

CITY OF GAHANNA
STANDARD PROJECT NOTES (Private Projects)
(November 2025)

GENERAL NOTES:

THE CURRENT CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS) TOGETHER WITH THE REQUIREMENTS OF THE CITY OF GAHANNA, OHIO, SHALL GOVERN MATERIALS AND WORKMANSHIP INVOLVED IN IMPROVEMENTS SHOWN ON THESE PLANS, EXCEPT THOSE SPECIFICATIONS MODIFIED BY THE FOLLOWING SPECIFICATIONS OR CONSTRUCTION DETAILS SET FORTH HEREIN.

ALL WORK IS TO BE ACCEPTABLE TO CITY OF GAHANNA OFFICIALS. NO WORK IS TO COMMENCE UNTIL ARRANGEMENTS HAVE BEEN MADE WITH THE CITY OF GAHANNA ENGINEER FOR INSPECTION.

THE CONTRACTOR SHALL NOTIFY THE CITY OF GAHANNA ENGINEER AT LEAST TWO WORKING DAYS PRIOR TO CONSTRUCTION.

ALL PERTINENT STANDARD CONSTRUCTION DRAWINGS ARE AVAILABLE UPON REQUEST AT THE OFFICE OF THE CITY OF GAHANNA ENGINEERS.

THE DEVELOPER IS TO SCHEDULE A PRE-CONSTRUCTION MEETING ONE BUSINESS WEEK PRIOR TO CONSTRUCTION. THE MEETING SHALL TAKE PLACE AT LEAST ONE BUSINESS WEEK PRIOR TO THE FOLLOWING: SITE CLEARING, MATERIAL DELIVERED ON-SITE, EQUIPMENT ON-SITE AND FIELD OFFICE ON-SITE.

THE DEVELOPER SHALL, PRIOR TO ANY CONSTRUCTION OPERATION, DEPOSIT WITH THE CITY THE TOTAL ESTIMATED COSTS FOR INSPECTION, ADMINISTRATIVE, WATER AND SANITATION FEES.

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLYING WITH ALL FEDERAL, STATE AND LOCAL SAFETY REQUIREMENTS INCLUDING THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970. THE CONTRACTOR SHALL EXERCISE PRECAUTION ALWAYS FOR THE PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. IT SHALL ALSO BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INITIATE, MAINTAIN AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, INCLUDING THE REQUIREMENTS FOR CONFINED SPACES PER 29 CFR 1910.146.

THE PRICE(S) QUOTED SHALL INCLUDE ALL ITEMS OF LABOR, MATERIALS, TOOLS, EQUIPMENT, INSURANCE AND OTHER COSTS NECESSARY TO FULLY COMPLETE THE WORK PURSUANT TO THE CONTRACT DOCUMENTS. IT IS THE INTENTION OF THE CONTRACT DOCUMENTS TO PROVIDE AND REQUIRE A COMPLETED WORK PROJECT READY FOR OPERATION. ANY WORK ITEMS OMITTED FROM SUCH CONTRACT DOCUMENTS WHICH ARE CLEARLY NECESSARY FOR THE COMPLETION OF SUCH WORK AND ITS APPURTENANCES SHALL BE CONSIDERED A PART OF SUCH WORK ALTHOUGH NOT DIRECTLY SPECIFIED OR CALLED FOR IN THE CONTRACT DOCUMENTS.

ALL FIELD TILE BROKEN DURING EXCAVATION SHALL BE REPLACED WITH PERFORATED PIPE OR CONNECTED TO THE STORM SEWER SYSTEM.

THE CONTRACTOR SHALL REPAIR OR REPLACE ANY OR ALL EXISTING SIGNS, SHRUBS, FENCES, OR OTHER PHYSICAL FEATURES DAMAGED DURING THE EXECUTION OF THIS CONTRACT AT THEIR OWN EXPENSE. ALL REPAIRS SHALL BE TO THE SATISFACTION OF THE OWNER AND THE CITY OF GAHANNA.

THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND GOVERNMENT FEES, LICENSES, AND INSPECTIONS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF IMPROVEMENTS SHOWN ON THESE PLANS.

THE CONTRACTOR SHALL CLEAN ADJACENT STREETS ON A DAILY BASIS IF MUD IS TRACKED FROM VEHICLES VISITING THE SITE.

DUST CONTROL SHALL BE MAINTAINED THROUGHOUT THE ENTIRE SITE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONDITION OF ALL TRENCHES WITHIN THE RIGHT-OF-WAY, PUBLIC EASEMENTS AND WITHIN THE WORK LIMITS FOR A PERIOD OF (1) YEAR FROM THE FINAL ACCEPTANCE OF THE WORK, AND SHALL MAKE ANY NECESSARY REPAIRS AT NO COST TO THE OWNER OR CITY OF GAHANNA.

THE CONTRACTOR SHALL CONFINE ACTIVITIES TO THE PROJECT SITE, EXISTING RIGHT-OF-WAYS, TEMPORARY EASEMENTS AND PERMANENT EASEMENTS, AND SHALL NOT ENTER UPON OTHER PROPERTIES WITHOUT WRITTEN PERMISSION OF THE OWNER.

SHOULD WATER BE ENCOUNTERED, THE CONTRACTOR SHALL FURNISH AND OPERATE SUITABLE PUMPING EQUIPMENT OF SUCH CAPACITY ADEQUATE TO DEWATER THE TRENCH. THE TRENCH SHALL BE SUFFICIENTLY DEWATERED SO THAT THE PLACEMENT OF BEDDING AND LAYING AND JOINING OF THE PIPE IS MADE IN A TRENCH FREE OF STANDING WATER. THE CONTRACTOR SHALL CONVEY ALL TRENCH WATER TO A NATURAL DRAINAGE CHANNEL OR STORM SEWER WITHOUT CAUSING ANY PROPERTY DAMAGE.

FINAL GRADE ADJACENT TO BUILDING SHALL SLOPE AWAY FROM BUILDING.

THE CONTRACTOR IS ULTIMATELY RESPONSIBLE TO ENSURE CONSTRUCTION TO PLAN GRADE. THE CONTRACTOR SHALL ENSURE THERE IS A SURVEYOR'S LEVEL AND ROD ON THE PROJECT FOR USE IN PERFORMING GRADE CHECKS WHENEVER SEWER LINE STRUCTURES OR PIPES ARE BEING INSTALLED. THE CONTRACTOR SHALL MAKE THIS EQUIPMENT AVAILABLE FOR USE AND ASSIST THE CITY INSPECTOR IN PERFORMING GRADE CHECKS WHEN REQUESTED BY THE INSPECTOR. THE INSPECTOR WILL MAKE ALL REASONABLE ATTEMPTS TO CONFINE REQUESTS FOR ASSISTANCE IN PERFORMING GRADE CHECKS TO TIMES CONVENIENT TO THE CONTRACTOR. THESE CHECKS WILL BE PERFORMED TO ENSURE THAT CONSTRUCTION MATCHES PLAN GRADE, AND TO ENSURE THAT ALL EXISTING INVERTS ALONG WITH THE PROPOSED TOP OF CASTING ELEVATIONS ARE VERIFIED PRIOR TO CONSTRUCTION OF THE SEWER.

THE CONTRACTOR SHALL REFERENCE ALL IRON PINS OR MONUMENTS. IF ANY PINS OR MONUMENTS ARE DESTROYED OR DAMAGED BY THE CONTRACTOR, THEY SHALL BE ACCURATELY REPLACED BY A REGISTERED SURVEYOR IN THE STATE OF OHIO AT THE COMPLETION OF THE PROJECT.

THE COST OF RELOCATING AND/OR SECURING ANY POWER POLES AS NECESSARY TO COMPLETE THE WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS ITEMS OF THE CONTRACT.

VERTICAL CONTROL HAS BEEN ESTABLISHED FOR THE PROJECT AS SHOWN ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED SURVEYS TO COMPLETE THE PROJECT INCLUDING REESTABLISHMENT OF CONTROL POINTS, PROJECT LAYOUT AND STAKING OF EASEMENTS.

DURING CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE ADEQUATE DRAINAGE AND PROPER SOIL EROSION CONTROL MEASURES FOR PROTECTION OF ALL ADJACENT ROADS AND LANDS.

ANY MODIFICATION TO THE WORK AS SHOWN ON THESE DRAWINGS MUST HAVE PRIOR WRITTEN APPROVAL BY THE CITY OF GAHANNA.

ANY REQUIRED RELOCATION, SUPPORT, PROTECTION, RESTORATION, OR ANY OTHER ACTIVITY CONCERNED WITH THE CITY'S ELECTRICAL OR STREET LIGHTING SYSTEMS IN THE CONSTRUCTION AREA IS TO BE PERFORMED SOLELY BY THE CITY AT THE EXPENSE OF THE PROJECT. THE CITY SHALL BE NOTIFIED PRIOR TO CONSTRUCTION TO ALLOW FOR ENGINEERING AND RELOCATION OF FACILITIES.

IF ANY ELECTRIC FACILITY BELONGING TO THE CITY IS DAMAGED IN ANY MANNER BY THE CONTRACTOR, ITS AGENTS, SERVANTS, OR EMPLOYEES, THE CITY SHALL MAKE ALL NECESSARY REPAIRS, AND THE EXPENSE OF SUCH REPAIRS AND OTHER RELATED COSTS SHALL BE PAID BY THE CONTRACTOR TO THE CITY.

