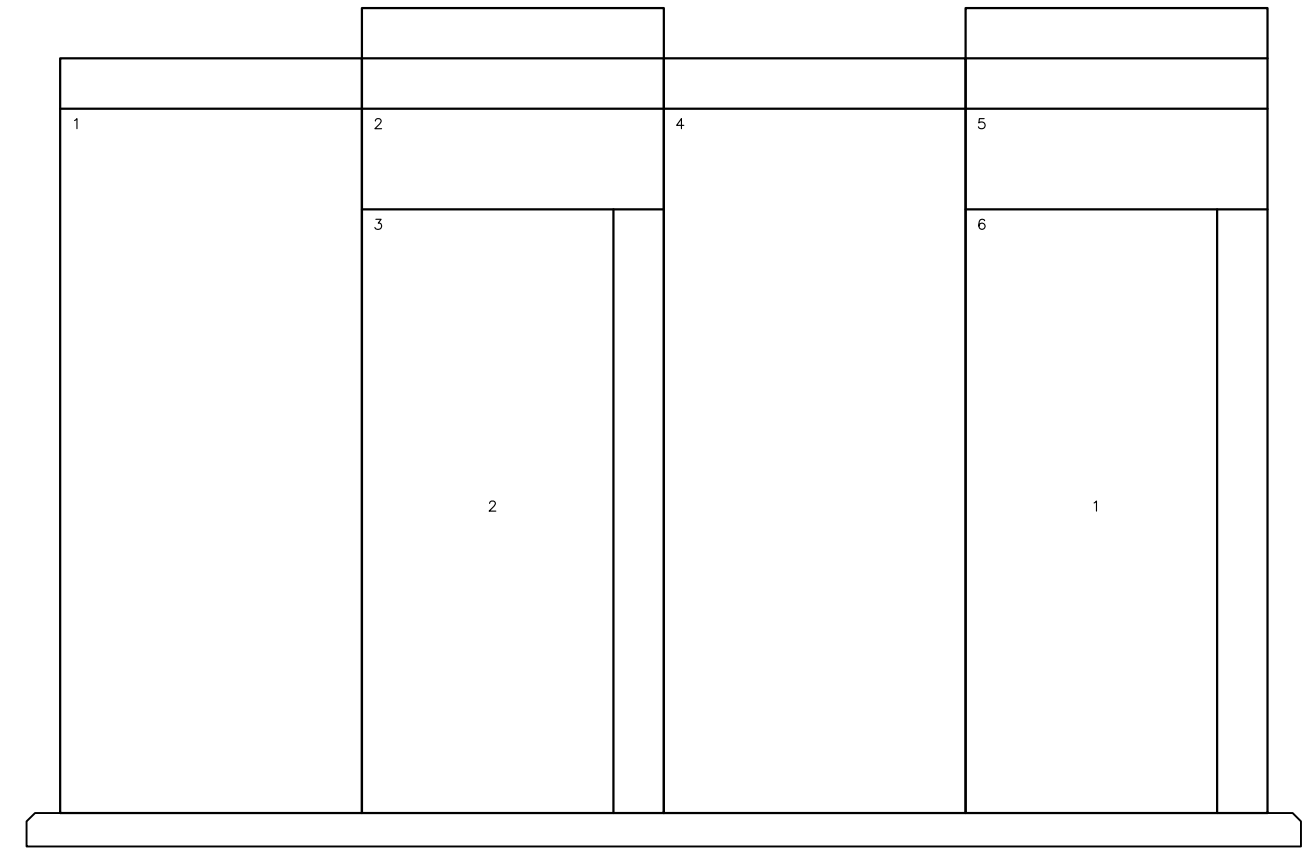
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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT
SUBSTATIONS 9,10,13,14 AND 15
ONE-LINE DIAGRAM AND PLAN

DATE
01-XX-12
FIG-2.12-1



MCC-CB-1 ONE-LINE
DIAGRAM



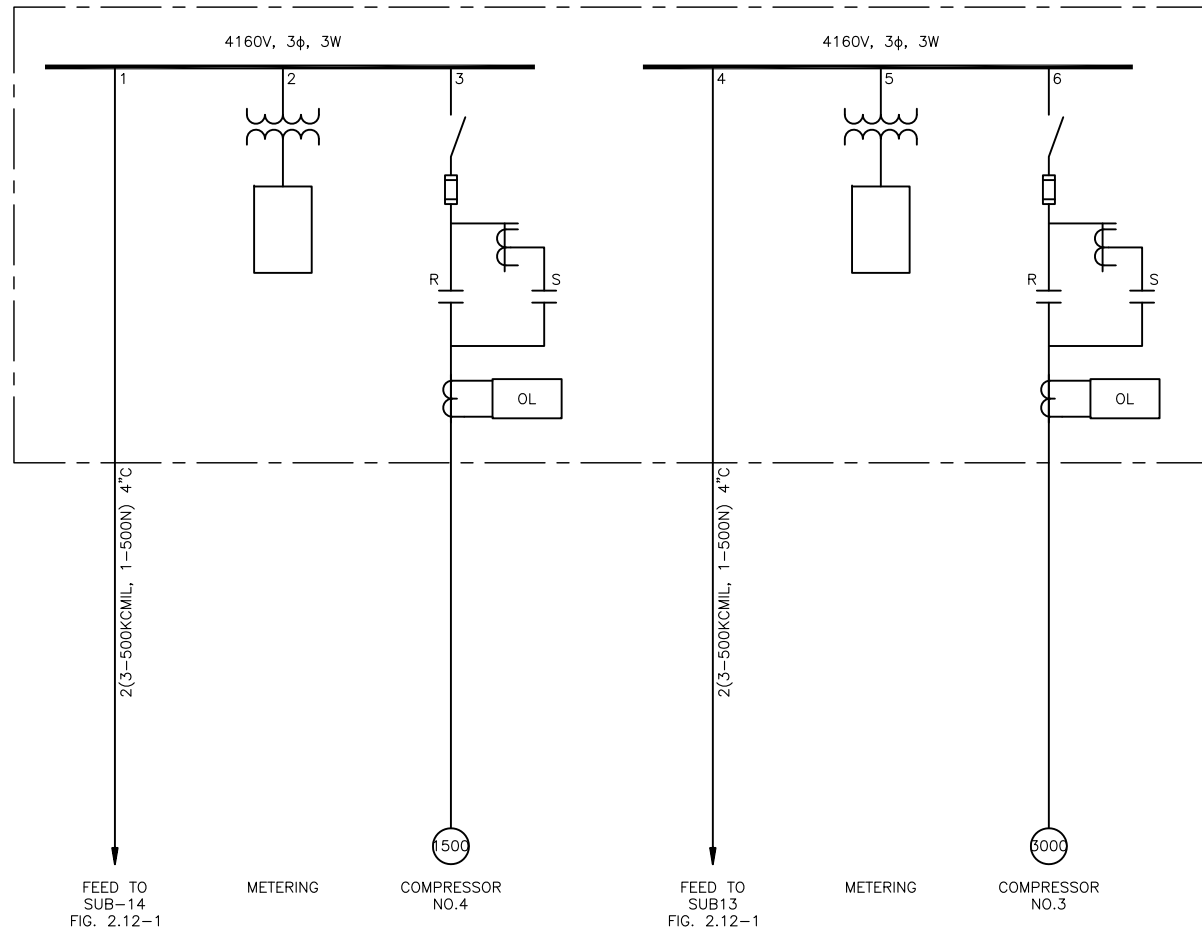
MCC-CB-1
ELEVATION
SCALE: NTS

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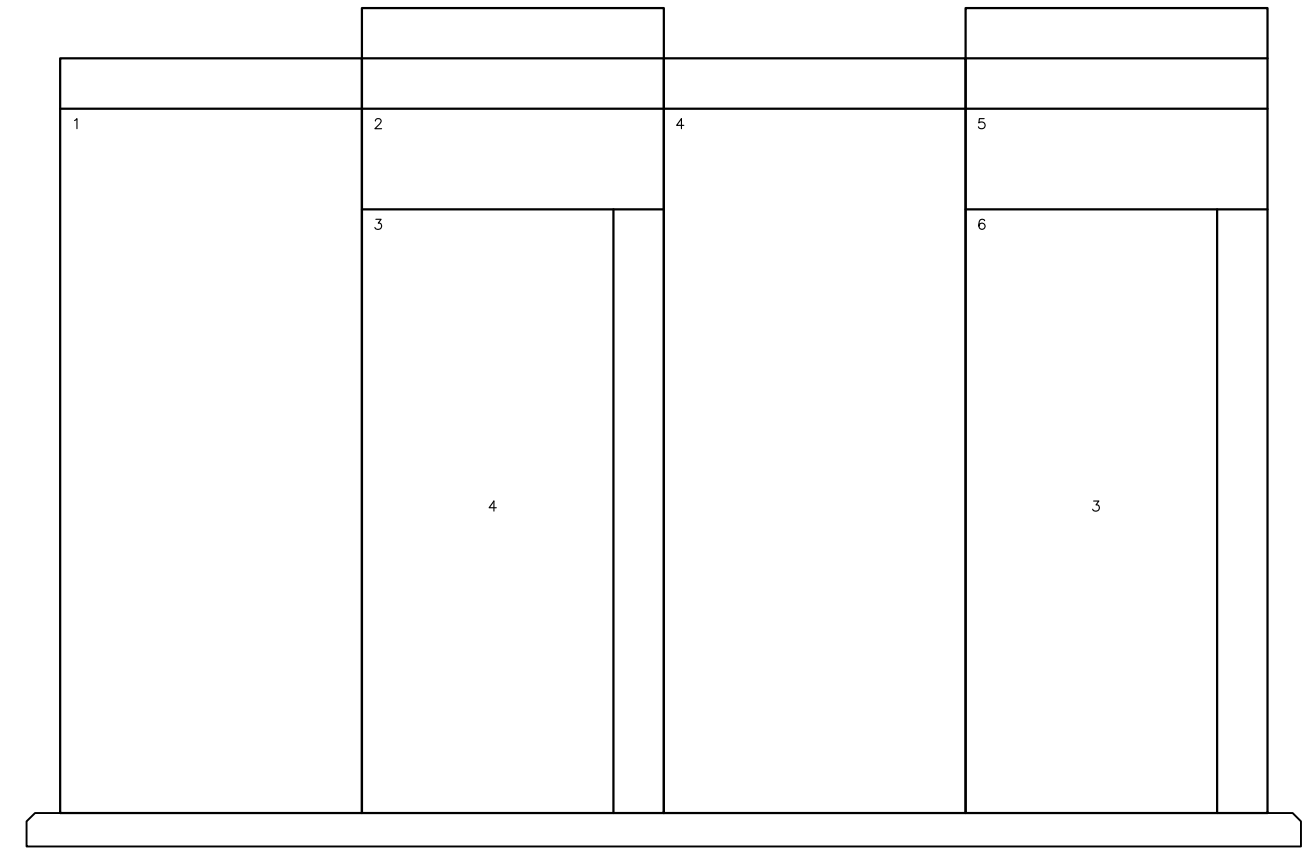
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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT
MCC-CB-1
ONE-LINE DIAGRAM
& ELEVATION

DATE
01-XX-12
FIG-2.12-2



MCC-CB-2 ONE-LINE
DIAGRAM



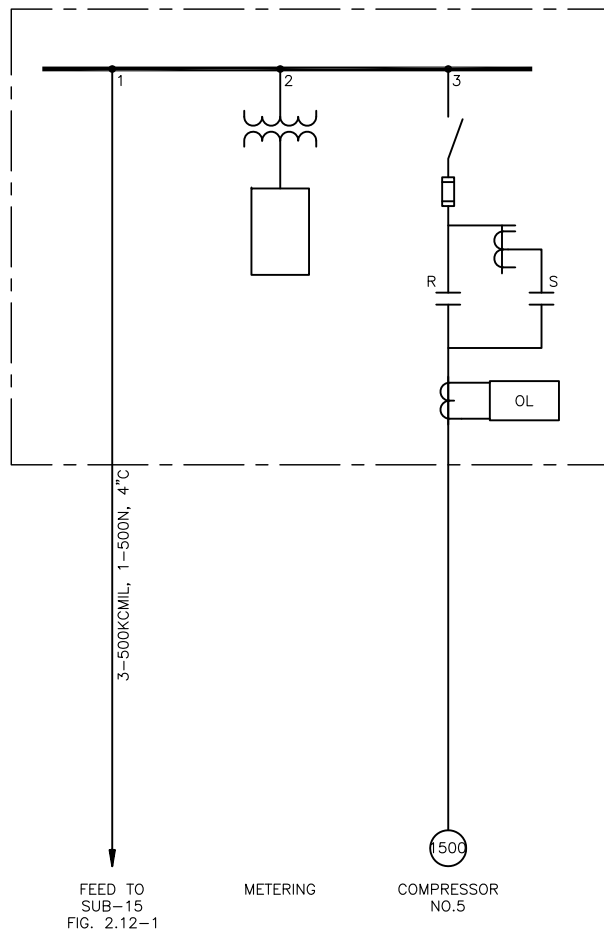
MCC-CB-2
ELEVATION
SCALE: NTS

Z:\1922_SAWS - Dos Rios\Report Phase\Report\Figures\FIG-2_12-03.dwg, 2/8/2012 10:35:45 AM, Adobe PDF, JH

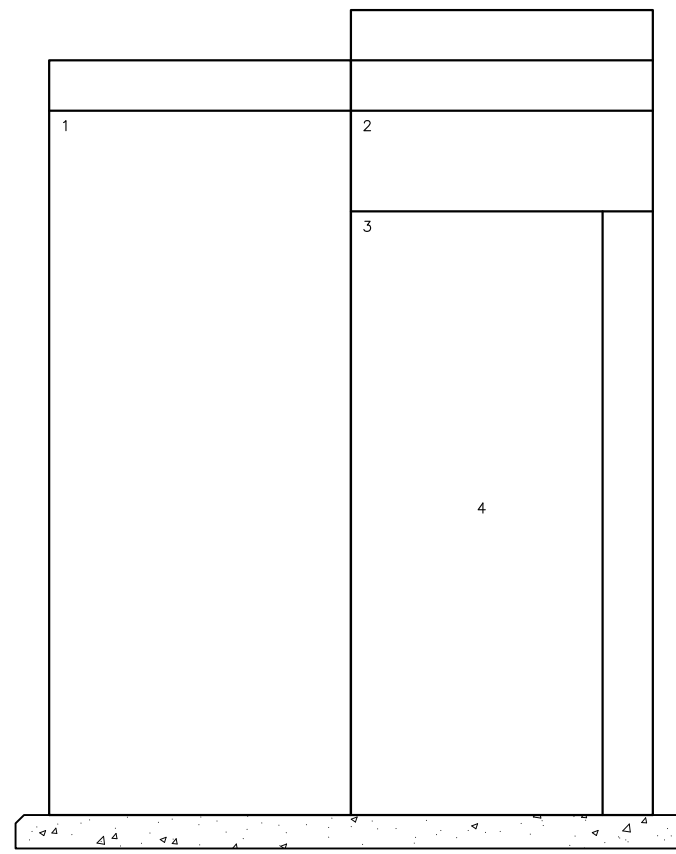
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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT
MCC-CB-2
ONE-LINE DIAGRAM
& ELEVATION

