

ABDEL-LATIFRA 11/30/2 J:\14572464\WATER\FORCEMAIN.DWG - SET 2464--002.DWG. 11/09/03 13:33 LJS: 1 PSLTS: 1

STANDARD SPECIFICATIONS

THE 2002 STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT. THE CONTRACTOR SHALL ALSO MEET ALL OF THE REQUIREMENTS OF THE MUSKINGUM COUNTY ENGINEER AND THE MUSKINGUM COUNTY SEWER DEPARTMENT.

UTILITIES

THE CONTRACTOR SHALL CAUSE NOTICE TO BE GIVEN TO THE OHIO UTILITIES PROTECTION SERVICE (800-362-2764) AND TO THE OWNERS OF UNDERGROUND UTILITY FACILITIES SHOWN ON THE PLANS WHO ARE NOT MEMBERS OF A REGISTERED PROTECTION SERVICE IN ACCORDANCE WITH SECTION 153.64 OF THE OHIO REVISED CODE. THE ABOVE MENTIONED NOTICE SHALL BE GIVEN AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION.

THE IDENTITY AND LOCATION OF THE EXISTING UNDERGROUND UTILITY FACILITIES KNOWN TO BE LOCATED IN THE CONSTRUCTION AREA HAVE BEEN SHOWN ON THE PLANS AS ACCURATELY AS PROVIDED BY THE OWNER OF THE UNDERGROUND UTILITY. THE ENGINEER ASSUMES NO RESPONSIBILITY AS TO THE ACCURACY OR THE DEPTHS OF THE UNDERGROUND FACILITY SHOWN ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR INVESTIGATION, LOCATION, SUPPORT, PROTECTION AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL EXPOSE ALL UTILITIES OR STRUCTURES PRIOR TO CONSTRUCTION TO VERIFY THE VERTICAL AND HORIZONTAL EFFECT ON THE PROPOSED CONSTRUCTION.

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

WATER: MUSKINGUM COUNTY WATER DEPARTMENT
CHESTER SMITH
P.O. BOX 2005
ZANESVILLE, OH 43702
(740) 453-0678

SANITARY: MUSKINGUM COUNTY SEWER DEPARTMENT
JEFF PICKRELL
1410 NEWARK ROAD
ZANESVILLE, OH 43701
(740) 452-4940

STORM: MUSKINGUM COUNTY ENGINEER
LOREN CAMP
401 MAIN STREET
ZANESVILLE, OH 43701
(740) 454-0155

ELECTRIC: OHIO POWER
(800) 672-2231

TELEPHONE: SBC OHIO
(800) 572-4545

CABLE TV: TIME WARNER CABLE
(740) 455-9705

GAS: COLUMBIA GAS OF OHIO
JIM DIETRICK
2429 LINDEN AVENUE
ZANESVILLE, OH 43701
(740) 772-9131

GATHERCO
5772 DRESSLER ROAD, NW
NORTH CANTON, OH 44720
(330) 498-9553

NATIONAL OIL AND GAS
(740) 348-1258

CONSTRUCTION NOISE

ACTIVITIES AND LAND USE ADJACENT TO THIS PROJECT MAY BE AFFECTED BY CONSTRUCTION NOISE. IN ORDER TO MINIMIZE ANY ADVERSE CONSTRUCTION NOISE IMPACTS, ANY POWER-OPERATED CONSTRUCTION-TYPE DEVICE SHALL NOT BE OPERATED BETWEEN THE HOURS OF 5:00 p.m. AND 7:00 a.m. IN ADDITION, ANY SUCH DEVICE SHALL NOT BE OPERATED AT ANY TIME IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE NOISE CUSTOMARILY AND NECESSARILY ATTENDANT TO THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.

STREAM CHANNEL EXCAVATION

THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT ANY INCIDENTAL DISCHARGES ASSOCIATED WITH THE EXCAVATION AND HAULING OF MATERIAL FROM THE STREAM CHANNEL.

PROTECTION OF LANDSCAPING

THE CONTRACTOR SHALL CONSTRICT ALL OF HIS/HER ACTIVITIES, EQUIPMENT STORAGE, AND STAGING TO WITHIN THE CONSTRUCTION LIMITS SHOWN ON THE PLANS.

