

Town of North Yarmouth

Roadway Criteria and Specification

**Approved by:
North Yarmouth Board of Selectmen
12-21-2004**

GEOMETRIC CRITERIA

DESCRIPTION	TYPE OF ROADWAY	
	GROWTH DISTRICT	RURAL RESIDENTIAL
Right-of Way Width	50'	50'
Pavement Width	22'	22'
Shoulder Width	N/A	4
Curbing Radius @ INTERSECTION	Type #1	N/A
Sidewalk Width	5	N/A
Roadway Crown	¼" per ft.	¼" per ft.
Minimum Grade	1%	1%
Maximum Grade	10%	10%
Minimum Centerline Radius	150"	150'
Minimum Angle of Street Intersection	80	80
Sight Distance	see table	see table
Design Speed	25 mph	25 mph
K Factor Crest Vertical Curve	20	20
K Factor Sag Vertical Curve	30	30
Maximum Grade @ Intersection within 50'	3%	3%
Minimum Property Line Radii @ intersection	15'	15'
Minimum pavement radius	30'	30'

CULVERTS**LOCATION****MINIMUM DIAMETER**

Roadway
Driveway

18"
15"

** The Town of North Yarmouth allows the use of two types of culvers. Poly Ethylene smooth walled ribbed exterior or Aluminum. Minimum sizes are listed above. Anything smaller will require approval from the Road Commissioner. **NO ALUMINIZED, STEEL OR ADS RIBBED CULVERTS WILL BE ALLOWED.**

All driveway culverts will have a minimum of 18" cover. All driveway culverts and X-culverts must have 2" Blue Board insulation under them. All culverts must extend 8" beyond the toe of the slope Inlet and outlet areas of culverts must be constructed to allow for proper drainage. Ditching may be required for culvert installation. **SEE INSTALLATION DIAGRAM.**

SIGHT DISTANCES

Any intersection street or road shall be so designed in profile and grading and so located as to provide the following minimum sight distance measured in each direction. The measurement shall be from the driver's seat of the vehicle 10' from EOTW. Height of eye @ 3.5' Approach object @ 4.25'.

ALLOWABLE SPEED (MILES PER HOUR)	REQUIRED SIGHT DISTANCE (IN FEET)
25	160
30	200
35	240
40	275
45	325
50	350
55	425

TURNAROUNDS

Installation of a circle or Cul-de-Sac requires written permission by the Road commissioner and review by the Fire Chief and will not be permitted if a hammerhead can be installed.

Circle

Radii of turnaround

Property Line	75 feet
Outer Edge of pavement	65 feet
Inner Edge of pavement	40 feet

Hammerhead

The center line of the hammerhead shall be at least 65 feet and no more than 85 feet from the end of the street or road. The paved portion shall extend the distance of 40 feet at a 90 degree angle to the road upon which it is constructed. It shall conform to all road construction standards.

UNSUITABLE MATERIALS

The subdivider shall be required to investigate and determine the types and classifications of the sub-surface soils. If in the opinion of the Road Commissioner, unsuitable sub-surface soils are encountered during construction, the subdivider shall be required to excavate and remove the unsuitable material and replace it with granular material as specified in the standard specification of the **MAINE DEPARTMENT OF TRANSPORTATION. (SECTION 703.20 GRAVEL BORROW)** Also in conjunction with the above specification the use of proper geo-textiles will be required. Type to be determined after sub-surface analysis.

GRADING

PREPARATION. Before grading is started, the entire right-of-way area shall be cleared of all stumps, roots, brush and any other objectionable material and all trees not intended for preservation.

CUTS. Trees stumps and other organic material shall be removed to a depth of 2 feet below the sub-grade.

FILL. All the material used in the construction of embankments shall be of the quality to meet the embankment construction, Section 203.09 through 203.15 of the Maine Department of Transportation Standard Specification. Excess materials including organic materials, soft clay, wet and non-compatible materials, etc. shall be removed from the street site. The fill shall be spread in layers not to exceed 12" loose and compacted. The filling of utility trenches and other places shall be mechanically tramped, and proper geo-textiles used.

SIDE SLOPES. All side slopes shall be at a slope of 2 horizontal to 1 vertical unless shown otherwise on a typical cross section that complies with standards that will withstand a typical (25) year storm.