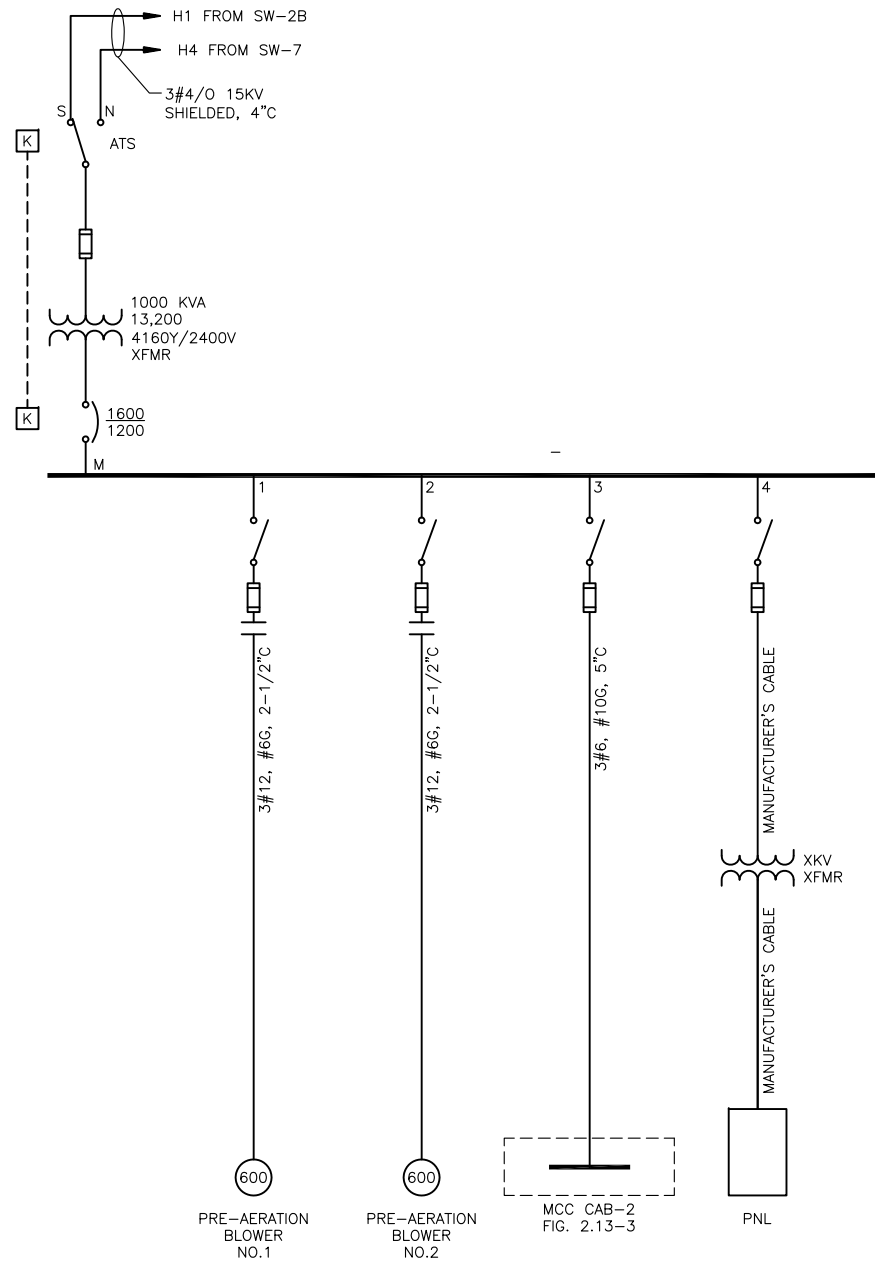
DATE
01-XX-12
FIG-2.12-3



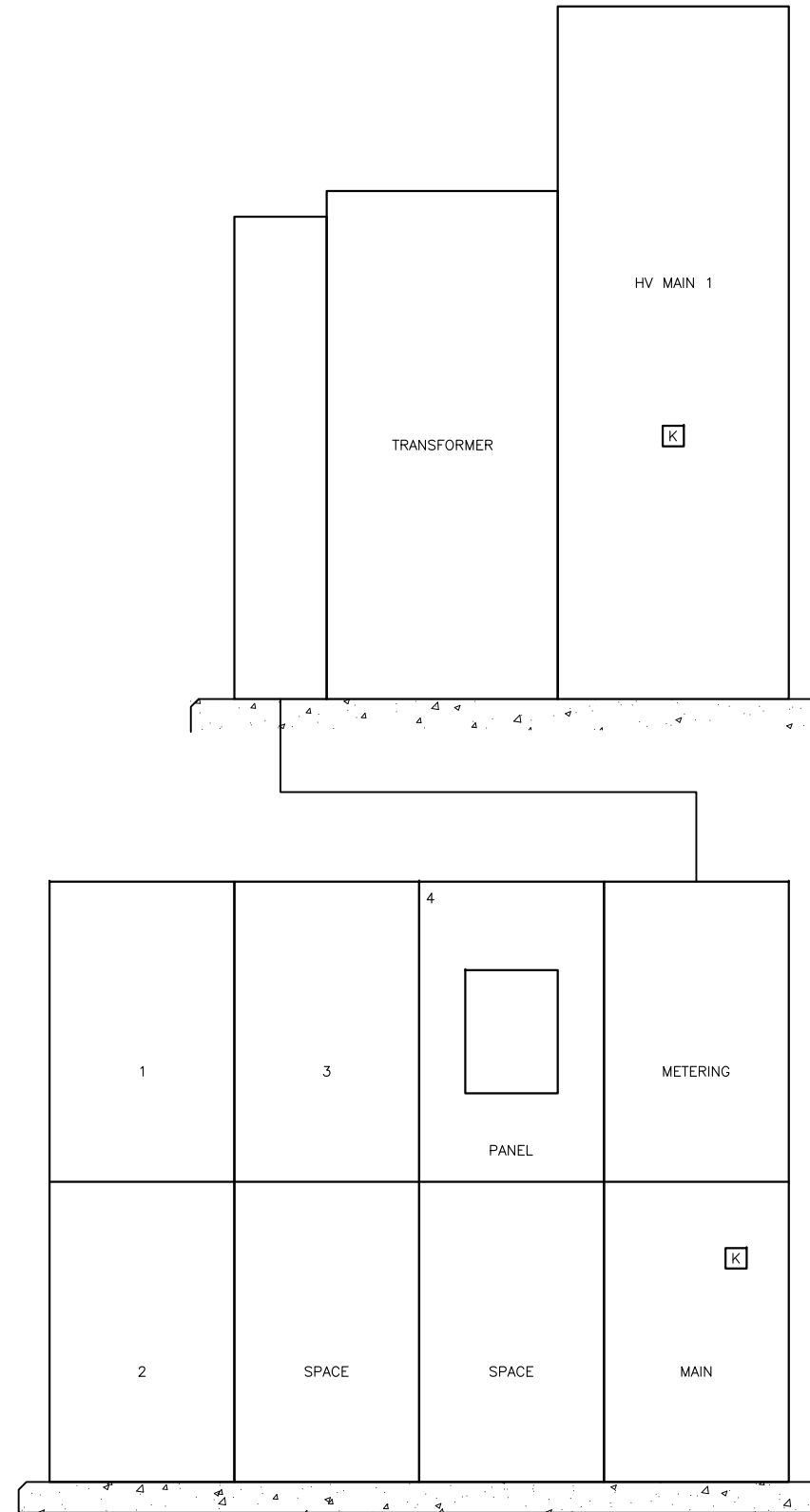
MCC-CB-6 ONE-LINE
DIAGRAM



MCC-CB-6
ELEVATION
SCALE: NTS



MDP-11
ONE-LINE
DIAGRAM



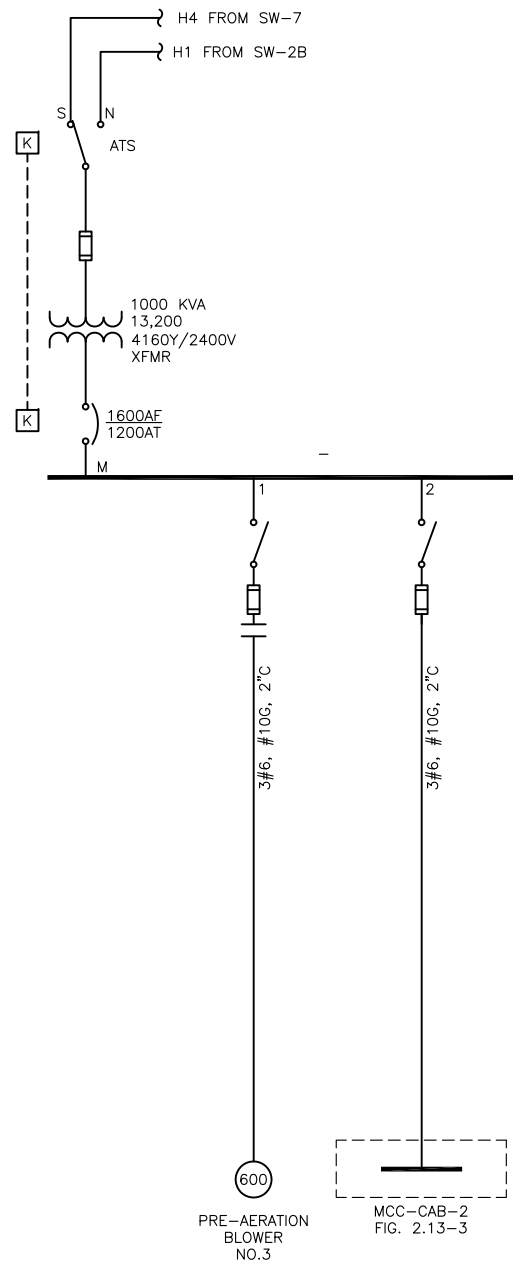
MDP-11
ELEVATION
SCALE: NTS

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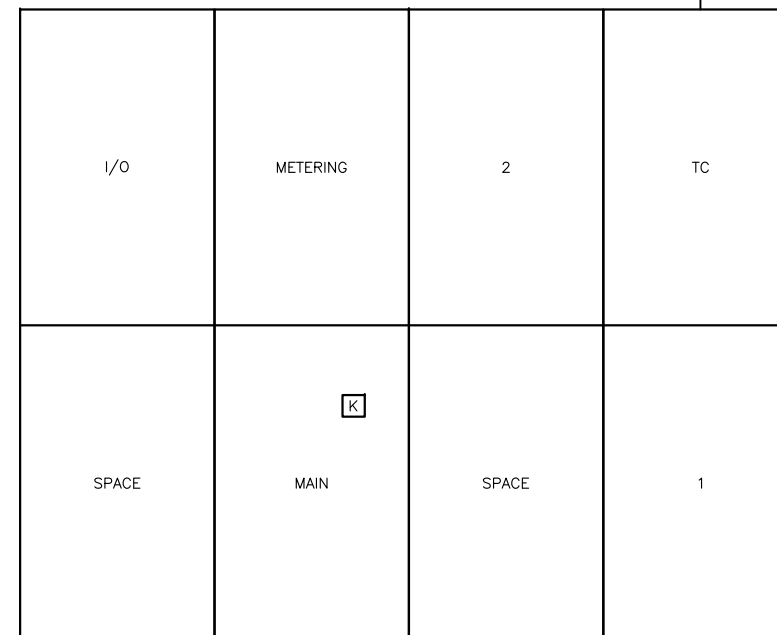
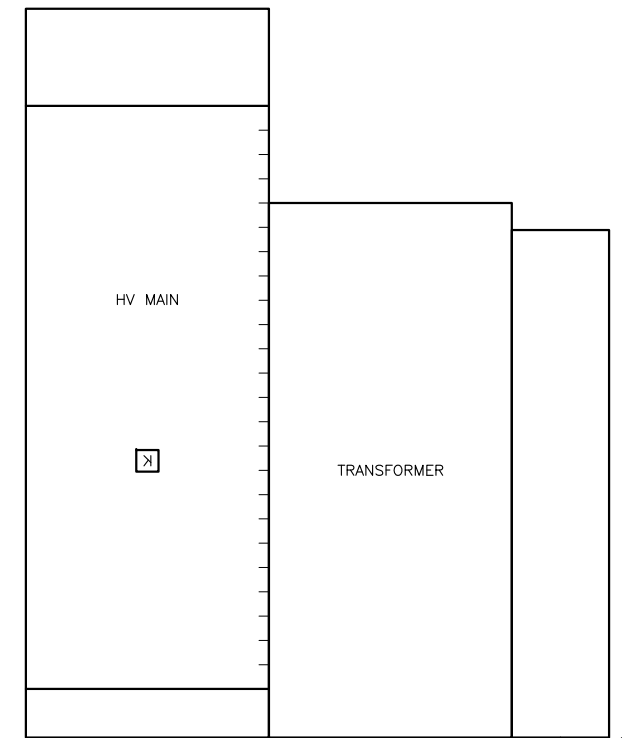
SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT
SUBSTATION 11
ONE-LINE DIAGRAM
AND ELEVATION

DATE
01-XX-12

FIG-2.13-1



SUBSTATION 12 ONE-LINE
DIAGRAM



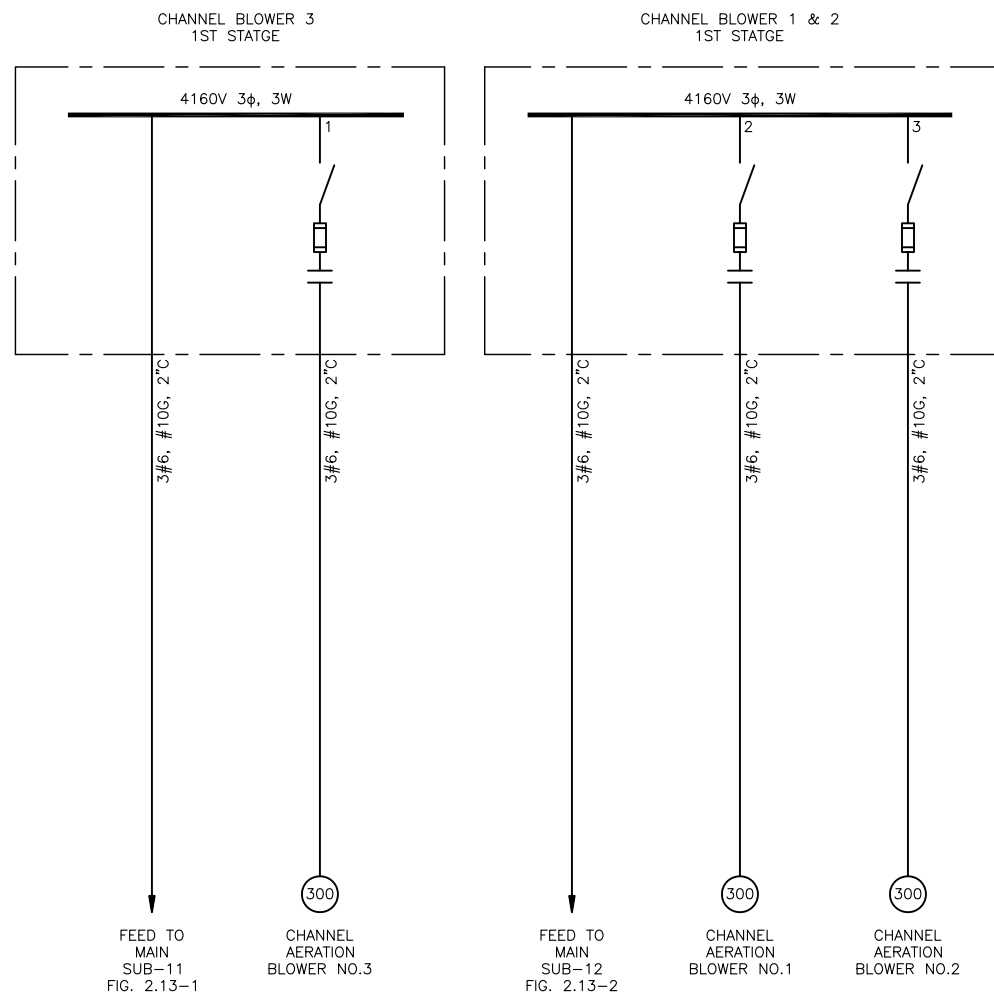
SUBSTATION 12
ELEVATION
SCALE: NTS

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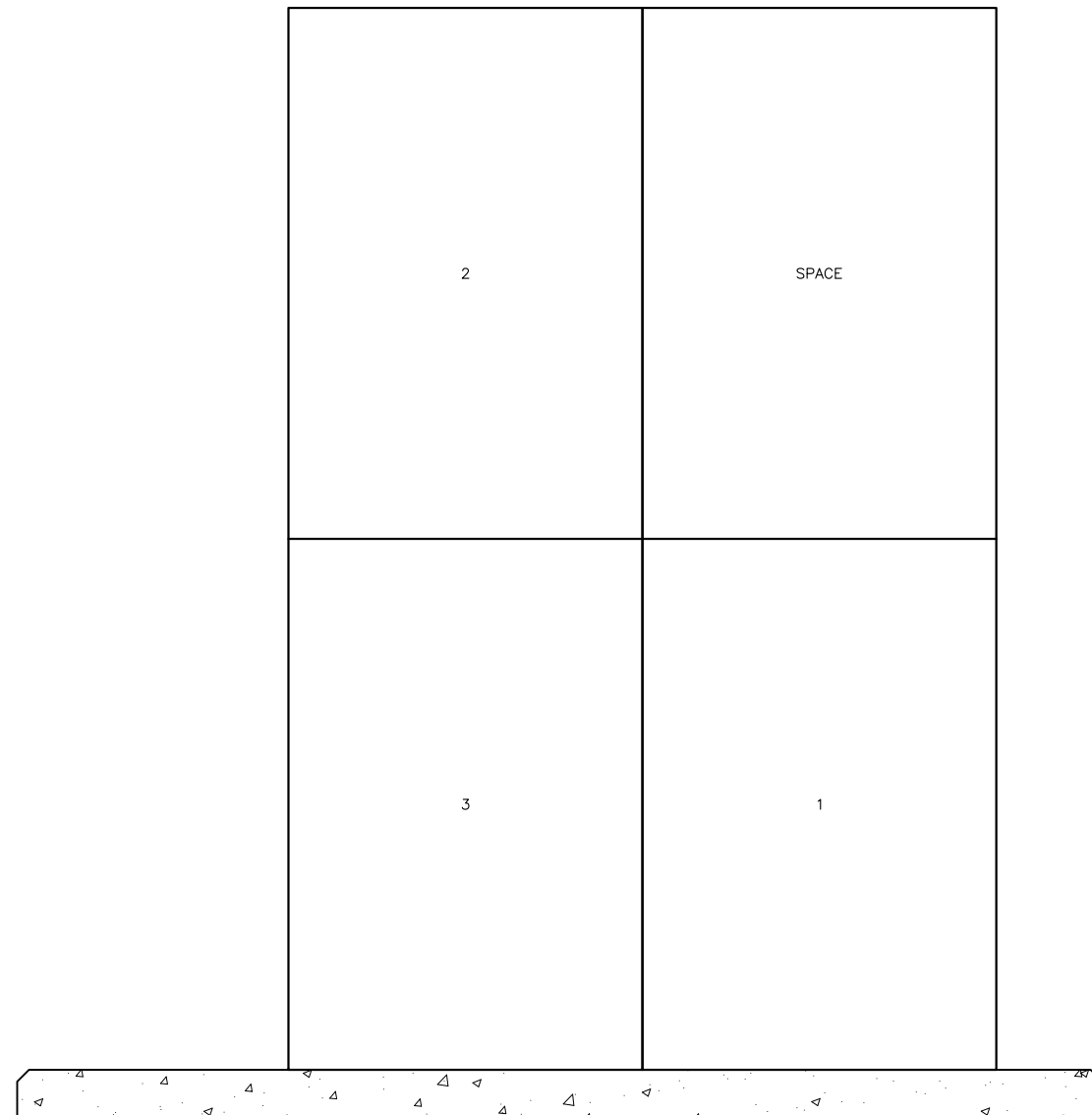
SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT
SUBSTATION 12
ONE-LINE DIAGRAM
AND ELEVATION

DATE
01-XX-12

FIG-2.13-2



MCC-CAB-2 ONE-LINE
DIAGRAM



MCC-CAB-2
ELEVATION
SCALE: NTS

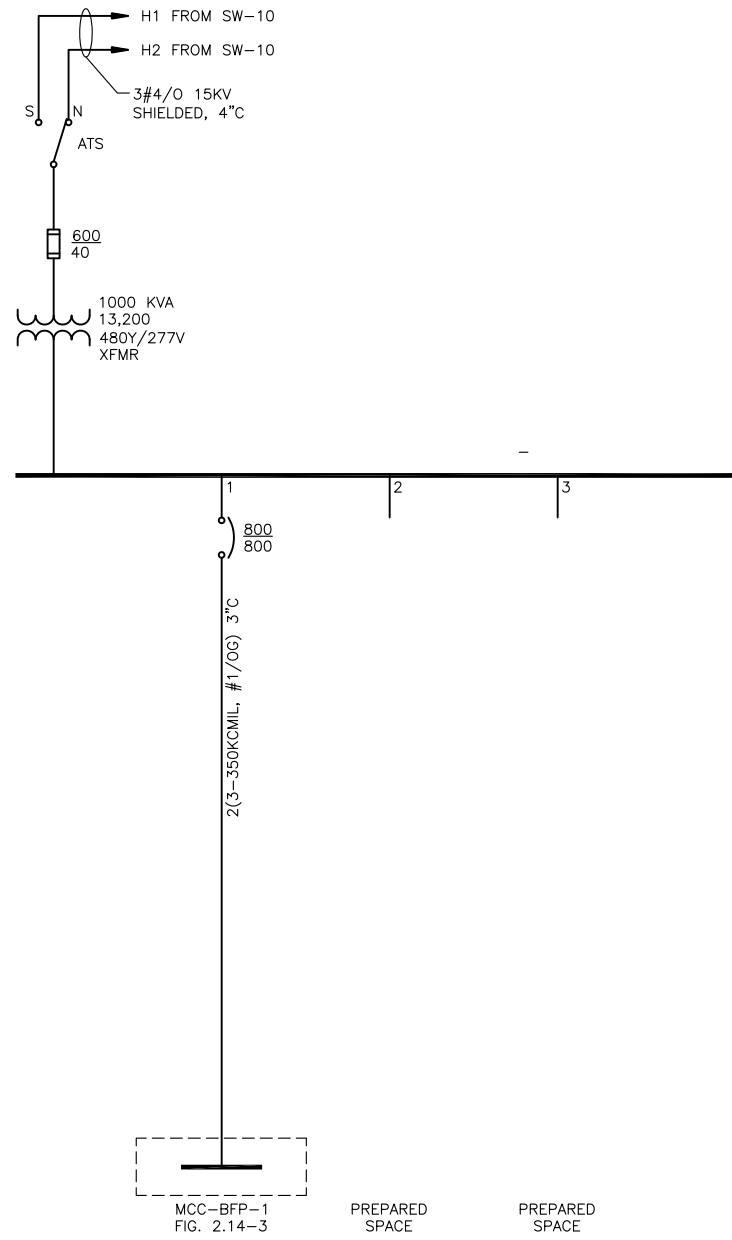
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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT
MCC-CAB-2
ONE-LINE DIAGRAM
& ELEVATION

DATE
01-XX-12

FIG-2.13-3



SUBSTATION 16
 ONE-LINE
 DIAGRAM



SUBSTATION 16
 ELEVATION
 SCALE: NTS

Z:\1922_SAWS - Dos Rios\Report Phase\Report\Figures\FIG-2_14-01.dwg, 2/8/2012 10:35:52 AM, Adobe PDF, JH

