GENERAL INSTALLATION NOTES:

1. INSTALL WATER MAIN WITH 3.0 FEET OF MINIMUM COVER UNLESS OTHERWISE NOTED. DEPTH MAY INCREASE AT UTILITY AND CULVERT CROSSINGS.

2. LOCATE WIRE SHALL BE COATED (BLUE INSULATED), NO. 12 GA. SOFT DRAWN SOLID COPPER. USE WATERPROOF CONNECTORS AT ALL WIRE SPLICES.

3. NEW AND REPAIRED WATER MAINS SHALL BE DISINFECTED PER AWWA C651 PRIOR TO BEING PLACED INTO SERVICE. CONNECTION TO AN EXISTING WATER MAIN MAY ONLY BE DONE AFTER PROPER DISINFECTION, TESTING, FLUSHING AND APPROVAL BY CPU.

4. WHENEVER A PIPE IS CUT AND NOT RECONNECTED, THE CUT ENDS SHALL BE GROUT FILLED OR REMOVED, AS DIRECTED BY THE CPU INSPECTOR. PUBLIC WATER FACILITIES WITHIN THE PUBLIC RIGHT-OF-WAY SCHEDULED TO BE ABANDONED SHALL BE FILL WITH AN APPROVED CDF SLURRY OR SAND AND CAPPED AT BOTH ENDS. REFER TO THE GOVERNING BODY FOR GROUT FILLING SPECIFICATIONS. ALL VALVE BOX TOPS ASSOCIATED WITH THE ABANDONED WATER LINES SHALL BE REMOVED AND FILLED WITH CONTROLLED DENSITY (CDF) OR CONCRETE.

5. WATER MAINS BEING INSTALLED NEAR TELEPHONE/CABLE COMMUNICATIONS SHALL HAVE A MINIMUM 12" HORIZONTAL AND 6" VERTICAL CLEARANCE.

6. REQUIRED SEPARATION BETWEEN WATER LINES AND SANITARY SEWER LINES SHALL BE AS FOLLOWS:

   HORIZONTAL SEPARATIONS (PARALLEL)
   A MINIMUM SEPARATION OF TEN (10) FEET (MEASURED EDGE TO EDGE) BETWEEN SANITARY SEWER LINES AND WATER LINES SHALL BE MAINTAINED WHENEVER POSSIBLE. WHEN CONDITIONS PREVENT THE MINIMUM TEN (10) FOOT HORIZONTAL SEPARATION THE ENGINEER SHALL BE NOTIFIED.

   VERTICAL SEPARATION (PERPENDICULAR)
   WATER LINES CROSSING SANITARY SEWER LINES SHALL BE LAID ABOVE THE SEWER LINES TO PROVIDE A SEPARATION OF AT LEAST 18" BETWEEN THE INVERT OF THE WATER PIPE AND THE CROWN OF THE SANITARY SEWER PIPE. A LENGTH OF WATER PIPE SHALL BE CENTERED AT THE POINT OF CROSSING AND SHALL BE THE LONGEST STANDARD LENGTH AVAILABLE FROM THE MANUFACTURER.

7. REQUIRED SEPARATION BETWEEN WATER LINES AND UNDERGROUND PRIMARY ELECTRICAL LINES SHALL BE AS FOLLOWS:

   HORIZONTAL SEPARATIONS (PARALLEL)
   A MINIMUM SEPARATION OF FIVE (5) FEET (MEASURED EDGE TO EDGE) BETWEEN UNDERGROUND ELECTRICAL LINES AND WATER LINES SHALL BE MAINTAINED WHENEVER POSSIBLE. WHEN CONDITIONS PREVENT THE MINIMUM FIVE (5) FOOT HORIZONTAL SEPARATION THE ENGINEER SHALL BE NOTIFIED.

   VERTICAL SEPARATION (PERPENDICULAR)
   WATER LINES CROSSING UNDERGROUND ELECTRICAL LINES SHALL BE LAID ABOVE THE ELECTRICAL LINES TO PROVIDE A SEPARATION OF AT LEAST 12" BETWEEN THE INVERT OF THE WATER PIPE AND THE CROWN OF THE UNDERGROUND ELECTRICAL LINE.

8. THE CONTRACTOR SHALL USE CONSTRUCTION METHODS THAT PROTECT THE PIPE INTERIORS, FITTINGS AND VALVES AGAINST CONTAMINATION.

