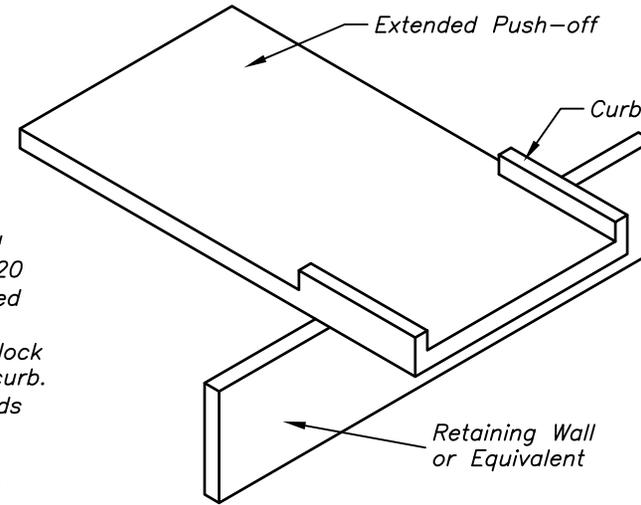
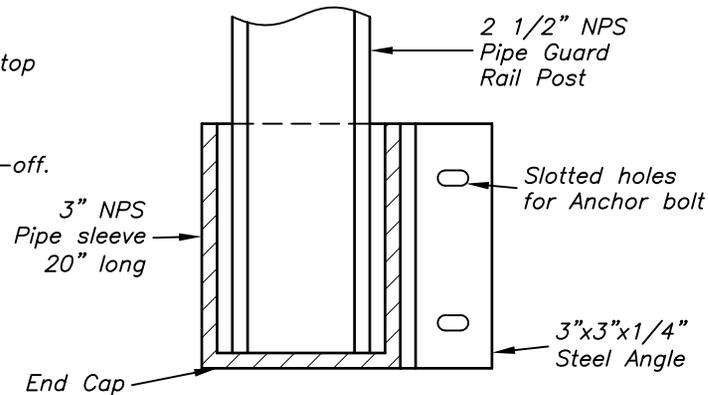


NOTES:

1. For details of steel layout, see Plan View, Profile and Steel Table.
2. For details of drain pipe and drainfill, see Standard Drawing 29-L-618c.
3. Steel shall have 2" of concrete cover from formed surfaces.
4. For details of retaining wall, see Standard Drawing 29-L-623.
5. Guard rail posts, braces and rails shall be 2 1/2 inches (nominal pipe size) standard weight galvanized steel pipe conforming to ASTM A53 or equivalent. Caps shall be fastened on all exposed open pipes.
6. Pipe sleeve shall be 3 inch (NPS) standard weight galvanized steel pipe conforming to ASTM A53 or equivalent. Sleeves to have end caps welded on at bottom of sleeve. Sleeve shall be 20 inches long and welded to 20 inch long piece of 3"x3"x1/4" steel angle. The steel angle shall be bolted to side of curbs with 2-5/8" anchor bolts embedded a minimum of 5 inches into concrete. Bolts shall protrude sufficiently to attach nut and lock washer. Angles to be placed on side of pipe sleeve away from end of curb.
7. Guard rail shall be securely welded together with minimum 1/4" fillet welds all around pipe. Pipe joints shall be cut in a manner to obtain a reasonable good fit as needed to obtain a proper weld.
8. All bare steel and damaged galvanized coating on the guard rail shall be wire brushed and given two heavy coats of a zinc-oxide paint prior to installation.
9. The two cross rails shall be bolted to end support post with minimum 7/16 inch diameter bolt with nut and lock washer. Rail spacing will be as shown.
10. Rigid material shall be installed as needed to prevent bond of ramp to top of retaining wall. Width shall be as needed to maintain bottom side of ramp relatively smooth for a minimum distance of 6 inches outside of retaining wall.
11. A minimum 6 inches of compacted gravel shall be placed beneath push-off. Separate concrete from gravel by sheet of plastic or geotextile.
12. For further details see Missouri Construction Specification 313-A, Waste Storage Structure.
13. Dowel to be 30 inches long and embedded 15 inches in each direction. One side to be covered with snug fitting plastic pipe, rubber hose or equivalent as needed to prevent bond with concrete.



ISOMETRIC VIEW



PIPE SLEEVE DETAIL

GUARD RAIL MATERIALS

ITEM	SIZE	LENGTH	NUMBER	TOTAL LENGTH
Support Post	2 1/2" NPS	5'-5"	4	22'-0"
Side Rails	2 1/2" NPS	3'-6"	4	14'-0"
Side Diagonal Brace	2 1/2" NPS	4'-0"	2	8'-0"
End Rails	2 1/2" NPS	9'-6"	2	19'-0"
Cap	2 1/2" NPS	---	8	---
Anchor Bolts, Nuts, Flat & Lock Washers	5/8" ø	As Needed	8	---
Bolts, Nuts & Lock Washers	7/16" ø	7"	4	---
1/4"x3"x3" angle	---	1'-8"	4	6'-0"
Pipe Sleeve	3" NPS	1'-8"	4	6'-0"

Materials to be cut as needed.

DRAFT

NOT FOR
CONSTRUCTION

Date _____

Designed _____

Drawn _____

Checked _____

Approved _____

**EXTENDED CONCRETE
PUSH-OFF RAMP**



File Name _____

Drawing Name
29-L-639A

Sheet _____ of _____