

**CONCRETE BARRIER,  
ATTENUATORS,  
CURBS, AND  
ISLANDS**




## INTEROFFICE MEMO

TECHNICAL SERVICES

Roadway Engineering  
Office Phone: (503) 986-3714  
Fax Number: (503) 986-3749

DATE: November 28, 2000

TO: Designers, Roadway Design Supervisors &  
Specifications

FROM:   
Daniel MacDonald  
Standards Engineer

SUBJECT: **Tall F- Shape Precast Concrete Barrier**

Attached is the plan of the newly developed Tall F- Shape precast concrete barrier. This barrier will replace the Single Slope barrier that has been used since 1993. The height of the new barrier is the same as the Single Slope, with a wider base. It is only offered as pre-cast. The same connecting system that was employed with the Single Slope barrier is used on the new barrier. Note that there is no keying or other anchoring method provided for. In order for this barrier to attain an effective service life it should be disassembled and moved aside in advance of an overlay, then moved back into place onto the new pavement. In this way the system will always have the full effective height throughout its life.

The use of the Tall F- Shape barrier is intended primarily to prevent trucks from breaking through the median and causing head-on collisions. It is estimated that existing median barrier systems will require replacement at the rate of approximately 10 miles per year. Use the new Tall F- Shape barrier as follows, effective with Construction 2001 projects that have not been started:

For permanent and temporary use:

- Install Tall F- Shape barrier in the medians of Interstates and the State Highway Freight System (see attached) where median barrier is justified or where existing barrier is to be replaced.
- Install Tall F- Shape barrier on the shoulders of Interstates and the State Highway Freight System where adverse geometrics such as curvature with

radii smaller than specified on Table 4-5 of the Highway Design Manual, or where severe consequences at specific locations might occur with penetration of a barrier by a heavy vehicle.

- Install on other facilities with:
  - High truck usage (DHV > 250) in the traffic stream, or
  - Adverse geometrics such as curvature with radii smaller than specified on Table 4-5 of the Highway Design Manual, or
  - Severe consequences at specific locations might occur with penetration of a barrier by a heavy vehicle.

Use Standard F- Shape barrier where the above doesn't apply.

Use Single Slope barrier where needed in minor saw-tooth situations.

Feel free to contact me at (503) 986-3779 if you have questions regarding the use of concrete barrier.

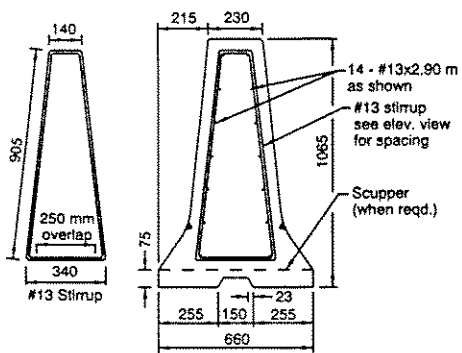
**FILE UNDER: Letters to Designers, Part 5, Concrete Barrier**

#### Attachments

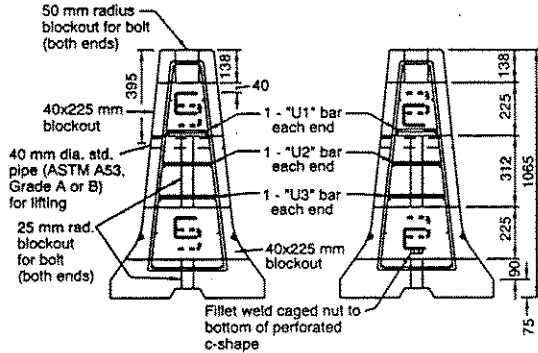
cc: Ken Stoneman, w/attach.  
Cathy Nelson, w/attach.  
Mark Hirota, w/attach.  
Dale Deatherage, w/attach.  
Region Construction Engineers, w/attach.  
District Maintenance Supervisors, w/attach.  
Project Managers, w/attach.  
Tori Kinne, FHWA, w/attach.

