

SECTION 4

WATER MAIN CONSTRUCTION

¾ INCH TO 2 INCH SERVICES FOR WATER DISTRIBUTION

1. SCOPE: This section shall include the furnishing of all materials and all other incidentals required for the installation of a complete water service connection as shown on the detail drawings and as specified herein. Unless otherwise noted, the materials listed below are acceptable to the District for use in water services. Should the Contractor desire to use other materials not listed in these specifications, written permission must be obtained from the District.

All material shall be free from defects impairing strength and durability and be of the best commercial quality for the purposes specified. It shall have structural properties sufficient to safely sustain or withstand strains or stresses to which it is normally subjected and be true to detail.

Materials supplied shall be of the designations and description indicated on the plans or described herein.

2. SUBMITTALS: The Engineer shall submit to the District three (3) copies of all submittal data for review and/or approval. Submittals shall include at a minimum: (1) The manufacturer's name, (2) type of material, (3) ASTM, ANSI, AWWA or other quality standard, and (4) pressure class. If the materials do not meet the quality standards specified, the submittals will be rejected and other materials submitted as specified. The Contractor must obtain approval of all materials prior to commencing construction.

3. DELIVERY, STORAGE AND HANDLING OF MATERIALS: Materials shall be delivered, handled and maintained in a manner to avoid damage due to breakage or contamination.

4. TAPPING SADDLES: Tapping saddles shall provide full support around the circumference of the pipe with a designed in safeguard against over-tightening to prevent deforming the pipe. All parts of the saddle shall be constructed of corrosive resistant bronze including bolts and nuts required to assemble. Only saddles designed specifically for the type water main pipe used shall be allowed. Threads shall be AWWA standard cc tapered. Tapping saddles shall be Ford 570, Mueller 511 for tapping PVC piping. Tapping saddles shall be Smith Blair 313 for tapping DIP piping.

5. CORPORATION STOPS: Corporation stops shall be of bronze construction and a minimum size of ¾" (inlet and outlet). Inlet threads shall be AWWA Standard Taper CC. Outlets will be IP threads with an approved brass fitting adapter for the appropriate water service pipe size. Corporation stops shall be Ford or Mueller.

6. PIPE FOR SERVICE LINES: Pipe for service lines shall be polyethylene conforming with all applicable requirements in the latest revisions of the following standards:

- A. AWWA C-901: Standard for polyethylene (PE) pressure pipe 1/2" through 3" for water.
- B. ASTM D-1248: Standard for polyethylene molding and extrusion materials.
- C. ASTM D-2239: Standard for polyethylene (PE) Plastic pipe (SDR-7). (IPS-I.D.)

Polyethylene extrusion compound from which the polyethylene pipe is extruded shall comply with the applicable requirements for PE-3406 high density, ultra high molecular weight polyethylene material as described in ASTM D-1248, latest revision. The PE pipe shall be rated for use with water at 73.5 degrees F. at a hydrostatic design stress of 630 psi and a maximum working pressure of 200 psi and blue in color.

Dimensions and tolerances shall comply with ASTM D-2239 (IPS, SDR-7).

D. Marking: The following data shall be clearly marked on all service pipe installed:

- (1) Nominal size
- (2) Operating pressure @ 73.4 degrees F
- (3) Type of pipe, i.e. "water service pipe"
- (4) Material designation code, "PE-3406"
- (5) Date code: Month, year and day
- (6) Manufacturer's brand name
- (7) National Sanitation Foundation logo (indicating approval for potable water and compliance with ASTM Specifications)
- (8) ASTM Specification - "ASTM D-2239"
- (9) Plant location code
- (10) AWWA C901

NOTE: Typical house service shall be 3/4" "IPS" as shown on plans.

