

PUMP STATION 17

ELECTRICAL

SYSTEM VOLTAGE: 480/277V, 200A, 3-PHASE AVAILABLE FAULT CURRENT 9,000A AT HANDHOLE, H-01
 TOTAL CONNECTED LOAD: 97.4KVA FUTURE CAPACITY REQUIRED: 20%
 SPARE REQUIREMENT: 10% ON BREAKERS AND FUSES, LARGEST MOTOR SIZE: 50HP
 EQUIPMENT REDUNDANCY LOAD: COINCIDENT__ NON-COINCIDENT_50HP_
 HAZARDOUS (CLASSIFIED) LOCATION: CLASS_1_ DIVISION_1_ GROUP_D_ FOR WET WELL
 EMERGENCY POWER REQUIREMENT: EMERGENCY POWER SYSTEM_NO_
 LEGALLY REQUIRED STANDBY POWER SYSTEM: _NO_
 OPTIONAL STANDBY POWER SYSTEM:_YES_
 PROJECT SPECIFIC/SPECIAL INFORMATION: BYPASS VAULT CLASS 1, DIV 2. DRYWELL IS DOWNGRADED TO NON-HAZARDOUS AREA WITH +6ACH CONTINUOUS VENTILATION PER 2016 NFPA 820. A PORTABLE POWER GENERATOR ALWAYS PARKS ONSITE AND SHALL BE CONNECTED TO STATION POWER VIA AN ATS TO OPERATE AS A STANDBY GENERATOR.

MECHANICAL

PUMP OPERATING CONDITIONS: 2,500 GPM; 42 FT TDH, GIVEN AT WW DEPTH OF 8 FEET. FIRM CAPACITY WITH 1 PUMP, NO TANDEM OPERATION ALLOWED.
 NUMBER OF PUMPS: 2
 SIZE OF PUMP: 10" SUCTION, 8" DISCHARGE.
 DESIGN FLOW RATE: 1,050-2,500 GPM
 PUMP INFO: CORNELL 8NNT (BASIS OF DESIGN PUMP)
 IMPELLER TYPE: ENCL. SOLIDS HANDLING
 SPEED: VARIABLE, 780-1200 RPM;
 EFFICIENCY: 80% AT DESIGN POINT:
 CONFIGURATION: VERTICAL COUPLED
 TYPE OF STATION: DRY WELL/ WET WELL
 PUMP SET POINTS: OFF: 3.3', LEAD ON/ LEVEL CONTROL: 8.0', HIGH ALARM: 11.1', OVERFLOW: 21.7'
 PRIMARY POWER SOURCE: SEATTLE CITY LIGHT
 BACKUP POWER SOURCE: ONSITE STANDBY GENERATOR
 NPSHA: 34.4 FT AT DESIGN POINT. UTILITY POWER: 3 PHASE: 480V.
 FORCE MAIN: SIZE: 10"; TYPE: EXISTING DUCTILE IRON; LENGTH: 18 FT (INTERNAL)/ 128 FT (EXTERNAL)
 STATIC HEAD ELEVATION: 20.75 FT AT LEVEL CONTROL DESIGN POINT.
 SERVICE AREA: SANITARY, 395 AC
 WET WELL STORAGE: 9,500 GAL (HIGH ALARM TO OVERFLOW, NOT INCL. PIPE STORAGE).

HVAC

DESIGN PER NFPA 820-16
DRY WELL - UNCLASSIFIED AREA
 SPACE VOLUME: 7,865 CF
 MIN. SUPPLY AIRFLOW: 800 CFM
 MIN. EXHAUST AIRFLOW: 720 CFM
 AIR EXCHANGES: MINIMUM 6/HR, 0.1" W.G. POSITIVE PRESSURE VS. AMBIENT.

WET WELL - CLASS I DIV 1 GROUP D (DOWNGRADE NOT PURSUED FOR THIS LOCATION)
 SPACE VOLUME: 3,304 CF
 MIN. SUPPLY AIRFLOW: 595 CFM
 MIN. EXHAUST AIRFLOW: 660 CFM
 AIR EXCHANGES: MINIMUM 12/HR, 0.1" W.G. NEGATIVE PRESSURE VS. AMBIENT.

STRUCTURAL

DESIGN CODE FOR LOAD CRITERIA: ASCE 7-10
 SOILS: LATERAL LOADING PRESSURE N/A
 VERTICAL LOADING 120 PCF SOIL LOAD
 WIND LOADING: N/A
 SNOW LOADING: N/A
 VAULT/TOP SLAB LOADING IN TRAFFIC BEARING AREAS: AASHTO HL-93
 MODIFIED FOR HS-25 WHEEL/AXLE LOADS
 INTERIOR SUSPENDED FLOOR LOAD: 100 PSF GRATED AREAS; PLUS
 POINT LOAD FOR PUMPS + MOTOR ASSEMBLY (2,500 LB)

EXAMPLE

NOT FOR CONSTRUCTION

DSG REFERENCE -				
DATE	REVISION NAME	MADE	CHACKED	FINALIZED

NAME AND DATE DESIGNED: 1/28/2020 JESSE NOFZIGER, P.E.	APPROVED:	DATUM: HORIZONTAL: NAD 83 / 91 VERTICAL: NAVD-88
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DRAWING NAME: BASIS OF DESIGN PLAN SHEET	 City of Seattle Mami Hara, General Manager/CEO	SEATTLE PUBLIC UTILITIES DESIGN STANDARDS AND GUIDELINES	DRAWING # 790-871
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