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PUMP STATION NO. 22
RETROFIT AND FORCE MAIN REPLACEMENT

INDEXED BY GY/FA/AMER ENGINEERING
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GENERAL NOTES ON PLANS FOR SEWER MAINS

1. ALL PIPE, APPARATUS, AND WORK MUST CONFORM TO THE CITY OF SEATTLE STANDARD PLANS AND SPECIFICATIONS, 2017 EDITION.
2. ALL MATERIALS MUST BE NEW.
3. DUCTILE IRON 4" AND LARGER MUST BE DIP CL. 52 CONFORMING TO AWWA C-151 WITH DOUBLE THICKNESS CORE AND NORMAL UNIFORMITY, OR AWWA C-104. ALL JOINTS SHALL BE REINFORCED.
4. UNLESS PROVIDED BY A PRE-APPROVED MANUFACTURER, PIPE 4" AND LARGER AND LINING MATERIAL MUST BE SUBJECT TO SPU TASTE TESTING PROCEDURES PRIOR TO INSTALLATION.
5. ALLOWABLE TOLERANCES FOR PIPE, SLEEVE, AND ELBOW *shall* be one-eighth inch.*
6. ALL PIPE CONFORMING TO AWWA C-115 AND C-119, OR AWWA C-113, AND BE DOUBLE THICKNESS CEMENT WORKING LINE CONFORMING TO AWWA C-104.
7. CARE MUST BE EXERCISED WHEN EXCAVATING NEAR EXISTING PRESSURIZED WATER MAINS OR SEWER LINES.
8. LOCATIONS SHOWING EXISTING SUBURBAN UTILITIES ARE APPROXIMATE. UTILITIES MAY HAVE NO RECORDS ON DEPTH. WATER/SEWER SEPARATION MUST BE PER STANDARD PLAN #848. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REPLACE CAST IRON WATER MAINS WITH DUCTILE IRON PIPE WHERESEVER AREAS ARE INSTALLED ABOVE OR CLOSER THAN 10 FEET OR CROSS OVER ANY WATER LINE. SEE SPECIAL PROVISIONS FOR MINIMUM CLEARANCES AT SECTION 17.17.920 CONCERNING CROSSING OF ELECTRICAL AND GAS MAINS.
9. THE SERVICE FORCE MAN IS TO BE SUBJECTED TO HYDROSTATIC SYSTEM PRESSURE TESTING IN ACCORDANCE WITH SECTION 7-17.3(14) OF THE STANDARD SPECIFICATION WITH A MINIMUM HYDROSTATIC PRESSURE OF 110 PSI AT THREE (3) TIMES THE DESIGN DUTY PRESSURE. TESTING MUST BE IN CONFORMITY WITH THE PRESENCE OF THE RESIDENT ENGINEER. THE CONTRACTOR IS TO PROVIDE PLANS AND TEMPORARY BLOWOFF ASSEMBLIES FOR PRESSURE TESTING.
10. PIPE AND FITTINGS MUST BE REINFORCED CONFORMING TO AWWA C-105.
11. ALL DI AND PIPE FITTINGS MUST BE REINFORCED PER SECTION 9-20.20.
12. TRENCH BACKFILL FOR PIPE WITH PROTECTIVE COATING OR POLYURETHANE EXCAVATION MUST BE PER STANDARD PLAN #4550. CLASS B REINFORCEMENT SHALL BE MINIMUM ACCELERATIVE TYPE T.
13. JOINT SEALING MUST BE PER STANDARD PLAN #16.
14. SIDE SEWER CONNECTIONS AND INSTALLATION TO CONFORM TO SECTION 7-17.8. MAINTAIN SIDE SEWER TEMPLING AT ALL TIMES.
15. PIPE TRENCH CROSSING UTILITIES TO BE PROTECTED AND SUPPORTED DURING EXCAVATION, PIPE INSTALLATION, AND BACKFILL. SUMMIT SUPPORT DETAILS FOR ALL WATER MAINS CROSSINGS FOR EXCAVATION ARE REQUIRED.
16. FOR ALL TLES, THE CENTER POINT OF THE TEE MUST BE INSTALLED NO LOWER THAN 30" AND NOT線上 OF THE MAINLINE.
17. TLES SHALL BE PREPARATITED AND WHEN CONNECTING TO A DISSOLAR PIPE MATERIAL, MUST BE NO TLES AND SUBJECT TO USING A SHELDING FLEXIBLE REPAIR COUPLING PER SPECIFICATION 17.17.7.20 16-05-16.
18. ELEVATION VARIATIONS IN TEE HEIGHTS MUST BE MEASURED AT CENTER OF SOCKET.
19. ALL TLES MUST HAVE A PROPER TEE OF MINIMUM 1.5" DIAL WITH A MINIMUM 1.5" TILES AFTER BACKFILLING PER SPECIFICATION 17.17.7.5(3). DEFECT TESTING OF FLEXIBLE PIPE MUST BE NO LESS THAN 30 DAYS AFTER BACKFILLING AND PER SPECIFICATION 17.17.5(7). TELEVISION MUST BE PER SPECIFICATION 17.17.7.5(3).
20. WHERE A NEW PIPE CLEARS AN EXISTING OR NEW UILITY BY 6-INCHES OR LESS, POLYURETHANE PLASTIC FORM MUST BE PLACED AS A CUSHION BETWEEN THE UTILITIES PER SPECIFICATION 17-17.02.

PROTECTION OF EXISTING UTILITIES UNLESS OTHERWISE NOTED:

1. ALL JOINTS ADJACENT TO CITY LIGHT POLES OR OTHER INSTALLATIONS MUST COMPLY WITH THE WASHINGTON ADMINISTRATION CODE (WAC) SAFETY STANDARDS FOR CONSTRUCTION WORK, PART N. SITE SAFETY PLAN. ALL OCCUPATIONAL SAFETY PROTECTIONS SHALL SPECIFICALLY CONFORM TO WAC 296-155-650, EXCAVATION, TRENCHING & SHORING.
2. MAINTAIN 10' CLEARANCE FROM OVERHEAD HIGH VOLTAGE POWER LINES. CONTACT AND COORDINATE WITH SPU ON ANYTHING THAT AFFECTS SPU, CONTACT SPU CUSTOMER SERVICE REPRESENTATIVE FOR QUESTIONS OR DETAILS.
3. CONTACT SPU FOR TRENCH STABILITY AS NEEDED. OBSERVE ALL OHSA/WSHA REGULATIONS WHILE WORKING IN OVERHEAD AREAS.
4. CONTACT SPU IF VAULT/MAILBOX COVERS NEED TO BE RESET TO NEW GRADES. UNESCORTED ENTRY TO ENERGIZED FACILITIES IS PROHIBITED.
CONSTRUCTION STORMWATER AND EROSION CONTROL NOTES

UNLESS OTHERWISE NOTED:

1. THE CONSTRUCTION CONTRACTOR MUST INSTALL ALL REASONABLE MEASURES TO MINIMIZE THE IMPACTS OF CONSTRUCTION ACTIVITY ON WATERS OF THE STATE. WATER QUALITY CONCERNS ARE SUBURBAN, SUSPENDED SEDIMENTS, SETTLEABLE SOLIDS, OIL AND GREASE, AND PH. REQUIRED CSC MEASURES INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:

1.1. SUBMIT A CONSTRUCTION STORMWATER AND EROSION CONTROL PLAN (CSCCP), TREE VEGETATION, AND SOIL PROTECTION PLAN (TVSP), SWALE PLAN (SP), AND TEMPORARY DISCHARGE PLAN (TDP) IN ACCORDANCE WITH 8-01.3(2).

