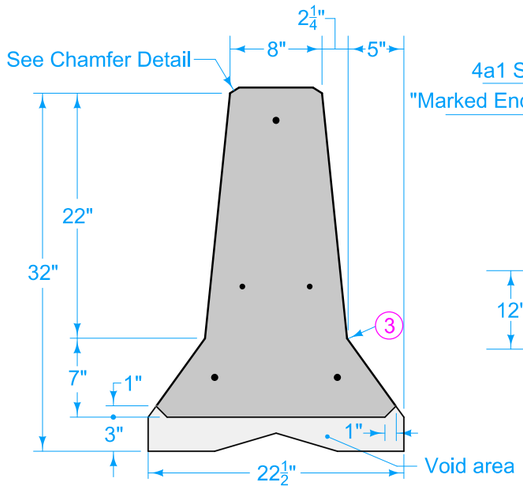
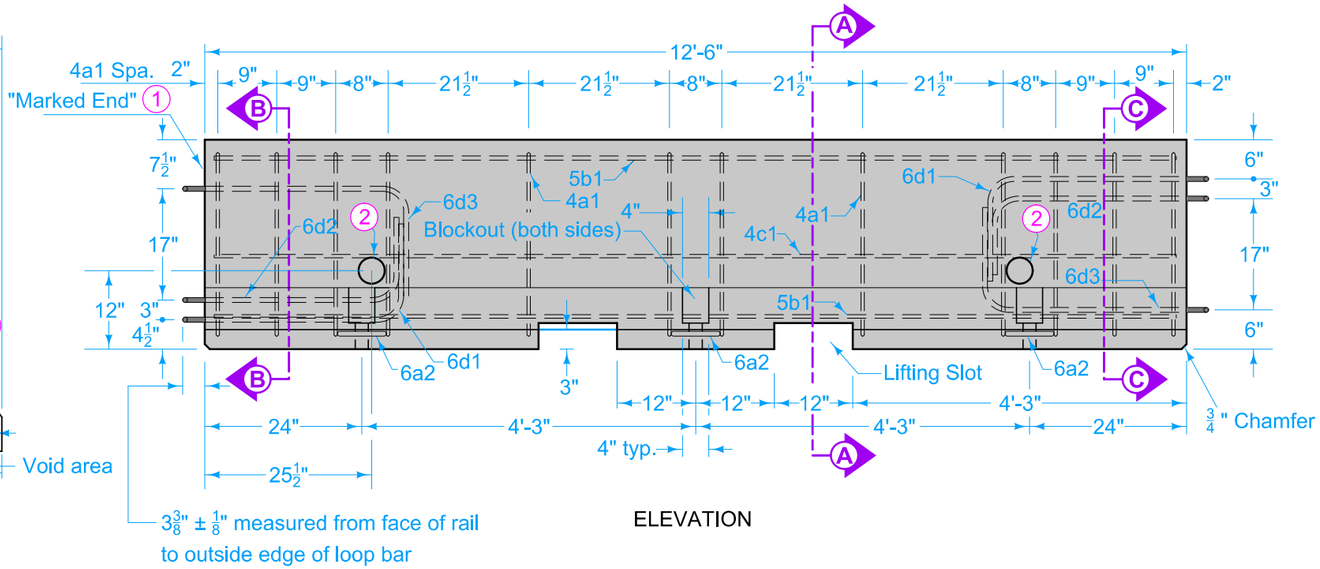
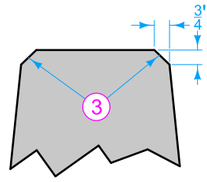
DESIGNER INFORMATION



