

OILDALE MUTUAL WATER COMPANY

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EXHIBIT D-1 - IRRIGATION SYSTEM CONSTRUCTION AND MATERIAL NOTES

EXHIBIT B

DOMESTIC WATER GENERAL NOTES:

1. ALL IMPROVEMENTS SHALL BE IN ACCORDANCE WITH THE COUNTY OF KERN, OILDALE MUTUAL WATER COMPANY (OMWC), AND OTHER (CITY/COUNTY AND/OR STATE OF CALIFORNIA) STANDARDS, AS APPLICABLE.
2. PRIOR TO COMMENCING CONSTRUCTION, A PRECONSTRUCTION MEETING SHALL BE ARRANGED BETWEEN THE COUNTY OF KERN/CITY OF SHAFER, DEVELOPER, IT'S CONTRACTOR, AND THE COMPANY INSPECTOR. COMPANY MUST BE NOTIFIED 24 HOURS IN ADVANCE OF THE MEETING.
3. PIPE SPECIFICATIONS: AWWA C900/C905, DR 18 AND DR 14 PVC (DR14 ONLY USED WHEN REQUIRED BY OVMC) OR AS OTHER WISE SPECIFIED HEREIN. JOINTS SHALL BE GASKET/BELL TYPE AND COMPLY WITH ASTM D3139 SPECIFICATION. C900 PVC SHALL BE USED FOR PIPE SIZES 4" THRU 12". C905 PVC SHALL BE USED FOR PIPE SIZES 16" AND LARGER.
4. ALL GATE VALVES SHALL BE MUELLER-A2360 – FLANGED (FL) OR MECHANICAL JOINT (MJ) (NO-PUSH ON) RESILIENT WEDGE GATE VALVES IN ACCORDANCE WITH OILDALE MUTUAL WATER COMPANY STANDARDS OR OMWC APPROVED EQUAL. TOP OF OPERATING NUT TO BE A MAXIMUM OF 60" BELOW FINISH GRADE (TOP OF VALVE BOX). IF DEPTH EXCEEDS 60", A VALVE STEM EXTENSION (PIPELINE PRODUCTS PART NO: SX-908) SHALL BE ADDED TO BRING THE DEPTH OF THE OPERATING NUT BETWEEN 30"-36" FROM TOP OF VALVE BOX.
5. VALVE BOXES SHALL BE CHRISTY G05T TRAFFIC VALVE BOX WITH TRAFFIC LID G05CT MARKED "WATER". ALL VALVE BOXES SHALL BE INSTALLED WITH A CONCRETE PAD. PVC EXTENSIONS SHALL BE IN ACCORDANCE WITH OILDALE MUTUAL AFTER COMPANY STANDARDS.
6. COMPACTION REQUIREMENTS:
DEDICATED STREETS - ALL PIPELINE TRENCHES SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THIS SPECIFICATION AND THE CITY OF SHAFER/COUNTY OF KERN AND STATE OF CALIFORNIA STANDARDS, AS APPLICABLE.
7. MINIMUM SIZE FOR SERVICE CONNECTIONS SHALL BE 1 INCH. SINGLE SERVICES, WITH SADDLES, ARE REQUIRED. NO DOUBLE SERVICES ARE ALLOWED. SEE OILDALE MUTUAL WATER COMPANY STANDARDS.
CORPORATION STOP: ¾"-2" FORD FB1100 OR OMWC APPROVED EQUAL.
ANGLE METER STOPS: ¾"-1" FORD BA43, 1-1/2" – 2" FORD BA43 OR OMWC

APPROVED EQUAL.

SERVICE SADDLES: ¾", 1" AND 2" BRONZE – FORD S91 OR OMWC APPROVED EQUAL.

BRASS: ALL FITTINGS AND APPURTENANCES SHALL CONFORM TO CALIFORNIA REGULATIONS AB1953 LOW LEAD OR LEAD FREE.

8. ALL SERVICES SHALL BE METERED. ALL METERS SHALL BE STANDARD LENGTH METERS. SEE OILDALE MUTUAL WATER COMPANY STANDARDS.
METERS: TO BE OMWC SPECIFIED WITH ERT UNIT. TOTALIZE IN CUBIC FEET. OILDALE MUTUAL WATER COMPANY TO PURCHASE METERS AND CHARGE TO CONTRACTOR. METERS TO BE INSTALLED BY OILDALE MUTUAL WATER COMPANY WHEN SERVICE IS REQUESTED.
9. SERVICE PIPING SHALL BE ¾", 1", 1-1/2" OR 2" TYPE K COPPER TUBING. SEE OILDALE MUTUAL WATER COMPANY STANDARDS.
10. ALL SERVICES SHALL HAVE NO LESS THAN 30" COVER AND ALL MAINS SHALL HAVE NO LESS THAN OF 36" COVER.
11. WATER MAINS SHALL BE LAID AT HIGHER ELEVATIONS THAN NEARBY SEWER LINES AND IRRIGATION LINES. AT CROSSINGS WATER MAIN SHALL PASS OVER THE TOP OF SEWER LINES AND IRRIGATION / NON-POTABLE LINES AND IN ADDITION, THE BOTTOM OF THE WATER MAIN SHALL CLEAR THE TOP OF "COMMON" SEWER (MAIN STREET LINE) AND IRRIGATION / NON-POTABLE LINES BY A MINIMUM OF 12". THE PROVISIONS OF THE COUNTY OF KERN REGARDING CROSSING OF WATER PIPES BY IRRIGATION LINES, SEWER, AND LATERALS SHALL BE STRICTLY FOLLOWED. CLEARANCE AT ALL DOMESTIC WATER MAIN CROSSINGS AND 12" VERTICAL CLEARANCE FROM ALL OTHER PIPELINE CROSSINGS.
12. MAINTAIN A MINIMUM OF 5 FEET HORIZONTAL AND 1 FOOT VERTICAL SEPARATION BETWEEN WATER AND SEWER LATERALS. MAINTAIN A MINIMUM OF 10 FEET HORIZONTAL AND 1 FOOT VERTICAL SEPARATION BETWEEN WATER AND SEWER MAINS.
13. IN DUAL WATER SYSTEMS THE DOMESTIC WATER SYSTEM WILL NOT HAVE FIRE HYDRANTS AS THEY WILL BE INSTALLED ON THE IRRIGATION SYSTEM. IN A NON-DUAL WATER SYSTEM, FIRE HYDRANTS FOR THE DOMESTIC SYSTEM IN THE COUNTY OF KERN SHALL BE MUELLER SUPER CENTURION 200, MODEL A-421, WITH 2-2 ½" HOSE NOZZLES AND 1-4 ½" POWER NOZZLE. THE COLOR SHALL BE JOHN DEERE YELLOW.
14. SEE TRACT AGREEMENT FOR FURTHER DETAILS.
15. PRIOR TO COMMENCING CONSTRUCTION WITHIN EXISTING PUBLIC RIGHT-

OF-WAY, AN ENCROACHMENT PERMIT SHALL BE OBTAINED FROM APPROPRIATE GOVERNMENTAL AGENCY. IF PROJECT IS WITHIN PRIVATE PROPERTY AN EASEMENT SHALL BE OBTAINED.