1.2. THE CONCEPTUAL CSC MEASURES SHOWN ON THIS PLAN ARE THE MINIMUM BMPs FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE CSC FACILITIES MUST BE UPGRADED (E.G., ADDITIONAL CATCH BASIN FILTERS, OR ADDITIONAL STORMWATER TREATMENT MEASURES) AS NEEDED, DUE TO WEATHER OR FIELD CONDITIONS TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM OR OFF-SITE AREAS.

1.3. THE CONTRACTOR MUST USE PROPER EROSION AND SEDIMENT CONTROL PRACTICES ON THE CONSTRUCTION SITE AND ANY ADJACENT CONSTRUCTION STAGING AREAS TO PREVENT EROSION IN AND DOWNSTREAM OF DISTURBED AREAS, AND TO PREVENT THE DISCHARGE OF UPLAND SEEDLINGS OR SEDIMENT LAWN WATER INTO MEATLANDS, WATER BODIES, STREETS AND LOCAL DRAINAGE SYSTEMS.

1.4. THE CSC FACILITIES ON THE APPROVED PLAN WILL BE CONSTRUCTED PRIOR TO SITE DISTURBANCE TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO SURFACE WATER S, DRAINAGE SYSTEMS, AND ADJACENT PROPERTIES IS MINIMIZED.

1.5. THE CONTRACTOR MUST USE BMPs (E.G., DISCHARGE DITCHES, BERM) AS APPLICABLE TO MINIMIZE OFF-SITE RUNOFF AND CLEAN STORMWATER FROM ENTERING THE PROJECT AREAS.

1.6. THE CONTRACTOR MUST NOT DISCHARGE TURBID WATER GENERATED FROM CONSTRUCTION ACTIVITIES, DIRECTLY TO ANY STREAMS, STORMWATER SYSTEM INLETS, OR DRAINAGE DITCHES.

1.7. SOIL STOCKPILES MUST BE STABILIZED FROM EROSION, PROTECTED WITH SEDIMENT TRAPPING MEASURES, AND, WHERE POSSIBLE, LOCATED AWAY FROM STORM DRAIN AREAS.

1.8. THE CONTRACTOR MUST EMPLOY CONTROL MEASURES AS NEEDED TO PREVENT SURFACE AND AIR MOVEMENT OF DIRT FROM EXPOSED SOIL SURFACES.

1.9. CATCH BASIN PROTECTION MUST BE INSTALLED IN ANY GRADED ROAD DRAINAGE STRUCTURES, EXISTING OR NEWLY INSTALLED, WHICH ARE LIKELY TO RECEIVE RUNOFF FROM THE DISTURBED AREAS DURING CONSTRUCTION. CATCH BASIN PROTECTION SHOWN ON THE CONCEPTUAL CSC PLANS ARE APPROXIMATE LOCATIONS. THE CONTRACTOR MUST ADD CATCH BASIN PROTECTION AS NEEDED TO ALL GRADED CATCH BASINS THAT RECEIVE STORMWATER RUNOFF FROM THE PROJECT AREA AND THAT MAY OR MAY NOT BE SHOWN ON THE CSC PLANS.

1.10. BMPs (E.G., COMPOST SOCKS) MUST BE INSTALLED TO PREVENT SEDIMENT OR SEDIMENT LAWN WATER FROM ENTERING ANY CSC FACILITIES WHICH HAVE NO SMP SPECIFIED. SMOKEITES MAY BE TOO SMALL TO ENSURE CATCH BASIN FILTER SOCKS. OTHER BMPs SUCH AS STREET SWEEPING AND VACUUMING MUST ALSO BE EMPLOYED AS NEEDED TO REMOVE SEDIMENT.

1.11. AT NO TIME MUST MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BAGS AND CONVEYANCE LINES MUST BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION MUST NOT Flush SEDIMENT LAWN WATER INTO THE DOWNSPOUT SYSTEM.

1.12. PER CWS STANDARD SPECIFICATION SECTION 8-01.3(2) AND THE CITY'S STORMWATER CODE, AREAS OF EXPOSED SOIL IN EXCESS OF 4,000 SQUARE FEET THAT WILL NOT BE DISTURBED FOR TWO DAYS DURING THE PERIOD FROM OCTOBER 1 TO APRIL 30, OR SEVEN DAYS DURING THE PERIOD FROM MARCH 1 TO SEPTEMBER 30, WILL BE IMMEDIATELY STABILIZED WITH APPROVED CSC METHODS (E.G., SEEDING, MULCHING, NETTING, CLEAR PLASTIC COVERING).

1.13. THE CONTRACTOR'S CSC MUST REVIEW AND MODIFY THE CSC PLANS AN AS NEEDED BASIS TO REFLICT THE SITE CONDITIONS AND CONSTRUCTION METHODS USED. THE CONTRACTOR'S CSC MUST CONDUCT SITE INSPECTIONS AT LEAST ONCE EVERY CALENDAR MONTH. THE CSC PLAN MAY REQUIRE A 24-HOUR RUNOFF PRODUCING EVENT. THE CSCS WILL INSPECT CSC MEASURES FOR INTEGRITY. ANY DAMAGED CSC MEASURES WILL BE Brought TO THE ATTENTION OF THE ENGINEER AND REPAIRED IMMEDIATELY.

1.14. CONCRETE SAMICUTTING DEBRIS AND SLURRY MUST BE CONTAINED AND MANAGED USING APPROPRIATE BMPs TO PREVENT CONTAMINATION OF SITE WATER AND OFF-SITE DISCHARGE REQUIREMENTS. FRESH CONCRETE CAN ALSO ADVERSELY AFFECT SITE WATER QUALITY. PH SAMPLING AND TESTING MUST BE IN COMPLIANCE WITH ANY DISCHARGE AUTHORIZATIONS FROM KING COUNTY DURING CONCRETE PLACING AND SAMICUTTING. IF PH EXCEEDS DISCHARGE LIMITS, APPROPRIATE BMPs MUST BE APPLIED.

1.15. THE CONTRACTOR MUST SET ASIDE A SEPARATE AREA FOR THE WASH-DOWN OF CONSTRUCTION EQUIPMENT AND TOOLS. PROCESS WATER MUST BE HOUSED OFF SITE OR DISCHARGED TO SEWER IN COMPLIANCE WITH A KING COUNTY DISCHARGE AUTHORIZATION.

1.16. TEMPORARY TRENCH DEEKNETING MUST BE DISCHARGED TO AN APPROVED LOCATION. DISCHARGES TO THE SEWER SYSTEM MUST COMPLY WITH ALL PROVISIONS OF ANY DISCHARGE AUTHORIZATIONS FROM KING COUNTY AND PUD, AS WELL AS CWS SPECIFICATIONS SECTION 2-08.3. 8-01.3(2) AND E.

1.17. EXCAVATION SOILS MAY BE EXTREMELY WET. CONTRACTOR MUST PREVENT MUD AND WATER FROM BEING TRACED ALONG MULCH ROUTES BY LINING TRUCK BEDS OR BY OTHER MEANS AS NECESSARY.

1.18. THE CONTRACTOR IS RESPONSIBLE FOR THE SEQUENCING AND SELLING OF ALL DEMOLITION AND CSC ACTIVITIES AT APPROXIMATE TIMES.

2. PROTECT TREES & VEGETATION PER NORMAL SPECIFICATIONS 1-07.16(2) & 8-01.3(2), CONTACT SCOTT URBAN FORESTRY (284-8621 OR 854-5041) FOR FIELD REVIEW OF TREE, VEGETATION, AND SOIL PROTECTION PLAN PRIOR TO CONSTRUCTION.

