

SPECIFICATIONS:

SCOPE OF WORK

- 1. THE WORK UNDER CONTRACT INCLUDES ALL LABOR, MATERIALS AND APPLIANCES NECESSARY FOR THE DESIGNING, INSTALLING AND TESTING, COMPLETE AND READY FOR START OPERATION OF THE SYSTEMS. WORK SHALL BE INSTALLED IN A NEAT, WORKMANLIKE MANNER.
- 2. REPLACE EXISTING EXHAUST FANS (EF-1, 2, AND 4) WITH NEW. SEE E1/M101. BALANCE NEW FANS.
- 3. REMOVE EXISTING EXHAUST FANS (EF-3 AND 9) AND ALL ASSOCIATED COMPONENTS, COMPLETE. PATCH AND SEAL EXISTING OPENINGS WATER TIGHT. SEE E1/M101.
- 4. REMOVE EXISTING SUMPWALL EXHAUST FAN EF-6 AND ALL ASSOCIATED COMPONENTS, COMPLETE. PATCH AND SEAL OPENING TO MATCH SURROUNDING CONDITIONS. SEE E1/M101.
- 5. REMOVE EXISTING HOT WATER PUMPS (P-3, P-4) LOCATED IN BASEMENT MECHANICAL ROOM. DISCONNECT AND REMOVE EXISTING PUMPS AND ASSOCIATED COMPONENTS, COMPLETE. EXISTING CONTROLS AND ELECTRICAL COMPONENTS TO REMAIN. REPAIR/REPLACE ANY DAMAGED EXISTING SEE DETAIL A14/M101 FOR DEMO PLANS. PROVIDE NEW 4" MINIMUM HOUSEKEEPING PAD TO ACCOMMODATE NEW PUMPS. INSTALL PUMPS PER MANUFACTURER'S WRITTEN INSTRUCTIONS. RECONNECT EXISTING ELECTRICAL AND MECHANICAL CONNECTIONS TO NEW PUMPS. REPAIR/REPLACE ANY DAMAGED EXISTING CIRCUIT WIRING AS REQUIRED. MODIFY EXISTING PIPING AS REQUIRED TO ACCOMMODATE NEW BASE MOUNTED PUMPS. INSULATE NEW AND EXISTING PIPING. SEE A10/M101 FOR DEMO PLANS.
- 6. REMOVE EXISTING SEWAGE EJECTOR PUMP AND ASSOCIATED COMPONENTS, COMPLETE AND REPLACE WITH NEW EXISTING CONTROLS AND ELECTRICAL COMPONENTS TO REMAIN. REPAIR/REPLACE ANY DAMAGED COMPONENTS. MODIFY EXISTING BASIN COVER TO SUPPORT NEW PUMP, WHERE COVER CANNOT BE REUSED. PROVIDE CAST-IRON COVER CAPABLE OF SUPPORTING PUMP AND ANY EQUIPMENT ABOVE. PROVIDE NEW 4" MINIMUM HOUSEKEEPING PAD TO ACCOMMODATE NEW PUMP. MATCH EXISTING PIPE SIZE. REUSE EXISTING DISCONNECT SWITCH AND EXTEND EXISTING BRANCH CIRCUIT WIRING AS REQUIRED. CONNECT EXISTING CONTROLS TO NEW PUMP.