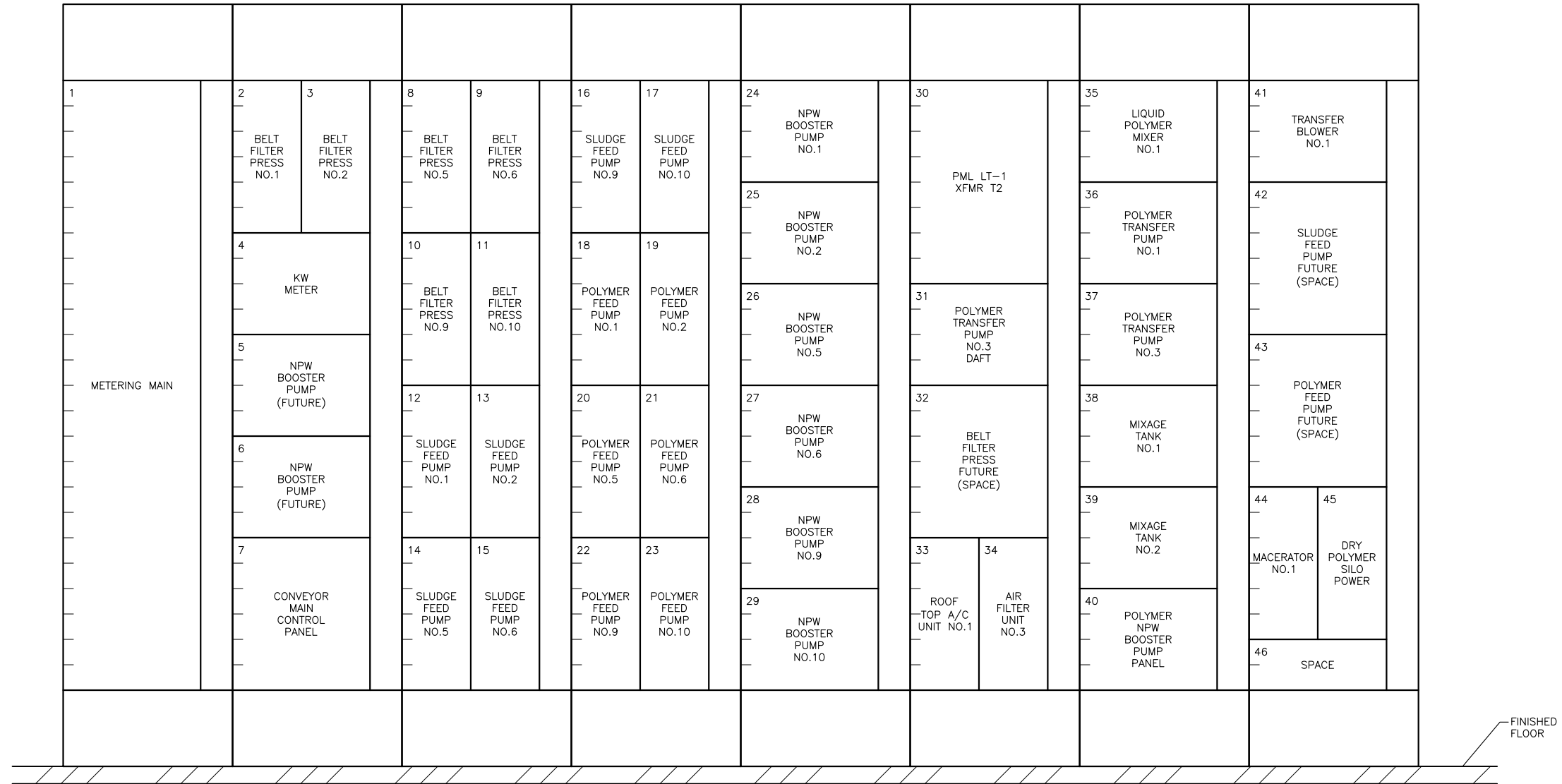
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SAN ANTONIO WATER SYSTEM
 CITY OF SAN ANTONIO, TEXAS
 DOS RIOS ELECTRICAL ASSESSMENT
 SUBSTATION NO.16
 ONE-LINE DIAGRAM AND ELEVATION

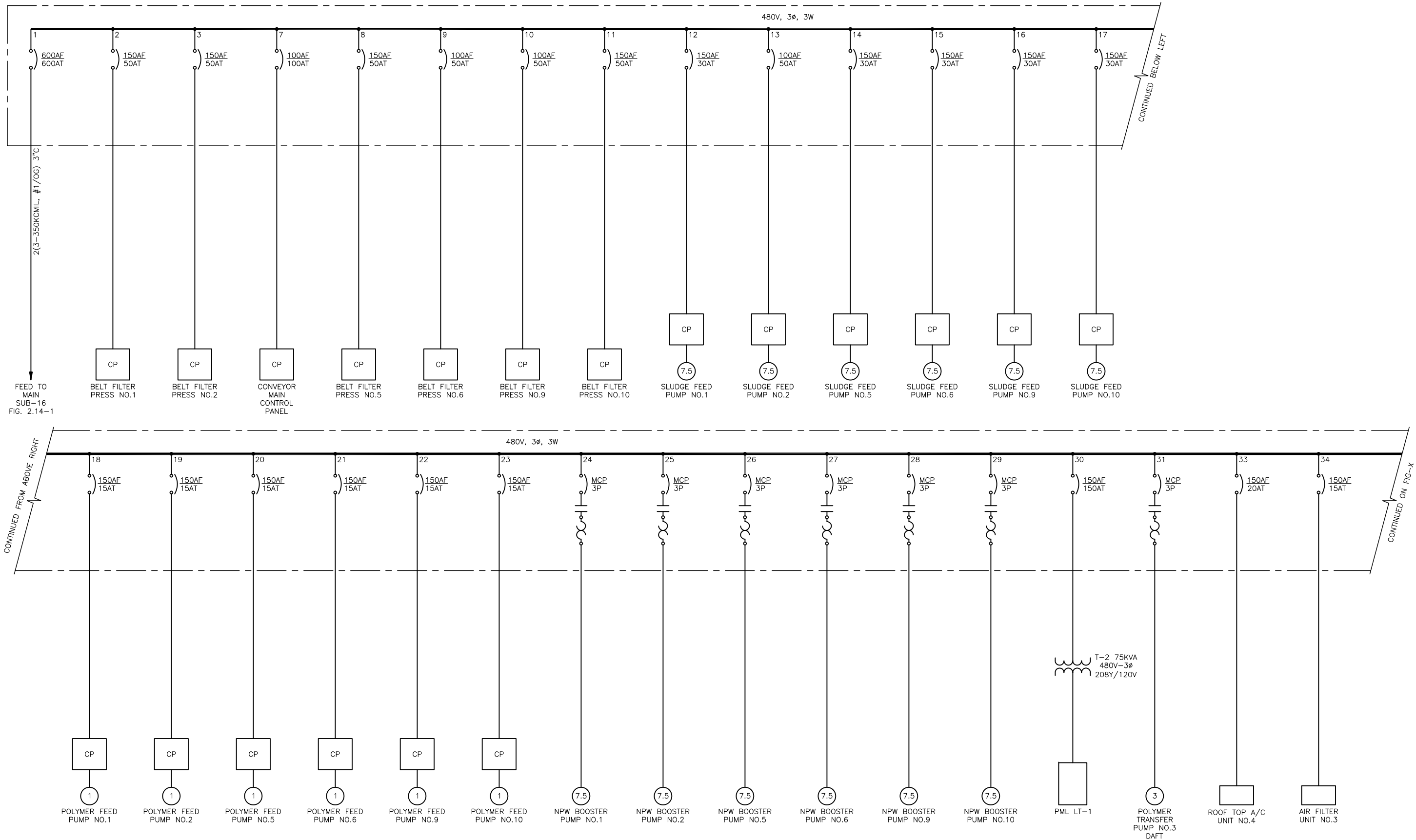
DATE
 01-XX-12

FIG-2.14-1

Z:\1922_SAWS - Dos Rios\Report Phase\Report\Figures\FIG-2_14-02.dwg, 2/8/2012 10:35:54 AM, Adobe PDF, JH



MCC-BFP-1
ELEVATION
SCALE: NTS



MCC-BFP-1 ONE-LINE
DIAGRAM

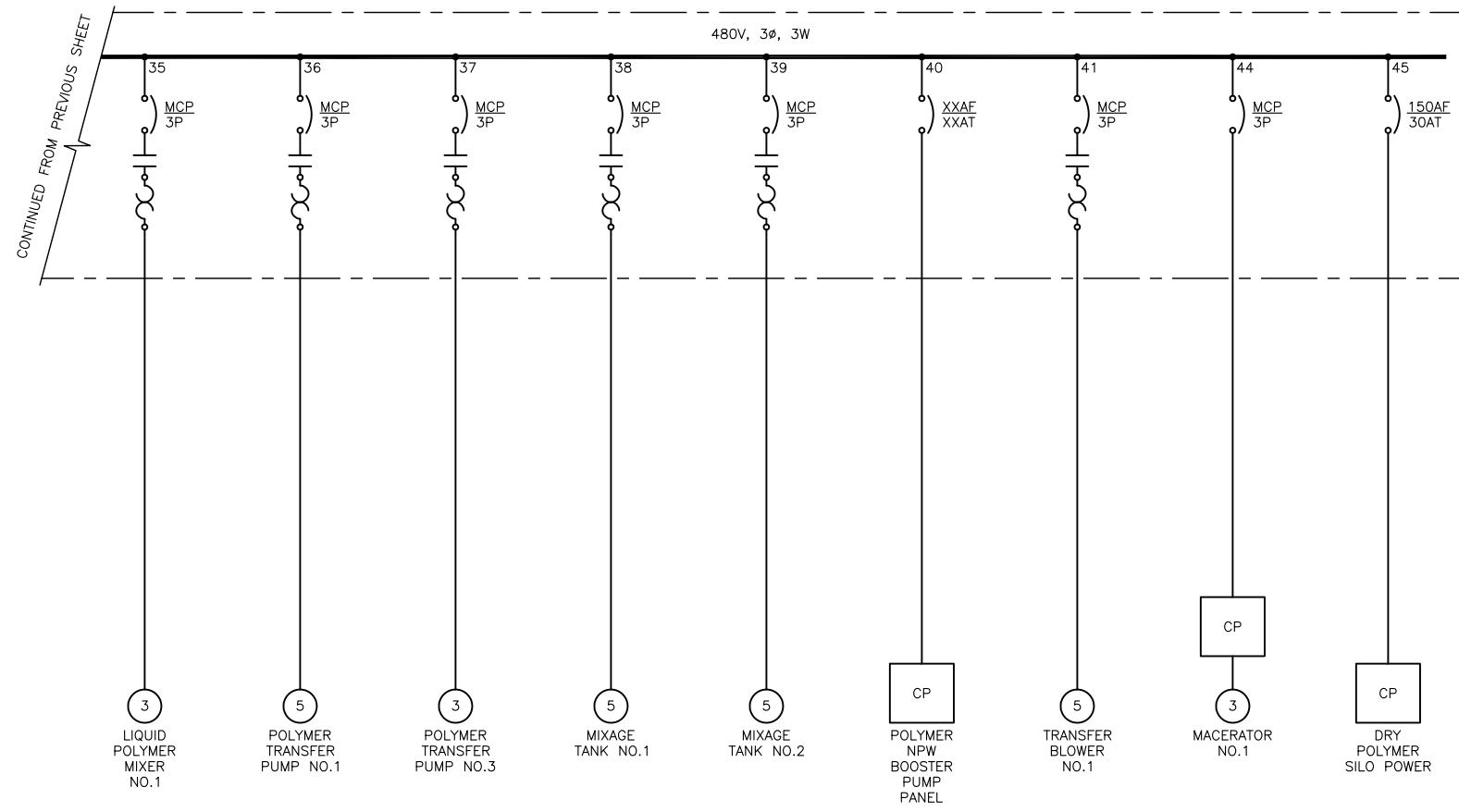
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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT

MCC-BFP-1
ONE-LINE DIAGRAM

DATE
01-XX-12

FIG-2.14-3



MCC-BFP-1 ONE-LINE
DIAGRAM

Z:\1922_SAWS - Dos Rios\Report Phase\Report\Figures\FIG-2_14-04.dwg, 2/8/2012 10:35:57 AM, Adobe PDF, JH

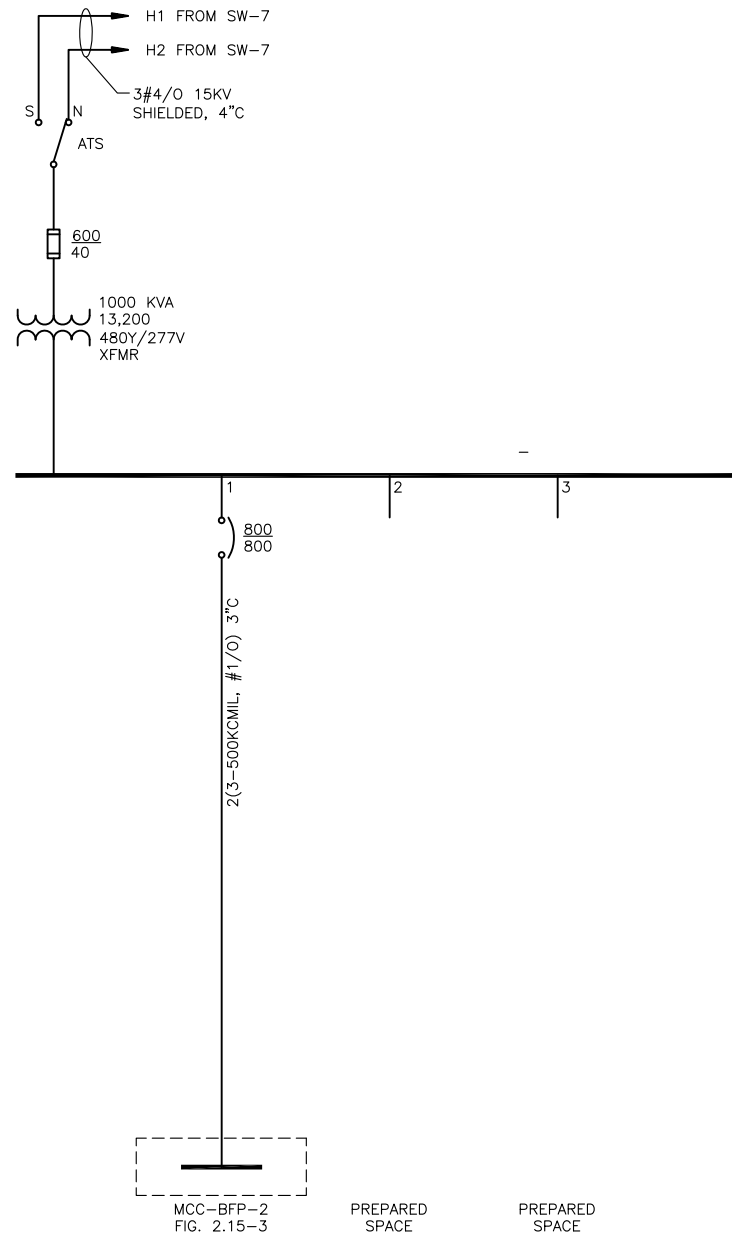
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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT

MCC-BFP-1
ONE-LINE DIAGRAM

DATE
01-XX-12

FIG-2.14-4



SUBSTATION 17 ONE-LINE
DIAGRAM



SUBSTATION 17
ELEVATION
SCALE: NTS

Z:\1922_SAWS - Dos Rios\Report Phase\Report\Figures\FIG-2_15-01.dwg, 2/8/2012 10:35:58 AM, Adobe PDF, JH

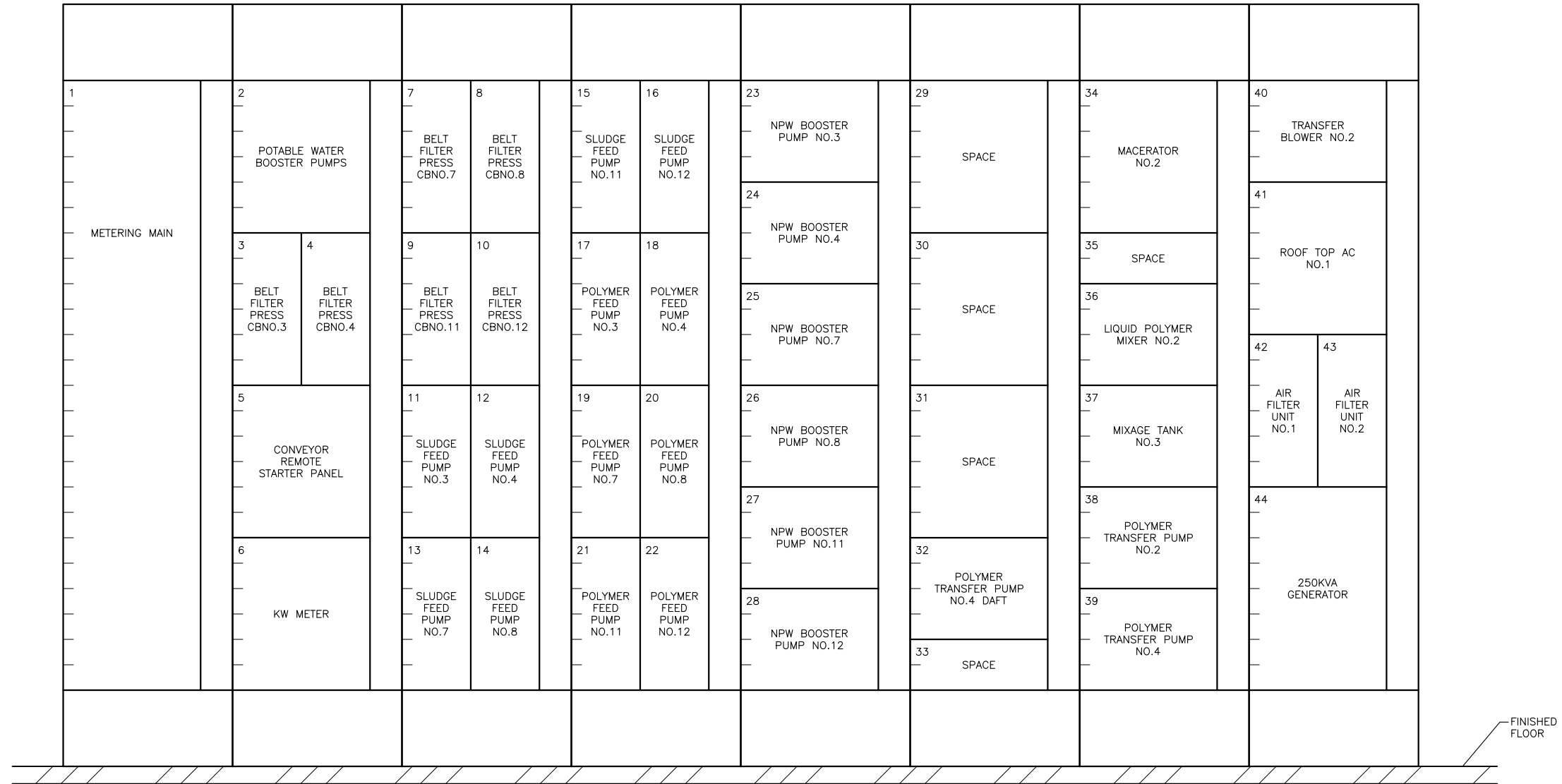
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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT
SUBSTATION NO. 17
ONE-LINE DIAGRAM AND ELEVATION

