



Montana Department of Transportation
PO Box 201001
Helena, MT 59620-1001

Memorandum

To: Distribution

From: Matthew R. Strizich, PE, Materials Engineer

Date: May 24, 2012

Subject: 30-year Pavement Design at Bridge Ends

Effective immediately, utilize pavement designs with 30-year design lives at bridge ends (30-year bridge ends) as discussed in the following memo.

Bridge end distress has been observed and repaired on a number of bridge ends throughout Montana, and is an ongoing maintenance issue. Although there are many causes of bridge end distress, providing 30-year bridge ends will help alleviate two of the primary causes. First, it will provide additional pavement structure where there is severe dynamic pavement loading caused by trucks approaching and departing bridge decks. Secondly, it will provide additional pavement thickness in an area where pavement thickness cannot be added with future asphalt overlays due the bridge deck grade restraint.

Road Reconstruction and Major Rehabilitation:

Construct 30-year bridge ends on all road reconstruction and major rehabilitation projects. Refer to the attached drawings for design details.

Bridge Replacement:

Construct 30-year bridge ends on all bridge replacement projects. In these situations, refer to the attached drawings as a starting point for bridge end section design. The Surfacing Design Unit and Geotechnical Section will provide project-specific pavement and bridge end backfill design thicknesses and details.

Bridge End Pavement Rehabilitation:

Consider constructing 30-year bridge ends on resurfacing, bridge rehabilitation and minor road rehabilitation projects where bridge end distress is observed. In these situations, refer to the attached details as a starting point for bridge end section design. The Surfacing Design Unit and Geotechnical Section will provide project-specific pavement and bridge end backfill design thicknesses and details.

Existing bridge approach slabs should be removed before constructing bridge end pavement.

Implementation:

30-year bridge end pavements should be considered for projects within design process that are not beyond the scope of work approval activity (Act. 222 (Road Design), Act. 576 (Bridge), Act. 266 (Consultant Design)).

The attached detail drawing's Microstation files are located within the PCCOMMON share drive at <O:\ENG\30 YEAR BRIDGE DESIGN\30 YR BRIDGE END DESIGN DETAIL.DGN>

The detail drawings are also available in PDF format at <O:\ENG\30 YEAR BRIDGE DESIGN\30 YR BRIDGE END DESIGN LESS THAN 500 ESAL.PDF> and <O:\ENG\30 YEAR BRIDGE DESIGN\30 YR BRIDGE END DESIGN OVER 500 ESAL.PDF>

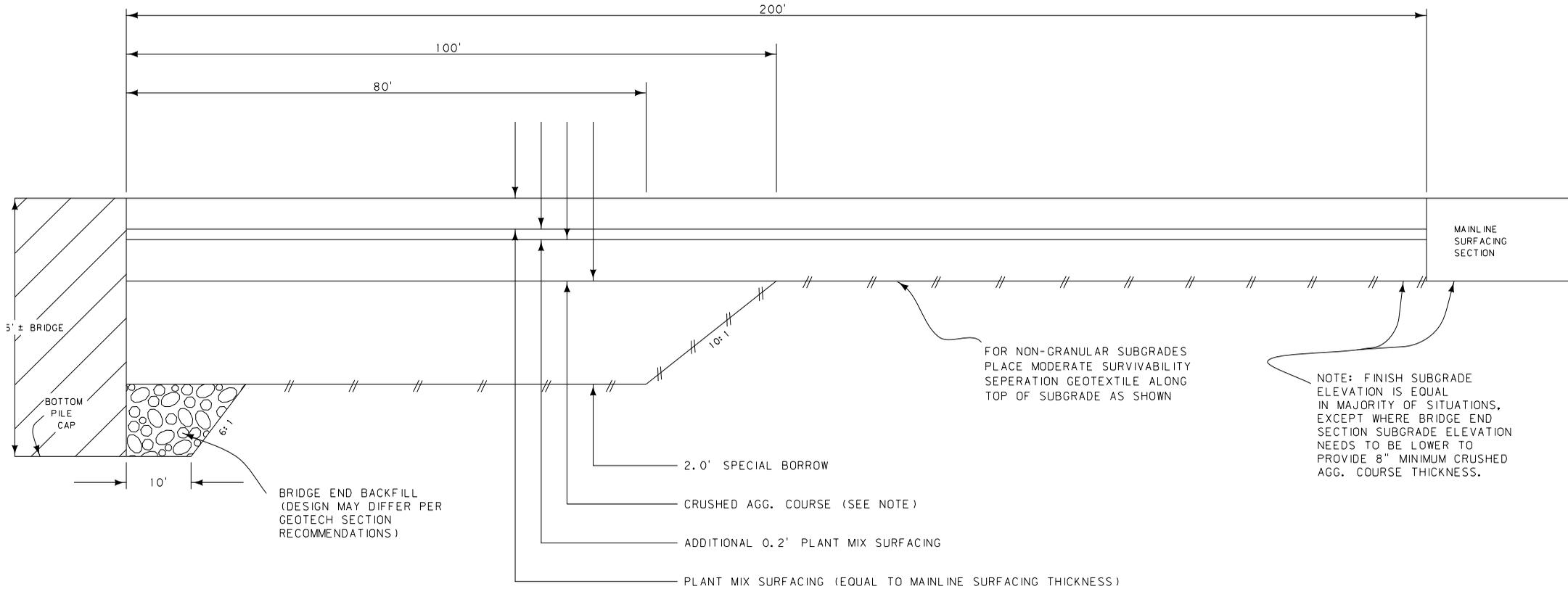
Please contact the surfacing design unit if you have questions or need assistance on this matter.

