NOTES:
1. Install DMS Foundation at location shown in Plans.
2. Extend Catwalk from DMS to outer edge of paved shoulder but not less than four feet in length.
3. If included, install guardrail at location shown in Plans and in accordance with Design Standards Index 400.

GENERAL LAYOUT
NOTES:
1. Conductors for grounding shall be connected to steel framework that has been cleaned to base metal by use of bonding plates having contact area of not less than 8 square inches or by welding or brazing. Drilling and tapping the steel structure to accept a threaded connector is also an acceptable method.

2. If steel framework is to be drilled and tapped to accept threaded connector, the threaded connector shall be galvanized and have at least 5 threads fully engaged and secured with a jam nut to the threaded connector is also an acceptable method.

3. Bends in the conduit shall not be less than the minimum bending radius for the cable contained in the conduit.

4. Catwalk and handrail design and installation shall comply with AISC, AASHTO, and OSHA requirements as applicable.

5. All data, fiber optic and power cables for the DMS shall be completely enclosed within the sign structure or in conduit.

6. Permanently stamp/mark foundation to conduit locations.

7. Transition conduit in foundation to underground conduit with appropriate reducer outside the limits of the foundation.
NOTES:
1. DMS Cabinet may be pole or ground mounted depending on project requirements.
2. See sheet 4 for additional conduits for grounding. The number and placement of conduits are approximate.
3. Field adjust pole-mounted DMS cabinet height to achieve best access for maintenance personnel given site conditions as directed by the Engineer. Avoid conflicts with stiffeners, handhole and maintenance of anchor bolts.

TYPICAL DMS CONDUIT DETAIL
CANTILEVER/SPAN SIGN STRUCTURE

- Air Terminal
- Top Truss Chord
- Door Hinge
- Access Door
- DMS
- Door Latch / Handle
- Handrail
- Post
- Grating
- Catwalk
- Bottom Truss Chord
- Pole Mounted Cabinet
- Ground Mounted Cabinet
- Fiber Optic Pull Box Or Fiber Optic Splice Box (See Index 17700)
- Spare Conduit (2" PVC)
- Spare Conduit (2" PVC)
- Power Conduit (2" PVC) To Power Service Assembly
- Spare Conduit (2" PVC)
- Power Conduit (2" PVC) (As Shown On Plans)
- Fiber Optic Communications Conduit (2" PVC) (As Shown On Plans)
- Transition Conduit Outside Foundation
- Power Conduit (2" PVC) To Power Service Assembly
- 2-3/8" Max Transition Conduit Outside Foundation
- Finished Grade (Varies)
- Conduit Entrance Location
- Communications Cable
- Separately Power And
- Two J-Hooks To Support
- Removable Top Plate
- Back Truss Chord
- Air Terminal
- 2-2" Rigid Metal Conduit
- 2-2" Threaded Couplings For Rigid Metal Conduit
- 2-2" Threaded Couplings For Electrical Service And Communications
- Removable Top Plate
- Two 2-2" Rigid Metal Conduits With Std Sweeps
- Handhole
- Top Of Conduits
- Wire Screen (See Spec. 649-6) For Span Overhead Structures Or Grout Pad For Cantilever Structures
- Partial Penetration Weld
- 3/4 Dia. Stainless Steel Hex Head Screws, Typ.
- Tack Welded Cover Clip, Typ.
- 4" x 3/8" Handhole Frame Made Continuous With A Full Penetration Weld
- Handhole Cover
- 11 Gauge Handhole Cover
- 11 Gauge Handhole Cover
- Tack Welded Cover Clip Typ.
- HANDHOLE COVER
- HANDHOLE FRAME
- SECTION A-A
(Thru Handhole)


Dynamic Message Sign (DMS)

Ground Rod Placement Detail (Typical)

TYPICAL GROUND ROD DETAIL

- 4' Min. Exothermic Weld
- #2 AWG Tin-Plated Bare Solid Copper Wire to Ground Rod C As Required
- #3 AWG To Ground Rod D As Required
- Fiber Optic Communication Conduit (2" PVC) As Shown On Plans
- Power Conduit (2" PVC) To Power Service Assembly
- 1/2" Diameter By 20' Long Copper-Clad Steel Ground Rods Driven Into Undisturbed Earth
- 12" Min. 36" Max.
NOTES

2. DMS and Hanger Design Wind Speed: 150 miles per hour. Maximum DMS weight for design: 4500 lb.


4. Shop drawings including the DMS connection are required and fabrication shall not begin until these shop drawings are approved.