16. OILDALE MUTUAL WATER COMPANY SHALL INSPECT THE INSTALLATION OF THIS WATER SYSTEM TO ASSURE ITS COMPLIANCE WITH THESE PLANS. INSTALLATION SHALL BE BY SUBDIVIDER OR HIS AGENT. OILDALE MUTUAL WATER COMPANY SHALL MAINTAIN THE SYSTEM AFTER IT HAS BEEN ACCEPTED BY THE COMPANY, EXCEPT AS NOTED IN PARAGRAPH 12, ABOVE. OILDALE MUTUAL WATER COMPANY'S OFFICERS EMPLOYEES, ENGINEER, AND OTHER CONSULTANTS SHALL BE PROVIDED FREE, UNOBSTRUCTED ACCESS TO THE WORK AT ALL TIMES FOR INSPECTION PURPOSES. OILDALE MUTUAL WATER COMPANY IS NOT PROVIDING SAFETY INSPECTION SERVICES. JOB SITE SAFETY IS THE RESPONSIBILITY OF SUBDIVIDER OR HIS AGENT PERFORMING THE INSTALLATION WORK.
17. INSTALLATION SHALL CONFORM TO AWWA STANDARDS AND COUNTY OF KERN SUBDIVISION STANDARDS, OILDALE MUTUAL WATER COMPANY STANDARDS, STATE OF CALIFORNIA STANDARDS, AND THE ABOVE. IN CASE OF CONFLICT, THE HIGHER STANDARD SHALL APPLY, AS DETERMINED BY THE DIRECTOR OF PUBLIC WORKS AND OILDALE MUTUAL WATER COMPANY.
18. CATALOG DATA AND AFFIDAVIT THAT ALL DELIVERED PIPE COMPLIES WITH THE REQUIREMENTS OF AWWA C900 SHALL BE PROVIDED TO THE COUNTY OF KERN ENGINEERING AND SURVEY SERVICES AS APPLICABLE, AND OILDALE MUTUAL WATER COMPANY.
19. IN A DUAL WATER SYSTEM THE DOMESTIC WATER SYSTEM IS NOT DESIGNED FOR FIRE FLOW WITH THE EXCEPTION OF RESIDENTIAL SPRINKLERS. THE IRRIGATION SYSTEM CARRIES THE FIREFLOW.
20. CONCRETE THRUST BLOCKS SHALL BE CONSTRUCTED AT ALL CHANGES IN DIRECTION, CHANGES IN SIZE, DEAD ENDS, AND LOCATIONS WHERE THRUST MAY BE DEVELOPED. THRUST BLOCKS SHALL BE CONSTRUCTED PER PLATE NO.'s 8 & 9 OF OILDALE MUTUAL WATER COMPANY STANDARDS UNLESS OTHERWISE APPROVED BY OILDALE MUTUAL WATER COMPANY. CHANGES IN SIZE FROM THOSE SHOWN IN PLATE NO.'s 8 & 9 SHALL BE ACCOMPANIED BY CALCULATIONS BASED ON SOIL VALUES ESTABLISHED BY A REGISTERED GEOTECHNICAL ENGINEER.

ALL THRUST BLOCKS TO BE POURED AGAINST UNDISTURBED SOIL, PRIOR TO POURING, OMWC WILL TEST SOIL FOR COMPACTION.

PLACE POLYETHYLENE FILM WRAP SPECIFIED BELOW AROUND ALL BURIED DUCTILE IRON VALVES AND FITTINGS.

ALL THRUST BLOCKS SHALL BE ALLOWED TO CURE, UNDISTURBED, AND MUST BE APPROVED BY OMWC PRIOR TO BACKFILL.

CONCRETE STRENGTH SHALL BE 2,000 PSI AT 28 DAYS MINIMUM AND SHALL NOT COME INTO DIRECT CONTACT WITH PIPE, FITTINGS, OR VALVES.

21. POLYETHYLENE PLASTIC FILM WRAP SHALL BE PLACED AROUND ALL BURIED DUCTILE IRON VALVES AND FITTINGS. THE POLYETHYLENE FILM SHALL BE OF VIRGIN POLYETHYLENE AND SHALL MEET THE REQUIREMENTS OF ASTM D-1248 FOR TYPE 1, CLASS A, GRADE E-1, AND ASTM D-1238. THE POLYETHYLENE FILM SHALL BE 10 MILS IN THICKNESS. THE FILM AREA SHALL BE LARGE ENOUGH TO FIRMLY ATTACH THE FILM TO THE PIPE ON EITHER SIDE OF THE VALVE, FLANGE, OR FITTING. THE FILM SHALL BE SECURED TO THE PIPE WITH ADHESIVE TAPE. ANY SEAMS OR OPENINGS SHALL BE SEALED USING A TWO-INCH WIDE ADHESIVE TAPE SUCH AS POLYKEN 900 OR APPROVED EQUAL. CONTRACTOR TO ENSURE THAT CONCRETE DOES NOT COME IN DIRECT CONTACT WITH PIPE, FITTINGS, OR VALVES.
22. CONTRACTOR TO NOTIFY UNDERGROUND SERVICE ALERT (U.S.A.) TWO DAYS PRIOR TO EXCAVATION. PHONE 1-800-227-2600.
23. ANY CONFLICTS WITHIN THIS SPECIFICATION OR BETWEEN THIS SPECIFICATION AND ANOTHER CITED SPECIFICATION SHALL BE RESOLVED BY APPLYING THE MORE STRINGENT SPECIFICATION, UNLESS DIRECTED OTHERWISE IN WRITING BY THE COMPANY.
24. COMPANY SHALL INSPECT THE WORK OF THE CONTRACTOR TO DETERMINE COMPLIANCE WITH THESE PLANS AND SPECIFICATIONS. INSPECTIONS BY COMPANY INSPECTOR SHALL IN NO WAY ABSOLVE CONTRACTOR OF HIS RESPONSIBILITY TO COMPLY WITH THESE PLANS AND SPECIFICATIONS.
25. NO CHANGES SHALL BE MADE TO APPROVE PLANS, NOR SHALL FIELD CHANGES BE MADE, WITHOUT PRIOR WRITTEN APPROVAL FROM OILDALE MUTUAL WATER COMPANY.
26. TO THE BEST OF MY KNOWLEDGE THESE PLANS MEET OR EXCEED THE MINIMUM COUNTY STANDARDS.

EXHIBIT B-1

DOMESTIC WATER GENERAL CONSTRUCTION AND MATERIALS NOTES:

THIS SPECIFICATION IS WRITTEN FOR AWWA PVC PIPE FOR WATER INSTALLATIONS. ASTM AND AWWA SPECIFICATIONS, CITY OF SHAFTER/COUNTY OF KERN, STATE OF CALIFORNIA, AND OILDALE MUTUAL WATER COMPANY STANDARDS REFERRED TO HEREIN SHALL BE THE LATEST EDITION THEREOF.

