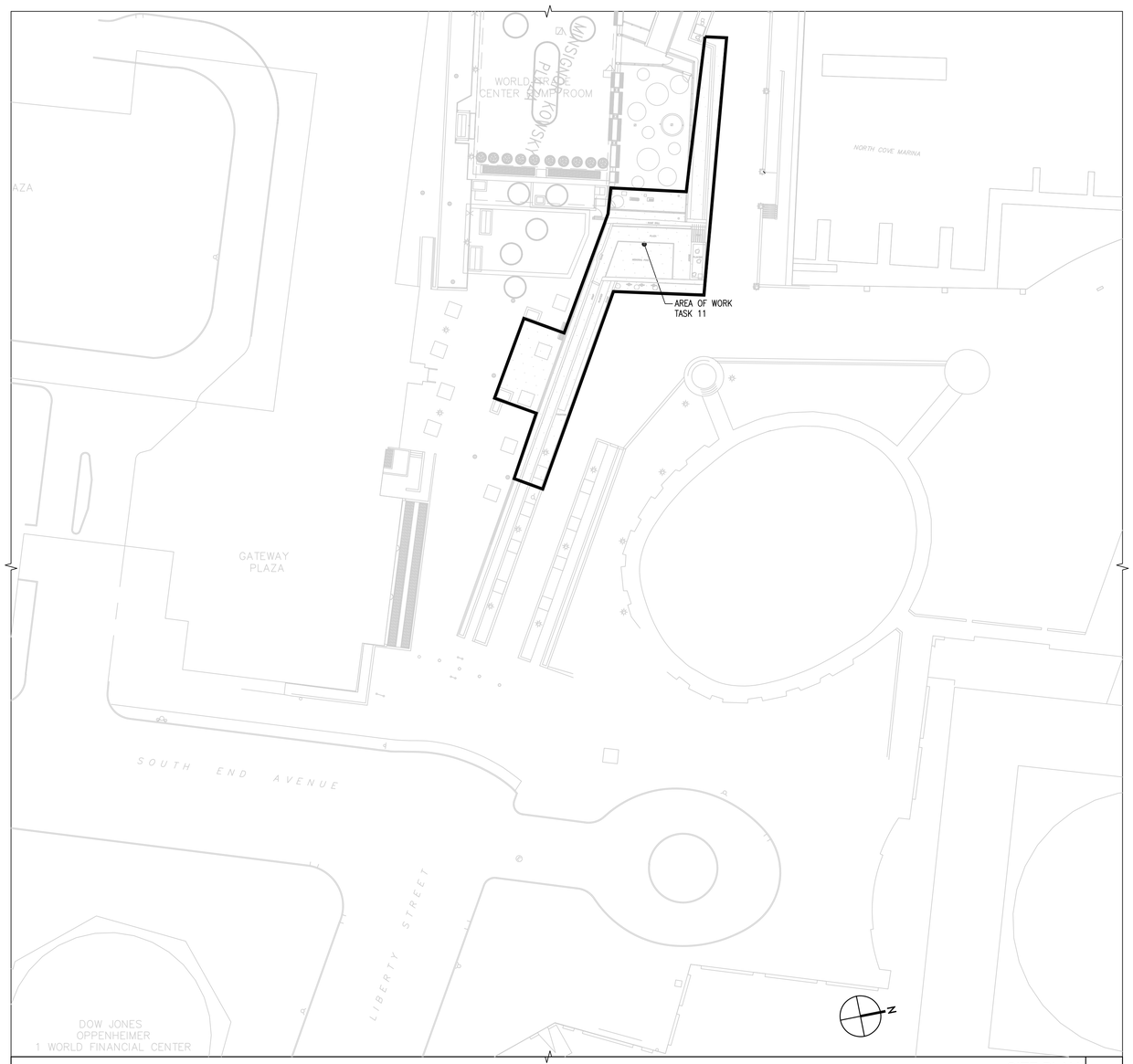
BATTERY PARK CITY AUTHORITY

POLICE MEMORIAL RECONSTRUCTION - SUPERSTORM SANDY

ANDREW M. CUOMO
GOVERNOR, STATE OF NEW YORK



SITE PLAN
SCALE: N.T.S.

1

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NOTE: Drawing may be printed at reduced scale. Refer to graphic scale.

No.	Date	Revision

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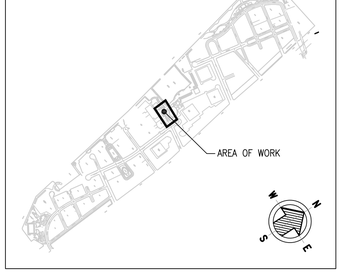
Key Plan: SHADED AREA = AREA OF WORK



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Drawn by:	ALVIN WONG
Checked by:	EUGENE KIELMANOWICZ, P.E.

Design No. or LLW No.:	Facility Code:	Date:
–	N/A	05/17/13

Project: POLICE MEMORIAL SERVICE RECONSTRUCTION - SUPERSTORM SANDY
BATTERY PARK CITY AUTHORITY

Address: MANHATTAN
NEW YORK, NY

Drawing Title:
TITLE SHEET & SITE PLAN

Drawing No.:
T001.00

Sheets in Contract:
01 of 23

LIST OF DRAWINGS		
DRAWING No.	DESCRIPTION	CONTRACT SET/ SHEET NO.
T001.00	TITLE SHEET & SITE PLAN	1
G002.00	KEY PLAN & DRAWING LIST	2
M101.00	GENERAL NOTES, LEGEND AND ABBREVIATIONS & LIST OF DRAWINGS	3
M102.00	PUMP PIT DEMOLITION PART PLAN	4
M103.00	PUMP PIT NEW WORK PART PLAN	5
M104.00	SEQUENCE OF OPERATION & CONTROL SCHEMATIC	6
P101.00	GENERAL NOTES, LEGEND AND ABBREVIATIONS & LIST OF DRAWINGS	7
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P103.00	PUMP PIT NEW WORK PART PLAN	9
P104.00	PLUMBING SECTIONS AND ISOMETRIC VIEWS	10
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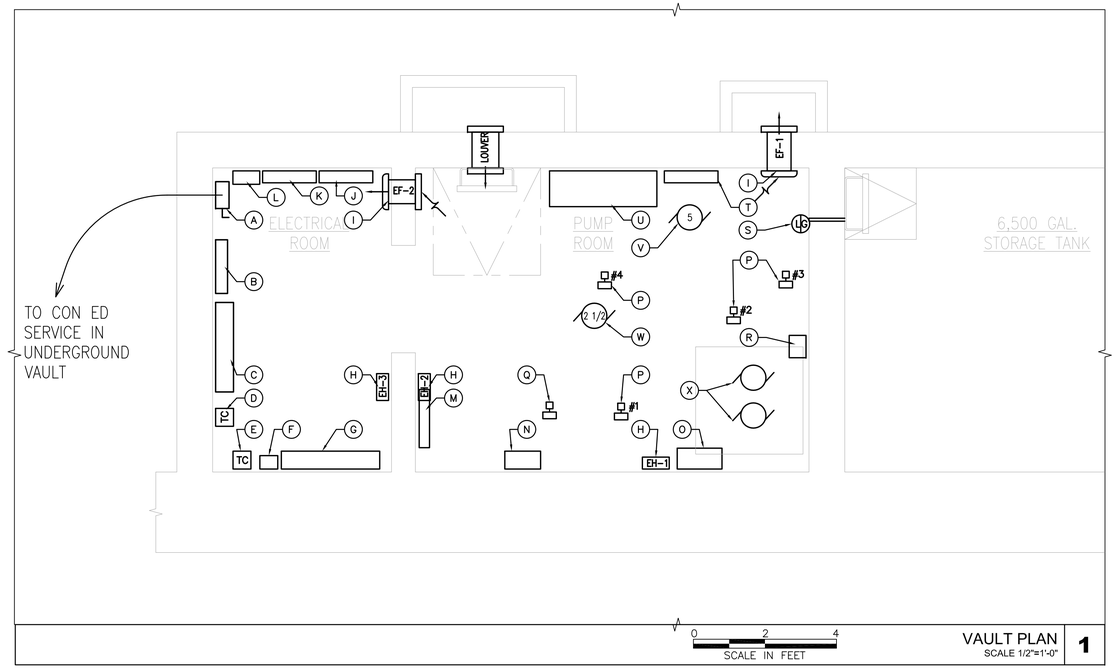
E704.00	FOUNTAIN OPERATIONAL ALGORITHM	23



0 2 4
SCALE IN FEET

VAULT PLAN
SCALE 1/2"=1'-0"

1

GENERAL NOTES:

1. EQUIPMENT INSIDE THE POLICEMEN'S MEMORIAL VAULT SHALL BE REPLACED TO PROVIDE A FUNCTIONAL MEMORIAL. CONTRACTORS SHALL COORDINATE WITH ALL TRADES.
2. CONTRACTOR SHALL REMOVE ALL STONEWORK AND MASONRY TO ALLOW FOR LIGHT FIXTURE REMOVAL AND CONDUIT REPLACEMENT WHEN NECESSARY. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3. CONTRACTOR SHALL COORDINATE WITH ALL TRADES IN RESTORING OUTDOOR LIGHTING AND PLUMBING. UNEXPECTED CONDITIONS THAT REQUIRE ADDITIONAL SCOPE SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION AND APPROVED PRIOR TO COMMENCING WORK.
4. CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY DAMAGED STONEWORK AND/OR MASONRY DUE TO WORK IN THIS CONTRACT AND PROVIDE MATCHING FINISHES TO PRESERVE THE MEMORIAL'S ORIGINAL CONDITIONS. ANY DEVIATIONS AND CHANGES MUST BE APPROVED BY BATTERY PARK CITY AUTHORITY.
5. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH LOCAL LAWS AND CODES.