7. COPPERSETTERS: All meter coppersettters are to designed and installed to be a complete ready made meter setting. All coppersettters are to be installed for the correct height needed so that

they can be installed in an approved concrete meter box. The copper setters shall be manufactured of brass and copper to provide a lifetime of service. All copper setters are to be manufactured of lead free solder. An angle lockable inverted key shall be supplied with the copper setter so that a District approved locking device shall be inserted by District personnel to shut off service. A dual check valve assembly shall be supplied as part of the copper setter on the outlet side of the meter. Inlets shall have a brass adapter as required for an approved brass fitting to "IPS" water service pipe. Outlets shall be male threads with a brass swivel meter nut. All copper setters shall be manufactured only by Ford with the model number of VBHC 72-9W-MM-33 5/8" X 3/4", by A.Y. McDonald with the model number of 28-207-WDPP33, or by Mueller with the model number of B2434R-6A. All copper setters are to be installed 7" from the top of the copper setter to the bottom of the meter box lid and/or deep enough inside of the meter box to allow for the placement of the water meter to the copper setter and installation of the MXU situated above the meter inside of the meter box. All meter box lids shall fit into their designed location in the meter box without the lid raised or unlevel.

8. SERVICE LINE FITTINGS: Service line fittings shall be Ford "Pack-Joint" or Mueller "Insta-tite" brass fittings.

9. METER BOXES: Meter boxes shall be supplied with each service connection. The boxes shall be of the concrete type only with a brass Ford meter copper setter for 5/8" X 3/4" meters supplied in each box. All lids will have a metal door in the center of the concrete lid for access. These meter boxes will be set on the property line between two customers unless otherwise noted. The bottom of this box is completely open to allow for drainage into the soil. All boxes shall be set on a minimum of 1' of 57 stone.

10. CUSTOMER CUT-OFF: Customer cut-off shall be a 3/4" female threaded branch bronze gate valve with 3/4" male adapter and 10' of 3/4" schedule 40 PVC on the outlet. The inlet of the valve shall be connected to the meter copper setter by a 3/4" X 8" long brass nipple.

11. VALVE BOXES FOR CUSTOMER CUT-OFF: Valve boxes for customer cut-off shall be of #70 turf boxes with plastic cover or approved equal.

12. THREADED CONNECTIONS: Teflon tape or approved pipe dope shall be used on all threaded connections to reduce the possibility of leaking joints.

13. CHECK VALVES: The Contractor shall supply on each copper setter a check valve assembly as described herein.

A. Check Valves 3/4" and 1": Check valves shall have spring-assisted seating, and the seat shall be of Buna-N-Rubber. All other parts shall be red brass or stainless steel. Valve inlets shall be meter nut and outlets shall be male iron pipe.

B. Check Valves 1-1/4" Through 2": Check valves shall be gravity swing type of brass or stainless construction. Valve inlets shall be flanged or have a flanged adapting nipple, outlets shall be male iron pipe.

All check valves supplied under these specifications shall be manufactured by "Ford" or approved equal.

14. PRESSURE REDUCING VALVES: Where water main static pressure is exceedingly high, a pressure reducing valve shall be installed by others and at the expense of others on the house side of the water meter box. The valve shall automatically reduce a higher inlet pressure to a steady lower downstream pressure. The valves shall be constructed of bronze, copper or stainless steel and be equal to the size of the water service line. All expenses for installing the pressure reducing valve is the responsibility of others.

15. COLD WATER METERS (3/4" – 3" in size) : To be provided by the District, at the expense of others, and installed when requested by Lancaster Country Water and Sewer District personnel only. Sensus water meters will only be accepted by the District. Meters will not be set until all necessary fees have been paid and with proper SCDHEC permitting and District approval. All water meters 1" and larger shall have test ports supplied with the initial purchase of the meter. Meters shall be of the displacement type and shall conform with AWWA C-700, latest revision and the following standards:

A. Type: Magnetic Drive, Sealed Register, Positive Displacement Type Oscillating Piston only.

B. Size: Must conform to American Water Works Standard C-700 as most recently revised.

C. Length: Must conform to American Water Works Standard C-700 as most recently revised.

D. Cases: All meters shall have a non-corrosive Water Works bronze (minimum 75% copper content) outer case with a separate measuring chamber which can easily be removed from the case. All meters shall have cast on them, in raised characters, the size and direction of flow through the meter. Cast iron frost bottoms, or bronze bottoms shall be provided on 5/8", 3/4" and 1" size meters. The manufacture's serial number must be permanently affixed to the maincase to aid in identification and must be visible so that it can be read from directly above the water meter.

E. External bolts and Washers: All external bolts and washers shall be of corrosion resistant material and be easily removed from the maincase. All threaded maincase bolt holes must be covered, to aid in removal of the bolts for repair.