copies: Dwane Kailey, PE – Chief Operations Officer
Kevin Christensen, PE – Construction Engineer
Jim Walther, PE – Preconstruction Engineer
Paul Ferry, PE – Highways Engineer
Tim Conway, PE – Consultant Design Engineer
Dan Hill, PE - Pavement Analysis Engineer
District Administrators
District Engineering Services Supervisors
District Construction Engineers
Mark Zitzka – FHWA
Surfacing design unit

Attachments: 30-year Bridge End Pavement Details

DETAIL

INTERSTATE/HIGH TRAFFIC 30-YEAR BRIDGE END DESIGN FOR ROAD RECONSTRUCTION PROJECTS* (ROADWAYS WITH ≥ 500 DAILY ESALS)
NO SCALE

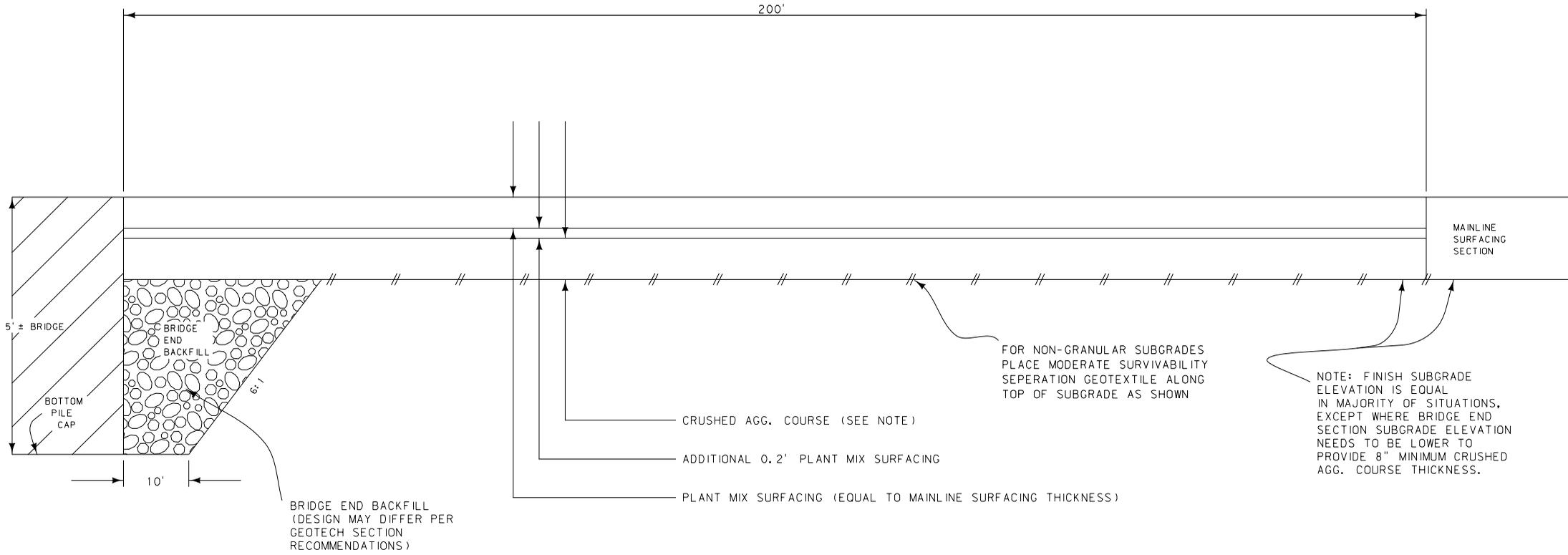


* THIS DETAIL IS FOR ROAD RECONSTRUCTION PROJECTS. FOR OTHER PROJECT TYPES, ALL DIMENSIONS ARE THE SAME EXCEPT FOR PMS AND CAC THICKNESSES. CONTACT MDT SURFACING DESIGN UNIT AND PMS AND CAC THICKNESSES WILL BE PROVIDED.

Attachments: 30-year Bridge End Pavement Details

DETAIL

LOW/MODERATE TRAFFIC 30-YEAR BRIDGE END DESIGN FOR ROAD RECONSTRUCTION PROJECTS* (ROADWAYS WITH <500 DAILY ESALS)
NO SCALE



NOTE: CONSIDER USING SPECIAL BORROW EXTENDING 80' FROM BRIDGE WHEN SUBGRADE IS A-4/A-6/A-7 OR ON LOCATIONS WHERE BRIDGE END DISTRESS HAS OCCURED PREVIOUSLY.

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