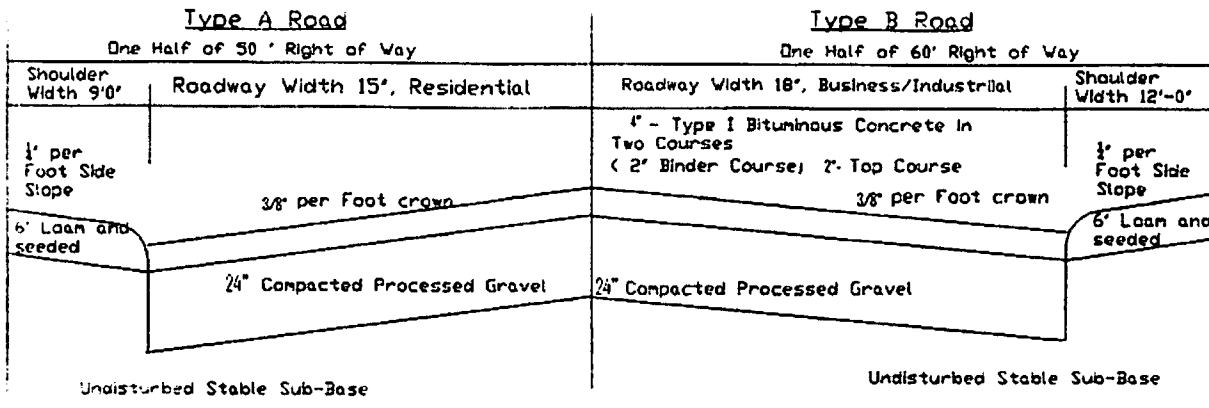
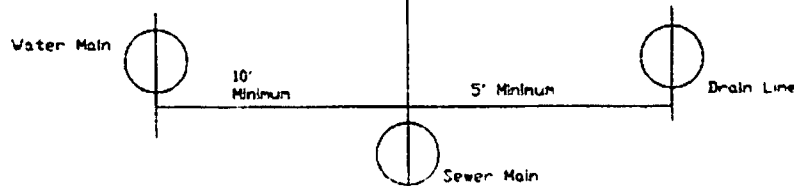
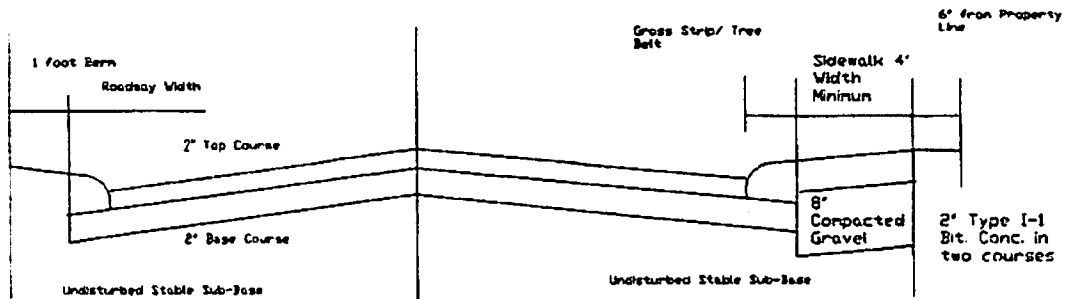


Roadway Structure Cross-Section



Roadway Cross-Section

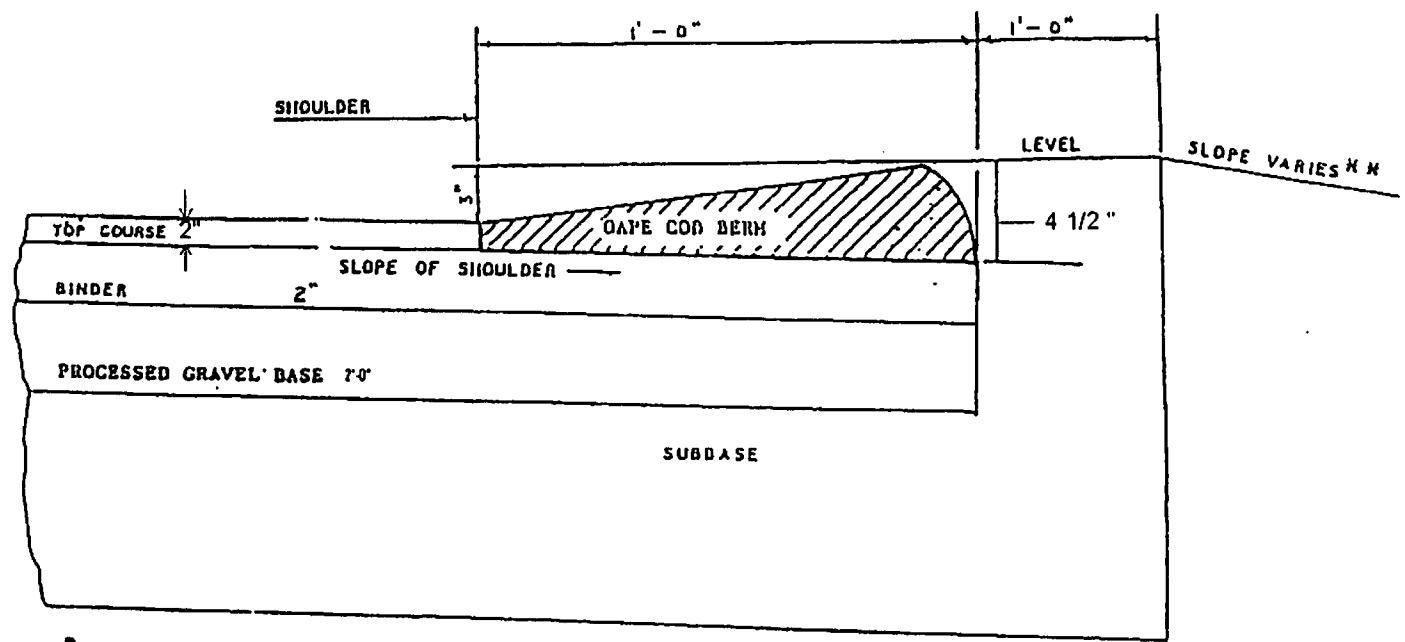


Roadway Cross Sections

Town of Granby MA
 Planning Board
 March 2005

COPY

BITUMINOUS CONCRETE BERM

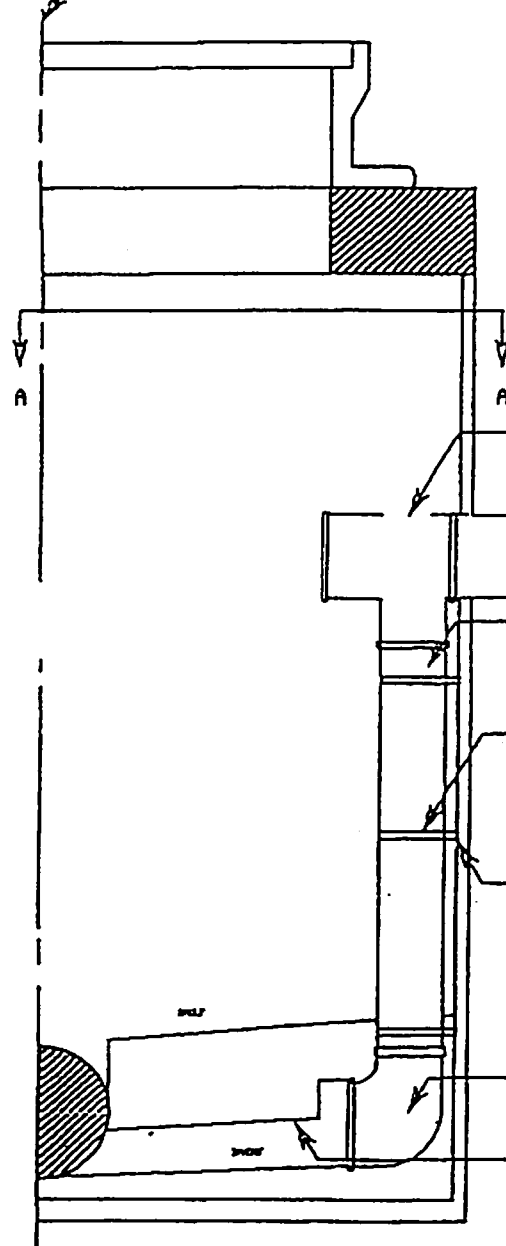


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Done

Bituminous Concrete Berm

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Planning Board
March 2005

CENTER LINE OF M.H.



TEE-VYE WITH \uparrow HOLE CUT OUT

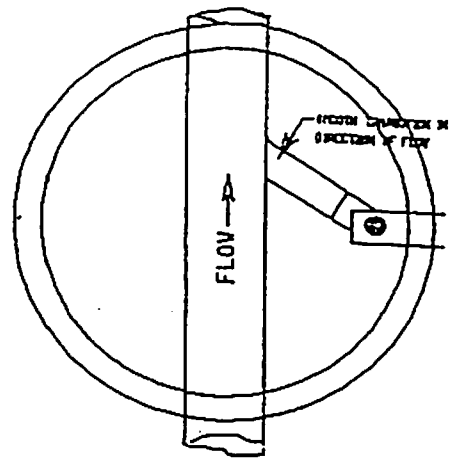
DROP PIPE TO BE SAME CLASS AND SAME SIZE OR LARGER AS INFLUENT PIPE.