LEDGE. All ledge within the roadway construction limits, shall be removed to a depth of 1 foot below sub-grade. Back-slopes shall be @ 2 to 1 .

GUARDRAIL. Guardrail shall be installed in areas deemed necessary by the Road Commissioner. Guardrails shall be in accordance with MDOT specifications 606.01 Type 3b.

GRAVEL AND PAVEMENT

The appropriate sections of the Bases and Pavements Divisions of the Maine Department of Transportation Standard Specifications currently in effect at the date of submission of the preliminary plan shall be applicable to this section except as follows.

GRAVEL

Aggregate base course grave MDOT Type "C" Section 703.06 (a)

Aggregate sub-base shall not contain particles of rock exceeding 6" in diameter

Aggregate base – Crush MDOT Type "A" Section 703.06 (a)

PAVEMENT

Where pavement joins (new to existing) pavement shall be cut along a smooth line to a neat even vertical joint.

Broken edges or deviations from grade will not be allowed.

Grading for the surface course of Hot Bituminous Mix shall be Grade C or 12.5mm Superpave 1" minimum compacted.

Grading for Base course mix shall be Grade B or 19.0 mm Superpave 2" minimum compacted.

CURBING

All curbing shall be installed in compliance with Section 609 of the MDOT standard specification. Except as follows:

Bituminous curbing shall have a reveal of not less than (6) six inches

Curbing shall be limited to Type I and Type II

SIDEWALKS

Section 608 of the Maine State Highway Commission Standard Specification, revision of June 1968 shall be applicable to this section.

STORM DRAIN CONSTRUCTION STANDARDS

Materials. All pipes specified in this section shall be rigid. No coiled pipe will be permitted for storm drain construction. The following materials shall be used for storm drain construction. Design criteria shall handle a 25 year storm HW/D 1.0 minimum velocity 3' per sec.

- a. Reinforced concrete pipe: Shall meet the requirement of ASTM designated C-76. Rubber gasket joint type meeting ASTM Designation C443-70 or an approved preformed plastic jointing Material such as "Ramnek"
- b. Polyvinyl Chloride PVC gravity sewer pipe ASTM Designation D-3034-73SDR34.
- c. Corrugated Polyethylene pipe Standard N-12 Smooth bore double wall. ADS smooth bore double wall.

CATCH BASINS

All catch basins shall have water tight flexible boots

All boots must accept double bands

Minimum sump of 1'6" unless otherwise approved by the Road Commissioner.

Use of water plug mortar mix etc without flexible boots will not be allowed

Concrete and precast risers are preferred brick work is acceptable but will not be allowed more than 6' above the top of the structure.

All frames and covers are to be square and also bicycle and pedestrian safe example SPEC # SA 246-M Etheridge Foundry

Pavement taper from grates to roadway shall be State MDOT specification

Basin must be set in a minimum of 12' base of stone not to exceed $\frac{3}{4}$ ' dia. And must continue to the top of the outlet pipe around the entire basin.

GEO-TEXTILES

All aspects of work using geo-textile shall be in conformance with sections 620.01 description 620.02 materials 620.03 placement and 620.04 overlap and seams of the MDOT standards and specifications.