9. ANY PIPE, FITTINGS OR VALVES THAT CANNOT BE DISINFECTED WITH THE MAIN LINE BY CHLORINE FOR 24 HOURS SHALL HAVE THE INTERIORS SWABBED WITH A 1% HYPOCHLORITE SOLUTION BEFORE INSTALLATION.

10. CONCRETE THRUST BLOCKS SHALL BE CONSTRUCTED AT ALL TEES, BENDS, DEAD ENDS AND WHERE INDICATED ON THE PLANS.

11. ALL MJ FITTINGS SHALL BE RESTRAINED USING MJ MECHANICAL RESTRAINT FOLLOWER GLANDS APPROPRIATE FOR THE PIPE MATERIAL.

12. 6" WATER PIPE LEADING TO FIRE HYDRANTS SHALL BE DIP AND SHALL BE ONE CONTINUOUS PIECE OF PIPE. IF THE RUN IS LONGER THAN ONE PIECE OF PIPE, THEN ALL PIPE JOINTS SHALL BE MECHANICALLY RESTRAINED WITH CPU APPROVED RESTRAINTS.

13. ALL PIPE GREATER THAN 12" SHALL BE FULLY RESTRAINED DUCTILE IRON PIPE.

14. IF 3 OR MORE LOTS ARE IN A FLAG LOT, AN EXTENSION OF THE MAIN SHALL BE REQUIRED.

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FILE NAME	GENERAL INSTALLATION NOTES	Clark Public Utilities
0-GI		
SHEET 1 OF 1	STANDARD DETAILS	

GENERAL NOTES:

1. ALL CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE CLARK PUBLIC UTILITIES (CPU) WATER CONSTRUCTION SPECIFICATIONS, STANDARD DETAILS AND THE MOST CURRENT EDITION OF THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" PUBLISHED BY WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT).

2. A CPU WATER UTILITY INSPECTOR SHALL BE AT THE JOB SITE DURING AND APPROVE CONSTRUCTION OF ALL WATER FACILITIES PRIOR TO BACKFILLING. CONTACT 360-992-8022 TWO WORKING DAYS PRIOR TO COMMENCING WORK.

3. WORK WITHIN COUNTY RIGHT-OF-WAY SHALL CONFORM WITH CLARK COUNTY PUBLIC WORKS UTILITY PERMIT REQUIREMENTS AND DETAILS. WORK WITHIN STATE RIGHT-OF-WAY SHALL CONFORM TO WSDOT UTILITY PERMIT REQUIREMENTS AND DETAILS.

4. THE LOCATION OF THE UTILITIES SHALL BE VERIFIED IN ADVANCE TO ALLOW FOR ALIGNMENT ADJUSTMENTS. THE LOCATIONS OF ALL EXISTING UTILITIES ARE FOR INFORMATIONAL PURPOSES ONLY. MANY LOCATIONS ARE PER SCHEMATIC RECORD DRAWINGS. THE CURRENT AND EXACT LOCATIONS OF FACILITIES MUST BE VERIFIED PRIOR TO CONSTRUCTION. THE CONTRACTOR PERFORMING THE WORK SHALL COMPLY WITH THE PROVISIONS OF FACILITIES AT LEAST 48 BUSINESS DAY HOURS PRIOR TO EXCAVATION. CALL 811 FOR UTILITY LOCATE SERVICE.

5. ONLY TAPPING COMPANIES APPROVED BY CLARK PUBLIC UTILITIES SHALL BE USED TO MAKE ALL TAPS.

6. ACTUAL ROAD ALIGNMENTS MAY VARY FROM RIGHT-OF-WAY INDICATED. THE CONTRACTOR SHALL VERIFY THE PROPOSED PIPE ALIGNMENT AND REPORT DIFFERENCES TO THE CPU INSPECTOR. ALL ALIGNMENT CHANGES MUST BE APPROVED BY THE CPU INSPECTOR PRIOR TO INSTALLATION.

7. DRIVEWAYS DISTURBED BY CONSTRUCTION SHALL BE RESTORED BY THE CONTRACTOR TO "LIKE" OR BETTER CONDITION. REFER TO PLAN FOR APPROXIMATE LOCATIONS AND TYPES.

8. CONTRACTOR SHALL VERIFY EXISTING UTILITY CULVERTS, CONDUITS AND LINE LOCATION PRIOR TO CONSTRUCTION. DUE TO FIELD CONDITIONS, THE CONTRACTOR SHALL FIELD ADJUST THE VERTICAL AND HORIZONTAL ALIGNMENT OF THE WATER MAIN TO CLEAR THE UTILITY IN CONFLICT AND PROVIDE THE MIN. 3.0 FEET OF COVER AS APPROVED BY THE CPU INSPECTOR. ALL CULVERTS WHICH ARE DISTURBED BY CONSTRUCTION SHALL BE RESTORED BY THE CONTRACTOR IN ACCORDANCE WITH THE SPECIFICATIONS.