SHOULD THE CONTRACTOR WISH TO USE ANY AREA OUTSIDE THESE LIMITS, A REQUEST IN WRITING MUST BE SUBMITTED TO THE ENGINEER, OWNER, MUSKINGUM COUNTY ENGINEER AND ODOT, DISTRICT 5. THE DOCUMENT SUBMITTED MUST CLEARLY IDENTIFY THE AREA THAT THE CONTRACTOR PLANS TO USE AND EXPLAIN THE PROPOSED USE AND RESTORATION OF THE AREA. USE OF THESE AREAS FOR DISPOSAL OF WASTE MATERIAL AND CONSTRUCTION DEBRIS IS PROHIBITED. THE REQUEST MUST BE APPROVED, IN WRITING, BEFORE THE CONTRACTOR HAS PERMISSION TO USE THE AREA.

PRIOR TO BEGINNING WORK, THE CONTRACTOR, SUPERINTENDENT OR HIS REPRESENTATIVE, THE ENGINEER, AND THE OWNER SHALL REVIEW AND RECORD ALL LANDSCAPING ITEMS WITHIN THE CONSTRUCTION LIMITS. ANY ITEMS DAMAGED WILL BE REPLACED IN KIND OR AS APPROVED BY THE ENGINEER.

TRACKING OF MUD

THE CONTRACTOR SHALL IMMEDIATELY CLEAN UP ANY MUD TRACKED OR DISPOSITION OF BUILDING MATERIALS OR DEBRIS UPON PUBLIC RIGHT OF WAY OUTSIDE OF THE CONSTRUCTION LIMITS. WORK WITHIN THE CONSTRUCTION LIMITS SHALL BE CLEANED UP BY COMPLETION OF WORK EACH DAY.

SURVEY MARKERS

ANY PROPERTY CORNERS, PERMANENT SURVEY MARKERS, OR MONUMENTATION DISTURBED BY CONTRACTOR SHALL BE REESTABLISHED BY A SURVEYOR REGISTERED IN THE STATE OF OHIO.

RESTORATION

THE CONTRACTOR SHALL REPLACE OR REPAIR ALL STORM DRAINS, UNDERDRAINS, DRIVE CULVERTS, FIELD TILE, SIGNS, PAVEMENT MARKINGS, MAILBOXES, FENCES, GUARDRAIL, SHRUBS, DITCHES, OR OTHER ITEMS DISTURBED OR DAMAGED DURING CONSTRUCTION. THESE ITEMS SHALL BE RESTORED TO THEIR ORIGINAL OR BETTER CONDITION.

DATE OF COMPLETION

ALL CONSTRUCTION WORK ON THE PROJECT SHALL BE COMPLETED ON OR BEFORE THE SIXTIETH DAY FOLLOWING THE DATE OF THE NOTICE TO PROCEED WITH THE CONSTRUCTION ACTIVITIES.

THEREFORE, THE AWARDED CONTRACTOR HAS A WINDOW OF TIME IN WHICH TO CONSTRUCT THIS PROJECT. FAILURE TO COMPLETE ALL CONSTRUCTION ACTIVITIES, WITHIN THIS WINDOW OF TIME SHALL RESULT IN LIQUIDATED DAMAGES.

CLEARING AND GRUBBING

THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL TREES. THE COST OF TREE PROTECTION SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEM.

ITEM 253 PAVEMENT REPAIR

THE FOLLOWING QUANTITY HAS BEEN PROVIDED FOR PAVEMENT REPAIR FOLLOWING INSTALLATION OF PIPES UNDER ITEM 603.

ITEM 448 ASPHALT CONCRETE SURFACE COURSE 0.5 CU. YDS.
ITEM 448 ASPHALT CONCRETE INTERMEDIATE COURSE 0.5 CU. YDS.
ITEM 304 AGGREGATE BASE COURSE 3.0 CU. YDS.
ITEM 407 TACK COAT 0.5 GAL.
ITEM 409 SAWING AND SEALING A.C. PAVEMENT JOINTS 50 FEET

THE ABOVE QUANTITY IS BASED ON A TOTAL PAVEMENT REPAIR THICKNESS OF 13 INCHES AND A PAVEMENT REPAIR WIDTH THAT INCLUDES THE TRENCH WIDTH PLUS TWO FEET ON EACH SIDE OF THE TRENCH. THE TRENCH WIDTH WAS ASSUMED TO EQUAL 4'.