GENERAL

- 1. CONTRACTOR SHALL VISIT THE SITE TO DETERMINE PRE-EXISTING CONDITIONS AND ALL WORK NECESSARY PRIOR TO BIDDING. VERIFY ALL MEASUREMENTS AND EXISTING CONDITIONS IN THE FIELD. CONFIRMATIONS AND CONSERVANTS MUST BE FIELD VERIFIED.
- 2. OBTAIN NECESSARY PERMITS AND PAY ASSOCIATED FEES.
- 3. COORDINATE ANY SERVICE DISRUPTIONS WITH THE OWNER.
- 4. INSTALL ALL COMPONENTS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND ALL LOCAL CODES AND STANDARDS.
- 5. DRAWINGS ARE DIAGRAMMATIC ONLY. FIELD-VERIFY ALL EXISTING CONDITIONS. COORDINATE CONDITIONS WITH OTHER TRADES. COORDINATE ELECTRICAL POWER REQUIREMENTS FOR ALL MOTORS.
- 6. THE INTENTION OF THESE CONTRACT DOCUMENTS IS TO CALL FOR FINISHED WORK, FULLY TESTED AND PROTECTED AGAINST WEATHER. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND REPORT DISCREPANCIES OR QUESTIONS OF INTENT. THE CONTRACTOR SHALL REFER THE MATTER TO THE ARCHITECT FOR DECISION BEFORE START OF ANY RELATED WORK.
- 7. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL REPAIRS INCLUDING IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REplacements IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.
- 8. ELECTRICAL DATA IS SCHEDULED AS BASIS OF DESIGN. ELECTRICAL CONNECTIONS AND VOLTAGE/PHASE FOR ALL PUMPS AND FANS SHALL BE FIELD VERIFIED AND NEW EQUIPMENT SHALL MATCH EXISTING CONDITIONS. ALL EXISTING DISCONNECT SWITCHES, WIRING, AND ASSOCIATED COMPONENTS ARE TO BE REUSED, EXTEND BRANCH WIRING AS REQUIRED.
- 9. PERFORM WORK IN ACCORDANCE WITH LOCAL CODES.
- 10. OBSERVE THE OWNER'S CLEANLINESS PROTOCOLS.

FANS

- 1. FANS SHALL COMPLY WITH AMCA, NEMA, AND BE UL LISTED, ELECTRICAL COMPONENTS LISTED IN ACCORDANCE WITH NFPA 70. FANS SHALL BE CLASSIFIED ACCORDING TO AMCA 99.
- 2. FANS SHALL BE DIRECT DRIVE PROPPELLER TYPE WITH PERMANENTLY LUBRICATED, PERMANENTLY SEALED AND SELF ALIGNING BALL BEARINGS, DELIVERED AS AN FACTORY-ASSEMBLED UNIT.
- 3. FAN SHALL BE STATICALLY AND DYNAMICALLY BALANCED AND SELECTED FOR CONTINUOUS OPERATION AT MAXIMUM FAN SPEED AND MOTOR HORSEPOWER.
- 4. APPROVED MANUFACTURERS INCLUDE THE FOLLOWING AND ARE SUBJECT TO COMPLIANCE WITH REQUIREMENTS:
 - A. AEROFONT; A TWIN CITY FAN COMPANY
 - B. COOK, LOREN COMPANY
 - C. GREENHECK
- 5. FAN SHALL BE COMPLETE WITH FACTORY FAN BLADES, MOTOR, SHAFT, BEARINGS, DAMPERS, SUPPORTS, AND ACCESSORIES.
- 6. MOTOR ENCLOSURE SHALL BE GUARDED DERRISROOF.
- 7. INSTALL POWER VENTILATORS LEVEL AND PLUMB.
- 8. SECURE ROOF-MOUNTING FANS TO ROOF CURBS WITH GOMULUM-PLATED HARDWARE.
- 9. COORDINATE INSTALLATION OF POWER VENTILATORS WITH EXISTING WALL OPENING.
- 10. VERIFY PROPER OPERATION OF FAN, DAMPERS AND ASSOCIATED COMPONENTS. TEST AND ADJUST FAN CONTROLS AND SAFETIES. ADJUST FAN FLOW RATE TO SCHEDULED AIRFLOW.

