

CITY OF METHUEN



SUBDIVISION RULES AND REGULATIONS

Revised Through
August 14, 2024

**RULES AND REGULATIONS
OF THE COMMUNITY DEVELOPMENT BOARD
OF METHUEN, MASSACHUSETTS
GOVERNING THE SUBDIVISION OF LAND
AND THE LAYING OUT OF WAYS**

Table of Contents

SECTION 1.0	PURPOSE AND AUTHORITY	6
1.1	PURPOSE	6
1.2	AUTHORITY	6
1.3	REFERENCE.....	6
1.4	CONFORMITY	6
1.5	SEVERABILITY	6
1.6	INTERPRETATION.....	7
1.7	VALIDITY	7
SECTION 2.0	DEFINITIONS.....	8
SECTION 3.0	GENERAL PROVISIONS	13
3.1	BASIC REQUIREMENTS	13
3.2	ADMINISTRATIVE AND PROJECT REVIEW FEES	13
3.3	MINIMUM STANDARDS.....	13
3.4	LIMITATION OF ONE DWELLING UNIT PER LOT	13
3.5	COMPLIANCE WITH OTHER ORDINANCES AND PERMITS.....	13
3.6	ADMINSTRATIVE FORMS	14
3.7	COMPLIANCE WITH THESE RULES AND REGULATIONS.....	14
3.7.1	WAIVER OF COMPLIANCE.....	14
3.7.2	FRONTAGE WAIVER	14
SECTION 4.0	PROCEDURES FOR SUBMISSION AND REVIEW OF PLANS.....	16
4.1	PLAN BELIEVED NOT TO REQUIRE SUBDIVISION APPROVAL	16
4.1.1	ANR FILING PROCEDURE	16
4.1.2	ANR PLAN CONTENTS	17
4.2	PRELIMINARY SUBDIVISION PLAN	18
4.2.1	PRELIMINARY PLAN GENERAL	18
4.2.2	PRELIMINARY PLAN FILING PROCEDURE	18
4.2.3	PRELIMINARY PLAN CONTENTS	19
4.3	DEFINITIVE PLAN.....	20
4.3.1	DEFINITIVE PLAN GENERAL	20
4.3.2	DEFINITIVE PLAN FILING PROCEDURE	20
4.3.3	DEFINITIVE PLAN CONTENTS	23
4.3.4	REQUIRED STATEMENTS, REPORTS AND DOCUMENTS.....	28
4.3.5	OFF-SITE IMPROVEMENTS/CONDITIONS OF APPROVAL	29
4.3.6	ENDORSEMENT OF PLANS	31

4.3.7	RECORDING OF PLANS.....	31
4.3.8	MODIFICATION, AMENDMENT, RESCISSIONS OF AN APPROVAL.....	31
SECTION 5.0 PERFORMANCE GUARANTEE.....		33
5.1	PARTIAL RELEASE OF PERFORMANCE GUARENTEE.....	34
5.2	RELEASE OF PERFORMANCE GUARANTEE UPON COMPLETION OF WAYS AND MUNICIPAL SERVICES	34
5.3	AS BUILT PLAN REQUIREMENTS	35
SECTION 6.0 DESIGN AND CONSTRUCTION STANDARDS.....		37
6.1	GENERAL REQUIREMENTS	37
6.1.1	RESPONSIBILITIES OF APPLICANT.....	37
6.2	STREETS AND ROADWAYS	37
6.2.1	CLASSFICATION OF STREETS.....	37
6.2.2	STREET DESIGN	38
6.2.3	CONSTRUCTION OF STREETS AND ROADWAYS	42
6.3	DRAINAGE AND STORMWATER MANAGEMENT	49
6.3.1	STORMWATER MANAGEMENT & ERIOSION AND SEDIMENT CONTROL.....	49
6.3.2	DRAINAGE DESIGN	50
6.3.3	STORM AND SURFACE DRAINAGE	52
6.3.4	SWALES.....	54
6.4	SANITARY SEWER DESIGN	54
6.4.1	GENERAL.....	54
6.4.2	DESIGN STANDARDS	55
6.4.3	SANITARY SEWER CONSTRUCTION STANDARDS	55
6.5	WATER SUPPLY & FIRE PROTECTION	57
6.5.1	WATER SUPPLY.....	57
6.5.2	WATER SYSTEM CONSTRUCTION STANDARDS FOR MAINS, VALVES, HYDRANTS & FITTINGS	57
6.5.3	FIRE PROTECTION	59
6.6	PROJECT COMPLETION	59
6.6.1	EASEMENTS	59
6.6.2	OPEN SPACES	60
6.6.3	UTILITIES.....	60
6.6.4	STANDARDS SPECIFICATIONS	61
6.6.5	POSTING PRIOR TO CONSTRUCTION	61
6.6.6	CLEARING AND GRUBBING	61
6.6.7	EXCAVATION	62
6.6.8	TREES AND TREE PLANTING.....	63

6.6.9	SIDEWALKS	65
6.6.10	GRASS STRIPS.....	66
6.6.11	BOUNDARY MARKERS AND MONUMENTS	66
6.6.12	FINAL CLEANING UP	67
6.6.13	INSTALLATION OF IMPROVEMENTS (INSPECTION)	67
SECTION 7.0	ACCEPTANCE OF STREETS BY THE CITY	70

ATTACHMENTS

A TYPICAL ROADWAY CROSS SECTIONS

- Typical Principal Street
- Typical Secondary Street
- Typical Tertiary Street
- Sloped Granite Edging

B FORMS

- Form A: Application for Endorsement of Plan Believed Not to Require Approval
- Form B: Application for Approval of a Preliminary Plan
- Form C: Application for Approval of a Definitive Plan

SECTION 1.0 PURPOSE AND AUTHORITY

The following rules and regulations shall, from and after the effective date thereof, govern the subdivision of land and the laying out of ways within the City of Methuen. No person shall subdivide land or layout a way for eventual acceptance as a public way in the City of Methuen after such effective date without first obtaining from the Community Development Board approval of the plan of the proposed subdivision or endorsement upon such plan "Approval Under the Subdivision Control Law Not Required."

1.1 PURPOSE

The Community Development Board of the City of Methuen has enacted these rules and regulations to effectuate the purposes of the Subdivision Control Law as stated in the General Laws of the Commonwealth of Massachusetts, Chapter 41, Section 81M, as amended. Landowners may not subdivide their land unless and until they have submitted a subdivision plan to the Board for approval. The plan shall show the proposed lots and the existing and proposed ways. The Board must approve the subdivision plan before it can take effect.

1.2 AUTHORITY

Under the authority vested in the Community Development Board of the City of Methuen by Section 81Q of Chapter 41 of the General Laws, said Board hereby adopts these Rules and Regulations governing the subdivision of land in the City of Methuen. Such Rules and Regulations governing the subdivision of land in the City of Methuen shall be effective on and after the 23rd day of February 1954 and as amended on April 8th, 1963, January 8th, 1968, July 20th, 1970, August 14th, 1970, revised May 13th, 1974, January 12th, 1976, September 24th, 1979, April 28th, 1980, April 25th, 1983, July 10th, 1985 June 1st, 1986, June 27th, 1988, and August 14, 2024.

1.3 REFERENCE

For matters not covered by these Rules and Regulations, reference is made to Section 81K to 81GG, inclusive, of Chapter 41 of the General Laws as amended, hereafter referred to as the Subdivision Control Law.

1.4 CONFORMITY

These regulations shall be considered as revised to conform to any amendment of Chapter 41 of the General Laws made after January 1st, 1960.

1.5 SEVERABILITY

If any provision of the Subdivision Regulations is held invalid, the other provisions of the Subdivision Regulations shall not be affected thereby. If the application of

these regulations or any of their provisions to any person or circumstances is held invalid, the application of the Subdivision Regulations and their provisions to other persons and circumstances shall not be affected thereby.

1.6 **INTERPRETATION**

Whenever these Rules and Regulations made under the authority hereof differ from those prescribed by any local bylaw/ordinance or other local regulation, the provision which imposes the greater restriction, or the higher standard shall govern. The City of Methuen shall not be held responsible for any individual interpretation of these rules and regulations.

1.7 **VALIDITY**

Any part of these Regulations subsequently invalidated by a new state law or modification of an existing state law shall automatically be brought into conformity with the new or amended law and shall be deemed to be effective immediately.

SECTION 2.0 DEFINITIONS

In construing these regulations, the definitions in Section 81L of Chapter 41 of the General Laws shall apply, unless a contrary intention clearly appears. For the purposes of these Rules and Regulations, the following words and terms used herein are hereby defined or the meaning thereof explained, extended, or limited as follows:

ABUTTING OWNER or ABUTTER - The owner(s) of property which is contiguous to the property being subdivided and the owner(s) of property with frontage immediately across a public way from the property being subdivided. Abutters will be identified from the assessors' records at the time of application.

APPLICANT: shall include all owners or their agent or representative, or their assigns.

APPLICATION – The application for the approval of a proposed subdivision or re-subdivision of land.

APPROVAL NOT REQUIRED (ANR) - Subdivisions that result in new parcels with frontage along existing roadways. This type of subdivision does not require approval from the Community Development Board.

BOARD – The Community Development Board of the City of Methuen.

CERTIFIED BY [OR ENDORSED BY] THE COMMUNITY DEVELOPMENT BOARD - Applied to a plan or other instrument required or authorized by the subdivision control law to be recorded, shall mean, bearing a certification or endorsement signed by a majority of the members of a planning board, or by its chairman or clerk or any other person authorized by it to certify or endorse its approval or other action and named in a written statement to the register of deeds and recorder of the land court, signed by a majority of the board.

CITY – The City of Methuen, Commonwealth of Massachusetts.

CITY ENGINEER – The person who is in charge of plans, specifications, and other engineering data of the City of Methuen.

DEAD END STREET (CUL-DE-SAC) - A street which joins another street at only one end with only one outlet and having an appropriate terminal for the safe and convenient reversal of traffic movement.

DEVELOPER - Not necessarily the owner of the land, but the person, persons, or corporation responsible for the subdivision application and development. This is interchangeable with APPLICANT. The developer may or may not be the original applicant and may be a subsequent owner of the subdivision.

DEVELOPMENT – Any construction or grading activities conducted on real

estate.

DIRECTOR OF PUBLIC WORKS – The Director of Public Works or other employee of the Director in charge of streets and roadways of the City of Methuen.

DRAINAGE - The control of surface water within the tract of land to be subdivided.

EASEMENT – A right to use or control real property owned by another for a specified purpose and must be recorded at the Registry of Deeds.

ENVIRONMENTALLY SENSITIVE SITE DESIGN (ESSD): A suite of practices using nature-based solutions to treat stormwater while reducing or eliminating structural Stormwater Control Measures needed to meet certain Stormwater Management Standards. More specifically, ESSD means designs that incorporate Low Impact Development techniques or practices to prevent the generation of stormwater and non-point source pollution by reducing Impervious Surfaces, disconnecting stormwater sheet flow paths and treating stormwater at its source, maximizing open space, minimizing disturbance, protecting natural features and processes, and/or enhancing wildlife habitat. See also the Massachusetts Stormwater Handbook.

FRONTAGE: As defined in the most recent City of Methuen Comprehensive Zoning Ordinance. For the purpose of this regulation the term “frontage” shall mean actual, physical frontage.

GENERAL LAWS (M.G.L.) – The General Laws of Massachusetts. In case of a rearrangement of the General Laws, any citation of particular sections of the General Laws shall be applicable to the corresponding sections in the new codification.

IMPROVEMENT - Any change to the existing conditions of a subdivision site for the purpose of complying with these regulations or rendering the site suitable for development and habitation. As used in these regulations, improvements include, but are not limited to, construction and installation of roadways, paved streets, berms, gutters, sidewalks, utilities, street signs, monuments, shade trees, drainage facilities, erosion and sedimentation control measures, fire ponds, sewage and water systems, buildings, earth filling or removal, seeding, and grading.

LOT – As defined in Section 81L of Chapter 41, an area of land in one ownership, with definite boundaries, used, or available for use, as the site of one or more buildings. Note that the definition of a “lot” in the Subdivision Control Law does not refer to a lot meeting zoning requirements.

MUNICIPAL SERVICE - Public utilities furnished by the city or town in which a subdivision is located, such as water, sewerage, gas and electricity.

OPEN SPACE: Property within a subdivision designated to be conveyed by the developer to the City, a nonprofit organization, a corporation or trust owned jointly

or in common by owners of lots within the development, or other approved agency, or to be maintained by the developer or owner in an undeveloped state in a manner approved by the Community Development Board. Any proposed open space shall be subject to a recorded restriction enforceable by the City, providing that such land shall be perpetually kept in an open state, that it shall be preserved exclusively for the purposes set forth herein, and that it shall be maintained in a manner which will ensure its suitability for its intended purposes. Such open space is to be used for passive or active recreation, agriculture, forestry, rare and endangered species habitat, natural or scenic vistas, unique natural or cultural features, or greenways. Such open space shall be retained in substantially a natural, wild or open condition, or in a landscaped condition in such a manner as to allow to a significant extent the preservation of wildlife or other natural resources. Open space shall be contiguous areas containing a high ratio of interior area to edge area. Open space shall contain to the greatest extent possible soils uniquely suited to agricultural use and that further create greenway corridors to establish linkages in landscape. Such areas shall be of adequate size and configuration to accommodate the intended use and shall not include narrow or irregular pieces of land which are remnants from the layout of lots, streets, or drainage structures. Open space does not include areas designated for sediment control, erosion control, or stormwater control, nor does it include wetland resource areas. Such areas are considered part of the subdivision structure and are not intended to be for recreation.

OWNER - The owner of record as shown at the Northern Essex County Registry of Deeds, Land Court, or Probate Court.

PLAN, DEFINITIVE - A proposed plan of a subdivision submitted by the applicant to be recorded in the Northern Essex County Registry of Deeds or Land Court when approved by the Community Development Board.

PLAN, PRELIMINARY - A plan of a proposed subdivision or resubdivision of land drawn on tracing paper, or a print thereof, showing (a) the subdivision name, boundaries, north point, date, scale, legend and title "Preliminary Plan"; (b) the names of the record owner and the applicant and the name of the designer, engineer or surveyor; (c) the names of all abutters, as determined from the most recent local tax list; (d) the existing and proposed lines of streets, ways, easements and any public areas within the subdivision in a general manner; (e) the proposed system of drainage, including adjacent existing natural waterways, in a general manner; (f) the approximate boundary lines of proposed lots, with approximate areas and dimensions; (g) the names, approximate location and widths of adjacent streets; (h) and the topography of the land in a general manner.

RECORDED - Recorded in the registry of deeds of the county or district in which the land in question is situated, except that, as affecting registered land, it shall mean filed with the recorder of the land court.

REGISTER OF DEEDS - The register of deeds of the county or district in which the land in question, or the city or town in question, is situated, and, when

appropriate, shall include the recorder of the land court.

REGISTERED MAIL - Registered or certified mail.

RIGHT-OF-WAY - That portion of land which is or is intended to be made available for the construction of roadways, ditches, drainage structures and utility lines and is to be conveyed to the City in the case of a proposed City road, or conveyed to an association charged with maintenance of such right-of-way in the case of a private road, including but not limited to the traveled portion and all adjacent land encumbered or intended to be encumbered by all necessary easements. The form and content of the instrument of conveyance shall be subject to the approval of the City Counsel

ROADWAY - That portion of a way which is designed and constructed or intended to be constructed for vehicular travel, also known as the traveled portion of the way. See also STREET.

SITE - The area extent of construction activities, including but not limited to the creation of new impervious cover and improvement of existing impervious cover, excluding redevelopment activities that are exclusively limited to maintenance and improvement of existing roadways as described under REDEVELOPMENT above.

STANDARD SPECIFICATIONS – City of Methuen Standard Specifications and Standard Specifications for Highways and Bridges, Massachusetts Department of Transportation, most current as amended/supplemented standard edition.

STORMWATER POLLUTION - Occurs when rain that falls on streets, parking lots and other land carries pollution into lakes, rivers, streams or other water bodies. Pollutants can include oil and fuel from vehicles, fertilizers and pesticides from yards or agricultural lands, pet waste, and soil picked by erosion.

STREET - A public or private way either shown on a plan approved in accordance with these rules and regulations or otherwise qualifying a lot for access and frontage under M.G.L. c. 41, Section 81L. See Section 6.2.1 for Classification of Streets.

SUBDIVISION - The division of a tract of land into two or more lots and shall include re-subdivision, and, when appropriate to the context, shall relate to the process of subdivision or the land or territory subdivided; provided, however, that the division of a tract of land into two or more lots shall not be deemed to constitute a subdivision within the meaning of the subdivision control law if, at the time when it is made, every lot within the tract so divided has frontage on (a) a public way or a way which the clerk of the city or town certifies is maintained and used as a public way, or (b) a way shown on a plan theretofore approved and endorsed in accordance with the subdivision control law, or (c) a way in existence when the subdivision control law became effective in the city or town in which the land lies, having, in the opinion of the planning board, sufficient width, suitable grades and adequate construction to provide for the needs of vehicular traffic in relation to the proposed use of the land abutting thereon or served thereby, and for the installation of

municipal services to serve such land and the buildings erected or to be erected thereon. Such frontage shall be of at least such distance as is then required by zoning or other ordinance or by-law, if any, of said city or town for erection of a building on such lot, and if no distance is so required, such frontage shall be of at least twenty feet. Conveyances or other instruments adding to, taking away from, or changing the size and shape of, lots in such a manner as not to leave any lot so affected without the frontage above set forth, or the division of a tract of land on which two or more buildings were standing when the subdivision control law went into effect in the city or town in which the land lies into separate lots on each of which one of such buildings remains standing, shall not constitute a subdivision.

SUBDIVISION CONTROL - The power of regulating the subdivision of land granted by the subdivision control law.

SURVEYOR - Currently Registered Land Surveyor in the Commonwealth of Massachusetts.

UTILITIES - Public utilities furnished by off-site providers, such as water, sewer, gas, electricity, telephone, television, or other media.

WAY - A right-of-way or means of access to a lot. A public way is a way which has been accepted by, and the land owned by, the City of Methuen, or by other means created as a public street. Any other way (private way) is a way over land which is owned by a private party but which is set forth by deed covenant, deed description or by other means as a private way.

ZONING - Refers to the most recent Comprehensive Zoning Ordinance adopted by the City of Methuen.

