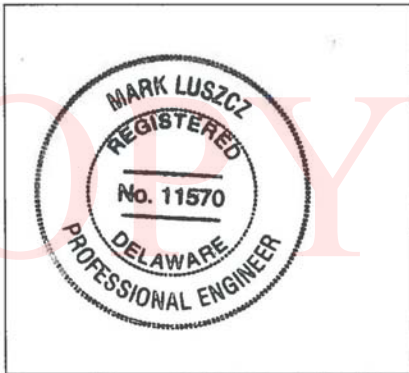


STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION




TRAFFIC SECTION


SPECIFICATIONS FOR
DOT1209 – TRAFFICSIG & ITS
TRAFFIC SIGNALS, LIGHTING, AND ITS



RECOMMENDED:


Assistant Chief Traffic Engineer

APPROVED:


Chief Traffic Engineer

D. Crew Composition

A crew shall consist of a foreman who is a Journeyman Electrician and/or has a minimum of five years experience in related work and sufficient personnel to complete the work, unless an exception is granted in writing by the Engineer. The minimum size of any crew is two people. A loop installation crew and a restoration crew do not need a Journeyman Electrician or someone with five years experience as the foreman. Crews for aerial work must have a Journeyman Electrician as the foreman. Names and qualifications of all proposed Journeyman Electricians shall be submitted for approval prior to beginning work on the contract.

E. Contractor's Equipment and Resources

The Contractor shall provide a complete list of equipment and materials that will be available to perform the tasks outlined in this contract. All self-propelled equipment and vehicles shall be identified with the Contractor's company name, location of home office (city and state), phone number, and the electrical registration number of Licensed Master Electrician Special. This shall include any leased or rented equipment or vehicle that is in use for this contract for 14 or more continuous calendar days. Said information shall be visible on 2 (two) opposing sides of the equipment or vehicle. All equipment assigned to the contract shall be equipped with safety devices meeting the requirements of the Delaware MUTCD. The Contractor must have the capability of providing as many as 4 each bucket and/or line trucks concurrently if required at large intersections, such as those involving a suspended box span.

The Department reserves the right to inspect the Contractor's facilities, equipment, materials, and resources that will be available to perform the tasks outlined in this contract. The Department shall provide the Contractor with notification a minimum of seven (7) days prior to such an inspection.

F. Applicable Standards

All work performed under this contract shall comply with all applicable National Electrical Code, National Electrical Safety Code and industry and Bellcore standards to the extent not precluded by these specifications. Construction methods and techniques used by the Contractor shall be in accordance with the recommended practices and procedures published by leading industry manufacturers and trade associations, such as Bellcore Blue Book of Construction Practices.

The Contractor shall also follow all applicable local laws and standards. The Contractor shall be aware of all standards and their application within Delaware. Ignorance or lack of knowledge shall not be an excuse for improper work to occur. Any work constructed in violation of any applicable code shall be corrected and re-installed properly at the Contractor's expense.

3. **BIDDING PROCEDURE AND CONTRACT AWARD**

The Delaware Department of Transportation will accept bids on Contract No. DOT1209

– TRAFFICSIG & ITS. The Department may award contracts to multiple contractors, based upon the lowest responsive, responsible bids received for the contract.

4. CONTRACT TERM

This contract shall be for a period of one year from date of the Initial Notice to Proceed with the option to be extended for four (4) additional one-year periods. Each such one-year extension must be approved by both parties in writing at least 60 days prior to expiration of the existing contract. The Performance Bond shall be submitted with the contract execution and shall be subject to renewal for extension periods. Failure on the part of the contractor to submit the Performance Bond for the extension period prior to the last working day before end of the previous period shall result in the contract being cancelled.

It shall be the contractor's responsibility to obtain the forms necessary to renew the Performance Bond each year the contract is in force.

5. PRICE ADJUSTMENT

Extension to future years is dependent on legislative appropriations for these Fiscal Years and agreement on succeeding year's pricing as described herein. The bid prices in the contract must be guaranteed for the first year of the contract. In future year contract extensions the contractor may request an increase in unit prices. The contractor shall be required to request any price increases prior to the extension of the contract. The bid prices in the contract extension shall be guaranteed for the period of the contract extension. If the difference requested exceeds the change in the Nationwide All Urban Consumer Price Index (CPI-U), U.S. city average for the same period, approval of any price adjustment offered the contractor above the CPI-U will be at the discretion of the Engineer. The Department retains the right to cancel the future year extension if an acceptable agreement cannot be reached with the contractor on the price adjustment.

6. ALTERATIONS IN QUANTITIES

The quantities given in the proposal are approximate only, and will be the basis for comparing bids. Depending on fund availability, the Department reserves the right to increase or decrease the quantities of any and all items specified in this contract. Such additions or deletions shall not be cause for an increase or decrease in any contract unit bid prices, regardless of whether or not an item is classified as a "Major Item" (10% of the total contract value) as defined in Standard Specification 101.46. Negotiated prices will be the preferred method of establishing payment for new items added to the contract. Force Account payment, per Standard Specification 109.04 may be utilized if negotiated prices prove to be unsuccessful. Negotiated prices for new unit items will remain in effect for the original term of the contract, but will be eligible for renegotiation if the contract is extended (see "Price Adjustment" above).

7. ASSIGNMENT OF WORK

Work will be assigned to the Contractor on a work order basis by the Department. All work order assignments will be at the discretion of the Engineer. Issuance of each work order constitutes the notice to proceed with the work described on the work order.

Work assignments per month shall not exceed \$500,000.00, unless agreed upon by both parties in writing.

The Engineer shall establish the location of the work sites, the order in which the work sites are to be pursued, and the allowable Working Days to complete the work order. The Contractor shall, prior to beginning work at a particular location, submit a written schedule for approval for that work order in bar graph format showing completion within the number of Working Days determined by the Department. Additionally, the Contractor shall submit by email to the DelDOT Signal Construction and Inspection Section on a daily basis, a list of the locations and work items expected to be pursued that day. The Contractor shall make positive contact with the Signal Construction staff each work day, no later than 7:30am.

If the Department directs the Contractor to suspend work at a particular location and reassign crews due to emergencies or other high priority work, Working Day time charges for the suspended location will not be assessed until work resumes.

Unless specified otherwise, time shall be allocated per work assignment as follows:

- assignments estimated to cost from one dollar thru \$100,000.00 shall be completed within a forty(40) working day period from the date of the work assignment Notice to Proceed.
- assignments estimated to cost \$100,000.01 thru \$200,000.00 shall be completed within a sixty (60) working day period from the date of the work assignment Notice to Proceed.
- assignments estimated to cost from \$200,000.01 and up shall be completed within a ninety (90) working day period from the date of the work assignment Notice to Proceed.
- At any given time, a maximum of one expedited work assignment may be required. This assignment is to be completed within 25 working days from the notice to proceed on that assignment.
- support assignments shall be excluded from the above parameters, unless otherwise directed by the Engineer.

8. LIQUIDATED DAMAGES

Liquidated damages assessed under this Contract shall be in accordance with Sections 108.08 and 108.09 of the Standard Specifications. These liquidated damages will be based on working days and the dollar value of the authorized work order.

If applicable, verification of non-availability of materials from at least three (3) independent sources shall be supplied by the Contractor in writing to the Signal Construction Supervisor immediately after the receipt of a work order or at such time as they are notified that anticipated materials will not be available as scheduled. If there is a verified non-availability of materials, liquidated damages shall not be assessed until the Contractor fails to complete the revised work order on time as described in Section 108.08.

9. PROSECUTION AND PROGRESS OF WORK

Work assignments will be issued to the Contractor in the form of a letter along with all necessary sketches, engineering drawings and any additional special provisions required. At times, depending upon the nature and complexity of the work assignments, field meetings may be necessary at certain site locations.

The Contractor shall have sufficient work forces and Bid Item materials in stock to perform any assignment within the times specified.

The Contractor shall be actively working on at least one (1) and not more than six (6) active work orders at any one time until all assigned work has been completed statewide, unless otherwise approved by the Engineer. When directed by the Department, out of sequence and/or expedited work sites are not included in the maximum limit noted herein.

Failure to begin work as specified on the approved schedule constitutes “Failure to Pursue the Work” and shall result in Liquidated Damages as outlined in subsection 108.09 of the Standard Specifications. No liquidated damages will be charged when items that the Contractor needs in order to start the work are unavailable from at least three (3) independent sources. If work on a specific work order is not completed within the allotted time, Liquidated Damages based on the value of the work order will be assessed in accordance with Subsection 108.09.

10. NIGHT WORK

The Department may require Night Work to minimize traffic conflicts on some work sites. The Contractor should anticipate night time operations being required for work above, or affecting traffic lanes on multi-lane, high volume locations. All pay items which are not “furnish only” that are used for Night Work shall be allowed a 15% surcharge. Type I and Type II truck mounted attenuators, plastic drums, temporary barricades Type III, temporary warning signs, message boards, arrow panels, and portable light assemblies shall be paid under separate items in this contract for their use and shall not be subject to the 15% surcharge for night work.

Night work shall be defined as work being performed from the hours of 8:00 p.m. to 6:00

a.m.

Night work construction does not relieve the Contractor from day work scheduled for the following day. Failure to perform scheduled work will result in Liquidated Damages.

Construction work started prior to night work hours that carries over into those hours shall not be paid as night work unless authorized by the Engineer in writing before work is started.

11. INSPECTION AND PROJECT CONTROL

The Inspector shall determine and record in the contract diary the suitability of each day for work at the work site(s) and also on a Weekly Report form supplied by the Department. The foreman shall acknowledge the daily time charges by signature on the Weekly Report. In the event of a disagreement as to the suitability of any day for work, the circumstances of the disagreement shall be noted in the contract diary and the Contractor shall contact the Signal Construction Supervisor for a final determination.

At the completion of each work day, the foreman and inspector shall reconcile the work completed that day and acknowledge the work completed by signing the Inspector's Daily Log.

Prior to final acceptance of a work location, the Department will schedule a Final Inspection. Attendees shall include the Contractor, DelDOT's inspector, and other DelDOT personnel as necessary. A final punchlist will be generated listing any remaining work. A timeframe to complete the punchlist will also be determined. Failure to complete the punchlist within the established timeframe will result in the resumption of daily time charges and possible Liquidated Damage assessment. Upon completion of the punchlist by the Contractor, the location will be accepted by the Department and the acceptance date will be formally documented.

Method for Contractor's Invoice Submission – All work for this contract will be paid per assignment upon receipt of an invoice from the contractor in accordance with the following schedule:

Work assignments that are 40 Working Days or less – The contractor will submit one invoice per work assignment at the completion of the assignment.

Work assignments that are greater than 40 Working Days – The contractor will typically submit two invoices per work assignment to the Department for payment. Invoice number one will be submitted upon completion of all underground work. Invoice number two will be submitted upon completion of the assignment.

All invoices shall contain the following information. Failure to include any of the

- Contractor name, address and federal ID number.
- Project location, Department contract and/or Federal Aid contract numbers.
- Invoice number and date.
- Inspector Daily Report (IDR)
- Material Certifications, Source of Supply and Bill of Lading
- The following statement:

Title

12. MAINTENANCE OF TRAFFIC

All traffic control devices shall be in new or refurbished condition, shall be in compliance with the Delaware MUTCD and with NCHRP Report 350 or MASH and shall be approved by the Engineer before installation. Traffic control devices shall be maintained

in good condition for the duration of use.

The Contractor shall maintain vehicular, bicycle and pedestrian traffic through the project's work zones in a manner that will reasonably provide the least practicable obstruction to all road users and provide paths for all road users, including, but not limited to, the passage through the work zone of persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA) Title II, paragraph 35.130.

The project manager shall be responsible for coordinating with the Traffic Section relating to any impacts to Traffic Section facilities (including but not limited to traffic loops, junction wells etc.) at least 4 weeks in advance of the start of the activity. Prior to initiating any work on this contract (or sites), the Project Manager shall be responsible for preparing and submitting for approval of the Safety Section, a Maintenance of Traffic Plan. Sufficient time shall be provided for the review and approval of the plan. The Maintenance of Traffic Plan shall include proposed time restrictions on the closure of travel lanes subject to the approval of the Safety Section.

The Project Manager is responsible for ensuring any required documents and analysis as part of the adopted Work Zone Safety and Mobility Procedures and Guidelines has been completed prior to any work starting on this contract.

13. BASIS OF PAYMENT

The Contractor may bill the Department when the work order is completed. Payment will be issued to the Contractor monthly on a mutually agreed upon date. Partial payment will be considered for long term projects on a case by case basis. Approval for partial payment on a project must be received from the Engineer prior to the submission of any invoices on that project.

Payment of said invoice shall not relieve the Contractor from obligations incurred in warranting the quality of the workmanship and materials, or for restoration at the work site. A One Year Warranty on all materials, installation, and workmanship will be in effect for each work location starting on the acceptance date of each individual location. Specific work items may carry a longer Warranty Period. In these cases, the longer of one year or the otherwise specified warranty period will govern for those particular items. The Contractor shall provide contact information for an employee responsible for arranging any warranty work during the one year period. Any repairs required during the warranty period, including Maintenance of Traffic Items, shall be provided at no additional cost to the Department. Should any emergency repairs be required during the warranty period to work that was originally performed under this contract, contact will immediately be made with the Contractor and a response to the site of the emergency must be made within 3 hours of the time of contact. Should the Contractor be unable to respond to the emergency within the 3 hour timeframe, then the Department will pursue other means to make the repairs and deduct the costs from the Contract by means of a "negative" change order. Final acceptance as evidenced in writing after the

completion of the entire contract or at such time as practical determination of the quality of the workmanship and materials can be made by the Engineer, will be necessary before any bonds or parts of bonds will be released.

14. ELECTRICAL TESTING BY DELDOT

The Contractor is advised that DelDOT may, at their discretion, perform independent electrical testing of the highway lighting system, signal system, and/or related electrical work items.

The roadway lighting system and signal system is comprised of all Contract items for traffic signals and lighting, including but not limited to, conduits, junction wells, cables, load centers, transformers, cabinet pads, pole bases, poles, light standards with and without davit arms, luminaires, signal heads, pedestrian heads, service installations, and reworked/relocated existing lighting facilities.

The roadway lighting and signal system will be considered defective if any of the following conditions are discovered by visual inspection or by inspection with testing equipment within the warranty period:

1. Defective lamps, LED's, or ballasts
2. Failure to operate, in whole or in part.
3. Power wire grounding less than ten megaohms.
4. Shifts in pole and/or foundation alignment.
5. Short circuits or open circuits anywhere within the system.
6. Deterioration of finishes, plating, or paint not normal and customary in the environment in which the equipment is installed.
7. Settlement of trench backfill.
8. Defective fuses.
9. Defective or improperly installed splices.

These conditions listed shall not be considered all inclusive.

The Department reserves the right to conduct initial and periodic roadway lighting and/or signal system inspections after the Contractor has completed work. The initial inspection, to be conducted during the final construction inspection, will be to determine if initial performance requirements are met. Periodic reviews may be conducted through the warranty period to determine the sustained ability of the roadway lighting system to meet the stated performance requirements.

All defective areas identified by the Department during initial or periodic inspections shall be documented and the information will be shared with the Contractor. Necessary repairs or replacements shall be made by the Contractor at no additional cost to DelDOT. All roadway lighting and/or signal system repairs shall begin immediately following the notice to the Contractor of the defect unless weather limitations prevent the corrective

work. The Department shall be given notification before the Contractor begins corrective work and shall be allowed full access to the areas being repaired.

When requirements, responsibilities, and furnishing of materials are outlined in the details and notes on the Plans and in the paragraphs preceding the "Basis of Payment" paragraph in the Standard Specifications or Special Provisions, no interpretation shall be made that such stipulations are excluded because reiteration is not made in the "Basis of Payment" paragraph.

