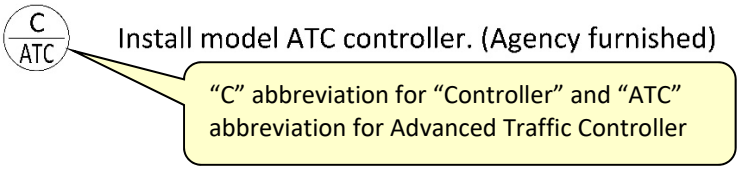
Reading Plan Sheets

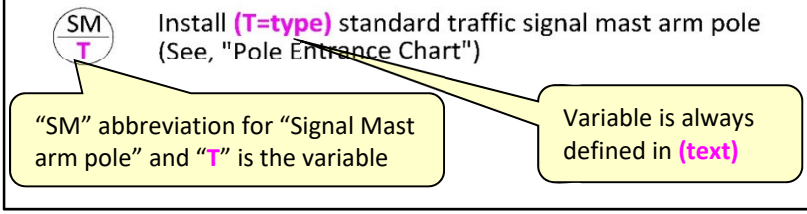
Standard drafting symbology is used in signal design to represent common equipment, providing valuable information to the user without using any text. As such, the user should become familiar with the standard symbols and line styles.

Bubble notes are used in conjunction with the standard drafting symbology to provide specific information about the installation. The bubble notes have been designed to be "intelligent", such that an experienced user will be able to read the signal plan sheets without much assistance from the bubble note legend text. For example:

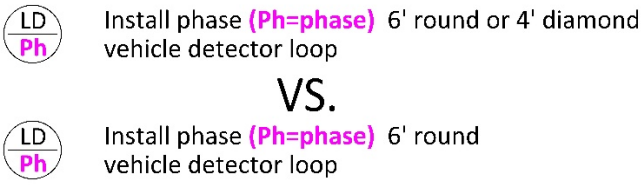
Bubble notes use abbreviations for equipment that can be defined entirely by the bubble note legend text:



Bubble notes use abbreviations **AND** variables **(shown in pink)** for equipment that must be further defined by where/how it is used:



Regardless of experience level, it is always advised to read the bubble note legend text at least once because changes in text may occur. For example:



If there is conflict between symbology and the bubble note, contact the EOR for clarification.

BASIC DRAFTING SYMBOLOGY

CABINETS

336 controller cabinet (door shows orientation)

332 controller cabinet (door shows orientation)

Base Mounted Service Cabinet (BMC, BMCL, or BMCF)

POLES

Mast Arm Pole w/foundation

Steel Signal pole shaft (no foundation)

Steel Signal pole w/foundation

Wood pole

Pedestrian or vehicle pedestal w/foundation

Existing or proposed power supply pole

Pole Anchor

LUMINAIRES

Luminaire head

SIGNALS

Vehicle signal head (new)

Vehicle signal head (existing)

Pedestrian signal head (new)

Pedestrian signal head (existing)

FIRE PREEMPTION

Fire preemption head (single channel, one or two barrels)

Fire preemption head (two channels, two barrels)

SIGNS

Aluminum sign (mast arm or signal pole mounted)

Interior illuminated sign (mast arm or signal pole mounted)

BASIC DRAFTING SYMBOLOGY

JUNCTION BOXES

Junction Box, Type JB/1, JB/2 and JB/3

Junction Box, Type JB1/A, JB2/A and JB3/A

DETECTION

6' round vehicle detector loop

6' diamond vehicle detector loop

2½' diamond bicycle detector loop

6' diamond pre-formed vehicle detector loop

Entrance for loop wires into junction box (Loop pocket)

Radar Detector

Video Detection Camera (new)

Video Detection Camera (existing)

Video or Radar Detection Zone

MISCELLANEOUS

Crosswalk closure barricade

CONDUITS

Conduit (new)

Conduit (existing)

WIRES & CABLES

Loop Wire

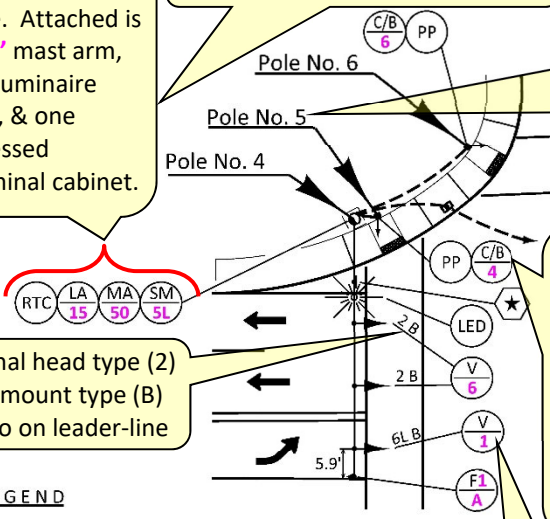
Span Wire

READING PLAN SHEETS
(Pole & Signal Indications)

Pole No. 4 is a Type SM**5L** signal pole. Attached is a **50'** mast arm, **15'** luminaire arm, & one recessed terminal cabinet.