SECTION 3.0 GENERAL PROVISIONS

3.1 BASIC REQUIREMENTS

Only those plans which constitute “subdivisions” as that term is defined in the Subdivision Control Law require approval of the Board. However, any plan of land situated in the City of Methuen, whether subdivisions within the meaning of the law or not, must have either approval as a subdivision or endorsement that the plan does not require approval before they will be accepted for recording at the Registry of Deeds or registration at the Land Court.

No person shall make a subdivision within the meaning of the Subdivision Control Law of any land within the City or proceed with the improvement or sale of lots in a subdivision, or the construction of ways, or the installation of municipal services therein, unless and until a Definitive Plan of such subdivision has been submitted to and approved by the Board as hereinafter provided.

3.2 ADMINISTRATIVE AND PROJECT REVIEW FEES

The City of Methuen Community Development Board has adopted *Rules and Regulations Governing Fees and Fee Schedules*, which specifies administrative fees and project review fees and procedures related to administration of these Subdivision Rules & Regulations.

3.3 MINIMUM STANDARDS

The Board standards for subdivisions are minimums. A developer should not consider these minimums as a substitute for best engineering practices, and for giving full consideration to the many aspects of a development. In all cases construction shall be in full conformity with approved plans and specifications.

3.4 LIMITATION OF ONE DWELLING UNIT PER LOT

Not more than one building designed or available for use for dwelling purposes shall be erected or placed or converted to use as such on (a) any lot in a subdivision, or (b) elsewhere in the City without the consent of the Community Development Board, and such consent will be conditional upon the providing of adequate ways furnishing access to each building site in the same manner if otherwise required for lots in a subdivision.

3.5 COMPLIANCE WITH OTHER ORDINANCES AND PERMITS

The Board will not approve or modify any plan of a subdivision of land unless all buildings, structures, and lots shown on the said plan comply with the most recent Comprehensive Zoning Ordinance of the City of Methuen unless a variance from the term thereof has been properly granted by the Zoning Board of Appeals or said plan does not fall within the definition of a “Subdivision” as provided under Chapter 41 Section 81L of the General laws.

Note that projects may also require other municipal, state, or federal permits such as:

City Code Chapter 12 Wetlands Protection: All activities requiring an Order of Conditions or otherwise subject to the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40) shall meet the requirements of State law, 310 CMR 10.00, the City's Wetlands Protection Ordinance, and Methuen Conservation Commission's Rules and Regulations.

City Code Chapter 30 Ordinance Governing Stormwater Management and Erosion Control: All projects disturbing 5,000 square feet or more of land shall meet the requirements and design and performance standards of the City of Methuen Stormwater Management Ordinance and regulations enacted thereunder.

3.6 ADMINISTRATIVE FORMS

The Board may create certain administrative forms, applications, and other documents associated with subdivisions. These forms may be changed from time to time by majority vote of the Board without notice to reflect changes in procedures or laws.

3.7 COMPLIANCE WITH THESE RULES AND REGULATIONS

All plans and all procedures relating thereto shall, in all respects, comply with the provisions of these Rules and Regulations, unless the Board authorizes a variation therefrom in specified instances.

3.7.1 WAIVER OF COMPLIANCE

- (1) In accordance with the provisions of G.L. c. 41, Section 81R, the Board has the power to waive strict compliance with these subdivision rules and regulations when, in the judgment of the Board, such action is in the public interest and not inconsistent with the intent and purpose of the Subdivision Control Law.
- (2) A majority vote of the Board members in attendance is required to waive subdivision rules and regulations.
- (3) A request for a waiver of compliance under M.G.L. Ch. 4 Section 81R shall be submitted in writing by the Applicant at the time when the plan is filed with the Board. The request for the waiver must state fully the grounds for the request and the facts relied upon by the petitioner.

3.7.2 FRONTAGE WAIVER

- (1) A plan showing a lot having less than the required frontage under Zoning is not entitled to Form A (ANR) endorsement and will require a Frontage Waiver from the Board. Any plan depicting a lot with inadequate frontage, even if the lot has received a variance from the Zoning Board of Appeals shall be filed as a definitive plan under these rules and regulations.

- (2) A request for a waiver of compliance under M.G.L. Ch. 4 Section 81-R shall be submitted in writing by the Applicant at the time when the plan is filed with the Board. The request for the waiver must state fully the grounds for the request and the facts relied upon by the petitioner. The Community Development Board shall consider whether the proposed reduced frontage:
- a) Maintains the integrity and economic health of the neighborhood
 - b) Results in the location and siting of a structure in manner consistent with the surrounding neighborhood
 - c) Acquires some abutting property as preferable alternative
 - d) Maximizes available frontage on a public way without causing any other lot be in non-compliance
 - e) Complements other lots in the neighborhood which may have insufficient frontage
 - f) Provides adequate actual access to the buildable portion of the lot
 - g) Is in the public interest and not inconsistent with the intent and purpose of the subdivision control law.
- (3) A notation that a frontage waiver has been granted by the Community Development Board must be shown on the plan.

SECTION 4.0

PROCEDURES FOR SUBMISSION AND REVIEW OF PLANS

It is strongly advised, where projects require additional approvals from other permitting authorities, that such approvals be obtained either prior to submitting applications to the Community Development Board or are submitted to the other permitting authorities at the same time that applications are submitted to the Community Development Board. It is important to note that other permitting authority's processes may have timelines that are not coterminous with the Community Development Board's Subdivision Approval process.

4.1 PLAN BELIEVED NOT TO REQUIRE SUBDIVISION APPROVAL

4.1.1 ANR FILING PROCEDURE

- (1) ***Submission of Plan to the Board:*** Any Applicant seeking an endorsement of an ANR plan for land located in the City of Methuen and wishing to record it in the Registry of Deeds, or to be filed in the Land Court, and who believes that their plan does not require approval under the Subdivision Control Law, must submit their plan and application (Form A) to the Board along with the filing fee (See Section 3.2). Plans must be accompanied by the necessary evidence to show that the plan does not require approval.
- (2) ***Notice to City Clerk:*** Written notice must be provided to the City Clerk by delivery or by registered mail postage prepaid that the plan has been submitted. Receipt of the plan by the City Clerk or Board shall constitute the date of submission.
- (3) ***Timeline & Decision:*** The Board has twenty-one (21) days from the time of submission to act and to notify the city.
- (4) ***Standards for Endorsement:*** In order for the Board to endorse an ANR plan it must determine that approval is not required under the Subdivision Control Law. Adequate access must be provided to the lots shown on the ANR plan. The lots shown on the plan must front on one the three ways defined in M.G.L. Ch. 41 Section 81L. The lots shown must meet the minimum frontage requirements of 81L and the Board must determine that vital access to such lots under Section 81M otherwise exists.
 - (a) If the Board finds that the plan does not require approval, it shall without a public hearing endorse on the plan or cause to be endorsed on it by a person authorized by the Board, the words "approval under the Subdivision Control Law not required." A copy shall be returned to the applicant. After endorsement by the Board the applicant shall file the endorsed plan with the Northern Essex County Registry of Deeds.
 - (b) If the Board determines that the plan requires approval under the Subdivision Control Law, it shall give written notice of its determination to the City Clerk and to the Applicant. The Applicant may then submit the plan for approval as provided by the General Laws and these Rules and Regulations, or they may appeal from such.

- (5) ***Constructive Approval:*** If the Board fails to act upon a plan submitted under this section within twenty-one (21) days after its submission, it shall be deemed to have determined that approval of such plan under the Subdivision Control Law is not required and it shall forthwith make such endorsement on said plan and on its failure to do so, forthwith, the City Clerk shall issue a certificate to the same effect. The plan shall be delivered by the Board, and the certificate by the City Clerk, to the applicant.

4.1.2 ANR PLAN CONTENTS

Plans submitted to the Board accompanied by the necessary evidence to show that the plan does not require approval:

- (1) North arrow, date, scale, legend, locus, and title, “Subdivision Approval Not Required.”
- (2) The names and addresses of all owner/s of record at the time of submission of the application, the applicant, and Land Surveyor (including the official seal).
- (3) Locations, names, lines and widths of all existing streets, sidewalks, publicly owned trails and shared use paths, and any common or public areas.
- (4) Location and setbacks of all existing structures on the proposed site.
- (5) Location, dimensions and purpose of all easements, both existing and proposed, within and adjacent to the land in question.
- (6) The plan shall show boundary lines, dimensions of all subject lots, sites of divisions, lot areas (in acres or square feet, as appropriate), with all lots designated numerically and in sequences.
- (7) Location of all monuments properly identified as to whether existing or proposed.
- (8) Frontage dimensions of all lots created and the dimensions of any frontage remaining on the original subdivided parcels, including the area of any subdivided parcels with a structure.
- (9) Suitable space to record the action of the Board and the signatures of members.
- (10) Book and page number from the Northern Essex Registry of Deeds or title reference of subject property.
- (11) A notation reading “Endorsement of this Plan does not certify compliance with the zoning required for a building lot.”
- (12) Additional information such as the most recent MassGIS orthophotos or other best available high-quality low-elevation air photos, the topography of the land, in a general manner, land subject to protection/permitting under the Wetlands Protection Act (CMR 140) and other such contours as may be required by the Board may be

required to determine that the plan does not require approval under the Subdivision Control Law.

4.2 PRELIMINARY SUBDIVISION PLAN

4.2.1 PRELIMINARY PLAN GENERAL

- (1) ***Purpose:*** The purpose of a preliminary plan is to provide an introduction to the proposed subdivision plan to the Board. Preliminary plans are not required to be as detailed or as technical as a definitive subdivision plan. They serve as the beginning of the review process to examine plans, scale, and potential impacts of the subdivision.
- (2) ***Residential Subdivision:*** Although it may be beneficial to do so, the submission of a preliminary plan to the Board is not required for a plan showing lots in a residential zone.
- (3) ***Non-residential Subdivision:*** Submission of a preliminary plan for a non-residential subdivision is required prior to the submission of a definitive plan. If a proposed subdivision does not show lots in a residential zone, then it is a non-residential subdivision, and a preliminary plan filing is required prior to submission of a definitive subdivision plan.

4.2.2 PRELIMINARY PLAN FILING PROCEDURE

- (1) ***Pre-Submission Review:*** Prior to investing in extensive professional design efforts for subdivision plans, it may be beneficial for the prospective applicant to discuss their ideas with Community Development staff and other technical municipal staff. It may be useful in avoiding problems at a later stage of the subdivision review process.
- (2) ***Submission to Board and Board of Health:*** The Applicant must submit a preliminary plan, application Form B, and applicable fees to both the Board and the Board of Health. See the most recent Application Checklist for the number of plans, applications, and additional information to be submitted.
- (3) ***Notice to the City Clerk:*** The Applicant shall, by delivery or by registered mail, give written notice to the City Clerk that the preliminary plans have been submitted to the Board and the Board of Health.
- (4) ***Timeline:*** Both the Planning Board and Board of Health have forty-five (45) days total from the date of preliminary plan submission within which to make a decision unless an extension is agreed to in writing by either or both boards and the Applicant and the agreement is filed with the city clerk.
- (5) ***Decision:*** The Board and the Board of Health may each, by majority vote, approve the preliminary plan, approve the preliminary plan with modifications recommended by the Board, or disapprove the preliminary plan, in which case the Board shall state in detail its reasons for disapproval. The Board's disapproval of a preliminary plan does not authorize the Board to refuse to receive a definitive plan.

- (6) **Notification of Decision:** The Board and Board of Health shall each notify the Applicant and City Clerk of its decision.
- (7) **Constructive Approval:** Because the approval or disapproval of a preliminary plan has no legally binding effect, the failure of a Board to act within forty-five (45) days does not result in a constructive approval.
- (8) **Appeal:** The applicant for a preliminary plan does not have a right to appeal the action taken by a Board.

4.2.3 PRELIMINARY PLAN CONTENTS

- (1) The preliminary plan shall be drawn at a scale of one (1) inch equals forty (40') feet, or such other scale as the Board may accept to show details clearly and adequately on a sheet of paper twenty-four by thirty-six inches (24" x 36") and shall be clearly designated as "Preliminary Plan."
- (2) This plan shall include the following:
 - (a) Key plan showing location of the proposed subdivision at a scale of one inch equals one thousand feet (1"=1000'), that includes but is not limited to: The Subdivision name, boundaries, North arrow, date, scale, legend, and title "Preliminary Plan."
 - (b) Name and address of record owner, the applicant, the designer, and the engineer or surveyor.
 - (c) A locus plan overlaid on the most recent MassGIS orthophotos or other best available high-quality low-elevation air photos.
 - (d) Names of all abutters, as determined from most recent tax list.
 - (e) Existing and proposed lines of streets, ways, sidewalks, trails, shared use paths, and easements and any public or common areas within the subdivision, in a general manner.
 - (f) Location, names, and present width of streets bounding, approaching or near the subdivision.
 - (g) The topography of the land, in a general manner.
 - (h) Land subject to protection/permitting under the Wetlands Protection Act (CMR 140) and other such contours as may be required by the Board.
 - (i) Proposed system of drainage, including existing waterways, in a general manner, both within and adjacent to the subdivision.
 - (j) The proposed method of sanitary sewage disposal and system and water distribution system (including general soils information), in a general manner.
 - (k) Approximate boundary lines of proposed lots, with approximate areas and dimensions; each lot shall be numbered as directed by the Board

of Assessors.

- (l) Proposed water system. A fire flow test may be required by the Methuen Fire Department only with consent of the Water Division of the Department of Public Works, to be taken at the developer's expense.
 - (m) An index plan at a scale of one inch equals two hundred feet (1"=200'), when multiple sheets are used.
 - (n) In the case of a subdivision covering less than all of the land owned by the subdivider, a plan showing in a general manner the proposed overall development of all said land.
- (3) The preliminary plan must be accompanied by a statement of any easements, covenants or restrictions applying to the area proposed to be subdivided.
- (4) At the time of submission, the center line of the proposed roadway shall be adequately and accurately staked or flagged on the site, and the individual proposed lots shall be identified in some manner, sufficient for identification by the Board members and City officials when site visits are made.

4.3 DEFINITIVE PLAN

4.3.1 DEFINITIVE PLAN GENERAL

- (1) A Definitive Plan shall be governed by the subdivision regulation in effect at the time of submission of such plan, or in effect at the time of submission of a Preliminary Plan provide that a definitive plan evolved therefrom shall have been submitted to the Board within seven (7) months from the date of submission of the Preliminary Plan (if submitted).
- (2) To the fullest extent reasonable and practicable, all subdivisions shall be designed and constructed to incorporate the City's most recent design standards, best practices, policies, and design elements. This may include but is not limited to the City's Complete Streets Program, Stormwater Management Program, and other plans and studies referenced in Section 4.2 related to Preliminary Plan review.
- (3) A Definitive Plan shall also be governed by the zoning in effect at the time of submission of such plan or a Preliminary Plan from which a Definitive Plan is evolved in accordance with the provisions of Section 6 of Chapter 40A of the General Laws as amended.

4.3.2 DEFINITIVE PLAN FILING PROCEDURE

- (1) The Board, in considering a proposed subdivision plan will be concerned with the requirements of the community and the best use of the land being subdivided and may consider the current Methuen Master Plan, Housing Production Plan,

Open Space & Recreation Plan, and other relevant plans and studies. Particular attention will be given to width, arrangement and location of streets, sanitation, drainage, sizes and arrangements of lots, open areas and parks. Adequate street connections will be required whenever feasible to ensure access to adjoining subdivisions and lands.

(2) The procedure for filing a Definitive Plan is as follows:

- (a) **Pre-Submission Review:** Prior to investing in extensive professional design efforts for subdivision plans, it may be beneficial for the prospective applicant to discuss their ideas with Community Development staff and other technical municipal staff. It may be useful in avoiding problems at a later stage of the subdivision review process.
- (b) **Submission to the Board:** The Applicant must submit to the Board a definitive plan, application Form C, all applicable fees per Section 3.2, Certified Abutters list from the Assessor's Office, required reports and accompanying statements and data as outlined below. See the most recent Application Checklist for the number of plans, applications, and additional information to be submitted. Plans and application material will be distributed to the applicable City departments.
- (c) **Notice to the Board of Health:** At the time of the filing of the Definitive Plan with the Board, two (2) copies shall also be filed with the Board of Health. The Board of Health or health officer shall, within 45 days after the definitive plan is filed, report to the Board in writing stating its approval or disapproval of the definitive plan. If the Board of Health or officer disproves the plan, then it shall make specific findings as to which areas shown in the definitive plan cannot be used for building sites without injury to public health. It shall include findings and reasons for the findings in its report and shall make recommendations for adjustment thereof, where possible. It should be noted that all subdivisions shall apply to connect to the City's sanitary sewerage system where this system is available and where it is feasible to do so. Any lot so located that it cannot be served by a connection to a sewer system shall be provided with a septic tank and leaching field or other disposal that is satisfactory to the Board of Health.

The Board may not approve a definitive plan that does not conform to the Board of Health recommendations. The Board may either deny the plan or modify it so that it conforms to the Board of Health recommendations.

Failure by the Board of Health to report on the proposed subdivision within forty-five (45) days after the filing of the Plan shall be deemed approval of the Plan by the Board of Health.

- (d) **Public Hearing Requirement:** The Board is required to hold a public hearing prior to taking any action to approve, approve with modification or disapprove the plan.

- (e) **Public Hearing Notice:** Before holding a public hearing, the Board shall provide public notice of the time and place of the hearing including adequate identification of the subject matter. The public notice shall be placed in a newspaper of general circulation in the city once in each of 2 successive weeks. The applicant shall be responsible for bearing the cost of the public hearing notice advertisement.
- (f) **Notice to Applicant & Abutters:** A copy of the hearing notice shall be mailed to the applicant and all owners of land abutting the land shown on the definitive subdivision plan as their names respectively appear on the most recent tax list. The applicant shall be responsible for bearing the cost of printing and postage for the notice to applicant and abutters.
- (g) **Timeline:**
 - i. **Nonresidential Subdivisions:** In the case of a nonresidential subdivision, if a preliminary plan has been submitted to and acted upon by the Board or where 45 days has elapsed since the submission of the preliminary plan, a definitive plan may be submitted. The Board has 90 days from the submission of the definitive plan to file a written decision with the City Clerk. If the Board fails to take final action within 90 days from the submission of the plan or of any agreed upon extension of time. The plan shall then be deemed approved.
 - ii. **Residential Subdivisions – Preliminary Plan Submitted:** In the case of a residential subdivision where a preliminary plan has been acted upon by the Board or where 45 days have elapsed since the filing of a preliminary plan, a definitive plan may be submitted. The Board then has 90 days from the submission of the plan to file its written decision with the City Clerk. If the Board fails to take final action within 90 days from the submission of the plan or of any agreed upon extension of time. The plan shall then be deemed approved.
 - iii. **Residential Subdivision – No Preliminary Plan Submitted:** In the case of a residential subdivision where no preliminary plan has been submitted, the Board then has 135 days from the submission of the plan to file its written decision with the City Clerk. If the Board fails to take final action within 135 days from the submission of the plan or of any agreed upon extension of time. The plan shall then be deemed approved.
 - iv. **Extensions of Time:** The time periods for Board action may be extended upon the written request of the applicant and agreement of the Board. The written extension shall be filed with the city clerk.