15. GENERAL WORK ELEMENTS

- A. Backfill in trenches, around forms and junctions wells, or at any other place shall be completed thoroughly, using a power tamper, in lifts of not more than 8 inches loose measurement as it is being placed, in accordance with Standard Specification Subsection 202.05 (c). Any paving material or fill removed for trenching shall be replaced in kind.
- B. At the Contractor's expense, all holes and trenches shall be protected from accidental entry by vehicles and pedestrians with steel plates or other approved materials as required by the Engineer. Should the Contractor fail to provide adequate protection to the surroundings of a work site or should the operations be carried out in such a way as to allow or cause damage to any roadway, street, sidewalk, the property of any utility, or other private or public property, then Liquidated Damages shall be assessed based on the total value of the work location in question. Should the repair not be undertaken and should it be necessary for the Department to protect the area and/or make the repair, the cost shall be deducted from monies due the Contractor.
- C. All concrete, including pole bases and cabinet bases, shall be finished to match any adjacent concrete. If no match is required, the surface area shall be broom finished and edged.
- D. No ground rod shall be driven into earth without a proper protective cap to prevent damage to the threads. If the threaded end of the sectional ground rod is damaged, it will be replaced at the expense of the Contractor.
- E. Material substitutions must be submitted in writing to the Engineer at least 10 calendar days prior to use in order to allow time for review and approval by the Engineer. Faxes or e-mails are not acceptable methods of submission. A scanned, signed letter in "pdf format" will be acceptable.
- F. Work within waters/wetlands shall not begin on locations requiring environmental permits until all applicable permits have been obtained by the Department.
- G. It is the responsibility of the Traffic Systems Design Section to notify Team Support if any of the future locations are located within the incorporated limits of a municipality thus requiring a Town Agreement. Team Support should also be notified if any work at

- the yet to be named locations is anticipated to occur outside of the existing right-of-way.
- H. Traffic signal loops shall be installed within one week of receipt of work order unless otherwise directed by the Engineer.
 - I. If seeding is required for restoration of a work area, the cost shall be incidental to Item 732004, Topsoil. If topsoil is not required, the cost of seeding shall be incidental to the item requiring restoration.
 - J. Signal heads, pedestrian signal indications, and signs that are in place, but not in service, shall be entirely covered with opaque burlap with costs incidental to the various maintenance of traffic items.

16. MATERIALS

A. Damaged

Once the Department transfers material or equipment to the Contractor, any damage to or loss of that material or equipment which occurs from handling or transport, or from any other source or way, shall be the sole responsibility of the Contractor and the value thereof shall be deducted from any monies due the Contractor.

B. Supplied By or Returned To the Department

The Department's Sign Shop, 14 Sign Shop Road, Dover, Delaware 19901, is the site where items to be supplied by the Department are available and where items to be returned are to be delivered.

C. Supplied By the Contractor

All materials supplied by the Contractor shall be new and unused and, where applicable, all materials and equipment supplied shall be UL approved. Catalog cuts and/or shop drawings shall accompany all requests for material source approval. 6 sets of such requests shall be sent to DelDOT's Traffic Sign Shop (att'n Signal Construction Manager). Following initial review by Traffic, 5 sets of the submittal will be forwarded to DelDOT's Materials and Research Section for final approval. Following their review and approval, 2 sets will be returned to the Contractor, one set will be retained by Materials and Research, and 2 sets will be returned to DelDOT's Traffic Sign Shop. If more approved copies are desired, the Contractor may elect to submit extras for review.

D. Transportation

Materials and/or equipment shall be transported in a legal fashion and shall be protected from damage or loss.

17. EROSION AND SEDIMENT CONTROL

The provisions of Section 110 of the Standard Specifications on erosion and sediment control apply to this contract. Those areas that have been disturbed for signal work shall be restored immediately after the ground disturbing portion of the work has been completed. Restoration of long runs of conduit for fiber optic installation shall be restored at the end of each work day. Silt fences will not be required.

18. RIGHT OF WAY

It is anticipated that all work will occur within DelDOT's existing right of way or easement areas. Should the need occur to trespass onto private property; it will be the responsibility of the Project manager to secure such trespass needs.

It is anticipated that all work will occur within DelDOT's right of way. Should the need occur to trespass onto railroad property, including the highway-rail crossing; it will be the responsibility of the project manager to contact the railroad chief engineer and obtain written authorization before entering.

The Contractor shall give a one (1) week notice to the Property Owner when any fixture, shrub, or other object must be removed from the Right of Way or Easement area. If the Owner has not attempted to salvage this property, the Contractor shall remove it without obligation. Compensation shall be incidental to the Contract.

19. ENVIRONMENTAL

No Environmental Permits are required for this work provided no jurisdictional wetland or waters are impacted. If there is any question as to whether or not a water or wetland is jurisdictional, contact the DelDOT Environmental Section at 302-760-2264.

20. UTILITIES

No Utility relocation involvement is anticipated. Should any conflicts be encountered during construction requiring adjustment and/or relocation of the agencies' existing facilities, the necessary relocation work shall be accomplished by the respective agencies' forces, as directed by the Engineer. Any adjustments and/or relocations of Municipally Owned facilities shall be done by the State's Contractor in accordance with the respective agencies' Standard Specifications as directed by the Engineer.

21. PAVEMENT MARKINGS

Any erroneous marking will not be paid for and shall be corrected immediately at the contractor's expense. Erroneous markings or shadows that exceed one (1) inch in width shall be removed by either sand or water blasting. No other removal methods will be allowed. On bituminous pavements, a flat black paint or driveway sealer shall be applied in the area of the removed marking to mask the repair. Any damage to the pavement caused by removal of erroneous markings shall be repaired / replaced to the satisfaction of the engineer at the contractor's expense.

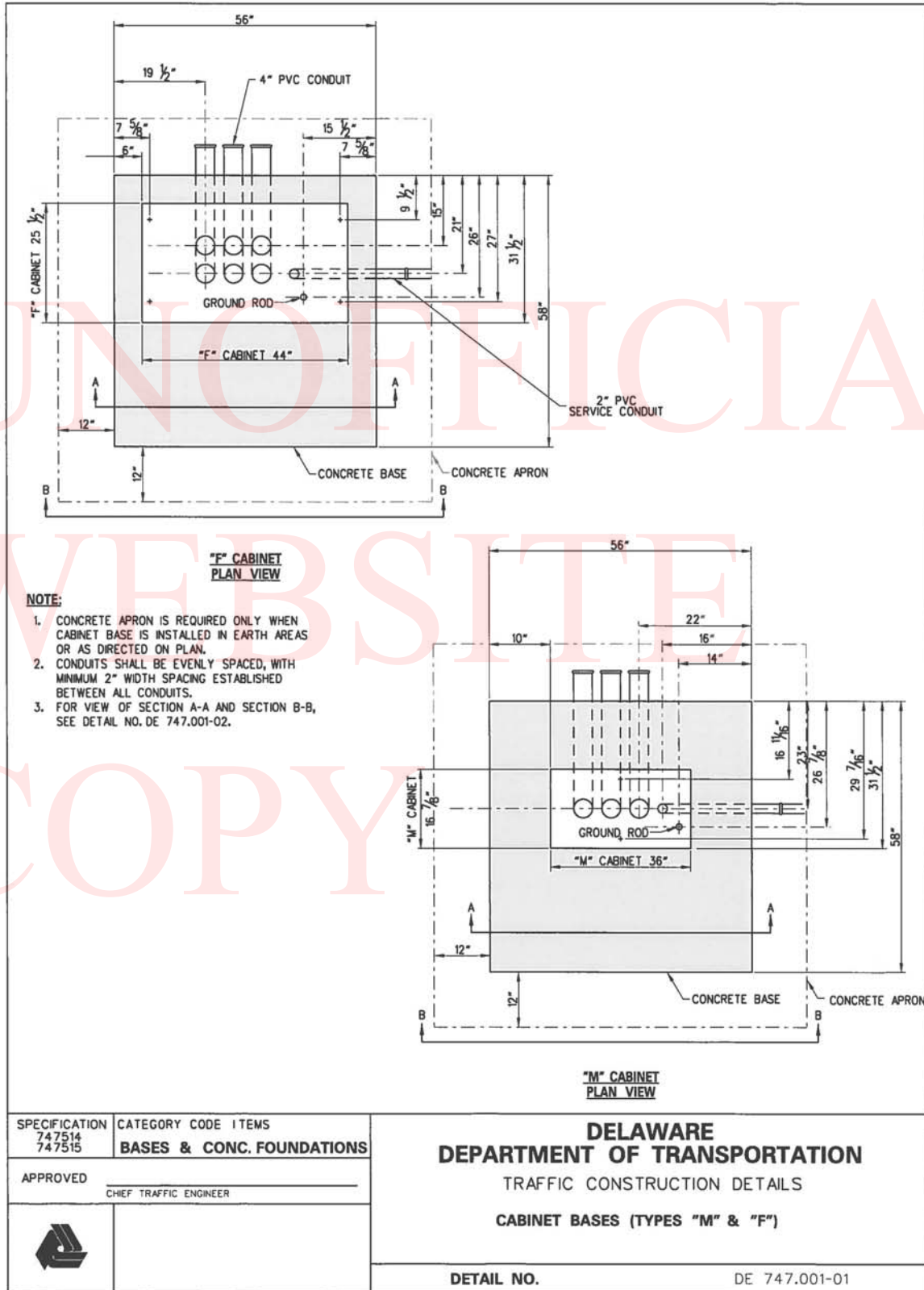
At the end of each day's operation and before traffic is returned to unrestricted roadway use, temporary striping shall be utilized at locations that require permanent striping per the latest version of the permanent marking section of the Delaware MUTCD. Temporary pavement markings shall be paid at the applicable contract unit price.

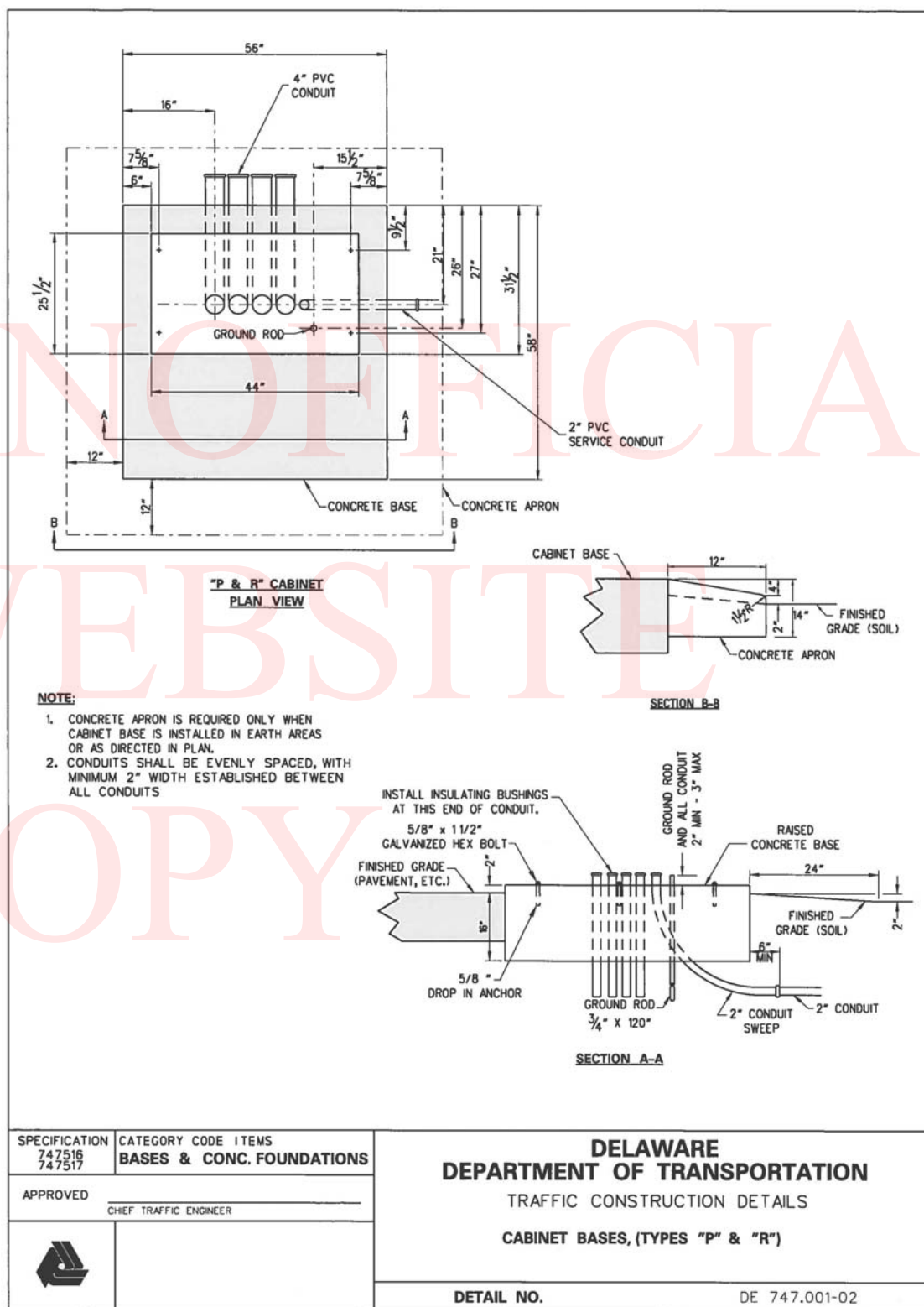
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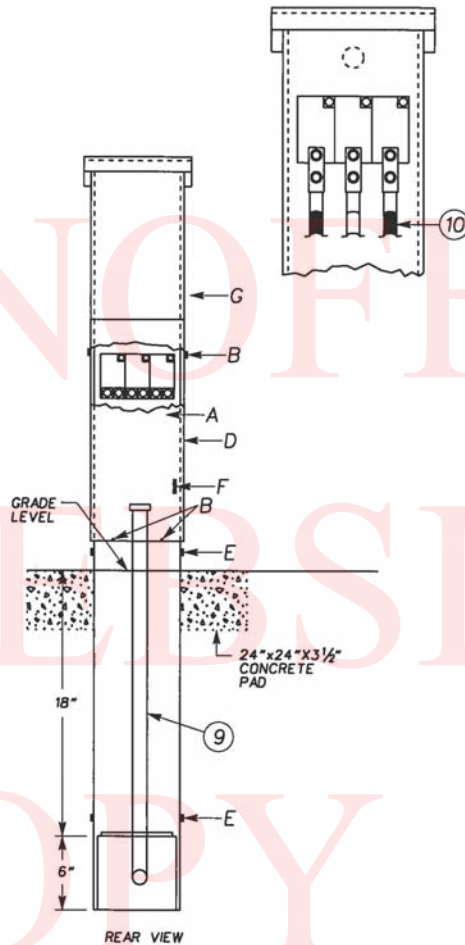
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CONSTRUCTION NOTES