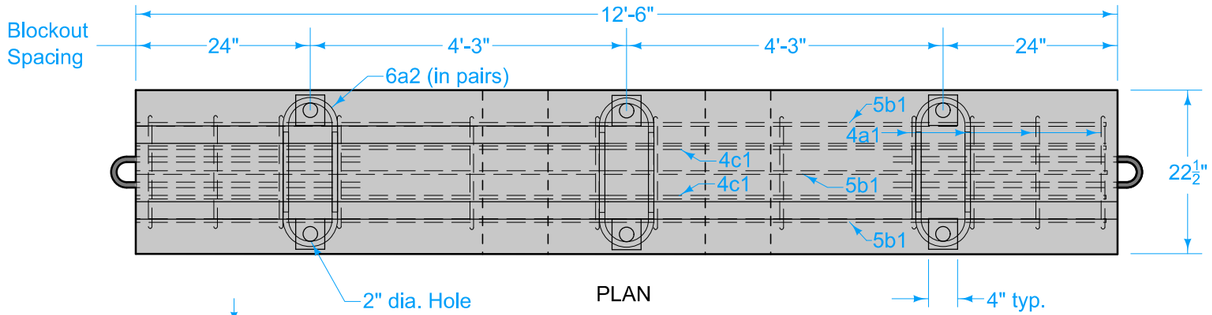
SECTION A-A
Lifting Slot



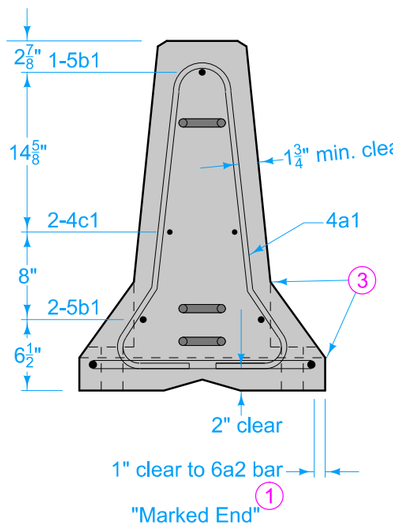
ELEVATION



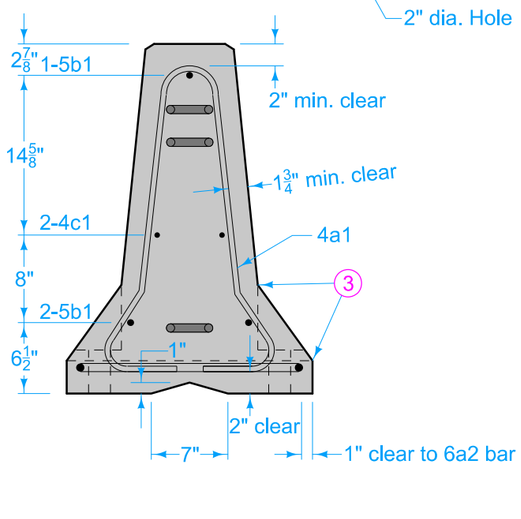
CHAMFER DETAIL



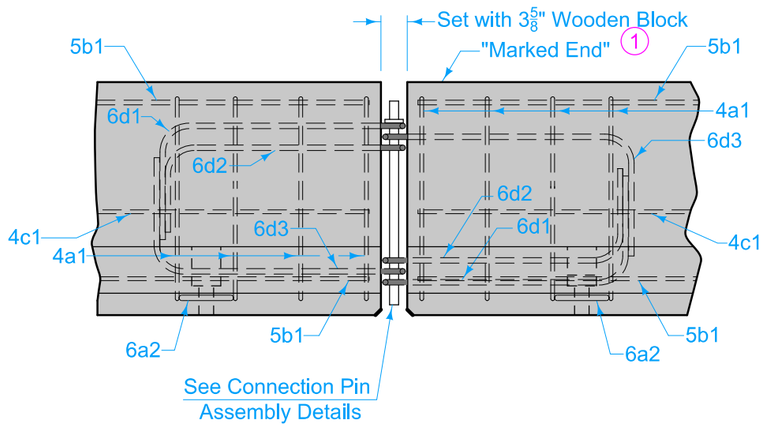
PLAN



SECTION B-B
Stirrup Placement



SECTION C-C
Stirrup Placement



BARRIER CONNECTION
(Elevation)

For loop bars 6d1, 6d2, and 6d3, use ¾" smooth steel bars with a minimum yield strength of 60 ksi, a tensile strength of not less than 1.25 times the yield strength but a minimum of 80 ksi, a minimum 14% elongation in 8 inches, and passing a 180 degree bend test using a 3½" pin bend diameter. Install loops within ⅛" of the plan dimensions.