F. Encoder Register and Remote: Must conform to American Water Works Standard C-707 as most recently revised.

G. Touchread Pitlid (TR/PL) Register and Remote Module: NOTE: THE TOUCHREAD READING SYSTEM WILL NOT BE USED, UNLESS OTHERWISE NOTED. PLEASE REFER TO ITEM 16 FOR DISTRICT READING PROCEDURES. THE REGISTER

AND REMOTE MODULE WILL STILL EXIST, BUT THE DISTRICT WILL ONLY OPERATE AND MAINTAIN THE RADIO READ SYSTEM. The register must be of the straight reading type and have a full test dial on the face of the register. It shall read gallons and be capable of direct visual reading both at the meter and by remote reading by utilizing an interrogation device which can store the meter reading and register identification number in a solid state memory and/or display the meter reading and register ID on a visual display. The numeral wheel assembly shall be located at the bottom of the dial face with reading obtained from left to right. All reduction gearing shall be contained in a permanently hermetically sealed, tamperproof enclosure made of a corrosion resistant material. The register shall be secured to the maincase by means of a tamper-resistant locking screw so that the register cannot be removed by non-utility personnel. The register must be field replaceable by utility personnel with the use of a manufacturer-supplied field tool. The field tool must not be commercially available. Seal wiring or a frangible head seal screw is not acceptable.

Register output data format for Automatic Meter Reading (AMR) shall be 7-bit ASCII (American Standard Code for Information interchange) digital, plus an even parity bit. The first character is ASCII "R" followed by a 4-digit, or 6-digit meter reading, followed by an 8-digit meter ID number. The register identification number is to be factory set and non-programmable so as to protect the integrity of the system by eliminating possible programming duplication of the identification number in the field. The 4-digit or 6-digit meter reading is to be interrogated from the register by direct contact of the register's odometer wheels to a circuit board encoding the meter reading. Data is to be positive true. The register's ASCII digital output is to be capable of interfacing directly to AMR transponder to transmit data via cable TV, telephone, radio signal, or power lines to an AMR system.

H. Measuring Chamber: The measuring chamber shall be a suitable polymer and shall not be cast as part of the maincase. All piston assemblies shall be interchangeable in all measuring chamber assemblies of the same size. The measuring chamber piston shall operate against a replaceable control roller, allowing for repair to AWWA standards. The control roller shall rotate on a stainless measuring chamber steel pin, to provide added strength, wear resistance and corrosion resistance. There shall be an elastomeric seal or seals between measured and unmeasured water, preventing leakage around the measuring element.

I. Magnetic Coupling: The motion of the piston will be transmitted to the sealed register through the use of a magnetic coupling.

J. Strainers: All meters must be provided with a corrosion resistant strainer, with an effective straining area at least twice the bore diameter.

K. Change Gears: Change gears will not be allowed to calibrate the meter. All registers of a particular registration and meter size shall be identical and completely interchangeable. Should meters arrive with registers containing more than one gear combination, the entire shipment will be returned to the manufacturer freight collect and the next responsible bidder will receive the award.

L. Performance Warranties: In evaluating bid submittals, warranty coverage will be considered. All bidders are required to submit their most current nationally published warranty statements for water meter maincases, encoder registers, and measuring chambers.

M. Shipment Verifications: A statistically controlled sample of each meter shipment will be tested by the utility to insure each shipment meets the utility performance and materials and specifications.

N. Operating Range: Meters shall have normal operating range as follows: 5/8" = 1 - 20 gpm; 3/4" = 2 - 30 gpm; 1" = 3 - 50 gpm; 1-1/2" = 5 - 100 gpm; 2" - 9 - 160 gpm.

O. Working Pressure: Meters shall operate without damage or leakage at a working pressure of 150 psi.

P. Repair and Replacement: Supplier shall repair and/or replace without charge to the Owner any parts that become defective within one year under normal wearing conditions of the date of installation of the meter.

Q. Accuracy: Meter accuracy shall not be less than 98.5 percent or more than 101.5 percent of actual water passed through the meter.

