

STORM SEWER

STORM CONDUIT

ALL STORM SEWER CONDUIT SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

- 1. REINFORCED CONCRETE PIPE ASTM C-76, "B" or "C" WALL, 8 FOOT LENGTHS, WITH RESILIENT GASKET JOINTS CONFORMING TO ASTM C-443: (A) 12" & 15" DIA. CLASS IV (B) 18" THRU 36" DIA. CLASS III
2. REINFORCED CONCRETE ELLIPTICAL PIPE, ODOT 706.04, 8 FOOT LENGTHS, WITH JOINTS PER ODOT 611.08(B) USING BITUMINOUS JOINT FILLER PER ODOT 706.10: (A) 24"x38" CLASS HE-III
3. POLYVINYL CHLORIDE (PVC) ASTM D-3034 (SDR 35) WITH GASKET MATERIAL CONFORMING TO ASTM F-477 AND JOINTS PER ASTM D-3212.
4. SMOOTH INTERIOR, CORRUGATED, HIGH DENSITY POLYETHYLENE PIPE (HDPE) CONFORMING TO AASHTO SPECIFICATIONS M252 TYPE S AND M294 TYPE S, (O.D.O.T. 707.33) ADS N-12, HANCOR HI-Q, OR APPROVED EQUAL WITH AN INTEGRAL BELL AND SPIGOT JOINT WITH A POLYISOPRENE GASKET, AND INSTALLED IN ACCORDANCE WITH ASTM D-2321 AND MANUFACTURER'S RECOMMENDATIONS.
5. OTHER OPTIONAL MATERIALS MAY BE USED AS APPROVED BY THE SUMMIT COUNTY ENGINEER.
6. ALL FLEXIBLE STORM SEWERS SHALL PASS A DEFLECTION TEST (5% MAX.)
7. ALL STORM SEWER JOINTS AND PIPE SHALL BE WATERTIGHT.

COLOR VIDEO INSPECTION AND TESTING OF STORM SEWERS

ALL INSPECTION AND TESTING SHALL BE DONE BY AN EXPERIENCED AND QUALIFIED FIRM ENGAGED IN THIS TYPE OF WORK, AS APPROVED BY THE SUMMIT COUNTY ENGINEER. ALL STORM SEWERS MUST BE FLUSHED AND HAVE A COLOR VIDEO INSPECTION IN ACCORDANCE WITH THE SUMMIT COUNTY ENGINEER'S SPECIFICATIONS AFTER SEEDING OF DISTURBED AREAS. A COPY OF THE VIDEO IN DVD FORMAT AND WRITTEN REPORTS FOR ALL INSPECTION AND TESTING SHALL BE SUBMITTED TO THE OWNER AND THE SUMMIT COUNTY ENGINEER FOR APPROVAL. IF THE INSTALLATION FAILS TO MEET THE REQUIREMENTS OF THESE TESTS AND INSPECTIONS, THE CONTRACTOR SHALL REPAIR OR REPLACE ALL DEFECTS AND RETEST THE INSTALLATION.

STORM WYE BRANCHES, RISERS, AND CONNECTIONS

APPROPRIATE WYE BRANCHES, BOOTS OR SADDLES SHALL BE INSTALLED IN CORED HOLES IN THE STORM SEWER CONDUIT. SUCH CONNECTIONS TO THE SEWER SHALL BE WATERTIGHT. THE MATERIAL FOR ALL WYE BRANCHES, RISERS, AND CONNECTIONS SHALL BE POLYVINYL CHLORIDE (PVC) ASTM D-3034 (SDR 35) WITH GASKET MATERIAL CONFORMING TO ASTM F-477 AND JOINTS PER ASTM D-3212.

THE END OF EACH CONNECTION SHALL BE SEALED WITH A TIGHT FITTING PLUG AND THE END OF EACH CONNECTION SHALL BE MARKED WITH A 2" X 2" HARDWOOD STAKE, EXTENDING VERTICALLY FROM THE END OF THE CONNECTION TO A POINT APPROXIMATELY THREE FEET ABOVE THE SURFACE OF THE GROUND. MARKERS SHALL BE COLOR CODED: STORM - GREEN, SANITARY - RED, WATER - BLUE.

