STATE OF NEVADA

STANDARD PLANS

FOR

ROAD AND BRIDGE
CONSTRUCTION

1983

NEVADA
DEPARTMENT OF TRANSPORTATION

DEPARTMENT OF TRANSPORTATION
CARSON CITY, NEVADA 89712
January, 1983

INTRODUCTION

The standards contained in this publication have been formally approved for State highway construction and to be instigated for use on all future roadway construction projects.

The user of this publication is cautioned to consult other contractual documents (special provisions, plans, Standard Specifications, etc.) for additional details which may be pertinent to the application of specific standard plans to any given project.

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  Book of Standards------------------------ $3.00
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<td>B-20.1.1 (502)</td>
<td>RCB Culverts, General Notes</td>
<td>2-3/82</td>
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<td>B-20.1.2 (502)</td>
<td>Single RCB Culverts</td>
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<td>Method of Extending RCB Culverts</td>
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<td>Design Data for Metal Retaining Wall</td>
<td>1-11/78</td>
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<td>Concrete Pile Details</td>
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<td>Bridge Rail, Type &quot;AC&quot;</td>
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<td>Concrete Slope Paving Details</td>
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<td>Retaining Wall Type 1 H=4' to 30'</td>
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<tr>
<td>B-27.1.2 (502)</td>
<td>Retaining Wall Type 1 H=32' to 36'</td>
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<td>B-27.1.3 (502)</td>
<td>Retaining Wall Type 2 H=6' to 22'</td>
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<td>B-27.1.4 (502)</td>
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<td>Retaining Wall Type 1, 2 &amp; 3</td>
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</table>
GENERAL NOTES

1. All curves shall be super-elevated as shown unless otherwise noted on plans.

2. Super-elevation may cause drainage pockets where easement occurs. Drainage shall be checked and pockets eliminated by constructing roadway ditches to grade, changing the axis of rotation, or, in extreme cases, by installing pipe culverts.

3. Short vertical curves shall be inserted by eye adjustment of stakes at beginning and end of easement.

4. When the tangent between curves is too short to permit easement lengths shown, the transition may be extended onto the curve or the easement length may be decreased.

FORMULAE

WHERE:

S = FULL SUPER-ELEVATION (F.T.)
C = CROWN (F.T.)
T = TOTAL LENGTH OF TRANSITION
L = TOTAL LENGTH OF SUPER-ELEVATION RUNOFF
L = TOTAL LENGTH OF SUPER-ELEVATION
T = LENGTH FROM P.C. OR P.T. TO FULL SUPER-ELEVATION

OUTSIDE LANE INSIDE LANE

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<th>Rate of Easement</th>
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<td>Length in Feet</td>
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<td>0.005</td>
</tr>
<tr>
<td>L = 200S</td>
<td>L = 200(S + 0.2)</td>
</tr>
<tr>
<td>S = C/2</td>
<td>S = C/2</td>
</tr>
</tbody>
</table>

SUPERELEVATION RATE - FOOT PER FOOT

NOTE: Broken line indicates standard super-elevation rate. Higher value at steps is the proper super-elevation for indicated curve radius.

SUPERELEVATION 4-LANE, DIVIDED

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

4-LANE, DIVIDED

R = 81.3' (000)

CHIEF ROAD DESIGN ENG.
ADOPTED 1/79
REVISION 1
**TYPE 1 APPROACH**

**SECTION A-A**

Plan View

**DETAIL OF PAVEMENT EDGE**

**26.0' Unless Otherwise Noted on Plans**

**3" Surfacing Unless Otherwise Noted on Plans**

**3" Aggregate Base Unless Otherwise Noted on Plans**

**SECTION B-B**

**240' Unless Otherwise Noted on Plans**

**3" Surfacing Unless Otherwise Noted on Plans**

**3" Aggregate Base Unless Otherwise Noted on Plans**

**SECTION C-C**

**200' Unless Otherwise Noted on Plans**

**3" Surfacing Unless Otherwise Noted on Plans**

**3" Aggregate Base Unless Otherwise Noted on Plans**

**SERVICE TYPE APPROACH**

**200' Unless Otherwise Noted on Plans**

**3" Surfacing Unless Otherwise Noted on Plans**

**3" Aggregate Base Unless Otherwise Noted on Plans**

**ANGLE SHOWN ON PLANS**

**SAME AS TYPE 1-C43**

**FOR LENGTH SEE STATIONING ON PLANS**

**TYPE 2-83 APPROACHES**

**STATE OF NEVADA**
**DEPARTMENT OF TRANSPORTATION**

**TYPES 1, 2 AND 3 APPROACH ROADS**

**PLAN VIEW**

**PROFILE VIEW**

**ELEVATION**

**DIMENSIONS FOR 3-CENTERED CURVES**

**FOR 3-CENTERED CURVES**

**HIGHWAY**

**PLAN**

**DETAIL OF PAVEMENT EDGE**

**SERVICE TYPE APPROACH**

**APPENDIX**

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**M**

**N**

**O**

**P**

**Q**

**R**

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**V**

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**Y**

**Z**
**CULVERT IN EMBANKMENT**

CMP or CMAP CULVERTS

**CONCRETE PIPE CULVERT IN EMBANKMENT**

(METHOD A)

**CONCRETE PIPE CULVERT IN EXCAVATION**

Extraction Depth is Less than 5 feet

**CULVERT INSTALLATION IN ROUGH TERRAIN**

**V-TYPE DITCH AND DIKE**

**FLAT BOTTOM DITCH EXCAVATION**

**GENERAL NOTES**

1. Excavation for Multiple Pipes, or RCP Installations Exceeding 12 feet in Width Will be Performed as Channel or Roadway Excavation.

STATE OF NEVADA

DEPARTMENT OF TRANSPORTATION

**STRUCTURE EXCAVATION & BACKFILL**

(METHOD OF MEASUREMENT)

Adopted: 7/93 4-5/82
PRECAST CONCRETE END SECTIONS

PREFABRICATED METAL END SECTION
(Type 3 Connection)

SLOPE PAVEMENT WITH CUTOFF WALL
(Width and Depth to be specified)

CHANNEL LINING
(Width and Depth to be specified)

CONCRETE APRON
(Width and Depth to be specified)

CHANNEL LINING AND SLOPE PAVEMENT

CULVERT HEADWALLS

IN EMBANKMENT

DROP INLETS IN EMBANKMENT
(Type 3 Drop Inlet Illustrated)

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
STRUCTURE EXCAVATION AND BACKFILL
(METHOD OF MEASUREMENT)

LEGEND

Backfill
Structure Excavation
Limits of Existing Draining or Channel Excavation
Roadway Embankment
See R.I.11 for General Notes.