EROSION AND SEDIMENTATION CONTROL NOTES

EC-1

ELEMENT | BMPs THAT WILL BE USED
--- | ---
1. PREVENT EROSION AND SEDIMENT FROM THE SITE | £3.10
2. PREVENT EROSION AND SEDIMENT TRANSPORT FROM THE SITE BY VEHICLES | £3.65, £3.70
3. PROTECT STORM DRAINING | £3.25, £3.65, £3.70
4. CONTROL Dewatering | £1.40
5. Maintain BMPs | ALL BMPs WILL BE MAINTAINED AND REPAIRED AS NEEDED TO ASSURE PERFORMANCE
6. Inspect BMPs | ALL BMPs WILL BE INSPECTED BY A GEORCE
7. Execute Stormwater Control Plan | CONSTRUCTION STORMWATER CONTROL PLAN AND CMs WIL BE RETAINED ON-SITE. ALL TEMPORARY BMPs WILL BE MAINTAINED UNTIL THE COMPLETION OF SITE STABILIZATION OR AFTER THEY ARE NO LONGER NEEDED, WHICHEVER IS LONGER
8. Minimize Open Trenches | NO MORE THAN 250 FEET OF TRENCH SHALL BE OPENED AT A TIME. DOWNSPOUT TREATMENT PRIOR TO DISCHARGE INTO STORM DRAIN OR COMBINED SEWER.

* BMPs are described in volume 2 construction stormwater control technical requirements director's rule, 2016, of the stormwater code.
LEGEND

- ( ) PRESENCE OF EXISTING NATURAL VEGETATION, £1.30
- ( ) CATCH BASINS INSERTS
- ( ) INLET PROTECTION
- ( ) WORK AREA LIMITS

NOTES:
1. CONTRACTOR SHALL PROVIDE SEPARATE CONSTRUCTION STORMWATER MANAGEMENT PLAN FOR STAGING AREA(S).
2. SEE TMS EC-1 FOR NOTES AND ACCEPTABLE BMPs THAT MAY BE EMPLOYED FOR CONSTRUCTION STORMWATER CONTROLS.
3. TOTAL DISTURBED AREA IS 0.62 ACRES.
UNLESS OTHERWISE NOTED:
1. NOTIFY MARK LAMPAARD AT KING COUNTY (206-477-5414, mark.lampaard@kingcounty.gov) A MINIMUM OF FIVE (5) WORKING DAYS IN ADVANCE OF THE PRE-CONSTRUCTION CONFERENCES.
2. CONTRACTOR MUST NOTIFY MARK LAMPAARD AT KING COUNTY (206-477-5414, mark.lampaard@kingcounty.gov) A MINIMUM OF THREE (3) WORKING DAYS IN ADVANCE OF ANY CONSTRUCTION ACTIVITY WITHIN 50- FEET OF THE KING COUNTY FORT LAWTON TUNNEL (NORTH INTERCEPTOR).
3. THE CONTRACTOR MUST TAKE MEASURES TO PROTECT THE FORT LAWTON TUNNEL (NORTH INTERCEPTOR) DURING SHORING ACTIVITY.
4. KING COUNTY SHALL REVIEW THE SHORING PLANS.
5. KING COUNTY FORT LAWTON TUNNEL (NORTH INTERCEPTOR) CONNECTION MUST BE MADE BY CORE DRILLING USING AN INSERTA-TEE CONNECTION INSTALLED PER MANUFACTURERS INSTRUCTIONS, WORK BY THE CONTRACTOR.
6. RECORD DRAWINGS INDICATE THAT THE CONNECTION WILL BE MADE TO A BRICK ARCH SECTOR OF THE 144" DIAMETER NORTH INTERCEPTOR. THE CORE DRILLED CONNECTION THROUGH THE BRICK MAY NEED TO BE MORTARED SMOOTH WITH NON-SHRINK GROUT PRIOR TO INSTALLING THE INSERTA-TEE.
7. A KING COUNTY REPRESENTATIVE MUST BE PRESENT AT ALL TIMES ON-SITE DURING EXCAVATION, CORING, AND INSTALLATION OF THE CONNECTION TO THE KING COUNTY FORT LAWTON TUNNEL (NORTH INTERCEPTOR).
8. NO DEBRIS SHALL BE PERMITTED TO ENTER THE KING COUNTY SEWER SYSTEM DURING CONSTRUCTION OF/ON CONNECTION TO THE KING COUNTY FORT LAWTON TUNNEL (NORTH INTERCEPTOR).
9. NO WORK ON OR CONNECTING TO THE KING COUNTY FORT LAWTON TUNNEL (NORTH INTERCEPTOR) MUST BE PERFORMED PRIOR TO THE INSTALLATION OF THE CONNECTION.
10. THE CONNECTION TO THE KING COUNTY FORT LAWTON TUNNEL (NORTH INTERCEPTOR) MUST NOT BE PUT INTO SERVICE UNTIL THE TRIBUTARY SYSTEM HAS BEEN CLEANED, INSPECTED, TESTED, AND APPROVED BY THE CITY OF SEATTLE.
GENERAL BYPASS PUMPING REQUIREMENTS:
1. REFER TO SPECIFICATION SECTION 05 39 03 FOR BYPASS PUMPING REQUIREMENTS.
2. REFER TO 2017 CSC STANDARD SPECIFICATIONS, SECTION 7-17,325, FOR ADDITIONAL TEMPORARY SEWER BYPASS REQUIREMENTS.
3. CONTRACTOR SHALL INSTALL AND MAINTAIN TEMPORARY BYPASS PUMPING SYSTEMS SO THAT THEY ARE COMPLETELY FUNCTIONAL THROUGHOUT THE REQUIRED PERIOD OF SERVICE.
4. INSTALLATION AND OPERATION OF TEMPORARY BYPASS PUMPING SYSTEMS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR DURING CONSTRUCTION.
5. SHOULD THE CONTRACTOR ELECT TO USE TEMPORARY ELECTRIC POWER FOR BYPASS PUMPING, THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING TEMPORARY POWER WITH SEATTLE CITY LIGHT (SCL), AND ALL FEES ASSOCIATED WITH THE TEMPORARY POWER CONNECTION AND USE.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING A SPILL PREVENTION AND COUNTERMEASURE CONTROL (SPCC) PLAN FOR BYPASS PUMPING, PROVIDE CLEAN-UP AND DISPOSAL OF CONTAMINATED MATERIAL, AND CLEAN-UP AND DISPOSAL OF CONTAMINATED MATERIALS IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2017 CSC STANDARD SPECIFICATIONS, SECTION 1-07,28 FOR NOTIFICATION REQUIREMENTS IN THE EVENT OF A SPILL.
7. CONTRACTOR SHALL BE RESPONSIBLE AND LIABLE FOR ANY SPILLS RESULTING FROM BYPASS PUMPING. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER CLEAN-UP OF ANY AND ALL SPILLS RESULTING FROM BYPASS PUMPING OPERATIONS. CLEAN-UP COULD EXTEND BEYOND THE LIMITS OF WORK DEPENDING ON WHAT INFRASTRUCTURE IS AFFECTED AT THE SOLE COST OF THE CONTRACTOR AND AS DIRECTED BY REGULATORY AGENCIES.
8. CSO LEVEL MONITORING SHALL BE CONTINUOUS THROUGHOUT CONSTRUCTION AND CANNOT BE DISRUPTED DUE TO BYPASS PUMPING OPERATIONS.

