NOTES:

GENERAL: Single Slope Concrete Barrier, Type D, may be cast-in-place or slip-formed. See SCD RM-4.5 for other standard barrier types and any details not shown, including materials, adjoining pavement, and doweling details. Length-of-barrier steel is not required when top width of barrier is 10\(^\circ\) or greater.

CONTRACTION JOINTS: Maximum allowable spacing of unsealed joints is 20' throughout the run of the barrier. Construct joints by using metal inserts inside the forms, performed full with joint filler, a grooving tool, or by sawing. Inserts, tooled or sawed joints will have a 1\(^\circ\) minimum depth.

Construct all joints for the full height of the barrier. Saw as soon as curing will allow to prevent spalling. When used in conjunction with concrete pavement, match joints to those in the concrete pavement but not exceeding the maximum allowable spacing.

ADJOINTING PAYMENT: When the barrier is constructed in conjunction with new asphalt pavement, place it directly on the intermediate course. Construct the surface course directly against the barrier, set barrier placed on existing pavement with a continuous wedge of surface material tapering from a 1\(^\circ\) minimum thickness of the face of the barrier to zero. For unidirectional installations, construct the wedge on the traveled way side and the width may be reduced to 10\(^\circ\) minimum.

When the barrier is constructed in conjunction with new concrete pavement, place it directly on the base material. Construct the concrete slab against the barrier. Barrier may be placed on top of existing concrete pavement and doweled as shown in JOINING DETAILS (See Sheet 2). When pavement is to be constructed as one side of the barrier only, then compacted soil on the opposite side must be placed against the barrier at a minimum height of 3\(^\circ\).

SEALING JOINTS: Use a butt longitudinal joint between the barrier and any adjoining concrete pavement sealed with CMS 705.04 joint sealer.

CONSTRUCTION JOINTS: Barrier runs with shifting vertical surfaces of either required or permissible construction joints are to be doweled to each other by use of 1/4" dia. by 18" long epoxy coated deformed dowel bars as per CMS 629.20. Bars are to be placed as shown on the COMPL. BAR PLACEMENT detail on Sheet 2.

RACEWAYS: Raceways on Type D barriers are typically not embedded within the barrier, but are mounted outside of it on the back side and not exposed to traffic.

END SECTIONS: End Sections are used when barrier connects to Bridge Terminal assemblies, guardrail runs, or Impact Attenuator. See SCD RM-4.5 for Type D End Section details.

END ANCHORAGE: At other barrier ends, or at vertical construction joints, construct a reinforced End Anchorage as shown on Sheet 2.

GUARDRAIL: For Bridge Terminal Assembly, Type 1, details and connections, see SCD GR-3.1.

CONSTRUCTION JOINTS: Barrier runs with shifting vertical surfaces of either required or permissible construction joints are to be doweled to each other by use of 1/4" dia. by 18" long epoxy coated deformed dowel bars as per CMS 629.20. Bars are to be placed as shown on the COMPL. BAR PLACEMENT detail on Sheet 2.

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END ANCHORAGE: At other barrier ends, or at vertical construction joints, construct a reinforced End Anchorage as shown on Sheet 2.

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CONSTRUCTION JOINTS: Barrier runs with shifting vertical surfaces of either required or permissible construction joints are to be doweled to each other by use of 1/4" dia. by 18" long epoxy coated deformed dowel bars as per CMS 629.20. Bars are to be placed as shown on the COMPL. BAR PLACEMENT detail on Sheet 2.

RACEWAYS: Raceways on Type D barriers are typically not embedded within the barrier, but are mounted outside of it on the back side and not exposed to traffic.

END SECTIONS: End Sections are used when barrier connects to Bridge Terminal assemblies, guardrail runs, or Impact Attenuator. See SCD RM-4.5 for Type D End Section details.

END ANCHORAGE: At other barrier ends, or at vertical construction joints, construct a reinforced End Anchorage as shown on Sheet 2.

GUARDRAIL: For Bridge Terminal Assembly, Type 1, details and connections, see SCD GR-3.1.
**SINGLE SLOPE BARRIER, TYPE D**

**STANDARD ROADWAY CONSTRUCTION DRAWING**

**SCD NUMBER**

**RM-4.5**

**ENGINEERING**

**STDS**

**REVISION DATE**

**TRANSPORTATION ADMINISTRATOR**

**STATE OF OHIO DEPARTMENT OF**

**7-21-2017**

**David L. Hostein**

**D. Fisher**

**4"**

**7"**

**6" (Typ.)**

**6" (Typ.)**

**8"**

**6"**

**45"**

**24"**

**Six Y401 Spaced at 24"**

**Spaced**

**Six Y401**

**Concrete Pavement**

**Base**

**Expansion Joint**

**Barrier End or Expansion Joint**

**End Anchorage Reinforced Type D**

**PCJ**

**Long, Each Side**

**Two #5, 14'-8" Horizontal Rebars.**

**Steel Bars 12" long #8 Epoxy Coated Deformed**

**SECTION ELEVATION**

**PIER VERTICAL WALL**

**PIER**

**INCORPORATED INSTALLATIONS**

For barrier installations that cannot be constructed at the normal guardrail offset the incorporated installations shown on Sheet 2 may be installed at vertical walls, piers or other similar obstructions.

For barrier-incorporated installations that contractor may use the optional treatment, forming the back face of the Single Slope Barrier, Type D, to the location shown between piers only, with any additional cost being included in the cost of Item 622.

**END ANCHORAGE**

See Notes on Sheet 1.

**REINFORCED END ANCHORAGES**

are required at the ends of concrete barrier runs at interruptions to barrier caused by expansion joints. When barrier does not abut another barrier run, construct the last 15' using the END ANCHORAGE detail as shown above.

At expansion joints, construct on End Anchorage on both sides of joint, with a maximum gap of 2" for the open joint. The maximum expansion joint spacing shall be 800'. This anchorage is not needed at construction joints, so it is not required. See CONSTRUCTION JOINT Note.

**BENDING DIAGRAM**

**Y401 #4**

**DOWEL BAR PLACEMENT**

**INCORPORATED INSTALLATIONS**

See CONSTRUCTION JOINT Note for Doweling Requirements.