HYDRAONIC PIPING

- 1. PROVIDE ALL PIPING COMPLETE WITH FITTINGS, CLEANOUTS, HANGERS, SUPPORTS, GUIDES, SLEEVES, AND ACCESSORIES.
- 2. WORKING PIPING SHALL BE GRADE B, SCHEDULE 40, BLACK STEEL WITH CAST IRON WELDED AND FLANGED JOINTS AND FITTINGS.
- 3. FLEXIBLE CONNECTORS SHALL BE STAINLESS-STEEL, BELLOWS WITH WOVEN, FIBREGLASS, BRONZE, WIRE REINFORCED PROTECTORS SHALL BE 50 PERCENT OVERSIZED AND SHALL BE INSTALLED WITH FIBREGLASS PROTECTORS SHALL HAVE AN OVERSIZED AND SHALL BE CREABLE OF 3/4 INCH MISALIGNMENT.
- 4. SPRING LOADED, CAST IRON, LIFT DISK CHECK VALVES SHALL BE PROVIDED AT EACH PUMP DISCHARGE.
- 5. INSTALL GROUPS OF PIPES PARALLEL TO EACH OTHER, SPACED TO PERMIT APPLYING INSULATION AND SERVICING VALVES.
- 6. INSTALL DRAWS, CONSISTING OF A TEE FITTING, NPS 3/4 BALL VALVE, AND SHORT NPS 3/4 THREADED NIPPLE WITH CAP AT LOW POINTS IN SYSTEM.
- 7. INSTALL PIPING AT UNIFORM GRADE OF 0.2 PERCENT UPWARD IN DIRECTION OF FLOW.
- 8. REDUCE PIPE SIZES USING ECCENTRIC REDUCER FITTING INSTALLED WITH LEVEL SIDE UP.
- 9. SIZE SUPPLY AND RETURN PIPING TO MATCH EXISTING PIPE SIZES.
- 10. PROVIDE CONTINUOUS 1" FIBREGLASS INSULATION FOR ALL DOMESTIC HW PIPING. PROVIDE CONTINUOUS 1/2" FIBREGLASS INSULATION FOR ALL DOMESTIC CW AND CO PIPING.
- 11. ALL INSULATION SHALL HAVE COMPOSITE FIRE AND SMOKE HAZARD RATINGS THAT SHALL NOT EXCEED A FLAME SPREAD OF 25 AND A SMOKE DEVELOPED RATING OF 50.
- 12. PROVIDE ADEQUATE SUPPORT FOR PIPE AND CONTROLS TO PREVENT SAGGING, VIBRATION OR SWAYING AND ALLOW FOR EXPANSION AND CONTRACTION. PROVIDE SUPPLEMENTAL STEEL AS REQUIRED WHERE STRUCTURE CANNOT SUPPORT POINT LOADS.
- 13. SUBJECT PIPING TO HYDROSTATIC TEST PRESSURE THAT IS NOT LESS THAN 1.5 TIMES THE DESIGN PRESSURE. TEST PRESSURE SHALL NOT EXCEED THE MAXIMUM PRESSURE FOR ANY VESSEL, PUMP, VALVE OR OTHER COMPONENTS IN SYSTEM UNDER TEST. AFTER HYDROSTATIC TEST PRESSURE HAS BEEN APPLIED FOR AT LEAST 10 MINUTES, EXAMINE PIPING, JOINTS, AND CONNECTIONS FOR LEAKAGE. REPAIR LEAKS AS REQUIRED. PREPARE WRITTEN REPORT OF TESTING, AND REPEAT HYDROSTATIC TEST UNTIL THERE ARE NO LEAKS. PREPARE WRITTEN REPORT OF TESTING.
- 14. BEFORE BALANCING, REMOVE DISPOSABLE FINE-MESH STRAINERS IN PUMP SUCTION DIFFUSERS AND WIRE MESH TO THE STATION DIFFUSERS.
- 15. VERIFY PROPER OPERATION AND ROTATION OF PUMPS, VALVES, AND ASSOCIATED COMPONENTS. OPEN VALVES TO FULLY OPEN POSITION FOR BALANCING. TEST AND ADJUST PUMP TO SCHEDULED CFM.

NOTE:
1. SEE SHEET M-001 FOR LEGEND AND ABBREVIATIONS.