ALL CURB RAMPS AND SIDEWALKS SHALL BE CONSTRUCTED IN FULL COMPLIANCE WITH REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (ADA) OF 1990, INCLUDING ALL SUPPLEMENTS IN ACCORDANCE WITH THE CITY OF COLUMBUS STANDARD DRAWING 2319, INCLUDING ALL SUPPLEMENTS AND/OR REPLACEMENTS, CURRENT ON THE DATE OF THE START OF PROJECT CONSTRUCTION. SIDEWALKS SHALL BE CONSTRUCTED WITH A 3/16" PER FOOT (1.56%) CROSS SLOPE.

NO NON-RUBBER TIRED VEHICLES SHALL BE MOVED ON CITY STREETS, EXISTING PRIVATE ROADWAYS, OR PARKING LOTS UNLESS WRITTEN APPROVAL IS GRANTED BY THE APPROPRIATE CITY AUTHORITY OR PROPERTY OWNER. ANY DAMAGE MUST BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE CITY OF GAHANNA AT NO COST TO THE CITY OR PROPERTY OWNER/DEVELOPER.

THE CONTRACTOR SHALL MAKE HIS OWN PROVISIONS TO PROVIDE A SITE STAGING AREA AND JOB TRAILER (IF REQUIRED) FOR THE PROJECT IMPROVEMENTS.

NO NATURAL DRAINAGE COURSES SHALL BE ALTERED AND NO FILL, BUILDINGS OR STRUCTURES SHALL BE PLACED IN IT UNLESS PROVISIONS ARE MADE FOR THE FLOW OF WATER IN A MANNER SATISFACTORY TO THE CITY ENGINEER. AN EASEMENT SHALL BE PROVIDED ON BOTH SIDES OF ANY EXISTING IMPORTANT SURFACE DRAINAGE COURSE ADEQUATE FOR THE PURPOSE OF PROTECTING, WIDENING, DEEPENING, ENCLOSING OR OTHERWISE IMPROVING SUCH STREAM FOR DRAINAGE PURPOSES.

ORANGE CONSTRUCTION FENCING SHALL BE PLACED AROUND THE EXISTING TREES TO BE SAVED AND REMAIN IN PLACE DURING THE DEVELOPMENT CONSTRUCTION. THE LOCATION OF THE FENCING AND ANY CLEARING NECESSARY WILL BE DETERMINED BY THE APPROVED PLANS.

THE CONTRACTOR SHALL DISPOSE OF ALL SURPLUS EXCAVATION ON THE PROJECT SITE WHERE AND AS DIRECTED BY THE OWNER/DEVELOPER.

INCONVENIENCE TO THE ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC SHALL BE KEPT TO AN ABSOLUTE MINIMUM. ALL WORK IS TO CONTINUE ON A UNIFORM BASIS AND ON SCHEDULE, PARTICULARLY THE RESTORATION AND CLEAN UP OF DISTURBED AREAS AFTER CONSTRUCTION. THE CONTRACTOR SHALL TAKE MEASURES TO PREVENT SOIL TRANSPORT DURING CONSTRUCTION ONTO PUBLIC ROADS. THE CONTRACTOR SHALL CLEAN AND SWEEP STREETS AS DIRECTED BY THE CITY. COST TO BE INCLUDED IN THE PRICE BID UNDER VARIOUS ITEMS.

AN ENGINEERING REVIEW FEE WILL BE COLLECTED PRIOR TO CONSTRUCTION. THIS FEE MAY INCLUDE AN AS-BUILT SURVEY FEE AND AS-BUILT DEPOSIT. THE AS-BUILT SURVEY FEE IS THE ACTUAL COST OF

SURVEY FOR THE CREATION OF AN AS-BUILT PLAN. THE CITY MAY SELECT THE SURVEYOR AND REQUEST A PROPOSAL FOR THIS SURVEY.

AT PROJECT COMPLETION, THE CITY'S SELECTED SURVEYOR WILL PROVIDE THE CITY AND THE DEVELOPER WITH THE FINAL AS-BUILT SURVEY DATA. THE DEVELOPER MAY SELECT AN ENGINEERING FIRM TO PRODUCE THE FINAL AS-BUILT PLANS. IF THE DEVELOPER DOES NOT ELECT TO PRODUCE THE FINAL AS-BUILT PLAN, THE CITY MAY USE THE AS-BUILT DEPOSIT TO CONTRACT WITH AN ENGINEERING FIRM TO PRODUCE THE FINAL AS-BUILT PLAN.

AT PROJECT COMPLETION, THE DEVELOPER WILL REQUEST A FINAL ENGINEERING INSPECTION. THE CITY OF GAHANNA WILL PRODUCE A PUNCHLIST OF ALL ITEMS THAT WILL NEED TO BE CORRECTED. THESE ITEMS WILL NEED TO BE SATISFACTORILY ADDRESSED BEFORE THE BUILDING DIVISION WILL RELEASE THE FINAL OCCUPANCY PERMIT.

AN AS-BUILT PLAN WILL BE REQUIRED BEFORE ISSUANCE OF A FINAL OCCUPANCY PERMIT. THE AS-BUILT PLAN WILL INCLUDE THE FINAL ELEVATIONS, LOCATIONS, INVERTS AND OTHER DATA AS REQUIRED BY THE CITY OF GAHANNA. THIS INFORMATION WILL BE INCLUDED ON THE PLAN SET IN RED TO DENOTE IT IS FINAL AS-BUILT DATA.

THE DESIGN ENGINEER/ENGINEER OF RECORD IS ULTIMATELY RESPONSIBLE TO ENSURE ALL CITY OF GAHANNA DEPARTMENTAL DESIGN AND CONSTRUCTION REQUIREMENTS ARE SATISFIED. FURTHERMORE, A SITE CIVIL ENGINEERING PLAN APPROVAL DOES NOT CONSTITUTE ACCEPTANCE OR APPROVAL OF NON-SITE CIVIL ENGINEERING REQUIREMENTS.

UTILITIES:

THE CONTRACTOR SHALL GIVE NOTICE TO THE OHIO UTILITIES PROTECTION SERVICE (PHONE 1-800-362-2764) AND TO THE OWNERS OF THE UTILITY FACILITIES SHOWN ON THE PLAN WHO ARE NOT MEMBERS OF A REGISTERED UTILITY PROTECTION SERVICE. THE ABOVE-MENTIONED NOTICE SHALL BE GIVEN AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE RELOCATION OF ANY UTILITY AS REQUIRED BY THE PLAN WITH THE OWNER OF THE AFFECTED UTILITY.

THE CONTRACTOR IS RESPONSIBLE FOR THE INVESTIGATION, LOCATION, SUPPORT, PROTECTION, AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES WHETHER SHOWN ON THESE PLANS OR NOT. THE COST OF THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS RELATED ITEMS. THE CONTRACTOR SHALL EXPOSE ALL UTILITIES OR STRUCTURES PRIOR TO CONSTRUCTION TO VERIFY THE VERTICAL AND HORIZONTAL EFFECTS ON THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL GIVE NOTICE TO OUPS AND OTHER UTILITY OWNERS PER THE GENERAL NOTES.

THE IDENTITY AND LOCATIONS OF EXISTING UNDERGROUND UTILITIES IN THE CONSTRUCTION AREA HAVE BEEN SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS AS ACCURATELY AS PROVIDED BY THE SURVEYOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OR DEPTHS OF UNDERGROUND FACILITIES SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS. IF DAMAGE IS CAUSED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OF THE SAME AND FOR ANY RESULTING CONTINGENT DAMAGE.

WHERE POTENTIAL GRADE CONFLICTS MIGHT OCCUR WITH EXISTING UTILITIES, THE CONTRACTOR SHALL UNCOVER THE EXISTING UTILITY IN ADVANCE OF LAYING PIPE IN ORDER THAT THE ENGINEER MAY DETERMINE THE EXACT ELEVATION AND MAKE ANY NECESSARY ADJUSTMENTS.

THE FOLLOWING UTILITIES AND OWNERS ARE LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT AND ARE REGISTERED MEMBERS OF THE UNDERGROUND UTILITY PROTECTION SERVICE:

Utility	Owner	Telephone	Fax
Water Facilities	City of Gahanna Water Division 200 S. Hamilton Rd Gahanna, OH 43230	(614) 342-4440	(614) 342-4100
Sewer Facilities	City of Gahanna Sewer Division 200 S. Hamilton Rd Gahanna, OH 43230	(614) 342-4440	(614) 342-4100
Electric Facilities	American Electric Power 850 Tech Center Dr Gahanna, OH 43230	(614) 883-6811	(614) 883-6868
Gas	Columbia Gas of Ohio (Distribution) ATTN: Rob Caldwell 3550 Johnny Appleseed Court Columbus, OH 43231	P: (614) 818-2104 C: (614) 370-1906 E-mail: rcaldwell@nisource.com	(614) 460-4265
Telephone	AT&T 150 E. Gay St Columbus, OH 43212	(800) 660-1000	(614) 223-6296

CONTRACTOR TO COORDINATE WITH GAS, ELECTRIC, CABLE AND TELECOMMUNICATION COMPANIES TO COORDINATE FINAL CONSTRUCTION DETAILS FOR ON-SITE GAS, ELECTRIC, CABLE AND TELEPHONE SERVICES.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE ARCHITECT AND THE MECHANICAL ENGINEER FOR THE FINAL LOCATION OF UTILITY SERVICES INTO THE BUILDING.

PLACEMENT OF UTILITY CONDUIT OR SLEEVES FOR GAS, SITE ELECTRIC AND TELECOMMUNICATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE PLAN DETAILS SHOWN HEREIN AND IN CONFORMANCE TO THE REQUIREMENTS OF THE RESPECTIVE UTILITY COMPANIES.

