TRAFFIC OPERATIONS STANDARDS

JANUARY 1979
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| 17890     | TRAFFIC CONTROL DEVICES FOR MOVEABLE SPAN BRIDGES.
1) Ground rods shall have a resistance to ground not to exceed 25 ohms, where the resistance is not as low as 25 ohms, two or more ground rods connected in parallel, shall be used. Contractor shall make necessary test equipment current calibration certificate required at final inspection to ensure acceptability of grounding system.

2) The Contractor shall be responsible for installing all utility company communication wires and utility company work, the utility company will locate and identify their facilities.

3) Contractor shall determine the service required for the power company transformer installation at the pre-construction conference.

4) The power company reserves the right to install the wire, station, and weather protection on power company poles at the expense of the Contractor, contact the power company for cost or for authorization for an alternate procedure.

5) Any damaged portions of galvanized steel poles and bracket arms shall be repaired in accordance with Section 562 of the standard specifications.

6) Poles, bracket arms, and frangible devices shall be determined in accordance with the design criteria, as indicated in the plans and using the applicable equations found in "Standards Specifications for Structural Supports for Minimum Loading, Luminaires, and Traffic Signals" published by A.I.S.H. T.O. dated 1975.

7) The luminaire manufacturer shall place a permanent label on the luminaire housing on which is imprinted the following information: wattage, ballast type, lamp shown on design plans, lamp rating factor, luminaire size, and power factor. Luminaire photometric submittals required.

8) Before final acceptance, the contractor shall provide 2 sets of full size as built plans to the maintenance agency.

9) Conduit routing shall be pole to pole, maintaining pole setback distance from edge of pavement. Any cable routing in locations where standards call for shall be 2 "O" in front of the standard guardrail position.

10) Pole positions and conduit routing may be adjusted, as approved by the engineer, to prevent conflicts with utility and drainage structures not indicated and prevent guardrail, post conflict with underground lighting conduit.

11) Where guardrail is constructed, the poles shall be placed at least 5 ft. behind the face of guardrail.

12) Pole foundation installations shall be backfilled and compacted to a firm, stable condition. Concrete foundations shall be placed in accordance with existing road and fully sodded.

13) The wires at the pole, handhole and pull box shall be looped up in the pole and pull boxes with sufficient length to completely remove connections to the outside of handhole and pull boxes to make connections accessible for changing fuses and trouble shooting the system.

14) Neutral wires to have white insulation, circuit not to have black insulation. Other circuits to be colored by insulation. Do not use white or green insulated wires for ungrounded conductors.

15) Unless otherwise specified, all cable shall be single conductor, 4% percent conductivity stranded copper, with the insulation.

16) All splices shall be made in pull boxes or on the pole base. No splices shall be made inside the conduit.

17) All exposed or surfaced mounted conduit shall be rigid Schedule 40 EMT, flexible conduit shall be provided with either expansion joints or flexible steel conduit. Conduit sections adequate to take care of vibrations and thermal expansions. All galvanized conduit shall be grounded.

18) All conduit that will remain empty as spaces shall be manually tested, cleaned, rinsed, and left capped. Leave the compression resistant pull thru wire and place 3 inside the pull box to mark the location of the ends of the conduit.

19) Locate boxes to indicate exits of duct at highway crossings.

20) These plans represent minimum acceptable criteria. The inspection of these drawings represent the minimum bid of acceptance.

21) All material, unless otherwise specified, shall be underwriters laboratory approved.

22) Prior to any equipment order, the contractor shall submit equipment specifications or design data for approval. Equipment specifications or design data shall be 100% complete.

23) All voltage differences shall be 10% of the voltage specified at the power line service entrance. A double pole circuit shall be specified for all pole mounted equipment.

24) All voltage shall be acceptable. A double pole circuit shall be specified for all pole mounted equipment.

25) Approved by Date

Florida Department of Transportation
Highway Lighting General Notes

Date
Initials/Date

G.J.
2/27/76

Approved
Designated
State Traffic Engineer

Copyright © 1976

10/1/76

Lester Jones

1/1/76

1/7/50
**LUMINARIE SPECIFICATIONS**

The luminarie with its aluminum cover shall be firmly attached to a cast iron ring shall have key slots in its upper surface such that the electric feedthrough assembly shall be secured thereto with locknuts. The luminarie shall be protected from exposure to weather, pollution, and corrosion.

**LOWERING SYSTEM SPECIFICATIONS**

The lowering system shall consist of the following:

1. Head frame and cover.
2. Luminaire ring.
3. Power hub.
4. Roller bearings.
5. Roller bars.

The head frame shall consist of the top of the head frame platform and 1-1/2" thick, 1-1/2" diameter roller, 2" wide. The head frame platform shall have an integral adapter for mounting the luminarie head. The power hub shall be mounted to the head frame platform and shall support the roller bearings and roller bars. The roller bearing shall be of the type to bear the weight of the luminarie and be able to rotate freely. The roller bars shall be of the type to bear the weight of the luminarie and be able to rotate freely.

**FOOTING**

The footings shall be constructed in accordance with the details shown in the plan. Anchor bolts for manufacturers' specifications shall be supplied to the lighting engineer prior to purchase.

**POLE SPECIFICATIONS**

The pole shaft may be either single piece, polygon, or round, with a diameter of 12" or larger. The pole shall be made of stainless steel, with no limitations. The pole shall be securely assembled and torqued to the pole shaft assembly without completely removing the support bolts.

All poles shall be equipped with a repositionable handle approximately 24" above the base plate. The handle shall be ten (10) inches wide by twenty (20) inches high.

The pole shall be repositioned at least twice during shipping and handling. Poles shall not be shipped preassembled.

Drainage shall be provided with the equipment when shown in the assembly sequence. All holes shall be reamed to the proper size as shown. A permanent detail of each shall be fixed on the inside of the handle container which signifies the sequence for lowering the luminaire and the cautionary instructions.

The proportions and details of the pole shall be in accordance with the current edition of the American Society for Testing Materials (ASTM) standards. The pole shall be of structural steel, fully welded, and the American Welding Society (AWS) structural welding code. The shop shall drill two 3/8" diameter holes 90 degrees apart through total thickness of base plate. Top of bolt for 5/8" X 5/8" 492 stainless steel head screw.
SURGE PROTECTOR SPECIFICATIONS

1. The unit shall withstand a surge current up to 20,000 amps, and repetitive surges of 2000 amps for a minimum of 10,000 occurrences.

2. The unit shall respond in less than 50 nanoseconds and within 300 microseconds.

3. The maximum allowable voltage that can pass continuously through the hot leg of the protector must be less than 330 volts.

