FOREWORD

This initial printing of the 1966 Edition of "Construction Standards" or more precisely, Department Standards, as defined under Plans in Article One of the Standard Specifications for Highways and Bridges is published in a stapled binding and will be referred to where applicable, thereby eliminating the necessity for having numerous standards detailed on the construction plans. These standards are an integral part of the Project Plans.

All previous issues of Department Standards are superseded by the 1966 Edition but previous issues of Standards which are part of work currently under contract must be adhered to until said contracts are completed.

Each drawing in these "Construction Standards" is identified with a title, date of approval by the Massachusetts Department of Public Works, and a drawing number, e. g., 101.1.0, 101.2.0, 101.2.1, 205.1.0, etc. The numbering scheme is illustrated and interpreted on the following page.

The Standards have been submitted to the Bureau of Public Roads for review and approval. The approval date, together with the B.P.R. identification will be added to each standard upon receipt of official notification of such approval. A final edition will then be published in looseleaf form to be incorporated, as Part III, in the Construction Manual.
KEY TO NUMBERING SYSTEM

EXAMPLE) 2 0 1 . 1 . 0

SECTION NUMBER (1, 2, 3, 4 OR 5) (100, 200, 300, 400 OR 500 SERIES)

SECTION 1 -- HIGHWAY DESIGN AND PAVEMENT DETAILS (100 SERIES)

SECTION 2 -- DRAINAGE (200 SERIES)

SECTION 3 -- CEMENT CONCRETE; MASONRY STANDARDS (300 SERIES)

SECTION 4 -- HIGHWAY GUARD AND FENCES (400 SERIES)

SECTION 5 -- MISCELLANEOUS (500 SERIES)

CATEGORY IN SERIES: 01 FOR MANHOLES
02 FOR CATCH BASINS
04 FOR DROP INLETS, ETC.

PLATE NUMBER IN EACH CATEGORY

AUXILIARY PLATE NUMBER: A NUMBER OTHER THAN ZERO WILL APPEAR IN THIS POSITION WHEN IT IS SUBSEQUENTLY NECESSARY TO INSERT ONE OR MORE ADDITIONAL DRAWINGS BETWEEN TWO EXISTING PLATE NUMBERS IN THE SAME CATEGORY.
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**MISCELLANEOUS**

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LIMIT OF PEAT EXCAVATION

NOTES
1 "B" — INTERSECTION OF EXISTING GROUND AND SLOPE OF EMBANKMENT
2 THE ABOVE METHOD MAY ALSO BE USED TO DETERMINE THE LIMIT FOR EXCAVATION OF OTHER UNSUITABLE MATERIALS
## RATE OF SUPERELAVATION (e) FOR ALL TYPES OF HIGHWAYS

AND

MINIMUM LENGTH OF RUNOFF (L) FOR UNDIVIDED HIGHWAYS

\[ e_{\text{max}} = 0.06 \]

### Table

<table>
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<tr>
<th>D</th>
<th>R</th>
<th>V = 30</th>
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<th>V = 50</th>
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<tr>
<td></td>
<td></td>
<td>&quot;e&quot; ft/ft</td>
<td>L (feet)</td>
<td>&quot;e&quot; ft/ft</td>
<td>L (feet)</td>
<td>&quot;e&quot; ft/ft</td>
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<td>0° 15'</td>
<td>22918'</td>
<td>NC</td>
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<td>0</td>
<td>NC</td>
<td>0</td>
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<td>0° 30'</td>
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<td>NC</td>
<td>0</td>
<td>0</td>
<td>NC</td>
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<td>NC</td>
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<td>NC</td>
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<td>1° 00'</td>
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<td>NC</td>
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<td>0</td>
<td>NC</td>
<td>0</td>
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<tr>
<td>2° 00'</td>
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<td>NC</td>
<td>0</td>
<td>0</td>
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<td>2° 30'</td>
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<td>NC</td>
<td>0</td>
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<td>3° 00'</td>
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<td>0.036</td>
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<td>4° 00'</td>
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<td>100</td>
<td>100</td>
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<td>125</td>
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<td>5° 00'</td>
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<td>0.032</td>
<td>100</td>
<td>100</td>
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<td>7° 00'</td>
<td>819'</td>
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<td>8° 00'</td>
<td>716'</td>
<td>0.043</td>
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<td>120</td>
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<td>273'</td>
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<td>160</td>
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### Length of Runoff for Divided Highways

\[ L = \frac{W e}{P} \]

- \( L \) = Length of Runoff (in feet), Minimum \( L = 200' \)
- \( W \) = Width of Banked Section
- \( e \) = Rate of Superelevation (from table above)
- \( P \) = Slope Ratio of Runoff Profile Relative to the Normal Profile
- \( V \) = Design Speed (mph)

### Design Speed M.P.H.

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<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
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<tr>
<td>P</td>
<td>1.150</td>
<td>1.175</td>
<td>1.200</td>
<td>1.225</td>
<td>1.250</td>
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**P** VALUES TO BE USED IN THE FORMULA
METHOD OF ROUNding CUT SLOPES

ROUNDING TABLE FOR 2'1 SLOPE

<table>
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<th>D FEET</th>
<th>A FEET</th>
<th>B FEET</th>
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<tr>
<td>3 OR LESS</td>
<td>1</td>
<td>2</td>
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<tr>
<td>4 TO 20</td>
<td>0 3/4</td>
<td>2 3/4 D</td>
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<tr>
<td>OVER 20</td>
<td>7</td>
<td>14</td>
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</tbody>
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3'1 SLOPE Rounding

1. WHEN "D" IS 2 FEET OR MORE ROUND AS SHOWN ABOVE
2. WHEN "D" IS LESS THAN 2 FEET ROUND FULL LENGTH OF SLOPE

METHOD OF ROUNding FILL SLOPES

NOTE
THE DIMENSIONS SHOWN FOR ROUNding CUT AND FILL SLOPES ARE APPROXIMATE; THEY ARE TO BE USED AS GUIDES
NORMAL TYPICAL SECTIONS FOR DIVIDED HIGHWAY FLEXIBLE PAVEMENT

LEGEND

- Bituminous concrete top course material
- Bituminous concrete top course material with peastone cover
- Bituminous synapite binder course material with peastone cover
- Bituminous concrete binder course material
- Bituminous concrete base course material (black base)

DETAIL OF INSIDE SHOULDER

DETAIL OF OUTSIDE SHOULDER

NOTES
1. The thickness of each pavement element (surface base, sub-base) and the number of layers are to be determined for each project.
2. When the depth of fill is 5 feet or less and the embankment slope is 3:1, a 3:1 embankment slope is to be used; when the depth of fill is more than 5 feet and not more than 15 feet and the embankment slope is the embankment slopes noted above are normally used, this criteria is subject to change in order to satisfy safety conditions, soils conditions, etc.
3. A 3:1 backslope in a cut section is to be considered on the cut sections of a borrow project if the excavated material is suitable for embankment.
4. Slope rounding details are shown on 106:0
5. Various median widths are shown on 106:0
6. The method of setting curbs is shown on 103:0
NORMAL TYPICAL SECTIONS FOR DIVIDED HIGHWAYS

FLEXIBLE PAVEMENT

EDGE OF TRAVELED WAY

10'-0"

SHOULDER

3'-0"

1'-0"

3/8" PER FT.

SLOPE

4'-0"

DITCH

GRAVEL

SUBBASE

BIT. CONC.shoulder

(For details see 105.1.0)

EARTH CUT

EDGE OF TRAVELED WAY

12'-0"

ACCEL. OR DECHEL. LANE

4'-0"

14'-0"

DITCH

LEVEL

GRAVEL

SUBBASE

BIT. CONC. PAVEMENT

BIT. CONC. BASE

TREATMENT VARIES

FOR SETTING DETAILS SEE 112.3.0

EARTH CUT SECTION AT INTERCHANGE

EDGE OF TRAVELED WAY

12'-0"

ACCEL. OR DECHEL. LANE

1'-6"

5'-0"

HIGHWAY GUARD

LEVEL

GRAVEL

SUBBASE

BIT. CONC. PAVEMENT

BIT. CONC. BASE

FOR SETTING DETAIL SEE 112.3.0

OLD GROUND

2:1 SLOPE

ROUND

EARTH FILL SECTION AT INTERCHANGE - 2:1 SLOPE

EDGE OF TRAVELED WAY

12'-0"

ACCEL. OR DECHEL. LANE

4'-0"

FOR SETTING DETAIL SEE 112.3.0

LEVEL

GRAVEL

SUBBASE

BIT. CONC. PAVEMENT

BIT. CONC. BASE

OLD GROUND

2:1 OR 5:1 SLOPE

ROUND

EARTH FILL SECTION AT INTERCHANGE FOR 6:1 SLOPE OR 4:1 SLOPE

ROUND

SLOPE Rounding details are shown on 104.1.0

SEE NOTES ON 105.1.0

MASS. D.P.W. - MAY 1966

105 2 0
NORMAL TYPICAL SECTIONS OF MEDIANS

RAISED PAVED MEDIANS

RAISED TURF MEDIANS

CUT OR FILL
BOTTOM OF SUBBASE DOES NOT INTERSECT SLOPES

CUT OR FILL
BOTTOM OF SUBBASE INTERSECTS SLOPES

† SEE HZ.3.0 FOR METHOD OF SETTING
   SEE 104.10 FOR METHOD OF ROUNDING SLOPES
NORMAL TYPICAL SECTIONS OF MEDIANS

EDGE OF TRAVELED WAY

MEDIAN GREATER THAN 68'-0" WIDE

VARIES - GREATER THAN 60'

