NOTE: FUTURE CONSTRUCTION ITEMS ON PLANS SHALL BE INDICATED BY A DASHED LINE AND APPROPRIATE NOTE.
### Plan Only

- **Wing Type Headwall**
- **Valley Gutter**

### Proposed Construction

- **Ownership Indicated by Line Legend**

### Existing

- **Underground Utility**
  - With manhole and casing

### Legend

- TSI = Traffic Signal Interconnect
- E = Electric
- FA = Fire Alarm
- SL = Street Light
- CATV = Cable Television
- SS = Sanitary Sewer
- SD = Storm Drain
- W = Water
- S-G = Steel Gas
- PL-G = Plastic Gas
- T = Telephone

### Profile Only

- **Centerline Grade**
- **Top of Curb or Flow Line**
- **Pipe**
  - Or
  - Or
  - Or

### Specification Reference

<table>
<thead>
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<th>Uniform Standard Drawings</th>
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**AGENCY APPROVED:**

**DATE:** 12-12-96

**DWG. NO.** 101

**SHEET** 4 OF 4
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<tr>
<td>H</td>
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ABBREVIATIONS

- Power Pole
  PP

- Power
  P

- Property Line
  Prop

- Proposed
  PB

- Pull Box
  RP

- Radius Point
  RR

- Radius
  RR

- Railroad
  RC

- Reinforced
  RC

- Reinforced Concrete
  RCB

- Reinforced Concrete Pipe
  RCP

- Relocate
  Reloc

- Right
  RT

- Right-of-way
  R/W

- Road
  RD

- Sanitary Sewer
  SS

- South of
  S/o

- Sidewalk
  SW

- Square foot
  SF

- Square yard
  SY

- Station
  Sta

- Steel High-pressure Pipe
  SD

- Storm Drain
  SD

- Structural or Structure
  Struct

- Survey
  Surv

- Streetlight
  SL

- Telephone
  T

- Temporary
  Temp

- To Be Adjusted
  TBA

- To Be Removed
  TBR

- Transition
  Trans

- Typical
  Typ

- Underground
  UG

- Variance
  Var

- Vertical
  Vert

- Vertical Curve
  VC

- Valley Gutter
  VG

- Vitrified Clay Pipe
  VCP

- Water
  W

- Water Meter
  WM

- West of
  W/o

- Yard
  Yd
## Notes

1. This chart was constructed using the 1993 AASHTO Pavement Design Guide, NDOT Manual and the 2000 RTC Design Criteria, Section 401.01.02 of the Standard Specifications.

2. An average R-value may be used if it is representative of all project conditions.

3. Additional design compensation is required if expansive soils, hydro-collapsible soils, or soluble materials are present.

4. AC depths shown are minimums and 4" minimum Type II is required; other combinations that meet or exceed the structural number requirements are acceptable.

### Specification Reference

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### Uniform Standard Drawings

**Clack County Area**

**Pavement Structure Design Guideline Chart for Minor Collector and Residential Roadways**

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# PLANTMIX BITUMINOUS PAVEMENTS

## THE 2000 RTC DESIGN CRITERIA, SECTION 401.01.02 OF THE STANDARD SPECIFICATIONS.

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### Notes:
1. This chart was constructed using the 1993 AASHTO PAVEMENT DESIGN GUIDE, 199: I-NDOT MANUAL AND THE 2000 RTC DESIGN CRITERIA, SECTION 401.01.02 OF THE STANDARD SPECIFICATIONS.
2. A Traffic Study may be required if Ti > 9.5.
3. An average R-value may be used if it is representative of all project conditions.
4. Additional design compensation is required if expansive soils, hydro-collapsible soils, or soluble materials are present.
5. AC depths shown are minimums and 4" minimum type II is required. Other combinations that meet or exceed the structural number requirements are acceptable.

### Uniform Standard Drawings

**CLARK COUNTY AREA**

**PAVEMENT STRUCTURE DESIGN GUIDELINE CHART FOR MAJOR COLLECTOR AND ARTERIAL ROADWAYS**

**AGENCY APPROVED**

**B**

**C**

**H**

**L**

**M**

**N**

**DATE 11-10-04 DWG. NO. 200**
NOTE:

SEE STANDARD DRAWING NO. 245.1 (2 SHEETS) FOR TYPICAL LANE CONFIGURATIONS AND DIMENSIONS

* AT THE INTERSECTIONS OF 80 FT. AND 100 FT. STREETS, ADDITIONAL RIGHT-OF-WAY MAY BE REQUIRED FOR THE 80 FT. STREET. TYPICALLY, THESE 80 FT. STREETS WILL BE IDENTIFIED AS ARTERIALS IN THE REGIONAL TRANSPORTATION PLAN.

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

ADDITIONAL RIGHT-OF-WAY REQUIRED AT MAJOR INTERSECTIONS

DATE 7-10-03 DWG. NO. 201.1
INTERSECTION SIGHT VISIBILITY ZONE

THE SIGHT VISIBILITY ZONE CREATED BY "C" AND "D" IS NOT REQUIRED IF THE INTERSECTION IS CONTROLLED BY AN EXISTING TRAFFIC SIGNAL.

MAJOR STREET (FOR A AND B ONLY)
MINOR STREET (FOR C AND D ONLY)

SIGHT VISIBILITY LINE

SEE SHEETS 3 THROUGH 8 FOR TYPICAL INTERSECTION SIGHT VISIBILITY ZONE LIMITS

NOTE: FOR SIGHT ZONE DIMENSIONS, SEE SETBACK TABLE ON SHEET 2 OF THIS STANDARD DRAWING.
1. Each corner of every intersection shall have a sight visibility zone regardless of right-of-way width.

2. No walls, fences, shrubs, utility appurtenances or any other object, other than traffic control devices, fire hydrants, trees, and street light poles, may be constructed or installed within the sight visibility zone unless said object is maintained at least 24 inches in height, measured from top of curb, or where no curb exists, a height of 27 inches measured from the top of adjacent asphalt, gravel or pavement street surface. This restriction extends along the sight visibility line through landscaped medians.

3. At intersections where the classification of major and minor streets cannot be permanently established, each leg of the intersection must be analyzed as if the approach leg is a minor street intersecting a major street. The portions of the sight visibility zone labeled "N/A" in the set back table are not required. At "T" intersections, the terminating leg will always be the minor street.

4. Curving roadways and roadways with intersecting angles greater than 10 degrees must be analyzed as if using D1, D2, the eye position, and the car position as shown in the information above.

5. Use of a sight visibility zone one different than that shown herein shall require a sight visibility analysis prepared and submitted for approval to the local entity engineer by a civil engineer registered in the state of Nevada.

6. The area within the limits of the arc and the chord at the curb return (offset 5' from back of curb) shall be added to the sight visibility zone one at each corner of every intersection, except for 80 x 80 intersections or greater.

7. On-street parking shall be prohibited within areas designated by dimensions "A" and "D" on sheet 1 of this drawing. Subject to the approval of the traffic engineer or design representative of the entity having jurisdiction.

8. Trees with a mature single trunk diameter less than 10 inches, a canopy height greater than 8 feet, a minimum spacing greater than one half the roadway width (back of curb to back of curb), and a minimum of 30 feet from the nearest curb return will be allowed in the sight visibility zone one, subject to the approval of the entity having jurisdiction.

9. Consult the AASHTO publication a policy on geometric design of highways and streets for right-of-ways greater than 100:

**Basis for Analysis**

The following criteria was used as the basis for design of sight visibility zones:

AASHTO PUBLICATION A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, 2011 EDITION, CHAPTER IX, USING THE FOLLOWING CRITERIA:

- **Case B3** - Crossing Maneuver
- **Case B1** - Left Turn Maneuver onto a Major Street
- **Case B2** - Right Turn Maneuver onto a Major Street

The analysis used a design speed equal to the posted speed divided by 0.85 (rounded to the nearest 5 mph increment). Car and eye positions are as shown on sheet 1 of this drawing.
<table>
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<tr>
<th>Right-of-Way</th>
<th>Typical Sight Visibility Zones for Commercial Driveway Approaches</th>
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<td>![Diagram of 101' Right-of-Way Sight Visibility Zone]</td>
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**Typical Sight Visibility Zones for Commercial Driveway Approaches**

**Agency Approved**

<table>
<thead>
<tr>
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<th>B</th>
<th>C</th>
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**Uniform Standard Drawings**

**Clark County Area**

**Sight Visibility Zones**

**At Intersections**

**Specification Reference**

---

**Date 01-09-20**

**DWG. NO. 201.2**

**Sheet 3 of 8**
### TYPICAL SIGHT VISIBILITY ZONES FOR 48-FT RIGHT-OF-WAY ROADWAY APPROACHES

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<th>Right-Of-Way Width</th>
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<th>SIGHT VISIBILITY ZONE</th>
<th>Centerline</th>
<th>SIGHT VISIBILITY ZONE</th>
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<tr>
<td>48-FT RIGHT-OF-WAY</td>
<td>12' 79.0&quot;</td>
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<td>12' 79.0&quot;</td>
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<tr>
<td>51-FT RIGHT-OF-WAY</td>
<td>11' 87.0&quot;</td>
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<td>11' 87.0&quot;</td>
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<td>60-FT RIGHT-OF-WAY</td>
<td>10' 97.0&quot;</td>
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<td>10' 97.0&quot;</td>
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<td>80-FT RIGHT-OF-WAY</td>
<td>11' 101.0&quot;</td>
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<td>100-FT RIGHT-OF-WAY</td>
<td>12' 105.0&quot;</td>
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</table>

**TYPICAL SIGHT VISIBILITY ZONES FOR 48-FT RIGHT-OF-WAY ROADWAY APPROACHES**

**AGENCY APPROVED**

**DATE 01-09-20**

**DWG. NO. 201.2**

**CLARK COUNTY AREA**

**SHEET 4 OF 8**
TYPICAL SIGHT VISIBILITY ZONES FOR 80-FT RIGHT-OF-WAY ROADWAY APPROACHES

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SIGHT VISIBILITY ZONES
AT INTERSECTIONS

DATE 01-09-20  DWG. NO. 201.2  SHEET 7 OF 8
TYPICAL SIGHT VISIBILITY ZONES FOR 100-FT RIGHT-OF-WAY ROADWAY APPROACHES

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SIGHT VISIBILITY ZONES
AT INTERSECTIONS

DATE 01-09-20  DWG. NO. 201.2  SHEET 8 OF 8
**NOTES**

A traffic chord easement will be required at this corner.

**BACK OF CURB RADIUS**

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<thead>
<tr>
<th>&quot;B&quot;</th>
<th>0 OR LESS</th>
<th>80 OR MORE</th>
<th>100 OR MORE</th>
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**PROPERTY LINE RADIUS**

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<td>0 OR LESS</td>
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<td>80 OR MORE</td>
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<tr>
<td>100 OR MORE</td>
<td>30</td>
<td>35</td>
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</tr>
</tbody>
</table>

A traffic chord easement at each intersection where required.

**SPECIFICATION REFERENCE**

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

MINIMUM PROPERTY LINE AND BACK OF CURB RADIUS

COMPLETE STREET ALTERNATIVE

DATE 07-01-12  DWG. NO. 201.3.S1
PROPERTY LINES SHALL BE PARALLEL AND RADIAL TO THE BACK OF CURB AT A DISTANCE CONSISTENT WITH THE STANDARD STREET SECTIONS DRAWING NUMBERS.

- PROPERTY LINE RADIUS SHALL BE A MINIMUM OF 54 FEET.
- PROPERTY LINE RADIUS SHALL BE A MINIMUM OF 40 FEET.

### NOTES

**RIGHT-OF-WAY LINE**

**BACK OF CURB RADIUS SHOWN IN TABLE**

<table>
<thead>
<tr>
<th>&quot;B&quot;</th>
<th>0.0 OR LESS</th>
<th>80</th>
<th>100 OR MORE</th>
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<tr>
<td>100</td>
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### MINIMUM BACK OF CURB RADIUS

**AGENCY APPROVED**

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**SPECIFICATION REFERENCE**

**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**DATE 11-10-04**

**DWG. NO.** 201
NOTES

1. FINAL A.C. PAVEMENT SURFACE SHALL BE 1/2" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING 200.

3. THE FINAL A.C. PAVEMENT SURFACE MATERIAL REQUIREMENTS ARE:

<table>
<thead>
<tr>
<th>JURISDICTION</th>
<th>A.C. PAVEMENT SURFACE MATERIAL</th>
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</thead>
<tbody>
<tr>
<td>CLV, NLV</td>
<td>1-INCH UTACS</td>
</tr>
<tr>
<td>CC, MES, BC</td>
<td>FOG SEAL</td>
</tr>
<tr>
<td>HEN</td>
<td>FOG SEAL AND/OR OPEN GRADE</td>
</tr>
</tbody>
</table>

4. PRIME COAT IS NOT REQUIRED IN LAS VEGAS, HENDERSON, MESQUITE, AND BOULDER CITY WHEN A.C. THICKNESS IS ≥ 5 IN.

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

ARTERIAL
URBAN AREA STREET SECTIONS

SPECIFICATION REFERENCE

01-09-20
DWG. NO. 202
NOTES

1. FINAL A.C. PAVEMENT SURFACE (INCLUDING UTACS OR OPEN GRADE) SHALL BE 3/4" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES. DENSE GRADE SHALL BE FLUSH WITH LIP OF GUTTER.

2. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING NO. 200.

3. THIS STANDARD IS AN ALTERNATE STREET SECTION TO BE USED AT LOCATIONS DETERMINED BY EACH LOCAL JURISDICTION. NO ABOVE GROUND OBJECTS SHALL BE PLACED WITHIN THE 5 FOOT SIDEWALK.

4. UNDERGROUND DRY UTILITIES SHALL BE PLACED IN A UTILITY CORRIDOR UNDER THE SIDEWALK.

5. OVERLAY 1" UTACS UNLESS OTHERWISE REQUIRED BY THE AGENCY.

SPECIFICATION REFERENCE

<table>
<thead>
<tr>
<th>AGENCY APPROVED</th>
<th>B</th>
<th>C</th>
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<th>L</th>
<th>M</th>
<th>N</th>
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<td>CLARK COUNTY AREA</td>
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<td>302</td>
<td>AGGREGATE BASE</td>
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<td></td>
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<tr>
<td>401</td>
<td>BITUMINOUS PAVEMENT</td>
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<td>403</td>
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DATE 01-09-20 DWG. NO. 203.1.S1

SUPPLEMENTAL DRAWING

PRIMARY ARTERIAL COMPLETE STREET ALTERNATIVE
NOTES

1. FINAL A.C. PAVEMENT SURFACE SHALL BE 1/2" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING NO. 200.

3. THE FINAL A.C. PAVEMENT SURFACE MATERIAL REQUIREMENTS ARE:

4. THIS STANDARD IS AN ALTERNATE STREET SECTION TO BE USED AT LOCATIONS DETERMINED BY EACH LOCAL JURISDICTION. NO ABOVE GROUND OBJECTS SHALL BE PLACED WITHIN THE 5 FOOT SIDEWALK.

5. UNDERGROUND DRY UTILITIES SHOULD BE PLACED IN A UTILITY CORRIDOR UNDER THE SIDEWALK. INCREASE PAVEMENT WIDTH BY 11 FEET ON EACH SIDE OF ROADWAY FOR AN 8 LANE CROSS SECTION. PRIME COAT IS NOT REQUIRED IN LAS VEGAS, HENDERSON, MESQUITE, AND BOULDER CITY WHEN A.C. THICKNESS IS ≥ 5 IN.

AGENCY APPROVED

CLARK COUNTY AREA

UNIFORM STANDARD DRAWINGS

ARTERIAL ALTERNATE URBAN AREA STREET SECTIONS WITH OFFSET SIDEWALK

SPECIFICATION REFERENCE

| 302  | AGGREGATE BASE |
| 401  | BITUMINOUS PAVEMENT |
| 403  | OPEN GRADE |
| 413  | BITUMINOUS GAP GRADED PAVEMENT |
| 501  | CONCRETE |

DATE 01-09-20  DWG. NO. 203
NOTES

1. FINAL A.C. PAVEMENT TO BE 1/2" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. THE GRADE BREAK OCCURRING IN THE CROSS SECTION SHALL FALL BETWEEN DRIVING LINES.

3. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING NO. 200 AND 200.1.

4. THIS STANDARD IS AN ALTERNATE STREET SECTION TO BE USED AT LOCATIONS DETERMINED BY EACH LOCAL JURISDICTION. NO ABOVE GROUND OBJECTS SHALL BE PLACED WITHIN THE 5 FOOT SIDEWALK.

5. UNDERGROUND DRY UTILITIES SHOULD BE PLACED IN A UTILITY CORRIDOR UNDER THE SIDEWALK.

6. THE FINAL A.C. PAVEMENT SURFACE MATERIAL REQUIREMENTS ARE:

<table>
<thead>
<tr>
<th>JURISDICTION</th>
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<tr>
<td>CLV, NLV</td>
<td>1-INCH UTACS</td>
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<td>FOG SEAL</td>
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<tr>
<td>HEN</td>
<td>FOG SEAL AND/OR OPEN GRADE</td>
</tr>
</tbody>
</table>

7. PRIME COAT IS NOT REQUIRED IN LAS VEGAS, HENDERSON, MESQUITE, OR BOULDER CITY WHEN A.C. THICKNESS ≥5 IN.
MAJOR COLLECTOR WITHOUT MEDIAN ISLAND

MAJOR COLLECTOR WITH MEDIAN ISLAND

NOTES

1. FINAL A.C. PAVEMENT TO BE 1/2" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. THE GRADE BREAK OCCURRING IN THE CROSS SECTION SHALL FALL BETWEEN DRIVING LANES.

3. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING NOS. 200 AND 200.1.

4. THIS STANDARD IS AN ALTERNATE STREET SECTION TO BE USED AT LOCATIONS DETERMINED BY EACH LOCAL JURISDICTION. NO ABOVE GROUND OBJECTS SHALL BE PLACED WITHIN THE 5 FOOT SIDEWALK.

5. UNDERGROUND DRY UTILITIES SHOULD BE PLACED IN A UTILITY CORRIDOR UNDER THE SIDEWALK.

☐ OVERLAY 1" UTACS UNLESS OTHERWISE REQUIRED BY THE AGENCY.
NOTES

1. FINAL A.C. PAVEMENT TO BE 1/2" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. THE GRADE BREAK OCCURRING IN THE CROSS SECTION SHALL FALL BETWEEN DRIVING LANES.

3. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING NOS. 200 AND 200.1.

4. THIS STANDARD IS A COMPLETE STREET ALTERNATE STREET SECTION TO BE USED AT LOCATIONS DETERMINED BY EACH LOCAL JURISDICTION. NO ABOVE GROUND OBJECTS SHALL BE PLACED WITHIN THE 5 FOOT SIDEWALK.

5. UNDERGROUND DRY UTILITIES SHALL BE PLACED IN A UTILITY CORRIDOR UNDER THE SIDEWALK.

SPECIFICATION REFERENCE

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<tr>
<th>SPECIFICATION</th>
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<td>407</td>
<td>PRIME COAT</td>
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<td>407</td>
<td>FOG SEAL</td>
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<td>501</td>
<td>CONCRETE</td>
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</table>

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

MINOR COLLECTOR

COMPLETE STREET ALTERNATIVE

DATE 01-09-20  DWG. NO. 205.3.S1
NOTES

1. FINAL A.C. PAVEMENT TO BE 1/2" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. THE GRADE BREAK OCCURRING IN THE CROSS SECTION SHALL FALL BETWEEN DRIVING LANES.

3. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING NOS. 200 AND 200.1.

4. PRIME COAT IS NOT REQUIRED IN LAS VEGAS, HENDERSON, MESQUITE OR BOULDER CITY WHEN A.C. THICKNESS ≥ 5 IN.

5. 4 INCH MINIMUM THICKNESS REQUIRED IN HENDERSON, MESQUITE AND BOULDER CITY.

THE FINAL A.C. PAVEMENT SURFACE MATERIAL REQUIREMENTS ARE:

JURISDICTION | A.C. PAVEMENT SURFACE MATERIAL |
-------------|-------------------------------|
CLV, NLV | 1-INCH UTACS (80-FT OR GREATER) |
CC, MES, BC | FOG SEAL |
HEN | FOG SEAL AND/OR OPEN GRADE |

AGENCY APPROVED B C H L M N R

SPECIFICATION REFERENCE

302 AGGREGATE BASE
401 BITUMINOUS PAVEMENT
407 PRIME COAT
408 FOG COAT
413 BITUMINOUS GAP GRADED PAVEMENT
501 CONCRETE

DATE 01-09-20 DWG. NO. 205

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

COLLECTOR
URBAN AREA STREET SECTIONS
WITH CURBSIDE SIDEWALK
### RESIDENTIAL TWO-WAY LOCAL OR CUL-DE-SAC

**LOTS 40' WIDE OR LESS**

- **R/W**
- **47'**
- **L**
- **C**
- **18.5'**
- **FOG SEAL**

### RESIDENTIAL TWO-WAY LOCAL OR CUL-DE-SAC

**LOTS GREATER THAN 40' WIDE - SEE NOTE 3**

- **R/W**
- **47'**
- **15.5'**
- **8'**
- **5'**
- **6” MIN**

### NOTES

1. FINAL A.C. PAVEMENT SURFACE SHALL BE 1/4" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING NO. 200.1.

3. HOMES ADJACENT TO THIS STREET SECTION MAY REQUIRE SPRINKLERS PER AGENCY FIRE CODE.

### SPECIFICATION REFERENCE

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### UNIFORM STANDARD DRAWINGS

**CLARK COUNTY AREA**

### SUPPLEMENTAL DRAWING

**LOCAL RESIDENTIAL**

### COMPLETE STREET ALTERNATIVES

**DATE 01-09-20 DWG. NO. 206.1.S1**
RESIDENTIAL TWO-WAY LOCAL OR CUL-DE-SAC

OPTION "A"

ROLL TYPE CURB GUTTER
PERMISSIBLE ON SIDE
WITHOUT SIDEWALK.
SEE STANDARD DRAWING NO. 217.2.S1

RESIDENTIAL TWO-WAY LOCAL, CUL-DE-SAC (OPTION "B")

(NOT ALLOWED IN CLV OR CLARK COUNTY)

RESIDENTIAL ONE-WAY (NOT ALLOWED IN CLV OR CLARK COUNTY)

NOTES
1. FINAL A.C. PAVEMENT SURFACE SHALL BE 1/4" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.
2. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING NO. 200.1.
3. RESIDENTIAL ONE-WAY STREET SHALL NOT EXCEED ONE THOUSAND FEET OR TWENTY RESIDENTIAL LOTS IN LENGTH, WHICHER IS LESS.

AGENCY APPROVED C L N

SPECIFICATION REFERENCE
302 AGGREGATE BASE
401 BITUMINOUS PAVEMENT
404 PRIME COAT
407 FOG SEAL
501 CONCRETE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING
LOCAL RESIDENTIAL
URBAN AREA STREET SECTIONS

DATE 01-09-20 DWG. NO. 20...S1
NOTES

1. FINAL A.C. PAVEMENT SURFACE SHALL BE 1/4" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STANDARD DRAWING NO. 200.1.
NOTES

1. FINAL A.C. PAVEMENT SURFACE SHALL BE 1/4" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STD. DWG. NO. 200.1.

3. RESIDENTIAL ONE-WAY STREET SHALL NOT EXCEED ONE THOUSAND FEET OR TWENTY RESIDENTIAL LOTS IN LENGTH, WHICHERER IS LESS.
R/W

50' OR 40'

GRADE TO DRAIN
WITH SLOPE OR
DITCH

A.C. PAVEMENT
SEE NOTE 1

BASE
SEE NOTE 1

2%

COMMERCIAL/INDUSTRIAL LOCAL
OR MINOR RESIDENTIAL COLLECTOR
OR LOCAL RESIDENTIAL

ARTERIAL OR MAJOR COLLECTOR

2:1 MIN

GRADE TO DRAIN
WITH SLOPE OR
DITCH

A.C. PAVEMENT
SEE NOTE 1

BASE
SEE NOTE 1

30' OR LESS

2:1 MIN

NOTES:
1. A.C. PAVEMENT AND BASE THICKNESS SHALL BE IN ACCORDANCE TO STANDARD DRAWINGS NUMBER 202 THROUGH 206 S2, WHICHEVER IS APPLICABLE.
2. GREATER WIDTHS MAY BE REQUIRED IF TRAFFIC WARRANTS, AS DETERMINED BY THE ENGINEER.

<table>
<thead>
<tr>
<th>SPECIFICATION REFERENCE</th>
<th>UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA</th>
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<td>DATE DWG. NO. 208</td>
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AGENCY APPROVED B C H L M N

HALF STREET CONSTRUCTION SECTIONS
1. INTERSECTIONS SHALL HAVE 25 FOOT MINIMUM EDGE OF OIL RADII.

2. COMPACTION OF AGGREGATE BASE AND SUBGRADE PREPARATION SHALL BE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS".

3. STRUCTURAL SECTION SHOWN IS BASED ON A SUBGRADE "R" VALUE OF 20. OTHER STRUCTURAL SECTIONS MAY BE APPROVED IF BASED ON ENGINEERING ANALYSIS BASED ON "R" OR "CBR" VALUES DETERMINED BY SOIL TESTING. IN NO CASE SHALL THE A.C. THICKNESS BE LESS THAN THAT SHOWN, NOR SHALL THE BASE BE LESS THAN 4".

4. CULVERTS MAY BE REQUIRED AT DRIVEWAYS.
1. Intersections shall have 34 foot minimum edge of A.C. return radii.

2. Compaction of aggregate base and subgrade preparation shall be in accordance with the Uniform Standard Specifications.

3. Structural section shown is based on a subgrade "R" value of 20. Other structural sections may be approved if based on engineering analysis based on "R" or "CBR" values determined by soil testing.

4. Culverts may be required at driveways.

5. A.C. pavement shall be in accordance with Section 401 of the Uniform Standard Specifications. Alternate paving materials may be used at the discretion of the entity.

6. Pavement markings may be required and include double yellow centerline, raised pavement markers or yellow paint, and 4' offset white painted edgelines.

7. Pavement width and pavement thickness may be reduced to 28 feet (14 feet each direction) and 2 inches respectively based upon a determination by the local entity that the reduced width and thickness will provide satisfactory life and a safe roadway.

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<tr>
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<tbody>
<tr>
<td>302 AGGREGATE BASE</td>
<td>B C H L M N</td>
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<tr>
<td>401 BITUMINOUS PAVEMENT</td>
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Access Roads

(for use in hydrographic basin No. 212)

(PM-10 non-attainment areas)

Date 5-20-04  DWG. No. 209
NOTES:

1. INTERSECTIONS SHALL HAVE 25 FOOT MINIMUM EDGE OF OIL RADII OR 20 FOOT MINIMUM BACK OF CURB RADII.

2. COMPACTION OF AGREGATE BASE AND SUBGRADE PREPARATION SHALL BE IN ACCORDANCE WITH THE "STANDARD SPECIFICATION".

3. STRUCTURAL SECTION SHOWN IS BASED ON A SUBGRADE "R" VALUE OF 20. OTHER STRUCTURAL SECTIONS MAY BE APPROVED IF BASED ON ENGINEERING ANALYSIS BASED ON "R" OR "CBR" VALUES DETERMINED BY SOIL TESTING. IN NO CASE SHALL THE A.C. THICKNESS BE LESS THAN THAT SHOWN, NOR SHALL THE BASE BE LESS THAN 4" EXCEPT THAT THE BASE SHALL NOT BE LESS THAN 10" IN NORTH LAS VEGAS.

4. ALLOW IN CITY OF NORTH LAS VEGAS ONLY WITH EXPRESS WRITTEN PERMISSION FROM THE CITY ENGINEER.

SPECIFICATION REFERENCE

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

PRIVATE STREET SECTIONS

DATE 12-14-00  DWG. NO. 210
NOTES

1. FINAL A.C. PAVEMENT SURFACE SHALL BE 1/4" MAXIMUM ABOVE LIP OF GUTTER AFTER COMPACTION, EXCEPT WHERE THERE IS OVERLAP WITH PEDESTRIAN ACCESS ROUTES. CONNECTIONS BETWEEN PAVEMENT SURFACES, GUTTERS, AND CURB RAMPS WITHIN PEDESTRIAN ACCESS ROUTES SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES NO GREATER THAN 1/4", REGARDLESS OF CONSTRUCTION TOLERANCES.

2. STRUCTURAL SECTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 401 AND STD. DWG. NO. 200.1.

3. RESIDENTIAL ONE-WAY STREET SHALL NOT EXCEED ONE THOUSAND FEET OR TWENTY RESIDENTIAL LOTS IN LENGTH, WHICHERSOEVER IS LESS.
NOTES:
1. USE 2% SLOPE FROM INNER CURB TO CROWN LINE.
2. FROM CROWN LINE TO OUTER CURB, THE STANDARD SLOPE IS 0.90% (MIN).
3. ELEVATIONS REQUIRED ALONG CURBS (3) AND CROWN EVERY 1/4 (MIN).
4. KNUCKLES ARE ALLOWED ON RESIDENTIAL STREETS ONLY.
5. MINIMUM SLOPE ALONG THE BACK OF CURB OF CURVES (2) AND (3) SHALL BE 0.60% (MIN).
6. SPECIAL KNUCKLE DESIGNS INCLUDING LANDSCAPED MEDIAN ISLAND MAY BE PERMITTED, IF APPROVED BY THE COUNTY ENGINEER.
1. USE NORMAL SECTION FROM INNER CURB TO CENTER LINE.
2. FROM CROWN LINE TO OUTER CURB, THE STANDARD SLOPE IS 2\%.
3. SUPERELEVATION PERCENTAGES SHOWN ARE A STRAIGHT GRADE FROM CENTER LINE TO CROWN LINE.
4. ELEVATIONS ARE REQUIRED WHERE CIRCLES (⊙) ARE SHOWN.
5. KNUCKLES ARE NOT ALLOWED ON MAJOR COLLECTOR OR ARTERIAL STREETS.
NOTE:
IF BLOCK LENGTH IS 150\(\) OR LESS, HAMMERHEAD IS NOT REQUIRED.

INSTALL "NO PARKING BEYOND THIS POINT" SIGN BOTH SIDES OF STREET.

END SIDEWALK ON 48\(\) R/W STREET (OPTIONAL ONE SIDE ONLY)

NOTE:
USE OF THE HAMMERHEAD WILL BE ALLOWED IN SINGLE FAMILY RESIDENTIAL DWELLING AREAS ONLY.

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<tr>
<td></td>
<td>SUPPLEMENTAL DRAWING</td>
<td>HAMMERHEAD</td>
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DATE 11-10-04 | DWG. NO. 212.1.S1
1. ONLY 51' R/W AND PRIVATE STREET CUL-DE-SACS WILL BE ALLOWED IN THE CITY OF LAS VEGAS.

CITIES OF NORTH LAS VEGAS AND MESQUITE ONLY

ALL OTHER ENTITIES (CC, CLV, HEN, BC)

NOTES:

1. ONLY 51' R/W AND PRIVATE STREET CUL-DE-SACS WILL BE ALLOWED IN THE CITY OF LAS VEGAS.
SECTION A-A

2" MIN. A.C. PAVEMENT

PRIME COAT

1-1/2" INVERTED CROWN

FOG SEAL

4" TYPE II AGGREGATE BASE

MIN. TYPE I AGGREGATE BASE

SECTION B-B

1/2" PREMOLD EXPANSION JOINT FILLER, JOINTS EVERY 30'

NO. 4 BARS 12" O.C. BOTH WAYS

STANDARD 1/2" GALVANIZED PIPE WITH END PLUG. GREASE REINFORCING STEEL PRIOR TO PIPE INSTALLATION.
1-1/2" INVERTED CROWN
8" TYPE II
AGGREGATE BASE

No. 4 bars at 12" O.C. both ways

No. 4 bars to discontinue within 2" of joint material

Weakened plane joints 1/4" max. width by 2" depth sawcut

Building or curb line
1/2" premold expansion joint filler

If no building or curb exists, thicken edge to 8" total depth

Section B-B

1/2" premold expansion joint filler, joints every 30'

No. 4 bars 12" O.C. both ways

Standard 1/2" galvanized pipe with end plug. Grease reinforcing steel prior to pipe installation.

Section A-A

Agency Approved

Specification Reference

Uniform Standard Drawings
Clark County Area
Supplemental Drawing

Alley, Concrete

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<td>SPECIFICATION REFERENCE</td>
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<td>REINFORCING STEEL</td>
<td>JOINT MATERIAL</td>
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Date 12-14-00 DWG. NO. 215.S1
HOLDING GUTTER FOR DRAINAGE

1/2" EXPANSION JOINT AT ALL COLD JOINTS, AT BEGINNING AND END OF RETURN AND AT 300' MAX. INTERVALS FOR EXTRUDED CURB AND 30' MAX. INTERVALS FOR FORMED CURB. FOR JOINT DETAIL SEE STANDARD DRAWING NUMBER 234

NOTES:
1. 1" BATTER ON GUTTER FACE OPTIONAL.
NOTES:
1. 1" BATTER ON GUTTER FACE OPTIONAL.
2. WHERE LONGITUDINAL SLOPE IS LESS THAN 0.4%, THE FLOW LINE SHALL BE WATER TESTED.

PLAN

1/2" EXPANSION JOINT AT ALL COLD JOINTS, AT BEGINNING AND END OF RETURN AND AT 300' MAX. INTERVALS FOR EXTRUDED CURB AND 30' MAX. INTERVALS FOR FORMED CURB. FOR JOINT DETAIL SEE STANDARD DRAWING NUMBER 234

TYPICAL SECTION

1/2" EXPANSION JOINT AT ALL COLD JOINTS, AT BEGINNING AND END OF RETURN AND AT 300' MAX. INTERVALS FOR EXTRUDED CURB AND 30' MAX. INTERVALS FOR FORMED CURB. FOR JOINT DETAIL SEE STANDARD DRAWING NUMBER 234
1. USE OF ROLL CURB MAY BE RESTRICTED BY SURFACE DRAINAGE CONSIDERATIONS.
2. SIDEWALK CONSTRUCTED CONTIGUOUS TO ROLL CURB SHALL BE 5 INCHES THICK (MIN.).
3. ALL CURB FLOW LINES SHALL BE WATER TESTED. ANY CURB THAT DOES NOT FLOW
   SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE PERMITTING AGENCY
   AT THE SOLE EXPENSE OF THE CONTRACTOR.
4. CONSTRUCT 1/2" EXPANSION JOINT AT ALL COLD JOINTS, AT BEGINNING AND END OF
   CURB RETURNS, AND AT 300 FT. MAX. INTERVALS FOR EXTRUDED CURB AND 30 FT.
   MAX. INTERVALS FOR FORMED CURB. WEAKENED PLANE JOINTS SHALL BE FORMED AT
   THE REMAINING 15 FT. INTERVALS. SEE STD. DWG. NO. 234 FOR JOINT DETAILS.
5. ONE INCH BATTER AT CURB FACE IS OPTIONAL.
6. NO UTILITY BOXES AND COVERS ADJACENT TO 30 INCH MODIFIED ROLL CURB AND GUTTER
   RESIDENTIAL AREA SHALL BE ALLOWED AT DRIVEWAY LOCATIONS.
7. BOULDER CITY ENGINEER APPROVAL REQUIRED FOR USE OF 30 INCH MODIFIED CURB AND GUTTER
   RESIDENTIAL AREA.
8. IF ROLL CURB IS APPROVED FOR OTHER LOCATIONS THAT ARE SUBJECT TO REGULAR TRAFFIC,
   THEN UTILITY BOXES AND COVERS ADJACENT TO ROLL CURB SHALL MEET H20-44 FOR STEEL BOXES
   AND ANSI/SCTE 77-2007 (TIER-22) FOR FIBERGLASS POLYMER CONCRETE BOXES RATED "TRAFFIC
   BEARING" TYPE.
1. USE OF ROLL CURB MAY BE RESTRICTED BY SURFACE DRAINAGE CONSIDERATIONS.
2. SIDEWALK CONSTRUCTED CONTIGUOUS TO ROLL CURB SHALL BE 5 INCHES THICK (MIN).
3. WHERE LONGITUDINAL SLOPE IS LESS THAN 0.4% THE FLOW LINE SHALL BE WATER TESTED.
4. CONSTRUCT 1/2" EXPANSION JOINT AT ALL COLD JOINTS, AT BEGINNING AND END OF CURB RETURNS,
   AND AT 300 FT. MAX. INTERVALS FOR EXTRUDED CURB AND 30 FT. MAX. INTERVALS FOR FORMED CURB.
   WEAKENED PLANE JOINTS SHALL BE FORMED AT THE REMAINING 15 FT. INTERVALS. SEE STD. DWG.
   NO. 234 FOR JOINT DETAILS.
5. ONE INCH BATTER AT CURB FACE IS OPTIONAL.
6. CITY OF LAS VEGAS COUNCIL APPROVAL REQUIRED FOR USE OF 30" ROLL CURB IN THE CITY OF
   LAS VEGAS.
7. IN NORTH LAS VEGAS, ROLL CURBS ARE PROHIBITED IN AREAS WHERE FLOW LINE GRADIENT IS LESS
   THAN 0.8% UNLESS OTHERWISE APPROVED BY CITY ENGINEER.
8. NO UTILITY BOXES AND COVERS ADJACENT TO 30 INCH MODIFIED ROLL CURB AND GUTTER
   RESIDENTIAL AREA SHALL BE ALLOWED AT DRIVEWAY LOCATIONS.
9. IF ROLL CURB IS APPROVED FOR OTHER LOCATIONS THAT ARE SUBJECTED TO REGULAR TRAFFIC,
   THEN UTILITY BOXES AND COVERS ADJACENT TO ROLL CURB SHALL MEET H20-44 FOR STEEL BOXES
   AND ANSI/SCTE 77-2007 (TIER-22) FOR FIBERGLASS POLYMER CONCRETE BOXES RATED "TRAFFIC
   BEARING" TYPE.

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<td>320</td>
<td>30 INCH ROLL CURB</td>
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<td>RESIDENTIAL AREA</td>
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<td>DATE 01-01-17 DWG. NO. 217.2.S1</td>
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</table>
1. WHERE LONGITUDINAL SLOPE IS LESS THAN 0.4% THE FLOW LINE SHALL BE WATER TESTED.

2. CONSTRUCT 1/2" EXPANSION JOINT AT ALL COLD JOINTS, AT BEGINNING AND END OF CURB RETURNS, AND AT 300 FT. MAX. INTERVALS FOR EXTRUDED CURB AND 30 FT. MAX. INTERVALS FOR FORMED CURB. WEAKENED PLANE JOINTS SHALL BE FORMED AT THE REMAINING 15 FT. INTERVALS. SEE STD. DWG. NO. 234 FOR JOINT DETAILS.

3. ONE INCH BATTER AT GUTTER FACE IS OPTIONAL. WEAKENED PLANE JOINTS SHALL BE FORMED AT THE REMAINING 15 FT. INTERVALS. SEE STD. DWG. NO. 234 FOR JOINT DETAILS.

4. NO UTILITY BOXES AND COVERS ADJACENT TO R-TYPE CURB SHALL BE ALLOWED AT DRIVEWAY LOCATIONS.

5. IF R-TYPE CURB IS APPROVED FOR OTHER LOCATIONS THAT ARE SUBJECTED TO REGULAR TRAFFIC, THEN UTILITY BOXES AND COVERS ADJACENT TO R-TYPE CURB SHALL MEET H20-44 FOR STEEL BOXES AND ANSI/SCTE 77-2007 (TIER-22) FOR FIBERGLASS POLYMER CONCRETE BOXES RATED "TRAFFIC BEARING" TYPE.

6. FOR NEW CONSTRUCTION ON RESIDENTIAL SUBDIVISION STREETS ONLY.

NOTES:

1. WHERE LONGITUDINAL SLOPE IS LESS THAN 0.4% THE FLOW LINE SHALL BE WATER TESTED.

2. CONSTRUCT 1/2" EXPANSION JOINT AT ALL COLD JOINTS, AT BEGINNING AND END OF CURB RETURNS, AND AT 300 FT. MAX. INTERVALS FOR EXTRUDED CURB AND 30 FT. MAX. INTERVALS FOR FORMED CURB. WEAKENED PLANE JOINTS SHALL BE FORMED AT THE REMAINING 15 FT. INTERVALS. SEE STD. DWG. NO. 234 FOR JOINT DETAILS.

3. ONE INCH BATTER AT GUTTER FACE IS OPTIONAL.

4. NO UTILITY BOXES AND COVERS ADJACENT TO R-TYPE CURB SHALL BE ALLOWED AT DRIVEWAY LOCATIONS.

5. IF R-TYPE CURB IS APPROVED FOR OTHER LOCATIONS THAT ARE SUBJECTED TO REGULAR TRAFFIC, THEN UTILITY BOXES AND COVERS ADJACENT TO R-TYPE CURB SHALL MEET H20-44 FOR STEEL BOXES AND ANSI/SCTE 77-2007 (TIER-22) FOR FIBERGLASS POLYMER CONCRETE BOXES RATED "TRAFFIC BEARING" TYPE.

FOR NEW CONSTRUCTION ON RESIDENTIAL SUBDIVISION STREETS ONLY.
1. Construct weakened plane joint in curb and slab at same location every 10'.
   Construct expansion joints every 300' for concrete slab to match curb joints.
   For joint details see standard drawing number 234.

2. "L"-type curb and gutter per standard drawing number 219 is required in the City of Henderson and may be required for drainage considerations.

3. When curb machine is used to place curb, a 2" minimum leveling course of type II aggregate base is required.

Notes:

- Min. type I or type II aggregate base under curb and gutter

Agency Approved

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<td>MEDIAN ISLAND</td>
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<td>TYPICAL SECTION</td>
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Date 12-14-00  Dwg. No. 218
"L" CURB SECTION

HOLDING GUTTER WHERE REQUIRED FOR DRAINAGE

FLOWLINE

1/2" EXPANSION JOINT AT ALL COLD JOINTS, AT BEGINNING AND END OF RETURN AND AT 300' MAX. INTERVALS FOR EXTRUDED CURB AND 30' MAX. INTERVALS FOR FORMED CURB. FOR JOINT DETAIL SEE STANDARD DRAWING NUMBER 234

NOTES:
1. CONTINUOUS NO. 4 BAR REQUIRED IN NOSE OF MEDIAN ONLY.
2. 1" BATTER ON GUTTER FACE OPTIONAL.

"A" CURB SECTION

WEAKENED PLANE JOINTS
SEE STANDARD DRAWING NUMBER 234

TYPICAL PLAN

1/2" EXPANSION JOINT AT ALL COLD JOINTS, AT BEGINNING AND END OF RETURN AND AT 300' MAX. INTERVALS FOR EXTRUDED CURB AND 30' MAX. INTERVALS FOR FORMED CURB. FOR JOINT DETAIL SEE STANDARD DRAWING NUMBER 234

NOTES:
1. CONTINUOUS NO. 4 BAR REQUIRED IN NOSE OF MEDIAN ONLY.
2. 1" BATTER ON GUTTER FACE OPTIONAL.
1/2" RADIUS ROUNDED EDGE ON ALL EXPOSED CORNERS

CONCRETE

VARIES

NO. 4 BAR CONTINUOUS

EXISTING A.C. PAVEMENT

NO. 4 BARS AT 10’ CENTERS 18" LONG

SECTION

EXPANSION JOINT AT 30’ MAX INTERVALS AND AT BEGINNING AND END OF RETURN

WEAKENED PLANE JOINT

10’ (TYP.)

10’ (TYP.)

NO. 4 BAR CONTINUOUS

DIRECTION OF TRAFFIC

3” (TYP.)

NO. 4 BARS 18’ LONG AT 10’ CENTERS STAGGER WITH EXPANSION JOINTS

SIDE VIEW

NOTES:

1. FOR EXPANSION JOINT AND WEAKENED PLANE JOINT DETAIL, SEE STANDARD DRAWING NO. 234.

2. WHEN APPROVED BY THE ENGINEER/ENTITY, STRUCTURAL EPOXY ADHESIVE MAY BE USED IN LIEU OF NUMBER 4 DOWEL BAR EXCEPT AT CURB NOSE AND WITHIN 2 FEET OF ANY POINT OF CURVATURE.
NOTES:
1. FOR EXPANSION JOINT AND WEAKENED PLANE JOINT DETAIL, SEE STANDARD DRAWING NO. 234.
2. WEAKENED PLANE JOINTS EVERY 10' STAGGER WITH NO. 4 BARS.
3. ALL REINFORCING STEEL SHALL HAVE 2" CLEAR COVER UNLESS OTHERWISE SHOWN.
4. WHEN APPROVED BY THE ENGINEER/ENTITY, STRUCTURAL EPOXY ADHESIVE MAY BE USED IN LIEU OF NUMBER 4 DOWEL BAR EXCEPT AT CURB NOSE AND WITHIN 2 FEET OF ANY POINT OF CURVATURE.
CURVE DATA

1. LOCATE ST. LT. CENTERED IN MEDIAN

PCC ISLAND CURB PER
STD. DWG. NO. 220
(TYP.)

NOTES:

1. INSTALL R5-1
2. INSTALL R3-2
3. STREETLIGHT LOCATION
   STANDARD FOR THE CITY OF
   HENDERSON OR IF SPECIFIED
   BY THE ENGINEER.
4. DETAIL MAY BE USED FOR
   INTERSECTIONS OF STREETS
   WITH R/W 0 FEET OR LESS
   IF APPROVED BY THE
   ENTITY ENGINEER. SPECIAL
   MEDIAN DESIGN IS REQUIRED
   FOR INTERSECTING STREETS
   WITH R/W GREATER THAN
   0 FEET.

14. MEDIAN WIDTH, CURB FACE TO CURB
FACE (TYP.) PER STD DWG . 218

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

CHANNELIZED MEDIAN DETAIL
FOR COMMERCIAL DRIVEWAYS OR
INTERSECTING STREETS

DATE 6-9-11 DWG. NO. 221
COMMERCIAL AND MULTI-FAMILY DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DRAWING NUMBERS 224, 225, 228, 235 AND 235.1.

1. LOCAL ORDINANCES AND POLICIES MAY APPLY AND SHALL HAVE PRECEDENCE. SEE NDOT ACCESS POLICY FOR STATE ROADWAYS.

2. THE TOTAL WIDTH "W" OF DRIVEWAY CURB OPENINGS SHALL NOT EXCEED 65% OF FRONT FOOTAGE.

3. NO DRIVEWAY SHALL BE LOCATED WITHIN 6 FEET OF A LIGHT POLE (UNLESS APPROVED BY THE ENTITY TRAFFIC ENGINEER), FIRE HYDRANT, MAIL BOX, ABOVE-GROUND ELECTRICAL TRANSFER BOX, OR BLOCK WALL HIGHER THAN 2 FEET.

4. THE CENTERLINES OF THE DRIVEWAYS ON OPPOSITE SIDES OF THE STREET AT A MEDIAN OPENING SHOULD BE WITHIN 10' FROM EACH OTHER AT THE MEDIAN OPENING.

5. GEOMETRICS APPLY TO NEW CONSTRUCTION ONLY, AND EXCEPTIONS MAY BE GRANTED BY THE APPROVAL OF THE AGENCY TRAFFIC ENGINEER BASED ON SITE CONSTRAINTS.

6. HANDICAPPED ACCESSIBLE SIDEWALKS SHALL BE PROVIDED ADJACENT TO DRIVEWAYS TO THE P.C. OF THE ONSITE CURB RETURN, MINIMUM, OR AT AN ALTERNATE LOCATION.

7. WHEN A PROPERTY LINE FALLS IN A MEDIAN OPENING A JOINT DRIVEWAY AGREEMENT SHALL BE REQUIRED OR NO DRIVEWAY WILL BE ALLOWED.

**NOTES:**

1. COMMERCIAL AND MULTI-FAMILY DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DRAWING NUMBERS 224, 225, 228, 235 AND 235.1.

2. LOCAL ORDINANCES AND POLICIES MAY APPLY AND SHALL HAVE PRECEDENCE. SEE NDOT ACCESS POLICY FOR STATE ROADWAYS.

3. THE TOTAL WIDTH "W" OF DRIVEWAY CURB OPENINGS SHALL NOT EXCEED 65% OF FRONT FOOTAGE.

4. NO DRIVEWAY SHALL BE LOCATED WITHIN 6 FEET OF A LIGHT POLE (UNLESS APPROVED BY THE ENTITY TRAFFIC ENGINEER), FIRE HYDRANT, MAIL BOX, ABOVE-GROUND ELECTRICAL TRANSFER BOX, OR BLOCK WALL HIGHER THAN 2 FEET.

5. THE CENTERLINES OF THE DRIVEWAYS ON OPPOSITE SIDES OF THE STREET AT A MEDIAN OPENING SHOULD BE WITHIN 10' FROM EACH OTHER AT THE MEDIAN OPENING.

6. GEOMETRICS APPLY TO NEW CONSTRUCTION ONLY, AND EXCEPTIONS MAY BE GRANTED BY THE APPROVAL OF THE AGENCY TRAFFIC ENGINEER BASED ON SITE CONSTRAINTS.

7. HANDICAPPED ACCESSIBLE SIDEWALKS SHALL BE PROVIDED ADJACENT TO DRIVEWAYS TO THE P.C. OF THE ONSITE CURB RETURN, MINIMUM, OR AT AN ALTERNATE LOCATION.

8. WHEN A PROPERTY LINE FALLS IN A MEDIAN OPENING A JOINT DRIVEWAY AGREEMENT SHALL BE REQUIRED OR NO DRIVEWAY WILL BE ALLOWED.
J. THROAT DEPTH FOR SECURITY GATE
50: MINIMUM FOR 1 TO 49 HOMES OR APT. UNITS TO VISITOR CALL BOX.
100: MINIMUM FOR 50 TO 100 HOMES OR APT. UNITS TO VISITOR CALL BOX.
GREATER THAN 100 HOMES OR APT. UNITS REQUIRE TRAFFIC STUDY

DIMENSIONS FOR SECURITY GATE
CONTROLLED DRIVEWAY DETAIL

D. ISLAND
LENGTH- 20: MINIMUM
WIDTH- 4: MINIMUM

G. 15: MINIMUM

E. 48: MINIMUM

H. 8: MINIMUM □ 15: MAXIMUM

DETAIL FOR SECURITY GATE
CONTROLLED DRIVEWAYS
1. All residential properties may have only one curb cut except circular driveways as shown.
2. Local ordinances may apply and shall have preference.
3. No driveway shall be located wholly or partially, on or over a utility easement which runs perpendicular to the curb line.
4. No driveway shall be located within 6 feet of a light pole (unless accepted by the entity traffic engineer), fire hydrant, mail box, above-ground electrical transfer box, block wall higher than 2 feet, or the curb return at a street intersection or alley.
5. Common driveway construction may be permitted at any two residential properties of 60 feet in width or less. The width of the joint driveway shall be a maximum of 24 feet. A joint driveway agreement shall be required (except Clark County).
6. Geometrics apply to new construction only, and may vary in existing subdivisions subject to approval of the engineer.
7. Multi-family residential and all non-residential driveways shall conform to the commercial driveway standards.
8. All driveway locations shall be subject to review and approval by the engineer.
9. For curb depression and driveway apron detail, see Std. Dwg. No. 223.

**NOTES:**

**SPECIFICATION REFERENCE**

**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**RESIDENTIAL**

**DRIVEWAY GEOMETRICS**

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| DATE | 8-12-99 | DWG. NO. | 222 |
RESIDENTIAL DRIVEWAY
WITHOUT ADJACENT SIDEWALK

1. WHEN CONSTRUCTING DRIVEWAY WHERE CURB AND GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB AND GUTTER. DRIVEWAYS MAY BE MONOLITHIC TO A.C. LINE.

2. WEAKENED PLANE JOINTS SHALL BE UNIFORMLY PLACED BETWEEN 5' AND 7' INTERVALS, SEE STANDARD DRAWING NO. 234.

3. STANDARD DRAWING 223.1 SHALL NOT BE ALLOWED WHEN SIDEWALK IS ATTACHED TO CURB.

4. THE "DUSTPAN" DRIVEWAY CANNOT BE A PART OF THE PEDESTRIAN ACCESS ROUTE SINCE THE DEPRESSED AREA IS NOT COMPLIANT WITH ADAAG.
1. WHEN CONSTRUCTING DRIVEWAY WHERE CURB AND GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB AND GUTTER. DRIVEWAYS MAY BE MONOLITHIC TO A.C. LINE.

2. WEAKENED PLANE JOINTS SHALL BE UNIFORMLY PLACED BETWEEN 5' AND 7' INTERVALS, SEE STANDARD DRAWING 234.

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

RESIDENTIAL DRIVEWAY

DATE 11-14-19 DWG. NO. 223
NOTES:

1. NO. 4 BARS AT 1" O.C. BOTH WAYS EXTENDING INTO GUTTER. NO. 4 BARS SHALL BE PLACED 3" ABOVE BOTTOM OF CONCRETE SUPPORTED BY NON-FERROUS CHAIRS APPROVED BY THE ENGINEER.

2. WHEN CONSTRUCTING DRIVEWAY WHERE CURB AND GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB AND GUTTER. DRIVEWAY SHALL BE MONOLITHIC TO A.C. LINE.

3. DRIVEWAY THICKNESS FOR INDUSTRIAL USE SHALL BE 8" MIN.

4. WEAKENED PLANE JOINTS SHALL BE EQUALLY SPACED AT 15' MAX. INTERVALS, SEE STANDARD DRAWING NO. 234.

5. NO UTILITY BOXES AND COVERS ADJACENT TO R-TYPE CURB SHALL BE ALLOWED AT DRIVEWAY LOCATIONS.

SECTION A-A

NOTE: ELEVATIONS SHOWN ARE TYPICAL

1. NO. 4 BARS AT 1" O.C. BOTH WAYS EXTENDING INTO GUTTER. NO. 4 BARS SHALL BE PLACED 3" ABOVE BOTTOM OF CONCRETE SUPPORTED BY NON-FERROUS CHAIRS APPROVED BY THE ENGINEER.

2. WHEN CONSTRUCTING DRIVEWAY WHERE CURB AND GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB AND GUTTER. DRIVEWAY SHALL BE MONOLITHIC TO A.C. LINE.

3. DRIVEWAY THICKNESS FOR INDUSTRIAL USE SHALL BE 8" MIN.

4. WEAKENED PLANE JOINTS SHALL BE EQUALLY SPACED AT 15' MAX. INTERVALS, SEE STANDARD DRAWING NO. 234.

5. NO UTILITY BOXES AND COVERS ADJACENT TO R-TYPE CURB SHALL BE ALLOWED AT DRIVEWAY LOCATIONS.

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

COMMERCIAL AND INDUSTRIAL DRIVEWAY (OPTION A)

DATE 01-01-17 DWG. NO. 224
NOTES:

1. SEPARATION OF PEDESTRIAN AND VEHICLE TRAFFIC MUST BE MAINTAINED ON SITE.

2. FOR GRADE CHANGES GREATER THAN 3%, VERTICAL CURVES OF AT LEAST 10 FEET MUST BE USED.

3. WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN THE CURB RETURN IN ACCORDANCE WITH STANDARD DRAWING NO. 235.
NOTES

1. NO. 4 BARS AT 1.5" O.C. BOTH WAYS EXTENDING INTO GUTTER. NO. 4 BARS SHALL BE PLACED 3" ABOVE BOTTOM OF CONCRETE SUPPORTED BY NON-FERROUS CHAIRS APPROVED BY THE ENGINEER.

2. WHEN CONSTRUCTING DRIVEWAY WHERE CURB AND GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB AND GUTTER. DRIVEWAY SHALL BE MONOLITHIC TO A.C. LINE.

3. DRIVEWAY THICKNESS FOR INDUSTRIAL USE SHALL BE 8" MIN.

4. WEAKENED PLANE JOINTS SHALL BE EQUALLY SPACED AT 15' MAX. INTERVALS.

5. THIS DRIVEWAY DESIGN SHALL ALSO BE USED FOR ALLEY INTERSECTIONS, 8" MIN. THICKNESS.

6. SPECIAL DESIGNS SUBJECT TO APPROVAL OF THE ENGINEER.
FINISHED ASPHALT CONCRETE SURFACE TO BE FLUSH WITH CROSS GUTTER LIP.

1. FINISHED ASPHALT CONCRETE SURFACE TO BE FLUSH WITH CROSS GUTTER LIP.
2. ADJACENT SPANDREL SHALL BE 6" THICK P.C.C.

SECTION A-A

NOTES:

1/2" PREMOLDED EXPANSION JOINT FILLER

BOND BREAKER OR 5/8" BACKING ROD

SEALANT DETAIL

CONCRETE - SEE NOTE NO. 2

TYPE I OR TYPE II AGGREGATE BASE

STANDARD 1/2" PVC PIPE END PLUG. GREASE REINFORCING STEEL PRIOR TO PIPE INSTALLATION

JOINT DETAIL

FLOWLINE

SEALANT DETAIL

SILICONE SEALANT

AGGREGATE BASE

CONCRETE - SEE NOTE NO. 2

CONCRETE STRUCTURES

REINFORCING STEEL

EXPANSION JOINT MATERIAL

TT-S-00153A CLASS A SEALANT

SPECIFICATION REFERENCE

302 AGGREGATE BASE
501 CONCRETE
502 CONCRETE STRUCTURES
505 REINFORCING STEEL
707 EXPANSION JOINT MATERIAL

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING
LIGHT DUTY COMMERCIAL DRIVEWAY

(OFFICES, CHURCHES, SCHOOLS, RESTAURANTS, ETC.)

DATE 12-14-00  DWG. NO. 22S2
NOTES:

1. FINISHED ASPHALT CONCRETE SURFACE TO BE FLUSH WITH CROSS GUTTER LIP.
2. ADJACENT SPANDREL SHALL BE 9" THICK P.C.C.
**NOTES:**
1. NO. 4 BARS AT 16" O.C. BOTH WAYS CONTINUOUS THROUGH GUTTER. NO. 4 BARS SHALL BE PLACED 3" ABOVE BOTTOM OF CONCRETE.
2. WHEN CONSTRUCTING DRIVEWAY WHERE CURB AND GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB AND GUTTER. DRIVEWAY SHALL BE MONOLITHIC TO A.C. LINE.
3. DRIVEWAY THICKNESS SHALL BE 8" MIN.

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NOTES:
1. FINISHED ASPHALT CONCRETE SURFACE TO BE FLUSH WITH CROSS GUTTER LIP.
2. CONSTRUCTION OF CROSS GUTTER IS NOT ALLOWED ACROSS MAJOR COLLECTOR OR ARTERIAL STREETS.
3. ADJACENT SPANDREL SHALL BE 9" THICK P.C.C.
FOR DETAIL CONSTRUCTION SEE CROSS GUTTER
STANDARD DRAWING NO. 228

SECTION A-A

1/2" EXPANSION JOINT WITH SILICONE SEALANT SEE STANDARD DRAWING NO. 233

DETAIL FOR FUTURE CONSTRUCTION

WHEN SECOND HALF OF CROSS GUTTER CONSTRUCTED, DRILL EXISTING CONCRETE AND EPOXY FIVE EQUALLY SPACED 1/2" MIN. DIAMETER CORROSION RESISTANT RODS (EPOXY OR GALVANIZED).

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| 302 | AGGREGATE BASE |
| 501 | CONCRETE |
| 502 | CONCRETE STRUCTURES |
| 505 | REINFORCING STEEL |
| 707 | EXPANSION JOINT MATERIAL |

. TT-S-00153A CLASS A SEALANT

HALF STREET CROSS GUTTER

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DATE | DWG. NO. | 229
NOTES:
1. CONCRETE SHALL BE PLACED MONOLITHICALLY FOR EACH FOUR QUADRANTS OF THE INTERSECTION.
2. LONGITUDINAL AND TRANSVERSE WEAKENED PLANE JOINTS SHALL BE TYPE "C".
3. LONGITUDINAL AND TRANSVERSE CONSTRUCTION JOINTS SHALL BE TYPE "B".
4. FOR JOINT DETAILS SEE STANDARD DRAWING NO. 233.
5. ALL MANHOLES AND WATER VALVES SHALL BE BOXED OUT. SEE DETAIL ON STANDARD DRAWING NO. 232.
6. LONGITUDINAL AND TRANSVERSE JOINTS SHALL BE TIED INTO THE CORNERS OF ALL BOXOUTS. THIS WILL REQUIRE THE ENGINEER TO SHOW ALL UTILITY BOXOUTS ON THE PLANS, AND THE JOINT LAYOUT PATTERNS THAT TIE INTO THEM. WHENEVER POSSIBLE, INTERSECTION OF JOINTS SHALL BE AT 90°, BUT NOT LESS THAN 60° OR GREATER THAN 140°.
7. CONCRETE PAVEMENT PLACED ALONG EXISTING CURB AND GUTTER SHALL HAVE A THICKENED EDGE. SEE STANDARD DRAWING NO. 232.
8. CONCRETE PAVEMENT PLACED ALONG PROPOSED CURB AND GUTTER SHALL BE CONSTRUCTED WITH TYPE "B" JOINT. SEE DETAIL ON STANDARD DRAWING NO. 232.
9. LOCATION OF JOINTS FOR PROPOSED CURBshall coincide with joints in concrete pavement.
10. LANE MARKERS SHALL NOT BE PLACED ON TOP OF ANY JOINT.
NOTE:

CONCRETE AND BASE THICKNESS TO BE DETERMINED BY ENGINEERING ANALYSIS BASED ON TRAFFIC CONDITIONS, SUBGRADE STRENGTH, QUALITY OF BASE, AND FLEXURAL STRENGTH OF CONCRETE.
SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

CONCRETE PAVEMENT
CONSTRUCTION DETAILS

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DATE  DWG. NO. 232
**Concrete Pavement Joint Details**

**Type A Expansion Joint Detail**

- **Boxout**
  - 1/8" radius
  - 3/4" premolded expansion joint filler
  - Bond breaker material (or) 1" backing rod
  - Expansion joint filler

**Expansion Joint Seal Detail**

- Silicone joint sealant (see construction joint seal detail)

**Type B Construction Joint Detail**

- **Keyway**
  - Deformed tie bars No. 4 @ 30" / 24" o.c.
  - Silicone joint sealant (see construction joint seal detail)

**Type C Weakened Plane Joint Detail**

- **Single Saw-Cut**
  - Silicone joint sealant
  - 3/8" backing rod
  - 1/8" radius

- **Double Saw-Cut**
  - Silicone joint sealant
  - 3/8" backing rod

**Type D Tied Construction Joint Detail**

- Silicone joint sealant (see construction joint detail for keyway dimensions)

- See Type B construction joint detail for keyway dimensions

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**Specification Reference**

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1. Concrete bus pad shall be monolithic. Transverse weakened plane joints shall be installed at 10' intervals and as detailed in Standard Drawing No. 233, Type "C".

2% SLOPE

Traffic Flow

TYPICAL BUS TURN-OUT

1. Minimum of one set of pavement markings containing the "Buses Only" symbol shall be placed in the turn-out area. Exact location to be determined by the engineer.

2. Additional storage area will be required when more than one bus is expected to occupy the turn-out at the same time.

3. Alternate concrete and base thickness may be substituted but must be supported by engineering analysis and approved by the engineer.

Surface shall be textured in accordance with Uniform Standard Specification No. 409.03.08. Flow line shall not be textured, but shall be a troweled surface.

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DATE 07-01-16

DWG. NO. 234.1
NOTES

1. SIDEWALK MAY BE REQUIRED TO BE CONSTRUCTED IN THOSE LOCATIONS WHERE THE BUS STOP WOULD OTHERWISE BE INACCESSIBLE AS DEFINED BY THE AMERICANS WITH DISABILITIES ACT. SEE DRAWING NO. 235, SHEET 4 OF 4 FOR SIDEWALK RAMP DETAILS.

2. ADDITIONAL RIGHT-OF-WAY OR EASEMENT IS REQUIRED FOR BUS SHELTER PAD AND VARIABLE HEIGHT CURB AT BACK OF SIDEWALK RAMP AND SHALL BE DEDICATED TO THE LOCAL ENTITY.