4. The current drain shall be less than 100 microamps.

5. The unit shall be insulated from the voltage to ground and shall be weatherproof.

6. The unit shall not allow holdover current or conduction to ground after the surge ends.

7. Protection shall be achieved for both the 480V and neutral conductors with the surges being passed to ground and not to neutral.

8. There shall be no discharge lag in the protection of the 480V conductor over the neutral conductor.

9. Underwriters Laboratory approval not required.
SCREW TYPE FOUNDATION SPECIFICATIONS

1. The foundation shaft and base plate shall be ASTM A-36 structural steel, or better.
2. The anchor bolts shall be ASTM A-325, or better.
3. All welds shall be sufficient to withstand 5000 ft-lbs. of torque, applied about the axis of the foundation.
4. The foundation shall have a handle in the base plate at least 5" in diameter.
5. The base plate shall be notched to indicate the orientation of the shaft cableways.
6. Drainage shall be provided in the bottom of the foundation by means of an opening of at least 3 square inches.
7. The foundation shall be designed for installation using a right hand turning/movement, with a slight down pressure. The maximum installation torque shall not exceed 12,000 ft-lbs or be less than 3,500 ft-lbs.
8. The whole foundation shall be hot dipped galvanized after fabrication per ASTM A-153.

Screw Foundation Detail

Metal Pole Concrete Foundation Detail

At all pull boxes and pole bases, ends of conduit shall be beveled with electrical patty after wiring is completed.

All splices shall be made in pull box or pole base with compressed sleeves and be attached with an approved splicing kit.

Conduit Marker Detail

Pull Box Detail

Pull Box Specifications

Pull box shall be composed of reinforced plastic mortar and be designed and tested to meet ASTM D-555 flammability test and AMF-I-7500 load capacity. Pull box shall also be designed for a working load of 1000 lbs.

Bores may be nested for deep conduit and for more working room.
DETAIL "A"
AERIAL FEED

1. PHOTO ELECTRIC CONTROL AS REQUIRED.
2. ALL NEUTRAL WIRING TO HAVE WHITE INSULATION. CIRCUIT NO. WIRE TO HAVE BLACK INSULATION. OTHER CIRCUITS TO BE COLOR CODED BY INSULATION. DO NOT USE WHITE OR GREEN INSULATED WIRES FOR UNDERGROUND CONDUCTORS.
3. LENGTH OF POLE IN GROUND PER INDEX 1221.

CONCRETE POLE, PRESTRESSED TYPE II, 35' LONG PER INDEX 1221

CONCRETE POLE, PRESTRESSED TYPE II, 35' LONG PER INDEX 1221

CONCRETE POLE, PRESTRESSED TYPE II, 35' LONG PER INDEX 1221

CONCRETE POLE, PRESTRESSED TYPE II, 35' LONG PER INDEX 1221

CONCRETE POLE, PRESTRESSED TYPE II, 35' LONG PER INDEX 1221

FLORIDA DEPARTMENT OF TRANSPORTATION
TRAFFIC OPERATIONS

SERVICE POINT DETAILS

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Approved by

DESIGN BY
G. D. K.
Senior Traffic Engineer

CHECKED BY
J. W. McElroy
Traffic Engineer

DRAWING NO.
12504

INDEX NO.
1 or 1
SIGN LIGHTING INSTALLATION

The Roadway Lighting Contractor shall provide a means for sign service entry into a point base in a pull box installed in Lighting circuit, and keep O'H Lighting circuit conduits for connection to Sign. Conduit shall be securely fastened to the base or structure at the base. Conduit shall be used around the pull box. Conduit shall be secured at the top of the pull box, and shall be connected to the electrical service. Conduit shall be provided with O'H Lighting conduit connectors and electrical equipment necessary for connection to O'H Lighting circuit as provided by the Roadway Lighting Contractor. O'H Lighting conduit connectors properly taped and waterproofed shall be used.

See Roadway Lighting Plans for sign service locations.

PLACEMENT OF SIGN LIGHTS:

1. Luminaires shall be mounted such that the Lamp Center is 4'-5" In Front of the Sign Face.
2. Luminaires shall be mounted so that the back of the Fixture is Placed 1'-0" below the Bottom Edge of the Sign Face.
3. Luminaires from Manufacturers who recommend that Lamps be tilted shall be mounted on a Bracket which provides a Bracketed Tilting Device.
4. Photometric Data For The Mercury Vapor Luminaries Proposed for Sign Lighting shall be submitted for approval to the Lighting Engineer, Florida Department of Transportation.

For Details of Luminaries Mounting Bracket
See Index 1705 2 OF 3

250 Watt Mercury Vapor Luminaries with Deluxe White Lamp

250 Watt Mercury Vapor Luminaries with Deluxe White Lamp

250 Watt Mercury Vapor Luminaries with Deluxe White Lamp

Approved for Sign Service

FLORIDA DEPARTMENT OF TRANSPORTATION
EXTERNAL LIGHTING FOR SIGNS
MERCURY VAPOR

DATE
REVISIONS
INITIALS
DATES
Approved by:

DESIGNATED BY

DESIGNED BY

APPROVED BY

DRAWING NO.

INDEX NO.

1 OF 2

17050
NOTES
1. Dimension "A" shall be furnished from Top and Center of Luminaires to be Purchased and Used on the Project.
2. The Center Lines of Both Flange Plates and the 3-1/2" Pipe Luminaires Support Arms shall be Set Parallel to the Roadway before the Ball Joint is Attached.
3. Minor Alterations in the Horizontal Location of the Luminaires Support Arms along the Bottom Chord of the Truss shall be allowed so that the Flange Plates will Clear the Truss Web Members.
4. All Steel Pipe shall meet the Strength Requirements of ASTM Specifications A-30 and Grade "A" Steel Pipe shall meet the Requirements of A-53 and all bolts, nuts, and washers shall meet the Requirements of ASTM A-325.
5. All white steel shall be hot-dip galvanized after Fabrication in accordance with the Requirements of ASTM A-122.
6. Luminaries Support Arms shall be free to rotate a clockwise or counter clockwise direction. When service or maintenance is required for Sign Face or Vertical Plane of Trusses, Support Arms shall be capable of being moved in a Positive 90° from Parallel to the Roadway for Unobstructed Working Clearance.

APPROVED BY FHWA 11-06-78

FLORIDA DEPARTMENT OF TRANSPORTATION

Trafic OPERATIONS

EXTERNAL LIGHTING FOR SIGNS

MERCURY VAPOR

DATE
REVISIONS
INITIALS
DATES
Drawing by
Approved by

11-06-78

A.H.

175.05
NOTE: Dimensions shown do not include galvanizing.

GALVANIZED STEEL
APPROX. WEIGHT PER FOOT 15.0 LB.

ALUMINUM
APPROX. WEIGHT PER FOOT 20.0 LB.

