



**RULES AND REGULATIONS
OF THE
BLACKSTONE PLANNING BOARD
GOVERNING THE
SUBDIVISION OF LAND**

Planning Board, Blackstone, Massachusetts

Paul Marvelle, Chairman
Kirk VanDyke, Vice Chair
Joseph Belrose
Gerald P. Rivet
Kevin Kerttula
Donald Westberg, Alternate

As most recently revised by vote of the Planning Board
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June 28, 1963

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[HISTORY -- This version originally adopted 5-17-87. Subsequent amendments are noted as applicable, except the renumbering adopted 9-1-88.]

ARTICLE I

Purpose and Authority

§ 191-1. Purpose and authority.

- A. Statutory Authority. Under the authority vested in the Planning Board of the Town of Blackstone by Section 81-Q of MGL C. 41, said Board hereby adopts these revised rules and regulations governing the subdivision of land in the Town of Blackstone. Such rules and regulations shall be effective on and after May 14, 1987. [Revised 6/30/10]
- B. Purpose. These Rules and Regulations of the Blackstone Planning Board Governing the Subdivision of Land are adopted under the provisions of Chapter 41 of the General Laws for the purpose of protecting the safety, convenience and welfare of the inhabitants of the Town of Blackstone by "regulating the laying out and construction of ways in subdivisions providing access to the several lots therein, but which have not become public ways, and ensuring sanitary conditions in subdivisions and in proper cases parks and open areas. The powers of a planning board and a board of appeal under the subdivision control law shall be exercised with due regard for the provision of adequate access to all of the lots in a subdivision by ways that will be safe and convenient for travel; for lessening congestion in such ways and in the adjacent public ways, for reducing danger to life and limb in the operation of motor vehicles; for securing safety in the case of fire, flood, panic and other emergencies; for insuring compliance with the applicable zoning ordinances or bylaws; for securing adequate provision for water, sewerage, drainage and other requirements where necessary in a subdivision; and for coordinating the ways in a subdivision with each other and with the public ways in the city or town in which it is located and with the ways in neighboring subdivisions" (MGL Ch. 41, § 81-K). [Revised 6/30/10]
- C. Certification of Compliance with G.L. c. 41, Section 81Q. True copies of these regulations, as amended, and certified by the Town Clerk, have been transmitted and filed at the Worcester County Registry of Deeds, and the Massachusetts Land Court, in Boston. Additionally, true copies of these regulations, as amended, have been placed on file and are available for public inspection at the offices of the Planning Board and the Town Clerk. [Revised 6/30/10]

ARTICLE II

General Provisions

§ 191-2. Definitions

As used in this chapter, the following terms shall have the meanings indicated:

BOARD - The Planning Board of the Town of Blackstone.

STREET – A way providing access including Collector Streets, Minor Streets, and Lanes defined as follows: [Revised 6/30/10]

COLLECTOR STREET - A street which accommodates traffic equivalent to that generated by fifty (50) homes or more, or which serves non-residential abutting property.

MINOR STREET - A street which accommodates traffic equivalent to that generated by a minimum of seven (7) homes and a maximum of forty-nine (49) homes which has no abutting property either used or zoned for commerce or industry, and which is not capable of extension.

LANE - A street which carries traffic equivalent to that generated by six (6) or fewer dwelling units, which has no abutting property either used or zoned for commerce or industry, and which is not capable of extension.

DEAD-END STREET - A street, extension of a street, or system of streets connected to other streets only at a single point.

FLOOD HAZARD DISTRICT - The Flood Hazard District as established in the Blackstone Zoning Bylaw.¹

NONRESIDENTIAL SUBDIVISION - A subdivision any part of which lies within any district other than the Residence Districts established by the Blackstone Zoning Bylaw.

RESIDENTIAL SUBDIVISION - A subdivision which lies entirely within the Residence Districts established by the Blackstone Zoning Bylaw.

SUBDIVISION – The division of a tract of land into two or more lots as more fully defined in Section 81-L of Massachusetts General Laws, Chapter 41 (Subdivision Control Law. [Added 6/30/10]

SUBDIVISION CONTROL – The power of regulating the subdivision of land granted by

¹ Editor's Note: See Ch. 123, Zoning.

the subdivision control law. [Added 6/30/10]

§ 191-3. Definitive Plan of subdivision to be submitted and approved. [Section Reordered 6/30/10]

No person shall make a subdivision within the meaning of the Subdivision Control Law of any land within the Town, 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 Planning Board as hereinafter provided.

§ 191-4. Approval or endorsement required. [Section Reordered 6/30/10]

- A. Necessity. Only those plans which constitute "subdivisions" as that term is defined in 81-L, MGL C.41, require the approval of the Planning Board. However, all plans, whether subdivisions within the meaning of the law or not, must have either approval as a subdivision, or endorsement that they do not require approval, before they will be accepted for recording at the Registry of Deeds or for registering at the Land Court.
- B. Date of Submittal.
 - (1) Plans intended for review at a regular meeting of the Planning Board shall be forwarded to the Town Clerk not later than 4:00 p.m. five (5) working days prior to the Planning Board meeting. The day of the next regular Board meeting following forwarding to the Town Clerk shall be considered to be the date of submission for all plans, except that the date of mailing shall be the date of submission for Definitive Plans sent by registered mail to the Planning Board. [Revised 11/6/08]
 - (2) No plan for review, whether for approval or for endorsement that approval is not required, shall be accepted as a submittal unless and until all information necessary for such review, as described herein under the applicable provisions of submission requirements, are fully provided, unless waived in writing by the Board. At the time of submission, a determination shall be made by the Planning Board, using a checklist, that the submission materials are either complete or incomplete.
 - (3) If the submission has been determined to be incomplete, the applicant shall be so advised forthwith, and requested to withdraw the plan and application, and to resubmit when submittals are complete. A plan shall not be considered submitted and the review period will not begin until submittals are substantially complete.

§ 191-5. Plans believed not to require approval.

- A. Any person who wishes to cause to be recorded in the Registry of Deeds, or to be filed with the Land Court, a plan of land and who believes that his plan does not require approval under the Subdivision Control Law, may submit his plan to the Planning Board accompanied by the necessary evidence to show that the plan does not require approval. Said person shall file with the Planning Board an original mylar and six (6) prints of the plan, an application (Form A), and the required application fee.² Said person shall file by delivery or registered mail a notice with the Town Clerk stating the date of submission for such determination. (Form A). Said plan shall be legibly drawn in accordance with the Rules and Regulations of the Register of Deeds, Chapter 36, M.G.L. Section 13A as amended pertaining to plan size, material, lettering and related requirements. [Revised 9/3/92, 8/3/95, 9/24/01, 3/5/2009 and 10/7/2010].
- B. In order to be considered by the Board, such plans shall show all of the following:
- (1) Any existing structures on the land shown on the plan and dimensions of yards relating to such structures.
 - (2) Any existing structures on any remaining adjoining land owned by the applicant and dimensions of yards relating to such structures, if such structure is within 50 feet of a property line being created.
 - (3) Location of bounds, fences and walls on the land shown on the plan.
 - (4) Bearings and distances of all lines of the lot or lots shown on the plan.
 - (5) Indication of total frontage on all lots created by the plan as well as remaining frontage and area of any adjoining land in the same ownership.
 - (6) Present owner of the land shown on the plan, and all abutting owners, as determined from the most recent records from the Assessor's Office.
 - (7) Location of any easement or way, public or private, across the land, with a designation as to the use of the same.
 - (8) Indication of the zoning district or districts involved, and a table showing the frontage, area and setback requirements for such districts.
 - (9) Names and status (public or private) of streets, ways and easements shown

² Editor's Note: Form A, Application for Endorsement of Plan Believed Not to Require Approval, is included at the end of this chapter.

on the plan, including the width of the right-of-way, the width of the traveled way, and the surface materials of the traveled way.

- (10) The statement "Approval Under the Subdivision Control Law Not Required" above a signature block with spaces for 5 signatures and a space for the date of endorsement.
- (11) The statement "Planning Board endorsement is not a determination as to conformance with the Zoning Bylaw" below or near the signature block.
- C. If the Board determines that the plan does not require approval, it shall forthwith, without a public hearing, endorse the plan. The original mylar shall be returned to the applicant and the Board shall notify the Town Clerk of its action.
- D. If the Board determines that the plan does require approval under the Subdivision Control Law, it shall within twenty-one (21) days of submission of said plan so inform the applicant and return the plan. The Board shall also notify the Town Clerk of its determination.

§ 191-6. Adequate access required.

- A. General. No plan shall be endorsed as not requiring approval under the Subdivision Control Law and no subdivision plan shall be approved unless each building lot to be created by such plan has adequate access as intended under the Subdivision Control Law, MGL C. 41, 81-K through 81-GG.
- B. Standards of Adequacy. [Revised 8/3/95]
 - (1) Streets within a subdivision shall be determined to provide adequate access if and only if complying with the standards established in this Regulation.
 - (2) Ways providing access to the streets within a subdivision shall be determined to provide adequate access only if there is assurance that, prior to construction on any lots, the standards for "Suburban" access as provided at § 123-12.J of the Blackstone Zoning Bylaw will be met by those ways.
 - (3) Private ways providing frontage for lots said not to be within a subdivision shall be determined to provide adequate access only if there is assurance that, prior to construction on any lots, the standards for "Suburban" access as provided at § 123-12.J of the Blackstone Zoning Bylaw will be met by those ways.
 - (4) Public ways providing frontage for lots said not to be within a subdivision shall be determined to provide adequate access if in fact they provide at

least minimal access to those lots and, if the access provided is subject to periodic interruption, there is an alternative means of emergency access available.

- C. **Obligations.** The Board may require, as a condition of its approval of a subdivision plan, that the developer dedicate or acquire and dedicate a strip of land for the purpose of widening access ways to a width as required above, and that he either make physical improvements within such way or compensate the Town for the cost of such improvements in order to meet the standards specified above.
- D. **Waivers.** The Board may waive strict compliance with these requirements only upon its determination, following consultation with the Superintendent of Public Works, Police Chief, Fire Chief, and Board of Selectmen, that the way in fact will be sufficient to serve the needs for access and utilities to serve potential needs of land abutting on or served by the way in question.

§191-6.1 Professional Assistance Funding *[Deleted 3/5/2009; see Fee Regulation]*

ARTICLE III

Submission and Approval of Plans

§ 191-7. Preliminary Plan.

A. General.

- (1) A Preliminary Plan of a subdivision must be submitted for any proposed non-residential subdivision, and may be submitted for any proposed Residential subdivision. The submission of such a Preliminary Plan will enable the subdivider, the Board, other municipal agencies, and owners of property abutting the subdivision to discuss and clarify the problems of such subdivision before a Definitive Plan is prepared. Therefore, it is strongly recommended that a Preliminary Plan be filed in every case.
- (2) Prior to investing in extensive professional design efforts for subdivision plans and their formal submittal, it will often prove useful to informally review the proposed development of a parcel of land with the Planning Board, in order that general approaches and potential problems can be freely explored. Simple sketches, which need not be professionally prepared, will assist the discussion and might show some but not all of the information shown on a Preliminary Plan. In some cases, this pre-submission review may eliminate need for a Preliminary Plan. [Added 7-2-87]

B. Submittals. Any person who seeks approval of a Preliminary Plan of a subdivision shall:

- (1) Submit two (2) copies of the Preliminary Plan to the Planning Board and one copy each to the Town Administrator, Board of Health, Conservation Commission, DPW Superintendent, Town Clerk, and Building Inspector (See Form K).³ [Revised 8/3/95]
- (2) Submit to the Planning Board:
 - (a) An application (Form B).⁴
 - (b) The required administrative filing fee, plus the required review fee. [Amended 9/3/92, 9/24/01 and 3/5/2009]

³ Editor's Note: Form K, Distribution List, is included at the end of this chapter.

⁴ Editor's Note: Form B, Application for Approval of a Preliminary Plan, is included at the end of this chapter.

(3) Submit to the Board of Health:

(a) A copy of the application (Form B).

(4) Submit to the Town Clerk (by delivery or certified mail):

(a) A copy of the application (Form B).

(5) In addition to those items required to be submitted, it is requested that the following be furnished:

(a) A locus plan of the subdivision, showing its street configuration in relation to the surrounding area and to zoning district boundaries, at a scale of one (1) inch equals six hundred (600) feet.

(b) In the case of a subdivision covering less than all of the land owned by the subdivider in the area of the subdivision, a plan showing in a general manner the proposed overall development of all said land.

(c) Preliminary findings, in a general way, of the environmental analysis required under Section 191-8.D, if expected to be required. [Revised 11/6/08]

C. Plan contents. The Preliminary Plan shall be clearly drawn at a suitable scale preferably one (1) inch equals forty (40) feet. Said Preliminary Plan shall show sufficient information about the subdivision to form a clear basis for its review and for the preparation of the Definitive Plan, and shall show:

(1) The subdivision name, boundaries, North point, date, scale, legend and title "Preliminary Plan".

(2) The name and address of record owner, applicant, registered engineer and registered surveyor.

(3) The names of all abutters from the most recent tax list.

(4) Existing and proposed lines of streets, ways, easements and any public or common areas within the subdivision in a general manner.

(5) The proposed system of drainage, including adjacent existing natural waterways, in a general manner.

(6) The approximate boundary lines of proposed lots, with approximate areas and dimensions.

- (7) The location, names and widths of adjacent streets approaching or near the subdivision.
 - (8) The topography of the land in a general manner.
- D. Field trip. In order to facilitate field inspection and review of the site of the proposed subdivision, it is desirable that there be temporary staking along the centerline of all proposed roads in the subdivision, or if that is impractical, some alternative method of enabling on-site review.
- E. Approval. Within forty-five (45) days after submission of a Preliminary Plan, the Board shall notify the applicant (by registered mail) and the Town Clerk either that the Plan has been approved, or that the Plan has been approved with modifications suggested by the Board or agreed upon by the person submitting the Plan, or that the Plan has been disapproved, and in the case of disapproval, the Board shall state in detail its reasons there for. Such approval does not constitute approval of a subdivision but does facilitate the procedure in securing final approval of the Definitive Plan. Prior to taking such action, the Board must be in receipt of Form K, Distribution List.⁵ [Revised 11/6/08]

§ 191-8. Definitive Plan.

- A. Submittals. Any person who desires approval of a Definitive Plan of a subdivision shall:
 - (1) Submit two (2) copies of the following to the Planning Board, and one copy each to the Town Administrator, Board of Health, Conservation Commission, DPW Superintendent, Town Clerk and Building Inspector (see Form K): [Revised 7/2/87 and 8/3/95]
 - (a) The Definitive Plan, as described at Subsection B. The original Definitive Plan drawing will only be needed if and when actual signing of the plan takes place.
 - (b) The Definitive Plans shall be organized and shall include sheets as follows: (i) General Sheets (cover sheet, index sheet, general notes, and typical sections), (ii) Lot Layout Sheets, (iii) Street Plan and Profile Sheets as described at Subsection B, (iv) Grading and Drainage Sheets, (v) Utility Sheets, (vi) Construction Detail Sheets, and (vi) Decision Sheets containing a facsimile copy of the Planning Board Decision (following endorsement). The Lot Layout Sheets, Street Plan and Profile Sheets, Grading and Drainage Sheets, and Utility Sheets shall be drawn at the same

⁵ Editor's Note: Form K, Distribution List, is included at the end of this chapter.

scale. [Revised 6/30/10]

- (c) The Grading and Drainage Sheets shall show existing and proposed topography at two-foot contour intervals, distinction between upland and wetland, indication of annual high water mark, location of tree cover, outstanding individual trees, existing structures including fences and walls, and proposed streets, and lot lines. Drainage facilities shall be shown and shall include drainlines (location, diameter, and pipe material and class), drainage structures, inverts, and stormwater management basins. If located within the 100 year floodplain, the floodplain boundary and the base flood elevation (one-hundred-year flood) shall be shown. All resource areas subject to regulation under the “Massachusetts Wetlands Protection Act (MGL Ch 131 §40)” or the Town of Blackstone Wetlands Bylaw (§ 119.1 to § 119.15) shall be shown. [Added 7-2-87] [Revised 6/30/10]
- (d) The Drainage Report shall include a detailed narrative of pre-development and post development runoff and a description of the calculations and methodology, Pre-development and Post-development Watershed Plans depicting drainage area boundaries, flow paths, topography, and soil classifications, and Drainage Calculations including computer printouts (if any) documenting the adequacy of all proposals. [Revised 9-1-88 and 6/30/10]
- (e) Test pit logs to be submitted include one (1) pit required per four (4) proposed lots, selected to reveal general patterns of subsurface characteristics, after consultation with the Board of Health and the Conservation Commission. Locations shall be indicated on the development plan. Additional deep test hole or soil boring logs are required as set forth in § 191-11.D.
- (f) Where connection to the public water system is not proposed, information indicating why such connection is not feasible, description of provisions to be made for water for firefighting, and information adequate to allow determination of compliance with requirements regarding potable water quality and quantity.
- (g) An erosion control plan, indicating the erosion control measures to be employed, including description of locations of temporary stockpiles, spoil areas, temporary drainage systems, slope stabilization techniques, and sediment basins, and narrative description of how erosion from individual lots onto streets and into drainage systems is proposed to be controlled.
- (h) A locus plan of the subdivision, showing its street configuration in

relation to surrounding streets and to zoning district boundaries, at one (1) inch equals six hundred (600) feet.

- (i) A print, eight and one-half by eleven (8 1/2 x 11) inches, showing an outline of the subdivision, all ways and lots, street names, and lot numbers.
 - (j) An environmental analysis, if required (Subsection D).
 - (k) Construction details and specifications, and typical road sections and road sections for any road section variant at all critical locations. [Revised 6/30/10]
- (2) Submit the following to the Planning Board:
- (a) If requested, traverse notes, evidence of ownership, language of any easements, covenants or deed restrictions applying or proposed to apply to the area being subdivided, and rights and easements obtained for utilities or drainage outside of the subdivision.
 - (b) Two (2) copies of properly executed application Form C.⁶
 - (c) The required administrative filing fees plus the required review fee. [Amended 9/24/01 and 3/5/2009]
 - (d) [Deleted 3/5/2009]
 - (e) A list of names and mailing addresses for all abutters as they appear on the most recent local tax list, including property owners on the opposite side of any streets abutting the subdivision.
 - (f) A description of the land and the proposal, suitable for advertising.
 - (g) A copy of Form K indicating having delivered materials to appropriate agencies.⁷
 - (h) A municipal lien certificate, indicating that all taxes, assessments, and charges then assessed against the land shown on the plan have been paid in full. [Added 5-2-96]
- (3) Submit to the Town Clerk by delivery or registered or certified mail:
- (a) A notice stating the date of Definitive Plan submission to the

⁶ Editor's Note: Form C is included at the end of this chapter.