DM:skk

ne7360a/us/apw/rd500a.mel 7-28-00

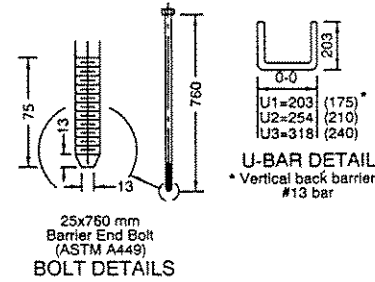


TYPICAL SECTION



END VIEW A-A

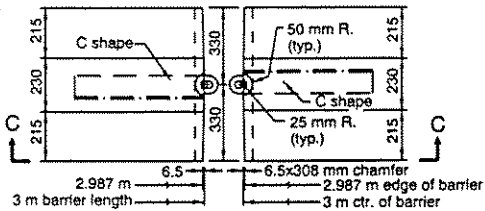
END VIEW B-B



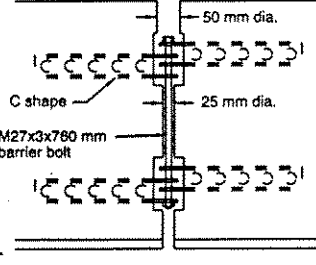
BOLT DETAILS

GENERAL NOTES

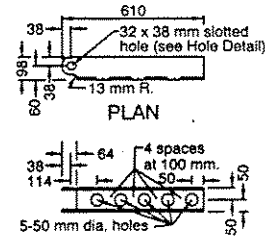
- All reinforcing steel shall conform to ASTM A706M or AASHTO M31M (ASTM A615M) Grade 420. All bars shall be full length as shown and shall be placed 50 mm clear of the nearest face of concrete unless shown otherwise.
- All structural steel including fasteners shall be hot-dip galvanized after fabrication.
- Normal use of precast single slope median barrier is restricted to curves with radii greater than 250 m.
- Chamfer all edges 20 mm (typical).
- Perforated C-shape shall be placed in location shown to a tolerance of 2 mm.
- Estimated barrier weight is 2880 kg per 3 m unit length, estimated vertical backed barrier weight is 2340 kg.



PLAN

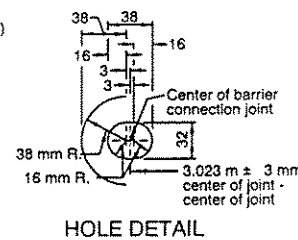


SECTION C-C

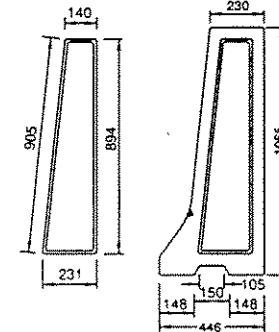


ELEVATION PERFORATED C-SHAPE

Cut from 7.9 mm thick steel plate or bar (AASHTO M183M, ASTM A36M). Hot dip galvanized after fabrication. (See note 5 for casting instructions).

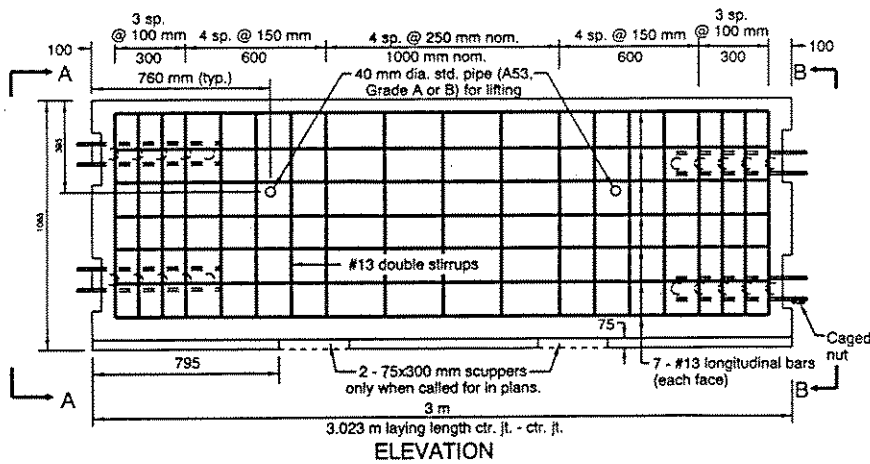


HOLE DETAIL



NARROW BASE BARRIER

Only use against retaining walls or as directed. (For details not shown see other barrier details on this sheet.)



ELEVATION

• All dimensions are in mm unless otherwise noted.