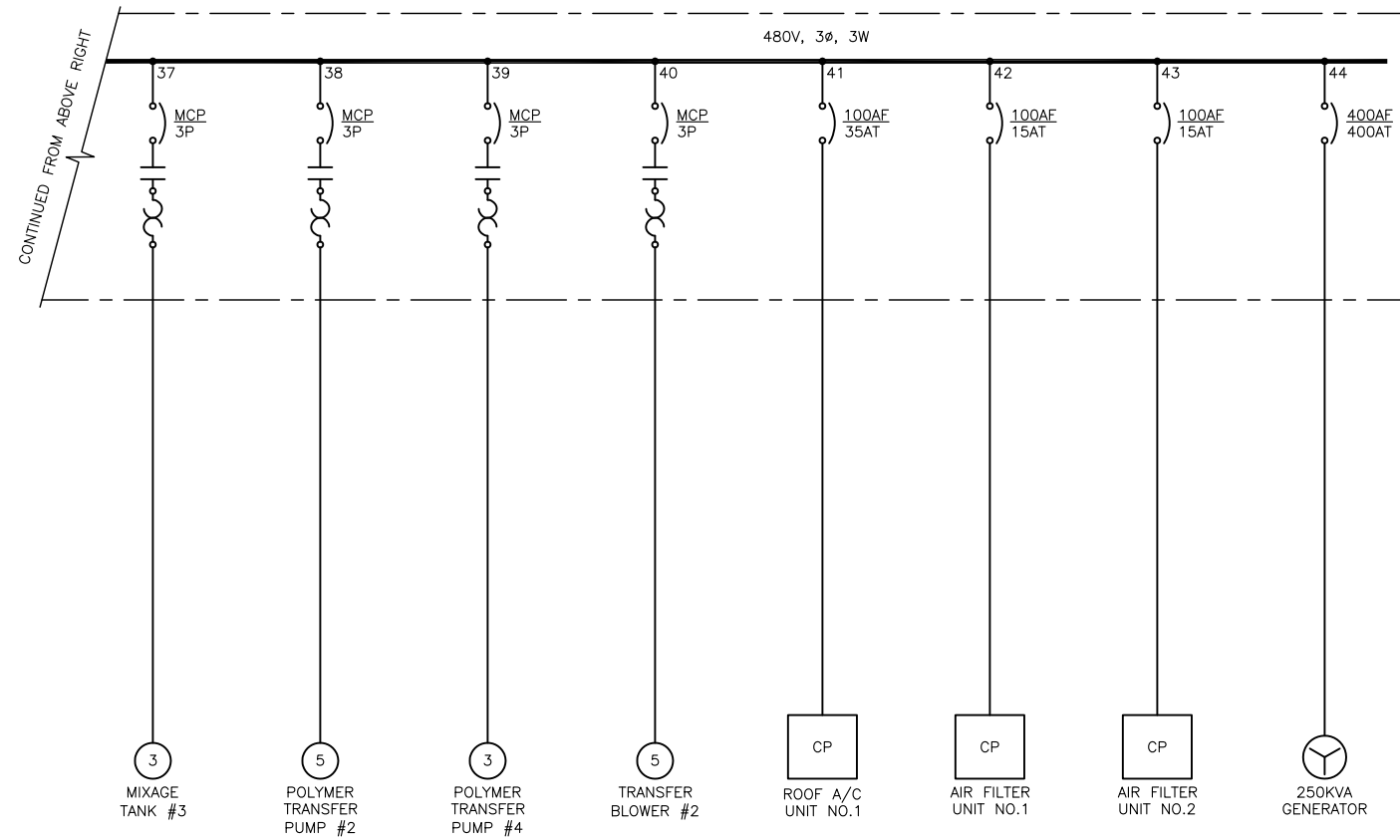
DATE
01-XX-12

FIG-2.15-1

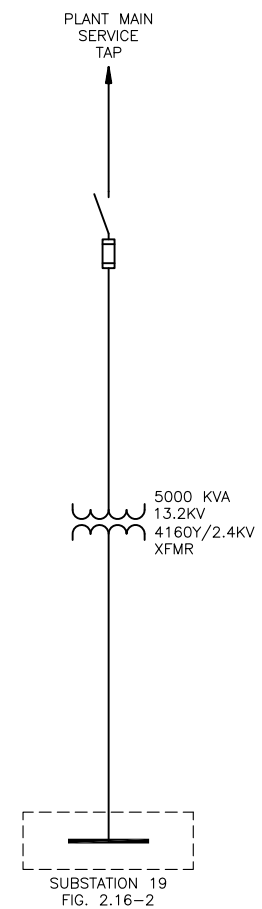
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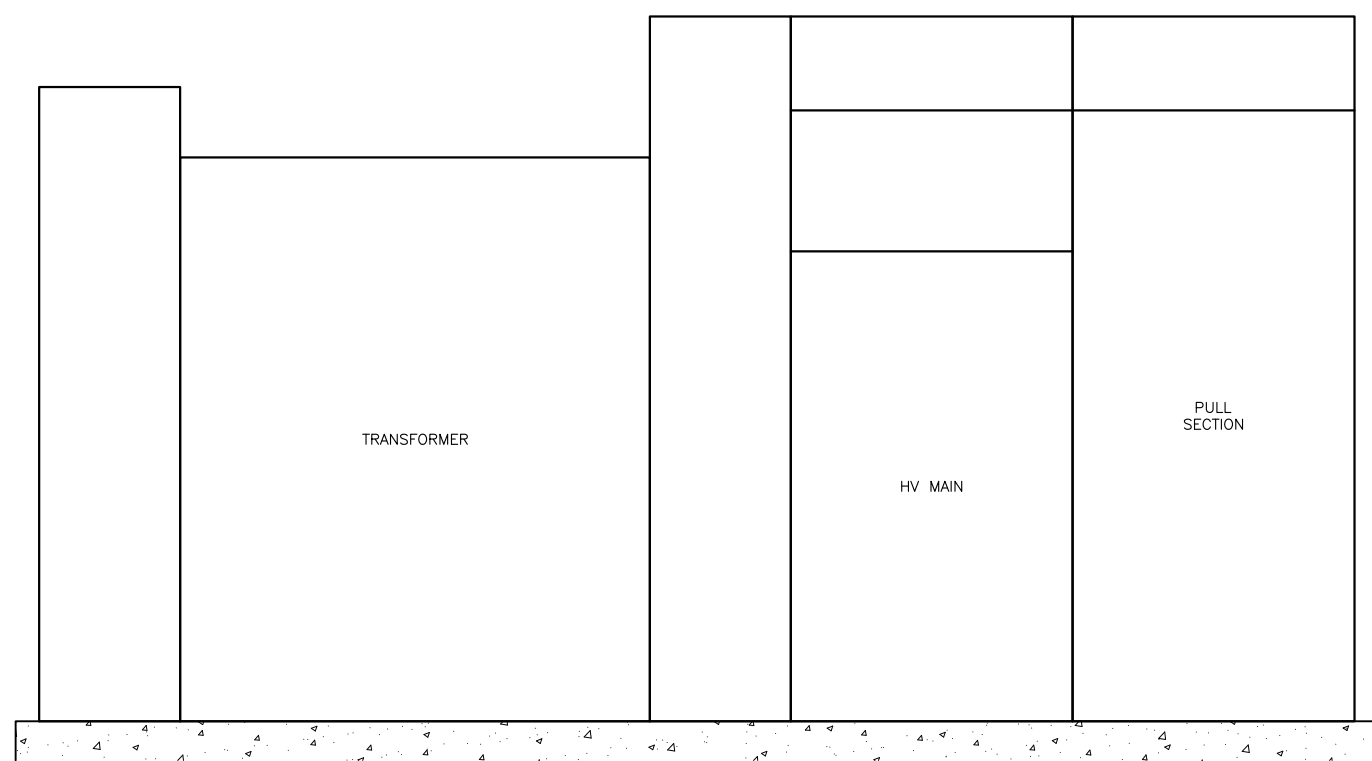
MCC-BFP-2
ELEVATION
SCALE: NTS



MCC-BFP-2 ONE-LINE
DIAGRAM



MCC-SUBSTATION 19
ONE-LINE
DIAGRAM

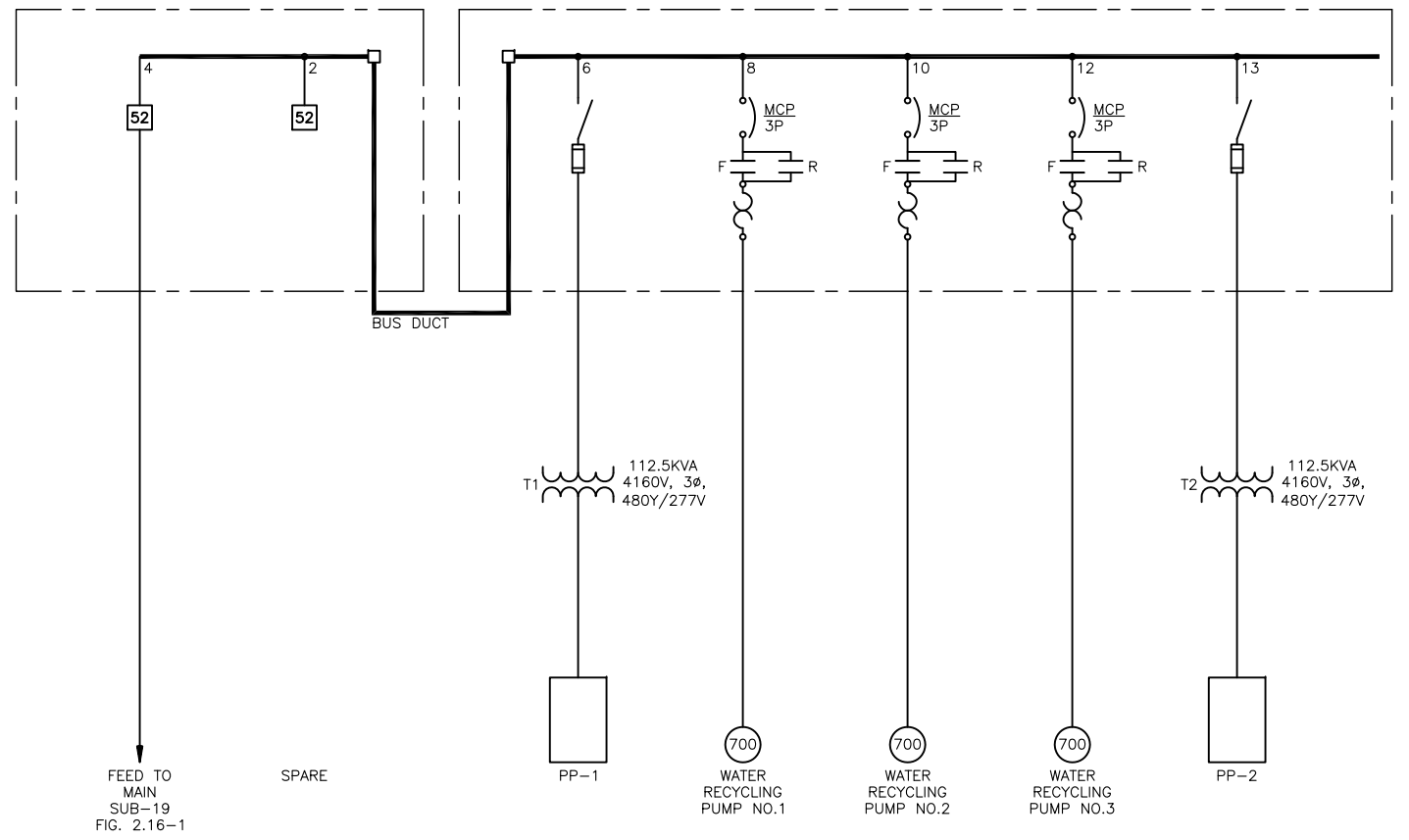


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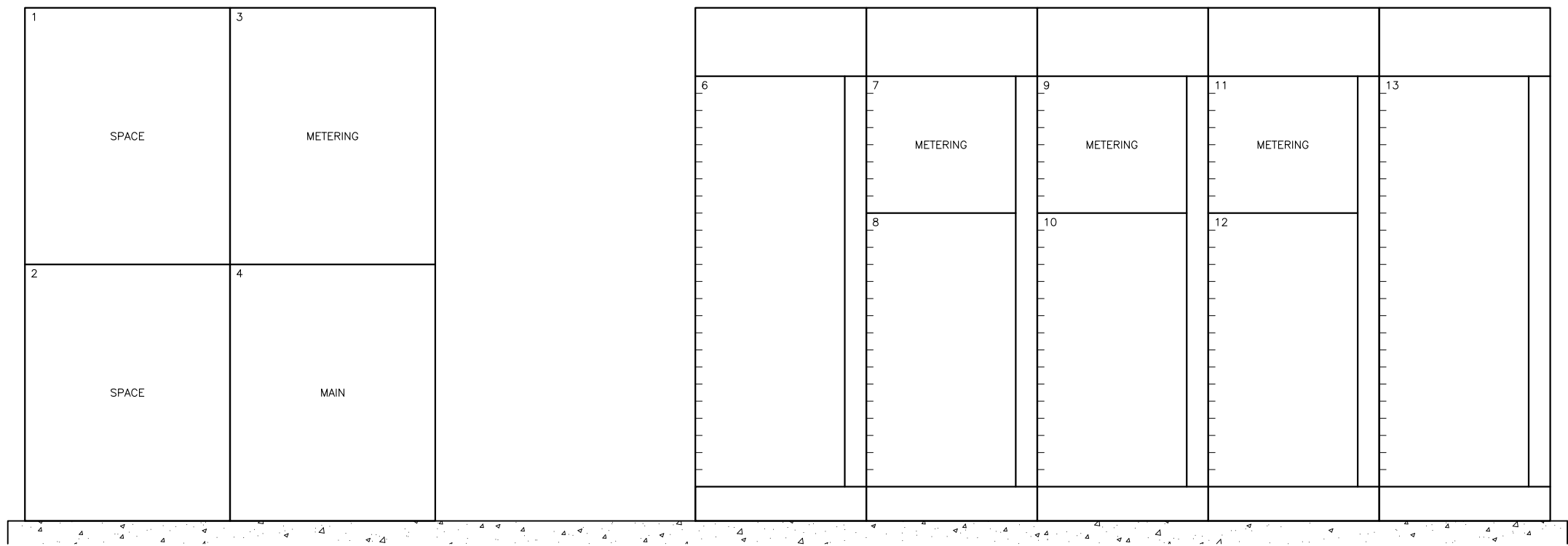
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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT
SUBSTATION NO.19
ONE-LINE DIAGRAM AND ELEVATION

DATE
01-XX-12
FIG-2.16-1



BUILDING NO.19
ONE-LINE
DIAGRAM

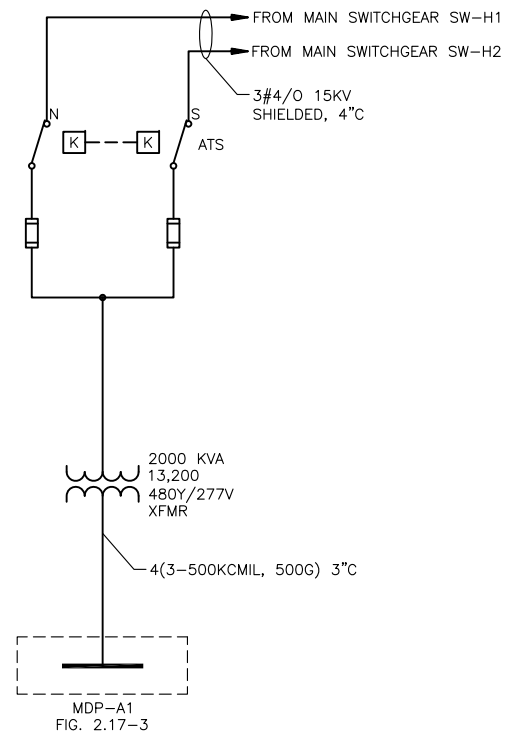


BUILDING NO.19
ELEVATION
SCALE: NTS

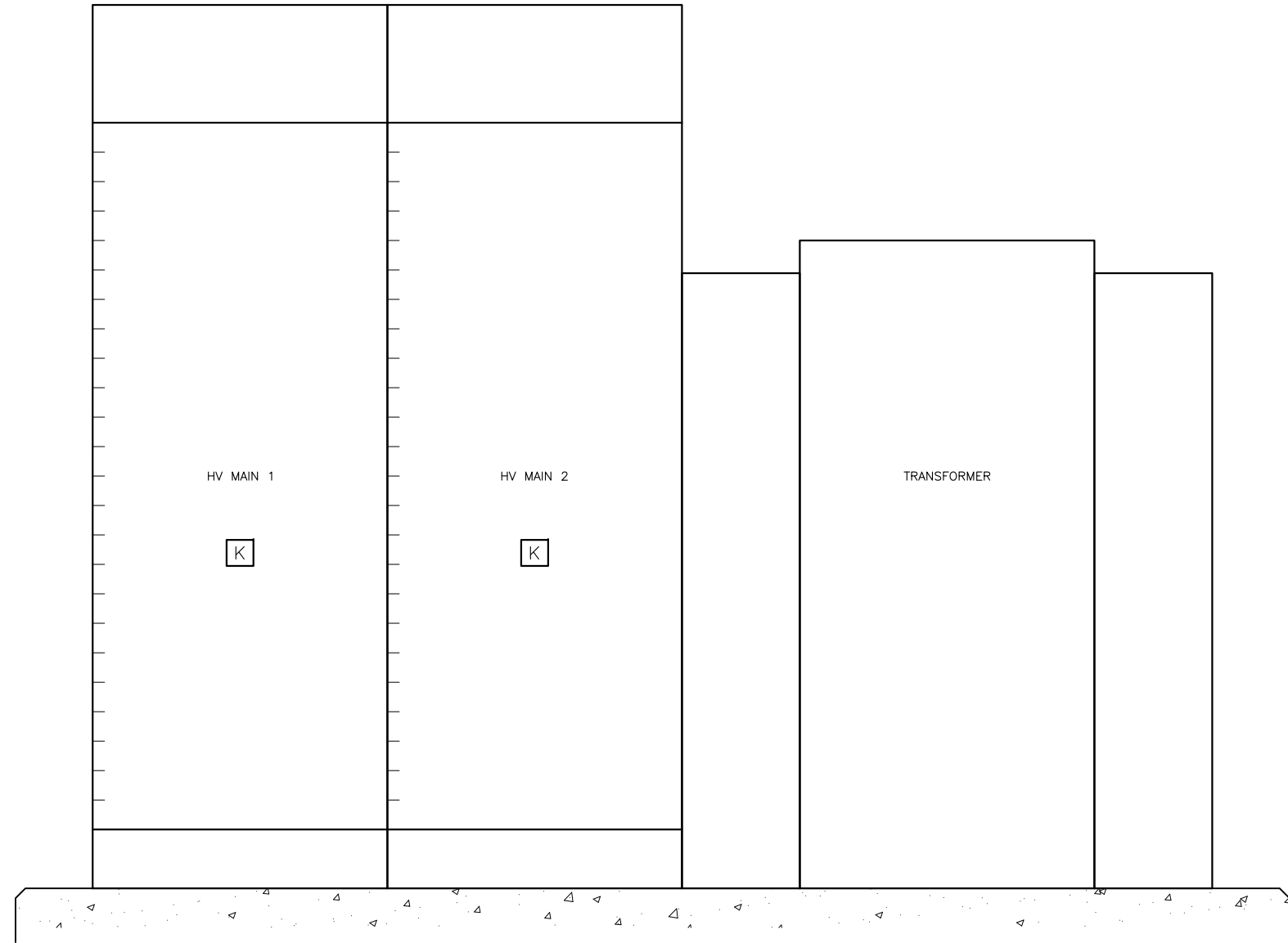
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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT
BUILDING NO.19 MCC
ONE-LINE DIAGRAM
AND ELEVATION

