

PUMPING OPERATION RANGES WITH RISING WATER

| FUNCTION | SCADA (ULTRASONIC & HYDROSTATIC LEVEL) | | FLOAT | |
|---------------------------------------|----------------------------------------|--------------------------------|----------------|--------------------------------|
| | ELEVATION (FT) | LEVEL ABOVE WET PIT FLOOR (FT) | ELEVATION (FT) | LEVEL ABOVE WET PIT FLOOR (FT) |
| LEAD SUMP PUMP START MIXERS START | 371.00 | 5.0 | 372.00 | 6.0 |
| LAG SUMP PUMP START | 373.00 | 7.0 | 373.50 | 7.5 |
| LEAD MAIN PUMP START & MIXERS STOP | 374.00 | 8.0 | 374.50 | 8.5 |
| LAG 1 MAIN PUMP START | 375.00 | 9.0 | 375.50 | 9.5 |
| LAG 2 MAIN PUMP START | 376.00 | 10.0 | 376.50 | 10.5 |
| LAG 3 MAIN PUMP START | 377.00 | 11.0 | 377.50 | 11.5 |
| LAG 4 MAIN PUMP START | 378.00 | 12.0 | 378.50 | 12.5 |
| LAG 5 MAIN PUMP START | 379.00 | 13.0 | 379.50 | 13.5 |
| HIGH WATER ALARM | 380.00 | 14.0 | 380.50 | 14.5 |

PUMPING OPERATION RANGES WITH FALLING WATER

| FUNCTION | SCADA (ULTRASONIC & HYDROSTATIC LEVEL) | | FLOAT | |
|---------------------------------|----------------------------------------|--------------------------------|----------------|--------------------------------|
| | ELEVATION (FT) | LEVEL ABOVE WET PIT FLOOR (FT) | ELEVATION (FT) | LEVEL ABOVE WET PIT FLOOR (FT) |
| LAG 5 MAIN PUMP STOP | 377.00 | 11.0 | 377.00 | 11.0 |
| LAG 4 MAIN PUMP STOP | 376.00 | 10.0 | 376.00 | 10.0 |
| LAG 3 MAIN PUMP STOP | 375.00 | 9.0 | 375.00 | 9.0 |
| LAG 2 MAIN PUMP STOP | 374.00 | 8.0 | 374.00 | 8.0 |
| LAG 1 MAIN PUMP STOP | 373.00 | 7.0 | 373.00 | 7.0 |
| LEAD MAIN PUMP STOP | 372.00 | 6.0 | 372.00 | 6.0 |
| MAIN PUMP FAILURE TO STOP ALARM | 371.50 | 5.5 | 371.50 | 5.5 |
| LAG SUMP PUMP STOP | 371.00 | 5.0 | 371.00 | 5.0 |
| MIXER STOPS | 370.50 | 4.5 | 370.50 | 4.5 |
| LEAD SUMP PUMP STOP | 369.50 | 3.5 | 369.50 | 3.5 |
| LOW WATER ALARM | 368.50 | 2.5 | 368.50 | 2.5 |

DAMPERS SCHEDULE

| ITEM | SIZE | ACTUATOR | | | CONFIGURATION | REMARKS |
|-------------|------------------|----------------|---------|----|---------------|---------------------------|
| | | TYPE | VOLTAGE | PH | | |
| DM 1, 2 & 3 | 26.5"x26.5" | ELECTRIC MOTOR | 120 | 1 | SUPPLY | MOTORIZED * DAMPER/LOUVER |
| DM 4 | 14"x6" | ELECTRIC MOTOR | 120 | 1 | SUPPLY | MOTORIZED * DAMPER/LOUVER |
| DM 5A & 5B | 2 @ 30"x30" E.A. | ELECTRIC MOTOR | 120 | 1 | SUPPLY | MOTORIZED * DAMPER/LOUVER |
| DM 6A & 6B | 6 @ 40"x60" E.A. | ELECTRIC MOTOR | 120 | 1 | SUPPLY | MOTORIZED DAMPER/LOUVER |
| DM 7A & 7B | 2 @ 20"x40" E.A. | ELECTRIC MOTOR | 120 | 1 | SUPPLY | MOTORIZED DAMPER/LOUVER |
| EF 2 | 16"x16" | GRAVITY | | | EXHAUST | GRAVITY DAMPER/LOUVER |
| EF 3 | 16"x16" | GRAVITY | | | EXHAUST | GRAVITY DAMPER/LOUVER |
| EF 4 | 11.25"x11.25" | GRAVITY | | | EXHAUST | GRAVITY DAMPER/LOUVER |
| GEN. ROOM | 4 @ 48"x52" E.A. | GRAVITY | | | EXHAUST | GRAVITY DAMPER/LOUVER |
| SF 5 | 18"x12" | GRAVITY | | | EXHAUST | GRAVITY DAMPER/LOUVER |