3. BUS SHELTER PAD CONNECTION TO DETACHED SIDEWALK CONDITION SHALL BE DETERMINED BY THE ENTITIES.

4. "A" = 10', "B" = 15' UNLESS BUS TURNOUT IS CONSTRUCTED PER STANDARD DRAWINGS 234.1 OR 234.4, THEN "A" = 5', "B" = 10'.

5. A 5' x 25' BUS SHELTER PAD BEHIND THE SIDEWALK WHERE NECESSARY MAY BE ALLOWED AS APPROVED BY THE RTC.

6. PEDESTRIAN ACCESS ROUTE SHALL HAVE A CROSS SLOPE OF NO GREATER THAN 2%, REGARDLESS OF CONSTRUCTION TOLERANCES.

NOTES

1. SIDEWALK MAY BE REQUIRED TO BE CONSTRUCTED IN THOSE LOCATIONS WHERE THE BUS STOP WOULD OTHERWISE BE INACCESSIBLE AS DEFINED BY THE AMERICANS WITH DISABILITIES ACT. SEE DRAWING NO. 235, SHEET 4 OF 4 FOR SIDEWALK RAMP DETAILS.

2. ADDITIONAL RIGHT-OF-WAY OR EASEMENT IS REQUIRED FOR BUS SHELTER PAD AND VARIABLE HEIGHT CURB AT BACK OF SIDEWALK RAMP AND SHALL BE DEDICATED TO THE LOCAL ENTITY.

3. BUS SHELTER PAD CONNECTION TO DETACHED SIDEWALK CONDITION SHALL BE DETERMINED BY THE ENTITIES.

4. "A" = 10', "B" = 15' UNLESS BUS TURNOUT IS CONSTRUCTED PER STANDARD DRAWINGS 234.1 OR 234.4, THEN "A" = 5', "B" = 10'.

5. A 5' x 50' BUS SHELTER PAD BEHIND THE SIDEWALK WHERE NECESSARY MAY BE ALLOWED AS APPROVED BY THE RTC.

6. PEDESTRIAN ACCESS ROUTE SHALL HAVE A CROSS SLOPE OF NO GREATER THAN 2%, REGARDLESS OF CONSTRUCTION TOLERANCES.

1. If articulated buses are expected to service bus stop, distance from end of entry taper to the end of the bus stop loading pad shall be increased to 70 ft. min. and the right turn storage lane length shall be increased to 120 ft. min.

2. Where additional motorist guidance is deemed necessary by the Engineer, install arrow and "only" symbol pavement markings for the length of the storage lane. Symbols shall beapproved type II pavement marking film, or if approved by the Engineer, raised pavement markers may be used.

3. Storage lane line shall be approved type I pavement marking film. Reverse curve transition may be used subject to the approval of the Engineer.

4. Painting traffic striping, pavement markings, and Buses Exempt shall be approved type II pavement marking film.

Notes:

- See Note 1
- See Note 2
- See Note 3
- See Note 4
BUS SHELTER PAD DETAILS AND NOTES

NOTES

1. MINIMUM 28 DAY CONCRETE STRENGTH = 4500 PSI.

2. LAP SPLICES OF REINFORCING STEEL SHALL BE 24". STAGGER LAP SPLICES A MINIMUM OF ONE LAP LENGTH.

3. L, W, H, AND C PER PLAN.


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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

BUS SHELTER PAD DETAILS AND NOTES

DATE 01-09-20 DWG. NO. 234.5
1. ON ALL CURB RETURNS A 1/2" EXPANSION JOINT SHALL BE CONSTRUCTED BETWEEN THE BACK OF CURB AND THE SIDEWALK FOR THE ENTIRE LENGTH OF THE RETURN.

2. THE TYPE II AGGREGATE BASE THICKNESS IS SHOWN ON THE TYPICAL SECTION DRAWINGS 202 - 207.

3. LONGITUDINAL WEAKENED PLANE JOINT REQUIRED AT MIDPOINT OF SIDEWALK 10' OR WIDER.

4. WHEN INSTALLED WITHIN THE ROW, SIDEWALK GRADE IS PERMITTED TO EQUAL THE GENERAL GRADE ESTABLISHED FOR THE ADJACENT STREET OR HIGHWAY.

5. OBJECTS WITH LEADING EDGES MORE THAN 2.25 FT. AND NOT MORE THAN 6.7 FT. ABOVE FINISH SURFACE SHALL PROTRUDE 4 IN. MAXIMUM HORIZONTALLY INTO PEDESTRIAN CIRCULATION PATH. THE MINIMUM HEIGHT, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF SIDEWALK, OF SIGNS INSTALLED ABOVE SIDEWALKS, SHALL BE 7 FT.

6. PEDESTRIAN ACCESS ROUTE SHALL HAVE A CROSS SLOPE OF NO GREATER THAN 2%, REGARDLESS OF CONSTRUCTION TOLERANCES.
1. The typical locations of sidewalk ramps shown above are intended to meet the requirements of the Americans with Disabilities Act (ADA). At least one sidewalk ramp shall be constructed opposite the intersecting roadway. Additional sidewalk ramps may be required by the engineer to provide a continuous unobstructed pedestrian circulation path as defined by the ADA.

2. Sidewalk ramp locations shown are for intersections with unmarked crosswalks. If a pedestrian crossing area is marked, sidewalk ramps shall be located within the marked crosswalks as approved by the engineer.
**RAMP IN CURB RETURN**

30 OR MORE RADIUS
BACK OF CURB

**RAMP OUTSIDE CURB RETURN**

VARIABLE HEIGHT
MONOLITHIC CURB
(SEE NOTE 5)

4" CONCRETE
AGGREGATE BASE
SEE SIDEWALK DRAWING NO. 234

**SECTION C-C**

NOTES:

1. SIDEWALK RAMPS OUTSIDE OF THE CURB RETURN SHALL BE LOCATED ADJACENT TO THE RETURN UNLESS OTHERWISE APPROVED.

2. RAMPS SHALL BE CONSTRUCTED WITH A ROUGH BROOM FINISH TRANSVERSE TO THE SLOPE OF THE RAMP.

3. WHEN CONSTRUCTING RAMP WHERE CURB & GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB & GUTTER.

4. DETECTABLE WARNING CONSISTING OF RAISED TRUNCATED DOMES WHICH COMPLY WITH DETAILS ON SHEET 4 OF THIS DRAWING NO. AND CONTRASTING VISUALLY WITH ADJOINING SURFACES SHALL BE PLACED ON BOTTOM PORTION OF RAMP EXTENDING THE FULL WIDTH OF THE RAMP AND TO A MINIMUM DEPTH OF 24 INCHES. PAVER BLOCKS PERMITTED ONLY IN THE CITY OF BOULDER CITY FOR DETECTABLE WARNING AREAS.

5. CURB MAY BE PLACED AND IS PREFERRED BEHIND BACK OF WALK IF SUFFICIENT RIGHT-OF-WAY OR EASEMENTS EXIST AND AS APPROVED BY THE ENGINEER.
SIDEWALK RAMP

CASE II SHALL BE USED WHERE R/W AND FIELD CONDITIONS PERMIT.

NOTES:

1. SIDEWALK RAMP WITHIN CURB RETURN SHALL BE LOCATED AT THE MIDPOINT OF CURB RETURN UNLESS OTHERWISE APPROVED.

2. RAMPS SHALL BE CONSTRUCTED WITH A ROUGH BROOM FINISH TRANSVERSE TO THE SLOPE OF THE RAMP.

3. WHEN CONSTRUCTING RAMP WHERE CURB & GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB & GUTTER.

4. DETECTABLE WARNING CONSISTING OF RAISED TRUNCATED DOMES WHICH COMPLY WITH DETAILS ON SHEET 4 OF THIS DRAWING NO. AND CONTRASTING VISUALLY WITH ADJOINING SURFACES SHALL BE PLACED ON BOTTOM PORTION OF RAMP EXTENDING THE FULL WIDTH OF THE RAMP AND TO A MINIMUM DEPTH OF 24 INCHES. PAVER BLOCKS PERMITTED ONLY IN THE CITY OF BOULDER CITY FOR DETECTABLE WARNING AREAS.
RAMP IN CURB RETURN

RAMP OUTSIDE CURB RETURN

NOTES:
1. SIDEWALK RAMP WITHIN CURB RETURN SHALL BE LOCATED AT THE MIDPOINT OF CURB RETURN UNLESS OTHERWISE APPROVED.
2. SIDEWALK RAMPS OUTSIDE OF THE CURB RETURN SHALL BE LOCATED ADJACENT TO THE RETURN UNLESS OTHERWISE APPROVED.
3. RAMPS SHALL BE CONSTRUCTED WITH A ROUGH BROOM FINISH TRANSVERSE TO THE SLOPE OF THE RAMP.
4. WHEN CONSTRUCTING RAMP WHERE CURB & GUTTER EXISTS, COMPLETELY REMOVE INTERFERING PORTIONS OF EXISTING CURB & GUTTER.
5. DETECTABLE WARNING CONSISTING OF RAISED TRUNCATED DOMES WHICH COMPLY WITH DETAILS ON SHEET 4 OF THIS DRAWING NO. AND CONTRASTING VISUALLY WITH ADJOINING SURFACES SHALL BE PLACED ON BOTTOM PORTION OF RAMP EXTENDING THE FULL WIDTH OF THE RAMP AND TO A MINIMUM DEPTH OF 24 INCHES. PAVER BLOCKS PERMITTED ONLY IN THE CITY OF BOULDER CITY FOR DETECTABLE WARNING AREAS.

PROFILE

CASE III TO BE USED FOR AREAS WHERE OBSTRUCTION (I.E. BLOCK WALL) EXISTS AT BACK OF WALK ONLY WHEN APPROVED BY THE ENGINEER.

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<td>502</td>
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<tr>
<td>CONCRETE STRUCTURES</td>
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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SIDEWALK RAMP
CASE III

DATE 11-10-04 DWG. NO. 235 SHEET 3 OF 4
### Detectable Warning Details (Truncated Domes)

#### Table 1. Transition Lengths for 1:12 Side Slopes

<table>
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<tr>
<th>Grade (%) \ &quot;B&quot; to &quot;A&quot;</th>
<th>&quot;A&quot; (FT) MIN.</th>
<th>&quot;B&quot; (FT) MIN.</th>
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<tr>
<td>-6 TO -5.01</td>
<td>4.5</td>
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<tr>
<td>-5 TO -4.01</td>
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<tr>
<td>-4 TO -3.01</td>
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<td>12.0</td>
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<td>-3 TO -2.01</td>
<td>4.5</td>
<td>9.5</td>
</tr>
<tr>
<td>-2 TO 2</td>
<td>8.0</td>
<td>8.0</td>
</tr>
<tr>
<td>2.01 TO 3</td>
<td>9.5</td>
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<td>3.01 TO 4</td>
<td>12.0</td>
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<td>4.01 TO 5</td>
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<td>5.01 TO 6</td>
<td>21.5</td>
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#### Table 2. Transition Lengths for 1:10 Side Slopes

<table>
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<tr>
<th>Grade (%) \ &quot;B&quot; to &quot;A&quot;</th>
<th>&quot;A&quot; (FT) MIN.</th>
<th>&quot;B&quot; (FT) MIN.</th>
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<tr>
<td>-6 TO -5.01</td>
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<td>12.5</td>
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<tr>
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<tr>
<td>5.01 TO 6</td>
<td>12.5</td>
<td>4.0</td>
</tr>
</tbody>
</table>

**Note:**
Charts apply to curb with 6" curb face. If curb has greater than a 6" curb face, a special design is required.

---

**AGENCY APPROVED**

<table>
<thead>
<tr>
<th>B</th>
<th>C</th>
<th>H</th>
<th>L</th>
<th>M</th>
<th>N</th>
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**SPECIFICATION REFERENCE**

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<tr>
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<tr>
<td>502</td>
<td>CONCRETE STRUCTURES</td>
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**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**SIDEWALK RAMP DETAILS**

**DATE** 6-8-06  **DWG. NO.** 235  **SHEET 4 OF 4**
1. IF WIDTH OF PLATE IS GREATER THAN 24\" A SPECIAL DESIGN IS REQUIRED.

2. ALL EXPOSED METAL PARTS SHALL BE GALVANIZED AND ALL GALVANIZING DAMAGED BY FABRICATION OR INSTALLATION SHALL RECEIVE TWO COATS OF ALUMINUM PAINT (GALVONOX OR EQUAL).
### Concrete Barrier Rail

**Profile at Top of Vertical Radius**

**Transition of End of Barrier**

**Notes:**

1. Transverse joints with 1" premolded expansion joint filler or 1" open transverse joints shall be placed at structures. Joints in barrier rail over a structure shall be at the same location and of the same dimension as those in the structure.

2. Bituminous paving required. Paving shall butt against the barrier rail end anchor section and shall extend full width under the normal barrier rail section plus 6" minimum 6-inch deep barrier. End anchors shall be constructed in the first and last 10 linear feet of the full height barrier rail run. If transitions are used, the anchor shall be extended under the transition.

<table>
<thead>
<tr>
<th>Operating Speed</th>
<th>Flare Rate</th>
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<tr>
<td>0</td>
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</tr>
<tr>
<td>50</td>
<td>14:1</td>
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<tr>
<td>40</td>
<td>11:1</td>
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**Agency Approved**

**Uniform Standard Drawings**

**Clark County Area**

**Concrete Barrier Rail**

**SPECIFICATION REFERENCE**

<table>
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<tr>
<th>501</th>
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<tbody>
<tr>
<td>502</td>
<td>CONCRETE STRUCTURES</td>
</tr>
</tbody>
</table>

**DATE 12-14-00 DWG. NO. 237**
NOTES

1. PRECAST BUMPER BLOCK TO BE USED IN PARKING LOTS ONLY.
2. GROUT HOLE BEFORE DRIVING SPIKE. AFTER DRIVING SPIKE, FILL HOLE WITH CONCRETE MORTAR AND FINISH FLUSH WITH TOP.

1/2" DEFORMED BAR TO STAY 1" MIN. INSIDE CONCRETE

TOP VIEW

HOLE DETAIL

SIDE VIEW

END VIEW

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

PRECAST BUMPER BLOCK

DATE 12-14-00  DWG. NO. 238
NOTE:
TYPE I MONUMENTS TO BE SET AT ALL SECTION CORNERS AND 1/4 SECTION CORNERS WHICH FALL WITHIN UPRIGHT SECTIONS, AND MARKED IN ACCORDANCE WITH THE 1973 BL&M MANUAL OF SURVEYING INSTRUCTIONS.
NOTES:

1. TYPE II-A MONUMENTS TO BE SET AT ALL SECTION CORNERS, 1/4 SECTION CORNERS AND 1/16 SECTION CORNERS WHICH FALL WITHIN UNIMPROVED STREET SECTIONS.

2. TYPE II-B MONUMENTS TO BE SET AT ALL 1/16 SECTION CORNERS WHICH FALL WITHIN IMPROVED STREET SECTIONS.

3. ALL TYPE II MONUMENTS ARE TO BE MARKED IN ACCORDANCE WITH THE 1973 B.L.M. MANUAL OF SURVEYING INSTRUCTIONS.

4. 6" x 6" SQUARE MONUMENTS ARE ALSO ACCEPTABLE.

5. IF MONUMENTS ARE TO BE “PRECAST” THEY ARE TO BE EMBEDDED IN FRESH CONCRETE TO PREVENT MOVEMENT.

6. THE COUNTY/CITY SURVEYOR MAY REQUIRE TYPE II MONUMENTS IN ADDITIONAL LOCATIONS.

<table>
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<tr>
<th>SPECIFICATION REFERENCE</th>
<th>UNIFORM STANDARD DRAWINGS</th>
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</thead>
<tbody>
<tr>
<td>501 CONCRETE</td>
<td>CLARK COUNTY AREA</td>
</tr>
<tr>
<td>21 MONUMENTS</td>
<td></td>
</tr>
</tbody>
</table>

TYPE II MONUMENT
NOTES:

1. TYPE III MONUMENTS TO BE SET AT ALL CENTERLINE CONTROL POINTS NOT OTHERWISE IDENTIFIED BY A TYPE I OR TYPE II MONUMENT, INCLUDING STREET INTERSECTIONS, POINTS OF CURVATURE, POINTS OF TANGENCY, POINTS OF INTERSECTION AND CENTERS OF HAMMERHEAD TURNAROUNDS OR CIRCULAR CUL-DE-SACS.

2. THE REGISTERED LAND SURVEYOR'S NUMBER, AND A PUNCH MARK ARE TO APPEAR ON THE SURFACE OF THE CAP.

CAP TO BE SECURED WITH PLASTIC INSERT OR EPOXY CONFORMING TO A.S.T.M. C881-78 SPECIFICATIONS.

5/8" MIN. DIA. REBAR OF SUFFICIENT LENGTH TO RESIST REMOVAL

AGENCY APPROVED

<table>
<thead>
<tr>
<th>SPECIFICATION REFERENCE</th>
<th>UNIFORM STANDARD DRAWINGS</th>
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</thead>
<tbody>
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<td>:21 MONUMENTS</td>
<td>CLARK COUNTY AREA</td>
</tr>
</tbody>
</table>

TYPE III MONUMENT

DATE   DWG. NO.  241
NOTES:

1. FOUR (4) TYPE IV REFERENCE MONUMENTS TO BE SET WITHIN A RADIUS OF TWENTY (20) TO ONE HUNDRED (100) FEET FROM ALL TYPE I, II, AND III MONUMENTS.

2. THE TIE DISTANCE AND THE INITIALS R.M. ARE TO BE STAMPED ON THE CAP, FOR TYPE IV MONUMENTS.

3. NON-FERROUS CAP TO BE MADE FROM CAST VIRGIN METAL IN ONE PIECE, FREE FROM CASTING IMPERFECTIONS, WITH CORRUGATED SHAFT.

4. TYPE III AND TYPE IV MONUMENT CAP DIAMETER MAY BE REDUCED TO 1".

DETAIL

STANDARD CAP

NON-FERROUS CAP (SEE DETAIL)
INSET IN TOP OF CURB, BONDED SECURELY WITH EPOXY. (A.S.T.M. C881 - 78 SPECS.)

TYPE IV-A MONUMENT
EXISTING CURB □ GUTTER

TYPE IV-B MONUMENT
NO CURB □ GUTTER
**LEGEND**

- P.C. - POINT OF CURVE
- P.R.C. - POINT OF REVERSE CURVE
- P.T. - POINT OF TANGENCY
- C - CENTERLINE
- B.C. - BACK OF CURB
- P.I. - POINT OF INTERSECTION
- R/W - RIGHT-OF-WAY

**MONUMENTS**

- *TYPE I, II, OR III MONUMENT*
- *TYPE III MONUMENT*
- *TYPE IV A OR IV B REFERENCE MONUMENT*
TYPE 4 LANE LINE
(DIVIDED, UNDIVIDED OR ONE-WAY ROADWAY)
NOTES:
1. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWING NOS. 244 & 244.1.
2. IN SOME CASES, A MEDIAN WILL EXIST INSTEAD OF TWO-WAY LEFT TURN LANE.
3. BIKE LANES MUST BE A MINIMUM OF 4 FT. AND NO GREATER THAN 8 FT. WIDE.
   HOWEVER, A WIDTH OF 5 FT. IS PREFERRED.
4. WHERE 6 FT. SIDEWALK EXISTS, WIDTH OF MEDIAN MAY BE REDUCED BY 2 FT. OR
   TRAVEL LANES MAY BE REDUCED TO 11 FT.
5. ALL CURB LANES ARE MEASURED TO LIP OF GUTTER OR EDGE OF PAVEMENT
   IF CURB AND GUTTER DO NOT EXIST.

AGENCY APPROVED B C H L M N

SPECIFICATION REFERENCE

TYPICAL DELINEATION FOR ROADWAYS
100 FT. OR GREATER RIGHT-OF-WAY
WITH CURBSIDE SIDEWALK

DATE 7-10-03  DWG. NO. 244.2
1. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWING NO. 244.1.
2. BIKE LAKES TO BE PROVIDED IF SEGMENT CONNECTS TO OTHER BIKE LAKES OR IF ROADWAY SEGMENT IS 1 MILE OR GREATER. IF BIKE LANE IS NOT PROVIDED, TRAVEL LAKES SHOULD REMAIN AT DIMENSIONS SHOWN SO A BICYCLE LANE COULD BE PROVIDED IN THE FUTURE. SEE DRAWING NUMBER 244.1 FOR BIKE LANE SIGNING AND STRIPING DETAILS.
3. ALL CURB LAKES ARE MEASURED TO LIP OF GUTTER OR EDGE OF PAVEMENT IF CURB AND GUTTER DO NOT EXIST.
4. CONTACT THE LOCAL JURISDICTIONAL FOR DEVELOPMENT REQUIREMENTS FOR THE AREA BETWEEN THE CURB AND SIDEWALK.

**SPECIFICATION REFERENCE**

- 28 PAINTING TRAFFIC STRIPING
- 33 PAVEMENT MARKERS

**UNIFORM STANDARD DRAWINGS**

CLARK COUNTY AREA

**TYPICAL DELINEATION FOR ALTERNATE ROADWAYS WITH OFFSET SIDEWALK**

<table>
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<th>AGENCY APPROVED</th>
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**DATE** 7-10-03  **DWG. NO.** 244.3
NOTES:
1. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWING NOS. 244 & 244.1.
2. IN SOME CASES, A MEDIAN WILL EXIST INSTEAD OF TWO-WAY LEFT TURN LANE.
3. BIKE LANE MUST BE A MINIMUM OF 4 FT. AND NO GREATER THAN 8 FT. WIDE. HOWEVER, A WIDTH OF 5 FT. IS PREFERRED.
4. WHERE 2 FT. SIDEWALK EXISTS, WIDTH OF MEDIAN MAY BE REDUCED BY 2 FT. OR TRAVEL LANES MAY BE REDUCED TO 11 FT.
5. ALL CURB LANES ARE MEASURED TO LIP OF GUTTER OR EDGE OF PAVEMENT IF CURB AND GUTTER DO NOT EXIST.

THE WIDTH OF TRAVEL LANES ADJACENT TO BIKE LANES MAY VARY FROM 12 FT. TO 11 FT. WIDTHS OF INTERIOR TRAVEL LANES MAY VARY FROM 11 FT. TO 13 FT.
NOTES:

1. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWING NOS. 244 & 244.1.
2. BIKE LANES MUST BE A MINIMUM OF 4 FT. AND NO GREATER THAN 8 FT. WIDE; HOWEVER, A WIDTH OF 5 FT. IS PREFERRED.
3. WHERE 6 FT. SIDEWALK EXISTS, WIDTH OF MEDIAN MAY BE REDUCED BY 2 FT. OR TRAVEL LANES MAY BE REDUCED TO 11 FT.
4. ALL CURB LANES ARE MEASURED TO LIP OF GUTTER OR EDGE OF PAVEMENT IF CURB AND GUTTER DO NOT EXIST.
Notes:
1. Lane line delineation shall comply with Standard Drawing No. 244-244.1.
2. Bike lanes must be a minimum of 4 ft. and no greater than 8 ft. wide. However, a width of 5 ft. is preferred.
3. Where 6 ft. sidewalk exists, width of median may be reduced by 2 ft. or travel lanes may be reduced to 11 ft.
4. All curb lanes are measured to lip of gutter or edge of pavement if curb and gutter do not exist.

Specifications Reference

<table>
<thead>
<tr>
<th>Specification Reference</th>
<th>Paving Traffic Striping</th>
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Agency Approved

Uniform Standard Drawings

Clark County Area

Typical Delineation for Roadways 80 Ft. Right-of-Way with Curbside Sidewalk

Date: 7-10-03  Dwg. No.: 244.5  Sheet 2 of 2
NOTES:
1. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWING NO. 244-244.1.
2. BIKE LANES TO BE PROVIDED IF SEGMENT CONNECTS TO OTHER BIKE LANES OR IF ROADWAY SEGMENT IS 1 MILE OR GREATER. IF BIKE LANE IS NOT PROVIDED, TRAVEL LANES SHOULD REMAIN AT DIMENSIONS SHOWN SO A BICYCLE LANE COULD BE PROVIDED IN THE FUTURE. SEE DRAWING NUMBER 244.1 FOR BIKE LANE SIGNING AND STRIPING DETAILS.
3. ALL CURB LANES ARE MEASURED TO LIP OF GUTTER OR EDGE OF PAVEMENT IF CURB AND GUTTER DO NOT EXIST.
4. CONTACT THE LOCAL JURISDICTIONAL FOR DEVELOPMENT REQUIREMENTS FOR THE AREA BETWEEN THE CURB AND SIDEWALK.
**NOTES:**

1. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWING NO. 244 & 244.1.
2. BIKE LANES MUST BE A MINIMUM OF 4 FT. AND NO GREATER THAN 8 FT. WIDE; HOWEVER, A WIDTH OF 5 FT. IS PREFERRED.
3. ALL CURB LANES ARE MEASURED TO LIP OF GUTTER OR EDGE OF PAVEMENT IF CURB AND GUTTER DO NOT EXIST.
LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWING NO. 244 & 244.1.

BIKE LANES MUST BE A MINIMUM OF 5 FEET WHERE ADJACENT TO A PARKING LANE, 4 FEET MINIMUM IN OTHER CASES AND NO GREATER THAN 8 FEET WIDE.

ALL CURB LANES ARE MEASURED TO THE EDGE OF PAVEMENT. THE TOP OF PAVEMENT SHALL BE FLUSH WITH GUTTER.

NOTES:

1. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWING NO. 244 & 244.1.
2. BIKE LANES MUST BE A MINIMUM OF 5 FEET WHERE ADJACENT TO A PARKING LANE, 4 FEET MINIMUM IN OTHER CASES AND NO GREATER THAN 8 FEET WIDE.
3. ALL CURB LANES ARE MEASURED TO THE EDGE OF PAVEMENT. THE TOP OF PAVEMENT SHALL BE FLUSH WITH GUTTER.
4. BICYCLE LANE SHALL BE ON RIGHT SIDE OF ONE-WAY ROADWAYS, EXCEPT IN LIMITED SITUATIONS, SUCH AS WHEN THERE ARE SIGNIFICANTLY LESS POTENTIAL CONFLICTS ALONG THE LEFT SIDE OF THE ROADWAY OR WHEN SIGNIFICANT BICYCLE TRIP GENERATION ARE ALONG THE LEFT SIDE OF THE ROADWAY.
5. SEE DRAWING NO. 244.9 FOR BIKE LANE SIGNAGE DETAILS.
1. BIKE LANE LEGENDS SHALL BE APPROVED TYPE I PAVEMENT MARKING FILM AND SHALL BE SLIP RESISTANT.
2. BIKE LANE LINES SHALL BE APPROVED TYPE II PAVEMENT MARKING FILM AND SHALL BE SLIP RESISTANT.
3. BIKE LANCES MUST BE A MINIMUM OF 5 FEET WHEN ADJACENT TO A PARKING LANE, 4 FEET MINIMUM IN OTHER CASES AND NO GREATER THAN 8 FT WIDE. HOWEVER A WIDTH OF 5 FEET IS PREFERRED.
4. BICYCLE LANE DELINEATION, LEGEND, AND SIGNING SHALL CONFORM TO THE MUTCD LATEST EDITION.
5. SIGN SIZE AND PLACEMENT SHALL CONFORM TO THE REQUIREMENTS OF THE MUTCD, LATEST EDITION.
   □ THE BIKE LANE SIGNAGE SHALL BE TYPE XI SHEETING.
BIKE LANE DELINEATION AND LEGEND

**NOTES:**
1. BIKE LANE LEGENDS SHALL BE APPROVED TYPE I PAVEMENT MARKING FILM AND SHALL BE SLIP RESISTANT.
2. BIKE LANE LINES SHALL BE APPROVED TYPE II PAVEMENT MARKING FILM AND SHALL BE SLIP RESISTANT.
3. BIKE LANES MUST BE A MINIMUM OF 5 FEET WHEN ADJACENT TO A PARKING LANE, 4 FEET MINIMUM IN OTHER CASES AND NO GREATER THAN 8 FT WIDE; HOWEVER A WIDTH OF 5 FEET IS PREFERRED.
4. BICYCLE LANE DELINEATION, LEGEND, AND SIGNING SHALL CONFORM TO THE MUTCD LATEST EDITION.
5. SIGN SIZE AND PLACEMENT SHALL CONFORM TO THE REQUIREMENTS OF THE MUTCD, LATEST EDITION.
6. THE BIKE LANE SIGNAGE SHALL BE TYPE XI SHEETING.
7. A CONTINUOUS 6" WHITE LINE SHALL EXTEND 20 FT ON EACH SIDE OF THE DROP INLET.
8. INSTALL "DO NOT RIDE IN GUTTER" SIGN IN THE CITY OF LAS VEGAS, SIGN WIDTH TO MATCH R3-17.
9. THE WIDTH OF THE BICYCLE LANE SHALL EXCLUDE THE GUTTER PAN.

**SPECIFICATION REFERENCE**

**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**SUPPLEMENTAL DRAWING**

**BICYCLE LANE DELINEATION, LEGEND, AND SIGNAGE**

**AGENCY APPROVED**

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SEE NOTE 1
SEE NOTE 2
SEE NOTE 3
SEE NOTE 4
SEE NOTE 5
SEE NOTE 6
SEE NOTE 7
SEE NOTE 8
CONCRETE SWALE
ASPHALT PATH
DECORATIVE TREATMENT

DWG. NO. 244.10

TYPICAL CONFIGURATION FOR RURAL ROADWAYS 60 FT. RIGHT-OF-WAY

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPICAL CONFIGURATION FOR RURAL ROADWAYS 60 FT. RIGHT-OF-WAY

AGENCY APPROVED

DATE 12-12-19  DWG. NO. 244.10  SHEET 1 OF 2
NOTES

1. DRAWING IS ONLY APPLICABLE TO THE CITY OF LAS VEGAS AND UNINCORPORATED AREA OF CLARK COUNTY, IN
   THE AREA BOUNDED BY CLARK COUNTY 215 BRUCE WOODBURY BELTWAY ON THE WEST AND NORTH, ALEXANDER
   ROAD ON THE SOUTH AND DURANGO DRIVE ON THE EAST, OR IN OTHER AREAS APPROVED BY THE AGENCY.

2. MINIMUM PAVEMENT STRUCTURE AND DESIGN SHALL CONFORM WITH STANDARD DRAWING 200.1.

3. TREATMENT SHALL CONFORM WITH CLARK COUNTY DEPARTMENT OF AIR QUALITY AND NEVADA DIVISION OF
   ENVIRONMENTAL PROTECTION REGULATIONS.

4. THE CONCRETE SWALE SHALL BE 6' WIDE AND 6" THICK WITH MINIMAL STEEL REQUIRED PER ACI. WHEN VEHICULAR
   TRAFFIC IS REQUIRED TO CROSS THE SWALE, IT SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD
   DRAWING 228.

5. THE STREET SECTION IS NOT ANTICIPATED TO MEET CCRFCD DRAINAGE REQUIREMENTS AND MAY REQUIRE A
   STORM DRAINAGE SYSTEM AS DETERMINED BY THE APPROVED TECHNICAL DRAINAGE STUDY.

6. IT IS RECOMMENDED THAT THE EQUESTRIAN TRAIL BE LOCATED ON THE NORTH SIDE OF EAST-WEST ROADWAYS
   OR THE WEST SIDE OF NORTH-SOUTH ROADWAYS.

7. STREET LIGHTS REQUIRED ONLY AT INTERSECTIONS.

8. UTILITY PLACEMENT MUST BE APPROVED BY THE APPROVING AGENCY.

SECTION A-A

NOTES

1. DRAWING IS ONLY APPLICABLE TO THE CITY OF LAS VEGAS AND UNINCORPORATED AREA OF CLARK COUNTY, IN
   THE AREA BOUNDED BY CLARK COUNTY 215 BRUCE WOODBURY BELTWAY ON THE WEST AND NORTH, ALEXANDER
   ROAD ON THE SOUTH AND DURANGO DRIVE ON THE EAST, OR IN OTHER AREAS APPROVED BY THE AGENCY.

2. MINIMUM PAVEMENT STRUCTURE AND DESIGN SHALL CONFORM WITH STANDARD DRAWING 200.1.

3. TREATMENT SHALL CONFORM WITH CLARK COUNTY DEPARTMENT OF AIR QUALITY AND NEVADA DIVISION OF
   ENVIRONMENTAL PROTECTION REGULATIONS.

4. THE CONCRETE SWALE SHALL BE 6' WIDE AND 6" THICK WITH MINIMAL STEEL REQUIRED PER ACI. WHEN VEHICULAR
   TRAFFIC IS REQUIRED TO CROSS THE SWALE, IT SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD
   DRAWING 228.

5. THE STREET SECTION IS NOT ANTICIPATED TO MEET CCRFCD DRAINAGE REQUIREMENTS AND MAY REQUIRE A
   STORM DRAINAGE SYSTEM AS DETERMINED BY THE APPROVED TECHNICAL DRAINAGE STUDY.

6. IT IS RECOMMENDED THAT THE EQUESTRIAN TRAIL BE LOCATED ON THE NORTH SIDE OF EAST-WEST ROADWAYS
   OR THE WEST SIDE OF NORTH-SOUTH ROADWAYS.

7. STREET LIGHTS REQUIRED ONLY AT INTERSECTIONS.

8. UTILITY PLACEMENT MUST BE APPROVED BY THE APPROVING AGENCY.
TYPICAL TWO LANE CONFIGURATION FOR RURAL ROADWAYS 80 FT. RIGHT-OF-WAY

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DATE 12-12-19  DWG. NO. 244.11  SHEET 1 OF 2
1. DRAWING IS ONLY APPLICABLE TO THE CITY OF LAS VEGAS AND UNINCORPORATED AREA OF CLARK COUNTY, IN THE AREA BOUNDED BY CLARK COUNTY 215 BRUCE WOODBURY BELTWAY ON THE WEST AND NORTH, ALEXANDER ROAD ON THE SOUTH, AND DURANGO DRIVE ON THE EAST, OR IN OTHER AREAS APPROVED BY THE AGENCY.

2. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWINGS 244 AND 244.1.

3. MINIMUM PAVEMENT STRUCTURE AND DESIGN SHALL CONFORM WITH STANDARD DRAWING 200.

4. TREATMENT SHALL CONFORM WITH CLARK COUNTY DEPARTMENT OF AIR QUALITY AND NEVADA DIVISION OF ENVIRONMENTAL PROTECTION REGULATIONS.

5. THE CONCRETE SWALE SHALL BE 6' WIDE AND 6" THICK WITH MINIMAL STEEL REQUIRED PER ACI. WHEN VEHICULAR TRAFFIC IS REQUIRED TO CROSS THE SWALE, IT SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DRAWING 228.

6. THE STREET SECTION IS NOT ANTICIPATED TO MEET CCRFCD DRAINAGE REQUIREMENTS AND MAY REQUIRE A STORM DRAINAGE SYSTEM AS DETERMINED BY THE APPROVED TECHNICAL DRAINAGE STUDY.

7. RAISED LANDSCAPE MEDIAN MAY BE REQUIRED BY CLARK COUNTY.

8. IT IS RECOMMENDED THAT THE EQUESTRIAN TRAIL BE LOCATED ON THE NORTH SIDE OF EAST-WEST ROADWAYS OR THE WEST SIDE OF NORTH-SOUTH ROADWAYS.

9. STREET LIGHTS REQUIRED ON ONE SIDE OF THE STREET AND AT INTERSECTIONS.

10. UTILITY PLACEMENT MUST BE APPROVED BY THE APPROVING AGENCY.
NOTES:

1. DRAWING IS ONLY APPLICABLE TO THE UNINCORPORATED AREA OF CLARK COUNTY, IN THE AREA BOUNDED BY CLARK COUNTY 215 BRUCE WOODBURY BELTWAY ON THE WEST AND NORTH, ALEXANDER ROAD ON THE SOUTH, AND DURANGO DRIVE ON THE EAST.
2. LANE LINE DELINEATION SHALL COMPLY WITH STANDARD DRAWINGS 244 AND 244.1.
3. MINIMUM PAVEMENT STRUCTURE AND DESIGN SHALL CONFORM WITH STANDARD DRAWING 200.
4. RAISED LANDSCAPE MEDIAN MAY BE REQUIRED BY CLARK COUNTY.
5. TREATMENT SHALL CONFORM WITH CLARK COUNTY DEPARTMENT OF AIR QUALITY AND NEVADA DIVISION OF ENVIRONMENTAL PROTECTION REGULATIONS.

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPICAL CONFIGURATION FOR RURAL ROADWAYS 100 FT. RIGHT-OF-WAY

DATE 09-12-19  DWG. NO. 244.12
TYPICAL LANE CONFIGURATION FOR
MAJOR STREET INTERSECTIONS
AND MEDIAN DETAIL

CASE II - WITH CURBSIDE SIDEWALK

STORAGE
300' TYP.

TRANSITION
225' TYP.

RADIUS
100'

EXCLUSIVE RIGHT TURN
LANE
ADDITIONAL 10' RIGHT-OF-WAY DEDICATION
REQUIRED FOR EXCLUSIVE RIGHT TURN LANE

FOR ROADWAYS WITH DEDICATED
BIKE LANE, REDUCE TWO-WAY LEFT
LANE TO 12 FT., MEDIAN ISLAND
TO 2 FT., AND OUTSIDE TRAVEL
LANES TO 11 FT.

300: TYP.
STORAGE

50: TYP.

225: TYP.
TRANSITION

45:1

FOR SYMMETRICAL REVERSE
CURVE (STRAIGHT LINE TAPER
MAY BE SUBSTITUTED
AS APPROVED BY
ENGINEER)

STORAGE VARIES
(150': MIN.)

100:

RADIUS

2.45: TYP.
FOR REVERSE
CURVE TAPER

45:1

FOR SYMMETRICAL REVERSE
CURVE (STRAIGHT LINE TAPER
MAY BE SUBSTITUTED
AS APPROVED BY
ENGINEER)
TYPICAL LANE CONFIGURATION FOR
MAJOR STREET INTERSECTIONS
AND MEDIAN DETAIL

CASE I - WITH OFFSET SIDEWALK

STORAGE
300' TYP.

BIKE LANE

EXCLUSIVE RIGHT TURN
LANE
ADDITIONAL 10' RIGHT-OF-WAY DEDICATION
REQUIRED FOR EXCLUSIVE RIGHT TURN LANE

STORAGE (VARY 150' MIN.)

SIDEWALK

CONTACT THE LOCAL JURISDICTION
FOR DEVELOPMENT REQUIREMENTS
FOR THE AREA BETWEEN THE CURB
AND SIDEWALK.

NOTES:

1. SIDEWALK SHOULD BE OFFSET
   THROUGH THE INTERSECTION WITH
   A CURB RAMD CONNECTING THE
   SIDEWALK TO THE CROSSWALK. NO
   ABOVE GROUND OBJECTS SHALL
   BE PLACED WITHIN THE SIDEWALK.
   CONTACT THE LOCAL JURISDICTION
   FOR DEVELOPMENT REQUIMENTS
   FOR THE AREA BETWEEN THE CURB
   AND SIDEWALK.

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPICAL LANE CONFIGURATION FOR
MAJOR STREET INTERSECTIONS
AND MEDIAN DETAIL
CASE I - WITH OFFSET SIDEWALK

DATE 7-10-03  DWG. NO. 245.2  SHEET 1 OF 2
TYPICAL LANE CONFIGURATION FOR MAJOR STREET INTERSECTIONS AND MEDIAN DETAIL
CASE II - WITH OFFSET SIDEWALK

NOTES:
1. SIDEWALK SHOULD BE OFFSET THROUGH THE INTERSECTION WITH A CURB RAMP CONNECTING THE SIDEWALK TO THE CROSSWALK. NO ABOVE GROUND OBJECTS SHALL BE PLACED WITHIN THE SIDEWALK. CONTACT THE LOCAL JURISDICTION FOR DEVELOPMENT REQUIREMENTS FOR THE AREA BETWEEN THE CURB AND SIDEWALK.

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPICAL LANE CONFIGURATION FOR MAJOR STREET INTERSECTIONS AND MEDIAN DETAIL
CASE II - WITH OFFSET SIDEWALK

DATE 7-10-03 DWG. NO. 245.2 SHEET 2 OF 2
NOTE:
SEE SHEET 3 THIS DRAWING NUMBER IF PATTERN IS TO BE USED AT A GORE POINT TO DIVIDE TRAFFIC MOVING IN SAME DIRECTION.

FORM ENTIRE ISLAND USING RAISED PAVEMENT MARKER PATTERN FOR TRANSITION AREA

\[ T = \frac{\sqrt{\frac{(W \times X)^2}{(W \times X) + 0}}}{0} \]  
(DESIGN SPEED 40 MPH OR LESS)

\[ T = \frac{\sqrt{\frac{(W \times X)^2}{(W \times X) + 0}}}{0} \]  
(DESIGN SPEED 45 MPH OR GREATER)

BEGINNING OF LANE TRANSITION
END 4 LANE RAISED PAVEMENT MARKER PATTERN

TYPE "A"
3. TYP.
4. TYP.

TYPE "F"

SEE DETAIL "A" SHT. 2 THIS DRAWING NO.
SEE DETAIL "B" SHT. 2 THIS DRAWING NO.

PAINTING TRAFFIC STRIPING

PAVEMENT MARKERS

CLARK COUNTY AREA

TYPICAL LANE DELINEATION IN TRANSITION SECTIONS

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS

SPECIFICATION REFERENCE

DATE 6-11-93  DWG. NO.  245  SHEET 1 OF 3
NOTE:
PAINT MAY BE USED IN LIEU OF TAPE AND/OR RAISED PAVEMENT MARKERS AT THE DISCRETION OF THE ENGINEER.
SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DATE 6-11-93  DWG. NO. 245  SHEET 3 OF 3

TYPICAL LANE DELINEATION IN TRANSITION SECTIONS WHERE TRAFFIC FLOW IN SAME DIRECTION

PAVEMENT MARKER DETAIL

TAPE OR PAINT DETAIL

AGENCY APPROVED  B  C  H  L  M  N

28  PAINTING TRAFFIC STRIPING

33  PAVEMENT MARKERS

24" CHEVRON MARKING TAPE OR PAINT (WHITE)

5' 8" STRIPE TAPE OR PAINT (WHITE)

25' 45°

5'

(White)
1. STORAGE LENGTH TO BE DETERMINED BY TRAFFIC ENGINEER.
2. SEE DRAWING NO. 244.9 FOR BIKE LANE LEGEND AND SIGNAGE.
3. WHERE ADDITIONAL MOTORIST GUIDANCE IS DEEMED NECESSARY BY THE TRAFFIC ENGINEER, INSTALL R3-7R SIGN AND ARROW SYMBOL PAVEMENT MARKINGS FOR THE LENGTH OF THE STORAGE LINE. APPROVED TYPE II PAVEMENT MARKING FILM SHALL BE USED FOR SYMBOL MARKINGS.
4. SEE DRAWING NO. 241. NOTE 1 FOR STANDARD PAVEMENT MARKERS ADDED TURN LANE.
1. STORAGE LENGTH TO BE DETERMINED BY TRAFFIC ENGINEER.
2. SEE DRAWING NUMBER 244.9 FOR BIKE LANE LEGEND AND SIGNAGE.
3. WHERE ADDITIONAL MOTORIST GUIDANCE IS DEEMED NECESSARY BY THE ENGINEER, INSTALL R3-7R SIGN AND ARROW SYMBOL PAVEMENT MARKINGS FOR THE LENGTH OF THE STORAGE LINE. APPROVED TYPE II PAVEMENT MARKING FILM SHALL BE USED FOR SYMBOL MARKINGS.
4. SEE DWG. 244.9 NOTE 1 FOR STANDARD PAVEMENT MARKERS ADDED TURN LANE.
5. THE ABOVE DETAIL SHOULD BE FOLLOWED IN SITUATIONS WHERE THERE IS NOT ADEQUATE SPACE TO PROVIDE A SEPARATE BICYCLE LANE.
1. FORCED RIGHT-TURN LAKES AND LONG RIGHT TURN POCKETS ARE NOT DESIRABLE FOR BICYCLISTS AND SHOULD BE AVOIDED WHEN POSSIBLE.

2. SEE DRAWING NO. 244.9 FOR BIKE LANE DELINEATION, LEGEND, AND SIGNAGE DETAILS.

3. SEE DRAWING NO. 246.3 FOR DETAILS ON THE FORCED TURN LANE.
NOTES:

1. A SOLID BICYCLE LANE STRIPE SHOULD CONTINUE ACROSS DRIVEWAY ACCESS POINTS.
2. SEE DRAWING NO. 244.9 FOR BIKE LANE LEGEND AND SIGNAGE DETAILS.
NOTES:
1. SEE DRAWING NUMBER 244.9 FOR BIKE LANE LEGEND AND SIGNAGE DETAILS.
2. USE 2 FOOT LONG SKIP LINE, 8 FEET ON CENTER, FOR LOCATIONS WITH BUS STOPS. TRANSITION FROM SOLID LINE TO SKIP LINE FOR 150 FEET CENTERED ON BUS STOP.
FORCED LEFT TURN LANE

1. The minimum length of storage line is 250 ft. on arterials and 150 ft. on all others.
2. A minimum of 2 R3-7R or R3-7L signs shall be installed in advance of the intersection at distances approved by the engineer. Recommended locations are shown above.
3. One set of pavement markings containing one arrow symbol and one "only" symbol shall be placed at the beginning of the drop lane.
4. Where additional motorist guidance is deemed necessary by the engineer, additional arrow and "only" symbol pavement markings and overhead mounted R3-5 signs may be installed. Symbols shall be approved type II pavement marking film.
5. Approved type I pavement marking film or raised pavement markers may be used for additional guidance at the discretion of the engineer.
6. Storage lane line and skip lines shall be approved type I pavement marking film or if approved by the engineer, raised pavement markers may be used.

TYP. DROP LINE LENGTHS

<table>
<thead>
<tr>
<th>POSTED SPEED (MPH)</th>
<th>LENGTH (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>240</td>
</tr>
<tr>
<td>30</td>
<td>320</td>
</tr>
<tr>
<td>35</td>
<td>400</td>
</tr>
<tr>
<td>40</td>
<td>480</td>
</tr>
<tr>
<td>45</td>
<td>500</td>
</tr>
<tr>
<td>50</td>
<td>600</td>
</tr>
<tr>
<td>55</td>
<td>720</td>
</tr>
</tbody>
</table>

FORCED RIGHT TURN LANE

NOTES:

1. The minimum length of storage line is 250 ft. on arterials and 150 ft. on all others.
2. A minimum of 2 R3-7R or R3-7L signs shall be installed in advance of the intersection at distances approved by the engineer. Recommended locations are shown above.
3. One set of pavement markings containing one arrow symbol and one "only" symbol shall be placed at the beginning of the drop lane.
4. Where additional motorist guidance is deemed necessary by the engineer, additional arrow and "only" symbol pavement markings and overhead mounted R3-5 signs may be installed. Symbols shall be approved type II pavement marking film.
5. Approved type I pavement marking film or raised pavement markers may be used for additional guidance at the discretion of the engineer.
6. Storage lane line and skip lines shall be approved type I pavement marking film or if approved by the engineer, raised pavement markers may be used.
NOTES:
1. LENGTH OF STORAGE LANE LINE IS TWO THIRDS OF THE TURN LANE STORAGE LENGTH.
2. WHERE ADDITIONAL MOTORIST GUIDANCE IS DEEMED NECESSARY BY THE ENGINEER, INSTALL ARROW SYMBOL PAVEMENT MARKINGS FOR THE LENGTH OF THE STORAGE LINE.
3. PAVEMENT MARKINGS SHALL BE TYPE I TAPE OR PAINT AS DIRECTED BY THE ENGINEER.
4. INSTALL "NO PARKING" SIGNS FOR ENTIRE LENGTH OF TURN LANE. WHERE ADDITIONAL MOTORIST GUIDANCE IS DEEMED NECESSARY BY THE ENGINEER, INSTALL R3-7R SIGNS.
NOTES:

1. THE MINIMUM LENGTH OF DOTTED LINES IS 150 FT. ON MAJOR/MAJOR INTERSECTION.

2. A MINIMUM OF 1 R3-7R AND R3-BE; 1 USD 246.10 SIGNS SHALL BE INSTALLED IN ADVANCE OF THE INTERSECTION AT DISTANCES APPROVED BY THE ENGINEER. RECOMMENDED LOCATIONS ARE SHOWN ABOVE.

3. DOTTED WHITE LINES SHALL NOT BE RAISED PAVEMENT MARKERS.
NOTES:

1. The minimum length of dotted lines to be 100 ft.

2. A minimum of 1 @ R3-7R and R3-8E; 1 @ USD 246.10 signs shall be installed in advance of the intersection at distances approved by the engineer. Recommended locations are shown.

3. Dotted white lines shall not be raised pavement markers.
SIGN NUMBER: SP-1
WIDTH: 30"
HEIGHT: 42"
BORDER WIDTH: 0.75"
BORDER RADII: 1.875"
BACKGROUND COLOR: WHITE
LEGEND & BORDER COLOR: BLACK
**NOTES:**

1. LENGTH OF STORAGE LINE IS TWO THIRDS OF THE ADDED TURN BAY. (MIN. 100')
2. WHERE ADDITIONAL MOTORIST GUIDANCE IS DEEMED NECESSARY BY THE ENGINEER, INSTALL R3-7R SIGN AND ARROW SYMBOL PAVEMENT MARKINGS FOR THE LENGTH OF THE STORAGE LINE. SYMBOLS SHALL BE APPROVED TYPE II PAVEMENT MARKING FILM.
3. APPROVED TYPE II PAVEMENT MARKING FILM OR RAISED PAVEMENT MARKERS MAY BE USED FOR ADDITIONAL GUIDANCE AT THE DISCRETION OF THE ENGINEER.
4. STORAGE LANE LINE SHALL BE APPROVED TYPE I PAVEMENT MARKING FILM OR IF APPROVED BY THE ENGINEER, RAISED PAVEMENT MARKERS MAY BE USED.
TYPE A & B
MARKER DETAIL
(NON-REFLECTIVE)

4"

0.12"

0.30" TO 0.750"

TYPE C, D, E & F
MARKER DETAIL
(REFLECTIVE)

3" MIN.

0.12"

4½ MAX.

0.725 MAX.

LANE MARKER SCHEDULE

TYPE A  ●   CIRCULAR WHITE CERAMIC MARKER

TYPE B  ○   CIRCULAR YELLOW CERAMIC MARKER

TYPE C  ■   TWO WAY YELLOW REFLECTOR

TYPE D  □   ONE WAY YELLOW REFLECTOR,
YELLOW TOWARD ONCOMING TRAFFIC

TYPE E  □   ONE WAY WHITE REFLECTOR,
WHITE TOWARD ONCOMING TRAFFIC

TYPE F  ●   TWO WAY WHITE AND RED REFLECTOR,
WHITE TOWARD ONCOMING TRAFFIC

AGENCY APPROVED  B  C  H  L  M  N

SPECIFICATION REFERENCE

33  PAVEMENT MARKERS

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

MARKER DETAILS AND LANE MARKER SCHEDULE

DATE  5-13-99  DWG. NO.  247
SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DATE 6-11-93

DWG. NO. 248

**MEDIAN NOSE MARKINGS**

**SPACING TABLE**

<table>
<thead>
<tr>
<th>&quot;W&quot;</th>
<th>NUMBER OR REFLECTORS PER MEDIAN NOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0' TO 2.0'</td>
<td>3</td>
</tr>
<tr>
<td>2.0' TO 3.0'</td>
<td>4</td>
</tr>
<tr>
<td>3.0' TO 4.0'</td>
<td>5</td>
</tr>
<tr>
<td>4.0' &amp; GREATER</td>
<td>1 EACH FOR EVERY 1.0' OF CURB LENGTH</td>
</tr>
</tbody>
</table>


**NOTES:**

1. ENTIRE MEDIAN SHALL BE PAINTED WITH REFLECTIVE PAINT, OF SAME COLOR AS REFLECTIVE MARKERS, FROM THE MEDIAN NOSE BACK 5 FEET OR TO THE P.C., WHICHEREVER IS GREATER.

2. REFLECTIVE PAVEMENT MARKERS USED ON MEDIAN SHALL CONFORM TO STANDARD DRAWING NO. 247.

3. ORIENTATION OF THE REFLECTIVE MARKERS FACES SHALL BE MADE IN THE FIELD TO ENSURE THAT MARKERS ARE AIMED AT APPROACHING VEHICLES TO BEST ADVANTAGE, ESPECIALLY IN HORIZONTALLY CURVED ROAD SECTIONS.
NOTES:

1. ALL COMPONENTS SHALL BE MINIMUM 12 GA. SQUARE POST WITH 7/16" PUNCHED THRU HOLES
   □ 1" ON CENTER, ON ALL FOUR SIDES. ANCHORS SHALL BE TWO PIECE BREAKAWAY ANCHORS.
2. ATTACH ANCHOR AND SLEEVE TOGETHER PRIOR TO DRIVING INTO GROUND. LEAVE AT LEAST
   TWO HOLES, BUT NO MORE THAN THREE HOLES ABOVE GROUND OR ABOVE SIDEWALK.
3. FOR SIDEWALK INSTALLATION, DRILL SIDEWALK AND CONCRETE PAD INSTALLATION, DRILL A 3"
   TO 4" DIA. HOLE (DEPENDENT UPON ANCHOR SIZE), THE CENTER TO BE 6" FROM THE BACK
   OF SIDEWALK.
4. ATTACH POST TO ANCHORING SYSTEM BY USING AT LEAST TWO 3/8" DIA. DRIVE RIVETS.
5. PROVIDE 4" MINIMUM LAP BETWEEN BOTTOM OF POST AND THE BOTTOM OF THE
   ANCHOR/SLEEVE ASSEMBLY.
6. SIGNS LARGER THAN 24" x 30" REQUIRE 3/8" x 1-1/2" FENDER WASHERS UNDER DRIVE RIVETS.
7. "U-CHANNEL" POSTS ARE NOT ACCEPTABLE.
8. BOLTS IN LIEU OF DRIVE RIVETS ARE NOT ACCEPTABLE.
9. ALL URBAN SIGN INSTALLATIONS ARE TO BE INSTALLED IN A CONCRETE SIDEWALK, OR IN A
   CONCRETE PAD (24" x 24" x 4") WHEN NO SIDEWALK EXISTS.
10. INSTALLATION OF SIGNS SHALL MEET LATEST ADA REQUIREMENTS.
11. SIGNS SHALL HAVE A STICKER AT THE BACK WITH THE NAME OF THE CONTRACTOR
    AND THE DATE OF INSTALLATION.

AGENCY APPROVED

B  C  H  L  M  N

SPECIFICATION REFERENCE
131 STREET NAME SIGNS

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SIGN INSTALLATION DETAIL

DATE 11-10-04 DWG. NO. 249.1
NOTES:

1. ALL COMPONENTS SHALL BE SQUARE POST, PERFORATED ON ALL FOUR SIDES.

2. ATTACH ANCHOR AND SLEEVE TOGETHER PRIOR TO DRIVING INTO GROUND. LEAVE AT LEAST ONE HOLE, BUT NO MORE THAN TWO, ABOVE GROUND OR ABOVE SIDEWALK.

3. FOR SIDEWALK INSTALLATION, DRILL SIDEWALK WITH A 3" HOLE, THE CENTER TO BE 6" FROM BACK OF SIDEWALK.

4. ATTACH POST TO ANCHORING SYSTEM BY USING AT LEAST TWO 3/8" DIA. DRIVE RIVETS.

5. PROVIDE 4" MINIMUM LAP BETWEEN POST AND THE ANCHOR/SLEEVE ASSEMBLY.

☐ ALL STREET NAME SIGNS SHALL BE 9 INCH STANDARD IN THE CITY OF MESQUITE ONLY.
12" (MAJOR STREETS)

9" (MINOR STREETS)

NOTES:

1. SIGN SHALL BE WHITE LETTERS AND NUMBERS ON GREEN BACKGROUND. (THE CITY OF NORTHLAS VEGAS BACKGROUND IS BLUE.) CUT-OUT LETTERS AND NUMBERS ARE NOT ACCEPTABLE (EXCEPT FOR THE BLOCK NUMBER).

2. REFLECTIVE SHEETING MATERIAL SHALL BE TYPE XI.

3. PRIMARY COPY FOR 9" AND 12" SIGNS SHALL BE 4" SERIES C: UPPERCASE WITH 4 1/2" SERIES C: LOWERCASE. HOWEVER, WHEN DESCENDERS ARE REQUIRED ON 9" SIGNS, PRIMARY COPY SHALL BE 5 1/2". ORDINAL, SUFFIX AND BLOCK NUMBER SHALL BE 3" SERIES C: UPPERCASE. (ORDINAL MAY BE OMITTED FROM 12" SIGNS, EXCEPT IN CLARK COUNTY.) SPACING BETWEEN LETTERS SHALL BE AS ON SHEET 2 OF THIS DRAWING.

4. THE SIGN SHALL HAVE A MINIMUM LENGTH OF 30". WHERE EXTRA LENGTH IS REQUIRED, IT SHALL BE PROVIDED IN 1" INCREMENTS. GROUND MOUNTED SIGNS SHALL HAVE A MAXIMUM LENGTH OF 42".

5. BOTH SIGNS PLACED ON MAJOR STREETS WITH RIGHTS-OF-WAY OF 80' OR GREATER SHALL HAVE A HEIGHT OF 12". SIGNS PLACED ON MINOR STREETS WITH RIGHTS-OF-WAY OF LESS THAN 80' SHALL HAVE A HEIGHT OF 9".

6. 12" SIGNS SHALL HAVE A 1/2" WHITE BORDER AT THE EDGE.

7. SIGN BLANKS SHALL HAVE ROUNDED CORNERS.
SPACING OF STREET NAME SIGN LEGENDS

SPACING FOR STREET NAME SIGN LEGENDS SHALL BE OBTAINED BY MODIFICATION TO THE REQUIREMENTS OF THE FHWA STANDARD SPACING CHART FOR UPPERCASE LETTERS. THE FOLLOWING STEPS SHALL BE USED TO DETERMINE REQUIRED SPACING:

1. SIGN LAYOUT COMPUTER SOFTWARE SHALL BE EVALUATED TO DETERMINE THE "CORRECTION FACTOR" NECESSARY FOR LAYOUT SOFTWARE LETTER SPACING TO BE APPROXIMATELY EQUAL TO THE FHWA STANDARD SPACING FOR UPPERCASE LETTERS.

2. CORRECTION FACTOR SHALL BE USED TO ADJUST THE SPACING FOR THE LOWERCASE LETTERS.

3. SPACING FOR STREET NAME SIGN LEGENDS SHALL BE EQUAL TO $1\frac{10}{10}$ OF THE "CORRECTED" LAYOUT SOFTWARE LETTER SPACING.

(SAME STEPS ARE TO BE FOLLOWED WHEN FONT SIZE OF LEGEND IS REDUCED IN ORDER NOT TO EXCEED THE MAXIMUM LENGTH LIMITATIONS.)

IF LEGEND SPACED ACCORDING TO RECOMMENDED PROCEDURE ABOVE EXCEEDS THE MAXIMUM ALLOWABLE SIGN LENGTH (42" FOR GROUND-MOUNTED), THE FOLLOWING ACTIONS, LISTED IN PRIORITY ORDER, SHALL BE TAKEN TO REDUCE LENGTH OF THE SIGNBLANK.

A. REDUCE THE FONT TO 5 1/2" SERIES "C".
B. REDUCE THE SPACING TO 100% OF THE "FEDERAL STANDARD".
C. REDUCE THE FONT TO 5 1/2" SERIES "B".
D. CONSIDER ABBREVIATING ANY LEGEND WORDS WHICH ARE EXTREMELY COMMON (I.E., "MTN" FOR "MOUNTAIN") SUCH ABBREVIATIONS MUST BE APPROVED BY THE TRAFFIC ENGINEER AND THE FIRE DEPARTMENT.
E. REDUCE THE LEADING AND TRAILING BLANK GREEN SPACE BY 50%.
F. CONSTRUCT THE SIGN ACCORDING TO THE STANDARD SPACING WHICH WILL BE GREATER THAN 42" IN LENGTH, AND MOUNT ON A STREETLIGHT POLE OR OTHER ELEVATED MOUNT AS APPROVED BY THE TRAFFIC ENGINEER WITH APPROPRIATE SIGN BRACING AND MOUNTING HARDWARE.

<table>
<thead>
<tr>
<th>SPECIFICATION REFERENCE</th>
<th>AGENCY APPROVED</th>
<th>B</th>
<th>C</th>
<th>H</th>
<th>L</th>
<th>M</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>STREET NAME SIGNS</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>71</td>
<td>SIGN MATERIALS</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

STREET NAME SIGNS
LETTER SPACING

DATE 6-12-97  DWG. NO. 250  SHEET 2 OF 2
STREET NAME SIGNS

SIGN MATERIALS

ALUMINUM BLANK

5052-H38 OR 6061-T6, HEAT-TREATED, HIGH TENSILE, DEGREASED AND ALODINE 1200 FINISH. THICKNESS TO BE 0.080" FOR SIGNS LESS THAN 36" AND 0.100" FOR SIGNS 36" AND LONGER.

NOTE:

1. FOR SIGN FACE SPECIFICATIONS SEE STANDARD DRAWING NO. 250.
1. FENCING SHALL BE CHAIN LINK AND SHALL CONSIST OF GALVANIZED CHAIN LINK FABRIC ON STEEL POSTS.
   (A) ALL POSTS TOPS SHALL BE FITTED WITH SUITABLE FINIALS.
   (B) BRACES SHALL BE SPACED APPROXIMATELY 12" BELOW TOP OF TERMINAL POSTS AND SHALL EXTEND FROM END, GATE, OR CORNER POSTS TO FIRST ADJACENT LINE POST.
   (C) ALL FITTINGS SHALL BE HOT-DIPPED GALVANIZED MALLEABLE, CAST IRON, OR PRESSED STEEL.
   (D) TOP AND BOTTOM SELVAGES OF THE FENCE SHALL HAVE A TWISTED AND BARBED FINISH.

2. BARBED WIRE, EXTENSION ARMS, AND TOP HORIZONTAL RAILS SHALL BE INSTALLED ONLY WHEN SHOWN ON THE PLANS AND/OR CALLED FOR IN THE SPECIAL PROVISIONS.

### TABLE I
FOR CHAIN LINK FENCE 72" AND LESS

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>MIN. SIZE</th>
<th>MIN. WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>END, CORNER PULL</td>
<td>2.351 O.D.</td>
<td>3.10</td>
</tr>
<tr>
<td>LINE</td>
<td>2.00 O.D.</td>
<td>2.72</td>
</tr>
<tr>
<td>BRACES</td>
<td>1.30 O.D.</td>
<td>2.27</td>
</tr>
<tr>
<td>TOP RAIL</td>
<td>1.30 O.D.</td>
<td>2.27</td>
</tr>
</tbody>
</table>

---

AGENCY APPROVED | B | C | H | L | M | N

SPECIFICATION REFERENCE

<table>
<thead>
<tr>
<th>501 CONCRETE</th>
</tr>
</thead>
</table>

FENCING

CHAIN LINK FENCE (72 INCH HIGH OR LESS)

DATE 12-14-00 | DWG. NO. 252
**CHAIN LINK GATES**

**DATE**

**DWG. NO.** 253

**SPECIFICATION REFERENCE**

**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**FRAME MEMBERS**

Typical (2" O.D. □ 2.72 lbs./ft.)

**CHAIN LINK FABRIC**

**CONCRETE**

**STEEL DROP BAR**

(1/2" §)

**TOP HINGE**

(180° SWING)

**BOTTOM HINGE**

(180° SWING)

**TRUSS RODS**

(3/8" ROUND ROD W/TAKE-UP)

**STRETCHER RODS**

**GATE SWING POST**

**TOP HINGE**

(90° SWING)

**BOTTOM HINGE**

(90° SWING)

**FABRIC BAND**

**GATE SWING POST DIA.**

<table>
<thead>
<tr>
<th>GATE SIZE</th>
<th>PIPE DIA.</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ AND LESS</td>
<td>3&quot; O.D. - 5.79 lbs./ft.</td>
</tr>
<tr>
<td>□ 10&quot;</td>
<td>4&quot; O.D. - 9.10 lbs./ft.</td>
</tr>
</tbody>
</table>

**CHAIN LINK GATES**

**AGENCY APPROVED**

B  C  H  L  M  N

**SPECIFICATION REFERENCE**

501  CONCRETE

1  FENCING
TYPICAL MARKING
CURB RAMP IN
MIDDLE OF
CURB RETURN

CURB LINE
PROJECTED (TYP.)