WATER NOTES:

NO WATER SERVICE CONSTRUCTION SHALL BEGIN PRIOR TO FEE PAYMENT AND PERMITS BEING ISSUED BY THE CITY OF GAHANNA.

METER SETTING AND BACKFLOW PREVENTER AS PER THE DIRECTION OF THE CITY OF GAHANNA.

THERE SHALL BE NO CONNECTIONS (INCLUDING PRIVATE HYDRANTS, FIRE DEPARTMENT CONNECTIONS, POST INDICATOR VALVES, ETC) BEFORE THE WATER METER.

ALL WATER LINE MATERIALS AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE CURRENT RULES AND REGULATIONS OF THE CITY OF COLUMBUS, DIVISION OF WATER AND THE DIRECTION OF THE CITY OF GAHANNA STAFF.

WATER MAINS AND FIRE HYDRANT LEADS SHALL BE DUCTILE IRON PIPE, CLASS 52 OR GREATER (AWWA C151) WITH CEMENT MORTAR LINING AND SEAL COAT (AWWA C104) OR PVC, CLASS 150 MEETING AWWA C900. JOINTS SHALL BE RUBBER GASKET PUSH-ON MECHANICAL (AWWA C111 FOR DUCTILE IRON PIPE; ASTM F477 FOR C900 PIPE).

FIRE HYDRANTS SHALL BE SUPPLIED AND INSTALLED IN ACCORDANCE AS SHOWN ON THE CITY OF COLUMBUS L-6409 AND L-6637 STANDARD CONSTRUCTION DRAWINGS. FIRE HYDRANTS SHALL BE MUELLER SUPER CENTURION 250 FIRE HYDRANT, AMERICAN DARLING 4-1/2 MK73 - 5, OR APPROVED EQUAL. PRIVATE HYDRANTS SHALL BE PAINTED SOLID RED, FEATURE ONLY ONE (1) 4-INCH STEAMER NOZZLE AND SHALL OPEN TO THE LEFT (COUNTER-CLOCKWISE). PUBLIC HYDRANTS SHALL BE PAINTED RED FOR THE BONNET / CAPS AND SILVER FOR THE BARREL, FEATURE ONE (1) FOUR-INCH STEAMER NOZZLE PLUS TWO (2) 2.5-INCH HOSE NOZZLES AND SHALL OPEN TO THE LEFT (COUNTER-CLOCKWISE). STORZ CONNECTIONS ARE PROHIBITED FOR NEW PUBLIC AND PRIVATE HYDRANTS IN GAHANNA. THE HYDRANT TEE (FOR EITHER PUBLIC OR PRIVATE HYDRANT) IS TO BE A MECHANICAL JOINT SWIVEL TEE.

ALL WATER SERVICES SHALL BE INSTALLED IN ACCORDANCE AS SHOWN ON THE CITY OF COLUMBUS L-9901 STANDARD CONSTRUCTION DRAWING. 2 BOLT FULL STAINLESS STEEL SERVICE SADDLES SHALL BE PROVIDED FOR ALL WATER SERVICE TAPS.

ALL GATE VALVES SHALL BE RESILIENT TYPE MANUFACTURED TO MEET OR EXCEED TO REQUIREMENTS OF AWWA C509 OR AWWA C515.

WATERLINES SHALL BE LAID WITH A MINIMUM OF 4'-0" OF COVER FROM THE FINISHED GRADE TO THE TOP OF THE WATER LINE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE HORIZONTAL AND VERTICAL DEFLECTIONS OR BENDS OF THE WATER LINES IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. DEFLECT WATER LINES TO PROVIDE A 1'-6" VERTICAL AND 10'-0" HORIZONTAL CLEARANCE WITH SEWERS UNLESS AS DIRECTED OTHERWISE BY THE ENGINEER.

ALL WATER MAINS SHALL BE TESTED UNDER A MINIMUM HYDROSTATIC TEST OF 150 PSI AND IN ACCORDANCE WITH AWWA C600 AND CITY OF COLUMBUS CMS ITEMS 801.13 AND 801.14. FIRE SERVICE LINES SHALL BE TESTED AT 200 PSI. NO PRESSURE TEST SHALL BE PERFORMED IF THE TEMPERATURE IS BELOW FREEZING.

THE CONTRACTOR SHALL SUBMIT TWO (2) COPIES OF THE PLANS, RESULTS OF THE PRESSURE TEST. COST OF CHLORINATION SHALL BE INCLUDED IN THE PRICE BID FOR THE WATER LINE ITEMS.

NEW, CLEANED AND REPAIRED WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA STANDARD C651. THE SPECIFICATIONS SHALL INCLUDE DETAILED PROCEDURES FOR THE ADEQUATE FLUSHING, DISINFECTION, AND MICROBIOLOGICAL TESTING OF ALL WATER MAINS. IN AN EMERGENCY OR UNUSUAL SITUATION, THE DISINFECTION PROCEDURE SHALL BE DISCUSSED WITH THE CITY ENGINEER OR HIS DESIGNEE.

CONTRACTORS ARE RESPONSIBLE FOR CHLORINATION OF PUBLIC WATER MAINS. CONTRACTORS ARE ALSO RESPONSIBLE FOR MICROBIOLOGICAL (TOTAL COLIFORM) TESTING OF PUBLIC WATER MAINS. SAMPLES CANNOT BE SUBMITTED TO THE TESTING AGENCY UNDER THE CITY'S PUBLIC WATER SYSTEM (PWS) NUMBER. IT MUST BE A PRIVATE SUBMISSION. CONTRACTORS MUST SUBMIT 2 PASSING TOTAL COLIFORM TESTS VIA EMAIL TO WATERDEPARTMENT@GAHANNA.GOV. TURN ON OF WATER SERVICE IS PROHIBITED UNTIL THE PASSING TEST REPORTS ARE RECEIVED.

ALL MECHANICAL JOINTS ARE REQUIRED TO BE MEGALUGGED, CONCRETE BACKING IS STILL REQUIRED. ALL MECHANICAL PIPE DEFLECTIONS ARE REQUIRED TO BE MEGALUGGED, CONCRETE BACKED, AND JOINT RESTRAINTS MAY BE REQUIRED BY THE ENGINEER. COVERING THE NUTS AND BOLTS OF JOINT HARDWARE WITH CONCRETE BACKING SHALL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES. THIS REQUIREMENT TAKES PRECEDENCE OVER CITY OF COLUMBUS STANDARD DETAILS. 1 FULL STICK OF PIPE (20') IS TO BE LAID BEFORE THE PLUG.

ALL VALVES, TEES, HYDRANTS, FITTINGS AND SERVICE CONNECTIONS ON CITY-OWNED WATER LINES ARE TO BE LOCATED PRIOR TO BACKFILL USING NORTHING, EASTING AND ELEVATION COORDINATES. ALL NORTHING AND EASTING COORDINATES SHALL BE ACCURATE TO WITHIN 1.0 FOOT; ALL ELEVATIONS SHALL BE ACCURATE TO WITHIN A TENTH OF A FOOT (0.1). ALL OF THIS FIELD SURVEY WORK IS THE RESPONSIBILITY OF THE DEVELOPER AND SHALL BE USED TO PRODUCE AS-BUILT DRAWINGS.

THE WATER LINE AND SEWER LINE TRENCH UNDER THE INFLUENCE OF PAVEMENT ARE TO BE COMPACTION TESTED.

INSTALL COPPERHEAD® OR EQUAL 12-GAUGE HIGH STRENGTH 452LB BREAK STRENGTH 30 MIL HDPE JACKET, COPPER-CLAD, STEEL REINFORCED TRACER WIRE ON ALL WATER MAIN AND SERVICE LINES INSTALLED BY TRENCHING METHODS.

INSTALL COPPERHEAD® OR EQUAL 12-GAUGE EXTRA HIGH STRENGTH 1150LB BREAK STRENGTH 45 MIL HDPE JACKET, COPPER-CLAD, STEEL REINFORCED TRACER WIRE ON ALL WATER MAIN AND SERVICE LINES INSTALLED BY BORING METHODS.

FASTEN WIRE TO PIPE IN TWO PLACES PER PIPE SECTION. EXTEND TRACER WIRE TO GROUND SURFACE AT ALL VALVES AND HYDRANTS. SPLICE WIRES USING BURNDY COPPER SPLIT BOLT KS-15. THOROUGHLY WRAP THE CONNECTOR AND BARE WIRES WITH 3M TEMFLEX 2155 RUBBER SPLICING TAPE, COVER ENTIRE CONNECTION WITH SCOTCH SUPER 88 HEAVY DUTY GRADE ELECTRICAL TAPE.

CONNECT ALL SERVICE LINE WIRES TO MAIN LINE WIRES USING BURNDY COPPER SPLIT BOLT KS-15. THOROUGHLY WRAP THE CONNECTOR AND BARE WIRES WITH 3M TEMFLEX 2155 RUBBER SPLICING TAPE, COVER ENTIRE CONNECTION WITH SCOTCH SUPER 88 HEAVY DUTY GRADE ELECTRICAL TAPE.

BACKFLOW PREVENTER NOTES (EXTERNAL TO THE BUILDING FACILITIES WITHIN A HOT BOX):

BACKFLOW PREVENTERS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH CITY OF GAHANNA REQUIREMENTS. THESE SHALL INCLUDE CHAPTER 933 OF GAHANNA CITY CODE, CITY OF GAHANNA DESIGN DETAILS AND CITY OF GAHANNA STANDARD PROJECT NOTES.