⁷ Editor's Note: Form K is included at the end of this chapter.

Planning Board;

- (b) A copy of the completed application Form C.
- (4) File one copy of each of the following with the Board of Health:
 - (a) Definitive Plan;
 - (b) Street plans and profiles;
 - (c) The Development Plan;
 - (d) Environmental Analysis, if any.

B. Definitive Plan contents.

- (1) Plan preparation and format:
 - (a) The Definitive Plan shall be prepared by a Massachusetts Civil Professional Engineer and a Massachusetts Professional Land Surveyor and shall bear their signatures and seals. [Revised 6/30/10]
 - (b) The Definitive Plan shall be clearly and legibly drawn in black India ink or reproduced upon tracing cloth or mylar. The plan shall be at a scale of one (1) inch equals forty (40) feet, or such other scale as the Board may authorize prior to submittal to show details clearly and adequately. Sheet sizes shall be twenty-four by thirty-six (24 x 36) inches. If multiple sheets are used, they shall show each lot in its entirety on one sheet, and shall be accompanied by an index sheet showing the entire subdivision at a scale of one (1) inch equals two hundred (200) feet.
 - (c) If multiple sheets are used, composite plan sheets shall be separately submitted not exceeding thirty-six by forty-two (36 x 42) inches which shall depict all subdivision improvements on a single sheet. The composite plan sheets shall include an existing conditions sheet, a lot layout sheet, a grading, drainage, and utilities sheet and such additional sheets as may be required to clearly depict all subdivision improvements. The composite plan sheets are separate sheets intended to facilitate review and are not included in the tabulation of Definitive Plan sheets. [Revised 6/30/10]
- (2) The Definitive Plan shall contain the following information:
 - (a) The subdivision name, boundaries, North point, legend, date, text

and graphic scales, and zoning districts. [Revised 6/30/10]

- (b) The name and address of record owner, subdivider, the Massachusetts Civil Professional Engineer and the Massachusetts Professional Land Surveyor and their signatures and seals, and the names (and signatures and seals, if appropriate) of any other professionals responsible for the design. [Revised 6/30/10]
- (c) The names of all abutters as they appear in the most recent certified tax list including property owners on the opposite side of any streets abutting the subdivision obtained from the Assessor's Office within thirty (30) days of the date of submission of the Definitive Plan. [Revised 6/30/10]
- (d) Zoning Districts and Overlay Districts designations and boundaries. [Revised 6/30/10]
- (e) Existing and proposed lines of streets within and abutting the locus, ways, lots, easements, and public or common areas within the subdivision. (The proposed names of proposed streets shall be shown in pencil until they have been approved by the Selectmen.)
- (f) Sufficient data to determine the location, direction, and length of every street and way line, lot line, easement and boundary line and to establish those lines on the ground.
- (g) Existing buildings within and within 50 feet of the locus. [Revised 6/30/10]
- (h) A minimum of three (3) permanent benchmarks in proximity to but outside the area to be disturbed during construction of the subdivision improvements.
- (i) On applicable sheets, existing and proposed topographic features of land within and within 50 feet of the locus, land within the right-of-way of streets abutting the locus, and land within streets in reasonable proximity of the locus. Topographic features shall include structures, pavement, curbing, walkways, planting strips, street trees, physical features, walls, steps, tree lines, specimen trees 12 inch caliper and larger, elevations, and contours at a 2 foot contour interval. [Revised 6/30/10]
- (j) On applicable sheets, surface visible utilities. [Revised 6/30/10]
- (k) On applicable sheets, all resource areas subject to the Massachusetts Wetlands Protection Act (MGL Ch 131 §40) or the

Town of Blackstone Wetlands Bylaw (§ 119.1 to § 119.15) including existing and proposed intermittent streams, perennial streams and rivers, riverfront zones, ponds, areas subject to flooding, vegetated wetlands, and one hundred (100) foot buffer zone around wetlands. Resource areas shall be established by an Order of Resource Area Delineation or Notice of Intent or by qualified professionals to include a Massachusetts Civil Professional Engineer and a Professional Wetland Scientist or other comparably qualified professional and where applicable shall be located by field survey of field flags and markings. [Revised 6/30/10]

- (l) On applicable sheets, the 100 year floodplain as indicated on the current edition of the Flood Insurance Rate Map of the Town of Blackstone. [Revised 6/30/10]
- (m) The location of all permanent monuments, properly identified as to whether existing or proposed.
- (n) Lot numbers enclosed in a circle, and street numbers enclosed in a square.
- (o) On each sheet of the Definitive Plan, suitable space to record the action of the Board and the signatures of the members of the Board, and the Town Clerk's certification.
- (p) Certification by the preparers of the plan that the plan and supporting materials were prepared under their direction, and have been designed in compliance with all applicable zoning and subdivision regulations.
- (q) Certification by an attorney that submittal of the plan by the applicant has been agreed to by owners of all of the land included in the Plan.

C. Street plans and profiles. For each street there shall be a separate plan at one (1) equals forty (40) feet, and profile at one (1) inch equals forty (40) feet horizontal, one (1) inch equals four (4) feet vertical, showing the following data:

- (1) Plan: [Revised 6/30/10]
 - (a) Exterior lines of the way, with sufficient data to determine their location, direction, bearing, and length.
 - (b) Road centerline stationing, pavement, baseline data including curve data, curbing, and walks.

- (c) All resource areas subject to the Massachusetts Wetlands Protection Act (MGL Ch 131 § 40) or the Town of Blackstone Wetlands Bylaw (§ 119.1 to § 119.15).
 - (d) Existing and proposed drainage and utility systems including lines, structures, and appurtenances including hydrants and gate valves.
 - (e) Location of proposed street lights.
- (2) Profile: [Revised 6/30/10]
- (a) Existing centerline profile to be shown as a fine, continuous line, the existing right sideline shall be shown as a light dashed line, and the existing left sideline shall be shown as a dotted line. The existing centerline profile for intersecting streets shall be shown for at least one hundred (100) feet each side of the intersection of street centerlines. Elevations shall be based on North American Vertical Datum of 1988 (NAVD 88).
 - (b) Proposed centerline profile to be heavy, continuous line, with elevations shown every fifty (50) feet. Vertical curves shall be depicted with elevations shown every twenty-five (25) feet and with vertical curve data shown including the station and elevation of the point of vertical curvature (PVC), the point of vertical tangency (PVT), the point of vertical intersection (PVI), the algebraic difference of the intersecting grades in percent, and the design speed.
 - (c) All sewer and drainage facilities to be shown on the profiles indicating existing and proposed pipes (including the diameter, pipe material, and class of pipe), slopes and rim and invert elevations and on the street plans, showing pipe location and diameter and location and type of sewer and drain structures.

D. Environmental Analysis. A comparative Environmental Analysis shall be submitted for any subdivision creating frontage potentially allowing more than ten dwelling units, and in other cases where the Board determines it appropriate in light of special circumstances. The scope of such analysis, including development alternatives to be compared and consequences to be studied, shall be as agreed to by the Planning Board but will normally be required to include at least one major alternative to the plan proposed, with as much of the following information as determined by the Planning Board to be necessary for plan evaluation. The analysis shall be prepared by an interdisciplinary team to include but not be limited to a Civil Engineer and an Architect or Landscape Architect, unless otherwise agreed to by the Planning Board. The analysis shall indicate differences among alternatives regarding:

- (1) Impact upon ground and surface water quality and quantity including estimated phosphate and nitrate loading on groundwater and surface water from septic tanks, lawn fertilizer, and other activities within the development. For subdivisions located in whole or in part within Water Resource Districts as may be established in the Zoning Bylaw⁸, this shall include analysis of open and closed drainage system alternatives, examining effects upon the basin water budget and upon the future contaminant levels.
- (2) Impacts upon important wildlife habitats, outstanding botanical features, scenic resources, and historical resources. [Revised 6/30/10]
- (3) Impacts of erosion, siltation, and soil stabilization based upon the capability of soils, vegetative cover and proposed erosion control efforts to support proposed development. [Revised 6/30/10]
- (4) Impacts upon resource areas subject to the "Massachusetts Wetlands Protection Act (MGL Ch 131 §40) or the Town of Blackstone Wetlands Bylaw (§ 119.1 to § 119.15). [Revised 6/30/10]
- (5) Impacts upon the existing water supply and distribution system and water supply well capacity, dependable yield, and authorized withdrawal permits. [Revised 6/30/10]
- (6) Impacts on vehicle operations and safety including measurement of stopping sight distance and intersection sight distance at each location where subdivision streets intersect existing streets, impacts of trips generated by the proposed subdivision on intersection levels-of-service, and safety impacts owing to limited sight distances, crash rate, alignment or other characteristics of access roads. The Traffic Study Area shall include all locations where subdivision streets intersect with existing street and any street whose traffic volume is increased by more than 100 vehicle trips per day. Alternatively, the Planning Board may establish the limits of the Traffic Study Area upon request of the applicant. [Revised 6/30/10]

E. Performance guaranty.

- (1) Form of guaranty. Before the Planning Board endorses its approval of a Definitive Plan, the developer shall agree to complete without cost to the Town all improvements required by this regulation, and shall provide security to do so, either by covenanting not to sell or build upon any lots until completion of the improvements (which covenant must be referred to on the Plan and registered or recorded with it), or by posting bond or other

⁸ Editor's Note: See Ch. 123, Zoning.

security which the Town can utilize in the event that the improvements are not completed within two (2) years, or by some combination of these. Such security shall provide, among other things, that no structure shall be occupied until streets or ways serving such structures have been surfaced with at least the binder course and berms, and any drainage facilities, utilities, street lighting required to serve access to such structures have been installed and placed in operation. [Revised 8/3/95] [Revised 6/30/10]

- (2) Security amount. If completion is secured by bond or deposit, the amount shall be determined by the Board to cover:
 - (a) the cost to the Town should it be obliged to install the required improvements.
 - (b) maintenance for one (1) year.
 - (c) inflation over the time allowed for completion of work.
 - (d) twenty-five percent (25%) contingency. [Revised 6/30/10]
- (3) Release of guaranty. The Board may grant partial release from such security for partial completion of improvements, if it determines that the completed portion provides a reasonable system for circulation and utilities pending completion of the rest. The Board may release the developer from the covenant upon receipt of an agreement executed by the applicant and by the holder of a first mortgage on the premises providing for retention of funds and their availability to the Town upon default (See MGL C.41, 81-U, Paragraph 11). Full security shall not be released until Record plans (191-14G) have been received and until full compliance with all provisions of (191-15B) is documented. [Revised 6/30/10]

F. Review by Board of Health. The Board of Health shall report to the Planning Board in writing its approval or disapproval of the plan, and in the event of disapproval, shall make specific findings as to which, if any, areas shown on such plan cannot be used for building sites without injury to the public health and include specific findings and the reasons therefore in such report and, where possible, shall make recommendations for the adjustment thereto. Such Health Board or officer shall send a copy of such report, if any, to the person who submitted said plan. Any approval of the plan by the Planning Board shall then only be given on condition that no building or structure shall be built or placed upon the areas designated without written consent of the Board of Health and shall endorse on the plan such condition, specifying the lots or land to which said condition applies.

G. Public hearing. Before approval of the Definitive Plan is given, a public hearing

shall be held by the Planning Board. Notice of such hearing shall be given by the Board by advertisement in a newspaper of general circulation in the Town, once in each of two (2) successive weeks, the first publication being not less than fourteen (14) days before the day of such hearing. A copy of said notice shall be mailed to the applicant, and via certified mail to all owners of land abutting upon the subdivision as appearing in the most recent tax list.

H. Decision.

- (1) After the public hearing, the Board in due course will approve, modify and approve, or disapprove the definitive subdivision plan submitted. Criteria for action by the Board shall be the following:
 - (a) Completeness and technical adequacy of all submissions.
 - (b) Determination that development at this location does not entail unwarranted hazard to safety, health and convenience of future residents of the development or of others because of possible natural disasters, traffic hazard or other environmental degradation.
 - (c) Conformity with the requirements of Article IV.
 - (d) Determination, based upon the environmental analysis (where submitted), that the subdivision as designed will not cause substantial and irreversible damage to the environment, which damage could be avoided or ameliorated through an alternative development plan.
 - (e) Access adequacy as provided at 191-6.
 - (f) Conformity with all applicable zoning requirements.⁹
 - (g) Consistency with the purposes of the Subdivision Control Law.
- (2) Notice of such action, or of an agreed extension of the time for such action, must be provided by the Planning Board to the Town Clerk within ninety (90) days following the date of submission of the plan if the plan follows action on (or failure to act on the Preliminary Plan within 45 days of submission) a Preliminary Plan, or one hundred thirty-five (135) days following the date of submission in cases where no Preliminary Plan was submitted except where an extension of time for action is granted by the Planning Board upon request of the applicant. [Revised 6/30/10]

⁹ Editor's Note: See Ch. 123, Zoning.

- I. Certificate of approval. The action of the Board in respect to such plan shall be by vote of a majority of the seated Board, copies of which shall be certified and filed with the applicant. If the Board modifies or disapproves such plan, it shall state in its vote the reasons for its action. Final approval, if granted, shall be endorsed on the original drawing of the Definitive Plan by the signatures of a majority of the Board, but not until the statutory twenty-day appeal period has elapsed following the filing of the certificate of the action of the Board with the Town Clerk, and said Clerk has notified the Board that no appeal has been filed. After the Definitive Plan has been approved and endorsed, the applicant shall furnish the Board with three prints thereof. Final approval of the Definitive Plan does not constitute the laying out or acceptance by the Town of streets within a subdivision. [Revised 8/3/95] [Revised 6/30/10]
- J. Computer files. Following final action by the Board for any plan prepared using CAD software, the applicant shall submit within 20 days of approval, computer files of the Definitive Plan including all information contained in the Lot Layout Sheets, Street Plan and Profile Sheets, Grading and Drainage Sheets, and Utility sheets. The computer files shall be in AutoCAD or other common computer program format and shall comply with content, datum, coordinate system, layering, format and other requirements of the Blackstone DPW or Blackstone Graphic Information System.

§ 191-8.1 Frontage Waiver Plan. [Added 8/3/95]

- A. Applicability. A plan which proposes no new roads, but technically constitutes a "subdivision" because one or more of the lots it creates lacks the frontage required by the Zoning Bylaw, shall be termed a "Frontage Waiver Plan" and shall be governed by the following, rather than by 191-8 Definitive Plan.
- B. Planning Board Submittals. Any person who desires approval of a Frontage Waiver Plan shall submit the following to the Planning Board.
 - (1) Two copies of a properly executed Form C.
 - (2) The required administrative filing fees [Amended 9/24/01 and 3/5/09]
 - (3) A Definitive Plan with contents as follows.
 - (a) Information as required under § 191-4.A for plans believed not to require approval.
 - (b) A locus plan of the subdivision, showing it in relation to surrounding streets and to zoning district boundaries, at one (1) inch equals six hundred (600) feet.
 - (c) The location of all permanent monuments, properly identified as to

whether existing or proposed.

- (d) Any additional information reasonably necessary for the Planning Board to determine whether adequate access is assured for each lot proposed to be created.
 - (e) Suitable space to record the action of the Planning Board, including notation that a waiver of frontage requirements has been granted, if that is sought, and suitable space for the signatures of the members of the Board and the Town Clerk's certification.
 - (f) Certification by the preparers of the plan that the plan and supporting materials were prepared under their direction, and have been designed in compliance with all applicable zoning and subdivision regulations.
 - (g) Certification by an attorney that submittal of the plan by the applicant has been agreed to by owners of all of the land included in the Plan.
- (4) A list of names and mailing addresses for all abutters as they appear on the most recent local tax list, including property owners on the opposite side of any streets abutting the subdivision.
 - (5) A description of the land and the proposal, suitable for advertising.

C. Submittals to others.

- (1) The applicant shall submit to the Town Clerk a notice stating the date of Definitive Plan submission to the Planning Board, and a copy of the completed application Form C.
- (2) The applicant shall submit a copy of the Definitive Plan to the Board of Health.

D. Procedure, Requirements, and Decision. Except as provided above, requirements for Frontage Waiver Plans shall be the same as for Definitive Plans. A public hearing with notice shall be held, requirements of Article IV shall be met so far as applicable, the decision criteria of § 191-8.H Decision shall apply, and if improvements are proposed, security shall be provided as stipulated at § 191-8.E.

ARTICLE IV
Design and Construction Requirements

§ 191-9. General guidelines.

- A. Design guidelines. All subdivisions shall be designed and improvements made by the developer consistent with the requirements of Article IV. Design and Construction shall do the following:
- (1) Reduce, to the extent reasonably possible:
 - (a) volume of cut and fill.
 - (b) area over which existing vegetation will be disturbed; especially if within two hundred (200) feet of a river, pond, or stream, or having a slope of more than fifteen percent (15%).
 - (c) number of mature trees removed.
 - (d) extent of waterways altered or relocated.
 - (e) visual prominence of man-made elements not necessary for safety or orientation.
 - (f) erosion and siltation.
 - (g) flood damage.
 - (h) number of driveways exiting onto existing streets.
 - (i) disturbance of important wildlife habitats, outstanding botanical features, and scenic or historic environs.
 - (2) Increase, to the extent reasonably possible:
 - (a) vehicular use of collector streets to avoid traffic on streets providing house frontages.
 - (b) visual prominence of natural features of the landscape.
 - (c) legal and physical protection of views from public ways.
 - (d) street layout facilitating south orientation of houses.
 - (e) use of curvilinear street patterns.
- B. Conformance with zoning. Lots shall comply with all requirements of the “Zoning Bylaw, Chapter 123 of the Code of the Town of Blackstone,” as

amended. [Added 6/30/10]

- C. Conformance with Master Plan. The street layout and utilities in all plans shall conform to the proposals of the Blackstone Master Plan where applicable.
- D. Referenced standards.
 - (1) Standards of construction. Standards of construction for subdivision improvements not otherwise specified hereunder shall comply with the requirements of the MassDOT Standard Specifications for Highways and Bridges, current edition. [Revised 6/30/10]
 - (2) Standards for analysis and design of streets. Standards for analysis and design of streets not otherwise specified hereunder shall comply with the requirements of the American Association of State Highway and Transportation Officials (AASHTO), A Policy on Geometric Design of Highways and Streets, current edition. [Revised 6/30/10]
- E. Typical cross sections. Design and construction shall conform to Figure 4-1 Typical Cross Sections.

§ 191-10. Streets.

- A. Location.
 - (1) All streets in the subdivision shall be designed so that they will provide safe vehicular travel. Due consideration shall also be given to the attractiveness of the street layout in order to obtain the maximum livability and amenity of the subdivision.
 - (2) Streets shall be continuous and in alignment with existing streets as far as is practicable.
 - (3) If adjoining property is not subdivided, proper provision for extending streets shall be made.
 - (4) Reserve strips prohibiting access to streets or adjoining property will not be permitted except where, in the opinion of the Planning Board, such strips are in the public interest.

