

TOWN OF CANAAN

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ARTICLE I Procedures

1. General

- A. This chapter shall apply to all new roads and shall also apply to all other highway related construction, whether constructed as part of a subdivision or site plan approved by the Planning Board or constructed otherwise. All roads including private roads, that are not proposed as a town road, but which could become a town road, shall be designed and built in accordance with this chapter.
- B. This chapter shall apply to all new or improved driveways, access points, drainage construction, utility construction or other matters defined herein, whether constructed as part of a subdivision or site plan approved by the Planning Board or constructed otherwise. Approval or permit from the Highway Superintendent shall be required.
- C. This chapter shall apply to the installation of any utilities or other work within a town Right-Of-Way. The installer shall obtain a highway work permit from the Highway Superintendent. The Highway Superintendent may require security in conformance with Subdivision of Land Regulations to ensure restitution to the town for damages resulting from said installation. Any reference to “developer” shall also apply to a utility or other applicant.
- D. The Town of Canaan Planning Board has the ability to waive provisions of the specification on a case by case basis, provided the Planning Board obtains written recommendations regarding the proposed waiver from the Town Engineer or the Town Superintendent of Highways.
- E. On issues not presented to the Planning Board, the requirements of this chapter shall not be altered or waived by anyone except the Highway Superintendent or the Town Engineer. Where the Highway Superintendent or the Town Engineer finds that extraordinary and unnecessary hardships may result from strict compliance with these regulations, he may vary the regulations so that substantial justice may be done and the public interest secured, provided that such variations will not have the effect of nullifying the intent and purpose of these regulations. The final decision as to the interpretation of Articles II through VII of this chapter shall rest with the Town Superintendent of Highways. Where there are differing or conflicting requirements this chapter shall prevail.
- F. The invalidity of any provision of this chapter shall not invalidate any other article, paragraph, section or provision thereof.

2. Preparation and submission of road or improvement plan

- A. Plans, including profiles and construction details of the proposed road or improvement, shall be prepared by a qualified professional engineer or land surveyor properly licensed by the State of New York. Plans shall be prepared in accordance with the requirements of this and other chapters of the Town Code as may apply. The plans shall clearly define the limits of the proposed Right-Of-Way and shall include the locations, widths profiles and grades of proposed roadways; existing and proposed contours; typical road sections; storm drainage, including culverts and other drainage structures; the locations of easements and utilities; and erosion and siltation control measures.
- B. All plans shall be submitted for review and approval by the Highway Superintendent and the Town Engineer. Where approval of a road or improvement is part of a proposed subdivision or site plan, plans shall be submitted to the Planning Board for review of matters not covered by this chapter. When any proposed highway drains toward, connects with, or may otherwise affect a county or state highway, plans shall also be submitted to the County Commissioner of Public Works or New York State Department of Transportation for their review and approval.

3. Construction and inspection

- A. Actual construction of public improvements shall conform to the approved plat or plan, unless modifications are approved or ordered by the Highway Superintendent or the Town Engineer. The Highway Superintendent or the Town Engineer shall have the right to require that the developer provide additional facilities, such as storm drainage facilities or erosion/siltation control measures, if, during the progress of the work, the Highway Superintendent or the Town Engineer deems such facilities or measures necessary to assure the durability of the pavement, the future maintenance of the Right-Of-Way, and the welfare and safety of the public, or to prevent drainage or erosion problems in either subdivision lots or the public portions of the subdivisions.
- B. All improvements within the Right-Of-Way shall be completed within one year after the date of initial title transfer with respect to any lot or dwelling fronting on a street shown on a subdivision plat or within the time limit stated on a highway work permit issued by the Highway Superintendent.
- C. The roadway and storm drainage construction shall be jointly inspected by the Highway Superintendent, the Town Engineer and the developer's Engineer. The Highway Superintendent and the Town Engineer shall be given access to the work at all times in order that they may assure compliance with this chapter as the work progresses. The developer shall

give the Highway Superintendent and the Town Engineer two (2) working days' notice prior to working on any construction project within the town.

- D. Inspections shall occur at the following listed places:
- (1) Upon completion of installation of erosion controls.
 - (2) Upon completion of the subgrade.
 - (3) Upon completion of drainage facilities, but prior to backfilling.
 - (4) Upon completion of the foundation course, at which time the developer shall furnish the Highway Superintendent with men and equipment to dig, or have dug, test holes to establish and confirm the depth and quality of the foundation course.
 - (5) Continuously during any construction activity.
- E. The developer shall give the Highway Superintendent and the Town Engineer at least two (2) working days' notice of the expected completions in Subsection D above and shall not proceed to the next item of work until the Highway Superintendent has approved the work.
- F. Prior to paving any roadway, the developer shall submit to the Highway Superintendent and to the Town Engineer an as-built drawing of the roadway and a Subdivision Road and Related Public Improvement Engineer's Certification Form I and shall obtain approval of the certification and the as-builts. If the as-built drawings do not substantially conform to the approved site plan or plot, a revised drainage report shall be submitted if required by the Highway Superintendent or the Town Engineer.
- G. Inspection of work done under a highway work permit shall be by the Highway Superintendent or the Town Engineer.

4. Maintenance

- A. The developer shall maintain the road in such condition that the residents shall have safe and convenient access. The minimum conditions for such access during the subdivision construction and prior to final road acceptance are listed below:
- (1) The earth shoulders and flow line of ditches and gutters shall be kept free and clear of debris, stone, gravel or any material which prevents the free flow of water. Driveways shall be constructed so that the flow line remains clear.

- (2) The storm sewer system shall be kept clean and operational at all times.
 - (3) The pavement or gravel surface shall be maintained on a continuing basis. Soft spots or other structural defects shall be repaired immediately by excavation and replacement with approved material. "Immediate" shall be considered to be 24 hours from the time oral or written notification is given to the developer by the Highway Superintendent or the Town Engineer, unless arrangements are made, satisfactory to the Highway Superintendent, to protect the traveling public by installing lights and barricades until such time as repairs can be made. Potholes and edge raveling shall be remedied on a continuing basis, or as ordered by the Highway Superintendent. Repairs to asphalt pavement shall be made with asphalt concrete (hot mix when available). Repairs to gravel surfaces shall be made with New York State Department of Transportation 304.05 Subbase Course, Type 4.
- B. Maintenance of roads for work done under a highway work permit shall be as specified in the permit.

5. Dedication

Compliance with all requirements of the Highway Specifications shall not guarantee acceptance of the dedication of the road by the Town of Canaan. Acceptance of dedication shall be in the absolute discretion of the Town of Canaan Town Board. The following conditions shall be satisfied before the developer requests the Town Board to consider the acceptance of a new highway:

- A. The following conditions are to be satisfied before the Town Board considers the acceptance of a new highway. It is the responsibility of the developer or his representative to prepare and obtain all necessary documentation for submission to the Town. All required information shall be submitted to the Town Board, Superintendent of Highways, Town Engineer and Town Attorney at least 30 working days prior to the Town Board meeting date on which the matter will be discussed.
- B. Drawings showing the location of all required improvements as-built shall be certified by a licensed professional engineer or a licensed land surveyor and filed with the Planning Board at least 30 days prior to the acceptance of the improvements by the town.
- C. The developer shall submit to the Highway Superintendent a Subdivision Road and Related Public Improvement Engineer's Certification Form II, an

as-built drawing of any roads and other public improvements, and metes and bounds description of all rights-of-way and easements prepared by a licensed land surveyor. The as-built plans of the highway shall show Right-Of-Way lines, permanent monument locations (including offsets from true location), drainage and utility easements and a road center-line profile. The plans shall bear the stamps of both a licensed professional engineer and a licensed land surveyor.

- D. The developer shall prepare, and submit to the Town Attorney for approval, the deeds, offers of cession, title search and maintenance bond. The submitted deeds shall be checked by the Town Attorney as to form and sufficiency. A title search must be made of the land offered to assure the validity of the title, and the cost of this search shall be borne by the developer.
- (1) Written metes and bounds descriptions of all rights-of-way and easements prepared by a licensed land surveyor must be submitted to the Town Engineer and Town Attorney for review and approval. Once the descriptions have been prepared, the developer's attorney shall work with the Town Attorney to ensure that the deeds are appropriately filed in the office of the County Clerk.
 - (2) The plans and descriptions must be reviewed by the Town Engineer, who shall indicate his approval either by letter to the Town Board or by the stamping of said plans and descriptions. Where applicable, the as-built plans shall also be reviewed by the Town of Canaan Water Superintendent. This is applicable for roads having a watermain or sewer mains in the Right-Of-Way.
 - (3) The work completed on the highways at the date of submittal must be approved by the Town Highway Superintendent and the Town Board be notified of this approval. The Town Highway Superintendent shall submit, in writing, his order accepting the road.
 - (4) Approved permanent concrete or granite monuments shall be set according to the Town Highway specifications or as directed by the Town Engineer, and their location shall be shown on the road plan. Iron pipes, unless embedded in concrete, shall not be considered permanent monuments for the purpose of these regulations.
 - (5) The developer shall post a satisfactory maintenance bond in an amount and form acceptable to the Town Engineer and Town Attorney. In no case shall a maintenance bond be less than \$20,000.

- (6) At the close of the meeting when the Board accepts a new road, the developer shall prepare two complete sets of the following and submit them to the Highway Department within 15 days of the Board meeting:
 - (a) A copy of the actual Town Board resolution accepting the road.
 - (b) A full-size copy of the as-built and a reduced scale size (smallest legible reduction).
 - (c) Filed deeds for the road Right-Of-Way and all easements.
- E. This information will then be submitted by the Highway Department to the New York State Department of Transportation for inclusion of the new road into the Town's Highway Inventory.

ARTICLE II Highway Design Specifications

6. Guidelines, Applicability and Planning

A. Guidelines.

- (1) All highways shall be designed in accordance with the latest edition of a Policy on Geometric Design of Highways and Streets, published by AASHTO, except that all specific requirements stated in this article shall take precedence over the AASHTO guidelines.

B. Applicability.

- (1) Unless otherwise stated, this article is written for rural or suburban roads but shall be used as applicable for other classes of highways.
- (2) See Figure II-3 and Figure 11-3A for a subdivision road typical cross-section. Some modifications to the specifications in this article are shown on Figures II-1, II-2 and 11-3A for other classes of highways.

C. Continuation of streets into adjacent property.

- (1) Streets shall be arranged to provide for the continuation of principal streets between adjacent properties where such continuation is

necessary for convenient movement of traffic, effective fire protection, efficient provision for utilities and particularly where such continuation is in accordance with the town plan.

- (2) If the adjacent property is undeveloped and a street must dead-end temporarily, the Right-Of-Way and the improvements must run to the property line. A temporary circular turnaround shall be provided on all temporary dead-end streets.

D. Road names.

- (1) The developer shall receive prior approval for any proposed road name from the Town Board.

7. **Classes and Right-Of-Way**

A. The Highway Superintendent shall determine and designate into which of the three (3) following classifications each proposed highway falls on the basis of one or more of the defining criteria. The Highway Superintendent may delegate to the Planning Board the authority to designate the class for any highway that is part of a subdivision or site plan also reviewed by the Planning Board.