(h) **Decision**

- i. After the required public hearing but within ninety (90) days from submission, in the case for a preliminary plan was

submitted, or within one-hundred and thirty-five (135) which no preliminary plan was submitted, the Board shall take final action upon the Definitive Plan. It shall approve the Plan as submitted, modify and approve the Plan, or disapprove the Plan. If the Board modifies or disapproves the Plan, it shall state with its vote the reasons for its action.

- ii. The Board shall file a certificate of its action with the City Clerk and send by registered mail, postage prepaid, notice of its action to the applicant.
 - iii. The failure of the Board either to take final action or to file with the City Clerk a certificate of such action regarding the definitive plan submitted by an Applicant within one hundred thirty-five (135) days after such submission, or such further time as may be agreed upon at the written request of the applicant, shall be deemed to be an approval thereof. Notice of such extension of time shall be filed forthwith by the Board with the City Clerk. Approvals of Definitive Subdivision Plans are transferable only upon the prior approval of the Community Development Board.
 - iv. Final approval, if granted, shall be endorsed on the original drawing of the definitive plan by the signatures of a majority of the Board (or by the signature of the person officially authorized by the Board), but endorsement shall not occur until the statutory twenty (20) day appeal period following the filing of the certificate of the action of the Board with the City Clerk has elapsed and the Clerk has notified the Board that no appeal has been filed.
 - v. Final approval of the definitive plan does not constitute the laying out or acceptance by the City of streets or ways within a subdivision.
 - vi. The Board may disapprove of a subdivision plan where, in the opinion of the Board, the existing surrounding municipal infrastructure (e.g., street width and construction and necessary utilities) is insufficient and/or incapable of handling the additional volumes (e.g. traffic, stormwater) anticipated, by the Board, to be generated by the project. Board may accept or require off-site improvements to mitigate any of these impacts.
- (i) ***Certification and recording of approved definitive plan and restrictive covenant in Registry of Deeds.*** Recording of plan and covenant at Registry to be done by applicant and at applicant's expense with notice of recording forwarded to Community Development Department.

4.3.3 DEFINITIVE PLAN CONTENTS

The definitive plan shall be prepared, stamped, and signed by a current Massachusetts registered professional civil engineer, and a current Massachusetts

registered land surveyor. The plan shall be at a scale of one inch equals forty feet (1" = 40'), unless otherwise specified by the Board. Sheet sizes shall not exceed 24" by 36". If multiple sheets are used, they shall be accompanied by an index sheet showing the entire subdivision. Plans will be referred by the Community Development to the Board of Health, Director of Public Works, Conservation Commission, Police, Fire, and other applicable City Officials for review. The original drawing, after approval, will be recorded at applicant's expense in the Northern Essex Registry of Deeds and if disapproved will be returned to the applicant.

The definitive plan shall contain the following information:

- (1) Subdivision name, boundaries, north point, date and scale. A statement shall be made on each plan as to whether the bearings shown are magnetic, grid or true on a north point arrow and shall be shown on each plan and clearly labeled as to which system it indicates. The relative error of closure of the perimeter survey shall conform to the requirements of the 1971 Land Court Manual of Instructions as amended.
- (2) Key Map showing location of the subdivision, at a scale of 800 feet to the inch (1" = 800'), showing exterior lines of all proposed streets in the subdivision and their location in relation to one or more existing streets, or portions thereof, shown and readily identifiable as to locus on the Zoning Map of Methuen, Massachusetts, as most recently amended.
- (3) Name and address of record owner, applicant, and engineer or surveyor and their official seals.
- (4) The names of all abutters as determined from the most recent tax list.
- (5) Boundary lines of contiguous and adjacent land and names of owners as determined from most recent tax list.
- (6) Existing and proposed lines of streets, sidewalks, shared use paths, rights of way, easements, and any public or common areas within the subdivision. The proposed names of proposed streets shall be shown.
- (7) Location, direction, name and present width and grade of each street and public or private way bounding, approaching or within reasonable proximity of the subdivision.
- (8) Zoning districts of all the areas shown on the plan.
- (9) Sufficient data to determine readily the location, direction and length of every street and way line, lot line and boundary line, and to establish these lines on the ground.
- (10) Locations and outlines of all existing buildings, including any historic structures, and site features, such as stone walls and fences.
- (11) Locations and outlines of all natural features including, but not limited

to, trees with at least a six (6) inch caliper or wooded areas, watercourses, rock ridges and outcroppings, swamps and water bodies within or adjacent to the proposed subdivision, scenic elements, aquifers, flood plains, and habitats of rare or endangered species. These features shall be left undisturbed wherever practical.

- (12) Existing (solid line) and proposed (broken line) topography at two (2) foot contour intervals including the finished grade of all lots. All elevations to be U.S.C. & G.S. Datum.
- (13) Total street frontage, lot numbers and areas of lots.
- (14) Delineation of any areas under the jurisdiction of M.G.L. Chapter 131 Section 40 Wetlands Protection Act, as amended, and the City of Methuen Chapter 12 Wetlands Protection Ordinance, prepared by a professional wetlands specialist licensed in the Commonwealth of Massachusetts.
- (15) Areas where the depth of natural soil to bedrock is four (4) feet or less.
- (16) The extent of any Interim Wellhead Protection Areas and Recharge Areas.
- (17) Delineation of slopes of fifteen percent (15%) to less than twenty-five percent (25%) and twenty-five percent (25%) or greater
- (18) Areas delineated as “BioMap Core Habitat” or “Supporting Natural Landscape” on the Massachusetts BioMap Project developed by the Massachusetts Natural Heritage & Endangered Species Program.
- (19) Location of all permanent monuments, properly identified as to whether proposed or existing.
- (20) If requested by the Board of Health, the location and results of all percolation tests to evaluate subsurface conditions for each lot in the prospective subdivision. These tests will be done if onsite wastewater systems are proposed. The tests will be done in accordance with the State Sanitary Code and the regulations of the Methuen Board of Health.
- (21) Location of all existing wells and areas of potential well locations for each proposed lot.
- (22) Area of each lot in square feet, and lot lines with bearings and lines thereof; each lot to be numbered.
- (23) Locations of monuments, hydrants, public utility facilities, water pipes and walls within the subdivision with the distance and bearing to the nearest City, county, or state monument on an accepted way.
- (24) Proposed arrangements for water supply, with supporting data, as required by the applicable rules and regulations of the Water Division of the Department of Public Works. If utilizing public water, the size, pressure, and location of existing and proposed water supply facilities.

- (25) If utilizing public water, the size, pressure and location of all fire hydrants, pumps, water lines between hydrants and pump, and source(s) of water for firefighting.
- (26) If utilizing public sanitary sewer, the size, capacity, and location of existing and proposed components of all sanitary sewer facilities
- (27) Park or open areas suitably located for playground recreation purposes within a subdivision, if any. See Section 6.6.2 related to land reserved for the creation of parks and open space.
- (28) Proposed storm drainage of land, including existing waterways and the proposed disposition of water from the proposed subdivision to existing subsurface drainage systems having sufficient capacity to dispose of the storm flows.
- (29) Easements at least twenty (20) feet wide over adjoining property for the maintenance of utility lines where necessary.
- (30) Locations and species of proposed street trees and/or individual trees or wooded areas to be retained within the sidelines of each street.
- (31) Location of all the following improvements unless specifically waived in writing by the Board: street paving, bike lanes, sidewalks, shared use paths, street lighting standards, all utilities above and below ground (i.e., electricity, phone, cable TV, gas), curbs, gutters, storm drainage, and all easements (with statement of the purpose of each such easement) including any required utility easements outside of the right-of-way.
- (32) The location of core borings taken along the center line of the proposed road every 100' to a depth of 6'. The logs of such core borings shall be included.
- (33) Location of the Flood Plain Overlay District (See Section V-W of the Zoning Ordinance). When proposing subdivisions or development greater than 50 lots or 5 acres (whichever is less), the Applicant must provide technical data to determine base flood elevation for each developable parcel shown on the design plans.
- (34) Landscaping Plan showing the location of all existing and proposed landscaping, including the center of any proposed cul-de-sacs. Tree species must be approved by the Tree Warden. Indicate which large trees (with a minimum diameter of 18" measured at 4' DBH (Diameter at Breast Height)) are proposed to be removed within the proposed right-of-way.
- (35) Sufficient data including the length, bearings, radii, and central angle to determine the exact location, direction, and length of every street, and way, lot line and boundary line, and to establish these lines on the ground.
- (36) Street plans and profiles must show the percent slope of each grade,

and the radius, length, point of curvature and point of tangency of each curve.

- (37) Street plans and profiles must show, in addition to the proposed centerline grades, existing ground grades of the centerline and both edges of each proposed street at fifty (50') foot stations. All existing and proposed elevations shall be based on the U.S.C. & G.S. Datum.
- (38) Minimum building setback lines where deemed necessary after setback line on all lots and in sketch plan showing all water courses and flood plain markers and seasonal wet areas.
- (39) Proposed grading where deemed necessary after proposed grading of the entire subdivision, including all roadways, house lots and building sites within the perimeter property line of the subdivision.
- (40) Profiles shall be prepared as follows:
 - a. A horizontal scale of 1" = 40'.
 - b. A vertical scale of 1" = 4'.
 - c. Existing grade of road center line drawn in fine black solid line.
 - d. Existing right sideline drawn in fine black dotted line.
 - e. Existing left sideline drawn in fine black dash line.
 - f. All elevations shall refer to the U.S. Coast and Geodetic Survey bench marks.
 - g. Proposed roadway center line grades drawn in heavy red line with precise elevations at point of vertical tangency, point of vertical contact, high point and low point.
 - h. Rates of roadway gradient shown in percentage.
 - i. Size, location and rates of gradient of proposed stormwater management facilities, drains, sewer lines, catch basins, man holes, as well as required new waterways, and sizes of all pipes.
 - j. Invert and rim elevations of each man hole or catch basin shall be shown.
 - k. As long as the work is related to the proposed subdivision, profiles shall be shown even if the new work is outside said subdivision.
 - l. Water mains will be shown in profile to demonstrate sufficient clearance of other structures.
 - m. Size and location of all other utilities to be placed in the right of way.
 - n. These shall be placed so as to minimize flood damage.
 - o. Location of any intersected public or private way.
- (41) Cross sections details shall comply with the Typical Section prepared by the City Engineer and shall include: Street section showing paving, crown, berm, shoulder and distance to the right of way line, sidewalks,

bike lanes and cross sections for any stormwater management facilities.

- (42) Suitable space to record the action of the Board and the signatures of the members of the Board, including, where appropriate, a reference to the covenant between the applicant and the Board.
- (43) Road Acceptance. All requirements as listed in the Methuen Subdivision Regulations and City Code Section 16-7A.
- (44) Any other information that the Board may deem necessary.

4.3.4 REQUIRED STATEMENTS, REPORTS AND DOCUMENTS

The applicant shall submit with the definitive plan four (4) copies each of the following statements, reports, documents, and data (if applicable):

- (1) **Statement Certifying Plan Conformance.** All definitive plans submitted to the Board shall include a certification as to their conformance with these rules and regulations and as to the validity of their content, executed by a person registered in the Commonwealth of Massachusetts as a land surveyor or professional engineer, or both, as required by the Board. The Board suggests that the owner be represented at any meeting with the Board by the person responsible for design of the subdivision and the preparation of the plans.
- (2) **Operation & Maintenance Plan** for the subdivision right-of-ways, easements, and roads for the time prior to acceptance by the City. The maintenance plan should include provision for the maintenance of road pavement, sidewalks, water and sanitary sewer, stormwater management, soil settling problems, street sweeping, snowplowing and clearing of snow from sidewalks and shared use paths, maintaining vegetative stabilization of all right-of-ways and easements, erosion controls, fall leaf clean up, catch basin and drainage system cleaning, and other provisions as determined to be necessary by the Community Development Board.
- (3) **Traffic Analysis.** The developer may be required to provide a traffic analysis prepared by a registered traffic engineer. This report must bear the traffic engineer's stamp and detail the number of vehicle trips generated per day, and how traffic will affect the surrounding road network. This analysis must conform to the standards contained in the most recent version of the Massachusetts Department of Transportation Transportation Impact Assessment Guidelines. Trip rates may be based on the latest edition of the Institute of Transportation Engineers (ITE) Trip Generation, or data from similar developments in similar settings in Massachusetts. This plan should explain traffic impacts, types of streets, opportunities for public transit access, impacts on vehicle, pedestrian and bicycle circulation and include the following:
 - a. Estimated daily and peak hour vehicle trips generated by the

proposed use, traffic patterns for vehicles and pedestrians showing adequate access to and from the site, and adequate vehicular and pedestrian circulation within the site. Previous generated data may be used but may not be more than two years old.

- b. Traffic flow patterns at the site, including entrances and egresses and curb cuts on site and within 200 feet of the site.
- c. An interior traffic and pedestrian circulation plan designed to minimize conflicts and safety problems.
- d. Adequate pedestrian access, including provisions for sidewalks to provide access to adjacent properties and between individual businesses within a development.
- e. Safe provision for school bus stops and public transit stops when appropriate.

(4) An Application for a **Stormwater Management Permit** or **Administrative Land Disturbance Review**, in accordance with City Code Chapter 30 “Ordinance Governing Stormwater Management and Erosion Control” and the accompanying Regulations, along with all required plans and supportive information and documentation, must be submitted as part of the Definitive Subdivision Plan submission approval. No land disturbing activity, as defined in City Code Chapter 30, Section 30-3, shall commence on the construction of an approved Definitive Subdivision Plan until a Stormwater Management Permit has been approved and issued. Additional Design Standards related to stormwater management and drainage design are included in City Code Chapter 30.

(5) **Easements.** Any easements, covenants and restrictions applying to the area proposed to be subdivided. The applicant agrees that any and all instruments of transfer of interest in property from the applicant or any successor or assignee in title shall include a reservation of easements, where applicable, to the City of Methuen, and that no transfer shall be made unless said easement reservations are included in said deeds, where applicable.

4.3.5 OFF-SITE IMPROVEMENTS/CONDITIONS OF APPROVAL

In accordance with the requirements of Chapter 41, Section 81M, Massachusetts General Laws, and for the purpose of protecting the safety, convenience and welfare of the inhabitants of the City of Methuen, the following regulation shall govern the approval, denial or approval with conditions of subdivision applications; the same being done for the purposes of off-setting any negative impacts off-site which may be occasioned by subdivision construction and the same being under the performance standards as elicited herein.

(1) Off-Site Street Work – Performance Standards: This regulation is

enacted for the purpose consistent with the Subdivision Control Law of lessening congestion in subdivisions and in the adjacent public ways and to provide adequate access from the subdivision and to the public way.

- a) Where the street system within a subdivision does not connect with or have in the opinion of the Board, adequate access from a City, county or state public way, the Board may require, as a condition of approval of a plan, that such adequate access be provided by the applicant and/or that the applicant make physical improvements to and within said such way of access in accordance with the performance standards for subdivision ways from the boundary of the subdivision to a City, county or state way.
- b) Where the physical condition or width of a public way from which a subdivision has its access is considered by the Board to be inadequate to carry the traffic expected to be generated by such subdivision, the Board may require the sub- divider to dedicate a strip of land for the purposes of widening the abutting the public way to a width at least commensurate with that required within the subdivision and to make physical improvements to and within such public way, to the same standards required within the subdivision. Any such dedication of land for purposes of way and any such work performed within such public way shall be made only with permission of the Department of Public Works or other agency having jurisdiction over such way. All costs of any such widening or construction shall be borne by the sub-divider.

(2) Water, Sewer and Drainage – Performance Standards

- a) For the purposes of reducing danger to life and limb, for securing safety in the case of fire, flood, panic and other emergency, for securing adequate provisioning for water, sewerage, drainage and such services as fire, police and other municipal equipment, the following regulation is enacted:
- b) b) Upon recommendation by the board of Health and/or the Department of Public Works, where the proposed subdivision is within a reasonable distance to presently existing water, sewer and/or drainage systems, the Board may require, as a condition of approval of a subdivision plan, that the applicant connect their subdivision services such as water, sewer and drainage to such presently existing services in such manner and by such means and methods as are required by the Board and as further may be required in accordance with the Department of Public Works specifications. All costs occasioned by the bringing of such water, sewer and/or drainage lines to the subdivision shall be

borne by the applicant.

4.3.6 ENDORSEMENT OF PLANS

- (1) M.G.L. c.41 Section 81U requires the Board to endorse a final approved plan. The endorsement must be signed by either a majority of the Board members or a person authorized in writing by a majority of the Board members to endorse, with certification thereof provided to the register of deeds and the recorder of the Land Court.
- (2) Endorsement cannot take place until after the 20-day appeal period has passed and until a performance guarantee for completion of the subdivision improvements has been provided.

4.3.7 RECORDING OF PLANS

Plans will be recorded by the applicant within 10 days after the definitive plan has been endorsed, record said plan, required forms, and whenever applicable, the Community Development Board's order of conditions, public easements (plans and documents), restrictive covenants, master deeds, etc., at the Northern Essex County Registry of Deeds, and in the case of registered land with the Recorder of the Land Court. One (1) copy of the recorded plans shall be submitted to the Community Development Department no more than five (5) days after recording with the Registry of Deeds. The applicant shall provide the Board with a copy of the Registry's receipt, including the book, page number, and date of recording. The cost of recording shall be borne by the developer. Failure of the applicant to comply with this section shall result in the Board taking action in consideration of recession of its approval.

4.3.8 MODIFICATION, AMENDMENT, RESCISSIONS OF AN APPROVAL

- (1) The Board has the power to modify, amend, or rescind its approval of a definitive subdivision plan, or to require a change in a plan as a condition of that plan retaining the status of an approved plan under section 81W of Chapter 41 of the General Laws. The Board may take this action either on the petition of any interested person or on its own motion.
- (2) No modification, amendment, or rescission of the approval of a subdivision plan or changes to such plan shall affect the lots in the subdivision that have been sold or mortgaged in good faith and for valuable consideration without the consent of the owner(s) of such lots, and the holder of the mortgage or mortgages on the lots.
- (3) A modification, amendment, rescissions of an approval, or a change in a plan, shall not be prohibited if there has been a sale to a single grantee or either the entire parcel of land shown on the subdivision or of all the lots not previously

released by the Board.