* EXPLOSION PROOF EQUIPMENT

ALVORD, BURDICK & HOWSON, L.L.C.
ENGINEERS CHICAGO

EQUIPMENT SCHEDULE

| ITEM | DESCRIPTION | LOCATION | ELECTRICAL MOTOR CHARACTERISTICS | | | | | | PUMP | | FAN | | | | REMARKS | |
|-----------|---------------------------|-------------------------------|----------------------------------|------|-----------|-------|-------|----|----------------|-----------|----------------------------|----------------|---------|--------|---------|----------------------|
| | | | KW | HP | RPM | VOLTS | PHASE | HZ | CAPACITY (GPM) | HEAD (FT) | TYPE | CAPACITY (CFM) | SP (IN) | DRIVE | | MOUNTING |
| SWP-1 | EXISTING MAIN PUMP #1 | WET WELL | 149 | 200 | 880 | 460 | 3 | 60 | 13,000 | 46 | | | | | | |
| SWP-2 | MAIN PUMP #2 | WET WELL | 149 | 200 | 880 | 460 | 3 | 60 | 13,000 | 46 | | | | | | SEE NOTES 1 AND 2 |
| SWP-3 | EXISTING MAIN PUMP #3 | WET WELL | 149 | 200 | 880 | 460 | 3 | 60 | 13,000 | 46 | | | | | | |
| SWP-4 | MAIN PUMP #4 | WET WELL | 149 | 200 | 880 | 460 | 3 | 60 | 13,000 | 46 | | | | | | SEE NOTES 1 AND 2 |
| SWP-5 | EXISTING MAIN PUMP #5 | WET WELL | 149 | 200 | 880 | 460 | 3 | 60 | 13,000 | 46 | | | | | | |
| SWP-6 | MAIN PUMP #6 | WET WELL | 149 | 200 | 880 | 460 | 3 | 60 | 13,000 | 46 | | | | | | SEE NOTES 1 AND 2 |
| SSP-1 | SUMP PUMP #1 | WET WELL | 75 | 120 | 1185 | 460 | 3 | 60 | 5,300 | 50 | | | | | | SEE NOTES 1 AND 2 |
| SSP-2 | EXISTING SUMP PUMP #2 | WET WELL | 127 | 170 | 1185 | 460 | 3 | 60 | 8,500 | 57.5 | | | | | | |
| DP 1 | DEWATERING PUMP#1 | WET WELL | 18.5 | 25 | 1750 | 460 | 3 | 60 | 1,000 | 54 | | | | | | SEE NOTES 1 AND 2 |
| DP 2 | DEWATERING PUMP#2 | WET WELL | 11 | 15 | 1750 | 460 | 3 | 60 | 500 | 48 | | | | | | SEE NOTES 1 AND 2 |
| FWP1 | FLUSHING WATER PUMP | FLOOR AT EL. 393.67 | 7.5 | 10 | 1800 | 460 | 3 | 60 | 225 | 90 | | | | | | SEE NOTE 2 |
| SM 1 & 2 | SUBMERSIBLE MIXER | WET WELL | 3 | 4 | 880 | 460 | 3 | 60 | | | | | | | | SEE NOTE 2 |
| SM 3 & 4 | SUBMERSIBLE MIXER | WET WELL | 3 | 4 | 880 | 460 | 3 | 60 | | | | | | | | SEE NOTE 2 |
| SF 2 | EXISTING SUPPLY FAN | PUMP ROOM | 1.2 | 1.5 | 1750 | 460 | 3 | 60 | | | SIDEWALL PROPELLER FAN | 4,700 | 0.5 | DIRECT | WALL | SEE NOTE 2 |
| SF 5 | SUPPLY FAN | OPERATOR'S ROOM | 3.8 | 5 | 1100/1725 | 460 | 3 | 60 | | | UTILITY CENTRIFUGAL FAN | 6,900/8,000 | 1.2/1.5 | BELT | DUCT | SEE NOTES 2, 3 AND 4 |
| EF 1 | EXISTING EXHAUST FAN | DISCHARGE FLOOR AT EL. 393.67 | 3.8 | 5 | 1750 | 460 | 3 | 60 | | | IN-LINE CENTRIFUGAL FAN | 6,100 | 7.5 | BELT | DUCT | SEE NOTE 6 |
| SF 4 | EXISTING SUPPLY FAN | ENTRANCE AT EL. 422.0 | 1.2 | 1.5 | 1750 | 460 | 3 | 60 | | | IN-LINE CENTRIFUGAL FAN | 7,700 | 0.25 | BELT | DUCT | SEE NOTE 6 |
| EF 2 | EXHAUST FAN | GENERATOR BUILDING ROOF | 0.37 | 0.5 | 1725 | 460 | 3 | 60 | | | ROOF MT'D CENTRIFUGAL | 1,800 | 0.75 | DIRECT | ROOF | |
| EF 3 | EXHAUST FAN | GENERATOR BUILDING ROOF | 0.37 | 0.5 | 1725 | 460 | 3 | 60 | | | ROOF MT'D CENTRIFUGAL | 1,800 | 0.75 | DIRECT | ROOF | |
| EF 4 | EXHAUST FAN | ROOF STAIR ACCESS | 0.11 | 1/4 | 1550 | 120 | 1 | 60 | | | SIDEWALL CENTRIFUGAL | 502 | 0.375 | DIRECT | WALL | SEE NOTE 2 |
| EUH 1 & 2 | ELECTRIC UNIT HEATER | OPERATOR'S ROOM & PUMP ROOM | 5.0 | | | 480 | 3 | 60 | | | FAN FORCED ELECTRIC HEATER | | | | | SEE NOTE 2 |
| EUH 3 | ELECTRIC UNIT HEATER | GENERATOR ROOM | 5.0 | | | 480 | 3 | 60 | | | FAN FORCED ELECTRIC HEATER | | | | | |
| HM 1 | EXISTING 2T HOIST MOTOR | ENTRANCE | 2.2 | 3 | | 460 | 3 | 60 | | | | | | | | |
| HM 2 | 3T CRANE HOIST MOTOR | PUMP ROOM ROOF AT EL.422.0 | 4.66 | 6.25 | | 460 | 3 | 60 | | | | | | | | |
| TM 1 | EXISTING 2T TROLLEY MOTOR | ENTRANCE | 0.37 | 0.5 | | 460 | 3 | 60 | | | | | | | | |
| TM 2 | 3T CRANE TROLLEY MOTOR | PUMP ROOM ROOF AT EL.422.0 | 0.37 | 0.5 | | 460 | 3 | 60 | | | | | | | | |
| TM 2A | 3T CRANE TROLLEY MOTOR | PUMP ROOM ROOF AT EL.422.0 | 0.56 | 0.75 | | 460 | 3 | 60 | | | | | | | | |

