TEMPORARY ILLUMINATION (EXAMPLE)

LEGEND FOR TEMPORARY ILLUMINATION PLAN

T-"N" — Install Class 4 wood pole for temporary illumination with 15 ft. metal bracket arm, roadway luminaire and 400 watt HPS lamp. Provide 40 foot mounting height with M-S-III type luminaire ("N"=pole number). (Use details from Dwg. DET4300)

Dbl — Install double arms and double luminaires.

Rel — Relocate temporary wood pole with metal bracket arm & luminaire from previous location as shown in plans and notes.

WP — Install class 4 wood pole for aerial electrical distribution or service drop.

EX — Retain and protect existing/temporary illumination.

P / X — Install wood pole "X" feet from edge of pavement or construction area.

BB / X — Install wood pole "X" feet behind concrete barrier or guardrail.

T-#N — Install triplex aluminum service cable with ACSR messenger. ("N" = wire size)

Install down guy wire/anchors as required.

S — Install (S) inch rigid non-metallic electrical conduit

N / S — Install electrical copper conductors / cables. ("N" =number of conductors, "S" = size of conductors).

G — Install one No. 10 copper ground wire

PS — Power Source, 120/240 volt single phase. Field verify and coordinate with utility company.

C / 90 — Install galv. steel cabinet. (Show details from Dwg. DET4350)

WH — Install two 1¼ inch Service Weatherheads, for service drop & power distribution, on galvanized steel conduit. Provide drip loops in wires.

MS — Install 120/240 volt single phase meter service. Coordinate with utility company.

PE — Install 120/240 volt photoelectronic control on top of wood pole

TEMPORARY ILLUMINATION INSTALLATION

SCOPE:

The work to be done under this contract shall consist of providing all labor, material, and equipment for the temporary roadway Illumination as shown on the plans set forth in these Specifications

GENERAL:

Miscellaneous and incidental materials required for the complete installation not mentioned in the plans or in the specifications shall be furnished and placed by the contractor. Such materials shall be of good quality and be suitable for the use intended. See "Section 00960 - Common Provisions for Electrical Systems" and "Section 00970 - Highway Illumination" of the Standard Specifications for methods and materials not shown or noted. The materials and workmanship shall conform to the current requirements of the National Electrical Code (NEC) and National Electrical Safety Code (NESC).

WOOD POLES:

Wood poles shall be per "subsection 2120 - Poles and Pilling" and placed as shown in the plans. Pole length shall be sufficient to provide specified (on the temp. illumination plans) mounting ht. above pavement and the basic clearance for conductors indicated below.

Preservative treatment for the wood poles is not required for one year or less construction period. When preservative treatment is required for wood poles, it shall be per "subsection 2190 - Preservative Treatment of Timber".

LUMINAIRE ARMS:

Arms on wood poles shall be constructed of 2 inch Schedule 40 steel pipe with tie rods. Arms shall be hot dip galvanized after fabrication and nominal length of arms shall be 16 feet unless otherwise noted. Submit detailed shop drawings for metal arm fabrication for approval.

CONVENTIONAL ROADWAY LUMINAIRES:

Mounting heights of luminaires shall be within the specified length plus or minus 1 foot and shall be installed in accordance with the applicable portions of Subsection 00970.44.

The luminaires shall conform to Subsection 02926.53(a) of the Standard Specifications.

See Subsection 02926.53(b) for classification of luminaire light distribution.

PERFORMANCE OF M-S-3 ROADWAY LUMINAIRES:

When equipped with a 400 watt HPS (50,000 lumen lamp) at mounting height of 40 feet, each luminaire (Medium-SemiCutoff-type 3) shall provide the following performance:

A minimum of 41% of lamp lumens shall be projected downward on the street side of the luminaire and a maximum of 30% of the the lamp lumens shall be projected downward on the house side of the luminaire. Total lamp efficiency shall be a minimum of 73%. The maximun candelas shall not exceed 15000 in any direction.

M-S-3 Luminaire with 40 feet Mounting Height shall provide minimum illuminance on the pavement as follows:

POINT	LONGITUDINAL DISTANCE	TRANSVERSE DISTANCE	MINIMUM ILLUMINANCE (in FC)
A	0.0 MH	1.5 MH	0.59
B	2.0 MH	0.0 MH	0.67
C	2.0 MH	1.5 MH	0.31
D	3.0 MH	0.0 MH	0.23
E	3.0 MH	1.5 MH	0.18

HPS LAMPS:

High Pressure Sodium lamps shall be in new condition.

BALLAST:

Luminaires shall employ integral ballast operating on specified power supply voltage. (Designer should specify a voltage of designed temporary illumination system in this plan.) Ballast shall be a regulator type designed to operate specified wattage high pressure sodium lamp, with a minimum power factor of 90%. Ballast shall provide reliable lamp starting down to a temperature of -29°C.

CABLE AND WIRE:

All overhead wire shall be triplex aluminum service cable covered with polyethylene (ACSR messenger). Wire from the aerial cable to the luminaire ballasts shall be 2-#10 copper (THWN) conductors. Form a drip loop in conductors to the aerial cable.

All conductors shall conform to the applicable portions of subsection 02920.20 and 02920.23.

EQUIPMENT BOND:

All exposed conduit on wood poles shall be effectively grounded in accordance with subsection 00960.50.

CONDUCTOR CLEARANCE:

Branch circuit conductors shall provide a minimum of 15 feet clearance above the ground and a minimum of 18 feet clearance above any pavement. The mininimum clearance of crossing primary wires, carried on different supports, shall conform to the requirements of the National Electrical Safety Code, C2. When more than one set of wires are installed between two poles, each set of wires shall have 2 feet minimum clearance from other sets.

MAINTAINING TEMPORARY ILLUMINATION:

The Agency will continue operation and maintenance, including the furnishing of electrical energy, of the existing illumination facilities.

The contractor will maintain temporary illumination installed.

The contractor shall obtain Engineer's approval when existing illumination or temporary illumination is taken down or diconnected for relocation and/or costruction. Contractor shall cover all gore area and lane merging area in highway, if it is under traffic, within project limits with adequate illumination using temporary illumination and/or permanent illumination system constructed prior to the project completion.

ELECTRICAL SERVICE:

The contractor shall furnish all labor and materials to provide electrical service to the temporary illumination. Service locations will be determined in the field by the Project Manager. Electrical energy costs and service installation costs charged by utility company will be paid for by the Agency.

LIGHTING LEVELS AND VOLTAGE DROP CALCULATION

Lighting levels of temporary illumination shall be per ODOT Standard as shown on ODOT Traffic Lighting Design Manual.

Voltage Drop Calculation shall be per ODOT Standard and NEC.

Submit lighting levels summary and typical total voltage drop calculation for review.

The maximum No. of temporary illumination wood poles is xx and the No. of relocated wood poles is xx.

OREGON DEPARTMENT OF TRANSPORTATION
TECHNICAL SERVICES
DETAILS

TEMPORARY ILLUMINATION SPECIFICATION

DETAIL NO. DET4340