Table 4-1 – Roadway Design Criteria

Classification	Lane	Minor Street	Collector Street
General			
Design Speed (miles per hour)	20	30	40
Posted Speed or Travel Speed (miles per hour)	15	25	35
Required Stopping Sight Distance on Level Ground (feet)	115	200	305
Horizontal Alignment			
Minimum Centerline Radius (feet)	125	275	500
Intersection Rounding at Edge of Pavement (feet)	15	20	20
Intersection Rounding at Right-of-Way (feet)	N/A	8	5
Vertical Alignment			
Minimum Centerline grade (percent)	1	1	1
Maximum Centerline grade (percent)	10	8	6
Minimum Intersection Leveling Area Length (feet)	50	100	200
Maximum Intersection Leveling Area Grade (percent)	3	2	2
Minimum “K” for Crest Vertical Curves	7	19	44
Minimum “K” for Sag Vertical Curves	17	37	64
Width			
Minimum right-of-way width (feet)	50	50	60
Minimum traveled-way (pavement) width (feet)	20	26	30

[Added 6/30/10]

B. Alignment.

- (1) Streets shall intersect at ninety (90) degrees where possible, and not less than sixty (60) degrees in other cases.
- (2) The minimum stopping sight distance for level road segments shall comply with Table 4-1. For centerline downgrades steeper than 4 percent, the minimum stopping sight distance shall be increased in accordance with requirements for stopping sight distance set forth in AASHTO¹⁰. The minimum stopping sight distance shall be increased for downgrades on Lanes as follows: 117 feet for a 4 downgrade, 120 feet for a 6 downgrade, 123 feet for an 8 downgrade, and 127 feet for a 10 downgrade. The minimum stopping sight distance shall be increased for downgrades on Minor Streets as follows: 208 feet for a 4 downgrade, 215 feet for a 6 downgrade, and 222 feet for an 8 downgrade. The minimum stopping sight distance shall be increased for downgrades on Collector Streets as follows: 333 feet for a 4 downgrade and 346 feet for a 6 downgrade. [Revised 6/30/10]
- (3) All intersections and approaches to intersections shall be cleared of any obstructions to the motorist's view and maintained clear. The edge of pavement and the right-of-way at intersections shall be rounded based upon the minimum radii provided in Table 4-1. [Revised 9-1-88]
[Revised 6/30/10]
- (4) The minimum centerline grade is provided in Table 4-1. The maximum centerline grade is provided in Table 4-1. [Revised 6/30/10]
- (5) Leveling areas shall be provided on all approaches at all intersections. Leveling areas shall comply with the Minimum Intersection Leveling Area Lengths and with Maximum Intersection Leveling Area Grades of Table 4-1. [Revised 6/30/10]
- (6) Vertical curves shall be provided at all changes of grade greater than one-half of one percent (1/2 %). The minimum K value for crest vertical curves and for sag vertical curves shall comply with Table 4-1 where K is the length of the vertical curve in feet divided by the algebraic difference of the intersecting grades in percent. [Revised 6/30/10]
- (7) Sight distances at least equal to the minimum stopping sight distance of Table 4-1 and paragraph of B(2) above shall be provided on all

¹⁰ American Association of State Highway and Transportation Officials, A Policy on Geometric Design of Highways and Streets, current edition.

intersection approaches, except that four hundred (400) feet sight distance shall be provided at intersections with state-numbered highways or collector streets or other streets having high-speed traffic. At such intersections, intersection designs shall allow for longer turning radii, and safe acceleration and deceleration, potentially involving increased street width, increased curb radii, and use of traffic islands for channelization. [Revised 6/30/10]

- (8) Intersection sight distance triangles shall be kept clear of obstructions on all approaches at all intersections. Intersection sight distance triangles shall extend 25 feet perpendicular to the edge of traveled way of the major street. Intersection sight distance triangles shall extend along the major street for distances based upon the observed 85th percentile travel speed on the major street or the minimum design speed for the roadway classification of the major street whichever is greater as follows: 280 ft for 25 mph, 390 ft for 35 mph, 500 ft for 45 mph, and 610 ft for 55 mph. [Revised 6/30/10]
- (9) Centerline offsets for intersecting streets shall not be less than three hundred (300) feet for intersections on Minor Streets and shall not be less than five hundred (500) feet on Collector Streets.

C. Dead-end streets.

- (1) Dead-end streets shall neither be longer than five hundred (500) feet nor shorter than one hundred fifty (150) feet, measured from the center of the turn-around to the sideline of the street providing two (2) means of access to the public street system of the Town. [Revised 9/1/88] [Revised 6/30/10]



FIGURE 4-1

(2) No system of dead-end streets shall have a cumulative length longer than five hundred (500) measured along the centerline of the dead end street and along the centerlines of any dead-end streets to which it is connected measured from the center of the most remote turn-around to the sideline of the street providing two (2) means of access to the public street system of the Town. [Revised 6/30/10]

(3) Dead-end streets whether temporary or permanent shall be provided at the closed end with a cul-de-sac having a right-of-way diameter of one hundred twenty (120) feet. Cul-de-sacs on Minor Streets shall have a pavement diameter of ninety-six (96) feet and cul-de-sacs on Lanes shall have a pavement diameter of ninety (90) feet or may have a hammerhead layout designed for a vehicle of thirty (30) foot length, eight and one-half (8.5) feet in width, and having an outside turning radius of fifty-seven (57) feet. Lots fronting on temporary cul-de-sacs shall comply with requirements of the Zoning Bylaw both including and excluding land within the temporary cul-de-sac and the lot shall comply with requirements for frontage and lot width with the lot frontage at the required right-of-way excluding the cul-de-sac. [Revised 6/30/10]

(4) Except for dead-end streets that the Planning Board determines are permanent in nature, the subdivision plan shall provide a right-of-way extending from the cul-de-sac on the dead end street to the subdivision boundary. The alignment of the right-of-way shall comply with the width and design standards for the class of street being extended and the alignment of the right-of-way shall accommodate connection to the nearest street, to dead-end streets on abutting properties, to landlocked parcels, and to abutting undeveloped land.

D. Width.

(1) Minimum width of right-of-way and the minimum width of traveled way (pavement) shall comply with Table 4-1.

(2) The centerline of the paved surface shall coincide with the right-of-way centerline. [Revised 6/30/10]

(3) Slope easements shall be provided where the proposed back of sidewalk grade differs from existing grade by more than five (5) feet. [Revised 6/30/10]

E. Grades.

(1) The pavement surface shall have a cross slope of three-eighths (3/8) inch per foot. [Revised 6/30/10]

- (2) Centerline profiles shall maintain a minimum separation of three (3) feet above the grade of wetlands located within twenty-five (25) feet of the right-of-way.

F. Cut and fill.

- (1) Street grades shall be so designed that the volume of cuts and fills made within the right-of-way approximately balance, except to offset peat, boulders, or other unsuitable materials to be removed.
- (2) The proposed centerline grade shall not deviate from existing (pre-developed) grades by more than seven (7) feet at any point and the average of the absolute value of the difference between the proposed centerline grade and existing (pre-developed) grade shall not be more than four (4) feet for any roadway.

G. Construction.

- (1) Surface preparation. Clearing and grubbing shall be performed to remove stumps, brush, roots, boulders and like material from the area of the traveled way, shoulders, sidewalks and utility trenches, but elsewhere, wherever feasible, existing vegetation shall be preserved.
- (2) Forming the subgrade.
 - (a) All topsoil, subsoil, rocks, ledge and other unsuitable material shall be excavated to a minimum depth of fifteen and one-half (15 1/2) inches below finished grade within the traveled way, twelve and one-half (12 1/2) inches below finished grade for shoulders, and ten (10) inches below finished grade for sidewalks. Unless a permit is granted by the Town for the removal of loam and top soil, said material shall be stockpiled on the premises for final landscaping of roadway shoulders and adjacent house lots. The depth of excavation may be reduced by written authorization of the Subdivision Inspection Agent if the existing base is clean gravel suitable for roadway or sidewalk foundation. [Revised by vote 9/5/02] [Revised 6/30/10]
 - (b) Excavation below normal depth shall be provided to remove and replace unsuitable materials with granular backfill. Unsuitable materials include clay, silt, organic soil, stumps, roots, and organic matter. Granular backfill shall consist of Gravel Borrow (Standard Specifications M1.03.0 Type b) and shall be placed in one foot lifts and compacted to not less than 95 percent of the maximum dry density (AASHTO Standard Method of Test T99, Method C at optimum moisture content). Prior to placement of the Gravel Base

Course, the entire sub-grade surface shall be compacted to 95 percent of maximum dry density. After compacting, the surface shall show no deviation in excess of two (2) inches from the grades required to establish the finished grades indicated on the drawings. No gravel base course shall be placed in any sub-grade area until said area has been inspected by the Subdivision Inspection Agent. [Revised by vote 9/5/02] [Revised 6/30/10]

- (3) Placing and compacting base course materials. Gravel Base Course complying with Section 405 of the Standard Specifications (M1.03.0 Type b) shall be placed in maximum lifts of six (6) inches compacted depth. Each lift shall be compacted to not less than 95 percent of the maximum dry density (AASHTO Standard Method of Test T99, Method C at optimum moisture content). The Gravel Base Course shall be placed not less than two months prior to surfacing. All drainage and utilities are to be installed prior to placing Gravel Base Course. The Gravel Base Course, once approved, is not to be disturbed by digging without written authorization of the Subdivision Inspection Agent. [Revised by vote 9/5/02] [Revised 6/30/10]
- (4) Conditioning of base course prior to surfacing.
 - (a) The surface of the base course will be inspected and tested for tolerances by the Subdivision Inspection Agent. Any deviations in excess of the required tolerances shall be corrected by the subdivider. The applicant shall furnish the services of a testing laboratory to provide gradation and compaction tests of the subgrade. As a minimum three (3) compaction tests plus per roadway plus one additional compaction test for each 200 foot of roadway length shall be provided. Additional compaction tests shall be furnished if required by the Subdivision Inspection Agent. Any areas not meeting the minimum compaction requirements shall be repaired. Immediately before surfacing, the base course shall be fine-graded to three and one-half (3 1/2) inches below finished grade of the traveled way and two and one-half (2 1/2) inches below finished grade of the sidewalk as indicated on the Definitive Plan. Finished grade of the pavement shall be properly marked on grade stakes set no further apart than fifty (50) feet. The surface of the gravel base shall show no deviation in excess of one-fourth (1/4) inch from the grades indicated on the Definitive Plan. [Revised by vote 9/5/02] [Revised 6/30/10]
 - (b) The fine-graded base course shall be treated with a prime coat of cut-back type asphalt (MC-70) applied at the rate of four-tenths (4/10) gallon per square yard.

- (c) The primed surface shall then be allowed to remain undisturbed by traffic for a period of forty-eight (48) hours, after which time it shall be inspected by the Subdivision Inspection Agent who shall determine whether or not a cover of screened sand will be required to blot up the excess bitumen. Following said inspection and application of cover, if required, the surface shall be rolled with a tandem type roller weighing not less than eight (8) tons. [Revised 6/30/10]
- (d) Immediately prior to application of the Class I Bituminous Concrete Pavement Type I-1 (Standard Specifications M3.11.03 Top Course) , the Base Course shall be swept clean of all loose sand and all foreign matter. [Revised by vote 9/5/02] [Revised 6/30/10]
- (5) Pavement shall consist of Class I Bituminous Concrete Pavement, Type I-1, which shall comply with requirements of the MassDOT Standard Specifications (Section 460.0 through 460.62), current edition. The bituminous concrete pavement shall be installed in two (2) courses, consisting of Class I Bituminous Concrete Pavement Type I-1 (Standard Specifications M3.11.03 Binder Course) and Class I Bituminous Concrete Pavement Type I-1 (Standard Specifications M3.11.03 Top Course). The completed pavement for the traveled way shall have a uniform compacted thickness of three and one half (3 1/2) inches consisting of a two (2) inch thick Binder Course and a one and one-half (1 1/2) inch thick Top Course. The completed pavement for sidewalks shall have a uniform compacted thickness of two and one half (2 1/2) inches consisting of a one and one-half (1 1/2) inch thick Binder Course and a one (1) inch thick Top Course. Bituminous concrete pavement shall not be installed between November 15 and April 15 unless authorized in writing by the Subdivision Inspection Agent. [Revised by vote 9/5/02] [Revised 6/30/10]

H. Sidewalks.

- (1) Sidewalks five (5) feet wide shall be provided on both sides of all streets within the subdivision and along any frontage where the subdivision fronts on existing public ways. [Revised 6/30/10]
- (2) All materials shall be removed for the full width of the sidewalk to a subgrade ten (10) inches below the finished grade as shown on the cross section; and excavation below normal depth and backfill with Gravel Borrow (Standard Specifications M1.03.0 Type b) shall be provided to remove unsuitable soil. This excavated area then shall be filled with eight (8) inches of Gravel Borrow and rolled with a pitch toward the curb of three-eighths (3/8) inches per foot. Two and one-half (2 1/2) inches of compacted bituminous concrete shall be provided consisting of a one and

one-half (1 ½) inch thick Class I Bituminous Concrete Pavement Type I-1 (Standard Specifications M3.11.03 Binder Course) and a one (1) inch thick Class I Bituminous Concrete Pavement Type I-1 (Standard Specifications M3.11.03 Top Course); provided, however, that if a granolithic surface is required by the Board, it shall have granite aggregate and shall otherwise comply with requirements of MassDOT Standard Specifications for Highways and Bridges, current edition for Portland cement concrete pavement. [Revised 6/30/10]

- (3) Accessible ramps shall be provided at all street intersections, at the termini of sidewalks, and elsewhere as appropriate in compliance with Massachusetts Architectural Access Board requirements. Six ramps shall be provided at “T” intersections and eight ramps shall be provided at four-way intersections. [Revised 6/30/10]

I. Shoulders. Shoulders shall pitch towards the curb or swale at between three-eighths (3/8) inches and two (2) inches per foot. The shoulder shall have an eight (8) inch gravel foundation, and four (4) inches of topsoil (after rolling). [Revised 6/30/10]

J. Curbs. Vertical Granite Curbing complying with Section 504 of the Standard Specifications (M9.04.1 Type VA4) shall be installed on both sides of all roads in accordance with the specifications of the MassDOT (Section 501), with a seven-inch reveal. Curb inlets shall be provided at all catchbasins, and corner radii at all curb cuts. Curbing set on a radius of one hundred sixty (160) feet or less shall be cut to the curve required. At street intersections, curbing shall be constructed to provide accessible ramps from each sidewalk to the roadway in accordance with Massachusetts Architectural Access Board requirements. [Revised 6/30/10]

K. Driveways.

- (1) Driveway locations shall be indicated on the plan and shall be constructed contemporaneously with the subdivision street.
- (2) All driveways extending from the edge of traveled way to the lot line must have Class I Bituminous Concrete Pavement Type I-1 (Standard Specifications M3.11.03 Binder Course) and Gravel Base Course complying with Section 405 of the Standard Specifications (M1.03.0 Type b) complying with requirements specified for pavement and base of the traveled way. All driveway slopes must end at the street right-of-way, then continue forward to the completed road surface in the same grade as the sidewalk strip and/or shoulder in order to allow proper drainage of surface water.

§ 191-11. Stormwater Management System

- A. General. The stormwater management system shall collect, convey, treat, and recharge stormwater in a manner which will ensure provision of adequate drainage for streets and lots, protection of property, preservation of water resources, minimization of environmental impacts, maintain unimpeded flow in watercourses, and protection of public and environmental health by providing adequate protection against pollution, flooding siltation and other problems caused by poor drainage. The stormwater management system shall comply with the following: (1) Adhere to standard engineering practice, (2) Conform to the Stormwater Management Standards of § 191-11.D, (3) Maintain pre-development drainage patterns and pre-development hydrological conditions in groundwater and surface waters, (4) Include strategies for source control and Best Management Practices (BMPs), (5) Recharge runoff from pervious surfaces, (6) Recharge roof water in separate facilities, (7) Provide treatment train for the water quality volume that reduces the contaminant burden in stormwater using Best Management Practices (BMPs), (8) Maintain or enhance surface water quality and groundwater quality, (9) Protect or enhance resource areas subject to regulation under the “Massachusetts Wetlands Protection Act (MGL Ch 131 §40)” (WPA) or the Town of Blackstone Wetlands Bylaw (§ 119.1 to § 119.15), (10) Utilize Low Impact Design where practicable, (11) Collect and convey surface water for applicable design storms, (12) Avoid any increase in the peak rate or volume of stormwater discharge at the property boundary for each storm event specified hereinafter, (13) Implement an Operation and Maintenance (O&M) plan that complies with DEP guidelines and ensures proper function of the stormwater management system, and (14) Minimize sedimentation and erosion during construction.
- B. Design of the Stormwater Management System shall be prepared by a Massachusetts Registered Professional Engineer and all submitted plans, calculations, and reports shall bear the engineer’s signature and seal. Deep hole observations shall be conducted under the direction of a Massachusetts Licensed Soil Evaluator.
- C. Submissions shall include the following:
- (1) A stormwater management report including calculations and a detailed narrative describing pre-development and post-development conditions, the design and function of the stormwater management system, and the procedures and methods used for analysis.
 - (2) Pre-development and post-development watershed plans showing existing and proposed buildings, surface grades, surface treatments, catchbasins and culverts, watercourses, watershed and catchment boundaries, flow lines, Natural Resources Conservation Service (NRCS) soil boundaries and Hydrologic Soil Groups.

- (3) Pipe flow calculations based upon the “Rational Formula” providing pipe diameter, inverts, slope, velocity (flowing full), length, capacity, design flow, and v/c ratio.
- (4) Stormwater basin design calculations shall be provided based upon TR-20.
- (5) Logs of soil borings or deep observation holes.
- (6) Soil permeability test data.
- (7) Groundwater monitoring data.
- (8) Plans showing the limits of all “Resource Areas” subject to regulation under the WPA based upon a field survey of points established pursuant to an Order of Resource Area Delineation or an Order of Conditions issued within two years of the date of submission.
- (9) An Operation and Maintenance Plan.
- (10) Organization documents for the party responsible for operation and maintenance of the stormwater management system which shall include details of the mechanism used to provide funding in perpetuity.

D. Standards. The Stormwater Management System shall comply with the standards set forth hereinafter:

- (1) Standard 1. No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Town of Blackstone.
- (2) Standard 2. Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.
- (3) Standard 3. Loss of annual recharge to ground water shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from the pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.
- (4) Standard 4. Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended

Solids (TSS). This Standard is met when: a. Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan and thereafter are implemented and maintained; b. Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with Massachusetts Stormwater Handbook; and c. Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.