A BACKFLOW PREVENTER SHALL BE PROVIDED FOR ALL DOMESTIC AND FIRE SERVICE LINES SERVING NON-RESIDENTIAL PROPERTIES AS WELL AS MULTI-FAMILY PROPERTIES (CONDOMINIUMS, APARTMENT COMPLEXES, TOWNHOMES, ETC). BACKFLOW PREVENTER DESIGN DETAILS AND DRAWINGS FOR INSTANCES WITHIN A HOT BOX MUST BE INCLUDED WITH ENGINEERING SITE PLANS. FOR INSTANCES WITHIN THE BUILDING REFER TO MEPT PLANS AND ASSOCIATED INSPECTIONS.

A BACKFLOW PREVENTER MUST BE INSTALLED ON THE INCOMING DOMESTIC LINE DOWNSTREAM OF THE WATER METER. A BACKFLOW PREVENTER MUST ALSO BE INSTALLED ON THE INCOMING FIRE LINE DOWNSTREAM OF THE FIRE METER. NO BRANCHES IN THE PLUMBING SYSTEM ARE ALLOWED BETWEEN THE METER AND THE BACKFLOW PREVENTER. FURTHERMORE, THE BACKFLOW PREVENTER INSTALLED MUST BE AN AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARD 1013 REDUCED PRESSURE ASSEMBLY (RP).

EACH BACKFLOW MUST BE INSTALLED IN A WAY THAT IT IS READILY ACCESSIBLE FOR INSPECTION, TESTING AND MAINTENANCE. EACH BACKFLOW MUST BE ACCESSIBLE WITHOUT THE USE OF PLATFORMS, LADDERS OR LIFTS. THERE MUST ALSO BE ADEQUATE SPACE AROUND EACH BACKFLOW FOR INSPECTION, TESTING, MAINTENANCE AND DISASSEMBLY.

EACH BACKFLOW MUST BE INSTALLED IN-LINE IN A HORIZONTAL POSITION AND MUST BE NO SMALLER THAN THE METER. EACH BACKFLOW MUST BE INSTALLED 12" TO 36" OFF THE FLOOR. THE TEST COCKS SHOULD BE FACING INTO THE ROOM IF THEY ARE SIDE-MOUNTED ON THE BACKFLOW. EACH BACKFLOW MUST BE SIZED HYDRAULICALLY TAKING INTO ACCOUNT BOTH THE VOLUME REQUIREMENTS OF THE SERVICE AND HEAD LOSS OF THE BACKFLOW ASSEMBLY. RP BACKFLOWS MUST BE INSTALLED SO THAT THERE IS NO LEAKAGE FROM THE RELIEF VALVE PORT. RP BACKFLOWS INSTALLED WITHIN A BUILDING MUST HAVE A DRAIN TO RECEIVE SPILLAGE FROM THE RELIEF VALVE PORT. IF THE RELIEF VALVE PORT IS PIPED TO A DRAIN, IT MUST INCLUDE AN APPROVED AIR GAP SEPARATION AT THE DISCHARGE OPENING OF THE RELIEF VALVE PORT. A DIRECT CONNECTION TO THE RELIEF VALVE ON A RP IS PROHIBITED. AN UNPROTECTED BYPASS AROUND ANY BACKFLOW IS PROHIBITED.

EACH BACKFLOW MUST BE PROTECTED FROM FREEZING. BACKFLOWS CANNOT BE INSTALLED IN AN AREA WHERE CORROSIVE FUMES OR GASES COULD RENDER THE ASSEMBLY INOPERABLE OR IN AN AREA WHERE NOXIOUS FUMES OR GASES COULD POSE A THREAT TO THE TESTER.

RP BACKFLOWS CANNOT BE INSTALLED IN A PIT OR VAULT DUE TO THE POSSIBILITY OF THE PIT OR VAULT FLOODING.

AN UNPROTECTED BYPASS IS NOT ALLOWED. IF CONTINUOUS WATER SERVICE IS NECESSARY (HOSPITAL, MANUFACTURING PROCESS, ETC), THEN A PARALLEL OR MANIFOLD INSTALLATION OF ASSEMBLIES MUST BE CONSIDERED. THIS WILL ALLOW FOR SHUTDOWN OF ONE ASSEMBLY FOR TESTING OR REPAIRS WHILE THE REMAINING BACKFLOW STAYS IN SERVICE.

CURRENT PLUMBING CODE REQUIRES THE INSTALLATION OF A THERMAL EXPANSION TANK AT THE HOT WATER HEATER IF A CONTAINMENT PRINCIPLE BACKFLOW PREVENTER IS INSTALLED.

A STRAINER MAY BE REQUIRED AHEAD OF THE BACKFLOW ASSEMBLY DUE TO LOCAL CONDITIONS. A STRAINER IS NOT CONSIDERED TO BE PART OF AN APPROVED BACKFLOW ASSEMBLY. THE ADDITIONAL HEAD LOSS OF THE STRAINER MUST BE TAKEN INTO ACCOUNT. A STRAINER CANNOT BE USED ON A FIRE LINE WITHOUT THE APPROVAL OF THE INSURANCE UNDERWRITERS OR THE AUTHORITY HAVING JURISDICTION.

SANITARY SEWER NOTES:

ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.

SERVICE RISERS, ITEM 914, SHALL BE INSTALLED WHERE DEPTHS FROM THE WYES TO THE EXISTING OR PROPOSED ELEVATIONS EXCEED 10'. THE TOPS OF RISERS SHALL BE NO MORE THAN $\pm 9'$ BELOW THE EXISTING OR PROPOSED SURFACE ELEVATION, WHICHEVER IS HIGHER.

A MINIMUM VERTICAL CLEARANCE OF 1.5 FEET SHALL BE PROVIDED BETWEEN THE PROPOSED SANITARY SERVICE AND EXISTING UTILITIES OR STRUCTURES UNLESS AS DIRECTED OTHERWISE BY THE ENGINEER.

ALL PVC SEWER LINES SHALL BE DEFLECTION TESTED AFTER INSTALLATION IN CONFORMANCE WITH THE REQUIREMENTS OF ITEM 901 OF THE CITY OF COLUMBUS, CONSTRUCTION AND MATERIAL SPECIFICATIONS, CURRENT VERSION.

ALL SANITARY SEWER AND SANITARY SERVICES ARE TO BE MANDREL TESTED, AIR TESTED, CLEANED AND CAMERA INSPECTED.

ALL SANITARY MANHOLES ARE REQUIRED TO PASS A VACUUM TEST PER CITY OF COLUMBUS ITEM 901.20 AND ASTM-C-1244.

PIPE FOR ALL 6" SANITARY SERVICES SHALL BE PVC SEWER PIPE ASTM D-3034, SDR-35. THE SERVICES SHALL BE FIELD TESTED BY THE INFILTRATION, EXFILTRATION OR AIR TEST.

ALL PIPES SHALL BE LAID WITH TYPE 1 GRANULAR MATERIAL BEDDING AND BACKFILL AS SHOWN ON STANDARD CONSTRUCTION CITY OF COLUMBUS AA-S151. INSTALLATION SHALL CONFORM TO CMS SECTION 900.

STORM SEWER NOTES:

ANY PLACEMENT OF STORM SEWERS BENEATH EXISTING OR PROPOSED PAVEMENT SHALL BE BACKFILLED IN ACCORDANCE WITH COLUMBUS CMS ITEM 912, COMPACTED GRANULAR BACKFILL.

ALL PIPES SHALL BE LAID WITH TYPE 1 GRANULAR MATERIAL BEDDING AND BACKFILL AS SHOWN ON STANDARD CONSTRUCTION CITY OF COLUMBUS AA-S151. INSTALLATION SHALL CONFORM TO CMS SECTION 900.

ALL CONCRETE PIPE AND STORM SEWER STRUCTURES SHALL BE STAMPED OR HAVE SUCH IDENTIFICATION NOTING THAT SAID PIPE AND/OR STORM STRUCTURES HAVE BEEN INSPECTED BY THE CITY OF COLUMBUS AND MEETS THEIR SPECIFICATIONS. PIPE AND STRUCTURES WITHOUT PROPER IDENTIFICATION WILL NOT BE PERMITTED FOR INSTALLATION.

ALL CURB INLETS AND MANHOLES SHALL BE CHanneled AS DIRECTED. THE COST FOR THIS WORK IS TO BE INCLUDED IN THE PRICE BID FOR VARIOUS STORM SEWER ITEMS.

IN CASE OF CONFLICT IN GRADE BETWEEN WATER LINES AND STORM SEWERS, THE WATER LINES SHALL BE LOWERED DURING CONSTRUCTION UNLESS AS DIRECTED OTHERWISE BY THE ENGINEER.

ALL STORM SEWER IS TO BE MANDREL TESTED, CLEANED AND CAMERA INSPECTED.

MAINTENANCE OF TRAFFIC:

ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED AND REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD) FOR CONSTRUCTION AND MAINTENANCE OPERATIONS. ALL DEVICES SHALL MEET FP-85 REFLECTANCE STANDARDS AND IN FULL COMPLIANCE WITH "QUALITY STANDARDS FOR WORK ZONE

TRAFFIC CONTROL DEVICES" PUBLISHED BY ATTSSA. ALL TRAFFIC CONTROL DEVICES MUST MEET NCHRP 350.

STEADY BURNING, TYPE "C" LIGHTS SHALL BE REQUIRED ON ALL BARRICADES, DRUMS AND SIMILAR TRAFFIC CONTROL DEVICES IN USE AT NIGHT. ALL SIGNS, NINE SQUARE FEET (36" X 36") AND OVER SHALL HAVE YELLOW TYPE "A" LOW INTENSITY FLASHING WARNING LIGHTS AND THREE FLAGS. CONES ARE NOT APPROVED FOR USE AT NIGHT.