ITEM	DESCRIPTION
A	SAFETY SWITCH
B	POWER DISTRIBUTION PANEL
C	DIMMER PANEL
D	TIME CLOCK
E	TIME CLOCK
F	RELAY PANEL
G	TRANSFORMER ENCLOSURE
H	ELECTRIC UNIT HEATER
I	EXHAUST FAN
J	RAIN MASTER PANEL
K	TIMERS AND RELAYS PANEL
L	DISTRIBUTION PANEL
M	WATER TREATMENT OZONE GENERATOR SYSTEM
N	PUMP CONTROL BOX
O	SUMP PUMP CONTROL PANEL
P	ELECTRIC ACTUATOR (2 WAY)
Q	ELECTRIC ACTUATOR (3 WAY)
R	HYDREL ELWC-ELWC-1
S	LEVEL GAGE
T	VORTEX CONTROL PANEL
U	PUMP CONTROL PANEL
V	RECIRCULATION PUMP – 5 HP 208-230/460, 3 PH., 1740 RPM
W	FLUME PUMP MOTOR – 2 1/2 HP 230V 11.2A, 1 PH. 450 RPM
X	SUMP PUMPS

HUGH L CAREY BATTERY PARK CITY AUTHORITY

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No.	Date	Revision

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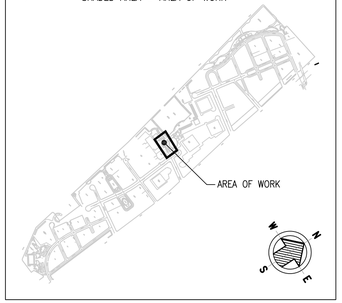
Key Plan: SHADED AREA = AREA OF WORK



Project Engineer:	CARL J. CANNIZZARO, P.E.
Designer:	EUGENE KIELMANOWICZ, P.E.
Drawn by:	ALVIN WONG
Checked by:	CARL J. CANNIZZARO, P.E.

Design No. or LLW No.:	Facility Code:	Date:
–	N/A	05/17/13

Project: POLICE MEMORIAL SERVICE RECONSTRUCTION - SUPERSTORM SANDY
BATTERY PARK CITY AUTHORITY

Address: MANHATTAN
NEW YORK, NY

Drawing Title:
KEY PLAN & DRAWING LIST

Drawing No.:
G002.00

Sheets in Contract:
02 of 23

GENERAL NOTES:

1. ALL WORK SHALL CONFORM TO THE N.Y.C. BUILDING CODE.
2. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR NECESSARY TO MAKE THE MODIFICATIONS, ADDITIONS AND CONNECTIONS TO THE EXISTING PIPING AND INSTALL NEW SYSTEMS AND PIPING AS INDICATED ON THE DRAWINGS.
3. ALL WORK TO BE IN ACCORDANCE WITH THE BUILDING CODE OF THE CITY OF NEW YORK AND REQUIREMENTS N.F.P.A. 90A AND ALL OTHER BOARDS HAVING JURISDICTION.
4. THE CONTRACTOR, PRIOR TO SUBMISSION, SHALL VISIT THE SITE OF WORK AND BECOME THOROUGHLY FAMILIAR WITH ALL CONDITIONS AND LIMITATIONS.
5. THE CONTRACTOR TO COORDINATE WITH THE PARK MANAGEMENT REPRESENTATIVE AS TO THE DELIVERY OF EQUIPMENT AND SCHEDULING OF WORK. ALL SHUT-DOWNS OF THE EXISTING SYSTEMS SHALL BE STRICTLY COORDINATED WITH THE PARK MANAGEMENT REPRESENTATIVE PRIOR TO BIDDING.
6. CONTRACTOR TO PROVIDE LABELS WITH DIMENSIONS OF PIPING, VALVES AND EQUIPMENT.

LIST OF MECHANICAL DRAWINGS

M101.00	GENERAL NOTES, LEGEND AND ABBREVIATIONS & LIST OF DRAWINGS
M102.00	PUMP PIT DEMOLITION PART PLAN
M103.00	PUMP PIT NEW WORK PART PLAN
M104.00	SEQUENCE OF OPERATION & CONTROL SCHEMATIC

EXHAUST FAN - SCHEDULE

TAG	EF-1	EF-2
TYPE	REMOTED MOUNTED	REMOTE MOUNTED
LOCATION	PUMP PIT	PUMP PIT
MODEL	PB270-2	PB230
CAPACITY (CFM)	300	190
ELECTRICAL	115V/1 PH/60 HZ	115V/1 PH/60 HZ
AMPS	-	0.67
SPEED	2507	2411
MANUFACTURER	FANTECH	FANTECH
NOTES:		

ELECTRICAL UNIT HEATER - SCHEDULE

TAG	EUH-1 TO EUH-3
TYPE	REMOTED MOUNTED
LOCATION	PUMP PIT
MODEL	RPH-1A
WATTS	500
BTU	115V/1 PH/60 HZ
AMPS	4.2
WEIGHT (LBS)	5
MANUFACTURER	MARKEL
NOTES:	

ABBREVIATIONS

BHP	BRAKE HORSE POWER
BTU	BRITISH THERMAL UNIT
BTUH	BTU/HOUR
B.O.F.	BOTTOM OF
CFM	CUBIC FEET PER MINUTE
CFH	CUBIC FEET PER HOUR
CV	CONTROL VALVE
DB	DRY BULB
EA.	EACH
EAT	ENTERING AIR TEMPERATURE
EFF	EFFICIENCY
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
°F	DEGREES FAHRENHEIT
FLA	FULL LOAD AMPERES
FPM	FEET PER MINUTE
GAL	GALLONS
GPM	GALLONS PER MINUTE
HP	HORSE POWER
HV	HEATING & VENTILATION
INWG	INCHES OF WATER GAUGE
LBS	POUNDS
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MER	MECHANICAL EQUIPMENT ROOM
MV-1	MIXING VALVE
NIC	NOT IN CONTRACT
NO	NUMBER
S&R	SUPPLY AND RETURN
SQFT	SQUARE FEET
TEMP	TEMPERATURE
THICK	THICKNESS
TYP.	TYPICAL
UH	UNIT HEATER
UV	UNIT VENTILATOR
VOL	VOLUME
V.I.F.	VERIFIED IN FIELD
WB	WET BULB
ø	DIAMETER
₡	CFM

DUCT SYMBOLS

ELECTRICAL UNIT HEATER

EXHAUST/VENTILATION FAN

Hugh L Carey Battery Park City Authority

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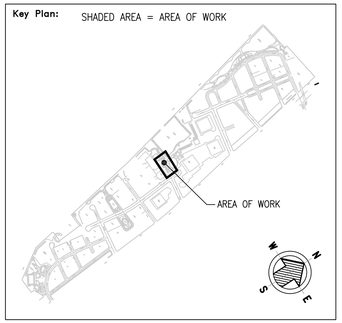
Key Plan: SHADED AREA = AREA OF WORK



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Checked by:	CARL J. CANNIZZARO, P.E.

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–	N/A	05/17/13

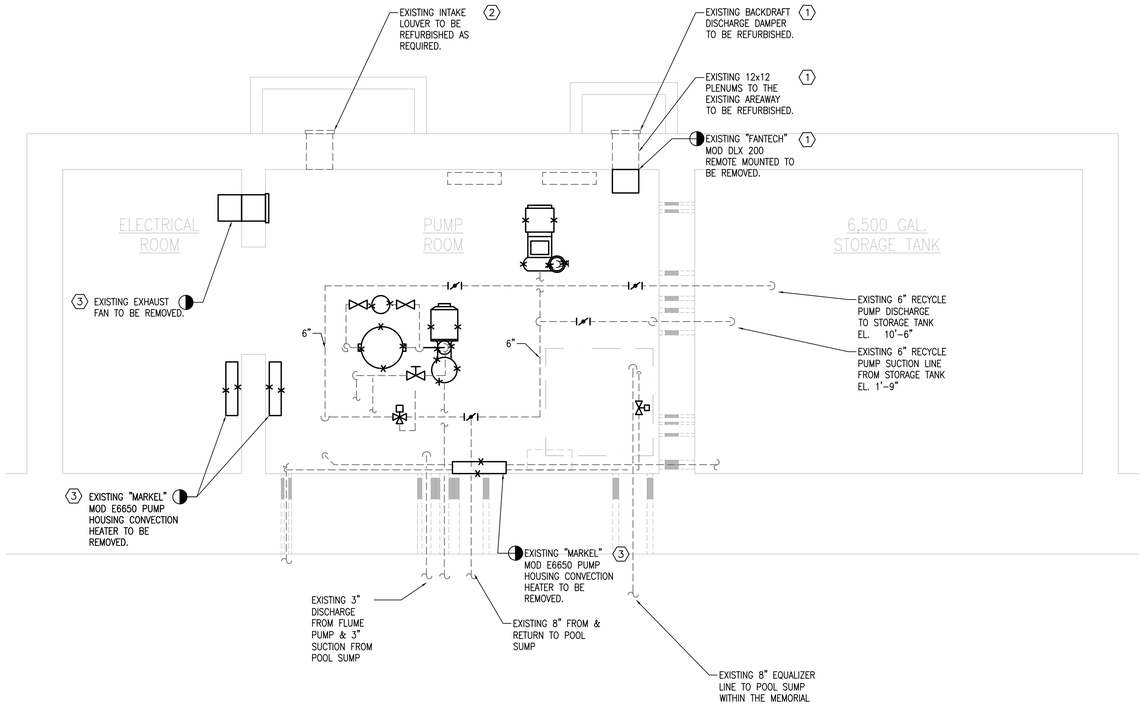
Project: POLICE MEMORIAL SERVICE RECONSTRUCTION - SUPERSTORM SANDY
BATTERY PARK CITY AUTHORITY

