# CONSTRUCTION SPECIFICATION FOR CONCRETE FOOTINGS AND MAINTENANCE PLATFORMS FOR HIGH MAST LIGHTING POLES

**TABLE OF CONTENTS**



## 631.01 SCOPE

This specification covers the requirements for the installation of concrete footings and maintenance platforms for high mast lighting poles.

## 631.02 REFERENCES

This specification refers to the following standards, specifications, or publications:

**Ontario Provincial Standard Specifications, Construction**

OPSS 206 Grading
OPSS 501 Compacting
OPSS 603 Installation of Ducts
OPSS 609 Grounding
OPSS 903 Deep Foundations
OPSS 904 Concrete Structures
OPSS 905 Steel Reinforcement for Concrete

OPSS 906 Structural Steel for Bridges

**Ontario Provincial Standard Specifications, Material**

OPSS 1010 Aggregates - Base, Subbase, Select Subgrade, and Backfill Material
OPSS 1202 Bearings - Elastomeric Plain and Steel Laminated
OPSS 1350 Concrete - Materials and Production
OPSS 1440 Steel Reinforcement for Concrete
OPSS 1801 Corrugated Steel Pipe (CSP) Products
OPSS 2474 Anchorage Assembly - High Mast Lighting Pole

## 631.03 DEFINITIONS

For the purpose of this specification, the following definitions apply:

**Earth** means as defined in OPSS 206.

## 631.05 MATERIALS

### 631.05.01 Concrete

Concrete shall be according to OPSS 1350 with a nominal minimum 28-Day compressive strength of 30 MPa.

### 631.05.02 Steel Reinforcement

Steel reinforcement shall be according to OPSS 1440.

### 631.05.03 Structural Steel

Structural steel shall be according to OPSS 906.

### 631.05.04 Corrugated Steel Pipe

Corrugated steel pipe shall be according to OPSS 1801 and as specified in the Contract Documents.

### 631.05.05 Neoprene Pad

Neoprene pad shall be according to the plain bearing requirements specified OPSS 1202.

### 631.05.06 Granular A

Granular A shall be according to OPSS 1010.

### 631.05.07 Sleeves and Ducts

Sleeves and ducts shall be according to OPSS 603.

### 631.05.08 Anchorage Assemblies

Anchorage assemblies shall be according to OPSS 2474.

## 631.07 CONSTRUCTION

### 631.07.01 General

General requirements for electrical work shall be as specified in the Contract Documents.

Concrete footings and maintenance platforms for high mast lighting poles shall be as specified in the Contract Documents.

### 631.07.02 Concrete Footings for High Mast Lighting Poles

#### 631.07.02.01 Earth Excavation

Excavation of the pole base shall be to the neat lines and grades specified in the Contract Documents. When additional excavation beyond the neat limits is required, such excavation shall be a minimum of 300 mm beyond the neat dimensions of the footing to accommodate backfill.

The Contractor is responsible for constructing excavations without disturbing the sides or bases of the excavation.

When rock is encountered, the earth excavation shall be widened to the dimensions suitable for rock excavation or rock drilling operations. Rock excavation shall be according to OPSS 603.

The Contractor is advised that variable subsurface conditions may be encountered at the high mast pole locations. When a Foundation Investigation Report containing information on the subsurface conditions is included in the Contract Documents, reference shall be made to the record of borehole nearest the high mast pole footings for an indication of subsurface conditions.

The Contractor shall assume that overburden has zones of non-cohesive soil and occasional cobbles and boulders, and that groundwater levels are near the surface. The Contractor is advised that non-cohesive soil is susceptible to disturbance under conditions of unbalanced hydrostatic head.

#### 631.07.02.02 Caisson Pile

Caisson piles shall be as specified in the Contract Documents and placed according to OPSS 903.

The base of the caisson or shallow foundation shall be cleaned of loosened or softened materials or both and inspected prior to pouring concrete. Complete documentation of the inspection and installation of each caisson shall be maintained and submitted to the Contract Administrator.

#### 631.07.02.03 Steel Reinforcement

Steel reinforcement shall be placed according to OPSS 905.

#### 631.07.02.04 Anchorage Assemblies

Anchorage assemblies of the size, diameter, length, and type specified in the Contract Documents shall be positioned in footings to obtain the proper position and handhole orientation.

The anchorage assemblies, sleeves, and ducts shall be properly placed in the centre of the concrete footings within a 15 mm tolerance.