PUMP STATION BYPASS PUMPING OPTION DESCRIPTIONS:

OPTION #1:
1. BYPASS PUMPING ROUTED ABOVE GRADE FROM THE CSO CONTROL STRUCTURE TO THE EXISTING BYPASS VAULT; CONSTRUCTION TO BE MADE THROUGH EXISTING HDE BYPASS DISCHARGE TO CONNECT TO 8" QUICK COUPLING WITHIN EXISTING BYPASS VAULT.
2. ROUTING MAY BE FROM THE CSO CONTROL STRUCTURE TO THE NEW FLOW METER AND BYPASS VAULT IF IT IS IN SERVICE AND FUNCTIONAL.
3. SPECIFIC ABOVE GRADE PIPING ROUTE TO BE DETERMINED BY CONTRACTOR; PIPING ROUTE MAY BE MOVED OR MODIFIED TO ACCOMMODATE CONSTRUCTION ACTIVITIES.
4. PIPING SHALL BE SUITABLE FOR PRESSURIZED DISCHARGE AND FLOWS AND SHALL BE ADEQUATELY SECURED AND PROTECTED TO PREVENT DAMAGE OR SPILLS.

OPTION #2:
1. BYPASS PUMPING ROUTED BELOW GRADE FROM THE CSO CONTROL STRUCTURE TO THE EXISTING BYPASS VAULT; CONSTRUCTION TO BE MADE THROUGH STRUCTURE SIDE WALLS (CONCRETE PENETRATIONS REQUIRED THROUGH THE STRUCTURES).
2. SPECIFIC PIPING ROUTE, LENGTH AND MATERIALS OF CONSTRUCTION TO BE DESIGNED BY CONTRACTOR.
3. PIPING ROUTE MAY BE MODIFIED TO ACCOMMODATE existing INTERNAL PIPING AND VALVE CONFIGURATION.
4. THIS OPTION IS NOT FEASIBLE UNLESS THE NEW PUMP SERVICE CONNECTIONS ARE INSTALLED AND THE EXISTING GENERATOR CAN BE REMOVED FROM SERVICE; REFER TO THE ELECTRICAL DRAWINGS FOR ELECTRICAL CONSTRUCTION (P130) REQUIREMENTS.
5. PIPING SHALL BE FULLY PLUGGED AND ABANDONED IN PLACE IN ACCORDANCE WITH THE 2017 CSC STANDARD SPECIFICATIONS WHEN BYPASS PUMPING IS NO LONGER REQUIRED.

OPTION #3:
1. OTHER BYPASS PUMPING OPTIONS OR CONFIGURATIONS MAY BE SUBMITTED BY THE CONTRACTOR FOR REVIEW AND CONSIDERATION DURING CONSTRUCTION AS NEEDED TO ACCOMMODATE CONSTRUCTION ACTIVITIES AND SEQUENCING.

FORCE MAIN BYPASS PUMPING ON W CRAMER STREET
1. INSTALLATION WORK FOR THE NEW 12" DIP SEWER MAIN ON W CRAMER STREET WILL ENCROACH THE NEARBY EXISTING 8" CAST IRON SEWER FORCE MAIN AND BYPASS PUMPING OF THIS SECTION WILL BE REQUIRED. ONE POSSIBLE OPTION FOR BYPASSING THIS SECTIONS IS AS FOLLOWS:
   CONNECT THE BYPASS PIPE TO THE EXISTING 8" FORCE MAIN IN THE ROAD WEST OF THE RESIDENTIAL DRIVeway SO AS NOT TO BLOCK VEHICLE ACCESS TO THE RESIDENTS. RUN THE BYPASS PIPE ON A ROADWAY DESIGNER AND UP THE WALL ALONG THE ROADWAY AND THROUGH THE INTERSECTION OF W CRAMER STREET AND 40TH AVE W. THE BYPASS CONNECTS TO THE BURIED FORCE MAIN PIPE (EITHER THE EXISTING OR NEW).
W COMMODORE WAY

PAVING, CURB AND SIDEWALK RESTORATION PLAN 3
C-17

RESTORATION LEGEND:
- ROHWAY, CEMENT CONC, HES (24HRS), PER COS STD PLAN 402A
- SIDEWALK, CEMENT CONC PER COS STD PLAN 420
- AMENDED SOIL AND RESTORED LANDSCAPED BUFFER WITH SEEDING
- DRIVEWAY, CEMENT CONC, BN, PER COS STD PLAN 430
- CURB, CEMENT CONCRETE TYPE 410B
- CURB, CEMENT CONCRETE TYPE 410C
- TEMPORARY CONSTRUCTION EASEMENT
- TC TANGENT TO CURVE
- CT CURVE TO TANGENT

STRIPING NOTES:
- L-2M SOLID 4-INCH YELLOW STRIPE, WAA
- L-3M DASHED 4-INCH YELLOW STRIPE (10 FEET PAINT WITH 20 FEET SKIP, WAA
- L-11 4-INCH RED CURB STRIPE

NOTES:
1. SAW CUT AT PANEL JOINTS, ALL JOINT LOCATION SHOWN ARE APPROXIMATIONS AND CONTRACTOR TO VERIFY IN FIELD. FOR CONCRETE PANEL JOINATHO PLANS, FOLLOW COS STD PLAN 402A.
2. AMEND SOILS IN LANDSCAPE RESTORATION AREAS FOR GRASS SEEDING PER COS STD PLAN 142 UNLESS OTHERWISE NOTED.
3. REMOVE, PROTECT, AND REINSTALL EXISTING SIGNAGE AS DIRECTED BY FIELD ENGINEER AND/OR SOOT. FINAL SIGN LOCATIONS TO BE AS DIRECTED BY THE SOOT STREET USE.
4. AIR-SPRAYING IS REQUIRED ADJACENT TO ALL FIELD EXCAVATION REPLACEMENT CURB/FRPO. WALK MAY NEED TO BE MODIFIED TO ACCOMMODATE EXISTING TREE ROOTS.
5. PRIVATE PROPERTY ENCROACHMENTS TO BE PERFORMED BY SOOT.
6. CONTRACTOR TO COORDINATE WITH PROPERTY OWNER TO PROVIDE ACCESS TO RESIDENTIAL DRIVEWAY OR ADA INSTALLATION A MINIMUM OF 72 HOURS IN ADVANCE OF PERFORMING WORK.
KEY NOTES:
1. ENSURE PREVIOUS CONCRETE SLAB ALONG 9'-0" LONG EDGES PRIOR TO CUTTING SLAB. SHORING OF SLAB TO REMAIN UNTIL NEW ROOF BEAMS ARE IN PLACE AND THE CONCRETE REACHES ITS DESIGN STRENGTH OF Fc=3.000 PSI. 9'-0" CONCRETE WALL UNDERNEATH 8" CURB SHALL NOT BE USED FOR SHORING SUPPORT.
2. SAW CUT CONCRETE SLAB, REMOVE RISER, MAINTENANCE HOLE FRAME AND COVER.
3. REMOVE METAL LADDER. STEEL SHIP LADDER AND HANDRAILS. REMOVE STEEL CROSS BEAMS. FRAME THE OPENING WITH TEMPORARY WOOD SUPPORTS.
4. REMOVE STEEL GRATING IN CONTROL ROOM, EMBEDDED WALL, SUPPORT FRAMING TO REMAIN.
5. REMOVE SINGLE HANDRAIL IN MET WELLS. REMOVE GUARDRAIL AT SOUTH SIDE OF WALKWAY.
6. CUT FLANGE OF 12" DIA CAST IRON PIPE AND CORE RING 1" DIAM HOLE TO REMOVE EMBEDDED PIPE STUB.
7. CUT EXISTING RUNGS FLUSH WITH SURFACE OF CONCRETE WALL.
8. SAW CUT CONCRETE WALL AND REMOVE WATERTIGHT DOOR, INCLUDING ATTACHMENTS.
9. REMOVE 12" WIDE CURB DOWN TO ELEVATION 19.33, SALVAGE CURB VERTICAL, REINFORCING STEEL.
10. REMOVE 8" WIDE CURB WEST OF THE STATION WEST WALL TO ELEVATION 20.16, SALVAGE CURB VERTICAL, REINFORCING STEEL.
11. REMOVE 12" WALL SOUTH OF THE STAIRCASE DOWN TO EL 19.12 AND BEYOND THE STATION WEST WALL TO EL 20.16.
12. REMOVE 8" WIDE CURB AND SLAB ALONG CURVE 4'-0" WIDE DOWN TO ELEVATION 19.33, SALVAGE CURB VERTICAL, REINFORCING STEEL, FOR INCORPORATION IN NEW CONCRETE PLACEMENT.
13. REMOVE PUMP PADS AND CHIP OUT UNDERLYING SLAB, INCLUDING FOOT PRINTS OF NEW PUMP PADS, DOWN TO 1'-6" BELOW EXISTING FLOOR LEVEL. PATCH OR SEAL MENDING Joints, USE NON-SHRINK SELF LEVELING CEMENTitous GROUT, POWDER TO POWDER.
14. REMOVE STEEL ANGLES AND CUT CONNECTING BOLTS FLUSH WITH CONCRETE WALL SURFACE.
15. CHIP OUT TOP OF CONCRETE SLAB 2" DEEP.

