## IDAHO <br> TRANSPORTATION DEPARTMENT

##  <br> STANDARD DRAWINGS

DECEMBER, 2014

## STANDARD DRAWING LIST DECEMBER, 2014




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| SCALES SHOWN ARE FOR $11^{\prime \prime} \times 17$ PRINTS ONLY |
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## STANDARD DRAWING LIST DECEMBER, 2014




| REVISIONS |  |  |  | DESIGNED | scales shown ARE FOR $11^{\prime \prime} \times{ }^{17}$ PRINTS ONLY | IDAHO <br> TRANSPORTATION DEPARTMENT | PROJECT NO. | STANDARD DRAWING LIST (2 of 2) | English |
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SUPERELEVATION


SUPERELEVATION WITH ROLL OVER

## notes

1. FOR THE 50' CATCH POINT CONTROL DISTANCE USE 6:1 SLOPE FOR CUTS AND FILLS UP TO 8.3' IN HEIGHT. USE VARIABLE SLOPES FOR CUTS AND FILLS OVER 8.3' AND
UP TO 25' IN HEIGHT MAINTAINING THE CONSTANT 50'CATCH POINT DISTANCE.
USE 2:1 SLOPE FOR CUTS AND FILLS OVFR 25' IN HEIGHT SLOPES SHOWN ARE MAXIMUM, FLATTER SLOPES SHOULD BE 2. CUT AND FILL SLDPES IN DIFFICULT TERRAIN MAY REQUIRE 3. SLOPE ROUNDING SHALL CONSIST OF ONE OR MORE CHORDS OR ROUNDED SURFACE. THE DEPTH AND WIDTH OF SLOPE
2. SLOPE TREATMENT SHALL bE AS SHOWN ON THE PLANS OR
3. ALL SLIPES SHALL BE CHECKED TO DETERMINE IF THERE IS
A GUARDRAIL WARRANT BASED ON SLOPE HEIGHT AND STEENESS. 7. ROADSIDE SLOPE TREATMENT SHALL BE AS SHOWN ON STAND-
ARD DRAWING A-6 AND/OR AS DIRECTED ON THE PLANS. 8. WHEN USING GUARDRAIL, WIDEN SHDULDER AS SHOWN ON
4. NOT TO SCALE.





| SUPERELEVATION NOMENCLATURE |  |
| :---: | :---: |
| SYMBOL | DESCRIPTION |
| R.L. | RUNOFF LENGTH OR SPIRAL LENGTH |
| Z OR Z' | TANGENT RUNOUT LENGTH |
| e | SUPERELEVATION RATE (FT./FT.) |
| c | NORMAL CROWN RATE (FT./FT.) |
| f | FLAT (0 FT./FT.) |
| $\mathrm{W}_{\text {t }}$ | WIDTH OF TRAVELED WAY |
| s | $e\left(W_{t}\right)$ |
| C | $c\left(W_{p}\right) / 2$ |
| P.C. | POINT OF CURVE |
| P.S. | POINT OF SPIRAL |
| P.T. | POINT OF TANGENT |
| P.C.S. | POINT OF CURVE TO SPIRAL |
| P.S.C. | POINT OF SPIRAL TO CURVE |
| N.C. | NORMAL CROWN |
| R.C. | REVERSE CROWN |
| B.F.S. | BEGIN FULL SUPERELEVATION |
| E.F.S. | END FULL SUPERELEVATION |

## NOTES


$\qquad$ SIMPLE CURVE SUPERELEVATION

METHOD 1 SHALL BE USED TO DEVELOP SUPERELEVATION FOR ALL CURVES ON UNDIVIDED HIGHWAYS OR DIVIDED HIGHWAYS WITH SEPARATE PRDFILES; HOWEVER, IF THE
PLANS SHOW A PROFIE GRADE ON THE INSIDE OF THE CURVE, THEN METHOD 2 SHALL BE USED.
2. ON DIVIDED HIGHWAYS WITH NARROW MEDIANS, I.E., MEDIAN PROFILE CONTROL, METHODS 2 ${ }^{2}$ \&
USED FOR THE RESPECTIVE ROAD BEDS.

WIDENING, WHEN USED, SHALL BE DEVELDPED UNIFORMLY
WITHIN THE RUNOFF LENGTH ON THE INSIDE OF THE WITHIN
CURVE.
FURTHER SUPERELEATION AND RUNOFF DESIGN INRTER SUPERELEVATION AND RUNOFF DESIGN
INFORMATION IS AVAILABLE THE ITD DESIGN MANUAL

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| 2 | $02-69$ | $01-97$ | MSM |  |  |  |  |  |
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| 3 | $03-00$ | MSM |  |  |  |  |  |  |
| 4 | $03-05$ | SSM |  |  |  |  |  |  |


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CROSSOVER TYPE A (DUAL ACCESS)


(1) $R=100^{\prime}, \Delta=28^{\circ} 04$
(2) $R=50^{\prime}, \Delta=118^{\circ} 04$
(3) $R=30^{\prime}, \Delta=118^{\circ} 04$

CROSSOVER TYPE C
(NARROW MEDIAN)


## PIPE END TREATMENT

## NOTES

1. The following CRiteria shall be used in locating median crossovers:
A. MEDIAN CROSSOVERS MAY BE LOCATED AT INTERCHANGES, REST AREAS, AND PORTS
DF ENTRY WHEN NECESSARY TO ACCOMMODATE MAINTENANCE EQUIPMENT.
B. MEDIAN CROSSOVERS SHOULD NOT BE LOCATED BETWEEN INTERCHANGES SPACED LESS
THAN 5 MILES APART AND SHOULD NOT BE SPACED AT INTERVALS CLOSER THAN 3 TO 4 MILES.
C. MEDIAN CROSSOVERS SHOULD BE AVOIDED IN URBAN AREAS WHERE THE CLOSE
D. MEDIAN CROSSOVERS SHOULD NOT BE LOCATED CLOSER THAN 1500 FEET FROM THE END OF A SPEED-CHANGE TAPER OF A RAMP, OR ANY STRUCTURE THAT CROSSES
DVER THE FREEWAY.
E. MEDIAN CROSSOVERS SHALL BE LOCATED WHERE ABOVE-MINIMUM STOPPING SIGHT
DISTANCE EXISTS, AND PREFERABLY WILL NOT BE LOCATED ON CURVES REQUIRING DISTANCE EXISTS,
SUPERELEVATIN.
2. IN AREAS WHERE THE MEDIAN IS LESS THAN 68 FEET BETWEEN SHOULDERS, A MEDIAN CROSSOVER TYPE C MAY BE PROVIDED. IT MAY BE CONSTRUCTE
A SINGLE OR DUAL ACCESS CROSSOVER AS CONDITIONS PERMIT.
3. A MEDIAN CROSSOVER TYPE B SHOULD BE CONSTRUCTED TO SERVICE AUTHORIZED A MEDIEN CROSSOVER TYE B SHOUD BE CONSTRUCED TE TE SERVICE AUTHORIZED
VEHICLES TRAELING IN ONE DIRECTION. THIS TYPE IS USED NEAR INTERCHANGES, RES AREAS, AND PORTS OF ENTRY. A MEDIAN CROSSOVER TYPE A SHALL BE
TO SERVICE AUTHORIZED VEHICLES TRAVELING IN EITHER DIRECTION.
4. THE CROSSOVER SHOULD BE DEPRESSED BELOW SHOULDER LEVEL TO BE INCONSPICUOUS TO TRAFFIC. THE SURF
6" COMPACTED DEPTH.
5. THE MEDIAN CROSSOVER GRADE SHALL BE $-2 \%$ FROM THE EDGE OF THE SHOULDER AND BE CARRIED AS FAR AS GRE TERRAIN WE WIL 2 RFRMITM. CROSSD
GRADED TO BLEND WITH THE EXISTING FREEWAY SHOULDER.
6. THE CROSSOVER SIDE SLOPE SHALL BE 10:1 OR FLATTER. SLOPES SHALL BE BLENDED SMEOTHSY AROUND
MAINLINE ROADWAY.
7. WHERE MEDIAN BARRIERS ARE EMPLOYED, EACH END OF THE BARRIER AT THE OPENING

SHALL HAVE A CRASHWORTHY TERMINAL.
8. DRAINAGE REQUIRING A 12" OR 18" DIAMETER PIPE SHALL BE TAPERED AS SHOWN.
DRAINAGE REQURING A LARGER PIPE SHALL UTILIZE A DROP INLET AND BE DRAINED ACROSS THE INTERSTATE IF POSSIRE IF THE ERRAIN DOES NLT PERMIT DRAINED CROSS-DRAINAGE, A TRAVERSABLE TAPERED INLET-DUTLET DESIGN SHOLLD BE USED. THE
DESIGN MUST NOT EXCED A SLOPE OF 10:1 AND MUST BE TRAVRSABLE TO AN DESGN MUST NOT EXCEED
9. A MEDIAN CROSSOVER SIGN (R8-8) WILL BE LOCATED IN THE CENTER OF THE MEDIAN AT A MINIMUM 6 FEET FROM THE EDGE OF THE CROSSOVER. TWO SIGNS BACK TO BACK
SHALL BE MOUNTED ON AREAKAWAY POST FACING THE MAIN ROUTE TRAFFIC WITH A SHALL BE MOUNTED ON A BREAKAWAY POST FACING THE MAIN ROUTE TRAFFIC WITH A 7
FOT CLEARANCE ABOVE THE CROSSOVER SURFACE. ON "CRSSOVER YPE C"A SINGLE THE POST SHALL BE CONSTRUCTED TO ACCOMMEDATE THE MAE BREAKAWAY REUTE TRAFFIC.
10. A type 2 yellow delineator shall be placed for one or both directions of

TRAFFIC FLOW

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| 2 | $07-90$ | GB |  |  |  |  |  |
| 3 | $04-92$ | MSM |  |  |  |  |  |
| 4 | $06-9$ | EBB |  |  |  |  |  |
| 5 | $01-00$ | HEB |  |  |  |  |  |


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| ORIGINAL SIGNED BY: LOREN THOMAS |
| :--- |
| ASSISTANT CHIEF ENGINEER (DEVELOPMENT) |
| ORIGINAL SIGNED BY: STEVEN HUTCHINSON |
| CHIEF ENGINEER |




PAVEMENT MARIABLE

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## IDAHO DEPARTMENT

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TYPICAL MULTI-LANE HIGHWAY

| REVISIONS |  |  |  |  |  |  |  |  | sCales shown ARE FOR $11^{\prime \prime} \times 1$ PRINTS ONLY |
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$\qquad$ STANDARD DRAWING $\qquad$ English ITD ROADWAY NOMENCLATURE $\qquad$

BACK OF CURB: THE BEGINNING OF SIDEWALK OR UTLLITY STRIP. ROADWAY BALLAST: COMBBINED PAVEMENT STRUCTURE AND PAVEMENT STRUCTURE: THE STRUCTURE THAT IS CONSTRUCTED ON THE R RADBED AND TYPICALLY INCLUDES SURF ACING, BASE
COUREES AND GRANULAR SUBBASE PAVEMENT STRUCTURE SLDPE: THE PRIMARY PORTION OF
THE FORESLOPE, BEGINING AT THE EDGE OF PAVEMENT BASE OF BARIER: WHARE THE BAEE OF CONCRETE BARRIER
TOUCHES THE PAVEMENT (THE POINTS OF MEASUREMENT). *CLEAR ZONE: THE MDADSIDE PORTION THAT IS BEYOND THE TRAELLD
*EHICLES
*
CCLEARING \& GRUBBING LIMITS: AN AREA WITHIN THE RDADWAY CORRIDRR THAT ORGANIC MATTER IS REMDVED PRIIOR TIO
PLACEMENT OF EMBANKMENT OR REMOVAL OF EXCAVATION. CENTERLINE (CCLL): THE CENTERLINE OF ROADWAY TRAFFIC
LANEIS), OR FREEWAY. ALSO REEERRED TO AS THE TRAFFIC MARLINGS THAT DELINEATE THE DRVISION OF OPPOSING CONTROL LINE: A SURVEY LINE FROM WHICH RDADWAY CUT/BACK SLLPEE AN ASCENDING SLOPE FRDM THE EDGE OF
FORESLOPE OR BOTTOM OF DITCH TO DAYIIGTT. EDGE OF NORMAL SHOULDER: WHERE THE NORMAL SHOULDER ENDS
 THE ROADWAY WIDTH.
FACE OF RAIL (F.OR. R : A VERTICAL LINE ALONG THE INNER
MOST PART OF METAL GUARDRAIL THAT FACES THE ROADWAY, FILL SLODE: A DESEENUNGG SOPE OF COMPACTED MATERIAL
FROM THE EDGE OF ROADBED TO TOE OF SLOPE FORESLOPE: ANY DESCENDING SLOPE OR COMBINATION OF SLOPES FROM THE EDGE OF PAVEMENT TO THE BEGINING
OF ACUTBACK SLOEE, BOTTM OF DITCH, OR THE TOE OF

HIGHWAY: THE ENTIRE RIGHT-OF-WAY
HINGE (POINT): A BREALING POINT OFO THE RDADWAY CROWN,
PARABLIC CROWN, PAVEMENT STRUCTURE SLOPE, FDRESLOPE PARABOLLC CROW N PANEMENT STRUCTURE SLOPE, FORESLOPE,
FILL SLOPE, OR CUT SLOEE. LANE LINE: EDGE OF A TRAFFIC LANE USUALLY DELINEATED
BY A TRAF IIC MARKING INE. LIP OF GUTTER (LIOG.G.) THE END OF THE CURB/GUTTER
SECTION AND BEGINING OF THE ROAOWAY PAVEMENT. SECTION AND BEGINNING OF THE ROADWAY PAVEMENT
NORMALY, THE CONTROL LINE WHEN A PARABOLIC CROWN IS INSTALLED.
MEDIAN: THE PORTION OF A DIVIDED HIGHWAY OR FREEWAY HAPISPARATES THE
OPOSITE DIRECTIONS
*MEDAN WIDTHYT THE WIDTH OF THE AREA Between the NORML SHOULDER: THA PORTION OF THE PAVED RDADWAY
SURF ACE OUTSIDE OF THE TRAVELED WAY PAVD
 PLANS APPROVED DRAWINGS OR REPRODCTION OF APPROVED PRANS. APP THAT TEANROOSSED
DONTRACT AND CONSTRUCTED.
*PROFILE GRADE: A SERIES OF TANGENT GRADE LINES CONNECTED BY VERTICAL CURVES. IT IS TYPICAAY PLACED ALDNG THE ROADWAY CENTERLINE OF UNDIVIDED FACILITIIES AND AT THE
RIGHTLLET LIP OF GUTTER FOR PARBBOLIC CONTROL IN URBA RIGHT/L
AREAS.
*ROADSIDE: THE AREA ADJOINING THE OUTER EDGE OF THE
ROADWAY WITHIN THE RIGHT-OF-WAY. AREAS (ALSO CALLED ROADAY WITIIN THE RIGHT-DF-WAY. AREAS (EALSO CALLED
MEDAN) BETWENN THE ROAWAYS OF A DIVIDED HIGHAY SHALL

ROADWAY BALLAST: COMBINED PAVEMENT STRUCTURE AND
EMBANKMENT ( FILL) MATERIAL, 1 INCLUDING SHOULDER MATERIAL OUUSIDE THE RODAWAY PRISM
*ROADWA CORIIOR: THAT PORTION OF THE HIGHWAY WITHIN THE Tion
ROADWAY CROWN A CROSS-SECTION FINISH GRADE THAT CONTAINS *RDADWAY PRISM: THE ENGINEERED/STRUCTURAL PIRAL SECTION). *ROAWAY PRISM: THE ENGINERED/STRUCTURAL PORTION OF THE
HIGHWAY. INCLUDES THE PAVEMENT STRUCTURE PLUS THE AREA
 DOWNWARD AND OUTWARD AT THE SLOPE OF 1.5 H TTI 110 V TOT
INTERCEPT OF NATURAL GROUND, REMOVAL LIMIT, OR SLOPE OF
 PAVEMENT STRUCTURE EMBANKMENT FILL FOUNDATIONS FORAMENT
EMBAKMENT, AND SOFT SPOT EXCAVATION/BACKFILL. EMBANKMENT
 PART OF THE ROADWAY PRISM (SEE DETAIL).
*ROADAY SHOLDER: ANY TRAVEABLE PORTION OF THE RDADWAY *ROADWAY WIDTH: FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT SHED SECTION: A CROSS-SECTION FINISH GRADE THAT CONTAINS
A SINGLE PERCENT GRADE OR SLOPE (SHOWN ON THE TYPICAL A SINGLE
SECTION)
SHY LINE OFFSET: THE DISTANCE FROM THE EDGE OF THE

 TABLE 5.5)
SHOLLDER: THE PORTION OF THE RRADWAY CONTIGUOUS WITH
THE TRAVELED WAY FOR THE ACCOMMODATION OF STOPPED

SLOPE: THE RELATIVE STEEPNESS OF THE TERRAIN EXPRESSED

SLOPE ROUNDING: THE INTRODUCTION OF A VERTICAL CURVE
BETWEEN TWO SLOPES TO MINIMIZE THE ABRUPT SLOPE CHANGE.
ROADBED: THE TOP OF SUBGRADE, UPON WHICH THE PAVEMENT
SIRUCTURE, CURBS, SIIEWALKS, MEDIAN ANO OTHER INCIDNTAL
ACILITIIES ARE CONSTRUCTED.
ROADBED SHOULDER: EDGE OF ROADBED, WHERE THE BOTTOM OF
THE ROOWAY PAVEMENT STRUCTURE MEETS DAY LIGHT AT THE FORESLOPE OR FILL SLOPE.
SOFT SPOT EXCAVATIINE EXCAAATION BELOW OR BEYOND THE
NOPMAL ROADWAY PRISM USUALLY DUE TO SUBGRADF MATERTAL NORMAL ROADWAY PRISM USUALLY DUE TO SUBGRADE MATEREAL
THAT WIL NOT SUPPORT A NORMAL RDAD WAY BALLAST. SMALL QUANTITIES AT SUPCIIFIC LOCATIONS THAT ARE USUALLY NOT
SO O O S SOPE WHERE THE BOTTOM OF A SLOPE (USUALLY A FILL
TLODE) INTERSECTS THE NATURAL GROUND OR BOTTOM OF DITCH. *TRAFFIELANE THE PORTION OF THE TRAVELED WAY FOR THE
IRAVELED WAY: THAT PORTION DF THE ROADWAY CORRIDOR THAT

ROADCAY SHOULDERS.
TYPICAL SECTION: AN ELEVATION DETAIL IN THE PLANS WHICH IS
AR ROADWAY CROSS-SECTION THAT INCLUDES A TRAVERSEFINISH
 BASIC ROADWAY CONSTRUCTION DIMENSIONS.
*URAN STRET A PAVED STRET WITH A PARABOLIC CROWN *URBAN STREET:A AAVED STREET WITHA A
CONNECTING CURB AND GUTTER EDGES.

THE ROADWAY PRISM IS REPRESENTED BY
THE CROSS HATCHED AREA THT
THE CROSS-HATCHED AREA THAT INCLUDES
PAVEMENT STRUCTURE AND SUBGRAD, BUT
PAVEMENT STRUCTURE AND SUBGRAD
NOT NATURA GROUN INOTE: TOP
SOIL AND ORGANIC MATTER REMOVED).


## NDTES

1. THE ITEMS AND TERMS SHOWN ARE INTENDED TO BE GENERAL EXAM-
PLES AND SHALL NOT HAVE PREEDENCE OF ANY DEFINTINN CONTAINED PLES AND SHALL NOT HAVE PRECEDENCE OF ANY DEFINITION CONTAINE
IN THE PLANL OR STANDARD SEECICATIONS SOME DEFINTINS AND
USAGE HEREIN MAY BE UNIQUE TO THE (ITD) IDAHO TRANSPORTATION IN THE PLAN
USAGE HEREI
DEPARTMENT.
2. ADDITIONAL DEFINITION OF TERMS CAN BE FOUND IN THE AASHTO
RDADSIDE DESIGN GUIDE AND THE ITD STANDARD SPECIFICATIONS.
3. REFER to Standard drawing a-1 when using freeway terms.
4. REFER TO STANDARD DRAWING A-2, A-3, \& A-4 WHEN USING MAJOR
befer to standard draw

$$
\begin{aligned}
& \text { 5. REFE } \\
& \text { CROWN. }
\end{aligned}
$$

iROWN.
6. REFER
GUARDRAL TO STANDARD DRAWING G-1-A-1 WHEN INSTALLING A METAL
7. REEER TO STANDARD DRAWING G-2-A-1 AND OR G-2-A-2 WHEN
INSTALLING STANDARD CONCRETE BARRIER.
8. REFER TO THE APPROPRIATE STANDARD DRAWING, R-1-A, R-1-B, R-1-C
OR R-2 WHEN A RAILRDAD CROSSING IS INVOLVED.
9. WHEN CURB OR CURB \& GUTTER IS USED REFER TO STANDARD
DRAWING H-1.
10. A FORESLOPE HINGE POINT IS NOT NECESSARILY AT THE EDGE OF
ROADBED (SEE DEFINITION OF FORESLOPE).

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JUNE, 2003

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original signed by: loren thomas ORIGINAL SIGNED BY: LOREN THOMAS original sioned by tom $\frac{\text { ORIGINAL SIGNED BY: TOM }}{\text { CHIEF ENGINEER }}$ CHIEF ENGINEER
SHEET 4 of 4


## NOTES

GENERAL INFORMATION: THE GRADE ( $\mathrm{g}_{1}$ ) TANGENT FROM THE LOWER LIP OF GUTTER (VPC)
NORMALLY $+4 \%$ THE GRADE ( $\mathrm{g}_{2}$ ) FROM THE HIGHER LIP OF GUTER (VPT) TO THE (VPI) IS NORMALLY + + \% \% THE GRADE ( 9 2) FROM THE HIGHER LIP
IS CALCULATED (NOTE: THE GRADES MEET AT CENTERLINE).
2. OTHER METHODS: THE EXAMPLES SHOWN TQ INSTALL A PARABOLIC CROWN (BY USING THE NOMOGRAPH OR CAL CULATED USING THE FORMULAS) ARE THE IDAHO TRANSPORTATION'S
TRADITIONAL INSTALLATION METHODS DTHER ME THODS ARF PERMITTED PROVIDED AN SD TRADITIONAL INSTALLATION METHODS, OTHER METHODS ARE PERMITTED PROVIDED A SOUND
ENGINEERNG PRCTICE IS EMPLOYED. ORDIARY CROWN OR SHED SECTINS BETWEN LIPS
OF GUTTERS ARE NDT RECOMMENCED AND SHOULD ONLY BE USED WITH AN ENGINEERN

PARABOLIC CROWN FORMULAS LAYOUT (SEE FORMULA TABLE)

$$
\begin{array}{lllllllllll}
0.75 \mathrm{~W} & \mathrm{~W} \\
\text { VPT, LIP OF GUTTER } & \mathrm{W} & 0.9 \mathrm{~W} & 0.8 \mathrm{~W} & 0.7 \mathrm{~W} & 0.6 \mathrm{~W} & 0.5 \mathrm{~W} & 0.40 \mathrm{~W} & 0.30 \mathrm{~W} & 0.2 \mathrm{~W} & 0.1 \mathrm{~W} \\
\hline
\end{array} \mathrm{0} \text { 0.0W }
$$

SUBGRADE VpARABOLIC CROWN
EXAMPLE ELEVATIONS

EXAMPLE: AT A GIVEN CROSS-SECTION, RDADWAY WIDTH BETWEEN CURBS IS 40 FT
GUTTER WIDTHS ARE 18 IN AND THE WITH STRAIGHT-EDGE (SEE., DASHED LINE) AT 37 FT. ON LEFT SCALE AND 1.03 FT. ON SCALE, READ AS FOLLOWS: APPROVAL.
GUETER BY BY O.14 FT AT 3.7 FT. (OR OIGHER THAN THE LIP OF THE RIGHT (LOWER)





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ORIGInal signed by: loren thomas ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT) ORIGINAL SIGNED BY: TOY Cole $\frac{\text { ORIGINAL SIGNED BY: TOM C }}{\text { CHIEF ENGINEER }}$
BOISE IDAHO


manhole box out
BOX OUT DETAILS

TYPICAL PAVEMENT JOINT PATTERN


CURB \& GUTTER DETAILS


PAVEMENT JOINT DETAIL


HOT POURED JOINT FILLER DETAIL


TYPE E-1

## NOTES

1. THE TYPICAL PAVEMENT JOINT PATTERN SHOWN IS FOR ILLUSTRATION PURPOSES PATERN FOR THENDED TO BE USED AS A GUIDE IN DEVELOPING THE JOINT JOINT THE ENTIRE PROJECT FOR APPROVAL BY THE ENGINEER.
2. WHEN POSSIBLE, MANHOLES SHALL BE CENTERED BETWEEN JOINTS. JOINT
SPACING MAY BE ADJUSTED NEAR MANHOLES, WITHIN THE STANDARD LIMITS. SEE C-1-A-2.
3. IF THE CONTRACTOR ELECTS TO BOX OUT AROUND THE MANHOLE OR CATCH BASIN FRAMES AND PLACE THE PAVEMENT AROUND THE FRAME AS A SEPARATE
OERATIN, TIED CONSTRUCTION JOINTS SHALL BE PLACED AS SHOWN IN THE BOX OUT DETAIL
4. JOints in the curbs shall coincide with transverse joints in the
5. SEE STANDARD DRAWING H-1-A AND H-1-B FOR ADDITIONAL NDTES ON ments for curb construction.
6. THE CONTRACTOR MAY PLACE CURBS AS SHOWN IN OPTIONS 1, 2, OR 3 .
7. SAWED JOINTS SHALL BE $1 /$ a $^{\prime \prime}$ WIDE AND SHALL BE FILLED WITH HOT POURED ELASTOMERIC JOINT FILLER MEETING REQUIREMENTS OF SUBSCTION 704.02 OR A
NEOPRENE COMPRESSION SEAL OF APPROVED CONFIGURATION MEETING THE NEOPRENE COMPRESSION SEAL OF APPROVED CONFIGUR
REQUIREMENTS OF SUBSECTION 704.04 MAY BE USED.

$$
\begin{aligned}
& \text { NEOPRENE COMPESSION SEAL OF APROVED COEFIGUR IG } \\
& \text { REQUREMENTS OF SUBSECTION } 704.04 \text { MAY BE USED. }
\end{aligned}
$$

|  | ORIGINAL SIGNED BY: LOREN THOMAS |
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| $1{ }^{\text {2 }}$ | highways program oversight engineer |
|  | original signed by: tom cale |
|  | CHIEF ENGINEER |

STANDARD DRAWING
URBAN CONCRETE PAVEMENT DETAILS






## NOTES:

T = THICKNESS OF CONCRETE PAVEMENT (I.E. DEPTH)
2. $L=$ PANEL LENGTH(I.E. JOINT SPACING)

$\frac{E L E V A T I O N-I M P A C T \text { SLAB, HIGHWAYS/STREETS/ROADS }}{\text { FOR TRANSVERSE JOINTS ABUTTING ASPHALT }}$ PAVEMENT IN RECONSTRUCTION OR NEW
CONSTRUCTION PROJECTS WHERE T>7 IN.
11. NOT TO SCALE
12. ALL LONGITUDINAL CONCRETE TO ASPHALT JOINTS SHALL BE
SAWED AND SEALED.


ASPHALT \& CONCRETE PAVEMENT JOINT DETAIL Not for use unless specifically called out in plans.

## NOTES

1. the pavement edge is to be placed approximately vertical. 2. THE DOWEL BAR DIAMETERS SHALL BE DETERMINED BY THE
2. THE TIE BARS SHALL BE EPOXY COATED AND MEET THE REQUIRE MENTS OF AASHTO M 284 . THE DOWEL BARS
MEET THE REQUIREMENTS OF AASHTO M 254
3. The maximum tied transverse width shall be 60 feet 4. THE MAXIMUM TIED TRANSVERSE WIDTH SHALL BE GO FEET. OREGING SHALL BE APPROVED BY THE ENGINEER. IN
SHALL AN UN-TIED JOINT BE A CONSTRUCTIN JINT
. A construction joint shall be at least 6 feet from a sawed JOIN
. TRANSVERSE AND LONGITUDINAL JOINTS SHALL BE SAWED JOINTS
4. SEALANTS AND PREFORMED SEALS SHALL BE APPLIED IN ACCORDANCE - MANU ACTUERS REQULE
5. The anchor is to be used at railroad grade crossings ADJACENT TO FLEXIBLE PAVEMENTS AND SIMILAR INTERRUPTIONS TO 9. MAKE A VERTICAL SAW CUT IN THE ASPHALT TO SERVE AS A FORM

0.preferred practice is to place the construction joint at HRS PER STD A PLANNED CONTRACTION JOINT AND USE DOWEL


ELEVATION - ANCHOR FOR END OF CONCRETE OPTIONAL
*f THIS ANCHOR IS NOT TO BE USED IN
CONUUNCTION WITH CONCRETE PAVEMENT.
SUB-NOTES

| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. | DATE | BY | NO. | DATE | BY | No. | DATE | BY |
|  | 4-84 | GB | 6 | 1-91 | GB | 11 | 9-08 | RV |
| 2 | 1-85 | GB | 7 | 12-92 | AS | 12 | 10-10 | PLR |
| 3 | 8-85 | GB | 8 | 4-93 | MSM | 13 | 8-11 | RSC |
| 4 | 8-86 | GB | 9 | 1-97 | AS | 14 | 04-13 | RDL |
| 5 | 11-89 | GB | 10 | 11-01 | MSM |  |  |  |


| scales shown ARE FOR $11^{\prime \prime} \times 1$ PRINTS ONLY |
| :---: |
| CADD FILE NAME: c1b_0613.std |
| DRAWING DATE: APRIL 1984 |

## IDAHO <br> 

$\qquad$



SEALED CONSTRUCTION JOINT (FIELD-INSTALLED SEALANT)


ISOLATION JOIN
FIELD-INSTALLED SEALANT)


NOTES
. FOR HOT-POURED SEALANT, SHAPE FACTOR D/W $=1$ (TYPICAL, ONLY IF
2. FOR SILICONE SEALANT,D/W $=0.5$ (TYPICAL)
3. FOR TWO-COMPONENT COLD-POURED SEALANT,D/W $=0.5$ (TYPICAL)
4. FOR PREFORMED COMPRESSION SEAL, W IS SIZED FOR SLAB \& CLIMATE
5. SUBSECTION REFERENCES ARE ITD STANDARD SPECIFICATIONS FOR HIGHWA
CONSTRUCTION
6. SEALANTS AND PREFORMED SEALS SHALL
WITH THE MANUFACTURER'S REQUIREMENTS.
7. SAW CUT TO CONTROL SLAB CRACKING SHALL BE T/3 DEEP."T" EQUALS
DESIGN THICKNESS OF CONC. PAVEMENT.


COMPRESSION SEAL

| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | No. | DATE | BY | NO | DATE | BY |
|  | 4-84 | GB | 6 | 1-91 | GB | 11 | 9-08 | RV |
| 2 | 1-85 | GB | 7 | 12-92 | AS | 12 | 10-10 | PLR |
| 3 | 8-85 | GB | 8 | 4-93 | MSM | 13 | 8-11 | RSC |
| 4 | 8-86 | GB | 9 | 1-97 | AS | 14 | 04-13 | RDL |
| 5 | 11-89 | GB | 10 | 11-01 | MSM |  |  |  |


| SCALES SHOWN <br> ARE FOR $11^{\prime \prime} \times 17^{\prime \prime}$ PRINTS ONLY |
| :---: |
| $\begin{aligned} & \text { CADD FIIE NAME: } \\ & \text { cab_0613.std } \end{aligned}$ |
| DRAWING |


| IDAHO <br> TRANSPORTATION ${ }^{*}$ 教 DEPARTMENT |  |
| :---: | :---: |
|  | ORIGINAL SIGNED BY: LOREN Thomas |
|  | highways program oversight engineer |
|  | original signed by: tom cole |
| BOISE IDAHO | CHIEF ENGINEER |



SHAPE FACTOR= $\frac{\text { DEPTH OF SEALANT }}{\text { WIDTH }}$
SEALANT SHAPE FACTOR



## NOTES

1. SEE STANDARD DRAWING C-1-B FOR JOINT DETAILS,
APPLICABLE NOTES, JOINT LOCATIONS, BAR AND APPLICABLE NOTE
DOWEL DETAILS.
2. THE CONTRACTOR SHALL SUPPLY SHOP DRAWINGS FOR APPROVAL BY THE ENGINEER PRIOR TO
CONCRETE FOR EACH RAMP GORE AREA.
3. THE MAIN LINE ROADWAY CONCRETE SHALL BE PLACED CONCRETE.
4. LONGITUDINAL JOINTS PARALLEL TO THE RAMP CENERLINE SHAL TERMINATE AT A TRAVERSE JOINT AT TRAVERSE JOINT, BETWEFN THE EDGE OF THE MIN TRAVERSE JOINT, BETWEEN THE EDGE OF THE MAIN LINE
PAVING AND THE LONGITUDINAL JOINT SHALL BE AT PAVING AND THE
LEAST TWO FEET.
5. always begin and end the edge widening at a joint. 6. CONNECT THE NARROW PORTION OF THE RAMP TO THE MAIN ROADWAY WITH TIE BARS ALONG THE LONGITUDINAL JOINT TO THE LAST TRANSVERSE JOINT WHICH IS LESS THAN 60 FEET WIDE, THEN USE DOWEL BARS THROUGH
6. LONGITUDINAL CONSTRUCTION JOINT BETWEEN

EXISTING AND PROPUSED PAVEMENT.
8. ALL PROPOSED TRANSVERSE JOINTS SHALL BE
CONSTRUCTED TO MATCH THE SPACING OF THE TRANSVERSE JOINTS IN THE ADJACENT EXISTING PAVEMENT.
9. Not to scale.