GENERAL NOTES
MATERIALS:
STEEL: A36 W 4X9.84 / 3.5
calculated
Steel
SHEKERED 3.5/3.5
GALVANIZED
ALUMINUM: 3.5/3.5

NOTES:
1. Allowance for 3/8" draft bolts on one side centers.
2. LENGTH: To be determined by the Contractor. It shall be the Contractor's responsibility to determine the length.
**BASE CONNECTION DATA TABLE**

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**PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:** For Bolts L4

1. Assemble part to stub with bolts and with flat washer on each bolt between plates.
2. Shim as required to align parts (See Shim Table).
3. Tighten all bolts the minimum possible with 1/4" to 1/4" wrench to bed washers and shims and to clamp bolt threads; then tighten each bolt in turn and right-angle is systematically.
4. Insert threads of juncture with nut using a center punch to prevent nut sticking.

**ALTERNATIVE BOLT KEEPER WASHER DETAIL**

For 1-Beam and W Shapes

**NOTE:**

Sections shown are for illustration only. See Shop Drawings and Shop Drawings for shop details. Beams are to be detailed in the shop. Drawings are to be read in the workshop.
Number & Location of Panel Splice tube determined by the Sign Face Spacing. See Detail of Sign Face Splice.

**4.2.5.56 Aluminum Hangers**
See Table for Number

**3.9.2.53 Aluminum Windshields**
See Table for Number

---

**Sign Face 0.05" Thick**

**TYPICAL SIGN FACE ELEVATION FOR O.K. TRUSS**

**NOTE:** HANDERS OF VERTICAL HANDERS MAY BE WARNED SLIGHTLY OR AS NECESSARY TO CLEAR THE TRUSS STRUCTS AND DIMENSIONS AT PANEL POINTS.

---

**Supports**

1. **Aluminum Butt-Plate and Lock Washers**
2. **Aluminum Bolt, Nuts, and Lock Washers**

---

**SECTION C-C**

**STIFFENER DETAIL**

1. **Aluminum Plate**
2. **Aluminum Section**
3. **Aluminum Plate**

---

**SIGN FACE SPACING**

**MAXIMUMS OF CLIPS 0.75**

---

**GENERAL NOTES:**

1. For "General Notes" Covering Specifications, Materials and Wind Loads, see Sheets 14 and 23/4, Index 3050.
ELEVATION

(Similar Mounting of Proposed Assembly to Type "A" or "B" Ground Sign)

SECTION A-A

ELEVATION

(Similar Mounting of Proposed Assembly to Type "C" Ground Sign)

GENERAL NOTES


SHOTS AND PLATES: Materials shall meet the requirements of Aluminum Association Alloy 6061-T6 and A370 Specification B-370. Sheets are to be degreased, etched, anodized and treated with colored (300, 310, 316, 341) finish.

MATERIALS: All aluminum materials shall meet the requirements of the Aluminum Association. Sheets shall be 2024-T4 and 6005-T6. Extruded shapes shall be 6061-T6 and 6063-T5.

ALUMINUM BOLTS, NUTS & LOCKWASHERS: Aluminum bolts shall meet the requirements of Aluminum Association Alloy 2024-T4 or 6005-T6. Extruded shapes shall meet the requirements of Aluminum Association Alloy 2024-T4 or 6005-T6. Extruded shapes shall meet the requirements of Aluminum Association Alloy 2024-T4 or 6005-T6. Extruded shapes shall meet the requirements of Aluminum Association Alloy 2024-T4 or 6005-T6.

OVERHEAD SIGNS: Details to mount proposed assembly to overhead sign refer to details for mounting to Type "A" or "B" ground sign.

APPROVED BY: FHWA 11/1/78

INSTITUTE AND EXIT NUMBERING FOR SIGNS WITH HORIZONTAL WIND BEAMS

DETAILS FOR MOUNTING EXIT NUMBERING PANEL TO HIGHWAY SIGNS

<table>
<thead>
<tr>
<th>SIGN</th>
<th>PANEL</th>
<th>GUAGE</th>
</tr>
</thead>
<tbody>
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<tr>
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<td></td>
</tr>
<tr>
<td>Width: 14.00</td>
<td>Height: 24.00</td>
<td></td>
</tr>
</tbody>
</table>
### Column Details

#### General Notes
1. For Sign Identification Numbers see Sheet No. 16. Sign profile and Identification Numbers are the same as the Sign Identification Numbers on the Sign Panel Details Sheet. The Support Column Size & Profile is the same as the one shown in the Table. The maximum Height of Sign Panel is 24 ft. The Column Size to be used is shown in the Table. The Sign Profile is the same as that shown on the Sign Details.
2. The Height of the Sign Panel is 24 ft. The Sign Size to be used is shown in the Table. The Sign Profile is the same as that shown on the Sign Details.
3. The Column Size to be used is shown in the Table. The Sign Profile is the same as that shown on the Sign Details.

#### Column Details

<table>
<thead>
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#### Sleeve Base Plate Details

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#### Bolt Keeper Details

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#### Sign Panel Details

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#### Sleeve Details

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<td>6</td>
<td>22</td>
</tr>
<tr>
<td>7</td>
<td>24</td>
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</tbody>
</table>

### Bolt Description

- **Bolt Size:** M10
- **Thread Size:** 2 threads per inch

### Footnotes

1. Section Details I.9: [Link to details]
2. Section Details II.9: [Link to details]
3. Section Details III.9: [Link to details]

---

**APPROVED BY:** [Signature]

**DATE:** [Date]

**SINGLE COLUMN GROUND SIGNS**

---

**SHEET:** [Sheet Number]

**SCALE:** 1/8" = 1'-0"
### Specifications

**Extends Niblend**

The material used shall meet the requirements of the Aluminum Association Alloy 6061-T6 and shall be in accordance with A & S.M. Specification A-20.

**Tolerance**

All above specifications shall be in accordance with the A.S.T.M. Specification A-20.

**Aluminum Bolts, Nuts, and Locknuts**

Aluminum bolts have been employed in the manufacture of the Aluminum Association Alloy 6061-T6 and shall be in accordance with A.S.T.M. Specification A-20. The bolts shall be made of hot-rolled forging of 6061-T6 and shall be treated to provide a minimum of 20ksi oil quench hardness.

**Paint and Finishes**

All painted and finished products shall be in accordance with A.S.T.M. Specification A-20.

**NOTE**

The thickness of steel shall match the requirements of the steel plate, the tolerance of the steel shall be in accordance with the tolerances of the plate.

---

**Elevation**

The elevation view shows the details of the anchor bolt assembly and the layout of the structural members. The diagram includes dimensions and notes for the anchor bolt detail.

