15-JAN-2021

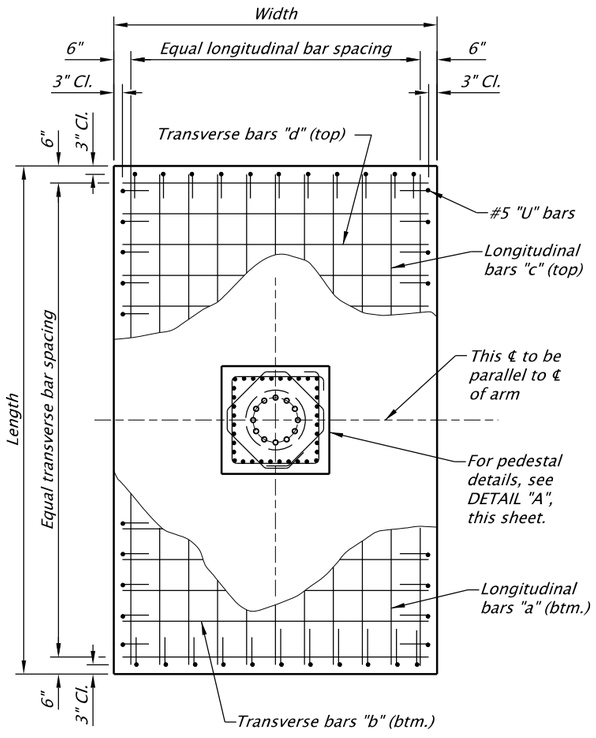
TM627.dgn

## SPREAD FOOTING DIMENSIONS AND REINFORCING

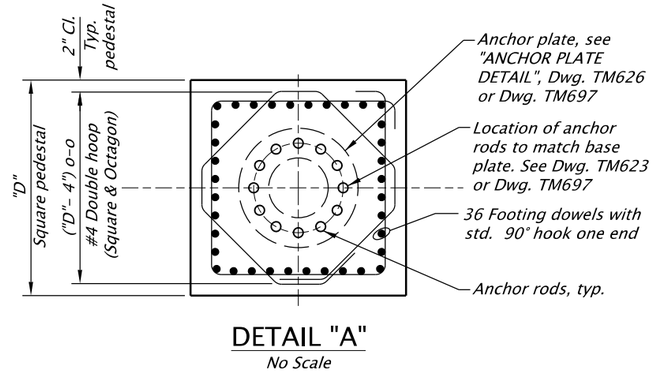
## REACTIONS AT BASE PLATE (FACTORED)

| Monotube Cantilever Design No. | VMS/Sign Monotube Bridge Design No. | Footing | | Pedestal | Reinforcing Steel | | | | Force in vertical axis (lb) | Moment about axis perp. to sign (ft-lb) | Moment about axis parallel to sign (ft-lb) | Moment about vertical axis (ft-lb) | Shear normal to signs (lb) | Shear parallel to signs (lb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Length | Width | "D" | "a" | "b" | "c" | "d" | | | | | | |
| 1 | – | 27'-0" | 13'-6" | 5'-0" | 18 - #7 | 26 - #5 | 18 - #6 | 26 - #5 | 22,600 | 250,000 | 800,000 | 672,000 | 26,200 | 0 |
| 2 | – | 28'-0" | 13'-6" | 5'-0" | 18 - #7 | 26 - #5 | 18 - #6 | 26 - #5 | 28,100 | 469,700 | 628,000 | 707,000 | 20,000 | 0 |
| 3 | – | 25'-0" | 12'-6" | 5'-0" | 18 - #6 | 24 - #5 | 18 - #6 | 24 - #5 | 18,400 | 196,000 | 590,000 | 517,000 | 19,600 | 0 |
| 4 | – | 25'-0" | 12'-6" | 5'-0" | 16 - #6 | 24 - #5 | 16 - #6 | 24 - #5 | 21,800 | 363,000 | 442,000 | 496,000 | 15,400 | 0 |
| 5 | – | 23'-6" | 11'-6" | 5'-0" | 16 - #6 | 22 - #5 | 16 - #6 | 22 - #5 | 16,900 | 173,800 | 395,000 | 357,000 | 13,400 | 0 |
| 6 | – | 21'-0" | 10'-6" | 4'-6" | 14 - #5 | 20 - #5 | 14 - #5 | 20 - #5 | 12,800 | 100,000 | 367,000 | 240,000 | 12,300 | 0 |
| 7 | – | 20'-0" | 10'-6" | 4'-6" | 14 - #5 | 20 - #5 | 14 - #5 | 20 - #5 | 13,000 | 179,000 | 200,000 | 222,000 | 7,200 | 0 |
| 8 | – | 16'-0" | 9'-0" | 4'-6" | 10 - #5 | 16 - #5 | 10 - #5 | 16 - #5 | 7,800 | 65,000 | 157,000 | 110,000 | 5,600 | 0 |
| 9 | – | 28'-0" | 14'-0" | 5'-0" | 18 - #7 | 26 - #5 | 18 - #6 | 26 - #5 | 26,900 | 415,800 | 780,000 | 745,000 | 26,500 | 0 |
| – | 1 | 28'-0" | 16'-0" | 5'-0" | 20 - #7 | 28 - #5 | 20 - #7 | 28 - #5 | 36,800 | 250,800 | 919,000 | 396,000 | 31,000 | 26,400 |
| – | 2 | 27'-0" | 13'-6" | 5'-0" | 18 - #7 | 26 - #5 | 18 - #6 | 26 - #5 | 28,500 | 159,500 | 737,600 | 252,000 | 25,500 | 16,300 |
| – | 3 | 24'-0" | 12'-6" | 5'-0" | 16 - #6 | 24 - #5 | 16 - #6 | 24 - #5 | 23,200 | 96,800 | 584,300 | 128,700 | 20,600 | 9,900 |