DATE
01-XX-12
FIG-2.16-2



FED-SUB-1
ONE-LINE
DIAGRAM



FED-SUB-1
ELEVATION
SCALE: NTS

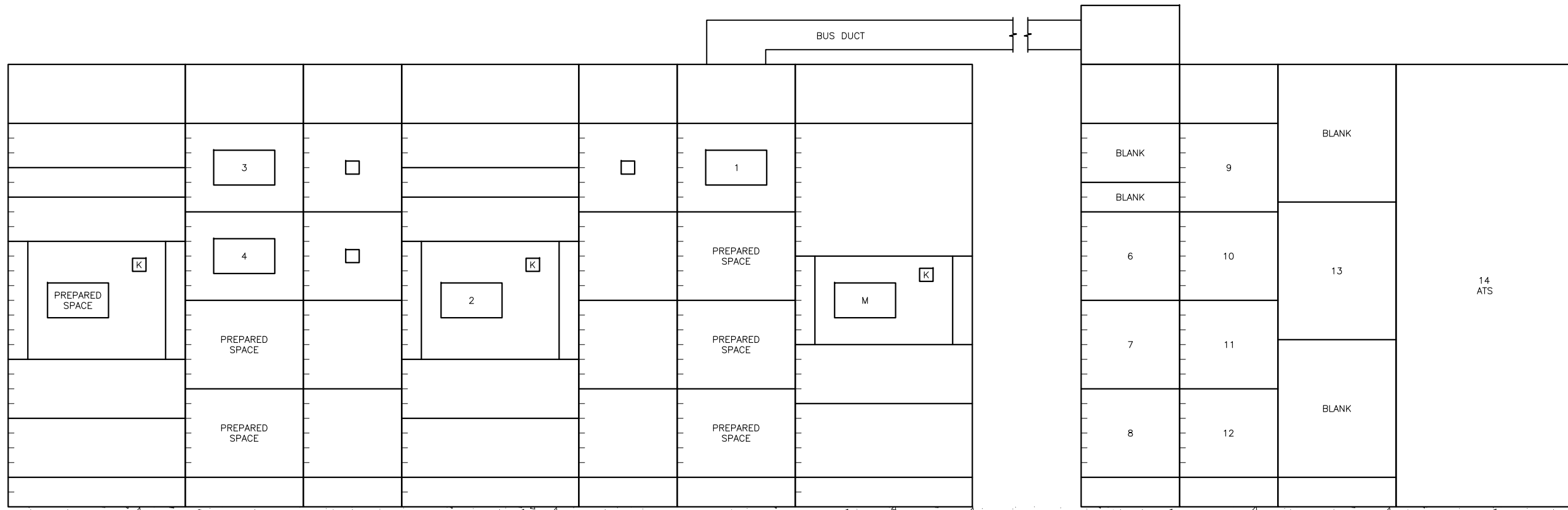
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SAN ANTONIO WATER SYSTEM
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DOS RIOS ELECTRICAL ASSESSMENT
FEB-SUB-01
ONE-LINE DIAGRAM
& ELEVATION

DATE
01-XX-12

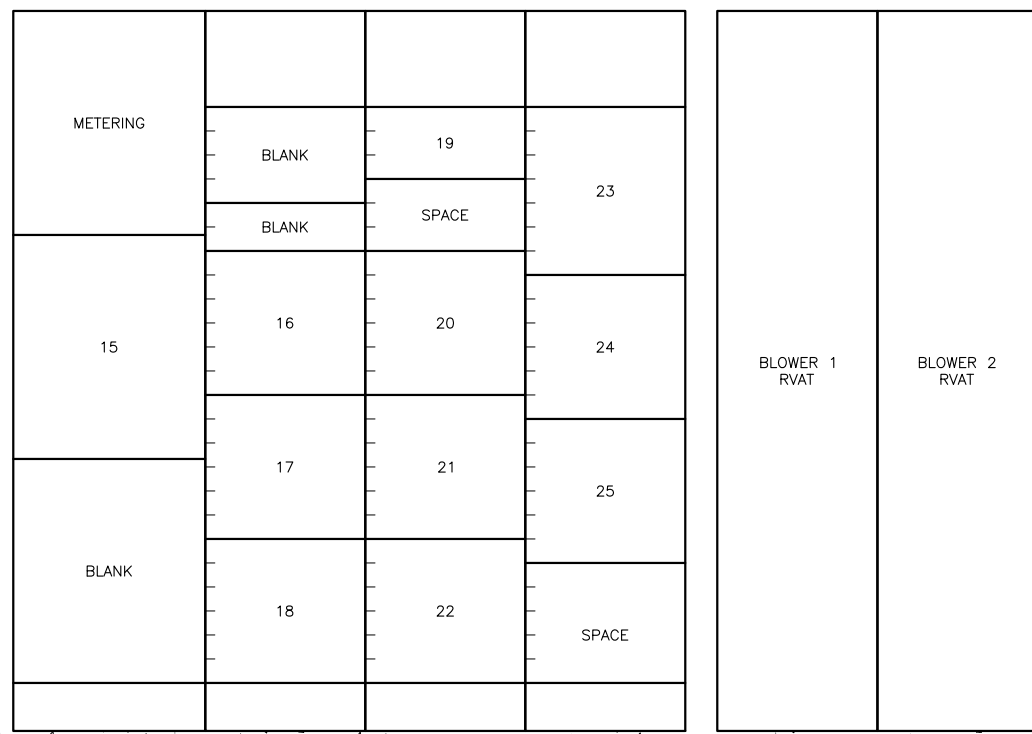
FIG-2.17-1



MCC-A

MDP-A1

MCC-E



MCC-E

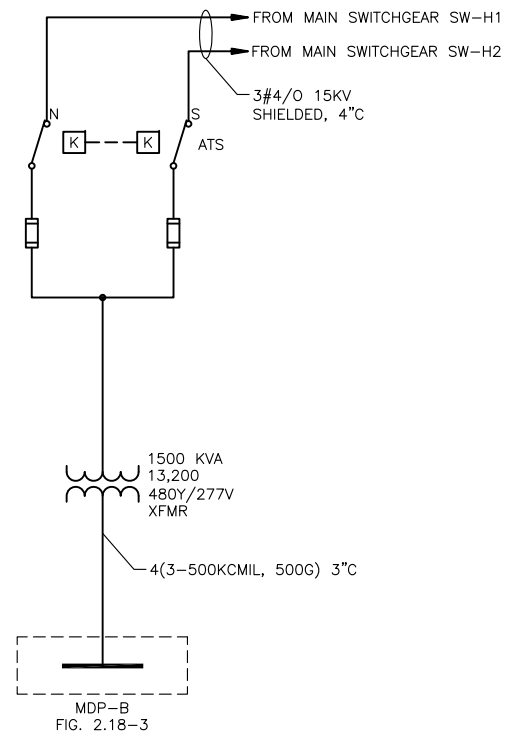
—
—
ELEVATION
SCALE: NTS

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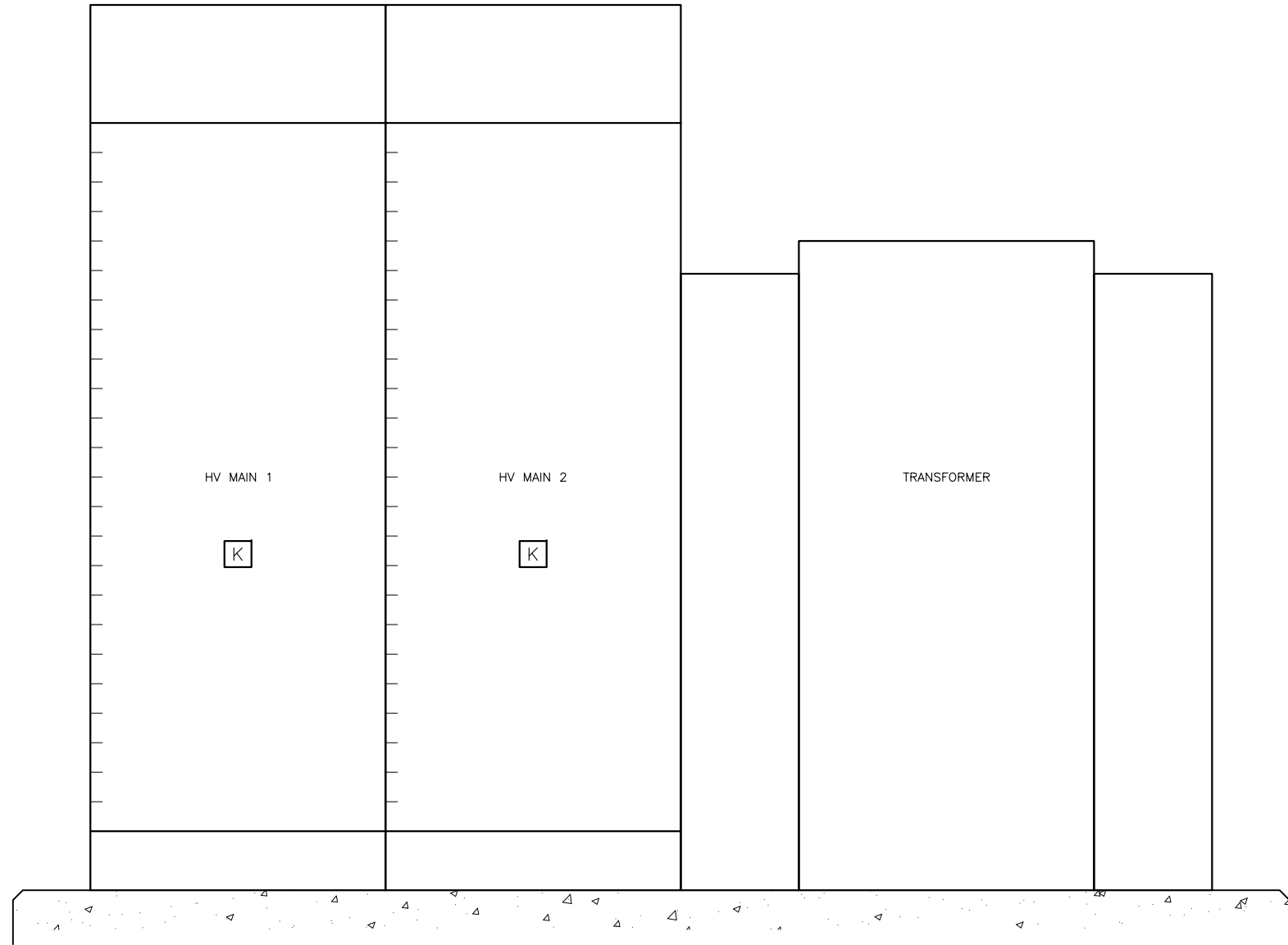
SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT
MCC-A, MDP-A1 & MCC-E
ELEVATIONS

DATE
01-XX-12

FIG-2.17-2



FED-SUB-2
 ONE-LINE
 DIAGRAM



FED-SUB-2
 ELEVATION
 SCALE: NTS

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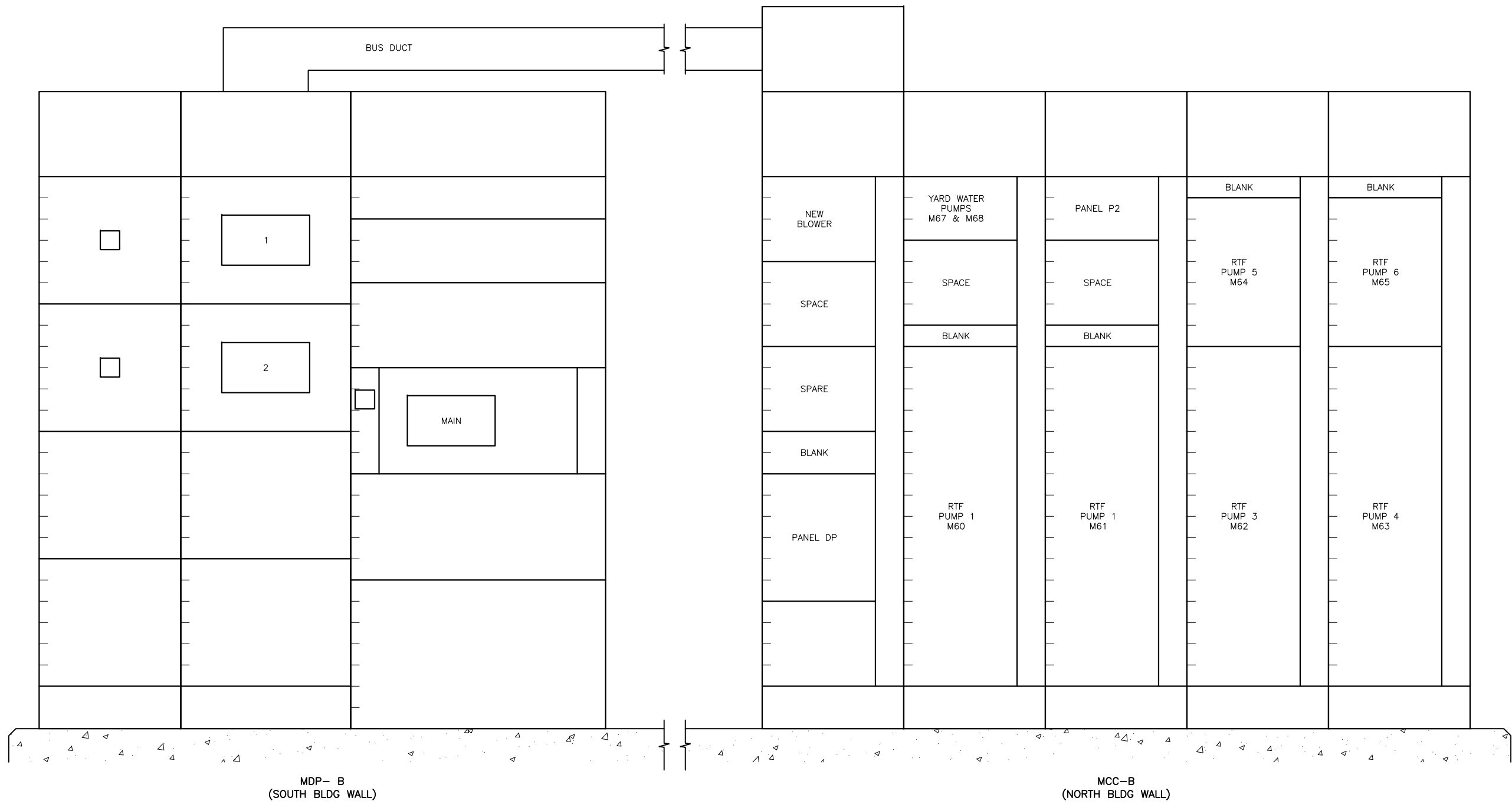
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SAN ANTONIO WATER SYSTEM
 CITY OF SAN ANTONIO, TEXAS
 DOS RIOS ELECTRICAL ASSESSMENT
 FEB SUB-02
 ONE-LINE DIAGRAM
 & ELEVATION

DATE
 01-XX-12

FIG-2.18-1

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MDP- B
(SOUTH BLDG WALL)

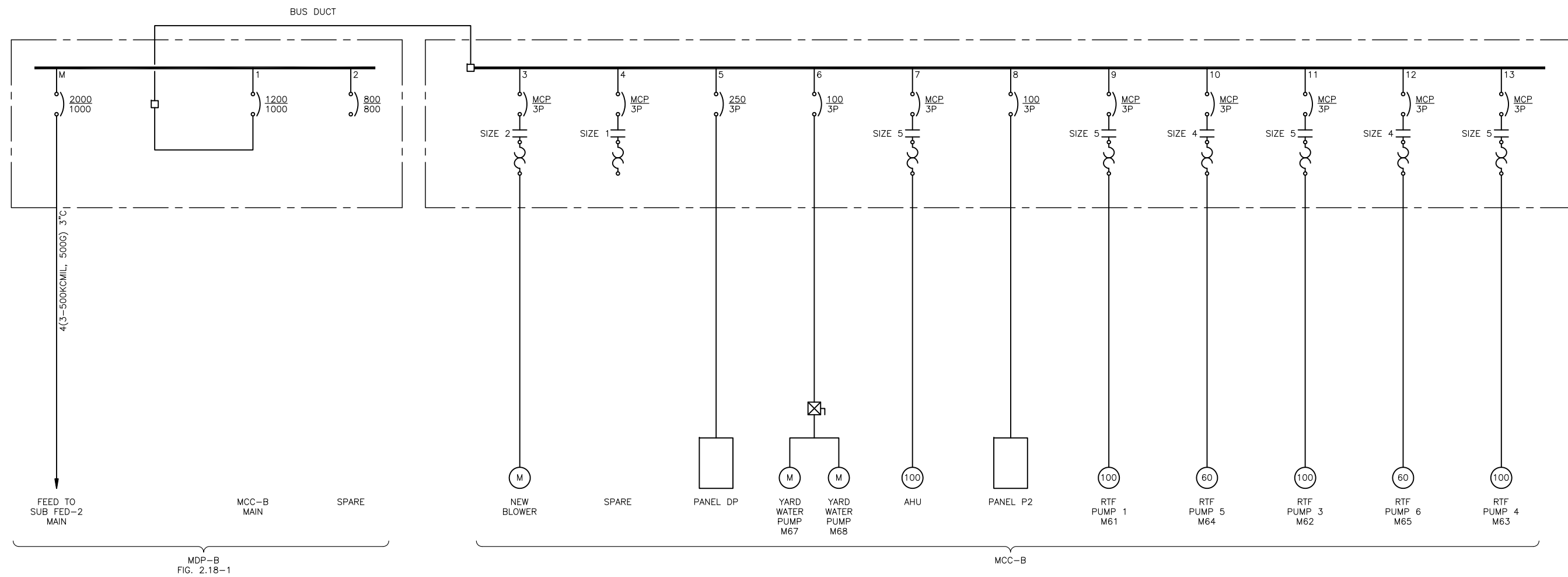
MCC-B
(NORTH BLDG WALL)

ELEVATION
SCALE: NTS

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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT
**MDP-B & MCC-B
ELEVATIONS**

