

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	6-02	MSM	6	03-13	RDL		
2	7-03	MSM	7	04-14	RDL		
3	6-04	MSM	8	09-14	RDL		
4	11-04	MSM	9	05-17	RDL		
5	9-10	PLR					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: 612-16\_0517.dgn

DRAWING DATE: APRIL, 2002

**IDAHO TRANSPORTATION DEPARTMENT**



BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN  
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING

**10' CONCRETE BARRIER**

REQUIRES SHEETS 2 OF 3 & 3 OF 3

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

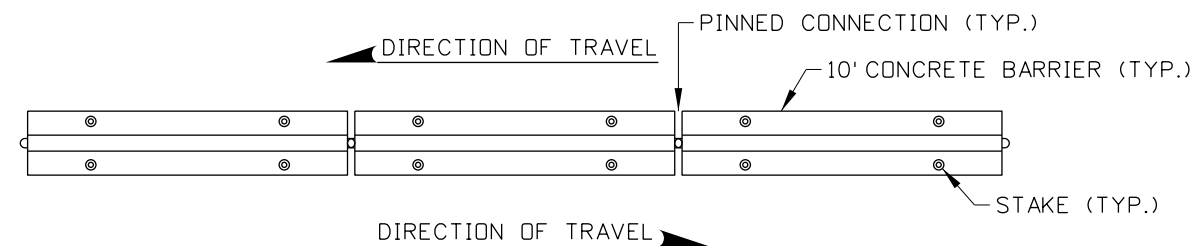
**English**

STANDARD DRAWING NO. **612-16**

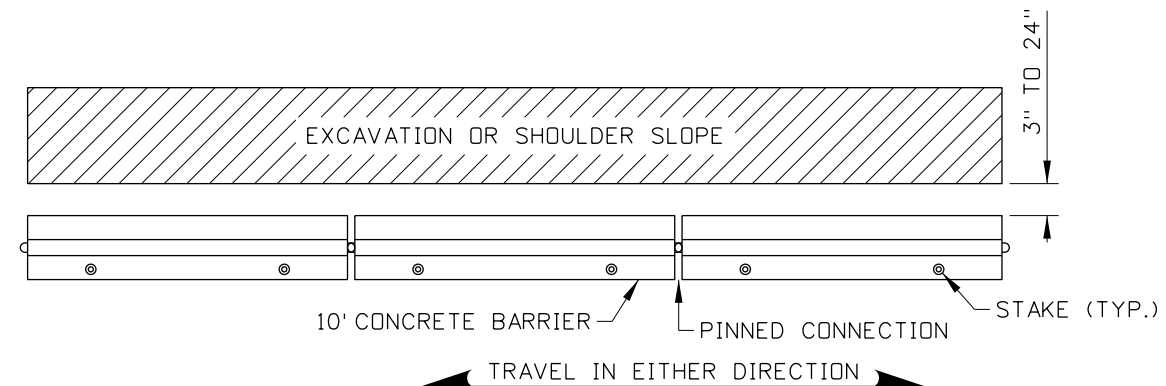
SHEET 1 OF 3

ORIGINAL SIGNED BY: RYAN D. LANCASTER  
DATE MAY 5, 2017

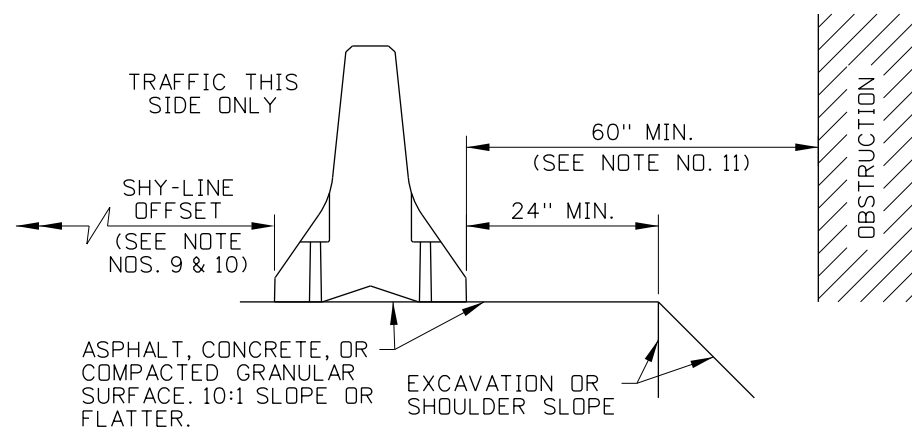
REINFORCING STEEL TABLE (SEE NOTE NOS. 2 & 3)				
MARK	LOCATION	BAR SIZE	NUMBER OF BARS	SKETCH
H-1	HORIZONTAL BAR. TIED INSIDE V-1 BARS.	NO. 5	6	9'-6"
H-2	HORIZONTAL BAR. 3 CENTERED ABOVE EACH SCUPPER.	NO. 5	3	6'-6"
H-3	HORIZONTAL BAR. 1 AROUND EACH SLOT BETWEEN V-1 BARS.	NO. 4	2	
V-1	VERTICAL BAR. 3 AT EACH END AND 2 AT EACH SCUPPER	NO. 5	8	