Use Grade 60, ASTM A615 for all other reinforcements. Do not lift or move using loop bars 6d1, 6d2 or 6d3.

Provide for an approved monitoring schedule with a person on call and available 24 hours a day, each day of the week, to realign barrier which has been struck. Initiate service within one hour of notification of need.

Unless stated otherwise in the plans, the barrier rail sections shall be the property of the Contractor. Remove from the site upon completion of work.

Following removal of anchorage, fill all holes with an approved non-shrink grout.

Tapered end section is not designed for use within 30 feet of traffic on facilities with speed limits 55 mph or greater, nor within 10 feet of traffic on facilities with speed limits 40 mph to 50 mph.

Estimated quantity of concrete for one taper section is 0.6 cubic yards.

Include the cost of anchorage, when required in the price bid for "Temporary Barrier Rail, Concrete".

1. Permanently mark one end of each rail section with manufacturing information. The “marked end” is that end of the barrier having one loop bar at the top and two loop bars at the bottom. Include the following information in the marking:
   - Manufacturer Identification
   - Date Manufactured (Month and Year)
   - BA-401 Type A
2. Lifting hole. 4 inch diameter PVC Pipe.
3. 1 inch radius allowed.

Possible Contract Item:
Temporary Barrier Rail, Concrete

Possible Tabulation:
108-33

IOWA DOT
STANDARD ROAD PLAN

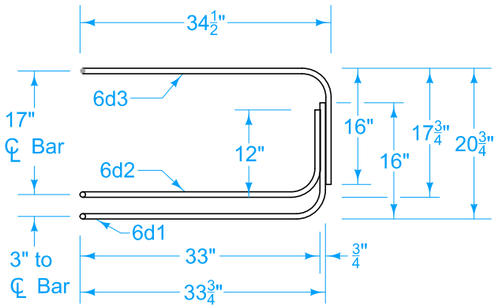
REVISION	
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SHEET 1 of 4

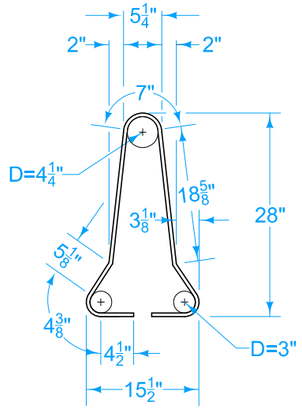
REVISIONS: Changed Obstacle to Object.

APPROVED BY DESIGN METHODS ENGINEER

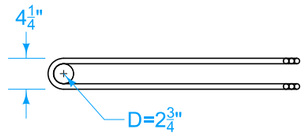
TEMPORARY BARRIER RAIL
(PRECAST CONCRETE)



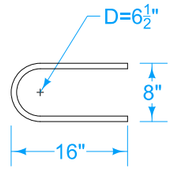
Elevation
(Marked end shown, invert for other end.)



4a1

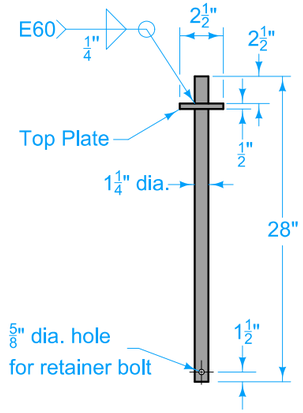


Plan
6d1, 6d2, 6d3

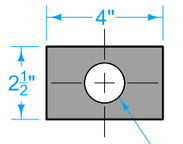


6a2

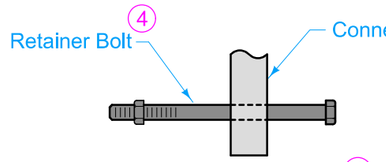
BENT BAR DETAILS
(Dimensions are out to out of bars unless otherwise noted.)