1/4" X 1-1/4" ALUM. STRAPS
MIN. 131 STRAPS 10.C.

(2) 3/8" X 2-1/4" S.S. PARABOLTS
PER STRAP. PLACE BITUMINUM BTWN.
ALUMIN. STRAP & CONCRETE WALL

90° BELL & SPIGOT ELBOW
IN DIRECTION OF FLOW

PIPE CUT AT 1/2 DIAMETER

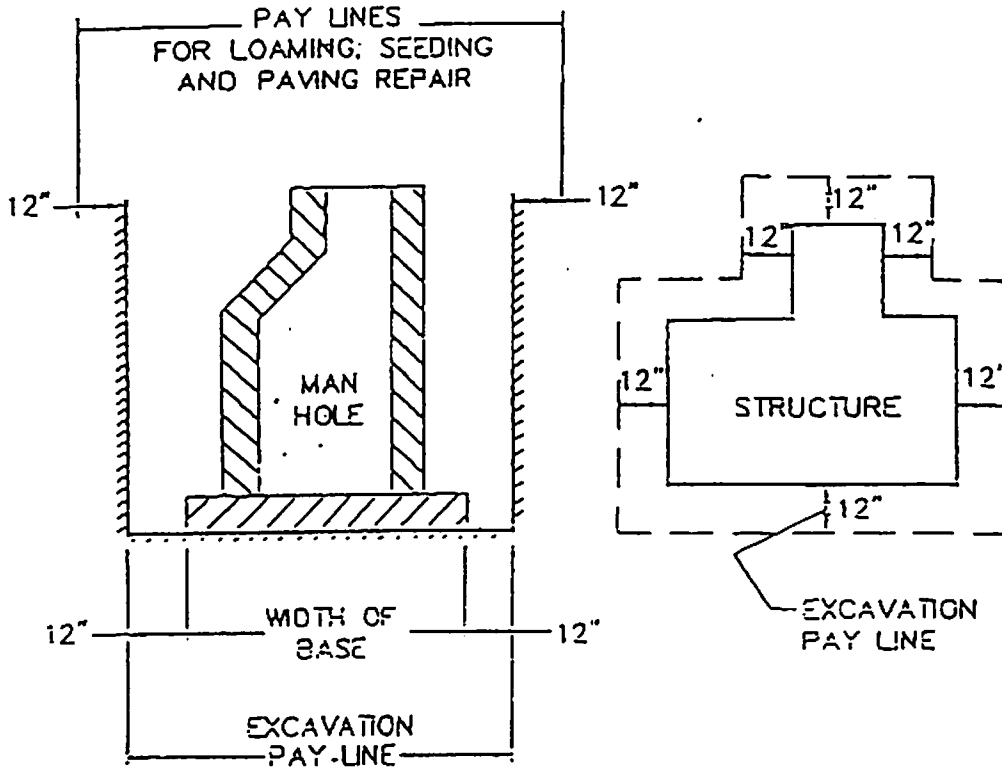


SECTION A-A

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Inside Drop Inlet

Town of Granby, MA
Planning Board
March 2005



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 REHANDLES MATERIAL.

**COPY
DO NOT**

Structure Pay Lines

Town of Granby, MA
Planning Board
March 2005

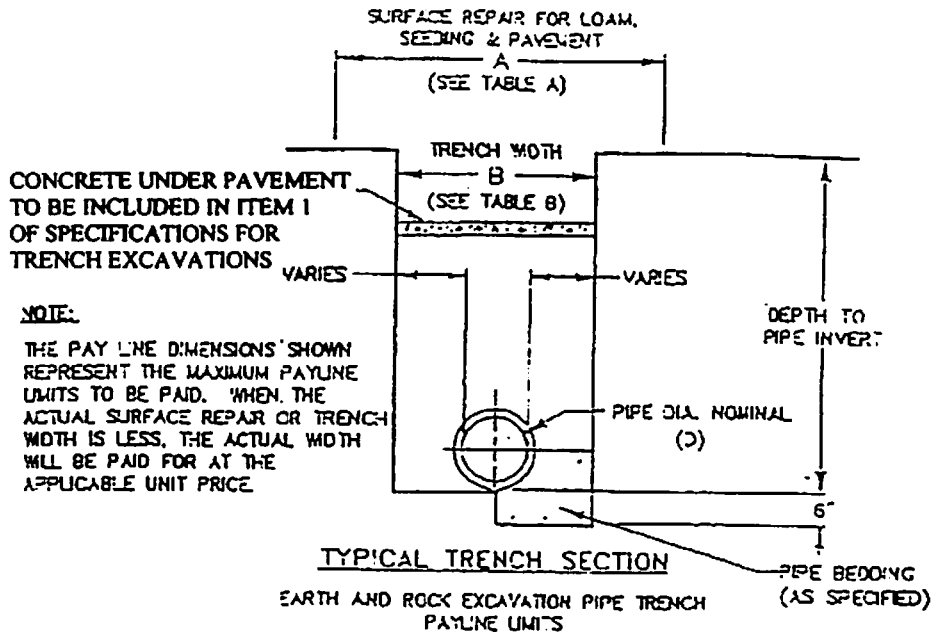


TABLE A SURFACE REPAIR PAY WIDTHS			
NOMINAL PIPE DIA. 0 - 24"		NOMINAL PIPE DIA. GREATER THAN 24"	
TEMPORARY PAVEMENT	PERMANENT PAVEMENT & LOAM & SEED	TEMPORARY PAVEMENT	PERMANENT PAVEMENT & LOAM & SEED
6'-5"	8'-6"	D + 4	D + 6

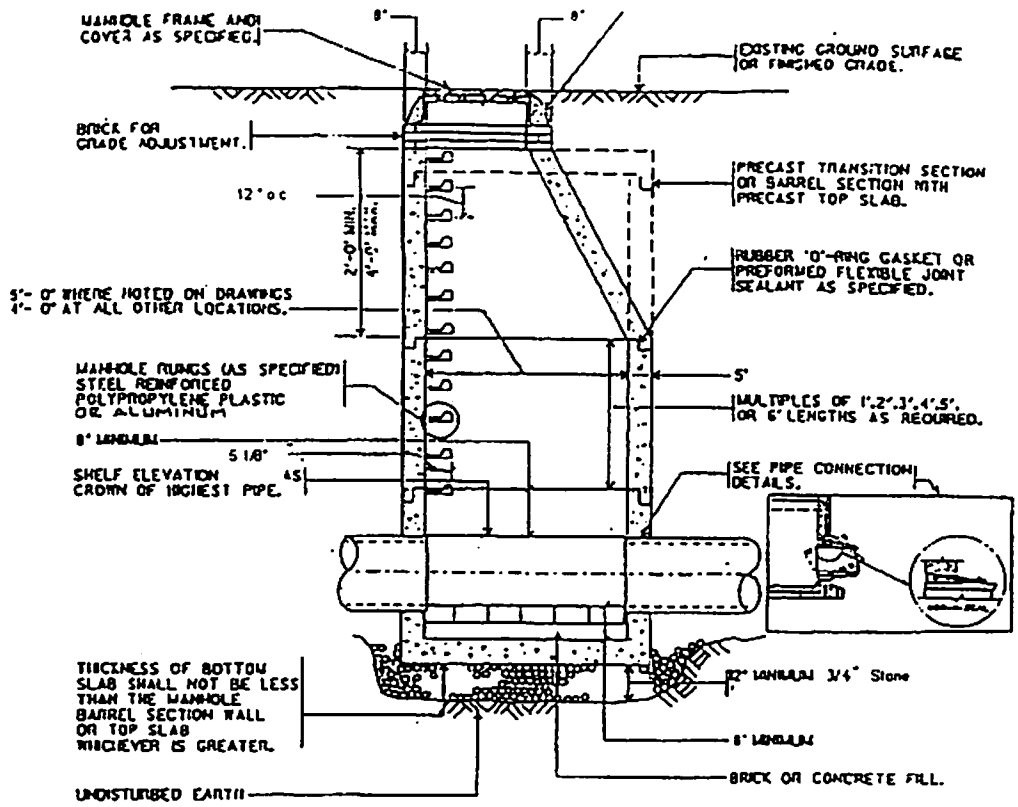
TABLE B EXCAVATION PAY WIDTHS AND ROCK EXCAVATION PAY WIDTHS	
NOMINAL PIPE DIA. 0-24"	NOMINAL PIPE DIA. GREATER THAN 24"
5'-0"	D + 3'-0"

NOTE:
1. PAYMENT DEPTH FOR ROCK (AS DEFINED HEREIN) WHICH IS ENCOUNTERED IN A TRENCH SHALL BE NO LESS THAN THREE(3) FEET.