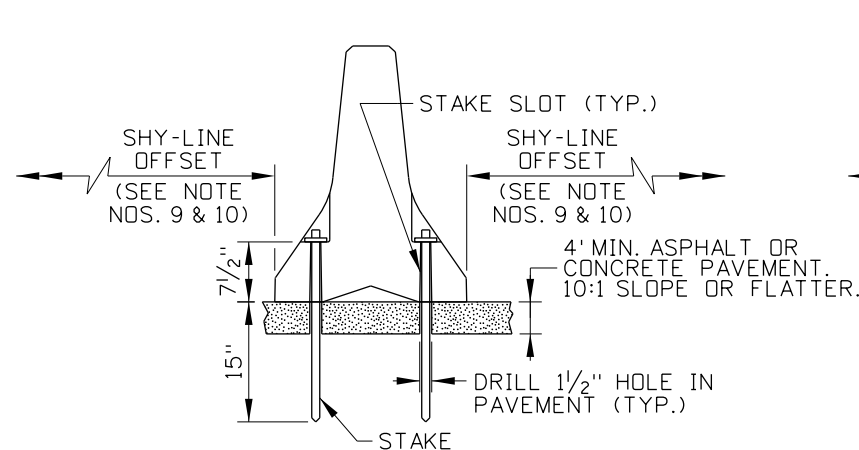
STAKING CONFIGURATION FOR TWO-WAY TRAFFIC  
(SEE NOTE NO. 11)



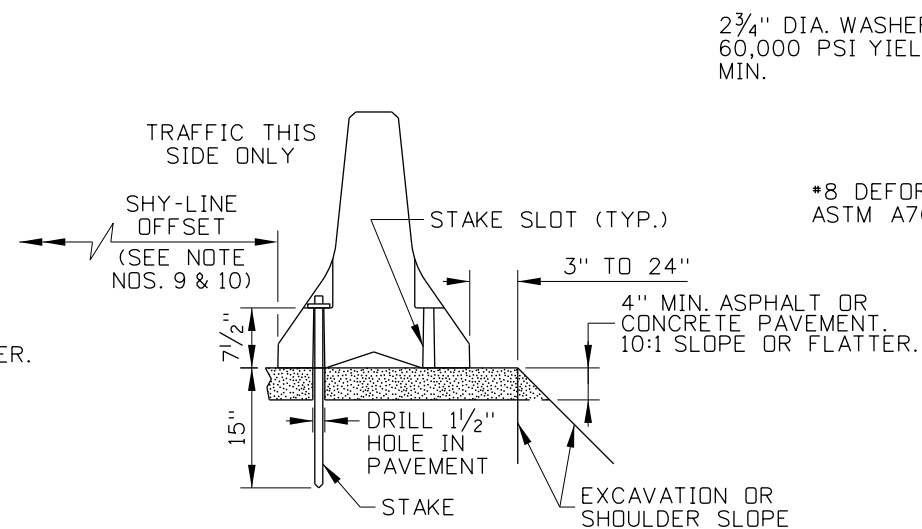
STAKING CONFIGURATION ADJACENT TO AN EXCAVATION OR SHOULDER SLOPE  
(SEE NOTE NO. 11)