- (1) Major or through highway.
- (2) Commercial or industrial highway.
- (3) Rural or suburban highway.

B. Major or through highway.

- (1) The proposed highway is the direct and logical continuation of an existing highway that carried 500 or more heavy and light vehicles during a twelve-hour period as shown on the latest traffic count if heavy vehicles (trucks) are more than 10% of the design hour traffic volume. At least half of the trucks are anticipated to be at or near the legal maximum weight.
- (2) The proposed highway creates a shorter and more convenient through traffic artery so that it can be reasonably expected that traffic will be diverted from other major highways to such an extent that it will reach at least 500 cars in 12 hours within two (2) years after opening.

- (3) The proposed highway could logically be expected to become a major highway because of future construction or other foreseeable circumstances.
- C. Commercial or industrial highway.
- (1) The proposed highway is in an area for commerce or industry.
 - (2) The proposed highway is on or so close to the dividing line between a residential and a commercial or industrial area that it may reasonably be expected to carry a substantial volume of heavy vehicles.
 - (3) The proposed highway creates a shorter and more convenient route between a commercial or industrial area and a major traffic artery.
 - (4) The proposed highway for any other reason may be expected to carry a substantial volume of commercial or industrial traffic.
- D. Rural or suburban highway. (This classification is intended to cover the majority of subdivision roads).
- (1) The proposed highway shall not be, or be reasonably expected to become, a major or commercial highway.
 - (2) The proposed highway shall be a dead end, loop or other minor highway within a residential development.
 - (3) The proposed highway is not, or cannot reasonably be expected to become, a continuation or extension of a major or commercial highway. Should such be the case, the proposed highway shall take the classification of the highway of which it is a continuation or extension.
 - (4) The proposed highway does not, or cannot reasonably be expected to carry a substantial volume of traffic.
- E. The roadway Right-Of-Way (ROW) width shall be minimum 60 feet for rural highways and minimum 60 feet for Commercial and Major highways.
- (1) Where regrading extends beyond the sixty-foot (60) ROW, the developer shall include all regrading outside of the Right-Of-Way in permanent grading easements.
 - (2) Where there is no defined or dedicated ROW, the subdivider or developer shall deed to the town, at minimum, all land within 30

feet of the mean center line of the existing “road by user” when so requested by the Highway Superintendent.

- (3) Where sidewalks are planned, the ROW width may be increased by five (5') feet per side to provide a buffer strip.

8. Vertical alignment

- A. Highways shall be designed so that finished tangent grades will not be less than 1% nor more than 10%.
- B. Every change in grade shall be effected with a vertical curve of sufficient length to ensure adequate stopping sight distance and to provide for a smooth transition.
 - (1) The crest vertical curve length shall be the greater of a minimum 30 times the algebraic difference of the tangent grades or a minimum of 100 feet.
 - (2) The sag vertical curve length shall be the greater of a minimum 40 times the algebraic difference of the tangent grades or a minimum of 100 feet.
 - (3) In either case, the maximum length of vertical curve shall not exceed 143 times the algebraic difference of the tangent grades.
- C. When an existing road is extended, all new road profiles shall match the existing tangent slope or continue the existing vertical curve as applicable.
- D. There is no minimum tangent length requirement between vertical curves, either successive or reverse.

9. Horizontal alignment

- A. Two (2) tangent sections of a roadway shall be connected with a horizontal curve of at least 300 feet radius, measured at the centerline. The minimum curve length shall be 100 feet.
- B. Super elevation shall only be used when approved by the Highway Superintendent and the Town Engineer.
- C. When an existing road is extended, the new road alignment shall match the existing tangent section or start or continue a horizontal curve.
- D. There shall be a minimum one-hundred-foot tangent section between reverse curves. “Broken back” curves may be used only if the segments

of the same hand are separated by a minimum two-hundred-foot tangent section.

10. Combination alignment

- A. The recommendations of the AASHTO guidelines shall be followed as closely as practical.
- B. Where a crest vertical curve and a horizontal curve occur together, there shall be greater than the minimum (300 feet) sight distance to ensure that the horizontal curve is visible to approaching drivers.

11. Intersections

- A. At an intersection, the major road grade should be limited to 3%. A grade greater than 3% may be accepted with adjustments to design factors, particularly as affecting sight distance along the road and corner sight distance.
- B. Normally, the grade-line of the major road should be carried through the intersection, and the grade-line of the minor road should be adjusted. Such a design requires a transition of the crown of the minor road to an inclined cross section at its junction with the major road. Drainage shall be carefully designed to prevent ponding and minimize sheet flow across the pavement.
- C. Intersections of a major road by other roads shall be at least 800 feet apart, if possible. Cross (four-cornered) road intersections shall be avoided, except at important intersections. A distance of at least 150 feet shall be maintained between offset intersections. At grade intersections shall have no more than four (4) legs.
- D. Within 40 feet of an intersection, the minor road centerline shall be at right angles to the major road. Where a minor road intersects a major road that is on a horizontal curve, the minor road centerline shall be tangent and radial to the major road for a minimum of 40 feet.
- E. The ROW lines at a road intersection shall be connected by a minimum twenty-five-foot radius curve, tangent to each leg.
- F. For more complex intersections, such as those involving sidewalks, islands, curve alignment, etc., the AASHTO guidelines shall be followed to the greatest possible extent.

12. Turning Circles

- A. Wherever a temporary or permanent dead end is allowed on a subdivision road, a circular turnaround shall be constructed. There shall be a notation on the plat that the land outside the road Right-Of-Way shall revert to abutters whenever the road is continued. See Figure II-5.
- B. All turning circles shall have grades between 2% and 5%, unless otherwise approved by the Highway Superintendent or the Town Engineer, and shall assure properly directed drainage flow into the catch basin(s).
- C. Surface treatment shall be of the same type as the road leading to the circle, as shown on Figures II-1, II-2 and II-3, and must be approved by the Highway Superintendent.
- D. Cul-de-Sac Roads shall be limited to a total length of 1,200 linear feet.

13. Sight Distance

- A. Actual sight distance shall be determined by roadway speed limits, grades, pavement surface and related criteria. An adjustment shall be made for the effect of grades, per the AASHTO guidelines.
- B. At intersections (including driveways) or along curves, where required by the Highway Superintendent or the Town Engineer, the developer shall provide the town with a deeded sight easement which shall remain free of any plantings over one foot in height and free of any buildings, structures or other obstructions, in order to maintain clear, unobstructed sight distance. Tree overhang shall be trimmed and maintained to a line at least eight (8') feet above the level of the roadway.
- C. A minimum three-hundred-foot sight distance shall be provided along a curve for a 30 mph design speed.
- D. Stopping sight distance shall be measured from a point on the center line of the approaching lane of the minor road or driveway twelve (12') feet behind the projected edge of the roadway of the major road, to a point on the center line of the approaching lane of the major road, to a point on the center line of the approaching land of the major road. The height of object shall both be assumed to be 44 inches above the road pavement.
 - (1) Each approach to the intersection or driveway shall be considered separately.
 - (2) For a driveway, or where the minor road is stop controlled, a minimum of 200 feet of unobstructed stopping sight distance shall be provided for both approaches along a level, 30 mph paved road.

- (3) For a yield controlled minor road, a minimum of 310 feet of unobstructed sight distance for a 30 mph major road speed shall be provided.
- E. Visibility at intersections. Within the triangular area formed at corners by the intersection of street centerlines, for a distance of 75 feet from their intersection and the diagonal connecting the end points of these lines, visibility for traffic safety shall be provided by excavating, if necessary. Nothing in the way of fences, walls, hedges or other landscaping shall be permitted to obstruct such visibility.
- F. On a corner lot in any residential district no fence, wall, hedge or other structure or planting more than 3-1/2 feet in height shall be erected, laced or maintained within the triangular area formed by the intersecting street lines and a straight line joining said street lines at points which are 30 feet distant from the point of intersection, measured along said street lines.

ARTICLE III Grading and Paving Construction Specifications

14. Right-Of-Way and construction layout

- A. It shall be the responsibility of the developer to ensure that all public improvements are centrally located within rights-of-way or easements. The developer shall construct each highway in accordance with the particular specifications for its designated classification, as well as in accordance with the specifications common to all classifications.
- B. The developer shall establish and clearly mark on the site the limits of highway Right-Of-Way and easements, the centerline and grades of the road pavement and the location and elevation of drainage and drainage structures in accordance with the approved plans. Such markers shall be maintained at the developer's expense until the construction of all required improvements within the Right-Of-Way limits has been completed, inspected and approved by the Highway Superintendent and the Town Engineer.
- C. If the Highway Superintendent finds that conditions in the field will require major modifications of a plat or plan approved by the Planning Board, the Highway Superintendent shall have the authority, at his option, to require the developer to submit a revised plan for Planning Board review.

15. Clearing and grubbing

- A. All required erosion and siltation control measures on the approved plat or site plan or as otherwise required, shall be fully installed prior to the start of construction of any improvements.
- B. The developer shall clear the entire area within the limits of:
 - (1) The Right-Of-Way.
 - (2) Stream channels and ditches.
 - (3) Easement areas.
- C. All rocks, boulders, brush, roots and stumps shall be grubbed, excavated and removed from the cleared areas. All such materials shall be disposed of in an approved manner.
- D. Sight easements shall be cleared prior to issuance of building permits.

16. Rough grading

- A. The developer shall complete the shaping of the highway Right-Of-Way, streams, ditches and easement areas to the line and grade shown on the approved plan and as otherwise may be directed by the Highway Superintendent or the Town Engineer. All unsuitable or unstable materials shall be completely excavated and removed from the Right-Of-Way, and all rock, or boulders larger than six (6") inches in diameter, shall be excavated at least eight (8") inches below the subgrade of road pavement, drainage or drainage structures, curbs and sidewalks.
- B. Where fills are necessary to complete the required line and grade, the materials incorporated in the work shall be acceptable to the Highway Superintendent or the Town Engineer. Material shall be placed in lifts not exceeding six (6") inches in loose depth, and each lift shall be compacted to 95% standard proctor maximum density by rolling with a smooth drum vibratory, sheepsfoot, pneumatic-tired or padded wheel roller, or by impact rammer or vibrator equipment in areas inaccessible to power rollers. All compaction shall continue until the fills are firm and unyielding. Special care shall be exercised in placing and compacting material immediately adjacent to pipes in order to avoid damage to the pipe and to prevent pipe misalignment.