SANITARY SEWERS

SUMMIT COUNTY DEPARTMENT OF SANITARY SEWER SERVICES

GENERAL NOTES

- 1. ALL SANITARY SEWERS AND APPURTENANCES SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH CURRENT STANDARDS AND SPECIFICATIONS (O.E.P.A. 3MA00001*AM) OF THE DEPARTMENT OF SANITARY SEWER SERVICES (D.S.S.S.).
2. ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED. (ORDINANCE NO. 85-656, APPROVED 10/8/85)
3. APPROVAL BY D.S.S.S. CONSTITUTES NEITHER EXPRESSED NOR IMPLIED WARRANTIES AS TO THE FITNESS, ACCURACY, OR SUFFICIENCY OF PLANS, DESIGNS OR SPECIFICATIONS.
4. THE DESIGN ENGINEER STATES THAT ALL UTILITIES IN EXISTING AND PROPOSED ROADS AND EASEMENTS ARE SHOWN FROM AVAILABLE RECORDS AND FIELD VERIFICATION.
5. ALL SANITARY SEWERS SHALL PASS THE AIR ACCEPTANCE TEST PRIOR TO ACCEPTANCE BY D.S.S.S.
6. ALL SANITARY SEWERS SHALL BE VIDEO TAPED BY THE OWNER AND FOUND TO BE FREE OF DEFECTS AND FOREIGN MATTER AND IN PROPER ALIGNMENT PRIOR TO FORMAL ACCEPTANCE BY D.S.S.S.
7. ALL MANHOLES SHALL BE SUPPLIED WITH SOLID COVERS.
8. ALL SANITARY LATERALS SHALL BE EXTENDED TO NOT LESS THAN FIFTEEN (15) FEET INTO THE PROPERTY.
9. ALL SANITARY LATERALS SHALL BE LAID AT NO LESS THAN 1% GRADE.
10. SANITARY SEWER MATERIALS SHALL CONFORM TO D.S.S.S. AND O.E.P.A. STANDARDS.
11. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL DAMAGE TO THE EXISTING SEWERAGE SYSTEM RESULTING FROM NON-CONFORMANCE WITH SUMMIT COUNTY STANDARDS OR GENERAL NEGLIGENCE.
12. A 12" MAXIMUM MANHOLE GRADE ADJUSTMENT IS PERMITTED. ADJUSTMENT IS TO BE MADE WITH PRECAST GRADE RINGS OR INFRA-RISER RUBBER RISER RINGS. A MINIMUM OF ONE (1) GRADE RING IS REQUIRED AT EACH MANHOLE.
13. INTERNAL CHIMNEY SEALS SHALL BE INSTALLED IN ALL MANHOLES.
14. MANHOLE COVER INSERTS SHALL BE PROVIDED FOR ALL MANHOLES, REGARDLESS OF THE TYPE OF COVER REQUIRED.
15. WHERE INLET AND OUTLET PIPES CONNECT TO MANHOLES, A FLEXIBLE WATER TIGHT JOINT, AS APPROVED BY D.S.S.S., IS REQUIRED.
16. SANITARY SEWER MATERIAL SHALL CONSIST OF PVC SDR-35 MEETING ASTM D3034 WITH JOINTS CONFORMING TO ASTM D3212.
17. THE OWNER (CONTRACTOR) MUST ALERT THE OHIO UTILITIES PROTECTION SERVICE AT 1-800-362-2764 AT LEAST 48 HOURS BEFORE ANY EXCAVATION HAS BEGUN.
18. ALL ROUGH GRADING (WITHIN 6" OF FINISHED GRADE) SHALL BE COMPLETED WITHIN THE RIGHT-OF-WAY PRIOR TO SANITARY SEWER CONSTRUCTION.
19. NO SEWER CONSTRUCTION WILL BE PERMITTED UNTIL SUCH TIME THAT THE PLANS ARE APPROVED BY D.S.S.S. AND THE O.E.P.A. INCLUDING PAYMENT OF REVIEW AND "PERMIT TO INSTALL" FEES REQUIRED BY THE O.E.P.A.
20. ALL SANITARY SEWERS CONTAINED HEREIN ARE TO BE PUBLICLY OWNED AND MAINTAINED.
21. ALL SANITARY SEWER CONSTRUCTION MUST BE INSPECTED BY AN AUTHORIZED D.S.S.S. REPRESENTATIVE. TWENTY-FOUR (24) HOUR ADVANCE NOTICE OF WORK MUST BE GIVEN THE OFFICE FOR SCHEDULING AN INSPECTION.
22. SANITARY LATERALS OVER STORM SEWERS SHALL HAVE LIMESTONE BEDDING BETWEEN THE STORM SEWER AND THE LATERAL, THE WIDTH OF THE STORM SEWER TRENCH.

WATER WORK

GENERAL

ALL WATER WORK SHALL BE IN ACCORDANCE WITH THE STANDARD CONSTRUCTION AND MATERIAL SPECIFICATIONS OF THE CITY OF CLEVELAND, DEPARTMENT OF PUBLIC UTILITIES, DIVISION OF WATER, 1201 LAKESIDE AVENUE, CLEVELAND, OHIO 44114, AND THE NORTH HILLS WATER DISTRICT. ALL PERMITS AND FEES ASSOCIATED WITH THE VARIOUS WATER WORK ITEMS SHALL BE INCLUDED IN THE UNIT PRICE FOR THE VARIOUS WATER WORK ITEMS AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

HYDRANT

ALL HYDRANTS SHALL BE "BREAKAWAY" TYPE, KENNEDY K-81A GUARDIAN AS PER THE CITY OF CLEVELAND'S STANDARDS. HYDRANTS SHALL BE SUPPLIED WITH NATIONAL STANDARD THREADS (NST), ONE (1) STEAMER NOZZLE AND TWO (2) HOSE NOZZLES PER NORTH HILLS WATER DISTRICT AND SAGAMORE HILLS TOWNSHIP/MACEDONIA FIRE DEPARTMENT STANDARDS. A SIX (6) INCH HYDRANT ASSEMBLY SHALL INCLUDE THE TEE OR REDUCER AS APPLICABLE, VALVE, VALVE BOX, PIPE, AND A STANDARD SIX (6) INCH HYDRANT SET TO THE PROPER GRADE. THE UNIT PRICE BID FOR EACH HYDRANT SHALL INCLUDE ALL EXCAVATION, BEDDING, BLOCKING, BACKFILL, MATERIAL, LABOR, PIPE OFFSET IF NECESSARY, AND ALL OTHER INCIDENTAL ITEMS TO COMPLETE SUCH WORK.