EXHAUST FAN SCHEDULE

TAG	LOCATION	TYPE	CFM	SP IN W.G.	RPM	SONES	ROOF OPENING LWM (IN)	ELECTRICAL DATA				TYPICAL UNIT MFG & MODEL NO.	NOTES	
								BHP	HP	VOLTS	PH			WEIGHT (LBS)
EF-1	ROOF	CENTRIFUGAL ROOF	2475	0.6	1101	13.1	18.5x18.5	0.54	3/4	480	3	89	GREENHECK 68-181	①②③
EF-2	PENH. ROOF	CENTRIFUGAL ROOF	1240	0.6	1208	9.5	14.5x14.5	0.211	1/4	480	3	67	GREENHECK 68-151	①②③
EF-4	PENH. ROOF	CENTRIFUGAL ROOF	200	0.25	1185	5.6	14.5x14.5	0.04	1/8	115	1	58	GREENHECK 6-071	①②③

GENERAL NOTES: SCHEDULED EXHAUST FAN EQUIPMENT TAGS MATCH EXISTING FAN TAGS.
NOTES: ① PROVIDE FACTORY INSULATED ROOF CURB ② PROVIDE FACTORY INSTALLED GALVANIZED BROSSGREEN. ③ PROVIDE INTEGRAL GRAVITY BACK DRAFT DAMPER.

PUMP SCHEDULE

TAG	LOCATION	SERVICE	GPM	HID (FT)	IMP. DIA (IN)	BHP	WILET (IN)	OUTLET (IN)	ELECTRICAL DATA				TYPICAL UNIT MFG & MODEL NO.	NOTES		
									HP	RPM	VOLTS	PH			VTD	
P-3	BASEMENT MECH ROOM	HOT WATER HEATING	160	55	11.7	3.5	3	2.5	5	1180	480	3	NO	TACO F12513	*	
P-4	BASEMENT MECH ROOM	HOT WATER HEATING	180	55	11.7	3.5	3	2.5	5	1180	480	3	NO	TACO F12513	*	
EP-1	BASEMENT MECH ROOM	VERTICAL SEWAGE EJECTOR PUMP	-	-	8.50	-	-	-	4	5	1150	480	3	NO	WELL 2221	*

BALANCING SCHEDULE

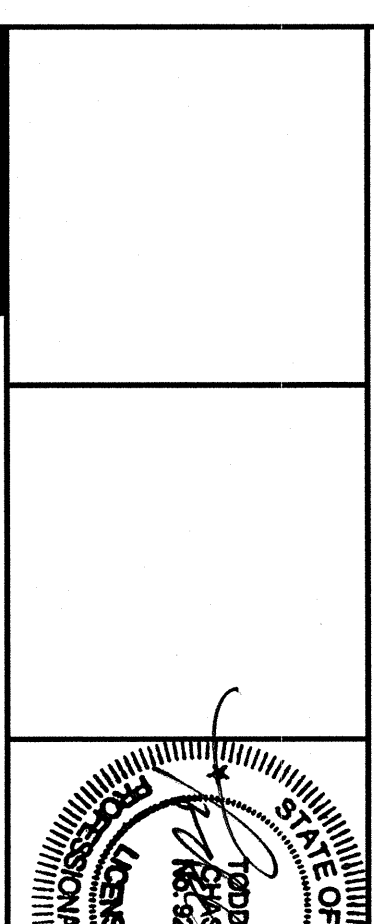
TAG	FLOOR	ROOM DESCRIPTION	CFM	NOTES
EF-1	THIRD FLOOR	WOMEN'S RESTROOM	525	
	SECOND FLOOR	WOMEN'S RESTROOM	525	
	FIRST FLOOR	WOMEN'S RESTROOM	525	
	BASEMENT	WOMEN'S RESTROOM	300	
EF-2	THIRD FLOOR	MEN'S RESTROOM	600	
	SECOND FLOOR	MEN'S RESTROOM	340	
	FIRST FLOOR	MEN'S RESTROOM	340	
	BASEMENT	JANITOR'S CLOSET	40	
EF-4	FIRST FLOOR	JANITOR'S CLOSET	40	
	ELECTRICAL ROOM	ELECTRICAL ROOM	200	