R-16A (200-2007)
ADOPTED: 5-07-2007
OUTSIDE DIAMETER IS 6 FEET OR LESS

OUTSIDE DIAMETER IS GREATER THAN 6 FEET
CLASS A BEDDING
Payment for Excavated Area Below the Bottom of the Pipe Grade to be Included in the Unit Bid Price Per Cubic Yard of Concrete.

BEDDING FOR CONCRETE CULVERT

CLASS B BEDDING
Bedding Shall Be Carefully Shaped to Fit Pipe Prior to Installation. No Direct Payment for Shaping the Trench.

BEDDING FOR CMP OR C.M.A.P.

CLASS C BEDDING

GENERAL NOTES

2. Excavation For Multiple Pipe or RCP Installations Exceeding 12 Feet in Width Shall Be Paced For as Channel Excavations or Roadway Excavation.

ALLOWABLE FILL HEIGHT FOR REINFORCED CONCRETE PIPE 24" TO 84"

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<th>Pipe Size</th>
<th>CLASS I</th>
<th>CLASS II</th>
<th>CLASS III</th>
<th>CLASS IV</th>
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### Round Corrugated Steel Pipe

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<th>Diameter</th>
<th><strong>MIN. COVER</strong></th>
<th><strong>PLATE THICKNESS IN INCHES</strong></th>
<th><strong>MAX. COVER OVER CORNER PRESSURES IN TONS PER 50 FT</strong></th>
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<td>30</td>
<td>0.064</td>
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### Corrugated Steel Pipe Arch

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### Maximum Height of Cover

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<th>Span Rise</th>
<th>ALLOWABLE FILL HEIGHTS IN FEET</th>
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<td>5-1/2</td>
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<td>6-3/4</td>
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<td>8-1/2</td>
<td>18</td>
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<tr>
<td>10-1/2</td>
<td>21</td>
</tr>
<tr>
<td>12-1/2</td>
<td>24</td>
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### Corrugated Steel Pipe Arch

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<th>Diameter</th>
<th><strong>MIN. COVER</strong></th>
<th><strong>PLATE THICKNESS IN INCHES</strong></th>
<th><strong>MAX. COVER OVER CORNER PRESSURES IN TONS PER 50 FT</strong></th>
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<td>0.064</td>
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<td>18</td>
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<tbody>
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<tr>
<td>5-1/2</td>
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<tr>
<td>6-3/4</td>
<td>15</td>
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<tr>
<td>12-1/2</td>
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* May be used only when supported by Foundation study.

### Equivalent Gage Numbers

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<th>Case</th>
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<td>7/32</td>
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</tbody>
</table>

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* May be used only when supported by Foundation study.
Without Headwall

Without Headwall

Length of Culvert shall be increased as follows:
Consider each side separately, measure pipe from roadbed centerline to the intersection of pipe flow line and fill slope, to this dimension add 0.5 when cover at shoulder is 10' to 100', add an additional 0.5 for each succeeding 5' of cover or portion thereof.

Contour this area to provide the minimum amount of obstruction exposure.

Precast Concrete End Section

Length of Culvert shall be increased as follows:
Consider each side separately, measure pipe from roadbed centerline to the intersection of the top of pipe and fill slope, to this dimension add 0.5 when cover at shoulder is 10' to 100', add an additional 0.5 for each succeeding 5' of cover or portion thereof.

Minimum Culvert Installation

For informational purposes only

Safety Culvert Installation

(To provide obstruction clearance)

Note:
1. Sometimes due to the right of way limits or drainage control, a culvert may be limited to a length of 100 feet.
2. Normal structure excavation and backfill limits.

State of Nevada
Department of Transportation
Culvert Installation

Roadside Safety Area

Shoulder Varies

Normal Pile Slope

Extended Safety Slope

Contoured Slope

End Treatment as Specified
## Technical Notes:
1. Class and type of concrete shall be as specified for equivalent concrete pipe.
2. Dimensions of the other end of the 54" RCP are shown in the detail drawing.
3. Maximum size of reinforcing bars shall be of diameters shown in the related detail drawings.

---

### Plan View

- **Dimensions:**
  - D:
  - L:
  - B:

### End View

- **Dimensions:**
  - Diameter:

### Section A-A

- **Dimensions:**
  - D:
  - L:
  - B:

### Cross Section View

- **Dimensions:**
  - Cover:
  - End Section:

---

### RCP End Section

- **Dimensions:**
  - 12" RCP TO 54" RCP

---

**STATE OF NEVADA**

DEPARTMENT OF TRANSPORTATION

R-2.5.1-RCP

ADPT/09/18/2023
QUANTITIES SHOWN BELOW ARE FOR TWO HEADWALLS

<table>
<thead>
<tr>
<th>RCP</th>
<th>RCP</th>
<th>SINGLE RCP</th>
<th>DOUBLE RCP</th>
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<tbody>
<tr>
<td>SIZE</td>
<td>AREA</td>
<td>0° SKEW</td>
<td>15° SKEW</td>
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<tr>
<td>DIA</td>
<td>SOFT</td>
<td>CONC. STEEL</td>
<td>CONC. STEEL</td>
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QUANTITIES SHOWN BELOW ARE FOR ONE HEADWALL

LENGTH OF REINFORCING BARS

- For estimating headwall quantities on skewed culverts:
  - Use quantities for 0° skew if 0° to 15°
  - Use quantities for 15° skew if 15° to 25°
  - Use quantities for 25° skew if 25° to 40°
  - Use quantities for 40° skew if 40° to 45°

- To calculate quantities required, culverts should be installed on 5' increments where it is feasible.

- Dimensions X, Y, L, and h to remain constant regardless of minor variations in wall thickness due to class of pipe used.