PROVIDE ANY MATERIALS USED OUTSIDE THE LIMITS SHOWN ABOVE AT NO ADDITIONAL COST. PROVIDE PAVEMENT REPAIR NOT SHOWN ON THE DRAWINGS BUT REQUIRED TO COMPLETE INSTALLATION OF ITEM 603 CONDUIT AT NO ADDITIONAL COST.

ROADS AND DRIVES SHALL BE RESTORED TO THEIR ORIGINAL OR BETTER CONDITION.

CROSSINGS TO EXISTING PIPES AND UTILITIES

WHERE PLANS PROVIDE FOR THE PROPOSED FORCE MAIN TO CROSS OVER OR UNDER AN EXISTING WATER MAIN OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED FORCE MAIN.

IF IT IS DETERMINED THAT THE PROPOSED FORCE MAIN WILL INTERSECT AN EXISTING WATER MAIN OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED FORCE MAIN WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY. THE ENGINEER SHALL PROVIDE THE FINAL DECISION ON ROUTING THE FORCE MAIN ABOVE OR BELOW THE UTILITY.

THE CONTRACTOR SHALL PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE OUTSIDE OF THE FORCE MAIN AND THE OUTSIDE OF AN EXISTING WATER MAIN AND A MINIMUM VERTICAL DISTANCE OF 12 INCHES BETWEEN THE OUTSIDE OF THE FORCE MAIN AND ANY OTHER UTILITY. DISTANCE BETWEEN UTILITIES SHALL BE BACKFILLED WITH CLASS C CONCRETE FROM 4 INCHES BELOW THE LOWER UTILITY TO THE SPRING LINE OF THE UPPER UTILITY FOR A DISTANCE OF 12 INCHES BEYOND THE OUTSIDE OF THE CROSSING UTILITY.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEM.

FARM, RESIDENTIAL, AND COMMERCIAL DRAINS

ALL FARM DRAINS, ROOF DRAINS, FOOTER DRAINS, OR YARD DRAINS WHICH ARE ENCOUNTERED DURING CONSTRUCTION, SHALL BE REPAIRED WITH 603 TYPE E CONDUIT. THE SIZE OF REPLACEMENTS SHALL BE EQUAL TO OR GREATER THAN THE INSIDE DIAMETER OF THE DRAIN.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEM.

ITEM 603 - SPECIAL - 3 INCH SANITARY FORCE MAIN, HDPE

WHERE IT IS SPECIFIED THAT 3 INCH SANITARY FORCE MAIN, HDPE CONDUIT BE INSTALLED, FURNISH MATERIALS CONFORMING TO ASTM F-714 AND AWWA C901, WITH A MINIMUM CELL CLASSIFICATION OF PE 345434C IN ACCORDANCE WITH ASTM D-3350, AND A MINIMUM CARBON BLACK OF 2 PERCENT. MOLDING AND EXTRUSION MATERIALS SHALL BE IN ACCORDANCE WITH ASTM D-1248. HDPE PIPE PROVIDED SHALL BE IPS, DR-11, WITH A WORKING PRESSURE OF 160 POUNDS PER SQUARE INCH. FITTINGS SHALL BE MOLDED OR FABRICATED HDPE MEETING AWWA C901. PROVIDE STAINLESS STEEL INSERTS WHERE HDPE PIPE IS NOT BUTT FUSED.

PROVIDE TYPE 2 BEDDING WHERE CONDUIT IS BUTT FUSED BETWEEN DIRECTIONAL BORES. INSTALL FULL LENGTHS OF CONDUIT, WHERE PRACTICAL, MAKE JOINTS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PLUG ENDS OF CONDUIT WHEN NOT BEING WORKED. LEAVE CONDUIT CLEAN AND FREE OF DEBRIS WHEN COMPLETE. FLUSH ALL CONDUIT AS REQUIRED.