Address: MANHATTAN
NEW YORK, NY

Drawing Title: GENERAL NOTES, LEGEND AND ABBREVIATIONS & LIST OF DRAWINGS

Drawing No.: M101.00

Sheets in Contract: 03 of 23



MECHANICAL DEMO PART PLAN
SCALE 1/2"=1'-0" | 1

DEMOLITION NOTES:

1. FOR SYMBOLS AND ABBREVIATIONS SEE DRAWING M001.
2. CONTRACTOR TO REMOVE EXISTING EXHAUST FAN. HOWEVER, THE PLENUM AND THE DAMPER TO BE REFURBISHED. AS REQUIRED.

SCOPE OF WORK:

1. REMOVE (E) EXHAUST FAN. DISCONNECT THE NECESSARY CONNECTIONS AND REPLACE IT WITH A NEW EXHAUST FAN (SEE DWG M-103)
2. (E) INTAKE LOUVER TO BE REFURBISHED AS REQUIRED.
3. REMOVE (E) ELECTRICAL UNIT HEATER. DISCONNECT THE NECESSARY CONNECTIONS AND REPLACE IT WITH A NEW ELECTRICAL UNIT HEATER (SEE DWG M-103)

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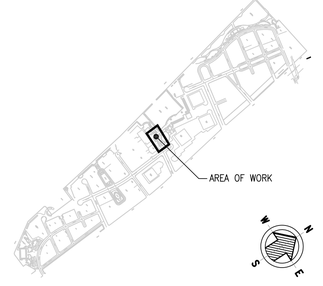

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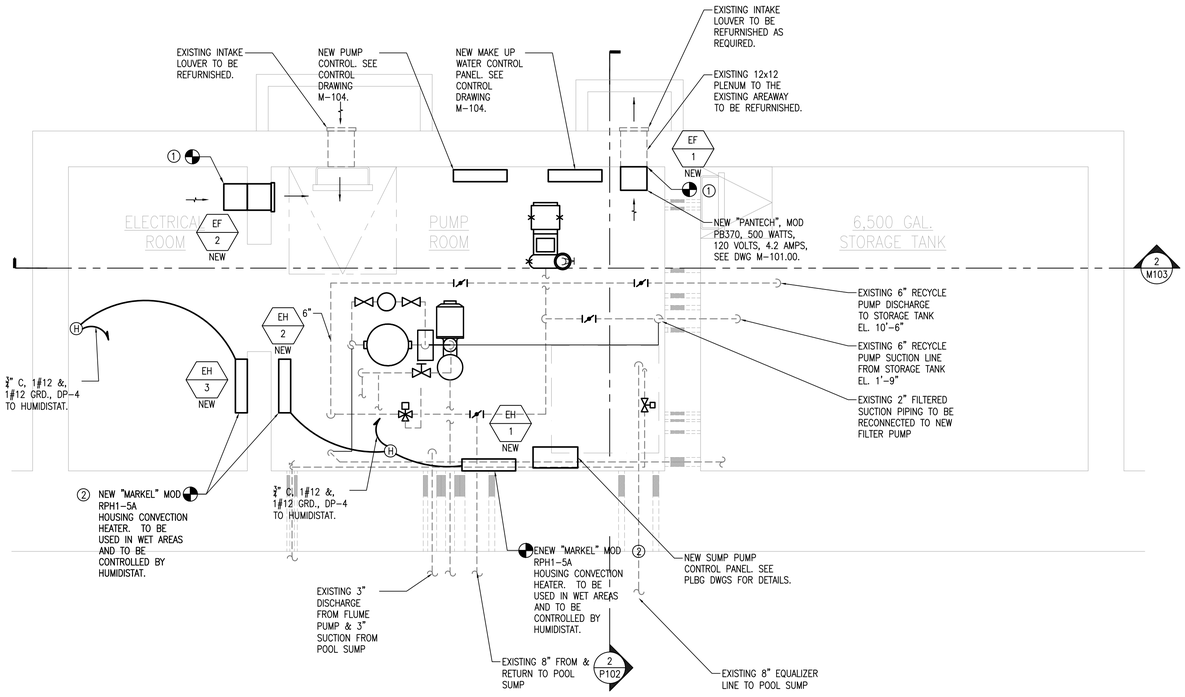
–	N/A	05/17/13

Project: POLICE MEMORIAL SERVICE RECONSTRUCTION - SUPERSTORM SANDY
BATTERY PARK CITY AUTHORITY
Address: MANHATTAN
NEW YORK, NY

Drawing Title:
PUMP PIT
DEMOLITION PART PLAN

Drawing No.:
M102.00

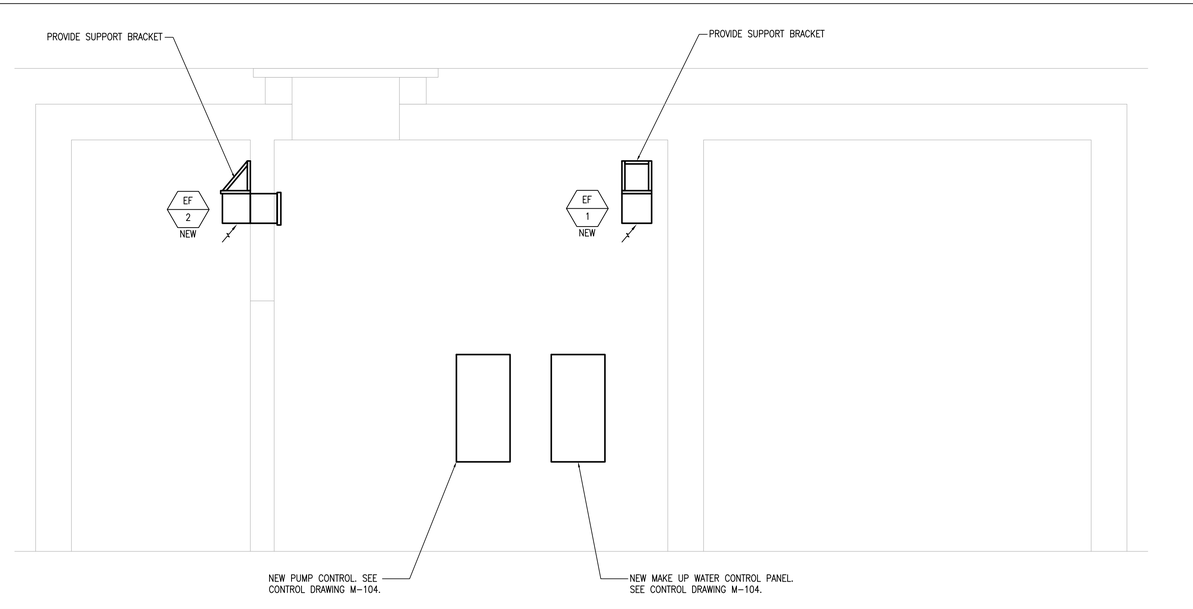
Sheets in Contract:
04 of 23



MECHANICAL NEW PART PLAN
SCALE 1/2"=1'-0" **1**

SCOPE OF WORK:

1. INSTALL NEW EXHAUST FAN. DISCONNECT THE NECESSARY CONNECTIONS AND REPLACE IT WITH A NEW EXHAUST FAN MODEL PB370 AND PB270 AS INDICATED ON THE FLOOR PLAN 1/M-103. COORDINATE WITH ELECTRICAL TO CONTROL THE EXHAUST THE EXHAUST FAN.
2. INSTALL NEW ELECTRICAL UNIT HEATER. DISCONNECT THE NECESSARY CONNECTIONS AND REPLACE IT WITH A NEW ELECTRIC UNIT HEATER MANUFACTURED BY MARKEL MODEL RPH1-5A. THE EUH'S HAS TO BE CONTROLLED BY HUMIDISTAT AS INDICATED ON THE FLOOR PLAN 1/M-103.