HIGHWAY GUARD
LEVEL
ROUND

HIGHLWAY GUARD
LEVEL
ROUND

TREATMENT VARIES

OLD GROUND

TREATMENT VARIES

BIT CONC CURB

DEPTH OF FILL IS GREATER THAN 15 FEET

EDGE OF TRAVELED WAY

MEDIAN GREATER THAN 68'-0" WIDE

VARIES - GREATER THAN 18'-0"

DITCH

DITCH

LEVEL

LEVEL

TREATMENT VARIES

2:1 SLOPE

2:1 SLOPE

2:1 SLOPE

2:1 SLOPE

TREATMENT VARIES

OLD GROUND

OLD GROUND

GRavel SUBBASE

GRavel SUBBASE

CUT SECTION - MEDIAN GREATER THAN 68'-0" WIDE

* SEE NOTES ON 10510
SLOPE ROUNDING DETAILS ARE SHOWN ON 10410
NORMAL TYPICAL SECTIONS OF MEDIANS

EDGE OF TRAVELED WAY

PROFILE GRADE

SHOULDER

1'-0"

ROUND

6:1 SLOPE

ROUND

MEDIAN GREATER THAN 88'

VARIES GREATER THAN 60

VARIES - 60 TO 130'

VARIES - 68 TO 138

MEDIAN Varies - 68 TO 138

EDGE OF TRAVELED WAY

ROUND

TREATMENT Varies

BOTTOM OF SUBBASE DOES NOT INTERSECT SLOPE

BOTTOM OF SUBBASE INTERSECTS SLOPE

* DEPTH OF FILL VARIES - 5' OR LESS

* DEPTH OF FILL VARIES - 5' TO 15'

* DEPTH OF FILL VARIES - 5' TO 15'

* SEE IO6.2.0 WHEN DEPTH OF FILL IS GREATER THAN 15 FEET
METHOD OF Rounding SLOPES IS SHOWN ON IO4.1.0
TYPICAL SECTIONS OF MEDIANS IN LEDGE CUT AREAS

RAISED PAVED MEDIAN

RAISED TURF MEDIAN

BOTTOM OF SUBBASE DOES NOT INTERSECT SLOPE

BOTTOM OF SUBBASE INTERSECTS SLOPE

NOTES:
The typical section of medians in ledge cut greater than 66" wide is shown on 105.3.0
For methods of construction and basis of payment refer to standard specifications.

MASS. D.P W. MAY 1966

106.4.0
TYPICAL SECTIONS OF MEDIANS AT BANKED CURVES

RAISED PAVED MEDIAN

RAISED TURF MEDIAN

BOTTOM OF SUBBASE DOES NOT INTERSECT SLOPE-CUT OR FILL

BOTTOM OF SUBBASE INTERSECTS SLOPE-CUT OR FILL

TYPICAL SECTIONS OF MEDIANS AT BANKED CURVES

DEPTH OF FILL GREATER THAN 15'

CUT SECTION - MEDIAN GREATER THAN 68' WIDE

* SEE NOTE ON 105.10
○ THE CROSS SLOPE OF THE SHOULDER IS TO BE THE SAME AS THAT OF THE TRAVELED WAY
Θ CURB IS NOT REQUIRED ON A 2:1 EMBANKMENT SLOPE WHEN THE HIGH SIDE OF A BANKED CURVE IS ON THE MEDIAN SIDE OF THE TRAVELED WAY
TYPICAL SECTIONS OF MEDIANS AT BANKED CURVES

DEPTH OF FILL VARIES - 5' OR LESS

DEPTH OF FILL VARIES - 5' TO 15'

DEPTH OF FILL VARIES - 5' TO 15'

*SEE 108.20 WHEN DEPTH OF FILL IS GREATER THAN 15 FEET
* THE CROSS SLOPE OF THE SHOULDER IS TO BE THE SAME AS THAT OF THE TRAVELED WAY
TYPICAL SECTIONS FOR RAPS

SECTION IN 2:1 FILL SLOPE

NOTES
1. THE RAMP PAVEMENT STRUCTURES ARE TO BE SIMILAR TO THE MAIN LINE DESIGN UNLESS OTHERWISE NOTED.
2. PROFILE SHALL BE DESIGNED SO THAT THE DIRECTION OF THE MEDIAN CROSS SLOPE PITCH WILL BE OPPOSITE TO THAT OF THE SUPERELEVATION (BANK).
TYPICAL SECTIONS FOR RAMPS IN LEDGE CUT AREAS

RAISED MEDIAN

SECTION OF HIGH SIDE IN CUT

SECTION OF LOW SIDE IN CUT

* REFER TO 102.10 FOR METHOD OF DETERMINING HEIGHT OF SLOPE, WIDTH OF SHELVES, NUMBER OF SHELVES AND SLOPES
METHOD OF STEPPING SURFACE LAYERS AND BASE COURSE LAYERS

3-LAYERED SURFACE AND 2-LAYERED BASE COURSE

TYPICAL FOR SHOULDER WIDTHS LESS THAN 8 FEET

TYPICAL FOR SHOULDER WIDTHS 8 FEET OR MORE

2-LAYERED SURFACE AND 2-LAYERED BASE COURSE

TYPICAL FOR SHOULDER WIDTHS LESS THAN 8 FEET

TYPICAL FOR SHOULDER WIDTHS 8 FEET OR MORE

2-LAYERED SURFACE AND 1-LAYER BASE COURSE

TYPICAL FOR ALL SHOULDER WIDTHS

NOTES

1. ONLY APPLICABLE STEPPING METHODS OF THIS DRAWING ARE TO BE SHOWN IN THE TYPICAL SECTION OF THE CONSTRUCTION PLANS. THIS SHALL BE SHOWN AS A SEPARATE DETAIL AND NOT INCLUDED ON EACH SECTION.

2. STEPPING SHALL NOT BE SHOWN ON THE CROSS SECTION TEMPLATES.

3. ADDITIONAL MATERIAL REQUIRED FOR STEPPING SHALL BE INCLUDED IN ESTIMATED QUANTITIES.
BITUMINOUS CONCRETE BERM, CURBS AND METHODS FOR SETTING

BITUMINOUS CONCRETE BERM

VARIES WITH DEPTH AND SLOPE OF PAVEMENT

Slope of Pavement

2'-0"

TYPE - A

BITUMINOUS CONCRETE CURBS

VERTICAL BACK - OPTIONAL

R=2"

FACE

R=1"

TYPE - 1

TYPE - 2

TYPE - 3

METHODS FOR SETTING BITUMINOUS CONCRETE BERM AND CURBS

GRAVEL SHOULDER

BITUMINOUS CONCRETE BERM

PAVEMENT

BASE COURSE

EDGE OF SHOULDER

VARIES

BITUMINOUS CONCRETE CURB

TOP COURSE

TYPICAL FOR TYPE - A BERM

TYPICAL FOR TYPE - 1, TYPE - 2 & TYPE - 3 CURBS
NOTE
1 STANDARD SECTION LENGTH, EXCEPT FOR CLOSURES AND CURVES, TO BE 3'
2 EDGING TO BE SET AS SHOWN
3 FOR DESCRIPTION, MATERIALS AND CONSTRUCTION METHODS, SEE SPECIFICATIONS
4 FOR DETAILS OF SETTING, SEE II 2 3 0

TRANITION AT CURB INLET FOR TYPE-C EDGING

PLAN

FRONT ELEVATION

SECTION A-A

SECTION B-C
SEE TYPE C EDGING FOR DETAILS
ACCEPTABLE METHOD OF SETTING

PRE-CAST CONCRETE EDGING AND GRANITE EDGING

SLOPED GRANITE EDGING

PRE-CAST EDGING

NOTES
1 ANY CLASS CEMENT CONCRETE THAT IS ACCEPTABLE TO THE DEPARTMENT UNDER SECTION C-1 OF THE 1965 STANDARD SPECIFICATIONS; ALL TEST REQUIREMENTS ARE WAIVED BITUMINOUS CONCRETE IS NOT TO BE USED AS A SUBSTITUTE
2 PAYMENT FOR CEMENT CONCRETE WILL BE INCLUDED IN THE PRICE PER LINEAL FOOT OF PRE-CAST OR GRANITE EDGING
3 FOR DETAILS OF PRE-CAST EDGING, SEE 112 20
BRICK MANHOLE
FOR PIPES UP TO 30" DIA.

NOTE -
STANDARD M.H. DEPTH 6'-6"
ALL CAST IRON FRAMES & COVERS
SHALL BE MACHINED WHERE TRUE
BEARING SURFACES ARE REQUIRED.

CAST IRON FRAME
AND COVER SEE
STANDARDS.

SET FRAME
CASTING IN FULL
MORTAR BED.

WALLS 8" THICK
EVERY FIFTH
COURSE TO BE
HEADERS.

WHERE DEPTH
OF MANHOLE
IS OVER 9'-0"
THE WALLS
BELOW THAT
DEPTH TO BE
12" THICK.

ARCH OVER INLET
AND OUTLET PIPES
WITH BRICK LAID
AS HEADERS AND
ON EDGE.

FLOOR OF INVERT
TO BE HEADERS
LAID FLAT

INVERT TO BE INVERTED
ARCH WITH BRICKS LAID
AS STRETCHERS AND ON
EDGE.

BRICK CHIPS & MORTAR OR CLASS
"D" CONCRETE (IF HAND
MIXED SEE SUBSECTION
E6.25 OF STANDARD SPECIFI-
CATIONS.)

FACE OF PIPE FLUSH OR NOT TO PROJECT
MORE THAN 4" FROM FACE OF WALL ALONG
CENTERLINE OF PIPE.