9. FENCES DISTURBED BY CONSTRUCTION SHALL BE RESTORED OR REPLACED BY THE CONTRACTOR TO "LIKE" OR BETTER CONDITION.

10. CONTRACTOR SHALL VERIFY EXISTING SIGN AND MAILBOX LOCATIONS PRIOR TO CONSTRUCTION. SIGNS & MAILBOXES THAT ARE DISTURBED BY CONSTRUCTION SHALL BE RELOCATED BACK FROM EDGE OF PAVEMENT, 1.0 FEET CLEAR OF WATER MAIN. ANY SIGNS OR MAILBOXES DAMAGED SHALL BE REPAIRED OR REPLACED AS PER THE SPECIFICATIONS.

11. THE WATER FACILITIES SHALL BECOME THE PROPERTY OF CLARK PUBLIC UTILITIES AFTER A SATISFACTORY BACTERIA AND PRESSURE TEST HAVE BEEN PERFORMED BY THE UTILITY. ALL MATERIALS AND WORKMANSHIP ARE SUBJECT TO A ONE YEAR WARRANTY, COMMENCING AT ACCEPTANCE OF FINAL ACCEPTANCE LETTER. REPLACEMENT AND/OR REPAIRS OF DEFECTIVE MATERIALS SHALL BE THE DEVELOPERS/OWNERS RESPONSIBILITY.

12. WHEN ASBESTOS CONCRETE PIPE IS ENCOUNTERED, THE CONTRACTOR SHALL SUPPLY WORKERS WHO ARE CERTIFIED TO WORK ON ASBESTOS CONCRETE PIPE AND SHALL FOLLOW ALL REGULATORY REQUIREMENTS.

13. THE CONTRACTOR SHALL TRANSFER AND/OR ABANDON EXISTING SERVICES AS DIRECTED BY THE INSPECTOR.

14. THE INSTALLED WATER MAIN SHALL BE PRESSURE TESTED AT A MINIMUM OF 200 PSI FOR 1 HOUR. THE TEST WILL BE PERFORMED BY THE CONTRACTOR UNDER CLARK PUBLIC UTILITIES INSPECTOR SUPERVISION.

15. THE INSTALLED WATER MAIN SHALL BE THOROUGHLY DISINFECTED AND FLUSHED IN ACCORDANCE WITH THE CLARK PUBLIC UTILITIES STANDARDS AND REQUIREMENTS. ONLY CLARK PUBLIC UTILITIES EMPLOYEES ARE PERMITTED TO FILL AND FLUSH THE WATER MAIN. THE CONTRACTOR SHALL PROVIDE ASSISTANCE AS NEEDED. IN AREAS WHERE THE DE-CHLORINATION OF FLUSHED WATER IS NOT POSSIBLE, THE CONTRACTOR SHALL PROVIDE WATER TRUCKS TO FLUSH INTO. ALL FLUSHING SHALL BE IN ACCORDANCE WITH AWWA C651 DISINFECTION STANDARDS.

16. PRIOR TO ACCEPTING THE SYSTEM OR ALLOWING THE MAIN TO BE PUT IN SERVICE, A WATER SAMPLE SHALL BE TAKEN BY THE CLARK PUBLIC UTILITIES INSPECTOR AND A TEST PERFORMED BY AN ACCREDITED LAB TO INSURE NO HAZARD EXISTS.

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FILE NAME	GENERAL NOTES	Clark Public Utilities
0-GN		
SHEET 1 OF 1	STANDARD DETAILS	