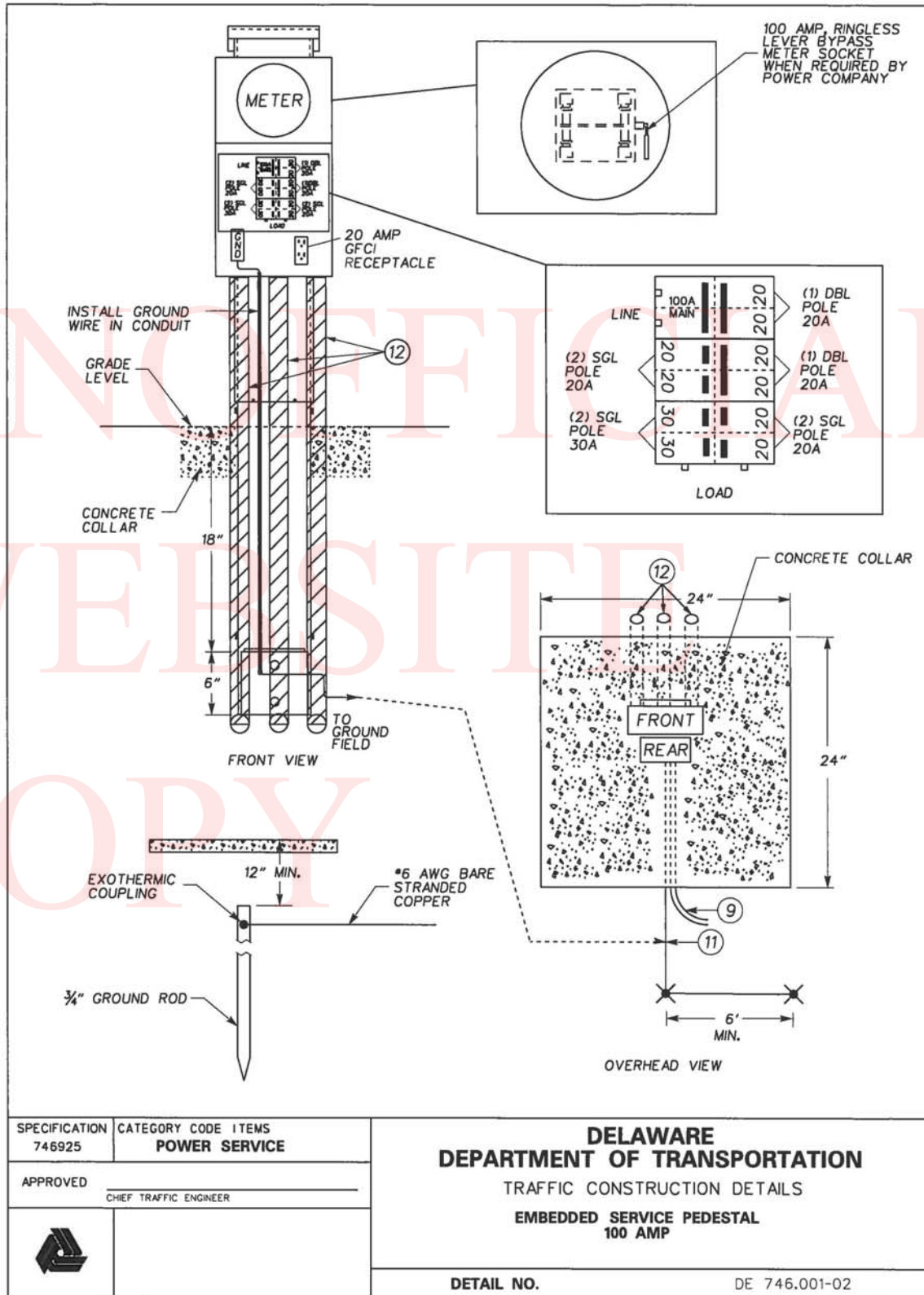
1. REMOVE COVER "A" BY REMOVING (4) SCREWS "B". SLIDE COVER SLIGHTLY TOWARDS BOTTOM OF POST (ALLOWING TOP OF COVER TO CLEAR TOP RETAINING BRACKET) & PULL COVER AWAY FROM POST.
2. REMOVE COVER "D" BY REMOVING (4) SCREWS "E". PULL COVER AWAY FROM POST.
3. LOCATION "G" - WHEN LOAD CONDUCTORS EXIT THE BOTTOM OF THE POST, REMOVE THE SMALL HORIZONTAL BARRIER AND ROTATE 90° TO FORM A VERTICAL BARRIER INSIDE THE POST. RE-ASSEMBLE USING THE SAME SCREW AND MOUNTING HOLE.
4. LAY WIRES IN AND ATTACH TO TERMINAL BAR. (SEE WIRING DIAGRAM IN POST TROUGH FOR TORQUE AND WIRE SIZE INFORMATION.)
5. REPLACE COVER "D" ON POST AND FASTEN WITH (4) SCREWS "E".
6. REPLACE COVER "A" ON POST AND FASTEN WITH (4) SCREWS "B".
7. TO PADLOCK COVER "A", UTILIZE HASP "F".
8. CONCRETE COLLAR SHALL BE APPROXIMATELY 24"x24" AND 3.5" MINIMUM THICKNESS. ENSURE PAD IS FLUSH WITH GROUND.
9. INSTALL CORRECTLY SIZED SCHEDULE 80 PVC CONDUIT (eg. LINE SIDE CONDUIT SIZE TO BE AS PER LOCAL ELECTRICAL POWER COMPANY'S REQUIREMENTS. VERIFY SIZE WITH UTILITY COMPANY PRIOR TO INSTALLATION) INCLUDING 90° ELBOWS.
10. ATTACH CORRECTLY SIZED (eg. 2/0 AWG) COPPERWIRE, LUGGED, FROM TERMINATION POINT SHOWN THROUGH PROPERLY SIZED CONDUIT TO POWER POLE TO BE UTILIZED. RUN CORRECTLY SIZED PVC CONDUIT (eg. 4") RISER AT LEAST 10" UP POLE AND LEAVE 30' OF CABLE COILED AT TOP OF RISER TO BE UTILIZED BY POWER COMPANY.
11. GROUNDING IS MADE USING #6 BARE STRANDED COPPERWIRE FROM GROUNDING POINT IN BREAKER PANEL TO THE EXTERNAL GROUND FIELD.
12. INSTALL THREE (3) 2" PVC CONDUITS FROM BOTTOM OF PANEL AS SHOWN.

SPECIFICATION 746925	CATEGORY CODE ITEMS POWER SERVICE	<div>DELAWARE DEPARTMENT OF TRANSPORTATION</div> <div>TRAFFIC CONSTRUCTION DETAILS</div> <div>EMBEDDED SERVICE PEDESTAL 100 AMP</div>
APPROVED	_____ CHIEF TRAFFIC ENGINEER	
		
DETAIL NO.		DE 746.001-01

DELAWARE DEPARTMENT OF TRANSPORTATION

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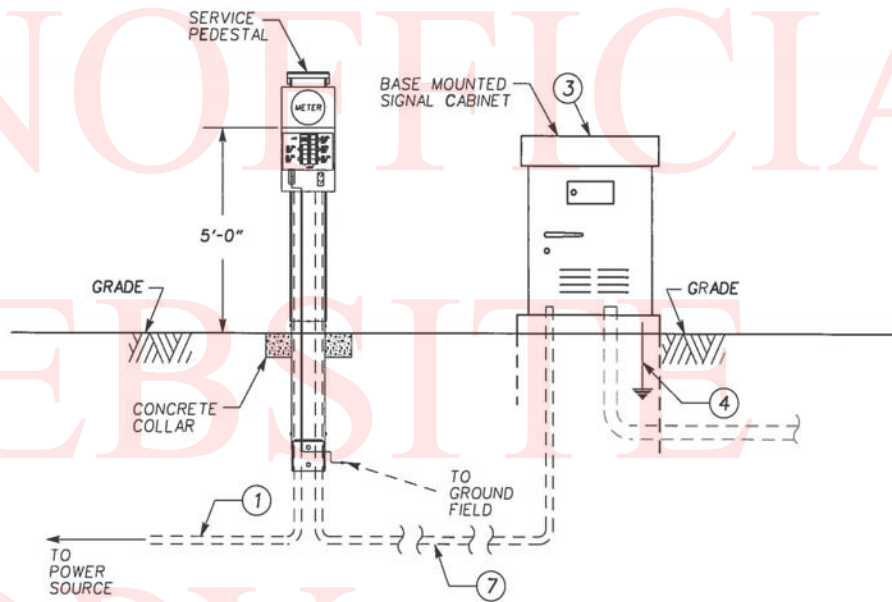
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NOTES:

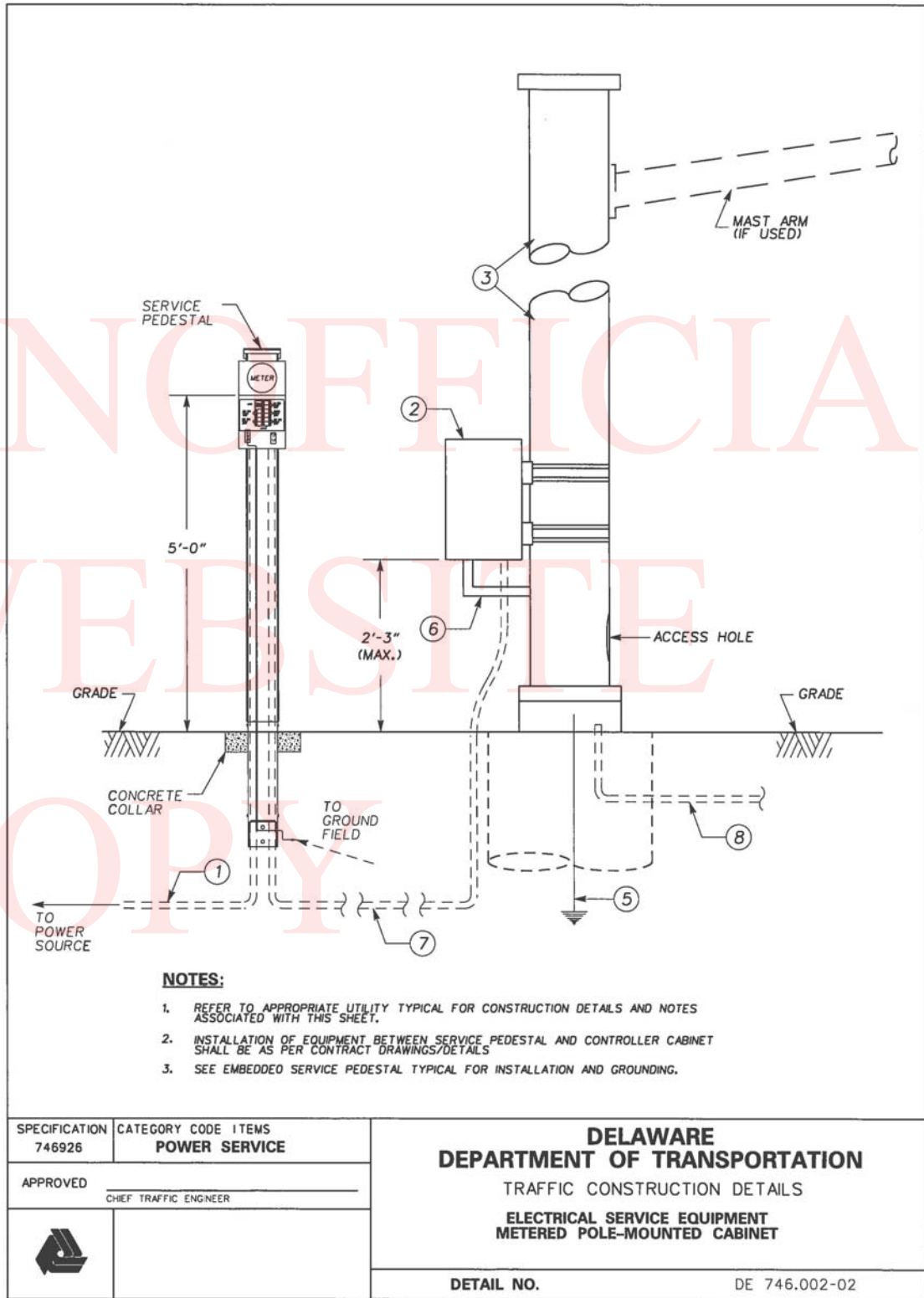
1. REFER TO APPROPRIATE UTILITY TYPICAL FOR CONSTRUCTION DETAILS AND NOTES ASSOCIATED WITH THIS SHEET.
2. INSTALLATION OF EQUIPMENT BETWEEN SERVICE PEDESTAL AND CONTROLLER CABINET SHALL BE AS PER CONTRACT DRAWINGS/DETAILS
3. SEE EMBEDDED SERVICE PEDESTAL TYPICAL FOR INSTALLATION AND GROUNDING.

SPECIFICATION 746926	CATEGORY CODE ITEMS POWER SERVICE	DELAWARE DEPARTMENT OF TRANSPORTATION TRAFFIC CONSTRUCTION DETAILS ELECTRICAL SERVICE EQUIPMENT METERED BASE-MOUNTED CABINET
APPROVED _____ CHIEF TRAFFIC ENGINEER		
		
DETAIL NO.		DE 746.002-01

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CONSTRUCTION DETAILS

POWER COMPANY FURNISHES AND INSTALLS:

1. UNDERGROUND ELECTRIC SERVICE FEED, THE CONTRACTOR SHALL REFER TO THE CONTRACT DOCUMENTS FOR DETAILS RELATED TO THE ELECTRIC SERVICE FEED INSTALLATION.

CONTRACTOR FURNISHES AND/OR INSTALLS:

2. POLE MOUNTED, BAND TO POLE WITH TWO (2) - $\frac{3}{4}$ " WIDTH, .030" THICK STAINLESS STEEL BANDS PER FURNISHED BRACKET.
3. STEEL POLE.
4. BONDING SHALL BE BY A SINGLE CONTINUOUS #6 AWG BARE STRANDED COPPER WIRE RUN THROUGH EACH OF THE SERVICE PEDESTAL GROUND ROD CLAMPS TO THE SERVICE PEDESTAL GROUNDING LUG TO THE SERVICE PEDESTAL NEUTRAL BAR TO THE CONDUIT TO THE CONTROLLER CABINET TO THE CONTROLLER GROUNDING BAR TO THE CONTROLLER CABINET GROUND ROD CLAMP TO THE CONDUIT TO THE NEAREST JUNCTION WELL GROUND ROD CLAMP.
5. BONDING SHALL BE BY A SINGLE CONTINUOUS #6 AWG BARE STRANDED COPPER WIRE RUN THROUGH EACH OF THE SERVICE PEDESTAL GROUND ROD CLAMPS TO THE SERVICE PEDESTAL GROUNDING ROD CLAMPS TO THE SERVICE PEDESTAL NEUTRAL BAR TO THE CONDUIT TO THE CONTROLLER CABINET TO THE CONTROLLER CABINET GROUNDING BAR TO THE 3" NIPPLE INSULATED BONDING BUSHING ON THE CONTROLLER CABINET BOTTOM TO THE STEEL POLE GROUNDING LUG TO THE GROUNDING ROD GROUNDING CLAMPS TO THE CONDUIT TO THE NEAREST JUNCTION WELL GROUND LUG CLAMP.
6. 3" "LB" CONDUIT BODY MOUNTED ONTO 3" COUPLING ON STEEL POLE. PLACE 3" GALVANIZED STEEL RIGID CONDUIT NIPPLES ON BOTH "LB" CONDUIT BODY ENDS. PLACE DOUBLE LOCK NUTS ON NIPPLE END ENTERING THE CONTROLLER CABINET BOTTOM FOLLOWED BY AN INSULATED BONDING BUSHING.
7. USE DIRECT CONDUIT FROM SERVICE PEDESTAL TO CONTROLLER CABINET FOR GROUNDING CONDUCTOR AND SERVICE WIRE INSTALLATION AS PER CONTRACT DOCUMENTS.
8. USE DIRECT CONDUIT FROM STEEL POLE TO JUNCTION WELL FOR GROUNDING CONDUCTOR INSTALLATION.

NOTES:

- A. ALL EXPOSED GALVANIZED STEEL RIGID CONDUIT ENDS SHALL BE WIRE BRUSHED, CLEANED OF ANY RESIDUE, AND AN INORGANIC ZINC COMPOUND APPLIED.
- B. ALL GALVANIZED STEEL RIGID CONDUIT INSULATED BONDING BUSHINGS SHALL HAVE BONDING LUGS OF *LAY-IN* TYPE DESIGN.
- C. ALL CONDUIT BODIES FOR USE WITH GALVANIZED STEEL RIGID CONDUIT SHALL BE CADMIUM PLATED MALLEABLE IRON WITH NEOPRENE GASKETS, SHEET ALUMINUM COVERS AND STAINLESS STEEL COVER BOLTS.
- D. GROUND ROD CLAMPS SHALL BE ONE PIECE CAST BRONZE APPROVED FOR DIRECT BURIAL INSTALLATION.
- E. BASED ON THE SERVICE FEED FROM THE SERVICE PEDESTAL TO THE CONTROLLER CABINET, THE WIRE COLORS WILL BE THE FOLLOWING:

FEED VOLTAGE	COLOR
SINGLE PHASE, 2 WIRE	W (NEUTRAL), B (PHASE)
SINGLE PHASE, 3 WIRE	W (NEUTRAL), B (PHASE) R (PHASE)
3 PHASE, 4 WIRE	W (NEUTRAL), B (PHASE) R (PHASE), BL (PHASE)

SPECIFICATION
746926

CATEGORY CODE ITEMS
POWER SERVICE

APPROVED

CHIEF TRAFFIC ENGINEER



DELAWARE DEPARTMENT OF TRANSPORTATION

TRAFFIC CONSTRUCTION DETAILS

ELECTRICAL SERVICE EQUIPMENT
METERED POLE & BASE MOUNTED CABINET
(CONSTRUCTION NOTES)