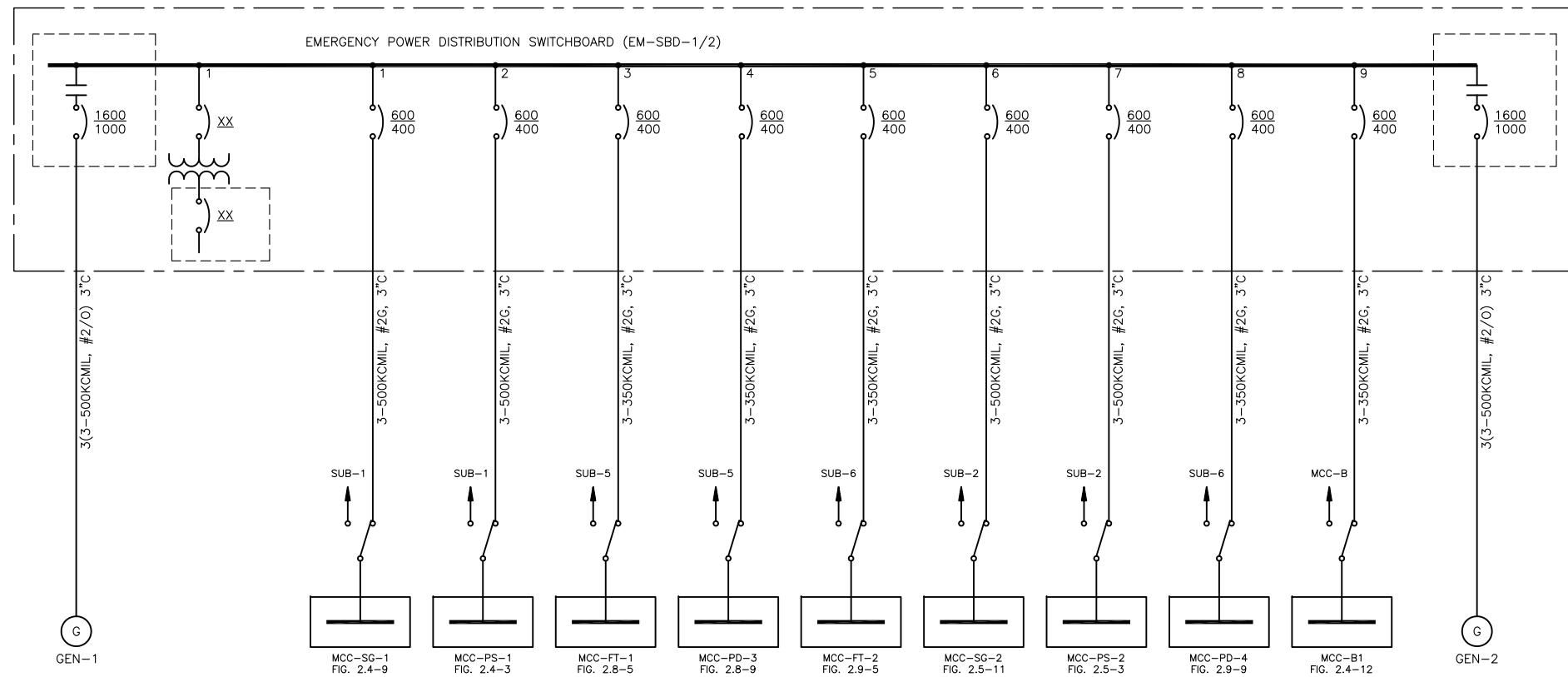
DATE
01-XX-12
FIG-2.18-2



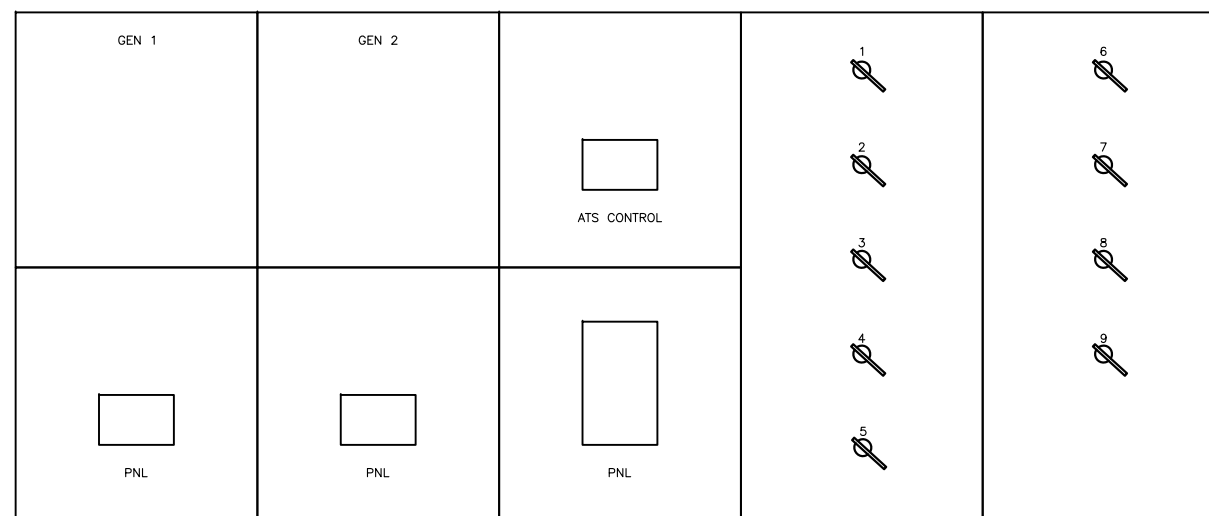
ONE-LINE
DIAGRAM

Z:\1922_SAWS - Dos Rios\Report Phase\Report\Figures\FIG-2_18-03.dwg, 2/8/2012 10:35:14 AM, Adobe PDF, JH

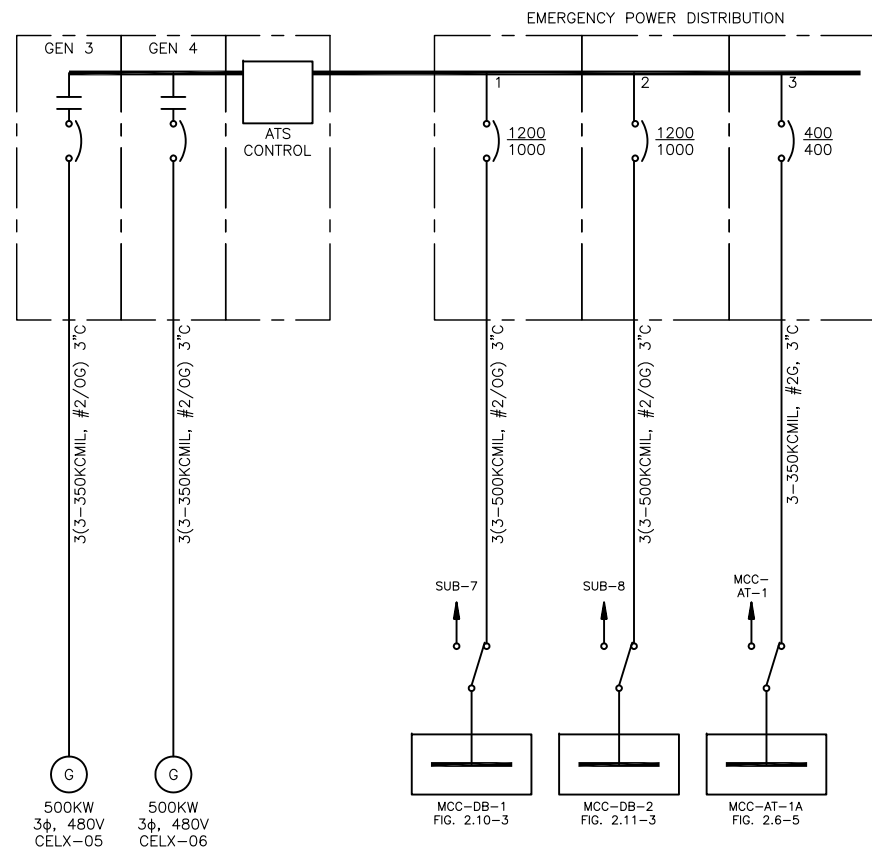
	GAI Gupta & Associates, Inc. <i>consulting engineering</i> Registration No. F-2593	SAN ANTONIO WATER SYSTEM CITY OF SAN ANTONIO, TEXAS DOS RIOS ELECTRICAL ASSESSMENT MDP-B & MCC-B ONE-LINE DIAGRAM	DATE 01-XX-12
			FIG-2.18-3



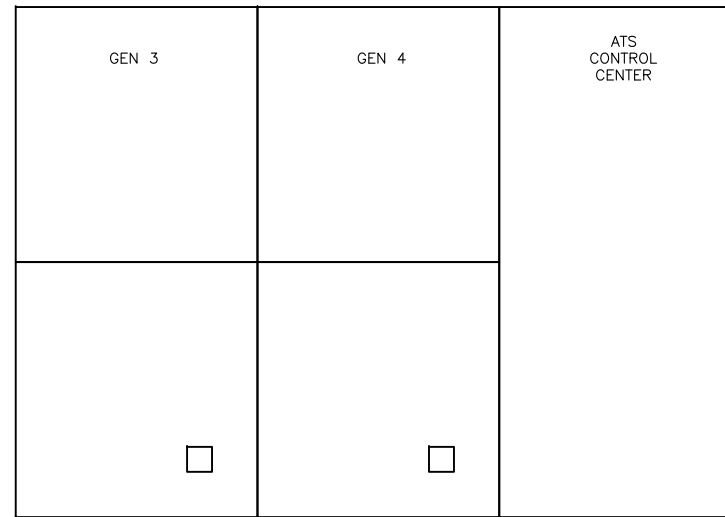
EMERGENCY GENERATORS 1/2
ONE-LINE
DIAGRAM



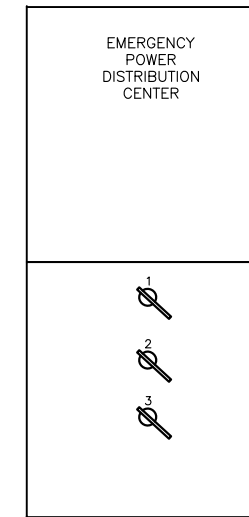
EM-SBD-1/2
SWITCHGEAR
ELEVATION
NTS

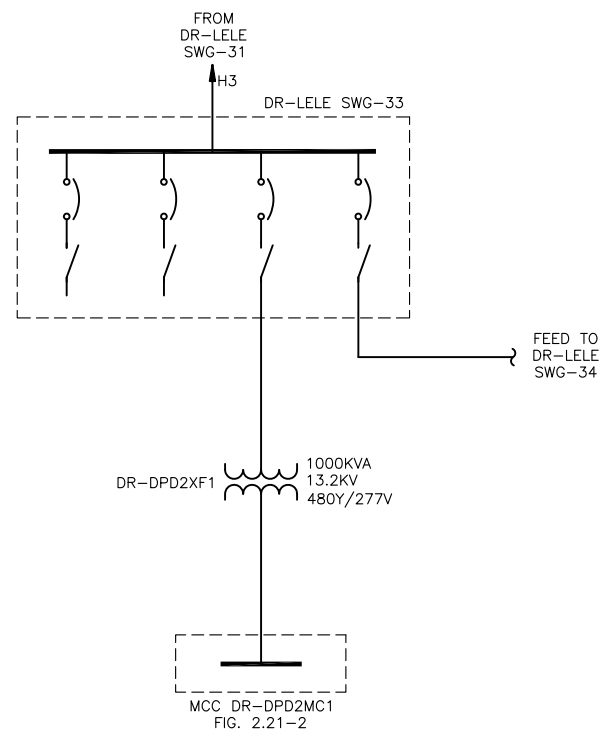


EMERGENCY GENERATORS 3/4
ONE-LINE
DIAGRAM

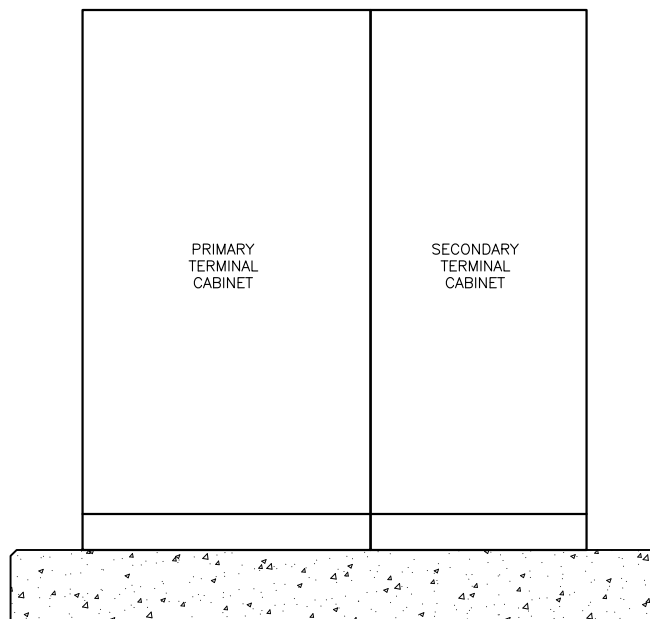


EM-SBD-3/4
SWITCHGEAR
ELEVATION
NTS

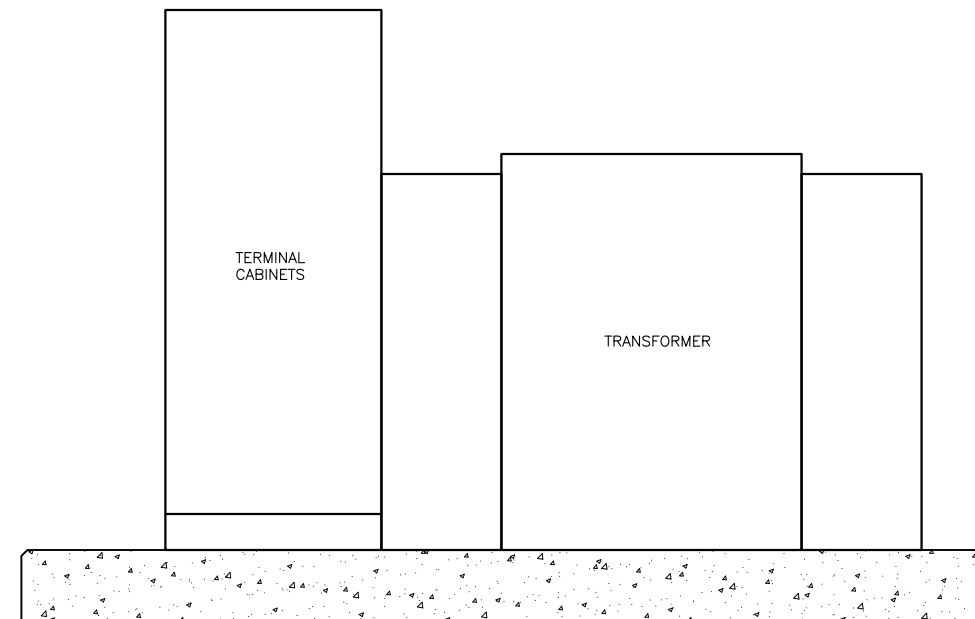




SWITCHGEAR DR-LELE SWG-33
ONE-LINE
DIAGRAM



FRONT
ELEVATION
SCALE: NTS



SIDE
ELEVATION
SCALE: NTS

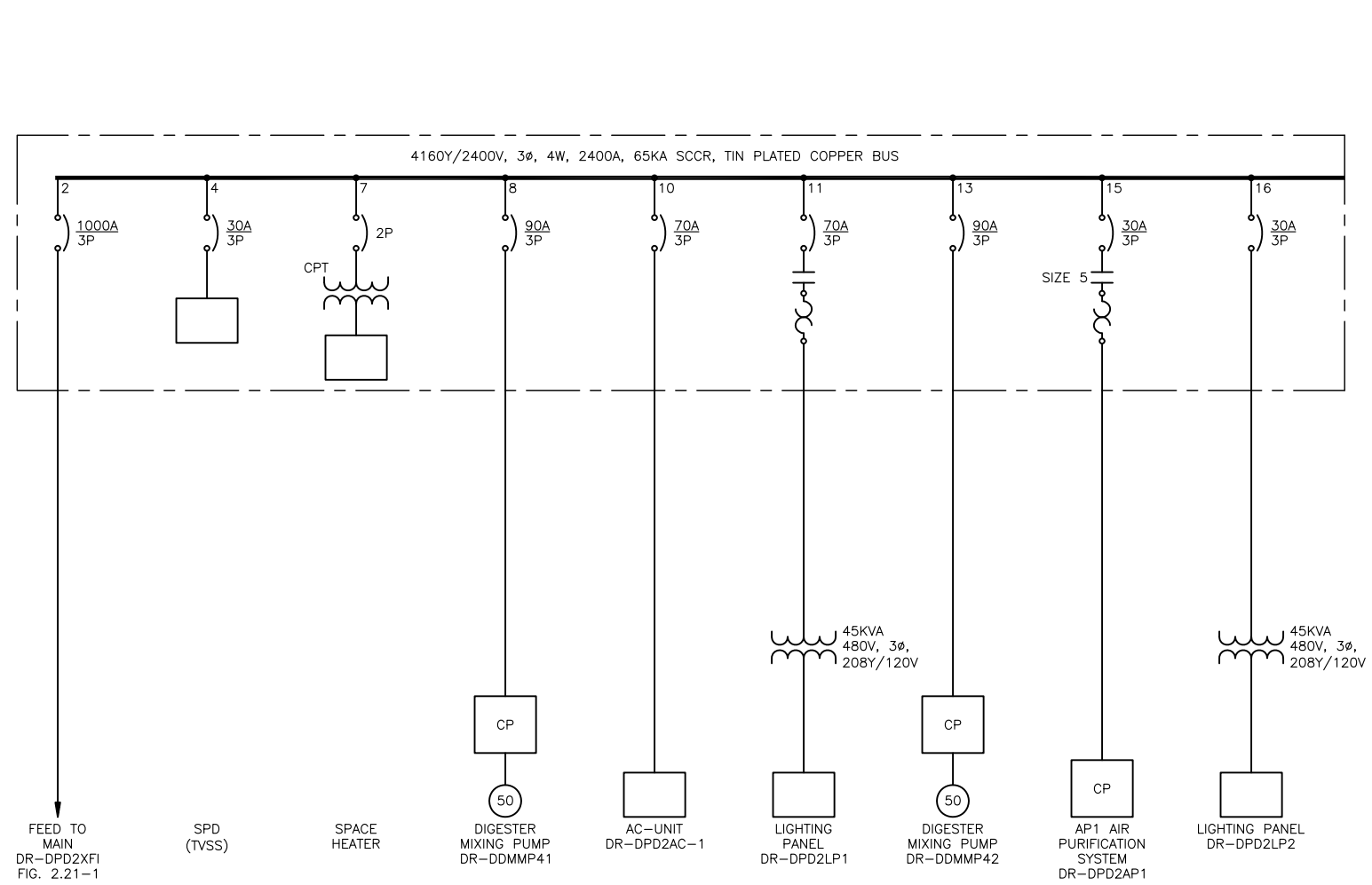
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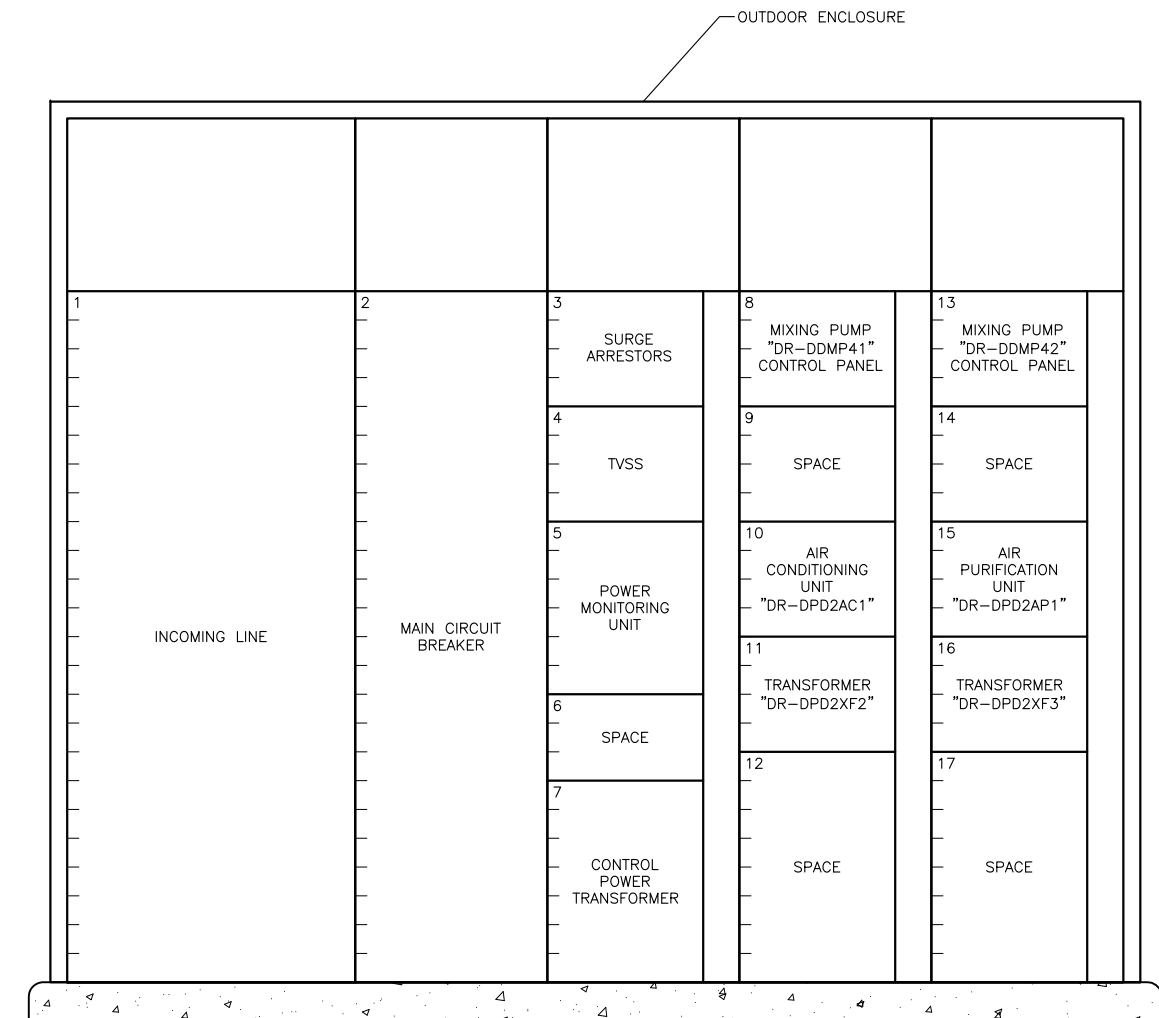
SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT
SWITCHGEAR DR-LELE SWG-33
ONE-LINE DIAGRAM
& ELEVATION