WROUGHT IRON OR STEEL STEPS

SECTION A-A

201.10

MASS. D.P.W. - MAY 1966
CONCRETE BLOCK MANHOLES
MANHOLES 9 FT. OR LESS IN DEPTH

NOTE:
1. DESIGN SHOWN IS FOR MANHOLE DEPTHS OF 9 FT. OR LESS AND PIPE DIAMETERS OF 30 INCHES OR LESS.
2. STANDARD MANHOLE DEPTH TO BE 6 FEET 6 INCHES.

FRAME TO BE SET IN FULL CEMENT MORTAR BED.

BRICKS MAY BE USED BETWEEN FRAME & TOP COURSE FOR GRADE ADJUSTMENT.

18'-24' TAPER IN 3 OR 4 COURSES

SEE 201.0 FOR STEP DETAILS

VARIABLE DEPTH

FACE OF PIPE FLUSH OR NOT TO PROJECT MORE THAN 4" FROM FACE OF WALL ALONG CENTERLINE OF PIPE.

PIPE VARIES 30" MAX.

INVERT TO BE INVERTED ARCH WITH BRICKS LAID ON EDGES AS STRETCHERS.

BASE TO BE OF CLASS "A" OR "D" CEMENT CONCRETE OR PRECAST CONG. SECTIONAL PLATES. SEE BELOW.

SECTION A-A

OBJECTIVE TO BE FILLED WITH CEMENT MORTAR.
MORTAR NOT REQUIRED IN VERTICAL JOINTS.

PLAN OF BASE
SOLID SECTION; OR FILL HOLE WITH BRICKS AND MORTAR; OR FILL WITH CLASS "A" OR "D" CONCRETE. (IF CONCRETE IS HAND MIXED SEE SUBSECTION E 6.25 OF STANDARD SPECIFICATIONS.)
CONCRETE BLOCK MANHOLES
MANHOLES OVER 9 FT IN DEPTH

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

BRICKS MAY BE USED BETWEEN FRAME AND TOP COURSE FOR
GRADE ADJUSTMENT. FRAME TO BE SET IN FULL BED OF
CEMENT MORTAR.

18"-24" TAPER IN 3 OR 4 COURSES

PIPE FLUSH OR NOT TO PROJECT MORE THAN 4"
INSIDE FACE OF WALL
ALONG CENTERLINE OF PIPE

FOR DETAILS OF STEP
SEE 201.1.0

BLOCKS TO BE SET IN FULL
BED OF CEMENT MORTAR.

FLOOR OF INVERT TO BE
HEADERS LAID FLAT.

BASE TO BE OF CLASS "A"
OR "D" CEMENT CONCRETE OR
PRECAST CONG. SECTIONAL
PLATES, SEE BELOW.

INVERTED ARCH WITH BRICKS LAID
ON EDGES AS STRETCHERS

MORTAR NOT REQUIRED
IN VERTICAL JOINTS.

SECTION A-A

PLAN OF BASE
SOLID SECTION, OR FILL HOLE WITH BRICKS
AND MORTAR; OR FILL WITH CLASS "A" OR "D"
CONCRETE. (IF HAND MIXED SEE SUBSECTION
E6.25 OF 1963 SPECIFICATIONS.)

201.4.0

MASS. D.P.W.- MAY 1966
PRECAST CONCRETE MANHOLE
9 FEET OR LESS IN DEPTH

STANDARD MANHOLE
FRAME & COVER - SEE 201.6.0

24" x 1"
DIAMETER

6" MIN.

18"
CONICAL SECTION

HEIGHT OF RISER
SECTIONS VARY
FROM 1' TO 4'

5" MIN.

48" x 1"
DIAMETER

MORTAR ALL JOINTS

MIN. 0.12 SQ. IN. STEEL
PER VERTICAL FOOT, PLACED
ACCORDING TO AASHO
DESIGNATION M199

1 - #3 BAR AROUND OPENINGS
FOR PIPES 18" DIAMETER
AND OVER, 1" COVER

2" CLEAR

30" MAX.
DIAMETER PIPE

INVERTED ARCH WITH
BRICKS LAID ON EDGE

PROVIDE "V" OPENINGS
PIPE OPENINGS TO BE
PRECAST IN RISER SECTION

NOTE FOR DESCRIPTIONS, MATERIALS, AND CONSTRUCTION METHOD; SEE SPECIFICATIONS

1" CLEAR

5" MIN.

3" MIN.

#3 BAR

1½" MIN.

1½" MIN.

3" MIN.

1" CLEAR

5" MIN.

2' TO 4'

5" MIN.

2' TO 4'

5" MIN.

2' TO 4'

BASE DETAILS

BASE DETAILS

MASS. D.P.W. - MAY 1966

201.5.0
MANHOLE FRAME AND COVER

STANDARD COVER

FOR COVER DETAIL SEE 201.80

TYPE-A FRAME
MINIMUM WEIGHT- 200 LBS.
MATERIAL-CAST IRON

MASS. D.P.W. MAY 1968
CONCRETE BLOCK CATCH BASIN

NOTES
1. WEEPHOLES SHALL BE 4" PIPE OPENING OR EQUIVALENT WITH 1/4 IN MESH, 23 GAUGE, GALVANIZED WIRE SCREEN COVERING; 2 CUBIC FEET OF CRUSHED STONE SHALL BE PLACED AROUND EACH WEEPHOLE.
2. BRICKS MAY BE USED BETWEEN TOP COURSE AND C.B. FRAME FOR GRADE ADJUSTMENT FRAME SHALL BE SET IN FULL BED OF MORTAR.
3. MASS STANDARD CATCH BASIN HOOD SHALL BE INSTALLED ON OUTLET PIPE (SEE 202.7.0)
4. FOR DESCRIPTION, MATERIALS AND CONSTRUCTION METHODS, SEE SPECIFICATIONS
5. FACE OF PIPE SET FLUSH OR NOT TO PROJECT MORE THAN 4" FROM FACE OF WALL ALONG CENTERLINE OF PIPE.

BASIN WITH CURB INLET
- CURB INLET
- CEMENT MORTAR
- SEE NOTE 5
- WEEPHOLE SEE NOTE 1
- 6'-6" STANDARD DEPTH
- 4'-0" DIAM MIN
- MAX 3'-0"
- 2" MIN
- TAPER IN 3 OR 4 COURSES

SECTION C-C
- SOLID SECTION, OR FILL HOLE WITH BRICKS AND MORTAR OR FILL WITH CLASS A OR D CONCRETE (IF CONCRETE IS HAND MIXED SEE SECTION 66.25 OF 865 SPECIFICATIONS)
- BLOCKS TO BE SET IN FULL BED OF CEMENT MORTAR
- CLASS "D" CEM CONC. OR PRECAST CONC SECTIONAL PLATES SEE ABOVE.

PLAN OF BASE
- 4" SECTIONAL PLATES
- 5'-4" MIN
- MORTAR NOT REQUIRED IN VERTICAL JOINTS.
- KEYWAYS TO BE FILLED WITH CEMENT MORTAR

SECTION A-A

SECTION B-B
- WEEPHOLE SEE NOTE 1
- 6'-6" STANDARD DEPTH
- 4'-0" DIAM MIN
- MAX 3'-0"
- 2" MIN
- TAPER IN 3 OR 4 COURSES

PIPE OUTLET
- TOP FACE OF BASIN

WEEPHOLE

MASS D.P.W. - MAY 1965

202.20
* WHEN A CURB INLET IS INSTALLED, THE OPENING IS TO BE 24" 1/16" X 27" 1/16"

NOTES
1. DETAILS NOT INDICATED ABOVE ARE TO BE SIMILAR TO THOSE SHOWN ON 202.10
2. FOR DESCRIPTIONS, MATERIALS AND CONSTRUCTION METHOD, SEE SPECIFICATIONS
CATCH DRAIN FRAME

GUTTER LINE

FOURTH FLANGE WHEN REQUIRED

SECTION X-X

SECTION Y-Y

NOTE
1. MINIMUM FRAME WEIGHT.
   4 FLANGE - 295 LBS.
   3 FLANGE - 263 LBS.

2. MATERIAL - CAST IRON; SEE SPECIFICATIONS

MASS. D.P.W. - MAY 1966
CATCH BASIN GRATE
TYPE A-3

SECTION A-A

MATERIAL—CAST STEEL
MINIMUM WEIGHT—140LBS.
FOR USE WITH CAST IRON
FRAME AS SHOWN ON 202.40
CATCH BASIN HOOD

DIMENSIONS

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<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
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<tr>
<td>6&quot; AND 10&quot; PIPE</td>
<td>15&quot;</td>
<td>15&quot;</td>
<td>8&quot;</td>
<td>9&quot;</td>
<td>13(^{3/4})</td>
<td>7(^{1/4})</td>
<td>15(^{1/4})</td>
<td>11&quot;</td>
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<tr>
<td>12&quot; AND 15&quot; PIPE</td>
<td>18&quot;</td>
<td>18&quot;</td>
<td>10&quot;</td>
<td>11(^{1/4})</td>
<td>2&quot;</td>
<td>1&quot;</td>
<td>17(^{1/4})</td>
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HOODS TO BE GRAY CAST IRON A A S H O CLASS 430
CONCRETE COLLARS

PLAN

SECTION A-A
MANHOLES

SECTION B-B
CATCH BASINS

PLAN

SECTION C-C
ROUND
WATER SERVICE BOXES

SECTION D-D
SQUARE

NOTES
1 COLLARS TO BE CLASS "D" CEMENT CONCRETE MASONRY REGULAR OR H.E.S. AS DIRECTED
   (IF HANDMIXED SEE SECTION E6.25 OF 1965 SPECIFICATIONS)
2 NO CONCRETE COLLAR REQUIRED IN CONCRETE PAVEMENT.
DROP INLETS
TYPE A - CLASS "A" CONCRETE
TYPE B - CONCRETE BLOCK

PLANT

FRAME SECTIONS

SECTION A-A

SECTION B-B

NOTES:
1. STANDARD GRATES TO BE USED
   SEE DETAILS ON 202 5-0 AND 202 6-0
2. MINIMUM C I FRAME WEIGHT - 205 LBS EACH
3. FOR DESCRIPTIONS, MATERIALS AND CONSTRUCTION METHODS SEE STANDARD SPECIFICATIONS
4. CLASS "A" CEMENT CONCRETE

TYPE "A"

5. NOMINAL CONCRETE BLOCK DIMENSIONS
   HEIGHT, 4" TO 8"
   WIDTH, 6"
   LENGTH, 8" TO 16"
6. BLOCKS TO BE SET IN FULL MORTAR BED

OUTLET PIPE

FACE OF PIPE FLUSH

OUTLET PIPE

1 OR 2 THROATS AS REQUIRED

SET IN FULL BED OF MORTAR

STANDARD C I GRATE.