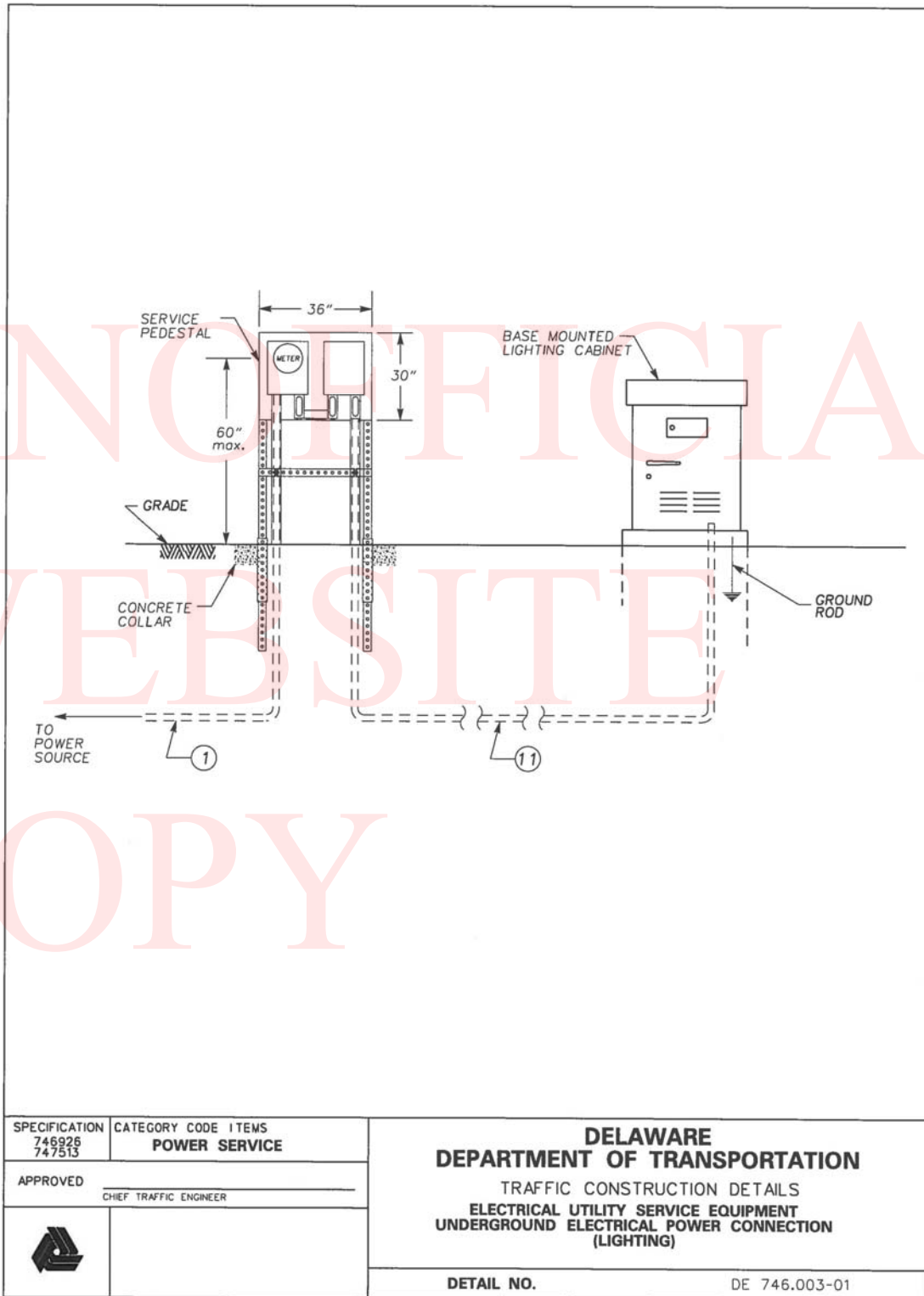
DETAIL NO.

DE 746.002-03

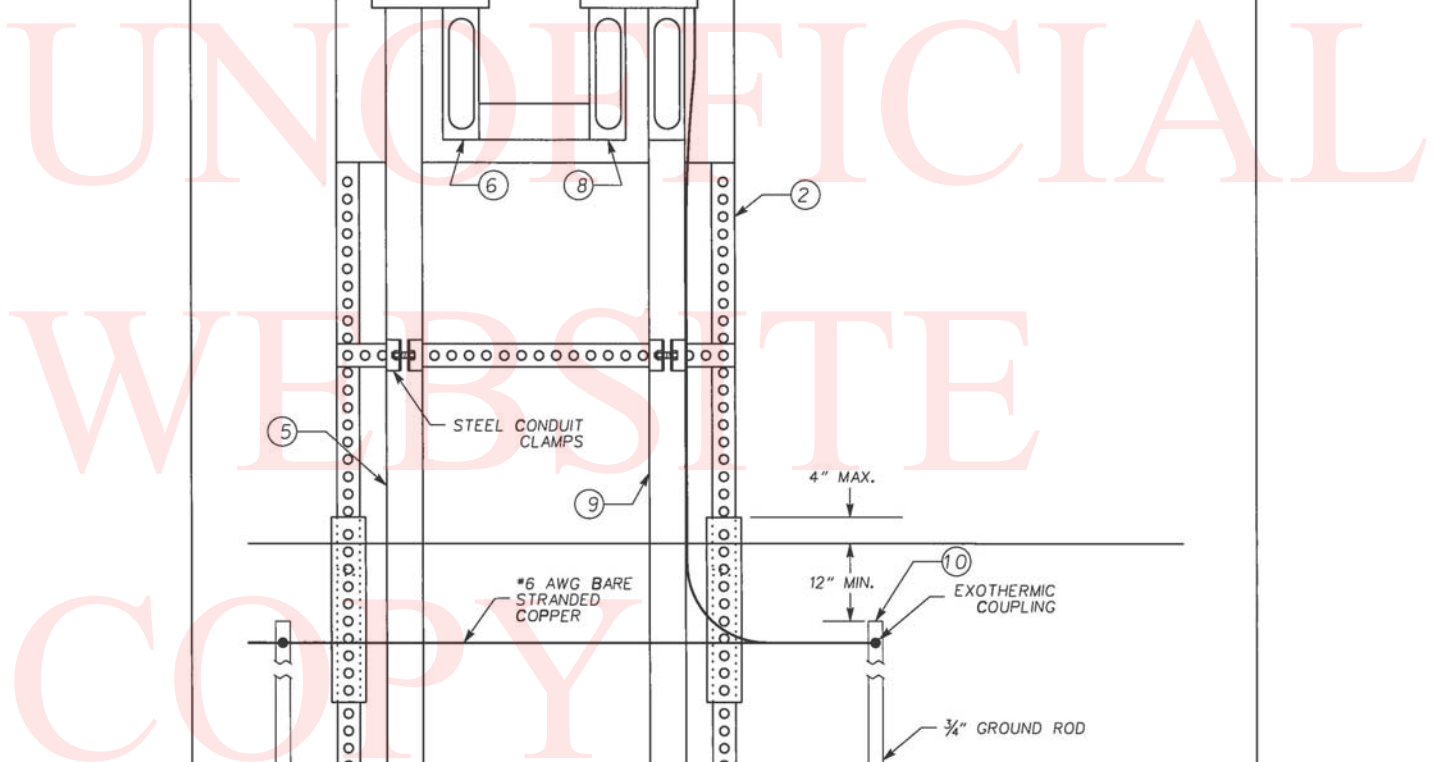
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CONSTRUCTION DETAILS


POWER COMPANY FURNISHES AND INSTALLS:

WATTHOUR METER

CONTRACTOR FURNISHES AND/OR INSTALLS:

1. UNDERGROUND ELECTRIC SERVICE FEED. THE CONTRACTOR SHALL REFER TO THE CONTRACT DOCUMENTS FOR DETAILS RELATED TO THE ELECTRIC SERVICE FEED INSTALLATION.
2. INSTALL SQUARE TUBES TO BE FORMED FROM GALVANIZED SHEET STRUCTURAL (PHYSICAL) QUALITY: ASTM A 446, GRADE A, COATING DESIGNATION G 90 REGULAR SPANGLE, OR HOT ROLLED CARBON SHEET STEEL STRUCTURAL (PHYSICAL) QUALITY, ASTM A 570, GRADE 33.
 - A. NOMINAL OUTSIDE DIMENSION, (INCHES)

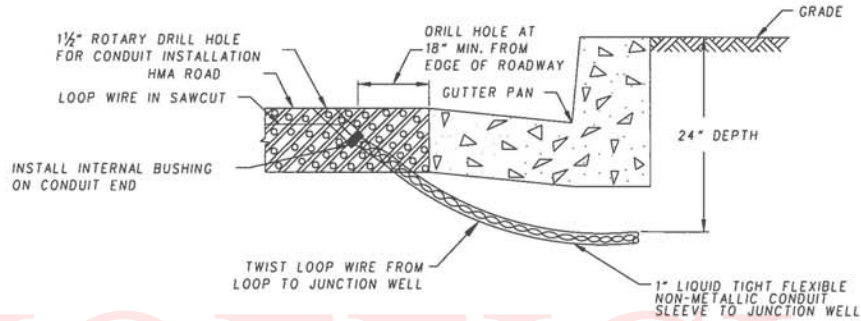
2 X 2	+/- .008
2 1/4 X 2 1/4	+/- .010
2 1/2 X 2 1/2	+/- .010
 - B. ALL FOUR SIDES ARE TO HAVE EVENLY SPACED 1/16" DIAMETER HOLES ON 1" CENTERS THE ENTIRE LENGTH OF THE TUBE.
 - C. TOLERANCE ON HOLE SIZE IS +/- 1/64". TOLERANCE ON HOLE SPACING IS +/- 1/8" IN 20 FEET.
 - D. STANDARD CORNER RADIUS SHALL BE 5/32" +/- 1/64".
 - E. THE FASTENERS TO BE SUPPLIED UNDER THIS SPECIFICATION SHALL BE 3/16" GRADE 5 UNC CORNER BOLTS WITH CADMIUM OR ZINC PLATING.
3. INSTALL 30"X 36" ALUMINUM PANEL ON SIGN POST WITH 5/16" GRADE 5 UNC BOLTS AND NYLON LOCK NUTS. ALUMINUM PANEL SHALL BE 0.08 THICK, 5052-H38 ALLOY CONFORMING TO ASTM B-209.
4. MOUNT 200 AMPERE RATED METER SOCKET (DR AS SUPPLIED BY LOCAL UTILITY COMPANY) WITH FOUR (4) 5/16" UNC STAINLESS STEEL BOLTS WITH NYLON LOCK NUTS DRILLED THROUGH THE METER SOCKET BACK INTO THE ALUMINUM BACK PLATE. THE BOLT LOCATIONS SHALL BE INSTALLED ONE INCH ABOVE THE BOTTOM AND ONE INCH BELOW THE TOP.
5. PLACE 3" PVC CONDUIT FOR SERVICE. PLACE PVC CONDUIT ENTERING THE METER SOCKET'S LOWEST LEFT SIDE OPENING. PLACE DOUBLE LOCK NUTS ON THE THREADED END ENTERING THE METER SOCKET SIDE FOLLOWED BY AN THREADED BUSHING. ATTACH CONDUIT TO SUPPORT BRACKET WITH GALVANIZED STEEL CONDUIT CLAMPS AT 3" BELOW THE METER SOCKET. PLACE THE SPECIFIED NUMBER OF COPPER TYPE THWN WIRES FROM THE METER SOCKET LINE SIDE TERMINALS TO THE UTILITY POLE OR TRANSFORMER. (COLORED WHITE FOR AC NEUTRAL, BLACK FOR ONE SIDE OF THE AC+ AND RED FOR THE REMAINING AC+ SIDE FOR 120/240V) (COLORED GREY FOR AC NEUTRAL, BROWN FOR AC+, ORANGE FOR AC+, YELLOW FOR AC+ FOR 277/480V).
6. PLACE 2 1/2" PVC CONDUIT NIPPLE INTO AN THREADED BUSHING MOUNTED ONTO THE DISCONNECT SWITCH BOTTOM LEFT SIDE. THE NIPPLE SHALL ENTER THE 2 1/2" LB BODY AT THE RIGHT-MOST BOTTOM OPENING OF THE METER SOCKET. ALSO TO THE SAME LATERAL ORIENTATION TO THE DISCONNECT SWITCH. PLACE DOUBLE LOCK NUTS ON THE NIPPLE END ENTERING THE METER SOCKET BOTTOM FOLLOWED BY AN THREADED BUSHING. PLACE INDIVIDUAL COPPER TYPE THWN WIRE FROM THE METER SOCKET LOAD SIDE TERMINALS TO THE DISCONNECT SWITCH LINE SIDE TERMINALS. (COLORED WHITE FOR AC NEUTRAL; BLACK FOR ONE SIDE OF THE AC+ AND RED FOR THE REMAINING AC+ SIDE FOR 120/240V.) (GREY AC NEUTRAL, BROWN AC+, ORANGE AC+ AND YELLOW AC+ FOR 277/480V.)
7. MOUNT DISCONNECT SWITCH WITH FOUR (4) 5/16" UNC STAINLESS STEEL BOLTS WITH NYLON LOCK NUTS DRILLED THROUGH THE DISCONNECT SWITCH BACK INTO THE ALUMINUM BACK PLATE THE BOLT LOCATIONS SHALL BE AT ONE INCH BELOW THE TOP AND ONE INCH ABOVE THE BOTTOM.
8. PLACE 2 1/2" PVC CONDUIT NIPPLES ON BOTH "LB" CONDUIT BODY ENDS. LOCATE THE DISCONNECT SWITCH NIPPLE OPENING TO ALLOW THE "LB" CONDUIT BODY TO BE FLUSH TO THE CENTER IN RESPECT TO THE METER SOCKET CONDUIT BODY. PLACE DOUBLE LOCK NUTS ON THE NIPPLE END ENTERING THE DISCONNECT SWITCH BOTTOM FOLLOWED BY AN INSULATED BONDING BUSHING.
9. PLACE 3" PVC CONDUIT ON THE DISCONNECT SWITCH BOTTOM RIGHT SIDE. PLACE DOUBLE LOCK NUTS ON BOTH THREADED ENDS ENTERING THE DISCONNECT SWITCH AND FOLLOWED BY THREADED BUSHINGS. CLAMP CONDUIT TO SUPPORT BRACKET WITH A GALVANIZED STEEL CONDUIT CLAMP AT A DISTANCE MIDWAY ALONG THE VERTICAL CONDUIT FROM THE DISCONNECT SWITCH BOTTOM. PLACE INDIVIDUAL COPPER TYPE THWN WIRE FROM THE DISCONNECT SWITCH LOAD SIDE TERMINALS TO THE CABINET TERMINALS. (COLORED WHITE FOR AC NEUTRAL, BLACK FOR ONE SIDE OF THE AC+, RED FOR AC+ FOR 120/240V.) (GREY AC NEUTRAL, BROWN AC+, ORANGE AC+, YELLOW AC+ FOR 277/480V.)
10. GROUND ROD WITH ONE PIECE CAST BRONZE GROUND ROD CLAMP. BONDING SHALL BE BY A SINGLE CONTINUOUS #6 AWG BARE STRANDED COPPER WIRE RUN FROM THE GROUND ROD ALONG THE CONDUIT, (DRILL 1/4" HOLE) INTO THE DISCONNECT TO THE DISCONNECT SWITCH NEUTRAL BAR TO THE CONDUIT TO THE CABINET, TO THE CABINET GROUNDING BAR, TO THE GROUND ROD CLAMP.
11. USE DIRECT CONDUIT FROM SERVICE PEDESTAL TO CONTROLLER CABINET FOR GROUNDING CONDUCTOR AND SERVICE WIRE INSTALLATION AS PER CONTRACT DOCUMENTS.

SPECIFICATION 746926 747513	CATEGORY CODE ITEMS POWER SERVICE	DELAWARE DEPARTMENT OF TRANSPORTATION TRAFFIC CONSTRUCTION DETAILS ELECTRICAL SERVICE EQUIPMENT UNDERGROUND ELECTRICAL POWER CONNECTION (LIGHTING)
APPROVED	CHIEF TRAFFIC ENGINEER	
		
DETAIL NO.		DE 746.003-03

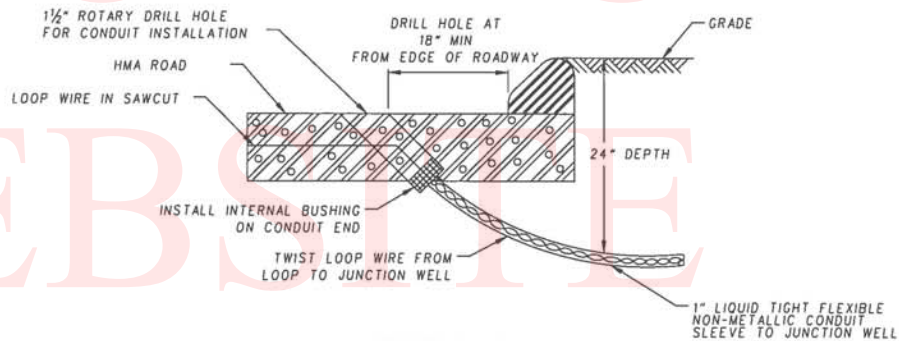
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**SECTION FOR
HMA OR CONCRETE ROAD WITH COMBINATION CONCRETE CURB AND GUTTER**
REFER TO LOOP DETECTOR INSTALLATION DETAILS FOR FURTHER INFORMATION.