NOTES: ①

HYDRAONIC PUMPS

- 1. PUMPS SHALL COMPLY WITH UL 778 AND ELECTRICAL COMPONENTS SHALL BE LISTED AND LABELED ACCORDING TO NFPA 70 AND MARKED FOR INTENDED USE.
- 2. APPROVED MANUFACTURERS INCLUDE THE FOLLOWING AND ARE SUBJECT TO COMPLIANCE WITH REQUIREMENTS:
 - A. AEROSTRONG PUMPS, INC.
 - B. BELL & GOSSETT; DIV. OF ITT INDUSTRIES.
 - C. FLOWSERVE CORPORATION; DIV. OF INGERSOLL-DRESSER PUMPS.
 - D. PACO PUMPS.
 - E. TACO, INC.
- 3. PUMPS SHALL BE FACTORY-ASSEMBLED AND -TESTED SEPARATELY COUPLED, BASE-MOUNTED, END SUCTION CENTRIFUGAL PUMP AS DESCRIBED IN H1 1.1-1.2, DESIGNED FOR BASE MOUNTING, WITH PUMP PRESSURE AND A CONTINUOUS WATER TEMPERATURE OF 250 F.
- 4. PUMP CASING SHALL BE SOLIDLY CAST IRON WITH THREADED GAGE TAPINGS AT INLET AND OUTLET. PUMP MOTOR SHALL BE 1/2 HP 115V 1PH 60 HZ. PUMP MOTOR SHALL BE 1/2 HP 115V 1PH 60 HZ. ATTACH PIPING TO ALLOW REMOVAL AND REPLACEMENT OF IMPELLER WITHOUT DISCONNECTING PIPING OR REQUIRING THE REALIGNMENT OF PUMP AND MOTOR SHAFT.
- 5. PUMP IMPELLER SHALL COMPLY WITH ASTM A 564 AND BE STATIC ALYX AND DYNAMICALLY BALANCED. KEMP TO SHAFT, AND SECURED WITH A LOCKING CAP SCREW. TEAM IMPELLER TO MATCH SPECIFIED PERFORMANCE.
- 6. PUMP BEARINGS SHALL BE GREASE-LUBRICATED BALL BEARINGS CONTAINED IN CAST-IRON HOUSING WITH GREASE FITTINGS.
- 7. SHAFT COUPLING SHALL BE A UNIDIR. RUBBER INSERT AND INTERLOCKING SPIGOT CAPABLE OF ABSORBING VIBRATION. THE COUPLING GUARD SHALL BE DUAL RATED, ANSI B15.1 AND OSHA 1910.219 APPROVED STEEL, REMOVABLE, ATTACHED TO MOUNTING FRAME.
- 8. PUMP FRAME SHALL BE WELDED-STEEL FRAME, FABRICATED TO MOUNT PUMP CASING, COUPLING GUARD, AND MOTOR.
- 9. THE MOTOR SHALL BE SINGLE SPEED, WITH PERMANENTLY LUBRICATED BALL BEARINGS, UNLESS OTHERWISE INDICATED, SECURED TO MOUNTING FRAME, WITH ADJUSTABLE ALIGNMENT.
- 10. INSTALL NEW CAST-IN-PLACE CONCRETE BASES OF ADEQUATE SIZE TO COMPLETELY SUPPORT PUMPS. INSTALL PUMP AND COUPLING ON DIRECT CONCRETE. END SUCTION PUMPS SHALL BE INSTALLED THROUGH CONCRETE BASE AND ANCHOR BOLTS FROM CONCRETE. PUMPS SHALL BE INSTALLED IN H 1.1-1.5, CENTRIFUGAL PUMPS FOR NOMENCLATURE, DENOMINATIONS, APPLICATION AND OPERATION. AFTER ALIGNMENT IS CORRECT, TIGHTEN FOUNDATION BOLTS TIGHT, BUT NOT TOO TIGHT. OR WEDGES ARE IN PLACE. AFTER GROUPT HAS CURED, FULLY TIGHTEN FOUNDATION BOLTS.