GENERAL

ALL PVC PIPE AND DUCTILE IRON FITTINGS SHALL CONFORM TO THE FOLLOWING:

- A) PIPE SHALL CONFORM TO AWWA C900/C905, DR 18 AND DR 14 PVC (DR14 ONLY USED WHEN REQUIRED BY OMWC), ASTM D3139.
- B) DUCTILE IRON PIPE SHALL BE OF THE BELL AND SPIGOT TYPE CONFORMING TO AWWA C111.
- C) EACH LENGTH OF PIPE SHALL BE MARKED WITH THE APPLICABLE ASTM, DR, PRESSURE CLASSIFICATION, NOMINAL PIPE SIZE, AND MANUFACTURER'S NAME OR TRADEMARK.
- D) A CERTIFICATE OF COMPLIANCE FROM THE PIPE MANUFACTURER SHALL BE PROVIDED.
- E) PVC PIPE SHALL NOT DEVIATE FROM STRAIGHT BY MORE THAN 1/16 INCH PER FOOT (CAMBER) WHEN THE MAXIMUM OFFSET IS MEASURED FROM THE CONCAVE SIDE OF THE PIPE.
- F) PVC PIPE SHALL BE OF THE BELL AND SPIGOT TYPE.
- G) ALL DUCTILE IRON FITTINGS SHALL BE FLANGED (FL) OR MECHANICAL JOINT (MJ) (NO-PUSH ON).

STORAGE AND HANDLING

PVC PIPE SHALL BE STORED ON A SMOOTH BED. THE PIPE SHALL NOT BE DROPPED OR DRAGGED. STORED PIPE SHALL BE COVERED TO PROTECT IT FROM ULTRAVIOLET LIGHT (SUN'S RAYS). PVC PIPE WITH NOTICEABLE COLOR CHANGES RESULTING FROM EXPOSURE TO ULTRAVIOLET LIGHT SHALL BE REJECTED.

EMBEDMENT AND BEDDING MATERIALS

EMBEDMENT MATERIALS (CLASS I, II, AND III) SHALL CONFORM TO

PARAGRAPHS 6.1.1, 6.1.2 AND 6.1.3, ASTM D2321-83A MODIFIED AS FOLLOWS:
MODIFICATION UNDERLINED.

CLASS I - ANGULAR, 1/4 TO 3/4 IN., GRADED STONES, INCLUDING A NUMBER OF FILL MATERIALS THAT HAVE REGIONAL SIGNIFICANCE SUCH AS CORAL, SLAG, CINDERS, CRUSHED STONE, CRUSHED GRAVEL, AND CRUSHED SHELLS. SOIL TYPES GW AND GP ARE REQUIRED.

CLASS II - COARSE SANDS AND GRAVELS WITH MAXIMUM PARTICLE SIZE OF 3/4 IN., INCLUDING VARIOUSLY GRADED SANDS AND GRAVELS CONTAINING SMALL PERCENTAGES OF FINES, GENERALLY GRANULAR AND NON-COHESIVE, EITHER WET OR DRY. SOIL TYPES GW, SW AND SP ARE INCLUDED IN THIS CLASS.

CLASS III - FINE SAND, SILTY SAND AND GRAVELS. SOIL TYPES SW, SP, SM AND GM ARE INCLUDED IN THIS CLASS. MAXIMUM PARTICLE SIZE IS 3/4 INCH.

SOIL CLASSIFICATION IS IN CONFORMANCE WITH UNIFIED SOIL CLASSIFICATION SYSTEM, ASTM DESIGNATION D2487 AND D2488. NATIVE SOILS MEETING THE REQUIREMENTS FOR CLASSES I, II, AND III MATERIAL MAY BE ACCEPTED BY THE COMPANY. ANY NATIVE EMBEDMENT MATERIALS NOT MEETING THESE CLASSIFICATIONS SHALL BE REPLACED BY IMPORTED MATERIALS THAT DO MEET THESE REQUIREMENTS.

BEDDING/TRENCH BOTTOM

THE TRENCH BOTTOM SHALL BE CONSTRUCTED TO PROVIDE A FIRM, STABLE AND UNIFORM SUPPORT FOR THE FULL LENGTH OF PIPE. BELL HOLES SHALL BE PROVIDED AT EACH JOINT. ANY PORTION OF THE TRENCH BOTTOM EXCAVATED BELOW GRADE SHALL BE BACKFILLED TO GRADE AND COMPACTED AS REQUIRED TO PROVIDE FIRM PIPE SUPPORT. WHEN AN UNSTABLE SUB-GRADE CONDITION IS ENCOUNTERED WHICH WILL PROVIDE INADEQUATE PIPE SUPPORT, OR WHEN LEDGE ROCK, BOULDERS, OR LARGE STONES ARE ENCOUNTERED, ADDITIONAL TRENCH DEPTH SHALL BE EXCAVATED AND REFILLED WITH SUITABLE FOUNDATION MATERIAL AND COMPACTED.

BEDDING PROCEDURE SHALL CONFORM TO PARAGRAPHS 8.1.1, 8.1.2 AND 8.1.3 OF ASTM D2321-83A AND THE FOLLOWING:

- A) CONTRACTOR SHALL PROVIDE UNIFORMLY COMPACTED BEDDING. IF THE BEDDING DOES NOT PROVIDE AN EXISTING UNIFORMLY COMPACTED SURFACE AT THE TRENCH BOTTOM IT SHALL BE REPLACED.
- B) IMPORTED BEDDING MATERIAL, IF REQUIRED, SHALL BE PLACED AND COMPACTED FOR ALL MAIN LINES AS SHOWN ON PLATE NO. 7.
- C) FLOODING OR JETTING OF BEDDING IS NOT ALLOWED.

- D) AFTER PREPARATION OF TRENCH BOTTOM AND PRIOR TO INSTALLATION OF WATER MAIN AND LATERALS, THE COMPANY SHALL INSPECT THE BOTTOM OF THE TRENCH.

INSTALLATION OF PIPE, FITTINGS HAUNCHING AND BACKFILL OF PIPE ZONE

PVC PIPE EXPOSED TO THE SUN DURING SUMMER MONTHS SHALL BE ALLOWED TO COOL PRIOR TO PLACING PIPE ZONE BACKFILL IN TRENCH. ALLOWANCES SHALL BE MADE FOR THE MOVEMENT OF PIPE ALONG THE MAIN LINE AND AT THE LATERALS. FITTINGS SHALL BE SIZED TO RECEIVE TYPE OF PIPE USED. INSTALLATION OF FITTINGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTION MANUALS.

