

|                       |                |       |              |
|-----------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT        | SHEET | TOTAL SHEETS |
|                       | NH 0044(186)44 | 1     | 53           |

FILE: Sheet 01.dgn REV DATE: 3-14-2014  
 PLOTTING DATE: 03-14-2014 INITIAL: LRM

STATE OF SOUTH DAKOTA  
 DEPARTMENT OF TRANSPORTATION  
 PLANS FOR PROPOSED

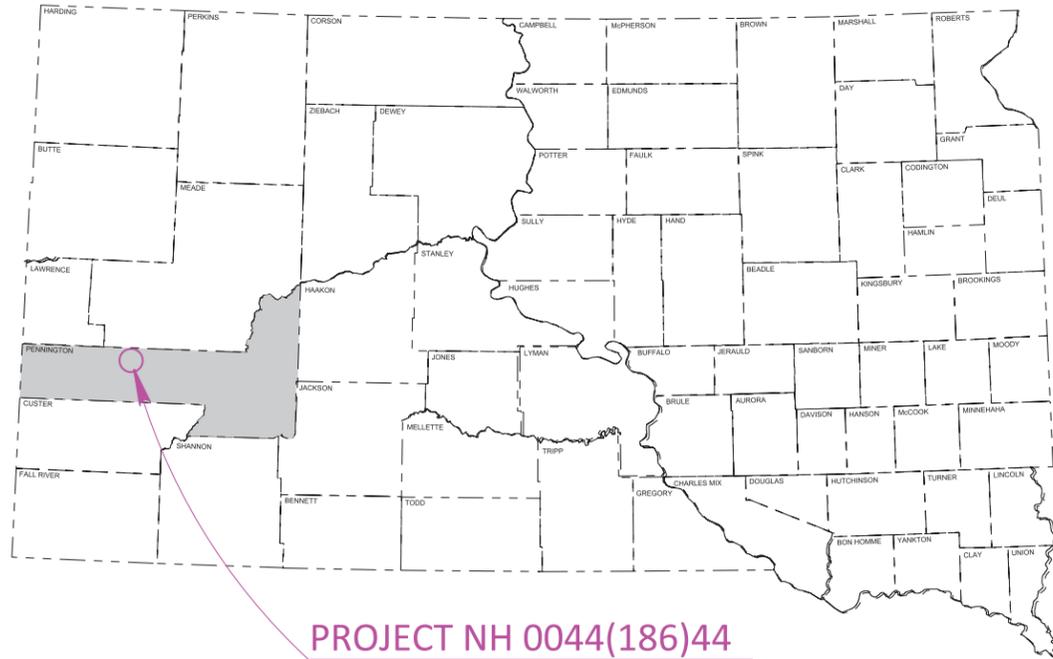
**PROJECT NH 0044(186)44**  
**12TH STREET AND SD HWY 44**  
**PENNINGTON COUNTY**

CURB & GUTTER, SIDEWALK, SIGNALS,  
 PAVEMENT MARKINGS, PERMANENT  
 SIGNING AND ROW

PCN 04T6

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DESIGN DESIGNATION

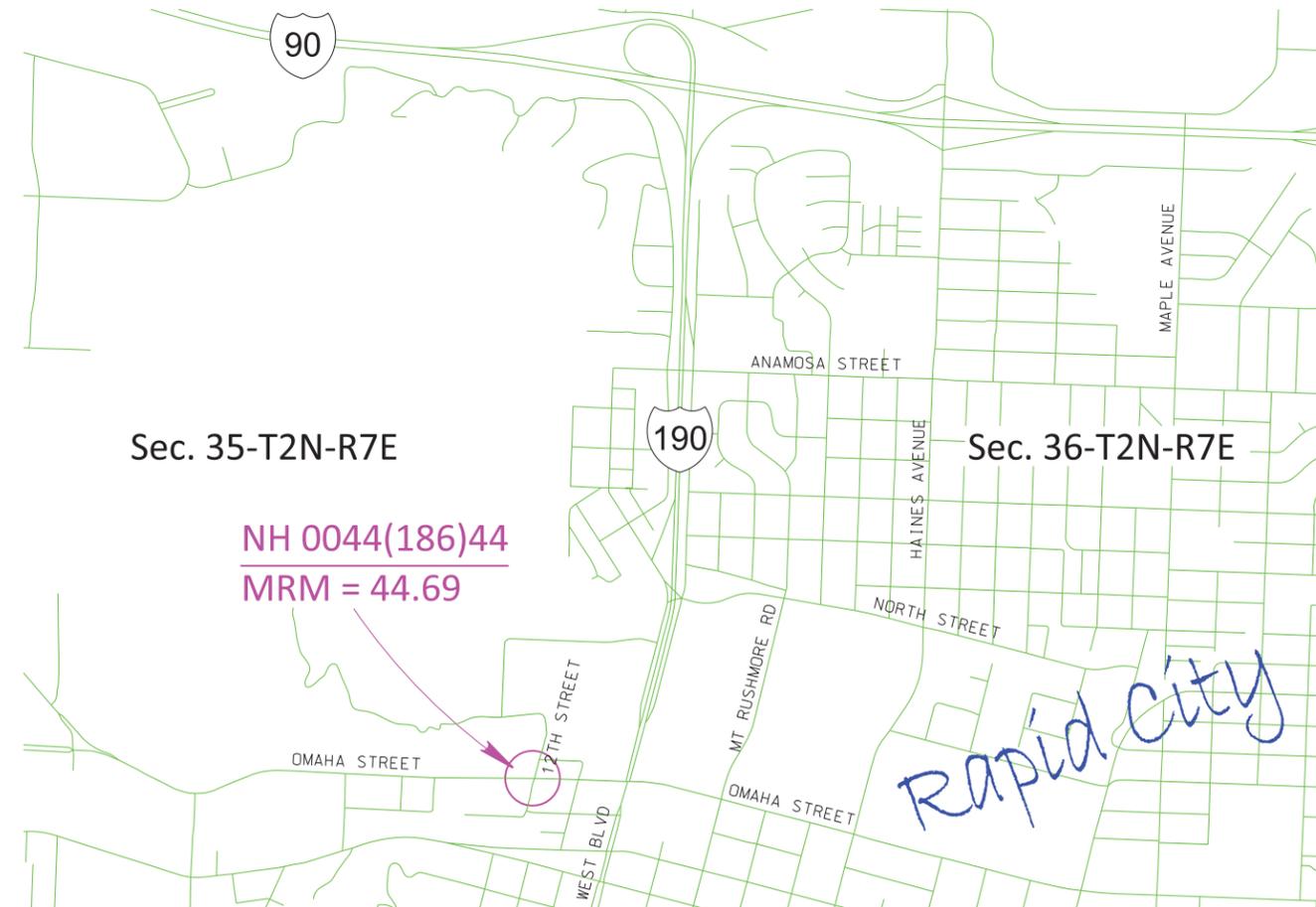
|               |                  |
|---------------|------------------|
|               | <u>SD HWY 44</u> |
| ADT (2012)    | 13,725           |
| ADT (2035)    | 23,909           |
| DHV (2035)    | 2,821            |
| D (P.M. Peak) | 50%              |
| T DHV         | 2%               |
| T ADT         | 4.3%             |
| V             | 35 MPH           |

STORM WATER PERMIT

Major Receiving Body of Water: Rapid Creek  
 Area Disturbed: 0.12 Acres  
 Total Project Area: 0.6 Acres  
 Approx. Begin Lat/Long: 44.0844, -103.2378

SCALES

|      |          |
|------|----------|
|      | URBAN    |
| PLAN | 1" = 40' |



**ESTIMATE OF QUANTITIES**

**FOR BIDDING PURPOSES ONLY**

|                       |                |       |              |
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| Std. Bid Item | Item Description  | Quantity | Unit |
|---------------|---|----------|------|
| 009E0010      | Mobilization  | Lump Sum | LS   |
| 009E3200      | Construction Staking  | Lump Sum | LS   |
| 110E1010      | Remove Asphalt Concrete Pavement                                | 18.3     | SqYd |
| 110E1100      | Remove Concrete Pavement  | 139.4    | SqYd |
| 110E1140      | Remove Concrete Sidewalk  | 99.4     | SqYd |
| 110E1400      | Remove Pavement Marking, 4" or Equivalent                       | 857      | Ft   |
| 110E1540      | Remove Luminaire Pole Footing                                   | 1        | Each |
| 110E5020      | Salvage Traffic Sign  | 10       | Each |
| 110E5100      | Salvage Luminaire Pole  | 1        | Each |
| 250E0010      | Incidental Work   | Lump Sum | LS   |
| 260E2010      | Gravel Cushion  | 48.6     | Ton  |
| 380E4090      | 10" PCC Fillet Section  | 139.4    | SqYd |
| 632E1320      | 2.0"x2.0" Perforated Tube Post                                  | 20.0     | Ft   |
| 632E3203      | Flat Aluminum Sign, Nonremovable Copy High Intensity            | 214.0    | SqFt |
| 632E3205      | Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity | 28.0     | SqFt |
| 632E3520      | Remove, Salvage, Relocate, and Reset Traffic Sign               | 4        | Each |
| 633E0010      | Cold Applied Plastic Pavement Marking, 4"                       | 855      | Ft   |
| 633E0030      | Cold Applied Plastic Pavement Marking, 24"                      | 597      | Ft   |
| 633E0035      | Cold Applied Plastic Pavement Marking, Area                     | 27       | SqFt |
| 633E0040      | Cold Applied Plastic Pavement Marking, Arrow                    | 3        | Each |
| 633E1400      | Pavement Marking Paint, 4" White                                | 130      | Ft   |
| 633E1405      | Pavement Marking Paint, 4" Yellow                               | 142      | Ft   |
| 633E1445      | Pavement Marking Paint, Arrow                                   | 2        | Each |
| 633E5000      | Grooving for Cold Applied Plastic Pavement Marking, 4"          | 855      | Ft   |
| 633E5015      | Grooving for Cold Applied Plastic Pavement Marking, 24"         | 597      | Ft   |
| 633E5020      | Grooving for Cold Applied Plastic Pavement Marking, Area        | 27       | SqFt |
| 633E5025      | Grooving for Cold Applied Plastic Pavement Marking, Arrow       | 3        | Each |
| 634E0010      | Flagging  | 20       | Hour |
| 634E0100      | Traffic Control   | 881      | Unit |
| 634E0120      | Traffic Control, Miscellaneous                                  | Lump Sum | LS   |
| 634E0420      | Type C Advance Warning Arrow Panel                              | 2        | Each |
| 634E0610      | 4" Temporary Pavement Marking Tape Type 2                       | 2,000    | Ft   |
| 634E2010      | Temporary Pedestrian Facility(s)                                | Lump Sum | LS   |
| 635E2000      | Pedestal Signal Pole  | 1        | Each |
| 635E2025      | Signal Pole with 25' Mast Arm                                   | 1        | Each |
| 635E2035      | Signal Pole with 35' Mast Arm                                   | 1        | Each |
| 635E2060      | Signal Pole with 60' Mast Arm                                   | 1        | Each |
| 635E2165      | Signal Pole with 65' Mast Arm and Luminaire Arm                 | 1        | Each |
| 635E3340      | Roadway Luminaire, 400 Watt with Photoelectric Cell             | 1        | Each |
| 635E4030      | 3 Section Vehicle Signal Head                                   | 14       | Each |
| 635E4040      | 4 Section Vehicle Signal Head                                   | 4        | Each |
| 635E5020      | 2' Diameter Footing   | 6.0      | Ft   |
| 635E5030      | 3' Diameter Footing   | 47.0     | Ft   |
| 635E5302      | Type 2 Electrical Junction Box                                  | 5        | Each |
| 635E5303      | Type 3 Electrical Junction Box                                  | 2        | Each |
| 635E5304      | Type 4 Electrical Junction Box                                  | 2        | Each |
| 635E5430      | Traffic Signal Controller                                       | 1        | Each |
| 635E5515      | Signal Head Battery Backup and Flash System                     | 1        | Each |
| 635E5540      | Sawed-In Detector Loop  | 15       | Each |
| 635E5550      | Detector Unit   | 5        | Each |
| 635E5562      | Siren Emergency Vehicle Preemption System                       | 1        | Each |
| 635E5900      | Pedestrian Push Button  | 8        | Each |
| 635E5910      | Pedestrian Push Button Pole                                     | 8        | Each |
| 635E5922      | Pedestrian Signal Head with Countdown Timer                     | 8        | Each |
| 635E5930      | Pedestrian Crossing Sign  | 8        | Each |

|          |   |          |      |
|----------|---|----------|------|
| 635E8120 | 2" Rigid Conduit, Schedule 40                             | 295      | Ft   |
| 635E8130 | 3" Rigid Conduit, Schedule 40                             | 105      | Ft   |
| 635E8140 | 4" Rigid Conduit, Schedule 40                             | 50       | Ft   |
| 635E8230 | 3" Rigid Conduit, Schedule 80                             | 140      | Ft   |
| 635E9014 | 1/C #4 AWG Copper Wire                                    | 480      | Ft   |
| 635E9016 | 1/C #6 AWG Copper Wire                                    | 110      | Ft   |
| 635E9504 | 4/C #14 AWG Copper Tray Cable, K2                         | 2,130    | Ft   |
| 635E9505 | 5/C #14 AWG Copper Tray Cable, K2                         | 345      | Ft   |
| 635E9519 | 19/C #14 AWG Copper Tray Cable, K2                        | 355      | Ft   |
| 635E9525 | 25/C #14 AWG Copper Tray Cable, K2                        | 700      | Ft   |
| 635E9600 | #16 AWG Copper Twisted Shielded Pair                      | 820      | Ft   |
| 635E9710 | 2/C #10 AWG Copper Pole and Bracket Cable                 | 63       | Ft   |
| 635E9950 | Install Fiber Optic Cable                                 | 100      | Ft   |
| 651E0060 | 6" Concrete Sidewalk                                      | 1,237    | SqFt |
| 651E7000 | Type 1 Detectable Warnings                                | 90       | SqFt |
| 734E0010 | Erosion Control   | Lump Sum | LS   |
| 734E0845 | Sediment Control at Inlet with Frame and Grate            | 2        | Each |
| 734E0847 | Sediment Control at Type S Reinforced Concrete Drop Inlet | 16       | Ft   |

**ENVIRONMENTAL COMMITMENTS**

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

**COMMITMENT C: WATER SOURCE**

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

The Contractor shall not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

**Action Taken/Required:**

The Contractor shall obtain the necessary permits from the regulatory agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE) prior to executing water extraction activities.

**COMMITMENT D: WATER QUALITY STANDARDS**

**COMMITMENT D2: SURFACE WATER DISCHARGE**

If construction dewatering is required, the Contractor shall obtain a Temporary Discharge Permit from the DENR and provide a copy to the Project Engineer. Contact the DENR Surface Water Program at 605-773-3351 to apply for a permit.

**COMMITMENT E: STORM WATER**

Construction activities constitute less than 1 acre of disturbance.

**Action Taken/Required:**

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

**COMMITMENT H: WASTE DISPOSAL SITE**

The Contractor shall furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

**Action Taken/Required:**

Construction and/or demolition debris may not be disposed of within the State or City ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".
2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.



**ENVIRONMENTAL COMMITMENTS CONT'D**

**COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES**

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits.

**Action Taken/Required:**

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: staging areas, borrow sites, waste disposal sites, and all material processing sites.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

**GENERAL NOTES**

**SDDOT SPECIFICATIONS**

Standard Specifications for Roads & Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.

**UTILITIES**

The Contractor shall be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project, might be relocated or replaced by a new utility facility during the construction of this project, or might not require adjustment and may remain in its current location. The Contractor shall contact each utility owner and confirm the status of all existing and new utility facilities.

|  |   |
|--|---|
| <b>Power</b><br><b>Black Hills Power</b><br>Contact: Louis Schwengler<br>Cell: 605-381-3872  | <b>Gas</b><br><b>MDU</b><br>Contact: Rick Himmelspach<br>Cell: 605-390-5073   |
| <b>Communications</b><br><b>Century Link</b><br>Contact: Keith Nelson<br>Cell: 605-786-2980  | <b>Communications</b><br><b>WOW</b><br>Contact: Julie Burckhard<br>Cell: 605-415-0692   |
| <b>Communications</b><br><b>Midcontinent</b><br>Contact: Terry Hofer<br>Cell: 605-209-2113   | <b>Communications</b><br><b>South Dakota Networks</b><br>Contact: Paul Lowe<br>Cell: 605-390-3502   |
| <b>City of Rapid City</b><br><b>Sewer, Water and Storm Sewer</b><br>City Maintenance Shop<br>605 Steele Avenue<br>Rapid City, SD 57701<br>Contact: Chip Petrik<br>Office: 605-394-4163 | <b>City of Rapid City</b><br><b>Lights and Signals</b><br>Public Works Department<br>300 6 <sup>th</sup> Street<br>Rapid City, SD 57701<br>Contact: Mike Peterson<br>Office: 605-394-4118 |

**Black Hills Power** has an overhead power line crossing over the south side of 12<sup>th</sup> Street and Omaha Street intersection.

**WOW** has overhead lines on the Black Hills Power overhead line system over the south side of 12<sup>th</sup> Street and Omaha Street intersection.

**Midcontinent** has overhead lines on the Black Hills Power overhead line system over the south side of 12<sup>th</sup> Street and Omaha Street intersection. They also have buried fiber line in the northwest quadrant of the intersection.

**Century Link** has buried fiber line crossing the north side of 12<sup>th</sup> Street and Omaha Street intersection.

**South Dakota Networks** has buried fiber line crossing the north side of 12<sup>th</sup> Street and Omaha Street intersection.

**MDU** has buried gas main crossing the south side and west side of 12<sup>th</sup> Street and Omaha Street intersection.

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**LIGHTING AND SIGNAL NOTES**

**SUPPLYING AS BUILT PLANS**

If the traffic signal systems or roadway lighting systems are constructed differently than what is stated in the plans, the Contractor shall supply as built plans to the Engineer and a copy shall be sent to the Traffic Design Engineer. The as built plans may include conduit layouts, wiring diagrams, or other drawings depicting the changes from the original plans.

**ON-SITE INSPECTION**

An on-site inspection of the traffic signals shall be conducted before acceptance of the project, once the traffic signals are completed and operational. The on-site inspection shall be conducted by the Project Engineer and Region Traffic Engineer with the Contractor, City Traffic Engineer, and the Traffic Design Engineer present.

**SHOP DRAWING AND CATALOG CUTS SUBMITTAL**

The Contractor shall submit shop drawings and catalog cuts in accordance with Section 985 of the Standard Specifications or in Adobe PDF format. PDF submittals shall be sent to the following email address:

[Lance.McQueen@hdrinc.com](mailto:Lance.McQueen@hdrinc.com)

Upon review of the submittals, they will be sent by the Engineer to the following email addresses for concurrence of approvals or remarks:

[Pete.Longman@state.sd.us](mailto:Pete.Longman@state.sd.us)  
[Stacy.Bartlett@state.sd.us](mailto:Stacy.Bartlett@state.sd.us)

**INCIDENTAL WORK**

Incidental work includes, but is not limited to:

- Signal aiming
- Tree trimming (as needed)
- Sawcutting of existing concrete and asphalt surfacing
- Removal of existing junction boxes
- Connecting to the existing dual meter pedestal
- Connections to existing conduits and junction boxes
- Coordination with nearby and adjacent projects.
- Conduit boring
- Sweeping

**SALVAGE LUMINAIRE POLE**

Existing luminaire poles shall be salvaged, at the locations shown on the plans, and delivered to the City of Rapid City by the Contractor. The Contractor shall notify the City 5 days before the delivery of the salvaged luminaire poles. The City contact is Traffic Operations at (605) 394-4118.

All costs for work involved in the salvage and delivery of the existing luminaire poles shall be incidental to the contract unit price per each for "Salvage Luminaire Pole".

**REMOVE LUMINAIRE POLE FOOTING**

The footings of the removed existing luminaire poles shall be removed by the Contractor to a minimum of 2' below the ground surface. Restoration of the disturbed area shall be to the satisfaction of the Engineer.

All costs for removing the footings of the existing luminaire poles shall be incidental to the contract unit price per each for "Remove Luminaire Pole Footing".



**TABLE OF FOOTING DATA**

| Signal Pole | Footing Diameter | * Footing Depth | **Spiral Diameter | **Spiral Length | Vertical Reinforcement |
|-------------|------------------|-----------------|-------------------|-----------------|------------------------|
| A1          | 3' - 0"          | 10' - 0"        | 2' - 8"           | 104' - 3"       | 14-#8 x 9' - 6"        |
| A2          | 3' - 0"          | 15' - 0"        | 2' - 8"           | 145' - 9"       | 14-#8 x 14' - 6"       |
| A3          | 3' - 0"          | 10' - 0"        | 2' - 8"           | 104' - 3"       | 14-#8 x 9' - 6"        |
| A3A         | 2' - 0"          | 6' - 0"         | 1' - 8"           | 44' - 3"        | 8-#7 x 5' - 6"         |
| A4          | 3' - 0"          | 12' - 0"        | 2' - 8"           | 120' - 9"       | 14-#8 x 11' - 6"       |

\* Footing depth allows for a maximum of 3" of shaft above ground.

\*\* The size of all spirals shall be #3.

The subsurface conditions at the intersection of SD44 and 12th St consist of 8.5' to 11.5' reddish brown sandy clay-silt over 8' to 12' of brown silty gravel with cobbles. These alluvial layers rest upon a dark gray silt-clay shale (Graneros Group). Groundwater was measured between 14.0' and 16.5' below the surface. The borings remained open to at least 16.2' below the surface at the time of drilling.

During construction of the luminaire footings, concrete placement operations should closely follow excavation procedures. The longer the excavations are left open the more likely caving may occur. If caving soils are encountered during excavation, casing may be required to construct the cylindrical footings.

Concrete shall not be dropped through standing water. If water is present in the excavation it shall be removed prior to concrete placement or the concrete shall be tremied. If caving occurs during dewatering the concrete shall be placed through a tremie or by means of a casing.

The boring logs and laboratory tests are available for review at the Central Office in Pierre. If questions arise or additional information is needed concerning the cylindrical footings contact the Geotechnical Engineering Activity in Pierre at 605.773.3401.

**POLES**

New poles shall be galvanized steel. Galvanizing shall be in accordance with AASHTO Specification M111 (ASTM A123). Steel pole material shall be in accordance with ASTM A36, A242, A570, A572, A607 or A595 Grade A or B. A595 material shall be limited to a 3/8 inch maximum thickness. Steel pole material with a thickness of 1/2 inch to 2 inches, shall satisfy Charpy V-Notch toughness test requirements of 15 ft. lb. at 40 degrees F. The SDDOT Office of Bridge Design shall be contacted for Charpy impact requirements for steel pole material thickness greater than 2 inches.

The steel pole-to-base-plate connection shall be a full-penetration groove-welded connection with a backing ring as described in Table 11.9.3.1-1, Section 4.5 of the current edition of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals.

Cantilever traffic signal supports, including anchor bolts, shall be designed for fatigue in accordance with Fatigue Importance Category III without galloping and truck induced gusts.

Signal poles shall have rotatable mast arms.

Luminaire extension(s) shall have a 50 Ft. mounting height with 8 Ft. arm.

All poles shall have transformer bases.

**LUMINAIRES**

Luminaires shall be High Pressure Sodium, medium, semi-cutoff, type III.

Three copies of the isofootcandle charts and utilization curves shall be furnished to the Engineer for approval. The Contractor must get approval from the Engineer prior to installation of the luminaires.

The approved isofootcandle data for each case shall be used to determine the correct socket position at each site. Each luminaire shall be installed with its lamp socket in the proper position and in a level attitude.

**TRAFFIC SIGNAL CONTROL CABLE LABELS**

Traffic signal cable shall be identified in hand holes, junction boxes, pedestal bases, electrical service cabinets, and controller cabinets as indicated on the Wiring Diagram. Labels shall be wrapped around traffic signal cable to indicate the signal pole and signal head that it is connected to. Labels shall be self-adhesive vinyl cloth with a preprinted legend. Traffic signal control cables to the poles shall be marked with a legend and shall be color coded as follows; northwest (blue), northeast (red), southeast (green), and southwest (orange).

**SIGNAL BACKPLATES**

Signal backplates shall extend not less than 5 inches from the edge of the signal head at the top, bottom, and sides. The bottom of the backplate on vehicle signal faces mounted directly above pedestrian signal indications shall be sized to permit the separate adjustment of the vehicle and pedestrian signal indication and may be less than 4 inches. All backplates shall have a dull black finish.

Signal backplates shall be polycarbonate.

**SIGNAL AIMING**

Signals shall be aimed and trees shall be trimmed such that all the signals for each approach shall be continuously visible for the minimum distance listed in the table in Section 4D.12 of the MUTCD.

**TRAFFIC SIGNAL METER SOCKETS**

The meter sockets provided for traffic signals by the Contractor shall be a 200 amp, positive by-pass. The meter socket shall be incidental in the contract price per each for the bid item "Traffic Signal Controller".

**CONNECT TO EXISTING METER PEDESTAL**

The Contractor shall connect the proposed #4 wires from the proposed controller cabinet to the existing dual meter pedestal at the NW corner of 12<sup>th</sup> Street and Omaha Street. All costs for this work shall be included in the contract lump sum price for the bid item "Incidental Work".

**DETECTOR LOOP WIRE SPLICING**

Standard Plate 635.77, step 4 indicates methods for environmentally sealing the detector loop wire splice. The sealing connector shall be 3M Scotchcast 3570G or equal.

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**PEDESTRIAN PUSH BUTTON**

The pedestrian push button shall meet the following requirements:

**General Requirements:**

1. Shall be pressure activated with essentially no moving parts.
2. Shall be vandal resistant.
3. Shall activate with 3 lbs. force or less.
4. Shall have an LED that illuminates when the button is being pushed.
5. Shall give a toned beep verification of button being pushed.
6. Shall have an operating life of 1 million actuations.
7. Shall be compatible with NEMA TS1 and TS2 controllers.

**Housing:**

1. Button housing shall be high impact cast or machined aluminum.
2. All switch electronics shall be sealed within the high impact cast or machined aluminum housing.
3. Shall have a gasket between the button housing and the mounting cup.

**Electrical:**

1. Operating Voltage: 15 to 24V DC or 12 to 24V AC.
2. On Resistance 10 Ohms (When the button is activated and placing a call).
3. Standby Current 10 micro amps typical.
4. Shall have built in surge protection.
5. Shall have a solid state electronic piezo switch rated for 1 million cycles with no moving plunger or moving electrical contacts.
6. Shall hold the call for a minimum of 5 seconds.
7. Requires only two conductors be run from the traffic signal cabinet to the push button to operate.
8. Six units wired in parallel on a single pedestrian isolator input shall not pull the input voltage of the pedestrian isolator down such that a false pedestrian call is placed in the controller.

**Mounting Requirements:**

The pedestrian buttons shall be mounted on the poles as shown on the plans. The pole/button shall be installed adjacent to, and within 10 inches of a clear ground space or a landing on the pedestrian access route leading to the crosswalk. **A clear ground space is an obstruction-free concrete sidewalk at least 30 inches by 48 inches with surface slopes not exceeding 0.02ft/ft in any direction.** A landing is an obstruction-free concrete sidewalk at least 48 inches by 48 inches with surface slopes not exceeding 0.02ft/ft in any direction. Landing locations are designated on the surfacing plan sheets. The locations for the pedestrian push button poles can be adjusted but the final location shall be adjacent to a clear ground space as defined above. All pedestrian push buttons poles shall be no farther than 10' to the edge of the curb except when noted in the plans and no closer than 10' in spacing to other pedestrian push button poles. The plans clearly indicate the placement of the pedestrian push button poles.



**TRAFFIC SIGNAL CONTROLLER**

The controller shall be a solid state, digital, NEMA TS2 Type 1 from the approved product list and as approved by the South Dakota Department of Transportation Traffic Design Engineer in the Office of Road Design. The controller shall be compatible with existing signal control equipment and software in the City of Rapid City.

The controller shall be two through twelve phase controllers.

All of the vehicle detectors shall operate in the presence (non-locking) mode and shall have call delay timing capability. The call delay feature shall be inhibited by the controller. Set these detectors to 3 seconds delay.

The controller cabinet furnished and installed by the Contractor shall match the cabinet installed at the intersection of Omaha Street and West Boulevard (I-190) with that upcoming project.

The controller cabinet doors shall be hinged on the right side.

Digital timing shall be provided with a battery backup.

The controller shall alternate the red and yellow indication when flashing.

The interface panels shall be capable of inserting up to sixteen load switches.

The controller cabinet shall be pad mounted.

The controller shall be capable of programming by manual entry via the front panel keyboard, data downloading from a portable PC computer via null-modem cable, and data downloading from one controller to another using a serial port on each controller.

The controller shall have an Ethernet Port.

The controller shall be capable of operating coordinated by time-based, hardwire, and telemetry.

The controller cabinets shall be capable of placing vehicle and pedestrian calls into the controller. Placed calls shall provide for eight vehicle phases and four pedestrian phases. The placed calls for vehicle phases shall be capable of extending the associated vehicle phase by continuous or intermittent contact.

The controllers shall have a copy function to copy all timing data from one phase to another. The controllers shall also permit copying all coordination pattern data from one pattern to another.

A Malfunction Management Unit shall be installed in each cabinet and shall conform to the requirements of NEMA Standard TS-2 Section 4.

A sufficient quantity of BUS Interface Units shall be installed in the cabinet to provide communication between detectors, load switches, controller unit, etc. Each BUS Interface Unit shall conform to NEMA Standard TS-2, Section 8.

The controller shall have internal signal dimming.

The controller Solid State Flasher shall have dimming capability.

The Contractor is responsible for programming controllers with the signal timings provided in these plans.

All costs for constructing the concrete pad and footing, materials, labor, and furnishing and installing the controller cabinet shall be incidental to the contract unit price per each for "Traffic Signal Controller".

**CONTROLLER PROGRAMMING**

The Contractor shall furnish the Road Design Office with a copy of the data programmed into the Controller prior to the full operation of the Controller for approval. The address is as follows:

Pete Longman/Stacy Bartlett  
Traffic Design Engineer  
Office of Road Design  
700 East Broadway  
Pierre, SD 57501

**BATTERY BACKUP AND FLASH SYSTEM**

The proposed Battery Backup and Flash System shall be installed within a separate cabinet.

The proposed Battery Backup and Flash System shall be furnished, installed and paid for as discussed in the **Special Provision for Signal Head Battery Backup and Flash System.**

**BATTERY BACKUP HOUSING**

The Contractor shall supply a cabinet for housing the battery backup at the traffic signal controller.

All work involved in supplying and installing the cabinet shall be incidental to the contract unit price per each for "Signal Head Battery Backup and Flash System".

**SIREN EMERGENCY VEHICLE PREEMPTION SYSTEM**

The proposed Siren Emergency Vehicle Preemption System shall be furnished, installed and paid for as shown on the plans and as discussed in the **Special Provision for Siren Emergency Vehicle Preemption System.**

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**INSTALL FIBER OPTIC CABLE**

The existing fiber optic cable shown on the plans shall be installed thru the conduit as shown on the plans. The fiber optic cable is currently coiled within existing junction box EJB1 shown on the plans.

All costs for installing the existing fiber optic cable thru the conduit and into the controller cabinet shall be included in the contract unit price per foot for "Install Fiber Optic Cable".

**FIBER OPTIC CABLE MODEM**

The new traffic controller shall be equipped with a fiber optic modem.

The existing fiber optic cable to be brought into the cabinet shall be terminated into the modem. The terminations shall match the fiber terminations to be completed within the reinstalled cabinet with fiber optic modem at the reconstructed intersection of I-190/West Blvd & Omaha St/HWY 44.

All costs for the fiber optic modem shall be incidental to the contract unit price per each for "Traffic Signal Controller". The fiber terminations shall be incidental to this bid item.

**FIBER OPTIC CABLE INTERCONNECTION**

The Contractor shall install fiber optic cable communication between the traffic signal controllers at the intersections of I-190/West Blvd & Omaha St/HWY 44 and 12<sup>th</sup> St & Omaha St/HWY 44. The existing communication is Serial type. The new fiber optic cable communication installed shall be Serial type to match existing.

All costs for interconnecting the traffic signal controllers along Omaha St/HWY 44 shall be incidental to the contract unit price per each for "Traffic Signal Controller".

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## PERMANENT SIGNING NOTES

### REMOVE, SALVAGE, RELOCATE AND RESET TRAFFIC SIGN

The Contractor shall remove, salvage or reset the existing signs, posts, and bases as shown on the plans. All removed/salvaged existing posts, bases, hardware, and signs shall remain property of the State of South Dakota and be transported to the Rapid City SD DOT South Maintenance Yard on SD 79 by the Contractor. The Contractor shall notify the Engineer two days prior to time of delivery so correct placement for storage and inventory of materials can be made upon receipt.

All bolts, nuts, and washers shall be placed in individual 5-gallon pails. Backing materials shall be separated from the signs and may be reused at the Contractor's discretion. Non-threaded connections (rivets) shall be cut when necessary to reduce sign sections to a 4'x6' maximum size.

All signs removed, salvaged or reset shall be paid for under their appropriate bid item as discussed on the plans.

### PERMANENT SIGNING

Signs shall be installed in the vertical order shown on the plans.

The Contractor shall furnish all signs, posts, stiffeners, bases, hardware, and labor for installation of permanent signs in size, type, and quantity as shown in these plans and/or as required by the Engineer.

The Contractor shall provide all labor and equipment necessary to install permanent signing and to remove, salvage and reset the existing signs as shown on the plans.

The Contractor shall stake the signs and the Engineer will verify the location prior to installation. The lateral distance from the roadway and the height of the sign shall be established by the Contractor according to the Standard Plates in the plans and the MUTCD.

### SHEETING REQUIREMENTS

All legend and border utilizing the color black shall be vinyl or screen printed black, non-reflectorized material. All other legend and border shall be of same type of sheeting as the background of the same sign.

All signs on the plans that specify "Type IV" (High Intensity) sheeting shall have High Intensity Prismatic retro-reflective background, Type IV as per AASHTO designation M 268 (ASTM 04956). All signs on the plans that specify "Type XI" (Super/Very High Intensity) shall have micro-cube corner prismatic retro-reflectorized background, Type XI as per AASHTO designation M 268 (ASTM 04956).

### SIGN LEGEND, BORDER, BACKGROUND AND MOUNTING

All sign material shall comply with Section 982 of the Standard Specifications.

The sign colors shall be as stipulated in the MUTCD and as shown in the sign details.

When signs are mounted in succession, they shall be 1-2 inches apart. Lateral placement of signs shall be determined by the Engineer.

### DATE DECAL

The Contractor shall affix a state furnished date decal to each new sign installed. Each decal is a self-adhesive sticker approximately 2" X 2" with removable paper backing and black numerals on a white background. The date decal shall display the last two digits of the year the sign was manufactured (as illustrated).



One decal shall be placed in the extreme lower left corner of the back of flat aluminum signs. Sign supports or other obstructions shall not block the view of the date decal upon completion of the sign installation.

Costs for installing of date decal on the new signs shall be incidental to the contract unit price for the appropriate bid item of either "Flat Aluminum Sign, Non-Removable Copy High Intensity" or "Flat Aluminum Sign, Non-Removable Copy Super/Very High Intensity".

### HARDWARE

Aluminum U-Channel stiffeners shall be used on all standard highway signs greater than 36" in width and shall conform to Alloy 6063-T6 or 6061-T6. The U-Channel shall be 2 inches in width and free of holes. The U-Channel stiffeners shall also be used to connect various signs and perforated tube posts together so that an entire sign can be erected as a single installation. Stiffeners may be fastened to signs by use of 1/4" drive rivets with a minimum of one on each end and one centered between each post. Installation of the stiffeners shall be incidental to other contract items.

A 3/8" diameter straight bolt (Grade 8) shall be used in all breakaway shear bases for the 2.0" perforated tube posts. All other perforated tube signpost base material shall be fastened with 5/16" diameter corner bolts (Grade 2).

### FURNISH & INSTALL FLAT ALUMINUM SIGNS / NON-REMOVABLE COPY HIGH INTENSITY & SUPER/VERY HIGH INTENSITY

Measurement of sign areas will include payment for the entire sign blank before trimming for rounded corners. The square unit measurement for each sign shall be as shown on the plans.

Payment shall include all labor (including installing date decals), equipment, and materials to complete the work, and shall be paid for at the contract unit price per square foot for Flat Aluminum Sign, Non-Removable Copy High Intensity or Flat Aluminum Sign, Non-Removable Copy Super/Very High Intensity.

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### PERFORATED TUBE POST

During installation of sign posts, Contractor shall take caution to not damage any existing or proposed underground utilities.

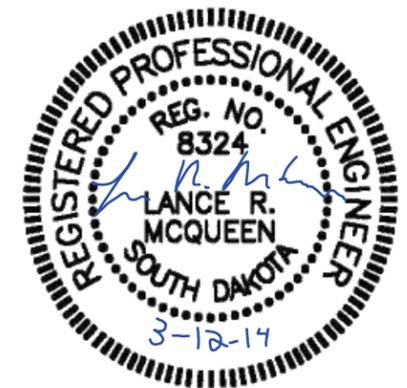
The Contractor shall use Telespar brand (or equivalent) posts and bases on all new standard highway signs as approved by the Engineer. All post materials shall conform to Section 982 of the Standard Specifications, and be in accordance with ASTM specifications. Signs designated as requiring a shear slip base shall have a 4 foot long base assembly with a shear breakaway base connecting the base to the signpost. The height of the post shall not exceed the minimum height needed by more than 0.5 feet. Any portion that extends above the sign shall be cut off. No separate payment will be made for cutting the post or for that length cut off. All posts and bases shall be accompanied by Certificates of Compliance and shall meet all safety standards as set forth in the current edition of the Manual on Uniform Traffic Control Devices (MUTCD).

Breakaway post details regarding posts, hardware and bases shall be followed as per the manufacturer's recommendations. The sign post contract items shall include post bases and all hardware.

The post lengths shall be verified by the Contractor. Measurement of post lengths for payment will be for above ground post lengths as field measured. The Contractor is urged to cut posts to length on job site after site by site verification of post length.

Payment for 2.0" x 2.0" perforated tube post shall include all cost for labor, equipment, and materials necessary to complete the following work:

1. Furnish all posts, stiffeners, breakaway bases, soil stabilizers, and hardware.
2. Assembly and installation of breakaway base sign supports as per details shown in these plans.
3. Assembly of sign(s) to sign post as per erection details for Highway Signs as shown in these plans.
4. Installation of signpost and sign(s).



**PAVEMENT MARKING NOTES**

**PAVEMENT MARKING**

The pavement marking material shall be as defined in Section 983 of the Standard Specifications.

**CROSSWALK MARKINGS**

The Contractor shall place a crosswalk bar centered on each lane line and a crosswalk bar in the middle of each lane. The crosswalk bar is 2 ft wide. The spacing between crosswalk bars shall not exceed 5 ft and spacing shall be consistent across the approach. The Contractor shall direct any questions regarding the placement of the crosswalk bars to the Region Traffic Engineer.

**GROOVE PAVEMENT FOR PAVEMENT MARKING**

The Contractor shall establish a positive means for the removal of the grinding and/or grooving residue. Solid residue shall be removed from the pavement surfaces before being blown by traffic action or wind. Residue shall not be permitted to flow across lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, shall be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state.

**REMOVE PAVEMENT MARKING**

The Contractor shall remove all existing pavement markings that conflict with the proposed pavement markings or as indicated on the plans.

All work involved in removing the existing pavement markings for the placement of the new pavement markings shall be incidental to the contract unit price per foot for "Remove Pavement Marking, 4" or Equivalent".

Payment shall be at the equivalent length of 4" pavement marking. Equivalent lengths are shown in the table below.

| Item                     | Quantity as Measured | 4" Equivalent |
|--------------------------|----------------------|---------------|
| 4" Pavement Marking      | 1 Ft                 | 1 Ft          |
| 8" Pavement Marking      | 1 Ft                 | 2 Ft          |
| 12" Pavement Marking     | 1 Ft                 | 3 Ft          |
| 24" Pavement Marking     | 1 Ft                 | 6 Ft          |
| Pavement Marking Area    | 1 SqFt               | 3 Ft          |
| Pavement Marking Arrow   | 1 Each               | 250 Ft        |
| Pavement Marking Message | 1 Word               | 500 Ft        |

**SURFACING NOTES**

**REMOVAL OF EXISTING CONCRETE PAVEMENT**

Existing asphalt concrete and/or existing asphalt concrete patch work that was placed above the existing concrete pavement is included in the quantity for "Remove Concrete Pavement". The Contractor shall dispose of the concrete pavement and asphalt concrete at a site approved by the Engineer.

**10" PCC FILLET SECTIONS**

Payment for "10" PCC Fillet Section" shall be based on plans quantity. If additions or reductions to the area of PCC fillet sections are ordered by the Engineer, payment will be made in accordance with the contract unit price per square yard for "10" PCC Fillet Section".

**CONCRETE SIDEWALK**

The concrete sidewalk shall be constructed in accordance with Section 651 of the Standard Specifications. The sidewalk details shown above are typical of this project; however, the sidewalk widths, boulevard widths, and other special details are shown on the Curb and Gutter Layout sheets.

**TYPE 1 DETECTABLE WARNINGS**

Detectable warnings shall be in compliance with the Americans with Disability Act regulations. The detectable warnings shall be installed according to the manufacturer's installation instructions.

A concrete thickness equal to the adjacent concrete sidewalk thickness and 2 inches of granular cushion material shall be placed below the Type 1 Detectable Warnings. When concrete is placed below the detectable warnings then the concrete thickness shall be transitioned at the rate of 1" per foot to match the adjacent concrete sidewalk thickness.

The detectable warnings shall be a yellow color for application in concrete curb ramps, matching the color of the detectable warnings installed for the project located at I-190/West Blvd & Omaha St/HWY 44. Cast iron plates may be a natural patina (weathered steel).

| Type 1 Detectable Warnings  |   |
|---|---|
| Product   | Manufacturer  |
| Detectable Warning Plate<br>Cast Iron Plate   | Neenah Foundry Company<br>Neenah, WI<br>800-558-5075<br><a href="http://www.neenahfoundry.com/">http://www.neenahfoundry.com/</a>   |
| Detectable Warning Plate<br>Cast Iron Plate   | Deeter Foundry<br>Lincoln, NE<br>800-234-7466<br><a href="http://www.deeter.com/">http://www.deeter.com/</a>  |
| Detectable Warning Plate<br>Cast Iron Plate   | East Jordan Iron Works, Inc.<br>301 Spring Street<br>East Jordan, MI 49727<br>800-626-4653<br><a href="http://www.ejiw.com">http://www.ejiw.com</a>   |
| CAST-DWD<br>Cast Iron Plate   | Key 3 Casting (Northern Foundry)<br>555 West 25 <sup>th</sup> Street<br>H bbing, MN 55746<br>218-263-8871<br><a href="http://key3casting.com">http://key3casting.com</a>                                      |
| Pre-Manufactured<br>Detectable Warning Paver<br>Concrete Panel  | M.R. Castings, Inc.<br>PO Box 34232<br>Omaha, NE 68134<br>402-510-3279<br><a href="http://mrcastings.com/">http://mrcastings.com/</a>   |
| ADA Arcis Tactile Detectable<br>Warning Tile<br>Concrete Panel Reinforced with<br>Stainless Steel Prestress Strands | Arcis Corporation<br>10680 NW 289 <sup>th</sup> Place<br>PO Box 1250<br>North Plains, Oregon 97133<br>503-647-5042<br><a href="http://www.arcis-corp.com/#/tactile/">http://www.arcis-corp.com/#/tactile/</a> |
| CASTinTACT<br>Concrete Panel Reinforced with<br>Stainless Steel Prestress Strands                                   | MASCO Mason Supply<br>6018 234 <sup>th</sup> St SE<br>Woodinville, Washington 98072<br>425-487-6161<br><a href="http://www.castintact.com">http://www.castintact.com</a>                                      |

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|  |   |
|--|---|
| CASTinTACT 3<br>Concrete Panel Enhanced with<br>Microsilica and Fiber Reinforced | MASCO Mason Supply<br>6018 234 <sup>th</sup> St SE<br>Woodinville, Washington 98072<br>425-487-6161<br><a href="http://www.castintact.com">http://www.castintact.com</a>      |
| Alertcast Composite<br>Replaceable Cast in Place                                 | Cape Fear Systems, III, LLC<br>215 South Water Street, Suite 103<br>Wilmington, NC 28401<br>877-232-6287<br><a href="http://www.alerttile.com/">http://www.alerttile.com/</a> |
| Detectable Warning Tile<br>Composite<br>Replaceable Wet-Set                      | ADA Solutions, Inc.<br>North Billerica, MA 01862<br>800-372-0519<br><a href="http://www.adatile.com">http://www.adatile.com</a>   |
| Access Tile<br>Composite<br>Replaceable Cast in Place                            | Access Products Inc.<br>241 Main Street, Suite 100<br>Buffalo, NY 14203<br>888-679-4022<br><a href="http://www.accesstile.com/">http://www.accesstile.com/</a>                |
| Armorcast Detectable Warning<br>Tile Composite<br>Replaceable Wet-Set            | Armorcast Products Company<br>13230 Saticoy Street<br>North Hollywood, CA 91605<br>818-982-3600<br><a href="http://www.armorcastprod.com/">http://www.armorcastprod.com/</a>  |



**EROSION AND SEDIMENT CONTROL NOTES**

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**GENERAL**

The total surface area to be disturbed is 0.12 acres. This is less than 1 acres and a SD DENR Storm Water Discharge permit will not be required.

