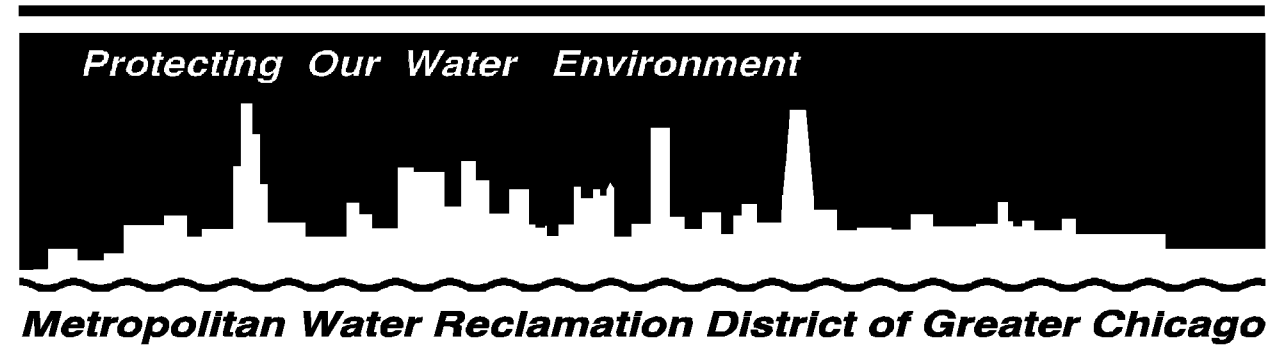


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Volume 2 of the Cost Study Report
for
DISINFECTION COST STUDY
UV DISINFECTION FACILITIES
STICKNEY WATER RECLAMATION PLANT
Chicago, Illinois

Contract 07-026-2P



Room 508, 100 East Erie Street
Chicago, Illinois 60611

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List of Contract Plans

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NOTE:
 THE SCALES WHICH MAY APPEAR ON SOME OF THE CONTRACT PLANS ARE THOSE TO WHICH THE ORIGINAL, FULL SIZE PLANS WERE DRAWN. THEY ARE NOT CORRECT FOR REDUCED-SIZE PLANS. REDUCED CONTRACT PLANS SHOULD NOT BE SCALED FOR DIMENSIONS. TO SCALE DIMENSIONS USE GRAPHIC SCALES WHERE THEY APPEAR ON THE PLANS.

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PLOT DATE: 9/9/2008 2:42 PM PLOTTED BY: KOSTAMO, LISA

—A—	Air
—AL—	Alum
—AM—	Ammonia
—CD—	Carbon Dioxide
—C—	Centrate
—CF—	Chemical Feed
—F—	Filtrate
—FC—	Ferric Chloride
—GD—	Gas-Digester
—GN—	Gas-Natural
—GR—	Grit
—HPA—	High Pressure Air
—HC—	Hypochlorite
—LPA—	Low Pressure Air
—LO—	Lubrication Oil
—ML—	Mixed Liquor
—PD—	Polymer
—PD—	Plant Drain
—RAS—	Return Activated Sludge
—RSL—	Return Sludge
—SC—	Scum
—SP—	Sewage-Primary Treated
—SPN—	Sewage-Raw
—SS—	Sewage-Secondary Treated
—ST—	Sewage-Tertiary Treated
—SL—	Sludge
—S&WR—	Sludge & Waste Water Ret
—SLC—	Sludge-Concentrated
—SLD—	Sludge-Digested
—SLP—	Sludge-Primary
—SLS—	Sludge-Secondary
—SB—	Sodium Bisulfite
—S—	Steam
—SR—	Steam Condensate Return
—SBN—	Subnatant
—SPN—	Supernatant
—TE—	Tertiary Effluent
—WAS—	Waste Activated Sludge
—WW—	Wastewater or Washwater
—WC—	Water-Cooling
—WNP—	Water-Plant (Non-potable)
—WP—	Water-Potable

—CTV—	Cable Television
—+—+—	City Electric
—E—E—E—	Electric
⊠	Street Light Control Box
⊙	Light Post
⊖	Light Pole
⊖	Power Pole
⊖	Power Pole Light
⊘	Guy Pole
⊠	Transmission Tower
⊠	Electrical Vault
—FD—	Fiber Optics
—G—	Gas (supply)
⊙	Gas Valve Box
—UNK—	Other (Unknown)
—P—	Petroleum
—T—T—T—	Telephone
⊙	Telephone Pole
⊠	Telephone Vault
⊠	Traffic Signal
⊠	Traffic Signal Controller
⊠	Traffic Signal Post
⊠	Utility Pole
	Rail Road
X	RR Crossing
X	RR Flashing Signal
x-x-x-x	Fence
X	Fence Corner
—x—x—x—x—	Gate
—	Guardrail
—	Guardpost
—	Sheet Piling Wall
—	Drain Tile
—	Sewer - Combined
—	Sewer - Sanitary
⊙	Sanitary Manhole
—	Sewer - Storm
⊠	Inlet
⊙	Catch Basin
⊙	Storm Manhole
⊠	Curb Inlet
⊠	Culvert End Section
—V—	Water (supply)

⊖	Fire Hydrant
⊠	Water Valve Vault
⊖	Water Valve Box
⊖	B. Box
▷	Thrust Block

SITE SYMBOLS

—755—	Existing Contour
—755—	Proposed Contour
x	Existing Grade
754.0	Proposed Grade
←	Drainage Direction
—	Ditch Flow
↔	Summit
—	Temporary Silt Fence
—	Erosion Control
⊖	Ditch Check
⊙	Benchmark
⊖	Soil Boring
⊖	Dbl Pole Sign
⊖	Sngl Pole Sign
⊖	Mail Box
+P.C.	Property Corner
P	Property Line
⊖	Centerline
⊖	Handicap
→	Exist. Traffic Flow
→	Prop. Traffic Flow
⊖	Deciduous Tree
⊖	Evergreen Tree
⊖	Bush
⊖	Shrub
⊖	Stump
⊖	Hedge

GENERAL LEGEND

—	Existing Piping, Equipment, Structures And Paving
—	New Piping, Equipment, Structures And Paving
—	Existing Piping, Equipment, Structures And Paving To Be Removed

ABBR	Abbreviation
ABS.	Absolute
AL OR ALUM	Aluminum
APPROX.	Approximate
A	Air (compressed)
AC	Acre
AR	Acid Resistant
AVG.	Average
B-B	Back to Back of Curb
B.F.	Butterfly
B.G.V.	Bonneted Gate Valve
BHP	Brake Horsepower
Bit.	Bituminous
BLDG	Building
B.M.	Bench Mark
BOTT.	Bottom
BTU	British Thermal Units
BTUH	Btu Per Hour
BOL	Bottom Of Louver
BOD	Bottom Of Duct
BOP	Bottom Of Pipe
B.V.	Butterfly Valve
B/W	Back of Walk
BW	Back Wash Water
BWR	Boiler Water Return
BWS	Boiler Water Supply
C	Degree Centigrade
C.&G.	Curb And Gutter
CAP.	Capacity
C.B.	Catch Basin
CCD	Chicago City Datum
CENR	Centrate Return
CFM	Cubic Feet Per Minute
CFS	Cubic Feet Per Second
C.I.	Cast Iron
⊖	Center Line
CLG	Ceiling
CL.	Class
CMP	Corrugated Metal Pipe
CMU	Concrete Masonry Unit
CP	Control Point
CU. FT.	Cubic Feet
CONC.	Concrete
CONN.	Connection
CONT.	Continuation
CONTR.	Contractor
CO	Cleanout
DB	Dry Bulb
DEG	Degree
Depr.	Depressed
DET.	Detail
DIAG.	Diagram
DIA.	Diameter
DAMP	Damper
DIFF	Difuser
D.I.P.	Ductile Iron Pipe
DN	Down
DR	Drain
DS	Downspout
DWG	Drawing
E	External Distance
EA.	Each
E-E	Edge To Edge Of Pavement
ECC.	Eccentric
EFF.	Efficiency
E.J. OR EXP. JT.	Expansion Joint
ELEV OR EL.	Elevation
E.A.T.	Entering Air Temp.
EF	Exhaust Fan
E.O.P.	Edge Of Pavement
E.P.	Explosion Proof

EQUIP.	Equipment
ESEW	Emergency Shower & Eyewash
EXH	Exhaust
Exist.	Existing
F/D	Fire Damper
F/C	Face of Curb
FCA	Flanged Coupling Adapter
FD	Floor Drain
FEW	Final Effluent Water
FE	Fire Extinguisher
F-F	Face to Face of Curb
FH	Fire Hydrant
FIG	Figure
FLR	Floor
FLEX.	Flexible
FPM	Feet Per Minute
FP	Fire Protection
F&RD	Filter & Rewash Drain
FLG.	Flanged
F.M.	Force Main
F&T	Float And Thermostatic Trap
FT. (')	Feet or Foot
FTW	Filter To Waste
FW	Filtered Water
GALV	Galvanized
GA	Gauge
GRF	Glass Fiber & Resin Fabrications
GND.	Ground
GPM	Gallons Per Minute
HB	Hose Bibb
HD	Head
HGT	Height
Horz.	Horizontal
HP	Horse Power
H.P.	High Point
HR	Hour
HV	Hose Valve
HV	Heating And Ventilating Units
HWR	Hot Water Return
HWS	Hot Water Supply
ID.	Inside Diameter
IDOT	Illinois Department Of Transportation
INV.	Invert
INV. EL.	Invert Elevation
I.P.	Iron Pipe
KW	Kilowatt
KWH	Kilowatt Hour
LB OR #	Pound
L.F.	Lineal Foot
L.P.	Low Point
LT.	Left
MAX	Maximum
MH	Manhole
MIN	Minimum Or Minute
MISC	Miscellaneous
ML	Mixed Liquor
MFG.	Manufacturer
N.C.	Normally Closed
NO.	Number
N.O.	Normally Open
NIC	NOT IN CONTRACT
OA	Outside Air
O.C. OR OC	On Center
OCS	Order Control System
O.D.	Outside Diameter
OF	Overflow
OPNG.	Opening
O.S.D.	Open Site Drain
PAVT.	Pavement
P.C.	Point of Curvature
P.C.C.	Portland Cement Concrete
PENTHSE	Penthouse

P.I.	Point of Intersection
PL	Property Line
P.P.	Power Pole
PROP.	Proposed
PRV	Pressure Reducing Valve
PS	Primary Sludge
PSIG	Pounds Per Square Inch Ga
PSI	Pounds Per Square Inch
PT.	Point
PVC	Polyvinyl Chloride
P.T.	Point of Tangency
PW	Protected Water
R	Radius
RA	Return Air
RAS	Return Activated Sludge
RCP	Reinforced Concrete Pipe
RD.	Road
RD	Roof Drain
RED.	Reducer
REF.	Reference
REQ'D	Required
RM	Room
R.O.W.	Right-Of-Way
R.R.	Railroad
R&R	Remove and Replace
RS	Raw Sludge
RT.	Right
RW	Raw Water
SAN.	Sanitary
SCD	Screened
SD	Sludge Dewatering
SEC	Second
SHT.	Sheet
SPECS	Specifications
S.P.	Static Pressure
SPN	Supernatant
SQ.	Square
SR	Sludge Recirculation
STORM	Storm Sewer
SST OR SS	Stainless Steel
ST	Storm Transfer
STA.	Station
STD.	Standard
S.Y.	Square Yard
S/W	Sidewalk
T/C	Top Curb
TBM	Temporary Bench Mark
TD	Tank Drainage
TDH	Total Dynamic Head
TEMP.	Temperature
TYP.	Typical
UH	Unit Heater
UCP	Unitized Control Panel
U.O.N.	Unless Otherwise Noted
WAS	Waste Activated Sludge
WM	Water Main
WNP	Water Plant (Non-Portable)
W.P.	Work Point
WW	Wash Water
WWTP	Waste Water Treatment Plant

Rev.	Description	Appr.	Date

**METROPOLITAN WATER RECLAMATION DISTRICT
OF GREATER CHICAGO**

Corrected by:
ANTHONY BOUCHARD
MWRD Assistant Chief Engineer

CTE AECOM

Scale: NTS
Date: SEPT 2008

**CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES**

**GENERAL NOTES, LEGEND,
AND ABBREVIATIONS**

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Page Number:	3

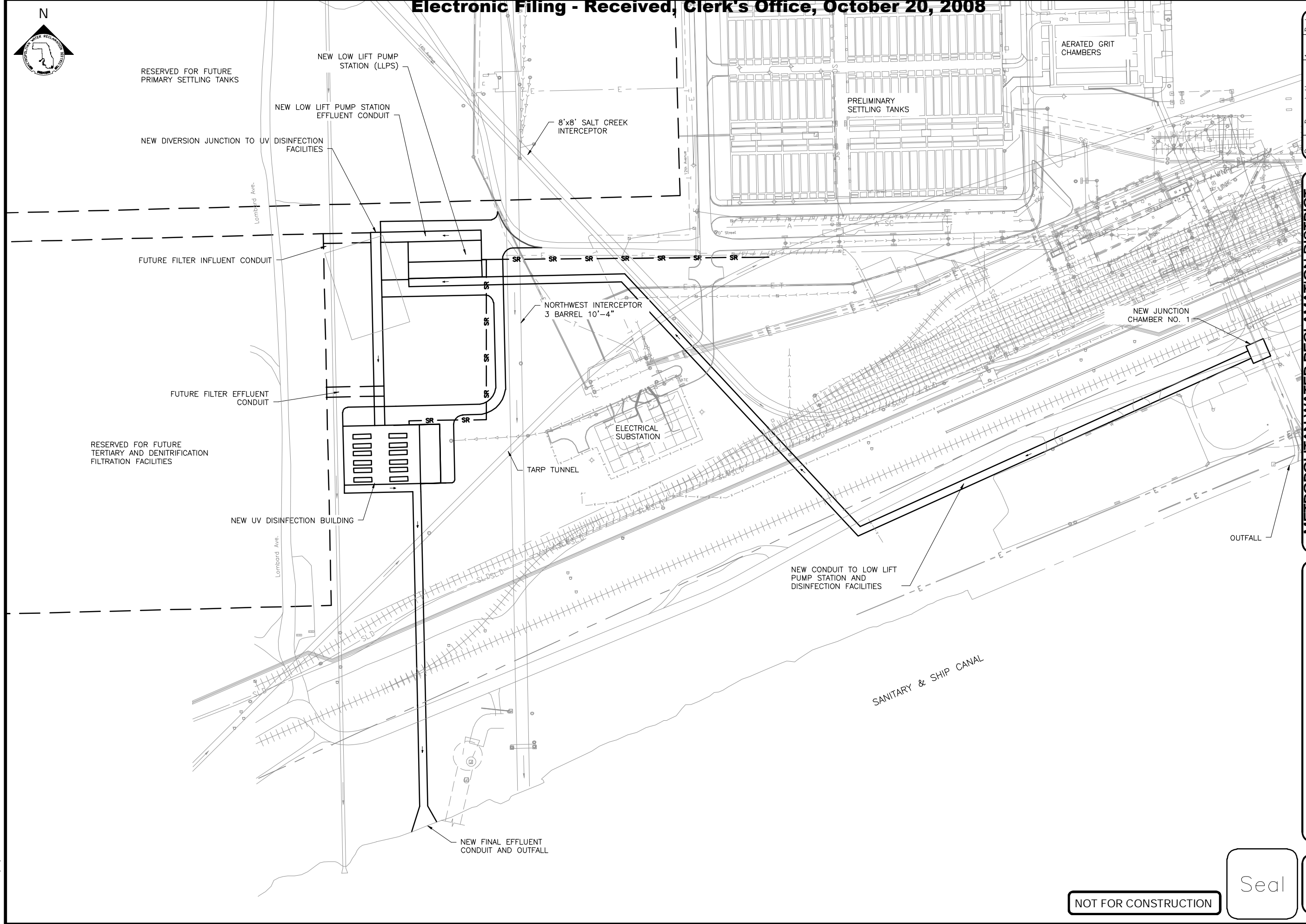
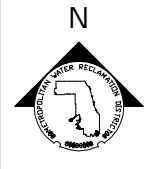
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Note:
These Are The Standard Abbreviations, And Not All Information Shown Is Necessarily Used On This Project

Discipline specific abbreviations shall supersede abbreviations shown here on those sheets.

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: SAW	Checked by: CFB	Corrected by: ANTHONY BOUCHARD	Approved: MWRD Assistant Chief Engineer
Drawn by: LK	Reviewed by: EPC	CTE AECOM	
Date: SEPT 2008	Scale: NTS	<small>CTE East Water Div. Suite 800, Chicago, Illinois 60611-4278 1712 East 63rd Street, Chicago, Illinois 60637</small>	

CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES
SWRP
LOCATION PLAN

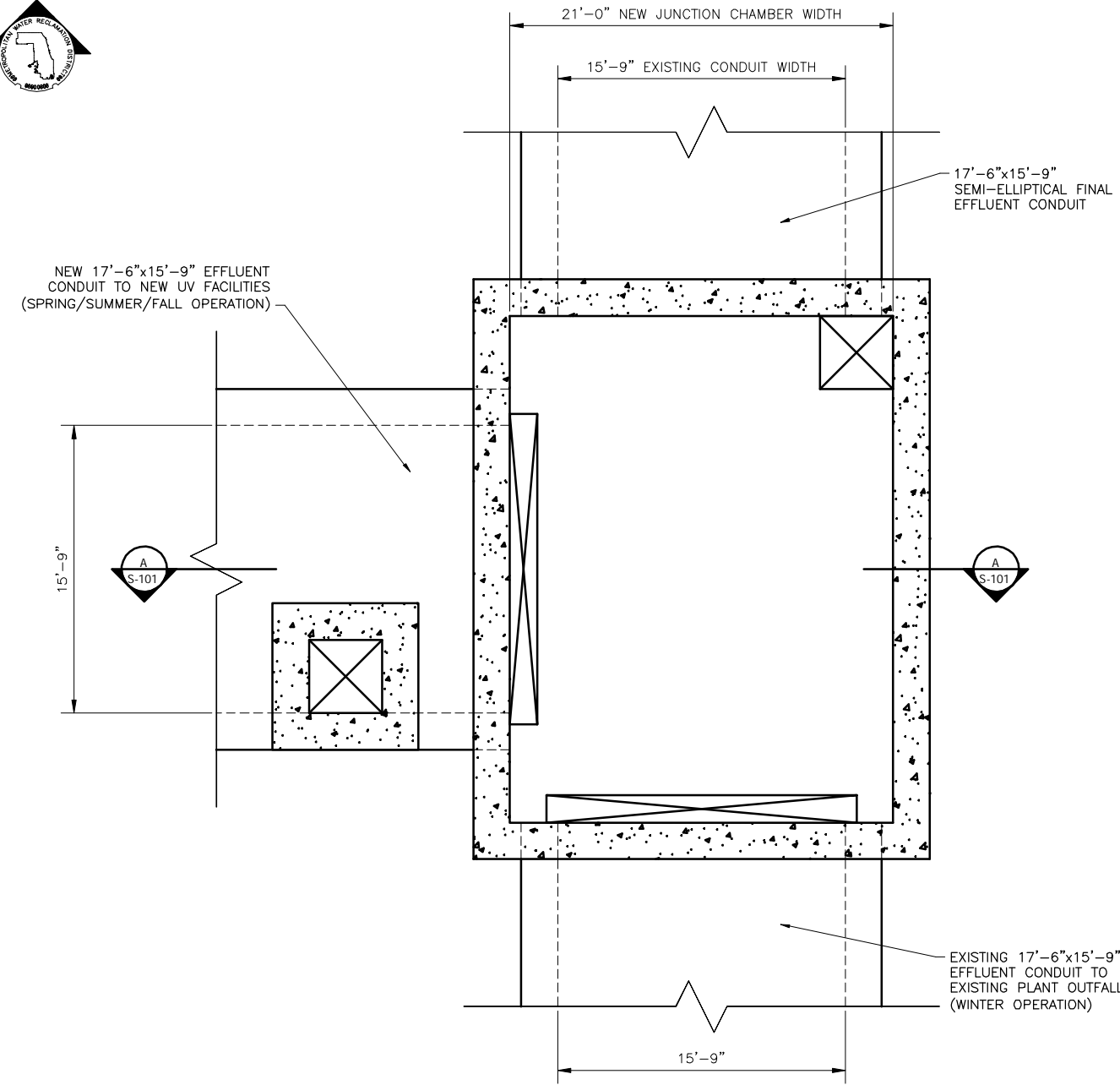
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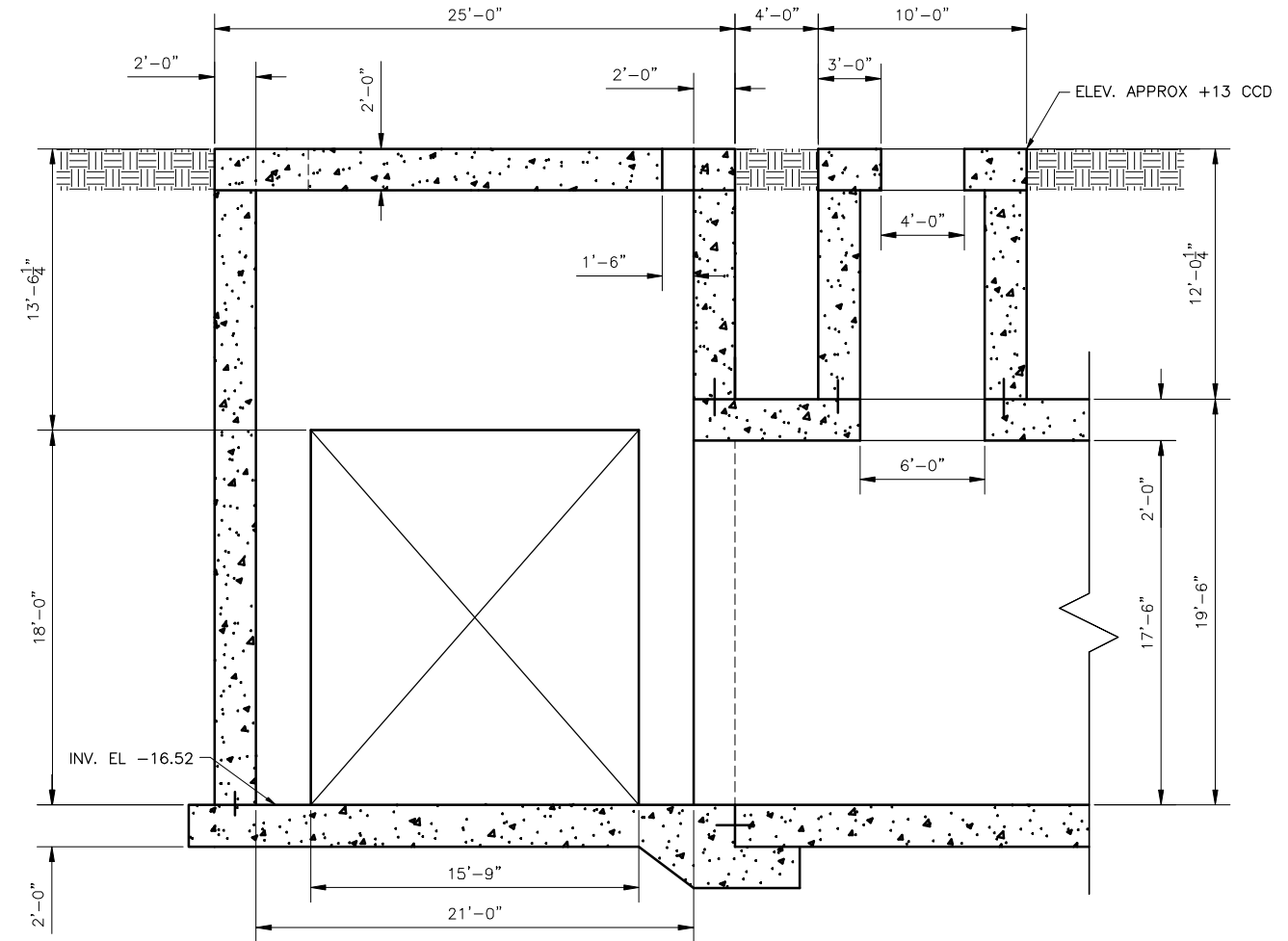
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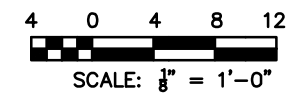
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1 PLAN
SCALE: = 1/8" = 1'-0"



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



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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: PAR
Checked by: CFB
Correct: ANTHONY BOUCHARD
Approved: MWRD Assistant Chief Engineer

Drawn by: PAR
Reviewed by: EPC
Date: SEPT 2008
Scale: 1/8" = 1'-0"

CTE AECOM
1112 S. MICHIGAN ST. CHICAGO, ILLINOIS 60605-5279
TEL: 312.298.0000 FAX: 312.298.1100 www.cte.com

CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES

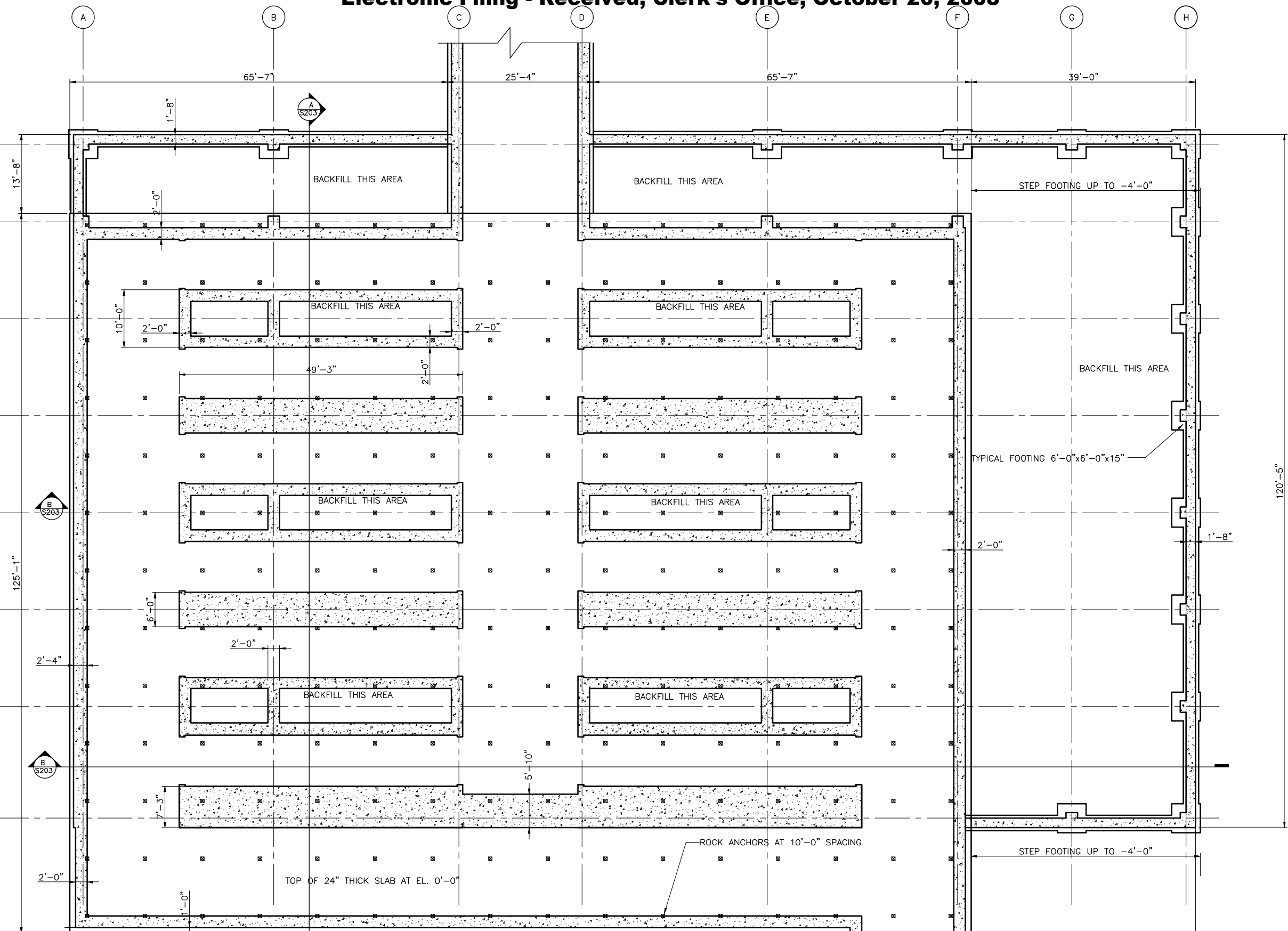
JUNCTION CHAMBER #1
PLAN AND SECTION

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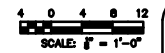
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Page Number: 7