PIPE INSTALLATION AND HAUNCHING SHALL CONFORM TO PARAGRAPHS 9.1.1, 9.1.2 AND 9.1.3 OF ASTM D2321-83A, AWWA STANDARDS AND THE FOLLOWING:

- A) ALL WATER PIPE SHALL BE INSTALLED WITH A MINIMUM 12 IN. VERTICAL CLEARANCE ABOVE ANY EXISTING OR PROPOSED SEWER PIPE OR IRRIGATION / NON-POTABLE WATER PIPE. THE REGULATIONS AS DESCRIBED IN THESE STANDARDS FOR SEWER OR IRRIGATION / NON-POTABLE PIPE CROSSINGS SHALL BE FOLLOWED CLOSELY BY THE CONTRACTOR.
- B) ALL PVC PIPE SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C651. CALCIUM HYPOCHLORITE TABLETS CONFORMING TO ANSI/AWWA B300 SHALL BE ATTACHED TO THE INSIDE TOP OF THE MAIN USING AN NSF/ANSI 61 APPROVED ADHESIVE. THE ADHESIVE SHALL ONLY BE APPLIED TO THE TABLET BEFORE BEING ATTACHED TO THE PIPE. TABLETS SHALL ONLY BE ATTACHED TO PIPE PRIOR TO INSTALLATION (SAME DAY). CHLORINE TABLETS FOR SWIMMING POOLS WILL NOT BE ALLOWED.
- C) AFTER LAYING THE PVC PIPE, HAUNCHING SHALL BE PLACED. CARE SHALL BE TAKEN TO PLACE MATERIAL UNDER THE HAUNCHES SO THAT IT PROVIDES ADEQUATE SIDE SUPPORT OF THE PIPE. MATERIAL SHALL BE PLACED TO THE SPRING LINE OF THE PIPE AND COMPACTED BY HAND OR MECHANICAL TAMPING.
- D) MATERIALS USED FOR HAUNCHING SHALL BE THE SAME CLASS AS USED FOR BEDDING.
- E) CARE SHALL BE EXERCISED IN PLACING HAUNCHING MATERIAL TO PREVENT DAMAGE TO OR DISPLACEMENT OF THE WATER PIPE.
- F) PRIOR TO PLACEMENT AND COMPACTION OF UPPER PIPE ZONE BACKFILL, A

BLUE 12 GAUGE TRACE WIRE SHALL BE INSTALLED ON ALL MAINS AND THE COMPANY SHALL INSPECT THE PLACEMENT OF THE WATER MAIN AND ALL SERVICE LATERALS, HAUNCHING AND COMPACTION OF PIPE ZONE BACKFILL. BLUE DETECTABLE WATER TAPE SHALL BE PLACED 12 TO 18 IN. ABOVE ALL POTTABLE MAINS.

- G) INITIAL BACKFILL SHALL BE PLACED IN TWO STAGES; ONE TO THE TOP OF THE PIPE AND THE OTHER TO A POINT AT LEAST 12 IN. OVER TOP OF THE PIPE. COMPACT EACH STAGE OF HAUNCHING AND INITIAL BACKFILL BY HAND OR MECHANICAL TAMPING TO A MINIMUM OF 90% RELATIVE COMPACTION. IN NO CASE SHALL THE COMPACTION EQUIPMENT COME IN DIRECT CONTACT WITH THE PIPE. THE CONTRACTOR SHALL BACKFILL A MINIMUM OF 12 INCHES PRIOR TO COMPACTION DIRECTLY OVER THE PIPE. SEE PLATE NO. 7.
- H) MATERIALS USED FOR THE PIPE ZONE BACKFILL SHALL BE THE SAME CLASS AS THAT USED FOR HAUNCHING.
- I) COMPACTION METHODS USED BY THE CONTRACTOR SHALL BE SUBJECT TO REVIEW BY OILDALE MUTUAL WATER COMPANY'S ENGINEER. ANY TRENCH COMPACTIONED BY METHODS OF COMPACTION NOT RECEIVING PRIOR APPROVAL BY THE COMPANY ENGINEER SHALL BE REMOVED AT THE CONTRACTOR'S EXPENSE.
- J) FLOODING OR JETTING IS NOT ALLOWED.
- K) TESTING OF PIPE ZONE MATERIAL SHALL BE DONE FOR EACH INSTALLATION. TESTING SHALL BE IN ACCORDANCE WITH THE CITY OF SHAFER/COUNTY OF KERN. A MINIMUM OF 5 TESTS PER SUBDIVISION SHALL BE MADE, OR 1 TEST PER 500 FEET OF PIPE INSTALLED, WHICH EVER IS GREATER. PIPE ZONE MATERIAL NOT MEETING COMPACTION REQUIREMENTS SHALL BE RE-COMPACTIONED.

CLEANING

AFTER PRESSURE TESTING AND PRIOR TO ACCEPTANCE OF THE WORK, THE ENTIRE PIPELINE, INCLUDING ALL VALVES, FITTINGS, AND OTHER ACCESSORIES, SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C651, OILDALE MUTUAL WATER COMPANY AND AS FOLLOWS:

CHLORINE RESIDUAL SHALL BE DETERMINED IN ACCORDANCE WITH ONE OF THE METHODS SPECIFIED IN AWWA C651 WITH SUFFICIENT AMOUNTS OF CHLORINE TO PRODUCE A DOSAGE GREATER THAN 50 PPM AND A RESIDUAL OF NOT LESS THAN 25 PPM IN ALL PARTS OF THE LINE AFTER A 24 HOUR PERIOD HAS ELAPSED.

FOLLOWING THE FLUSHING OF THE LINE THE WATER COMPANY SHALL RETAIN A QUALIFIED LABORATORY TO PERFORM A BACTERIOLOGICAL TEST. A COMPANY REPRESENTATIVE SHALL TAKE WATER SAMPLE AND DELIVER TO THE SAME. SUCH TEST SHALL MEET THE STATE DEPARTMENT OF HEALTH SERVICES REQUIREMENTS FOR DOMESTIC WATER PURPOSES PRIOR TO ACCEPTANCE OF THE LINES BY THE WATER COMPANY. THE COST OF THE TEST(S) SHALL BE INCLUDED IN THE ADMINISTRATION/INSPECTION FEES PAID TO THE WATER COMPANY BY THE OWNER.

TESTING

DISTRIBUTION MAINS SHALL BE TESTED TO A MINIMUM HYDROSTATIC PRESSURE OF DESIGN PIPE CLASS. CLASS 150 PIPE SHALL BE TESTED TO A MINIMUM OF 150 PSIG. THE MINIMUM DURATION OF THE TEST SHALL BE TWO HOURS. BEFORE APPLYING THE HYDROSTATIC PRESSURE, ALL ENTRAPPED AIR SHALL BE THOROUGHLY BLED OFF. FOR ALL TYPES OF WATER MAINS, THERE SHALL BE NO VISIBLE LEAKAGE AT ANY JOINT OR SECTION OF PIPE AND THE ALLOWABLE LEAKAGE FOR THE TOTAL LENGTHS OF ALL WATER MAINS UNDER TEST SHALL NOT EXCEED THAT AMOUNT SPECIFIED IN "AWWA C605" OR "AWWA M23" AS APPROPRIATE.

ALL TESTS SHALL BE MADE IN THE PRESENCE OF A REPRESENTATIVE OF THE WATER COMPANY. BACKFILL OVER JOINTS, VALVES OR FITTINGS SHALL NOT EXCEED THE INITIAL BACKFILL UNTIL THEY HAVE BEEN INSPECTED, TESTED, AND APPROVED BY THE WATER COMPANY.

WHEN IT IS NECESSARY TO COVER THE DITCH AS SOON AS THE WATER MAIN IS LAID, THE AUTHORIZED REPRESENTATIVE OF THE COMPANY OR THE ENGINEER MAY PERMIT THE BACKFILLING TO BE COMPLETED PRIOR TO TESTING AND DISINFECTION. IF THE PIPE THEN TESTED EXCEEDS THE ALLOWABLE LEAKAGE, THE PIPE MUST BE UNCOVERED, REPAIRED, AND TESTED UNTIL IT MEETS THE ALLOWABLE LEAKAGE.