TEST ALL CONDUIT PRIOR TO PLACING IN SERVICE. TESTS MAY BE CONDUCTED ON COMPLETED CONDUIT OR ANY COMPLETED PORTION THAT CAN BE ISOLATED FROM OTHER SECTIONS PREVIOUSLY TESTED OR NOT COMPLETE. PLUG ENDS OF CONDUIT TO BE TESTED. FILL CONDUIT OR SECTION OF CONDUIT AT LEAST 24 HOURS PRIOR TO TESTING. ALLOW ALL AIR TO ESCAPE. IF NO OUTLET IS AVAILABLE AT A HIGH POINT OF LINE, PROVIDE A TAP FITTED WITH A MANUAL AIR RELEASE VALVE. TEST PRESSURE SHALL BE HELD FOR 1 HOUR. A CALIBRATED WATER SOURCE SHALL BE USED BY TEST PUMP TO MAINTAIN TEST PRESSURE. TEST PRESSURE SHALL BE 160 POUNDS PER SQUARE INCH AT THE TEST GAGE. ALLOWABLE LEAKAGE FOR HDPE PIPE TO BE COMPUTED FROM 2.0 GALLONS PER 24 HOURS PER MILE OF PIPE PER INCH OF NOMINAL SIZE. IF MORE WATER IS USED TO MAKE UP LEAKAGE THAN ALLOWED, THE LINE IS TO BE MADE WATER TIGHT. RETESTING SHALL BE MADE UNTIL THE REQUIREMENTS ARE MET.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR ITEM 603 - SPECIAL - 3 INCH SANITARY FORCE MAIN, HDPE.

ITEM 603 - CONDUIT DIRECTIONAL BORED

WHERE IT IS SPECIFIED THAT A CONDUIT BE INSTALLED BY THE METHOD OF DIRECTIONAL BORING, NO DIRECTIONAL BORING EQUIPMENT SHALL BE OUTSIDE THE CONSTRUCTION LIMITS SHOWN ON THE PLANS. THE DRILLING MACHINE SHALL DRILL OR BORE A TUNNEL AND BACK REAM THE VOID WHILE PULLING THE CONDUIT BACK THROUGH THE BORED TUNNEL. THE DRILLING HEAD SHALL BE MONITORED AND CONTROLLED THROUGH AN ABOVE GROUND ELECTRICAL GUIDE UNIT. THE HEAD SHALL ROTATE SO THAT THE DIRECTION OF THE BORE CAN BE CONTROLLED BY MOVING UP, DOWN, LEFT OR RIGHT. THE SYSTEM SHALL BE ABLE TO CONTROL THE DEPTH AND DIRECTION OF THE CONDUIT AND MUST BE ACCURATE TO +/- 2 INCHES. THE SYSTEM SHALL UTILIZE A FLUID CUTTING PROCESS, USING A LIQUID CLAY SUCH AS BENTONITE. THE CLAY SHALL BE TOTALLY INERT AND CONTAIN NO RISK TO THE ENVIRONMENT. THE LIQUID CLAY SHALL REMAIN IN THE TUNNEL TO INCREASE THE STABILITY OF THE TUNNEL AND TO PROVIDE A LUBRICANT TO REDUCE FRICTIONAL DRAG WHEN THE PIPE IS INSTALLED. AFTER THE DRILLING HEAD HAS REACHED THE TERMINATION POINT, ATTACH A BACK REAMER AND INSTALL THE PIPE BY PULLING IT THROUGH THE BORED HOLE BACK TO THE LAUNCHING POINT. EXCESS MATERIAL SHALL BE PROMPTLY DISPOSED OF OFF SITE. BORING EQUIPMENT SHALL BE FITTED WITH A PERMANENT ALARM SYSTEM CAPABLE OF DETECTING AN ELECTRIC CURRENT. THE SYSTEM SHALL HAVE AN AUDIBLE ALARM TO WARN THE OPERATOR WHEN THE DRILL HEAD NEARS ELECTRIFIED CABLES WITHIN A SAFE OPERATING DISTANCE. ALL CREWS SHALL BE PROVIDED WITH GROUNDED SAFETY MATS, HEAVY GAUGE GROUND CABLES WITH CONNECTORS, HOT BOOTS AND GLOVES. ALL SUPERVISORY PERSONNEL SHALL BE ADEQUATELY TRAINED AND HAVE DIRECT SUPERVISORY EXPERIENCE IN DIRECTIONAL BORING.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT DIRECTIONAL BORED ITEM.