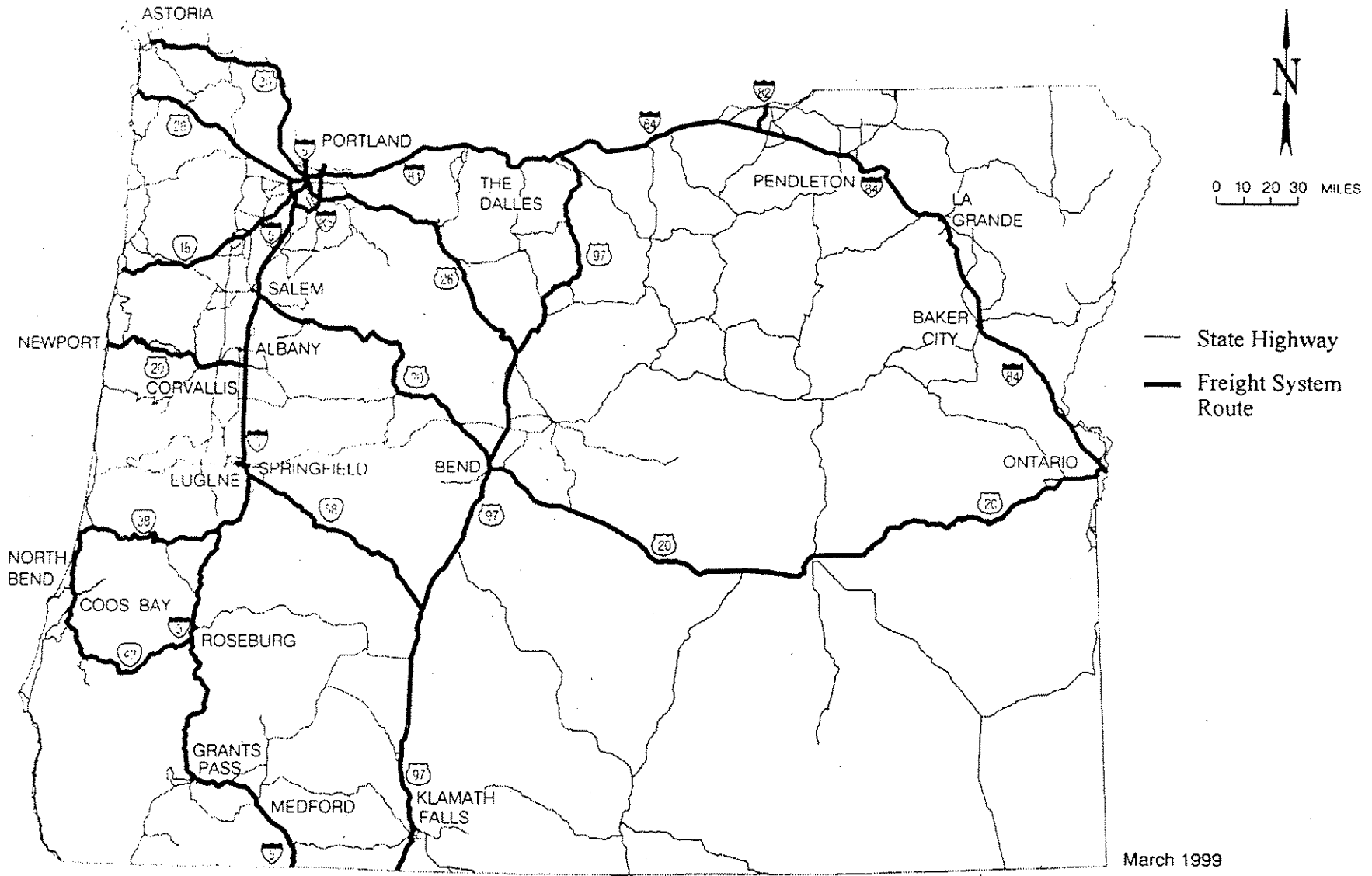
REGISTERED PROFESSIONAL ENGINEER 14,037  
 JULY 26, 1988  
 DANIEL J. MACDONALD  
 EXPIRES 12-31-2002

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS

DATE	REVISIONS DESCRIPTION

# State Highway Freight System



March 1999

Figure 10: Designated freight routes

ROADWAY ENGINEERING SECTION  
200 Transportation Bldg., Salem, OR 97310  
(503) 986-3714 FAX No. (503) 986-3749

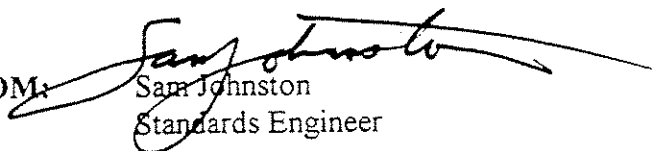
Oregon

INTEROFFICE

MEMO

DATE: July 6, 1995

TO: Roadway Designers  
Roadway Design Supervisors  
Specifications

FROM:   
Sam Johnston  
Standards Engineer

SUBJECT: Concrete Barrier Used As Retaining Wall

Unanchored standard concrete barrier or single slope concrete barrier, keyed into the roadway as per the standard details, may be used to retain fills with slopes that are 2:1 or flatter, regardless of slope height. In order to eliminate hydrostatic pressure in this situation, drain pipe, including drainage geotextile and granular drain backfill material, should be installed in the fill at the base of the concrete barrier.

If the slopes you're working with are steeper than 2:1, if you are in an area with clay soil, or if the barrier is set on soil, confer with Bridge Section for alternate details.

SJ:jar

cc: Terry Shike, Bridge Section  
Ken Stoneman, Operations Support

FILE UNDER: Letters to Designers, Part 5, Concrete Barrier, Attenuator, Curbs and Islands

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