**SECTION FOR
HMA ROAD WITH HMA CURB**
REFER TO LOOP DETECTOR INSTALLATION DETAILS FOR FURTHER INFORMATION.

NOTES:

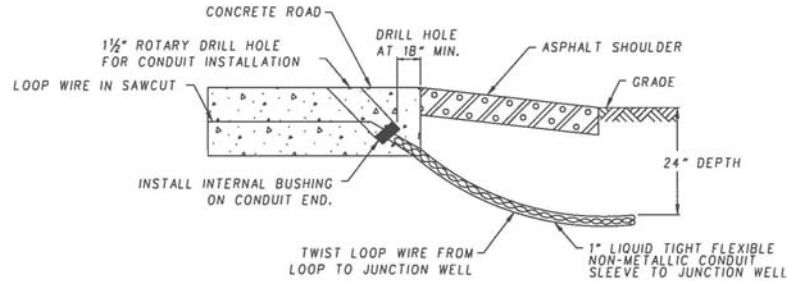
1. LIQUID TIGHT FLEXIBLE NON METALLIC CONDUIT SHALL BE USED WHERE THE DISTANCE BETWEEN THE DRILLED HOLE FOR CONDUIT SLEEVE AND JUNCTION WELL IS $\leq 6'$. ALL OTHER CONDUIT SLEEVES SHALL BE 1" RIGID GALVANIZED STEEL UNLESS OTHERWISE SPECIFIED.
2. INSTALL DUCT SEAL IN BOTH CONDUIT SLEEVE ENDS.
3. SLEEVE AND SAWCUT SHALL NOT DAMAGE OR CONTACT CURB AND GUTTER.
4. SEPARATE 1" ELECTRICAL CONDUIT SLEEVES SHALL BE REQUIRED FOR EACH LOOP SPACED 1'-0" MINIMUM APART IN ROADWAY.
5. CONTRACTOR SHOULD AVOID WHEEL PATH IN THE ROADWAY WHILE DRILLING FOR CONDUIT INSTALLATION.

SPECIFICATION 746923 746924	CATEGORY CODE ITEMS DETECTION	DELAWARE DEPARTMENT OF TRANSPORTATION TRAFFIC CONSTRUCTION DETAILS LOOP DETECTOR HOME-RUN INSTALLATION
APPROVED	CHIEF TRAFFIC ENGINEER	
		
DETAIL NO.		DE 746.004-01

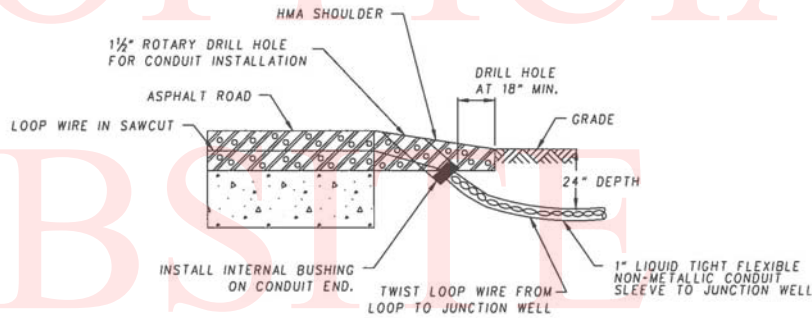
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**SECTION FOR
CONCRETE ROAD WITH HMA SHOULDER**
REFER TO LOOP DETECTOR INSTALLATION DETAILS FOR FURTHER INFORMATION.



**SECTION FOR
HMA ROAD AND SHOULDER**
REFER TO LOOP DETECTOR INSTALLATION DETAILS FOR FURTHER INFORMATION.

NOTES:

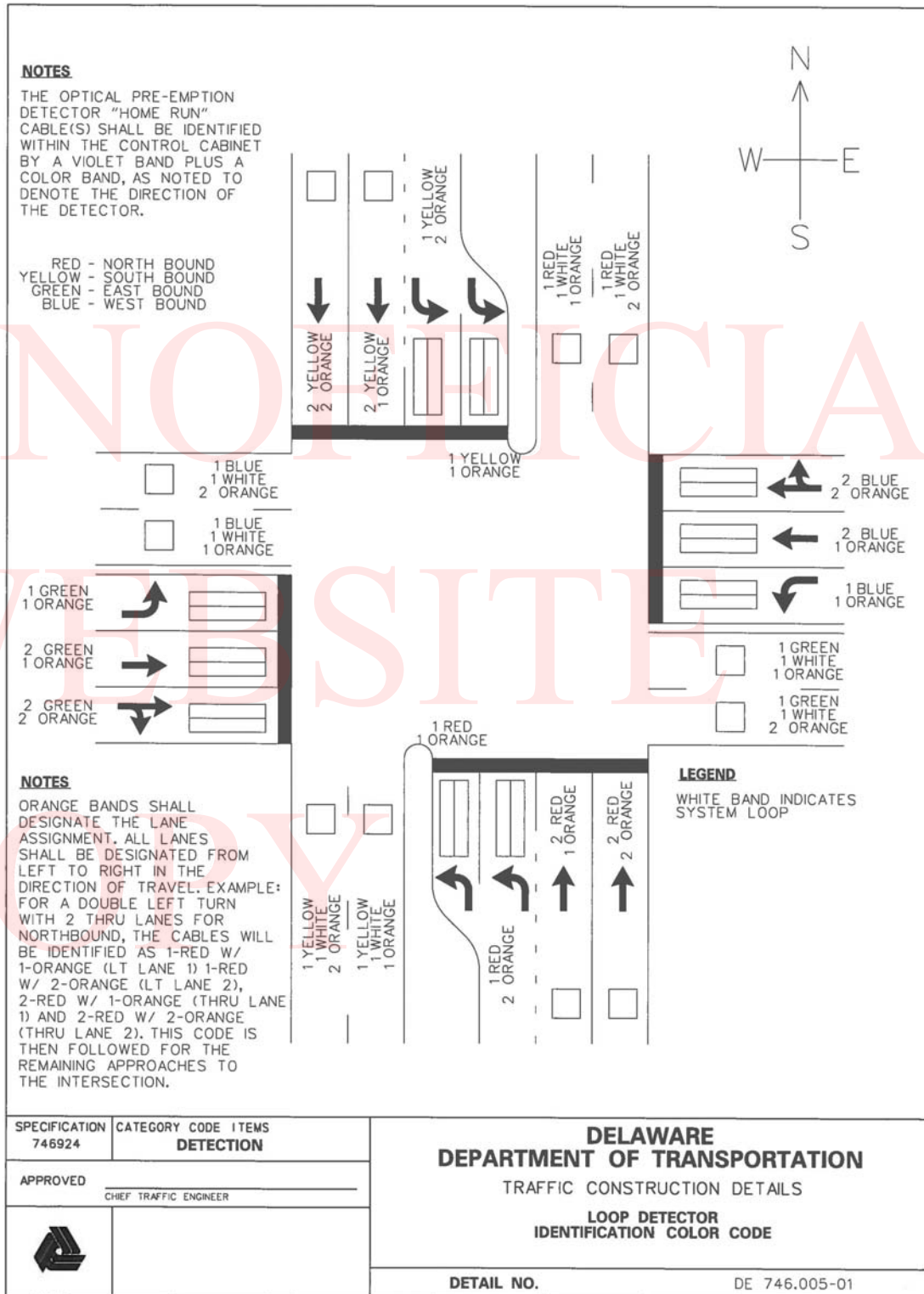
1. LIQUID TIGHT FLEXIBLE NON METALLIC CONDUIT SHALL BE USED WHERE THE DISTANCE BETWEEN THE DRILLED HOLE FOR CONDUIT SLEEVE AND JUNCTION WELL IS $\leq 6'$. ALL OTHER CONDUIT SLEEVES SHALL BE 1" GALVANIZED UNLESS OTHERWISE SPECIFIED.
2. INSTALL DUCT SEAL IN BOTH CONDUIT SLEEVE ENDS.
3. SEPARATE 1" ELECTRICAL CONDUIT SLEEVES SHALL BE REQUIRED FOR EACH LOOP SPACED 1'-0" MINIMUM APART IN ROADWAY.
4. CONTRACTOR SHOULD AVOID WHEEL PATH IN THE ROADWAY WHILE DRILLING FOR CONDUIT INSTALLATION.

SPECIFICATION 746923 746924	CATEGORY CODE ITEMS DETECTION	<div>DELAWARE DEPARTMENT OF TRANSPORTATION</div> <div>TRAFFIC CONSTRUCTION DETAILS</div> <div>LOOP DETECTOR HOME-RUN INSTALLATION</div>
APPROVED	CHIEF TRAFFIC ENGINEER	
		