SECTION
SCALE N.T.S. **2**

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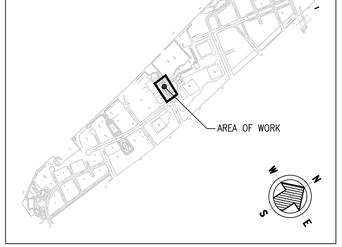
Key Plan: SHADED AREA = AREA OF WORK



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Design No. or LLW No.:	Facility Code:	Date:
–	N/A	05/17/13

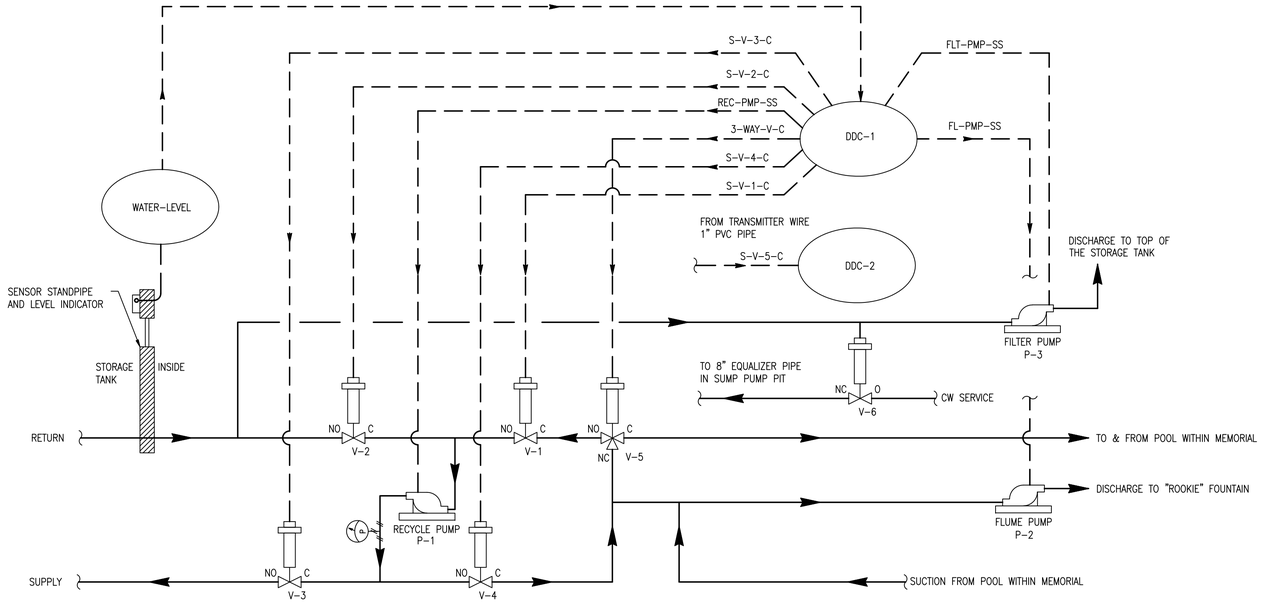
Project: POLICE MEMORIAL SERVICE
RECONSTRUCTION - SUPERSTORM SANDY
BATTERY PARK CITY AUTHORITY

Address: MANHATTAN
NEW YORK, NY

Drawing Title:
PUMP PIT
NEW WORK PART PLAN

Drawing No.:
M103.00

Sheets in Contract:
05 of 23



CONTROL VALVE SCHEDULE

SYSTEM	IDENTIFIER	LOCATION	FUNCTION	TYPE	VOLTAGE/A	Kv ((m^3)/hr)	CLOSE-OFF RATING (OR TORQUE)	REMARKS
PUMP SYSTEM	V-1	PUMP PIT	FLOW WATER VALVE	BUTTERFLY VALVE WITH ELEC ACTUATOR	115/1.0	47.05	1,100 N m	
PUMP SYSTEM	V-2	PUMP PIT	FLOW WATER VALVE	BUTTERFLY VALVE WITH ELEC ACTUATOR	115/1.0	47.05	1,100 N m	
PUMP SYSTEM	V-3	PUMP PIT	FLOW WATER VALVE	BUTTERFLY VALVE WITH ELEC ACTUATOR	115/1.0	47.05	1,100 N m	
PUMP SYSTEM	V-4	PUMP PIT	FLOW WATER VALVE	3-WAY WITH ELEC ACTUATOR	115/1.0	47.05	600 N m	
PUMP SYSTEM	V-5	PUMP PIT	FLOW WATER VALVE	3-WAY WITH ELEC ACTUATOR	120/1.5	47.05	600 N m	
MAKE UP WATER	V-6	PUMP PIT	COLD WATER VALVE	SOLENOID FILL VALVE WITH ELEC ACTUATOR	120/1.0	5.22	[___] N m	

SEQUENCE OF OPERATION :
(24HR TIME CLOCK STATS SEQUENCE)

1. AT REST POINT ONCE THE STORAGE LEVEL IS LOWER THAN 11.25 FT, THE WATER MAKE UP SYSTEM SHALL BE "ON" AND THE PUMP CONTROL SYSTEM IS "OFF"
2. ONCE THE WATER LEVEL AT THE STORAGE TANK REACH THE 11.25 FT, THE 3 WAY MOTOR OPERATED VALVE SETS TO THE OPEN POSITION, WHICH ALLOWS RECYCLE PUMP TO DISCHARGE TO MEMORIAL POOL SUMP.
3. AT THE SAME TIME, ENERGIZE VALVES #2 & #4 TO OPEN (NOTE: VALVES #3 & #1 WILL BE CLOSED SINCE THE SYSTEM WAS SHUT DOWN AT THE END OF THE CYCLE).
4. START THE RECYCLE PUMP WHEN 3 WAY VALVE INDICATES (THROUGH LIMIT SWITCH) IT HAS OPENED.
5. WHEN STORAGE TANK LEVEL DROPS TO 9.75 FT, START FLUME PUMP.
6. WHEN STORAGE TANK LEVEL DROPS TO 1.75 FT (THIS LEVEL TO BE ADJUSTED IN FIELD TO PROVIDE WATER LEVEL IN POOL, 5.25 FEET). SHUT OFF RECYCLE PUMP, DE-ENERGIZE VALVE #2 & #4 (TO CLOSE), ENERGIZE VALVES #1 & #3 (TO OPEN), ENERGIZE 3-WAY MOTOR OPERATED VALVE TO THE "CLOSED" POSITION, WHICH ALLOWS PUMP TO TRANSFER WATER FROM THE POOL TO THE STORAGE TANK. WHEN THE VALVE INDICATION "CLOSED" START RECYCLE PUMP.
7. WHEN WATER LEVEL IN THE POOL DROPS TO 4.25 FT, FLUME PUMP STOPS (THE WATER LEVEL IN THE POOL IS INDICATED BY WATER LEVEL IN THE STANDPIPE).
8. WHEN STANDPIPE LEVEL DROPS TO 3.55 FT STOP RECYCLE PUMP, DE-ENERGIZES VALVES #1 & #3 TO CLOSE. ENERGIZE FOR 5 SECOND (ADJUSTABLE). IF WATER LEVEL IN THE TANK IS LOWER THAN "AT REST" POSITION WATER MAKE-UP IS "ON", PUMP CONTROL SYSTEM IS "OFF".
9. WHEN THE TIME CLOCK CALLS FOR END OF THE DAY'S OPERATION, A SHUTDOWN CYCLE ACTIVATES VALVES #1 AND #3 OPEN WHILE VALVES #2 AND #4 CLOSE, AND THE 3-WAY VALVE POSITIONS ITSELF TO TAKE THE RECYCLE PUMP SUCTION FLOW FROM THE POOL AND STORE THE WATER WITHIN THE STORAGE TANK.
10. AFTER THE SHUTDOWN SEQUENCE HAS BEEN COMPLETED, THE HORSEPOWER FILTER PUMP IS ACTIVATED BY ITS OWN TIME CLOCK. WHEN STARTED, FILTER PUMP TAKES WATER FROM THE 6" SUCTION LINE FROM THE STORAGE TANK AND CIRCULATES THE CONTENTS OF THE STORAGE TANK AT 2 MIN. RATE OF 40 GPM THROUGH THE CARTRIDGE FILTER AND RETURNS THE FILTER WATER TO THE BACK AND THE TOP OF THE STORAGE TANK. THE FILTER PUMP RUNS FOR A MINIMUM OF 200 MINUTES DURING THE NIGHT. THE FILTER PUMP IS INTERLOCKED WITH THE OTHER PUMPS SO THAT IT CANNOT RUN WHEN THE OTHER TWO PUMPS ARE RUNNING.