BACKFILL

THE REMAINDER OF THE TRENCH BACKFILL SHALL CONFORM TO THE CITY OF SHAFTER, KERN COUNTY ENGINEERING AND SURVEY SERVICES DEPARTMENT, STATE OF CALIFORNIA, AS APPLICABLE, AND AS FOLLOWS:

- A) BACKFILL MATERIAL SHALL BE FREE OF ALL ROCKS OR LUMPS EXCEEDING SIX (6) INCHES MAXIMUM DIMENSION. NO ROCK OR LUMP EXCEEDING 1 INCH DIAMETER SHALL BE ALLOWED WITHIN 12" OF THE PIPE.
- B) COMPACTION OF BACKFILL MATERIAL SHALL BE REQUIRED FOR ALL MAIN LINES AND SERVICE LATERALS AS SHOWN ON PLATE NO 7 AND AS REQUIRED BY THE CITY OF SHAFTER OR KERN COUNTY ENGINEERING

SURVEY SERVICES DEPARTMENT, OR STATE OF CALIFORNIA, AS APPLICABLE.

- C) FLOODING OR JETTING IS NOT ALLOWED.

EXHIBIT D

IRRIGATION SYSTEM GENERAL NOTES:

1. ALL IMPROVEMENTS SHALL BE IN ACCORDANCE WITH COUNTY OF KERN, CITY OF SHAFTER, OILDALE MUTUAL WATER COMPANY (OMWC), AND OTHER (CITY/COUNTY AND/OR STATE OF CALIFORNIA) STANDARDS, AS APPLICABLE.
2. PRIOR TO COMMENCING CONSTRUCTION, A PRECONSTRUCTION MEETING SHALL BE ARRANGED BETWEEN THE COUNTY OF KERN/CITY OF SHAFTER, DEVELOPER, IT'S CONTRACTOR, AND THE COMPANY INSPECTOR. COMPANY MUST BE NOTIFIED 24 HOURS IN ADVANCE OF THE MEETING.
3. PIPE SPECIFICATIONS: ALL IRRIGATION PIPE SHALL BE PURPLE PVC PIPE. AWWA C900/C905, DR 18 AND DR 14 PVC (DR14 ONLY USED WHEN REQUIRED BY OMWC) OR AS OTHER WISE SPECIFIED HEREIN. JOINTS SHALL BE GASKET/BELL TYPE AND COMPLY WITH ASTM D3139 SPECIFICATION. C900 PVC SHALL BE USED FOR PIPE SIZES 4" THRU 12". C905 PVC SHALL BE USED FOR PIPE SIZES 16" AND LARGER.
4. ALL GATE VALVES SHALL BE MUELLER-A2360 – FLANGED (FL) OR MECHANICAL JOINT (MJ) (NO-PUSH ON) RESILIENT WEDGE GATE VALVES IN ACCORDANCE WITH OILDALE MUTUAL WATER COMPANY STANDARDS OR OMWC APPROVED EQUAL. TOP OF OPERATING NUT TO BE A MAXIMUM OF 60" BELOW FINISH GRADE (TOP OF VALVE BOX). IF DEPTH EXCEEDS 60", A VALVE STEM EXTENSION (PIPELINE PRODUCTS PART NO: SX-908) SHALL BE ADDED TO BRING THE DEPTH OF THE OPERATING NUT BETWEEN 30"-36" FROM TOP OF VALVE BOX.
5. VALVE BOXES SHALL BE CHRISTY G04 TRAFFIC VALVE BOX WITH TRAFFIC LID G04C MARKED "IRRIGATION". PVC EXTENSIONS SHALL BE IN ACCORDANCE WITH OILDALE MUTUAL AFTER COMPANY STANDARDS. ALL VALVE BOXES SHALL BE INSTALLED WITH A CONCRETE PAD. ALL BOXES AND LIDS SHALL BE PURPLE – OMWC APPROVED COLOR.
6. COMPACTION REQUIREMENTS:
DEDICATED STREETS - ALL PIPELINE TRENCHES SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THIS SPECIFICATION AND THE CITY OF SHAFTER/COUNTY OF KERN AND STATE OF CALIFORNIA STANDARDS, AS

APPLICABLE.

7. MINIMUM SIZE FOR SERVICE CONNECTIONS SHALL BE 3/4 INCH. SINGLE SERVICES, WITH SADDLES, ARE REQUIRED. NO DOUBLE SERVICES ARE ALLOWED. SEE OILDALE MUTUAL WATER COMPANY STANDARDS.

CORPORATION STOPS: 3/4" - 2" FORD FB1100 OR OMWC APPROVED EQUAL.

ANGLE METER STOPS: 3/4" - 1" FORD BA43, 1-1/2" - 2" FORD BA43 OR OMWC APPROVED EQUAL.

SERVICE SADDLES: 3/4", 1" AND 2" BRONZE - FORD S91 OR OMWC APPROVED EQUAL.

BRASS: ALL FITTINGS AND APPURTENANCES SHALL CONFORM TO CALIFORNIA REGULATIONS AB1953 LOW LEAD AND LEAD FREE.

ALL CURB STOPS, ANGLE METER STOPS, TEES ELBOWS, COUPLING, ETC. FOR IRRIGATION SYSTEMS SHALL BE FITTINGS WITH PURPLE HANDLES OR APPROVED EQUAL.

8. ALL SERVICES SHALL BE METERED. SEE OILDALE MUTUAL WATER COMPANY STANDARDS.

METERS: TO BE OMWC SPECIFIED WITH ERT UNIT. TOTALIZE IN CUBIC FEET. OILDALE MUTUAL WATER COMPANY TO PURCHASE METERS AND CHARGE TO CONTRACTOR. METERS TO BE INSTALLED BY OILDALE MUTUAL WATER COMPANY WHEN SERVICE IS REQUESTED.

9. SERVICE PIPING SHALL BE 3/4", 1", 1-1/2" OR 2" TYPE K COPPER TUBING. SEE OILDALE MUTUAL WATER COMPANY STANDARDS.

10. ALL IRRIGATION WATER MAINS SHALL HAVE A MINIMUM OF 48" COVER.

11. IRRIGATION MAINS SHALL BE LAID AT LOWER ELEVATIONS THAN THE DOMESTIC WATER MAINS. IRRIGATION WATER MAINS SHALL BE INSTALLED WITH A MINIMUM OF 12" VERTICAL CLEARANCE AT ALL DOMESTIC WATER MAIN CROSSINGS AND 12" VERTICAL CLEARANCE FROM ALL OTHER PIPELINE CROSSINGS.

12. MAINTAIN A MINIMUM OF 5 FEET HORIZONTAL AND 1 FOOT VERTICAL SEPARATION BETWEEN WATER AND SEWER LATERALS. MAINTAIN A MINIMUM OF 10 FEET HORIZONTAL AND 1 FOOT VERTICAL SEPARATION BETWEEN WATER AND SEWER MAINS.

