

Republic of the Philippines DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS OFFICE OF THE SECRETARY

Manila



0 3 JUL 2024



SUBJECT: Provisions for Safety Edge Transition on Existing Asphalt Overlaid Road Projects

For further reference and guidance in the implementation of Safety Edge on existing asphalt overlaid roads, the following typical design drawings and guidelines are hereby provided:

- 1. Safety Edge Drop-offs on Gravel Shoulders
- 2. Safety Edge Drop-offs on Paved Shoulders
- 3. Safety Edge Drop-offs on Curb and Gutter
- 4. Safety Edge Drop-offs on Intersection, Driveway, and Narrow Side Slope

The asphalt safety edge transition should be incorporated into all existing asphalt overlaid roads except on the following conditions where smooth transition from the edge of the asphalt concrete overlay to the existing shoulder cannot be provided/attained:

- Where asphalt concrete overlay is less than 50mm thick;
- Where the distance from the edge of the paved shoulder to the hinge point is less than 0.3 meters, and;
- Due to the proximity of road side facilities (i.e., guardrails, barriers, and walls) to the edge of the existing asphalt concrete overlay.

These provisions aim to enhance roadway safety and mitigate the risk of road crashes resulting from inappropriate pavement edge drop-offs. Compliance to these guidelines is mandatory for all existing asphalt overlaid roads under the jurisdiction of DPWH.

For strict compliance.

MANUEL M. BONOAN Secretary

5.1.3 EGT/BSR/DLB/MGM/AGC

Department of Public Works and Highways Office of the Secretary WIN4R01653

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Annex "A" Annex "B" Annex "C" Annex "D"

# ANNEX "A"



# **GENERAL NOTES**

- 1. ALL WORK ITEMS AFFECTED BY THE IMPLEMENTATION OF THE SAFETY EDGE DROP-OFF MUST BE ADJUSTED AS NECESSARY AND IN COMPLIANCE WITH THE DPWH STANDARD SPECIFICATIONS FOR HIGHWAYS, BRIDGES, AND AIRPORTS, 2013, OR THE LATEST APPLICABLE ISSUANCES.
- 2. SAFETY EDGE TREATMENT SHOULD BE DESIGNED TO CREATE A 30-DEGREE ANGLED SHAPE RELATIVE TO THE EDGE OF THE PAVEMENT, EXTENDING UP TO THE UNPAVED SHOULDER.
- 3. THE MATERIALS SHOULD PROVIDE DURABILITY AND STABILITY TO WITHSTAND TRAFFIC LOADS AND ENVIRONMENTAL CONDITIONS. IF THE GRAVEL SHOULDER IS FOUND TO BE ERODIBLE, THE PROJECT ENGINEER SHOULD TAKE CORRECTIVE MEASURES SUCH AS COMPACTING THE GRAVEL OR REPLACING IT WITH SUITABLE MATERIALS.
- 4. USE APPROPRIATE EQUIPMENT FOR SHAPING AND COMPACTING THE SAFETY EDGE. THE CONTRACTOR MAY USE A SHOE/WEDGE MAKER OR ANY SIMILAR EQUIPMENT THAT PRODUCES THE SAME COMPACTION RESULTS. SHORT SECTIONS OF HANDWORK WILL BE ALLOWED WHEN NECESSARY FOR TRANSITIONS/TURNOUTS.
- 5. THE DESIGNER SHALL VERIFY THE SUITABILITY OF SAFETY EDGE TREATMENT AT INTERSECTIONS, TRANSITION ZONES, TURNOUTS, DRIVEWAYS/RAMPS, PEDESTRIAN CROSSINGS, AND AREAS WITH MULTIPLE OVERLAYS, AMONG OTHER CRITICAL AREAS. THE DESIGN APPROACH FOR THE ABOVE SCENARIOS SHOULD BE ADJUSTED BY THE DESIGNER ON A CASE-BY-CASE BASIS.
- 6. TO CONSTRUCT A SAFETY EDGE ALONG EXISTING OVERLAY WITH AN INAPPROPRIATE DEGREE DROP-OFF EDGE, THE FOLLOWING STEPS SHOULD BE FOLLOWED:
- CONDUCT A DETAILED ASSESSMENT OF THE EXISTING ASPHALT OVERLAY TO IDENTIFY SURFACE IRREGULARITIES, DAMAGE LAYERS, AND ANY AREAS REQUIRING MILLING.
- MILL THE EXISTING OVERLAY ALONG THE EDGE TO CREATE A 30-DEGREE TAPERED SLOPE. THIS ANGLE MAY BE ADJUSTED BASED ON PAVEMENT CONDITIONS, SUCH AS SURFACE IRREGULARITIES AND DAMAGE LAYERS.
- SELECT MILLING EQUIPMENT AND TECHNIQUES CAPABLE OF ACHIEVING THE DESIRED SLOPE ANGLE AND TRANSITION LENGTH.
- AFTER MILLING, PREPARE THE MILLED SURFACE BY ADDRESSING ANY SURFACE IRREGULARITIES OR DEBRIS. ENSURE THAT THE MILLED EDGE IS SMOOTH AND FREE FROM DEFECTS THAT COULD AFFECT THE CONSTRUCTION OF THE SAFETY EDGE TREATMENT.
- CONSTRUCT THE SAFETY EDGE TREATMENT AFTER MILLING ACCORDING TO GUIDELINES TO ACHIEVE THE DESIRED SLOPE, PROVIDING A GRADUAL TRANSITION FROM THE ROADWAY SURFACE. ENSURE THAT THE SAFETY EDGE THICKNESS AND PROFILE MEET DESIGN STANDARDS AND FACILITATE A SMOOTH TRANSITION FOR VEHICLES.