SEE STANDARD DRAWING C-1-B FOR JOINT DETAILS, APPLICABLE ND 2. THE CONTRACTOR SHALL SUPPLY SHOP DRAWINGS FOR
APPROVAL BY THE ENGINEER PRIOR TO THE PLACEMENT O
CONCRETE FOR EACH RAMP GORE AREA. 3. THE MAIN LINE ROADWAY CONCRETE SHALL BE PLACED
4. Longitudinal joints parallel to the ramp ENTERLINE SHALL TERMINATE AT A TRAVERSE JOINT. CENTELINE SHALL TERMIATE AT A TRAERSE JOINT.
AT THESE LOCATIONS, THE DISTANCE ALONG THE RAERSE JINT, BETWEEN TE EDGE OF THE MAIN LIN PAVING AND THE
LEAST TWO FEET.
5. Always begin and end the edge widening at a joint 6. CONNECT THE NARROW PORTION OF THE RAMP TO THE MAIN ROADWAY WITH TIE BARS ALONG THE LONGITUDINAL
JINT TO THE LAST TRANSVERSE JOINT WHICH IS LESS HAN 60 FEET WIDE, THEN USE DOWEL BARS THRDUGH

Z LONGITUDINAL CONSTRUCTION JOINT BETWEEN
EISTING AND PROPOSED PAVEMENT.
. ALL PROPOSED TRANSVERSE JOINTS SHALL BE
ONSTRUCTED TO MATCH THE SPACING OF THE TRANSVERSE g. AlL construction Jonts are to be tied.
0. MAXIMUM TIED TRANSVERSE WIDTH IS 60 .

1. DIMENSIONS ARE FOR ILLUSTRATION PURPOSES ONLY.
2. NOT TO SCALE.
REQUIRES SHT. 1 OF 2 \& STD. DWG. C-1-B

| REVISIONS |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | NO. | DATE | BY | NO. | DATE |
| 1 | BY |  |  |  |  |  |  |
| 2 | $66-03$ | MSM |  |  |  |  |  |
| 3 | $10-08$ | JRV |  |  |  |  |  |
| 4 | $0-10$ | PLR |  |  |  |  |  |
| 4 | $08-11$ | RSC |  |  |  |  |  |


| IDAHO |
| :---: | :---: | :---: |
| TRANSPORTATION |
| DEPARTMMENTT |




RUMBLE STRIP AND RUMBLE STRIPE DETAIL

| SHOULDER WIDTH | RUMBLE STRIP |  |  | RUMBLE STRIPE |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | WIDTH | DEPTH | CHORD | WIDTH | DEPTH | CHOR |
| 2' TO <4' |  |  |  | $6{ }^{\prime \prime}$ | $\begin{aligned} & 3 / 8 " \text { TYP. } \\ & 1 / 2^{\prime \prime} \text { MAX. } \end{aligned}$ | $\pm 6$ |
| 4'T0 8' | 12" | $\begin{aligned} & 1 / 2^{\prime \prime} \text { TYP. } \\ & 5 / 8^{\prime \prime} \text { MAX. } \end{aligned}$ | $\pm 7$ | 12" | $\begin{aligned} & 3 / 8^{\prime \prime \prime} \text { TYP. } \\ & 1 / 2^{\prime \prime} \text { MAX. } \end{aligned}$ | $\pm 6 "$ |
| >8' | $16^{\prime \prime}$ | $\begin{aligned} & 1 / 22^{\prime \prime} \text { TYP. } \\ & 5 / 8 \text { MAX. } \end{aligned}$ | 7" | $16^{\prime \prime}$ | $\begin{aligned} & 3 / 8 " \text { TYP. } \\ & 1 / 2^{\prime \prime} \text { MAX. } \end{aligned}$ | $\pm 6 "$ |



SECTION A-A



CONCRETE PAVEMEN JOINT DETAIL (SEE NOTE NO.5)

0

## NDTES

PROVIDE RUMBLE STRIPS OR RUMBLE STRIPES AS SHOWN ON THE
PROJECT PLANS AND IN ACCORDANCE WITH THE RUMBIE STRIP AND RUMBLE STRIPE DIMENSION TABLE.
2. PROVIDE CONTINUDUS RUMBLE STRIPS OR RUMBLE STRIPES ON THE DF DIVIDED HIGHWAYS. PROVIDE PERIODIC GAPS ON RIGHT SHOULDERS (ADJACENT TO OR IN LINE WITH A WHITE EDGE LINE) TD ALLOW
BICYCLISTS TO MOVE ACROSS THE RUMBLE STRIP OR RUMBLE STRIPE BICYCLISTS TO MOVE
PATTERN AS NEEDED.
3. IN AREAS WHERE BICYCLISTS OR PEDESTRIANS ARE EXPECTED TO
CROSS THE RUMBLE STRIP OR RUMBLE STRIPE PROVIDE A 6 FDOT TO 2 FOOT GAP
. When the sequence of rumble strips or rumble stripes and GAPS IS INTERRUPTED, RESTART THE SEQUENCE WITH 48 RUMBLE
5. OMIT RUMBLE STRIPS OR RUMBLE STRIPES ON CONCRETE PAVEMENT . OMIT RUMBLE STRIPS OR RUMBLE STRIPS ON BRIDGES AND BRIDGE 6. OMI
APPRO
7. DRawings not to scale.

EXAMPLE TWO-LANE HIGHWAY

| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | No. | DATE | BY | No. | DATE | BY |
|  | 09-02 | HEB |  |  |  |  |  |  |
| 2 | 12-04 | MSM |  |  |  |  |  |  |
| 3 | 09-11 | JDA |  |  |  |  |  |  |
| 4 | 04-14 | RDL |  |  |  |  |  |  |


| IDAHO <br> TRANSPORTATION DEPARTMENT | ORIGINAL SIGNED BY: CARL D. Main |
| :---: | :---: |
| BOISE IDAHO | DESİN/TRAFFIC SERVICES ENGINEER |

STANDARD DRAWING



CENTERLINE PAVEMENT MARKING AND RUMBLE STRIP INSTALLATION

NOTES
. RUMBLE STRIPS SHALL BE MILLED to leave a rectangular SHAPE WITH UNIFORM EDGES.



## 


original signed by: loren thomas higway procray by: LOREN Thomas doictina sicid by: $\frac{\text { ORIGINAL SIGNED BY: TOM }}{\text { CHIEF ENGINEER }}$

STANDARD DRAWING
CENTERLINE RUMBLE STRIPS FOR TWO-WAY ROADWAYS

English
C-2-C








TYPES 1-A \& 2-A ANNULAR COUPLING BAND


DOUBLE BAR AND STRAP-TYPE 3 HUGGER COUPLING BAND


TYPE 1
SINGLE PIECE BAND


TYPES 1-B \& 2-B HELICAL COUPLING BAND


SINGLE BAR AND STRAP-TYPE 3 HUGGERL COUPLING BAND


TYPE 2
TWO PIECE BAND


O-RING GASKET


SLEEVE GASKET


STRIP GASKET


MASTIC SEALANT GASKET


ANNULAR PIPE HAS CORRUGATIONS PERPENDICULAR TO THE
CENTERLINE OF THE PIPE

ANNULAR CMP


HELICAL PIPE HAS HELICAL CMP

BAND TYPE 3
BAR \& STRAP COUPLING

## NOTES

THE REFORMED ENDS OF HELICAL CORRUGATED METAL PIPE
MADE TO ACCEPT ANNULAR COUPLING BANDS SHAL MAD E AND SMODTH IN APPEARANCE.
ENDS ARE NOT ACCEPTABLE.
2. SLEEVE AND STRIP GASKETS FOR COUPLING BANDS TYPE 1-A AND 1-B SHALL EXCEED THE WIDTH OF THE BAND BY A

REFORMED HELICAL CMP
 MINIMUM OF $/$ /a' $^{\prime \prime}$ ON BOTH EDGES. THE GASKETS SHALL FIT
SNUGGY AROUND THE PIPES PRIOR TO INSTALLATION OF THE SNUGGLY
BAND.
3. ALL WELDS AND/OR EXPOSED FERROUS METAL ON COUPLING
BANDS AND BAND CONNECTING HARDWARE SHALL BE REPAIRED IN ACCORDANCE WITH AASHTO M 36 .
4. STEEL BAND THICKNESS SHALL BE AT LEAST $1 / 2$ THE THICKNESS OR GAUGE OF THE PIPE.
5. THE JOINTS FOR SIPHONS AND SEWERS SHALL BE WATERTIGHT AND PRESSURE TESTED PRIDR TO ACCEPTANCE, AS REQUIRED IN

TO PREVENT GALVANIC ACTION WHEN BANDS AND PIPES ARE OF
AN UNLIKE METAL, THE BANDS SHALL BE ASPHALT CCATED.
. GASKET MATERIALS ARE NOT TO BE ALTERED, SEWN, OR BAND GASKETS MUST BE AS THE MANUFACTURER SPECIFIES. LUBRICANTS WILL CHE AS TAL COMPOSITION MAN SEAL ANTS
CONTACT THE MANUFACTURER FDR DETURER REQUIRES.
8. SPOT WELDED OR FILLET WELDED STRAPS ON BANDS SHALL BE
9. ALL RECOMMENDATIONS IN THE PIPE COUPLING
TABLE ARE TO BE
NOT TO SCALE.
0. NOT TO SCALE

| REVISIONS |  |  |  |  |  |  |  |  |  | IDAHO <br> TRANSPORTATION DEPARTMENT |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | N0. | DATE | BY | No. | DATE | BY | ARE FOR $11^{\prime \prime} \times 17^{\prime \prime}$ PRINTS ONLY |  | ORIGINAL SIGNED BY: LOREN Thomas |
| 2 | 02-76 |  | 6 | 03-05 | MSM |  |  |  |  |  | ASSISTANT CHief engineer (development) |
| 3 | 09-93 | MSM |  |  |  |  |  |  | CADD FILE NAME: d4a_0305.dgn |  | ORIGINAL SIGNED BY: STEVEN HUTCHINSON |
| 4 <br> 5 | 12-95 | MSM |  |  |  |  |  |  | DRAWING DATE: APRIL, 1961 | BOISE IDAHO | CHIEF ENGINEER |

STANDARD DRAWING
WATERTIGHT COUPLING BANDS FOR CORRUGATED METAL PIPES
REQUIRES SHEET 2 OF 2


| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | NO. | DATE | BY | NO. | DATE |  |
| 1 | BY |  |  |  |  |  |  |  |
| 2 | $02-76$ |  | 6 | $03-05$ | MSM |  |  |  |
| 3 | $02-77$ |  | 09 |  |  |  |  |  |
| 4 | $09-93$ | MSM |  |  |  |  |  |  |
| 4 | $12-95$ | MSM |  |  |  |  |  |  |
| 5 | $06-02$ | MSM |  |  |  |  |  |  |


| SCALES SHOWN ARE FOR 11" X 17 PRINTS ONLY |
| :---: |
| CADD FILE NAME <br> d4a_0305.dgn |
| dRAWING DATE: |

IDAHO
TRANSPORTATION
DEPARTMENT
BOISE IDAHO

| ORIGINAL SIGNED BY: LOREN Thomas |
| :--- |
| ASSISTANT CHIEF ENGINEER (DEVELOPMENT) |
| ORIGINAL SIGNED BY: STEVEN HUTCHINSON |
| CHIEF ENGINEER |





ASPHALT TREATED PERMEABLE BASE LAYER

$\frac{\text { RURAL EDGE DRAIN PIPE PROFILE }}{(\text { SEE NDTE NO } 5 \text { ) }}$ RURAL EDGE DRAIN PLACEMENT

CONTINUDUS EDGE DRAIN - OPTION

CONTINUQUS EDGE DRAIN - OPTION 2
FOR ASPHALT TREATED PERMEABLE BASE EDGE DRAIN AT SAG VERTICAL CURVE
OR ROCK CAP OR ASPHALT TREATED PERMEABLE BASE
$\frac{\text { RURAL EDGE DRAINS }}{\text { PLAN VIEW }}$

|  |
| :---: |
| English |
| STANDARD DRAWING NO |
| D-4-C |
| Sheet 1 of |



URBAN EDGE DRAIN PLAN VIEW


SECTION A-A
URBAN EDGE DRAIN PLACEMENT


GEOTEXTILE DETAIL


REMOVABLE RODENT SCREEN DETAIL


ISOMETRIC VIEW

$$
\begin{aligned}
& \text { SEE RODENT SCREEN } \\
& \text { GUTDF DFTAII }
\end{aligned}
$$

TOP VIEW


FRONT VIEW

CONCRETE APRON AND RODENT PROTECTOR DETAIL


EDGE DRAIN DETAIL (SEE NOTE NO. 7)
S STANDARD DRAWING

| REVISIONS |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | NO. | DATE | BY | NO. | DATE |


| scales shown ARE FOR $11^{\prime \prime} \times 17$ PRINTS ONLY |
| :---: |
| CADD FILE NAME: d4c_0514.dgn |
| DRAWING DATE: FEBRUARY, 2014 |

IDAHO
TRANSPORTATION
DEPARTMENT

| BOISE IDAHO | DRIGINAL SIGNED BY: CARL D.MANN |
| :--- | :--- |

Sheet 2 of 2



REINFORCED EDGE


ELEVATION
APRON FOR ROUND METAL PIPE GALVANIZED STEEL)

| DIMENSIONS TABLE |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PIPE <br> DIA. | $\begin{aligned} & \text { THICK- } \\ & \text { NESS } \\ & \left(1000^{\prime} \mathrm{S}\right) \end{aligned}$ | ALL DIMENSIONS ARE IN INCHES |  |  |  |  |  | APPROX. SLOPE | BODY |
|  |  | $\frac{\mathrm{A}}{\mathrm{CMIN} .)}$ | B | $\begin{array}{\|c} \hline \mathrm{H} \\ \text { (MIN.) } \end{array}$ | $\frac{F}{(M I N .)}$ | $\frac{L}{ \pm 22^{\prime \prime}}$ | $\frac{\mathrm{w}}{(\mathrm{MAX} .)}$ |  |  |
| 12 | 0.064 | 5 | 7 | 6 | 22 | 21 | 24 | 21/2:1 | 1 PC . |
| 15 | 0.064 | 7 | 8 | 6 | 28 | 26 | 30 | 21/2:1 | 1 PC . |
| 18 | 0.064 | 7 | 10 | 6 | 34 | 31 | 36 | 21/2:1 | 1 PC |
| 21 | 0.064 | 8 | 12 | 6 | 40 | 36 | 42 | 21/2:1 | 1 PC |
| 24 | 0.064 | 9 | 13 | 6 | 46 | 41 | 48 | 21/2:1 | 1 PC |
| 30 | 0.079 | 13 | 16 | 8 | 55 | 51 | 60 | 21/2:1 | 1 PC . |
| 36 | 0.079 | 11 | 19 | 9 | 70 | 60 | 72 | 21/2:1 | 2 PC . |
| 42 | 0.109 | 15 | 25 | 10 | 82 | 69 | 84 | 21/2:1 | 2 PC . |
| 48 | 0.109 | 17 | 29 | 12 | 88 | 78 | 90 | 21/2:1 | 2 PC . |
| 54 | 0.109 | 17 | 33 | 12 | 100 | 84 | 102 | 2:1 | 2 PC . |
| 60 | 0.109 | 17 | 36 | 12 | 112 | 87 | 114 | 21/2:1 | 3 PC . |
| 66 | 0.109 | 17 | 39 | 12 | 118 | 87 | 120 | 21/2:1 | 3 PC. |
| 72 | 0.109 | 17 | 44 | 12 | 120 | 87 | 126 | 21/2:1 | 3 PC . |
| 78 | 0.109 | 17 | 48 | 12 | 130 | 87 | 132 | 21/2:1 | 3 PC. |
| 84 | 0.109 | 17 | 52 | 12 | 136 | 87 | 138 | 21/2:1 | 3 PC |



## APRON FOR METAL ARCH PIPE

(GALVANIZED STEEL)

| DIMENSIONS TABLE |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PIPE-ARCH |  | $\begin{gathered} \text { THICK- } \\ \text { NESS } \\ (1000 \text { 'S } \end{gathered}$ | ALL | DIME | NSIONS ARE IN INCHES |  |  |  | APPROX. <br> SLOPE | BODY |
| SPAN | RISE |  | A |  | H | F | L | W |  |  |
| IN. | IN. |  | (MIN.) |  | (MIN.) | (MIN.) | $\pm 2^{\prime \prime}$ | (MAX.) |  |  |
| 17 | 13 | 0.064 | 5 | 9 | 6 | 28 | 20 | 50 | 21/2:1 | 1 PC |
| 21 | 15 | 0.064 | 6 | 11 | 6 | 34 | 24 | 58 | 21/2:1 | 1 PC |
| 24 | 18 | 0.064 | 7 | 12 | 6 | 40 | 28 | 63 | 21/2:1 | 1 PC . |
| 28 | 20 | 0.064 | 7 | 16 | 6 | 46 | 32 | 70 | 21/2:1 | 1 PC . |
| 35 | 24 | 0.079 | 9 | 16 | 6 | 58 | 39 | 85 | 21/2:1 | 1 PC |
| 42 | 29 | 0.079 | 11 | 18 | 8 | 73 | 46 | 104 | 21/2:1 | 1 PC . |
| 49 | 33 | 0.109 | 12 | 21 | 9 | 82 | 53 | 117 | 21/2:1 | 2 PC . |
| 57 | 38 | 0.109 | 16 | 26 | 10 | 88 | 62 | 130 | 21/2:1 | 2 PC . |
| 64 | 43 | 0.109 | 17 | 30 | 12 | 100 | 79 | 142 | 21/4:1 | 2 PC . |
| 71 | 47 | 0.109 | 17 | 36 | 12 | 112 | 77 | 156 | 21/4:1 | 2 PC . |
| 77 | 52 | 0.109 | 17 | 36 | 12 | 124 | 77 | 167 | 2:1 | 3 PC . |
| 83 | 57 | 0.109 | 17 | 44 | 12 | 130 | 77 | 179 | 2:1 | 3 PC . |

## NOTES

ALL 3-PIECE BODIES (APRONS WITH PIPE DIA. $60 \mathrm{IN} . \&$
LARGER) TO HAVE 0.109 IN. SIDES AND 0 . 38 IN CENTE LARGER) TO HAVE 0.109 IN. SIDES AND 0.138 IN. CENTER
PANELS. MULTIPLE PANEL BODIES TO HAVE LAP SEAMS WHICH ARE
2. THE REINFORCED edges of galvanized steel aprons, for THE REINFORCED EDGES OF GALVANIZED STEEL APRONS, FOR
ROUND METAL PIPE SIZES 60 IN. THRDUGH 84 IN. AND FOR
 TO BE SUPPLEMENTED BY GALVANIZED STIFFENER ANGLES.
THE ANGLES ARE TO BE ATTACHED BY GALVANIZED BOLTS THE ANGLES
AND NUTS.
3. ANGLE REINFORCEMENT WILL BE PLACED UNDER THE CENTER PANEL SEAMS ON ARCH PIPE SIZES $77 \times 52$ IN. THRDUGH
4. A GALVANIZED TOE PLATE IS AVAILABLE AS AN ACCESSOR AHEN
APRON.
5. THE APRON SHALL BE CONNECTED TO PIPE BY USING EITHER 5. NOT TO SCALE.

| REVVISIONS |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | NO. | DATE | BY | NO. | DATE |
| 1 | BY |  |  |  |  |  |  |
| 1 | $09-64$ |  | 6 | $06-84$ |  |  |  |
| 2 | $06-68$ |  | 7 | $07-92$ | MSM |  |  |
| 3 | $04-70$ |  | 8 | $11-01$ | MSM |  |  |
| 4 | $10-76$ |  | 9 | $03-05$ | MSM |  |  |
| 5 | $07-78$ |  |  |  |  |  |  |


| TRANSPORTATION DEPARTMENT |  |
| :---: | :---: |
|  |  |
|  |  |


|  | STANDARD DRAWING |
| :---: | :---: |
| ORIGINAL SIGNED BY: LOREN THOMAS |  |
| ASSISTANT Chief engineer (Development) | GALVANIZED STEEL APRONS <br> FOR PIPE CULVERTS |
| ORIGINAL SIGNED BY: STEVEN HUTCHINSON |  |




## NOTES

1. TONGUE AND GROOVE JOINTS ARE SHOWN ON THE DRAWING FOR EXAMPLE ONLY. OTHER JOINTS MAY BE
APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. 2. Not to scale.

ANCHORING DETAIL



END ELEVATION



SIDE ELEVATION

| MINIMUM DIMENSIONS TABLE |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PIPE DIA. |  |  | MUM | IME | SIONS | (INC) |  |  |
| A | B | C | D | E | F | G | H | $J$ |
| 4 | 15 | 15 | 21/2 | 3 | 81/4 | 8 | 13 | 24 |
| 6 | 15 | 15 | 21/2 | 3 | 81/4 | 8 | 13 | 30 |
| 8 | 22 | 22 | 3 | 6 | 121/2 | 121/4 | 17 | 36 |
| 10 | 22 | 22 | 3 | 6 | 121/2 | 121/4 | 17 | 42 |
| 12 | 27 | 27 | 3 | 7 | 161/4 | 16 | 21 | 48 |
| 15 | 32 | 32 | 31/2 | 8 | 191/4 | 19 | 25 | 60 |
| 18 | 36 | 36 | 4 | 9 | $233 / 4$ | $231 / 2$ | 28 | 72 |
| 21 | 42 | 42 | 4 | 11 | 261/4 | 26 | 32 | 84 |
| 24 | 54 | 54 | 4 | 15 | 301/4 | 30 | 40 | 90 |
| 30 | 60 | 60 | 4 | 19 | 361/4 | 36 | 42 | 102 |

1. Slide gate and guides shall be 16 gage
2. NO SCALE IS REPRESENTED ON THESE DRAWING ILLUSTRATIONS.

| REVISIINS |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | NO. | DATE | BY | NO. | DATE |
| 1 | BY |  |  |  |  |  |  |
| 2 | $08-64$ |  | $11-86$ | GB |  |  | MSM |
|  |  |  |  |  |  |  |  |
| 3 | $09-01$ | MS |  |  | MSM |  |  |
| 4 | $03-05$ | MSM |  |  | MSM |  |  |
|  |  |  |  |  |  |  |  |


| IDAHO <br> TRANSPORTATION DEPARTMENT | ORIGINAL SIGNED BY: LOREN THOMAS |
| :---: | :---: |
|  | ASSIStant Chief engineer (DEVELOPMENT) |
|  | ORIGINAL SIGNED BY: Steven hutchinson |
| BOISE IDAHO | CHief engineer |







ISOMETRIC VIEW

| REVISIONS |  |  |  |  |  |  |  |  | SCALES SHOWN ARE FOR $11^{\prime \prime} \times 17$ PRINTS ONLY | IDAHO <br> TRANSPORTATION DEPARTMENT |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | \| NO | DATE | MSM | No. | DATE | BY |  |  |  |
| 2 | 03-92 | MSM | 7 | 06-03 | MSM |  |  |  |  |  |  |
| 3 | 12-92 | TMR | 8 | 03-05 | MSM |  |  |  | $\begin{aligned} & \text { CADD FILE N } \\ & \text { d9_0305.dgn } \end{aligned}$ |  |  |
| 5 | 05-95 | MSM |  |  |  |  |  |  | DRAWING DATE: AUGUST, 1968 | BOISE IDAHO |  |


|  | STANDARD DRAWING |
| :---: | :---: |
| ORIGINAL SIGNED BY: LOREN THOMAS | CONCRETE HEADWALL FOR ARCH PIPE CULVERT |
| ASSISTANT Chief engineer (DEVELOPMENT) |  |
| original signed by: steven hutchinson |  |
| Chief Engineer |  |

$\frac{\text { Emglish }}{\text { STANDARD DRAWING NO. }}$
REQUIRES SHEET 2 OF 2
Sheet 1 of 2

| METAL REINFORCEMENT TABLE |  |  |  |
| :---: | :---: | :---: | :---: |
| MARK | LOCATION | $\begin{array}{\|l\|} \hline \text { BAR } \\ \text { SIZE } \\ \hline \end{array}$ | SKETCH |
| F-1 | FLOOR | NO. 4 | $\square$ |
| L-1 | $\begin{aligned} & \text { TOP \& BOTOM OF } \\ & \text { INLET LIP IN } \\ & \text { FLLOR } \end{aligned}$ | NO. 4 |  |
| H-1A | horiz. IN TOP OF <br> WING WALL \& IN <br> FLOOR BACK WALL | NO. 4 |  |
| H-1B | HORIZ. IN WING WALL BETWEEN H-1As' | NO. 4 |  |
| H-2 | VERT. IN BCKWL. <br> WALL BETWEEN AROUND PIPE | NO. 4 |  |
| W-1A | EACH SIDE OF PIPE IN BACKWALL, FLOOR, \& INLET LIP | NO. 4 |  |
| W-1B | IN FLOOR, \& INLET LIP | NO. 4 | $0_{0}^{\circ}$ |
| W-1C | IN FLOOR, \& INLET LIP | NO. 4 | $-0^{\circ}$ |
| L-2 | VERTICAL IN FLOOR, \& INLET LIP | NO. 4 |  |
| W-2 | VERTICAL IN WING WALLS | NO. 4 |  |



| $\begin{aligned} & \text { CULVERT } \\ & \text { SIZE } \\ & \text { SPAN×RISE } \end{aligned}$ | CONCRETE (C.Y.) |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | WING \& BCKWL | FLoor | LIP | TOTAL |
| $17 \times 13$ | 0.2 | 0.3 | 0.2 | 0.7 |
| $21 \times 15$ | 0.3 | 0.3 | 0.2 | 0.8 |
| $24 \times 18$ | 0.4 | 0.4 | 0.2 | 1.0 |
| $28 \times 20$ | 0.4 | 0.5 | 0.2 | 11 |
| $35 \times 24$ | 0.5 | 0.7 | 0.2 | 1.4 |
| $42 \times 29$ | 0.8 | 0.9 | 0.2 | 1.9 |
| $49 \times 33$ | 1.0 | 1.1 | 0.3 | 2.4 |


| GRATE DIMENSION \& MATERIALS TABLE |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CULVERT SIZE SPANxRISE | IN INCHES |  |  |  |  |  |  |  |
|  | DIMENSIONS |  |  |  | bar sizes |  |  |  |
|  | $\mathrm{A}^{\prime}$ | * d X | Y | Z | B-1 | B-2 | B-3 | B-4 |
| $17 \times 13$ | 171/4 | 21 | 367/8 | 173/4 | $1 x^{1 / 4}$ | $11 / 4 x^{1 / 4}$ | $11 / 4 \times 1^{1 / 4} \times 1 / 4$ | $1 \times 1 / 4 \times 9$ |
| $21 \times 15$ | 211/2 | 241/8 | 441/2 | 261/2 | $1 x^{1 / 4}$ | $11 / 4 x^{1 / 4}$ | $11^{1 / 4 \times 1 / 4 x^{1 / 4}}$ | $1 \times 1 / 4 \times 9$ |
| $24 \times 18$ | 243/4 | 283/4 | 533/8 | 301/8 | $1 x^{1 / 4}$ | $11 / 4 x^{1 / 4}$ | $11 / 4 \times 1^{1 / 4} x^{1 / 4}$ | $1 \times 1 / 4 \times 9$ |
| $28 \times 20$ | 29 | 317/8 | 611/2 | 331/2 | $1 x^{1 / 4}$ | $11 / 4 \times 1 / 4$ | $11^{1 / 4 \times 1 / 4 x^{1 / 4}}$ | $1 \times 1 / 4 \times 9$ |
| $35 \times 24$ | 361/2 | 381/4 | 763/4 | 41 | $1 x^{1 / 4}$ | $11 / 4 \times 1 / 4$ | $1{ }^{1 / 4 \times 1 / 4 x^{1 / 4}}$ | $1 \times 1 / 4 \times 9$ |
| $42 \times 29$ | 431/2 | 46 | 93 | 50 | $11 / 4 x^{1 / 4}$ | $11 / 2 \times 1 / 4$ | $11 / 2 \times 1^{1 / 2} \times 1 / 4$ | $1{ }^{1 / 2} \times 1 / 4 \times 9$ |
| $49 \times 33$ | 511/2 | 521/4 | 108 | 571/8 | $11 / 2 \times 1 / 4$ | $13 / 4 x^{1 / 4}$ | $13 \times 1 \times 1 / 4 \times 1 / 4$ | $13 / 4 \times 1 / 4 \times 9$ |

## NOTES

1. THIS HEADWALL SHALL BE USED ONLY WHEN PROTECTED
BY GUARDRAIL OR INSTALLED OUTSIDE THE CLEAR ZONE.
2. CAST-IN-PLACE HEADWALLS SHALL CONFORM TO SECTION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION
3. THE METAL REINFORCEMENT SHALL BE NO. 4 BARS. ALL REINFORCEMENT SHALL HAVE A MINIMUM CONCRETE
COVER OF $2^{\prime \prime}$ AND $3^{\prime \prime}$ MINIMUM COVER IF CAST AGAINS EARTH.
4. ALL EDGES to have $3 / 4$ " CHAMFER OR tOOLED EDGES
5. ALL PIPE CULVERTS WITH A CONCRETE HEADWALL SHALL LOSS COEFFICIENT K $=0.2$ FOR BEVELED ENTRANCES.
6. THE METAL FOR THE GRATE SHALL MEET THE GRATE SHALL MEET THE REQUIREMENTS OF THE
AMERICAN WELDING SOCIETY D1.1. GRATES FOR INLE HEADWALLS WILL BE REQURED ONLY WHEN SHOWN ON
THE ROADWAY PLANS. GRATES NEED NOT BE PAINTED OR GALVANIZED.
7. USE CONCRETE, METAL, OR PLASTIC PIPE WITH
HEADWALL (CONCRETE PIPE SHOWN ON DRAWING)
8. NOT TO SCALE.

| $\mathrm{W}-1 \mathrm{~B}$ | 0 | $\mathrm{~N} / \mathrm{A}$ | 2 | $41 / 1 / 2$ | 2 | 45 | 2 | 48 | 2 | 52 | 2 | $591 / 2$ | 2 | 62 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $W-1 C$ | 0 | $\mathrm{~N} / \mathrm{A}$ | 1 | $\mathrm{~N} / \mathrm{A}$ | 1 | 32 | 1 | $331 / 2$ | 1 | 36 | 1 | 39 | 2 | 40 |
| $W-2$ | 4 | 26 | 4 | $291 / 2$ | 4 | 32 | 4 | 34 | 4 | $381 / 2$ | 6 | 44 | 6 | 48 | | $\mathrm{W}-2$ | 4 | 26 | 4 | $291 / 2$ | 4 | 32 | 4 | 34 | 4 | $381 / 2$ | 6 | 44 | 6 | 48 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| TOT. WT. | 39 | lbs. | 46 lbs. | 58 lbs. | 64 lbs. | 73 lbs. | 90 | lbs. | 101 lbs. |  |  |  |  |  |