13. FIRE HYDRANTS SHALL BE CONNECTED TO THE IRRIGATION SYSTEM. FIRE HYDRANTS IN THE COUNTY OF KERN/CITY OF SHAFTER SHALL BE CLOW,

MODEL #850, WITH 2-2 ½” HOSE NOZZLES AND 1-4 ½” POWER NOZZLE. THE HYDRANT COLOR SHALL BE PURPLE. OMWC APPROVED COLOR.

14. SEE TRACT AGREEMENT FOR FURTHER DETAILS.
15. PRIOR TO COMMENCING CONSTRUCTION WITHIN EXISTING PUBLIC RIGHT-OF-WAY, AN ENCROACHMENT PERMIT SHALL BE OBTAINED FROM APPROPRIATE GOVERNMENTAL AGENCY. IF PROJECT IS WITHIN PRIVATE PROPERTY AN EASEMENT SHALL BE OBTAINED.
16. OILDALE MUTUAL WATER COMPANY SHALL INSPECT THE INSTALLATION OF THIS IRRIGATION SYSTEM TO ASSURE ITS COMPLIANCE WITH THESE PLANS. INSTALLATION SHALL BE BY SUBDIVIDER OR HIS AGENT. OILDALE MUTUAL WATER COMPANY SHALL MAINTAIN THE SYSTEM AFTER IT HAS BEEN ACCEPTED BY THE COMPANY, EXCEPT AS NOTED IN PARAGRAPH 12, ABOVE. OILDALE MUTUAL WATER COMPANY'S OFFICERS EMPLOYEES, ENGINEER, AND OTHER CONSULTANTS SHALL BE PROVIDED FREE, UNOBSTRUCTED ACCESS TO THE WORK AT ALL TIMES FOR INSPECTION PURPOSES. OILDALE MUTUAL WATER COMPANY IS NOT PROVIDING SAFETY INSPECTION SERVICES. JOB SITE SAFETY IS THE RESPONSIBILITY OF SUBDIVIDER OR HIS AGENT PERFORMING THE INSTALLATION WORK.
17. INSTALLATION SHALL CONFORM TO AWWA STANDARDS AND CITY OF SHAFTER/COUNTY OF KERN SUBDIVISION STANDARDS, OILDALE MUTUAL WATER COMPANY STANDARDS, STATE OF CALIFORNIA STANDARDS, AND THE ABOVE. IN CASE OF CONFLICT, THE HIGHER STANDARD SHALL APPLY, AS DETERMINED BY THE DIRECTOR OF PUBLIC WORKS AND OILDALE MUTUAL WATER COMPANY, AS APPLICABLE.
18. CATALOG DATA AND AFFIDAVIT THAT ALL DELIVERED PIPE COMPLIES WITH THE REQUIREMENTS OF AWWA C900 SHALL BE PROVIDED TO THE CITY OF SHAFTER PUBLIC WORKS DEPARTMENT/COUNTY OF KERN ENGINEERING AND SURVEY SERVICES AS APPLICABLE, AND OILDALE MUTUAL WATER COMPANY.
19. THIS WATER SYSTEM IS DESIGNED TO PROVIDE 1,000 GPM MINIMUM FIRE FLOW PLUS DOMESTIC DEMAND.
20. CONCRETE THRUST BLOCKS SHALL BE CONSTRUCTED AT ALL CHANGES IN DIRECTION, CHANGES IN SIZE, DEAD ENDS, AND LOCATIONS WHERE THRUST MAY BE DEVELOPED. THRUST BLOCKS SHALL BE CONSTRUCTED PER PLATE NO.'s 8 & 9 OF OILDALE MUTUAL WATER COMPANY STANDARDS UNLESS OTHERWISE APPROVED BY OILDALE MUTUAL WATER COMPANY. CHANGES IN SIZE FROM THOSE SHOWN IN PLATE NO.'s 8 & 9 SHALL BE ACCOMPANIED BY CALCULATIONS BASED ON SOIL VALUES ESTABLISHED BY A REGISTERED GEOTECHNICAL ENGINEER AND ARE SUBJECT TO

REVIEW BY THE COMPANY.

ALL THRUST BLOCKS TO BE POURED AGAINST UNDISTURBED SOIL, PRIOR TO POURING, OMWC WILL TEST SOIL FOR COMPACTION.

PLACE POLYETHYLENE FILM WRAP SPECIFIED BELOW AROUND ALL BURIED DUCTILE IRON VALVES AND FITTINGS.

ALL THRUST BLOCKS SHALL BE ALLOWED TO CURE, UNDISTURBED, AND MUST BE APPROVED BY OMWC PRIOR TO BACKFILL.

CONCRETE STRENGTH SHALL BE 2,000 PSI AT 28 DAYS MINIMUM AND SHALL NOT COME INTO DIRECT CONTACT WITH PIPE, FITTINGS, OR VALVES.

21. POLYETHYLENE PLASTIC FILM WRAP SHALL BE PLACED AROUND ALL BURIED DUCTILE IRON VALVES AND FITTINGS. THE POLYETHYLENE FILM SHALL BE OF VIRGIN POLYETHYLENE AND SHALL MEET THE REQUIREMENTS OF ASTM D-1248 FOR TYPE 1, CLASS A, GRADE E-1, AND ASTM D-1238. THE POLYETHYLENE FILM SHALL BE 10 MILS IN THICKNESS. THE FILM AREA SHALL BE LARGE ENOUGH TO FIRMLY ATTACH THE FILM TO THE PIPE ON EITHER SIDE OF THE VALVE, FLANGE, OR FITTING. THE FILM SHALL BE SECURED TO THE PIPE WITH ADHESIVE TAPE. ANY SEAMS OR OPENINGS SHALL BE SEALED USING A TWO-INCH WIDE ADHESIVE TAPE SUCH AS POLYKEN 900 OR APPROVED EQUAL. THE FILM WRAP SHALL BE THE COLOR PURPLE
22. CONTRACTOR TO NOTIFY UNDERGROUND SERVICE ALERT (U.S.A.) TWO DAYS PRIOR TO EXCAVATION. PHONE 1-800-642-2444.
23. ANY CONFLICTS WITHIN THIS SPECIFICATION OR BETWEEN THIS SPECIFICATION AND ANOTHER CITED SPECIFICATION SHALL BE RESOLVED BY APPLYING THE MORE STRINGENT SPECIFICATION, UNLESS DIRECTED OTHERWISE IN WRITING BY THE COMPANY.
24. COMPANY SHALL INSPECT THE WORK OF THE CONTRACTOR TO DETERMINE COMPLIANCE WITH THESE PLANS AND SPECIFICATIONS. INSPECTIONS BY COMPANY INSPECTOR SHALL IN NO WAY ABSOLVE CONTRACTOR OF HIS RESPONSIBILITY TO COMPLY WITH THESE PLANS AND SPECIFICATIONS.
25. NO CHANGES SHALL BE MADE TO APPROVE PLANS, NOR SHALL FIELD CHANGES BE MADE, WITHOUT PRIOR WRITTEN APPROVAL FROM OILDALE MUTUAL WATER COMPANY.
26. TO THE BEST OF MY KNOWLEDGE THESE PLANS MEET OR EXCEED THE MINIMUM COUNTY STANDARDS.