GENERAL NOTES

1. Concrete shall be class A or AA.
2. Reinforcing steel shall be deformed bars with maximum spacing of 8" set 1/2" clear of surface of concrete except as noted. Bar ends shall be kept 1/2" clear of surface of concrete. Reinforcing bars may be cut and bent in field.
3. Footings shown are of minimum depth and shall be extended if soil is unsuitable or liable to scour.
4. Culvert pipes to be set on a skew shall be mitered when headwalls are constructed when headwalls are not constructed the pipes shall not be mitered except in overflow section.
5. For estimating headwall quantities on skewed culverts:
   - Use quantities for 0° skew if 0° to 15°
   - Use quantities for 15° skew if 15° to 25°
   - Use quantities for 25° skew if 25° to 40°
   - Use quantities for 40° skew if 40° to 45°

- To calculate quantities required, culverts should be installed on 5' increments where it is feasible.
6. Dimensions X, Y, L, and h to remain constant regardless of minor variations in wall thickness due to class of pipe used.

PLAN

SECTION (FOR ALL HEADWALLS)

ELEVATION SINGLE RCP

ELEVATION DOUBLE RCP

15° TO 45° SKEW

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
CULVERT HEADWALLS
12" RCP TO 36" RCP

CHIEF ROAD DESIGNER
ADOPTED BY...
**GENERAL NOTES**

1. **CONCRETE SHALL BE CLASS A OR AA.**
2. **REINFORCING STEEL SHALL BE DEFORMED BARS WITH MAXIMUM SPACING OF 18".**
3. **FOOTINGS SHALL BE CONSTRUCTED SUCH THAT A CLEARANCE OF 17" IS MAINTAINED.**
4. **CULVERT PIPES TO BE SET ON A SKEW.**
5. **DIMENSIONS X, Y, AND Z TO BE REMAIN CONDSTANT REGARDLESS OF MINOR VARIATIONS.**
6. **FOR ESTIMATING HEADWALL QUANTITIES ON SKEWED CULVERTS: 0° TO 10° USE QUANTITIES FOR 0° SKEW.**
   **OVER 10° TO 50° USE QUANTITIES FOR 0° SKEW.**
   **OVER 50° TO 90° USE QUANTITIES FOR 0° SKEW.**
   **OVER 90° USE QUANTITIES FOR 0° SKEW.**

---

**QUANTITIES SHOWN BELOW ARE FOR TWO HEADWALLS.**

<table>
<thead>
<tr>
<th>OVAL RCP SIZE W x H</th>
<th>SINGLE OVAL RCP</th>
<th>DOUBLE OVAL RCP</th>
<th>X</th>
<th>Y</th>
<th>L</th>
<th>h</th>
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<tr>
<td>34'' x 20''</td>
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**LENGTH OF REINFORCING BARS**

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<th>SINGLE OVAL RCP</th>
<th>DOUBLE OVAL RCP</th>
<th>DOUBLE OVAL RCP</th>
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<tr>
<td>46'' x 32''</td>
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</tbody>
</table>

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**STATE OF NEVADA DEPARTMENT OF TRANSPORTATION**

**CULVERT HEADWALLS**

23'' x 14'' OVAL RCP TO 60'' x 38'' OVAL RCP

**PLAN**

**ELEVATION**

SINGLE OVAL RCP

0° TO 45° SKEW

**SECTION**

FOR ALL HEADWALLS

**NOTE:** For details of other reinforcing bars, see single culvert headwalls.
**CONNECTION ANGLE DETAIL**

- Pipe, Spigot or Flange made at Crest of Corrugation at Heel and Toe of Angle

**ANNULAR COUPLING BAND**

- Band
- 2" x 2' x 1/8" Angles
- 1/2" Bolts
- Second Angle Connection Assembly is Optional for Pipe 36" Diameter or less. Required for Pipe Greater than 36" Diameter

**SIDE VIEW**

- Pipe
- Band
- Bolt Bar
- SEE DETAIL "A"
- 3 1/8" x 1/8" Galv. Bar
- Tension Strap
- Spot Welds
- 1 1/2" End Helical
- Reform Helical at 45°
- Top View

**BAND DETAIL**

- Band
- CMP Joint, Sealant
- SEE DETAIL "B"
- SEE DETAIL "C"

**SAR B STRAP DETAIL**

- Alternative Annular Coupling Band for Use on CMP Thru 60" Inclusive

**UNIVERSAL COUPLING BAND FOR USE ON CMP THRU 84" Inclusive**

- One Piece Band Optional or 60" Diameter, Two Piece Band Required Above 60" Diameter

**COUPLING BAND FOR HELICAL WELD SEAM ONLY**

**END VIEW**

- Pipe
- Band
- Bolt Bar
- SEE DETAIL "A"

**TOP VIEW**

- Pipe
- Band
- 2 1/2" x 1/2" Galv. Strap
- Bolt Bar

**END VIEW BAR DETAIL**

- Band
- CMP Joint, Sealant
- SEE DETAIL "B"

**UNIVERSAL COUPLING BAND FOR USE ON CMP THRU 36" Inclusive**

**DIMPLE DETAIL**

- To be used only for joining existing helically corrugated pipes

**TABLE 1: COUPLING BAND FOR HELICAL WELD SEAM ONLY**

<table>
<thead>
<tr>
<th>COUPLING BAND FOR HELICAL WELD SEAM ONLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORROSION</td>
</tr>
<tr>
<td>2 1/2&quot; x 1/2&quot;</td>
</tr>
<tr>
<td>2 1/2&quot; x 1/2&quot;</td>
</tr>
<tr>
<td>2 1/2&quot; x 1/2&quot;</td>
</tr>
<tr>
<td>3&quot; x 1&quot;</td>
</tr>
<tr>
<td>3&quot; x 1&quot;</td>
</tr>
</tbody>
</table>

**GENERAL NOTES**

1. All coupling band connecting ornamental shall be galvanized.
2. For CMP arches use same width band as for band pipe of equal.
3. For vertical and other joints on alternative annular coupling band face must be drawn at 45° or 3/4" thick.
4. For arching pipe, annular coupling band, 2 bolt and strap. Allowable pressure shall be 40% of bending.
5. Optional for sizes less than 40."
<table>
<thead>
<tr>
<th>COUPLING TYPE</th>
<th>CORRUGATION</th>
<th>PIPE SIZE</th>
<th>W or A</th>
<th>BAR &amp; STRAP</th>
<th>ANGLE</th>
<th>WEDGE &amp; STRAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWO PIECE INTERNAL FLANGE</td>
<td>1 1/8&quot; x 1/4&quot;</td>
<td>5&quot; Thru 10&quot;</td>
<td>7&quot;</td>
<td>THICKNESS PIPE WALL</td>
<td>0.064 - 0.079</td>
<td>0.064</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>THICKNESS BAND</td>
<td>0.064</td>
<td></td>
</tr>
</tbody>
</table>

GENERAL NOTES:
1. All coupling band connection hardware shall be galvanized or electroplated in accordance with standard specifications.
2. For pipe arches using same width band as for round pipe of equal periphery.
3. Two piece band required for pipe greater than 42" diameter.
4. Tension strap may be connected to band or sheet with either spot welds or fillet welds that develop minimum required strength of strap.
5. Use 1/4" gage line dimension on attached angle leg for rivets and spot welds.
6. Band thickness shall not be less than standard thicknesses lighter than the thickness of the pipe.
7. Dimensions and thickness shown are minimum.
8. Angle 2" long with 0.064" x 2" strap.
9. Fillet welds of equivalent strength may be substituted for spot welds or rivets.

