

Section 1752

1 **(B) System Interconnection**

2 When interconnection of signals is required (via fiber optics, twisted pair, ethernet,
3 wireless, etc.), install communications interface equipment and hardware for signals.
4 Demonstrate proper operation of interconnection using manual commands and
5 upload/download capability to each local controller from the respective master controller
6 after interconnection is complete.

7 Program telemetry command sequences and enable devices necessary for testing of
8 communication between local controllers and field master controllers and between field
9 master controllers and Department-furnished central computer.

10 **(C) Workshop**

11 Provide enclosed workshop to set up and test new controllers and cabinets before
12 installation. Locate workshop within Division responsible for project administration.
13 Ensure workshop provides protection from weather and sufficient space to house 2 test
14 observers, all necessary test equipment and material, controllers and cabinets.

15 Configure and test each controller and cabinet to match the proposed signal design.
16 Ensure all equipment furnished and installed or modified by the Contractor at each
17 location operates in full compliance with the plans and project special provisions. Test
18 each controller and cabinet for proper color sequence, flashing operation, phase timings,
19 preemption, coordination and conflict monitor programming or malfunction management
20 unit programming. Ensure that simultaneous conflicting phase outputs will cause the
21 cabinet to revert to flashing operation. For intersections with any type of preemption,
22 submit a completed Preemption Test Procedure Checklist. The checklist is located on the
23 Department's website.

24 Test the cabinet and controller for eight hours minimum. Following this test and before
25 installation, the Engineer will inspect the equipment in operation. The Engineer may
26 require other tests to ensure proper operation. These tests shall be at no additional cost to
27 the Department.

28 **1751-4 MEASUREMENT AND PAYMENT**

29 *Controllers with Cabinet* (____) will be measured and paid as the actual number of each type
30 of controllers with cabinets furnished, installed and accepted.

31 *Detector Card* (____) will be measured and paid as the actual number furnished, installed and
32 accepted.

33 No measurement will be made of conflict monitors, malfunction management units, external
34 electrical service disconnect, grounding systems, modems, meter bases and workshop as these
35 will be incidental to furnishing and installing controllers with cabinets.

36 Payment will be made under:

Pay Item	Pay Unit
Controllers with Cabinet (____)	Each
Detector Card (____)	Each

37 **SECTION 1752**
38 **MODIFY CABINET FOUNDATIONS**

39 **1752-1 DESCRIPTION**

40 Where approved by the Engineer, install conduit entrances into existing foundations in
41 accordance with the plans and specifications. Modify existing foundations in accordance with
42 the plans and specifications.

1 **1752-2 MATERIAL**

2 Refer to Article 1750-2.

3 **1752-3 CONSTRUCTION METHODS**4 **(A) Install Conduit Entrance into Existing Foundation**5 Install Conduit Entrances into existing cabinet foundations by core drilling foundations to
6 install additional conduit.7 Maintain a minimum of 3" of cover between new conduit and edge of foundation.
8 Maintain minimum clearances of 1" from the flange of the base adapter and 2" from
9 existing conduits. Avoid damaging existing conduit, conductors and anchor bolts.
10 Repair all such damages. Where approved by the Engineer, the foundation may be
11 chipped instead of drilled for conduit entrance. When possible, maintain traffic signal
12 operations while drilling is performed.

13 Bond new metallic conduit to the equipment ground bus.

14 After installation of conduit, place grout to seal around conduit and return the foundation
15 to normal appearance.16 **(B) Modify Foundation**17 Enlarge existing cabinet foundations to accommodate the new cabinet and/or to provide
18 a maintenance technician pad.19 Excavate the ground around the existing foundation to a depth sufficient to expose
20 a minimum of 4" of the foundation below existing grade.21 Rough the sides of the existing foundation from the top to a point 4" below grade by
22 means of a chisel or other method approved by the Engineer.23 Wash the sides of the foundation with water pressurized at 50 psi and thoroughly dry
24 with compressed air.25 Drill holes approximately 12" deep on 12" centers into the existing foundation. Install
26 #4 dowels and epoxy into place. Provide dowels of the lengths in Table 1752-1.

TABLE 1752-1 LENGTH OF DOWEL	
Foundation Extension	Length of Dowel
> 16"	24"
> 6" and < 16"	17"
= 6"	14"

27 Use concrete to install the maintenance technician pad.

28 Form the sides of the modified foundation to a minimum depth of 4" below grade.

29 Position forms so that all existing exposed foundation surfaces at or above grade level
30 will be matched.31 Apply a coating of approved epoxy bonding agent to all exposed roughened concrete
32 surfaces as recommended by the manufacturer.33 Enlarge the foundation to the distance specified for new cabinet foundations. Provide
34 a one inch chamfer on all new outside edges.35 Maintenance technician pads should be added to the foundation to provide a minimum
36 work area of 24" [length] x 30" [width] from both the front and rear doors of the cabinet.

Section 1753

1 **1752-4 MEASUREMENT AND PAYMENT**

2 *Conduit Entrance into Existing Foundation* will be measured and paid as the actual number of
3 conduit entrances drilled into existing cabinet foundations furnished, installed and accepted.

4 *Modify Foundation for Controller Cabinet* will be measured and paid as the actual number of
5 existing cabinet foundations modified and accepted.

6 Payment will be made under:

Pay Item	Pay Unit
Conduit Entrance into Existing Foundation	Each
Modify Foundation for Controller Cabinet	Each

7 **SECTION 1753**
8 **CABINET BASE ADAPTER/EXTENDER**

9 **1753-1 DESCRIPTION**

10 Furnish and install cabinet base adapters and extenders with all necessary hardware for
11 Type 170 cabinets.

12 **1753-2 MATERIAL**

13 Refer to Division 10.

Item	Section
Cabinet Base Adapter or Extender	1098-16

14 Furnish material, equipment and hardware under this section that is pre-approved on the
15 ITS and Signals QPL.

16 **1753-3 CONSTRUCTION METHODS**

17 Install cabinet base adapter at locations requiring new Model 332A cabinet on
18 existing/modified foundation.

19 Install cabinet base extender at locations requiring new Model 332A cabinet on new
20 foundation or existing Model 332A cabinet that does not have cabinet base extender.

21 Where Model 336 cabinet is used as base mount cabinet, install adapter or extender, as
22 required.

23 Use permanent, flexible waterproof sealing material to:

24 (A) Seal between cabinet base and cabinet base adapter/extender,

25 (B) Seal 2-piece cabinet base adapter/extender seams, and

26 (C) Seal space between cabinet base adapter/extender and foundation.

27 **1753-4 MEASUREMENT AND PAYMENT**

28 *Cabinet Base Adapters* will be measured and paid as the actual number furnished, installed
29 and accepted.

30 *Cabinet Base Extenders* will be measured and paid as the actual number furnished, installed
31 and accepted.

32 Payment will be made under:

Pay Item	Pay Unit
Cabinet Base Adapter	Each
Cabinet Base Extender	Each