TRACER WIRE

TRACER WIRE SHALL BE INSTALLED WHERE SHOWN ON THE PLANS. TRACER WIRE SHALL BE INSTALLED TO ENABLE THE DETECTION OF PLASTIC PIPES, FIBER OPTICS, AND NON-CONDUCTING UTILITIES. THE TRACER WIRE SHALL BE DESIGNED SPECIFICALLY FOR THE PURPOSE OF DETECTING BURIED UTILITIES. TRACER WIRE SHALL BE 12 AWG (MIN.) COPPER WIRE COATED WITH A 30 MIL (MIN.) POLYETHYLENE JACKET DESIGNED SPECIFICALLY FOR BURIED USE. TRACER WIRE SHALL BE INSTALLED CONTINUOUSLY ALONG THE CONDUIT WITH ACCESS POINTS AT 1000 FEET MAXIMUM. THE TRACER WIRE SHALL BE BROUGHT TO THE GROUND SURFACE AT THE ACCESS POINTS. ACCESS POINTS MAY INCLUDE VALVE BOXES, CLEANOUTS, MANHOLES, VALVE VAULTS, OR OTHER COVERED ACCESS POINTS. ACCESS POINT COVERS SHALL BE CLEARLY MARKED. SPLICES IN THE TRACER WIRE SHALL BE CONNECTED BY MEANS OF A SPLIT BOLT OR COMPRESSION TYPE CONNECTOR TO ENSURE CONTINUITY. A WATER PROOF OR CORROSION PROOF CONNECTOR SHALL BE USED FOR DIRECT BURY APPLICATIONS. THE TRACER WIRE SHALL BE TESTED FOR CONTINUITY AFTER INSTALLATION. TRACER WIRE SHALL BE INSTALLED AT THE SAME TIME AS THE CONDUIT AS AN INTEGRAL PART OF THE CONDUIT INSTALLATION.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEM.

MARKING POSTS

MARKING POSTS SHALL BE INSTALLED ALONG THE FORCE MAIN AT 1000 FEET MAXIMUM. MARKING POSTS SHALL BE PLACED AT ALL DEFLECTIONS IN THE FORCE MAIN GREATER THAN FIVE DEGREES, AT CLEANOUTS, AIR RELEASE VALVES, AND TERMINATION OF CASING PIPE. MARKING POSTS SHALL BE 4 INCHES WIDE 66 INCHES HIGH FIBER REINFORCED COMPOSITE. MARKING POSTS SHALL HAVE HIGH VISIBILITY DECALS AS APPROVED BY THE MUSKINGUM COUNTY SEWER DEPARTMENT.

PAYMENT FOR ALL OF THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEM.

ITEM 604 - MANHOLE TYPE 3

WHERE IT IS SPECIFIED THAT A TYPE 3 MANHOLE BE INSTALLED, FURNISH MATERIALS AS REQUIRED FOR SANITARY SEWERS. PIPE CONNECTIONS IN MANHOLE BASES SHALL BE MADE WITH FLEXIBLE RUBBER COMPRESSION FITTINGS CONFORMING TO ASTM C923. PROVIDE CAST FRAMES AND COVERS WITH RUBBER GASKET SEALS TO MEET THE REQUIREMENTS OF THE MUSKINGUM COUNTY SEWER DEPARTMENT. PROVIDE REINFORCED POLY PROPYLENE PLASTIC MANHOLE STEPS.

TEST ALL MANHOLES IN ACCORDANCE WITH ASTM C1244. THE TEST HEAD SHALL BE PLACED AT THE TOP OF THE MANHOLE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. A VACUUM OF 10 INCHES OF MERCURY SHALL BE DRAWN ON THE MANHOLE. TIME SHALL BE MEASURED FOR THE VACUUM TO DROP 1 INCH. THE MANHOLE SHALL PASS IF THE TIME FOR THE VACUUM READING TO DROP 1 INCH MEETS OR EXCEEDS 30 SECONDS. RETESTING SHALL BE MADE UNTIL THE REQUIREMENTS ARE MET.

ITEM 604 - SPECIAL - 3 INCH CLEANOUT

CLEANOUTS SHALL BE INSTALLED WHERE SHOWN ON THE PLANS. CLEANOUT RISER PIPE AND FITTINGS SHALL BE OF THE SAME TYPE AND SIZE AS THE FORCE MAIN. REPLACE EXCAVATED MATERIAL WITH ITEM 603 STRUCTURAL BEDDING. CLEANOUTS SHALL TERMINATE WITH A 2 INCH ALUMINUM QUICK COUPLING WITH DUST CAP. PROVIDE GATE VALVE AND VALVE BOX PER ITEM 638, AS PER PLAN. PROVIDE CASTING FOR CLEANOUT PER ITEM 604, AS PER PLAN.