EXHIBIT D-1

IRRIGATION SYSTEM GENERAL CONSTRUCTION AND MATERIALS NOTES:

THIS SPECIFICATION IS WRITTEN FOR AWWA PVC PIPE FOR IRRIGATION WATER INSTALLATIONS. ASTM AND AWWA SPECIFICATIONS, COUNTY OF KERN, STATE OF CALIFORNIA, AND OILDALE MUTUAL WATER COMPANY STANDARDS REFERRED TO HEREIN SHALL BE THE LATEST EDITION THEREOF.

GENERAL

ALL PVC PIPE AND DUCTILE IRON FITTINGS SHALL CONFORM TO THE FOLLOWING:

- A) PIPE SHALL CONFORM TO AWWA C900/C905, DR 18 AND DR 14 PVC (DR14 ONLY USED WHEN REQUIRED BY OMWC), ASTM D3139.
- B) DUCTILE IRON PIPE SHALL BE OF THE BELL AND SPIGOT TYPE CONFORMING TO AWWA C111.
- C) EACH LENGTH OF PIPE SHALL BE MARKED WITH THE APPLICABLE ASTM, DR, PRESSURE CLASSIFICATION, NOMINAL PIPE SIZE, AND MANUFACTURER'S NAME OR TRADEMARK.
- D) A CERTIFICATE OF COMPLIANCE FROM THE PIPE MANUFACTURER SHALL BE PROVIDED.
- E) PVC PIPE SHALL NOT DEVIATE FROM STRAIGHT BY MORE THAN 1/16 INCH PER FOOT (CAMBER) WHEN THE MAXIMUM OFFSET IS MEASURED FROM THE CONCAVE SIDE OF THE PIPE.
- F) PVC PIPE SHALL BE OF THE BELL AND SPIGOT TYPE.
- G) ALL DUCTILE IRON FITTINGS SHALL BE FLANGED (FL) OR MECHANICAL JOINT (MJ) (NO-PUSH ON).

STORAGE AND HANDLING

PVC PIPE SHALL BE STORED ON A SMOOTH BED. THE PIPE SHALL NOT BE DROPPED OR DRAGGED. STORED PIPE SHALL BE COVERED TO PROTECT IT FROM ULTRAVIOLET LIGHT (SUN'S RAYS). PVC PIPE WITH NOTICEABLE COLOR CHANGES RESULTING FROM EXPOSURE TO ULTRAVIOLET LIGHT SHALL BE REJECTED.

EMBEDMENT AND BEDDING MATERIALS

EMBEDMENT MATERIALS (CLASS I, II, AND III) SHALL CONFORM TO PARAGRAPHS 6.1.1, 6.1.2 AND 6.1.3, ASTM D2321-83A MODIFIED AS FOLLOWS: MODIFICATION UNDERLINED.

CLASS I - ANGULAR, 1/4 TO 3/4 IN., GRADED STONES, INCLUDING A NUMBER OF FILL MATERIALS THAT HAVE REGIONAL SIGNIFICANCE SUCH AS CINDERS, CRUSHED STONE, AND CRUSHED GRAVEL. SOIL TYPES GW AND GP ARE REQUIRED.

CLASS II - COARSE SANDS AND GRAVELS WITH MAXIMUM PARTICLE SIZE OF 3/4 IN., INCLUDING VARIOUSLY GRADED SANDS AND GRAVELS CONTAINING SMALL PERCENTAGES OF FINES, GENERALLY GRANULAR AND NON-COHESIVE, EITHER WET OR DRY. SOIL TYPES GW, SW AND SP ARE INCLUDED IN THIS CLASS.

CLASS III - FINE SAND, SILTY SAND AND GRAVELS. SOIL TYPES SW, SP, SM AND GM ARE INCLUDED IN THIS CLASS. MAXIMUM PARTICLE SIZE IS 3/4 INCH.

SOIL CLASSIFICATION IS IN CONFORMANCE WITH UNIFIED SOIL CLASSIFICATION SYSTEM, ASTM DESIGNATION D2487 AND D2488. NATIVE SOILS MEETING THE REQUIREMENTS FOR CLASSES I, II, AND III MATERIAL MAY BE ACCEPTED BY THE COMPANY. ANY NATIVE EMBEDMENT MATERIALS NOT MEETING THESE CLASSIFICATIONS SHALL BE REPLACED BY IMPORTED MATERIALS THAT DO MEET THESE REQUIREMENTS.

BEDDING/TRENCH BOTTOM

THE TRENCH BOTTOM SHALL BE CONSTRUCTED TO PROVIDE A FIRM, STABLE AND UNIFORM SUPPORT FOR THE FULL LENGTH OF PIPE. BELL HOLES SHALL BE PROVIDED AT EACH JOINT. ANY PORTION OF THE TRENCH BOTTOM EXCAVATED BELOW GRADE SHALL BE BACKFILLED TO GRADE AND COMPACTED AS REQUIRED TO PROVIDE FIRM PIPE SUPPORT. WHEN AN UNSTABLE SUB-GRADE CONDITION IS ENCOUNTERED WHICH WILL PROVIDE INADEQUATE PIPE SUPPORT, OR WHEN LEDGE ROCK, BOULDERS, OR LARGE STONES ARE ENCOUNTERED, ADDITIONAL TRENCH DEPTH SHALL BE EXCAVATED AND REFILLED WITH SUITABLE FOUNDATION MATERIAL AND COMPACTED.

BEDDING PROCEDURE SHALL CONFORM TO PARAGRAPHS 8.1.1, 8.1.2 AND 8.1.3 OF ASTM D2321-83A AND THE FOLLOWING:

- A) CONTRACTOR SHALL PROVIDE UNIFORMLY COMPACTED BEDDING. IF THE BEDDING DOES NOT PROVIDE AN EXISTING UNIFORMLY COMPACTED SURFACE AT THE TRENCH BOTTOM IT SHALL BE REPLACED.
- B) IMPORTED BEDDING MATERIAL, IF REQUIRED, SHALL BE PLACED AND COMPACTED FOR ALL MAIN LINES AS SHOWN ON PLATE IRR-7.

- C) FLOODING OR JETTING OF BEDDING IS NOT ALLOWED.
- D) AFTER PREPARATION OF TRENCH BOTTOM AND PRIOR TO INSTALLATION OF IRRIGATION WATER MAIN AND LATERALS, THE COMPANY SHALL INSPECT THE BOTTOM OF THE TRENCH.

INSTALLATION OF PIPE, FITTINGS HAUNCHING AND BACKFILL OF PIPE ZONE

PVC PIPE EXPOSED TO THE SUN DURING SUMMER MONTHS SHALL BE ALLOWED TO COOL PRIOR TO PLACING PIPE ZONE BACKFILL IN TRENCH. ALLOWANCES SHALL BE MADE FOR THE MOVEMENT OF PIPE ALONG THE MAIN LINE AND AT THE LATERALS. FITTINGS SHALL BE SIZED TO RECEIVE TYPE OF PIPE USED. INSTALLATION OF FITTINGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTION MANUALS.