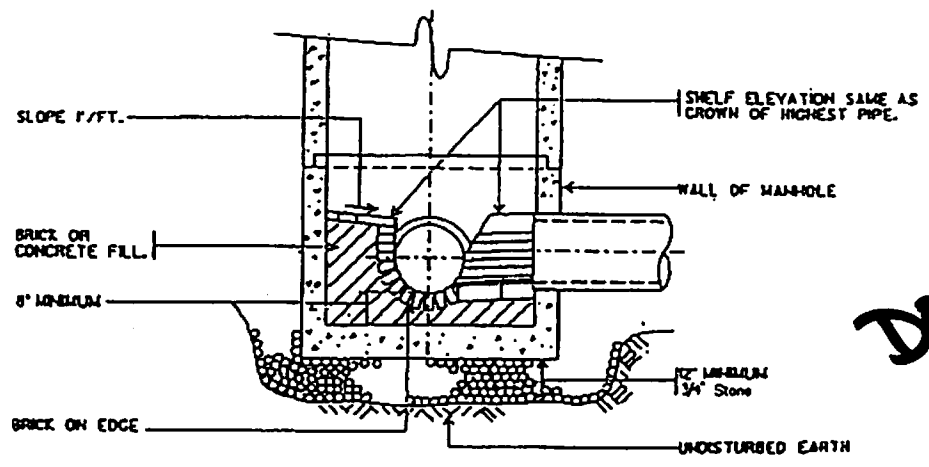
Do Not Copy

Trench Pay Lines

Town of Granby, MA
Planning Board
March 2005



SECTION 0-B



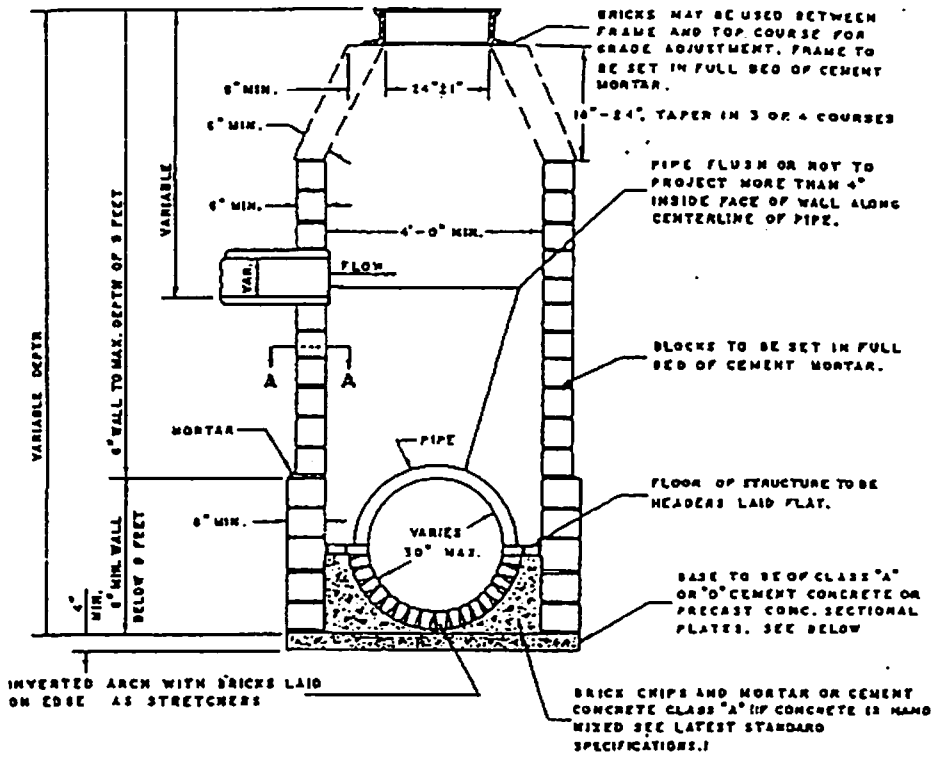
DO NOT
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Standard Precast
Concrete Manhole

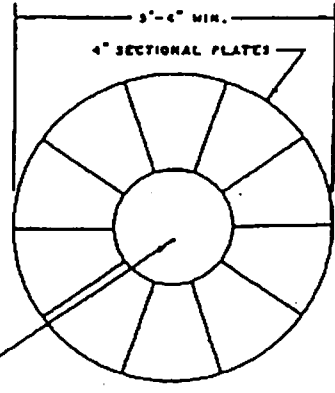
Town of Granby, MA
Planning Board
March 2005

CONCRETE BLOCK MANHOLES MANHOLES OVER 9 FT. IN DEPTH

NOTE:
MANHOLE DESIGN SHOWN IS FOR PIPE DIAMETER OF 30 INCHES OR LESS



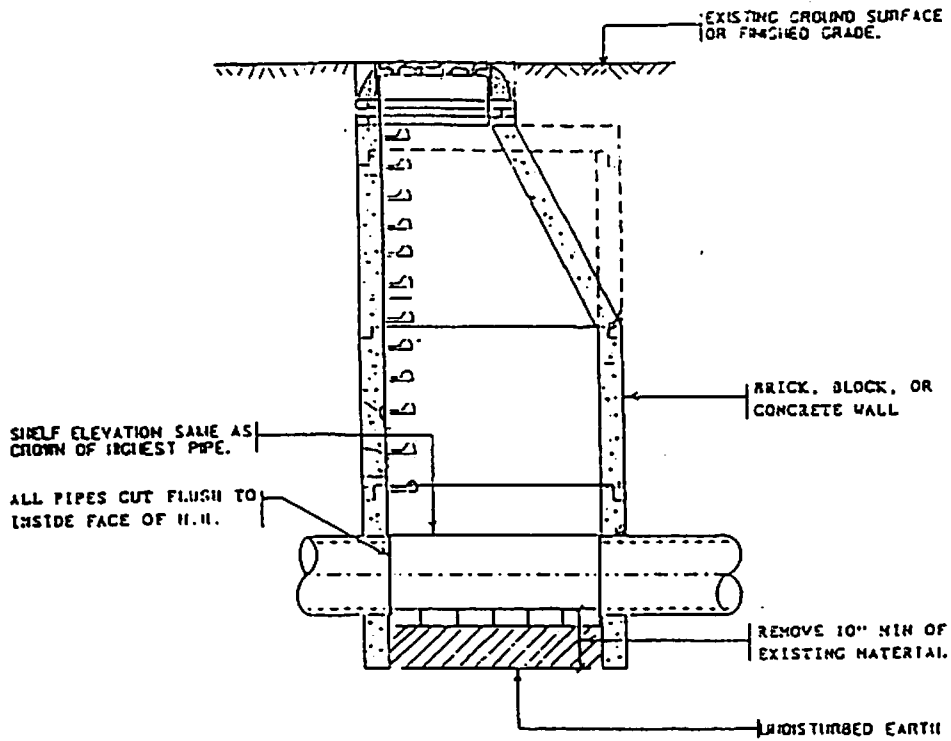
SECTION A-A



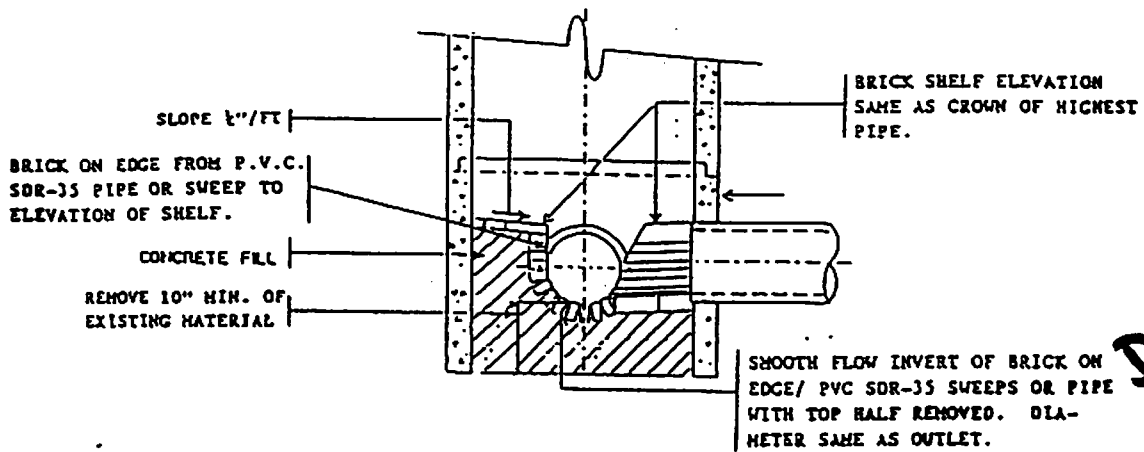
PLAN OF BASE

Do NOT
COPY

<p>Concrete Block Manhole Over 9' Depth</p>
<p>Town of Granby, MA Planning Board March 2005</p>