ITEM 614 - MAINTAINING TRAFFIC

A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED ON MILITARY ROAD AT ALL TIMES. NO LANES SHALL BE CLOSED AT ANY TIME ON S.R. 146 OR KEARNS ROAD. PROVIDE AND SAFELY MAINTAIN DRIVES, ROADS, WALKS, AND STRUCTURES FOR LOCAL TRAFFIC. PROVIDE AND SAFELY MAINTAIN GAMBRO HEALTHCARE DRIVES, WALKS, AND STRUCTURES FOR CONTINUOUS PATIENT TRAFFIC. PROVIDE SAFE VEHICULAR AND PEDESTRIAN INGRESS AND EGRESS FOR ALL PROPERTY ADJACENT TO THE IMPROVEMENT. PROVIDE CONTINUOUS MAIL SERVICE TO ALL PROPERTY ADJACENT TO THE IMPROVEMENT. TEMPORARILY RELOCATE AND REPLACE MAIL BOXES AS NECESSARY.

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE MUSKINGUM COUNTY ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN SIGNS AND SIGN SUPPORTS, AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

OVERNIGHT TRENCH CLOSING

NO TRENCH SHALL BE LEFT OPEN OVERNIGHT EXCEPT FOR A SHORT LENGTH (25 FEET OR LESS) OF A WORK SECTION AT THE END OF THE TRENCH. IN CASE WORK MUST BE SUSPENDED BECAUSE OF INCLEMENT WEATHER OR OTHER REASONS, THE TRENCH SHALL BE BACKFILLED. TRENCH LEFT OPEN OVERNIGHT SHALL BE PROVIDED WITH CONSTRUCTION FENCING. NO TRENCH WITHIN THE RIGHT OF WAY SHALL BE LEFT OPEN OVERNIGHT.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEM.

ITEM 638 - SPECIAL - 12 INCH CASING PIPE, BORED OR JACKED.

CASING PIPE SHALL BE INSTALLED WHERE SHOWN ON THE PLANS. CASING PIPE SHALL BE STEEL PIPE MEETING ASTM SPECIFICATIONS 35,000 PSI YIELD STRENGTH AND 60,000 PSI TENSILE STRENGTH. CASING PIPE SHALL BE GALVANIZED WITH A MINIMUM OF 2 OUNCES PER SQUARE FOOT AND CONFORM TO ASTM A120. CASING PIPE SHALL HAVE A MINIMUM WALL THICKNESS OF 0.38 INCHES. PLACE CASING PIPE BY BORING AND JACKING METHODS. ANY SPCE OUTSIDE THE CASING PIPE SHALL BE GROUTED AT LOW PRESSURE THROUGH GROUT HOLES PROVIDED IN A SUFFICIENT QUANTITY IN THE CASING PIPE. HOLES SHALL BE INSTALLED IN SUITABLE LOCATIONS SO THAT GROUTING CAN BE DONE EFFECTIVELY. THE PRESSURE GROUTING SHALL BEGIN AT THE LOWEST MIDDLE HOLE OF EACH GROUT SECTION, GROUT HOLES ABOVE BEING OPEN, AND PROCEED UPWARD PROGRESSIVELY AND SIMULTANEOUSLY ON BOTH SIDES OF THE CASING PIPE.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR ITEM 638 - SPECIAL - 12 INCH CASING PIPE, BORED OR JACKED.

ITEM 638 - SPECIAL - 2 INCH COMBINATION AIR RELEASE VALVE

COMBINATION AIR RELEASE VALVES SHALL BE INSTALLED WHERE SHOWN ON THE PLANS. INSTALLATION SHALL INCLUDE A SHUT OFF VALVE THE SAME SIZE AS THE VALVE. THE AIR RELEASE VALVE SHALL BE AN A.R.I. D-020 COMBINATION AIR VALVE FOR SEWAGE OR EQUAL. THE VALVE SHALL BE HOUSED IN A MANHOLE PER ITEM 604, AS PER PLAN.

SEEDING AND MULCHING

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS. PROVIDE CLASS 1 SEED MIXTURE. SEEDED AREAS SHALL BE RESTORED TO THEIR ORIGINAL OR BETTER CONDITION.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEM.