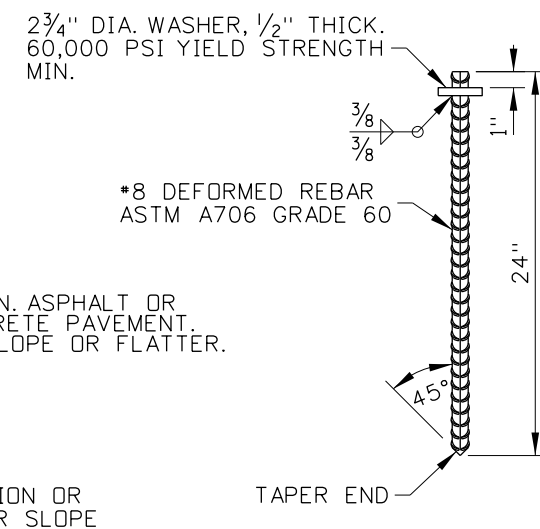
NON-STAKED BARRIER  
SHOWN ADJACENT TO EXCAVATION  
OR SHOULDER SLOPE  
(SEE NOTE NO. 11)



STAKED MEDIAN BARRIER  
SEE STAKING CONFIGURATION FOR  
TWO-WAY TRAFFIC AND NOTE NO. 11



STAKED SHOULDER BARRIER  
SEE STAKING CONFIGURATION  
ADJACENT TO AN EXCAVATION OR  
SHOULDER SLOPE AND NOTE NO. 11



STAKE DETAIL

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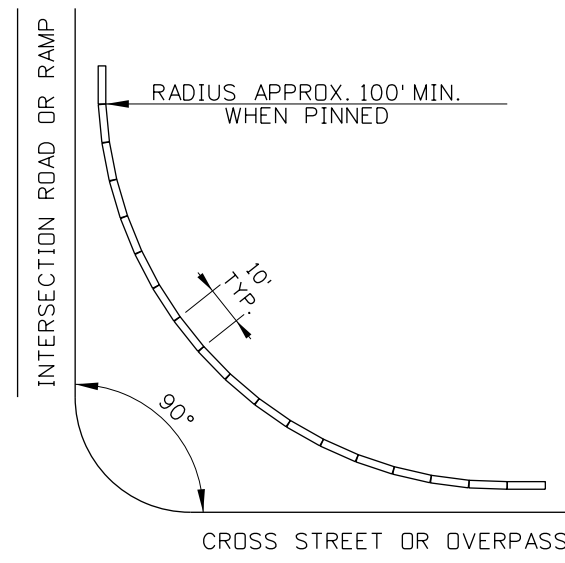
STANDARD DRAWING NO.  
**612-16**

SHEET 2 OF 3

ORIGINAL SIGNED BY:  
RYAN D. LANCASTER  
DATE ORIGINAL SIGNED:  
MAY 5, 2017

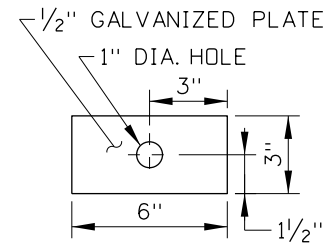
**NOTES**

CONCRETE BARRIER SHY-LINE OFFSET AND FLARE RATE TABLE (SEE NOTE NOS. 9 & 10)				
DESIGN SPEED (MPH)	SHY-LINE OFFSET (FT)	BARRIER FLARE RATE		
		INSIDE SHY LINE	AT OR BEYOND SHY LINE	
			NOT STAKED	STAKED
80	12	34:1	16:1	22:1
70	9	30:1	15:1	20:1
60	8	26:1	14:1	18:1
55	7	24:1	12:1	16:1
50	6.5	21:1	11:1	14:1
45	6	18:1	10:1	12:1
40	5	16:1	8:1	10:1
30	4	13:1	7:1	8:1