CONNECTION PIN
(A36 Steel - 10.9 lbs. each)



½" Top Plate



RETAINER BOLT & NUT ④
½" dia. bolt & nut
(ASTM A490, Grade 8)

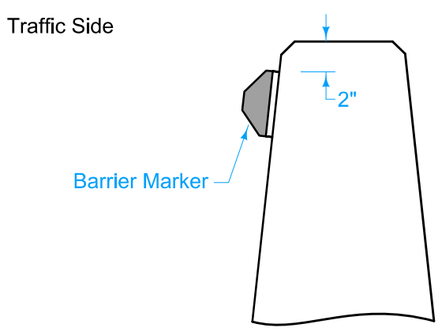
CONNECTION PIN ASSEMBLY

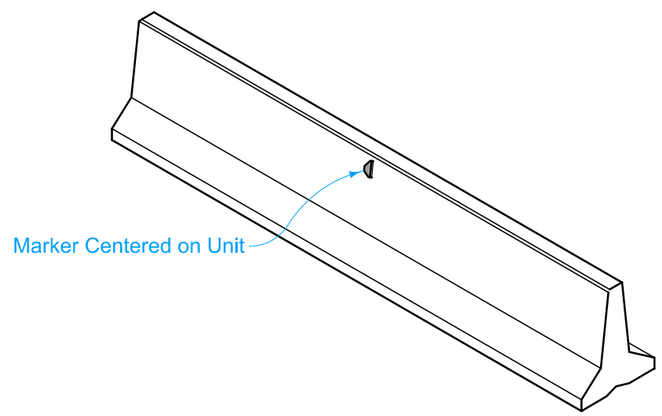
④ Retainer bolt & nut are required for connections with 2-loop barriers (previous designs) or in conjunction with Strap Anchorage.

⑤ Furnish and install Barrier Markers. Attach to the barrier in a manner approved by the manufacturer. Markers to face oncoming traffic and match the adjacent edge line in color. Maintain the markers and promptly repair or replace any damaged or missing units. Include costs for furnishing, installing and maintaining markers in the price bid for "Temporary Barrier Rail, Concrete."

Per 12'-6" Barrier Section

REINFORCING A615 Gr. 60					
Bar	Bar Size	Shape	No. of Bars	Length Ft.	Weight Lbs.
4a1	4		12	6'-0"	48.1
6a2	6		6	35"	26.3
5b1	5		3	12'-2"	38.1
4c1	4		2	12'-2"	16.3
LOOP ASSEMBLY					
6d1	6		2	8'-5"	25.3
6d2	6		2	7'-7"	22.8
6d3	6		2	8'-6"	25.5





BARRIER MARKER PLACEMENT ⑤

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STANDARD ROAD PLAN

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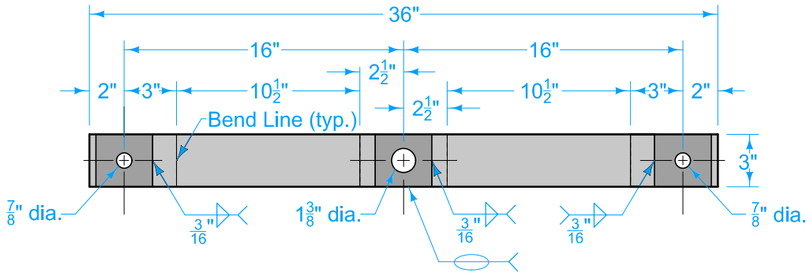
SHEET 2 of 4

REVISIONS: Changed Obstacle to Object.