* d ALLOW $3 / 4^{\prime \prime}-1$ " EXTRA BAR LENGTH FOR HOLE FABRICATION
BAR LOCATION DETAILS

| HEADWALL DIMENSION TABLE |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{gathered} \hline \text { CULVERT } \\ \text { SIZE } \\ \text { SPAN×RISE } \\ \hline \end{gathered}$ | $\begin{aligned} & ((S S+R) / 2) / 24 \\ & \text { VALUES } \end{aligned}$ | in inches |  |  |  |  |  |  |  |  |  |
|  | D/24 | A | B | H | L | M | N | P | Q | U | $\checkmark$ |
| $17 \times 13$ | 5/8 | 181/4 | 211/2 | 221/4 | 261/4 | 301/4 | 221/4 | 287/8 | 24 | 167/8 | 611/4 |
| $21 \times 15$ | $3 / 4$ | 233/8 | 233/8 | 241/2 | 291/4 | 341/2 | 241/2 | 311/4 | 27 | 183/4 | 691/4 |
| $24 \times 18$ | 7/8 | 261/8 | 261/8 | 273/4 | 331/2 | 373/4 | 273/4 | 345/8 | 313/8 | 211/2 | 78 |
| $28 \times 20$ | 1 | 28 | 28 | 30 | 363/8 | 42 | 30 | 37 | 341/4 | 233/8 | 86 |
| $35 \times 24$ | 11/4 | 313/4 | 313/4 | 341/2 | 421/4 | 491/2 | 341/2 | 413/4 | 40 | 271/8 | 101 |
| $42 \times 29$ | 11/2 | 361/2 | 361/2 | 40 | 491/2 | 57 | 40 | 471/2 | 473/8 | 313/4 | 118 |
| $49 \times 33$ | $13 / 4$ | 401/8 | 401/8 | 443/8 | 551/8 | 641/2 | 443/8 | 521/8 | 53 | $313 / 4$ | 1323/4 |

METAL REINFORCEMENT TABLE


| REVISIONS |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | NO. | DATE | BY | NO. | DATE |
| 1 | BY |  |  |  |  |  |  |
| 1 | $10-69$ | $10-01$ | MSM |  |  |  |  |
| 2 | $03-92$ | MSM | 7 | 06603 | MSM |  |  |
| 3 | $12-92$ | TMR | 8 | $03-05$ | MSM |  |  |
| 4 | $05-95$ | MM |  |  |  |  |  |
| 5 | $04-99$ | MSM |  |  |  |  |  |


| scales shown ARE FOR $11^{\prime \prime} \times 17$ PRINTS ONLY |
| :---: |
| CADD FILE NAME d9_0305.dgn |
| DRAWING DATE |

## IDAHO <br> TRANSPORTATION ( <br> DEPARTMENT

original signed by: Loren thoyas ORIGINAL SIGNED BY: LOREN THOMAS ORIGINAL SICNED BY: STEVEN HUTOMENT) original signed by: steven hutchinson $\frac{\text { ORIGINAL SIGNED BY: STEVEN }}{\text { CHIEF ENGINEER }}$
CHIEF ENGINEER






NOTES

1. PATTERNS USED IN DRAWING:
inlet sections:
CATCH basin bottoms:
PAVEMENT:
$\square$
2. INLETS AND CATCH BASINS MAY BE EITHER PRECAST OR CAST-IN-PLACE. PRECAST UNITS SHALL MEET THE REQUEEMERTS OF ASTM C C 913 (PRIIR
APPROVAL OF SHOP DRAWINGS WILL BE REQUIRED ON MODIFIED UITS.) 3. A $1^{\prime \prime}$ SIDE DRAFT IS ALLOWED FOR FORM REMOVAL.
3. CAST-IN-PLACE INLETS AND CATCH BASINS SHALL CONFORM TO SECTION
OO9 - MINR STRUCURES OF THE CURRENT ITD STANDARD SPECIFICATIONS 5. THE GRADE LINE OF THE TOP INSIDE OF ANY PIPE SHALL ENTER AT A
POINT NO LOWER THAN THE TOP INSIDE OF THE OUTLET PIPE. 6. PIPES CAN ENTER OR LEAVE THE BOX IN ANY DIRECTION. ALL CONNEC TIONS AND BROKEN AREAS SHALL BE GROUTED SMODTH. . STEEL angles shall be set so that each bearing bar of prefab ANGLES SHALL BE SET SO THAT EACH BEARING BAR OF PREFAB-
RICATED GRATE SHALL HAVE FULL BEARING ON BDTH ENDS. THE FINISHED
OP OF CONCRETE SHALL BE EVEN WITH TE ANGE GRAT. SURE STRUCTURAL STEEL NEED NET EVEN PAINTED BUT SHALL MEET THE REQUTHE ANGLE/GRATE SURFACE. THE all ASTM A 36
4. ALL METAL REINFORCEMENT USED SHALL BE NO 4 BARS. THE METAL 9. GRAY IRON CAST TO THE DIMENSIONS GIVEN FOR THE STPEL GRATES GRAY BE USED THE CASTINGS.
5. INLET/CATCH BASIN GRATES MAY EITHER BE RESISTANCE WELDED OR
ARC WELDED. IN EITHER CASE THE GRATE SHALL BE TRUE AND FLUSH. 1. GRATE B WILL BE USED DN WHEN SPECIFIED.
W. NDT TO SCALE.

| REVISIONS |  |  |  |  |  |  |  |  | SCALES SHOWN ARE FOR $11^{\prime \prime} \times 17$ PRINTS ONLY |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. | DATE | BY | No. | DATE | BY | No. | DATE | BY |  |
| 1 | 10-80 |  | 6 | 09-94 | MSM | 11 | 11-08 | JRV |  |
| 2 | 04-82 |  | 7 | 06-97 | MSM |  |  |  |  |
| 3 | 03-84 |  | 8 | 06-01 | MSM |  |  |  | CADD FILE NAME e6a_1108.dgn |
| 4 | 01-89 | GB | 9 | 11-04 | MSM |  |  |  |  |
| 5 | 12-93 | MSM | 10 | 05-07 | MSM |  |  |  | JULY, 1961 |


| IDAHO |
| :---: | :---: | :---: |
| TRANSPORTATION |
| DEPARTMMENTT |

## English <br> E-6-A



(WEIGHT: APPROXIMATELY 88 LBS., SEE NOTE $9 \& 10$ )


| REVVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | NO. | DATE | BY | NO. | DATE |  |
| 1 | BY |  |  |  |  |  |  |  |
| 1 | $10-80$ |  | 6 | $09-94$ | MSM | 11 | $11-08$ |  |
| 2 | $04-82$ |  | 7 | $06-97$ | MSM |  |  |  |
| 3 | $03-84$ |  | 8 | $06-01$ | MSM |  |  |  |
| 4 | $01-89$ | GB | 9 | $11-04$ | MSM |  |  |  |
| 5 | $12-93$ | MSM | 10 | $05-07$ | MSM |  |  |  |





| REVISIUNS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | NO. | DATE | BY | NO. | DATE |  |
| 1 | BY |  |  |  |  |  |  |  |
| 1 | $04-82$ |  | 6 | $11-04$ | MSM |  |  |  |
| 3 | $01-89$ |  | 7 | $11-08$ | JRV |  |  |  |
| 3 | $12-94$ | MSM |  |  |  |  |  |  |
| 4 | $06-97$ | MSM |  |  |  |  |  |  |
| 5 | $03-01$ | MSM |  |  |  |  |  |  |


| IDAHO |
| :---: | :---: | :---: |
| TRANSPORTATION |
| DEPARTMENTT |





SECTION A-A

CATCH BASIN - DETAILS


SECTION b-b

STANDARD DRAWING
English

ORiginal signed by: loren thomas
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
original signed by: tom cole
CATCH BASIN TYPE 7
REQUIRES SHEET 2 OF 2

| bar List |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| MARK | LOCATION | SIZE | $\begin{gathered} \text { BAR } \\ \text { LENGTH } \end{gathered}$ | NO. | SKETCH |
| B1 | FLOOR | 4 | 7-6" | 1 | 7'-6" |
| B2 | WALLS | 4 | 2'-9" | 4 | $2^{2 \prime-0 " 1 " ~}$ |
| B3 | WALLS <br> (ADD AS NEEDED) | 4 | 20'-0" | 4 | $\begin{aligned} & \bar{\prime}=1^{\prime}-0^{\prime \prime} 7^{\prime}-5^{\prime \prime} \\ & \overline{7^{\prime}-5^{\prime \prime}} \end{aligned}$ |
| B4 | WALL \& SUPPORTS | 4 | $1^{\prime \prime}$ - ${ }^{\prime \prime}$ | 6 | $\stackrel{i}{\stackrel{1}{N} / 2^{1 "}}$ |
| B5 | WALLS \& FLOOR (ADD LENGTH AS NEEDED) | 4 | $6^{\prime}-2$ ' | 4 | $\dot{\nabla} / 5$ |
| B6 | WALLS \& FLOOR (ADD LENGTH AS NEEDED) | 4 | 5'-0' | 4 | 5'-0" |
| B7 | SUPPORTS | 4 | 2'-2' | 4 | 2'-2" |
| 157.8 L.F.AT 0.668 LBS/FT. $=106$ LBS |  |  |  |  |  |

## NOTES

CATCH BASINS MAY BE EITHER PRECAST OR CAST-IN-PLACE RECAST UNITS SHALL MEET THE REQUIREMENTS OF ASTM C913. PRIIR
APPROVAL OF THE SHOP DRAWING WILL BE REQURED ON PRECAST UNITS, 2. A 1" SIDE DRAF TH IS ALLOWED FOR FORM REMOVAL.
3. CAST-IN-PLAAE CATCH BASINS SHALL CONEROM TO SECTION 609 - MINOR STRUCTURES OF THE
FOR HIGHWAY CONSTRUCTION.
4. THE GRADE LINE OF THE TOP INSIDE OF ANY PIPE SHALL ENTER AT A 5. PIPES CAN ENTER OR LEAVE THE BOX IN ANY DIRECTION. ALL CONNECTIONS AND BRDKEN AREAS SHALL BE GRDUTED SMODTH. 6. STEEL ANGLES SHALL BE SET SO THAT EACH BEARING BAR OF PREFAB-
RICAED GRAE SHAL HAVE FULL BEARING ON BOTH ENDS. THE FINEHED TOP OF CONCRETE SHALL BE EVEN WITH THE ANGLE/GRATE SURFACE. THE
STRUCTURAL STEEL NEED NOT BE PAINTED BUT SHALL MEET THE REQUIRESTRUCTURAL STEEL NEED NOT BE PAINTED BUT SHALL MEET THE REQUIRE-
MENTS OF ASM A36.
7. ALL METAL REINFORCEMENT SHALL BE ND. 4 BARS. METAL REINFORCEMEN SHALL BE SMODTH CUT TO FIT AROUND PIPES. VERTICAL BARS B5 \& B6 NEED TO LENGTHENED TO ACCOMMODATE CATCH BAS
8. GRATE B WILL BE USED ONLY WHEN SPECIFIED.
9. GRAY IRON CAST TO THE DIMENSIONS GIVEN FOR THE STEEL GRATES
MAY BE USED. THE CASTINGS SHALL CONFORM TO AASHTO M 306 CLASS $35 B$ GRAY ITON CASTINGS
10 NDT TO SCALE.
(9) 3 " $\times 3 / 8{ }^{\prime \prime}$
BEARING
BARS CROSS BARS:
$3 / 8^{\prime \prime}$ DIA. $\times 1^{1-4} / 2^{\prime \prime}$ OR $3 / 8 " D I A . \times 11-41 / 2^{\prime \prime} 0 R$
RFCTAGGULAR BAR OF FQUIVALENT AREA

1" DIA. BARS SHALL

| * b TABLE OF DIMENSIONS |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| D/D' | A/A' | $\begin{array}{l\|} \hline \hline \mathrm{B} \\ \text { MIN. } \end{array}$ | F/F | G | $\begin{aligned} & \hline \hline \text { BARS } \\ & \text { (EA.) } \end{aligned}$ | T |
| 18" | 3'-4" | 3'-0' | 2'-3' | 3 " | 1 | $1 / 4^{\prime \prime}$ |
| $24^{\prime}$ | 4'0" | 3'-7" | 2'-11" | 33/6" | 2 | $1 / 4^{11}$ |
| 30' | $4^{\prime}-6^{\prime \prime}$ | 4'-3" | 3'-5" | 31/8" | 3 | 5/1/ |
| 36" | 5'-0' | 4'-9'1 | 3'-11" | 31/8" | 3 | $3 / 8^{\prime \prime}$ |
| $48^{\prime \prime}$ | 6'-0' | 5'-2'\| | $4^{\prime}-11^{\prime \prime}$ | $33 / 8{ }^{\prime \prime}$ | 4 | 7/16" |

I/6" HOLES DRILLED


METAL GRATE

elevation
INLET - DETAILS

TYPE 8 INLET CAN BE EITHER PRECAST OR CAST-IN-PLACE. PRECAST AND MODIFILD INLETS SHALL MEET THE REQUIREMENTS OF ASTM CAI3.
PRIOR APPROVAL OF SHOP DRAWINGS IS REQUIRED FOR USE OF PRECAST AND MODIFIED IN ETS. THF APRDN MUST BE CAST-IN2. CAST-IN-PLACE INLET TYPE 8 SHALL CONFORM TO SECTION 609-
MINOR STRUCTURES OF THE CUREENT ITD STANDARD SPECIFICATIONS FOR ghway Construction
3. ALL SIDE DRAFT IS ALLOWED FOR FORM REMOVA

REINFORCEMENT SHAL BE SMOTHED SHALL BE NO. 4 BARS. THE METAL BARS SHALL HAVE A MINIMMM CONCRETE COVER OF 2 " ANDIPR ${ }^{\prime \prime}$ " A
5. THE INLET SHALL BE CONSTRUCTED RECTANGULAR USING THE APPROPRIATE WALL DIMENSIONS (A \& A') DETERMINED BY THE CONNECTING PIPE
SIZES. USE THE ARGER WALL DIMENSION IF TWD DIFFERENT PIPE SIZES SIZES. USE THE LARGER WALL DIMENSION IF TWO DIFFERENT PIPE SIZES
CONNECT TO OPPOSTE WALS. USE THE MINIMUM WALL DIMENSION IF NO PIPE(S) CONECT TO OPPOSIE WALLS SELECT THE DEPTHENIB MN.) BY
USING THE VALUE OF THE INLET'S LAREST CONECTING PIPE. USING THE VALUE OF THE INLET'S LARGEST CONNECTING PIPE.
6. PIPES CAN ENTER OR LEAVE THE BOX IN ANY DIRECTION. ALL CONNEC-
TONS AND BROKEN AREAS SHALL BE GROUED SMOOTH 7. THE GRADE LINE OF THE TOP INSIDE OF ANY INLET PIPE SHALL BE AT 8. $\begin{aligned} & \text { ONLY COMBINATIINS OF THE DIMENSIONS SHOWN ON THE TABLE SHALL } \\ & \text { BE USED TO CONSTRUCT A TYPE } 8 \text { INLET. }\end{aligned}$ 9. THE METAL FOR THE GRATE SHALL MEET THE REQUIREMENTS OF ASTM AJ6. THE ME AL GRATE NEED NQT BE PAINTED OR GALVANIZED.
10. WEDING OF THE METAL GRATE SHALL MEET THE REQUIREMENTS OF
11. GRAY IRON CAST TO THE DIMENSIONS GIVEN FOR THE STEEL GRATES
MAY BE USED. THE CASTINGS SHALL CONFORM TO AASHTO M 306 CLASS $35 B$
12. Not to scale.

STANDARD DRAWING

INLET TYPE 8
SHEET 1 of 1



SECTION B-B


WEIGHT: APPROXIMATELY 203 LBS
METAL GRATE

## NOTES

1. CATCH BASIN TYPE 10 IS FOR USE WITH RUNOFF DRAIN OR EMBANKMENT
PROTECTOR WITH SLOTTED DRAIN, STANDARD DRAWING D-1-B. 2. A $1^{\prime \prime}$ SIde draft is allowed for form removal.
2. CATCH BASINS FOR SLOTTED DRAINS CAN BE PRECAST OR CAST-IN-PLACE, ENSURE
THAT PRECAST CATCH BASINS MEET THE REQUREMENS OF AASHTO M 199 . TITT PRECAST CATCH BASINS OR CONSTRUCT CAST-IN-PLACE CATCH BASINS TO MATCH THE ROADWAY CROWN. OBTAIN THE ENGINEER'S APPROVAL PRIOR TO THE INSTALLATION OF 4. CONSTRUCT CAST-IN-PLACE CATCH BASINS IN ACCORDANCE WITH SECTION 609-
MINOR STRUCTURES OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION 5. PROVIDE A MINIMUM CONCRETE COVER OF 2" OVER REINFORCING STEEL. PROVIDE
A MINIMUM CONCRETE COVER OF 3" OVER REINORCING STEEL IF CAST AGAINST A MINIM
EARTH.
3. Ensure that the finished top of concrete is flush with the grate
Surface. 7. ENSURE THAT THE METAL FOR THE GRATE MEETS THE REQUIREMENTS OF ASTM
A36. PAINTING OR GALVANIZATIIN OF THE METAL GRATE IS NOT REQUIRED. 8. WELD THE METAL GRATE IN ACCORDANCE WITH THE REQUIREMENTS OF THE
AMERICAN WELDING SOCIETY D1.1.
4. SET ANGLES SO THAT EACH BEARING BAR OF THE PREFABRICATED GRATE has
FULL BEARING ON BOTH ENDS.
5. ENSURE THAT THE DISCHARGE PIPE SIZE IS THE SAME SIZE AS the slotted
DRAIN PIPE. GROUT PIPE CONNECTIONS.

DRAIN PIPE. GROUT PIPE CONNECTIONS
11. not to scale.

| REVISIONS |  |  |  |  |  |  |  |  | scales shown ARE FOR $11^{\prime \prime} \times{ }^{17}$ PRINTS ONLY | IDAHO TRANSPORTATION DEPARTMENT |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | No. | DATE | BY | No. | DATE | BY |  |  | Original signed by: Loren thomas |
|  |  |  |  |  |  |  |  |  |  |  | highways program oversight engineer |
|  |  |  |  |  |  |  |  |  | ${ }^{\text {CADD F FILE }}$ NAME: |  | original signed by: tom cole |
|  |  |  |  |  |  |  |  |  | DRAWING DATE: | BOISE IDAH | CHIEF ENGINEER |






CONCRETE COLLAR PLAN


FRAME PLAN


SECTION A'-A'


COVER PLAN - BOTTOM HALF VIEW


* B' manhole frame bottom to fit
INSIDe ANOTHER FRAME LID OPENING



SECTION B-B

PLASTIC MANHOLE FRAME SUPPORT (SEE NOTE NO. 7)

## NOTES

1. THE MINIMUM WEIGHT OF THE FRAMES SHALL BE 150 LBS . THESE FRAMES AND COERS ARE TO BE USED IN ALL TRAFFIC

- ARAKS AS

2. FRAMES AND COVERS SHALL CONFORM TO AASHTOM M
306-05 AND SHALL BE MADE OF CLASS $35 B$ GRAY IRON. 3. THE LAYOUT AND DIMENSIONS OF THE WEBS ARE TYPICAL
MINIMUMS. PROPRIETARY MANHOLE COVERS WITHOUT WEBS ARE ACCEPTABLE PROVIDED THEY MEET AASHTO M $306-05$ AND MINIMUM WEIGHT REQUIREMENTS. ALL COVER DESIGNS SHALL BE PROVIDED WITH AN ANTI-SHIF T SKIRT THAT
EXTENDS A MINIMUM OF 1" BELOW THE COVER SEAT.
3. THE SURFACE SHOWN IS FOR ILLUSTRATION ONLY. ANY
SURFACE DESIGN, OTHER THAN SMOOTH, MAY BE USED UPON APPROVAL.
4. A CAST-IN-PLACE CONCRETC COULAR SHAL BE PLACED 5. A CAST-IN-PLACE CONCRETE COLLAR SHALL BE PLACED
AROUND THE MANHOLE FRAME UNESS OTHERWISE DIRECTED.
THE CONCRETE COLLAR SHALL MEET THE REQUREMENS OF THE CONCRETE COLLAR SHALL MEET THE REQUIREMENTS OF
SECTION GO9. MINR STRUCTURES, OF THE CURENT ITD
STANDARD SPECIFICATIONS FOR HIGHWAY COSTRUCTION. 6. THE CONCRETE COLLAR SHALL BE PLACED TO THE TOP OF
THE MANHOLE/STRUCTURE OR HAVE A MINIMUM THICKNESS OF 9. WHEN THE CONCRETE COLLAR IS A MIACED ON TIICKNESS TOP OF A MANHEN /STRCTURE THE THICKNESS SHALL NOT BE LESA
THAN THE NF DIMENSION" OF THE FRAME. THE VERTICAL METAL REINFORCEMSNT LENGTHS MAY BE ADJUSTED WHEN
THE COLLAR IS PLACED ON TOP OF A STRUCTURE/MANHOLE. 7. USE OF A PLASTIC MANHOLE FRAME SUPPORT, I.E.
WHIRLYGIG OR COMPARABLE DEVICE, IS AN ACCÉPTABLE CONSTRUCTION OPTION.
5. not to scale.


| ORIGINAL SIGNED BY: LOREN THOMAS |
| :--- |
| ASSISTANT CHIEF ENGINEER (DEVELOPMENT) |
| ORIGINAL SIGNED BY: |

STANDARD MANHOLE FRAME, COVER, \& CONCRETE COLLAR


| TRANSPORTATION DEPARTMENT |  |
| :---: | :---: |
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|  | 迹 | $\frac{\text { ORIGINAL SIGNED BY: TOM CO }}{\text { CHIEF ENGINEER }}$


| English |  |  |
| :---: | :---: | :---: |
| STANDARD DRAWING NO. |  |  |
| E-9 |  |  |
| SHEET | 1 | OF |



| REVISIONS |  |  |  |  |  |  |  |
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| NO. | DATE | BY | NO. | DATE | BY | NO. | DATE |
| 1 | BY |  |  |  |  |  |  |
| 1 | $06-61$ | NS | 6 | $10-05$ | MS |  |  |
| 2 | $02-74$ |  | 7 | $06-07$ | MSM |  |  |
| 3 | $12-92$ | MSM | 8 | $09-10$ | PLR |  |  |
| 4 | $05-95$ | MSM |  |  |  |  |  |
| 5 | $11-01$ | MSM |  |  |  |  |  |


| SCALES SHOWN ARE FOR $11^{\prime \prime} \times 17$ PRINTS ONLY |
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| CADD FILE NAME: e9_1010.dgn |
| DRAWING DATE: JUNE, 1961 |





| SUPPORT REINFORCEMENT TABLE |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MARK | bar size | NO. PER UNIT |  |  | LENGTH PER UNIT |  |  | SKETCH |
|  |  | INTER UNIT | $\begin{aligned} & \text { STD. } \\ & \text { END } \end{aligned}$ | $\begin{gathered} \text { SHORT } \\ \text { END } \\ \hline \end{gathered}$ | INTER. UNIT | $\begin{aligned} & \text { STD. } \\ & \text { END } \end{aligned}$ | $\begin{aligned} & \text { SHORT } \\ & \text { END } \end{aligned}$ |  |
| C-1 | NO. 4 | 8 | 4 | 4 | 7'-9" | $7^{\prime \prime}-9^{\prime \prime}$ | $7^{\prime \prime}-9{ }^{\prime \prime}$ |  |
| C-2 | NO. 4 | 18 | 20 | 16 | $1^{\prime}-9{ }^{\prime \prime}$ | $1^{\prime}-9{ }^{\prime \prime}$ | 1'-9" |  |
| C-3 | NO. 6 | 2 | 2 | 2 | 7'-3' | 6'-3' | 6'-3" | $51 / 44^{12} 2^{\circ} 5^{3} 30$ |
| C-4 | NO. 4 | - | 2 | 2 | - | 7'-9' | 7'-9' |  |
| S-1 | NO. 3 | 6 | 3 | 3 | $1^{1}-95 / 8^{\prime \prime}$ | $1^{1}-95 / 8^{\prime \prime}$ | $1^{1}-95 / 8^{\prime \prime}$ | 80-4 |
| W.W.F. | $4 \times 4-W 2.9 \times W 2.9$ | 2 | 2 | 2 | $4^{\prime}-0 . \times 7^{\prime}-3{ }^{\prime \prime}$ | $4^{\prime}-0$ "x6'-3" | $4^{\prime}-0 \times \times 6$ '-3" | 31/4" ${ }^{\text {c }}$ |
| W.W.F. | $4 \times 4-W 2.9 \times W 2.9$ |  | 1 | 1 |  | $1^{\prime}-6$ "x7'-9" | $1^{\prime}-6{ }^{\prime \prime} \times 7^{\prime}-9$ - | $135^{\circ} \mathrm{HOOKS}$ |


W.W.F. $4 \times 4-$ W2.9xW2.9

| STRUCTURAL STEEL TABLE |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MARK | SIZE | NO. PER UNIT |  |  | LENGTH PER UNIT |  |  |
|  |  | $\begin{gathered} \text { INTER. } \\ \text { UNIT. } \end{gathered}$ | $\begin{aligned} & \text { STD. } \\ & \text { END } \end{aligned}$ | $\begin{aligned} & \text { SHORT } \\ & \text { END } \end{aligned}$ | INTERMED. <br> UNIT | STANDARD | $\begin{gathered} \text { SHORT } \\ \text { END UNIT } \end{gathered}$ |
| WIDE FLG. | W8×18 | 6 | 6 | 5 | 7'-0" | 7-0" | 7'-0' |
| Rail | SEE D. | 15 | 15 | 15 | 7'-6" | 7'-6" | $7^{\prime}-0 \frac{1}{2 \prime \prime}$ |
| WELDSTUD | 3/8" DIA. | 16 | 16 | 14 | 4 | $4^{\prime \prime}$ | 4 " |
| ARMOR L | $2 \times 2 \times 1 / 4^{\prime \prime}$ | 2 | 2 | 2 | 7'-61/4" | $8^{\prime}-61 / 4^{\prime \prime}$ | $6^{\prime}-63 / 4{ }^{\prime \prime}$ |
| WING BRACE |  |  |  |  |  |  |  |
| ANGLE | $1 \times 1 \times 1 / 8^{\prime \prime}$ | WIN | G FR | AME | 4 REQ'D | 21'-1" | TOTAL |
| ANGLE | $1 \times 1 \times 1 / 8^{\prime \prime}$ | WIN | G FIL | Ler | 6 REQ'D | 16'-6" | TOTAL |
| POST L | $1 \times 1 x^{1} / 8^{\prime \prime}$ | WING | SUP | PORT | 4 REQ'D | VARIES A | APPR. 8'-0" |
| PLATE | $3 \times 51 / 2 \times 1 / 8$ | WING | FRAM | ME TIE | 2 REQ'D | TOTAL L | = 37'-9' |

## NOTES

1. THE ABOVE SECTIONS SHOW REINFORCEMENT, RAIL, AND RAIL SUPPORT 2. ALLLEMENT CATTE GUARDS SHALL MEET THE REQUIREMENTS OF SECTION 611 TLE GUARDS OF THE STANDARD SPECIFICATIONS THE CATTLE GUARD AND SUPPORTS SHALL BE DESIGNED FOR HS-25
LOADING. THE ELASTOMERIC BEARING PADS SHALL BE 50 DUROMETER IN
2. THE CATTLE GUARD SHALL BE PLACED ON BASE AGGREGATE 3". MIN.

THICKNESS OVER HAND LEVELED SOIL COMPACTED TO 95\% DENSITY
6. GRALVANIZED.
. DRAINAGE SHALL BE PROVided at the time of installation so the 7. THE CATTLE GUARD SHALL BE PLACED to match the roadway slope
8. COMMERCIAL OR ALTERNATE CATTLE GUARD DESIGNS MAY BE USED UPON 9. MEETING THE ABOVE REQUIREMENTS.
9. ALL DETAILS SH
10. NOT TO SCALE

| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | NO. | DATE | BY | NO. | DATE |  |
| 1 | BY |  |  |  |  |  |  |  |
| 2 | O7-02 | MSM | BA |  |  |  |  |  |
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| TRANSPORTATION DEPARTMENT |  |
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| ORIGINAL SIGNED BY: LOREN THOMAS |
| :--- |
| ASSISTANT CHIEF ENGINEER (DEVELOPMENT) |
| ORIGINAL SIGNED BY: STEVEN HUTCHINSON |
| CHIEF ENGINEER |

Sheet 2 of 2



FENCE TYPE 5
 FENCE TYPE 11


DROP FENCE TYPE 6
(SEE wood post staple detail, sheet 2 of 3)


33-A WOOD


ALTERNATE WOOD \& METAL POSTS
FENCE TYPE 2
WRAP THE TIE WITH 11 GAGE WIRE,
ONE WRAP PER EACH $6^{\prime \prime}$ OF MESH SHe
CACH G" OE WESH SECTION OTHER METHODS MAY BE USED WITH
PRIOR APPROVAL OF THE ENGINEER.