- C. The rough grade of the pavement, curb and sidewalk areas shall be completed to within one inch above or below true subgrade as shown on the approved cross section of the Right-Of-Way improvement.
- D. "Rock" is defined as being sandstone, limestone, granite, quartzite, slate, shale or similar material in masses more than 20 cubic feet in volume, or in ledges four (4") inches or more in thickness, which may or may not require blasting for its practical and effective removal. Should rock be encountered in two (2) or more ledges, each ledge being not less than three (3") inches in thickness and with interlying strata of earth, clay or gravel not more than twelve (12") inches thick in each stratum, the entire volume between the top of the ledge and the bottom ledge will be classified as rock.
- E. When rock is encountered during excavation, the developer shall excavate as required for the construction of the proposed project as shown on the approved construction plans or subdivision plat, and in accordance with the following requirements:
 - (1) It shall be the responsibility of the developer to employ the most efficient method or methods in removing the rock so encountered. He will not be permitted to use archaic or inefficient methods.
 - (2) When blasting is required to facilitate removal of rock in excavations, all operations pertaining thereto shall be carried out only under the direct, personal supervision of a person who is knowledgeable in the handling and use of explosives in this class of work and who shall possess a valid blasters certificate of competence, Class I or II, issued by the State of New York, Department of Labor, Division of Safety and Health.
 - (3) The developer shall take all precautions necessary to protect persons and property whenever and wherever blasting is being carried out and he shall be responsible for any and all damage or damages resulting therefrom. The cost of repairing all damages caused by blasting shall be borne by the developer.
 - (4) No blasting shall be carried out within 50 feet of any pipe, conduit or other structure already in place. Notification as to time and place of blasting shall be provided to all proper authorities, including the Highway Superintendent and the Town Engineer.
 - (5) The face of all rock excavation for roadways, where the face is in excess of four (4) vertical feet, shall be presplit.
 - (6) Excavated rock shall be disposed of in an approved manner.

17. Subgrade

- A. After completion of the rough grade and prior to placing the foundation course, the subgrade shall be shaped to line and grade and compacted to minimum 95% of standard proctor maximum density with an approved self-propelled roller weighing not less than ten (10) tons. All hollows and depressions which develop under rolling shall be filled with acceptable granular material and again rolled, and this process shall be continued until no depressions develop. The subgrade shall not be muddy, frozen or otherwise unsatisfactory when the foundation course is laid upon it.
- B. Any soft or unstable portions of the subgrade which develop under the roller shall be completely excavated and removed from the Right-Of-Way and shall be replaced with acceptable granular material and the area regraded and compacted as above.
- C. In areas where fill is being placed in areas with groundwater problems, areas heavily laden with clay or other wet non supportive soils and as directed by the Superintendent of Highways or Town Engineer, filter fabric (geo-textiles) shall be placed prior to filling. The filter fabric shall be Mirafi 600 X or an approved equal. It shall be placed in conformance with the manufacturer's specification but in no case shall be lapped less than 24 inches on any end.

18. Fine grading of subgrade

- A. Before fine grading subgrade or construction of curbs and sidewalks is started, all storm and sanitary sewers and all utilities, including but not limited to, house connections, hydrants, service lines, gas services, telephone, electric and cable conduits and roof/footing drains shall have been installed, and all fill and backfill shall have been thoroughly compacted to the satisfaction of the Highway Superintendent.
- B. The subgrade shall conform to the prescribed width of pavement and shall extend equidistant from the centerline of the road and shall conform to the typical cross section of the road and the approved line and grade.
- C. The subgrade shall be fine graded with a motorized grader and recompacted to the satisfaction of the Highway Superintendent and the Town Engineer.

19. Foundation course

- A. The foundation course shall consist of two (2) gradations.
- (1) The lower layer shall consist of approved screened gravel, crusher-run stone or crusher-run gravel. All materials acceptable for this layer shall be hard, durable and sound and shall be well graded from coarse to fine. One hundred percent by weight shall pass through a four-inch square hole, not less than 30% by weight shall pass the one-fourth-inch square sieve, not more than 70% by weight shall pass the No. 40 mesh sieve and not more than 10% by weight shall pass the No. 200 mesh sieve.
 - (2) The maximum particle size permitted in the three-inch processed crusher run processed quarry material layer shall not exceed such size as will pass through a two-inch square hole. Thirty percent to 65%, by weight, shall pass the one-fourth square sieve and not more than 10% by weight shall pass the No. 200 mesh sieve.
- B. After the subgrade and all concrete curbs (if used) have been constructed to the satisfaction of the Highway Superintendent, the developer shall furnish and place the foundation course. The foundation course materials shall be placed on the finished subgrade and shall be compacted to minimum 95% standard proctor maximum density by rolling with a self-propelled ten-ton roller. Water shall be added to the materials in amounts necessary for proper compaction. After compaction, the course shall be true to grade and cross section, and any depressions shall be eliminated by the use of additional granular materials, thoroughly rolled in place. In all cases, the foundation course must be so thoroughly compacted that it will not weave under the roller and the total depth after compaction shall not be less than specified.

20. Asphalt cement concrete (plant mix)

- A. The developer shall construct a two-course asphalt cement concrete pavement laid to conform to the required grade, thickness and cross section shown on the plans. It is the developer's responsibility to ensure that the road pavement is placed centered in the Right-Of-Way. If the pavement is not centered, the Highway Superintendent has the option of requiring that the pavement shall be removed and replaced centered in the Right-Of-Way.
- B. Materials and method of construction shall conform to Sections 401, 402 and 403 of the current Standard Specifications of the New York State Department of Transportation.
- C. Before placement or construction of the binder course of pavement, it is mandatory that all storm and sanitary sewers and all utilities, including, but

not limited to, house connections, watermains, hydrants, service lines, gas services, telephone, electric and cable conduits and roof/footing drains shall have been installed and all fill and backfill shall have been thoroughly compacted to the satisfaction of the Highway Superintendent. If the binder course has been placed or constructed and the above-referenced utilities have not been completely installed, they shall be installed under the pavement by boring or jacking methods as approved by the Highway Superintendent or Town Engineer. Open cutting of the binder course for utility installation shall not be permitted.

- D. The asphalt concrete binder course shall be uniformly spread by a self-propelled mechanical spreader with mechanical screed and heating unit and in sufficient depth to provide the required finished thickness after rolling thoroughly with a ten-ton roller.
- E. After the binder course has been completed, it shall be thoroughly vacuum cleaned (broom swept is not acceptable) of foreign material to the satisfaction of the Highway Superintendent. A tack coat of asphalt emulsion shall be applied to the surface at the rate of 0.1 to 0.2 gallon per square yard. A final wearing course of fine asphalt concrete shall be uniformly spread by a self-propelled mechanical spreader equipped with mechanical screed and heating unit and insufficient depth to provide the required finished thickness after rolling thoroughly with a two- or three-wheel tandem roller weighting approximately 10 tons.
- F. Extreme care shall be exercised in the placing of asphalt concrete to ensure that all longitudinal joints shall be lapped in the placing of adjoining passes and that all lateral joints are trimmed before continuing with the placing of additional materials on that pass.
- G. No paving will be permitted prior to April 1 and after November 15 of each year, except with the written permission of the Highway Superintendent. Under no circumstances shall material be placed when the surface temperature is below 40°F or the weather is inclement.

21. Bituminous surface treatment (double course)

- A. This item shall be as required by the Highway Superintendent. (See Figure II-I).
- B. The developer shall construct bituminous surface treatment (double course) as specified in approved plans and meeting the requirements of Section 410-3.02 of current Standard Specifications of the New York State Department of Transportation.

- C. The shoulders of a highway with asphalt concrete pavement shall be treated with additional surface treatment for surface texture and color contrast meeting the requirement of Section 410.-3.04 of the current Standard Specifications of the New York State Department of Transportation, when required by the Highway Superintendent.

22. Restoration of disturbed areas within a Right-Of-Way or easement

- A. The Right-Of-Way or easement shall be restored by the developer to conditions acceptable to the Highway Superintendent and the Town Engineer. All unpaved areas within a highway Right-Of-Way or easement and newly created or stripped earth slopes shall be seeded and mulched in accordance with Sections 610-3.02 and 610-3.03 of the current Standard Specifications of New York State Department of Transportation.
- B. The removal of all equipment and parts, junk, rubbish, boulders, excess materials, debris of all kind and trees damaged beyond repair shall be included in the restoration work.
- C. The areas between the road shoulder edge or curb and the Right-Of-Way line or limit of grading shall be graded, topsoiled, seeded and mulched to prevent erosion. A minimum of four (4") inches of topsoil shall be placed in all grass areas. Alternatively, sodding shall be placed on areas designed by the Highway Superintendent. Sodding shall be constructed in accordance with Sections 612-3.01 and 612-3.02 of the current Standard Specifications of New York State Department of Transportation.
- D. The entire area of all easements (e.g., sight, grading, drainage) shall be graded, topsoiled, seeded and mulched except in paved areas.

**ARTICLE IV
Drainage Design Specifications**

23. Drainage report and plans

- A. A hydraulic design report shall be prepared by an engineer licensed in the State of New York. The report shall contain design information for all highway or public easement drainage structures, storm sewers and channels, and shall be approved by the Highway Superintendent and the Town Engineer. The report should contain the basic design data required to arrive at each drainage structure size, such as design year storm, flow rate, grade, velocity, and method used to determine the waterway size. A consideration should also be given to anticipated (if any) future development and any urbanization of the area. The report must address

“before” and “after” development drainage conditions and assesses the downstream effects, if any, caused by the development. The design year storm shall be a twenty-four hour, twenty-five year event for the piping system. And one-hundred-year for all holding, retention or detention facilities and stream crossings.

- B. The drainage report shall be prepared in accordance with the SCS methodology in TR-55 or TR-20.
- C. There shall be enough information shown on the plans and profile to properly construct all the required drainage facilities. The type and size of culverts, and treatments of inlets and outlets, the gauge of metal pipe or class of concrete pipe or strength/schedule of plastic pipe, invert elevation of inlets and outlets, ditch and channel sections, gutters, channel protection and alignment of ditches are some of the types of information required on the plans and profiles.

24. Drainage easements

- A. All drainage easements shall be a minimum of 40 feet wide, unless a lesser width is consented to by the Highway Superintendent. The easement shall grant the town the right to enter upon said property for the purposes of installing, maintaining and repairing the ditches, pipes, swales, and other structures or facilities as placed in such easement.
- B. It is the policy of the town that all storm drainage shall be enclosed in drainage pipe unless waived by the Highway Superintendent.
- C. All easements shall contain provisions providing for the right to install underground pipes, to discharge stormwater therein, and to preclude putting any plantings (except grass) and any structure or fence in the easement.
- D. Where it is proposed that stormwater be drained from the highway or from other lands of the developer to a point on the perimeter of the developer's property, easement or releases shall be provided from the adjoining owners, permitting the discharge of stormwater drainage onto or across such adjoining lands.
- E. All pipes shall be terminated with end treatment only at the property line or perennial open watercourse, whichever is greater, unless said watercourse is prior to the property line. No exceptions shall be made unless approved in writing by the Highway Superintendent.
- F. The developer shall provide an attorney's certificate of title indicating that the easements and rights to discharge surface water are free and clear of

all liens. The easements shall be given to the Town Clerk in recordable instrument. See also Article IX.

25. Pipe

- A. Any storm drain or culvert pipe which will be located underneath the paved portion or curb of a roadway shall be reinforced concrete or smooth interior corrugated high density polyethylene pipe. The minimum diameter shall be 18 inches.
- B. Storm drains or culverts in any location other than under a roadway shall be smooth interior corrugated high density polyethylene pipe or reinforced concrete pipe. The minimum diameter shall be 12 inches.
- C. Height of the fill and pipe classes shall be designed to meet the minimum requirements of H-20 Highway Loading, as designated by the American Association of State Highway and Transportation Officials.
- D. The minimum cover on all drainage pipes shall be twelve (12") inches.