ROADWAY CONSTRUCTION MATERIALS STANDARDS

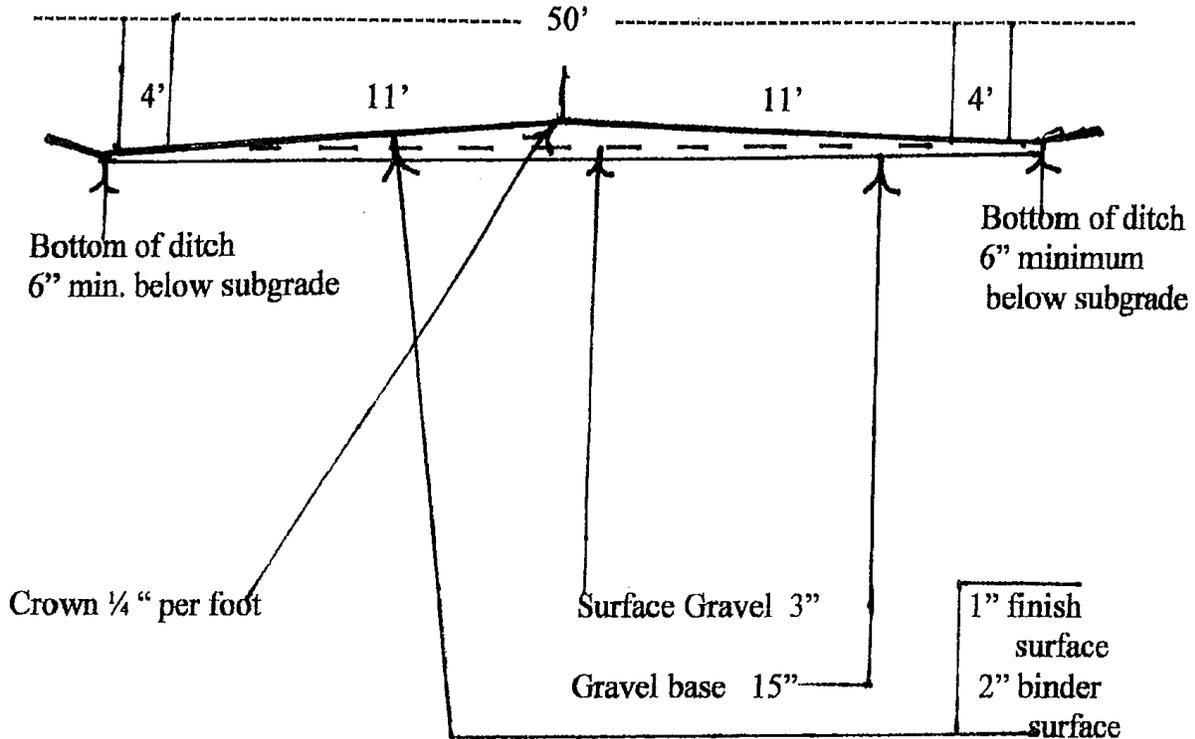
Roadway construction standards as specified herein shall conform to the current specifications of the Maine Department of Transportation

Standards and dimensions below shall be considered a minimum

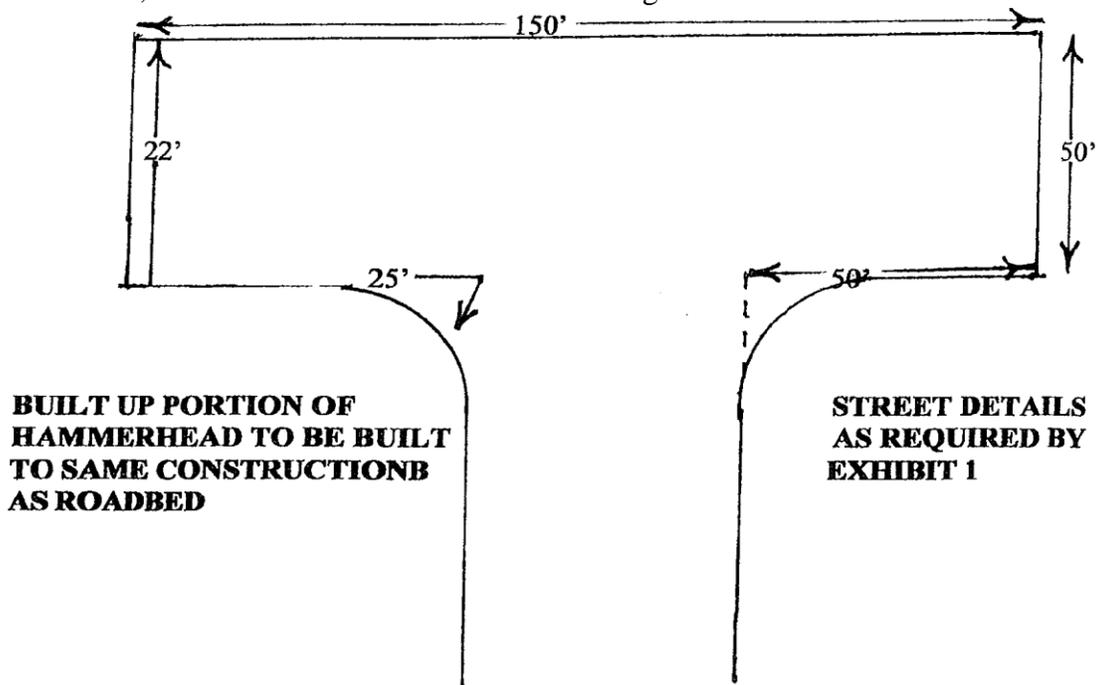
DESCRIPTION	TYPE OF STREET	
	Growth District	Rural Residential Access
Road Base (Min.)	18"	18"
Sub Base (bank gravel Min)	15"	15"
Upper Base (crushed grave Min.)	3"	3"
Hot bituminous pavement total	3"	3"
Base Course $\frac{1}{2}$ " Type grad B 19.0mm	2"	2"
Surface Course $\frac{1}{2}$ " Type grade C 12.5mm	1"	1"
Bituminous concrete sidewalk Type AC	2" grade D 2 lifts	2" grade D 2 lifts
Base gravel	10"	10"
MDOT spec. 1 $\frac{1}{2}$ " surface gravel	2"	2"
Curbing Material	Type 1 Granite	Type 3 Bituminous concrete