**PAYMENT FOR TOPSOIL, SEED, FERTILIZER, MULCH AND WATERING**

All costs, labor and materials to furnish and install the topsoil, seed, fertilizer, fiber mulch and water as discussed below shall be paid at the contract lump sum price for "Erosion Control".

A table showing the estimated quantities for the disturbed areas is shown in these plans for reference only. All topsoil, seed, fertilizer, fiber mulch and water quantities shall be paid at the contract lump sum price for "Erosion Control". There shall be no field measurement of the topsoil, seed, fertilizer, fiber mulch and water quantities.

**REMOVE AND REPLACE TOPSOIL**

Topsoil shall be salvaged and stockpiled prior to constructing proposed surfacing. Limits of this work, depth of salvage, and stockpile location will be directed by the Engineer. Following completion of construction, topsoil shall be spread evenly over the disturbed areas.

**FERTILIZING**

The Contractor shall apply an all-natural slow release fertilizer prior to seeding. The all-natural fertilizer shall have a minimum guaranteed analysis of 4-6-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 3.2%, a minimum of 6% (P2O5) available phosphate, a minimum of 4% (K2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer shall be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer shall have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer shall also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The all-natural slow release fertilizer shall be applied according to the manufacturer's application recommendations.

The application rate is 34 pounds per 1000 square feet.

The all-natural slow release fertilizer shall be from the list below or an approved equal:

| Product | Manufacturer  |
|---------|---|
| Sustane | Sustane Corporate Headquarters<br>Cannon Falls, Minnesota<br>Phone: 1-800-352-9245<br><a href="http://www.sustane.com/">http://www.sustane.com/</a> |

**MYCORRHIZAL INOCULUM**

Mycorrhizal inoculum shall consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier shall provide certification of the fungal species claimed and the live propagule count. The inoculum shall include the following fungal species:

|                            |     |                          |     |
|----------------------------|-----|--------------------------|-----|
| <i>Glomus intraradices</i> | 25% | <i>Glomus mosseae</i>    | 25% |
| <i>Glomus aggregatu</i>    | 25% | <i>Glomus etunicatum</i> | 25% |

All seed shall be inoculated with a minimum of 20,000 live propagules of mycorrhizal fungi per 1,000 square feet. All costs of inoculating the seed shall be incidental to the contract lump sum price for "Erosion Control".

The mycorrhizal inoculum shall be from the list below or an approved equal:

| Product  | Manufacturer  |
|----------|---|
| MycApply | Mycorrhizal Applications, Inc.<br>Grants Pass, OR<br>Phone: 1-866-476-7800<br><a href="http://www.mycorrhizae.com/">http://www.mycorrhizae.com/</a> |

**PERMANENT SEEDING**

The areas to be seeded comprise of all newly graded areas within the project limits except for the top of roadways.

All permanent seed shall be planted in the topsoil at a depth of ¼" to ½".

All seed broadcast must be raked or dragged in (incorporated) within the top ¼" to ½" of topsoil when possible. This requirement may be waived by the Engineer during construction when raking or dragging is deemed not feasible by conventional methods.

The varieties listed for the seed mixture are preferred varieties.

Type D Permanent Seed Mixture shall consist of the following:

| Grass Species       | Variety                       | Pure Live Seed (PLS) (Pounds/1000 SqFt) |
|---------------------|-------------------------------|---|
| Kentucky Bluegrass  | Alene, Avalanche              | 1.4                                     |
| Perennial Ryegrass  | Turf Type                     | 1.4                                     |
| Creeping Red Fescue | Epic                          | 1.4                                     |
| Chewings Fescue     | Ambrose                       | 1.4                                     |
| Alkali Grass        | Fults, Fults II, Quill, Salty | 1.4                                     |
| Total:              |                               | 7                                       |

**FIBER MULCHING**

Fiber mulch shall be applied in a separate operation following permanent seeding.

An additional 2% by weight of tackifier shall be added to the fiber mulch product selected from the approved product list. If the product selected has guar gum tackifier included, then the additional 2% of tackifier shall be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier shall be synthetic.

Fiber mulch shall be applied at the rate of 2000 pounds per acre.

The Contractor shall allow the fiber mulch to cure a minimum of 18 hours prior to watering or any storm event to ensure proper cohesion between the soil and fiber particles.

The fiber mulch provided shall be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

**WATER FOR VEGETATION**

Water for vegetation consists of applying water to seeded areas to enhance germination and/or root growth. When watering, use the following guidelines:

Immediately after seeding:

- Keep the topsoil moist but not excessively wet until the seed has germinated.
- Water a minimum of 3 days a week for 2 weeks preferably watering 2 or 3 times a day in small quantities.
- Use fine spray and low pressure to avoid topsoil wash and to prevent uncovering buried seeds.

After emergence:

- Topsoil shall be kept thoroughly moistened by sprinkling, as necessary, for 6 weeks. After the 6 week period, an inspection shall be made to determine if grass is established enough to suspend watering. Continue watering until grass has been thoroughly established.
- Never apply water at a rate faster than the topsoil can absorb.
- Water during early morning hours or early evening hours.
- Do not water when rain is forecasted for the area.
- If rainfall occurs, suspend watering according to rainfall amount.

The application rate is 50 Gallons of water per square yard of seeding area.



**SEDIMENT CONTROL AT TYPE S REINFORCED CONCRETE DROP INLETS**

The sediment control device provided shall be from the list shown below. Refer to Standard Plate 734.11 for details.

| Product          | Manufacturer  |
|------------------|---|
| Dandy Curb       | Dandy Products Inc.<br>Dublin, OH<br>Phone: 1-800-591-2284<br><a href="http://www.dandyproducts.com">www.dandyproducts.com</a>            |
| Gutterbuddy      | ACF Environmental<br>Richmond, VA<br>Phone: 1-800-448-3636<br><a href="http://www.acfenvironmental.com">www.acfenvironmental.com</a>      |
| SS-300           | Silt-Saver, Inc.<br>Conyers, GA<br>Phone: 1-888-382-7458<br><a href="http://www.siltsaver.com">www.siltsaver.com</a>                      |
| Curb Inlet Guard | ECTEC Environmental Systems LLC<br>Alameda, CA<br>Phone: 1-866-521-0724<br><a href="http://www.ertecsystems.com">www.ertecsystems.com</a> |

**SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES**

This type of sediment control device should be used where there is pavement in the vicinity of the drop inlets and storm water or sediment could possibly enter the frame and grate. Sediment Control at Inlets with Frame and Grates shall be installed prior to working in the vicinity of the drop inlets.

The Contractor shall be responsible for maintaining and repairing the sediment control devices for the duration of the project for which sediment control measures are required. Maintenance shall be scheduled to prevent storm water from backing up into the driving lane.

"Sediment Control at Inlets with Frames and Grates" will be paid for one time at each location, regardless of the number of times the sediment control devices are installed, inspected, cleaned, removed, repaired, or replaced. All costs associated with furnishing, installing, inspecting, maintaining, cleaning, sediment removal, and repairing Sediment Control at Inlets with Frames and Grates shall be incidental to the contract unit price per each for "Sediment Control at Inlet with Frame and Grate".

Sediment collection devices shall be:

A commercial made sediment collection device from the "Sediment Control at Inlet with Frame and Grate" list or an approved equal. The device shall be installed in reinforced concrete drop inlets according to the manufacturer's recommendations.

A sediment control device as shown on Standard Plate 734.10. Filter fabric used for constructing the sediment control at inlets with frames and grates shall be the same type of fabric that is used in high flow silt fence from the approved product list. The approved product list may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

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**Sediment Control at Inlet with Frame and Grate Approved List:**

| Product   | Manufacturer  |
|---|---|
| InfraSafe Debris Collection Device with filter sock | Royal Environmental Systems, Inc.<br>Stacy, MN<br>Phone: 1-800-817-3240<br><a href="http://www.royalenterprises.net">www.royalenterprises.net</a> |
| Dandy Curb Sack                                     | Dandy Products Inc.<br>Dublin, OH<br>Phone: 1-800-591-2284<br><a href="http://www.dandyproducts.com">www.dandyproducts.com</a>                    |
| Silt Trapper  | Storm Water Solutions<br>Lakeville, MN<br>Phone: 1-952-461-4376<br><a href="http://www.silttrapper.com">www.silttrapper.com</a>                   |
| DIP Basket  | Skyview Construction Co., LLC<br>Waubay, SD<br>Phone: 1-605-520-0555<br><a href="http://www.skyviewconst.com">www.skyviewconst.com</a>            |
| FLEXSTORM Inlet Filters                             | Inlet and Pipe Protection, Inc.<br>Naperville, IL<br>Phone: 1-866-287-8655<br><a href="http://www.inletfilters.com">www.inletfilters.com</a>      |
| GR-8 Guard or Combo Guard                           | ERTEC Environmental Systems LLC<br>Alameda, CA<br>Phone: 1-866-521-0724<br><a href="http://www.ertecsystems.com">www.ertecsystems.com</a>         |
| Sediment Catchers                                   | Shaun Jensen<br>Brookings, SD<br>Phone: 1-605-690-4950  |
| Grate FX, Slammer, or VertPro                       | Enviroscape ECM, Ltd.<br>Oakwood, OH<br>Phone: 1-419-594-3210<br><a href="http://www.strawblanket.com">www.strawblanket.com</a>                   |
| BX Inlet Sediment Boxes                             | BX Civil and Construction<br>Dell Rapids, SD<br>Phone: 1-605-428-5483<br><a href="http://bx-cc.com">bx-cc.com</a>                                 |

**STREET SWEEPING**

Vehicle tracking of sediment from the construction site shall be minimized. Street sweeping shall be used if erosion and sediment control best management practices are not adequate to prevent sediment from being tracked onto the street.

The Contractor shall use a pickup broom having integral self-contained storage to clean the roadway. The pickup broom used shall be a minimum of 6 feet wide and have working gutter brooms.

At a minimum, sweeping will be required:

1. Prior to opening any segment or roadway to traffic.
2. Following pavement grooving operations and prior to the application of the pavement marking tape.
3. When sawing operations are underway in the inside driving lanes, the outside driving lanes and gutter may need to be swept to control dust.

All costs for sweeping as discussed above shall be incidental to the contract lump sum price for the bid item "Incidental Work".

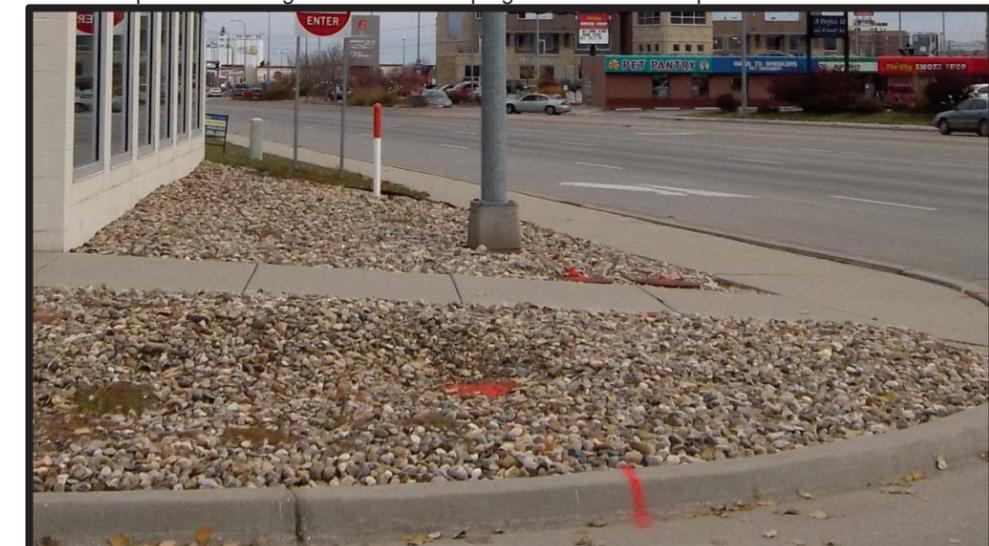
**SALVAGE AND REINSTALL EXISTING LANDSCAPE ROCK W/ FABRIC**

The existing landscape rock shall be salvaged and reinstalled to allow for the proposed work at the northeast corner of Omaha Street/HWY 44 and 12<sup>th</sup> Street intersection.

The existing rock is approximately 1" maximum diameter and is anticipated to have fabric beneath it. The rock and the fabric shall both be salvaged and reinstalled; or shall be replaced with rock and fabric of similar type at no extra cost to the project.

All costs for this work shall be incidental to the contract lump sum price for "Erosion Control".

Below is a picture showing this rock landscaping at this northeast quadrant.



# TRAFFIC CONTROL NOTES

FOR BIDDING PURPOSES ONLY

|                       |                |       |              |
|-----------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT        | SHEET | TOTAL SHEETS |
|                       | NH 0044(186)44 | 10    | 53           |

Revised: 03-14-2014 - LRM

## SEQUENCE OF OPERATIONS

The following Sequence of Operations shall be completed as discussed below unless an alternate is submitted and approved by the Engineer prior to start of any work.

1. Install traffic control for lane closures, pedestrian detours and shoulder work.
  - o The different traffic control setups for these will have to be installed as determined by the Contractor and as approved by the Field Engineer to allow for removal and installation of the project items.
2. Install inlet protection and complete the project removals.
3. Install detector loops, junction boxes and conduit.
4. Install permanent signing at locations other than on the signal poles/mast arms.
5. Install sidewalk, curb ramps and other final pavements.
6. Install signal poles, mast arms, signal heads, signal cables.
7. Install permanent signing on the signal poles and mast arms.
8. Install pavement markings and topsoil, seed, fertilizer and mulch.
9. Remove traffic control and fully open project to traffic.

## PROJECT COORDINATION

The Contractor shall coordinate with other construction projects occurring during this project and adjacent to the project area. These include, but are not limited to, the following:

- **DOT project: Omaha St (HWY 44) & West Blvd (I-190) Intersection**
  - o This Omaha St (HWY 44) & West Blvd (I-190) Intersection project is approximately two blocks east of the Omaha St (HWY 44) & 12<sup>th</sup> Street project.
  - o This Omaha St (HWY 44) & West Blvd (I-190) Intersection project involves complete reconstruction of the intersection with new pavement, markings and signals.
  - o This Omaha St (HWY 44) & West Blvd (I-190) Intersection project will begin after the 2014 Sturgis Motorcycle Rally, on approximately Monday, August 11, 2014.
  - o DOT PH 1902(65)0 PCN 03AZ
  - o Contact: Steve Palmer of SD DOT  
Office # 605-394-1636

## TRAFFIC CONTROL

1. Traffic control and lane closures shall be coordinated with and set up in conjunction with the Omaha St (HWY 44) & West Blvd (I-190) Intersection project (PCN 03AZ).
  - See this sheet for further information about this Omaha St (HWY 44) & West Blvd (I-190) Intersection project.
2. The Contractor shall install traffic control as shown on the standard plates:
  - Standard Plate #634.03 for shoulder work
  - Standard Plate #634.41 for closing of the center thru lanes
  - Standard Plate #634.45 for closing of the turn lanes
  - Standard Plate #634.60 for closing of the right lanes
3. Any flagging that may be required by the Contractor shall be included in the bid item "Flagging".
4. The Contractor shall not be allowed to completely close any of the streets to traffic and shall accommodate all existing traffic patterns.
  - At all times, two 11' lanes shall be maintained on 12th Street and two existing thru lanes shall be maintained each way on Omaha Street.

## PEDESTRIAN TRAFFIC CONTROL

The existing sidewalks shall not be closed without supplying an alternate route. When crosswalks, sidewalks, or other pedestrian facilities are blocked, closed, or relocated, the Contractor shall use temporary pedestrian facilities which shall include accessibility features.

The Contractor shall adhere to the requirements of the Americans with Disabilities Act (ADA) during construction. Tape, rope, or plastic chains strung between devices are not detectable, do not comply with the design standards in the Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG), and should not be used as a control for pedestrian movements.

A smooth, continuous hard surface shall be provided throughout the entire length of the temporary pedestrian facility. There should be no curbs or abrupt changes in grade or terrain that could cause tripping or be a barrier to wheelchair use.

A temporary pedestrian ramp shall be provided by the Contractor in all cases where an alternate route cannot be found, and the intersection will carry pedestrian traffic. A suitable ramp would be one made out of wood that is at least 3' wide and no greater than a 12:1 slope. The ramp shall be sufficiently sturdy and unyielding with hand rails.

The Contractor shall adequately sign and barricade the sidewalk for pedestrian traffic. The Contractor shall not leave un-barricaded holes open either overnight or over the weekend. Safety fence shall be installed around all work areas that are adjacent to pedestrian walkways and at other locations as designated by the Engineer.

The Contractor shall submit a detailed plan to the Engineer on how pedestrian traffic shall be accommodated during the various phases of the work at the affected locations. This plan shall be in conformance with the details mentioned above or shown on the plans. The plan shall be submitted no later than two weeks prior to the start of work. The plan may be submitted at the Preconstruction Meeting. Items to be detailed in this plan shall include the following:

1. The use of various approved traffic control devices to maintain the pedestrians through or past the immediate work area.
2. The detour of pedestrians to the opposite side of the street, alternate route(s) or around a City block.
3. Manned crossing assistance (crossing guards) combined with an accessible path.

All costs for the temporary pedestrian facilities as described above shall be included in the lump sum contract price for the bid item "Temporary Pedestrian Facility(s)". This bid item shall include all temporary facilities, safety fence and all other items mentioned above for the temporary pedestrian facilities.

5. Standard Plate #634.33 has been included in the plans to assist the Contractor with the traffic signing along a pedestrian detour route. Necessary signing, as shown on the standard plate, is included in the traffic control signing and shall be paid for at the contact unit price per unit for the bid item "Traffic Control".

| TABLE FOR TRAFFIC CONTROL (Units)      |           |            |             |                |                     |             |                         |             |                                |             |                         |             |                          |             |                |             |
|--|-----------|------------|-------------|----------------|---------------------|-------------|-------------------------|-------------|--------------------------------|-------------|-------------------------|-------------|--------------------------|-------------|----------------|-------------|
| Sign Description                       | Sign Code | Width (in) | Height (in) | Units Per Sign | Shoulder Work Setup |             | Pedestrian Detour Setup |             | Center Thru Lane Closure Setup |             | Turn Lane Closure Setup |             | Right Lane Closure Setup |             | Payment Units* |             |
|  |           |            |             |                | No. of Signs        | Total Units | No. of Signs            | Total Units | No. of Signs                   | Total Units | No. of Signs            | Total Units | No. of Signs             | Total Units | No. of Signs   | Total Units |
| ROAD WORK AHEAD                        | W20-1     | 48         | 48          | 34             | 2                   | 68          | 2                       | 68          | 1                              | 34          | 4                       | 136         | 2                        | 68          | 4              | 136         |
| SHOULDER WORK                          | W21-5     | 48         | 48          | 34             | 4                   | 136         |                         |             |                                |             |                         |             |                          |             | 4              | 136         |
| END ROAD WORK                          | G20-2     | 36         | 18          | 17             | 1                   | 17          |                         |             |                                |             | 4                       | 68          | 2                        | 34          | 4              | 68          |
| SIDEWALK CLOSED AHEAD...CROSS HERE     | R9-11     | 24         | 18          | 7              |                     |             | 2                       | 14          |                                |             |                         |             |                          |             | 2              | 14          |
| SIDEWALK CLOSED                        | R9-9      | 24         | 12          | 4              |                     |             | 1                       | 4           |                                |             |                         |             |                          |             | 1              | 4           |
| PEDESTRIAN SIGN                        | W11-2     | 36         | 36          | 27             |                     |             | 4                       | 108         |                                |             |                         |             |                          |             | 4              | 108         |
| AHEAD PLAQUE                           | W16-9P    | 24         | 12          | 4              |                     |             | 2                       | 8           |                                |             |                         |             |                          |             | 2              | 8           |
| ARROW LEFT-DOWN                        | W16-7P    | 24         | 12          | 4              |                     |             | 2                       | 8           |                                |             |                         |             |                          |             | 2              | 8           |
| PEDESTRIAN CROSSWALK                   | R9-8      | 36         | 18          | 17             |                     |             | 2                       | 34          |                                |             |                         |             |                          |             | 2              | 34          |
| SIDEWALK CLOSED AHEAD...USE OTHER SIDE | R9-10     | 24         | 12          | 4              |                     |             | 3                       | 12          |                                |             |                         |             |                          |             | 3              | 12          |
| CENTER LANE CLOSED AHEAD               | W20-5     | 48         | 48          | 34             |                     |             |                         |             | 1                              | 34          |                         |             |                          |             | 1              | 34          |
| DOUBLE DOWN-OUT ARROWS                 | W12-1     | 30         | 30          | 21             |                     |             |                         |             | 1                              | 21          |                         |             |                          |             | 1              | 21          |
| LEFT LANE CLOSED AHEAD                 | W20-5L    | 48         | 48          | 34             |                     |             |                         |             |                                |             | 1                       | 34          |                          |             | 1              | 34          |
| MERGE RIGHT                            | W4-5      | 48         | 48          | 34             |                     |             |                         |             |                                |             | 1                       | 34          |                          |             | 1              | 34          |
| LEFT LANE MUST TURN LEFT               | R3-7      | 30         | 30          | 21             |                     |             |                         |             |                                |             | 1                       | 21          |                          |             | 1              | 21          |
| NO LEFT TURN (SYMBOL)                  | R3-2      | 24         | 24          | 16             |                     |             |                         |             |                                |             | 1                       | 16          |                          |             | 1              | 16          |
| KEEP RIGHT                             | R4-7      | 24         | 30          | 18             |                     |             |                         |             |                                |             | 1                       | 18          |                          |             | 1              | 18          |
| RIGHT LANE CLOSED AHEAD                | W20-5R    | 48         | 48          | 34             |                     |             |                         |             |                                |             |                         |             | 1                        | 34          | 1              | 34          |
| MERGE LEFT                             | W4-2R     | 48         | 48          | 34             |                     |             |                         |             |                                |             |                         |             | 1                        | 34          | 1              | 34          |
| ARROW LEFT                             | W1-6      | 48         | 24          | 24             |                     |             |                         |             |                                |             |                         |             | 1                        | 24          | 1              | 24          |
| STOP                                   | R1-1      | 36         | 36          | 27             |                     |             |                         |             |                                |             |                         |             | 1                        | 27          | 1              | 27          |
| TYPE 3 BARRICADE (double sided)        | N/A       | 8'         | N/A         | 56             |                     |             |                         |             |                                |             |                         |             | 1                        | 56          | 1              | 56          |
| <b>Total</b>                           |           |            |             |                |                     | <b>221</b>  |                         | <b>256</b>  |                                | <b>89</b>   |                         | <b>327</b>  |                          | <b>277</b>  |                | <b>881</b>  |

\*Only the maximum quantity installed during any setup shall be used for the payment quantity.



**TRAFFIC CONTROL – GENERAL**

1. Requests to deviate from the sequence of operations shall be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence shall be submitted for review a minimum of one week prior to potential implementation.
2. Traffic shall be maintained in accordance with Section 4.4 of the Standard Specifications. Traffic control shall be installed in accordance with the Federal Manual on Uniform Traffic Control Devices (MUTCD) and standard plates located herein.
3. Unless otherwise stated in these plans, no work will be allowed during hours of darkness. Hours of darkness are defined, as ½ hour after sunset until ½ hour before sunrise.
4. Storage of vehicles and equipment shall be outside the clear zone and as near the right-of-way as possible. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work. Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage of the vegetation, surfacing, embankment, delineators, and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.
5. Existing guide, route, informational logo, regulatory, and warning signs shall be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including but not limited to, traffic signal heads, delineation, and signing shall be the responsibility of the Contractor. Non-applicable signing and all traffic control devices shall be covered or removed during periods of inactivity. Periods of inactivity shall be defined as no work taking place for a period of more than 24 hours. The cost of removing or covering non-applicable traffic control devices shall be incidental to the contract lump sum price for, "Traffic Control, Miscellaneous".
6. Construction signing mounted on portable supports shall not be used for a duration of more than 3 days, unless approved by the Engineer. Construction signing that remains in the same location for more than 3 days shall be mounted on fixed location, ground mounted, breakaway supports.
7. The quantity of Signs paid for will be for the greatest number of installations per sign in place at any one time regardless of the number of set-ups on the project.
8. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.
9. All materials and equipment shall be stored a minimum distance of 30' from the traveled way during nonworking hours.
10. The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.
11. The Contractor shall be required to have a person available 24 hour/day, 7 days/week to maintain traffic control devices. The name and cellular telephone number of this individual shall be given to the Engineer at the preconstruction meeting.
12. The Contractor or designated traffic control subcontractor shall make night inspections at the initial set up of traffic control and every week thereafter to ensure the adequacy, legibility and reflectivity of each sign and device. A written summary of each inspection shall be given to the Engineer within 24 hours after completion of the inspection. The cost for the nighttime inspection work shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

13. Vehicles working in traffic or alongside traffic shall be equipped with a flashing amber light visible from all directions. The amber light shall be mounted on the uppermost part of the Contractor's vehicle. Lights must have peak intensity within the range of 40 to 400 candelas and must flash at 75 ± 15 flashes per minute. Vehicle flasher/hazard lights are not acceptable. All haul trucks shall be equipped with a second flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights shall be incidental to the various related contract bid items.
14. All construction operations shall be conducted in the general direction of traffic movement.
15. If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD – whichever is more stringent shall be used, as determined by the Engineer.
16. Temporary Road Markers (Tabs) shall be used for lane closure tapers or lane shift tapers and shall be installed at 5' spacing. Tabs used for tapers and shifts will not be measured for payment. All costs associated to furnish, install, maintain (including replacement as required by the Engineer at no added cost to the Department), and remove all markers will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".
17. Drums are required in all lane closure tapers.
18. The Contractor will be required to maintain access to each residence and business throughout the project.
19. If traffic is routed to a completed section and the permanent signing is not complete, the Contractor shall use temporary signing consisting of salvaged permanent signs or temporary traffic control signs for traffic direction and safety. The cost of the temporary signing shall be at the Contractor's expense to install and maintain signs.

**FOR BIDDING PURPOSES ONLY**

|                             |                |       |                 |
|-----------------------------|----------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT        | SHEET | TOTAL<br>SHEETS |
|                             | NH 0044(186)44 | 11    | 53              |

**TYPE C ADVANCE WARNING ARROW PANEL**

The Type C Advance Warning Arrow Panel shall be used to display the traffic merging arrows shown as "Arrow Board" on the Standard Plates. The panel can be a standard advance warning arrow panel and does not need to have liquid crystal display LED panels.

All costs, labor and materials to furnish, install, maintain and remove the Type C Advance Warning Arrow Panel at the locations shown on the plans shall be included in the contract unit price per each for the bid item "Type C Advance Warning Arrow Panel". Maintenance shall include, but not be limited to, replacement parts, fuel and repairs. The quantity of Type C Advance Warning Arrow Panels paid shall be the most installations in place at any one time regardless of the number of setups on the project.

**TEMPORARY PAVEMENT MARKINGS**

The Contractor shall furnish, install and maintain temporary pavement markings in accordance with Section 634 of the Standard Specifications and as shown on the Standard Plates in these plans.

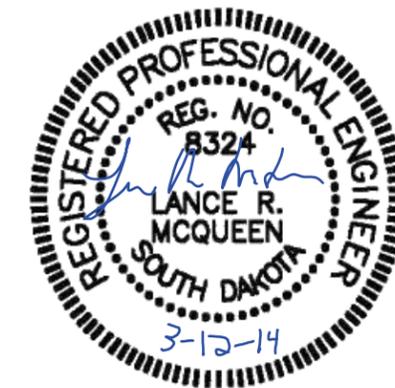
The Contractor will be required to remove the temporary pavement markings prior to the placement of the permanent pavement markings. The Contractor shall use equipment that is not detrimental to the new roadway surface for removing pavement markings, as approved by the Engineer.

All costs, labor and materials for furnishing, installing, maintenance (including cleaning if necessary) and removal of the temporary pavement markings shall be paid at the contract unit price per foot for the bid item "4" Temporary Pavement Marking Tape Type 2".

Payment shall be at the equivalent length of 4" pavement marking tape. Equivalent lengths are shown in the table below.

| Item                          | Quantity as Measured | 4" Equivalent |
|-------------------------------|----------------------|---------------|
| 4" Pavement Marking Tape      | 1 Ft                 | 1 Ft          |
| 8" Pavement Marking Tape      | 1 Ft                 | 2 Ft          |
| 12" Pavement Marking Tape     | 1 Ft                 | 3 Ft          |
| 24" Pavement Marking Tape     | 1 Ft                 | 6 Ft          |
| Pavement Marking Area Tape    | 1 SqFt               | 3 Ft          |
| Pavement Marking Arrow Tape   | 1 Each               | 250 Ft        |
| Pavement Marking Message Tape | 1 Word               | 500 Ft        |

Where raised pavement markers are used in lieu of Temporary Pavement Marking, all costs, labor and materials for furnishing, installing, cleaning, removing and disposing of the raised pavement markers shall be paid at the contract unit price per foot for the bid item "4" Temporary Pavement Marking Tape Type 2".



**TABULATED QUANTITIES**

**FOR BIDDING PURPOSES ONLY**

|                       |                |       |              |
|-----------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT        | SHEET | TOTAL SHEETS |
|                       | NH 0044(186)44 | 12    | 53           |

| TABLE FOR REMOVE ASPHALT CONCRETE PAVEMENT |                 |                          |
|--|-----------------|--------------------------|
| Location                                   | Quantity (SqYd) | Sawcut (Ft) (Incidental) |
| SE corner of 12th St & Omaha St            | 18.3            | 30                       |
| <b>Total</b>                               | <b>18.3</b>     | <b>30</b>                |

| TABLE FOR REMOVE CONCRETE PAVEMENT (FILLET) |                 |                          |
|---|-----------------|--------------------------|
| Location                                    | Quantity (SqYd) | Sawcut (Ft) (Incidental) |
| NE corner of 12th St & Omaha St             | 42.3            | 74                       |
| SE corner of 12th St & Omaha St             | 30.2            | 62                       |
| SW corner of 12th St & Omaha St             | 42.3            | 73                       |
| NW corner of 12th St & Omaha St             | 24.6            | 55                       |
| <b>Total</b>                                | <b>139.4</b>    | <b>264</b>               |

| TABLE FOR REMOVE CONCRETE SIDEWALK |                 |                          |
|------------------------------------|-----------------|--------------------------|
| Location                           | Quantity (SqYd) | Sawcut (Ft) (Incidental) |
| NE corner of 12th St & Omaha St    | 16.5            | 12                       |
| SE corner of 12th St & Omaha St    | 51.3            | 42                       |
| SW corner of 12th St & Omaha St    | 31.6            | 10                       |
| <b>Total</b>                       | <b>99.4</b>     | <b>64</b>                |

| TABLE OF ASPHALT SAWCUT (Incidental) |               |
|--------------------------------------|---------------|
| SURFACING TYPE                       | Quantity (Ft) |
| Remove Asphalt Concrete Pavement     | 30            |
| <b>TOTAL</b>                         | <b>30</b>     |

| TABLE OF CONCRETE SAWCUT (Incidental) |               |
|---------------------------------------|---------------|
| SURFACING TYPE                        | Quantity (Ft) |
| Remove Concrete Pavement              | 264           |
| Remove Concrete Sidewalk              | 64            |
| <b>TOTAL</b>                          | <b>328</b>    |

| TABLE FOR REMOVE PAVEMENT MARKING, 4" OR EQUIVALENT |               |                |                |                      |                      |
|---|---------------|----------------|----------------|----------------------|----------------------|
| Location  | 4" White (Ft) | 4" Yellow (Ft) | 24" White (Ft) | Arrow (White) (Each) | Area (Yellow) (SqFt) |
| east side of 12th St & Omaha St                     | 90            | 10             |                | 1                    | 27                   |
| west side of 12th St & Omaha St                     | 90            | 20             | 11             | 1                    |                      |
| <b>Subtotal</b>                                     | <b>180</b>    | <b>30</b>      | <b>11</b>      | <b>2</b>             | <b>27</b>            |
| <b>4" Equivalent Total</b>                          | <b>180</b>    | <b>30</b>      | <b>66</b>      | <b>500</b>           | <b>81</b>            |
| <b>Total</b>  | <b>857</b>    |                |                |                      |                      |

| TABLE FOR SALVAGE LUMINAIRE POLE AND REMOVE LUMINAIRE POLE FOOTING |                     |                       |
|--|---------------------|-----------------------|
| Location   | Salvage Pole (Each) | Remove Footing (Each) |
| EL4  | 1                   | 1                     |
| <b>TOTAL</b>   | <b>1</b>            | <b>1</b>              |

| TABLE FOR SALVAGE TRAFFIC SIGN  |                 |                                  |
|---------------------------------|-----------------|----------------------------------|
| Location                        | Quantity (Each) | Salvage Post (Each) (Incidental) |
| SE corner of 12th St & Omaha St | 5               | 2                                |
| NW corner of 12th St & Omaha St | 5               |                                  |
| <b>Total</b>                    | <b>10</b>       | <b>2</b>                         |

| TABLE OF 10" PCC FILLET SECTION |                 |                      |                            |
|---------------------------------|-----------------|----------------------|----------------------------|
| Location                        | Quantity (SqYd) | Gravel Cushion (Ton) | *Water for Granular (MGal) |
| NE corner of 12th St & Omaha St | 42.8            | 14.9                 | 0.2                        |
| SE corner of 12th St & Omaha St | 30.5            | 10.6                 | 0.1                        |
| SW corner of 12th St & Omaha St | 41.6            | 14.5                 | 0.2                        |
| NW corner of 12th St & Omaha St | 24.5            | 8.5                  | 0.1                        |
| <b>Total</b>                    | <b>139.4</b>    | <b>48.6</b>          | <b>0.6</b>                 |

\*Incidental to the gravel cushion bid item.  
\*Based on 12 gallons per ton of base course.

| TABLE FOR FLAT ALUMINUM SIGN, NONREMOVABLE COPY HIGH INSTENSITY |                 |
|---|-----------------|
| Location  | Quantity (SqFt) |
| NE corner of 12th St & Omaha St                                 |                 |
| Omaha St (D3-1)   | 9.0             |
| SE corner of 12th St & Omaha St                                 |                 |
| Founders Park Dr / 12th St (D3-2), EB                           | 49.0            |
| 12th St/ Founders Park Dr (D3-2), WB                            | 49.0            |
| SW corner of 12th St & Omaha St                                 |                 |
| Omaha St (D3-1)   | 9.0             |
| NW corner of 12th St & Omaha St                                 |                 |
| 12th St/ Founders Park Dr (D3-2), WB                            | 49.0            |
| Founders Park Dr / 12th St (D3-2), EB                           | 49.0            |
| <b>Total</b>  | <b>214.0</b>    |

| TABLE FOR FLAT ALUMINUM SIGN, NONREMOVABLE COPY SUPER/VERY HIGH INSTENSITY |                 |
|--|-----------------|
| Location   | Quantity (SqFt) |
| SE corner of 12th St & Omaha St  |                 |
| Left Turn Yield on Flashing Yellow (Special)                               | 14.0            |
| NW corner of 12th St & Omaha St  |                 |
| Left Turn Yield on Flashing Yellow (Special)                               | 14.0            |
| <b>Total</b>   | <b>28.0</b>     |

| TABLE FOR REMOVE, SALVAGE, RELOCATE, AND RESET TRAFFIC SIGN |                 |                 |
|---|-----------------|-----------------|
| Location  | Quantity (Each) | 2"x2" Post (Ft) |
| SE corner of 12th St & Omaha St                             | 2               | 20.0            |
| NW corner of 12th St & Omaha St                             | 2               |                 |
| <b>Total</b>  | <b>4</b>        | <b>20.0</b>     |

Note: See Plans for signs to be installed.

| TABLE FOR COLD APPLIED PLASTIC PAVEMENT MARKING |               |                |                |                    |                    |
|---|---------------|----------------|----------------|--------------------|--------------------|
| Location  | 4" White (Ft) | 4" Yellow (Ft) | 24" White (Ft) | Area Yellow (SqFt) | Arrow White (Each) |
| north side of 12th St & Omaha St                | 107           | 92             | 128            |                    | 2                  |
| east side of 12th St & Omaha St                 | 276           |                | 186            | 27                 |                    |
| south side of 12th St & Omaha St                |               |                | 88             |                    |                    |
| west side of 12th St & Omaha St                 | 380           |                | 195            |                    | 1                  |
| <b>TOTAL</b>                                    | <b>763</b>    | <b>92</b>      | <b>597</b>     | <b>27</b>          | <b>3</b>           |
| <b>Total</b>                                    | <b>855</b>    |                |                |                    |                    |

| Location                         | 4" Grooving (Ft) | 24" Grooving (Ft) | Area Grooving (SqFt) | Arrow Grooving (Each) |
|----------------------------------|------------------|-------------------|----------------------|-----------------------|
| north side of 12th St & Omaha St | 199              | 128               |                      | 2                     |
| east side of 12th St & Omaha St  | 276              | 186               | 27                   |                       |
| south side of 12th St & Omaha St |                  | 88                |                      |                       |
| west side of 12th St & Omaha St  | 380              | 195               |                      | 1                     |
| <b>Total</b>                     | <b>855</b>       | <b>597</b>        | <b>27</b>            | <b>3</b>              |

| TABLE FOR PAVEMENT MARKING PAINT |               |                |                    |
|----------------------------------|---------------|----------------|--------------------|
| Location                         | 4" White (Ft) | 4" Yellow (Ft) | Arrow White (Each) |
| north side of 12th St & Omaha St | 130           | 142            | 2                  |
| <b>Total</b>                     | <b>130</b>    | <b>142</b>     | <b>2</b>           |

| TABLE FOR TRAFFIC SIGNAL POLE |                             |                                      |                                      |                                      |  |
|-------------------------------|-----------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--|
| Pole                          | Pedestal Signal Pole (Each) | Signal Pole with 25' Mast Arm (Each) | Signal Pole with 35' Mast Arm (Each) | Signal Pole with 60' Mast Arm (Each) | Signal Pole with 65' Mast Arm and Luminaire Arm (Each) |
| A1                            |                             |                                      | 1                                    |                                      |  |
| A2                            |                             |                                      |                                      |                                      | 1  |
| A3                            |                             | 1                                    |                                      |                                      |  |
| A3A                           | 1                           |                                      |                                      |                                      |  |
| A4                            |                             |                                      |                                      | 1                                    |  |
| <b>TOTAL</b>                  | <b>1</b>                    | <b>1</b>                             | <b>1</b>                             | <b>1</b>                             | <b>1</b>   |

| TABLE FOR ROADWAY LUMINAIRE, 400 WATT WITH PHOTOELECTRIC CELL |                 |
|---|-----------------|
| Location  | Quantity (Each) |
| A2  | 1               |
| <b>TOTAL</b>  | <b>1</b>        |

| TABLE FOR 3 SECTION VEHICLE SIGNAL HEAD |                 |
|---|-----------------|
| Pole                                    | Quantity (Each) |
| A1                                      | 2               |
| A2                                      | 5               |
| A3                                      | 2               |
| A4                                      | 5               |
| <b>TOTAL</b>                            | <b>14</b>       |

| TABLE FOR 4 SECTION VEHICLE SIGNAL HEAD |                 |
|---|-----------------|
| Pole                                    | Quantity (Each) |
| EL5                                     | 1               |
| A2                                      | 1               |
| A3A                                     | 1               |
| A4                                      | 1               |
| <b>TOTAL</b>                            | <b>4</b>        |



**TABULATED QUANTITIES CONT'D**

**FOR BIDDING PURPOSES ONLY**

|                       |                |       |              |
|-----------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT        | SHEET | TOTAL SHEETS |
|                       | NH 0044(186)44 | 13    | 53           |

| TABLE FOR ELECTRICAL JUNCTION BOX |               |               |               |
|-----------------------------------|---------------|---------------|---------------|
| Junction Box                      | Type 2 (Each) | Type 3 (Each) | Type 4 (Each) |
| JB1                               |               |               | 1             |
| JB2                               | 1             |               |               |
| JB3                               |               |               | 1             |
| JB4                               | 1             |               |               |
| JB5                               | 1             |               |               |
| JB6                               |               | 1             |               |
| JB7                               | 1             |               |               |
| JB8                               |               | 1             |               |
| JB9                               | 1             |               |               |
| TOTAL                             | 5             | 2             | 2             |

| TABLE FOR TRAFFIC SIGNAL CONTROLLER |                 |
|-------------------------------------|-----------------|
| Location                            | Quantity (Each) |
| NW corner of 12th St & Omaha St     | 1               |
| TOTAL                               | 1               |

| TABLE FOR BATTERY BACKUP SYSTEM AND FLASH SYSTEM |                 |
|--|-----------------|
| Location   | Quantity (Each) |
| NW corner of 12th St & Omaha St                  | 1               |
| Total  | 1               |

| TABLE FOR SAWED-IN DETECTOR LOOP |                 |                                   |
|----------------------------------|-----------------|-----------------------------------|
| Location                         | Quantity (Each) | Detector Unit @ Controller (Each) |
| north side of 12th St & Omaha St | 6               | 2                                 |
| east side of 12th St & Omaha St  | 3               | 1                                 |
| south side of 12th St & Omaha St | 3               | 1                                 |
| west side of 12th St & Omaha St  | 3               | 1                                 |
| TOTAL                            | 15              | 5                                 |

| TABLE FOR SIREN EMERGENCY VEHICLE PREEMPTION SYSTEM |                 |
|---|-----------------|
| Location  | Quantity (Each) |
| @ intersection of 12th St & Omaha St                | 1               |
| TOTAL   | 1               |

| TABLE FOR PEDESTRIAN PUSH BUTTON, POLE AND SIGN |                    |                         |                                 |
|---|--------------------|-------------------------|---------------------------------|
| Pole  | Push Button (Each) | Push Button Pole (Each) | Pedestrian Crossing Sign (Each) |
| NE corner of 12th St & Omaha St                 | 2                  | 2                       | 2                               |
| SE corner of 12th St & Omaha St                 | 2                  | 2                       | 2                               |
| SW corner of 12th St & Omaha St                 | 2                  | 2                       | 2                               |
| NW corner of 12th St & Omaha St                 | 2                  | 2                       | 2                               |
| TOTAL   | 8                  | 8                       | 8                               |

| TABLE FOR PEDESTRIAN SIGNAL HEAD WITH COUNTDOWN TIMER |                 |
|---|-----------------|
| Pole  | Quantity (Each) |
| A1  | 1               |
| EL5   | 1               |
| A2  | 2               |
| A3  | 1               |
| A3A   | 1               |
| A4  | 2               |
| TOTAL   | 8               |

| TABLE OF 6" CONCRETE SIDEWALK   |                 |                       |
|---------------------------------|-----------------|-----------------------|
| Location                        | Quantity (SqFt) | *Gravel Cushion (Ton) |
| NE corner of 12th St & Omaha St | 221             | 2.9                   |
| SE corner of 12th St & Omaha St | 624             | 8.1                   |
| SW corner of 12th St & Omaha St | 248             | 3.2                   |
| NW corner of 12th St & Omaha St | 144             | 1.9                   |
| Total                           | 1,237           | 16.0                  |

\*Incidental to the bid item "6" Concrete Sidewalk".

| TABLE OF TYPE 1 DETECTABLE WARNINGS |                 |
|-------------------------------------|-----------------|
| Location                            | Quantity (SqFt) |
| NE corner of 12th St & Omaha St     | 20              |
| SE corner of 12th St & Omaha St     | 20              |
| SW corner of 12th St & Omaha St     | 20              |
| NW corner of 12th St & Omaha St     | 30              |
| Total                               | 90              |

| Table for Topsoil, Seed, Fertilizing, Mulching and Watering<br>(Table is shown for reference only, all quantities below shall be paid for as lump sum under the bid item "Erosion Control") |             |                |           |            |            |                       |
|---|-------------|----------------|-----------|------------|------------|-----------------------|
| Location  | Area (SqYd) | Topsoil (CuYd) | Seed (Lb) | Fert. (Lb) | Mulch (Lb) | Water for Veg. (MGal) |
| SW corner of 12th St & Omaha St   | 28.0        | 4.7            | 1.8       | 8.6        | 11.6       | 1.4                   |
| NW corner of 12th St & Omaha St   | 105.0       | 17.5           | 6.6       | 32.1       | 43.4       | 5.3                   |
| TOTAL   | 133.0       | 22.2           | 8.4       | 40.7       | 55.0       | 6.7                   |

| TABLE FOR SEDIMENT CONTROL AT INLET WITH FRAME AND GRATE |                 |
|--|-----------------|
| Location   | Quantity (Each) |
| NE corner of 12th St & Omaha St                          | 1               |
| SE corner of 12th St & Omaha St                          | 1               |
| TOTAL  | 2               |

| TABLE FOR SEDIMENT CONTROL AT TYPE S REINFORCED CONCRETE DROP |                          |                |
|---|--------------------------|----------------|
| Location  | Clear Opening Width (Ft) | Quantity* (Ft) |
| SE corner of 12th St & Omaha St                               | 6                        | 8              |
| SW corner of 12th St & Omaha St                               | 6                        | 8              |
| TOTAL   |                          | 16             |

\*Quantity shown is the minimum length required and shall be the basis of payment.