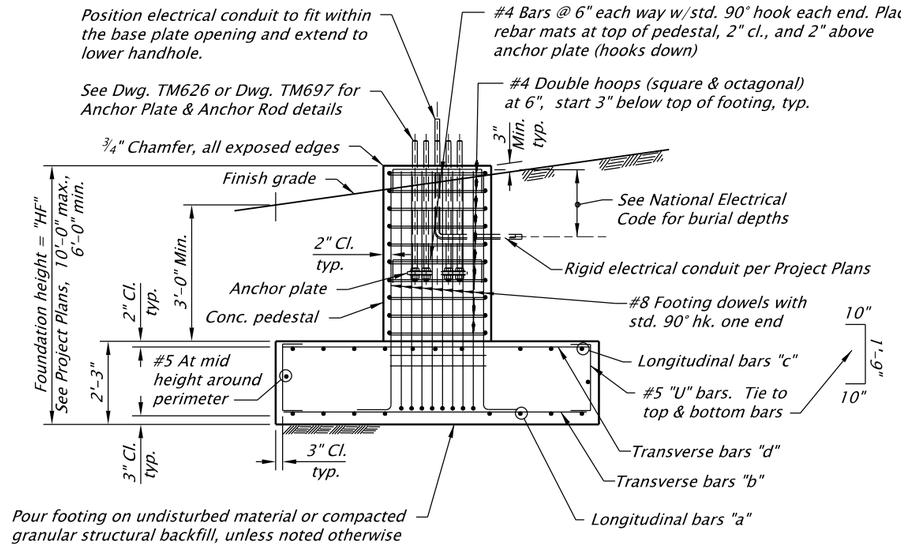
*Advisory Note:*
*The Standard reactions provided in the table are located at the base of the post and are the total reactions to the foundation due to Extreme I - Case 1 Loading (wind normal to sign). They include the loading from the maximum sign area listed on Dwg. TM622 or Dwg. TM693 or the maximum VMS loadings for the types listed, whichever produces the greatest reactions. Strength I and Extreme I Loadings are summarized in the calculation book.*




PLAN
*No Scale*




DETAIL "A"
*No Scale*




ELEVATION - SPREAD FOOTING
*No Scale*

*The Standard Monotube Spread Footing drawing contains standardized designs based on assumed soil conditions. The assumed soil conditions will be verified by the Engineer of Record before referencing Dwg. TM627 on the Project Plans. Verification of assumed soil conditions will be based on a site-specific geotechnical study. The assumed bearing resistance is based on the methodology described in the references listed below. The standard spread footing designs include consideration of two conditions as follows:*

*Non-buoyant conditions for stability calculations (compacted soil density of soil over footing = 120 lb/ft³ , concrete density = 150 lb/ft³ ) with resistance factor = 0.45, nominal bearing resistance = 3,000 psf and factored bearing resistance of 1,350 psf.*

*Buoyant conditions for stability calculations (compacted soil density of soil over footing = 58 lb/ft³ , concrete density = 88 lb/ft³ ) with resistance factor = 0.45, nominal bearing resistance = 3,000 psf and factored bearing resistance of 1,350 psf.*

*Reference:*

1. *AASHTO LRFD Bridge Design Specifications, 7th Edition with Interims thru 2016, Section 10.6.3.*
2. *AASHTO Standard Specifications for Highway Bridges, 17th Edition.*


*The following uncoated splice lengths are for Class 3600 concrete and shall be used unless shown otherwise:*

| Bar size | #4 | #5 | #6 | #7 | #8 | #9 |
|---|---|---|---|---|---|---|
| Splice length (in.) (top bars) | 2'-2" | 2'-9" | 3'-3" | 3'-9" | 4'-4" | 4'-10" |
| Splice length (in.) (all others) | 1'-8" | 2'-1" | 2'-6" | 2-11" | 3'-4" | 3'-9" |

*Splice reinforcing steel at alternate bars, staggered at least one splice length or as far as possible, unless shown otherwise.*

Accompanied by dwgs. TM621, TM622, TM623, TM624, TM625, TM626, TM628

*The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.*

All materials shall be in accordance with the current Oregon Standard Specifications.

**OREGON STANDARD DRAWINGS**

# STD. MONOTUBE SIGN/VMS SUPPORT SPREAD FOOTING FOUNDATION DETAILS

2024

| DATE | REVISION DESCRIPTION |
|---|---|
| 07-2020 | REMOVED SPREAD FOOTING AND ADDED MONOTUBE TO THE DESIGN |
| | NUMBER COLUMNS |
| 01-2021 | CHANGED CONDUIT NOTE |
| | |
| | |

CALC. BOOK NO. 6921-6930, 6969-6972, 6974 _ _ _ | SDR DATE 15-JAN-2021 | **TM627**

Effective Date: June 1, 2026 - November 30, 2026