WATER MAIN

ALL WATER MAIN TRENCH UNDER EXISTING OR PROPOSED PAVEMENTS SHALL BE BACKFILLED AS PER THE PLAN DETAILS. THE UNIT PRICE BID PER LINEAR FOOT OF WATER MAIN SHALL INCLUDE ALL EXCAVATION, BEDDING, BLOCKING, TRENCH BACKFILL MATERIALS, COMPACTION AS REQUIRED, LABOR, PIPE AND ALL OTHER INCIDENTAL ITEMS NECESSARY TO COMPLETE SUCH WORK.

TESTING AND INSPECTION

THE CONTRACTOR SHALL SUPPLY PROOF TO THE ENGINEER AND/OR OWNER OF HAVING MADE APPLICATION AND PAYMENT TO THE CITY OF CLEVELAND WATER DEPARTMENT FOR ANY AND ALL ENGINEERING FEES, TESTING, CHLORINATION, AND TAPPING INTO THE WATER MAIN AND APPURTENANCES. ALL EXPENSES CONNECTED WITH THE FOREMENTIONED WORK SHALL BE BORNE BY THE CONTRACTOR. ALL WATER NECESSARY FOR THE SATISFACTORY COMPLETION OF ALL CLASSES OF WORK SHALL BE FURNISHED BY THE CONTRACTOR AT HIS EXPENSE. THE ENGINEER SHALL BE NOTIFIED 24 HOURS BEFORE ANY SUCH WORK IS DONE ON THE WATER MAIN SO THAT HE OR HIS AUTHORIZED REPRESENTATIVE MAY BE PRESENT. ANY OF THE FOREMENTIONED NOT COMPLIED WITH, OR DONE IN THE ABSENCE OF THE ENGINEER WILL NOT BE ACCEPTED AND SHALL BE RETESTED AT THE CONTRACTOR'S EXPENSE.

A 72 HOUR NOTICE SHALL BE GIVEN BY THE CONTRACTOR TO THE OFFICE OF THE CITY OF CLEVELAND, DIVISION OF WATER, AND THE ENGINEER OF THE NORTH HILLS WATER DISTRICT IN ADVANCE OF THE START OF ACTUAL CONSTRUCTION WORK, WHETHER INITIAL OR AFTER CESSATION OF WORK DUE TO ANY CAUSE. ALL EXPENSES CONNECTED WITH THE INSPECTION OF THE WATER MAIN BY THE CITY OF CLEVELAND OR THE N.H.W.D. SHALL BE BORNE BY THE CONTRACTOR.

DESIGNERS, ENGINEERS, AND CONTRACTORS ARE TO ABIDE BY THE MOST CURRENT VERSION OF THE CLEVELAND WATER NOTES AND DETAILS. THE MOST UP-TO-DATE VERSION CAN BE FOUND AT WWW.CLEVELANDWATER.COM/CONSTRUCTION/