DIRECTION OF BEARING BARS

STANDARD C I GRATE
DROP INLET TYPE-C

PLAN

* SEE CONCRETE BLOCK CATCH BASIN FOR DETAILS (202.2.0)

OUTSIDE FACE
AT TOP
AT BASE

OUTLET PIPE

INSIDE FACE
AT TOP
AT BASE

THROAT

* WEEPHOLE

BRICKS MAY BE USED BETWEEN FRAME AND TOP COURSE FOR GRADE ADJUSTMENT. FRAME TO BE SET IN FULL BED OF MORTAR.

FACE OF PIPE FLUSH OR NOT TO PROJECT MORE THAN 4" FROM FACE OF WALL ALONG CENTERLINE OF PIPE.

TAPER IN 3 OR 4 COURSES

SECTION A-A

* CLASS "D" CEMENT CONCRETE OR PRECAST CONCRETE SECTIONAL PLATES SEE 202 2.0

NOTES

1. MINIMUM CAST IRON FRAME WEIGHT - 205 LBS.
SEE DETAIL ON 204 1.0

2. STANDARD GRATE TO BE USED, SEE DETAILS ON 202.3.0 AND 202.6.0

3. FOR DESCRIPTION, MATERIALS, AND CONSTRUCTION METHODS, SEE SPECIFICATIONS

4. MASS STANDARD CATCH BASIN HOOD SHALL BE INSTALLED ON OUTLET PIPE. (SEE 202.7.0)

204.2.0

MASS. D PW - MAY 1966
PRECAST CONCRETE DROP INLET
TYPE-D

FOR GRATE SEE 202.5.0 & 202.6.0
FOR FRAME SEE 204.1.0
BRICKS MAY BE USED FOR
GRADE ADJUSTMENTS
FRAME TO BE SET IN
FULL BED OF MORTAR

THROAT

22" ± 1"
SQUARE OPENING
8" MIN.

18"
TAPERED SECTION

HEIGHT OF RISER
SECTIONS VARY
FROM 1' TO 4'

46" & 1" DIAMETER
WEEPHOLE
(OPENING TO BE PRECAST
IN RISER SECTION)
1" CLEAR

OUTSIDE DIAMETER OF
PIPE + 2"

MIN. 0.12 SQ. IN. STEEL
PER VERTICAL FOOT,
PLACED ACCORDING TO
AASHTO DESIGNATION M199

6'-6" (STANDARD
DEPTH)

3'-0" MAX.

5" MIN

SEE 201.5.0 FOR BASE DETAILS

NOTES
1. DETAILS NOT INDICATED ABOVE ARE TO BE SIMILAR TO THOSE SHOWN ON 204.2.0
2. FOR DESCRIPTIONS, MATERIALS AND CONSTRUCTION METHOD, SEE SPECIFICATIONS
CONCRETE BLOCK GUTTER INLET

NOTES:
1. WHERE CURB INLET IS NOT USED THE INSIDE HORIZONTAL DIMENSIONS OF GUTTER INLET TO BE 24" ± 1" x 24" ± 1"
   WHICH CASE AND UNLESS OTHERWISE DIRECTED, A STANDARD 4-FLANGE FRAME IS TO BE USED
2. BRICKS MAY BE USED BETWEEN TOP COURSE AND FRAME FOR GRADE ADJUSTMENT
3. FOR DESCRIPTION, MATERIALS AND CONSTRUCTION METHODS, SEE SPECIFICATIONS.

SECTION C-C

SECTION A-A

SECTION B-B

OUTLET PIPE

INVERT TO BE CONSTRUCTED OF BRICK AS SHOWN IN DETAILS FOR BRICK GUTTER INLET OR CLASS "D" CEMENT CONCRETE MASONRY
(If hand mixed see Section E 6 25 of 1965 specifications)

CLASS "D" CEMENT CONCRETE OR PRECAST CONCRETE SECTIONAL PLATES
NOTES:

1. ONE STANDARD FRAME AND GRATE REQUIRED.
2. BRICK WALL TO BE 8" THICK, EVERY FIFTH COURSE TO BE HEADERS, OUTSIDE TO BE FINISHED WITH CEMENT MORTAR COATING.
3. WHEN USING CONCRETE BLOCKS, BLOCKS TO BE SET IN FULL BED OF MORTAR AND TAPERED IN 3' OR 4 COURSES.
4. BACKFILL FOR FULL DEPTH OF BASIN EXCAVATION TO BE GRAVEL.
5. FOR DESCRIPTION, MATERIALS, AND METHOD OF CONSTRUCTION, SEE SPECIFICATIONS.
STANDARD JOINT FOR PLAIN CONCRETE PIPE
SIZES 12" THROUGH 24"

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# Standard Joint for Reinforced Concrete Pipe

Sizes 12" Through 24"

![Diagram of standard joint for reinforced concrete pipe]

## Wall A

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<thead>
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**Note:**
Pipe shall conform to the requirements of AASHTO Designation M170.
SUB-DRAINS

SUPERSEDED - - A REVISED

STANDARD FOR SUB-DRAINS WILL BE

ISSUED AT A LATER DATE.

(Mass. D. P. W. - July 1966)

SEAL WITH 1 GAL OA-3 OR OA-4
PER SQ YD AS DIRECTED

\[ \frac{1}{2} \text{} \text{CRUSHED STONE} \]

4'-MIN

SUB-DRAIN PAY UNIT

PERFORATIONS UP

PIPE

IMPERVIOUS MATERIAL

6''

NOTES:

1. PIPE TO BE LAID WITH PERFORATIONS UP
2. FOR MATERIALS, DESCRIPTION, AND METHODS OF CONSTRUCTION, SEE SPECIFICATIONS.
STANDARD METAL END

PIPE DIA. (IN.) | GA. | DIMENSIONS (IN.) |
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NOTE:
1 TOE PLATE TO BE PUNCHED TO MATCH HOLES IN SKIRT LIP 3/8" GALVANIZED BOLTS TO BE FURNISHED LENGTH OF TOE PLATE TO BE W+10" FOR 12" TO 30" DIA. PIPE AND W+22" FOR 36" TO 48" DIA. PIPE
2 SKIRT SECTION FOR 12" TO 24" DIA. PIPE TO BE MADE IN ONE PIECE; SKIRT SECTION FOR 30" TO 48" DIA. PIPE MAY BE MADE FROM TWO SHEETS JOINED BY RIVETING OR BOLTING ON CENTER LINE WITH 3/8" DIA. FASTENERS.
3 CONNECTOR SECTION, TOE PLATE AND SKIRT TO BE OF SAME GAGE METAL, EACH TO BE GALV. AND COATED WITH A TAR BASE PAINT
4 FOR DESCRIPTION, MATERIALS AND CONSTRUCTION METHODS, SEE SPECIFICATIONS.
HALF CIRCLE ACCM PIPE WATERWAYS

UNIT LENGTHS IN MULTIPLES OF 2' UP TO MAX OF 12'
ANGLES SET BACK 3 CORRUGATIONS FOR LAPPING UNITS

ACCM UNITS TO BE LAPPED IN DIRECTION OF FLOW AND FASTENED WITH TWO 3/8" DIA X 1 1/4" GALV BOLTS

FLOW

3" X 2" X 1/4" GALV ANGLES FASTENED TO METAL FLUME WITH 3/8" GALV X 1 1/4" BOLTS SPACED 12" C TO C OR STITCH WELDED

3/8" DIA HOLES

2'

ACCM WATERWAY TO BE FASTENED TO STAKES WITH SPIKES

GROUND LINE

DIAMETER

WOOD STAKES 2" X 6" NOMINAL SIZE

STAKES SPACED 6'-0" MAX, C TO C

1' - 0"

NOTE:
1 DIAMETER OF HALF ACCM PIPE WATERWAY TO BE AS SPECIFIED.
2 FOR DESCRIPTION MATERIALS AND CONSTRUCTION METHODS, SEE SPECIFICATIONS
PAVED WATERWAYS

BITUMINOUS CONCRETE

CEMENT CONCRETE

DETAILS OF CONTRACTION JOINTS

DETAILS OF EXPANSION JOINTS

NOTES:
1. ON CURVED ALIGNMENT, WATERWAYS SHALL BE BANKED AS DIRECTED
2. FOR DESCRIPTIONS, MATERIALS AND CONSTRUCTION METHODS, SEE SPECIFICATIONS

MASS D.P.W. - MAY 1966
CONCRETE AND FIELD STONE MASONRY ENDS FOR 8" TO 30" PIPE CULVERTS

CONCRETE ENDS

FRONT ELEVATION

END ELEVATION

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<th>PIPE DIAM.</th>
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Q

4" FOR 1 1/2 1 SLOPE

6" FOR 2 1 SLOPE

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

CONCRETE CRADLE FOR PIPE CULVERTS

CLASS "C" CEMENT CONCRETE
ONLY TO BE USED WHERE SPECIFIED

MASS. D.P.W. - MAY 1966

0211.0
CONCRETE AND FIELD STONE MASONRY ENDS FOR 30" TO 84" PIPE CULVERTS

1. FOR DESCRIPTION, MATERIALS, AND CONSTRUCTION METHODS, SEE SPECIFICATIONS.
2. ALL CONCRETE DIMENSIONS SHOWN ARE MINIMUM.
3. PAYMENTS WILL BE BASED ON THE QUANTITIES SHOWN IN THE ACCOMPANYING TABLE.

