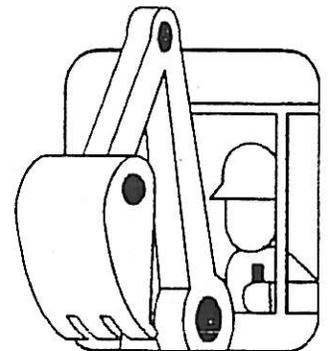
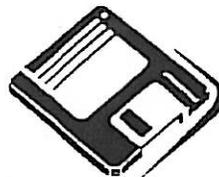
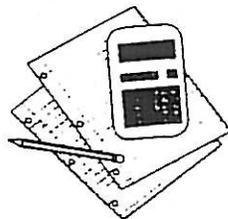


X. APPENDIX

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VII. APPENDIX

RULES AND REGULATIONS GOVERNING THE INSTALLATION OF WATER MAINS,
SERVICES, BRANCH LINES, ETC.

A

SERVICE PIPES

Service pipes shall be tapped directly across from the house at a 90 degree angle.

Service pipes shall be a minimum of Type K copper with compression type fittings.

Services shall be run trap free.

Service pipe shall have no less than 4½ ft. of cover and no more than 5 ft.

Twelve inches (12") of soft, rock free material shall be placed over pipe, by hand, before filling trench by machine.

All water services shall contain a water main approved by the Water Division and services shall not be turned on until the approved meter is installed.

CURB BOXES

Curb box shall be New England type and must be on sidewalk and be left flush with finish grade, and in plain sight. All materials shall be supplied by the contractor.

Curb cocks shall have no less than 4½ ft. and no more than 5 ft. of cover.

All curb cocks and boxes shall be dry upon completion of project, or at time of final approval by the Superintendent of Public Works or his designated inspector.

Plan locations of the curb cock and corporation cock shall be measured and drawn by contractor and delivered to the Public Works Water Division.

THRUST BLOCKS

- a. Thrust blocks shall be placed behind all hydrants, dead ends, behind all fittings of 12½ degrees and over, and behind every tee six inches (6") or larger.
- b. Thrust block shall be poured concrete and sizes determined by A.W.W.A. standards.

Where fittings of "poured" type are used, short pieces of pipe in following scale shall be used:

5" pipe -- 6½ ft. pieces
 4" pipe -- 3 ft. 3 in. pieces

RULES AND REGULATIONS FOR THE INSTALLATION OF SEWER
TRUNKS, MANHOLES, LATERALS AND SERVICE CONNECTIONS

B

TRUNK LINES

Manholes shall be installed every three hundred feet (300') maximum.

Type of pipe used shall be either transite sewer pipe, approved by the Superintendent of Public Works.

Manhole shall be installed at every angle, point and every change of grade.

Channels through manholes, shall be made of red brick, or an accepted manufactured channel liner, approved by the Superintendent of Public Works.

MANHOLES

Concrete base shall be a minimum of 12" with 2000 lb. test concrete.

All manholes shall be coated inside and outside, with an approved water tight material.

Manholes shall be constructed as follows: Precase manhole - Brick manhole - Block manhole, with the approval of the Superintendent of Public Works.

LATERAL

Laterals shall enter manholes with top of pipe at same elevation with the top of trunk pipe, or if above grade of trunk, be appropriate drop manhole.

Manhole shall be installed every (300') three hundred feet maximum and at all changes in grade or direction.

All lateral lines shall be either transite sewer pipe, or cast iron (extra heavy) approved by the Superintendent of Public Works.

THRUST BLOCKS

(Cont.)

All hydrants, pipes, gates, etc. shall become the property of the City of Woburn when bond is released.

No bond shall be released until the water system meets these specifications or any other requirements of the Superintendent of Public Works.

MAINS AND BRANCHES

- a. Main pipes shall be installed according to A.W.W.A. standards and be tamped and hand covered twelve inches (12") with sand or soft material containing no stones. Pipe shall be ductile iron, Class 52 or approved by the Superintendent of Public Works.
- b. Mains shall be placed thirteen feet (13) from property lines and stay on one side of the street.
- c. Gates shall be placed as directed by the Superintendent of Public Works and hydrants shall be placed as directed by the Fire Chief.
- d. Hydrants shall be placed so that the back of hydrants is one foot (1 ft.) outside the street line - property line and shall have a gate and shall have cast iron pipe between hydrant and the main.
Hydrants shall be of the "open right" type and City of Woburn standard.
- e. Main gate locations shall be specified by the Superintendent of Public Works.
- f. All mains and branches, gates, tees, ends of lines shall be shown on a plan and submitted to the Superintendent on final approval.
- g. No backfilling shall be done without supervision and approval of the Superintendent of Public Works.
- h. Taps in the main shall be no closer than eighteen inches (18") apart.
- i. Types of material, fittings, valves, hydrants, shall be approved by the Superintendent of Public Works.
- j. All gates shall be cast iron, "open right" with "O" Ring Packing and approved by the Superintendent of Public Works.
- k. All new water mains shall be pressure tested and laboratory tested for bacteria according to A.W.W.A. specifications prior to bond release. All testing to be at the expense of the contractor and approved by the Superintendent of Public Works.