### ANNEX "B"



#### SAFETY EDGE DROP-OFF ON EXISTING AC OVERLAY WITH PAVED SHOULDERS

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SCALE



# **GENERAL NOTES**

- 1. ALL WORK ITEMS AFFECTED BY THE IMPLEMENTATION OF THE SAFETY EDGE DROP-OFF MUST BE ADJUSTED AS NECESSARY AND IN COMPLIANCE WITH THE DPWH STANDARD SPECIFICATIONS FOR HIGHWAYS, BRIDGES, AND AIRPORTS, 2013, OR THE LATEST APPLICABLE ISSUANCES.
- 2. SAFETY EDGE TREATMENT SHOULD BE DESIGNED TO CREATE A 15-DEGREE ANGLED SHAPE RELATIVE TO THE EDGE OF THE PAVEMENT, EXTENDING UP TO THE PAVED SHOULDER.
- 3. THE MATERIALS SHOULD PROVIDE DURABILITY AND STABILITY TO WITHSTAND TRAFFIC LOADS AND ENVIRONMENTAL CONDITIONS.
- 4. USE APPROPRIATE EQUIPMENT FOR SHAPING AND COMPACTING THE SAFETY EDGE. THE CONTRACTOR MAY USE A SHOE/WEDGE MAKER OR ANY SIMILAR EQUIPMENT THAT PRODUCES THE SAME COMPACTION RESULTS. SHORT SECTIONS OF HANDWORK WILL BE ALLOWED WHEN NECESSARY FOR TRANSITIONS/TURNOUTS.
- 5. THE DESIGNER SHALL VERIFY THE SUITABILITY OF SAFETY EDGE TREATMENT AT INTERSECTIONS, TRANSITION ZONES, TURNOUTS, DRIVEWAYS/RAMPS, PEDESTRIAN CROSSINGS, AND AREAS WITH MULTIPLE OVERLAYS, AMONG OTHER CRITICAL AREAS. THE DESIGN APPROACH FOR THE ABOVE SCENARIOS SHOULD BE ADJUSTED BY THE DESIGNER ON A CASE-BY-CASE BASIS.
- 6. TO CONSTRUCT A SAFETY EDGE ALONG EXISTING OVERLAY WITH AN INAPPROPRIATE DEGREE DROP-OFF EDGE, THE FOLLOWING STEPS SHOULD BE FOLLOWED:
- CONDUCT A DETAILED ASSESSMENT OF THE EXISTING ASPHALT OVERLAY TO IDENTIFY SURFACE IRREGULARITIES, DAMAGE LAYERS, AND ANY AREAS REQUIRING MILLING.
- MILL THE EXISTING OVERLAY ALONG THE EDGE TO CREATE A 30-DEGREE TAPERED SLOPE. THIS ANGLE MAY BE ADJUSTED BASED ON PAVEMENT CONDITIONS, SUCH AS SURFACE IRREGULARITIES AND DAMAGE LAYERS.
- SELECT MILLING EQUIPMENT AND TECHNIQUES CAPABLE OF ACHIEVING THE DESIRED SLOPE ANGLE AND TRANSITION LENGTH.
- AFTER MILLING, PREPARE THE MILLED SURFACE BY ADDRESSING ANY SURFACE IRREGULARITIES OR DEBRIS. ENSURE THAT THE MILLED EDGE IS SMOOTH AND FREE FROM DEFECTS THAT COULD AFFECT THE CONSTRUCTION OF THE SAFETY EDGE TREATMENT.
- CONSTRUCT THE SAFETY EDGE TREATMENT AFTER MILLING ACCORDING TO GUIDELINES TO ACHIEVE THE DESIRED SLOPE, PROVIDING A GRADUAL TRANSITION FROM THE ROADWAY SURFACE. ENSURE THAT THE SAFETY EDGE THICKNESS AND PROFILE MEET DESIGN STANDARDS AND FACILITATE A SMOOTH TRANSITION FOR VEHICLES.