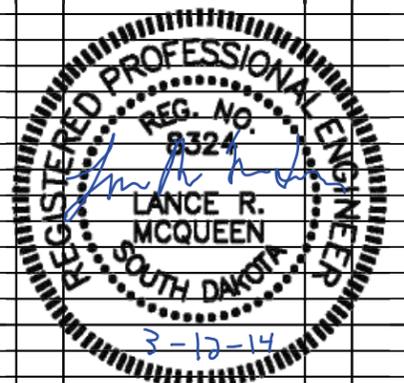


# TABLE OF CONDUIT AND CABLE QUANTITIES

FOR BIDDING PURPOSES ONLY

|                       |                |       |              |
|-----------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT        | SHEET | TOTAL SHEETS |
|                       | NH 0044(186)44 | 14    | 53           |

| Location to Location |                    | Rigid Conduit Schedule 40 |      |      | Rigid Conduit Schedule 80 | Copper Wire |            | Copper Tray Cable, K2 #14 AWG |      |      |      | Twisted Shield Pair | Pole & Bracket Cable | *Preemption Cable | Install Fiber Optic Cable |
|----------------------|--------------------|---------------------------|------|------|---------------------------|-------------|------------|-------------------------------|------|------|------|---------------------|----------------------|-------------------|---------------------------|
|                      |                    | 2"                        | 3"   | 4"   | 3"                        | 1/C #4 AWG  | 1/C #6 AWG | 4/C                           | 5/C  | 19/C | 25/C | #16 AWG Copper      | 2/C #10 AWG          | (Ft)              | (Ft)                      |
|                      |                    | (Ft)                      | (Ft) | (Ft) | (Ft)                      | (Ft)        | (Ft)       | (Ft)                          | (Ft) | (Ft) | (Ft) | (Ft)                | (Ft)                 | (Ft)              | (Ft)                      |
| Service Cabinet      | JB1                | 35                        |      |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB1                  | A4                 |                           | 25   |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB1                  | PA7                | 20                        |      |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB1                  | PA8                | 15                        |      |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB1                  | JB2                | 20                        |      |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| Controller Cabinet   | JB3                |                           |      | 50   |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB3                  | A1                 |                           | 10   |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB3                  | PA1                | 10                        |      |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB3                  | PA2                | 25                        |      |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB3                  | EJB6               | 25                        |      |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB3                  | JB4                | 15                        |      |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB3                  | JB6                |                           |      |      | 140                       |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB8                  | JB6                |                           | 15   |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB6                  | A2                 |                           | 20   |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB6                  | PA3                | 20                        |      |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB6                  | PA4                | 15                        |      |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB6                  | JB7                | 10                        |      |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB5                  | A2                 | 20                        |      |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB8                  | A3                 |                           | 35   |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB8                  | A3A                | 10                        |      |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB8                  | PA5                | 30                        |      |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB8                  | PA6                | 10                        |      |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| JB8                  | JB9                | 15                        |      |      |                           |             |            |                               |      |      |      |                     |                      |                   |                           |
| Service Cabinet      | Controller Cabinet |                           |      |      |                           | 480         |            |                               |      |      |      |                     |                      |                   |                           |
| Controller Cabinet   | JB2                |                           |      |      |                           |             |            |                               |      |      |      | 300                 |                      |                   |                           |
| Controller Cabinet   | JB4                |                           |      |      |                           |             |            |                               |      |      |      | 50                  |                      |                   |                           |
| Controller Cabinet   | JB7                |                           |      |      |                           |             |            |                               |      |      |      | 190                 |                      |                   |                           |
| Controller Cabinet   | JB9                |                           |      |      |                           |             |            |                               |      |      |      | 280                 |                      |                   |                           |
| Controller Cabinet   | PA1                |                           |      |      |                           |             |            | 40                            |      |      |      |                     |                      |                   |                           |
| Controller Cabinet   | PA2                |                           |      |      |                           |             |            | 55                            |      |      |      |                     |                      |                   |                           |
| Controller Cabinet   | PA3                |                           |      |      |                           |             |            | 190                           |      |      |      |                     |                      |                   |                           |
| Controller Cabinet   | PA4                |                           |      |      |                           |             |            | 190                           |      |      |      |                     |                      |                   |                           |
| Controller Cabinet   | PA5                |                           |      |      |                           |             |            | 290                           |      |      |      |                     |                      |                   |                           |
| Controller Cabinet   | PA6                |                           |      |      |                           |             |            | 270                           |      |      |      |                     |                      |                   |                           |
| Controller Cabinet   | PA7                |                           |      |      |                           |             |            | 145                           |      |      |      |                     |                      |                   |                           |
| Controller Cabinet   | PA8                |                           |      |      |                           |             |            | 140                           |      |      |      |                     |                      |                   |                           |
| Controller Cabinet   | A1                 |                           |      |      |                           |             |            |                               |      |      |      |                     |                      | 210               |                           |
| Controller Cabinet   | A2                 |                           |      |      |                           |             |            |                               |      | 200  |      |                     |                      | 540               |                           |
| Controller Cabinet   | A3                 |                           |      |      |                           |             |            |                               |      |      |      |                     |                      | 700               |                           |
| Controller Cabinet   | A4                 |                           |      |      |                           |             |            |                               |      | 155  |      |                     |                      | 450               |                           |
| A1                   | A1                 |                           |      |      |                           |             |            | 85                            |      |      |      |                     |                      |                   |                           |
| A1                   | EL5                |                           |      |      |                           |             |            | 90                            | 90   |      |      |                     |                      |                   |                           |
| A2                   | A2                 |                           |      |      |                           |             |            | 240                           | 90   |      |      |                     |                      |                   |                           |
| A3                   | A3                 |                           |      |      |                           |             |            | 75                            |      |      |      |                     |                      |                   |                           |
| A3                   | A3A                |                           |      |      |                           |             |            | 80                            | 80   |      |      |                     |                      |                   |                           |
| A4                   | A4                 |                           |      |      |                           |             |            | 240                           | 85   |      |      |                     |                      |                   |                           |
| JB5                  | A2                 |                           |      |      |                           |             |            |                               |      |      |      |                     |                      | 63                |                           |
| Controller Cabinet   | JB3                |                           |      |      |                           |             |            |                               |      |      |      |                     |                      |                   | 100                       |
| TOTAL                |                    | 295                       | 105  | 50   | 140                       | 480         | 110        | 2130                          | 345  | 355  | 700  | 820                 | 63                   | 1900              | 100                       |



\*Incidental to the bid item "Siren Emergency Vehicle Preemption System"

# EROSION AND SEDIMENT CONTROL LAYOUT

## SD HWY 44/OMAHA STREET & 12TH STREET

FOR BIDDING PURPOSES ONLY

|                       |                           |             |                    |
|-----------------------|---------------------------|-------------|--------------------|
| STATE OF SOUTH DAKOTA | PROJECT<br>NH 0044(186)44 | SHEET<br>15 | TOTAL SHEETS<br>53 |
|-----------------------|---------------------------|-------------|--------------------|

FILE: Sheet 15.dgn  
PLOTING DATE: 03-11-2014

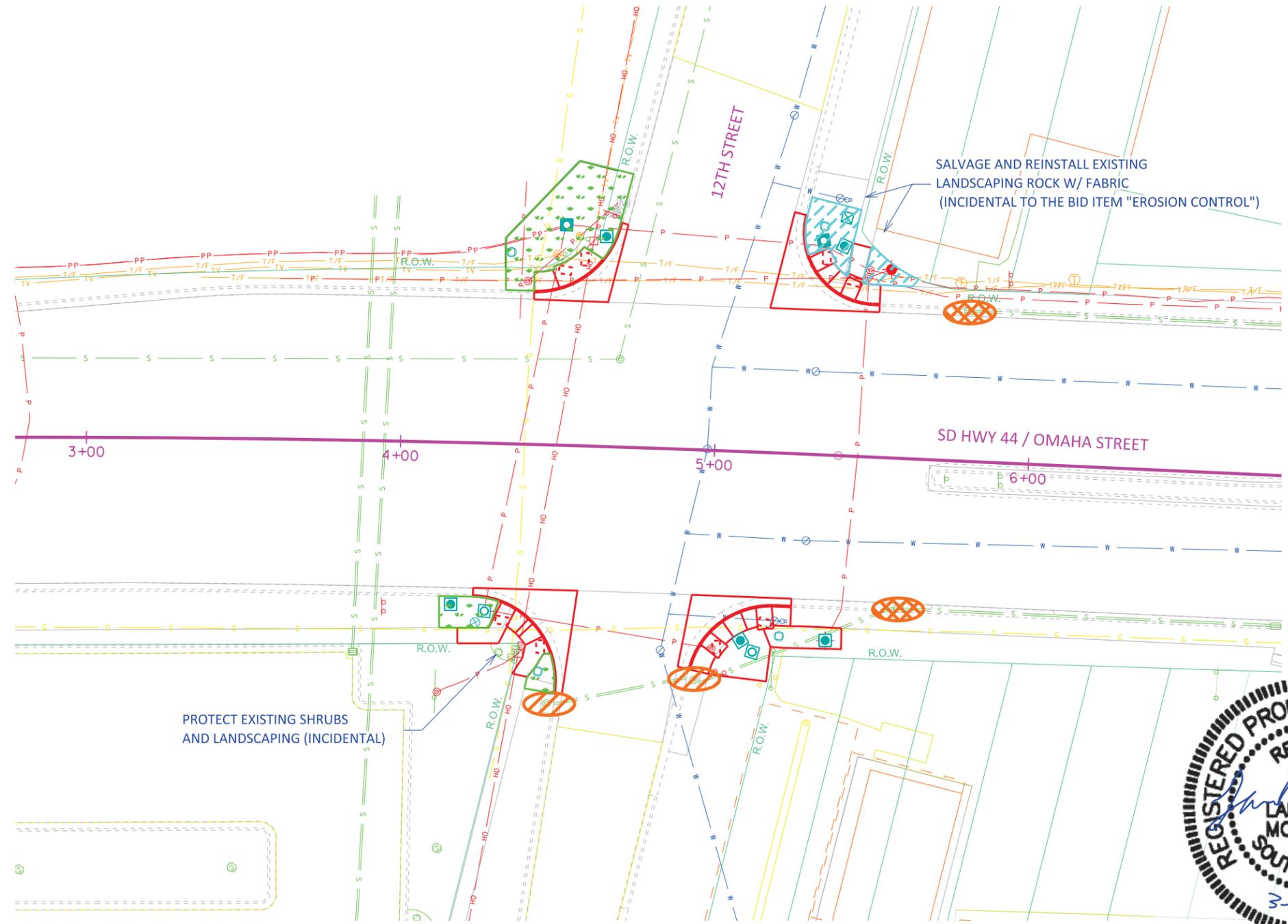
REV DATE:  
INITIAL:

SCALE  
1" = 40'



**LEGEND**

-  SEDIMENT CONTROL AT INLETS WITH FRAMES AND GRATES (SDDOT PLATE #734.10)
-  SEDIMENT CONTROL AT INLETS FOR TYPE S REINFORCED CONCRETE DROP INLETS (SDDOT PLATE #734.11)
-  TOPSOIL, SEED, FERTILIZER, MULCH AND WATER



# HORIZONTAL ALIGNMENT DATA

FOR BIDDING PURPOSES ONLY

|                       |                           |             |                    |
|-----------------------|---------------------------|-------------|--------------------|
| STATE OF SOUTH DAKOTA | PROJECT<br>NH 0044(186)44 | SHEET<br>16 | TOTAL SHEETS<br>53 |
|-----------------------|---------------------------|-------------|--------------------|

FILE: Sheet 16.dgn  
PLOTING DATE: 03-11-2014

REV DATE:  
INITIAL:

| HORIZONTAL ALIGNMENT: OMAHA STREET |          |               |                   |           |            |
|------------------------------------|----------|---------------|-------------------|-----------|------------|
| DESCRIPTION                        | STATION  | LENGTH        | TANGENT DIR.      | NORTHING  | EASTING    |
| POB                                | 1+00.00  |               |                   | 651537.70 | 1205093.36 |
|                                    |          | TL= 439.45'   | N89°51'03.40"E    |           |            |
| PI                                 | 5+39.45  |               |                   | 651538.85 | 1205532.81 |
|                                    |          | TL= 993.30'   | S87°24'57.11"E    |           |            |
| PC                                 | 15+32.75 |               |                   | 651494.06 | 1206525.10 |
|                                    |          | LC= 786.78'   | CD= 11°48'03.12"R |           |            |
|                                    |          | RC= 3,820.00' | DC= 01°29'59.60"  |           |            |
| PI                                 | 19+27.54 |               |                   | 651476.26 | 1206919.49 |
| PT                                 | 23+19.54 |               |                   | 651378.18 | 1207301.90 |
|                                    |          | TL= 10.00'    | S75°36'53.99"E    |           |            |
| POE                                | 23+29.53 |               |                   | 651375.70 | 1207311.58 |



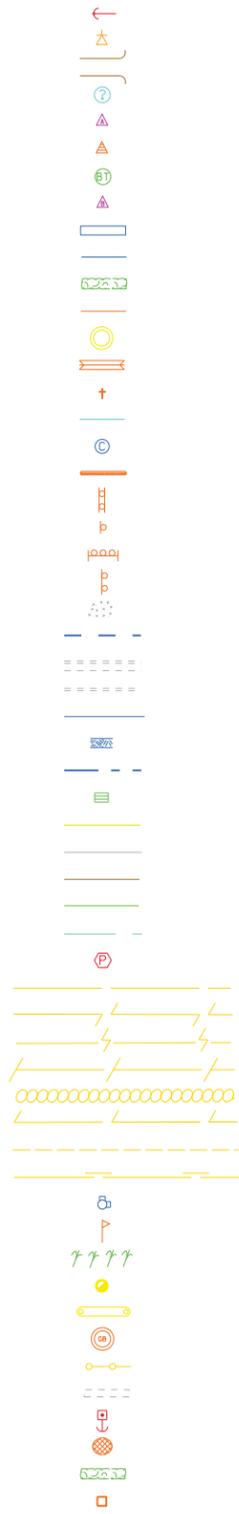
## CONTROL DATA

| HORIZONTAL AND VERTICAL CONTROL POINTS |       |          |        |                        |            |             |           |
|--|-------|----------|--------|------------------------|------------|-------------|-----------|
| SYMBOL                                 | POINT | STATION  | OFFSET | DESCRIPTION            | NORTHING   | EASTING     | ELEVATION |
| △                                      | CP01  | 16+31    | 163'L  | Rebar and Aluminum Cap | 651651.126 | 1206634.854 | 3236.230  |
| △                                      | CP06  | 9+31     | 77'R   | Rock Spike             | 651444.207 | 1205920.767 | 3240.849  |
| △                                      | JN10  | 14+07    | 133'R  | 10" Spike              | 651366.486 | 1206393.134 | 3239.604  |
| △                                      | JN12  | 13+73    | 149'L  | 10" Spike              | 651650.079 | 1206372.045 | 3242.388  |
| △                                      | JN14  | 14+04    | 331'L  | 10" Spike              | 651830.825 | 1206411.700 | 3227.414  |
| △                                      | JN15  | 12+09.88 | 17'L   | PK Nail                | 651525.648 | 1206203.321 | 3240.555  |

Coordinates shown are South Dakota State Plane Coordinate System. North Zone (NAD 83/007) SF= 0.999788585

# EXISTING TOPOGRAPHY SYMBOLOGY AND LEGEND

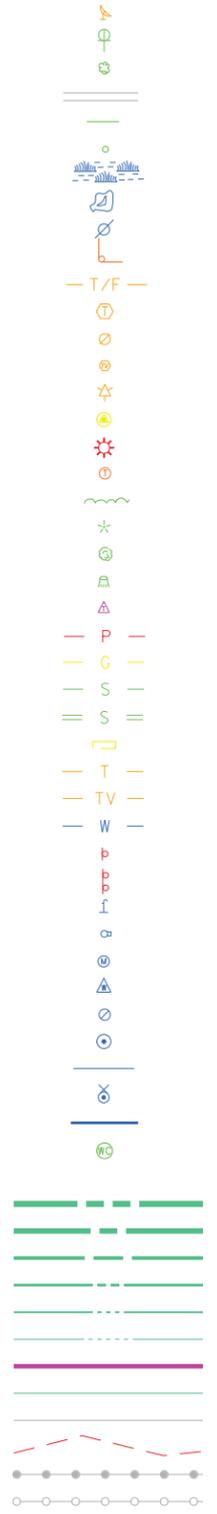
Anchor  
Antenna  
Approach  
Assumed Corner  
Azimuth Marker  
Bbq Grill/ Fireplace  
Bearing Tree  
Bench Mark  
Box Culvert  
Bridge  
Brush  
Buildings  
Bulk Tank  
Cattle Guard  
Cemetery  
Centerline  
Cistern  
Clothes Line  
Commercial Sign Double Face  
Commercial Sign One Post  
Commercial Sign Overhead  
Commercial Sign Two Post  
Concrete Symbol  
Creek Edge  
Curb/Gutter  
Curb  
Dam Grade/Dike/Levee  
Ditch Block  
Drainage Profile  
Drop Inlet  
Edge Of Asphalt  
Edge Of Concrete  
Edge Of Gravel  
Edge Of Other  
Edge Of Shoulder  
Elec. Trans./Power Jct. Box  
Fence Barbwire  
Fence Chainlink  
Fence Electric  
Fence Misc.  
Fence Rock  
Fence Snow  
Fence Wood  
Fence Woven  
Fire Hydrant  
Flag Pole  
Flower Bed  
Gas Valve Or Meter  
Gas Pump Island  
Grain Bin  
Guardrail  
Gutter  
Guy Pole  
Haystack  
Hedge  
Highway R.O.W. Marker



Information Sign One Post  
Information Sign Two Post  
Interstate Close Gate  
Iron Pin  
Irrigation Ditch  
Lake Edge  
Lawn Sprinkler  
Mailbox  
Manhole Electric  
Manhole Gas  
Manhole Misc  
Manhole Sanitary Sewer  
Manhole Storm Sewer  
Manhole Telephone  
Manhole Water  
Merry-Go-Round  
Microwave Radio Tower  
Misc. Property Corner  
Misc. Post  
Overhang Or Encroachment  
Overhead Utility Line  
Parking Meter  
Pipe With End Section  
Pipe With Headwall  
Pipe Without End Section  
Playground Slide  
Playground Swing  
Power And Light Pole  
Power And Telephone Pole  
Power Meter  
Power Pole  
Power Pole And Transformer  
Power Tower Structure  
Propane Tank  
Property Pipe  
Property Pipe With Cap  
Property Stone  
Public Telephone  
Railroad Crossing Signal  
Railroad Milepost Marker  
Railroad Profile  
Railroad R.O.W. Marker  
Railroad Signs  
Railroad Switch  
Railroad Track  
Railroad Trestle  
Rebar  
Rebar With Cap  
Reference Mark  
Retaining Wall  
Riprap  
River Edge  
Rock And Wire Baskets  
Rockpiles  
Route Sign One Post  
Route Sign Two Post



Satellite Dish  
Septic Tank  
Shrub Tree  
Sidewalk  
Sign Face  
Sign Post  
Slough Or Marsh  
Spring  
Stream Gauge  
Street Marker  
Telephone Fiber Optics  
Telephone Junction Box  
Telephone Pole  
Television Cable Jct Box  
Television Tower  
Test Wells/Bore Holes  
Traffic Signal  
Trash Barrel  
Tree Belt  
Tree Coniferous  
Tree Deciduous  
Tree Stumps  
Triangulation Station  
Underground Electric Line  
Underground Gas Line  
Underground Sanitary Sewer  
Underground Storm Sewer  
Underground Tank  
Underground Telephone Line  
Underground Television Cable  
Underground Water Line  
Warning Sign One Post  
Warning Sign Two Post  
Water Fountain  
Water Hydrant  
Water Meter  
Water Tower  
Water Valve  
Water Well  
Weir Rock  
Windmill  
Wingwall  
Witness Corner  
  
State and National Line  
County Line  
Section Line  
Quarter Line  
Sixteenth Line  
Property Line  
Construction Line  
R. O. W. Line  
New R. O. W. Line  
Cut and Fill Limits  
Control of Access  
New Control of Access



# REMOVALS LAYOUT

## SD HWY 44/OMAHA STREET & 12TH STREET

FOR BIDDING PURPOSES ONLY

|                       |                           |             |                    |
|-----------------------|---------------------------|-------------|--------------------|
| STATE OF SOUTH DAKOTA | PROJECT<br>NH 0044(186)44 | SHEET<br>18 | TOTAL SHEETS<br>53 |
|-----------------------|---------------------------|-------------|--------------------|

FILE: Sheet 18.dgn  
PLOT DATE: 03-11-2014  
REV DATE:  
INITIAL:

SCALE  
1" = 40'



- LEGEND**
- REMOVE EXISTING SIDEWALK
  - REMOVE EXISTING CONC. FILLET
  - REMOVE EXISTING ASPHALT

**TAKE OUT CONCRETE FILLET (CONCRETE PAVEMENT)**

- NW QUADRANT (24.6 SY)
- NE QUADRANT (42.3 SY)
- SW QUADRANT (42.3 SY)
- SE QUADRANT (30.2 SY)

**TAKE OUT CONCRETE SIDEWALK**

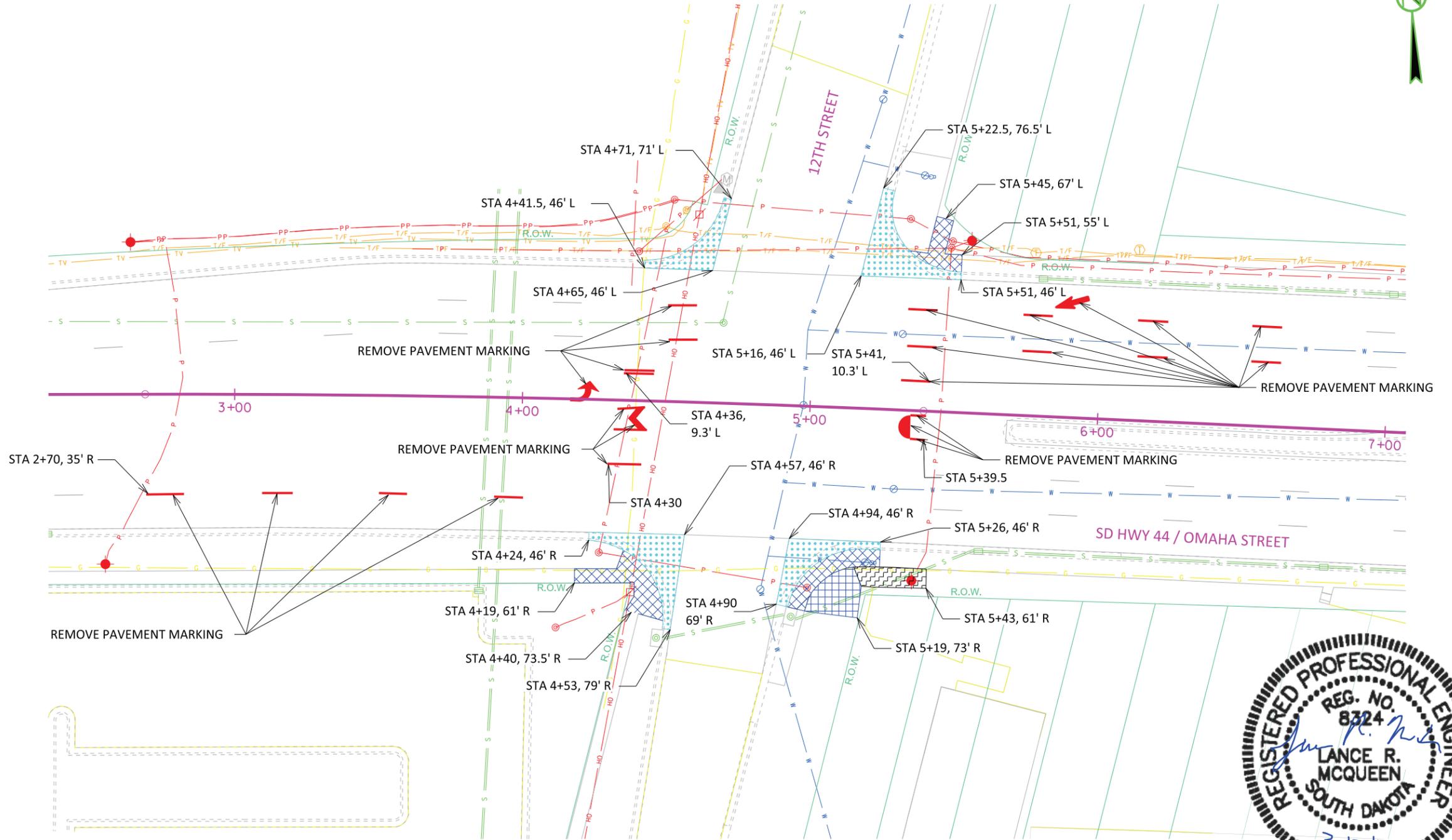
- NE QUADRANT (16.5 SY)
- SW QUADRANT (31.6 SY)
- SE QUADRANT (51.3 SY)

**TAKE OUT ASPHALT CONCRETE**

- SE QUADRANT (18.3 SY)

**TAKE OUT PAVEMENT MARKINGS**

- 24" WHITE (11 LF)
- 4" WHITE (180 LF)
- 4" YELLOW (30 LF)
- MARKING ARROW (2 EACH)
- YELLOW AREA (27 SQFT)





# RIGHT OF WAY AND EASEMENT LAYOUT

## SD HWY 44/OMAHA STREET & 12TH STREET

FOR BIDDING PURPOSES ONLY

|                       |                |       |              |
|-----------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT        | SHEET | TOTAL SHEETS |
|                       | NH 0044(186)44 | 20    | 53           |

FILE: Sheet 20.dgn  
PLOT DATE: 03-11-2014

REV DATE:  
INITIAL:

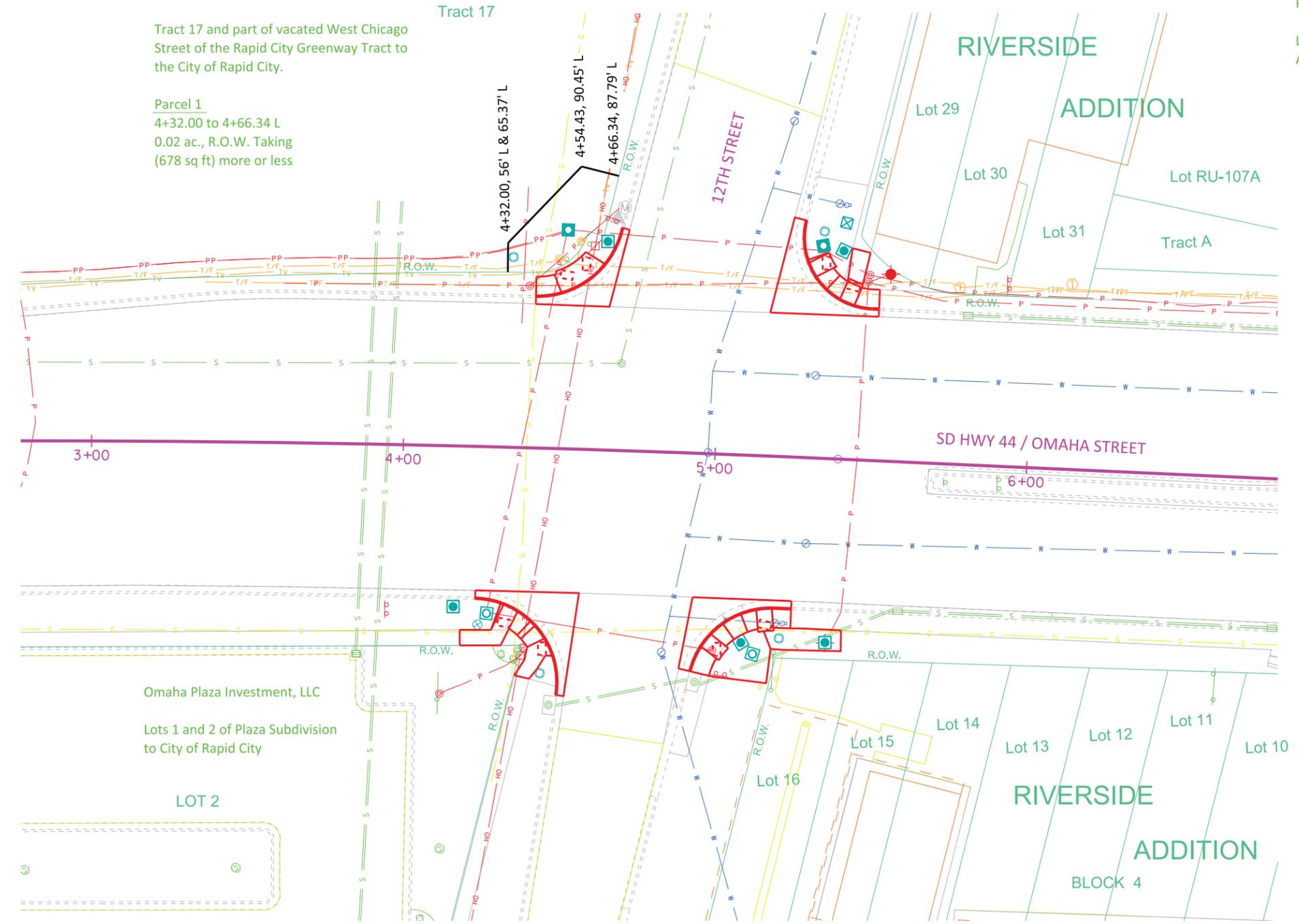
### RAPID CITY GREENWAY TRACTS

City of Rapid City  
Tract 17 and part of vacated West Chicago Street of the Rapid City Greenway Tract to the City of Rapid City.  
Parcel 1  
4+32.00 to 4+66.34 L  
0.02 ac., R.O.W. Taking  
(678 sq ft) more or less

### Sec. 35 - T2N - R7E

Randy Hildebrandt  
Lots 29 through 31, Block 2, Riverside Addition to Rapid City.

SCALE  
1" = 40'



Omaha Plaza Investment, LLC  
Lots 1 and 2 of Plaza Subdivision to City of Rapid City



Moyle Petroleum Company  
Lots 14 through 16, Block 3, Riverside Addition to Rapid City



# CURB AND GUTTER / SIDEWALK LAYOUT

## SD HWY 44/OMAHA STREET & 12TH STREET

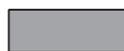
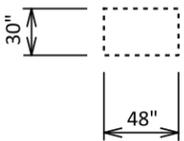
FOR BIDDING PURPOSES ONLY

|                       |                           |             |                    |
|-----------------------|---------------------------|-------------|--------------------|
| STATE OF SOUTH DAKOTA | PROJECT<br>NH 0044(186)44 | SHEET<br>21 | TOTAL SHEETS<br>53 |
|-----------------------|---------------------------|-------------|--------------------|

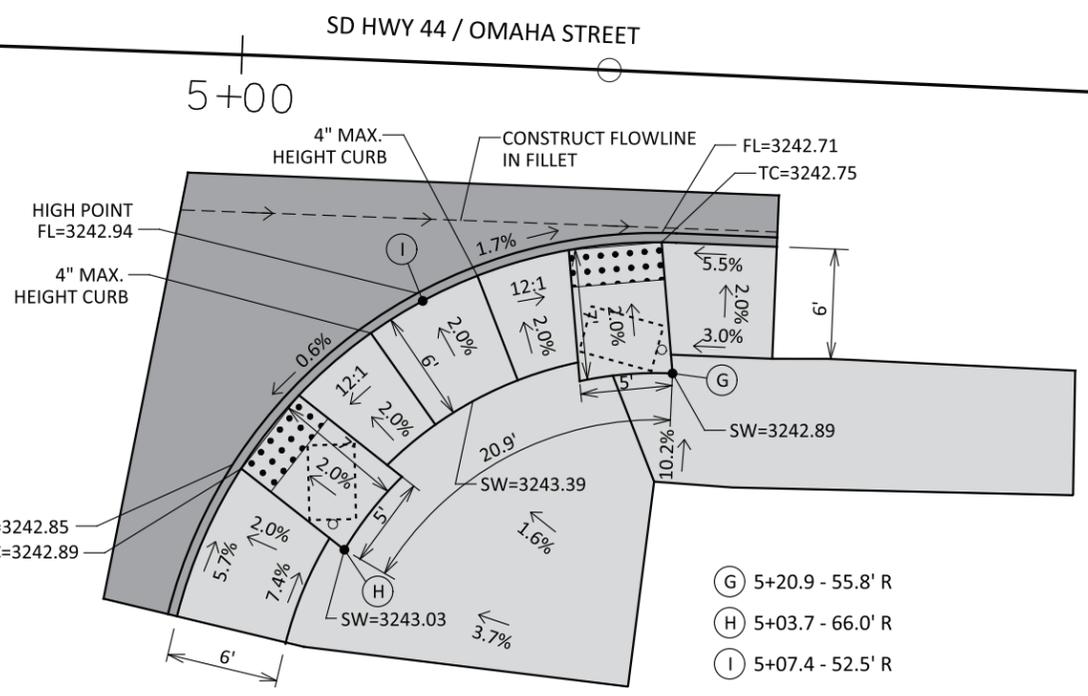
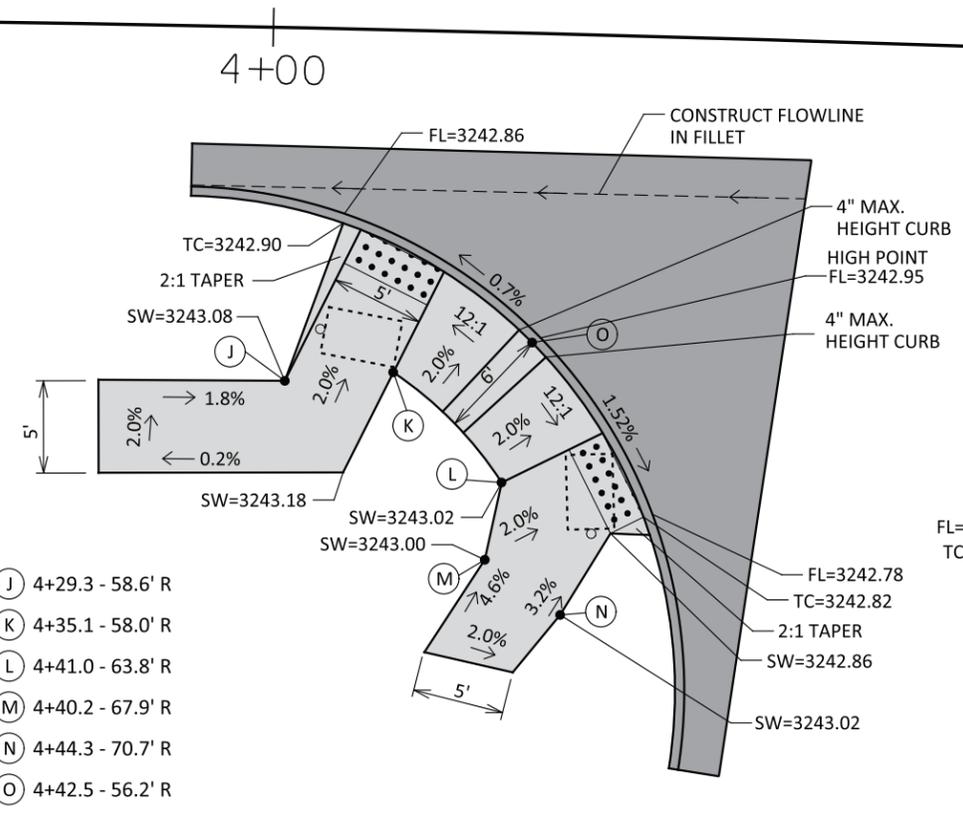
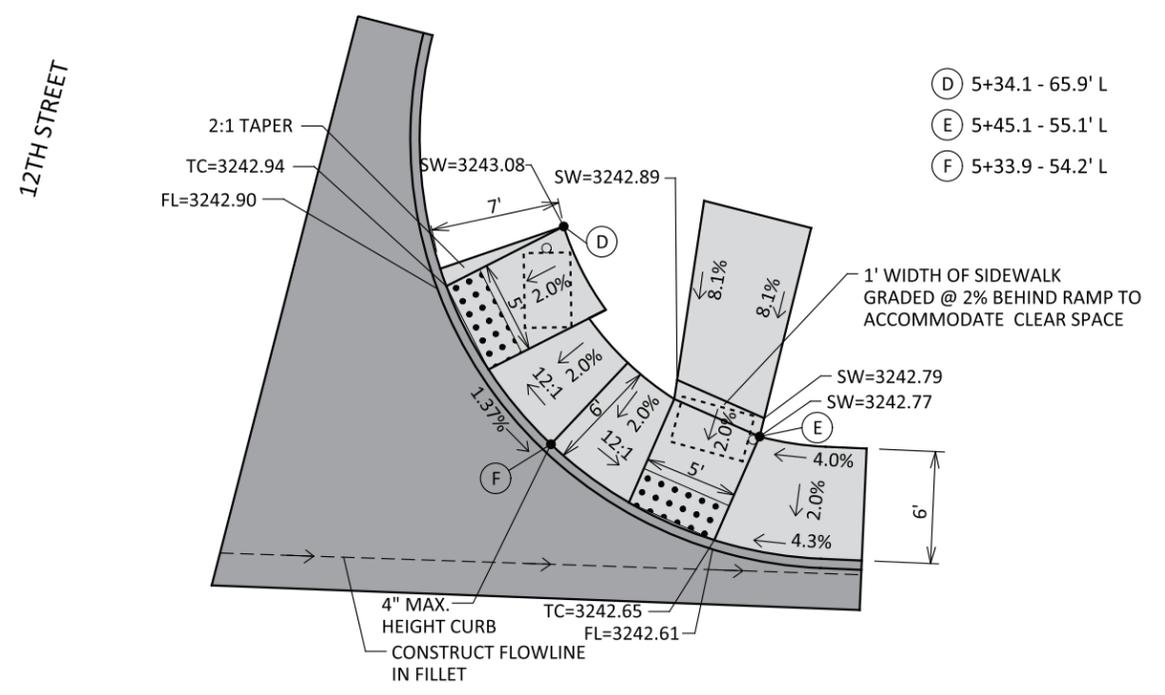
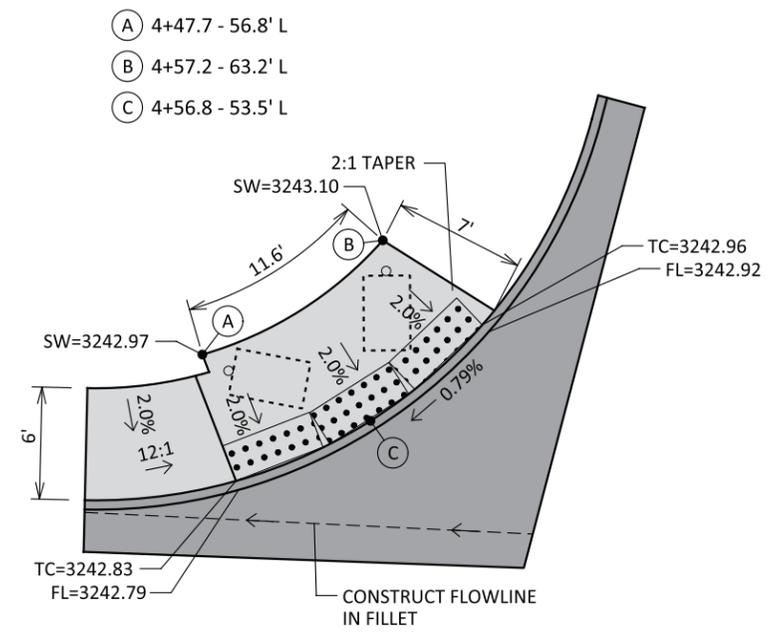
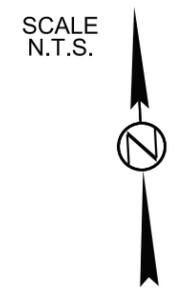
FILE: Sheet 21.dgn  
PLOTING DATE: 03-11-2014

REV DATE:  
INITIAL:

### LEGEND

-  NEW SIDEWALK (6" DEPTH OVER 2" GRAVEL CUSHION)
-  NEW FILLET (10" DEPTH OVER 5" GRAVEL CUSHION)
-  DETECTABLE SURFACE (2'X5')
-  30"x48" CLEAR SPACE AT PEDESTRIAN PUSH BUTTON POLES

NOTE:  
THE 2% AND 12:1 SLOPES SHALL NOT BE EXCEEDED AT THE LOCATIONS SHOWN ON THE PLANS



- (J) 4+29.3 - 58.6' R
- (K) 4+35.1 - 58.0' R
- (L) 4+41.0 - 63.8' R
- (M) 4+40.2 - 67.9' R
- (N) 4+44.3 - 70.7' R
- (O) 4+42.5 - 56.2' R

- (G) 5+20.9 - 55.8' R
- (H) 5+03.7 - 66.0' R
- (I) 5+07.4 - 52.5' R



# PAVEMENT LAYOUT

## SD HWY 44/OMAHA STREET & 12TH STREET

FOR BIDDING PURPOSES ONLY

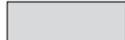
|                       |                           |             |                    |
|-----------------------|---------------------------|-------------|--------------------|
| STATE OF SOUTH DAKOTA | PROJECT<br>NH 0044(186)44 | SHEET<br>22 | TOTAL SHEETS<br>53 |
|-----------------------|---------------------------|-------------|--------------------|

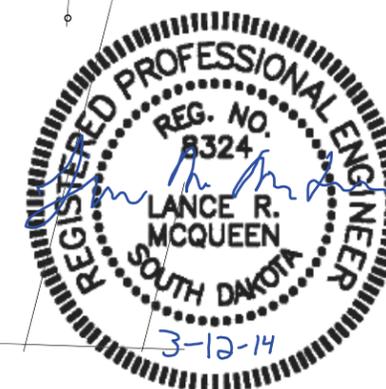
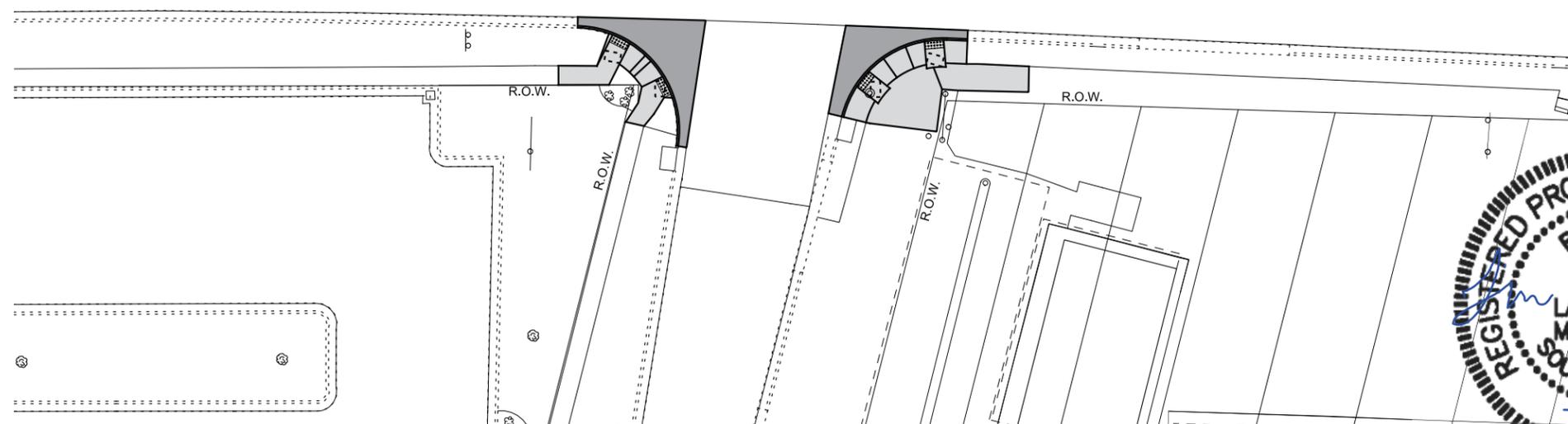
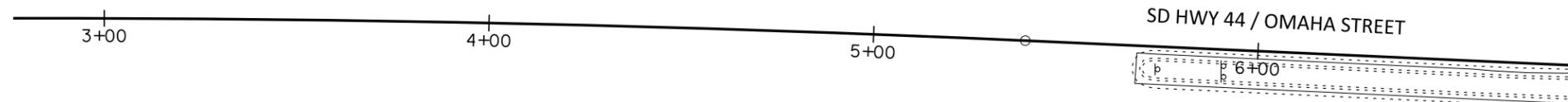
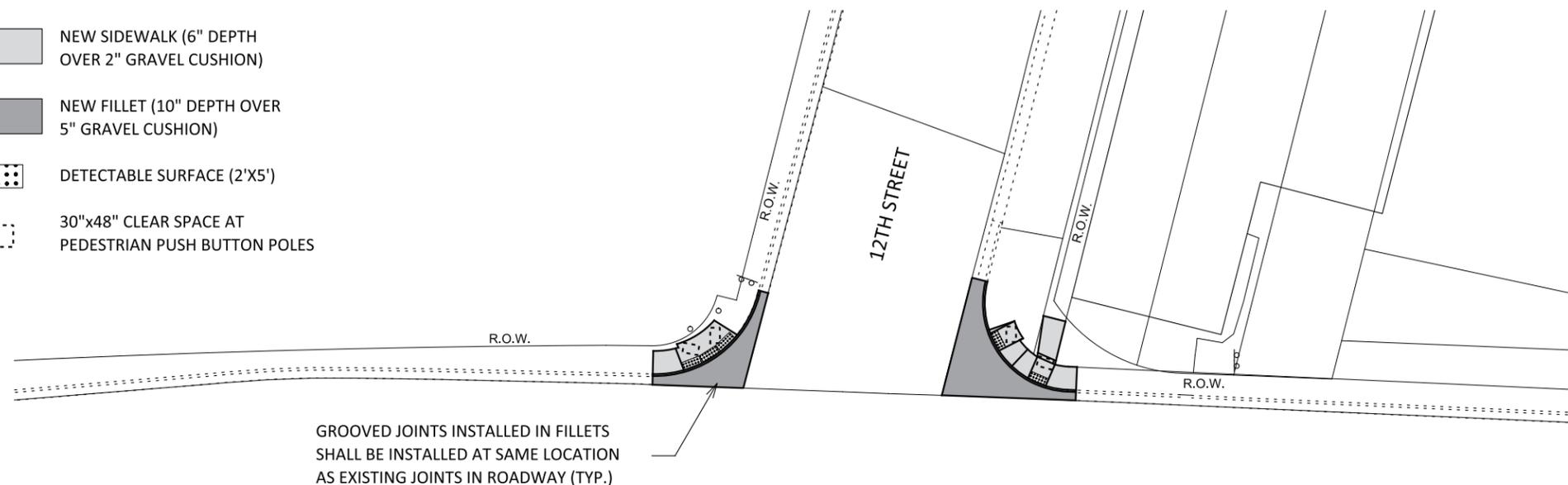
FILE: Sheet 22.dgn  
PLOTING DATE: 03-11-2014