APPROVED BY DESIGN METHODS ENGINEER

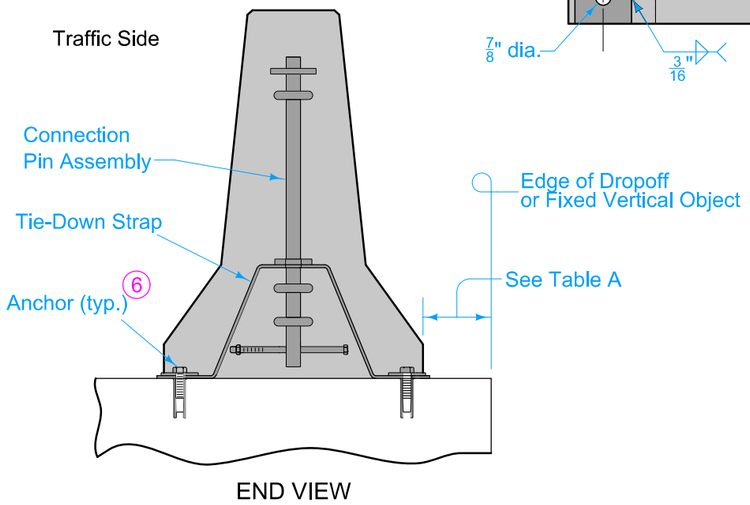
TEMPORARY BARRIER RAIL (PRECAST CONCRETE)

STRAP ANCHORAGE

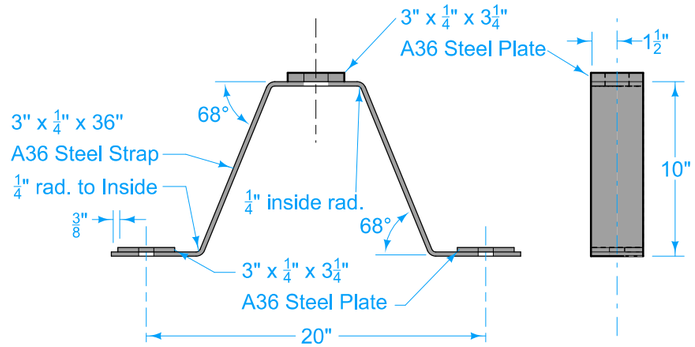


TIE-DOWN STRAP
(before bending)

For use on:
- Bridge Decks
- PCC Pavement



END VIEW

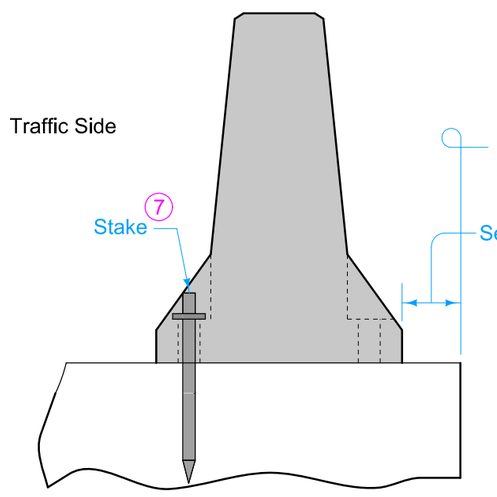


TIE-DOWN STRAP
(after bending)

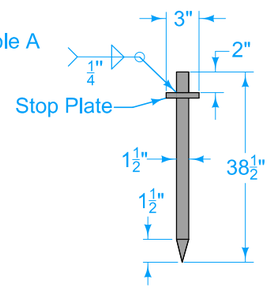
6. ¾ inch Red Head Multi-Set II drop-in anchor with ¾" dia. x 1¾" long ASTM A325 structural bolt OR Red Head Large Diameter Tapcon (¾" dia. x 4½" min.) OR Simpson Titen HD Wedge Bolt (¾" dia. x 5" min.).
7. 3 stakes required per rail section.
8. Pre-drill holes for stakes with 1⅝" core bit.