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### CONCRETE ENDS

- **PLAN**
- **ELEV A-A**
- **SECTION B-B**

### FIELD STONE MASONRY ENDS

- **FRONT ELEVATION**
- **SECTION C-C**
- **ELEV D-D**

**NOTE:**
1. **CLASS "A" GEM CONC.**
2. **1" CHAMFER.**
3. **#3 BARS @ 12".**
4. **12" CLEAR.**
5. **GROUND LINE.**
6. **FIELD STONE MASONRY IMBEDDED IN MORTAR.**
7. **PORTLAND CEMENT MORTAR.**
### Concrete and Fieldstone Masonry Combination Ends for Pipes Up to 30" Diameter

#### Concrete Ends

- **C**
- **D**
- **E**
- **L**

## Field Stone Masonry Ends

### Port Cement Mortar Cap

- **A**
- **B**

### Fieldstones Imbedded in Mortar

### Design Specifications

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

211.30  
MASS. D.P.W. - MAY 1966
CEMENT CONCRETE STEPS

**Design A**
- 6" Risers
- 12" Treads
- Grade of Sidewalk
- Top of Wall and Slope Line
- Slope 2:1
- Risers 6"
- Treads 12"

**Design B**
- 8" Risers
- 12" Treads
- Grade of Sidewalk
- Top of Wall and Slope Line
- Slope 1 1/2:1
- Risers 8"
- Treads 12"

**Design C**
- 7" Risers
- 10 1/2" Treads
- Grade of Sidewalk
- Top of Wall and Slope Line
- Slope 1 1/2:1
- Risers 7"
- Treads 10 1/2"

Notes:
1. Where iron pipe hand rail is required see 409.1.0 for details.
2. All concrete dimensions shown are minimum except risers and treads which have \pm 1/2" tolerance.
3. For reinforcing steel and concrete quantities see 301.2.0.

301.1.0

# Cement Concrete Steps

**Front View**

### Design A-Class "A" Concrete

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For designs "A", "B", and "C" see 301.1.0

**Notes:**
1. For descriptions, materials, and construction methods, see specifications.
2. Payment will be based on the quantities shown in the accompanying tables.

---

**Side View**

- 4(2 each wall) = 4 bars 12'-5"; 13'-1"; 11'-6" for 10 steps
- 4(2) = 4 bars 11'-4"; 11'-11"; 10'-6" for 9 steps
---

**Ground Line**

- 2" clear

**ACCOMPANYING TABLES**

**7-4 bars 12'-6"; 13'-2"; 11'-8" for 10 steps**

**9-3 ties 6'-0" @ 18" for 10 steps**

**8-3 ties 5'-0" @ 20" for 9 steps**
LOW RETAINING WALLS

NOTES:
1. CLASS "A" CEMENT CONCRETE TO BE USED.
2. EXPANSION JOINTS TO BE PLACED 90° O.C. MAXIMUM WITH
INTERMEDIATE CONSTRUCTION JOINTS PLACED AT 30° O.C. MAXIMUM.
3. ALL CONCRETE DIMENSIONS SHOWN ARE MINIMUM.
4. PAYMENTS WILL BE BASED ON TABLE BELOW.

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MASS. D.R.W.- MAY 1966
CEMENTED STONE MASONRY WALL

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<th>Conc Masonry Footing</th>
<th>Stone Masonry Excluding Coping</th>
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NOTES:
1. COPING OVERHANG 3" FOR WALLS 10'}  
and over in height and 2" for walls less than 10' except in a continuous wall of varying height when the overhang will be 2" or 3" for entire length.

2. ALL DIMENSIONS SHOWN ARE MINIMUM
3. PAYMENT WILL BE BASED ON ACCOMPANYING TABLE.

FOR CHAIN LINK FENCE ON TOP OF WALL, THE COPING SHALL BE CONCRETE CAST-IN-PLACE WITH A MINIMUM DEPTH OF 12" THE LENGTH OF GALVANIZED WROUGHT IRON PIPE SLEEVES FOR FENCE POSTS SHALL BE EQUAL TO DEPTH OF COPING.

MASS. D.P.W. - MAY 1966

302.2.0
# Concrete Reinforcing Steel

## Standard Reinforcing Bars

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<th>New (Nos)</th>
<th>Weight Per Foot</th>
<th>Nominal Dimension—Round Sections</th>
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<td>1.410, 1.56, 4.430</td>
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The new bar numbers are based on the number of \( \frac{1}{8} \) inches included in the nominal diameter of the bar.

Bar number 2 in plain rounds only. Bars numbered 9, 10, and 11 are round bars and equivalent in weight and nominal cross-sectional area to old type 1\( \frac{1}{4} \), 1\( \frac{3}{8} \), and 1\( \frac{1}{2} \) square bars.
STEEL BEAM HIGHWAY GUARD TYPE SS

NOTES:
1. EMBANKMENTS OVER 15 FEET IN HEIGHT SHALL BE USED AS A GUIDE IN DETERMINING THE NEED FOR GUARD RAIL.
   (GENERALLY, EMBANKMENT SLOPES ARE USED WHERE HEIGHT OF FILL IS GREATER THAN 15 FEET)
2. DESIGNS TO DETERMINE NEED FOR GUARD RAIL ON FILLS LESS THAN 15 FEET IN CASES SUCH AS ACROSS SWAMPS, AT SHARP CURVATURES, AT HAZARDOUS LOCATIONS, ETC
3. FOR DESCRIPTIONS, MATERIALS AND CONSTRUCTION METHODS, SEE SPECIFICATIONS
4. MINIMUM LENGTH OF GUARD RAIL SECTION TO BE 200 FT.

DETAIL "X"
"H" POST
6"x4", 6½ LBS./LF STEEL "H" RAILING
SECTION, 1'-2" LONG

DETAIL "Y"

SECTION Z-Z

GUARD RAIL ADJACENT TO BRIDGE

BRIDGE END POST

END CURB
DIRECTION OF TRAFFIC
TRAILING END
REQUIRED GUARD RAIL, NORMAL LENGTH
NORMAL ALIGNMENT, 37.5° ±
CIRCULAR CURVE, 37.5° ±
WIDEN TOP OF SLOPE AS REQUIRED
END CURB
BEGIN CURB
EDGE OF SHOULDER
TOP OF SLOPE
EDGE OF SHOULDER
STEEL BEAM HIGHWAY GUARD TYPE SS

POST

OFFSET BRACKET

TERMINAL SECTION

BOLT HOLES, AS REQ'D FOR MEDIAN BARRIERS

SECTION A-A

BOLT HOLE, AS REQ'D FOR MEDIAN BARRIERS

6'/R

3" MIN

5" X 2" HEX HD BOLTS AND NUTS, GALV

23'/32 SLOTTED HOLES

USE SPLICE BOLTS

NOTE

1 POSTS AND OFFSET BRACKETS TO BE FABRICATED FROM 6" X 4", 82.5 LBS PER LINEAR FOOT, STEEL "H" SECTIONS

2 POST AND BRACKET BOLT HOLES TO BE 3/4" DIA (STANDARD GALV WASHERS TO BE USED AT THESE CONNECTIONS)
INSTALLATION OF HIGHWAY GUARD IN MEDIANS WITH OPEN WELL BETWEEN TWIN BRIDGES

9'-6"

TERMINAL SECTION

3'-3"

HIGHWAY GUARD TYPE SS

TERMINAL SECTION

EDGE OF TRAVELED WAY

TANGENT, 62 5' ±

CIRCULAR CURVE, 37 5' ±

EDGE OF SHOULDER

NORMAL ALIGNMENT, 100' ±

TOTAL LENGTH ALONG FACE OF HIGHWAY GUARD, 200±

*FACE OF RAILING SET 1'-6" FROM EDGE OF SHOULDER

NOTES:
1. THIS TYPE OF INSTALLATION IS ONLY APPLICABLE WHERE HIGHWAY GUARD IS NOT NORMALLY REQUIRED
2. SEE 40110, 40120, 6, 401 30 FOR DETAILS
3. FOR DESCRIPTIONS, MATERIALS AND CONSTRUCTION METHODS, SEE SPECIFICATIONS.
4. ALL POSTS TO BE SPACED 6'-3" CENTER TO CENTER
INSTALLATION OF TYPE SS HIGHWAY GUARD FOR SIGN PROTECTION
GROUND SIGNS 200 SQ. FT. AND OVER

PLAN

ALL OVERHEAD SIGNS

PLAN

TRAILING END

APPROACH SECTION

GROUND SIGNS 60 SQ FT. TO 200 SQ FT.