SECTION A-A



SECTION B-B

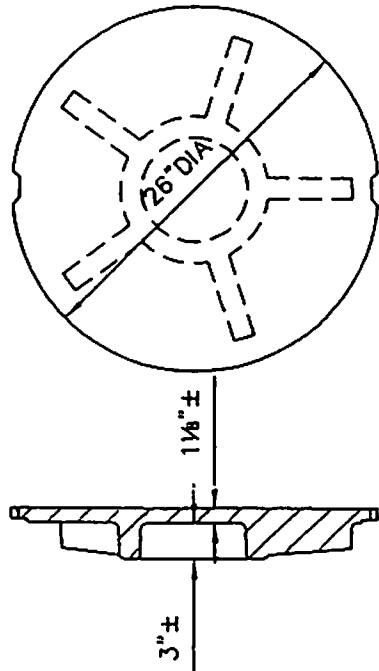
NOTE:

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

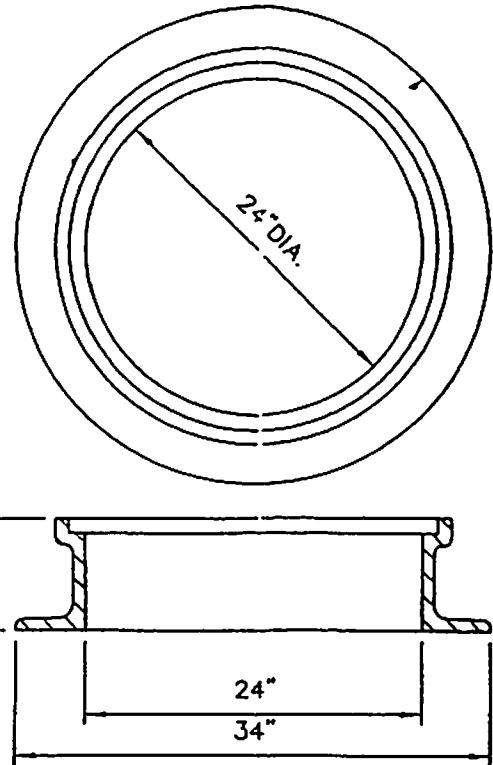
Sanitary Manhole
Invert Repair

Town of Granby, MA
Planning Board
March 2005

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STANDARD MANHOLE COVER
 MINIMUM WEIGHT: 200 LBS.



STANDARD MANHOLE FRAME
 MINIMUM WEIGHT: 240 LBS.

NOTES:

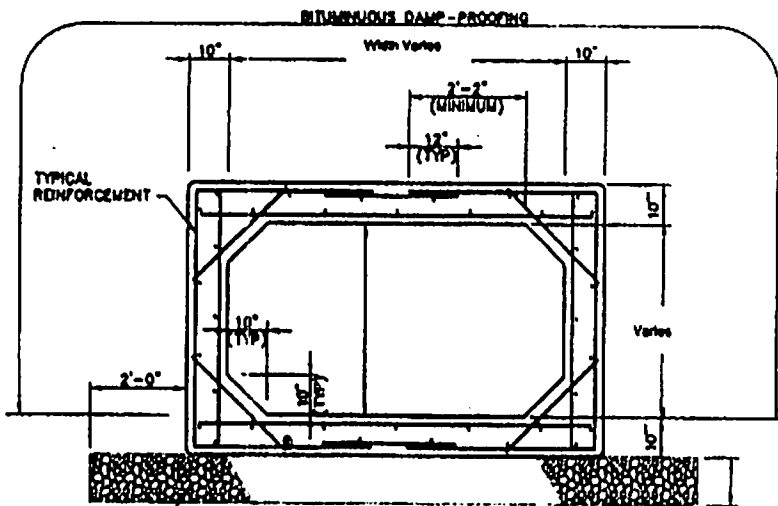
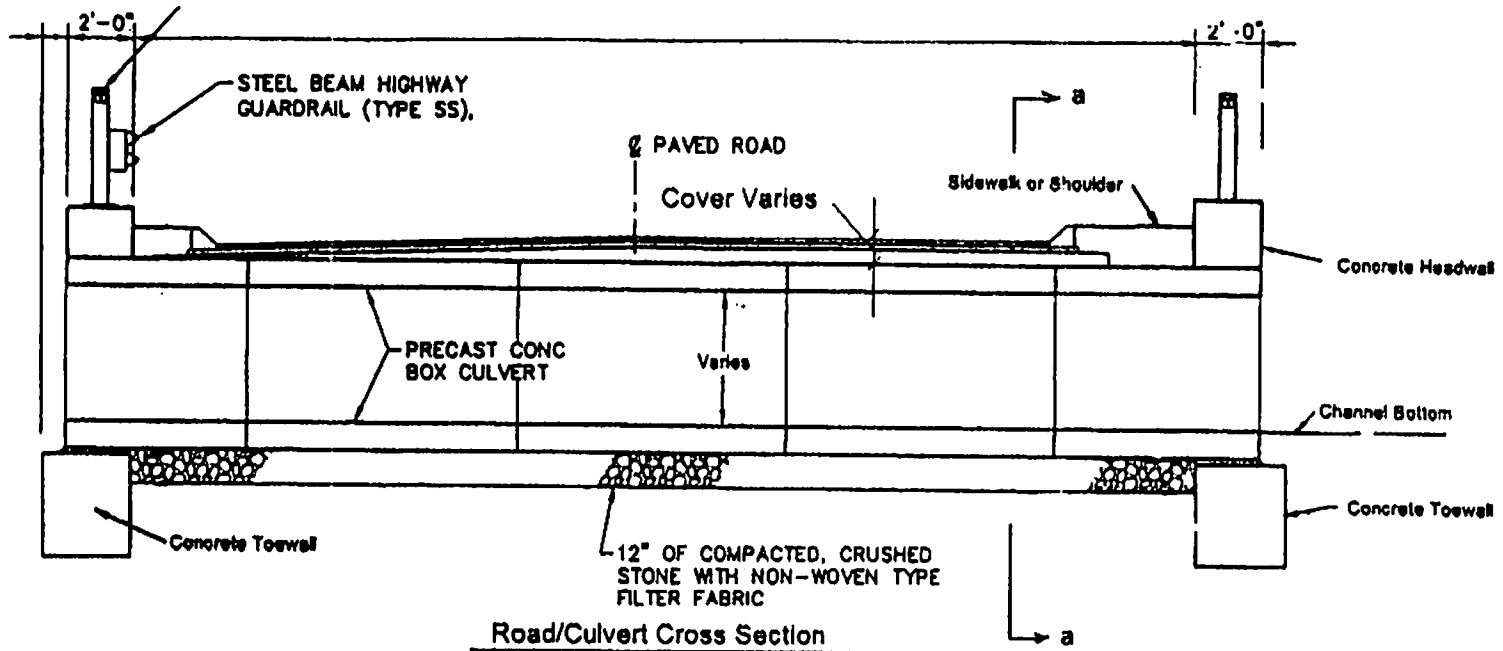
1. FRAME AND COVER SHALL BE PROVIDED FROM THE SAME MANUFACTURER.
2. LETTERING SHALL BE CAST INTO COVERS AS SPECIFIED.

MANHOLE FRAME & COVER
 NO SCALE

**DO NOT
 COPY**

Manhole Frame and Cover

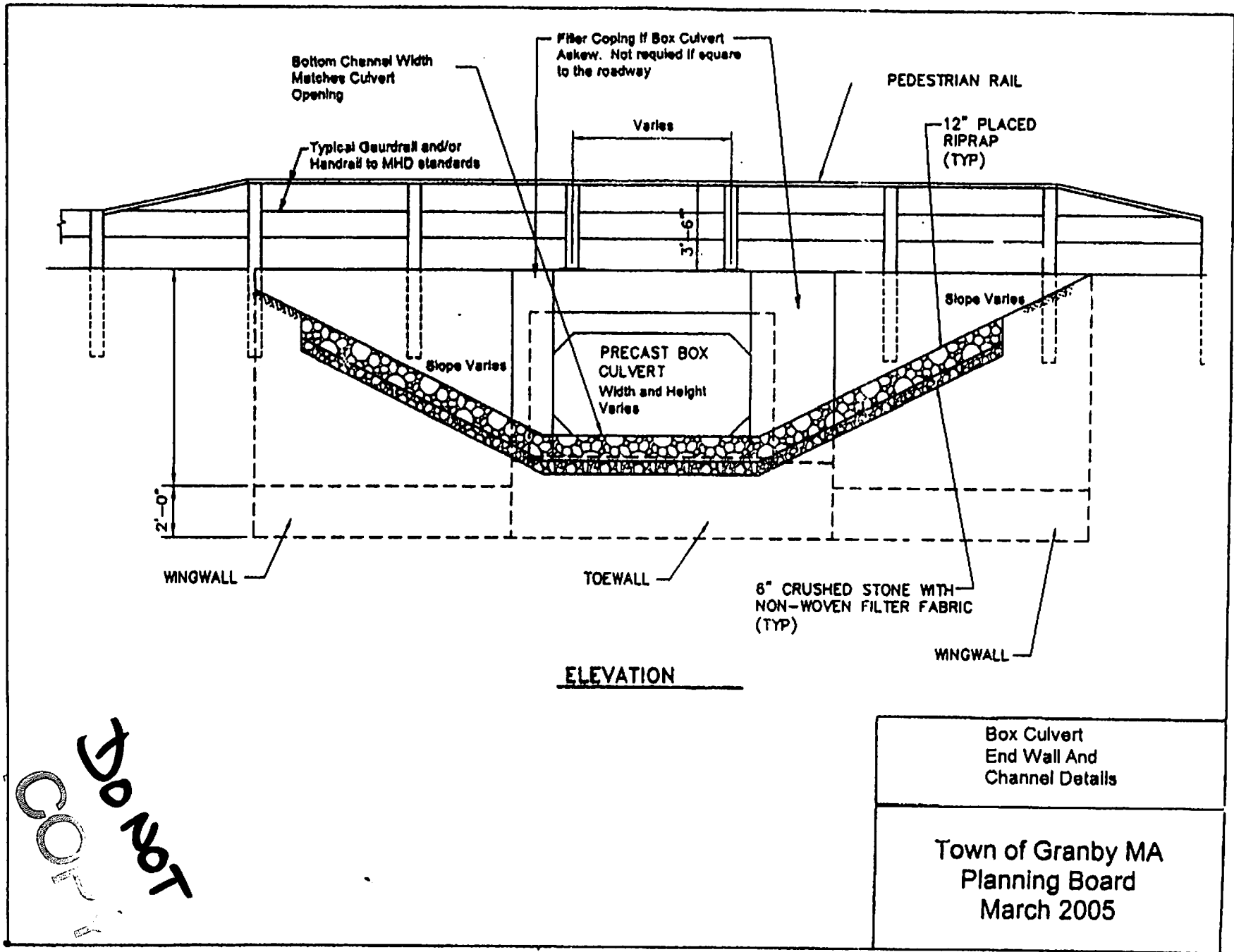
Town of Granby, MA
 Planning Board
 March 2005