MECHANICAL JOINT RESTRAINT SPECIFICATIONS

1. MECHANICAL JOINT RESTRAINT SHALL BE ACCOMPLISHED BY A RESTRAINT DEVICE CONSISTING OF A FOLLOWER GLAND UTILIZING MULTIPLE GRIPPING WEDGES. GLAND BODY AND WEDGES SHALL BE DUCTILE IRON AND EPOXY COATED.
2. T-BOLTS AND NUTS SHALL BE HIGH STRENGTH LOW ALLOY STEEL T-BOLTS AND STEEL SHALL MEET AWWA C111 COMPOSITION SPECIFICATIONS.
3. RESTRAINT GLAND SHALL UTILIZE A STANDARD MECHANICAL JOINT GASKET.
4. THE FOLLOWING IS THE APPROVED LIST OF RESTRAINED JOINT SYSTEMS FOR MECHANICAL JOINTS AND DIP:
   - 4.1 "ROMAGRIP", ROMAC INDUSTRIES.
   - 4.2 "SERIES 1000 TUFGRIP", TYLER UNION.
   - 4.3 "MEGALUG", EBAA IRON, INC.
   - 4.4 "STARGRIP SERIES 3000", STAR PIPE PRODUCT
   - 4.5 "SIGMA ONE-LOK", OR
   - 4.6 APPROVED EQUIVALENT
5. THE FOLLOWING IS THE APPROVED LIST OF RESTRAINED JOINT SYSTEMS FOR MECHANICAL JOINTS AND PVC:
   - 5.1 "ROMAGRIP FOR PVC", ROMAC INDUSTRIES.
   - 5.2 "SERIES 2000 FOR PVC TUFGRIP", TYLER UNION.
   - 5.3 "MEGALUG SERIES 2000 PV", EBAA IRON, INC.
   - 5.4 APPROVED EQUIVALENT

DUCTILE IRON PIPE RESTRAINED JOINT SPECIFICATIONS

1. PIPE JOINT RESTRAINT FOR DIP SHALL BE ACCOMPLISHED WITH A PIPE BELL/SPIGOT INTEGRAL LOCK MECHANISM.
2. AS AN ALTERNATIVE AND WHERE ALLOWED BY CLARK PUBLIC UTILITIES, A BOLTLESS RESTRAINING GASKETS FOR DIP TYTON JOINT STYLE PIPE MAY BE USED. THE RESTRAINT GASKET SHALL BE A BOLTLESS GASKET WITH INTEGRAL RESTRAINING SYSTEM UTILIZING STAINLESS STEEL PARTS AND SHALL BE PRESSURE RATED FOR 350 PSI. THE GASKETS SHALL BE IN CONFORMANCE WITH ANSI/AWWA C111/A21.11 AND CERTIFIED TO NSF/ANSI 61. THE FOLLOWING IS THE APPROVED LIST OF DIP JOINT RESTRAINED GASKET SYSTEMS FOR PUSH-ON JOINTS AND ALLOWABLE MANUFACTURED RESTRAINED JOINT PIPE WITH GASKETS AND STEEL INSERTS:
   - 2.1 "FIELD LOK 350 GASKET" (WITH TYTON JOINT), U.S. PIPE AND FOUNDRY CO.
   - 2.2 "GRIPPER GASKET" (WITH TYTON JOINT), GRIPPER GASKET LLC.
   - 2.3 "McWANE DUCTILE SURE STOP GASKETS (WITH TYTON JOINT)
   - 2.4 "AMERICAN FAST-GRIP GASKET" (WITH FASTITE JOINT)
   - 2.5 "FLEX-RING JOINT PIPE", AMERICAN PIPE
   - 2.6 "TR FLEX JOINT PIPE", US PIPE OR MCWANE
   - 2.7 "HDSS JOINT PIPE", US PIPE
   - 2.8 APPROVED EQUIVALENT

PVC PIPE RESTRAINED JOINT SPECIFICATIONS

1. PVC PIPE JOINT RESTRAINT MAY BE ACCOMPLISHED BY UTILIZING A PROPRIETARY PVC PIPE WHICH UTILIZES A PIPE BELL/SPIGOT INTEGRAL JOINT RESTRAINT MECHANISM. THE FOLLOWING IS THE APPROVED LIST OF PROPRIETARY PVC C-900 PIPE JOINT RESTRAINED SYSTEMS:
   - 1.1 "EAGLE LOC 900", JM EAGLE
   - 1.2 "CERTA-LOK C900/RJ", CERTAINTEED
   - 1.3 "DIAMOND LOK-21/DIAMOND GRIP-TITE", DIAMOND PLASTICS INC.
   - 1.4 APPROVED EQUIVALENT

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FILE NAME	MECHANICAL JOINT & PIPE JOINT RESTRAINT SPECIFICATIONS	Clark Public Utilities
0-MJ		
SHEET 1 OF 1	STANDARD DETAILS	

EXISTING WATER SERVICES:

THE CONTRACTOR SHALL TRANSFER, MOVE AND/OR ABANDON EXISTING WATER SERVICES AS DIRECTED BY THE CLARK PUBLIC UTILITIES INSPECTOR.