**Approved by**

Fiona 11/16/76

**Base Plate**

For column base plates, use the larger diameter and wall thickness specified.
TYPICAL ARROW LOCATIONS—100-200-300-400

1. When arrow appears at left of message, message to begin as shown.
2. A 0.75 in. W is required from edge of sign to nearest edge of first letter when arrows appear at right of message.
3. Details of arrows on one end of panel may be reversed or the opposite end also.
4. The legend on these signs may be either detachable or screened copy.
5. Background overall reflectorized green legend and border white.

These arrows are to be used when U.S. shield or Florida symbol is required on sign panel.

NEAREST EDGE OF FIRST LETTER
WHEN ARROWS ARE USED AT LEFT

BOTTOM OF LINE
OF LEGEND

WHEN BOTTOM LINE IS
CAPS USE DASH LINE

BOTTOM OF LINE
OF LEGEND

VARIABLE

BOTTOM OF LINE
OF LEGEND

100

200

300

400
NUMERAL SIZE
1-2 DIGITS 10" SERIES "C" - 24" x 24"
3 DIGITS 8" SERIES "B" - 24" x 24"
4 DIGITS 6" SERIES "B" - 24" x 30"
MORE THAN 4 DIGITS 6" SERIES "B" - 24" x 30"

NOTE:
ALL STATE ROUTE MARKERS AND AUXILIARIES SHALL HAVE BLACK OPACED Legend AND BORDER WITH WHITE REFLECTIVE BACKGROUND

APPROVED BY FFMK 5/16/78

FLORIDA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAY OPERATIONS

24" FLORIDA ROUTE MARKER
OTHER THAN INTERSTATE

REVISIONS
DESCRIPTION
INITIAL DATE
DETAILED BY
CHECKED BY
DRAWN BY
SUPERVISED BY

1 of 1
17509A
NOTE
(1) FLORIDA SHIELD SHALL BE BLACK OPAQUE
(2) LEGEND SHALL BE 1/2" CAPS, BLACK OPAQUE
(3) BACKGROUND SHALL BE REFLECTIVE WHITE
(4) LENGTH OF PANEL WILL VARY WITH LEGEND
(5) FULL SIZE DRAWINGS AVAILABLE UPON REQUEST FROM TRAFFIC OPERATIONS - TALLAHASSEE

APPROVED BY FHWA 4-15-75

FLORIDA DEPARTMENT OF TRANSPORTATION
TRAFFIC OPERATIONS

24" FLORIDA SHIELD

<table>
<thead>
<tr>
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<th>INITIALS</th>
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</table>

DELEGATED FOR APPROVAL
By: C.D. Spanagel, P.E.
Director of Traffic Operations

APPROVED
By: D.E. Trexler
Assistant Director

DRAWN BY: W.M. Shifflett

SUPERVISED BY: K.P.

DRAWING NO.: 1 of 1
INDEX NO.: I-315
NOTE

(1) FLORIDA SHIELD SHALL BE BLACK OPAQUE

(2) LEGEND SHALL BE 15' CAPS, BLACK OPAQUE

(3) BACKGROUND SHALL BE REFLECTIVE WHITE

(4) LENGTH OF PANEL WILL VARY WITH LEGEND

(5) FULL SIZE DRAWINGS AVAILABLE UPON REQUEST FROM TRAFFIC OPERATIONS TALLAHASSEE

USE THIS FORMAT WITH 3 OR MORE DIGITS
WEIGH STATION
AGRICULTURAL
INSPECTION
1 MILE

ALL TRUCKS
TRAILERS
NEXT RIGHT

WEIGH STATION
AGRICULTURAL
INSPECTION
NEXT RIGHT

TRUCKS
TRAILERS

NOTE: 12 ¨A RIGHT ARROW
12 ¨B LEFT ARROW

NEXT LEFT

NEXT LEFT

NOTE: ALL SIGNS SHALL HAVE GREEN REFLECTORIZED BACKGROUND WITH WHITE LEGEND AND BORDER, EXCEPT SIGNS 10A & 10B WHICH SHALL HAVE A WHITE BACKGROUND WITH BLACK LEGEND AND BORDER
ALL DIMENSIONS SHOWN ARE IN INCHES AND EIGHTHS

APPROVED BY F.H.W.A. 7-2-75

FLORIDA DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING

REVISIONS

DATE INITIALLS DESCRIPTION

TYPICAL SIGNING FOR
TRUCK WEIGH AND INSPECTION STATIONS

INITIALS INDICATE PROGRESSIVE REVISIONS
MILE POST INSTALLATION

When a mile post cannot be installed within a maximum of 50' of its correct location it should be omitted.

TYPE: FEDERAL MILE MARKERS

NOTE:
1: GREEN REFLECTORIZED TYPE "C" BACKGROUND WITH TYPE "C" ALUMINUM "4" SERIES "C" LETTERS.
2: REFLECTORIZED TYPE "C" TO BE CONSTRUCTED OF ALUMINUM ALLOY.
3: REFLECTORIZED TYPE "C" THICKNESS.
4: REFLECTORIZED TYPE "C" TOP REFLECTIVE SHEETING.

MILE POST MARKER

<table>
<thead>
<tr>
<th>DATE</th>
<th>INITIALS</th>
<th>DESCRIPTION</th>
<th>REVISED MOUNTING HEIGHT</th>
<th>REVISED MOUNTING HEIGHT</th>
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<tbody>
<tr>
<td>1/11/76</td>
<td>P.B.</td>
<td>REVISED MOUNTING HEIGHT</td>
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</table>
7. TRAFFIC CONTROL DEVICES FOR A REDUCED SPEED ZONE AT A SCHOOL CROSSWALK WITH OVERHEAD FLASHING BEACON SPEED LIMIT SIGNS (4 LANE DIVIDED 2 WAY TRAFFIC)

6. TRAFFIC CONTROL DEVICES FOR A SCHOOL CROSSWALK WITHOUT A SPEED REDUCTION (2 LANES 2 WAY TRAFFIC)

<table>
<thead>
<tr>
<th>APPROACH SPEED MPH</th>
<th>SUGGESTED DISTANCE IN FEET A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 TO 35</td>
<td>275</td>
<td>50</td>
</tr>
<tr>
<td>36 TO 45</td>
<td>350</td>
<td>65</td>
</tr>
<tr>
<td>46 TO 55</td>
<td>500</td>
<td>80</td>
</tr>
<tr>
<td>55 OR GREATER</td>
<td>575</td>
<td>100</td>
</tr>
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</table>
9. TRAFFIC CONTROL DEVICES AT SCHOOL ENTRANCES WHERE THERE ARE LITTLE OR NO WALKING STUDENTS

These signs are intended for use only at those few locations where the school entrance is not evident to the motorist, and must be approved in advance by the responsible traffic engineering authority.