THE ROADWAY SHALL NOT BE OPENED TO TRAFFIC UNTIL PERMANENT TRAFFIC CONTROLS ARE IN PLACE OR UNTIL TEMPORARY TRAFFIC CONTROLS APPROVED BY THE INSPECTOR ARE INSTALLED. THE CONTRACTOR ASSUMES ALL LIABILITY FOR THE PREMATURE REMOVAL OF TEMPORARY TRAFFIC CONTROLS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REINSTALLATION AND/OR REPLACEMENT OF ALL PERMANENT TRAFFIC CONTROL DEVICES DAMAGED OR REMOVED DURING THE CONSTRUCTION. PERMANENT TRAFFIC CONTROLS NO LONGER IN CONFLICT WITH TEMPORARY TRAFFIC CONTROLS SHALL BE REPLACED IMMEDIATELY. ALL PERMANENT TRAFFIC CONTROLS NOT IN CONFLICT WITH THE TEMPORARY TRAFFIC CONTROLS SHALL BE MAINTAINED THROUGHOUT THE PROJECT BY THE CONTRACTOR. THE CONTRACTOR SHALL ASSUME ALL LIABILITY FOR MISSING, DAMAGED, AND IMPROPERLY PLACED TRAFFIC CONTROL DEVICES.

ALL TRENCHES WITHIN THE ROAD RIGHT-OF-WAY SHALL BE BACKFILLED OR SECURELY PLATED DURING NON-WORKING HOURS.

ALL LANES SHALL BE FULLY OPEN TO TRAFFIC ON ALL PUBLIC STREETS AND ALLEYS UNLESS OTHERWISE APPROVED BY THE CITY OF GAHANNA.

ANY WORK DONE BY THE CITY INCLUDING INSTALLATION, RELOCATION, REMOVAL AND/OR REPLACEMENT OF PERMANENT TRAFFIC CONTROL DEVICES AS A RESULT OF WORK DONE BY THE CONTRACTOR OR AS A RESULT OF THE NEGLIGENCE OF THE CONTRACTOR SHALL BE AT THE EXPENSE OF THE CONTRACTOR.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND SAFE MOVEMENT OF PEDESTRIANS THROUGH, AROUND AND AWAY FROM THE CONSTRUCTION SITE AS DESIGNATED IN SECTION 60.01 OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD).

THE SAFETY OF PEDESTRIAN TRAFFIC SHALL BE CONSIDERED AT ALL TIMES IN THE PROVISION OF TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS AND NOTES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE LIGHTS, SIGNS, BARRICADES AND OTHER WARNINGS TO PHYSICALLY SEPARATE THE PEDESTRIAN FROM HAZARDS INCIDENTAL TO THE CONSTRUCTION OPERATIONS SUCH AS OPEN EXCAVATIONS, ETC.

STREET LIGHT NOTES:

LED REQUIREMENTS

A. CORRELATED COLOR TEMPERATURE (CCT) 3000K. ACCEPTABLE LM80 TEST RESULTS SHALL BE PROVIDED.

B. COLOR RENDERING INDEX (CRI) MINIMUM 70

C. OPERATING ENVIRONMENT, AMBIENT -40°C TO +40°C (-40°F TO +104°F)

D. VOLTAGE 480V OR 120V (THE CITY OF GAHANNA USES A 480V OR 120V DISTRIBUTION SYSTEM)

E. COOLING SYSTEM PASSIVE HEAT SINK WITH NO FANS, PUMPS, OR LIQUIDS, AND SHALL BE RESISTANT TO DEBRIS BUILD UP THAT DOES NOT DEGRADE HEAT DISSIPATION PERFORMANCE.

APPLICATION

DESIGNER NOTE:

THE LED COBRA HEAD LUMINAIRE MAY BE USED FOR:

- 1) NEW INSTALLATION OF COBRA HEAD LUMINAIRES ON NEWLY PLACED SUPPORTS WHOSE SPACING HAS BEEN DESIGNED SPECIFICALLY FOR THE LUMINAIRE. STREET LIGHT DESIGNS USING PHOTOMETRIC SOFTWARE ARE REQUIRED FOR EACH LUMINAIRE. THE DESIGNER SHALL COMPLY WITH IESNA RP-08 (LATEST VERSION).
- 2) REPLACING EXISTING HID LUMINAIRES ON EXISTING POLES WHERE SPACING REMAINS UNCHANGED.

HOUSING

THE HOUSING SHALL BE CONSTRUCTED OF DIE-CAST ALUMINUM AND BE RUST RESISTANT. PAINT FINISH SHALL BE POWDER-COATED GRAY OR AS DIRECTED BY THE CITY OF GAHANNA. THE PAINT FINISH SHALL EXCEED A RATING OF SIX PER ASTM D 1654 AFTER 1000 HOURS OF TESTING PER B117. PAINTED OR FINISHED LUMINAIRE COMPONENTS EXPOSED TO THE ENVIRONMENT SHALL EXHIBIT NO GREATER THAN 30% REDUCTION OF GLOSS PER ASTM D523, AFTER 500 HOURS OF UV TESTING AT ASTM G154 CYCLE 6. LUMINAIRE HOUSING SHALL ALLOW TOOL-LESS ENTRY. ALL SCREWS SHALL BE STAINLESS STEEL. NO PARTS SHALL BE CONSTRUCTED OF POLYCARBONATES. LUMINAIRE HOUSING SHALL BE PROVIDED WITH AN INTERNAL LEVEL BUBBLE TO AID IN INSTALLATION. LUMINAIRE DOOR SHALL BE SECURELY HINGED AND INCAPABLE OF INVOLUNTARY SEPARATION FROM HOUSING. LUMINAIRE SHALL BE ATTACHED BY MEANS OF A SLIP-FITTER CONNECTION TO A 2.0" IPS BRACKET. THE SLIP-FITTER SHALL INCLUDE MEANS FOR SECURELY ATTACHING THE LUMINAIRE AND SHALL ALSO PROVIDE FOR TILT ADJUSTMENTS 5° ABOVE AND BELOW HORIZONTAL. THE SLIP-FITTER SHOULD BE TOTALLY ENCLOSED IN LUMINAIRE HOUSING. THE HOUSING SHALL BE EQUIPPED WITH A LATCHING ACCESS DOOR ASSEMBLY. THE LUMINAIRE SHALL HAVE LESS THAN THE CONCENTRATION VALUES OF THE FOLLOWING RoHS RESTRICTED SUBSTANCES: MERCURY, CADMIUM, CHROMIUM VI, POLYBROMINATED BIPHENYL, POLYBROMINATED BIPHENYL ETHER, AND LEAD.

LED POWER SUPPLY / DRIVER

A) POWER FACTOR, MINIMUM 0.90

B) DRIVER OUTPUT CURRENT, mA VARIABLE

C) DIMMING SIGNAL, CONTROL RANGE, VDC 0 TO 10

D) SURGE PROTECTION DEVICE SHALL COMPLY WITH ANSI C136.37, ANSI/IEEE C62.41.2. EACH SURGE PROTECTION DEVICE SHALL BE INTERNALLY MOUNTED INSIDE HOUSING AND SPECIFIED FOR 480V OR 120V OPERATION WITH A MINIMUM 10 KV/10KA SURGE PROTECTION. THE SURGE PROTECTION DEVICE SHALL BE A UL 1449 3RD EDITION TYPE 4 RECOGNIZED COMPONENT FOR USE IN TYPE 2 LOCATIONS.

E) LED DRIVER SHALL BE MOUNTED INSIDE THE HOUSING, REPLACEABLE, AND SHALL BE PRE-WIRED TO 480V OR 120V READY FOR INSTALLATION. DRIVER AND LED ARRAYS SHALL BE DESIGNED FOR MULTI-CURRENT INPUT OPERATIONS WITH 0-10V DRIVER ADJUSTABLE OUTPUT. THE LED DRIVER SHALL COMPLY WITH FCC RULES AND REGULATIONS, TITLE 47 CFR PART 15 NON-CONSUMER (CLASS A). LED DRIVER SHALL TOLERATE SUSTAINED OPEN CIRCUIT AND SHORT CIRCUIT OUTPUT CONDITIONS WITHOUT DAMAGE. LED DRIVER SHALL HAVE AN INDEPENDENTLY VERIFIED AND DOCUMENTED FAILURE RATE OF ≤0.01% PER 1000 HOURS. WIRING INSIDE THE HOUSING SHALL COMPLY WITH 600V/105°C RATING OR HIGHER. THE LED DRIVER SHALL HAVE A "CLASS A" SOUND RATING. POWER SUPPLY/DRIVER SHALL BE UL RECOGNIZED FOR DRY AND DAMP LOCATIONS. ALL OTHER ELECTRICAL COMPONENTS SHALL BE UL LISTED OR RECOGNIZED FOR WET LOCATIONS. OUTPUT OPERATING FREQUENCY MUST BE > 120HZ AND INPUT OPERATING FREQUENCY OF 60 HZ. THE LED DRIVER SHALL BE RoHS COMPLIANT.

LED MODULE / ARRAY REQUIREMENTS

LED MODULE(S)/ARRAY(S) SHALL DELIVER A MINIMUM OF 70% OF INITIAL LUMENS WHEN INSTALLED FOR 100,000 HOURS AND MEET L70 STANDARDS. LIGHTING DISTRIBUTION SHALL BE IN ACCORDANCE WITH "IESNA LIGHTING DISTRIBUTIONS."