GENERAL

- 1. ALL WATER WORK REQUIRED, WHETHER SHOWN ON THE PLANS OR AS DIRECTED BY CLEVELAND WATER, SHALL BE AT THE EXPENSE OF THE PROJECT UNLESS OTHERWISE AGREED TO BY THE COMMISSIONER OF THE CLEVELAND DIVISION OF WATER.
2. THE INFORMATION SHOWN ON THE CLEVELAND DIVISION OF WATER'S SUMMARY OF WORK/CHARGE LETTER, STRIP MAPS, AS BUILT DRAWINGS, AND GIS ARE TAKEN FROM EXISTING AVAILABLE RECORDS, AND THEIR ACCURACY IS NOT GUARANTEED.
3. CALL THE INSPECTION AND ENFORCEMENT UNIT AT 216-664-2342 TO SCHEDULE A PRECONSTRUCTION MEETING AT LEAST 1 WEEK PRIOR TO STARTING CONSTRUCTION. THE OPERATION OF ANY VALVE OR ALTERATION OF ANY PART OF THE WATER SYSTEM BY CONTRACTORS OR THEIR EMPLOYEES IS PROHIBITED WITHOUT THE SUPERVISION OF THE CLEVELAND DIVISION OF WATER INSPECTOR.
4. PRIOR TO REQUESTING CHLORINATION, THE CONTRACTOR SHALL SUPPLY THE CLEVELAND WATER INSPECTOR WITH REGDLE DRAWINGS SHOWING CHARGES MADE FROM THE APPROVED DESIGN DRAWINGS AND ACTUAL MEASUREMENTS. CHLORINATION SHALL NOT OCCUR BEFORE THESE DRAWINGS ARE SUBMITTED.
5. FOR THE PURPOSES OF CHLORINATION AND BACTERIOLOGICAL TESTING OF THE WATER MAINS THE CONTRACTOR SHALL PROVIDE AND INSTALL AT EACH OF THE CHLORINATION PIT LOCATIONS SHOWN AND AT OTHER LOCATIONS DETERMINED BY CLEVELAND WATER. FLUSHING / SAMPLING TAP SIZES ARE TO BE DETERMINED CLEVELAND WATER. CHLORINATION PITS SHALL BE SIX (6) FOOT SQUARE AND ARE TO MEET OSHA STANDARDS. NO CUSTOMER TAPS SHALL BE INSTALLED PRIOR TO CHLORINATION.
6. A TWO YEAR WARRANTY, COMMENCING FROM THE DATE OF ACCEPTANCE OF THE FINAL CHLORINATION OF THE WATER MAIN INSTALLATION SHALL BE PROVIDED BY THE BUILDER/DEVELOPER AND/OR CONTRACTOR FOR ALL WATER MAINS AND SERVICE CONNECTION WORK PERFORMED BY THE CONTRACTOR, INCLUDING TAPS IF PERFORMED, SHOULD ANY LEAKS OCCUR AND REPAIRS BE REQUIRED DUE TO DEFECTIVE MATERIAL OR POOR WORKMANSHIP. A LETTER INDICATING THE COMMENCEMENT DATE AND END DATE OF THE WARRANTY SHALL BE INCLUDED WITH THE AS-BUILT SUBMISSION IN NOTE 12.
7. USE BACKFILL MATERIAL AS SPECIFIED AND COMPACT SUFFICIENTLY IN THOSE AREAS WHERE EXISTING MAINS AND WATER SERVICE CONNECTIONS ARE EXPOSED. (SEE CLEVELAND WATER STANDARD DETAIL STD-001)
8. ALL MATERIALS, INCLUDING BUT NOT LIMITED TO WATER MAINS, FIRE HYDRANTS, VALVES, CONNECTION MATERIALS AND OTHER WATER APPURTENANCES, SHALL BE NEW AND UNUSED AND SHALL CONFORM TO THE MOST CURRENT CLEVELAND WATER SPECIFICATIONS. ALL MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH CLEVELAND WATER'S STANDARDS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING WATER MAINS AND APPURTENANCES THEREOF WHEN CONSTRUCTING OR CONNECTING THE NEW WATER MAIN. THIS SHALL

CLEVELAND WATER NOTES FOR WATER MAIN INSTALLATION AND/OR REPLACEMENT

INCLUDE LEADED JOINTS IN EXISTING FITTINGS WHICH MAY REQUIRE REPLACEMENT FITTINGS AT THE DISCRETION OF THE INSPECTOR IF IT IS DETERMINED THEY WERE DISTURBED. ALL REPAIRS TO DAMAGED EXISTING FACILITIES SHALL BE MADE BY THE CONTRACTOR, AT THE PROJECT EXPENSE, TO THE SATISFACTION OF CLEVELAND WATER.

10. ALL HYDROSTATIC PRESSURE TESTING SHALL BE DONE BY THE CONTRACTOR IN THE PRESENCE OF THE CLEVELAND WATER INSPECTOR. THE HYDROSTATIC TEST PRESSURE SHALL BE 75 PSI ABOVE THE STATIC PRESSURE PREVAILING AT THE SITE, BUT IN NO CASE LESS THAN 150 PSI. THE PRESSURE TEST SHALL BE FOR A DURATION OF TWO (2) HOURS WITH THE PRESSURE BEING MAINTAINED WITHIN 5 PSI OF THE REQUIRED TEST PRESSURE. SHOULD THE PRESSURE TEST FAIL THE CONTRACTOR SHALL FIND AND CORRECT THE DEFICIENCY(IES) TO THE SATISFACTION OF CLEVELAND WATER AND REPEAT THE TWO (2) HOUR PRESSURE TEST.

11. ALL BURIED WATER MAINS, FITTINGS, VALVES, FIRE HYDRANT BRANCH PIPING AND APPURTENANCES SHALL BE ENCASED WITH POLYETHYLENE WRAPPING IN ACCORDANCE WITH THE MOST CURRENT REVISION OF ANS/AWWA C-505/A21.5 INSTALLATION METHOD "A". ALTERNATE INSTALLATION METHOD A FOR WET TRENCH CONDITIONS SHALL BE USED WHEN WATER MAINS ARE INSTALLED IN UNPAVED LOCATIONS SUCH AS TREE LAWNS AND EASEMENTS TRAVERSING PRIVATE PROPERTY.