FENCE TYPE 3 WILL HAVE THE MESH HT. SHOWN AF TER THE POST MATERIAL SUFFIX

## ENCE TYPE 3

| REVISIONS |  |  |  |  |  |  |  |  | SCALES SHOWN ARE FOR $11^{\prime \prime} \times 17$ PRINTS ONLY | IDAHO <br> TRANSPORTATION DEPARTMENT | ORIGINAL SIGNED BY: LOREN THOMAS |
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| NO. | DATE | BY | NO. | DATE | BY | NO. | DATE | BY |  |  |  |
| 16 | 9-10 | PLR | 6 | 3-80 |  | 11 | 1-97 | M |  |  | highways program oversight engineer |
| $\frac{17}{3}$ | - ${ }^{12-12}$ | RDL | 7 | 7-84 | GB | 12 | $11-00$ $11-01$ | MSM | CADD FILE NAME: f2a_1212.std |  | Original signed by: tom cole |
| 4 | 2-77 |  | 9 | 12-92 | MSM | 14 | 5-04 | MSM |  | BOISE IDAHO | CHIEF ENGINEER |

STANDARD DRAWING
STANDARD BARBED, WOVEN, MESH, COMBINATION WIRE FENCES, \& FENCING DETAILS

REQUIRES SHEETS 2 OF 3 \& 3 OF 3


BRACE TYPE 8 FENCE AT
INTERVALS OF 400 FEET OR LESS
WOOD LINE BRACE FOR TYPE 8 FENCE


LINE BRACE
(+/-) $6^{\prime}-0^{\prime \prime}$ (12' POST SPACING)


TERMINAL BRACE


12" SQ. TOP OR 12"
CONCRETE BLOCK
LINE BRACE
ANGLE
STAPLE

level post staple ANGLE

## Coser

$$
\underset{G}{M}
$$

MIN
GRD
DIP POST STAPL * E ROTATE STAPLE ON ALL POSTS TO
STRADLE ACRSS THE WODD GRAIN
\& ALDW ENDUG SPACE FOR WIRE STRADDLE ACROSS THE WOOD GRAIN
$\&$ ALLOW ENOUGH SPACE FOR WIRE
TO SLIE THROGH THE DRIVEN
TO SLIDE
BACK OF
terminal brace


PLAN - FENCE TERMINAL STANDARD APPROACH POLICY \& PARTIAL CONTROL ACCESS


POST \& WIRE LOCATION PLAN - FENCE TERMINAL FULL CONTROL ACCESS

| FENCE GROUNDING TABLE |  |  |  |
| :---: | :---: | :---: | :---: |
| kV | * c GROUNDING INTERVAL | FENCE DISTANCE FROM TRANSMISSION $\Phi$ | FENCE TYPE |
| 500 | 200' | 0' - 100' | ALL |
| 500 | 500' | 100' - 200' | ALL |
| 345 | $400{ }^{\prime}$ | $0^{\prime}$ - $100{ }^{\prime}$ | ALL |
| 345 | 1000' | 100' - 150' | ALL |
| >230 | 500' | 50' - 100' | ALL |
| 100-230 | $120^{\prime}$ | WITHIN R/W | ALL |
| <100 | NONE | WITHIN R/W | W/METAL POSTS |
|  | 1/4 Mi. | WITHiN R/W | W/WOOD POSTS |
| * c FENCE SECTIONS SHORTER THAN THE GROUNDING INTERVAL IN LENGTH SHALL BE GROUNDED ONCE. |  |  |  |

## NOTES

1. WHEN A FENCE LINE APPRDACHES A DITCH, GULLY, OR DERESSION, PLACE THE LAST POST ON LEVEL GROND CLOSE
ENOUGH TO THE EDGE OF THE DROP-OFF TAT THE WIRE BE STRUNG TO A POST IN THE DEPRESSION WITHOUT TOUCHING 2. WHEN THE DEPTH OF A DEPRESSION ON A TYPE 1,5, OR 11
FENCE EXCEEDS THE TOTAL VERTICAL WIRE SPACING OVER A FENCE EXCEEDS THE TOTAL VERTICAL WIRE SPACING OVER A MAXIMUM HORIZNTAL RUN OF 2 FENCE SECTIONS, CONSTRUCT AN
EXTRA FENCE SECTIDN THRDUGH THE DEPRESSION. EXTRA LINE
BRACES AND A DEADMAN ARE TO BE INCLUDED THE BRACES AND A DEADMAN ARE TO BE INCLUDED IN THIS
APPLICATION. SEE THE SPECIAL APPLICATIONS FDR BARBED WIRE FENCES DETAIL.
2. WHEN A TYPE 1 GATE IS USED IN A SPECIAL APPLICATION FOR ARABED WIIE FENCES, AS SHOWN ON THE DETALLEATRA
LINE BRACES AND THE ATACHED UNDER TIMBER, WIRE, AND WIR LINE BRACES AND THE ATTACHED UNDER TIMBER, WIRE, AND WIRE
STAYS ARE INCLUED. THE HORIZONTAL WIRES ON THE UNDER SIMBER ARE NDT TO. BE STAPLED BUT WRAPPED AROUND BRACE
THET TWICE, THEN ARDUND TEF WIRE ITSELF. 4. THE SPECIAL APPLICATIONS FOR BARBED WIRE FENCES TYPES 2, 3, 7, AND 33 WITH PRIIR APEROVAL BY THE ENGINEE OR AS SHOWN ON THE PLANS. A TYPE 2 GATE SHOULD BE USED
WITH THESE FENCES. BARBED WIRE MAY BE USED THROUGH THE WITH THESE FENCES. BARBED WIRE MAY BE USED THROUGH THE
DEPRESSIONS ERCEATURE. HOWEVER, THE WIRES MUST MATCH
THE WOVENMESH WIRE SPACING AS' PRACTICABLE. DO NOT DEPRESNS WOVENMESH WITE SPACNG AS PRACTIIABL
THTTACH THE UNDER TIMBER TO A TYPE 2 GATE.
3. WHEN WOOD BRACES ARE USED AND THE EXTERIOR FENCE
 TERMINAL BRACES IN ACCORDANCE WITH THE FENCE BRACE
corner brace WOOD BRACES


$$
\begin{aligned}
& \text { OR 18"DIA. 18" }
\end{aligned}
$$



METAL BRACES DETAILS
FENCE GROUNDING DETAILS

| REVISIONS |  |  |  |  |  |  |  |  |
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| NO. | DATE | BY | No. | DATE | BY | No | dat | BY |
| 16 | 9-10 | PLR | 6 | 3-80 |  | 11 | 1-97 | MSM |
| 17 | 12-12 | RDL | 7 | 7-84 |  | 12 | 11-00 | SM |
| 3 | 2-74 |  | 8 | 5-90 | GB | 13 | 11-01 | MSM |
|  | 2-77 |  | 9 | 12-92 | MSM | 4 | 5-04 | MSM |
|  |  |  |  |  |  |  |  |  |




| ORIGINAL SIGNED BY: LOREN THOMAS |
| :--- |
| HIGHWAYS PROGRAM OVERSIGHT ENGINEER |
| ORIGINAL SIGNED BY: TOM COLE |
| CHIEF ENGINEER |

SPECIAL SAG SECTION, EXTRA
LINE FENCE WITH LINE BACES
AND DEADMAN (SEE NOTE NO. 2)

FOR SLIPE CHANGES GREATER
THAN $20^{\circ}$ AN EXTRA LINE-
DIRECTION OF FENCE CONSTRUCTION
15" SQUARE OR 15" DIA.
CONCRETE BLOCK
TYPICAL SAG SECTION FOR WOVEN WIRE, MESH, OR COMBINATION FENCES


DOUBLE BRACE PANELS


TYPICAL SAG SECTION - BARBED WIRE FENCES


FENCE CORNER ANGLE

## NDTES CON'T

6. USE METAL BRACES AS SHOWN ON THE METAL BRACES
DETAILS AND THE FENCE BRACE TABLE. 7. USE WOOD POSTS WHEN THE FENCE TYPE SUFFIX
"A" IS USED AND METAL POSTS WHEN THE SFFIX "B"IS USED
I.E., TYPE 1-A (WOOD POSTS) OR TYPE 1-B (METAL POSTS). 8. STAPLE ALTERNATING MESH WIRES ON WOOD POSTS EXCEPT
FOR SAG SECTINS WHERE ALL WIRES WILL BE STAPLED. FR SAG SECT WIS WHERE ALL WIRES WILL BE STAPLED.
INSTAL FOUR WHE CAMPS PER POST FOR MESH WRE ON
STEL PSTS SHAL EXCET IN SAG SECTONS WHERE THREE
ADDITONAL CLAMPS PER POSTARE REQUIRED ADDITIONAL CLAMPS PER POST ARE REQUIRED.
7. PLACE ONE STAPLE PER WIRE PER POST FOR BARBED WIRE ON
WOOD POSTS AND TWO STAPLES PER WIRE PER POST ON BRACES WOOD POSTS AND TWO STALES PER WIRE PER POST ON BRACES
IN SAG SECTINNS. SECURELY WRAP WIRE ENDS AROUND A POST
AT A BRACE OR SPICE IN INE PLACE AT A BRACE OR SPLICE IN LINE. PLACE ONE WIRE CLA
WIRE PER POST FOR BARBED WIRE ON METAL POSTS. 10. ATTACH ANCHOR PLATES TO METAL POSTS UNLESS THE POST
IS SET IN SOLID ROCK. GROUT DRILL HOLES FOR METALEOSTS SET IN SOLID ROCK.
8. ENSURE THAT THE TOP OF THE FENCE DOES NOT PROJECT
ABOVE THE TOP OF THE PARAPET OR RAILING WHEN A FENCE TIES ABOVE THE TOP OF THE PARAPET OR
INTO A BRIDGE PARAPET OR RAILING.
9. CONSTRUCT WOVEN WIRE AND BARBED WIRE FENCES IN 12. CONSTRUCT WOVEN WIRE AND BARBED WIRE FENCES IN
ACCRANCE WIH SECTON G10 - FENCES AND CNSTRUCT METAL
POSTS, BARED WIRE, MESH WIRE, AND WVEN WIRE IN POSTS, BARBED WIRE, MESH WIRE, AND WOVEN WIRE IN
ACCODANCE WITH 708.09 THRU 708.12 OF THE STANDARD ACCORDANE WITH 708.O9 THRU 708.12 OF THE
SPECIFICATIONS FOR HIGHWAY CONTRUCTION.
10. GROUND BARBED, WOVEN, MESH, AND COMBINATION WIRE FENCES
IN ACCORDANCE WITH THE FENCE GROUNDING TABIE AND THE IN ACCORDANCE WITH THE FENCE GROUNDING TABLE AND THE
FENCE GROUNDING DETAIL. GROUND TYPE 2 GATES FALING FENCE GROUNING DETAIL GROUND TYPE 2 GATES FALLING
WITHINTHESE AREAS WITH A FLEXIBLE GROUNDING CABLE
ATACHED TI THE GATE FABRIC. ATTACH THE CABIF TO A ATTACHED TO THE GATE FABRIC. ATTACH THE CABLE TD A
SEPARATE FENCE GROUDING SYSTEM ON THE SWING SIDE OF THE GATE. DO NOT GROUND TYPE 1 GATES.
11. NOT TO SCALE.

| REVISIONS |  |  |  |  |  |  |  |
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| 16 | $9-10$ | PLR | 6 | $3-80$ |  | 11 | $1-97$ |
| MSM |  |  |  |  |  |  |  |
| 17 | $12-12$ | RDL | 7 | $7-84$ |  | 12 | $11-00$ |
| 3 | $2-74$ |  | 8 | $5-90$ | GB | 13 | $11-01$ |
| 4 | $2-77$ |  | 9 | $12-92$ | MSM | 14 | $5-04$ |
| MSM |  |  |  |  |  |  |  |
| 5 | $1-78$ |  | 10 | $9-93$ | MSM | 15 | $10-04$ |



| ORIGINAL SIGNED BY: LOREN THOMAS |
| :--- |
| HIGHWAYS PROGRAM OVERSIGHT ENGINEER |
| ORIGINAL SIGNED BY: TOM COLE |
| CHIEF ENGINEER |


| SCALES SHOWN ARE FOR $11^{\prime \prime} \times 17^{\prime \prime}$ PRINTS ONLY |
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| DRAWING DAT FEBRUARY, 19 |


| IDAHO <br> TRANSPORTATION DEPARTMENT |  |
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Sheet 3 of 3



| REVISIONS |  |  |  |  |  |  |  |  |
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| NO. | DATE | BY | No. | DATE | BY | No. | DATE | BY |
|  | 9-76 |  | 6 | 10-04 | MSM |  |  |  |
| 2 | 5-95 | MSM | 7 | 12-12 | RDL |  |  |  |
| 3 | 8-97 | MSM |  |  |  |  |  |  |
| 4 | 6-02 | MSM |  |  |  |  |  |  |
| 5 | 6-03 | MSM |  |  |  |  |  |  |


| scales shown ARE FOR $11^{\prime \prime} \times{ }^{17}$ PRINTS ONLY |
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| CADD FILE NAME f2c_0213.std |
| DRAWING DATE: JANUARY, 1962 |


ORIGinal signed by: Loren thomas
original signed by: tom cole GATE TYPES 1,1A, \& 2
BOISE IDAHO CHIEF ENGINEER
Requires sheet 2 of 2 \& StD. DWg. F-2-A Sheet 1 of 2



INSTALL A TRUSS ROD
AT EACH LEAF SPACE
$\frac{\text { TYPE } 2 \text { GATE FRAME DETAIL }}{\text { (SEE NOTE NO. 3.1) }}$

1. TYPE 1 GATES:
A. USE FOR FENCE TYPES $1,5,6, \& 11$. 1 . GATE ENDS.
D. ATTACH WIRE LOOPS AND PRY STICK WIRE WITH A DOUBLE WOVEN 9 GAGE BARBLLESS WIRE OR A SUITABBE CHAIN. ADJUST THE LODES AND
PRY STICK SO THAT THE GATE IS TAUT WHEN CLOSED. FASTEN THE LOOPS TO THE ADJACENT LATCH/HINGE POST. COLUSCTING WIRES.
STAPLE THE STAYS AND END POSTS TO THE CONNECTNG 2. TYPE 1A GAES:
A. USE WITH FENCE TYPES $1,5,6, \& 11$ THE USE OF TYPE 1 A GATES IN

AND THE ADJACENT PROPERTY OWNER(S).
B. TYPE 1 GATES REUIRE A MODIFIED METAL OR WOODEN BRACE. USE OF
THE METAL BRACE REQUIRES A 4
4IN MINIMUM PIPE ( $/ 4^{\prime \prime}$ WALL) ON THE
 ANGLES ON TUBE GATE TERMINALS. WOOD HINGE POSTS ARE 8' AND
METAL HINGE POSTS ARE $7^{\prime--6 " ~ I N ~ L E N G T H . ~ T H E ~ M E T A L ~ H I N G E ~ P O S T ~}$


NONSAGGING ON THE LATCH SID WHEN LATCHED.
E. ENSURE THAT TYPE 1A GATES SWING 180 UNLESS OTHERWISE
E. ENSURE THAT
3. TYPE 2 GAES:
A. USE FOR FENCE TYPES 2, $3,7,8, \& 33$. ${ }^{2}$.
B. ENSURE THAT GATE FRAMES ARE FABRICATED WITH A 1.05 INCH O.D.
COD ROLED OR DRAWN GALANIZED STEEL TUBING WITH A WALL

THICKNESS OF O.O95 INCHES OR I INCH GALVANIZED PIPE.
C. USE 12. 5 GGE MINIIUM) GALVANIZED WIRE MES.
EQUIP GATE WITH AN ADUSTAL
D. EQUIP GATE WITH AN ADJUSTABLE DIAGONAL TRUSS ROD.
E. USE GALVANIZED MALLEABLE STEEL IINGES AND LATCHES.

C. AND A HORIZONTAL BRACE MEMBER.
H. ENSURE THAT TYPE 2 GATE FRAMES ARE SHOP WELDED. PAINT WELDS
WITH FO2.02 PAINN FORMUA ND. THE TRUS ROD TIGHTENER AND
NON-TIGHENING END OF THE TRUSS ROD MAY BE WELGED TO THE GAT

NON-TGETENNG END OF THE TRUSS ROD MAY BE WELDED TO THE GATE.
I. ENSURETHAT TYRE GATE FRAMES HAVE EXTRA VERTICAL STAY(S) AND
A CENTRED HOIZONTL BRAE WELDED IN PLACE IN ACCODANCE WITH ACENTERED HORIZONTAL BRACE WELDED IN PLACE IN ACCORDANCE WITH
THE TYPE 2 GATE FRAME DETAL. EVENLY SACE THE VERTIIAL STAY(S)
ON THE GATE. ENSURE THAT EACH LEAF SPACE HAS ARUSS ROD
4. TYPE 3 GATES:

TYPE 3 GATES ARE FOR CHAIN LINK FENCES ONLY. SEE STANDARD
5. GATES REQUIRE. A LIKE PAIR OF METAL OR WOOD TERMINAL BRACES AS

DETAILED ON STANDARD DRAWING F-2-A (SHEET 2 Of 3). GATE TYPE
REQUIRES A LARGER HINGE POST ON THE TERMINAL BRACE.
6. PROVIDE A DROP ROD, LATCH, CHAIN, OR SNAP APPROVED BY THE ENGINEER, BETWEEN THE GATES
USED FOR A SINGLE OPENING.
7. PROVIDE 4:1 OR FLATTER SIDE SLOPES ON THE VEHICLE APPROACH TO
8. D DEPTH AT RIGHT-OF-WAY LINE. WHEN D IS S' OR LESS, INSTALL
GATES AT THE RIGHT-OF-WAY LINE. WHEN D IS MORE THAN S', INSTAL
 ACCORDANCE WITH STD. DWG. H-4-A.
ALTERNATE DESIGNS OF TYPE 1 A AND TYPE 2 GATES MAY BE USED
9. ALIOR APPROVAL OF THE SHEO DRAWINS BE BY GATES MAY BE USED.
PREFORE USING ALTENATE GATE DESIGNS
BEFERE IS REQUIRED BEFRRE USING ALTERNATE GATE DEEIGNS. GROUNING TABLE AND GATE
10. GROUND GATES ACCORDING TO THE GATE GRO GROUNDING DETALL. ENSURE THAT G
COPPER CABLE ATTACHING THE GATE
AND FFNCE WIRING ON THE HINGE
SIDE OF THE GAT
11. NDT TO SCALE.
TANDARD DRAWING
original signed by: loren thomas
TE TYPES 1,1A \& 2

| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | NO.\| | DATE | BY | NO. | DATE | BY |
| 1 | $9-76$ | 6 | $10-04$ | MSM |  |  |  |  |
| 2 | $5-95$ | MSM | 7 | $12-12$ | RDL |  |  |  |
| 3 | $8-97$ | MSM |  |  |  |  |  |  |
| 4 | $6-02$ | MSM |  |  |  |  |  |  |
| 5 | $6-03$ | MSM |  |  |  |  |  |  |

## IDAHO IDSPORTATION

 buwhy procraw oversicht momas original signed by: tom coleRequires sheet 1 of 2 \& Std. dwg. f-2-A Sheet 2 of 2








UDE" STEEL PLATE. DO NOT
USE SPACER WHEN CONCRETE
FOUNDATION IS USED. PREVENT ROTATION

| PREVENT ROTATION |
| :--- | :--- |
| OF PLATE WITH |



ANCHOR PLATE DETAILS


W-BEAM BACK-UP PLATE
ITEM NO. RWBOIa-b

## NOTES

1. ALL GUARDRAIL AND ACCESSORIES SHALL CONFORM TO THE "A GUIDE TO STAND2. W-BEAM RAIL AND TERMINAL SECTIONS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M180, CLASS A, TYPE 22 WITH THE EXCEPTION THAT ALL RAIL AND
TERMINAL SECTIONS SHALL BE GALVANIZED AFTER FABRICATION WITH FABRICATIO TERMINA SECTIONS SHALL BE GALVANIZED AFTER FABRICATION WITH FABRICATION
TO INCLUDE FORMING, CUTTING, SHEARING, PUNCHING, DRILLING BENDING, WELDING AND RIVEING.
2. NO TERMINAL
3. ND TERMINAL HARDWARE OR TERMINAL ACCESSORY SHALL BE FIELD OR OTHER-
 TO STANDARD GUARDRAIL ITEMS SHALL BE PAINTED WITH TWO COATS DF FORMULA 14-82 ZINC SILICATE PAINT.
TIMBER POSTS AND BLOCKS SHALL BE TREATED. REFER TO SECTION 710
TIMBER AND PRESERVATIVES, OF THE NITD STANDARD SPECIFICATIONS FRR TIMBER AND PRESERVATIVES, OF THE "ITD STANDARD SPECIFICATIONS FOR HIGHWAY 5. 12'-6" W-BEAM METAL GUARDRAIL LENGTHS SHALL BE USED UNLESS OTHERWISE SPECIFIED.
S. W-BEAM METAL GUARDRAIL SECTIONS SHALL BE PRECURVED FOR CURVES LESS
THAN 150 FT. RADII (RADIUS TO FACE OF RAL). 7. W-BEAM GUARDRAIL POSTS MAY BE WODD OR STEEL; HOWEVER, POSTS AND BLOCKOUTS MAY BE MADE OF POLYETHYLENE PLASTIC, WODD, LAMINATED WOOD, OR
OTHER PRODUCTS PROVIDED THEY ARE LISTED IN AND USED ACCORDING TO THE OTHER PRODUCTS PROVIDED THEY ARE LISEED IN AND USED ACCOR
IDAHO TRANSPORTATION DEPARTMENT'S "QUALIFIED PRODUCTS LIST"
4. THE POST HOLE(S) FOR RUBRAIL ON THE W6×8.5 OR W6x9 POST ARE NECESSARY
ONLY WHEN A RUBRAIL IS TO BE TNSTALED ONLY WHEN A RUBRAIL IS TO BE INSTALLED.
5. THE BCT SOIL PLATE IS TO BE USED WITH THE BCT FOUNDATION TUBE. IT II
TO TO BE ATTACHED WITH BOLTS. THE PLATE SHALL BE INSTALLED WHEN THE ENGINEER
DETERMINES THAT FIELD CONDITIONS WARRANTS ITS USE. 10. SOIL PLATES SHALL CONF RMM TO ASTM AJ6 AND STRUCTURAL TUBING TO ASTM
A500. WELDING SHAL MEET ALL REQUIREMENTS OF THE AMERICAN WELDING SOCIETY A500.
D1.1.
6. AlI D1.1. ALL WOODEN BREAKAWAY POSTS AND BLOCKOUTS WITH DRILLED HOLES SHALL BE
7. 

PRESERVATIVE TREATED PRIOR TO INSTALATION PRESERVATVE TRETMENT SAL PRESERVATIVE TREATED PRIOR TO INSTALLATION. PRESERVATIVE TREATMENT SHALL
BE IN ACCORDANCE WITH AASHTO M133 AND WITH ITD STANDARD SPECIFICATIONS. 12. NOT TO SCALE.

| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. | DATE | BY | No. | DATE | BY | No. | DATE | BY |
| - | 06-96 | MSM | 5 | 12-04 | MSM |  |  |  |
| 2 | 06-97 | MSM | 6 | 05-06 | MSM |  |  |  |
| 3 | 07-00 | MSM | 7 | 05-07 | MSM |  |  |  |
| 4 | 12-01 | MSM | 8 | 11-08 | JRV |  |  |  |
| 5 | 06-04 | MSM | 9 | 10-10 | PLR |  |  |  |


| IDAHO |
| :---: | :---: | :---: |
| TRANSPORTATION |
| DEPARTMENT |

## W-BEAM GUARDRAIL POSTS BLOCKOUTS, \& HARDWARE

SHEET 2 of 2

W-BEAM:
$6 . \times 8$ W



HEX BOLT
HEX NUT

## NOTES

STEEL POST BOLTING HARDWARE STANDARDIZED HIGNS AS INDICATED IN THE AASHTO "A GUIDE TO THE SPECIFICATIONS AS INDICAIED IN THE
STANDARDIZED HIGHWAY BARRIER HARDWARE".
2. THE BOLTING HARDWARE SHOWN IS USED FOR BOTH W-BEAM AND THRIE
3. NOT TO SCALE.


HIGH STRENGTH BOLTING HARDWARE ITEM NO. FBX16b-36b

| REVISIONS |  |  |  |  |  |  |  |  | $\begin{gathered} \text { SCALES SHOWN } \\ \text { ARE FDR } 11^{\prime \prime} \times 17^{\prime \prime} \\ \text { PRINTS ONLY } \end{gathered}$ | IDAHO <br> TRANSPORTATION DEPARTMENT | ORIginal signed by: Loren thomas | STANDARD DRAWING | English |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | No. | DATE | BY | No. | DATE | BY |  |  |  | GUARDRAIL BOLTING HARDWARE FOR W-BEAM \& THRIE BEAM | STANDARD DRAWING No. |
|  |  |  |  |  |  |  |  |  | CADD FILE NAME: g1a4_0406.dgn |  | ASSistant chief engineer (development) ORIGINAL SIGNED BY: STEVEN HUTCHINSON |  | G-1-A-4 |
|  |  |  |  |  |  |  |  |  | DRAWING DATE: APRIL, 2006 | BOISE IDAHO | CHIEF ENgineer |  |  |





MODIFIED THRIE
STEEL BLOCKOUT
(PWBOM
-DIRECTION OF TRAFFIC
NCHRP 350, TL-4 THRIE BEAM BOLTING DETAILS

SLOPE REQUIREMENTS (MINIMUM)

* a BALLAST SLOPE SAME AS FORESLOPE * b SEE NOTE ND. 11

$$
\text { * C SEE NDTE NO. } 8
$$



合
asphalt pavement only with concrete pavement

W6x8. 5 OR W6x9 STEEL W6x8.5 OR WK9
POT: REQUIRES
WOOD BLOCKEUT

THRIE BEAM SLOPE TREATMENT - TYPE A INSTALLATION


STANDA STANDARD
ONG BOLT

MODIF IED THRIE BEAM
WOOD BLOCKDIT
WOOD BLOCKDUT

DIRECTION OF TRAFFIC NCHRP 350, TL-3


(12) $5^{5} 8^{\prime \prime} \times 1^{1 / 4 "}$ "
BUTTON HEAD SLICE BOLTS-

(2) $5 / 8^{\prime \prime} \times 18^{\prime \prime}$ OR $20 " 1$
POST ${ }^{20}$ BLOCKOUT BOLT
-1 DIRECTION OF TRAVEL DIRECTION OF TRAVEL THRIE BEAM LAPPING DETAILS (STANDARD WOOD POST INSTALLATION SHOWN)

## NOTES

1. ALL GUARDRAIL AND ACCESSORIES SHALL CONFORM TO THE "A GUIDE
TO STANDARDIZED HIGHWAY BARRIER HARDWARE". IO STANDARDIZED HIGHWAY BARRIER HARDWARE.
2. THRIE BEAM RAIL AND TERMINAL SECTIONS SHALL BE GALVANIZED in ACCORDANCE WITH AASHTO M18O, CLASS A, TYPE 2 WITH THE EXCEPTION
THAT ALL RAIL AND TERMINAL SECTIONS SHALL BE GALVANIZED AETER FABRICATION WITH FABRICATION TO INCLUDE FORMING, CUTTING,
SHEARING, PUNCHING, DRILLING, BENDING, WELDING, AND RIVETING
3. ND TERMINAL HARDWARE OR TERMINAL ACCESSORY SHALL BE FIELD OR ALLOWED ON STANDARD GUARDRAIL INSTALLATIONS. ANY DRILLING
 SHALL BE PAINTED WITH TWO COATS OF FORMULA $14-82$ ZINC SILICATE
PAINT. 4. Timber posts and blocks shall be treated. refer to section 7 - TIMBER AND PRESERVATIVES, OF THE ITD STANDARD
SPECIFICATIONS FOR HIGHWAY CONSTRUCTINN".
4. ALL GUARDRAIL SHALL BE LAPPED IN THE DIRECTION OF THE NEAREST TRAFFIC LANE TO PREVENT SNAGGING.
5. THE THRIE BEAM ASYMMETRICAL TRANSITION ELEMENT (SEE NOTE
NO. 5) SHALL BE FABRICATED FROM A RAW SECTION OF THIRE BEAM GUARDRAIL AND THE TAPERED TOP SHALL BE CUT WITH A METAL SAW (NOT WITH HEAT)
6. USE OF OTHER MANUFACTURER'S VERSIONS OF THE ASYMMETRICAL
AND SYMMETICAL THRIE BEAM TRANSITION SECTIONS AS SHOWN ARE ALLOWED; HOWEVER, THE OTHER VERSIONS SHALL HAVE THE SAME SLOT
AND HOLE CONFIGRATION AND BE CONSTRUCTED OF A MINIMUM 10 GAGE AND HOLE CONFIGURATION AND BE CONSTRUCTED OF A MINIMUM 10
GALVANIZED STEEL. 8. WHEN CURB IS CALLED FOR THE CURB FACE SHALL BE LOCATED ALONG THE FACE OF RAIL (SEE THE "TYPICAL CURB WITH GUARDRAL
INSTALLATIN" DETAIL). REFER TO STANDARD DWG. H-1 FOR CURB DETAILS 9. WHEN STEEL GUARDRAIL POSTS ARE INSTALLED, THE DATE (MONTH \&
YEAR) AND POST LENGTH SHAL BE SAMPED IN A CNSPICUCUS PLACE
NEAR THE TOP AND BETWEEN THE WEBS OF THE POST. THE CHARACTERS NEAR THE TOP AND BE TWEEN THE WEBS OF THE POST. THE CHARACTERS
SHALL BE $1 / 4^{\prime \prime}$ TO $3 / 8{ }^{\prime \prime}$ IN HEIGHT. 10. THRIE BEAM STEEL GUARDRAIL POSTS SHALL CONFORM TD THE "SPECIFICATIONS" OF THE WIDE-FLANGE GUARDRAIL POST (PWEO1-04)
IN THE "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE".
7. THRIE BEAM GUARDRAIL POSTS MAY BE WOOD OR STEEL. STEEL POSTS


## IDAHO TRANSPORTATION DEPARTMENT

 SCALES SHOWNARE FOR $11{ }^{11} \times 17$
PRINTS ONLY
CADD FIEE NAME:
GLa5_ IO10.dgn
DRAWING DATE: DRAWIIG DATE:
MAY, 2006

| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. | DATE | BY | No. | DATE | BY | No. | DATE | BY |
|  | 05-07 | MSM |  |  |  |  |  |  |
| 2 | 10-10 | PLR |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |










PLAN VIEW


CURVED ROADWAY TERMINAL PLACEMENT

## NOTES

1. TERMINAL TYPE 5 ALTERNATES "A" AND "B"ARE INTERCHANGEABLE AND ARE TO BE ANSTALLED AT THE
INSTALERS DISCRETIN. SEE STANARD DRAWING G-1-F-2 INST ALERMINAL TYPE 5 ALTERNATE "B".
2. THE TERMINAL TYPE 5 AL TERNATE "A" MUST FOLLOW THE PARABOLIC CURVE SHOWN AND THE TOTAL LAYOUT MUST
MEET OR EXCEE THE PERFORMACE CRITERIA SET FORTH IN
NATIONAL COOPRATIVE HIGHWYY RESEARCH PROGRM REPORT NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM REP
350 TL-3 RECOMMNDED PROCEDURES FOR THE SAFETY OF HIGHWAY FEATURES'
3. THIS DRAWING REQUIRES STANDARD DRAWINGS G-1-A-1
THROUGH G-1-A-4 AND IS SUBJECT TO THE W-BEAM GUARDRAIL INSTALLATION REQUIREMENTS AND HARDWARE/ACCESSORY
SPECIFICATIONS FDR ERECTION DETAILS AND INFORMATION SPECIFICATIONS. FOR ERECTION DETAILS AND INFORMATION
SPECIFIC TO THIS TERMINAL SEE THE INFORMATION PROVIDED SPECIFIC TO THIS TERM
BY THE MANUFACTURER.
4. THE OUTSIDE NUT ON EACH END OF THE ANCHOR CABLE SHALL INEIDE NUT TOUTSIDE NUTS OF 100 FT.-LBS. AGAINST THE TERMINAL).
5. WHEN A TERMINAL TYPE 5 ALTERNATE "A" IS CONSTRUCTED ON A HORIZONTAL CURVE, PLACE THE TERMINAL OFF OF THE "TANGENT (BACK OF RAIL)" DO NDT PLACE THE TYPE 5
TERMINAL TYPE 'A" ON THE INSIDE OF A GREATER THAN $8^{\circ}$
HORIZNNTAL CUVE. horizontal CURVE.
6. NOT TO SCALE

| REVISIONS |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | NO. | DATE | BY | NO. | DATE |
| BY |  |  |  |  |  |  |  |
| 1 | $05-96$ | MSM | 6 | $10-04$ | MSM |  |  |
| 2 | $06-97$ | SM | 7 | $05-06$ | MSM |  |  |
|  | $08-98$ | MSM |  |  |  |  |  |
| 4 | $08-00$ | SM |  |  |  |  |  |
| 5 | $01-03$ | MSM |  |  |  |  |  |


$\qquad$ ASSISTANT CHIEF ENGINEER CDEVELOPMENT
ORIGINAL SIGNED BY: STEVEN HUTCHINSON CHIEF ENGINEER


1. TERMINAL TYPE 5 ALTERNATE "A" AND "B" ARE INTERCHANGEABLE AND ARE TO BE INSTALLED AT THE INSTALLERS
DISCRETION SEE STANDARD DRAWING G-1-F-1 FOR TERMINAL TYPE 5 ALTERNATE "A".
2. THE TERMINAL TYPE 5 ALTERNATE "B" FOLLOWS A STRAIGHT THE PERFORMANCE CRITERIA SET FORTH IN NATIONAL
"RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE OF
3. FOR INSTALLATIIN DETAILS OF GUARDRAIL, POSTS, BLOCKDUTS,

AND FITTINGS REFER TO STANDARD DRAWING G-1-A-1 THROUGH G-1-A-4. FOR ERECTION DETANDS SECIFII TO TIS AND DTHER
TERMINALS SEE THE INFORMATION PRVVIDED BY THE TERMINALS SEE
MANUF AC TURER.
4. THE OUTSIDE NUT ON EACH END OF THE ANCHOR CABLE SHALL
BE TORQUED TO A MINIMUM DF 100 ft. - bSs. AGANST THE INSIDE BE TORQUED TO A MINIMUM DF 100 ft. - Ibs. ACAINST THE INSIDE
NUT (OUTSIDE NUTS NOT SUPPLIED WITH PROPRIETARY TERMINAL) 5. WHEN A TERMINAL TYPE 5 ALTERNATE "B" IS CONSTRUCTED SN A HORIZONTAL CURVE, USE THE ALTERNATE METHOD PLAEMENTS. POST NO. 1. IS 4.OD OUTSIDE OF THE "OUTSIDE SHOULDER). DO NOT PLACE THE TERMINAL TYPE 5 ALTERNATE "B"
ON THE INSIDE OF A GREATER THAN $8^{\circ}$ HORIZONTAL CURVE. 6. Not to scale.