CONTROL SCHEMATIC SYMBOLS

NOTE: ABBREVIATIONS INDICATED MAY NOT APPEAR ON THE DRAWINGS

- W-X-Y-Z / ## — DEVICE SYMBOL, GENERIC
  USED TO REPRESENT SENSORS, INSTRUMENTS SAFETIES, AND OTHER CONTROL DEVICES
  W-X-Y-Z : (SEE ABBREVIATIONS AND ACRONYMS)
  GENERIC USAGE TO SHOW LOCATION OF DEVICE; PROCESS OR DEVICE BEING MEASURED OR CONTROLLED; SIGNAL TYPE; MODIFIERS AND OTHER APPLICATION INFORMATION
- W-X-Y-Z / ## — DEVICE SYMBOL, GENERIC
  MULTIPLE OUTPUT DEVICE WHERE AT LEAST 1 OUTPUT IS ALWAYS SAFETY INTERLOCK
- W-X-Y-Z / DDC ## / DIR REV — DEVICE SYMBOL, CONTROLLER
  DDC : DIRECT DIGITAL CONTROL
  ## : DEVICE NUMBER
  DIR : DIRECT CONTROL ACTION, OR
  REV : REVERSE CONTROL ACTION
  W-X-Y-Z : (SEE ABBREVIATIONS AND ACRONYMS)
  GENERIC USAGE TO SHOW LOCATION OF DEVICE; PROCESS OR DEVICE BEING MEASURED OR CONTROLLED; SIGNAL TYPE; MODIFIERS AND OTHER APPLICATION INFORMATION
- ACTUATOR, ELECTRIC
- P — ACTUATOR, PNEUMATIC WITH LOCALLY MOUNTED PRESSURE GAGE
- CONTROL SIGNAL LINE, LOW VOLTAGE
- CURRENT TRANSFORMER/SWITCH
- M# — MOTOR
- MS-# — MOTOR STARTER
- Rxx — RELAY COIL
  xx = SEQUENTIAL RELAY (SOLENOID) NUMBER
- Rxx-YY — RELAY COIL CONTACT
  NORMALLY OPEN
  xx = RELAY COIL NUMBER
  YY = CONTACT NUMBER
- Rxx-YY — RELAY COIL CONTACT
  NORMALLY CLOSED
  xx = RELAY COIL NUMBER
  YY = CONTACT NUMBER
- LDP / ## — LOCAL DISPLAY PANEL
  ## = SEQUENTIAL NUMBER (WHEN MORE THAN 1 LDP)
- PP — POSITIVE POSITIONER
  SEE "ACTUATOR, PNEUMATIC"
- P — PRESSURE GAGE
- SWITCH, MANUAL
- T — TEMPERATURE GAGE
- TEMPERATURE SENSOR, AVERAGING or TEMPERATURE LOW LIMIT / FREEZESTAT
  SEE "DEVICE SYMBOL, GENERIC"
- TEMPERATURE SENSOR, POINT
  SEE "DEVICE SYMBOL, GENERIC"
- STAT — THERMOSTAT WITH SPECIFIED I/O FUNCTIONS
- PUMP
- THERMOWELL IN PIPE
- VALVE, BALANCING
- V-## / NC — VALVE, NORMALLY CLOSED
  WITH SPRING RETURN FAILSAFE
  ## = VALVE NUMBER AS SHOWN IN VALVE SCHEDULE
- V-## / NO — VALVE, NORMALLY OPEN
  WITH SPRING RETURN FAILSAFE
  ## = VALVE NUMBER AS SHOWN IN VALVE SCHEDULE
- V-## / COM / NO / NC — VALVE, 3-WAY DIVERTING
  WITH SPRING RETURN FAILSAFE
  NO = NORMALLY OPEN
  NC = NORMALLY CLOSED
  COM = COMMON PORT
  ## = VALVE NUMBER AS SHOWN IN VALVE SCHEDULE
- V-## / NO / COM / NC — VALVE, 3-WAY MIXING
  WITH SPRING RETURN FAILSAFE
  NO = NORMALLY OPEN
  NC = NORMALLY CLOSED
  COM = COMMON PORT
  ## = VALVE NUMBER AS SHOWN IN VALVE SCHEDULE

BATTERY PARK CITY POOL POINT LIST CONTROL

NODE LOCATION: PUMP PIT

FUNCTION	NAME	DESCRIPTION	SETTING (WITH UNITS)	RANGE (WITH UNITS)	nci/CPT NAME	IO TYPE	HOA REQ'D	LDP AND M&C DISPLAY: LDP VIEW REQ'D	M&C: DISP REQ'D	M&C: TREND REQ'D	M&C: SNVT NAME	M&C: SNVT TYPE	ALARMS: ALARM CONDITION (SEE NOTES)	ALARM PRIORITY	M&C ROUTING
PROOFS & SAFETIES	REC-PMP-S	RECYCLE PUMP STATUS	~	ON/OFF	<___>		~	[X]	X	[~]	<___>	<___>	~	~	[___]
	FLU-PMP-S	FLUME PUMP STATUS	~	ON/OFF	<___>		~								
	FLT-PMS	FILTER PUMP STATUS	~	ON/OFF	<___>		~	[X]	X	[~]	<___>	<___>	~	~	[___]
													~	~	
START/STOP	SYS-ENA	SYSTEM ENABLE	~	ENABLE/DISABLE	<___>	<NVI>	~	[X]	[X]	[~]	<___>	<___>	~	~	~
	REC-PMP-SS	FLU PUMP START/STOP	~	START/STOP	<___>	BO	[~]	[~]	[~]	[~]	<___>	<___>	~	~	~
	FIL-PMP-SS	FLUME PUMP START/STOP	~	ON/OFF	<___>	BO	[~]	[~]	[~]	[~]	<___>	<___>	~	~	~
	FLT-PMP-SS	FILTER PUMP START/ STOP	~	ON/OFF	<___>	BO	[~]						~	~	~
VALVE CONTROL	S-V-1-C	SOLENOID 1 VALVE COMMAND	~	0-100% OPEN	<___>	AO	[~]	[X]	X	[X]	<___>	<___>	~	~	[~]
		SOLENOID 1 VALVE PID LOOP SETTINGS	<___>	~	<___>	~	~	~	~	~	~	~	~	~	~
	S-V-2-C	SOLENOID 2 VALVE COMMAND	~	0-100% OPEN	<___>	AO	[~]	[X]	X	[X]	<___>	<___>	~	~	[~]
		SOLENOID 2 VALVE PID LOOP SETTINGS	<___>	~	<___>	~	~	~	~	~	~	~	~	~	~
	S-V-3-C	SOLENOID 1 VALVE COMMAND	~	0-100% OPEN	<___>	AO	[~]	[X]	X	[X]	<___>	<___>	~	~	[~]
		SOLENOID 1 VALVE PID LOOP SETTINGS	<___>	~	<___>	~	~	~	~	~	~	~	~	~	~
	S-V-4-C	SOLENOID 1 VALVE COMMAND	~	0-100% OPEN	<___>	AO	[~]	[X]	X	[X]	<___>	<___>	~	~	[~]
		SOLENOID 1 VALVE PID LOOP SETTINGS	<___>	~	<___>	~	~	~	~	~	~	~	~	~	~
	3-WAY-V-C	3 WAY VALVE COMMAND	~	0-100% OPEN	<___>	AO	[~]	[X]	X	[X]	<___>	<___>	~	~	[~]
		3 WAY VALVE PID LOOP SETTINGS	<___>	~	<___>	~	~	~	~	~	~	~	~	~	~

Notes:
1) THE CONTRACTOR SHALL COMPLETE THE POINTS SCHEDULE AS SPECIFIED AND AS DESCRIBED IN THE POINTS SCHEDULE INSTRUCTIONS DRAWING.
2) UNIT MANUFACTURERS PROOFS AND SAFETIES: THE CONTRACTOR SHALL SHOW EACH PROOF AND SAFETY AS A SEPARATE ROW.

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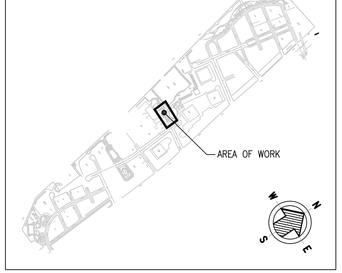
NOTE: Drawing may be printed at reduced scale. Refer to graphic scale.

No.	Date	Revision

No.	Date	Submittal

Key Plan: SHADED AREA = AREA OF WORK



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Designer:	MARTIN J. ISIDRO
Drawn by:	JAMES M. DUMORNE
Checked by:	CARL J. CANNIZZARO, P.E.

Design No. or LLW No.:	Facility Code:	Date:
–	N/A	05/17/13

Project: POLICE MEMORIAL SERVICE RECONSTRUCTION - SUPERSTORM SANDY
BATTERY PARK CITY AUTHORITY

Address: MANHATTAN
NEW YORK, NY

Drawing Title: SEQUENCE OF OPERATION & CONTROL SCHEMATIC

Drawing No.: M104.00

Sheets in Contract: 06 of 23

GENERAL NOTES:

1. ALL WORK SHALL CONFORM TO THE N.Y.C. BUILDING CODE.
2. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR NECESSARY TO MAKE THE MODIFICATIONS, ADDITIONS AND CONNECTIONS TO THE EXISTING PIPING AND INSTALL NEW SYSTEMS AND PIPING AS INDICATED ON THE DRAWINGS.
3. ALL WORK TO BE IN ACCORDANCE WITH THE BUILDING CODE OF THE CITY OF NEW YORK AND REQUIREMENTS N.F.P.A. 90A AND ALL OTHER BOARDS HAVING JURISDICTION.
4. THE CONTRACTOR, PRIOR TO SUBMISSION, SHALL VISIT THE SITE OF WORK AND BECOME THOROUGHLY FAMILIAR WITH ALL CONDITIONS AND LIMITATIONS.
5. THE CONTRACTOR TO COORDINATE WITH THE PARK MANAGEMENT REPRESENTATIVE AS TO THE DELIVERY OF EQUIPMENT AND SCHEDULING OF WORK. ALL SHUT-DOWNS OF THE EXISTING SYSTEMS SHALL BE STRICTLY COORDINATED WITH THE PARK MANAGEMENT REPRESENTATIVE PRIOR TO BIDDING.
6. CONTRACTOR TO PROVIDE LABELS WITH DIMENSIONS OF PIPING, VALVES AND EQUIPMENT.

