

TOWN OF NEWINGTON

SPECIFICATIONS FOR CONSTRUCTION OF ROADS

GENERAL: These specifications shall apply for the construction of all roads to be accepted by the Town of Newington. All materials for said construction shall conform with the requirements of "State of Connecticut, State Highway Department, Standard Specifications for Roads, Bridges and Incidental Construction, dated 1995, Form 814A as amended, to date, herein referred to as Standard Specifications." The Contractor shall be responsible for securing all permits. Streets shall be constructed according to "Design Standards", for various classification of roads noted below:

- A. Design Classification No. 1-This standard would apply to all new residential roads which would not be used for construction access during development and existing residential streets reconstructed under the Town of Newington's Capital Improvements Program.
- B. Design Classification No. 2-This standard would apply to Collector Roads, Industrial Roads, Central Business District and a new road within a development which would serve as a construction road for ongoing development.
- C. Design Classification No. 3-This classification would apply to Arterial Roads subject to normal truck traffic.
- D. Design Classification No. 4- Pavement design to be based on projected traffic and sub-soil conditions. This standard would apply to Arterial Roads with an ADT in the area of 10,000 vehicles per day with above normal truck traffic.

CLEARING AND GRUBBING: Within excavation and fill lines, all trees shall be cut off and all stumps removed to a depth of not less than 12 inches below the subgrade. All trees cut shall be removed from within the roadway limits at the earliest possible moment, before any grading is started. The Contractor shall remove all rubbish and refuse within the roadway limits from the project site.

All excavations made below the subgrade surface by the removal of tree stumps, unsuitable material, etc., shall be filled with suitable material as approved by Town Engineer or his designated representative which shall be compacted thoroughly in accordance with the provisions governing the formation of embankments.

FORMATION OF SUBGRADE: All overburden and unsuitable materials shall be removed prior to the start of earth excavation or construction of earth embankment. Frozen soil shall not be used as fill material. Materials used for the construction of embankments shall come from sources approved by the Town Engineer or his designated representative. The embankment shall be constructed by depositing successive layers of fill the full width of the embankment. Frozen soil shall not be used as fill material. No embankment layer shall not be deposited on surfaces of snow, or ice, nor shall it be placed on frozen or unstable surfaces. The depth of each layer shall not exceed 12 inches and shall be crowned or pitched to provide drainage at the close of each days operation. No rock fill shall be used unless approved by the Town Engineer in writing.

The entire area of each layer of the embankment and the subgrade in the excavated areas shall be uniformly compacted to at least the required minimum density by use of compaction equipment consisting of rollers, compactor or a combination thereof. Earth-moving and other equipment not specifically manufactured for compaction purposes will not be considered as compaction equipment.

The dry density after compaction shall not be less than 95 percent of the dry density for that soil when tested in accordance with AASHTO T 180, Method D. Correction for particles retained on the ¾ inch sieve shall be as specified in AASHTO Method T-224. Testing shall be done by a reputable soil testing laboratory. A certified copy of the results shall be furnished to the Town Engineer.

Compaction must be such that no creeping or waving appear ahead of a roller on the final rolling. The final 12 inches of a subgrade shall be of material with no stone larger than 5 inches. Side slopes shall not exceed 2 to 1 in cut or fill areas. The top 6 inches of subgrade or greater depth if specified by professional engineer shall be of selected granular material approved by Town Engineer or his designated representative. A Professional Engineer, (one whose specialty is soil and foundations) shall certify in writing, that all work has been done according to his/her requirements.

Excavation shall be carried to the "REQUIRED GRADE"*, except where rock or stone masonry is encountered or the removal of unsuitable material is directed by the Town Engineer or his designated representative. When rock ledge or masonry rubble is encountered, it shall be excavated to a minimum depth of 1.0 feet below subgrade. The excavated areas shall be replaced with approved gravel material, thoroughly compacted. Spring or seepage water shall be reported immediately to the Town Engineer. Side slopes shall not exceed 2 to 1 in cut areas.

The finished surface shall be smooth and even and shall not vary more than ½ inch (+/-) from the standard cross-section and established grade. Any deviations shall be corrected by cutting and filling, followed by repeated rolling until a well compacted subgrade is obtained.

*Required Grade shall be construed as follows:

- A. If existing ground is pervious and stable in nature then grade shall be bottom of Process Stone Base.
- B. If ground is impervious and/ or unstable in nature, then the excavation will be carried to the subgrade and a minimum of six (6) inch bank run gravel layer shall be provided, prior to the placement of process stone base. Engineer shall submit a written report on his/her recommendation as to the depth of the gravel layer. Town reserves right to substitute one inch of processed aggregate stone base material for each three inches of gravel.

ROAD BASE: The base course material shall be installed only after all main line utilities have been completed. It shall be constructed of quarry manufactured (excluding reclaimed material) processed stone (large) base upon an approved subgrade and shall conform to Section 3.04 of the Standard Specifications, Form 814A. The material shall be placed in 2 equal layers with the final layer as required to bring the base to the

required line and grade. Each layer shall be spread with an approved spreader, stone box or power grader and rolled with a 3 wheel roller weighing a minimum of 10 tons or an approved mechanical vibrator roller. Additional filler material as required shall be placed and graded to provide proper keying of the final base surface. Rolling shall proceed in a longitudinal direction beginning at the gutter line and proceeding toward the center. However, if a road is to be super elevated, the rolling shall start on the low side of bank and proceed continually to the high side of the bank.