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- 1 FOUNDATION PLAN
SCALE: 1/8"=1'-0"
1. MATERIAL PROPERTIES REINF. CONCRETE
Fy=60 KSI, Fc'=5 KSI
 2. ROCK ANCHOR CAPACITY=114 KIPS
 3. SOIL BEARING CAPACITY=5 KSF



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Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Approved: ANTHONY BOUCHARD
MWRD Assistant Chief Engineer

Corrected by: ANTHONY BOUCHARD

Designed by: PAR
Checked by: CFB

Drawn by: PAR
Reviewed by: EPC

Date: SEPT 2008
Scale: 1/8"=1'-0"

CTE AECOM
1115 East Wacker Drive, Suite 600, Chicago, Illinois 60601-0278
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STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES

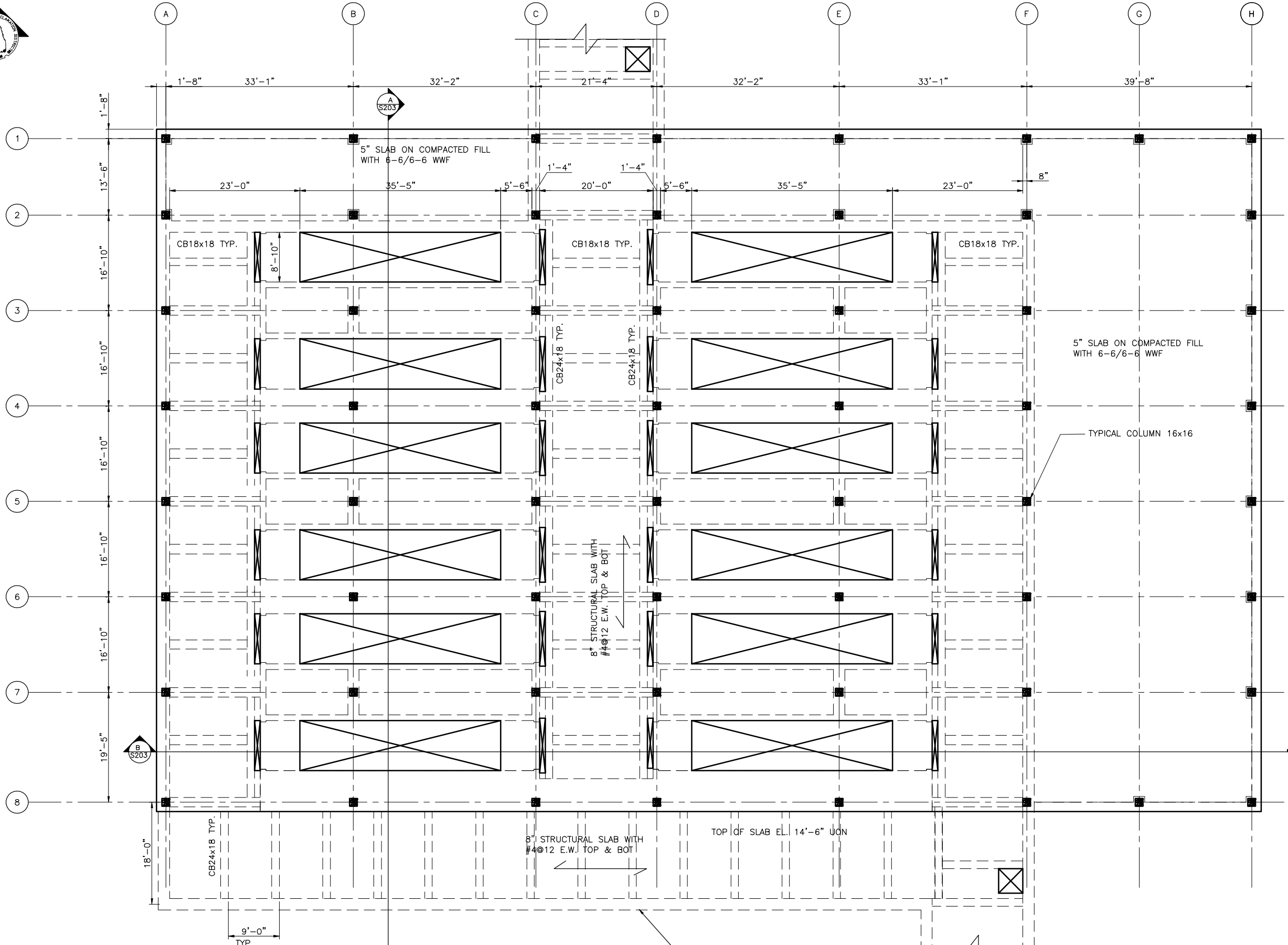
UV DISINFECTION BUILDING
FOUNDATION PLAN

Sheet Number:
S-200

Page Number: 8

PLOT DATE: 9/9/2008 11:17 AM PLOTTED BY: KOSTAMO, LISA

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1 GRADE LEVEL FRAMING PLAN
 SCALE: 1/8"=1'-0"
 1. MATERIAL PROPERTIES REINF. CONCRETE
 F_y = 60 KSI, F_c' = 5 KSI
 2. DESIGN FLOOR LOAD 250 PSF LL

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

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 Date: SEPT 2008

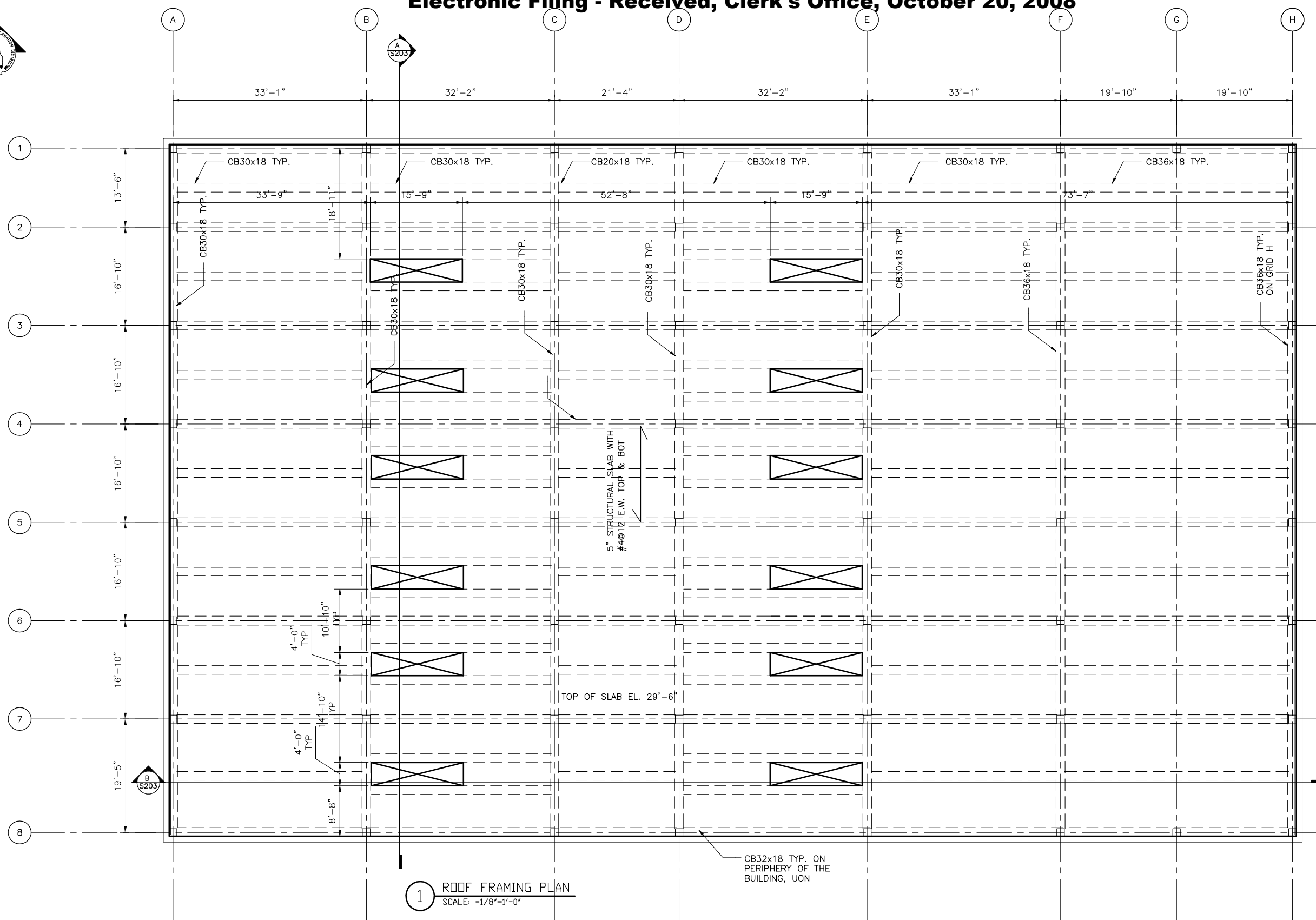
Approved: MWRD Assistant Chief Engineer
 Scale: 1/8"=1'-0"

CTE AECOM
 520 East Wacker Drive, Suite 600, Chicago, Illinois 60601-2278
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CONTRACT 07-026-2P
 STICKNEY WATER RECLAMATION PLANT
 ULTRAVIOLET DISINFECTION FACILITIES
 UV DISINFECTION BUILDING
 GRADE LEVEL FRAMING PLAN

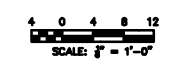
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S-201
 Page Number: 9

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1 ROOF FRAMING PLAN
SCALE: =1/8"=1'-0"

1. MATERIAL PROPERTIES REIF. CONCRETE
Fy=60 KSI Fc'=5 KSI
2. DESIGN LL=50 PSF



Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: PAR
Checked by: CFB
Reviewed by: EPC
Date: SEPT 2008

Corrected by: ANTHONY BOUCHARD
Approved by: MWRD Assistant Chief Engineer

CTE AECOM

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CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES

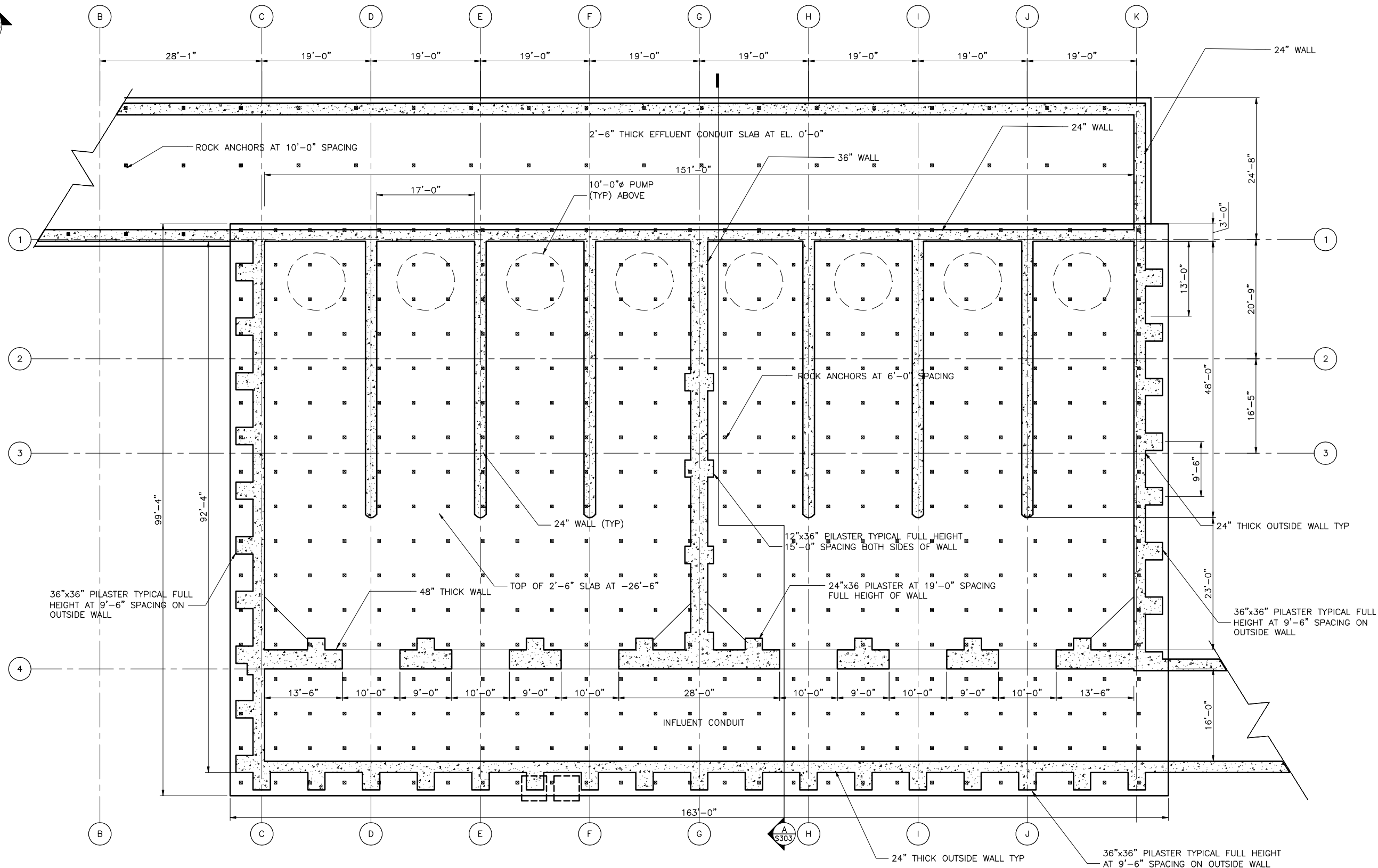
UV DISINFECTION BUILDING
ROOF FRAMING PLAN

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Seal

Sheet Number:
S-202
Page Number: 10

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1 LOWER LEVEL FOUNDATION PLAN
SCALE: 1/8"=1'-0"

1. MATERIAL PROPERTIES REINF. CONCRETE
Fy=60 KSI, Fc'=5 KSI
2. ROCK ANCHOR CAPACITY=114 KIPS
3. SOIL BEARING CAPACITY=5 KSF AT EL.-26'-6"



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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

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Date: SEPT 2008

Approved: MWRD Assistant Chief Engineer
Scale: 1/8"=1'-0"

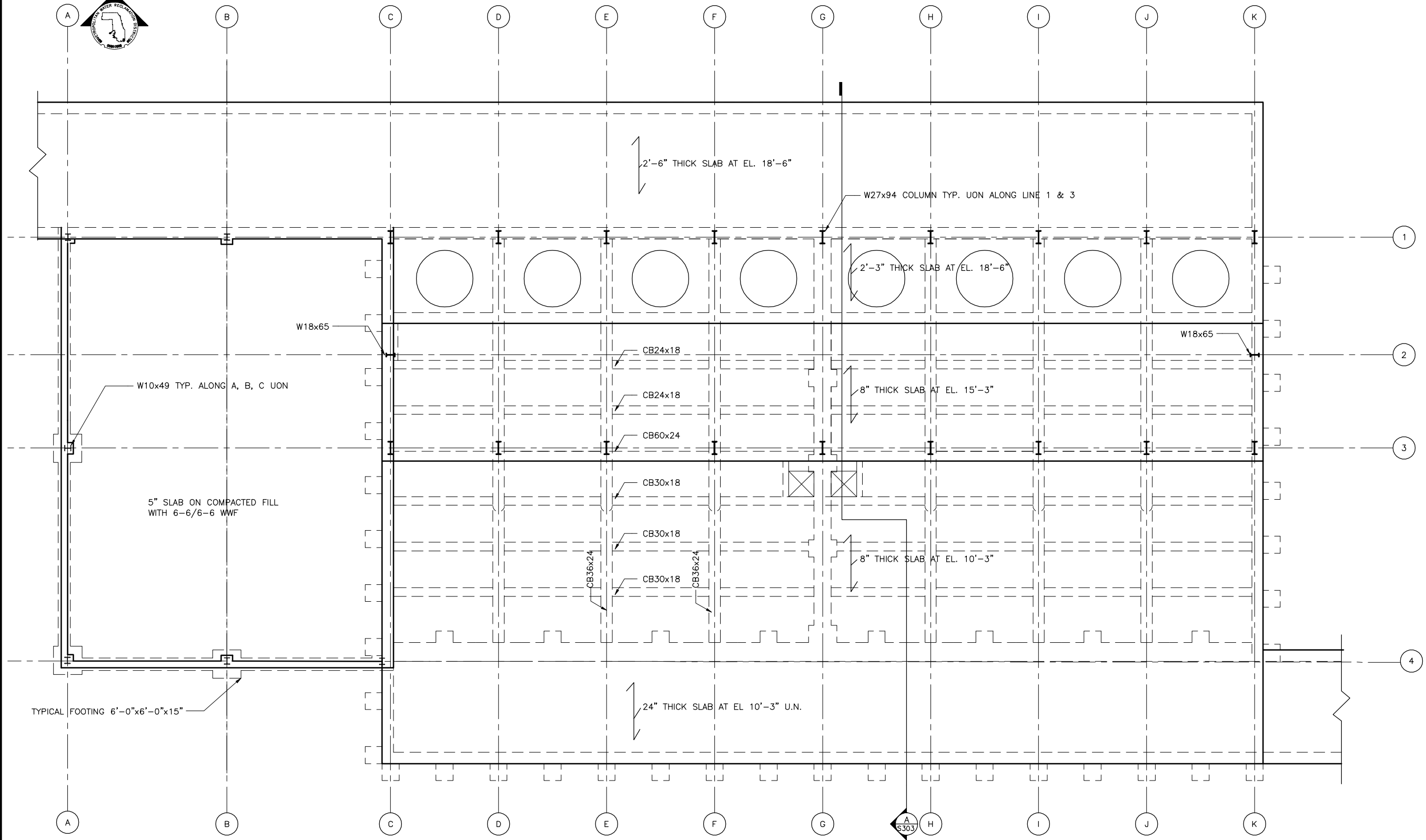
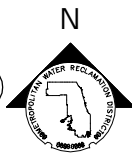
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STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES
LOW LIFT PUMPING STATION BUILDING
LOWER LEVEL FOUNDATION PLAN

Sheet Number:
S-301
Page Number: 12

PLOT DATE: 9/9/2008 11:22 AM PLOTTED BY: KOSTAMO, LISA

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1 GRADE LEVEL FRAMING PLAN
SCALE: = 1/8" = 1'-0"

1. MATERIAL PROPERTIES REIF.
CONCRETE; Fy=60 KSI Fc'=5 KSI
2. DESIGN LIVE LOAD 250 PSF.

PLOT DATE: 9/9/2008 11:22 AM PLOTTED BY: KOSTAMO, LISA

Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Approved: MWRD Assistant Chief Engineer
Correct: ANTHONY BOUCHARD

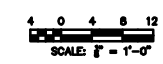
Checked by: CFB
Designed by: PAR

Reviewed by: EPC
Drawn by: PAR

Date: SEPT 2008
Scale: 1/8" = 1'-0"

CTE AECOM
150 East Wacker Drive, Suite 600, Chicago, Illinois 60601-2278
Tel: 312.298.0200 Fax: 312.298.1109 www.cte.com

CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES
LOW LIFT PUMP STATION BUILDING
GRADE LEVEL FRAMING PLAN

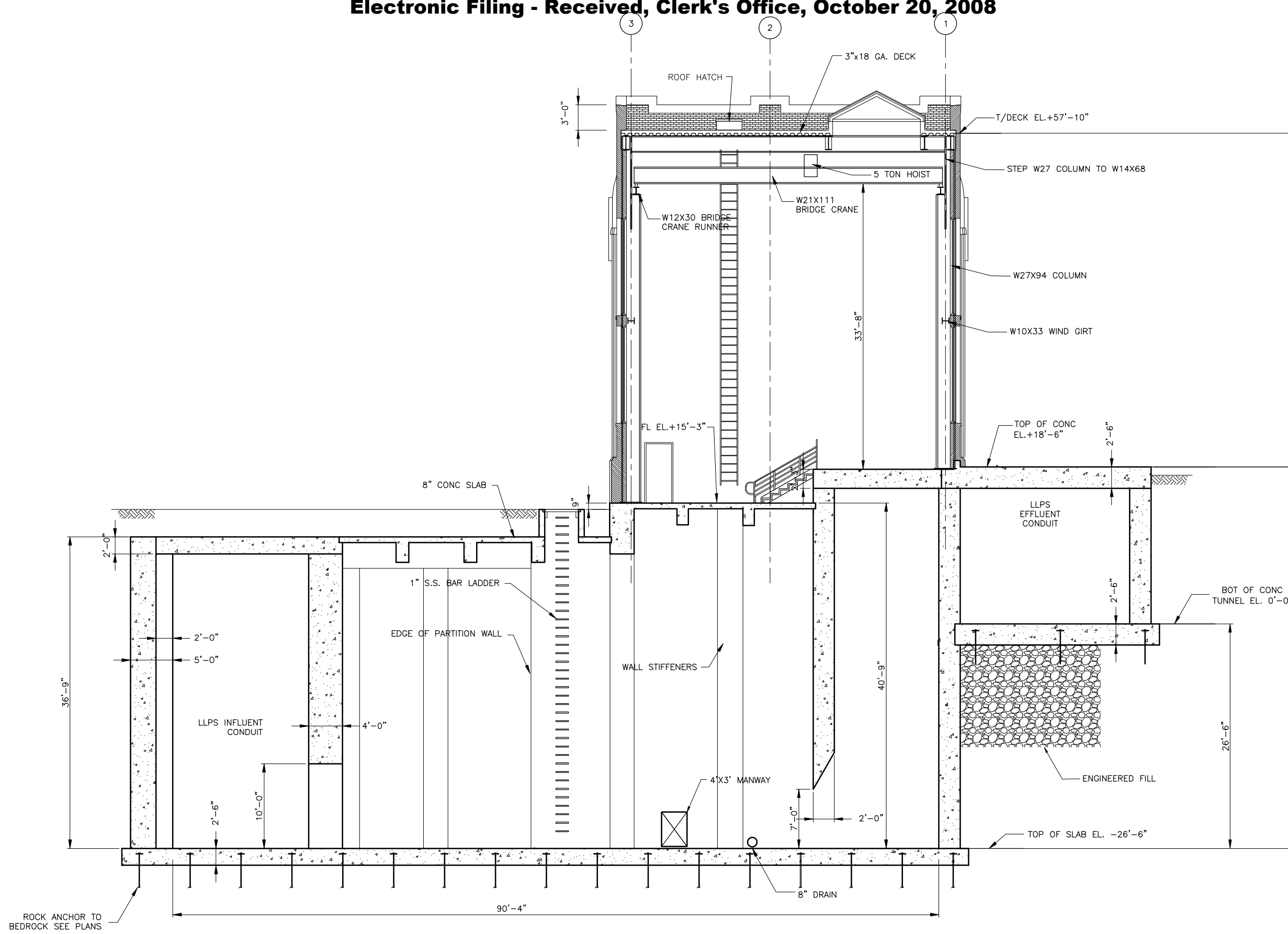


NOT FOR CONSTRUCTION

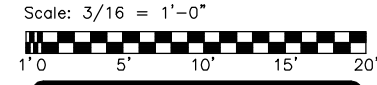
Seal

Sheet Number:
S-302
Page Number: 13

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A SECTION
SCALE: = 3/16" = 1'-0"



Seal

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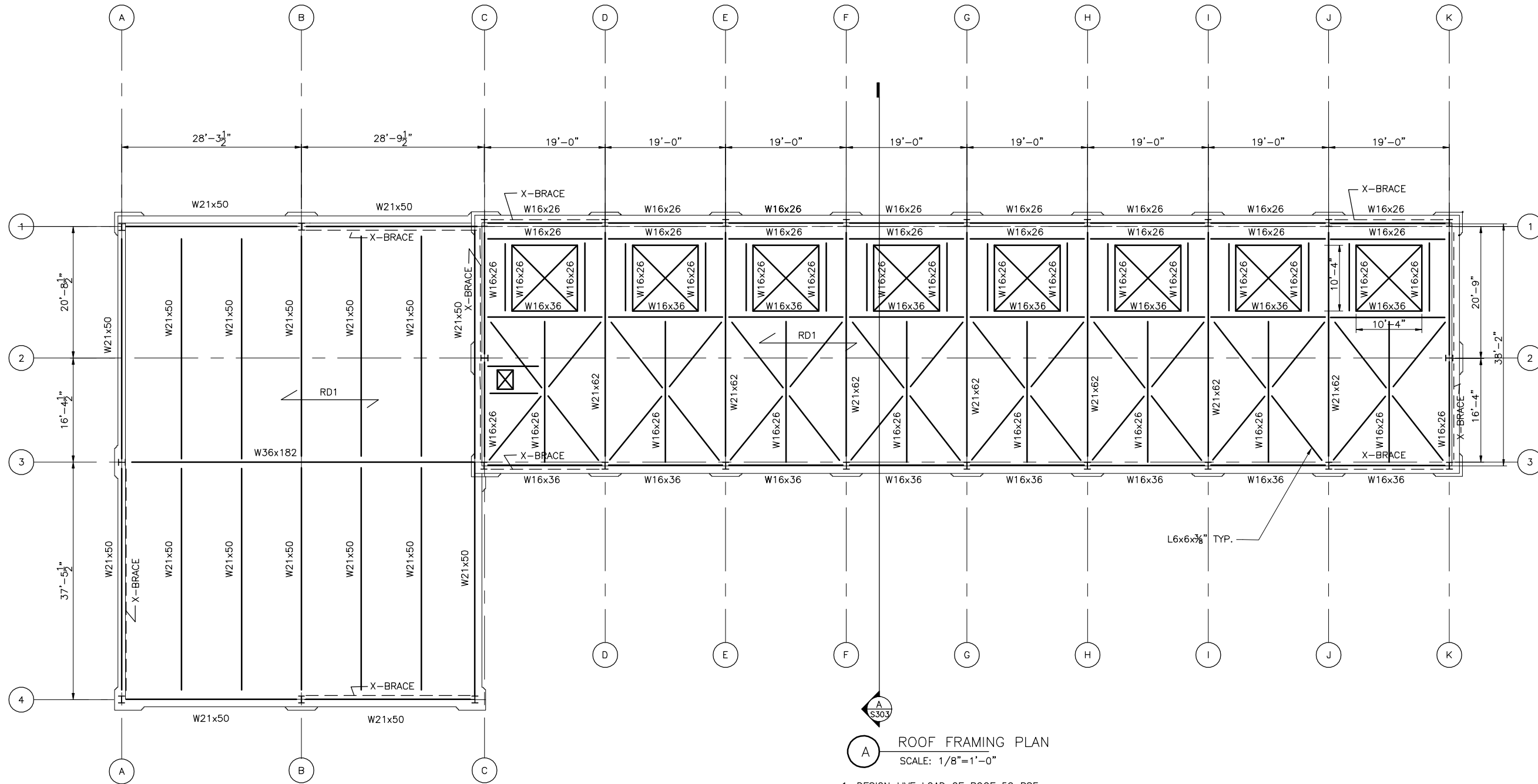
METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO		Approved: ANTHONY BOUCHARD MWRD Assistant Chief Engineer
Designed by: PAR	Checked by: CFB	Correct: ANTHONY BOUCHARD
Drawn by: PAR	Reviewed by: EPC	Scale: 1/8" = 1'-0"
Date: SEPT 2008	CTE AECOM	1115 North Dearborn Ave., Suite 400, Chicago, Illinois 60610-4279 312.291.0000 Fax 312.291.1100 www.aecom.com