26. Treatment of culvert ends

- A. Whenever a drainpipe begins or ends in an open ditch, pond or stream, the inlet and outlet end shall be designed to protect embankments and channels and to preserve the hydraulic efficiency of the pipe.
- B. The following end treatments shall be used for drainage pipes:
 - (1) Prefabricated end sections.
 - (2) Prefabricated or cast-in-place headwall and wing walls with or without concrete apron (See Figure IV-1).
 - (3) Beveled pipe ends.
- C. Whenever a drainpipe ends in an open ditch, rip-rap shall be placed in the channel. Figures IV-2.1, 2.2 and 2.3 to determine the size and shape of the apron. The rip-rap shall be sized to be stable under the velocity of the discharged water.

27. Underdrains

- A. Underdrains shall be at a minimum grade of 1% toward an outlet such as a drainage channel or a catch basin or manhole.

- B. Underdrains shall be required in all cut sections and where the subgrade is lower than the surrounding ground. The underdrain invert shall be placed at least 36 inches below finished pavement grade, but not deeper than 48 inches below finished pavement grade. The locations may be modified to apply to specific conditions.

28. Catch basins and manholes

- A. The Highway Superintendent and the Town Engineer shall have authority to require the use of larger or heavier materials, additional materials, reinforcing or other modifications and improvements in design and construction over those set forth in this section when they determine that such modifications would provide improved drainage and are required by site conditions.
- B. Catch basins shall be placed at all points of change of slope or alignment and at all junction points. Catch basins shall be located in the lows of sag vertical curves to prevent ponding. Catch basins shall be placed either near or within a turning circle, as the Highway Superintendent or the Town Engineer may require, to assure adequate drainage. At no time shall catch basins be spaced farther apart than 350 feet on slopes less than 3% to 6%, and 250 feet on slopes over 6% as shown on the profile. Catch basins shall be connected to a drainage system or to a natural drainage course.
- C. Manholes may be used in lieu of catch basins only where it is not planned to permit the entry of surface water. Open grates shall not be used on manholes.
- D. Pipes in basins and manholes.
 - (1) When the diameter of the effluent pipe is greater than that of an influent pipe, the elevation of the crown of the influent pipe shall be no lower than the elevation of the crown of the effluent pipe.
 - (2) When the diameter of the effluent pipe is the same as or smaller than that of an influent pipe, the elevation of the invert of the influent pipe shall be no lower than the elevation of the invert of the effluent pipe.
 - (3) There shall be a minimum 0.1 foot drop in elevation between an inlet invert and the outlet invert at each basin or manhole.

29. Open ditches or swales

- A. Open ditches or swales, in lieu of storm drainpipes, shall only be permitted:
 - (1) When authorized in writing by the Highway Superintendent.
 - (2) Along back lots and side slopes when the grade of the land traversed is flat or when it is desirable to drain and dry up the surrounding area. The design of any such open ditch shall be approved by the Highway Superintendent and the Town Engineer.

- B. In no case shall the grade of an open ditch exceed 5%. The following guideline shall be used in treatment of these ditches:
 - (1) Up to 1%: seed and mulch.
 - (2) Up to 3 1/2%: jute mesh and seed.
 - (3) Up to 4%: sod.
 - (4) Up to 5%: rip-rap or four-inch thick asphalt concrete.
 - (5) Over 5% must be piped.

30. Detention or retention ponds

- A. Detention and retention ponds should not be considered as the normal way to mitigate downstream drainage impact. They should only be used in cases where all other options have been investigated and eliminated and where no other recourse is available. In a case where a detention or retention pond is required, the following shall be adhered to and written into any drainage easement for the pond. Under no circumstances shall any of the following be permitted in the stormwater retention/detention ponds:
 - (1) Alteration of topography.
 - (2) Placing of fill.
 - (3) Channel encroachment.
 - (4) Placement of any structures, trees or other physical object thereon.
 - (5) Grading, excavating, or the removal of material.
 - (6) Removal or destruction of turf, trees and/or vegetation.
 - (7) Causing siltation or deposition of debris or other similar material.

- (8) Causing or creating any act that would alter the drainageway located therein.
- (9) Utilizing any portion thereof for any motorized vehicle for any purposes, including recreational purposes.
- (10) The erection of any improvements or other developments.

In addition, the ponds shall have a maximum one-percent slope in any direction. The banks shall be impervious, maximum 2 to 1 slope.

- B. A Stormwater Pollution Prevention Plan (SWPPP) shall be submitted for review by the Town Engineer and Highway Superintendent. The SWPPP shall meet the performance and design criteria as set forth within the New York State Stormwater Management Design Manual (NYSDEC), most current version. In addition to the above, the pond shall also be designed to limit the post-development 25-year storm peak flows to the respective pre-development flow.
- C. The pond shall have an overflow spillway, designed in accordance with the NYSDEC Guidelines for Design of Dams. In all cases, the minimum design shall be to control a twenty-five-year storm and to have a spillway capable of passing a one-hundred-year storm.

ARTICLE V

Drainage Materials Specifications

31. Pipe

- A. Smooth interior polyethylene pipe.
 - (1) Smooth interior high density polyethylene corrugated pipe shall conform to the requirements of AASHTO M294 Type S. The pipe must also exceed the minimum engineering property values as specified in Section 18 of the AASHTO Bridge Design Manual.
 - (2) The pipe shall be identified on the plans as HDPE smooth bore/interior (preferred notation) or other generic description identified and spelled out in a legend on the plan.
- B. Prefabricated end sections shall be made of the same material and construction as the pipe. End sections shall be connected to the pipe in the same manner as pipe sections are connected.

- C. Underdrains shall be perforated corrugated polyethylene pipe.

32. Catch basins

- A. Figure V-1 shows the minimum acceptable construction for a typical precast catch basin.

- B. Inside dimensions of the catch basin shall remain constant from top to bottom and shall match the frame opening of the grate.

- C. Catch basins shall be precast, reinforced concrete sections conforming to ASTM C-478 Specification current edition and shall have a minimum twenty-eight-day compressive strength of 4,000 psi. Catch basin structures shall also meet the following criteria:

- (1) Walls and base of the base unit shall be one-piece construction.
- (2) Base units shall be provided with knockouts or precast openings, commensurate in size and number with the pipes shown on the plans. Knockouts shall be constructed twelve (12") inches above the base for catch basins in roadways and eighteen (18") inches above the base for catch basins in easements, as shown in Figure V-1.
- (3) Risers less than one (1') foot shall be solid concrete block. Risers greater than one (1') foot shall be precast concrete.
- (4) Steps shall be required in all catch basins four (4') feet or greater in height measured from top of grate to bottom of sump. Steps shall be installed by the catch basin producer in accordance with the step manufacturer's installation specifications.
- (5) All precast concrete shall be coated inside and outside (top only) with a clear polymer resin to prevent salt deterioration of the structure.

- D. Catch basins shall be fitted with cast-iron frames and grates of the type shown on Figure V-1. The minimum frame opening shall be equal to the standard catch basin shown in Figure V-1. The curb piece cross section should match the adjacent concrete or asphalt curb.

- (1) Frames and grates shall be made of tough, close-grained gray iron, without the admixture of any cinder, iron or metal of inferior quality. The iron shall be capable of developing a tensile strength of 18,000

lbs. per square inch, and shall be able to stand chipping and drilling. All castings shall be made from properly prepared patterns, and shall be sound, true, without wind, smooth, clean and free from blisters, sand holes, scales and all defects. No plugging or other stopping of holes will be allowed. All castings shall be painted thoroughly with at least two (2) good coats of asphaltum or any other coating that the Highway Superintendent or the Town Engineer may require.

- (2) Grates which rock on their frames will not be accepted and the developer shall, if necessary, machine or grind grate in place to obtain an even bearing. Grates shall fit in frame without binding along the perimeter. Catch basin frames and grates and cast-iron curb boxes shall conform to the current Standard Specifications of the New York State Department of Transportation, and shall be designed to carry H-20 Highway Loading, as designated by the American Association of State Highway and Transportation Officials.

33. Manholes

- A. The minimum twenty-eight-day compressive strength of the concrete used shall be 4,000 psi. All manhole components (except the cover) shall have a minimum forty-eight-inch inside diameter. Manhole bases and sections shall be cast with two (2) lifting holes only.
- B. The base section shall be six (6') feet in diameter and eight (8") inches thick. The base and first riser section shall be cast integrally. The reinforcement for the base section shall be No. 3 bars at eight-inch centers, both ways, placed in the lower half of the base.
- C. The riser sections shall have a minimum wall thickness of five (5") inches. The circumferential reinforcement in riser sections shall be 0.12 square inches per lineal foot minimum. This reinforcement for the base section shall be No. 3 bars at eight-inch centers, both ways, placed in the lower half of the base.
- D. All precast concrete shall be coated inside and outside (top only) with a clear polymer resin to prevent salt deterioration of the structure.
- E. All tongue and groove joints shall be formed so that either an elastomeric or rubber seal can be applied. All rubber seals shall be EPDM rubber to the requirements of ASTM 443-60T. The rubber gasket shall be formed with two (2) curved fins. Flexible, watertight, elastomeric gaskets may also be used.

- F. Steps shall be required in all manholes four (4') feet or greater in height measured from rim to lowest invert. Steps shall be installed by the manhole producer in accordance with the step manufacturer's installation specifications.
- G. Manhole frames and covers shall be made of tough, close-grained gray iron, without the admixture of any cinder, iron or metal of inferior quality. The iron shall be capable of developing a tensile strength of 18,000 lbs. per square inch, and shall be able to stand chipping and drilling. All castings shall be made from properly prepared patterns, and shall be sound, true without wind, smooth, clean and free from blisters, sand holes, scales and all defects. No plugging or other stopping of holes will be allowed. All castings shall be painted thoroughly with at least two (2) good coats of asphaltum or any other coating that the Highway Superintendent or the Town Engineer may require.
- H. Covers which rock on their frames will not be accepted, and the developer shall, if necessary, machine or grind cover in place to obtain an even bearing. Covers shall fit in the frame without binding along the perimeter. Manhole covers shall not weigh less than 350 lbs., and all covers shall have proper markings as directed by the Highway Superintendent. Manhole frames and covers shall conform to the current Standard Specifications of the New York State Department of Transportation, and shall be designed to carry H-20 Highway Loading, as designated by the American Association of State Highway and Transportation Officials.

34. Steps

Catch basin or manhole steps shall be steel-reinforced copolymer polypropylene plastic steps conforming to current ASTM C-478-78a, paragraph 11. Steel reinforcement shall be Grade 60, having a diameter of not less than 1/2 inch. Step length shall be such that they may be embedded not less than three (3") inches into the concrete sections (walls) and have a clear length from the inside wall to the outside of the step of not less than 5-3/4 inches, for foot placement.

35. Rip-rap

- A. Rip-rap shall be sized to be stable under the volume and velocity of the discharged water for the twenty-five-year storm. Rip-rap along stream crossings and detention pond outlets designed for a one-hundred-year storm shall be sized for flow rate and velocity associated with a one-hundred-year storm. See 26C.
- B. Rip-rap shall consist of field stones or rough, unhewn quarry stones, as nearly cubical in form as practicable.