IO. TRAFFIC CONTROL DEVICES FOR A TYPICAL SCHOOL ZONE FRONTING THE SCHOOL PROPERTY

NOTE: ROLL-OUT SCHOOL SIGNS SHALL NOT BE UTILIZED TO CONTROL TRAFFIC THROUGH AN ESTABLISHED SCHOOL ZONE.

LOCATION OF SCHOOL SPEED LIMIT SIGN WHEN A REDUCED SPEED LIMIT HAS BEEN APPROVED.
**NOTE**

EXISTING SCHOOL SPEED LIMIT SIGNS (GROUND MOUNT) UTILIZING A SINGLE 8" MIN SIZE BEACON OR TWO 6" MIN SIZE BEACONS INSIDE THE SIGN BORDER ARE CONSIDERED AS MEETING THE STANDARD. HOWEVER, REPLACEMENT OR UPGRADE OF THESE SCHOOL SPEED LIMIT SIGNS SHALL CONFORM TO THE ABOVE STANDARD.

NUMERICAL SPEED LIMIT DISPLAYED SHALL BE THE LIMIT ESTABLISHED BY APPROPRIATE REGULATORY AUTHORITIES.
DETAIL FOR GROUND MOUNT SCHOOL SPEED LIMIT SIGN

GENERAL NOTES FOR FLASHING BEACON INSTALLATIONS

1. It shall be the responsibility of the engineer, based upon soil conditions, to determine if concrete foundations are required. (Cost of concrete foundation to be included in Bid Item provided.)

2. If a concrete foundation is not required, method of stabilization is to be determined by the engineer and an approved anti-twist device shall be provided and installed on the post below grade. (Cost of device to be included in Bid Item 700-90.)

3. One (1) flasher unit and cabinet to be used with each school zone unless otherwise provided on the installations plan.


5. Cabinet shall be equipped with jack panel, terminal, and fuse block, and shall be of sufficient size to house all related equipment.

6. Cabinet shall be furnished with a cylinder lock and two (2) keys.

7. Time clock to be 7 days, 24 hour dial, with day unit on any combination of days. The clock to be settable in 5 minute increments. Minimum on and off times settable to 15 minutes. A minimum of a 1 on/off cycle per day and a 10 hour reserve spring is required.
TYPES OF PERMANENT LONGITUDINAL LINES

Note for details on temporary lines see manual on traffic controls and safe practices, figure 3.21

Basic color rule:
- White lines separate flows in the same direction
- Yellow lines separate flows in the opposite direction
- Double solid yellow (or white)

PAVEMENT MARKINGS AND DELINEATORS FOR MEDIAN CROSS-OVER

PAVEMENT MARKINGS FOR INTERSECTION WITH MAJOR AND MINOR ROADS

Pavement arrows and messages details

Note: When arrow and pavement message are used together, the arrow shall be located over (downstream) the pavement message and shall be separated from the pavement message by a distance of 18 feet.
PAINTED LEFT TURN STORAGE LANE(S) DETAILS
FOR STOP CONTROLLED OR SIGNALIZED INTERSECTIONS

NOTE:
YELLOW LEFT TURN STORAGE MARKING
MUST BE VISIBLE AND 4 INCHES (MIN) TO VISUAL VEHICLE SPEED LIMIT TO
DETERMINE A LEFT TURN STORAGE LANE

ARROWS SHOULD BE EVENLY SPACED BETWEEN FIRST AND LAST ARROW

CRITERIA FOR PAVEMENT MARKINGS ONLY; NOT WHEELCHAIR RAMP LOCATION. FOR RAMP
CRITERIA SEE ROADWAY DESIGN REQUIREMENTS

PAVEMENT MARKING FOR
WHEELCHAIR RAMP IN PARKING ZONES

ON STREET PARKING
NOTE:
ALL PARKING AND REFUSE LANE MARKINGS
SHALL BE 4" WHITE

TWO WAY LEFT TURN LANE
(WITH SINGLE LANE LEFT TURN
CHANNELIZATION)
Schemes for transition from 2-lane to 4-lane roadway

- Transition distance
- Lateral offset
- Pavement width transition

Endpoints of L are the physical nose and point at which travel surface begins to taper to use lane. On newer roads, L will usually be similar to L1, but on older roads may be much less. For the right roadway, L2 begins at point where pavement width begins to narrow and continues to point of uniform lane width.

Rearra ned by: Traffic Operations

Approved by:

Florida Department of Transportation
Traffic Operations

Special Marking Areas

Revisions

Date

Initial Date

5-29-78

F. K. W. 5-6-78

City of Gainesville

5 of 6

17346B
RAILROAD CROSSING AT 2-LANE ROADWAY

PAVEMENT MARKINGS PRODUCTION UNITS

WORDS
STOP = 22 SF
BUS = 21 SF
ONLY = 22 SF
TURN = 25 SF
LEFT = 19 SF
LANE = 22 SF
RIGHT = 27 SF
SCHOOL = 33 SF
RXR = 50 SF

* DOES NOT INCLUDE BARS

USE LINES CHART TO COMPLETE SYMBOL PRODUCTION.

SYMBOLS

LINES

0" = 10 SF
2" = 20 SF
4" = 30 SF
6" = 40 SF
8" = 50 SF
10" = 60 SF
12" = 70 SF
14" = 80 SF
16" = 90 SF
18" = 100 SF
20" = 110 SF
22" = 120 SF
24" = 130 SF
26" = 140 SF
28" = 150 SF
30" = 160 SF
32" = 170 SF
34" = 180 SF
36" = 190 SF
38" = 200 SF
40" = 210 SF
42" = 220 SF
44" = 230 SF
46" = 240 SF
48" = 250 SF
50" = 260 SF
52" = 270 SF
54" = 280 SF
56" = 290 SF
58" = 300 SF
60" = 310 SF
62" = 320 SF
64" = 330 SF
66" = 340 SF
68" = 350 SF
70" = 360 SF
72" = 370 SF
74" = 380 SF
76" = 390 SF
78" = 400 SF
80" = 410 SF
82" = 420 SF
84" = 430 SF
86" = 440 SF
88" = 450 SF
90" = 460 SF
92" = 470 SF
94" = 480 SF
96" = 490 SF
98" = 500 SF
100" = 510 SF

NOTE

WHEN COMPUTING PAVEMENT MESSAGES QUANTITIES DO NOT INCLUDE TRANSVERSE LINE.

RAILROAD CROSSING AT 4-LANE ROADWAY

STATE FINAL REV. DATE

FLORIDA DEPARTMENT OF TRANSPORTATION
SPECIAL MARKING AREAS

REVISIONS
INITIALS
DATE

Answer:

Florida Department of Transportation

Special Marking Areas

Revisions

Initials

Date

Drawing No.

17346

Approved by: FMWA 06-16-78

Transport

R R

10-4-78

Drawing No.