TOWN OF NORTH YARMOUTH STREET DETAILS

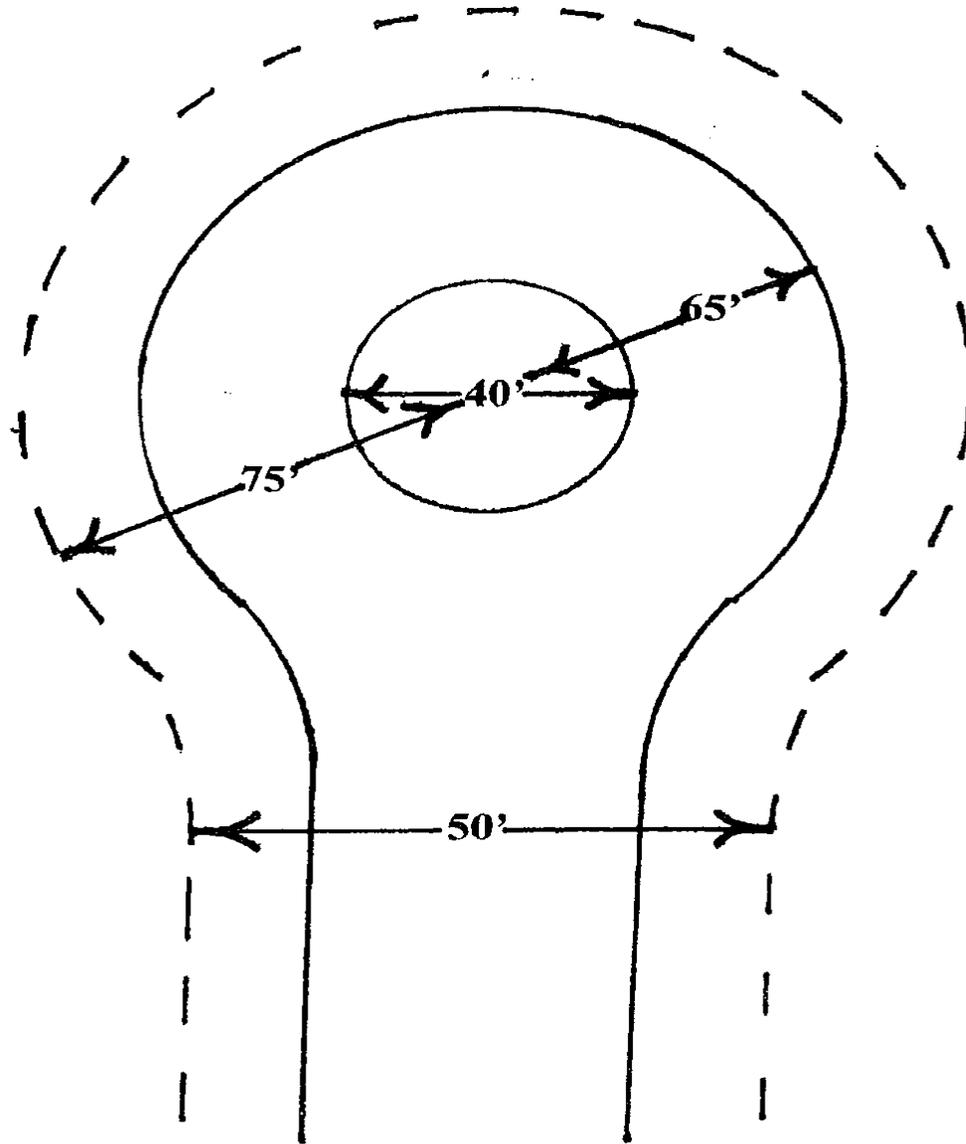
Exhibit 1



The Hammerhead turnaround shown below shall be required in all instances. The restrictions shall be as listed below. The road builder or sub-divider may appeal to the North Yarmouth Planning Board, to apply for a Cul-De-Sac type turnaround under special circumstances. If cul-de-sac is allowed, It shall be built in accordance with diagram C



TOWN OF NORTH YARMOUTH STREET DETAIL CUL-DE-SAC
DIAGRAM C



** UTILITIES ARE PROHIBITED FROM BEING INSTALLED IN THE CENTER OF THE CUL-DE-SAC IF ALTERNATIVE INSTALLATION CAN BE PROVIDED

RADI..

PROPERTY LINE 75'
OUTER EDGE OF PAVEMENT 65'
INNER EDGE OF PAVEMENT 40'
R.O.W,

50'