36. Child resistant grillage

When drainage pipe inlet, other than a driveway culvert, is open at ground level (and may allow children or small animals to enter the drainage system), the pipe opening shall be closed with a grillage per Figure IV-4.

Article VI
Drainage Installation Specifications

37. Additional drainage facilities

Any additional drainage facilities not shown on the approved plan and which may be ordered by the Highway Superintendent or the Town Engineer shall be constructed by the developer at his expense and in accordance with this chapter.

38. Trench excavation and backfill

- A. The width of the trench in which the pipe is placed shall be equal to, as a minimum, the outside diameter of the pipe plus an additional two (2') feet. The trench excavation shall conform to Figure VI-1.
- B. Where soft, spongy or other unstable soil is encountered at the grade established, all such unstable soil up two (2') feet under the pipe and for the total width of the trench shall be removed and replaced with run of bank gravel or other acceptable material.
- C. Where rock (see §16D) or boulders are encountered, all such rock, and boulders larger than six (6") inches diameter, shall be excavated at least eight (8") inches clear of the pipe. The excavation shall be backfilled with run-of-bank gravel or other acceptable material and properly compacted.
- D. In all cases, the bed and the fill on both sides of the pipe shall be thoroughly compacted and shall provide a firm support for the pipe.
- E. In general, material removed from the trench during excavation is suitable for final backfill; provided, however, that such material is free of sod, roots, spongy material, pieces of pavement, frozen clumps, lumps or clods of soil, mush, clay, cinders, slag, ashes, rubbish, rocks or pieces of rock measuring more than six inches of diameter.
- F. Regardless of the type or kind of backfill used, specifications relating to lifts and compaction in §16B shall be observed.

39. Pipe laying

- A. Pipe shall be laid to a true line and grade on the prepared bed of the trench. Pipe laying shall begin at the downstream end and progress upstream.

- B. Reinforced concrete pipe shall be sealed with flexible, watertight, elastomeric gaskets, approved bituminous sealers or plastic sealers applied at the time the pipe is being laid to line and grade. Such sealants shall be installed in accordance with the sealant manufacturer's instruction so that the joint is completely filled with the sealant. Mortar joint pipe shall not be used.
- C. Smooth interior corrugated polyethylene pipe shall be installed on a minimum of six (6") inches of suitable bedding material with one (1") inch of suitable run-of-bank gravel placed on both sides and on the top of the pipe. Proper compaction must be achieved. The remainder of the trench shall be backfilled with suitable material having no stone exceeding six (6") inches in diameter.
- D. When a drainage pipe ends in an open ditch shall be excavated as shown on the plan and the excavated area shall be entirely filled with rip-rap.
- E. The underdrains should be placed as shown on the plan or as ordered by the Highway Superintendent or the Town Engineer. Underdrains shall be placed in trenches and surrounded by material which is both pervious to water and capable of protecting the pipe from infiltration by the surrounding soil (See Figure VI-2). Underdrains shall outlet in a ditch or shall be connected to a basin or manhole.

40. Catch basin and manhole installation

- A. Holes for catch basins shall be excavated to a depth of at least 29 inches below the plan elevation of the invert of the outlet pipe. Excavation for the catch basin shall be made at least two (2') feet in the clear around the structure. Crushed stone or run-of-bank gravel shall be placed in the hole to a uniform depth of nine (9") inches and shall be leveled and compacted over the entire area under the base.
- B. Excavation for the manhole and the manhole foundation shall be made at least two (2') feet in the clear around the structure. Crushed stone or run-of-bank gravel shall be placed in the hole to a uniform depth of nine (9") inches and shall be leveled and compacted over the entire area under the base.
- C. In areas of high ground water, minimum four (4") inch diameter underdrains shall be placed to drain into the basin or manhole, in order to relieve hydrostatic pressure. The backfill around the basin or manhole shall be coarse granular material for at least one-foot thickness around the perimeter.

D. Assembly of sections.

- (1) The interior and exterior of catch basins shall be parged at all seams and joints, unless sealed with flexible, watertight, elastomeric gaskets, approved bituminous sealers or plastic sealers. Bituminous or plastic sealants shall be applied at the time the basin is set. Such sealants shall be installed in accordance with the sealant manufacturer's instructions so that the joint is completely filled with sealant. Brick or block shall be mortared in place and parged both inside and outside the basin.
- (2) Bituminous or plastic joint sealants shall be applied at the time a manhole is set. Such sealants shall be installed in accordance with the sealant manufacturer's instruction so that the joint is completely filled with the sealant. Rubber gaskets shall be installed per the manufacturer's instructions, especially relating to location, lubrication and setting of manhole sections.
- (3) All steps in each section shall be aligned to form a continuous ladder with steps being spaced vertically in the assembled basin or manhole at twelve-inch intervals.

E. Installation of pipes.

- (1) The openings around all pipes entering or leaving catch basins (or manholes) shall fit the contours of the pipes as closely as possible. Remaining interstices shall be solidly filled with mortar for the full thickness of the wall. All pipes shall be mortared inside and outside of each basin or manhole.
- (2) The ends of all pipes shall be flush with the inside surfaces of the catch basin or manhole walls and shall project outside a sufficient distance to allow for the proper connection with an adjoining pipe section. No piping shall extend into the catch basin or manhole.
- (3) When the diameter of the effluent pipe is greater than that of an influent pipe, the elevation of the crown of the influent pipe shall be no lower than the elevation of the crown of the effluent pipe.
- (4) When the diameter of the effluent pipe is the same as or smaller than that of an influent pipe, the elevation of the invert of the influent pipe shall be 0.1 foot higher than the elevation of the invert of the effluent pipe.
- (5) There shall be a minimum 0.1 foot difference in elevation between inlet invert and the outlet invert at each basin or manhole.

- F. Setting frames and grates or covers.
- (1) Frames shall be set in a full bed of mortar.
 - (2) The frame shall be set to match the pavement cross slope and to match the roadway profile. Special care shall be taken at intersections to assure that no ponding will occur.
 - (3) The grate or cover shall rest evenly in the frame. If necessary, the parts shall be filed or ground to assure even bearing.
 - (4) Where the curb inlet shape does not match the asphalt curb shape, the gutter lines shall match and the asphalt curb shall be blended/shaped to make a transition between three (3') feet and five (5') feet long.

G. Backfill around catch basins and manholes shall comply with the provisions of 16B.

41. Ditches and swales

- A. The general construction requirements of Article IV shall apply.
- B. In addition, all open ditches shall be cleared of all trees, shrubs, rock, boulders and excess material to ensure proper flow of water and ease of maintenance.
- C. The ditches shall be finished as shown on the plan and in accordance with §29.

42. Rip-rap

- A. Rip-rap should be sized per §26C as shown on the plans.
- B. The largest stones shall be placed first and smaller pieces shall be fitted to chink the voids. The stones shall be placed on a slope not steeper than two-to-one and so laid that the weight of the larger stones is carried by the soil and not by the adjacent stones.
- C. It is intended to have a rough surface, but a generally uniform shape conforming to the swale cross section.

Article VII
Other Features: Design, Material and
Construction Specifications

43. Curbs

- A. Where shown on the plans, granite or portland cement concrete curbs shall be constructed on both sides of the street to the dimensions and specifications shown on Figure VII-1.
- B. Where required by the Highway Superintendent or the Town Engineer, perforated polymeric, or perforated polyethylene corrugated pipe with a minimum diameter of six (6") inches shall be laid as shown on Figure VI-2. This underdrain shall be graded so that any water under the curbs will drain to the nearest catch basin.
- C. Concrete shall be finished and cured to the satisfaction of the Highway Superintendent or the Town Engineer. The developer shall, at his own expense, replace any curbing damaged before dedication.
- D. Rural/suburban local highways, calling for curbing, shall have concrete curbs of the construction shown in Figure VII-1. The curb shall be set on the binder course of pavement. The Highway Superintendent shall have the discretion to waive the requirements of curbs on any portions of a rural/suburban road where he deems it appropriate. The developer shall, at this own expense, replace any asphalt curbing damaged before roadway dedication. All driveway entrances within the subdivision shall be constructed at the time of construction of the curb.
- E. Curbs may be mountable or nonmountable type, as shown on the plan. Curbs on medians, inside shoulder edges or outlining channelizing island shall typically be nonmountable type.
- F. Ramps for the handicapped, required by §330 of the Highway Law, shall be provided at each curbed intersection and midblock crosswalks where curbs are constructed. Ramps at intersections shall be constructed in accordance with Figures VII-2 and VII-3, and the specifications for sidewalks. Ramps at midblock locations shall be constructed in a similar manner.
- G. Topsoil shall be placed behind newly constructed curbs. The topsoil shall be placed two (2") higher than the face of curb, or continuously refilled, to ensure that the sod is not flush with the top of the curb and to allow room for the sod to fluff up as the sod develops. No pockets or settlement shall be permitted. Any low spots shall be filled, seeded and mulched as required by the Highway Superintendent or the Town Engineer.

44. Sidewalks

- A. Sidewalks may be required on any cul-de-sac. The sidewalk shall wrap around the cul-de-sac on the side to maximize exposure to the winter sun.
- B. Sidewalks may be constructed of portland cement. Portland cement concrete shall be New York State Department of Transportation Class A with air entrainment of 6% by volume.
- C. Where shown on the plans, the developer shall construct sidewalks in accordance with Figure II-2 and Figure VII-4. Where vehicular traffic is anticipated to cross an area of sidewalk the portland cement concrete sidewalk shall be minimum six (6") inches thick.

45. Monuments

- A. Permanent monuments may be required on the Right-Of-Way line of a roadway at all road intersections, angle points, points of curve, subdivision corners, easements and other locations as directed by the Highway Superintendent or the Town Engineer.
- B. Monuments shall be cut granite, free from imperfections, or concrete, and as shown on Figure VII-5. Iron pipes, unless embedded in concrete, shall not be considered permanent monuments for the purpose of this specification.
- C. Monuments shall not be set until the roadway has been completed, nor shall they be set while frost is in the ground. They shall be set and tamped to prevent settlement, shifting or movement. Monuments shall be set so that they cannot be easily removed, if necessary by encasing the lower half in a concrete anchor (similar to a fence or sign post).
- D. The developer's licensed land surveyor shall certify that the location of all monuments are accurate, before acceptance of the highway by the Town Board, and all monument locations shall be shown on the as-built drawings (plans).

46. Guiderail

- A. The type and need for guiderail installation shall be approved by the Highway Superintendent and the Town Engineer. All guiderail installations shall be designed in accordance with Guiderail II, or latest revision, published by the New York State Department of Transportation Traffic Safety Division.
- B. The primary warrants to determine the need for guiderail are:

- (1) Height of drop-off (measured from the break of shoulder slope to the toe of slope) compared to the rate of embankment slope. Guiderail is not warranted unless the geometry of the features involved exceeds the criteria below:

Slope (H:V)	Embankment Height
2 to 1	8 feet
3 to 1 or flatter	Guiderail not required

It is assumed in the above geometrical consideration that the toe of slope conditions are such that no abrupt drop-offs or adverse slopes forming “V” ditches will be encountered.