- (5) Standard 5. For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention, all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt and stormwater runoff, the proponent shall use the specific structural stormwater BMPs as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26 through 53, and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.
- (6) Standard 6. Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such area as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area, if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A “storm water discharge” as defined in 314 CMR 3.04(2)(a)1. or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited, unless essential to the operation of the public water supply.
- (7) Standard 7. A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5 and 6. Existing stormwater discharges shall comply with Standard 1 only to

the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

- (8) Standard 8. A plan to control construction related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation and pollution prevention plan) shall be developed and implemented.
- (9) Standard 9. A long-term operation and maintenance plan shall be developed and implemented to ensure that the stormwater management system functions as designed.
- (10) Standard 10. All illicit discharges to the stormwater management system are prohibited.

E. Geotechnical Testing

- (1) Deep observation hole test logs or soil boring logs shall be provided to classify soils within proposed surface stormwater basins and subsurface absorption systems and throughout the Drainage Study Area. Logs of deep observation holes or soil borings shall be provided within surface stormwater basins and subsurface absorption systems a minimum of one deep observation hole or soil boring log shall be provided for each five-thousand (5,000) sq. ft. of basin area or a minimum of two (2) deep observation hole logs per basin whichever is greater. Deep observation hole or soil boring logs shall extend to a depth of ten (10) feet below existing grade or four (4) feet below the design elevation of the bottom of the stormwater basin whichever is deeper. Additional deep observation hole or soil boring logs shall be provided to classify soils throughout the Drainage Study Area, particularly in locations where available National Resources Conservation Service mapping is indeterminate or classifies soils as Udorthents. Deep observation hole logs shall be prepared by a Massachusetts Licensed Soil evaluator and shall be witnessed by the Subdivision Inspection Agent. Soil boring logs shall be prepared by a qualified driller or geotechnical engineer and witnessed by Subdivision Inspection Agent. Logs shall show soil classifications, observed groundwater, and for deep observation holes, the estimated seasonal groundwater through soil mottling.
- (2) Field permeability tests shall be provided within surface stormwater basins and subsurface absorption systems. A minimum of one permeability test shall be provided for each location. For larger surface stormwater basins and subsurface absorption systems additional permeability tests may be required as determined by the Board. Permeability testing in excavations shall be conducted by a Massachusetts Licensed Soil evaluator and shall

be witnessed by the Subdivision Inspection Agent. Borehole permeability tests shall be conducted by a qualified driller or geotechnical engineer and shall be witnessed by the Subdivision Inspection Agent.

- (3) A minimum of one monitoring well shall be installed within each stormwater basin. Monitoring wells shall extend to a depth of ten (10) feet below existing grade or four (4) feet below the design elevation of the bottom of the stormwater basin whichever is deeper.
- (4) The elevation of groundwater shall be recorded by a Massachusetts Licensed Soil Evaluator, Professional Engineer, or Professional Land Surveyor once in each of three consecutive months. When observations are taken during the months of May through December, the design groundwater elevation shall be adjusted to reflect spring high groundwater conditions using the Frimpter Method.

E. Design requirements.

- (1) The Drainage Study Area shall encompass the project site and all tributary upgradient areas. The boundary of the Drainage Study Area and the analysis points shall be the same for the pre-development condition and the post-development condition. Drainage calculations shall be based upon full buildout of all tributary areas in accordance with applicable zoning.
- (2) Pre-development and post-development plans of the drainage Study Area shall show existing and proposed buildings, paved areas, and surface treatment for all open areas. The plans shall show existing and proposed elevations based upon one foot contour intervals. The plans shall show existing and proposed catchbasins and culverts, watercourses, watershed and catchment boundaries, and flow lines, Natural Resources Conservation Service (NRCS) soil boundaries and Hydrologic Soil Groups.
- (3) Times of concentration shall be determined based upon distance, slopes, and surface materials. A minimum time of concentration to be used shall be 0.1 hours.
- (4) Pipe flow calculations shall be provided for the closed drain system based upon the "Rational Formula" as follows:

Rational Formula" $Q = CIA$

where:

Q = Peak rate of flow

C = Coefficient of runoff

i = Rainfall intensity in inches per hour

A = Area of watershed in acres

A weighted coefficient of runoff "C" is to be determined for each incremented drainage area based on the following minimum values:

Roofs and pavement	0.90
Lawns	0.20 to 0.30
Woodland	0.20
Wetlands, ponds, basins	0.90

- (5) Inlets shall provide capacity to accommodate the design storm. Spread shall not encroach on travel lanes of streets or the top of curbs or berms.
- (6) Stormwater basin analysis shall be based upon Technical Release 20 (TR-20) as follows:

Rainfall

2-year frequency storm event – 3.2 inches
10-year frequency storm event – 4.8 inches
25-year frequency storm event – 5.5 inches
50-year frequency storm event – 6.2 inches
100-year frequency storm event – 6.8 inches

Curve Number (CN)

Weighted curve numbers shall be calculated using the following values. For cover types not stated, refer to TR-20.

Hydrologic soils group	A	B	C	D
Lawns poor	68	79	86	89
Lawns fair	49	69	79	84
Lawns good	39	61	74	80
Impervious areas, pavement, roofs	98	98	98	98
Woods poor	45	66	77	83
Woods fair	36	60	73	79
Woods good	30	55	70	77
Wetlands, ponds, basins	98	98	98	98

Curve numbers for conditions not included in the above shall be obtained from TR-20 documentation.

- (7) Stormwater runoff shall be analyzed for the, 2-year frequency storm event, 10-year frequency storm event, 25-year frequency storm event, 50-year frequency storm event, and 100-year frequency storm event.

- (8) The design storm for all components of the closed stormwater collection system including catchbasin grates and other inlets, drainlines, and the bypass capacity of separator structures is the 25-year frequency storm event.
- (9) The design storm for cross culverts and devices protecting occupied buildings is the 100-year frequency storm event. Streets shall remain passable and drainage shall not enter buildings during the 100-year frequency storm event.
- (10) The runoff for design of surfaces providing sheet flow, swales, and drainage ditches that convey runoff to surface stormwater basins and subsurface absorption systems is the excess runoff resulting from storm events greater than the 25-year frequency storm event but less than the 100-year frequency storm event.
- (11) The required recharge volume is the volume resulting from multiplying the factors set forth below times the total post-development impervious surface within the project area for each National Resources Conservation Service Hydrologic Soil Group as set forth hereinafter.

Hydrologic Soil Group	Required Recharge
HSG A Soil	0.60 inches of runoff
HSG B Soil	0.35 inches of runoff
HSG C Soil	0.25 inches of runoff
HSG D Soil	0.10 inches of runoff

- (12) The water quality volume to be treated is 1.0 inches of runoff multiplied by the total post-development impervious surface within the project area for discharges to critical areas and 0.5 inches of runoff multiplied by the total post-development impervious surface within the project area for discharges to all other areas. Discharges to critical areas include systems accommodating runoff from land uses with higher potential pollutant lands, discharges to areas with infiltration rates greater than 2.4 inches per hour, and discharges to a designated Zone II.

F. Stormwater Collection System

- (1) The closed stormwater collection system shall accommodate the design storm without surcharging and shall provide a free discharge to stormwater basins above the maximum the 100-year storm elevation. All components of the system shall accommodate the design storm including catchbasin grates and other inlets, drainlines, and the bypass components of water quality structures.
- (2) Cross culverts and devices protecting occupied buildings shall

accommodate the design storm event without surcharging.

- (3) Surface stormwater basins and subsurface absorption systems shall have the volume to accommodate runoff providing for no increase in the peak rate of discharge or the volume of discharge at the project boundary for the 2-year frequency storm event, 10-year frequency storm event, 25-year frequency storm event, 50-year frequency storm event, and 100-year frequency storm event. Base flow from underdrains shall be included in the design flow. Inflow volume shall not be decreased based upon runoff captured by roofwater recharge systems.
- (4) Surfaces providing sheet flow, swales, and drainage ditches conveying excess runoff to surface stormwater basins and subsurface absorption systems shall accommodate runoff from storm events exceeding the capacity of the closed stormwater collection system but less than the 100-year frequency storm event.
- (5) Recharge facilities accommodating runoff from paved surfaces shall be provided over broad areas of the site and shall recharge the design storm within 72 hours following cessation of precipitation. Separate roofwater recharge facilities shall be provided in proximity to the building served to promote recharge over broad areas of the site and shall recharge the design storm within 72 hours following cessation of precipitation. Recharge facilities accommodating runoff from paved surfaces in combination with recharge facilities accommodating runoff from building roofs shall accommodate the required recharge volume.
- (6) Water quality components shall be provided to remove 80 percent of the Total Suspended Solids (TSS) for the water quality volume. Water quality components include deep catchbasin sumps, water quality structures, and sediment forebays.
- (7) Inflows and outflows across the project boundary shall be maintained. There shall be no concentration of flow at any point on the project boundary nor any piped, channeled, or altered flow across the project boundary unless a downgradient permanent drainage easement is provided extending to an existing watercourse or wetland.
- (8) There shall be no new point source discharge within 100 feet of a bordering vegetated wetland. Surface stormwater basins and subsurface absorption systems shall not be located within bordering vegetated wetlands. Stormwater basin discharges shall be above any 100 year jurisdictional flood elevation. Surface stormwater basins and subsurface absorption systems shall not be located within floodplains unless compensatory storage is provided.

G. Construction requirements.

- (1) The closed stormwater collection system shall consist of precast concrete drain manholes, precast concrete catchbasins, precast concrete water quality structures connected by straight segments of drainline. Catchbasin to manhole connections shall be provided.
- (2) Cross culverts shall consist of straight segments of reinforced concrete pipe with gasketed joints.
- (3) The velocity of drainlines shall be determined based upon Manning's equation:

$$V = \frac{1.486}{n} R^{2/3} S^{1/2}$$

where:

V is the cross-sectional average velocity (ft/s)

k is a conversion constant equal to 1.486 for US customary units

n is the Manning coefficient of roughness (independent of units)

R is the hydraulic radius (feet)

S is the slope of the drainline (feet/foot)

- (4) The capacity of drainlines shall be based upon the discharge formula:

$$Q = AV$$

where:

Q is the volume of flow in cubic feet per second

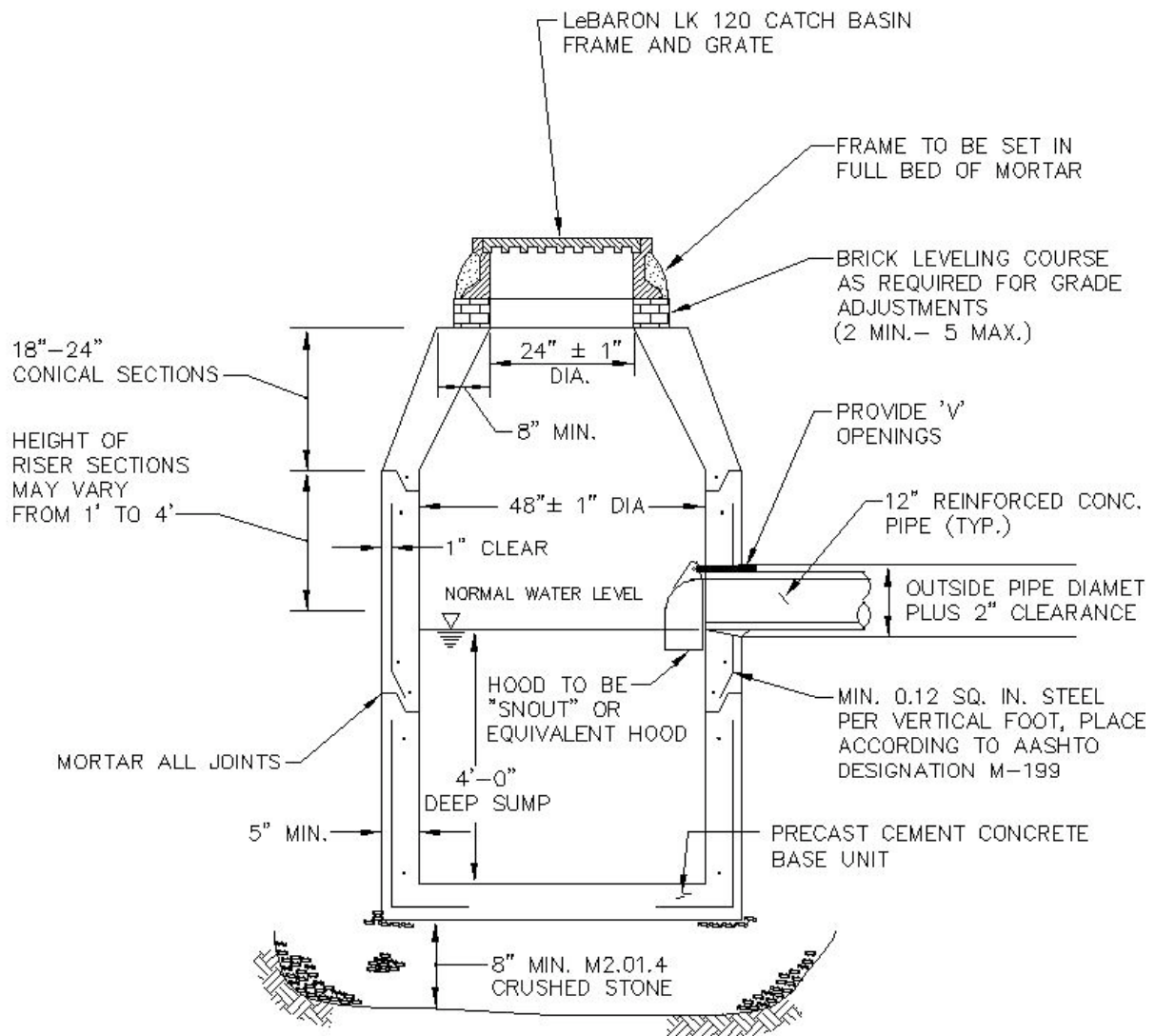
A is the cross section area of the pipe

V is the cross-sectional average velocity (ft/s)

- (5) The coefficient of roughness (Manning's n) for reinforced concrete pipe shall be 0.013.
- (6) The minimum velocity (flowing full) for all drainlines shall be 2.5 feet per second and the maximum velocity (flowing full) shall be 12.0 feet per second flowing full. Velocities in vegetated swales shall limit any erosion and shall not exceed five (5) feet per second.
- (7) Drainlines shall be Class IV Reinforced Concrete Pipe with o-ring seal joints conforming to ASTM C443. Pipe shall have the structural strength to accommodate depth of bury or surface loads. All drains shall have a minimum of two (2) feet of cover. The minimum pipe size shall be twelve

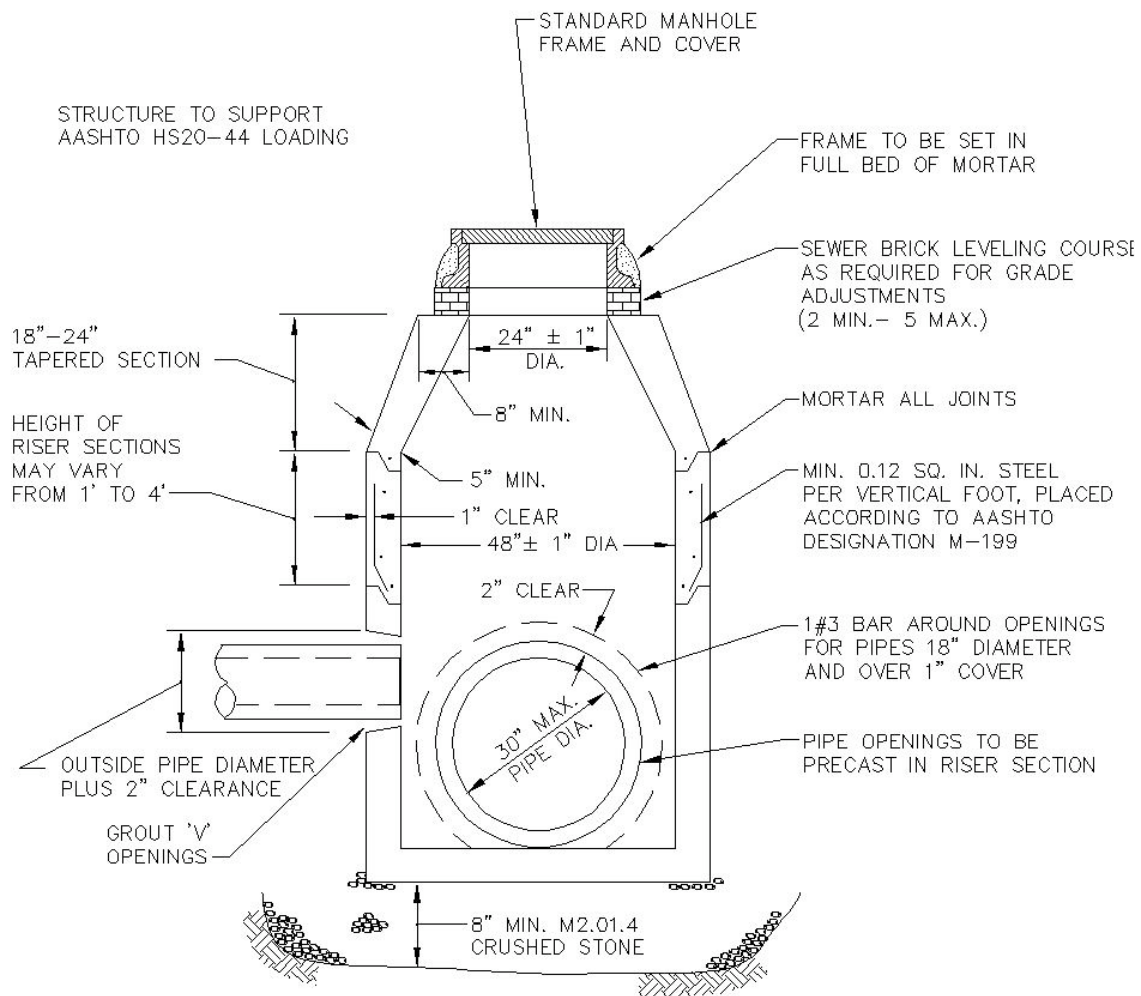
(12) inches in diameter. In instances where pipe diameter increases, the change shall be provided at a manhole and the crown of the inflow pipe shall match the crown of the outflow pipe.

- (8) Catchbasins shall be four (4) foot inside diameter and shall have a minimum four (4) foot deep sump. Catchbasins shall be provided at intervals not to exceed three hundred (300) feet on center. Catch basin rims shall be temporarily set at the binder course grade, then readjusted to finish grade following installation of the Top Course of pavement.
- (9) Leaching catchbasins are prohibited.