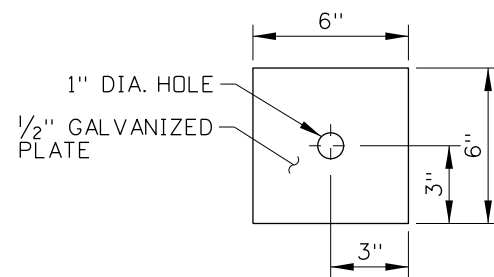


**CURVED LAYOUT DETAIL**  
(SEE NOTE NO. 7)

1. PRECAST USING CLASS 40AF CONCRETE. ENSURE THAT REINFORCING STEEL IS IN ACCORDANCE WITH SECTION 708 - METALS. PROVIDE 2" MINIMUM CONCRETE COVER OVER REINFORCING STEEL UNLESS OTHERWISE NOTED.
2. ENSURE THAT REINFORCING STEEL BENDS ARE MADE IN ACCORDANCE WITH THE LATEST A.C.I. STANDARD PRACTICES AND AASHTO SPECIFICATIONS.
3. THE DIMENSIONS SHOWN IN THE REINFORCING STEEL TABLE ARE MEASURED FROM OUTSIDE-TO-OUTSIDE (O. TO O.) OF BENDS OR BAR ENDS UNLESS OTHERWISE NOTED.
4. PROVIDE A 3'-10" SCUPPER FOR DRAINAGE WHEN INDICATED ON THE PLANS.
5. TERMINATE THE BARRIER WITH A CRASHWORTHY END TREATMENT. ACCEPTABLE END TREATMENTS MAY INCLUDE FLARING THE BARRIER OUTSIDE OF THE CLEAR ZONE, TRANSITION TO W-BEAM OR THREE-BEAM GUARDRAIL, A CRASH CUSHION, OR CONNECTION TO A BRIDGE PARAPET.
6. PIN CONNECT BARRIER UNITS WHEN POSTED HIGHWAY SPEEDS ARE 35 MPH OR HIGHER.
7. PIN CONNECTED 10' CONCRETE BARRIERS MAY BE ANGLED APPROXIMATELY 5.5° AT CONNECTIONS. SIXTEEN BARRIER UNITS, ANGLED 5.5° BETWEEN UNITS, ARE NEEDED TO COMPLETE A 90° TURN.
8. WHEN CONNECTING 10' CONCRETE BARRIER TO 20' CONCRETE BARRIER, THE EXPOSED STEEL LOOP BARS MAY BE BENT (MECHANICALLY, NOT WITH HEAT) TO FIT.
9. OFFSET THE BARRIER TO THE SHY-LINE OFFSET OR 1'-8" FROM THE EDGE OF NORMAL SHOULDER. THE SHY-LINE OFFSET DISTANCE IS MEASURED FROM THE EDGE OF TRAVELED WAY.
10. FOR SHOULDER OR WIDE MEDIAN INSTALLATIONS, FLARE THE BARRIER WHEN IT IS WITHIN THE SHY-LINE OFFSET. WHEN THE BARRIER IS AT OR BEYOND THE SHY-LINE OFFSET, THE BARRIER MAY BE FLARED.
11. THE BARRIER CAN BE INSTALLED WITH OR WITHOUT STAKES.
  - A. WHEN INSTALLED WITHOUT STAKES, ALLOW FOR 60" OF DEFLECTION BEHIND THE BARRIER.
  - B. WHEN INSTALLED AS A MEDIAN BARRIER (BETWEEN TWO-WAY TRAFFIC) ON HIGHWAYS WITH LESS THAN 24" BETWEEN THE EDGE OF TRAVELED WAY AND THE BARRIER, USE FOUR STAKES IN EVERY PANEL.
  - C. WHEN PLACED 3" TO 24" FROM THE EDGE OF AN EXCAVATION OR SHOULDER HINGE POINT, USE TWO STAKES PER PANEL ALONG THE TRAFFIC SIDE.
  - D. ON BRIDGE DECKS, USE ANCHOR BOLTS OR DECK BOLTS IN LIEU OF STAKES. USE FOUR BOLTS PER BARRIER SEGMENT. ENSURE THAT ANCHOR BOLTS ARE EMBEDDED A MINIMUM DEPTH OF 6" OR PER THE INSTRUCTIONS FOR THE BONDING MATERIAL.
  - E. DO NOT STAKE OR BOLT BARRIER UNITS THAT EXTEND ACROSS BRIDGE EXPANSION JOINTS.
12. THE FOLLOWING APPLY WHEN STAKES, ANCHOR BOLTS, OR DECK BOLTS ARE USED:
  - A. ENSURE THAT THE STAKES OR BOLTS DO NOT PROTRUDE BEYOND THE EXTERIOR FACE OF THE BARRIER SURFACE.
  - B. DO NOT DRILL ANCHOR HOLES INTO PRESTRESSED CONCRETE DECK PANELS.
  - C. ENSURE THAT BRIDGE DECK ANCHOR HOLES ARE DRILLED OR CORED SMOOTH AND ROUND.
  - D. DO NOT USE EXPANSION ANCHORS.
  - E. TIGHTEN DECK BOLTS DOWN WELL. BOLT LENGTH SHOULD ALLOW AT LEAST ONE COURSE OF THREADS TO SHOW OUTSIDE OF THE NUT WHEN TIGHTENED.
13. DRAWINGS NOT TO SCALE.