16. COLD WATER METERS (4" & LARGER): To be provided by the District, at the expense of others, and installed when requested by Lancaster Country Water and Sewer District personnel only. Sensus water meters will only be accepted by the District. Meters will not be set until all necessary fees have been paid and with proper SCDHEC permitting and District approval. All water meters 4" and larger shall have test ports supplied with the initial purchase of the meter. All water meters 4" and larger shall be installed by District personnel in a concrete block vault with a concrete slab top which incorporates an aluminum hatch large enough to remove the meter through it without having to disassemble the hatch, concrete slab, and/or concrete block structure. Meters shall be of the automatic meter reading set up (see section 16 below), of the displacement type, and shall conform with AWWA C-700, latest revision and the following standards:

A. SCOPE These specifications set forth the minimum acceptable requirements for cold water meters - Combination Dual Fire Service Type, consisting of two (2) Class II turbine type meters, a ductile iron strainer assembly and a weighted detector check valve. This meter assembly is intended where an extremely wide flow range is required and where measurement of both domestic and fire service water usage is desired. The meter assembly package shall comply with ANSI/AWWA Standard C-703, as most recently revised.

B. MAINCASES Meter main cases on the mainline and the bypass shall be Water Works bronze. The flange size, model and direction of flow shall be cast in raised characters on both sides of the main case. Straightening vanes shall be assembled in both meter main cases.

C. PERFORMANCE Meter assemblies shall have performance capabilities of continuous

operation up to the rated maximum flows as listed above without affecting long-term accuracy or causing any undue component wear. All meter assemblies shall also have a 25% flow capacity in excess of the maximum flows listed for intermittent flow demands. In addition, the meter assemblies shall be capable of measuring a minimum of 90% of actual water consumption at prescribed crossover flow rates. Maximum head loss through the meter assemblies shall not exceed those listed in the following table based on meter size

D. MEASURING CHAMBERS The measuring chambers will consist of a measuring element, calibration device and register. The measuring element shall be mounted on a horizontal, stationary, stainless steel shaft with sleeve bearings and be essentially weightless in water. The measuring chamber shall be capable of operating within the above listed accuracy limits without calibration when transferred from one maincase to another of the same size.

E. MAGNETIC COUPLING All reduction gearing shall be enclosed in the permanently hermetically sealed register. The drive magnet shall be located in the measuring element, and the follower magnet shall be located inside the permanently hermetically sealed register. An intermediate magnetically active material shall be required to distribute the magnetic flux uniformly to the follower magnet, thereby improving service life, low flow sensitivity, extended flow capacity and overall accuracy of the entire combination meter assembly.

F. OPERATING CHARACTERISTICS

Size	Low Flow (95% Min.)	Normal Range (98.5-101.5%)	Intermittent Flows (98.5-101.5%)
4"	3 gpm	4 to 1000 gpm	1250 gpm
6"	3 gpm	4 to 2000 gpm	2500 gpm
8"	3 gpm	4 to 3500 gpm	4400 gpm
10"	3 gpm	4 to 5500 gpm	5500 gpm

Meter Size	Accuracy @ Crossover (Approx.)	Headloss (Not To Exceed)
4"	90% @ 30 gpm	8.5 psi @ 1000 gpm
6"	90% @ 50 gpm	9.4 psi @ 2000 gpm
8"	90% @ 50 gpm	13.4 psi @ 3500 gpm
10"	90% @ 60 gpm	12.5 psi @ 5500 gpm

G. DIRECT READ REGISTER The standard totalizing register shall have a stainless steel cup and tempered glass lens. The register shall be permanently hermetically sealed; all registers of similar size and registration shall have a standard gear ratio reduction so as to permit complete register interchangeability. The register shall be assembled to the measuring chamber in a tamperproof manner so removal can be made only after the measuring chamber is removed from the maincase. Sweep-hand reading and odometer wheel details shall conform to American Water

Works Standard C-701, as most recently revised. A low flow indicator shall be included in the register assembly and be visible on top of the register' s dial face.

H. MAXIMUM OPERATING PRESSURE The meters shall operate properly without leakage, damage or malfunction up to a maximum pressure of 175 pounds per square inch (psig).

I. STRAIGHTENING VANES All meters, 4" to 10" sizes, must have internal straightening vanes installed and retained firmly in the inlet portion of the maincase to maximize meter performance and accuracy.