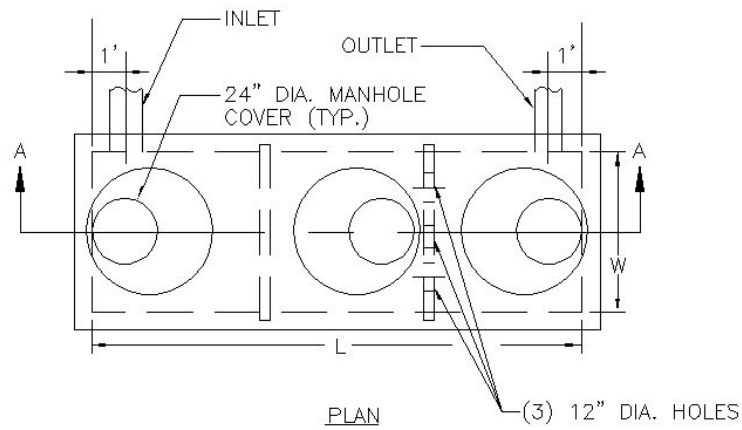
PRECAST CONCRETE CATCH BASIN
NOT TO SCALE

FIGURE 4-2



PRECAST CONCRETE DRAIN MANHOLE
9 FEET OR LESS IN DEPTH
NOT TO SCALE

FIGURE 4-3



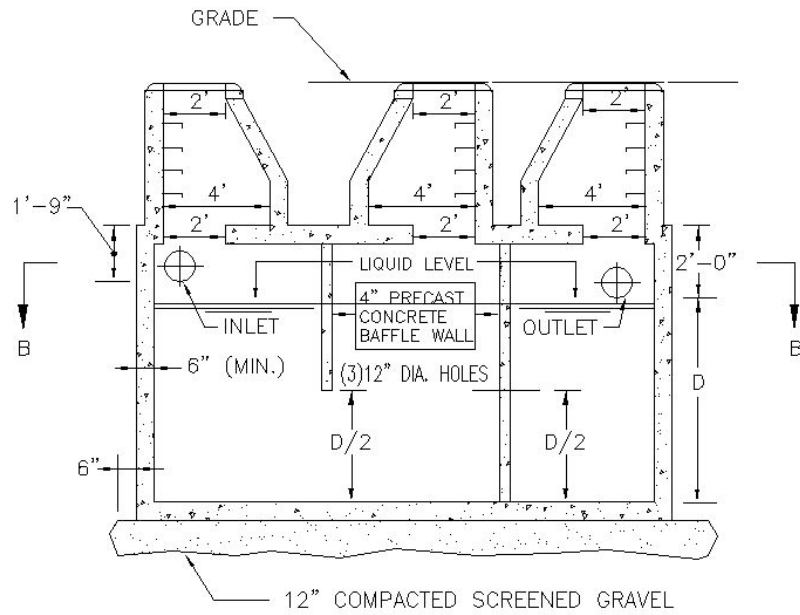
MINIMUM DIMENSIONS

W > 4 FT.

D > 5 FT.

L > 2 W

CAPACITY DETERMINES D,L,W

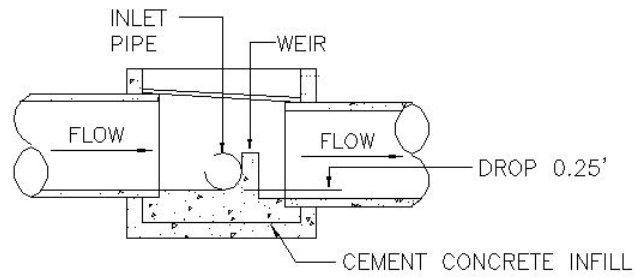


SECTION A-A

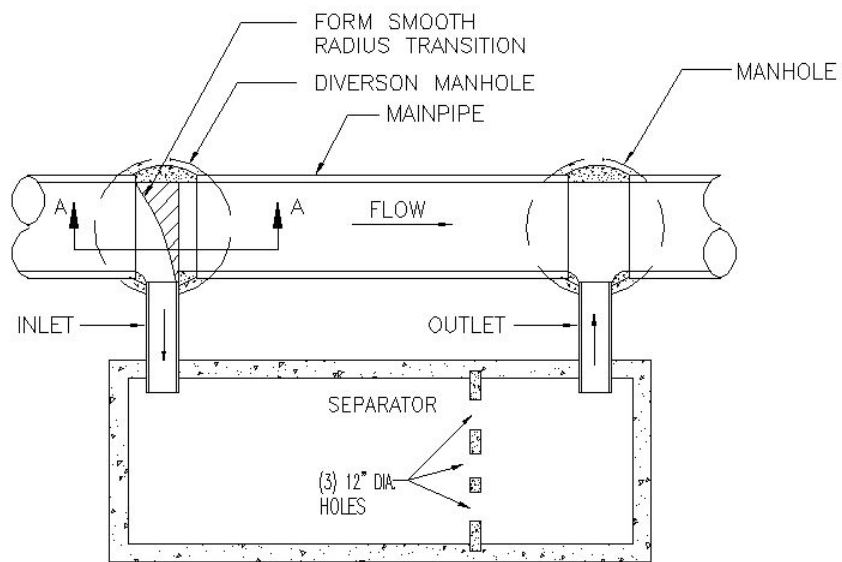
OFF-LINE PARTICLE SEPARATOR

NOT TO SCALE

FIGURE 4-4



SECTION A-A
DETAIL OF DIVERSION WEIR



CONNECTION TO OFF-LINE PARTICLE SEPARATOR

NOT TO SCALE

FIGURE 4-5

- (10) Separator structures having capacity to treat the water quality volume shall be provided upgradient of all surface stormwater basins and subsurface absorption systems and shall have a bypass capability for larger storms. Separator structures shall accommodate cleaning by a clamshell bucket. Separator structures that require cleaning with vacuum equipment are not allowed.
- (11) All drainage structures shall accommodate AASHTO HS20-44 loadings.
- (12) Underdrains shall be provided where necessary to maintain groundwater below the gravel base of pavement. Underdrains shall be located approximately twenty-four (24) inches behind the curb line.

I. Roofwater recharge systems.

- (1) Roofwater recharge systems, surface stormwater basins and subsurface absorption systems shall be located in areas of permeable soil where there is a minimum of four (4) feet of naturally occurring permeable soil between the bottom of the separate roofwater recharge system, surface stormwater basin, or subsurface recharge system and impervious soils or bedrock. A minimum separation of two (2) feet shall be provided between the bottom of the separate roofwater recharge system, surface stormwater basin, or subsurface recharge system and seasonal high groundwater.
- (2) Design infiltration rates for roofwater recharge systems, surface stormwater basins and subsurface absorption systems shall be either the value obtained from permeability tests of § 191-11.E or the values set forth in the following table, whichever is less.

Table 2-1 Infiltration Rates for Various Soil Textures

Texture Class	NRCS Hydrologic Soils Group	Design Infiltration Rate (inches/ hour)
Sand	A	8.27
Loamy Sand	A	2.41
Sandy Loam	B	1.02
Loam	B	0.52
Silt Loam	C	0.27
Sandy Clay Loam	C	0.17
Clay Loam	D	0.09
Silty Clay Loam	D	0.06
Sandy Clay	D	0.05
Silty Clay	D	0.04

Clay

D

0.02

- (3) Separate roofwater recharge systems shall be provided having sufficient volume to accommodate one (1) inch of runoff from roofs. Roofwater recharge systems shall be located in areas of permeable soil. Where roofwater recharge facilities are located within hydrologic soils group (HSG) D soils, drywells at the same elevation interconnected with equalizing pipes or linear systems of galleys shall be used.

J. Stormwater basins.

- (1) Surface stormwater basins including retention basins, detention basins, and basins providing both retention and detention shall be designed with the following objectives to be considered: hydraulic function, safety, maintenance, aesthetics, and when required, water quality.
- (2) Surface stormwater basin(s) shall be designed for aesthetics as well as function by providing a naturalistic freeform layout and attractive plantings.
- (3) Surface stormwater basins may be designed as detention basins, retention basins, or combined detention/retention basins provided that the design requirement that there be no increase in the peak rate of stormwater discharge and no increase in the volume of stormwater discharge at the property line is achieved by the overall stormwater management system. All detention basins, retention basins, or combined detention/retention basins shall be located in areas of pervious soil and shall be designed to empty such that the required design volume is available within seventy-two (72) hours following the cessation of precipitation.
- (4) The design elevation of the bottom of the basins shall be set to provide a minimum two (2) foot separation between the bottom of the basin and spring high groundwater. A minimum of four (4) or more feet of naturally occurring permeable soil shall be provided between the bottom of the basin and impervious soil or bedrock. The detention basin must be constructed below the existing grade, and may not be constructed on fill material.
- (5) Details of inlet and outlet control structures and the infiltration system at the bottom of the basin shall be provided. The downstream end of the inflow pipe and discharge pipes shall be suitably protected against scour. The invert of the outlet control device shall be set a minimum of 0.5 foot above the bottom of the basin and the outlet control device shall have a trash grate or comparable device.
- (6) One foot of freeboard shall be provided above the one-hundred (100) year

design elevation of the basin.

- (7) An emergency spillway above the one-hundred (100) year design elevation of the basin shall be provided for all basins that provides an unencumbered hydraulic connection and directs excess flow in a manner that avoids damage to public and private property and wetland resource areas.
- (8) Stormwater basin side slopes shall have a maximum slope of a 3 horizontal to 1 vertical (3 to 1). The Board reserves the right to limit the depth of basins to the 25-year design water surface to four (4) feet maximum. The Board reserves the right to require forty-eight (48) inch high non-climbable fencing surrounding the basin for safety based upon the nature of on-site and neighboring land uses. A twelve (12) foot wide gate for maintenance vehicle access shall be provided with a key provided to the Town of Blackstone. However, if the detention facility has slopes not exceeding one (1) on five (5) and a maximum water depth of not more than two and five-tenths (2.5) feet, an alternative barrier, such as a hedge, may be allowed. Guardrail shall be provided for basins in proximity to vehicular areas.
- (9) Basin embankments having a height of greater than four feet between the required freeboard elevation and finished grade exterior to the basin shall require geotechnical testing and an embankment design prepared by a Massachusetts Geotechnical Professional Engineer. Sections through such embankments shall be provided and shall show slopes, impervious cores, and surface armoring.
- (10) The basin side slopes and bottom shall be provided with four (4) inches of loam and shall have a vigorous growth of perennial turf grass.
- (11) Infiltration systems within detention/retention basins are required in the bottom of basins. Frames and grates shall be placed six inches above the basin floor to allow sediment to settle.
- (12) Surface stormwater basins including surrounding maintenance access berms shall be provided on separate lots not part of any building lot. A fifteen (15) foot wide minimum access and maintenance easement shall extend from the public way to the stormwater basin lot.
- (13) A vehicle accessible level berm for maintenance access shall be provided surrounding each surface retention/detention basin or underground leaching structure. The level berm shall extend for a minimum of fifteen (15) feet beyond the required freeboard line on the side slope of surface retention/detention basins.

- (14) Stormwater basins shall be screened using a single row of evergreen trees planted at fifteen (15) feet on center with either a row of evergreen shrubs planted at six (6) feet on center reaching a height of six (6) feet at maturity or a six (6) foot high opaque fence. Trees shall be spruce or fir and have a minimum height of eight (8) feet in height at the time of planting.
- (15) The edge of surface stormwater basins shall be measured at the required freeboard elevation. Surface stormwater basins shall comply with minimum setbacks as follows:
- | | |
|-------------------------------|----------|
| Property lines | 25 feet |
| Front setback | 100 feet |
| Slab on grade buildings | 25 feet |
| Building cellars or basements | 100 feet |
- (16) Subsurface absorption systems are limited to systems for recharge of roofwater. Subsurface recharge systems for runoff from pavement and landscaped areas are prohibited.

Inflow pipe invert shall be high enough that there will not be substantial backwater in the pipe with the detention basin at maximum depth.

K. Mounding

- (1) A mounding analysis is required when the vertical separation from the bottom of an exfiltration system to seasonal high groundwater is less than four (4) feet and the recharge system is proposed to attenuate the peak discharge from a 10-year or higher 24-hour storm. The mounding analysis must demonstrate that the Required Recharge Volume is fully dewatered within 72 hours. The mounding analysis must also show that the groundwater mound that forms under the recharge system will not break out above the land or increase the water elevation in bordering vegetated wetlands, open water areas within the 72-hour evaluation period.
- (2) A mounding analysis is also required when recharge is proposed at or adjacent to a site classified as contaminated, was capped in place, or has an Activity and Use Limitation (AUL) that precludes inducing runoff to the groundwater, pursuant to MGL Chapter 21E and the Massachusetts Contingency Plan 310 CMR 40.0000; or is a solid waste landfill pursuant to 310 CMR 19.000; or groundwater from the recharge location flows directly toward a solid waste landfill or 21E site. In this case, the mounding analysis must determine whether infiltration of the Required Recharge Volume will cause or contribute to groundwater contamination.

- (3) The Hantush¹¹ or other equivalent method may be used to conduct the mounding analysis; however, the Planning Board may require use of a numeric model for larger systems or where required to accurately model groundwater conditions.

L. Offsite Discharge

- (1) In instances where no lots can be developed within a subdivision because no naturally occurring soils are found within the project site which would allow recharge of stormwater within 72 hours, the applicant may petition to allow offsite discharge of stormwater. The Planning Board may waive applicable requirements of § 191-11 provided that after due consideration that waiver of strict compliance with the provisions of § 191-11 is in the public interest.
- (2) Runoff may be conveyed to surface stormwater basins on contiguous properties having sufficient capacity to attenuate the increase in peak rate and volume. The hydrologic analysis shall establish a design point at the outlet of the surface stormwater basins or subsurface absorption systems. Permanent easements shall be furnished encompassing all off-site stormwater management facilities and providing proper access for maintenance.
- (3) Runoff may be discharged to the municipal stormdrain system provided that the off site connection conforms to the requirements set forth herein. Detention basins are provided on the project site having sufficient capacity to limit the post development peak rate of stormwater discharge to the municipal system such that it is no greater pre-development peak rate of stormwater discharge to the municipal system. Any increase in the volume of stormwater runoff discharged to the municipal storm drain system will not cause erosion or increase flooding or ponding of water in a manner that would damage properties or wetland resource areas. All offsite components of the receiving municipal stormdrain system shall have sufficient excess capacity such that they can accommodate runoff from the project site plus all runoff from full build out of all properties in its existing service area for the 25-year frequency storm event without surcharging. The Board of Selectmen may allow the connection and may as a condition of allowing the connection impose a user fee to be paid by the applicant.

M. Operation and Maintenance Plan

- (1) A detailed Operation and Maintenance Plan shall be provided addressing

¹¹ Hantush 1967 – See Reference for Standard 3.

construction phase and long term operation and maintenance. The Operation and Maintenance Plan shall incorporate all applicable Massachusetts Department of Environmental Protection standards and technical guidance. Maintenance of the stormwater management system including pipe and structure cleaning, and stormwater basin maintenance shall be the responsibility of a homeowner's association or other means entailing no expense to the Town.

§ 191-12. Utilities.

A. Installation. All components of the sanitary sewer, water distribution, telephone, electric and CATV cable systems shall be installed underground before roadway base course installation. [Revised 6/30/10]

B. Water.

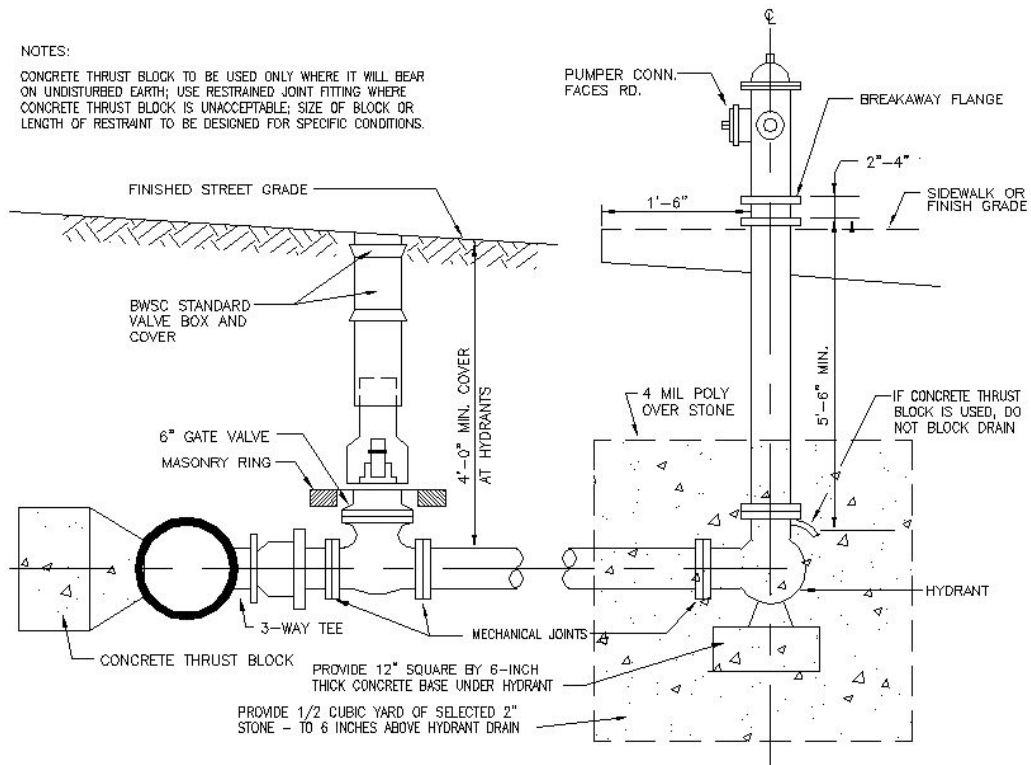
- (1) Whenever feasible, the water supply shall be from a public water supply system. In such cases, the water supply system will be considered adequate only if it is capable of providing gravity service to each proposed fire hydrant with a flow of five hundred (500) gallons per minute at twenty (20) pounds per square inch residual pressure for single-family detached residential developments, or meeting Insurance Safety Office (ISO) requirements for other developments, and only if capable of providing gravity service to each proposed lot with static pressure of forty (40) pounds per square inch at street grade. Where any part of any lot is at elevation three hundred (300) feet above mean sea level or higher, the applicant shall submit engineering analysis documenting adequacy.
- (2) If connection to a public water system is proposed but it is determined by the Board that the above standards will not be met in part or all of the subdivision for reasons beyond the reasonable responsibility of the developer, the Board may nevertheless approve the plan subject to a condition that any lot not adequately served shall not be built upon until service has been made adequate or, if sooner, twenty-four (24) months have elapsed from the date of plan approval in order to allow time to remedy system deficiencies.
- (3) Water system design, equipment, materials and construction shall meet the specifications of the Water and Sewer Commission. [Revised 11/6/08]
- (4) Hydrant assemblies shall comply with Figure 4-6. Hydrant assemblies shall be provided at intervals not to exceed 500 feet on center. Hydrants shall be provided at all high points, all low points, and at the terminus of any watermain. Plans indicating hydrant locations shall be submitted to the Fire Department and the number and location of fire hydrants shall comply with requirements established by the Fire Department. [Added

6/30/10]

- (5) Permanent dead-end water mains shall not normally be allowed. Easements shall be provided where necessary to allow for extension or looping of mains through subsequent development.