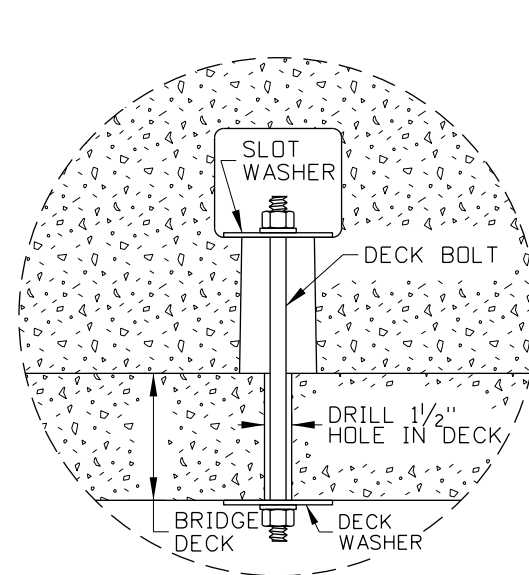


SLOT WASHER

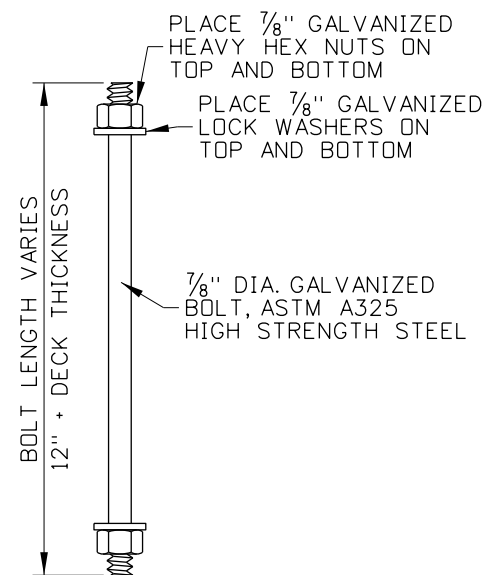


DECK WASHER

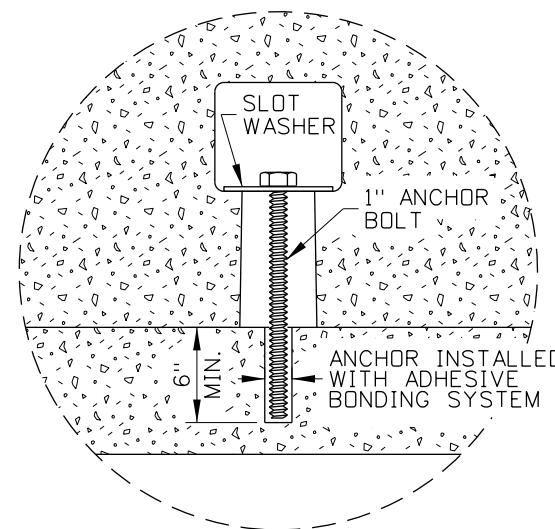
**WASHER DETAILS**



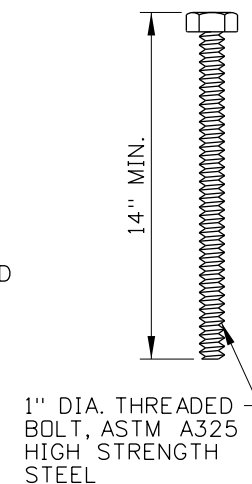
DECK BOLT ASSEMBLY



DECK BOLT



ANCHOR BOLT ASSEMBLY



ANCHOR BOLT

**BRIDGE DECK ANCHOR DETAILS**  
(SEE NOTE NOS. 11 AND 12)

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE ORIGINAL SIGNED: MAY 5, 2017

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SHEET 3 OF 3