- (2) Guiderails shall be installed to protect motorists from fixed objects and roadside hazards as shown on the following list:

Culvert headwalls.
Along bodies of water over two (2') feet deep.
Rock cuts and rock outcrops.
Retaining walls.
Any other immovable object as determined by the Highway Superintendent.

- C. Guiderail installation shall be in accordance with Sections 710-20, Corrugated Beam Guide Railing, and 710-21 Box Beam Guide Railing, of the current Standard Specifications of the New York Department of Transportation (See Figures VII-6A, VII-6B, and VII-6C).

47. Traffic signs and road name signs

- A. All signs, signals, markings and other control devices for maintenance and protection of traffic and for naming roads shall conform to the requirements of the New York State Manual of Uniform Traffic Control Devices.
- B. The developer shall install a stop sign at the intersection of a new road with an existing town, county or state road and at intersections within the subdivision itself as determined by the Highway Superintendent or the Town Engineer. The developer shall furnish and install a two-way road name sign at every road intersection made by the roads he constructs. See Figure VII-8. The developer may also be required to install other signs, such as W7-4 Children at Play, as determined by the Highway Superintendent or the Town Engineer.

48. House drains

Roof, cellar, trench, curtain, footing or any other house drain or septic system drain shall in no case be allowed to flow onto the highway Right-Of-Way. With the approval of the Highway Superintendent and the Town Engineer, in writing, these drains may be piped to the roadway and they shall be connected to a catch basin or to the top of a pipe only. Such drains must be installed prior to the start of the application of the roadway foundation course.

49. Driveways

A. Permits.

- (1) All parcel owners or developer shall obtain all necessary permits and construct all driveway entrances to the satisfaction of the governing agency, prior to commencing any driveway construction.

B. Design.

- (1) Driveways shall be designed similar to a road intersection. A driveway center line shall be offset from a road intersection center line a minimum of 125 feet. Driveways shall have adequate sight distance, see §13.
- (2) Unless otherwise allowed by the Planning Board a separate driveway shall be required for each lot. See Figure VII-9 for a driveway detail.
- (3) The minimum pavement or gravel width for driveways at the roadway shall be ten (10') feet, with an unobstructed width of twelve (12') feet.. The minimum overhead clearance shall be thirteen (13') feet.
- (4) Driveway grades shall have a negative gradient of 2% within 25 feet of the roadway. Where positive elevations are sought, the developer shall submit driveway profiles, grading plan and cross sections to permit a technical evaluation of the proposal by the Highway Superintendent or the Town Engineer.

The driveway entrance, curbing, gutter, drainage ditch and roadway interference shall be designed:

- (a) Not to channel drainage water from driveway onto or across the roadway.

- (b) Not to channel drainage water from roadway onto driveway.
- (c) Not to interfere with drainage flow along curbing gutter or drainage ditch.
- (5) All positive grade driveways shall continue at positive grade to the edge of pavement of the road to prevent ponding.
- (6) Driveways shall be designed to provide Fire Department apparatus access to within a distance of 150 feet or less of the structure it may be called upon to protect. No turn shall be of such a degree as to prevent access of Fire Department apparatus.
- (7) Driveways shall be able to support a thirty-ton, three-axle apparatus.

C. Construction.

- (1) For driveways constructed in wet areas, all unsuitable material shall be excavated and replaced with suitable material. Curtain drains should be installed which discharge into the roadway storm drain system.
- (2) Temporary driveways associated with construction, logging, or other similar use shall be provided with an anti-tracking construction entrance consisting of 12" thickness of compacted 1 1/2" stone.
- (3) See also Subdivision of Land Regulations.

50. Stop bar and striping

- A. Where required by the Highway Superintendent or a county or state work permit, a twelve (12") inch stop bar shall be painted on the pavement.
- B. All pavement markings (including lane stripes, edge lines, arrows and words) shall be made with thermoplastic paint conforming to current New York State Department of Transportation Specifications. White or yellow markings shall be made in accordance with the MUTCD requirements for size, shape and color code. The locations of all markings shall be shown on a site plan and approved by the Highway Superintendent or the Town Engineer.

51. Bridge/underpass/overpass

- A. The specific requirements shall be established by the Highway Superintendent and the Town Engineer.
- B. In general, the structure shall be designed for an H-20 load. Clearance to another roadway shall be minimum 16 feet. The waterway opening shall be designed to pass a one-hundred-year storm.

52. Detour/road closure

If it becomes necessary to close a road or a lane, the developer shall furnish a detour or lane closure plan for approval by the Highway Superintendent. The recommendations of the MUTCD shall be followed.

53. Common Driveways

The following criteria are established as the minimum acceptable local standards for the design. Construction and approval of common driveways within the Town of Canaan:

- A. That the term “common driveway” be defined as a private vehicular way providing direct access from not more than four (4) single-family residential lots to a public roadway.
- B. That such common driveway intersect the public roadway at a location and in design configuration satisfactory to the New York State Department of Transportation, the Columbia County Department of Public Works or the Town of Canaan Highway Superintendent, whichever party or agency shall have jurisdiction in the matter
- C. That the common driveway be situated within a mapped Right-Of-Way or easement not less than thirty-six feet in width. In no case shall the common drive be located on its own parcel, separate from the lots it serves.
- D. That, except as provided below, the common driveway be constructed to a minimum grade of one and zero-tenths percent (1.0%) to facilitate drainage and to a maximum grade of twelve percent (12%) to facilitate vehicular movement, particularly under adverse weather conditions.
 - (1) A maximum grade of negative three percent (-3%) shall, however, be authorized within fifty feet of the Right-Of-Way line of the intersecting highway or within seventy-five feet of the center line of the intersecting highway, if a user road. In addition, horizontal

alignment shall be governed by the authority having jurisdiction over the intersected highway.

- (2) A maximum grade of fifteen percent (15%) may be authorized by the Highway Superintendent for limited straightway sections of the common driveway which, individually, do not exceed one hundred fifty feet in length or, in the aggregate, exceed twenty percent (20%) of the total length of the common driveway.
- E. That the common driveway be improved, surfaced and maintained to a cartway width of not less than sixteen (16) feet and graded to a width of not less than twenty-four (24) feet.
 - F. That the common driveway be designed with a minimum centerline radius of one hundred feet and that the minimum tangent distance between reverse curves be fifty feet.
 - G. That the common driveway subbase depth and material be specified by the subdivider's engineer in accordance with the American Association of State Highway and Transportation Officials' rating of the underlying soils, with twelve (12) inches of mechanically compacted subbase being the minimum acceptable depth.
 - H. That side slopes be restricted to a maximum of 3:1 three (3) horizontal to one vertical in fill sections and to 2:1 two (2) horizontal in one vertical stabilized cut sections within twelve (12) feet of the common driveway's minimum graded width of twenty-four (24) feet. If a steeper slope exists or will be created, the use of retaining structures on the uphill side shall be required. In these instances, grading easements may also be required beyond the width of the common driveway Right-Of-Way or easement.
 - I. That the common driveway include suitable drainage improvements and erosion control measures.
 - (1) These shall achieve the following objectives:
 - (a) Maintain natural drainage flow.
 - (b) Protect the structural integrity of the common driveway improvement.
 - (c) Prevent erosion and sedimentation both during construction and over the life of the common driveway improvement.

- (d) Provide for appropriate placement of topsoil and the seeding of all disturbed areas associated with the common driveway, including any on-site spoil areas which may be used.
- (2) Appropriate reports and documentation shall be submitted for the review and approval of the Town Engineer demonstrating the adequacy of the proposed drainage improvements under a minimum design storm of twenty-five years, twenty-four hours.
- J. That any extension of the mapped Right-Of-Way or easement area required to accommodate the long-term maintenance of the side slope improvements, drainage improvements and permanent erosion control measures be similarly mapped and shown on the subdivision plat.
- K. That the common driveway shall be improved with a hammerhead turnaround suitable for maneuvering a fire truck at the point the common driveway terminates (i.e. at the point the common driveway becomes a private driveway serving only one (1) residence.) The applicant shall obtain a letter from the responsible Fire Department having jurisdiction in the area of the subdivision providing that Department's review comments on the acceptability of the proposed design if the common driveway as an access way for emergency vehicles. The hammerhead turnaround shall not exceed a maximum grade of two percent (2%).
- L. That the common driveway be subject to a road maintenance agreement, acceptable to the Town Planning Board, in accordance with the following guidelines:
 - (1) The Town of Canaan Planning Board considers suitably-drafted maintenance agreements essential to provide for the long-term ownership and maintenance of common driveways serving both lots with frontage on public highways. The agreement for the long-term ownership and maintenance of the Right-Of-Way and associated common driveway should, in each instance, include at a minimum the following features:
 - (a) The described common driveway should be clearly defined and dimensioned, and the lots affected should be clearly identified. This should be done by making specific reference in the agreement to the final subdivision map or plat.
 - (b) A permanent easement and Right-Of-Way over and upon the common driveway for access, with and without vehicles, should be granted to each lot affected.

- (c) There should be an affirmative covenant that the common driveway and all associated improvements, such as bridges, guide rails and drainage structures shall be maintained in a good and passable condition under all traffic and weather conditions and kept open so that the fire-fighting equipment and other emergency vehicles can reach the individual access driveways.
 - (d) There should be an equitable apportionment of the expenses of maintenance, repair and/or restoration of the common driveway among the lot owners which obligation should be clearly and completely set forth.
 - (e) The agreement should be designed to run with the land and be appurtenant thereto in perpetuity and should be binding on and enforceable by all lot owners affected thereby.
 - (f) There should be a clear statement that the town shall have no liability or responsibility for the care and maintenance of said common driveway.
 - (g) The agreement should be acknowledged before a notary public by all parties who are vested at the time of execution and own a fee interest in either the common driveway or any of the affected lots, and should be duly recorded in the Columbia County Clerk's office at the time of filing of the subdivision plat.
- (2) The final subdivision plat should also contain a notation to the effect that the common driveway is a private drive and that all lots or house sites to which access is gained from such common driveway are subject to a common driveway maintenance agreement which is a condition of approval. The resolution granting final approval of the plat should set forth the minimum requirements of the common driveway maintenance agreement. The common driveway maintenance agreement might also contain other or further terms and provisions at the discretion of the subdivider and/or the Planning Board.
- (3) The subdivider should also consider the applicability of 352-e and related sections of Article 23-A of the General Business Law of the State of New York to the particular agreement. Either the filing of an Offering Plan with the Attorney General's office or the receipt of a no action letter from that office may be required.