STAKE ANCHORAGE

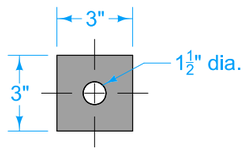
For use on:
- HMA Pavement (2" min. thickness)
- Composite Pavement 8
- PCC Pavement 8



TYPICAL SECTION



STAKE



½" STOP PLATE

TABLE A
ANCHORAGE REQUIREMENTS

Object		Dropoff Depth	Min. offset where TBR is Unanchored	Min. offset where TBR is Anchored
Dropoff*	from pavement	≤ 24"	24"	6"
		> 24"	45"	6"
	from bridge	≤ 3"	1"	N/A
		> 3"	45"	6"
Fixed vertical object		N/A	24"	6"

* A dropoff is a slope of 2H:1V or steeper

IOWA DOT
STANDARD ROAD PLAN

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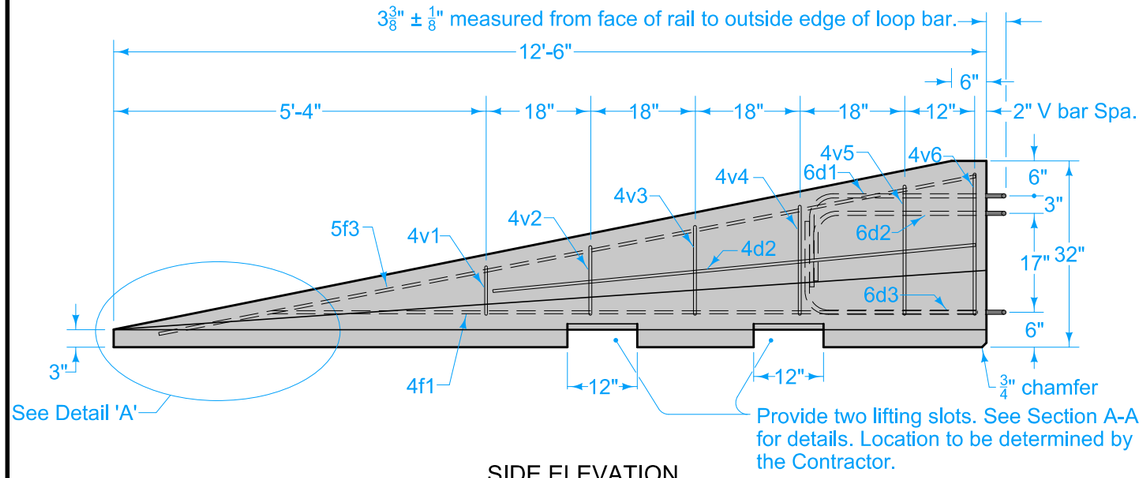
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SHEET 3 of 4

REVISIONS: Changed Obstacle to Object.

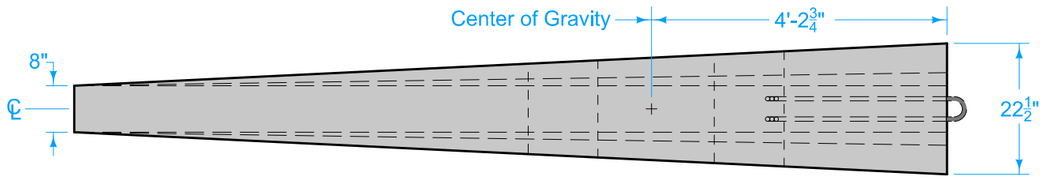
APPROVED BY DESIGN METHODS ENGINEER

TEMPORARY BARRIER RAIL (PRECAST CONCRETE)

