Roadway Structure Cross-Section

<table>
<thead>
<tr>
<th>Type A Road</th>
<th>Type B Road</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoulder Width 9'</td>
<td>Shoulder Width 12'-0&quot;</td>
</tr>
<tr>
<td>1' per Foot Side Slope</td>
<td>1' per Foot Side Slope</td>
</tr>
<tr>
<td>6' Loan and Seeded</td>
<td>6' Loan and Seeded</td>
</tr>
<tr>
<td>24&quot; Compacted Processed Gravel</td>
<td>24&quot; Compacted Processed Gravel</td>
</tr>
<tr>
<td>1&quot; Type I Bituminous Concrete in Two Courses (2&quot; Under Course)</td>
<td>2&quot; Top Course</td>
</tr>
<tr>
<td>3/8&quot; per Foot crown</td>
<td>3/8&quot; per Foot crown</td>
</tr>
<tr>
<td>Undisturbed Stable Sub-Base</td>
<td>Undisturbed Stable Sub-Base</td>
</tr>
</tbody>
</table>

Roadway Cross-Section

1' Foot Berm  
Roadway Width  
2" Base Course  
2" Compacted Gravel  
2' Type I-1 Bit Conc. in two Courses

Drain Line  
Sewer Main  
5' Minimum  
10' Minimum  
Green Strip Tree Belt  
Sidewalk 4' Width Minimum

Roadway Cross Sections
Town of Granby MA  
Planning Board  
March 2005
BITUMINOUS CONCRETE BERMBITUMINOUS CONCRETE BERM

1'-0"  1'-0"

SHOULDER

LEVEL

SLOPE Varies HH

4 1/2"

TOP Course 2"

SLOPE OF SHOULDER

GUM CONE BERM

BINDER 2"

PROCESSED GRAVEL BASE 7/8"

SUBBASE

Bituminous Concrete Berm

Town of Granby MA
Planning Board
March 2005
CENTER LINE OF M.H.

TEE-VYE WITH 4 HOLE CUT OUT

DROP PIPE TO BE SAME CLASS AND SAME SIZE OR LARGER AS INFLUENT PIPE.

1/4" X 1-1/4" ALUM. STRAPS
MIN. (3) STRAPS 10" C.

(2) 3/8" X 2-1/4" S.S. PARABOLTS
PER STRAP, PLACE BITUMINUM B/W ALUMINUM STRAP & CONCRETE WALL.

90° BELL & SPIGOT ELBOW
IN DIRECTION OF FLOW

PIPE CUT AT 1/2 DIAMETER

Inside Drop Inlet

Town of Granby, MA
Planning Board
March 2005

Do NOT COPY
NOTE:
EXCAVATION WILL BE PAID FOR ONCE AND ONLY ONCE, REGARDLESS OF HOW OFTEN IT FALLS WITHIN THE PAYLINES FOR VARIOUS PIPES AND STRUCTURES DUE TO OVERLAPPING OF PAYLINES, AND REGARDLESS OF HOW OFTEN CONTRACTOR RE-HANLES MATERIAL.
TABLE A  SURFACE REPAIR PAY WIDTHS

<table>
<thead>
<tr>
<th>NOMINAL PIPE DIA.</th>
<th>NOMINAL PIPE DIA.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEMPORARY PAVEMENT</td>
<td>PERMANENT PAVEMENT &amp; LOAM &amp; Seed</td>
</tr>
<tr>
<td>0 - 24&quot;</td>
<td>0 + 4</td>
</tr>
<tr>
<td>6&quot; - 8&quot;</td>
<td>0 + 6</td>
</tr>
</tbody>
</table>

TABLE B  EXCAVATION PAY WIDTHS AND ROCK EXCAVATION PAY WIDTHS

<table>
<thead>
<tr>
<th>NOMINAL PIPE DIA.</th>
<th>NOMINAL PIPE DIA.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 24&quot;</td>
<td></td>
</tr>
<tr>
<td>5&quot; - 0&quot;</td>
<td>0 + 3&quot; - 0&quot;</td>
</tr>
</tbody>
</table>