12. THE PROJECT'S PROFESSIONAL ENGINEER OR A DESIGNATED PROFESSIONAL SURVEYOR SHALL OBTAIN ACTUAL FIELD MEASUREMENTS OF THE MAIN DURING INSTALLATION AND SHALL FURNISH THE CLEVELAND WATER INSPECTOR WITH AS-BUILT DRAWINGS MEETING CLEVELAND WATER STANDARDS WITHIN 30 DAYS OF THE WATER MAIN GOING INTO SERVICE AND ALL TAPS/RETAPS BEING MADE. ONE HARD COPY AND ONE PDF COPY SHALL BE PROVIDED. DRAWINGS SHALL BE SIGNED, DATED, AND STAMPED WITH THE ENGINEER OR SURVEYOR'S SEAL. REGDLE DRAWINGS ARE NOT SUFFICIENT. CLEVELAND WATER RESERVES THE RIGHT TO WITHHOLD PAYMENT AND/OR APPROVAL OF FUTURE WORK IF AS-BUILTS ARE NOT SUBMITTED.

WATER MAINS

- 13. ALL PIPE, UNLESS OTHERWISE APPROVED BY CLEVELAND WATER, SHALL BE DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED HAVING PUSH-ON JOINTS WITH RADIALLY COMPRESSED RUBBER RING GASKET AND INSTALLED AS PER THE MOST CURRENT REVISION OF AWWA C600.
14. ALL FITTINGS, UNLESS OTHERWISE CALLED FOR, SHALL BE APPROVED DUCTILE IRON, CLASS 350, CEMENT LINED OR FUSION BONDED EPOXY COATED. ALL FITTINGS AND PIPE CONNECTED TO FITTINGS SHALL BE RESTRAINED USING A "REINFORCED" MECHANICAL JOINT CONFORMING TO THE MATERIAL AND PERFORMANCE REQUIREMENTS OF ANS/AWWA C-110/A21.10 AND ANS/AWWA C-111/A21.11, OR "COMPACT" FITTINGS IN ACCORDANCE WITH ANS/AWWA C-153/A23.53, EXCEPT FOR ANCHOR TEES, REDUCERS OR OTHER SPECIAL CIRCUMSTANCES WHEN BY CLEVELAND WATER. ALL FITTINGS ARE TO HAVE BELL ENDS.
15. ALL BOLTS AND NUTS ON ALL "REINFORCED" MECHANICAL JOINTS SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING.
16. WHEN SHOWN ON THE PLANS, OR WHEN OTHERWISE CALLED FOR, PIPE AND FITTINGS SHALL HAVE AN APPROVED "TYPE P" OR "TYPE IF" BOLTLESS RESTRAINED PUSH-ON JOINTS TO THE LIMITS SHOWN ON THE DRAWINGS.
17. AT THE END OF EACH WORKDAY, THE CONTRACTOR SHALL PLUG ALL OPEN PIPE ENDS WITH WATER TIGHT PLUGS AS PER THE "PREVENTATIVE

AND CORRECTIVE MEASURES DURING CONSTRUCTION" SECTION OF THE MOST CURRENT REVISION OF AWWA C-651 AS TO PREVENT THE INFILTRATION OR INTRUSION OF ANY FOREIGN OBJECTS OR MATERIALS. DATE STAMPED DIGITAL PHOTOS SHALL BE PROVIDED FOR EACH WORKDAY DEMONSTRATING THAT PROPER AWWA C-651 METHODS WERE USED TO PLUG ALL OPEN WATER MAIN ENDS. EACH PHOTO SHALL CLEARLY IDENTIFY THE STATION AT WHICH THE PIPE IS PLUGGED. THE STATIONING SHALL BE SHOWN BY THE USE OF A STATION MARKER PLACED AT THE PLUGGED PIPE END.

PHOTOS SHALL BE SUBMITTED ON A DAILY BASIS UNLESS OTHERWISE DEFINED BY THE CLEVELAND WATER INSPECTOR OR ENGINEER. ALL PHOTOS TAKEN OVER THE COURSE OF THE PROJECT SHALL BE SUBMITTED BY THE CONTRACTOR AS PART OF THE AS-BUILT SUBMITTAL. PHOTOS ARE TO INCLUDE STATIONING MARKERS. AS-BUILTS SHALL BE DEEMED INCOMPLETE WITHOUT SAID COLLECTION OF DIGITAL PHOTOS.

HYDRANTS

18. IN ALL HYDRANT INSTALLATIONS THE CONTRACTOR SHALL FACE ALL HYDRANT'S 4" (STEAMER) NOZZLE TOWARD THE PAVEMENT PRIOR TO TESTING AND CHLORINATION OF WATER MAINS. ONLY CLEVELAND WATER APPROVED HYDRANT MODELS SHALL BE INSTALLED. CONTRACTOR SHALL CONSULT WITH THE LOCAL MUNICIPALITY'S ENGINEERING OR SERVICE DEPARTMENT TO OBTAIN HYDRANT NOZZLE THREAD REQUIREMENTS IF NOT INDICATED ON THE APPROVED PLANS.