CONTRACT 07-026-2P
 STICKNEY WATER RECLAMATION PLANT
 ULTRAVIOLET DISINFECTION FACILITIES
 LOW LIFT PUMP STATION BUILDING
 SECTION

Sheet Number:
S-303
 Page Number: 14

PLOT DATE: 9/9/2008 11:23 AM PLOTTED BY: KOSTAMO, LISA

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A ROOF FRAMING PLAN
SCALE: 1/8"=1'-0"

1. DESIGN LIVE LOAD OF ROOF 50 PSF
2. STRUCTURAL STEEL BEAMS 50 KSI MISC. STEEL 36 KSI
3. RD1 3"x18 GA. GALVINIZED ROOF DECK

PLOT DATE: 9/9/2008 11:23 AM PLOTTED BY: KOSTAMO, LISA

Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: PAR
Checked by: CFB
Correct: ANTHONY BOUCHARD
Approved: MWRD Assistant Chief Engineer

Drawn by: PAR
Reviewed by: EPC
Scale: 1/8"=1'-0"

Date: SEPT 2008

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150 East Wacker Drive, Suite 600, Chicago, Illinois 60601-2278
312.291.0200 / 312.291.1100 www.cte.com

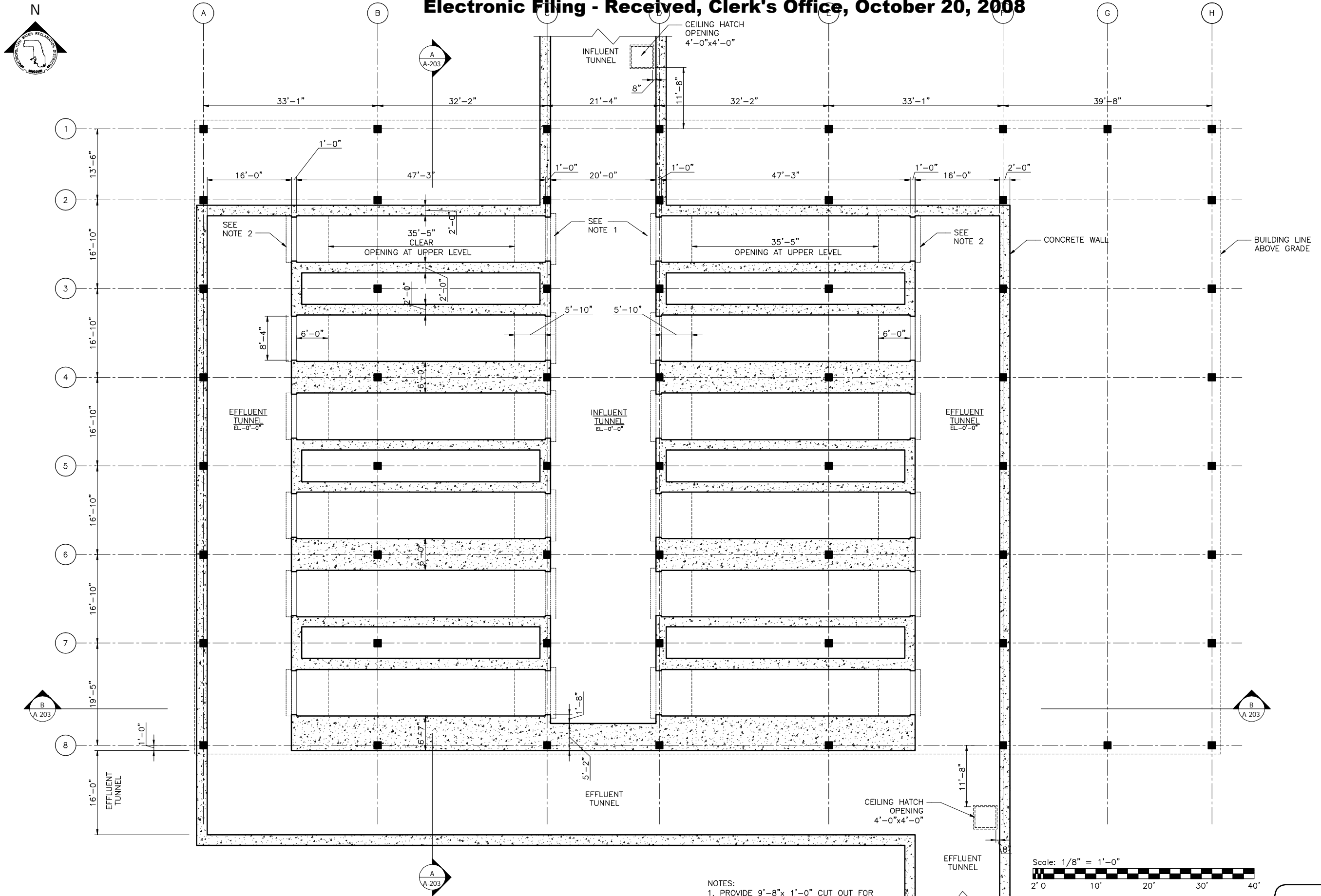
CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES
LOW LIFT PUMP STATION BUILDING
ROOF FRAMING PLAN

NOT FOR CONSTRUCTION

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Page Number: 15

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

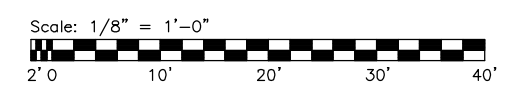
Approved: MWRD Assistant Chief Engineer
 Corrected: ANTHONY BOUCHARD
 Checked by: CFB
 Drawn by: PAR
 Reviewed by: EPC
 Date: SEPT 2008
 Scale: 1/8" = 1'-0"

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CTE AECOM, Inc. 1400 N. Dearborn Street, Suite 200, Chicago, IL 60610-4275
 773.399.0000

CONTRACT 07-026-2P
 STICKNEY WATER RECLAMATION PLANT
 ULTRAVIOLET DISINFECTION FACILITIES
 UV DISINFECTION BUILDING
 LOWER PLAN

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

- NOTES:
1. PROVIDE 9'-8" x 1'-0" CUT OUT FOR INFLUENT GATE IN UPPER LEVEL SLAB.
 2. PROVIDE 8'-10" x 1'-0" CUT OUT FOR EFFLUENT GATE IN UPPER LEVEL SLAB.
- COORDINATE THE CUTOUT DIMENSIONS WITH MECH. AND PLUMBING DRAWINGS.

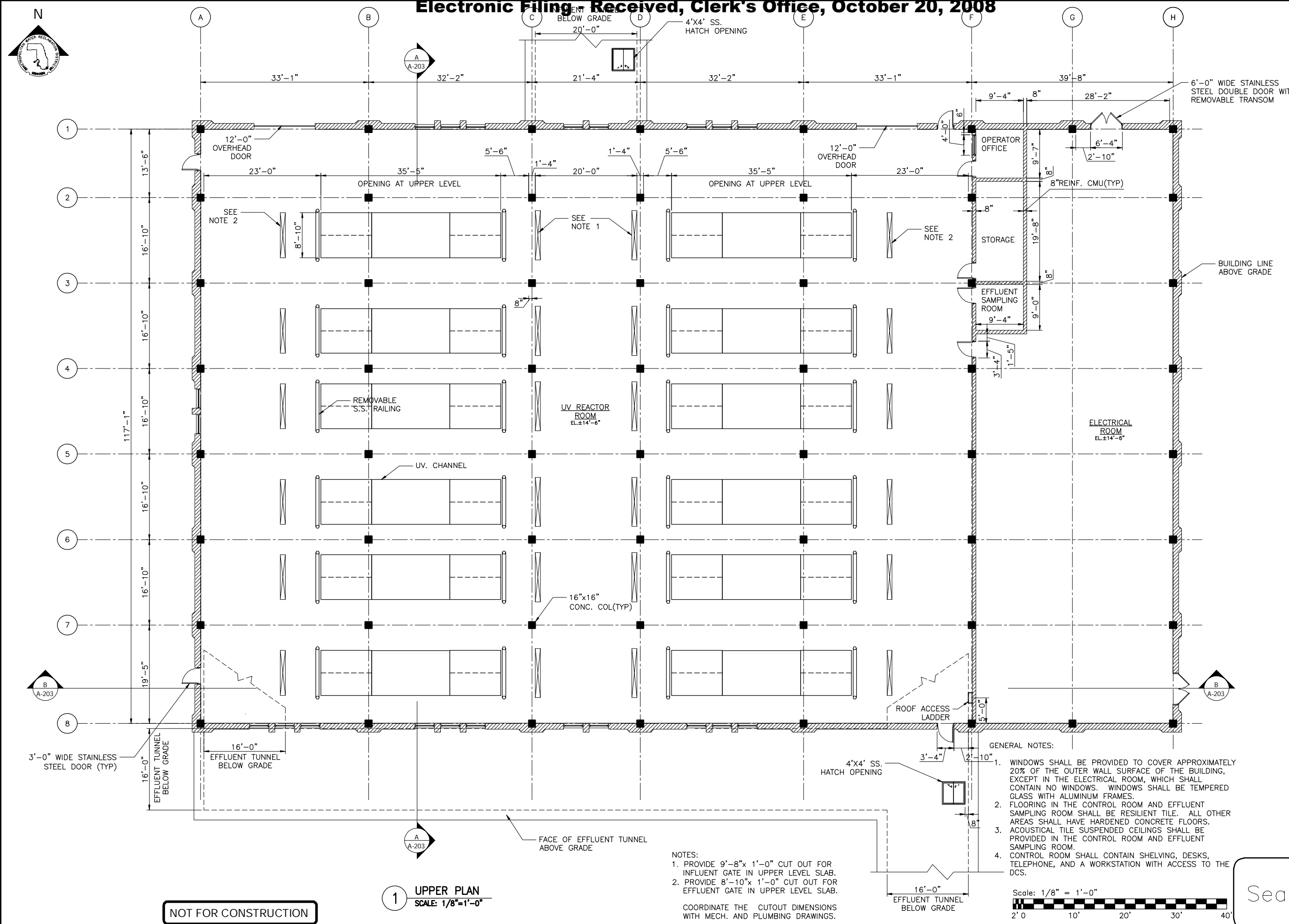


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Sheet Number:
A-201
 Page Number: 16

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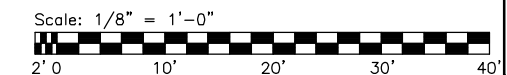


NOT FOR CONSTRUCTION

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

NOTES:
 1. PROVIDE 9'-8"x 1'-0" CUT OUT FOR INFLUENT GATE IN UPPER LEVEL SLAB.
 2. PROVIDE 8'-10"x 1'-0" CUT OUT FOR EFFLUENT GATE IN UPPER LEVEL SLAB.
 COORDINATE THE CUTOUT DIMENSIONS WITH MECH. AND PLUMBING DRAWINGS.

- GENERAL NOTES:**
1. WINDOWS SHALL BE PROVIDED TO COVER APPROXIMATELY 20% OF THE OUTER WALL SURFACE OF THE BUILDING, EXCEPT IN THE ELECTRICAL ROOM, WHICH SHALL CONTAIN NO WINDOWS. WINDOWS SHALL BE TEMPERED GLASS WITH ALUMINUM FRAMES.
 2. FLOORING IN THE CONTROL ROOM AND EFFLUENT SAMPLING ROOM SHALL BE RESILIENT TILE. ALL OTHER AREAS SHALL HAVE HARDENED CONCRETE FLOORS.
 3. ACOUSTICAL TILE SUSPENDED CEILINGS SHALL BE PROVIDED IN THE CONTROL ROOM AND EFFLUENT SAMPLING ROOM.
 4. CONTROL ROOM SHALL CONTAIN SHELVING, DESKS, TELEPHONE, AND A WORKSTATION WITH ACCESS TO THE DCS.



Seal

Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: PAR
 Checked by: CFB
 Corrected by: ANTHONY BOUCHARD
 Approved: MWRD Assistant Chief Engineer

Drawn by: PAR
 Reviewed by: EPC
 Date: SEPT 2008

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

CTE AECOM
CTE Sanitary Water Div., Suite 200, Chicago, Illinois 60607-6278
 T 312.688.0200 F 312.688.1100 www.aecom.com

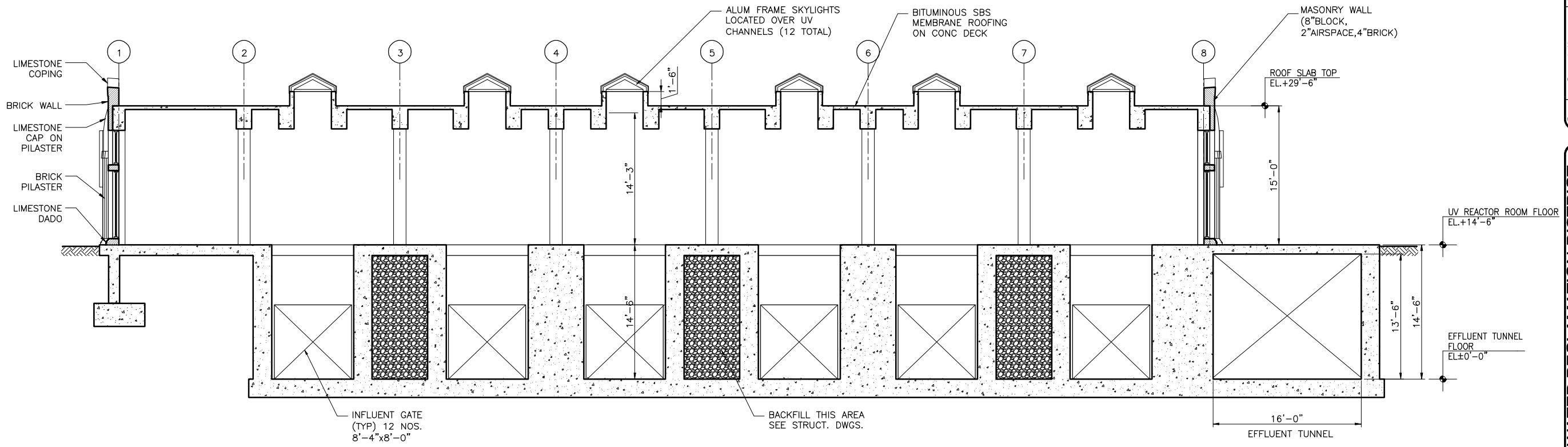
CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
 ULTRAVIOLET DISINFECTION FACILITIES

UV DISINFECTION BUILDING
UPPER PLAN

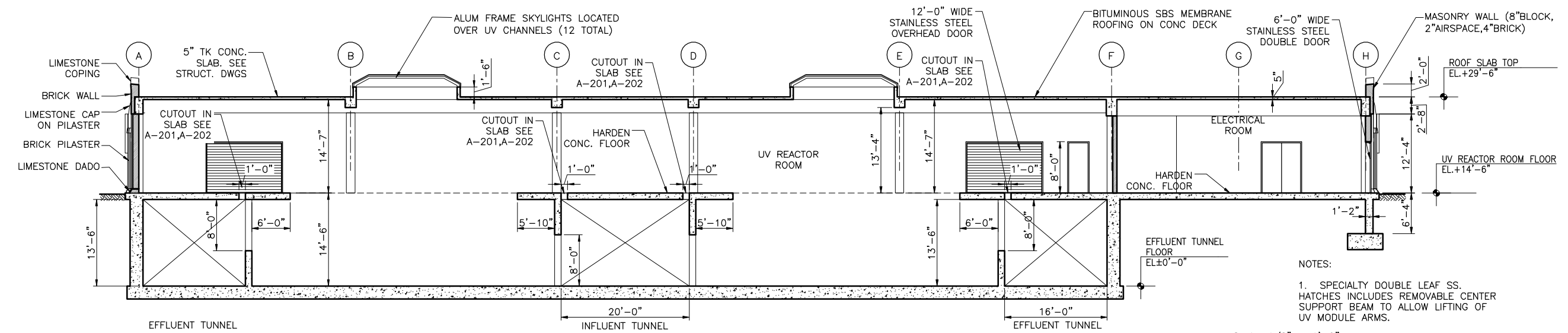
Sheet Number:
A-202

Page Number: 17

Electronic Filing - Received, Clerk's Office, October 20, 2008

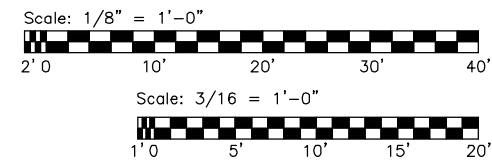


A SECTION
SCALE: 3/16"=1'-0"



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

NOT FOR CONSTRUCTION



Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Approved: MWRD Assistant Chief Engineer
 Correct: ANTHONY BOUCHARD
 Checked by: CFB
 Designed by: PAR
 Drawn by: PAR
 Date: SEPT 2008

Reviewed by: EPC
 Scale: 1/8"=1'-0"

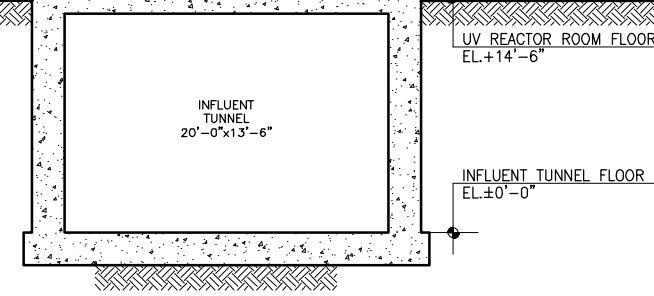
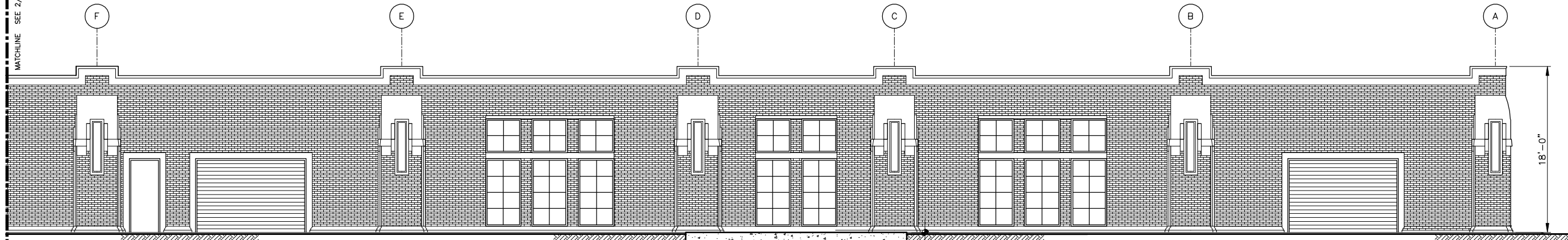
CTE AECOM
 150 East Wacker Drive, Suite 500, Chicago, Illinois 60601-4278
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CONTRACT 07-026-2P
 STICKNEY WATER RECLAMATION PLANT
 ULTRAVIOLET DISINFECTION FACILITIES
 UV DISINFECTION BUILDING SECTIONS

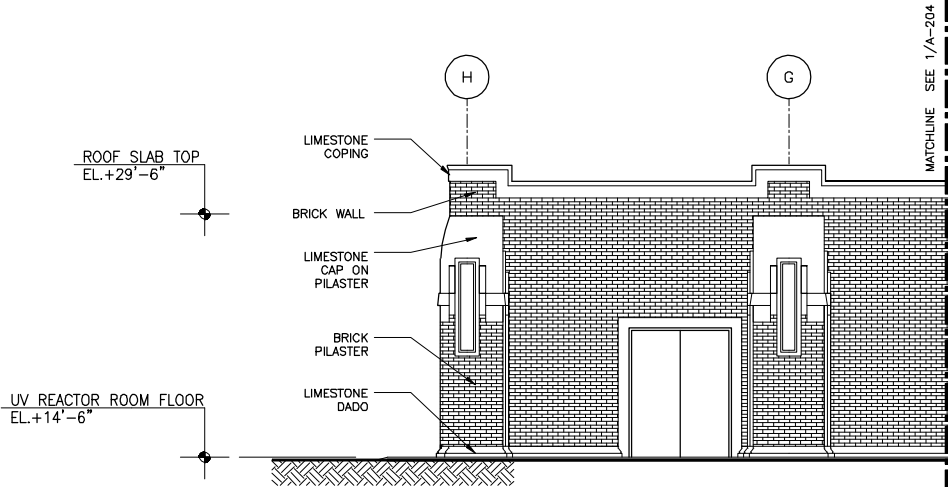
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 Page Number: 18

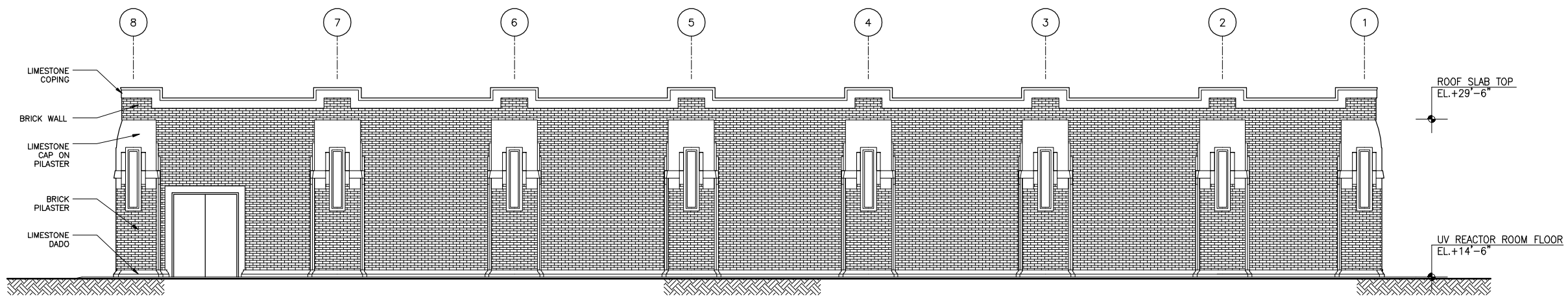
Electronic Filing - Received, Clerk's Office, October 20, 2008



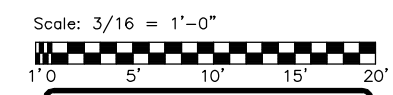
1 NORTH ELEVATION
SCALE: 3/16"=1'-0"



2 NORTH ELEVATION
SCALE: 3/16"=1'-0"



3 EAST ELEVATION
SCALE: 3/16"=1'-0"



Seal

Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Approved: ANTHONY BOUCHARD
MWRD Assistant Chief Engineer

Checked by: CFB
Designed by: PAR

Reviewed by: EPC
Drawn by: PAR

Date: SEPT 2008
Scale: 1/8"=1'-0"

CTE AECOM

150 East Wacker Drive, Suite 600, Chicago, Illinois 60601-2578
Tel: 312.298.1000 Fax: 312.298.1100 www.ckm.com

CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES

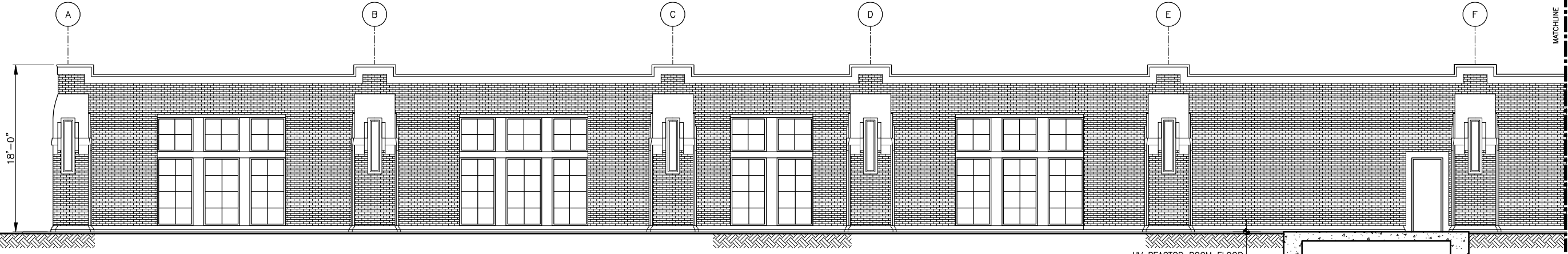
UV DISINFECTION BUILDING ELEVATIONS

Sheet Number:
A-204

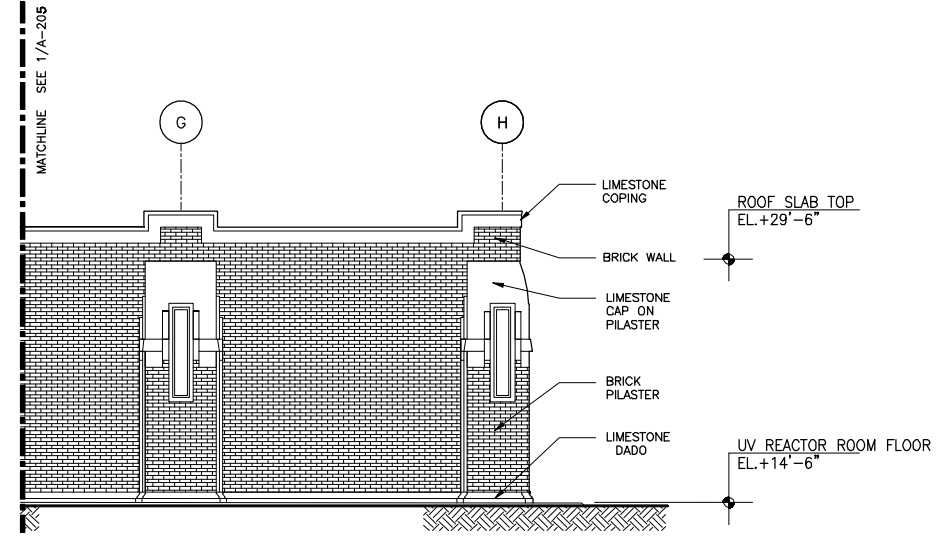
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PLOT DATE: 9/9/2008 11:28 AM PLOTTED BY: KOSTAMO, LISA

