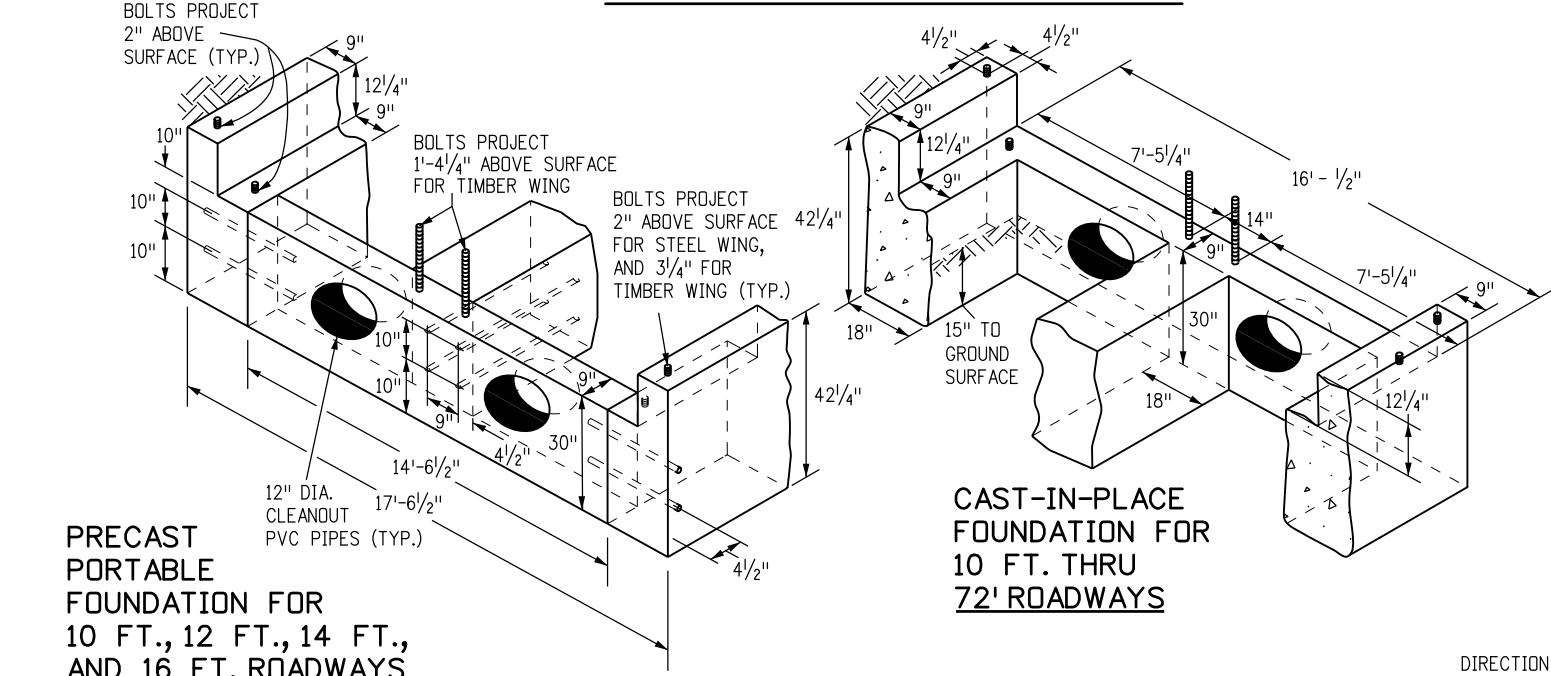
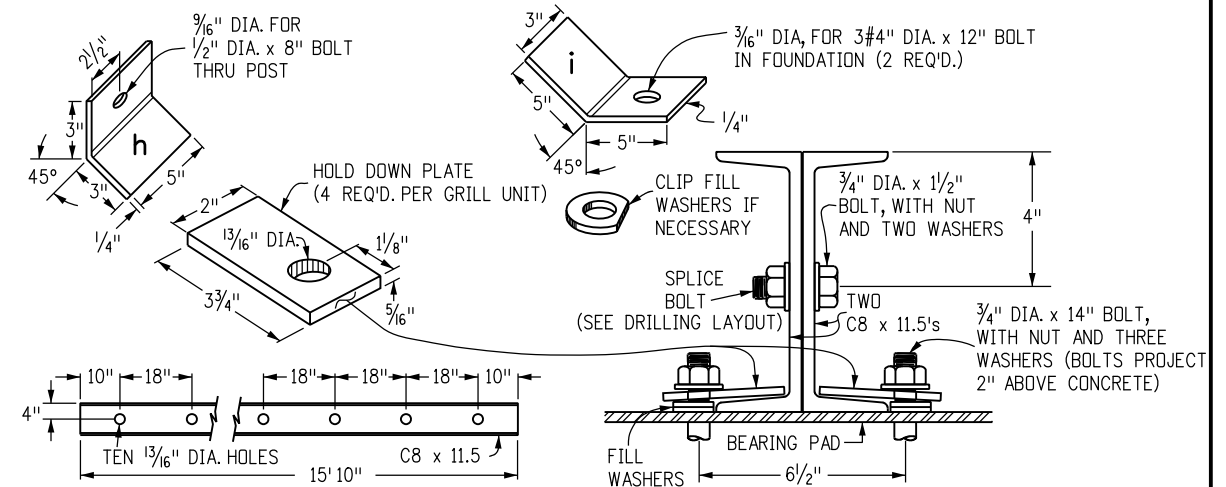