DATE
01-XX-12

FIG-2.21-1



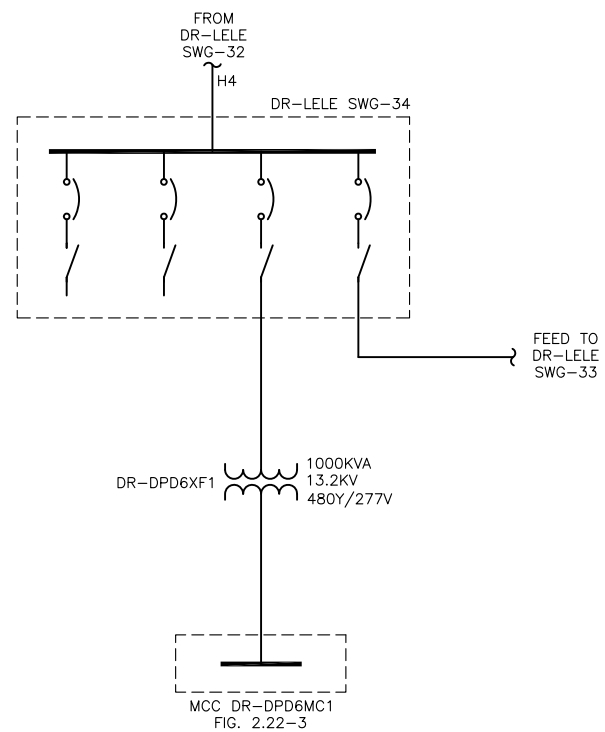
MCC-DR-DPD2MCI ONE-LINE
DIAGRAM



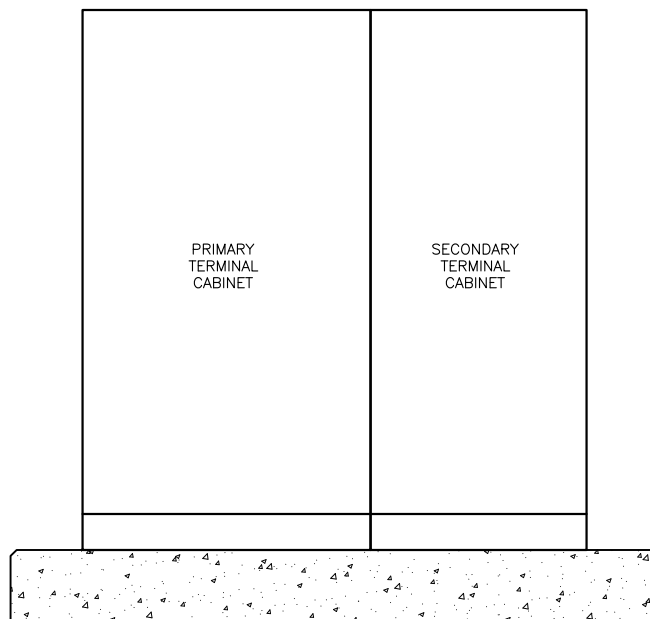
MCC-DR-DPD2MCI
ELEVATION
SCALE: NTS

Z:\1922_SAWS - Dos Rios\Report Phase\Report\Figures\FIG-2_21-02.dwg, 2/8/2012 10:35:20 AM, Adobe PDF, JH

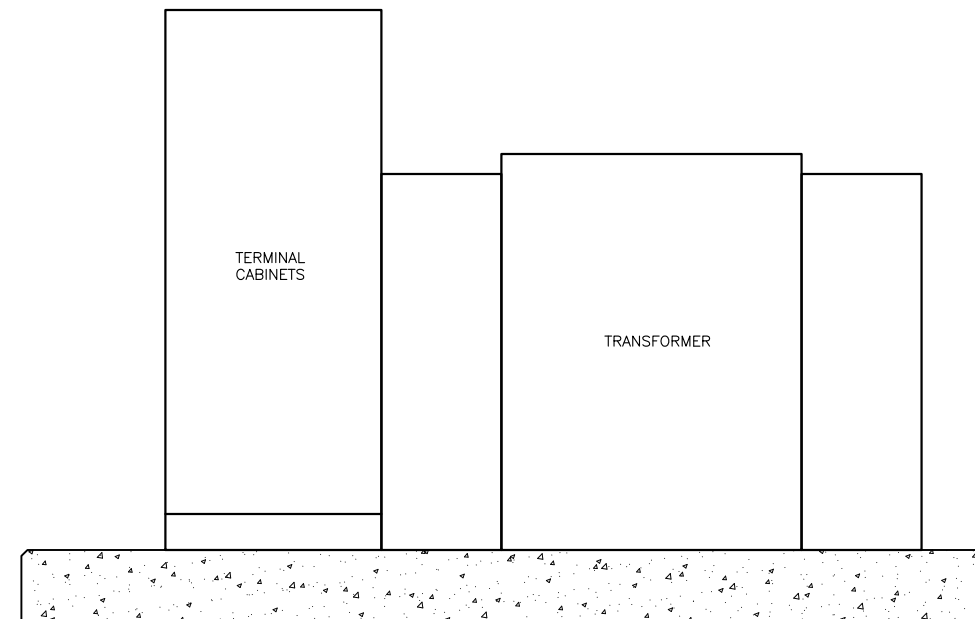
<p>GAI Gupta & Associates, Inc. consulting engineering Registration No. F-2593</p>	<p>SAN ANTONIO WATER SYSTEM CITY OF SAN ANTONIO, TEXAS DOS RIOS ELECTRICAL ASSESSMENT</p>	<p>DATE 01-XX-12</p>
	<p>MCC-DR-DPD2MCI ONE-LINE DIAGRAM AND ELEVATION</p>	<p>FIG-2.21-2</p>



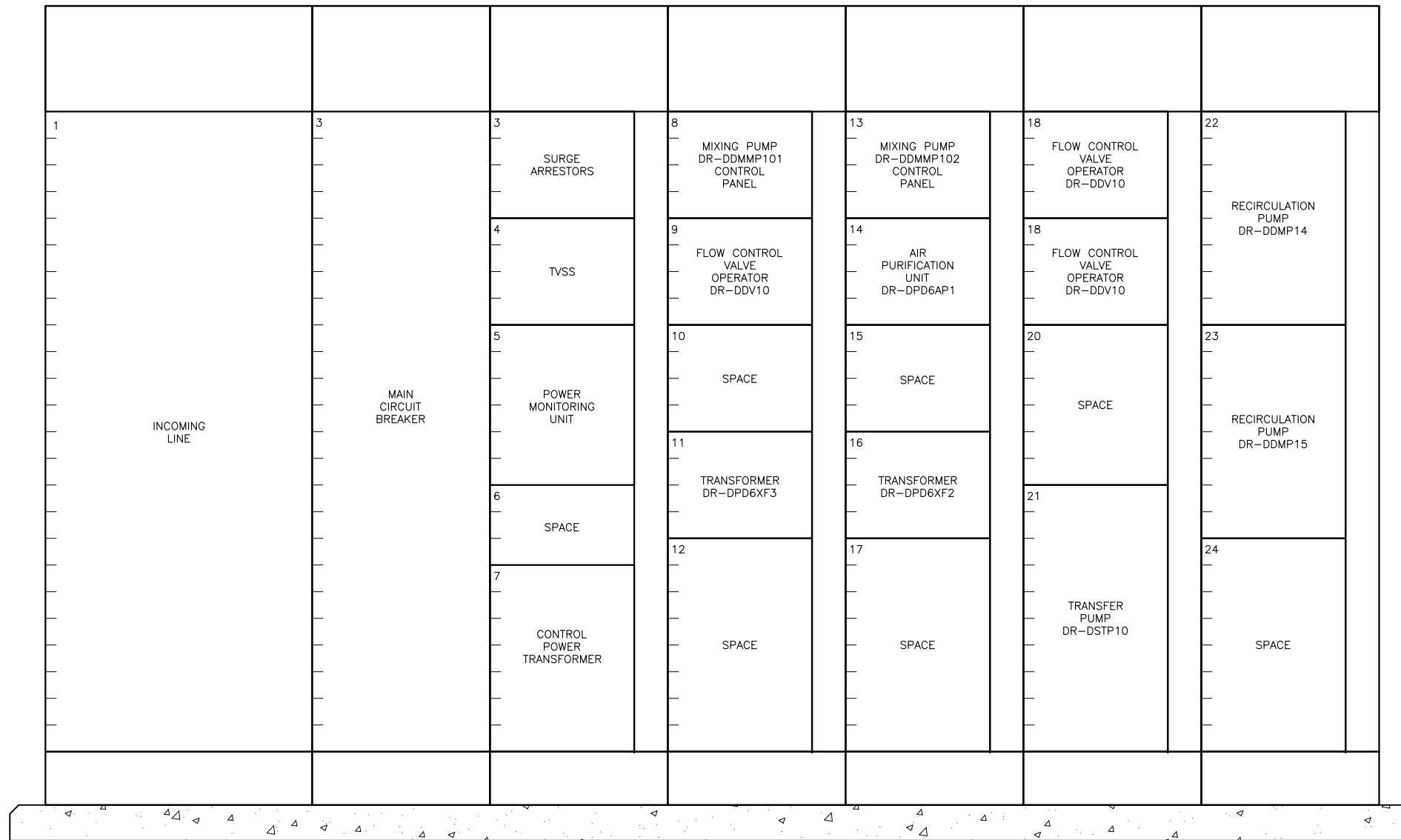
SWITCHGEAR DR-LELE SWG-34
ONE-LINE
DIAGRAM



FRONT
ELEVATION
SCALE: NTS

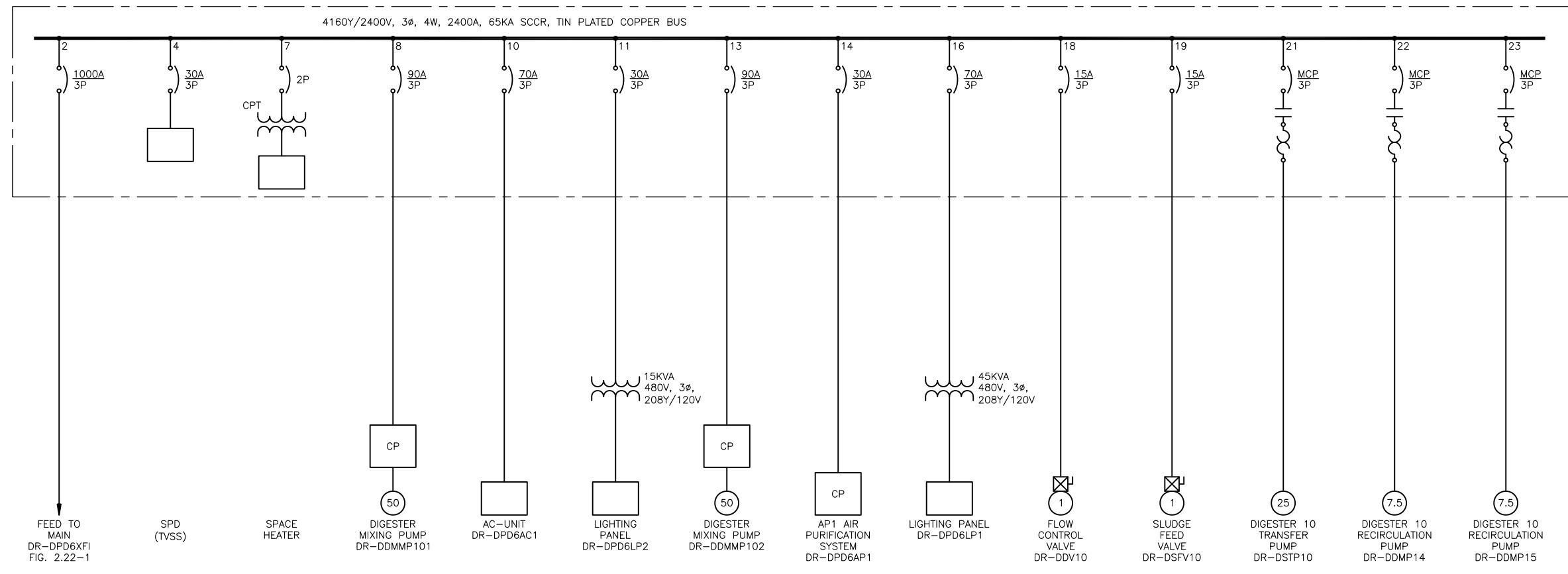


SIDE
ELEVATION
SCALE: NTS



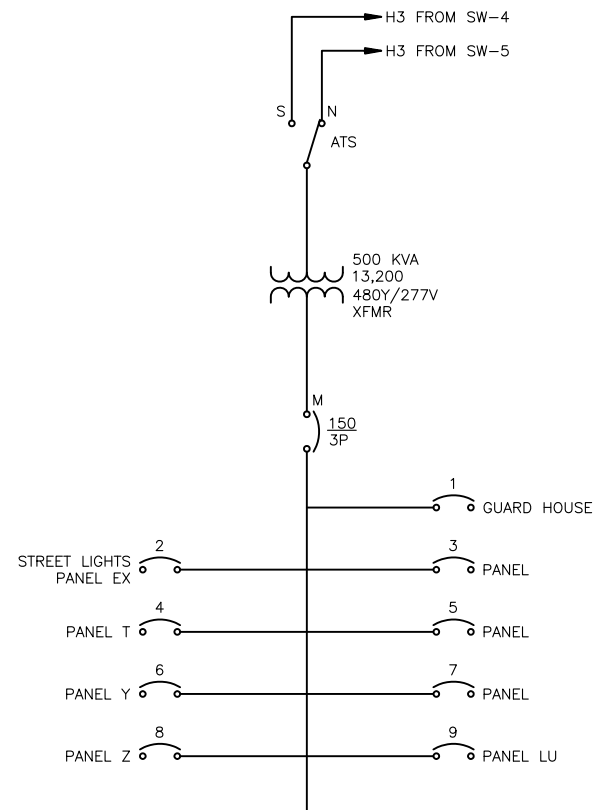
MCC-DR-DPD6MC1
ELEVATION
 SCALE: NTS

Z:\1922_SAWS - Dos Rios\Report Phase\Report\Figures\FIG-2_22-02.dwg, 2/8/2012 10:36:23 AM, Adobe PDF, JH

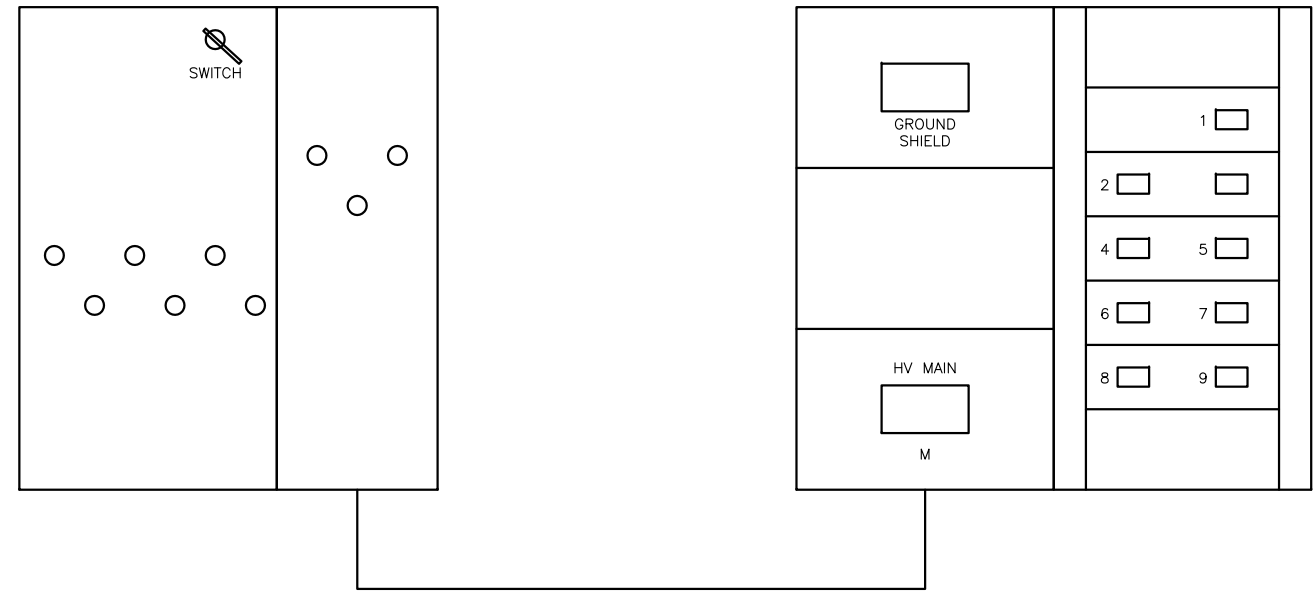


MCC-DR-DPD6MCI ONE-LINE
DIAGRAM

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PP-1
 ONE-LINE
 DIAGRAM



 ELEVATION
 SCALE: NTS

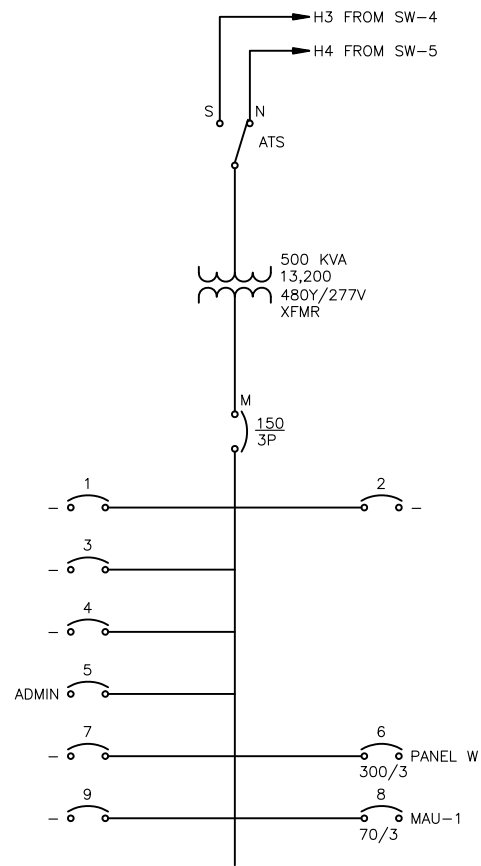
Z:\1922_SAWS - Dos Rios\Report Phase\Report\Figures\FIG-2_23-01.dwg, 2/8/2012 10:36:25 AM, Adobe PDF, JH