CHANNEL COUPLING BAND FOR USE ON FLANGED END C.M.P. (CHANNEL COUPLING BAND SHALL BE TWO PIECE)

ALTERNATE CHANNEL COUPLING BAND (WITH WEAVER BOLT & OPEN LOOPS)

SECTION A-A

SECTION B-B

SECTION C-C

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

C M P COUPLING BAND DETAILS

R-2B1 (504)
GENERAL NOTES

1. ALL CONCRETE SHALL BE CLASS A OR AA.

2. REINFORCING BARS SHALL BE 4 BAR WITH MAXIMUM SPACING AT 18" CENTERS BARS TO BE EMBEDDED A MINIMUM OF TWO INCHES AND BAR ENDS MUST CLEAR CONCRETE SURFACES BY ONE AND ONE-HALF INCH.

3. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED ONE INCH.

4. STRUCTURAL STEEL WEIGHT INCLUDES THE 2" PIPE AND THE 2½" ½" ½" ½" FRAME ANGLES.

<table>
<thead>
<tr>
<th>QUANTITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONCRETE</td>
</tr>
<tr>
<td>0.35 Cu. Yd.</td>
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</tbody>
</table>

* FOR INFORMATION ONLY

TYPICAL INSTALLATION

(NOT FOR USE IN PEDESTRIAN AREAS)

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

PIPE RISER INLET
TYPE 3
DETAILED NOTE

1. ALL CONCRETE SHALL BE CLASS B OR C.
2. REINFORCING STEEL SHALL BE NO. 3 BARS WITH A MIXTURE OF STEEL AT 12" CENTERS, WITH STEEL AT ALL INTERSECTIONS AND 0.5" AT THE CURB FACE.
3. EXPOSED SURFACES OF CONCRETE SHALL BE CEMENTED.
4. FOR GRAY AND FARMER'S CONCRETE, SEE STANDARD PLANS SHEET R-4.1-0000, TYPE 3 DROP INLET.
5. FOR VALUES IN "N" SEE SERIES SHEET SHEET.
6. "N" IS THE DEPTH OF ELEVATION BELOW THE CLOSET POINT FROM CURB EDGE AND THE CURB EDGE DERIVED LINE AT THE CURB FACE.
7. CURB CRESTS LARGER THAN 7" SHALL HAVE AN ANCHOR SUPPORT FOR EACH 1' INCREMENT OR FUNCTION THROUGH LIGHTER SPACING.
8. PIPES CAN BE PLACED TO HIP WALL.

GREAT VENTURED BASE PLANS

DEPARTMENT OF TRANSPORTATION
STATE OF NEVADA

TYPE 11 DROP INLET

SHEET 4 OF 8
ADOPTED: MARCH 1993

B-4-20-16230
NOTE: Bracing is for Chain Link Fencing. See Intermediate Braced Post Type A Fence, for Bracing Detail When Type A Fence is Specified.

SINGLE

MÉTAL DRIVE GATES

DOUBLE

MISSOURI GATE

METAL DRIVE GATE IN TIMBER FENCE

WALK GATE

DETAIL A

DETAIL B

DETAIL C
72-INCH CHAIN LINK FENCE

VARIABLE HEIGHT CHAIN LINK 3B FENCE

GENERAL NOTES
1. FENCE POSTS AND MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF STANDARD SPECIFICATIONS AND SUPPLEMENTS.
2. CHAIN LINK FENCING SHALL CONSIST OF GALVANIZED CHAIN LINK FABRIC ON STEEL POSTS (TUNICULAR OR C-COLUMNS).
3. (A) ALL POSTS SHALL BE SYP IN CLASS A OR AA CONCRETE.
(B) BRACES SHALL BE SPACED APPROXIMATELY 12" BELOW TOP OF TERMINAL POSTS AND SHALL EXTEND FROM END, GATE OR CORNER POSTS TO FENCE ADJACENT LINE POST.
(C) ALL FITTINGS SHALL BE DIPPED GALVANIZED NAILABLE, CAST IRON, OR PRESEED STEEL.
(D) FABRIC SHALL BE ATTACHED TO LINE POSTS WITH FABRIC BAND SPACED APPROXIMATELY 11" APART, AND TO TOP TENSION CABLES AT TOP TENSION WITH RING RINGS OR TOP WIRES SPACED APPROXIMATELY 24" APART.
(E) FOR TUNICULAR POST AND RAIL TAIL DETAILS, SEE SHEET NO. R-6.1.1

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

FENCE DETAILS
CHAIN LINK WITH C-TYPE POST

R-6.3.1
ADOPTED 3/79
REVISION 1-5/80
GENERAL NOTES:

1. Post Spacing shall be 6'-3" except as otherwise noted.
2. For Details not shown refer to Standard Guardrail Sheets.
3. Terminal may not be omitted unless guardrail is started in backstop.
4. Cable assembly should be tied with no obvious slack in cable.
<table>
<thead>
<tr>
<th>NEW</th>
<th>EXISTING</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
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<td>Luminaire</td>
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<tr>
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<td>![Symbol]</td>
<td>Electrolite</td>
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<td>Underpass Luminaire</td>
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<tr>
<td>![Symbol]</td>
<td>![Symbol]</td>
<td>Traffic Signal Head, 3 Section, 12' Red, Yellow and Green Sections (Unless Indicated Otherwise)</td>
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<tr>
<td>![Symbol]</td>
<td>![Symbol]</td>
<td>Traffic Signal Head with All Sections Louvered</td>
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<tr>
<td>![Symbol]</td>
<td>![Symbol]</td>
<td>Traffic Signal Head with Back Plate</td>
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<tr>
<td>![Symbol]</td>
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<td>Traffic Signal Head, Programmed Visibility, 12' Green Arrow, 24' Solid Yellow and Red Sections, with Back Plate</td>
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<tr>
<td>![Symbol]</td>
<td>![Symbol]</td>
<td>Traffic Signal Head with 12' Green, Yellow and Red Arrow Sections, with Back Plate</td>
</tr>
<tr>
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<td>![Symbol]</td>
<td>Mast Arm Signal with Back Plate</td>
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<tr>
<td>![Symbol]</td>
<td>![Symbol]</td>
<td>Combination Traffic Signal Standard with Luminaire and Signal Mast Arms and Attached Signal Heads, with Back Plate, PFB &amp; Pedestrian Push Button and Sign</td>
</tr>
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<td>![Symbol]</td>
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<td>Pedestrian Signal (Walk-Don't Walk)</td>
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<td>Vehicle Detector - Inductive Loop (Unless Otherwise Indicated) See Sheet T-301 for Information on Identifications and Configuration</td>
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<td>![Symbol]</td>
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<td>Quadrangle Detector Loop (See Sheet T-301)</td>
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<td>Flashing Beepers &quot;N&quot; Indicates Red Lens, &quot;Y&quot; Indicates Yellow Lens</td>
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**Lighting and Signals**

*STATE OF NEVADA*

DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL AND LIGHTING SYMBOLS

[Sheet T-501] ADAPTED 01/70 [Sheet T-501]
**Type 1-A**

**Signal Standards**

**Type 1-B**

---

**Left Turn on Green Arrow Only**

**Detail "D"**

**Sign RI-D**

**Background-White (Ref.)**

**Legend, Border-Black (Non-Ref.)**

---

**Typical Directional Louver**

---

**Typical Arrow Lens**

---

**State of Nevada Department of Transportation**

**Lighting and Signals**

**RI-0 Sign, Backplate, Louver, Pole Type 1-A and 1-B Details**
CONDUIT INSTALLATION

QUADRAPOLE DETECTOR LOOP (A)

WINDING DETAIL (ONE TURN)

SAWSLOT DETAIL

DETECTOR LAYOUTS, DIMENSIONS & WIRING PATTERNS

SECTION A-A

SECTION B-B

PLAN VIEW OF DIAGONAL SLOT AT CORNERS

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

LIGHTING AND SIGNALS
25' AND SMALLER RADIUS CURB RETURN AND MEDIAN LOCATION

30' AND LARGER RADIUS CURB RETURN AND MEDIAN LOCATION
**DETAIL "A"**
BASE PLATE
(POLE TYPE 5-A-6(L), 6(L), 9(L), 12(L), 18(L))
(Not Applicable when Safety Bases are Required)

**DETAIL "B"**
FOUNDATION ISLAND

**DETAIL "C"**
LUMINAIRE ARM CONNECTION
(POLE TYPE 6(A-L), 6(L), 9(L), 12(L))

**DETAIL "D"**
SIGNAL ARM CONNECTION
(POLE TYPE 6-14(L), 6(A-L), 9(L), 12(L))

**POLE TYPE 14-(L)**

**DETAIL "E"**
LUMINAIRE TENON DETAIL

**FOUNDER DETAIL**
FOR POLE TYPE 14-(L)

**WIRING DIAGRAM FOR POLE TYPE 14-(L)**

**STATE OF NEVADA**
DEPARTMENT OF TRANSPORTATION

**LIGHTING AND SIGNALS**

POLE TYPE 14-(L), 5-A-6(L), 6(L), 9(L), 12(L), 18(L) MAST ARM MOUNTING AND TYPICAL FOUNDATION ISLAND DETAILS

ADOPTED 4/30/90 REVISED 4/30/90
DETAIL "B"
POLE BASE

- 4-2½" Anchor Bolt Sods
- 4½" x 4½" joint hole with 2½" x 2½" reinforcing frame and cover
- 2½" x 2½" W2 Grounding Lug
- E Piece Aluminum Base Cover

- 4-2½" x 6½" x 6½" Galv. Anchor Bolts
- 2½" Galv. Flat Washers
- 2½" Galv. Nut Bolt

DETAIL "C"
SIGNAL ARM CONNECTION
- 3½" B. For 20" Signal Arm
- 1½" B. For 40" Signal Arm

SECTION A-A
CONSTRUCTION TO SATISFY AND ENHANCE THE LOCATION OF
LUMINAIRES AND SIGNALS

DETAIL "D"
LUMINAIRES ARM CONNECTION

SECTION G-G
SIGNAL TENON ATTACHMENT

DETAIL "E"
LUMINARE TENON DETAIL

SPECIAL DETAIL
FOR MOUNTING SIGNAL HEAD

POLE TYPE 28-(L & S)

LIGHTING AND SIGNALS

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

POLE TYPE 28-(L & S) AND MAST ARM MOUNTING DETAILS
**GENERAL NOTES**

1. **LIGHTING FIXTURES**: All lighting fixtures shall be non-combustible and shall be of a material resistant to corrosion. All lighting fixtures shall be designed and fabricated to be resistant to corrosion by contact with water, condensation, freezing, and other environmental conditions.

2. **WIRING DATA**: All wiring data shall be in accordance with the requirements of the NEC and all local codes. All wiring shall be properly sized and terminated to ensure safe and efficient operation of the lighting fixtures.

3. **MATERIALS**: All materials specified in this document shall be of the highest quality and shall meet or exceed all applicable standards and specifications. All materials shall be tested and approved by the appropriate authorities.

4. **CONSTRUCTION**: All construction details, including the attachment of lighting fixtures to the structure, shall be in accordance with the requirements of the NEC and all local codes. All construction details shall be designed to ensure the safety and durability of the lighting fixtures.

5. **SIGN LIGHTING FIXTURES**: The design and installation of sign lighting fixtures shall be in accordance with all applicable standards and specifications. All sign lighting fixtures shall be tested and approved by the appropriate authorities.

6. **EXCEPTIONS**: Any exceptions to the requirements of this document shall be approved by the appropriate authorities. All exceptions shall be documented and retained for future reference.