TYPICAL DEER GUARD INSTALLATIONS

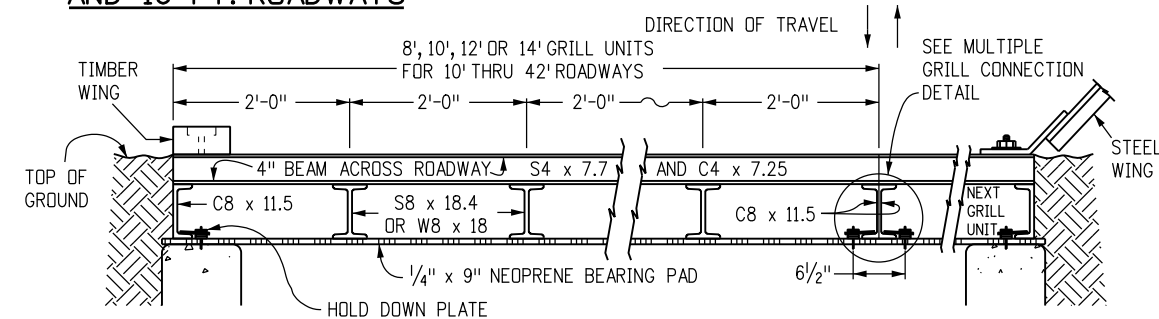


CAST-IN-PLACE FOUNDATION FOR 10 FT. THRU 72' ROADWAYS

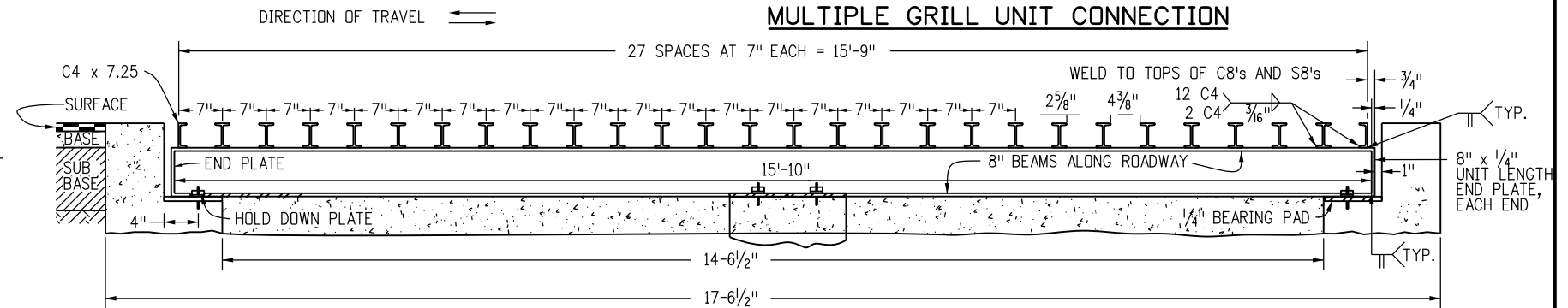


DRILLING LAYOUT

MULTIPLE GRILL UNIT CONNECTION



ELEVATION VIEW



WELDED GRILL CROSS SECTIONS

SIDE VIEW

GENERAL NOTES

1. CONCRETE SHALL BE CLASS B. FOUNDATION MAY BE CAST-IN-PLACE OR PRECAST.
2. REINFORCING BARS SHALL BE #4, GRADE 60.
3. ALL TIMBER SHALL BE TREATED IN CONFORMANCE WITH ASHTO M 133 AND AWP C14.
4. WING POSTS MAY BE MADE FROM 6 IN. DIAMETER AND TREATED IN ACCORDANCE WITH 710.07
5. ALL STRUCTURAL STEEL SHALL BE FABRICATED AND PAINTED WITH ALUMINUM PAINT IN ACCORDANCE WITH SECTION 509. ALL HARDWARE SHALL BE GALVANIZED IN CONFORMANCE WITH ASHTO M 111 OR PAINTED WITH ZINC-RICH PAINT MEETING MILITARY SPECIFICATION DOD-P-21035
6. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270 (ASTM A 709) GRADE 36.
7. WELDING SHALL CONFORM TO THE AWS STRUCTURAL WELDING CODE AND AASHTO STANDARD SPECIFICATIONS FOR WELDING OF STRUCTURAL STEEL HIGHWAY BRIDGES.
8. OUTLET PIPES WILL BE REQUIRED AND PAID FOR AS SHOWN IN THE PLANS. A 6 INCH SLEEVE MAY BE USED THROUGH THE CENTRAL SUPPORT TO DRAIN FROM ONE CELL TO THE OTHER TO MINIMIZE THE NUMBER OF OUTLET PIPES.
9. TYPE OF WING (TIMBER OR STEEL) SHALL BE STEEL UNLESS OTHERWISE SHOWN ON THE PLANS.