LIST OF PLUMBING DRAWINGS

P101.00	GENERAL NOTES, LEGEND AND ABBREVIATIONS & LIST OF DRAWINGS
P102.00	PUMP PIT DEMOLITION PART PLAN
P103.00	PUMP PIT NEW WORK PART PLAN
P104.00	PLUMBING SECTIONS AND ISOMETRIC VIEWS

ABBREVIATIONS

BHP	BRAKE HORSE POWER
BTU	BRITISH THERMAL UNIT
BTUH	BTU/HOUR
B.O.F.	BOTTOM OF
CFH	CUBIC FEET PER HOUR
CV	CONTROL VALVE
EA.	EACH
EAT	ENTERING AIR TEMPERATURE
EFF	EFFICIENCY
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
°F	DEGREES FAHRENHEIT
FA	FACE AREA
FLA	FULL LOAD AMPERES
FPM	FEET PER MINUTE
GAL	GALLONS
GPM	GALLONS PER MINUTE
HP	HORSE POWER
INWG	INCHES OF WATER GAUGE
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MBH	1000 BTU/HR
MNPT	MALE NATIONAL PIPE THREAD
PSI	POUNDS PER SQUARE INCH
RPM	REVOLUTION PER MINUTE
S&R	SUPPLY AND RETURN
SMBH	SENSIBLE MBH
SQFT	SQUARE FEET
TEMP	TEMPERATURE
TMBH	TOTAL MBH
TYP.	TYPICAL
V.I.F.	VERIFIED IN FIELD
ø	DIAMETER

PIPING SYMBOLS

- PIPE RISER UP
- PIPE RISER DOWN
- FLOOR CONNECTION
- MAKE UP WATER
- 90° PIPE ELBOW TURN DOWN
- TEE TAKE-OFF
- 90° TOP CONNECTION
- STRAINER
- UNION (FLANGED OR SCREWED)
- GATE VALVE WITH RISING STEM (O.S. & Y)
- GATE VALVE WITH NON-RISING STEM
- GLOBE VALVE
- THREE WAY AUTOMATIC CONTROL VALVE, TWO POSITION ACTUATOR
- CHECK VALVE
- SOLENOID VALVE
- VALVE IN VERTICAL
- BUTTERFLY VALVE

DRAFTING SYMBOLS

- POINT OF DISCONNECTION
- POINT OF NEW CONNECTION
- NEW WORK
- EXISTING TO BE REMOVED
- EXISTING PIPING TO REMAIN
- DETAIL NUMBER / DRAWING NUMBER (1 / M301)
- DETAIL / SECTION, DETAIL DESIGNATION / DRAWING NUMBER (1 / M300)
- EQUIPMENT TYPE (HV)
- EQUIPMENT NUMBER (10)
- EQUIPMENT STATUS (NEW)

VALVES SCHEDULES

UNIT	Qty	SERVICE	VALVE TYPE 3-WAY NO OR NC	GPM	DESIGN (PD)	CALCULATED CV	MANUFACTURER	MODEL NO.	PIPE SIZE (IN)	HEAD LOSS (Ft H2O)	CONTROL VALVE SIZE (IN)	COMMENTS
V-1	1	WATER	BUTTERFLY	450	80.5	54.9	NELES JAMESBURRY	06-150	6	35	6	ACTUATOR CAPACITY ON DWG P-105
V-2	1	WATER	BUTTERFLY	450	80.5	54.9	NELES JAMESBURRY	06-150	6	35	6	ACTUATOR CAPACITY ON DWG P-105
V-3	1	WATER	BUTTERFLY	450	80.5	54.9	NELES JAMESBURRY	06-150	6	35	6	ACTUATOR CAPACITY ON DWG P-105
V-4	1	WATER	BUTTERFLY	450	80.5	54.9	NELES JAMESBURRY	06-150	6	35	6	ACTUATOR CAPACITY ON DWG P-105
V-5	1	WATER	3-WAY	450	80.5	54.9	HAYWARD	EPDM	6	35	6	ACTUATOR CAPACITY ON DWG P-105
V-6	3	WATER	BALL	75	184.0	6.1	WATTS	FBV-4	1	80	1	
V-7	3	WATER	BALL	75	184.0	6.1	WATTS	FBV-4	2	80	2	
V-8	1	WATER	SOLENOID	75	184.0	6.1	GRAINGER	8210G002	1.5	80	1.5	
V-9	1	WATER	BALL	75	184.0	6.1	WATTS	FBV-4	1.5	80	1.5	
V-10	1	WATER	GATE	450	80.5	54.9	WATTS	405-NRS-RW	6	35	6	
V-11	1	WATER	GATE	75	184.0	6.1	WATTS	405-NRS-RW	3	80	3	
V-12	1	WATER	GATE	75	184.0	6.1	WATTS	405-NRS-RW	2	80	2	

NOTES:

FILTER - SCHEDULE

TAG	F-1	F-2
TYPE	CHLORINE FEEDER	CATRIDGE FILTER
LOCATION	PUMP PIT	PUMP PIT
WORKING FLUID	WATER	WATER
MODEL	-	C1200
EFFECTIVE FILTRATION AREA	-	120 SQFT
DESIGN CAPACITY (GPM)	-	45
PLUMBING CONNECTION	1"	1-1/2"
CATRIDGE REPLACEMENT		CX1200RE
MANUFACTURER	HAYWARD	HAYWARD

NOTES:

RECYCLE PUMP - SCHEDULE

BASED UPON "MARATHON" OR EQUAL

UNIT TAG		P-1
LOCATION		PUMP PIT
WORKING FLUID		WATER
PUMP DATA	MODEL	WEINMAN 4G
	SIZE	4"
	DESIGN CAPACITY (GPM)	450
	DESIGN HEAD (FT/H20)	35
	SUCTION (INCH)	4"
	IMPELLER DIA (INCH)	7"
	NPSHr (FT)	8
	PUMP EFFICIENCY (%)	82
	SPEED (RPM)	VARIABLE
MOTOR	MODEL	MARATHON 4VD184TTDR7356BT
	MOTOR SIZE (HP)	5
	FULL LOAD AMPS	14.8-14.4/7.2
	VOLTS/PHASE/HZ	208 / 3 / 60
	SPEED (RPM)	1740
APPROX. WEIGHT (LBS)		80

NOTES:

FLUME PUMP - SCHEDULE

BASED UPON "MARATHON" OR EQUAL

UNIT TAG		P-2
LOCATION		PUMP PIT
WORKING FLUID		WATER
PUMP DATA	MODEL	SP3015X20AZ
	SIZE	2
	DESIGN CAPACITY (GPM)	75
	DESIGN HEAD (FT/H20)	80
	SUCTION (INCH)	2"
	IMPELLER DIA (INCH)	4.75"
	NPSHr (FT)	
	PUMP EFFICIENCY (%)	80
	SPEED (RPM)	VARIABLE
MOTOR	MODEL	A.O. SMITH K48N2N106
	MOTOR SIZE (HP)	2.5
	FULL LOAD AMPS	11.2
	VOLTS/PHASE/HZ	230/3/60
	SPEED (RPM)	3450
APPROX. WEIGHT (LBS)		

NOTES:

FILTER PUMP - SCHEDULE

BASED UPON "MARATHON" OR EQUAL

UNIT TAG		P-3
LOCATION		PUMP PIT
WORKING FLUID		WATER
PUMP DATA	MODEL	SP3007X10AZ
	SIZE	1-1/2"
	DESIGN CAPACITY (GPM)	38
	DESIGN HEAD (FT/H20)	70
	SUCTION (INCH)	1-1/2"
	IMPELLER DIA (INCH)	3/4"
	NPSHr (FT)	1
	PUMP EFFICIENCY (%)	80
	SPEED (RPM)	VARIABLE
MOTOR	MODEL	HAYWARD SPX1607Z1
	MOTOR SIZE (HP)	1
	FULL LOAD AMPS	10
	VOLTS/PHASE/HZ	208/3/60
	SPEED (RPM)	1750
APPROX. WEIGHT (LBS)		38

NOTES:

SUMP PUMP - SCHEDULE

BASED UPON "WEIL" OR EQUAL

UNIT TAG		SP-1
LOCATION		PUMP PIT
WORKING FLUID		WATER
PUMP DATA	MODEL	WEIL 1413
	SIZE	2"
	DESIGN CAPACITY (GPM)	170
	DESIGN HEAD (FT/H20)	70
	SUCTION (INCH)	1-1/2"
	IMPELLER DIA (INCH)	3/4"
	NPSHr (FT)	1
	PUMP EFFICIENCY (%)	80
	SPEED (RPM)	VARIABLE
MOTOR	MODEL	
	MOTOR SIZE (HP)	1/2
	FULL LOAD AMPS	-
	VOLTS/PHASE/HZ	208/3/60
	SPEED (RPM)	1750
APPROX. WEIGHT (LBS)		-

NOTES:

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No.	Date	Revision

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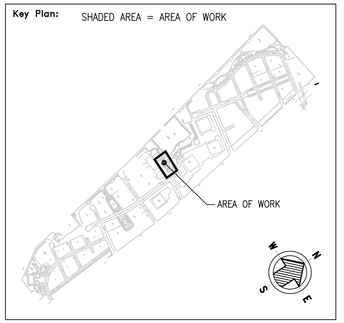
Key Plan: SHADED AREA = AREA OF WORK



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Design No. or LLW No.:	Facility Code:	Date:
–	N/A	05/17/13

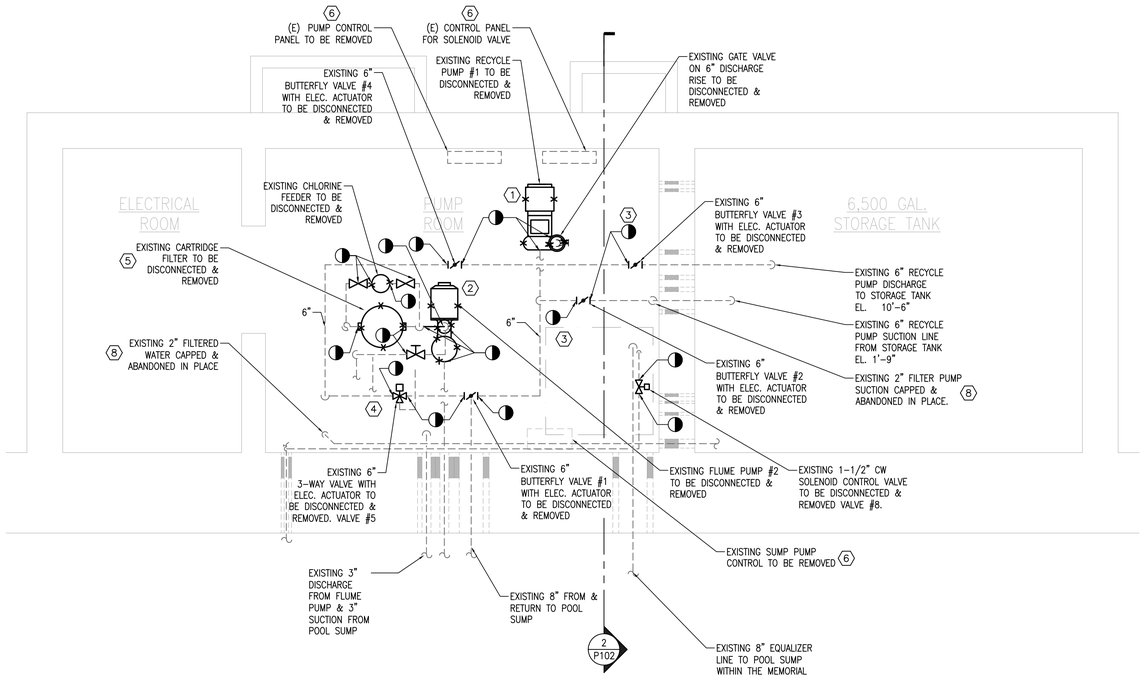
Project: POLICE MEMORIAL SERVICE RECONSTRUCTION - SUPERSTORM SANDY
BATTERY PARK CITY AUTHORITY

Address: MANHATTAN
NEW YORK, NY

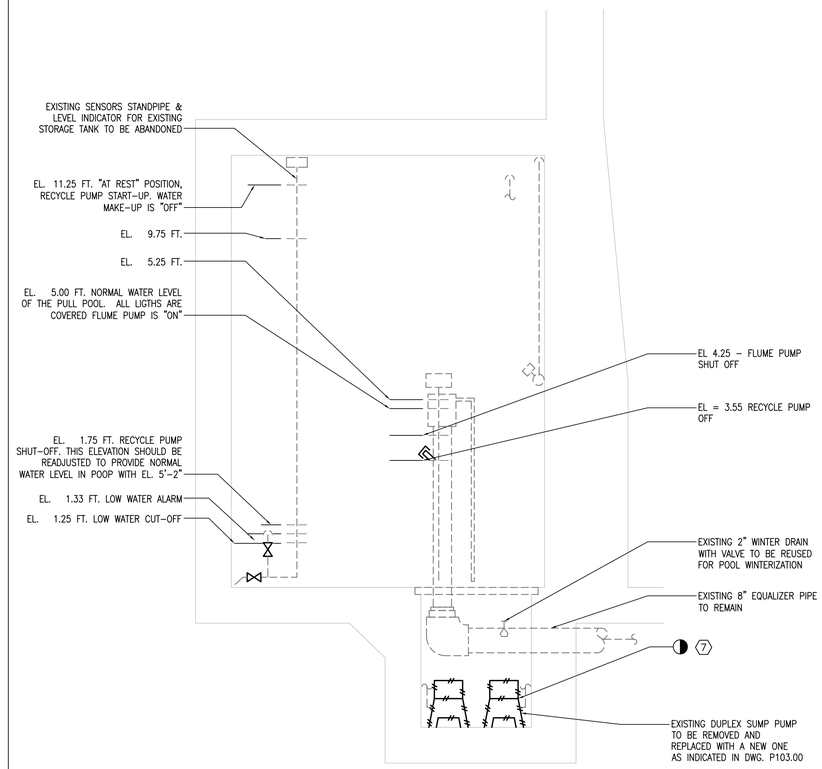
Drawing Title: GENERAL NOTES, LEGEND AND ABBREVIATIONS & LIST OF DRAWINGS

Drawing No.: P101.00

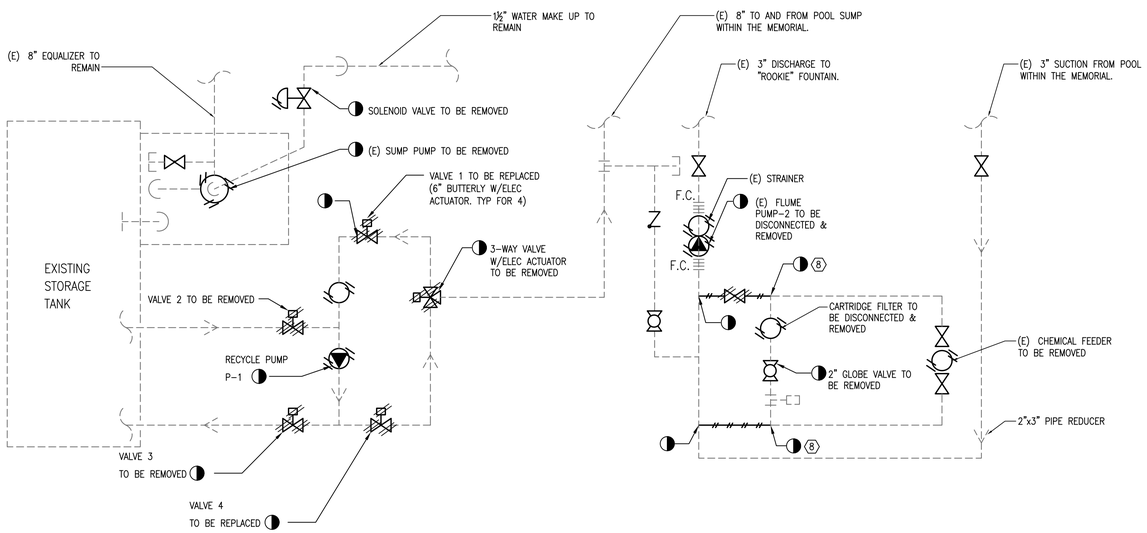
Sheets in Contract: 07 of 23



PLUMBING DEMO PART PLAN
SCALE 1/2"=1'-0" **1**



ELEVATION
SCALE 1/2"=1'-0" **2**



PUMP PIT - PIPING SCHEMATIC DIAGRAM
NOT TO SCALE

DEMOLITION NOTES:

1. FOR SYMBOLS AND ABBREVIATIONS SEE DRAWING P001.
2. CONTRACTOR TO REMOVE EXISTING PUMPS WITH ALL ASSOCIATED, VALVES, FITTINGS, SUPPORTS AND REQUIRED PIPINGS.

SCOPE OF WORK:

1. REMOVE (E) RECYCLE PUMP. DISCONNECT THE NECESSARY CONNECTIONS AND REPLACE IT WITH A NEW HAYWARD PUMP (SEE DWG P-101)
2. REMOVE (E) FLUME PUMP. DISCONNECT THE NECESSARY CONNECTIONS AND REPLACE IT WITH A NEW PUMP (SEE DWG P-101)
3. REMOVE FOUR (4) BUTTEFLY VALVES (V-1 TO V-4) THAT REQUIRE THE SAME CAPACITIES AS INDICATED ON THE DWG P-101.
4. REMOVE A THREE (3) WAY VALVE WITH ELECTRIC ACTUATOR. THE CAPACITIES AND DESCRIPTION OF THE 3 WAY VALVE IS INDICATED ON DWG P-101.
5. REMOVE THE CARTRIGE FILTER THAT HAS THE SAME CAPACITY AS INDICATED ON DWG P-101.
6. REMOVE CONTROLLERS AS INDICATED ON DETAIL P-102/1. THE CONTROLLERS SHOULD FOLLOW THE SEQUENCE OF OPERATION AS INDICATED ON THE SPECIFICATIONS AND DWG P-105.
7. REMOVE THE EXISTING SUMP PUMP. DISCONNECT THE NECESSARY CONNECTIONS AND REPLACE WITH THE SAME MODEL AND CAPACITY.
8. DISCONNECT THE FILTER SUCTION & DISCHARGE PIPING AS INDICATED AND CONNECT THEM TO THE ORIGINAL SUCTION & DISCHARGE PIPING ON THE STORAGE TANK.