Concrete Box Culvert
Typical Structural Details

Town of Granby MA
Planning Board
March 2005

COPY

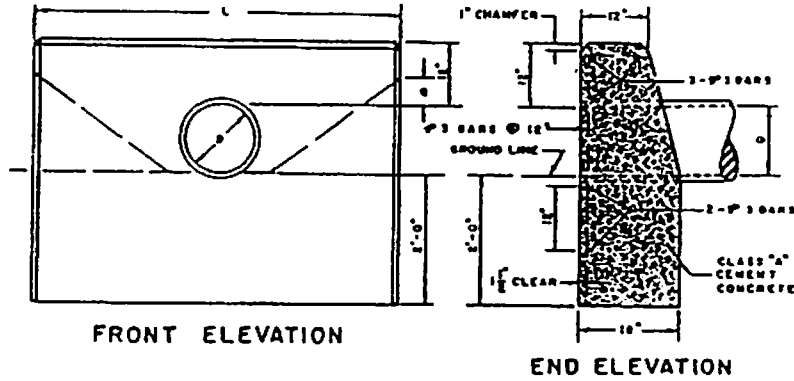


TOP COPY

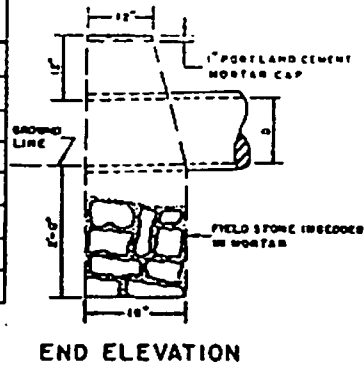
Box Culvert
End Wall And
Channel Details

Town of Granby MA
Planning Board
March 2005

CONCRETE AND FIELD STONE MASONRY ENDS FOR 8" TO 30" PIPE CULVERT

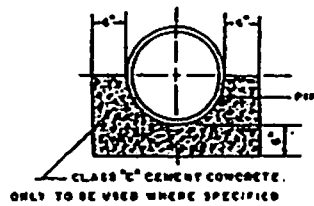


TRENCH C.P.M. 1'-0" DEPTH	PIPE DIAM.	1 1/2 : 1 SLOPE		2 : 1 SLOPE		TRENCH ESCAV. 1'-0" DEPTH		
		L	CONC. OP.P.M. CU. YDS.	STEEL LBS.	L		CONC. OP.P.M. CU. YDS.	STEEL LBS.
21.60	8"	4'-2"	0.77	15	5'-10"	1.08	21	27.40
23.91	10"	4'-10"	0.92	20	6'-8"	1.28	23	30.33
26.25	12"	5'-6"	1.08	21	7'-6"	1.49	29	33.23
29.75	15"	6'-6"	1.34	24	8'-9"	1.82	32	37.63
33.25	18"	7'-6"	1.61	30	10'-0"	2.18	39	42.00
37.35	21"	8'-6"	1.95	34	11'-6"	2.62	43	47.23
39.38	24"	9'-3"	2.16	35	12'-6"	2.97	50	50.73
43.75	30"	10'-6"	2.63	44	15'-0"	3.86	62	59.50
0		4" FOR 1 1/2 : 1 SLOPE		6" FOR 2 : 1 SLOPE				



CONCRETE CRADLE FOR PIPE CULVERTS

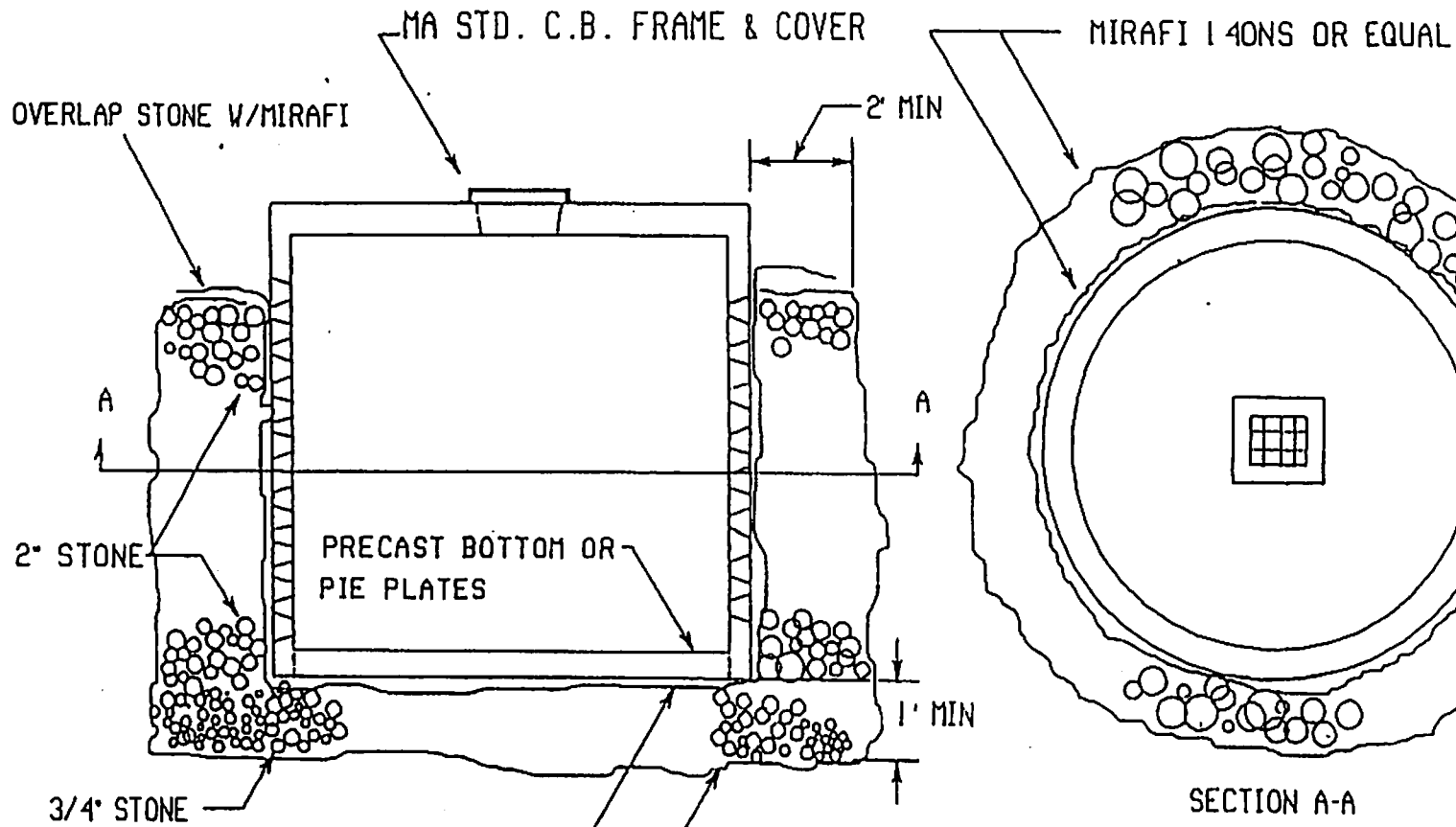
- NOTE:**
- FOR DESCRIPTIONS, MATERIALS AND CONSTRUCTION METHODS, SEE LATEST SPECIFICATIONS.
 - ALL CONCRETE DIMENSIONS SHOWN ARE MINIMUM.
 - PAYMENTS WILL BE BASED ON THE ACCOMPANYING TABLE.