10. STRUCTURE EXCAVATION, STRUCTURE BACKFILL, AND SURVEY WORK WILL NOT BE MEASURED AND PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.
11. A 4 IN. CONCRETE FLOOR SHALL BE PLACED IN THE DEER GUARD AND SHALL BE GRADED TO DRAIN. THIS QUANTITY WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.
12. EXPANSION JOINT MATERIAL SHALL BE USED BETWEEN THE 4 INCH CONCRETE FLOOR AND THE FOUNDATION. THIS QUANTITY WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.
13. TOOLED OR SAWCUT JOINTS WILL BE REQUIRED IN THE 4 INCH CONCRETE FLOOR AS DIRECTED. DETAIL. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THIS WORK
14. HIGHWAY LOADING DESIGN DATA:
HL-93 (DESIGN TRUCK OR TANDEM, AND DESIGN LANE LOAD)
15. A TREATED 2X6 MAY BE USED AT THE OPEN END OF THE DEER GUARD TO KEEP FILL MATERIAL FROM FALLING IN.
16. ALTERNATIVE DEER GUARDS MAY BE CONSTRUCTED UPON APPROVAL BY THE PROJECT ENGINEER.

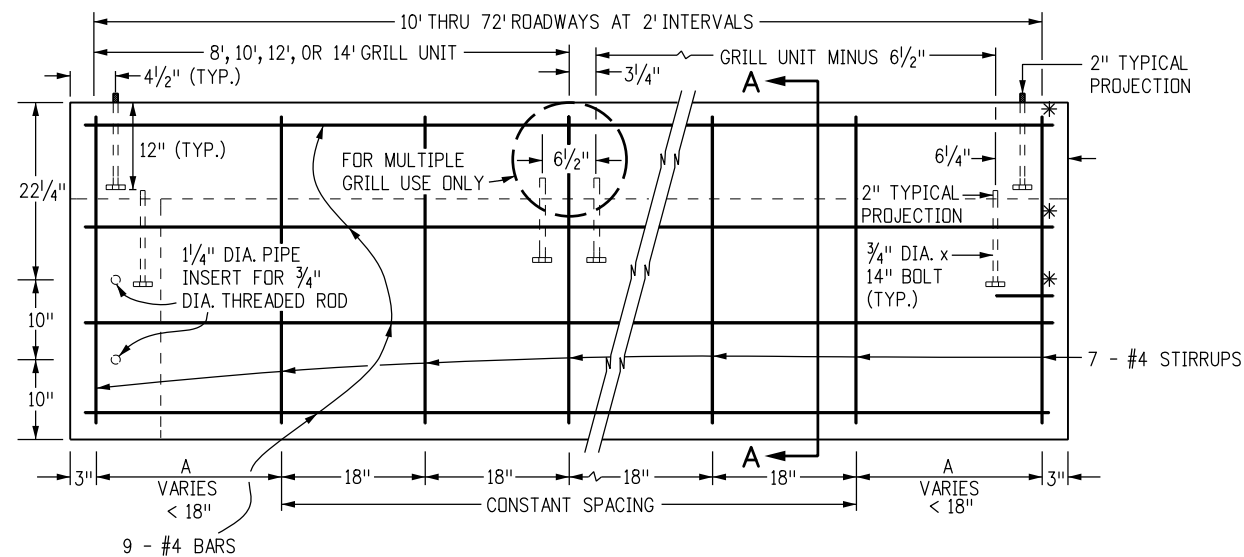
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| Creation Date: 07/31/19 | |
| Designer Initials: JBK | (R-X) |
| Last Modification Date: 07/31/19 | (R-X) |
| Detailer Initials: LTA | (R-X) |
| CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English | (R-X) |

| Sheet Revisions | |
|-----------------|----------|
| Date: | Comments |
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 Project Development Branch JBK