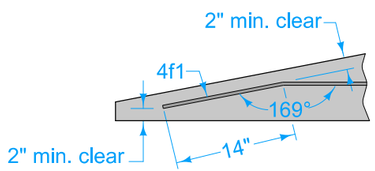
TAPERED END SECTION



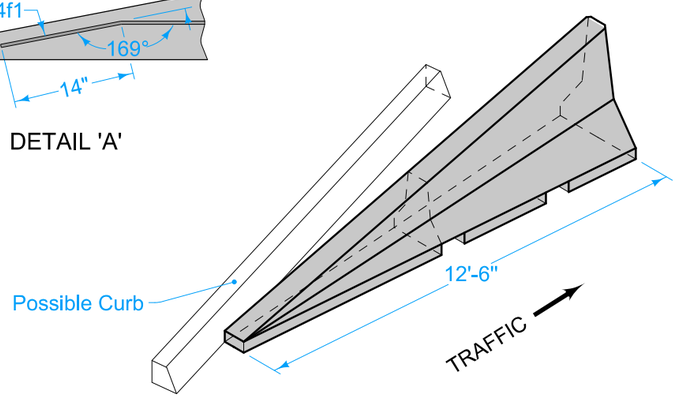
SIDE ELEVATION
(For connection to "marked end" of barrier.
Invert loop bars for other end.)



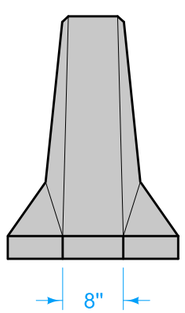
PLAN



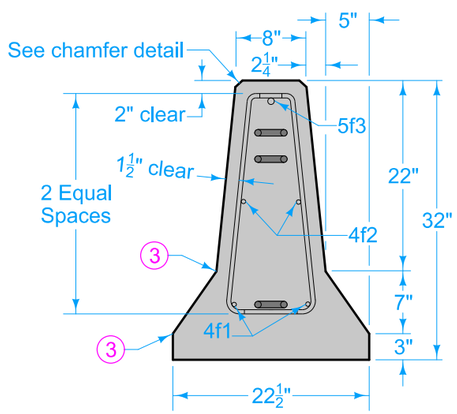
DETAIL 'A'



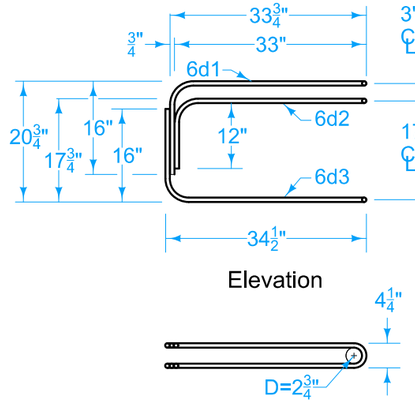
PERSPECTIVE VIEW



FRONT ELEVATION



END SECTION



6d1, 6d2, 6d3
(Connection to "Marked End" shown,
invert for other end)

BENT BAR DETAILS
(Dimensions are out to out of bars unless otherwise noted.)

③ 1 inch radius allowed.

Per 12'-6" Barrier Taper Section

REINFORCING A615 Gr. 60					
Bar	Bar Size	Shape	No. of Bars	Length ft.	Weight lbs.
4v1	4	⌊	2	23"	2.6
4v2	4	⌊	2	26"	2.9
4v3	4	⌊	2	30"	3.3
4v4	4	⌊	2	33"	3.7
4v5	4	⌊	2	3'-2"	4.2
4v6	4	⌊	2	3'-4"	4.5
4f1	4	—	2	12'-0"	16.0
4f2	4	—	2	7'-6"	10.0
5f3	5	—	1	11'-9"	12.3
LOOP ASSEMBLY					
6d1	6	⌐	1	8'-5"	12.6
6d2	6	⌐	1	7'-7"	11.4
6d3	6	⌐	1	8'-6"	12.8

Bar	A	B
4v1	10"	1"
4v2	13"	1¼"
4v3	17"	1⅝"
4v4	20"	1⅞"
4v5	24½"	2⅜"
4v6	27"	2¾"

IOWA DOT
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SHEET 4 of 4

REVISIONS: Changed Obstacle to Object.

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TEMPORARY BARRIER RAIL (PRECAST CONCRETE)