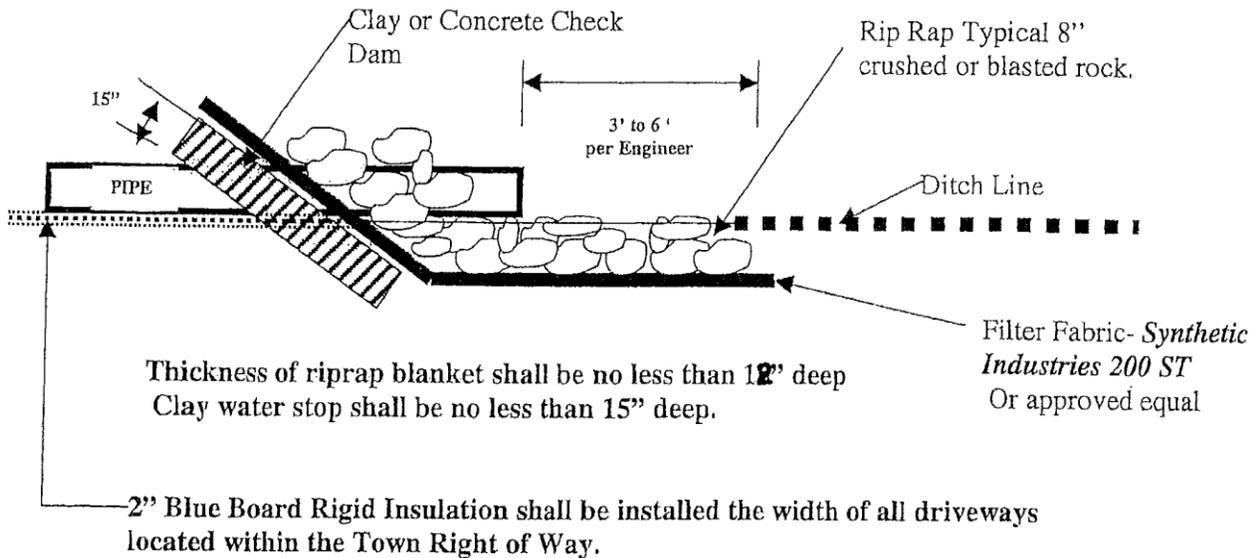
Driveway Culvert Installation

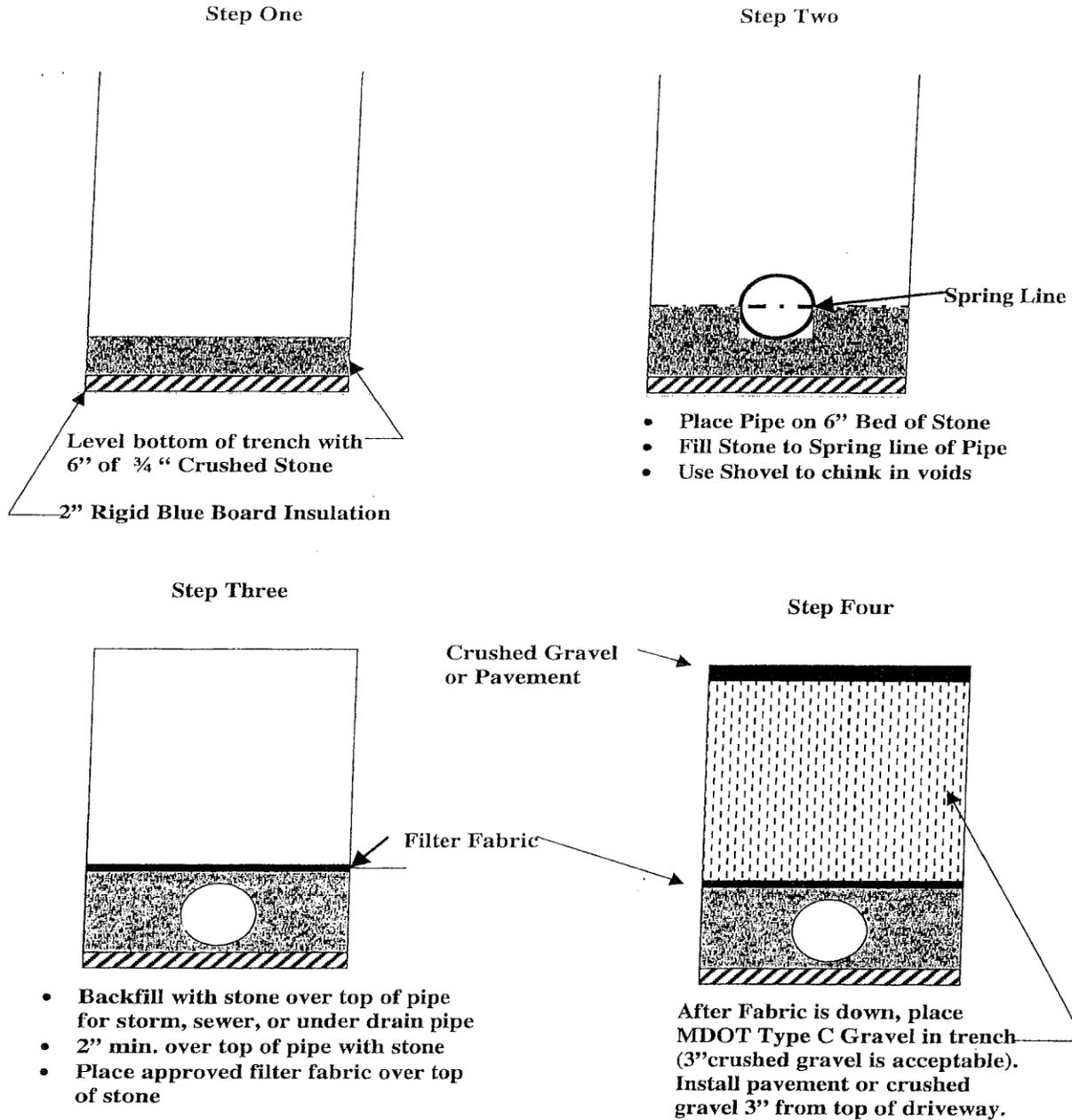
Property Owners are responsible for the costs associated with the initial culvert placement in their driveway entrance. If the driveway culvert is installed to the following specifications the Town will accept all future maintenance and replacement responsibilities.

The Culvert size typically is 15", but in all cases must be approved by the Town Engineer or the Deputy Public Works Director. The culvert can either be a polyethylene smooth walled pipe (ADS N-12 or approved equal) or an aluminum pipe (not aluminized).

The bedding requirements for all pipes are on the following page. The culvert must have a clay check dam located at the inlet and outlet ends to prevent water from piping through the stone and potentially washing out the culvert.

All Driveway culverts are required to have 2" blue board rigid insulation installed beneath the culvert and below the ditch line.





Typical installation for Driveways and Roadway Cross Culverts
(for closed system see the following pages)