DEER GUARD
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STANDARD PLAN NO.
M-611-2
 Standard Sheet No. 1 of 2
 Project Sheet Number:

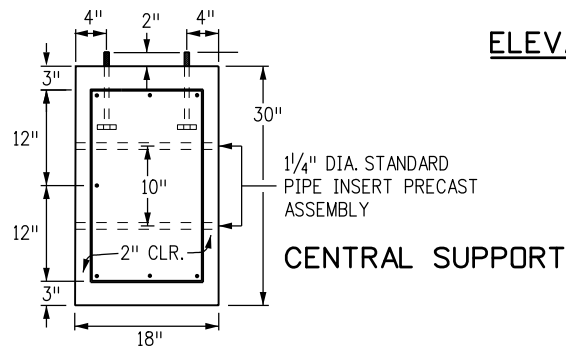


PRECAST PORTABLE FOUNDATION

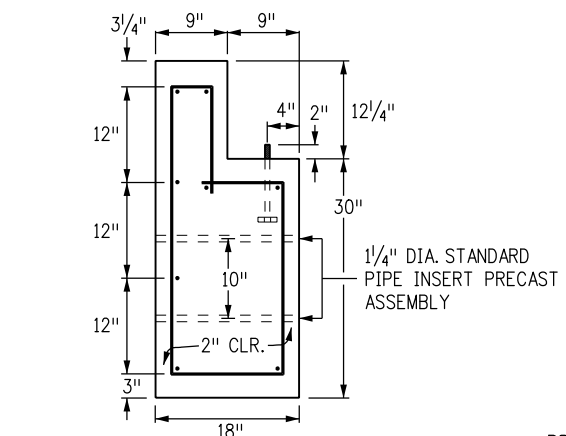
CAST-IN-PLACE FOUNDATION

ELEVATION OF FOUNDATION

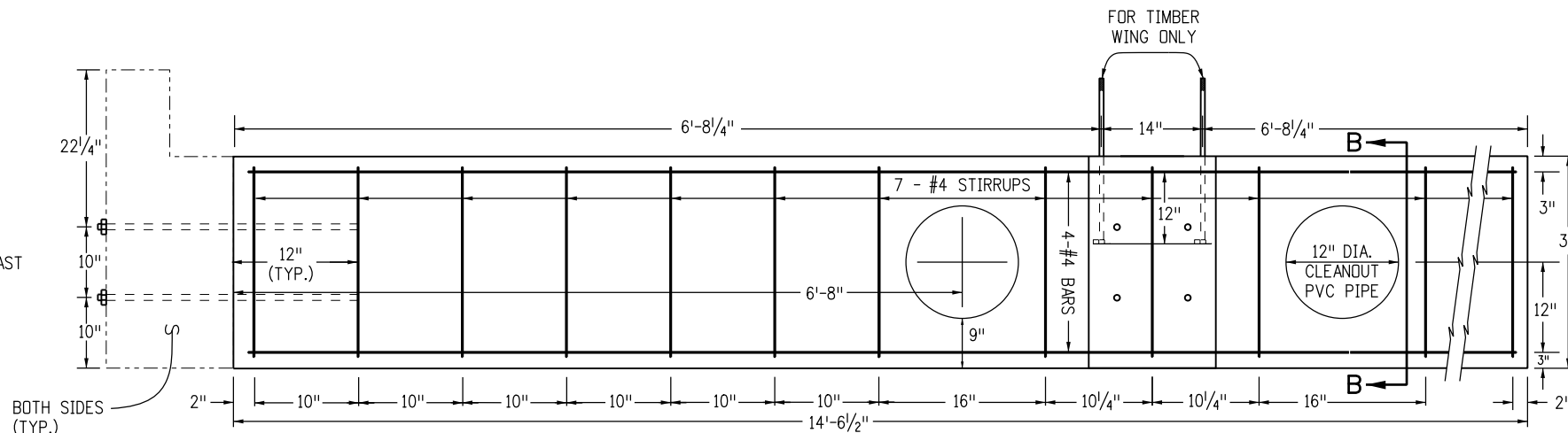
* WHEN CAST IN PLACE, LONGITUDINAL BARS EXTENDING FROM AND INTO THE LATERAL SUPPORT SHALL BE BENT 90° WITH A 2 IN. RADIUS AND CONTINUE PERPENDICULAR 10 IN. FROM THE BEND