ITEM 680 - SPECIAL - GRINDER PUMP LIFT STATION

PUMP MODEL - PUMP SHALL BE OF THE CENTRIFUGAL TYPE MYERS MODEL WG100H OR EQUAL WITH AN INTEGRALLY BUILT-IN GRINDER UNIT AND SUBMERSIBLE TYPE MOTOR. THE GRINDER UNIT SHALL BE CAPABLE OF MACERATING ALL MATERIAL IN NORMAL DOMESTIC AND COMMERCIAL SEWAGE INCLUDING REASONABLE AMOUNTS OF FOREIGN OBJECTS SUCH AS SMALL WOOD, STICKS, PLASTIC, THIN RUBBER, SANITARY NAPKINS, DISPOSABLE DIAPERS AND THE LIKE TO A FINE SLURRY THAT WILL PASS FREELY THROUGH THE PUMP AND 2" DISCHARGE PIPE. DISCHARGE SHALL BE STANDARD 2 1/2" FLANGE.

OPERATING CONDITIONS - PUMP SHALL HAVE A CAPACITY OF 70 GPM AT A TOTAL HEAD OF 195 FEET AND SHALL USE A 10 HP MOTOR OPERATING AT 3450 RPM.

MOTOR - PUMP MOTOR SHALL BE OF THE TOTALLY ENCLOSED, SUBMERSIBLE, SQUIRREL CAGE INDUCTION TYPE RATED 10 HORSEPOWER AT 3450 RPM, 60 HZ.

MOTOR SHALL BE FOR THREE PHASE, 230 VOLTS. THREE PHASE MOTORS SHALL BE NEMA B TYPE.

STATOR WINDING SHALL BE OF THE OPEN TYPE WITH CLASS H INSULATION GOOF FOR 1800 C (3560 F) MAXIMUM OPERATING TEMPERATURE. WINDING HOUSING SHALL BE FILLED WITH A CLEAN HIGH DIELECTRIC OIL THAT LUBRICATES BEARINGS AND SEALS AND TRANSFERS HEAT FROM WINDINGS AND ROTOR TO OUTER SHELL. AIR-FILLED MOTORS WHICH DO NOT HAVE THE SUPERIOR HEAT DISSIPATING CAPABILITIES OF OIL-FILLED MOTORS SHALL NOT BE CONSIDERED EQUAL.

MOTOR SHALL HAVE TWO HEAVY DUTY BALL BEARINGS TO SUPPORT PUMP SHAFT AND TAKE RADIAL AND THRUST LOADS AND A SLEEVE GUIDE BUSHING DIRECTLY ABOVE THE LOWER SEAL TO TAKE RADIAL LOAD AND ACT AS FLAME PATH FOR SEAL CHAMBER. BALL BEARINGS SHALL BE DESIGNED FOR 50,000 HOURS B-10 LIFE. STATOR SHALL BE HEAT SHRUNK INTO MOTOR HOUSING.

A HEAT SENSOR THERMOSTAT SHALL BE ATTACHED TO TOP END OF MOTOR WINDING AND SHALL BE CONNECTED IN SERIES WITH THE MAGNETIC CONTACTOR COIL IN CONTROL BOX TO STOP MOTOR IF MOTOR WINDING TEMPERATURE REACHES 1500° C (3020° F). THERMOSTAT TO RESET AUTOMATICALLY WHEN MOTOR COOLS. THREE HEAT SENSORS SHALL BE USED ON 3 PHASE MOTORS.

THE COMMON MOTOR PUMP AND GRINDER SHAFT SHALL BE OF #416 STAINLESS STEEL THREADED TO TAKE PUMP IMPELLER AND GRINDER IMPELLER.

SEALS - MOTOR SHALL BE PROTECTED BY TWO MECHANICAL SEALS MOUNTED IN TANDEM WITH A SEAL CHAMBER BETWEEN THE SEALS. SEAL CHAMBER SHALL BE OIL FILLED TO LUBRICATE SEAL FACE AND TO TRANSMIT HEAT FROM SHAFT TO OUTER SHELL.

SEAL FACE SHALL BE CARBON AND CERAMIC AND LAPPED TO A FLATNESS OF ONE LIGHT BAND.