Anchorage assemblies shall be securely tied to the steel reinforcement and provided with supports to maintain the position of the anchorage assembly during the placing of concrete. The anchorage assembly shall not be welded to the steel reinforcement.

The anchorage setting templates shall remain in place until immediately prior to the installation of the poles.

**631.07.02.05 Sleeves and Ducts**

Sleeves and ducts for footings shall be located to suit incoming duct or cable systems and shall be securely tied to the steel reinforcement and supported prior to the placing of concrete.

The number of sleeves shall be as specified in the Contract Documents.

Sleeves shall be cut off cleanly above the footing to a minimum of 150 mm above the pole base plate.

Sleeves shall be temporarily plugged or sealed until wiring is installed.

**631.07.02.06 Concrete**

Concrete shall be placed according to OPSS 904, except as noted herein.

In earth, concrete may be placed directly against the undisturbed earth or may be formed in place such that a minimum of 300 mm all around the footing is available for the placing of granular backfill. The upper portion of the footing shall be formed to a minimum of 150 mm below grade level. Formwork shall be removed to a minimum depth of 150 mm below finished grade prior to placing granular backfill.

In rock, concrete shall be placed directly against the excavated rock surfaces. Portions of footings in earth above the top of the rock surface shall be formed as noted in the previous paragraph.

Prior to the installation of the pole, the concrete shall have reached the minimum strength specified in the Contract Documents.

Concrete for the high mast lighting pole footings shall be cured according to OPSS 904, except as noted herein.

a) Wet burlap shall be applied to the top surface of the footing immediately after completion of the finishing operation without damaging or marring the surface of the concrete and shall be kept wet during the curing period.

b) When white pigmented membrane is used as a curing compound on adjacent concrete barrier wall, a minimum of one coat of the curing compound shall be applied to the concrete footing immediately after completion of the curing cycle for the footing. Additional curing compound shall be applied as necessary to ensure colour uniformity with the adjacent concrete barrier wall.

c) The curing compound shall only be used on the exposed final surfaces of the footing. Curing compound shall not be applied to construction joints.

**631.07.02.07 Granular Backfill**

Granular A backfill shall be placed around footings in earth and compacted according to OPSS 501.

**631.07.02.08 Granular Apron**

A granular apron consisting of Granular A shall be placed around each high mast lighting pole footing as specified in the Contract Documents.

**631.07.02.09 Grading**

Earth grading around the high mast lighting pole footings shall be as specified in the Contract Documents and OPSS 206.

**631.07.03 Maintenance Platforms for High Mast Lighting Poles**

**631.07.03.01 Neoprene Pad**

The size of the neoprene pad shall be as specified in the Contract Documents.

**631.07.03.02 Fabrication, Delivery, and Installation**

Fabrication, delivery, and installation of the platform and railing shall be according to OPSS 906 and the Contract Documents.

**631.07.03.03 Grounding**

Grounding shall be according to OPSS 609.

**631.07.03.04 Mechanical Concrete Anchors**

Mechanical concrete anchors shall be installed in accordance with the manufacturer's recommendations.

**631.07.04 Inspection before Installation of High Mast Lighting Poles**

A Request to Proceed shall be submitted to the Contract Administrator prior to the placement of concrete.

The placement of concrete shall not proceed until the Contract Administrator has completed the inspection for earth excavation, caisson pile, steel reinforcement, anchorage assemblies, and sleeves and ducts, and has issued a Notice to Proceed.

**631.07.05 Management of Excess Material**

Management of excess material shall be according to the Contract Documents.

**631.09 MEASUREMENT FOR PAYMENT**

**631.09.01 Actual Measurement**

**631.09.01.01 Concrete Footings for High Mast Lighting Poles**

For payment purposes, a count shall be made of the number of concrete footings for high mast lighting poles installed.

**631.09.01.02 Maintenance Platform for High Mast Lighting Poles**

For payment purposes, a count shall be made of the number of maintenance platforms for high mast lighting poles installed.

**631.09.02 Plan Quantity Measurement**

When measurement is by Plan Quantity, such measurement shall be based on the units shown in the clause under Actual Measurement.

## 631.10 BASIS OF PAYMENT

### 631.10.01 Concrete Footings for High Mast Lighting Poles - Item<br>Maintenance Platform for High Mast Lighting Poles - Item

Payment at the Contract price for the above tender items shall be full compensation for all labour, Equipment, and Material to do the work.

### 631.10.02 Rock Excavation for Electrical Installation

Payment for rock excavation for electrical installation shall be according to OPSS 603.