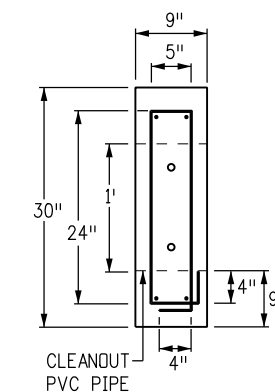
CENTRAL SUPPORT



**SECTION A-A
END SECTION OF FOUNDATION**



ELEVATION OF LATERAL SUPPORT



**SECTION B-B
LATERAL SUPPORT**

- a - 6" x 8" x 7'-4"
- b - 4" x 8" x 9'-4 1/2"
- c - 2" x 6" x 6'-7"
- d - 2" x 6" x 5'-8"
- e - 2" x 6" x 6'-7"
- f - 2" x 6" x 2'-5"
- g - 2" x 6" x 4'-4"
- h - 2" x 6" x 6'-2"

ONE TIMBER WING

| | |
|----------------------------------|-------------|
| a - 2" x 2" x 1/4" x 123.70" | 32.88 LBS. |
| b - 2" x 2" x 1/4" x 123.70" | 32.88 LBS. |
| c - 2" x 2" x 1/4" x 177.93" | 47.30 LBS. |
| d - 1/2" x 1/2" x 1/4" x 141.99" | 43.19 LBS. |
| e - 1/2" x 1/2" x 1/4" x 106.04" | 32.25 LBS. |
| f - 1/2" x 1/2" x 1/4" x 70.09" | 21.32 LBS. |
| g - 1/2" x 1/2" x 1/4" x 34.15" | 10.39 LBS. |
| h - 5" x 6" x 1/4" x BAR | - 2.13 LBS. |
| i - TWO 3" x 10" x 1/4" x BARS | - 4.25 LBS. |
| 6" x 8" x 7'-8" TIMBER POST | |
| TOTAL LBS. STEEL = ~226.6 | |

ONE STEEL WING

| ROADWAY WIDTH (FT.) | USE GRILL UNITS (FT.) | PRECAST | | CAST-IN-PLACE | | A (IN.) | TOTAL GRILL WEIGHT (LBS.) |
|---------------------|-----------------------|--------------------|---------------------|--------------------|---------------------|---------|---------------------------|
| | | CONCRETE (CU. YD.) | REINF. STEEL (LBS.) | CONCRETE (CU. YD.) | REINF. STEEL (LBS.) | | |
| 16 | 8 8 | 9.4 | 670 | 9.4 | 670 | 15 | 5905 |
| 20 | 10 10 | 11.2 | 821 | 11.2 | 821 | 15 | 7345 |
| 24 | 12 12 | 13.1 | 934 | 13.1 | 934 | 15 | 8785 |
| 28 | 14 14 | 15.0 | 1059 | 15.0 | 1059 | 15 | 10224 |
| 30 | 10 10 10 | 14.1 | 1136 | 14.1 | 1136 | 12 | 10809 |
| 32 | 10 12 10 | 16.9 | 1184 | 16.9 | 1184 | 15 | 11737 |
| 38 | 12 14 12 | 17.3 | 1353 | 17.3 | 1353 | 12 | 13628 |
| 40 | 14 12 14 | 20.7 | 1419 | 20.7 | 1419 | 15 | 14617 |

FOUNDATION QUANTITIES

| SIZE | WEIGHT (LBS.) |
|------|---------------|
| 8' | 2952 |
| 10' | 3672 |
| 12' | 4392 |
| 14' | 5112 |

**WELDED GRILL UNITS
FULL LENGTH**

| SIZE | WEIGHT (LBS.) |
|------|---------------|
| 8' | 1476 |
| 10' | 1836 |
| 12' | 2196 |
| 14' | 2556 |

**WELDED GRILL UNITS
HALF LENGTH**

HALF GRILLS SHALL BE BOLTED ON 18 INCH CENTERS MAX. (SEE MULTIPLE GRILL UNIT CONNECTION DETAIL ON SHEET ONE)

WING QUANTITIES

Computer File Information

| |
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| Creation Date: 07/31/19 |
| Designer Initials: JBK |
| Last Modification Date: 07/31/19 |
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Standard Sheet No. 2 of 2

Project Sheet Number: