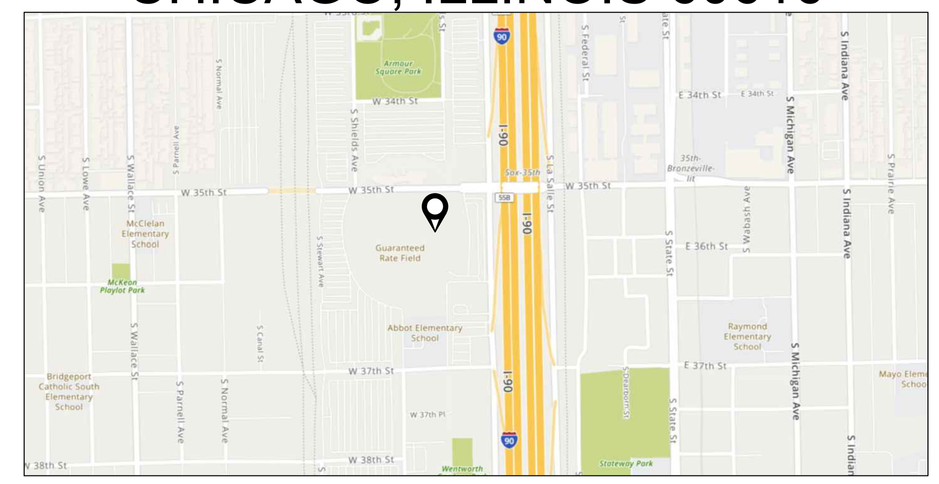
IFSA - GUARANTEED RATE STADIUM - WASTE/VENT PIPING FY23

333 W 35TH STREET
CHICAGO, ILLINOIS 60616

ABBREVIATIONS

ACW	AUTOMATIC CLOTHES WASHER
AD	AREA DRAIN
AFF	ABOVE FINISHED FLOOR
AMP	AMPERE
ANB	ACID NEUTRALIZING BASIN
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
AP	ACCESS PANEL
ARW	ACID RESISTANT WASTE
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASSE	AMERICAN SOCIETY OF SAFETY ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AV	ACID/CHEMICAL VENT
AVTR	ACID/CHEMICAL VENT THRU ROOF
AW	ACID/CHEMICAL WASTE
BASC	BUILDING AUTOMATION SYSTEMS CONTRACTOR
BFP	BACKFLOW PREVENTER
BOP	BOTTOM OF PIPE
BT	BATH TUB
CA	COMPRESSED AIR
CI	CAST IRON
CISPI	CAST IRON SOIL PIPE INSTITUTE
CLG	CEILING
CO	CLEANOUT
CONN	CONNECTION
CW	DOMESTIC COLD WATER
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RETURN
DTW	DOMESTIC TEMPERED WATER
DBCV	DOUBLE CHECK VALVE
DCV	DUAL CHECK VALVE
DCDA	DOUBLE CHECK DETECTOR ASSEMBLY
DDCV	DOUBLE-DETECTOR CHECK VALVE
DF	DRINKING FOUNTAIN
DFU	DRAINAGE FIXTURE UNIT
DIA	DIAMETER
DN	DOWN
DS	DOWNSPOUT
DSN	DOWNSPOUT NOZZLE
DT	DRAIN TILE
DW	DISHWASHER
DWH	DOMESTIC WATER HEATER
DWS	DOMESTIC WATER SOFTENER
EC	ELECTRICAL CONTRACTOR
EEW	EMERGENCY EYE AND FACE WASH
EPDM	ETHYLENE PROPYLENE DIENE MONOMER
ET	EXPANSION TANK
ESH	EMERGENCY SHOWER
ESP	ELEVATOR SUMP PUMP
ETR	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FOG	FATS, OILS AND GREASE
FPS	FEET PER SECOND
FS	FLOOR SINK
FT	FEET
G	NATURAL GAS
GC	GENERAL CONTRACTOR
GCO	GROUND CLEANOUT
GI	GREASE INTERCEPTOR
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GT	GREASE TRAP
GW	GARAGE WASTE
HB	HOSE BIBB
HD	HEAD
HP	HORSEPOWER
HX	HEAT EXCHANGER
IE	INVERT ELEVATION
IWB	ICE MACHINE/REFRIGERATOR WALL BOX
KS	KITCHEN STACK
KEC	KITCHEN EQUIPMENT CONTRACTOR
KED	KITCHEN EQUIPMENT DESIGNER
KW	KITCHEN WASTE OR KILOWATT
L / LAV	LAVATORY
LS	LAB SINK
LT	LAUNDRY TUB
MB	MOP BASIN
MC	MECHANICAL CONTRACTOR
MSS	MANUFACTURERS STANDARDIZATION SOCIETY
NC	NEW CONNECTION OR NORMALLY CLOSED
NIC	NOT IN CONTRACT
NPS	NOMINAL PIPE SIZE
NPW	NON POTABLE WATER
NO	NORMALLY OPEN
NSF	NATIONAL SCIENCE FOUNDATION
NTS	NOT TO SCALE
OD	OVERFLOW DRAIN
OSD	OPEN SITE DRAIN
OS&Y	OUTSIDE STEM AND YOKE
P	PUMP
PA	PIPE ANCHOR
PC	PLUMBING CONTRACTOR
PD	PUMP DISCHARGE
PDI	PLUMBING & DRAINAGE INSTITUTE
PE	PROFESSIONAL ENGINEER
PH	PHASE
PIV	POST INDICATOR VALVE
PPM	PARTS PER MILLION
PRV	PRESSURE REDUCING VALVE
PS	PLUMBING STACK
PSI	POUNDS PER SQUARE INCH
ORD	OVERFLOW ROOF DRAIN
RCP	RECIRCULATION PUMP
RD	ROOF DRAIN
RH	ROOF HYDRANT
ROB	ROD OUT BASIN
RPDA	REDUCED PRESSURE DETECTOR ASSEMBLY
RPM	REVOLUTIONS PER MINUTE
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
S / SAN	SANITARY WASTE
SC	SITE UTILITY CONTRACTOR
SE	SEWAGE EJECTOR
SH	SHOWER
SI	SOLIDS INTERCEPTOR
SK	SINK
SP	SUMP PUMP
SQ	SQUARE FEET
SS	SERVICE SINK
S.S.	STAINLESS STEEL
ST	STORM
SST	SECONDARY STORM (OVERFLOW)
TB	THRUST BLOCK
TD	TRENCH DRAIN
TMV	THERMOSTATIC MIXING VALVE
TPRV	TEMPERATURE AND PRESSURE REDUCING VALVE
TYP	TYPICAL
UR	URNIAL
V	VENT
VB	VACUUM BREAKER
VTR	VENT THRU ROOF
W	WASTE
WC	WATER CLOSET
WCO	WALL CLEANOUT
WF	WASH FOUNTAIN
WH	WALL HYDRANT
WHA	WATER HAMMER ARRESTOR
WSB	WALL SUPPLY BOX
WSFU	WATER SUPPLY FIXTURE UNITS
YCO	YARD CLEANOUT
YH	YARD HYDRANT

NOTE: NOT ALL ABBREVIATIONS LISTED ABOVE MAY BE USED OR APPEAR IN THESE DRAWINGS.



1 LOCATION MAP
SCALE: NO SCALE

SHEET LIST TABLE

SHEET NUMBER	SHEET TITLE
P0.001	PLUMBING TITLE SHEET
PD2.S05	PLUMBING DEMOLITION PLAN - SERVICE LEVEL SEC. 05 ENLARGED PLAN
PD2.105	PLUMBING DEMOLITION PLAN - 100 LEVEL SEC. 05 ENLARGED PLAN
PD2.205	PLUMBING DEMOLITION PLAN - 200 LEVEL SEC. 05 ENLARGED PLAN
PD2.305	PLUMBING DEMOLITION PLAN - 300 LEVEL SEC. 05 ENLARGED PLAN
PD2.405	PLUMBING DEMOLITION PLAN - 400 LEVEL SEC. 05 ENLARGED PLAN
P1.S06	PLUMBING NEW WORK PLAN - SERVICE LEVEL SEC 06
P1.S10	PLUMBING NEW WORK PLAN - SERVICE LEVEL SEC 10
P1.101	PLUMBING NEW WORK PLAN - LEVEL 100 SEC. 01 ENLARGED PLAN
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P1.103	PLUMBING NEW WORK PLAN - LEVEL 100 SEC. 03 ENLARGED PLAN
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P1.306	PLUMBING NEW WORK PLAN - LEVEL 300 SEC. 06 ENLARGED PLAN
P1.308	PLUMBING NEW WORK PLAN - LEVEL 300 SEC. 08 ENLARGED PLAN
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P1.504	PLUMBING NEW WORK PLAN - LEVEL 500 SEC. 04 ENLARGED PLAN
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P1.508	PLUMBING NEW WORK PLAN - LEVEL 500 SEC. 08 ENLARGED PLAN
P1.509	PLUMBING NEW WORK PLAN - LEVEL 500 SEC. 09 ENLARGED PLAN
P2.S05	PLUMBING NEW WORK PLAN - SERVICE LEVEL SEC. 05 ENLARGED PLAN
P2.105	PLUMBING NEW WORK PLAN - 100 LEVEL SEC. 05 ENLARGED PLAN
P2.205	PLUMBING NEW WORK PLAN - 200 LEVEL SEC. 05 ENLARGED PLAN
P2.305	PLUMBING NEW WORK PLAN - 300 LEVEL SEC. 05 ENLARGED PLAN
P2.405	PLUMBING NEW WORK PLAN - 400 LEVEL SEC. 05 ENLARGED PLAN
P3.001	PLUMBING RISER DIAGRAM
P4.001	PLUMBING DETAILS
P5.001	PLUMBING SPECIFICATIONS

PROJECT SCOPE OF WORK

1. SANITARY AND VENT PIPING RISER REPLACEMENT FOR SECTION 05 FROM THE 400 LEVEL DOWN TO THE SERVICE LEVEL.. PORTIONS OF THE CONCESSION STANDS DRAINAGE SHALL BE ACID RESISTANT WASTE (ARW) PIPING AS SODA AND BEER ARE ACIDIC AND ACID RESISTANT PIPING IS REQUIRED..
2. EPOXY LINING OF FLOOR SINKS AND FLOOR DRAINS IN CONCESSIONS STANDS LOCATED THROUGHOUT THE 100 AND 500 LEVEL CONCOURSES.
3. DEMOLISH AND REPLACE SCOUTS PREP AREA 01.27.06 GREASE INTERCEPTOR.
4. ROD OUT EXISTING PAINT SHOP UNDERGROUND DRAIN LINE AND VIDEO RECORD AND LOCATE UNDERGROUND PIPE AND ITS ROUTING.
5. DEMOLISH AND REPAIR EXISTING FAILED FLOOR CLEANOUT AT LEVEL 500.

PLUMBING SYMBOLS

PIPING

- NEW PIPING
- EXISTING PIPING TO REMAIN
- EXISTING PIPING TO BE DEMOLISHED
- COLD WATER SUPPLY
- HOT WATER SUPPLY
- HOT WATER RETURN
- VENT PIPING
- AIR CHAMBER/WATER HAMMER ARRESTOR
- BACKFLOW PREVENTER
- BALL VALVE
- BALANCING VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- DIRECTION OF FLOW
- DIRECTION OF PIPE PITCH, DOWN
- FLEXIBLE PIPE CONNECTOR (OR CONNECTION)
- GATE VALVE
- PIPE ANCHOR
- PIPE BREAK
- PIPE CAP
- PIPE DROP/RISE
- PIPE ELBOW, 45° HORIZONTAL
- PIPE ELBOW, 90° HORIZONTAL
- PIPE ELBOW, DOWN AND 90° HORIZONTAL
- PIPE ELBOW, TURNED DOWN
- PIPE ELBOW, TURNED UP
- PIPE REDUCER/INCREASER
- PIPE TEE, DOWN
- PIPE TEE, FOUR-WAY, HORIZONTAL
- PIPE TEE, HORIZONTAL
- PIPE TEE, TOP CONNECTION, 45° OR 90° ELBOW
- PIPE TEE, UP
- PIPE UNION
- PSI — PRESSURE GAUGE
- PRESSURE REDUCING/REGULATING VALVE
- PUMP
- THERMOSTATIC MIXING VALVE
- °F — THERMOMETER
- VACUUM RELIEF VALVE

GENERAL

- P / 1 — TYPE / NUMBER — EQUIPMENT TAG
- P / 1 — RISER TYPE / NUMBER — RISER TAG
- FLOOR DRAIN
- POINT OF CONNECTION OF NEW TO EXISTING WORK
- POINT OF DEMOLITION TO EXISTING WORK

NOTE: NOT ALL SYMBOLS LISTED ABOVE MAY BE USED OR APPEAR IN THESE DRAWINGS.

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KEY PLAN

ISSUE/REVISION:

REV.	DATE	DESCRIPTION
-	10/28/22	ISSUE FOR BID

PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

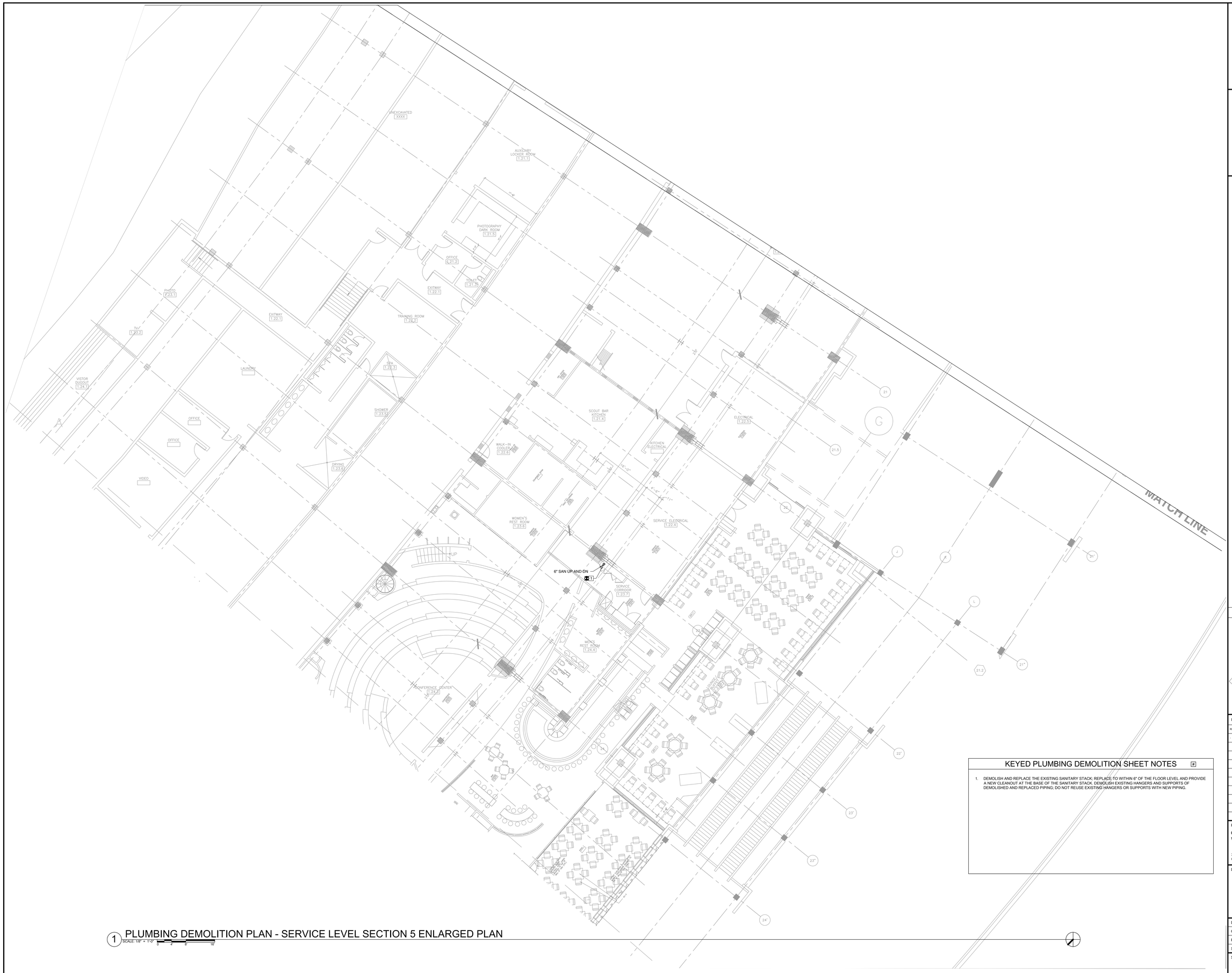
333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING TITLE SHEET

DESIGNED BY:	CF
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	NO SCALE

SHEET NO.

P0.001



1 PLUMBING DEMOLITION PLAN - SERVICE LEVEL SECTION 5 ENLARGED PLAN

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

KEYED PLUMBING DEMOLITION SHEET NOTES

1. DEMOLISH AND REPLACE THE EXISTING SANITARY STACK; REPLACE TO WITHIN 6" OF THE FLOOR LEVEL AND PROVIDE A NEW CLEANOUT AT THE BASE OF THE SANITARY STACK. DEMOLISH EXISTING HANGERS AND SUPPORTS OF DEMOLISHED AND REPLACED PIPING; DO NOT REUSE EXISTING HANGERS OR SUPPORTS WITH NEW PIPING.

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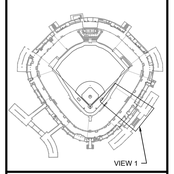

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333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING DEMOLITION PLAN - SERVICE LEVEL SEC. 05 ENLARGED PLAN

DESIGNED BY:	DA
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PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
PD2.S05

1 PLUMBING DEMOLITION PLAN - LEVEL 100 SECTION 5 ENLARGED PLAN

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

0 4 8 16

KEYED PLUMBING DEMOLITION SHEET NOTES

1. DEMOLISH AND REPLACE THE EXISTING SANITARY AND VENT PIPING. DEMOLISH EXISTING HANGERS AND SUPPORTS OF DEMOLISHED AND REPLACED PIPING; DO NOT REUSE EXISTING HANGERS OR SUPPORTS WITH NEW PIPING.

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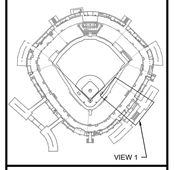

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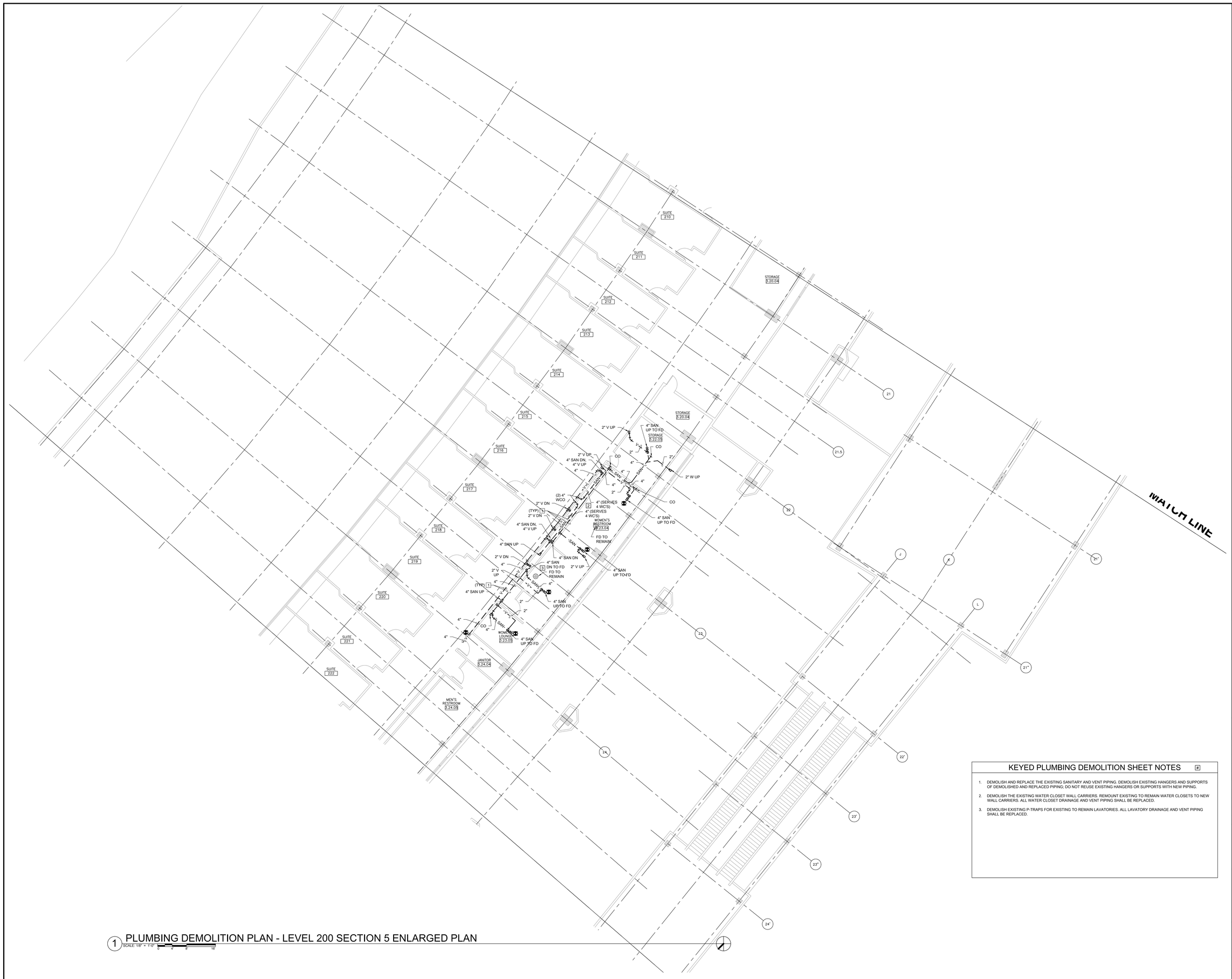
DRAWING TITLE:
PLUMBING DEMOLITION PLAN - 100 LEVEL SEC. 05 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.

PD2.105



1 PLUMBING DEMOLITION PLAN - LEVEL 200 SECTION 5 ENLARGED PLAN

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

KEYED PLUMBING DEMOLITION SHEET NOTES

1. DEMOLISH AND REPLACE THE EXISTING SANITARY AND VENT PIPING. DEMOLISH EXISTING HANGERS AND SUPPORTS OF DEMOLISHED AND REPLACED PIPING; DO NOT REUSE EXISTING HANGERS OR SUPPORTS WITH NEW PIPING.
2. DEMOLISH THE EXISTING WATER CLOSET WALL CARRIERS. REMOUNT EXISTING TO REMAIN WATER CLOSETS TO NEW WALL CARRIERS. ALL WATER CLOSET DRAINAGE AND VENT PIPING SHALL BE REPLACED.
3. DEMOLISH EXISTING P-TRAPS FOR EXISTING TO REMAIN LAVATORIES. ALL LAVATORY DRAINAGE AND VENT PIPING SHALL BE REPLACED.

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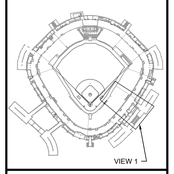

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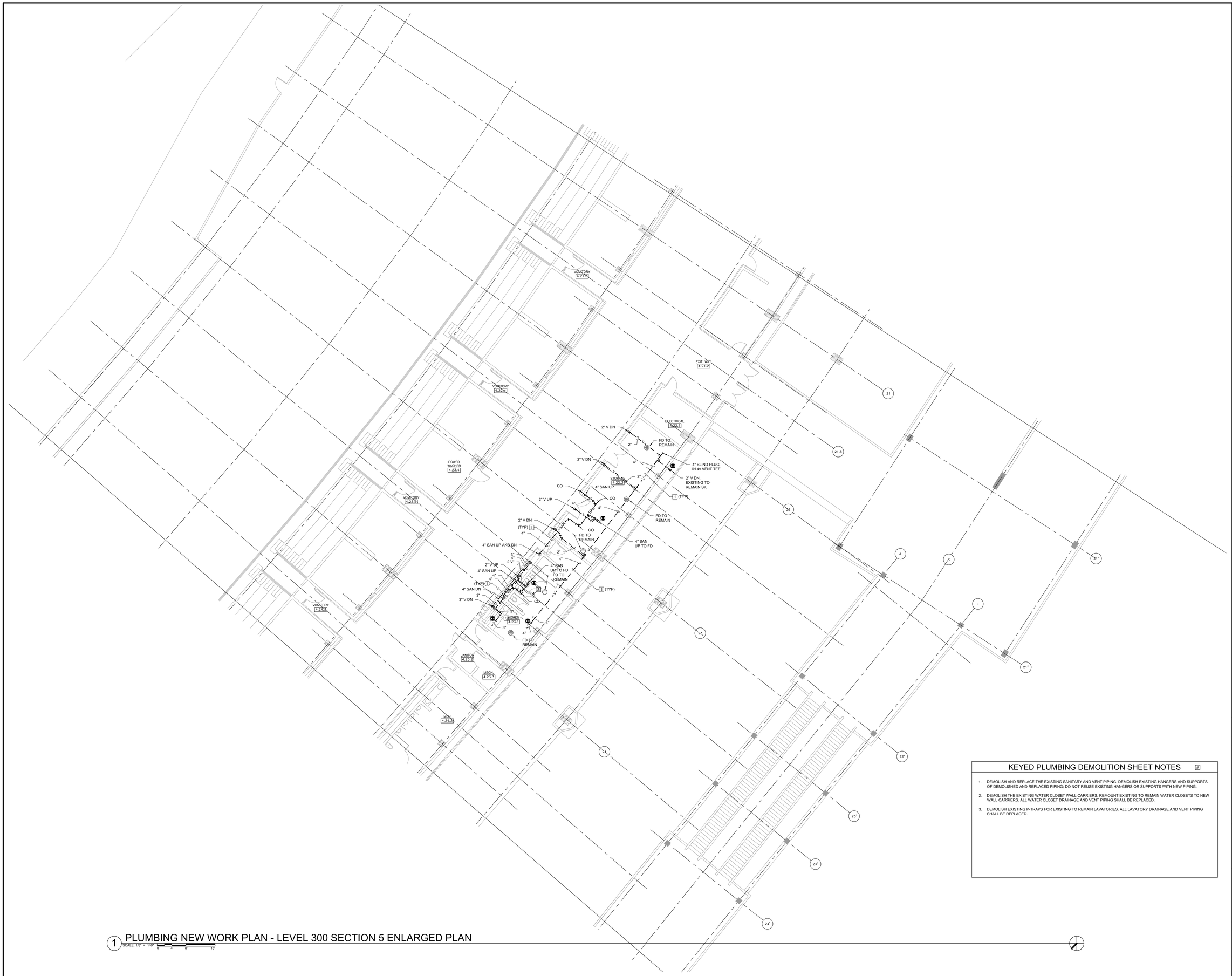
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING DEMOLITION PLAN - 200 LEVEL SEC. 05 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
PD2.205



1 PLUMBING NEW WORK PLAN - LEVEL 300 SECTION 5 ENLARGED PLAN

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

KEYED PLUMBING DEMOLITION SHEET NOTES

1. DEMOLISH AND REPLACE THE EXISTING SANITARY AND VENT PIPING. DEMOLISH EXISTING HANGERS AND SUPPORTS OF DEMOLISHED AND REPLACED PIPING; DO NOT REUSE EXISTING HANGERS OR SUPPORTS WITH NEW PIPING.
2. DEMOLISH THE EXISTING WATER CLOSET WALL CARRIERS. REMOUNT EXISTING TO REMAIN WATER CLOSETS TO NEW WALL CARRIERS. ALL WATER CLOSET DRAINAGE AND VENT PIPING SHALL BE REPLACED.
3. DEMOLISH EXISTING P-TRAPS FOR EXISTING TO REMAIN LAVATORIES. ALL LAVATORY DRAINAGE AND VENT PIPING SHALL BE REPLACED.

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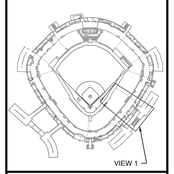

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DRAWING TITLE:
PLUMBING DEMOLITION PLAN - 300 LEVEL SEC. 05 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
PD2.305

1 PLUMBING DEMOLITION PLAN - LEVEL 400 SECTION 5 ENLARGED PLAN

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

0 4 8 16

KEYED PLUMBING DEMOLITION SHEET NOTES

1. DEMOLISH AND REPLACE THE EXISTING SANITARY AND VENT PIPING. DEMOLISH EXISTING HANGERS AND SUPPORTS OF DEMOLISHED AND REPLACED PIPING; DO NOT REUSE EXISTING HANGERS OR SUPPORTS WITH NEW PIPING.
2. DEMOLISH THE EXISTING WATER CLOSET WALL CARRIERS. REMOUNT EXISTING TO REMAIN WATER CLOSETS TO NEW WALL CARRIERS. ALL WATER CLOSET DRAINAGE AND VENT PIPING SHALL BE REPLACED.
3. DEMOLISH EXISTING P-TRAPS FOR EXISTING TO REMAIN LAVATORIES. ALL LAVATORY DRAINAGE AND VENT PIPING SHALL BE REPLACED.

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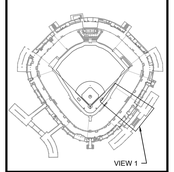

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DRAWING TITLE:
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PROJECT NO:	22285
SCALE:	#/#" = 1'-0"

SHEET NO.
PD2.405

1 PLUMBING NEW WORK PLAN - SERVICE LEVEL SECTION 6 ENLARGED PLAN

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

GREASE INTERCEPTOR SCHEDULE

EQUIP. TAG		SERVICE	LOCATION	MFR	MODEL	DIMENSIONAL DATA (IN)			INTERMITTENT FLOW (GPM)	STATIC HOLDING CAPACITY (GAL)	SLUDGE CAPACITY (LB)	INLET AND OUTLET (IN)	NOTES
ABB.	NO.					L	W	H					
GI	01.27.06	SCOUT PREP KITCHEN	SCOUT PREP KITCHEN	SCHIER	GB-3	37	28	21	50	40	272	4	1,2,3,4,5,6,7

NOTES:

1. GREASE SEPARATOR TO BE OF SEAMLESS, ROTATIONALLY-MOLDED POLYETHYLENE CONSTRUCTION WITH MINIMUM 5/16" UNIFORM WALL THICKNESS.
2. INTERCEPTOR SHALL BE CERTIFIED TO ASME A112.14.3 (TYPE C) AND CSA B481.1.
3. PROVIDE RISER SYSTEM (IF REQUIRED) AND CONTRACTOR SHALL FIELD CUT AS REQUIRED UP TO GRADE BASED ON INLET ELEVATIONS.
4. COVER SHALL PROVIDE WATER-TIGHT AND GAS-TIGHT SEAL AND HAVE A MINIMUM 450 LBS. RATED LOAD CAPACITY (1,000 LBS. WHEN BURIED WITH RISER).
5. COVER TO BE INSTALLED AT THE SAME ELEVATION AS FINISHED FLOOR SO IT IS NOT A TRIPPING HAZARD.
7. CONTRACTOR SHALL INCLUDE A SPARE CONSTUCTION COVER SO THE FINAL COVER FROM THE MANUFACTURER IS INSTALLED PRESTINE, MARKS, DAMAGE, PAINT, ADHEASIVE, ETC. APPEARANCE CONDITION IS NOT ACCEPTABLE.

KEYED PLUMBING NEW WORK SHEET NOTES ⑥

1. CONTRACTOR SHALL DEMOLISH EXISTING GREASE INTERCEPTOR WHICH IS FAILING.
2. CONTRACTOR SHALL REPLACE EXISTING GREASE INTERCEPTOR WITH NEW GREASE INTERCEPTOR.
3. CONTRACTOR SHALL INCLUDE ADDITIONAL SAW CUTTING, EXCAVATION, TILE PATCHING, UPSTREAM PIPING REPLACEMENT, DOWNSTREAM PIPING REPLACEMENT, ETC. FOR LOCATION, PHYSICAL SIZE, INLET INVERT, OUTLET INVERT, POINTS OF CONNECTION, ETC. FOR NEW GREASE INTERCEPTOR. CONTRACTOR SHALL INCLUDE TEMPORARY TOP FOR BASIN SO THAT A FINISHED TOP OF BASIN CAN BE INSTALLED NEAR COMPLETION OF FINISHED INSTALLATION.

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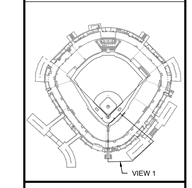

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REV.	DATE	DESCRIPTION
-	10/28/22	ISSUE FOR BID

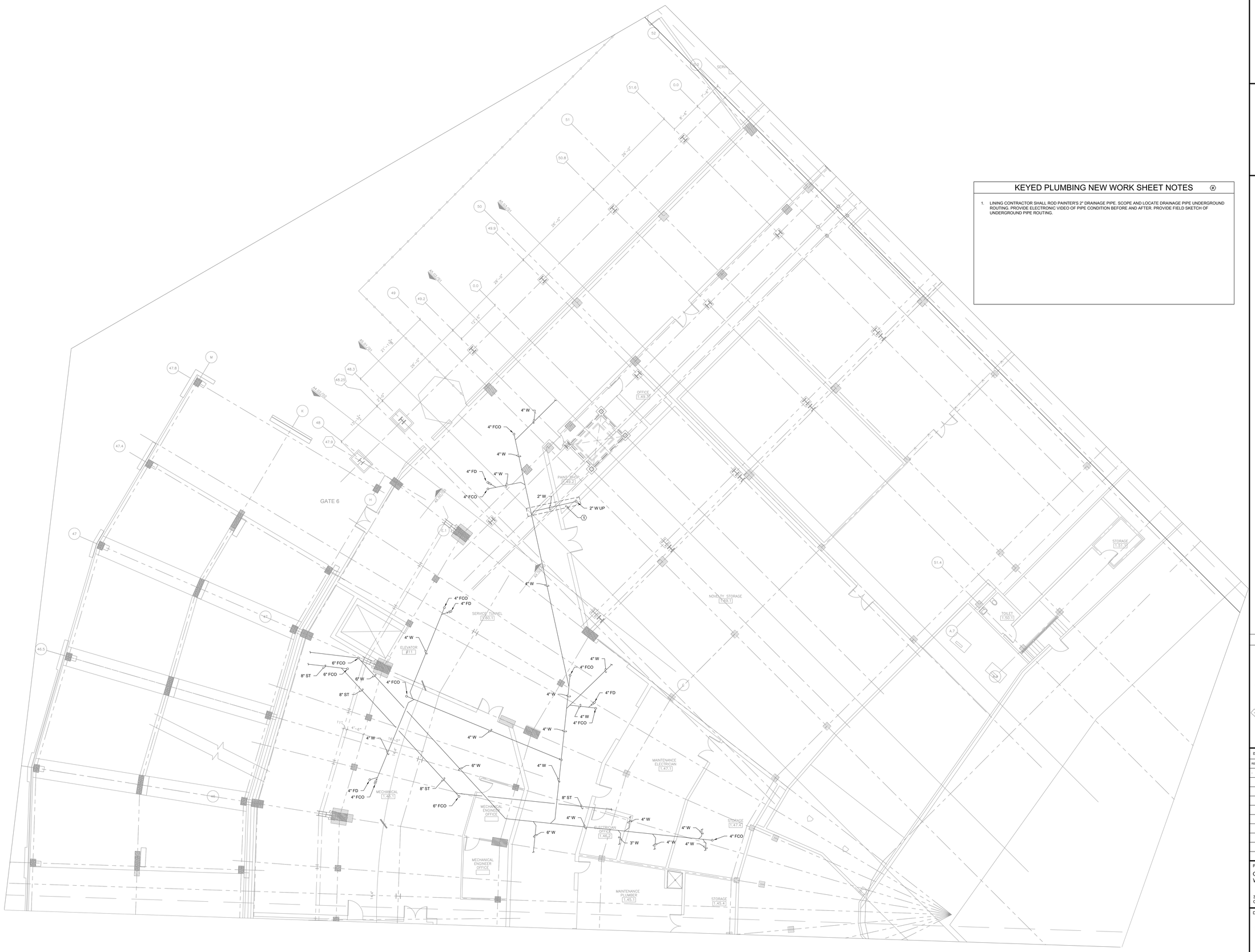
PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - SERVICE LEVEL SEC 06

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.S06



KEYED PLUMBING NEW WORK SHEET NOTES

1. LINING CONTRACTOR SHALL ROD PAINTER'S 2" DRAINAGE PIPE. SCOPE AND LOCATE DRAINAGE PIPE UNDERGROUND ROUTING. PROVIDE ELECTRONIC VIDEO OF PIPE CONDITION BEFORE AND AFTER. PROVIDE FIELD SKETCH OF UNDERGROUND PIPE ROUTING.

1 PLUMBING NEW WORK PLAN - SERVICE LEVEL SECTION 10 ENLARGED PLAN

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

ELARA
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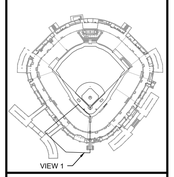
KEY PLAN



ISSUE/REVISION:

REV.	DATE	DESCRIPTION
-	10/28/22	ISSUE FOR BID

PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

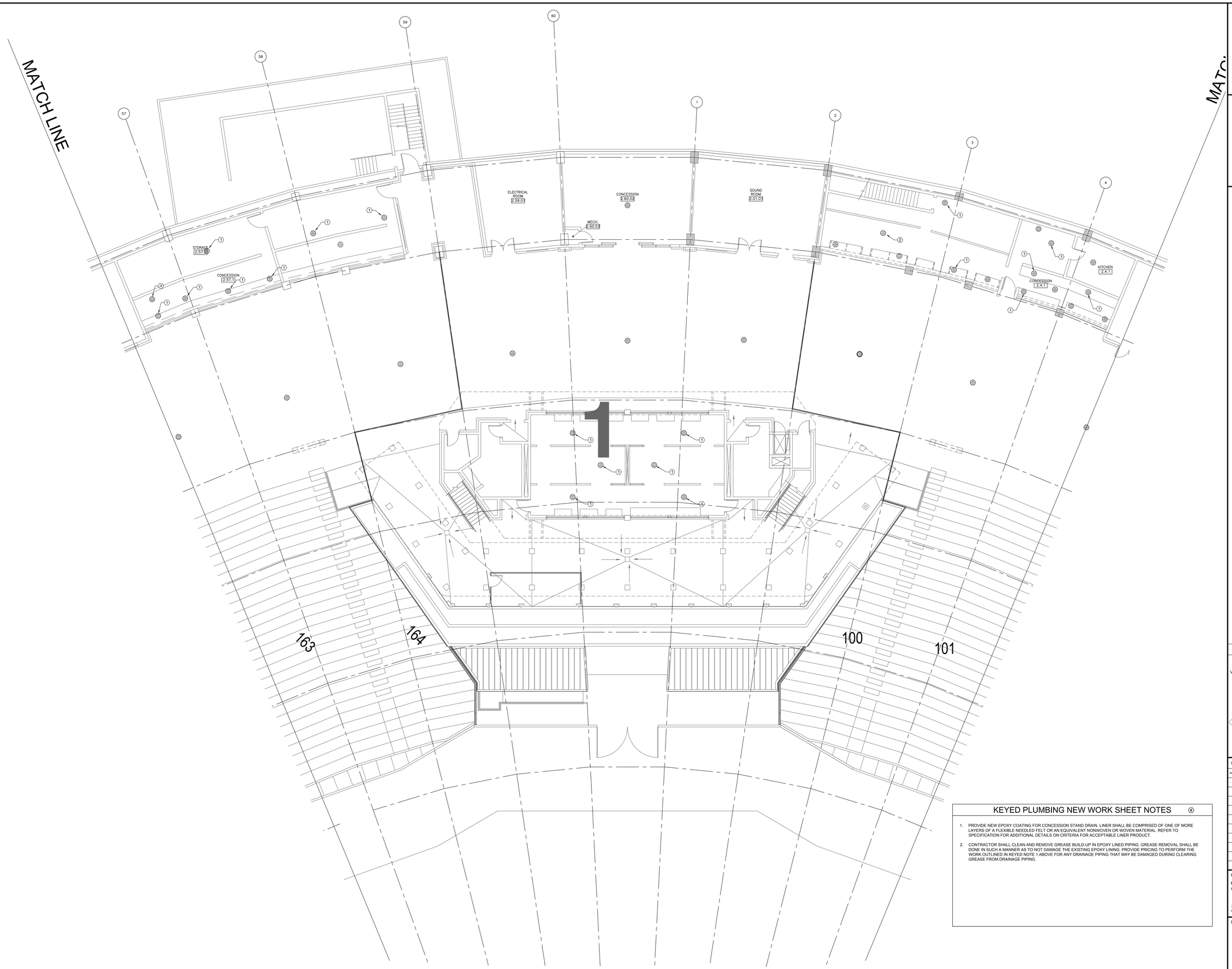
333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - SERVICE LEVEL SEC 10

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.

P1.S10



KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.
2. CONTRACTOR SHALL CLEAN AND REMOVE GREASE BUILD-UP IN EPOXY LINED PIPING. GREASE REMOVAL SHALL BE DONE IN SUCH A MANNER AS TO NOT DAMAGE THE EXISTING EPOXY LINING. PROVIDE PRICING TO PERFORM THE WORK OUTLINED IN KEYED NOTE 1 ABOVE FOR ANY DRAINAGE PIPING THAT MAY BE DAMAGED DURING CLEARING GREASE FROM DRAINAGE PIPING.

1 PLUMBING NEW WORK PLAN - LEVEL 100 SECTION 1 ENLARGED PLAN

SCALE: 1/8" = 1'-0" 0 4' 8' 16'

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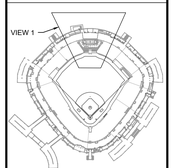
KEY PLAN

VIEW 1



ISSUE/REVISION:

REV	DATE	DESCRIPTION
-	10/28/22	ISSUE FOR BID

PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 100 SEC. 01 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.101

1 PLUMBING NEW WORK PLAN - LEVEL 100 SECTION 2 ENLARGED PLAN

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

0 4' 8' 16'

KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.

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VIEW 1

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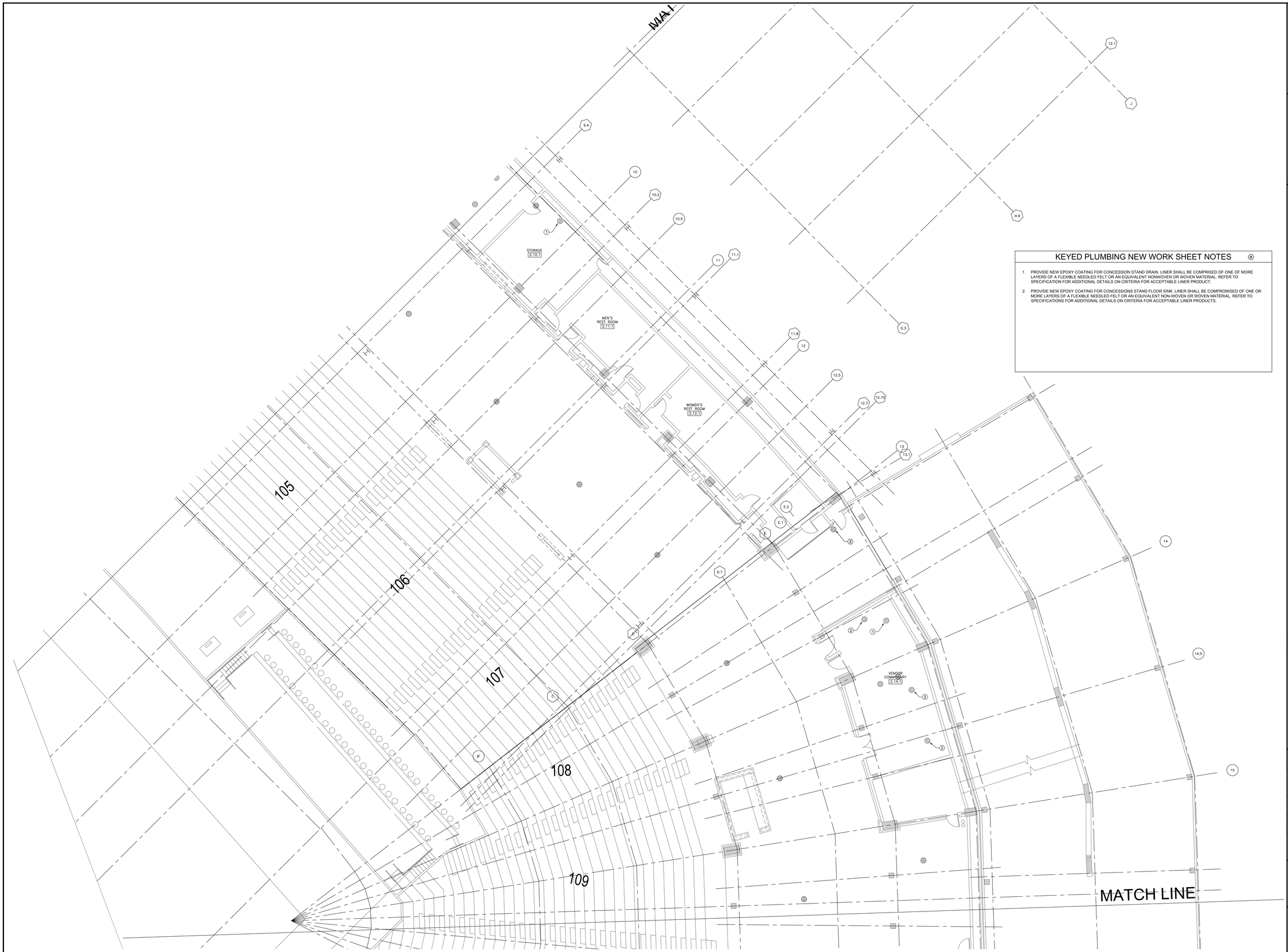
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 100 SEC. 02 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.102



KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.
2. PROVIDE NEW EPOXY COATING FOR CONCESSIONS STAND FLOOR SINK. LINER SHALL BE COMPROMISED OF ONE OR MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NON-WOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATIONS FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCTS.

1 PLUMBING NEW WORK PLAN - LEVEL 100 SECTION 3 ENLARGED PLAN
SCALE: 1/8" = 1'-0" 0 4' 8' 16'

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KEY PLAN

VIEW 1

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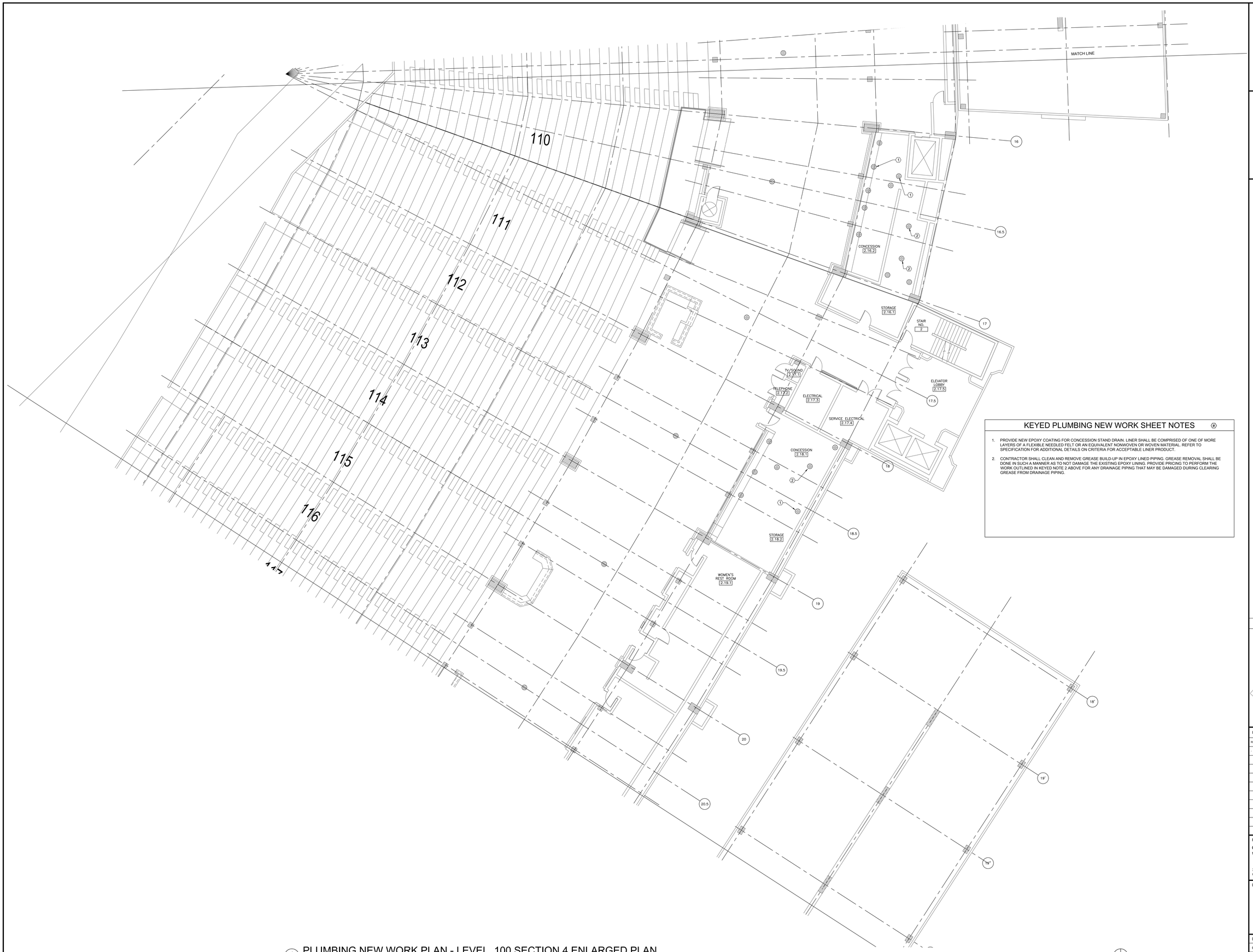
PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 100 SEC. 03 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.103



KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.
2. CONTRACTOR SHALL CLEAN AND REMOVE GREASE BUILD-UP IN EPOXY LINED PIPING. GREASE REMOVAL SHALL BE DONE IN SUCH A MANNER AS TO NOT DAMAGE THE EXISTING EPOXY LINING. PROVIDE PRICING TO PERFORM THE WORK OUTLINED IN KEYED NOTE 2 ABOVE FOR ANY DRAINAGE PIPING THAT MAY BE DAMAGED DURING CLEARING GREASE FROM DRAINAGE PIPING.

1 PLUMBING NEW WORK PLAN - LEVEL 100 SECTION 4 ENLARGED PLAN

SCALE: 1/8" = 1'-0" 0 4' 8' 16'

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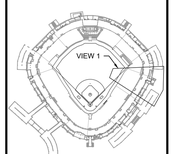
KEY PLAN



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GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 100 SEC. 04 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.104

1 PLUMBING NEW WORK PLAN - LEVEL 100 SECTION 5 ENLARGED PLAN

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

KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.

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Hillside, IL 60162
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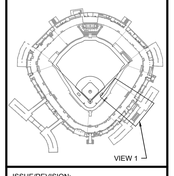
KEY PLAN



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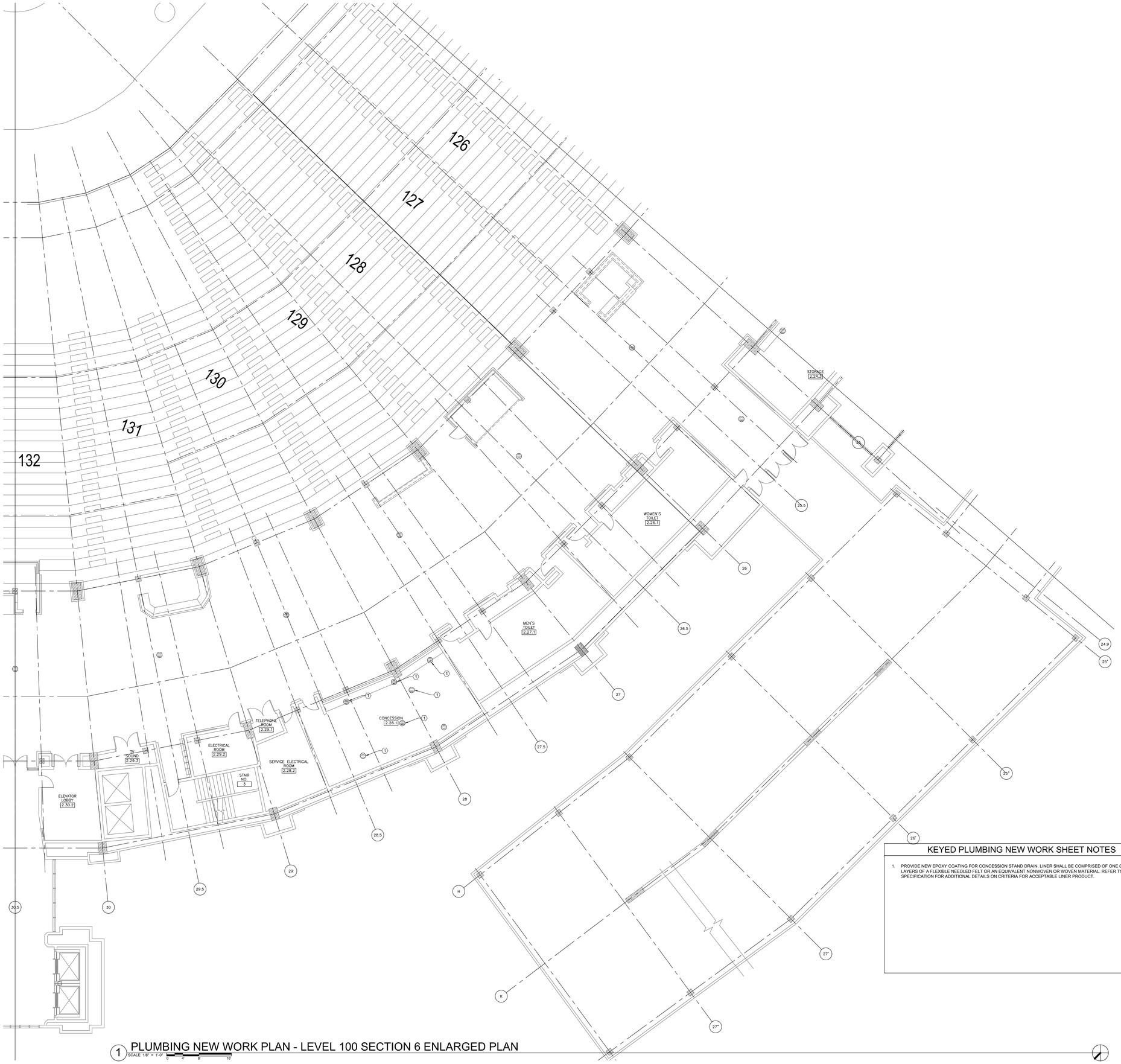
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 100 SEC. 05 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.105



KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.

1 PLUMBING NEW WORK PLAN - LEVEL 100 SECTION 6 ENLARGED PLAN

SCALE: 1/8" = 1'-0" 0 4 8 16

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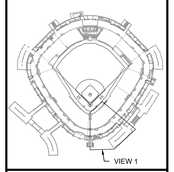
KEY PLAN



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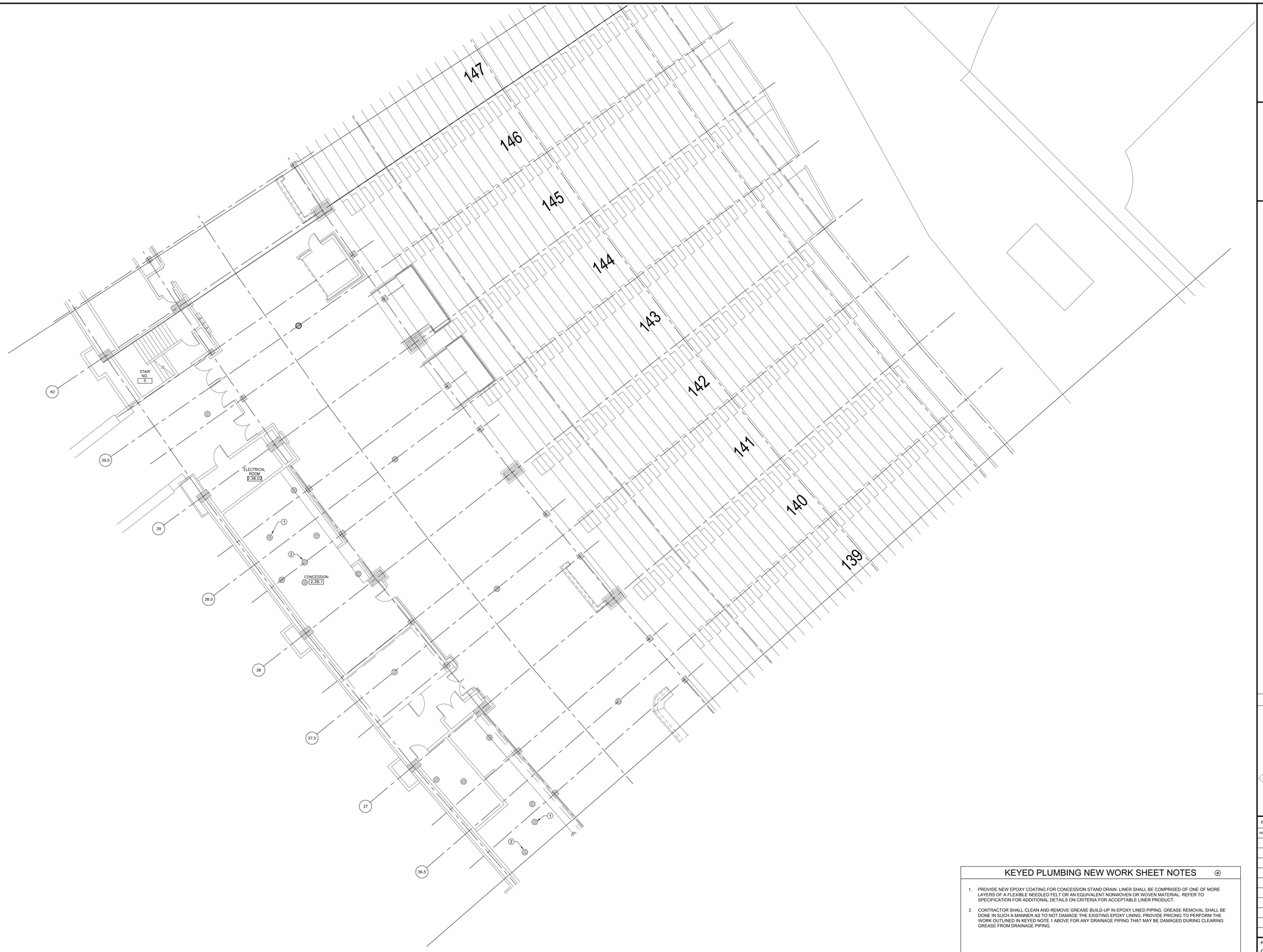
PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 100 SEC. 06 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.106



KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.
2. CONTRACTOR SHALL CLEAN AND REMOVE GREASE BUILD-UP IN EPOXY LINED PIPING. GREASE REMOVAL SHALL BE DONE IN SUCH A MANNER AS TO NOT DAMAGE THE EXISTING EPOXY LINING. PROVIDE PRICING TO PERFORM THE WORK OUTLINED IN KEYED NOTE 1 ABOVE FOR ANY DRAINAGE PIPING THAT MAY BE DAMAGED DURING CLEARING GREASE FROM DRAINAGE PIPING.

1 PLUMBING NEW WORK PLAN - LEVEL 100 SECTION 8 ENLARGED PLAN

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

0 4' 8' 16'

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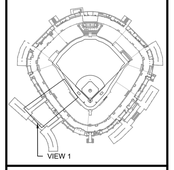
KEY PLAN



ISSUE/REVISION:

REV.	DATE	DESCRIPTION
-	10/28/22	ISSUE FOR BID

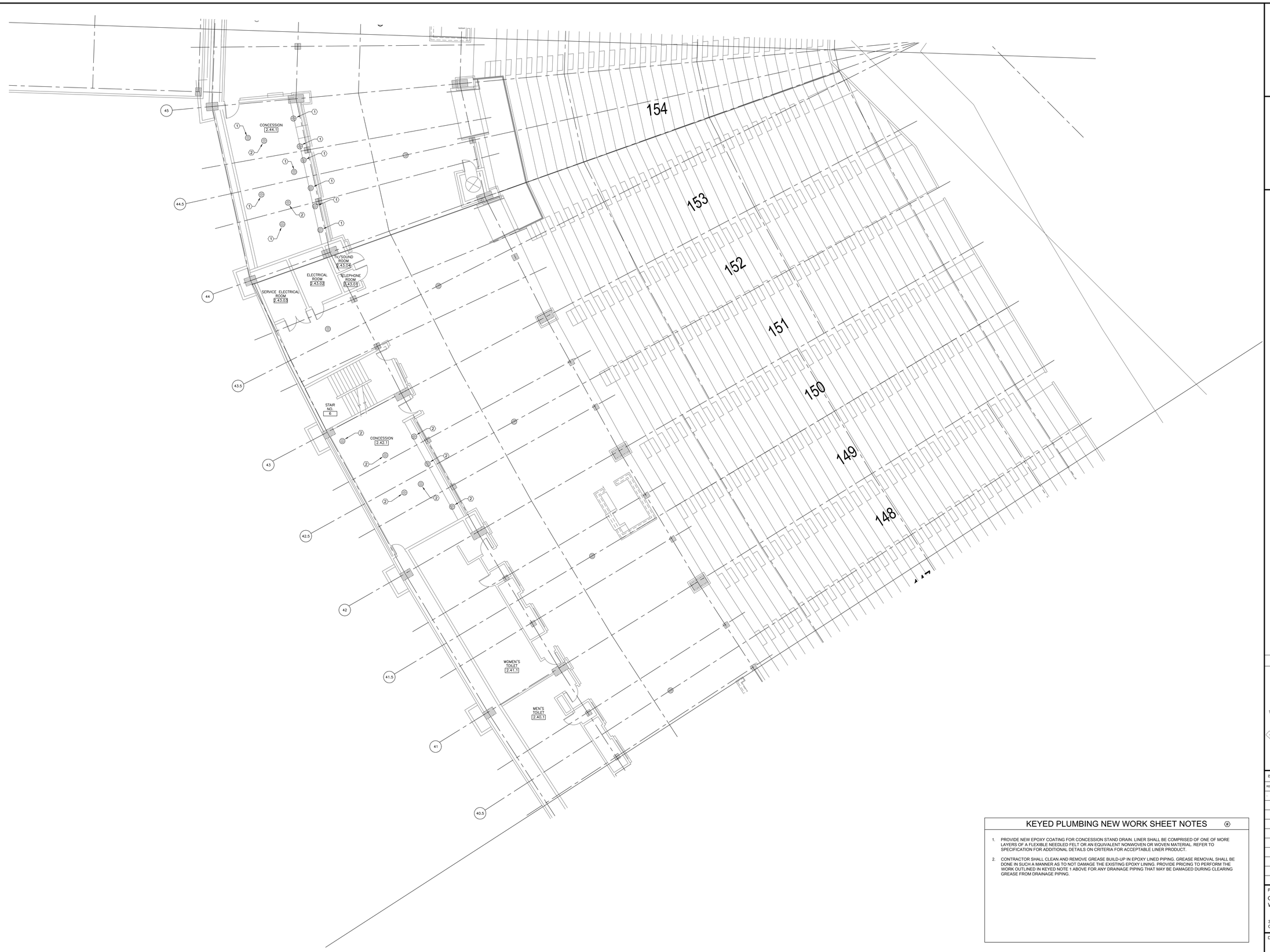
PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 100 SEC. 08 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.108



KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.
2. CONTRACTOR SHALL CLEAN AND REMOVE GREASE BUILD-UP IN EPOXY LINED PIPING. GREASE REMOVAL SHALL BE DONE IN SUCH A MANNER AS TO NOT DAMAGE THE EXISTING EPOXY LINING. PROVIDE PRICING TO PERFORM THE WORK OUTLINED IN KEYED NOTE 1 ABOVE FOR ANY DRAINAGE PIPING THAT MAY BE DAMAGED DURING CLEARING GREASE FROM DRAINAGE PIPING.

1 PLUMBING NEW WORK PLAN - LEVEL 100 SECTION 9 ENLARGED PLAN

SCALE: 1/8" = 1'-0" 0 4 8 16

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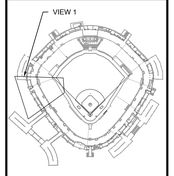
KEY PLAN



ISSUE/REVISION:

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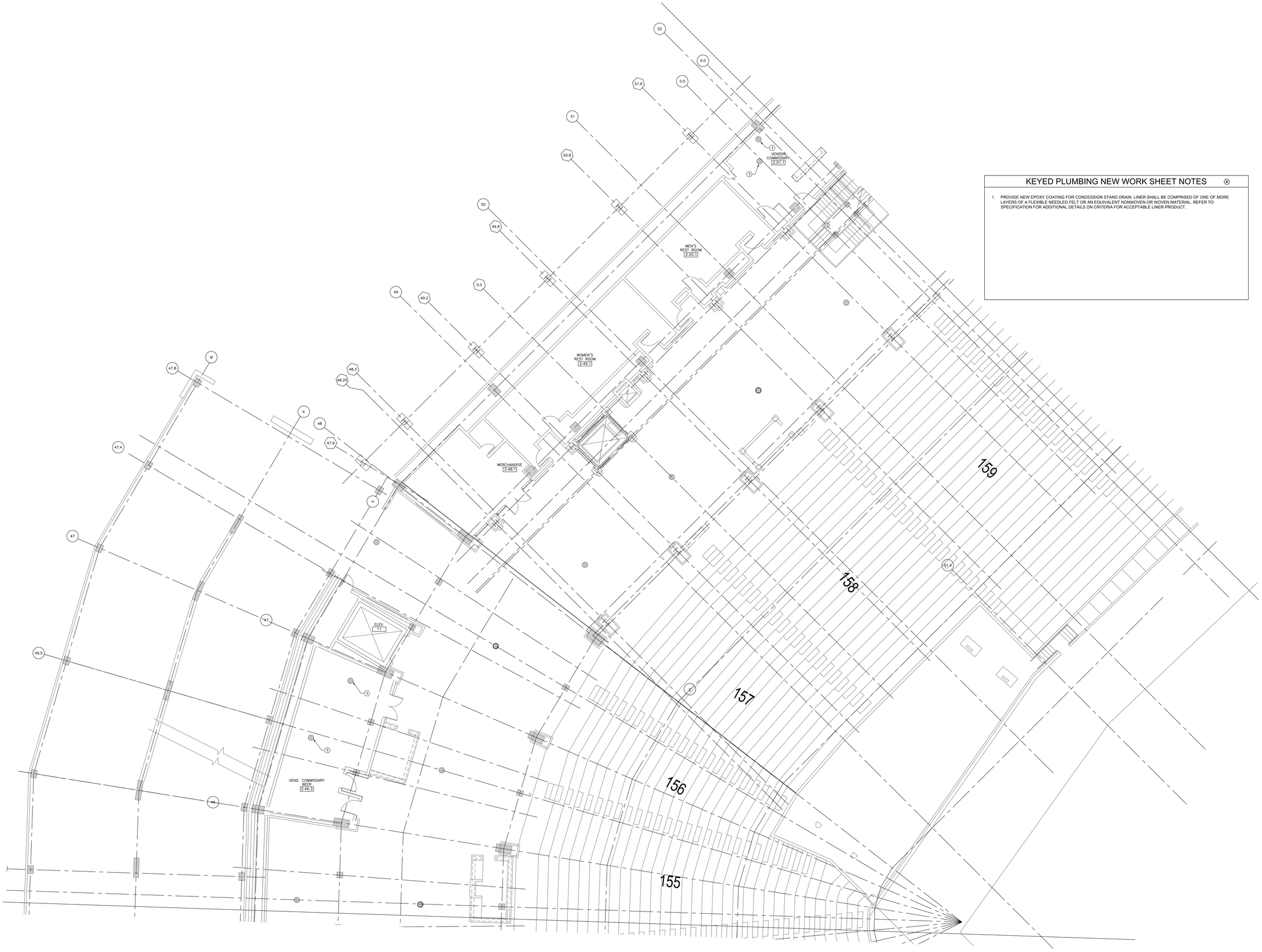
PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 100 SEC. 09 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.109



1 PLUMBING NEW WORK PLAN - LEVEL 100 SECTION 10 ENLARGED PLAN

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

KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.

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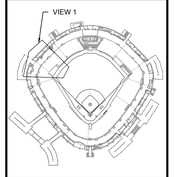
KEY PLAN



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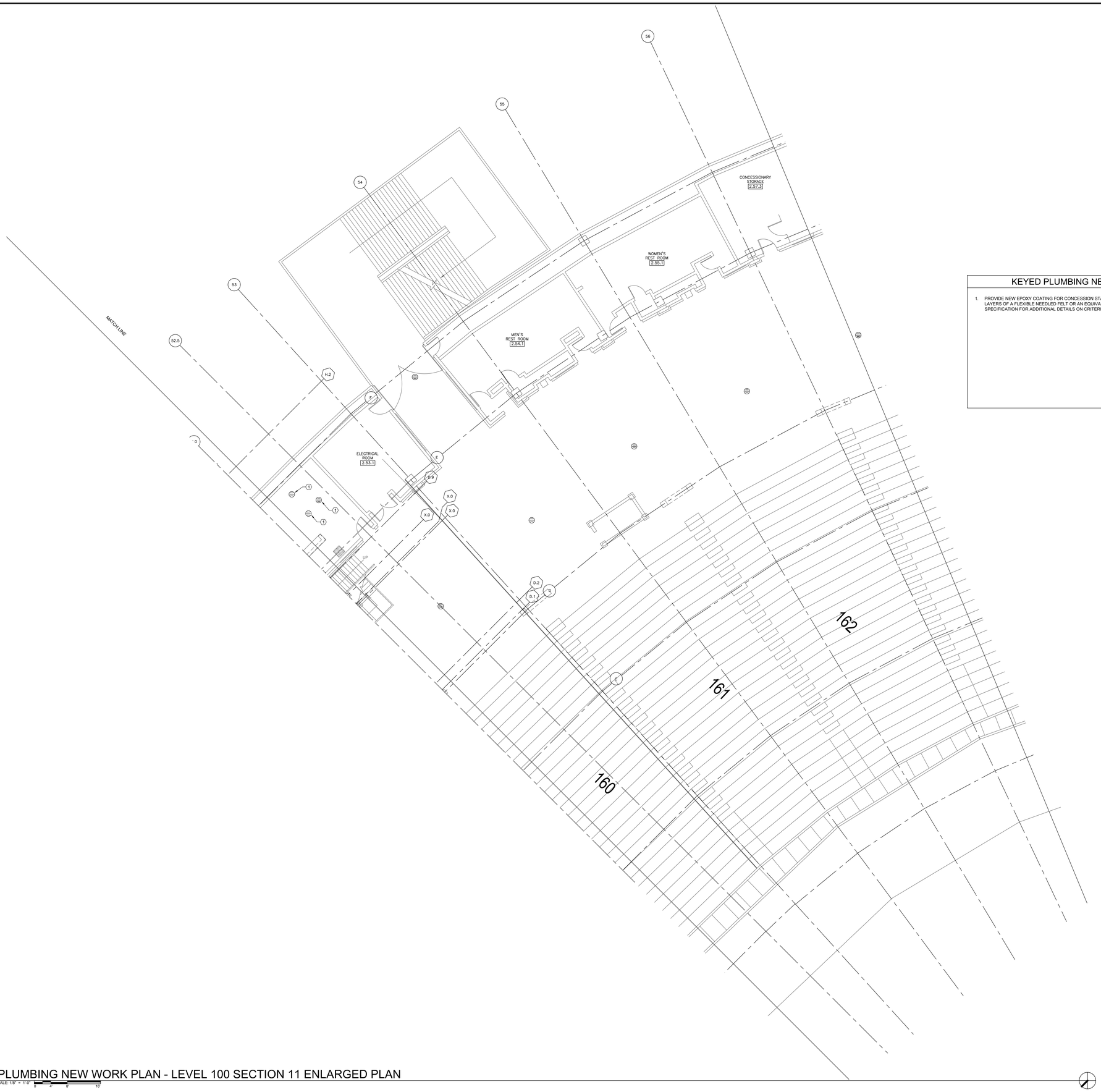
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 100 SEC. 10 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.110



1 PLUMBING NEW WORK PLAN - LEVEL 100 SECTION 11 ENLARGED PLAN

SCALE: 1/8" = 1'-0" 0 4' 8' 16'

KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.

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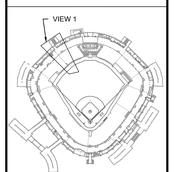
KEY PLAN



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GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 100 SEC. 11 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.111

KEYED PLUMBING NEW WORK SHEET NOTES

1. CONTRACTOR SHALL CLEAN AND REMOVE GREASE BUILD-UP IN EPOXY LINED PIPING. GREASE REMOVAL SHALL BE DONE IN SUCH A MANNER AS TO NOT DAMAGE THE EXISTING EPOXY LINING. PROVIDE PRICING TO PERFORM THE WORK OUTLINED BELOW FOR ANY DRAINAGE PIPING THAT MAY BE DAMAGED DURING CLEARING GREASE FROM DRAINAGE PIPING.

   PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.

1 PLUMBING NEW WORK PLAN - LEVEL 300 SECTION 4 ENLARGED PLAN

SCALE: 1/8" = 1'-0" 0 4 8 16

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Hillside, IL 60162
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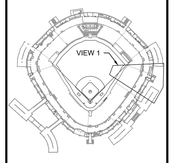
KEY PLAN



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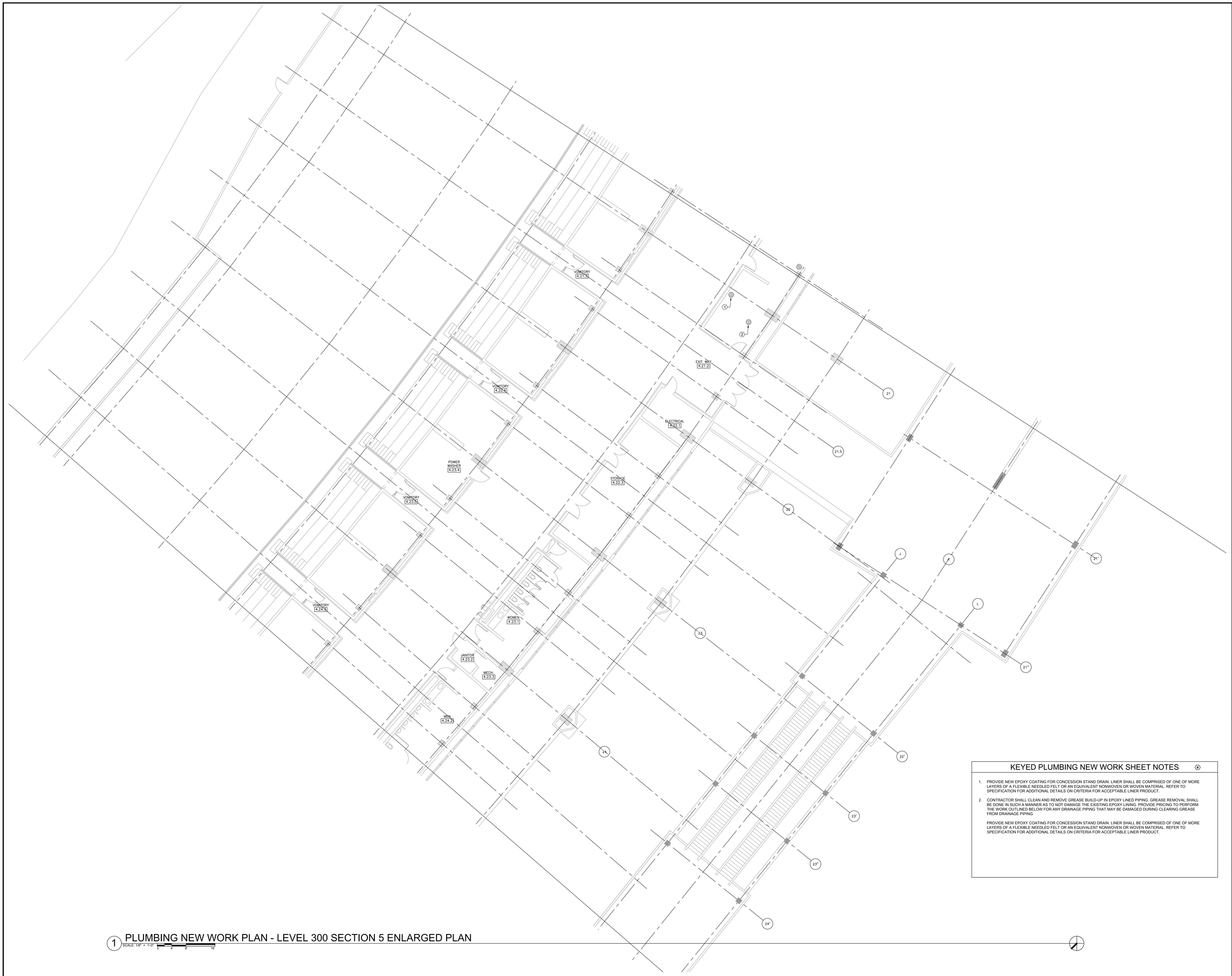
PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 300 SEC. 04 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.304



1 PLUMBING NEW WORK PLAN - LEVEL 300 SECTION 5 ENLARGED PLAN

SCALE: 1/8" = 1'-0" 0 4' 8' 16'

KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.
2. CONTRACTOR SHALL CLEAN AND REMOVE GREASE BUILD-UP IN EPOXY LINED PIPING. GREASE REMOVAL SHALL BE DONE IN SUCH A MANNER AS TO NOT DAMAGE THE EXISTING EPOXY LINING. PROVIDE PRICING TO PERFORM THE WORK OUTLINED BELOW FOR ANY DRAINAGE PIPING THAT MAY BE DAMAGED DURING CLEARING GREASE FROM DRAINAGE PIPING.

   PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.

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ISFA
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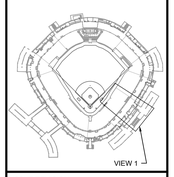
KEY PLAN



ISSUE/REVISION:

REV.	DATE	DESCRIPTION
	10/28/22	ISSUE FOR BID

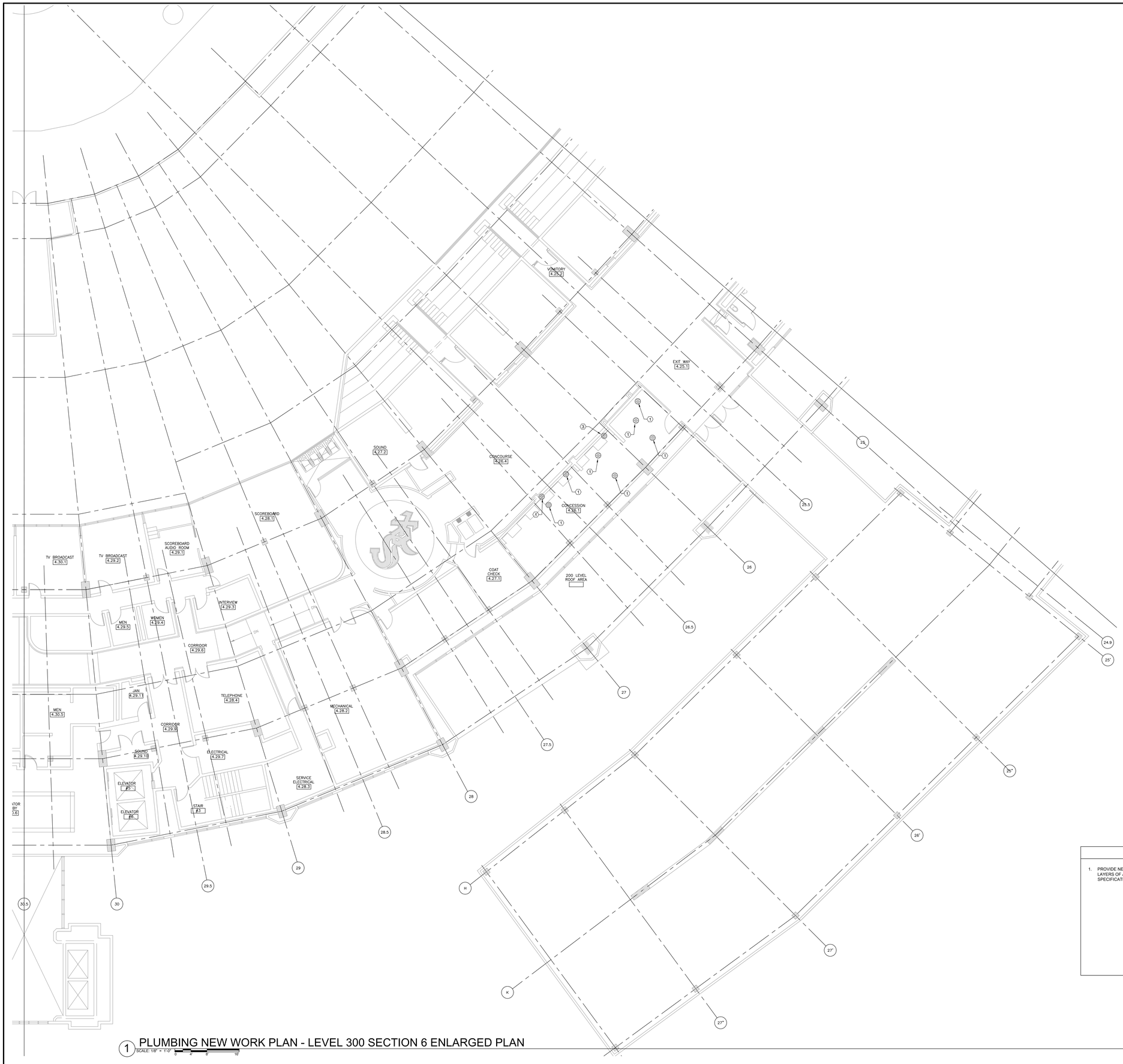
PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 300 SEC. 05 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.305



1 PLUMBING NEW WORK PLAN - LEVEL 300 SECTION 6 ENLARGED PLAN

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

KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.

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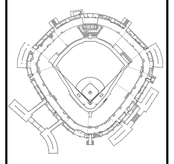
KEY PLAN



ISSUE/REVISION:

REV	DATE	DESCRIPTION
-	10/28/22	ISSUE FOR BID

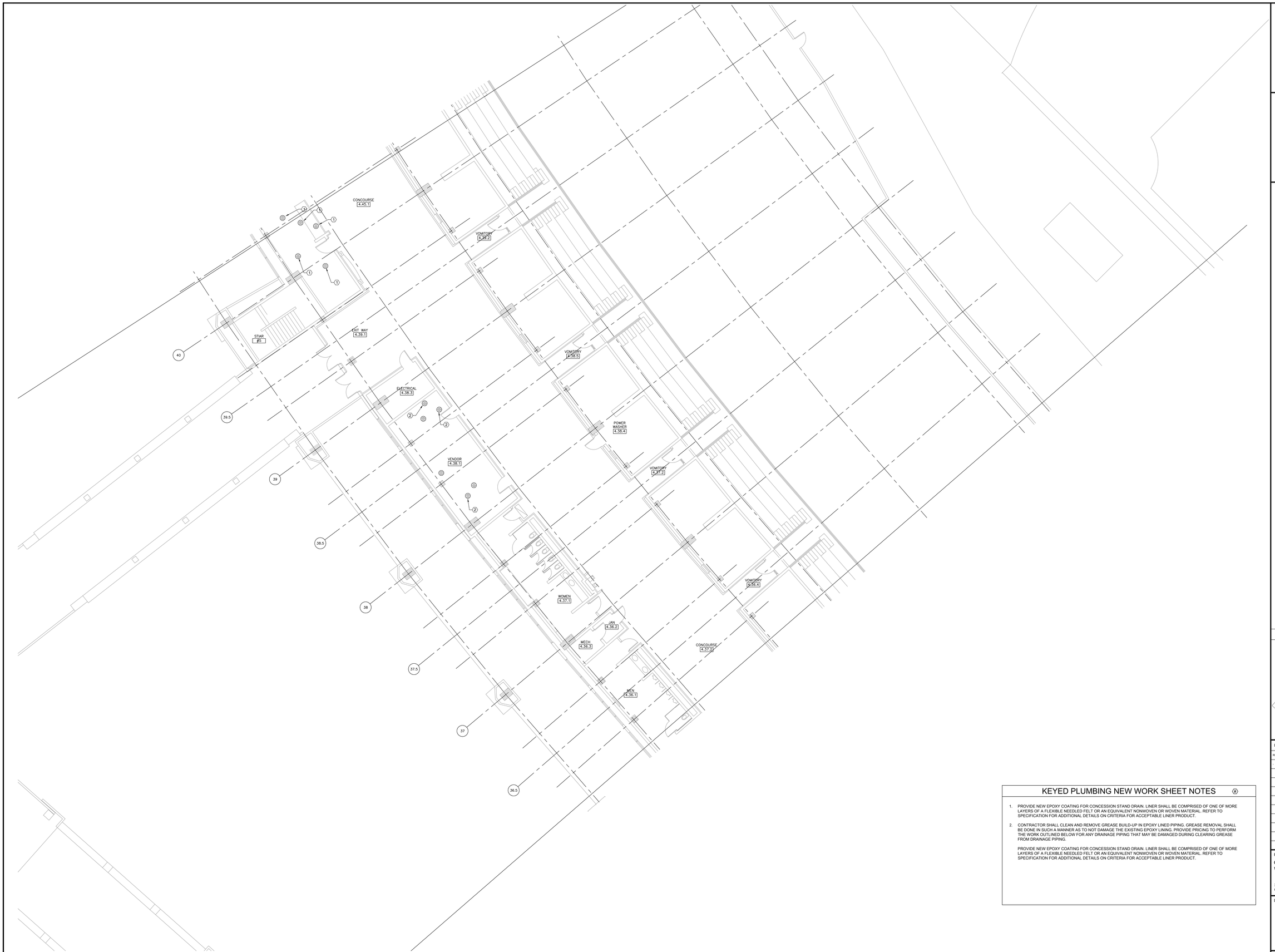
PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 300 SEC. 06 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.306



1 PLUMBING NEW WORK PLAN - LEVEL 300 SECTION 8 ENLARGED PLAN

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

0 4 8 16

KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.

2. CONTRACTOR SHALL CLEAN AND REMOVE GREASE BUILD-UP IN EPOXY LINED PIPING. GREASE REMOVAL SHALL BE DONE IN SUCH A MANNER AS TO NOT DAMAGE THE EXISTING EPOXY LINING. PROVIDE PRICING TO PERFORM THE WORK OUTLINED BELOW FOR ANY DRAINAGE PIPING THAT MAY BE DAMAGED DURING CLEARING GREASE FROM DRAINAGE PIPING.

   PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.

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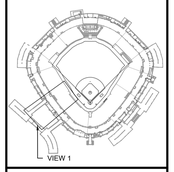
KEY PLAN



ISSUE/REVISION:

REV	DATE	DESCRIPTION
-	10/28/22	ISSUE FOR BID

PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

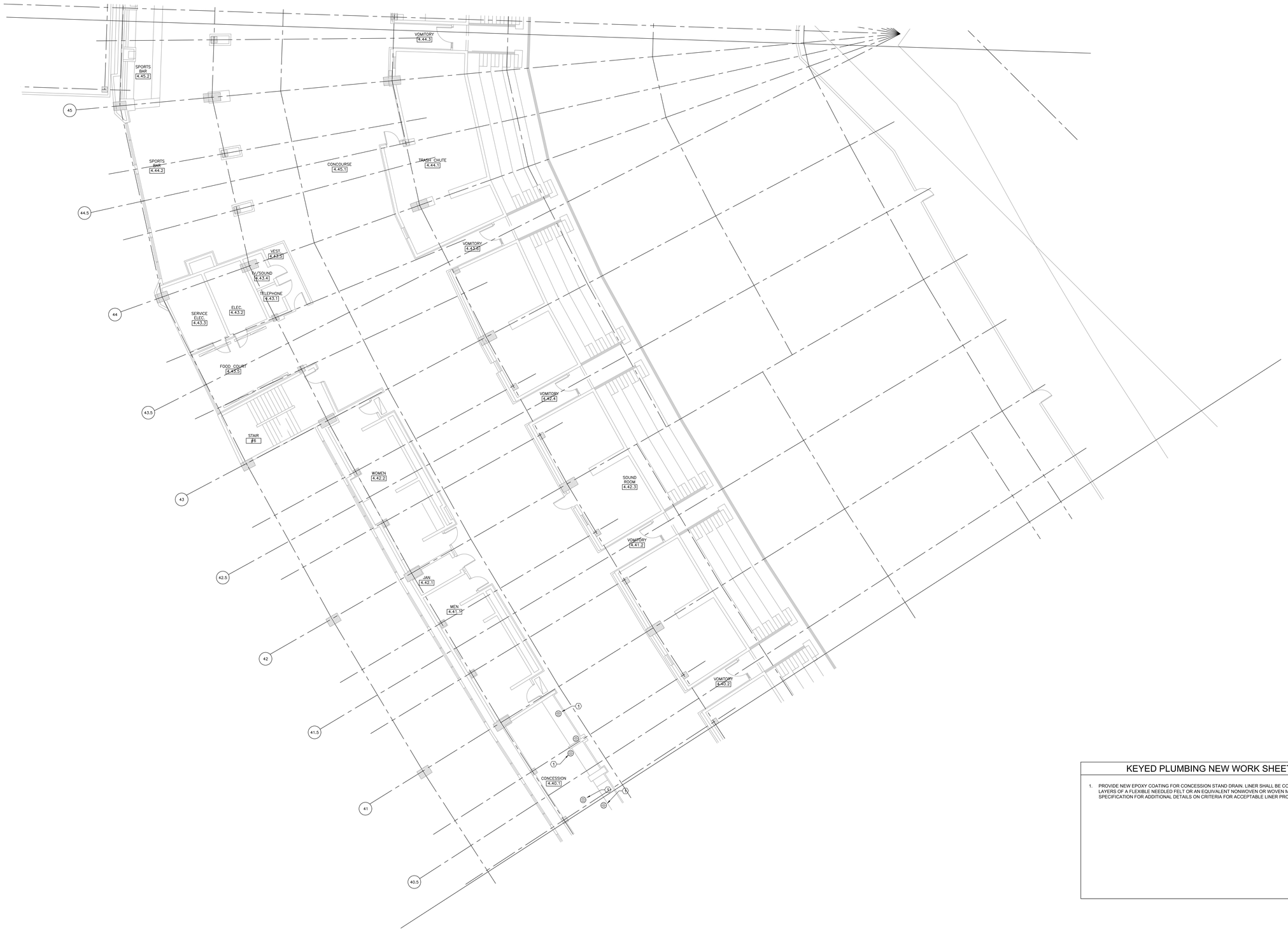
333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 300 SEC. 08 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.

P1.308



KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.

1 PLUMBING NEW WORK PLAN - LEVEL 300 SECTION 9 ENLARGED PLAN

SCALE: 1/8" = 1'-0" 0 4' 8' 16'

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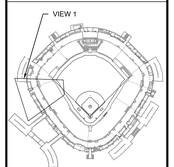

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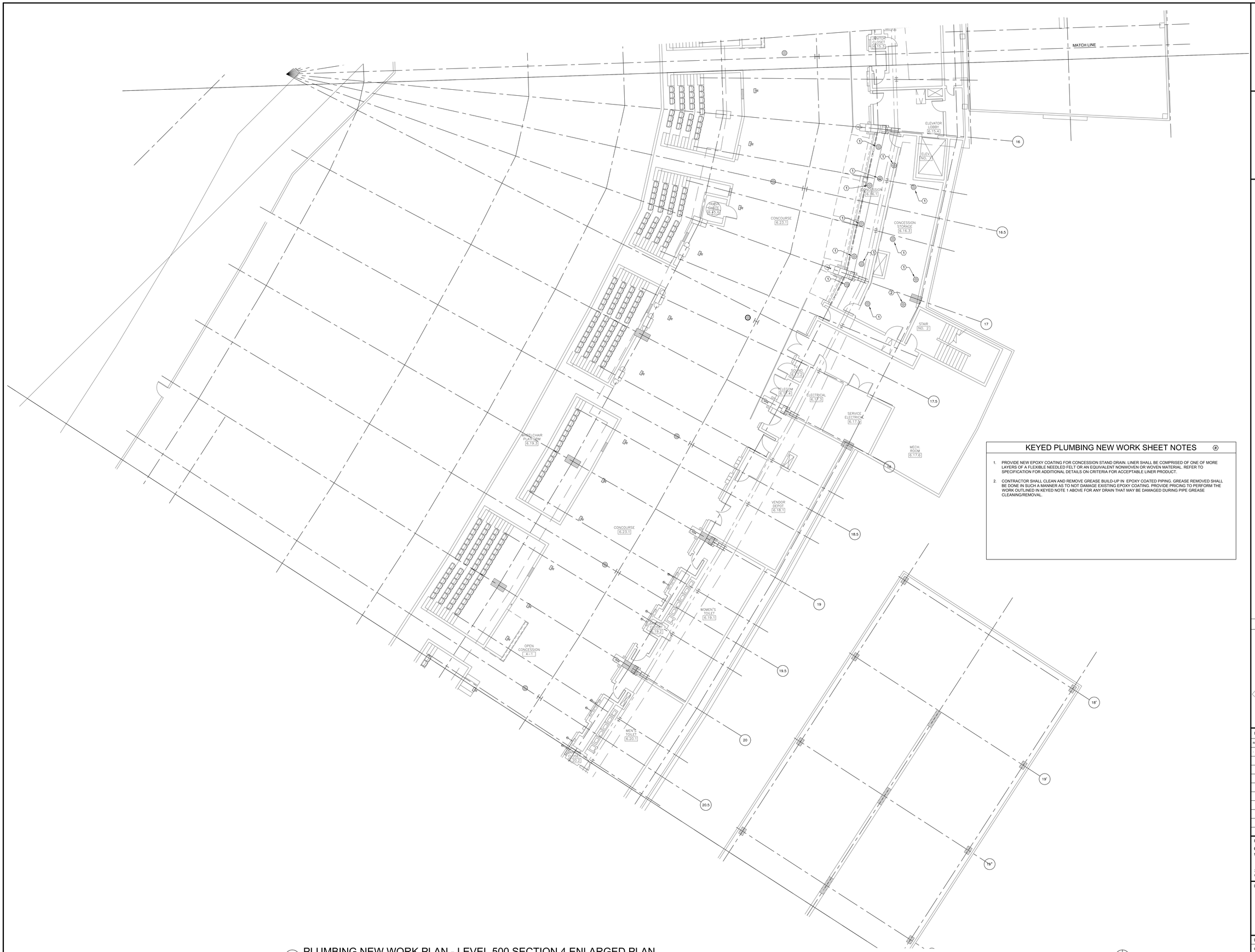
PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 300 SEC. 09 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.309



KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.
2. CONTRACTOR SHALL CLEAN AND REMOVE GREASE BUILD-UP IN EPOXY COATED PIPING. GREASE REMOVED SHALL BE DONE IN SUCH A MANNER AS TO NOT DAMAGE EXISTING EPOXY COATING. PROVIDE PRICING TO PERFORM THE WORK OUTLINED IN KEYED NOTE 1 ABOVE FOR ANY DRAIN THAT MAY BE DAMAGED DURING PIPE GREASE CLEANING/REMOVAL.

1 PLUMBING NEW WORK PLAN - LEVEL 500 SECTION 4 ENLARGED PLAN

SCALE: 1/8" = 1'-0" 0 4' 8' 16'

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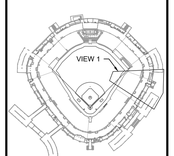
KEY PLAN



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PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 500 SEC. 04 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.504

1 PLUMBING NEW WORK PLAN - LEVEL 500 SECTION 5 ENLARGED PLAN

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

0 4' 8' 16'

KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.

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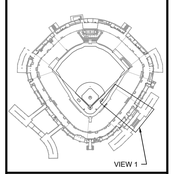
KEY PLAN



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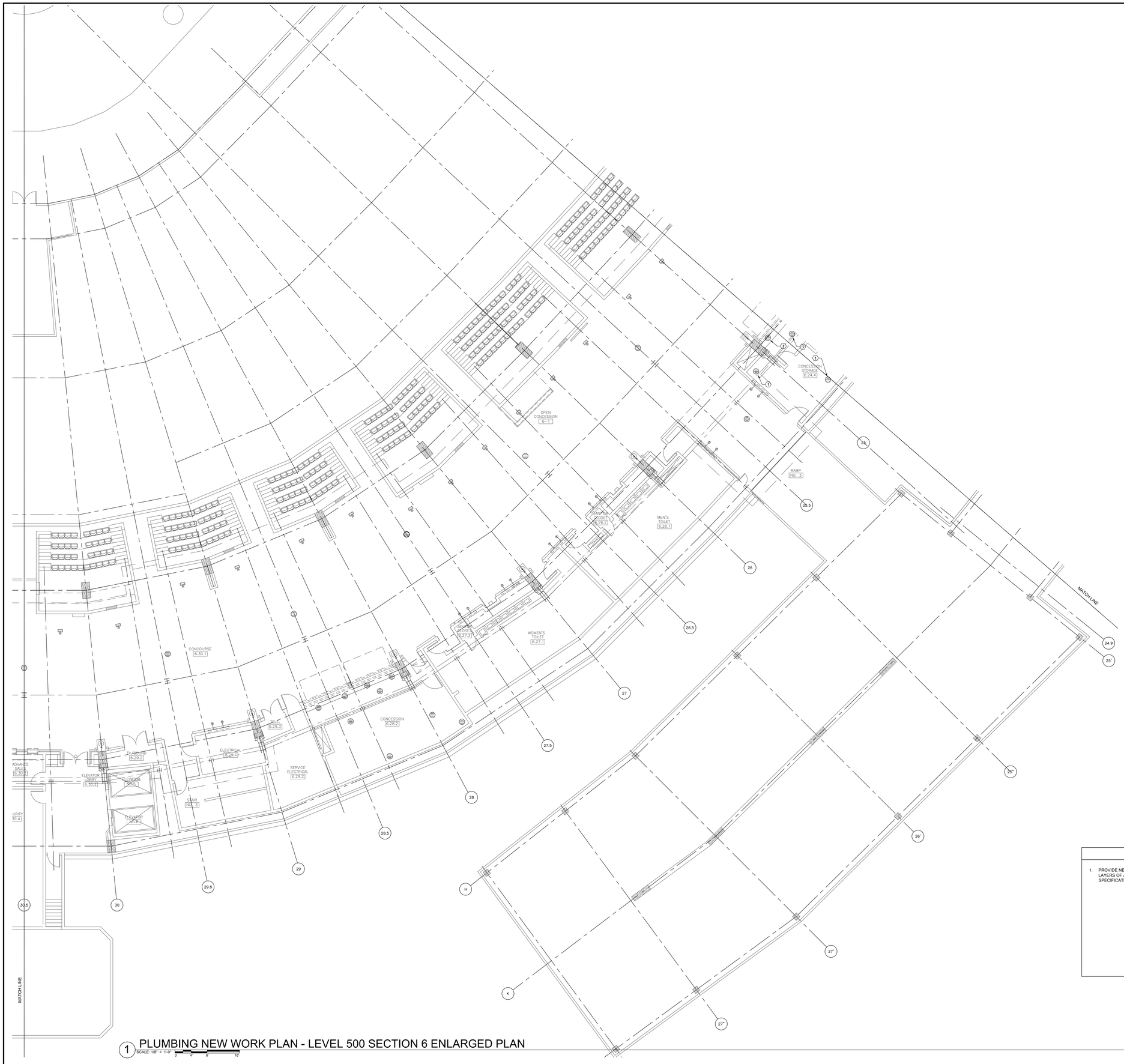
PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 500 SEC. 05 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.505



1 PLUMBING NEW WORK PLAN - LEVEL 500 SECTION 6 ENLARGED PLAN

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

KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.

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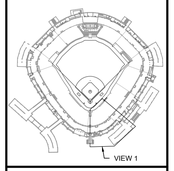

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PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 500 SEC. 06 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.506

KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.
2. REPLACE EXISTING FLOOR CLEAN OUT WITH NEW TOP; FLOOR CLEANOUT TOP SURFACE IS DAMAGED.

1 PLUMBING DEMOLITION PLAN - LEVEL 500 SECTION 7 ENLARGED PLAN

SCALE: 1/8" = 1'-0" 0 4 8 16'

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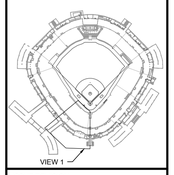
KEY PLAN



ISSUE/REVISION:

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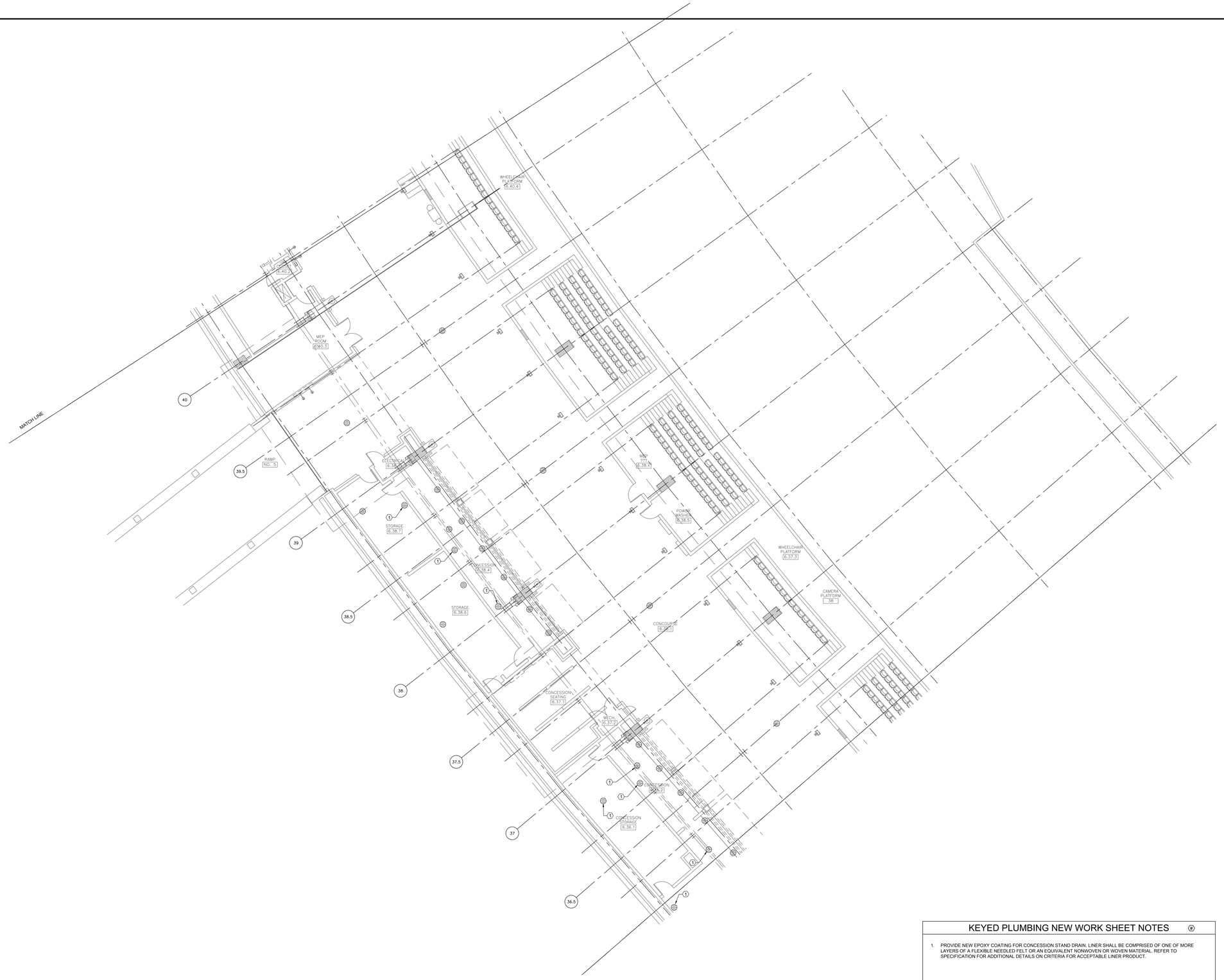
PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 500 SEC. 07 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.507



KEYED PLUMBING NEW WORK SHEET NOTES

1. PROVIDE NEW EPOXY COATING FOR CONCESSION STAND DRAIN. LINER SHALL BE COMPRISED OF ONE OF MORE LAYERS OF A FLEXIBLE NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL. REFER TO SPECIFICATION FOR ADDITIONAL DETAILS ON CRITERIA FOR ACCEPTABLE LINER PRODUCT.

1 PLUMBING NEW WORK PLAN - LEVEL 500 SECTION 8 ENLARGED PLAN

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

0 4' 8' 16'

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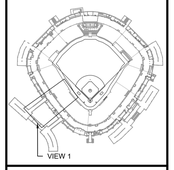
KEY PLAN



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PROJECT:

GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET, CHICAGO, ILLINOIS 60616

DRAWING TITLE:

PLUMBING NEW WORK PLAN - LEVEL 500 SEC. 08 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.

P1.508

KEYED PLUMBING NEW WORK SHEET NOTES

1. CONTRACTOR SHALL CLEAN AND REMOVE GREASE BUILD-UP IN EPOXY LINED PIPING. GREASE REMOVAL SHALL BE DONE IN SUCH A MANNER AS TO NOT DAMAGE THE EXISTING EPOXY LINING. PROVIDE PRICING TO PERFORM THE WORK OUTLINED IN KEYED NOTE 3 ABOVE FOR ANY DRAINAGE PIPING THAT MAY BE DAMAGED DURING CLEARING GREASE FROM DRAINAGE PIPING.

1 PLUMBING NEW WORK PLAN - LEVEL 500 SECTION 9 ENLARGED PLAN

SCALE: 1/8" = 1'-0" 0' 4' 8' 16'

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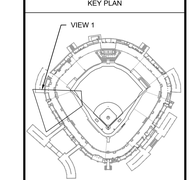
KEY PLAN



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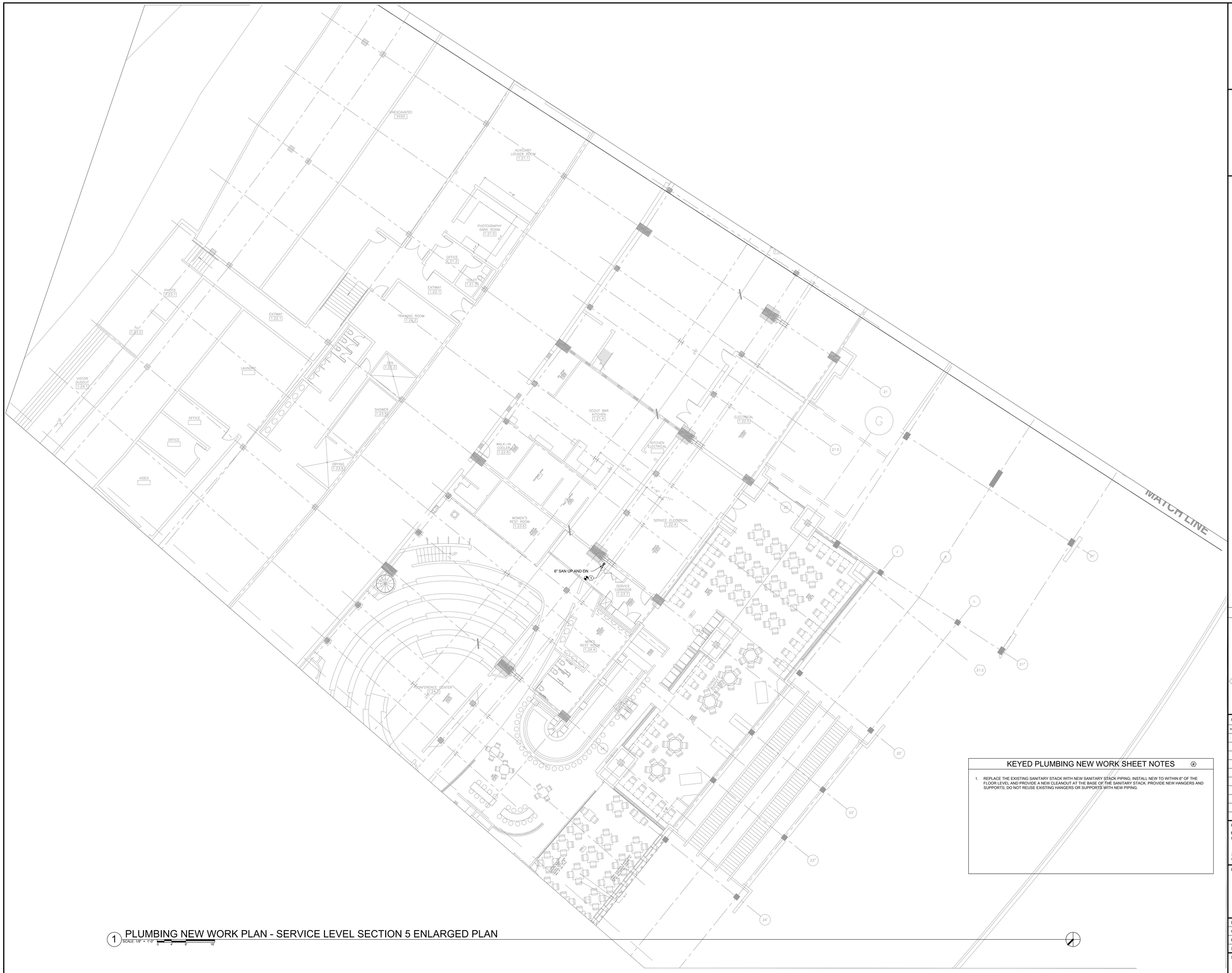
PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - LEVEL 500 SEC. 09 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P1.509



1 PLUMBING NEW WORK PLAN - SERVICE LEVEL SECTION 5 ENLARGED PLAN

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

KEYED PLUMBING NEW WORK SHEET NOTES

1. REPLACE THE EXISTING SANITARY STACK WITH NEW SANITARY STACK PIPING; INSTALL NEW TO WITHIN 6" OF THE FLOOR LEVEL AND PROVIDE A NEW CLEANOUT AT THE BASE OF THE SANITARY STACK. PROVIDE NEW HANGERS AND SUPPORTS; DO NOT REUSE EXISTING HANGERS OR SUPPORTS WITH NEW PIPING.

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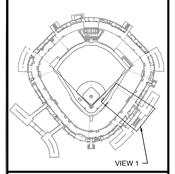

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GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - SERVICE LEVEL SEC. 05 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P2.S05

1 PLUMBING NEW WORK PLAN - LEVEL 100 SECTION 5 ENLARGED PLAN

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

0 4 8 16

KEYED PLUMBING NEW WORK SHEET NOTES

1. REPLACE THE EXISTING SANITARY PIPING WITH NEW SANITARY AND VENT PIPING. PROVIDE NEW HANGERS AND SUPPORTS; DO NOT REUSE EXISTING HANGERS OR SUPPORTS WITH NEW PIPING.

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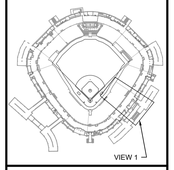
KEY PLAN



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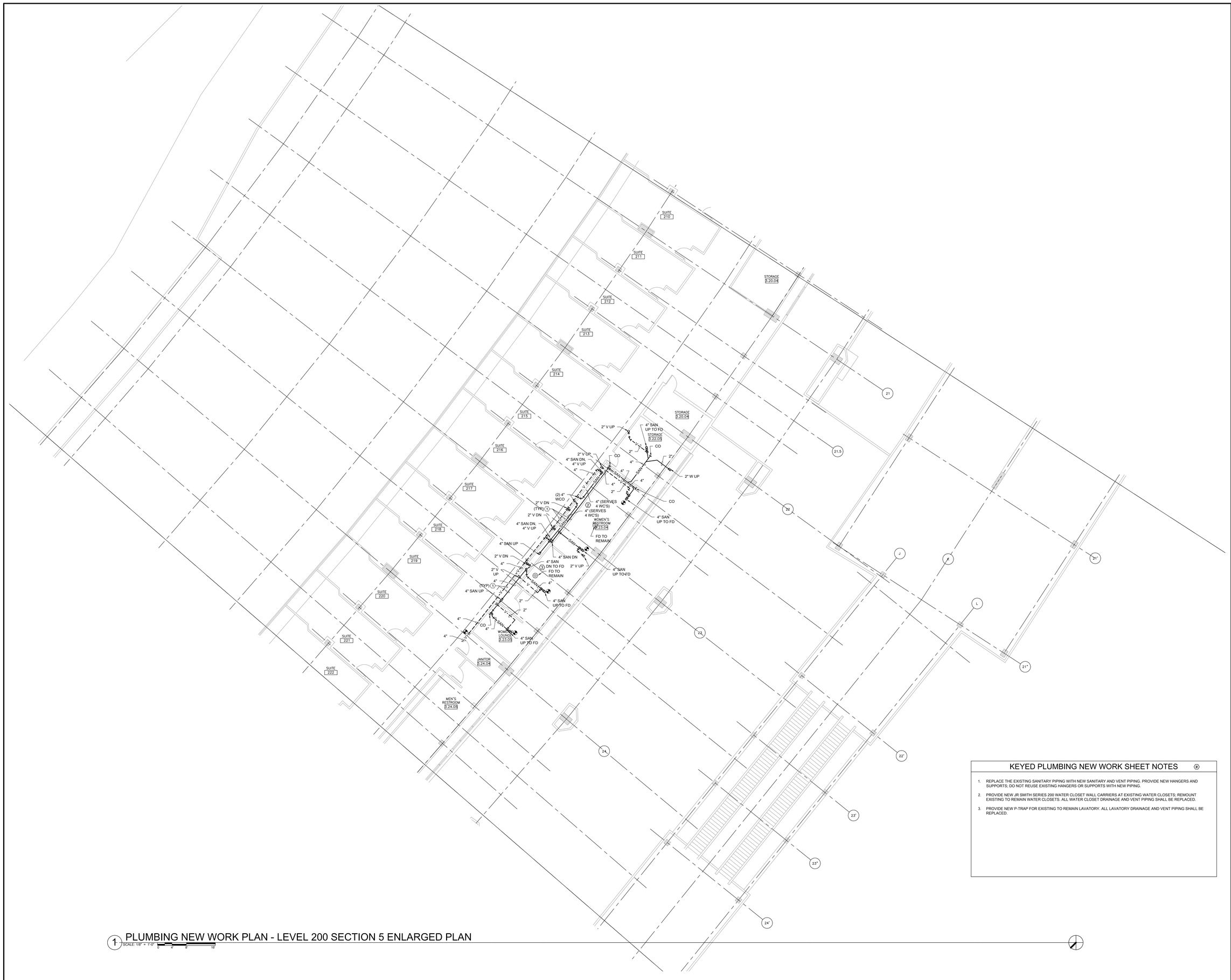
333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - 100 LEVEL SEC. 05 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.

P2.105



1 PLUMBING NEW WORK PLAN - LEVEL 200 SECTION 5 ENLARGED PLAN

SCALE: 1/8" = 1'-0" 0 4' 8' 16'

KEYED PLUMBING NEW WORK SHEET NOTES

1. REPLACE THE EXISTING SANITARY PIPING WITH NEW SANITARY AND VENT PIPING. PROVIDE NEW HANGERS AND SUPPORTS; DO NOT REUSE EXISTING HANGERS OR SUPPORTS WITH NEW PIPING.
2. PROVIDE NEW JR SMITH SERIES 200 WATER CLOSET WALL CARRIERS AT EXISTING WATER CLOSETS; REMOUNT EXISTING TO REMAIN WATER CLOSETS. ALL WATER CLOSET DRAINAGE AND VENT PIPING SHALL BE REPLACED.
3. PROVIDE NEW P-TRAP FOR EXISTING TO REMAIN LAVATORY. ALL LAVATORY DRAINAGE AND VENT PIPING SHALL BE REPLACED.

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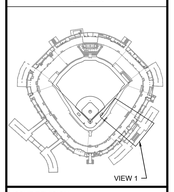
ILLINOIS SPORTS FACILITIES AUTHORITY

KEY PLAN



ISSUE/REVISION:

REV.	DATE	DESCRIPTION
-	10/28/22	ISSUE FOR BID

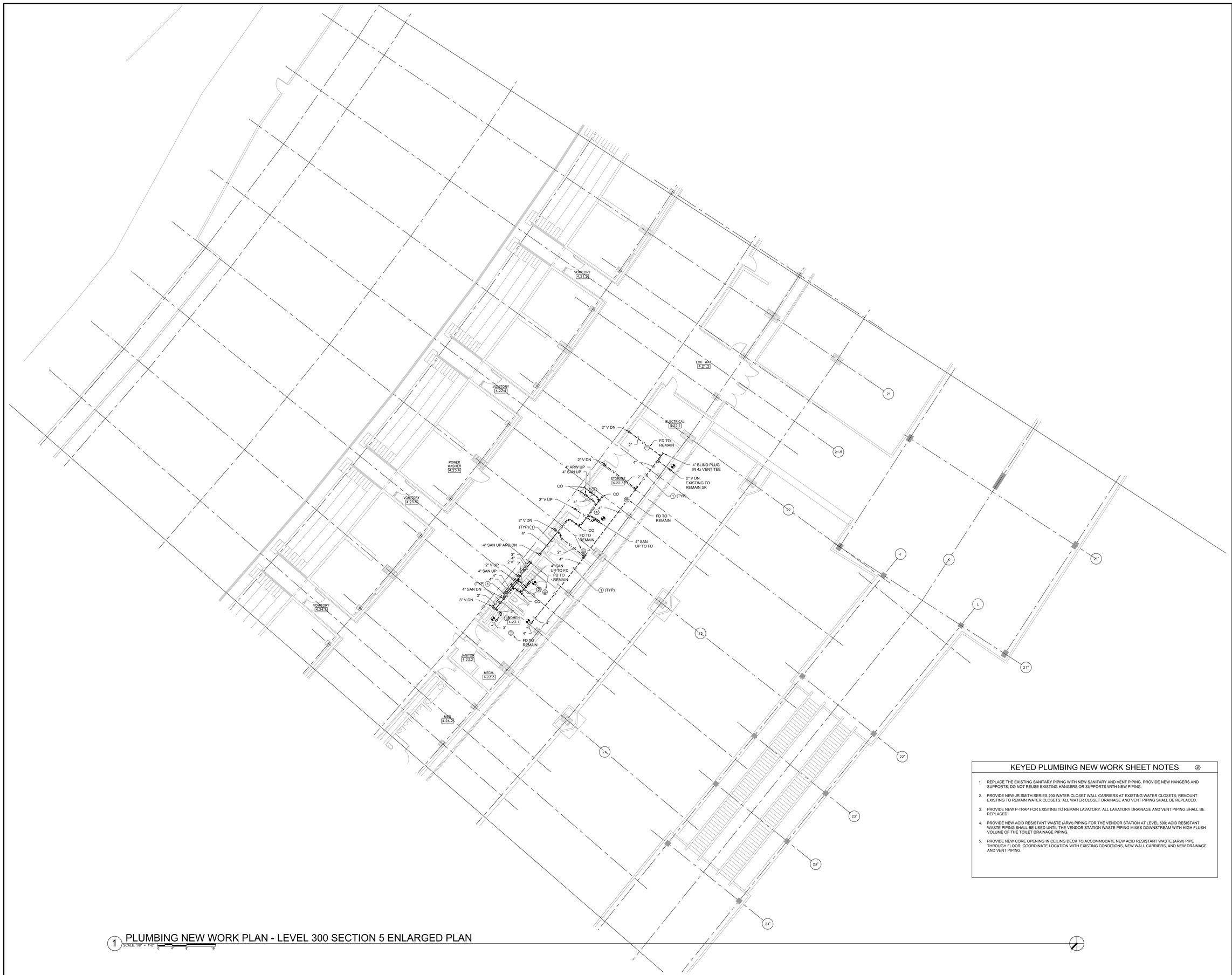
PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING NEW WORK PLAN - 200 LEVEL SEC. 05 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.
P2.205



KEYED PLUMBING NEW WORK SHEET NOTES

1. REPLACE THE EXISTING SANITARY PIPING WITH NEW SANITARY AND VENT PIPING. PROVIDE NEW HANGERS AND SUPPORTS; DO NOT REUSE EXISTING HANGERS OR SUPPORTS WITH NEW PIPING.
2. PROVIDE NEW JR SMITH SERIES 200 WATER CLOSET WALL CARRIERS AT EXISTING WATER CLOSETS; REMOUNT EXISTING TO REMAIN WATER CLOSETS. ALL WATER CLOSET DRAINAGE AND VENT PIPING SHALL BE REPLACED.
3. PROVIDE NEW P-TRAP FOR EXISTING TO REMAIN LAVATORY. ALL LAVATORY DRAINAGE AND VENT PIPING SHALL BE REPLACED.
4. PROVIDE NEW ACID RESISTANT WASTE (ARW) PIPING FOR THE VENDOR STATION AT LEVEL 500; ACID RESISTANT WASTE PIPING SHALL BE USED UNTIL THE VENDOR STATION WASTE PIPING MIXES DOWNSTREAM WITH HIGH FLUSH VOLUME OF THE TOILET DRAINAGE PIPING.
5. PROVIDE NEW CORE OPENING IN CEILING DECK TO ACCOMMODATE NEW ACID RESISTANT WASTE (ARW) PIPE THROUGH FLOOR; COORDINATE LOCATION WITH EXISTING CONDITIONS, NEW WALL CARRIERS, AND NEW DRAINAGE AND VENT PIPING.

1 PLUMBING NEW WORK PLAN - LEVEL 300 SECTION 5 ENLARGED PLAN

SCALE: 1/8" = 1'-0" 0' 4' 8' 16'

ELARA
30 N. Wolf Rd., Second Floor
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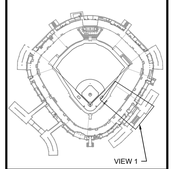
KEY PLAN



ISSUE/REVISION:

REV.	DATE	DESCRIPTION
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PROJECT:

GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:

PLUMBING NEW WORK PLAN - 300 LEVEL SEC. 05 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	1/8" = 1'-0"

SHEET NO.

P2.305

1 PLUMBING NEW WORK PLAN - LEVEL 400 SECTION 5 ENLARGED PLAN

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

0 4 8 16

KEYED PLUMBING NEW WORK SHEET NOTES

1. REPLACE THE EXISTING SANITARY PIPING WITH NEW SANITARY AND VENT PIPING. PROVIDE NEW HANGERS AND SUPPORTS; DO NOT REUSE EXISTING HANGERS OR SUPPORTS WITH NEW PIPING.
2. PROVIDE NEW JR SMITH SERIES 200 WATER CLOSET WALL CARRIERS AT EXISTING WATER CLOSETS; REMOUNT EXISTING TO REMAIN WATER CLOSETS. ALL WATER CLOSET DRAINAGE AND VENT PIPING SHALL BE REPLACED.
3. PROVIDE NEW P-TRAP FOR EXISTING TO REMAIN LAVATORY. ALL LAVATORY DRAINAGE AND VENT PIPING SHALL BE REPLACED.
4. PROVIDE NEW ACID RESISTANT WASTE (ARW) PIPING FOR THE VENDOR STATION AT LEVEL 500; ACID RESISTANT WASTE PIPING SHALL BE USED UNTIL THE VENDOR STATION WASTE PIPING MIXES DOWNSTREAM WITH HIGH FLUSH VOLUME OF THE TOILET DRAINAGE PIPING.
5. PROVIDE NEW CORE OPENING IN FLOOR DECK TO ACCOMMODATE NEW ACID RESISTANT WASTE (ARW) PIPE THROUGH FLOOR. COORDINATE LOCATION WITH EXISTING CONDITIONS, NEW WALL CARRIERS, AND NEW DRAINAGE AND VENT PIPING.

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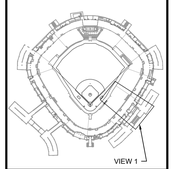
KEY PLAN



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GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:

PLUMBING NEW WORK PLAN - 400 LEVEL SEC. 05 ENLARGED PLAN

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	#/#" = 1'-0"

SHEET NO.

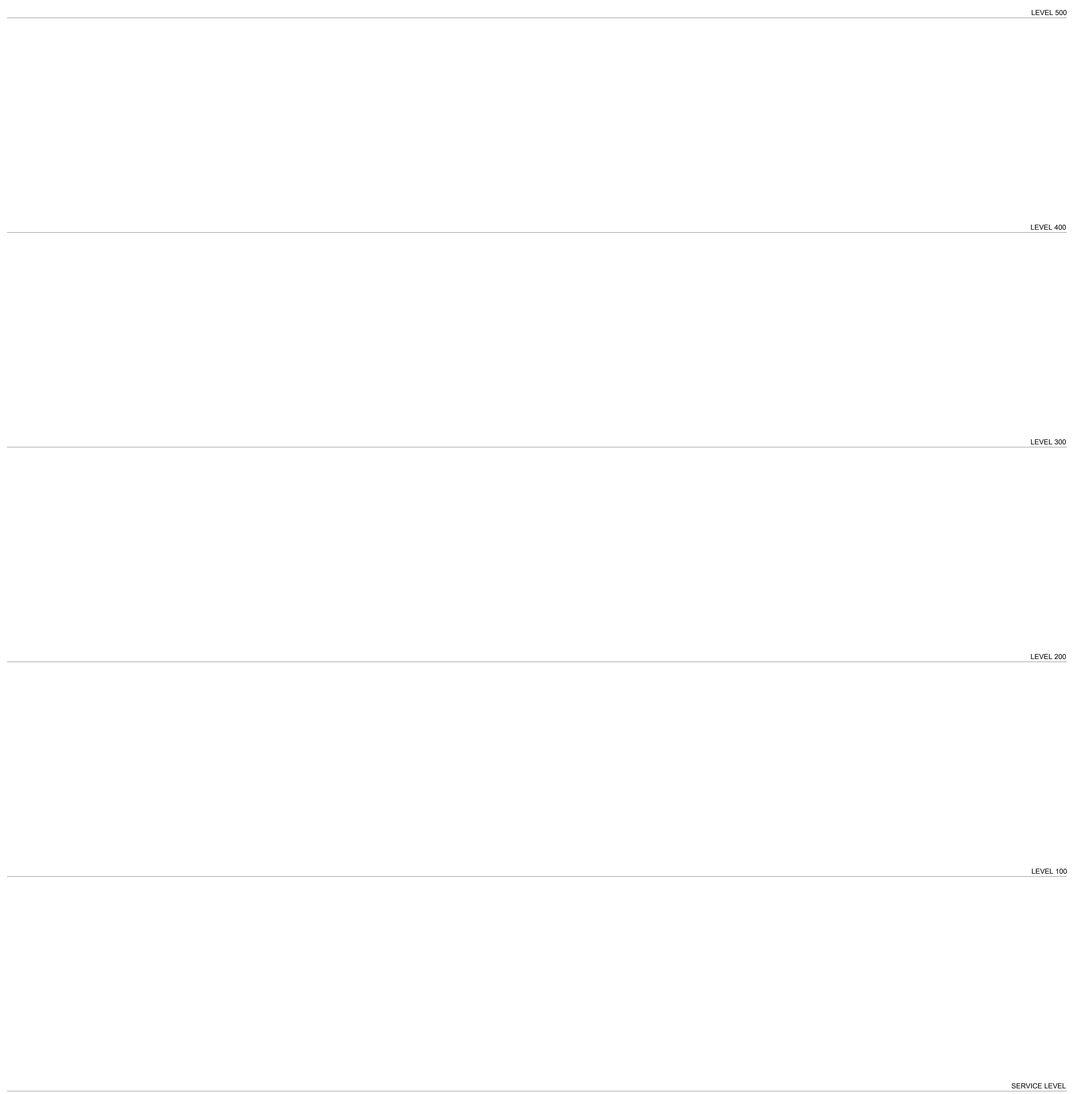
P2.405

KEYED PLUMBING DEMOLITION SHEET NOTES

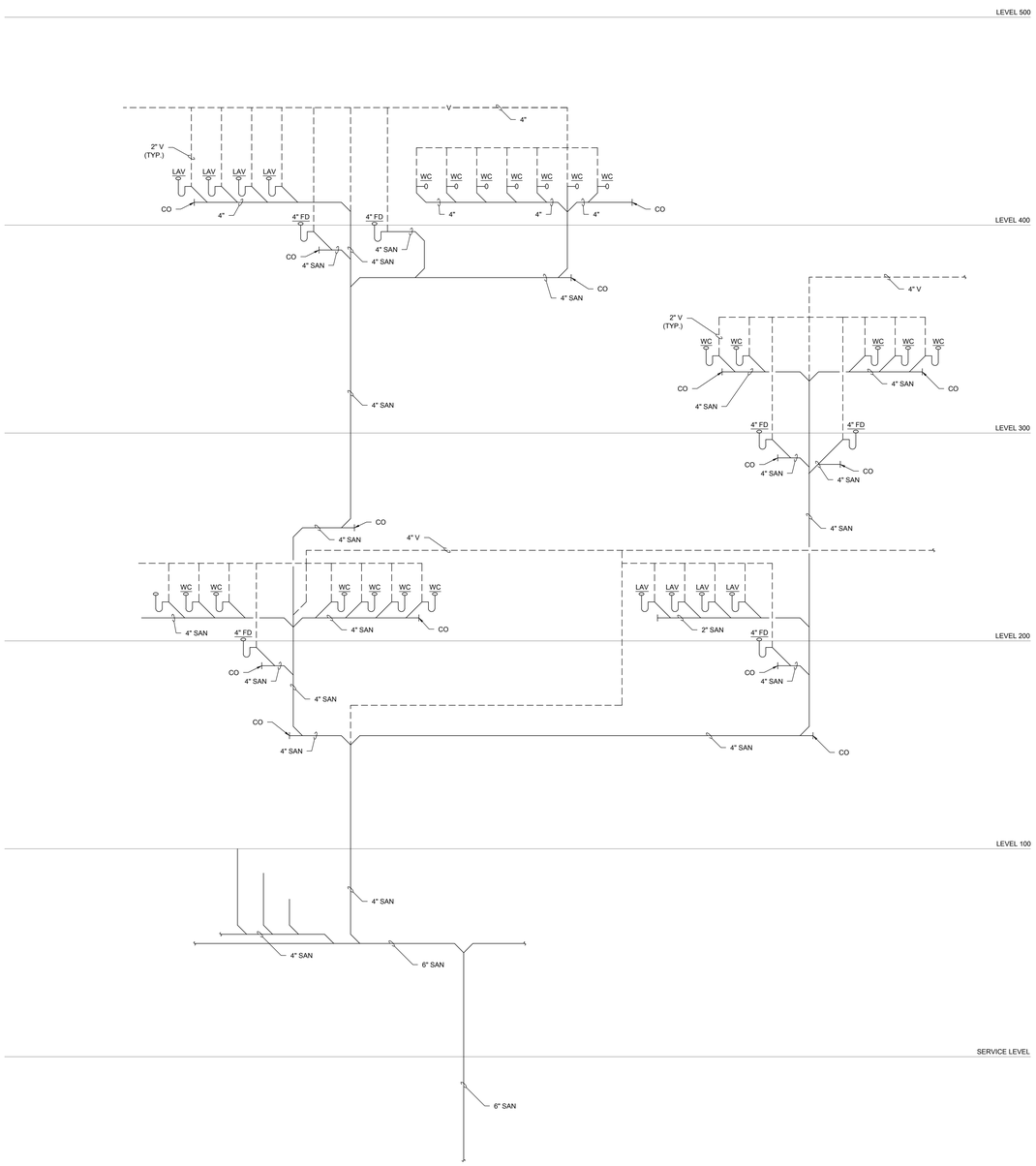
1.

KEYED PLUMBING NEW WORK SHEET NOTES

1.



2 **PLUMBING NEW WORK RISER DIAGRAM**
SCALE: NO SCALE



1 **PLUMBING DEMOLITION RISER DIAGRAM**
SCALE: NO SCALE

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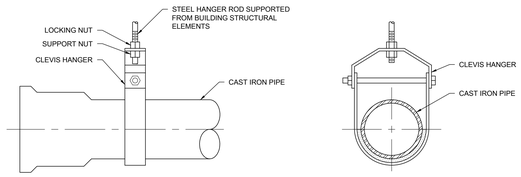
DRAWING TITLE:
PLUMBING RISER DIAGRAM

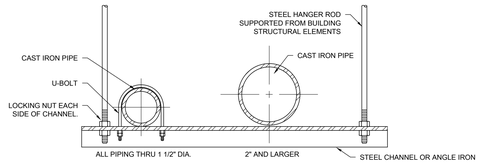
DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	NO SCALE

SHEET NO.
P3.001



NOTES:

1. CONFER WITH ARCHITECT AND REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION ON ACCEPTABLE METHODS AND LOCATIONS FOR HANGER SUPPORTS.



PIPE HANGERS AND SUPPORTS (HORIZONTAL STEEL AND COPPER PIPING)		
NOMINAL PIPE SIZE	DISTANCE BETWEEN SUPPORTS	HANGER ROD DIAMETERS
1/2"	6'	3/8"
3/4" TO 1-1/2"	6'	1/2"
2" TO 2-1/2"	10'	1/2"
3" AND 4"	12'	5/8"
6" TO 12"	14'	7/8"

NOTES:

PLACE HANGER WITHIN 1 FOOT OF EACH HORIZONTAL ELBOW. SUPPORT HORIZONTAL SOLID WASTE AND STORM PIPE NEAR EACH HUB, WITH 5 FEET MAXIMUM SPACING BETWEEN HANGERS.

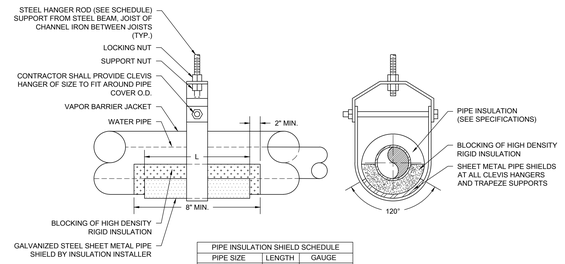
VERTICAL PIPING:

1. SUPPORT VERTICAL WATER PIPING AT EVERY FLOOR.
2. SUPPORT VERTICAL SOIL PIPE AT EACH FLOOR AT HUB.

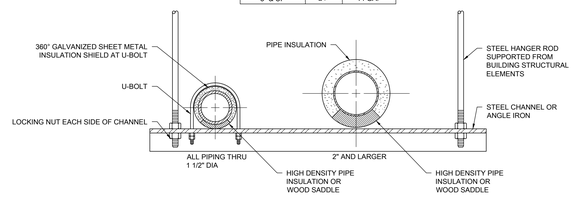
WHERE SEVERAL PIPES CAN BE INSTALLED IN PARALLEL AND AT SAME ELEVATION PROVIDE MULTIPLE OR TRAPEZE HANGERS.
WHERE PRACTICAL, SUPPORT RISER PIPING INDEPENDENTLY OF CONNECTED HORIZONTAL PIPING.

7 PIPE HANGER DETAILS (UN-INSULATED)

SCALE: NO SCALE



PIPE INSULATION SHIELD SCHEDULE		
PIPE SIZE	LENGTH	GAUGE
UP TO 3/4"	8"	20 GA.
1"-2"	12"	18 GA.
2 1/2"-4"	12"	16 GA.
5" & 6"	18"	16 GA.
8" & UP	24"	14 GA.



PIPE HANGERS AND SUPPORTS (HORIZONTAL STEEL AND COPPER PIPING)		
NOMINAL PIPE SIZE	DISTANCE BETWEEN SUPPORTS	HANGER ROD DIAMETERS
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3/4" TO 1-1/2"	6'	1/2"
2" TO 2-1/2"	10'	1/2"
3" AND 4"	12'	5/8"
6" TO 12"	14'	7/8"

NOTES:

HORIZONTAL PIPING:

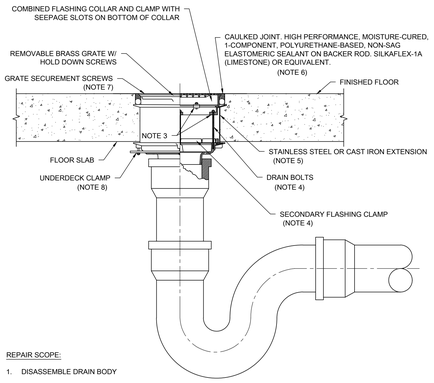
1. PLACE HANGER WITHIN 1 FOOT OF EACH HORIZONTAL ELBOW. SUPPORT HORIZONTAL SOLID WASTE AND STORM PIPE NEAR EACH HUB, WITH 5 FEET MAXIMUM SPACING BETWEEN HANGERS.

VERTICAL PIPING:

1. SUPPORT VERTICAL WATER PIPING AT EVERY FLOOR.
2. SUPPORT VERTICAL SOIL PIPE AT EACH FLOOR AT HUB.
3. WHERE SEVERAL PIPES CAN BE INSTALLED IN PARALLEL AND AT SAME ELEVATION PROVIDE MULTIPLE OR TRAPEZE HANGERS.
4. WHERE PRACTICAL, SUPPORT RISER PIPING INDEPENDENTLY OF CONNECTED HORIZONTAL PIPING.

4 PIPE HANGER DETAIL (INSULATED)

SCALE: NO SCALE

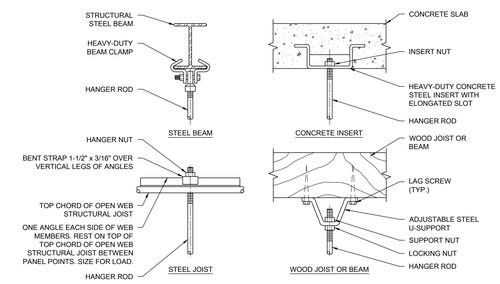


REPAIR SCOPE:

1. DISASSEMBLE DRAIN BODY
2. CLEAN DEBRIS FROM DRAIN INTERIOR.
3. INSPECT FOR BROKEN BOLT FLANGES OR CONNECTION POINTS. REPLACE DRAIN BODY COMPONENTS THAT ARE BROKEN.
4. PROVIDE ALL NEW SS NUTS & BOLTS SECURING UPPER DRAIN BODY AND LOWER BODY. PROVIDE NEW FLASHING CLAMP TO ENSURE PROPER LEAK PREVENTION.
5. CONFIRM EXISTING SPACER SUFFICIENTLY SIZED FOR CONCRETE THICKNESS. IF EXTENSION IS NOT PROPER SIZE TO YIELD A GRATE HEIGHT LEVEL WITH THE FLOOR, PROVIDE A NEW EXTENSION OF APPROPRIATE HEIGHT.
6. RESEAL GAP BETWEEN DRAIN AND ADJACENT CONCRETE. REFER TO SPECIFICATIONS.
7. PROVIDE NEW FASTENERS TO ATTACH GRATE TO DRAIN BODY.
8. IF DRAIN REMAINS INSECURE, INSPECT UNDERDECK CLAMPS TO CONFIRM PROPER ATTACHMENT.

1 DECK DRAIN DETAIL

SCALE: NO SCALE



PIPE HANGERS AND SUPPORTS (HORIZONTAL STEEL AND COPPER PIPING)		
NOMINAL PIPE SIZE	DISTANCE BETWEEN SUPPORTS	HANGER ROD DIAMETERS
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NOTES:

PLACE HANGER WITHIN 1 FOOT OF EACH HORIZONTAL ELBOW. SUPPORT HORIZONTAL SOLID WASTE AND STORM PIPE NEAR EACH HUB, WITH 5 FEET MAXIMUM SPACING BETWEEN HANGERS.

VERTICAL PIPING:

1. SUPPORT VERTICAL WATER PIPING AT EVERY FLOOR.
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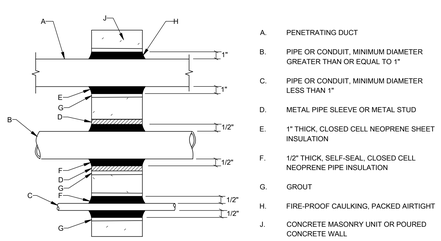
WHERE SEVERAL PIPES CAN BE INSTALLED IN PARALLEL AND AT SAME ELEVATION PROVIDE MULTIPLE OR TRAPEZE HANGERS.
WHERE PRACTICAL, SUPPORT RISER PIPING INDEPENDENTLY OF CONNECTED HORIZONTAL PIPING.

2 PIPE HANGER DETAIL

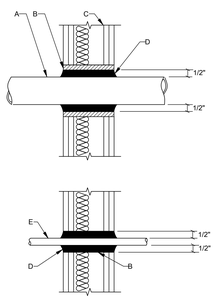
SCALE: NO SCALE



A. PENETRATING DUCT
B. PIPE OR CONDUIT, MINIMUM DIAMETER GREATER THAN OR EQUAL TO 1"
C. PIPE OR CONDUIT, MINIMUM DIAMETER LESS THAN 1"
D. METAL PIPE SLEEVE OR METAL STUD
E. 1" THICK, CLOSED CELL NEOPRENE SHEET INSULATION
F. 1/2" THICK, SELF-SEAL, CLOSED CELL NEOPRENE PIPE INSULATION
G. GROUT
H. FIRE-PROOF CAULKING, PACKED AIRTIGHT
J. CONCRETE MASONRY UNIT OR POURED CONCRETE WALL

MASONRY/CONCRETE PENETRATIONS DETAIL

NOTES:
1. PENETRATION DETAILS AT ACOUSTICALLY CRITICAL PARTITIONS - SEE ARCH. PLANS FOR WALL LOCATIONS AND SPECS. FOR MORE INFORMATION.
2. REFER TO SPECIFICATIONS FOR MATERIALS AND METHODS. REFER TO STRUCTURAL DRAWINGS FOR CONCRETE DIMENSIONS AND ELEVATIONS.

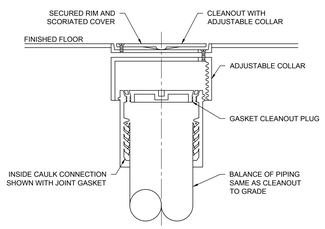


A. PENETRATING PIPE OR CONDUIT MINIMUM DIAMETER GREATER THAN OR EQUAL TO 1"
B. 1/2" THICK SELF-SEAL CLOSED CELL NEOPRENE PIPE INSULATION
C. METAL PIPE SLEEVE
D. FIRE-PROOF CAULKING, PACKED AIRTIGHT
E. PENETRATING PIPE OR CONDUIT MINIMUM DIAMETER LESS THAN 1"

DRY WALL PENETRATIONS DETAIL

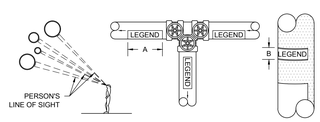
8 PIPE PENETRATIONS DETAIL

SCALE: NO SCALE



5 FLOOR CLEANOUT DETAIL

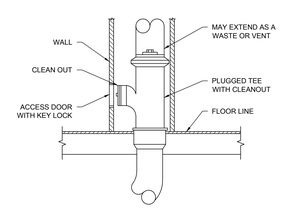
SCALE: NO SCALE



NOTES:

1. IDENTIFICATION MARKERS ARE TO BE PLACED ON ALL COVERED AND UNCOVERED PIPES AT 50'-0" INTERVALS, ADJACENT TO ALL VALVES OR BRANCHES, AND LOCATED AT BOTH SIDES OF A WALL/FLOOR PENETRATION. ARROWS OF SAME COLOR SHALL ALSO BE PLACED ON PIPES POINTING AWAY FROM MARKER INDICATING THE DIRECTION OF FLOW.

SIZE OF LEGEND LETTERS		
OUTSIDE DIAMETER OF PIPE OF COVERING	LENGTH OF COLOR FIELD "A"	SIZE OF LETTERS "B"
3/4" TO 1-1/4"	8"	1/2"
1-1/2" TO 2"	8"	3/4"
2'-1/2" TO 6"	12"	1-1/4"
8" TO 10"	24"	2-1/2"
OVER 10"	32"	3-1/2"



NOTES:

1. BALANCE OF PIPING SAME AS CLEANOUT TO GRADE

6 WALL CLEANOUT DETAIL

SCALE: NO SCALE

PLAN TAG	SERVICE	IDENTIFICATION MARKER
SAN	SANITARY	WHITE LETTERING ON GREEN BACKGROUND
V	VENT	WHITE LETTERING ON GREEN BACKGROUND
ST	STORM	WHITE LETTERING ON GREEN BACKGROUND
NP	NON-POTABLE COLD WATER	BLACK LETTERING ON YELLOW BACKGROUND
CW	DOMESTIC COLD WATER	WHITE LETTERING ON GREEN BACKGROUND
HW	DOMESTIC HOT WATER	BLACK LETTERING ON YELLOW BACKGROUND
HWR	DOMESTIC HOT WATER RETURN	BLACK LETTERING ON YELLOW BACKGROUND

3 PIPE IDENTIFICATION DETAIL

SCALE: NO SCALE

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(708) 236-0330 FAX

ISFA ILLINOIS SPORTS FACILITIES AUTHORITY

KEY PLAN

ISSUE/REVISION:

REV.	DATE	DESCRIPTION
-	10/28/22	ISSUE FOR BID

PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23

333 W 35TH STREET, CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING DETAILS

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	NO SCALE

SHEET NO.
P4.001

I. GENERAL NOTES

A. ALL WORK PERFORMED UNDER THIS CONTRACT SHALL BE IN CONFORMANCE WITH ALL GOVERNING NATIONAL, STATE, AND LOCAL CODES HAVING JURISDICTION.

B. CONTRACTOR SHALL REVIEW THE ENTIRE SET OF CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO, ALL ARCHITECTURAL, CIVIL, SITE, LANDSCAPING, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION DRAWINGS, AS WELL AS ALL SPECIFICATIONS AND INSTRUCTIONS TO BIDDERS. THIS CONTRACTOR SHALL VISIT THE SITE AND MAKE A DETAILED INSPECTION OF THE SPECIFIED WORK TO DEVELOP KNOWLEDGE OF ALL CONDITIONS PERTINENT TO THE COMPLETION OF HIS WORK. THIS CONTRACTOR SHALL FULLY COORDINATE HIS WORK WITH THE WORK PERFORMED BY OTHER TRADES AND/OR CONTRACTORS, AND SHALL MAKE SUCH FIELD ADJUSTMENTS AS ARE REQUIRED TO ACCOMMODATE FIELD CONDITIONS. ALL OF THE ABOVE SHALL BE INCLUDED IN THE SCOPE OF WORK AT NO ADDITIONAL COST TO OWNER.

C. SHOULD CONTRACTOR FIND DISCREPANCIES IN, OR OMISSIONS FROM, THE DRAWINGS, SPECIFICATIONS, OR OTHER CONTRACT DOCUMENTS, OR DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND THOSE REPRESENTED IN THE DRAWINGS, OR CONFLICTS BETWEEN HIS WORK AND THAT OF OTHER TRADES, OR BE IN DOUBT AS TO THE MEANING OF ANY CONTRACT DOCUMENTS, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND THE ENGINEER IN WRITING AND SHALL OBTAIN CLARIFICATION PRIOR TO SUBMITTING ANY BID. LACK OF SUCH NOTIFICATION SHALL BE CONSTRUED AS CONTRACTOR'S REPRESENTATION THAT NO DISCREPANCIES OR CONFLICTS EXIST. ADDITIONAL COMPENSATION WILL NOT BE GRANTED AFTER AWARD OF CONTRACT FOR ANY WORK REQUIRED TO COMPLY WITH THIS REQUIREMENT.

D. THE DRAWINGS INDICATE DIAGRAMMATICALLY THE INTENT, REQUIREMENTS FOR, AND LOCATION OF THE WORK INCLUDED UNDER THIS CONTRACT. ALL WORK REQUIRED TO AFFECT THE INDICATED DESIGN, INCLUDING DETAILS NOT SHOWN BUT WHOSE INCLUSION WOULD BE DEEMED A REQUIREMENT BY A KNOWLEDGEABLE TRADESMAN, BUILDING ENGINEER, OR TECHNICIAN, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

E. IT IS THE INTENT OF THESE DOCUMENTS THAT THE CONTRACTOR PROVIDE ALL LABOR, MATERIAL, EQUIPMENT, AND TOOLS FOR THE COMPLETE INSTALLATION OF ALL WORK SHOWN ON THE PLANS AND/OR DESCRIBED HEREIN, INCLUDING ALL DEVICES, CONTROLS, AND APPURTENANCES REQUIRED TO SET THE NEW SYSTEMS INTO OPERATION, UNLESS OTHERWISE NOTED.

F. CONTRACTOR SHALL VERIFY ALL MOUNTING, ARRANGEMENTS, HEIGHTS, AND LOCATIONS PRIOR TO ROUGH-IN. ANY MENTION OF A SPECIFIC MOUNTING ARRANGEMENT, WEIGHT, OR LOCATION SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO VERIFY SPECIFIC REQUIREMENTS AND BASE HIS WORK ON THEM. THE SAME CARE SHALL BE TAKEN WITH RESPECT TO INFORMATION FURNISHED BY THIS CONTRACTOR TO HIS SUBCONTRACTORS OR TO OTHER CONTRACTORS EMPLOYED BY THE OWNER ON THIS PROJECT. THIS CONTRACTOR SHALL BE FINANCIALLY RESPONSIBLE FOR ANY CHANGE ORDERS NECESSITATED BY INACCURATE OR INCORRECT INFORMATION FURNISHED TO OTHER CONTRACTORS. NO ADDITIONS TO THE CONTRACT AMOUNT WILL BE PERMITTED FOR ITEMS INSTALLED IN WRONG LOCATIONS OR IN CONFLICT WITH OTHER WORK.

G. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING FOR AND OBTAINING ALL APPLICABLE PERMITS. THIS CONTRACTOR SHALL PAY ALL PERMIT FEES, PLAN REVIEW FEES, LICENSE FEES, AND INSPECTIONS APPLICABLE TO HIS WORK, AND SUCH COSTS SHALL BE INCLUDED IN HIS BID UNLESS OTHERWISE NOTED. THIS CONTRACTOR SHALL ALSO INCLUDE IN HIS BID ALL FEES ASSOCIATED WITH THE SERVICES OF A PERMIT EXPEDITER AS MAY BE REQUIRED TO MEET THE PROJECT SCHEDULE.

H. CONTRACTOR SHALL ESTABLISH SAFE WORKING PROCEDURES FOR THE PROTECTION OF THE WORKMEN IN ALL PHASES OF WORK AND SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY LAWS, INCLUDING THE REQUIREMENTS OF OSHA. HE SHALL ALSO PROVIDE ALL NECESSARY SIGNS, LIGHTS, AND BARRICADES REQUIRED FOR THE SAFETY OF ALL OTHER PERSONS WHO MIGHT COME IN CONTACT WITH THE CONSTRUCTION BEING PERFORMED UNDER THIS CONTRACT.

I. ALL PUBLIC AND PRIVATE PROPERTY DAMAGED AS A RESULT OF WORK PERFORMED UNDER THIS CONTRACT SHALL BE REPAIRED AND/OR REPLACED TO MATCH EXISTING CONSTRUCTION BY THIS CONTRACTOR AND TO THE SATISFACTION OF THE OWNER AND AUTHORITIES HAVING JURISDICTION.

J. CONTRACTOR SHALL MAKE ALL ARRANGEMENTS WITH THE BUILDING OWNER'S REPRESENTATIVE REGARDING WORKSITE ACCESS, BUILDING RULES, AND REGULATIONS, INCLUDING WORKING HOURS, REFUSE DISPOSAL, DUMPSTER LOCATION, SECURITY, INTERRUPTIONS OF BUILDING UTILITIES OR FUNCTIONS, OWNERSHIP OF SALVAGED MATERIALS, PARKING, AND ANY OTHER ITEMS DEEMED TO BE OF MUTUAL INTEREST.

K. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO STORE AND PROTECT FROM DAMAGE ALL EQUIPMENT AND MATERIALS IN A MANNER THAT WILL MAINTAIN AN ORDERLY, CLEAN APPEARANCE. DAMAGED EQUIPMENT AND MATERIAL IS SUBJECT TO REJECTION BY THE OWNER'S REPRESENTATIVE. REPLACEMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

L. PROVIDE ALL HOLES, SLEEVES, CUTTING, PATCHING, AND SEALING FOR INSTALLATION OF THIS WORK. SEALING SHALL CONFORM TO THE FIRE RATING OF ALL BUILDING ASSEMBLIES. ALL EXTERIOR PENETRATIONS SHALL BE MADE WEATHER TIGHT.

M. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND SCANNING OBSTRUCTIONS/REINFORCEMENTS WHERE PENETRATIONS ARE TO BE MADE. ANY DAMAGE RESULTING FROM PENETRATIONS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.

N. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATING ACTIVITIES OR UNDERGROUND WORK. PROVIDE SOIL EROSION AND SEDIMENT CONTROL FOR EXCAVATION OF THE AREA ACCORDING TO ALL AUTHORITIES HAVING JURISDICTION.

O. CONTRACTOR SHALL NOT MODIFY OR REMOVE ANYTHING FOUND TO BE IN THE PATH OF NEW SYSTEMS TO BE INSTALLED WITHOUT PRIOR APPROVAL BY THE ENGINEER.

P. ALL ROOFING WORK SHALL BE BY OWNER APPROVED ROOFING CONTRACTOR(S) TO MAINTAIN ROOF WARRANTIES. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE ROOFING CONTRACTOR(S) TO ENSURE WEATHER TIGHT CONSTRUCTION AND TIMELY COMPLETION OF ALL WORK.

Q. THE CONTRACTOR IS RESPONSIBLE FOR THE CONTINUOUS CLEANING OF ALL DUST AND DEBRIS RESULTING FROM THEIR WORK.

R. CONTRACTOR TO DETERMINE REQUIRED SYSTEM SHUTDOWNS. MAXIMUM DURATION OF SYSTEM SHUTDOWN SHALL BE AT THE DISCRETION OF THE OWNER'S REPRESENTATIVE. SHUTDOWN SHALL BE COORDINATED ON THE JOB SITE WITH THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL PROVIDE A MINIMUM OF ONE (1) WEEK ADVANCE NOTICE OF SYSTEM SHUTDOWNS.

S. CONTRACTOR AND SUB-CONTRACTORS SHALL BE PROPERLY LICENSED, BONDED, AND INSURED AND CAPABLE OF PERFORMING QUALITY WORKMANSHIP OF THEIR TRADE ON THIS PROJECT.

T. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, AND SAFETY.

U. REMOVAL AND RESTORATION OF FINISHED SURFACES AS REQUIRED TO COMPLETE THIS SCOPE OF WORK IS THE RESPONSIBILITY OF THIS CONTRACTOR.

V. CONTRACTOR SHALL COORDINATE USE OF THE BUILDING ELEVATOR(S) AND DELIVERIES WITH THE OWNER.

W. MAINTAIN ALL MANUFACTURER RECOMMENDED AND CODE REQUIRED CLEARANCES.

X. CONTRACTOR SHALL PROVIDE TRAINING TO THE OPERATING STAFF FOR NEW SYSTEMS AND EQUIPMENT. REFER TO OWNER TRAINING SPECIFICATION SECTION FOR ADDITIONAL INFORMATION.

II. GENERAL DEMOLITION NOTES

A. ALL WORK SHALL BE PERFORMED IN A CLEAN AND WORKMANLIKE MANNER. CARE SHALL BE EXERCISED TO MINIMIZE ANY INCONVENIENCE OR DISTURBANCE TO OTHER AREAS OF THE BUILDING WHICH ARE TO REMAIN IN OPERATION.

B. ALL DEMOLITION AS CALLED FOR ON THE DEMOLITION DRAWINGS SHALL BE UNDER THIS CONTRACTOR'S WORK.

C. CONTRACTOR SHALL VISIT THE BUILDING, BEFORE SUBMITTING HIS BID, TO VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS WHICH MAY AFFECT HIS WORK. NOT ALL EXISTING DUCTWORK, PIPING, EQUIPMENT, ETC. MAY BE INDICATED ON DOCUMENTS.

D. THE INTENT OF THE DEMOLITION IS TO REMOVE THE ITEMS IN THEIR ENTIRETY. THIS INCLUDES ALL ASSOCIATED SUPPORT BASES, ANCHORAGE, HANGERS, CONTROLS INCLUDING WIRING AND CONDUIT EXPOSED IN MECHANICAL ROOMS, PIPING, DUCTWORK, WIRING, ETC. CAP EXISTING SYSTEMS TO REMAIN AT ACTIVE MAINS OR OTHER ACTIVE BRANCH LINES. DEAD END LENGTHS SHALL BE CODE COMPLIANT. LABEL ABANDONED CONTROLS CONDUIT AND WIRE.

E. BEFORE STARTING ANY DEMOLITION WORK ON EQUIPMENT WHICH HAS AN ELECTRICAL CONNECTION, THE ELECTRICAL CONTRACTOR SHALL DISCONNECT THE POWER AND REMOVE CONDUIT, WIRING, DISCONNECT SWITCHES, AND STARTERS UNDER THIS CONTRACT.

F. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTINUOUS CLEANUP THROUGHOUT THE COURSE OF THE DEMOLITION WORK.

G. ALL EQUIPMENT, MATERIAL, ETC. THAT IS DEMOLISHED SHALL BE REMOVED FROM THE BUILDING SITE BY THIS CONTRACTOR IN A PROPER AND LEGAL MANNER. NO ITEM WHICH IS DEMOLISHED MAY BE REUSED UNLESS SPECIFICALLY NOTED.

H. ANY CONTROLS HARDWARE OR PROGRAMMING NO LONGER NECESSARY TO ACCOMPLISH THE SEQUENCE OF OPERATIONS SHALL BE DECOMMISSIONED.

I. ALL DEMOLITION WORK OF THE EXISTING CONTROLS FOR EQUIPMENT SHOWN ON THE DRAWINGS TO BE DEMOLISHED SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR. THIS CONTRACTOR SHALL MODIFY THE EXISTING CONTROLS AS REQUIRED TO ENSURE OPERATION OF EXISTING EQUIPMENT TO REMAIN. ALL EXISTING CONTROLS SHOWN TO BE DEMOLISHED SHALL BE REMOVED AND TURNED OVER TO THE OWNER.

III. SHOP DRAWINGS, SUBMITTALS, AND AS-BUILTS

A. CONTRACTOR SHALL SUBMIT TO THE ENGINEER COORDINATED SHOP DRAWINGS. SHOP DRAWINGS SHALL BE 1/4" SCALE AND SHALL INDICATE LAYOUT OF ALL EQUIPMENT, PIPING, GAUGES, SENSORS, GRAPHICS, CONTROLS NETWORK ARCHITECTURE, CONTROL POINTS LIST, OPERATING SEQUENCES, CONTROL DEVICES WITH SETTINGS OR ADJUSTABLE RANGES, ETC. SHOP DRAWINGS SHALL INCLUDE ALL PIPE SIZES, PIPE SLOPES, CAPACITIES, ELEVATIONS, CLEANOUT LOCATIONS, VALVE LOCATIONS, DRAIN DOWN LOCATIONS, ACCESS PANEL LOCATIONS, FIXTURES, DRAINS, UNDERGROUND COMPONENTS, ETC. CONTRACTOR SHALL PROCEED WITH SITE WORK ONLY AFTER RECEIVING SHOP DRAWINGS MARKED REVIEWED.

B. SHOULD CONDITIONS NECESSITATE ANY REARRANGEMENTS, CONTRACTOR SHALL SUBMIT TO THE ENGINEER SHOP DRAWINGS SHOWING SUCH CHANGES. CONTRACTOR SHALL PROCEED WITH SITE WORK ONLY AFTER RECEIVING SHOP DRAWINGS MARKED REVIEWED.

C. CONTRACTOR SHALL SUBMIT TO THE ENGINEER MANUFACTURERS' SUBMITTALS FOR ALL EQUIPMENT AND ACCESSORIES. CONTRACTOR SHALL PROCEED WITH PROCUREMENT ONLY AFTER RECEIVING SUBMITTALS MARKED REVIEWED.

D. CONTRACTOR SHALL SUBMIT TO THE ENGINEER ONE (1) FULL-SIZE PAPER COPY AND AN ELECTRONIC FILE OF THE AS-BUILT DRAWINGS. RECORD LOCATIONS OF CONTROL COMPONENTS, INCLUDING CONTROL UNITS, GAUGES, AND SENSORS. REVISE SHOP DRAWINGS TO REFLECT ACTUAL INSTALLATION AND OPERATING SEQUENCES.

E. CONTRACTOR SHALL SUBMIT TO THE ENGINEER ONE (1) PAPER COPY AND AN ELECTRONIC FILE OF ALL EQUIPMENT INFORMATION. INCLUDE OPERATIONAL AND MAINTENANCE INSTRUCTIONS, PARTS LISTS, SUBMITTALS, AND DESCRIPTIVE LITERATURE.

IV. MATERIALS AND EQUIPMENT

A. ALL MATERIALS AND EQUIPMENT INSTALLED UNDER THIS CONTRACT SHALL BE NEW, UNLESS OTHERWISE STATED IN THESE CONTRACT DOCUMENTS, AND FREE FROM DEFECTS.

B. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS.

C. CONTRACTOR IS REQUIRED TO REVIEW ALL DRAWINGS. MATERIALS AND EQUIPMENT SHOWN ON THE SCHEDULES AND DETAILS SHALL BE INCLUDED IN BASE BID. NO MATERIAL OR EQUIPMENT SUBSTITUTIONS WILL BE CONSIDERED AFTER THE AWARD OF CONTRACT. IF CONTRACTOR DESIRES TO SUBSTITUTE MATERIAL OR EQUIPMENT, CONTRACTOR MUST SUBMIT AS ALTERNATE WITH HIS BASE BID A LIST OF SUCH ITEMS INDICATING ITEM, MANUFACTURER, MODEL NUMBER, AND AMOUNT TO BE ADDED TO OR DEDUCTED FROM THE BASE BID. EACH SUCH MATERIAL OR EQUIPMENT SUBSTITUTION ITEM SHALL BE LISTED SEPARATELY.

D. CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING THE PURCHASE, DELIVERY, RECEIVING, UNLOADING, UNCRATING, STORING, SETTING IN PLACE, AND PROTECTING OF ALL NEW EQUIPMENT FURNISHED BY THE CONTRACTOR OR PROVIDED TO THE CONTRACTOR BY THE OWNER, AND SHALL SECURE SUCH EQUIPMENT FROM DAMAGE UNTIL TIME OF FINAL ACCEPTANCE BY THE OWNER.

E. CONTRACTOR SHALL FURNISH AND INSTALL ALL STRUCTURE, SLEEVES, SHIMS, ETC. REQUIRED TO LEVEL AND SUPPORT EQUIPMENT AND MATERIALS. INSTALL NONMETALLIC NON-SHRINK GROUT FOR LEVELING EQUIPMENT BASES.

F. CONTRACTOR SHALL VERIFY ALL PHYSICAL, ELECTRICAL, INGRESS, ETC. REQUIREMENTS FOR ALL EQUIPMENT PRIOR TO ORDERING.

G. CONTRACTOR SHALL SUBMIT TO OWNER THE PROPOSED LABELS/IDENTIFICATION PRODUCT FOR EACH PIECE OF EQUIPMENT PRIOR TO ORDERING. EQUIPMENT LABELS/IDENTIFICATION SHALL CONFORM TO THE FOLLOWING:

1. MATERIAL AND THICKNESS: MULTILAYER, MULTICOLOR, PLASTIC LABELS FOR MECHANICAL ENGRAVING, 1/8 INCH THICK, AND HAVING PREDRILLED HOLES FOR ATTACHMENT HARDWARE.
2. LETTER COLOR: WHITE.
3. BACKGROUND COLOR: BLUE.
4. MAXIMUM TEMPERATURE: ABLE TO WITHSTAND TEMPERATURES UP TO 160 DEG F.
5. MINIMUM LABEL SIZE: LENGTH AND WIDTH VARY FOR REQUIRED LABEL CONTENT, BUT NOT LESS THAN 2-1/2 BY 3/4 INCH.
6. MINIMUM LETTER SIZE: 1/4 INCH FOR NAME OF UNITS IF VIEWING DISTANCE IS LESS THAN 24 INCHES, 1/2 INCH FOR VIEWING DISTANCES UP TO 72 INCHES, AND PROPORTIONATELY LARGER LETTERING FOR GREATER VIEWING DISTANCES. INCLUDE SECONDARY LETTERING TWO-THIRDS TO THREE-FOURTHS THE SIZE OF PRINCIPAL LETTERING.
7. FASTENERS: STAINLESS-STEEL RIVETS OR SELF-TAPPING SCREWS.
8. ADHESIVE: CONTACT-TYPE PERMANENT ADHESIVE, COMPATIBLE WITH LABEL AND WITH SUBSTRATE.

H. EQUIPMENT DATA, LABELS, AND OTHER IDENTIFICATION SHALL NOT BE OBSTRUCTED.

I. CONTRACTOR SHALL PROVIDE FILTERS, STRAINER SCREENS, ETC. FOR ALL NEW EQUIPMENT DURING CONSTRUCTION. REPLACE FILTERS, STRAINERS SCREENS, ETC. WITH FINAL FILTERS, STRAINER SCREENS, ETC. AT COMPLETION OF PROJECT AND PRIOR TO TEST AND BALANCE.

J. ALL EQUIPMENT INCLUDING BUT NOT LIMITED TO WATER HEATERS, PUMPS, PRESSURE REDUCING VALVES, ETC. LOCATED ABOVE FINISHED CEILINGS TO BE PROVIDED WITH A REMOVABLE DRAIN PAN. DRAIN PAN DISCHARGE SHALL BE THROUGH AN INDIRECT WASTE PIPE BY MEANS OF AN AIR GAP OR WITH UL508 OVERFLOW SWITCH AND ALARM WHEN MEANS OF WASTE PIPE IS NOT POSSIBLE.

K. PROVIDE UNIONS OR FLANGES AT ALL PIPING CONNECTIONS TO EQUIPMENT, CONTROL VALVES, PRESSURE REDUCING VALVES, BACK FLOW PREVENTION, ETC. ARRANGE CONNECTIONS SO THAT EQUIPMENT SERVED MAY BE REMOVED WITHOUT DISTURBING PIPING OR VALVES.

V. OWNER TRAINING

A. THE CONTRACTOR SHALL PROVIDE DEMONSTRATION AND TRAINING TO OWNER'S PERSONNEL FOR NEW SYSTEMS AND EQUIPMENT. THE COSTS ASSOCIATED WITH THIS SHALL BE INCLUDED AS PART OF THE BASE BID UNLESS OTHERWISE NOTED.

B. ALL EQUIPMENT MANUALS, INSTALLATION OPERATION AND MAINTENANCE MANUALS, ETC. SHALL BE TURNED OVER TO THE OWNER PRIOR TO COMMENCING OWNER DEMONSTRATION AND TRAINING. REFER TO PROJECT CLOSEOUT DOCUMENT REQUIREMENTS FOR ADDITIONAL INFORMATION.

C. CONTRACTOR SHALL PROVIDE A MINIMUM OF 12 HOURS OF TRAINING OVER 3 SEPARATE VISITS ON SITE FOR OWNER PERSONNEL.

D. OWNER TRAINING SHALL BE CONDUCTED AFTER FUNCTIONAL TESTING IS COMPLETE AS APPROVED BY THE ENGINEER AND (WHERE APPLICABLE) COMMISSIONING AUTHORITY.

E. COORDINATE TRAINING WITH OWNER, ENGINEER & COMMISSIONING AUTHORITY.

VI. PIPING - POTABLE

A. GENERAL

1. COMPLY WITH PROVISIONS OF COPPER DEVELOPMENT ASSOCIATION'S "COPPER TUBE HANDBOOK". ALL POTABLE WATER PIPING AND SYSTEM COMPONENTS SHALL COMPLY WITH NSF/ANSI 61 AND NSF/ANSI 372.
2. SYSTEM COMPONENTS WHICH REQUIRE OBSERVATION, OPERATION, OR MAINTENANCE, SUCH AS VALVES, GAUGES, CONTROLS, STRAINERS, UNIONS, ETC., SHALL BE READILY ACCESSIBLE. THEY SHALL NOT BE CONCEALED IN CHASES OR ABOVE CEILINGS WITHOUT PROVISION FOR ACCESS. VALVES WHICH ARE NOT ACCESSIBLE FROM NORMAL WORKING LEVEL SHALL BE INSTALLED WITH CHAIN WHEELS OR EXTENSIONS.
3. INSTALL PIPING TO PERMIT COMPLETE SYSTEM DRAINING.
4. INSTALL INTERIOR AND EXTERIOR PIPING AT RIGHT ANGLES OR PARALLEL TO BUILDING WALLS. DIAGONAL RUNS ARE PROHIBITED, EXCEPT WHERE INDICATED OR APPROVED PRIOR TO INSTALLATION. RUN PIPING IN WALL CHASES, PIPE SHAFTS, HUNG CEILINGS, RECESSES, ETC. AS APPLICABLE. DO NOT RUN SERVICE PIPING IN FLOOR SLAB UNLESS SPECIFICALLY NOTED ON DRAWINGS. PIPING SHALL NOT BE COVERED OR CLOSED UNTIL TESTING IS COMPLETED.
5. INSTALL PIPING TO ALLOW APPLICATION OF INSULATION PLUS 1-INCH CLEARANCE AROUND INSULATION.
6. MECHANICAL FITTINGS WILL NOT BE ALLOWED. MECHANICAL FITTINGS MAY BE BID AS AN ALTERNATE WHERE EXPOSED AND ACCESSIBLE IN MECHANICAL ROOMS..

B. ABOVE GROUND PIPING

1. ALL PIPE SIZES: ALL PIPING SHALL BE TYPE 'L' HARD COPPER PIPING WITH 95/5 SOLDER JOINT FITTINGS.

C. INSULATION

1. FURNISH AND INSTALL ALL NEW PIPING, VALVES, FITTINGS, ETC. AND EXISTING PIPING AS INDICATED ON THE DOCUMENTS WITH FIBERGLASS MOLDED PIPE INSULATION APPLIED WITH AN ALL-SERVICE VAPOR BARRIER JACKET, STAPLED, WITH THE SEAMS, JOINTS, AND STAPLES PAINTED WITH VAPOR-PROOF MASTIC. ALL INSULATION MATERIALS SHALL COMPLY WITH CODE REQUIRED FLAME SPREAD RATINGS.
2. ALL DAMAGED INSULATION (RESULTING FROM IMPLEMENTATION OF THIS PROJECT) ON EXISTING PIPING TO REMAIN SHALL BE REPLACED.
3. MINIMUM INSULATION THICKNESS SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE AND ALL APPLICABLE CODES:
   a. DOMESTIC COLD WATER PIPING: 1"
   b. DOMESTIC HOT WATER PIPING (1.25 NPS AND SMALLER): 1-1/2"
   c. DOMESTIC HOT WATER PIPING (1.5 NPS AND LARGER): 2"
   d. TEPID WATER PIPING: 1"
4. VAPOR BARRIER JACKET SHALL HAVE FACTORY-APPLIED VAPOR RETARDER COMPOSED OF A WHITE KRAFT FACING REINFORCED WITH GLASS FIBER YARN AND BONDED TO ALUMINIZED FILM. LAP ADHESIVE SHALL BE COMPATIBLE WITH INSULATION.
5. FURNISH AND INSTALL PVC COVERS FOR ALL VALVES AND ALL PIPE FITTINGS.
6. FURNISH AND INSTALL ALL EXTERIOR INSULATED PIPING WITH '3M VENTURECLAD PLUS 1579 SERIES' MULTI-LAYERED ALUMINUM LAMINATE, SELF ADHESIVE, JACKETING SYSTEM. PROVIDE WITH EMBOSSED FINISH AND COLOR SELECTED BY OWNER.
7. ALL INSULATION SHALL BE APPLIED AFTER SUCCESSFUL PRESSURE TESTING OF PIPE.

D. VALVES

1. VALVES SHALL BE INSTALLED AS A MEANS OF ISOLATION FOR ALL EQUIPMENT, INDIVIDUAL FIXTURES, GROUPING OF FIXTURES, SEPARATE ROOMS, GROUPING OF ROOMS, PORTIONS OF THE SYSTEM AND RISERS. EACH INDIVIDUAL BATHROOM AND KITCHEN SHALL HAVE VALVES AS A MEANS OF ISOLATION. ALL REQUIRED VALVES ARE NOT SHOWN ON FLOOR PLANS OR RISER DIAGRAMS.
2. LOCATIONS WHERE NEW PIPING IS CONNECTED TO EXISTING SHALL BE PROVIDED WITH A NEW VALVE. PIPING THAT IS UNAFFECTED BY THIS PROJECT SHALL BE EXEMPT.
3. MAKE PROVISIONS FOR DRAINING ALL LOW POINTS OF ALL PIPING SYSTEMS WHETHER INDICATED ON THE DRAWINGS OR NOT, USING A BALL VALVE AND THREADED HOSE CONNECTION WITH CAP. DRAINS SHALL NOT BE LESS THAN 3/4".
4. INSTALL ALL VALVES WITH STEMS IN EITHER AN UPRIGHT (PREFERRED) OR HORIZONTAL POSITION. CONTROL VALVES SHALL BE INSTALLED WITH ACTUATOR UPWARD UNLESS NOTED OTHERWISE. OPEN VALVE HANDLE POSITION SHALL BE IN THE DIRECTION OF FLOW.
5. PROVIDE PRESSURE REDUCING VALVES TO NOT EXCEED THE MANUFACTURER RECOMMENDED PRESSURE RATING OF EQUIPMENT OR FIXTURE.
6. ISOLATION VALVES SHALL BE MSS SP-61, RATED FOR ZERO LEAKAGE.
7. BALL VALVES (4 NPS AND SMALLER)
   a. MSS SP-110
   b. 2 PIECE LEAD-FREE BRASS BODY 600# WOG RATED, FULL PORT
   c. LEAD-FREE FORGED BRASS BALL
   d. MINIMUM 2-1/4" VALVE EXTENSION OR GREATER TO ALLOW OPERATION OF VALVES WITHOUT BREAKING VAPOR SEALS OR DISTURBING INSULATION
   e. PTFE SEAT AND PACKING
   f. LEVER HANDLE
   g. THREADED ENDS
   h. ACCEPTABLE MANUFACTURERS:
      - APOLLO, LEGEND, MILWAUKEE, NIBCO
8. BUTTERFLY VALVES (5 NPS AND LARGER)
   a. MSS SP-67
   b. LUG TYPE WITH CAST IRON OR DUCTILE IRON BODY
   c. STAINLESS STEEL SHAFT
   d. PTFE SEAT/SEALS
   e. TEN POSITION LEVER HANDLE
   f. FLANGED ENDS
   g. ACCEPTABLE MANUFACTURERS:
      - APOLLO, NIBCO, MILWAUKEE
9. BUTTERFLY VALVES, HIGH PERFORMANCE (5 NPS AND LARGER)
   a. MSS SP-68
   b. LUG TYPE WITH LEAD FREE CARBON STEEL OR STAINLESS STEEL BODY
   c. STAINLESS STEEL SHAFT
   d. RTFE SEAT/SEALS
   e. TEN POSITION LEVER HANDLE
   f. FLANGED ENDS
   g. ACCEPTABLE MANUFACTURERS:
      - MILWAUKEE OR EQUAL
10. SWING CHECK VALVE (2 NPS AND SMALLER)
   a. MSS SP-80
   b. BRONZE BODY, BRONZE TRIM
   c. COMPOSITION SWING DISC
   d. THREADED ENDS
   e. ACCEPTABLE MANUFACTURERS:
      - APOLLO, NIBCO, MILWAUKEE
11. SPRING LOADED CHECK VALVE (2.5 NPS AND LARGER)
   a. MSS SP-125
   b. DUCTILE IRON BODY, BRONZE OR STAINLESS STEEL TRIM
   c. SPRING LOADED WAFER AND EPDM SEAT
   d. FLANGED ENDS
   e. ACCEPTABLE MANUFACTURERS:
      - APOLLO, NIBCO, MILWAUKEE
12. BALANCING VALVES (3 NPS AND SMALLER)
   a. BRASS BODY ASTM B584-844, BRASS BALL ASTM B16 C36000
   b. GLASS AND CARBON FILLED TFE SEAT RINGS
   c. BRASS WITH EPT CHECK VALVES FOR READOUT VALVES
   d. EPDM STEM "O" RING
   e. SHALL BE DESIGNED TO PRESET BALANCE POINTS FOR PROPORTIONAL SYSTEM BALANCE PRIOR TO SYSTEM START UP. VALVES TO HAVE MEMORY STOP FEATURE TO ALLOW VALVE TO BE CLOSED FOR SERVICE AND THEN RE-OPENED TO SET POINT WITHOUT DISTURBING THE BALANCE POSITION.
   f. THREADED CONNECTION
   g. MAXIMUM WORKING PRESSURE OF 300 PSIG
   h. ACCEPTABLE MANUFACTURERS:
      - BELL AND GOSSETT OR EQUAL

E. ACCESSORIES

1. STRAINERS (UP TO AND INCLUDING 3")
   a. THREADED BRASS BODY
   b. Y PATTERN WITH 20 MESH STAINLESS STEEL PERFORATED SCREEN
   c. ACCEPTABLE MANUFACTURERS:
      - KECKLEY, WATTS, APOLLO, NIBCO
2. STRAINERS (4" AND UP)
   a. FLANGED IRON BODY
   b. Y PATTERN WITH 20 MESH STAINLESS STEEL PERFORATED SCREEN
   c. ACCEPTABLE MANUFACTURERS:
      - KECKLEY, WATTS, APOLLO, NIBCO
3. THERMOMETERS
   a. SELECT INSTRUMENT RANGE SO THE ORDINARY OPERATING CONDITION IS IN THE MIDDLE AREA OF THE INSTRUMENT SCALE
   b. STRAIGHT STEM TYPE IN SEPARABLE WELLS
   c. SWIVEL MOUNTING SET WITH POSITIVE LOCKING DEVICE, TO BE EASILY READ FROM THE FLOOR
   d. SIZE: 9" SCALE
   e. ACCEPTABLE MANUFACTURERS:
      - WATTS, WEISS
4. PRESSURE GAUGES
   a. SELECT INSTRUMENT RANGE SO THE ORDINARY OPERATING CONDITION IS IN THE MIDDLE AREA OF THE INSTRUMENT SCALE
   b. 3-1/2" DIAMETER, LIQUID FILLED, DIAL TYPE, PSI SCALE
   c. FRONT RE-CALIBRATION ADJUSTMENT
   d. MID SCALE ACCURACY: TWO PERCENT
   e. BLACK SCALE ON WHITE BACKGROUND
   f. ACCEPTABLE MANUFACTURERS:
      - WATTS, WEISS
5. PRESSURE GAUGE TAPPINGS
   a. GAGE COCK: TEE OR LEVER HANDLE, BRASS.
   b. BALL VALVE: BRASS, 1/4" NPT.
   c. PULSATION DAMPER: PRESSURE SNUBBER, BRASS WITH 1/4" CONNECTIONS
   d. SYPHON: STEEL, SCHEDULE 40, 1/4" ANGLE OR STRAIGHT PATTERN.
   e. ACCEPTABLE MANUFACTURERS:
      - WATTS, WEISS
6. AIR VENTS
   a. MANUAL TYPE: 6" OR LESS SHORT VERTICAL SECTIONS OF PIPE WITH ISOLATING BALL VALVE TO/FROM AIR CHAMBER, WITH 1/8" BRASS NEEDLE VALVE AT TOP OF CHAMBER
   b. FLOAT TYPE: CAST IRON BODY, CAST IRON COVER, STAINLESS STEEL SEAT AND FLOAT; SUITABLE FOR SYSTEM OPERATING TEMPERATURE AND PRESSURE; WITH ISOLATING BALL VALVE
   c. ACCEPTABLE MANUFACTURERS:
      - METRAFLEX OR EQUAL
7. REDUCERS
   a. IF A REDUCTION IS REQUIRED AT EQUIPMENT OR PIPING ACCESSORY, THE REDUCER SHALL BE INSTALLED ABUTTING THE INLET AND/OR OUTLET OF THE DEVICE.
   b. USE ECCENTRIC REDUCING FITTINGS OR ECCENTRIC REDUCING COUPLINGS WHERE REQUIRED TO PREVENT POCKETING OF AIR AND LIQUID.
   c. WHERE ECCENTRIC REDUCERS ARE USED, THE STRAIGHT SIDE SHOULD BE INSTALLED ON TOP FOR PUMP SUCTION AND ON THE BOTTOM FOR ALL OTHER LINES .
8. AIR CHAMBERS
   a. PROVIDE MINIMUM 12" LONG AIR CHAMBERS FOR HOT AND COLD WATER CONNECTIONS TO ALL SUPPLY FIXTURES.
   b. PROVIDE MINIMUM 24" LONG AIR CHAMBERS AT THE TOP OF ALL HOT AND COLD WATER RISERS.
9. WATER HAMMER ARRESTORS
   a. MAINTENANCE FREE PISTON STYLE
   b. NPT SOLID HEX BRASS ADAPTOR CONNECTION.
   c. PDI LISTED - PDI WH201.
   d. ASSE 1010 APPROVED.
   e. FACTORY PRE-CHARGED WITH AIR AND PERMANENTLY SEALED.
   f. COPPER BODY, POLYPROPYLENE PISTON, EPDM O-RING.
   g. PROVIDE ACCESS FOR FUTURE REPLACEMENT.
10. INSTALL AIR VENTS AT HIGH POINTS IN ALL PIPING AND AS REQUIRED FOR SYSTEM VENTING.
11. INSTALL DRAIN VALVES AT LOW POINTS IN PIPING AND AS REQUIRED FOR SYSTEM DRAINAGE. DRAINS SHALL NOT BE LESS THAN 3/4".
12. RELIEF VALVES SHALL BE OF ASME CODE CONSTRUCTION AND MEET OR EXCEED LOCAL CODES AND ORDINANCES.
13. INSTALL UNIONS IN PIPING ADJACENT TO EACH PIECE OF EQUIPMENT HAVING A 4-INCH OR SMALLER PIPE CONNECTION.
14. INSTALL FLANGES IN PIPING ADJACENT TO EACH PIECE OF EQUIPMENT HAVING A 5-INCH OR LARGER PIPE CONNECTION.
15. INSTALL DI-ELECTRIC FITTINGS TO CONNECT PIPING MATERIALS OF DISSIMILAR METALS.

F. PIPE LABELING

1. STENCIL TYPE MARKERS WILL NOT BE PERMITTED. ONLY FACTORY MANUFACTURED MARKERS AS FOLLOWS WILL BE ACCEPTABLE:
   a. FOR INDOOR USE, UTILIZE ADHESIVE PIPE MARKERS - LARGEST SIZE POSSIBLE GIVEN THE PIPE OR INSULATION OUTER DIAMETER, WITH BOTH ENDS SECURED WITH ARROW TAPE OF MATCHING SIZE AND COLOR SCHEME.
   b. FOR OUTDOOR USE, UTILIZE "STRAP AROUND" TYPE SECURED WITH HEAVY DUTY ZIP TIES.
2. IDENTIFICATION MARKERS SHALL BE PLACED ON ALL EXPOSED AND CONCEALED PIPES AT 20'-0" INTERVALS, AT ALL VALVES AND BRANCHES, AND ON BOTH SIDES OF WALLS WHERE PIPES PASS THROUGH. ARROWS OF SAME COLOR AS IDENTIFICATION MARKERS SHALL ALSO BE PLACED ON PIPES POINTING AWAY FROM MARKER INDICATING DIRECTION OF FLOW.
3. COORDINATE COLOR SCHEME WITH EXISTING PIPING AND SUBMIT TO ENGINEER PRIOR TO ORDERING.

G. VALVE IDENTIFICATION

1. FURNISH AND INSTALL TAGS FOR ALL NEW VALVES.
2. VALVE TAGS SHALL HAVE UNIQUE NUMBERS AND SHALL BE COORDINATED WITH THE ENGINEER PRIOR TO ORDERING.
3. VALVE TAGS SHALL BE BRASS MATERIAL AND SHALL BE FASTENED WITH A STURDY CHAIN.
4. VALVE TAG NUMBERS SHALL BE INDICATED ON THE AS-BUILT DRAWINGS. AS-BUILT DRAWINGS SHALL INCLUDE VALVE SCHEDULE TO BE DISPLAYED WITHIN THE BUILDING.

VII. PIPING - WASTE, VENT, AND STORM

A. GENERAL

1. COMPLY WITH PROVISIONS OF CAST IRON SOIL PIPE INSTITUTE (CISPI) HANDBOOK, COPPER DEVELOPMENT ASSOCIATION'S "COPPER TUBE HANDBOOK", AND AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM).
2. SYSTEM COMPONENTS WHICH REQUIRE OBSERVATION, OPERATION, OR MAINTENANCE, SUCH AS VALVES, CLEANOUTS, DRAINS, EQUIPMENT, CONTROLS, UNIONS, ETC., SHALL BE READILY ACCESSIBLE. THEY SHALL NOT BE CONCEALED IN CHASES OR ABOVE CEILINGS WITHOUT PROVISION FOR ACCESS.
3. INSTALL PIPING WITH SLOPE TO ALLOW FOR PROPER FUNCTIONALITY. PIPING SHALL BE INSTALLED WITH THE MINIMUM FOLLOWING SLOPES OR AS DICTATED ON THE DRAWINGS:
   a. SANITARY, WASTE, AND VENT PIPING
      - 3" AND SMALLER: 1/4" PER FOOT
      - 4" AND LARGER: 1/8" PER FOOT
   b. STORM PIPING
      - ALL SIZES: 1/8" PER FOOT
   c. KITCHEN WASTE PIPING
      - ALL SIZES: 1/4" PER FOOT
4. INSTALL INTERIOR AND EXTERIOR PIPING AT RIGHT ANGLES OR PARALLEL TO BUILDING WALLS. DIAGONAL RUNS ARE PROHIBITED, EXCEPT WHERE INDICATED OR APPROVED PRIOR TO INSTALLATION. RUN PIPING IN WALL CHASES, PIPE SHAFTS, HUNG CEILINGS, RECESSES, ETC. AS APPLICABLE. DO NOT RUN SERVICE PIPING IN FLOOR SLAB UNLESS SPECIFICALLY NOTED ON DRAWINGS. PIPING SHALL NOT BE COVERED OR CLOSED UNTIL TESTING IS COMPLETED.
5. PROVIDE WASTE AND STORM CLEANOUTS AT THE BASE OF RISERS, ENDS OF HORIZONTAL MAINS, CHANGES IN DIRECTION, CODE SPECIFIED INTERVALS OR AS SPECIFIED IN DOCUMENTS. INTENT IS TO ALLOW ALL WASTE AND STORM PIPING TO BE RODDED AFTER INSTALLATION.
6. FOR VENTS PENETRATING ROOFS, PROVIDE 24 INCH SQUARE FLASHING AND TURN VENT FLASHING DOWN INTO VENT PIPE.
7. INSTALL PIPING TO ALLOW APPLICATION OF INSULATION PLUS 1-INCH CLEARANCE AROUND INSULATION.
8. ALL CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED IN USA BY A MEMBER OF CISPI.

B. UNDERGROUND PIPING

1. ALL PIPE SIZES: HUB-AND-SPIGOT, CAST-IRON SOIL PIPE AND FITTINGS, SERVICE CLASS ASTM A 74 WITH COMPRESSION JOINTS AND ASTM C 564 RUBBER GASKETS.
2. FORCE MAINS:
   a. FOR 4 INCH AND SMALLER: ALL PIPING SHALL BE TYPE 'L' HARD COPPER PIPING WITH 95/5 SOLDER JOINT FITTINGS.
   b. FOR 5" AND LARGER: TYPE 'L' HARD COPPER PIPING WITH 95/5 SOLDER JOINT FITTINGS OR DUCTILE-IRON PIPE WITH PUSH-ON-JOINT DUCTILE-IRON FITTINGS; GASKETS; AND GASKETED JOINTS.

C. ABOVE GROUND PIPING

1. 2-1/2" INCH AND SMALLER: ALL PIPING SHALL BE TYPE 'M' HARD COPPER PIPING WITH SOLDER JOINT DRAINAGE FITTINGS.
2. 3" AND LARGER: HUB-AND-SPIGOT, CAST-IRON SOIL PIPE AND FITTINGS, SERVICE CLASS ASTM A 74 WITH ASTM B 29 LEAD AND OAKUM JOINTS.
3. 3" AND LARGER: HUBLESS, CAST-IRON SOIL PIPE AND FITTINGS, SERVICE CLASS ASTM A 888 OR CISPI 301 WITH NO-HUB COUPLINGS ASTM C 1277 OR CISPI 310, STAINLESS-STEEL CORRUGATED SHIELD WITH STAINLESS-STEEL BANDS AND TIGHTENING DEVICES; AND ASTM C 564, RUBBER SLEEVE WITH INTEGRAL, CENTER PIPE STOP; INSTALL WITH THRUST RESTRAINTS FOLLOWING CISPI RECOMMENDATIONS.
4. FOR ACID RESISTANT WASTE (ARW) PIPING SHALL BE USED FOR VENDOR STATION WASTE DRAINAGE PIPING, PIPING AND FITTINGS SHALL BE FUSED FLAME RETARDANT POLYPROPYLENE CERTIFIED TO UPC AND CAN/CSA B181.3 REQUIREMENTS. WATTS ORION RIONFUSE CF (CLAMP-FREE) ELECTROFUSION SYSTEM OR EQUIVALENT. THE BEER AND SODA WASTE DISCHARGE IS KNOWN AND DOCUMENTED TO BE ACIDIC AND THEREFORE THIS ARW PIPE MATERIAL USE IS APPLICABLE FOR THE VENDOR STATION WASTE DRAINAGE SYSTEMS UNTIL DRAINAGE WATER IS DIULETED WITH HIGH-USE AREAS SUCH AS PUBLIC GANG TOILET SPACES.
5. FORCE MAINS:
   a. FOR 4 INCH AND SMALLER: ALL PIPING SHALL BE TYPE 'L' HARD COPPER PIPING WITH 95/5 SOLDER JOINT FITTINGS.
   b. FOR 5" AND LARGER: TYPE 'L' HARD COPPER PIPING WITH 95/5 SOLDER JOINT FITTINGS OR SCHEDULE 40 STEEL PIPING WITH THREADED JOINT FITTINGS

D. LABELING

1. UN-INSULATED PIPING: CLEAN PIPE WHICH COULD IMPAIR BOND AS REQUIRED TO ADHERE STENCIL TYPE MARKERS SPRAY PAINTED WITH EXTERIOR GLOSS ACRYLIC ENAMEL. UTILIZE LARGEST SIZE POSSIBLE GIVEN THE PIPE OUTSIDE DIAMETER.
2. INSULATED STORM PIPING: STENCIL TYPE MARKERS WILL NOT BE PERMITTED. ONLY FACTORY MANUFACTURED MARKERS AS FOLLOWS WILL BE ACCEPTABLE:
   a. FOR INDOOR USE, UTILIZE ADHESIVE PIPE MARKERS - LARGEST SIZE POSSIBLE GIVEN THE PIPE OR INSULATION OUTER DIAMETER, WITH BOTH ENDS SECURED WITH ARROW TAPE OF MATCHING SIZE AND COLOR SCHEME.
3. IDENTIFICATION MARKERS SHALL BE PLACED ON ALL EXPOSED AND CONCEALED PIPES AT 20'-0" INTERVALS, AT ALL VALVES AND BRANCHES, AND ON BOTH SIDES OF WALLS WHERE PIPES PASS THROUGH. ARROWS OF SAME COLOR AS IDENTIFICATION MARKERS SHALL ALSO BE PLACED ON PIPES POINTING AWAY FROM MARKER INDICATING DIRECTION OF FLOW.
4. COORDINATE COLOR SCHEME WITH EXISTING PIPING AND SUBMIT TO ENGINEER PRIOR TO ORDERING.

E. VALVES

1. VALVES SHALL BE INSTALLED AS A MEANS OF ISOLATION FOR EACH PIECE OF EQUIPMENT.
2. INSTALL ALL VALVES WITH STEMS IN EITHER AN UPRIGHT (PREFERRED) OR HORIZONTAL POSITION. OPEN VALVE HANDLE POSITION SHALL BE IN THE DIRECTION OF FLOW.
3. ISOLATION VALVES SHALL BE MSS SP-61, RATED FOR ZERO LEAKAGE.
4. BALL VALVES (2-1/2" NPS AND SMALLER)
   a. MSS SP-110
   b. 2 PIECE BRASS BODY 600# WOG RATED, FULL PORT
   c. FORGED BRASS BALL
   d. PTFE SEAT AND PACKING
   e. LEVER HANDLE
   f. THREADED ENDS
   g. ACCEPTABLE MANUFACTURERS:
      - APOLLO, LEGEND, MILWAUKEE, NIBCO
5. BUTTERFLY VALVES (3" NPS AND LARGER)
   a. MSS SP-67
   b. LUG TYPE WITH CAST IRON OR DUCTILE IRON BODY
   c. STAINLESS STEEL SHAFT
   d. PTFE SEAT/SEALS
   e. TEN POSITION LEVER HANDLE
   f. FLANGED ENDS
   g. ACCEPTABLE MANUFACTURERS:
      - APOLLO, NIBCO, MILWAUKEE

VIII. EPOXY LINING OF DRAINAGE PIPING/FIXTURES

A. PRODUCT

1. DRAIN LINES CALLED OUT TO BE EPOXY LINED SHALL RECEIVE A RESIN-IMPREGNATED FLEXIBLE TUBE THAT WILL EITHER BE INVERTED OR PULLED INTO THE ORIGINAL PIPELINE AND THEN EXPANDED BY USE OF WATER OR AIR PRESSURE TO FIT TIGHTLY AGAINST THE INNER WALL OF THE PIPE BEING LINED. RESIN WILL THEN BE CURED BY ELEVATING THE TEMPERATURE OF THE WATER OR AIR USED FOR INFLATION.
2. THE RESIN-IMPREGNATED FLEXIBLE TUBE SHALL CONSIST OF MULTIPLE LAYERS OF NEEDLED FELT OR AN EQUIVALENT NONWOVEN OR WOVEN MATERIAL CAPABLE OF CARRYING RESIN AND WITHSTANDING THE INSTALLATION PRESSURES AND CURING TEMPERATURES.
3. INSTALLER SHALL BE A LICENSED PLUMBER OR HAVE THREE YEARS EXPERIENCE AND BE ISO CERTIFIED.

IX. SUPPORTS, EXPANSION AND SLEEVES

A. SUPPORTS

1. PROVIDE THE NECESSARY HANGERS AND ACCESSORIES FOR THE PROPER SUPPORT OF PIPING, EQUIPMENT, ETC.
2. ALL NEW HORIZONTAL PIPING SHALL BE SUPPORTED BY STEEL CLEVIS OR TRAPEZE HANGERS OR BRACKETS AT SUFFICIENT INTERVALS TO MAINTAIN A STRAIGHT LINE, BUT NOT TO EXCEED 10 FEET SPACING ON CENTERS OF HANGERS IN ANY CASE, WITH A SEPARATE HANGER FOR EACH BRANCH. HANGERS SHALL BE LOCATED TO AVOID UNDUE STRESS ON JOINTS. SUPPORT ALL HUB AND NO HUB PIPING WITHIN 18" OF BOTH SIDES OF EACH JOINT.
3. SPRING TYPE HANGERS SHALL BE INSTALLED ON THE FIRST 20 FEET OF HORIZONTAL PIPING ON BOTH SIDES OF ROTATING EQUIPMENT.
4. WHERE INSULATED PIPE IS SUPPORTED, PROVIDE SADDLES, BLOCKS OR OTHER METHOD APPROVED BY ENGINEER TO PROTECT INSULATION FROM BEING CRUSHED.
5. PIPE SUPPORT SHALL NOT BE FROM DUCTWORK, CONDUIT, OR OTHER PIPING BUT FROM THE PERMANENT BUILDING STRUCTURE.
6. HANGER RODS SHALL BE FULL-DIAMETER STEEL WITH THREADED ENDS FOR FIELD CUTTING AND THREAD EXTENDING AS REQUIRED.
7. HANGER RODS SHALL NOT BE BENT OR ALTERED IN ANY MATTER AND SHALL BE INSTALLED PLUMB AND TRUE. THE ROD SUPPORTING THE HANGER SHALL BE NO LONGER THAN 1/2" BELOW THE LOWER NUT.
8. PROVIDE ROLLER SUPPORTS TO ALLOW FOR PIPE MOVEMENT WHEREVER THE LENGTH OF PIPE AND/OR THE EXPANSION OF THE PIPE REQUIRE. FIXED PIPE SUPPORTS THAT DO NOT ALLOW FOR THE NATURAL MOVEMENT OF PIPING DUE TO EXPANSION ARE NOT ALLOWED UNLESS OTHERWISE NOTED.
9. VERTICAL PIPE RISERS SHALL BE ANCHORED AND EXPANSION COMPENSATION MEANS SHALL BE PROVIDED PER THE DRAWINGS. ALL VERTICAL PIPE RISERS SHALL BE SUPPORTED AT EACH FLOOR BY 1-1/2" X 1/4" BAR CLAMPS ATTACHED TO PIPES AND RESTING ON THE FLOOR CONSTRUCTION.

B. PIPE EXPANSION

1. CONTRACTOR TO ACCOUNT FOR THERMAL PIPE EXPANSION AND CONTRACTION TO PREVENT ADVERSE EFFECTS TO PIPING SYSTEM AND BUILDING. THIS INCLUDES ALL CLEARANCES, ANCHORING, GUIDES, PIPE MOVEMENT, ETC.
2. EFFORT HAS BEEN MADE WITHIN THE CONTRACT DOCUMENTS TO ACCOUNT FOR THERMAL EXPANSION AND CONTRACTION BASED ON THE ENGINEER'S LAYOUT OF THE PIPING SYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THE FINAL LOCATIONS, QUANTITIES & DESIGN OF ALL ANCHORS, GUIDES, SUPPORTS, EXPANSION DEVICES, ETC.
3. DESIGN & PRODUCT SUBMITTALS - THE CONTRACTOR SHALL PROVIDE SUBMITTALS TO THE ENGINEER FOR ALL ANCHORS, GUIDES, SUPPORTS, EXPANSION DEVICES, ETC. THESE SUBMITTALS SHALL OUTLINE QUANTITIES, LOCATIONS, ETC THAT REFLECT FIELD CONDITIONS AND CONTRACTOR'S FINAL LAYOUT OF PIPING EQUIPMENT.

C. PIPE SLEEVES

1. PROVIDE ALL PIPE OPENINGS THROUGH WALLS, PARTITIONS, SLABS, ETC. WITH SLEEVES HAVING AN INTERNAL DIAMETER AT LEAST 1" LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE AND INSULATION. SET SLEEVES IN PLACE BEFORE POURING CONCRETE.
2. PROVIDE ESCUTCHEONS FITTING OVER THE SLEEVES ON BOTH SIDES OF THE PENETRATION FOR ALL PIPES EXPOSED TO VIEW PASSING THROUGH WALLS, FLOORS, CEILINGS, PARTITIONS, ETC.

XI. TESTING AND CLEANING

A. TESTING

1. PRIOR TO ANY TESTING, ALL NEW WATER PIPING SYSTEMS SHALL BE FLUSHED USING WATER. LOW POINT DRAINS SHALL BE OPENED AND THE SYSTEMS PROVED TO BE DRAINABLE.
2. SUBJECT ALL CLOSED SYSTEMS OPERATING UNDER PRESSURE TO HYDROSTATIC PRESSURE TESTS THAT IS NOT LESS THAN 80 PSIG AND 1.5 TIMES THE SYSTEM'S WORKING PRESSURE FOR A MINIMUM OF 1 HOUR OR AS SPECIFICALLY INDICATED. TEST PRESSURE SHALL NOT EXCEED MAXIMUM PRESSURE RATING FOR ANY VESSEL, PUMP, VALVE, OR OTHER COMPONENT IN SYSTEM UNDER TEST.
3. ALL OPEN SYSTEMS, SEWERS, ETC., SHALL BE TESTED WITH WATER AT A MINIMUM OF TEN (10) FOOT OF HEAD; THE WATER LEVEL SHALL BE MAINTAINED IN THE PORTION BEING TESTED FOR AT LEAST 15 MINUTES.
4. ALL PIPING SYSTEMS SHALL BE TESTED. IF LEAKS OCCUR, THE PIPE OR FITTING SHALL BE REMOVED AND REPLACED AND THE SYSTEM RETESTED.
5. SUBMIT REPORTS WITHIN 48 HOURS OF TEST DATES TO ENGINEER INDICATING TEST DATE, STARTING AND ENDING TEST PRESSURES OR WATER LEVELS, AND DURATION, AS WELL AS CERTIFICATION OF SUCCESSFUL TEST.
6. PIPING SHALL NOT BE CONCEALED, BACKFILLED, INSULATED, OR SIMILAR UNTIL PRESSURE TESTING IS COMPLETE AND REVIEWED.

B. CLEANING

1. AFTER SUCCESSFUL TESTING OF THE PIPING SYSTEMS, FLUSH AND DRAIN AT A MINIMUM OF 3 FEET PER SECOND NEW PIPING AND PARTS OF EXISTING PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED USING CLEAN POTABLE WATER UNTIL NO DIRTY WATER APPEARS AT THE OUTLET.
2. AFTER FLUSHING, USE PURGING AND DISINFECTING PROCEDURES PRESCRIBED BY AUTHORITIES HAVING JURISDICTION. IF PROCEDURES ARE NOT PRESCRIBED BY THE AUTHORITY, USE PROCEDURES IN ANSI/AWWA STANDARD C651 AND/OR ANSI/AWWA STANDARD C652.
3. IF WATER IS NOT CHLORINATED, DISINFECTION OF PIPING SHALL BE PER THE AUTHORITY HAVING JURISDICTION.

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ISFA
ILLINOIS SPORTS FACILITIES AUTHORITY

KEY PLAN

ISSUE/REVISION:

REV.	DATE	DESCRIPTION
-	10/28/22	ISSUE FOR BID

PROJECT:
GUARANTEED RATE FIELD - WASTE/VENT PIPING FY23
333 W 35TH STREET,
CHICAGO, ILLINOIS 60616

DRAWING TITLE:
PLUMBING SPECIFICATIONS

DESIGNED BY:	DA
CHECKED BY:	MS
PROJECT NO:	22285
SCALE:	NO SCALE

SHEET NO.
P5.001