(4.00) TERMINAl. NORMAL GUARDRAIL

CURVED ROADWAY TERMINAL PLACEMENT

| REVISIONS |  |  |  |  |  |  |  |  | SCALES SHOWN ARE FOR $11^{\prime \prime} \times 17$ PRINTS ONLY | IDAHO TRANSPORTATION DEPARTMENT |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO | DATE | BY | NO. | date | BY | NO. | DATE | BY |  |  |  |
|  | 01-03 | MSM |  |  |  |  |  |  |  |  |  |
| 2 | 10-04 | MSM |  |  |  |  |  |  | CADD FILE N |  |  |

[^0] original signed by: tom cole




BULLNOSE DIMENSION TABLE

| BULLNOSE DIMENSION TABLE |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{array}{\|c\|} \hline \text { BULLNOSE } \\ \text { DESIGN } \\ \text { OPTION } \\ \hline \end{array}$ | IN INCHES |  |  |  |  |  |  |  |  |  |  |  |
|  | INTERIOR DIMENSIONS |  |  |  |  |  | \| EXTERIOR | R DIMENSIONS |  | NOSE RAIL RADI |  | $\begin{aligned} & \text { If NOSE } \\ & \text { CABLE } \end{aligned}$ |
|  | $1 A B$ | 2 AB | 3AB | 4 AB | 5 AB | W |  | S | T | M1 | M2 |  |
| OPTION 1 | 1 9'-8 | 11-8 | 13'-1 | $13^{\prime}-11$ | 14'-21/2 | 14'-91/8 | \| $30 \cdot 111^{3 / 4}$ | 3'-71/4 | 12'-23/4 | 5'-23/16 | 34'-17/16 | 14'-43/4 |
| OPTİN 2 | $214-63 / 8$ | 16'-6 | 17'-11 | $18^{\prime}-91 / 8$ | 19'-05/8 | 19'-05/8 | 30'-113/4 | $5 \cdot-31 / 4$ | 12'-23/4 | 7'-95/6 | 34'-17/16 | 20'-95/8 |
| QPTION 3 | 319 - $43 / 8$ | 21'-4 | 22'-9 | $23^{\prime}-7$ | $23^{\prime}-103 / 4$ | /23'-103/4 | /30'-113/4 | 6'-11/4/ | $12^{\prime}-23 / 4$ | 10'-43/8 | 34'-17/6 | 27-83/8 |


| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. | DATE | BY | No. | DATE | BY | No. | DATE | BY |
|  | 06-02 | MSM |  |  |  |  |  |  |
| 2 | 10-03 | MSM |  |  |  |  |  |  |
| 3 | 12-04 | MSM |  |  |  |  |  |  |
| 4 | 05-06 | MSM |  |  |  |  |  |  |
|  | 09-10 |  |  |  |  |  |  |  |


| SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY | IDAHO <br> TRANSPORTATION ${ }^{*}$, ${ }^{\star}$ | ORIGINAL SIGNED BY: LOREN THOMAS |
| :---: | :---: | :---: |
| CADD FILE NAME: <br> g1g_1010.dgn | DEPARTMENT | ASSISTANT CHIEF ENGINEER (DEVELOPMENT) original signed by: tom cole |
| DRAWING DATE: NOVEMER, 2001 | BOISE IDAHO | Chief Engineer |


| STANDARD DRAWING |  |
| :---: | :---: |
| GUARDRAIL TERMINAL TYPE 6 OPTIONS 1, 2, \& 3 (BULLNOSE GUARDRAIL SYSTEM) | STANDARD DRAWING |
|  |  |
|  |  |
| REQUIRES SHEETS 1 DF 3 \& 2 DF 3 \&. STD. DWGS. G-1-A-1 THRU G-1-A-5 |  |








SECTION B-B


SECTION E-E


SECTION C-C


RUBRAIL WOOD BLOCKOUT \& BOLTS


* SEE RUBRAIL BLOCKOUT DETAIL


SECTION D-D

## NOTES

1. THIS TERMINAL IS TO BE USED AS A RETROFIT FOR THE
OLD STYLE TYPE 3 TERMINALS. FOR NEW INSTALLATION USE OLD STYLE TYPE 3 TERMINALS. FOR NEW INSTALL
TYPE 3 TERMINAL AS SHOWN ON STD. DWG. G-1-E.
2. SEE STANDARD DRAWINGS G-1-A-1 THROUGH G-1-A-4 FOR W-BEAM GUARDRAIL AND GUARDRAIL HARDWARE.
3. ALL BOLTS FOR RUBRAIL BEAM AND WOOD BLOCKOUTS WILL
HAVE A MINIMMM HAVE A MINIMM OF S" OF COURSE HREADNG.
4. W-BEAM MEASUREMENTS ARE MADE ALONG THE FACE OF RAIL FROM THE CENTER OF RAIL TD THE ROADWAY SURFACE
RUBRALI MEASUREMENTS ARE FROM THE CENTER OF RAIL TI
THE CENTER OF RUBRAIL. THE CENTER OF RUBRAIL.
5. GUARDRAIL FOR END SHOE SHALL BE LAPPED IN THE
DiRECTIIN OF NEAREST TRAFFIC LANE TO PREVENT SNAGGING, DIRECTION DF NEAREST
SEE DETAILS A \& B.
6. The rubrail may be shop bent to facilitate

NSTALLATION
7. USE THE "TABLE OF MAXIMUM TAPERS" WHEN TAPERING
GUARDRAIL TO MATCH BRIDGE PARAPET.
8. Not to scale.

STANDARD DRAWING
GUARDRAIL TERMINAL
TYPE 9
English
G-1-K
REQUIRES SHEET 10F 2 2
STD. DWGS. G-1-A-1 THRU G-1-A-4

$\delta_{4 \lambda} \rho_{i / 1}$
sheet 2 of 2

| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. | DATE | BY | No. | DATE | BY | No. | DATE | BY |
| 1 | 07-92 | MSM | 6 | 05-06 | MSM |  |  |  |
| 2 | 08-00 | MSM | 7 | 09-10 | PLR |  |  |  |
| 3 | 01-01 | MSM |  |  |  |  |  |  |
| 4 | 06-01 | MSM |  |  |  |  |  |  |
| 5 | 10-04 | MSM |  |  |  |  |  |  |


| $\begin{aligned} & \text { SCALES SHOWN } \\ & \text { ARE FOR } 11^{\prime \prime} \times 17^{\prime \prime} \end{aligned}$ PRINTS ONLY |
| :---: |
| g1k_1010.dgn |
| G DATE |

## IDAHO IDAHO TRANSPORTATION DEPARTMENT

ORIGINAL SIGNED BY: LOREN THOMAS ORiginal signed by: Tom cole CHIEF ENGINEER



TYPE A INSTALLATION
*bWARNING: STAGERED LAPS ARE NOT
ALLOWED (NESTED RAIL ENDS SHALL
BE LAPED AT THE SAME LOCATION).

- DiRECTION OF TRAVEL

LAPPING DETAILS


NOTES

1. THIS DRAWING REQUIRES STANDARD DRAWINGS G-1-A-1 THROUGH
G-1-A-4 AND IS SUBJECT TO THE WBEAM GURDRAI INTALLTION G-1-A-4 AND IS SUBJECT TO THE W-BEAM GURDRAIL INSTALL
REQUIREMENTS AND HARDWARE/ACCESSORY SPECIFICATIONS.
2. ${ }^{25}$ '-O" RAIL MAY BE USED TO ELIMINATE THE INTERMEDIATE LAP 3. REFER TO ITD BRIDGE STANDARD DRAWINGS FOR STRUCTURES
GREATER THAN 24 . 4. REFER TO STANDARD DRAWING H-1-A WHEN CURB IS USED WITH THIS
TERMINAL.
3. THE 3 POST ON EITHER SIDE OF OPENING NEED TO MAINTAIN A MINIMUM AND BLOCKOUTS FLUSTH. WITH ACHEVE THIS EMBEDMENT DEPTH, MOUNT RAIL TOP OF RAIL HEIGHT.
4. not to scale.

| REVISIONS |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | NO.\| | DATE | BY | NO. | DATE |
| 1 | $08-00$ | MSY |  |  |  |  |  |
| 2 | $06-01$ | MSM | 6 | $09-10$ | PLR |  |  |
| 3 | $05-03$ | MSM |  |  |  |  |  |
| 4 | $10-04$ | MSM |  |  |  |  |  |
| 5 | $04-06$ | MSM |  |  |  |  |  |

## IDAHO TRANSPORTATION DEPARTMENT

ORIGINAL SIGNED BY: LOREN THOMAS ASSISTANT CHIEF ENGINEER (DEVELOPMENT)



| TERMINAL TYPE A REINFORCING STEEL TABLE(SEE NOTE NOS. $1,2, \& 3$ ) |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| MARK | location | $\begin{aligned} & \hline \hline \text { BAR } \\ & \text { SIZE } \end{aligned}$ | NUMBER OF BARS | SKETCH |
| H-1 | HORIZONTAL BAR. | NO. 5 | 1 |  |
| V-1 | VERTICAL BAR. | NO. 5 | 1 |  |



TAPER END
STAKE DETAIL


## NOTES

1. PRECAST USING CLASS 30 CONCRETE. ENSURE THAT REINFORCING STEEL IS SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. PROVIDE 2" MINIMUM SPECIFICATIONS
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 OTHERWISE NOTED
4. ONLY USE THE TYPE A TERMINAL ON ADJACENT TO ONCOMING TRAFFIC
 TERMINAL IS OUTSIDE
OPPOSING DIRECTION.
5. THE TYPE B TERMINAL MAY BE USED WITHIN THE CLEAR-ZONE WHEN TRAFFIC SPEEDS ARE 4OMPH OR LESS AND AND SPACE IS LIMITED BY PRECLUDE USING A GUARDRAIL TERMINAL OR CRASH CUSHION.
6. STAKE THE TERMINALS AT THE TAPERED END. STAKE TERMINAL B IN THE
STAKE SLOTS WHEN THE CONNECTING BARRIER IS STAKED. ENSURE THAT STAKE SLOTS WHEN THE CONNECTING BARRIER IS STAKED. ENSURE THAT
THE STAKES DO NOT PROTRUDE BEYOND THE EXTERIOR OF THE TERMINAL SURFACE.
7. PIN CONNECT THE TERMINALS TO BARRIER UNITS WHEN POSTED HIGHWAY
SPEEDS ARE 35 MPH OR HIGHER.
8. DRAWING NOT TO SCALE.

## TERMINAL TYPE A

| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. | DATE | BY | NO. | DATE | BY | NO. | DATE | BY |
|  | 01-86 | GB | 6 | 12-92 | MSM | 11 | 09-10 |  |
| 2 | 08-86 | GB | 7 | 09-93 | MSM | 12 | 11-14 |  |
| 3 | 06-87 | GB | 8 | 02-96 | MSM |  |  |  |
| 4 | 04-89 | GB | 9 | 01-00 | MSM |  |  |  |
| 5 | 01-91 | GB | 10 | 12-04 | MSM |  |  |  |


| scales shown ARE FOR $11^{\prime \prime} \times 17^{\prime \prime}$ PRINTS ONLY |
| :---: |
| g20_1114.dgn |
| DRAWING DATE: |

IDAHO
TRANSPORTATION
DEPARTMENT

STANDARD DRAWING
CONCRETE BARRIER




SECTION C-C
(ALSO SEE END VIEW


SECTION D-D


SECTION E-E

ELEVATION
TERMINAL TYPE B


SEE STA
STAKE SLOT DETAIL

| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. | DATE | BY | No. | DATE | BY | No. | DATE | BY |
|  | 01-86 | GB | 6 | 12-92 | MSM | , | 09-10 | PLR |
| 2 | 08-86 | GB | 7 | 09-93 | MSM | 12 | 11-14 |  |
| 3 | 06-87 | GB | 8 | 02-96 | MSM |  |  |  |
| 4 | 04-89 | GB | 9 | 01-00 | MSM |  |  |  |
| 5 | 01-91 | GB |  | 12-04 | MSM |  |  |  |


| SCALES SHOWN ARE FOR $11^{\prime \prime} \times 17$ PRINTS ONLY |
| :---: |
| CADD FILE NAME: $\mathrm{g} 2 \mathrm{a}-1114 . \mathrm{dgn}$ |
| AWING DATE: |


| IDAHO <br> TRANSPORTATION DEPARTMENT |  |
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$\frac{\text { ORIGINAL SIGNED BY: CARL D. MAIN for }}{\text { STANDARDS ENGINEER }}$
STANDARD DRAWING CONCRETE BARRIER TERMINALS

## English

G-2-A



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


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


| CONCRETE BARRIER SHY-LINE OFFSET AND FLARE RATE TABLE |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { DESIGN } \\ & \text { SPEED } \\ & \text { (MPH) } \end{aligned}$ | $\begin{gathered} \text { SHY-LINE } \\ \text { OFFSET } \\ (\mathrm{FT}) \end{gathered}$ | BARRIER FLARE RATE |  |  |
|  |  | INSIDE | AT OR BEYOND | SHY LINE |
|  |  | SHY LINE | NOT STAKED | STAKED |
| 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 |



SLOT WASHER


CURVED LAYOUT DETAIL

WASHER DETAILS


DECK BOLT ASSEMBLY


ANCHOR BOLT ASSEMBLY


1" DIA. THREADED
BDLT. ASTM A325 BOLT, ASTM A325
HIGH STRENGTH ${ }^{\text {HIGH }}$ STEEL

ANCHOR BOLT

PRECAST USING CLASS 40A CONCRETE. ENSURE THAT REINFORCING STE IS IN ACCORDANCE WITH SECTION 708 - METALS OF THE STANDARD SONCRETE COVER OVER REINFORCING STEEL UNLESS OTHERWISE NOTED
2. ENSURE THAT REINFORCING STEEL BENDS ARE MADE IN ACCORDANCE WIT
3. THE DIMENSIONS SHOWN IN THE REINFORCING STEEL TABLE ARE MEASSS DTHERWISE NDTED. UNLESS OTHERWISE NOTED.
4. A 4" WHITE PVC SLEEVE MAY BE USED to FORM The Lifting hole. if

ACCEPTABLE END TREATMENTS MAY INCLUDE TAPERING THE BARE OUTIDE OF THE CLEAR ZONE, TRANSITIIN TO W-BEAM OR THRIE-BEAM
GUARDRAL, A CRASH CUSHION, RR CONNECTION TO
6. PIN CONNECT BARRIER UNITS WHEN POSTED HIGHWAY SPEEDS ARE 35
7.
7. PIN CONNECTED 20' CONCRETE BARRIERS MAY BE ANGLED APPRUEEN UNITS, ARE AT CDEDECT COMPLETE AARRIER UNITS, ANGLED $10^{\circ}$ BETWEEN UNITS, ARE NEEDED TO COMPLETE A $90^{\circ}$ TURN.
8. WHEN CONNECTING 20' CONCRETE BARRIER TO $10{ }^{\circ}$ CONCRETE BARRIER, THE EXPOSED STEEL
HEAT) TO FIT.
9. ENSURE THAT THE BARRIER IS OFFSET 20"FROM THE EDGE OF NORMAL
SHOULDER WHEN TRANSITIONING TO OR FROM W-BEAM OR THRIE-BEAM GUARDRAIL.
O. WHEN INTRODUCING THE CONCRETC BARPICR, FLARE accordance with the concrete barrier shy-line offset and flare rate table.
11. the barrier can be installed with or without stakes.
A. WHEN INSTALLED WITHOUT STAKES, ALLOW FOR 44" OF DEFLECTION
BEHIND THE BARRIER.

BEHIND THE BARRIER
B. WHEN INSTALLED AS A MEDIAN BARRIER (BETWEEN TWO-WAY TRAFFIC) ON HIGHWAYS WITH LESS THAN 24" BETWEEN THE ED
TRAVELED WAY AND THE BARRIER, USE FOUR STAKES IN EVERY
OTHER PANEL WITH END PANELS STAKED other panel with end panels staked.
C. WHEN PLACED 3" TO 24" FROM THE EDGE OF AN EXCAVATION OR
SHOULDER HING 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 ANCES. BELTS ARE EMBEDER A MINIMUM DEPTH OF G" OR PER THE ANCHOR BOLTS ARE EMBEDDED A MINIMUM DEPTH OF $6^{\prime \prime}$
INSTALLATION INSTRUCTIONS OF 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
A. ENSURE THAT THE STAKES OR BOLTS DD NOT PROTRUDE BEYOND
B. DO NOT DRILL ANCHOR HOLES INTO PRESTRESSED CONCRETE DECK
C. ENSURE THAT BRIDGE DECK ANCHOR holes are drilled or cored
SMODTH 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 AT WEAST ONE COURS
13. DRAWINGS NOT to SCALE.

| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO | DATE | BY | No. | DATE | BY | No. | DATE | BY |
| 1 | 08-00 | MSM | 6 | 06-04 | MSM |  |  |  |
| 2 | 12-01 | MSM | 7 | 10-04 | MSM |  |  |  |
| 3 | 07-02 | MSM | 8 | 09-10 | PLR |  |  |  |
| 4 | 07-03 | MSM | 9 | 03-13 | RDL |  |  |  |
| 5 | 09-03 | MSM | 10 | 04-14 | RDL |  |  |  |


| TRANSPORTATION DEPARTMENT |  |
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STAKING CONFIGURATION FOR TWO-WAY TRAFFIC
(SEE NOTE NO. 10)


STAKING CONFIGURATION ADJACENT TO AN EXCAVATION OR SHOULDER SLOPE (SEE NOTE NO. 10)


| CONCRETE BARRIER SHY-LINE OFFSET AND FLARE RATE TABLE |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { DESIGN } \\ & \text { SPEED } \\ & \text { (MPH) } \end{aligned}$ | $\begin{gathered} \text { SHY-LINE } \\ \text { OFFSET } \\ (\mathrm{FT}) \end{gathered}$ | BARRIER FLARE RATE |  |  |
|  |  | INSIDE | AT OR BEYOND | SHY LINE |
|  |  | SHY LINE | NOT STAKED | STAKED |
| 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 |



SLOT WASHER

WASHER DETAILS


DECK BOLT ASSEMBLY


ANCHOR BOLT ASSEMBLY


1" DIA. THREADED BOLT, ASTM AB25 ${ }^{\text {HIGH }}$ STEEL

ANCHOR BOLT

PRECAST USING CLASS 40A CONCRETE. ENSURE THAT REINFORCING STE IS IN ACCORDANCE WITH SECTION 708 - METALS OF THE STANDARD SONCRETE COVER OVER REINFORCING STEEL UNLESS OTHERWISE NOTE
2. ENSURE THAT REINFORCING STEEL BENDS ARE MADE IN ACCORDANCE WI
3. the dimensions shown in the reinforcing steel table are MEASURED FRS OTHERWISE NDTED-UUTSIDE (O. O.) OF BENDS OR BAR ENDS
UNLESS OTHERWISE NOTED.
4. TERMINATE THE BARRIER WITH A CRASHWORTHY END TREATMENT. OUTSIDE OF END TREATMENTS MAY INCLUDE TAPERING THE BARRIER GUARDRAIL, A CRASH CUSHION, OR CONNECTION TO A BRIDGE PARAPET.
5. PIN CONNECT BARRIER UNITS WHEN POSTED HIGHWAY SPEEDS ARE 35
6. Pin Connected 10' concrete barriers may be angled APPROXIMATELY $5.5^{\circ}$ AT CONNECTIONS. SIXTEEN BARRIER UNITS, ANGLED
5.5 BETWEEN UNITS, ARE NEEDED TO COMPLETE A $90^{\circ}$ TURN.
7. WHEN CONNECTING 10' CONCRETE BARRIER TO 20' CONCRETE BARRIER, THE EXPOSED STEE.
8. ENSURE THAT THE BARRIER IS OFFSET 20" FROM THE EDGE OF NORMA SHOULDER W
GUARDRAIL.
9. WHEN INTRODUCING THE CONCRETE BARRIER, FLARE THE BARRIER IN ACCORDANCE
RATE TABLE.
10. the barrier can be installed with or without stakes.
A. WHEN INSTALLED WITHOUT STAKES, ALLOW FOR 60" OF DEFLECTION
3. WHEN INSTALLED AS A MEDIAN BARRIER (BETWEEN TWO-WAY TRAFFIC) ON HIGHWAYS WITH LESS THAN 24" BETWEEN THE EDGE OF TRAVE
PANEL
C. WHEN PLACED 3" TO 24" FROM THE EDGE OF AN EXCAVATION OR
SHOULDER HINGE POINT, USE TWO STAKES PER PANEL ALONG THE SHOULDER HIN
TRAFFIC SIDE.
D. ON BRIDGE DECKS, USE ANCHOR BOLTS OR DECK BOLTS IN LIEU OF STAKES. USE FOUR BOLTS PER BARRIER SEGMENT. ENSURE THAT
ANCHRR BOTS ARE
OMBEDDED A MINMUM DEPTH OF G" OR PER THE INSTRUCTIONS FOR THE BONDING MATERIAL.
E. DO NOT STAKE OR BOLT BARRIER UNITS THAT EXTEND ACROSS
11. THE FOLLOWING APPLY WHEN STAKES, ANCHOR BOLTS, OR DECK BOLTS
A. ENSURE THAT THE STAKES OR BOLTS DO NOT PROTRUDE BEYOND
B. DO NOT DRILL ANCHOR HOLES INTO PRESTRESSED CONCRETE DECK
C. ENSURE THAT BRIDGE DECK ANCHOR HOLES ARE DRILLED OR CORED
D. DO NOT USE EXPANSION ANCHORS.
E. $\begin{aligned} & \text { TIGHTEN DECK BOLTS DOWN WELL. BOLT } \\ & \text { LEAST ONE COURE OF THGTH SHOULD ALLOW } \\ & \text { THREADS TO SHOW OUTSIDE OF THE NUT }\end{aligned}$ WHEN TIGHTENED.
12. DRAWINGS NOT TO SCALE.

BRIDGE DECK ANCHOR DETAILS

| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | No. | DATE | BY | No. | DATE | BY |
| 1 | 6-02 | MSM | 6 | 03-13 | RDL |  |  |  |
| 2 | 7-03 | MSM | 7 | 04-14 | RDL |  |  |  |
| 3 | 6-04 | MSM |  |  |  |  |  |  |
| 4 | 11-04 | MSM |  |  |  |  |  |  |
| 5 | 9-10 | PLR |  |  |  |  |  |  |



REQUIRES SHEETS 1 OF $3 \& 2$ OF 3





BEARING PLATE BLOCKOUT DETAIL

| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | No. | DATE | BY | No. | DATE | BY |
|  | 6-80 |  | 6 | 12-94 | MSM | 11 | 11-04 | MSI |
| 2 | 5-82 |  | 7 | 2-96 | MSM | 12 | 10-13 | RD |
| 3 | 7-88 | GB | 8 | 5-99 | MSM |  |  |  |
| 4 | 1-91 | GB | 9 | 10-02 | MSM |  |  |  |
|  | 12-92 | MSM |  | 4-04 | MSM |  |  |  |



| IDAHO <br> TRANSPORTATION DEPARTMENT | ORIGINAL SIGNED BY: Tom cole |
| :---: | :---: |
|  | highway Program oversight engineer |
|  | ORIGINAL SIGNED BY: Tom cole |
| BOISE IDAH | CHIEF ENGINEER |




ANCHORING ASSEMBLY DETAIL
(SEE NOTE NO.5)


DECK WASHER

- $1 / 4$ " Thick galvanized plate $<^{1 / 4 " ~ T H I C K ~ G A L V}$



## NOTES

1. CONNECTOR MAY BE PRECAST AS SHOWN OR AS A MIRROR IMAGE FOR 1. USE WIth TRAFFIC TRAVELING IN THE OPPOSITE DIRECTION.
2. PRECAST USING CONCRETE CLASS 4OA. ENSURE THAT REINFORCING 2. PRECAST USING CONCRET CLASS 4OA. ENSURE THAT REINFORCING
STEL II IN ACCORDACE WITH SECTIIN 7O8 METAS OF THE
STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. PROVIDE 2 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. PROVIDE 2 MINIMUM CONCRETE
OTHERWISE NOTED.
3. ENSURE THAT REINFORCING STEEL BENDS ARE MADE IN ACCORDANCE WITH THE LATES
SPECIFICATIONS.
4. THE DIMENSIONS SHOWN IN THE REINFORCING STEEL TABLE ARE MEASURED FROM OUSIDEE-TO-OUTSIDE (D. T O O.) OF BENDS OR BAR ARE MEASURED FROM CENTER OF BAR TO CENTER OF BAR.
5. ANCHOR THE CONNECTOR TO THE PAVEMENT STRUCTURE SECTION OR BRIDGE DECK USING STABILIZATION PINS OR DECK BOLTS AND
CONECT TO 10' OR 20' CONCRETE BARRIER USING A CONNECTING PIN.
6. WHEN CONNECTING TO 10' OR 2O' CONCRE TE BARRIER, THE EXPOSED Stek Loup bars may be bent (mechanically, Not with heat
7. PROVIDE THRIE BEAM GUARDRAIL IN ACCORDANCE WITH STANDARD DRAWING G-1-A-5 AND GUARDRAIL
WITH STANDARD DRAWING G-1-E.
8. NOT TO SCALE

| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | NO. | DATE | BY | NO. | DATE |  |
| 1 | 6 BY |  |  |  |  |  |  |  |
| 2 | $6-80$ |  | 6 | $12-94$ | MSM | 11 | $11-04$ |  |
| 2 | $5-82$ |  | 7 | $2-96$ | MSM | 12 | $10-13$ |  |
| RSDL |  |  |  |  |  |  |  |  |
| 3 | $7-88$ | GB | 8 | $5-99$ | MSM |  |  |  |
| 4 | $1-91$ | GB | 9 | $10-02$ | MSM |  |  |  |




1. CAST-IN-PLACE USING CONCRETE CLASS 40A. ENSURE THAT THE BARRIER IS FLUSH
AGAINST THE ADJACENT COLUMN. DO NOT PLACE FORMS ADJACENT TO THE COLUMN. 2. USE EPOXY COATED REINF ORCING STEEL IN ACCORDANCE WITH SECTION 708
METALS OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. PROVIDE CONTINUOUS HORIZONTAL REINFORCING STEEL FOR BARRIER LENGTHS OF GREATER THAN 4O PROVIDE 2" MINIMUM CONCRETE COVER OVER REINFORCING GREATER THAN 4O'. PROVIDE $2^{\prime \prime}$ M
STEEL UNLESS OTHERWISE NOTED.
3. ENSURE THAT REINFORCING STEEL BENDS ARE MADE IN ACCORDANCE WITH THE
LATEST A.C.I. STANDARD PRACTICES AND AASHTO SPECIFICATIONS.
4. THE DIMENSIONS SHOWN IN THE REINFORCING STEEL TABLE ARE MEASURED FROM 6. MEASURE BARRIER HEIGHT ON ROADWAY SIDE
5. WHEN THE CONCRETE BARRIER IS EXTENDED TO THE COLUMN FOOTING, THE CONTRACTOR MAY RETURN TO THE NORMAL BARRIER HEIGHT BETWEEN FOOTING
CONTINUE THE EXTENDED BARRIER DEPTH FOR THE LENGTH OF THE BARRIER.
6. PROVIDE DUMMY JOINTS EVERY 10' UNLESS CONNECTING TO 20' CONCRETE BARRIER
WHEN CONNECTING TO 20' BARRIER, PROVIDE DUMMY JOINTS EVERY 20'. ROUND UP WHEN CONNECTING TO 2O' BARRIER, PROVIDE DUMMY JOINTS EVER
THE BARRIER LENGTH OF NEED TO' THE NEXT 10 OR 20' INTERVAL.
7. TERMINATE THE BARRIER WITH A CRASHWORTHY TERMINAL OR TRANSITION TO $20^{\circ}$ OR 10' PRECAST CONCRETE BARRIER. ACCEPTABLE TERMINALS MAY INCLUDE THRIE-BEAM GUARDRAIL, OR CONNECTION TO A CRASH CUSHION.
8. WHEN TRANSITIONING TO 20' OR 10' PRECAST CONCRETE BARRIER, MATCH THE SLO LOOP BARS MAY BE BENT (MECHANICALLY, NOT WITH HEAT) TOE EXPOSED STEEL
WHEN POSTED HIGHWAY SPEEDS ARE 35 MPH DR HIGHER.
9. WHEN TRANSITIONING TO 2O' OR 10' PRECAST CONCRETE BARRIER, ENSURE THAT THE
BARRIER FACES ALIGN. IF NECESSARY, SET THE PRECAST BARRIER ON A GROUT LEVELING PAD TO ENSURE PROPER
HORIZONTAL AND VERTICAL ASLIGNMENT.
10. Not to scale.

## SPECIAL CAST-IN-PLACE CONCRETE BARRIER

REQUIRES SHEET 1 OF 2 \&
STD. DWG. G-2-A-1 OR G-2-A-
BOISE IDAHO CHIEF ENGINEER
STD.DWG. G-2-A-1 OR G-2-A-2














TYPE R－B1
NOTE 8

UB－NOTES
＊GMIN，BUT NDT LESS THAN THE SIDEWAKK WHICHEVER IS THE

## CR



TYPE R－B2




TYPE R－B3

English
H－2－B
1 of 4

| REVISIONS |  |  |  |  |  |  |  |  | SCALES SHOWN ARE FOR $11^{\prime \prime} \times 17^{\prime \prime}$ PRINTS ONLY |
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| NO． | DATE | BY | No． | DATE | BY | No． | DATE | BY |  |
| 1 | 09－11 | TEM |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |  | DRAWING DATE： JuLY， 2010 |


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| TRANSPORTATION |
| DEPARTMENT |






TYPE R-D10


TYPE R-D11
TYPE R-D12


| REVISIONS |  |  |  |  |  |  |  |  | SCALES SHOWN ARE FOR $11^{\prime \prime} \times{ }^{17}$ PRINTS ONLY |
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| No. | DATE | BY | No. | DATE | BY | NO. | DATE | BY |  |
| 1 | 09-11 | TEM |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | CADD FILE NAME h2b 1111 dgn |
|  |  |  |  |  |  |  |  |  | DRAWING DATE: |

IDAHO
TRANSPORTATION
DEPARTMENT
BOISE IDAHO

|  | STANDARD DRAWING |
| :---: | :---: |
| ORiginal signed by: loren thomas | SIDEWALKS \& A.D.A. FACILITIES: RETROFIT APPLICATIONS REQUIRES SHEET 1 OF 4, 2 OF 4, \& 4 OF 4 |
| highways program oversight engineer |  |
| original signed by: tom cole |  |
| CHIEF ENGINEER |  |




| SUB-NOTES | LEGEND |
| :---: | :---: |
| * a SEE NOTE 8 |  |
| * b 6' MIN, BUT NOT LESS THAN THE radius or the width of The SIDEWALK, WHICHEVER IS GREATER | $\curvearrowright 1.5 \% \pm 0.5 \%$ ( $2 \% \mathrm{MAX}$ ) SLOPE |



1. THE RAMPS DEPICTED IN THESE DETAILS ARE IDEAL AND ASSUME OPTIMAL RDADWAY GEOMETRIC DESIGN. A
CURB HEIGHT OF G" IS ASSUMED. ADJUSTMENTS MAY BE MADE FOR CONDIIIONS IN THE FIELD SUCH AS RDADAY

2. THE DETECTABLE WARNING SURFACE SHALL BE INSTALLED 24" DEEP ALONG THE FULL WIDTH OF THE
 HE DUARURANSPORTATION DEPARTMENT'S QUALIFIED PRODUCTS LIST AND INSTALLED BY A MANUFACTURER'S detectable warning surf ice details
3. RAMPS SHALL NOT HAVE ANY UTILITIES OR STRUCTURES WITHIN THE FLARE(S), RAMP(S), OR LANDING(S). 4. FINISH CONCRETE WITH A COARSE BROOM SURFACE PERPENDICULAR TO THE SLOPE IN RAMP, LANDING, AND
4. PLACE PREFORMED EXPANSION JOINT FILLER IN SIDEWALK AREAS ONLY. JOINT FILLER SHALL NOT BE
PLACED WITHIN 2'OF THE RAMP, FLARE, OR LANDING. REFER TO STD. DWG. H-1-B FOR DETAILS ON SIDEWALK CONSTRUCTION ADJACENT TO THE CURB RAMP.
CROSSWALK MARKINGS ARE SHOWN FOR REPRESENTATION PURPOSES ONLY. CORNER CURB RADII, PEDESTRIAN
TRAFFIC, AND VEHICLE TRAFFIC NEEDS MUST BE ADDRESSED WHEN INSTALLING CROSSWALKS FOR CURB RAMPS A RAFFIC, AND V
NTERSECTIONS.
5. MATCH EXISTING CURB RADIUS FOR NEW CURB INSTALLATION, UNLESS OTHERWISE NOTED.
6. RECONSTIUCT A MINIMMM LENGTH OF S'OF SIDEWALK AND CURB/CUTTER BEYOND RAMP, LANDING, AND/OR
FLARE TO TRANSIIION SLOPE AND/OR WIDTH OF SIDEWALK. THE MAIMUM LENGTH SHAM BE 15'IR. AS
 9. LANDINGS SHALL HAVE ABSOLUTE MINIMUM DIMENSIONS OF 4 ' $\times 4^{\prime}$ AND ABSOLUTE MAXIMUM SLOPES OF $2 \%$ IN 10. REFER TO STD. DWG. H-2-A FOR MATERIAL THICKNESSES AND CROSS SECTIONS.
7. WHERE 6" CURB IS PLACED AGAINST A building or RETAINING wall, the top of CURB Shall match the DRIGINAL SIDEWALK ELEVATION.
8. GRADE BREAKS SHALL BE ANGULAR AND DISTINCT
9. TYPICALLY TWO CURB RAMPS MUST BE PROVIDED AT EACH STREET CORNER. IN ALTERATIONS WHERE
EXISTING PHYSICAL CONSTRAINTS PREVENT TWO CURB RAMS FROM BEING INSTALLED AT A STREET CDRNER, A EXISTING PHYSICAL CONSTRAINTS PREVENT TWO CURB RAMPS
SINGLE DIAGONAL CURB RAMP IS PERMITTED AT THE CORNER.
10. REFER TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) FOR PLACEMENT OF APPROACH
CROSSWALK MARKINGS AND VEHICLE STOP BARS.
11. FLARES ARE GENERALLY PREFERRED OVER RETURN CURBS TO PROVIDE GRADUAL CURB TRANSITIONS. RETURN CURBS ON RAMPS SHALL ONLY BE INSTALLED IN LOCATIONS THAT ARE NOT PART OF THE PEDESTRIAN CIRCULATION PATH.
LLARES THAT ARE NOT PART OF THE PEDESTRIAN CIRCULATION PATH MAY BE ANY SLOPE ( $33 \%$ PREFERRED MAX).
12. Limit cross slope on ramps to maximum of $2 \%$,
13. NOT TO SCALE.