- (4) Failure of the applicant to record the Definitive Plan at the Northern Essex Country Registry of Deeds within six (6) months of its endorsement or to comply with the construction schedule of the performance agreement shall constitute sufficient cause for the Board to rescind such approval.

SECTION 5.0 PERFORMANCE GUARANTEE

- (1) As required by M.G.L. c. 41 Section 81U, prior to endorsing a definitive subdivision plan the Board shall require that the construction of ways and the installation of municipal services be secured by a performance guarantee. Such construction and installation shall be secured in accordance with M.G.L. Chapter 41, Section 81-U, as amended, by one, or partly by the other, of the following methods, which may, from time to time, be varied at the option of the applicant. While the applicant chooses the initial form of the Performance Guarantee, the Board shall determine/approve the actual dollar amount (where applicable). The Board may require a change in the form/method and amount of the Performance Guarantee when a partial release is requested by the applicant.
 - (a) ***Bond or Deposit of Money or Securities***: A bond or a deposit of either money or securities may be used for a performance guarantee if in the opinion of the Board they are sufficient to secure construction of ways and the installation of municipal services required for the lots in the subdivision shown on the subdivision plan. The Board may require that the Applicant specify the time within which such construction shall be completed.
 - (b) ***Covenant***: A covenant may be used if it is executed and recorded by owner(s) of record and runs with the land. In this instance ways and services shall be provided to serve any lot before that lot may be built upon or conveyed, other than by a mortgage deed. Nothing in Section 81U shall be deemed to prohibit a conveyance by a single deed, subject to a covenant, of the entire parcel of land shown on the subdivision plan. The Board may require that the Applicant specify the time within which such construction shall be completed.
 - (c) ***Lender Agreement (Tri-partite Agreement)***: An agreement, executed after the recording of the first mortgage covering the land shown on the subdivision plan or a portion thereof, may be given as security for advances to be made to the Applicant by the lender. This agreement shall be executed by the Applicant and the lender and shall provide for the retention of funds sufficient, in the opinion of the Board and otherwise due that Applicant, to secure the construction of ways and installation of municipal services. The agreement shall provide that if work is not completed within the time frame set forth by the Applicant, any remaining funds shall be available for completion of the ways and municipal services.
- (2) To aid the Board in determining the actual dollar amount required to secure the construction of ways and the installation of municipal services the applicant shall submit a detailed estimate for all construction within the proposed roadway layout and/or public utility easements, certified by the project's Registered Professional Engineer. Said estimate shall be based on the latest approved edition of "Standard Specifications for Highways and Bridges" of the Commonwealth of Massachusetts, and shall include:

- (a) Schedule of Values for Subdivision Construction;
- (b) Total amount for cost of completion of project;
- (c) Costs adjusted to account for municipal prevailing wages rates; and
- (d) Costs shall be revisited and adjusted every five (5) years for an inflation/safety factor.

5.1 PARTIAL RELEASE OF PERFORMANCE GUARENTEE

- (1) From time to time the Applicant may make a written request and an interim as-built plan to the Board for release from the performance guarantee such funds as may have been expended for construction of the required subdivision improvements.
- (2) The Board shall submit such request and plan to the Department of Public Works who shall investigate and provide the Board with a written report describing work satisfactorily completed and recommending the amount eligible for such release, based upon dollar value of the satisfactorily competed construction.
- (3) Requests for release of a portion of the performance guarantee amount may be granted following the Board's determination that remaining funds are sufficient to cover completion of the remaining required subdivision improvement work at labor and material costs prevalent at the time of the request and an inflation factor.

5.2 RELEASE OF PERFORMANCE GUARANTEE UPON COMPLETION OF WAYS AND MUNICIPAL SERVICES

- (1) Upon completion of the construction of ways and installation of municipal services the Applicant shall send by register mail to the Board and City Clerk a written statement that the construction or installation has been completed accordingly. The Applicant must provide as-built plans prepared by a Massachusetts Registered Civil Engineer or Land Surveyor and shall indicate that streets, storm drains, sewers, water mains and their appurtenances have been constructed, and monuments have been installed in accordance with said plan and are accurately located as shown thereon.
- (2) No performance guarantee shall be released until:
 - (a) All streets and other improvements (except for the topcoat of paving) shall have been in place at least 12 months and in place at least one winter (December 1 through April 15);
 - (b) All streets and other improvements (including the topcoat of paving) must be completed prior to submission for City Council approval and acceptance; and
 - (c) The Board has received an inspectional report from the Department of Public Works and full approval in writing of all work done under this section is received from the Board's engineer(s) and any other consultants.

- (3) If the Board (with the assistance of the Department of Public Works and other applicable municipal departments) determines that the construction of the public way and installation of municipal services has been satisfactorily completed, it shall release the interest of the City in a bond, shall return the bond or deposit to the person who furnished it, or shall release the covenant an appropriate instrument, duly acknowledged, which may then be recorded.
- (4) If the Board (with the assistance of the Department of Public Works and other applicable municipal departments) determines that the construction or installation has not been satisfactorily completed, it shall provide written notice to the Applicant detailing how the construction or installation fails to comply with the Board's rules and regulations and any condition of approval.
- (5) If recommended by the Department of Public Works, the Board may not release ten percent (10%) of the deposit of money or negotiable securities until a final as-built plan, showing the precise location of water valves, shutoffs, manholes, sewer elevations, etc., as constructed, has been reviewed and approved by the Department of Public Works.
- (6) In the event the Board determines the Applicant to be in default of the conditions of their performance guarantee, the Board, shall use the balance of the funds remaining in such performance guarantee to complete the work necessary to have the required subdivision improvements installed and accepted by the City.
 - (a) The Department of Public Works shall be responsible for the completion of the improvements by the use of current bid prices for materials, materials installed, labor and equipment rental, negotiation for professional services and securing of new bids.
 - (b) The cost of completing the engineering and legal documents required for the City's acceptance of the subdivision improvements and open space (if applicable) shall also be paid for from these funds.
 - (c) Funds remaining following acceptance of the streets by the City shall be returned to the applicant.

5.3 AS BUILT PLAN REQUIREMENTS

- (1) After all street construction is completed and before the release of any performance guarantee, the developer shall file with the Board one (1) reproducible copy, electronic files (PDF and CAD format), and two (2) printed copies of the Definitive Plan corrected and certified by a Registered Professional Engineer or Registered Land Surveyor to show the following:
 - (a) Centerline elevations at 50-foot intervals of all roadways as built;
 - (b) Profiles of the drainage and sanitary sewer systems as installed;
 - (c) Utilities as installed, including but not limited to water, sewer, gas, cable, electric and telephone;
 - (d) Sideline locations of roadways and sidewalks as built certifying that

sidewalk construction meets 5.7.6;

- (e) Monuments as installed;
- (f) Contour map at two (2') foot intervals; and
- (g) Finished centerline elevations.

(2) A certificate signed by the engineer and surveyor preparing such as built plan shall be endorsed on the plan in the following form:

Date: _____, 20__

I hereby certify that the within plan shows the actual as built locations, profiles and elevations of the roadways, drainage facilities and utilities based upon a field survey made during the period

from _____ to _____

Reg. Land Surveyor

Reg Engineer

SECTION 6.0 DESIGN AND CONSTRUCTION STANDARDS

6.1 GENERAL REQUIREMENTS

- (1) The developer shall install all the improvements required under these Rules and Regulations except those which may be specifically waived in writing by the Board.
- (2) Except as otherwise provided in these Rules and Regulations all work and materials used in the installation of the required improvements shall conform to the requirements of the City of Methuen, Massachusetts, Standard Specifications and Construction Standards, prepared by the Department of Public Works as amended.
- (3) The applicant shall provide all of the improvements required herein and installed at their own expense. All work done under this section shall be done under the direction of the Board, including registered engineer(s) and any other consultants appointed by the Board.

6.1.1 RESPONSIBILITIES OF APPLICANT

- (1) The applicant shall be responsible for providing the same basic services in the subdivision as the City currently provides while the same remains subject to the Subdivision Control Law such as:
 - (a) Snow plowing of all ways and clearing of all sidewalks to City standards;
 - (b) Trash and recycling pick-up of all inhabited units;
 - (c) Maintenance of all roadway surfaces drains, sewers and other utilities;
 - (d) Installation and energizing streetlights; and
 - (e) Any other additional basic services provided by the City.
- (2) The costs of performing the provisions of this section shall be added into the performance guarantee or into the covenant provided in Section 5.
- (3) The applicant shall, at the time of sale or transfer of a lot covered hereunder, notify the grantee that it, the applicant, is responsible for providing the basic services as outlined above.
- (4) Nothing herein shall be interpreted as requiring the applicant to provide the aforementioned services to ways or utilities once/if the same has been duly accepted by the City of Methuen or otherwise transferred to new ownership.

6.2 STREETS AND ROADWAYS

6.2.1 CLASSIFICATION OF STREETS

- (1) Subdivision streets shall be classified for the purpose of establishing the applicable design and construction standards, according to the definitions

below. The Board shall determine the classification in all doubtful cases. The Board reserves the right to waive or modify street classification standards prescribed in these regulations.

- (2) The classification of streets within the subdivision shall adhere to the hierarchy of principal, secondary, and tertiary streets as defined herein, with principal streets serving as major arterials, secondary streets providing connectivity between principal streets and individual lots, and tertiary streets primarily serving local access and circulation needs.
- (3) Before the Board shall approve any definitive plan of a subdivision whereon there is shown any street or way classified as less than a secondary street, it shall have first obtained from the sub-divider a covenant or agreement that such street shall remain a private way unless it shall be redesigned and improved in accordance with the minimum standards hereinafter prescribed for a secondary street.

6.2.1.1 PRINCIPAL STREET

A principal street is any street that carries or is designed to carry through traffic between parts of Methuen, other principal streets in Methuen, or between Methuen and other Cities. (Usually seventy-five (75) dwellings or structures, or more.)

6.2.1.2 SECONDARY STREET

A secondary street is any street used solely for access to the abutting lots. (Five (5) to seventy-five (75) dwellings).

6.2.1.3 TERTIARY STREET / LANE

A tertiary street is any street used to access individual properties with four (4) or less buildable lots with no potential to serve additional lots.

6.2.2 STREET DESIGN

- (1) All streets in the subdivision shall be so designed so that, in the opinion of the Board, they will provide safe vehicular travel. Due consideration shall also be given by the sub-divider to the attractiveness of the street layout in order to obtain the maximum livability and amenity of the subdivision.
- (2) All streets shall be designed as through streets where feasible, unless waived by the Board.
- (3) Typical sections for principal roads, secondary roads, and tertiary streets shall conform to City of Methuen standards, including but not limited to City of Methuen Municipal Code, Chapter 16 *Streets, Highways, Sidewalks and Bridges*.

Table 6-1: Minimum Design Standards

	Principal Street	Secondary Street	Tertiary Street/Lane
Min. ROW Width	50'	40'	36'
Min. Pavement Width	24'	22'	20'
Max. Grade	8%	8%	8%
Min. Grade	0.5%	0.5%	0.5%
Min. Sight Distance at the Intersection	75'	75'	75'
Min. Cul-de-sac ROW radius	60'	60'	60'

6.2.2.1 DESIGN SPEEDS

Radius of curves and lengths of vertical curves should be selected to provide safe sight distances (either passing or stopping) for the design speed of the road. The design speed for principal streets shall be thirty miles per hour and for secondary streets, twenty-five miles per hour.

6.2.2.2 LOCATION AND ALIGNMENT

- (1) All streets in the subdivision shall be designed so that, in the opinion of the Board, they will provide safe and convenient access for all users of all ages and abilities, by all modes of transportation including pedestrians, bicyclists, motorists, public transportation users, and delivery and emergency vehicle operators. Where minimum standards are not herein specified, the latest edition of AASHTO (American Association of State Highway and Transportation Officials) *A Policy on the Geometric Design of Highways and Streets* (commonly referred to as the “Green Book”) shall apply.
- (2) Site design and grading on slopes greater than 15% shall provide the minimum disruption of view corridors and scenic vistas and shall preserve significant natural topographic features, to the greatest extent possible, including ridgelines. Roads and driveways shall follow the natural topography to the greatest extent possible to minimize the cutting and grading of steep slope areas. Existing vegetation on slopes greater than 25% shall be retained to the maximum extent possible.
- (3) **Master Plan.** The proposed streets and off-street footpaths shall conform, so far as practicable, to the Master or Study plan as adopted, in whole or in part, by the City of Methuen.
- (4) **Projections.** Provision satisfactory to the Board shall be made for the proper projection of streets and ways for bicycles and pedestrians, or for access to adjoining property that is not yet subdivided or developed, or for connection

with future streets.

- (5) **Reserve Strip.** Reserve strips prohibiting access to streets or adjoining property shall not be permitted, except where, in the opinion of the Board, such strips shall be in the public interest.
- (6) **Jogs.** Street jogs with centerline offsets of less than one hundred and twenty-five (125') feet shall not be allowed.
- (7) **Curves.** The minimum centerline radii of curved streets shall conform to the design speeds for principal and secondary streets. Horizontal curves on the street centerline shall not begin or end within one hundred and fifteen (115) feet of the centerline of the intersecting street.
- (8) **Intersections.** Streets shall be laid out to intersect as nearly as possible at right angles. Streets entering on opposite sides of another street shall be laid out directly opposite each other; or with a minimum offset of 200 feet between their respective centerlines.
- (9) **Street Corner Radius.** Property lines at intersections shall be rounded or cut back to provide for a minimum curb radius at the edge of the pavement of forty (40') feet. The distance between the edge of the pavement and the property line shall not be less than ten (10') feet.

6.2.2.3 DEAD END STREETS AND CUL-DE-SACS

- (1) Dead end streets are discouraged and shall not be permitted, except where, in the opinion of the Board, such dead end streets are deemed necessary and in the public interest.
- (2) Developers should make every effort to avoid the creation of dead-end streets longer than 500 feet and should connect proposed subdivisions to existing dead end streets wherever reasonable and practicable. A developer may demonstrate that a dead-end street is appropriate when they can demonstrate that a future connection to an existing street is not possible or practicable, or when the surrounding property will never need a street connection because of extremely sensitive or permanently protected natural resources. In this situation the project must provide a viable pedestrian and bicycle connection to the surrounding property as appropriate.
- (3) Developers may be required to provide for future roadway extensions to adjacent land.
- (4) Termination of Dead End Streets. Where the Board has waived the dead-end street restriction, the following criteria shall be followed:
 - (a) Dead end streets less than or equal to five hundred (500') feet, as measured along the centerline of construction of the street from the edge of the development's property line nearest the connecting existing public street, and providing access to four or less buildable lots, shall

end in a T-shaped or hammerhead turn-around designed as part of the Right of Way in accordance with the AASHTO Green Book and approved by the Fire Chief.

- (b) Dead end streets more than five hundred (500') feet, as measured along the centerline of construction of the street from the edge of the development's property line nearest the connecting existing public street shall end in a cul-de-sac.
- (5) The cul-de-sac shall have a circular turning radius of not less than 60 feet or a maximum of 100 feet (measured at the centerline), and a property line radius of at least 85 feet. They shall in all additional ways conform to the same requirements as any other street. Where a future street is projected beyond the circle, the circle shall be designed in such a relation to the projection to the right of way that the additional land used for the circle may be relinquished to the adjacent properties at the time the road is constructed over the projected route.
- (6) The fee ownership in land lying within the projection of any road shall remain with the adjacent properties until the road is constructed over the projected route. Any such fee shall not be included in determining the conformity of the area of any lot to the minimum requirements under the Zoning Ordinance of the City.
- (7) Where a circle is laid out as a permanent termination of road, the entire area of the circle shall be a permanent part of the right of way. Where a circle is laid out over a projected right of way, the lot lines shall be laid out to the lines of the future projected route, but the additional areas used for the circle may not be included in the areas of the adjacent lots for the purpose of determining their conformity to the minimum requirements under the Zoning Ordinance of the City.
- (8) To the extent practicable, all cul-de-sac streets shall have turnaround islands designed to collect, treat, and infiltrate runoff through bioretention in lieu of paving the entire area of the cul-de-sac. The landscape areas shall be planted with noninvasive species of low maintenance shrubs and/or other vegetation as defined by "The Evaluation of Non-Native Plant Species for Invasiveness in Massachusetts," as amended from time to time. The maintenance of the inner circle shall be the responsibility of the developer, their successors and assigns, or a homeowner's association (HOA).

6.2.2.4 WIDTH

- (1) The minimum width of street rights of way shall be fifty (50') feet for principal streets, forty (40') feet for secondary streets, and thirty-six (36') feet for tertiary streets. Greater width may be required by the Board where deemed necessary for present and future vehicular movement.
- (2) The minimum pavement width shall be twenty-four (24') feet for principal streets, twenty-two (22') feet for secondary streets, and twenty (20') feet for

tertiary streets. The width for tertiary streets may be reduced to eighteen (18') feet at the discretion of the Board.

6.2.2.5 GRADES

- (1) **Centerline Grades:** Centerline grades of streets shall not be less than 0.5%. Grades of principal streets shall not exceed 6% on straight-aways or 5% on curves, and secondary and tertiary streets shall not exceed 8% on both straight-aways or curves. Where changes in grade exceed 1%, vertical curves, as required by the Board, shall be provided.
- (2) **Superelevation:** Where curves and grades combine to create potentially dangerous driving conditions, the Board may require superelevation of the curves or other protection.
- (3) **Intersections:** Where streets intersect within a subdivision or at the juncture of a subdivision street with an existing street, the Board will require that a minimum length of seventy-five (75') feet of each street outside the roadway of the crossing street shall be substantially level.
- (4) **Driveways:** Driveways shall be constructed as per the typical driveway section in the Construction Standards. Any deviations from this standard require approval from the Board.

6.2.3 CONSTRUCTION OF STREETS AND ROADWAYS

- (1) Each lot in a subdivision shall be constructed and brought to finish grade as indicated on the approved Definitive plan and in accordance with the requirements of this section.
- (2) The sub-divider or their contractor shall furnish and maintain all stakes and such temporary structures as may be necessary or required by the Department of Public Works for marking and maintaining points and lines for the installation of the roadway and related utilities throughout the construction of the subdivision.
- (3) Streets and roadways shall be constructed in accordance with the Typical Roadway Cross Sections attached to these Rules and Regulations.