NOTES:
1. RECORD DRAWINGS HAVE BEEN USED FOR BACKGROUND AND DIMENSIONS OF EXISTING STRUCTURES. THESE RECORD DRAWINGS SHOW THE LATEST INFORMATION AVAILABLE, VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION OF NEW FACILITIES.
2. FILL ALL ABANDONED OR UNEVEN OPENINGS.
3. IN THE WET WELL, DRILL OUT ALL CUT AND EXPOSED BOLTS AND REINFORCING BARS 2" DEEP. FULL HOLE WITH EPOXY GROUT. IN THE DRY WELL, COAT ALL CUT AND EXPOSED BOLTS OR ROIDS WITH EPOXY PAINT.

STRUCTURAL, DEMOLITION
PUMPS AND SECTIONS
DS1
PUMP STATION NO. 22
RETROFIT AND FORCE MAIN REPLACEMENT

Sheet 29 of 71
### Lower Level Mechanical Demolition

**Plan**

#### Scale: IN FEET

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Description</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16&quot; Flange Frame Sluice Gate</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Concrete Pump Base</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>20 HP Wastewater Pump</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>8&quot; 90° Bend (DL FL x FL)</td>
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<tr>
<td>5</td>
<td>8&quot; 45° Elbow (DL FL x FL)</td>
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</tr>
<tr>
<td>6</td>
<td>8&quot; DI Pipe</td>
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<tr>
<td>7</td>
<td>1/2 HP Sump Pump</td>
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</tr>
<tr>
<td>8</td>
<td>1 1/2&quot; Sump Pump Discharge Pipe (Galvanized Iron Pipe)</td>
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<td>9</td>
<td>6&quot; PVC Vent Pipe</td>
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### Upper Level Mechanical Demolition

**Plan**

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<tr>
<td>11</td>
<td>Sluice Gate Motor Actuator</td>
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<tr>
<td>12</td>
<td>8&quot; Plug Valve (FL x FL)</td>
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<td>13</td>
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<td>14</td>
<td>Sluice Gate Rising Stem</td>
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<tr>
<td>15</td>
<td>10&quot; Gate Valve (FL x FL)</td>
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<tr>
<td>16</td>
<td>Pipe Support Brackets</td>
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<tr>
<td>17</td>
<td>Remove Existing Suction Pipe</td>
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<td>18</td>
<td>8&quot; Spool (FL x FL)</td>
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### Equipment Removal List

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<td>Sluice Gate Rising Stem</td>
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<td>17</td>
<td>Remove Existing Suction Pipe</td>
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</tr>
<tr>
<td>18</td>
<td>8&quot; Spool (FL x FL)</td>
<td></td>
</tr>
</tbody>
</table>

### Notes:

1. Refer to Civil, Structural, and Electrical Drawings for Civil, Structural, and Electrical Demolition Plans.
2. Refer to Structural Drawings for Removal of Pipe Penetrations.
3. Contractor shall protect equipment identified to be salvaged from damage and shall coordinate delivery of salvaged items to City Surplus with the Resident Engineer.
NOTES:
1. EQUIPMENT REMOVAL LIST LOCATED ON DRAWING M-2.
2. CONTRACTOR SHALL TAKE CARE TO PROTECT EQUIPMENT IDENTIFIED TO BE SALVAGED FROM DAMAGE AND SHALL COORDINATE DELIVERY OF SALVAGED ITEMS TO CITY SURPLUS WITH THE RESIDENT ENGINEER.
3. REMOVE ALL EXISTING SLUMP PUMP DISCHARGE PIPING.

SECTION M-2
SCALE IN FEET

SECTION M-2
SCALE IN FEET

PUMP STATION MECHANICAL DEMOLITION SECTIONS M-3

PUMP STATION NO. 22
RETROFIT AND FORCE MAIN REPLACEMENT

CDM Smith
CONSULTANTS

APPROVED FOR ADVERTISING
ICE ALBEE
DEPARTMENT OF Finance & ADMINISTRATIVE SERVICES
SEATTLE, WASHINGTON

REVIEWED BY SEWERSPACE
REVIEWED BY SEWERSPACE
APPROVED BY SOUTHWEST MANAGEMENT FIRM
APPROVED BY SOUTHWEST MANAGEMENT FIRM
APPROVED BY CITY PURCHASING & CONTRACTING SERVICES DIRECTOR

INDETALS AND DATE
INDETALS AND DATE
INDETALS AND DATE
INDETALS AND DATE
INDETALS AND DATE

CITY OF SEATTLE

PUBLIC UTILITIES

DRAWING NO. 12079
DRAWING NO. 12079
DRAWING NO. 12079
DRAWING NO. 12079
DRAWING NO. 12079

DATE: 01/01/2019
DATE: 01/01/2019
DATE: 01/01/2019
DATE: 01/01/2019
DATE: 01/01/2019

SIGNATURE: JAMES L. MILLS
SIGNATURE: JAMES L. MILLS
SIGNATURE: JAMES L. MILLS
SIGNATURE: JAMES L. MILLS
SIGNATURE: JAMES L. MILLS

DRAWER: JAMES L. MILLS
DRAWER: JAMES L. MILLS
DRAWER: JAMES L. MILLS
DRAWER: JAMES L. MILLS
DRAWER: JAMES L. MILLS

PLotted: 1/1/2019
PLotted: 1/1/2019
PLotted: 1/1/2019
PLotted: 1/1/2019
PLotted: 1/1/2019

SHEET 39 OF 71
NOTES:
1. REFER TO DRAWING I-1 FOR SET POINTS AND ELEVATIONS.
2. PROVIDE 16-FOOT OREGON RULE #6, MODEL FXA, OR APPROVED EQUAL STAFF GAUGE. INSTALL STAFF GAUGE FACING WET WELL ACCESS HATCH. INSTALL WITH "ZERO" MARKING AT LOWEST POINT OF WET WELL. STAFF GAUGE SHALL EXTEND TO CEILING.
3. REFER TO DETAIL 1/36-7 AND THE SPECIFICATIONS FOR SEISMIC BRACING LIMITS.
4. CONTRACTOR SHALL REVIEW ALL DIMENSIONS AND SUBMIT MECHANICAL SHOP DRAWINGS, DRAWN TO SCALE, PRIOR TO PROOFCRIM OF PIPING, PER THE SPECIFICATIONS.
5. PROVIDE 1 1/2" THREADED BRASS CHECK VALVE: NIBCO T-115Y-T-LF, APOLLO 181T-LF, OR APPROVED EQUAL.
6. PROVIDE 1 1/2" THREADED BRASS BALL VALVE: APOLLO 32-100 SERIES, MILWAUKEE VALVE BA-490 SERIES, OR APPROVED EQUAL.
NOTE:
1. REFER TO DRAWING M-4 FOR MECHANICAL KEYNOTES PLAN.
2. OPERATING MNT FOR SERVICE GATE IS LOCATED WITHIN A
CLEAN OUT AT GRADE, SEE CIVIL AND STRUCTURAL
DRAWINGS.