## 1.5\% $\pm 0.5 \%$ ( $2 \%$ MAX) SLOPE



NOTES
$7.3 \%+10 \%(8.3 \%$ Max) S
APPROACHES BEGIN AT A POINT (OFFSET STATION) WHICH IS OFFSET TO THE BACK OF CURB PERRENDICULAR FROM THE CENTERLINE STATION. THE SKEW
ANGLE POINT-OF-ROTATION IS AT THE OFFSET STATION. 2. AN APPROACH DESCRIPTION, AS SHOWN ON THE PLANS, SHOULD INCLUDE A
 NOT NOTED), AND THE WIDTH, "W'", OF THE APPROACH.
3. THE APPROACH FLARE LENGTH (THE LENGTH OF THE CURB AND GUTTER
TRANSITION FROM FULL HEIGHT TO APPROACH HEIGHT) IS CONSTANT REGARDLESS DF THE SKEW ANGLE.
4. TYPE 3 AND 4 ARE FOR URBAN APPROACHES 14 FEET OR LESS IN WIDTH, 5. THE DISTANCE BETWEEN APPROACHES IS DICTATED BY POLICY. NORMALLY, "RIGHT-DF-WAY USE POLICY" AND "STATE HIGHWAY ACCESS CONTRDL" ITD OLICIES FOR CURRENT INFORMATION GOVERNING ACCESS CONTROL, APPROACH LACEMENT, AND DIMENSIONING REGULATIONS 6. A SIDEWALK EXTENSION SHALL BE CONSTRUCTED AT THE BACK OF THE
APPROACH. BOTH SKEWED AND UNKEWED APPROACHES SHALL BE CONSTRUCTED SO THAT THE WIDTH OF THE EXTENSION IS 4'MINIMUM AT THE NARROWEST SIDEWALK EXTENSION, CONSTRUCT THE PEDESTRIAN RAMP STYLE APPRDACH (TYPES 7, 8, 9, OR 10) INSTEAD.
7. PAY QUANTITIES FOR URBAN APPRDACHES SHALL INCLUDE THE APPROACH RPTION THE APPROACH PEDESTRIAN RAMPS TO SIDEWA KS, AND THE APURBED OPTION, THE APPROACH PEDESTRIAN RAMPS TO SIDEWALKS, AND THE APPRDACH
EXTENSION WHEN NEEDED (PAY QUNTITES INCLUDE ANY PART OF THE APPROACH THAT MEETS THE REQUIREMENTS OF NOTE NO. 9.). THE APPROACH
EXTENSION LIMIT IS AT THE PROPERTY LINE. THE URBAN APPROACH PAY EXTENSION LIMIT IS AT THE PROPERTY LINE. THE URBAN APPROACH PAY
QUANTITY DOES NOT INCLUDE PAY FOR CURB ANDIOR GUTTER IN FRONT OF HE APPROACH.
8. NORMALLY USE A MINIMUM $3: 1(+/-)$ OR AN AESTHETICALLY PLEASING TAPER
IN FROM THE EDGE OF NEW OR EXISTING SIDEWALK TO THE BACK OF THE IN FROM THE EDGE OF NEW OR EXISTING SII
APPROACH 4' MINIMUM APPROACH EXTENSION.
9. ALL TYPE 1, 3, 5, 7 , \& 9 APRRDACH RAMPS AND FLARES SHALL HAVE MINIMUM
CONCRETE THICKNESS OF 6 . AND MINIMUM COMPACTED AGGREGATE BASE OF 0.33 ALL TPE 2, 4, 6, 8, \& 10 APPRDACH RAMPS AND FLARES SALL HAVE A MINIMM
ASPHALT THIKNESS OF 0.2 FEET AND A MINIMM 0.6 FEET OF COMPACTED AGPGALT THICKNE BASE
10. ALL PEDESTRIAN RAMPS SHALL HAVE A SLOPE OF $12: 1$ OR FLATTER. ALL
URBAN APPROACH RAMPS/DRIVEWAYS SHALL HAVE A SLOPE OF 10:1 OR. FLATTER. THE TRAVERSE SLOPE OF SIDEWALKS AND APPRDACH EXTENSIONS CONSTRUCTED OR A SIDEWALK SHALL NOT BE MORE THAN $2 \%$.
11. TEXTURE THE CONCRETE APPROACH RAMPS WITH A PERPENDICULAR TO THE
SLOPE COURSE BROOM SURFACE. 2. AN APPROVED BOND PREVENTIVE SHALL BE PROVIDED BETWEEN THE SIDEWAL AND CURB WHEN PLACED ADJACENT TO EACHE OTHER. WHEN CONSTRUCTING NEW IDEWALK ADJACENT TO EXISTING CURB OR SIDEWALK, THE NEW JOINTS SHALL
ALL IN THE SAME SEQUNCE AS THE EXISTING. I3. A PREFORMED EXPANSION JDTNT FILIER SHAL 3. A PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED BETWEEN THE
SIDEWALK AND THE URAN APPRACH CONTRUCTION. EXPANSION JOINT FILLER HALL BE PLACED EVERY 40' FOR NEW SIDEWALK CONSTRUCTION. 14. SIDEWALK CONSTRUCTION JOINTS SHALL BE CONSTRUCTED AT 5' SPACING,
APPROXIMATELY $1 / 8^{\prime \prime}$ WIDE, $3^{4}$ IN DEPTH, AND FINISHED AND EDGED SMODTH. 15. COMBINATION CURB AND GUTtER SECTION 2 Is SHOWN in the drawing DETAILS FOR OTHER CURB TYPES REFER TO STD. DWG. H-1-A A (CURBS, GUT TERS, TRAFFIC
END TREATMENT). 16. NOT TO SCALE.

TYPICAL SKEWED URBAN APPROACH


VISIONS

| REVVISIONS |  |  |  |  |  |  |  |
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| NO. | DATE | BY | NO. | DATE | BY | NO. | DATE |
| 1 | BY |  |  |  |  |  |  |
| 1 | $11-90$ | GB | 6 | $5-06$ | MSM |  |  |
| 2 | $9-93$ | MSM | 7 | $5-07$ | MSM |  |  |
| 3 | $12-94$ | MSM | 8 | $7-10$ | JAW |  |  |
| 4 | $9-02$ | MSM |  |  |  |  |  |
| 5 | $6-04$ | MSM |  |  |  |  |  |

## 

| ORIGINAL SIGNED BY: LOREN THOMAS |
| :---: |
| ASSISTANT CHIEF ENGINEER (DEVELOPMENT) |
| ORIGINAL SIGNED BY: TOM COLE |
| CHIEF ENGINEER |

## STANDARD DRAWING URBAN APPROACHES \& CONCRETE SIDEWALK

## English

SHEET 3 of 3


 $* n=$ NUMBER OF MAILBOXES
AT MAIL STOP
$v^{c}=A D T$ ON CROSS RAAD
$V_{m}^{c}=$ ADT ON MAIN ROAD
installation at mailbox turnout

installation behind guardrail

installation on curbed residential street TYPICAL MAILBOX INSTALLATIONS


RURALAPPROACH
(SEE NOTE NO.

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| NO. | DATE | BY | No. | DATE | BY | No. | DATE | BY |
| 1 | 11-02 | MSM |  |  |  |  |  |  |
| 2 | 06-05 | MSM |  |  |  |  |  |  |
| 3 | 01-13 | RDL |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |

MAILBOX TURNQUT

## 

## NOTES

1. LOCATE MAILBOX TURNOUT SO THAT THE TAPERS DO NOT
2. CONSTRUCT MAILBOX ASSEMBLIES IN ACCORDANCE WITH STANDARD DRAWING H-5-A. CONSTRUCT RURAL
ACCORDANCE WITH STANDARD DRAWING H-4-A.
3. MEASURE MAILBOX TURNQUT STATION AND OFFSET AT THE EDGE 4. not to scale.

| TURNOUT WIDTH AND MAILBOX OFFSET TABLE |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| ADT | TURNOUT WIDTH (FT.) |  | MAILBOX OFFSET (IN.) |  |
|  | PREFERRED | MINIMUM | PREFERRED | minimum |
| >10,000 | $>12$ | 8 | 6 TO 8 | 0 |
| 1,500 TO 10,000 | 12 | 8 |  |  |
| 400 TO 1,500 | 10 | 8 |  |  |
| <400 | 8 | 6 |  |  |
| RESIDENTIAL STREET (ND CURB) | 6 | 0 |  | 6 |
| RESIDENTIAL STREET (WITH CURB) | NOT APPLICABLE |  | 8 TO 12 | 6 |

$\square$

| ORIGINAL SIGNED BY: LOREN THOMAS |
| :--- |
| HIGHWAYS PROGRAM OVERSIGHT ENGINEER |
| ORIGINAL SIGNED BY: TOM COLE |
| CHIEF ENGINEER |





| MAILBOX, PLATFORM, AND SHELF TABLE |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\underset{\text { SIZE }}{\text { MAILBOX }}$ | MAILBOX DImENSIONS |  |  | PLATFORM DIMENSION |  | $\begin{aligned} & \hline \hline \text { SHELF } \\ & \text { DIM. } \end{aligned}$ |
|  | L | W | H | $L_{P}$ | $\mathrm{w}_{\mathrm{p}}$ | $L_{s}$ |
| 1 | 19" | 61/2" | $81 / 2^{\prime \prime}$ | $17^{\prime \prime}$ | $6^{\prime \prime}$ | 15" |
| 1-A | $21^{\prime \prime}$ | $8^{\prime \prime}$ | $10^{1 / 21}$ | 19" | $71 / 2^{\prime \prime}$ | $16^{1 / 21}$ |
| 2 | $231 / 2^{\prime \prime}$ | $11^{1 / 2} 2^{\prime \prime}$ | $131 / 2^{\prime \prime}$ | $21^{\prime \prime}$ | $11^{\prime \prime}$ | $20^{\prime \prime}$ |



MAILBOX DIMENSIONS


SOCKET AND WEDGE MAILBOX SUPPORT SYSTEM DETAIL



SHELF DETAIL
(FOR TYPE A DOUBLE

## NOTES

1. CONSTRUCT MAILBOX ASSEMBLIES IN ACCORDANCE WITH SECTION 634
MAILBOX OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTIN. 2. SEe Standard drawing h-4-b for mailbox placement.
2. INSTALL THE MAILBOXES AND ASSEMBLIES WITH THE FASTENERS SHOWN IN THE ASSEMBLY
REMAIN UNUSED.
3. CENTER THE MAILBOX ON THE PLATFORM AND ENSURE THAT THE MAILBOX DOOR OPENS. SPACING OF MAILBOX MOUNTING HOLES MAY VARY BETWEEN
MANUFACTURERS AND ADDITIONAL HOLES MAY BE DRILLED IN THE MAILBOX MANUFACTURERS AND ADDITIONAL HOLES MAY BE DRILLED IN THE
PLATFORM, OR BOTH TO ATTACH THE MAILBOX TO THE PLATFORM.
4. COMMERCIALLY AVAILABLE MAILBOXES AND MAILBOX ASSEMBLIES MAY BE
SUBSITUTE FOR THOSE SHOWN IF THEY MEET THE REQUIREMENTS OF THE U.S. POSTMASTER GENERAL AND HAVE SUCCESSUULY PASSED THE TESTING
REQUREMENTS OF MAS OR NCRP 350 ADUSTABE PLATERM ALTRNATIVES
AND THE SOCKET AND WEDGE MAAL
 COMMERCIALLY AVALABLE PRORIETARY SYSTEMS HAT MAY BE ACCEPTABLE
ALTERNATIVES OBAIAIN THE ENGINEERS APRROVAL BEFORE INSTALLIIG
ALTERNTIVE MAILBOXES OR ASSEMBLIES AND INSTALL IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS
5. USE AN ANTI-TWIST PLATE, SHOWN ON THE ANTI-TWIST PLATE DETAIL. A
SOCKET AND WEDGE MAILBOX SUPPORT SYSTEM MAY BE USED IN LIEU F . SOCKET AND WEDGE MAILBOX SUPPORT SYSTEM MAY BE USED IN LIEU OF AN
ANTITWIST PLATE. IF THE SOCKET AND WEDGE SYSTEM IS USED, FOLLOW THE MANOFACTURER'S INSTALLATION INSTRUCTIONS.
6. THE TYPE C ASSEMBLY SHOULD BE USED IN HEAVY SNOW AREAS OR AREAS
WHERE SNOW PLOW DAMAGE TO MAILBOXES HAS BEEN OBSERVED OR IS ANTICIPATED.
7. WHEN USED IN HEAVY SNOW AREAS, ONLY ONE MAILBOX IS RECOMMENDED FOR
TYPE A ASSEMBLIES. THE TYPE A ASSEMBLY WITH WOOD TYPE ASSEMBLIES. THE TYPE A ASSEMBLY WITH WODD POSTS IS
RECOMENDED FDR USE IN HEAVY SNOW AREAS. A SNOW SHIELD MAY BE RECOMMENDED FOR USE IN HEAVY SNOW AREAS. A SN
INSTALLED AS SHOWN ON STANDARD DRAWING H-5-B.
8. MAILBOX SIZES 1, 1A, AND 2, SHOWN IN THE MAILBOX, PLATFORM, AND SHELF
TABLE MAY BE INSTALLED ON THE TYPE TABLE MAY BE INSIALLED ON THE TYPE A DOUBLE MAILBOX ASSEMBLY IN ANY
COMBINATIN OF SIZES. WHEN MORE THAN ONE SIZE IS TO BE INSTALLED, USE THE SHELF SIZE FOR THE LARGER MAILBOX
9. THE TYPE B ASSEMBLY IS A PROPRIETARY SYSTEM THAT MAY BE USED FOR
THE INSTALLATION OF TWO OR MORE MAILBOXES. ON TYPE B MAILBOX ASSEMBLIES, INSTALL A MAXIMUM OF FIVE SIZE 1 MAILBOXES, FOUR SIZE 1 A ASSEMBLIES, INSTALL A MAXIMUM OF FIVE SIZE MAILBUXES, FOUR SIZE IA
MAIBOXES OR THRE SIZE 2 MALBOXS. WHEN MORE THAN ONE SIZE IS TOE BE
INSTALED, LIMIT THE NUMBER OF MAILBOXES TO THE MAXIMUM NUMBER FOR THE LARGEST SIZE USED.
10. DO NOT INSTALL THE MAILBOX ASSEMBLY IN A CONCRETE FOUNDATION. AN
EXCEPTION MAY BE MADE FOR MASH OR NCHRP 350 APPROVED ALTERNATIVE MAILBOX ASSEMBLIES IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION MASTRUCTIONS.
INSTROM
11. ENSURE THAT PLATFORM, SHELF, AND BRACKETS ARE GALVANIzED IN
12. IF USED, ATTACH THE NEWSPAPER BOX TO THE SUPPORT, DIRECTLY UNDER THE MAILBOX ENSURE THAT NEWSPAPER BOXES DO NOT EXTEND BEYOND THE
FRONT DF THE MAILBOX WHEN THE MAILBOX DOR IS CLOSED. IN HEAVY SNW AREAS, LOCATE THE NEWSPAPER BOX ON THE TRAILING SIDE OF THE MAILBOX
POST. SEE THE NEWSPAPER BOX DETAIL FOR INSTALLATIONS ON TYPE A MAILBOX ASSEMBLIES.
13. ROUND OR GRIND THE CORNERS OF PLATFORMS, SHELVES, BRACKETS, OR OTHER 15. Not to scale.


| REVISIONS |  |  |  |
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| SCALES SHOWN ARE FOR $11^{\prime \prime} \times 17{ }^{\prime \prime}$ PRINTS ONLY |
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| DRAWING DATE |

IDAHO
TRANSPORTATION
DEPARTMENT
original signed by: Loren thomas ORIGINAL SIGNED BY: LOREN THOMAS ORIginal SIGNED bY: TOM ENG
BOISE IDAHO CHIEF ENGINEER



TYPE A ASSEMBLY
STEEL TUBE POST


Single mailbox assembly (FOR MAILBDXES
SIZES 1 AND 1A)

MAILbox Elevation DETAIL


SingLe mailbox assembly


DOUBLE MAILBOX ASSEMBLY (FOR MAILBOXES
SIZES 1 AND 1 A)


SINGLE MAILBOX ASSEmbLY (FOR MAILBOXES
SIZES 1 AND 1 A ON

single mailbox assembly (FOR MAILBOX
SIZE 2 ON TYPE 2

ADJUSTABLE PLATFORM ALTERNATIVES

| REVISIONS |  |  |  |  |  |  |  |  | SCALES SHOWN ARE FOR $11^{\prime \prime} \times 17^{\prime \prime}$ PRINTS ONLY | IDAHO <br> TRANSPORTATION DEPARTMENT | ORIGINAL SIGNED BY: LOREN THOMAS | STANDARD DRAWING | English |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | MSM | No. | DATE | BY | No. | DATE | BY |  |  |  | MAILBOX ASSEMBLIES | StANDARD DRAWING No. |
| 2 | 07-02 | MSM | 7 | 11-11 | TEM |  |  |  | CADD FILE NA |  | highways program oversight engineer | \& MOUNTING HARDWARE | H-5-A |
| 3 | 07-05 | MSM | 8 | 01-13 | RDL |  |  |  | h5a_0113.dgn |  | ORIGINAL SIGNED BY: TOM COLE |  |  |
|  | 12-05 | MSM |  |  |  |  |  |  | DRAWING DATE: JANUARY, 1992 | BOISE IDAHO | CHIEF ENGINEER | REQUIRES SHEETS 1 OF 5,2 OF 5, 3 OF $5,4 \mathrm{OF} 5, \&$ STD. DWGS. $\mathrm{C}-3-\mathrm{A}$ \& $\mathrm{H}-4-\mathrm{B}$ | Sheet 5 of 5 |





DRILL AND TAP POLE FOR $1 / 2 "$ CAP SCREWS
TO FIT TERMINAL COMPARTMENT MOUNTING BRACKET. (TYPICAL POLE MOUNTING)

VIEW A-A

pedestrian pushbutton ASSEMBLY
POLE MOUNTED HEADS FOR dUAL VEHICLE SIGNAL HEAD INSTALLATION
PEDESTRIAN PUSHBUTTON MOUNTING

1. PEDESTRIAN pUShbutton assemblies are to ge muunted as per manufacturer's INSTRUCTIONS.

NOTES

1. THIS DRAWING SHOWS TYPICAL INSTALLATION DETAILS ONLY. SEE PLAN SHEETS FOR QUANTITY
OF SIGNAL AND LIGHTING COMPONENTS TO BE INSTALLED.
2. ORIENTATION OF SIGNAL COMPONENTS SHALL BE AS SHOWN UNLESS OTHERWISE SPECIFIED ON THE PLAN
3. SEE STANDARD DRAWING "I-7-C-1" \& STANDARD DRAWING -7-C-2"FOR FOUNDATION DETAILS
4. ALL SIGNAL COMPONENTS SHALL BE LEVELED AFTER THE
5. SPECIFIC LOCATION of each pole installation Shall Be

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|  | 12-94 | Heb | 6 | 04-14 | HEB |  |  |  |
| 2 | 12-01 | NQB |  |  |  |  |  |  |
| 3 | 07-05 | неВ |  |  |  |  |  |  |
| 4 | 08-06 | HEB |  |  |  |  |  |  |
|  | 07-10 |  |  |  |  |  |  |  |


| IDAHO <br> TRANSPORTATION DEPARTMENT | ORIGINAL SIGNED BY: CARL D. MAIN |
| :---: | :---: |
| BOISE IDAHO | desicn/TRaffic services engineer |



FOUNDATION SCHEDULE
CABINET AND SERVICE PEDESTAL


| REVISIONS |  |  |  |  |  |  |  |  |
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| NO | DATE | BY | No. | DATE | BY | No. | DATE | BY |
| 1 | 08-96 | NQB |  |  |  |  |  |  |
| 2 | 12-04 | Heb |  |  |  |  |  |  |
| 3 | 05-05 | Нев |  |  |  |  |  |  |
| 4 | 05-14 | HEB |  |  |  |  |  |  |


| IDAHO <br> TRANSPORTATION DEPARTMENT | ORIGINAL SIGNED BY: CARL D. Main |
| :---: | :---: |
| BOISE IDAHO | DESİN/TRAFFIC SERVICES ENGINEER |

Sheet 1 of 1



NOTES:

1. the foundation shall be located as indicated on the

PROJECT PLAN SHEETS.
2. foundation rebar cages may be welded if the rebar CONFORMS TO ASTM A706/A706M AND ALL WELDING CONFORMS TO al welding code - reinforcing steel. ALL CONDUITS, ELBOWS, AND COUPLINGS WITHIN AND PROTRUDING
FROM THE FOUNDATION SHALL BE gom foundation shall be rigid steel. the remaining
CONDUITS SHALL BE AS SHOWN ON THE PLANS.
4. STUBOUTS SHALL BE TERMINATED WITH A STEEL BONDING
5. FOAM PLUG REQUIRED AT BOTH ENDS OF SPARE CONDUITS.
5. FOAM PLUG REQUIRED AT BOTH END
GROUND IN ACCORDANCE WITH
7. CONDUIT SHALL BE INSTALLED IN SUCH
a manner as to no
8. GRADE AREA TO PROVIDE DRAINAGE AWAY FROM CABINET FOUNDATION
9. $6^{\prime \prime}$ WIDE ELECTRICal hazard TAPE installed $1^{\prime}$ - $0^{\prime}$

ABOVE CONDUIT (TYPICAL DF ALL CONDUIT
10. Not to Scale.

STANDARD DRAWING
SIGNAL CABINET FOUNDATION DETAIL

REVISIONS

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| scales shown ARE FOR $11^{\prime \prime} \times 17$ PRINTS ONLY |
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| DRAWING DATE: |



1. The foundation shall be located

AS INDICATED ON THE PLAN SHEETS.
. ALL CONDUITS, ELBOWS AND COUPLINGS
FOUNDATION SHALL BE RIGID STEEL
THE REMAINING CONDUITS SHALL BE
AS SHOWN ON THE PLANS.
STUBOUTS SHALL BE TERMINATED WITH
3. Stubuts shall be term

PLASTIC PUSH PLUG REQUIRED AT BOTH
5. GROUND IN ACCORDANCE WITH THE N.E.C.
6. CONDUIT SHALL BE INSTALLED IN SUCH

A MANNER AS TO NOT CAUSE MODIFICATION
OF THE CABINET.
GRADE TO PROVIDE DRAINAGE AWAY FROM THE 6" WIDE ELECTRICAL
INSTALLED $1^{\prime}-0^{\prime \prime}$ ABOVE THE CONDUIT. (TYPICAL 0 all conduit placed in ground).

| REVISIONS |  |  |  |  |  |  |  |  | SCALES SHOWN ARE FOR $11^{\prime \prime} \times 17$ PRINTS ONLY | IDAHO <br> TRANSPORTATION DEPARTMENT | ORIGINAL SIGNED BY: CARL D. Main |
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|  |  |  |  |  |  |  |  |  | DRAWING DATE: FEBRUARY, 2014 | BOISE IDAHO | DESIGN/TRAFFIC SERVICES ENGINEER |




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|  | 08-96 | HEB |  |  |  |  |  |  |
| 2 | 02-14 | HEB |  |  |  |  |  |  |
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| BOISE IDAHO | DESIGN/TRAFFIC SERVICES ENGINEER |




TYPICAL POLE FOUNDATION
IN EXCAVATION

EXCAVATION NOTES
If CORRUGATED METAL PIPE IS USED UP to Sidewalk or grade line, CUT OUT HOLE FOR The conduits will be equal to the diameter
2. WHEN NATIVE SOIL IS USED FOR BACKFILL, IT SHALL be COMPACTED IN ACCORDANCE WITH SUBSECTION 210.03 OF THE IDAHO STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND SUPPLEMENTAL

If CONTROL DENSITY FILL IS USED FOR BACK FILL, IT SHALL HAVE A COMPRESSIVE STRENGTH OF 100 PSI TO 300 PSI.
ArAwing Not to scale.


1. IF DEPTH TO bedrock is less than 5', notify the engineer and redesign of the foundation may be required.
2. SOCKET ALL VERTICAL RODS FUL EENGTH AS SHI DRAWING I-7-C-1 IN BEDROCK. DIAMETERS OF SRILLED ON STANDARD
 WITH GROUT, 705.02, TYPE B, CLASS 1.
3. EXCAVATION NOTES APPL

STEEL ANCHOR BOLT PLATE DETAILS


## ANCHOR BOLT PLATE SCHEDULE

| ANCHE |  |  |
| :---: | :---: | :---: |
| BOLT CIRCLE | OUTSIDE <br> DIAMETER | INSIDE <br> DIAMETER |
| $171 / 2^{\prime \prime}$ | $21^{\prime \prime} 4^{\prime \prime}$ | $1334^{\prime \prime}$ |
| $181 / 2^{\prime \prime}$ | $22^{\prime \prime} / 4^{\prime \prime}$ | $1434^{\prime \prime}$ |
| $22^{\prime \prime}$ | $261 / 4^{\prime \prime}$ | $173 / 4^{\prime \prime}$ |


 $\pi$ п $\pi$ \#Nu SIDE VIEW

SEE STANDARD DRAWING I-7-C-1 FOR DETAILS

| REVISIONS |  |  |  |  |  |  |  |  |
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| 1 | 11-14 | HEB |  |  |  |  |  |  |
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| TRANSPORTATION DEPARTMENT |  |
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|  |  |

GENERAL NOTE:
see signing erection specifications for dimensions, sign post lengths and sign sizes,
INSTALLATION NOTES
BRACKET ASSEMBLY
ASSEmble brackets to post with bolts provided. square and tighten.
items (1) (2) (3) and (4). make as tight as
possible with conventional wrenches.
HINGE ASSEMBLY
butt upper and lower posts together on flat surface,
place hinge plates (10 on outer flanges and secure with $1 / 2^{\prime \prime}$
bOLTS (3) (4) AND (11) - SNUG BUT DO NOT TIGHTEN.
make sure upper and lower posts are in alignment; then tighten ALL NUTS (4) $1 / 2$ OF A TURN BEYOND SNUG.
ANCHOR ASSEMBLY
assemble coupling anchors (9) to anchor template, see standard dRawing I-8-A-2.
LOWER ENTIRE ANCHOR ASSEMBLY Into fRESH CONCRETE AND VIBRATE into POSItIIN SO THAT THE TOPS OF THE INDIVIDUAL ANCHORS (9) ARE lush with the finished top surface of the footings.
align and level the template and keep in place until concrete has SET
COUPLING ASSEMBLY
suspend post over footing and insert special bolts (5) through brackets (1).
below bracket, thread couplings (6) into anchors (9) but leave loose.
LOWER POST WIth special bolts (5) onto loose couplings (6) and thread special bolts into couplings. thread couplings all the WAY INTO ANCHORS (9)
tighten special bolts (5) with $1-1 / 6^{\prime \prime}$ " wrench and make as tight as possible with conventional wrenches. note! do not place torque across necked down portion of coupling - wrench flats ARE TO BE USED FOR PROPER TIGHTENING.
if post is not plumb, insert shims (7) and (8) between COUPLINGS (6) AND ANCHORS (9)
no more than two shims underneath any one coupling and no more than three shims underneath any two couplings.

BREAKSAFE BASE ASSEMBLY TYPE AI6 - LP

(1)


TOP OF FOUNDATION $\longrightarrow$

| REVISIONS |  |  |  |  |  |  |  |  | SCALES SHOWN ARE FOR $11^{\prime \prime} \times 17$ PRINTS ONLY | IDAHO <br> TRANSPORTATION DEPARTMENT | ORIGINAL SIGNED BY: RYAN LANCASTER for |
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| 2 | 12-13 | HEB |  |  |  |  |  |  |  |  |  |
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GENERAL NOTES
see signing erection specifications for dimensions, sign post lengths and sign sizes.
INSTALLATION NOTES

## BRACKET ASSEMBLY

select correct break-safe bracket number from the bracket selection table, using
"L" value from the longest post. use the figure to the left of table to determine "L".
ASSEMBLE BRACKETS TO POST WITH BOLTS PROVIDED. SQUARE AND TIGHTEN
ITEMS (1) (2) (3) (4) (5) (6) AND (7). MAKE AS TIGHT AS
posisible with ca
HINGE ASSEMBLY
butt upper and lower posts together on flat surface.
place hinge plates (13) on outer flanges and secure with $3 / 4$ "
bolts (14) (15) AND (16) - SNUG but do not tighten.
make sure upper and lower posts are in alignment; then tighten ALL NUTS (16) $1 / 2$ OF A TURN BEYOND SNUG.
ANCHOR ASSEMBLY
ASSEmble coupling anchors (12) to anchor template, see standard DRAWING I-8-B-2.
lower entire anchor assembly into fresh concrete and vibrate into POSITION SO THAT THE TOPS OF THE INDIVIDUAL ANCHORS (12) ARE Lush with the finished top surface of the footings
Align and level the template and keep in place until concrete has SEt.
COUPLING ASSEMBLY
SUSPEND POST OVER FOOting and insert special bolts (8) through brackets (1).
below bracket, thread couplings (9) into anchors (12) but leave loose. lower post with special bolts (8) onto loose couplings (9) and thread special bolts into couplings. thread couplings all the way into anchors (12).
tighten special bolts (8) with $1-5 /$ " $^{\prime \prime}$ wrench and make as tight as POSSIBLE WITH CONVENTIONAL WRENCHES. NOTE! DO NOT PLACE torque across necked down portion of coupling - wrench flats are provided on either side for proper tightening.
if post is not plumb, insert shims (10) and (11) between
COUPLINGS (9) AND ANCHORS(12)
No more than two shims underneath any one coupling and no more than three shims underneath any two couplings.