REV DATE:  
INITIAL:

SCALE  
1" = 40'



- LEGEND**
-  NEW SIDEWALK (6" DEPTH OVER 2" GRAVEL CUSHION)
  -  NEW FILLET (10" DEPTH OVER 5" GRAVEL CUSHION)
  -  DETECTABLE SURFACE (2'X5')
  -  30"x48" CLEAR SPACE AT PEDESTRIAN PUSH BUTTON POLES



# PAVEMENT MARKING LAYOUT

## SD HWY 44/OMAHA STREET & 12TH STREET

FOR BIDDING PURPOSES ONLY

|                       |                           |             |                    |
|-----------------------|---------------------------|-------------|--------------------|
| STATE OF SOUTH DAKOTA | PROJECT<br>NH 0044(186)44 | SHEET<br>23 | TOTAL SHEETS<br>53 |
|-----------------------|---------------------------|-------------|--------------------|

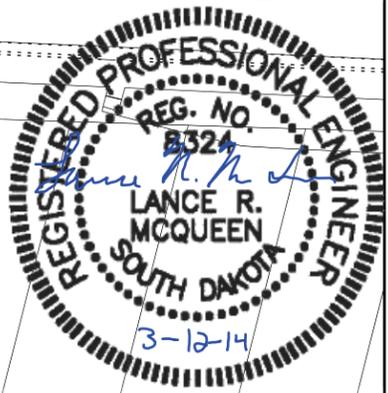
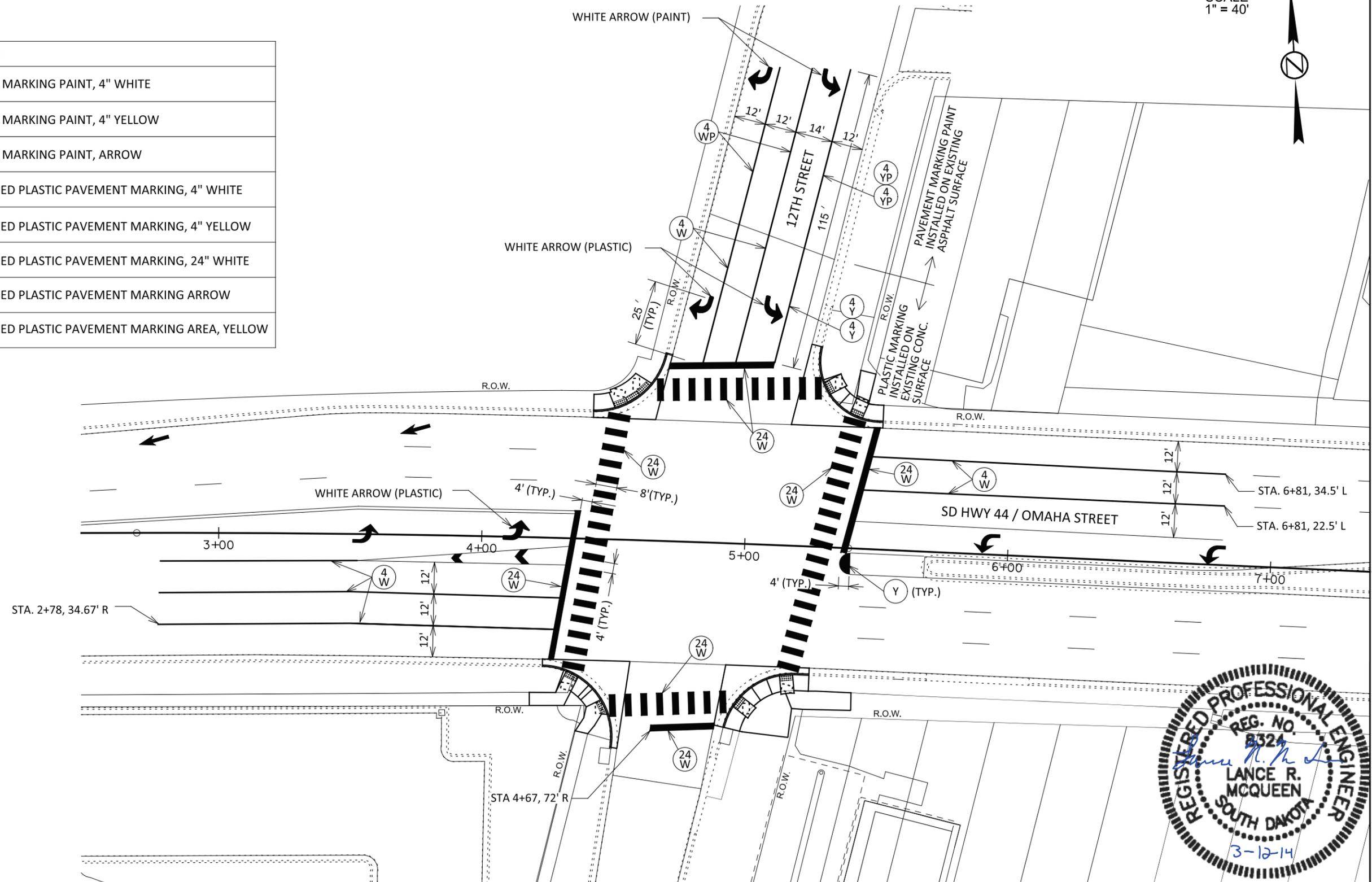
FILE: Sheet 23.dgn  
PLOTING DATE: 03-11-2014

REV DATE:  
INITIAL:

SCALE  
1" = 40'



| KEY    | ITEM   |
|--------|--|
| (4 WP) | PAVEMENT MARKING PAINT, 4" WHITE                   |
| (4 YP) | PAVEMENT MARKING PAINT, 4" YELLOW                  |
| ↩      | PAVEMENT MARKING PAINT, ARROW                      |
| (4 W)  | COLD APPLIED PLASTIC PAVEMENT MARKING, 4" WHITE    |
| (4 Y)  | COLD APPLIED PLASTIC PAVEMENT MARKING, 4" YELLOW   |
| (24 W) | COLD APPLIED PLASTIC PAVEMENT MARKING, 24" WHITE   |
| ↩      | COLD APPLIED PLASTIC PAVEMENT MARKING ARROW        |
| (Y)    | COLD APPLIED PLASTIC PAVEMENT MARKING AREA, YELLOW |



# SIGNAL LAYOUT

## SD HWY 44/OMAHA STREET & 12TH STREET

FOR BIDDING PURPOSES ONLY

|                       |                           |             |                    |
|-----------------------|---------------------------|-------------|--------------------|
| STATE OF SOUTH DAKOTA | PROJECT<br>NH 0044(186)44 | SHEET<br>24 | TOTAL SHEETS<br>53 |
|-----------------------|---------------------------|-------------|--------------------|

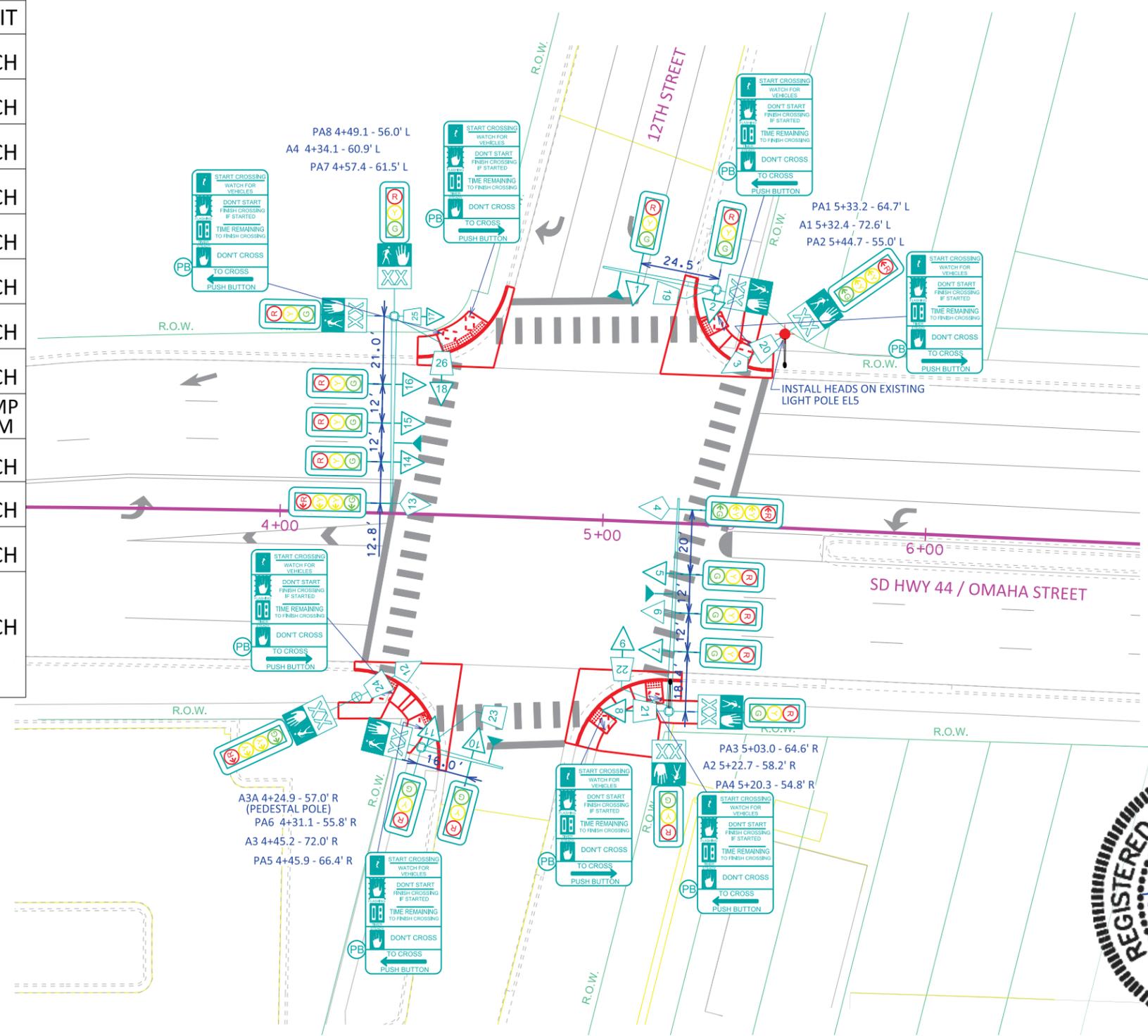
FILE: Sheet 24.dgn  
PLOT DATE: 03-11-2014  
REV DATE: INITIAL:

SCALE  
1" = 40'



### ESTIMATE OF QUANTITIES

| KEY | ITEM   | EST QUANT | UNIT     |
|-----|--|-----------|----------|
| ⊗   | PEDESTAL SIGNAL POLE (A3A)   | 1         | EACH     |
| ⊖   | SIGNAL POLE W/25' MAST ARM (A3)                                    | 1         | EACH     |
| ⊖   | SIGNAL POLE W/35' MAST ARM (A1)                                    | 1         | EACH     |
| ⊖   | SIGNAL POLE W/60' MAST ARM (A4)                                    | 1         | EACH     |
| ⊖   | SIGNAL POLE W/65' MAST ARM & 8' LUMIN ARM 50' MT HT (A2)           | 1         | EACH     |
| ●   | ROADWAY LUMINAIRE, 400 WATT  | 1         | EACH     |
| ▷   | 3 SECTION VEHICLE SIGNAL HEAD (1,2,5,6,7,8,9,10,11,14,15,16,17,18) | 14        | EACH     |
| ◁   | 4 SECTION VEHICLE SIGNAL HEAD (3,4,12,13)                          | 4         | EACH     |
| ◁▷  | SIREN DETECTOR   | LUMP SUM  | LUMP SUM |
| ⊖   | PEDESTRIAN PUSH BUTTON   | 8         | EACH     |
| ○   | PEDESTRIAN PUSH BUTTON POLE (PA1-PA8)                              | 8         | EACH     |
| ◁▷  | PEDESTRIAN SIGNAL HEAD W/COUNTDOWN TIMER (19-26)                   | 8         | EACH     |
| ⊖   | PEDESTRIAN CROSSING SIGN R10-3e (LEFT - 4 /RIGHT - 4)              | 8         | EACH     |



# CONDUIT LAYOUT

## SD HWY 44/OMAHA STREET & 12TH STREET

FOR BIDDING PURPOSES ONLY

|                       |                           |             |                    |
|-----------------------|---------------------------|-------------|--------------------|
| STATE OF SOUTH DAKOTA | PROJECT<br>NH 0044(186)44 | SHEET<br>25 | TOTAL SHEETS<br>53 |
|-----------------------|---------------------------|-------------|--------------------|

FILE: Sheet 25.dgn  
PLOT DATE: 03-11-2014

REV DATE:  
INITIAL:

### LEGEND - EXISTING ITEMS

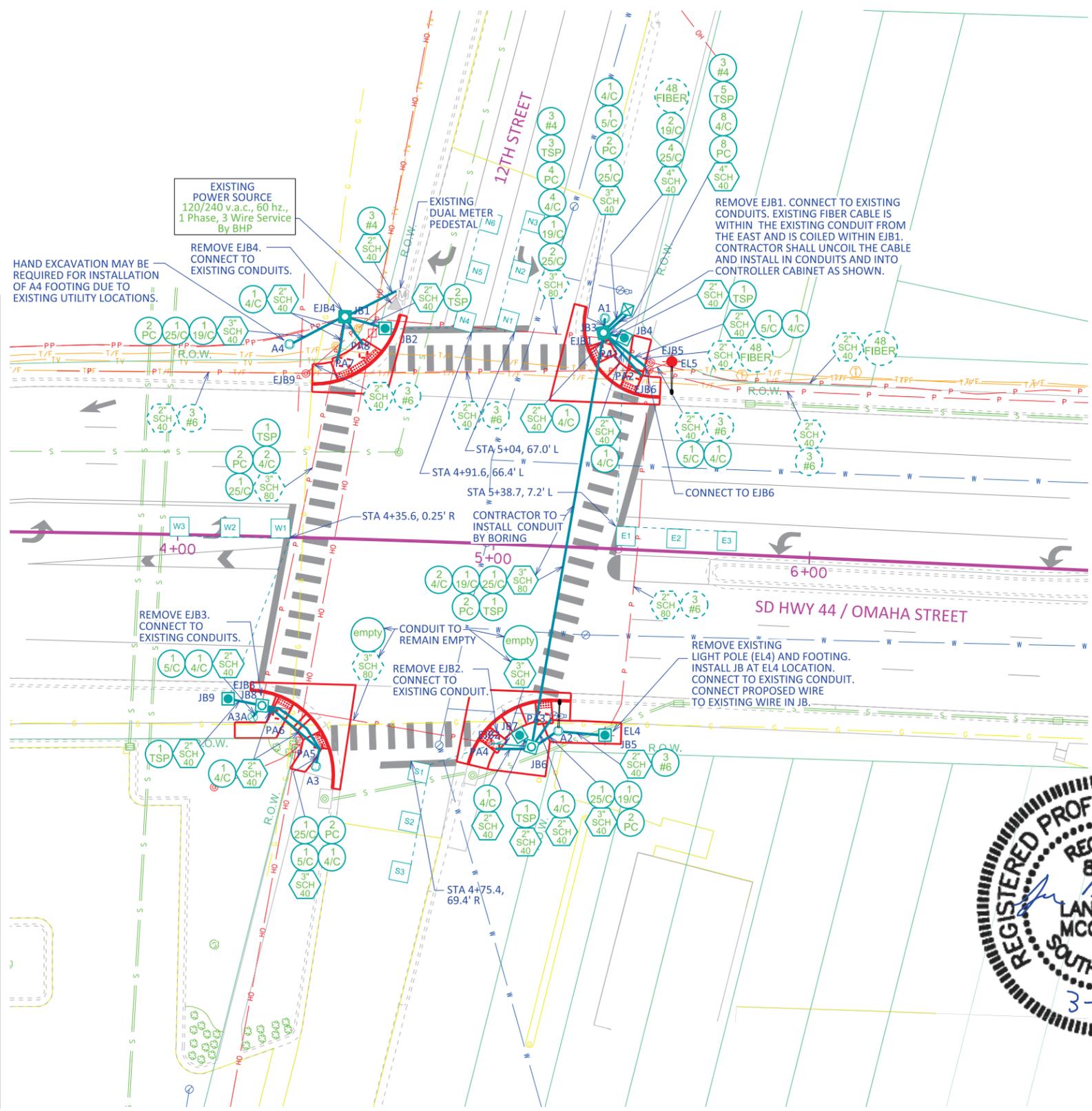
| KEY       | ITEM                          |
|-----------|-------------------------------|
| ⊙         | ELECTRICAL JUNCTION BOX       |
| M         | DUAL METER PEDESTAL           |
| ▲         | SERVICE CABINET               |
| 2" SCH 40 | 2" RIGID CONDUIT, SCHEDULE 40 |
| 2" SCH 80 | 2" RIGID CONDUIT, SCHEDULE 80 |
| 3" SCH 80 | 3" RIGID CONDUIT, SCHEDULE 80 |
| 3 #6      | 1/C #6 AWG COPPER WIRE        |
| 48 FIBER  | 48 STRAND FIBER OPTIC CABLE   |

SCALE  
1" = 40'



### ESTIMATE OF QUANTITIES

| KEY       | ITEM   | EST QUANT | ITEM |
|-----------|--|-----------|------|
| ●         | SALVAGE LUMINAIRE POLE (EL4)                             | 1         | EACH |
|           | REMOVE LUMINAIRE FOOTING (EL4)                           | 1         | EACH |
| ⊗         | 2' DIAMETER FOOTING (A3A)                                | 6         | FT   |
| ⊙         | 3' DIAMETER FOOTING (A1, A2, A3, A4)                     | 47        | FT   |
| ⊠         | TRAFFIC SIGNAL CONTROLLER                                | 1         | EACH |
| ⊙         | TYPE 2 ELECTRICAL JUNCTION BOX (JB2, JB4, JB5, JB7, JB9) | 5         | EACH |
| ⊙         | TYPE 3 ELECTRICAL JUNCTION BOX (JB6, JB8)                | 2         | EACH |
| ⊙         | TYPE 4 ELECTRICAL JUNCTION BOX (JB1, JB3)                | 2         | EACH |
| W4        | SAWED-IN DETECTOR LOOP (N1-N6, E1-E3, S1-S3, W1-W3)      | 15        | EACH |
| ●         | PEDESTRIAN PUSH BUTTON POLE (PA1-PA8)                    | 8         | EACH |
| 2" SCH 40 | 2" RIGID CONDUIT, SCHEDULE 40                            | 295       | FT   |
| 3" SCH 40 | 3" RIGID CONDUIT, SCHEDULE 40                            | 105       | FT   |
| 4" SCH 40 | 4" RIGID CONDUIT, SCHEDULE 40                            | 50        | FT   |
| 3" SCH 80 | 3" RIGID CONDUIT, SCHEDULE 80                            | 140       | FT   |
| #4        | 1/C #4 AWG COPPER WIRE                                   | 480       | FT   |
| #6        | 1/C #6 AWG COPPER WIRE                                   | 110       | FT   |
| 4/C       | 4/C #14 AWG COPPER TRAY CABLE, K2                        | 2130      | FT   |
| 5/C       | 5/C #14 AWG COPPER TRAY CABLE, K2                        | 345       | FT   |
| 19/C      | 19/C #14 AWG COPPER TRAY CABLE, K2                       | 355       | FT   |
| 25/C      | 25/C #14 AWG COPPER TRAY CABLE, K2                       | 700       | FT   |
| TSP       | TWISTED SHIELD PAIR WIRE                                 | 820       | FT   |
| PC        | PREEMPTION CABLE (NOT A BID ITEM)                        | 1900      | FT   |
| 48 FIBER  | INSTALL FIBER OPTIC CABLE                                | 100       | FT   |
|           | DETECTOR UNIT  | 5         | EACH |
|           | 2/C #10 AWG COPPER POLE AND BRACKET CABLE                | 63        | FT   |



# PERMANENT SIGNING LAYOUT

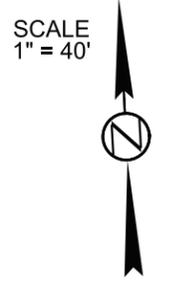
## SD HWY 44/OMAHA STREET & 12TH STREET

FOR BIDDING PURPOSES ONLY

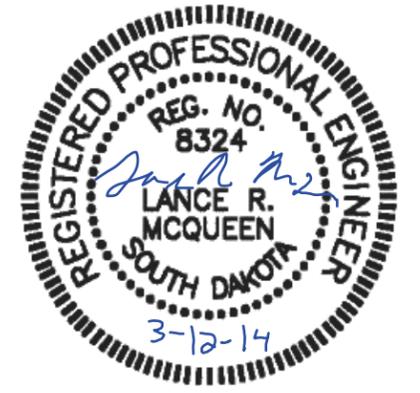
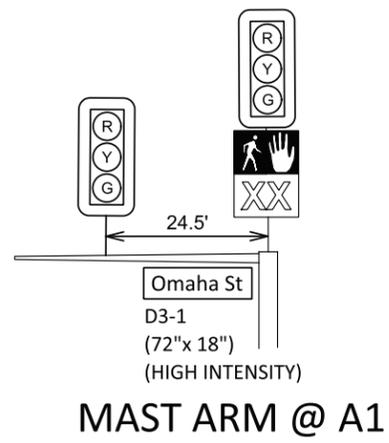
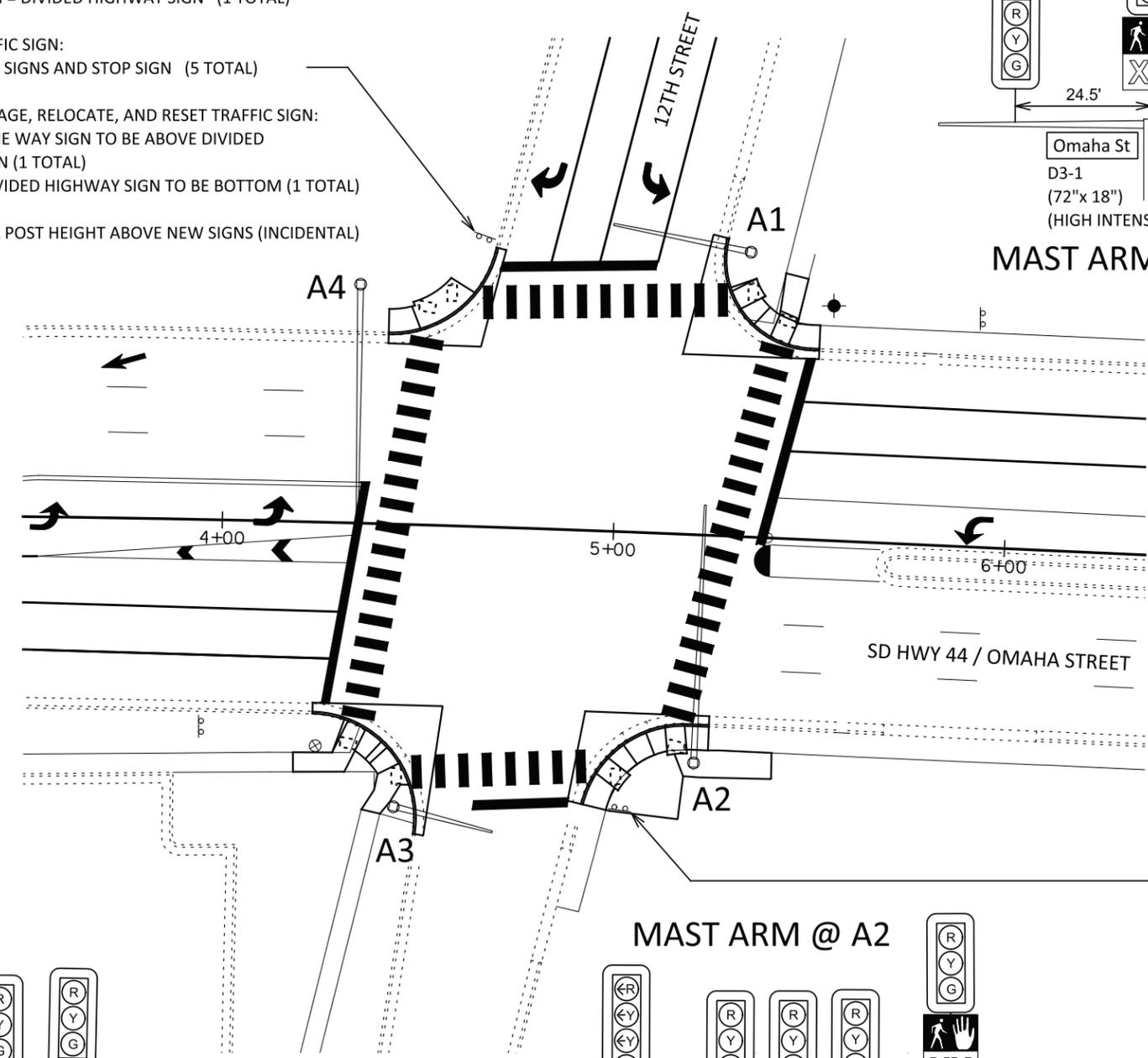
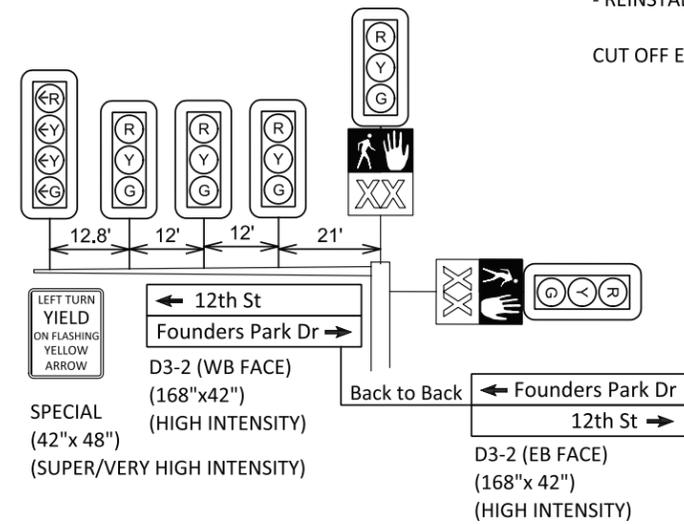
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|-----------------------|---------------------------|-------------|--------------------|
| STATE OF SOUTH DAKOTA | PROJECT<br>NH 0044(186)44 | SHEET<br>26 | TOTAL SHEETS<br>53 |
|-----------------------|---------------------------|-------------|--------------------|

FILE: Sheet 26-27.dgn  
PLOTING DATE: 03-12-2014

REV DATE:  
INITIAL:



- EXISTING SIGN W/ DOUBLE TELESAR POST
- TOP SIGN = STREET NAME SIGNS (4 TOTAL)
  - NEXT LOWER SIGN = ONE WAY SIGN (1 TOTAL)
  - NEXT LOWER SIGN = STOP SIGN (1 TOTAL)
  - BOTTOM SIGN = DIVIDED HIGHWAY SIGN (1 TOTAL)
- SALVAGE TRAFFIC SIGN:
- STREET NAME SIGNS AND STOP SIGN (5 TOTAL)
- REMOVE, SALVAGE, RELOCATE, AND RESET TRAFFIC SIGN:
- REINSTALL ONE WAY SIGN TO BE ABOVE DIVIDED HIGHWAY SIGN (1 TOTAL)
  - REINSTALL DIVIDED HIGHWAY SIGN TO BE BOTTOM (1 TOTAL)
- CUT OFF EXTRA POST HEIGHT ABOVE NEW SIGNS (INCIDENTAL)

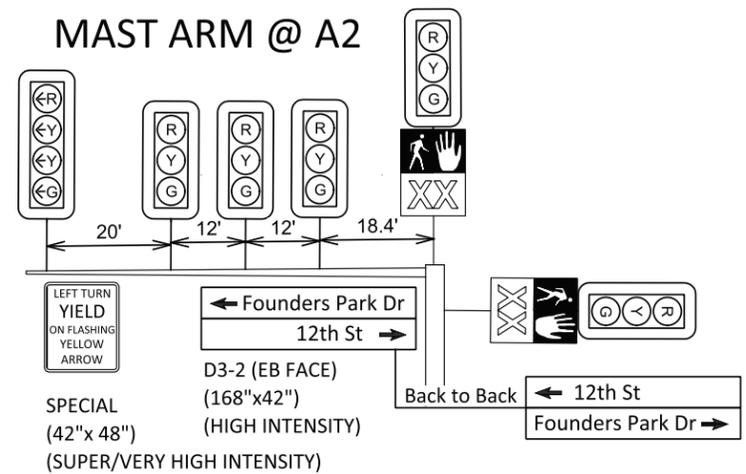
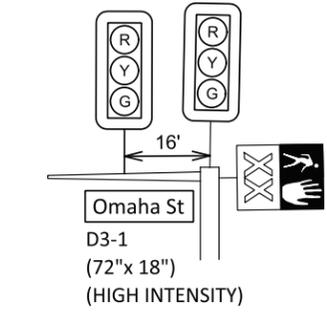


- EXISTING SIGN W/ DOUBLE TELESAR POST
- TOP SIGN = STREET NAME SIGNS (4 TOTAL)
  - NEXT LOWER SIGN = ONE WAY SIGN (1 TOTAL)
  - NEXT LOWER SIGN = STOP SIGN (1 TOTAL)
  - BOTTOM SIGN = DIVIDED HIGHWAY SIGN (1 TOTAL)

- SALVAGE TRAFFIC SIGN:
- STREET NAME SIGNS AND STOP SIGN (5 TOTAL)

- REMOVE, SALVAGE, RELOCATE, AND RESET TRAFFIC SIGN:
- REINSTALL ONE WAY SIGN TO BE ABOVE DIVIDED HIGHWAY SIGN (1 TOTAL)
  - REINSTALL DIVIDED HIGHWAY SIGN TO BE AT BOTTOM (1 TOTAL)

- 2"x2" PERFORATED TUBE POST
- 20 FT TOTAL (10 FT FOR EACH POST, 2 POSTS TOTAL)
  - REMOVE AND DISPOSE EXISTING POSTS (INCIDENTAL)
  - INSTALL NEW POSTS / SIGNS TO BE LOCATED OUTSIDE OF PROPOSED SIDEWALK ROUTE. VERIFY LOCATION WITH FIELD ENGINEER.
  - CUT OFF EXTRA POST HEIGHT ABOVE NEW SIGNS (INCIDENTAL)



- D3-2 (WB FACE)  
(168"x 42")  
(HIGH INTENSITY)

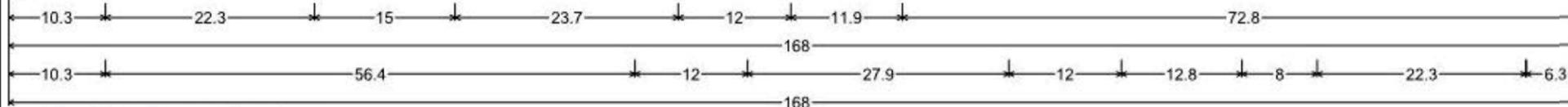


# PERMANENT SIGN DETAILS

FOR BIDDING PURPOSES ONLY

|                       |                           |             |                    |
|-----------------------|---------------------------|-------------|--------------------|
| STATE OF SOUTH DAKOTA | PROJECT<br>NH 0044(186)44 | SHEET<br>27 | TOTAL SHEETS<br>53 |
|-----------------------|---------------------------|-------------|--------------------|

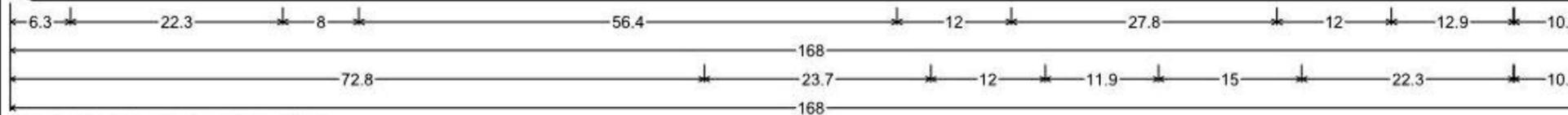
SD HWY 44/OMAHA STREET & 12TH STREET



3.0" Radius, 1.3" Border, White on Green;  
Standard Arrow Custom 22.3" X 13.5" 180"; "12th St" C 2K; "Founders Park Dr" C 2K; Standard Arrow Custom 22.3" X 13.5" 0";  
Table of letter and object lefts.

|      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|
| ←    | l    | 2    | t    | h    | s    | t    |
| 10.3 | 47.6 | 52.1 | 59.7 | 65.2 | 83.3 | 90.9 |

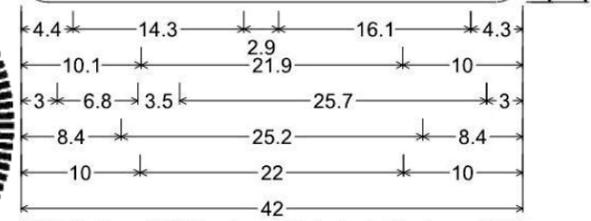
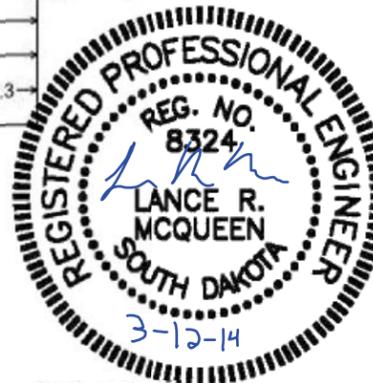
|      |      |      |      |      |      |      |      |      |      |      |      |       |       |       |       |
|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|
| -    | o    | u    | n    | d    | e    | r    | s    | p    | a    | r    | k    | D     | r     | ⇒     |       |
| -0.0 | 10.3 | 17.5 | 25.3 | 33.6 | 41.4 | 49.3 | 57.0 | 61.7 | 78.7 | 87.0 | 94.8 | 100.1 | 118.6 | 127.5 | 139.4 |



3.0" Radius, 1.3" Border, White on Green;  
Standard Arrow Custom 22.3" X 13.5" 180"; "Founders Park Dr" C 2K; "12th St" C 2K; Standard Arrow Custom 22.3" X 13.5" 0";  
Table of letter and object lefts.

|     |      |      |      |      |      |      |      |      |       |       |       |       |       |       |
|-----|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| ←   | F    | o    | u    | n    | d    | e    | r    | s    | P     | a     | r     | k     | D     | r     |
| 6.3 | 36.6 | 43.8 | 51.6 | 59.9 | 67.7 | 75.6 | 83.3 | 87.9 | 105.0 | 113.3 | 121.1 | 126.3 | 144.8 | 153.7 |

|      |      |      |      |      |       |       |       |
|------|------|------|------|------|-------|-------|-------|
| -    | l    | 2    | t    | h    | s     | t     | ⇒     |
| -0.0 | 72.8 | 77.3 | 84.9 | 90.4 | 108.5 | 116.1 | 135.4 |



2.3" Radius, 0.9" Border, 0.6" Indent, Black on White;  
"LEFT TURN" D 2K; "YIELD" D 2K;  
"ON FLASHING" C 2K; "YELLOW" D 2K;  
"ARROW" D 2K;

Table of letter and object lefts.

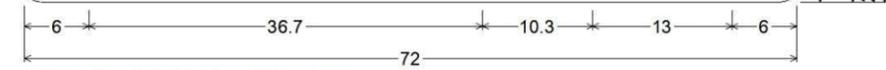
|     |     |      |      |      |      |      |      |
|-----|-----|------|------|------|------|------|------|
| L   | E   | F    | T    | T    | U    | R    | N    |
| 4.4 | 8.2 | 12.2 | 15.6 | 21.6 | 25.4 | 30.0 | 34.3 |

|      |      |      |      |      |
|------|------|------|------|------|
| Y    | I    | E    | L    | D    |
| 10.1 | 16.1 | 18.5 | 23.3 | 27.9 |

|     |     |      |      |      |      |      |      |      |      |
|-----|-----|------|------|------|------|------|------|------|------|
| O   | N   | F    | L    | A    | S    | H    | I    | N    | G    |
| 3.0 | 7.0 | 13.3 | 16.5 | 19.4 | 23.0 | 26.7 | 30.6 | 32.4 | 36.2 |

|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| Y   | E    | L    | L    | O    | W    |
| 8.4 | 13.4 | 17.4 | 21.2 | 25.0 | 29.2 |

|      |      |      |      |      |
|------|------|------|------|------|
| A    | R    | R    | O    | W    |
| 10.0 | 15.0 | 19.2 | 23.4 | 27.6 |



1.5" Radius, 0.5" Border, White on Green;  
"Omaha" Highway C 2K specified length; "St" Highway C 2K specified length;



# WIRING DIAGRAM

## SD HWY 44/OMAHA STREET & 12TH STREET

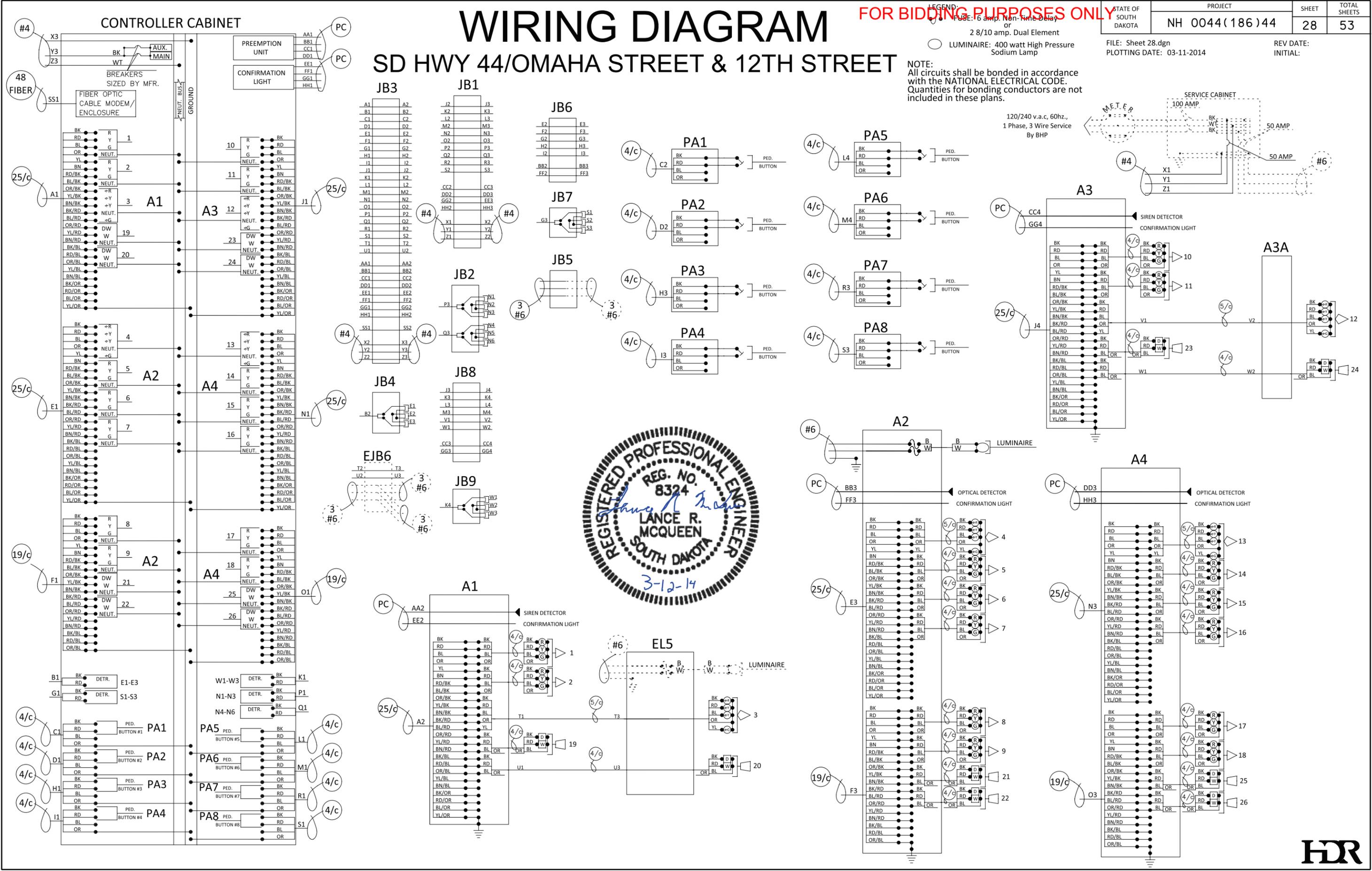
FOR BIDDING PURPOSES ONLY

|                       |                           |             |                    |
|-----------------------|---------------------------|-------------|--------------------|
| STATE OF SOUTH DAKOTA | PROJECT<br>NH 0044(186)44 | SHEET<br>28 | TOTAL SHEETS<br>53 |
|-----------------------|---------------------------|-------------|--------------------|

FILE: Sheet 28.dgn  
PLOTING DATE: 03-11-2014  
REV DATE:  
INITIAL:

NOTE:  
All circuits shall be bonded in accordance with the NATIONAL ELECTRICAL CODE.  
Quantities for bonding conductors are not included in these plans.