**STATE OF NEVADA**

**DEPARTMENT OF TRANSPORTATION**

**LIGHTING AND SIGNALS**
TYPE "A" UNDERPASS LUMINAIRE

- Flange, Steel Pipe & Slip Fit Joint of Fixtures Shall be Compatible.
- Poly-Carbonate Lens or Glass Lens with Poly-Carbonate Shield.

TYPE "C" UNDERPASS LUMINAIRE

- 25 lb. Standard Companion Flange Material—Iron with Pipe Threads
- Flange to Underside of Deck with Three (3) 5/8" Expansion Bolts Spaced Approximately 120° Apart
- Flange, Steel Pipe & Slip Fit Joint of Fixtures Shall be Compatible.
- Poly-Carbonate Lens or Glass Lens with Poly-Carbonate Shield.

TYPE "B" UNDERPASS LUMINAIRE

- Secure Luminaires with Three (3) 3/8" Dia. Expansion Bolts, Two (2) at Top & One (1) at Bottom.
- Poly-Carbonate Lens or Glass Lens with Poly-Carbonate Shield.

PENDANT INSTALLATION (TYPE "C" UNDERPASS LUMINAIRE)

- JUNCTION BOX DETAIL
- JUNCTION BOX COVER SHALL BE WX-60 STEEL.
- GALVANIZED INTERNALLY AFTER MANUFACTURE.
- BOX SHALL BE FLUSH WITH BOTTOM OF STRUCTURE.
- FASCIA COVER SHOWN IN DETAIL "C." BOLT WITH "1/2" X 4.5" X 6" BOLTS.
- COVER SHALL BE IN WELD BONDED RIM.
- AN EQUIVALENT APPROVED JUNCTION BOX MAY BE USED IN LACK OF DETAIL "C." JUNCTION BOX.
- CHECK SET FOR 2" DEBRIEFL. BOTTOM SHELL BE TEN OF 31° ABOVE COVER TO CLEAR STRUCTURAL STEEL.

DETAIL "B"

- JUNCTION BOX (See Detail "C")

- Underside of Structure

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
LIGHTING & SIGNALS

UNDERPASS LUMINAIRES & JUNCTION BOX

3-30-79 (623)
### Table of Taper Lengths for Converging Lane System

<table>
<thead>
<tr>
<th>Speed (MPH)</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taper Length (FT)</td>
<td>35</td>
<td>50</td>
<td>75</td>
<td>100</td>
<td>125</td>
<td>150</td>
<td>175</td>
</tr>
</tbody>
</table>

**Note:**
- Use several Note #2

---

**STATE OF NEVADA DEPARTMENT OF TRANSPORTATION**

**TYPICAL ROAD CONSTRUCTION SIGNING**

---

**Arrow Board—When Required in Special Circumstances**

---

**Diagram Details:**
- Use of channeling devices
- Solid white line
- Broken white line
- Solid yellow line
- Broken yellow line
- Solid double yellow line
- Broken double yellow line
- Optional lines

---

**NOTE:**
- All work referenced tables.
- All work referenced tables.
- All work referenced tables.
- All work referenced tables.
- All work referenced tables.

---

**Legend:**
- Solid white line
- Broken white line
- Solid yellow line
- Broken yellow line
- Solid double yellow line
- Broken double yellow line
- Optional lines

---

**Diagrams:**
- Converging lane system
- Taper lengths
- Channeling devices
- Solid and broken lines

---

**References:**
- All work referenced tables.
- All work referenced tables.
- All work referenced tables.
- All work referenced tables.
- All work referenced tables.
RAMP EXIT

THRU TRAFFIC

NOTE: TO BE USED FOR VEHICLES ONLY WHEN PREMATURE CLOSURE OF RAMP ARE EFFECTUAL.

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

TYPICAL TRAFFIC CONTROL
FOR RAMP WORK

Revised 5/7/93
INSTRUCTIONS TO FABRICATOR

FORMAT SHEET SHOWS:
1. Sign structure, location.
2. Length of structure frame.
3. Panel size and locations on structure.
4. Post type and height to bottom of frame.
5. Post pole elevation.
6. Feeding elevation or location of alternate pile foundation.
7. Photovoltaic cell location if required.

REFER TO THE FOLLOWING SHEETS FOR DETAILS NOT SHOWN ON FORMAT SHEET:
T-26.1.3 - Post type.
T-26.1.4 - Structure frame members (single post type).
T-26.1.5 - Structure frame members (2 post type).
T-26.1.6 - Structure frame details.
T-26.1.7 - Post details.
T-26.1.8 - Removable sign panel frames.
T-26.1.9 - Walkway safety railing details.
T-26.1.10 - Alternate pile foundations.

GENERAL NOTES

SPECIFICATIONS

DESIGN: roadway signs are fabricated to standards and specifications for highway signs, dated 1968.


LOADING: WIND LOADING Normal to face of sign: 30 P.S.I.

TRANSPORTATION DEPARTMENT OF NEVADA

UNIT STRESSES:
STRUCTURAL STEEL: Fy = 20,000 P.S.I.
REINFORCED CONCRETE: Fc = 2000 P.S.I., Fy = 60,000 P.S.I.

FOOTING SOIL PRESSURE: 1/4 tons/ft.²

MINIMUM CLEARANCE: Vertical clearance: 18' 6".

WELDING: All welding continuous. All welding to be done in accordance with the standards and specifications for road and bridge construction.

FINISH: All steel parts to be hot-dipped galvanized after fabrication except as shown on plans or as noted in this section.

INSTRUCTION & EXAMPLES

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
OVERHEAD SIGNS
INSTRUCTIONS & EXAMPLES