7-PIN PHOTO-ELECTRIC RECEPTACLE

THE LUMINAIRE SHALL BE FURNISHED WITH A 7-PIN PHOTO-ELECTRIC RECEPTACLE INSTALLED IN THE TOP OF THE LUMINAIRE HOUSING. THE RECEPTACLE SHALL BE TWIST LOCK TYPE, AND HAVE THE CAPABILITY TO BE DIRECTIONALLY ADJUSTED. THE 7-PIN PHOTO-ELECTRIC RECEPTACLE SHALL BE SUITABLE FOR OPERATION WITH LED LUMAIRES, AND CONFORM TO ANSI DESIGN STANDARD C136.10. THE PHOTO-ELECTRIC SOCKET SHALL ACCOMMODATE DIMMING AND/OR AUTOMATION INTEGRATION.

7-PIN LONG LIFE PHOTO CONTROL (AS REQUIRED BY THE ENGINEER)

THE LUMINAIRE SHALL BE SUPPLIED WITH A "LONG LIFE" PHOTO CONTROL THAT SHALL BE SOLID STATE, AND SUITABLE FOR OPERATION WITH 7-PIN PHOTO CONTROL RECEPTACLES AND LED LUMAIRES. THE PHOTO CONTROL SHALL HAVE A MINIMUM DESIGN LIFE OF 20 YEARS.

SHORTING CAP FOR 7-PIN LED PHOTO-ELECTRIC RECEPTACLE (480 VOLT LUMINAIRE ONLY)

THE LUMINAIRE SHALL BE SUPPLIED WITH A SHORTING CAP SUITABLE FOR OPERATION WITH A 7-PIN LED PHOTO-ELECTRIC RECEPTACLE. THE SHORTING CAP SHALL CONTAIN A GASKET AROUND THE OUTER PERIMETER OF THE CAP FOR PROPER SEALING AGAINST DEBRIS. THE SHORTING CAP SHALL MEET OR EXCEED ANSI DESIGN STANDARD ANSI C136.10

TESTING/CERTIFICATION/STANDARDS/RECOMMENDED PRACTICE SHALL COMPLY WITH CITY OF COLUMBUS STANDARD DRAWING MIS-197.

WARRANTY

THE WARRANTY SHALL PROVIDE FOR THE FULL REPLACEMENT OF THE ENTIRE LUMINAIRE ASSEMBLY, WHICH INCLUDES THE POWER SUPPLIES/DRIVER, DEFECTIVE ELECTRICAL AND NON-ELECTRICAL PARTS,

AND LIGHT SOURCE FOR A PERIOD OF TEN (10) YEARS FROM DATE OF ACCEPTANCE. THE LUMINAIRE SHALL BE COVERED FOR PART REPLACEMENT OF DEFECTIVE LUMINAIRES DURING THE WARRANTY PERIOD. NEGLIGIBLE LIGHT OUTPUT FROM MORE THAN 10 PERCENT OF THE LED PACKAGES CONSTITUTES LUMINAIRE FAILURE. LONG-LIFE PHOTOCONTROL SHALL BE COVERED FOR FULL REPLACEMENT FOR A PERIOD OF TEN (10) YEARS FROM THE DATE OF ACCEPTANCE FOR ANY FAILURE AND/OR DEFECT IN WORKMANSHIP.

EXTERNAL LABELING - EXTERNAL LABELS SHALL BE PER ANSI C136.15-2011 (OR LATEST)

SPARE PARTS

THE CONTRACTOR SHALL PROVIDE 3% OF THE CONSTRUCTION QUANTITIES OF THE COMPLETE LUMINAIRE, ROUNDED UP TO THE NEAREST WHOLE NUMBER AND SHALL BE A MINIMUM OF 2 LUMINAIRES - EACH.

ALL SPARE PARTS SHALL BE WARRANTED BY THE PRODUCT MANUFACTURER FOR FORM, FIT, AND FUNCTION AND SHALL BE FULLY COMPATIBLE WITH THE PRODUCT SUPPLIED. IN ADDITION, ALL SPARE PARTS SHALL BE WARRANTED AGAINST FAILURE FOR A PERIOD NOT LESS THAN 10 YEARS.

SPARE PARTS SHALL BE PACKAGED TO PREVENT CORROSION OR DETERIORATION DURING LONG-TERM STORAGE AND DELIVERED UNDAMAGED TO 152 OKLAHOMA AVE, GAHANNA 43230. THE RECEIPT OF DELIVERY SHALL BE CONSIDERED PART OF THE SUBSTANTIAL COMPLETION REQUIREMENT.

ALL PACKAGING SHALL BE CLEARLY LABELED WITH THE PRODUCT MANUFACTURER'S NAME AND PART NUMBER. ELECTRONIC PARTS SHALL BE PACKED IN SEALED PLASTIC WRAPPERS OR HERMETICALLY-SEALED CONTAINERS. DESICCANT-CARTRIDGES SHALL BE INCLUDED IN THE PACKAGING.

FIRE PROTECTION NOTES:

GENERAL

PUBLIC AND PRIVATE FIRE SERVICE MAINS AND APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 24.

FIRE DETECTION AND ALARM SYSTEMS, FIRE-EXTINGUISHING SYSTEMS, FIRE HYDRANT SYSTEMS, FIRE STANDPIPE SYSTEMS, FIRE PUMP SYSTEMS, PRIVATE FIRE SERVICE MAINS AND ALL OTHER FIRE PROTECTION SYSTEMS AND APPURTENANCES THERETO SHALL BE SUBJECT TO ACCEPTANCE TESTS AS CONTAINED IN THE INSTALLATION STANDARDS AND AS APPROVED BY THE FIRE CODE OFFICIAL IN ACCORDANCE WITH THIS CODE AND THE BUILDING OFFICIAL.

MIFFLIN TOWNSHIP FIRE REQUIRES THE ACTUAL INSTALLER TO BE PRESENT FOR ACCEPTANCE TESTING.

A STATEMENT OF COMPLIANCE SHALL BE SUBMITTED TO THE FIRE DIVISION BEFORE THE FINAL INSPECTION CAN BE PERFORMED. THIS STATEMENT WILL TELL THE FIRE OFFICIAL THAT THE FIRE PROTECTION SYSTEM WAS INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS AND TESTED PRIOR TO THE INSPECTION. THE FINAL INSPECTION SHALL NOT BE PERFORMED IF THE STATEMENT OF COMPLIANCE HAS NOT BEEN SUBMITTED.

THE FIRE DEPARTMENT CONNECTION (FDC) SHALL BE A 5-INCH STORZ WITH A 30 DEGREE DOWN ANGLE.

THE USE OF THREADLESS COUPLINGS SHALL BE PERMITTED WHERE REQUIRED BY THE AUTHORITY HAVING JURISDICTION (AHJ) AND WHERE LISTED FOR SUCH USE.

THE PIPE BETWEEN THE CHECK VALVE AND THE OUTSIDE HOSE COUPLING SHALL BE EQUIPPED WITH AN APPROVED AUTOMATIC DRIP. THE AUTOMATIC DRIP SHALL BE INSTALLED IN A LOCATION THAT PERMITS INSPECTION AND TESTING AS REQUIRED BY NFPA 25 AND REDUCES THE LIKELIHOOD OF FREEZING.

A T WRENCH SHALL BE SUPPLIED AND STORED IN THE RISER ROOM.

VALVES

ALL CONNECTIONS TO PRIVATE FIRE SERVICE MAINS FOR FIRE PROTECTION SYSTEMS SHALL BE ARRANGED IN ACCORDANCE WITH ONE OF THE FOLLOWING SO THAT THEY CAN BE ISOLATED:

- 1) A POST INDICATOR VALVE INSTALLED NOT LESS THAN 40 FT (12 M) FROM THE BUILDING
 - a. FOR BUILDINGS LESS THAN 40 FT (12 M) IN HEIGHT, A POST INDICATOR VALVE SHALL BE PERMITTED TO BE INSTALLED CLOSER THAN 40 FT (12 M), BUT AT LEAST AS FAR FROM THE BUILDING AS THE HEIGHT OF THE WALL FACING THE POST INDICATOR VALVE.
- 2) A WALL POST INDICATOR VALVE
- 3) AN INDICATING VALVE IN A PIT, INSTALLED IN ACCORDANCE WITH NFPA242013 SECTION 6.4
- 4) A BACKFLOW PREVENTER WITH AT LEAST ONE INDICATING VALVE NOT LESS THAN 40 FT (12 M) FROM THE BUILDING
 - a. FOR BUILDINGS LESS THAN 40 FT (12 M) IN HEIGHT, A BACKFLOW PREVENTER WITH AT LEAST ONE INDICATING VALVE SHALL BE PERMITTED TO BE INSTALLED CLOSER THAN 40 FT

- (12 M) BUT AT LEAST AS FAR FROM THE BUILDING AS THE HEIGHT OF THE WALL FACING THE BACKFLOW PREVENTER.
- 5) A NON-INDICATING VALVE, SUCH AS AN UNDERGROUND GATE VALVE WITH AN APPROVED ROADWAY BOX, COMPLETE WITH T-WRENCH, LOCATED NOT LESS THAN 40 FT (12 M) FROM THE BUILDING
 - a. FOR BUILDINGS LESS THAN 40 FT (12 M) IN HEIGHT, A NON-INDICATING VALVE, SUCH AS AN UNDERGROUND GATE VALVE WITH AN APPROVED ROADWAY BOX, COMPLETE WITH T-WRENCH, SHALL BE PERMITTED TO BE INSTALLED CLOSER THAN 40 FT (12 M) BUT AT LEAST AS FAR FROM THE BUILDING AS THE HEIGHT OF THE WALL FACING THE BACKFLOW PREVENTER.
 - 6) CONTROL VALVES INSTALLED IN A FIRE-RATED ROOM ACCESSIBLE FROM THE EXTERIOR
 - 7) CONTROL VALVES IN A FIRE-RATED STAIR ENCLOSURE ACCESSIBLE FROM THE EXTERIOR AS PERMITTED BY THE AHJ

HYDRANTS

HYDRANTS SHALL BE OF AN APPROVED TYPE AND HAVE NOT LESS THAN A 6 IN. (152 MM) DIAMETER CONNECTION WITH THE MAINS.