- LEGEND:  
FUSE: 6 amp. Non-Time Delay or  
2 8/10 amp. Dual Element  
LUMINAIRE: 400 watt High Pressure Sodium Lamp

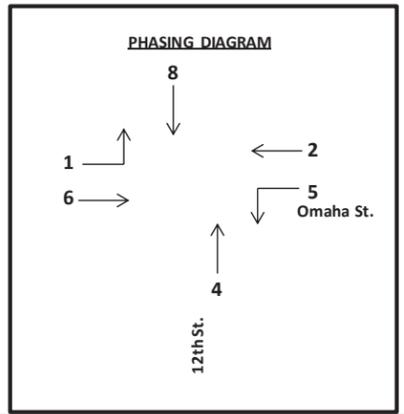
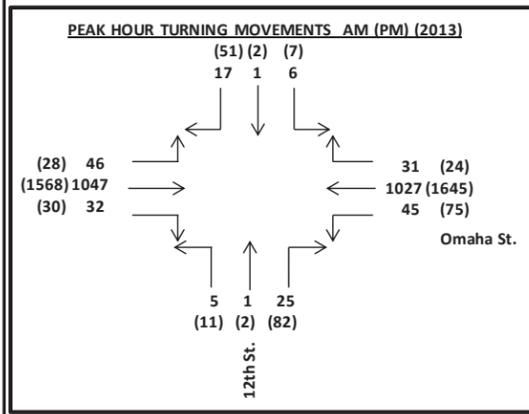


# SIGNAL TIMING FOR BIDDING PURPOSES ONLY

## SD HWY 44/OMAHA STREET & 12TH STREET

| PHASING AND SEQUENCING       |      |    |    |      |    |    |      |    |           |     |     |    |      |    |           |    |    |     |    |    |               |
|------------------------------|------|----|----|------|----|----|------|----|-----------|-----|-----|----|------|----|-----------|----|----|-----|----|----|---------------|
| INTERVALS                    | 1    | 2  | 3  | 4    | 5  | 6  | 7    | 8  | 9         | 10  | 11  | 12 | 13   | 14 | 15        | 16 | 17 | 18  | 19 | 20 | FLASH DISPLAY |
| SIGNAL HEAD                  | <G   | <Y | <R | <R   | <G | <Y | <FY  | <Y | <R        | <FY | <FY | <Y | <R   | <R | <R        | <R | <R | <R  | <R | <R | Y             |
| WESTBOUND LEFT 12,13         | <G   | <Y | <R | <R   | <G | <Y | <FY  | <Y | <R        | <FY | <FY | <Y | <R   | <R | <R        | <R | <R | <R  | <R | <R | Y             |
| WESTBOUND THRU 14,15,16,17   | R    | R  | R  | R    | G  | G  | G    | Y  | R         | G   | G   | Y  | R    | R  | R         | R  | R  | R   | R  | R  | Y             |
| EASTBOUND LEFT 3,4           | <G   | <Y | <G | <Y   | <R | <R | <FY  | <Y | <R        | <FY | <FY | <Y | <R   | <R | <R        | <R | <R | <R  | <R | <R | Y             |
| EASTBOUND THRU 5,6,7,8       | R    | R  | G  | G    | R  | R  | G    | Y  | R         | G   | G   | Y  | R    | R  | R         | R  | R  | R   | R  | R  | Y             |
| E.B. & W.B. PEDS 19,21,23,25 | DW   | DW | DW | DW   | DW | DW | DW   | DW | DW        | W   | FDW | DW | DW   | DW | DW        | DW | DW | DW  | DW | DW | NO DISPLAY    |
| NORTHBOUND THRU 1,2,18       | R    | R  | R  | R    | R  | R  | R    | R  | R         | R   | R   | R  | R    | G  | Y         | R  | G  | G   | Y  | R  | R             |
| SOUTHBOUND THRU 9,10,11      | R    | R  | R  | R    | R  | R  | R    | R  | R         | R   | R   | R  | R    | G  | Y         | R  | G  | G   | Y  | R  | R             |
| N.B. & S.B. PEDS 20,22,24,26 | DW   | DW | DW | DW   | DW | DW | DW   | DW | DW        | DW  | DW  | DW | DW   | DW | DW        | DW | W  | FDW | DW | DW | NO DISPLAY    |
| SEQUENCE                     | A    |    |    |      |    |    | B    |    |           |     |     |    | D    |    |           |    |    |     |    |    |               |
|                              | -OR- |    |    | -OR- |    |    | -OR- |    |           |     |     |    | -OR- |    |           |    |    |     |    |    |               |
| PHASES                       | 1&5  |    | 2  |      | 6  |    | 2&6  |    | 2&6 W/PED |     |     |    | 4&8  |    | 4&8 W/PED |    |    |     |    |    |               |
| MOVEMENTS                    |      |    |    |      |    |    |      |    |           |     |     |    |      |    |           |    |    |     |    |    |               |

| CONTROLLER TIMINGS (FREE OPERATION) |    |    |    |    |    |    |
|-------------------------------------|----|----|----|----|----|----|
| MOVEMENT                            | 1  | 2  | 8  | 5  | 6  | 4  |
| PHASE                               |    |    |    |    |    |    |
| MIN GREEN                           | 5  | 5  | 5  | 5  | 5  | 5  |
| ADDED INITIAL                       |    |    |    |    |    |    |
| MAX INITIAL                         |    |    |    |    |    |    |
| PASSAGE TIME                        | 3  | 3  | 3  | 3  | 3  | 3  |
| MAXIMUM 1                           | 11 | 23 | 35 | 11 | 23 | 35 |
| MAXIMUM 2                           |    |    |    |    |    |    |
| TIME BEFORE                         |    |    |    |    |    |    |
| TIME TO REDUCE                      |    |    |    |    |    |    |
| MINIMUM GAP                         |    |    |    |    |    |    |
| YELLOW CHANGE                       | 5  | 5  | 5  | 5  | 5  | 5  |
| RED CLEARANCE                       |    | 2  | 2  |    | 2  | 2  |
| WALK                                |    | 7  | 7  |    | 7  | 7  |
| PED CLEARANCE                       |    | 16 | 28 |    | 16 | 28 |



| TIMING PLAN       |                 |
|-------------------|-----------------|
| TIME OF DAY (TOD) | PATTERN (C/S/O) |
| 5:00-7:15         | 1/2/2           |
| 7:15-8:00         | 1/1/1           |
| 8:00-14:30        | 1/2/2           |
| 14:30-17:45       | 3/1/1           |
| 17:45-2:00        | 1/2/2           |
| 2:00-5:00         | FLASH           |

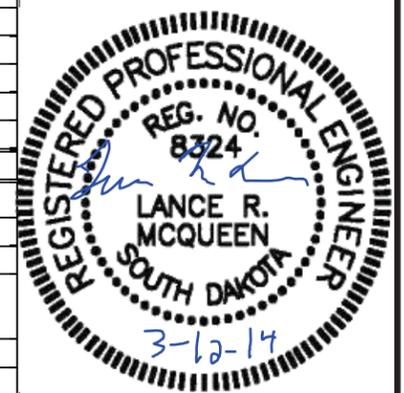
| WEEKLY PROGRAM |     |     |     |     |     |     |     |
|----------------|-----|-----|-----|-----|-----|-----|-----|
|                | SUN | MON | TUE | WED | THU | FRI | SAT |
| TIMING PLAN    | 1   | 1   | 1   | 1   | 1   | 1   | 1   |

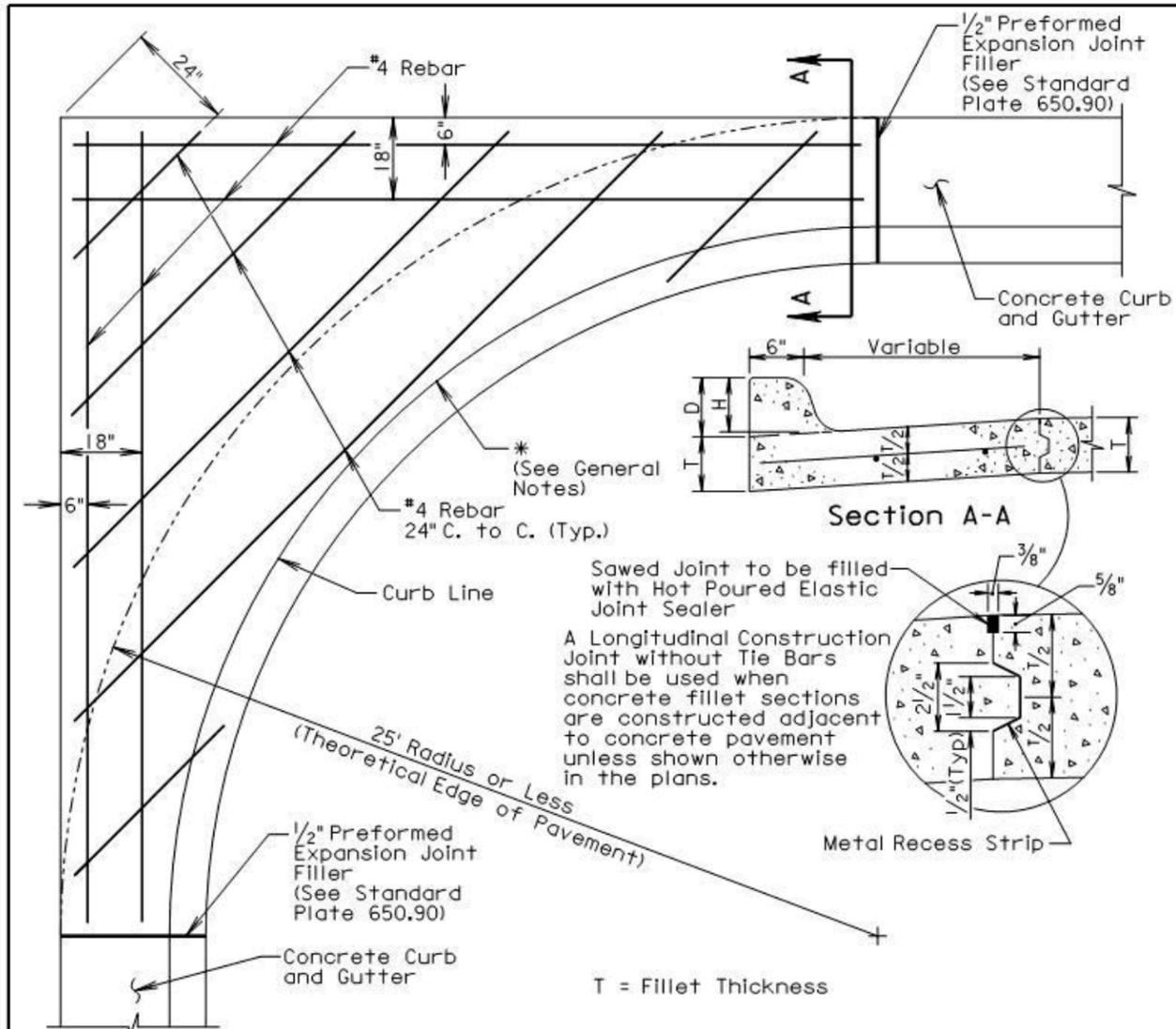
| DETECTOR SETTINGS |                  |               |                    |            |              |              |                 |                   |
|-------------------|------------------|---------------|--------------------|------------|--------------|--------------|-----------------|-------------------|
| DETECTOR LABEL    | AMPLIFIED        | DETECTOR TYPE | DETECTOR OPERATION |            |              |              | MOVEMENT CALLED | MOVEMENT EXTENDED |
|                   | CHANNEL DETECTOR |               | CALLS & EXTENDS    | CALLS ONLY | EXTENDS ONLY | LOCKING CALL |                 |                   |
| N1, N2, N3        | 1                | LOOP          | X                  |            |              |              | 8               | 4&8               |
| E1, E2, E3        | 2                | LOOP          | X                  |            |              |              | 1               | 1&5 OR 1&6        |
| S1, S2, S3        | 3                | LOOP          | X                  |            |              |              | 4               | 4&8               |
| W1, W2, W4        | 4                | LOOP          | X                  |            |              |              | 5               | 1&5 OR 2&5        |
| N4, N5, N6        | 5                | LOOP          | X                  |            |              |              | 8               | 4&8               |

| COORDINATION TIMING |    |    |    |    |    |    |
|---------------------|----|----|----|----|----|----|
| CYCLE 1 = 114 SEC.  |    |    |    |    |    |    |
| PHASE               | 1  | 2  | 8  | 5  | 6  | 4  |
| MOVEMENT            |    |    |    |    |    |    |
| TIME - SPLIT 1      | 12 | 61 | 41 | 12 | 61 | 41 |
| TIME - SPLIT 2      | 17 | 55 | 42 | 9  | 63 | 42 |
| COORDINATED PHASE   |    | X  |    |    | X  |    |
| OFFSET 1 = 34 SEC.  |    |    |    |    |    |    |
| OFFSET 2 = 49 SEC.  |    |    |    |    |    |    |

| COORDINATION TIMING |    |    |    |    |    |    |
|---------------------|----|----|----|----|----|----|
| CYCLE 2 = 126 SEC.  |    |    |    |    |    |    |
| PHASE               | 1  | 2  | 8  | 5  | 6  | 4  |
| MOVEMENT            |    |    |    |    |    |    |
| TIME - SPLIT 1      | 14 | 71 | 41 | 10 | 75 | 41 |
| COORDINATED PHASE   |    | X  |    |    | X  |    |
| OFFSET 1 = 61 SEC.  |    |    |    |    |    |    |

| COORDINATION TIMING |    |    |    |    |    |    |
|---------------------|----|----|----|----|----|----|
| CYCLE 3 = 120 SEC.  |    |    |    |    |    |    |
| PHASE               | 1  | 2  | 8  | 5  | 6  | 4  |
| MOVEMENT            |    |    |    |    |    |    |
| TIME - SPLIT 1      | 14 | 65 | 41 | 10 | 69 | 41 |
| COORDINATED PHASE   |    | X  |    |    | X  |    |
| OFFSET 1 = 39 SEC.  |    |    |    |    |    |    |





**GENERAL NOTES:**

\* If a curb ramp is constructed adjacent to a PCC fillet section, the curb will need to be modified. Refer to the corresponding curb ramp standard plate or other special details in the plans for modification of the PCC fillet section.

Dimensions D, H, and T shall conform to those shown on the appropriate curb and gutter standard plate.

All rebar shall conform to A.S.T.M. A615 Grade 60 and the Standard Specifications Sections 480 and 1010. All rebar shall have a minimum of 3" clear cover.

Class M6 Concrete shall be used in construction of the fillets.

The concrete curb shall be monolithic with the concrete fillet. No separate payment for this curb will be made as the curb is considered a part of the fillet.

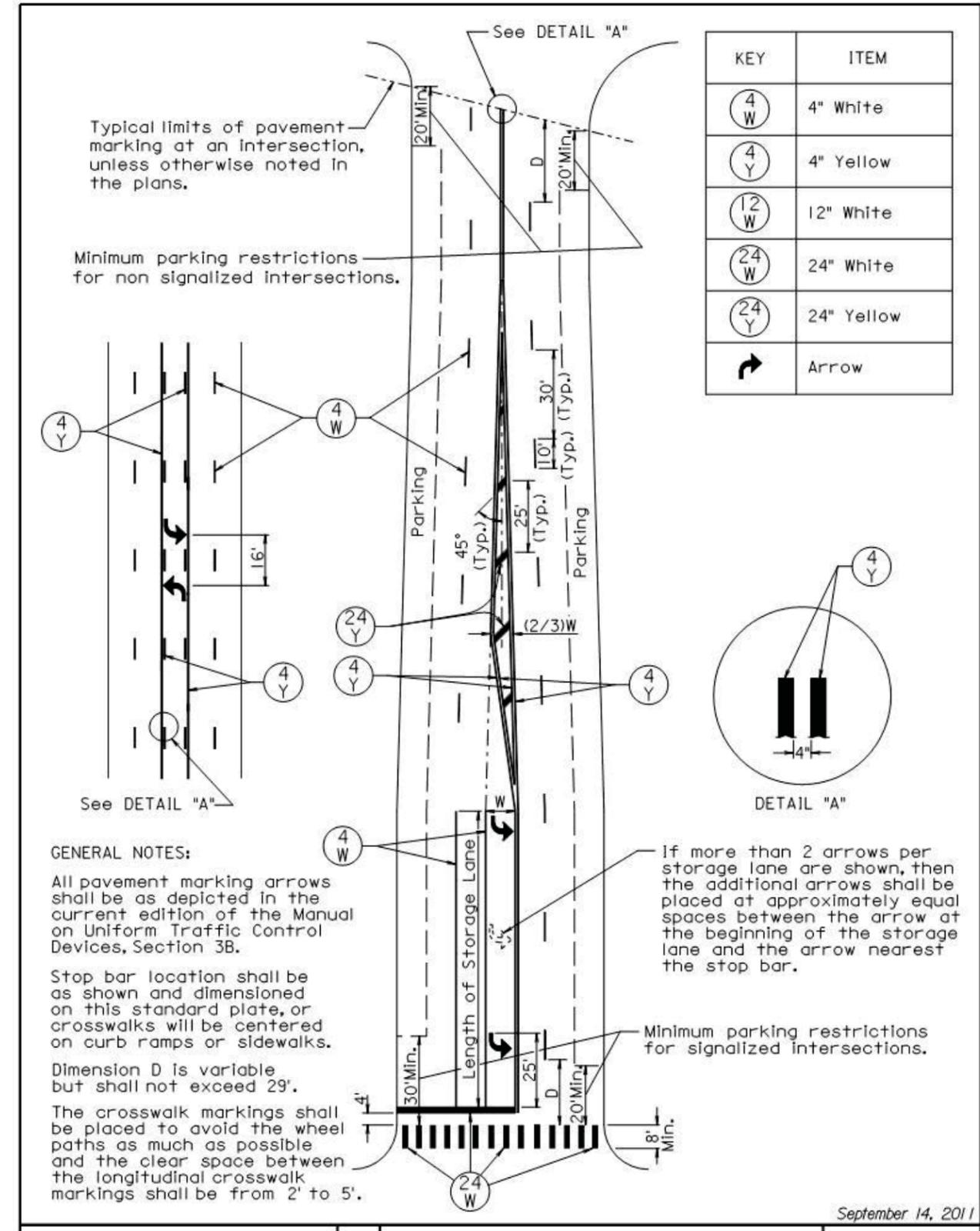
Joints shall be constructed at 10' intervals except when fillets are constructed adjacent to PCC Pavement. If there is adjacent PCC Pavement the joints shall be extended from edge of pavement through the fillet section as directed by the Engineer.

The cost for all materials, labor, and incidentals necessary to construct the PCC fillet section with curb and gutter shall be incidental to the contract unit price per square yard for the corresponding PCC fillet section bid item.

September 6, 2013

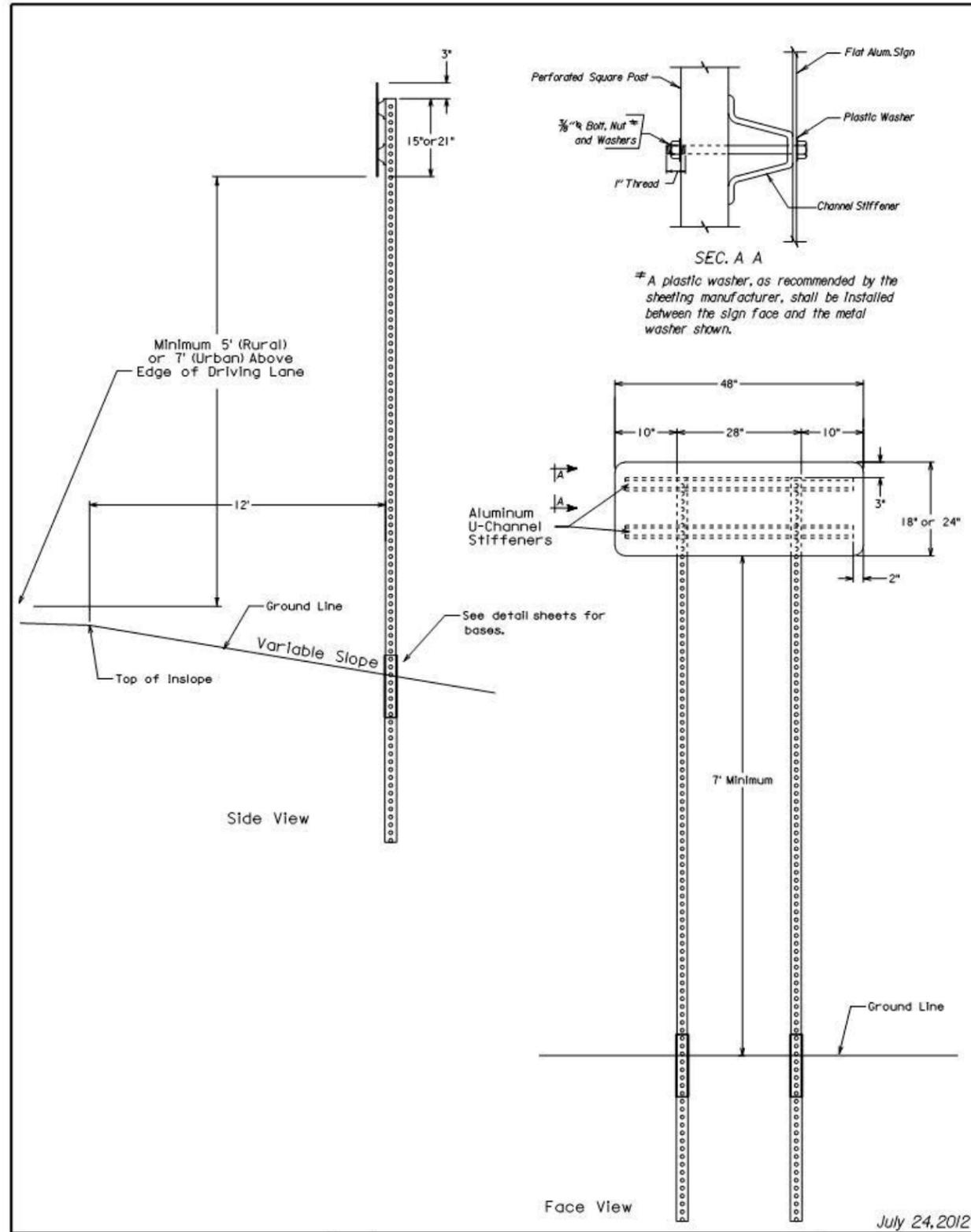
|                                  |   |                               |
|----------------------------------|---|-------------------------------|
| <b>S<br/>D<br/>D<br/>O<br/>T</b> | <b>PCC FILLET SECTION WITH<br/>TYPE B CURB AND GUTTER</b> | PLATE NUMBER<br><b>380.16</b> |
|                                  |   | Sheet 1 of 1                  |

Published Date: 1st Qtr. 2014



|                                  |  |                               |
|----------------------------------|--|-------------------------------|
| <b>S<br/>D<br/>D<br/>O<br/>T</b> | <b>PAVEMENT MARKINGS FOR ADJACENT<br/>INTERSECTIONS AND CENTER TURN LANE</b> | PLATE NUMBER<br><b>633.01</b> |
|                                  |  | Sheet 1 of 1                  |

Published Date: 1st Qtr. 2014

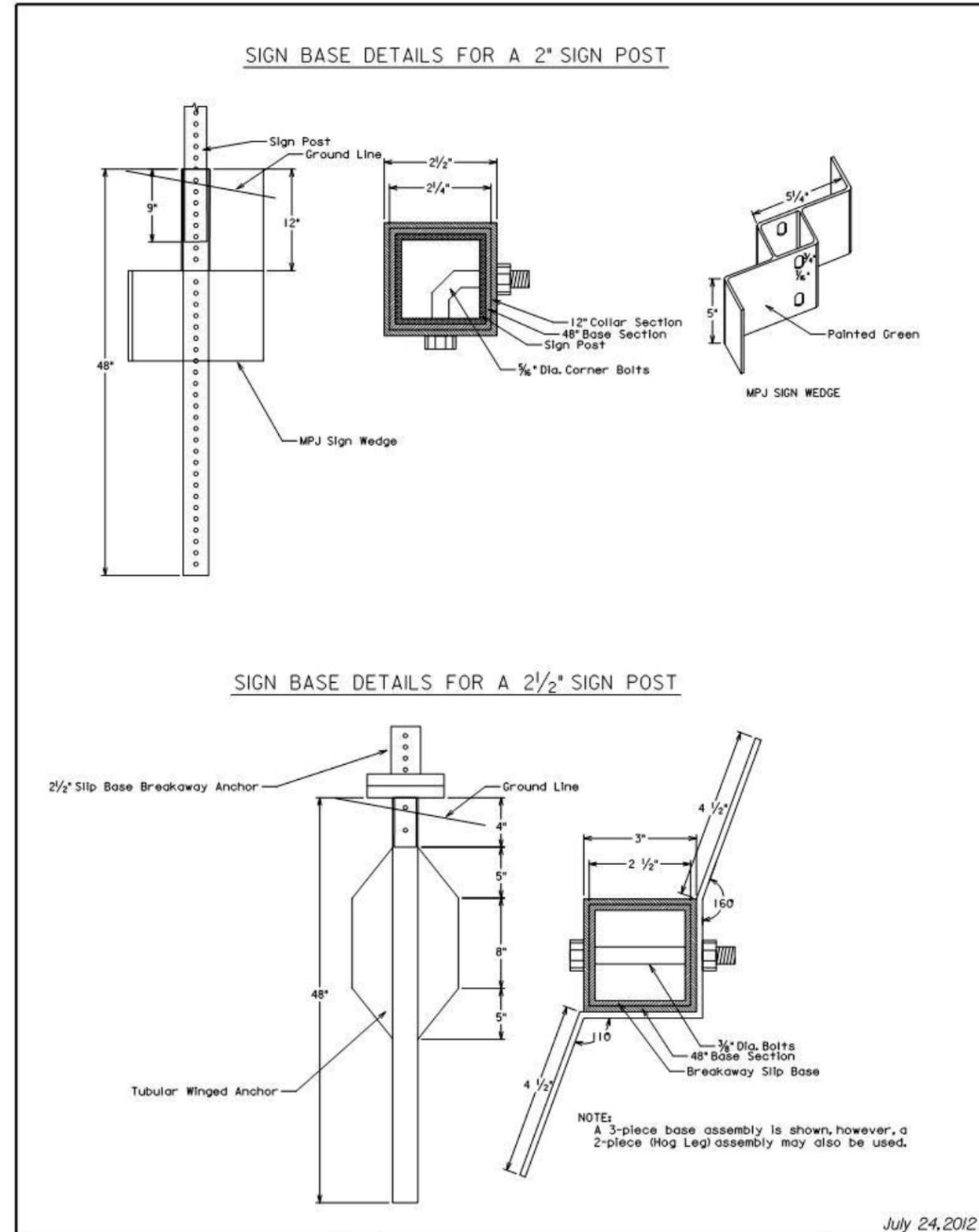


S  
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ONE WAY SIGN OR LARGE ARROW SIGN  
(Typical Sign and Stiffener Details)

SPECIAL DETAIL  
L04

Sheet 1 of 1

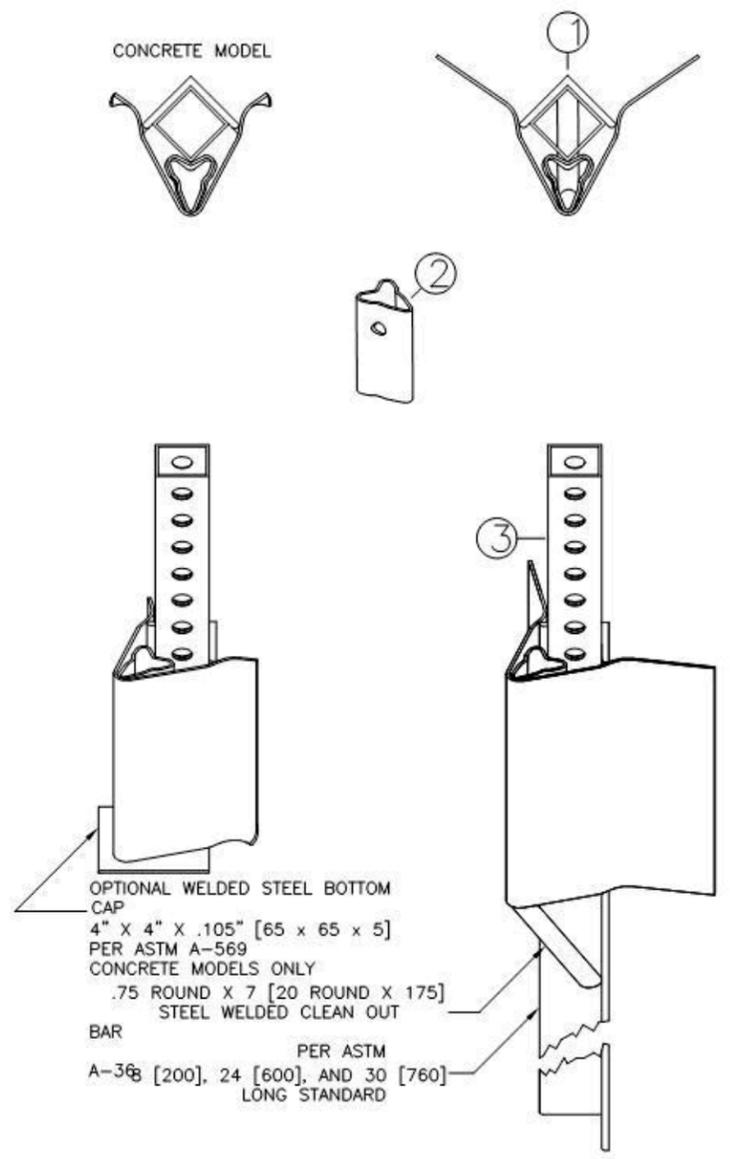


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TUBULAR POST BASE DETAILS  
(Typical Soil Installation)

SPECIAL DETAIL  
L21

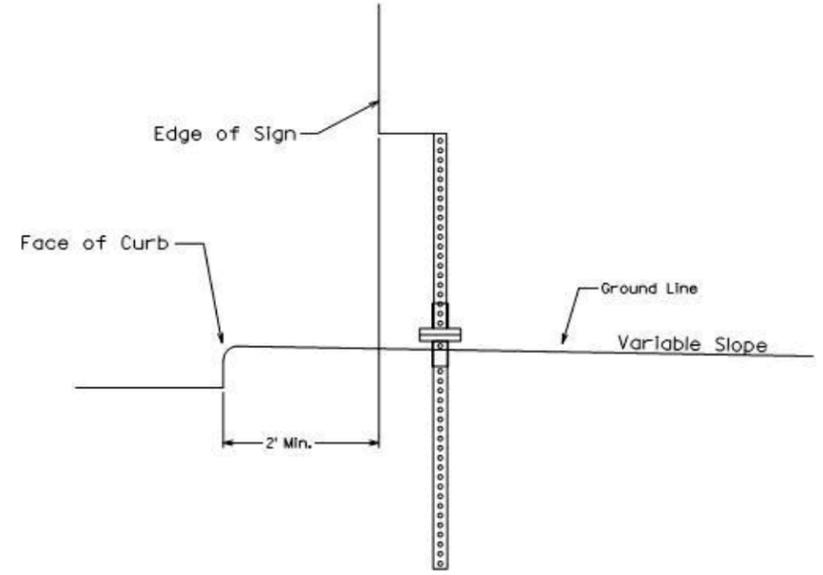
Sheet 1 of 1



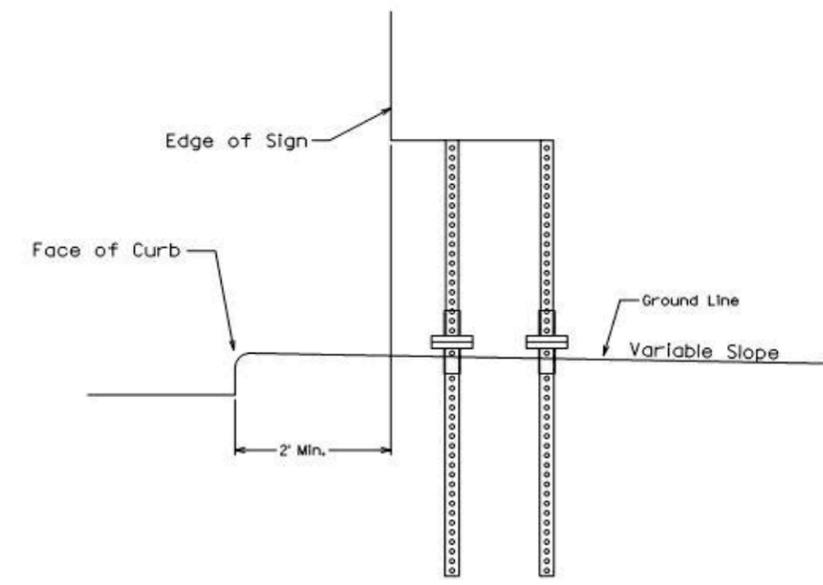
OPTIONAL WELDED STEEL BOTTOM CAP  
 4" X 4" X .105" [65 x 65 x 5]  
 PER ASTM A-569  
 CONCRETE MODELS ONLY  
 .75 ROUND X 7 [20 ROUND X 175]  
 STEEL WELDED CLEAN OUT  
 BAR  
 PER ASTM  
 A-36 [200], 24 [600], AND 30 [760]  
 LONG STANDARD

July 24, 2012

|                                  |  |                       |
|----------------------------------|--|-----------------------|
| <b>S<br/>D<br/>D<br/>O<br/>T</b> | <b>TUBULAR POST BASE DETAILS</b><br>(Typical Flush Mount Breakaway Installation) | SPECIAL DETAIL<br>L22 |
|                                  |  | Sheet 1 of 1          |



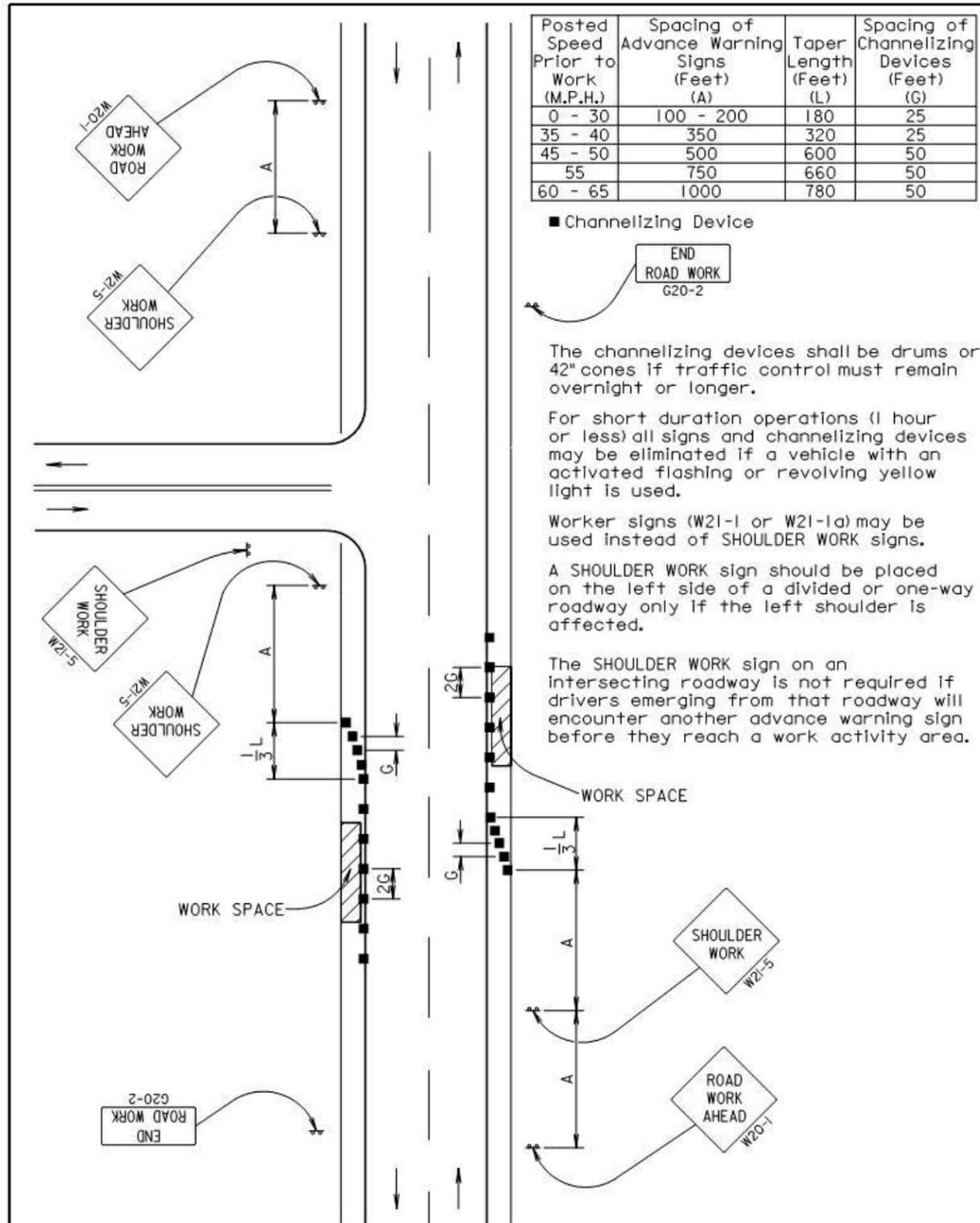
URBAN LOCATION WITH 1 POST  
 (Drawing shown from face of sign)



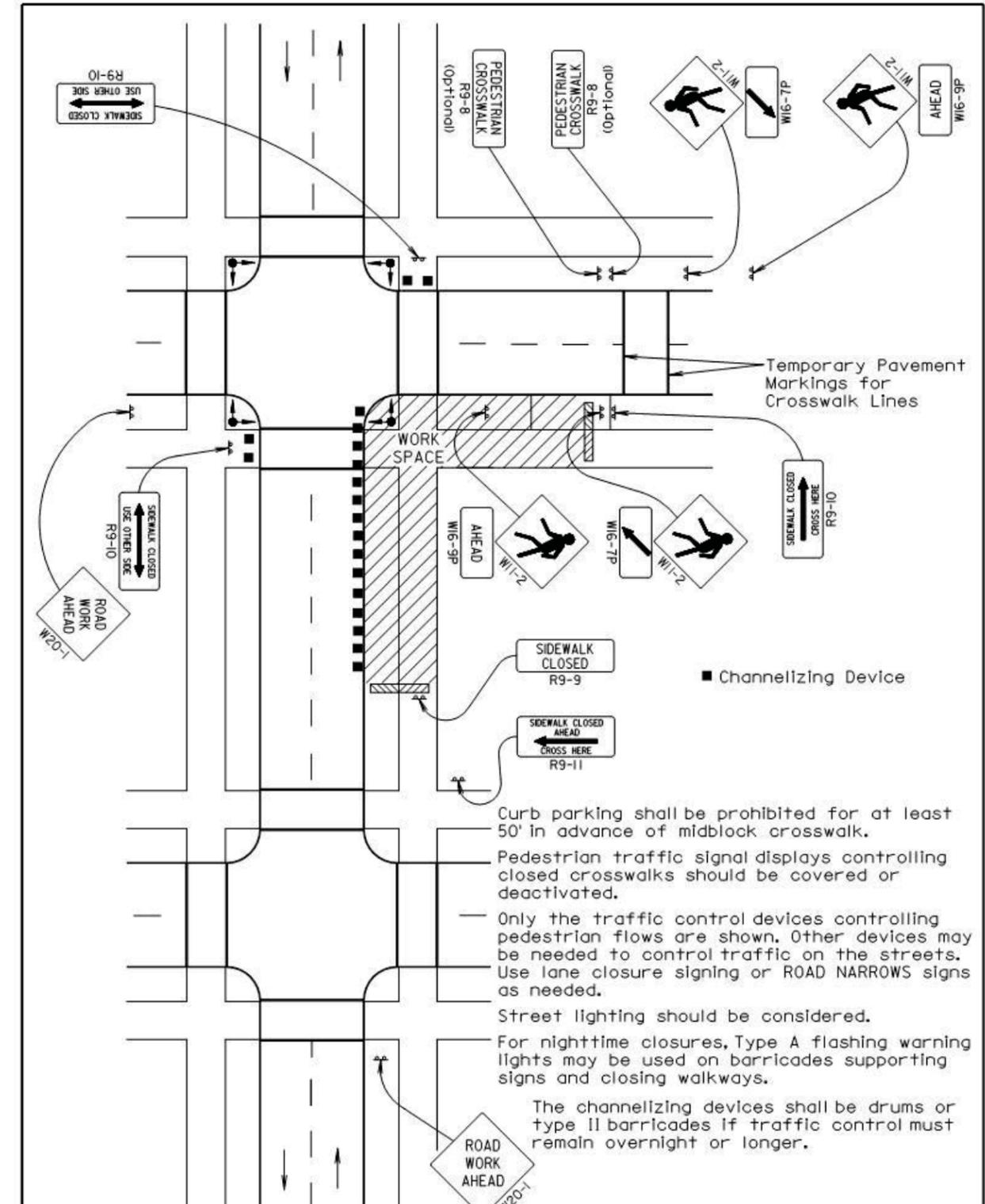
URBAN LOCATION WITH 2 POSTS  
 (Drawing shown from face of sign)

July 24, 2012

|                                  |   |                       |
|----------------------------------|---|-----------------------|
| <b>S<br/>D<br/>D<br/>O<br/>T</b> | <b>LATERAL OFFSET</b><br>(Typical Urban Sign Installations) | SPECIAL DETAIL<br>L24 |
|                                  |   | Sheet 1 of 1          |

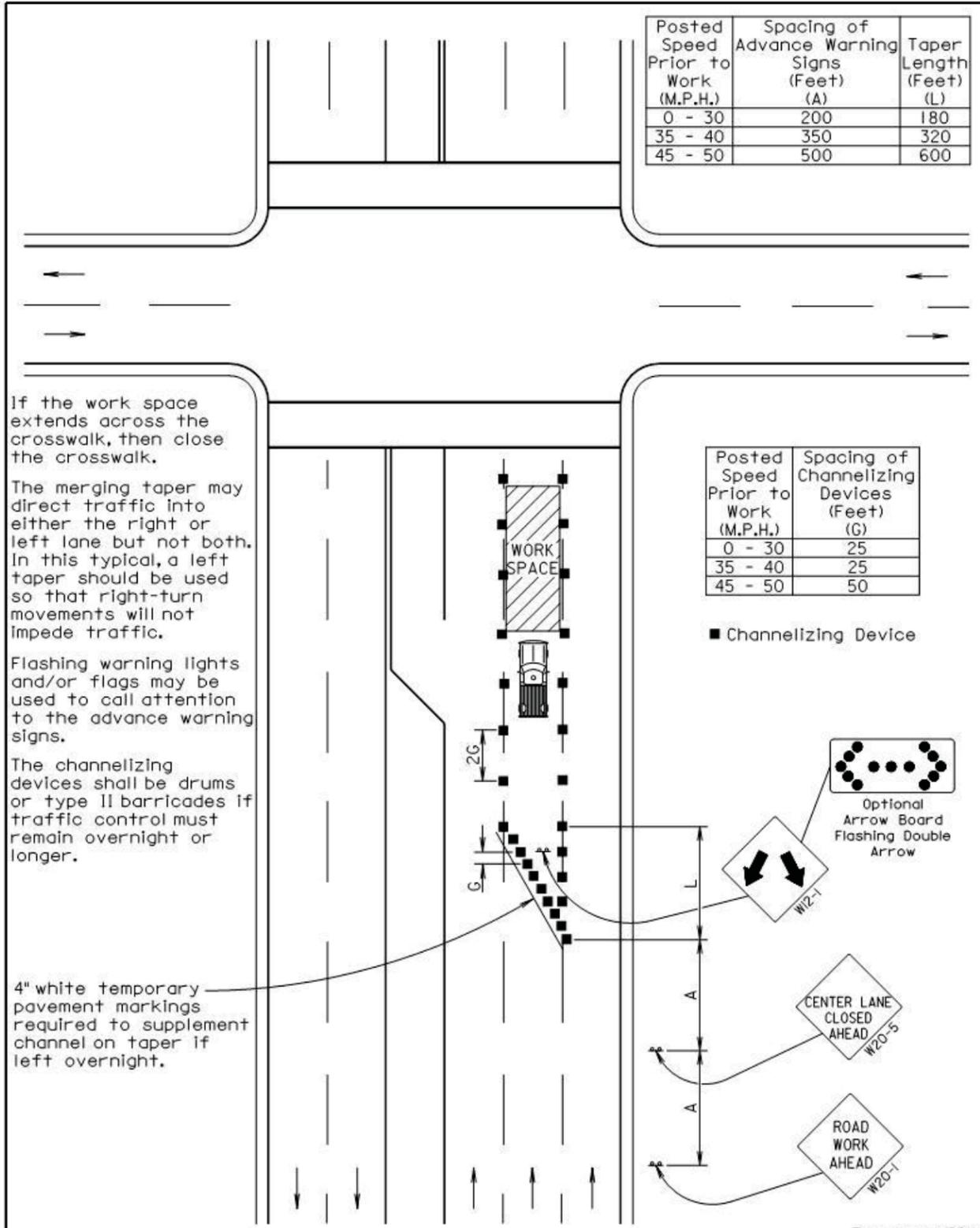


February 14, 2011



February 14, 2011





| Posted Speed Prior to Work (M.P.H.) | Spacing of Advance Warning Signs (Feet) (A) | Taper Length (Feet) (L) |
|-------------------------------------|---|-------------------------|
| 0 - 30                              | 200   | 180                     |
| 35 - 40                             | 350   | 320                     |
| 45 - 50                             | 500   | 600                     |

| Posted Speed Prior to Work (M.P.H.) | Spacing of Channelizing Devices (Feet) (G) |
|-------------------------------------|--|
| 0 - 30                              | 25   |
| 35 - 40                             | 25   |
| 45 - 50                             | 50   |

If the work space extends across the crosswalk, then close the crosswalk.

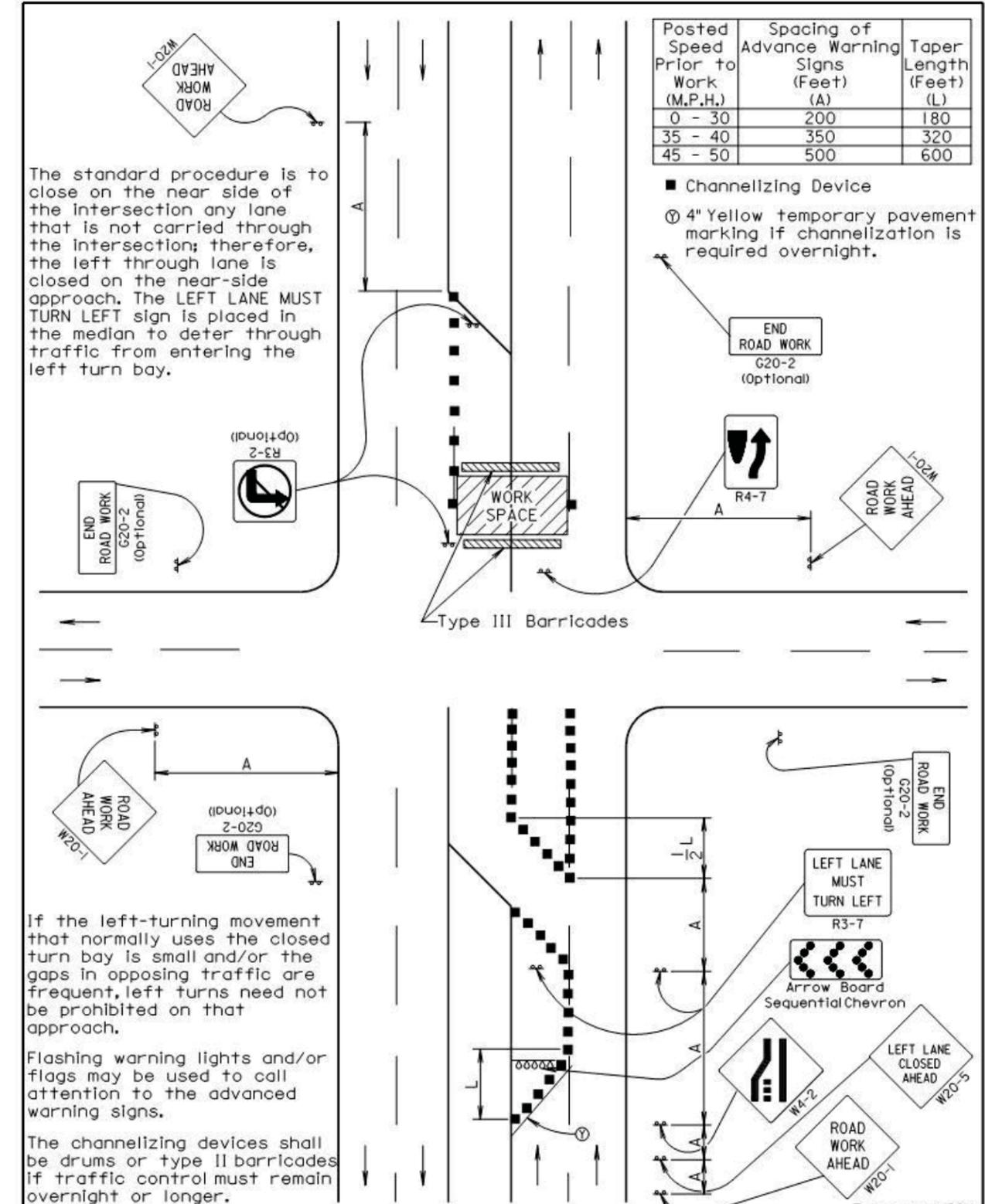
The merging taper may direct traffic into either the right or left lane but not both. In this typical, a left taper should be used so that right-turn movements will not impede traffic.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices shall be drums or type II barricades if traffic control must remain overnight or longer.