VALVES

19. ALL VALVES SHALL BE AN APPROVED MODEL RESILIENT SEATED GATE VALVES AS PER THE MOST CURRENT VERSION OF AWWA C509 OR CS15. VALVE OPERATING NUTS SHALL BE TAPERED (1 7/8" TO 2" FROM TOP TO BOTTOM) AND 2" DEEP. VALVES MORE THAN 20 YEARS OLD AT THE IN POINTS TO EXISTING MAINS SHALL BE REPLACED AT THE PROJECT'S EXPENSE UNLESS OTHERWISE DIRECTED.

SERVICE CONNECTIONS

20. ANY CITYSIDE LEAD SERVICE CONNECTION ENCOUNTERED SHALL BE REPLACED WITH TYPE K COPPER OR OTHER APPROVED MATERIAL. IF OWNERSIDE LEAD WILL REMAIN, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY CWD BY CALLING 216-664-2882 AND LEAVING A CLEVELAND WATER SUPPLIED CUSTOMER NOTIFICATION DOORHANGER ON ALL ACCESSIBLE POINTS OF ENTRY TO THE HOME.

21. AS PART OF THE AS BUILT SUBMISSION IN NOTE 12, THE CONTRACTOR SHALL PROVIDE A TABLE SHOWING ALL EXISTING CONNECTIONS IDENTIFIED BY CLEVELAND WATER CONNECTION NUMBER, SHOWING THE FOUND CONNECTION MATERIAL FOR BOTH THE CITYSIDE AND OWNERSIDE CONNECTION, AS WELL AS THE NEW CONNECTION MATERIAL FOR ALL CONNECTIONS REPLACED. THE TABLE SHALL ALSO NOTE ANY REVERSE CONNECTION MEASUREMENTS AND SIZES. A SAMPLE TABLE WILL BE PROVIDED. THE SUBMISSION SHALL BE IN MICROSOFT EXCEL FORMAT. CLEVELAND WATER SHALL REQUIRE THE DELIVERY AND ACCEPTANCE OF THIS TABLE BEFORE THE PRESSURE TEST AND CHLORINATION/DISINFECTION OF THE MAIN WILL BE PERMITTED.

EMERGENCIES

22. NEW WATER SERVICE CONNECTIONS LOCATIONS SHOWN ON THESE DRAWINGS ARE FOR REFERENCE ONLY AND ARE NOT PART OF THE WATER MAIN APPROVAL. THE SPECIFIC LOCATION FOR EACH CONNECTION WILL BE DETERMINED BY CLEVELAND WATER PRIOR TO THE TAPS BEING INSTALLED. ALL PERMITS FOR TAPS AND METERS FOR PARCELS ASSOCIATED WITH THE WATER MAINS INSTALLED ON THIS PROJECT ARE TO BE OBTAINED BY THE LAND OWNER OF SAID IMPROVEMENT PLANS. IT

IS THE LAND OWNERS RESPONSIBILITY TO ARRANGE FOR OBTAINING PERMITS FOR ALL WATER SERVICE CONNECTIONS BEFORE ANY SERVICE CONNECTION WORK MAY PROCEED. ALL FEES CAN BE OBTAINED FROM THE CLEVELAND WATER PERMITS AND SALES SECTION AT 216-664-9330 (PROMPT #7) OR 216-664-2444 (73520).

ACCOUNTS SHALL BE INITIATED IN THE LAND OWNER'S NAME AS PART OF THE PERMITTING PROCESS. ALL RESPONSIBILITIES ASSOCIATED WITH EACH WATER SERVICE, INCLUDING, THE OWNER SIDE INSPECTIONS, METER SET/METER PIPING INSPECTION AND THE METER INSTALLATION SHALL BE THE RESPONSIBILITY OF SAID OWNER.

METERS INSTALLATIONS WILL NOT BE AUTHORIZED TO BE INSTALLED UNTIL ALL INSPECTIONS HAVE BEEN COMPLETED. ESTIMATED BILLS MAY EMERGE IF A HOME IS IDENTIFIED AS HAVING WATER SERVICE BUT NO METER HAS BEEN INSTALLED. IF NEW OWNERS, ONCE PARCELS ARE SOLD OFF AND TRANSFER TITLE, DO NOT CONTACT CLEVELAND WATER TO ESTABLISH ACCOUNTS IN THEIR NAME, ACCOUNTS AND THEIR ASSOCIATED BILLS WILL REMAIN IN THE NAME OF OUR LAST OWNER OF RECORD WHICH MAY BE THE DEVELOPER OR BUILDER. IT IS THE RESPONSIBILITY OF THE NEW OWNER TO TRANSFER ACCOUNTS INTO THEIR NAME WHEN THE PROPERTIES LEGALLY TRANSFER. UPON TRANSFER OF PROPERTY, SELLER OF PROPERTY MUST COMMUNICATE ALL UNCOMPLETED PORTIONS OF THE REFERENCED RESPONSIBILITIES TO THE NEW OWNER.