EXAMPLE NO. 1

UNBALANCED SINGLE POST TYPE

EXAMPLE NO. 2

CANTILEVER SINGLE POST TYPE

EXAMPLE NO. 3

TWO POST TYPE WITH CANTILEVER (PART DOUBLE-FACED)
### TABLE XIV

<table>
<thead>
<tr>
<th>Post Type</th>
<th>Pipe Size</th>
<th>Split</th>
<th>Base Plate Size [Inches]</th>
<th>Anchor Bolts</th>
<th>Photoset Size [Inches]</th>
<th>Longitudinal Reinforcement Diameter Size [Inches]</th>
<th>J Bars</th>
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</thead>
<tbody>
<tr>
<td>I - 6</td>
<td>10&quot; x 12&quot;</td>
<td>4&quot;</td>
<td>9-3/8&quot; x 12-1/2&quot;</td>
<td>6-2-6</td>
<td>3-7-3/8&quot; x 9-3/8&quot;</td>
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<td></td>
</tr>
<tr>
<td>II - 5</td>
<td>8&quot; x 10&quot;</td>
<td>4&quot;</td>
<td>7-3/8&quot; x 10-1/2&quot;</td>
<td>4-2-4</td>
<td>2-7-3/8&quot; x 5-3/8&quot;</td>
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<tr>
<td>III - 3</td>
<td>6&quot; x 8&quot;</td>
<td>4&quot;</td>
<td>5-3/8&quot; x 8-1/2&quot;</td>
<td>2-2-2</td>
<td>1-7-3/8&quot; x 3-3/8&quot;</td>
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<td></td>
</tr>
<tr>
<td>IV - 2</td>
<td>4&quot; x 6&quot;</td>
<td>4&quot;</td>
<td>3-3/8&quot; x 6-1/2&quot;</td>
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<td>1/2&quot;</td>
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<tr>
<td>VI - 2</td>
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<td>4&quot;</td>
<td>1/2&quot; x 2-1/2&quot;</td>
<td></td>
<td></td>
<td>1/2&quot;</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. For reinforcement, embedment is prior to outside of bar and is 2" to main reinf except as noted.
2. For "Special Notes" see "Instruction & Examples" sheet.
3. Base plates, photosets, & floorings, longer sides shall be normal to暗 or axis of sign.
4. Decking shall be in place prior to erection of post.
5. Thread upper B of anchor bolts and galvanize upper 1/2".
7. Anchor "A" may be retained with hex nut or hemp cord.
8. Use POST FOUNDATION OR TOP OF FOUNDATION (THICKNESS) TO ATTACH HANGER PLATE.
9. Drill and tap for 1/4" x 20 ANCHOR BOLTS to attach ground plate.

---

**OVERHEAD SIGNS - TWO POST TYPES I-S THRU VII-S**

---

**STATE OF NEVADA**
**DEPARTMENT OF TRANSPORTATION**

---

**T-363 (4) 027**
**ADOPTED DATE 4-97**
**splice notes**

specifications:
The bolted splice shall comply with current specifications for structural joints using ASTM A 325. bolts approved by the department. Shop fabricated and field bolted structural joints of the engineering foundation.

location of splices:
The splices shall be located so as not to interfere with mounting the safety bracket or the sign angles for the removable sign panel frame. The wind bracing in the area of the bolted chord splice will be bolted to the chord angles with a high strength bolt, with hex head and nut, 2 cut washers and lock washer.

bolts:
The bolts shall be high strength with an interference type body and torqued to the required amount as shown in the above specifications.

filter B:
The plates welded to the angle legs on the inside shall be welded before punching the bolt holes. They shall be the same length as the cover plates. The plates are not necessary on the single post signs if the splice is located over 1/3 of the centerline length from the post. alternative splice details may be used if approved by the engineer.

**typical section J-J**

- Note: Diagonal bracing is a piece of truss, not shown. Bracing shown is at all vertical 3 1/2 ft. trusses.
- 3 for 5 chord angle.
- 4 for all others.

**detail 1**

- Wind bracing.
- Diagonal L.
- Vertical L.
- Upper chord L.

**detail 2**

- Wind bracing.
- Diagonal L.
- Vertical L.
- Upper chord L.

**detail 3**

- Wind bracing.
- Diagonal L.
- Vertical L.
- Upper chord L.

**detail 4**

- Wind bracing.
- Diagonal L.
- Vertical L.
- Upper chord L.

**detail 5**

- Wind bracing.
- Diagonal L.
- Vertical L.
- Upper chord L.

**detail 6**

- Wind bracing.
- Diagonal L.
- Vertical L.
- Upper chord L.

**typical section J-J**

- Note: Diagonal bracing is a piece of truss, not shown. Bracing shown is at all vertical 3 1/2 ft. trusses.
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- Wind bracing.
- Diagonal L.
- Vertical L.
- Upper chord L.

**detail 2**

- Wind bracing.
- Diagonal L.
- Vertical L.
- Upper chord L.

**detail 3**

- Wind bracing.
- Diagonal L.
- Vertical L.
- Upper chord L.

**detail 4**

- Wind bracing.
- Diagonal L.
- Vertical L.
- Upper chord L.

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- Diagonal L.
- Vertical L.
- Upper chord L.

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- Wind bracing.
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- Upper chord L.

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1. welded steel grating shall have 1/4" x 1/8" bearing bars.
   6 x 1/4" centers, with 1/8" diam. (or equal) cross bars.
   6 x 1 1/2" centers. See detail 2. Where lack grating is used, it shall be equal in strength to the rolled-type serrated
   hand-hold. Rails may be submitted for approval.

2. For spacing of lighting fixtures, see notes of spacings on
   fluorescent sign lighting equipment sheet.

3. Walkway grating and light fixture mounting channels to be
   continuous for spans over 30 ft. Walkway brackets as
   provided consistent with fabricated, ease of handling
   and assembling.

4. Bolts, nuts, washers, etc. to be galvanized.
OVERHEAD SIGNS
WALKWAY SAFETY RAILING DETAILS

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

T - 36.11- 027
REVISED 1-60
**PARAPET DETAILS**
COPING REINFORCING INCLUDED IN THE HEADA WALL QUANTITIES

**ELEVATION**
Low Fills = Lowest Table Value for Given Span
Higher Fills = Slab Increase as Shown in Table

**PLAN - SKewed**
FILL HEIGHT TRANSITIONS

**GENERAL NOTES**
1. RESERVATION PROVIDED: ADEQUATE MINIMUM MORTAR SPACING FOR CEMENT BONDING. CONCRETE OR CONCRETE MIXTURES SHALL BE USED.
2. CEMENT BONDING: IT IS RECOMMENDED TO USE A PORTION OF THE CONCRETE MIXTURE IN THE FORM OF COLLOIDAL BONDING.
3. CONCRETE MIXTURES: ADEQUATE MINIMUM MORTAR SPACING FOR CEMENT BONDING. CONCRETE OR CONCRETE MIXTURES SHALL BE USED.
4. CONCRETE: ADEQUATE MINIMUM MORTAR SPACING FOR CEMENT BONDING. CONCRETE OR CONCRETE MIXTURES SHALL BE USED.