A VALVE SHALL BE INSTALLED IN THE HYDRANT CONNECTION.

VALVES IN THE HYDRANT CONNECTION SHALL BE INSTALLED WITHIN 20 FT (6.1 M) OF THE HYDRANT. WHERE VALVES CANNOT BE LOCATED WITHIN 20 FT (6.1 M) OF THE HYDRANT, VALVE LOCATIONS SHALL BE PERMITTED WHERE APPROVED BY THE AHJ.

HYDRANTS SHALL BE LOCATED NOT LESS THAN 40 FT (12 M) FROM THE BUILDINGS TO BE PROTECTED. WHERE HYDRANTS CANNOT BE 40 FT OR FURTHER FROM THE BUILDINGS, LOCATIONS CLOSER THAN 40 FT (12.2 M) FROM THE BUILDING OR WALL HYDRANTS SHALL BE PERMITTED TO BE USED WHERE APPROVED BY THE AHJ.

HANGING, BRACING, AND RESTRAINT OF SYSTEM PIPING

WHERE PIPE STANDS ARE USED TO SUPPORT SYSTEM PIPING

WHERE WATER-BASED FIRE PROTECTION SYSTEMS ARE REQUIRED TO BE PROTECTED AGAINST DAMAGE FROM EARTHQUAKES, PIPE STANDS SHALL ALSO MEET THE REQUIREMENTS.

THE PIPE STAND BASE SHALL BE SECURED BY AN APPROVED METHOD.

SYSTEM PIPING SHALL BE SUPPORTED AND RESTRAINED TO RESTRICT MOVEMENT DUE TO SPRINKLER/NOZZLE REACTION AND WATER SURGES.

WHERE THRUST FORCES ARE ANTICIPATED TO BE HIGH, A PIPE RING OR CLAMP SHALL SECURE THE SYSTEM PIPING TO THE PIPE STAND.

UNDERGROUND PIPING

- 1) PIPE SHALL NOT BE RUN UNDER THE BUILDING EXCEPT WHERE PERMITTED.
- 2) WHERE APPROVED, PIPE SHALL BE PERMITTED TO BE RUN UNDER BUILDINGS, AND SPECIAL PRECAUTIONS SHALL BE TAKEN, INCLUDING THE FOLLOWING:
 - a. ARCHING THE FOUNDATION WALLS OVER THE PIPE
 - b. RUNNING PIPE IN COVERED TRENCHES
 - c. PROVIDING VALVES TO ISOLATE SECTIONS OF PIPE UNDER BUILDINGS

FIRE SERVICE MAINS SHALL BE PERMITTED TO ENTER THE BUILDING ADJACENT TO THE FOUNDATION.

FIRE SERVICE MAINS ENTER UNDER THE BUILDING NO MORE THAN 10 FT (3 M) AS MEASURED FROM THE OUTSIDE EDGE OF THE BUILDING TO THE CENTER OF THE VERTICAL PIPE.

PIPE JOINTS SHALL NOT BE LOCATED UNDER FOUNDATION FOOTINGS.

PIPING SHALL BE RUN AT LEAST 1 FT (305 MM) BELOW THE BOTTOM OF FOUNDATIONS/FOOTERS.

MAINS SHALL BE SUBJECTED TO AN EVALUATION OF THE FOLLOWING SPECIFIC LOADING CONDITIONS AND PROTECTED, IF NECESSARY:

- 1) MAINS RUNNING UNDER RAILROADS CARRYING HEAVY CARGO
- 2) MAINS RUNNING UNDER LARGE PILES OF HEAVY COMMODITIES
- 3) MAINS LOCATED IN AREAS THAT SUBJECT THE MAIN TO HEAVY SHOCK AND VIBRATIONS

WHERE IT IS NECESSARY TO JOIN METAL PIPE WITH PIPE OF DISSIMILAR METAL, THE JOINT SHALL BE INSULATED AGAINST THE PASSAGE OF AN ELECTRIC CURRENT USING AN APPROVED METHOD.

IN NO CASE SHALL THE UNDERGROUND PIPING BE USED AS A GROUNDING ELECTRODE FOR ELECTRICAL SYSTEMS.

BONDING OF THE UNDERGROUND PIPING TO THE LIGHTNING PROTECTION GROUNDING SYSTEM AS REQUIRED BY NFPA 780 IN THOSE CASES WHERE LIGHTNING PROTECTION IS PROVIDED FOR THE STRUCTURE.

THRUST BLOCKS SHALL BE CONSIDERED SATISFACTORY WHERE SOIL IS SUITABLE FOR THEIR USE.

THRUST BLOCKS SHALL BE OF A CONCRETE MIX NOT LEANER THAN ONE PART CEMENT, TWO AND ONE-HALF PARTS SAND, AND FIVE PARTS STONE. CITY OF COLUMBUS CLASS "C" MIX IS EQUIVALENT.

THRUST BLOCKS SHALL BE PLACED BETWEEN UNDISTURBED EARTH AND THE FITTING TO BE RESTRAINED AND SHALL BE CAPABLE OF RESISTING THE CALCULATED THRUST FORCES.

WHEREVER POSSIBLE, THRUST BLOCKS SHALL BE PLACED SO THAT THE JOINTS ARE ACCESSIBLE FOR REPAIR.

FIRE MAINS UTILIZING RESTRAINED JOINT SYSTEMS SHALL INCLUDE ONE OR MORE OF THE FOLLOWING:

- 1) LOCKING MECHANICAL OR PUSH-ON JOINTS
- 2) MECHANICAL JOINTS UTILIZING SETSCREW RETAINER GLANDS
- 3) BOLTED FLANGE JOINTS
- 4) HEAT-FUSED OR WELDED JOINTS
- 5) PIPE CLAMPS AND TIE RODS
- 6) THREADED OR GROOVED JOINTS
- 7) OTHER APPROVED METHODS OR DEVICES

ON PRIVATE FIRE SERVICE MAIN, EITHER THRUST BLOCKING OR MECHANICAL JOINTS SHALL BE USED, BUT NOT TOGETHER PER NFPA. USE OF BOTH SHALL RESULT IN A FAILURE OF THE INSPECTION OF THE RESTRAINING SYSTEM.

BACKFILL SHALL BE TAMPED IN LAYERS OR PUDDLED UNDER AND AROUND PIPES TO PREVENT SETTLEMENT OR LATERAL MOVEMENT AND SHALL CONTAIN NO ASHES, CINDERS, REFUSE, ORGANIC MATTER, OR OTHER CORROSIVE MATERIALS.

ROCKS SHALL NOT BE PLACED IN TRENCHES. IN TRENCHES CUT THROUGH ROCK, TAMPED BACKFILL SHALL BE USED FOR AT LEAST 6 IN. (150 MM) UNDER AND AROUND THE PIPE AND FOR AT LEAST 2 FT. (0.6 M) ABOVE THE PIPE.

THE INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING:

- 1) NOTIFYING THE AHJ AND THE OWNER'S REPRESENTATIVE OF THE TIME AND DATE TESTING IS TO BE PERFORMED
- 2) PERFORMING ALL REQUIRED ACCEPTANCE TESTS
- 3) COMPLETING AND SIGNING THE CONTRACTOR'S MATERIAL AND TEST CERTIFICATE(S) SHOWN IN NFPA242013 FIGURE 10.10.1

UNDERGROUND PIPING, FROM THE WATER SUPPLY TO THE SYSTEM RISER, AND LEAD-IN CONNECTIONS TO THE SYSTEM RISER SHALL BE COMPLETELY FLUSHED BEFORE THE CONNECTION IS MADE TO DOWNSTREAM FIRE PROTECTION SYSTEM PIPING. THE FLUSHING OPERATION SHALL BE CONTINUED FOR A SUFFICIENT TIME TO ENSURE THOROUGH CLEANING.

THE MINIMUM RATE OF FLOW SHALL BE NOT LESS THAN ONE OF THE FOLLOWING:

- 1) HYDRAULICALLY CALCULATED WATER DEMAND FLOW RATE OF THE SYSTEM, INCLUDING ANY HOSE REQUIREMENTS
- 2) FLOW IN ACCORDANCE WITH NFPA242013 TABLE 10.10.2.1.3
- 3) MAXIMUM FLOW RATE AVAILABLE TO THE SYSTEM UNDER FIRE CONDITIONS

ALL PIPING AND ATTACHED APPURTENANCES SUBJECTED TO SYSTEM WORKING PRESSURE SHALL BE HYDROSTATICALLY TESTED AT 200 PSI (13.8 BAR) OR 50 PSI (3.5 BAR) IN EXCESS OF THE SYSTEM WORKING PRESSURE, WHICHEVER IS GREATER, AND SHALL MAINTAIN THAT PRESSURE AT +/- PSI (0.35 BAR) FOR 2 HOURS.

PRESSURE LOSS SHALL BE DETERMINED BY A DROP IN GAUGE PRESSURE OR VISUAL LEAKAGE.