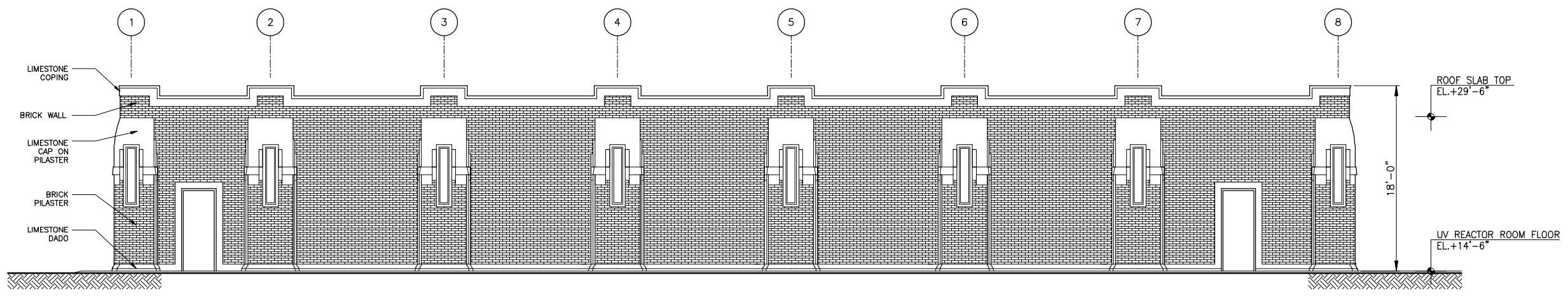
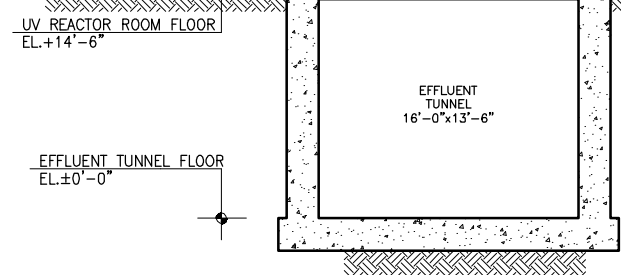
Electronic Filing - Received, Clerk's Office, October 20, 2008



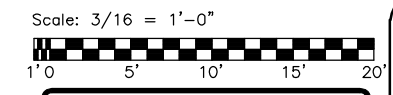
1 SOUTH ELEVATION
SCALE: 3/16"=1'-0"



2 SOUTH ELEVATION
SCALE: 3/16"=1'-0"



3 WEST ELEVATION
SCALE: 3/16"=1'-0"



Seal

Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Approved: MWRD Assistant Chief Engineer
ANTHONY BOUCHARD

Checked by: CFB
Designed by: PAR

Reviewed by: EPC
Drawn by: PAR

Date: SEPT 2008
Scale: 3/16"=1'-0"

CTE AECOM

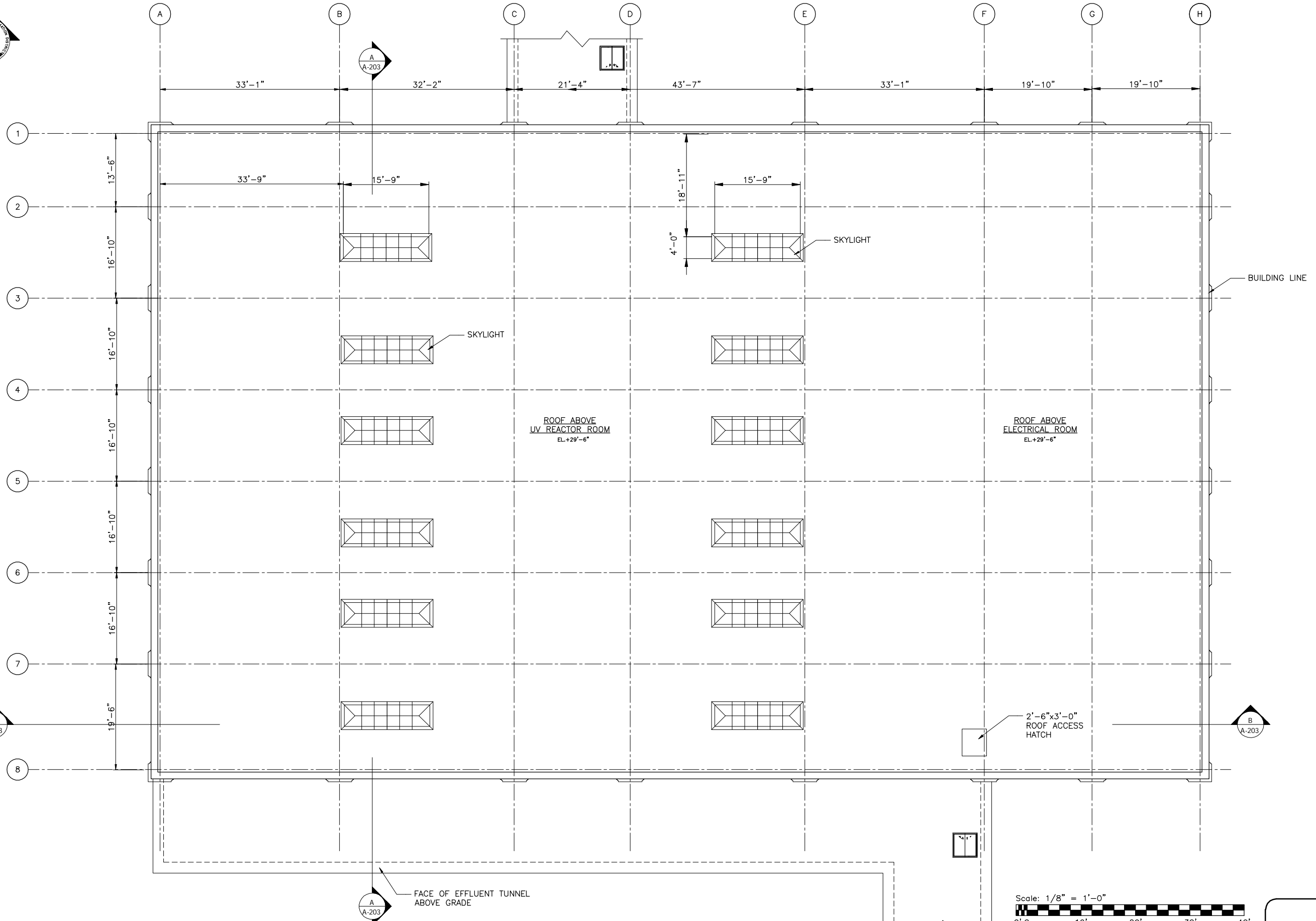
1111 East Wacker Drive, Suite 400, Chicago, Illinois 60601-2079
Tel: 312.298.1000 Fax: 312.298.1100 www.cte.com

CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES

UV DISINFECTION BUILDING ELEVATIONS

Sheet Number:
A-205
Page Number: 20

PLOT DATE: 9/9/2008 11:28 AM PLOTTED BY: KOSTAMO, LISA



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



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Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: PAR
Checked by: CFB
Date: SEPT 2008

Corrected by: ANTHONY BOUCHARD
Approved by: MWRD Assistant Chief Engineer

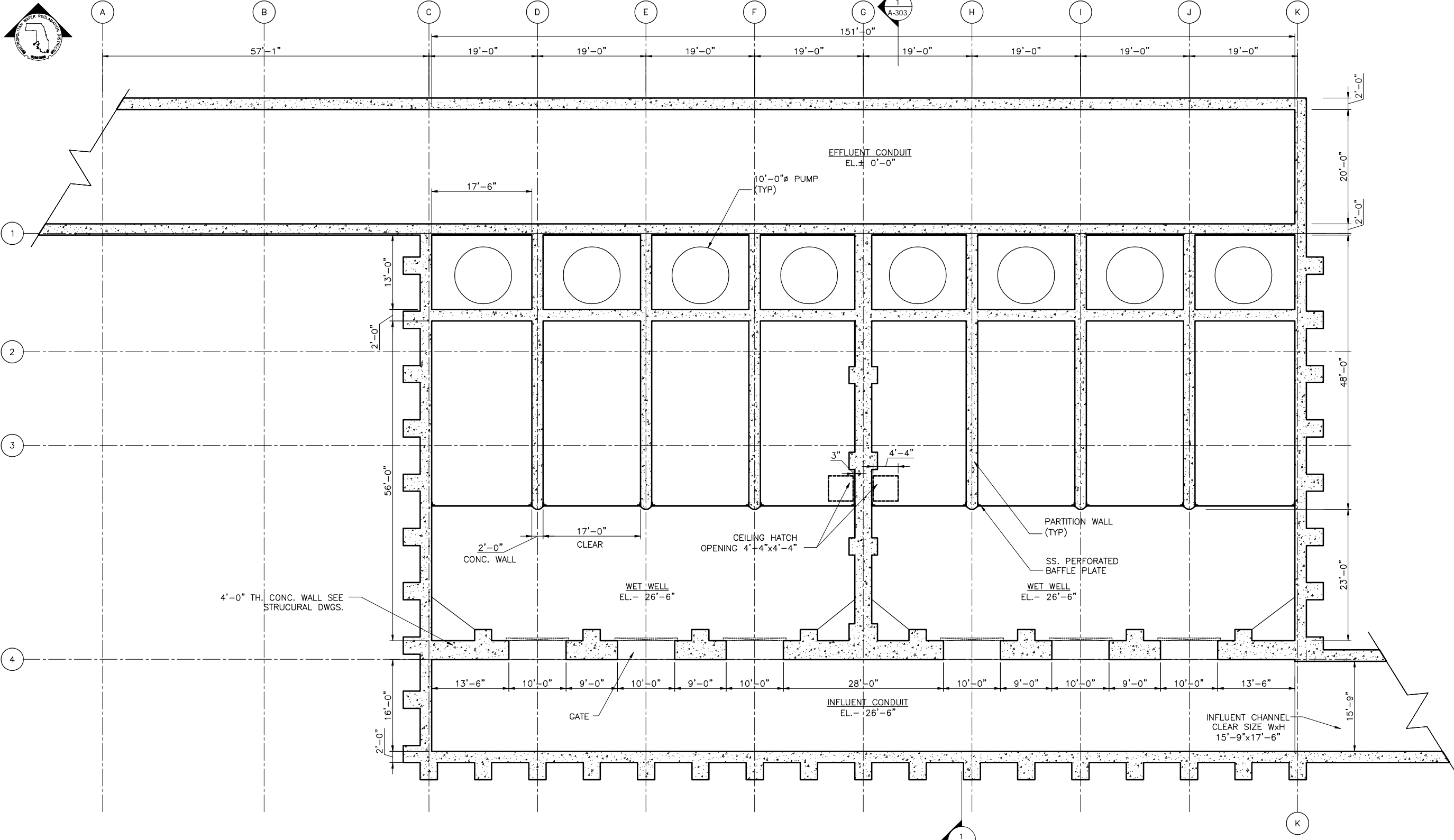
Reviewed by: EPC
Scale: 1/8"=1'-0"

CTE AECOM
17345 Lake Water Drive, Suite 600, Chicago, Illinois 60657-1118
www.cte-aecom.com

CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES
UV DISINFECTION BUILDING
ROOF PLAN

Sheet Number:
A-206
Page Number: 21

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

Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: PAR
Checked by: CFB
Correct: ANTHONY BOUCHARD
Approved: MWRD Assistant Chief Engineer

Drawn by: PAR
Reviewed by: EPC
Scale: 1/8"=1'-0"

Date: SEPT 2008

CTE AECOM
150 East Wacker Drive, Suite 600, Chicago, Illinois 60601-5278
Tel: 312.298.1000 Fax: 312.298.1100 www.cte.com

CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES
LOW LIFT PUMP STATION
LOWER PLAN

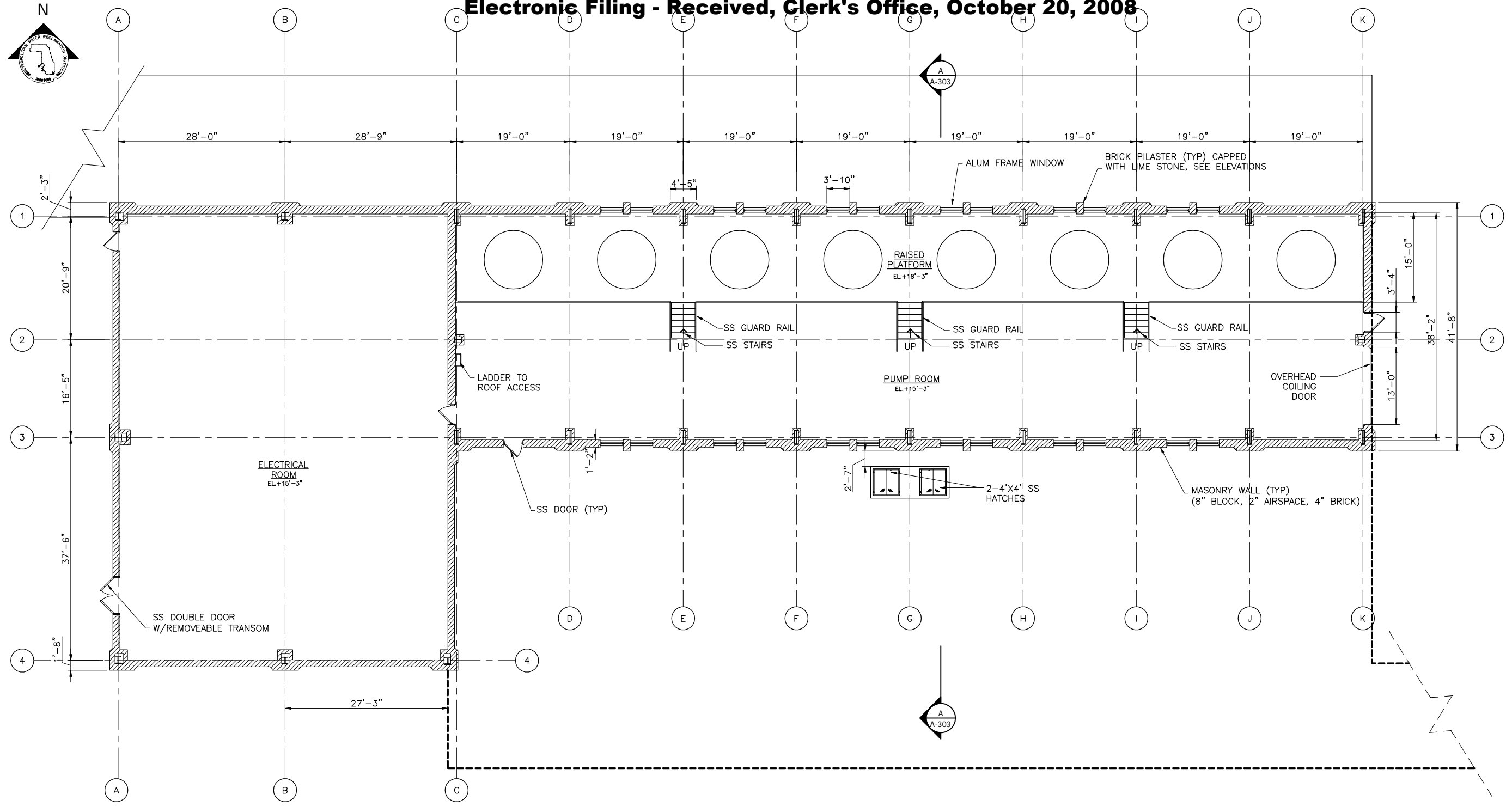


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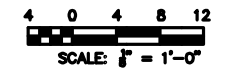
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Sheet Number:
A-301
Page Number: 22

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



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Sheet Number:
A-302
Page Number: 23

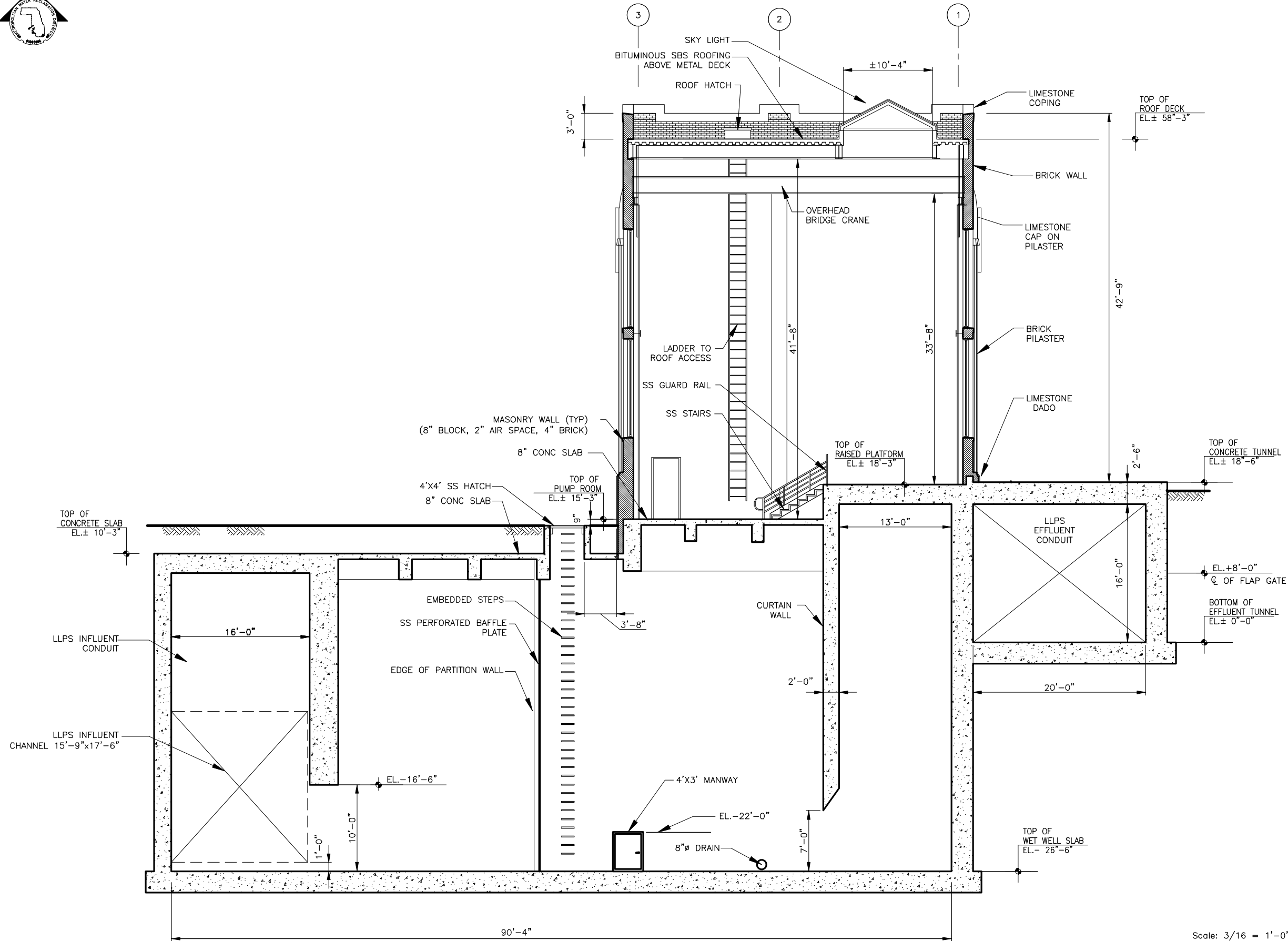
METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: PAR	Checked by: CFB	Corrected by: ANTHONY BOUCHARD	Approved: MWRD Assistant Chief Engineer
Drawn by: PAR	Reviewed by: EPC	CTE AECOM	
Date: SEPT 2008	Scale: 1/8" = 1'-0"	<small> 525 East Wacker Drive, Suite 600, Chicago, Illinois 60601-4278 T 312.208.6000 F 312.208.1100 www.aecom.com </small>	

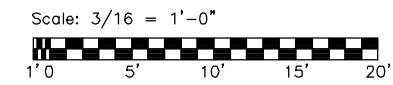
CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES
LOW LIFT PUMP STATION
UPPER PLAN

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SECTION 1
SCALE: 3/16"=1'-0"



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Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: PAR
Checked by: CFB
Correct: ANTHONY BOUCHARD
Approved: MWRD Assistant Chief Engineer

Drawn by: PAR
Reviewed by: EPC
Scale: 1/8"=1'-0"
Date: SEPT 2008

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CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES
LOW LIFT PUMP STATION SECTION

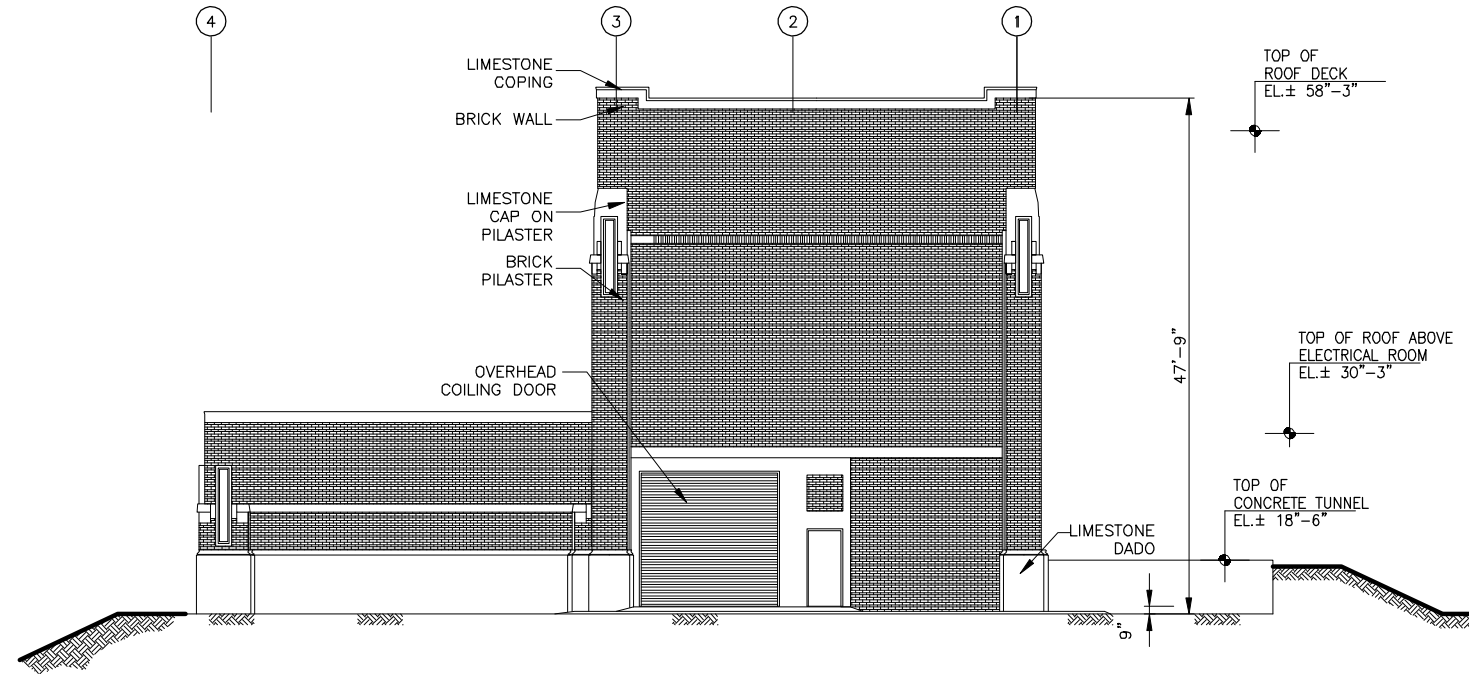
Sheet Number:
A-303
Page Number: 24

PLOT DATE: 9/9/2008 11:31 AM PLOTTED BY: KOSTAMO, LISA

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



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

Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: PAR
Checked by: CFB
Correct: ANTHONY BOUCHARD
Approved: MWRD Assistant Chief Engineer

Drawn by: PAR
Reviewed by: EPC
Date: SEPT 2008
Scale: 1/8"=1'-0"

CTE AECOM
150 East Wacker Drive, Suite 600, Chicago, Illinois 60601-4278
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CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES
LOW LIFT PUMP STATION ELEVATIONS



NOT FOR CONSTRUCTION

Seal

Sheet Number:
A-304
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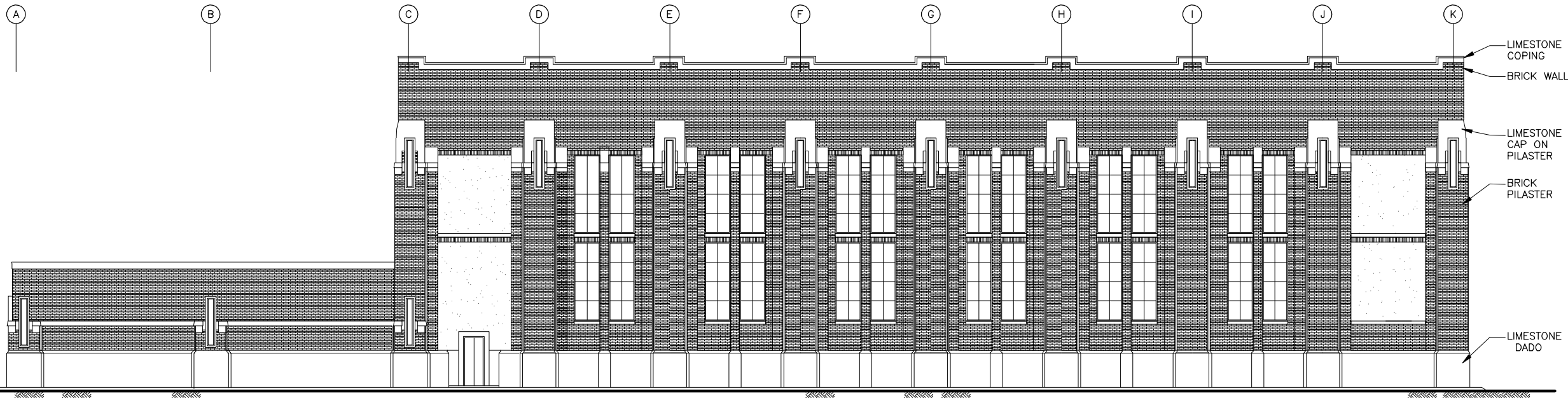
Electronic Filing - Received, Clerk's Office, October 20, 2008



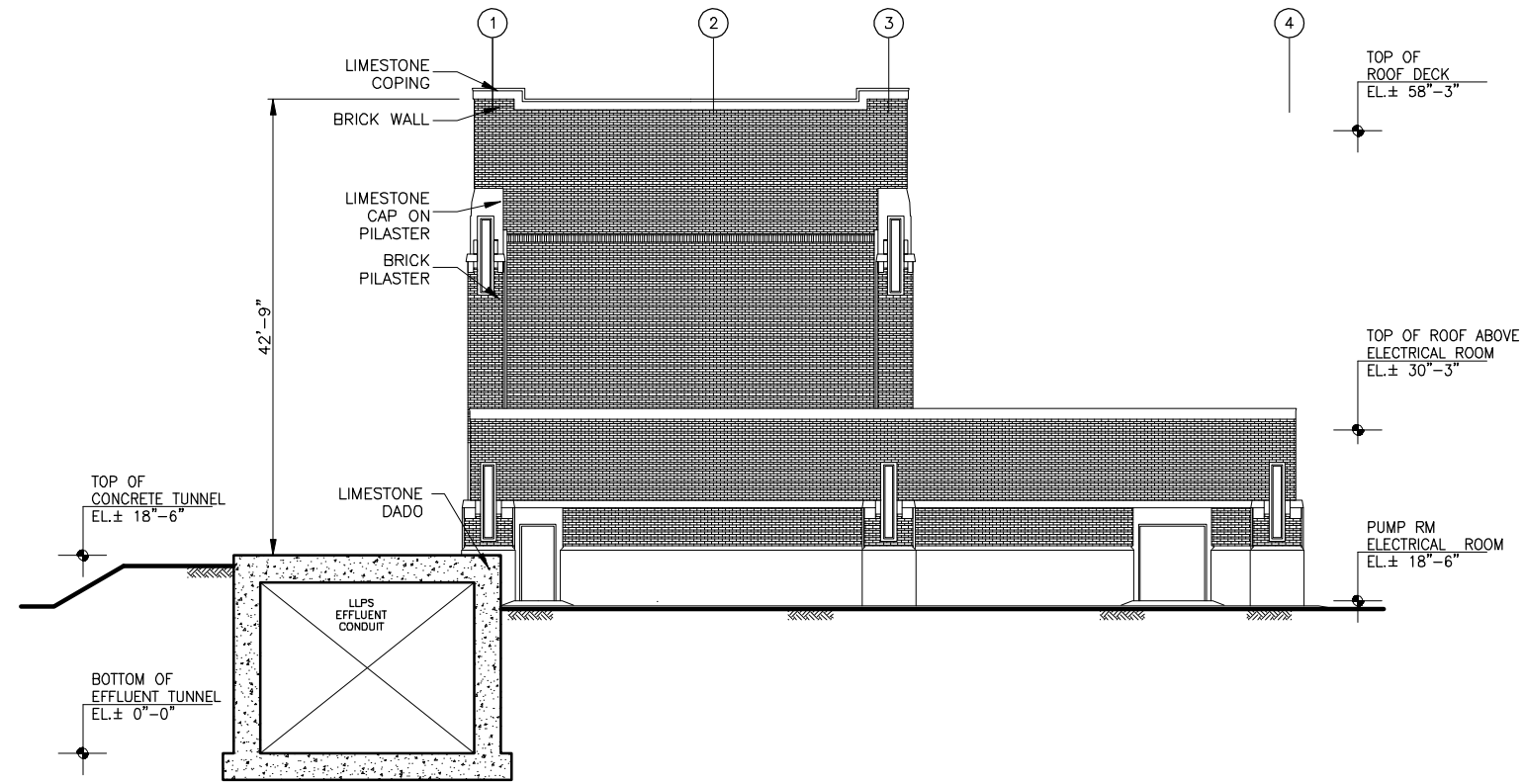
TOP OF ROOF DECK
EL. ± 58'-3"

TOP OF ROOF ABOVE ELECTRICAL ROOM
EL. ± 30'-3"

PUMP RM ELECTRICAL ROOM
EL. ± 18'-6"



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



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

Rev.	Description	Appr.	Date

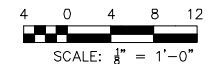
METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: PAR
Checked by: CFB
Corrected by: ANTHONY BOUCHARD
Approved: MWRD Assistant Chief Engineer

Drawn by: PAR
Reviewed by: EPC
Date: SEPT 2008
Scale: 1/8" = 1'-0"

CTE AECOM
1112 East Wacker Drive, Suite 600, Chicago, Illinois 60601-4279
Tel: 312.286.0000 Fax: 312.286.1100 www.cte.com

CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES
LOW LIFT PUMP STATION ELEVATIONS

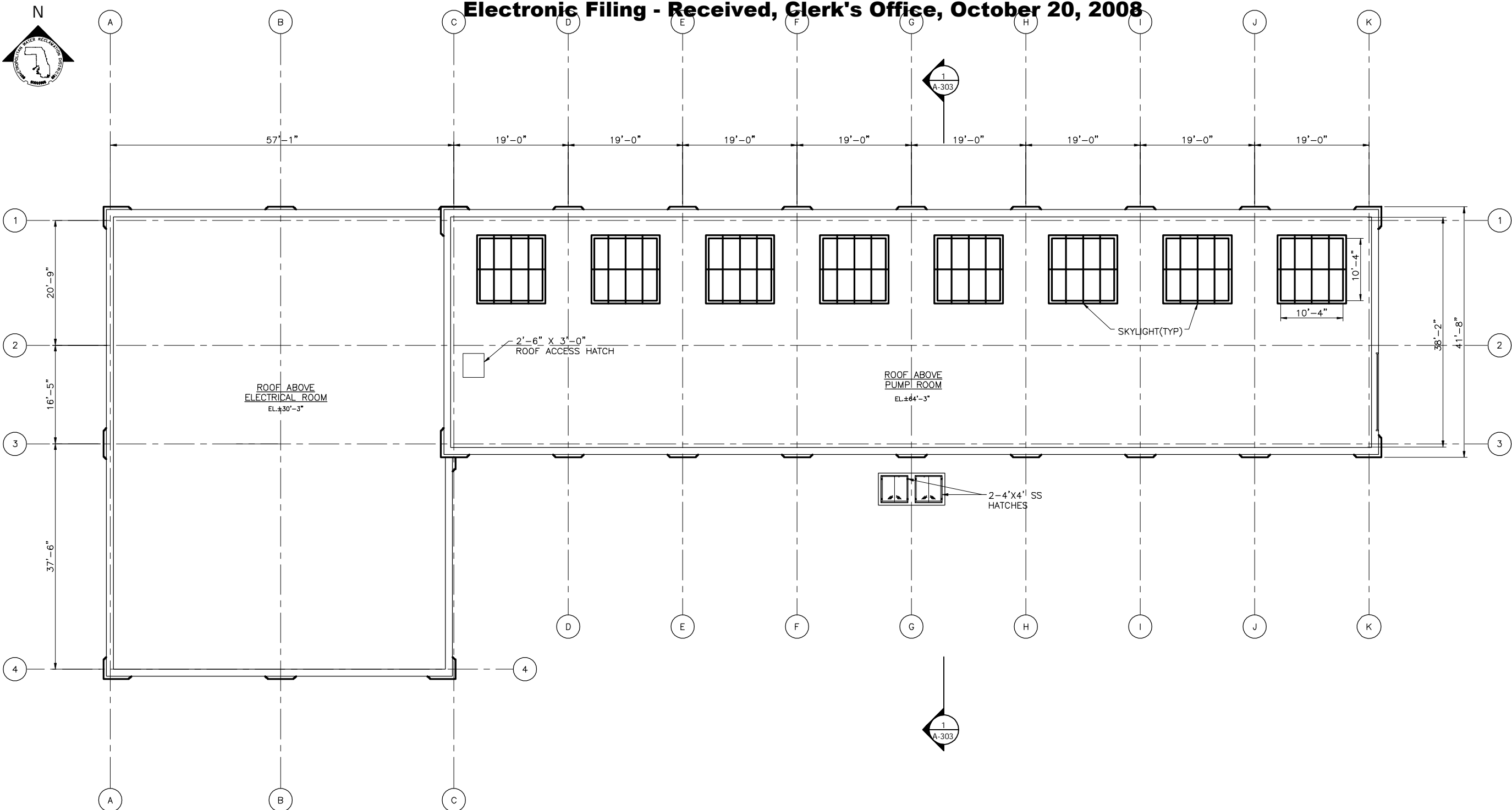


NOT FOR CONSTRUCTION

Seal

Sheet Number:
A-305
Page Number: 26

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

PLOT DATE: 9/9/2008 11:33 AM PLOTTED BY: KOSTAMO, LISA

Rev.	Description	Appr.	Date

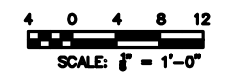
METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: PAR
Checked by: CFB
Drawn by: PAR
Date: SEPT 2008

Correct: ANTHONY BOUCHARD
Approved: MWRD Assistant Chief Engineer

CTE AECOM
151 East Wacker Drive, Suite 600, Chicago, Illinois 60601-4278
Tel: 312.588.6000 Fax: 312.588.1108 www.cteaecom.com

CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES
LOW LIFT PUMP STATION
ROOF PLAN

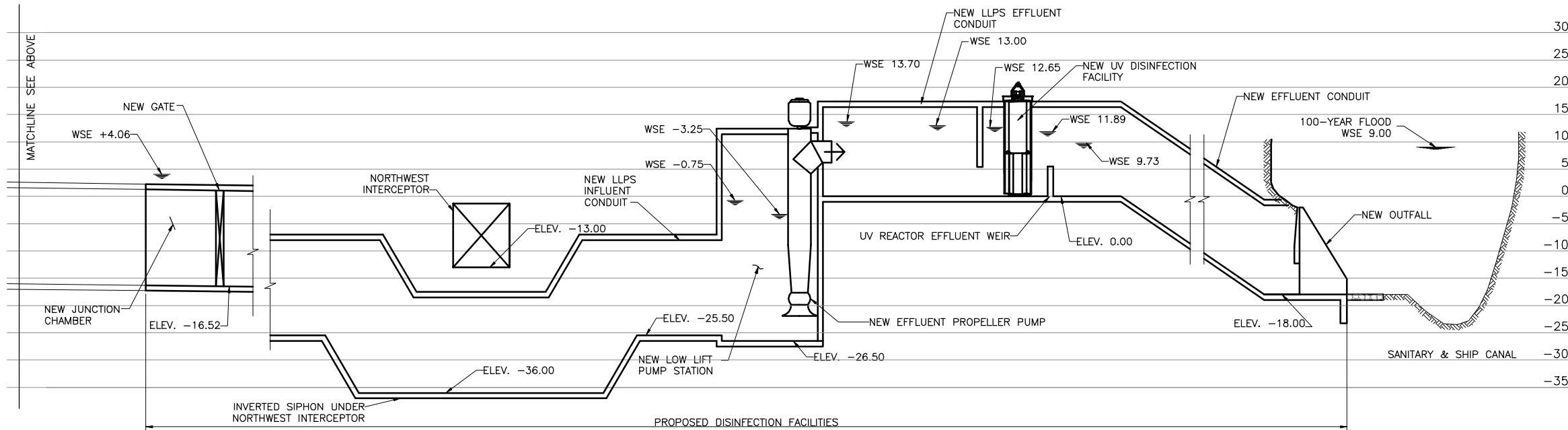
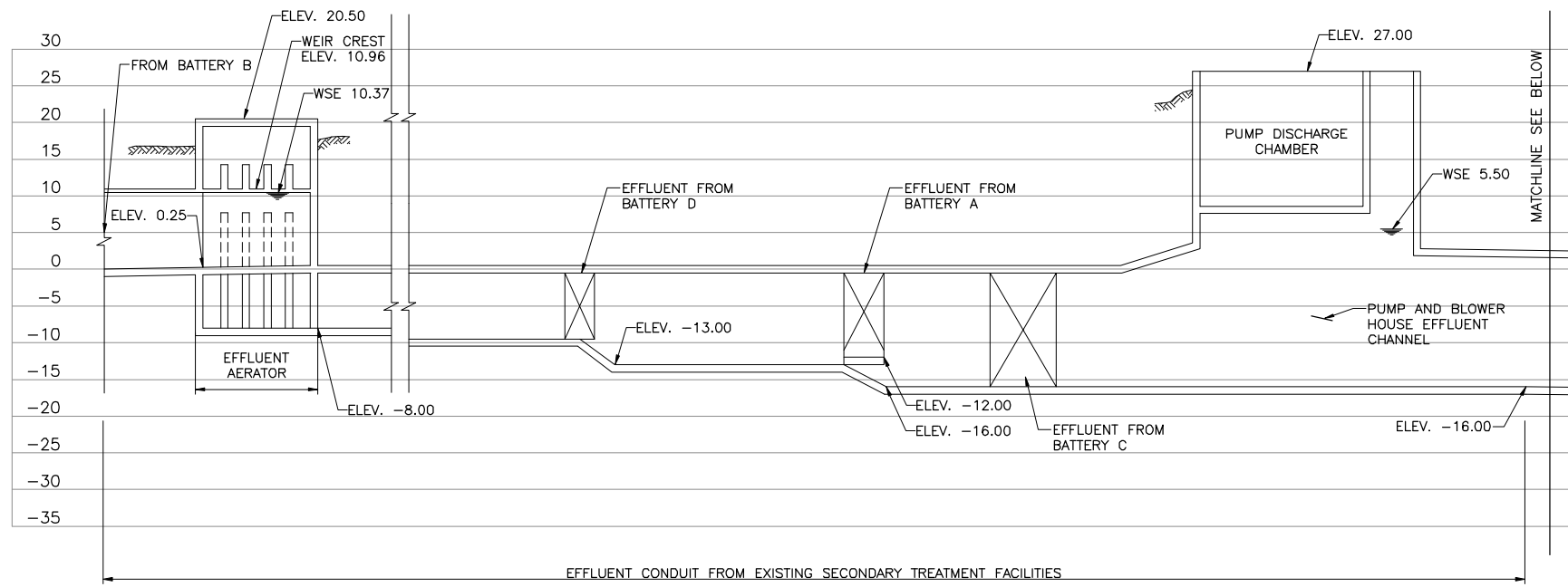


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Sheet Number:
A-306
Page Number: 27

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Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: SAW
 Checked by: CFB
 Drawn by: LK
 Date: SEPT 2008

Corrected by: ANTHONY BOUCHARD
 Approved by: MWRD Assistant Chief Engineer

Scale: NTS

CTE AECOM

115 East Wacker Drive, Suite 400, Chicago, Illinois 60601-2278
 Tel: 312.298.0000 Fax: 312.298.1100 www.cdm.com

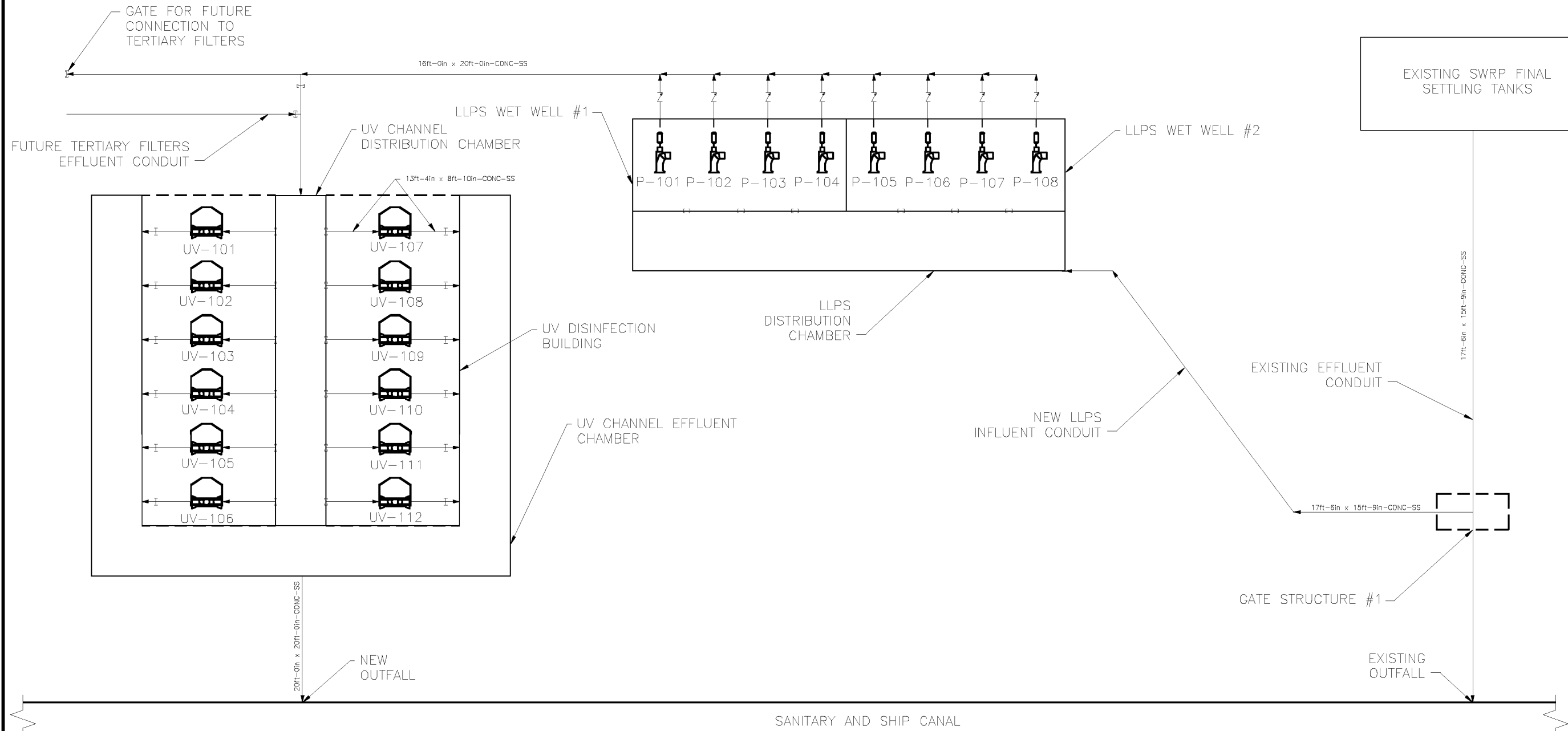
CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES
EFFLUENT HYDRAULIC PROFILE

Seal

Sheet Number:
P-101
 Page Number: 28

PLOT DATE: 9/10/2008 10:55 AM PLOTTED BY: WORTH, SELINA

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: SAW
 Checked by: CFB
 Corrected by: ANTHONY BOUCHARD
 Approved by: MWRD Assistant Chief Engineer

Drawn by: SAW
 Reviewed by: EPC
 CTE: AECOM
 Date: SEPT 2008
 Scale: NTS

303 East Wacker Drive, Suite 600, Chicago, Illinois 60601-4278
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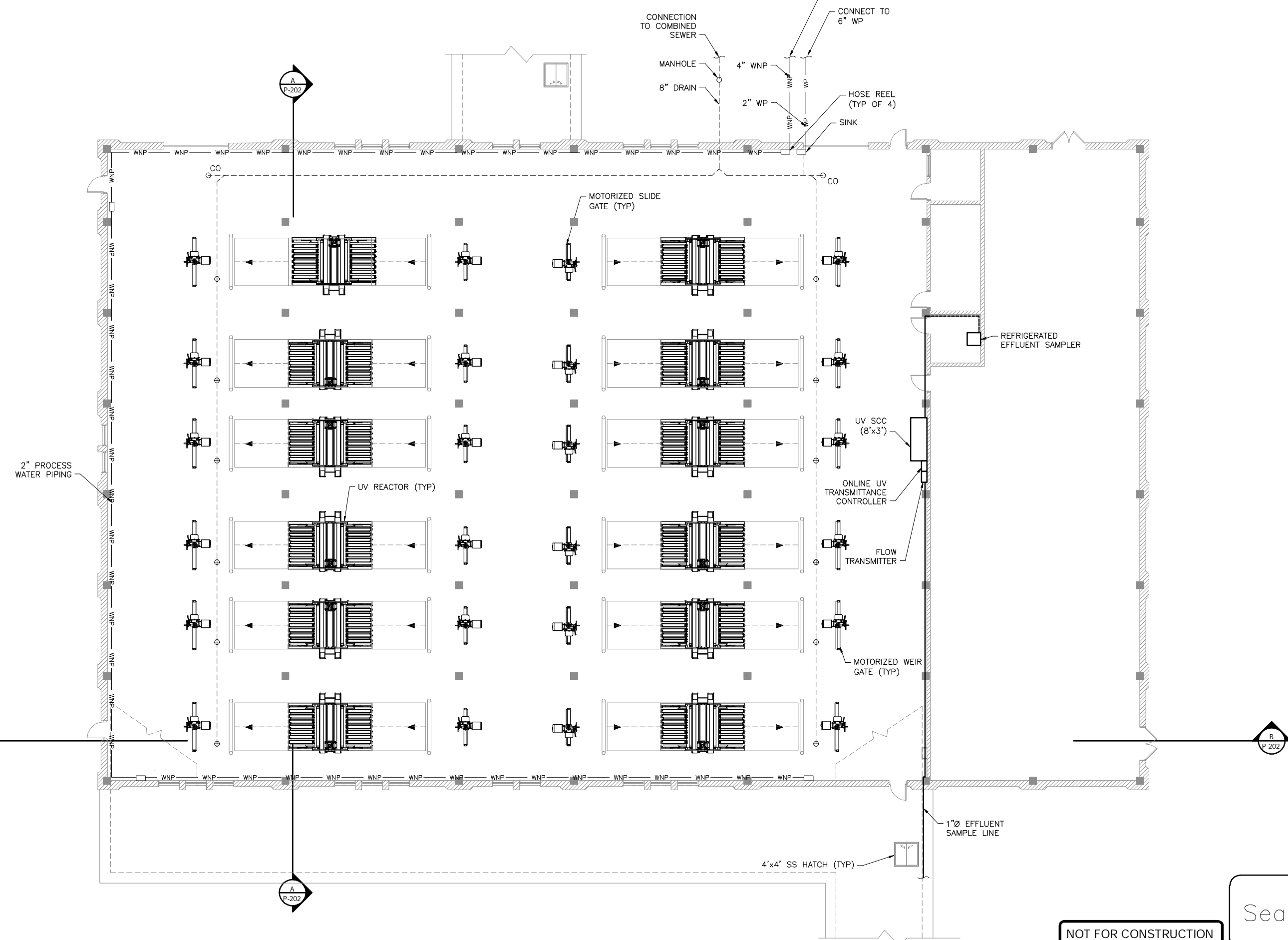
CONTRACT 07-026-2P
 STICKNEY WATER RECLAMATION PLANT
 ULTRAVIOLET DISINFECTION FACILITIES
UV DISINFECTION FACILITIES PROCESS FLOW DIAGRAM

Seal

Sheet Number: P-102
 Page Number: 29

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: SAW
 Checked by: CFB
 Drawn by: LK
 Date: SEPT 2008

Corrected by: ANTHONY BOUCHARD
 Approved: MWRD Assistant Chief Engineer

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

CTE AECOM
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CONTRACT 07-026-2P
 STICKNEY WATER RECLAMATION PLANT
 ULTRAVIOLET DISINFECTION FACILITIES
UV DISINFECTION BUILDING PLAN

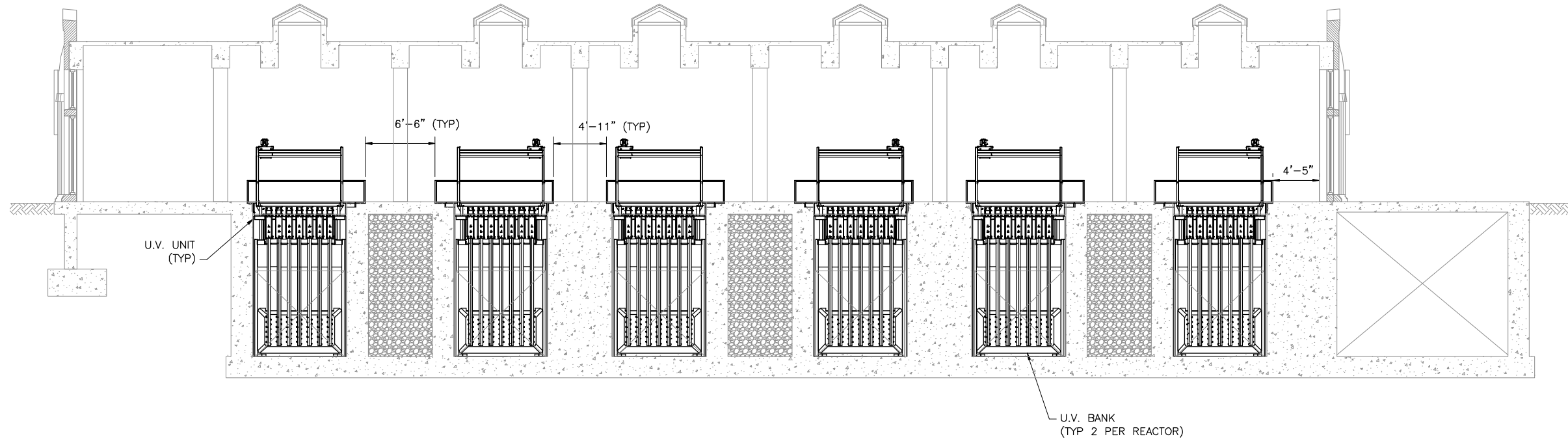
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P-201
 Page Number: 30

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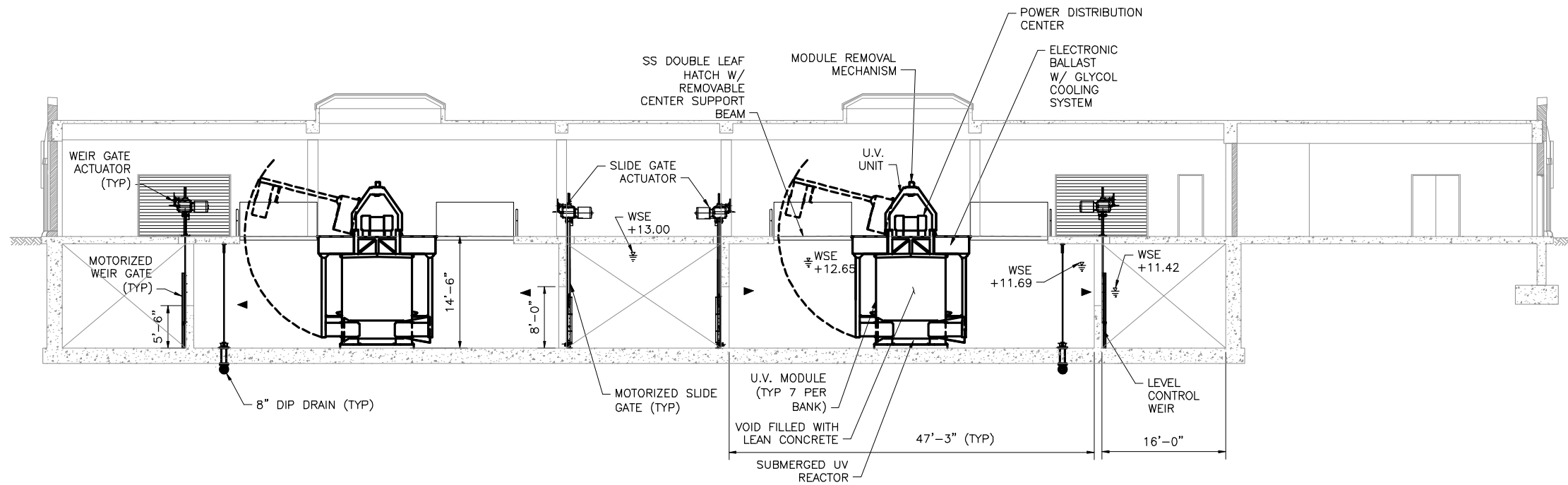
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SECTION A
P-201 Scale: 3/16" = 1'