Always read bubble notes from the leader-line out (**NOT** left to right)

Poles are labeled consecutively for entire project



Pole No. 5 is a pedestrian pedestal. Attached is one pedestrian signal (phase **4**) & one pushbutton (phase **4**)

Signal head type (2) & mount type (B) info on leader-line

Install phase **1** vehicle signal

LEGEND

SM T	Install **(T=type)** standard traffic signal mast arm pole (See, "Pole Entrance Chart")
MA L	Install **(L=length)** foot traffic signal mast arm
LA L	Install **(L=length)** foot luminaire arm
RTC	Install recessed terminal cabinet, see T.R.S. DWG NO. *18254* and 18255
PP	Install pedestrian signal pedestal with frangible base
V Ph	Install phase **(Ph=phase)** vehicle signal with 2" fluorescent yellow reflective sheeting on backboard per std. dwg. TM460
C/B Ph	Install phase **(Ph=phase)** countdown pedestrian signal with clamshell mount and pushbutton with mount
FN Ch	Install channel **(Ch=channel)**, **(N=number)** barrel fire preemption detector unit
LED	Install 168 watt light emitting diode luminaire, (See special provisions). Bond luminaire to pole grounding terminal
★	See signing plans for details on sign and attachment

F1 A

Replace variables in text when reading: *"Install channel **(A)**, **(1)** barrel fire preemption detector unit"*

Detailed on other plan sheet: not paid under traffic signal bid item

HEADS & BRACKETS

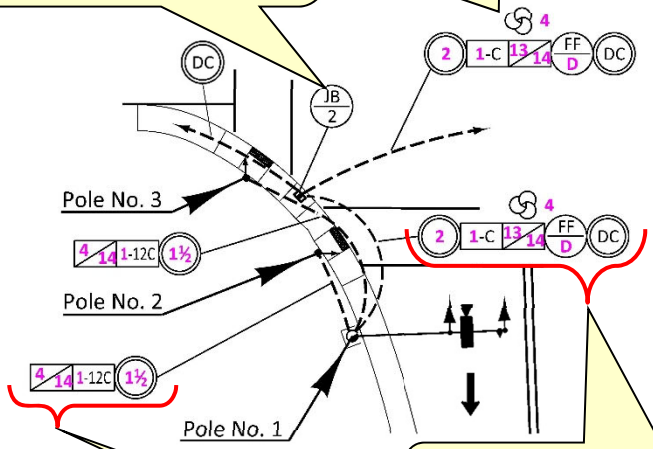
2 = R: Y: G
6L = RA: YA: FYA: GA

B = Adjustable signal bracket assembly w/rain cap(s) (Install 1" galvanized chase nipple).

READING PLAN SHEETS
(Conduit & Wiring)

5 conduits enter this junction box:
- Three conduits defined on detector plan
- Two **2”** conduit

3 spare wires for phase **4** are inclusive to the number of wires listed below (**13** No. **14** AWG)



2 conduits in this trench (one **2”** and one defined on the detector plan)