4" white temporary pavement markings required to supplement channel on taper if left overnight.

February 14, 2011



| Posted Speed Prior to Work (M.P.H.) | Spacing of Advance Warning Signs (Feet) (A) | Taper Length (Feet) (L) |
|-------------------------------------|---|-------------------------|
| 0 - 30                              | 200   | 180                     |
| 35 - 40                             | 350   | 320                     |
| 45 - 50                             | 500   | 600                     |

The standard procedure is to close on the near side of the intersection any lane that is not carried through the intersection; therefore, the left through lane is closed on the near-side approach. The LEFT LANE MUST TURN LEFT sign is placed in the median to deter through traffic from entering the left turn bay.

■ Channelizing Device  
 ⊙ 4" Yellow temporary pavement marking if channelization is required overnight.

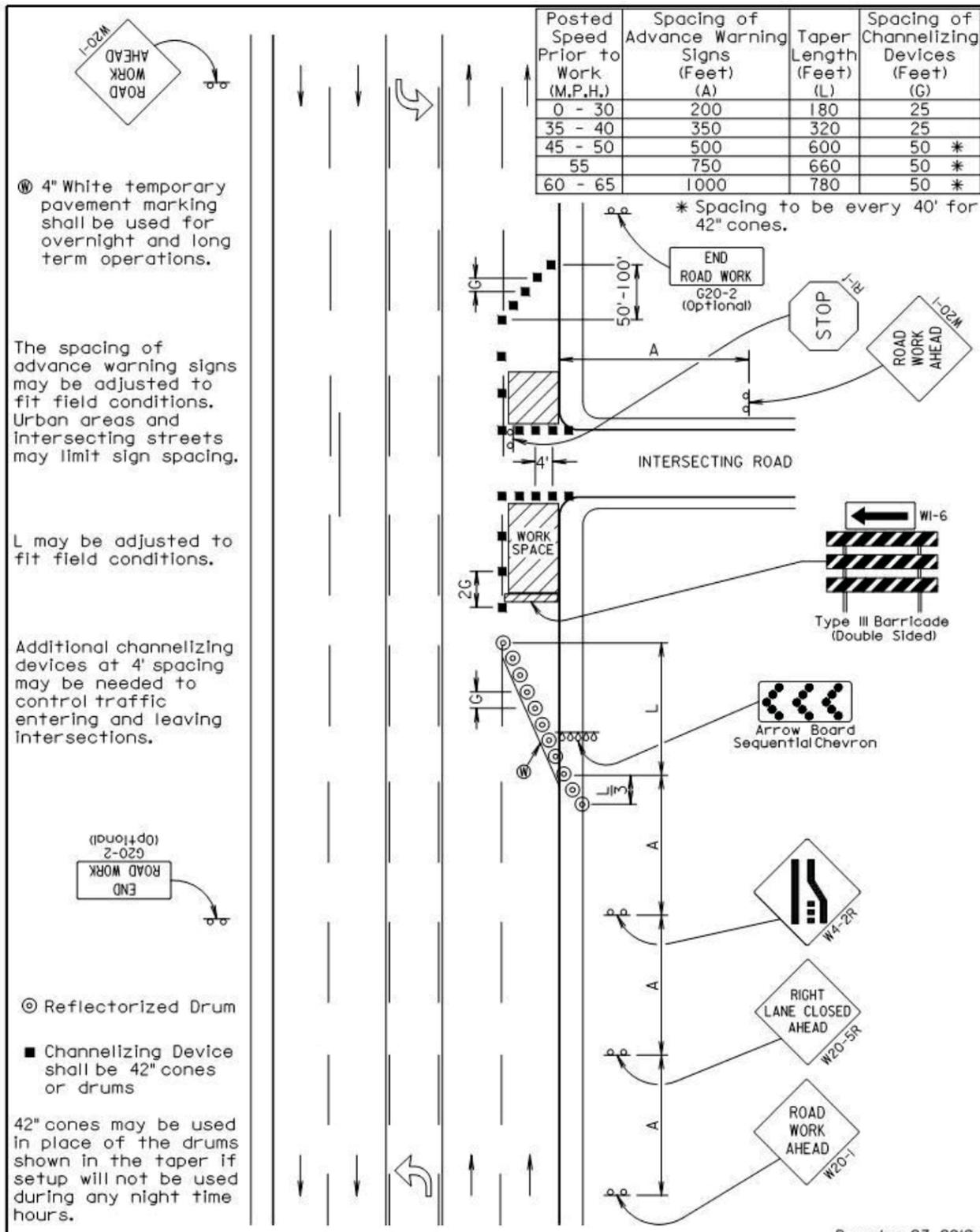
If the left-turning movement that normally uses the closed turn bay is small and/or the gaps in opposing traffic are frequent, left turns need not be prohibited on that approach.

Flashing warning lights and/or flags may be used to call attention to the advanced warning signs.

The channelizing devices shall be drums or type II barricades if traffic control must remain overnight or longer.

February 14, 2011





Ⓢ 4" White temporary pavement marking shall be used for overnight and long term operations.

The spacing of advance warning signs may be adjusted to fit field conditions. Urban areas and intersecting streets may limit sign spacing.

L may be adjusted to fit field conditions.

Additional channelizing devices at 4' spacing may be needed to control traffic entering and leaving intersections.

Ⓢ Reflectorized Drum

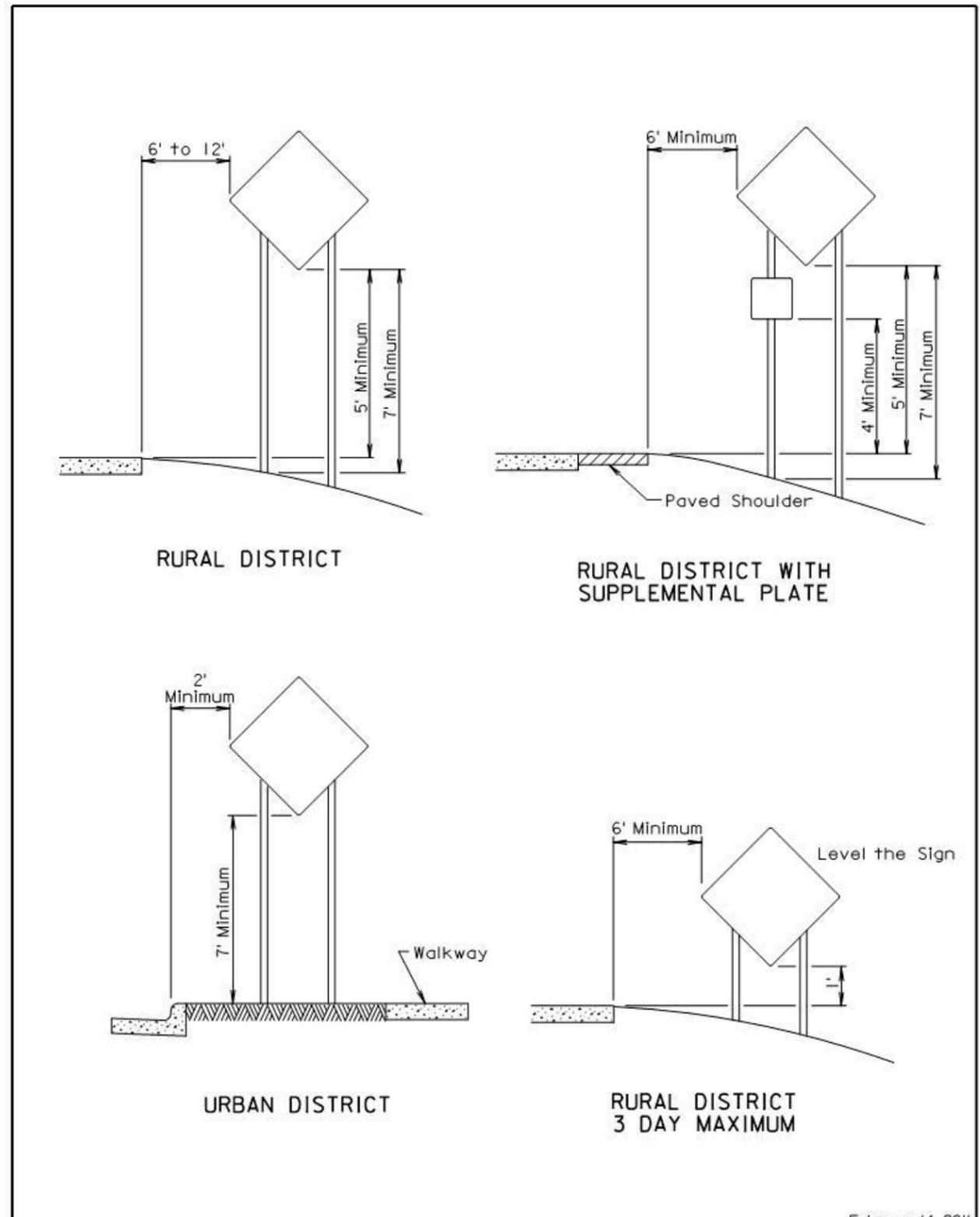
■ Channelizing Device shall be 42" cones or drums

42" cones may be used in place of the drums shown in the taper if setup will not be used during any night time hours.

December 23, 2012

|                                  |   |                               |
|----------------------------------|---|-------------------------------|
| <b>S<br/>D<br/>D<br/>O<br/>T</b> | <b>GUIDES FOR TRAFFIC CONTROL DEVICES<br/>5-LANE, OUTSIDE LANE CLOSED</b> | PLATE NUMBER<br><b>634.60</b> |
|                                  |   | Sheet 1 of 1                  |

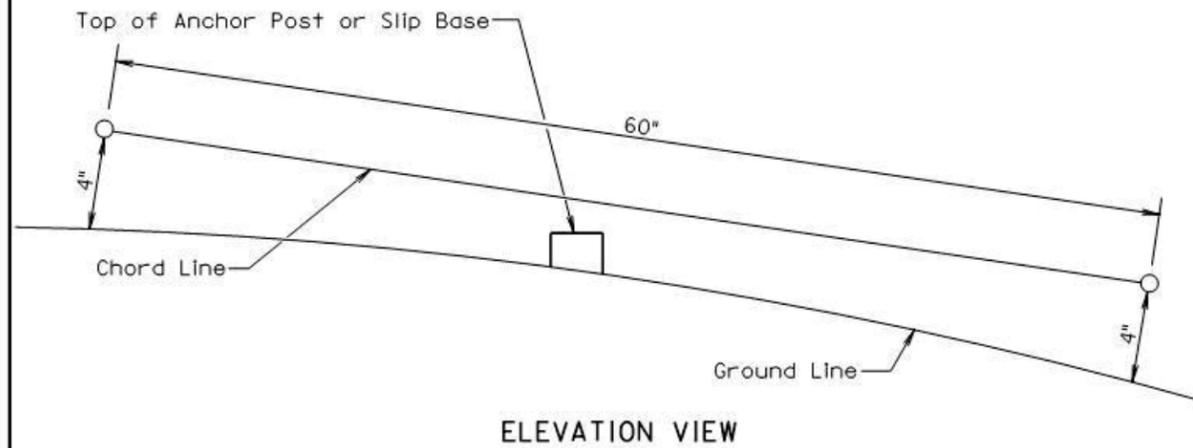
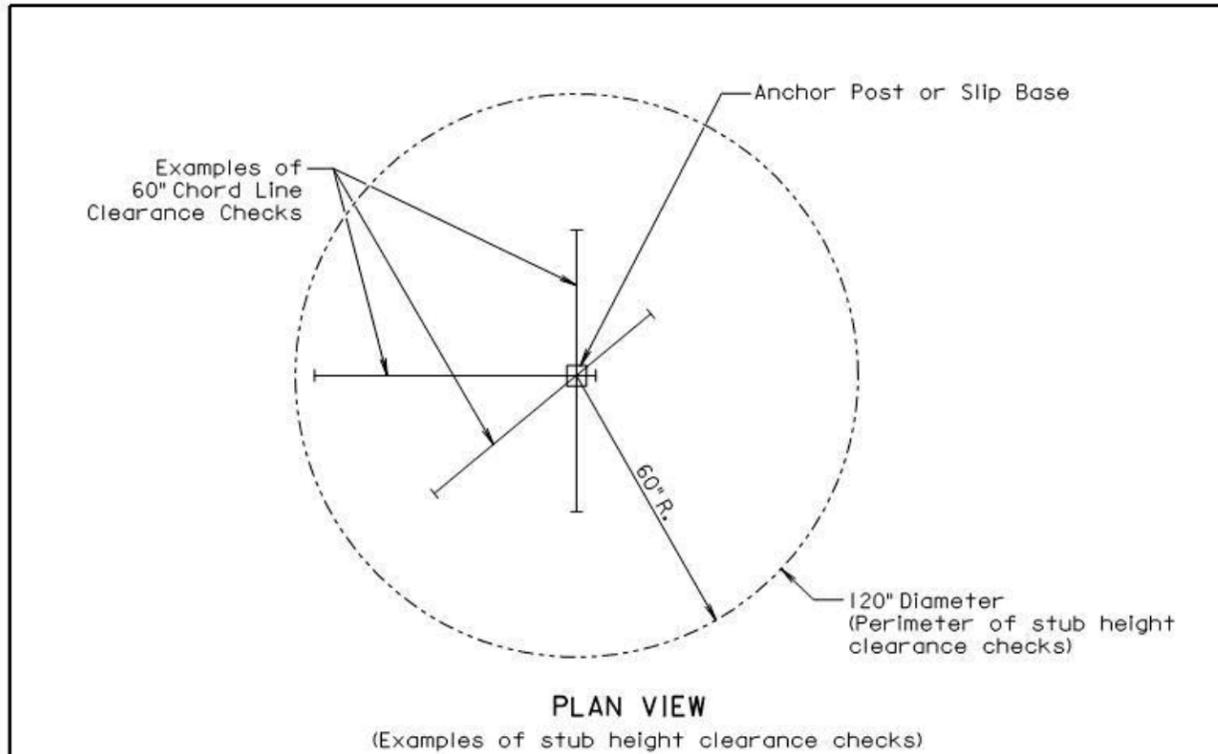
Published Date: 1st Qtr. 2014



February 14, 2011

|                                  |   |                               |
|----------------------------------|---|-------------------------------|
| <b>S<br/>D<br/>D<br/>O<br/>T</b> | <b>CRASHWORTHY SIGN SUPPORTS<br/>(Typical Construction Signing)</b> | PLATE NUMBER<br><b>634.85</b> |
|                                  |   | Sheet 1 of 1                  |

Published Date: 1st Qtr. 2014



**GENERAL NOTES:**

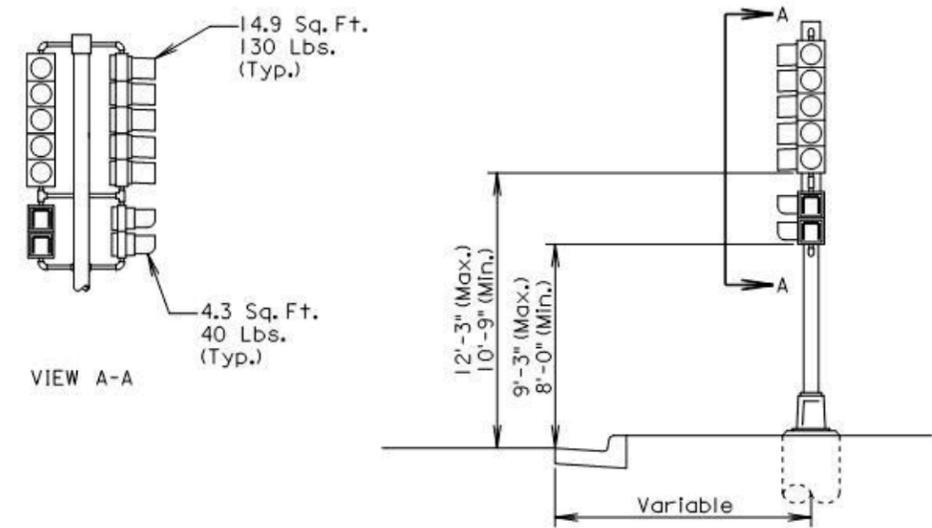
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

|                               |                       |                                  |                        |
|-------------------------------|-----------------------|----------------------------------|------------------------|
| Published Date: 1st Qtr. 2014 | S<br>D<br>D<br>O<br>T | BREAKAWAY SUPPORT STUB CLEARANCE | PLATE NUMBER<br>634.99 |
|                               |                       |                                  | Sheet 1 of 1           |

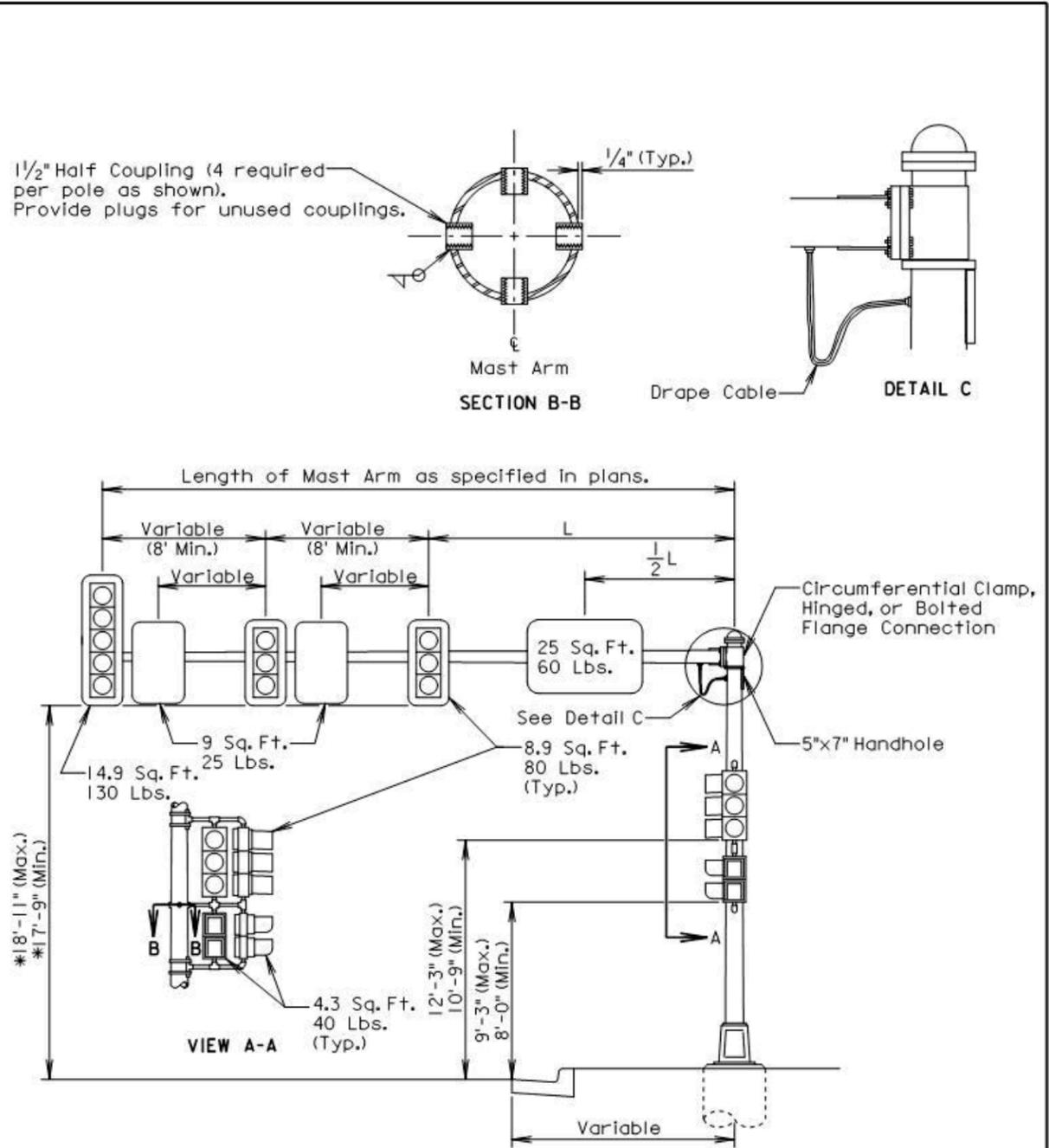


**GENERAL NOTE:**

The signal heads are shown with backplates removed so that the mounting hardware is visible.

October 15, 2007

|                               |                       |                        |                        |
|-------------------------------|-----------------------|------------------------|------------------------|
| Published Date: 1st Qtr. 2014 | S<br>D<br>D<br>O<br>T | SIGNAL POLE (PEDESTAL) | PLATE NUMBER<br>635.30 |
|                               |                       |                        | Sheet 1 of 1           |



**GENERAL NOTES:**

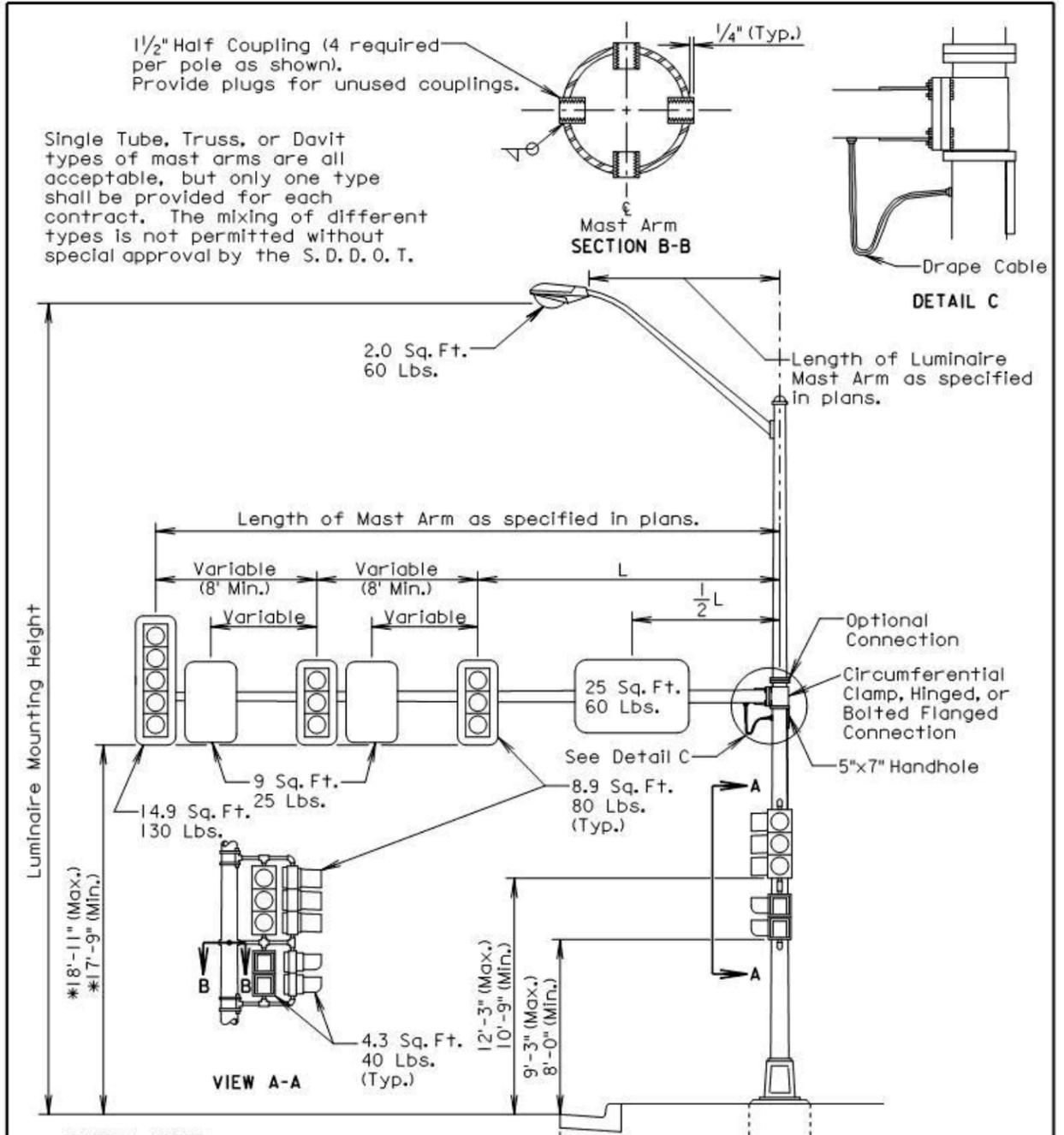
Some of the signal heads are shown with backplates removed so that the mounting hardware is visible.

\*The signal height allowances shown above are based on a horizontal distance greater than 53' between the signals and stop line. For horizontal distance of 53' and less between the signals and the stop line, the height allowances shall be as specified in Section 4D.15 of the MUTCD.

December 23, 2008

|                                  |                                    |                               |
|----------------------------------|------------------------------------|-------------------------------|
| <b>S<br/>D<br/>D<br/>O<br/>T</b> | <b>SIGNAL POLE (WITH MAST ARM)</b> | PLATE NUMBER<br><b>635.31</b> |
|                                  |                                    | Sheet 1 of 1                  |

Published Date: 1st Qtr. 2014



**GENERAL NOTES:**

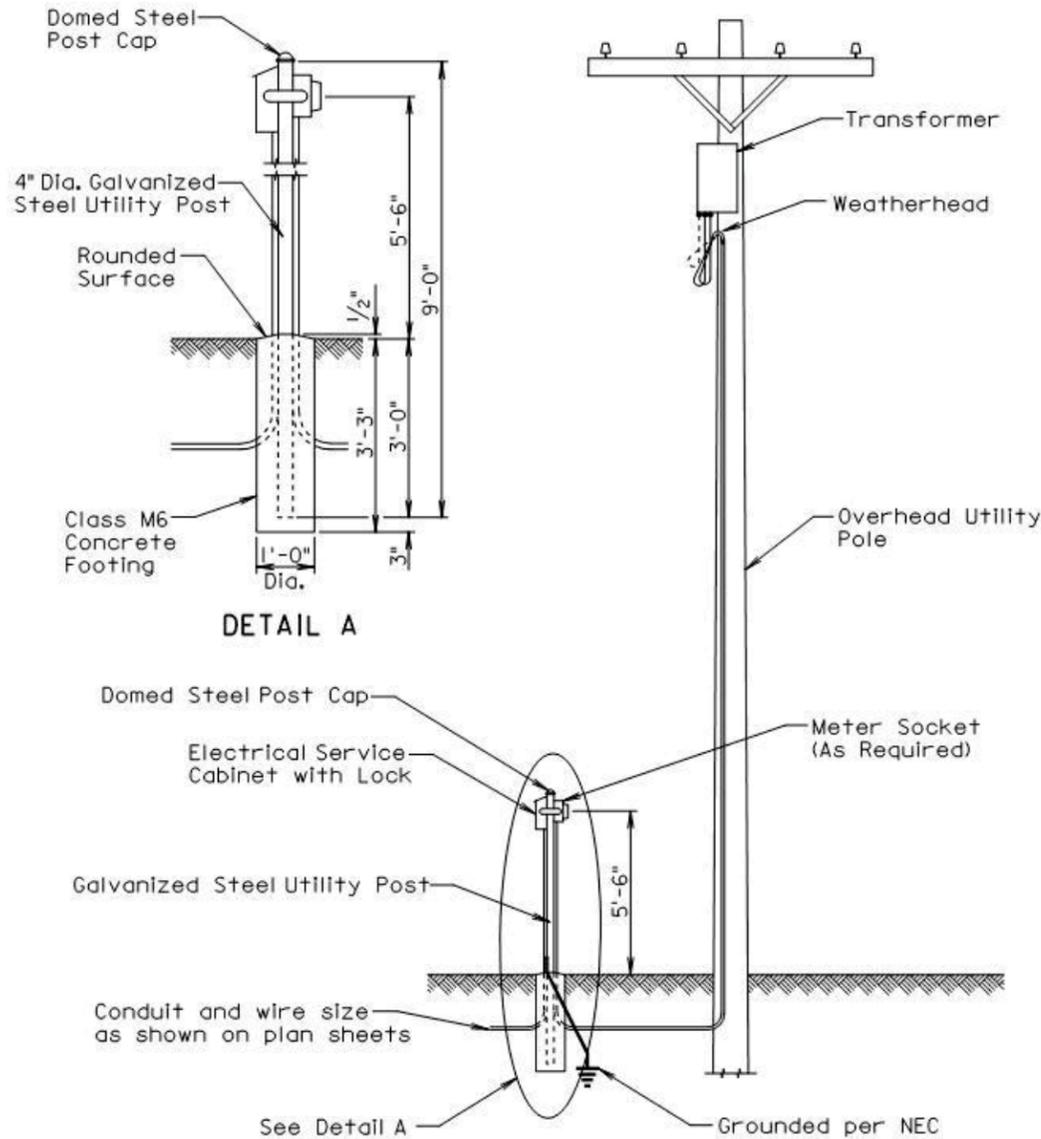
Some of the signal heads are shown with backplates removed so that the mounting hardware is visible.

\*The signal height allowances shown above are based on a horizontal distance greater than 53' between the signals and the stop line. For horizontal distance of 53' and less between the signals and the stop line, the height allowances shall be as specified in Section 4D.15 of the MUTCD.

December 23, 2008

|                                  |  |                               |
|----------------------------------|--|-------------------------------|
| <b>S<br/>D<br/>D<br/>O<br/>T</b> | <b>SIGNAL POLE (WITH MAST ARM AND LUMINAIRE EXTENSION)</b> | PLATE NUMBER<br><b>635.32</b> |
|                                  |  | Sheet 1 of 1                  |

Published Date: 1st Qtr. 2014



GENERAL NOTES:

The concrete for the post footing shall be class M6 concrete.

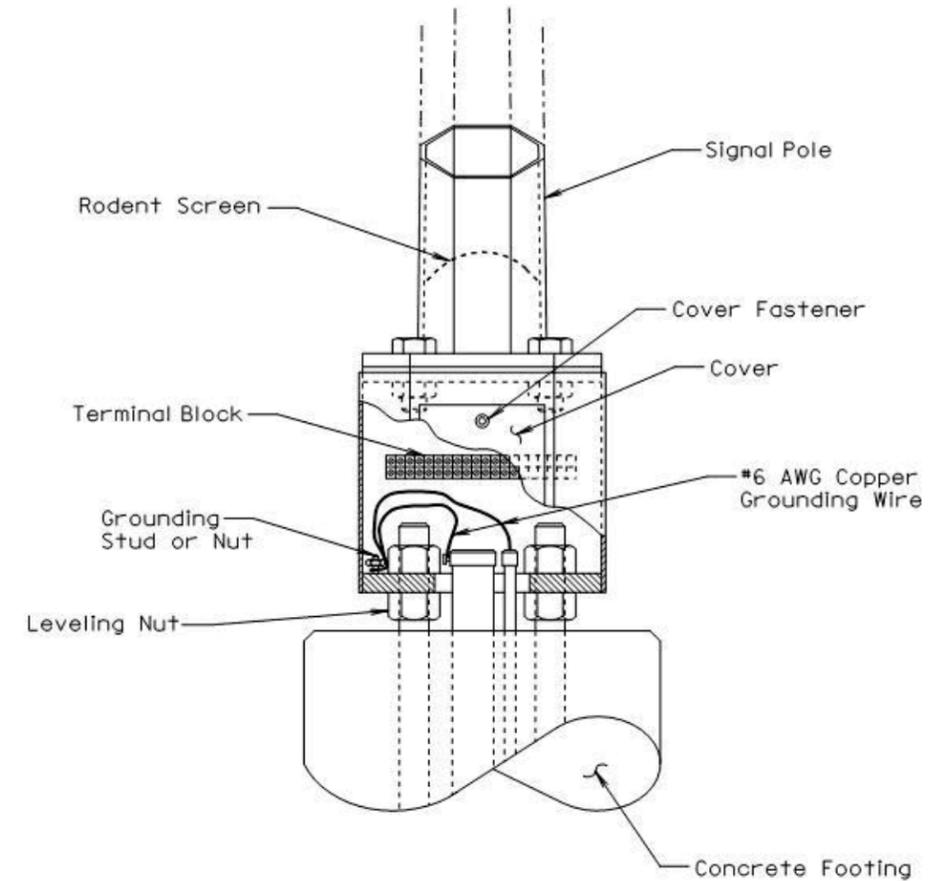
The 4" diameter galvanized steel utility post shall be 9' long and shall be in conformance with AASHTO Standard Specifications M181. The post shall be Type 1 and either Grade 1 or Grade 2. The domed steel post cap shall be in conformance with AASHTO Standard Specifications M181 and shall be Type 1.

The Contractor shall contact and coordinate his/her work with the Utility Companies regarding hookup requirements, fees, materials, and equipment necessary.

All costs for furnishing and installing all materials from the electrical service cabinet to the transformer including labor, equipment, hookup fees, all items within the cabinet, post, concrete footing, post cap, meter socket if required, conduit, and incidentals shall be incidental to the contract unit price per each for "Electrical Service Cabinet".

June 26, 2006

|                               |                       |   |                        |
|-------------------------------|-----------------------|---|------------------------|
| Published Date: 1st Qtr. 2014 | S<br>D<br>D<br>O<br>T | GALVANIZED STEEL UTILITY POST<br>WITH OVERHEAD UTILITY POLE | PLATE NUMBER<br>635.35 |
|                               |                       |   | Sheet 1 of 1           |



GENERAL NOTES:

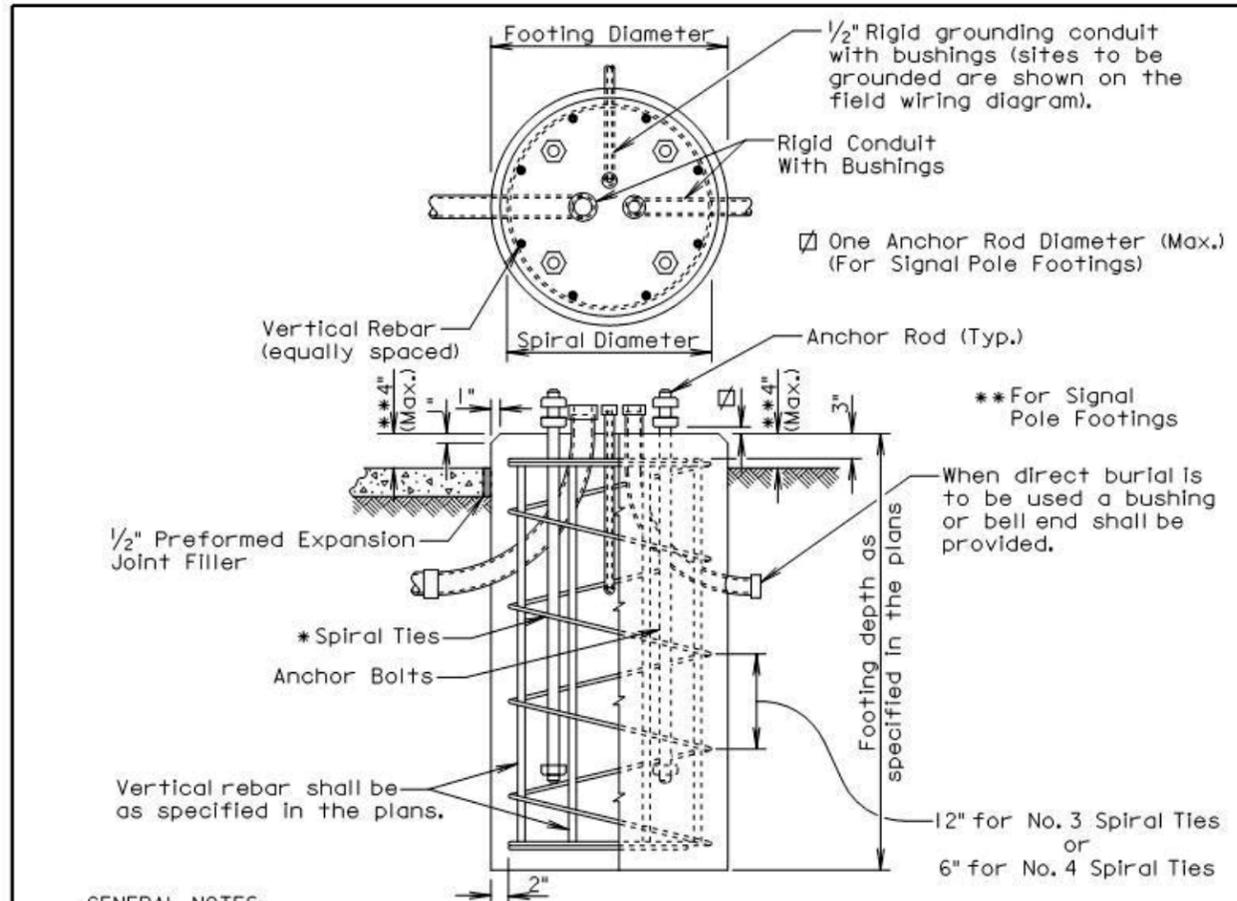
Base details are provided for example only and are not intended to be a complete design.

The Contractor shall furnish and install a rodent screen in the signal pole above the transformer base. The rodent screen shall be a galvanized steel mesh with a maximum opening size of 1/4 inch. The rodent screen shall be friction fitted or installed by other methods approved by the Engineer.

All costs for furnishing and installing the rodent screen including labor, equipment, and materials shall be incidental to the contract unit price per each for the corresponding signal pole bid item.

December 23, 2008

|                               |                       |                              |                        |
|-------------------------------|-----------------------|------------------------------|------------------------|
| Published Date: 1st Qtr. 2014 | S<br>D<br>D<br>O<br>T | TRANSFORMER SIGNAL POLE BASE | PLATE NUMBER<br>635.50 |
|                               |                       |                              | Sheet 1 of 1           |



**GENERAL NOTES:**

\* The tie sizes are specified in the plans. Circular ties may be used in lieu of the spiral ties. The No. 3 ties shall be spaced 12 inches apart except for the top two which shall be spaced 6 inches apart. The No. 4 ties shall be spaced 6 inches apart except for the top two which shall be spaced 3 inches apart. The ties shall be lapped 18 inches and the laps shall be staggered around the cage.

Spiral ties shall have 1-1/2 extra turns at each end.

See section 985 of the Standard Specifications for footing materials.

Conduits and bushings may project 2 1/2 inches to 6 inches above footing for fixed base poles but shall not project above the slip plane or fracture plane for breakaway poles.

Conduits shall be sealed water-tight during all phases of construction until poles are in place.

The anchor rods shall fit inside the reinforcing steel cage. If the anchor rods designed by the Pole Manufacturer do not fit, contact the Office of Bridge Design for footing redesign. No additional payment will be made for the redesigned footing.

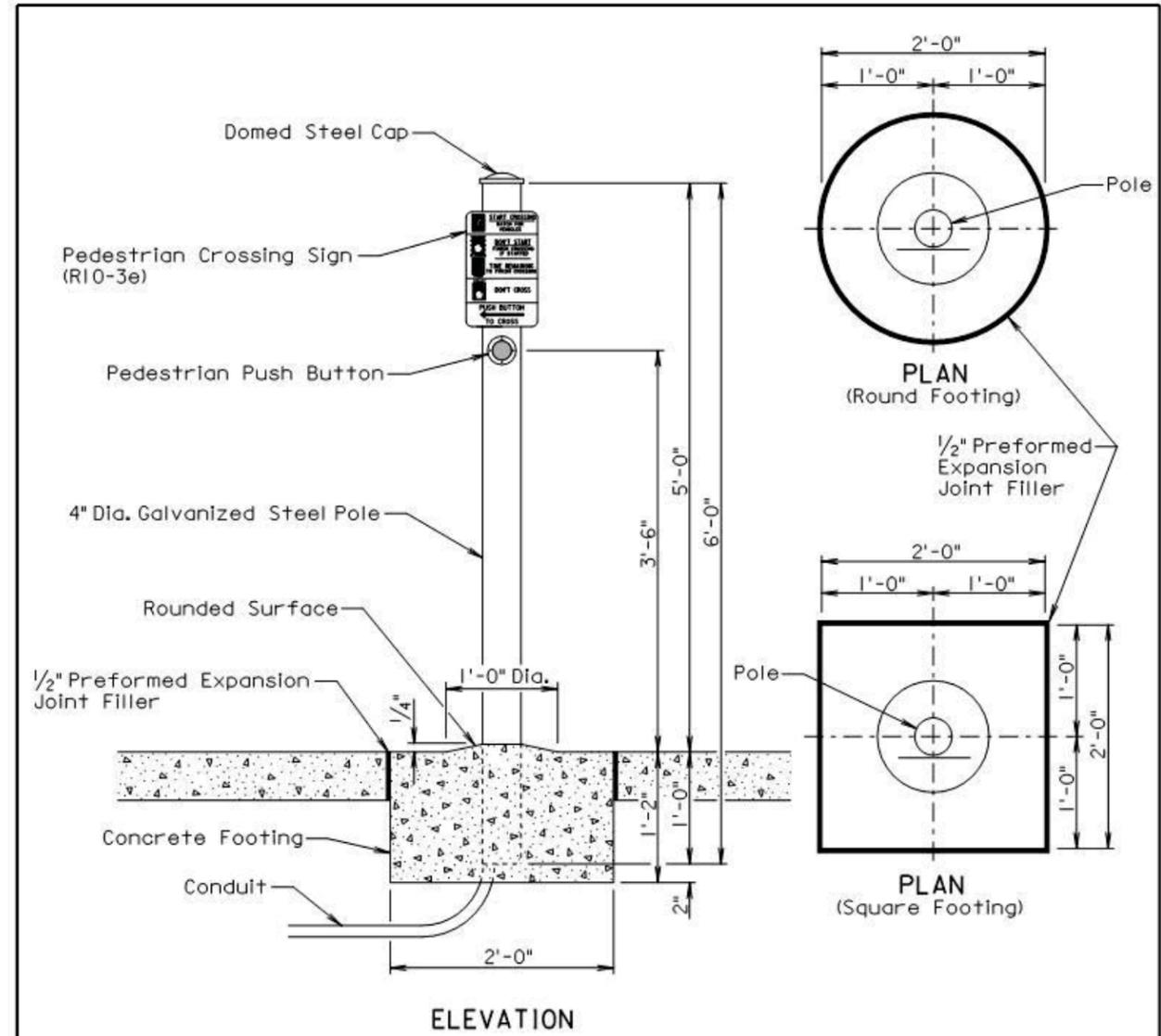
Costs of conduit and conduit bushings shown on footing detail shall be incidental to the footing bid item(s).

The pole shall not be installed until the concrete has attained design strength (4000 psi).

The contour of the area surrounding the breakaway pole shall be flat, though not necessarily level for a distance of 5 feet in all directions. The Contractor may be required to provide finish grading at some breakaway pole locations.

September 6, 2013

|                               |                       |              |              |
|-------------------------------|-----------------------|--------------|--------------|
| Published Date: 1st Qtr. 2014 | S<br>D<br>D<br>O<br>T | POLE FOOTING | PLATE NUMBER |
|                               |                       |              | 635.55       |
|                               |                       |              | Sheet 1 of 1 |



**GENERAL NOTES:**

The Contractor shall install either the round or the square concrete footing. For informational purpose, the quantity of concrete for one footing is 0.14 cubic yards for the round footing and 0.17 cubic yards for the square footing.