BREAKSAFE BASE ASSEMBLY TYPE B-525-LP


L-L,- H/2


| BRACKET SELECTION TABLE |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { POST } \\ & \text { SIZE } \end{aligned}$ | BRACKET NO. 1 |  | BRaCKET No. 2 |  | BRACKET NO. 3 |  |
|  | MIN. 'L' | MAX. 'L' | min. 'L' | MAX. 'L' | min. 'L' | MAX. 'L' |
| 8' | 14 | 29 | 10' | 14' | $0^{\prime}$ | 10' |



| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | NO. | DATE | BY | NO. | DATE |  |
| 1 | BY |  |  |  |  |  |  |  |
| 2 | $12-96$ | HEB | HEB |  |  |  |  |  |
| 3 | $12-99$ | HEB |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |


| IDAHO |
| :---: | :---: | :---: | :---: |
| TRANSPORTATION |
| DEPARTMENT |



GENERAL NOTES
see signing erection specifications for dimensions, sign post lengths and sign sizes.
INSTALLATION NOTES

## BRACKET ASSEMBLY

select correct break-safe bracket number from the bracket selection table, using
"L" VALUE FROM THE LONGEST POST. USE THE FIGURE TO THE LEFT OF TABLE TO DETERMINE "L",
ASSEMBLE BRACKETS TO POST WITH BOLTS PROVIDED. SQUARE AND TIGHTEN
ITEMS (1) (2) (3) (4) (5) (6) AND (7). MAKE AS TIGHT AS
PINGS ASSEMBLY
butt upper and lower posts together on flat surface.
place hinge plates (13) on outer flanges and secure with $3 / 4$ "
BOLTS (14) (15) AND (16) - SNUG BUT DO NOT TIGHTEN.
make sure upper and lower posts are in alignment; then tighten ALL NUTS (16) $1 / 2$ OF A TURN BEYOND SNUG.
ANCHOR ASSEMBLY
ASSEmble coupling anchors (12) to anchor template, see standard drawing I-8-B-2.
Lower entire anchor assembly into fresh concrete and vibrate into
POSition so that the tops of the individual anchors (12) are
cush with the finished top surface of the footings,
Align and level the template and keep in place until concrete HAS SET.
COUPLING ASSEMBLY
SUSPEND POST OVER Footing and insert special bolts (8) through brackets (1).
below bracket, thread couplings (9) into anchors (12) but leave loose. lower post with special bolts (8) onto loose couplings (9) and thread special bolts into couplings. thread couplings all the WAY INTO ANCHORS (12)
tighten special bolts (8) with $1-5 /$ " $^{\prime \prime}$ wrench and make as tight as possible with conventional wrenches. note! do not place TORQUE ACROSS NECKED DOWN PORTION OF COUPLING - WRENCH FLATS are provided on either side for proper tightening.
IF POST IS NOT PLUMB, INSERT SHIMS (1) AND (11) BETWEEN
COUPLINGS (9) AND anchors (12).
no more than two shims underneath any one coupling and no more than three shims underneath any two couplings.

BREAKSAFE BASE ASSEMBLY TYPE B-650-LP


| BRACKET SELECTION TABLE |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { POST } \\ & \text { SIZE } \end{aligned}$ | BRACKET No. 1 |  | BRACKET No. 2 |  | bracket no. 3 |  |
|  | min. 'L' | MAX. 'L' | min. 'L' | MAX. 'L' | min. 'L' | max. 'L' |
| 12" | 18 | 29' | $13^{\prime}$ | 18' | $0^{\prime}$ | $13^{\prime}$ |
| $14^{\prime \prime}$ | 19' | 29 | $14^{\prime}$ | 19 | $0^{\prime}$ | $14^{\prime}$ |


| POST DIMENSIONS |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { POST } \\ & \text { TYPE } \end{aligned}$ | $\begin{array}{\|c\|} \hline \text { SIZE } \\ \& \\ \text { WEIGHT } \\ \hline \end{array}$ | DEPTH | $\begin{array}{\|l\|} \hline \text { WEB } \\ \text { THICK } \\ \text { NESS } \\ \hline \end{array}$ | FLANGE |  |
|  |  |  |  | WIDTH | $\begin{gathered} \text { THICK- } \\ \text { NESS } \\ \hline \end{gathered}$ |
| A-8 | W12-19 | 121/8" | 1/4" | 4" | 3/8" |
| A-9 | W14-22 | $133 / 4{ }^{\prime \prime}$ | 1/4" | 5" | 5/16" |



| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | NO. | DATE | BY | NO. | DATE |  |
| 1 | BY |  |  |  |  |  |  |  |
| 1 | $08-96$ | HEB | A. |  |  |  |  |  |
| 3 | $12-99$ | HEB |  |  |  |  |  |  |
| 3 | $12-13$ | HEB |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |


| IDAHO <br> TRANSPORTATION DEPARTMENT | ORIGINAL SIGNED BY: RYAN LANCASTER for |
| :---: | :---: |



TYPICAL FOUNDATION
TOP VIEW

| DIMENSION B | FOR SIGN POST TY | A-8 AND A-9 |
| :---: | :---: | :---: |
| BREAKSAFE SYSTEM TYPE B-650-LP |  |  |
| BRACKET NO. 1 | BRACKET NO. 2 | BRACKET NO. 3 |
| DEPTH OF POST SECTION PLUS $715 / 16^{\prime \prime}$ | $\begin{gathered} \text { DEPTH OF POST SECTION } \\ \text { PLUS 8/1/1" } \end{gathered}$ | DEPTH OF POST SECTION PLUS $81 / 8^{\prime \prime}$ |

SIGN POST ANCHOR INSTALLATION CHART
OR A-9

- breaksafe base

$$
\begin{aligned}
& \text { BYEAKSAFE BASE } \\
& \text { TYPE B-650-LP }
\end{aligned}
$$

$$
21 / 2^{\prime \prime} \text { TYPICAL }
$$

串

$$
L_{2^{\prime \prime} \max .}
$$



SIDE VIEW
FOUNDATION NOTE
ensure Cast-in-place foundation is placed AGAINST IN-SITU (NATIVE) SOILS IN AUGERED HOLE IF AUGURED HOLE IS NOT POSSIBLE, EXCAVATION BY THE ENGINEATION CAN BE DONE IF IF APPROVGETED METAL PIPE AS FORM FOR THE FOUNDATION. PLACE AND COMPAC BACKILL IN ACCORDANCE TO SUBSECTION 210.03 OF THE IDAHO TRANSPORATION DEPARTMENT STAND
SPECIFICATIONS FOR HIGHWAY CONSTRUCTION

| MATERIAL |  |
| :--- | ---: |
| QUANTITIES |  |
| CONCRETE | 2.1 CU. YDS. |
| 8 | VERT. RODS |
| 50 | 60 LN. FT. |
| 5 | HOOPS |

TYPE C FOUNDATIONS

## LEGEND

C distance from edge of shoulder to center LINE OF FIRST POST

F1, F2 VERTICAL distance from top of foundation to the elevation of the edge of the SHOULDER
P1 total post length of first post.
P2 TOTAL POST LENGTH OF SECOND POS
R1 LENGTH OF FIRST LOWER POST. (7'min.)
R2 LENGTH OF SECOND LOWER POST.
Overall height of signis.

NOTES:

1. SEE SIGNING ERECTION SPECIFICATIONS FOR

DIMENSIONS OF EACH SIGN INSTALLATION.
2. ANCHOR TEMPLATES SHOULD BE DESIGNED SO
the anchors are held solid and level.
3. NO PART OF THE FOUNDATION OR NON-
breakaway part of the base shoul PROTRUDE MORE
GROUND SURFACE
4. foundation rebar cages may be welded if the
4. Foundation rebar cages may be welded if th
REBAR Conforms to astm a706/A706M And all REBAR
WELDG CONFRMS TO ANSI/AWS DII.4
(STRUCTURAL WELDING CODE - REINFORCING STEEL).
5. CURE foundations fir
5. CURE FOUNDATIONS FOR A MINIMUM
6. DRAWING NOT TO SCALE

| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | No. | DATE | BY | No. | DATE | BY |
| 1 | 04-94 | HEB |  |  |  |  |  |  |
| 2 | 08-96 | HEB |  |  |  |  |  |  |
| 3 | 07-98 | HEB |  |  |  |  |  |  |
| 4 | 12-13 | HEB |  |  |  |  |  |  |

IDAHO
TRANSPORTATION
DEPARTMENT
BOISE IDAHO
BREAKAWAY SIGN POST
INSTALLATION
TYPE A-8 \& A-9
REQUIRES STD DWG I-8-C-1

## English <br> STANDARD DRAWING

I-8-C-2




TYPICAL INSTALLATION OF mULTIPLE SIGN FACES REQUIRING BRACE ANGLES

NOTE:
. SEE SIGNING ERECTION SPECIFICATIONS FOR THE DIMENSIONS C, E, F, G, P, H, \& W FOR EACH SIGN INSTALLATION.
2. $C=$ THE DISTANCE FROM EDGE OF SHOULDER TO THE $\&$ OF POST
3. E = THE HEIGHT ABOVE THE edGE of finished shoulder to the BOTTOM OF THE LOWER SIGN.
4. F = the Vertical distance from the top of the foundation TO THE VERTICAL DISTANCE FROM THE
5. G = the distance from the top of the foundation to the bottom of the lower sign face
6. $\mathrm{P}=\mathrm{THE}$ TOTAL POST LENGTH.
7. H = the overall height of sign faces

TYPICAL INSTALLATION OF SIGN FACES NOT REQUIRING BRACE ANGLES

TYPICAL INSTALLATION OF SIGN FACE REQUIRING BRACE ANGLES




TYPICAL SIGN ORIENTATION

GENERAL NOTES

1. THE COST OF BOLTS, NUTS, WASHERS, AND ALUMINUM CLIP ASSEMBLIES NEEDED TO MOUNT THE REQUIRED SIGNS(S) ON THE POST SHALL BE INCLUDED IN THE BID ITEM(S) FOR "BREAKAWAY SIGN POST INSTALLATION TYPE B"
AS SHOWN ON THE PLANS.
2. REFER TO STANDARD DRAWINGS I-9-A1, I-9A-2, I-9-B. AND I-9-C FOR DETAILS OF CLIPS AND BRACE ANGLES.
3. REFER to Standard drawing i-10-A for installation of extruded ALUMINUM SIGN PANELS.
4. SIGN FACES 30 inches or less in width do not require brace angles.
5. Sign faces 36 inches or over in width shall have brace angles.
6. Refer to standard drawing i-12-F "punching schedule for type b and E SIGNS" FOR DETAILS OF HOLE SPACING.
7. the distance "G" should not be less than 7 feet and the length "P" SHOULD NDT BE LESS THAN 9 FEET WHEN SIGNS MUST BE INSTALLED WITHIN 30' OF THE TRAVEL LANE

| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| N0 | DATE | BY | No. | DATE | BY | No. | DATE | BY |
|  | 04-94 | HEB |  |  |  |  |  |  |
| 2 | 08-96 | Heb |  |  |  |  |  |  |
| 3 | 02-98 | HEB |  |  |  |  |  |  |
| 4 | 12-99 | HEB |  |  |  |  |  |  |
| 5 | 07-10 | HEB |  |  |  |  |  |  |

## IDAHO TRANSPORTATION 致 (1040) DEPARTMENT

| ORIGINAL SIGNED BY: LOREN THOMAS |
| :--- |
| ASSISTANT CHIEF ENGINEER (DEVELOPMENT) |
| ORIGINAL SIGNED BY: TOM COLE |
| CHIEF ENGIEER |

STANDARD DRAWING




$3 / 8^{\prime \prime} \times 3 / 4^{\prime \prime}$ SLOTS (TYP.)
$\Rightarrow \quad 3 / 4^{\prime \prime}$

brace angle detail
NOTES:

1. WEights of brace angles do not include galvanizing.
2. ALL BRACE ANGLES SHALL BE $13 / 4^{\prime \prime} \times 13 / 4^{n} \times 1 / 4^{4}$ AT 2.77 LBS ./FT
3. THE AUXILIARY SIGNS SHALL BE ATTACHED BY DRILLING THE POST WITH
4. REFER TO STANDARD DRAWINGS $1-8-\mathrm{D}-1,1-8-\mathrm{D}-2$ \& $1-8-\mathrm{D}-3$.
5. When only one brace is required, place in the center of the sign.


| REVISIONS |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | DATE | BY | NO. | DATE | BY |  |
| 1 | NO. | DATE | BY |  |  |  |


| SCALES SHOWN ARE FOR $11^{\prime \prime} \times 17$ PRINTS ONL |
| :---: |
| CADD FILE NAME: i9a11213.dgn |
| DRAWING DAT DECEMER |

IDAHO
TRANSPORTATION
DEPARTMENT
BOISE IDAHO

RIGINAL SIGNED BY: RYAN LANCASTER for
DESIGN/TRAFFIC SERVICES ENGINEER
B POST AND
BRACE ANGLE DETAIL
English
I-9-A-1
BOISE IDAHO
REQUIRES STD.DWG. I-9-A-2








| M1-1 | $\left(24^{\prime \prime} \times 24^{\prime \prime}\right)$ |
| :---: | :---: |
| $16^{\prime}$ |  |

M1-1A ( 36 " $\times 36^{\prime \prime}$ )


M1-1A(3) (45"x36"
3 numerals


M1-2 ( $24^{\prime \prime} \times 24^{\prime \prime}$ )
M1-2A ( $36^{\prime \prime} \times 36^{\prime \prime}$ )

independent use M1-4 ( $\left.24^{\prime \prime} \times 24^{\prime \prime}\right)$
M1-4A $\left(36^{\prime \prime} \times 36^{\prime \prime}\right)$
M1-4A (36"×36")


M1-9 (24"×24")


| GUIDE SIGN USE |
| :--- |
| $\begin{array}{l}\text { M1-5 } \quad\left(24^{\prime \prime} \times 24^{\prime \prime}\right) \\ \text { M1-5A }\left(36^{\prime \prime} \times 36^{\prime \prime}\right)\end{array}$ |



M1-7A (36"×36")

$\xlongequal[\substack{\text { M1-8 }\left(24 " \times 24^{\prime \prime}\right) \\ \text { M1-8A }\left(36^{\prime \prime} \times 36^{\prime \prime}\right)}]{\text { GUIDE SIGN USE }}$

| DIMENSIONS FOR M1-7, M1-7A, M1-8 AND M1-8A |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \hline \text { SIGN } \\ & \text { SIZE } \end{aligned}$ | A | в | c | D | E | F | G | н | J | k | $\llcorner$ | 2 DIGIT ROUTE | 3 DIGIT ROUTE |
| 24"×24" | 21/2" | 11/4" | 35/8" | $151 / 2^{\prime \prime}$ | 3" C | 17/8" | 23/8" | 5/8" | $58^{\prime \prime}$ | 1/2" | 5/8" | 10" C | 8" C |
| $36 " \times 36$ " | 3"/16" | $1613 / 16^{\prime \prime}$ | 57/6" | 235/6" | $\begin{gathered} 4 \frac{1}{2} / "^{\prime \prime} \\ 85 \% \end{gathered}$ | $23 / 4$ " | 35/8" | 1" | 1 " | 3/4" | $1^{\prime \prime}$ | 15" C | 12" C |

## NOTES

ALL ROUTE Markers shall be in accordance with the manual on uniform traffic control devices as adopted by the state, or as shown.
. route markers for guide sign use shall be direct applied to the sign face. all other route markers shall be punched ith $38^{\prime \prime}$ diameter holes. See standard drawing I-12FOR HOLE LOCATION

DRAWIIG DATE:
NOEMBER, 1991
BOISE IDAHO $\square$

M3-1 M3-1A (30'N15')
( 30 " $\times 15^{\prime \prime}$ )

EAST SOUTH
$\begin{array}{ll}\text { M3-2 } & (24 " \times 12 ") \\ \text { M3-2A } & \left(30 " \times 15^{\prime \prime}\right)\end{array}$
(30"X15")

M3-3 (24"X12") (30"X15")
M3-3A (30"X15")
$\begin{array}{ll}\text { M3-4 } & \left(24^{\prime \prime} \times 12 "\right) \\ \text { M3-4A } & (301 \times 15 ")\end{array}$

M4-1 (24"X12")


5-2 LorR (21'X15")
M5-1 LorR (21"X15")


M6-5 LorR (21"X15")


M6-6 LorR (21"×15")


M6-7 $\operatorname{LorR}$ (21"X15")

M6-4


| SCALES SHOWN ARE FOR $11^{\prime \prime} \times 17$ PRINTS ONLY |
| :---: |
| CADD FILE NA |
| AWING DAT |

(21"×15") NOTES:

1. RQUTE MARKER AUXILIARIES WHEN USED WITH A US OR STATE SHIELD SHALL HAVE A WHITE REFLECTORIZED bACKGRQund with an gpaque black lfgend and border
2. ROUTE MARKER AUXILIARIES WHEN USED WITH AN TNTERSTATE SHIELD AND/OR BUSINESS LOOP SHIELD SHALL HAVE A BLUE OR GRFEN REFIECTIRIZED BACKGROUND WITH A WHITE REFLECTORIZED LEGEND AND BORDER. SIGNS SHAL BE DESIGNATED WITH A (bI) FOR BLUE OR A (g) FOR GREEN BACKGROUNDS. EXAMPLES: M6-6L(bl), M6-1L(g).
ROUTE MARKER AUXILIARIES WHEN USED WITH A SCENIC ROUTE MARKER SHAL HAVE A BROWN REFLECTORIZED BACKGROUND WITH A WHITE REFLECTORIZED LEGEND AND BORDER. SIGNS SHALL BE DESIGNATED WITH (br) FOR BROWN BACKGROUNDS. EXAMPLE: M3-1(br).
3. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AS ADOPTED BY THE STATE.
4. SIGNS SHALL BE PUNCHED WITH THE REQUIRED NUMBER OF $3 / 8^{\prime \prime}$ DIAMETER MOUNTING HOLES, AS SHOWN ON STANDARD DRAWING I-12-F.
5. THE FIRST LETTER OF THE M3-1, M3-2, M3-3, AND THE M3-4 SHALL BE 7" IN HEIGHT. THE FIRST LETTER OF THE M3-1A, M3-2A, M3-3A, AND M3-4A SHALL BE 9" IN HEIGHT.





| SIGN | A |
| :---: | :---: |
| SIZE |  |
| $18^{\prime \prime} \times 8^{\prime \prime}$ | $10^{\prime \prime}$ |
| $24^{\prime \prime} \times 24^{\prime \prime}$ | $12^{\prime \prime}$ |
| $30^{\prime \prime} \times 30^{\prime \prime}$ | $15^{\prime \prime}$ |




| SIGN | A | B |
| :--- | :--- | :--- | | SILE |  |  |
| :--- | :--- | :--- |
| $36^{\prime \prime} \times 48^{\prime \prime}$ | $9^{\prime \prime}$ | $16^{\prime \prime}$ |



NOTES:

1. all mounting holes shall be 3/8" diameter.


E1-5; 9.000" RADIUS, 2.000" BORDER, WHITE ON GREEN; [EXIT] E MOD; [2] E MOD;
table of letter and object lefts.

| E |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- |
| $100^{\prime \prime}$ | X | $213 / 8^{\prime \prime}$ | I | $341^{\prime \prime}$ |

## EXIT 34 <br> 

E1-5; 9.000" RADIUS, 2.000" BORDER, WHITE ON GREEN; [EXIT] E MOD;[34] E MOD;
TABLE OF LETTER AND OBJECT LEFTS.



E1-5; 9.000" RADIUS, 2.000" BORDER, WHITE ON GREEN [EXIT] E MOD; [234] E MOD;
TABLE OF LETtER AND OBJECT LEFTS.


NOTE:

1. A detail of each exit panel is required in the plan set

|  |  |  |
| :---: | :---: | :---: |
| STANDARD DRAWING | English |  |
| INTERSTATE EXIT NUMBER PANELS E1-5 | STANDARD DRAWING ND I-13-B |  |




10', 12' AND 14' MEDIAN WIDTH

longitudinal pavement markings
(LANE LINES) HAVE A NORMAL LINE
WIDTH OF 4,5 OR 6 INCHES. WIDE LII
USED FOR EMPHASIS ARE A MINIMUM
OF TWICE AS WIDE AS NORMAL LINES.


10' AND 12' MEDIAN WIDTH


| W | A | B | C | D | E | F | G | H | J | K | L | M | N | O | P | W |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $14.0^{\prime}$ | $3.0^{\prime}$ | $3.1^{\prime}$ | $3.6^{\prime}$ | $4.3^{\prime}$ | $5.3^{\prime}$ | $6.7^{\prime}$ | $8.1^{\prime}$ | $9.3^{\prime}$ | $10.4^{\prime}$ | $11.4^{\prime}$ | $12.2^{\prime}$ | $12.8^{\prime}$ | $13.3^{\prime}$ | $13.7^{\prime}$ | $13.9^{\prime}$ | $14.0^{\prime}$ |


14' AND 16' MEDIAN WIDTH


* PAINT TRUCK SETUP
$\stackrel{1}{6}$

* COINACT DISTRICT PAINT FOREMEN FOR
DIRECTION OF TRAVEL FOR SECTI
HIGHWAY

SKIP REVISIONS

|  | REVISIONS |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| NO | DATE | BY | No. | DATE | BY | No. | DATE | BY |
| 1 | 12-01 | NQB |  |  |  |  |  |  |
| 2 | 07-03 | Heb |  |  |  |  |  |  |
| 3 | 12-04 | Hев |  |  |  |  |  |  |
| 4 | 05-05 | HEB |  |  |  |  |  |  |
| - |  |  |  |  |  |  |  |  |


| SCALES SHOWN ARE FOR $11^{\prime \prime} \times 17$ PRINTS ONLY |
| :---: |
| CADD FILE NA i21a_0710.dgn |
| DRAWING DATE: |



ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT) ORIGINAL SIGNED BY: TOM COLE
DIMENSION LAYOUT FOR 12'LANE WIDTHS see table below for lane widths less than 12
 Ginal signed by: ton
Chief engineer
Sheet 1 of 1


## NOTES:



TAPERED DECELERATION LANE TYPICAL FOR 26' WIDE RAMPS


TAPERED ACCELERATION LANE TYPICAL FOR 26' WIDE RAMPS
pavement markings which would fall on longitudinal joints SHOULD be placed as follows:
the right edge line and center broken lane line (skip line) SHOULD BE OFESET 4 IINCHES TO THE LEFT SIDE OF LONGITUDINAL
JOINTS IN THE DIRECTION OF TRAFFIC FLOW.

OF A LONGITUDINAL JOINT.
2. the offset should apply to longitudinal joints in concrete PAVEMENT AND THE LONGITUDINAL JOINTS OR MEET LINES OF asphalt pavements when these are visually apparent.
3. drawing not to scale


TYPICAL DIMENSIONS FOR PAINTED GORE
TE: ALL MEASUREMENTS GIVEN ARE TO 8"-12" CHANNELIZING LINES ARE OFFSET AS SHOWN.

| REVISIONS |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. | DATE | BY | No. | DATE | BY | No. | DATE | BY |
| 1 | 12-01 | NOB |  |  |  |  |  |  |
| 2 | 05-05 | HEB |  |  |  |  |  |  |
| 3 | 12-13 | HEB |  |  |  |  |  |  |
| 4 | 11-14 | HEB |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |


| TRANSPORTATION DEPARTMENT |  |
| :---: | :---: |
|  |  |
|  |  |

$\frac{\text { ORIGINAL SIGNED BY: CARL D. MAIN for }}{\text { STANDARDS ENGINEER }}$
STANDARD PAVEMENT MARKINGS FREEWAYS WITH
BOISE IDAHO STANDARDS Engineer

to be $\frac{\text { SLOPE DRAIN (LINER) }}{\text { USED WITH 4:1 SLOPE OR FLATTER }}$


SECTION A-A

6. LINERS MAY CONSIST OF PLASTIC SHEETING, EROSION
CONTROL GEOTEXTILES, OR APPROVED TURF REINFORCED CONTROL
MAT (TRM).
7. EXTEND LINER AT LEAST 3.5' in front of drain
inlet.
8. 4' MINIMUM AT LESS THAN 1 PERCENT SLOPE. ENSURE
DISCHARGE IS AT A NON-EROSIVE VELOCITY.
9. NOT TO SCALE.

SECTION B-B


SLOPE DRAIN (PIPE)


## NDTES

1. THE GENERAL NOTES FOR ALL P-1 SERIES STANDARD
DRAWINGS (TEMPORARY EROSION CONTROL) ARE GIVEN ON DRAWINGS (TEMPORARY ERLS
STANDARD DRAWING P-1-D.
2. PLACE SLOPE DRAINS ON UNDISTURBED SOIL OR WELL
COMPACTED FILL AND LOCATE AS SHOWN ON THE PLANS. 3. DETERMINE SLIPE dRAIN SIZE AND NUMBER by design
STORM EVENT.
3. INSTALL GALVANIZED STEEL APRONS AS SHOWN ON
STANDARD DRAWING D-5. CDNNECT PIPES AS SHOWN ON STANDARD DRAWING D-5.
STANDARD DRAWING D-4-A.
4. CHECK SLIPE DRAINS PERIDDICALLY FOR DAMAGE OR DEBRIS. PLACE
SLOPE DRAIN.



SILT FENCE (NO WIRE BACKING)
$\checkmark \begin{aligned} & \text { WOOD STAKES OR } \\ & \text { METAL POSTS }\end{aligned}$


SILT FENCE (WIRE BACKING
SILT FENCE LAP DETAIL


COMPOST SOCK AND FIBER WATTLE


COMPOST SOCK AND FIBER WATTLE
PLAN VIEW

$\frac{\text { COMPOST SOCK AND FIBER WATTLE }}{\text { QVERLAPPING DETAI }}$ OVERLAPPING DETAIL

$$
\begin{aligned}
& \text { FIRMLY ABUT } \\
& \text { ADJOINING COMPOST } \\
& \text { SOCKS OR FIBER } \\
& \text { WATTIFS }
\end{aligned}
$$

COMPOST SOCK AND FIBER WATTLE


COMPOST SOCK AND FIBER WATTLE
TEMPORARY CHECK DAM DETAIL

## NOTES

1. THE GENERAL NOTES FOR ALL P-1 SERIES STANDARD
DRAWINGS (TEMPRRARY EROSION CONTROL) ARE GIVEN
ON STANDARD DRAWING P-1-D. ON STANDARD DRAWING P-1-D.
2. INSTALL TEMPORARY SEDIMENT CONTROL BARRIERS
IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS
AND SPECIFICATONS. THE DIMENSIONS SHOWN ARE GENERAL GUIDELINES.
3. PLACE SEDIMENT BARRIERS TO FOLLOW THE SLIPE
CONTOURS. METAL POSTS OR WOOD STAKES MAY BE USED.
4. ENSURE THAT RUNOFF PASSES THROUGH THE SILT - NOT ARUUND THE FENCE.
5. ENSURE THAT SILT FENCE MATERIAL IS IN
ACCORDANCE WITH 718.09 OF THE STANDARD ACCORDANCE WITH 718.09 OF THE STANDARD
SPECIFICATIONS FOR HIGHWAY CONSTRUCTION
6. GROUND SILT FENCES WITH WIRE MESH IN
ACCORDANCE WITH THE GROUNDING DETAIL SHOWN ON ACCORDANCE WITH THE GRQ
STANDARD DRAWING F-2-A.
7. THE NEED FOR TEMPORARY SEDIMENT CONTROL DEVICES ARE DETERMINED BY SITE DESICN SPACE
SILT FENCES, COMPOST SOCKS, AND FIBE WATTLES IN
ACCOREANE WITP THE SI ACCORDANCE WITH THE SILT FENCE SPACING TABLE
AND FIBER WATTLE $\&$ COMPOST SOCK SPACING TABLE. 8. ON SLOPES, TURN THE ENDS OF EACH ROW OF
COMPOST SOCKS AND FIBER WATTLES UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE SOCK OR 9. EXTEND OR JOIN SILT FENCE USING SILT FENCE
LAP WITH NESTED POSTS. 10. REMOVE SEDIMENT FROM THE UPSLOPE SIDE OF
SILT FENCES, COMPOST SOCKS, AND FIBER WATTLES SLEN FENCES, COMPOST SOCKS, AND FIBER WATTES
WHEN ACCUMULATION HAS RECHED $1 / 2$ OF THE
8. NOT TO SCALE.



## PLAN - SEDIMENT TRAP BASIN



## NOTES

1. THE GENERAL NOTES FOR ALL P-1 SERIES STANDARD DRAWINGS
(TEMPORARY EROSION CONTROL) ARE GIVEN ON THE STANDARD
oranc plo.
2. DETERMINE SEDIMENT TRAP SIZE ON A 2-YEAR 24-HOUR STORM DESIGN OR 3,600 F ${ }^{3}$ / ACRE.
SEDIMENT TRAP IS 5 ACRES.
3. LOCATE SEDTMENT TRAP OUTSIDE OF THE SLOPE STAKE LIMITS AN CONSTRUCT PRIIR TO THE START OF EXCAVATION OR REMOVAL
OF EXISTING VEGETATION.
4. ENSURE THAT RIPRAP MATERIAL IS IN ACCORDANCE WITH 711.04 5 PROVIDF TYPE
 SPECIFICATIONS FOR HIGHWAY CONSTRUCTION
5. ENTIRE TRAP MAY be rock Lined if NECESSARY.
6. NOT to scale.



7. THE GENERAL NOTES FOR ALL P-1 SERIES STANDARD DRAWINGS (TEMPORARY EROSION
CONTROL) ARE GIVEN ON STANDARD DRAWING P-1-D. 2. LOCATE BERMS, DIKES, AND SWALES ALONG THE CONTOUR OF A SLOPE AND MAY BE AT 3. CONSTRUCT GRASSED SWALES AT LOCATIONS SHOWN ON THE PLANS. THE SWALE
DIMENSIONS AND FLOW GRADES SHALL BE DETERMINED BY DESIGN.
8. THE RECOMMENDED MAXIMUM DRAINAGE AREA FOR GRASSED SWALES IS 1 ACRE. THE
RECOMMENDED MAIMUM DRAINGEE AREA CONTRBUTING RUNOFF TO A DIKE, SWALE OR
COMBINATION THEREOF SHOULD NOT EXCED 5 ACRES. 5. USE DIKES WHEN BERMS ARE NOT SUFFICIENT TO CONTROL RUNOFF. COMPACT DIKES CONJUNCTION WITH DIKES AND SWALES IN CONJUNCTION WITH BERMS ARE NOT RECOMMENDED.
9. DIVERT COLLECTED RUNOFF, INTERCEPTED RUNOFF, OR BOTH FROM A BERM, DIKE, SWALE
OR COMBINATION THEREOF TO A SEDIMENT TRAPPING DEVICE OR STABILIZED AREA. 7. ENSURE THAT THE SIDE SLOPES OF A Dike OR SWALE Within the Clear zone is 6:1
OR FLATTER UNLESS SHIELDED.
10. Not to scale.


Embankment section - diversion dike

| REVISIONS |  |  |  |  |  |  |  |  | SCALES SHOWN ARE FOR $11^{\prime \prime} \times 17$ PRINTS ONLY |
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| 2 | 02-96 | MSM |  |  |  |  |  |  |  |
| 3 | 10-10 | KEH |  |  |  |  |  |  | CADD FILE NAME: |
| 4 | 10-11 | КЕН |  |  |  |  |  |  |  |
| 5 | 01-13 | RDL |  |  |  |  |  |  | APRIL, 1994 |


| IDAHO TRANSPORTATION DEPARTMENT |  |
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|  | ORIGINAL SIGNED BY: LOREN THOMAS |
|  | HIGHWAYS PROGRAM OVERSIGHT ENGINEER ORIGINAL SIGNED BY: com cole |
| BOISE IDAHO | CHIEF ENGINEER |

TEMPORARY SEDIMENT
CONTROL BERMS, DIKES,
AND SWALES
REQUIRES STD. DWG. P-1-D

| English |
| :---: |
| STANDARD DRAWING NO. |
| P-1-E |
| SHEET 1 |




DIKE WITH SWALE EXAMPLE



BERM \& INTERCEPTOR DITCH SECTION

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STANDARD DRAWING
TEMPORARY SEDIMENT
CONTROL BERMS, DIKES
AND SWALES
SEQURES

| AND SWALES |
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| REQUIRES STD. DWG.P-1-D |$\quad$ SHEET 2 of 2





> 1. THE GENERAL NOTES FOR ALL P-1 SERIES STANARD DRAWINGS (TMMPORARY EROSION CONTROL) ARE GIVEN ON STANDARD DRAWING P-1-D. 2. REMOVE TRASH, DEBRIS, DUFF, AND MATERIALS THAT MAY INERFERE WITH THE INET OR CATCH BAIN PROTECTON FUCTTON PRIOR TO PLACEMENT AND THEREAFTER ONC A DAILY BASIS OR AS NEEDED.
3. FIELD ADJUSTMENTS MAY BE NECESSARY TO ENSURE
EFFECTIVENESS.
4. FRAMED WIRE/FABRIC FILTER AND FIBER WATTLE FILTERS ARE INTENED TO BE USED ON ANY STRUCTURE
NOT PRESENTLY SURROUNDED BY PAVEMENT . 5. GRAVEL AND WIRE MESH FILTER AND
PRE-MANFACTURED SEDIMENT FILTER INSTALLATIONS ARE INTENDED TO BE USED ON STRUCTURES
SURROUNED BY PAVEMENT WITH OR WITHOUT CURBS. 6. ENSURE THAT WATER DISCHARGING FROM THE INLET
MEETS APPLICABLE WATER QUALITY STANDARDS. 7. Not to scale.