J. STRAINERS Each meter assembly shall have a separate UL (Underwriters' Laboratories) listed and FM (Factory Mutual Research) approved external fire service strainer as a part of the meter package. The strainer' s screen shall have a minimum net open area of at least four (4) times the pipe opening and be a V-shaped stainless steel screen for the purpose of maintaining a full unobstructed flow pattern. The strainer body shall be coated ductile iron with stainless steel fasteners capable of maintaining the following static pressure ratings and physical dimensions:

Meter Size	Pressure Test Rating	Centerline To Strainer Base	Overall Length (Not To Exceed)
4"	350 psig	4 ½ inches	33 inches
6"	350 psig	5 ¾ inches	45 inches
8"	350 psig	6 ¾ inches	53 inches
10"	350 psig	8 ½ inches	68 inches

K. BYPASS METER AND ASSEMBLY The bypass assembly piping shall be 1-1/2" for 4", and 2" for 6", 8" and 10" sizes. The assembly piping shall be of bronze with threaded connections. The assembly shall also consist of an 1-1/2" or 2" turbine meter with flanged connections, one (1) bronze body check valve downstream of the meter and two (2) bronze lockable ball valves located upstream and downstream of the meter to be used as isolation valves.

L. DETECTOR CHECK VALVE The detector check valve operation shall be considered critical to the overall performance of the meter assembly. The detector check valve shall be positioned directly downstream of the mainline turbine type meter. A weighted, gravity induced bronze clapper in the detector check valve directs low flows through the smaller meter and bypass assembly. When full flow capacity is required, the clapper opens fully to allow unobstructed water flow. At high flow demand, above the listed crossover flow rates, both meters will be operating and supplying water. Under no circumstances will electronic switching devices or spring loaded detector check valves be considered as acceptable.

The detector check valve shall be UL (Underwriters' Laboratories) listed and approved by FM (Factory Mutual Research) as acceptable equipment to be used in fire service applications. The valve shall also include gaskets, 316 stainless steel shaft hinge pin and a counter balance weight

that is coated ductile iron and completely sealed from contact with water. There shall be no lead exposed to water flow. The detector check valve body shall be coated iron and shall include a resilient rubber clapper seat, an adhesion resistive seat ring and other working parts composed of corrosion resistant materials. The body of the valve shall be drilled and tapped at the outlet flange area on both sides for bypass piping connection and for a test port outlet. The minimum acceptable size of taps on the raised bosses of the valve shall be 2".

M. CONNECTIONS Flanges for the 4" to 10" size meter assemblies shall be of the Class 125 round type, flat faced and shall conform to ANSI 16.1 for specified diameter, drilling and thickness. All required bolts, nuts and gaskets for a proper meter installation shall be included and provided by the vendor.

N. CERTIFICATIONS AND MARKINGS All sizes of meter packages shall be listed by UL (Underwriters' Laboratories) and approved by FM (Factory Mutual Research) as being accepted for use on fire service lines. For such applications, the meter shall have a UL/FM strainer immediately upstream of the mainline meter's inlet flange. The mainline meter shall have an identification tag affixed indicating such acceptance and the strainer shall also bear such acceptance symbols and markings on the casting.

O. GUARANTEE AND MAINTENANCE PROGRAM Meters shall be guaranteed against defects in material and workmanship for a period of one (1) year from date of shipment. In addition, the meter manufacturer shall submit nationally published literature clearly outlining its factory maintenance program and current price schedule covering complete measuring chamber exchange of both size meters. The turbine meters must have a minimum of five (5) years of satisfactory operating experience as marketable products. Limited experimental history regarding the current standard models available shall not be considered as acceptable.

P. INTENT Subject meter specifications are designed to establish minimum guidelines for selecting an extremely critical metering device. Areas of concern to be evaluated in the selection process include, but are not limited to, ease of installation, operational features and benefits, readability and future system maintenance expense. A design which reflects longevity of proper operation in all elements and high degree of sustained accuracy within the entire range of the meter assembly is to be considered mandatory.

17. AUTOMATIC METER READING SYSTEM: To be provided by the District, at the expense of others, and installed as requested by District personnel only. At the time of construction, the contractor shall install all coppersettlers and meter boxes adjacent to property lines next to the road right-of-way. A 22 gauge, 3 conductor for TR/AMR, coated wire is to be installed from one meter box to another with a minimum 3' of wire stubbed inside each meter box to enable District personnel to connect 3 to 16 meters to one MXU such as townhome, apartment, or other similar installations as decided by the District.