NOTE:
1. LENGTHS OF HIGHWAY GUARD SHOWN ARE MEASUREMENTS ALONG FACE OF RAILING
2. FOR DESCRIPTIONS, MATERIALS AND CONSTRUCTION METHODS, SEE SPECIFICATIONS AND 40L10, 40L20, 40L30
   FOR DETAILS.

NOTE: TO BE USED FOR LIGHT STANDARD PROTECTION WHERE DIRECTED
MEDIAN BARRIERS

DIRECTION OF TRAFFIC

SPICE; LAP IN DIRECTION OF TRAFFIC

DIRECTION OF TRAFFIC

SECTION A-A

GROUND LINE

6'-3" C TO C

6'-3" C. TO C

NOTE

1. ALL POSTS TO BE SPACED 6'-3" C. TO C.
2. FOR DETAILS OF BARRIER COMPONENTS, SEE 40110, 40120, & 40130
3. FOR DESCRIPTION, MATERIALS AND CONSTRUCTION METHOD, SEE SPECIFICATIONS
HIGHWAY GUARD TYPE C-3-C

END ANCHOR ASSEMBLY

NOTE:
1. FOR POST SPACING ALONG CURVES WITH RADIUS LESS THAN 300', CONSTRUCTION METHODS AND MATERIAL REQUIREMENTS, SEE SPECIFICATIONS.
2. FOR DETAILS OF HIGHWAY GUARD FITTINGS SEE 403.30, 403.40.
HIGHWAY GUARD TYPE C-3-C

2" x 9½" MACHINE BOLT, GALV.

PLATE WASHER "B"  

R.C. POST, 8"X8"

3" STEEL CABLE, GALV

PLATE WASHER "C"

PLATE WASHER "D"

OFFSET BRACKET

GROUND ANCHOR ROD, GALV, 6'-6" LONG TO STANDARD ANCHOR BLOCK SEE 40310

GROUN###  

NOTE: FOR DETAILS OF HIGHWAY GUARD FITTINGS, SEE 40330, 40340

INTERMEDIATE ANCHOR ASSEMBLY

40320

MASS. D.P.W., MAY 1966
HIGHWAY GUARD TYPE C-3-S

STEEL "H" POST 6" X 4" - 8½ LB

PLATE WASHER "B"

PLATE WASHER "F"

3/8" STEEL CABLE, GALV

OFFSET BRACKET

6'-0" MAX
1¼" STANDARD TURNBUCKLE,
6" TAKE-UP, GALV

5" L.H THREAD

1'-10"

5" R H THREAD

1/4" GROUND ANCHOR ROD, GALV

10" - 153 LB CHANNEL,
18" LONG

6" CABLE ENDS

INTERMEDIATE POST

OFFSET BRACKET

NOTE:
1. FOR POST SPACING ALONG CURVES WITH RADIUS LESS THAN 300', CONSTRUCTION METHODS AND MATERIAL REQUIREMENTS, SEE SPECIFICATIONS
2. FOR DETAILS OF HIGHWAY GUARD FITTINGS AND ANCHOR BLOCK, SEE 40430, 40440, 40450, 40460
HIGHWAY GUARD TYPE C-3-S

STEEL "H" POST, 6"X4" - 8 1/2 LB

PLATE WASHER "F"
OFFSET BRACKET

3/8" STEEL CABLE, GALV

OFFSET BRACKET

GROUND ANCHOR ROD, GALV, 6'-6" LONG TO STANDARD ANCHOR BLOCK, SEE 40210 AND 40410

NOTE - FOR DETAILS OF HIGHWAY GUARD FITTINGS, SEE 40430, 40440, 40450, 40460

INTERMEDIATE ANCHOR ASSEMBLY

10'-15 3/2 LB CHANNEL IS 15" LONG

12'-6" ± 3" C TO C
HIGHWAY GUARD TYPE C-3-S

DETAILS OF ANCHOR POSTS

END ANCHOR POST ASSEMBLY

INTERMEDIATE ANCHOR POST ASSEMBLY

NOTE:
1. ANCHOR POSTS TO BE FABRICATED TO THE DIMENSIONS INDICATED FROM 6"X4" 0.25 LBS/LIN FT "H" BEAM SECTIONS
2. DRIVING CAPS SHALL BE USED TO PROTECT THE POSTS FROM BATTER WHEN POSTS ARE DRIVEN.
3. ALL BURRS AND RIGGED EDGES SHALL BE REMOVED FROM FITTINGS BEFORE GALVANIZING RODS, BOLTS AND NUTS TO HAVE CUT OR ROLLED THREADS - ALL TO BE GALVANIZED.
4. FOR DESCRIPTION, MATERIALS AND CONSTRUCTION METHODS, SEE SPECIFICATIONS.
HIGHWAY GUARD TYPE C-3-S

OFFSET BRACKET

DIA HOLE

7/8

1 1/8

6 1/4

1 1/8

3 1/2

2 1/8

BOLT

WASHER

5 1/2

3 1/2

3 1/2

NOTE

1. INTERMEDIATE POSTS TO BE "H" SECTION 6" x 6" x 68 POUNDS PER LIN FT

2. OFFSET BRACKET TO BE FASTENED TO POST WITH GALV STEEL BOLT, 3/8 x 2 1/2, HEX HD

8 NUT, WASHER TO BE GALV STEEL SEE 404.5.0 B 404.6.0.

INTERMEDIATE STEEL POST

DETAIL OF 8" I-18.4 LB. POST, LOCATION OF HOLES AND CABLE CONNECTION

NOTE

CONCRETE BLOCK SHALL BE CAST SO THAT POST CAN BE REMOVED IF NECESSARY.

ANCHOR BLOCK STEEL

8 - 3/8 BAR 5' - 0" LONG

4 - 3/8 BAR 3' - 0" LONG

8 - 3/8 BAR 3' - 8" LONG

GROUND LINE

CABLE

END

BOLTS

CLASS "D" CONCRETE

ALL REINF #4 BARS

404.4.0

HIGWAY GUARD POST WITH ANCHOR BLOCK

FOR USE AT DRIVES, AT BRIDGE END POST, AND SIMILAR OPENING FOR LENGTHS UP TO 200' LF
HIGHWAY GUARD TYPE C-3-S AND C-3-C

WEDGE TYPE CABLE SPLICE
(GALVANIZED)

WEDGE TYPE CABLE END
(GALVANIZED)

3/4" MACHINE BOLT, HEX. HEAD & NUT, GALVANIZED. (BOLT LENGTHS TO BE 7 1/2" FOR 6"X6" POSTS AND 9 1/2" FOR 8"X8" POSTS)

PLATE WASHER "D"

STD GALV WASHER

1/2 BEVEL

R.C. POST

DIRECTION OF TRAFFIC

OFFSET BRACKET AND POST ASSEMBLY

STEEL "H" POST

3/4" X 2 1/2" MACHINE BOLTS, HEX HEAD & NUT, GALVANIZED
HIGHWAY GUARD TYPE C-3-S AND C-3-C

PLATE WASHER "A"

PLATE WASHER "C"

PLATE WASHER "B"

PLATE WASHER "E"

PLATE WASHER "D"

PLATE WASHER "F"

SECTION B-B

OUTSIDE FACE OF SLOT BEFORE BENDING

SPLING BLANK ANNEALED
SPRING STEEL PLATE 20\frac{3}{4} \times 14\frac{1}{2} \times \frac{3}{8}" (APPROX SIZE)

OFFSET BRACKET
(SPRING STEEL TEMPERED AND GALV.)

STAY PIN
(STEEL GALV.)

OFFSET BRACKET DETAILS
PERMANENT BARRIER FENCE FOR DEAD END STREETS

VERTICAL STRIPES - REFLECTORIZED WHITE PAINT AND BLACK ENAMEL, 6" WIDTHS

RAILS AND BRACES:
2"X6", S-4-S, DOUGLAS FIR OR YELLOW PINE STOCK

POSTS:
8"X8", S-4-S, DOUGLAS FIR OR SPRUCE STOCK

POSTS SPACED 8'-0" MAX, C TO C.

NOTES
1. THE BOTTOM SECTION OF POSTS, UP TO A HEIGHT 6" ABOVE THE GROUND LINE, TO BE COATED WITH TWO APPLICATIONS OF WOOD PRESERVATIVE.
2. RAILS AND BRACES TO BE FASTENED TO POSTS WITH 5" SPIKES AND/OR LAG SCREWS.
3. THE BARRIER SIDE FACING OBSTRUCTED ROADWAY TO BE COATED WITH REFLECTORIZED WHITE PAINT AND BLACK ENAMEL STRIPES IN THE PATTERN SHOWN. ALL OTHER SIDES TO BE PAINTED WITH TWO COATS OF STRUCTURAL CHROME OXIDE GREEN.
4. FOR DESCRIPTIONS, MATERIALS AND CONSTRUCTION METHODS, SEE SPECIFICATIONS.
5. ALL LUMBER DIMENSIONS ARE NOMINAL.
PORTABLE BARRIER FENCE

NOTE
1. BRACES AND RAILS TO BE CONSTRUCTED FROM 2" x 8", S-4-S SELECT DOUGLAS FIR OR YELLOW PINE STOCK; ALL LUMBER SIZES ARE NOMINAL

2. PORTABLE BARRIER TO BE PAINTED WITH ONE COAT OF WHITE PRIMER AND FINISHED WITH TWO COATS OF PAINT; THE FRONT FACE TO BE FINISHED IN THE PATTERN SHOWN ALTERNATING 6" WIDE STRIPES OF BLACK ENAMEL AND REFLECTORIZED WHITE PAINT; ALL OTHER SURFACES TO BE FINISHED WITH WHITE ENAMEL