- M. That, in addition to the data required to comply with the above-noted guidelines, the common driveway maintenance agreement include a reasonable estimate based on current dollars of the annual charges to each of the participating lot owners for maintenance of the common driveway and for cost that would be incurred for replacing any of the significant elements of the common driveway, e.g., a bridge or culvert structure, which could be severely damaged by an act of nature.
- N. That the common driveway be designed and installed by the subdivider as a required improvement within the subdivision, and that the final plat approval be withheld by the Planning Board until the common driveway has been satisfactorily installed or made the subject of a performance guaranty.
- O. That the installation of the common driveway be inspected by the developer's engineer and spot checked by the Town Engineer and that the work at the point of intersection with the public roadway be further inspected and approved by the New York State Department of Transportation, the Columbia County Department of Public Works or the Town of Canaan Highway Superintendent, whichever shall have jurisdiction in the matter, for conformance with previously-reviewed plans and the conditions established within the previously-issued access or work permit.
- P. That the common driveway be approved by the Town of Canaan Building Inspector as suitable to meet the access criteria, which criteria must be met in the judgment of the Town Building Inspector as a condition precedent to the issuance of a building permit.
- Q. The maximum length of the common driveway shall be one thousand two hundred (1,200) feet, provided that the criteria for the design, construction and approval of common driveways set forth in this section have been satisfied. The Planning Board may, however, restrict the common driveway length to less than two thousand feet on a case-by-case basis where the board specifically finds that extraordinary circumstances are present that were neither addressed nor anticipated by the general design, construction and approval criteria set forth herein and that such further restriction is necessary in its view to protect the public health, safety and welfare to achieve the objectives set forth in this chapter.
- R. That the applicant shall submit necessary plans, profiles, sections, grading plans and details for Planning Board review so as to demonstrate that the proposed common driveway improvement will comply with all above-stated design and construction criteria with the explanatory material which follows:

- (1) Table 1: Summary of Common Driveway Specifications.
- (2) Figure A: Side Road Approach Grades for Common Driveways.
- (3) Figure B: Common Driveway Typical Section.

Town of Canaan

Table 1

Summary of Common Driveway Specifications

Type	Specifications
Minimum Right-Of-Way width or easement	36 feet minimum
Clearing width	24 feet minimum
Grading width	24 feet minimum
Pavement width	16 feet
Shoulder width	4 feet each
Storm drains	Required as applicable
Foundation course (mechanical compacted)	12 inches minimum of 3 inches quarry crusher run and 9 inches run-of-bank gravel
Pavement base course* concrete	2 inches of asphalt
Wearing surface*	1 coat oil and stone**
Shoulder treatment	Topsoil, seed and mulch
Monuments	As required by Planning Board
Road name signs	As required by the County 911 Coordinator

NOTES

* Final common driveway surface of three (3) inches of additional graded gravel (six (6) inches total) may substitute for pavement base course (two (2) inches of asphalt concrete) and wearing surface (one (1) coat oil and stone) except where the common driveway grade exceeds ten percent (10%) at any location or exceeds five percent (5%) within two hundred (200) feet and uphill of the

Right-Of-Way of the intersecting public highway, in which case the affected portion shall be paved in accordance with the standards set forth in Table 1 and Figures A and B (immediately following) to the satisfaction of the Planning Board and upon recommendation of the Town Engineer. All driveway surfaces shall be crowned.

** Asphalt concrete wearing surface may be substituted at the discretion of the applicant.

54. Waivers, modifications and review

A. Waiver of specific improvements.

The Planning Board may waive upon specific request and by specific resolution, subject to appropriate conditions and guaranties, for such period as it may determine, the requirements of these regulations relative to the provision and design of any or all required improvements which, in its judgment of the special circumstances of a particular plat or plats, are not requisite to the interests of the public health, safety and general welfare of the town or are not appropriate because of the inadequacy or lack of connecting facilities adjacent to or in the proximity of the proposed subdivision.

B. Modification of specific requirements.

Where the Planning Board finds that compliance with these regulations would cause unusual hardship or extraordinary difficulties to the applicant because of exceptional and unique conditions of topography, access, location, shape, size, drainage or other physical features of the site, the minimum requirements of these regulations may be modified upon specific request and by specific resolution of the Planning Board to mitigate the hardship, provided that the public interest is protected and the development is in keeping with the general spirit and intent of these regulations. The Planning Board may additionally modify the specific requirements of these regulations in situations where, due to the unique circumstances of a particular tract, strict application of these regulations would inhibit achievement of the town's objectives, provided that public health, safety and welfare are protected and the requirements of the town are wholly met.

C. Review of decisions of the Planning Board.

Any officer, department, board or bureau of the town, with the specific approval of the Town Board, or any person or persons jointly or severally aggrieved by any decision of the Planning Board concerning a plat decision may bring a proceeding to review such decision in the manner

provided by Article 78 of the Civil Practice Law and Rules in a court of record on the ground that such decision is illegal in whole or in part. Such proceeding must be commenced within thirty (30) days after the filing of the decision in the office of the Town Clerk. Commencement of such proceeding shall stay all further proceedings upon the decision appealed from.

ARTICLE VIII
Soil Erosion and Sediment Control
Including Dust Control

55. Procedure

Construction plans for subdivisions, site development and public improvements must include steps needed to prevent and mitigate urban erosion and urban sedimentation. The developer shall submit a stormwater pollution prevention plan and a report, prior to construction, which indicate the mitigating and controlling measures appropriate to the site. The Highway Superintendent and Town Engineer shall review this plan. The Highway Superintendent or Town Engineer shall have the authority to require that the approved plan shall be implemented.

56. Vegetative control measures

A. Vegetative control measures include:

- (1) The planting of grasses, legumes, trees and shrubs. The developer shall select species that are adapted to the site and purpose to the site and purpose of planting. A planting guide should be consulted which lists the most common and important area species of grasses, woody plants and legumes that may be used for controlling erosion and sediment.
- (2) Topsoiling and slope stabilization (mulched anchoring) for establishment of the grasses and legumes; grassing waterways and outlets; ditch and channel bank seedings, jute and sod. The developer shall apply needed ground cover on exposed soils within 15 to 30 days of exposure, except on areas where final construction will begin within 30 days. The developer shall stockpile topsoil to apply on sites as required for establishing vegetation.
- (3) Protection of trees against damage from construction grading and landfilling.

B. Burning of vegetative cover will not be allowed, unless by county permit.

57. Structural control measures

- A. Land grading shall be in accordance with the approved plan. The plan shall limit the grades of slopes so that plants may be easily established.
- B. Suitable side slopes which are not greater than two-to-one shall be maintained for slope stability.
- C. Benches, berms, terraces or ledges, temporary and permanent, shall be constructed as necessary across sloping land to reduce the length and grade of a steep slope.
- D. Diversion ditches or channels and ridges shall be constructed to intercept surface runoff as necessary.
- E. Grassed waterways or outlet swales shall be constructed to maintain nonerosive velocities as required.
- F. Siltation, debris or sediment basins shall be constructed to trap runoff waters during construction, prior to entering a stream, creek, pond, lake, swamp or other environmentally sensitive or protected body of water.
- G. Grade stabilization structures shall be constructed from earth, pipe, concrete, masonry, steel, aluminum, wood or sod. These structures shall be used as required to safely convey water, reduce grades, stabilize downcutting or change the direction of flow of water.
- H. Any detention structure, retention structure or impoundment pond shall be constructed to store runoff waters and release same at a rate which will prevent flooding and erosion. The pond may have earthen dams, spillways, pipe outlet structures, overflow weirs or ditches to control the outflow.
- I. Gabions and mattresses (compartmented rectangular containers made of heavy galvanized steel wire woven in twist patterns and filled with stone), may be used to support vegetation growth, to mitigate erosion and ice flows, as revetments for embankment protection, as weirs in basin designs or channel lining in ditches.
- J. Temporary silt fences and staked hay (straw) bale berms shall be used to contain sediment on site and allow the passage of runoff waters.
- K. Finished culvert end sections shall be installed on all pipe ends to prevent scouring and undercutting. Rip-rap shall be placed beyond the end section on both sides and bottom slopes of the drainageway.

- L. Protective slope materials shall be utilized and they include straw or hay anchored in place with asphalt emulsion, stapled-down jute or polypropylene mesh, wood chips and continuous filament fiberglass.
 - M. Temporary erosion and siltation control measures shall conform to the requirements of the United States Department of Transportation, Federal Administrative Guidelines, New York State Guidelines for Urban Erosion and Sediment Control, or Columbia County SCS Soil Erosion and Sediment Control Guidebook.
 - N. The Stormwater Pollution Prevention Plan (SWPPP) shall meet the performance and design criteria as set forth within the New York State Stormwater Management Design Manual (SWMDM), most current version.
- 58. Dust control**
- A. The developer shall take reasonable measures to control fugitive dust emissions on haul roads or roads under construction.
 - B. Dust control should be by means of continuous watering or other means approved by the Highway Superintendent or the Town Engineer.

ARTICLE IX
Requirements Relating to Other Portions of the Town Code
(Not under the jurisdiction of the Highway Superintendent)

59. Securities

- A. Performance bond.
 - (1) In accordance with NYS Town Law, the Planning Board may authorize a performance bond in lieu of requiring construction of public improvements as set forth on a plat. When the Planning Board authorizes a performance guarantee, the developer shall provide a bond of acceptable surety or shall deposit with the Chief Fiscal Officer of the town such performance guarantee. The performance guarantee shall provide:
 - (a) That within two (2) years the developer will complete the construction of all required improvements within the Right-Of-Way and easements in accordance with the approved plans and the highway specifications. The term of the

performance bond may be extended by the Planning Board with consent of the parties thereto.

(b) That, upon written certification by the developer's professional engineer that the construction of the highway has been completed in accordance with the plans and specifications and approved by the Highway Superintendent, the developer will dedicate the completed highway to the town for use as a public highway, free and clear of all liens and encumbrances. The guaranty of dedication shall apply to the owner of the property as well as the developer, where the two are not synonymous. Subsection A(1)(b) may alternatively be satisfied by an offer of cession, in recordable form, delivered to the town and approved by the Town Attorney's office.

(2) As guaranty for the performance of the above requirements, the developer shall deposit, as heretofore set forth, a surety bond, negotiable government bonds, cash or certified check in the amount of 100% of the total construction cost. This amount shall be determined by the Town Engineer by applying to the quantities or dimensions shown on the approved plans the rates per unit as established by the schedule of rates, Table I of this article, or amendments thereto which may later be established to reflect changing cost.

B. Maintenance or continuation bond. Prior to acceptance by the town of dedication of the street as guaranteed by Subsection A(1)(b) above, the developer shall deposit with the Town Clerk a maintenance bond of acceptable surety or shall deposit with the Chief Fiscal Officer of the town acceptable negotiable government bonds, cash or certified check drawn upon a national or state bank, payable at sight to the Town Board, guaranteeing that, for a period of one (1) year from the date of acceptance of the street by the town, the developer will maintain the street to the standard of construction set forth by the highway specifications, normal wear and tear excepted. This shall be interpreted to mean that the developer will, at his own expense, repair and make good any defects or damage which may develop during this maintenance period as a result of faulty construction within the Right-Of-Way or easements or as a result of other construction by the developer (or his assigns). During the maintenance period, the town shall be responsible for snow and ice control, street cleaning, cleaning of culverts and catch basins and other work of a similar routine nature, provided that such work has in no way been caused by the developer's operation. The amount of the maintenance bond shall be equal to at least 20% of the performance bond.