NOTES:

- THE DESIGN OF THE PUMP STATION HAS BEEN BASED ON A SPECIFIC PUMP. OTHER PUMPS PRODUCING THE SAME HYDRAULIC CHARACTERISTIC ARE ACCEPTABLE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAKE ALL ADJUSTMENTS TO THE STATION DESIGN REQUIRED TO ADOPT HIS FINAL SELECTED PUMPS AT NO ADDITIONAL COST.
- EQUIPMENT SHALL MEET THE REQUIREMENTS OF NEC CLASS 1, DIV. 2 GROUP D HAZARDOUS LOCATION EXCEPT HM2, TM2 AND TM2A WHICH SHALL MEET THE REQUIREMENTS OF ANSI MH2.1, CLASS C (MODERATE SERVICE) AND OUTDOOR OPERATION.
- TWO SPEED FAN IS REQUIRED.
- CENTRIFUGAL FAN ARRANGEMENT 9.
- FOR PUMP STATION HVAC AND AIR HANDLING UNIT SCHEDULE, SEE M3 DWG.
- FOR INFORMATION ONLY. EXISTING FAN TO REMAIN.

M9

| REVISIONS | |
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| NAME | DATE |
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ILLINOIS DEPARTMENT OF TRANSPORTATION
BOWMAN AVENUE PUMP STATION REHABILITATION
EQUIPMENT SCHEDULE & PUMPING OPERATING ELEV.

SCALE: NO SCALE
DATE: 09-12-05
DRAWN BY: WP,CM
CHECKED BY: KC

PLOT DATE: *DATE-TIME*

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BY: _____
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SCALE: AS SHOWN
DATE: 09-12-05
DRAWN BY: WP,CM
CHECKED BY: KC