ANNEX "C"

### **GENERAL NOTES**

- 1. ALL WORK ITEMS AFFECTED BY THE IMPLEMENTATION OF THE SAFETY EDGE DROP-OFF MUST BE ADJUSTED AS NECESSARY AND IN COMPLIANCE WITH THE DPWH STANDARD SPECIFICATIONS FOR HIGHWAYS, BRIDGES, AND AIRPORTS, 2013, OR THE LATEST APPLICABLE ISSUANCES.
- 2. SAFETY EDGE TREATMENT SHOULD BE DESIGNED TO CREATE A 30-DEGREE ANGLED SHAPE RELATIVE TO THE EDGE OF THE PAVEMENT, EXTENDING UP TO THE GUTTER.
- 3. THE MATERIALS SHOULD PROVIDE DURABILITY AND STABILITY TO WITHSTAND TRAFFIC LOADS AND ENVIRONMENTAL CONDITIONS.
- 4. USE APPROPRIATE EQUIPMENT FOR SHAPING AND COMPACTING THE SAFETY EDGE. THE CONTRACTOR MAY USE A SHOE/WEDGE MAKER OR ANY SIMILAR EQUIPMENT THAT PRODUCES THE SAME COMPACTION RESULTS. SHORT SECTIONS OF HANDWORK WILL BE ALLOWED WHEN NECESSARY FOR TRANSITIONS/TURNOUTS.
- 5. THE DESIGNER SHALL VERIFY THE SUITABILITY OF SAFETY EDGE TREATMENT AT INTERSECTIONS, TRANSITION ZONES, TURNOUTS, DRIVEWAYS/RAMPS, PEDESTRIAN CROSSINGS, AND AREAS WITH MULTIPLE OVERLAYS, AMONG OTHER CRITICAL AREAS. THE DESIGN APPROACH FOR THE ABOVE SCENARIOS SHOULD BE ADJUSTED BY THE DESIGNER ON A CASE-BY-CASE BASIS.
- 6. THE DESIGNER SHALL CONDUCT A THOROUGH VERIFICATION OF THE HYDROLOGIC AND HYDRAULIC ASPECTS TO DETERMINE THE NECESSITY OF RAISING THE GUTTER TO MAINTAIN ITS CAPACITY AND ASSESS THE NEED FOR ADDITIONAL DRAINAGE.
- 7. THE DESIGNER SHALL ASSESS THE FUNCTIONALITY OF THE EXISTING DRAINAGE SYSTEMS OR OTHER FACILITIES TO ENSURE IT WILL CONTINUE TO OPERATE EFFECTIVELY AFTER THE COMPLETION OF THE TRANSITION.
- 8. TO CONSTRUCT A SAFETY EDGE ALONG EXISTING OVERLAY WITH AN INAPPROPRIATE DEGREE DROP-OFF EDGE, THE FOLLOWING STEPS SHOULD BE FOLLOWED:
- CONDUCT A DETAILED ASSESSMENT OF THE EXISTING ASPHALT OVERLAY TO IDENTIFY SURFACE IRREGULARITIES, DAMAGE LAYERS, AND ANY AREAS REQUIRING MILLING.
- MILL THE EXISTING OVERLAY ALONG THE EDGE TO CREATE A 30-DEGREE TAPERED SLOPE. THIS ANGLE MAY BE ADJUSTED BASED ON PAVEMENT CONDITIONS, SUCH AS SURFACE IRREGULARITIES AND DAMAGE LAYERS.
- SELECT MILLING EQUIPMENT AND TECHNIQUES CAPABLE OF ACHIEVING THE DESIRED SLOPE ANGLE AND TRANSITION LENGTH.
- AFTER MILLING, PREPARE THE MILLED SURFACE BY ADDRESSING ANY SURFACE IRREGULARITIES OR DEBRIS. ENSURE THAT THE MILLED EDGE IS SMOOTH AND FREE FROM DEFECTS THAT COULD AFFECT THE CONSTRUCTION OF THE SAFETY EDGE TREATMENT.
- CONSTRUCT THE SAFETY EDGE TREATMENT AFTER MILLING ACCORDING TO GUIDELINES TO ACHIEVE THE DESIRED SLOPE, PROVIDING A GRADUAL TRANSITION FROM THE ROADWAY SURFACE. ENSURE THAT THE SAFETY EDGE THICKNESS AND PROFILE MEET DESIGN STANDARDS AND FACILITATE A SMOOTH TRANSITION FOR VEHICLES.







ANNEX "F"