NOTES:

CONCRETE THRUST BLOCK TO BE USED ONLY WHERE IT WILL BEAR ON UNDISTURBED EARTH; USE RESTRAINED JOINT FITTING WHERE CONCRETE THRUST BLOCK IS UNACCEPTABLE; SIZE OF BLOCK OR LENGTH OF RESTRAINT TO BE DESIGNED FOR SPECIFIC CONDITIONS.



TYPICAL HYDRANT DETAIL

NOT TO SCALE

FIGURE 4-6

- (6) Where connection to an adequate public water system is infeasible, the Planning Board shall approve a subdivision only upon its determination, following consultation with the Fire Department, that reserved access to a fire pond or other provisions will adequately provide for fire safety, and upon its determination, following consultation with the Board of Health, that wells on each lot are likely to be able to provide a sustained yield of five (5) gallons per minute with water quality meeting DEP's Drinking Water Regulations of Massachusetts, as amended from time to time. One (1) test well may be required of the Applicant per ten (10) potential lots, or the Planning Board's determination may be based upon the written statement of a hydrogeologist following his analysis of well records on nearby premises, subsurface conditions, and the effects of this subdivision and other potential sources of contamination. [Revised 11/6/08]

C. Sewerage.

- (1) Provisions shall be made for Town sewerage to serve all lots which potentially can be so served by gravity connections. Extension of existing sewerage will be required at the developer's expense to meet this requirement unless that would require greater expenditures for facilities outside the subdivision and not abutting it than for those within or abutting the subdivision, including house connection or would require acquisition of easements across property of others.
- (2) Public sewers shall be at least eight (8) inches diameter, and designed for a minimum flow of two and one-half (2 1/2) feet per second. [Revised 6/30/10]
- (3) Manholes shall be located at every change in grade, pipe size, or horizontal alignment, but not more than three hundred (300) feet apart. Manholes shall support HS20-44 loading.
- (4) Construction materials and methods shall be as required by the Department of Public Works. (See Water and Sewer Commission Lift Station Specifications attached hereto).¹² [Revised 11/6/08]

D. Cable utilities.

- (1) Conduit and structures. Underground conduit, structures, and appurtenances shall be installed along each roadway segment for electrical, telephone, cable television, and fire alarm systems. Electrical,

¹² Editor's Note: The Department of Public Works Lift Station Specifications are included at the end of this Regulation.

telephone, cable television service shall be provided to each subdivision lot. Underground electrical, telephone, cable television conduits and house services shall be installed for all lots prior to compaction of roadway or sidewalk Gravel Base. Installation shall comply in all respects with applicable regulations and codes and with utility company requirements. [Revised 6/30/10]

- (2) Poles and any above grade structures shall comply with Planning Board requirements. Police and fire alarm boxes shall be provide in accordance with Police and Fire Department requirements. [Revised 6/30/10]
- (3) Street lighting. Street lighting shall be installed at each intersection, cul-de-sac, or other road hazard, with light spacing not exceeding three hundred fifty (350) feet. The quantity, type, and location of lights within a proposed subdivision shall be subject to Planning Board approval and shown on the Street Plan. Normally fixtures shall be eight thousand (8,000) lumen mercury vapor, with nine thousand six hundred (9,600) lumen sodium vapor at inter sections involving collector streets.

- E. Flood Hazard District. In the Flood Hazard District, as established in the Zoning Bylaw¹³, all public utilities and facilities such as gas, electrical, and water systems shall be located and constructed to minimize or eliminate flood damage.

§ 191-13. Other improvements.

- A. Plantings.
 - (1) Slopes outside the back of sidewalk shall be graded to meet existing grades on contiguous lots using a slope of not more than one (1) foot vertical to two (2) feet horizontal in cut section and not more than one (1) foot vertical to three (3) feet horizontal in fill sections. Slopes exceeding twelve (12) feet in height shall be benched. Those areas shall be covered with at least four (4) inches of good quality topsoil (after rolling) and thickly seeded with drought tolerant perennial grass mixture consisting of at least seventy (70) percent fine fescues or other planting materials approved by the Board.
 - (2) Suitable existing trees within the right-of-way, if larger than four (4) inches caliper and located outside the shoulders, shall be preserved. Trees to be retained shall not have grade changed over their root areas more than twelve (12) inches. Where suitable trees do not exist within twenty-five (25) feet of the back of sidewalk located at intervals of less than forty (40) feet on center, new street trees shall be provided with a maximum spacing

¹³ Editor's Note: See Ch. 123, Zoning.

of forty (40) feet on center.

- (3) Street trees shall be well branched, nursery grown stock at least two and one-half (2.5) inches in caliper, and shall be free of injury, harmful insects, and diseases. Street trees shall include the species listed in Table 4-2. Additional long-lived species adapted to the local environment and approved by the Planning Board provided that any species listed in the Massachusetts Department of Agricultural Resources Massachusetts Prohibited Plant List are prohibited.

Table 4-2 – Street Trees

Botanical name	Common name	Varieties
Aesculus octandra (flava)	Yellow Buckeye	Aesculus octandra (flava)
Aesculus x carnea	Red horsechestnut	Aesculus x carnea
Celtis occidentalis ³	Common Hackberry	Celtis occidentalis ³
Cercidiphyllum japonicum ⁴	Katsuratree	Cercidiphyllum japonicum ⁴
Cornus Kousa	Japanese Flowering Kousa Dogwood	
Cornus x stellar	Stellar Pink Dogwood	
ComusXRutgan	Stella Pink	Hybrid Dogwood pink
Crataegus x lavalleyi	Lavalle Hawthorn	
Crataegus phaenopyrum	Washington Hawthorn	
Crataegus viridis 'Winter King'	Winter King Hawthorn	
Fraxinus pennsylvanica	Marshall's Seedless Green	
'Marshall's Sdls.'	Ash	
Ginkgo biloba 'Sentry'	Sentry Ginkgo	
Gleditsia triacanthos inermis	Thornless Honeylocust	
Gleditsia tri. in. 'Shademaster'	Shademaster Honeylocust	
Koelreuteria paniculata	Goldenrain Tree	
Liquidambar styraciflua ¹	Sweetgum	
Phellodendron amurense	Amur Cork Tree	
Platanus x acerifolia	London Plane Tree	
'Bloodgood'		
Pyrus calleryana	Callery Pear	'Aristocrat', 'Chanticleer', 'Redspire'
Quercus coccinea	Scarlet Oak	
Quercus palustris	Pin Oak	
Quercus robur	English Oak	
Quercus rubra	Red Oak	
Sophora japonica	Japanese Scholar Tree	
Tilia americana 'Redmond'	Redmond American Linden	
Tilia cordata	Littleleaf Linden	
Tilia tomentosa	Silver Linden	
Ulmus	Elm	'Homestead', 'Pioneer', 'Urban Elm', 'parvifolia'
	Urban Elm Parvifolia	

[Added 6/30/10]

B. Street signs. As soon as a street is paved, street signs conforming to those placed by the Town shall be erected at each end of the street. The word "Private" shall be lettered on a separate sign placed under the street sign. This separate sign shall be removed when the street is accepted by the Town.

C. Monuments.

- (1) Monuments shall be installed at all street intersections; at all points of change in direction of curvature of the streets; at each lot corner along the street; and as necessary to locate any easements to be deeded to the Town.
- (2) Monuments must be granite or reinforced concrete and set to a bottom depth of not less than four (4) feet below finished grade and with top flush with finished grade. Reference points are to be drilled in the top of each monument.

§ 191-14. Additional requirements.

A. Open Space.

- (1) The Planning Board may require the plan to show a potential park or parks suitably located for recreational 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 uses of the land, normally not exceeding five percent (5%) of plan area.
- (2) The Board may by appropriate endorsement on the plan require that no building be erected upon such park or parks for a period of not more than three (3) years without its approval. This land shall be made available for purchase by the Town. Failure to purchase within three (3) years shall free the owners from restrictions.

B. Earth removal. Any area within the subdivision used for the extraction of gravel or borrow shall be regraded, loamed, and in sod before final release is granted by the Planning Board.

C. Maintenance. The entire area within the right-of-way shall be properly maintained by the developer until accepted by the Town. Immediately prior to such acceptance, all catch basins shall be cleaned, streets swept, and the remainder of the right-of-way and any other areas to be deeded to the Town shall be cleared, mowed, or otherwise put in first-class order. Snow removal and sanding of the streets shall be the responsibility of the developer until such acceptance.

D. Cleaning up. Before sale of a lot, the subdivider shall clean up any debris thereon caused by construction of public improvements.

- E. Easements.
- (1) Easements for utilities across lots or centered on rear of side lot lines shall be provided where necessary and shall be at least twenty (20) feet wide.
 - (2) Where a subdivision is traversed by a water course, drainage way, detention area, channel or stream, there shall be provided a storm water easement or drainage right-of-way of adequate width to conform substantially to the lines of such water course, drainage way, detention area, channel or stream and to provide for construction or other necessary purposes (such as maintenance).
- F. Protection of natural features. Due regard shall be shown for all natural features such as large trees, water courses, scenic points, historic spots and similar community assets, which if preserved, will add attractiveness and value to the subdivision.
- G. Record plans. Upon completion of construction, and before release of the performance guaranty, the subdivider shall have prepared and submitted Record Plans at one (1) equals forty (40) feet, which shall indicate the actual location of all of the following:
- (1) Street lines.
 - (2) Traveled way edges.
 - (3) Sidewalk locations.
 - (4) Permanent monuments.
 - (5) Locations, slopes and inverts of the required utilities and drainage.
 - (6) Locations of any other underground utilities, such as electricity, telephone lines and street lighting.
- H. Certification. A professional civil engineer retained by the developer shall certify that all construction was executed in conformance with the subdivision regulations and with all requirements agreed upon as a condition to plan approval.
- I. *[Added 8/3/95] [Redesignated 11/6/08]* Village Overlay District. Within the Village Overlay District as shown on the Zoning Map of the Blackstone Zoning Bylaw the following shall be observed.
- (1) Contrary to § 191-9(2)(e), curvilinear streets are not to be encouraged.
 - (2) Pavement radii at corners may be five (5) feet shorter than specified at § 191-10.B(3).

- (3) Notwithstanding § 191-10.D(1), street right-of-way and pavement widths need be no wider than that of the street from which they are accessed.

§ 191-15. Release of performance guaranty.

- A. Request for release. Upon completion of the foregoing requirements, security for the performance of which was given by bond, deposit, or covenant, or upon the performance of any covenant with respect to any lot, the applicant may request and agree on terms of release with said Planning Board.
- B. Completion requirements. To assist in determining whether satisfactory completion has been made, the Planning Board shall receive a properly completed Inspection Form (Form I) from the subdivider.¹⁴ The required improvements will not be considered complete until:
 - (1) The subdivider has filed with the Planning Board a record plan as required at 191-14G.
 - (2) Grassed areas have been mown at least twice; all landscaping and plantings have been through a winter; all other above-ground improvements such as paving and side walks have been installed for at least twelve (12) months subsequent to their final inspection; and all underground utilities and appurtenances such as water and sewer lines have been installed for at least twenty- four (24) months subsequent to their final inspection. Street acceptance by Town Meeting prior to these periods having elapsed shall not be reason for release of the portion of security being held to assure integrity of improvements.

¹⁴ Editor's Note: Form I, Subdivision Inspection Checklist, is included at the end of this Regulation.

ARTICLE V

Administration

§ 191-16. Construction Requirements. [Revised by vote 9/5/02] [Revised 6/30/10].

- A. Subdivision Inspection Agent. The developer shall provide the Town Administrator with written notice at least fourteen days prior to beginning street construction. The Town Administrator shall, upon receipt of such notification, appoint a Subdivision Inspection Agent for the project and instruct said Agent to make continuing inspections of the work to insure that all requirements are adhered to.
- B. Inspection fee. Prior to commencement of street construction, the developer shall provide to the Town Administrator an inspection fee deposit to be placed into the Review Escrow Account per § 191-6.1. The deposit shall equal 1% of the estimated construction cost of the development calculated per Form J, or such alternative initial estimate of likely inspection cost as may be agreed upon by the developer, the Subdivision Inspection Agent, and the Town Administrator. All Town costs for the Inspection Agent shall be paid from the Review Escrow Account. The Board's professional engineer will observe the work with respect to use of sound construction practices. The professional engineer will not direct or supervise the work or establish construction practices. Observation by the engineer does not relieve the developer of their sole responsibility for proper execution of the work. [Revised 11/6/08] [Revised 6/30/10]
- C. Responsibility. It is the developer's sole responsibility to satisfactorily complete the construction of all required subdivision improvements.
- D. General requirements.
 - (1) Construction of Subdivision Improvements
 - (a) Construction of the subdivision improvements shall conform to the approved definitive subdivision plan, all related conditions of approval and covenants.
 - (b) Construction of the subdivision improvements shall conform to all requirements of the Commonwealth of Massachusetts Department of Public Works, Standard Specifications for Highways and Bridges, 1988 Edition, including the latest addenda, revisions and supplements, all of which are hereinafter referred to as the Standard Specifications.
 - (c) Construction of the subdivision improvements shall also conform to all requirements of the Street and Highway *Rules and*

Regulations of the Blackstone Department of Public Works, Water Distribution System Rules and Regulations of the Blackstone Water Division, and the Sanitary Sewer Use Rules and Regulations of the Sewer Division.

- (d) In the case of conflict between the Standard Specifications and the above municipal standards, the more stringent requirements shall govern.
- (2) Superintendent -- The developer shall designate a superintendent in writing who is authorized to serve as the developer's representative who shall be on-site at all times during construction. Representations by the superintendent shall be binding on the developer.
- (3) Emergency Contact -- The developer shall provide the name and telephone number of at least two contacts available on a 24 hour basis during construction.
- (4) Layout -- The developer shall engage at their expense a Professional Engineer or Professional Land Surveyor to establish lines and grades.
- (5) Testing -- The developer shall engage at their expense a professional testing laboratory to furnish required tests and reports. The laboratory shall be acceptable to the Board, and shall maintain current certification from State and Federal agencies having jurisdiction.
- (6) Construction Schedule
 - (a) At least 14 days prior to the start of construction the developer shall submit a detailed construction schedule indicating the sequence and schedule of construction.
 - (b) The developer shall submit updated schedules on or before the first day of each month
- (7) Preconstruction Conference. At least 14 days prior to the start of construction the developer shall notify the Planning Board and request that a pre-construction conference be scheduled at a place and time determined by the Board.

E. Submissions

- (1) The developer shall submit the following at least 14 days prior to installation
 - (a) Copies of all required Town, State, and Federal permits, approval, and authorizations.

- (b) Any applicable Order of Conditions
 - (d) Materials certificates indicating that all materials used in the work conform to the requirements of the approved Definitive Plan, related conditions and covenants, and these *Rules and Regulations*.
 - (e) Shop drawings of all structures, pipe, and components.
 - (f) Gradation tests for mineral aggregates used in roadway and sidewalk construction.
 - (g) Pavement job mix formula.
 - (h) Detailed plans and procedures for dewatering operations.
- (2) The developer shall submit the following upon completion of construction
- (a) Mandrel, pressure, and leakage tests for sanitary sewer system
 - (b) Pressure, leakage, and disinfection tests for water distribution system
 - (c) Engineer's certification that the subdivision improvements fully conform to all requirements of approved Definitive Plan, related conditions and covenants, and these *Rules and Regulations*.
 - (d) Surveyors certification that all bounds are installed in the locations indicated on the Definitive Plan.
- (3) Daily Logs -- The developer shall maintain daily logs of work in progress and submit copies to the Planning Board and its engineering consultant on a weekly basis.
- (4) Certifications - The developer shall engage a professional land surveyor to perform on-site surveys during construction. The professional Land Surveyor shall provide written certifications as follows:
- (a) Alignment, grade, and cross slope of the subgrade prior to placing the sand-gravel base.
 - (b) Alignment, grade, and cross slope of the dense graded layer prior to placing the pavement binder course.
 - (c) Curb layout prior to placing the top course of pavement.
 - (d) Alignment, grade, and cross slope of the pavement binder course prior to placing the pavement top course.