THE TEST PRESSURE SHALL BE READ FROM ONE OF THE FOLLOWING, LOCATED AT THE LOWEST ELEVATION OF THE SYSTEM OR THE PORTION OF THE SYSTEM BEING TESTED:

- 1) A GAUGE LOCATED AT ONE OF THE HYDRANT OUTLETS
- 2) A GAUGE LOCATED AT THE LOWEST POINT WHERE NO HYDRANTS ARE PROVIDED

THE TRENCH SHALL BE BACKFILLED BETWEEN JOINTS BEFORE TESTING TO PREVENT MOVEMENT OF PIPE.

PRIVATE HYDRANT SPECIFICATION – MIFFLIN TOWNSHIP

ITEM 809 PRIVATE HYDRANTS:

- 809.01 SCOPE OF WORK
- 809.02 DESCRIPTION OF PRIVATE HYDRANTS

809.01 SCOPE OF WORK. THE CONTRACTOR SHALL FURNISH ALL LABOR, TOOLS, MATERIALS, AND EQUIPMENT NECESSARY TO FURNISH AND INSTALL NEW FIRE HYDRANTS AT THE LOCATIONS SHOWN ON THE PLANS OR AS ORDERED AND SPECIFIED.

THE ITEM SHALL INCLUDE ALL EXCAVATION, FURNISHING AND INSTALLING THE NEW FIRE HYDRANT COMPLETE WITH ALL FITTINGS, APPROVED POLYETHYLENE WRAP, BLOCKING, BACKFILLING, AND ALL OTHER INCIDENTAL WORK NECESSARY TO COMPLETE THIS ITEM OF WORK. THE CONTRACTOR SHALL INSTALL HYDRANT WATCH VALVES AND 6- IN C H DUCTILE IRON HYDRANT LEADS WHERE NECESSARY, UNDER ITEMS 801 AND 802.

THE CONTRACTOR SHALL NOTIFY THE MIFFLIN TOWNSHIP DIVISION OF FIRE PRIOR TO TAKING ANY FIRE HYDRANT OUT OF SERVICE.

809.02 DESCRIPTION OF FIRE HYDRANTS. PROVIDE POST-TYPE FIRE HYDRANTS CONFORMING IN ALL RESPECTS TO THE AMERICAN WATER WORKS ASSOCIATION STANDARD FOR "FIRE HYDRANTS FOR ORDINARY WATER WORKS SERVICE", AWWA - C502 EXCEPT AS HEREIN AFTER SPECIFIED.

1. TYPE OF HYDRANT. PROVIDE A COMPRESSION TYPE HYDRANT WITH THE VALVE OPENING WITH OR AGAINST THE PRESSURE. PROVIDE THE STEM OR VALVE ROD WITH THE VALVE END CONSTRUCTED TO ELIMINATE CONTACT OF DISSIMILAR METALS IN THE PRESENCE OF MOISTURE, THIS CONSTRUCTION TO EXTEND ABOVE THE MOISTURE LINE AT VALVE.

PROVIDE STEMS OR VALVE RODS MADE OF 1-INCH MINIMUM STEEL STOCK BEFORE MACHINE WORK BETWEEN THE VALVE AND THE OPERATING NUT. LOCATE A BREAKING COUPLING AT THE PROPER POINT TO CONFORM TO THE BREAKING CONNECTION IN THE STANDPIPE.

UNLESS OTHERWISE APPROVED BY THE ADMINISTRATOR, DIVISION OF WATER, PROVIDE FIRE HYDRANTS FOR USE IN THE CITY OF GAHANNA IN ACCORDANCE WITH THE CURRENT APPROVED MATERIALS LIST.

2. DESIGN. DESIGN THE HYDRANTS TO LOCALIZE AND CONCENTRATE STRESSES GENERATED BY A SMASHING BLOW AT A PREDETERMINED POINT IN THE COUPLINGS, STRAINING THE METAL AT THIS POINT BEYOND ITS ULTIMATE TENSILE STRENGTH BEFORE A SIMILAR CONDITION DEVELOPS IN THE ADJACENT SECTIONS OF THE STANDPIPE AND STEM. DESIGN THE HYDRANT SO THAT THE UPPER AND LOWER SECTIONS OF THE HYDRANT BREAKS APART CLEANLY WITHOUT BENDING THE STEM AND WITHOUT DAMAGE TO THE WORKING PARTS OF THE HYDRANT, OR THE ABUTTING PARTS OF THE STANDPIPE SECTIONS WITH NO LEAKING OR FLOODING.

SECURE THE UPPER SECTION OF THE STANDPIPE THAT CARRIES THE NOZZLE TO THE LOWER SECTION SO THAT THE UPPER SECTION REVOLVES, THUS PERMITTING THE RELOCATION OF THE NOZZLE TO ANY DESIRED DIRECTION.

DESIGN A HYDRANT REPAIRABLE USING SIMPLE TOOLS AND THE MINIMUM NUMBER OF PARTS, WITHOUT THE NECESSITY OF EXCAVATING OR SHUTTING OFF THE WATER SUPPLY TO THE HYDRANT, IF THE HYDRANT BREAKS AT THE JOINT, AND. DESIGN THE HYDRANT WITH A STEM AND MAIN VALVE REMOVABLE THROUGH THE TOP OF THE STANDPIPE WITHOUT EXCAVATING.

3. MATERIALS. PROVIDE HYDRANT CONSTRUCTED OF MATERIALS OF THE BEST COMMERCIAL QUALITY IN THEIR RESPECTIVE CLASSES.

4. WORKMANSHIP. PROVIDE CLEAN AND PERFECT CASTINGS WITH NO PLUGS OR PATCHES. PROVIDE PARTS TRUE TO GAUGE TO ENSURE INTERCHANGEABILITY PARTS FROM ONE HYDRANT TO ANOTHER OF THE SAME MAKE AND SIZE.

5. TESTING. PROVIDE HYDRANTS PROPERLY ASSEMBLED AND TESTED BEFORE LEAVING THE FACTORY.

6. CERTIFICATION. PROVIDE CERTIFICATION THAT THE HYDRANT MANUFACTURER MANUFACTURED AND TESTED THE TYPE OF HYDRANT FURNISHED IN ACCORDANCE WITH THESE SPECIFICATIONS.

7. PAINT. PROVIDE HYDRANTS WITH TWO GOOD COATS OF SPECIAL RED HYDRANT ENAMEL FOR PRIVATE HYDRANTS.

8. VALVES. EQUIP HYDRANTS WITH RUBBER FACED VALVES.

9. DETAILED SPECIFICATIONS, SIZE, ETC.

DIAMETER OF PORT IN SEAL RING:	MINIMUM 4 1/4 INCHES
SIZE AND TYPE OF CONNECTION TO	6 INCHES HUB OR BELL OR MECHANICAL JOINT
MAIN: DEPTH OF TRENCH OR BURY:	5 FEET UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE PLANS
NUMBER OF NOZZLES - ONE (1):	CENTER
INSIDE DIAMETER OF NOZZLE:	FRONT 4
DIMENSIONS OF NOZZLES AND	INCHES
THREADS: DIAMETER OF MALE	4 27/32 INCHES OUTSIDE
THREAD:	4 37/64 INCHES TOOT OF DIAMETER; 6 THREADS PER INCH (2.4 THREADS PER CM)
HIGBEE CUT. LENGTH OF THREADS	1 1/4 INCHES HIGH

DEPTH OF TRENCH OR BURY	5 FT.
SIZE AND TYPE OF BASE	6 INCHES M.J. FLG
DIRECTION TO OPEN	LEFT CCW
PAINT COLOR	AS IT'S DESCRIBED IN #7
NUMBER OF HOSE NOZZLES	0
HOSE NOZZLE SIZE	0
STEAMER NOZZLE SIZE	4" PRIVATE HYDRANT
NOZZLE CAP CHAINS	YES
UL - FM	YES

10. HYDRANT TO OPEN TO THE LEFT. SIZE AND SHAPE OF NOZZLE CAPS AND OPERATING NUTS 7/8-INCH SQUARE AT TOP, TAPERED TO 1 INCH AT BOTTOM, BY 1 1/4 INCH HIGH.
11. DRIP OR DRAINING DEVICES. ELIMINATE DRIPS OR DRAINING DEVICES.
12. THE PUMPER NOZZLE. PROVIDE THREADED OR LEAD TYPE PUMPER NOZZLES. PROVIDE THE NOZZLE THAT SCREWS INTO THE STANDPIPE WITH PIPE THREADS.
13. THE BREAKING CONNECTION. PROVIDE A BREAKING CONNECTION OF A TYPE APPROVED BY THE ADMINISTRATOR OF THE DIVISION OF POWER AND WATER.
14. EXCLUSIVE OF THE MAIN VALVE OPENING CROSS SECTIONAL AREA AVAILABLE FOR WATER FLOW AT ANY POINT OF THE WATERWAY OF THE BARREL OR FOOT-PIECE OF THE SMALLEST PART SHALL NOT BE LESS THAN 20 PERCENT OF THAT OF THE NET OPENING OF THE MAIN VALVE.
15. SHOP DRAWINGS. BEFORE INSTALLING ANY HYDRANT UNDER THE JURISDICTION OF THIS SPECIFICATION, OBTAIN APPROVAL OF DRAWINGS OF THE PROPOSED HYDRANT. PROVIDE DRAWINGS IN SUFFICIENT DETAIL TO ENABLE CHECKING DESIGN AND MATERIAL. CORRECT ERRORS OR OMISSIONS DISCOVERED AND SUPPLY THE HYDRANT IN ACCORDANCE WITH THE SPECIFICATIONS.