6016

17346
STATE OF FLORIDA
WELCOME CENTER
MILE

SIGN NO. 1
6'W x 19'-0"H
3'-6" OR 9'-RAD
BLUE REFLECTIVE BACKGROUND
WHITE REFLECTIVE LEGEND & BORDER

NOTE
DISTANCE MESSAGE OF ½ MILE MAY BE USED TO KEEP
THIS SIGN WITHIN THE STATE LINE

STATE OF FLORIDA
OFFICIAL WELCOME CENTER

SIGN NO. 2
7'-0" x 19'-0"
5'-6" OR 9'-RAD
BLUE REFLECTIVE BACKGROUND
WHITE REFLECTIVE LEGEND & BORDER

NOTE:
ROADWAY NOT DRAWN TO SCALE
DISTANCES SHOWN ARE APPROXIMATE FOR
Adequate Driver Communication
But May Be Altered Slightly If Field
Conditions Require

Tourist Information Center
NEXT RIGHT

SIGN NO. 3
2'-0" x 20' - 6"
3'-6" OR 9'-RAD

NOTE:
SIGN SHALL HAVE BLUE REFLECTORIZED BACKGROUND WITH
WHITE REFLECTORIZED LEGEND & BORDER. SIGN NO. 3 SHALL BE
USED AS A SUPPLEMENTAL GUIDE SIGN AT INTERCHANGES WHICH
HAVE A TOURIST INFORMATION CENTER APPROVED FOR SUCH
SIGNING (LOCATE HALF WAY BETWEEN NORMAL GUIDE SIGNS)

STATE OF FLORIDA
WELCOME CENTER

SIGN NO. 4
4'-6" x 12'-6"
2'-6" OR 9'-RAD
BLUE REFLECTIVE BACKGROUND
WHITE REFLECTIVE LEGEND & BORDER
ORANGE REFLECTIVE STATE SILHOUETTE
(SIGN NO. 4 TO BE PAINTED WITH LINES
OTHER THAN DOT)

SIGN NO. 5
5'-6" x 9'-0"
2'-6" OR 9'-RAD
BLUE REFLECTIVE BACKGROUND
WHITE REFLECTIVE LEGEND & BORDER

NOTES:
1. SIGNS AND SIGN STRUCTURES SHALL BE ERECTED IN ACCORDANCE
   WITH THE DETAILS SHOWN ON INDEX D-9335
2. SIGN NO. 4 SHALL BE LOCATED ON THE WELCOME CENTER GROUNDS
   IN PROXIMITY TO THE BUILDING AND AS FAR FROM THE MAIN LINE
   ROADS THAT IS POSSIBLE (2 SIGNS BACK TO BACK)
3. SIGN NO. 5, 6, 7, 8 SHALL BE LOCATED ON LIMITED ACCESS HIGHWAYS
   ONLY
4. DETAIL OF FLORIDA SYMBOL IS AVAILABLE ON REQUEST FROM
   TRAFFIC OPERATIONS OFFICE OF DOT

APPROVED BY FHWA 9-1-75

FOR LIMITED ACCESS HIGHWAYS

TYPICAL WELCOME CENTER SIGNING

DATE INITIALS DESCRIPTION

REVISED BY M.S. APPROVED
REVISED BY M.S. APPROVED
REVISED BY M.S. APPROVED
REVISED BY M.S. APPROVED

FLORIDA DEPARTMENT OF TRANSPORTATION
STATE TRAFFIC OPERATIONS

NOTE: 1 OF 2 17951
STATE OF FLORIDA
WELCOME CENTER
1 MILE

SIGN NO. 2A
4'-6"x12'-6"
2" BOR-9" RAD.
BLUE REF. BACKGROUND
WHITE REF. LEGEND & BORDER

SIGN NO. 4
4'-6"x12'-6"
2" BOR-9" RAD.
BLUE REF. BACKGROUND
WHITE REF. LEGEND & BORDER
ORANGE REF. STATE SILHOUETTE
(SIGN NO. 4 TO BE PAID FOR WITH FUNDS
OTHER THAN DOT.)

1/2 MILE

SIGN NO. 2B
5'-0"x10'-6"
2" BOR-9" RAD.

SIGN NO. 6
5'-6"x12'-6"
2" BOR-9" RAD.

NOTE:
ROADWAY NOT DRAWN TO SCALE

NOTE:
EITHER ONE BUT NOT BOTH OF SIGNS 74 OR 78
SHOULD BE USED DEPENDING ON SPEED, ROADWAY
DEVELOPMENT & GEOMETRIC CONDITIONS.

REVISIONS

APPROVED BY FHWA 11/16/76
FOR PRIMARY HIGHWAYS

FRIDAY DEPARTMENT OF TRANSPORTATION
TRAFFIC OPERATIONS

TYPICAL WELCOME CENTER SIGNING

RECOMMENDATIONS FOR APPROVAL

DATE
INITIALS
DESCRIPTION

APPRAISED BY

RECOMMENDED BY

APPROVED BY

SUPERVISED BY
RAISED REFLECTIVE MARKER DETAIL

DIRECTION OF TRAVEL

NOTES
1. LANE LINES SEPARATING ONE-WAY TRAFFIC. RAISED REFLECTIVE MARKERS SHALL BE BI-DIRECTIONAL (COLORLESS & RED)
2. FOR CENTER LANE MARKINGS FOR TWO WAY TRAFFIC, RAISED REFLECTIVE MARKERS SHALL BE BI-DIRECTIONAL (COLORLESS & AMBER)
3. RAISED REFLECTIVE MARKERS SHALL BE PLACED 4'-0" CC, 18'-0" CC FOR "TWO" PROJECTS HOWEVER ON SHARP CURVES LESS THAN 45" MAY BE USED AT THE DISCRETION OF THE DISTRICT TRAFFIC OPERATIONS ENGINEER.
4. ALL PAINT SHALL BE APPLIED BEFORE RAISED MARKERS ARE INSTALLED.
5. PREPARATION OF ROADWAY SURFACES FOR RAISED MARKERS AND ADHESIVE A. SURFACE TREATMENTS SHALL BE HIRED BY GRINDING SMOOTH AND THEN BLOW CLEAN BY COMPRESSED AIR (NOT BRUSHED)
   B. SMOOTH SURFACES SHALL BE CLEANED BY COMPRESSED AIR (NOT BRUSHED)

"BI-DIRECTIONAL AMBER" POSITION TOWARD HIGH-SIDE OF CURVE

TYPICAL PLACEMENT OF REFLECTIVE PAVEMENT MARKERS

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STREET NAME/REFERENCE MARKER

APPROVED BY FHWA 11-18-78

FLORIDA DEPARTMENT OF TRANSPORTATION TRAFFIC OPERATIONS MARKER

REFERENCES

- D. M. 10-75
- U.S. 90
- FL 401
- I-295

STATE TRAFFIC OPERATIONS PARK

SUPERVISOR: J. B. 10-75
SUPERVISOR: J. B. 10-75
LIGHTWEIGHT CELLULAR CONCRETE

HYDRO CELL UNIT

STEEL DRUM

General Notes:

1. The black and white object marking treatment shall be placed on the visible front (top) and on units of all attenuators as shown above.