DO NOT COPY

Culvert Headwall

Town Of Granby
Planning Board
March 2205



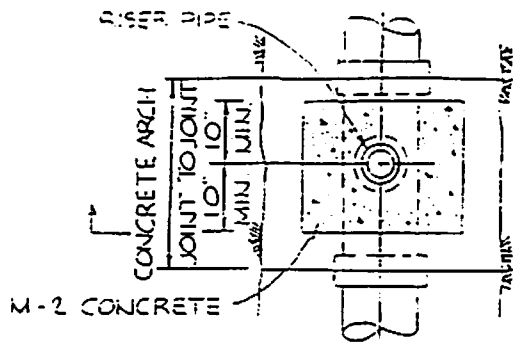
MIRAFI 140NS OR EQUAL

NOT TO SCALE

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Leaching Basin

Town of Granby MA
 Planning Board
 March 2005

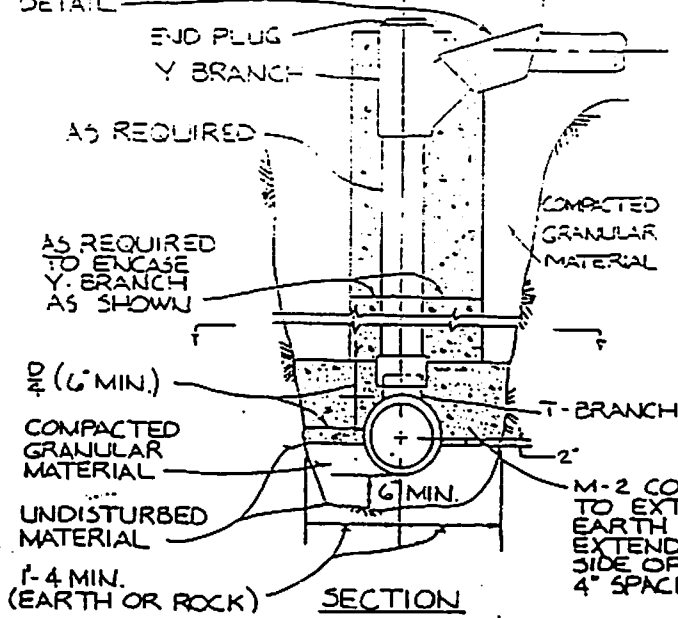


TRENCH BACKFILL TO BE PLACED AND COMPACTED CONCURRENTLY TO SAME ELEVATION ON EACH SIDE OF CHIMNEY

SECTIONAL PLAN

BUILDING CONNECTION WHERE REQUIRED REFER TO TYPICAL DETAIL

LIMIT OF PAYMENT FOR PIPE



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.

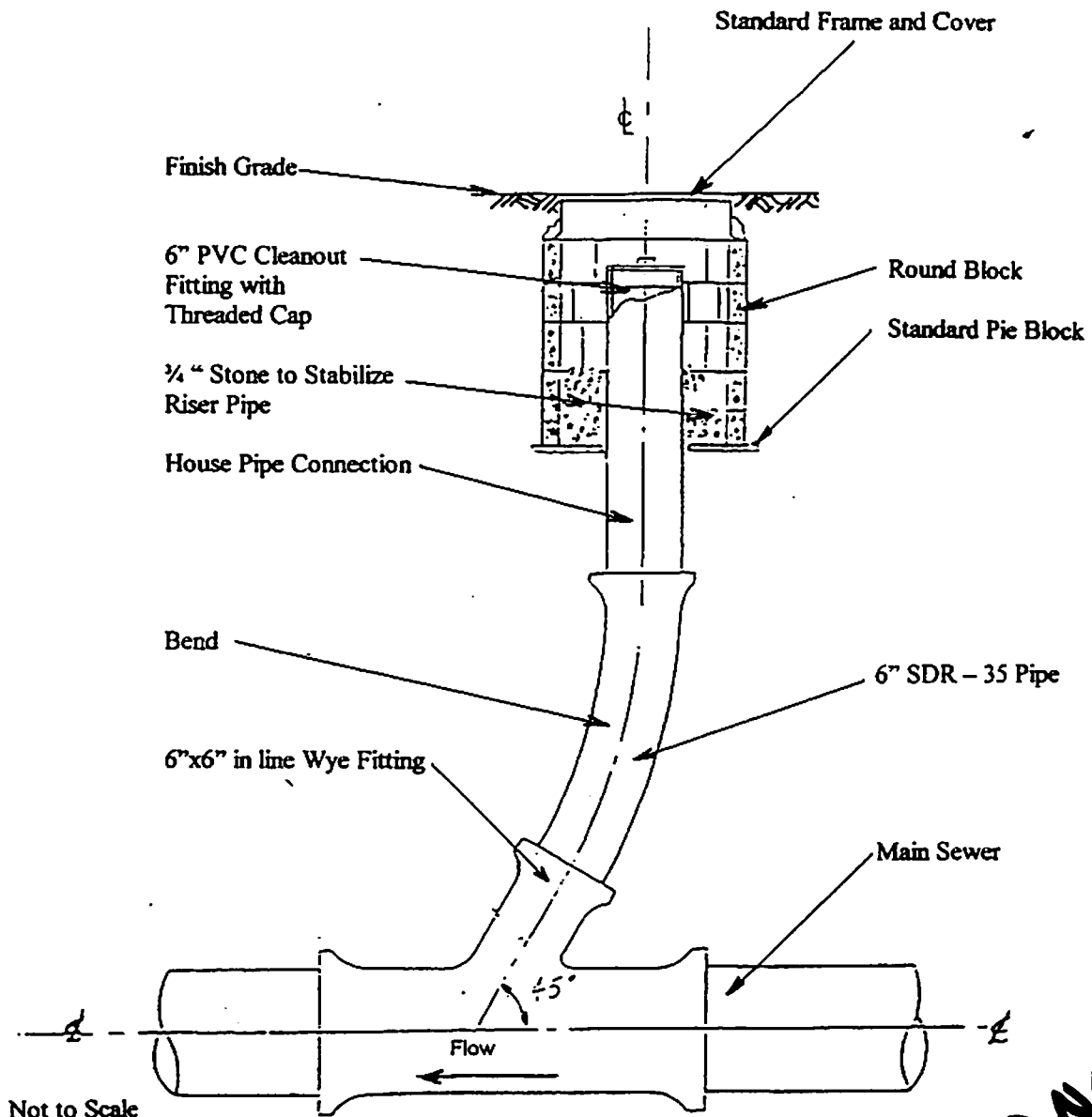
SECTION
HOUSE CONNECTION CHIMNEY I

N.T.S.

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Sewer Service Chimney

Town of Granby, MA
Planning Board
March 2005



Not to Scale

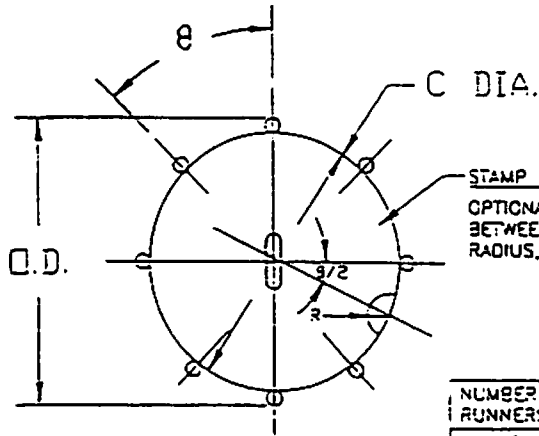
Note: Minimum Pitch for house service connections = $\frac{1}{4}$ " per foot
 Location of connection to be determined in the field by the engineer

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Sewer Pipe Cleanout

Town of Granby, MA
 Planning Board
 March 2005

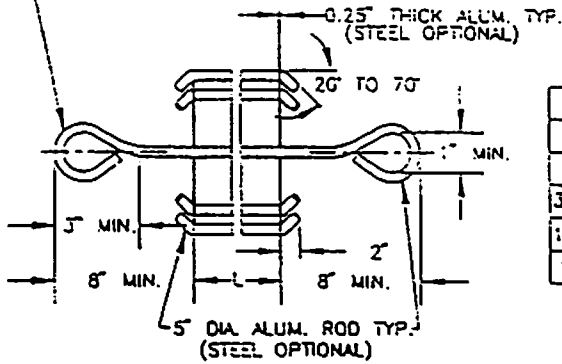
STAMPED IDENTIFICATION	5% LIMIT	
	O.D.	C
0-3034 DR-35 15"	13.20	12.20
0-3034 DR-35 12"	10.79	9.79
0-3034 DR-35 10"	9.08	8.08
0-3034 DR-35 8"	7.28	6.28



STAMP IDENTIFICATION ONE END TYP.
 OPTIONAL-SCALLOPS (CENTERED BETWEEN RUNNERS)
 RADIUS, R=1" FOR 10", 12" & 15" SIZE
 R=3/4" FOR 8" SIZE
 R=1/2" FOR 5" SIZE

NUMBER OF RUNNERS	7	8	9	10	11	12
ANGLE θ	51.4°	45°	40°	36°	32.7°	30°

NOTE: IF A SWIVEL CONNECTION IS DESIRED, USE A SWIVEL CUP ON THE PULL ROPE OR CABLE.