- 11. CHECK VALVES SHALL BE INSTALLED ON DISCHARGE SIDE OF PUMPS AND SECTION DIFFUSERS SHALL BE INSTALLED ON THE SUCTION SIDE OF PUMPS. CONTRACTOR SHALL BE INSTALLED ON THE SUCTION AND DISCHARGE SIDES OF THE PUMPS BETWEEN THE CASING AND VALVES.
- 12. PUMPS SHALL BE CONNECTED TO EXISTING CONTROLS AND WIRING.
- 13. VERIFY PROPER OPERATION OF PUMPS, CONTROLS AND ASSOCIATED COMPONENTS. TEST AND ADJUST PUMP CONTROLS AND SAFETIES. ADJUST PUMP FLOW TO SCHEDULED FLOW RATE.
- 14. SEWAGE EJECTOR PUMPS
 - 1. PUMPS SHALL COMPLY WITH UL 778 AND ELECTRICAL COMPONENTS SHALL BE LISTED AND LABELED ACCORDING TO NFPA 70 AND MARKED FOR INTENDED USE.
 - 2. APPROVED MANUFACTURERS INCLUDE THE FOLLOWING AND ARE SUBJECT TO COMPLIANCE WITH REQUIREMENTS:
 - A. AEROSTRONG PUMPS, INC.
 - B. STERLING PERRISS; STERLING FLUID SYSTEMS GROUP
 - C. WEL PUMP COMPANY, INC.
 - D. WENDMAN DIV.; GRAVE PUMPS & SYSTEMS.
 - 3. PROVIDE PUMP VERTICAL, SEPARATELY COUPLED, SUSPENDED PUMPS COMPLYING WITH H1 1.1-1.2 AND H1 1.3 FOR WET-HILL-VOLUME SEWAGE PUMPS.
 - 4. PUMP CASING SHALL BE CAST IRON WITH OPEN INLET AND FLANGED OUTLET CONNECTION. IMPELLER SHALL COMPLY WITH ASTM 564 AND BE STATIC ALYX AND DYNAMICALLY BALANCED. CAST BRONZE WITH NONGLASS DESIGN FOR SOLIDS HANDLING. PUMP SHAFT SHALL EXTEND TO MATCH EXISTING BASIN LENGTH.
 - 5. PUMP SHALL BE OPERATED BY EXISTING CONTROLS. CONTRACTOR SHALL COORDINATE NEW PUMP WITH EXISTING CONTROLS.
 - 6. INSTALL PUMP AND ARRANGE PIPING TO PROVIDE ACCESS FOR MAINTENANCE INCLUDING REMOVAL OF MOTORS, IMPELLERS, COUPLINGS, AND ACCESSORIES.
 - 7. SUSPEND WET-PIE-MOUNTED VERTICAL PUMPS FROM BASIN COVERS. SUPPORT PIPING SO WEIGHT OF PIPING IS NOT SUPPORTED BY PUMP.
 - 8. COMPLETE INSTALLATION, AND STARTUP CHECKS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. VERIFY PROPER OPERATION OF PUMPS, CONTROLS AND ASSOCIATED COMPONENTS. TEST AND ADJUST PUMP CONTROLS AND SAFETIES.

ISSUED FOR PERMITTING
07-18-07



SM RT
ARCHITECTURE ENGINEERING PLANNING
144 Five Street, P.O. Box 618
Pretzford, Maryland 21154
Tel: (207) 772-3946
Fax: (207) 772-1000

ANTHEM BLDG. SPECIFICATIONS
MODEL TENANT FIT-UP
110 FREE STREET
FOWLAND, MARYLAND

SHEET TITLE: AS NOTED DATE:
PROJECT MANAGER: JIH GRAPHIC SCALE: 0' 1"
JOB CDR/DRAWN: BAL
A/E OF RECORD: TAC SHEET NO: M-002
SMART CAD TITLE: M-002-07087
PROJECT NO: 07087