6.2.3.1 REQUIRED IMPROVEMENTS PRIOR TO ROAD CONSTRUCTION

- (1) A temporary mud tracking bed (construction entrance) shall be put in place at each site entrance. This tracking bed shall consist of a four (4) inch minimum layer of 2 1/2"– 4" crushed stone and shall be thirty (30) feet in length and fifteen (15) feet wide. This bed shall be maintained during construction to prevent tracking or flowing of sediment onto the public right-of-way and shall be removed prior to placement of gravel base and pavement.

- (2) All detention ponds, drainage swales, level spreaders, and drainage outflows shall be constructed and stabilized with vegetation or erosion control matting prior to the construction of approved roads. Inspections during and after the construction of these facilities by the Board or its Agent shall take place to ensure conformance to City regulations.
- (3) It shall be the responsibility of the developer and their contractor to control blowing dust and soil on their site. A plan to control blowing dust and soil shall be submitted to the DPW Director or Designee and the Board. If a water truck is used, a backflow preventer and water meter, or other devices acceptable to the Water Superintendent, shall be used.

6.2.3.2 FOUNDATIONS OF ROADWAY

(1) Sub-Base

- (a) Within the roadway area including driveway aprons, sidewalks, and grass strips, all material shall be removed to subgrade and any unsuitable material, in the opinion of the DPW Director (or their designee), below subgrade shall be removed and shall be replaced with proper bank-run gravel and brought to proper compaction. The depth of the subgrade will be governed by existing conditions and shall be as specified by the DPW Director (or their designee).
- (b) Ground water. Wherever ground water is encountered within four (4) feet of the proposed roadway surface or wherever the soil type indicates the possibility of a capillary rise of water in the sub-grade soil, sub-drains shall be installed under both shoulders of the roadway. The design and depth of the sub-drains shall be in accordance with the specifications of the DPW Director (or their designee) and the Community Development Board.
- (c) Rock excavations. Wherever rock is encountered, it shall be excavated to a depth of two (2) feet below the sub-base of the roadway for the full width of the street layout. The excavated rock shall be replaced with a granular material satisfactory to the DPW Director (or their designee) and the Community Development Board.
- (d) Where fill is required, it shall be placed in layers not deeper than eight (8) inches and shall be spread uniformly with the large stones at the bottom. 6.4.1.5 Any gravel used as fill in the subbase shall be composed of hard, durable stone and coarse sand, practically free from loam and clay containing no stone having a dimension greater than six (6) inches, and when spread and compacted shall present a stable foundation.
- (e) Each layer shall be thoroughly compacted with a roller weighing not less than ten (10) tons and rolling shall continue until a firm, even surface true to line and grade is achieved. Any depressions shall be filled and rerolled, and any soft or unsuitable areas shall be removed and replaced with suitable material and rolled. All fill shall be placed in eight (8) inch layers compacted to not less than ninety-five percent

(95%) of maximum dry density as specified in the Massachusetts Department of Transportation Highway Division Standard Specifications. The developer shall be responsible for the costs of all soil testing and analysis required by the City.

- (f) The subgrade shall be shaped and finish graded at the required depth below and parallel to the proposed pavement surface, in conformance with the Typical Street Cross-Section.
- (g) Inspections shall be required after completion of the subgrade.

6.2.3.3 GRAVEL BASE

(1) Gravel shall consist of hard, durable stone and coarse sand, free from frozen lumps, frost, loam and clay, uniformly graded and containing no stone having any dimension greater than three (3”) inches. The grading of sizes and material shall be such that the gravel may be thoroughly consolidated. The grading shall conform to the following requirements:

<u>Sieve</u>	<u>Percent Passing</u>
3/8 in.	70% maximum
No. 10	50% maximum
No. 200	5% maximum

- (2) After the roadway subgrade has been graded and properly compacted. The gravel for the base shall be spread in two layers of equal thickness, each thoroughly watered and rolled true to lines and grades with a roller weighing not less than twelve (12) tons so as to yield a total depth of eight (8”) inches after compaction. The gravel base shall be formed as shown on the proposed Roadway Cross Section. Any depression that appears during or after rolling shall be filled with gravel and the area re-rolled until the surface is true and even.
- (3) After the gravel base has been compacted and approved a four (4”) inch layer of dense graded crushed stone shall be spread and compacted. When spreading the gravel, care should be taken to rake forward and distribute the largest stones so they will be at the bottom of the gravel base course and evenly distributed. Dense spread crushed stone shall conform to Massachusetts Department of Transportation Standards.
- (4) When required by the Department of Public Works, samples of the gravel to be used shall be tested for gradation by sieve analysis and the rolled gravel tested for compaction. All such tests shall be made at the expense of the developer.
- (5) Each layer shall be thoroughly compacted with a roller weighing not less than ten (10) tons, and rolling shall continue until a firm, even surface true to line and grade is achieved. Any depression that appears during or after rolling shall be filled with gravel and re-rolled. All fill shall be placed in six (6) inch layers compacted to not less than ninety-five percent (95%) of maximum dry density as specified in the Massachusetts Department of Transportation Standards. The

developer shall be responsible for the costs of all soil testing and analysis required by the City.

- (6) The gravel base surface shall be shaped, and finish graded at the required depth below and parallel to the proposed pavement surface, in conformance with the Typical Street Cross-Section.
- (7) Inspections shall be required before commencement and after completion of the gravel base.

6.2.3.4 CRUSHED STONE SUB-BASE

The grading for dense crushed stone for sub-base shall conform to the following requirements:

<u>Sieve</u>	<u>Percent Passing</u>
2 in.	100
1.5 in.	70-100
0.75 in	50-85
No. 4	30-55
No. 50	8-24
No. 200	3-10

6.2.3.5 SURFACING OF ROADWAY

- (1) The roadway shall be paved the entire width, including under the berms, and the surface treatment shall be compacted hot mix asphalt placed in two (2) to three (3) layers depending on the required structural number of pavement design.
- (2) The surface course shall be Hot Mix Asphalt SUPERPAVE Surface Course 9.5 or 12.5 laid at a thickness in accordance with the Typical Street Cross-Section and in accordance with Section 460 of the Massachusetts Department of Transportation Standard Specifications for Highways and Bridges (Latest Edition).
- (3) The intermediate course shall be Hot Mix Asphalt SUPERPAVE Intermediate Course 12.5 or 19 laid at a thickness in accordance with the Typical Street Cross-Section and in accordance with Section 460 of the Massachusetts Department of Transportation Standard Specification for Highways and Bridges (Latest Edition).
- (4) The base course if needed shall be Hot Mix Asphalt SUPERPAVE Intermediate Course 12.5 or 19 laid at a thickness in accordance with the Typical Street Cross-Section and in accordance with Section 460 of the Massachusetts Department of Transportation Standard Specifications for Highways and Bridges (Latest Edition).

- (5) The plant mix material shall be delivered to the site in a hot and easily workable condition, when weather conditions are satisfactory, so that it can be properly placed on the appropriate base. Job mix formula must be approved by applicant's engineer in writing prior to installation.
- (6) All hot mix asphalt shall be spread by an approved mechanical spreader in a uniformly loose layer to the full width required and to such thickness that each course when compacted shall have the required thickness and shall conform to grade and the Typical Street Cross-Section. Hand spreading of asphalt material will be allowed only for special areas which do not permit mechanical spreading and finishing.
- (7) Each course of asphalt material shall be rolled with a self propelled, equally balanced, tandem roller weighing not less than five (5) nor more than ten (10) tons. Places inaccessible to the power roller, shall be compacted by means of hand or vibratory tampers. Any displacement caused by the roller shall be corrected by raking and adding fresh mixture where required. Compaction shall be in accordance with Massachusetts Department of Transportation Highway Division Standards
- (8) Traverse joints shall be formed by laying and rolling against a form of the thickness of the compacted mixture placed across the entire width of the pavement. When the laying of the mixture is resumed, the exposed edge of the joint shall be painted with a thin coat of asphalt tack coat. The fresh mixture shall be raked against the joint and thoroughly tamped with hot tampers and rolled.
- (9) The final asphalt surface shall show no deviation greater than one-quarter (1/4) inch when tested with a sixteen (16) foot straight edge placed parallel to the centerline of the surface course.
- (10) Finished roadway and driveway apron surfaces less than the required thickness or containing any soft or imperfect places will not be approved.
- (11) All roadways shall be brought up to the finish grade as shown on the Definitive Plan, and all manhole covers, gate boxes, gas drips and other access to underground utilities shall be set flush with the surface of the road, grass strip or sidewalk. Inspections shall be required upon completion of the binder and surface courses.
- (12) Prior to surfacing of Roadways, all underground utilities and services, public or private, shall be installed and successfully tested prior to paving. A report of same must be submitted to the DPW and the Board.
- (13) Notification to, and inspection by DPW and the Board's Peer Review Engineer prior to paving is required. Both will require 48 hours' notice exclusive of Saturdays, Sundays and Holidays.
- (14) Once completed, no steel tracked vehicles are permitted on the roadway's pavement.
- (15)

6.2.3.6 PAVEMENT

- (1) Material and construction methods shall conform to the Standard Specifications.
- (2) The binder course shall set after application for one full winter before the finish paving is placed.
- (3) No paving will be allowed between November 15 and April 1. The ground temperature for base course paving shall be forty (40) degrees Fahrenheit and rising. The ground temperature for wearing course pavement shall be fifty (50) degrees Fahrenheit and rising without written approval of the DPW Director.

6.2.3.7 ROADWAY EMBANKMENTS AND RETAINING WALLS

- (1) Embankments street right-of-way be evenly graded and pitched at a slope of not greater than two (2) horizontal to one (1) vertical in fill as shown on the Typical Sections.
- (2) Where cuts are made in ledge, other slopes may be permitted upon written approval of the Board. Where terrain is such that greater slopes are essential, retaining walls, terracing or riprap shall be used either alone or in combination provided that plans of such proposed grading methods are filed with and approved by the Board prior to the commencement of road construction.
- (3) The Board may require that defined slope easements be shown on the Definitive Survey Plan and that such easements be reserved by the developer for future acquisition by the city for maintenance purposes.
- (4) All major changes in the grading outside of the of land and streets as shown on the approved Definitive Plan shall be completed prior to the installation of the drainage system, utilities and roadways.

6.2.3.8 CURBS AND BERMS

- (1) Vertical faced granite curb, type VA-4 shall be installed on all principal roads.
- (2) Type A sloped Cape Cod Berm or Sloped granite edging shall be installed on all secondary roads.
- (3) Curbs are not required for tertiary roads and other roadways lacking a pipe and catch basin drainage system, permitting the use of grassed swales for drainage.
- (4) Berms shall be per Massachusetts Department of Transportation Highway Division Standards Hit Mix Asphalt Type A (sloped Cape Cod style) placed on the bituminous binder. The installation of bituminous berm shall conform to the relevant provisions of the Massachusetts Department of Transportation Highway Division Standard Specifications.
- (5) Granite curb shall be sloped to meet the finished grade of the driveway apron, Asphalt Berms shall be shaped to meet the finished grade of the driveway apron, and not cut at the driveway opening.
- (6) Their construction shall meet requirements set forth by Massachusetts

Department of Transportation in their latest volume of *Standard Specifications for Highways and Bridges*.

6.2.3.9 GRANITE CURB INLETS

Granite curb inlets shall be installed at all catch basin locations on principal and secondary roads. Where granite curb inlets are required, transition granite curb inlets will be required.

6.2.3.10 DRIVEWAYS

- (1) Driveways shall be constructed at the level of the sidewalk wherever possible to avoid the need for ramps on either side of a driveway. Where it is not possible to construct driveways at the level of the sidewalk, such sidewalk and driveway shall be graded in accordance with ADA/MA-AAB standards as most recently amended. All crosswalks and sidewalks shall have accessible ramps installed at the time of construction in accordance with ADA/MA-AAB standards as most recently amended. The developer shall be responsible for all costs associated with changes that are necessary to meet the current laws before the City has fully accepted ownership of the property or ways. Painted crosswalks are required at adjoining ADA/MA-AAB ramps. Their construction shall meet the requirements set forth by the Massachusetts Department of Transportation in their latest volume of *Standard Specifications for Highways and Bridges*.
- (2) The use of pervious materials for driveway construction is encouraged to enhance infiltration and reduce stormwater runoff volume, subject to approval by the Board.
- (3) Catch basins or stormwater inlets shall be strategically located and spaced along roadways to capture and convey surface runoff effectively, eliminating the need for catch basins within driveways.

6.2.3.11 GUARD RAILS

Guardrails as shown on the Construction Standards shall be installed when required by the Board or its engineering consultant, based on State Construction Standards of the publications of the American Association of State Highway and Transportation Officials (AASHTO).

6.2.3.12 STREET LIGHTING

- (1) All the appurtenances for street lighting, i.e. handholes, transformer pads, conduit, etc., with underground wiring shall be installed concurrently with the installation of the underground domestic electric service. Plans showing proposed locations of poles and underground cables, conduits, transformers and related equipment shall be filed with and approved by the Department of Public Works before installation is commenced.
- (2) Street lighting shall be installed along any street the Board deems appropriate. Light standards to be used shall be subject to the approval of the Board and

when used be spaced no less than every 500 feet. Street lights must be installed and electrified prior to the occupancy of any dwelling.

6.2.3.13 STREET SIGNS

- (1) Street signs approved by the Department of Public Works shall be furnished and installed at all street intersections prior to the occupancy of any house on the street. Street signs shall be set in concrete and the location and height of each sign shall be as prescribed by the Department or Public Works.
- (2) Street name signs of a design conforming to the type specified by the Manual on Uniform Traffic Control Devices shall be furnished and installed by the subdivider, of break-away design in accordance with the Massachusetts Department of Transportation latest Standards and erected at all street intersections prior to the occupancy of any house on the street.
- (3) A blue street sign designating the street as a “Private Way” shall also be furnished and installed by the subdivider at the entry as a private way, until the street is accepted as a public way at City Meeting.

6.3 DRAINAGE AND STORMWATER MANAGEMENT

6.3.1 STORMWATER MANAGEMENT & EROSION AND SEDIMENT CONTROL

- (1) The stormwater management system shall be designed to incorporate and address stormwater management for the entire proposed development, including anticipated buildout of individual lots.
- (2) All subdivision designs must meet the Stormwater Management and Erosion Control Design and Performance Standards set forth in Section 30-8 of the *Stormwater Management and Erosion Control Ordinance* of the City of Methuen and align with the current MassDEP Stormwater Handbook.
- (3) Erosion and sediment controls must be implemented during construction, as delineated in Section 30 of the *Stormwater Management and Erosion Control Ordinance* of the City of Methuen.
- (4) All stormwater management systems must have an Operation and Maintenance (O&M) Plan to ensure that systems function as designed, in accordance with Section 30 of the *Stormwater Management and Erosion Control Ordinance* of the City of Methuen
- (5) All tributary areas shall be assumed to be fully developed in accordance with the City of Methuen’s Comprehensive Zoning Ordinance unless publicly owned or deed restricted. Water velocities in pipes and paved gutters shall be between two (2) and ten (10) feet per second, and not more than five (5) feet per second on unpaved surfaces. Facility design shall be as follows:
 - (a) Street surface drainage (storm sewers, swales) – 25 year storm
 - (b) Detention basins – 100 year storm

- (c) Watercourses, drainage ways, channels or streams – 100 year storm
- (d) Culverts, bridges, other water crossings – 100 year storm
- (6) Additional stormwater management and erosion and sediment control measures include:
 - (a) Apart from the area for roads and the stormwater system, there shall be no exposed and unstable soil, unless specifically authorized by the Board upon recommendation from the Conservation Commission and Department of Public Works Director (or his designee).
 - (b) Stormwater shall not be permitted to sheet flow across the surface of the roadway. It must be piped underneath.
 - (c) Catch basins shall be placed on both sides of the street. They shall be placed at street intersections to intercept stormwater runoff.
 - (d) The maximum distance between catch basins shall be 300 feet.
 - (e) The minimum diameter of storm drainage pipes shall be 12 inches.
 - (f) The method of construction and the materials used in construction shall conform to the most recent Massachusetts Department of Transportation Highway Division Standards and Specifications for Highways and Bridges.

6.3.2 DRAINAGE DESIGN

6.3.2.1 DRAINAGE CALCULATIONS

To substantiate the proposed subdivision drainage system, drainage calculations shall be prepared and signed by a Massachusetts Registered Professional Engineer and filed as a part of the Definitive plan. A drainage run-off plan within the perimeter of the proposed subdivision shall be drawn to a scale of 1" = 40' and shall show the incremental areas contributing run-off to each catch basin, ditch, or water course. The run-off plan shall also show existing and proposed contours at two (2) foot intervals. The contributing watershed areas outside the perimeter of the subdivision shall be drawn to a scale of 1" = 200' and shall be included in the drainage calculations.

6.3.2.2 DESIGN CRITERIA

- (1) All subdivision applications, regardless of whether the project is subject to the State's Wetlands Protection Act, shall design the stormwater management system in compliance with the goals and objectives of the Massachusetts Department of Environmental Protection (DEP) Stormwater Management Standards and accompanying Stormwater Management Handbook and any applicable local and federal regulations, with the Stormwater Handbook's Stormwater Standards as most recently amended. These apply to industrial, commercial, institutional, and residential subdivision and roadway projects, including site preparation, construction, redevelopment, and ongoing

operation. The applicant shall also provide calculations indicating compliance with each standard. Refer to the Massachusetts DEP Stormwater Handbook and its referenced sources for specific application of these stormwater management categories.