3. FOR DESCRIPTION, MATERIALS AND CONSTRUCTION METHODS, SEE SPECIFICATIONS

4. SHAPE TOP & BOTTOM OF STRAPING TO CONFORM TO SHAPE OF CLUSTER
ILLUMINATED PORTABLE BARRIER FENCE

NOTE
1. ILLUMINATED BARRIER TO BE MADE OF PORTABLE BARRIER UNITS FASTENED TOGETHER WITH 2"X8"X3' SCABS AS SHOWN
   SEE 40610 FOR CONSTRUCTION DETAILS
2. TROUGHS FOR 6" DIAMETER LENSES AND FLASHING LIGHT COMPONENTS TO BE CONSTRUCTED TO THE DIMENSIONS
   SHOWN USING 1/2" MEDIUM DENSITY OVERLAY PLYWOOD, FLAT TOP, YELLOW WIDE ANGLE REFLECTIVE SHEETING TO BE
   BONDED TO FRONT FACE OF ARROW; ALL OTHER ARROW SURFACES TO BE PRIMED AND FINISHED WITH TWO COATS OF
   YELLOW ENAMEL, P-450-64
3. THE ARROW SEGMENTS ARE TO BE SECURELY FASTENED TO BARRIER WITH ANGLE IRONS AND/OR STEEL BRACKETS
CHAIN LINK FENCE
WITH TOP RAIL

FENCE ON GROUND

FENCE ON CONCRETE WALL

Expansion sleeve
Wire fasteners @ 18" intervals

Top rail
Line post
Wire fasteners
Fabric, 2" mesh
Chain
Link

Ground line
Cement conc.
Base (Class A)

10' 0" C TO C (MAX)

6" MIN.

Notes:
1. Fabric for fences 4 feet or less in height.
2. Top selvage to have knuckled finish. Bottom selvage to have twisted and barbed finish unless otherwise noted.
3. Fabric for fences 5 feet or over in height.
4. Line posts to be spaced 10'-0" C TO C. Maximum except on curves where they shall be spaced as follows:
   - Curves 200' to 500' radius: 8'-0" C TO C. Maximum
   - 100' to 200': 6'-0"
   - Less than 100': 5'-0"
5. For post bases and cable attachments, see 407-40.
6. For description, materials, and construction methods, see specifications.

SECTION A A

Line post set into galv pipe sleeve; inside of sleeve and outside of post to be coated with bituminous paint and caulked with lead wool.

Top of coping
Variable

Galv pipe sleeve

Mass. Dep't of Pub. Works
407-40
CHAIN LINK FENCE WITH TOP TENSION CABLE

NOTES:

1. FABRIC FOR FENCES 4 FEET OR LESS IN HEIGHT; TOP SELVAGE TO HAVE KNUCKLED FINISH, BOTTOM SELVAGE TO HAVE TWISTED AND BARBED FINISH UNLESS OTHERWISE NOTED.
2. FABRIC FOR FENCES 5 FEET OR OVER IN HEIGHT; BOTH THE TOP AND BOTTOM SELVAGE TO HAVE TWISTED AND BARBED FINISH UNLESS OTHERWISE NOTED.
3. THE HEIGHT OF FENCE TO BE AS SPECIFIED.
4. GRADE OF FENCE TO BE PARALLEL WITH THE GRADE OF SIDEWALKS, CURBING, GROUND, OR TOP OF WALL.
5. FOR POST BASES AND CABLE ATTACHMENTS SEE 407-40.
6. PULL POST INTERVALS NOT TO EXCEED 50 FT.
7. SPACING OF LINE POSTS ON CURVES, SEE 407-10.
8. FOR DESCRIPTION, MATERIALS AND CONSTRUCTION METHODS, SEE SPECIFICATIONS.
CHAIN LINK FENCE - GATE

DOUBLE GATES

NOTE:

1. TUBULAR GATE POSTS - STEEL ALUMINUM
   * SINGLE GATE OPENING UP TO 6' 4" Nom. OD 27" Nom. OD
   * DOUBLE " " 12' " " " "
   * SINGLE " 7'-13' 4" Nom. OD 4" Nom. OD
   * DOUBLE " " 13'-26' " " " "
   * SINGLE " 14'-18' 4" Nom. OD 6 5/8" Nom. OD
   * DOUBLE " " 27'-36' " " " "
   THE ABOVE LIMITS OF THE OPENINGS ARE INCLUSIVE

2. GATE FRAMES & BRACES - STEEL ALUMINUM
   SINGLE GATE FRAME UP TO 6'W. 165 N.O.D. 1.90 N.O.D
   SINGLE GATE FRAME OVER 6'W. 190 N.O.D. 1.90 N.O.D

3. TRUSS RODS - STEEL ALUMINUM
   DIAMETER 3/8" 3/8"

4. CHAIN LINK FABRIC FOR GATES TO BE THE SAME AS REQUIRED FOR FENCE.

5. FOR GATE POST BASE, SEE 407 4 0

6. FOR DESCRIPTION, MATERIALS AND CONSTRUCTION METHODS, SEE SPECIFICATIONS

* END POSTS TO BE USED ON LATCH SIDE OF SINGLE GATE OPENINGS
CHAIN LINK FENCES

POST BASES

DETAILS OF CABLE ATTACHMENTS

FOR CORNER OR END POSTS

NOTE
FOR EYE BOLT INSTALLATION THROUGH RIE SECTIONS, USE 2 LEAD WASHERS ON SHOULDER SIDE AND 1 LEAD WASHER WITH LOCK WASHER ON "NUT SIDE" OF POSTS

FOR ENDO PULL POST

FOR CORNER, END, LINE AND PULL POSTS

FOR GATE POSTS

FOR FASTENING TO BASE OF POST

<table>
<thead>
<tr>
<th>FENCE HEIGHT</th>
<th>MIN. H</th>
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</thead>
<tbody>
<tr>
<td>5' OR LESS</td>
<td>2'-6&quot;</td>
</tr>
<tr>
<td>OVER 5'</td>
<td>3'-0&quot;</td>
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</table>

EYE BOLT TO "H" COLUMN POST
STOCK FENCE

ROLLED ANGLE SECTION FOR END, CORNER AND ANCHOR POSTS

WIRE SPACING

END, CORNER AND ANCHOR POSTS

2 1/2" X 2 1/2" X 1 1/2" ROLLED ANGLE SECTION
MIN WEIGHT 41 LBS PER FT

HOLDS FOR BRACES 1/8" DIAM.

2" X 2" X 5/16" ANGLE
SECTION MIN WEIGHT 2.4 LBS PER FOOT.

METHOD OF SECURING WIRE STRANDS OF FENCE AT ENDS AND CORNER POSTS.

STUDED "T" SECTION LINE POST
WROUGHT IRON PIPE FENCE

WROUGHT IRON PIPE HAND RAIL

NOTES:
1. WHEN USED ON A CURVE, ALL RAILINGS TO BE CURVED TO LINE BEFORE ERECTION.
2. IRON PIPE FENCE AND HAND RAIL TO FOLLOW GRADE OF COPING OR STRUCTURE.
3. FOR DESCRIPTIONS, MATERIALS AND CONSTRUCTION METHODS, SEE SPECIFICATIONS.

DETAIL "A"

PIPE DIAMETERS IN INCHES

<table>
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<tr>
<th>NOMINAL</th>
<th>INSIDE</th>
<th>OUTSIDE</th>
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</thead>
<tbody>
<tr>
<td>1-1/2&quot;</td>
<td>1.491</td>
<td>1.900</td>
</tr>
<tr>
<td>2-1/2&quot;</td>
<td>2.460</td>
<td>2.875</td>
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</table>

MASS. D.P.W.- MAY 1966
IDENTIFICATION SIGN FOR INTERSTATE PROJECTS

YOUR HIGHWAY TAXES AT WORK

FEDERAL HIGHWAY TRUST FUNDS
$0,000,000
U S DEPARTMENT OF COMMERCE
Bureau Of Public Roads

STATE HIGHWAY FUNDS
$000,000
MASSACHUSETTS DEPT OF PUBLIC WORKS

NOTE
1. POSTS AND PANEL TO BE PAINTED WITH ONE COAT OF WHITE PRIMER CONFORMING TO DEPARTMENT SPECIFICATION P-410-65 AND TWO COATS OF WHITE ENAMEL CONFORMING TO DEPARTMENT SPECIFICATION P-450-64
2. LETTERING TO BE APPLIED BY SILK SCREEN PROCESS USING AN APPROVED HIGH TYPE EXTERIOR BLACK PAINT OR BY VACUUM PROCESS USING CUTOUTS FROM AN APPROVED TYPE BLACK FILM SERIES "D" LETTERS OF STANDARD ALPHABET FOR HIGHWAY SIGNS TO BE USED
3. PROJECT NAME AND FEDERAL ROUTE NUMBER WILL BE FURNISHED THE CONTRACTOR FOLLOWING AWARD OF CONTRACT
4. SHIELD DIMENSIONS AND INTERSTATE STANDARD RED AND BLUE COLORS SHALL CONFORM WITH INTERSTATE MANUAL ON SIGNING AND PAVEMENT MARKING - (REVISED 1963)

1/4" x 2" CARRIAGE BOLTS, WASHERS AND SQUARE NUTS, GALV
3/4" PLYWOOD BATTEN
1/2" x 2" SQUARE HEADED LAB SCREWS, GALV

TYPICAL BUT joints NOT TO EXCEED 2 PER SIGN

SIGN PANEL 3/4" MEDIUM DENSITY PLYWOOD STOCK

POST 6" x 6" NO 1 DOUGLAS FIR STOCK

GROUND LINE
IDENTIFICATION SIGNS FOR PRIMARY, SECONDARY AND URBAN PROJECTS

YOUR HIGHWAY TAXES AT WORK

FEDERAL HIGHWAY
TRUST FUNDS
$000,000

U.S. DEPARTMENT OF COMMERCE
Bureau of Public Roads

STATE HIGHWAY
FUNDS
$000,000

MASSACHUSETTS DEPT. OF
PUBLIC WORKS

NOTES:
1. POSTS AND PANEL TO BE PAINTED WITH ONE COAT OF WHITE PRIMER CONFORMING TO DEPARTMENT SPECIFICATION P-410-68 AND TWO COATS OF WHITE ENAMEL CONFORMING TO DEPARTMENT SPECIFICATION P-450-64.