		<div>DETAIL NO.</div> <div>DE 746.004-02</div>

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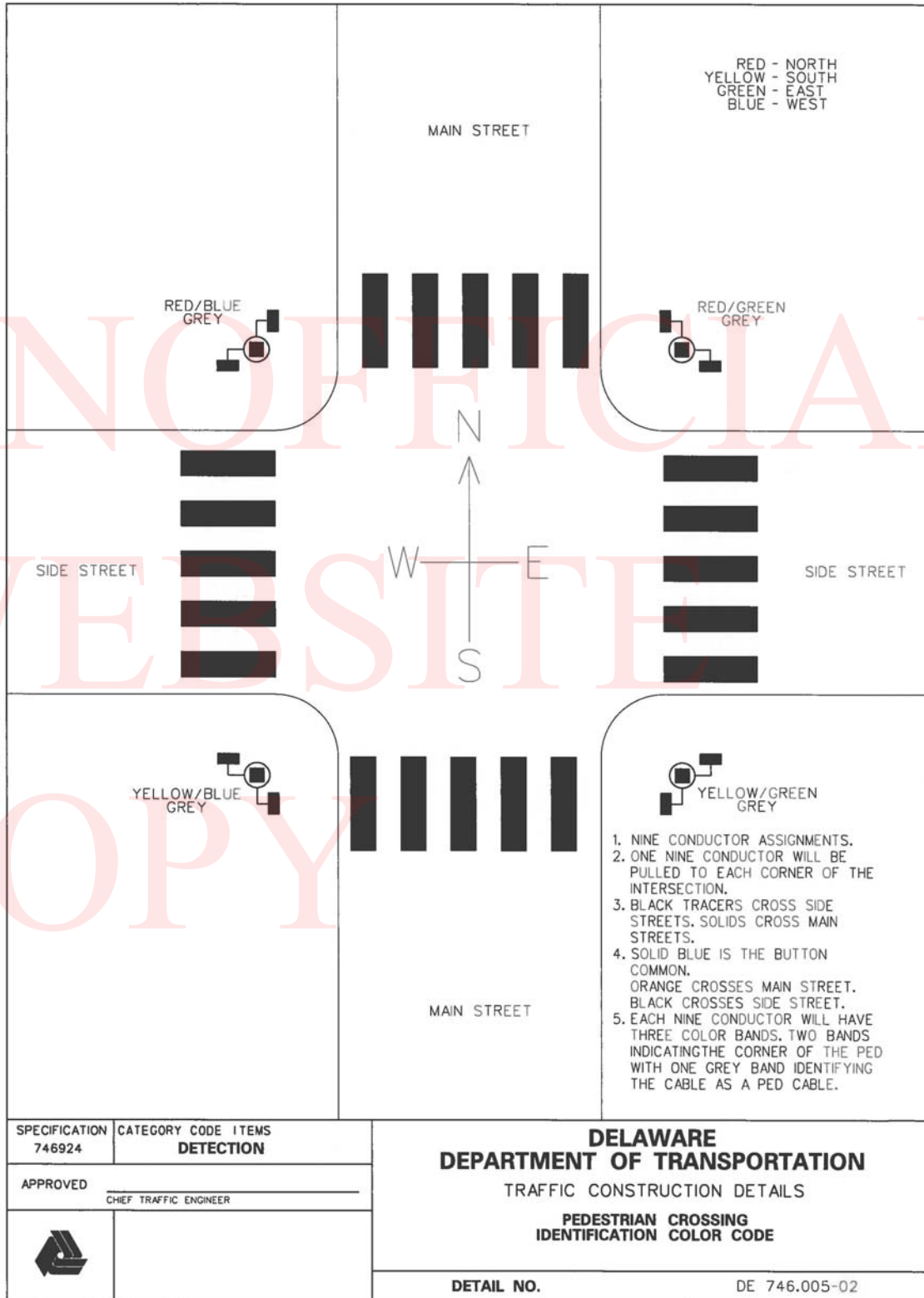
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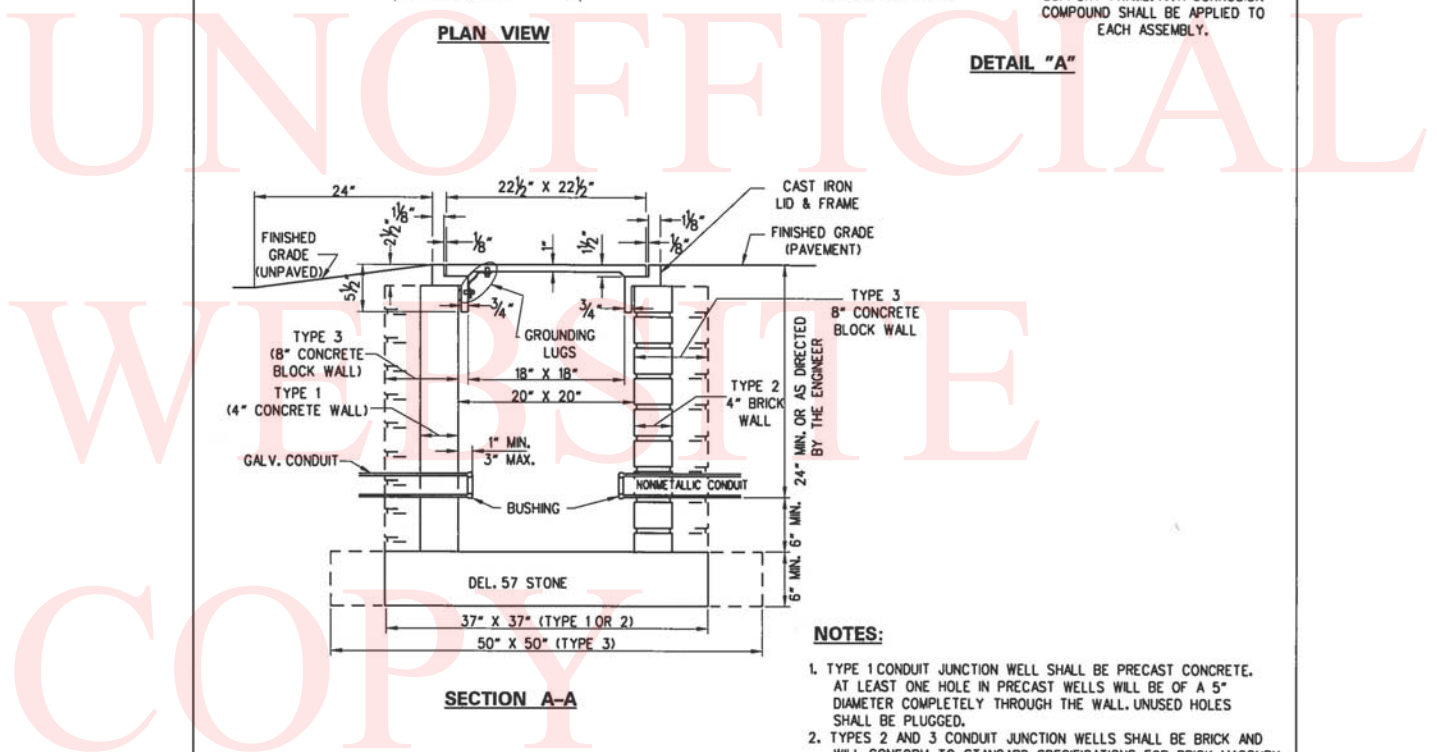
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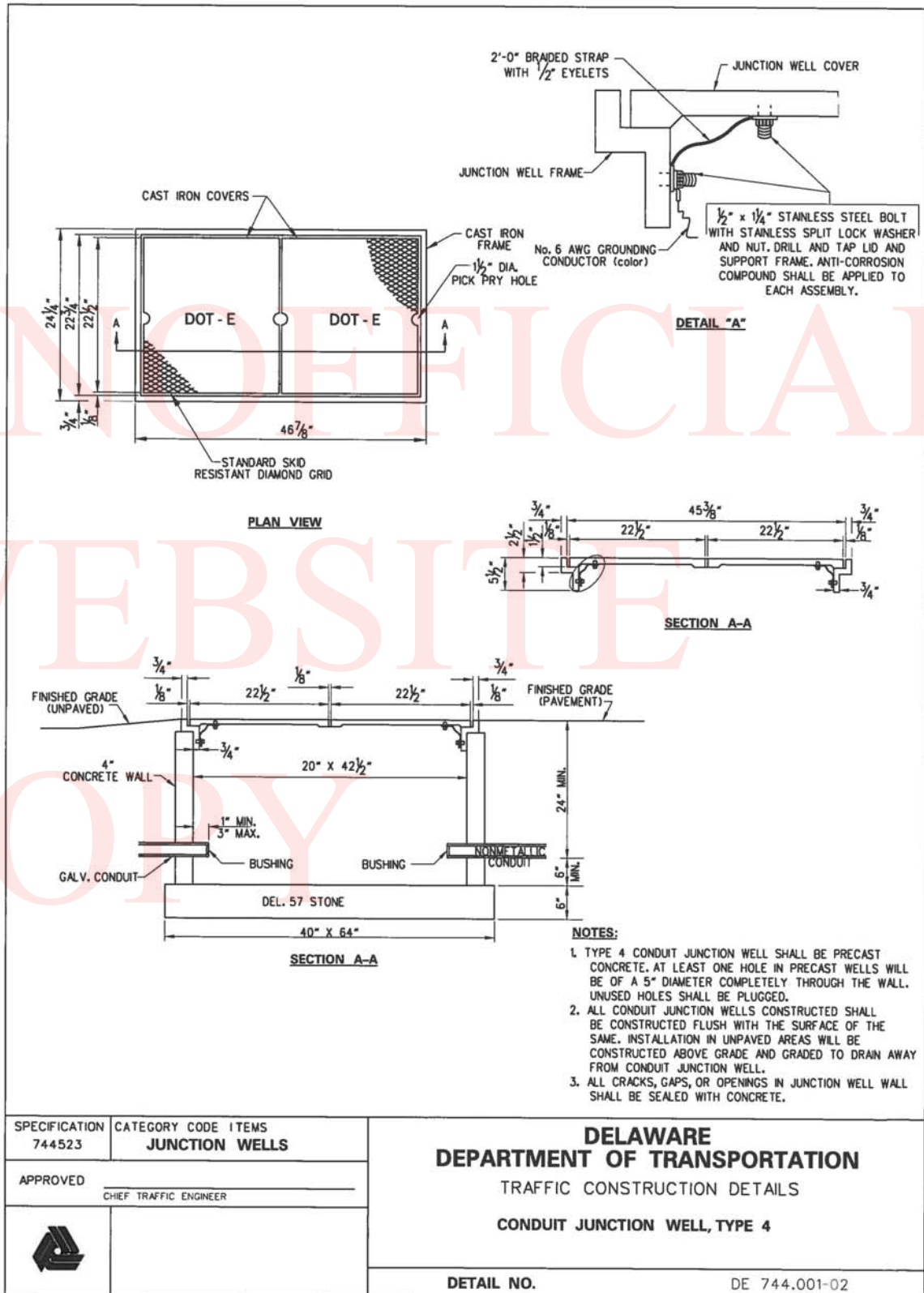
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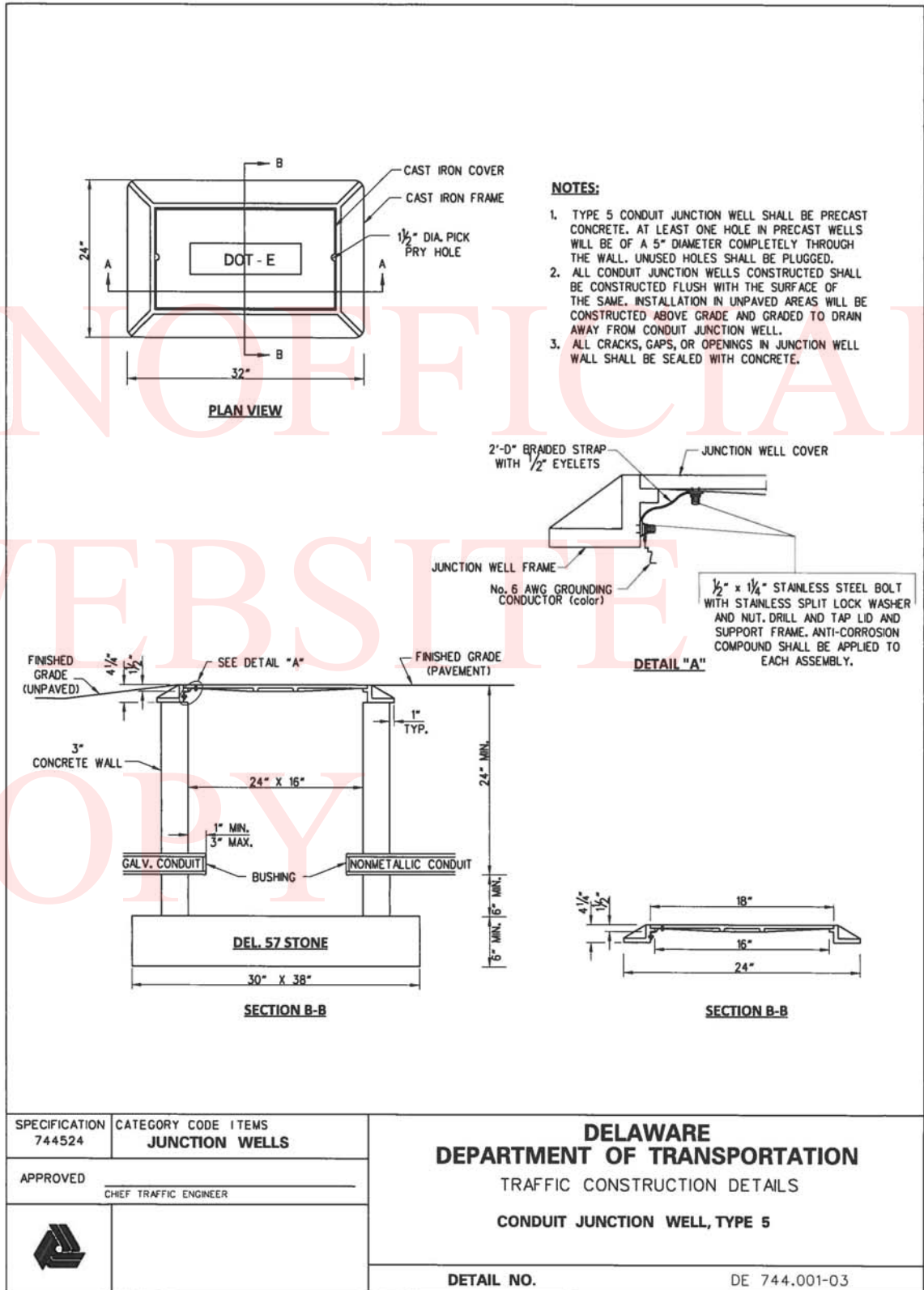
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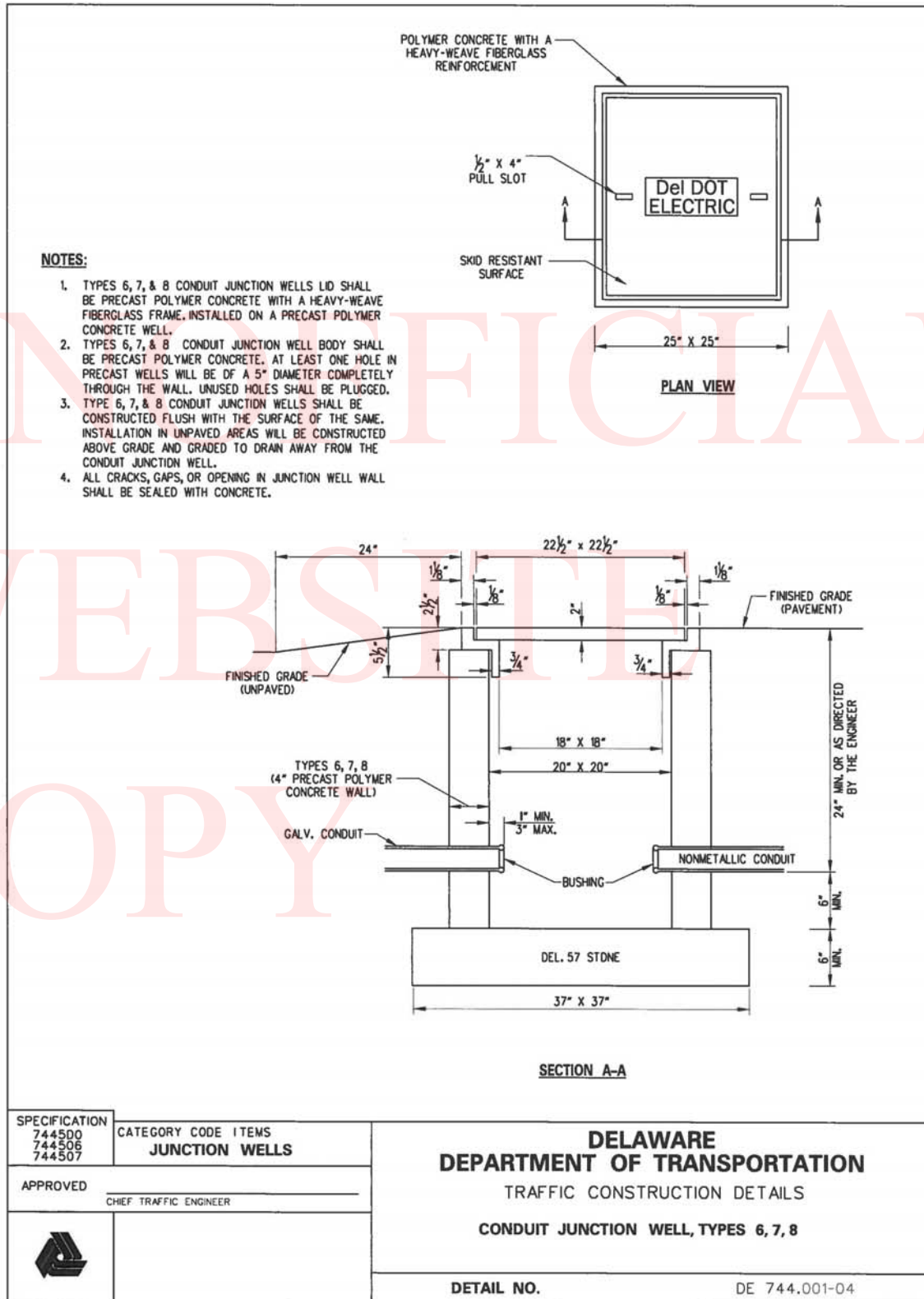


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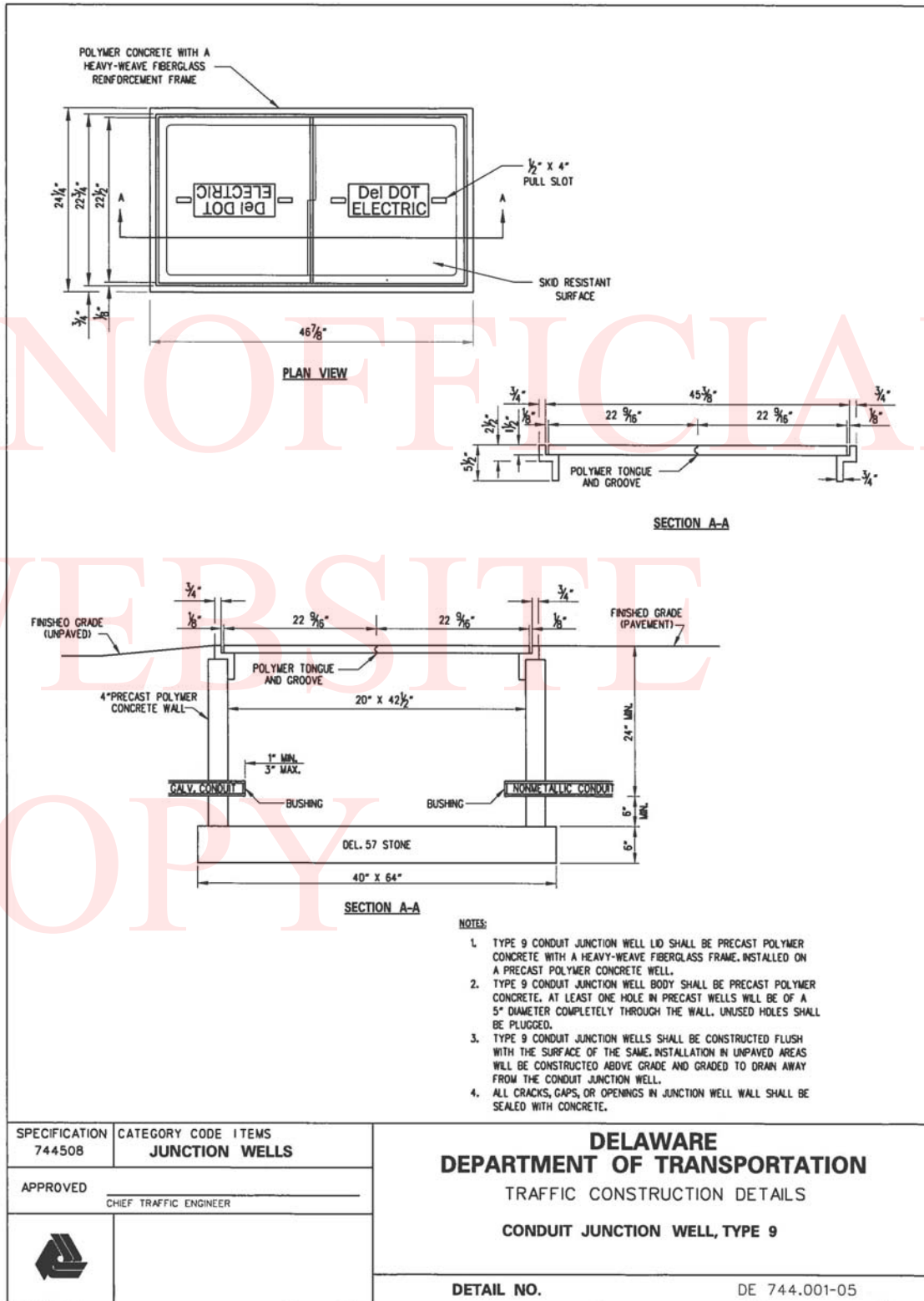
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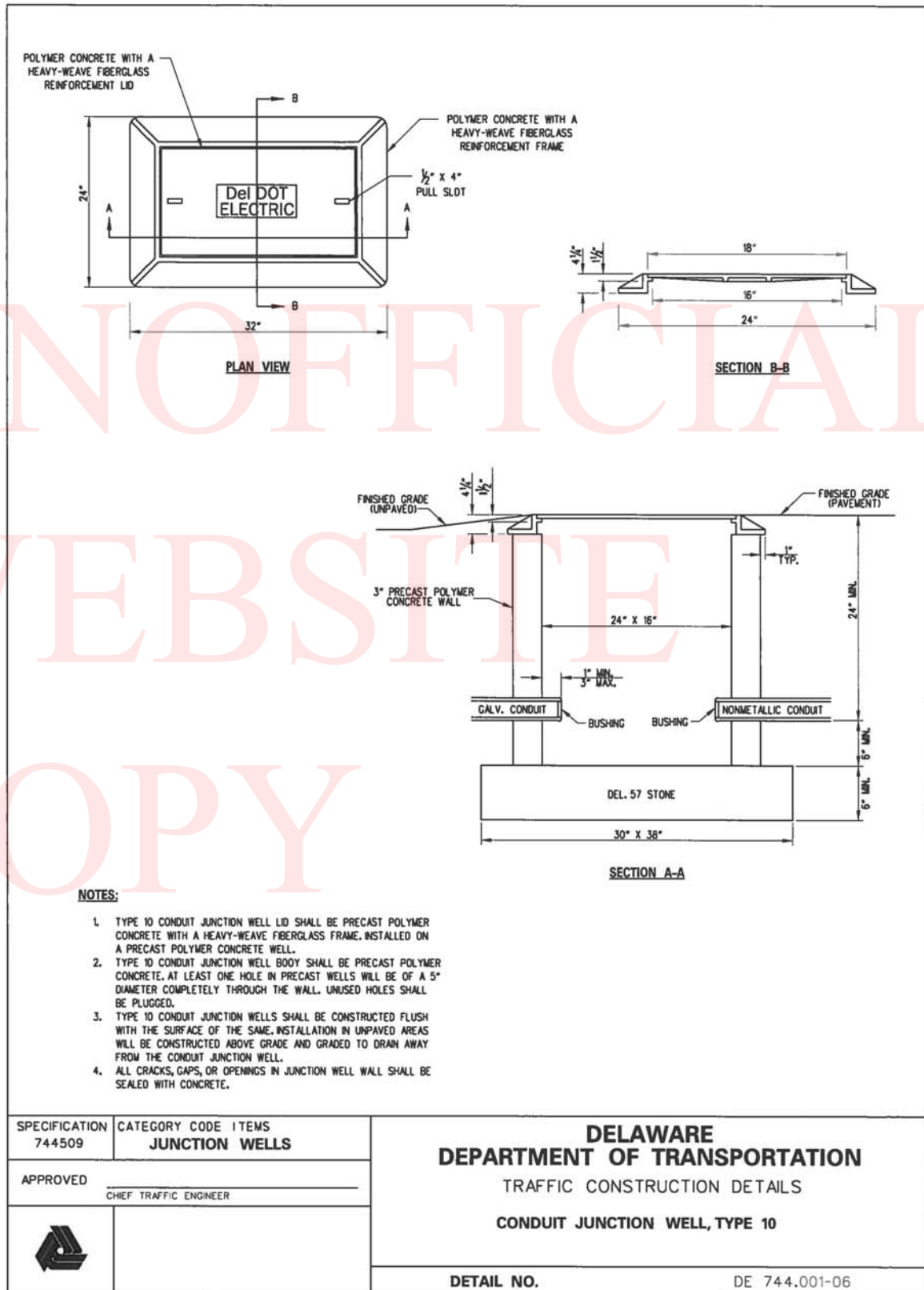