- (2) The design shall include the size, quality, and type of pipe; inlets, manholes, water quality treatment and stormwater basin areas; and the percent of grade. The applicable design criterion shall be a zero percent (0%) increase in the peak rate for the two (2), ten (10), twenty-five (25), and one hundred (100) year storm event.
- (3) For normal drainage design, peak runoff rates should be estimated using the rational method or SCS model, with analyses of every sub catchment, reach and detention pond provided for the two-year-, ten-year-, twenty-five-year-, and one-hundred-year-frequency storms. The drainage system shall be designed such that there is no increase in the peak rates of runoff from any of the watershed areas at the discharge point(s) from the site for any of the modeled storms. All detention or retention structures shall be designed on the basis of a one-hundred-year-frequency storm. At drainage discharge points, provision shall be made for velocity reduction using appropriate technologies so as to prevent erosion at point of discharge and down gradient.
 - (a) A weighted coefficient of run-off "C" or curve numbers is to be determined for each incremental drainage area based on the following minimum values:

paved or roofed areas	0.90
steep grassed areas	0.70
residential areas (with lawns & buildings)	0.45
cultivated or natural areas	0.30
 - (b) If using the SCS method, curve numbers can be obtained using the Soil Conservation Services, Urban Hydrology for Small Watershed, technical release #55; Table 2-2.
- (4) Hydraulic and hydrologic calculations shall be prepared by a Massachusetts Registered Professional Engineer, or other professional competent in such matters. Calculations must show existing and proposed runoff conditions for the rate, volume, and velocity.
- (5) Culverts designed to carry existing drainage, ditches, brooks, streams or other water courses shall be based on a 100-year design storm. Culverts shall be designed with proper inlet and outlet control in accordance with the City's Stormwater Management and Erosion Control Ordinance, the City's Wetland Protection Ordinance, and Massachusetts Stream Crossing Standards.
- (6) In no case shall a drainage line of less than twelve (12") inches in diameter be used.
- (7) All drains shall be sloped to provide for a minimum velocity of three (3") feet

per second. The maximum design velocity shall be ten (10') feet per second.

- (8) Storm sewer systems shall be designed to flow full by gravity, using the Manning Formula to determine the sizes of pipes required. Submerged outlets during periods of storm flow or during dry periods will not be permitted.
- (9) Where it appears that any street may be extended so as to connect with an existing or proposed street on land adjoining the subdivision, the Board may require that provision be made for extension of the drainage system to a point at or near the subdivision property line at such size and grade as will allow for such extension.
- (10) Rainfall amounts shall be determined using the 24-hour rainfall data based on the upper confidence of the precipitation frequencies listed in the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Volume 10 (Version 3.0 or later versions are permissible) multiplied by 0.9, or rainfall data as specified by the MA Stormwater Handbook, whichever is more stringent. Computations based on the U.S. Weather Bureau Technical Paper 40 are not acceptable. The NOAA Type C or D storm distribution (NRCS Engineering Field Handbook Chapter 2, National Engineering Handbook Part 650, Massachusetts Supplement for the Implementation of NOAA Atlas 14, Volume 10 Rainfall Data, dated June 17, 2016) or a customized storm distribution developed using the NOAA Atlas 14 upper confidence multiplied by 0.9 shall be utilized. Use of the NRCS Type III storm is not acceptable to meet the computation requirement. Refer to the MA Stormwater Handbook for additional guidance and required documentation and computations for each Stormwater Standard.
- (11) Unless waived as an emergency by the Board on the recommendation of the City DPW and Conservation Commission, detention or retention areas created to contain drainage runoff from a proposed development shall be located at the development site locus in such area on the site as is approved by the Board.

6.3.3 STORM AND SURFACE DRAINAGE

6.3.3.1 GENERAL

- (1) A system of storm drains, culverts, ditches and related installations, including catch basins, gutters and manholes, shall be designed and installed to provide adequate disposal of surface water, including control of erosion, flooding and standing water from or in the subdivision and adjacent lands. A catch basin to manhole system of drainage is required.
- (2) Detention/retention systems shall be designed as per the City's Stormwater Management and Erosion Control Regulations.
- (3) Where open stream channels exist within a subdivision, adequate provision shall be made for properly maintaining them. It is the City's intent to preserve

and maintain the natural features of such streams and any development should be planned accordingly.

- (4) The drainage system must comply with the provisions of the City's Stormwater Management and Erosion Control Regulations.

6.3.3.2 PIPES, CULVERTS AND DRAINS

- (1) Drainage pipe within the roadway shall be reinforced concrete (or other Board approved equal based on supportive engineering data submitted by the development's engineer). The size of pipe shall be in accordance with the approved Definitive Plan and in any case shall not be less than twelve (12") inches in diameter. Where the diameter of pipe increases, the pipes shall be installed such that the tops of the pipe are flush. Joints shall be rubber gasket type. HDPE (double walled) pipes may be used for drainage outside of the roadway or for culverts under the roadway.
- (2) All pipes shall be laid out true to line and grade as shown on the approved Definitive Plan. Each section of pipe shall have a full, firm hearing throughout its length and shall be installed in compliance with the Standard Specifications. All joints shall be made of Portland Cement Mortar unless otherwise directed. No backfilling of pipes or culverts shall be done until the installation has been inspected and approved by the Department of Public Works. As the pipe is installed, the space outside and around the pipe shall be backfilled with suitable material which has been excavated from the trench. The backfill shall be deposited by hand in layers not over six (6") inches in depth to a point one foot over the pipe and each layer thoroughly compacted mechanically or by other approved methods and tools. Machine backfilling shall not be allowed without approval of the DPW. The minimum covering of all pipes shall be not less than thirty-six (36") inches.
- (3) Drainage pipe shall be bedded in accordance with the most recent Massachusetts Department of Transportation Highway Division *Standards and Specifications for Highways and Bridges* or manufacturer's condition.

6.3.3.3 CATCH BASINS AND MANHOLES

- (1) Catch basins shall be located on both sides of the roadway on continuous grades at intervals of not more than two hundred and fifty (250') feet, and at all low points and at the corners' low points as may be required. Intervals of less than two hundred and fifty (250') may be required on steep grades.
- (2) Catch basins and manholes shall consist of cement, brick, masonry, concrete block masonry, pre-cast solid segments or conforming to the Standard Specifications.
- (3) Catch basins and manholes shall have an inside diameter of not less than four (4') feet at a point two and one-half (2½') feet below the bottom of the frame.
- (4) Catch basins shall be at least three (3') feet in depth measured from the invert of the outlet pipe.

- (5) Walls of catch basins and manholes shall be not less than eight (8") inches in thickness and shall be laid in mortar composed of one (1) part Portland Cement and two (2) parts sand and sufficient water to form a workable mixture.
- (6) The base of a catch basin or manhole shall consist of one course of brick or pre-cast concrete pipes laid flat with all joints thoroughly flushed full of mortar with a twelve (12") inch weep hole left in the center.
- (7) Backfill shall not be applied until after inspection or within five (5) days of setting the mortar.
- (8) Cast Iron Frames shall be set on at least two, but no more than five courses of red brick, fully mortared; or reinforced concrete grade rings for adjustment to match finished grade.
- (9) Catch basin grates shall be Massachusetts Department of Transportation Highway Division compliant.

6.3.3.4 RESPONSIBILITY FOR SUBDIVISION DRAINAGE

The responsibility for adequate drainage shall rest with the owner. This shall include connection with existing drainage facilities, if any, provided by the City. When private drains are connected to City drainage, the City will not be responsible for any damage.

6.3.4 SWALES

- (1) Wherever practical, except along roadways, stormwater shall be channeled via open swales to facilitate the removal of contaminants.
- (2) Scuppers or swales from the roadway onto adjacent lots must be designed to direct flows away from any existing or proposed homes. Whenever possible, scuppers and swales should be grassed to promote aesthetics and the removal of contaminants. Where higher velocities require the use of a heavier lining, riprap, track rock or other similar material shall be used to prevent erosion.
- (3) Swales shall have a minimum side slope of 3:1 (horizontal to vertical) with maximum slope of swale not to exceed five percent (5%).
- (4) Dense vegetative cover shall be established as quickly as possible. Organic matter shall be incorporated into the soil for pollutant removal. Grasses shall be planted to provide enhanced vertical resistance to stormwater runoff.

6.4 SANITARY SEWER DESIGN

6.4.1 GENERAL

The Definitive plan shall provide adequate sanitary sewer facilities to collect and convey sewage to the nearest available manhole on the City of Methuen sanitary sewer system. Work and materials shall be performed in accordance with the State Plumbing Code when work is within ten (10) feet of buildings.

6.4.2 DESIGN STANDARDS

- (1) The minimum pipe size shall be eight (8") inches in diameter.
- (2) The minimum slope of the pipe shall be 0.4%.
- (3) The minimum design velocity shall be 2-1/2 feet per second. The maximum design velocity shall be fifteen (15') feet per second.
- (4) Manholes shall be spaced at intervals not to exceed three hundred (300') feet and at all changes in slope and/or direction. Where required because of velocities greater than the allowable maximum, drop manholes shall be used to reduce the slope of the pipe.
- (5) Where it appears that any street may be extended so as to connect with an existing or proposed street on land adjoining the subdivision, the Board may require that provision be made for extension of the sanitary sewer system to a point at or near the subdivision property line.
- (6) If a subdivision is within 500 feet of the public sewerage system, the developer shall be required to connect all new homes as part of the proposed plan to that system according to the City of Methuen Construction Standards.
- (7) If a subdivision is within 500 feet of a planned public sewerage system, the developer shall be required to install a sewer main and laterals, according to the City of Methuen Construction Standards in order to connect to the planned sewer in the future. The planned public sewerage system shall have been adopted at a previous City Council meeting and shall be scheduled to be built no more than 5 years from the date of submission of a Definitive Plan.
- (8) The subdivision shall be designed to be in compliance with the rules and regulations of the City of Methuen Municipal Code, Chapter 14 *Sewer Commission*, in effect at the time of definitive plan approval.
- (9) Where a public sewerage system connection is not feasible (according to the above rules), a private on-site sewerage system shall be designed and constructed in conformity with the Title V Regulations of the Commonwealth of Massachusetts and subject to the approval by, and in conformity with the City of Methuen Board of Health and its Rules and Regulations.
- (10) Additional criteria may be imposed as directed by the Board to meet the City's requirements under EPA's NPDES permit for the Greater Lawrence Sanitary District (GLSD) Wastewater Treatment Facility, which may include infiltration and inflow removal within the sewer collection system to offset the subdivision's wastewater flows.

6.4.3 SANITARY SEWER CONSTRUCTION STANDARDS

6.4.3.1 GENERAL

A system of sanitary sewers shall be designed and installed to provide adequate disposal of sewage.

6.4.3.2 PIPE

- (1) Pipe shall be PVC, reinforced concrete, class 52 ductile iron, or suitable alternative acceptable to the Board. Where the depth of cover over the pipe is less than three (3') feet, the pipe shall be reinforced concrete, extra strength where conditions warrant.
- (2) If loading on pipe exceeds PVC thresholds, ductile iron should be used.
- (3) All pipes shall be laid straight, true to line and grade as shown on the approved Definitive Plan. Each section of pipe shall be a full, firm bearing throughout its length and shall be installed in compliance with the Standard Specifications.

6.4.3.3 SEWER SERVICE CONNECTIONS

- (1) This item consists of connecting sanitary sewer services to residences, business and industrial establishments to an existing sewer main. All construction methods used for this item shall comply with the applicable sections of these specifications.
- (2) All sewer service connections from residential, commercial or industrial establishments shall be connected to the sewer main by means of approved saddles specially manufactured for the purpose. The connection shall be made so that the sewer service pipe centers the top of the sewer main and does not protrude into the sewer main.

6.4.3.4 FUTURE SERVICE CONNECTIONS

Where new sewers are to be constructed, the Contractor shall furnish and install T fittings or chimneys at locations shown on the plans or designated by the Department of Public Works. Service sewer pipe shall be connected to the main and properly installed out to the sideline or Right-of-Way of the roadway. The Contractor shall permanently locate the ends of the pipe so that a future connection can be made. The end of the service pipe shall be suitably capped or plugged as approved by the Department of Public Works.

6.4.3.5 MANHOLES, FRAMES AND COVERS

- (1) Sewer manholes shall be watertight and concrete or cast-in-place concrete in conformity with the construction standards as attached hereto.
- (2) Manhole frames and covers shall conform to the attached construction standards.
- (3) Cast Iron Frames shall be set on at least two, but no more than five courses of red brick, fully mortared; or reinforced concrete grade rings for adjustment to match finished grade

6.5 WATER SUPPLY & FIRE PROTECTION

6.5.1 WATER SUPPLY

- (1) Provisions shall be made for water supply and fire protection to each lot. Whenever feasible, the water supply shall be from a public water system and a fire protection system shall use fire hydrants located along the streets of the subdivision. When a subdivision is to be served by public water, then the hydrants shall be installed, and the water supply connected to the hydrants and the system shall be functional and accepted by the Fire Chief, DPW Director, and Water Superintendent prior to the issuance of any building permits for lots within the subdivision.
- (2) All connections to the public water supply shall be built in accordance with the City of Methuen Municipal Code, Chapter 15 *Water* at the time of construction and Massachusetts Department of Environmental Protection (MassDEP) *Guidelines for Public Water Systems* (April 2014 and as amended from time to time).
- (3) There shall be no use of water hydrants for construction purposes without the prior written approval of the Director of Public Works.
- (4) In the event water mains are installed in a private street, the covenant or agreement in regard to the street shall provide that in the event of the failure of the owner or owners of the street to maintain the water installation in accordance with the rules and regulations of the Water Division of the Department of Public Works, the Department of Public Works may enter and perform, at the expense of the owner or owners, any repairs or other work necessary to maintain the integrity of the water installation.

6.5.1.1 COVENANT REQUIRED

In the event water mains are installed in a private street, the covenant or agreement in regard to the street shall provide that in the event of the failure of the owner or owners of the street to maintain the water installation in accordance with the rules and regulations of the Water Division of the Department of Public Works, the Department of Public Works may enter and perform, at the expense of the owner or owners, any repairs or other work necessary to maintain the integrity of the water installation.

6.5.2 WATER SYSTEM CONSTRUCTION STANDARDS FOR MAINS, VALVES, HYDRANTS & FITTINGS

6.5.2.1 GENERAL

When new streets are constructed in accordance with the Subdivision Control Laws, the minimum size of the water main, the number of gates and the location of the hydrants to service the proposed area shall be determined by the Department of Public Works. In general, eight (8") inch water mains, or larger, shall be installed on all water main extensions in excess of six hundred (600') feet, or when needed

to complete a good distribution grid system. All water main extensions together with all other appurtenances shall be installed under the supervision of the Water Division. All water mains shall connect with two or more existing mains as set forth in MassDEP *Guidelines for Public Water Systems* and associated regulations. Specifications shall incorporate the provisions of the latest editions of AWWA standards.

6.5.2.2 MATERIALS

- (1) Pipe: Ductile iron water pipe, with B & S, Tyton or Mechanical joints; cement lined, tar coated, Class 52 to Federal Specifications WW-P-421, Type I for case iron pipe; ductile iron pipe to be standard USA 21.50 & 21.51 with latest revisions; Tyton or Mechanical joints; nominal length not to exceed eighteen (18') feet.
- (2) Tapping Sleeves & Gate Valves: Standardized on Mueller Tapping Sleeves and Gate Valves, open left. Shall be epoxy coated.
- (3) Gate Valves: Standardized on Mueller Gate Valves, open left. Shall be epoxy coated.
- (4) Hydrants: Standardized on Mueller/Centurian Fire Hydrants, open left, two-2½" nozzles with steamer connection. Hydrants to have a four (4") inch valve opening on laterals serviced from six (6") and eight (8") inch mains and a five (5") inch valve opening on laterals serviced from 10" mains and larger.
- (5) Fittings: Mechanical Joint Tap, Sleeve, and Gates & Gate Valves are to be iron.
- (6) Mechanical joint fittings shall have retaining glands on all bends, hydrant gates and all fittings at dead-ends.

6.5.2.3 ANCHORAGE OF TEES, BENDS, HYDRANTS, ETC.

All fittings along with bends, tees, plugs and hydrants shall have cement thrust blocks, or otherwise be tied with steel rods to prevent their being blown off from internal pressure.

6.5.2.4 DISINFECTION OF NEW MAINS

All new water main extensions shall be thoroughly flushed and disinfected before being placed into service in accordance with American Water Works Association (A.W.W.A.) standards.

6.5.2.5 HYDROSTATIC TESTS

All new water main extensions shall be tested in accordance with established A.W.W.A. standards.

6.5.2.6 INSTALLATIONS

- (1) Trenches shall be hand backfilled and tamped to a minimum cover of eighteen (18”) inches before further filling by machine.
- (2) Where ledge or shale has been removed from the trench, it shall be replaced with suitable back fill.
- (3) No boulders shall be put back into any water trench.
- (4) All water main extensions shall have a five (5') foot minimum cover.

6.5.3 FIRE PROTECTION

Fire protection shall be designed in accordance with the requirements of the National Fire Protection Association (NFPA) and approved by the Fire Chief.

6.6 PROJECT COMPLETION

6.6.1 EASEMENTS

6.6.1.1 UTILITY EASEMENTS

Easements for utilities shall be located around the individual lot’s perimeter wherever possible. They shall be contiguous from lot to lot. Easements across lots or parallel to rear or side lot lines shall be provided where necessary and shall be at least twenty (20’) feet wide. All easements, including their purpose, shall be shown on the Definitive Subdivision Plan and described in the parcel(s) deed.

6.6.1.2 DRAINAGE EASEMENTS

Where a subdivision is traversed by or adjacent to a water course, drainage way, channel or stream, the Board may require that there be provided a stormwater easement or drainage right of way of adequate width to conform substantially to the lines of such water course, drainage way, channel or stream, and to provide for construction or other necessary purposes. The minimum width of any such easement shall be twenty (20’) feet. The Board may require an easement for watercourse that are not within the subdivision but may be affected by it. All easements, including their purpose, shall be shown on the Definitive Subdivision Plan and placed on the parcel(s) deed.

6.6.1.3 ACCESS THROUGH ANOTHER MUNICIPALITY

- (1) At least one point of access to a subdivision must be within the City of Methuen.
- (2) If additional access to a subdivision crosses land in another municipality, the Board may require certification from appropriate authorities that such access is in accordance with the Master Plan and subdivision requirements of such municipality and that a legally adequate performance bond has been duly posted or that such access is adequately improved to handle prospective traffic.

6.6.1.4 ACCESS EASEMENTS

Access easements to park and conservation land shall be secured for the benefit of the City and shall be forty (40') feet width.

6.6.1.5 FOOTPATH EASEMENTS

Unless otherwise required, easements for off-street footpath shall be twenty (20') feet in width.

6.6.2 OPEN SPACES

Before approval of a Definitive plan for a subdivision, the Board may also in proper cases require the plan to show usable open space, as defined in Methuen's Comprehensive Zoning Ordinance, suitably located for playground or recreation purposes or for providing light and air. The park or parks shall not be unreasonable in area in relation to the land being subdivided and to the prospective use of such land. The Board may by appropriate endorsement on the plan, require that no building permit be issued until evidence of a conservation restriction of record has been provided.