HOUSE, FACTORY, SCHOOL ETC. CONNECTIONS

- a. All connections shall be made no less than 5" pipe.
- b. All piping used on these connections shall be transite sewer pipe, cast iron (extra heavy).
- c. Pipe shall be imbedded in rock free material on sides and bottom at least 6" from the outside of the pipe except where crushed stone under drain is used for underdraining purposes.
- d. Twenty four inches (24") of soft, rock free material shall be placed over pipe by hand before filling trench by machine.
- e. Any deviation from the above regulations shall have the written approval of the Superintendent of Public Works before work is commenced.
- f. All main trunk, lateral and other connections shall be left uncovered until inspected and approved by the Plumbing Inspector.
- g. No backfilling shall be done without approval and supervision.

*Revised, November 1, 1984

Poly (Vinyl Chloride) (P.V.C.) Sewer Pipe included
P.V.C. Pipe sizes 4" through 15" to conform to specifications
A.S.T.M. D3034 and installed in accordance with manufacturers
installation guide

RESTORATION OF DAMAGED AREAS ON ROADWAYS AND SIDEWALKS

C

Wherever a trench cut is required in a street or sidewalk area the surface of the locations shall be cut in straight lines using a jackhammer or other acceptable method equipped to cut full depth of the treated surface. Excavation by large machines will not be allowed without precutting.

During backfilling operations the material shall be placed in layers no greater than 12 inches (12") with each layer being mechanically compacted to within two inches (2") of the finish grade. The last two inches (2") shall be a temporary patch of bituminous concrete, compacted and maintained to grade for at least thirty (30) days on heavy travelled streets and (60) days on neighborhood streets.

On all principal roads, roads paved within the previous five (5) years, and on roads which the Superintendent shall designate patches shall be as follows:

All patch areas shall be overcut twelve inches (12") on each side.

Gravel shall be twelve (12") inches in depth after compaction.

Base course shall be eight inch (8") thick, four inch (4") bituminous concrete base and four inch (4") bituminous concrete binder, 1 " below finish grade. Top course shall be bituminous asphalt (Type I finish) 1 ½" thick when compacted.

All other roads shall be patched as follows:

All patches shall be overcut twelve (12") inches on each side.

Roadways shall be patched with bituminous concrete base, binder and surface courses on a foundation of thoroughly compacted gravel.

Gravel shall be 12 inches (12") in depth after compaction and top of the gravel foundation shall be 6 ½ inches below finished grade of pavement.

Bituminous concrete base course shall be four inches (4") in depth, compacted.

Bituminous concrete binder course shall be 1 ½ inches in depth, compacted.

Bituminous concrete surface course shall be 1 ½" in depth, compacted.

When necessary, because of shallow depths of pipes below the pavement grade, pipes shall be covered in Class A concrete six inches (6") thick and to a depth to the center line of the pipe. Gravel and 6½ inches of bituminous concrete pavement shall be placed over the concrete slab as herein described above.

SIDEWALKS

A. BITUMINOUS CONCRETE

Bituminous concrete sidewalks shall be patched with bituminous concrete binder course and a surface course on a gravel foundation.

Gravel shall be six inches (6") in depth after compaction and top of gravel shall be three (3") inches below finished grade.

Bituminous concrete binder course shall be two inches (2") in depth compacted. Bituminous concrete surface course shall be one inch (1") in depth compacted.

Where necessary, pipes shall be encased in concrete as herein described.

B. CEMENT CONCRETE SIDEWALKS

Cement concrete sidewalks shall be patched with base and surface courses on a gravel or cinder foundation.

Foundation shall be eight inches (8") in depth after compaction and top of foundation shall be four inches (4") below finished grade.

Cement sidewalks shall be 3500 lb. air entrained concrete with ½" to ¾" stone. Cement shall be placed to a depth of 4" except at all driveways, it shall have a depth of six inches (6"). Expansion joint shall be ½" in width and placed every thirty feet. (30 ft.), a cut joint shall be made every five feet (5') and an appropriate radius made on both sides of joints and on front and back edges of sidewalks. Back edge of sidewalk must be formed with a suitable materials to obtain a straight line with no bows or bends. Surface of cement shall first be steel trowled then the final trowelling shall be a wood float finish or brush finish.

Damage areas shall be re-constructed to the adjacent joints in the sidewalk.

C. BITUMINOUS CONCRETE DRIVEWAY CROSSINGS

Bituminous concrete driveways shall conform to the specifications for bituminous concrete sidewalks except that the bituminous concrete binder course shall be $2\frac{1}{4}$ inches in and the surface course $1\frac{1}{4}$ inches in depth.

D. CEMENT CONCRETE DRIVEWAY CROSSINGS

Cement concrete driveways shall conform to the specifications for cement concrete sidewalks except that the concrete course shall be six inches (6") in depth.

GRASS PLOTS

Grass plots shall be restored by placing six inches (6") of loam in the disturbed areas and seeding.

ALL MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE STANDARD SPECIFICATIONS OF THE CITY OF WOBURN FOR THE ITEM INVOLVED.