SECTION B
P-201 Scale: 1/8" = 1'

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Designed by: SAW
Checked by: CFB
Drawn by: LK
Date: SEPT 2008

Corrected by: ANTHONY BOUCHARD
Reviewed by: EPC
Scale: 1/8" = 1'-0"

Approved by: MWRD Assistant Chief Engineer
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CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES

UV DISINFECTION BUILDING SECTIONS

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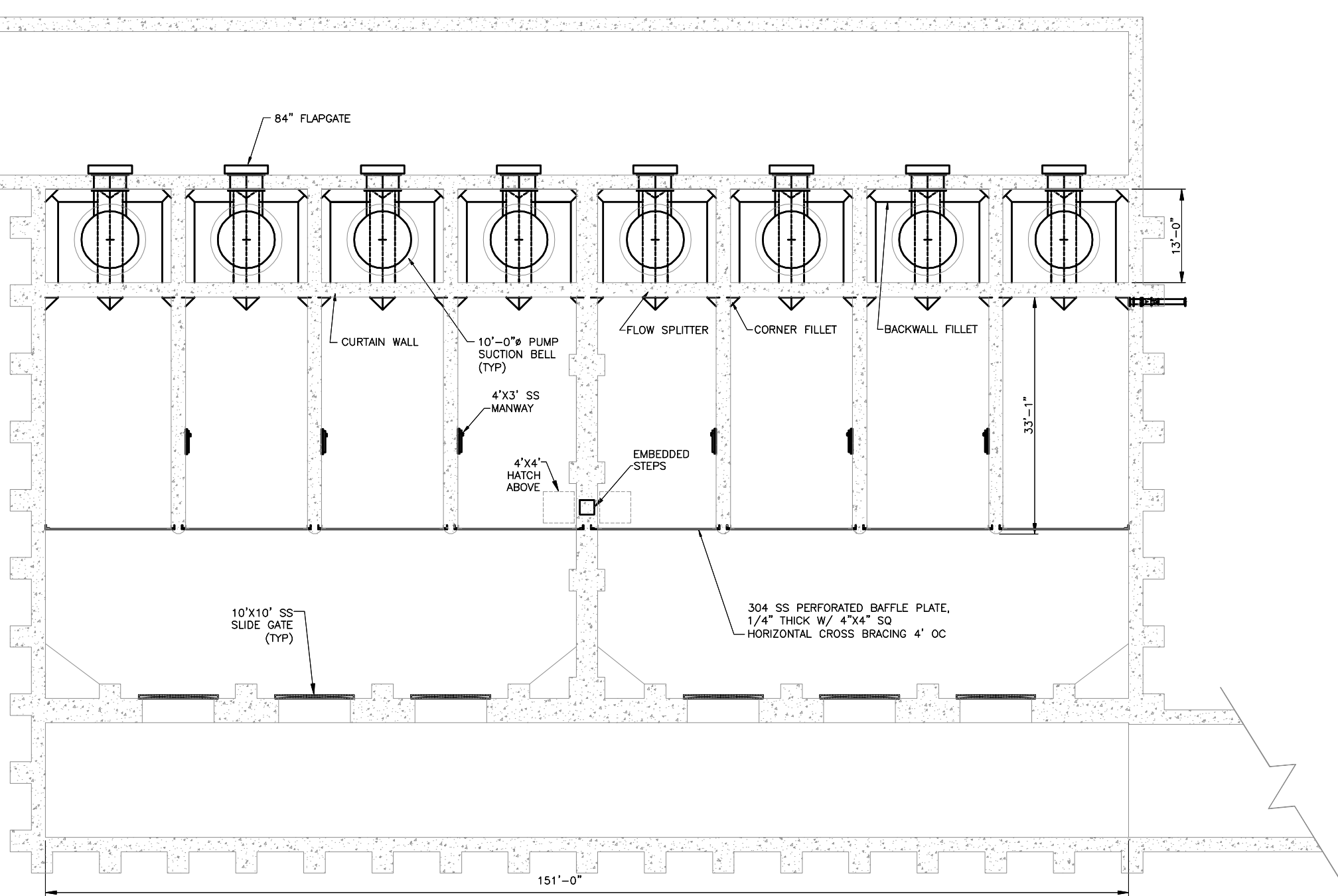
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Sheet Number:
P-202
Page Number: 31

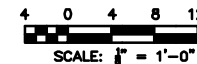
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A
P-303



A
P-303



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Designed by: SAW
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Date: SEPT 2008

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Reviewed by: CFB
Scale: 1/8"=1'-0"

Approved by: MWRD Assistant Chief Engineer
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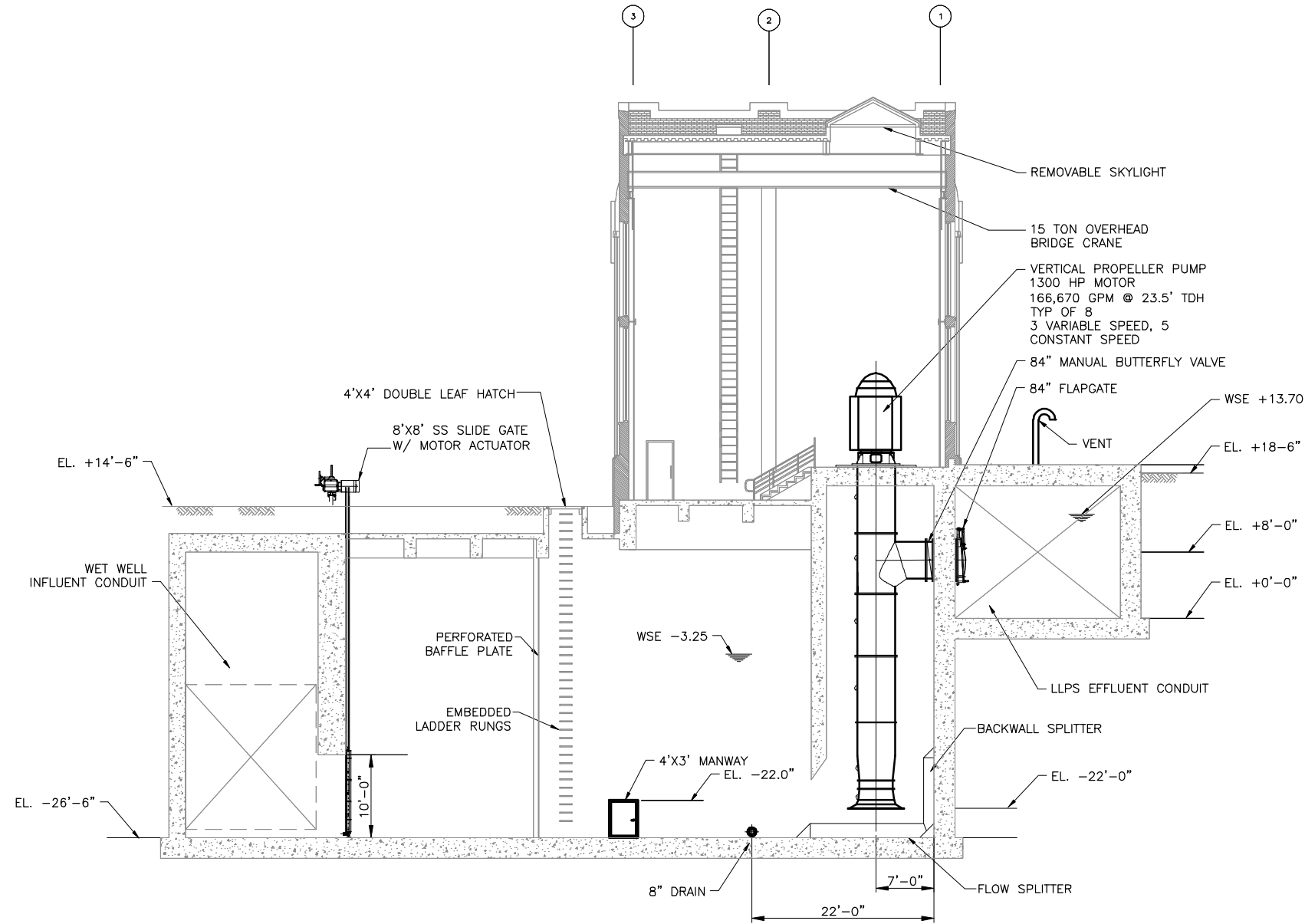
1115 East Water Street, Suite 600, Chicago, Illinois 60611-5278
TEL: 312.684.0200 FAX: 312.684.1100 www.mwrd.com

CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES

**LOW LIFT PUMP STATION
LOWER LEVEL PLAN**

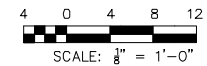
Sheet Number:
P-301
Page Number: 32

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SECTION
SCALE: 1/8" = 1'

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

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Date: SEPT 2008

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Reviewed by: EPC
Scale: 1/8" = 1'-0"

Approved by: MWRD Assistant Chief Engineer
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CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES
LOW LIFT PUMP STATION SECTION

Sheet Number:
P-303
Page Number: 34

HEATING & VENTILATION SYMBOLS

	GAS	NATURAL GAS
	HHWS	HEATING HOT WATER SUPPLY (HHWS)
	HHWR	HEATING HOT WATER RETURN (HHWR)
	HHWRR	HHW REVERSE RETURN (HHWRR)
	HYD	HYDRAULIC (HYD)
	SPD	SUMP PUMP DISCHARGE (SPD)
	SS	STORM SEWER (SS)
	SWD	SOIL, WASTE AND DRAIN (SWD)
	VENT	VENT
	UH3-1	HORIZONTAL UNIT HEATER
	90 CFM	QUANTITY AND DIRECTION OF THE AIR FLOW
	12X16	DUCT SIZE (FIRST FIGURE SIZE OF SHOWN, SECOND FIGURE SIZE OF SIDE NOT SHOWN.)
		SUPPLY AIR DUCT - UP
		SUPPLY AIR DUCT - DOWN
		RETURN/EXHAUST AIR DUCT - UP
		RETURN/EXHAUST AIR DUCT - DOWN
		DUCT ELBOW WITH TURNING VANES
		ROUND ELBOW WITH GUIDE VANES
	FC	FLEXIBLE CONNECTION
		DIFFUSER
	100 CFM	8" THROAT DIAMETER CEILING DIFFUSER; AIR FLOW -- 100 CFM
		BALANCING OR VOLUME DAMPER (VD)
		MOTOR OPERATED DAMPER
	100 CFM	SUPPLY REGISTER OR GRILLE DUCT MOUNTED AIR FLOW -- 100 CFM
	100 CFM	SUPPLY REGISTER OR GRILLE IN WALL AIR FLOW -- 100 CFM
		FLEXIBLE CONNECTION FAN OR EQUIPMENT
	FD	2 HOUR FIRE DAMPER
		WALL LOUVER WITH MOTORIZED DAMPER

HEATING & VENTILATION CONTROL SYMBOLS

	FS	FREEZE STAT
	TS	TEMPERATURE SENSOR
	T	THERMOSTAT
	S 20	CONNECTION TO EXISTING 20 PSI (NOMINAL) PNEUMATIC SYSTEM
		PNEUMATIC SIGNAL
		ELECTRICAL SIGNAL
ABBREVIATIONS		
ACCU		AIR COOLED CONDENSING UNIT
AHU		AIR HANDLING UNIT
EF		EXHAUST FAN
FD		FLOOR DRAIN
HPC		HIGH PRESSURE CONDENSATE
HPS		HIGH PRESSURE STEAM
PCR		PUMPED CONDENSATE RETURN
PD		PROCESS DRAIN
UH		TERMINAL UNIT HEATER
VTR		VENT TO ROOF

GENERAL PIPING SYMBOLS

		CONCENTRIC REDUCER
		ECCENTRIC REDUCER
		ORIFICE FLANGE
		CROSSOVER
		PIPE GUIDE
		EXPANSION JOINT (SLIP TYPE)
		EXPANSION JOINT (BELLOWS TYPE)
		AIR ELIMINATOR (AIR VENT)
		PIPE CAP
		STRAIGHT CROSS
		90° ELBOW
		90° ELBOW TURNED DOWN
		90° ELBOW TURNED DOWN
		SIDE OUTLET ELBOW TURNED DOWN
		SIDE OUTLET ELBOW TURNED UP
		LATERAL
		TEE
		TEE OUTLET UP
		TEE OUTLET DOWN
		UNION
		STRAINER
		PIPE ANCHOR
	0-100	THERMOMETER (NOS. = RANGE IN F)
		PRESSURE, VACUUM OR COMPOUND GAUGE
	FS	FLOW SWITCH
	100 GPM	VENTURI FLOW METER AND FLOW TO BE INDICATED
	100 50	PRESSURE REDUCING VALVE (NOS. = INITIAL AND FINAL PRESSURE - PSIG)
		CONNECTION BETWEEN NEW AND EXISTING
		GATE VALVE
		GLOBE VALVE
		BUTTERFLY VALVE
		CHECK VALVE
		ANGLE GATE VALVE
		PLUG VALVE
		MANUAL VALVE (2-WAY)
		MANUAL VALVE (3-WAY)
		SOLENOID VALVE (4-WAY)
		BALL VALVE
		HOSE BIB (HB)
		CIRCUIT SETTER
		PUMP

Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: EPC	Checked by: CFB	Approved by: ANTHONY BOUCHARD
Drawn by: EPC	Reviewed by: EPC	Chief Engineer
Date: SEPT 2008	Scale: N.T.S.	CTE AECOM

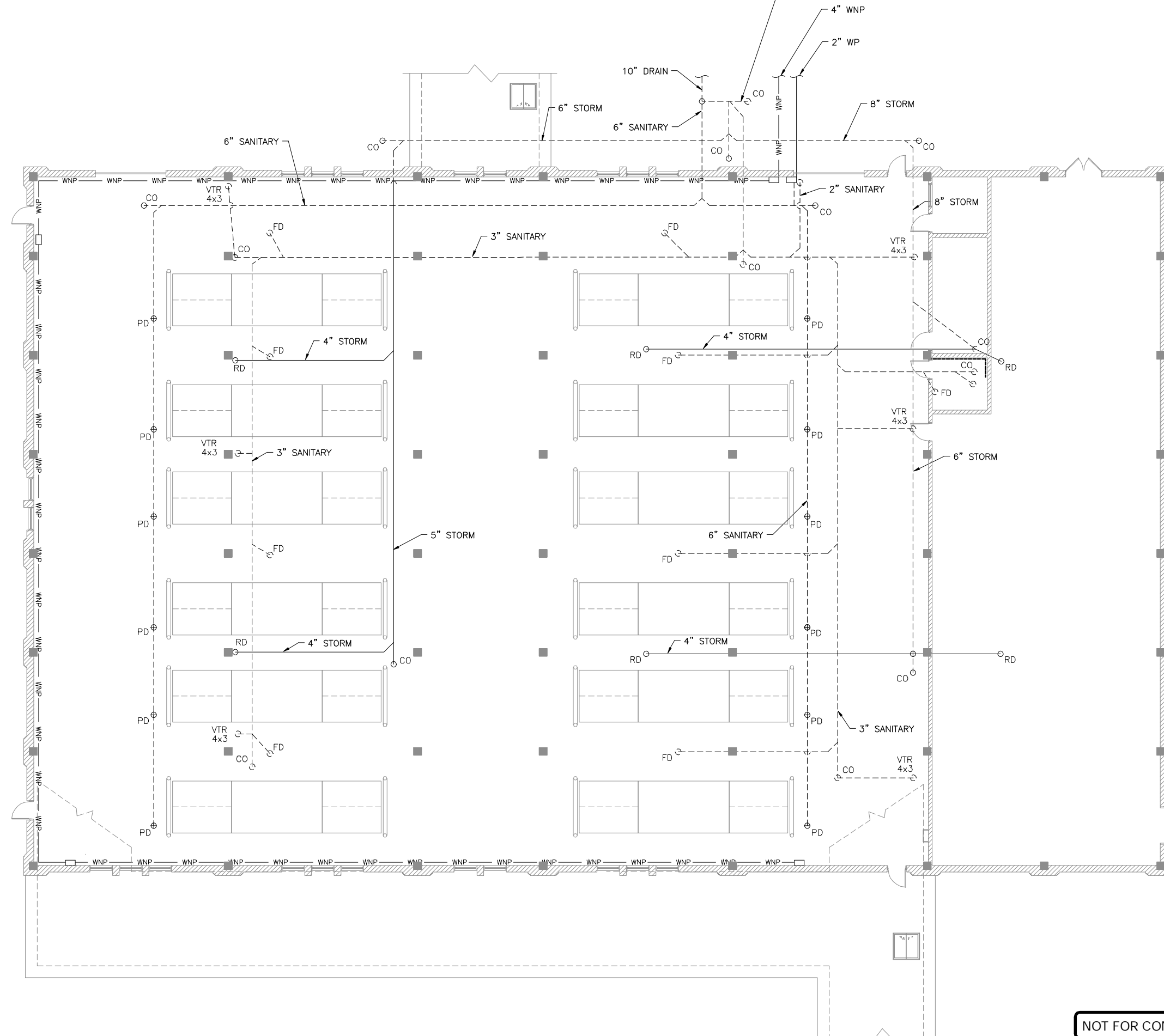
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CONTRACT 07-026-2P
 STICKNEY WATER RECLAMATION PLANT
 ULTRAVIOLET DISINFECTION FACILITIES
 UV DISINFECTION FACILITIES
 MECHANICAL SYMBOLS/ABBREVIATIONS

Seal
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 Page Number: 35

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: JD
 Checked by: CFB
 Drawn by: LK
 Date: SEPT 2008

Corrected by: ANTHONY BOUCHARD
 Approved by: MWRD Assistant Chief Engineer

Reviewed by: EPC
 Scale: 1/8"=1'-0"

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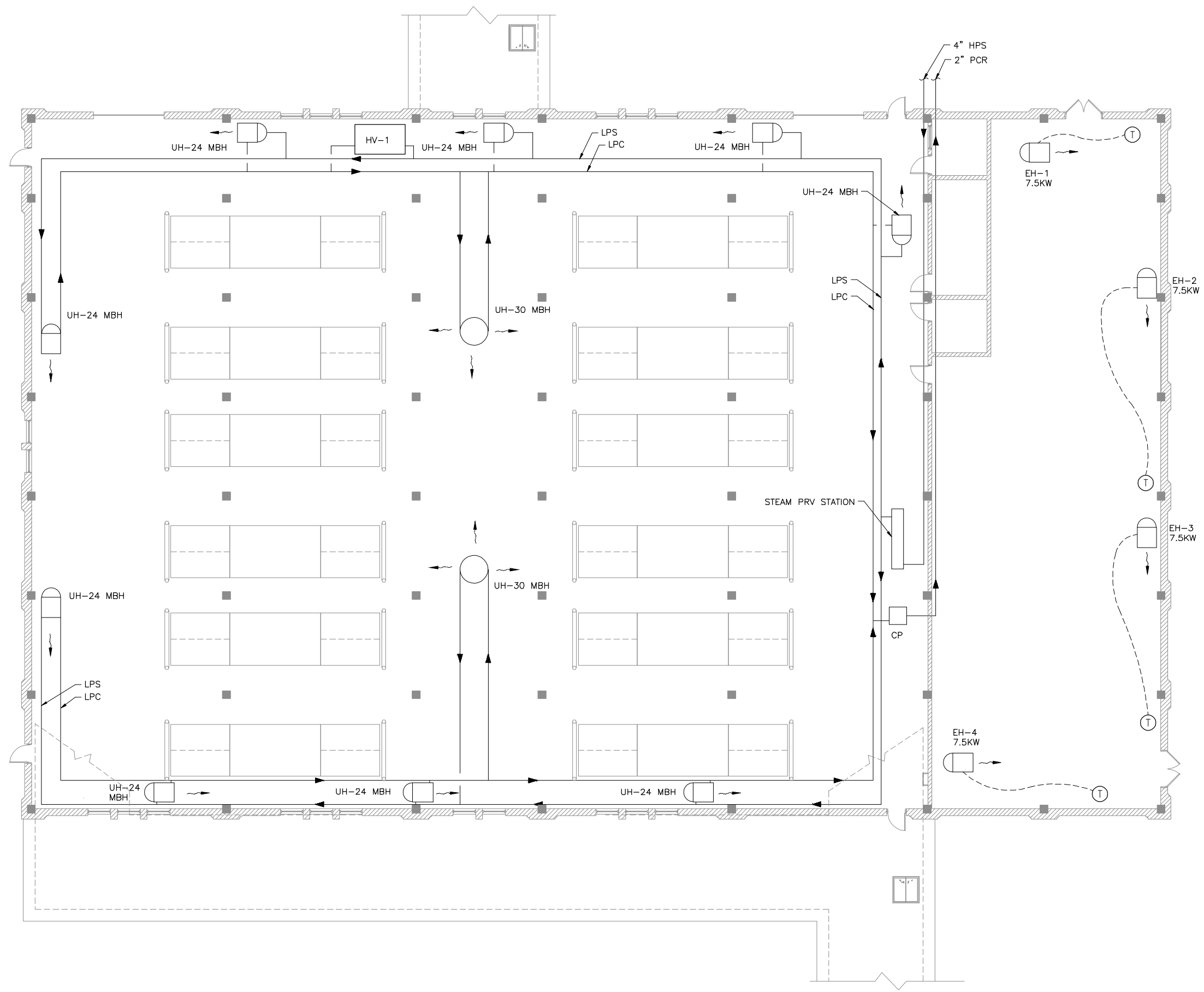
CONTRACT 07-026-2P
 STICKNEY WATER RECLAMATION PLANT
 ULTRAVIOLET DISINFECTION FACILITIES
UV DISINFECTION BUILDING
PLUMBING PLAN

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Seal

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 Page Number: 36

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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

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 Date: SEPT 2008

Corrected by: ANTHONY BOUCHARD
 Approved by: MWRD Assistant Chief Engineer

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

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 Tel: 312.291.0000 Fax: 312.291.1100 www.cte.com

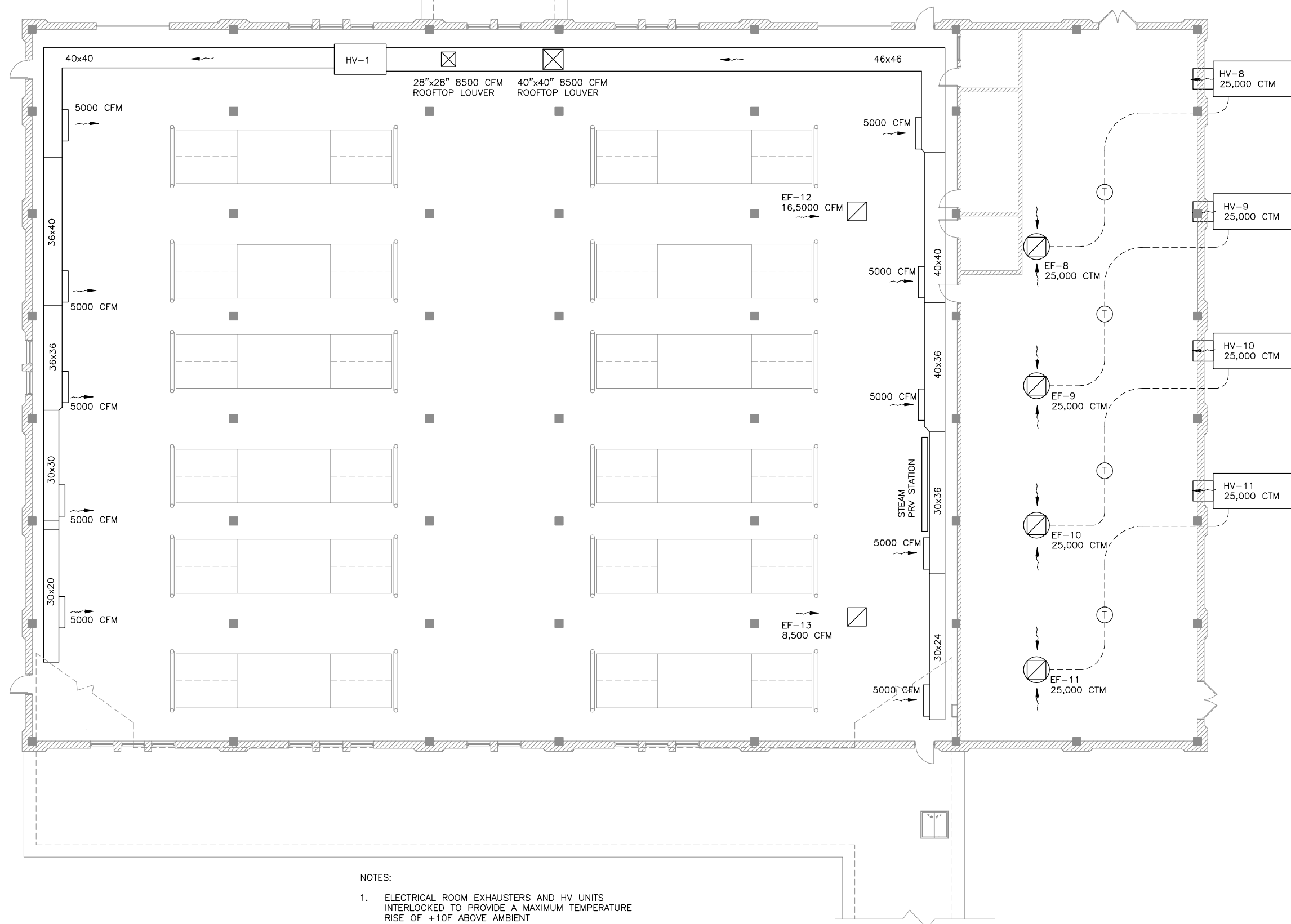
CONTRACT 07-026-2P
 STICKNEY WATER RECLAMATION PLANT
 ULTRAVIOLET DISINFECTION FACILITIES
 UV DISINFECTION BUILDING
 HEATING PLAN

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Seal

Sheet Number:
M-202
 Page Number: 37

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- NOTES:
1. ELECTRICAL ROOM EXHAUSTERS AND HV UNITS INTERLOCKED TO PROVIDE A MAXIMUM TEMPERATURE RISE OF +10F ABOVE AMBIENT
 2. UV REACTOR TO BE VENTILATED AT 2 AIR CHANGES DURING NORMAL AND IDLE OPERATIONS, YEAR ROUND. SIX AIR CHANGES AVAILABLE FOR OPERATOR SELECTION IN THE SUMMER MONTHS.

Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: JD
 Checked by: CFB
 Drawn by: LK
 Date: SEPT 2008

Corrected by: ANTHONY BOUCHARD
 Approved by: MWRD Assistant Chief Engineer

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

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CONTRACT 07-026-2P
 STICKNEY WATER RECLAMATION PLANT
 ULTRAVIOLET DISINFECTION FACILITIES

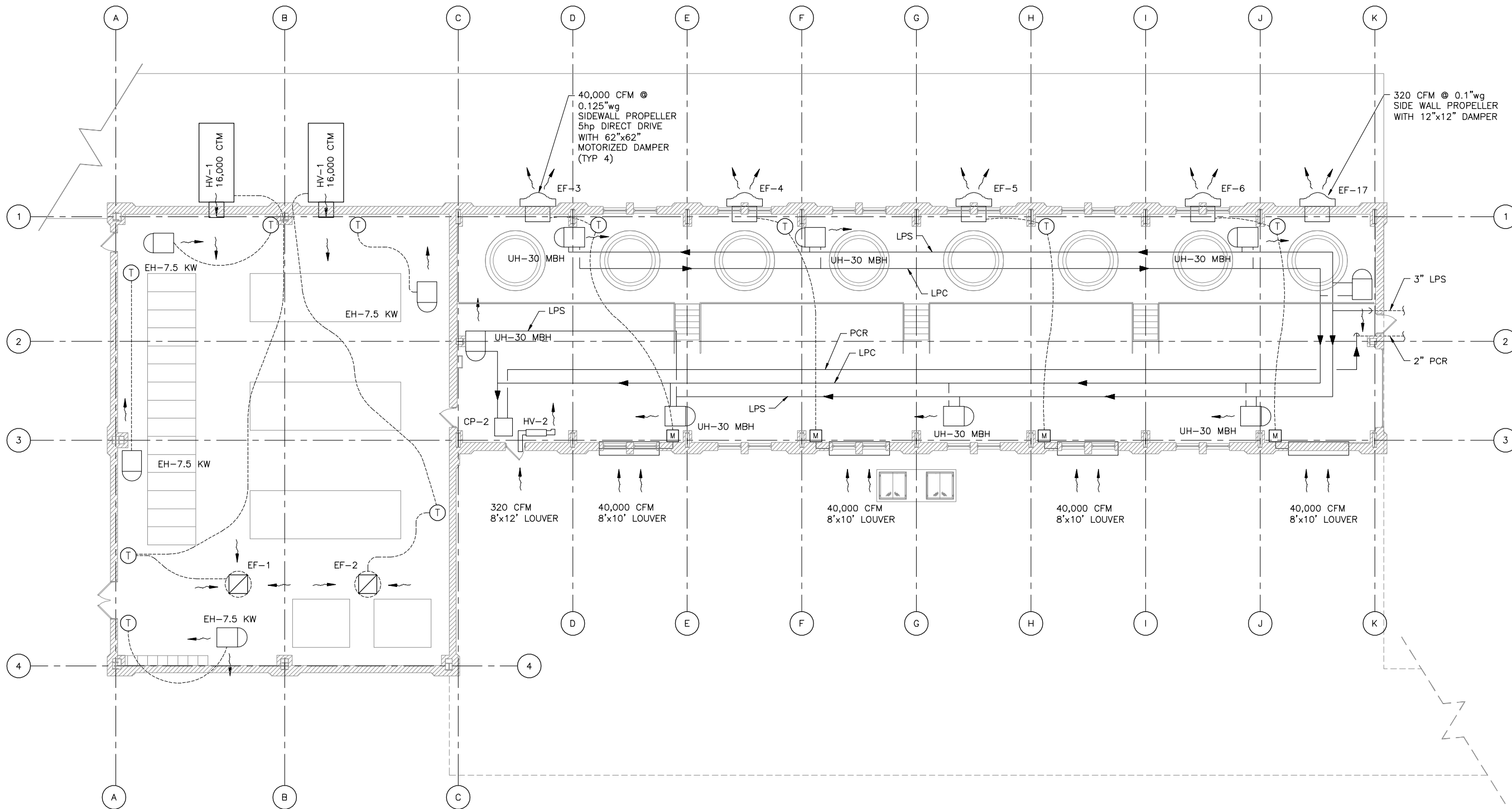
UV DISINFECTION BUILDING
 HVAC VENTILATION PLAN

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Seal

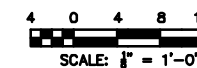
Sheet Number:
M-203
 Page Number: 38

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NOTES:

1. ELECTRICAL ROOM EXHAUSTERS AND HV UNITS INTERLOCKED TO PROVIDE A MAXIMUM TEMPERATURE RISE OF +10F ABOVE AMBIENT.
2. PUMP ROOM EXHAUSTERS TO PROVIDE A TEMPERATURE RISE OF +15F ABOVE AMBIENT.



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Seal

Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Approved: ANTHONY BOUCHARD
MWRD Assistant Chief Engineer

Checked by: CFB
Designed by: JD

Reviewed by: EPC
Drawn by: LK

Date: SEPT 2008

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

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CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES

LOW LIFT PUMP STATION
HVAC LEVEL PLAN

Sheet Number:
M-302

Page Number: 40

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ELECTRICAL PLAN SHEET

SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION
	Single Pole Toggle Switch (Number Indicates Mounting Height, If No Number Is Shown, See Specifications)	$\frac{1}{2}$ +48	2 - Pole Toggle Switch (Number Indicates Mounting Height, If No Number Is Shown, See Specifications)
	Two Pole Toggle Switch (Number Indicates Mounting Height, If No Number Is Shown, See Specifications)	$\frac{1}{2}$ +48	3 - Pole Toggle Switch (Number Indicates Mounting Height, If No Number Is Shown, See Specifications)
	Bracket Mounted Incandescent Or High Intensity Discharge Fixture As Shown In Fixture Schedule	$\frac{1}{2}$ +48	4 - Pole Toggle Switch (Number Indicates Mounting Height, If No Number Is Shown, See Specifications)
	Incandescent Or H.I.D. Type Fixture As Shown In Fixture Schedule. See Note No. 3.	$\frac{1}{2}$ +48	Manual Motor Starter Switch W/Overload Protection And Enclosure (Number Indicates Mounting Height, If No Number Is Shown, See Specifications.)
	Fluorescent Lighting Fixture As Shown In Fixture Schedule. See Note No. 3.	$\frac{1}{2}$ +48	Single Pole Dimmer Switch (Number Indicates Mounting Height, If No Number Is Shown, See Specifications)
	Exit & Directional Sign As Shown In Fixture Schedule	$\frac{1}{2}$ +48	Key Operated Switch (Number Indicates Mounting Height, If No Number Is Shown, See Specifications)
	Duplex GFI Receptacle (Number Indicates Mounting Height, If No Number Is Shown, See Specifications)	$\frac{1}{2}$ +48	Battery Powered Emergency Lighting Fixture
	Single Convenience Receptacle (Number Indicates Mounting Height, If No Number Is Shown, See Specifications)	$\frac{1}{2}$ +48	Unit Heater
	Duplex Convenience Receptacle (Number Indicates Mounting Height, If No Number Is Shown, See Specifications)	$\frac{1}{2}$ +48	Alarm Horn
	Welding Receptacle And Enclosed Fusible Disconnect Switch, 3P-60A, 600V, Nema 4, Unless Noted Otherwise. (Number Indicates Mounting Height, Unless Noted Otherwise.) Crouse-Hinds WSR6351.	$\frac{1}{2}$ +48	Speaker
	Special Purpose Explosion Proof Receptacle As Shown In Fixture Schedule.	$\frac{1}{2}$ +48	Smoke Detector (Ionization Type)
	Duplex Receptacle Installed As Part Of Cabinetry Or Furniture. Connect As Required By Manufacturer.	$\frac{1}{2}$ +48	Rate Of Rise Heat Detector
	Floor Mounted Duplex Convenience Receptacle With Adjustable Floor Box, Plate, And Carpet Flange Where Required.	$\frac{1}{2}$ +48	Manual Fire Alarm Pull Station
	Voice System Outlet. "W" Denotes Wall Mounted.	$\frac{1}{2}$ +48	Fire Alarm System Horn
	Data System Outlet. "W" Denotes Wall Mounted.	$\frac{1}{2}$ +48	Combustible Gas Detector
	Telephone Utility System Outlet Installed As A Part Of Cabinetry Or Furniture. Connect As Required By Manufacturer.	$\frac{1}{2}$ +48	Color Camera
	Telephone	$\frac{1}{2}$ +48	Exposed Conduit
	Lighting Panel	$\frac{1}{2}$ +48	Underground Duct As Noted
	Remote Telemetry System Cabinet	$\frac{1}{2}$ +48	Conduit Concealed In Floor Slab Or Under Floor Slab. (Conduits 1-1/4" Or Larger Shall Be Installed Under Floor Slab). Conduits Run Under Floor Slab Shall Be Encased In Concrete.
	Telephone Utility System Distribution Panel	$\frac{1}{2}$ +48	Homarus As Indicated In Conduit, Cable And Wire Tubulation. "####" Denotes Conduit Number. See Conduit, Cable And Wire Tubulation Sheets For Items Designated With 4 Conduit Number. "xxxx" Denotes The Panel To Homarus To Conduit 1" Or Smaller May Be Installed In Slab. Homarus To Panels As Indicated Shall Conform To Note No. 3 Below. See Panelboard Schedules And Plan Sheets For Circuiting.
	Cabinet Or Pull Box	$\frac{1}{2}$ +48	Existing Conduit And Wire Shall Remain
	Unfused Safety Switch, 3P-30A, 600V, In Nema 4 Stainless Steel Enclosure, Unless Otherwise Noted.	$\frac{1}{2}$ +48	Existing Conduit, Wire, Boxes, Etc., Which Shall Be Removed.
	Fused Safety Switch, 3P-30A, 600V, In Nema 4 Stainless Steel Enclosure, Unless Otherwise Noted.	$\frac{1}{2}$ +48	Existing Conduit Which Shall Be Abandoned, Disconnect And Remove Existing Conductors. Cut Off Conduit Flush W/Finished Surface And Fill W/Grout.
	Outlet Or Junction Box	$\frac{1}{2}$ +48	Existing Conduit Which Shall Be Reused. Remove Existing Conductors And Install New Conductors As Indicated Or Noted On Plans.
	Combination Protective Device And Magnetic Starter	$\frac{1}{2}$ +48	Ground Rod
	Single Unit Pushbutton Station	$\frac{1}{2}$ +48	Electrical Handhole
	2-Unit Pushbutton Station	$\frac{1}{2}$ +48	Electrical Manhole
	3-Unit Pushbutton Station	$\frac{1}{2}$ +48	
	Electric Motor - "Number" Indicates Approximate Horsepower, "F" Denotes Fractional Horsepower.	$\frac{1}{2}$ +48	
	Generator	$\frac{1}{2}$ +48	
	Alarm Station Including Relay Enclosure And Alarm Beacon With Horn. "R" Denotes Remote Alarm Beacon With Horn Only. See Electrical Details.	$\frac{1}{2}$ +48	
	"Hand-Off-Automatic" Selector Switch	$\frac{1}{2}$ +48	
	Vacuum Switch	$\frac{1}{2}$ +48	
	Limit Switch	$\frac{1}{2}$ +48	
	Flow Switch	$\frac{1}{2}$ +48	
	Pressure Switch	$\frac{1}{2}$ +48	
	Door Switch	$\frac{1}{2}$ +48	
	Torque Switch	$\frac{1}{2}$ +48	
	Pneumatic/Electric Switch	$\frac{1}{2}$ +48	
	Safety Pull Cord	$\frac{1}{2}$ +48	
	Control Station (See Electrical Details)	$\frac{1}{2}$ +48	
	Float Switch	$\frac{1}{2}$ +48	
	Electro-Pneumatic Valve	$\frac{1}{2}$ +48	
	Solenoild Valve	$\frac{1}{2}$ +48	
	Electric Thermostat	$\frac{1}{2}$ +48	
	Electric Damper Motor	$\frac{1}{2}$ +48	
	Temperature Actuated Device	$\frac{1}{2}$ +48	
	PhotoCell	$\frac{1}{2}$ +48	

CONDUIT SYSTEM NOTES

- Conduits Imbedded In Structural Concrete (Floor Slabs, Etc.) Shall Be So Located As Not To Unduly Impair The Strength Of The Construction And Shall Be Spaced Not Less Than Two Times The Conduit O.D. Between Adjacent Conduits Except Where Crossing Or Otherwise Approved By The Engineer. Spacing Between Adjacent Conduits Of Different Sizes Shall Be Based On The Larger Conduit. Locate Conduits In Center Of Slab. Maximum Conduit O.D. Size Imbedded In Concrete Slab And Walls Shall Not Exceed 1/5 Of The Slab Or Wall Thickness. Conduit Shall Not Go Through Beams Or Lintels Over Openings Without Approval Of The Engineer. Spacing Of Conduits For Existing Construction Shall Be As Noted Above For New Construction. Any Structural Modifications Required Shall Be Done At No Cost To The Owner.
- Any Conduit Without Further Designation, Indicates 2#12 In 3/4 Inch Conduit. Greater Number Of Wires Are Indicated As Follows: (3-wire) (4-wire) Etc. Longer Hatchmark Indicates Neutral Conductor.
- Wiring For Lighting, Receptacles And Other Miscellaneous Circuits Shall Be 2 #12-3/4" C. (Minimum) And Shall Conform To The Circuiting Indicated On The Drawings With Additional Conductors, Conduits, Arrangement And Routing As Required For A Complete And Functional System. The Wiring Shall Be So Arranged That No More Than Six Current Carrying Conductors Shall Be Installed Per Conduit And Circuits Of Different Panels Shall Be Installed In Separate Raceways.

SCHEMATIC WIRING DIAGRAMS

SYMBOLS	DESCRIPTION
	Contact, Normally Open
	Contact, Normally Closed
	L.O.S.
	Pushbutton, Lock Out Stop
	Pushbutton, Normally Closed
	Pushbutton, Normally Open
	Selector Switch - "Hand-Off-Auto", Unless Otherwise Noted.
	Pushbutton, Maintained Contact, Double Circuit
	Overloads
	Fuse
	Switch
	Pilot Light (Push To Test)
	Manual Motor Starter
	Auxiliary Starter Contacts
	Pressure Switch, Opens On Rise
	Pressure Switch, Closes On Rise
	Limit Switch, Normally Closed
	Limit Switch, Normally Open
	Limit Switch, Normally Open, Held Closed
	Limit Switch, Normally Closed, Held Open
	Temperature Actuated Switch, Opens On Rise
	Temperature Actuated Switch, Closes On Rise
	Vacuum Switch, Opens On Rise
	Vacuum Switch, Closes On Rise
	Flow Switch (Closes With Flow)
	Flow Switch (Opens With Flow)
	Float Operated Switch, Opens On Rise
	Float Operated Switch, Closes On Rise
	Torque Switch (Opens On Increase)
	Torque Switch (Closes On Increase)
	Overload
	Located Remote
	Located At Motor
	New Device To Be Provided
	Located At Unitized Control Panel (UCP)
	Located At Process Control Panel
	Motorized Time Delay Relay
	Time Delay Relay
	Starter Coil
	Control Relay
	Elapsed Time Meter
	Electric Damper Motor
	Ductstart
	Adjustable Timer

SINGLE LINE DIAGRAMS

SYMBOLS	DESCRIPTION
	Voltmeter
	Ammeter
	Voltmeter Switch
	Ammeter Switch
	Microprocessor Metering Unit
	Phase Fail Relay
	Watts Transducer (Power)
	Variable Frequency Controller
	Transformer, Power Or Control
	Transformer, Grounded
	Capacitor (Three Phase)
	Surge Arrestors (Three)
	Neutral, Motor Or Generator
	Power Factor Meter
	Temperature Meter
	Voltammeter
	Wattour Meter
	Wattour Demand Meter
	Instrument Transfer Switch
	Ground Fault Relay
	Key Interlock
	Thermal Magnetic Circuit Breaker Or Motor Circuit Protector (Number Indicates Trip Ratio)
	Fuse (Number Indicates Ampere Rating)
	Zonal Grounding
	Switch As Specified (Indicates Electric Operator)
	Molded Case Circuit "Breaker", Or Motor Circuit Protector, Magnetic Starter, Control Transformer, Aux. Contacts, Etc. As Specified (Number Indicates Trip Rating). "F" Indicates Forward And "R" Indicates Reverse Contactor.
	Fused Switch Magnetic Starter; Control Transformer, Aux. Contacts, Etc. As Specified (Number Indicates Ampere Rating)
	Current Transformer (CT) (Subscript Indicates Quantity And Ratio)
	Current Transformer, Ring Or Doughnut Type. (Number Indicates Ratio)
	Potential Transformer (Number Indicates Ratio)
	Circuit Breaker (Over 600V)
	Fuse And Contactor (Over 600V) With Disconnect Provision
	Separable Connectors
	Cable Terminators
	Indicating Light
	Space Heater
	Resistance Temperature Detector
	Electric Motor - "Number" Indicates Approximate Horsepower. "F" Denotes Fractional Horsepower.

SINGLE LINE DIAGRAMS

	Miscellaneous Control, Metering And Instrumentation Device
	Replace The Asterisk With One Of The Following Letters
25	Synchronizing Check
27	Undervoltage
32	Reverse Power
47	Phase Sequence
49	Thermal
50	Instantaneous Overcurrent
51	AC Time Overcurrent
52	AC Power Circuit Breaker
55	Power Factor
60	Voltage Or Current Balance
82	Time Delay
84	Ground
87	Directional Overcurrent
88	Lockout
87	Differential Current
94	Transfer Trip
AM	Ammeter
AH	Amper-Hour Meter
C	Coulombmeter
CMA	Contact-Making (Or Breaking) Ammeter
CMC	Contact-Making (Or Breaking) Clock
CMV	Contact-Making (Or Breaking) Voltmeter
CRD	Oscilloscope Cathode-Ray Oscillograph
CS	Breaker Control Switch
DT	Duty Transfer Switch
DB	Db (Decibel) Meter Audio Level/Meter
DBM	Dbm (Decibels Referred To 1 Milliwatt) Meter
DBX	Dead Bus Auxiliary
DM	Demand Meter
DTR	Demand-Totalizing Relay
F	Frequency Meter
FPR	Feeder Protect Relay
G	Device In Ground Circuit
GD	Ground Detector
GSR	Ground Sensing Relay
IR	Interpoiling
I	Indicating Meter
INT	Integrating Meter
K	Key Interlock
LDR	Lockout Relay
UA	Microammeter
MM	Microprocessor Metering
MMA	Microprocessor Metering And Analyzer
MR	Microprocessor Relay
MS	Metering System
MA	Milliammeter
N	Device In Neutral Circuit
NM	Noise Meter
OHM	Ohmmeter
OP	Oil Pressure Meter
OSCO	Oscillograph, String
PF	Power Factor Meter
PFR	Phase Fail Relay
PH	Phasemeter
PI	Position Indicator
PSR	Phase Sensing Relay
RD	Recording Demand Meter
REC	Recording Meter
RF	Reactive Factor Meter
SY	Synchroscope
SS	Selector Switch
TM	Elapsed Time Meter
TMR	Timer
T	Temperature Meter
THC	Thermal Converter
TLM	Telemeter
TS	Test Switches
TT	Total Time Meter, Elapsed Time Meter
VM	Voltmeter
VA	Volt-Ammeter
VAR	Varmeter
VARH	Varhour Meter
VI	Volume Indicator
VU	Audio-Level Meter
W	Standards Volume Indicator
WH	Audio-Level Meter
WHD	Wattmeter
WT	Wattour Meter
X	Wattour Demand Meter
	Auxiliary

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Contract: Approved by: ANTHONY BOUCHARD MWRD Assistant Chief Engineer

Designed by: DES/BW Checked by: CFB Reviewed by: EPC Date: SEPT 2008

Drawn by: MB Scale: NTS

CTE AECOM

CONTRACT 07-026-2P

STICKNEY WATER RECLAMATION PLANT

ULTRAVIOLET DISINFECTION FACILITIES

UV DISINFECTION FACILITIES ELECTRICAL LEGEND

Seal

Sheet Number: E-001

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Electronic Filing - Received, Clerk's Office, October 20, 2008

ELECTRICAL ABBREVIATIONS	
A	Ampere
AC	Alternating Current
ACC	AC Controller
AF	Circuit Breaker Frame Size (Amperes)
AFF	Above Finished Floor
AHU	Air Handling Unit
AIC	Ampere Interrupting Capacity
AM	Ammeter
AP	Auxiliary Panelboard
AS	Ammeter Switch
AT	Circuit Breaker Trip Rating (Amperes)
ATS	Automatic Transfer Switch
AWG	American Wire Gage
B	Boiler
BAS	Building Automation System
BATT	Battery Or Batteries
BFP	Boiler Feed Pump
BP	By Pass
BKR	Breaker Or Breakers
C	Conduit
CB	Circuit Breaker
CCTV	Closed Circuit Television
CEC	Chicago Electrical Code
CKT	Circuit
CLG	Celling
COMED	Commonwealth Edison Company
CP	Control Panel
CT	Current Transformer
CTR	Contacto
DC	Direct Current
DCC	DC Controller
DCL	DC Link
DCS	Data Control System
DEH	Dehumidifier
DP	Distribution Panelboard
DN	Down
DP	Distribution Panel
DS	Disconnect Switch
DSS	Door Security System
DT	Day Tank
DWG	Drawing
E	Existing To Remain
EF	Exhaust Fan
EG	Equipment Ground
EL	Elevation
ELEC	Electrical
ELEV	Elevator
ELP	Emergency Lighting Panelboard
EM	Emergency
EMT	Electrical Metallic Tubing
EO	Electrically Operated
EQUIP	Equipment
ER	Existing To Be Relocated
EUH	Electric Unit Heater
EWC	Electric Water Cooler
EWB	Electric Water Heater
EXIST	Existing
EXPL	Explosion Proof

ELECTRICAL ABBREVIATIONS (CONT.)	
F	Fuse Or Fuses
FAPP	Field Application Panel
FCP	Fire Alarm Control Panel
FD	Forced Draft Fan
FDR	Feeder
FLUOR	Fluorescent
FO	Fiber Optic
FRE	Fiberglass Reinforced Epoxy
G	Ground Wire
GBC	Generator Battery Charger
GC	Generator Controller
GEN	Generator
GFI	Ground Fault Circuit Interrupter
GFF	Gas Fired Furnace
GMPC	Generator Master Paralleling Controller
GPC	Generator Paralleling Controller
GRD	Ground
GRS	Galvanized Rigid Steel
GSB	Generator Starting Battery
GSLC	Generator Switchgear Logic Controller
HP	Horsepower
HTR	Heater
HZ	Hertz
IDF	Induced Draft Fan
IG	Isolated Ground
INCAND	Incandescent
IP	Instrument Panelboard
I/O	Input/Output
IT	Input Transformer
JB	Junction Box
K	Kirk Key Interlock
kmil	One Thousand Circular Mils
KV	Kilovolt
KVA	Kilovolt-Ampere
KW	Kilowatt
L	Load
LB	Load Bank
LC	Lighting Contactor
LOS	Lock-Out-Stop
LP	Lighting Panelboard
LS	Limit Switch
LTG	Lighting
M	Meter
MC	Momentary Contact
MF	Motor Field
MM	Microprocessor Metering
MMA	Microprocessor Metering And Analyzer
MCB	Main Circuit Breaker
MCC	Motor Control Center
MLO	Main Lug Only
MSLC	Main Switchgear Logic Controller
MSC	Main Switchgear Console
MTD	Mounted
MTG	Mounting
MTS	Manual Transfer Switch
MTU	Master Telemetry Unit
MVA	Million Volt Ampere

ELECTRICAL ABBREVIATIONS (CONT.)	
N	Normal Source
NC	Normally Closed
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NEUT	Neutral
NO	Normally Open
NTS	Not To Scale
OBPC	Output/By-Pass Contactor
OL	Overload
P	Pole
PA	Public Address
PB	Pullbox
PC	Photocell
PF	Power Factor
PGRS	Polyvinyl Chloride Coated Galvanized Rigid Steel
PH	Phase
PLC	Programmable Logic Controller
PM	Pump Motor
PNL	Panel
PP	Power Panelboard
PRI	Primary
PT	Potential Transformer
PVC	Polyvinyl Chloride
PWR	Power
REF	Return/Exhaust Fan
REC	Receptacle
RGS	Rigid Galvanized Steel
RP	Receptacle Panelboard
RR	Existing In Relocated Position
RTU	Remote Telemetry Unit
S	Speaker
SAP	Security Alarm Panel
SB	Stand-By
SBC	Station Battery Charger
SCADA	Supervisory Control And Data Acquisition
SCP	Steam Condensate Pump
SEC	Secondary
SF	Supply Fan
SMP	Sump Pump
SP	Supplemental Panelboard
SS	Stainless Steel
ST	Shunt Trip
STCP	Storage Tank Control Panel
SW	Switch
SWGR	Switchgear
T	Transformer
TEL	Telephone
TB	Termination Box With Termination Strips
TDC	Time Delay Contact
TDR	Time Delay Relay
TEF	Toilet Exhaust Fan
TTB	Telephone Terminal Board
TTC	Telephone Terminal Cabinet
TYP	Typical
UG	Underground

ELECTRICAL ABBREVIATIONS (CONT.)	
UH	Unit Heater
UL	Underwriters Laboratories, Inc.
UNO	Unless Noted Otherwise
UPS	Uninterruptible Power System
USS	Unit Secondary Substation
UTP	Unshielded Twisted Pair
V	Volt
VA	Volt Ampere
VFC	Variable Frequency Controller
VFD	Variable Frequency Drive
VFDC	Variable Frequency Drive Controller
VM	Voltmeter
VS	Voltmeter Switch
W	Wire
(W)	Watt
WHM	Wattour Meter
WP	Weatherproof Device
X	Existing To Be Removed

ELECTRICAL EQUIPMENT LEGEND

ATS-XX1	Automatic Transfer Switch
AHU-XX1	Air Handling Unit
B-XX1	Boiler
BFP-XX1	Boiler Feed Pump
DP-XX1	Distribution Panelboard
DS-XX1	Disconnect Switch
EF-XX1	Exhaust Fan
ELP-XX1	Emergency Lighting Panelboard
EUH-XX1	Electric Unit Heater
EWC-XX1	Electric Water Cooler
EWB-XX1	Electric Water Heater
GEN-XX1	Generator
GFF-XX1	Gas Fired Furnace
GCPR-XX1	Gas Compressor
IDF-XX1	Boiler Induced Draft Fan
LP-XX1	Lighting Panelboard
MCC-XX1	Motor Control Center
PACE-XX	Public Address Control Equipment
PM-XX1	Pump Motor
PP-XX1	Power Panelboard
REF-XX1	Return/Exhaust Fan
RP-XX1	Receptacle Panelboard
SCP-XX1	Steam Condensate Pump
SF-XX1	Supply Fan
SP-XX1	Sump Pump
SWGR-XX1	Switchgear
T-XX1	Transformer
TEF-XX1	Toilet Exhaust Fan
UH-XX1	Unit Heater
USS-XX1	Unit Secondary Substation
VFD-XX1	Variable Frequency Drive
VS-XX	Conduit Schedule

Suffix Designation - XX1
 XX = Section/Service
 EM = Emergency
 LB = Load Bank
 UPS = Uninterruptible Power
 SL = Stand-By System, Lighting
 SP = Stand-By System, Power
 1 = Sequential Equipment Numbering

Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Approved: MWPD, Assistant Chief Engineer
 ANTHONY BOUCHARD