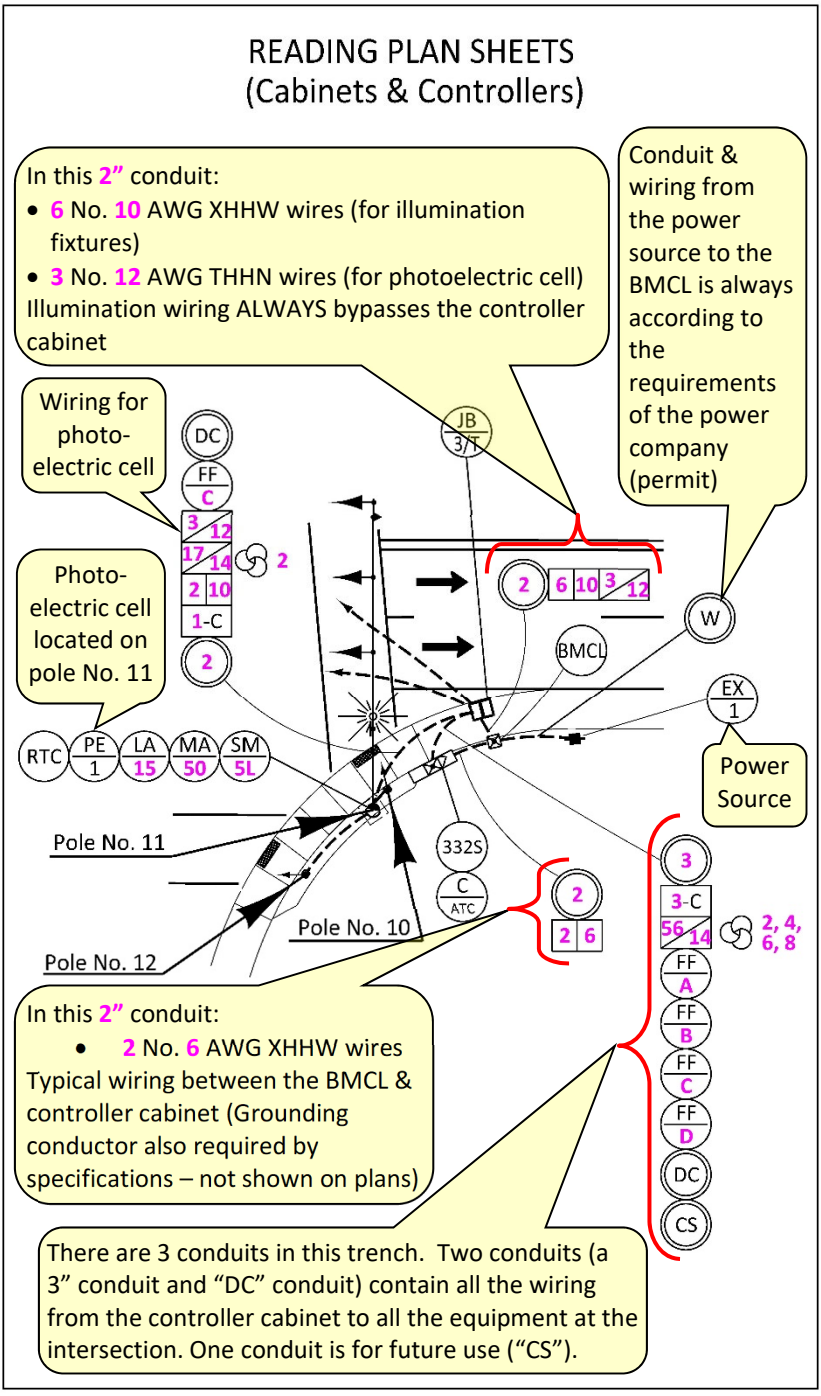
LEGEND

JB 2	Install 22"x12"x12" (min. dimension) precast concrete junction box
S	Install **(S=size)** inch conduit
DC	Detector conduit (See Detector Plan)
N-C	Install **(N=number)** No. 8 AWG THWN (Signal system common)
N-12C	Install **(N=number)** No. 12 AWG THWN for (Vehicle, Pedestrian and Ramp meter pedestal common)
N / G	Install **(N=number)** No. **(G=AWG wire size)** THWN wires
FF Ch	Install channel **(Ch=channel)** fire preemption detector feeder cable
Ph	Includes 3 spare wires for phase **(Ph=phase)** as per table

In this **1½”** conduit:
- **1** No. 12 AWG THWN wire (pedestal common)
- **4** No. **14** AWG THWN wires

Table is shown on TM470: “color code chart for single conductor”

READING PLAN SHEETS
(Cabinets & Controllers)



READING PLAN SHEETS
(Cabinets & Controllers)