3' MIN.

48" MIN.

48" MIN.

NOTE:
USE MARKING PER
OPTIONAL DETAIL IF
NECESSARY TO OBTAIN
3' MINIMUM CLEARANCE
BETWEEN CROSSWALK
AND CURB LINE
PROJECTED.

TYPICAL MARKING
CURB RAMP
ADJOINING
CURB RETURN

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA
SUPPLEMENTAL DRAWING

CROSSWALK MARKINGS - TYPE II

AGENCY APPROVED  B  H  L  M  N

DATE 8-12-99  DWG. NO. 254.1.S1
TYPICAL CROSSWALK
STRIPING DETAIL

MEDIAN ISLAND (AS APPLICABLE)

2' TYP

5' TYP

3' MIN

10' TYP

2' WIDE BARS TO BE CENTERED BETWEEN LANE LINES AND ON LANE LINES (TYP)

4' MIN

LANE LINES

TYPICAL CROSSWALK
STRIPING DETAIL

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

CROSSWALK MARKINGS - TYPE I

DATE 11-12-09  DWG. NO. 254
1. 12 FOOT WIDTH IS RECOMMENDED. 10 FOOT WIDTH IS ALLOWABLE ALONG A PATH PARALLEL TO A ROADWAY OR WHERE SPACE IS LIMITED. PAVEMENT AND BASE DEPTH WILL VARY BASED ON SOIL CONDITIONS. PORTLAND CEMENT CONCRETE (PCC) MAY BE USED INSTEAD OF ASPHALT AND PCC MAY BE REQUIRED BY THE LOCAL JURISDICTION.

2. SEE DRAWING NUMBER 255 FOR SHARED USE PATH NOT ALONG A ROADWAY.

3. SEE THE GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES, ASSHTO 1999, AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR ADDITIONAL GUIDELINES AND STANDARDS.

4. SEE LOCAL JURISDICTIONS FOR LANDSCAPING REQUIREMENTS.

5. 3 FOOT LATERAL CLEARANCE RECOMMENDED BETWEEN EDGE OF PATH AND A FIXED OBJECT, 2 FOOT MINIMUM.

IF 16 FEET IS NOT AVAILABLE FROM THE BACK OF CURB TO THE RIGHT-OF-WAY LINE, A BICYCLE LANE/ROUTE AND THE SIDEWALK WILL SUBSTITUTE FOR THE PATH. PLACE A PATH ENDS SIGN (W9) 25 FEET IN ADVANCE OF THE PATH ENDING.

---

**NOTES:**

**SPECIFICATION REFERENCE**

| #28 | PAINTING TRAFFIC STRIPING |
| #33 | PAVEMENT MARKERS |

**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**SHARED USE PATH**

**ALONG A ROADWAY**

**DATE** 7-10-03  **DWG. NO.** 255.1
NOTES:
1. USE ENGINEERING JUDGEMENT TO APPLY THIS DETAIL TO SIMILAR SCENARIOS.
2. SEE DRAWING NO. 235, CASE III, FOR SIDEWALK RAMP DETAILS.
### SIGN SIZES FOR SHARED-USE PATHS

<table>
<thead>
<tr>
<th>MUTCD CODE</th>
<th>SIGN</th>
<th>MINIMUM SIGN SIZE (IN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1-1</td>
<td>STOP</td>
<td>18 X 18</td>
</tr>
<tr>
<td>R1-2</td>
<td>YIELD</td>
<td>24 X 24 X 24</td>
</tr>
<tr>
<td>R3-1, 1A, 17, 17A</td>
<td>BICYCLE LANE</td>
<td>24 X 30</td>
</tr>
<tr>
<td>R4-1, 2, 3, 7</td>
<td>MOVEMENT RESTRICTION</td>
<td>12 X 18</td>
</tr>
<tr>
<td>R4-4</td>
<td>BEGIN RIGHT TURN LANE YIELD TO BIKES</td>
<td>3 X 30</td>
</tr>
<tr>
<td>R5-3</td>
<td>NO MOTOR VEHICLES</td>
<td>24 X 24</td>
</tr>
<tr>
<td>R5-5, 9A</td>
<td>BICYCLE PROHIBITION</td>
<td>24 X 24</td>
</tr>
<tr>
<td>R7-9, 9A</td>
<td>NO PARKING BIKE LANE</td>
<td>12 X 18</td>
</tr>
<tr>
<td>R9-3A</td>
<td>PEDESTRIANS PROHIBITED</td>
<td>18 X 18</td>
</tr>
<tr>
<td>R9-5-7</td>
<td>BICYCLE REGULATORY</td>
<td>12 X 18</td>
</tr>
<tr>
<td>R9-7</td>
<td>SHARED-USE PATH RESTRICTION</td>
<td>12 X 18</td>
</tr>
<tr>
<td>R15-1</td>
<td>RAILROAD CROSSBUCK</td>
<td>24 X 4.5</td>
</tr>
<tr>
<td>W1-1, 2, 3, 4, 5</td>
<td>TURN AND CURVE WARNING</td>
<td>18 X 18</td>
</tr>
<tr>
<td>W1-7</td>
<td>ARROW WARNING</td>
<td>24 X 12</td>
</tr>
<tr>
<td>W2-1, 2, 3, 4, 5</td>
<td>INTERSECTION WARNING</td>
<td>18 X 18</td>
</tr>
<tr>
<td>W3-1A, 2A, 3</td>
<td>STOP, YIELD, SIGNAL AHEAD</td>
<td>18 X 18</td>
</tr>
<tr>
<td>W5-2A</td>
<td>ROAD NARROWS</td>
<td>18 X 18</td>
</tr>
<tr>
<td>W5-4</td>
<td>BIKEWAY NARROWS</td>
<td>18 X 18</td>
</tr>
<tr>
<td>W7-5</td>
<td>HILL SIGN</td>
<td>18 X 18</td>
</tr>
<tr>
<td>W8-1, 2</td>
<td>BUMP OR DIP</td>
<td>18 X 18</td>
</tr>
<tr>
<td>W8-10</td>
<td>BICYCLE SURFACE CONDITION</td>
<td>18 X 18</td>
</tr>
<tr>
<td>W10-1</td>
<td>ADVANCE GRADE CROSSING</td>
<td>18 DIA</td>
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<tr>
<td>W11-1</td>
<td>BICYCLE CROSSING</td>
<td>18 X 18</td>
</tr>
<tr>
<td>W12-2</td>
<td>LOW CLEARANCE</td>
<td>18 X 18</td>
</tr>
<tr>
<td>W1-1</td>
<td>SHARE THE ROAD PLAQUE</td>
<td>24 X 30</td>
</tr>
<tr>
<td>D1-1</td>
<td>SUPPLEMENTAL BIKE ROUTE PLAQUE</td>
<td>24 X 6</td>
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<tr>
<td>D4-3</td>
<td>BICYCLE PARKING</td>
<td>12 X 18</td>
</tr>
<tr>
<td>D11-1</td>
<td>BIKE ROUTE</td>
<td>24 X 18</td>
</tr>
<tr>
<td>M1-8</td>
<td>BIKE ROUTE MARKER</td>
<td>12 X 18</td>
</tr>
<tr>
<td>M1-9</td>
<td>BIKE ROUTE MARKER</td>
<td>18 X 24</td>
</tr>
<tr>
<td>M4-11, 12, 13</td>
<td>SUPPLEMENTAL BICYCLE ROUTE GUIDE</td>
<td>12 X 4</td>
</tr>
<tr>
<td>M7-1, 2, 3, 4, 5, 7</td>
<td>ROUTE MARKER SUPPLEMENTAL PLAQUES</td>
<td>12 X 9</td>
</tr>
</tbody>
</table>

**NOTES:**
1. SIGN TABLE INSERTED FROM MUTCD FOR REFERENCE. SEE CURRENT MUTCD FOR UPDATED INFORMATION.
2. SIGNS R3-1(A), R3-17(A), R4-4, W5-2A, AND W1-1 NOT USED FOR SHARED USE PATHS.
NOTES:

1. USE BOLLARDS ONLY AT LOCATIONS WHERE UNAUTHORIZED ACCESS IS ANTICIPATED. INSTALL EITHER 1 OR 3 (5 FOOT SPACING DESIRABLE) SIX-INCH DIAMETER BOLLARDS WHEN NECESSARY. CENTERLINE DELINEATION SHOULD BE PROVIDED AT APPROACH TO INTERSECTION EVEN WHEN BOLLARD IS NOT PROVIDED.

2. ANY OBSTRUCTION IN PATH SHOULD BE REMOVED. IF OBSTRUCTION CANNOT BE REMOVED, OBSTRUCTION MUST BE REFLECTORIZED.

3. USE CENTERLINE DELINEATION AT APPROACHES TO INTERSECTIONS AND AROUND OBSTRUCTIONS IN ALL CASES. ONLY USE CENTERLINE DELINEATION IN OTHER CASES WHERE CONFLICTS BETWEEN USERS TRAVELING IN OPPOSITE DIRECTIONS ARE ANTICIPATED.
SHARED USE PATH

NOTES:
1. 12 FOOT WIDTH IS RECOMMENDED. 10 FOOT WIDTH IS ALLOWABLE ALONG A PATH PARALLEL TO A ROADWAY OR WHERE SPACE IS LIMITED. PAVEMENT AND BASE DEPTH WILL VARY BASED ON SOIL CONDITIONS. PORTLAND CEMENT CONCRETE MAY BE USED INSTEAD OF ASPHALT.
2. SEE DRAWING NUMBER 255.1 FOR SHARED USE PATH ALONG A ROADWAY.
3. SEE THE GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES, AASHTO 1999, AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR ADDITIONAL GUIDELINES AND STANDARDS.
4. SEE LOCAL JURISDICTIONS FOR LANDSCAPING REQUIREMENTS.

<table>
<thead>
<tr>
<th>AGENCY APPROVED</th>
<th>B</th>
<th>C</th>
<th>H</th>
<th>L</th>
<th>M</th>
<th>N</th>
</tr>
</thead>
</table>

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SPECIFICATION REFERENCE
- 28 PAINTING TRAFFIC STRIPING
- 33 PAVEMENT MARKERS

SHARED USE PATH

DATE 7-10-03  DWG. NO. 255
NOTES:

1. USE ENGINEERING JUDGEMENT TO APPLY THIS DETAIL TO SIMILAR SCENARIOS.
2. CONTACT AGENCY'S TRAFFIC ENGINEER TO VERIFY IF AGENCY PREFERENCES TO USE A W11-1 (BICYCLE) SIGN IN PLACE OF THE W11-2 SIGN.

SPECIFICATION REFERENCE

<table>
<thead>
<tr>
<th>B</th>
<th>C</th>
<th>H</th>
<th>L</th>
<th>M</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>PAINTING TRAFFIC STRIPING</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>PAVEMENT MARKERS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

SHARED USE PATH CROSSING OF FREE RIGHT TURN LANE

DATE 7-10-03  DWG. NO. 25
1. INSTALL STREETLIGHT STANDARDS AT INTERSECTIONS INCLUDING "L" AND "T" TYPES, PER STANDARD DRAWINGS 301 THROUGH 310 IN ACCORDANCE WITH THE APPROPRIATE RIGHT-OF-WAY.

2. STREET CLASSIFICATION AND STREETLIGHT STANDARD APPLICATION SHALL BE AS LISTED IN TABLE 1 BELOW. ACTUAL LUMINAIRE WATTAGE AND/OR STREETLIGHT STANDARD SPACING MAY BE VARIED BY THE ENGINEER, WHEN SUPPORTED BY AN APPROVED LIGHTING STUDY IN ACCORDANCE WITH THE IES RECOMMENDED PRACTICE FOR ROADWAY LIGHTING IN ORDER TO MEET CURRENT AND FUTURE TRAFFIC CONTROL NEEDS AND APPROVED BY THE RESPECTIVE AGENCY. AVERAGE LEVELS ARE MAINTAINED LEVELS AT A 0.8 MAINTENANCE FACTOR (0.82 FOR CLARK COUNTY) IN FOOTCANDLES MEASURED HORIZONTALLY AT THE SURFACE.

<table>
<thead>
<tr>
<th>CLASSIFICATION</th>
<th>R/W OR MORE</th>
<th>LUMINAIRE (H.P.S.)</th>
<th>AVG. IES LIGHTING LEVEL</th>
<th>IES UNIFORMITY AVG/MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTERIAL</td>
<td></td>
<td>250W</td>
<td>1.58 FC</td>
<td>3:1</td>
</tr>
<tr>
<td>MAJOR COLLECTOR</td>
<td>80' OR MORE</td>
<td>150W 250W (CC)</td>
<td>0.84 FC</td>
<td>4:1</td>
</tr>
<tr>
<td>MINOR COLLECTOR</td>
<td>100' OR LESS</td>
<td>150W 100W (CC)</td>
<td>0.38 FC</td>
<td>1:1</td>
</tr>
<tr>
<td>RESIDENTIAL</td>
<td>51' OR LESS</td>
<td>100W</td>
<td>0.38 FC</td>
<td>1:1</td>
</tr>
</tbody>
</table>

3. NEW STREETLIGHT STANDARDS INSTALLED ADJACENT TO OR OPPOSITE FROM EXISTING STREETLIGHTS SHALL MATCH THE EXISTING LOCATION, SPACING, POLE AND LUMINAIRE TYPES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

4. STREETLIGHT STANDARDS INSTALLED ON 60' OR LESS RIGHT-OF-WAYS MAY BE INSTALLED ON EITHER SIDE OF ROADWAY AS DIRECTED BY THE ENGINEER.

5. TRAFFIC SIGNAL FOUNDATIONS AND ADAPTOR PLATES MAY BE REQUIRED AT INTERSECTIONS AS DIRECTED BY THE ENGINEER.

6. AT LEAST ONE STREETLIGHT SHALL BE REQUIRED IN THE BULB SECTION OF A CUL-DE-SAC OR HAMMERHEAD. LOCATION SHALL BE AS REQUIRED BY THE ENGINEER.
1. INSTALL STREETLIGHT STANDARDS AT INTERSECTIONS INCLUDING "L" AND "T" TYPES, PER STANDARD DRAWINGS 301 THROUGH 310 IN ACCORDANCE WITH THE APPROPRIATE RIGHT-OF-WAY.

2. STREET CLASSIFICATION AND STREETLIGHT STANDARD APPLICATION SHALL BE AS LISTED IN TABLE 1 BELOW. ACTUAL LUMINARE WATTAGE AND/OR STREETLIGHT STANDARD SPACING MAY BE VARIED BY THE ENGINEER, WHEN SUPPORTED BY AN APPROVED LIGHTING STUDY IN ACCORDANCE WITH THE IES RECOMMENDED PRACTICE FOR ROADWAY LIGHTING IN ORDER TO MEET CURRENT AND FUTURE TRAFFIC CONTROL NEEDS AND APPROVED BY THE RESPECTIVE AGENCY. AVERAGE LEVELS ARE MAINTAINED LEVELS AT A 0.8 MAINTENANCE FACTOR IN FOOTCANDLES MEASURED HORIZONTALLY AT THE SURFACE.

3. NEW STREETLIGHT STANDARDS INSTALLED ADJACENT TO OR OPPOSITE FROM EXISTING STREETLIGHTS SHALL MATCH THE EXISTING LOCATION, SPACING, POLE AND LUMINARE TYPES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

4. STREETLIGHT STANDARDS INSTALLED ON 60' OR LESS RIGHT-OF-WAYS MAY BE INSTALLED ON EITHER SIDE OF ROADWAY AS DIRECTED BY THE ENGINEER.

5. TRAFFIC SIGNAL FOUNDATIONS AND ADAPTOR PLATES MAY BE REQUIRED AT INTERSECTIONS AS DIRECTED BY THE ENGINEER.

6. AT LEAST ONE STREETLIGHT SHALL BE REQUIRED IN THE BULB SECTION OF A SIGNALIZED INTERSECTIONS.

7. LUMINARE SPECIFICATIONS (MINIMUM VALUES)
   - 80% LIGHT OUTPUT @ 80,000 HR LIFE
   - SCOTOPIC/PHOTOPIC RATIO OF LIGHT SOURCE 1.8
   - HIGH COLOR RENDITIONS 80 CRI
   - 10 YEAR WARRANTY ON LUMINAIRE AND BALLAST

### Table 1

<table>
<thead>
<tr>
<th>CLASSIFICATION</th>
<th>RW</th>
<th>LUMINAIRE</th>
<th>AVG PHOTOPIC</th>
<th>UNIFORMITY AVG/MIN</th>
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</thead>
<tbody>
<tr>
<td>SIGNALIZED INTERSECTIONS</td>
<td>ALL</td>
<td>250W 5000K CCT</td>
<td>1.80 FC</td>
<td>3:1</td>
</tr>
<tr>
<td>ARTERIAL</td>
<td>100 OR MORE</td>
<td>150W 5000K CCT</td>
<td>1.24 FC</td>
<td>3:1</td>
</tr>
<tr>
<td>MAJOR COLLECTOR</td>
<td>80</td>
<td>150W 5000K CCT</td>
<td>0.49 FC</td>
<td>4:1</td>
</tr>
<tr>
<td>MINOR COLLECTOR</td>
<td>□0□</td>
<td>55W 850K CCT</td>
<td>0.17 FC</td>
<td>□1</td>
</tr>
<tr>
<td>RESIDENTIAL OR LESS</td>
<td>□0□</td>
<td>55W 850K CCT</td>
<td>0.17 FC</td>
<td>□1</td>
</tr>
</tbody>
</table>
1. INSTALL STREETLIGHT STANDARDS AT INTERSECTIONS INCLUDING "L" AND "T" TYPES, PER STANDARD DRAWINGS 301 THROUGH 310 IN ACCORDANCE WITH THE APPROPRIATE RIGHT-OF-WAY.

2. STREET CLASSIFICATION, THE RESPECTIVE LIGHTING LEVELS, AND STREETLIGHT STANDARD APPLICATION IS LISTED IN TABLE 1 BELOW. ACTUAL LUMINAIRE WATTAGE AND/OR STREETLIGHT STANDARD SPACING MAY BE VARIED BY THE ENGINEER, WHEN SUPPORTED BY AN APPROVED LIGHTING STUDY IN ACCORDANCE WITH THE IES RECOMMENDED PRACTICE FOR ROADWAY LIGHTING IN ORDER TO MEET CURRENT AND FUTURE TRAFFIC CONTROL NEEDS AND APPROVED BY THE RESPECTIVE AGENCY. FOR LED FIXTURES, E AVERAGE LEVELS ARE MAINTAINED LEVELS AT A 0.92 MAINTENANCE FACTOR IN FOOTCANDLES MEASURED HORIZONTALLY AT GROUND LEVEL.

3. NEW STREETLIGHT STANDARDS INSTALLED ADJACENT TO OR OPPOSITE FROM EXISTING STREETLIGHTS SHALL MATCH THE EXISTING LOCATION, SPACING, POLE AND LUMINAIRE TYPES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

4. STREETLIGHT STANDARDS INSTALLED ON 80' OR LESS RIGHT-OF-WAYS MAY BE INSTALLED ON EITHER SIDE OF ROADWAY AS DIRECTED BY THE ENGINEER.

5. TRAFFIC SIGNAL FOUNDATIONS AND ADAPTOR PLATES MAY BE REQUIRED AT INTERSECTIONS AS DIRECTED BY THE ENGINEER.

6. AT LEAST ONE STREETLIGHT SHALL BE REQUIRED IN THE BULB SECTION OF A CUL-DE-SAC OR HAMMERHEAD. LOCATION SHALL BE AS DIRECTED BY THE ENGINEER.

7. FOR A SPECIFIC FIXTURE TO BE APPROVED, AN INDEPENDENT EVALUATION WITH THE AGi32 LIGHTING MODELING SOFTWARE PROGRAM (OR OTHER SOFTWARE APPROVED BY THE AGENCY) SHALL BE SUBMITTED FOR REVIEW BY THE AGENCY. THE IES PHOTOMETRIC FILE SHALL BE LOADED INTO THE MODEL AND ALL REQUISITE INPUTS SHALL CONFORM TO THE LOCATION, HEIGHT, AND OTHER ASSOCIATED FACTORS DESIGNATED IN DRAWINGS 301 THROUGH 310 IN ACCORDANCE WITH THE APPROPRIATE RIGHT-OF-WAY.

TABLE 1

<table>
<thead>
<tr>
<th>ROADWAY CLASS</th>
<th>R.O.W. WIDTHS</th>
<th>ROADWAY LIGHTING ILLUMINANCE LEVELS</th>
<th>SIDEWALK / WALKWAY ILLUMINANCE LIGHTING LEVELS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MIN. AVG.</td>
<td>UNIFORMITY AVG./MIN.</td>
<td>MIN. ILLUMINANCE</td>
</tr>
<tr>
<td>ARTERTIAL</td>
<td>100' OR GREATER</td>
<td>1.58 FC</td>
<td>3:1</td>
</tr>
<tr>
<td>MAJOR COLLECTOR</td>
<td>80' TO 99'</td>
<td>0.84 FC</td>
<td>4:1</td>
</tr>
<tr>
<td>MINOR COLLECTOR</td>
<td>60' TO 79'</td>
<td>0.38 FC</td>
<td>□1</td>
</tr>
<tr>
<td>RESIDENTIAL</td>
<td>51' OR LESS</td>
<td>0.38 FC</td>
<td>□1</td>
</tr>
</tbody>
</table>
8. For each fixture assessed, upon demonstration of the adequate illumination capability through the computer model on the specific roadway type, the vendor shall deliver the requested number of luminaires of that type for further agency evaluation. They will be evaluated on the criteria noted in the following section, though the agency may include additional requirements. Final approval and acceptance of the respective luminaires for a specific application shall be at the sole discretion of the purchasing agency.

9. The following list represents the criteria upon which each luminaire shall be evaluated. The agency may include additional items for evaluation at its sole discretion.

- Color Rendering Index
- Energy Efficiency
- Aesthetics
- Quality of Construction
- Weatherproofing
- IP65 Rating
- Durability
- Ease of Maintenance
- Ease of Installation
- Weight
- Power Consumption
- Color Temperature (CCT)
- Life of fixture and individual components
- Length of warranty luminaire fixture, LED's, and ballast
- Initial cost
- Life cycle cost
- LM 79, LM 80
- Bug rating (backlighting, uplighting, glare)
- Transient Voltage Surge Suppression - SPD (Surge Protection Device)

Table 2

<table>
<thead>
<tr>
<th>ROADWAY CLASS</th>
<th>R.O.W. WIDTHS</th>
<th>MIN. AVE. ILLUMINANCE BY PEDESTRIAN AREA CLASSIFICATION</th>
<th>SIDEWALK / WALKWAY LIGHTING LEVELS</th>
<th>UNIFORMITY AVG./MIN.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>HIGH</td>
<td>MEDIUM</td>
<td>LOW</td>
</tr>
<tr>
<td>Arterial / Arterial</td>
<td>100: OR GREATER BY 100: OR GREATER BY</td>
<td>3.4 FC</td>
<td>2.0 FC</td>
<td>1.8 FC</td>
</tr>
<tr>
<td>Arterial / Major Collector</td>
<td>100: OR GREATER BY 80: OR GREATER BY</td>
<td>2.9 FC</td>
<td>2.2 FC</td>
<td>1.5 FC</td>
</tr>
<tr>
<td>Arterial / Minor Collector - Residential</td>
<td>100: OR GREATER BY 79: OR LESS</td>
<td>2.4 FC</td>
<td>2.0 FC</td>
<td>1.3 FC</td>
</tr>
<tr>
<td>Major Collector / Major Collector</td>
<td>80: - 99: BY 80: - 99:</td>
<td>2.4 FC</td>
<td>1.8 FC</td>
<td>1.2 FC</td>
</tr>
<tr>
<td>Major Collector / Residential</td>
<td>80: - 99: BY 79: OR LESS</td>
<td>2.1 FC</td>
<td>1.6 FC</td>
<td>1.0 FC</td>
</tr>
</tbody>
</table>

Agency Approved: B C H L M N

Specification Reference: 23 Traffic Signals & Streetlighting

Uniform Standard Drawings: Clark County Area

Supplemental Drawing: Streetlight Location

LED Lighting Standards and General Notes

Date: 07-01-14

Dwg. No.: 300.S3

Sheet 2 of 2
1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.
3. CITY OF HENDERSON AND BOULDER CITY REQUIRE STREETLIGHTING IN THE MEDIAN FOR RIGHTS-OF-WAY 100 FEET OR GREATER. SEE STANDARD DRAWING NO. 312.S2. IN THE ABSENCE OF A MEDIAN, STREETLIGHT LOCATION SHALL BE THE SAME AS THE OTHER ENTITIES.

<table>
<thead>
<tr>
<th>POLE LOCATION TABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>KEYED NOTE</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>INTERSECTION LUMINAIRE TYPE</td>
</tr>
</tbody>
</table>

AGENCY APPROVED

SPECIFICATION REFERENCE

23 TRAFFIC SIGNALS STREETLIGHTING

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREETLIGHT LOCATIONS AT INTERSECTIONS 100 FEET OR GREATER/100 FEET OR GREATER RIGHT-OF-WAY

DATE 07-01-13 DWG. NO. 301.S1 PAGE NO.
NOTES:
1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.
3. WITH THE ENGINEER’S APPROVAL, A SECOND LUMINAIRE MOUNTING PLATE MAY BE FIELD WELDED BY A CERTIFIED WELDER.
4. ALL LUMINAIRE MAST ARMS FOR 400W FIXTURES SHALL BE 15 FT. LONG AND INSTALLED PER STANDARD DRAWING NO. 808 UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

POLE LOCATION TABLE

<table>
<thead>
<tr>
<th>KEYED NOTE</th>
<th>ENTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>120'</td>
</tr>
<tr>
<td>2</td>
<td>0'</td>
</tr>
<tr>
<td>3</td>
<td>(SEE DRAWING NO. 320)</td>
</tr>
</tbody>
</table>

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREETLIGHT LOCATIONS AT INTERSECTIONS
100 FT. OR GREATER/100 FT. OR GREATER
RIGHT-OF-WAY

DATE 07-01-13  DWG. NO. 301.S2
NOTES:

1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.

2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.

3. CITY OF HENDERSON AND BOULDER CITY REQUIRE STREETLIGHTING IN THE MEDIAN FOR RIGHTS-OF-WAY 100 FEET OR GREATER. SEE STANDARD DRAWING NO. 312. IN THE ABSENCE OF A MEDIAN, STREETLIGHT LOCATION SHALL BE THE SAME AS THE OTHER ENTITIES.

POLE LOCATION TABLE

<table>
<thead>
<tr>
<th>KEYED NOTE</th>
<th>ENTITY</th>
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<th>NLV</th>
<th>MES</th>
<th>BC</th>
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INTERSECTION LUMINAIRE TYPE

- 400W HPS
- 150W IND

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREETLIGHT LOCATIONS AT INTERSECTIONS
100' OR GREATER/80' RIGHT-OF-WAY

DATE 07-01-13 DWG. NO. 302.S1 PAGE NO.
1. See General Notes Standard Drawing No. 300.
2. An approved lighting study per Note 2, Standard Drawing No. 300, is required for right-of-way greater than 100 feet.
3. All luminaire mast arms for 400W fixtures shall be 15 ft. long and installed per Standard Drawing No. 808 unless otherwise approved by the Engineer.

---

**Pole Location Table**

<table>
<thead>
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<tr>
<td>4</td>
<td>170°</td>
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<tr>
<td>5</td>
<td>85°</td>
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</tbody>
</table>
1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.

2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300 IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.

3. CITY OF HENDERSON AND BOULDER CITY REQUIRE STREETLIGHTING IN THE MEDIAN IN THE ABSENCE OF A MEDIAN, STREETLIGHT LOCATION SHALL BE THE SAME AS THE OTHER ENTITIES.

POLE LOCATION TABLE

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<th>KEYED NOTE</th>
<th>ENTITY</th>
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INTERSECTION LUMINAIRE TYPE

- 250W HPS
- 150W IND

SPECIFICATION REFERENCE

- 23 TRAFFIC SIGNALS - STREETLIGHTING

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREETLIGHT LOCATIONS AT INTERSECTIONS
100' OR GREATER/60' RIGHT-OF-WAY

DATE 07-01-13 DWG. NO. 303.S1
NOTES:
1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300 IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.
3. IF INTERSECTION IS SIGNALIZED, 400 WATT LUMINAIRES SHALL BE INSTALLED ON ALL CORNERS AND DUAL ARM CONFIGURATION SHALL BE USED FOR 100 FT. RIGHT-OF-WAY SIMILAR TO STANDARD DRAWING NO. 302.S2.

POLE LOCATION TABLE

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**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**SUPPLEMENTAL DRAWING**

**STREETLIGHT LOCATIONS AT INTERSECTIONS 100' OR GREATER/60' RIGHT-OF-WAY**

**DATE** 07-01-13 **DWG. NO.** 303.S2
NOTES:
1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300 IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET. ADEQUATE INTERSECTION LIGHTING SHALL ALSO BE ADDRESSED IN THE LIGHTING STUDY.
3. CITY OF HENDERSON AND BOULDER CITY REQUIRE STREETLIGHTING IN THE MEDIAN FOR RIGHTS-OF-WAY 100 FEET OR GREATER. SEE STANDARD DRAWING NO. 312.S2. IN THE ABSENCE OF A MEDIAN, STREETLIGHT LOCATION SHALL BE THE SAME AS THE OTHER ENTITIES.

POLE LOCATION TABLE

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INTERSECTION LUMINAIRE TYPE: 250W HPS 150W IND

SPECIFICATION REFERENCE

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AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREETLIGHT LOCATIONS AT INTERSECTIONS
100 OR GREATER/51 OR LESS RIGHT-OF-WAY

DATE 07-01-13 DWG. NO. 304.S1
NOTES:
1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.

2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300 IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET. ADEQUATE INTERSECTION LIGHTING SHALL ALSO BE ADDRESSED IN THE LIGHTING STUDY.

3. IF INTERSECTION IS SIGNALIZED, 400 WATT LUMINAIRES SHALL BE INSTALLED ON ALL CORNERS AND DUAL ARM CONFIGURATION SHALL BE USED FOR 100 FT. RIGHT-OF-WAY SIMILAR TO STANDARD DRAWING NO. 302.S2.

POLE LOCATION TABLE

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## Pole Location Table

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**Intersection Luminaire Type**
- 250W HPS
- 150W IND

---

**Agency Approved**

**Uniform Standard Drawings**

**Clark County Area**

**Supplemental Drawing**

**Streetlight Locations at Intersections**

**80'/80' Right-of-Way**

<table>
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NOTE:
SEE GENERAL NOTES STANDARD DRAWING NO. 300.
NOTE:
SEE GENERAL NOTES STANDARD DRAWING NO. 300.

POLE LOCATION TABLE

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INTERSECTION LUMINAIRE TYPE
150W HPS
150W IND

SPECIFICATION REFERENCE

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREETLIGHT LOCATIONS AT INTERSECTIONS
80/80 RIGHT-OF-WAY

DATE 07-01-13
DWG. NO. 30::S1
NOTE:
1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. IF THE INTERSECTION IS SIGNALIZED, 400 WATT LUMINAIREs SHALL BE INSTALLED ON ALL CORNERS.
NOTE:
SEE GENERAL NOTES STANDARD DRAWING NO. 300.

POLE LOCATION TABLE

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INTERSECTION LUMINAIRE TYPE
150W HPS 150W IND

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREETLIGHT LOCATIONS AT INTERSECTIONS
80/51 OR LESS RIGHT-OF-WAY

DATE 07-01-13  DWG. NO. 307.S1
NOTE:
1. SEE GENERAL NOTES STANDARD DRAWING NO. 300.
2. IF INTERSECTION IS SIGNALIZED, 400 WATT LUMINAIRES SHALL BE INSTALLED ON ALL CORNERS.

AGENCY APPROVED

SPECIFICATION REFERENCE
23 TRAFFIC SIGNALS & STREETLIGHTING

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREETLIGHT LOCATIONS AT INTERSECTIONS
80’/51’ OR LESS RIGHT-OF-WAY

DATE 07-01-13 DWG. NO. 307.S2
NOTE:
SEE STANDARD DRAWING NO. 300 FOR LUMINAIRE TYPE.
**POLE LOCATION TABLE**

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**NOTE:**

SEE STANDARD DRAWING NO. 300 FOR LUMINAIRE TYPE.

---

**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**STREETLIGHT LOCATIONS AT INTERSECTIONS**

51' R/W OR LESS RIGHT-OF-WAY

---

**SPECIFICATION REFERENCE**

23 TRAFFIC SIGNALS & STREETLIGHTING

---

**AGENCY APPROVED**

B C H L M N

---

**DATE** 07-01-13 **DWG. NO.** 309
### Pole Location Table

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**NOTE:**
See General Notes Standard Drawing No. 300.

---

**PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE**

**AGENCY APPROVED**

**UNIFORM STANDARD DRAWINGS**

**CLARK COUNTY AREA**

**STREETLIGHT LOCATIONS AT INTERSECTIONS**

51 FT. OR LESS/51 FT. OR LESS RIGHT-OF-WAY

**DATE** 2-08-07  **DWG. NO.** 310
NOTES:
1. SEE STANDARD DRAWING NO. 300 FOR LUMINAIRE TYPE.
NOTES:
1. SEE STANDARD DRAWING NO. 300 FOR LUMINAIRE TYPE.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.
NOTES:
1. SEE STANDARD DRAWING NO. 300 FOR LUMINAIRE TYPE.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.

DISTANCE LISTED INDICATES MAXIMUM SPACING. LIGHTING STANDARDS SHALL BE EQUIDISTANT AFTER LOCATING THE END OF ISLAND POLES.

SPECIFICATION REFERENCE

| 23 | TRAFFIC SIGNALS | STREETLIGHTING |

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREETLIGHT LOCATIONS ON TRAFFIC ISLANDS
100' OR GREATER RIGHT-OF-WAY

DATE 07-01-13   DWG. NO. 312.51   PAGE NO. 1
NOTES:
1. SEE STANDARD DRAWING NO. 300 FOR LUMINAIRE TYPE.
2. AN APPROVED LIGHTING STUDY PER NOTE 2, STANDARD DRAWING NO. 300, IS REQUIRED FOR RIGHT-OF-WAY GREATER THAN 100 FEET.
3. STREET LIGHTING IN THE MEDIAN IS ALLOWED FOR MEDIAN WIDTHS OF 10 FEET OR GREATER.

DISTANCE LISTED INDICATES MAXIMUM SPACING. LIGHTING STANDARDS SHALL BE EQUIDISTANT AFTER LOCATING THE END OF ISLAND POLES.

POLE LOCATION TABLE

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STREET LIGHTING LOCATIONS ON TRAFFIC ISLANDS 100' OR GREATER RIGHT-OF-WAY
1. ALL STREETLIGHT STANDARDS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF THE STANDARD SPECIFICATIONS AND AS INDICATED ON THESE DRAWINGS.

2. ALL COMPONENTS OF THE STREETLIGHT STANDARD INCLUDING THE POLE, ARM, HANDHOLE COVER, BASE COVER AND THE POLE CAP SHALL BE FERROUS METAL AND HOT-DIP GALVANIZED AFTER CONSTRUCTION IN ACCORDANCE WITH ASTM A123: ALUMINUM OR ALUMINUM ALLOY IS NOT ACCEPTABLE. FLAWS IN THE APPEARANCE OF THESE GALVANIZED COMPONENTS (“TIGER-STRIPED,” “ZEBRA-STRIPED”), SHALL BE CAUSE FOR REJECTION. NON-METALLIC TYPE BASE COVERS MAY BE ACCEPTABLE AND SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. CONCRETE POLES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

3. ALL FASTENING HARDWARE SHALL BE NON-CORROSIVE, CADMIUM-PLATED, OR EQUAL, APPROVED BY THE ENGINEER. FASTENERS SHALL BE OF THE SIZE AND CONFIGURATION NOTED ON THE DRAWINGS.

4. CONCRETE POLE FOUNDATIONS SHOULD BE POURED AGAINST UNDISTURBED, NATURAL SOIL OR IF FORMING MATERIAL IS USED IT SHALL BE STRIPPED AWAY FROM THE FOUNDATION AT LEAST ONE (1) FOOT BELOW FINISHED GRADE.

5. POLES SHALL BE INSTALLED ON CONCRETE FOUNDATIONS WITH ANCHOR BOLTS. EACH BOLT SHALL BE INSTALLED WITH TWO (2) HEX NUTS AND TWO (2) FLAT WASHERS. EXCEPT FOR "H" AND "L" FOUNDATIONS, THE ANCHOR BOLTS SHALL BE 1" X 3" X 4" FOR ELEVEN (11) GAGE POLES AND 1 1/8" X 40" X 4" FOR SEVEN (7) GAGE POLES. THE ANCHOR BOLTS, NUTS AND WASHERS SHALL BE HOT-DIP GALVANIZED. THE POLE SHALL BE PLUMBED PRIOR TO PLACING THE GROUT OR CONCRETE CAP. USE OF GROUT OR CONCRETE FOR CAP SHALL BE DESIGNATED BY ENTITY ENGINEER. SHIMS OR WEDGES OF ANY KIND ARE NOT ACCEPTABLE TO PLUMB THE POLE AFTER THE CAP HAS BEEN PLACED.

6. ALL UNDERGROUND CONDUIT INSTALLED SHALL HAVE RED, CONTINUOUS MARKING TAPE INSTALLED IN THE TRENCH AT 12" BELOW FINISHED GRADE.

7. WHERE SIGNS AND STANDARDS ARE INSTALLED UNDER OVERHEAD POWER LINES, CLEARANCES SHALL BE PER NATIONAL ELECTRICAL SAFETY CODE SECTION 234 REQUIREMENTS. INSTALL STRAIGHT ARM STREETLIGHT ASSEMBLIES WHERE ADDITIONAL CLEARANCE IS REQUIRED.

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE AGENCY APPROVED B C H L M N

SPECIFICATION REFERENCE UNIFORM STANDARD DRAWINGS

<table>
<thead>
<tr>
<th>23</th>
<th>TRAFFIC SIGNALS</th>
<th>STREETLIGHTING</th>
</tr>
</thead>
</table>

CLARK COUNTY AREA STREETLIGHT STANDARD GENERAL NOTES

DATE 7-8-04 DWG. NO. 313
1. SEE GENERAL NOTES STANDARD DRAWING NO. 313.
2. SEE STANDARD DRAWING NO. 319 FOR DETAIL OF POLE BASE.
3. SEE STANDARD DRAWING NO. 318 FOR DETAIL OF POLE CAP.

AGENCY APPROVED

| SPECIFICATION REFERENCE | UNIFORM STANDARD DRAWINGS
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<tr>
<td>50</td>
<td>CLARK COUNTY AREA</td>
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<tr>
<td>23</td>
<td>STREETLIGHT STANDARD</td>
</tr>
<tr>
<td>715</td>
<td>WITH 2 INCH PIPE ARM</td>
</tr>
</tbody>
</table>

DATE 12-12-96  DWG. NO. 314
1. SEE GENERAL NOTES STANDARD DRAWING NO. 313.
2. SEE STANDARD DRAWING NO. 319 FOR DETAIL OF POLE BASE.
3. SEE STANDARD DRAWING NO. 318 FOR DETAIL OF POLE CAP.

NOTES:

STREETLIGHT STANDARD
WITH DOUBLE 2 INCH PIPE ARM

AGENCY APPROVED

CLARK COUNTY AREA

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS

50 □ STEEL STRUCTURES

DATE 12-12-96

1.23 TRAFFIC SIGNALS □ STREETLIGHTING

DWG. NO. 315

715 GALVANIZING
1. SEE GENERAL NOTES STANDARD DRAWING NO. 313.

NOTES:

STEEL STRUCTURES

GALVANIZING

TRAFFIC SIGNALS & STREETLIGHTING

2. SEE STANDARD DRAWING NO. 319 FOR DETAIL OF POLE BASE.

3. SEE STANDARD DRAWING NO. 318 FOR DETAIL OF POLE CAP.

POLE/ARM SCHEDULE

<table>
<thead>
<tr>
<th>POLE GA.</th>
<th>SINGLE ARM</th>
<th>DOUBLE ARM</th>
</tr>
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<tbody>
<tr>
<td>11</td>
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<td>14</td>
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<td>7</td>
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</table>

11 GA. MIN. OR 7 GA. AS SPECIFIED IN POLE/ARM SCHEDULE THIS DRAWING NO.

30'-0" ROUND TAPERED STEEL SHAFT PER UNIFORM STANDARD SPECS.

SEE STANDARD DRAWING NO. 318

SINGLE ARM

DOUBLE ARM

POLE GA.

11

11

11

11

7

7

8'-0" 10'-0" 12'-0" 15'-0" 18'-0" 32'-0" 32'-10" 33'-9" 34'-3" 35'-3"

NOTES:

1. SEE GENERAL NOTES STANDARD DRAWING NO. 313.
2. SEE STANDARD DRAWING NO. 319 FOR DETAIL OF POLE BASE.
3. SEE STANDARD DRAWING NO. 318 FOR DETAIL OF POLE CAP.

SPECIFICATION REFERENCE

50  STEEL STRUCTURES

23  TRAFFIC SIGNALS  STREETLIGHTING

715  GALVANIZING

AGENCY APPROVED

B C H L M N

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

STREETLIGHT STANDARD

WITH TAPERED MAST ARM

DATE 12-12-96  DWG. NO. 318
1. See General Notes Standard Drawing No. 313.
2. See Standard Drawing No. 319 for detail of pole base.

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<thead>
<tr>
<th>SPECIFICATION REFERENCE</th>
<th>UNIFORM STANDARD DRAWINGS</th>
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<tr>
<td>50</td>
<td>CLARK COUNTY AREA</td>
</tr>
<tr>
<td>123</td>
<td>STREETLIGHT STANDARD</td>
</tr>
<tr>
<td>715</td>
<td>WITH DOUBLE TAPERED MAST ARM</td>
</tr>
</tbody>
</table>

AGENCY APPROVED

B
C
H
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DATE 12-12-96

DWG. NO. 317
NOTE:
SEE GENERAL NOTES
STANDARD DRAWING NO. 313.

1/4" SIDE GUSSETS

MAST ARM AND DETAILS

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

POLE TOP AND ARM MOUNTING DETAILS

DATE 12-12-96

POLE CAP
CAP SCREW, 3/4" X 1-1/2" NC
2" STANDARD WEIGHT,
CONTINUOUS RADIUS PIPE ARM

SIMPLEX

MAST ARM

TAPERED MAST ARM

CAP SCREW, 3/4" X 1-1/2" NC

CAP

POLE CAP

POLE Q

POLE Q

ARM BOLT, BEVELED SHOULDER

SIMPLEX

A
B
C
D
E
F
G
H
J
K
L
M
N

A
B

C

D

E

F

G

H

J

K

L

M

N

MAST ARM
8'-15' INCL.
5-3/4"
7/8"
7/8"
5"
3-3/8"

15'-18' INCL.
9" 8" 8" 1" 4"

MOUNT Q

SIMPLEX

C

1/4" SIDE GUSSETS

1" 5/16" 3/4"-10x1-3/4"
2" 5" 1-3/4"

POLE CAP

CAP SCREW, 3/4" X 1-1/2" NC

2" STANDARD WEIGHT,
CONTINUOUS RADIUS PIPE ARM

SIMPLEX

ARM MOUNT

TAPERED MAST ARM

CAP SCREW, 3/4" X 1-1/2" NC

POLE Q

POLE Q

POLE Q

15" 7-1/2"

2" SCH. 40 PIPE

SPACER 2-1/2" SCH. 40 PIPE

TENON DETAIL

2" SCH. 40 PIPE

SPACE 2-1/2" SCH. 40 PIPE

7-1/2"

3/16" 3"

7/8"

20"

3/16" 3"

7-1/2"

3/16" 3"

7/8" 5/16" 7/8"

2-1/2" 5/16" 5/8"

2-1/2" 5/16" 5/8"" 1/2"

1-11/12" 1-1/2" 2"

1-11/12" 1-1/2" 2"

1-11/12" 1-1/2" 2"

1-11/12" 1-1/2" 2"

1-11/12" 1-1/2" 2"
NOTES:
1. SEE GENERAL NOTES STANDARD DRAWING NO. 313
2. HANDHOLE SHALL FACE AWAY FROM ONCOMING TRAFFIC.
3. HANDHOLE SIZE FOR CC AND CLV FOR STREET LIGHT POLES SHALL BE 4" X 6" I.D.

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

LOWER POLE DETAILS
FOR PIPE AND MAST ARM
POLES
NOTE:
POLE BASE COVERS SHALL BE FURNISHED AND INSTALLED FOR ALL POLES PER THE STANDARD SPECIFICATIONS AND DRAWINGS.

ELEVATION

3'-0" MIN. (TYP.)
3'-0" MIN. (TYP.)

PLAN

SIDEWALK 3'-0" MIN. (TYP.) 3'-0" MIN. (TYP.)

HANDHOLE TO FACE AWAY FROM ONCOMING TRAFFIC 1'-7" MIN.

BACK OF SIDEWALK

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

LIGHTING STANDARD SETBACK FROM BLOCK WALL
BEHIND CURBSIDE SIDEWALK
(EASEMENT MAY BE REQUIRED)
(SEE USD 320.1)

1. FOUNDATIONS SHALL BE LOCATED OUTSIDE OF THE SIDEWALK WHENEVER FEASIBLE. A CLEARANCE OF 48" SHALL BE MAINTAINED ON SIDEWALK TO COMPLY WITH THE AMERICANS WITH DISABILITIES ACT.

2. FOUNDATION CAP SHALL BE CONCRETE OR GROUT AS DESIGNATED BY THE ENTITY ENGINEER.

OPEN AREA OR BETWEEN CURB AND SIDEWALK

NOTE:

- FOUNDATIONS SHALL BE LOCATED OUTSIDE OF THE SIDEWALK WHENEVER FEASIBLE. A CLEARANCE OF 48" SHALL BE MAINTAINED ON SIDEWALK TO COMPLY WITH THE AMERICANS WITH DISABILITIES ACT.
- FOUNDATION CAP SHALL BE CONCRETE OR GROUT AS DESIGNATED BY THE ENTITY ENGINEER.

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

LIGHTING STANDARD SETBACK

AGENCY APPROVED  B  C  H  L  M  N

<table>
<thead>
<tr>
<th>SPECIFICATION REFERENCE</th>
<th>UNIFORM STANDARD DRAWINGS</th>
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<tbody>
<tr>
<td>501 PORTLAND CEMENT CONCRETE</td>
<td>CLARK COUNTY AREA</td>
</tr>
<tr>
<td>523 TRAFFIC SIGNALS STREETLIGHTING</td>
<td></td>
</tr>
</tbody>
</table>

DATE 07-01-15  DWG. NO. 320
1. WHEN NO GROUNDING ELECTRODE EXISTS, 5/8 IN. DIA. SOLID COPPER GROUNDING ROD, 8 FT. IN LENGTH, SHALL BE INSTALLED.
2. ANCHOR BOLTS SHALL BE CONTINUOUS AND HAVE A MINIMUM 1 IN. FREE THREAD.
3. FOUNDATION CAP SHALL BE CONCRETE OR GROUT AS DESIGNATED BY ENTITY ENGINEER.
NOTES
1. SEE GENERAL NOTES STANDARD DRAWING NO. 313.
2. CONTINUOUS BARE COPPER GROUNDING CONDUCTOR SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME AND CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE POLE GROUNDING PLATE.
3. FOUNDATION CAP SHALL BE CONCRETE OR GROUT AS DESIGNATED BY THE ENTITY ENGINEER.
BASE ADAPTOR PLATE
FOR 1-1/2 INCH BOLT CIRCLE FOUNDATION

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DATE 12-12-96
DWG. NO. 322
### Keyed Note:

1. SINGLE POLE, SINGLE THROW ON-OFF, 10 AMP, 125 VAC SWITCH, SEALED, WITH 5 IN. WIRE LEADS

---

**Switch Bracket**

- **Dead Front Mounting Tab**
- **Chase Nipple, Lockring and Bushing, TYP.**
- **Switch Bracket, 14 GA.**
- **Side Tab**
- **Mounting Hole, TYP.**
- **Bottom Tab**

---

### Specifications Reference

<table>
<thead>
<tr>
<th>Uniform Standard Drawings</th>
<th>Clark County Area</th>
</tr>
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</table>
| **Supplemental Drawing**  | **Bypass Switch Bracket**
|                           | **For Pole Mounted**
|                           | **Street Lighting Service** |

**Date:** 4-13-00  **Dwg. No.:** 324.S1
NOTES
1. COVERS INSTALLED IN TRAFFIC AND OPEN AREAS ACCESSIBLE TO TRAFFIC SHALL BE PER STANDARD DRAWING NO. 327.
2. SEE STANDARD DRAWING NO. 323 FOR COVER GROUNDING.
3. TOP OF UTILITY BOXES INSTALLED IN SIDEWALK SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SIDEWALK, HAVE NO GAPS GREATER THAN 1/2" REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.

PULL BOX

<table>
<thead>
<tr>
<th>SI: E (COMMERCIAL DESIGNATION)</th>
<th>3-1/2</th>
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<tbody>
<tr>
<td>A</td>
<td>15</td>
<td>21-3/4</td>
<td>30-5/8</td>
</tr>
<tr>
<td>B</td>
<td>10</td>
<td>11-3/4</td>
<td>17-5/8</td>
</tr>
<tr>
<td>C</td>
<td>3/4</td>
<td>2</td>
<td>2</td>
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<td>D</td>
<td>19-3/8</td>
<td>25</td>
<td>34-3/4</td>
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<tr>
<td>G</td>
<td>N/A</td>
<td>10-1/4</td>
<td>11-1/2</td>
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NOMINAL DIMENSION IN INCHES

POLYMER COVER FOR PEDESTRIAN AREAS

COVER

BODY

EXTENSION

AS SPECIFIED BY THE ENGINEER

SPECIFICATION REFERENCE

| 503  | PRECAST PRESTRESSED CONCRETE MEMBERS |
| 323  | TRAFFIC SIGNALS □ STREETLIGHTING |

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

PRECAST REINFORCED CONCRETE PULL BOX

DATE 01-09-20

DWG. NO. 326
1. COVER USED IN TRAFFIC AND OPEN AREAS ACCESSIBLE TO TRAFFIC ONLY.
2. TYPICAL NO. 7 PULL BOX COVER SHOWN. SUBMIT OTHERS TO THE ENGINEER FOR APPROVAL.
3. ALL TRAFFIC AND OPEN AREA COVERS SHALL BE H 20 RATED.

---

NOTES:

1. COVER USED IN TRAFFIC AND OPEN AREAS ACCESSIBLE TO TRAFFIC ONLY.
2. TYPICAL NO. 7 PULL BOX COVER SHOWN. SUBMIT OTHERS TO THE ENGINEER FOR APPROVAL.
3. ALL TRAFFIC AND OPEN AREA COVERS SHALL BE H 20 RATED.

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<table>
<thead>
<tr>
<th>SPECIFICATION REFERENCE</th>
<th>UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA</th>
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</thead>
<tbody>
<tr>
<td>50</td>
<td>PULL BOX STREET COVER</td>
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<tr>
<td>23</td>
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<th>AGENCY APPROVED</th>
<th>B</th>
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DATE 12-12-96   DWG. NO. 327
NOTES

1. PROVIDE A MINIMUM OF 8" AROUND ALL BOXES. ANY BOX SHALL NOT BE PLACED WITHIN 3'-3" OF FIRE HYDRANTS IN DRIVEWAYS OR DRIVEWAY APRONS. THIS DRAWING IS NOT INTENDED TO LIMIT THE NUMBER OF BOXES BETWEEN DRIVEWAYS TO TWO.

2. FOR WATER SERVICE BOXES, REFER TO UDACS PLATE 1-7.

3. WHEN INSTALLED WITHIN PEDESTRIAN ACCESS ROUTES, TOP OF MANHOLE COVERS SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SURFACE, HAVE NO GAPS GREATER THAN 1/2" REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.

AGENCY APPROVED

SPECIFICATION REFERENCE

505 REINFORCING STEEL
23 TRAFFIC SIGNALS: STREETLIGHTING

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

UTILITY PULL BOX LOCATIONS SIDEWALK AND BETWEEN DRIVEWAYS

DATE 01-09-20
DWG. NO. 328
TYPICAL SECTION

CURB
GRADE
3"
6"
CONCRETE COLLAR
#4 REBAR, 2" MIN. 4" MAX FROM EDGE OF BOX

GUTTER
CURB
8" MIN. ALL AROUND

VARIES

UTILITY BOX

VARIES

CONCRETE COLLAR
#4 REBAR

1" MIN.

GRADE

3"

CONCRETE AROUND PULL BOXES IN UNDEVELOPED AREAS

AGENCY APPROVED

B  C  H  L  M  N

SPECIFICATION REFERENCE

501  PORTLAND CEMENT CONCRETE
505  REINFORCING STEEL
.23  TRAFFIC SIGNALS & STREETLIGHTING

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DATE 12-12-96
DWG. NO. 329
BEHIND SIDEWALK (FOR WIDTHS LESS THAN 5 FT.)

BACK PORTION OF SIDEWALK (FOR WIDTHS OF 5 FT. OR GREATER)

OPEN AREA OR WITH AMENITY ZONE

NOTE: SURFACE TREATMENT ADJACENT TO FRONT OF PEDESTAL TO BE DETERMINED BY AGENCY.

AGENCY APPROVED  B  C  H  L  M  N  R

SPECIFICATION REFERENCE
501  PORTLAND CEMENT CONCRETE
.23  TRAFFIC SIGNALS & STREETLIGHTING

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SERVICE PEDESTAL SETBACK AND ORIENTATION

DATE 08-08-19  DWG. NO. 331
NOTES

1. BARE COPPER GROUNDING CONDUCTOR SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME AND CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE GROUNDING PLATE.

2. IN AREAS WHERE R/W PERMITS, THE CONCRETE BASE SHALL BE PLACED AT THE BACK EDGE OF THE SIDEWALK.

3. REFER TO STD. DWG. 331 FOR SERVICE PEDESTAL SETBACK AND ORIENTATION.

4. WIRE SIZES ARE BASED ON UNDERGROUND FEED.

5. WIRE SIZES SHALL BE INCREASED FOR VOLTAGE DROP LIMITATION WHEN RUN IS LONG.

6. PULLBOX LOCATION TO BE DETERMINED BY THE ENGINEER.
(2) 1-1/4" AND (4) 2" PVC CONDUIT (TOTAL) IF ONLY ONE (1) CIRCUIT IS BEING USED, THE SECOND CIRCUIT SHALL BE RUN TO THE PULL BOX OR STUBBED OUT AND CAPPED FROM THE FOUNDATION.

SECTION
TRAFFIC SIGNALS & STREETLIGHTING

METER SOCKET AND LOAD CENTER SHALL BE SECURE AND RIGID ON THE POLE. FASTENERS IF USED SHALL NOT PENETRATE POLE SHAFT, CHASE NIPPLE PLACEMENT SHALL BE AS SHOWN FOR STABILITY.

METER SOCKET (PER UTILITY'S REQUIREMENTS) FACE METER AWAY FROM TRAFFIC.

HUB, RAIN TIGHT

SINGLE PHASE, 3 WIRE, 120/240 VAC CIRCUIT BREAKER LOAD CENTER, MAIN LUGS ONLY, NEMA 3R (RAIN-TIGHT) ENCLOSURE WITH PADLOCKING PROVISIONS, AND A MINIMUM OF EIGHT (8) SINGLE SPACES. BUSSING SHALL BE COPPER. FOR LOAD MAINS AMPERE RATING, AND/OR CIRCUIT BREAKER RATINGS, NUMBER OF POLES AND QUANTITY, SEE PLANS.

SEE STANDARD DRAWING NO. 324 FOR BYPASS SWITCH BRACKET INSTALLATION.

CONCRETE FOUNDATION S1

BRONZE GROUNDING CONNECTOR UL LISTED FOR UNDERGROUND USE

RECOMMEND LOCATING SERVICE POINT AS CLOSE TO THE CENTER OF THE STREETLIGHTING CIRCUIT AS POSSIBLE.

NOTE:

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREET LIGHTING SERVICE POINT LOCATED ON STREETLIGHT STANDARD

DATE 4-13-00  DWG. NO. 333.S1
SEE STANDARD DRAWING NOS. 336 AND 337.

GROUNDING AND BONDING CONDUCTORS OMITTED FOR CLARITY,

200 AMP SERVICE: 2" CONDUIT, 2 #3/0 THW AND 1 #2 WHITE THW

125 AMP SERVICE: 2" CONDUIT, 2 #1 THW AND 1 #6 WHITE THW

TYP. LUMINAIRE 10/2 UF WITH GROUND

AND FUSES, TYP. SEE STANDARD

2 POLE WATERPROOF FUSE HOLDER

#10 THW STRANDED

TO END OF CIRCUIT

10/2 UF WITH GROUND

LUMINAIRE TYP.

PHOTO ELECTRIC CONTROL,
MOUNTED AT FIRST LIGHTING STANDARD
FACE PE CELL NORTH

POLE OR PEDESTAL
SERVICE EQUIPMENT

15 AMP
1 POLE

BYPASS SW

3

NEUTRAL BUS

0 AMP
2 POLE

LIGHTING CONTROLLER

0 AMP
2 POLE

120 VOLT

LOAD (RED)

NEUTRAL (WHITE)

SERVICE ENTRANCE

1

2

2 #4 THW (240 VOLT)

2 #4 THW, TYP.

2 #4 THW, TYP.

BRONZED SPLIT-BOLT CONNECTOR,
TAPE TO INSULATE TO THE DIELECTRIC
STRENGTH OF THE CONDUCTOR INSULATION

3 #10 THW STRANDED

2 POLE WATERPROOF FUSE HOLDER

AND FUSES, TYP., SEE STANDARD

DRAWING NO. 338

125 AMP SERVICE: 2" CONDUIT, 2 #1 THW AND 1 #2 WHITE THW

200 AMP SERVICE: 2" CONDUIT, 2 #3/0 THW AND 1 #2 WHITE THW

FOR POLE SERVICE, WIRE SIZES SHALL BE TEMPERATURE DERATED.

GROUNDING AND BONDING CONDUCTORS OMITTED FOR CLARITY,
SEE STANDARD DRAWING NO. 336 AND 337.

SINGLE POLE, SINGLE THROW, ON-OFF, 10 AMP, 125 VAC SWITCH, SEALED, WITH 5 IN. LEADS

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED

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SPECIFICATION REFERENCE

23 TRAFFIC SIGNALS \ STREETLIGHTING

CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

STREETLIGHT CIRCUIT
ONE LINE DIAGRAM

DATE 2-10-00

DWG. NO. 335.S1
SEE STANDARD DRAWING NOS. 336 AND 337. GROUNDING AND BONDING CONDUCTORS OMITTED FOR CLARITY. FOR CONDUIT SIZE AND WIRING REQUIREMENTS FOR STREETLIGHT SERVICE, SEE STANDARD TYP. LUMINAIRE 10/2 UF WITH GROUND.

AND FUSES, TYP. SEE STANDARD 2 POLE WATERPROOF FUSE HOLDER #10 THW STRANDED.

TO END OF CIRCUIT

2 :4 THW, TYP.

10 THW STRANDED

2 POLE WATERPROOF FUSE HOLDER AND FUSES, TYP. SEE STANDARD DRAWING NO. 338

10/2 UF WITH GROUND

LUMINAIRE TYP.

NOTE:
SERVICE PEDESTAL ASSEMBLY SHALL BE FACTORY ASSEMBLED OR BUILT BY UL LISTED VENDOR.

FOR CONDUIT SIZE AND WIRING REQUIREMENTS FOR STREETLIGHT SERVICE, SEE STANDARD DRAWING NO. 332.S2.

GROUNDING AND BONDING CONDUCTORS OMITTED FOR CLARITY, SEE STANDARD DRAWING NOS. 336 AND 337.

SINGLE POLE, SINGLE THROW, ON-OFF, 15 AMP, 125 VAC SWITCH, SEALED, WITH 5 IN. LEADS

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED

CLARK COUNTY AREA

STREETLIGHT CIRCUIT
ONE LINE DIAGRAM

DATE 2-10-00  DWG. NO. 335.S2

UNIFORM STANDARD DRAWINGS
SUPPLEMENTAL DRAWING

TRAFFIC SIGNALS  STREETLIGHTING

SPECIFICATION REFERENCE

C L
FOR CONDUIT SI. E AND WIRING REQUIREMENTS FOR STREET LIGHT SERVICE, SEE STANDARD DRAWING NO. 332.S2 FOR LAS VEGAS AND CLARK COUNTY ONLY AND 332.S1 FOR ALL OTHER ENTITIES.
TRAFFIC SIGNALS & STREETLIGHTING

623

TO NEXT STANDARD

#8 GREEN THWN

STANDARD DRAWING

POINT, TYP. SEE

POLE GROUNDING

#8 GREEN THWN

CONNECTOR, TYP.

CONDUCTOR, UNBROKEN

#4 AWG SINGLE-STRAND
BARE COPPER GROUNDING
CONDUCTOR, UNBROKEN

125 AMP SERVICE: 1 #4 WHITE THW
200 AMP SERVICE: 1 #1/0 WHITE THW

STEEL POLE WITH SERVICE

LIGHTING CONTACTOR

METER SOCKET

LOAD CENTER

NEUTRAL BUS

EQUIPMENT GROUND
SCREW, TYP.

LUMINAIRE, TYP.

BOLTED CONNECTION

EXOTHERMIC WELD OR
METALLIC PULL BOX COVER

STEEL POLE

10 BARE COPPER
(PART OF UF CABLE)

EXOTHERMIC WELD OR
BOLTED CONNECTION
SEE STANDARD DRAWING
NO. 323

METALLIC PULL BOX COVER

TO NEXT STANDARD

#8 GREEN THWN

#8 GREEN THWN

GROUNDBUS, TYP.

1

POLE GROUNDING
POINT, TYP. SEE
STANDARD DRAWING
NO. 338

ANCOR
BOLTS (4)

BRONZE SPLIT-BOLT
CONNECTOR, TYP.

GROUNDING PLATE

GROUNDING PLATE

4 BARE COPPER

4 BARE COPPER

GROUNDING PLATE

DRG. NO.

DATE 8-12-99

DWG. NO. 337

125 AMP SERVICE: 1 #4 WHITE THW
200 AMP SERVICE: 1 #1/0 WHITE THW

1

1 23 TRAFFIC SIGNALS STREETLIGHTING

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED

B C H L M N

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SYSTEM GROUNDING PLAN
WITH POLE MOUNTED SERVICE
1-1/4" PVC CONDUIT

TRAFFIC SIGNALS & STREETLIGHTING

623

1 #8 GREEN THWN
3 #4 THW AND 10/2 UF WITH GROUND

LIGHTING STANDARD WIRING DIAGRAM
120 VOLT, ONE PHASE, THREE WIRE

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED

SPECIFICATION REFERENCE

123 TRAFFIC SIGNALS & STREETLIGHTING

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

LIGHTING STANDARD WIRING DIAGRAM
120 VOLT, ONE PHASE, THREE WIRE

DATE 12-12-96 DWG. NO. 340
NOTES
1. ADDITIONAL SPECIFICATIONS PER POLE MANUFACTURER.
2. 8" ARMS SHALL BE USED FOR ROADSIDE INSTALLATIONS ON STREETS WITH LESS THAN 100' RIGHT-OF-WAY. UNLESS OTHERWISE DIRECTED.
3. 10' ARMS SHALL BE USED FOR MEDIAN INSTALLATIONS AND ON ROADSIDES WITH 100' OR GREATER RIGHT-OF-WAY, UNLESS OTHERWISE DIRECTED.
4. PAINT ARMS AND ATTACHMENT HARDWARE SEMIGLOSS BLACK.
5. BANNER ARMS ONLY WHEN SPECIFIED ON THE PLANS.
6. CONSTRUCT FOUNDATION PER USD 343.
7. DESIGN PROFESSIONAL AND CONTRACTOR SHALL VERIFY CITY'S LATEST LED FIXTURE SPECIFICATIONS AND APPROVED FIXTURES PER CITY'S WEB SITE. PRIOR TO ORDERING MATERIALS. APPROVED FIXTURE LIST IS LOCATED ON CITY'S WEB SITE, UNDER BUILDING AND SAFETY FORMS.
8. CITY ENGINEER MAY APPROVE EQUAL FIXTURES THAT MEET AESTHETIC AND LIGHT LEVEL REQUIREMENT PER USD 300.35. LIGHTING STUDY REQUIRED.