ALL DIMENSIONS IN INCHES

L	OVERALL LENGTH OF RUNNER MATERIAL REQUIRED L=4"
MIN.-MAX.	
4" TO 15"	
3-1/2" TO 12"	OVERALL LENGTH OF CENTER ROD MATERIAL REQUIRED L=26"
1-3/4" TO 10"	
1-1/4" TO 8"	

MANDREL DETAIL - FABRICATION & ASSEMBLY IN ACCORDANCE WITH ASTM D-3034 SEWER PIPE FOR DEFLECTION TESTING OF INSTALLED SEWER PIPE.

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Go-No-Go Gage Mandrel

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 March 2005

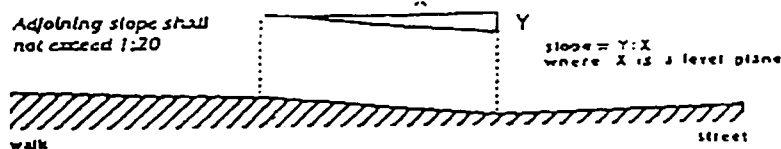
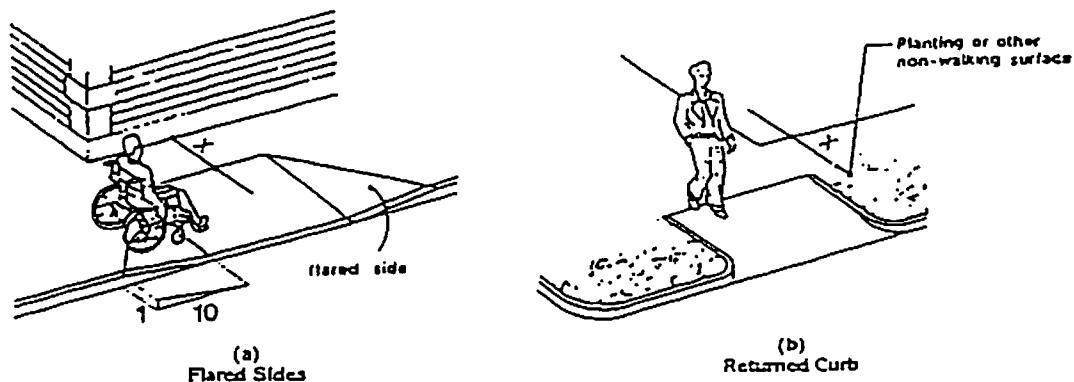


Fig. 11
Measurement of Curb Ramp Slopes



(a) Flared Sides
 YX is less than 48 in.
 then the slope of the flared side
 shall not exceed 1:12.

Fig. 12
Sides of Curb Ramps

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

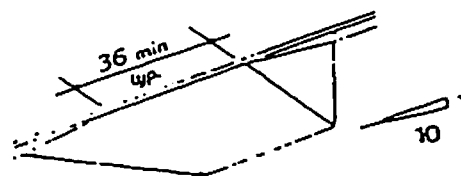


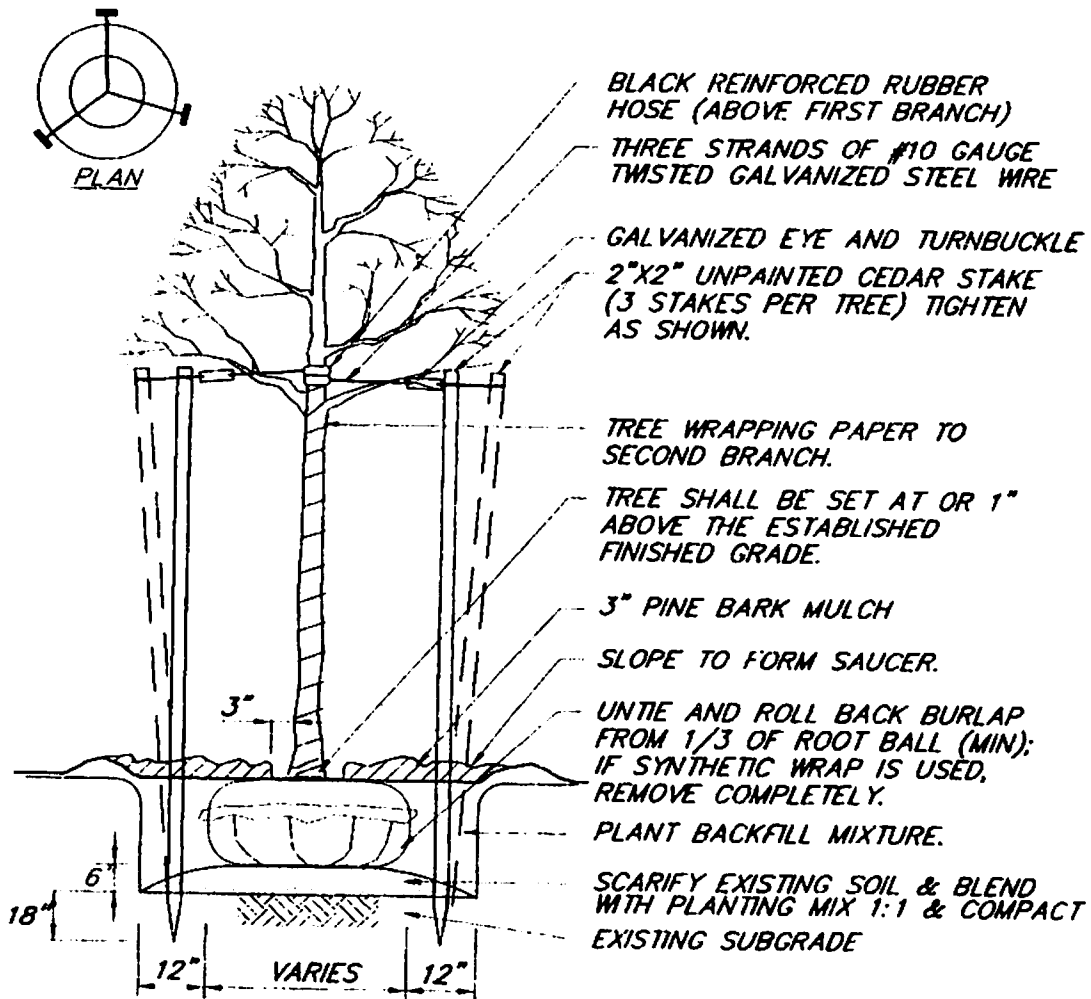
Fig. 13
Built-Up Curb Ramp

and ramps to be constructed on existing sites or in existing buildings or facilities may have slopes and rises as allowed in 4.1.6(3)(a) if space limitations prohibit the use of a 1:12 slope or less.

Handicapped Ramps

Town of Granby, MA
 Planning Board
 March 2005

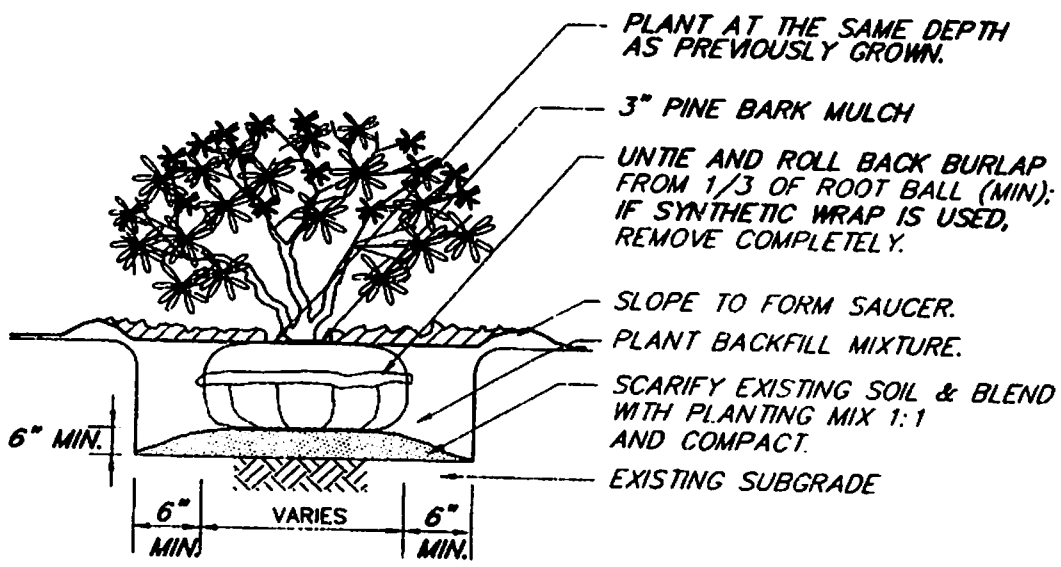
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TREE PLANTING