2. One continuous black opaque strip or an acceptable material application which may be supplied with the unit by the contractor is the preferred option. This material shall be applied to an aluminum fusco (0.031 inches thick) or a painted exterior plywood (1/4 inch thick) in the case of cellular concrete, hydro cell unit, or other types of attenuator systems.

3. The object markings may be applied directly to barrel units (steel drum or inertia) or they shall be applied to an aluminum fusco (0.031 inches thick) or a painted exterior plywood (1/4 inch thick) in the case of cellular concrete, hydro cell unit, or other types of attenuator systems.

4. Physical Dimensions:

   Height: The height of the object marker should be no less than 41/2 the height of the attenuator and preferably equal to the attenuator height.

   Width: The width of the object marker should be equal to the width of the attenuator roof.

   Object markers placed on barrels or drums should cover at least 120° for drums equal to or larger than 30" in diameter and at 180° for drums less than 30" in diameter.

NOTE: Striation may be circular around steel drums.

APPROVED BY F.H.W.A. 7-16-79

FLORIDA DEPARTMENT OF TRANSPORTATION

TRAFFIC ENGINEERING

MARKINGS FOR ATTENUATION SYSTEMS

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1 of 4 17355
NOTE
THE LENGTH, WIDTH AND NUMBER OF CHEVRONS VARIES WITH EACH INSTALLATION

NOTE
FOR REFLECTOR DETAIL SEE DRAWING 2 OF 4

NOTE
PAVEMENT MARKINGS SHALL BE PARALLEL WITH LANE LINES

APPROVED BY F.H.W.A. 11-15-78
FLORIDA DEPARTMENT OF TRANSPORTATION
TRAFFIC OPERATIONS

REVISIONS
DATES INITIALS DESCRIPTIONS
7-27-78 A.B. REVISED TITLE BLOCK & NOTES

MARKINGS FOR ATTENTION SYSTEMS
INITIALS DATE DOCUMENT FOR APPROVAL
CHECKED BY

APPROVED

11/30/78
**NOTES:****
1. THE COLOR OF THE SIGN SHALL BE HIGH INTENSITY SILVER-WHITE REFLECTORIZED BACKGROUND WITH BLACK OPAQUE BORDER AND LEGEND.
2. STRUCTURES SPANNING A HIGHWAY WITH TRAFFIC IN OPPOSITE DIRECTIONS SHALL HAVE A SIGN FOR BOTH APPROACHES MOUNTED TO THE RIGHT OF THE DRIVER VIEWING THE SIGN.
3. CLEARANCES SHOWN ON SIGN SHALL BE TO THE NEAREST WHOLE INCH ANY FRACTION SHALL BE ROUNDED DOWN (EXAMPLE 3'-6 1/2" SHALL BE SHOWN 3'-6").
4. SIGNAGE CLEARANCE TO BE MEASURED FROM LOWEST POINT OF OVERHEAD STRUCTURE TO HIGHEST POINT OF TRAVELED ROADWAY.

**RDT-03**

**CLEARANCE**

17'-7"

3" SERIES D

8" SERIES D

**PEDESTRIANS**

**BICYCLES**

**MOTOR VEHICLES**

LESS THAN 5 BHP

PROHIBITED

FLORIDA STATUTES

**NOTES:**
1. THE COLOR OF THE SIGN SHALL BE HIGH INTENSITY SILVER-WHITE REFLECTORIZED BACKGROUND WITH BLACK OPAQUE BORDER AND LEGEND.
2. LINES 1, 2, 3, 4, AND 5, ARE 3" SERIES "C".
3. LINE 5 IS 4" SERIES "C".

**RJ-5**

**EXIT**

00A

FOR TWO DIGITS USE 4" SERIES D.
FOR THREE DIGITS USE 5" SERIES R.

COLOR: YELLOW REFLECTORIZED LEGEND AND BORDER ON BLUE REFLECTORIZED BACKGROUND.
COLOR: WHITE ON GREEN.

**THE EXIT NUMBER SHALL BE CENTERED IN THE SPACE PROVIDED ON SIGN PANEL.**

**SPECIAL SIGN DETAIL**

**REVISIONS**

**DATE**

**INITIALS**

**DESCRIPTION**

7/22/10

M-5 FOR GUIDE SIGN USE

**APPROVED BY**

FLORIDA DEPARTMENT OF TRANSPORTATION

**TRAFFIC ENGINEERING**

**SPECIAL SIGN DETAIL**

**REVISIONS**

**DATE**

**INITIALS**

**DESCRIPTION**

7/22/10

M-5 FOR GUIDE SIGN USE
**FIGURE A**
For use in areas not exposed to vehicular traffic.

- May be adjusted by field due to field conditions upon approval of project engineer.

**FIGURE B**
For use in asphalt roadway adjacent to gutter when placement outside of the pavement is not feasible.

- Trench not to be open more than 20 ft at a time when construction area is subject to vehicular or pedestrian traffic.
- Asphalt to be sawcut and removed to leave neat lines on both sides of the 0' pavement cut.

**FIGURE C**
For use in installing conduit under existing asphalt pavement not adjacent to gutter when jacking is not feasible.

- Asbestos must be sawcut at the edges of the trench.

**FIGURE D**
For use installing conduit under a new roadway prior to installation of curbs, base and pavement.

- Sidewalk patches to match existing joints.
- Entire sidewalk slab must be replaced when specified in the plans.

**FIGURE E**
For use in installing conduit under sidewalk.

- Backfill and tamp with material from trench except at driveways.
- Sidewalk repair:
  - Backfill a length of trench for a distance equal to twice the width of the driveway entirely with Class I concrete.