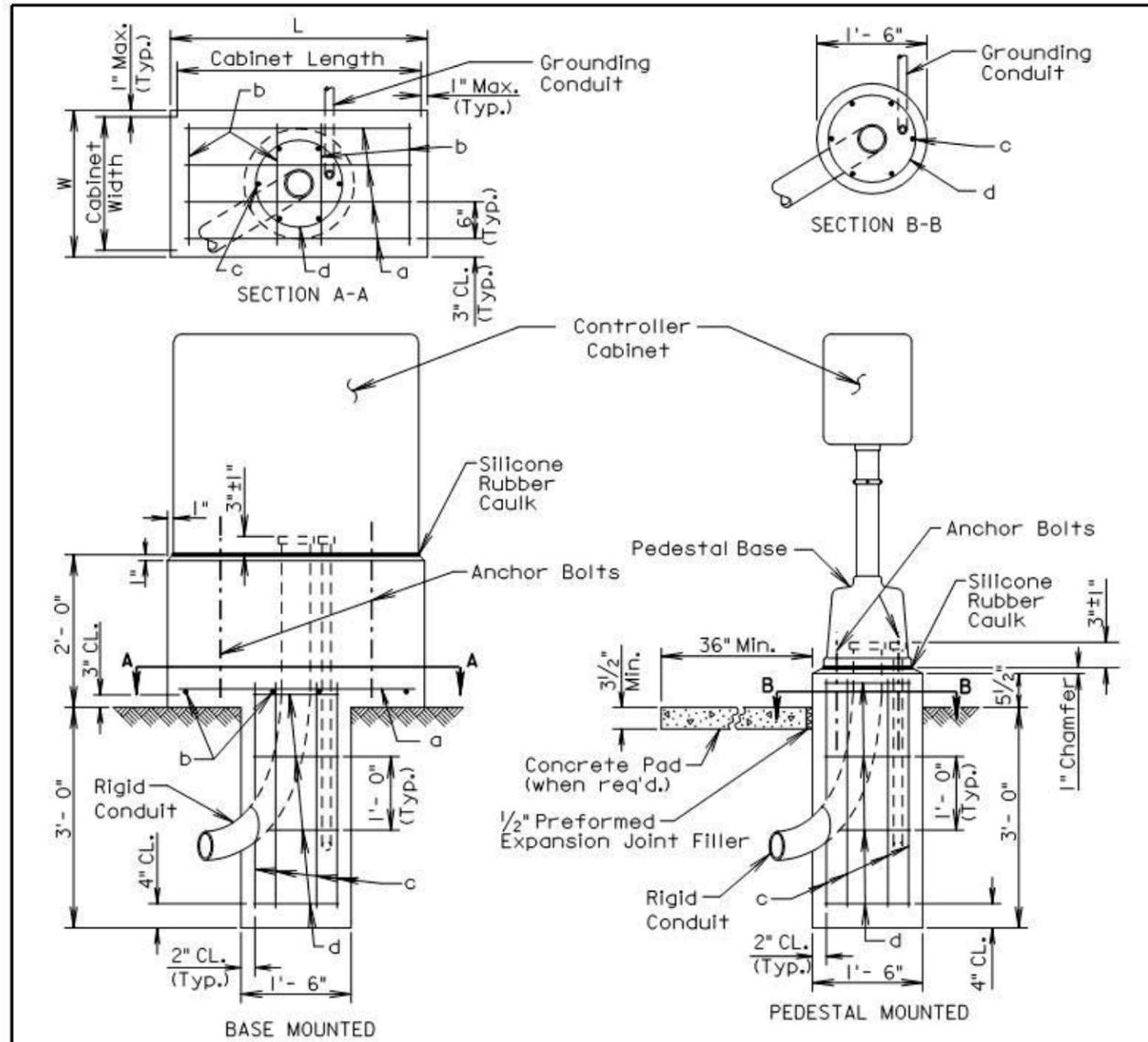
The concrete for the footing shall be class M6 concrete.

The 4" diameter galvanized steel pole shall be 6' long and shall be in conformance with AASHTO Standard Specifications M181. The pole shall be Type 1 and either Grade 1 or Grade 2. The domed steel pole cap shall be in conformance with AASHTO Standard Specifications M181 and shall be Type 1.

All costs for furnishing and installing the pedestrian push button pole including labor, equipment, and materials including the pole, concrete footing, steel cap, and the conduit in the footing shall be incidental to the contract unit price per each for "Pedestrian Push Button Pole".

February 14, 2010

|                               |                       |                             |              |
|-------------------------------|-----------------------|-----------------------------|--------------|
| Published Date: 1st Qtr. 2014 | S<br>D<br>D<br>O<br>T | PEDESTRIAN PUSH BUTTON POLE | PLATE NUMBER |
|                               |                       |                             | 635.57       |
|                               |                       |                             | Sheet 1 of 1 |



**GENERAL NOTES:**

The above ground portion of the footing shall conform to the base of the controller to the satisfaction of the Engineer.

Conduits shall be sealed and water-tight until the conductor cables are installed.

If the controller is not located within or adjacent to an existing sidewalk, the Contractor shall provide a concrete pad as directed by the Engineer.

Anchor bolts and related hardware shall conform to the controller manufacturer's requirements and recommendations.

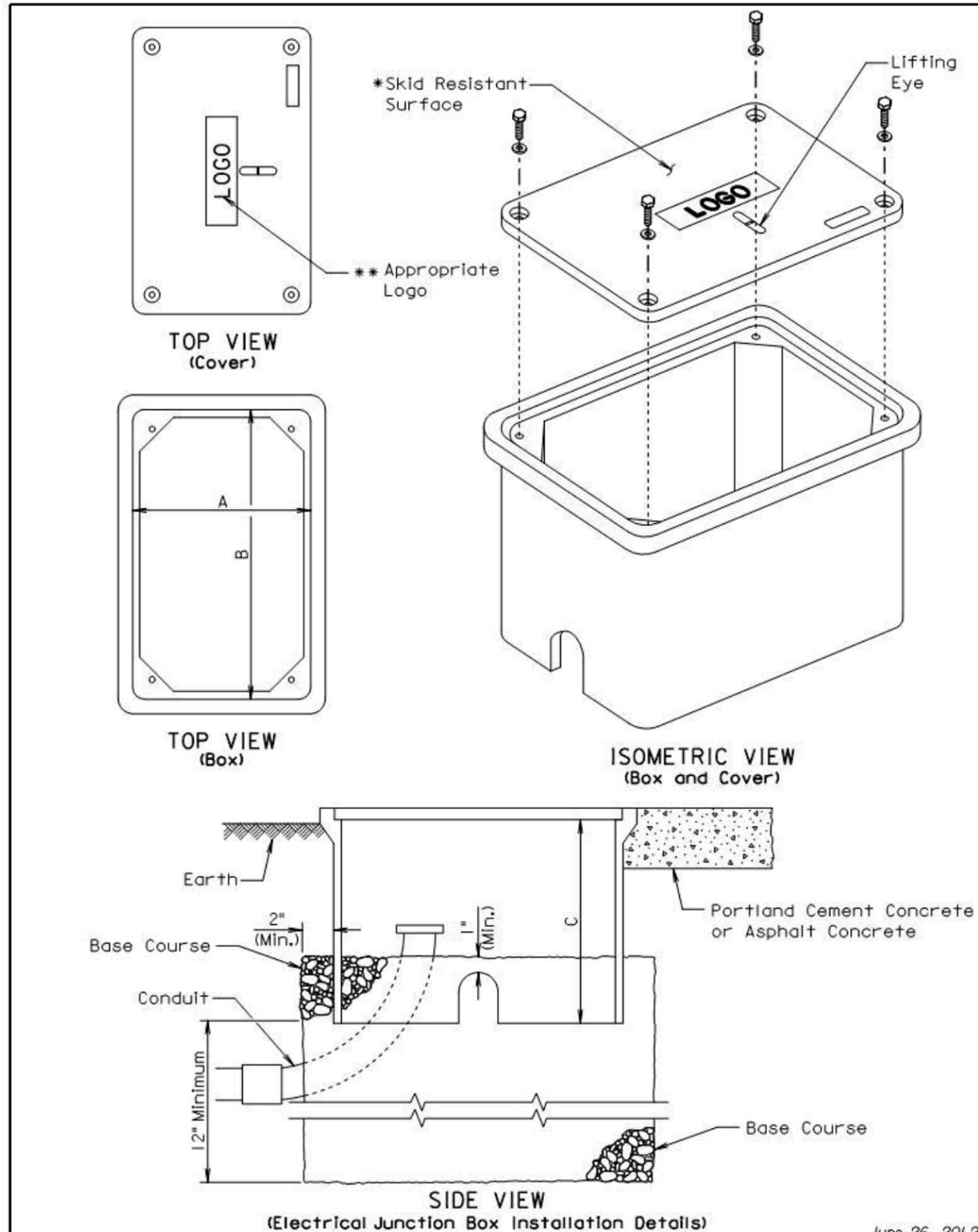
A continuous bead of silicone rubber caulk shall provide a weather-tight seal between the base and the concrete.

| Reinforcing Schedule<br>(for one footing) |     |      |        |      |                |
|---|-----|------|--------|------|----------------|
| Mk.                                       | No. | Size | Length | Type | Bending Detail |
| a   | *   | 3    | L - 4" | Str. |                |
| b   | *   | 3    | W - 4" | Str. |                |
| c   | 6   | 6    | 3'- 0" | Str. |                |
| d   | 4   | 3    | 4'- 0" | T3   |                |

Note: Dimensions are out to out of bar  
 \* Vary number of bars as required by footing size.

March 31, 2000

|                               |                       |                                       |                        |
|-------------------------------|-----------------------|---------------------------------------|------------------------|
| Published Date: 1st Qtr. 2014 | S<br>D<br>D<br>O<br>T | <b>CONTROLLER CABINET AND FOOTING</b> | PLATE NUMBER<br>635.60 |
|                               |                       |                                       | Sheet 1 of 1           |



June 26, 2012

|                               |                       |  |                        |
|-------------------------------|-----------------------|--|------------------------|
| Published Date: 1st Qtr. 2014 | S<br>D<br>D<br>O<br>T | ELECTRICAL JUNCTION BOXES<br>TYPE 1 THROUGH TYPE 4 | PLATE NUMBER<br>635.65 |
|                               |                       |  | Sheet 1 of 2           |

ELECTRICAL JUNCTION BOX

| TYPE | DESCRIPTION             | DIMENSIONS |         |            |
|------|-------------------------|------------|---------|------------|
|      |                         | A          | B       | C          |
| 1    | Open Bottom with Gasket | 11"-15"    | 18"-21" | 18" (Min.) |
| 2    | Open Bottom with Gasket | 13"-18"    | 23"-28" | 18" (Min.) |
| 3    | Open Bottom with Gasket | 17"-22"    | 24"-30" | 18" (Min.) |
| 4    | Open Bottom with Gasket | 28"-33"    | 36"-48" | 24" (Min.) |

GENERAL NOTES:

The cover shall be gasketed with a minimum of two stainless steel bolts and washers.

The cover shall have a lifting eye.

\*The surface of the cover shall have a minimum wet and dry coefficient of friction value of 0.5 as determined by ASTM F 609.

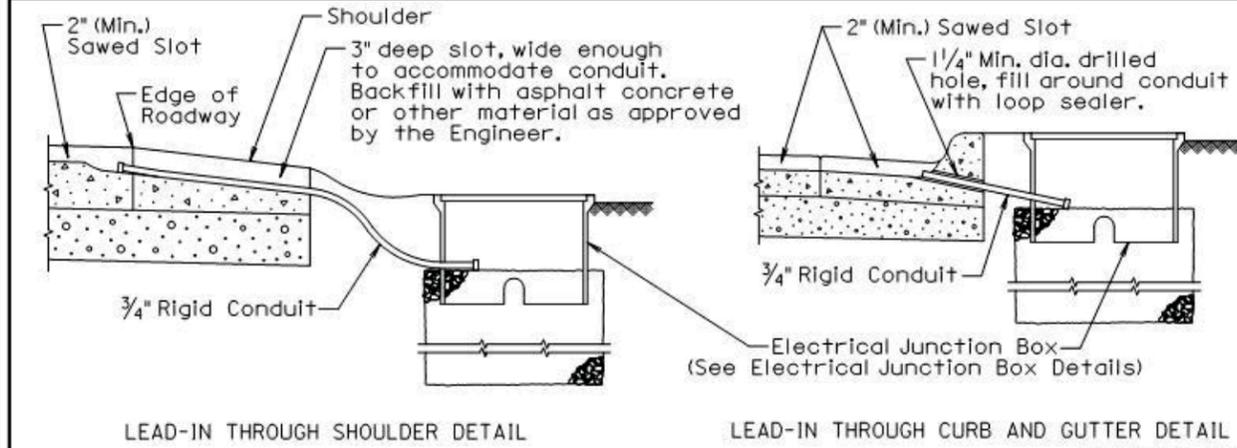
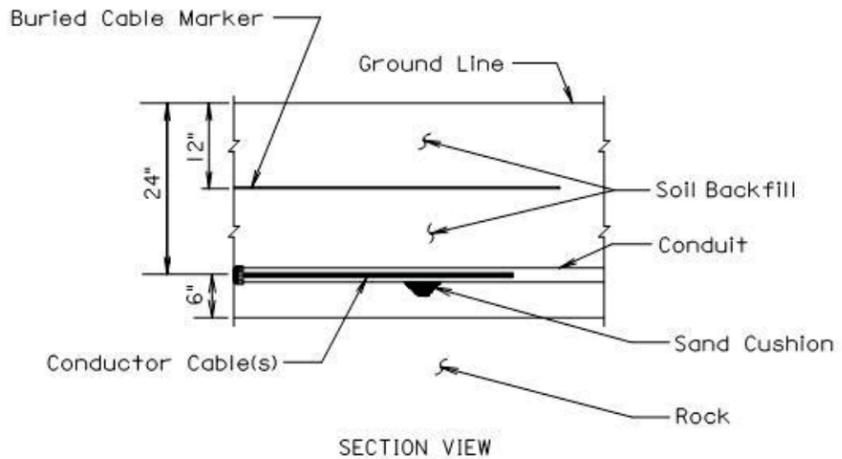
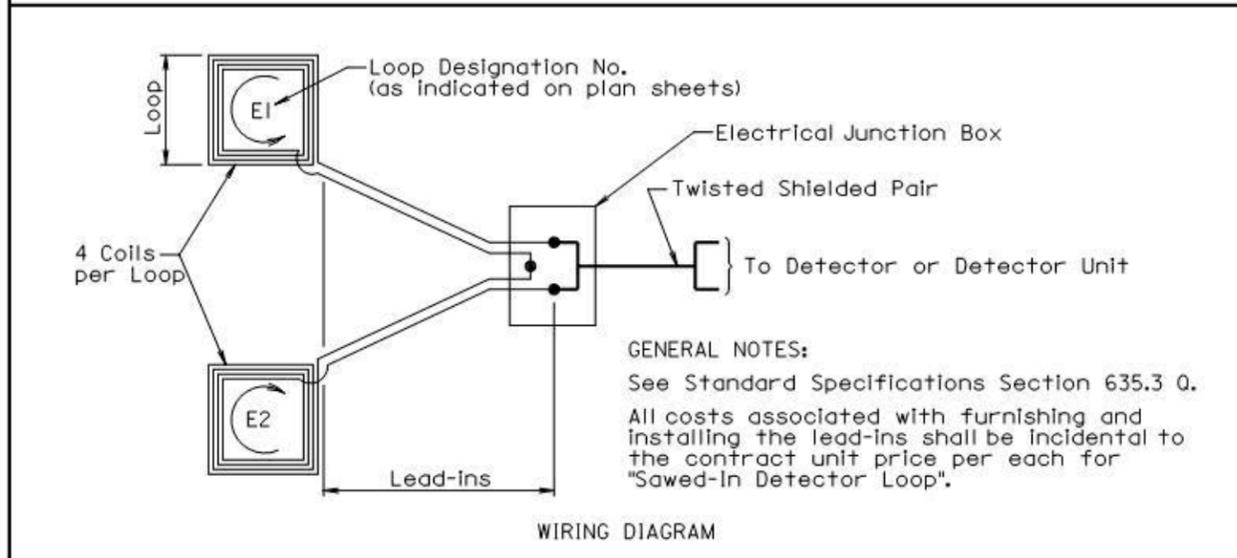
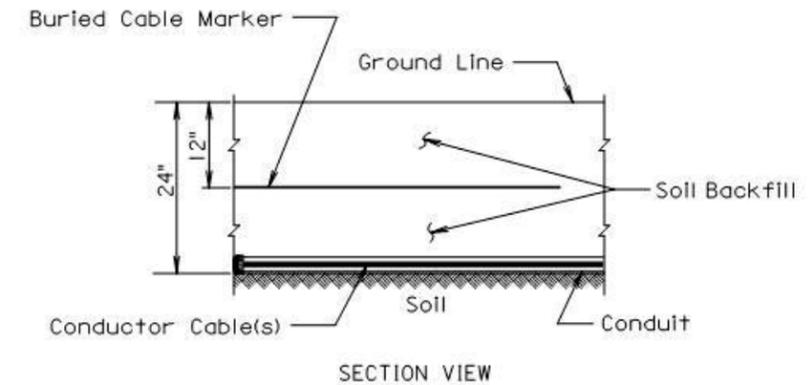
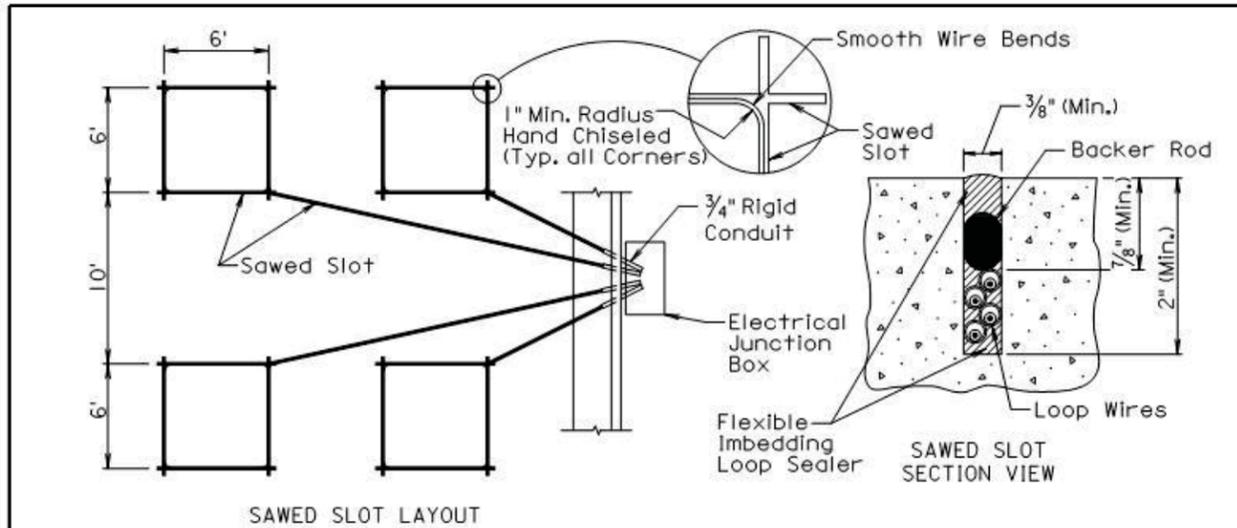
\*\*The cover of the junction box shall have the appropriate logo in one inch size letters and shall be recessed. When the junction box contains cables or wires for a traffic signal then the logo shall be "Signal". When the junction box contains lighting conductors then the logo shall be "Lighting".

The electrical junction boxes shall comply with the American National Standards Institute (ANSI)/Society of Cable Telecommunications Engineers (SCTE) 77 2007 Specification for Underground Enclosure Integrity. The loading requirement for all the electrical junction boxes shall be Tier 8 of ANSI/SCTE 77 2007.

The electrical junction boxes shall be UL listed.

June 26, 2012

|                               |                       |  |                        |
|-------------------------------|-----------------------|--|------------------------|
| Published Date: 1st Qtr. 2014 | S<br>D<br>D<br>O<br>T | ELECTRICAL JUNCTION BOXES<br>TYPE 1 THROUGH TYPE 4 | PLATE NUMBER<br>635.65 |
|                               |                       |  | Sheet 2 of 2           |



GENERAL NOTE:

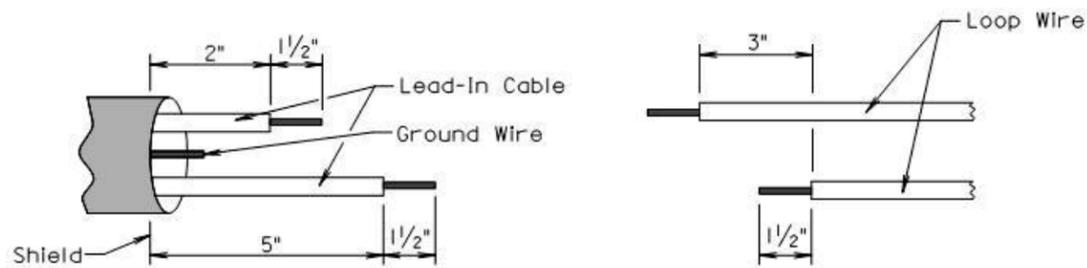
The Buried Cable Marker shall be plastic, approximately 6" wide, and shall be capable of sustaining a minimum of a 350% tolerance of elongation without tearing. The Buried Cable Marker shall have a life expectancy approximately equal to that of the conductor(s) beneath it. A phrase indicating the presence of a buried electric circuit below shall be printed in a contrasting color on the cable marker. The Buried Cable Marker shall be subject to approval by the Engineer. All costs associated with furnishing and installing the Buried Cable Marker shall be incidental to the contract unit price per Foot for the bid item used for the electrical conductor.

March 31, 2000

|                                  |                               |                               |
|----------------------------------|-------------------------------|-------------------------------|
| <b>S<br/>D<br/>D<br/>O<br/>T</b> | <b>SAWED-IN DETECTOR LOOP</b> | PLATE NUMBER<br>635.71        |
|                                  |                               | Sheet 1 of 1                  |
|                                  |                               | Published Date: 1st Qtr. 2014 |

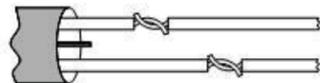
|                                  |                             |                               |
|----------------------------------|-----------------------------|-------------------------------|
| <b>S<br/>D<br/>D<br/>O<br/>T</b> | <b>CONDUIT INSTALLATION</b> | PLATE NUMBER<br>635.76        |
|                                  |                             | Sheet 1 of 1                  |
|                                  |                             | Published Date: 1st Qtr. 2014 |

Step 1. Strip loop wires and lead-in cable.

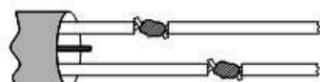


Step 2. Connect and solder.

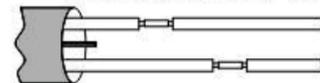
Twist bare conductors together



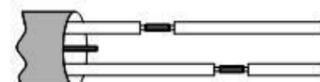
and solder with 60/40 (tin/lead) resin solder



Crimp bare conductors together with an uninsulated butt connector



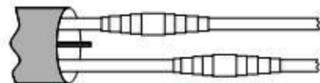
and solder with 60/40 (tin/lead) resin solder



OR

Step 3. Insulate each solder joint separately.

Electrical Tape



Shrink Tube



OR

Step 4. Environmentally seal total splice against weather, moisture and abrasion. Methods for environmentally sealing the splice include heat-shrinkable tubing, special sealing kits, special forms to be filled by sealant, and tape and coating.



June 20, 2000

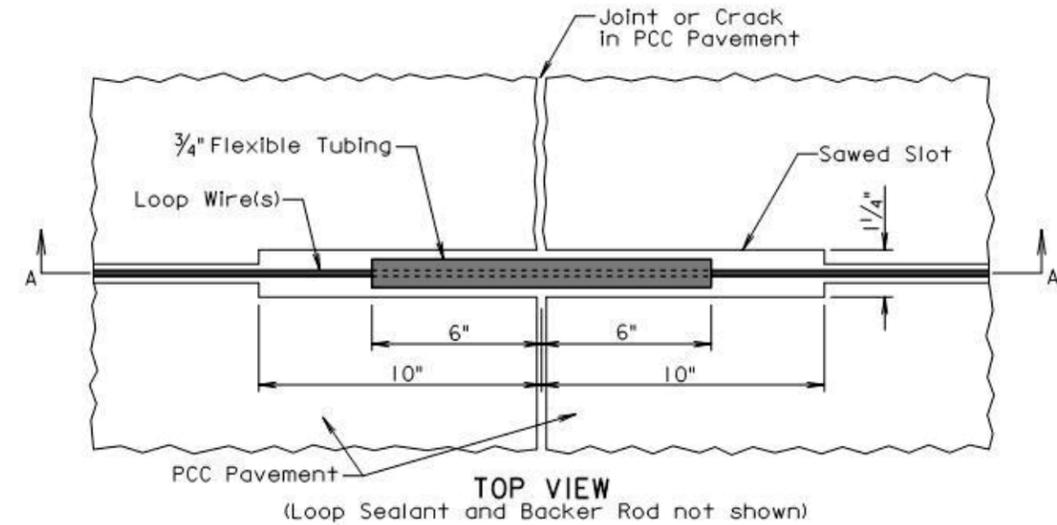
Published Date: 1st Qtr. 2014

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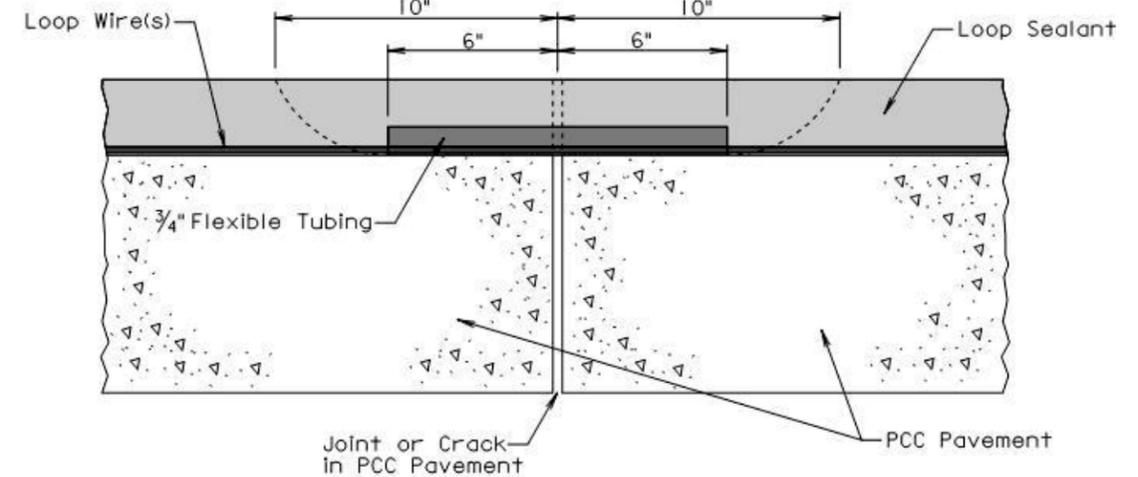
DETECTOR LOOP WIRE SPLICING

PLATE NUMBER  
635.77

Sheet 1 of 1



TOP VIEW  
(Loop Sealant and Backer Rod not shown)



SECTION A-A  
(Backer Rod not shown)

GENERAL NOTE:

All costs for constructing the sawed-in detector loop protection including labor, equipment, and materials shall be incidental to the contract unit price per each for "Sawed-In Detector Loop".

March 28, 2001

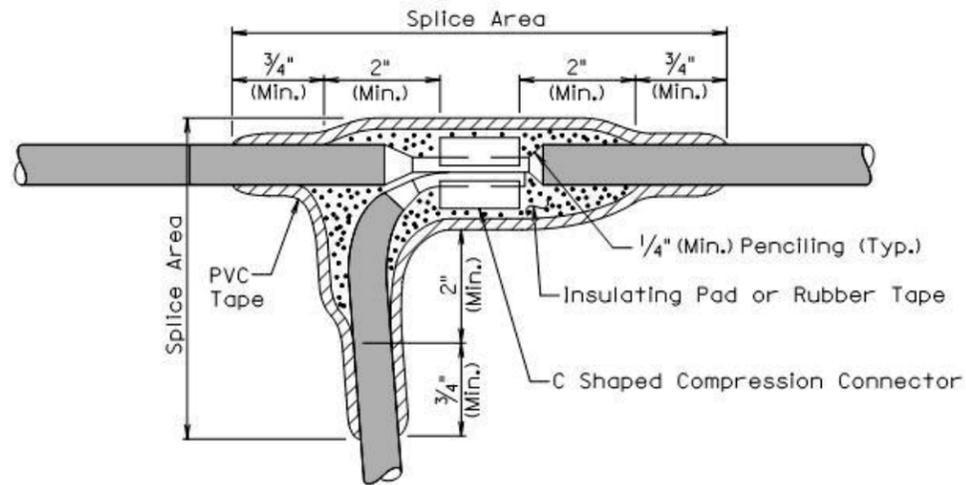
Published Date: 1st Qtr. 2014

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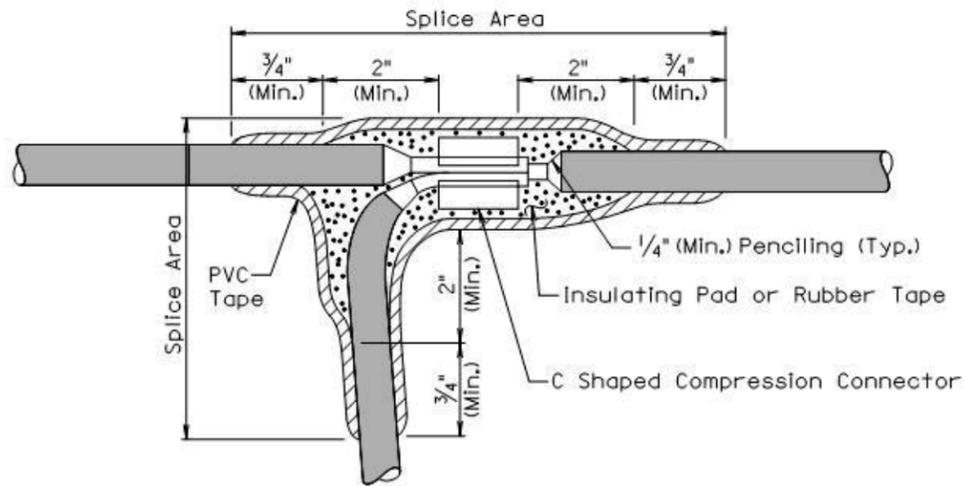
SAWED-IN DETECTOR LOOP PROTECTION  
AT JOINT OR CRACK IN PCC PAVEMENT

PLATE NUMBER  
635.78

Sheet 1 of 1



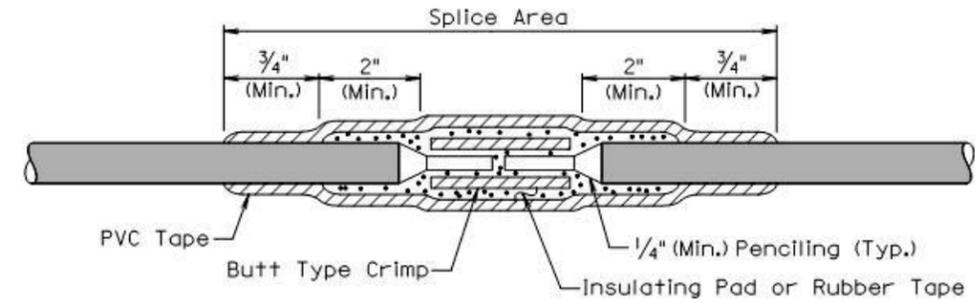
**TYPE C SPLICE**  
(Between 1 free end and 1 through conductor)



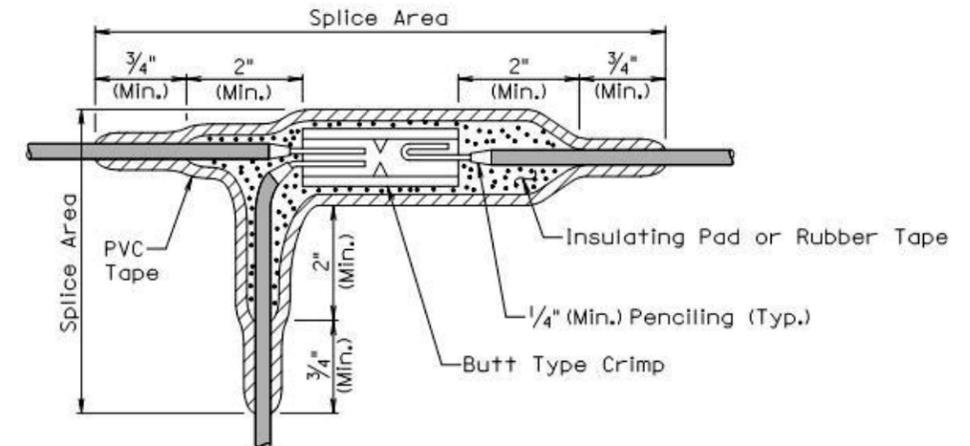
**TYPE T SPLICE**  
(For 3 free ends)

February 14, 2010

|                               |                       |   |                        |
|-------------------------------|-----------------------|---|------------------------|
| Published Date: 1st Qtr. 2014 | S<br>D<br>D<br>O<br>T | WIRE SPlicing FOR LIGHTING<br>(LOW VOLTAGE CIRCUITS (0 to 600 V)) | PLATE NUMBER<br>635.80 |
|                               |                       |   | Sheet 1 of 2           |



**TYPE S SPLICE**  
(Between 2 free ends)



**TYPE ST SPLICE**  
(For 3 free ends)

GENERAL NOTES:

The splice shall be environmentally sealed for protection from weather, moisture, and abrasion in accordance with the method stated below.

The rubber tapes shall be rolled after application.

Method for insulating splice area:

1. The splice area shall be completely covered with electrical insulating coating and dried.
2. Apply two layers of 1/8" minimum thickness electrical insulating pad or two layers of half lapped synthetic oil resistant self fusing rubber tape.
3. Three layers of half lapped polyvinyl chloride tape shall be applied.
4. The entire splice area shall be covered with electrical insulating coating and dried.

February 14, 2010

|                               |                       |   |                        |
|-------------------------------|-----------------------|---|------------------------|
| Published Date: 1st Qtr. 2014 | S<br>D<br>D<br>O<br>T | WIRE SPlicing FOR LIGHTING<br>(LOW VOLTAGE CIRCUITS (0 to 600 V)) | PLATE NUMBER<br>635.80 |
|                               |                       |   | Sheet 2 of 2           |

GENERAL NOTES:

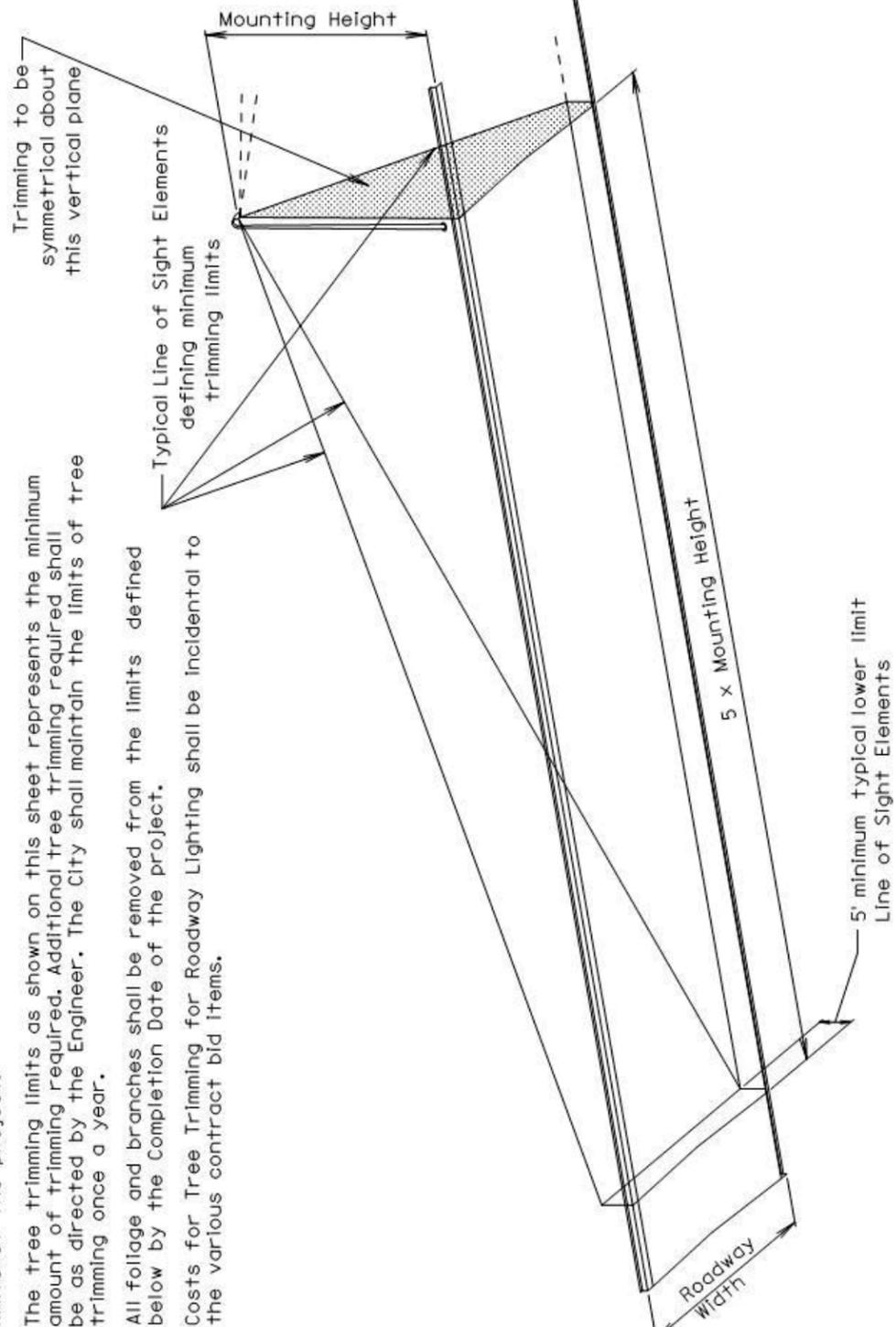
Tree Trimming shall be done in accordance with proper tree trimming practices. The underside of each branch to be removed shall have a groove sawed through the bark (1/2" Min. depth) before any sawing is started on the top side of the branch.

Tree trimming shall be applied around each light source installed within the limits of the project.

The tree trimming limits as shown on this sheet represents the minimum amount of trimming required. Additional tree trimming required shall be as directed by the Engineer. The City shall maintain the limits of tree trimming once a year.

All foliage and branches shall be removed from the limits defined below by the Completion Date of the project.

Costs for Tree Trimming for Roadway Lighting shall be incidental to the various contract bid items.



December 23, 2009

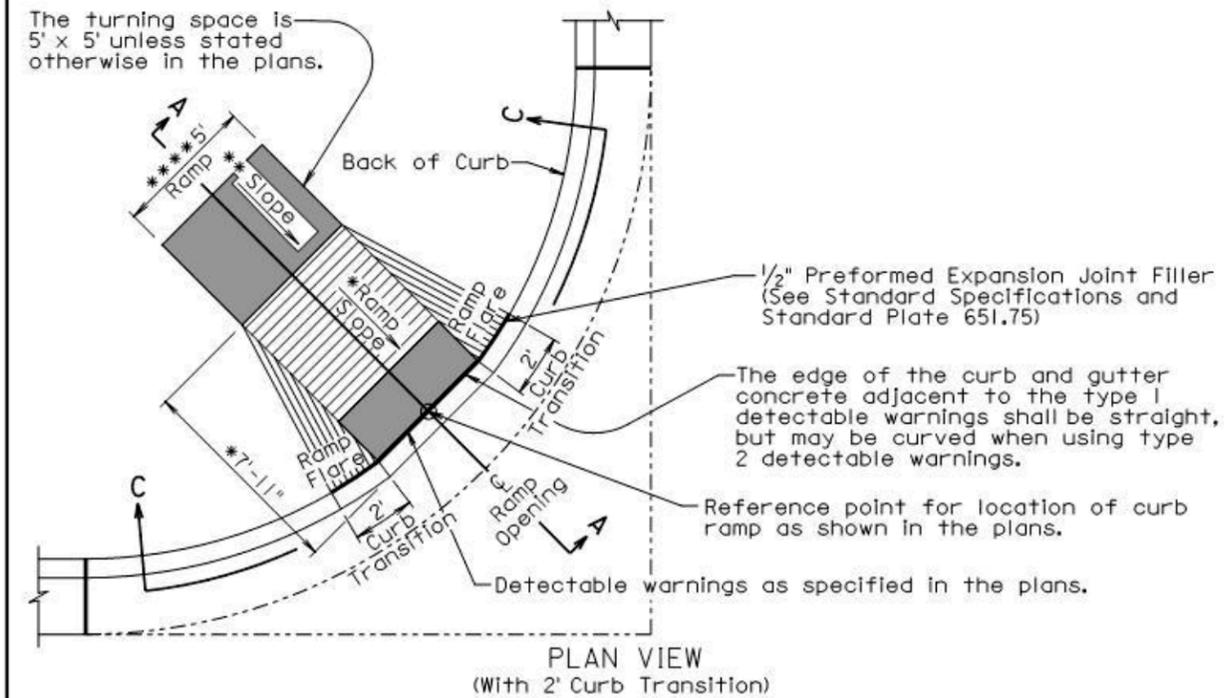
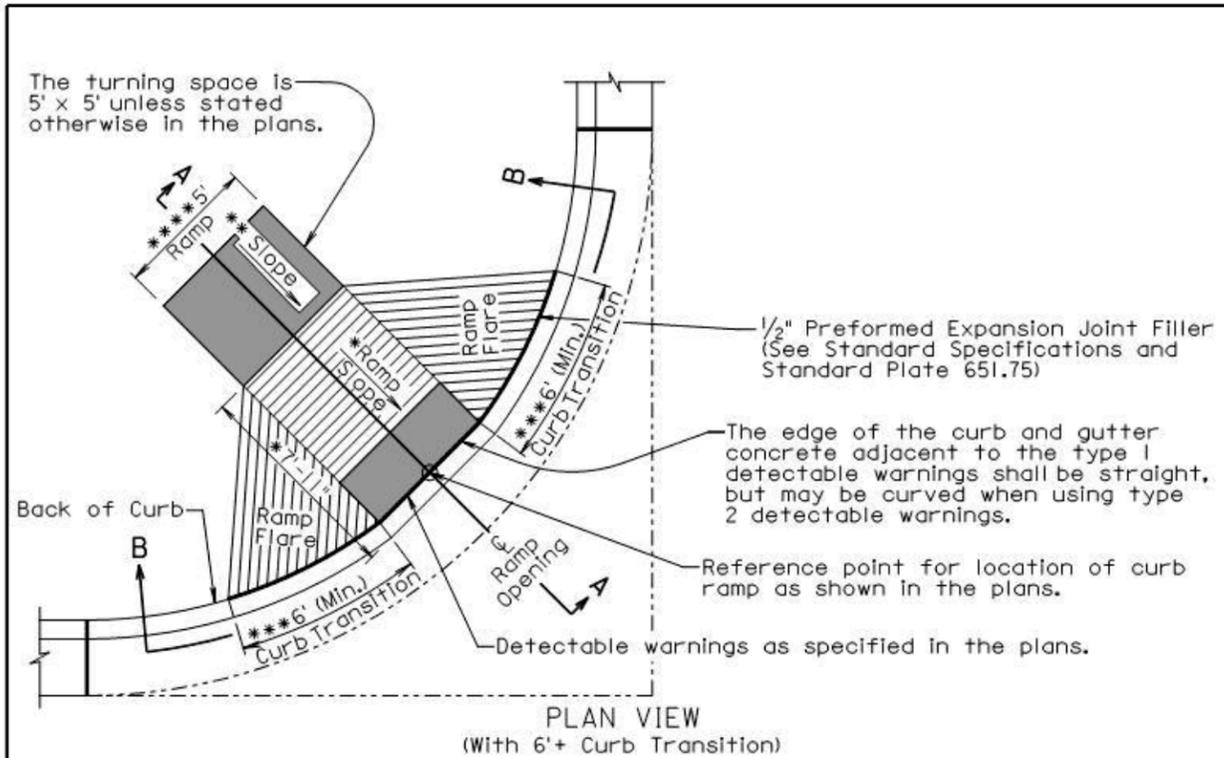
Published Date: 1st Qtr. 2014

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**TREE TRIMMING FOR ROADWAY LIGHTING**

PLATE NUMBER  
635.99

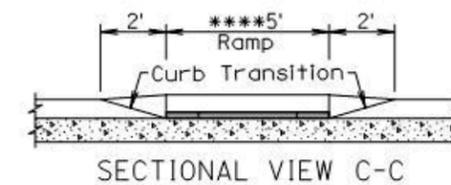
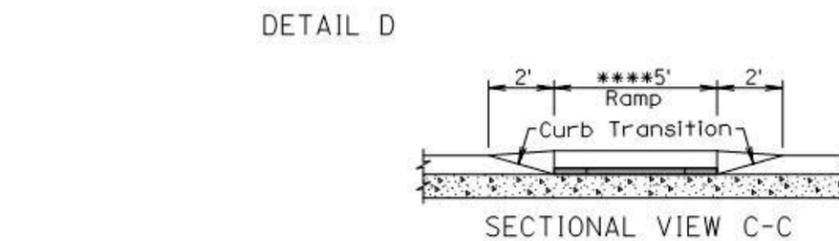
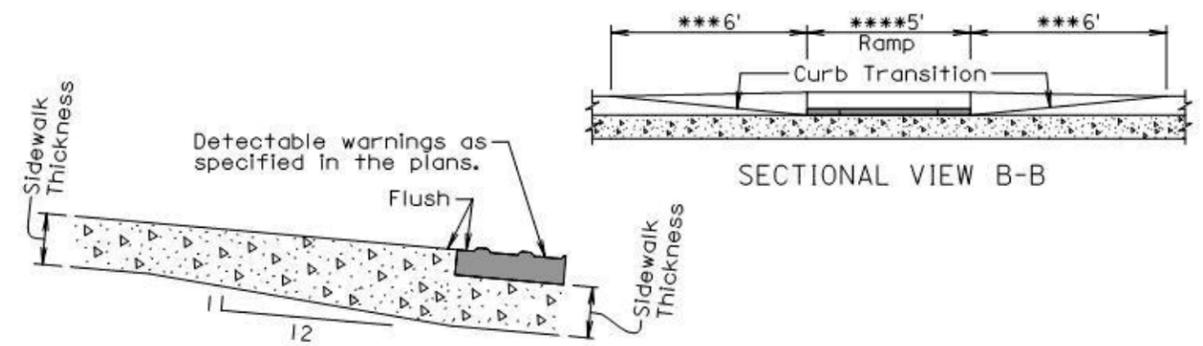
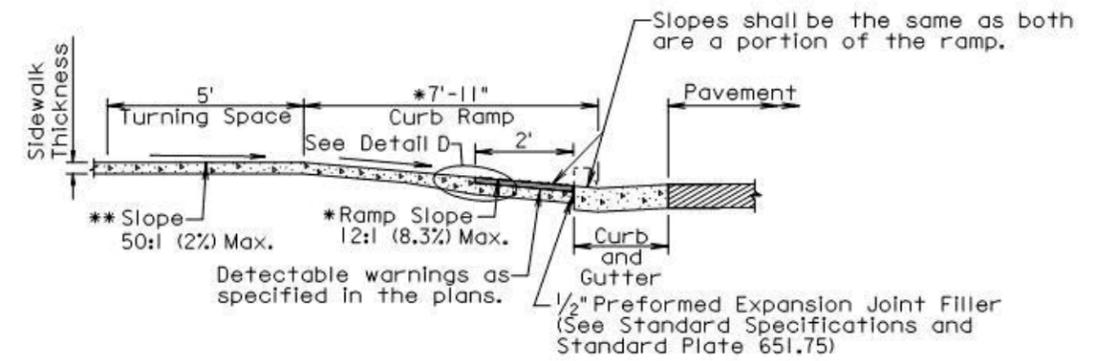
Sheet 1 of 1



September 6, 2013

|                               |                       |   |                        |
|-------------------------------|-----------------------|---|------------------------|
| Published Date: 1st Qtr. 2014 | S<br>D<br>D<br>O<br>T | TYPE 1 CURB RAMP<br>(PERPENDICULAR CURB RAMP) | PLATE NUMBER<br>651.01 |
|                               |                       |   | Sheet 1 of 3           |

- \* The ramp slope shall be 12:1 (8.3%) maximum. The ramp length shall not exceed 15' unless stated otherwise in the plans. Ramp slopes are designed at 12:1 (8.3%) unless stated otherwise in the plans.
- \* The cross slope of the ramp shall not be steeper than 50:1 (2%).
- \*\* The slope in the turning space shall not be steeper than 50:1 (2%) in any direction of pedestrian travel.
- \*\*\* The curb transition shall be a minimum of 6' long, a maximum of 10' long, and the curb transition slope shall not be steeper than 10:1 (10%) unless stated otherwise in the plans.
- \*\*\*\* The ramp width is 5' unless stated otherwise in the plans.