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No.	Date	Revision

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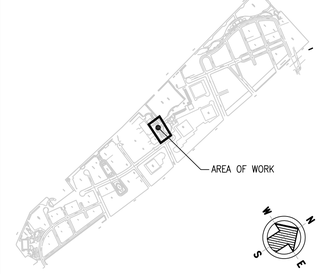
Key Plan: SHADED AREA = AREA OF WORK



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-	N/A	05/17/13

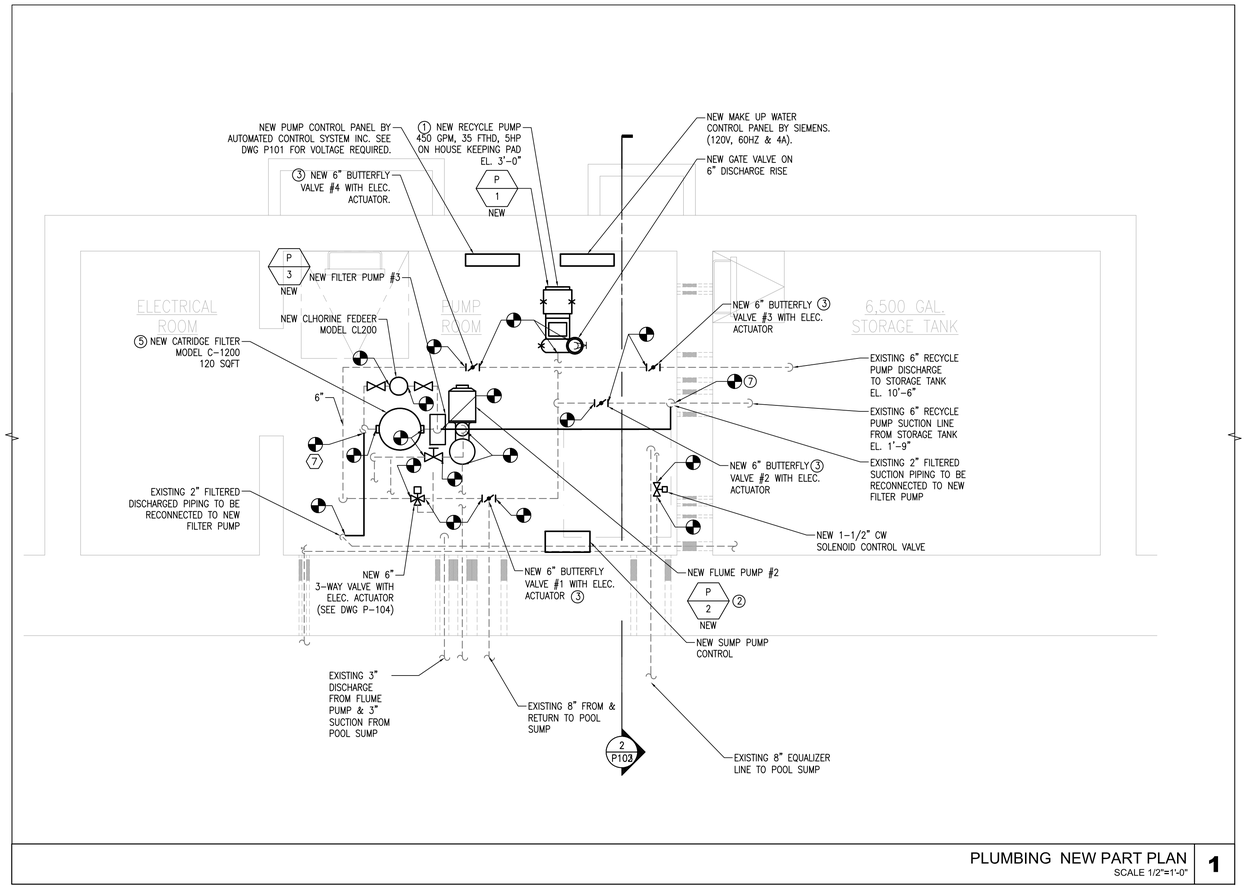
Project: POLICE MEMORIAL SERVICE
RECONSTRUCTION - SUPERSTORM SANDY
BATTERY PARK CITY AUTHORITY

Address: MANHATTAN
NEW YORK, NY

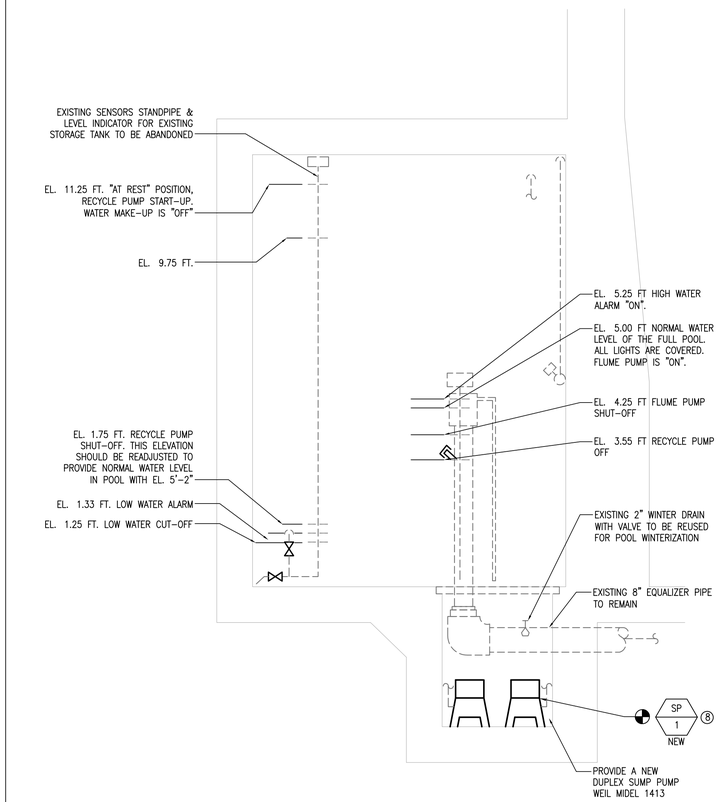
Drawing Title:
PUMP PIT
DEMOLITION PART PLAN

Drawing No.:
P102.00

Sheets in Contract:
08 of 23



PLUMBING NEW PART PLAN
SCALE 1/2"=1'-0" **1**



ELEVATION
SCALE 1/2"=1'-0" **2**

SCOPE OF WORK:

1. INSTALL NEW RECYCLE PUMP. DISCONNECT THE NECESSARY CONNECTIONS AND REPLACE IT WITH A NEW HAYWARD PUMP MODEL SP3020X25AZ OF 5 HP THAT WILL BE ABLE TO PUMP 450 GPM @ 35 FTHD.
2. INSTALL NEW FLUME PUMP. DISCONNECT THE NECESSARY CONNECTIONS AND REPLACE IT WITH A NEW PUMP OF 2-1/2" HP THAT SHALL BE ABLE TO PUMP 75 GPM @ 80 FTHD.
3. INSTALL FOUR (4) BUTTERFLY VALVES (V-1 TO V-4) THAT REQUIRE THE SAME CAPACITIES AS INDICATED ON THE DWG P-105.
4. INSTALL NEW THREE (3) WAY VALVE WITH ELECTRIC ACTUATOR. THE CAPACITIES AND DESCRIPTION OF THE 3 WAY VALVE IS INDICATED ON DWG P-105.
5. INSTALL A NEW CARTRIDGE FILTER WITH ITS RESPECTIVE PUMP THAT HAS THE SAME CAPACITY AS INDICATED ON DWG P-101.
6. INSTALL NEW CONTROLLERS AS INDICATED ON DETAIL P-105. THE CONTROLLERS SHOULD FOLLOW THE SEQUENCE OF OPERATION AS INDICATED ON THE DWG.
7. RECONNECT EXISTING SUCTION& DISCHARGE PIPING TO THE NEW FILTER PUMP.
8. INSTALL NEW SUMP PUMP OF THE SAME MODEL AND CAPACITY AS THE ORIGINAL. WEIL MODEL 1413.

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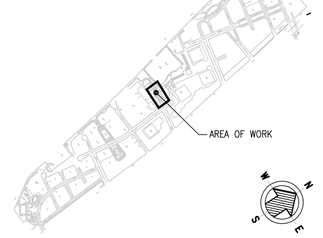

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Project: POLICE MEMORIAL SERVICE RECONSTRUCTION - SUPERSTORM SANDY
BATTERY PARK CITY AUTHORITY

Address: MANHATTAN
NEW YORK, NY

Drawing Title:
PUMP PIT
NEW WORK PART PLAN

Drawing No.:
P103.00

Sheets in Contract:
09 of 23