6.6.3 UTILITIES

All utilities, including house connections, shall be placed underground at the time of initial construction unless, in the opinion of the Board and the appropriate utility company, such installation is impractical or not in the best interest of the City. Complete location plans of each utility system shall be filed with and approved by the Board or a Board appointed engineer at the subdivider's expense prior to installation. All utility pipes and conduits and appurtenant facilities to be located under a roadway or sidewalk shall be installed before placement of the gravel base of such roadway or sidewalk. If located within a flood prone area (determined by the Board), transformers, switching equipment, or other vital components shall be flood-proofed and approved by the Board or a Board appointed engineer at the subdivider's expense.

6.6.3.1 INSTALLATION OF UTILITIES FOR ALL SUBDIVISIONS

- (1) Electric Power Supply Cables, Telephone Cables and Cable TV Service shall be placed in a trench centered two (2') feet from the edge of the roadway pavement on the side of the street where the sidewalk is to be placed.
- (2) All Electric, Telephone and Cable TV service connections to be located under a roadway or sidewalk shall be placed in conduits extending from the electric service transformers and telephone distribution boxes to the right-of-way line on the opposite side of the street. Any other required crossing of the roadway shall also be placed in conduit. All service transformers shall be located in vaults below the finished grade unless specified by the Board. All conduits to be located under the roadway or sidewalk shall be installed prior to be placing of the gravel base and hot mix asphalt pavement.

- (3) All electrical, telephone, fire alarm and other wires and cables shall be installed underground, unless in the opinion of the Board and the appropriate utility company, such installation is impractical or not in the best interest of the City. If located within a flood prone area (determined by the Board), transformers, switching equipment, or other vital components shall be flood-proofed and approved by the Board or a Board appointed engineer at the subdivider's expense.

6.6.4 STANDARDS SPECIFICATIONS

In addition to the Mass. Department of Transportation Construction Standards, the following minimum specifications shall govern the installation of all roadways, utilities, and other improvements in all subdivisions.

6.6.5 POSTING PRIOR TO CONSTRUCTION

The applicant shall, upon beginning construction of a street, which intersects with a public way, post a sign, of a size no smaller than two feet by three feet and with two-inch letters in black on a white background, which provides the following:

NOTICE TO THE PUBLIC

THIS WAY IS NOT OWNED BY THE CITY OF METHUEN

Said sign shall further identify the applicant owner of the way and its address.

6.6.6 CLEARING AND GRUBBING

- (1) No tree shall be removed from any subdivision nor any change of grade of the land effected until approval of the definitive plan has been granted. All trees on the land required to be retained shall be preserved; and all trees, where required, shall be welled, and protected against change of grade. All side slopes shall be planted with a low-growing shrub or vine, and wood chipped to a minimum depth of six inches or, at the Board's option, seeded with a deep-rooted perennial grass to prevent erosion.
- (2) Clearing and grubbing shall be restricted to areas necessary for road construction, utility installation, and building footprints. Clearing and grubbing of the roadway and sidewalk locations shall be done according to the width of the typical roadway section proposed, and shall include the removal of all stumps, brush, roots, boulders and similar materials as well as trees which have not been marked for reservation. The contractor shall satisfactorily dispose of all trees, stumps, shrubs, roots, branches, dead wood and other litter, in areas outside the Right of Way or outside the perimeter of the subdivision.
- (3) The stumps of all trees, brush and major roots shall be grubbed and removed in all excavation and under all embankments where the original ground level is within 3½ feet below the subgrade or slope of embankments.
- (4) All trees, stumps and brush shall be out of within six (6") inches of the ground

in embankment areas where the original ground level is greater than 3½ feet below the subgrade or slope of embankments.

- (5) No perishable matter such as stump, trunks, or limbs of trees or brush shall be buried within the limits of the right-of-way lines.

6.6.7 EXCAVATION

- (1) Earth Excavation: Earth excavation shall consist of the excavation, disposal or compaction of all material not otherwise classified under some other item in accordance with the lines, grades and cross sections shown on the plans or established by the Engineer.
- (2) Excavation materials, which are unsuitable for embankment, or surplus material remaining after completing the site work, will be known as waste and shall be disposed of by the contractor outside the Right of Way at their expense, unless otherwise directed. If excavated material is to be removed from the site, a determination of applicability must be made by the Soil Removal Board.
- (3) Rock Excavation: Rock Excavation shall consist of:
 - (a) Rock that cannot be excavated without blasting or the use of rippers.
 - (b) Rock, cemented stonewalls or masonry structures measuring ½ cubic yard or more that require blasting for removal.
- (4) Embankment: This work consists of the formation of embankments with suitable material obtained from excavation and borrow, thoroughly compacted to produce a stabilized embankment, in accordance with the lines and grades shown on the plans and as directed.
- (5) When it is determined that there is not sufficient material available from excavation, the Contractor shall obtain additional material from outside the location and this material will be borrow material.
- (6) Frozen material shall not be placed in embankments. Earth embankments shall be placed and compacted in uniform layers not exceeding twelve (12") inches in depth, loose measurement, spread on the entire width of the embankment and leveled off by approved equipment.
- (7) Each layer of embankment material shall be thoroughly compacted with power rollers or tamping rollers to not less than 95 percent of the maximum dry density of the material.
- (8) Subgrade preparation:
 - (a) The roadway locations shall be excavated to a depth below the established finished grade as shown on the plans or the Typical Roadway Cross Sections.
 - (b) The conditions of the subgrade surface at the bottom of the excavation shall be inspected by the staff representative, and if, in their opinion, such condition are wet or spongy or otherwise unsatisfactory due to the presence of clay or organic materials, the bottom shall be excavated

below the subgrade to a depth determined by the representative to be sufficient to insure removal of all such unsuitable material.

- (c) If any portion of the roadway location is required to be excavated below the designed surface of the subgrade, the space so excavated shall be filled with clean, bank gravel or such other suitable material, such as shattered ledge. The top six (6") inches of subgrade shall contain no stones greater than three (3") inches in diameter. The roadway location shall then be graded and rolled so as to form the surface of the subgrade shaped to conform with the proposed roadway section.
- (d) All ledge, boulders and large stones located within the full cross section of the roadway shall be cleared to the minimum depth required below the established finish grade.
- (e) All drainage and sewer pipes, culverts, catch basins and manholes and all utility pipes, conduits and appurtenances there to be placed under the roadway and sidewalk locations shall be installed and properly back-filled prior to construction of the roadway and sidewalk.
- (f) When required, sub-drains shall be installed at locations directed by the Department of Public Works.

6.6.8 TREES AND TREE PLANTING

- (1) The Board requires trees to be planted along all new streets at intervals of no greater than fifty (50') feet unless the Board grants a waiver. Applicant is required to guarantee the survival of these trees for one year from the date of acceptance of the ways by the City or shall be responsible for replacing the tree with one at least equal in size to the tree being replaced and again guarantee for at least one full growing season.
- (2) The type of tree should be of the shade variety but shall not include any locust, willow, or poplar trees; nor shall it include any coniferous trees. Indigenous species are preferred.
- (3) Trees shall have a caliber of not less than 2½" and shall not be less than twelve feet tall, planted and guyed in such a manner as to insure their survival. The minimum size hole for the root ball shall be of no smaller diameter than five (5) feet and at least two (2) feet deep. No large rocks or debris or unsuitable material may be used in filling the hole. Good quality earth or loam, mixed with a small amount of sand or other similar material will be acceptable.
- (4) Small height growing trees (for placement under utility lines) shall have a 9' crown height and a 5' spread.

6.6.8.1 BANK PLANTINGS

- (1) All cut or fill bankings that tend to wash or erode shall be planted with suitable, well-rooted, and low-growing plantings. All plants shall be the equivalent of nursery grown stock in good health, free from injury, harmful insects, and diseases.

- (2) Use of invasive species is prohibited. Please refer to the “Massachusetts Prohibited Plant List” maintained by the Massachusetts Department of Agricultural Resources for the latest list of invasive species. Acceptable plantings include very low-growing (4" to 12"), low growing (12" to 30"), and herbaceous plantings. Perennial grass turf installed as sod is an acceptable alternative for the planting of banks.
- (3) If bank plantings are of a type which are properly spaced at close intervals, eight (8) to twelve (12) inches of loam shall be spread over the entire bank. If the plantings are to be widely spaced, they may be planted in loam pits.
- (4) Mulch (wood chips or equal) shall be spread heavily among plantings for weed and erosion control. Softwood wood chips should not be used in areas where they will be subject to flotation and washing away.
- (5) The subdivider shall be responsible for maintenance of bank plantings and replacement of those which have died or become diseased from the time of planting through one full growing season.

6.6.8.2 CORNER PLANTINGS

Requirements for plantings adjacent to street intersections shall be the same as those for Bank Plantings with the following exceptions:

- (1) Turf may be provided by seeding as well as by planting sod.
- (2) Bushy shrubs and herbaceous plantings that would tend to obscure visibility are not permitted within one hundred (100) feet of the intersection of the curbs adjacent to the corner lot.

6.6.8.3 CUL-DE-SAC PLANTING

- (1) The central portion of a permanent dead-end street should be landscaped. The following options are permitted:
 - (a) Planting with ground cover using an eight (8) to twelve (12) inch base of loam and spreading mulch between plants for weed control.
 - (b) Planting perennial grass by either sod or seed.
 - (c) Planting ornamental shrubs of a type acceptable to the Board.
 - (d) Retaining existing vegetation, with the approval of the Board.
- (2) Cul-de-sacs shall be designed to incorporate low impact development (LID) principles, aiming to mitigate stormwater runoff, enhance biodiversity, and promote aesthetic appeal such as bioretention areas, rain gardens, etc.
- (3) Plantings within cul-de-sacs shall consist primarily of native vegetation selected for its ability to thrive in local soil and climate conditions, thereby reducing the need for irrigation and chemical inputs.
- (4) The homeowner’s association or designated maintenance entity shall be responsible for the ongoing care and upkeep of the cul-de-sac plantings.

- (5) The standards of the American Nurserymen Association and the specifications of the Associated Landscape Contractors of Massachusetts shall apply to landscaping subject to these regulations. The Tree Warden will have final authority for the approval of trees concerning their health, species, size and location.

6.6.9 SIDEWALKS

- (1) Sidewalks must meet ADA standards and must be at least five (5') feet in width excluding the curb width, unless otherwise specified by the Board, and shall be constructed on both sides of the street starting at the property line, when in the opinion of the Board such sidewalks are necessary, as shown on the approved Definitive Plan.
- (2) Permeable paving for sidewalks allowed on private residential lots for residential drives, parking spaces, and driveways.
- (3) Sidewalks are not required for tertiary streets, unless otherwise specified by the Board.

6.6.9.1 SIDEWALK DRAINAGE

Areas included between the outside line of the sidewalk and the outside line of the paved roadway shall be graded and filled where necessary to insure adequate drainage.

6.6.9.2 SIDEWALK BASE

The sidewalk base shall consist of not less than six (6") inches of clean gravel after thorough compaction with a five (5) ton roller.

6.6.9.3 SIDEWALK PAVEMENT

- (1) The sidewalk pavement shall consist of Hot Mix Asphalt, laid in two courses of 1.5 inches thick after rolling or four (4") inch Portland Cement Concrete.
- (2) The sidewalk concrete shall have the 4,000-psi minimum compressive strength at 28 days for Type II cement.
- (3) The sidewalk concrete shall have a normal weight of 145 pounds cubic feet (pcf) nominal dry density.
- (4) The sidewalk concrete shall have 5.5% to 8.5% air-entrainment.
- (5) The sidewalk concrete slump shall not exceed 4 inches.
- (6) Sidewalk at driveway shall be a minimum of 6 inches.
- (7) The installation of alternative surfaces in low traffic areas may be allowed, provided that a determination is made that the alternative surface will not lead to dust or erosion, having an adverse impact on adjacent properties or users of the site.

- (8) Must provide expansion joints at 6-feet on center, provide expansion joints at minimum 30 feet on center with pre-molded joint filler. Must provide broom finish in direction perpendicular to curb.
- (9) Permeable pavement materials, such as pervious concrete, porous asphalt, or interlocking permeable pavers, may be utilized for sidewalk construction to enhance water infiltration, reduce stormwater runoff, and minimize impervious surfaces within the subdivision.
 - (a) The use of permeable pavement for sidewalks shall be subject to approval by the Board, ensuring compliance with local engineering standards, durability requirements, and maintenance considerations.
 - (b) Subdividers shall submit detailed sidewalk plans indicating the proposed permeable pavement materials, construction specifications, and stormwater management features incorporated into the design.
 - (c) Where permeable pavement is utilized for sidewalks, applicants shall implement proper drainage measures, such as gravel or aggregate base layers, underdrains, and infiltration trenches, to facilitate effective stormwater infiltration and prevent flooding or ponding.

6.6.9.4 LOAMING AND SEEDING

All areas between the sidewalk and the paved roadway shall be loamed and seeded in accordance with the typical section.

6.6.9.5 SIDEWALK PAVEMENT AT STREET INTERSECTION

All sidewalk/street intersections are to be made accessible and must conform to the Commonwealth of Massachusetts, Department of Transportation Highway Division Construction Standards as amended, and the Rules and Regulations of the Americans with Disabilities Act (ADA).

6.6.10 GRASS STRIPS

All cleared open areas included within the street right-of-way or within slope or drainage easements shall be suitably graded and loamed with not less than six (6") inches of good quality loam after compaction and rolled and seeded with perennial lawn grass seed. Seeding shall be done at appropriate times of the year and in a manner to ensure the growth of grass as approved by the Department of Public Works. No utility poles, signs or similar items shall be placed within the grass plot within three (3) feet of the edge of the pavement.

6.6.11 BOUNDARY MARKERS AND MONUMENTS

- (1) Markers or monuments shall be set on the right-of-way lines of each street at all angle points, at the beginning and end of all curves, at all intersections with the streets and ways, at all points of change in direction, at subdivision boundary lines, and at other points where, in the opinion of the Board, permanent

monuments are necessary. All markers or monuments shall be granite stone and shall be not less than four (4') feet in length and not less than six (6") inches in width and breadth and shall have a drill hole in the center. All bounds shall be set flush with the surface of the adjoining ground. Wrought iron rods may be used where the points fall on exposed ledge. The placement and accurate location of these markers shall be certified in writing to the Board by a Registered Land Surveyor. Their locations shall be noted on the Definitive Plan.

- (2) The entire perimeter of the subdivision shall be located on the ground and marked in accordance with the 1971 Land Court Manual of Instructions, as amended.

6.6.12 FINAL CLEANING UP

Upon completion of the roadways and other required improvements, the developer shall remove from the highway and adjoining property all temporary structures, debris, surplus materials, logs, brush, rubbish, loose stones and boulders, surplus earth, gravel and other materials which may have accumulated during construction and shall leave the subdivision in a neat and sightly condition and shall clean the entire drainage system. Burning of rubbish and waste material is prohibited.

6.6.13 INSTALLATION OF IMPROVEMENTS (INSPECTION)

6.6.13.1 GENERAL

- (1) Inspection of the required subdivision improvements shall be made by the Department of Public Works during the work and arrangements therefore shall be made by the developer with the Community Development Board Agent and DPW prior to the starting of road construction.
- (2) The Board will furnish the developer with a copy of a checklist covering all required inspections. The original of such list shall be signed by the Agent after satisfactory completion of each stage of the construction and retained in the Board files.
- (3) Inspection shall be requested at least forty-eight (48) hours in advance of each inspection by written notice to the Board Agent and Department of Public Works, a copy of which notice shall be sent to the Board.

6.6.13.2 REQUIRED INSPECTIONS

- (1) The following scheduled inspections shall be required in all subdivisions during the installation of the required improvements:
 - (a) Prior to the commencement of any work required and authorized by the approval of the Definitive Subdivision Plan, inspection of the erosion/sedimentation control facilities installed
 - (b) Before clearing and grubbing, the Tree Warden shall mark trees to be preserved in the street right-of-way;

- (c) The sanitary and storm drainage systems before the backfilling of utility trenches and underground drainage or stormwater conveyance structures;
- (d) Inspections required in accordance with The City's Stormwater Management Ordinance.
- (e) Satisfactory excavation of roadway and sub-grade preparation;
- (f) Satisfactory installation of drainage pipes conduits, catch basins, manholes and other below-grade drainage facilities;
- (g) Satisfactory installation of utility pipes and conduits located under roadway and sidewalk locations;
- (h) Satisfactory filling, grading and compaction of the roadway and sidewalk subgrades;
- (i) Satisfactory installation of curb and curb inlets at catch basins and at street intersections;
- (j) Satisfactory placement and compaction of gravel base for roadways;
- (k) Satisfactory placement of hot mix asphalt binder course on roadways;
- (l) Satisfactory installation of catch basins and manhole frames headwalls and riprapping;
- (m) Satisfactory placement of hot mix asphalt finish course on roadways;
- (n) Satisfactory construction of sidewalks;
- (o) Satisfactory installation of underground electric and telephone services;
- (p) Satisfactory installation of street lights;
- (q) Satisfactory loaming, grading and seeding of grass strips;
- (r) Satisfactory installation of street signs;
- (s) Satisfactory installation of street trees where required;
- (t) Satisfactory installation of monuments;
- (u) Satisfactory clean-up;
- (v) Satisfactory maintenance.
- (w) The water system and related accessories shall be inspected by the Water Department of Methuen;
- (x) Sidewalks shall be inspected upon completion of the sub-base, permanent binder and finish courses;
- (y) Curbs, loaming, and seeding operations may also be inspected by a Board appointed Engineer. At the completion of all improvements in the subdivision, the Board appointed Engineer shall make an inspection before final release of performance guarantee.