NOTE:
1. PAYMENT DEPTH FOR ROCK (AS DEFINED HEREIN) WHICH IS ENCOUNTERED IN A TRENCH SHALL BE NO LESS THAN THREE (3) FEET.
Standard Precast Concrete Manhole
Town of Granby, MA
Planning Board
March 2005
SECTION A-A

- All pipes cut flush to inside face of manhole (M.H.).
- Existing ground surface for finished grade.
- Brick, block, or concrete wall.
- Shelf elevation same as crown of highest pipe.
- Remove 10" min. of existing material.
- Undisturbed earth.

SECTION B-B

- Slope 1"/ft.
- Brick shelf elevation same as crown of highest pipe.
- Smooth flow invert of brick on edge / PVC SDR-35 sweeps or pipe with top half removed. Diameter same as outlet.
- Concrete fill.
- Remove 10" min. of existing material.

Note:
1. Plug all infiltration from 6" above crown of highest pipe down to undisturbed earth.
2. All pipes cut flush to inside face of M.H.
3. Clean walls of M.H.'s to allow new concrete fill to adhere properly.

Sanitary Manhole Invert Repair

Town of Granby, MA
Planning Board
March 2005
STANDARD MANHOLE COVER
MINIMUM WEIGHT: 200 LBS.

NOTES:
1. FRAME AND COVER SHALL BE PROVIDED FROM THE SAME MANUFACTURER.

2. LETTERING SHALL BE CAST INTO COVERS AS SPECIFIED.

MANHOLE FRAME & COVER
NO SCALE
Concrete Box Culvert
Typical Structural Details

Town of Granby MA
Planning Board
March 2005
Bottom Channel Width Matches Culvert Opening

Filler Coping if Box Culvert Askew. Not required if square to the roadway

Typical Handrail and/or Handrail to MHD standards

PEDESTRIAN RAIL

12" PLACED RIPRAP (TYP)

Slope Varies

PRECAST BOX CULVERT Width and Height Varies

6" CRUSHED STONE WITH NON-WOVEN FILTER FABRIC (TYP)

WINGWALL

TOE WALL

WINGWALL

Town of Granby MA
Planning Board
March 2005
CONCRETE AND FIELD STONE MASONRY ENDS FOR 8" TO 30" PIPE CULVERT

### FRONT ELEVATION

### END ELEVATION

#### Trench Depth

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>1:1 Slope</th>
<th>2:1 Slope</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.Y.</td>
<td>STEEL</td>
<td>C.Y.</td>
</tr>
<tr>
<td>0</td>
<td>4&quot; - 2&quot;</td>
<td>0.77</td>
</tr>
<tr>
<td>12</td>
<td>12&quot;</td>
<td>1.08</td>
</tr>
<tr>
<td>15</td>
<td>15&quot;</td>
<td>1.24</td>
</tr>
<tr>
<td>18</td>
<td>18&quot;</td>
<td>1.61</td>
</tr>
<tr>
<td>21</td>
<td>21&quot;</td>
<td>1.95</td>
</tr>
<tr>
<td>24</td>
<td>24&quot;</td>
<td>2.26</td>
</tr>
<tr>
<td>30</td>
<td>30&quot;</td>
<td>2.63</td>
</tr>
</tbody>
</table>

- **Culvert Headwall**
- **Town Of Granby Planning Board**
- **March 2205**

**DO NOT COPY**

**NOTE:**
1. For descriptions, materials and construction methods, see latest specifications.
2. All concrete dimensions shown are minimum.
3. Payments will be based on the accompanying table.
SECTORAL PLAN

BUILDING CONNECTION
WHERE REQUIRED
REFER TO TYPICAL
DETAIL

Y BRANCH

AS REQUIRED

AS REQUIRED
TO ENCASE
Y BRANCH
AS SHOWN

2" (6" MIN.)