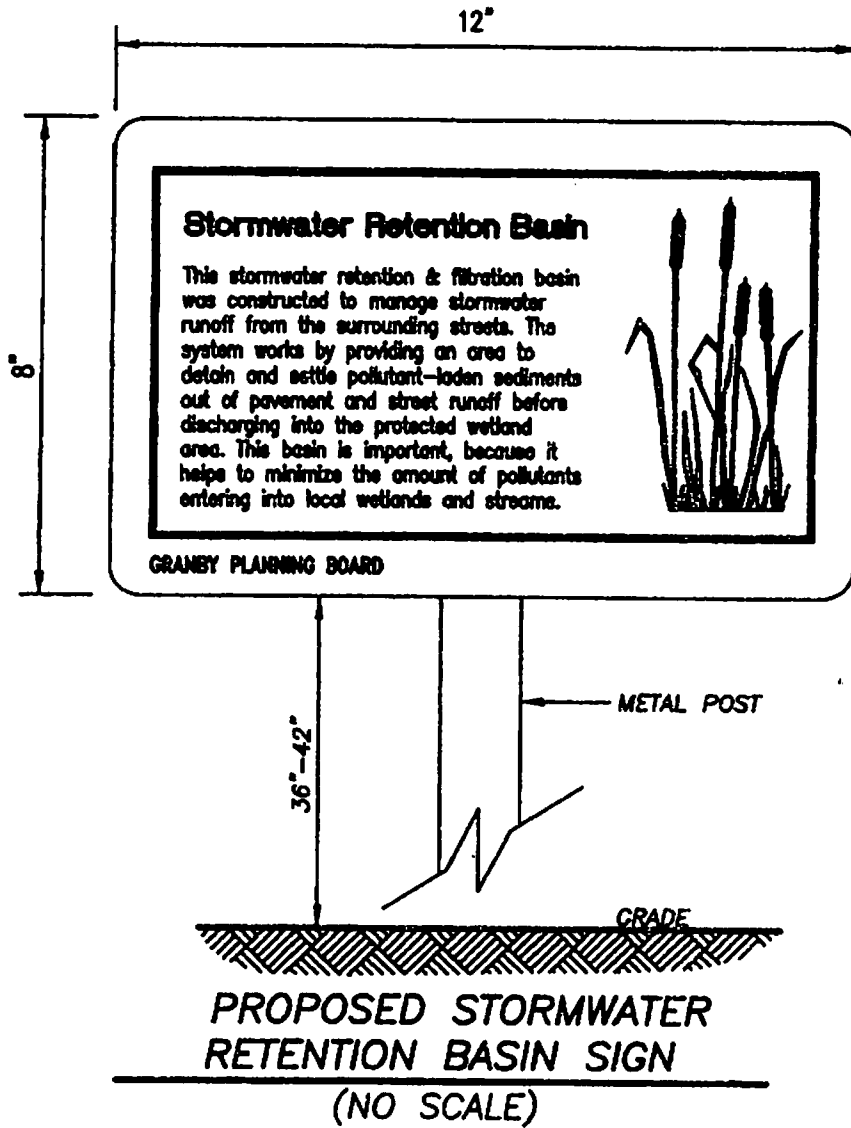
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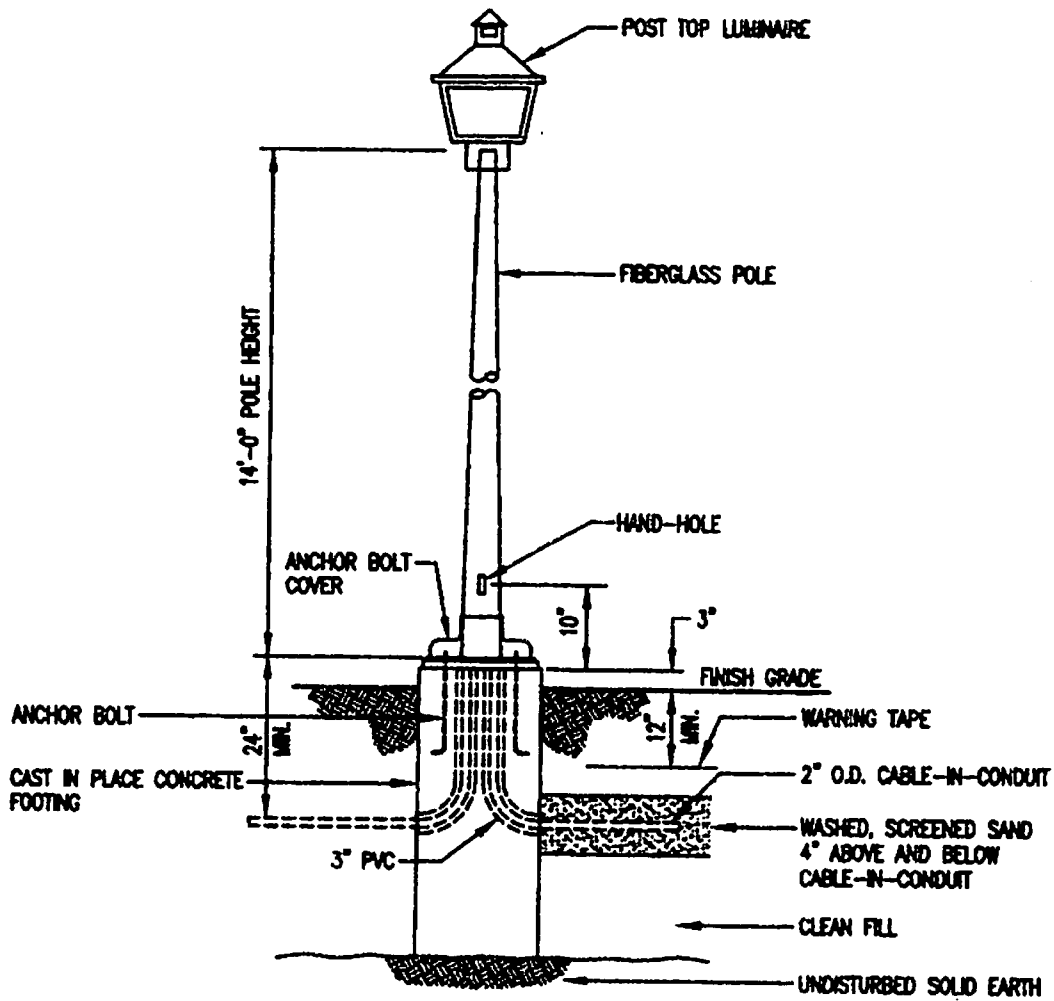


SHRUB PLANTING
 NO SCALE

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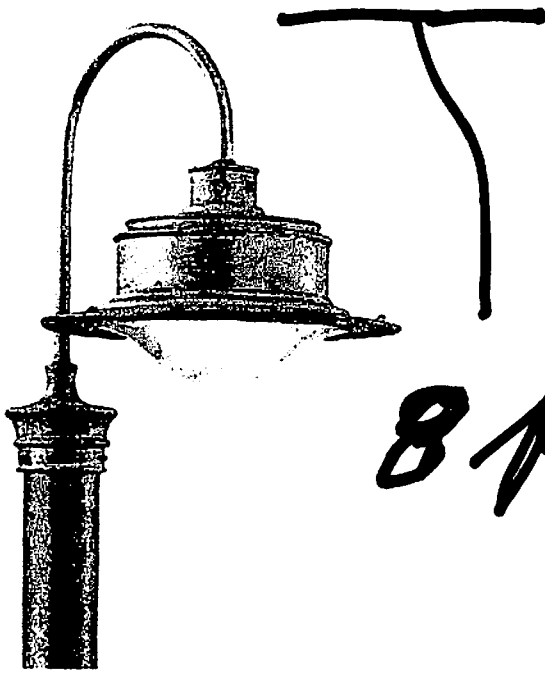


**BASE MOUNTED 14 FOOT FIBERGLASS
POLE WITH LIGHT - MODEL CS6810**

(NOT TO SCALE)

Do not
COPY

12/11/2006

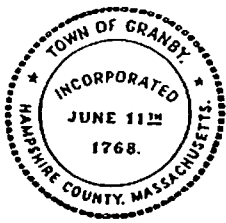


8 ft total height
4 total

ON SENSORS

<http://images.lampsplus.com/images/67843.fpx?cell=330.330&qlt=75&cvt=jpeg>
<http://images.lampsplus.com/images/67843.fpx?cell=330.330&qlt=75&cvt=jpeg>
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12/9/2006
12/9/2006
12/9/2006
12/9/2006



TOWN OF GRANBY

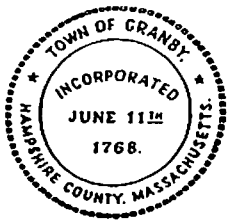
GRANBY PLANNING BOARD

OCTOBER 2, 2006

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GRANBY, MA 01033
(413) 467-7177
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E-mail: billshaheen@analytical-engineering.com
Website: www.analytical-engineering.com
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TOWN OF GRANBY

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Website: www.heritagesurveys.com
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E-mail: bdg@berkshiredesign.com
Website: www.berkshiredesign.com