CONCRETE POLE (AMERON 681-26 OR STRESSCRETE KM1206-L11-FBP-AG). SEE NOTES PER 342.1. (OR APPROVED EQUAL MANUFACTURED PER ASTM C-1089-97 SPECIFICATIONS)
POLE SHALL BE BLACK, EXPOSED AGGREGATE FINISH WITH FULL LENGTH ANTI-GRAFFITI COATING.

HANDHOLE OPENING W/ GROUNDED ALUMINUM COVER PAINTED BLACK SEMIGLOSS (4" X 5-3/8" X 10-1/2" FOR STRESSCRETE POLES; 5-1/2" X 6" X 9-1/2" FOR AMERON POLES). COVERS MUST FACE STREET OR SIDEWALK AND MUST BE (2) SCREW TYPE; (4) SCREW TYPE COVERS WILL NOT BE ACCEPTED.

AGENCY APPROVED

<table>
<thead>
<tr>
<th>SPECIFICATION REFERENCE</th>
<th>UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA</th>
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</thead>
<tbody>
<tr>
<td>623</td>
<td>TRAFFIC SIGNALS &amp; STREET LIGHTING</td>
</tr>
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</table>

CITY OF LAS VEGAS
26' STREET LIGHT POLE
FOR TOWN CENTER AREA

DATE 08-09-18  DWG. NO. 341
**Ameron Notes and Specifications:**

**10' Level Config Codes Option Class Entry Info:**

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<thead>
<tr>
<th>Config</th>
<th>10'</th>
<th>12'</th>
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<tr>
<td>Hi Cover</td>
<td>434MPA</td>
<td>9.75</td>
</tr>
<tr>
<td>Finish</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Door Schns</td>
<td>TMP</td>
<td>BASEPLATE 45043 NOTE #8</td>
</tr>
<tr>
<td>ONL-Mod</td>
<td>MD-TRB</td>
<td>POLE TOP CON</td>
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**Decorative Base Octagonal Base Plate Pole:**

<table>
<thead>
<tr>
<th>Pole Designation</th>
<th>Pole Height Above Grade</th>
<th>Overall Pole Length</th>
<th>B.D. Circle</th>
<th>B.D. Ultimate</th>
<th>B.D. Weight</th>
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</thead>
<tbody>
<tr>
<td>69121</td>
<td>210 1/2&quot;</td>
<td>211 1/4&quot;</td>
<td>21&quot;</td>
<td>18&quot;</td>
<td>18,420</td>
</tr>
</tbody>
</table>

Notes:
1. Mx (123%) Black, exposed aggregate finish with Ameron-Held Antagraft II Coating.
2. Fg @ 28 Days = 8,000 PSI using spun cylinder test.
3. Fg @ 56 Days = 5,600 PSI using ASTM C-31 cylinder test.
4. Poles manufactured per ASTM C-1099-06 specifications.
5. Baseplate ASTM A-36 fully prestressed with @ 5/16" Dia., 4-1/4" wires (7-strand cable).
6. Protective coat exposed, F.C. wires at pole ends.
7. LAA is designed to rotate to any octagonal plate per customers requirements.
8. Pole shown is suitable for capped base plate (encased in concrete), otherwise, other M/4 cap installation required a galvanized base plate.
9. The 8' double top mount aluminum decorative 5-arm pole LAA assembly (not to exceed up to 1.74 sq. ft. Epa, 12 lbs. per side) depicted on this drawing is designed to withstand the loads imparted by (2) UC decasphat 5' luminaire, (2) UC decasphat 8.5' luminaire. (not to exceed 1.6 sq. ft. Epa, 48 lbs. each). One per side: The pole depicted is designed to withstand the loads imparted by top mount laml, (2) luminares @ (3) 8' x 60" shiner centered no higher than 1.0' above grade as designed per the TCO-410 AASHTO L-5s in a 90 MPH wind zone (2-second gusts). Please advise if the intended loading exceeds these values.

**Stresscrete Notes and Specifications:**

**Pole Specifications:**

<table>
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<tr>
<th>Catalogue No.:</th>
<th>KMH0-1C-E11-FRP C/W 14025/55</th>
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<tbody>
<tr>
<td>Section:</td>
<td>OCTAGONAL</td>
</tr>
<tr>
<td>Finish:</td>
<td>ECLIPSE</td>
</tr>
<tr>
<td>Pole Length:</td>
<td>21 1/2&quot;</td>
</tr>
<tr>
<td>Pole Top:</td>
<td>7 3/4&quot; x 1/4&quot; x .062</td>
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<tr>
<td>Pole Butt:</td>
<td>18&quot; x 1/4&quot; x .062</td>
</tr>
<tr>
<td>Approx. Weight:</td>
<td>1.8L, 2</td>
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<tr>
<td>Quantity:</td>
<td>MIN. RACEWAY 1,180</td>
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<tr>
<td>Arm Specifications:</td>
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<td>Material:</td>
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<td>Paint:</td>
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<tr>
<td>Coatings Required:</td>
<td>1 COAT ANTIAGRAF II</td>
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<tr>
<td>FULL LENGTH:</td>
<td></td>
</tr>
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Notes:
1. Mx Eclipse Black, exposed aggregate finish with Ameron-Held Antagraft II coating.
2. Fg @ 28 Days = 8,000 PSI using ASTM C-31 cylinder test.
3. Poles manufactured per ASTM C-1099-06 specifications.
4. Protective coat exposed, F.C. wires at pole ends.
5. LAA is designed to rotate to any octagonal plate per customers requirements.
6. Pole shown is supplied with galvanized steel baseplate for capped or non-capped installation.
7. The 8' double top mount aluminum decorative 5-arm pole LAA assembly (not to exceed up to 1.74 sq. ft. Epa, 12 lbs. per side) depicted on this drawing is designed to withstand the loads imparted by decasphat 5' luminaire, (2) UC decasphat 8.5' luminaire. (not to exceed 1.6 sq. ft. Epa, 48 lbs. each). One per side: The pole depicted is designed to withstand the loads imparted by top mount laml, (2) luminares @ (3) 8' x 60" shiner centered no higher than 1.0' above grade as designed per the TCO-410 AASHTO L-5s in a 90 MPH wind zone (2-second gusts). Please advise if the intended loading exceeds these values.

**Agency Approved:**

<table>
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<tr>
<th>Specification Reference</th>
<th>Uniform Standard Drawings Clark County Area</th>
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<tbody>
<tr>
<td>501 PORTLAND CEMENT CONCRETE</td>
<td>CITY OF LAS VEGAS STREET LIGHT NOTES AND SPECIFICATIONS (AMERON AND STRESSCRETE)</td>
</tr>
</tbody>
</table>

| Date 08-09-18 | DWG. NO. 342.1 |
OPTION A: 8' + 8' ARMS (FOR 15'+ SIDEWALKS OR FOR MEANDERING SIDEWALKS)

OPTION B: 6' + 8' ARMS (FOR 15'-SIDEWALKS, INCLUDING AMENITY ZONE)

OPTION C: 4' + 8' ARMS (FOR 10'-SIDEWALKS, INCLUDING AMENITY ZONE)

OPTION D: SINGLE 8' ARM (FOR OBLIQUED SIDEWALKS)

DECORATIVE SINGLE ARM ASSEMBLY WITH POINTED ALUMINUM SIDE CAP. PAINTED SEMIGLOSS BLACK WITH (OPTIONAL) "X" SCROLL AND ATTACHMENT HARDWARE ON ROADWAY SIDE AS SPECIFIED ON PLAN.

DECORATIVE DOUBLE ARM ASSEMBLY PAINTED SEMIGLOSS BLACK WITH (OPTIONAL) "X" SCROLL AND ATTACHMENT HARDWARE AS SPECIFIED ON PLAN.

6' OCT. TOP WITH CAST ALUMINUM BALL TOP MOUNT AND SPIRE FINIAL CAP AND ATTACHMENT HARDWARE PAINTED SEMIGLOSS BLACK.

125V, 15A DUPLEX GFI RECEPTACLE ON PEDESTRIAN SIDE, WIRED TO THE 120 VAC CIRCUIT WITH DIE-CAST ALUMINUM WEATHERPROOF COVER PAINTED SEMIGLOSS BLACK (INTERMATIC WP*1010M/ XD COVER OR APPROVED EQUIVALENT).

FOR STRESSCRETE POLES, RECEPTACLE INSET SHALL BE FORMED DURING POLE MANUFACTURE.

FOR AMERON POLES, JUNCTION BOX TO BE MOUNTED AFTER POLE MANUFACTURE (DRILL 1-1/4" HOLE INTO POLE AND INSTALL WEATHER PROOF DEVICE BOX (RED DOT H3J-2LM OR APPROVED EQUIVALENT).

CONCRETE POLE (AMERON 8B1-21 OR STRESSCRETE KMH21-G-E11-FSP-AG). SEE NOTES PER 342.1. (OR APPROVED EQUAL MANUFACTURED PER ASTM C-1089-97 SPECIFICATIONS)

POLE SHALL BE BLACK, EXPOSED AGGREGATE FINISH WITH FULL LENGTH ANTI-GRAFFITI COATING.

HANDHOLE OPENING W/ GROUNDED ALUMINUM COVER PAINTED BLACK SEMIGLOSS (4" X 5-3/8" X 10-3/4" FOR STRESSCRETE POLES; 3-1/2" X 5" X 8-1/2" FOR AMERON POLES) COVERS MUST FACE STREET OR SIDEWALK AND MUST BE (2) SCREW TYPE; (4) SCREW TYPE COVERS WILL NOT BE ACCEPTED.

NOTES:
1. ADDITIONAL SPECIFICATIONS PER POLE MANUFACTURER.
2. CONSTRUCT FOUNDATION PER USD-343.
3. BANNER ARMS ONLY WHEN SPECIFIED ON THE PLANS.
4. DESIGN PROFESSIONAL AND CONTRACTOR SHALL VERIFY CITY'S LATEST LED FIXTURE SPECIFICATIONS AND APPROVED FIXTURES PER CLV WEBSITE, PRIOR TO ORDERING MATERIALS. APPROVED FIXTURE LIST IS LOCATED ON CLV WEBSITE, UNDER BUILDING AND SAFETY FORMS.
5. CITY ENGINEER MAY APPROVE EQUAL FIXTURES THAT MEET AESTHETIC AND LIGHT LEVEL REQUIREMENT PER USD 300.53, LIGHTING STUDY REQUIRED.

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

CITY OF LAS VEGAS
21' STREET LIGHT POLE
FOR DOWNTOWN CENTENNIAL POLE AREA

SPECIFICATION REFERENCE
623 TRAFFIC SIGNALS & STREET LIGHTING

DATE 08-09-18 DWG. NO. 342
MANHOLE NOTES

1. MANHOLE MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF SECTION 09, “CATCH BASINS, MANHOLES AND INLETS” OF THE “STANDARD SPECIFICATIONS”.

2. REINFORCING STEEL SHALL BE AS SHOWN, WIRED TIGHTLY AT ALL INTERSECTIONS AND EMBEDDED AT LEAST ONE (1) INCH CLEAR UNLESS OTHERWISE NOTED.

3. EXCAVATION SHALL BE AS NEARLY VERTICAL AS POSSIBLE (SHEET AND SHORE, IF SOIL CONDITIONS REQUIRE), IN EXISTING STREET SECTIONS, ALLEY SECTIONS AND CONFINED AREAS SUCH AS LIMITED EASEMENTS OR ADJACENT TO STRUCTURES. NATURAL ANGLE OF REPOSE WILL ALLOW IN ALL OTHER AREAS.

4. MANHOLE DESIGN FOR PIPE LARGER THAN SIXTY (60) INCHES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

5. MANHOLE DESIGN FOR DEPTHS EXCEEDING EIGHTEEN (18) FEET SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

TYPE AND SIZE OF MANHOLE TO BE CONSTRUCTED IN A PARTICULAR LOCATION SHALL BE DETERMINED BY THE PIPE SIZE, ALIGNMENT AND GRADE AS FOLLOWS:

TYPE I

FORTY-EIGHT (48) INCH SIZE
A. ALL CASES FOR PIPE EIGHTEEN (18) INCHES AND SMALLER.
B. TWENTY-FOUR (24) INCHES AND SMALLER PIPE ON TANGENT LINE AND GRADE.

SIXTY (60) INCH SIZE
A. TWENTY-SEVEN (27) INCH THROUGH THIRTY-SIX (36) INCH PIPE ON TANGENT LINE AND GRADE.
B. TWENTY-ONE (21) INCH THROUGH TWENTY-SEVEN (27) INCH PIPE AT ANGLE POINTS AND CHANGES IN GRADE OR PIPE SIZE.

TYPE I-A

USED IN PLACE OF TYPE I WHEN COVER ABOVE CONDUIT IS LIMITED, AND WHEN APPROVED BY THE ENGINEER.

TYPE II

FORTY-EIGHT (48) INCH SIZE
A. THIRTY (30) INCH THROUGH SIXTY (60) INCH PIPE ON TANGENT LINE WITH A CHANGE IN GRADE OR PIPE SIZE.
MANHOLE NOTES (CONTINUED)

TYPE III

TANGENT
SIXTY (0") INCH SI: E
A. THIRTY-NINE (39") INCH THROUGH SIXTY (0") INCH PIPE ON TANGENT LINE AND
GRADE WITH NO CHANGE IN PIPE SI: E.

ANGLE POINT
SIXTY (0") INCH SI: E
A. THIRTY (30") INCH THROUGH SIXTY (0") INCH PIPE AT THE ANGLE POINT IN LINE.

7. PRECAST MANHOLE COMPONENTS SHALL CONFORM TO ASTM C-478.

8. DISTANCE BETWEEN THE TOP OF MANHOLE AND FIRST STEP SHALL BE A MAXIMUM OF SIXTEEN (16)
INCHES. MANHOLE STEPS SHALL BE GROUTED IN PLACE.

9. (CLARK COUNTY ONLY) DISTANCE BETWEEN MANHOLES SHALL BE A MAXIMUM OF FOUR HUNDRED (400)
FEET.

10. MANHOLE SPACING SHALL BE REFERRED TO THE WASTE WATER COLLECTION STANDARDS.
**DROP INLET NOTES**

1. **ALL DROP INLETS, REGARDLESS OF TYPE, SHALL BE LOCATED SUCH THAT THE CURB OPENING (OR GRATE) IS A MINIMUM OF TEN (10) FEET FROM THE NEAREST P.C. OR P.T. OF THE CURRENT OR FUTURE CURB RETURN.**

2. **FOR CURB RETURNS WHERE A LOW POINT CONDITION EXIST OR IS PROPOSED AT THE P.C. OR P.T., THE CURB PROFILE SHALL BE DESIGNED SUCH THAT THE LOW POINT COINCIDES WITH THE CURB OPENING AS SPECIFIED ON NOTE NO. 1.**

3. **IF DRIVEWAYS OR UTILITIES EXIST, THE ENTITY ENGINEER SHALL APPROVE THE LOCATION OF THE DROP INLET.**

4. **WHEN INSTALLED WITHIN PEDESTRIAN ACCESS ROUTES, TOP OF MANHOLE COVERS SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SURFACE, HAVE NO GAPS GREATER THAN 1/2" REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.**

---

**SPECIFICATION REFERENCE**

<table>
<thead>
<tr>
<th>501</th>
<th>CONCRETE</th>
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<tbody>
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<td>.09</td>
<td>CATCH BASINS, MANHOLES INLETS</td>
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**UNIFORM STANDARD DRAWINGS**

CLARK COUNTY AREA

**STORM DRAIN DROP INLET**

GENERAL NOTES

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<th>B</th>
<th>C</th>
<th>H</th>
<th>L</th>
<th>M</th>
<th>N</th>
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<table>
<thead>
<tr>
<th>DATE 01-09-20</th>
<th>DWG. NO. 402</th>
</tr>
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</table>
NOTES
1. IN UNIMPROVED NON-TRAFFIC AREAS, TOP OF MANHOLE SHALL BE 6" TO 9" ABOVE GRADE.
2. PIPES SHALL NOT PROTRUDE MORE THAN 3" INSIDE OF MANHOLE SECTION. CONSTRUCT WATER TIGHT CONNECTION TO MANHOLE.
3. PIPE SECTION LENGTHS ARRANGED TO FIT DEPTH.
4. AN OPTIONAL TWO PIECE 30" TO 48" AND 48" TO 60" CONE MAY BE USED.
5. THE USE OF A 30" RING AND COVER SHALL BE APPROVED BY THE ENTITY ENGINEER.
6. WHEN INSTALLED WITHIN PEDESTRIAN ACCESS ROUTES, TOP OF MANHOLE COVERS SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SURFACE, HAVE NO GAPS GREATER THAN 1/2" REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.
NOTES
1. IN UNIMPROVED NON-TRAFFIC AREAS, TOP OF MANHOLE SHALL BE 6” TO 9” ABOVE GRADE.
2. PIPES SHALL NOT PROTRUDE MORE THAN 3” INSIDE OF MANHOLE SECTION. CONSTRUCT WATER TIGHT CONNECTION TO MANHOLE.
3. PIPE SECTION LENGTHS ARRANGED TO FIT DEPTH.
4. AN OPTIONAL TWO PIECE 24” TO 48” AND 48” TO 60” CONE MAY BE USED.
5. WHEN INSTALLED WITHIN PEDESTRIAN ACCESS ROUTES, TOP OF MANHOLE COVERS SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4”; WITH ADJACENT SURFACE, HAVE NO GAPS GREATER THAN 1/2”; REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.
**NOTE:**

1. PIPE SECTION LENGTHS ARRANGED TO FIT DEPTH.
2. THE USE OF A 30" RING AND COVER SHALL BE APPROVED BY THE ENTITY ENGINEER.

<table>
<thead>
<tr>
<th>SYM.</th>
<th>ITEM</th>
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<tbody>
<tr>
<td>A</td>
<td>RING &amp; COVER</td>
</tr>
<tr>
<td>B</td>
<td>GRADE ADJUSTING RING</td>
</tr>
<tr>
<td>C</td>
<td>1: SECTION REIN. CONC. PIPE</td>
</tr>
<tr>
<td>D</td>
<td>2: SECTION REIN. CONC. PIPE</td>
</tr>
<tr>
<td>E</td>
<td>3: SECTION REIN. CONC. PIPE</td>
</tr>
<tr>
<td>F</td>
<td>BASE</td>
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**CONCRETE COLLAR**
SEE STANDARD DWG. NO. 408.1

**FULL MORTARED JOINTS**
(CLASS "B" MORTAR)

**TONGUE AND GROOVE JOINTS**

**8" FLAT SLAB**

**STREET ELEV.**

**30 INCH RING AND COVER**
AGENCY APPROVED

**UNIFORM STANDARD DRAWINGS**
CLARK COUNTY AREA

**TYPE IA MANHOLE**
30 INCH RING AND COVER

**SPECIFICATION REFERENCE**

<table>
<thead>
<tr>
<th>501</th>
<th>CONCRETE &amp; MORTAR</th>
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</thead>
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<tr>
<td>09</td>
<td>CATCH BASINS, MANHOLES &amp; INLETS</td>
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**DATE 11-10-05**
**DWG. NO.** 404.1
SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

NOTE:
1. PIPE SECTION LENGTHS ARRANGED TO FIT DEPTH.

SYM. ITEM
A RING & COVER
B GRADE ADJUSTING RING
C 1' SECTION REIN. CONC. PIPE
D 2' SECTION REIN. CONC. PIPE
E 3' SECTION REIN. CONC. PIPE
F BASE

AGENCY APPROVED B C H L M N

TYPE IA MANHOLE

DATE 11-10-05 DWG. NO. 404
NOTES:

1. STEPS SHALL BE INSTALLED ON THE SIDE WALL OF THE MANHOLE.
2. W I.D. 12-INCHES MIN. BUT IN NO CASE SHALL W BE LESS THAN 0-INCHES.
3. THE USE OF A 30" RING AND COVER SHALL BE APPROVED BY THE ENTITY ENGINEER.
**NOTES:**
1. ALL BARS SHALL BE DEFORMED BARS CONFORMING TO ASTM-A706 GRADE 60.

2. CONCRETE SHALL BE MADE WITH TYPE V CEMET IN ACCORDANCE WITH ASTM C-150. 
MINIMUM COMPRRESSIVE 28 DAY STRENGTH = 
4000 psi. MAX. SLUMP = 4".

3. CLEARANCE TO REINFORCING BARS TO BE 2 1/2" UNLESS NOTED OTHERWISE.

4. FOR PRECAST RCB, THE REINFORCING SHALL BE IN ACCORDANCE WITH 
MANUFACTURER DESIGN, AS APPROVED BY 
THE ENGINEER.

---

**TYPE II-SD MANHOLE - RCB**

**PLAN - MANHOLE - RCB**

**SECTION E-E**

**SECTION D-D**

**SPECIFICATION REFERENCE**

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<tbody>
<tr>
<td>CLARK COUNTY AREA</td>
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| DATE 07-01-14 | DWG. NO. 405.2 | SHEET 1 OF 3 |
PLAN - NO SIDE DRAIN
POSITION MANHOLE ON EITHER SIDE

PLAN - SINGLE SIDE DRAIN
POSITION MANHOLE ON OPPOSITE SIDE FROM THE SIDE DRAIN

TYPE II-SD MANHOLE - PIPE

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPE II-SD MANHOLE

DATE 07-01-14 DWG. NO. 405.2 SHEET 2 OF 3
NOTES:

1. STEPS SHALL BE INSTALLED ON THE UPSTREAM WALL OF THE MANHOLE.
2. W ≥ I.D. ≥ 12-INCHES MIN. BUT IN NO CASE SHALL W BE LESS THAN 0-INCHES.
NOTE:
1. STEPS SHALL BE INSTALLED ON THE UPSTREAM WALL OF THE MANHOLE.
2. THE USE OF A 30" RING AND COVER SHALL BE APPROVED BY THE ENTITY ENGINEER.
1. STEPS SHALL BE INSTALLED ON THE UPSTREAM WALL OF THE MANHOLE.
1. The use of a 30" ring and cover shall be approved by the entity engineer.
SLOPE SHOWN ON PROFILE

BEDDING

MH FRAME & COVER

GRADE RINGS
MIN. (2) 3", (1) 6"

MANHOLE

MH STEPS

TRENCH WALL

"TEE" SECTION

#6 BARS

POUR AGAINST UNDISTURBED EARTH

BEDDING

SECTION A-A

4'-0" MIN.

8" MIN.

2'-0" MIN.

4'-4" MIN.

STA SHOWN ON PLANS

MV SHOWN ON PROFILE

INV SHOWN ON PROFILE

8" MIN.
SECTION A-A

NOTES:
1. CONCRETE COLLAR TO BE CONSTRUCTED 1/8" BELOW SURFACE OF DENSE GRADE WHERE OPEN GRADE IS NOT USED.
2. CONCRETE COLLAR NOT REQUIRED IN UNINCORPORATED CLARK COUNTY RESIDENTIAL STREETS LESS THAN 80' R/W WIDTH.
3. THE USE OF 30" RING AND COVER SHALL BE APPROVED BY THE ENTITY ENGINEER.
4. WHEN INSTALLED WITHIN PEDESTRIAN ACCESS ROUTES, TOP OF MANHOLE COVERS SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SURFACE, HAVE NO GAPS GREATER THAN 1/2" REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.

SPECIFICATION REFERENCE

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<th>AGENCY APPROVED</th>
<th>B</th>
<th>C</th>
<th>H</th>
<th>L</th>
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<tr>
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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

CONCRETE COLLAR AROUND MANHOLES
30 INCH RING AND COVER

DATE 01-09-20  DWG. NO. 408.1
PLAN

SECTION A-A

NOTES
1. CONCRETE COLLAR, FRAME, AND COVER SHALL BE CONSTRUCTED 1/8" BELOW THE ADJACENT SURFACE, ±1/16".
2. CONCRETE COLLAR NOT REQUIRED IN UNINCORPORATED CLARK COUNTY RESIDENTIAL STREETS LESS THAN 80' R/W WIDTH.
3. IF MANHOLE IS MORE THAN 1-1/2" ABOVE OR BELOW THE ADJACENT ROADWAY SURFACE, MANHOLE SHALL BE ADJUSTED TO GRADE BY UTILITY OWNER.
4. IF MANHOLE IS MORE THAN 1/4" ABOVE OR BELOW THE ADJACENT ROADWAY SURFACE IN A BICYCLE LANE, MANHOLE SHALL BE ADJUSTED TO GRADE BY UTILITY OWNER.
5. THE USE OF 30" RING AND COVER SHALL BE APPROVED BY THE ENTITY ENGINEER.
6. WHEN INSTALLED WITHIN PEDESTRIAN ACCESS ROUTES, TOP OF MANHOLE COVERS SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SURFACE, HAVE NO GAPS GREATER THAN 1/2" REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.

SPECIFICATION REFERENCE

| 501 | CONCRETE |
| 505 | REINFORCING STEEL |

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

CONCRETE COLLAR AROUND
MANHOLES
30 INCH RING AND COVER

DATE 01-09-20   DWG. NO. 408.1.S1
NOTES

1. CONCRETE COLLAR TO BE CONSTRUCTED 1/8" BELOW SURFACE OF DENSE GRADE WHERE OPEN GRADE IS NOT USED.

2. CONCRETE COLLAR NOT REQUIRED IN UNINCORPORATED CLARK COUNTY RESIDENTIAL STREETS LESS THAN 80' R/W WIDTH.

3. WHEN INSTALLED WITHIN PEDESTRIAN ACCESS ROUTES, TOP OF MANHOLE COVERS SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SURFACE, HAVE NO GAPS GREATER THAN 1/2" REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.
1. CONCRETE COLLAR, FRAME, AND COVER SHALL BE CONSTRUCTED 1/8" BELOW THE ADJACENT SURFACE, ± 1/16".
2. CONCRETE COLLAR NOT REQUIRED IN UNINCORPORATED CLARK COUNTY RESIDENTIAL STREETS LESS THAN 80’ R/W WIDTH.
3. IF MANHOLE IS MORE THAN 1-1/2" ABOVE OR BELOW THE ADJACENT ROADWAY SURFACE, MANHOLE SHALL BE ADJUSTED TO GRADE BY UTILITY OWNER.
4. IF MANHOLE IS MORE THAN 1/4" ABOVE OR BELOW THE ADJACENT ROADWAY SURFACE IN A BICYCLE LANE, MANHOLE SHALL BE ADJUSTED TO GRADE BY UTILITY OWNER.
5. WHEN INSTALLED WITHIN PEDESTRIAN ACCESS ROUTES, TOP OF MANHOLE COVERS SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4", WITH ADJACENT SURFACE, HAVE NO GAPS GREATER THAN 1/2", REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.

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DATE 01-09-20
DWG. NO. 408.S1

AGENCY APPROVED
1. FRAME AND COVER TO BE ALHAMBRA FOUNDRY COMPANY TYPE A1310 IN ACCORDANCE WITH ASTM A-48, CLASS 30, OR APPROVED EQUIVALENT.
2. CAST IRON SHALL HAVE MINIMUM TENSILE STRENGTH OF 30,000 P.S.I.
3. FRAME AND COVER MACHINED TO FIT.
4. WEIGHT OF FRAME AND COVER 330 LBS. MINIMUM.
5. THE USE OF A 30" RING AND COVER SHALL BE APPROVED BY THE ENTITY ENGINEER.
1. FRAME AND COVER TO BE ALHAMBRA FOUNDRY COMPANY TYPE A1310 IN ACCORDANCE WITH ASTM A-48, CLASS 30, OR APPROVED EQUIVALENT.
2. CAST IRON SHALL HAVE MINIMUM TENSILE STRENGTH OF 30,000 P.S.I.
3. FRAME AND COVER MACHINED TO FIT.
4. WEIGHT OF FRAME AND COVER 330 LBS. MINIMUM.
NOTES:

1. MANHOLE STEP SHALL CONFORM TO A.S.T.M. C-478 AND C-497.

2. ALUMINUM STEPS SHALL BE SOLID, MADE FROM MATERIAL IN CONFORMANCE WITH A.S.T.M. B221 (ALLOY 6005-T6).

3. REINFORCED PLASTIC STEPS SHALL BE POLYPROPYLENE PLASTIC, WITH NO. 3 (MIN.) DEFORMED STEEL ROD (GRADE 60/A.S.T.M. A-15).

4. STEPS SHALL BE EVENLY SPACED FROM 12" TO 16".

5. ALL STEPS MUST BE EPOXIED IN PLACE DURING THE INSTALLATION PROCESS.
NOTES:
1. ALL REBAR SHALL HAVE 2-1/2" COVER U.O.N.
2. ALL CONCRETE SHALL BE CLASS DA 4000 PSI.
3. SEE PLANS FOR LENGTH (L) AND DEPTH (H) OF EACH INLET.
4. SEE PLANS FOR SIZE AND LOCATION OF OUTLET PIPE.
5. ALL EXPOSED STEEL SHALL BE HOT DIPPED GALVANIZED.
6. ALL DAMAGED GALVANIZED STEEL SHALL BE PAINTED WITH A MINIMUM 3.5 MIL COAT OF ONE OF THE FOLLOWING ZINC RICH PAINTS:
   - GALVONOX TYPE I
   - LPS COLD GALVANIZE
   - SHERWIN-WILLIAMS "ZINC CLAD I"
7. ALL REBAR SHALL BE GRADE 60.
8. ALL STRUCTURAL STEEL SHALL BE A36.
10. BEDDING FOR DROP INLET SHALL BE 6" MIN. OF TYPE II AGGREGATE BASE COMPACTED TO 95% MAXIMUM DENSITY PER ASTM D1557.

LOCATION:
- Expansion Joint: 24" "L" Type
- Curb & Gutter: Match Lip of Gutter
- Vault Wall: Curb Face of (Typical)
- 3" 24" O.C. (Typical) C 4x5 Channel
- 1/4" 12" R=2" (10" At Ends, See Detail "B")
- 1/2" A-307 Anchor Bolts at 24" O.C. Detail "A"
- 6" ToC/BoC (Typical) B B C C 6' Transition (Typical) 0.45' Below ToC G.B. (Typical) 0.41' Below ToC Lip (Typical)
- 2) #5 Bars Continuous (Top)
- 4-1/2" 10" 1" R 0.41' Below ToC Lip 0.45' Below ToC G.B.
- (6) #5 Bars Continuous (Top) #6 Bent Bars at @ 12" 24" Min. Lap TYP. (U.O.N.) 1-1/2" Key 
- 1-1/2" 19" 8" 6" 7-1/2" 30" CLR.
- #5 Bars HORIZ. @ 18" O.C., STAGGERED E.F.
- (4) #4 Bars Continuous (Bottom)
- Key: 1-1/2"
- 1-1/2" Direction of Expansion Joint Back of Curb (BOC) Flow 9" Face of Curb (FOC) 0.45' Below ToC G.B. (Typical) 0.41' Below ToC Lip (Typical) MATCH LIP OF GUTTER SEE DET. "A" C 4x5 CHANNEL (2) #5 Bars Continuous (Top)
- 15" 18" 24" F.O.C.
- 4-1/2" 10" 1" R 0.41' Below ToC Lip 0.45' Below ToC G.B.
- (6) #5 Bars Continuous (Top) #6 Bent Bars at @ 12" 24" Min. Lap TYP. 1-1/2" Key
- 1-1/2" 19" 8" 6" 7-1/2" 30" CLR.
- #5 Bars HORIZ. @ 18" O.C., STAGGERED E.F.
- (4) #4 Bars Continuous (Bottom)
- Key: 1-1/2"
NOTES:
1. DEPTH "D" TO BE SHOWN ON PLANS.
2. OUTLET PIPE SIZE TO BE SHOWN ON PLANS.
3. OUTLET PIPE SHALL BE TRIMMED FLUSH WITH INSIDE FACE OF INLET.
4. SECTION B-B IS OPTIONAL FOR INLETS WHERE L ≥ 7'-0" OR GREATER, AND D ≥ 5'-0" OR GREATER, SEE STANDARD DRAWING NO. 415.

SPECIFICATION REFERENCE

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DROP INLET
TYPE "A"

DATE 4-11-02  DWG. NO. 411
SPECIFICATION REFERENCE

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPE "C-D" MODIFIED
DROP INLET

NOTES:

1. ALL EXPOSED METAL SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
2. PROVIDE 1/2" (MIN.) CLEARANCE ALL AROUND THE STEEL BEAM.
3. DRY PACK AFTER INSTALLATION.
4. WHEN REQUIRED BY LENGTH OF OPENING, PLATE ANGLE MAY BE DELIVERED IN SECTIONS AND BUTT WELDED IN PLACE.
5. ALL GALVANIZED DAMAGED BY WELDING SHALL RECEIVE TWO COATS OF GALVALLOY OR EQUAL.
6. CONCRETE SHALL BE MODIFIED CLASS DA 4000 PSI, SEE SPECIAL PROVISIONS.

SECTION "A"

ALTERNATE CONNECTION DETAIL

W6 x 16 @ 2'-6" O.C.
#5 @ 6" O.C.
DIRECTION OF FLOW

SECTION "B"

1" DIA. ROD CENTERED ON BEAM
L 3 1/2" x 2 1/2" x 1/2" 4" LONG LLH
1/2" DIA. BOLTS W/ NUTS AND WASHERS 2 1/4" GAGE (2 TOTAL)

BEAM DETAIL "B"

TYP WALL REINF.
2'-2"
2"
7/8"
6"
7-7/8" BACK OF CURB

TYP SLAB REINF.
1" DIA. ROD CENTERED ON BEAM
L 3 1/2" x 2 1/2" x 1/2" 4" LONG LLH
1/2" DIA. BOLTS W/ NUTS AND WASHERS 2 1/4" GAGE (2 TOTAL)

PROTECTIVE ANGLE
2-1/2" x 2-1/2"

SECTION "A"

ALTERNATE CONNECTION DETAIL

W6 x 16 @ 2'-6" O.C.
#4 @ 6" O.C.
DIRECTION OF FLOW

SECTION "B"

1" DIA. ROD CENTERED ON BEAM
L 3 1/2" x 2 1/2" x 1/2" 4" LONG LLH
1/2" DIA. BOLTS W/ NUTS AND WASHERS 2 1/4" GAGE (2 TOTAL)

PROTECTIVE ANGLE
2-1/2" x 2-1/2"

SLOPE TO DRAIN
CONSTRUCTION JOINT (TYP.)
2" CLR. (TYP.)
#4 @ 12" O.C.
3" CLR. (TYP.)
2'-6"
W " TYP.

TYPE "CM2" DROP INLET SECTION

W6 x 16 @ 2'-6" O.C.
#5 @ 6" O.C.
2'-10" CENTERED"D" VARIES PER PLAN
6"
2" CLR. (TYP.)

TYPE "DM2" DROP INLET SECTION

W6 x 16 @ 2'-6" O.C.
#4 @ 6" O.C.
2'-0" CENTERED"D" VARIES PER PLAN
6"
1'-6" "A" BARS
3" CLR.

#4 @ 12" O.C. (TYP.)
4'-0"
6'-0"
8'-0"
10'-0" MAX.

#5 @ 12" O.C.
3" CLR.
1'-4" "A" BARS

ANGLE TO MATCH CURB FACE

PROTECTION BOLT SEE DETAIL "A"
PLATE ANCHOR
1/2" STD. ROD

PROTECTION BAR

EXPANSION JOINT

STANDARD CURB

STANDARD GUTTER

APRON

STRAIGHT GRADE

4'-4 3/4" T

2'-0" T

2'-6" T

3'-0" MIN.

3" R

3" R

3'-6" T

8" CURB FACE

8" CURB FACE

6" CURB FACE

OUTLET PIPE

SIDE VIEW

1/4" PER FOOT

4'-4 3/4"

1 1/2" CLEAR

1 1/2" CLEAR (TYP.)

4 BARS 1 1/2" C-C

SLOPE TO DRAIN ALL DIRECTIONS

NOTES:
1. DEPTH "D" TO BE SHOWN ON PLANS.
2. OUTLET PIPE SIZE TO BE SHOWN ON PLANS.
3. CONCRETE SHALL BE CLASS "D" OR "DA".
4. OUTLET PIPE SHALL BE TRIMMED FLUSH WITH INSIDE FACE OF INLET.
5. FOR GRATE DETAIL SEE STANDARD DRAWING NO. 417

AGENCY APPROVED

B C H L M N

501 CONCRETE
502 CONCRETE STRUCTURES
505 REINFORCING STEEL
713 STEEL

DATE 4-11-02 

DWG. NO. 412

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

DROP INLET

TYPE "B"

T TABLE

"D" "T"

2'-0" TO 8'-0" 8'

8'-1" TO 20'-0" 8"
ALHAMBRA FOUNDRY TYPE A1530 FRAME AND COVER (WITH 22" DIA. CLEAR OPENING) IN ACCORDANCE WITH ASTM A-48, CLASS 30, OR APPROVED EQUAL. COVER TO BE SECURED WITH 2-5/8" DIAMETER STAINLESS STEEL BOLTS.

- For reinforcement, use No. 4 bars at 12" O.C. max.
- All horizontal reinforcement is No. 4 bars at 12" O.C. max.
- Frame and cover in accordance with ASTM A-48, Class 30, or approved equal. Cover to be 8" curb face.

NOTES:

1. Depth "D" to be shown on plans.
2. Outlet pipe size to be shown on plans.
3. When length "L" exceeds 4'-0", support bolts required, see standard drawing No. 418.
4. For grate detail, see standard drawing No. 417.
5. Section B-B is optional for inlets where L > 7'-0" and D > 5'-0", see standard drawing No. 415.

SPECIFICATION REFERENCE

| 501 | CONCRETE                   |
| 502 | CONCRETE STRUCTURES        |
| 505 | REINFORCING STEEL          |
| 713 | STEEL                      |

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

DROP INLET TYPE "C"

DATE 4-11-02 DWG. NO. 413
1. DROP INLET TYPE "D" TO BE USED WHEN CONFLICTING UTILITIES ARE LOCATED IN THE SIDEWALK AREA.
2. DEPTH "D" AND DISTANCE "Y" TO BE SHOWN ON PLANS.
3. OUTLET PIPE SIZE TO BE SHOWN ON PLANS.
4. WHEN LENGTH "L" EXCEEDS 4'-0" SUPPORT BOLTS REQUIRED, SEE STANDARD DRAWING NO. 418.
5. FOR GRATE DETAIL SEE STANDARD DRAWING NO. 417.
6. SECTION B-B IS OPTIONAL FOR INLETS WHERE L > 7'-0" AND D > 5'-0", SEE STANDARD DRAWING NO. 415.
SLOPE TO DRAIN

SECTION B-B

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NOTES:
1. DEPTH "D" TO BE SHOWN ON PLANS.
2. OUTLET PIPE SIZE TO BE SHOWN ON PLANS.
3. SECTION APPEARS AS SECTION B-B FOR DROP INLET TYPE "A", STANDARD DRAWING NO. 411 AND FOR DROP INLET TYPE "C" STANDARD DRAWING NO. 413.

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DROP INLET TYPES "A" AND "B"
SPECIAL DESIGN

DATE |
-----|

DWG. NO. 415
BEEHIVE DROP INLETS SHALL BE USED AT LOCATIONS APPROVED BY THE ENGINEER.

NOTE:

BEEHIVE DROP INLETS SHALL BE USED AT LOCATIONS APPROVED BY THE ENGINEER.
NOTES
1. ALL EXPOSED METAL PARTS SHALL BE GALVANIZED AND ALL GALVANIZING DAMAGED
   BY FABRICATION OR INSTALLATION SHALL RECEIVE TWO COATS OF ALUMINUM PAINT
   (GALVONOX OR EQUAL).
2. GRATES SHALL NOT BE INSTALLED IN PEDESTRIAN ACCESS ROUTES.
3. GRATES MUST BE BICYCLE SAFE.

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DATE 01-09-20

DWG. NO. 417

DROP INLET
FRAME AND GRATE
NOTE:

1/2" GALVANIZED STEEL ANCHORS EQUALLY SPACED BETWEEN BOLT HOLES. (ALTERNATE AS SHOWN)

STEEL PLATE ANCHORAGE

SECTION A-A

BOLT DETAIL

STIRRUP WELDED TO BOLT

1/2" STEEL ANCHORS GY VARIOUS BETWEEN BOLT HOLES. (ALTERNATE AS SHOWN)

FOR STEEL PLATE AND PROTECTION BAR DETAILS, SEE STANDARD DRAWING NO. 419.

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DROP INLET
STEEL PLATE ANCHORAGE

DATE DWG. NO. 418

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<td>715 GALVANIZING</td>
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1. Protection bar shall be required on all inlets and shall be placed parallel to the steel face plate.
2. Support bolts shall be equally spaced at not more than 2'-0" O.C. and not less than 1'-6" O.C.
3. All exposed metal parts shall be galvanized and galvanizing damaged by fabrication or installation shall receive two coats of aluminum paint (Galvonomex or equal).
4. For steel plate anchorage, see standard drawing no. 418.
5. #4 bars & (L+6") shall be in addition to reinforcing steel per applicable drop inlet standard plan.

Adjusting nuts to be tightened & secured in place when plate is in proper position.

1" protection bar shall be embedded 5" at each end. (See note 1)

1" (curb face) support bolt.

Agency Approved

SPECIFICATION REFERENCE

713 Reinforcement Plates
714 Paint
715 Galvanizing

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DROP INLET
STEEL PLATE AND PROTECTION BAR

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DATE DWG. NO. 419
NOTES:

1. CONSTRUCT 14-FOOT WIDE CHAIN LINK GATE AT ALL STREET ACCESS POINTS, FOR ACCESS ONTO 12-FOOT ACCESS ROADS.

2. CONSTRUCT 3-FOOT WIDE CHAIN LINK GATE AT ALL STREET ACCESS POINTS FOR ACCESS ON THE 5-FOOT WIDTH ACCESS SIDE.

3. CONSTRUCT SECOND ACCESS ROAD (12-FOOT MINIMUM WIDTH WITH 6-INCH MIN. TYPE II AGGREGATE BASE) IF B EXCEEDS 30.

4. FOR UNLINED CHANNELS H 2. 

5. "V" DITCH SHALL BE CONSTRUCTED TO PREVENT OVERLAND RUNOFF FROM ERODING SIDES OF BANK. AN ADEQUATE NUMBER OF INLETS ALONG THE "V" DITCH SHALL BE DESIGNED WITH A MINIMUM 12-INCH CMP LATERAL DISCHARGING INTO THE CHANNEL. APPROPRIATE BANK PROTECTION FOR LATERAL PIPE DISCHARGE SHALL BE PROVIDED. OTHER METHODS OF OVERLAND RUNOFF CONTROL MAY BE ACCEPTABLE IF APPROVED BY THE ENGINEER.
STORMWATER INLET CONCRETE STAMP

1. MESSAGE OR SYMBOL SHALL BE AS SHOWN ON THE DRAWING OR ON THE VERTICAL CURB NEXT TO THE DROP INLET OR AS APPROVED BY THE APPROPRIATE CITY OR COUNTY ENGINEER.

2. LETTERS SHALL BE 1-7/16" IN HEIGHT. THE MESSAGE SHALL BE CENTERED ON THE BACK OF THE INLET OR ON THE TOP OF CURB.

3. CONCRETE SHALL BE STAMPED IN SUCH A WAY AS TO PROVIDE FOR A CLEAR AND LEGIBLE IMAGE. (APPROXIMATE DEPTH OF 1/4”).

4. ALL STAMPS SHALL BE APPROVED BY THE CITY OR COUNTY ENGINEER BEFORE BEING USED.

5. STAMP MAY BE PERMANENTLY CAST INTO CAST IRON FRAME OR PRE-CAST CONCRETE PORTIONS OF INLET.

6. WHERE RETROFITTING IS REQUIRED, AN EPOXIED PLACARD BEARING THE MESSAGE AND SYMBOL APPROVED BY THE APPROPRIATE CITY OR COUNTY ENGINEER SHALL BE PERMANENTLY AFFIXED ON THE TOP OF THE ADJACENT CURB.

7. THIS STANDARD IS REQUIRED IN THE LAS VEGAS VALLEY IN WHICH AREA WATER DRAINS TO LAKE MEAD.

NOTES
1. MESSAGE OR SYMBOL SHALL BE AS SHOWN ON THE DRAWING OR ON THE VERTICAL CURB NEXT TO THE DROP INLET OR AS APPROVED BY THE APPROPRIATE CITY OR COUNTY ENGINEER.

2. LETTERS SHALL BE 1-7/16" IN HEIGHT. THE MESSAGE SHALL BE CENTERED ON THE BACK OF THE INLET OR ON THE TOP OF CURB.

3. CONCRETE SHALL BE STAMPED IN SUCH A WAY AS TO PROVIDE FOR A CLEAR AND LEGIBLE IMAGE. (APPROXIMATE DEPTH OF 1/4").

4. ALL STAMPS SHALL BE APPROVED BY THE CITY OR COUNTY ENGINEER BEFORE BEING USED.

5. STAMP MAY BE PERMANENTLY CAST INTO CAST IRON FRAME OR PRE-CAST CONCRETE PORTIONS OF INLET.

6. WHERE RETROFITTING IS REQUIRED, AN EPOXIED PLACARD BEARING THE MESSAGE AND SYMBOL APPROVED BY THE APPROPRIATE CITY OR COUNTY ENGINEER SHALL BE PERMANENTLY AFFIXED ON THE TOP OF THE ADJACENT CURB.

7. THIS STANDARD IS REQUIRED IN THE LAS VEGAS VALLEY IN WHICH AREA WATER DRAINS TO LAKE MEAD.
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<th>SPECIFICATION REFERENCE</th>
<th>UNIFORM STANDARD DRAWINGS</th>
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| STORM WATER QUALITY MANAGEMENT |
| STAMP AND SIGN DETAIL |

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DATE 12-09-10  DWG. NO.  421  SHEET 2 OF 3

DON'T POLLUTE!

DRAINS

TO LAKE MEAD

1 1/2" MAXIMUM

5" MAX.
4" PLACARD - COLORS □ BLUE AND GREEN

THIS EPOXY PLACARD MESSAGE AND SYMBOL HAS BEEN APPROVED BY THE APPROPRIATE CITY OR COUNTY ENGINEER. ANY OTHER EQUIVALENT MESSAGE AND SYMBOL DESIGNS WILL REQUIRE PRIOR APPROVAL OF THE APPROPRIATE CITY OR COUNTY BEFORE INSTALLATION. THE PLACARD MATERIAL SHALL BE EITHER POLYCARBONATE OR METAL AND THE FINISH SHALL BE UV AND ABRASION RESISTANT.

STORM DRAIN MARKER

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STORM WATER QUALITY MANAGEMENT STAMP AND SIGN DETAIL

DATE  12-09-10  DWG. NO.  421  SHEET 3 OF 3
SPECIFICATION REFERENCE

501 CONCRETE
501 CONCRETE STRUCTURES
501 REINFORCING STEEL
501 STEEL

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPE "CM" DROP INLET

SECTION "A"

NOTES:
1. ALL EXPOSED METALS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
2. PROVIDE 1/2" (MIN.) CLEARANCE ALL AROUND THE STEEL BEAM, DRY PACK AFTER INSTALLATION.
3. WHEN REQUIRED BY LENGTH OF OPENING, PLATE ANGLE MAY BE DELIVERED IN SECTIONS AND BUTT WELDED IN PLACE.
4. ALL GALVANIZED DAMAGE CAUSED BY WELDING SHALL RECEIVE TWO COATS OF GALVALLOY OR EQUAL.
5. CONCRETE SHALL BE MODIFIED CLASS DA 4000 PSI, SEE SPECIAL PROVISIONS SECTION 501.
6. ANGLE ANCHORS SHALL BE EMBEDDED MIDPOINT IN EACH ENDWALL AND EVENLY SPACED. (MAXIMUM SPACING OF 2').
7. THE GAP BETWEEN THE GRATES MUST BE 1/2-INCH OR LESS.

SECTION "B"

SECTION "C"

DETAIL "A"

DETAIL "B"

DETAIL "C"

DROP INLET LAYOUT PLAN

AGENCY APPROVED

TYPE "CM" DROP INLET

DATE 07-01-14  DWG. NO. 422
ONE PERCENT MINIMUM SLOPE THROUGH DRAINAGE SLAB IS REQUIRED. WHERE A STORM DRAIN LINE IS AVAILABLE IN THE EXTERIOR STREET, A STORM DRAIN INLET AT THE BEGINNING OF THE EASEMENT AND AN 18-INCH MINIMUM STORM DRAIN PIPE IS REQUIRED TO CONVEY SUBSURFACE WATER THROUGH THE EASEMENT.

NOTE #1: 2'-0" STANDARD WIDTH, DIFFERENT WIDTHS TO BE DESIGNED ACCORDINGLY AND IN CONFORMITY WITH THE CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL.

GENERAL NOTE: GATE AND FENCE CONSTRUCTION IS INTENDED TO PREVENT STORAGE OF MATERIALS AND VEHICLES WITHIN CHANNEL. PREVENTION OF PEDESTRIAN USE MAY BE IMPAIRED, BUT THE DESIGN IS NOT INTENDED TO PREVENT PEDESTRIAN TRAFFIC.

BOLLARDS MAY BE USED IN LIEU OF GATE IF PEDESTRIAN ACCESS IS DESIRED.

NOT FOR USE IN EMERGENCY ACCESS

SPECIFICATION REFERENCE

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

THROUGH-LOT DRAIN

DATE 07-01-14  DWG. NO.  425.S1  SHEET 1 OF 3
ONE PERCENT MINIMUM SLOPE THROUGH DRAINAGE SLAB IS REQUIRED. WHERE A STORM DRAIN LINE IS AVAILABLE IN THE EXTERIOR STREET, A STORM DRAIN INLET AT THE BEGINNING OF THE EASEMENT AND AN 1-1/2-INCH MINIMUM STORM DRAIN PIPE IS REQUIRED TO CONVEY NUISANCE WATER THROUGH THE EASEMENT.

NOTE #1: 20' STANDARD WIDTH, DIFFERENT WIDTHS TO BE DESIGNED ACCORDINGLY.

GENERAL NOTE: GATE AND FENCE CONSTRUCTION IS INTENDED TO PREVENT STORAGE OF MATERIALS AND VEHICLES WITHIN CHANNEL. PREVENTION OF PEDESTRIAN USE MAY BE IMPAIRED, BUT THE DESIGN IS NOT INTENDED TO PREVENT PEDESTRIAN TRAFFIC.

BOLLARDS MAY BE USED IN LIEU OF GATE IF PEDESTRIAN ACCESS IS DESIRED.

PLAN VIEW

SECTION A-A'

ELEVATION VIEW

DETIAL 1

DETIAL 2

NOT FOR USE IN EMERGENCY ACCESS

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SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

THROUGH-LOT DRAIN

DATE 07-01-14  DWG. NO. 425.S1  SHEET 2 OF 3
NOT FOR USE IN EMERGENCY ACCESS

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

THROUGH-LOT DRAIN

DATE 07-01-14  DWG. NO. 425.S1  SHEET 3 OF 3
LONGITUDINAL CUT RESTORATION

ASPHALT PATCH TO MATCH CONTIGUOUS SECTION AND SHALL BE NO LESS THAN 2"

MIN. RESTORATION LIMITS UNLESS OTHERWISE DETERMINED BY ENTITY PLAN CHECK, WITH FINAL LIMITS SET BY FIELD INSPECTOR.

TRENCH LIMITS

MILL AND overlAy 1" UTACS UNLESS OTHERWISE REQUIRED BY THE ENTITY, REMOVE AND REPLACE ASPHALT PAVEMENT IF EXISTING ASPHALT PAVEMENT IS 2" THICK OR LESS.

NOTES:

SEE DWG. 500.1 SHEET 2 OF 2

SPECIFICATION REFERENCE

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

0 TO 5 YEARS
PAVEMENT RESTORATION
LONGITUDINAL CUT
LONGITUDINAL CUT RESTORATION

MILL AND OVERLAY 1" UTACS UNLESS OTHERWISE REQUIRED BY THE ENTITY. REMOVE AND REPLACE ASPHALT PAVEMENT IF EXISTING ASPHALT PAVEMENT IS 2" THICK OR LESS.

ASPHALT PATCH TO MATCH CONTIGUOUS SECTION AND SHALL BE NO LESS THAN 2"

MIN. RESTORATION LIMITS UNLESS OTHERWISE DETERMINED BY ENTITY PLAN CHECK, WITH FINAL LIMITS SET BY FIELD INSPECTOR.

TRENCH LIMITS

NOTES:

SEE DWG. 500.1 SHEET 2 OF 2

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DATE 6-12-08

DWG. NO. 500.1

SHEET 1 OF 2

CLARK COUNTY AREA

UNIFORM STANDARD DRAWINGS

0 TO 5 YEARS
PAVEMENT RESTORATION
LONGITUDINAL CUT

PLAN VIEW

LANE LINE

C
L
C
L

2' MIN.

2' MIN.
NOTES:

1. IF THERE IS A MEDIAN, RESTORATION MAY BE LIMITED TO THE AREA BETWEEN C & G AND THE MEDIAN CURB.
2. WHEN EXISTING PAVEMENT IS 2" THICK OR LESS, PAVEMENT WITHIN THE RESTORATION AREA SHALL BE REMOVED AND REPLACED IN KIND AS REQUIRED BY THE ENTITY.
3. IF SAWCUT LINE IS WITHIN FIVE FEET OF EDGE OF EXISTING ASPHALT CONCRETE SURFACE OR EXISTING SAWCUT LINE, MILL AND OVERLAY OR REPLACE TO THAT EDGE.
4. PAVEMENT RESTORATION AREA SAWCUT LINES SHALL NOT FALL WITHIN STREET INTERSECTION.
5. IF CUT IS WITHIN A LANE, PAVEMENT RESTORATION MUST EXTEND TO THE NEXT LANE LINE.

□ THE ENTITY’S REQUIREMENTS TAKE PRECEDENCE OVER ANY MINIMUM REQUIREMENTS SHOWN HEREON.

SPECIFICATION REFERENCE

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AGENCY APPROVED B C H L M N

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

0 TO 5 YEARS
PAVEMENT RESTORATION
LONGITUDINAL CUT

DATE 6-12-08 DWG. NO. 500.1 SHEET 2 OF 2
PATCH TO THE NEXT LANE LINE UNLESS UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

IF SAWCUT LINE IS WITHIN FIVE FEET OF EDGE OF EXISTING ASPHALT CONCRETE SURFACE OR EXISTING SAWCUT LINE, MILL IF THERE IS MEDIAN, RESTORATION MAY BE LIMITED TO THE AREA BETWEEN C&G TO CURB OF MEDIAN. AND OVERLAY OR REPLACE TO THAT EDGE.

SPECIFICATION REFERENCE

BITUMINOUS PAVEMENT

PRIME COAT

AGGREGATE BASE

FOG SEAL

CONCRETE

501

302

401

407

TRENCH LIMITS

MIN. RESTORATION LIMITS UNLESS OTHERWISE DETERMINED BY ENTITY PLAN CHECK, WITH FINAL LIMITS SET BY FIELD INSPECTOR.

NOTES:

1. IF THERE IS MEDIAN, RESTORATION MAY BE LIMITED TO THE AREA BETWEEN C. G TO CURB OF MEDIAN.
2. IF SAWCUT LINE IS WITHIN FIVE FEET OF EDGE OF EXISTING ASPHALT CONCRETE SURFACE OR EXISTING SAWCUT LINE, MILL AND OVERLAY OR REPLACE TO THAT EDGE.
3. WHEN EXISTING PAVEMENT IS LESS 2" THICK OR LESS, PAVEMENT WITHIN THE RESTORATION AREA SHALL BE REMOVED AND REPLACED IN KIND AS REQUIRED BY THE ENTITY.
4. PAVEMENT RESTORATION AREA SAWCUT LINES SHALL NOT FALL WITHIN STREET INTERSECTION.
5. IF CUT IS WITHIN A LANE, PAVEMENT RESTORATION MUST EXTEND TO THE NEXT LANE LINE.

THE ENTITY’S REQUIREMENTS TAKE PRECEDENCE OVER ANY MINIMUM REQUIREMENTS SHOWN HEREON.
LONGITUDINAL CUT RESTORATION

NOTES:

1. IF CUT IS WITHIN A LANE, PAVEMENT RESTORATION MUST EXTEND TO THE NEXT LANE LINE.
2. THE ENTITY'S REQUIREMENTS TAKE PRECEDENCE OVER ANY MINIMUM REQUIREMENTS SHOWN HEREON.

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<td>406 PRIME COAT</td>
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<td>CUT- GREATER THAN 00 FT. RIGHT-OF-WAY</td>
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DATE: 6-12-08  DWG. NO. 500.3
PLAN VIEW

LONGITUDINAL CUT RESTORATION

IF TRENCH EDGE IS 5-FT OR LESS FROM LIP OF GUTTER, THEN REPLACE 8-FT (MIN.) OF ASPHALT.

IF TRENCH EDGE IS BETWEEN 5-FT & 9-FT FROM LIP OF GUTTER, THEN REPLACE 11-FT (MIN.) OF ASPHALT.

EXCEPTION: FOR RESIDENTIAL STREETS 51-FT OR LESS, REPLACE FULL HALF STREET.

IF TRENCH EDGE IS BETWEEN 10-FT & 14-FT FROM CENTERLINE, THEN REPLACE 16-FT (MIN.) OF ASPHALT.

EXCEPTION: FOR RESIDENTIAL STREETS 51-FT OR LESS, REPLACE FULL HALF STREET.

IF TRENCH EDGE IS BETWEEN 2-FT & 10-FT FROM CENTERLINE, THEN REPLACE 12-FT (MIN.) OF ASPHALT.

NOTES:
1. IF CUT IS WITHIN A MARKED LANE, PAVEMENT RESTORATION MUST EXTEND TO THE MARKED LANE LINE.
2. THE ENTITY'S REQUIREMENTS TAKE PRECEDENCE OVER ANY MINIMUM REQUIREMENTS SHOWN HEREON.
3. MINIMUM ASPHALT REPLACEMENT WIDTH SHALL NOT BE LESS THAN THE LIMITS OF THE PAVING MACHINERY USED.

OVER 5 YEARS

PAVEMENT RESTORATION

LONGITUDINAL CUT - 0 R/W OR LESS
NOTES:

1. IF CUT IS WITHIN A LANE, PAVEMENT RESTORATION MUST EXTEND TO THE NEXT LANE LINE.

2. THE ENTITY'S REQUIREMENTS TAKE PRECEDENCE OVER ANY MINIMUM REQUIREMENTS SHOWN HEREON.
NOTES:

1. STREETLIGHT FOUNDATIONS SHALL BE LOCATED BEHIND SIDEWALK FOR SIDEWALK WIDTHS LESS THAN 5 FEET PER STANDARD DRAWING NO. 320.

2. STORM/SANITARY SEWER AND GAS MAY BE LOCATED ON OTHER SIDE OF CENTERLINE AS TERRAIN AND/OR SEPARATIONS Dictates.

3. STREETLIGHT FOUNDATIONS SHALL BE LOCATED BEHIND SIDEWALK FOR SIDEWALK WIDTHS LESS THAN 5 FEET PER STANDARD DRAWING NO. 320.

4. SEPARATION DISTANCE SHALL CONFORM TO UTILITY STANDARDS ADOPTED BY THE ENGINEER.

5. STREET CONSTRUCTION SHALL CONFORM TO THE DESIGNED PLANS.

6. UTILITY LINES SHALL BE RE-ROUTED IF DROP INLET IS IN CONFLICT.

7. WATER TRANSMISSION MAIN SEPARATION SHALL BE REFERRED TO WATER PURVEYOR GUIDELINES.
MILL AND OVERLAY RESTORATION LIMITS TO BE DETERMINED BY ENTITY PLAN CHECK, WITH FINAL LIMITS SET BY FIELD INSPECTOR. REFER TO DRAWINGS 500 SERIES.

EXISTING AGGREGATE BASE

INSTALLATION REQUIREMENTS INCLUDING CONTRACTOR TESTING AND FILL LIFTS SEE SECTION 208-TRENCH EXCAVATION AND BACKFILL

MINIMUM TRENCH WIDTH IS RELATED TO DESIGN REQUIREMENTS AND SHALL BE INDICATED ON THE PLAN DRAWINGS. SEE SECTION 208-TRENCH EXCAVATION AND BACKFILL

GRANULAR BACKFILL OR SELECT BACKFILL OR BACKFILL WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM) OR AS APPROVED BY THE ENGINEER SEE NOTE 1

DEPTH OF COVER IS RELATED TO DESIGN REQUIREMENTS AND SHALL BE INDICATED ON THE PLAN DRAWINGS. SEE SECTION 208-TRENCH EXCAVATION AND BACKFILL

PIPE ZONE

PIPE BEDDING SEE NOTE 3

NOTES:
1. NO STONES OR LUMPS GREATER THAN 3" PERMITTED IN TRENCH 2' OR LESS IN WIDTH.
2. TRENCH WIDTH, BEDDING, SUBGRADE AND PIPE ZONE REQUIREMENTS FOR UTILITY INSTALLATIONS SHALL CONFORM TO THE RESPECTIVE ENTITY REQUIREMENTS.
3. CRUSHED ROCK MAY BE USED FOR PIPE BEDDING ONLY IF MATERIAL USE HAS BEEN SPECIFICALLY APPROVED BY THE GOVERNING AGENCY. SEE STANDARD DRAWING NO. 505 FOR PIPE BEDDING METHODS.
4. LAS VEGAS VALLEY WATER DISTRICT REQUIRES PIPE BEDDING AND BACKFILL WITHIN THE PIPE ZONE TO BE OF THE SAME MATERIAL.

AGENCY APPROVED B C H L M N

SPECIFICATION REFERENCE
208 TRENCH EXCAVATION & BACKFILL
302 AGGREGATE BASE COURSES

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

METHOD A FOR FLEXIBLE PIPE TRENCH BACKFILL - PAVED AREAS

DATE 01-01-12 DWG. NO. 503.1
MILL AND OVERLAY RESTORATION LIMITS TO BE DETERMINED BY ENTITY PLAN CHECK, WITH FINAL LIMITS SET BY FIELD INSPECTOR. REFER TO DRAWINGS 500 SERIES.

EXISTING
AGGREGATE
BASE

INSTALLATION REQUIREMENTS INCLUDING CONTRACTOR TESTING AND FILL LIFTS SEE SECTION 208-
TRENCH EXCAVATION AND BACKFILL

MINIMUM TRENCH WIDTH IS RELATED TO DESIGN REQUIREMENTS AND SHALL BE INDICATED ON THE PLAN DRAWINGS. SEE SECTION 208-
TRENCH EXCAVATION AND BACKFILL

GRANULAR BACKFILL OR SELECT BACKFILL OR BACKFILL WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM) OR AS APPROVED BY THE ENGINEER SEE NOTE 1

DEPTH OF COVER IS RELATED TO DESIGN REQUIREMENTS AND SHALL BE INDICATED ON THE PLAN DRAWINGS. SEE SECTION 208-
TRENCH EXCAVATION AND BACKFILL

PIPE ZONE

PIPE BEDDING SEE NOTE 3

NOTES:
1. NO STONES OR LUMPS GREATER THAN 3" PERMITTED IN TRENCH 2' OR LESS IN WIDTH.
2. TRENCH WIDTH, BEDDING, SUBGRADE AND PIPE ZONE REQUIREMENTS FOR UTILITY INSTALLATIONS SHALL CONFORM TO THE RESPECTIVE ENTITY REQUIREMENTS.
3. CRUSHED ROCK MAY BE USED FOR PIPE BEDDING ONLY IF MATERIAL USE HAS BEEN SPECIFICALLY APPROVED BY THE GOVERNING AGENCY. SEE STANDARD DRAWING NO. 505 FOR PIPE BEDDING METHODS.
4. LAS VEGAS VALLEY WATER DISTRICT REQUIRES PIPE BEDDING AND BACKFILL WITHIN THE PIPE ZONE TO BE OF THE SAME MATERIAL.

PRIME COAT PER SECTION 406-PRIME COAT

CLSM MINIMUM DEPTH
* 12" FOR MINOR COLLECTOR ROADWAYS (>OR=60', <80')
* 24" FOR COLLECTOR AND ARTERIAL ROADWAYS (>OR=80') (NOT REQUIRED FOR TRENCH WIDTHS GREATER THAN 3-FT. **)

* CLSM NOT REQUIRED FOR RESIDENTIAL STREETS.

** FOR RESIDENTIAL STREETS AND TRENCH WIDTHS GREATER THAN 3-FT (CLSM NOT REQUIRED). THE TRENCH BACKFILL SHALL EXTEND TO THE TOP OF SUBGRADE MINUS 1-INCH, AND THE DEPTH OF AGGREGATE BASE SHALL MATCH EXISTING BASE DEPTH (AT 95% COMPACTION).

COMPACTION PERCENTAGE PER GEOTECH ENG REQUIREMENTS OR MINIMUM OF 90%

REFER TO SECTION 208 REQUIREMENTS

SEE SUBSECTION 208.03.14 FOR DEPTH OF PIPE COVER

90% MIN. COMPACTED IN PIPE ZONE, TYPE II OR TYPE III AGGREGATE BASE, OR BACKFILL WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM) SEE NOTE 2

BACKFILL WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM) INSTALL AS PER SECTION 208 SEE NOTE 2

STABLE SUBGRADE

AGENCY APPROVED

B C H L M N

SPECIFICATION REFERENCE

208 TRENCH EXCAVATION & BACKFILL

302 AGGREGATE BASE COURSES

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

METHOD A FOR RIGID PIPE TRENCH BACKFILL - PAVED AREAS

DATE 01-01-12 DWG. NO. 503.2
MILL AND OVERLAY
RESTORATION LIMITS TO BE
DETERMINED BY ENTITY PLAN
CHECK, WITH FINAL LIMITS SET
BY FIELD INSPECTOR. REFER TO
DRAWINGS 500 SERIES.

EXISTING
AGGREGATE
BASE

2' MIN.

INSTALLATION REQUIREMENTS
INCLUDING CONTRACTOR TESTING
AND FILL LIFTS SEE SECTION 208-
TRENCH EXCAVATION AND BACKFILL

MINIMUM TRENCH WIDTH IS RELATED
TO DESIGN REQUIREMENTS AND
SHALL BE INDICATED ON THE PLAN
DRAWINGS. SEE SECTION 208-
TRENCH EXCAVATION AND BACKFILL

GRANULAR BACKFILL OR
SELECT BACKFILL OR
BACKFILL WITH CONTROLLED LOW
STRENGTH MATERIAL (CLSM)
OR AS APPROVED BY THE ENGINEER
SEE NOTE 1

DEPTH OF COVER IS RELATED
TO DESIGN REQUIREMENTS AND
SHALL BE INDICATED ON THE PLAN
DRAWINGS. SEE SECTION 208-
TRENCH EXCAVATION AND BACKFILL

PIPE ZONE

PIECE BEDDING
SEE NOTE 3

NOTES:
1. NO STONES OR LUMPS GREATER THAN 3" PERMITTED IN TRENCH 2' OR LESS IN WIDTH.
2. TRENCH WIDTH, BEDDING, SUBGRADE AND PIPE ZONE REQUIREMENTS FOR UTILITY INSTALLATIONS SHALL
CONFORM TO THE RESPECTIVE ENTITY REQUIREMENTS.
3. CRUSHED ROCK MAY BE USED FOR PIPE BEDDING ONLY IF MATERIAL USE HAS BEEN
SPECIFICALLY APPROVED BY THE GOVERNING AGENCY. SEE STANDARD DRAWING NO. 505
FOR PIPE BEDDING METHODS.
4. LAS VEGAS VALLEY WATER DISTRICT REQUIRES PIPE BEDDING AND BACKFILL WITHIN THE PIPE ZONE
TO BE OF THE SAME MATERIAL.

PRIME COAT PER
SECTION 408-PRIME
COAT

CLSM MINIMUM DEPTH* 12" FOR MINOR COLLECTOR
ROADWAYS (≥OR=60', <80')
24" FOR COLLECTOR AND ARTERIAL
ROADWAYS (≥OR=80') (NOT
REQUIRED FOR TRENCH WIDTHS
GREATER THAN 3-FT. **)

* CLSM NOT REQUIRED FOR
RESIDENTIAL STREETS.

** FOR RESIDENTIAL STREETS AND
TRENCH WIDTHS GREATER THAN
3-FT (CLSM NOT REQUIRED), THE
TRENCH BACKFILL SHALL EXTEND
TO THE TOP OF SUBGRADE MINUS
1-INCH, AND THE DEPTH OF
AGGREGATE BASE SHALL MATCH
EXISTING BASE DEPT (AT 95%
COMPACITON).

COMPACATION PERCENTAGE PER
GEOLOGY ENG REQUIREMENTS OR
MINIMUM OF 90%

REFER TO SECTION 208 REQUIREMENTS

SEE SUBSECTION 208.03.14
FOR DEPTH OF PIPE COVER

90% MIN. COMPACTION IN PIPE ZONE,
TYPE II OR TYPE III AGGREGATE BASE
SEE NOTE 2

PIPE OR BOX CULVERT

AGENCY APPROVED

CLARK COUNTY AREA

SPECIFICATION REFERENCE

208 TRENCH EXCAVATION & BACKFILL
302 AGGREGATE BASE COURSES

METHOD B FOR RIGID AND FLEXIBLE PIPE
TRENCH BACKFILL - PAVED AREAS

DATE 01-01-12 DWG. NO. 503
PIPE BEDDING TO BE COMPACTED TO AT LEAST 90% OF MAXIMUM DENSITY.

INDICATED THICKNESS OF BEDDING MATERIAL TO BE CONSTRUCTED UNDER THE BARREL. SUBGRADE

NOTES:
1. PIPE BEDDING TO BE COMPACTED TO AT LEAST 90% OF MAXIMUM DENSITY. SUBGRADE SHALL CONFORM TO RESPECTIVE ENTITY REQUIREMENTS.
2. INDICATED THICKNESS OF BEDDING MATERIAL TO BE CONSTRUCTED UNDER THE BARREL. SUBGRADE TO BE EXCAVATED TO PROVIDE 2" CLEARANCE UNDER THE BELL.
3. OTHER BEDDING METHODS MAY BE SPECIFIED OR APPROVED.
4. CRUSHED ROCK MAY BE USED FOR PIPE BEDDING ONLY IF MATERIAL USE HAS BEEN SPECIFICALLY APPROVED BY THE GOVERNING AGENCY.

<table>
<thead>
<tr>
<th>PIPE SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>6&quot;</td>
<td>4&quot;</td>
<td>4&quot;</td>
<td>24&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>8&quot;</td>
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<td>27&quot;</td>
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<td>10&quot;</td>
<td>4&quot;</td>
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<td>30&quot;</td>
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<td>12&quot;</td>
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<td>15&quot;</td>
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<td>5&quot;</td>
<td>39&quot;</td>
<td>9&quot;</td>
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<tr>
<td>21&quot;</td>
<td>5&quot;</td>
<td>5&quot;</td>
<td>42&quot;</td>
<td>10&quot;</td>
</tr>
</tbody>
</table>

D = OUTSIDE DIAMETER OF PIPE
W = OUTSIDE DIAMETER OF PIPE + 24" MAXIMUM

TABLE 1

SPECIFICATION REFERENCE

<table>
<thead>
<tr>
<th>PIPE TRENCH BEDDING METHODS</th>
<th>AGENCY APPROVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>208 TRENCH EXCAVATION &amp; BACKFILL</td>
<td>B C H L M N</td>
</tr>
<tr>
<td>302 AGGREGATE BASE COURSES</td>
<td></td>
</tr>
<tr>
<td>501 CONCRETE</td>
<td></td>
</tr>
<tr>
<td>505 REINFORCEMENT STEEL</td>
<td></td>
</tr>
</tbody>
</table>

DATE 11-9-06
DWG. NO. 505
TYPE B - KEYHOLE REPAIR
REQUIRED FOR ROW WIDTH GREATER THAN 60'
OPTIONAL FOR ROW WIDTH 60' OR LESS

NOTES:
1. CUT AND REMOVE PAVEMENT PLUG WITH AN APPROVED KEYHOLE CORING DEVICE. PAVEMENT TO BE CORED SHALL CONTAIN NO CRACKS AND SHALL BE AT LEAST 4" THICK. IF PLUG IS DAMAGED OR IS LESS THAN 4" THICK, REPLACE PLUG WITH A "FARMED" ASPHALT PLUG FROM AN APPROVED SITE. FARMED PLUGS SHALL BE AT LEAST 4" THICK AND AT LEAST ONE INCH THICKER THAN EXISTING ASPHALT.
2. BONDING MATERIAL SHALL BE A SINGLE COMPONENT CEMENTIOUS RAPID HARDENING, HIGH STRENGTH, WATERPROOF BONDING AGENT THAT ALLOWS THE CORE TO SUPPORT AT LEAST THREE TIMES AASHTO H-25 LOADING WITHIN 30 MINUTES OF APPLICATION. BOND AGENT MUST SHOW A MINIMUM 20 PSI BOND STRENGTH (ASTM C882) AND A MINIMUM 200 PSI COMPRESSIVE STRENGTH (ASTM C109) IN 30 MINUTES.
3. AGENCY-APPROVED BACKFILL BELOW REPAIR SHALL BE PER SECTION 215.
4. FILL KEYHOLE WITH BONDING MATERIAL DURING REPAIR.
5. PRIOR AGENCY APPROVAL IS REQUIRED FOR MULTIPLE KEYHOLE REPAIRS WITHIN A GIVEN ROADWAY SEGMENT.
6. A 5 YEAR WARRANTY IS REQUIRED ON ALL REPAIRS.

TYPE A - CUT & PATCH REPAIR
OPTIONAL FOR ROW WIDTH 60' OR LESS

NOTE: EDGES SHALL BE CUT TO A NEAT VERTICAL FACE.

AGENCY APPROVED ASPHALT CONCRETE PLACED IN 2" LIFTS. 6" MIN. THICKNESS OR MATCH EXISTING.

POTHOLE PLAN VIEW
(NOMINAL DIMENSIONS)

POTHOLE PROFILE

1-1/2" TO 2" COMPACTED CRUSHED GRAVEL
(ASTM C33 #8)

POTHOLE PROFILE

16" - 24"

1-1/2" DIAMETER DRILLED/CORED PILOT HOLE

16" - 24"

SECTION A-A

HIGHEST EXISTING UTILITY PIPE TO CONFORM TO SECTION 208

6" BEDDING ABOVE TOP OF THE HIGHEST UTILITY PIPE

AGENCY-APPROVED MATERIAL OR 1/2-SACK CLSM PER SEC. 728 FROM 6" ABOVE TOP OF THE HIGHEST UTILITY TO THE BOTTOM OF PAVEMENT REPAIR.

PAVEMENT REPAIR TYPE A OR B PLUSH WITH EXISTING PAVEMENT

VARIABLE THICKNESS
1. CALL AND SCHEDULE INSPECTION TO OBSERVE CONCRETE PLUG AFTER PLACEMENT.

2. PERMIT TYPICALLY VALID FOR 30 DAYS - EXTENSION OF PERMIT IS REQUIRED PRIOR TO EXPIRATION IF WORK IS NOT COMPLETE.

3. FOR BORINGS GREATER THAN 12-INCHES IN DIAMETER, SUBMIT PERMANENT PATCHING PLAN WITH PERMIT APPLICATION.

4. IF GROUNDWATER IS ENCOUNTERED FOLLOW APPROPRIATE AGENCY REQUIREMENTS.

5. THE CONNECTION OF THE PIPE AND FLAT PLATE SHALL BE CONTINUOUSLY WELDED ALL OF THE WAY AROUND. THE SIZE OF THE WIRE SHALL BE 0.35 WIRE (ER70S-6) OR 7018 ROD, AND THE WELDER SHALL HAVE A W.S. CERTIFICATION IN FLAT PLATE.
ROADWAY WITH DESIGNATED BICYCLE LANE

PERMANENT PAVEMENT PATCH DETAIL

ROADWAY WITH DESIGNATED BICYCLE AND PARKING LANE

PERMANENT PAVEMENT PATCH DETAIL

PERMANENT PAVEMENT PATCH DETAIL

AGENCY APPROVED

SPECIFICATION REFERENCE

208 TRENCH EXCAVATION BACKFILL

302 AGGREGATE BASE COURSES

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

BICYCLE LANE PERMANENT PAVEMENT PATCH

DATE 01-01-16

DWG. NO. 508.S1

SHEET 1 OF 2
GENERAL NOTES:

1. LONGITUDINAL JOINTS ARE NOT ALLOWED WITHIN A BICYCLE LANE/AREA.
2. PAVEMENT PATCHES WITHIN A BICYCLE LANE SHALL NOT BE WITHIN 100' OF ANOTHER PAVEMENT PATCH (EXISTING OR PROPOSED). IF A PAVEMENT PATCH IS WITHIN 100', THE PAVEMENT BETWEEN PATCHES SHALL BE REMOVED AND REPLACED WITH ONE CONTINUOUS PATCH.
3. NO PATCHES WITHIN A BICYCLE LANE/AREA SHALL BE LESS THAN 10' IN LENGTH.
4. TEMPORARY PATCHES SHALL BE ASPHALT.
5. THE CONTRACTORS NAME AND DATE OF CONSTRUCTION SHALL BE SPRAY PAINTED ON THE TEMPORARY PATCH BY THE CONTRACTOR.
6. TEMPORARY PATCHES SHALL BE COMPACTED, MAINTAINED, AND FLUSH WITH THE ADJACENT PAVEMENT AT ALL TIMES.
7. TEMPORARY PATCHES SHALL BE REMOVED AND REPLACED WITHIN 60 CALENDAR DAYS.
8. A RING TOP DELINEATOR POST SHALL BE PLACED WITHIN THE GUTTER TO ALERT BICYCLISTS OF THE TEMPORARY PATCH CONDITION IF THE BICYCLE LANE IS ADJACENT TO CURB AND GUTTER OR EDGE OF PAVEMENT.
9. CONTRACTOR SHALL INSTALL ROUGH ROAD WARNING SIGNS TO WARN BICYCLISTS OF THE TEMPORARY PATCH CONDITION.
10. ASPHALT DESIGN GRADATION SHALL BE CONTINUOUS WITH ADJACENT ROADWAY.
11. SEE 500 SERIES STANDARD DRAWINGS FOR BACKFILL REQUIREMENTS.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES DUE TO NON-COMPLIANCE WITH THESE REQUIREMENTS AND ALL APPLICABLE CODES AND REGULATIONS.
13. CONTRACTOR SHALL HAVE PERMIT ON-SITE WHEN PRESENT. CONTRACTOR WILL BE ASSESSED A $300 FINE IF PERMIT IS NOT ON-SITE.
14. ALL PATCHES SHALL BE MACHINE LAID.
SECTION 509
PRECAST REINFORCED
CONCRETE BOX CULVERTS

DESCRIPTION

509.01.01 GENERAL
A. This work shall consist of furnishing and placing Precast Reinforced Concrete Box (RCB) Culvert of the size and dimensions and at locations shown on the plans.
B. The precast RCB culvert shall be constructed to the lines and grades given by the Engineer and in accordance with the design shown on the plans.
C. Precast RCB culvert sections shall be monolithic.
D. Square or rectangular precast RCB sections shall be designed and constructed conforming to ASTM C1577, as controlled by the height of cover shown on the plans and specified herein. The design cover and loading calculations shall be included in the working drawing submittal.
E. Design calculations and working drawings shall be submitted for precast RCB sections for review and approval according to Subsection 105.02 "Plans and Working Drawings". Working drawings shall include the contract number, the jobsite name of the structure as shown on the plans, bridge number (if applicable), material designations, bill of materials, complete fabrication details, and guidelines for handling and assembly. Calculations and working drawings shall be prepared and stamped by a Nevada Registered Professional Civil Engineer.

MATERIALS

509.02.01 GENERAL
A. The materials used shall conform to the requirements in the following subsections:

<table>
<thead>
<tr>
<th>Materials</th>
<th>Section/Subsection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure Excavation</td>
<td>206</td>
</tr>
<tr>
<td>Structure Backfill</td>
<td>207</td>
</tr>
<tr>
<td>Trench Excavation and Backfill</td>
<td>208</td>
</tr>
<tr>
<td>Selected Material Subbase</td>
<td>301</td>
</tr>
<tr>
<td>Portland Cement Concrete</td>
<td>501</td>
</tr>
<tr>
<td>Reinforcing Steel</td>
<td>505</td>
</tr>
<tr>
<td>Hydraulic Cement</td>
<td>701</td>
</tr>
<tr>
<td>Concrete Curing Materials and Admixtures</td>
<td>702</td>
</tr>
<tr>
<td>Grout and Mortar Sand</td>
<td>706.03.04</td>
</tr>
<tr>
<td>Joint Material</td>
<td>707</td>
</tr>
</tbody>
</table>
B. Manufacturer Certification and Qualification. The manufacturer of the precast RCB shall
submit for approval, substantial evidence of qualification to produce the product. Such evidence of qualification shall include the following:

1. Plant produced concrete products proposed for use will require either National Precast Concrete Association (NPCA) or American Concrete Pipe Association (ACPA) certification.

2. Written evidence of successful completion of at least three (3) projects of size and scope similar to the project for which the manufacturer wishes to be pre-qualified. The projects shall have been performed within the previous three (3) years. Such evidence shall include references for said work.

3. A written document detailing the manufacturer’s Quality Control Program that demonstrates conformance to the requirements of these specifications.

C. Concrete. Concrete shall be as specified in Section 501, "Portland Cement Concrete". A copy of the concrete mix design which will be used in the manufacture of the precast RCB shall be submitted for review and approval. The mix design shall identify the type of casting process (wet or dry casting), in addition to the requirements of Section 501.

1. When a wet cast manufacturing process is used, concrete shall be Class A Modified or Class AA Modified. A wet cast manufacturing process is defined as one in which forms are removed after 6 hours or more.

2. When a dry cast manufacturing process is used, concrete shall be Class A Modified. A dry cast manufacturing process is defined as one in which the concrete is densified by continuous vibration, and forms are removed immediately. If approved, alternative aggregate gradations from those specified in Section 501 and Section 706 may be allowed.

D. Product Certification. A certificate of compliance issued by the manufacturer of the precast RCB shall be submitted at the time of shipment. The certificate shall include the following:

1. The specification under which the box sections were manufactured.

2. All project identification information as noted for working drawings above.

3. The number of box sections of each size which are being shipped.

4. A statement that the construction of the box sections, and all materials used therein, are in compliance with the requirements of the applicable ASTM or AASHTO specifications.

5. Copies of the Quality Control test results, and compressive strength for that lot shall be kept at the plant and available for review.

E. The Engineer may, at their option, inspect the precast facility operations including, but not limited to, the reinforcing assembly, forming equipment, concrete batching equipment; placement, curing, and handling equipment; and testing and inspection equipment and procedures.

F. The manufacturer of the precast RCB shall maintain, for a period of seven (7) years following shipment, a copy of the appropriate test reports and other documentation, including compressive strength tests, necessary to support the certificates of compliance.

G. If the RCB culverts have not been cast prior to the notice to proceed date, written notification shall be given two (2) weeks in advance of performing casting operations for the project.

H. All materials will be subject to inspection for acceptance as to condition at the latest practicable time the Engineer has the opportunity to check for compliance prior to or during incorporation of materials in the work.

I. Reinforcement shall conform to the requirements of Section 505, "Reinforcing Steel",...
unless otherwise noted. 

J. All joints of the precast boxes shall be sealed with a flexible, butyl-blend, watertight, preformed joint material with a minimum cross-section width of 1 ¼ square inches, installed according to the manufacturer’s recommendations. Joint material shall conform to ASTM C990.

1. Joint surfaces of the precast box shall be clean, dry and free of any foreign material, including mud, aggregate base, and leveling course. Apply primer in accordance with manufacturer’s recommendations. Install sealant to form a continuous seal around the perimeter of the joint. The sealant may be placed on the lower portion of the groove of the downstream box and upper portion of the tongue of the upstream box, provided there are three (3) inches of overlap of the sealant on each side of the box.

CONSTRUCTION

509.03.01 EARTHWORK

A. Excavation and backfill shall conform to the requirements of Section 206, "Structure Excavation," and Section 207, "Structure Backfill," or Section 208, "Trench Excavation and Backfill," when the precast RCB is constructed in a trench.

1. The precast RCB shall be bedded as shown in the plans or as specified in the Special Provisions.

2. When no bedding class is specified, the requirements for normal bedding as shown in the Uniform Standard Drawings 503 or 503.2 shall apply.

3. The lines and grades shall be established by the Engineer or as designated in the contract documents.

B. Where precast RCB sections are to be installed in new embankments on a steep slope or in a difficult location, the height of new embankments may be varied as directed by the Engineer.

C. When headwalls are not required and granular materials are used for backfilling, the fill at the ends of the structure shall be sealed against the infiltration of water by bedding the ends of the structure using Class II CLSM or concrete.

D. Subgrade preparation shall conform to the requirements of Section 301, "Selected Material Subbase".

509.03.02 HEADWALLS

A. Where shown on the plans, inlet and outlet headwalls shall be constructed or installed in connection with precast box sections.

B. Where headwalls are constructed or installed, the ends of precast RCB sections shall be placed flush or cut off flush with the headwall face, unless otherwise permitted by the Engineer.

C. Headwalls shall be constructed to conform to Section 501, "Portland Cement Concrete" and Section 502, "Concrete Structures."

509.03.03 LAYING PRECAST REINFORCED CONCRETE BOX CULVERTS

A. Construction installation shall comply with AASHTO LRFD Bridge Design Specifications, most current edition, Section 208, “Trench Excavation and Backfill”, and these specifications.

B. Inspection of precast RCBs prior to laying:
1. Written notification shall be given twenty-eight (28) days in advance of performing casting operations.

2. No precast box shall be laid which is excessively cracked per Subsection 509.03.04, (i.e., cracked, spalled, or damaged) and shall be removed from the work. Precast RCB culverts which show defects due to handling will be rejected at the site of installation regardless of prior acceptance.

3. Fine cracks and checks on the surface of the member which do not extend to the plane of the nearest reinforcement will not be cause for rejection unless they are numerous and extensive. Cracks which extend into the plane of the reinforcing steel shall be repaired in an approved manner.

4. Small damaged or honeycombed areas which are purely surface defects in nature shall be repaired in an approved manner. Excessive damage, honeycomb, or cracking will be subject to structural review at the Contractor’s expense. All repairs shall be made sound, properly finished, and cured according to the pertinent specifications. When fine cracks or hair checks on the surface indicate poor curing practices, the production of precast boxes shall be discontinued until corrections are made and proper curing is provided.

C. All precast boxes shall be carefully handled during loading, unloading, transporting, and laying.

D. Precast box laying shall begin at the downstream end of the box except for extensions of existing boxes. Place the bottom of the box in contact with the bedding throughout its full length. The first section of box to be laid shall be firmly placed to the designated line and grade at the outlet end with the groove end pointing upstream. Construction loads shall be considered by the design engineer. Design loads shall not be exceeded at any time. Boxes shall be inspected before any backfill is placed. Contractor shall ensure that no rocks greater than three (3) inches or other rigid or jagged material is present in the bedding material where box will be laid directly on the material.

E. The box segments shall be joined in such a manner that the ends are fully entered and the inner surfaces are flush and even. The maximum tolerable nominal horizontal gap between joints is 0.75 inch, or the manufacturer’s maximum joint gap tolerance, whichever is less. This gap shall be checked immediately after laying each section. Any annular space existing in the interior portion of the joint shall be filled with an approved mortar and finished flush with the interior surfaces of the box units. If the inner surfaces are not flush or there is an adverse slope, a procedure to repair the vertical gap must be submitted to the Engineer for approval.

F. After laying, the box culvert segments shall be checked for alignment and grade. The culvert shall be installed within the tolerances for horizontal and vertical location and gradient as follows:
   1. Horizontal location within 0.05 feet of location shown on plans.
   2. Vertical location within 0.05 feet of elevation shown on plans.
   3. Gradient shall not vary by more than ten percent (10%) of slope shown on plans.

G. The Contractor shall remove and relay or replace box that is out of alignment, damaged, or has unduly settled at no cost to the Contracting Agency.

H. The interior of the precast box sections shall be kept free of dirt and other foreign material as the box laying progresses and be left clean at the completion of the work. Boxes which are not in true alignment, which show any undue settlement, or are damaged shall be taken up and re-laid at the Contractor’s expense. The bottom of the trench shall be graded and prepared to provide a firm and uniform bearing throughout the entire length of the box for the leveling course to be placed on. Blocking shall not be used to bring the box to grade.
Box sections shall be checked for alignment and grade at the time of joining the sections.

I. The box culverts shall be laid with nominal three (3) inch space between multiple box culverts. The annular space shall be grouted. The grout shall be a workable mix suitable for pumping without segregation and shall conform to the requirements of Section 706.03.04, "Grout and Mortar Sand." The grout shall be placed by pumping or an approved alternate method and consolidated by mechanical vibration or rodding during placement. The grouting shall be performed by a continuous placement in lifts not exceeding six (6) feet. Vertical grout barriers may be used to control the flow of grout horizontally. The grout shall attain a minimum compressive strength of 2,500 psi in 28 days when tested according to ASTM C39.

J. The backfill material shall comply with the requirements of Section 208. If the Contractor cannot fit compaction equipment between the box and the trench wall, or the conditions are unsafe for compaction and/or testing, CLSM must be used.

K. The Contractor shall provide box culverts with beveled ends where the radius of the center line alignment exceeds the manufacturer’s minimum radius of curvature allowed using pulled joints. The maximum bevel angle shall not exceed 5 degrees. The Contractor may provide elbows, with a maximum deflection angle of 22 ½ degrees, where the radius of the center line alignments is less than the manufacturer’s minimum radius of curvature for a 5-degree bevel.

509.03.04 INSPECTION

A. All precast RCB joints and lengths shall be 100 percent inspected.

B. Inspection and Testing shall be performed by the contractor during and after installation to ensure proper performance.

C. Installation of bedding and backfill materials, as well as their placement and compaction, shall adhere to the requirements of this section and other applicable sections.

D. Errors in line and grade, as well as any improper placement or backfill techniques, shall be corrected prior to placing significant backfill or trench fill.

E. Joints shall be properly assembled to prevent the infiltration of soil fines. Flexible joint material shall be properly placed to prevent groundwater infiltration and shall be uniformly oriented around the precast RCB.

F. Shallow cover installations shall be checked to ensure the minimum cover level is provided.

G. The Contractor shall complete an internal quality inspection a minimum of thirty (30) days after final backfill has been placed and prior to final acceptance by the Contracting Agency. The culvert shall be cleaned and inspected for cracks and joint gaps using visual physical measurement or other devices, including but not limited to calibrated television or video cameras, subject to approval by the Engineer.

H. Cracks in precast RCB culverts (both longitudinal and circumferential) that are less than 0.10 inch in width are generally considered non-structural flaws and need not be repaired. Cracks that are equal to or exceed 0.10 inch in width shall require an evaluation by a Nevada licensed professional engineer. The Contractor’s engineer shall provide a recommendation regarding removal or repair in accordance with ASTM C1577 standards and subject to approval by the Contracting Agency.

I. Precast RCB joints and lengths that do not meet the specification shall be repaired or replaced at the Contractor’s expense. Any replacement precast RCB shall also be subject to the same testing.
J. All inspection and testing results shall be submitted and approved by the Contracting Agency before final payment. The Agency Engineer shall be allowed access to randomly inspect at least 10 percent of the total number of precast RCB runs.

509.03.05 BACKFILL
A. Precast RCB culvert section backfill shall conform to the requirements of Section 207, "Structure Backfill", unless otherwise noted.
B. Prior to placing backfill material, all handing holes in RCB culverts shall be completely filled with grout or other acceptable methods.

509.03.06 EXTENDING EXISTING CULVERTS
A. Where shown on the plans or directed by the Engineer, existing culverts shall be extended in accordance with the provisions for installing new culverts and the following additional provisions.
B. Existing headwalls shall be demolished, removed, and disposed of per Section 202, "Removal of Structures and Obstructions", or moved to the extended location as indicated on the plans or ordered by the Engineer.
C. A headwall that is not to be reset shall be demolished without injury to the existing culvert and removed and disposed of in accordance with the provisions of Section 202, "Removal of Structures and Obstructions." If shown on the plans or ordered by the Engineer, a new concrete headwall shall be constructed in accordance with the provisions of Section 501, "Portland Cement Concrete," of these specifications or a flared end section shall be attached thereto.

METHOD OF MEASUREMENT

509.04.01 MEASUREMENT
A. The materials to be paid for under these specifications will be listed in the contract items by size, class, type, gauge, or whatever information is necessary for identification.
B. The quantity of precast RCB culvert to be measured for payment will be the actual number of linear feet of culvert, complete and in place.
C. Precast RCB culvert bends, wyes, tees, and other branches will be measured and paid for by the linear foot for the sizes of culvert involved. Wyes, tees, and other branches will be measured along centerlines to the point of intersection.
D. All measurements will be made in accordance with Subsection 109.01, "Measurement of Quantities."

BASIS OF PAYMENT

509.05.01 PAYMENT
A. The accepted quantities of precast RCB culvert measured as specified in Subsection 509.04.01, "Measurement", will be listed under the respective sections of precast RCB.
B. The accepted quantity of [X]-FT X [X]-FT precast RCB culvert will be paid for at the contract unit price per linear foot shall include all labor, equipment and materials necessary to complete the work.
C. Full compensation for furnishing precast RCB culvert with end finish, including distortion if required, will be considered as included in the price paid per linear foot for the precast RCB involved and no additional compensation will be allowed therefor. Full
compensation for bedding will be considered included in the price paid per cubic yard for backfill or granular backfill as the case may be and such payment shall include compensation for all the materials, labor, tools, and incidentals necessary to complete the work.

D. All payments will be made in accordance with Subsection 109.02, "Scope of Payment."

<table>
<thead>
<tr>
<th>PAY ITEM</th>
<th>PAY UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Size) Precast Reinforced Concrete Box Culvert</td>
<td>Linear Foot</td>
</tr>
</tbody>
</table>
TYPICAL APPLICATION FOR
BARRICADES & FLAGGER TRAFFIC CONTROL SIGN

CLARK COUNTY AREA

DATE: 1-9-97

DWG. NO.: 01

1/16" X 3 1/2" X 10" STEEL PLATE
1/2" MACHINE BOLTS

PLACED ON GROUND. USE SANDBAGS WHEN PLACED ON PAVEMENT.

1/16" X 1/16" STEEL PINS USE PINS WHEN PLACED ON GROUND - USE SANDBAGS WHEN PLACED ON PAVEMENT.

1" X 1/2 X 1/2" STEEL PLATE
1/2" MACHINE BOLTS

WELDED TO TUBING
3/8" X 1" BOLT WITH NUT

WELDED ON SIDES ONLY

3/8" X 3/8" X 1/4" STEEL TUBE

FOOT DETAIL

1/16" CARRIAGE BOLTS WITH NUTS AND WASHERS

1/16" CARRIAGE BOLTS WITH WASHERS IN VERTICAL RAILS

2" X 4" STEEL TUBE

1/4" CARRIAGE BOLTS WITH WASHERS

1/4" CARRIAGE BOLTS WITH NUTS AND WASHERS

TYPE IIIA BARRICADE
N.T.S.

PORTABLE TYPE IIIA
BARRICADE

REFLECTIVE SHEETING ON 1" PLYWOOD TYPICAL FOR PANELS

1/16" X 0.065 GAGE STEEL TUBING

1/16" X 0.065 GAGE STEEL TUBING

1" X 1/2 X 1/2" STEEL TUBE

1 1/4" X 0.065 GAGE STEEL TUBING

FOOT DETAIL

STEEL PINS. USE PINS WHEN PLACED ON GROUND. USE SANDBAGS WHEN PLACED ON PAVEMENT.

4' MINIMUM (SEE PLANS)

1/2" CARRIAGE BOLTS WITH WASHERS IN HORIZONTAL RAILS

1/2" MACHINE BOLTS WITH WASHERS

1/2" MACHINE BOLTS

8" TO 12"

6" TO 12"

4' MINIMUM (SEE PLANS)

6" TO 12"

6" TO 12"

6" TO 12"
Figure A. Warrants for Fill Section Embankments

**Table 1. Clear: One Distance (in Feet from Edge of Driving Lane)**

<table>
<thead>
<tr>
<th>Speed (MPH)</th>
<th>Design</th>
<th>Cut Slopes</th>
<th>Fill Slopes</th>
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<td>45</td>
<td>Under 750: 7:12</td>
<td>7:18</td>
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<td>750-1200: 7:14</td>
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<td>1200-1500: 7:12</td>
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<td>Under 750: 9:12</td>
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<td>1500-1800: 11:14</td>
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</table>

**Figure B. Clear: One Distance Curves**

Table 3. Horizontal Curve Adjustments

<table>
<thead>
<tr>
<th>Degree of Curve</th>
<th>Design Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>20°</td>
<td>1.07</td>
</tr>
<tr>
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<td>1.14</td>
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<td>30°</td>
<td>1.25</td>
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<td>1.42</td>
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<td>40°</td>
<td>1.54</td>
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<td>45°</td>
<td>1.66</td>
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</tbody>
</table>

The tables and figures shown above are taken in their entirety from the Roadsides Design Guide, American Association of State Highway Transportation Officials (AASHTO), Washington, D.C. 1989, and used to extract clear-one distance. One distance refers to a standard design guide for additional information and guidelines which should be considered.
TRAFFIC CONTROL PLAN
HIGHWAY WORK ZONE

SECTION A-A

SECTION B-B

SECTION C-C

SECTION D-D

SECTION E-E

SECTION H-H

PIN CONNECTION DETAIL

CONNECTION DETAIL

TRAFFIC
PAVEMENT
ANCHORAGE

P.C.C. PAVEMENT OR GROUND ANCHORAGE

A.C. PAVEMENT OR GROUND ANCHORAGE

NOTES:
1. THE MINIMUM LENGTH OF PORTABLE BARRIER SYSTEMS SHOULD BE 65'.
2. ACCORDING TO THE SPECIFICATIONS, WIDE BARRIERS SHOULD BE USED IN WIDER WORK ZONES.
3. THE PORTABLE BARriers SHOULD BE 2000 LBS. EACH.
4. EACH PORTABLE BARRIER SHOULD BE CONSISTENT FOR EACH SECTION.
5. THE USE OF A BARRIER WALL IS BASED ON THE SIZED ROADWAY.
6. ALL BARriers SHOULD BE BASED ON THE WEATHER OR ENVIRONMENTAL CONDITIONS.
7. ALL BARriers SHOULD BE BASED ON THE ACCESS ROADWAY.
8. ALL BARriers SHOULD BE BASED ON THE THICKNESS OF THE PORTABLE BARRIER WALL.
9. ALL BARriers SHOULD BE BASED ON THE TYPE OF BARriers.
10. THE PORTABLE BARRIER WALL IS BASED ON THE PORTABLE BARRIERS.
11. ALL BARriers SHOULD BE BASED ON THE WEATHER OR ENVIRONMENTAL CONDITIONS.
12. THE PORTABLE BARRIER WALL IS BASED ON THE PORTABLE BARRIERS.
13. ALL BARriers SHOULD BE BASED ON THE WEATHER OR ENVIRONMENTAL CONDITIONS.
14. THE PORTABLE BARRIER WALL IS BASED ON THE PORTABLE BARRIERS.
15. ALL BARriers SHOULD BE BASED ON THE WEATHER OR ENVIRONMENTAL CONDITIONS.
16. THE PORTABLE BARRIER WALL IS BASED ON THE PORTABLE BARRIERS.
A. FOR ANY OPERATION THAT ENCROACHES IN THE AREA BETWEEN THE CENTERLINE AND A LINE 2 FT. OUTSIDE THE EDGE OF THE PAVEMENT FOR A PERIOD OF LESS THAN 15 MINUTES.

1. CONSTRUCTION OPERATIONS SHALL BE CONFINED TO ONE TRAFFIC LANE. ON TWO LANE ROADS, AT LEAST 60 FT. OF BOTH TRAFFIC LANES SHALL BE AVAILABLE FOR TRAFFIC MOVEMENT AT INTERVALS NOT GREATER THAN 15 FT. A COMPLETE TRAFFIC CONTROL PLAN MUST BE APPROVED FOR ANY PROJECT EXPECTED TO EXCEED 150 FT. IN LENGTH.

2. THE FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.

3. ALL SIGNS ARE TO BE REMOVED AT COMPLETION OF EACH OPERATION.

4. FOR THREE LANE ROADWAYS, THE FLAGGER SHOWN FOR TRAFFIC APPROACHING FROM THE OPPOSITE DIRECTION MAY BE DELETED, IF ONE LANE IS MAINTAINED IN EACH DIRECTION, AS DIRECTED BY THE TRAFFIC ENGINEER. THE ADVANCE WARNING SIGN FOR TRAFFIC APPROACHING FROM THE OPPOSITE DIRECTION OMITTED, AND THE LATERAL PLACEMENT OF THE WORK AREA SIGN ADJUSTED TO ACCOMODATE THE NEW ROAD CONDITIONS. THE WORK AREA SIGN MAY BE DELETED IF 600 FEET OR LESS BEYOND THE CLOSURE AHEAD. FOR MULTILANE ROADWAYS WITH TWO LANES IN EACH DIRECTION, THE WORK AREA SIGN MAY BE DELETED IF 1,000 FEET OR LESS BEYOND THE CLOSURE AHEAD.

5. LONGITUDINAL DIMENSIONS MAY BE ADJUSTED TO FIT FIELD CONDITIONS. FOR THE TRAFFIC ENGINEER. THE LATERAL PLACEMENT OF THE WORK AREA SIGN MAY BE VARIED FROM THAT SHOWN.

6. ALL VEHICLES, E. URMAN WORKERS EXCEPT FLAGGERS) AND THEIR ACTIVITIES ARE RESTRICTED AT TIMES TO ONE SIDE OF THE PAVEMENT UNLESS OTHERWISE AUTHORIZED BY THE TRAFFIC ENGINEER.

7. ALL WARNING SIGNS SHALL HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 716.03.01 OF THE UNIFORM STANDARD SPECIFICATIONS.

8. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.

9. IF THE WORK PLACE IS IN THE MEDIAN OF A DIVIDED HIGHWAY, AN Advance Warning Sign Should also be placed on the Left Side of the Directional Roadway.


11. FLOODLIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.

12. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ABOVE EACH WORK AREA. ONE CONSTRUCTION FOR USE DURING HOURS OF DARKNESS.

SYMBOLS

1. WORK AREA

2. SIGN ON PORTABLE OR PERMANENT SUPPORT

3. FLAGGER WITH TRAFFIC CONTROL SIGN

4. TRAFFIC CONES

5. TRAFFIC DIRECTION

GENERAL NOTES

TYPICAL APPLICATIONS

1. CLEANING UP DEBRIS ON PAVEMENT

2. UTILITY OPERATION

3. STRING LINE

4. FIELD SURVEY

5. MARKING PATCHES

6. HIGHWAY WORK ZONE

FOR ANY OPERATION THAT ENCROACHES IN THE AREA BETWEEN THE CENTERLINE AND A LINE 2 FT. OUTSIDE THE EDGE OF THE PAVEMENT FOR A PERIOD IN EXCESS OF 15 MINUTES BUT LESS THAN 60 MINUTES.

FOR ANY OPERATION THAT ENCROACHES IN THE AREA BETWEEN THE CENTERLINE AND A LINE 2 FT. OUTSIDE THE EDGE OF THE PAVEMENT FOR A PERIOD OF LESS THAN 15 MINUTES.

FOR ANY OPERATION THAT IS MORE THAN 2 FT. OUTSIDE THE EDGE OF THE PAVEMENT FOR A PERIOD OF LESS THAN 30 MINUTES.
1. MINIMUM DISTANCE IS 200 FT. MAXIMUM DISTANCE TO BE DETERMINED BY THE TRAFFIC ENGINEER BUT SHOULD NOT EXCEED 1/2 THE LENGTH OF THE ROADWAY CLOSED OR REDEVELOPMENT IN SITUATIONS WHERE MULTIPLE WORK LOCATIONS IN A LIMITED DISTANCE MAKE IT PRACTICABLE TO PLACE STATIONARY SIGNS. THE MAXIMUM SPACING FOR THE ADVANCE WARNING SIGN IS 5 MILES IN ADVANCE OF THE WORK.

2. IF THE WORK OPERATION DOES NOT EXCEED 5 MINUTES, TRAFFIC CONTROL MAY BE IN CONFORMITY WITH STANDARDS DRAWING NO. 03.

3. ALL SIGNS ARE TO BE REMOVED AT COMPLETION OF THE DAY'S OPERATION.

4. FOR DIVIDED ROADWAYS THE THE REQUIRED ADVANCE WARNING SIGNS SHALL BE POSTED ON BOTH THE RIGHT AND MEDIAN SIDE OF THE WORK.

5. FOR MULTIPLE ROADWAYS THE ADVANCE WARNING SIGNS MAY BE REMOVED AT COMPLETION OF THE DAY'S OPERATION.

6. IF THE WORK OPERATION DOES NOT EXCEED 60 MINUTES, TRAFFIC CONTROL MAY BE IN CONFORMANCE WITH STANDARD DRAWING NO. 603.

7. IF THE WORK OPERATION REQUIRES ANY WORK VEHICLE TO ENTER OR EXIT THE THROUGH TRAFFIC LANES, A FLAGGER SHALL BE PROVIDED AND THE FLAGGER SIGN SHALL BE SUBSTITUTE FOR THE WORKER SIGN. A 100 FT. CONE TAPER SHALL BE PROVIDED PRIOR TO STATION TO PROTECT THE FLAGGER. FLAGGER IS NOT REQUIRED FOR 25 MPH OR LESS RESIDENTIAL STREETS.

8. IF THE WORK OPERATION REQUIRES ANY WORK VEHICLE TO ENTER OR EXIT THE THROUGH TRAFFIC LANES, A FLAGGER SHALL BE PROVIDED AND THE FLAGGER SIGN SHALL BE SUBSTITUTE FOR THE WORKER SIGN.

9. ALL VEHICLES, EQUIPMENT, WORKERS AND THEIR ACTIVITIES ARE RESTRICTED AT ALL TIMES TO ONE SIDE OF THE PAVEMENT UNLESS OTHERWISE AUTHORIZED BY THE TRAFFIC ENGINEER.

10. ALL WARNING SIGNS SHALL HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 716.03.01 OF THE UNIFORM STANDARD SPECIFICATIONS.

11. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6331 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING SUCH OPERATIONS.

12. IF WORKING AT OR NEAR A TRAFFIC SIGN, CONTACT LVACTS AT 229-6331 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.

13. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES SHALL BE MAINTAINED THROUGHOUT DURATION OF CONSTRUCTION. IF RE-ROUTING OF ACCESS IS NECESSARY, THE CONTRACTOR SHALL PROVIDE THE ENTITY'S TRAFFIC ENGINEER WITH A MAP SHOWING THE PROPOSED RE-ROUTES FOR APPROVAL. IF CONSTRUCTION OPERATIONS AFFECT CAT BUS STOPS OR FACILITIES, THE CONTRACTOR SHALL NOTIFY THE REGIONAL TRANSPORTATION COMMISSION AT 455-4611 AT LEAST 3 NORMAL WORKING DAYS PRIOR TO BEGINNING SUCH OPERATIONS.

14. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES SHALL BE MAINTAINED THROUGHOUT DURATION OF CONSTRUCTION. IF RE-ROUTING OF ACCESS IS NECESSARY, THE CONTRACTOR SHALL PROVIDE THE ENTITY'S TRAFFIC ENGINEER WITH A MAP SHOWING THE PROPOSED RE-ROUTES FOR APPROVAL. IF CONSTRUCTION OPERATIONS AFFECT CAT BUS STOPS OR FACILITIES, THE CONTRACTOR SHALL NOTIFY THE REGIONAL TRANSPORTATION COMMISSION AT 455-4611 AT LEAST 3 NORMAL WORKING DAYS PRIOR TO BEGINNING SUCH OPERATIONS.
TRAFFIC CONTROL PLAN
START OF PRIME.
A MINIMUM OF 500 FT. PRECEDING REMAIN UNTIL NO TRACKING. INSTALL APPLIED TO PAVEMENT AND SHALL BE USED WHEN PRIME COAT IS USED WHEN PRIME COAT IS
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1. NO SPECIAL SIGNING IS REQUIRED.

2. IF THE WORK OPERATION REQUIRES ANY WORK VEHICLES TO CROSS THE 15 FT. CLEAR ZONE, TRAFFIC CONTROL SHALL CONFORM WITH STANDARD DRAWING NO. 607.

3. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.

4. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ABOVE EACH WORK ZONE CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.

TABLE FOR SPACING OF ADVANCE WARNING SIGNS

<table>
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<tr>
<th>ROAD TYPE</th>
<th>DISTANCE BETWEEN SIGNS (FT)</th>
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<td>URBAN (LESS THAN 35 MPH)</td>
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<td>URBAN (35 MPH OR GREATER)</td>
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SYMBOLS

- \( \text{SIGN ON PORTABLE OR PERMANENT SUPPORT} \)
- \( \text{TRAFFIC DIRECTION} \)

TYPICAL APPLICATIONS

- LANDSCAPING WORK
- UTILITY WORK
- FENCING CONTRACTS
- AND MAINTENANCE
- CLEARING CULVERTS

TRAFFIC DIRECTION SYMBOLS

- A
- B
- C
- M
- H
- L
- N

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

DATE: 1-9-97

DWG NO.: D.
1. IF THE WORK OPERATION DOES NOT EXCEED 60 MINUTES, TRAFFIC CONTROL MAY BE IN CONFORMANCE WITH STANDARD DRAWING NO. 603.

2. WORKER SIGNS ARE TO BE REMOVED WHEN NO WORK IS BEING PERFORMED. ANY UNATTENDED OBSTACLE OR EXCAVATION IN THE WORK AREA WHICH IN THE OPINION OF THE TRAFFIC ENGINEER CONSTITUTES A HAZARD SHALL BE PROTECTED BY BARRICADES WITH FLASHING LIGHTS AT NIGHT AT THE POINTS OF HAZARD. STEADY BURNING LIGHTS SHALL BE USED FOR DELINEATION AND LONG LINE GUIDANCE. BARRICADES SHALL BE PLACED ACCORDING TO MAXIMUM DISTANCE LISTED IN THE TABLE BELOW.

3. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ABOVE EACH WORK ZONE CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.

4. IF THE WORK OPERATION REQUIRES ANY WORK VEHICLES TO ENTER OR LEAVE THROUGH TRAFFIC LANES, A FLAGGER SHALL BE PROVIDED AND A FLAGGER SIGN SHALL BE SUBSTITUTED FOR THE WORKER SIGN. A 100 FT. CONE TAPER SHALL BE PROVIDED PRIOR TO STATION TO PROTECT THE FLAGGER. FLAGGER IS NOT TO BE USED FOR 20 MPH OR LESS RESIDENTIAL STREETS.

5. LONGITUDINAL DIMENSIONS MAY BE ADJUSTED TO FIT FIELD CONDITIONS BY THE TRAFFIC ENGINEERS.

6. ALL VEHICLES, EQUIPMENT, WORKERS AND THEIR ACTIVITIES ARE RESTRICTED AT ALL TIMES TO ONE SIDE OF THE PAVEMENT UNLESS OTHERWISE AUTHORIZED BY THE TRAFFIC ENGINEER.

7. ALL WARNING SIGNS SHALL HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 716.03.01 OF THE UNIFORM STANDARD SPECIFICATIONS.

8. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.

9. FLOODLIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.

10. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES SHALL BE MAINTAINED THROUGHOUT OULATION OF CONSTRUCTION. IF RE ROUTING OF ACCESS IS NECESSARY, THE CONTRACTOR SHALL PROVIDE THE ENTITY’S TRAFFIC ENGINEER WITH A MAP SHOWING THE PROPOSED RE ROUTES FOR APPROVAL. IF CONSTRUCTION OPERATIONS AFFECT CAT BUS STOPS OR FACILITIES, THE CONTRACTOR SHALL NOTIFY THE REGIONAL TRANSPORTATION COMMISSION AT 455-4481 AT LEAST 3 NORMAL WORKING DAYS PRIOR TO BEGINNING SUCH OPERATIONS.

GENERAL NOTES

TYPICAL APPLICATION FOR
TWO-LANE, TWO-WAY, RURAL DAY OR NIGHT OPERATIONS WHERE ACTIVITIES WILL ENCROACH BETWEEN 15 FT. TO 2 FT. OUTSIDE OF PAVEMENT EDGE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DATE 1-9-97  DWG NO. 07

TRAFFIC CONTROL PLAN FOR HIGHWAY WORK ZONE

SPECIFICATION REFERENCE

TYPICAL APPLICATION FOR
TWO-LANE, TWO-WAY, RURAL DAY OR NIGHT OPERATIONS WHERE ACTIVITIES WILL ENCROACH BETWEEN 15 FT. TO 2 FT. OUTSIDE OF PAVEMENT EDGE

AGENCY APPROVED B C H L M N
GENERAL NOTES

3. CONSTRUCTION OPERATIONS SHALL BE LIMITED TO ONE TRAFFIC LANE, LEAVING THE OPPOSITE LANE OPEN TO TRAFFIC. AT LEAST 50 FT. OF BOTH TRAFFIC LANES SHALL BE AVAILABLE FOR TRAFFIC MOVEMENT AT INTERVALS NOT GREATER THAN 1000 FT.

4. IF THE WORK OPERATIONS DOES NOT EXCEED 60 MINUTES, TRAFFIC CONTROL MAY BE IN CONFORMANCE WITH STANDARD DRAWING NO. 58.

5. THE FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.

6. CONSTRUCTION OPERATIONS SHALL BE CONFINED TO ONE TRAFFIC LANE, LEAVING THE OPPPOSITE LANE OPEN TO TRAFFIC. AT LEAST 50 FT. OF BOTH TRAFFIC LANES SHALL BE AVAILABLE FOR TRAFFIC MOVEMENT AT INTERVALS NOT GREATER THAN 1000 FT.

7. ALL SIGNS, CONES, BARRICADES, AND DRUMS SHALL BE REMOVED AT COMPLETION OR OPERATIONS DURING DAYLIGHT AND THE WORK AREA OPEN TO TRAFFIC.

8. UNCONSTRUCTED ENDS WHICH MAY BE ADJUSTED TO FIT FIELD CONDITIONS BY THE TRAFFIC ENGINEER. THE FLAT-BLACK ENDS OF THE FIGURES TO BE MADE FROM BROWN.

9. ALL VEHICLES, EQUIPMENT, WORKERS, AND TRAFFIC CONCERNED TO BE MADE FROM BROWN.

10. ALL WARNING SIGNS SHALL HAVE BLACK LEGEND AND BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 717.01 OF THE UNIFORM STANDARD SPECIFICATIONS.

SYMBOLS

WORK AREA

SIGN ON PORTABLE OR PERMANENT SUPPORT

FLAGGER WITH TRAFFIC CONTROL SIGN

CONES, BARRICADES OR DRUM

TRAFFIC CONE

TRAFFIC DIRECTION

TYPICAL APPLICATIONS

UTILITY OPERATIONS

PAVEMENT PATCH

TRAFFIC CONTROL PLAN

FOR

HIGHWAY WORK ONE
GENERAL NOTES

1. All devices establishing a taper or tangent line shall be of one type; devices shall not be mixed by type.
2. The flaggers shall be in sight of each other or in direct communication at all times.
3. All signs shall be ground-mounted if the closure time exceeds four days and above, Except by Section 23 of the Uniform Standard Specifications.
4. Type "B" high intensity flashing warning lights may be installed above each work area. One construction sign for use during hours of darkness.
5. Longitudinal dimensions may be adjusted to fit field conditions by the traffic engineer. The lateral placement of the flaggers may be varied from that shown.
6. All signs shall be in sight of each other or in direct communication at all times.
7. Type "B" high intensity flashing warning lights may be installed above each work area. One construction sign for use during hours of darkness.
8. Longitudinal dimensions may be adjusted to fit field conditions by the traffic engineer. The lateral placement of the flaggers may be varied from that shown.
9. All vehicles, except flaggers and their activities are restricted at all times to one side of the work area. Any vehicles other than flaggers are hereby authorized by the traffic engineer.
10. All barricade lights shall be bidirectional. Except lights on traffic barriers, which shall be unidirectional.
11. All warning signs shall have black legend on a yellow or orange background. All signs having an orange color shall be made of materials conforming to Section 71.15.01 of the Uniform Standard Specifications.
12. All devices establishing a taper or tangent line shall be of one type; devices shall not be mixed by type.

3. "X" = E can be used if approved by the local agency.

TYPICAL APPLICATIONS

1. Construction Operations shall be confined to one traffic lane, leaving the opposite lane open to traffic.
2. The flaggers shall be in sight of each other or in direct communication at all times.
3. All signs shall be ground-mounted if the closure time exceeds four days and above. Except by Section 23 of the Uniform Standard Specifications.
4. Type "B" High Intensity Flashing Warning Lights may be installed above each work area. One Construction Sign for use during hours of darkness.
5. Longitudinal dimensions may be adjusted to fit field conditions by the traffic engineer. The lateral placement of the flaggers may be varied from that shown.
6. All flaggers shall be in sight of each other or in direct communication at all times.
7. Type "B" High Intensity Flashing Warning Lights may be installed above each work area. One Construction Sign for use during hours of darkness.
8. Longitudinal dimensions may be adjusted to fit field conditions by the traffic engineer. The lateral placement of the flaggers may be varied from that shown.
9. All vehicles, except flaggers and their activities are restricted at all times to one side of the work area. Any vehicles other than flaggers are hereby authorized by the traffic engineer.
10. All barricade lights shall be bidirectional. Except lights on traffic barriers, which shall be unidirectional.
11. All warning signs shall have black legend on a yellow or orange background. All signs having an orange color shall be made of materials conforming to Section 71.15.01 of the Uniform Standard Specifications.
1. Where the distance between paving and excavating operations is less than 2,000 ft., the entire operation may be considered as one work area for signing purposes. When the distance between operations exceeds 2,000 ft., additional warning signs and devices may be required as determined by the traffic engineer.

2. One flagger shall be required for each separate construction operation. For residential streets 25 mph or less, flaggers shall be in sight of each other or in direct communication at all times.

3. No paving or excavating operations shall be performed at night unless authorized by the traffic engineer.

4. Maximum distance to be determined by the traffic engineer but no case to exceed the length of 3/4 day’s normal operation.

5. All signs shall be ground-mounted if the working time exceeds four days and as determined by section 25 of the Uniform Standard Specifications.

6. All warning signs shall have black legend and border on an orange background. All signs having an orange color shall be made of materials conforming to Section 625 of the Uniform Standard Specifications.

7. Type "B" high intensity flashing warning lights may be installed above each sign. One construction sign for use during hours of darkness.

8. Conventional dimensions may be adjusted to fit field conditions by the traffic engineer. The lateral placement of the flags may be varied from that shown by the traffic engineer.

9. All vehicles, equipment, workers, flaggers, and their activities are restricted at all times to one side of the roadway unless otherwise authorized by the traffic engineer.

10. All devices establishing a taper or tangent line shall be of one type; devices shall not be mixed by type.

11. Traffic cones, traffic drums, or drums with steady burning light may be used as directed by the traffic engineer.

12. Floodlights should be provided to mark flagger stations at night as needed.

13. Access for CAT Transi Service, pedestrians, and bicyclists shall be maintained throughout duration of construction. If providing a CAT Transi service, the traffic engineer shall be provided a map showing the proposed re-routes for approval. If construction operations affect CAT bus stops, the contractor shall notify the Regional Transportation Commission at 455-4481 at least 3 normal working days prior to beginning such operations.

14. Where the distance between paving and excavating operations is less than 2,000 ft., the entire operation may be considered as one work area for signing purposes. When the distance between operations exceeds 2,000 ft., additional warning signs and devices may be required as determined by the traffic engineer.

15. All signs shall be ground-mounted if the working time exceeds four days and as determined by section 25 of the Uniform Standard Specifications.

16. All warning signs shall have black legend and border on an orange background. All signs having an orange color shall be made of materials conforming to Section 625 of the Uniform Standard Specifications.

17. Type "B" high intensity flashing warning lights may be installed above each sign. One construction sign for use during hours of darkness.

18. Conventional dimensions may be adjusted to fit field conditions by the traffic engineer. The lateral placement of the flags may be varied from that shown by the traffic engineer.

19. All vehicles, equipment, workers, flaggers, and their activities are restricted at all times to one side of the roadway unless otherwise authorized by the traffic engineer.

20. All devices establishing a taper or tangent line shall be of one type; devices shall not be mixed by type.

21. Traffic cones, traffic drums, or drums with steady burning light may be used as directed by the traffic engineer.

22. Floodlights should be provided to mark flagger stations at night as needed.

23. Access for CAT Transi Service, pedestrians, and bicyclists shall be maintained throughout duration of construction. If providing a CAT Transi service, the traffic engineer shall be provided a map showing the proposed re-routes for approval. If construction operations affect CAT bus stops, the contractor shall notify the Regional Transportation Commission at 455-4481 at least 3 normal working days prior to beginning such operations.
1. TEMPORARY UNPAVED BYPASSES SHALL BE GRADED AND COMPACTED GRAVEL AND BE ACCEPTABLE FOR TIME LIMITS ESTABLISHED BY THE ENTITY.

2. REFLECTORS ED 28 IN. MIN. TRAFFIC CONES OR VERTICAL PANELS SHALL BE USED FOR CENTERLINE DELINEATION FOR SHORT-TERM DAY OPERATIONS. DEVICES SHALL BE USE FOR CENTERLINE CONSTRUCTION INTERVALS OR MORE AND PROJECTS PERFORMED AT NIGHT. VERTICAL PANELS SHALL BE USED. SEE STANDARD DRAWING 51 SHEET 1 FOR DETAILS OF CONES AND PANELS.

3. A CURVE SIGN WILL BE USED AT EXIT END OF THE BYPASS IF 1 (T) IS 4, 1000 TO 1,000 FEET. THE ADVISORY SAFE SPEED TO BE SHOWN BELOW THE REVERSE CURVE (TURN) SIGNS SHALL BE DETERMINED AT THE SITE AND APPROVED BY THE TRAFFIC ENGINEER.

4. STAND BARRICADES AT 20 F.T. CENTERS (SEE NOTE 14).

5. STEADY BURNING LIGHTS WILL NOT BE REQUIRED ON BARRICADES FOR DAY OPERATIONS.

6. CONES MAY BE SUBSTITUTED FOR BARRICADES AT HALF THE SPACING DURING DAY OPERATIONS.

7. ALL SIGNS SHALL BE GROUND-MOUNTED IF THE CLOSURE TIME EXCEEDS 4 DAYS AND 24 HRS. USED BY SECTION 25 OF THE UNIFORM STANDARD SPECIFICATIONS.

8. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ABOVE EACH WORK ZONE CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.

9. LONGITUDINAL DIMENSIONS MAY BE ADJUSTED TO FIT FIELD CONDITIONS BY THE TRAFFIC ENGINEER.

10. ALL BARRICADE LIGHTS SHALL BE BIDIRECTIONAL.

11. ALL WARNING SIGNS SHALL HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MASKED WITH APPROVED BLACKOUT TAPE OR OBLITERATED AS APPROVED BY THE TRAFFIC ENGINEER.

12. ALL DEVICES INDICATED SHALL BE OF ONE TYPE; DEVICES SHALL NOT BE MIXED.

13. ALL DEVICES INDICATED SHALL BE OF ONE TYPE; DEVICES SHALL NOT BE MIXED.

14. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.

15. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES SHALL BE MAINTAINED THROUGHOUT DURATION OF CONSTRUCTION. IF RE-ROUTING OF ACCESS IS NECESSARY, THE CONTRACTOR SHALL PROVIDE THE ENTITY'S TRAFFIC ENGINEER WITH A MAP SHOWING THE PROPOSED RE-ROUTING FOR APPROVAL. IF CONSTRUCTION OPERATIONS NECESSITATE THE CLOSURE OF A STREET LEVEL INTERSECTION, THE CONTRACTOR SHALL NOTIFY THE REGIONAL TRANSPORTATION COMMISSION AT 652-5515 At LEAST 1 NORMAL WORKING DAYS PRIOR TO BEGINNING SUCH OPERATIONS.

16. IF THE DETOUR IS SHORT AND HAS SHORT CURVES (30 MPH OR LESS), REVERSE TURN (W1-3) SIGN SHOULD BE USED.

17. PAVEMENT MARKINGS THAT ARE NO LONGER APPLICABLE SHALL BE MASKED WITH APPROVED BLACKOUT TAPE OR OBLITERATED AS APPROVED BY THE TRAFFIC ENGINEER.
### TABLE FOR SPACING OF ADVANCE WARNING SIGNS

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<tr>
<th>PHASE</th>
<th>INTERVAL</th>
<th>MAXIMUM DISTANCE (FT.)</th>
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<tbody>
<tr>
<td>A</td>
<td>1</td>
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<tr>
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<td>6</td>
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<tr>
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<td>500</td>
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</tbody>
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### GENERAL NOTES

1. **TYPICAL APPLICATIONS**

   - **BRIDGE DECK REPAIR**
   - **ONE-WAY ROAD CONSTRUCTION**

2. **Symptoms**

   - **Work Area**
   - **Sign On Portable or Permanent Support**
   - **Barricade or Drum with Flashing Light**
   - **Barricade or Drum with Steady Burning Light**
   - **Traffic Signal**
   - **Traffic Direction**

3. **General Notes**

   - ** hồng**
   - **G20-2a**
   - **W21-4**
   - **W20-4**
   - **W14-3**

4. **Specification Reference**

   - **Unif orm Standard Drawings**
   - **Clark County Area**

---

### TABLE FOR SPACING OF ADVANCE WARNING SIGNS

<table>
<thead>
<tr>
<th>ROAD TYPE</th>
<th>CODE</th>
<th>K</th>
<th>M</th>
<th>N</th>
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</thead>
<tbody>
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<td>EXPRESSWAY/FREEWAY</td>
<td>200</td>
<td>500</td>
<td>1000</td>
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<tr>
<td>URBAN (LESS THAN 35 MPH)</td>
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<td>1000</td>
<td></td>
</tr>
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<td>URBAN (35 MPH OR GREATER)</td>
<td>200</td>
<td>500</td>
<td>1000</td>
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</tr>
</tbody>
</table>

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### TYPICAL APPLICATION FOR

- **TWO-LANE, TWO-WAY, RURAL DAY OR NIGHT OPERATIONS WITH ONE LANE CLOSED**

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### DIY NOTES

- **All devices establishing a taper or tangent line shall be of one type. Devices shall not be mixed by type.**

- **A 100 FT. CONE TAPER SHALL BE PROVIDED PRIOR TO FLAGGER STATION TO PROTECT THE FLAGGER. FLOODLIGHTS SHOULD BE INSTALLED FROM THE START OF THE TAPER TO A POINT BEYOND THE WORK SPACE FROM TRAFFIC SPACE. THE WIDTH SHALL BE DETERMINED BY THE TRAFFIC ENGINEER.**

- **Access for CAT transit service, pedestrians and bicycles shall be maintained throughout duration of construction. If re-routing of access is necessary, the contractor shall provide the entity's traffic engineer with a map showing the proposed alternative.**

- **The contractor shall notedly provide the Regional Transportation Commission at 400-4481 at least 3 normal working days prior to beginning construction.**

- **Edge line shall be a member of in, here and should be installed from the start of the taper to a point beyond the working area. The permanent edge line.**

- **20. For long term projects of 72 continuous hours or more, conflicting pavement markings between activity area and stop line shall be removed.**

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### SPECIFICATION REFERENCE

**Agency Approved**

- **B**
- **C**
- **H**
- **L**
- **M**
- **N**

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### UNIFORM STANDARD DRAWINGS

- **DATE**: 1-9-97
- **DWG. NO.**: 3
GENERAL NOTES

1. NO SPECIAL SIGNING IS REQUIRED.
2. IF THE WORK OPERATION REQUIRES TWO OR MORE WORK VEHICLES CROSS THE 15 FT. CLEAR ZONE IN ANY ONE HOUR TRAFFIC CONTROL WILL BE IN CONFORMANCE WITH STANDARD DRAWING NO. 15.
3. THIS CASE ALSO APPLIES TO WORK PERFORMED IN THE MEDIAN MORE THAN 15 FT. FROM EITHER PAVEMENT.
4. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.
   - Boulder City: 203-9006
   - Mesquite: 34-5365
   - Clark County: 452-110
   - Henderson: 5-6140
   - Las Vegas: 229-3331
5. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ABOVE EACH WORK: ONE CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.
1. WORKER SIGNS ARE TO BE REMOVED WHEN NO WORK IS BEING PERFORMED. ANY UNATTENDED OBSTACLE OR EXCAVATION IN THE WORK AREA WHICH IN THE OPINION OF THE TRAFFIC ENGINEER CONSTITUTES A HAZARD SHALL BE PROTECTED BY BARRICADES WITH FLASHING LIGHTS AT NIGHT AT THE POINTS OF HAZARD. STEADY BURNING LIGHTS SHALL BE USED FOR DELINEATION AND LONG LINE GUIDANCE. BARRICADE SHALL BE PLACED ACCORDING TO MAXIMUM ...

2. IF THE WORK OPERATION REQUIRES THAT FOUR OR MORE WORK VEHICLES ENTER THROUGH TRAFFIC LANES IN A ONE HOUR PERIOD, A FLAGGER SHALL BE SUBSTITUTE FOR THE WORKER SIGN.

3. THIS CASE ALSO APPLIES WHEN WORK IS BEING PERFORMED ON A MULTILANE UNDIVIDED HIGHWAY. UNDER THESE CONDITIONS THE SIGNS NORMALLY MOUNTED IN THE MEDIAN SHALL BE OMITTED.

4. LONGITUDINAL DIMENSIONS MAY BE ADJUSTED TO FIT FIELD CONDITIONS.

5. ALL VEHICLES, EMPLOYED WORKERS AND THEIR ACTIVITIES ARE RESTRICTED AT ALL TIMES TO ONE SIDE OF THE PAVEMENT, UNLESS OTHERWISE AUTHORIZED BY THE TRAFFIC ENGINEER.

6. USED PROTECTION FOR OPEN EXCAVATIONS DURING NON-WORKING HOURS:

7. REQUIRED PROTECTION FOR OPEN EXCAVATIONS DURING NON-WORKING HOURS:

8. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.

9. IF THE WORK SPACE IS IN THE MEDIAN OF A DIVIDED HIGHWAY, AN ADVANCE WARNING SIGN SHOULD ALSO BE PLACED ON THE LEFT SIDE OF THE DIRECTIONAL ROADWAY.

10. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND SHOULDER REPAIR.

TYPICAL APPLICATIONS

- UTILITY OPERATIONS
- CULVERT EXTENSIONS
- GUARD RAIL INSTALLATION AND MAINTENANCE
- Delineator Installation and Maintenance
- LANDSCAPING OPERATIONS
- CLEANING STITCHES AND DRAINAGE STRUCTURES
- SIGN INSTALLATION AND MAINTENANCE

GENERAL NOTES

- MILE MARKERS SHOULD BE 1/8 MILE APART AND INSTALL AT THE CENTERLINE.
- NUMBER OF LANE WIDTHS SHOWN IS FOR A POSSIBLE COMBINATION OF THREE LANE WIDE ROAD, INCLUDING MEDIAN. MEDIAN WIDTHS TO BE PLACED OR ADJUSTED TO Serif the TYPICAL APPLICATIONS.
1. If work is being performed on the center lane of the roadway, traffic shall be diverted to either left or right lane. At no time is traffic permitted to pass on both sides of moving operation. Center lane operations shall not be performed during peak travel times.

2. The lights on the trailer shall flash in pairs alternating between the two outside lights and the two inside lights or sequential flashing.

3. All striping shall have alternating white and orange stripes.

4. The sign panels shall have the minimum dimensions shown and have black legend on an orange reflectorized background.

5. Pavement striping and cone pickup will be considered as two separate operations.

6. Where work operations are more than 2 ft. from the edge of the pavement, protection vehicles may be omitted.

7. This case does not apply when work is being performed in the middle lanes of a 4-lane or more lane highway. Special plans approved by the traffic engineer are required.

8. Longitudinal dimensions may be adjusted slightly to fit field conditions by the traffic engineer.

9. All vehicles, equipment, workers and their activities are restricted at all times to one side of the pavement unless otherwise authorized by the traffic engineer.

10. All warning signs have black legend and border on an orange background. All signs having an orange color shall be made of materials conforming to Section 716.03.01 of the Uniform Standard Specifications.

11. Highways, the protection vehicle shall follow on the left shoulder and the bottom line shall read "USE RIGHT LANE".

12. If working at or near a traffic signal, contact LVACTS at 229-6611 and local entity at appropriate numbers listed below at least two working days prior to beginning work.

13. If working at or near a traffic signal, contact LVACTS at 229-6611 and local entity at appropriate numbers listed below at least two working days prior to beginning work.

14. Access for CAT Transit Service, pedestrians and bicycles shall be maintained throughout duration of construction. If re-routing of access is necessary, the entity shall provide the entity's traffic engineer with a map showing the proposed reroutes for approval. If construction operations affect CAT bus stops or facilities, the contractor shall notify the regional transportation commission and the entity at least two working days prior to beginning such operations.

GENERAL NOTES

HIGHWAY, THE PROTECTION VEHICLE SHALL FOLLOW ON THE LEFT SHOULDER AND THE BOTTOM LINE SHALL READ "USE RIGHT LANE".

IF WORK IS BEING PERFORMED ON THE CENTER LANE OF THE ROADWAY, TRAFFIC SHALL BE DIVERTED TO EITHER LEFT OR RIGHT LANE. AT NO TIME IS TRAFFIC PERMITTED TO PASS ON BOTH SIDES OF MOVING OPERATION. CENTER LANE OPERATIONS SHALL NOT BE PERFORMED DURING PEAK TRAVEL TIMES.

THE LIGHTS ON THE TRAILER SHALL FLASH IN PAIRS ALTERNATING BETWEEN THE TWO OUTSIDE LIGHTS AND THE TWO INSIDE LIGHTS OR SEQUENTIAL FLASHING.

ALL STRIPING SHALL HAVE ALTERNATING WHITE AND ORANGE STRIPES.

THE SIGN PANELS SHALL HAVE THE MINIMUM DIMENSIONS SHOWN AND HAVE BLACK LEGEND ON AN ORANGE REFLECTORIZED BACKGROUND.

Pavement striping and cone pickup will be considered as two separate operations.

Where work operations are more than 2 ft. from the edge of the pavement, protection vehicles may be omitted.

This case does not apply when work is being performed in the middle lanes of a 4-lane or more lane highway. Special plans approved by the traffic engineer are required.

Longitudinal dimensions may be adjusted slightly to fit field conditions by the traffic engineer.

All vehicles, equipment, workers and their activities are restricted at all times to one side of the pavement unless otherwise authorized by the traffic engineer.

All warning signs have black legend and border on an orange background. All signs having an orange color shall be made of materials conforming to Section 716.03.01 of the Uniform Standard Specifications.

HIGHWAY, THE PROTECTION VEHICLE SHALL FOLLOW ON THE LEFT SHOULDER AND THE BOTTOM LINE SHALL READ "USE RIGHT LANE".

IF WORK IS BEING PERFORMED ON THE CENTER LANE OF THE ROADWAY, TRAFFIC SHALL BE DIVERTED TO EITHER LEFT OR RIGHT LANE. AT NO TIME IS TRAFFIC PERMITTED TO PASS ON BOTH SIDES OF MOVING OPERATION. CENTER LANE OPERATIONS SHALL NOT BE PERFORMED DURING PEAK TRAVEL TIMES.

THE LIGHTS ON THE TRAILER SHALL FLASH IN PAIRS ALTERNATING BETWEEN THE TWO OUTSIDE LIGHTS AND THE TWO INSIDE LIGHTS OR SEQUENTIAL FLASHING.

ALL STRIPING SHALL HAVE ALTERNATING WHITE AND ORANGE STRIPES.

THE SIGN PANELS SHALL HAVE THE MINIMUM DIMENSIONS SHOWN AND HAVE BLACK LEGEND ON AN ORANGE REFLECTORIZED BACKGROUND.

Pavement striping and cone pickup will be considered as two separate operations.

Where work operations are more than 2 ft. from the edge of the pavement, protection vehicles may be omitted.

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Longitudinal dimensions may be adjusted slightly to fit field conditions by the traffic engineer.

All vehicles, equipment, workers and their activities are restricted at all times to one side of the pavement unless otherwise authorized by the traffic engineer.

All warning signs have black legend and border on an orange background. All signs having an orange color shall be made of materials conforming to Section 716.03.01 of the Uniform Standard Specifications.
TRAFFIC CONTROL PLAN

HIGHWAY WORK ZONE

FOR ADVISORY SPEED (XX) TO BE NOTED ON APPROVED BARRICADE PLANS AHEAD

1. TAPER FORMULA:

\[
L = S \times W
\]

WHERE: 
- \(L\) = MINIMUM LENGTH OF TAPER
- \(S\) = POSTED SPEED, 85TH PERCENTILE SPEED PRIOR TO WORK STARTING OR THE ANTICIPATED OPERATING SPEED.
- \(W\) = WIDTH OF OFFSET

2. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHALL BE AS SPECIFIED IN TABLE IN NOTE 1.

3. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ABOVE EACH WORK AREA - ONE CONSTRUCTION SIGN FOR USE AS APPROVED BY THE TRAFFIC ENGINEER.

4. ALL WARNING SIGNS SHALL HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 716.03.01 OF THE UNIFORM STANDARD SPECIFICATIONS.

5. A BUFFER SPACE SHOULD BE USED AS FOLLOWS:

<table>
<thead>
<tr>
<th>ROAD WORK Zones</th>
<th>BACKGROUND</th>
<th>WARNING LIGHTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>ORANGE</td>
<td>BLACK</td>
</tr>
<tr>
<td>B</td>
<td>ORANGE</td>
<td>BLACK</td>
</tr>
<tr>
<td>C</td>
<td>ORANGE</td>
<td>BLACK</td>
</tr>
</tbody>
</table>

6. A BUFFER SPACE SHOULD BE REQUIRED AS FOLLOWS:

<table>
<thead>
<tr>
<th>ROAD WORK Zones</th>
<th>BACKGROUND</th>
<th>WARNING LIGHTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>ORANGE</td>
<td>BLACK</td>
</tr>
<tr>
<td>B</td>
<td>ORANGE</td>
<td>BLACK</td>
</tr>
<tr>
<td>C</td>
<td>ORANGE</td>
<td>BLACK</td>
</tr>
</tbody>
</table>

GENERAL NOTES

7. ALL DEVICES ESTABLISHING A TAPER OR TANGENT LINE SHALL BE OF ONE TYPE; DEVICES SHALL NOT BE MIXED BY TYPE.

8. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION.

- BOULDER CITY: 239-6800
- MES: 34-2692
- CLARK COUNTY: 455-100
- LAS VEGAS: 42-04-02

9. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES SHALL BE MAINTAINED THROUGHOUT SUBURBAN OR CONSTRUCTION. IF REASONABLE ACCESS TO RE-ROUTE CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES IS NOT MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION WORK, THE CONTRACTOR SHALL PROVIDE A BUFFER SPACE AS DEGREE TO MAINTAIN ACCESS TO RE-ROUTE CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES AS APPROVED BY THE TRAFFIC ENGINEER.

10. DURING HOURS OF DARKNESS, STEADY BURNING WARNING LIGHTS SHALL BE USED ON ALL CHANNELIZING DEVICES.

SPECIFICATION REFERENCE

MULTILANE, UNDIVIDED, RURAL OR SUBURBAN, DAY OR NIGHT OPERATIONS WITH A WORK AREA IN THE LEFT LANE, ALLOWING WORK ACCESS FROM ADJACENT LANE

UNIFORM STANDARD DRAWINGS

AGENCY APPROVED CLARK COUNTY AREA

DATE 1-9-97 DWG NO. 19
1. THE "L" DISTANCE EQUALS:

   \[ L = \frac{W}{60} \]

   WHERE:
   
   - **L** = TAPER LENGTH
   - **W** = WIDTH OF LANE OR OFFSET

2. TWO WAY TRAFFIC SIGNS SHALL BE REPEATED EVERY ONE-QUARTER MILE IN EACH DIRECTION THROUGH THE TANGENT DISTANCE.

3. WHEN (T) IS GREATER THAN 500 FT., 4-FOOT LENGTHS OF DOUBLE YELLOW REFLECTORIZED, REMOVABLE NON-FOIL PAINT MARKING TAPE SHALL BE USED.

4. A CURVE SIGN SHALL BE RE-USED AT THE EXIT END OF THE BYPASS IF (T) IS LESS THAN OR GREATER THAN 1,000 FEET.

5. ON PAVED CROSSOVERS, REFLECTING EDGE LINES AND A CENTERLINE SHALL BE USED WHEN THE CLOSEOUT TIME IS 72 CONTINUOUS HOURS OR MORE OR WHEN THE NORMAL POSTED SPEED OUTSIDE THE AREA OF OPENING LANE SIGNS IS 40 MPH OR LESS. REMOVABLE NON-FOIL PAINT MARKING TAPE SHALL BE USED FOR MARKING THE EDGE LINES AND CENTERLINE. ON THE EXIT LEG OF THE CROSSOVER, REFLECTING EDGE PAINT MARKING MAY BE USED FOR BARRIERS ON PAVED CROSSOVERS. BASE REFLECTIVE PAINT MARKINGS CONFORMING TO UNIFORM STANDARD SPECIFICATIONS MAY BE USED IN LIEU OF TAPE OR PAINT WHERE THE RADIUS OF CURVE MAKES TAPE OR PAINT UNREADABLE. ALL EXISTING PAINT MARKINGS WHICH CONFLICT WITH THE REVISED TRAFFIC PATTERN SHALL BE REMOVED. IF STEPPING IS TO BE PLACED ON FINAL PAINTING FOR TEMPORARY, NON-FOIL TAPE SHALL BE USED.

6. CONES MAY BE SUBSTITUTED FOR BARRIERS AT HALF THE SPACING DURING DAY OPERATIONS. CONES SHALL BE A MINIMUM OF 36 IN. IN HEIGHT.

7. STEADY BURNING LIGHTS WILL NOT BE RE-USED ON BARRIERS FOR DAY OPERATIONS.

8. ALL SIGNS SHALL BE GROUND MOUNTED IF THE CLOSEOUT TIME EXCEEDS FOUR DAYS AND AS RE-USED BY SECTION 25 OF THE UNIFORM STANDARD SPECIFICATIONS.

9. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ABOVE EACH WORK AREA CONSTRUCTION SIGN IF IT OCCURS DURING HOURS OF DARKNESS.

10. LONGITUDINAL DIMENSIONS MAY BE ADJUSTED SLIGHTLY TO FIELD CONDITIONS BY THE TRAFFIC ENGINEER.

11. ALL BARRICADE LIGHTS SHALL BE MONO-DIRECTIONAL.

12. PORTABLE CONCRETE BARRIERS RAIL SHOULD BE RE-USED FOR LONG-TERM PROJECTS OF 72 CONTINUOUS HOURS OR MORE. SHALL CONFORM WITH STANDARD DRAWING NO. 110 AND BE USED WHEN CALLED UPON THEREIN. WHEN PORTABLE CONCRETE BARRIERS RAIL IS RE-USED, THE W-4.4 IS TO BE LOSS THROUGH THE TANGENT DISTANCE (T).

13. ARROW BOARD SHOULD BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE, AS SOON AS THE ROAD SPACE.

14. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT UDOT AT 92-61 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST 3 NORMAL WORKING DAYS PRIOR TO BEGINNING WORK.

15. WHEN A SIDE ROAD INTERSECTS THE HIGHWAY WITHIN THE TEMPORARY ROAD WORK AREA, ADDITIONAL TRAFFIC CONTROL DEVICES SHALL BE ERECTED, AS NEEDED.

16. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES SHALL BE MAINTAINED THROUGHOUT. TRANSPORTATION ENGINEERS OF THE CONTRACTING AGENCY IN CONSTRUCTION OPERATIONS WITH A MAP SHOWING THE PROPOSED ROUTE OF TRAVEL OR ROUTE OF GEOMETRIC ENGINEERS WITH A MAP SHOWING THE PROPOSED ROUTE FOR APPROVAL. IF CONSTRUCTION OPERATIONS AFFECT CAT BUS STOPS OR FACILITIES, THE CONTRACTORS SHALL NOT BY THE REGIONAL TRANSPORTATION COMMISSION AT ABSOLUTELY ALL.

17. ON HENDERSON, LAS VEGAS, NORTH LAS VEGAS 42 IN 2

18. WHEN A SIDE ROAD INTERSECTS THE HIGHWAY WITHIN THE TEMPORARY ROAD WORK AREA, ADDITIONAL TRAFFIC CONTROL DEVICES SHALL BE ERECTED, AS NEEDED.

19. WHEN A SIDE ROAD INTERSECTS THE HIGHWAY WITHIN THE TEMPORARY ROAD WORK AREA, ADDITIONAL TRAFFIC CONTROL DEVICES SHALL BE ERECTED, AS NEEDED.

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GENERAL NOTES

AHEAD
CHANNELIZING DEVICES

2. A HIGH-LEVEL FLAG TREE SHOULD
1. SAME SIGN SEQUENCE APPLIES TO

NOTE:
EACH TAPER.

PLACED IN THE WORK SPACE IF
THERE IS SUFFICIENT ROOM.

A. WORK AREA IS IN THE CENTER OF AN INTERSECTION
B. WORK AREA NEAR AN INTERSECTION, ALLOWING RIGHT TURNS.
C. WORK AREA NEAR AN INTERSECTION, PROVIDING ACCESS TO LEFT-TURN LANE.

TRAFFIC CONTROL PLAN
FOR
HIGHWAY WORK

SPECIFICATION REFERENCE

TYPICAL APPLICATION FOR
WORK AREAS WITHIN OR NEAR SUBURBAN INTERSECTIONS

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

AGENCY APPROVED
B C H L M N

DATE 1-9-97
DWG NO. 22

TRAFFIC DIRECTION

CHANNELIZING DEVICES

PAVEMENT MARKINGS THAT SHOULD BE REMOVED FOR
A LONG-Term PROJECT OF 72 CONTINUOUS HOURS OR
MORE. PAINT NOT ALLOWED. MARK WITH APPROVED
BLACK OUT TAPE OPTIONAL OR OBLITERATED AS
APPROVED BY THE TRAFFIC ENGINEER.

TEMPORARY MARKINGS TO BE PLACED AS NEEDED.

NOTE:
1. SAME SIGN SEQUENCE APPLIES TO

PLACED IN THE WORK SPACE IF
THERE IS SUFFICIENT ROOM.

A. WORK AREA IS IN THE CENTER OF AN INTERSECTION
B. WORK AREA NEAR AN INTERSECTION, ALLOWING RIGHT TURNS.
C. WORK AREA NEAR AN INTERSECTION, PROVIDING ACCESS TO LEFT-TURN LANE.

TRAFFIC DIRECTION

CHANNELIZING DEVICES

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A LONG-Term PROJECT OF 72 CONTINUOUS HOURS OR
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TRAFFIC DIRECTION

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TEMPORARY MARKINGS TO BE PLACED AS NEEDED.

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CHANNELIZING DEVICES

PAVEMENT MARKINGS THAT SHOULD BE REMOVED FOR
A LONG-Term PROJECT OF 72 CONTINUOUS HOURS OR
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TRAFFIC DIRECTION

CHANNELIZING DEVICES

PAVEMENT MARKINGS THAT SHOULD BE REMOVED FOR
A LONG-Term PROJECT OF 72 CONTINUOUS HOURS OR
MORE. PAINT NOT ALLOWED. MARK WITH APPROVED
BLACK OUT TAPE OPTIONAL OR OBLITERATED AS
APPROVED BY THE TRAFFIC ENGINEER.

TEMPORARY MARKINGS TO BE PLACED AS NEEDED.
TYPE III BARRICADES, PLACED END-TO-END

WORK AREA SYMBOLS

SIGN ON PORTABLE OR PERMANENT SUPPORT

GENERAL NOTES

1. ANY ROAD CLOSURE MUST BE EXPRESSLY PERMITTED IN WRITING BY THE ADMINISTERING ENTITY'S TRAFFIC MANAGEMENT DIVISION MANAGER OR THE DIRECTOR OF ITS PUBLIC WORKS DEPARTMENT.

2. ALL WARNING SIGNS SHALL HAVE BLACK LEGEND AND BORDER ON AN ORANGE BACKGROUND. ALL SIGNS HAVING AN ORANGE COLOR SHALL BE MADE OF MATERIALS CONFORMING TO SECTION 716.03.01 OF THE UNIFORM STANDARD SPECIFICATIONS.

3. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.

4. WARNING LIGHTS MAY BE USED TO MARK BARRICADES AT NIGHT AS NEEDED.

5. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC. LETTERS USED FOR STREET NAMES SHALL BE OF MATERIALS CONFORMING TO SECTION 716.03.01 OF THE UNIFORM STANDARD SPECIFICATIONS.

6. IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL ENTITY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.

BOULDER CITY 262-4300 MES: UTE 34-2965
CLARK COUNTY 455-100 NORTH LAS VEGAS 42-24-2
LAS VEGAS 226-331

7. TYPE "B" HIGH INTENSITY FLASHING WARNING LIGHTS MAY BE INSTALLED ABOVE EACH WORK-ZONE CONSTRUCTION SIGN FOR USE DURING HOURS OF DARKNESS.

8. M4 DETOUR SIGNS MAY BE LOCATED ON THE FAR SIDE OF THE INTERSECTIONS.

9. TABLE FOR SPACING OF ADVANCE WARNING SIGNS

<table>
<thead>
<tr>
<th>ROAD TYPE</th>
<th>200</th>
<th>500</th>
<th>350</th>
<th>200</th>
</tr>
</thead>
<tbody>
<tr>
<td>URBAN (LESS THAN 35 MPH)</td>
<td>100</td>
<td>350</td>
<td>200</td>
<td>260</td>
</tr>
<tr>
<td>EXPANSION HIGHWAY</td>
<td>160</td>
<td>320</td>
<td>200</td>
<td>260</td>
</tr>
</tbody>
</table>

10. ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES SHALL BE MADE AND CONTINUOUS DURING THE DURATION OF CONSTRUCTION. IF RE-ROUTING OF ACCESS IS NECESSARY, THE CONTRACTOR SHALL PROVIDE THE ENTITY’S TRAFFIC ENGINEER WITH A MAP SHOWING THE PROPOSED RE-Routes FOR APPROVAL. IF CONSTRUCTION OPERATIONS REQUIRE THE SHUT-TO-OPEN RE-ROUTE, THE CONTRACTOR SHALL NOTIFY THE REGIONAL TRANSPORTATION COMMISSION AT LEAST 1 NORMAL WORKING DAYS PRIOR TO BEGINNING SUCH OPERATIONS.

A. TYPICAL APPLICATION-ROADWAY CLOSED BEYOND DETOUR POINT.

B. TYPICAL APPLICATION-DETOUR SIGNING FOR ROAD CONSTRUCTION PROJECT IN A STREET GRID.
**GENERAL NOTES:***

1. **ADDITIONAL ADVANCE WARNING MAY BE NECESSARY.**
2. **CONTROLS FOR PEDESTRIANS ONLY ARE SHOWN. VEHICULAR TRAFFIC CONTROLS SHALL COMPLY WITH APPROPRIATE STANDARD DRAWINGS.**
3. **STREET LIGHTING SHOULD BE CONSIDERED.**
4. **WARNING LIGHTS MAY BE USED ON BARRICADES.**
5. **IF THERE EXIST ANY SOURCE OF PEDESTRIAN MOVEMENTS IN THIS AREA, SUCH THAT THE PEDESTRIAN APPROACHING THE WORK AREA COULD NOT SEE THE R9-3C SIGN, THEN ALTERNATES MUST BE USED TO INSURE THAT THIS IS VISIBLE.**
6. **CONCRETE BARRIER RAIL SHALL CONFORM TO STANDARD DRAWING NO. 602. WHEN PEDESTRIAN ROUTE IS DIVERTED TO TRAVEL LANE TO AVOID WORK AREA AND/OR HIGH SPEEDS ARE ANTICIPATED, CONCRETE BARRIER RAIL SHALL BE USED TO SEPARATE TEMPORARY WALKWAY FROM TRAFFIC.**
7. **IF WORKING AT OR NEAR A TRAFFIC SIGNAL, CONTACT LVACTS AT 229-6611 AND LOCAL AGENCY AT APPROPRIATE NUMBERS LISTED BELOW AT LEAST TWO WORKING DAYS PRIOR TO BEGINNING WORK.**
   - BOULDER CITY: 293-6400
   - MCD. UTE: 347-5296
   - HENDERSON: 5-5145
   - LAS VEGAS: 229-3531
8. **PEDESTRIANS SHOULD BE DIVERTED TO A SAFE AREA. DIVERSIONS SHALL BE AN ACCESSIBLE ROUTE AS DEFINED BY THE AMERICANS WITH DISABILITIES ACT (ADA).**
9. **FOR NIGHT-TIME CLOSURES, TYPE A FLASHING LIGHTS MAY BE USED ON BARRIER SUPPORTING SIGNS AND CLOSING WALKWAYS. TYPE C STEADY-BURN LIGHTS SHALL BE USED ON CHANNELIZING DEVICES SEPARATING THE TEMPORARY WALKWAY FROM VEHICULAR TRAFFIC.**
10. **ACCESS FOR CAT TRANSIT SERVICE, PEDESTRIANS AND BICYCLES SHALL BE MAINTAINED THROUGHOUT DURATION OF CONSTRUCTION. IF RE-ROUTING OF ACCESS IS NEEDED, THE CONTRACTOR SHALL NOTIFY THE REGIONAL TRANSPORTATION COMMISSION AT 455-4481 AT LEAST 3 NORMAL WORKING DAYS PRIOR TO BEGINNING SUCH OPERATIONS.**
### DEVICE OR PARAMETER

<table>
<thead>
<tr>
<th>SITUATION/CASE</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. MINIMUM 60 IN. WIDE FLASHER BAR ATOP VEHICLE, WITH GREATER THAN 4 LIGHT ELEMENTS VISIBLE TO APPROACHING TRAFFIC</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>B. CONES SET OUT BEHIND VEHICLE</td>
<td>3, ACROSS BLOCKED LANE</td>
<td>3, ACROSS BLOCKED LANE</td>
<td>5, ACROSS BLOCKED LANE</td>
<td>NONE</td>
</tr>
<tr>
<td>C. TURN ON VEHICLE'S EMERGENCY HAZARD FLASHERS</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>D. ALL PERSONNEL WEAR ORANGE VESTS OR SHIRTS WHEN OUTSIDE OF VEHICLE</td>
<td>ALWAYS</td>
<td>ALWAYS</td>
<td>ALWAYS</td>
<td>ALWAYS</td>
</tr>
<tr>
<td>E. O.K. FOR NIGHTTIME DEPLOYMENT?</td>
<td>NO</td>
<td>ONLY WHEN SPEED LIMIT &lt; 35 MPH</td>
<td>O.K., BUT USE REFLECTIVE VESTS</td>
<td>O.K., BUT USE REFLECTIVE VESTS</td>
</tr>
<tr>
<td>F. WATER-FILLED CRASH CUSHION, OR EQUIVALENT; TRUNK OR TRAILER-MOUNTED IMPACT ATTENUATORS</td>
<td>RECOMMENDED, BUT MANDATORY WHEN SPEED LIMIT EXCEEDS 45 MPH</td>
<td>NO</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>G. NO STOPPING UNLESS STOPPED VEHICLE IS VISIBLE TO APPROACHING TRAFFIC GREATER THAN 10 SECONDS AT SPEED LIMIT</td>
<td>YES, APPLY THIS RULE</td>
<td>N/A - ON STRAIGHT-AWAY</td>
<td>NOT REQUIRED</td>
<td>DESIRED, BUT NOT REQUIRED</td>
</tr>
<tr>
<td>H. O.K. TO SET UP DURING PEAK TRAVEL HOURS: 7-9 AM, 4-6 PM</td>
<td>YES, BUT ONLY FOR EMERGENCY-TYPE REPAIR ACTIVITIES</td>
<td>O.K.</td>
<td>NOT RECOMMENDED</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** TYPICAL APPLICATION IS FOR LANDSCAPE OR UTILITY ACTIVITIES.
Traffic Control Plan

General Notes:

1. Special "No Parking" sign shall be placed on first barricade and on every other barricade thereafter.

2. Barricades shall not block driveways or access prior to maintenance operation. Special "No Parking" sign shall be placed on first barricade following space provided for access.

3. Barricades may be placed on pavement or on sidewalk at the discretion of the engineer. "No Parking" signs placed on sidewalks shall not be set at an angle greater than 30 degrees with the line of traffic to be visible to approaching traffic. A minimum of 36" clear space on sidewalks shall be maintained in accordance with the Americans with Disabilities Act when barricades are placed on sidewalks.

4. "No Parking" signs and barricades should be placed in area of rehabilitation at least 72 hours in advance of work beginning. Notification of persons affected by street work shall be performed as required by respective entity and Nevada Revised Statutes.

5. All barricades and "No Parking" signs shall be removed as soon as improved surface is ready for traffic as determined by the engineer.

Symbols:

Barricade

"No Parking" Sign Detail

Special "No Parking" Sign
See Detail: Note 1

Typical Application for Placement of "No Parking" Signs for Short-Term Street Rehabilitation Projects

Type II Barricades spaced at 50 ft. min. O.C.

See Note 2

See Note 2

Agency Approved
GENERAL NOTES:

1. RETRO REFLECTIVE SIGN SHEETING SHALL CONFORM TO SECTION 716, LATEST REVISION, OF THE UNIFORM STANDARD SPECIFICATIONS.
2. SIGN LEGENDS AND BORDERS SHALL COMPLY WITH THE REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION.
3. SIGNS SHALL BE MOUNTED IN CONFORMANCE WITH PART 6, MUTCD, LATEST EDITION.
4. THE "DOUBLE PENALTIES IN WORK ZONE" SIGN SHOULD BE MOUNTED WITH THE FIRST SIGN IN THE ADVANCE WARNING SIGN SERIES, TYPICALLY THE "ROAD WORK AHEAD" SIGN.
5. "END WORK ZONE" SIGN SHALL BE MOUNTED AT THE END OF THE WORK ZONE WITH THE "END DOUBLE PENALTIES" SIGN, IF APPLICABLE, ON THE SAME DEVICE OR POST.
6. THE DESIGNATION OF WORK ONE, INCLUDING MARKING OF THE DOUBLE PENALTIES, SHALL NOT BE RE-LIVED ON STREETS POSTED AT 25 MILES PER HOUR OR LESS AND ARE THE ACCESS TO OR APPURTENANT TO A RESIDENTIAL AREA.

TYPICAL SIGN AND LETTERING SIZE E TABLE

<table>
<thead>
<tr>
<th>SPEED LIMIT</th>
<th>&quot;H&quot; (IN.)</th>
<th>&quot;W&quot; (IN.)</th>
<th>LETTERING</th>
<th>&quot;H&quot; (IN.)</th>
<th>&quot;W&quot; (IN.)</th>
<th>LETTERING</th>
</tr>
</thead>
<tbody>
<tr>
<td>LESS THAN 45 MPH</td>
<td>24</td>
<td>24</td>
<td>4 INCH SERIES &quot;C&quot;</td>
<td>18</td>
<td>24</td>
<td>4 INCH SERIES &quot;D&quot;</td>
</tr>
<tr>
<td>45 MPH OR GREATER OR IF MULTILANE</td>
<td>3</td>
<td>3</td>
<td>6 INCH SERIES &quot;C&quot;</td>
<td>20</td>
<td>3</td>
<td>6 INCH SERIES &quot;D&quot;</td>
</tr>
</tbody>
</table>

SEE THE CURRENT EDITION OF THE "STANDARD HIGHWAY SIGNS" MANUAL FOR SERIES "C" AND SERIES "D" LETTERING DIMENSIONS.

TYPICAL SIGN PLACEMENT

TYPICAL SIGN PLACEMENT NOTES:
2. FOR DIMENSION "L", SEE THE CURRENT MUTCD TABLE C-3 & C-4.
3. SIGNS MAY BE PLACED IN THE DIRECTION WORK IS NOT BEING CONDUCTED IF THE ROADWAY IS PHYSICALLY SEPARATED BY A RAISED MEDIAN OR BARRIER WALL THROUGH THE COMPLETE WORK ZONE.

SIGN MATERIALS

SIGN MATERIALS SHALL CONFORM TO SECTION 716, LATEST REVISION, OF THE UNIFORM STANDARD SPECIFICATIONS.

SIGN LEGENDS AND BORDERS SHALL COMPLY WITH THE REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION.

SIGNS SHALL BE MOUNTED IN CONFORMANCE WITH PART 6, MUTCD, LATEST EDITION.

THE "DOUBLE PENALTIES IN WORK ZONE" SIGN SHOULD BE MOUNTED WITH THE FIRST SIGN IN THE ADVANCE WARNING SIGN SERIES, TYPICALLY THE "ROAD WORK AHEAD" SIGN.

"END WORK ZONE" SIGN SHALL BE MOUNTED AT THE END OF THE WORK ZONE WITH THE "END DOUBLE PENALTIES" SIGN, IF APPLICABLE, ON THE SAME DEVICE OR POST.

THE DESIGNATION OF WORK ONE, INCLUDING MARKING OF THE DOUBLE PENALTIES, SHALL NOT BE RE-LIVED ON STREETS POSTED AT 25 MILES PER HOUR OR LESS AND ARE THE ACCESS TO OR APPURTENANT TO A RESIDENTIAL AREA.

TYPICAL APPLICATION FOR

STANDARD FOR "DOUBLE PENALTIES" SIGNS
FOR USE IN TEMPORARY TRAFFIC CONTROL ZONES.

TRAFFIC CONTROL PLAN FOR
HIGHWAY WORK ZONE

SPECIFICATION REFERENCE
71. SIGN MATERIALS

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

DATE: 07/01/12

DRAWING NO.: 27

STANDARD SYMBOLS FOR
TRAFFIC SIGNAL DRAWINGS

<table>
<thead>
<tr>
<th>PROPOSED</th>
<th>EXISTING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- PULL BOX
- SIGNAL LUMINAIRE POLE, POST
- UTILITY POLE
- CONTROL CABINET
- CONDUIT RUN
- AERIAL CABLE
- DETECTOR LOOP
- PADMOUNT, ELECTRICAL SERVICE OR SPLICE BOX
- FLUORESCENT LUMINAIRE
- HIGH PRESSURE SODIUM LUMINAIRE - 750 WATT
- HIGH PRESSURE SODIUM LUMINAIRE - 400 WATT
- TRAFFIC SIGNAL INDICATION WITH BACKPLATE
- TRAFFIC SIGNAL INDICATION WITH DIRECTIONAL ARROW AND BACKPLATE
- PEDESTRIAN INDICATION AND DIRECTION
- HA: ARD BEACON, ONE WAY

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

STANDARD SYMBOLS FOR
TRAFFIC SIGNAL DRAWINGS

DATE 12-12-96  DWG. NO. 701  SHEET 1 OF 2
PROPOSED EXISTING

STREET NAME SIGN
INTERNALLY ILLUMINATED

CURB FLASHER

VEHICLE MOVEMENT (STOPPED)

VEHICLE MOVEMENT (MOVING)

CONDUIT RUN NUMBER

PEDESTRIAN MOVEMENT

TRAFFIC SIGNAL ON MAST ARM

TRAFFIC SIGNAL AND LUMINAIRE
ON MAST ARMS

PEDESTRIAN PUSH BUTTON
INDICATING DIRECTION OF CONTROL

TRAFFIC SIGNAL WITH
ALL COLORS LOUVERED

SCHOOL FLASHER

5 SECTION SIGNAL HEAD WITH DIRECTIONAL
ARROW AND BACKPLATE

PRIORITY VEHICLE PREEMPTION OPTICAL DETECTOR
(OPTICOM OR APPROVED EQUAL)
QUADRANT DETAIL

NOTE: QUADRANT IS IN RELATION WITH SHEET - NOT WITH NORTH ARROW

CLARK COUNTY AREA

UNIFORM STANDARD DRAWINGS

AGENCY APPROVED

SPECIFICATION REFERENCE

DATE

DWG. NO. 702
SECTION 704

BASE AGGREGATES

SCOPE

704.01.01 MATERIALS COVERED
A. This specification covers the quality and size of mineral materials used in base courses, trench backfill, or other construction locations.
B. The term Source shall mean any of the following:
   1. A permanent commercial location.
   2. Contractor manufactured material either commercial or on-site.

704.01.02 REFERENCE CODES AND STANDARDS:
A. Related Interagency Quality Assurance Committee (IQAC) procedures at:
   (IQAC website)

REQUIREMENTS

704.02.01 GENERAL
A. The mineral aggregate shall be the crushed and screened product from approved aggregate deposits, except that Type I aggregate base need not be crushed. The Engineer reserves the right to prohibit the use of aggregates from any source when:
   1. The character of the material is such, in the opinion of the Engineer, as to make improbable the furnishing of aggregates conforming to the requirements of these specifications.
   2. The character of the material is such, in the opinion of the Engineer, that undue additional costs may be accrued by the Contracting Agency.
B. The mineral aggregate shall be clean, hard, durable, free from any frozen lumps, deleterious matter, and harmful adherent coatings. Crushed Portland cement concrete and asphaltic concrete pavement will be permitted, subject to the requirements of these specifications. No materials subject to regulation as hazardous wastes as defined in the Nevada Administrative Code 444.8565 shall be allowed.
C. The mineral aggregate used in the production of aggregate base shall be from a known in situ aggregate deposit located at the production location or at a designated source site.

704.02.02 IQAC SOURCE QUALIFICATION
A. For expediting of material source and type approvals, a listing of qualified materials has been provided on the IQAC website.
B. Any listed material is considered qualified for use without a material testing submittal. However, this does not relieve the Contractor of project testing of the material as required in these specifications.
C. The IQAC posted materials indicated in Table 1 are subject to reapproval annually or as specified in Table 1 for continued posting on the IQAC website. The procedure is annotated in Subsection 704.04.02, "IQAC Annual Material Prequalification."

<table>
<thead>
<tr>
<th>Table 1 – IQAC Materials Qualification Periods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type II Aggregate Base</td>
</tr>
<tr>
<td>Type II Controlled Low Strength Material (CLSM)</td>
</tr>
<tr>
<td>Type II w/ 30% Recycled Asphalt</td>
</tr>
<tr>
<td>Type II w/ 50% Recycled Concrete</td>
</tr>
<tr>
<td>Type II w/ 100% Recycled Materials*</td>
</tr>
</tbody>
</table>

*This includes materials made with imported native materials

704.02.03 DEFICIENCIES

A. If the product of a deposit is deficient in material passing the No. 16 sieve, filler from other approved deposits may be added at the crushing and screening plants. This is not to be construed as a waiver of any of the requirements contained herein.

PHYSICAL PROPERTIES AND TESTS

704.03.01 PLASTIC LIMITS

A. When specified, aggregates shall conform to the applicable requirements of the following table:

<table>
<thead>
<tr>
<th>Table 3 – Plastic Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage by Weight Passing 200 Sieve</td>
</tr>
<tr>
<td>----------------------------</td>
</tr>
<tr>
<td>0.1 to 3.0</td>
</tr>
<tr>
<td>3.1 to 4.0</td>
</tr>
<tr>
<td>4.1 to 5.0</td>
</tr>
<tr>
<td>5.1 to 8.0</td>
</tr>
<tr>
<td>8.1 to 11.0</td>
</tr>
<tr>
<td>11.1 to 15.0</td>
</tr>
</tbody>
</table>

704.03.02 DRAIN BACKFILL

A. This aggregate shall conform to the following requirements:

<table>
<thead>
<tr>
<th>Table 4 – Drain Rock Gradation Acceptance Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Sizes</td>
</tr>
<tr>
<td>--------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>3-Inch</td>
</tr>
<tr>
<td>2-Inch</td>
</tr>
<tr>
<td>1-1/2-Inch</td>
</tr>
<tr>
<td>3/4-Inch</td>
</tr>
<tr>
<td>1/2-Inch</td>
</tr>
<tr>
<td>3/8-Inch</td>
</tr>
<tr>
<td>No. 4</td>
</tr>
<tr>
<td>No. 8</td>
</tr>
<tr>
<td>No. 200</td>
</tr>
</tbody>
</table>
B. Unless otherwise specified in the contract documents, the Contractor may use any of the sizes.

<table>
<thead>
<tr>
<th>Source Requirement Test</th>
<th>3-Inch Size</th>
<th>2-Inch Size</th>
<th>3/4-Inch Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of Wear (500 Rev.)</td>
<td>45% Maximum</td>
<td>45% Maximum</td>
<td>45% Maximum</td>
</tr>
</tbody>
</table>

### 704.03.03 TYPE I AGGREGATE BASE

A. This aggregate shall conform to the following requirements:

#### Table 6 – Type I Gradation Acceptance Limits

<table>
<thead>
<tr>
<th>Sieve Sizes</th>
<th>Percentage by Dry Weight Passing Sieve</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Inch</td>
<td>100</td>
</tr>
<tr>
<td>2-Inch</td>
<td>90-100</td>
</tr>
<tr>
<td>1-1/2-Inch</td>
<td>--</td>
</tr>
<tr>
<td>1-Inch</td>
<td>--</td>
</tr>
<tr>
<td>No. 4</td>
<td>30-65</td>
</tr>
<tr>
<td>No. 16</td>
<td>15-40</td>
</tr>
<tr>
<td>No. 200</td>
<td>2-12</td>
</tr>
</tbody>
</table>

#### Table 7 – Type I Acceptance Limits

<table>
<thead>
<tr>
<th>Project Control Test</th>
<th>Test Method</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Analysis</td>
<td>AASHTO T27</td>
<td>Table 6</td>
</tr>
<tr>
<td>Sampling Aggregate</td>
<td>AASHTO T2</td>
<td>--</td>
</tr>
<tr>
<td>Plasticity Index</td>
<td>AASHTO T90²</td>
<td>Table 3</td>
</tr>
<tr>
<td>Liquid Limit</td>
<td>AASHTO T89</td>
<td>35 Maximum</td>
</tr>
<tr>
<td>Resistance (R Value)</td>
<td>ASTM D2844</td>
<td>60 Minimum</td>
</tr>
<tr>
<td>Percentage of Wear</td>
<td>AASHTO T96</td>
<td>45% Maximum</td>
</tr>
</tbody>
</table>

### 704.03.04 TYPE II AGGREGATE BASE

A. This aggregate shall conform to the following requirements:

#### Table 8 – Type II Gradation Acceptance Limits

<table>
<thead>
<tr>
<th>Sieve Sizes</th>
<th>Percentage by Dry Weight Passing Sieve</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Inch</td>
<td>100</td>
</tr>
<tr>
<td>3/4-Inch</td>
<td>90-100</td>
</tr>
<tr>
<td>No. 4</td>
<td>35-65</td>
</tr>
<tr>
<td>No. 16</td>
<td>15-40</td>
</tr>
<tr>
<td>No. 200</td>
<td>2-10</td>
</tr>
</tbody>
</table>

---

1 Sampling from a stockpile permitted only after approval of the Engineer; the conveyor device shall be calibrated every 3 months and record attached to sample document.

2 Test specimens shall be prepared following the dry preparation procedure AASHTO T87.
Table 9 – Type II Acceptance Limits

<table>
<thead>
<tr>
<th>Quality Control Test</th>
<th>Test Method</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Analysis</td>
<td>AASHTO T27</td>
<td>Table 8</td>
</tr>
<tr>
<td>Sampling Aggregate from Calibrated</td>
<td>AASHTO T2</td>
<td>--</td>
</tr>
<tr>
<td>Conveyer stream or belt cut</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fractured Faces</td>
<td>Nev. T230</td>
<td>70% Minimum</td>
</tr>
<tr>
<td>Plasticity Index</td>
<td>AASHTO T90</td>
<td>Table 3</td>
</tr>
<tr>
<td>Liquid Limit</td>
<td>AASHTO T89</td>
<td>35 Maximum</td>
</tr>
<tr>
<td>Resistance (R Value) or</td>
<td>ASTM D2844</td>
<td>78 Minimum</td>
</tr>
<tr>
<td>Resilient Modulus</td>
<td>AASHTO T307</td>
<td>35,000 psi</td>
</tr>
<tr>
<td>Percentage of Wear (500 Rev.)</td>
<td>AASHTO T96</td>
<td>45% Maximum</td>
</tr>
<tr>
<td>Total Available Water Soluble Sulfates⁵</td>
<td>ASTM D2791</td>
<td>Less than</td>
</tr>
<tr>
<td></td>
<td>AWWA 4550 E</td>
<td>0.3% by dry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>weight of soil.</td>
</tr>
</tbody>
</table>

B. Type II Plantmix Aggregate as specified in Subsection 705.03.01, "Plantmix and Roadmix Bituminous Base and Surface Aggregate, Types Two Fine and Coarse and Three," may be used in lieu of Type II Base Aggregate as specified above.

704.03.05 TYPE III AGGREGATE

A. The soluble sulfate content shall not exceed 0.3 percent by dry weight of soil. The mineral shall be clean, hard, durable, free from any frozen lumps, deleterious matter, and harmful coatings. In addition thereto, the material shall conform to the gradation requirements of Type II aggregate base in accordance with Subsection 704.03.04, "Type II Aggregate Base," with the following property testing:

Table 10 – Type III Acceptance Limits

<table>
<thead>
<tr>
<th>Quality Control Test</th>
<th>Test Method</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Analysis</td>
<td>AASHTO T27</td>
<td>Table 8</td>
</tr>
<tr>
<td>Sampling Aggregate from Calibrated</td>
<td>AASHTO T2</td>
<td>--</td>
</tr>
<tr>
<td>Conveyer stream or belt cut</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plasticity Index</td>
<td>AASHTO T 90</td>
<td>Table 3</td>
</tr>
<tr>
<td>Liquid Limit</td>
<td>AASHTO T 89</td>
<td>35 Maximum</td>
</tr>
<tr>
<td>No. 200 Sieve</td>
<td>AASHTO T 27</td>
<td>2-15%</td>
</tr>
<tr>
<td>Total Available Water Soluble Sulfates⁸</td>
<td>AWWA 3500-NaD AWWA 4550 E</td>
<td>Less than 0.3% by dry weight of soil.</td>
</tr>
</tbody>
</table>

704.03.06 CRUSHED ROCK

A. Crushed rock shall be the product from approved aggregate deposits and shall only be used as directed by the Contracting Agency. The mineral aggregate shall be clean, hard,

---

³ Sampling from a stockpile permitted only after approval of the Engineer; the conveyor device shall be calibrated every 3 months and record attached to sample document.
⁴ Test specimens shall be prepared following the dry preparation procedure AASHTO T87.
⁵ Required only for placement around waterline pipe.
⁶ Sampling from a stockpile permitted only after approval of the Engineer.
⁷ Test specimens shall be prepared following the dry preparation procedure AASHTO T87.
⁸ Required only for placement around waterline pipe.
durable, free from any frozen lumps, deleterious matter, and harmful coatings. In addition thereto, the material shall conform to the following gradation requirements:

<table>
<thead>
<tr>
<th>Table 11 – Crushed Rock Gradation Acceptance Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Sizes</td>
</tr>
<tr>
<td>3/8-Inch</td>
</tr>
<tr>
<td>No. 4</td>
</tr>
<tr>
<td>No. 200</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 12 – Crushed Rock Acceptance Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality Control Test</td>
</tr>
<tr>
<td>Test Method</td>
</tr>
<tr>
<td>Requirements</td>
</tr>
<tr>
<td>Sieve Analysis</td>
</tr>
<tr>
<td>Sampling Aggregate From Calibrated</td>
</tr>
<tr>
<td>Conveyor stream of belt cut⁹</td>
</tr>
<tr>
<td>Fractured Faces</td>
</tr>
<tr>
<td>Plasticity Index</td>
</tr>
<tr>
<td>Liquid Limit</td>
</tr>
<tr>
<td>Percentage of Wear (500 Rev.)</td>
</tr>
<tr>
<td>Total Available Water Soluble Sulfates¹¹</td>
</tr>
</tbody>
</table>

704.03.07 CONTROLLED LOW STRENGTH MATERIAL (CLSM)

A. CLSM shall consist of a low-strength, self-leveling concrete material composed of various combinations of cement, fly ash, aggregate, water, and chemical admixtures. CLSM shall have a design compressive strength at an age of 28 days within the ranges required below for the specified class:

1. Class I - (50 to 150 psi): Specified where the maximum strength is of primary concern due to the desire to have material that can be excavated in the future with relative ease.

2. Class II – (100 to 300 psi): Specified where the minimum strength is of primary concern for pipe support.

3. Class Special (as shown in project specifications or drawings): Specified where project unique criteria, such as erosion control, are the primary concern.

4. Class I and Class II CLSM:
   a. The mix shall result in a product having a slump in the range of 6 to 10 inches at the time of placement in the pipe zone. Above the pipe zone, a lesser slump is acceptable.
   b. The Source of Contractor shall submit a mix design for approval by the Engineer prior to placement.

---

⁹ Sampling from a stockpile permitted only after approval of the Engineer; the conveyor device shall be calibrated every 3 months and record attached to sample document.

¹⁰ Test specimens shall be prepared following the dry preparation procedure AASHTO T87.

¹¹ Required only for placement around waterline pipe.
c. The mix design shall be supported by laboratory test data verifying the potential of the mix to comply with the requirements for these specifications.

5. Class III – Bonded Aggregate Fill (BAF) (50 to 150 psi): Specified where the maximum strength is of primary concern due to the desire to have material that can be excavated in the future with relative ease, and where reduced concrete cure time is desired.

B. CLSM Class I and Class II shall be proportioned in general compliance with the methods outlined in ACI 211.1-91, "Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete." The product shall be proportioned and mixed in a central plant or mobile mixer. The following materials shall be used:

1. Cement shall meet the requirements of Section 701, "Hydraulic Cement." Type V cement shall be used unless otherwise specified.

2. Fly ash shall meet the requirements of Section 729, "Fly Ash." Fly ash not meeting the requirements of Section 729, "Fly Ash," may be used if prior testing indicates to the satisfaction of the Engineer the ability of the CLSM with this fly ash to meet these specifications.

3. Water shall meet the requirements of Section 722, "Water."

4. Aggregates shall have 100 percent by total weight passing the 1 inch screen and no less than 6 percent passing the No. 200 sieve. The aggregate shall have a maximum Plastic Index of 6.

5. Chemical admixtures shall meet the requirements of Subsection 702.03.02, "Air-Entraining Admixtures," and Subsection 702.03.03, "Admixtures Other Than Air-Entraining."
   a. Other admixtures specifically approved for CLSM may be used.
   b. All materials proportions shall be measured and the CLSM mixed in accordance with Section 501, "Portland Cement Concrete."
   c. Other proportion measuring and CLSM mixing systems are acceptable, if control can be demonstrated to be satisfactory to the Engineer.
   d. These other methods include continuous feed, volumetric measurement of proportions, and pug mill and continuous mixing plants.

C. If the CLSM Class I and Class II mixes do not produce a flowable consistency or exhibits excessive bleeding, the mix shall be adjusted.

   1. Excessive bleeding is considered to occur when water flows from the CLSM in a manner that causes disturbance or displacement of the exposed surface of the CLSM.
   2. Mix adjustments shall include, but not be limited to: aggregate gradation, cementitious material content, admixtures, water content, or a combination of adjustments.

D. The testing procedures of CLSM Class I, Class II, and Class III (BAF) for acceptance testing and mix design approval by the IQAC, or if required in the contract special provisions shall be as follows:

   1. The material Source, which may be the Contractor, shall be sampled for acceptance or compliance testing in accordance with the requirements of ASTM D5971. Specimen molds shall be cast using ASTM D4832 “Standard Test Method for
Preparation and Testing of Controlled Low Strength Material (CLSM Test Cylinders). Modify ASTM D4832 as described below:

a. Section 6.0 (Apparatus) of ASTM D4832 as follows:
   1) Section 6.1 – Test cylinders shall be constructed in molds made of masonry molds (single use) with three cells in each mold. Each cell should be approximately 4-inches in diameter and approximately 7-½ inches tall.
   2) Section 6.1.1 – Take care when extracting the test cylinders from the molds. To aid in extracting undamaged test cylinders, wrap the masonry mold in duct tape and gently crack the mold vertically along each cell prior to casting. This should allow for an undamaged specimen when the duct tape is removed, as the mold should fall away from the specimens.
   3) Section 6.3 – Storage Container - Protect test cylinders from direct sunlight and freezing temperatures. Samples are to be left in field for 4 days before transporting to the laboratory.
   4) Replace section 6.6 – Curing Environment - Store test cylinders in an air bath between 60° to 80°F. Generally, laboratory room temperature will be sufficient for this requirement.

b. Modify Section 9.0 (CLSM Cylinder Molding and Curing) of ASTM D4832 as follows:
   1) Delete Section 9.2.2.1.
   2) Change 9.3.2 to: Store test cylinders in conditions replicating, as closely as possible, the conditions of the construction. However, continue to protect cylinders from direct sunlight and freezing.
   3) Change 9.3.3 to: On the fourth day, carefully transport test cylinders to the laboratory. Place them in the curing environment.
   4) Change 9.3.4 to: If test cylinders cannot be moved on the fourth day, they shall remain in their original location until such time as they can be moved, but, in no case longer than 13 days from date of cast.

c. Replace Section 10 (Capping the Cylinders) of ASTM D4832 with the following:
   1) Capping shall be gypsum plaster in accordance with ASTM C617. The use of elastomeric pads will not be accepted.
   2) For each set of three test cylinders, test one 14-day and two 28-day for compressive strength.

d. Add the following to Section 11 of ASTM D4832 (Compressive Strength Testing):
   1) Compression testing should be performed on a load frame rather than a concrete compression test apparatus.
   2) Report the compressive strength to the nearest 5 psi.
3) Correct the strength when the Length to Diameter ratio is equal to 1.74 or less by applying the corrections found in ASTM C39 or ASTM C42. Do not correct the strength if correction is less than 5 psi.

2. The cast specimens shall cure in an air bath between 60° and 80° degrees F. Generally, laboratory room temperature will be sufficient for this requirement.

3. Compressive strength testing shall be performed in accordance with ASTM D4832 with samples from each set at the ages of 14 and 28 days.

4. A report of the results shall be submitted to the Engineer.

E. Class Special: The compressive strength testing procedures shall be as specified in the project specifications or on the project drawings.

F. Class III - Bonded Aggregate Fill (BAF):

1. The material Source shall have it designed under the responsible charge of a Nevada PE, and the mix shall consist of a gap-graded 1/2-inch maximum size crushed gravel. The cementitious material shall be Type V cement and/or fly ash and water for a flowable type consistency.

2. The material shall be plant mixed and placed from a truck or may be placed directly from a continuous feed mobile mixer approved by the Engineer.

3. Due to the gap-graded nature of the material, it shall not be used where groundwater is present unless wrapped in an approved geotechnical filter fabric, and in all trench installations shall conform to Subsection 208.03.16, "Drain Backfill."

4. Prepare and test concrete cylinders to evaluate the compressive strength of the BAF as described in Item D of this subsection. In addition, BAF requires a visual inspection that shall be documented in a report to the Engineer summarizing the inspection to be performed as follows:
   a. After the first batch is placed and initially cured, excavate to the bottom of the pipe or structure.
   b. If a self-supporting vertical face is maintained, the material is functioning properly.

704.03.08 AGGREGATE FOR PORTLAND CEMENT TREATED BASE

A. This aggregate shall conform to the following requirements:

<table>
<thead>
<tr>
<th>Table 13 – Portland Cement Treated Base Gradation Acceptance Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sieve Sizes</strong></td>
</tr>
<tr>
<td>3-Inch</td>
</tr>
<tr>
<td>2-Inch</td>
</tr>
<tr>
<td>No. 4</td>
</tr>
<tr>
<td>No. 200</td>
</tr>
</tbody>
</table>
### Table 14 – Portland Cement Treated Base Acceptance Limits

<table>
<thead>
<tr>
<th>Test</th>
<th>Test Method</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Analysis</td>
<td>AASHTO T27</td>
<td>Table 13</td>
</tr>
<tr>
<td>Sampling Aggregate from Calibrated Conveyor stream or belt cut(^{12})</td>
<td>AASHTO T2</td>
<td>1/1000 Tons per day or portion thereof</td>
</tr>
<tr>
<td>Percentage of Wear (500 Rev.)</td>
<td>AASHTO T96</td>
<td>45% Maximum</td>
</tr>
</tbody>
</table>

B. Aggregate for cement or lime treated bases will be sampled as follows:

1. Where the material is being mixed at a stationary plant, samples will be taken from the conveyors just prior to delivery to the mixer and prior to adding lime or cement.
2. Where material is being mixed on the roadbed, samples will be taken after the material has been placed on the roadbed and processed and prior to adding cement or lime.

### 704.03.09 SHOULDERING MATERIAL

A. This aggregate shall conform to the following requirements:

<table>
<thead>
<tr>
<th>Table 15 – Shouldering Material Acceptance Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Sizes</td>
</tr>
<tr>
<td>1-Inch</td>
</tr>
<tr>
<td>3/4-Inch</td>
</tr>
<tr>
<td>No. 4</td>
</tr>
<tr>
<td>No. 16</td>
</tr>
<tr>
<td>No. 200</td>
</tr>
</tbody>
</table>

### 704.03.10 AGGREGATE BASE MATERIAL WITH RECYCLED ASPHALT PAVEMENT (RAP) AND CONCRETE

A. The use of recycled asphalt pavement or recycled concrete for Type II Aggregate Base is permitted with the following requirements:

1. The material must conform to the requirements of Subsection 704.03.04 “Type II Aggregate Base"
2. The maximum ratio of crushed concrete to Type II Aggregate Base is 50%. Recycled materials must be substantially free of foreign matter including but not limited to asphalt, base, dirt, reinforcing steel, and have at most 1.5% deleterious material.
3. The maximum ratio of the crushed recycled asphalt concrete pavement (RAP) to Type II Aggregate Base is 30%. The mean oil content shall be 1.2% with a +0.3% tolerance. The Total Oil Content of the blended material (virgin aggregate and RAP) shall not exceed 1.5%.

B. The maximum qualification period is six (6) months for aggregate base materials blended with recycled aggregates. The entire qualification process must be completed prior to the first day of April and the first day of October of each calendar year. The report format, as outlined in Subsection 704.04.06 “Report Format” shall include the sieve analysis for

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\(^{12}\) Sampling from a stockpile permitted only after approval of the Engineer. The conveyor device shall be calibrated every 3 months and record attached to sample document.
RAP or recycled concrete stockpile, Blended aggregated, the RAP binder content and blended binder content.

704.03.11 100% RECYCLED AGGREGATE BASE MATERIAL

A. 100% Recycled Aggregate Base shall be composed of a combination of imported materials including native soil and rock, concrete, RAP. The individual components of the aggregate base shall comply with the following percentages:

1. Minimum of 50% imported native soil and/or rock
2. Maximum of 50% recycled concrete
3. Maximum of 30% RAP
4. Maximum of 5% Recycled concrete roof tiles and CMU blocks.

B. The use of recycled asphalt pavement and/or recycled concrete components for 100% Recycled Aggregate Base shall comply with the following requirements:

1. The maximum ratio of crushed concrete must be substantially free of foreign matter including but not limited to asphalt, base, dirt, reinforcing steel, and have at most 1.5% deleterious material.
2. The total oil content of type II produced with recycled asphalt concrete shall not exceed 1.5% oil by weight.

C. Import sources shall be identified for individual stockpiles of 100% Recycled Aggregate Base. They shall comply with the following requirements.

1. For individual stockpiles of 100% Recycled Aggregate Base, the native source(s) shall have consistent gradations, chemical properties, physical properties, and shall be of a similar soil classification.

D. The maximum qualification period is three (3) months for 100% Recycled Aggregate Base. The entire qualification process must be completed prior to the first day of February, April, July, and October of each calendar year. The report format, as outlined in Subsection 704.04.06 “Report Format”, shall include the sieve analysis for RAP or recycled concrete stockpile, blended aggregated, the RAP binder content and blended binder content. The report will need to identify the source(s) of the native soil and/or rock. Sites are allowed 1 to 4 different stock piles of recycled material. Each individual stockpile will require its own listing on the IQAC website.

SOURCE QUALITY CONTROL TESTING

704.04.01 GENERAL

A. There are 3 testing aspects to Source material acceptance and quality control.

1. Testing by the Source for submittal posting on the IQAC website of qualified materials.
2. Source Quality Control Testing required to ensure consistent material production.
3. Contractor project quality control Source testing for non-qualified materials.

B. The acceptance of the Source material shall be at the production plant while the acceptance of the Contractor-placed material is at the project site.
C. Any laboratory submitting to an agency shall be R-18 AASHTO accredited in the appropriate test method in accordance with Table 16, "Source Quality Control Testing Requirements," where applicable and testing reviewed and stamped by a Nevada professional engineer who has responsible charge of the work. The use of a professional engineer by the Source could be the Source staff engineer or third party, but the professional engineer must have responsible charge of the testing and/or inspection.

704.04.02 IQAC ANNUAL MATERIAL PREQUALIFICATION
A. Each individual location or "pit" shall be referred to as a "Source." The responsibility for testing and inspection is the material Source. Material shall be tested, inspected, and certified in accordance with Table 16 “Source Quality Control Testing Requirements.” The Source shall submit to the IQAC agency engineer assigned for that Source. The reviewing agency is listed on the IQAC website page next to the Source material.
B. Test data shall be included with the certifying document.
C. The maximum qualification period is 1 year for 100% native material, 6 months for virgin aggregate blended with crushed concrete or RAP, or 3 months for 100% recycled aggregate base. The entire qualification process shall be completed in accordance with the sections above prior to the first day of April, or for virgin aggregates blended with crushed concrete or RAP, the first day of April and the first day of October of each year and in the case of 100% recycled aggregate base, prior to the first day of February, April, July, and October of each calendar year. This includes, but is not limited to, submittal, agency review, all required retesting, and qualification from the IQAC member.

704.04.03 MATERIAL TOLERANCES AND PROHIBITED MATERIALS
A. Materials shall comply with the following tolerances and import sources shall be free of any contaminants as listed below.
1. The allowed variance in the material proctor value and optimum moisture content, is ±3 PCF and ±2% respectively
2. Unsuitable import materials/contaminants
   a. Gypsum
   b. Lightweight Concrete
   c. Plastics
   d. Organic materials
   e. Building materials including: clay roof tiles, shingles, pipe, electrical wire, or other materials that would be detrimental to the durability of the aggregate base.

704.04.04 NON-PREQUALIFIED MATERIALS
A. If the material is not posted on the IQAC web page, the Source may elect to submit non-prequalified material to the Engineer for approval prior to use that complies with the above noted specification and shall have been tested within 60 days of the intended use.

704.04.05 SUBMITTAL
A. All tests specified in this section shall be performed.
1. The report(s) shall include any graphical representation of plotted data such as the R-value and the Proctor value(s) along with the pit name and location.

2. The most current ASTM, AASHTO, NDOT, and AWWA methods shall be used when performing the tests.

B. All samples shall be "cut" from the "belt." When circumstances do not allow for sampling during production, the Source shall coordinate with the Engineer to identify an alternative plan for sampling.

C. IQAC Annual Submittal

1. For the purposes of IQAC submittal, the Engineer is the IQAC reviewing agency as noted on the IQAC web page.

2. For the annual submittal by the supplier, the material to be approved for use as aggregate shall be obtained and "split" by an AASHTO accredited laboratory with the Engineer present at the time the sample is obtained with the sample large enough for a full suite of testing for the Source and Engineer.

3. The Engineer shall be notified a minimum of 48 hours prior to obtaining the sample.

4. If the Engineer is not present during the sampling of the material, the results for that sample will not be accepted.

5. Sampling shall be performed during normal working hours for the Engineer.

6. If the Source laboratory results are in compliance with the above noted specifications, Source shall submit the test report to the Engineer within 21 days of sampling requesting the review and approval of the materials for the proposed use of the material.

7. Notification by the Source of samples not in compliance with the above noted specifications is requested but not required. Samples without notification or a qualification submittal within the 21-day period will be assumed by the IQAC to be outside the above noted specifications.

8. The agency Engineer for a particular pit may accommodate minor adjustments for "tuning" of an operation. This courtesy shall not be extended during the qualification process.

D. Non-prequalified materials (materials not posted on the IQAC list)

1. The material to be approved for use as aggregate shall be obtained and "split" by an AASHTO accredited laboratory with the Engineer present at the time the sample is obtained with the sample large enough for a full suite of testing for the Source and Engineer.

a. The Engineer shall be notified a minimum of 48 hours prior to obtaining the sample.

b. If the Engineer is not present during the sampling of the material, the results for that sample will not be accepted.

c. Sampling shall be performed during normal working hours for the Engineer.

d. If the Source laboratory results are in compliance with the above noted specifications, the Source shall submit the test report to the Engineer within 21 days of sampling with a letter requesting the review and approval of the materials report for the proposed use of the material.
2. Notification by the Source of samples not in compliance with the above noted specifications is requested but not required.
   a. Samples without notification or a qualification submittal within the 21-day period will be assumed by the IQAC to be outside the above noted specifications.
   b. The Source shall submit the material test report to the Engineer no earlier than 60 days and no later than 14 days prior to use.

3. The qualification is for one project only.

**704.04.06 REPORT FORMAT**

A. The report shall be prepared and stamped by, or under the direction of, a professional engineer registered in the state of Nevada. The report shall be on the standard IQAC\textsuperscript{13} form and shall include the pit name and location. The report shall include the following:
   1. Recommendation by the Source Professional Engineer.
   2. The testing results in accordance with the appropriate Table 16, "Source Quality Control Testing Requirements," test methods and reporting requirements, along with any graphs and charts.

B. When "no exceptions" are taken, a conditional posting on the web site will be provided by the IQAC within 10 days of the receipt of the submittal.

C. Discrepancies between test results will be reviewed on a case-by-case basis. The Engineer will notify the aggregate producer of substantial test variations within 10 days of receipt of the qualification submittal.

**704.04.07 SAMPLING AND TESTING**

A. When the Contractor/Material Source or Engineer acquires aggregate samples at an aggregate production plant, the plant shall provide a calibrated mechanical means for obtaining samples.
   1. If a mechanical means is not provided, a belt cut from a stopped conveyor will be required.
   2. Any mechanical sampling device shall be approved by the Engineer prior to starting the respective phase of the project, or shall have been approved as part of a prior plant inspection by the Engineer or the Engineer's representative.
   3. The sampling device shall be so constructed to provide for simultaneous "cutting" of the entire section of material being discharged or conveyed, and so constructed that small representative samples may be taken frequently and these samples combined to form the complete sample.
   4. The reference method for the mechanical procedure shall be a "belt cut" sample taken from a stopped conveyor belt.
   5. Samples of the finished product of the plant shall be obtained prior to or as the material leaves the conveyor belt for the bin or stockpile.

\textsuperscript{13} The form is on the IQAC website, or use an Agency approved form.
B. Test results run from samples taken will be furnished to the Engineer by the Contractor or the Contractor’s representative. The results of such tests shall not be the basis for final acceptance of the material.

C. Sampling for final acceptance of materials will be as required in the appropriate USS sections and in general shall comply with the AASHTO requirements, where applicable, and with any exception to the method(s) listed on the IQAC website.

<table>
<thead>
<tr>
<th>Spec Section</th>
<th>Description</th>
<th>Item</th>
<th>Reference Specification and/or Test Procedure</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>704.03.02, 704.03.03, 704.03.04, 704.03.08</td>
<td>Drain Rock, Type I, Type II Aggregate, Cement treated base</td>
<td>Submittal</td>
<td>IQAC and/or Agency Requirements</td>
<td>Annually for IQAC Source Approval OR per project</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sampling from calibrated conveyor stream or belt cut</td>
<td>AASHTO T2</td>
<td>1/day at plant</td>
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<tr>
<td></td>
<td></td>
<td>Sieve Analysis</td>
<td>AASHTO T11 &amp; T27</td>
<td>1/day at plant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percentage of Wear (500 Rev.)</td>
<td>AASHTO T96</td>
<td>Annually for Source Approval OR per project</td>
</tr>
<tr>
<td>704.03.04, 704.03.05, 704.03.06</td>
<td>Drain rock, Type II, and Type III aggregate around water pipe</td>
<td>Total Available Water Soluble Sulfates&lt;sup&gt;15&lt;/sup&gt;</td>
<td>AWWA 3500-NaD AWWA 4550 E</td>
<td>1/month at plant</td>
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<tr>
<td>704.03.03, 704.03.04</td>
<td>Type I and Type II Aggregate</td>
<td>Plasticity Index</td>
<td>AASHTO T90&lt;sup&gt;16&lt;/sup&gt;</td>
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<td>Liquid Limit</td>
<td>AASHTO T89</td>
<td>1/day at plant</td>
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<td></td>
<td></td>
<td>Proctor</td>
<td>AASHTO T180</td>
<td>1/20,000 CY at source</td>
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<tr>
<td></td>
<td></td>
<td>Proctor 100% Recy</td>
<td>AASHTO T180</td>
<td>1/5,000 CY at source</td>
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<td>Resistance (R Value) or Resilient Modulus</td>
<td>ASTM D2844</td>
<td>Annually for IQAC Source Qualification OR per project</td>
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<td></td>
<td></td>
<td>AASHTO T307</td>
<td>Annually for IQAC Source Qualification OR per project</td>
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<td>704.03.07</td>
<td>CLSM Class I, II, &amp; III</td>
<td>Mix Design</td>
<td>USS 704.03.07</td>
<td>Annually for IQAC Source Qualification OR per project</td>
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<td>Compressive Strength</td>
<td>USS 208.02.07 &amp; ASTM D4832</td>
<td>Annually for IQAC Source Qualification OR per project</td>
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<td></td>
<td></td>
<td>CLSM Class III-BAF</td>
<td>Visual Inspection Report</td>
<td>USS 208.02.07 Split cylinders</td>
</tr>
</tbody>
</table>

<sup>14</sup> Review the IQAC website for any exceptions to the listed test methods.

<sup>15</sup> Required only for placement around waterline pipe.

<sup>16</sup> Test specimens shall be prepared following the dry preparation procedure AASHTO T87.
NOTES

1. THIS PULL BOX SHALL NOT BE USED IN TRAFFIC OR PARKING LANES.

2. ALL DIMENSIONS ARE NOMINAL.

3. TOP OF UTILITY BOXES INSTALLED IN SIDEWALK SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SIDEWALK, HAVE NO GAPS GREATER THAN 1/2", REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.
NOTES
1. TOP OF UTILITY BOXES INSTALLED IN SIDEWALK SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SIDEWALK, HAVE NO GAPS GREATER THAN 1/2", REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.

2. SEE DRAWING NO. 709 FOR COVER TO BE USED IN STREET AND UNDEVELOPED AREAS.

3. ALL DIMENSIONS ARE NOMINAL.
POLYMER COVER MARKED "TRAFFIC SIGNAL" STEEL PULL BOX COVER, DRAWING NO. 709 IS PREFERRED FOR ALL USES, THIS PULL BOX ONLY.

PRECAST REINFORCED CONCRETE BODY

PRECAST REINFORCED CONCRETE EXTENSION (MUST NOT BE USED UNLESS SPECIFIED)

NOTES
1. THIS PULL BOX SHALL NOT BE USED IN TRAFFIC OR PARKING LANES.
2. SEE DRAWING NO. 709 FOR ALTERNATE COVER.
3. TOP OF UTILITY BOXES INSTALLED IN SIDEWALK SHALL HAVE NO VERTICAL SURFACE DISCONTINUITIES GREATER THAN 1/4" WITH ADJACENT SIDEWALK, HAVE NO GAPS GREATER THAN 1/2", REGARDLESS OF CONSTRUCTION TOLERANCES, AND BE FIRM, STABLE, AND SLIP RESISTANT.
NOTE:
1. THIS PULL BOX SHALL BE USED IN VEHICLE TRAVEL AREAS.

AVAILABLE IN #3, #5, #7 SIZES
(3 GAUGE STEEL)
TRAFFIC SIGNALS & STREETLIGHTING

1. ALL TRAFFIC AND OPEN AREA COVERS SHALL BE H 20 RATED.
2. TYPICAL NO. 7 PULL BOX COVER SHOWN. SUBMIT OTHERS TO THE ENGINEER FOR APPROVAL.
3. THIS COVER TO BE USED IN STREET AREAS AND UNDEVELOPED AREAS ONLY.
4. GROUNDING OF STEEL PULL BOX COVERS IS NOT NECESSARY FOR PULL BOXES CONTAINING LOW VOLTAGE, POWER-LIMITED CONNECTIONS.

1/4" TYP.
15-1/4"
8-5/8"
2-1/2" TYP.
3/8" x 16 COARSE THREAD TAP, CENTERED BETWEEN RIBS. FOR COVER GROUND CONNECTION SEE SHEET 2 OF THIS DRAWING NO.

Box "L" bolts
Locate to match pull box "L" bolts

NOTES:

17-1/4"
3.8"
1/4"
1/4"
2-1/4" TYP.
30-1/2"

PULL BOX STREET COVER

CLARK COUNTY AREA

UNIFORM STANDARD DRAWINGS

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

SPECIFICATION REFERENCE

50 STEEL STRUCTURES
23 TRAFFIC SIGNALS STREETLIGHTING

AGENCY APPROVED

DATE 12-12-96
DWG. NO. 709
SHEET 1 OF 2
1. ALL TRAFFIC AND OPEN AREA COVERS SHALL BE H 20 RATED.
2. TYPICAL NO. 7 PULL BOX COVER SHOWN. SUBMIT OTHERS TO THE ENGINEER FOR APPROVAL.
3. THIS COVER TO BE USED IN STREET AREAS AND UNDEVELOPED AREAS ONLY.
4. GROUNDING OF STEEL PULL BOX COVERS IS NOT NECESSARY FOR PULL BOXES CONTAINING LOW VOLTAGE, POWER-LIMITED CONNECTIONS.

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

SPECIFICATION REFERENCE

50 □ STEEL STRUCTURES
□ 23 TRAFFIC SIGNALS □ STREETLIGHTING

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

PULL BOX STREET COVER

DATE 12-12-96  DWG. NO. 709  SHEET 1 OF 2
NOTES:

1. PULL BOX LID SHOULD BE TAPPED WITH A 3/8" X 16 COURSE THREAD TAP.
2. FOR TYPICAL NO. 7 PULL BOX COVER GROUNDING, SEE SHEET 1 OF THIS DRAWING NO.
CROSS SECTION

NATIVE MATERIAL OR SAND AS REQUIRED BY THE ENGINEER COMPACTED TO 90%

PULL BOX

CONDUIT

TOP VIEW

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

PULL BOX
FOUNDATION

DATE 7-12-01  DWG. NO. 710
PULL BOX CONCRETE COLLAR IN UNDEVELOPED AREAS

NOTES:

1. P30 PULL BOXES SHALL BE INSTALLED FOR THE SIGNAL ITS COMMUNICATIONS PER APPLICABLE STANDARDS.
2. PULL BOX COVER SHALL BE INSCRIBED "FIBER OPTIC".
3. LOCATIONS OF THE PROPOSED P30 ITS COMMUNICATION PULL BOXES SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MARKING THE LOCATIONS IN THE FIELD AT APPROXIMATELY 500 FEET INTERVALS. THESE LOCATIONS SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER BEFORE INSTALLATION.
4. DETAIL SHOWS METHOD OF INSTALLATION WHEN FIBER OPTIC CABLE IS REQUIRED.
5. CONDUIT SIZES SHALL BE PER UNIFORM STANDARD SPECIFICATIONS, SECTION 23.
6. ALL CONDUITS SHALL HAVE A CONTINUOUS RUN OF 2 PAIR PE39 : 22 AWG INTERCONNECT CABLE.
7. UNDERGROUND ORANGE MARKING TAPE SHALL BE PLACED 12 INCHES ABOVE THE INSTALLED CONDUIT AND MARKED WITH THE LEGEND "FIBER OPTIC".

SPECIFICATION REFERENCE

<table>
<thead>
<tr>
<th>AGENCY APPROVED</th>
<th>B</th>
<th>C</th>
<th>H</th>
<th>L</th>
<th>M</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>PULL BOX CONCRETE COLLAR IN UNDEVELOPED AREAS</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DATE 3-13-08  DWG. NO. 711
NO. 4 AWG SEVEN (7) STRAND BARE COPPER GROUNDING WIRE 3' ABOVE FOUNDATION. CONNECT GROUNDING WIRE TO GROUNDING POINT.

CONDUIT TO EXTEND 7" ABOVE TOP OF THE ANCHOR BOLTS

1" NON-SHRINK GROUT BETWEEN POLE BASE AND SIDEWALK

5/8" X 12" HOT-DIP GALVANIZED ANCHOR BOLTS

BASE COVER

48" MIN.

2" MAX. SLOPE

5/8" CAP

2" CONDUIT

15# FELT (2 LAYERS)

STANDARD GROUNDING PLATE PER NEC 250.52 & 250.53

NOTE:

1. CONTINUOUS BARE COPER GROUNDING WIRE SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME AND CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE GROUNDING PLATE.
NOTE:
1. CONTINUOUS BARE COPPER GROUNDING WIRE SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME AND CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE GROUNDING PLATE.

2. MAX. SLOPE

3. 24" MIN.

4. 1" NON-SHRINK GROUT BETWEEN POLE BASE AND SIDEWALK

5. 5/8" X 12" HOT-DIP GALVANIZED ANCHOR BOLTS

6. STANDARD GROUNDING PLATE PER NEC 250.52 & 250.53

7. 2" CONDUIT

8. BASE COVER

9. 48" MIN.

10. 2 MAX. SLOPE

11. BASE OF POLE

12. BRONZE GROUNDING CONNECTOR UL LISTED FOR UNDERGROUND USE (ONE PER BOLT)

13. SEE NOTE 1

14. 15# FELT (2 LAYERS)

15. PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

16. PORTLAND CEMENT CONCRETE

17. TRAFFIC SIGNALS & STREETLIGHTING

18. DATE 07-01-15 DWG. NO. 716

19. TYPE "B" FOUNDATION
1. Continuous bare copper grounding wire shall be looped around anchor bolts one time and connected to each anchor bolt before continuing down to the grounding plate.
NOTES:

1. ANCHOR BOLTS SHALL BE HOT-DIP GALVANIZED STEEL WITH NUT AND WASHER.

2. CONTINUOUS BARE COPPER GROUNDING WIRE SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME AND CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE GROUNDING PLATE.

ANCHOR BOLTS

<table>
<thead>
<tr>
<th>POLE GA.</th>
<th>BOLT &quot;E&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>SEE POLE DRAWING</td>
</tr>
<tr>
<td>7</td>
<td>1-1/8&quot; X 40&quot; X 4&quot;</td>
</tr>
<tr>
<td>3</td>
<td>1-1/4&quot; X 44&quot; X 4&quot;</td>
</tr>
</tbody>
</table>

BRONZE GROUNDING CONNECTOR
UL LISTED FOR UNDERGROUND USE (ONE PER BOLT)
SEE NOTE 2

USE TEMPLATE PROVIDED BY MFR.

NO. 4 AWG SEVEN (7) STRAND BARE COPPER GROUNDING WIRE 3’ ABOVE FOUNDATION. CONNECT GROUNDING WIRE TO GROUNDING POINT.

CONDUIT TO EXTEND 6" ABOVE TOP OF THE ANCHOR BOLTS

1" NON-SHRINK GROUT BETWEEN POLE BASE AND SIDEWALK

4" MIN.-7" MAX. CONCRETE CAP

48" MIN.  2" MAX SLOPE

2" CONDUIT

15# FELT (2 LAYERS)

STD. GROUNDING PLATE
PER NEC 250.52 & 250.53

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED
B
C
H
L
M
N

SPECIFICATION REFERENCE

501 PORTLAND CEMENT CONCRETE

TRAFFIC SIGNALS & STREETLIGHTING

TYPE "E" FOUNDATION

DATE 07-01-15  DWG. NO. 718
NOTES:

1. ANCHOR BOLTS SHALL BE HOT-DIP GALVANIZED STEEL WITH NUT AND WASHER.

2. CONTINUOUS BARE COPPER GROUNDING WIRE SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE GROUNDING PLATE.

3. VERTICAL ADJUSTMENT REQUIRED FOR POLES INSIDE ACCESS RAMPS.

---

ANCHOR BOLTS

<table>
<thead>
<tr>
<th>POLE GA.</th>
<th>BOLT &quot;E&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>SEE POLE DRAWING</td>
</tr>
<tr>
<td>7</td>
<td>1-1/8&quot; X 40&quot; X 4&quot;</td>
</tr>
<tr>
<td>3</td>
<td>1-1/4&quot; X 44&quot; X 4&quot;</td>
</tr>
</tbody>
</table>

NO. 4 AWG SEVEN (7) STRAND BARE COPPER GROUNDING WIRE 3' ABOVE FOUNDATION. CONNECT GROUNDING WIRE TO GROUNDING POINT.

FOUNDATION. CONNECT GROUNDING WIRE TO GROUNDING POINT.

2" CONDUIT TO EXTEND 6" ABOVE TOP OF THE ANCHOR BOLTS BASE OF POLE

1" NON-SHRINK GROUT BETWEEN POLE BASE AND SIDEWALK

4" MIN.-7" MAX. CONCRETE CAP

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PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED

TYPE "F" FOUNDATION
1. Anchor bolts shall be hot-dip galvanized steel with nut and washer.

2. Continuous bare copper grounding wire shall be looped around anchor bolts one time connected to each anchor bolt before continuing down to the grounding plate.

3. Vertical adjustment required for poles inside access ramps.

---

Notes:

1. Anchor bolts shall be hot-dip galvanized steel with nut and washer. Foundation connect grounding wire to grounding point.

2. Continuous bare copper grounding wire shall be looped around anchor bolts one time connected to each anchor bolt before continuing down to the grounding plate.

3. Vertical adjustment required for poles inside access ramps.

---

Anchors bolts:

<table>
<thead>
<tr>
<th>Pole GA</th>
<th>Bolt “E”</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>SEE POLE DRAWING</td>
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<tr>
<td>7</td>
<td>1-1/8” X 40” X 4”</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>1-1/4” X 44” X 4”</td>
<td>3</td>
</tr>
</tbody>
</table>

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Bolts: E grounding connector UL listed for underground use (one per bolt) see note 2.

---

Agency approved

Professional electrical engineer stamp on file

---

**Unified Standard Drawings**

**Clark County Area**

**Type "G" Foundation**

---

Specification Reference

501 PORTLAND CEMENT CONCRETE

---

Traffic signals & streetlighting

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Date 07-01-15 DWG. NO. 720
NOTES:

1. ANCHOR BOLTS SHALL BE HOT-DIP GALVANIZED STEEL WITH NUT AND WASHER.

2. CONTINUOUS BARE COPPER GROUNDING WIRE SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME AND CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE GROUNDING PLATE.

3. VERTICAL ADJUSTMENT REQUIRED FOR POLES INSIDE ACCESS RAMPS.

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED

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<td>501 PORTLAND CEMENT CONCRETE</td>
<td>CLARK COUNTY AREA</td>
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<td>1:23 TRAFFIC SIGNALS &amp; STREETLIGHTING</td>
<td>TYPE &quot;H&quot; FOUNDATION</td>
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DATE 07-01-15 DWG. NO. 721
NOTES:

1. ANCHOR BOLTS SHALL BE HOT-DIP GALVANIZED STEEL WITH NUT AND WASHER.

2. ANCHOR BOLT MINIMUM YIELD STRENGTH Fy = 50 KSI.

3. SURROUNDING SOIL MUST HAVE SOIL-BEARING PRESSURE S1 OF 1500 PSF.

4. WRAP 20 OF 4 AWG BARE COPPER GROUNDING WIRE AROUND ENTIRE CAGE. GROUNDING WIRE SHALL BE CONNECTED TO ONE ANCHOR BOLT NEAR TOP OF FOUNDATION AND CONTINUE DOWN AROUND CAGE AND CONNECT TO GROUNDING PLATE AT BOTTOM OF FOUNDATION.

5. STEEL WIRE SHALL BE USED TO TIE ALL BARS AND WIRE MESH FIRMLY TOGETHER.

   VERTICAL ADJUSTMENT REQUIRED FOR POLES INSIDE ACCESS RAMPS.

   CONDUIT TO EXTEND 3" ABOVE FOUNDATION. CONNECT GROUNDING WIRE TO GROUNDING POINT. (SEE NOTE 4)

   BRONZE GROUNDING CONNECTOR UL LISTED FOR UNDERGROUND USE

   NO. 4 AWG SEVEN (7) STRAND BARE COPPER GROUNDING WIRE 3' ABOVE FOUNDATION.

   CONNECT GROUNDING WIRE TO GROUNDING POINT. (SEE NOTE 4)

   STANDARD GROUNDING PLATE PER NEC 250.52 & 250.53

   BRONZE GROUNDING CONNECTOR UL LISTED FOR UNDERGROUND USE

   BRONZE GROUNDING CONNECTOR UL LISTED FOR UNDERGROUND USE

   PORTLAND CEMENT CONCRETE

   TRAFFIC SIGNALS & STREETLIGHTING

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED: B C H L M N

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

TYPE "L" FOUNDATION

DATE 07-01-15 DWG. NO. 722
1. Anchor bolts shall be hot-dip galvanized steel with nut and washer.
2. Wrap 20' of #4 AWG bare copper grounding wire around entire cage. Grounding wire shall be connected to one anchor bolt near top of foundation and continue down around cage and connect to grounding plate at bottom of foundation.
3. Steel wire shall be used to tie all bars and spiral firmly together.
4. 28 day strength - 4000 psi min. All reinforcing steel shall be ASTM A 615 G60.
5. Maximum allowable overturning moment is 180 ft-kips.
6. Maximum allowable torsion is 220 ft-kips.
7. The foundation design shown assumes a non-cohesive soil with a minimum internal friction angle of 30 degrees. If actual soil conditions are lesser quality, the foundation should be designed for the specific site conditions.
8. Vertical adjustment required for poles inside access ramps.

For type XX-B signal and luminaire poles, see standard drawing no. 810.

### Notes:

**1.** Anchor bolts shall be hot-dip galvanized steel with nut and washer.

**2.** Wrap 20' of #4 AWG bare copper grounding wire around entire cage. Grounding wire shall be connected to one anchor bolt near top of foundation and continue down around cage and connect to grounding plate at bottom of foundation.

**3.** Steel wire shall be used to tie all bars and spiral firmly together.

**4.** 28 day strength - 4000 psi min. All reinforcing steel shall be ASTM A 615 G60.

**5.** Maximum allowable overturning moment is 180 ft-kips.

**6.** Maximum allowable torsion is 220 ft-kips.

**7.** The foundation design shown assumes a non-cohesive soil with a minimum internal friction angle of 30 degrees. If actual soil conditions are lesser quality, the foundation should be designed for the specific site conditions.

**8.** Vertical adjustment required for poles inside access ramps.

For type XX-B signal and luminaire poles, see standard drawing no. 810.
NOTES:

1. FOR CONDUIT SIZE, LOCATION AND QUANTITY, SEE PLANS.
2. ANCHOR BOLTS 3/4" X 18" X 3" SHALL BE HOT-DIP GALVANIZED COMMERCIAL GRADE STEEL WITH NUT AND WASHER.
3. ANCHOR BOLT PROJECTION ABOVE FOUNDATION SHALL BE 3-1/2" MIN., 4-1/2" MAX.
4. CONDUIT PROJECTION ABOVE FOUNDATION SHALL BE 2" MIN., 4" MAX.
5. CONTINUOUS BARE COPPER GROUNDING WIRE SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME AND CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE GROUNDING PLATE.

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE
NOTES

1. 3" OR 4" FIBER OR INTERCONNECT FROM TYPE 200 OR P-30 PULL BOX. REFER TO PLANS FOR INTERCONNECT/FIBER CONDUIT SIZE.
2. 2" CONDUIT FROM SERVICE PEDESTAL.
3. 3" CONDUITS FROM #7 TRAFFIC SIGNAL PULL BOX FOR SIGNAL POLES.
4. #4 SINGLE STRAND BARE COPPER WIRE SEE DRAWING 725 FOR DETAILS.
5. INSTALL CONDUITS 1" FRONT OF CENTER LINE.
   REFER TO PLANS FOR ANY ADDITIONAL CONDUITS.
2" PVC COND. TO BE ADDED IN EVERY FDN. FOR FUTURE USE. POINT TOWARDS INTERSECTION.

BRONZE GROUNDING CONNECTOR UL LISTED FOR UNDERGROUND USE (ONE PER BOLT) SEE NOTE 5.

NOTES:
1. FOR CONDUIT SIZE, LOCATION, AND QUANTITY SEE PLANS REFER TO CONDUIT LAYOUT DRAWING # 725.1 FOR DETAILS.

2. 3/4" X 18" X 3" HOT-DIP GALVANIZED ANCHOR BOLTS. LOCATE WITH TEMPLATE.

3. ANCHOR BOLT PROJECTION ABOVE FOUNDATION SHALL BE 3-1/2" MIN. , 4-1/2" MAX.

4. CONDUIT PROJECTION ABOVE FOUNDATION SHALL BE 1" MIN. , 4" MAX.

5. LOCATION OF FOUNDATION MUST BE APPROVED BY ENGINEER IN FIELD.

6. CONTINUOUS BARE COPPER GROUNDING WIRE SHALL BE CONNECTED TO EACH ANCHOR BOLT WITH BRONZE GROUNDING CONNECTOR BEFORE CONTINUING DOWN TO THE GROUNDING PLATE.

15# FELT (2 LAYERS) STD. GROUNDING PLATE PER NEC 250-83

1/4 AWG SINGLE STRAND BARE COPPER GROUNDING WIRE ABOVE FOUNDATION. CONNECT GROUNDING WIRE TO GROUNDING POINT.

1/0" MIN. (EASEMENT MAY BE NECESSARY)
SERVICE PEDESTAL ENCLOSURE, 12 GA. SHEET METAL BODY AND E:UITEMENT MOUNTING PANEL, 14 GA. FRONT COVER(S) AND 1: GA. MIN. FOR ALL OTHER PANELS. ALL SHEET METAL SHALL BE FINISHED WITH 1:NC CHROMATE PRIMER AND GREEN BAKED ENAMEL OR POWDER COAT FINISH. METERING SECTION PER P.U.E.S.E.R. STANDARDS.

UTILITY METER SECTION, 125 OR 200 AMP AS NEEDED, 120/240 VOLT, 1 PHASE, 3 WIRE. THE SECTION SHALL HAVE A HINGED COVER WITH PADLOCK TAB.

CIRCUIT BREAKER DISTRIBUTION SECTION, 125 OR 200 AMP AS NEEDED, 120/240 VOLT, 1 PHASE, 3 WIRE. THE SECTION SHALL BE COMPLETE WITH SEPARATE DEAD FRONT, COPPER BUSSING, SPACE FOR A MINIMUM OF TEN FULL SI: E (1") GE TYPE PLUG-IN CIRCUIT BREAKERS (EXCLUDING MAIN BREAKER), COPPER NEUTRAL/GROUNDING BUS AND MAIN BREAKER AS SPECIFIED BY THE ENGINEER. THE SECTION SHALL BE FACTORY WIRED TO THE METER SECTION WITH THE APPROPRIATE SI: E COPPER CONDUCTORS.

E:UITEMENT MOUNTING PANEL, 10" H X 12" W MIN., OPEN OR ENCLOSED, FOR LIGHTING CONTACTORS AS NEEDED.

DISTRIBUTION AND E:UITEMENT SECTION COVER WITH PADLOCK TAB.

BASE AND ENCLOSURE
WIDTH (1: TYP.)

BASE DEPTH
(1: TYP.)

ENCLOSURE
DEPTH
(17" TYP.)

TYPICAL MOUNTING BASE DETAIL
(DIMENSIONS MAY VARY DEPENDING ON MANUFACTURER)

SEPARATE PEDESTAL ENCLOSURE MOUNTING BASE (OPTIONAL)
120/240 VAC SERVICE
ON WOOD POLE
OVERHEAD SERVICE

NOTES:
1. ALL WIRES TO BE COPPER; SEE PLANS FOR QUANTITY AND GAGES.
2. WITH ENGINEER’S APPROVAL, AN 8 FT. BY 5/8 IN. COPPER-CLAD GROUNDING ROD MAY BE USED.
3. ALL CONDUIT FITTINGS TO BE WATER-TIGHT.
INSTALLATION OF CONDUIT INTO PULL BOX FROM LIP OF GUTTER TRENCH

3.5" MIN. RADIUS - USE ONLY 20 MIL OR THICKER PVC COATED RIGID IRON CONDUIT FOR BEND AREA. SEE SPECIFICATIONS.

EXCAVATE UNDER EXISTING CURB & GUTTER DO NOT REMOVE C & G.

CONNECTOR

CONTINUE CONDUIT RUN WITH A MINIMUM OF 5 FT. OF PVC COATED R.I.C. SEE CLARK COUNTY AREA SPECS.

FILL WITH SAND AND COMPACT AS REQUIRED BY FIELD ENGINEER

NOTE:
DO NOT MAKE COMPOUND BENDS IN CONDUIT
THE CONTRACTOR SHALL USE PVC COATED RIGID IRON CONDUIT CONFORMING TO SPECIFICATIONS.

B.C. RADIUS VARIES

PVC FOR CONTINUATION

RIGID IRON CONDUIT TO PVC CONDUIT CONNECTOR

CONNECTORS

TYPICAL CONDUIT LOCATIONS

THE CONTRACTOR SHALL USE PVC COATED RIGID IRON CONDUIT CONFORMING TO SPECIFICATIONS.

CONNECTORS

RIGID IRON CONDUIT TO PVC CONDUIT CONNECTOR

CONTINUATION

PVC FOR

6" MAX.

6" MAX.

4" MIN.

2" MIN.

24"

THE CONTRACTOR SHALL USE PVC COATED RIGID IRON CONDUIT CONFORMING TO SPECIFICATIONS.

CONNECTORS

RIGID IRON CONDUIT TO PVC CONDUIT CONNECTOR

CONTINUATION

PVC FOR

6" MAX.

6" MAX.

4" MIN.

2" MIN.

24"

THE CONTRACTOR SHALL USE PVC COATED RIGID IRON CONDUIT CONFORMING TO SPECIFICATIONS.

CONNECTORS

RIGID IRON CONDUIT TO PVC CONDUIT CONNECTOR

CONTINUATION

PVC FOR

6" MAX.

6" MAX.

4" MIN.

2" MIN.

24"

THE CONTRACTOR SHALL USE PVC COATED RIGID IRON CONDUIT CONFORMING TO SPECIFICATIONS.

CONNECTORS

RIGID IRON CONDUIT TO PVC CONDUIT CONNECTOR

CONTINUATION

PVC FOR
NOTES:

1. CONSTRUCT FROM MINIMUM 12-GUAGE STEEL.
2. THE TIMER SHALL BE RTC-AP21 OR EQUIVALENT.
NOTES:

1. ALL WIRING INSIDE THE CABINET SHALL BE #14 THW.
2. ALL FIELD WIRE TO THE SIGNAL SHALL BE #14 SOLID COPPER.
3. THE SERVICE WIRE SHALL BE 2-#4 THW & 1-#6 THW.
   PROVIDE #10 PIGTAIL FOR CONNECTION TO BREAKER.
4. THE TIMER SHALL BE RTC-AP21 OR EQUIVALENT.
5. TWO POLE SOLID STATE FLASHER.
6. THERE SHALL BE A 1” MINIMUM CLEARANCE BETWEEN INDIVIDUAL COMPONENTS.
7. ALL SERVICE POINTS SHALL BE AS FOR STREET LIGHTING.
8. FLASHING PATTERN OF LIGHTS TO BE SPECIFIED BY THE ENTITY.
1. All poles to be hot-dip galvanized by manufacturer or prime painted by manufacturer and finish painted by contractor per specifications and as required by the entity.

2. Low bidder must supply shop drawing for design approval before contract can be awarded.

3. For other details see drawing No. 808 SHTS. 2.

4. Install a backfacing light on back of outermost light, indicating the speed limit message is in operation.

5. Handhole covers shall be mounted with tamper-resistant screws.

6. Multi-sided pole and mast arm with a minimum of 16 sides may be used if directed by the entity engineer.
NOTES:

1. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

2. INSTALL A BACKFACING LIGHT ON BACK OF OUTERMOST LIGHT, INDICATING THE SPEED LIMIT MESSAGE IS IN OPERATION.
PLAN OF BASE

4" X 6-1/2" (INSIDE DIM.)
HANDHOLE AND COVER
(SHALL FACE AWAY FROM
ONCOMING TRAFFIC)

3/8" STEEL PLATE
BASE THICKNESS

HEAVY SQ. NUTS
FOR PLUMBING

NOTES:

1. DRILL 1" HOLES IN STEEL PIPE WHERE
   1-1/2" STEEL COUPLINGS ARE TO BE.
2. POLE TO BE HOT-DIP GALVANIZED BY MANUFACTURER
   OR PRIME PAINTED BY MANUFACTURER AND FINISH
   PAINTED BY CONTRACTOR PER SPECIFICATIONS
   AND AS REQUIRED BY THE ENTITY.
3. HANDHOLE COVERS SHALL BE MOUNTED WITH
   TAMPER-RESISTANT SCREWS.

FOR TYPE "G" FOUNDATION SEE DRAWING NO. 720

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SIGN POST WITH
SCHOOL SIGN MOUNTED

DATE 12-12-96   DWG. NO. 744   SHEET 1 OF 2
3/16" x 3" Hi-Tensile Steel Clamps

1-1/4" Hi-Tensile Hex. Head Bolts and Nuts.

1" Thick Flange

2" Dia. Wiring Hole

1-1/4" Thick Flange

3-1/2" Angle

5/16" 3-1/2" Angle

48" 3/16" x 3" HI-TENSILE STEEL CLAMPS

DETAIL A

DETAIL B

SIGN POST WITH SCHOOL SIGN MOUNTED DETAILS
SCHOOL SPEED LIMIT WHEN FLASHING

NOTES:

1. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

2. FOR MAST ARM TENON MOUNTING AND SPACING AND ADDITIONAL INFORMATION REFER TO STANDARD DRAWING NO. 745.

3. MULTI SIDED POLE AND MAST ARM WITH A MINIMUM OF 16 SIDES MAY BE USED IF DIRECTED BY THE ENTITY ENGINEER.

FOR OTHER DETAILS SEE DRAWING NUMBER 808 SHT 2 & 6

FOR "H" TYPE FOUNDATION SEE DRAWING NO. 721

IN THE CITY OF NORTH LAS VEGAS, USE ONLY XX-A POLE DWG. 808 SHT 3 & 6 FOR "L" FOUNDATION SEE DWG. 722
NOTES:

1. LOW BIDDER MUST SUPPLY SHOP DRAWING FOR DESIGN APPROVAL BEFORE CONTRACT CAN BE AWARDED.

2. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

3. FOR OTHER DETAILS SEE DRAWING NO. 808 SHTS. 2 & 6.

4. HANDHOLE COVERS SHALL BE MOUNTED WITH TAMPER-RESISTANT SCREWS.

5. SCHOOL SIGN SHALL BE MOUNTED AS SHOWN IN STANDARD DRAWING NO. 745

   REFER TO DRAWING NO. 812 SHEET 1 OF 2
   IF XX-20 POLE IS REQUIRED.

6. MULTI-SIDED POLE AND MAST ARM WITH A MINIMUM OF 16 SIDES MAY BE USED IF DIRECTED BY THE ENTITY ENGINEER.

FOR "H" TYPE FOUNDATION
DRAWING NO. 721
IN THE CITY OF NORTH LAS VEGAS, USE ONLY XX-A POLE DWG.808 SHT 3 & 6
FOR "L" FOUNDATION SEE DWG.722

SCHOOL SIGN POLE
TYPE XX-A

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DATE 04-12-07  DWG. NO. 74:
NOTES:

1. ALL INDICATIONS ARE TO BE YELLOW LED BALLS.
2. ALL M-2A INDICATIONS ARE 12" NOMINAL.
3. CIRCULAR VISORS TO BE INSTALLED ON ALL HEADS.
4. SEE SIGNAL PLANS FOR MAST ARM TENON LOCATIONS.
5. THIS HEAD ASSEMBLY SHALL BE USED ONLY ON THE END OF THE MAST ARM.

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<th>H</th>
<th>L</th>
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| SCHOOL FLASHER
| MAST ARM SIGNAL ASSEMBLIES |
| M-2A |

DATE 3-10-05  DWG. NO. 747  SHEET 1 OF 2
NOTES:

1. ALL INDICATIONS ARE TO BE YELLOW LED BALLS.
2. ALL M-2B INDICATIONS ARE 12" NOMINAL.
3. CIRCULAR VISORS TO BE INSTALLED ON ALL HEADS.
4. SEE SIGNAL PLANS FOR MAST ARM TENON LOCATIONS.
REINFORCED POLYMER CONCRETE COVER MARKED "FIBER OPTIC"

POLYMER COMPOSITE BODY

NOTES:
1. THIS PULL BOX SHALL NOT BE USED IN TRAVEL OR PARKING LANES
2. TAPERED SIDE WALLS ARE ALLOWED.

AGENCY APPROVED

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<tr>
<td>uniformly standard drawings clark county area</td>
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<tr>
<td>&quot;p30&quot; pullbox</td>
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<tr>
<td>(for use in interconnect and communications installations)</td>
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date 07-01-14  dwg. no. 7-1
1. DESIGN LOAD: H-20 WHEEL LOADINGS.
2. SUITABLE FOR USE IN OFF STREET LOCATIONS WHERE NOT SUBJECT TO HIGH DENSITY TRAFFIC. IT SHALL NOT BE USED IN TRAVEL OR PARKING LANES.
3. INSIDE DIMENSIONS - 30"X48"X36"
4. FOR USE AT FIBER OPTIC SPLICE POINTS.

TYPE 200 VAULT
P30 ITS COMMUNICATION PULL BOX SEE NOTES ON SHEET 2

EXISTING CURB AND GUTTER
EXISTING CONCRETE
RIGID CONDUIT BEND
3: MINIMUM RADIUS
FIBER OPTIC CABLE
FIBER OPTICS
SAWCUT

5: TYP.
TO NEARESTEXISTING CONSTRUCTION JOINT

SIDEWALK TO BE REMOVED AND REPLACED PER SECTION 202 OF THE STANDARD SPECIFICATIONS

12" MIN CLEARANCE

10’ TYP.
TO NEAREST EXISTING CONSTRUCTION JOINT
REMOVE/REPLACE CURB AND GUTTER WHEN NEEDED TO SATISFY THE CONDUIT MINIMUM BEND RADIUS

10” PVC CONDUIT

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

ITS COMMUNICATION CONDUIT AND PULL BOX DETAIL (FOR EXISTING CURB & GUTTER)

DATE 3-13-08 DWG. NO. 7:3 SHEET 1 OF 2
NOTES

1. P30 PULL BOX SHALL BE INSTALLED FOR THE TRAFFIC SIGNAL ITS COMMUNICATIONS PER APPLICABLE STANDARDS.
2. PULL BOX COVER SHALL BE INSCRIBED "FIBER OPTICS".
3. APPROXIMATE LOCATIONS OF THE PROPOSED P30 ITS COMMUNICATION PULL BOXES ARE SHOWN ON THE PLANS.
   THE CONTRACTOR SHALL BE RESPONSIBLE FOR MARKING THE LOCATIONS OF THE PROPOSED ITS COMMUNICATION
   PULL BOXES IN THE FIELD PER STANDARD STANDARD SPECIFICATION INTERVALS AND THESE LOCATIONS SHALL BE
   SUBJECT TO APPROVAL OF THE ENGINEER BEFORE INSTALLATION.
4. DETAIL SHOWS METHOD OF INSTALLATION WHEN FIBER OPTIC CABLE IS REQUIRED.
NEW CONCRETE SIDEWALK

FIBER OPTIC CABLE

PVC CONDUIT

INTERCONNECT CABLE

P30 ITS COMMUNICATION PULL BOX
SEE NOTES - DRAWING NO. 711

BACK OF SIDEWALK

8"MIN

DEPTH AS REQUIRED

CAP

FIBER OPTIC CABLE

EXTEND CONDUIT 3" INTO THE BOX

4" MIN. CLEARANCE

TYPE 2 GRAVEL 12" DEPTH

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

ITS COMMUNICATION CONDUIT
AND PULL BOX DETAIL
INSTALLED UNDER NEW SIDEWALK

DATE 3-13-08

DWG. NO. 7:4
NOTES:

1. ALL ITS CONDUITS SHALL HAVE A TWIN-PAIR, REA-PE39 #22 AWG TWISTED WIRE PAIR CABLE INSTALLED.

2. ANY EXISTING ITS CONDUITS FROM THE OPPOSING SIDE OF THE STREET SHALL BE CONNECTED TO PROPOSED CONDUITS USING THE SAME SIZE CONDUIT. IF UNDERGROUNDS DO NOT EXIST, THEN PROPOSED CONDUITS SHALL BE EXTENDED 5' BEYOND THE EXISTING OR PROPOSED EDGE OF PAVEMENT TO A #3-1/2 PULL BOX MARKED "FIBER OPTIC".

3. FIBER OPTIC CONDUIT SHALL BE INSTALLED WITH P30 PULL BOXES PLACED AT A MAXIMUM SPACING OF 1000', BUT SHALL NOT BE INSTALLED WITHIN 5' OF THE POINT OF CURVATURE (PC) OF THE R/W RADIUS, IN SIDEWALK RAMPS OR DRIVEWAYS. THE ITS CONDUITS SHALL BE CONNECTED TO THE EXISTING ITS CONDUITS OR, IF NOT EXISTING, AN ADDITIONAL P30 PULL BOX SHALL BE INSTALLED AT THE PROPOSED DEVELOPMENT'S PROPERTY LINE.

4. ALL CONDUIT BENDS SHALL BE PVC COATED RIGID WITH A MINIMUM RADIUS OF 36 INCHES.

5. ALL ITS PULL BOXES SHALL HAVE A POLYMER COMPOSITE BODY WITH RESIN POLYMER REINFORCED NON-CONDUCTIVE COVER MARKED "FIBER OPTIC".

6. UNDERGROUND ORANGE MARKING TAPE SHALL BE PLACED 12 INCHES ABOVE THE INSTALLED CONDUIT AND MARKED WITH THE LEGEND "FIBER OPTIC".

7. IF TRAFFIC SIGNAL CABINET EXISTS OR IS BEING INSTALLED ON CORNER, INSTALL TYPE 200 VAULT PER 761 AND 764 WITH ITS CONDUIT INTO TRAFFIC SIGNAL CABINET. IF TRAFFIC SIGNAL CABINET DOES NOT EXIST OR IS NOT BEING INSTALLED IN CORNER, INSTALL P30 PULL BOX.
CONNECT TO BACK OF LOCAL
CCTV CAMERA CONTROL UNIT
COHU 9300 SERIES -CONTROL
(OR APPROVED E-UAL IN TRAFFIC
CONTROLLER CABINET)
(MALE)
(SEE DWG. NO. 766, SHEET 2 OF 4)

1/2" S.S. ALL THREAD & SINGLE S.S. FLAT WASHER
AND DOUBLE S.S. NUTS (EACH SIDE) TO EXTEND
COMPLETELY THROUGH POLE AND CAP (2-ALL-
THREAD BOLTS REQ'D PER POLE WITH EACH
OFFSET TO EXTEND THROUGH POLE).

WEATHER PROOF
MS STYLE CONNECTOR

CONNECTS TO CA295H CABLE (MALE)

CONNECTS TO CAMERA
ACCESSORY (FEMALE)

CABLE (COHU MODEL CA295H
OR APPROVED E-UAL)
SEE CABLE WIRING DIAGRAM
(DWG. NO. 766, SHEET 2 OF 4)

1/2" STAINLESS STEEL BOLTS WITH
SINGLE STAINLESS STEEL WASHER
TOP AND BOTTOM WITH DOUBLE
STAINLESS STEEL NUTS

POLE CAP / CAMERA BASE

TRAFFIC SIGNAL POLE

CONNECT TO BACK OF LOCAL
CCTV CAMERA CONTROL UNIT
COHU 9300 SERIES -CONTROL
(OR APPROVED E-UAL IN TRAFFIC
CONTROLLER CABINET)
(MALE)
(SEE DWG. NO. 766, SHEET 2 OF 4)

CABLE AND CONNECTOR PART OF CAMERA ACCESSORY

CONNECTS TO CA295H CABLE (MALE)

CONNECTS TO CAMERA
ACCESSORY (FEMALE)

CABLE (COHU MODEL CA295H
OR APPROVED E-UAL)
SEE CABLE WIRING DIAGRAM
(DWG. NO. 766, SHEET 2 OF 4)
NOTE:

1. IF PULLING CCTV CABLE IN EXISTING SIGNAL CONDUIT, AGENCY APPROVAL REQUIRED FOR METHOD OF INSTALLATION.

CCTV CAMERA
CA295H CABLE WIRING DIAGRAM

CONNECT TO BACK OF LOCAL CCTV CAMERA CONTROL UNIT
COHU 9300 SERIES -CONTROL
(OR APPROVED E: UAL)
(IN TRAFFIC CONTROLLER CABINET)

LOCAL CCTV CAMERA CONTROL UNIT
COHU 9300 SERIES -CONTROL
(OR APPROVED E: UAL)
(IN TRAFFIC CONTROLLER CABINET)
NOTE
CAMERA STAND TO BE USED ONLY TO AVOID CONFLICT WITH OVERHEAD POWER LINES. AGENCY APPROVAL REQUIRED.
CAMERA EXTENSION POLE
(REQUIRED FOR POLE CAP MOUNTING)

POLE DATA

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<th>COMPONENT</th>
<th>ASTM DESIGNATION</th>
<th>MIN. YIELD (ksi)</th>
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<td>POLE TUBE</td>
<td>S109</td>
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<td>PLATES</td>
<td>A3</td>
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<td>GALVANIZING-HARDWARE</td>
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MATERIAL DATA

POLE EXTENSION CAP DETAIL 3

VARIES TOP OF SIGNAL POLE SHAFT

TOP PLATE DETAIL 1

SEE DETAIL 1

POLE BASE DETAIL 2

SEE DETAIL 2

CONTRACTOR TO FIELD MEASURE TOP OF EXISTING OR PROPOSED TRAFFIC SIGNAL POLE SHAFT BEFORE FABRICATION OF CAP.
NOTE: AN ADDITIONAL 120V OUTLET TO BE INSTALLED ON SIDE RAIL, NEAR TOP, FOR ITS EQUIPMENT ON EITHER SIDE OF CABINET. LOCATION TO BE APPROVED BY AGENCY ENGINEER BEFORE INSTALLATION. MAXIMUM OF FOUR OUTLETS PER CABINET.
MOTOR: 1/125 HP
3000 RPM NEMA CLASS
B INS. 0.5 AMPS AT 115 VAC.

VENT FAN SPECIFICATION:
134 C.F.M. RATING AT .160" OF WATER STATIC PRESSURE.

NOTES:
1. MATERIAL - 14 GA. SHEET STEEL, OR ALUMINUM EQUIVALENT.
2. PAINT OUTSIDE TWO COATS AND INSIDE TWO COATS WHITE ENAMEL OR AS APPROPRIATE.
3. DOOR SHALL LOCK AT THREE POINTS.
4. FOR FOUNDATION DETAILS AND ANCHOR BOLT LOCATION SEE DRAWING NO. 724.
5. INCLUDE 3/4" X 18" X 3" HOT-DIP GALVANIZED ANCHOR BOLTS WITH EACH CABINET.

"M" CABINET

AGENCY APPROVED B C H L M N

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPE V CABINET

DATE 12-12-96 DWG. NO. 801
VENT FAN SPECIFICATION:
SEE STANDARD DRAWING NO. 801

"P" CABINET

NOTES:
1. MATERIAL - 14 GA. SHEET STEEL, OR ALUMINUM EQUIVALENT.
2. PAINT OUTSIDE TWO COATS AND INSIDE TWO COATS WHITE ENAMEL OR AS APPROPRIATE.
3. SHELVES SHALL BE REMOVABLE AND ADJUSTABLE FOR VERTICAL SPACING.
4. DOOR SHALL LOCK AT THREE POINTS.
5. FOR FOUNDATION DETAILS AND ANCHOR BOLT LOCATION SEE DRAWING NO. 725.

INCLUDE 3/4" x 18" x 3" HOT-DIP GALVANIZED ANCHOR BOLTS WITH EACH CABINET.

SPECIFICATION REFERENCE
AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPE VI CABINET

DATE 12-12-96
DWG. NO. 802
VENT FAN SPECIFICATION:
SEE STANDARD DRAWING NO. 801

NOTES:

1. MATERIAL = 14 GA. SHEET STEEL, OR ALUMINUM EQUIVALENT.

2. PAINT OUTSIDE TWO COATS AND INSIDE TWO COATS WHITE ENAMEL OR AS APPROPRIATE.

3. FOR FOUNDATION DETAILS AND ANCHOR BOLT LOCATION SEE DRAWING NO. 725.

4. INCLUDE 3/4" x 18" x 3" HOT-DIP GALVANIZED ANCHOR BOLTS WITH EACH CABINET.

"R" CABINET

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPE VIII
CABINET

DATE 12-12-96  DWG. NO.  803
NOTES:

1. MATERIAL - 14 GA. SHEET STEEL, OR ALUMINUM EQUIVALENT.
2. PAINT OUTSIDE TWO COATS AND INSIDE TWO COATS WHITE ENAMEL OR AS APPROPRIATE.
3. FOUNDATION DETAILS SHALL BE SPECIFIED ON THE SIGNAL CONSTRUCTION PLANS.
4. INCLUDE 3/4" x 18" x 3" HOT-DIP GALVANIZED ANCHOR BOLTS WITH EACH CABINET.

VENT FAN SPECIFICATION:
SEE STANDARD DRAWING NO. 801

"RR" CABINET
PEDESTRIAN PUSH BUTTON POST FOR SPECIAL SIGN (8 FT.-6 INCHES HIGH)

PLAN OF BASE

NOTES:

1. PEDESTRIAN PUSH BUTTON SHALL NOT BE LOCATED MORE THAN 24" FROM THE BACK OF WALK. IF DISTANCE FROM BACK OF WALK TO PUSH BUTTON IS 20" TO 24", THE BUTTON SHALL BE LOCATED AT A MAXIMUM HEIGHT OF 44" FROM THE SURFACE OF THE WALK. OTHERWISE, THE MAXIMUM HEIGHT SHALL BE 48".

2. THE FORCE REQUIRED TO ACTIVATE CONTROL SHALL BE NO GREATER THAN 5 LB.

3. POST SHALL BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

FOR TYPE "A" FOUNDATION SEE DRAWING NO. 715

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

PEDESTRIAN PUSH BUTTON POST FOR SPECIAL SIGN (8 FT.-6 INCHES HIGH)

AGENCY APPROVED

B C H M N

DATE 08-09-18 DWG. NO. 805 SHEET 1 OF 2
PEDESTRIAN PUSH BUTTON
FOR 2 1/2" POSTTOP MOUNTING

1. PEDESTRIAN PUSH BUTTON SHALL NOT BE LOCATED MORE THAN 24" FROM THE BACK OF WALK. IF DISTANCE FROM BACK OF WALK TO PUSH BUTTON IS 20" TO 24", THE BUTTON SHALL BE LOCATED AT A MAXIMUM HEIGHT OF 44" FROM THE SURFACE OF THE WALK. OTHERWISE, THE MAXIMUM HEIGHT SHALL BE 48".

2. THE FORCE REQUIRED TO ACTIVATE CONTROL SHALL BE NO GREATER THAN 5 LB.

3. POST SHALL BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

FOR TYPE "A" FOUNDATION SEE DRAWING NO. 715

NOTES:
- PROVIDE 5" X 7-3/4" SIGN THIS POST ONLY.
- ADDITIONAL PEDESTRIAN PUSH BUTTON, IF REQUIRED.
- INCLUDE 5/8" X 12" X 3" HOT-DIP GALVANIZED ANCHOR BOLTS.
- POST SHALL BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

NOTES:
- PROVIDE 5" X 7-3/4" SIGN THIS POST ONLY.
- ADDITIONAL PEDESTRIAN PUSH BUTTON, IF REQUIRED.
- INCLUDE 5/8" X 12" X 3" HOT-DIP GALVANIZED ANCHOR BOLTS.
- POST SHALL BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

FOR TYPE "A" FOUNDATION SEE DRAWING NO. 715
SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SIGNAL STANDARD
TYPE 1-A, 1-B

DATE 07-01-17  DWG. NO. 806

<table>
<thead>
<tr>
<th>POLE TYPE</th>
<th>&quot;A&quot; NOM.</th>
<th>SHAFT SIZE</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-A</td>
<td>10'-0&quot;</td>
<td>11 GA. 5.5&quot; X 4.1&quot; X 10'-0&quot;</td>
<td>NEAR RIGHTS &amp; ISL. POLES</td>
</tr>
<tr>
<td>1-B</td>
<td>7'-0&quot;</td>
<td>11 GA. 5.5&quot; X 4.1&quot; X 7'-0&quot;</td>
<td>PED. HEADS &amp; BUTTON ONLY</td>
</tr>
</tbody>
</table>

NOTES:
1. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.
2. HANDHOLE COVERS SHALL BE MOUNTED WITH TAMPER-RESISTANT SCREWS.

FOR TYPE "C" FOUNDATION SEE DRAWING NO. 717.
NOTES:

1. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH BY PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

2. HANDHOLE COVERS SHALL BE MOUNTED WITH TAMPER-RESISTANT SCREWS.

FOR TYPE "C" FOUNDATION SEE DRAWING NO.717.
1. CONTRACTOR MUST SUPPLY SHOP DRAWING FOR DESIGN APPROVAL.
2. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.
3. HANDHOLE COVERS SHALL BE MOUNTED WITH TAMPER-RESISTANT SCREWS.
4. WHERE SIGNALS AND STANDARDS ARE INSTALLED BELOW OVERHEAD POWER LINES, CLEARANCES SHALL BE PER NATIONAL ELECTRIC SAFETY CODE SECTION 234 REQUIREMENTS. INSTALL STRAIGHT ARM STREETLIGHT ASSEMBLIES WHERE ADDITIONAL CLEARANCE IS REQUIRED.
5. MULTI-SIDED POLE AND MAST ARM WITH A MINIMUM OF 13 SIDES MAY BE USED IF DIRECTED BY THE ENTITY ENGINEER.

POLES DESIGNED PER SPECIFICATION OF A.A.S.H.T.O., 90 MPH WINDS. (SEE DRAWING NO. 808 SHEET 5 FOR LOADING INFORMATION)

FOR "H" TYPE FOUNDATION SEE DRAWING NO. 721

<table>
<thead>
<tr>
<th>ARM SPAN &quot;L&quot; (FT)</th>
<th>FIXED END DIA. (IN)</th>
<th>FREE END DIA. (IN)</th>
<th>GAUGE</th>
<th>LUMINAIRE MOUNTING HEIGHT</th>
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<td>6</td>
<td>3.42</td>
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<td>11</td>
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<tr>
<td>8</td>
<td>3.75</td>
<td>2.38</td>
<td>11</td>
<td>33'-3&quot;</td>
</tr>
<tr>
<td>10</td>
<td>4.1</td>
<td>2.38</td>
<td>11</td>
<td>35'-0&quot;</td>
</tr>
<tr>
<td>12</td>
<td>4.52</td>
<td>2.38</td>
<td>11</td>
<td>33'-0&quot;</td>
</tr>
<tr>
<td>15</td>
<td>4.95</td>
<td>2.38</td>
<td>11</td>
<td>37'-0&quot;</td>
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</tbody>
</table>
1. CONTRACTOR MUST SUPPLY SHOP DRAWING FOR DESIGN APPROVAL.
2. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.
3. HANDHOLE COVERS SHALL BE MOUNTED WITH TAMPER-RESISTANT SCREWS.
4. WHERE SIGNALS AND STANDARDS ARE INSTALLED BELOW OVERHEAD POWER LINES, CLEARANCES SHALL BE PER NATIONAL ELECTRIC SAFETY CODE SECTION 234 REQUIREMENTS. INSTALL STRAIGHT ARM STREETLIGHT ASSEMBLIES WHERE ADDITIONAL CLEARANCE IS REQUIRED.
5. MULTI-SIDED POLE AND MAST ARM WITH A MINIMUM OF 1- SIDES MAY BE USED IF DIRECTED BY THE ENTITY ENGINEER.

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPE XX - 30 FT.
SIGNAL LUMINAIRE POLE DETAILS

DATE 07-01-17 DWG. NO. 808 SHEET 2 OF □
LUMINAIRE ARM DATA

<table>
<thead>
<tr>
<th>ARM SPAN &quot;L&quot; (FT)</th>
<th>FIXED END DIA. (IN)</th>
<th>FREE END DIA. (IN)</th>
<th>GAUGE</th>
<th>LUMINAIRE MOUNTING HEIGHT</th>
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<td>8</td>
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<td>33'-3&quot;</td>
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<tr>
<td>12</td>
<td>4.52</td>
<td>2.38</td>
<td>11</td>
<td>36'-3&quot;</td>
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<tr>
<td>15</td>
<td>4.95</td>
<td>2.38</td>
<td>11</td>
<td>37'-0&quot;</td>
</tr>
</tbody>
</table>

1. CONTRACTOR MUST SUPPLY SHOP DRAWING FOR DESIGN APPROVAL.
2. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.
3. HANDHOLE COVERS SHALL BE MOUNTED WITH TAMPER-RESISTANT SCREWS.
4. WHERE SIGNALS AND STANDARDS ARE INSTALLED BELOW OVERHEAD POWER LINES, CLEARANCES SHALL BE PER NATIONAL ELECTRIC SAFETY CODE SECTION 234 REQUIREMENTS. INSTALL STRAIGHT ARM STREETLIGHT ASSEMBLIES WHERE ADDITIONAL CLEARANCE IS REQUIRED.
5. MULTI-SIDED POLE AND MAST ARM WITH A MINIMUM OF 1 SIDE MAY BE USED IF DIRECTED BY THE ENTITY ENGINEER.

POLES DESIGNED PER SPECIFICATION OF A.A.S.H.T.O., 90 MPH WINDS.
(SEE DRAWING NO. 808 SHEET 5 FOR LOADING INFORMATION)

FOR "L" TYPE FOUNDATION SEE DRAWING NO. 722
1. CONTRACTOR MUST SUPPLY SHOP DRAWING FOR DESIGN APPROVAL.

2. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

3. HANDHOLE COVERS SHALL BE MOUNTED WITH TAMPER-RESISTANT SCREWS.

4. WHERE SIGNALS AND STANDARDS ARE INSTALLED BELOW OVERHEAD POWER LINES, CLEARANCES SHALL BE PER NATIONAL ELECTRIC SAFETY CODE SECTION 234.

5. MULTI-SIDED POLE AND MAST ARM WITH A MINIMUM OF 1 SIDE MAY BE USED IF DIRECTED BY THE ENTITY ENGINEER.

NOTES:

- BOLTS 3-EA. 3/4" 1-3/4" A325-X
- 0.75" DIA. HOLE
- 0.50" DIA. KEY
- 0.50" 16.50"
- 19" 1.75" 8.25"
- 13"
- 18"
- 21-1/2"
- 16-1/2"
- 8.25" 1.75"
- 7-3/4"

LUMINAIRE ARM CONNECTION DETAIL

POLE MOUNTING DETAIL

MAST ARM CONNECTION DETAIL
NOTE:
EACH CONDUCTOR SHALL HAVE A MINIMUM OF 18 INCHES OF SLACK

8 GREEN THWN BONDING CONDUCTOR CONNECTED TO POLE GROUND WITH SPLIT BOLT CONNECTOR

CONTINUOUS BARE COPPER GROUNDING WIRE SHALL BE LOOPED AROUND ANCHOR BOLTS ONE TIME AND CONNECTED TO EACH ANCHOR BOLT BEFORE CONTINUING DOWN TO THE GROUNDING PLATE. (GROUNDING CONFIGURATION DIFFERS FOR TYPE "L" FOUNDATION. SEE STANDARD DRAWING NO. 722)

BRONZE GROUNDING CONNECTOR (UL LISTED FOR UNDERGROUND USE) FOR NO.4 WIRE

HEX HEAD NON-CORROSIIVE CAP SCREW WITH FLAT WASHER WITH A SINGLE-STRAND BARE NO. 4 AWG COPPER GROUNDING CONDUCTOR
1/4" NON-THREADED WITH LOCK NUT WASHER
WITH DOUBLE HEX HEAD NUTS
(HOLES FOR NON-THREADED SHALL BE FIELD DRILLED)

REMOVABLE MAST ARM
RAIN CAP

1/2"
1. CONTRACTOR MUST SUPPLY SHOP DRAWING FOR DESIGN APPROVAL.
2. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.
3. HANDHOLE COVERS SHALL BE ATTACHED VIA TWO SCREWS INTO PLATES MOUNTED INSIDE THE HANDHOLE.
4. WHERE SIGNALS AND STANDARDS ARE INSTALLED BELOW OVERHEAD POWER LINES, CLEARANCES SHALL BE PER NATIONAL ELECTRIC SAFETY CODE SECTION 234 REQUIREMENTS. INSTALLATION OF STRAIGHT ARM STREETLIGHT ASSEMBLIES WHERE ADDITIONAL CLEARANCE IS REQUIRED SHALL BE APPROVED BY THE ENGINEER.
5. IF DUAL LUMINAIRE ARMS ARE NOT SPECIFIED IN THE PLANS, THE SECOND CONNECTION POINT SHALL BE COVERED BY A COVER PLATE UNTIL SUCH TIME AS A SECOND ARM MIGHT BE ADDED.

NOTES:

POLES DESIGNED PER SPECIFICATION OF A.A.S.H.T.O. 90 MPH WINDS. (SEE DRAWING NO. 810 SHEET 3 OF 3 FOR LOADING INFORMATION)

FOR "M" TYPE FOUNDATION SEE DRAWING NO. 723
BOLTS 3-EA. 3/4"-1-3/4" A325-X

LUMINAIRE ARM CONNECTION DETAIL

1/2" N.C. SQUARE NUT FOR GROUND BASE COVER

2-1/4" x 93" x 9" BOLT

HOT-DIP GALV. ANCHOR BOLTS W/2 HOT-DIP GALV. HEX NUTS & WASHERS PER BOLT.

POLE MOUNTING DETAIL

LUMINAIRE ARM CONNECTION DETAIL

1/4" THK. TOP BOTTOM SIDE GUSSETS

2" DIA. WIRE ENTRY WITH RD. EDGES

HANDHOLE AND COVER

25" DIA.

BOLT CIRCLE

BASE THICKNESS 2-1/4"

1/2" N.C.

SQUARE NUT FOR GROUND

2-1/4" : 93" X 9"

BOLT

SIGNAL & LUMINAIRE POLE DETAILS

810 SHEET 2 OF 3

TYPE XX - B - 30 FT.

(5 FT. THRU 85 FT. MAST ARMS)

AGENCY APPROVED

BASE THICKNESS 2-1/4"

3/8" BOX PL. THK.

3/8" THK. PL. FOR TOP AND BOTTOM BOX PL.

1 1/2"

(2) 5/16" THK. STIFFENERS @ 45°

1/2" X 9" I.D.

HANDHOLE

2" DIA. WIRE ENTRY WITH RD. EDGES

HANDHOLE AND COVER

25" DIA.

BOLT CIRCLE

BASE THICKNESS 2-1/4"

1/2" N.C.

SQUARE NUT FOR GROUND

2-1/4" : 93" X 9"

BOLT

SIGNAL & LUMINAIRE POLE DETAILS

810 SHEET 2 OF 3

TYPE XX - B - 30 FT.

(5 FT. THRU 85 FT. MAST ARMS)
NOTE:

TYPE XX-B POLE SHALL ALSO SUPPORT THE ALTERNATE LOADING SHOWN ABOVE.

MAX. 85' SPAN

TYPE XX-B

<table>
<thead>
<tr>
<th>DEVICE</th>
<th>DESCRIPTION</th>
<th>PROJ. AREA (FT.²)</th>
<th>WEIGHT (LBS)</th>
</tr>
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<tbody>
<tr>
<td>A</td>
<td>SIGNAL 12&quot;-3 SEC. W/ BACKPLATES (M-2)</td>
<td>9.80</td>
<td>40</td>
</tr>
<tr>
<td>B</td>
<td>SIGN R3-5 24&quot;X 30&quot;</td>
<td>5.00</td>
<td>15</td>
</tr>
<tr>
<td>C</td>
<td>SIGN R3-4 24&quot;X 24&quot;</td>
<td>4.00</td>
<td>10</td>
</tr>
<tr>
<td>D</td>
<td>SIGNAL 12&quot;-4 OR 5 SEC. W/ BACKPLATES (M-4 OR M-5)</td>
<td>13.8</td>
<td>80</td>
</tr>
<tr>
<td>E</td>
<td>SIGN R10-12 OR R10-12F 30&quot;X 36&quot;</td>
<td>13.44</td>
<td>100</td>
</tr>
<tr>
<td>F</td>
<td>SIGN STREET NAME-FREE SWINGING-1.8 X 8</td>
<td>17.34</td>
<td>80</td>
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<tr>
<td>G</td>
<td>SIGNAL DUAL-12&quot;-3 SEC. W/ BACKPLATES</td>
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</tr>
<tr>
<td>H</td>
<td>SIGNAL DUAL-PEDESTRIAN</td>
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DESIGN CRITERIA:

AASHTO STANDARD SPECIFICATIONS
FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
(FATIGUE LOADS SPECIFIED IN CHAPTER 11 NOT REQUIRED.)

DESIGN MINIMUM YIELD STRENGTH FOR TUBULAR MEMBERS SHALL BE LIMITED TO 48,000 PSI FOR COLD WORKED MATERIALS AND 50,000 PSI FOR NON-COLD WORKED MATERIALS.

WIND VELOCITY:
90 MPH ISOTACH.
1. CONTRACTOR TO INSTALL RED LIGHT RUNNING INDICATORS, McCAIN MODELS M:1385 (RED) & M:1448 (BLUE), OR APPROVED EQUAL AS INDICATED BY THE TRAFFIC ENGINEER.

2. RED (THRU) INDICATOR SHALL BE MOUNTED 17' ABOVE POLE BASE PLATE AND BLUE (LEFT) INDICATOR SHALL BE MOUNTED 16' ABOVE POLE BASE PLATE AND SHALL FACE AWAY FROM ONCOMING TRAFFIC.

3. RED LIGHT RUNNING INDICATOR L.E.D. HOUSING SHALL BE FIELD ADJUSTED. PLEASE CONTACT THE TRAFFIC ENGINEER FOR COORDINATION.

4. CONTRACTOR SHALL WIRE INDICATORS DIRECTLY TO BUSS IN "J" BOX PER CALL OUT PHASING IN POLE SCHEDULE ON TRAFFIC SIGNAL PLANS.
NOTES:

1. CONTRACTOR MUST SUPPLY SHOP DRAWING FOR DESIGN APPROVAL.

2. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

3. HANDHOLE COVERS SHALL BE MOUNTED WITH TAMPER-RESISTANT SCREWS.

4. PHOTOEYE MAY NEED TO BE AFFIXED TO POLE CAP FOR STREET NAME SIGN ACTIVATION.

5. MULTI-SIDED POLE AND MAST ARM WITH A MINIMUM OF 16 SIDES MAY BE USED IF DIRECTED BY THE ENTITY ENGINEER.

POLES DESIGNED PER SPECIFICATION OF A.A.S.H.T.O., 90 MPH WINDS.

(SEE DRAWING NO. 808 SHEET 5 FOR LOADING INFORMATION)

FOR OTHER DETAILS SEE DRAWING NO. 808 SHEETS 2 & 6.
FOR "H" TYPE FOUNDATION SEE DRAWING NO. 721.
NOTES:

1. CONTRACTOR MUST SUPPLY SHOP DRAWING FOR DESIGN APPROVAL.

2. ALL POLES TO BE HOT-DIP GALVANIZED BY MANUFACTURER OR PRIME PAINTED BY MANUFACTURER AND FINISH PAINTED BY CONTRACTOR PER SPECIFICATIONS AND AS REQUIRED BY THE ENTITY.

3. HANDHOLE COVERS SHALL BE MOUNTED WITH TAMPER-RESISTANT SCREWS.

4. PHOTOEYE MAY NEED TO BE AFFIXED TO POLE CAP FOR STREET NAME SIGN ACTIVATION.

5. MULTI-SIDED POLE MAST ARM WITH A MINIMUM OF 16 SIDES MAY BE USED IF DIRECTED BY THE ENTITY ENGINEER.

POLES DESIGNED PER SPECIFICATION OF A.A.S.H.T.O., 90 MPH WINDS.

(SEE DRAWING NO. 808 SHEET 5 FOR LOADING INFORMATION)

FOR OTHER DETAILS SEE DRAWING NO. 808 SHTS. 4 & 6

FOR "L" TYPE FOUNDATION SEE DRAWING NO.722.

AGENCY APPROVED

B C H L M N

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPE XX-A-20 FT.
(50 FT. THRU 60 FT. MAST ARMS)
SIGNAL POLE

DATE 07-01-17 DWG. NO. 812 SHEET 2 OF 2
SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DATE 12-12-96
DWG. NO. 813
SHEET 1 OF 2

BASE ADAPTOR PLATE
FOR TYPE "H" FOUNDATION

1 3/16" HOLE, 4 REQD.
PIPE O.D.
1 1/2"
1/4" X 4" GUSSETS
- 4 REQUIRED

1/4" X 4" HOLE DIA.
4.50" - .003"

1 3/16" HOT-DIP GALV. ANCHOR BOLTS WITH
WITH TWO HOT-DIP GALV. HEX. HD. NUTS
AND WASHERS PER BOLT (4 REQD.) FOR
FOUNDATION, SEE DRAWING NO. 721

AGENCY APPROVED
B C H L M N
2" HOT-DIP GALV. ANCHOR BOLTS WITH TWO HOT-DIP GALV. HEX. HD. NUTS & WASHERS PER BOLT (4 REQD.) FOR FOUNDATION. SEE DRAWING NO. 722.

2" HOT-DIP GALV. ANCHOR BOLTS WITH TWO HOT-DIP GALV. HEX. HD. NUTS & WASHERS PER BOLT (4 REQD.) FOR FOUNDATION. SEE DRAWING NO. 722.
2-1/2" SCH. 40 PIPE (LENGTH 10'-0").

ANGLE BRACE

5/8" x 1-1/4" SQ. HD. CUP POINT SET SCREW.

3/4" CLEARANCE HOLE

2-1/2" SCH. 40 PIPE (LENGTH 10'-0").

ANGLE BRACE

5/8" x 1-1/4" SQ. HD. CUP POINT SET SCREW.

3/4" CLEARANCE HOLE

BACK BRACE ASSEMBLY

DETAIL A

LENGTH 10'-0"

SEE DETAIL A

SEE DETAIL A

SEE DRAWING NO. 818 FOR STREET NAME SIGN DETAILS.

NOTES:

1. COMPLETE BACK BRACE ASSEMBLY SHALL BE HOT-DIP GALVANIZED OR PRIME-PAINTED AS REQUIRED BY THE ENTITY.

2. COMPLETE BRACE ASSEMBLY SIMILAR TO PUMCO PART NO. 7.9-4, AND SHALL HAVE (4) FOUR BOLTS.

3. BRACE ASSEMBLY TO BE USED ON 30' POLES ONLY. TO BE MOUNTED 20' FROM POLE BASE.

4. WHEN VOLTAGE EXCEEDS 120V, A STEP-DOWN TRANSFORMER SHALL BE SUPPLIED.

5. STREET NAME SIGN WIRING TO RUN THROUGH TWO (2) SEAL-TITE 90° FITTINGS WITH LIQUID-TIGHT FLEXIBLE CONDUIT. USE A Drip LOOP SUFFICIENT ENOUGH TO ALLOW SIGN TO SWING FREELY.

AGENCY APPROVED

B C H L M N

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

STREETLIGHT POLE WITH ILLUMINATED STREET NAME SIGN

DATE 12-12-96

DWG. NO. 814
SEE DRAWING NO. 818 FOR STREET NAME SIGN DETAILS.

SEE DETAIL A FOR PIPE LENGTH.

SEE DETAIL A FOR PIPE LENGTH.

SEE DRAWING NO. 819 FOR BLOCK SIGN DETAILS.

DETAIL A

BACK BRACE ASSEMBLY

ANGLES 5/8" x 1-1/4" SQ. HD.
CUP POINT SET SCREW.

3/4" CLEARANCE HOLE

5/8" x 1-1/4" SQ. HD.
CUP POINT SET SCREW.

BACK BRACE ASSEMBLY

NOTE:

1. COMPLETE BACK BRACE ASSEMBLY SHALL BE HOT-DIP GALVANIZED OR PRIME-PAINTED AS REQUIRED BY THE ENTITY.

2. COMPLETE BRACE ASSEMBLY SIMILAR TO PUMCO PART NO. 7.9-1, AND SHALL HAVE (4) FOUR BOLTS.

3. BRACE ASSEMBLY TO BE USED ON 30' POLES ONLY. TO BE MOUNTED 24" FROM POLE BASE.

4. STREET NAME SIGN WIRING TO RUN THROUGH TWO (2) SEAL-TITE 90° FITTINGS WITH LIQUID-TIGHT FLEXIBLE CONDUIT. USE A DRIP LOOP SUFFICIENT ENOUGH TO ALLOW SIGN TO SWING FREELY.

AGENCY APPROVED

B C H L M N

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPE III POLE WITH ILLUMINATED STREET NAME SIGN

DATE 12-12-96  DWG. NO. 815
1. FOR TYPE XX POLE SPECIFICATIONS SEE DRAWING NO. 808.

2. STREET NAME SIGN WIRING TO RUN THROUGH TWO (2) SEAL-TITE 90° FITTINGS WITH LIQUID-TIGHT FLEXIBLE CONDUIT. USE A DRIP LOOP SUFFICIENT ENOUGH TO ALLOW SIGN TO SWING FREELY.
1. Overhead utility lines shall be clear of highest back plate on any given signal arm and lowest plate of street name sign.

2. Any utility cable being installed within the clearance shall need prior approval from the traffic engineering division who controls the right of way.

3. Parties shall coordinate and concur on cable and signal installations to avoid creation of crossing conflicts within this clearance zone.

Notes:
NOTES:
1. SIGN SHALL BE DOUBLE FACED.
2. ALUMINUM EXTRUSION CABINET 12" DEEP - MILL FINISH WITH ALL ALUMINUM INTERNAL STRUCTURE.
3. TOP-HINGED RETAINER SYSTEM WITH PROP ROD FOR ACCESS AND SERVICE.
4. T12 800MA CW/WHO FLUORESCENT ILLUMINATION INTERNALLY.
5. SIGN PANEL SHALL BE WHITE WIDE-ANGLE PRISMATIC TRANSLUCENT REFLECTIVE SHEETING, EITHER REVERSE-SCREENED WITH MANUFACTURERS RECOMMENDED GREEN INK AND CLEAR COATING OR OVERLAYED WITH GREEN ELECTRONIC CUTTABLE TRANSPARENT OVERLAY FILM, APPLIED TO A POLYCARBONATE CLEAR SUBSTRATE, 0.177" THICK.
6. LETTERS SHALL BE 8" SERIES E AND UNLESS OTHERWISE SPECIFIED BY THE TRAFFIC ENGINEER, SHALL BE ALL UPPERCASE WITH NO STREET NAME SUFFIX. IF NECESSARY TO MAKE SPACING FIT, REDUCE TO 8" SERIES D. SPACING BETWEEN LETTERS MAY BE INCREASED BY UP TO 25% (MAX) TO ACHIEVE 4" END SPACES.
7. STEEL BRACKETS SHALL BE USED FOR FLAG MOUNT POLE ATTACHMENT.
8. THE USE OF THE POLE MOUNTED STREET NAME SIGN SHALL BE APPROVED BY THE ENTITY ENGINEER.
ALUMINUM ANGLE WELDED TO INSIDE OF EXTRUDED CABINET
NUTS WELDED TO ANGLE
1/2" X 1 1/2" BOLTS
BRACKET FABRICATED FROM 3/8" PLATE STEEL
5/16" SET SCREWS INTO POLE

FLAG MOUNT ATTACHMENT DETAIL
NOT TO SCALE

TRAFFIC POLE

DIAMETER VARIES

3"
2.5"
1" GAP
4.25"
5"
1.75"
2.25" TYP.
7.5"

2"
.75"

BRACKET DETAIL
NOT TO SCALE

5/16" SET SCREWS INTO POLE

ALTERNATIVE POLE MOUNTED STREET NAME SIGN INTERNALLY ILLUMINATED ATTACHMENT DETAIL

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

DATE 11/10/05
DWG. NO. 818.1
SHEET 2 OF 3
INSTALLATION INSTRUCTIONS

- ATTACH BRACKETS ① TO CABINET END AT TOP AND BOTTOM WITH BOLTS PROVIDED LOSSELY TIGHTEN BOLTS (SNUG).
- LIFT CABINET WITH BRACKETS TO POLE AT FINISHED HEIGHT USING A NYLON LIFTING SNAP NEAR THE BRACKETS (WHERE BALANCED).
- ATTACH BRACKET HALVES ② TOGETHER AROUND POLE WITH PROVIDED HARDWARE AS SHOWN.
- MOVE LIFTING STRIP TO CENTER OF CABINET ③ LEVEL THEN TIGHTEN BOLTS INTO CABINET.
- ATTACH SET SCREWS ③ THROUGH BRACKET INTO POLE AS SHOWN.
- HOOK UP ELECTRICAL CONNECTION (SEE PAGE 2 FOR AN EXAMPLE).

WIRING RECOMMENDATIONS

- LOCATE ④ DRILL A 3/4" DIA. HOLE ④ THRU POLE. THREAD HOLE WITH 1/2" PIPE THREAD TAP.
- PULL WIRES FROM GROUND THRU TAPPED HOLE GUIDE WIRES TO AVOID SCRAPING INSULATION.
- ASSEMBLE LIQUID TIGHT 1/2" CONDUIT ⑤ FITTING ⑥ TO CONNECT POLE TO CABINET.
- FEED WIRES THRU CONDUIT ⑥ INTO CABINET, USE A 2X4 HANDY BOX INSIDE OF CABINET TO FACILITATE WIRE PULLING.
- AFTER FEEDING WIRES, THEN THREAD FITTINGS INTO THREADED HOLE IN POLE ⑥ CABINET.
- WIRE BALLAST INSIDE CABINET AS REQUIRED.

NOTE: THE STREET NAME SIGN SHALL BE MOUNTED 18" ABOVE THE MAST ARM
NOTE
THE BRACKET AND STRAP ARE OF THE BANDIT TYPE OR EQUIVALENT.
1. SIGN ASSEMBLY SHALL INCLUDE SIGN ENCLOSURE AND TWO SIGN PANELS.
2. TWO (2) ADVANCE BALLAST IOP-2P59-SC, OR AN APPROVED EQUIVALENT BY THE ENGINEER, SHALL BE INSTALLED FOR EACH SIGN ENCLOSURE.
3. SEE SHEETS 2 AND 3 FOR WIRING DIAGRAMS.
4. SEE SHEET 4 FOR SIGN PANEL DETAILS.
5. JAM NUT TO SECURE "L" BRACKET.

NOTES:

SECTION A-A

AL. REFLECTOR
LAMPHOLDER TURRET
3/4" WIDE, 0.03" THICK STAINLESS STEEL BANDS WITH EAR-LOCK BUCKLE
BANDABLE MOUNTING BRACKET (SEE SHT 5)
C-CLAMP SUPPORT
1/2" HEX HEAD BOLT WITH NUT & LOCK WASHER
1/2" JAM NUT
1/2": 3" HEX HD. BOLT.
COTTER PIN
1/2" SELF LOCKING HEX NUT
1/2" JAM NUT
1/2" -5" HEX HD. BOLT
CAST ALUM. HANGING BRACKET
1/2" DIA. STEEL ROD (ZINC PLATED)
MOUNTING BRACKET
STRAIN RELIEF CONNECTOR

SIGN PANEL
SCREW (NO WELDS) (TYP.)
AL. REFLECTOR
"L" BRACKET (SEE SHT 5)

3/4" HEX HEAD BOLT WITH NUT & LOCK WASHER
1/2" SELF LOCKING HEX NUT
1/2" x 5" HEX HD. BOLT
CAST ALUM. HANGING BRACKET
1/2" DIA. STEEL ROD (ZINC PLATED)
MOUNTING BRACKET
STRAIN RELIEF CONNECTOR

ALTERNATE DOUBLE BAND SUPPORT
ARM VARIES DIAMETER OF MAST
VARI

AGENCY APPROVED

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SUPPLEMENTAL DRAWING

ILLUMINATED STREET NAME SIGN
- ENCLOSURE

DATE 01-01-13

SPECIFICATION REFERENCE

DWG. NO. 818.S1

SHEET 1 OF 5
1. SIGN SHALL BE DOUBLE FACED.

2. SIGN PANELS SHALL BE FABRICATED OF CLEAR, IMPACT RESISTANT, ACRYLIC SHEETING WITH ALUMINUM FRAMING.

3. SIGN PANEL SHALL BE COVERED WITH WHITE, WIDE-ANGLE, TRANSLUCENT PRISMATIC TYPE XI REFLECTIVE SIGN FACE SHEETING, AND EITHER REVERSE-SCREENED WITH MANUFACTURER'S RECOMMENDED GREEN INK AND CLEAR COATING OR OVERLAID WITH GREEN ELECTRONIC CUTTABLE TRANSPARENT OVERLAY FILM.

4. SHEETING SHALL BE APPLIED IN A VERTICAL ORIENTATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.

5. SIGN PANEL SHALL BE CAPABLE OF WITHSTANDING WINDS OF 90 MPH OR GREATER WITHOUT DAMAGE OR SEPARATION FROM THE SIGN ENCLOSURE.

6. LETTERS FOR STREET NAMES SHALL BE 12" SERIES D, UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, AND SHALL BE UPPER AND LOWERCASE. IF NECESSARY TO MAKE SPACING FIT, 12" SERIES C LETTERS MAY BE USED. LOWER CASE LETTERS SHALL BE 9" IN HEIGHT. LETTERS FOR CARDINAL DIRECTION, STREET NAME SUFFIX, AND BLOCK NUMBER SHALL BE 5" SERIES C, AND SHALL BE IN ALL UPPER CASE.

7. APPROVAL OF SHOP DRAWING OF SIGNFACE LAYOUT BY THE ENGINEER IS REQUIRED PRIOR TO FABRICATION OF SIGN PANELS.
"L" Bracket

Bandable Mounting Bracket

Agency Approved

Specification Reference

Uniform Standard Drawings
Clark County Area

Supplemental Drawing

Illuminated Street Name Sign
- Mounting Brackets

Date: 01-01-13

DWG. NO. 818.S1

Sheet 5 of 5
1. N, E, S, or W required on all block number signs with a space between the letter and the numbers. (i.e. W 6900)

2. Street name sign wiring to run through two (2) Seal-Tite 90° fittings with liquid-tight flexible conduit. Use a drip loop sufficient enough to allow sign to swing freely.

SEE DRAWING NO. 818 FOR STREET NAME SIGN DETAILS
NOTES:

1. COMPLETE ASSEMBLY SHALL BE HOT-DIP GALVANIZED OR PRIME-PAINTED AS REQUIRED BY THE ENTITY.

2. COMPLETE ASSEMBLY SIMILAR TO PUMCO PART NO. 207-7-9-

3. THIS ASSEMBLY TO BE USED ON EXISTING 30' POLES ONLY.

HALF CLAMP SIMILAR TO PUMCO PART NO. 7-9-9

HALF CLAMP SIMILAR TO PUMCO PART NO. 207-9-9

1/4" CLEARANCE HOLE

5/8" x 1-1/4" SQ. HD. CUP POINT SET SCREW.

3/4" CLEARANCE HOLE

DATE 12-12-96

DWG. NO. 821

SHEET 1 OF 2
(4) 1/2" - 13 N.C. X 2" HEX HEAD Mach. Bolts w/(4) 1/2" - 13 N.C. Hex. Nuts (Galv. Ed.)

Clamp Range 3 3/4" to 4" O.D.

2" Std. Pipe (2.375" O.D.)

Bracket Rating
Max. Luminaire Area  2.7 ft²
Max. Luminaire Wt.  57 lbs.

Agency Approved

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<tr>
<td></td>
<td>RETROFIT STREETLIGHT</td>
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<td>MAST ARM</td>
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<td>2 OF 2</td>
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</table>
(4) 1/2" - 13 N.C. X 2" HEX HEAD MACH. BOLTS W/(4) 1/2" - 13 N.C. HEX. NUTS (GALVANIZED)

CLAMP RANGE
3 3/4" TO 4" O.D.

8" SPAN (NOM.)

12" STRAIGHT

21.7/8" R.

2" STD. PIPE
(2.375" O.D.)

44°

4°

 Clara Pole

EXISTING ROUND STEEL POLE
W/ SIMPLEX ATTACHMENT

EXISTING ARM ATTACHMENT
(ONE BOLT SIMPLEX)
USE FOR WIRING ENTRANCE

BRACKET RATING
MAX. LUMINAIRE AREA = 2.7 FT²
MAX. LUMINAIRE WT. = 57 LBS.

RETROFIT STREETLIGHT
MAST ARM
SPECIAL NOTE: POLE SHALL NOT BE DRILLED FOR CLAMSHELL UNTIL AFTER INSTALLATION OF POLE.

TRAFFIC SIGNAL HEADS = 10'-0"  
PEDESTRIAN HEADS = 7'-0"

MESSAGE HEADS AND 2 COLOR PUSH BUTTON

TRAFFIC SIGNAL HEADS = 10'-0"  
PEDESTRIAN HEADS = 7'-0"  
(EXCEPT LEFT TURN)

NOTES:
1. DRILLING OF POLE TO BE ORIENTED ACCORDING TO POLE LAYOUT, SPECIFICATIONS, AND ENGINEER.
2. DIMENSIONS ARE FROM CURB LEVEL.
3. DIMENSIONS ARE TO WIRE INLET HOLE ONLY. USE MANUFACTURER'S TEMPLATE TO LOCATE ALL OTHER HOLES.
4. ALL HOLES ARE TO CONFORM TO MANUFACTURER'S RECOMMENDATIONS.

AGENCY APPROVED   B   C   H   L   M   N

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

POLE DRILLING DETAILS

DATE   DWG. NO.  823
ISLAND SIGNAL POLE
DETAILS FOR 10 FT. POLE

1/2" - 13 NC HEX.
HEAD BOLT & NUT
CADMIUM - PLATED
OR GALVANIZED

DRILL 9/16"
HOLES

FLAT WASHER

WASHERS CURVED
TO FIT STANDARD

SIGNAL ASSEMBLY A-10T

SIGNAL ASSEMBLY B-10

DRAWING NO. 806

10' MIN.
TO NOSE OF ISLAND

4'-6"
3'-8"
2 1/2"
2 1/2"

TYPE 1-A STANDARD

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

ISLAND SIGNAL POLE
DETAILS FOR 10 FT. POLE

DATE

DWG. NO. 824
NOTE:

FOR POLE LOCATION ON RIGHT TURN ISLAND SEE DRAWING NO. 887.
OVERLAP ALL CUTS TO MAINTAIN FULL SLOT DEPTH FOR WIRES

SEE PLANS

3/8" X 2" MIN.

A-A

A-A (AFTER INSTALLATION)

TO PULL BOX IN ISLAND

TO PULL BOX IN SIDEWALK

SEE PLANS

DIRECTION OF TRAVEL

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

SAWCUT DETAILS

FOR INDUCTION LOOPS
4" HOLE, FILL WITH SAND TO WITHIN 1 INCH OF TOP. TOP 1 INCH TO BE FILLED WITH EPOXY.

NOTE:
PATCH SLOT AND HOLE WITH EPOXY, REMOVE OVERFLOW BEFORE IT HARDENS.
1. 4 turns of wire shown. Always install 4 turns of cable in duct unless otherwise specified on the plans. Winding direction shall be indicated on wire.

**NOTE:**

- See drawing no. 827 for method of installing pull box.
- See plans for method of installing pull box.
- See drawing no. 826 for sawcut details.

**SAWCUT DIAGRAM**

- Depth to allow 3/4" from top wire to surface.
- 3/8" depth to allow 3/4" from top wire to surface.

**SECTION A-A**

**SECTION B-B**

**WIRING DIAGRAM**

**PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE**

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<th>SPECIFICATION REFERENCE</th>
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<th>B</th>
<th>C</th>
<th>H</th>
<th>L</th>
<th>M</th>
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<tr>
<td>ONE INDUCTION LOOP FOR ONE TRAVEL LANE</td>
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**DATE**  **DWG. NO.**  828
2 turns of wire shown. Always install 2 turns of cable in duct unless otherwise specified on plans. Winding direction shall be indicated on wire.

See drawing no. 827 for method of installing pull box.

See drawing no. 826 for sawcut details.

See plans for method of installing pull box.

NOTE:

Winding direction shall be indicated on wire.

Depth to allow 3/4" from top wire to surface.

3/8"
NOTE:
2 TURNS OF WIRE SHOWN. ALWAYS INSTALL 2 TURNS OF CABLE IN DUCT UNLESS OTHERWISE SPECIFIED ON PLANS. WINDING DIRECTION SHALL BE INDICATED ON WIRE.

WINDING DIRECTION

DIRECTION OF TRAVEL

A

A

SEE PLANS

A-A

DIRECTION OF TRAVEL

FOR METHOD OF INSTALLING PULL BOX

SEE DRAWING NO. 827

3/8"

DEPTH TO ALLOW 3/4" FROM TOP WIRE TO SURFACE

A-A

Sawcut Details

SEE DRAWING NO. 827

FOR SAWCUT DETAILS.

B-B

3/8"

DEPTH TO ALLOW 3/4" FROM TOP WIRE TO SURFACE

SAWRCUT DIAGRAM

WIRING DIAGRAM

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED

B  C  H  L  M  N

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

TWO INDUCTION LOOPS

FOR TWO TRAVEL LANES

DATE  DWG. NO.  SHEET

829  2 OF 2
NOTE:
2 TURNS OF WIRE SHOWN. ALWAYS INSTALL 2 TURNS OF CABLE IN DUCT UNLESS OTHERWISE SPECIFIED ON PLANS. WINDING DIRECTION SHALL BE INDICATED ON WIRE.

SEE DRAWING NO. 827 FOR METHOD OF INSTALLING PULL BOX

WIRING DIAGRAM

DIRECTION OF TRAVEL

DEPTH TO ALLOW 3/4" FROM TOP WIRE TO SURFACE.

3/8"

SAWCUT DIAGRAM

SEE DRAWING NO. 826 FOR SAWCUT DETAILS.

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE
2 turns of wire shown. Always install 2 turns of cable in duct unless otherwise specified on plans. Winding direction shall be indicated on wire.
2 TURNS OF WIRE SHOWN. ALWAYS INSTALL 2 TURNS OF CABLE IN DUCT UNLESS OTHERWISE SPECIFIED ON PLANS. WINDING DIRECTION SHALL BE INDICATED ON WIRE.

NOTE:

SEE DRAWING NO. 827 FOR METHOD OF INSTALLING PULL BOX.

SEE PLANS 48' MAX

DIRECTION OF TRAVEL

DEPTH TO ALLOW 3/4" FROM TOP WIRE TO SURFACE.

WIRING DIAGRAM

SAWCUT DIAGRAM

SEE DRAWING NO. 826 FOR SAWCUT DETAILS.
NOTE:
2 turns of wire shown. Always install 2 turns of cable in duct unless otherwise specified on plans. Winding direction shall be indicated on wire.

Winding direction shall be indicated on wire.

See drawing no. 827 for method of installing pull box.

Depth to allow 3/4" from top wire to surface.

Depth to allow 3/4" from top wire to surface.

See drawing no. 826 for sawcut details.

See drawing no. 826 for sawcut details.

Professional electrical engineer stamp on file.

Agency approved.

Four induction loops for four travel lanes.

Uniform standard drawings.

Clark county area.

Four induction loops for four travel lanes.

Date: DWG. NO. 831

Sheet 2 of 2
1. 4 TURNS OF WIRE SHOWN. ALWAYS INSTALL 4 TURNS OF CABLE IN DUCT UNLESS OTHERWISE SPECIFIED ON THE PLANS. WINDING DIRECTION SHALL BE INDICATED ON WIRE.

2. TRAFFIC ENGINEER SHALL ESTABLISH LATERAL LOCATIONS ON ROADS WITHOUT MARKED LANES.

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<td>1. 4 TURNS OF WIRE SHOWN. ALWAYS INSTALL 4 TURNS OF CABLE IN DUCT UNLESS OTHERWISE SPECIFIED ON THE PLANS. WINDING DIRECTION SHALL BE INDICATED ON WIRE.</td>
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<td>2. TRAFFIC ENGINEER SHALL ESTABLISH LATERAL LOCATIONS ON ROADS WITHOUT MARKED LANES.</td>
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**WIRING DIAGRAM**

- WINDING DIRECTION
- DIRECTION OF TRAVEL

**SAWCUT DIAGRAM**

- DEPTH TO ALLOW 3/4" FROM TOP WIRE TO SURFACE.

**PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE**

**SPECIFICATION REFERENCE**

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**THREE INDUCTION LOOPS FOR THREE TRAVEL LANES**

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1. Front of the loop must extend into the crosswalk 2' to 4'.
2. Insulation test for each loop to ground must not read less than 50 meg Ohms to infinity. (Using Megger)
3. Use color coded 4 turn cable in duct as shown.
4. See drawing no. 836 for wiring connections.

**NOTES:**

- See drawing no. 836 for wire connections.
- See drawing no. 826 for sawcut details.

**WIRING DIAGRAM**

- Direction of travel

**PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE**

**SPECIFICATION REFERENCE**

- Uniform Standard Drawings
- Clark County Area

**MULTIPLE LOOP SYSTEM FOR THRU LANE**

**DATE** 12-12-96  **DWG. NO.** 833
1. FRONT OF THE LOOP MUST EXTEND IN THE CROSSWALK 2' TO 4'.
2. INSULATION TEST FOR EACH LOOP TO GROUND MUST NOT READ LESS THAN 50 MEG OHMS TO INFINITY. (USING MEGGER)
3. USE COLOR CODED 4 TURN CABLE IN DUCT AS SHOWN.

NOTES:

- SEE DRAWING NO. 827 FOR METHOD OF INSTALLING PULL BOX
- ALL WIRES INTO PULL BOX MUST BE TAGGED AND WINDING DIRECTION SHALL BE MARKED.
- SEE DRAWING NO. 836 FOR WIRE CONNECTIONS.
- SEE DRAWING NO. 826 FOR SAWCUT DETAILS.
NOTES:
1. FOR ALL LOOPS, TWO TURNS ARE REQUIRED.
2. FRONT OF LOOP MUST EXTEND IN THE CROSSWALK 2' TO 4'.
SEE DRAWING NO. 834 FOR LOOP LAYOUT

1A

RED

2

BLUE

2A

3

YELLOW

3A

4

WHITE

4A

TO CONTROLLER

SEE DRAWING NO. 833 FOR LOOP LAYOUT

3A

YELLOW

3

2A

2

BLUE

1A

1

RED

FROM CONTROLLER

4

WHITE

4A

5

RED

5A

BLUETO CONTROLLER

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

AGENCY APPROVED A

B C H L M N

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

WIRE DIAGRAMS FOR MULTIPLE LOOP SYSTEMS FOR LEFT TURN POCKET AND THRU LANE

DATE 12-12-96 DWG. NO. 83

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE
1. Insulation for each loop must not read less than 50 meg ohms to infinity. (Using Megger)
2. Use color coded 4 turn cable in duct as shown.
3. Front of loop must extend in the crosswalk 2' to 4'.

Notes:
1. Insulation for each loop must not read less than 50 meg ohms to infinity. (Using Megger)
2. Use color coded 4 turn cable in duct as shown.
3. Front of loop must extend in the crosswalk 2' to 4'.

See Drawing No. 827 for method of installing pull box. All wires to pull box must be tagged and winding direction shall be marked.

Agency Approved

Specification Reference

Wiring Diagram

2" Min. Slot Depth

Direction of Travel

Sawcut Diagram
NOTES:
1. AT LOCATIONS WHERE "WALK" "DON'T WALK" SIGNALS ARE PROVIDED, PROVIDE BLACK LETTERING ON A WHITE BACKGROUND ON PORCELAIN SIGNS.
2. AT LOCATIONS WHERE "SYMBOLIC" SIGNALS ARE PROVIDED, PROVIDE WHITE FIGURES ON A BLACK BACKGROUND.
3. MOUNTING SURFACE FOR THE SIGNS SHALL BE 9" X 12".

NOTES:
1. CAST ALUMINUM HOUSING.
2. PAINT COLOR SHALL MATCH SIGNAL HOUSING.

---

**PEDESTRIAN PUSH BUTTON DETECTORS**

**AGENCY APPROVED**
1. All traffic signal backplates shall have a 2-inch retroreflective adhesive sheeting border on the entire outer perimeter of the front side of the backplate.
2. Retroreflective sheeting shall be fluorescent yellow, ASTM D4956-13 Type XI or better.
3. The retroreflective sheeting border shall have a minimum of 0.5" clearance from all louvers. No retroreflective sheeting shall be placed over any louvered area.
4. Retroreflective sheeting border shall be installed by the manufacturer, and modifications shall not be made by the contractor.
5. The back plate with retroreflective sheeting border shall be from the same manufacturer as the signal head assembly. The complete head assembly, including the backplate, shall be capable of withstanding winds of 90 MPH without damage or separation of any parts from the signal head assembly.

Notes:

**DIMENSIONS AND ATTACHMENT METHODS**

VARY PER MANUFACTURE

**BORDER WIDTH**

5-INC (TYP.)

**2" YELLOW RETROREFLECTIVE BORDER LINE ADHESIVE SHEETING**

**1/2" CLEARANCE (MIN.)**

**PAINT:** FLAT BLACK

**3-SECTION ASSEMBLY**

**4-SECTION ASSEMBLY**

**NOTES:**

AGENCY APPROVED

B C H L M N

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS

CLARK COUNTY AREA

LOUVERED BACKPLATE FOR

MAST ARM MOUNTED SIGNAL

DATE 07-01-17

DWG. NO. 840
1. All traffic signal backplates shall have a 2-inch retroreflective adhesive sheeting border on the entire outer perimeter of the front side of the backplate.

2. Retroreflective sheeting shall be fluorescent yellow, ASTM D4956-13 Type Xi or better.

3. The retroreflective sheeting border shall have a minimum of 0.5" clearance from all louvers. No retroreflective sheeting shall be placed over any louvered area.

4. Retroreflective sheeting border shall be installed by the manufacturer, and modifications shall not be made by the contractor.

5. The back plate with retroreflective sheeting border shall be from the same manufacturer as the signal head assembly. The complete head assembly, including the backplate, shall be capable of withstanding winds of 90 MPH without damage or separation of any parts from the signal head assembly.
NOTES:

1. ALL TRAFFIC SIGNAL BACKPLATES SHALL HAVE A 2-INCH RETROREFLECTIVE ADHESIVE SHEETING BORDER ON THE ENTIRE OUTER PERIMETER OF THE FRONT SIDE OF THE BACKPLATE.
2. RETROREFLECTIVE SHEETING SHALL BE FLUORESCENT YELLOW, ASTM D495-13 TYPE XI OR BETTER.
3. THE RETROREFLECTIVE SHEETING BORDER SHALL HAVE A MINIMUM OF 0.5" CLEARANCE FROM ALL LOUVERS. NO RETROREFLECTIVE SHEETING SHALL BE PLACED OVER ANY LOUVERED AREA.
4. RETROREFLECTIVE SHEETING BORDER SHALL BE INSTALLED BY THE MANUFACTURER, AND MODIFICATIONS SHALL NOT BE MADE BY THE CONTRACTOR.
5. THE BACK PLATE WITH RETROREFLECTIVE SHEETING BORDER SHALL BE FROM THE SAME MANUFACTURER AS THE SIGNAL HEAD ASSEMBLY. THE COMPLETE HEAD ASSEMBLY, INCLUDING THE BACKPLATE, SHALL BE CAPABLE OF WITHSTANDING WINDS OF 90 MPH WITHOUT DAMAGE OR SEPARATION OF ANY PARTS FROM THE SIGNAL HEAD ASSEMBLY.
PAINT: FLAT BLACK
SHOWN 5 SECTION, 12" SIGNAL HEAD BACKPLATE WITH ELEVATOR PLUMBIZER
REFER TO DRAWING NO. 863
1. All signals are 12" nominal.
2. For itemized parts, see drawing no. 845.
3. For arrow lens see drawing no. 890.
1. All signals are 12" nominal.
2. For itemized parts, see drawing no. 845.
3. For arrow lens see drawing no. 890.
1. All signals are 12" nominal.
2. For itemized parts, see drawing no. 845.
3. For arrow lens see drawing no. 890.

Notes:

Agencies approved

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<th>BRACKET MOUNT</th>
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Date 07-01-14
Drawn No. 844
Sheet 1 of 2
1. ALL SIGNALS ARE 12" NOMINAL.
2. FOR ITEMIZED PARTS, SEE DRAWING NO. 845.
3. FOR ARROW LENS SEE DRAWING NO. 890.

NOTES:

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AGENCY APPROVED

DATE 07-01-14  DWG. NO. 844  SHEET 2 OF 2
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<td>2.</td>
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<td>3.</td>
<td>POLE PLATE WITH WIRE GUIDE</td>
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<td>4.</td>
<td>2-WAY TIE BRACE</td>
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<td>4-WAY TIE BRACE</td>
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<td>8.</td>
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<td>9.</td>
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<td>878</td>
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<tr>
<td>10.</td>
<td>MALLEABLE ELBOW/SIDE OUTLET/REAMED/SET SCREW</td>
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<td>MALLEABLE TEE, REAMED/SET SCREW</td>
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<tr>
<td>12.</td>
<td>MALLEABLE TEE/SIDE OUTLET, REAMED/SET SCREW</td>
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<td>13.</td>
<td>MALLEABLE CROSS, REAMED/SET SCREW</td>
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<td>4-WAY CENTER HUB</td>
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<tr>
<td>17.</td>
<td>SIDE BRACKET MOUNTED ADAPTER WITH TERMINAL COMPT.</td>
<td>880</td>
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<td>18.</td>
<td>POST TOP MOUNTED ADAPTER WITH TERMINAL COMPT.</td>
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<td>LOCKING RING</td>
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<td>21.</td>
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<td>22.</td>
<td>LOCKING NIPPLE</td>
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<td>23.</td>
<td>POLE PLATE</td>
<td>873</td>
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<tr>
<td>24.</td>
<td>1-1/2&quot; MENERALLAC STRAP OR APPROVED EQUAL</td>
<td>8.3</td>
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</table>
1. ALL SIGNALS ARE 12" NOMINAL (GLASS).
2. FOR ITEMIZED PARTS, SEE DRAWING NO. 845.

NOTES: AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SIGNAL ASSEMBLIES
A-1, A-2T, A-3
1. All signals are 12" nominal (glass).
2. For itemized parts, see drawing no. 845.

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DATE: 847

| DATE | DWG. NO. | 847 |
1. ON LOWER ASSEMBLY, ALL INDICATIONS ARE 12" NOMINAL (GLASS).

2. SEE DRAWING NO. 890 FOR ARROW LENS.

3. ON TOP ASSEMBLY, USE M-3 WITH BACKPLATE.

4. SEE STANDARD SPECIFICATIONS FOR PROGRAMMED VISIBILITY HEAD.

5. SEE DRAWING NO. 845 FOR ITEMIZED PARTS.

☐ SEE SIGNAL PLANS FOR R OR RED ARROW INDICATION.
NOTES:
1. PROVIDE BACKPLATE ON A-8T.
2. ALL INDICATIONS ARE 12" NOMINAL (GLASS).
3. SEE DRAWING NO. 890 OR ARROW LENS.
4. SEE DRAWING NO. 845 FOR ITEMIZED PARTS.
5. SEE SIGNAL PLANS FOR R OR RED ARROW INDICATION.
NOTES:
1. SEE DRAWING NO. 845 FOR ITEMIZED PARTS.
2. SEE STANDARD SPECIFICATIONS FOR PROGRAMMED VISIBILITY HEAD.
3. SEE SIGNAL PLANS FOR R OR RED ARROW INDICATION.

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SIGNAL ASSEMBLIES
A-10T, A-11T

DATE 2-11-93 DWG. NO. 850
NOTES:

1. FOR ITEM: ED PARTS SEE DRAWING NO. 845.
2. FOR ARROW LENS SEE DRAWING NO. 890.
3. PROVIDE BACKPLATE ON A-13T ONLY.
4. ALL SIGNALS ARE 12" NOMINAL (GLASS).
1. All signals are 12" nominal (glass).
2. For item: ed parts, see drawing no. 845.
3. For arrow lens see drawing no. 890.
4. See plans for backplate requirements.

Notes:

A-15T

A-14T

Agency approved

Agency approved
NOTES:

1. ALL SIGNALS ARE 12" NOMINAL (GLASS).
2. FOR ITEMIZED PARTS SEE DRAWING NO. 845.
3. FOR ARROW LENS SEE DRAWING NO. 890.
4. SEE PLANS FOR BACKPLATE REQUIREMENTS.
5. OPTIONAL 3" CUTOFF LOUVERS ON RED, YELLOW AND GREEN BALL INDICATIONS MAY BE PROVIDED AS DIRECTED BY THE TRAFFIC ENGINEER.
NOTES:
1. FOR ITEMIZED PARTS SEE DRAWING NO. 845.
2. FOR ARROW LENS SEE DRAWING NO. 890.
3. SEE PLANS FOR BACKPLATE REQUIREMENTS.
4. ALL SIGNALS ARE 12” NOMINAL (GLASS).
PROVIDE LOUVERED BACKPLATE
SIMILAR TO DRAWING 840

NOTES:
1. ALL SIGNALS ARE 12" NOMINAL (GLASS)
2. FOR ITEMIZED PARTS, SEE DRAWING 845.

PROGRAMMED VISIBILITY HEADS
M-3A

STANDARD 12" SIGNAL HEADS
M-2A

AGENCY APPROVED

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

MAST ARM SIGNAL ASSEMBLIES
M-2A, M-3A

DATE
DWG. NO. 855
NOTES:

1. SEE STANDARD SPECIFICATIONS FOR PROGRAMMED VISIBILITY HEAD.
2. ALL M-2 INDICATIONS ARE 12" NOMINAL (GLASS).
3. SEE DRAWING NO. 845 FOR ITEMIZED PARTS.
4. SEE SIGNAL PLANS FOR BALL OR ARROW INDICATIONS.
PROVIDE LOUVERED BACKPLATE SIMILAR TO DRAWING 840

NOTES:
1. ALL SIGNALS ARE 12" NOMINAL.
2. FOR ITEMIZED PARTS, SEE DRAWING 845.
SIGNAL ASSEMBLIES
B-1T, B-2T, B-3T

NOTES:
1. SEE DRAWING NO. 845 FOR ITEMIZED PARTS.
2. SEE DRAWING NO. 890 FOR ARROW LENS.
3. ALL INDICATIONS ARE 12" NOMINAL. SEE SUB-SECTION 23 T.02.08 FOR SPECIFICATIONS.
4. SEE SIGNAL PLANS FOR BACKPLATE REQUIREMENTS.
5. SEE SIGNAL PLANS FOR R OR RED ARROW INDICATION.
6. ALL BOTTOM NIPPLES ARE 18" AND TOP NIPPLES ARE 18 1/2".

AGENCY APPROVED

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<td>SIGNAL ASSEMBLIES B-1T, B-2T, B-3T</td>
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DATE: 10-9-08  DWG. NO. 858
NOTES:
1. SEE DRAWING NO. 845 FOR ITEMIZED PARTS.
2. SEE DRAWING NO. 890 FOR ARROW LENS.
3. ALL INDICATIONS ARE 12" NOMINAL (GLASS).
4. SEE SIGNAL PLANS FOR BACKPLATE REQUIREMENTS.
5. SEE SIGNAL PLANS FOR R OR RED ARROW INDICATION.
   □ ALL BOTTOM NIPPLES ARE 18" AND TOP NIPPLES ARE 18 1/2".

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

SIGNAL ASSEMBLIES
B-5T, B-6T

DATE 2-11-93 DWG. NO. 859
NOTES:
1. FOR ITEMIZED PARTS, SEE DRAWING NO. 845.
2. FOR ARROW LENS SEE DRAWING NO. 890.
3. ALL SIGNALS ARE 12" NOMINAL (GLASS) UNLESS NOTED.
NOTES:

1. SEE DRAWING NO. 845 FOR ITEMIZED PARTS.

2. SEE STANDARD SPECIFICATIONS FOR PROGRAMMED VISIBILITY HEADS.

3. SEE SIGNAL PLANS FOR BACKPLATE REQUIREMENTS.

4. SEE SIGNAL PLANS FOR R OR RED ARROW INDICATION.

5. ALL BOTTOM NIPPLES ARE 18" AND TOP NIPPLES ARE 18 1/2".
NOTES:
1. FOR ITEMIZED PARTS SEE DRAWING NO. 845.
2. FOR ARROW LENS SEE DRAWING NO. 890.
3. SEE PLANS FOR BACKPLATE REQUIREMENTS.
4. ALL SIGNALS ARE 12" NOMINAL. SEE SUB-SECTION 23 T.02.08 FOR SPECIFICATIONS.
5. OPTIONAL 3° CUTOFF LOUVERS ON RED, YELLOW AND GREEN BALL INDICATIONS ON 5-SECTION HEADS MAY BE PROVIDED AS DIRECTED BY THE TRAFFIC ENGINEER.
NOTES:
1. ALL SIGNALS ARE 12" NOMINAL (GLASS).
2. FOR ITEMIZED PARTS SEE DRAWING 845.
3. FOR ARROW LENS SEE DRAWING 890.
4. SEE PLANS FOR BACKPLATE REQUIREMENTS.
5. OPTIONAL 3" CUT-OFF LOUVERS ON RED, YELLOW AND GREEN BALL INDICATIONS ON 5-SECTION HEADS MAY BE PROVIDED AS DIRECTED BY THE TRAFFIC ENGINEER.
NOTES:

1. ALL BACKPLATES SHALL BE LOUVERED.
2. ALL LENSES SHALL BE GLASS.
3. OPTIONAL 3" CUTOFF LOUVERS ON RED, YELLOW AND GREEN BALL INDICATIONS MAY BE PROVIDED AS DIRECTED BY THE TRAFFIC ENGINEER.

LEFT TURN
YIELD ON GREEN

POST MOUNTING

AGENCY APPROVED B C H L M N

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA

PROTECTED / PERMISSIVE M-5 SIGNAL HEADS

DATE 5-12-94 DWG. NO. 8.5 SHEET 1 OF 4
NOTES:

1. ALL BACKPLATES SHALL BE LOUVERED.
2. ALL LENSES SHALL BE GLASS.
3. OPTIONAL 3" CUTOFF LOUVERS ON RED, YELLOW AND GREEN BALL INDICATIONS MAY BE PROVIDED AS DIRECTED BY THE TRAFFIC ENGINEER.

MAST ARM MOUNTING

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

PROTECTED / PERMISSIVE
M-5 SIGNAL HEADS

DATE 5-12-94  DWG. NO. 8:5  SHEET 2 OF 4
BACKPLATE TO MATCH ORDER PART NO. E 2074
NOTES:
UNLESS OTHERWISE SPECIFIED

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPE M-5 ASSEMBLIES
AND PARTS LIST

DATE  DWG. NO.  8.5  SHEET  3 OF 4
## FW 2933 AND SIGNAL ASSEMBLY

FRAMEWORK -- CLUSTER MOUNTING
1 WAY, 5 COL., 12" ALUMINUM SIGNAL
WITH ELEVATOR PLUMBIZER

<table>
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<td>3</td>
<td>E2051P1</td>
<td>BOTTOM BRACKET</td>
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<td>ADAPTOR RING</td>
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**Specification Reference**

**Uniform Standard Drawings**

**Clark County Area**

**Type:** M-5 Assemblies

**And Parts List**

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<td>8:5</td>
<td>4 OF 4</td>
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</table>
1. FOR GENERAL SPECIFICATIONS SEE TRAFFIC SIGNAL PLANS.
2. FOR ITEMIZED PARTS, SEE DRAWING NO. 845.
3. THE HAND SYMBOL (DON'T WALK) IS PORTLAND ORANGE AND HUMAN SYMBOL (WALK) IS LUNAR WHITE.

NOTES:

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SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

PEDESTRIAN SIGNAL ASSEMBLIES
W-0T, W-1, W-2T, W-3T, W-1T

DATE 12-12-96
DWG. NO. 810
NOTE: TAMPER-PROOF SCREWS TO BE USED.

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

PEDESTRIAN PUSH BUTTON
SIGN DETAIL

DATE 08-09-18  DWG. NO.  8.7
NOTES:

1. ALL BACKPLATES SHALL BE LOUVERED.
2. ALL LENSES SHALL BE GLASS.
3. OPTIONAL 3" CUTOFF LOUVERS ON RED, YELLOW AND GREEN BALL INDICATIONS MAY BE PROVIDED AS DIRECTED BY THE TRAFFIC ENGINEER.
VISORS (FOR 8" HEADS)

PAINT: FLAT BLACK ON INSIDE, OUTSIDE PAINT COLOR SHALL MATCH SIGNAL HOUSING.
STANDARD FULL CIRCLE VISOR

12" NOMINAL
12" NOM.

LEFT ANGLE-SHOWN
RIGHT ANGLE-REVERSE

STANDARD ANGLE VISOR

12" NOM.

DIRECTIONAL LOUVERS
PAINT: FLAT BLACK

VISORS (FOR 12" HEADS)
PAINT: FLAT BLACK ON INSIDE,
OUTSIDE PAINT COLOR SHALL
MATCH SIGNAL HOUSING.
SIDE VIEW

FRONT VIEW

SECTION A-A

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

GEOMETRICALLY PROGRAMMED LOUVER

AGENCY APPROVED

B

C

H

L

M

N

DATE

DWG. NO.

870

SHEET

3 OF 3
NOTE:
ALL BOLTS, NUTS AND WASHERS SHALL BE BRASS OR STAINLESS STEEL.
SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

MISCELLANEOUS SIGNAL MOUNTING HARDWARE

- LOCKING RING - 1/2 PIN
  - MATERIAL: BRONZE

- ORNAMENTAL CAP
  - DIE CAST ALUMINUM
  - PAINT COLOR SHALL MATCH SIGNAL HOUSING

- LOCKING NIPPLE

- TIE BRACE, FERROUS, 2 WAY
  - PAINT COLOR SHALL MATCH SIGNAL HOUSING

- TIE BRACE, FERROUS, 3 WAY
  - PAINT COLOR SHALL MATCH SIGNAL HOUSING

- TIE BRACE, FERROUS, 4 WAY
  - PAINT COLOR SHALL MATCH SIGNAL HOUSING

- 72 TEETH - 1/2" HIGH ALL AROUND

DATE          DWG. NO.          SHEET
-------------- ------------- -------

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

MISCELLANEOUS SIGNAL MOUNTING HARDWARE

FERROUS SPECIAL TEE
PAINT COLOR SHALL MATCH SIGNAL HOUSING

FERROUS SPECIAL ELBOW
PAINT COLOR SHALL MATCH SIGNAL HOUSING

POST TOP MOUNTED BRACKET WITH SERRATED OFFSET MOUNT.
(USE FOR ALL POST TOP MOUNTINGS NOT REQUIRING SIDE PORTS)
MATERIAL: BRONZE
PAINT COLOR SHALL MATCH SIGNAL HOUSING

72 TEETH - 1/16" HIGH ALL AROUND
1-1/2" PIPE THREAD

72 TEETH - 1/16" HIGH ALL AROUND
1-1/2" PIPE THREAD

1-1/2" PIPE THREAD

4-1/2" INSIDE
4-5/8" INSIDE

4-5/8" INSIDE
4-1/2" INSIDE

AGENCY APPROVED
B C H L M N

DATE DWG. NO. SHEET
874 2 OF 2
NOTES:
1. MATERIAL-BRONZE
2. PAINT COLOR SHALL MATCH SIGNAL HOUSING
3. PROVIDE WASHERS SHOWN AND 1/2" PLATED BOLTS, LENGTH FOR STEEL POLE MOUNTING.

1-1/2" PIPE THREADS

3/8" R (TYP.)

5/8" HOLE

CURVED WASHER

NOTES: DO NOT PROVIDE UNLESS SPECIFIED ON THE PLANS.
NOTES:
1. MATERIAL - BRONZE
2. PAINT COLOR SHALL MATCH SIGNAL HOUSING

SPECIFICATION REFERENCE
UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

ELEVATOR PLUMBIZER

2" DIA.
SLOTTED HOLE FOR 3/8" THRU BOLT BOTH SIDES

CADMIUM PLATED STEEL
3-3/8" X 3/4" SQ. HD.
SET SCREWS

2-3/4"
1. MATERIAL - BRONZE.
2. PAINT COLOR SHALL MATCH SIGNAL HOUSING.
3. PROVIDE WASHERS SHOWN AND 1/2" PLATED BOLTS, LENGTH FOR STEEL POLE MOUNTING.

NOTES:

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

POLE PLATE
WITH WIRE GUIDE DETAILS

AGENCY APPROVED

DATE

DWG. NO.

87
LIST OF MATERIALS

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<tr>
<th>ITEM</th>
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<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1.</td>
<td>2</td>
<td>1/4&quot; - 20 UNC-2A X 3/8&quot; SOCKET, CUP SET SCREW</td>
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<tr>
<td>2.</td>
<td>1</td>
<td>CORK GASKET TO MATCH COVER</td>
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<tr>
<td>3.</td>
<td>1</td>
<td>3/32&quot; STEEL COVER WITH 2 BOLT HOLES OPPOSITE</td>
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<tr>
<td>4.</td>
<td>2</td>
<td>STANDARD LOCK WASHER</td>
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<tr>
<td>5.</td>
<td>5</td>
<td>3/8&quot; - 1 UNC-2A X 1&quot; BRASS HEX. HD CAP SCREW 2 REQ.</td>
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NOTES:

1. PAINT COLOR AND FINISHING SHALL MATCH SIGNAL HOUSING
2. MATERIAL: HIGH STRENGTH CAST ALUMINUM ALLOY
NOTES:

1. REAM FOR 1-1/2" IPS. PROVIDE SET SCREW.
2. ALL OTHER OPENINGS SHALL BE THREADED.
3. PAINT COLOR SHALL MATCH SIGNAL HOUSING.
NOTES:

1. MATERIAL - ALUMINUM
2. PAINT COLOR SHALL MATCH SIGNAL HOUSING
3. PROVIDE 12 POSITION PRESSURE TYPE TERMINAL BLOCK MOUNTED INSIDE COMPARTMENT

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

POST TOP MOUNTED ADAPTER
WITH TERMINAL COMPARTMENT

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DATE

DWG. NO. 879
### Notes:

1. **Material** - Aluminum
2. **Paint Color** shall match Signal Housing
3. **Provide** 12 Position Pressure Type Terminal Block mounted inside compartment

### Dimensions:
- **5-1/2**" MIN.
- **11"** MIN.
- **2"** I.D. Wire Guide

### Agency Approval:

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**Side Bracket Mounted Adapter with Wire Guide**
NOTES:

1. THE DEVICES WILL BE CONSTRUCTED OR CAST IN ACCORDANCE WITH SPECIAL PATENTED DEVICES, MATERIALS, AND PROCESSES.

2. SIGNAL HEAD MOUNT AND FLANGE ADAPTER WILL BE OF HIGH STRENGTH CAST ALUMINUM.

3. SIGNAL HEAD MOUNT SHALL BE FASTENED TO FLANGE ADAPTER BY MEANS OF FOUR COMMON STRUCTURAL STEEL BOLTS PER SPEC. EACH WITH TWO FLAT WASHERS, LOCK WASHER AND NUT.

4. ALL BOLTS, NUTS, AND WASHERS REQUIRED SHALL BE AS REGULARLY SUPPLIED BY THE MANUFACTURER.

5. ONE-WAY MOUNT SHALL BE USED WHEN PLANS OR SPECIAL PROVISIONS CALL FOR ONE-WAY SIGNAL MOUNTED ON SIGNAL MAST ARM.

6. TWO-WAY MOUNT SHALL BE USED WHEN PLANS OR SPECIAL PROVISIONS CALL FOR TWO-WAY SIGNAL MOUNTED ON SIGNAL MAST ARM.

7. TWO SIGNAL INDICATIONS SHALL BE MOUNTED BELOW THE MOUNT AND ALL REMAINING SIGNAL INDICATIONS MOUNTED ABOVE.

SEE DETAIL "A"
SECTION THROUGH ONE-WAY MOUNT FOR 3M SIGNALS

NOTES:

1. THE DEVICES WILL BE CONSTRUCTED OR CAST IN ACCORDANCE WITH SPECIAL PATENTED DEVICES, MATERIALS, AND PROCESSES.

2. SIGNAL HEAD MOUNT AND FLANGE ADAPTER WILL BE OF HIGH STRENGTH CAST ALUMINUM.

3. SIGNAL HEAD MOUNT SHALL BE FASTENED TO FLANGE ADAPTER BY MEANS OF FOUR COMMON STRUCTURAL STEEL BOLTS, LOCK WASHERS AND NUTS.

4. ALL BOLTS, NUTS, AND WASHERS ARE TO BE PROVIDED BY THE MANUFACTURER.

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ONE WAY MOUNT FOR 3M SIGNALS

AGENCY APPROVED

B C H L M N

SPECIFICATION REFERENCE

UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

ONE WAY MOUNT FOR 3M SIGNALS

DATE DWG. NO. 882
1. ALTERNATE LOCATIONS FOR THE POLES MAY BE APPROVED BY THE AGENCY'S TRAFFIC ENGINEER.
NOTE:
1. ALTERNATE LOCATIONS FOR THE SIGNAL POLE MAY BE APPROVED BY THE AGENCY'S TRAFFIC ENGINEER.
NOTE:

1. ALTERNATE LOCATIONS FOR THE POLES MAY BE APPROVED BY THE AGENCY'S TRAFFIC ENGINEER.
1. ALTERNATE LOCATIONS FOR THE SIGNAL POLE MAY BE APPROVED BY THE AGENCY'S TRAFFIC ENGINEER.

NOTE:

MOUNT SIGNAL ASSEMBLIES ON SIDE OF POLE OPPOSITE OF CURB LINE AS SHOWN. SEE DRAWING NO. 823 FOR DRILLING DETAILS.

P.T.

UTILITY (ABOVE GROUND) CORRIDOR

3 MIN. OFFSET FROM CENTER OF RETURN

PED. PUSH BUTTONS. SEE DRAWING NO. 808 FOR DRILLING DETAILS.
SIDEWALK RAMPS IN ACCORDANCE WITH DRAWING NO. 235 SHALL BE CONSTRUCTED. HANDICAPPED ACCESS MUST BE IN COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA).

PED. PUSH BUTTONS. SEE DWG NO. 808 FOR DRILLING DETAILS.

MOUNT SIGNAL ASSEMBLIES ON SIDE OF POLE, 180° OPPOSITE OF CURB LINE AS SHOWN. SEE DWG. 823 FOR DRILLING DETAILS.
1. The area shall remain accessible for these foundations.

2. Traffic signal poles shall remain at the middle of the return behind the sidewalk so that the outside signal head is directly above the left turn lane.

3. A type "H" or "L" foundation is required for mast arms 45' or less. See drawing No. 721.

4. A type "L" foundation is required for mast arms longer than 45'. See drawing No. 722.

5. A minimum of 48" shall be maintained between traffic signal pole foundation "crash cap" and the back of the curb for wheelchair clearance.

The traffic engineer will make the final determination for the location of traffic signal poles.

NOTES:

- For future pole location in the Clark County Area.
- Pole type XX or XX-A.
- Typical location for all roadways other than 100' row.

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NOTE:

1. see plans for foundation type.
NOTES:

1. ALL TRAFFIC SIGNAL POLES SHALL BE GALVANIZED PER ASTM A.123.
2. ELECTRIC UTILITY TO SHOW FEEDER TO SERVICE PEDESTAL.
3. FOR POLE, POLE FOUNDATION, SERVICE PEDESTAL AND SERVICE PEDESTAL FOUNDATION DETAILS, SEE CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS.
4. EXTEND THE 2-2" PVC, THE 2-3" AND THE 1-PER TABLE PVC SCHEDULE 40, 5 FEET PAST EDGE OF PAVEMENT STUB AND CAP OR CONNECT TO THE EXISTING TRAFFIC SIGNAL CONDUIT.
5. ALL EMPTY CONDUIT WILL CONTAIN A SINGLE No. 8 AWG THW OR BARE COPPER WIRE FOR THE PURPOSE OF LOCATING THE CONDUIT.
TYPICAL TRAFFIC SIGNAL UNDERGROUND LAYOUT WITH INTERIM STREET LIGHTING AND SERVICE PEDESTAL (END OF CURVE RADIUS)

COMM CONDUIT PER TABLE

- Extend the 2-2" PVC, the 2-3" and the 1-PER TABLE PVC Schedule 40, 5 feet past edge of pavement stub and cap or connect to the existing traffic signal conduit.

- All empty conduit will contain a single No. 8 AWG THW or bare copper wire for the purpose of locating the conduit.

- ** Use for 80 ft. R/W when single left turn lane is required.
- *** Use only when directed by the engineer.
- * Use for 80 ft. R/W when multiple turn lanes are required.

NOTES:

1. All traffic signal poles shall be galvanized per ASTM A123.
2. Electric utility to show feeder to service pedestal.
3. For pole, pole foundation, service pedestal and service pedestal foundation details, see Clark County Area Uniform Standard Drawings.
4. Extend the 2-2" PVC, the 2-3" and the 1-PER TABLE PVC Schedule 40, 5 feet past edge of pavement stub and cap or connect to the existing traffic signal conduit.
5. All empty conduit will contain a single No. 8 AWG THW or bare copper wire for the purpose of locating the conduit.

PROFESSIONAL ELECTRICAL ENGINEER STAMP ON FILE

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UNIFORM STANDARD DRAWINGS
CLARK COUNTY AREA

TYPICAL TRAFFIC SIGNAL UNDERGROUND LAYOUT WITH INTERIM STREET LIGHTING AND SERVICE PEDESTAL (END OF CURVE RADIUS)

DATE 3-13-03  DWG. NO. 889  SHEET 2 OF 2
SPECIFICATIONS:

THE ARROW LENS SHALL BE GLASS AND CONFORM TO THE SPECIFICATIONS AS SET FORTH IN TECHNICAL REPORT NO. 1, REVISED 1966, BY THE INSTITUTE OF TRAFFIC ENGINEERS AND APPROVED AS A STANDARD BY THE UNITED STATES OF AMERICA STANDARD INSTITUTE. ANY FUTURE REVISIONS ACCEPTABLE AND ADOPTED BY THE U.S.A.S.I. SHALL AUTOMATICALLY BE PART OF THIS DRAWING SPECIFICATION.
NOTE:
THERMOSTAT, FAN WIRING, AND TERMINAL BLOCK CONNECTIONS NOT SHOWN.

AC+ LIGHTS

125 V. AC 60 HZ. SERVICE

NOTES:
1. MAIN SWITCH.
2. 30 AMP CIRCUIT BREAKERS.
3. SIGNAL FLASH SWITCH INSIDE CABINET.
4. AUXILIARY DOOR SIGNAL FLASH SWITCH.
5. NEMA STD. PLUG RECEPTACLE WITH GROUNDING CONTACT.
6. RADIO FREQUENCY INTERFERENCE SUPPRESSOR.
7. SOLID STATE SIGNAL FLASHER (CABINET MFR. TO DETERMINE POLES AND CAPACITY, UNLESS OTHERWISE SPECIFIED)
8. SIGNAL FLASHING CONTROL RELAYS.