- (e) Location of bounds.
 - (5) Limitation -- Review of submissions by the Board or its agents is intended to provide a general indication of the nature of the work and is not intended to warrant proper construction.
- F. Required facilities. The developer shall provide temporary toilets and potable water.
- G. Maintenance of traffic plan.
 - (1) Plan requirements. The developer shall submit detailed plans indicating the personnel, equipment, traffic control devices, barricades, cones, signage, uniformed traffic officers, and other measures required to 1) to maintain two way traffic on all public and private roads and 2) to minimize congestion and maximize safety on roads impacted by construction traffic.
 - (2) Construction traffic. At the Board's option, the plan shall include a week by week forecast of truck traffic and construction worker trips.
 - (3) Construction signs. Immediately following lot release, a street name sign shall be provided and a sign shall be affixed below the street name bearing the legend "Private Way." The "Private Way" sign shall remain in place until the final street acceptance. A sign shall be installed that is visible to traffic leaving the subdivision that bears the legend "Entering a Public Way."
 - (4) Updates - If required, the Maintenance of Traffic plan shall be updated and resubmitted prior to the first day of each month.
- H. Erosion and dust control plan. The developer shall submit detailed plans indicating the personnel, equipment, devices, and other measures required to control sediment, erosion, and dust. All required actions and measures shall be provided and maintained throughout the course of construction.
- I. Preconstruction notice. A minimum of fourteen (14) days prior to initiating construction of the subdivision improvements the Subdivider shall notice the Planning Board, the Conservation Commission, the Board of Health, the Department of Public Works, the Town Administrator, the Police Department, and the Building Inspector.
- J. Required observations. The subdivider shall provide proper notice and shall schedule and sequence the work to accommodate construction observation by the Subdivision Inspection Agent in accordance with Table 5-1 and Form I. The subdivider shall not proceed with any steps until satisfactory completion of all prior ones have been endorsed by the Agent on the Form I checklist. The

completed checklist is to be returned to the Planning Board. Failure to submit a completed checklist may be deemed sufficient cause for the Board to withhold final approval of the required improvements or release of security. [Revised 6/30/10]

Table 5-1 – Construction Observation Schedule

Required Observation	Schedule/Timing
Erosion And Sedimentation Controls	
1. Observation of erosion and sedimentation controls	Prior to additional work
2. Clearing And Grubbing Of Right Of Way	
3. Observation of clearing and grubbing of right of way	Prior to placing Gravel Base
Excavation	
4. Observation of excavation to required lines and grades	Prior to additional work
5. Observation of unsuitable material removal	Prior to backfill
Embankments	
6. Observation of subgrade	Prior to placing embankment
7. Observation of embankment construction	As determined by the Subdivision Inspection Agent or upon completion of each lift
Staking	
8. Observation of roadway staking	Prior to additional work.
9. Stormwater Management System	
10. Observation of below grade storm drain installation	Prior to backfill of drainlines or structures
11. Observation of surface stormdrain improvements and swales	Upon completion
12. Observation of retention/detention basins and appurtenances	Upon completion
Sanitary Sewer System	
13. Observation of below grade sanitary sewer installation	Prior to backfill of drainlines or structures
14. Observation of sanitary sewer laterals installation	Prior to backfill of sewer lateral
15. Observation of sanitary sewer testing	As determined by the Subdivision Inspection Agent
16. Observation of at surface sanitary sewers castings	Prior to paving

Water Distribution System

- | | |
|--|---|
| 17. Observation of below grade water main installation | Prior to backfill |
| 18. Observation of water main testing and disinfection | Prior to fine grading gravel base. |
| 19. Observation of water main laterals installation | Prior to backfill. |
| 20. Observation of surface valve boxes | Prior to paving |
| 21. Observation of surface curb boxes | Prior to paving. |
| 22. Observation of hydrants | Prior to backfill of pipe and prior to paving |

Cable Utilities

- | | |
|---|----------------------------------|
| 23. Observation of electrical distribution conduit, structures, and appurtenances | Prior to backfill |
| 24. Observation of telephone conduit, structures, and appurtenances | Prior to backfill |
| 25. Observation of CATV conduit, structures, and appurtenances | Prior to backfill |
| 26. Observation of fire alarm conduit, structures, and appurtenances | Prior to backfill |
| 27. Observation of street lighting conduit, structures, and appurtenances | Prior to backfill |
| 28. Observation of street light poles and luminaires | Upon installation and activation |

Subgrade Of Right Of Way

- | | |
|---|-----------------|
| 29. Observation of fine graded and compacted subgrade | Upon completion |
| 30. Review of compaction tests | Upon submission |

Gravel Base

- | | |
|--|------------------|
| 31. Observation of gravel base for roadway - first course of 6" compacted | Upon completion |
| 32. Observation of gravel base for roadway - second course of 6" compacted | Upon Completion. |
| 33. Observation of gravel base for sidewalks - first course of 6" | Upon completion |
| 34. Observation of gravel base for sidewalks - final course | Upon completion |
| 35. Review of interim as-built survey of center line and both gutter line | Prior to paving. |

Bituminous Concrete Pavement

- | | |
|---|---------------------------------|
| 36. Observation of bituminous tack coat | Upon completion. |
| 37. Observation of roadway Binder Course/temporary berm | Continuous during installation |
| 38. Observation of sidewalk Binder Course | Continuous during installation. |

39. Observation of roadway tack coat	Upon completion.
40. Observation of roadway Top Course	Continuous during installation
41. Observation of sidewalk tack coat	Upon completion.
42. Observation of sidewalk Top Course	Continuous during installation.
Curb and Edging	
43. Observation of curb/edging installation	Upon completion.
44. Observation of curb inlet stone installation	Upon completion.
45. Observation of transition curb installation	Upon completion.
Curb-Cut Ramps and Transformer Pads	
46. Approval of transformer pad location by the Planning Board or its agent	Prior to installation.
47. Observation of accessible ramps	Upon completion.
48. Observation of transformer pads	Upon completion.
Loam and Seed	
49. Observation of loam and seed	Upon completion.
Retaining Walls	
50. Observation of retaining walls base	Prior to setting forms
51. Observation of retaining wall forms and reinforcing	Prior to pouring concrete
52. Observation of retaining wall drainage and underdrain	Prior to backfill
53. Observation of retaining wall backfill	As determined by Subdivision Inspection Agent or upon completion of each lift.
Guard Rails	
54. Observation of guard rail dimensions	Prior to installation
55. Observation of completed guardrail	Upon completion.
Street Trees And Plantings	
56. Observation of street trees	Upon completion.
57. Review of tree warranty	Upon submission
Street Signs	
58. Observation of street signs	Upon completion.
Bounds	
59. Observation of bounds	Upon completion.
Monuments	
60. Observation of monuments	Upon completion.
Final Cleanup	
61. Observation of final cleanup Observation	Upon completion.
Maintenance	

62. Observation of street maintenance	As determined by the Subdivision Inspection Agent
As-Built Acceptance Plan	
63. review of as built/acceptance plan	Upon completion.
64. Review of description of roadway and easements	Upon submission.
Deed/Easement Submittal	
65. review of deeds/easement documents	Upon submission.
Other	
66. Observation of special construction and requirements	As determined by the Subdivision Inspection Agent

§ 191-17. Waiver of Strict Compliance.

The Planning Board may waive strict compliance with the requirements of the Rules and Regulations of the Blackstone Planning Board Governing the Subdivision of Land when, in the judgment of the Planning Board, such action is in the public interest and not inconsistent with the Subdivision Control Law.

§ 191-18. Consent required for more than one building per lot.

Not more than one (1) building designed or available for dwelling purposes shall be erected or placed or converted to use as such on any lot in a subdivision or elsewhere within the Town without the consent of the Planning Board. Consent shall be granted only for structures in compliance with zoning restrictions, and only upon the Board finding that adequate ways servicing such site for each building have been provided in the same manner as otherwise required for lots within a subdivision.

§ 191-19. Reference to statutes.

For matters not covered by these rules and regulations, reference is made to MGL C. 41, 81-K to GG, inclusive.

FORM A

**APPLICATION FOR ENDORSEMENT OF
PLAN BELIEVED NOT TO REQUIRE APPROVAL**

File this form, six prints of the plan, and the required application fee, with the Planning Board, and one copy of Form A with the Town Clerk.

Plan provided to the Planning Board on: _____ , 20 ____

Form A provided to the Town Clerk on: _____ , 20 ____

To the Planning Board:

The undersigned, believing that the division of property as shown on the accompanying plan does not constitute a subdivision within the meaning of the Subdivision Control Law, hereby requests an endorsement thereon that Planning Board approval under the Subdivision Control Law is not required.

1. Name of Applicant: _____

Address: _____

2. Name of Surveyor: _____

Address: _____

3. Deed of property recorded in Worcester County Registry, Book _____ , Page _____

4. Location and Description of Property: _____

5. Proposed use of land if other than single-family residence: _____

6. Number of lots shown on plan: _____

Signature of Owner: _____

Address: _____

FORM A (Cont.)

If it is not obvious, please indicate the grounds on which you believe your plan not to be a subdivision (either A, B, or C, not a combination).

Lot Numbers

A. Each lot on the plan or altered by it meets one of these criteria:

1. Has all the frontage required under zoning on:

a) a public way, or _____

b) a way which the Town Clerk certifies is maintained and used as a public way, or _____

c) a way shown on a plan approved and endorsed earlier by the Planning Board under this law, or _____

d) a way in existence prior to June 28, 1963 and which the Board finds adequate for the way's proposed use, or _____

e) a way shown on a plan of a subdivision registered in the Land Court prior to June 28, 1963. _____

2. Has been clearly marked on the plan to be either:

a) joined to and made a part of an adjacent lot, or _____

b) "Not a building lot". _____

B. Each lot on the plan contains a building that existed prior to June 28, 1963. _____

C. The plan simply describes already existing parcels with no new lot divisions. _____

[Revised 8-3-95]

FORM B

APPLICATION FOR APPROVAL OF A PRELIMINARY PLAN

File one completed form with the Planning Board, one copy with the Board of Health and a notice of submission with the Town Clerk.

Date transmitted: _____, 20____

Date of next Planning Board meeting (presumed "Submittal" date) _____, 20____

To the Planning Board of Blackstone:

The undersigned herewith submits the accompanying Preliminary Plan of a subdivision entitled

_____ for approval under the provisions of the Subdivision

Control Law and your Rules and Regulations Governing the Subdivision of Land.

1. Name of Applicant: _____

Address: _____ Phone: _____

2. Name of Owner (if not applicant): _____

Address: _____

3. Name of designer: _____

Address: _____

4. Deed of property recorded in Worcester Registry, Book _____, Page _____

Title of property registered in the Worcester Registry of the Land Court, Certificate of Title No.

5. Location and Description of Property: _____

6. Number of lots on the plan: _____

Signature of Applicant: _____

Signature of Owner (if not Applicant): _____

FORM C

APPLICATION FOR APPROVAL OF DEFINITIVE PLAN

File one completed form with the Planning Board and one copy with the Town Clerk.

Plan provided to the Planning Board _____, 20____

Form C provided to the Town Clerk _____, 20____

To the Planning Board of Blackstone:

The undersigned herewith submits the accompanying Definitive Plan of land for approval as a subdivision under the requirements of the Subdivision Control Law and the Blackstone Planning Board's Rules and Regulations Governing the Subdivision of Land.

1. Name(s) of Applicant(s): _____

Address(es): _____

Phone Number(s)/email(s): _____

2. Name of Subdivision: _____

3. Name(s) of Surveyor and other designers: _____

4. Deed of property dated _____ recorded in Worcester Registry of Deeds,

Book _____, Page _____. Title of property registered in the Worcester Registry of

the Land Court, Certificate of Title No. _____ (attach additional pages if
necessary for description of additional deeds or titles).

5. Location and Description of Property:

Street reference: _____

Assessor's map reference: _____

Total land area: _____

FORM C (continued)

6. Number of lots on the plan: _____

7. Type of Subdivision (Residential or Non-residential): _____

I (we) hereby certify that the applicant(s) itemized above have been authorized by me (us) to file a subdivision plan with the Planning Board on property that I (we) own, and that such property is free of encumbrances except for any itemized below.

Signature of Owner: _____

Address: _____

Signature of Owner: _____

Address: _____

Mortgages or other encumbrances: _____

Name and address for all notices to be provided the "Applicant" in cases where there are more than a single applicant or the applicant and owner are not the same:

Name: _____

Address: _____

FORM D-1

CERTIFICATE OF APPROVAL OF A DEFINITIVE SUBDIVISION PLAN

Town Clerk

Dear _____:

The Blackstone Planning Board hereby certifies that at a meeting of said Board on _____
20____, at which a quorum was present, following a public hearing by the Board on _____
20____, pursuant to notice published in _____ on _____, 20____, and
on _____ 20____, it was (unanimously) VOTED: That a Definitive Plan of a
subdivision called _____, most recently dated _____
20____, and designed by _____, registered as an
engineer or land surveyor in Massachusetts, submitted for the Board's approval by _____
_____, applicant, be and hereby is approved on condition that prior to the Board's
endorsement of its approval thereon the subdivider shall furnish guarantees to the Planning Board
as provided in the Subdivision Regulations that except as otherwise expressly provided in MGL C.
41, § 81-U, no lot included in such plan shall be built upon or conveyed until the work on the
ground necessary to serve such lot has been completed in the manner specified by the Subdivision
Regulations of the Town of Blackstone with the following specific qualifications:

1. All such installation and construction shall be completed within 24 months of this date;
2. All streets or ways shall be surfaced with at least a 2" binder course, and berms and street lighting shall be installed and lighting placed in operation prior to application for occupancy permits for any structures served by such streets or ways;
3. (further qualifications and schedule stipulations)
- 4.

FORM D-1 (Cont.)

or a performance bond or other security in lieu of completion has been accepted by the
Planning Board.

Respectfully submitted,

By _____

Blackstone Planning Board

[Revised 8-3-95]

FORM D-1F

CERTIFICATE OF APPROVAL: DEFINITIVE SUBDIVISION PLAN

(Frontage Waiver)

_____, 20____

Ms. Marianne E. Staples-Arnold
Town Clerk
Blackstone Municipal Center, St. Paul Street
Blackstone, Massachusetts 01504

Dear Ms. Staples-Arnold:

The Blackstone Planning Board hereby certifies that at a meeting of said Board on _____, _____, at which a quorum was present, following a public hearing by the Board on _____, _____, pursuant to notice published in *The Call* on _____, _____ and on _____, _____, it was VOTED:

That a Definitive Plan of a frontage waiver subdivision called _____, most recently dated _____, _____ and designed by _____, _____, registered as a land surveyor in Massachusetts, submitted for the Board's approval by _____, applicant, be and hereby is approved, subject to the following qualifications and conditions:

FORM D-1F (Cont.)

Further, the Board has determined that no construction of ways or installation of public services is necessary to service the lots being created, so that security for such construction or installation by bond, covenant or otherwise is not required.

Respectfully submitted,

Blackstone Planning Board

FORM D-2

CERTIFICATE OF DISAPPROVAL OF A DEFINITIVE SUBDIVISION PLAN

Town Clerk

Dear _____:

The Blackstone Planning Board hereby certifies that at a meeting of said Board on _____
20____, at which a quorum was present, following a public hearing by the Board on _____
20____, pursuant to notice published in _____ on , _____, 20 ____
and on _____, 20____, it was (unanimously) VOTED: That a Subdivision Plan of
a subdivision called _____, most recently dated _____, 20____
and designed by _____, registered as an engineer or land surveyor in
Massachusetts, submitted for the Board's approval by _____, applicant, be
and hereby is disapproved for the following reasons:

Respectfully submitted,

By _____

Planning Board

FORM E-1

PERFORMANCE BOND SECURED BY DEPOSIT

The undersigned _____ of _____ (name of municipality),
_____ (name of state), hereby binds and obligates himself and any executors,
administrators, devisees, heirs, assigns, and successors to the Town of Blackstone, a Massachusetts
municipal corporation, in the sum of _____ dollars, and has secured this obligation by
depositing with the Treasurer of the Town of Blackstone the following:

(statement of deposit)

If the undersigned or his executors, administrators, devisees, heirs, successors and assigns fully and
satisfactorily observe and perform in accordance with the qualifications and time schedule herein
specified, all of the covenants, conditions, agreements, terms and provisions contained in the
application signed by the Owner and dated _____, 20____, under which approval of
Definitive Plan of a subdivision, entitled _____ and
dated _____, 20____, has been or is hereafter granted by the Blackstone Planning Board,
then this obligation shall be void; otherwise it shall remain in full force and effect and the aforesaid
security for said sum shall become and be the sole property of the Town of Blackstone as liquidated
damage. The following qualifications and schedule are specified:

FORM E-1 (Cont.)

1. All improvements obligated under this bond shall be completed within 24 months of this date;
2. All streets or ways shall be surfaced with at least a 2" binder course, and berms and street lighting shall be installed and lighting placed in operation prior to application for occupancy permits for any structures served by such streets or ways;
3.
(further qualifications and schedule stipulations)
- 4.

IN WITNESS WHEREOF the undersigned has hereunto set his hand and seal this _____ day of _____, 20____.

Witness

Signature of Applicant

Date

Date

Approved as to form:

Town Counsel

Date

Approved as to Sureties:

Town Treasurer

Date

[Revised 8-3-95]

FORM E-2

PERFORMANCE BOND SURETY COMPANY

The undersigned _____ as principal, and _____, a corporation duly organized and existing under the laws of the State of _____ and having a usual place of business in _____, as Surety, hereby bind and obligate themselves and their respective heirs, executors, administrators, devisees, assigns, and successors, jointly and severally, to the Town of Blackstone, a Massachusetts municipal corporation, in the sum of _____ dollars.

If the Principal shall fully and satisfactorily observe and perform in accordance with the qualifications and time schedule herein specified all of the covenants, conditions, agreements, terms and provisions contained in the application signed by the Principal and dated _____, 20____, under which approval of a Definitive Plan of a certain subdivision, _____ and dated _____, 20____, has been or is hereafter granted by the Blackstone Planning Board, then this obligation shall be void: otherwise, it shall remain in full force and effect and the foresaid sum shall be paid to the Town of Blackstone as liquidated damage.

The Surety hereby assents to any and all changes and modifications that may be made of the aforesaid covenants, conditions, agreements, terms and provisions to be observed and performed by the Principal, and waives notice thereof.

FORM E-2 (Cont.)

The following qualifications and schedule are specified:

1. All improvements obligated under this bond shall be completed within 24 months of this date;
2. All streets or ways shall be surfaced with at least a 2" binder course, and berms and street lighting shall be installed and lighting placed in operation prior to application for occupancy permits for any structures served by such streets or ways;
3. (further qualifications and schedule stipulations)
- 4.

IN WITNESS WHEREOF the undersigned has hereunto set his hand and seal this

day of _____, 20____.

Principal

By: _____

Title

Surety

By: _____

Attorney-in-Fact

[Revised 8-3-95]

FORM F

COVENANT

The undersigned _____ of _____ (name of municipality), _____ (name of state), hereinafter called "Covenantor", having submitted to the Blackstone Planning Board application for approval of a Definitive Plan of a subdivision entitled _____, dated _____, 20____ designed by _____, does hereby covenant and agree with said Planning Board and the successors in office of said Board, pursuant to MGL C. 41, Section 81-U, as amended, that:

1. Except as otherwise expressly provided in MGL C. 41, Section 81-U, no lot included on such plan shall be built upon or conveyed until the work required in relation to such lot has been completed in the manner specified by the Subdivision Regulations of the Town of Blackstone or a performance bond or other security in lieu of completion has been accepted by the Planning Board, and in accordance with the covenants, conditions, agreements, terms and provisions contained in the following:
 - a) Application for Approval of Definitive Plan (Form C) signed by the Applicant and dated _____, 20____.
 - b) The Definitive Plan as qualified by the Certificate of Approval (Form D-1) issued by the Planning Board dated _____, 20____.
2. It is the intention of the covenantor and it is hereby understood and agreed that this contract shall constitute a covenant running with the land included in the aforesaid Subdivision and shall operate as restrictions upon said land, and shall be binding upon the executors, administrators, devisees, heirs, assigns, and successors in title to the premises.

It is understood and agreed that lots within the subdivision shall, respectively, be released from the foregoing conditions upon the recording of a Certificate of Release (Form G) executed by a majority of said Planning Board and enumerating the specific lots to be so released.

FORM F (Cont.)

3. The undersigned covenantor represents and covenants that the undersigned is the owner* in fee simple of all the land included in the aforesaid subdivision and that there are no mortgages of record or otherwise on any of said land, except such as are described below and subordinated to this contract, and the present holders of said mortgages have assented to this contract prior to its execution by the covenantor.

*If more than one owner, all must sign.

IN WITNESS WHEREOF the undersigned, covenantor as aforesaid, does hereunto set his hand and seal this _____ day of _____, 20____.