PIPE INSTALLATION AND HAUNCHING SHALL CONFORM TO PARAGRAPHS 9.1.1, 9.1.2 AND 9.1.3 OF ASTM D2321-83A, AWWA STANDARDS AND THE FOLLOWING:

- A) ALL IRRIGATION WATER PIPE SHALL BE INSTALLED WITH A MINIMUM 12 IN. VERTICAL CLEARANCE BELOW ANY EXISTING OR PROPOSED DOMESTIC WATER PIPE. THE REGULATIONS AS DESCRIBED IN THESE STANDARDS FOR ALL UTILITY CROSSINGS SHALL BE FOLLOWED CLOSELY BY THE CONTRACTOR.
- B) AFTER LAYING THE PVC PIPE, HAUNCHING SHALL BE PLACED. CARE SHALL BE TAKEN TO PLACE MATERIAL UNDER THE HAUNCHES SO THAT IT PROVIDES ADEQUATE SIDE SUPPORT OF THE PIPE. MATERIAL SHALL BE PLACED TO THE SPRING LINE OF THE PIPE AND COMPACTED BY HAND OR MECHANICAL TAMPING.
- C) MATERIALS USED FOR HAUNCHING SHALL BE THE SAME CLASS AS USED FOR BEDDING.
- D) CARE SHALL BE EXERCISED IN PLACING HAUNCHING MATERIAL TO PREVENT DAMAGE TO OR DISPLACEMENT OF THE IRRIGATION WATER PIPE.
- E) PRIOR TO PLACEMENT AND COMPACTION OF UPPER PIPE ZONE BACKFILL, A PURPLE 12 GAUGE TRACE WIRE SHALL BE INSTALLED ON ALL IRRIGATION MAINS AND THE COMPANY SHALL INSPECT THE PLACEMENT OF THE IRRIGATION MAINS AND ALL SERVICE LATERALS, HAUNCHING AND COMPACTION OF PIPE ZONE BACKFILL. PURPLE DETECTABLE WATER TAPE SHALL BE PLACED 12 TO 18 IN. ABOVE ALL NON-POTTABLE MAINS.
- F) INITIAL BACKFILL SHALL BE PLACED IN TWO STAGES; ONE TO THE TOP OF

THE PIPE AND THE OTHER TO A POINT AT LEAST 12 IN. OVER TOP OF THE PIPE. COMPACT EACH STAGE OF HAUNCHING AND INITIAL BACKFILL BY HAND OR MECHANICAL TAMPING TO A MINIMUM OF 90% RELATIVE COMPACTION. IN NO CASE SHALL THE COMPACTION EQUIPMENT COME IN DIRECT CONTACT WITH THE PIPE. THE CONTRACTOR SHALL BACKFILL A MINIMUM OF 12 INCHES PRIOR TO COMPACTING DIRECTLY OVER THE PIPE. SEE PLATE NO. 7.

- G) MATERIALS USED FOR THE PIPE ZONE BACKFILL SHALL BE THE SAME CLASS AS THAT USED FOR HAUNCHING.
- H) COMPACTION METHODS USED BY THE CONTRACTOR SHALL BE SUBJECT TO REVIEW BY THE OILDALE MUTUAL WATER COMPANY'S ENGINEER. ANY PIPE COMPACTED BY METHODS OF COMPACTION NOT RECEIVING PRIOR APPROVAL BY THE SAME SHALL BE REMOVED AT THE CONTRACTOR'S EXPENSE.
- I) FLOODING OR JETTING IS NOT ALLOWED.
- J) TESTING OF PIPE ZONE MATERIAL SHALL BE DONE FOR EACH INSTALLATION. TESTING SHALL BE IN ACCORDANCE WITH THE CITY OF SHAFER/COUNTY OF KERN. A MINIMUM OF 5 TESTS PER SUBDIVISION SHALL BE MADE, OR 1 TEST PER 500 FEET OF PIPE INSTALLED, WHICH EVER IS GREATER. PIPE ZONE MATERIAL NOT MEETING COMPACTION REQUIREMENTS SHALL BE RE-COMPACTED.

CLEANING

AFTER PRESSURE TESTING AND PRIOR TO ACCEPTANCE OF THE WORK, THE ENTIRE PIPELINE, INCLUDING ALL VALVES, FITTINGS, HYDRANTS AND OTHER ACCESSORIES, SHALL BE CLEANED AND FLUSHED IN ACCORDANCE WITH THE REQUIREMENTS OF OILDALE MUTUAL WATER COMPANY.

TESTING

DISTRIBUTION MAINS SHALL BE TESTED TO A MINIMUM HYDROSTATIC PRESSURE OF DESIGN PIPE CLASS. CLASS 150 PIPE SHALL BE TESTED TO A MINIMUM OF 150 PSIG. THE MINIMUM DURATION OF THE TEST SHALL BE TWO HOURS. BEFORE APPLYING THE HYDROSTATIC PRESSURE, ALL ENTRAPPED AIR SHALL BE THOROUGHLY BLED OFF. FOR ALL TYPES OF WATER MAINS, THERE SHALL BE NO VISIBLE LEAKAGE AT ANY JOINT OR SECTION OF PIPE AND THE ALLOWABLE LEAKAGE FOR THE TOTAL LENGTHS OF ALL WATER MAINS UNDER TEST SHALL NOT EXCEED THAT AMOUNT SPECIFIED IN "AWWA C605" OR "AWWA M23" AS APPROPRIATE.

ALL TESTS SHALL BE MADE IN THE PRESENCE OF A REPRESENTATIVE OF

THE WATER COMPANY. BACKFILL OVER JOINTS, VALVES OR FITTINGS SHALL NOT EXCEED THE INITIAL BACKFILL UNTIL THEY HAVE BEEN INSPECTED, TESTED, AND APPROVED BY THE WATER COMPANY.

WHEN IT IS NECESSARY TO BACKFILL THE TRENCH AS SOON AS THE WATER MAIN IS LAID, THE AUTHORIZED REPRESENTATIVE OF THE COMPANY OR THE ENGINEER MAY PERMIT THE BACKFILLING TO BE COMPLETED PRIOR TO TESTING AND DISINFECTION. IF THE PIPE THEN TESTED EXCEEDS THE ALLOWABLE LEAKAGE, THE PIPE MUST BE UNCOVERED, REPAIRED, AND TESTED UNTIL IT MEETS THE ALLOWABLE LEAKAGE.

BACKFILL

THE REMAINDER OF THE TRENCH BACKFILL SHALL CONFORM WITH KERN COUNTY ENGINEERING AND SURVEY SERVICES AND AS FOLLOWS:

- A) BACKFILL MATERIAL SHALL BE FREE OF ALL ROCKS OR LUMPS EXCEEDING SIX (6) INCHES MAXIMUM DIMENSION. NO ROCK OR LUMP EXCEEDING 1 INCH DIAMETER SHALL BE ALLOWED WITHIN 12" OF THE PIPE.
- B) COMPACTION OF BACKFILL MATERIAL SHALL BE REQUIRED FOR ALL MAIN LINES AND SERVICE LATERALS AS SHOWN ON PLATE NO. 7 AND AS REQUIRED BY THE CITY OF SHAFER, THE COUNTY OF KERN, STATE OF CALIFORNIA, AS APPLICABLE.
- C) FLOODING OR JETTING IS NOT ALLOWED.