Checked by: CFB
 DES/BW

Reviewed by: EPC
 MB

Designed by: DES/BW

Drawn by: MB

Date: SEPT 2008

Scale: NTS

CTE AECOM

1111 S. PULASKI ST., SUITE 200, CHICAGO, ILLINOIS 60607

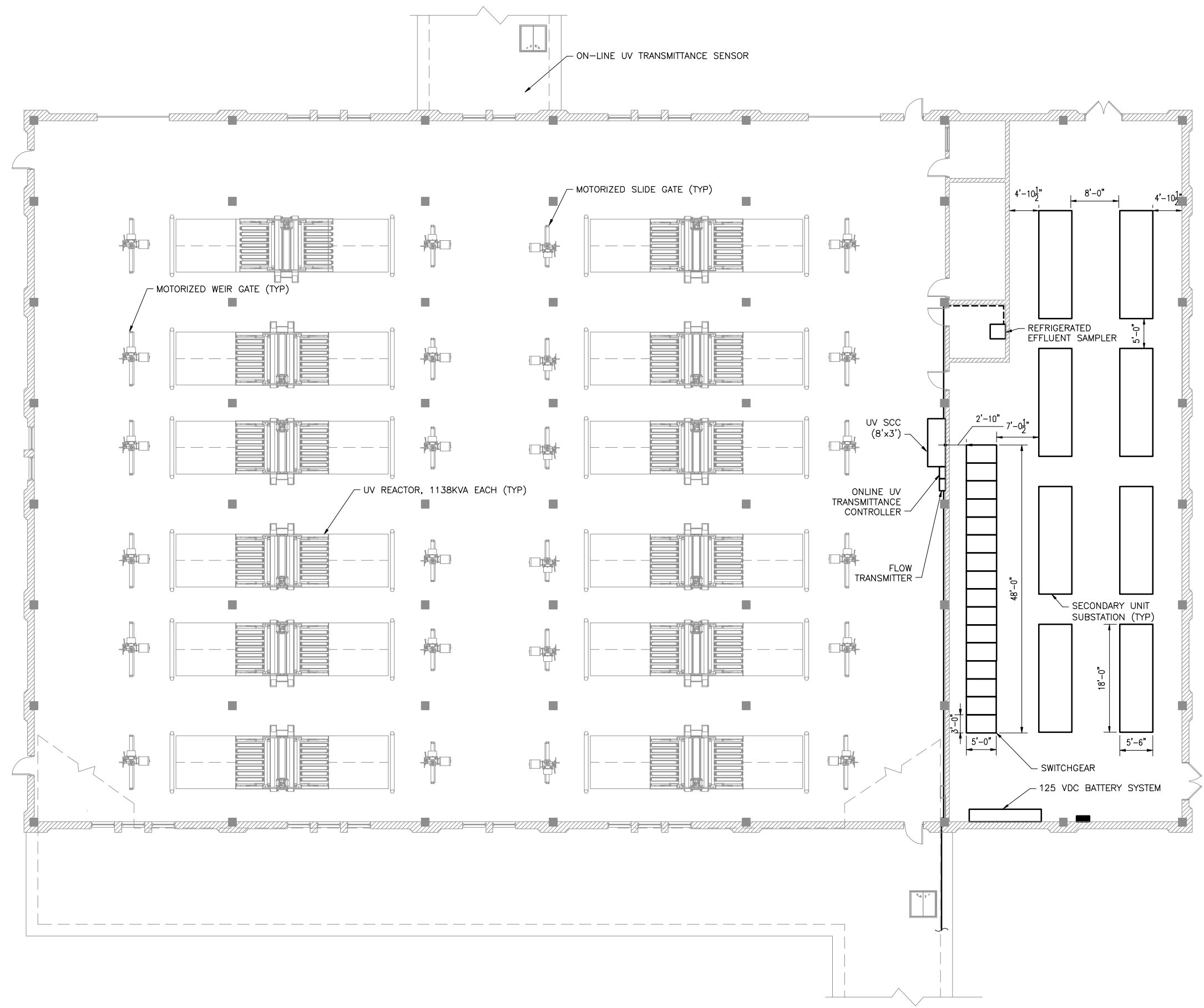
CONTRACT 07-026-2P
 STICKNEY WATER RECLAMATION PLANT
 ULTRAVIOLET DISINFECTION FACILITIES

UV DISINFECTION FACILITIES ELECTRICAL ABBREVIATIONS

Sheet Number:
E-002
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Seal

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PLOT DATE: 9/9/2008 2:27 PM PLOTTED BY: KOSTAMO, LISA

Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: DES
Checked by: CFB
Drawn by: LK
Date: SEPT 2008

Corrected by: ANTHONY BOUCHARD
Reviewed by: EPC
Scale: 1/8"=1'-0"

Approved by: MWRD Assistant Chief Engineer
CTE AECOM

150 East Water Tower, Suite 400, Chicago, Illinois 60611-2278
Tel: 312.291.0200 Fax: 312.291.1100 www.aecom.com

CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES

UV DISINFECTION FACILITY ELECTRICAL PLAN

NOT FOR CONSTRUCTION

Seal

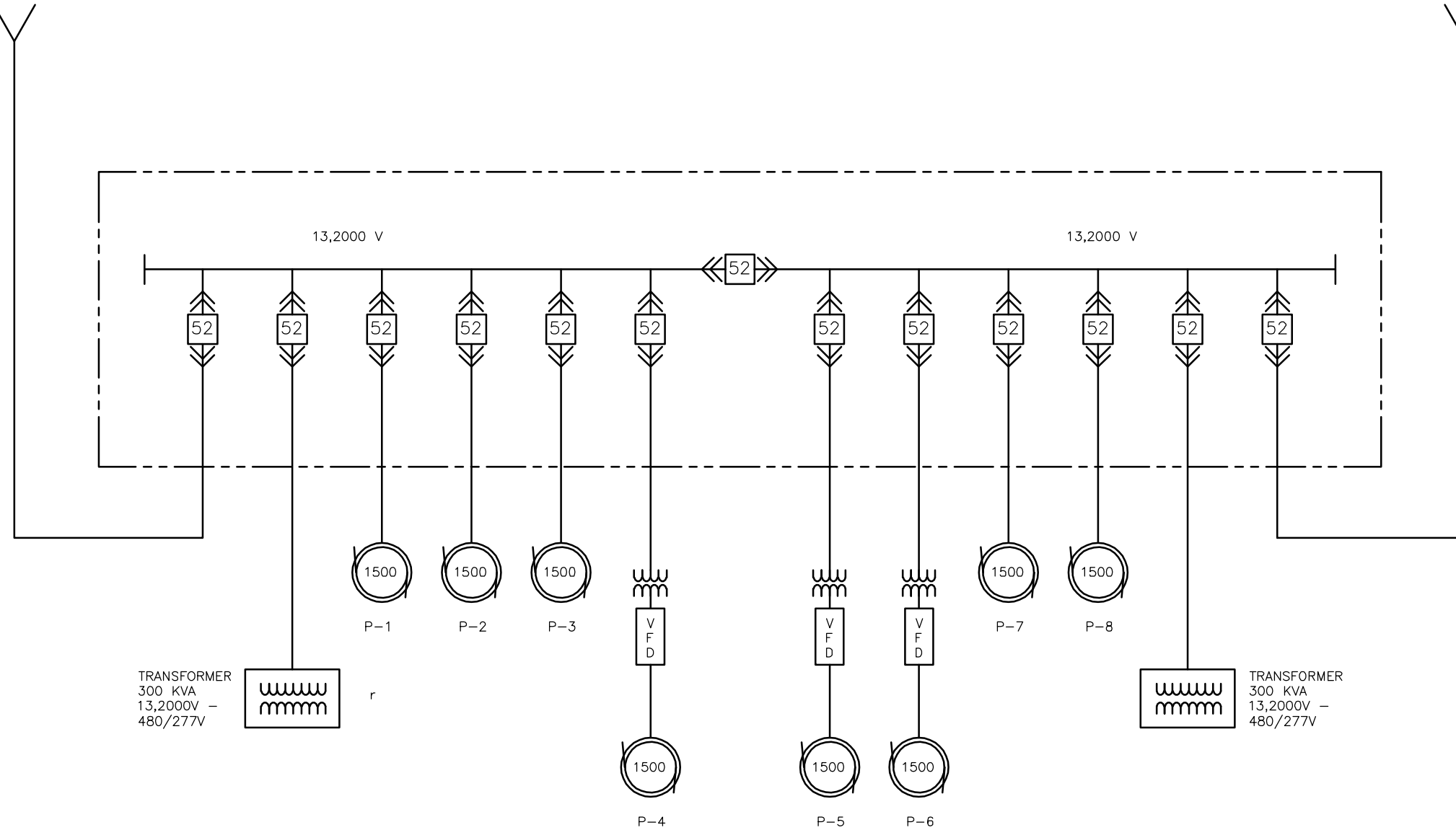
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Page Number: 44

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FROM UV SWITCHGEAR
SEE SHEET E-201

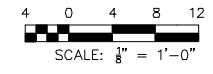
FROM UV SWITCHGEAR
SEE SHEET E-201



TRANSFORMER
300 KVA
13,2000V -
480/277V

TRANSFORMER
300 KVA
13,2000V -
480/277V

1 LOW LEVEL PUMP STATION (LLPS)
SCALE: N.T.S.



Seal

Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: BW/DS
Checked by: CFB
Drawn by: LK
Date: SEPT 2008

Corrected by: ANTHONY BOUCHARD
Reviewed by: EPC
Scale: 1/8"=1'-0"

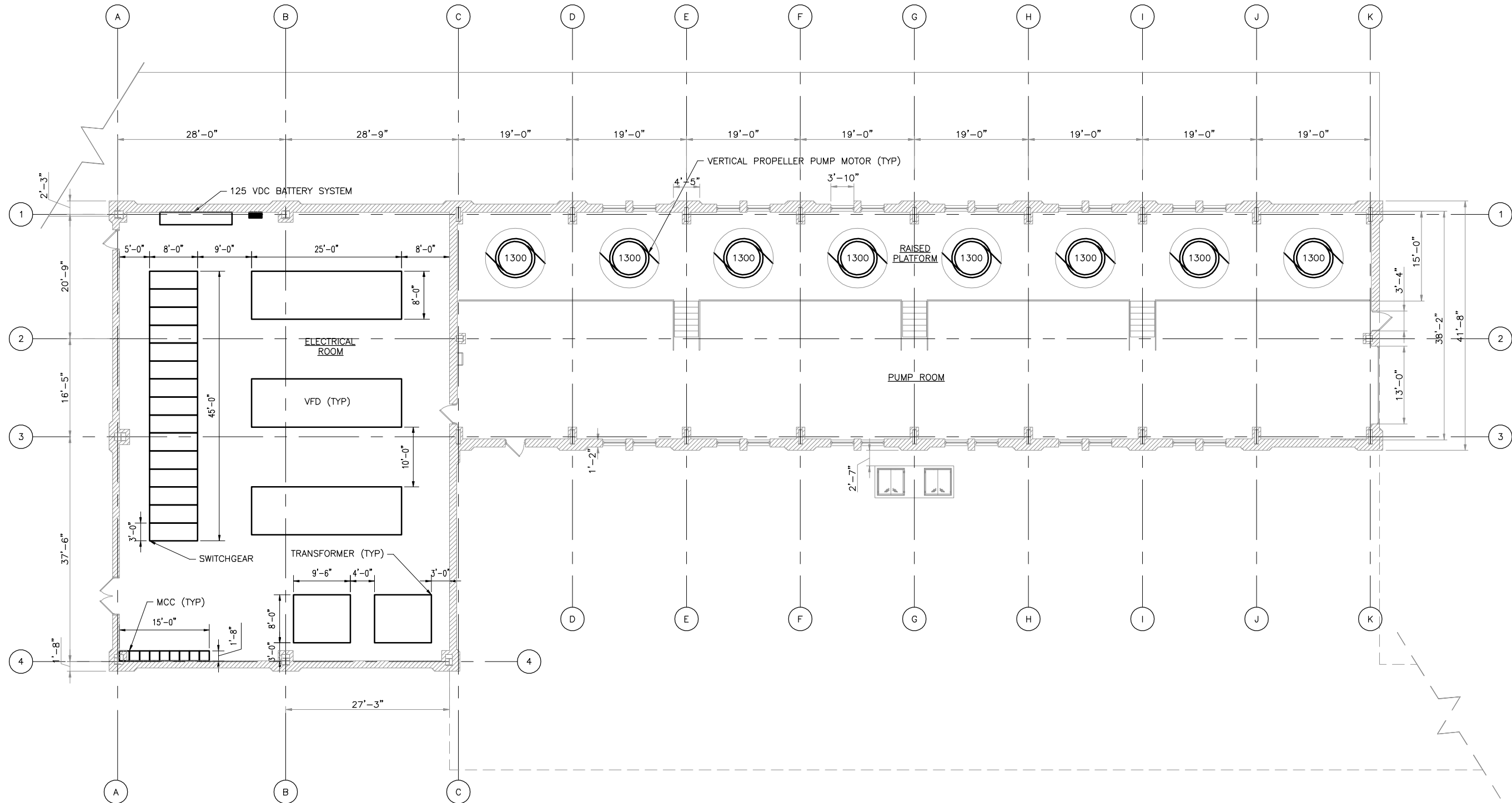
Approved by: MWRD Assistant Chief Engineer
CTE AECOM

535 East Water Tower, Suite 600, Chicago, Illinois 60611-6278
Tel: 312.291.0200 Fax: 312.291.1100 www.mwrd.com

CONTRACT 07-026-2P
STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES
LOW LIFT PUMP STATION
ELECTRICAL PLAN

Sheet Number:
E-301
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Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: DES
 Checked by: CFB
 Drawn by: LK
 Date: SEPT 2008

Corrected by: ANTHONY BOUCHARD
 Approved by: MWRD Assistant Chief Engineer

Reviewed by: EPC
 Scale: 1/8"=1'-0"

CTE AECOM
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CONTRACT 07-026-2P
 STICKNEY WATER RECLAMATION PLANT
 ULTRAVIOLET DISINFECTION FACILITIES
LOW LIFT PUMP STATION
ELECTRICAL PLANS


















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

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







PUMPS

-  Centrifugal - Horizontal Pump
-  Centrifugal - Vertical Pump
-  Diaphragm Pump
-  Double Suction Pump
-  Inline Pump
-  Metering Pump
-  Piston Pump
-  Positive Displacement Pump
-  Progressive Cavity Pump
-  Rotary/Gear Pump
-  Screw Pump
-  Sump Pump
-  Submersible Pump
-  Vertical Axial Flow Pump
-  Vertical Turbine Pump
-  Archimedes Screw Pump
-  Peristaltic Pump/Hose Pump

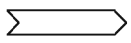






BLOWERS

-  Centrifugal Blower
-  Rotary Blower
-  Centrifugal Compressor
-  Reciprocating Compressor




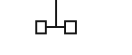
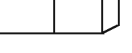
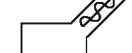


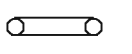
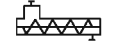

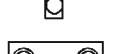
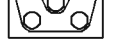




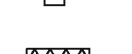

TANKS

-  Storage Tank - Vertical
-  Storage Tank - Horizontal
-  Aeration Tank
-  Sand Filter or Trickling Filter
-  Flat-top Tank/Reservoir
-  Storage Reservoir or Digester - Fixed Cover
-  Digester - Floating Cover
-  Clarifier/Thickener
-  Spheroidal Elevated Tank
















MISCELLANEOUS

-  Flow (DWG Continuation)
-  Interlock
-  Selector Switch
-  Roll-off Container
-  Hopper
-  Liquid or Sludge Hauling Truck
-  Dump Truck
















EQUIPMENT

-  Paddle Mixer
-  Propeller Mixer
-  Turbine Mixer
-  Centrifuge
-  Grit Classifier
-  Compactor
-  Belt Conveyor
-  Screw Conveyor
-  Bucket Elevator
-  Belt Filter Press
-  Sludge Grinder
-  Heat Exchanger - Spiral
-  Heat Exchanger - Plate and Frame
-  Sampler
-  Inline Static Mixer
-  Bar Screen
-  Fine Screen
-  Gravity Belt Thickener
-  Open Channel UV Reactor (Med Press)




















INSTRUMENTS/FLOW DEVICES

-  Area Velocity Meter
-  Averaging Pitot
-  Flow Nozzle
-  Float Type Level Sensor
-  Magmeter
-  Parshall Flume
-  Pitot Tube
-  Propeller/Turbine Meter
-  Restrict Orifice
-  Rotameter
-  Thermal Mass Flowmeter
-  Trapezoidal Flume
-  Ultrasonic Level Sensor
-  Venturi
-  V-Notch Weir




PIPING

-  Blind Flange
-  Drain
-  Clean Out
-  Diaphragm Seal
-  Fire Hydrant
-  Flexible Connection
-  Flexible Hose
-  Quick Connect Coupling
-  Hose Connection (Threaded)
-  Reducer - Concentric
-  Reducer - Eccentric
-  Rubber Expansion Coupling
-  Vent
-  Y-Strainer
-  Yard Hydrant









VALVES

-  Ball Valve
-  Butterfly Valve
-  Check Valve - Swing
-  Cone Valve
-  Diaphragm Valve
-  Gate Valve
-  Globe Valve
-  Knife Valve
-  Angle Valve
-  3 Way Valve
-  4 Way Valve
-  Needle Valve
-  Backflow Preventer
-  Pinch Valve
-  Plug Valve
-  Pressure/Air Relief Valve - Angle
-  Vacuum Breaker Valve (Air Inlet)
-  Pressure Relief Valve - Straight
-  Combination Air/Vacuum Valve



GATES

-  Slide Gate
-  Stop Plate/Lags
-  Weir Gate

VALVE OPERATORS

-  Pneumatic Operator (Cylinder)
-  Diaphragm
-  Pressure Regulating Diaphragm
-  Differential Pressure Regulating Diaphragm
-  Pressure Reducing Diaphragm
-  Motor
-  Solenoid
-  Hydraulic Operator

VALVE NORMAL STATUS

-  or NO Normally Open
-  or NC Normally Closed

LINE DESIGNATIONS

Service Abbreviation
 XX-YYY-ZZZ
 Line Size (Inches) See Note 2.
 Material Abbreviation

EQUIPMENT TAGS

Identification Number
 XX-##
 Equipment Code
 P - Pump C - Compressor
 B - Blower ET - Elevated Tank
 V - Valve T - Tank
 SG - Slide/Weir Gate MX - Mixer
 UVR - UV Reactor D - Digester
 UVM - UV Module S - Screen

- NOTES:
1. Symbology based on Instrument, Systems, Automation Society (ISA) Standards except as modified hereing.
 2. Rectangular channel sizes given as X'-Y"xX'-Y"
 3. Valves shown without operators shall be assumed to include local manual operators.
 4. P&IDs are not intended to show all details of piping, joints, supports, etc. Contractor shall install a complete system per the Contract Documents and as required to provide a fully functioning system.

Rev.	Description	Appr.	Date

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

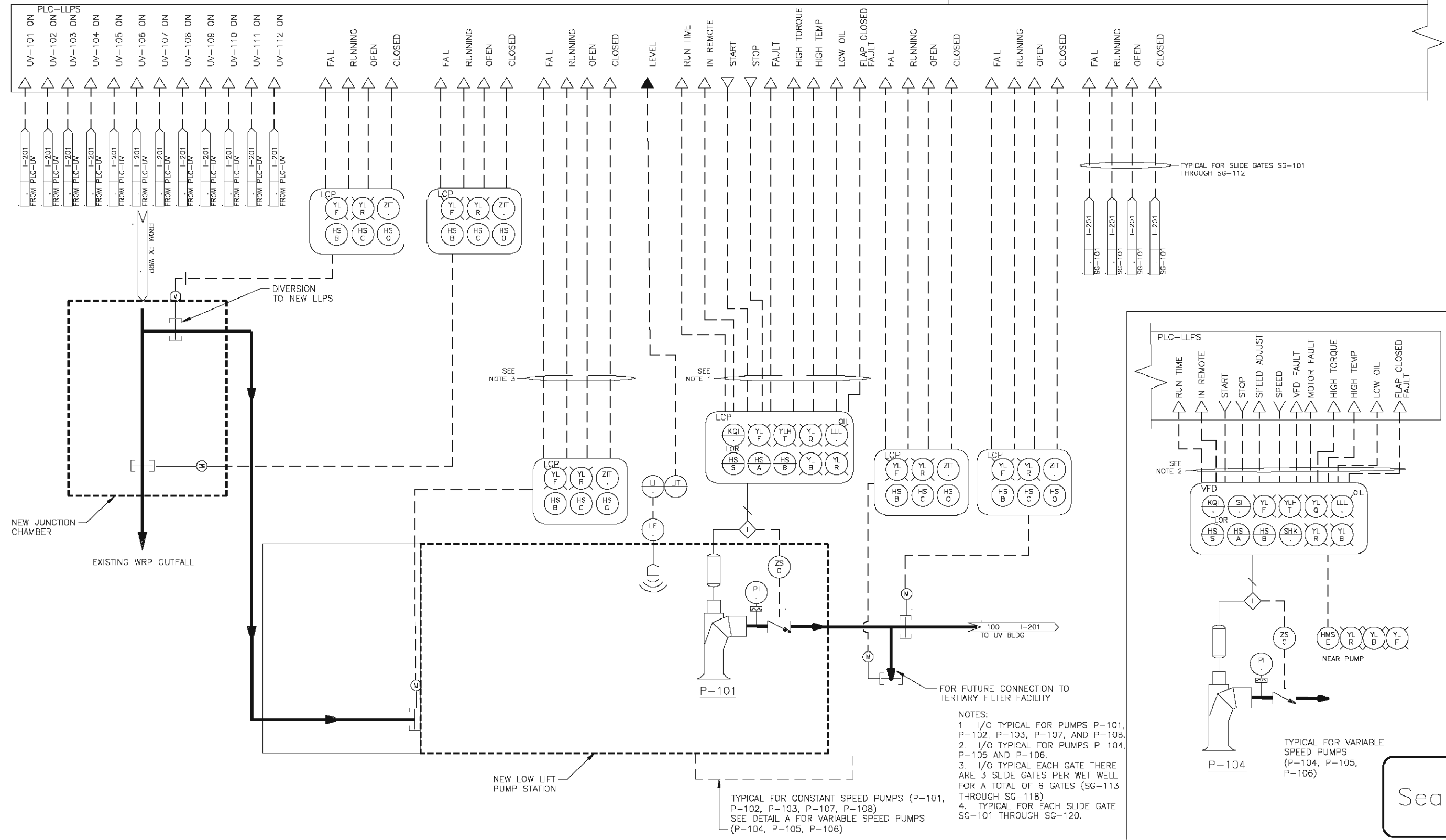
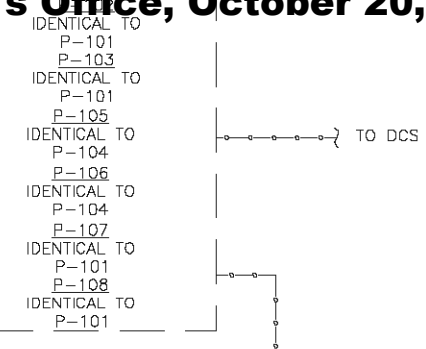
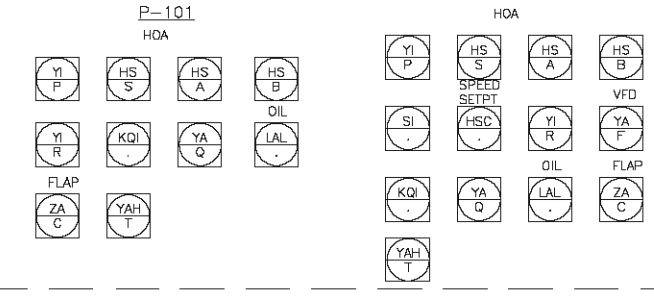
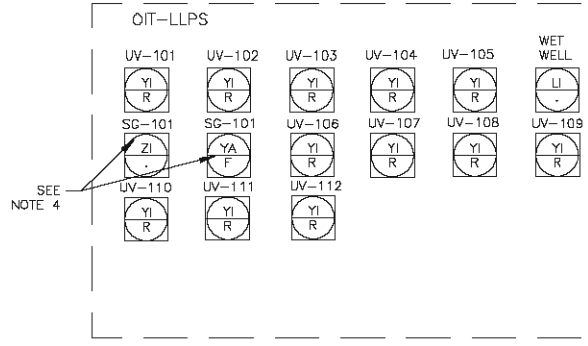
Designed by: EPC	Checked by: CFB	Approved: ANTHONY BOUCHARD MWRD Assistant Chief Engineer
Drawn by: EPC	Reviewed by: EPC	CTE AECOM
Date: SEPT 2008	Scale: NTS	CTE 300 West Wacker Drive, Suite 800, Chicago, Illinois 60601-5279 773.226.6000 FAX 773.226.1100 www.cte.com

CONTRACT 07-026-2P
 STICKNEY WATER RECLAMATION PLANT
 ULTRAVIOLET DISINFECTION FACILITIES
 UV DISINFECTION FACILITIES
 INSTRUMENTATION LEGEND

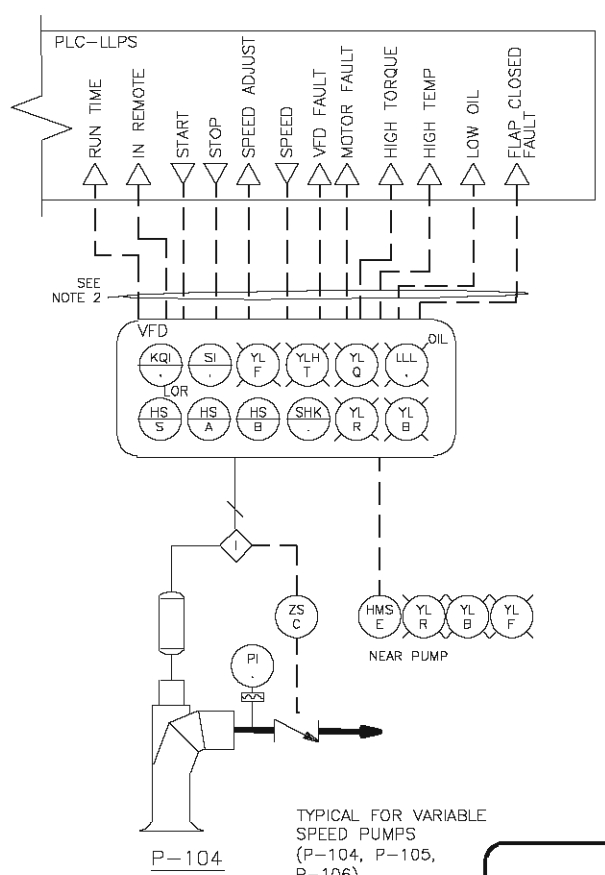
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- NOTES:
1. I/O TYPICAL FOR PUMPS P-101, P-102, P-103, P-107, AND P-108.
 2. I/O TYPICAL FOR PUMPS P-104, P-105 AND P-106.
 3. I/O TYPICAL EACH GATE THERE ARE 3 SLIDE GATES PER WET WELL FOR A TOTAL OF 6 GATES (SG-113 THROUGH SG-118)
 4. TYPICAL FOR EACH SLIDE GATE SG-101 THROUGH SG-120.



METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

Designed by: **SAW** | Checked by: **CTB** | Approved by: **ANTHONY BOUCHARD** (MWRD Assistant Chief Engineer)

Drawn by: **LK** | Reviewed by: **EPC** | Scale: **NFS**

Date: **SEPT 2008**

CTE AECOM

151 East Wacker Drive, Suite 400, Chicago, Illinois 60601-2078
Tel: 312.888.0000 Fax: 312.888.1100 www.aecom.com

CONTRACT 07-026-2P

STICKNEY WATER RECLAMATION PLANT
ULTRAVIOLET DISINFECTION FACILITIES

**LOW LIFT PUMP STATION
PROCESS AND INSTRUMENTATION DIAGRAM**

Seal