UPPER LEVEL
PLAN
1/2" = 1'-0"

PUMP STATION MECHANICAL PLAN--
UPPER FLOOR
M-5

PUMP STATION NO. 22
RETROFIT AND
FORCE MAIN REPLACEMENT
PUMP STATION—SECTIONS
M—6

SECTION A—A
1/2" = 1'-0"

SECTION B—B
1/2" = 1'-0"

NOTE:
1. REFER TO DRAWING M—4 FOR MECHANICAL KEYNOTES.
### FAN SCHEDULE

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<tr>
<th>MARK</th>
<th>LOCATION</th>
<th>SERVICE</th>
<th>TYPE</th>
<th>CFM (IN)</th>
<th>ESP (IN)</th>
<th>MOTOR RPM</th>
<th>SPEED</th>
<th>VARIABLE/CONSTANT</th>
<th>HP</th>
<th>V</th>
<th>Hz</th>
<th>MOTOR ENCLOSURE</th>
<th>CLASSIFICATION</th>
<th>SOUND LEVEL (dB(A)(3))</th>
<th>BASIN OF DESIGN</th>
<th>NOTES</th>
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<td>Dry Well</td>
<td>Bldg.</td>
<td>Pumpl.</td>
<td>410</td>
<td>0.6</td>
<td>1,720</td>
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<td>EXP</td>
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<td>60</td>
<td>EXP</td>
<td>CLASS 1, 85-1</td>
<td>44</td>
<td>PT KOS 125</td>
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</table>

**SCHEDULE NOTES:**

1. Static pressure external to fan.
2. Fan "speed" and "power" as scheduled are maximum values.
3. Noise rating is for fan with ducts, equipped, measured at 8 feet for fans measured at 3 meters. The maximum sound level shall be 85 dB. Lower than that required at 8 feet. See specifications for noise performance of enclosure.
4. Dry well supply and exhaust fan shall be speed adjusted to achieve the design flow rate and 0.1 inch positive pressure inside the dry well.
5. Wet well supply and exhaust fans shall be dampened to achieve the design flow of the exhaust and a 0.1 inch negative pressure inside the wet well.
6. Wet well fan and motor shall be designed to operate within Class 1 environment Class 1, Groups C, D, E environments in accordance with NFPA 920. The fan is a Class 1, Groups C, D, E environment. See specifications. Provide motor-rated for 50°C ambient temperature.
7. Wet well exhaust fan (EF-2221) is mounted on top of the odor control media drum.

### LOUVER & GRILLE SCHEDULE

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<tr>
<th>MARK</th>
<th>TYPE</th>
<th>MAXIMUM CAPACITY (CFM)</th>
<th>DESIGN FLOW (CFM)</th>
<th>NOMINAL SIZE (IN)</th>
<th>MAXIMUM NOTE 1</th>
<th>MAXIMUM TSP DROP (IN), NOTE 2</th>
<th>MATERIAL</th>
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<th>BASIS OF DESIGN</th>
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<td>SO-2210</td>
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<td>210</td>
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<td>0.06</td>
<td>Aluminum</td>
<td>Kynar</td>
<td>Ruskin 301 1/4</td>
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**SCHEDULE NOTES:**

1. Maximum noise criterion curve (not at design flow), each NC represents the noise criterion curve that will not be exceeded by sound pressure in any octave bands 2 through 7.
2. Total static pressure drop across grille at design flow.
3. Provide 4" x 4" x 1" long drip cap and 1" to 2" above EL-2 to prevent water infiltration. Use to cap grade 316 SS sheet metal trim and batten all edges.
4. Louvers shall reduce noise a minimum of 8 dB on each octave band.

---

**HVAC SCHEDULES H-2**

**PUMP STATION NO. 22 RETROFIT AND FORCE MAIN REPLACEMENT**

---

**CDM Smith**

**Approved by**

**Seattle Public Utilities**

**Report No:**

**Page:** 45 of 71
NOTES:
1. Locate lower exhaust duct 3-inches off of east wall, on Ad required, to pass pump plant exchange pipe. See mechanical drawings.
2. Extend 6" DA (6" ductile iron pipe size = 9.03") into dry well #6 and connect to 6" DA (screw metal) with Perisco flexible coupling, on equal.
3. Orient exhaust grille to direct air towards center of room.
4. Provide fire hose hook with 1-inch nozzles. Storing exit doors closed for proper ventilation.
GENERAL NOTES:
1. SEE DRAWINGS C-1 AND E-3 FOR DEMOLITION PLANS, SECTIONS AND DETAILS.
2. SEE CIVIL, STRUCTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL PHASING INFORMATION.
3. SALVAGE THE EXISTING SCADA PANEL, GENERATOR, FUEL TANK, AND ATS TO OWNER.
4. COORDINATE DELIVERY OF SALVAGED EQUIPMENT TO OWNER'S RESIDENT ENGINEER.
5. DELIVER SALVAGED EQUIPMENT TO OWNER'S WAREHOUSE.
6. EXCEPT FOR BRIEF CUTOVERS, SEWAGE PUMPS, EITHER TEMPORARY OR PERMANENT, SHALL HAVE TWO SOURCES OF POWER, UTILITY AND GENERATOR, AT ALL TIMES.

ELECTRICAL CONSTRUCTION PHASING NOTES:

PHASE 1: ELECTRICAL SERVICE UPGRADE
1. PROVIDE NEW METER BASE, CT ENCLOSURE, MAIN CIRCUIT BREAKER, ATS SERVICE ORRUGING, AND CIRCUITS P300, P200, P100, P103 AND ALL CONNITS AND NEW GENERATOR CABLES TO PROVIDE TEMPORARY POWER TO METER BASE, ATS, AND GENERATOR.
2. INSTALL NEW METER BASE, CT ENCLOSURE, MAIN CIRCUIT BREAKER, AND CIRCUITS P300, P200, P100, P103.
3. INSTALL NEW GENERATOR CABLES TO PROVIDE TEMPORARY POWER TO METER BASE, ATS, AND GENERATOR.
4. PROVIDE NEW SERVICE FROM NEW ATS AS REQUIRED FOR TEMPORARY LOADS.
5. SCHEDULE OUTAGE WITH SDU AND SSL STATION WILL OPERATE ON THE EXISTING GENERATOR DURING SERVICE UPGRADE, SSL WILL REMOVE EXISTING METER, REPLACE TRANSFORMER ON EXISTING POLE, AND PROVIDE NEW SERVICE TO NEW METER BASE.
6. CONCURRENT WITH SSL WORK, CONTRACTOR SHALL REMOVE EXISTING METER BASE AND PROVIDE TEMPORARY CONNECTION FROM NEW ATS TO EXISTING MCB. REMOVE THE EXISTING NEUTRAL BONDING CONNECTION IN THE EXISTING MCC.
7. OPERATE EXISTING STATION ON NEW ELECTRICAL SERVICE WITH EXISTING GENERATOR BACKUP.