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| REVISIONS |  |  |  |  |  |  |  |  |
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ORIGINAL SIGNED BY: LOREN THOMAS HWAYS PROGRAM OVERSIGHT ENG
ORIginal SIGNED bY: tom cole
P-1-H


REVET MATTRESSES WITH GABIONS

$\frac{\text { SACK GABION }}{\substack{\text { GALVANIZED } \\ \text { WIRE MESH }}}$


SECTION C-C
GENERAL NOTES FOR PERMANENT EROSION CONTROL

1. USE PERMANENT EROSION CONTROL DEVICES STANDARD DRAWINGS IN CONJUNCTION WITH THE STANDARD
SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND THE ITD BEST MANAGEMENT PRACTICES MANUAL.
2. SEE PLANS FOR SITE DIMENSIONS
3. THE PLACEMENT OF PERMANENT EROSION CONTROL
MEASURES IS SITE SPECIFIC. OBTAIN THE ENGINEER'S APPROVAL OF THE PERMANENT EROSION CONTROL MEASURES PRIOR TO INSTALLATION.
4. PERMANENT EROSION CONTROL DEVICES ARE INTENDED TO
AST MORE THAN 6 MONTHS AND SHOULD BE INTEGRATED THE LAST MORE THAN 6 MONTHS AN
FINAL EROSION CONTROL PLAN.

## NOTES

1. OBTAIN APPROPRIATE PERMITS BEFORE EROSION DEVICES ARE PLACED
IN STREAMS AND, CHANNELS, OR BOTH. 2. GABIONS AND REVET MATTRESSES MAY BE USED FOR PERMANEN
EROSION CONTROL, TEMPORARY ERDSION CONTRDL 3. THE DISCHARGE THROUGH OR OVER REVET MATTRESSES, GABIONS, OR
BOTH SHOULD BE DIRECTED ONTO STABILIZED AREA SUCH AS VOTH SHOULD BE DIRECION, RIPRAP, OR BOTH
2. GABions and revet mattresses should be embedded a minimum 5. ALL SACK GABIONS SHOULD BE SECURED WITH $6^{\prime} \times 3 / 4^{\prime \prime}$ METAL 6. ENSURE THAT THE WIDTH OF THE GABION OUTLET WEIR IS
CONSTRUCTED AS SHOWN ON THE PLANS OR AS DIRECTED bY THE ENGINEER.
3. GABIONS MAY BE USED WITH REVET MATTRESSES TO FORM SEDIMENT
 REVET MATTRESSES MAY BE USED AS A CHANNEL LINER TO PREVENT
4. ${ }^{\text {6" }}$ REVET MATTRESSES WILL USUALLY PROMOTE VEGETATION FOR
SIDE SLOPES THAT ARE NOT CONTINUALLY SUBMERGED IN WATER. ${ }^{\prime \prime}$ SIDE SLOEES THAT ARE NDT CONTINUALLY SUBMERGED IN WATER.
REVET MATTRESSES MAY BE USED TO LINE LARGE CHANELS OR STREAMS WITH GREATER FLOW RATES OR IN SOILS THAT ERODE EASILY
12" REVET MATTRESSES MAY BE USED TO LINE LARGE STREAMS AND 12" REVE
RIVERS.
5. SECURE REVET MATTRESSES USED FOR SLOPE REVETMENT WITH
METAL POSTS OR STAKES TO PREVENT SLING 10. Not to scale.

REVET MATTRESSES
typical slope section
SLOPE REVETMENT

| REVVISIONS |  |  |  |  |  |  |  |
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$\frac{\text { CHANNEL \& INTERSECTION EXAMPLE }}{(\text { SEE NOTE NO. 2) }}$


MIN. 11 GAUGE
STEEL WIRE


WIRE STAPLE DETAIL
(SEE NOTE NO. 4)


UPPER TERMINAL ANCHOR DETAIL


WOOD STAKE DETAIL


OVERLAP DETAIL

$\underline{\text { CHANNEL TERMINAL/EROSION STOP DETAIL }}$

| REVISIONS |  |  |  |  |  |  |  |  | SCALES SHDWN ARE FOR $11^{\prime \prime} \times 17^{\prime \prime}$ PRINTS ONLY | IDAHO <br> TRANSPORTATION DEPARTMENT | ORIGINAL SIGNED BY: RYAN D. Lancaster |
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| 2 | 02-96 | MSM |  |  |  |  |  |  |  |  |  |
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| 4 | $\stackrel{11-13}{11-14}$ | RDL |  |  |  |  |  |  | DRAWING DATE: | BOISE IDAHO | STANDARDS ENGINEER |

STANDARD DRAWING
PERMANENT EROSION CONTROL
SLOPE \& CHANNEL
PROTECTION
REQUIRES STD. DWG P-2-A

## NOTES

1. GENERAL NOTES FOR P-2 SERIES STANDARD DRAwINGS (PERMANENT EROSION CONTROL) ARE SHOWN ON STANDARD 2. THE LOCATION, SPACING, AND CONFIGURATION OF THE SLOPE AND CHANNEL PRÓTECTION' MAY VARY FOR EACH INSTALL
ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
2. BEGIN LINER PLACEMENT AT THE UPSTREAM END OR CREST 4. install wire staples perpendicular to the slope 5. not to scale.


## (2, <br> SECTION A-A



SECTION C-C (INLET)



PERSPECTIVE VIEW (TYPE A OR B)

| REVISIONS |  |  |  |  |  |  |  |  | SCALES SHOWN ARE FOR 11" X ${ }^{17}$ PRINTS ONLY |
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| DEPARTMENT |

REQUIRES SHEET 2 OF 2 \& STD. DWG. P-2-A $\operatorname{\text {Sheet}} 1$ of 2


PAVED FLUME - TYPE C

| TYPE | $\begin{gathered} \text { W } \\ \text { BOTTOM } \\ \text { WIDTH } \end{gathered}$ | $\begin{aligned} & \text { MIN. } \end{aligned}$ | $\stackrel{\top}{\top}$ | min. | MAXIMUM DRAINAGE AREA |
| :---: | :---: | :---: | :---: | :---: | :---: |
| A-2 | $2^{\prime}$ | $1.5{ }^{\prime}$ | $8{ }^{\prime \prime}$ | $5{ }^{\prime}$ | 5 ACRES |
| A-4 | $4^{\prime}$ | $1.5{ }^{\prime}$ | $8{ }^{\prime \prime}$ | 5 | 8 ACRES |
| A-6 | 6 | $1.5{ }^{\prime}$ | $8{ }^{\prime \prime}$ | 5 | 11 ACRES |
| A-8 | $8^{\prime}$ | $1.5{ }^{\prime}$ | $8{ }^{\prime \prime}$ | 5 | 14 ACRES |
| A-10 | $10^{\prime}$ | $1.5{ }^{\prime}$ | $8{ }^{\prime \prime}$ | $5^{\prime}$ | 18 ACRES |
| B-4 | $4^{\prime}$ | 2 | $10^{\prime \prime}$ | $6^{\prime}$ | 14 ACRES |
| B-6 | 6 | $2^{\prime}$ | $10^{\prime \prime}$ | $6^{\prime}$ | 20 ACRES |
| B-8 | $8^{\prime}$ | $2^{\prime}$ | $10^{\prime \prime}$ | $6^{\prime}$ | 25 ACRES |
| B-10 | $10^{\prime}$ | 2 | $10^{\prime \prime}$ | 6 | 31 ACRES |
| B-12 | 12' | $2^{\prime}$ | $10^{\prime \prime}$ | $6^{\prime}$ | 36 ACRES |
| $\mathrm{C}-(\mathrm{n})$ | $=1^{\prime}-2$ | N/A | 6 | 2'-5 | 75 ACRES |

## NOTES

1. THE GENERAL NOTES FOR ALL P-2 SERIES STANARD DRAWINGS
(PERMANENT EROSION CONTRLL) ARE GIVEN ON STANDARD DRAWING (PERMANEN EROSION CONROL) ARE GIIEN ON SIANDARD
P-2-A (PERMANENT EROSION CONTROL GABIONS \& REVET MATTRESSES).
2. A PAVED FLUME MAY BE CONSTRUCTED TO DRAIN CONCENTRATED
SURFACE RUNOFF SAFELY DOWN SLOPES WITHOUT CAUSING EROSION. THE DRAINAGE AREA CONTRIBUTING RUNOFF TO A PAVED FIUME THE DRAINAGE AREA CONTRIBUTING RUNOFF TO A PAEED FLUME
SHOULD NOT EXEED THAT GIVEN IN THE DESIGN CITERIA ABOVE THE PAVED FLUME SHOULD BE SIZED TO DRAIN THE PEAK RATE OF
RUNOFF WITHOUT OVERTOPING AT THE EARTH DIKE ENTRANCE. A RUNOFF WITHOUT OVERTOPPING AT THE EARTH DIKE ENTRANCE. A
25 YEAR STORM DRAIN FREQUENCY MAY BE USED TO CALCULATE
THE FLOW RATE.
3. THE TYPE IS A DESIGNATOR FOR THE DIMENSIONS OF THE PAVED
FLUME. THE TYPE IS DESINATED BY A LETER (A, B, OR C), A FLUME. THE TYPE IS DESIGNATED BY A LETNER (A, B, OR C), A
DASH, AND FOLLOWED BY THE NUMERICAL BTTOM WIDH (W). THE
APPRPRIATE SIZE (TYPE) SHOULD BE INICATED ON THE PLANS. 4. TYPE C PAVED FLUMES REQUIRE A MINIMUM FLOOR THICKNESS OF 2i/2". THE WING WALL ENDS AND UPPER/LOWER CUT-OFF WALL 5. NOT TO SCALE.

| REVISIONS |  |  |  |  |  |  |  |  | SCALES SHOWN <br> ARE FOR $11^{\prime \prime} \times 17^{\prime \prime}$ PRINTS ONLY | IDAHO <br> TRANSPORTATION DEPARTMENT | ORIGINAL SIGNED BY: LOREN THOMAS | STANDARD DRAWING | English |
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| No. | DATE | MSM | No. | DATE | BY | No. | DATE | BY |  |  |  | CHUTES AND FLUMESles Sheet 1 OF 2 \& STD. DWg. P-2-A | StANDARD DRAWING No. |
| 2 | 10-10 | КЕН |  |  |  |  |  |  | CADD FILE NAME: |  | ASSISTANT CHIEF ENGINEER (DEVELOPMENT) ORIGINAL SIGNED BY: TOM COLE |  | P-2-D |
|  |  |  |  |  |  |  |  |  | DRAWING DATE: FEBRUARY, 1996 | BOISE IDAHO | CHIEF ENGINEER |  | sheet 2 of 2 |





PLAN


SECTION A-A
SAND AND OIL TRAP

## NOTES

1. SEDIMENT \& OIL TRAPS MAY BE EITHER PRECAST OR CAST-IN-PLACE. PRECAST TRAPS SHALL MEET THE REQUIREMENTS OF ASTM C A78 AND SHAL HAVE
DESIGN LOAD MEETING AASHTO HS-25 HIGHWAY DESIGN
LOADING.
2. AlL Reinforcing steel shall be grade 60 3. CAST-IN-PLACE SEDIMENT \& OIL TRAPS SHALL
CONFORM TO SECTION GO9 - MINL STRUCTURES OF THE CONFORM TO SECTION 609 - MINOR STRUCTURES OF THE
CURENT ITD STANDRD SPECIFICATINS FOR HIGHWAY CONSTRUCTION. DETAILED DRAWING OF PRECAST BOX OR CAST-IN-PLACE BOX DESIGN MUST BE APPROVED BY TH
3. FOR DETAILS ON MANHOLE INSTALLATION REFER TO STANDARD DRAWING E-9 (STA
COVER, \& CONCRETE COLLAR.
4. HEIGHT OF OUTLET BAFFLE WALL AND LENGTH OF INLET BAFFLE WALL DETERMINED BY TANK CAPACITY
AND FLOW RATE.
5. IF DISTANCE FROM TOP OF BOX TO BOTTOM OF MANHOLE FORM EXCEEDS 12" USE PRECAST MANHOLE
RISER PLUS A MAXIMUM OF 12 I' OF RISER GRADE RINGS. 7. PROVIDE STEPS WHEN THE DISTANCE FROM TOP OF 8. CONCRETE RISER RINGS (MAX 24"). FOR VAULT
DEPTH GREATER THAN 24", USE PRECAST MANHOLE DEPTH GREAT 9. location and flow line elvation per desig PLANS
6. ELV. IN $>_{\text {ELV }}$ ELV OF TOP OF OUTLET BAFFLE WALL BY
A MINIMUM OF 0.1 , UNLESS OTHERWISE APPROVED BY THE ENGINEER.
7. ELV. OUT < ELV OF TOP OF OUTLET BAFFLE WALL BY A MINIMUM OF
THE ENGINEER.
8. Not to scale.

| REVISIONS |  |  |  |  |  |  |  |  | SCALES SHOWN ARE FOR 11" X 17 PRINTS ONLY | IDAHO <br> TRANSPORTATION DEPARTMENT | ORIGINAL SIGNED BY: LOREN Thomas |
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|  | 10-11 | KEH |  |  |  |  |  |  |  |  | Highways procram oversight engineer |
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|  |  |  |  |  |  |  |  |  | DRAWING DATE: JUNE, 1996 | BOISE IDAHO | CHIEF ENgineEr |


*e (2) REQuired (SEE NOTE No. 5) GASKET DETAIL

TOP VIEW
ELEVATION
BAFFLE DETAIL


## NOTES

1. CARE SHALL BE TAKEN TO AVOID PLACING the MANHOLE OPENINGS
2. SEDIMENT AND OIL TRAPS MAY BE EITHER PRECAST OR
OF ASTM C 478. PRIOR APPROVAL OF THE SHOP DRAWING WILL BE REQUIRED ON PRECAST UNITS.
3. CAST-IN-PLACE SEDIMENT \& OTIL TRAPS SHALL CONETM SPECIFICATIONS. ALL REINFORCEMENT SHALL HAVE A MINIMUM
CONCRETE COVER OF 2 " ANDIOR 3 I" IF CAST AGAINST EARTH.
4. MAXIMUM SPACING BETWEEN MANHDLES SHALL BE 20' FOR TYPE C
MANHOLES AND 30' FOR TYPE D MANHOLES.
5. THE BAFFLE SHALL BE INSTALLED SO THAT THE EDGES ARE A WATER AND OIL RESISTANT MATERIAL,
6. STANDARD DRAWING E-7-C SHALL ACCOMPANY THIS DRAWING. REFER
TO STANDARD DRAWING E-9 FOR MANHOLE COVERS.
7. NOT TO SCALE.

| REVISIONS |  |  |  |  |  |  |  |  | SCALES SHOWN <br> ARE FOR $11^{\prime \prime} \times 17$ PRINTS ONLY |
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BOISE IDAHO
*a MIN. 6" DIA. WITH MANHOLE TYPE C
MIN. 8" DIA. WITH MANHOLE TYPE D
*b MAX. 24" DIA. PIPE WITH MANHOLE TYPE C
*C SEE NOTE NO. 4
*d SEE BAFFLE LIP ANGLE TABLE

* BAFFLE REQUIRES TWO GASKETS

STANDARD DRAWING
IN STRELUTION CONTRQ
DIL TRAP
REQUIRES STD. DWG. E-7-C \&

English
P-3-D




ELEVATION


PLAN
PETROLEUM STORAGE AREA - TYPE 1

$\underline{\text { LAP DETAIL }}$


## NOTES

USE THIS DRAWING IN CONJUNCTION WITH THE ITD BEST 2. ENSURE THAT THE PETROLEUM STORAGE AREAS LAST FOR THE
DURATION OF THE PROJECT 3. PROVIDE A TYPE 1 OR TYYE 2 PETROLEUM STORAGE AREA WITH
AN IMPERABLE PETROLUMM RESISTANT MEMBRANE IF PETROLEUM
PRODUCTS ARE STRRED ONSITE PRODUCTS ARE STORED ONSITE.
4. ENSURE THAT THE TOTAL VOLUME OF THE BERMED AREA IS 110
PERCENT OF THE TOTAL CAPACITY OF THE STORAGE CONTAINER(S) INSIDE THE BERM.
5. NOTIFY THE ENGINEER AND THE HAZARDOUS MATERIALS CODRDINATOR OF SOIL CONTAMINATION RESULTING FROM PETROLEUM SPILLAGE. REMOVAL PROCEDURE RE
MATERIAL CORDINATOR APPRVAL.
6. ENSURE THAT RUNOFF AT THE EQUIPMENT STAGING AREA
ENTRANCE(S) IS RETAINED IN THE STAGING AREA
7. REMOVE UNCONTAMINATED STORM WATER FROM INSIDE THE STORAGE AREA. TREAT CONTAMINATED STORMWATER AS A HAZARDOUS WASTE AND HAVE IT REMOVED BY A CERTIFIED HAZARDOUS WASTE CONTRACTOR
8. store incompatible materials in separate storage areas
9. STORE MATERIALS IN THEIR ORIGINAL PACKAGING AND ON
PALLETS, IF PRACTICAL.
10. not to scale.


LETTERS A MINIMUM
OF 5" In HEIGHT


SECTION B-B


## NOTES

1. USE THIS DRAWING IN CONJUNCTION WITH THE ITD
BEST MANAGEMENT PRACTICES (BMP) MANUAL 2. ACTUAL LAYOUT DETEMM IN THE FIELD 3. INSTALL THE CONCRETE WASHOUT SIGN WITHIN 30 FEET
OF THE TEMPORARY CONCRETE WASHOUT FACILITY. orary concrete was 4. USE OF PREFABRICATED TEMPORARY WASHOUT MAY
ONLY BE USED ON APPRDVAL BY THE ENGINEER. 5. NOt to scale.

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## NOTES

1. LAYOUT OF HIGHWAY-RAILROAD GRADE CROSSING SIGNAL SHALL BE CONSISTENT WITH THE STANDARDS OF THE RAILROAD COMPANY AND


2. WITHIN 4 INCHES BELOW THE TOP OF THE FOUNDATION TO A MINIMUM DISTANCE OF 1 FODT BEYOND THE SIGNAL FOUNDATION.

HORIZONTAL LINE THAT FLASH ALTERNATELY WHEN ACTIVATED. THE FLASHING RATE IS 35 TO 65 FLASHES PER MINUTE.
5. NUMBER OF FLASHING-LIGHT SIGNALS SHALL BE AS SHOWN ON THE PLANS. FLASHING-LIGHT SIGNALS SHALL BE MOUNTED BACK TO BACK
5. NUMBER OF FLASHING-LIGHT SIGNALS SHALL BE AS SHOWN ON THE PLANS. FLASHING-LIGHT SIGNALS SHALL BE MOUNTED BACK TO BACK
ON THE POST. OTHER FLASHING-LIGHT SIGNALS, IF NECESSARY, SHALL BE PLACED FOR THE BEST VISIBILITY TO OTHER
. WHERE THERE IS SIDEWALK, THE FLASHING-LIGT' SIGNALS ON THE POST SHALL be A minimum of 7 FEET Above the top of sidewalk. WHEN GATE ARMS ARE USED, LENGTHS SHALL BE AS SHOWN ON THE PLANS. THE TIP DF A GATE ARM IN THE DOWN POSITION SHALL BE
WITHIN 1 FOOT EITER SIE OF THE EDGE DF LAE AND AINUM OF

 8. THE TIP OF THE GATE ARM WHICH SHALL BE ILLUMINATED CONTINUOUSLY
9. TRE SIGNAL HOUSE. BUK (RI5-i) SIGNS SHALL BE MOUNTED BACK TO BACK ON THE POST
9. CROSS BUCK (R15-1) SIGNS SHALL BE MOUNTED BACK TO BACK ON THE POST
10. SUPLEMENTAL NUMBER OF TRACKS (R15-2) SIGNS SHALL BE MOUNTD BACK SACK ON THE POST AT A POSITION BETWEEN THE CROSS
BUCK SIGN AND THE FLASHING-LIGHT SIGNAL WHEN THERE ARE TWD OR MORE RAILROAD TRACKS. THIS SIGN IS OPTINAL WHEN GATE BUCK SIGN AND THE FLASHING-LIGHT SIGNAL WHEN THERE ARE TWO OR MORE RAILROAD TRACKS. THIS SIGN IS OPTIONAL WHEN GATE
ARMS ARE USD.
11. BELLS OR OTHER AUdible WARning devices may be included which will operate in conjunction with the flashing-light
12. THE NEED FOR GUARDRAIL SHALL NOT BE BASED SOLELY UPON THE RDADSIDE OBSTACLE OF A RAILRDAD CROSSing SIGNAL UNLESS 12. THE NEED REQESTED BY
13. NOT TO SCALE.
the rail doad company

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##  <br> DEPARTMENT

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DRAWING DATE:
MARCH, 2004
BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS Assistant chief engineer (Developmenit ORIGINAL SIGNED BY: TOM CO
CHIEF ENGINCER

STANDARD DRAWING
HIGHWAY - RAILROAD GRADE CROSSING SIGNAL TYPE 1


$$
\frac{\text { TYPICAL SECTION }}{(\text { WITH GUARDRAIL) }}
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SEE STANDARD DRAWING R-2 $\begin{aligned} & \text { EXISTING } \\ & \text { GROUND }\end{aligned}$ TYPICAL CURB \& GUTTER SECTION


NOTES

1. LAYOUT OF HIGHWAY-RAILROAD GRADE CROSSING SIGNAL SHALL BE CONSISTENT WITH THE STANDARDS OF THE
RAILRDAD COMPANY AND PART 8 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (AS ADPTED BY THE STATE). THE RAILRDAD COMPANY WILL DESIGN THE STRUCTURE AND DTHER COMPONENTS OF THE RAILRDAD TH SUOSSING SIGNAL. THE RAILROAD CD
2. POST LDCATION AND LENGTH OF CANTILEVER SPAN SHALL BE AS SHOWN ON PLANS. CANTILEVER SPAN IS
PERPENDICULAR TO ROADWAY UNLESS OTHERWISE NOTED ON THE PLANS. ALL PARTS OF THE RAILROAD CROSSING SIGNAL, INCLUDING GATE ARM IN THE UPRIGHT POSITION, SHALL BE A MINIMUM OF 10 FEET, MEASURED
3. PERPENDICULAR FROM THE NEAREST RAIL DF THE RAILROAD TRACKS.

SHALL BE GRADED TO WITHIN 4 INCHES BELOW THE TOP OF THE
FOOT BEYOND THE SIGNAL FOUNDATION.
4. ALASEING-LIGHT SIGNAL CONSISTS OF
(LED) MOUNTED IN A HOR
65 FLASHES PER MINUTE
65 FLASHES PER MINUTE. 5UMER OF FLASHING-LIGHT SIGNALS SHALL BE AS SHOWN ON THE PLANS. FLASHING-LIGHT SIGNALS SHALL BE
MOUNTED BACK TO BACK ON THE POST AND BACK TO BACK AT THE END OF THE CANTILEVER SPAN FLASHING- 1 I SIGNALS SHALL BE MOUNTED ABOVE THE CENTER OF EACH LANE ON THE CANTILEVER SPAN. OTHER FLASHING-LIGHT
6. WHERSTITINTRAFFIC. TERE IS SIEWALK, THE FLASHING-LIGHT SIGNALS ON THE POST SHALL BE A MINIMUM OF 7 FEET ABOVE
7. WHEN GATES ARMS ARE USED, LENGTHS SHALL BE AS SHOWN ON THE PLANS. THE TIP OF A GATE ARM IN
THE DOWN POSITION SHALL BE WITHIN FOOT EITHER SIDE OF THE EDGE OF LANE AND A MINIMUM OF 8 FEET MEASURED PERPENDICULAR FROM THE NEAREST RAIL OF THE RAILROAD TRACK. GATE ARMS LONGER RETRD RELECTORIZED ON BOTH SIDES WITH VARTICAL STRIPES ALERNATELY COLORED RED AND WHITE
AT 16-INCH INTERVALS MEASURED HORIZONTAL AND HAVE AT LEAST THREE RED LIGHT EMITING DIODES AI I6-INCH INTERVALS MEASURED HORIZONTAL AND HAVE AT LEAST THREE RED LIGHT EMITTING DIODES
(LED) ON TOP DF THE GATE ARM. THE GATE ARM LIGHTS, WHEN ACTIVATED, SHALL FLASH ALTERNATEIY UNISON WITH THE FLASHING-LIGHT SIGNALS EXCEIT FOR THE LIGHT NEAREST THE TIP OF THE GATE
ARM WHICH SHALL BE ILLUMINATED CONTINUDUSLY.
9. CROSS OR ON THE OUTSIDE OF THE SIGNAL HUSE. (R15-1) SIGNS SHAL BE MOUNTED BACK TO BACK ON THE POST. A CROSS BUCK SIGN SHALL 10. BE MOUNTED BETWEEN THE FLASHING-LIGHT SIGNALS ON THE CANTLEVER SPAN. OF THE POST AT A POSITION BETWEEN THE CROSS BUCK SIGNS AND THE FLASHING-LIGHT SIGNAL WHEN 1. BELLS ARE OTHER AUDIBLE WARNING TEVACKS. THIS SIGN IS OPTIONAL WHEN GATE ARMS ARE USED.
12. WITH NEED FLASHING-LIGHT SIGNALS. GUARDRAL SHALL NDT BE BASED SOLELY UPON THE RDADSIDE OBSTACLE OF A RAILROAD

CROSSING SIGNAL UNLESS REOESTED BY THE RAILROAD COMPANY
13. NOT TO SCALE.

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## IDAHO TRANSPORTATION DEPARTMENT

$\square$
ORIGInAL SIGNED BY: LOREN THOMAS ariginal cher engineer (Developm GRADE CROSSING SIGNAL

| $\begin{array}{\|l\|} \hline \text { ORIGINAL STDRED } \\ \text { AT: ID, } \\ \text { Headquarters } \\ \text { 3311 West State } \\ \text { Boise, Idaho } \end{array}$ |
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| English TANDARD DRAWING No. R-1-B |
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## NOTES

LAYOUT OF HIGHWAY-RAILROAD GRADE CROSSING SIGNAL SHALL BE CONSISTENT UNIFORM TRAFFIC CONTRD DEVICES (AS ADCPTED BY THE STATE), ADEQUATE VERTICAL CLEARANGE SHALL BE PROVIDD BY RAILRDAD CROSSING SIGNAL OVER THE ROAD AND/DR RALRAD TRACKIS) THE RAILROAD COMPANY WILL DEIGIGN THE
STRUCTURE AND OTHER COMPONENTS OF THE RAILRAD CROSSING SIGNAL.
2. POST LICATION AND LENGTH OF SIGNAL BRIDGE SPAN SHALL BE AS SHOWN ON THE PLANS. SIGNAL BRIDGE SPAN IS PERPENDCULAR TO ROADAY UNLESS OTHERWISE
NOTED, ON THE PLANS. ALL PARTS OF THE RAILROAD CROSSING SICNAL SHALL BE A MINIMUM OF 10 FEET, MEASURED PERPENDICULAR FROM THE NEAREST RAIL OF THE RAILRDAD TRACKS.
3. TOP OF THE SIGNAL FOUNDATION SHALL BE FLUSH WITH TOP OF CURB OR TOP OF
SIDEWALK. THE GROUND SURFACE SHALL BE GRADED TO WITHIN 4 INCHES BELOW SIDEWALK. THE GROUND SURFACE SHALL BE GRADD TO WITHIN 4 INCHES BELOW
THE TOP OF THE FOUNDATION TO A MINIMUM DISTANCE OF 1 FOOT BEYOND THE THE TOP OF THE FOU.
SIGNAL FOUNDATION.
4. A FLASHING-Light Signal consists of two Lights having 12 -INCH LENS with RED LIGHT EMITTING DIODES (LED MOUNTED IN A HORIZONTAL LINE THAT FLASH
ALTERNATELY WHEN ACTIVATED. THE FLASHING RATE IS 35 TO 65 FLASHES PER ALTERNA
5. NU

NUMBER OF FLASHING-LIGHT SIGNALS SHALL BE AS SHOWN ON THE PLANS POST. FLASHING-LIGHT SIGNALS SHALL BE MOUNED ABOVE THE CENTER OF EACH LANE OMCK SIGNAL BRIDGE SPAN WITH THE FURTHERMOST INSIDE LANE BEING MOUNTED

6. AAR/DOT IDENTIFICATION TAG SHALL BE ATTACHED TO POST IMMEDIATELY BELOW THE

CROSS BUCK (R15-1) SIGNS SHALL BE MOUNTED BACK TO BACK ON THE OUTSIDE OF THE POST. A MINIMUM OF ONE CROSS BUCK SIIN SHAL BE MOUNTED BETWEEN TTE
FLASHING-LIGHT SIGNALS ON THE SIGNAL BRIDGE SPAN FOR EACH DIRECTION OF
VEHICULAR TRAVEL.
8. SUPPLEMENTAL NUMBER DF TRACKS (R15-2) SIGNS SHALL BE MOUNTED BACK TO BACK
ON THE OUTSIDE OF THE POST AT A POSITION BETWEEN THE CROSS BUCK SIGNS AND ON THE OUTSIDE DF THE POST AT A POSITION BETWEEN THE CROSS BUCK SIGNS
THE FLASHING-LIGH SIGNAL WHEN THERE ARE TWO OR MORE RAILROAD TRACKS.
9. BELLS OR OTHER AUDIBLE WARNING DEVICES MAY BE INCLUDED WHICH 10. not to scale


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BOISE IDAHO
original signed by: steven hutchinson ASSISTANT CHIEF ENGINEER (DEVELOPMENT) DRigina siched are (DEVELOPMC $\frac{\text { ORIGINAL SIGNED BY: JIMMY }}{\text { CHIEF ENGINEER }}$

STANDARD DRAWING HIGHWAY - RAILROAD
GRADE CROSSING SIGN GRADE CROSSING SIGNAL TYPE 3
REQUIRES SHEET 2 OF


NOTES CONTINUED
11. WHERE THERE IS SIDEWALK, THE FLASHING-LIGHT SIGNALS ON THE POST SHALL
SIDEWALK.
12. THE NEED FOR GUARDRAIL SHALL NOT BE BASED SOLELY UPON UNLESS REQUESTED BY THE RAILRDAD COMPANY.
13. Not to scale.

| REVISIONS |  |  |  |  |  |  |  |  | SCALES SHOWN ARE FOR $11^{\prime \prime} \times{ }^{17}$ PRINTS ONLY |
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## IDAHO TRANSPORTATION 致 (1040) DEPARTMENT

ORIGINAL SIGNED BY: STEVEN HUTCHINSON ASSISTANT CHIEF ENGINEER (DEVELOPMENT) ORIGINAL SIGNED BY: JIMMY ROSS


G HIGHWAY - RAILROAD GRADE CROSSING SIGNAL TYPE 3

English

REQUIRES SHEET 1 OF 2

## NOTES

1. LAYOUT OF THE HIGHWAY-RALRROAD GRADE CROSSING AREA TRACK OR TOP OF RAILRAD CROSSING SURFACE MATERIAL IN A MANNER THAT WATER DRAINS AWAY FROMTHE RAITROD TRACKS
 RAILROAD TRACKS. IT IS EASIER TO RAISE
COMPARED TO LOWERING RALLRDAD TRACKS.
2. LENGTH AND TYPE OF RAILRRAD CROSSING SURFACE MATERIAL. ALLD
3. CURB, GUTTER AND SIDEWALK (IF USED) SHALL TRANSITIIN ON BOTH SIDES OF TRACKS FROM A NORMAL HEIGHT TO A"FLAT" SECTION
AT THE SAME ELEVATION AS TME TOP OF THE TRACKS AND BUTT P FLUSH TO RALLRAD PLANKING.
4. not to scale.


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| IDAHO <br> TRANSPORTATION DEPARTMENT | ORIGINAL SIGNED BY: STEVEN HUTCHinson |
| :---: | :---: |
|  | ASSistant chief engineer (development) |
|  | ORIGINAL SIGNED BY: JIMMY ROSS |
| BOISE IDAHO | CHIEF ENGINEER |

STANDARD DRAWING GRADE CROSSING AREA
Sheet 1 of 1


[^0]:    original signed by: loren thomas ORIGInAL SIGNED BY: Loren thomas
    ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