A DOUBLE ELECTRODE SHALL BE MOUNTED IN THE SEAL CHAMBER TO DETECT ANY WATER ENTERING THE CHAMBER THROUGH THE LOWER SEAL. WATER IN THE CHAMBER SHALL CAUSE A RED LIGHT TO TURN ON AT THE CONTROL BOX. THIS SIGNAL SHALL NOT STOP MOTOR BUT SHALL ACT AS A WARNING ONLY, INDICATING SERVICE IS REQUIRED.

PUMP IMPELLER - THE PUMP IMPELLER SHALL BE OF THE RECESSED MYERS TYPE TO PROVIDE AN OPEN UNOBSTRUCTED PASSAGE THROUGH THE VOLUTE FOR THE GROUND SOLIDS. IMPELLER SHALL BE DUCTILE IRON AND SHALL BE DRIVEN BY A STAINLESS KEY. ENCLOSED OR SEMI-OPEN PUMP IMPELLERS WHICH MIGHT BECOME OBSTRUCTED DURING GRINDING OR ADD EXCESSIVE RADIAL LOADS SHALL NOT BE CONSIDERED AS EQUAL.

GRINDER CONSTRUCTION - GRINDER ASSEMBLY SHALL CONSIST OF A SINGLE ROTATING GRINDER IMPELLER AND A SINGLE STATIONARY SHREDDING RING MOUNTED DIRECTLY BELOW PUMP VOLUTE INLET. GRINDER IMPELLER SHALL THREAD ONTO SHAFT AND SHALL BE LOCKED WITH A SCREW AND WASHER. SHREDDING RING SHALL BE HELD IN PLACE BY A STEEL RETAINING CLAMP. BOTH SHREDDING RING AND GRINDER IMPELLER SHALL BE REMOVABLE WITHOUT DISMANTLING PUMP. NO ADJUSTMENT OF GRINDER ASSEMBLY SHALL BE NECESSARY FOR PROPER GRINDER OPERATION. MULTIPLE GRINDER IMPELLER ASSEMBLIES REQUIRING INITIAL OR PERIODIC AXIAL ADJUSTMENT FOR PROPER OPERATION SHALL NOT BE CONSIDERED EQUAL. GRINDER IMPELLER AND SHREDDING RING SHALL BE MADE OF 440C STAINLESS STEEL HARDENED TO 58-60 ROCKWELL.

CORROSION PROTECTION - ALL IRON CASTINGS SHALL BE PRE-TREATED WITH PHOSPHATE AND CHROMIC RINSE AND PAINTED BEFORE MACHINING. ALL MACHINED SURFACES EXPOSED TO THE SEWAGE WATER SHALL BE RE-PAINTED. ALL FASTENERS SHALL BE 304 STAINLESS STEEL.

BEARING END CAP - UPPER MOTOR BEARING CAP SHALL BE A SEPARATE CASTING FOR EASY MOUNTING AND REPLACEMENT.

POWER CABLES - POWER CORD AND CONTROL CORD SHALL BE DOUBLE SEALED. THE POWER AND CONTROL CONDUCTOR SHALL BE SINGLE STRAND SEALED WITH EPOXY POTTING COMPOUND AND THEN CLAMPED IN PLACE WITH RUBBER SEAL BUSHING TO SEAL OUTER JACKET AGAINST LEAKAGE AND TO PROVIDE FOR STRAIN PULL. CORDS SHALL WITHSTAND A PULL OF 300 POUNDS.

INSULATION OF POWER AND CONTROL CORDS SHALL BE TYPE SOOW/SOOW-A. BOTH CONTROL AND POWER CORDS SHALL HAVE A GREEN CARRIER GROUND CONDUCTOR THAT ATTACHES TO MOTOR FRAME.

GAMBRO HEALTHCARE
LIFT STATION & FORCE MAIN

GENERAL NOTES

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URS

ARCHITECTS • ENGINEERS • PLANNERS
277 W. NATIONWIDE BLVD.
COLUMBUS, OHIO 43215
(614) 464-4500 Fax: 464-0588

DATE ISSUED FOR BIDDING:				DATE ISSUED FOR CONSTRUCTION:			
ADDENDUM REVISIONS				REVISIONS			
No.	DESCRIPTION	DATE	BY	No.	DESCRIPTION	DATE	BY
				DATE ISSUED FOR RECORD DRAWINGS:			

DATE	October 2003
JOB No.	14572464
DRAWN	MAL
CHECKED	FJS
SCALE	NONE