A. General: The following specification describes the requirements for a radio based automatic meter reading system. The specification will cover the meter transceiver unit (MXU). If meters and other supporting equipment are included in this proposal or bid, they will be covered under separate specifications.

B. Radio System Description: The radio AMR system will have the ability to read meters equipped with absolute encoder registers using either a handheld interrogation unit or a mobile interrogation unit. The encoder registers will be connected to MXU that will provide the radio link from the meter to the interrogation unit.

The radio AMR system must utilize a true two-way (interrogate and respond) communication protocol that enhances system integrity and reliability.

Upon completion of the meter reading route, the meter reading data is downloaded from the interrogation unit, using the radio AMR software. The radio AMR software will prepare and format the meter reading data to the billing software for customer invoicing. The interrogation unit will be either a handheld or vehicle mounted device. The MXU and interrogation device will utilize a two-way communication protocol. Following the alert signal from the interrogation unit will signal the MXU that valid reading parameters were not identified and will instruct the MXU to power down.

The MXU must have the capability of utilizing a reading cycle code, which is an element of the transmission protocol. The reading cycle code is utility controlled and changes with each reading cycle. Once a MXU has been successfully interrogated and powered down using a specific reading cycle code, the MXU will not alert again until the code has been changed. The MXU will have a fixed factory set non-programmable identification number to insure absolute identity of the MXU within the radio AMR system. In addition, the MXU will have the capability of storing a utility defined programmable class code. The class code will be used to separate different classes of meters and differentiate the MXU in multi-utility installations.

The MXU will also provide for optional connection of a remote reading touch pad as a secondary meter reading source.

The MXU must have the capability, in terms of range and operation, of migrating to a fixed based radio AMR network in the future, without the need to physically alter the unit.

C. FCC Regulations: All equipment must comply with current Federal Communications Commissions (FCC) requirements which include proper labeling of the MXU. The bidder must have supporting documentation available upon request to verify compliance.

D. Modulation: The radio frequency transmission from the MXU to the interrogation unit must utilize direct sequence spread spectrum, operating in the non-licensed 902-928 MHz band. It shall alert using the 956 MHz from the interrogation unit.

E. Hardware: The MXU will be housed in a two-piece UV stable molded plastic housing. The enclosure must house the complete MXU unit which includes electronics, battery compartment, and wire connections. The MXU will also have an internal antenna. The housing must have the option of being wall mounted or mounted in an underground meter box. Any special mounting hardware should be supplied with the MXU. The enclosure will provide protection for the electronic components and wire connections and be capable of being submersed in a water filled meter box without damage.

The halves of the MXU enclosure will be secured by means of a tamper-resistant locking screw so that the enclosure cannot be opened by non-utility personnel. The internal parts of the MXU can only be accessed by utility personnel using a manufacturer supplied field tool. The field tool must not be commercially available. Seal wiring or a frangible head seal screw is not acceptable.

The MXU must have a field replaceable battery cartridge. The battery must be made up of a chemistry and design which is available and appropriate for customer use and be of low toxicity. The battery cartridge must be date stamped for ease of age identification for warranty purposes.

The MXU must contain wiring diagram labels within the unit to aid in and simplify installation. All wires must be color coded and easily identifiable.

F. Installation and Training: Complete installation and operating instructions must be included for all of the supplied hardware and software equipment. Proposal must include any additional costs for training and assistance to install and begin operation of the MXUs. The vendor will also inform the customer what pre-installation activities are to be completed and what support materials will be needed for the initial installation.

G. Performance Warranties: In evaluating bid submittals, warranty coverage will be considered. The vendor shall be required to state its warranty and/or guarantee policy with respect to each item of proposed equipment. The procedure for submitting warranty claims must also be provided.

As a minimum, the electronics shall be warranted for one (1) year from date of shipment for defects in materials and workmanship. Battery warranty shall be a minimum of five (5) years from date of factory shipment.

18. METHOD OF MEASUREMENT: Services shall be measured as a unit and shall include labor, materials, equipment and all incidentals required to install the following:

- A. Tapping saddle
- B. Corporation stop
- C. Service pipe and casing pipe if bored under road

- D. Coppersetter
- E. Meter Box with wash stone for drainage
- F. Meter, MXU, and conduit between the meter boxes
- G. Customer cut off assembly and turf box

All pressure reducing valves that are needed shall be purchased, owned, and operated by the homeowner.