Sufficient overlap with the inside wheels shall be maintained to avoid any unrolled areas. Rolling shall continue until the material is well keyed and does not roll ahead of the roller. The final surface shall not be more than 3/8 inch (+/-) from the established grade and standard cross section. The base or portion thereof shall not be installed during freezing weather or on a frozen subgrade. The minimum thickness of the base shall be as follows:

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| 1. Road Classification No. 1 | -8 inches (compacted depth) |
| 2. Road Classification No. 2 | -10 inches (compacted depth) |
| 3. Road Classification No. 3 | -8 inches (compacted depth) |
| 4. Road Classification No. 4 | -Premix bituminous concrete base. Depth to be determined by design requirements. |
| 5. Private Street | -8 inches (compacted depth) |
| 6. Parking Lots Commercial and Residential | -4 inches (compacted depth) |
| 7 Driveway (excluding trucks) | -6 inches (compacted depth) |

ROAD PAVEMENT

The pavement shall be bituminous concrete in 2 applications on an approved base in accordance with these specifications, and shall conform to the required line, grade and cross section. The first course shall consist of a bituminous concrete binder course conforming to the requirements of Section 4.0 (Bituminous Concrete Binder Course) of the Standard Specification, Form 814A. Material shall be applied with an approved mechanical spreader and rolled with a 10 ton roller. The second spread application of Bituminous Concrete (Surfaced Course Grading) and conforming to the requirements of Section 4.0 of the Standard Specifications Form 814A. Material shall be applied with an approved mechanical spreader and rolled with a 10 ton roller.

The pavement thickness after compaction by a ten ton roller shall be as follows:

| <u>A. BITUMINOUS CONCRETE BINDER COURSE:</u> | |
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| 1. Road Classification No. 1 Local Street (new) Local Street (reconstruction) | -2 inches (compacted depth) -1 ½ inches (compacted depth) |
| 2. Road Classification No. 2 | -2 inches (compacted depth) |
| 3. Road Classification No. 3 | -3 inches (compacted depth) |
| 4. Road Classification No. 4 | -2 inches (compacted depth) |
| 5. Private Street | -2 inches (compacted depth) |
| 6. Parking Lots | -1 ½ inches (compacted depth) |
| Driveway (excluding truck traffic) | -2 inches (compacted depth) |

| B. BITUMINOUS CONCRETE-SURFACE COURSE GRADING II | |
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| 1. Local Street | -1 ½ inches (compacted depth) |
| 2. Road Classification No. 2 | - 2 inches (compacted depth) |
| Road Classification No. 3 Secondary Arterial | -2 inches (compacted depth) |
| Road Classification No. 4 Primary Arterial | -2 inches (compacted depth) |
| 5. Private Street | -1 ½ inches (compacted depth) |
| 6. Parking Lots | -1 ¼ inches (compacted depth) |
| 7. Driveway (excluding truck traffic) | -1 ½ inches (compacted depth) |

CURBING: Type of curbing shall conform to the requirements set forth by the Town Planning Commission. Materials and construction methods shall conform to the following requirements of the Standard Specifications Form 814A.

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| A. Granite Curbing | Section 8.13 |
| B. Concrete Curbing | Section 8.11 |
| C. Bituminous Concrete Curbing | Section 8.15 |

INSPECTION: All phases of storm drainage and road construction work shall be inspected (spot observations) by Town Engineer or his designated representative. To allow time for inspection, no phase of work shall be started without a minimum of twenty four (24) hours' (M-F) notice (665-8570). Phases are defined as: limits of excavation and/or removal of unsuitable material; stormwater drainage, subgrade, subbase, base and pavement binder course and pavement surface course. No placement of bituminous concrete surface course shall be done between October 15 and April 15 except with the written consent of the Town Engineer. No drainage or related structure shall be back filled until visual inspection by the Town Engineer or his representative.

Note: A. If developer chooses to use ADS pipe, Town shall receive written certification for a P.E. (CT Registered) that pipe has been installed and back filled in accordance with his design or manufacturers recommendations.

Note: B When bituminous concrete premix base binder or surface course is placed after November 1st the Town of Newington reserves the right to reduce the paving length to 500 feet and have contractor at its expense take core sample (s) and conduct test (s) of said sample (s) as may be determined by the Town.

STORM DRAINAGE: Storm Drainage Trench shall be excavated to a point at least 6" below the bottom of pipe and bedding of ½" or ¾" stone shall be placed. Pipe shall be laid true to line and grade and back filled with crushed stone to point midway above flow line. Pipe shall be reinforced concrete pipe with gasket joint, metal pipe or ADS pipe with gasket coupling.,

The remainder of the trench shall be backfilled as noted below:

- A. Under roadway, trench may be back filled with existing material if approved by Engineer or bank run gravel to within 2'-0" of finished grade. Then remainder shall be compacted processed stone from subgrade to roadway.
- B. Off road the trench material will be existing material if approved and suitably compacted to 6" below finish grade. The last 6" to be top soil/loam etc.

The width of trench shall meet the following minimum requirements:

- A. Diameter of 30 inches or less---diameter plus 2 feet.
- B. Diameter greater than 30 inches---diameter plus 2 ½ feet.

In areas where ground water is encountered during design or during construction of improvement or anticipated under, adjacent to pavement areas, a flexible 4" ADS Fabric Coated under drain shall be placed in a trench on a bedding of 6" (min.) sharp sand, a min. of 1 foot wider than diameter of pipe, flow line at a depth of two feet below finish gutter line and 1 foot behind face of curb. This trench shall be back filled with sharp clean sand, free of large stones to a depth 6" below finished grade of grassed snow shelf. (Last 6" to finished grade shall be topsoil). Inlet end of under drain shall be capped and outlet shall be into CB or MH structure as approved by Engineer.

Curb type catch basin tops shall be Town of Windsor with 3/8 inch per foot cross slope except where field condition will require the installation of special type frame and grate.