1. EXISTING WATER SERVICES TO BE ABANDONED SHALL BE ABANDONED AT THE CORP, A 12" SECTION TO BE REMOVED AND BOTH ENDS TO BE CAPPED. STOP AT THE WATER MAIN AND THE CORP STOP SHALL BE CLOSED. THE METER BOX SHALL BE REMOVED AND THE WATER SERVICE LINE CAN BE ABANDONED IN PLACE. THE EXISTING METER SHALL BE REMOVED BY CLARK PUBLIC UTILITIES WATER DEPT. ROAD REPAIR SHALL BE AS REQUIRED BY THE CLARK COUNTY RIGHT OF WAY PERMIT REQUIREMENTS.

2. WHEN AN EXISTING WATER SERVICE IS TO BE MOVED, THE CONTRACTOR SHALL EXPOSE A PORTION OF THE EXISTING WATER SERVICE SO THAT THE CLARK PUBLIC UTILITIES INSPECTOR CAN EVALUATE THE MATERIAL SIZE AND CONDITION OF THE EXISTING WATER SERVICE LINE.

THE INSPECTOR WILL DETERMINE WHETHER THE WATER SERVICE LINE CAN BE EXTENDED OR SHORTENED. IF THE INSPECTOR DETERMINES THE EXISTING WATER SERVICE LINE IS SUBSTANDARD, THEN A NEW POLYETHYLENE (PE) SERVICE LINE SHALL BE INSTALLED FROM THE WATER MAIN (MINIMUM SIZE 1" DIA).

ALL EXISTING WATER SERVICE LINES THAT ARE LESS THAN 1" DIAMETER SHALL BE CONSIDERED SUBSTANDARD AND SHALL BE REPLACED WITH A NEW WATER SERVICE LINE PER CLARK PUBLIC UTILITIES STANDARDS.

MAIN LINE PIPE MATERIAL:

UNLESS OTHERWISE STATED ON THE PLAN, ALL MAIN LINE PIPE SHALL BE EITHER DUCTILE IRON PIPE (DIP), MANUFACTURED IN THE USA, OR POLYVINYL CHLORIDE PIPE (PVC). ALL PIPE SHALL BE SUITABLE FOR POTABLE WATER SERVICE IN ACCORDANCE WITH ANSI/NSF 61 STANDARDS.

A. DUCTILE IRON PIPE SHALL CONFORM TO ANSI A21.51 OR AWWA C151. USE PUSH-ON JOINTS EXCEPT WHERE OTHER JOINT TYPES ARE NOTED ON THE CONTRACT DRAWINGS. UNLESS SPECIFICALLY NOTED ON THE CONTRACT DRAWINGS, 4"-12" PIPE SHALL BE THICKNESS CLASS 52 AND PIPE SIZES GREATER THAN 12" DIAMETER SHALL BE PRESSURE CLASS 350.

B. POLYVINYL CHLORIDE (PVC) PRESSURE PIPE (4"-12"). USE UN-PLASTICIZED PVC PLASTIC PIPE WITH INTEGRAL BELL AND SPIGOT JOINTS. USE PUSH-ON JOINTS EXCEPT WHERE OTHER JOINT TYPES ARE NOTED ON THE CONTRACT DRAWINGS. PIPE SHALL MEET THE REQUIREMENTS OF DR 18, UNLESS OTHERWISE NOTED ON THE DRAWING. UNLESS SPECIFICALLY NOTED ON THE CONTRACT DRAWINGS, 4"-12" PIPE SHALL MEET THE REQUIREMENTS OF AWWA C900.

C. WHEN HIGH-DENSITY POLYETHYLENE PIPE (HDPE) IS REQUIRED OR ALLOWED IT SHALL BE BLACK WITH A MINIMUM OF TWO EQUALLY SPACED BLUE COLORED STRIPES EXTRUDED INTO THE OUTER SHELL IN CONFORMANCE WITH THE UNIFORM COLOR CODE (UCC). UNLESS OTHERWISE NOTED ON THE DRAWINGS, PIPE SHALL BE IRON PIPE SIZE (IPS) AND HAVE A WALL-THICKNESS DIMENSION RATIO (DR) OF 9. LARGE DIAMETER PIPE (4"-12") PIPE SHALL CONFORM TO ANSI/AWWA C906.

REVISED JANUARY 2026

FILE NAME	MAIN LINE PIPE MATERIAL & EXISTING WATER SERVICE NOTES	Clark Public Utilities
0-PM		
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Clark Public Utilities

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FILE NAME	WATER MAIN INSTALLATION
CPU W-SD	
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