23. ONE INCH SERVICE CONNECTIONS SHALL BE PERMITTED TO SERVICE NEW HOMES (AS SHOWN ON APPROVED WATER MAIN EXTENSION PLANS) BASED ON THE FOLLOWING CRITERIA:

- PEAK FLOW DEMANDS DO NOT EXCEED 25 GPM FOR AN INDIVIDUAL HOME/JUNT. INCLUSIVE OF ALL USAGE (DOMESTIC AND/OR IRRIGATION),
• LENGTH OF ONE INCH CONNECTION DOES NOT EXCEED 75 FEET AS MEASURED FROM THE MAIN TO THE POINT OF ENTRY INTO THE PROPOSED HOME/JUNT.
• THE CONNECTIONS DO NOT INCLUDE LIMITED AREA OR NFPA 130 SPRINKLER SYSTEMS

ANY SERVICE REQUESTS DEFERRING FROM THE STATED CRITERIA SHALL REQUIRE THE SUBMITTAL OF A COMPLETE WATER SERVICE APPLICATION FOR EACH WATER SERVICE REQUESTED.

24. ALL CURB VALVE BOXES & METER VAULTS WILL BE INSTALLED IN GRASS AREAS WHEN POSSIBLE. CURB VALVES IN EASEMENTS SHALL BE PLACED APPROXIMATELY 3 FEET OFF THE WATER MAIN. IF VALVE BOXES OR METER VAULTS ARE INSTALLED OUTSIDE OF A DEDICATED RIGHT OF WAY OR EASEMENT FOR THE PURPOSES OF WATER SUPPLY, A STANDARD CLEVELAND EASEMENT FOR A VAULT SHALL BE PROVIDED.

EMERGENCIES

25. IF A WATER MAIN OR SERVICE CONNECTION BREAK OCCURS DURING CONSTRUCTION AND EMERGENCY ASSISTANCE IS REQUIRED, PLEASE NOTIFY CLEVELAND WATER AT 216-664-3080. THIS LINE IS AVAILABLE 24/7/85

OHIO E.P.A. GENERAL NOTES

- 1. A MINIMUM 35 PSI PRESSURE SHALL BE DELIVERED TO THE CURB STOP BOXES DURING NORMAL OPERATING CONDITIONS FOR ALL WATER SERVICE CONNECTIONS, AND A MINIMUM 20 PSI PRESSURE AT GROUND LEVEL SHALL BE MAINTAINED UNDER ALL CONDITIONS OF FLOW.
2. BOOSTER PUMPS ARE NOT PERMITTED ON WATER SERVICE CONNECTIONS.
3. THE SANITARY SEWERS MUST PASS A LEAKAGE TEST WHICH SHALL BE A LOW PRESSURE AIR TEST IN ACCORDANCE WITH THE "TEN STATES STANDARDS" SECTION 33.95, PER ASTM F-1417 FOR PLASTIC PIPE. WATER LEAKAGE TEST LIMIT FOR SANITARY SEWER PIPING IS 100 GAL./IN. DIAMETER/MILE/DAY.
4. ALL SANITARY MANHOLES SHALL BE AIR TESTED PER ASTM SPECIFICATION C 1244-93 TO VERIFY WATER TIGHTNESS AND PROPER CONSTRUCTION PER PLAN DETAILS.
5. ALL FLEXIBLE SANITARY SEWERS MUST PASS A DEFLECTION TEST (5% MAX.)

DEFLECTION TESTS SHALL BE PERFORMED NO SOONER THAN 28 DAYS FOLLOWING COMPLETION OF BACKFILL. MAXIMUM RING DEFLECTION OF THE PIPE UNDER LOAD SHALL BE LIMITED TO 5% OF THE AVERAGE INSIDE DIAMETER LISTED IN ASTM D-2751 FOR ABS SOLID WALL PIPE AND ASTM D-2680 FOR ABS COMPOSITE WALL PIPE. ASTM D-3034 FOR POLYVINYL CHLORIDE (PVC) PIPE LISTS OUTSIDE DIMENSIONS AND MINIMUM WALL THICKNESSES WHICH MAY BE USED TO CALCULATE APPLICABLE BASE DIAMETERS. THE PROPER SIZED MANDRELS SHALL BE PULLED THROUGH THE PIPE.

ALL PIPE FAILING TO MAINTAIN THE MINIMUM DEFLECTION DIAMETER OR LARGER FOR THE APPLICABLE TYPE OF PIPE SHALL BE CONSIDERED TO HAVE BEEN IMPROPERLY INSTALLED AND SHALL BE RELAYED OR REPLACED BY THE CONTRACTOR.