C. Insurance. The developer shall procure and maintain at his own expense and without expense to the town, until final acceptance by the town of the work covered by approved plan and specifications, insurance for liability for damages imposed by law, of the kinds and in amounts hereinafter provided, in insurance companies authorized to do such business in the state, covering all operation under the approved plans and specifications whether performed by him or by contractors. Before commencing the work, the developer shall furnish to the town a certificate or certificates of insurance, in a form satisfactory to the town, showing that he has complied with this section. The certificate or certificates of insurance shall provide that the policies shall not be changed or canceled until 30 days' written notice has been given to the town. The kind and amount of insurance shall be as stated below in Subsection C(1), (2) and (3), and unless otherwise specifically required by special conditions, each policy shall have limits of not less than:

(1) Bodily injury liability:

- (a) Each person: \$500,000.
- (b) Each accident: \$1,000,000.

(2) Property damage liability:

- (a) Each accident: \$150,000
- (b) Aggregate: \$300,000

(3) Blasting.

- (a) The limits shall be set in consultation with the Town Attorney.

60. Timely completion

If construction of the public improvements has not been started within one (1) year from the date of final approval by the Planning Board, the developer shall appear before the Planning Board to explain the reasons for the delay. If the Planning Board finds that there is substantial justification for the delay, either in commencement or completion of construction, it may grant an extension of time of up to one (1) year to the developer. Further, if the Planning Board finds that costs have increased, it shall have the right as a condition for the extension to increase the amount of any of the securities. Furthermore, if the Planning Board finds that circumstances have changed, it shall have the right to require that plans shall be resubmitted and approved.

61. Fire safety measures

Where, the Planning Board determines that it is appropriate to facilitate fire protection and to provide access of firefighting equipment to buildings, the Planning Board shall have the authority to require the following improvements:

- A. Intermediate turnaround (see Attachment IX-1).
- B. Fire truck pad (see Attachment IX-2).

62. Trees and Landscaping

The need for locations, species, etc., of trees and landscaping shall be established by the Planning Board. Construction shall be in accordance with the notes, typical and details shown on the approved plans and Figure II-2 of the Highway Specifications.

63. Building permits

- A. No building permits will be issued unless:
 - (1) The subdivision roads are complete [with the exception of the wearing surface (asphalt concrete) and curbing]; or
 - (2) A performance guarantee has been provided.
- B. No building permits shall be issued until such time as all erosion and siltation control measures have been installed to the satisfaction of the Highway Superintendent or Town Engineer.
- C. Sight easements shall be cleared prior to issuance of building permits.
- D. All driveway culverts as required by the approved plat or site plan or as required by the Highway Superintendent shall be installed in the approved location prior to issuance of a building permit. Any location change of driveway culverts shall not be performed until a plot plan is submitted and approved by the Town Engineer.
- E. Each lot must have a preliminary plot plan furnished to the Building Inspector, indicating house and driveway location, septic system and well and drainage flow patterns with elevations relative to road surface, before a building permit can be issued.
 - (1) The plot plan must be prepared and stamped by a licensed professional engineer or land surveyor.

- (2) The plot must comply with all requirements of Attachment 1 of this article.

64. Certificate of Occupancy

Before a Certificate of Occupancy is issued, a final certified plot plan indicating field obtained as-built conditions must be furnished to the Building Inspector for his review. The certified plot plan must include the stamp and signature of a licensed professional engineer or land surveyor.

**Appendix 1
Summary of Highway Specifications**

Class of Highway

	Major/ Through Fig II-1	Commercial/ Industrial Fig II-2	Type I/ Local Street Fig II-3	Type II/ Local Street Fig II-3A
Right-Of-Way width	60'	60'	60'	60'
Clearing width	60'	60'	60'	60'
Grading width	60'	60'	60'	60'
Pavement width	24' + 12'	24'	22'	22'
Storm drains	Yes	Yes	Yes	Yes
Filter Fabric	Mirafi 600 X	Mirafi 600 X	Mirafi 600 X	Mirafi 600 X
Foundation course	12" "Item 4" NYSDOT# #304.12	12" "Item 4" NYSDOT # 304.12	12" "Item 4" NYSDOT # #304.12	12" "Item 4" NYSDOT # #304.12
Pavement base course	4" Asphalt conc.	_____	_____	_____
Binder course	3" Asphalt Conc.	3" Asphalt Conc.	3" Asphalt Conc.	3" Asphalt Conc.
Wearing surfaces	2" Asphalt Conc.	2" Asphalt Conc.	2" Asphalt Conc.	2" Asphalt Conc.
Curbs	None	As required	As required	None
Sidewalks	As required	None	None	None
Monuments	Yes	Yes	Yes	Yes
Road name signs	Yes	Yes	Yes	Yes

**Appendix 2
Subdivision Road and
Related Public Improvement
Engineer's Certification Form I**

Town of Canaan
Columbia County, New York

1) I, _____, submit herewith six (6) copies of
PROFESSIONAL ENGINEER

the RECORD DRAWING(S) for _____
SUBDIVISION NAME

Which have been prepared in conformance with the Town of Canaan checklist. Based on a review of the record drawing(s) and based on inspections of the construction activities, I hereby certify that the subdivision roads and public improvements were built generally in conformance with the approved plan and that the improvements are centrally located within the ROW or easements. In addition to the as-built plan, the following items were observed to be in general conformance to the approved plans:

A) _____

B) _____

C) _____

D) _____

Submitted herewith are copies of letters from the Town of Canaan Highway Superintendent approving the change or documentation is submitted herewith demonstrating that the change is not producing a deleterious effect and that it is substantially conforming to the approved plans and Town Code.

ATTACH ANY OR ALL OF THE FOLLOWING WHICH MAY BE
REQUIRED:

(Drainage Report, Road Profiles, Grading Plans, Etc.)

PROFESSIONAL ENGINEER (TYPE)

LICENSE NO.

SIGNATURE AND SEAL

**Appendix 3
Subdivision Road and
Related Public Improvement
Engineer's Certification Form II**

Town of Canaan
Columbia County, New York

1) I, _____, submit herewith six (6) copies of
PROFESSIONAL ENGINEER

The RECORD DRAWING(S) for _____
SUBDIVISION NAME

Which have been prepared in conformance with the Town of Canaan checklist. Based on a review of the record drawing(s) and based on inspections of the construction activities, I hereby certify that the subdivision roads and public improvements were built generally in conformance with the approved plans that the improvements are centrally located within the ROW or easements. In addition to the as-built plan, the following items were observed to be in general conformance to the approve plans:

- A) _____
- B) _____
- C) _____
- D) _____
- E) _____

Submitted herewith are copies of letters from the Town of Canaan Highway Superintendent approving the change or documentation is submitted herewith demonstrating that the change is not producing a deleterious effect and that it is substantially conforming to the approved plans and Town Code.

ATTACH ANY OR ALL OF THE FOLLOWING WHICH MAY BE
REQUIRED:
(Drainage Report, Road Profiles, Grading Plans, Etc.)

PROFESSIONAL ENGINEER (TYPE)

LICENSE NO.

SIGNATURE AND SEAL

Attachment 1

Plot Plan Requirements

Preliminary Plot Plan (certified)

- (1) Existing contours and final proposed contours. (2 to 1 max. slopes).
- (2) Surface drainage flow indicated and provisions for protection of adjacent properties against increased water flow as the result of construction of the dwelling (or associated easements or releases if required).
- (3) Ground floor (lowest slab elevation) and first floor elevations and garage floor (if no garage, so state). Elevations shall be shown to tenths of a foot. If near a flood plain, state one-hundred-year flood elevation. Lowest part of building to be minimum two feet above floodplain.
- (4) Sanitary sewer with inverts (if applicable) and cleanout as required. (CO on property).
- (5) Roof, curtain, foundations and footing drains (with inverts) (as required).
- (6) Water lines shown with water shut-off (if applicable) (WSO in ROW).
- (7) Placement of septic system with invert elevation and well (if applicable).
- (8) All applicable notes from the approved subdivision plat and/or resolution.
- (9) Parcel bearings, distances and acreage.
- (10) Both edges of pavement and driveway (spot elevations are required).
- (11) Utility poles and ID numbers; underground utility junction boxes (if applicable).
- (12) All easements or ROW shown with bearings and distances.
- (13) Street trees (if applicable).
- (14) Reference to Filed Map and lot number (if none, provide liber-page).
- (15) Engineer/land surveyor certification (stamp-sign).
- (16) Certified engineering design or calculations where required.
- (17) Erosion controls as may be necessary to protect downstream land and water.
- (18) The plot shall not exceed a 50 scale drawing and must contain two-foot contours on the same datum as the subdivision Filed Map.

Final “As-Built” Certified

- (1) Certified finalization of all items for preliminary plot plan (required).
- (2) Easements or releases (as required). Releases must be notarized.
- (3) Deed description or ROW agreements (as required), satisfactory to the Town Attorney, if different than shown on Filed Map, or not shown on Filed Map.

Attachment 2

The Planning Board may require these notes, as applicable, to be shown on a plan or plat.

Special Notes for Plans

- (1) Alteration of this document, except by a New York State licensed engineer or land surveyor with a 7208-N exemption of the New York State Education Law, is illegal.
- (2) There shall be no further subdivision of any parcel shown on this plat without the approval of the Town of Canaan Planning Board and the Columbia County Health Department.
- (3) There are no wells or SDS, except those shown, within 200 feet of the property lines.
- (4) Reference is made to Drawings_____ through_____ for drainage and road construction. Said plans are on file in the Town of Canaan, and said plans are an integral part of the town approval.
- (5) Erosion/siltation controls shall be installed prior to construction at site to protect bodies of water and downstream properties. The developer should contact the Town Engineer once the erosion controls are in and prior to construction. All control devices must be maintained during the time of construction of the project.
- (6) All road work shall be completed within two years of final approval.
- (7) All roadwork shall conform to the Town of Canaan Highway Specifications.
- (8) The roadway and storm drainage construction will be jointly inspected by the Town Engineer and the developer's engineer. The developer's engineer must provide written certification to construction compliance upon completion of the project.
- (9) All utilities shall be placed under the roadway prior to paving.
- (10) It shall be the responsibility of the developer to certify/ensure to the Town Highway Superintendent/Engineer that all utilities have been installed

completely prior to commencing with construction of the foundation course (ROB/GG).

- (11) Were curtain and/or footing drains are required on a lot situated at a higher elevation than the road—and said lot drains toward the road—all drains shall be piped directly into the road storm drain system.
- (12) All roadways shall have asphalt curbing.
- (13) Storm sewer piping is HDPE.
- (14) All Storm cross drains shall be 18 inches HDPE at 2.0% unless otherwise noted.
- (15) The developer shall properly monument roads, prior to dedication to the town. The placement of monuments shall be as required by the Town of Canaan Town Engineer and Highway Department. Monuments shall be shown on as-built drawing prior to road acceptance.
- (16) The sight easement area shown is to remain free of any objects, man-made or natural, that would prohibit a free sight of 300 feet measured along the center line of the road. There shall be no plantings within this easement that exceed two feet in height. Easements shall be cleared prior to issuance of a building permit.
- (17) Lots along wetland or waterbody or stream shall have lowest slab elevation, sewage disposal system, well and all other utilities a minimum of two feet above the one-hundred-year-flood elevation as shown on the FIRM, per the floodplain ordinance of the Town of Canaan.

TOWN OF CANAAN HIGHWAY SPECS

PREPARED BY:

OCTOBER 2023