2. LETTERING TO BE APPLIED BY SILK SCREEN PROCESS USING AN APPROVED HIGH TYPE EXTERIOR BLACK PAINT OR BY VACUUM PROCESS USING CUTOUTS FROM AN APPROVED TYPE BLACK FILM, SERIES "D" LETTERS OF STANDARD ALPHABET FOR HIGHWAY SIGNS TO BE USED.

3. PROJECT VALUE AND U.S. ROUTE NUMBER WILL BE FURNISHED THE CONTRACTOR FOLLOWING AWARD OF CONTRACT (EMBLEM TO BE DELETED IF THERE IS NO U.S. ROUTE NUMBER).
TABLE SHOWING CUBIC YARDS OF DRY STONE MASONRY

<table>
<thead>
<tr>
<th>DIAM. OF TREE IN INCHES</th>
<th>DEPTH OF WELL IN FEET</th>
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<tbody>
<tr>
<td>1</td>
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<td>1.05</td>
</tr>
</tbody>
</table>

Based on walls 12" thick, inside diam. 36" greater than diam. of tree.
METAL BIN-TYPE RETAINING WALL

PLAN

COLUMN

SPLIT COLUMN

STRINGERS

THICKNESS OF WALL MAY VARY

BASE PLATE

STRINGERS

10' PANEL SECTION

10' PANEL SECTION

10' PANEL SECTION

ELEVATION

HEIGHT OF WALL MAY VARY

TRANVERSE SECTIONS

BIN ASSEMBLY

AT FRONT COLUMN

SIMILAR AT REAR COLUMN

BOLT

SPRING NUT
METAL BIN-TYPE RETAINING WALL

NOTE: THESE DEPTHS MAY VARY TO SUIT CONDITIONS
SETTING RURAL MAIL BOXES

NOTES.

ALL RURAL MAIL BOXES TO BE GALV METAL (APPROVED TYPES).
LUMBER TO BE PLANED ALL FOUR SIDES TO FULL 2"X6" SIZE TO FIT BOTTOM OF MAIL BOXES.
TO SET 1-1/2" GALV PIPE POST, USE DRIVING POINT OF SAME SIZE, THEN TAMP POST INTO PLACE
SO AS TO BE PLUMB BOTH WAYS.
STATION, CULVERT, AND PROJECT MARKERS

SECTION

ALTERNATE SECTION

EXAMPLE: AT STATIONS 0, 10, 20, ETC ON ONE SIDE AND AT STATIONS 5, 15, 25, ETC ON THE OPPOSITE SIDE.

EXAMPLE: AT STATIONS 0, 5, 10, 15, ETC ON BOTH SIDES OF HIGHWAY.

SPACING OF STATION MARKERS

SINGLE ROADWAY *

\[ s_1 = 1000', \text{ BOTH SIDES, STAGGER} \]

\[ s_2 = 500', \text{ BOTH SIDES} \]

DIVIDED ROADWAY **

OMIT MARKERS FROM INTERCHANGE AREAS

STATION MARKERS AT FILLS

HIGHWAY GUARD MARKER

EDGE OF SHOULDER

30' MIN. SHORTEN AS NECESSARY TO KEEP MARKER WITHIN LAYOUT

MARKER

2:1 SLOPE

4:1 SLOPE

GROUNALINE

NOTES

1. LOCATION OF PROJECT MARKERS TO BE AS DIRECTED BY ENGINEER.

2. PAINTING: EXPOSED PORTION OF STATION MARKERS TO BE PAINTED WHITE; EXPOSED PORTION OF PROJECT MARKERS TO BE PAINTED WITH 2 COATS OF ORANGE PROJECT NUMBERS AND STATIONS TO BE STENCILLED IN BLACK.

3. FOR DESCRIPTIONS, MATERIALS, AND CONSTRUCTION METHODS, SEE SPECIFICATIONS.

4. STATION AND PROJECT MARKERS SET WITH FACES AT 45° WITH ROADSIDE.

5. ONE MARKER WILL BE PROVIDED AT CULVERT ENDS WHERE NO GUARD RAIL IS INSTALLED. IT WILL BE LOCATED AT THE NEAR BACK CORNER OF THE END IN THE DIRECTION OF TRAFFIC.
CONCRETE BOUNDS

CLASS "D" CEMENT CONCRETE SHALL BE USED FOR CONCRETE BOUNDS.

CIRCULAR LEAD PLUG 2" LONG CAST IN CENTER OF BOUND, 1" DIAM. AT TOP AND 5/8" DIAM. AT BOTTOM.

4 NO 4 STEEL REINF BARS

1/2" DIAM HOLE IN CENTER OF TOP, 1 1/2" DEEP; FLARED AT BOTTOM; RAMMED WITH LEAD ROPE.

GRANITE BOUNDS

TOP AND TOP 12 INCHES ON THREE SIDES TO BE POINTED. TOP 12 INCHES ON FACE TO BE HAMMER DRESSED

GROUND LINE

SECTION THRU LETTER

90°

*BOUNDS TO BE LOCATED IN LAWNS, SIDEWALKS OR DRIVES SHALL BE SET WITH TOP OF BOUND 2" BELOW GROUND LINE

NOTE

FOR DESCRIPTIONS, MATERIALS AND CONSTRUCTION METHODS, SEE SPECIFICATIONS.
STONE MONUMENTS (BOUNDS)

REPLACEMENT OF BOUND BROKEN OR LOST WILL BE INSCRIBED WITH THE YEAR BOUND POINT WAS ESTABLISHED.

BOUNDS LOCATING NEW CORNERS WILL BE INSCRIBED WITH THE YEAR NEW CORNER WAS ESTABLISHED.

ALL LETTERING TO BE
\[ \frac{1}{2} \] V SUNK LETTERS

OPPOSITE FACE HAMMERED

OPPOSITE FACE WITH "8" FOR CORNER ON MEDFORD-STONEHAM LINE.

STATE LINE

CITY OR TOWN CORNER

TOP AND 4 SIDES FOR A DISTANCE OF 12" TO BE HAMMERED SMOOTH. MONUMENTS MAY BE HAMMERED SMOOTH ON TOP AND 4 SIDES ABOVE GROUND LINE.

GRANITE

8'-6" 1/2'

4'-6" 4'-0"

8'-6" 1/2'

4'-6" 4'-0"

10" 10"

4'/4'/4'/4'

13'/5'

13'/5'

10" 10"

4'/4'/4'/4'

13'/5'

13'/5'

14" 14"

14" 14"

1/2"

1/2"

5'/3'

5'/3'

2'/9"

2'/9"

1890

1958

P

N.H.

MASS.

506.2.0

MASS. D.P.W.- MAY 1966
PORTABLE OFFICE BUILDING

2" X 4" TIES
2" X 4" RAFTERS 18" O.C.
1" X 6" RIDGE BOARD

2" X 4" STUDS & BLOCKING

6' - 6"

2" X 4" CORNER POSTS

2" X 4" DIAGONAL BRACE AT ALL CORNERS

SKIDS TO BE FASTENED TO SILLS WITH \frac{1}{2}" BOLTS HAVING EXPOSED NUT & WASHER ON FLOOR

LEFT ELEVATION

2" X 4" TIES
2" X 4" RAFTERS 18" O.C.
1" X 6" RIDGE BOARD

1' - 8"

4' - 6"

2" X 4" CORNER POSTS

4' - 6"

RIGHT ELEVATION

R = 6"

5072.0

MASS. D.P.W. - MAY 1966
PORTABLE OFFICE BUILDING

NOTE: ALL CONNECTIONS TO BE FASTENED WITH WOOD SCREWS

PLAN RACK
PORTABLE SANITARY BUILDING

FLOOR PLAN

FLOOR FRAMING PLAN

NOTES
1. FOR DESCRIPTIONS, MATERIALS, AND CONSTRUCTION METHODS SEE SPECIFICATIONS.
2. FLOOR TO BE 1/8" INLAID LINOLEUM OVER 3/4" PLYWOOD.
3. EXTERIOR WALLS AND ROOF TO BE 5/8" PLYWOOD (EXTERIOR - GOOD ONE SIDE)
PORTABLE SANITARY BUILDING

2"x4" TIES  2"x4" RAFTERS 18" O.C.  1"x6" RIDGE BOARD

2"x4" STUDS & BLOCKING

2"x4" DIAGONAL BRACE AT ALL CORNERS

4"x6" CORNER POSTS

SKIDS TO BE FASTENED TO SILLS WITH $\frac{1}{2}$" BOLTS HAVING EXPOSED NUT & WASHER ON FLOOR

LEFT ELEVATION

2"x4" TIES  2"x4" RAFTERS 18" O.C.  1"x6" RIDGE BOARD

5'6"  1'-8"

2"x4" DIAGONAL BRACE AT ALL CORNERS

4"x6" CORNER POSTS

RIGHT ELEVATION

R=6"