LEGEND

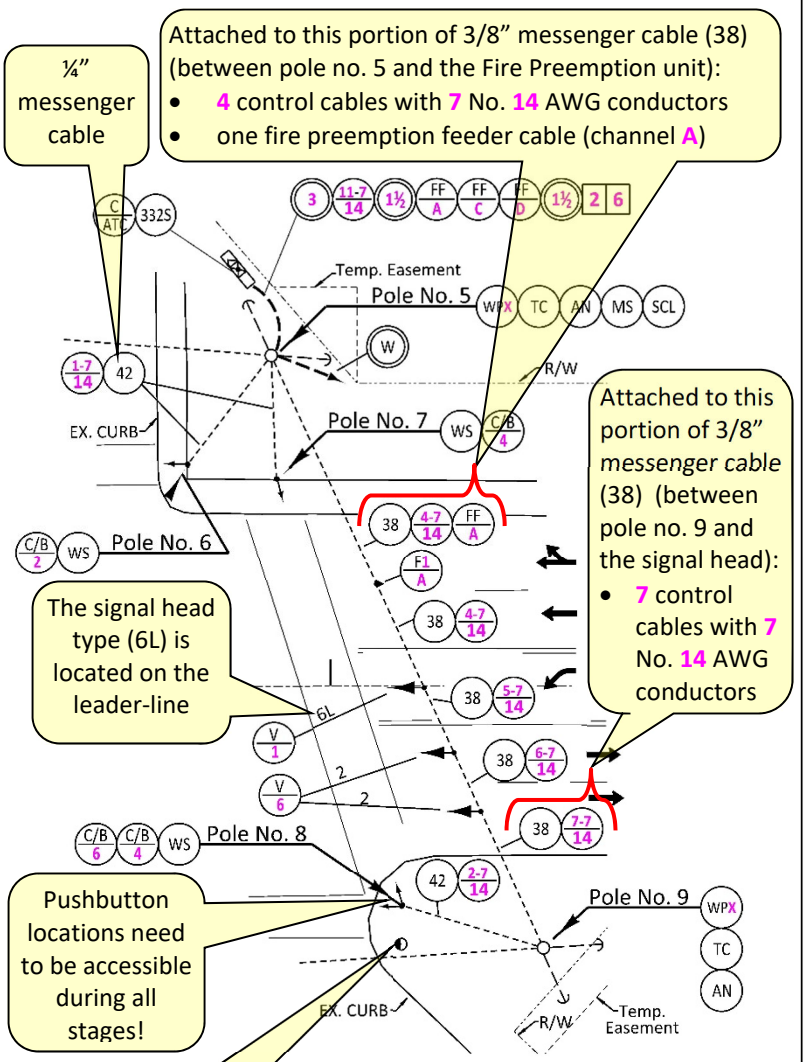
Door orientation is shown on the plan sheet by the controller cabinet symbology

- 332S — Install a model 332S cabinet & control equipment with riser frame, orient louvered door as shown
- C / ATC — Install model ATC controller. (Agency furnished)
- BMCL — Install base mounted service cabinet, 120/240 volt metered, for signal and signal pole mounted illumination systems
- EX / 1 — Retain and protect existing power pole (Power source)
- SM / T — Install **(T=type)** standard traffic signal mast arm pole (See, "Pole Entrance Chart")
- MA / L — Install **(L=length)** foot traffic signal mast arm
- LA / L — Install **(L=length)** foot luminaire arm
- RTC — Install recessed terminal cabinet, see T.R.S. DWG NO. 18254 and 18255
- PE / 1 — Install photo electronic control relay on pole, as per Std. Dwg. No. TM465
- JB / 3/T — Install tandem 30"x17"x12" (min. dimension) precast concrete junction boxes (See TM472 for details)
- S — Install **(S=size)** inch conduit
- DC — Detector conduit (See Detector Plan)
- CS — Install 2" conduit stub (For future use, cap ends)
- W — Install conduit and wire as required by power company
- N-C — Install **(N=number)** No. 8 AWG THWN (Signal system common)
- N / G — Install **(N=number)** No. **(G=AWG wire size)** THWN wires
- N | G — Install **(N=number)** No. (G=AWG wire size) XHHW wires
- FF / Ch — Install channel **(Ch=channel)** fire preemption detector feeder cable

Table is shown on TM470: "color code chart for single conductor"

Ph Includes 3 spare wires for phase **(Ph=phase)** as per table

READING PLAN SHEETS
(Temporary Signal & Span Wire)



READING PLAN SHEETS
(Temporary Signal & Span Wire)