COMPACTED
GRANULAR
MATERIAl

UNDISTURBED
MATERIAL

1'-4" MIN.
(EARTH OR ROCK)

TRENCH BACKFILL TO BE
PLACED AND COMPACTED
CONCURRENTLY TO SAME
ELEVATION ON EACH
SIDE OF CHIMNEY

M-2 CONCRETE ARCH
TO EXTEND TO SIDE OF
EARTH, TRENCH IN ROCK,
EXTEND ARCH TO 4" FROM
SIDE OF TRENCH & BACKFILL
4" SPACE WITH SAND.

SECTION

HOUSE CONNECTION CHIMNEY I

N.T.S.

Sewer Service Chimney

Town of Granby, MA
Planning Board
March 2005
Note: Minimum Pitch for house service connections = 1/8" per foot
Location of connection to be determined in the field by the engineer
Go-No-Go Gage Mandrel

Town of Granby, MA
Planning Board
March 2005
4.7.11 Islands. Any raised islands in crossings shall be cut through level with the street or have curb ramps at both sides and a level area at least 48-in (1220 mm) long between the curb ramps in the part of the island intersected by the crossings (see Fig. 15(a) and (b)).

4.8 Ramps.

4.8.1 General. Any part of an accessible route with a slope greater than 1:20 shall be considered a ramp and shall comply with 4.8.

4.8.2 Slope and Rise. The least possible slope shall be used for any ramp. The maximum slope of a ramp in new construction shall be 1:12. The maximum rise for any run shall be 30 in (760 mm) (see Fig. 16). Curb ramps and ramps to be constructed on existing sites or in existing buildings or facilities may have slopes and rises as allowed in 4.1.6C(3)(a) if space limitations prohibit the use of a 1:12 slope or less.
**Tree Planting**

No Scale

- **Plan:**
  - Black reinforced rubber hose (above first branch)
  - Three strands of #10 gauge twisted galvanized steel wire
  - Galvanized eye and turnbuckle
  - 2"x2" unpainted cedar stake (3 stakes per tree) tighten as shown.

- **Tree wrapping paper to second branch.**

- **Tree shall be set at or 1" above the established finished grade.**

- **3" pine bark mulch**

- **Slope to form saucer.**

- **Untie and roll back burlap from 1/3 of root ball (min); if synthetic wrap is used, remove completely.**

- **Plant backfill mixture.**

- **Scarify existing soil & blend with planting mix 1:1 & compact existing subgrade.**
SHRUB PLANTING

PLANT AT THE SAME DEPTH AS PREVIOUSLY GROWN.

3" PINE BARK MULCH

UNTIE AND ROLL BACK BURLAP FROM 1/3 OF ROOT BALL (MIN); IF SYNTHETIC WRAP IS USED, REMOVE COMPLETELY.

SLOPE TO FORM SAUCER.

PLANT BACKFILL MIXTURE.

SCARIFY EXISTING SOIL & BLEND WITH PLANTING MIX 1:1 AND COMPACT.

EXISTING SUBGRADE

6" MIN.

6" VARIES 6" MIN.
Stormwater Retention Basin

This stormwater retention & filtration basin was constructed to manage stormwater runoff from the surrounding streets. The system works by providing an area to detain and settle pollutant-laden sediments out of pavement and street runoff before discharging into the protected wetland area. This basin is important, because it helps to minimize the amount of pollutants entering into local wetlands and streams.

Graney Planning Board

PROPOSED STORMWATER RETENTION BASIN SIGN
(NO SCALE)

Do not copy
BASE MOUNTED 14 FOOT FIBERGLASS POLE WITH LIGHT – MODEL CS6810

(NOT TO SCALE)
8 ft total height
4 total

ON sensors
TOWN OF GRANBY

GRANBY PLANNING BOARD

OCTOBER 2, 2006

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