Covenantor

Address

Description of Mortgages: _____

(Give complete names and Registry of Deeds reference)

Assent of mortgagees:

_____, ss. _____, 20____ Then personally appeared
and acknowledged the foregoing instrument to be a free act and deed, before me _____,

NOTARY PUBLIC

My commission expires: _____, 20____

FORM G

CERTIFICATE OF RELEASE

The undersigned, being a majority of the Planning Board of the Town of Blackstone,
Massachusetts, hereby certify that the requirements for work called for by the Covenant dated
_____, 20 ____, and recorded in Worcester Registry of Deeds, Book _____, Page _____

(or registered in) Worcester Land Registry District as Document No. _____ and noted on
Certificate of Title No. _____ in Registry Book _____, Page _____

have been completed to the satisfaction of the Planning Board as to the following enumerated lots
shown on Plan entitled _____ recorded with said Deeds, Plan Book _____
Page _____, (or registered in said Land Registry District, Plan Book _____, Plan No. _____).

and said lots are hereby released from the restrictions as to sale and building specified thereon.

Lots designated on said Plan which are hereby released are as follows: _____

Majority of the Planning Board of the Town of Blackstone

Then personally appeared _____, one of the above named members of
the Planning Board of the Town of Blackstone, Massachusetts, and acknowledged the foregoing
instrument to be the free act and deed of said Planning Board, before me _____, 20 ____

Notary Public My commission expires: _____, 20 ____

FORM H

ENGINEER'S CERTIFICATE OF COMPLETION

(to be executed by developer's engineer)

Subdivision known as _____

I hereby certify that all improvements required for the below listed ways, a part of the above named subdivision, have been completed in all respects in accordance with the Rules and Regulations of the Blackstone Planning Board and the approved plans entitled _____

by _____ and dated _____, 20____ and as approved

by said Planning Board on _____ .

Signed this _____ day of _____, 20____ by _____ Reg. C.E.

Then personally appeared the above named _____ and affirmed that of his belief and knowledge, the foregoing statements are true.

NOTARY PUBLIC

My commission expires: _____, 20____ .

FORM I

SUBDIVISION INSPECTION CHECKLIST

(to be executed by Planning Board agent)

Inspection Number	Subject	Initials of Planning Board's Agent	Date(s) of Inspection
Required Observation			
1.	Erosion And Sedimentation Controls	_____	_____
2.	Observation of erosion and sedimentation controls	_____	_____
3.	Clearing And Grubbing Of Right Of Way	_____	_____
4.	Observation of clearing and grubbing of right of way	_____	_____
Excavation			
5.	Observation of excavation to required lines and grades	_____	_____
6.	Observation of unsuitable material removal	_____	_____
Embankments			
7.	Observation of subgrade	_____	_____
8.	Observation #4 - embankment construction	_____	_____
Staking			
9.	Observation of roadway staking	_____	_____
Stormwater Management System			
10.	Observation of below grade storm drain installation	_____	_____
11.	Observation of surface stormdrain improvements and swales	_____	_____
12.	Observation of retention/detention basins and appurtenances	_____	_____
Sanitary Sewer System			
13.	Observation of below grade sanitary sewer installation	_____	_____
14.	Observation of sanitary sewer laterals installation	_____	_____
15.	Observation of sanitary sewer testing	_____	_____
16.	Observation of at surface sanitary sewers castings	_____	_____
Water Distribution System			
17.	Observation of below grade water main installation	_____	_____
18.	Observation of water main testing and disinfection	_____	_____
19.	Observation of water main laterals installation	_____	_____
20.	Observation of surface valve boxes	_____	_____

Inspection Number	Subject	Initials of Planning Board's Agent	Date(s) of Inspection
21.	Observation of surface curb boxes	_____	_____
22.	Observation of hydrants	_____	_____
Cable Utilities			
23.	Observation of electrical distribution conduit, structures, and appurtenances	_____	_____
24.	Observation of telephone conduit, structures, and appurtenances	_____	_____
25.	Observation of CATV conduit, structures, and appurtenances	_____	_____
26.	Observation of fire alarm conduit, structures, and appurtenances	_____	_____
27.	Observation of street lighting conduit, structures, and appurtenances	_____	_____
28.	Observation of street light poles and luminaires	_____	_____
Subgrade Of Right Of Way			
29.	Observation of fine graded and compacted subgrade	_____	_____
30.	Review of compaction tests	_____	_____
Gravel Base			
31.	Observation of gravel base for roadway - first course of 6" compacted	_____	_____
32.	Observation of gravel base for roadway - second course of 6" compacted	_____	_____
33.	Observation of gravel base for sidewalks - first course of 6"	_____	_____
34.	Observation of gravel base for sidewalks - final course	_____	_____
35.	Review of interim as-built survey of center line and both gutter line	_____	_____
Bituminous Concrete Pavement			
36.	Observation of bituminous tack coat	_____	_____
37.	Observation of roadway Binder Course/temporary berm	_____	_____
38.	Observation of sidewalk Binder Course	_____	_____
39.	Observation of roadway tack coat	_____	_____
40.	Observation of roadway Top Course	_____	_____
41.	Observation of sidewalk tack coat	_____	_____
42.	Observation of sidewalk Top Course	_____	_____
Curb and Edging			
43.	Observation of curb/edging installation	_____	_____
44.	Observation of curb inlet stone installation	_____	_____
45.	Observation of transition curb installation	_____	_____

Inspection Number	Subject	Initials of Planning Board's Agent	Date(s) of Inspection
Curb-Cut Ramps and Transformer Pads			
46.	Approval of transformer pad location by the Planning Board or its agent	_____	_____
47.	Observation of accessible ramps	_____	_____
48.	Observation of transformer pads	_____	_____
Loam and Seed			
49.	Observation of loam and seed	_____	_____
Retaining Walls			
50.	Observation of retaining walls base	_____	_____
51.	Observation of retaining wall forms and reinforcing	_____	_____
52.	Observation of retaining wall drainage and underdrain	_____	_____
53.	Observation of retaining wall backfill	_____	_____
Guard Rails			
54.	Observation of guard rail dimensions	_____	_____
55.	Observation of completed guardrail	_____	_____
Street Trees And Plantings			
56.	Observation of street trees	_____	_____
57.	Review of tree warranty	_____	_____
Street Signs			
58.	Observation of street signs	_____	_____
Bounds			
59.	Observation of bounds	_____	_____
Monuments			
60.	Observation of monuments	_____	_____
Final Cleanup			
61.	Observation of final cleanup Observation	_____	_____
Maintenance			
62.	Observation of street maintenance	_____	_____
As-Built Acceptance Plan			
63.	Review of as built/acceptance plan	_____	_____
64.	Review of description of roadway and easements	_____	_____
Deed/Easement Submittal			
65.	Review of deeds/easement documents	_____	_____
Other			

66. Observation of special construction and requirements

FORM J

GUARANTY PRICE ESTIMATE

Date of estimate _____

Estimator _____

Subdivision name _____

Street name _____

Stations _____ to _____

Centerline length _____ feet

CONSTRUCTION ITEM	REMAINING QUANTITY	UNIT	UNIT PRICE	ESTIMATED COST
1. Clear & grub		Linear foot	\$ /lf	\$
2. Construct to subgrade		Linear foot	\$ /lf	\$
3. Gravel foundation		Linear foot	\$ /lf	\$
4. Bit. conc. Base course		Linear foot	\$ /lf	\$
Bit. conc. Finish course		Linear foot	\$ /lf	\$
5. Granite curbing		Linear foot	\$ /lf	\$
Granite curb inlets		Each	\$ /ea	\$
6. Sidewalks		Linear foot	\$ /lf	\$
7. Water mains		Linear foot	\$ /lf	\$
Hydrants		Each	\$ /ea	\$
Gate valves		Each	\$ /ea	\$
Service connections		Each	\$ /ea	\$

8. Catch basins		Each	\$ /ea	\$
Form J (Cont.)				
Drain manholes		Each	\$ /ea	\$
Drain pipe		Linear foot	\$ /lf	\$
Headwalls		Each	\$ /ea	\$
Stream shaping		Linear foot	\$ /lf	\$
Rip rap		Square yard	\$ /sy	\$
Detention basins		Each	\$ /ea	\$
9. Sewer manholes		Each	\$ /ea	\$
Street sewer pipes		Linear foot	\$ /lf	\$
House laterals		Each	\$ /ea	\$
10. Cable utility trench		Linear foot	\$ /lf	\$
Street lights		Each	\$ /ea	\$
11. Street monuments		Each	\$ /ea	\$
Lot bounds		Each	\$ /ea	\$
12. Street signs		Each	\$ /ea	\$
13. Shade trees		Each	\$ /ea	\$
14. Topsoil & seed		Each	\$ /ea	\$
15. Record plans				
16. Incidental items				
Guardrail		Linear foot	\$ /lf	\$
Retaining wall		Linear foot	\$ /lf	\$
			\$	\$

Form J (Cont.)	
Subtotal (a)	\$
Maintenance @ 2% of (a)	\$
Contingency @ 25% of (a)	\$
Subtotal (b)	\$
Inflation @ 6% of (b) per year compounded	\$
Total guaranty required	\$

FORM K

DISTRIBUTION LIST

The Subdivision Regulations, Sections 191-7.A and 191-8.A, require that when either Preliminary or Definitive Subdivision Plan is submitted to the Planning Board the applicant shall simultaneously deliver an additional copy of such plan to:

	# Copies:	Received By:	Date:
Board of Health	(1)	_____	_____
Conservation Commission	(1)	_____	_____
DPW Superintendent	(1)	_____	_____
Town Clerk	(1)	_____	_____
Town Administrator	(1)	_____	_____
Building Inspector	(1)	_____	_____
_____	()	_____	_____
Planning Board	(2)	_____	_____

A copy of this form, fully endorsed, must be presented to the Planning Board prior to it taking action on a Preliminary Plan and prior to it holding a public hearing on a Definitive Plan.

[Revised 8-3-95]

FORM L

SUMMARY OF DRAINAGE CONSIDERATIONS

A. BASIS AND ASSUMPTIONS OF HYDROLOGICAL STUDY

1. The proposed drainage detention basin design should be capable of storing the increased volume of the 100-year storm due to the proposed development.
2. Soil Conservation Method (Modified Soil Cover Complex) is to be used.
3. Site grading provisions for controlling 100-year runoff on site towards detention basins is recommended and should be shown on the plans.
4. 25-year storm frequency to be used for storm drainage system design.
5. Existing outflow conditions to be maintained and its design capacity not to be exceeded. Increased drainage from the proposed development should not increase the peak flow either in quantity and/or time duration.
6. Road base design to include protection against groundwater to at least 5.0 feet depth.
7. Underdrains preferably should be located under grass strips if needed for lowering the water table. The pie trench center for the proposed underdrains for lowering the water table also should preferably be located +24 inches behind the curb line.
8. The detention basin and channels or pipes shall not contain excess standing water after the end of the design storm above the invert of low level outlet at proposed detention basin.
9. A concrete or storm apron will be provided under the end of each inlet pipe.
10. Status of Notice of Intent (MGL 131, Chapter 40) should be filed with the Conservation Commission. (Attach copy)
11. Inflow/outflow hydrograph: peak flows both for existing and proposed conditions. (attach computations and data)
12. Statement whether existing outlet control from the existing wetland, if applicable, needs to be altered or not.
13. Statement and description of mitigating measures taken to minimize the flood impacts both in water quantity and water quality.
 - a. Mitigating measures taken to minimize the water quality impacts are.
 - 1.
 - 2.
 - 3.

b. Mitigating measures to minimize the water quantity impacts are:

- 1.
- 2.
- 3.

14. Existing wetlands to be avoided for use as detention basins. Direct inflow from street drainage into any natural bodies of water including rivers, brooks, streams, and/or wetlands to be through proposed detention basins only.
15. In determining curve numbers for post-development conditions, the change in soil conditions in yards of a house lot due to compaction by construction machinery and also due to additional cover of loam is to be taken into account. It is suggested that curve number differential in pre-development and post-development conditions to be on the order of 20.
16. For any determination of flood plains, any method like HEC-2 or similar method applicable to irregular channels should be used.

Note: The above suggested basis and assumptions are in no way intended to be all inclusive but are in addition to other Town Rules and Regulations and provided as guidelines and assistance.

B. PERTINENT DATA FOR HYDROLOGICAL REVIEW

- Form-L Page 3

FORM L SUMMARY OF DRAINAGE CONSIDERATIONS (continued)

C. HYDROLOGICAL ANALYSIS DATA

1. Land use (existing conditions) - Pre-development CN = _____ .

2. Land use (future conditions) - Post-development CN = _____ .

3. Road and other paved areas CN = 98 (total area = _____ acres $\pm$)

4. Composite CN after post-development conditions CN = _____ .

5a. Runoff volume determination:

Use frequency 1 in 100 years.

Total rainfall in 24 hours = _____ inches.

Direct runoff in 24 hours for pre-development. CN = _____ is _____ inches.

Direct runoff in 24 hours for post-development. CN = _____ is _____ inches

Increased runoff from acres (+) as maximum = _____ AC/ft

Without outflow (assuming outflow is clogged) = _____ AC/ft

5b. But with outflow functioning increased runoff has a value of _____ AC/ft.
(Present runoff peak flow is CFS and proposed runoff peak flow is CFS.)

6. Characteristics of detention basins.

Elevation	Storage in AC/ft	Remarks
	0.00	

A free board of _____ feet is left over.

D. RATING DATA FOR LOW LEVEL OUTLET

Bottom of detention basin (elevation) = _____ ft.

Invert of low level outlet = _____ ft.

Size and shape of low level outlet = _____ ft.

Any additional physical details of low level outlet from detention basin = _____.

E. RATING DATA FOR OVERFLOW WEIR

- Any additional physical details of outflow weir.

- | Elevation | Outflow discharge
in CFS | Remarks |
|----------------------------|-----------------------------|-----------------------|
| | 0 CFS | |
| | CFS | |
| | CFS | |
| | CFS | |
| | CFS | Peak proposed outflow |
| Max water
surface elev. | FT | |

- ## F. DESIGN CRITERIA SUMMARY

- Form-L Page 5

FORM L SUMMARY OF DRAINAGE CONSIDERATIONS (continued)

7. Pipe analysis - see paragraph G for summary and computer printout for analysis. (All catchbasins are connected by 12" pipes.) Twenty-five year frequency storm for 24-hour duration has a total rainfall = _____ inches and 25-year frequency storm for 24 hour duration has an effective rainfall for CN = _____ is _____ inches.

G. PIPE ANALYSIS SUMMARY (for pipes 24" diameter or larger)

Name of roadway	Average slope	Contributing drainage area in acres	Peak discharge for 25-year frequency storm	Size of pipe required in inches	Size of pipe provided in inches
		Acres	CFS		
		Acres	CFS		
		Acres	CFS		
Pipe to retention area		Acres	CFS		

H. INFLOW/OUTFLOW SUMMARY RESULTS (DETENTION BASIN)

- (a) Existing conditions (pre-development)

D.A. = _____ acres±
 CN = _____
 TC = _____ minutes
 Peak flow = _____ CFS
 Frequency = 1 in 100 year
 Rainfall = _____ inches in _____ hours
 Volume = _____ AC/ft
 Peak flow = _____ CFS (without routing through pipes)

- (b) Proposed Conditions (post-development)

Peak flow = _____ CFS
 Maximum outflow = _____ CFS
 Max water surface elevation (100 yr storm) = _____
 Bank elevation = _____
 Total volume pre-development = _____ AC/ft
 “ “ post-development = _____ AC/ft
 Detention at elevation _____ = _____ AC/ft.
 Provided = _____ AC/ft. Therefore O.K.

[Added 9/1/88]

FORM M

REQUEST FOR RELEASE OF SECURITY

The undersigned, owner of land being subdivided pursuant to a Definitive Plan of a subdivision entitled _____, dated _____, 20____, believing that the conditions set forth by the Certificate of Approval (Form D-1) issued by the Planning Board dated _____, 20____, have been satisfied with respect to _____, and having secured approval from the Superintendent of the DPW for such release, hereby requests release of \$ _____ from the security deposit of \$ _____ being held by the Town to secure those conditions, leaving \$ _____ to secure future performance.

Owner

_____, 20____

Approved for release:

Superintendent, Blackstone DPW

_____, 20____

Blackstone Planning Board

_____, 20____

[Added 8/3/95]

SUBDIVISION OF LAND

Department of Public Works Lift Station Specifications

It is suggested that the following design criteria be given consideration for future lift stations:

1. The service manhole shall be at least twenty-four (24) inches inside diameter at the surface and shall be securely lockable.
2. Tanks shall be constructed of reinforced concrete. Minimum diameter of dry pits shall be ten (10) feet zero (0) inches. The types of foundations and bedding shall be submitted.
3. Computations should be submitted for approval, indicating the size and volume of wet well.
4. Only centrifugal torque-flow and pneumatic pumps will be given consideration.
5. Pumps shall be subjected to a positive head.
6. Alarms indicating loss of power, high water, low water and station flood shall be telemetered to locations determined by the Superintendent of Public Works.
7. A hose station with a back flow preventer for cleaning and flushing of pumps shall be provided.
8. Sump pumps in dry wells shall be provided.
9. Pump stations shall be fenced in.
10. Generators should automatically start on loss of power and automatically cut out on restoration power. One-hundred-percent standby power shall be required.
11. Positive continuous ventilation shall be required: a minimum of twelve (12) air changes per minute, including running lights.
12. All pump stations should have pumps in duplicate with one (1) lead and one (1) backup pump.
13. Pump stations should be designed and properly sized for low flows in the beginning and higher flows in the future (total drainage basin and acceptance of larger pumps in the future).
14. Provide communitor or bar screen, if approved by the Superintendent, to prevent pumps from clogging.
15. Flow and buoyancy calculations shall be submitted.
16. Facilities shall be designed to allow easy removal and replacement of equipment. Hoisting equipment shall be supplied.
17. Provide all spare parts as recommended by manufacturer.

18. Provide mechanical seals where possible.
19. Pump motors may be constant or variable speed, provided that explanation is submitted for selection.
20. A forcemain shall be cemented-lined ductile iron with a minimum diameter of four (4) inches.
21. Forcemain velocities shall be a minimum of three (3) feet per second.
22. Electrical equipment shall be in compliance with National Electric Code, State, Municipal Regulations. Electrical equipment shall be designed for adequate and reliable operation, as well as safeguarding Sewer Department personnel under all conditions of operation and maintenance.
23. Landscaping of the lift station site shall be compatible with surrounding areas. Lift station enclosures shall be designed to be compatible with existing and proposed surrounding land use.
24. Provide heat.
25. Provide properly sized flow meter.
26. Provide all necessary O & M manuals.
27. Must provide any and all specialized maintenance equipment necessary to maintain lift station and/or forcemain.
28. For the pump station that is proposed to be used, the details and specifications shall be submitted for approval. The specifications shall include, but not be limited to, motor-type voltage and phase, overload protection, capacitors, controls and protection against lightning.
29. Gate valves shall be installed on all suction and discharge lines.
30. Check valves shall be installed on all discharge lines.