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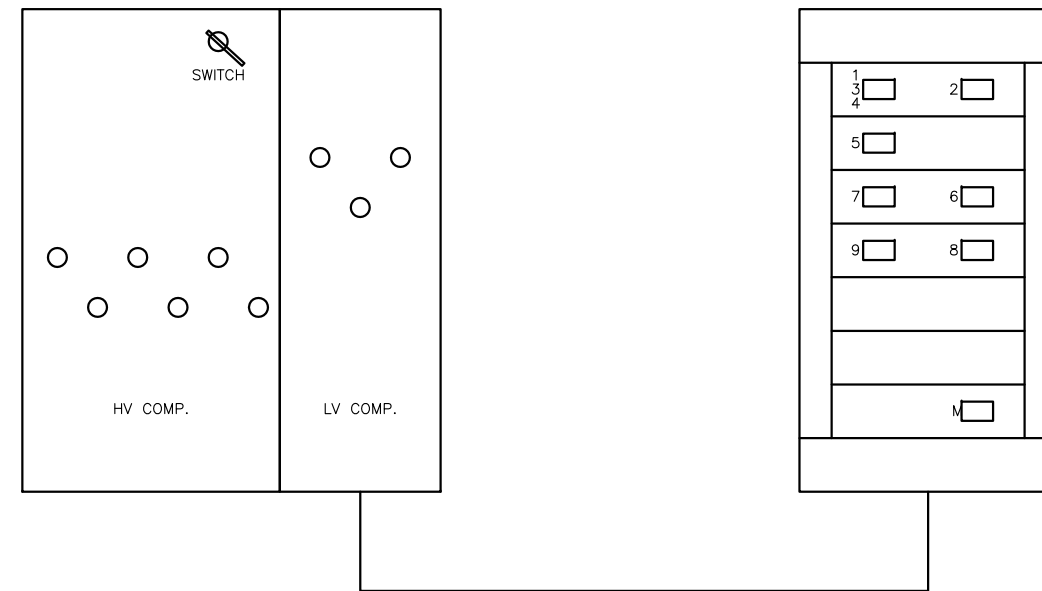
SAN ANTONIO WATER SYSTEM
 CITY OF SAN ANTONIO, TEXAS
 DOS RIOS ELECTRICAL ASSESSMENT
PAD MOUNT - 1
ONE-LINE DIAGRAM
AND ELEVATION

DATE
 01-XX-12

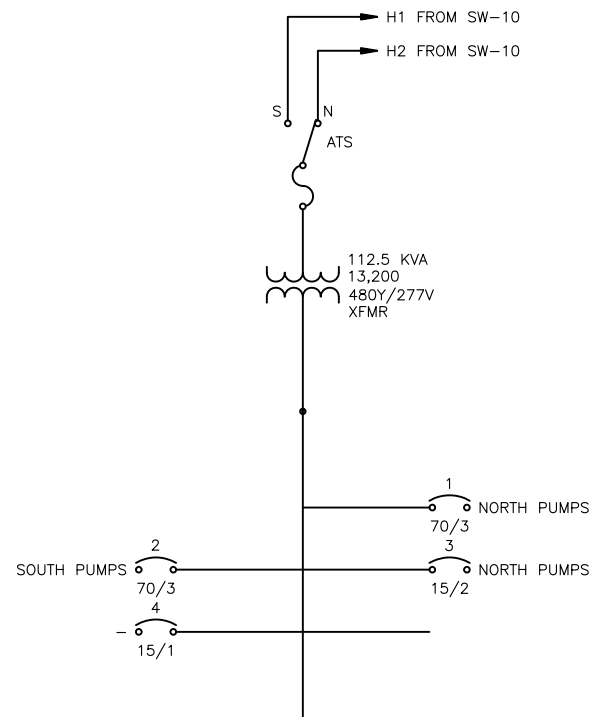
FIG-2.23-1



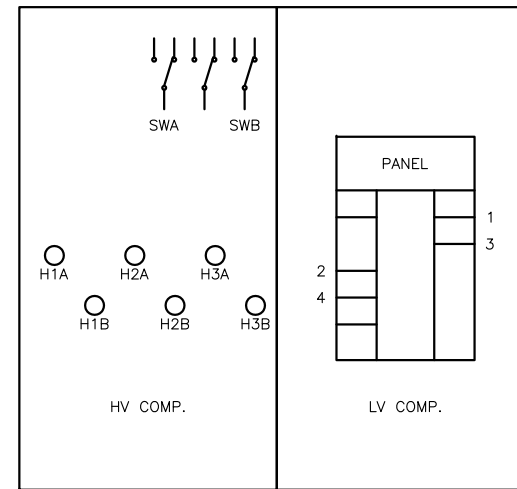
PP-2
ONE-LINE
DIAGRAM



ELEVATION
SCALE: NTS



PP-3
ONE-LINE
DIAGRAM



ELEVATION
SCALE: NTS

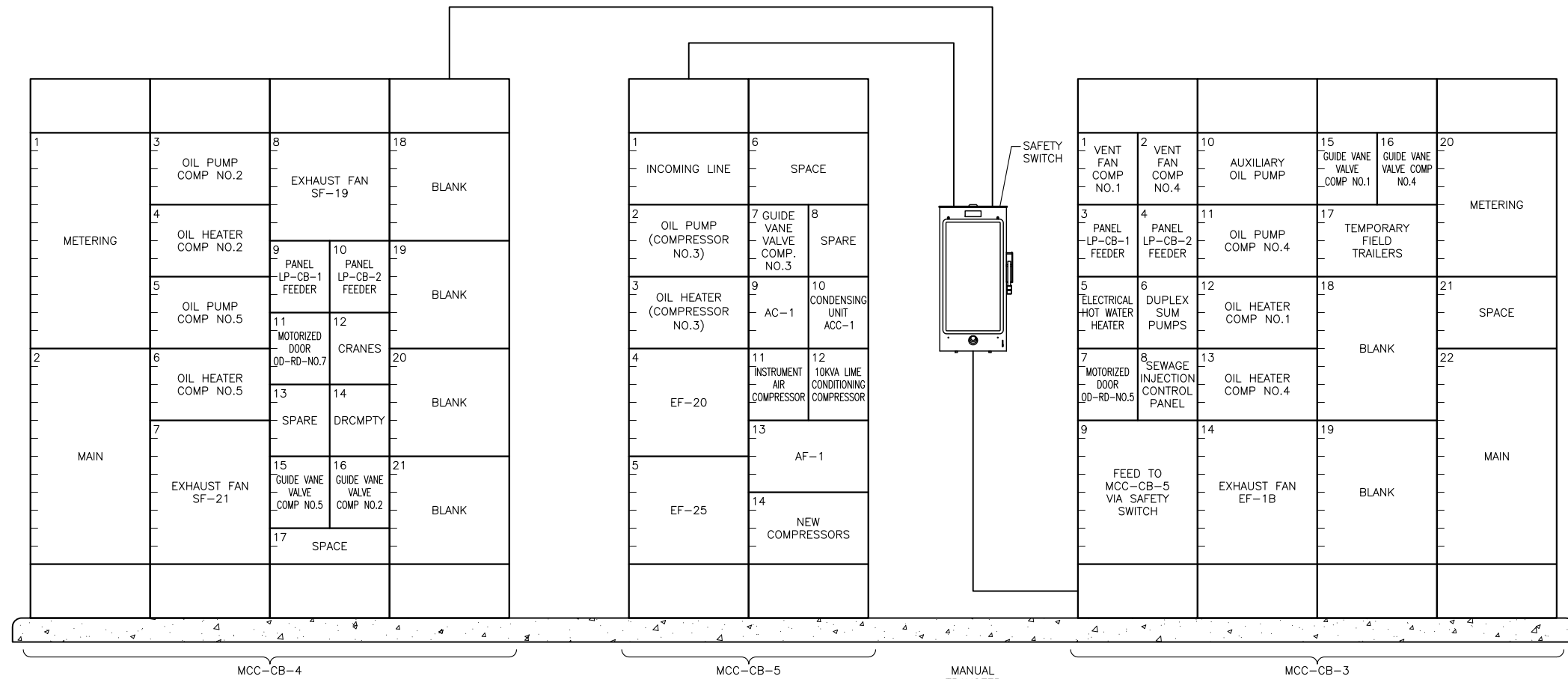
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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT
PAD MOUNT - 3
ONE-LINE DIAGRAM
AND ELEVATION

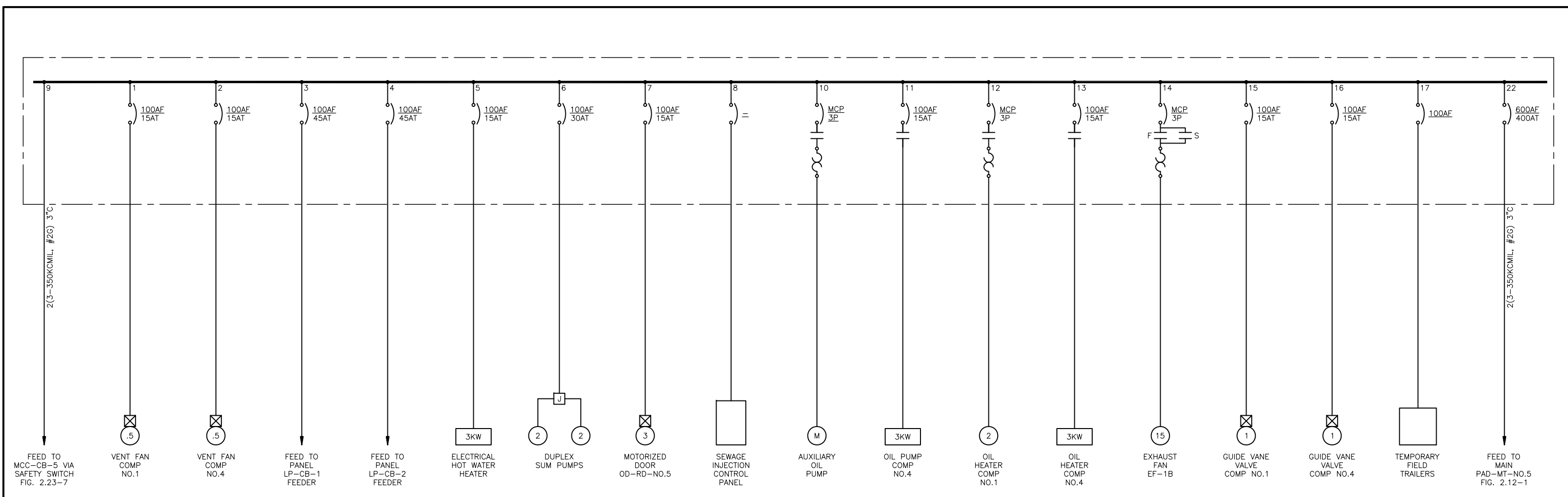
DATE
01-XX-12

FIG-2.23-3



MCC-CB-3,4,5
ELEVATION
 SCALE: NTS

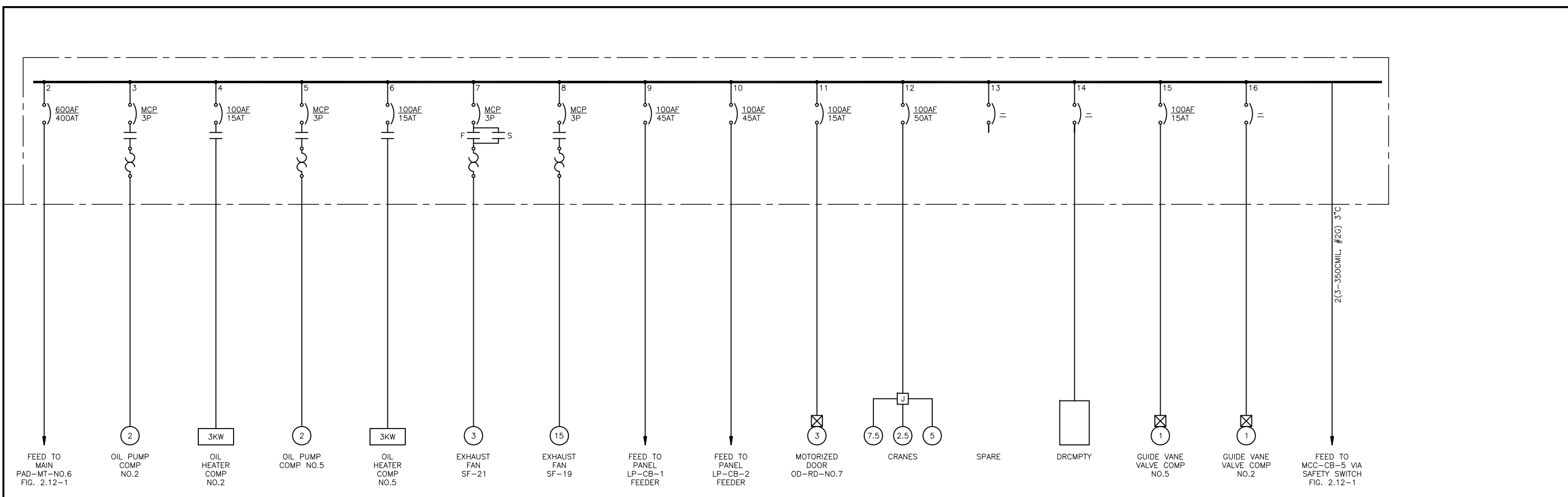
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MCC-CB-3 ONE-LINE
DIAGRAM


Z:\1922_SAWS - Dos Rios\Report Phase\Report\Figures\FIG-2_23-05.dwg, 2/8/2012 10:36:31 AM, Adobe PDF, JH

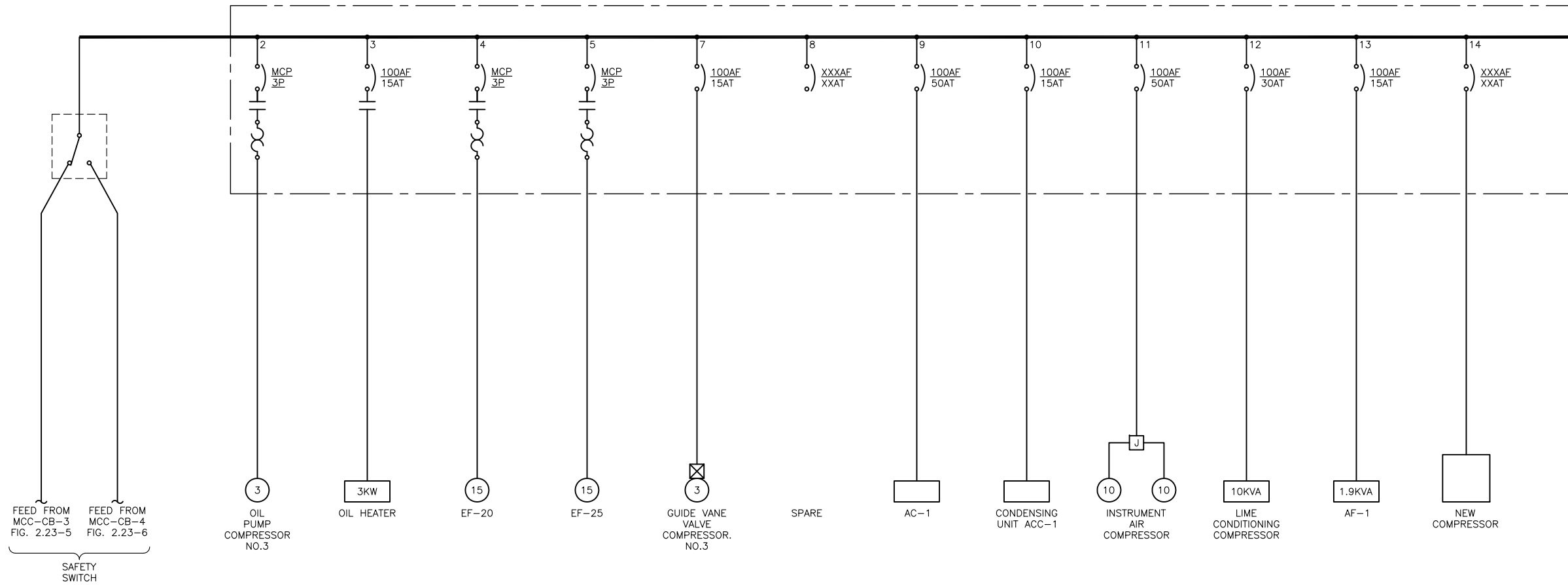
	GAI Gupta & Associates, Inc. <i>consulting engineering</i> Registration No. F-2593	SAN ANTONIO WATER SYSTEM CITY OF SAN ANTONIO, TEXAS DOS RIOS ELECTRICAL ASSESSMENT	DATE 01-XX-12
		MCC-CB-3 ONE-LINE DIAGRAM	FIG-2.23-5



MCC-CB-4 ONE-LINE
DIAGRAM

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	MCC-CB-4 ONE-LINE DIAGRAM	FIG-2.23-6



MCC-CB-5 ONE-LINE
DIAGRAM

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SAN ANTONIO WATER SYSTEM
CITY OF SAN ANTONIO, TEXAS
DOS RIOS ELECTRICAL ASSESSMENT

MCC-CB-5 ONE-LINE
DIAGRAM

DATE
01-XX-12

FIG-2.23-7

FINAL REPORT



SAN ANTONIO WATER SYSTEM

DOS RIOS WATER RECYCLING CENTER
ELECTRICAL SYSTEM ASSESSMENT PROJECT
SAWS JOB NO. 11-6501

APRIL, 2012



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Teamwork, Commitment, Excellence, Quality

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