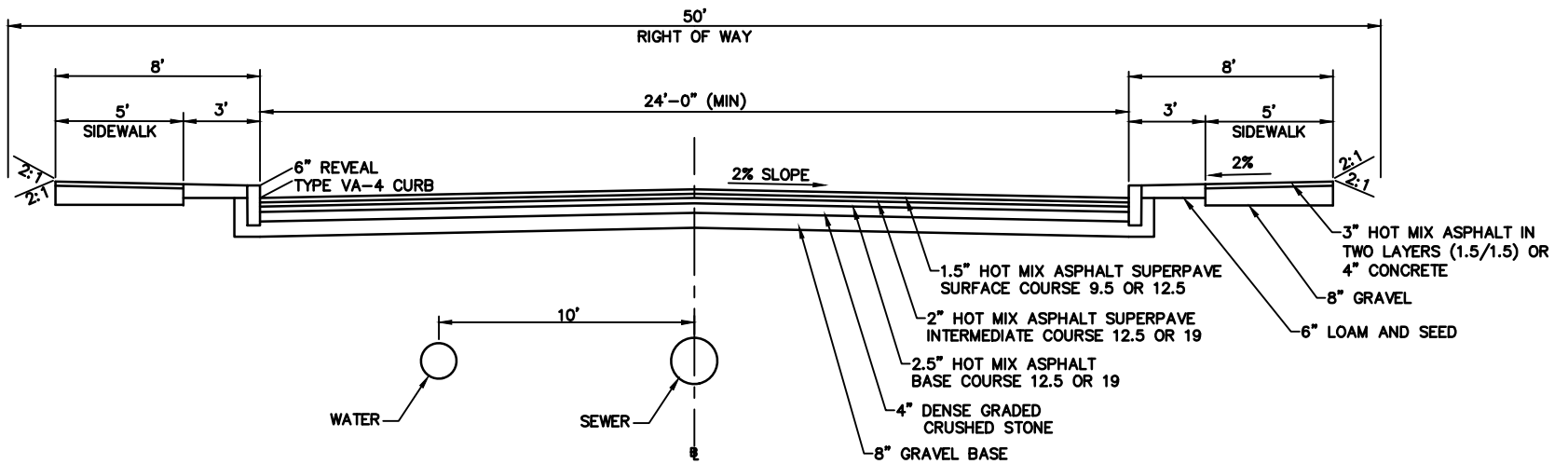
- (z) Inspections shall be made prior to backfilling of joints, bonds, couplings, etc.
- (aa) Final Inspection when all work, including construction of stormwater management facilities and landscaping have been completed. Final inspection shall include a full, dated TV inspection of all stormwater pipes installed.
- (bb) Requests for inspections shall be made at least 48 hours in advance.
- (cc) Right of entry for inspection. When any new stormwater control or other facility is installed on private property, or when any new connection is made between private property and a public drainage control system or sanitary sewer, the filing of an application shall be deemed as the property owner's permission to the permit granting authority, or its agent, for the right to enter the property at reasonable times and in a reasonable manner for the purpose of the inspection. This includes the right to enter a property when it has a reasonable basis to believe that a violation of this Bylaw is occurring or has occurred, and to enter when necessary for abatement of a public nuisance or correction of a violation of this Bylaw.
- (dd) The applicant shall provide the Board with an inspection bond in an amount approved by the Board sufficient to cover the municipality's expenses for their designated engineering professional to undertake the required inspection process.
- (ee) The Applicant shall provide the municipality's designated engineering professional with an anticipated construction/inspection schedule.
- (ff) The Board may make arrangements with a professional person or firm to carry out such inspections on behalf of the City. The subdivider shall notify the proper inspector at least 48 hours before carrying out the above-mentioned stages.
- (gg) Construction of streets and installation of utilities may be phased provided that each section shall not be less than 500 feet.
- (hh) Inspection (full-time during utility installation, at strategic times during overall construction) costs shall be borne by the subdivider and shall be computed by the Department of Public Works.
- (ii) Each specified construction stage should be completed to the satisfaction of the Inspector in writing before further work shall be done. Further work performed without this approval will result in returning the construction to the status necessary to perform the required inspection.

SECTION 7.0**ACCEPTANCE OF STREETS BY THE CITY**

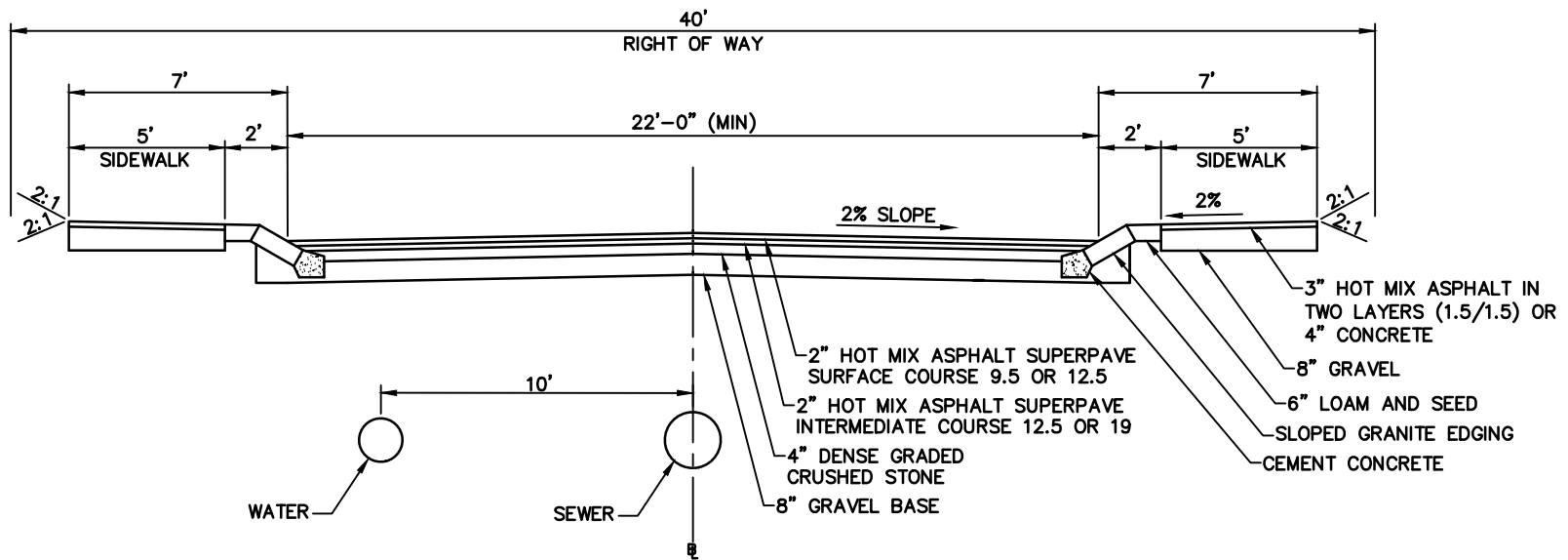
Final approval of the definitive subdivision plan does not constitute the layout out or acceptance by the City of a street, nor does it entitle the street to such acceptance. The owners of record or the applicant shall bear all the financial and legal responsibilities associated with the roads and associated structures until such time as the City Council has formally laid out and accepted the subdivision road as a public way, and the appropriate deeds and easements conveying rights in the road have been recorded with the Registry of Deeds.

ATTACHMENT A

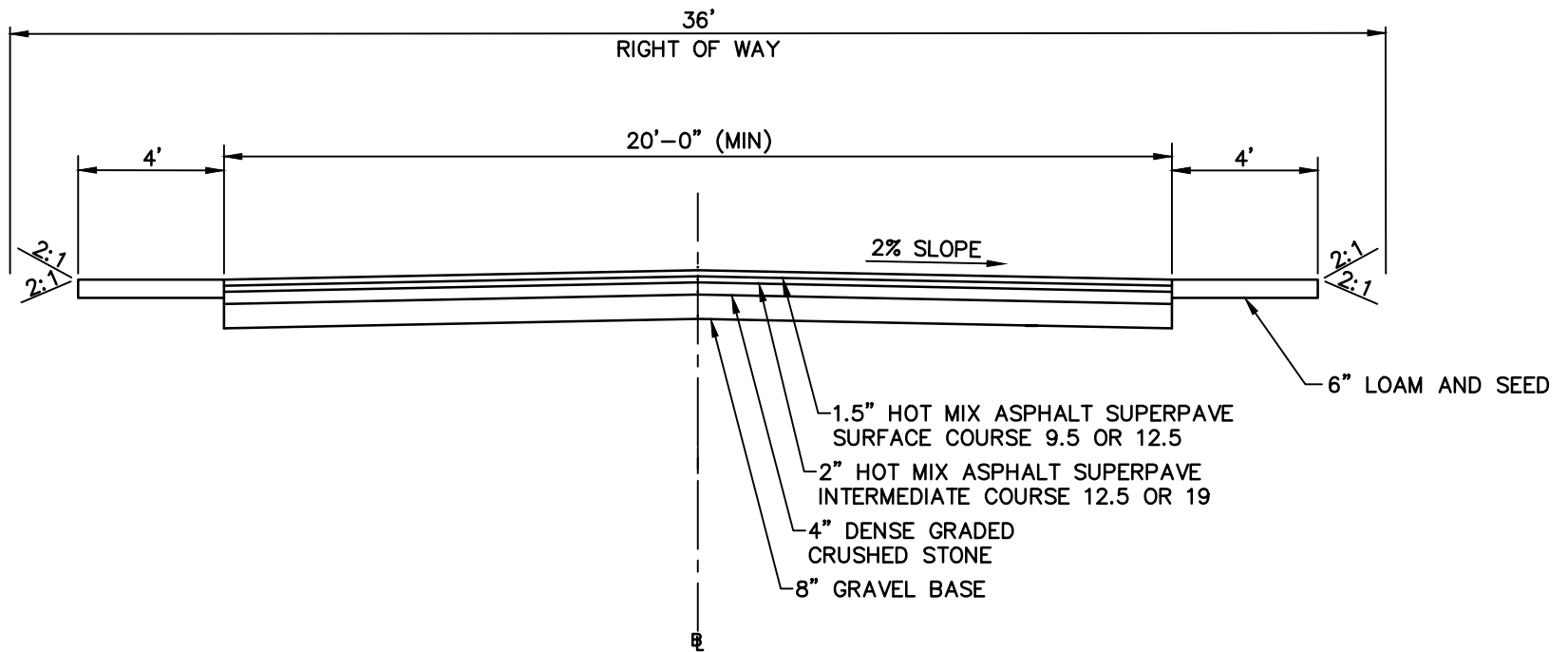
TYPICAL ROADWAY CROSS SECTIONS



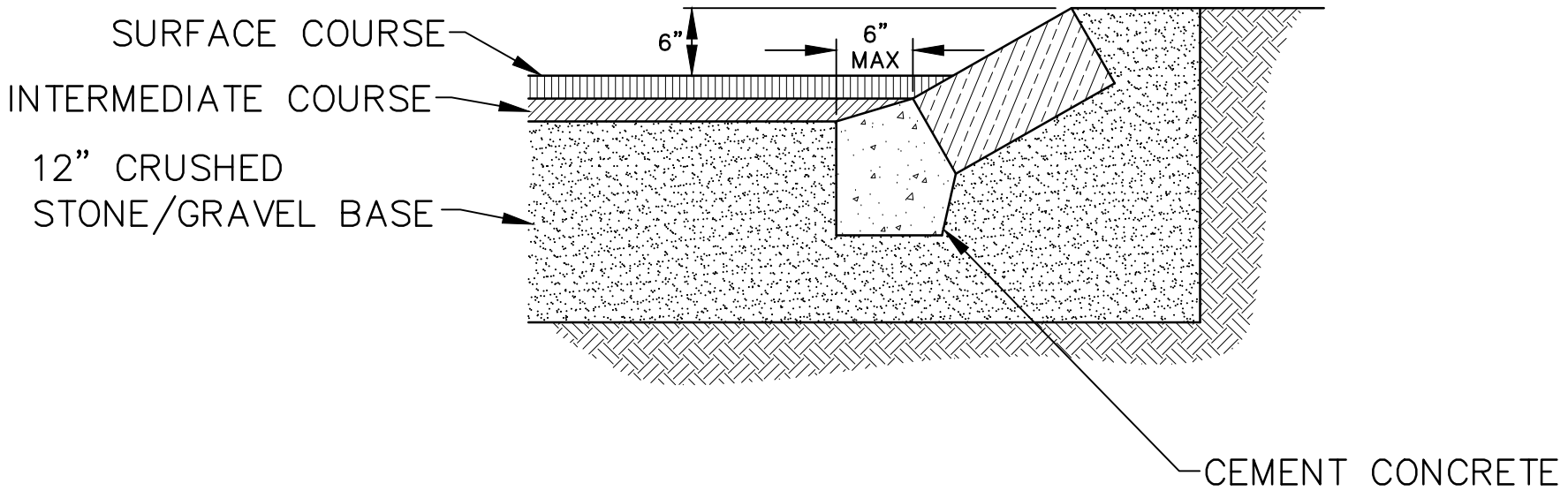
TYPICAL SECTION
PRINCIPAL STREET
METHUEN, MASS.



TYPICAL SECTION
SECONDARY STREET
METHUEN, MASS.



TYPICAL SECTION
TERTIARY STREET
METHUEN, MASS.



SLOPED GRANITE EDGING

ATTACHMENT B

**FORM A - APPLICATION FOR ENDORSEMENT OF PLAN BELIEVED
NOT TO REQUIRE APPROVAL**

FORM B - APPLICATION FOR APPROVAL OF PRELIMINARY PLAN

FORM C - APPLICATION FOR APPROVAL OF A DEFINITIVE PLAN



**CITY OF METHUEN
COMMUNITY DEVELOPMENT BOARD
FORM A
APPLICATION FOR ENDORSEMENT OF PLAN
BELIEVED NOT TO REQUIRE APPROVAL**

City Clerk Time Stamp:

File the original mylar, the completed forms and five (5) copies of the plan with the Methuen Community Development Board in accordance with the requirements of section 2.2. Once endorsed by the Community Development Board the applicant must record the plan at North Essex Registry of Deeds. Copies of the recorded plan must be delivered to the Department of Economic & Community Development, Building Commissioner, City Clerk and Assessor's office. In order to obtain a Building Permit, the applicant must provide proof of recorded copies of the plan to the Building Commissioner and the Assessor's office. A Building Permit will not be issued without proof of recording.

Department Signature:	Action Taken:
Title:	Date:

To the Methuen Community Development Board:

The undersigned, believing that the accompanying plan of his property in the City of Methuen, Massachusetts, does not constitute a subdivision within the meaning of the Subdivision Control Law, herewith submits said plan for a determination and endorsement that Community Development Board approval under the Subdivision Control Law is not required.

1. Name of Applicant: _____
Address & Phone: _____

2. Name of Owner: _____
Address & Phone: _____

3. Name of Engineer of Surveyor: _____
Address & Phone: _____

4. Deed of Property recorded in _____
Registry, Book: _____ Page: _____

5. Give Statement as to Why Plan Does Not Require Approval under the Subdivision Control Law:

6. Locations and Description of Property including the Assessor's Parcel ID and the zoning district of all affected parcels:

Signature of Applicant: _____

Signature of Land Owner: _____

FORM A FEES:
Lot line Adjustment: \$ 50.00
Perimeter Plan: \$ 50.00
Creating (1) new lot: \$ 100.00
Creating 2-3 new lots: \$ 100.00 + \$ 50.00 per lot
Creating 4+ new lots: \$ 150.00 + \$ 100.00 per lot

Authorization form must be completed if the applicant is not the owner



**CITY OF METHUEN
COMMUNITY DEVELOPMENT BOARD**

APPLICATION FOR APPROVAL OF A PRELIMINARY PLAN

(DATE)

To the Community Development Board of the City of Methuen:

The undersigned, being the applicant as defined under Chapter 41, Section 81-L, for approval of a proposed subdivision shown on a plan entitled: _____

By _____ Dated _____,
and described as follows:

List Assessor ID and zoning district for all affected parcels:

_____, number of lots proposed _____, total acreage of tract _____, said applicant hereby submits said plan as a *PRELIMINARY SUBDIVISION PLAN* in accordance with the Rules and Regulations of the Methuen Community Development Board and makes application to the Board for approval of said plan.

The undersigned's title to said land is derived from _____

by deed dated _____ and recorded in the _____ District Registry of Deeds Book: _____, Page: _____, registered in the _____ Registry District of the Land Court, Certificate of Title No. _____.

RECEIVED BY CITY CLERK:

DATE:	APPLICANT'S SIGNATURE:
TIME:	APPLICANT'S PRINTED NAME, ADDRESS & TELEPHONE #:
SIGNATURE:	OWNER'S SIGNATURE AND ADDRESS IF NOT THE APPLICANT OR APPLICANT'S AUTHORIZATION IF NOT THE OWNER:

RECEIVED BY HEALTH DEPARTMENT :

DATE:
TIME:
SIGNATURE:

Check list of items to be submitted with application

1.	Form B Application: _____
2.	Preliminary Plan Checklist to accompany Form B: _____
3.	Application Fee: \$ 200.00 Flat-Rate
4.	Amount Submitted: \$ _____
5.	Original Plan: _____ : # sheets: _____
6.	Copies of plan: _____ : # copies: _____



CITY OF METHUEN COMMUNITY DEVELOPMENT BOARD

APPLICATION FOR APPROVAL OF A DEFINITIVE PLAN

_____ (date)

To the Community Development Board of the City of Methuen:

The undersigned, being the applicant as defined under Chapter 41, Section 81-L, for approval of a proposed subdivision shown on a plan entitled: _____ by _____ (designer) dated _____ and described as follows:

located: _____ number of lots proposed: _____, total acreage of tract: _____ hereby submits said plan as a DEFINITIVE PLAN in accordance with the Rules and Regulations of the Methuen Massachusetts, Community Development Board and makes application to the Board for approval of said plan. List assessor ID of all parcels affected _____.

The undersigned's title to said land is derived from _____

By deed dated _____ and recorded in the _____ District Registry of Deeds Book: _____, Page _____, registered in the _____ Registry District of the Land Court, Certificate of Title No. _____; and said land is free of encumbrances except for the following:

Said plan has has not evolved from a preliminary plan submitted to the Board on _____ (date) and approved (with modifications) (disapproved) on _____ (date).

The undersigned hereby applies for the approval of said DEFINITIVE PLAN by the Board, in belief that the plan conforms to the Board's Rules and Regulations. The undersigned hereby agrees to abide by the Board's Rules and Regulations.

RECEIVED BY CITY CLERK:

DATE:	APPLICANT'S SIGNATURE:
TIME:	APPLICANT'S ADDRESS & TELEPHONE #:
SIGNATURE:	OWNER'S SIGNATURE AND ADDRESS IF NOT THE APPLICANT OR APPLICANT'S AUTHORIZATION IF NOT THE OWNER:

RECEIVED BY BOARD OF HEALTH:

DATE:
TIME:
SIGNATURE:

Check-List of items to be submitted with Application

- | | |
|--|-------|
| 1. Form C Application: | _____ |
| 2. Definitive Plan Checklist: | _____ |
| 3. Form D: Designer's Certificate | _____ |
| 4. Form E: Abutters Listing | _____ |
| 1 set stamped addressed envelopes per abutter | _____ |
| One set of address labels for each abutter | _____ |
| 5. Application Fee: Amount Submitted: | _____ |
| 6. Original Plan: _____: # sheets: | _____ |
| 7. Copies of Plan: _____: # copies: | _____ |
| 8. Engineering/Drainage calculations: #copies: | _____ |