PHASE 2: GENERATOR REPLACEMENT
5. CONTRACTOR SHALL PROVIDE A TRAILER-MOUNTED YARDI GENERATOR AND FUEL. DISCONNECT THE EXISTING GENERATOR AND PROVIDE A TEMPORARY CONNECTOR TO THE TRAILER-MOUNTED YARDI GENERATOR FROM THE PRIMARY & SECONDARY CIRCUITS AS SHOWN BELOW. PROVIDE AUTOMATIC STARTING CONTROLS FROM THE EXISTING ATS TO THE PORTABLE GENERATOR IF STATION IS UNMANNED.
6. REMOVE THE EXISTING GENERATOR, FUEL TANK AND PIPING. MODIFY THE GENERATOR PAD PER STRUCTURAL DRAWINGS.
7. PROVIDE NEW GENERATOR, FUEL TANK, PIPING, CONNECT THE NEW GENERATOR TO NEW ATS.
8. COMPLETE GENERATOR TESTING AND COMMISSIONING PER SPEC.
9. REMOVE TEMPORARY GENERATOR. SEE GENERAL NOTE 5.

PHASE 3: PUMP STATION UPGRADE
10. PROVIDE TEMPORARY PUMPING/RIPASS PUMPING PER PLANS AND SPEC. CONNECT TEMPORARY PUMPING TO NEW ATS (NEW UTILITY SERVICE WITH NEW GENERATOR BACKUP), TEST AND COMMISSION TEMPORARY PUMPING SYSTEM.
11. REPLACE ALL EXISTING ELECTRICAL AND MECHANICAL EQUIPMENT IN DRY WELL AND WET WELL. OUTAGE PLANS TO BE PROVIDED. CONNEX NEW PUMPS TO NEW FORCE MAIN.
12. TEST AND COMMISSION ALL NEW PUMP STATION EQUIPMENT.
13. REMOVE TEMPORARY PUMPING SYSTEM.

ELECTRICAL DEMOLITION AND CONSTRUCTION PHASING E-2

PUMP STATION NO. 22
RETROFIT AND FORCE MAIN REPLACEMENT

REVISED BY: CLAY SMITH ENGINEERING
REVISED BY: CLAY SMITH ENGINEERING
APPROVED FOR ADVERTISING/ISSUANCE
APPROVED FOR ADVERTISING/ISSUANCE
REVIEWER: CLAY SMITH ENGINEERING
REVIEWER: CLAY SMITH ENGINEERING
DESIGNER: J. J. O'DONNELL
DESIGNER: J. J. O'DONNELL
REVISED DATE: 12/20/2019
REVISED DATE: 12/20/2019
DRAWING NO.: 12169
DRAWING NO.: 12169
SHEET: 51 OF 71
SHEET: 51 OF 71
NOTES:

1. UNLESS OTHERWISE NOTED, REMOVE ALL EXPOSED EQUIPMENT, ENCLOSURES, J-BOXES, LIGHTS, SWITCHES, RECEPTACLES, WIRE, MATS, CONDUIT, WIRE, AND SUPPORTS.
2. SEAL ALL PENETRATIONS BETWEEN WET WELL AND DRY WELL WITH NON-SHRINK CEMENT. SEE STRUCTURAL DRAWINGS.
3. COORDINATE DELIVERY OF SALVAGED EQUIPMENT WITH OWNER'S RESIDENT ENGINEER. DELIVER SALVAGED EQUIPMENT TO OWNER'S WAREHOUSE.
4. SALVAGE GENERATOR AND FUEL TANK TO OWNER. SEE EXISTING SITE PLAN AND CONSTRUCTION PHASING NOTES ON E-2.

NOTES:

1. SALVAGE PLC SCADA CONTROL PANEL TO OWNER.
2. REMOVE, PROTECT, AND RE-INSTALL INTRINSICALLY-SAFE RELAY ENCLOSURE.
3. REMOVE, PROTECT, AND RE-INSTALL NU.
4. SALVAGE ATS TO OWNER.

ELECTRICAL DEMOLITION PLANS

PUMP STATION NO. 22
RETROFIT AND
FORCE MAIN REPLACEMENT
NOTES:
1. DRYWELL SHALL BE CONTINUOUSLY VENTILATED AT 12 AIR CHANGES PER HOUR WITH BOTH SUPPLY AND EXHAUST FANS PER NFPA-522.
2. WETWELL AND MHOO10-158 ARE HIGHLY CORROSIVE AREAS.
3. WETWELL, MHOO10-158, BYPRES VULKET, AND ALL EXTERIOR LOCATIONS ARE WET AREAS.

LEGEND:
- CLASS 1, DIV. 1
- CLASS 1, DIV. 2

ELECTRICAL AREA CLASSIFICATION
E-4

PUMP STATION NO. 22
RETROFIT AND FORCE MAIN REPLACEMENT

MHOO10-159
CSO CONTROL STRUCTURE
NOTES:
1. REFER TO SHEET E-2 FOR CONSTRUCTION PAVING REQUIREMENTS.
2. REFER TO SHEET E-4 FOR AREA CLASSIFICATION BOUNDARIES.
3. LOCATE EXISTING PWRD. TRANSMISSION MAINS PER MWD.

KEY NOTES:
1. PROTECT EXISTING SERVICE LATERAL CONDUIT UNTIL AFTER CUSTOMER TO NEW ELECTRICAL SERVICE.
2. PROTECT EXISTING TELECOMMUNICATIONS CONDUIT.
3. PROVIDE SEAL OFF FITTINGS ON CONDUIT CROSSING MIGRATORY LOCATION BOUNDARIES.
5. COORDINATE CONDUIT ROUTE LOCATIONS WITH SEATTLE CITY LIGHT SEE DWG C-2.
6. JS-2215 PROVIDE 120V CONNECTION TO FUEL TANK OVERFLOW ALARM PANEL.
7. PROTECT EXISTING SEWER PIPE.
8. AVOID SEWER PIPE. SEE CIVIL PLANS.
9. PROVIDE 3/4" AND 3" GROUNDING MDS ON CONDUIT EXCEEDING 150 FT.

SITE ELECTRICAL PLAN

PUMP STATION ELECTRICAL SITE PLAN

PUMP STATION NO. 22 RETROFIT AND FORCE MAIN REPLACEMENT

CDM Smith

E-5

Sheet 56 of 71
NOTES:
1. PROVIDE NEMA TYPE 1 (GENERAL PURPOSE WITH GASKETED DOORS) ENCLOSURE.
2. DIMENSIONS SHOWN ARE NOMINAL. MAXIMUM HEIGHT, INCLUDING WIRE MASTS, IS 84". MAXIMUM WIDTH IS 90".
3. ALL CONDUITS SHALL ENTER MCC THROUGH BOTTOM. TOP ENTRY IS PROHIBITED.

MCC ELEV

1" = 1'-0"

SERVICE ENTRANCE EQUIPMENT ELEV

1" = 1'-0"

NOTES:
1. ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL.
2. ANCHOR SUPPORT STRUTS TO CONCRETE WITH CONCRETE ANCHORS. DO NOT ATTACH TO WOOD FENCE.
## CONDUIT SCHEDULE

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### NOTES:
1. MANUFACTURER'S CABLES FOR FLOAT SWITCHES AND PRESSURE TRANSDUCERS SHALL NOT BE SPICED. PROVIDE ENOUGH CABLE TO REACH ISOLATION ENCLOSURE WITH AN EXTRA 12" COOLED IN WET WELL FOR EACH CABLE.
2. PROVIDE SEAL OFF FITTINGS FOR ALL CONDUITS ENTERING HAZARDOUS LOCATIONS PER NEC. SEE SHEET E-4.