**STATE OF NEVADA**
DEPARTMENT OF TRANSPORTATION

**RCB, CULVERTS, GENERAL NOTES**
NOTES

1. FOR BOXES WITH SPANS OR HEIGHTS LESS THAN ANY OF THOSE SHOWN IN TABLE, USE NEAREST GREATEST SIZE BOX CONCRETE, SPANS AND HEIGHTS OF BOXES SHOWN IN TABLE ARE APPROXIMATIONS, MORE ACCURATE CHANGES IN CONCRETE, SPANS AND HEIGHTS OF BOXES SHOWN IN TABLE, A SPECIAL DESIGN IS REQUIRED.

2. FOR BOXES WITH SPANS OR HEIGHTS OF BOXES SHOWN IN TABLE, A SPECIAL DESIGN IS REQUIRED.

3. QUANTITIES ARE APPROXIMATE AND FOR DESIGN PURPOSES ONLY.

4. ALL CEMENT MIXES SHOWN IN TABLE SHOULD MEET MINIMUM REQUIREMENTS. REQUIRED FOR MIXES WHICH ARE EXCEED THE REQUIREMENTS. REQUIRED FOR MIXES WHICH ARE EXCEED THE REQUIREMENTS.

5. OVER TOP 1" SIZES, THE TOP SLAB CONCRETE SHALL 2" BE 4,000 PSI, OR 2" SPANS, 4,000 PSI, AS DESIGNED.

6. FIRE PROOFING IS TO BE USED.

7. FOR BOXES WHICH ARE EXCEED THE REQUIREMENTS.

TYPICAL SECTION - 48" THRU 60" SPANS

TYPICAL SECTION - 100" THRU 144" SPANS

NOTE: This plan sheet may be used for Multiple Cell Culverts by making necessary adjustments.
### Cubic Yards of Concrete and Pounds of Reinforcing for Two Type II Headwalls

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<thead>
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<th>Span</th>
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**Notes:**
- For general notes, see Sheet 2-201.1

**Diagram Notes:**
- When Top of Wing Flange is Above Section Solly St, Glass May Be Filled With Concrete.

**Section A - A**

**Section B - B**

---

**STATE OF NEVADA**
**DEPARTMENT OF TRANSPORTATION**

**RCB CULVERTS**
**TYPE II HEADWALLS**

[Signature]

[Date]

[Revision]
## TYPE I HEADWALL DIMENSIONS AND REINFORCING STEEL

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<th>° SKEW</th>
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<th>45° SKEW</th>
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<td>WING B</td>
<td>WING A</td>
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<tr>
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<td>G-BARS 6</td>
<td>8 BARS 6</td>
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### SECTION OF WINGS A AND B

Both wings are as shown for Wing A.

### SECTION WING A

**NOTE:** For General Notes, See Sheet B-2011.

### SECTION WING B

**OUTLET**

**INLET**

---

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

RGB CULVERTS
TYPE I HEADWALLS

B-2011 (502)
REVISED		
AUGUST 2011
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STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

ESTIMATE OF QUANTITIES

TYPE I HEADWALLS

B-20.16-16020
CHILD WRENCH SIZE ADOPED 6/15/90 R. ADDISON
PART PLAN

SLIP JOINT DETAIL

PART ELEVATION

ANCHOR PLATE DETAIL

SHIM DETAIL

RAILING DETAIL

GENERAL NOTES
1. Rail to conform to sections and dimensions shown.
2. Joints to be spaced 4'-0" on center. Adjust to suit.
3. Slip joints to be marked on panels to match existing sections to allow for minimum number of changes to match alignment for minimum movement in the field and shop.
5. Bolts, assembly, and rail shall be galvanized after fabrication.
6. All bearing surfaces of rail assembly shall be insulated.

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

STEEL BRIDGE RAIL
TYPE "H"

DESIGNER: [Name]

[Date]
**TABLE OF REINFORCING STEEL DIMENSIONS AND DATA**

<table>
<thead>
<tr>
<th>Design H</th>
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**SPREAD FOOTING SECTION**

**NOTES:**
- For details not shown and drainage notes see Sheet B-27.15
- Quantities do not include the wall portion above "Gutter Elevation" and are for design purposes only.
- For pile footing Design H=4" use same footing dimensions as Design H=8".

**STATE OF NEVADA**
**DEPARTMENT OF TRANSPORTATION**

**RETAINING WALL TYPE 1**

**H=4" TO 30"**

**FILE NO. B-27.15**

**ADDED 1-18-95 REVISION**
TYPICAL LAYOUT EXAMPLE

For joints required, see Sheet No. B-27.15

TABLE OF REINFORCING STEEL

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<th>Dimension</th>
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For details not shown and drainage notes see Sheet B-27.15

Quantities do not include the wall portion above "Quarter Elevation" and are for design purposes only.

NOTES:

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

RETAILING WALL TYPE 1
H=32' TO 36'

9-27.12-1 (09)

J. JENKINS, ENG
ADOPTED 1-JUB REVISION
**MAX. PILE SPACING FOR 45 TON PILES**

<table>
<thead>
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<th>1'1&quot; limited surcharge</th>
<th>1'1&quot; unlimited surcharge</th>
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<td>III</td>
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<tr>
<td>VI</td>
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**NOTES**

- **Design Conditions:** Design H may be exceeded by 6" before going to the next size.
- Special footing design is required where foundation material is incapable of supporting the pressure loads listed in table.
- **Design Data:**
  - 1'750 psi
  - 3,250 psi
  - 24,000 psi
  - 10 earth/120 psi
  - Case I - Wall design for equivalent fluid pressure - 87 psi and 36 psi.
  - Case II - Wall design is based on Rankine's formula with φ = 35°-48°

**Quantities:** Quantities do not include the wall portion above "Cutter Breakout" and are for design purposes only.

---

**SPREAD FOOTING SECTION**

**TYPICAL LAYOUT EXAMPLE**

**45T PILE FOOTING SECTION**

**TABLE OF REINFORCING STEEL DIMENSIONS AND DATA**

| Design | H | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
| H-6   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H-8   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H-10  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| H-12  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**ELEVATION**

**STATE OF NEVADA**

**DEPARTMENT OF TRANSPORTATION**

**RETAINING WALL TYPE 3**

**H-4 TO 12'**

---

**STATE:**

**B-RIDGE:**

**DESIGN:**

**A-DRAFT:**

**REVISED:**