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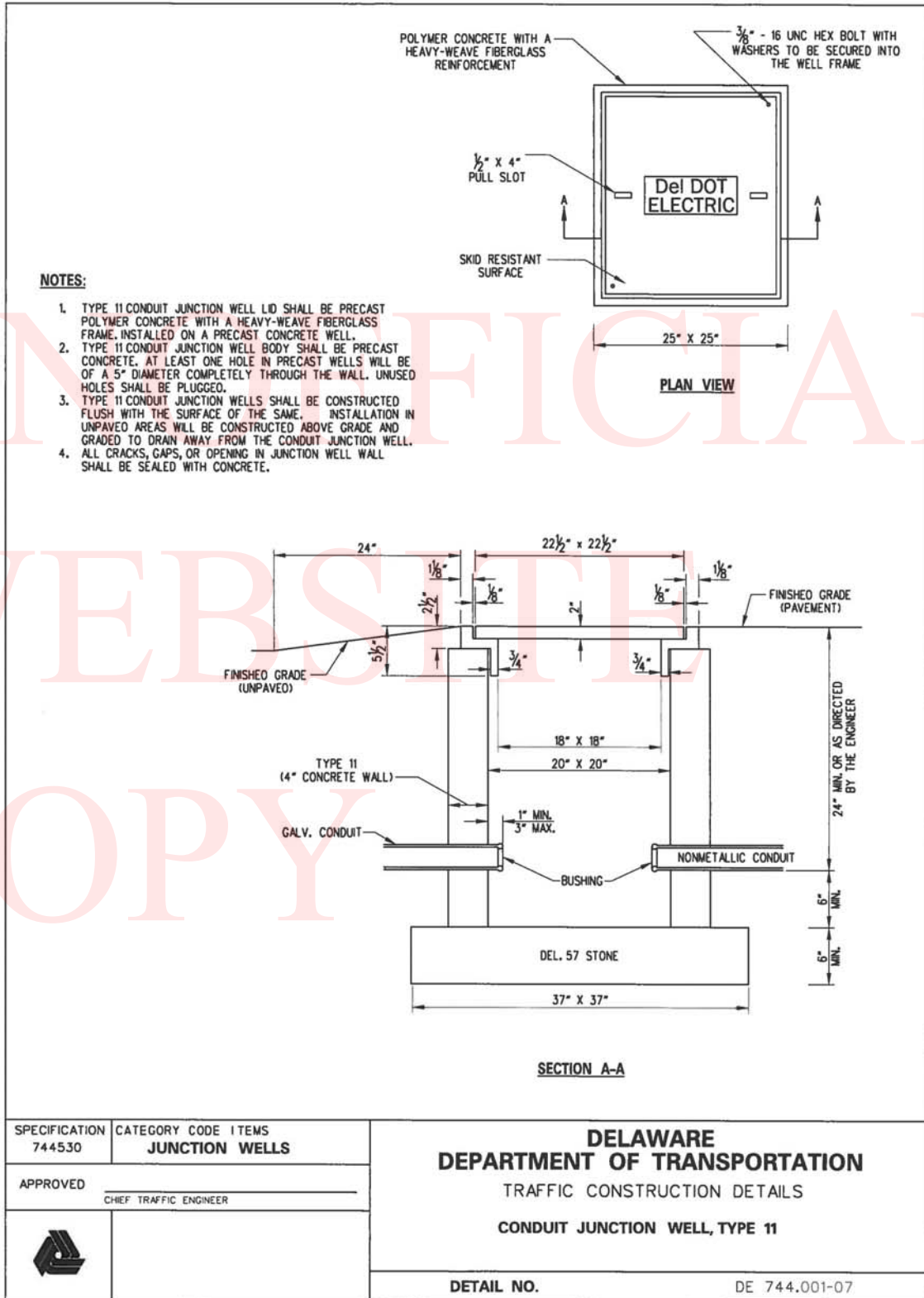




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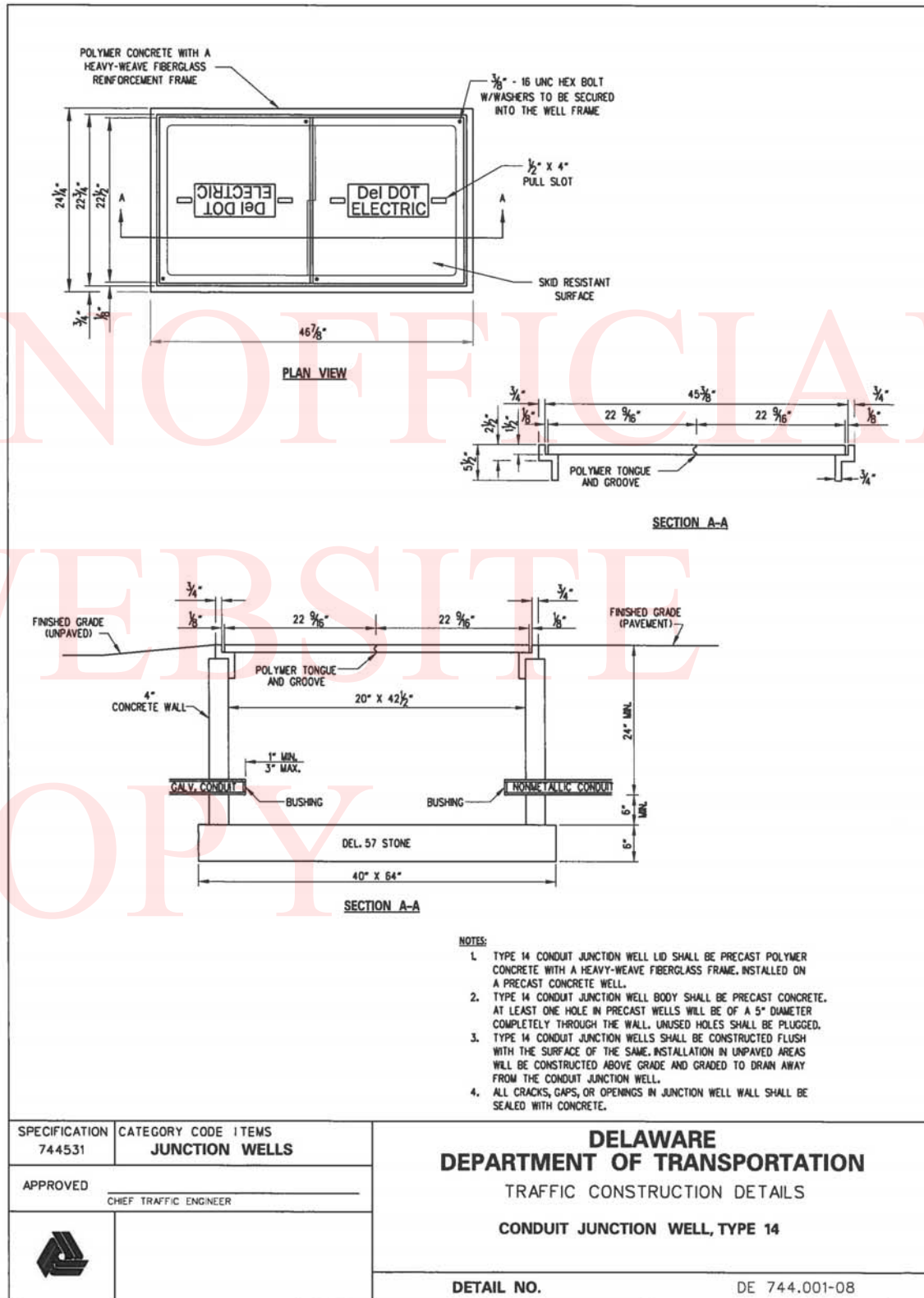
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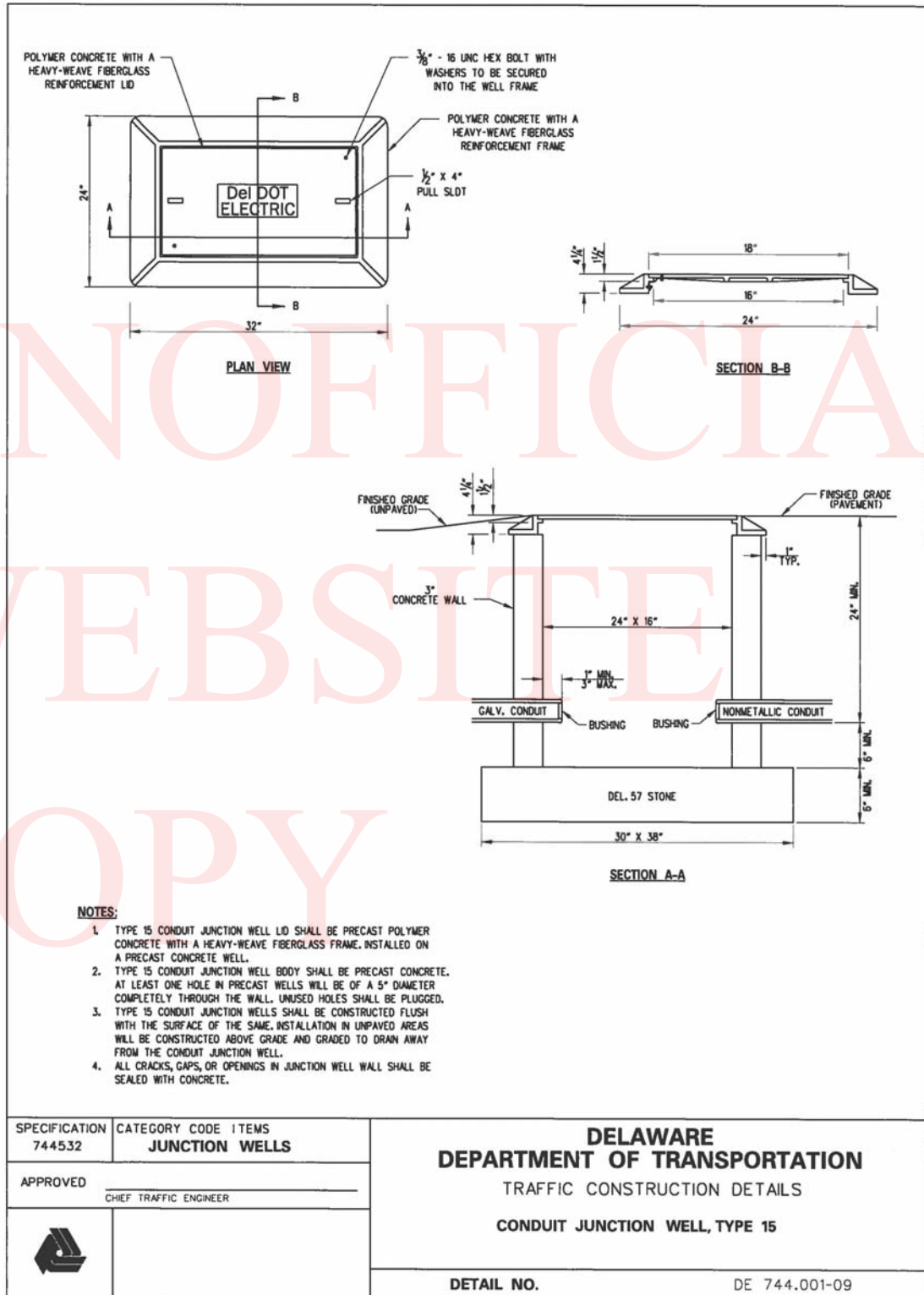
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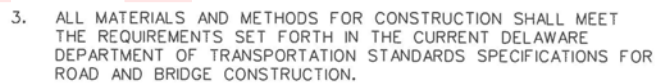
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SPECIFICATION MULTIPLE ROADWAY ITEMS	CATEGORY CODE ITEMS MISC. DETAILS	<div style="text-align: center;"> DELAWARE DEPARTMENT OF TRANSPORTATION TRAFFIC CONSTRUCTION DETAILS ROAD PATCH DETAIL – HOTMIX </div>
	APPROVED _____ CHIEF TRAFFIC ENGINEER	
	<div style="text-align: center;"> DETAIL NO. </div>	<div style="text-align: right;"> DE 503.001-01 </div>

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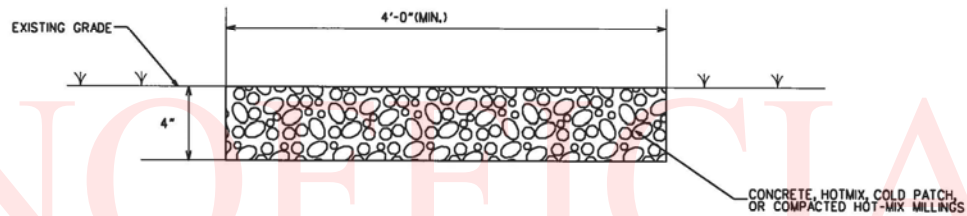


SPECIFICATION MULTIPLE ROADWAY ITEMS	CATEGORY CODE ITEMS MISC. DETAILS	<div>DELAWARE DEPARTMENT OF TRANSPORTATION</div> <div>TRAFFIC CONSTRUCTION DETAILS</div> <div>ROAD PATCH DETAIL - CONCRETE</div>
	APPROVED _____ CHIEF TRAFFIC ENGINEER	

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- NOTES:
1. PROVIDE 4'-0" WIDE TEMPORARY PATHWAY, SUPPLY CONCRETE, HOTMIX, COLD PATCH OR MILLINGS TO A MINIMUM DEPTH OF 4", FLUSH WITH EXISTING GRADE.
 2. IN THE EVENT THAT THE WALKING SURFACE OF THE TEMPORARY SIDEWALK IS LOCATED MORE THAN 30" FROM GRADE AT ANY POINT ALONG THE PROPOSED PATH, PROVIDE TYPE 2 TEMPORARY SIDEWALK.
 3. ANY REQUIRED EXCAVATION TO CONSTRUCT THE PATHWAY IS INCIDENTAL TO ITEM 743553.
 4. COST FOR SEEDING REQUIRED TO RESTORE THE AREA IS INCIDENTAL TO ITEM 732004, TOPSOIL. IF NO TOPSOIL IS REQUIRED, THEN SEEDING IS CONSIDERED INCIDENTAL TO ITEM 743553.