- 6. ALL DUCTILE IRON WATER MAIN SHALL BE INSTALLED AND PRESSURE TESTED PER AWWA C-600. ALL POLYVINYL CHLORIDE (PVC) WATER MAIN SHALL BE INSTALLED AND PRESSURE TESTED PER AWWA C-605.
7. ALL WATER MAIN SHALL BE DISINFECTED PER AWWA C651.
8. THE FOLLOWING MINIMUM HORIZONTAL SEPARATIONS (MEASURED OUT-TO-OUT CLEAR) BETWEEN THE PROPOSED WATER LINE AND THE SEWERS SHALL BE MAINTAINED:
a.) 10 FOOT SEPARATION FROM THE STORM SEWER
b.) 10 FOOT SEPARATION FROM THE SANITARY SEWER
9. THE FOLLOWING MINIMUM VERTICAL CLEARANCES (MEASURED OUT-TO-OUT CLEAR) BETWEEN THE PROPOSED WATER LINE AND THE SEWERS SHALL BE MAINTAINED:
a.) 18 INCH CLEARANCE FROM THE STORM SEWER
b.) 18 INCH CLEARANCE FROM THE SANITARY SEWER
10. BEDDING CLASSIFICATION FOR SANITARY SEWERS SHALL BE ASTM D-2321 (CLASS 1). 100% OF BEDDING MATERIAL TO PASS 3/4 - 1 INCH SIEVE.

UTILITIES

UNDERGROUND DISTRIBUTION LINES

ALL STREET CROSSING DUCTS FOR DIRECT BURIED CABLE SERVICE LINES SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS OF THE OHIO EDISON COMPANY, WINESTREAM, AND CHARTER COMMUNICATIONS. ALL DUCTS SHALL BE 2" - 4" CONFORMING TO THE UTILITY COMPANIES' SPECIFICATIONS, SUITABLE FOR DIRECT BURIAL. THE EXCAVATION AND SUBSEQUENT BACKFILLING OF ALL STREET DUCTS SHALL BE PER THE PLAN TRENCH DETAIL FOR UNDER PAVEMENTS. ALL CONDUIT TRENCHES SHALL BE EITHER OF 12 INCHES WIDE AND 36 INCHES DEEP OR 24 INCHES WIDE AND 36 INCHES DEEP AS DETERMINED BY THE UTILITY COMPANIES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE TRENCHING, LAYING OF THE CABLES BY THE RESPECTIVE UTILITY COMPANIES AND THE SUBSEQUENT BACKFILLING. WHERE THE DUCT TRENCHES CROSS THE PROPOSED PAVEMENT COMPACTED BACKFILL PER ODOT 304 SHALL BE PLACED TO PAVEMENT SUBGRADE TO A POINT FIVE (5) FEET BEYOND PROPOSED PAVEMENT EDGES. THE UNIT PRICE BID FOR THESE ITEMS SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, BACKFILLING, COMPACTED BACKFILL WHERE NECESSARY, AND INCIDENTALS TO COMPLETE THESE ITEMS. THE FOLLOWING ESTIMATED QUANTITIES ARE INCLUDED IN THE GENERAL SUMMARY FOR USE "AS DIRECTED BY THE OWNER AND UTILITY COMPANIES" FOR THE INSTALLATION OF UNDERGROUND DISTRIBUTION LINES:

Table with 4 columns: ITEM SPECIAL, UNDERGROUND DISTRIBUTION LINES, QUANTITY, and DESCRIPTION. Includes rows for open trenching, underground duct trench under future pavement, and underground duct material.

PAVEMENT AND DRIVES

PAVEMENT AND DRIVE REMOVAL, MAINTENANCE DURING CONSTRUCTION, REPAIR AND/OR REPLACEMENT

THE EXTENT OF ANY PAVEMENT OR DRIVE THAT IS DAMAGED OR HAS TO BE REMOVED SHALL BE IN RELATION TO THE CONTRACTOR'S METHOD OF CONSTRUCTION AND THE PLAN DETAILS. ALL REMOVAL MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR OFF THE SITE AT HIS SOLE RESPONSIBILITY AND EXPENSE. ALL PAVEMENT REPAIRS SHALL BE PER SUMMIT COUNTY STANDARDS AND PLAN DETAILS. ALL OF THE COST OF ANY PAVEMENT AND DRIVE REMOVAL, MAINTENANCE DURING CONSTRUCTION, REPAIR, OR REPLACEMENT, INCLUDING ALL WORK CONSTRUCTED IN ACCORDANCE WITH PLAN DETAILS, PREMIUM TRENCH BACKFILL, SUBBASE REPLACEMENT AND COMPACTION, CONNECTION TO EXISTING PAVEMENT OR DRIVE, AND ALL OTHER INCIDENTAL ITEMS, SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

PAVEMENT

NO CONCRETE PAVEMENT OR CURBING SHALL BE LAID ON FROZEN PAVEMENT, BASE OR SUBBASE.

REVISIONS

- 7/18 PER D.S.S.S.
7/18 PER S.C.E.
7/18 PER C.W.D.

GENERAL NOTES SUBDIVISION MOTTLE RESERVE PHASES 1 & 2 SAGAMORE HILLS TOWNSHIP SUMMIT COUNTY, OHIO

DONALD G. BOHNING & ASSOCIATES, INC. CIVIL ENGINEERING & SURVEYING 7878 HUB PARKWAY VALLEY VIEW, OHIO 44125 PHONE: (216) 642-1130 FAX: (216) 642-1132



HORIZ. SCALE: -----

VERT. SCALE: -----

DRAWN BY: S.W. DATE: MAY, 2018

ORDER NO. 3750-10