5. Locate the sign horizontal on the structure as shown in the plans. Vertically center the sign enclosure with the centerline of the truss.

6. Before erection, after both the delivery of the DMS and the steel truss, the contractor shall carefully measure the exact locations for field drilling the b" bolt holes in the vertical hangers and horizontal mounting member attached to the sign enclosure. Field locate holes to allow vertical hanger placement as shown on the plans with no conflicts with gusset or splice plates.

7. All steel items shall be galvanized as follows:
   - All nuts, bolts and washers ASTM F2329
   - All other steel items ASTM A123

8. All bolt holes shall be equal to the bolt diameter plus 1/16", prior to galvanizing.

9. Cost of the installation of the DMS on truss including the vertical hanger, associated members, and hardware shall be incidental to the cost of the sign structure.

10. Threaded couplings shall be located on sign side of column above the sign truss.
DMS Sign Enclosure

6061-T6 Structural Aluminum Zee 4x3x0.58
Horizontal Member Attached To The Internal Framework And Included With The DMS Sign

DMS Sign Enclosure

ASTM A709, Gr.36 Steel  W6x9
Hanger @ 5' (Max) Spacing

2-½" Ø U-Bolts ASTM F2329,
Grade A499 Or A193 BT,
Galvanized With Double Nuts and Washers

Aluminum Zee
2-½" Ø Bolts
Holes For
Truss Chord

W6x9

2½ c/c U-Bolts

END VIEW

FIELD DRILL HOLES AND PROVIDE 2 – ½" Ø ASTM F3125, Grade A325, Type 1 U-Bolts Galvanized With Double Nuts and Washers

Truss Chord

STEEL ZEBRA EQUALLY SPACED
FRAMEWORK AND INCLUDED WITH THE DMS SIGN

Horizontal Member Attached To The Internal Framework And Included With The DMS Sign

FRAMEWORK AND INCLUDED WITH THE DMS SIGN

HANGER @ 5’ (MAX) SPACING

TRUSS CHORD

W6X9

2½ C/C U-BOLTS

FIELD DRILL HOLES AND PROVIDE 2 – ½" Ø ASTM F3125, GRADE A325, TYPE 1 U-BOLTS GALVANIZED WITH DOUBLE NUTS AND WASHERS

Truss Chord

3 ZEBRA BEE SIMILARLY SPACED
1. Provide single ethernet connection from the managed field ethernet switch to either the sign controller interface in cabinet or sign controller in sign enclosure.
2. Locate cabinet as shown in plans.
3. Serial data link is for communications directly to the DMS controller.
4. Cabinet must include at least one breaker to control all cabinet power.
5. AC service entrance may be located in cabinet or sign housing.
6. UPS equipment location may vary. Diagram indicates functional requirements that uninterrupted power must be available in cabinet and sign housing.

NOTES:

LEGEND

- Data
- Ethernet
- Power
- SPD Surge Protection Device

SIGN AND CABINET WIRING DIAGRAM

Field Tech Computer (Temporary Service Connection)

Managed Field Ethernet Switch

See Note 1

See Note 6

See Note 3

See Note 4

Convenience Outlets

Equipment Power with SPD

UPS

Electrical Breaker

Sign Controller Interface

Sign Controller

Ethernet Switch

Managed Field Ethernet Switch

See Note 1

See Note 1

See Note 3

See Note 3

See Note 4

See Note 6

See Note 3

See Note 4

See Note 6

See Note 1
NOTES:

1. Cabinet layout is for pole or ground mounted installations.
2. All dimensions and equipment locations are approximate.
3. Conduit entrances are at bottom of cabinet.
4. Minimum number of duplex outlets is three, (2) SPD protected and (1) GFI protected.
5. Either an access controller or local access panel shall be provided to provide full access to DMS for control, programming and troubleshooting.
6. Load center shall be sized for connected equipment and convenience outlets with at least one main disconnect and three circuit breakers.
7. Batteries and UPS may be located in sign housing or cabinet.
8. Power Distribution Assembly component layout, orientation and location may vary.

CABINET LAYOUT 1