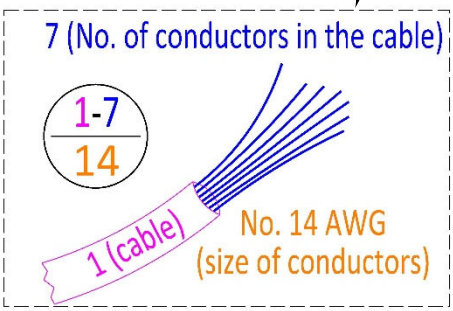
LEGEND

332S	Install a model 332S cabinet & control equipment with riser frame, orient louvered door as shown
C / ATC	Install model ATC controller. (Agency furnished)
MS	Install 120/240 volt meter base
SCL	Install service cabinet, 120/240 volt, for both signal and illumination circuits
WPX	Install special **(X=non-standard)** treated wood pole (See, "Pole Entrance Chart")
WS	Install wood pedestrian pushbutton post
AN	Install back guy and anchor(s)
TC	Install terminal cabinet
V / Ph	Install phase **(Ph=phase)** vehicle signal with 2" fluorescent yellow reflective sheeting on backboard per std. dwg. TM460
C/B / Ph	Install phase **(Ph=phase)** countdown pedestrian signal with clamshell mount and pushbutton with mount
S	Install **(S=size)** inch conduit
N | G	Install **(N=number)** No. **(G=AWG wire size)** XHHW wires
38	Install galv. steel ⅜" messenger and ¼" tether cables
42	Install ¼" galvanized steel messenger cable
X-N / G	Install **(X=number of cables)** control cable(s) with **(N=number)** **(G= AWG wire size)** AWG conductors
FF / Ch	Install channel **(Ch=channel)** fire preemption detector feeder cable

Wood poles are non-standard. They are designed by the contractor and submitted to ODOT for review and approval.

This note includes a messenger **AND** tether cable

Illustration of control cable variables

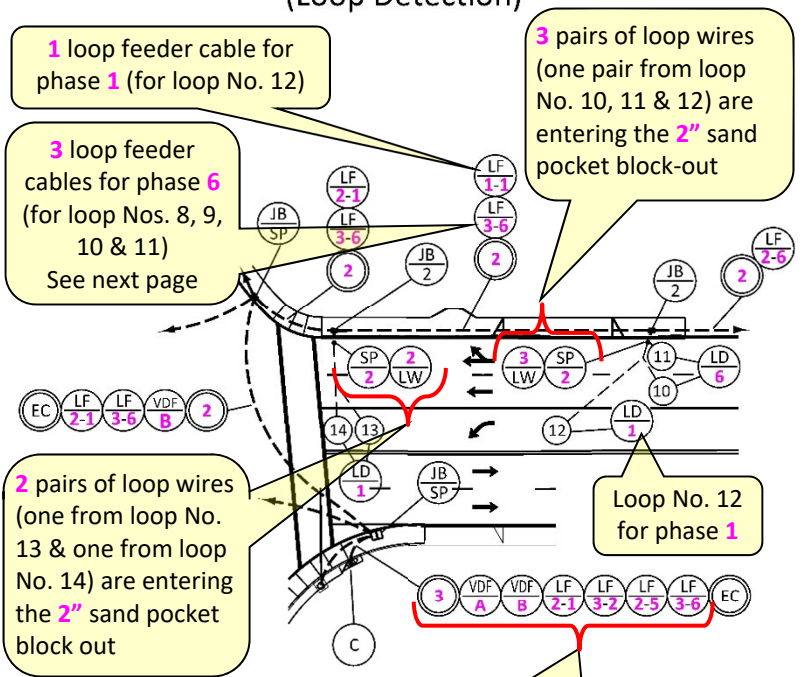


HEADS & BRACKETS

2 = R: Y: G

6L = RA: YA: FYA: GA

READING PLAN SHEETS
(Loop Detection)



LEGEND

C	Install Controller cabinet (See Signal Plan)
JB / 2	Install 22"x12"x12" (min. dimension) precast concrete junction box
JB / SP	Junction box (See Signal Plan)
LD / Ph	Install phase (Ph=phase) 6' round or 4' diamond vehicle detector loop
N / LW	Install (N=number) pair of loop wires
SP / S	Install 6" max. sand pocket block-out with (S=size) inch conduit to junction box
S	Install (S=size) inch conduit
EC	Electrical conduit (See Signal Plan)
LF / X-Ph	Install (X=number of cables) phase (Ph=phase) loop feeder cables
VDF / T	Install video detection coaxial and power cable for camera (T=Camera)

LF 3-2

Replace variables in text when reading: "Install (3) phase (2) loop feeder cables"

READING PLAN SHEETS
(Loop Detection)