September 6, 2013

|                               |                       |   |                        |
|-------------------------------|-----------------------|---|------------------------|
| Published Date: 1st Qtr. 2014 | S<br>D<br>D<br>O<br>T | TYPE 1 CURB RAMP<br>(PERPENDICULAR CURB RAMP) | PLATE NUMBER<br>651.01 |
|                               |                       |   | Sheet 2 of 3           |

|                             |                |       |                 |
|-----------------------------|----------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT        | SHEET | TOTAL<br>SHEETS |
|                             | NH 0044(186)44 | 47    | 53              |

GENERAL NOTES:

For illustrative purpose only, type 1 detectable warnings are shown in the drawings.

For illustrative purpose only, PCC fillet sections are shown in the drawings. The curb ramp depicted on this standard plate may be used with a PCC fillet section, with curved curb and gutter, or with straight curb and gutter.

For illustrative purpose only, the curb ramp location is shown at the center of a PCC fillet section. The curb ramp shall be placed at the location stated in the plans.

Sidewalk shall not be placed adjacent to the ramp flares when a 2' curb transition is used unless shown otherwise in the plans.

\* Care shall be taken to ensure a uniform grade on the ramp, free of sags and short grade changes.

Surface texture of the ramp shall be obtained by coarse brooming transverse to the slope of the ramp.

The normal gutter line profile shall be maintained through the area of the ramp.

Joints shall be sawed or tooled into the concrete adjacent to the detectable warnings to alleviate possible corner cracking.

Care shall be taken to ensure that the surface of the detectable warnings are clean and maintains a uniform color.

The detectable warnings shall be cut as necessary to fit the plan specified limits of the detectable warnings. Cost for cutting the detectable warnings shall be incidental to the corresponding detectable warning bid item.

There will be no separate payment for curb ramps. The curb ramp shall be measured and paid for at the contract unit price per square foot for the corresponding concrete sidewalk bid item. The square foot area of the detectable warnings shall be included in the measured and paid for quantity of sidewalk.

The curb transitions and ramp opening shall be measured and paid for at the contract unit price per foot for the corresponding curb and gutter bid item when curb and gutter is used. The curb transitions and ramp opening shall be measured and paid for at the contract unit price per square yard for the corresponding PCC fillet section bid item when a PCC fillet section is used.

The type 1 detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type 1 detectable warnings including labor, equipment, materials, and incidentals shall be paid for at the contract unit price per square foot for "Type 1 Detectable Warnings".

The type 2 detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type 2 detectable warnings including labor, equipment, and materials, including adhesive, necessary sealant or grout, and necessary grinding shall be paid for at the contract unit price per square foot for "Type 2 Detectable Warnings".

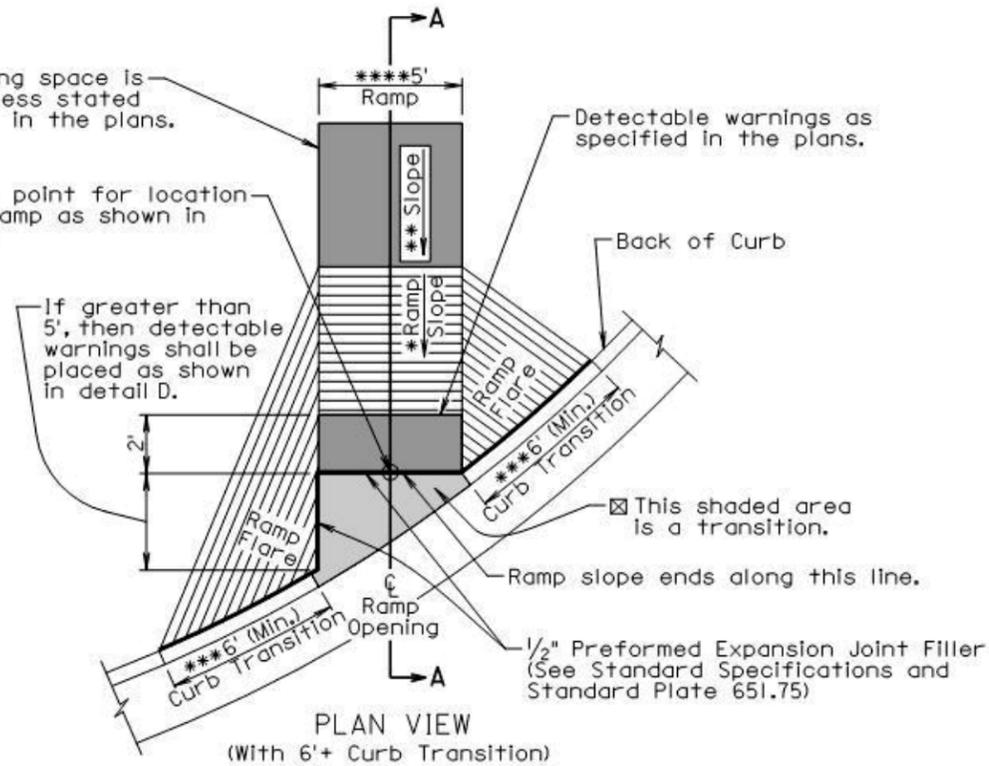
September 6, 2013

|                                      |                                  |   |                        |
|--------------------------------------|----------------------------------|---|------------------------|
| <i>Published Date: 1st Qtr. 2014</i> | <b>S<br/>D<br/>D<br/>O<br/>T</b> | <b>TYPE 1 CURB RAMP<br/>(PERPENDICULAR CURB RAMP)</b> | PLATE NUMBER<br>651.01 |
|                                      |                                  |   | Sheet 3 of 3           |

The turning space is 5' x 5' unless stated otherwise in the plans.

Reference point for location of curb ramp as shown in the plans.

If greater than 5', then detectable warnings shall be placed as shown in detail D.

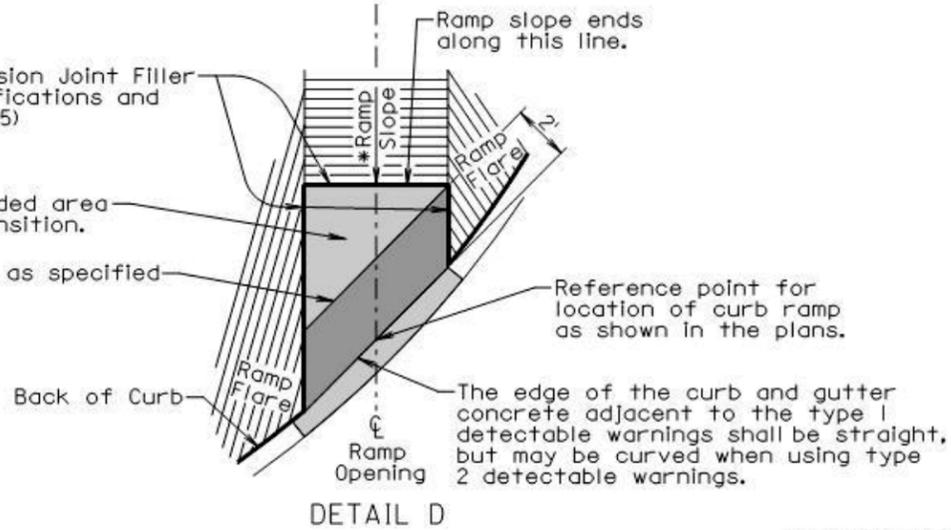


- ☒ This shaded area is a transition.
- ☒ The slope within the transition area shall not be steeper than a 20:1 (5%). The concrete within the transition shall be placed monolithic with the curb and gutter or fillet section concrete. The concrete thickness within the transition shall be the same as the curb and gutter or fillet section concrete thickness.
- \*\*\*The curb transition shall be a minimum of 6' long, a maximum of 10' long, and the curb transition slope shall not be steeper than a 10:1 (10%) unless stated otherwise in the plans.

1/2" Preformed Expansion Joint Filler (See Standard Specifications and Standard Plate 651.75)

☒ This shaded area is a transition.

Detectable warnings as specified in the plans.



September 6, 2013

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**TYPE 2 CURB RAMP  
(DIRECTIONAL CURB RAMP)**

PLATE NUMBER  
651.02

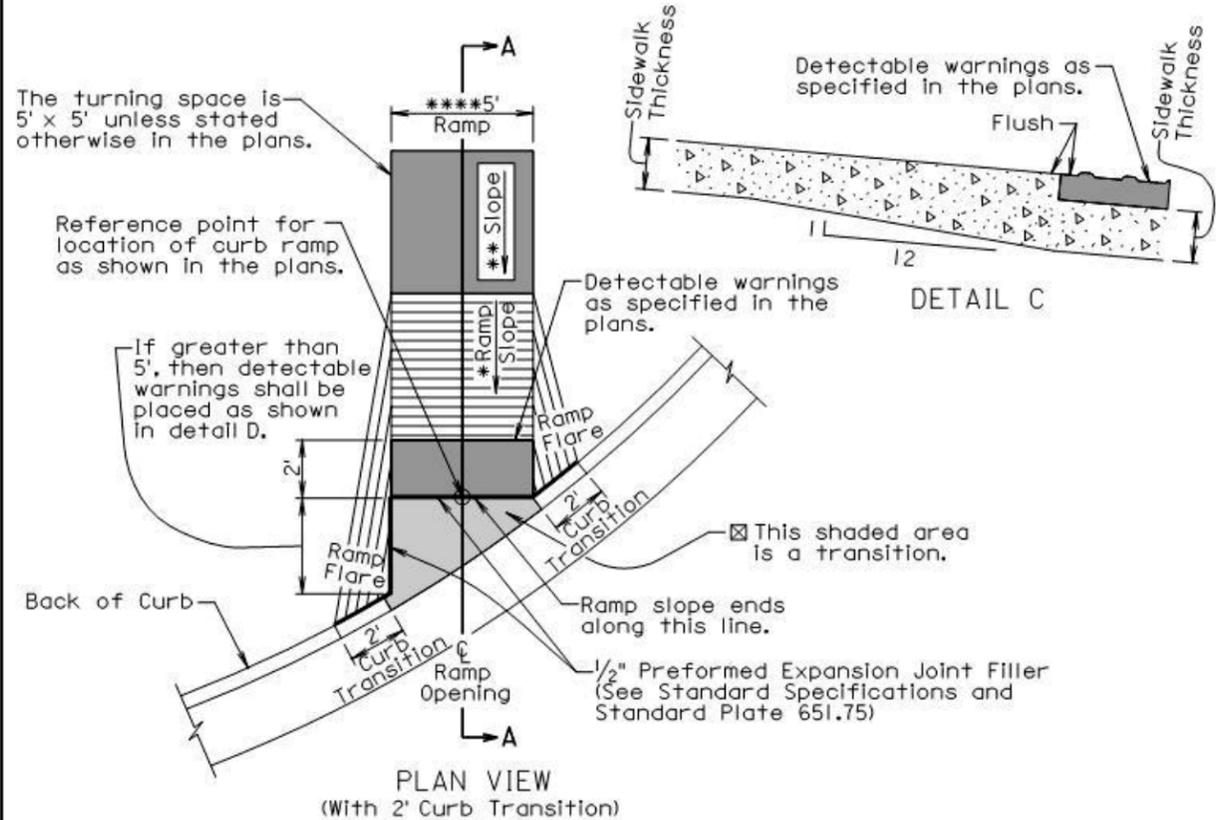
Sheet 1 of 3

Published Date: 1st Qtr. 2014

The turning space is 5' x 5' unless stated otherwise in the plans.

Reference point for location of curb ramp as shown in the plans.

If greater than 5', then detectable warnings shall be placed as shown in detail D.

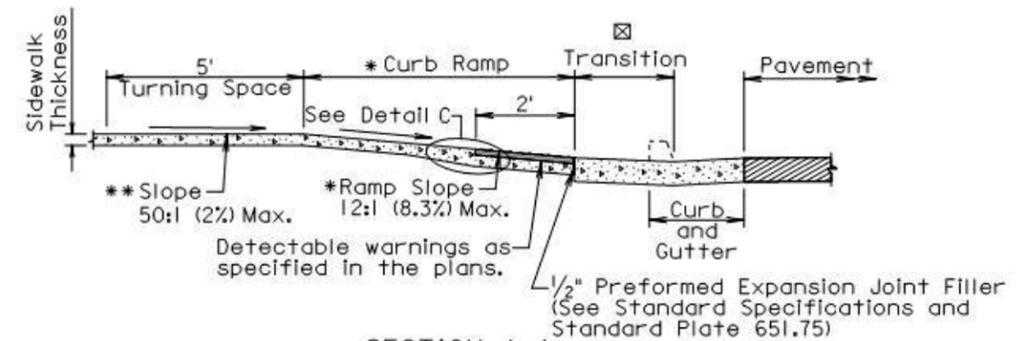


\* The ramp slope shall be 12:1 (8.3%) maximum. The ramp length shall not exceed 15' unless stated otherwise in the plans. Ramp slopes are designed at 12:1 (8.3%) unless stated otherwise in the plans.

The cross slope of the ramp shall not be steeper than 50:1 (2%).

\*\*The slope in the turning space shall not be steeper than a 50:1 (2%) in any direction of pedestrian travel.

\*\*\*\*The ramp width is 5' unless stated otherwise in the plans.



SECTION A-A

September 6, 2013

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**TYPE 2 CURB RAMP  
(DIRECTIONAL CURB RAMP)**

PLATE NUMBER  
651.02

Sheet 2 of 3

Published Date: 1st Qtr. 2014

|                       |                |       |              |
|-----------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT        | SHEET | TOTAL SHEETS |
|                       | NH 0044(186)44 | 49    | 53           |

GENERAL NOTES:

For illustrative purpose only, type 1 detectable warnings are shown in the drawings.

The curb ramp depicted on this standard plate may be used with a PCC fillet section, with curved curb and gutter, or with straight curb and gutter. The curb ramp shall be placed at the location stated in the plans.

Sidewalk shall not be placed adjacent to the ramp flares when a 2' curb transition is used unless shown otherwise in the plans.

\*Care shall be taken to ensure a uniform grade on the ramp, free of sags and short grade changes.

Surface texture of the ramp shall be obtained by coarse brooming transverse to the slope of the ramp.

The normal gutter line profile shall be maintained through the area of the ramp.

Joints shall be sawed or tooled into the concrete adjacent to the detectable warnings to alleviate possible corner cracking.

Care shall be taken to ensure that the surface of the detectable warnings are clean and maintains a uniform color.

The detectable warnings shall be cut as necessary to fit the plan specified limits of the detectable warnings. Cost for cutting the detectable warnings shall be incidental to the corresponding detectable warning bid item.

There will be no separate payment for curb ramps. The curb ramp shall be measured and paid for at the contract unit price per square foot for the corresponding concrete sidewalk bid item. The square foot area of the detectable warnings shall be included in the measured and paid for quantity of sidewalk.

The curb transitions and ramp opening shall be measured and paid for at the contract unit price per foot for the corresponding curb and gutter bid item when curb and gutter is used. The curb transitions and ramp opening shall be measured and paid for at the contract unit price per square yard for the corresponding PCC fillet section bid item when a PCC fillet section is used.

All costs for furnishing and installing the transition area at the base of the ramp shall be incidental to the contract unit price per foot for the corresponding curb and gutter bid item when curb and gutter is used and shall be incidental to the contract unit price per square yard for the corresponding PCC fillet section bid item when a PCC fillet section is used.

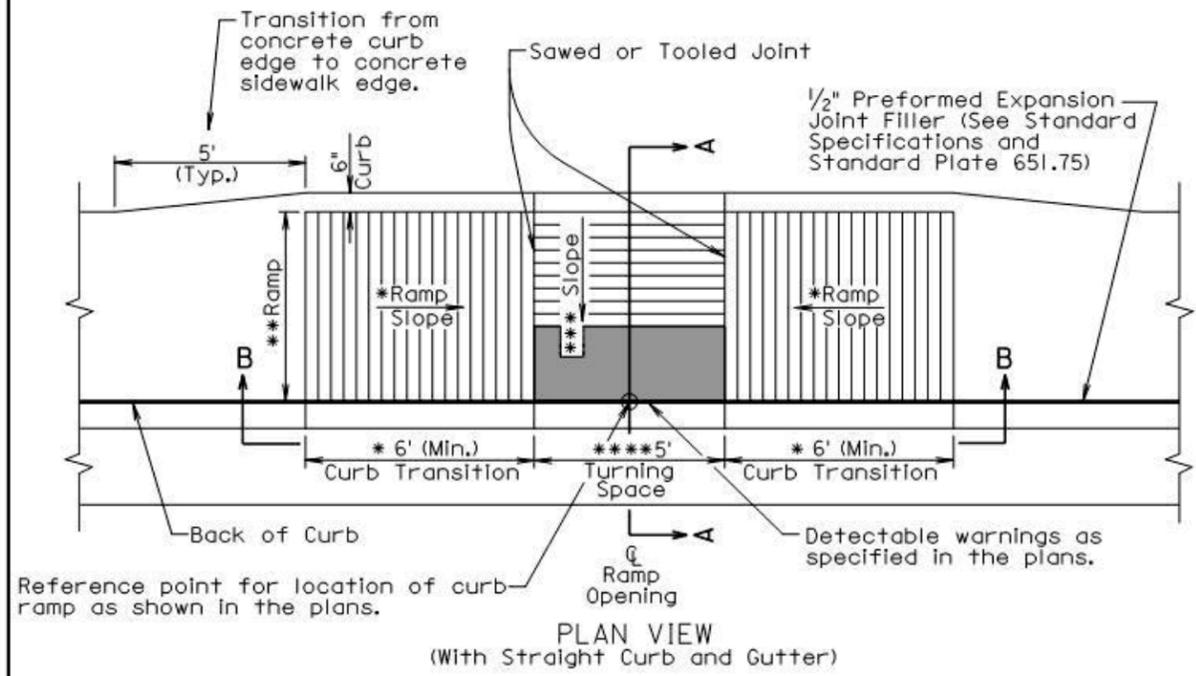
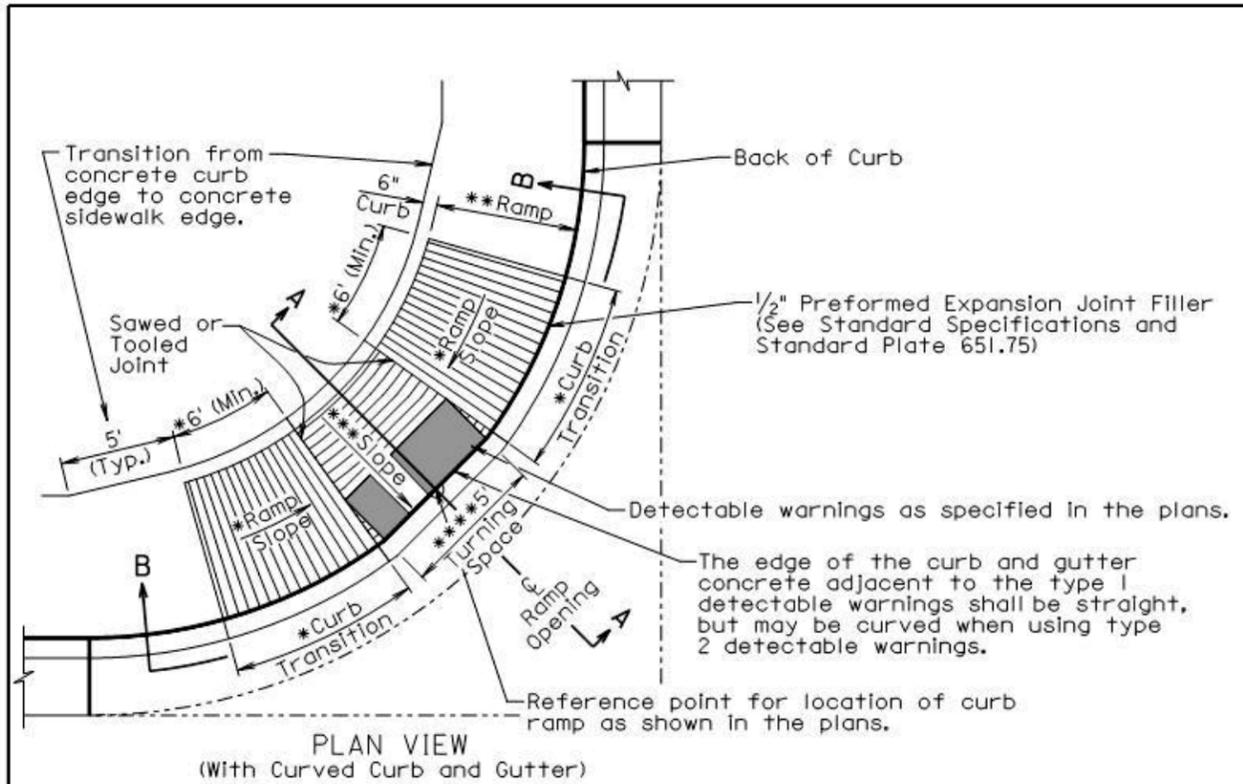
The type 1 detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type 1 detectable warnings including labor, equipment, materials, and incidentals shall be paid for at the contract unit price per square foot for "Type 1 Detectable Warnings".

The type 2 detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type 2 detectable warnings including labor, equipment, and materials, including adhesive, necessary sealant or grout, and necessary grinding shall be paid for at the contract unit price per square foot for "Type 2 Detectable Warnings".

September 6, 2013

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| <i>Published Date: 1st Qtr. 2014</i> | <b>S<br/>D<br/>D<br/>O<br/>T</b> | <b>TYPE 2 CURB RAMP<br/>(DIRECTIONAL CURB RAMP)</b> | PLATE NUMBER<br>651.02 |
|                                      |                                  |   | Sheet 3 of 3           |

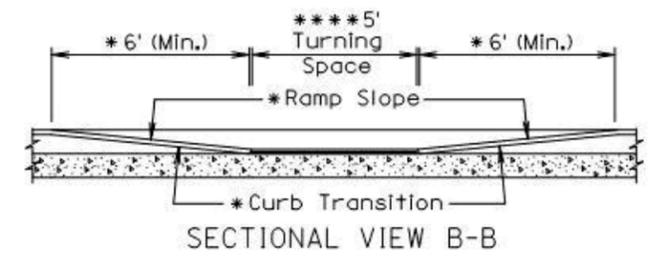
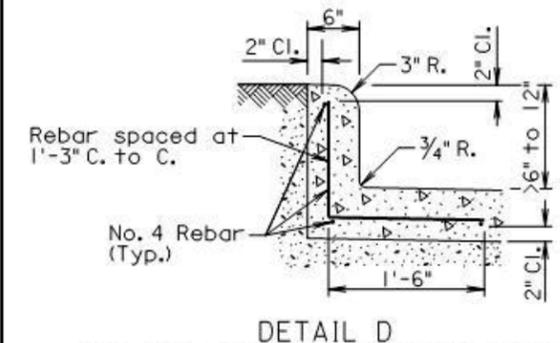
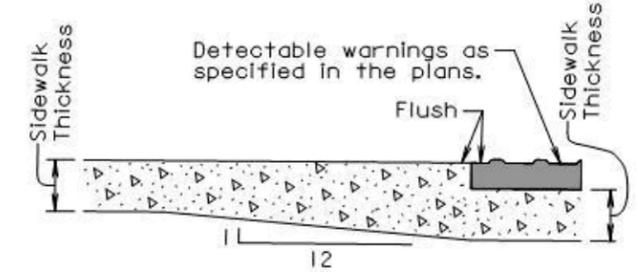
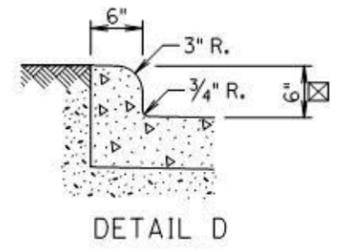
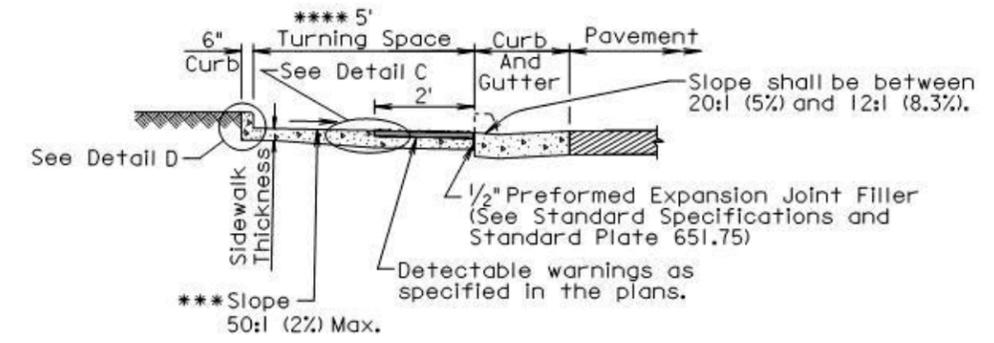




September 6, 2013

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| Published Date: 1st Qtr. 2014 | S<br>D<br>D<br>O<br>T | TYPE 3 CURB RAMP<br>(PARALLEL CURB RAMP) | PLATE NUMBER<br>651.03 |
|                               |                       |  | Sheet 1 of 3           |

- \* The curb transition slope shall match the ramp slope. The ramp slope, at any location of the ramp, shall be 12:1 (8.3%) maximum. The ramp length shall not exceed 15' unless stated otherwise in the plans. Ramp slopes are designed at 12:1 (8.3%) unless stated otherwise in the plans. The minimum length of the curb transition shall be 6'.
- \*\* The ramp cross slope shall not be steeper than a 50:1 (2%) and the ramp width is 5' unless stated otherwise in the plans.
- \*\*\* The slope in the turning space shall not be steeper than 50:1 (2%) in any direction of pedestrian travel.
- \*\*\*\* The turning space is 5' x 5' unless stated otherwise in the plans.
- ☒ The curb height shall be 6" unless stated otherwise in the plans.



(Use this detail when the curb height is greater than 6" and less than 12")

September 6, 2013

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|                               |                       |  | Sheet 2 of 3           |

|                             |                |       |                 |
|-----------------------------|----------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT        | SHEET | TOTAL<br>SHEETS |
|                             | NH 0044(186)44 | 51    | 53              |

**GENERAL NOTES:**

For illustrative purpose only, type 1 detectable warnings are shown in the drawings.

For illustrative purpose only, a PCC fillet section is shown in one of the drawings. The curb ramp depicted on this standard plate may be used with a PCC fillet section, with curved curb and gutter, or with straight curb and gutter.

The curb ramp shall be placed at the location stated in the plans.

Sidewalk adjacent to the curb ramp shall be as shown in the plans.

Care shall be taken to ensure a uniform grade on the ramp, free of sags and short grade changes.

Surface texture of the ramp shall be obtained by coarse brooming transverse to the slope of the ramp.

The normal gutter line profile shall be maintained through the area of the ramp.

Joints shall be sawed or tooled into the concrete adjacent to the detectable warnings to alleviate possible corner cracking (see plan view for joint location).

Care shall be taken to ensure that the surface of the detectable warnings are clean and maintains a uniform color.

The detectable warnings shall be cut as necessary to fit the plan specified limits of the detectable warnings. Cost for cutting the detectable warnings shall be incidental to the corresponding detectable warning bid item.

When curb height is greater than 6" and less than 12", reinforcing steel is required in accordance with the detail on sheet 2 of 3. The reinforcing steel shall conform to ASTM A615, Grade 60. Cost for furnishing and installing the reinforcing steel shall be incidental to the contract unit price per square foot for the corresponding concrete sidewalk bid item.

There will be no separate payment for curb ramps. The curb ramp shall be measured and paid for at the contract unit price per square foot for the corresponding concrete sidewalk bid item. The square foot area of the detectable warnings and the curb along the short radius shall be included in the measured and paid for quantity of sidewalk.

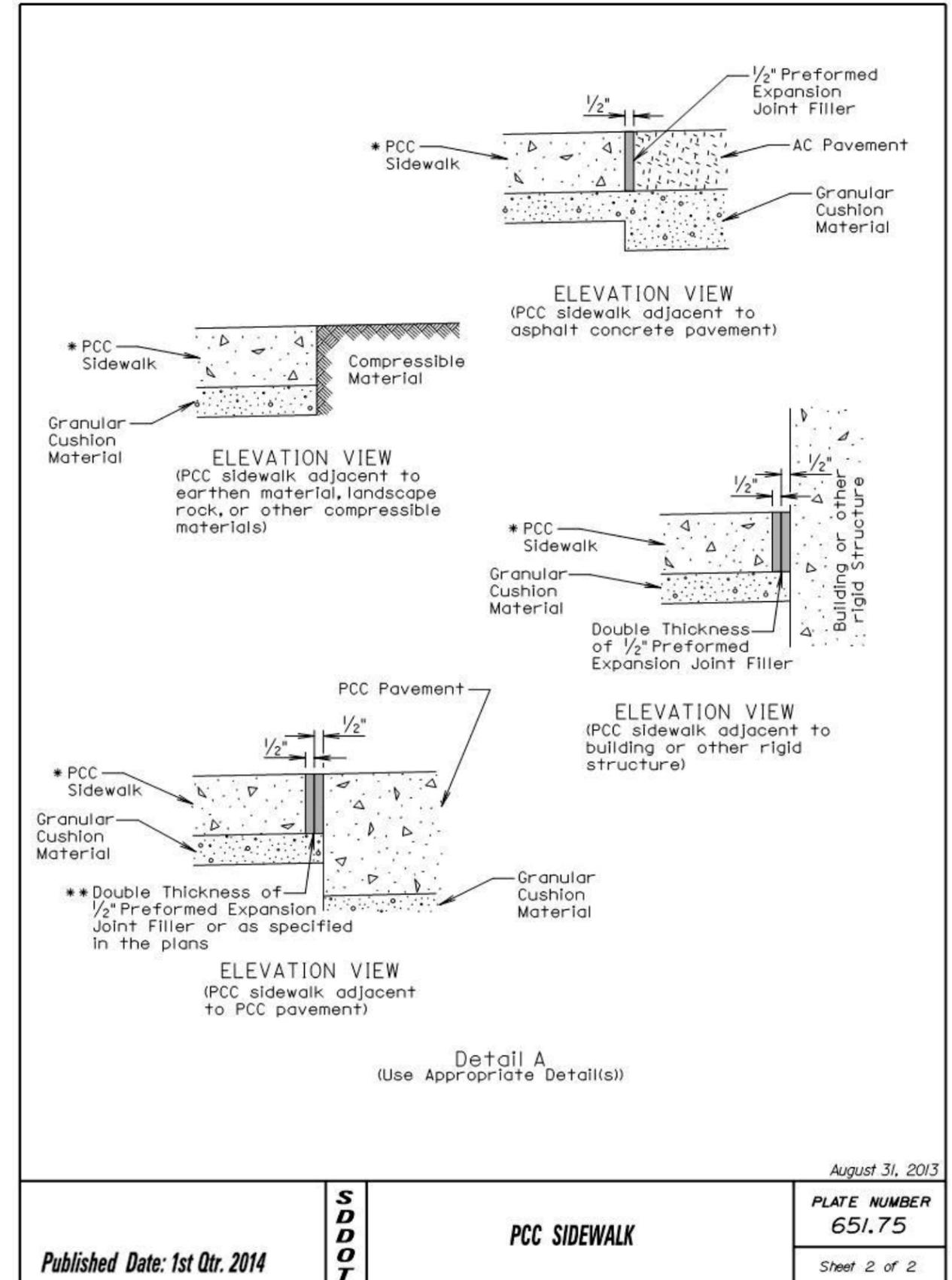
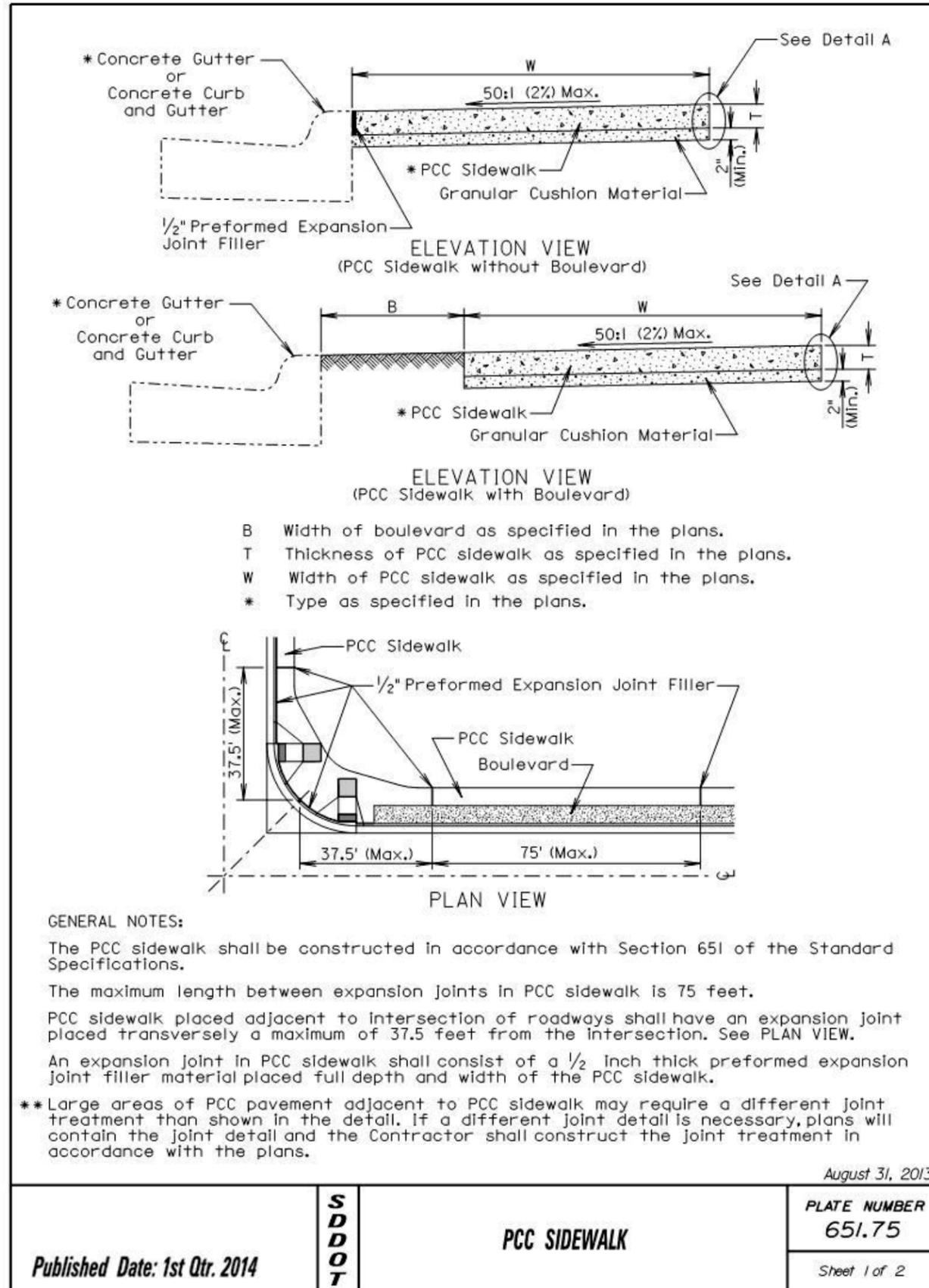
The curb transitions and ramp opening shall be measured and paid for at the contract unit price per foot for the corresponding curb and gutter bid item when curb and gutter is used. The curb transitions and ramp opening shall be measured and paid for at the contract unit price per square yard for the corresponding PCC fillet section bid item when a PCC fillet section is used.

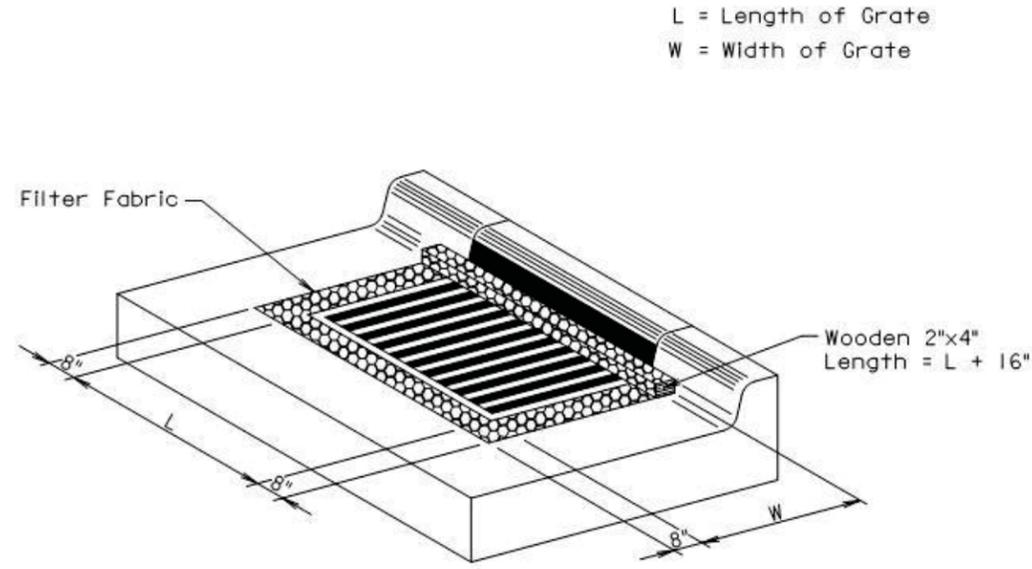
The type 1 detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type 1 detectable warnings including labor, equipment, materials, and incidentals shall be paid for at the contract unit price per square foot for "Type 1 Detectable Warnings".

The type 2 detectable warnings shall be measured to the nearest square foot. All costs for furnishing and installing the type 2 detectable warnings including labor, equipment, and materials, including adhesive, necessary sealant or grout, and necessary grinding shall be paid for at the contract unit price per square foot for "Type 2 Detectable Warnings".

September 6, 2013

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| <i>Published Date: 1st Qtr. 2014</i> | <b>S<br/>D<br/>D<br/>O<br/>T</b> | <b>TYPE 3 CURB RAMP<br/>(PARALLEL CURB RAMP)</b> | PLATE NUMBER<br>651.03 |
|                                      |                                  |  | Sheet 3 of 3           |





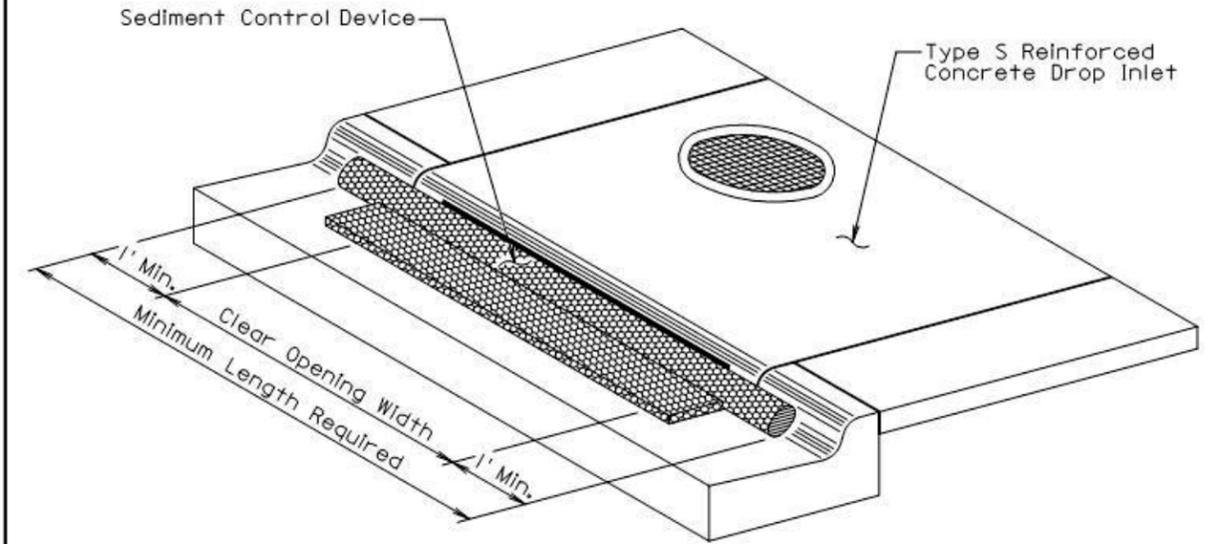
ISOMETRIC VIEW

GENERAL NOTES:

- The grate and curb and gutter shown are for illustrative purposes only.
- The sediment control at inlet with frame and grate shall be placed at locations stated in the plans or at locations determined by the Engineer.
- The filter fabric shall be the type specified in the plans.
- The filter fabric shall be placed in the inlet opening prior to placing the grate. Approximately 18 inches of excess filter fabric shall be wrapped around the 2"x4" and stapled securely to the 2"x4" after the grate has been placed.
- The Contractor shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event. The Contractor shall maintain the sediment control device by removing accumulated sediment and replacing torn filter fabric with new filter fabric.
- The removed sediment shall be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.
- All costs for furnishing, installing, inspecting, maintaining, removing, and replacing the sediment control device at the inlet including labor, equipment, and materials shall be incidental to the contract unit price per each for "Sediment Control at Inlet with Frame and Grate".

September 14, 2005

|                               |                       |  |                        |
|-------------------------------|-----------------------|--|------------------------|
| Published Date: 1st Qtr. 2014 | S<br>D<br>D<br>O<br>T | SEDIMENT CONTROL AT INLETS<br>WITH FRAMES AND GRATES | PLATE NUMBER<br>734.10 |
|                               |                       |  | Sheet 1 of 1           |



ISOMETRIC VIEW

GENERAL NOTES:

- The type of sediment control device shown is for illustrative purposes only.
- The type of sediment control device used shall be one of the types as specified in the plans.
- The sediment control device shall be placed at the drop inlets according to the manufacturers' installation instructions.
- The sediment control at inlet for type S reinforced concrete drop inlet shall be placed at locations stated in the plans or at locations determined by the Engineer.
- The Contractor shall inspect and maintain the sediment control device once every week and within 24 hours after every rainfall event. The Contractor shall maintain the sediment control device by removing the device, removing accumulated sediment, and resetting the device.
- The removed sediment shall be placed at a location away from the drop inlet where the sediment will not be washed back into the drop inlet or other storm sewer system.
- Payment for the "Sediment Control at Type S Drop Inlet" shall be based on the minimum length required at the drop inlets. Some of the sediment control devices specified in the plans will have to be longer due to available length.
- All costs for furnishing, installing, inspecting, maintaining, removing, and resetting the sediment control device at the drop inlet including labor, equipment, and materials shall be incidental to the contract unit price per foot for "Sediment Control at Type S Reinforced Concrete Drop Inlet".

September 14, 2005

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|-------------------------------|-----------------------|---|------------------------|
| Published Date: 1st Qtr. 2014 | S<br>D<br>D<br>O<br>T | SEDIMENT CONTROL AT INLETS<br>FOR TYPE S REINFORCED CONCRETE<br>DROP INLETS | PLATE NUMBER<br>734.11 |
|                               |                       |   | Sheet 1 of 1           |