**FIGURE F**
Conduit entry in traffic type pull box.

**GENERAL NOTES**
1. A NO 12 AWG PULL WIRE SHALL BE INSTALLED IN ALL CONDUITS WHICH ARE PROVIDED FOR FUTURE USE. AT LEAST 2 FT OF PULL WIRE SHALL BE ACCESSIBLE AT EACH CONDUIT TERMINATION.
2. LOCAL CODES MAY REQUIRE USE OF A LARGER GROUND WIRE (NOT STATED IN ATTACHED CONDUITS).
3. EACH PULL BOX SHALL HAVE A 1/2" X 1/2" GROUND WIRE AS SHOWN.
4. RECOMMENDED STANDARD CLEARANCES BETWEEN UNDERGROUND CONTROL CABLE OR ELECTRICAL SERVICE CABLE AND ANOTHER APPROXIMATELY PARALLEL UNDERGROUND ELECTRICAL SERVICE CABLE IS FOUR FT SIX INCHES.
5. WHEN EARTH BACKFILL AND TAMING IS CALLED FOR ON THESE DETAILS, IT SHALL BE ACCOMPANY IN APPROXIMATELY 1 INCH LAYERS WITH EACH LAYER TAMPERED TO DENSITY EQUAL TO OR GREATER THAN THE ADJACENT LAYERS.
6. COMMERCILLY AVAILABLE SAND CEMENT (APPROXIMATELY 10:1 MIX RATIO) SHALL BE USED TO BACKFILL TRENCHES IN EXISTING PREVENTION. A SUFFICIENT AMOUNT OF WATER SHOULD BE ADDED TO THE MIX TO MAKE IT PLASTIC SO THAT NO TAMING OR VIBRATING IS REQUIRED IN 6 TO 8 INCH SLAPS.
7. ALL PAVEMENT AND SIDEWALKS SHALL BE SAWCUT WHEN TRENCHING.
8. RIGID CONDUIT USED WHEN JACKING SHOULD BE LEFT AS A SLEEVE FOR PVC CONDUIT.
FIGURE A
PULL BOX SPACING, CONDUIT ENTRY AND GROUNDING DETAIL

- Pull box spacing should be adjusted in the field to avoid placing boxes in driveways or cross streets.

FIGURE B
FOR USE UNDER RAILROADS

- PVC conduit to contain 6 AWG insulated copper ground wire (with intermediate joints)
- A pull box is required on each side of the railroad, 20 to 30 ft from the outside track.

FIGURE C
SECTION

- Conduit shall be spaced under existing pavement whenever feasible.

FIGURE D
UNDER NON TRAFFIC BEARING SURFACE

- One run of conduit between pull boxes shall not contain more than 28" of bend including pull box bends.

CONDUIT INSTALLATION DETAILS

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<td>Conduit installation details</td>
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17721
1. Ground wire is to be connected to electric service neutral in accordance with local code.

2. Ground rod must be installed outside the pole foundation.

3. The electric service cable must enter the controller cabinet through a separate conduit from the signal controller cable.

4. Conduit anchor bolts to be of such a location and such a depth as not to interfere with pre-stress strands.

5. All ground rods shall carry the underwriters laboratory seal, and shall be solid copper or copper bonded steel. Copper bonded steel ground rods shall have a pure copper jacket of 0.030 minimum thickness permanently bonded, electrically and mechanically, to the steel core. All ground rod clamps shall be U.L. listed or labeled and shall be stamped with the wire size and ground rod size for which they were designed. Where one or more sections are connected to obtain an adequate ground rod, each section shall be U.L. listed, and shall be specifically designed to be a sectional ground rod. All sectional ground rod couplings devices shall be U.L. listed. All ground rods at the intersection shall be bonded to the ground rod at the power service by a number 8\(\times\)8\(\times\)8 A.W.G. stranded copper bond wire.

MINIMUM MOUNTING HEIGHT AS SHOWN MAY BE INCREASED TO COMPLY WITH LOCAL POWER COMPANY STANDARDS.

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MINIMUM MOUNTING HEIGHT AS SHOWN MAY BE INCREASED TO COMPLY WITH LOCAL POWER COMPANY STANDARDS.
FUNCTIONAL BLOCK DIAGRAM
(TYPICAL)

NOTE:
1. "STOP AHEAD" IS STANDARD AND PREFERRED SIGN MESSAGE. ANOTHER MESSAGE MAY BE APPROVED WHEN APPROPRIATE FOR SPECIFIC SITUATIONS.

STATE: FL
PROD. NO. 17881

FLORIDA DEPARTMENT OF TRANSPORTATION
TRAFFIC ENGINEERING

ADVANCE WARNING FOR R.R. CROSSING

REVISIONS

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APPROVED BY:

DRAFTED BY:

CHECKED BY:

Drawn by:

Checked by:

Supervisor:

1 OF 2

DRAWING NO. INDICES NO.
ACUTE ANGLE (AND RIGHT ANGLE)

SIGNAL PLACEMENT AT RAILROAD CROSSING
(2 LANES, CURB & GUTTER)

OBTUSE ANGLE

SIGNAL PLACEMENT AT RAILROAD CROSSING
(2 LANES, CURB & GUTTER)

GENERAL NOTES

7. WHERE PLANS CALL FOR RAILROAD TRAFFIC CONTROL DEVICES TO BE INSTALLED IN CURB MEDIAN, THE MINIMUM MEDIAN WIDTH SHALL BE 10 FEET.

8. LOCATION OF RAILROAD TRAFFIC CONTROL DEVICE IS BASED ON THE DISTANCE AVAILABLE BETWEEN FACE OF CURB & SIDEWALK.

9. STOP LINE TO BE LOCATED ON SIDEWALK OF ROADWAY, APPROACH FROM Nearest BOLLARD (OR BOLLARDS) PARALLEL TO ROADWAY, TO DATE RECEIVED.
**NOTES:**

1. "STOP HERE ON RED" is omitted in Type I operation and "TRAFFIC SIGNALS" are omitted in Type II operation.

2. The time between beginning of flashing yellow on "Drawbridge Ahead" sign and the clearance of traffic signal to red, or beginning of flashing red, should not be less than the travel time of a passenger car, from the sign location to the stop line, traveling at the 95 percentile approach speed.

3. Beginning of operation of drawbridge gates shall not be less than 15 seconds after steady red or 20 seconds after flashing red (Actual time may be determined by the bridge tender).

4. Time of gate lowering and raising is dependent upon gate type.

5. Timing of bridge opening is determined by the bridge tender.

6. Each gate shall be operated by a separate switch.

7. On each approach, all four red signals shall be on the same two circuit flasher, with the two top signals on one circuit, and the two bottom signals on the alternate flashing circuits.

8. A drawbridge Ahead sign is required for both types of signal operation. However, a flashing beacon shall be added to the sign when physical conditions prevent a driver from seeing the 85 percentile approach speed from having a continuous view of at least one signal indication for approximately 15 seconds.

DRAWBRIDGE SIGNAL

2'-6" X 5'-0"
6" BORDER - 4'-0" RADIUS
6'-0 SERIES 'D' LETTERS
BLACK OPAQUE LEGEND AND BORDER ON REFLECTORIZED YELLOW BACKGROUND

TO BE USED WITH TYPE I OPERATION, AS SHOWN ON PREVIOUS SHEET
MONOTUBE SUPPORT MOUNTING

GATE & ARM DETAIL