### SCHEDULES

- **E-11**
  - **PUMP STATION NO. 22 RETROFIT AND FORCE MAIN REPLACEMENT**
    - **C315071**
    - **PAGE 776-474**
    - **SHEET 60 OF 71**
NOTES:
1. DEVICE'S INTERNAL WIRING ARE NOT SHOWN.
2. CONTRACTOR FIELD VERIFY TERMINAL ASSIGNMENTS PER SUPPLIED MANUFACTURER AND MODEL OF THE COMPONENT PRIOR TO INSTALLATION.
3. TYPICAL COMPONENT TERMINALS CALLED.

KEYNOTES:
1. SCADA TERMINALS
2. ANALOG SHIELD TERMINALS
3. COORDINATE WITH SCADA FOR DC SUPPLY
4. COORDINATE CABLE LENGTH AND TYPES. SEE NOTES 1 AND 2/E-11.
5. PROVIDE CIRCUIT BREAKER IN PNL–2200 WITH HANDLE LOCKING MECHANISM CAPABLE OF BEING LOCKED IN THE OFF POSITION. SEE PANEL SCHEDULE FOR CIRCUIT BREAKER SIZE.
6. LOOP MOTOR LEADS THROUGH CT COILS THREE TIMES.

WIRING DIAGRAMS
E-15

PUMP STATION NO. 22
RETROFIT AND
FORCE MAIN REPLACEMENT

CDM Smith

November 7, 2019

Sheet 64 of 73
NOTES:
1. DEVICE’S INTERNAL WIRING ARE NOT SHOWN.
2. CONTRACTOR FIELD VERIFY TERMINAL ASSIGNMENTS PER SUPPLIED MANUFACTURER AND MODEL OF THE COMPONENT PRIOR TO INSTALLATION.
3. TYPICAL COMPONENT TERMINALS CALLED.

KEYNOTES:
1. SCADA TERMINALS
2. ANALOG SHIELD TERMINALS
3. COORDINATE WITH SCADA FOR DC SUPPLY
4. COORDINATE CABLE LENGTH AND TYPES. SEE NOTES 1 AND 2/E-10.

WIRING DIAGRAMS
PUMP STATION NO. 22
RETROFIT AND FORCE MAIN REPLACEMENT

DETAIL - WIRING DIAGRAM CLASS 1 DIV 1 & 2 1 TYP
SCALE: NONE
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<td></td>
</tr>
<tr>
<td>TR-2200</td>
<td>DIESEL FUEL TANK</td>
<td>23 11 13</td>
<td></td>
</tr>
<tr>
<td>JR-2215</td>
<td>TANK ALARM J-BOX</td>
<td>26 05 33</td>
<td>NEMA 3R</td>
</tr>
<tr>
<td>HS-2203</td>
<td>JOG SMITH</td>
<td>26 05 33</td>
<td>NEMA 4</td>
</tr>
<tr>
<td>HS-2204</td>
<td>JOG SMITH</td>
<td>26 05 33</td>
<td>NEMA 4</td>
</tr>
<tr>
<td>FSL-2210</td>
<td>AIR FLOW SWITCH</td>
<td>40 91 10</td>
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<tr>
<td>FSU-2211</td>
<td>AIR FLOW SWITCH</td>
<td>40 91 10</td>
<td></td>
</tr>
<tr>
<td>XFM-2200</td>
<td>DRY-TYPE TRANSFORMER</td>
<td>26 22 00</td>
<td></td>
</tr>
</tbody>
</table>

### INSTALLATION INSTRUCTIONS

1. Bury depth of conduit and horizontal spacing shall be confirmed with serving utility before construction.

### ELECTRICAL TRENCH DETAILS

- **6" COVER OVER HIGHEST CONDUIT IN TRENCH**
- **3" MAXIMUM DEPTH BELOW BOTTOM OF DEEPEST CONDUIT INSTALLED IN TRENCH**
- **FINISH SURFACE PER PLANS, OTHERWISE MATCH EX CONDITIONS**

**NOTES:**

- SAND BEDDING MATERIAL PER WOBD SPECIFICATION S-03.13
- RED ELECTRICAL WARNING TAPE CENTERED OVER EACH CONDUIT IN TRENCH
- BURIED CONDUIT NUMBER AND SIZE VARY AS PER SITE PLAN, MAINTAIN 18" SPACING BETWEEN CONDUITS AND OTHER CONDUITS

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**PUMP STATION NO. 22 RETROFIT AND FORCE MAIN REPLACEMENT**

**E-19**
### FACILITY OPERATION

<table>
<thead>
<tr>
<th>SET POINTS</th>
<th>ELEVATION</th>
<th>WT WELL DEPTH ABOVE SUMP</th>
<th>TAG</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVERFLOW ALARM</td>
<td>13.5'</td>
<td>14.7</td>
<td>LSHE-2201</td>
</tr>
<tr>
<td>HIGH LEVEL ALARM</td>
<td>10.5'</td>
<td>11.7</td>
<td>LSHE-2201</td>
</tr>
<tr>
<td>VARIABLE SPEED PUMP</td>
<td>8.0-10.0</td>
<td>9.3-11.2</td>
<td>PE/PT 2201</td>
</tr>
<tr>
<td>LEAD PUMP ON</td>
<td>8.0</td>
<td>9.2</td>
<td>PE/PT 2201</td>
</tr>
<tr>
<td>ALL PUMP STOP</td>
<td>3.0</td>
<td>4.2</td>
<td>PE/PT 2201</td>
</tr>
<tr>
<td>LOW LEVEL ALARM</td>
<td>1.0</td>
<td>2.2</td>
<td>PE/PT 2201</td>
</tr>
</tbody>
</table>

* Elevations shown for LSHE and LSHEH are float switch trip points on rising level.

### NOTES:
1. Coordinate with SCADA Engineer for new SCADA panel and termination of field device wiring at SCADA. Remove existing SCADA and deliver to owner warehouse.
2. Field verify mounting locations of devices with SCADA engineer. Mounting LEL sensor at location for easy maintenance access.
3. Install gas detector per manufacturer's recommendations due to stability and accuracy of measurements.
4. Relocate existing intrinsically safe barrier junction box, EB-2203.
5. Penetrate 3/4“ stainless steel tubing through wet well wall with universal devices above overflow elevation per NEC Articles 500 for LED, sensor/supply and exhaust lines.
6. Exterior existing phenolic conduit unchanged. Remediate existing NUL at a location where existing cable length allows. Install 3/4“ conduit to SCADA panel for network cables.

### I&C LEGENDS & SYMBOLS:

- **AF**: Analytical Element
- **AT**: Analytical Indicating Transmitter
- **ASH**: Analytical Hi. Level
- **ASF**: Analytical Fault
- **FT**: Flow Indicating Transmitter
- **FS**: Flow Switch
- **FSL**: Flow Switch Low
- **HC**: Hand Control
- **HS**: Hand Switch
- **IS**: Current Switch
- **JB**: Junction Box
- **J**: Power Indicator
- **LE**: Level Element
- **LSHEH**: Level Switch Hi/Hi
- **LST**: Level Switch Transm.
- **LSTH**: Level Switch Transm.
- **LT**: Level Transmitter
- **NU**: Network Interface Unit
- **PE**: Pressure Element
- **PT**: Pressure Transmitter
- **PFR**: Phase Fail Relay
- **QA**: Indicator Alarm
- **QL**: Indicator Lighting
- **QS**: Indicator Status
- **RS**: Reset
- **SB**: Specific Gravity
- **SD**: Motor Starter
- **VFD**: Variable Frequency Drive
- **ZS**: Position Switch

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**Jeffrey S. Gibson**

P&ID, GENERAL, SYMBOLS, ABBREVIATIONS, NOTES