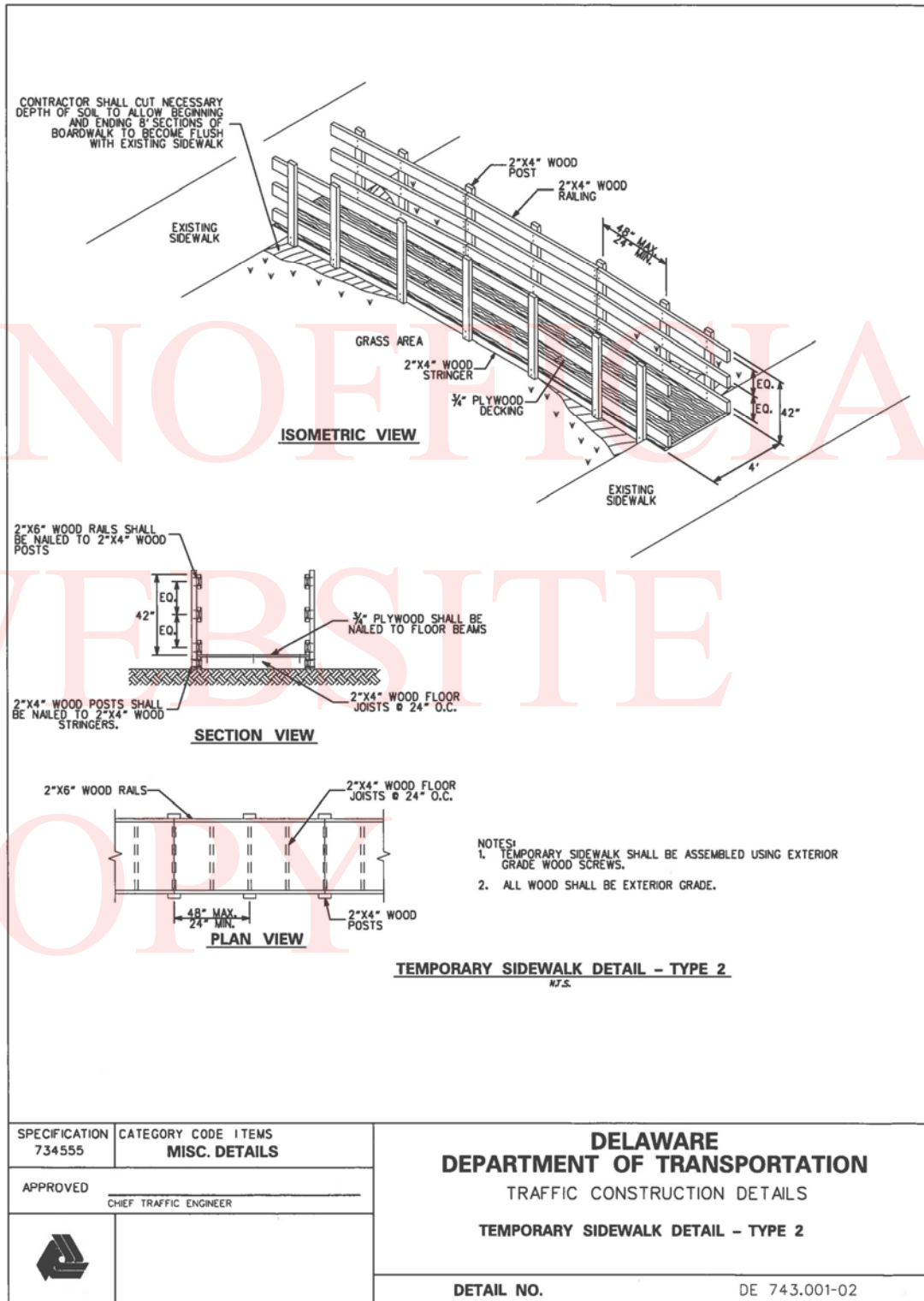
TEMPORARY PEDESTRIAN PATHWAY N.T.S.

SPECIFICATION 743553	CATEGORY CODE ITEMS MISC. DETAILS	DELAWARE DEPARTMENT OF TRANSPORTATION TRAFFIC CONSTRUCTION DETAILS TEMPORARY PEDESTRIAN PATHWAY
APPROVED	_____ CHIEF TRAFFIC ENGINEER	
		
DETAIL NO.		DE 743.001-01

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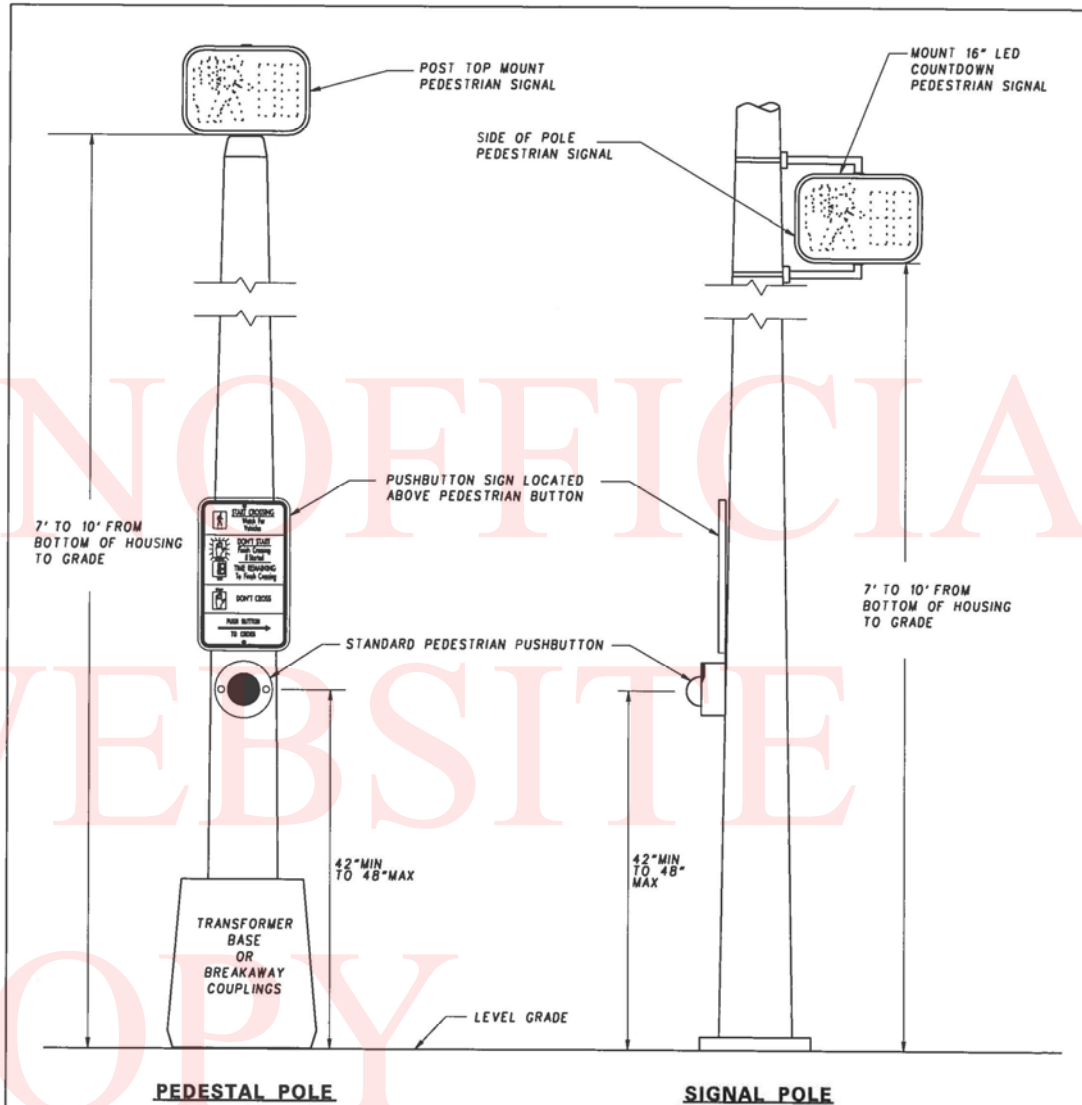
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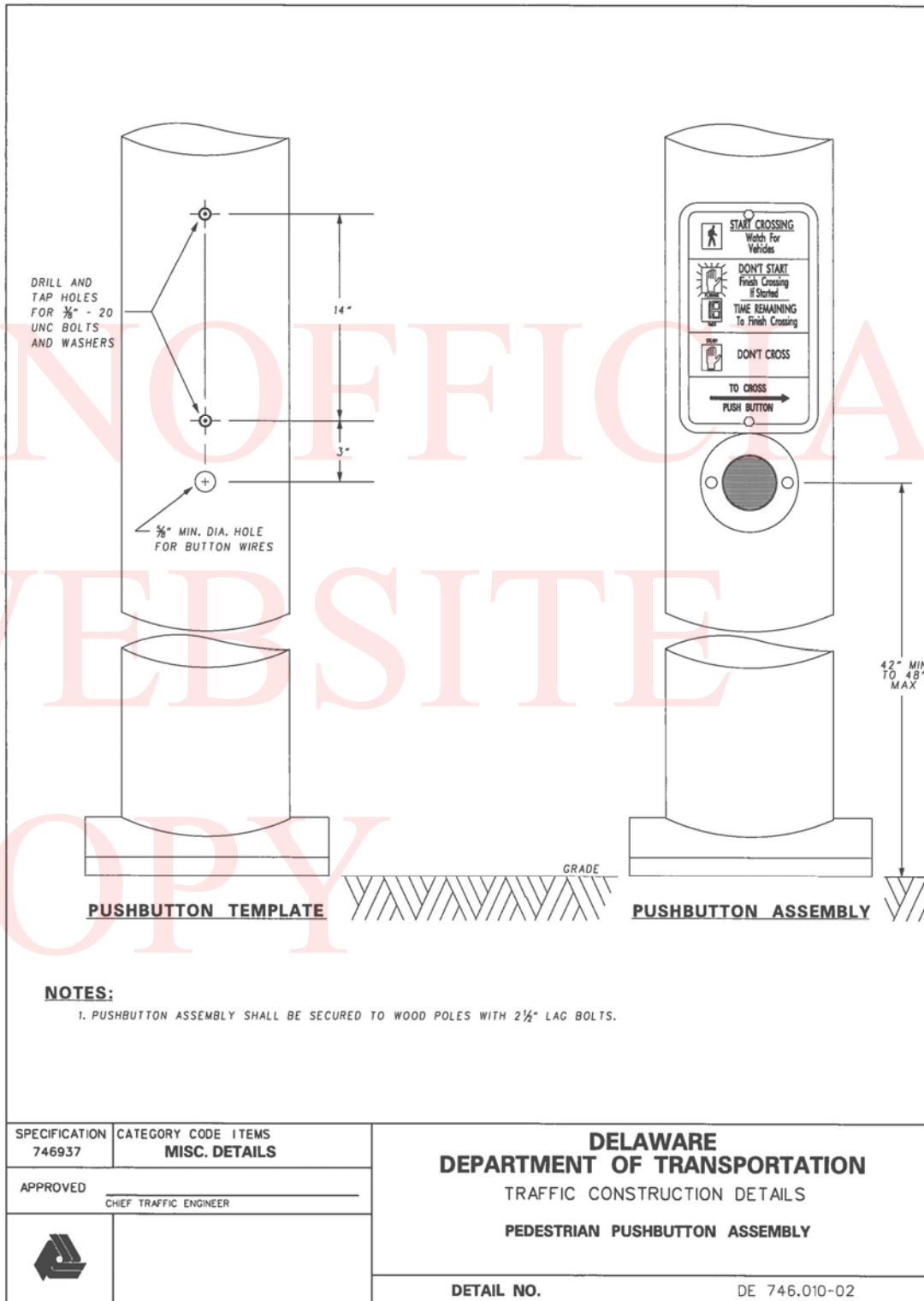
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NOTES:

1. WHEN CUTTING IS REQUIRED, CONTRACTOR SHALL CONFIRM PROPER HEIGHT OF PEDESTAL IS MAINTAINED PRIOR TO CUTTING POLE.
2. REFER TO POLE MOUNTING FOR PEDESTRIAN SIGNAL HEADS STANDARD PLATES FOR DETAILS.

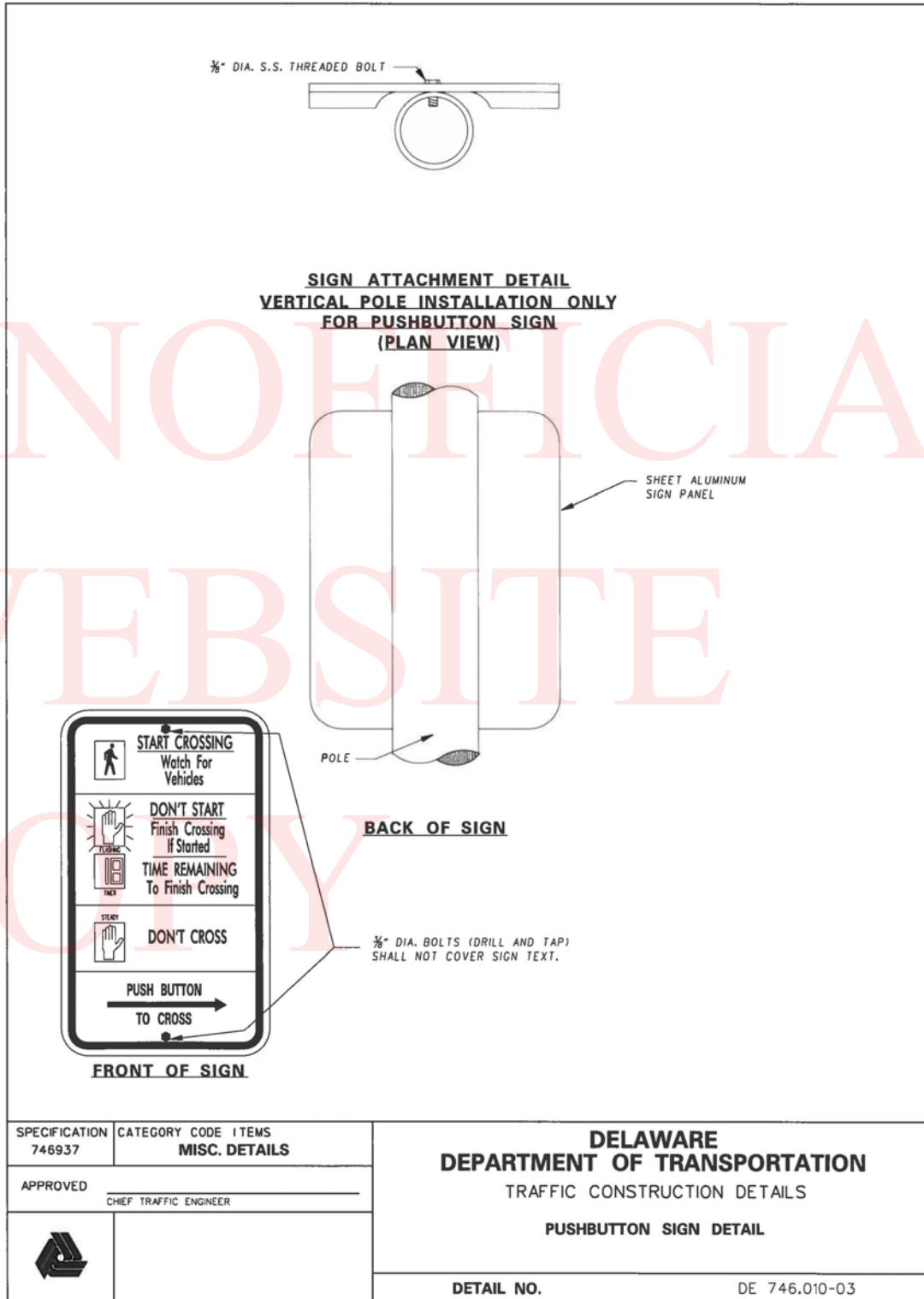
SPECIFICATION 746935	CATEGORY CODE ITEMS MISC. DETAILS	<div>DELAWARE DEPARTMENT OF TRANSPORTATION</div> <div>TRAFFIC CONSTRUCTION DETAILS</div> <div>STANDARD PEDESTRIAN SIGNAL PUSHBUTTON LOCATION ON POLE</div>
APPROVED _____ CHIEF TRAFFIC ENGINEER		
		
DETAIL NO.		DE 746.010-01

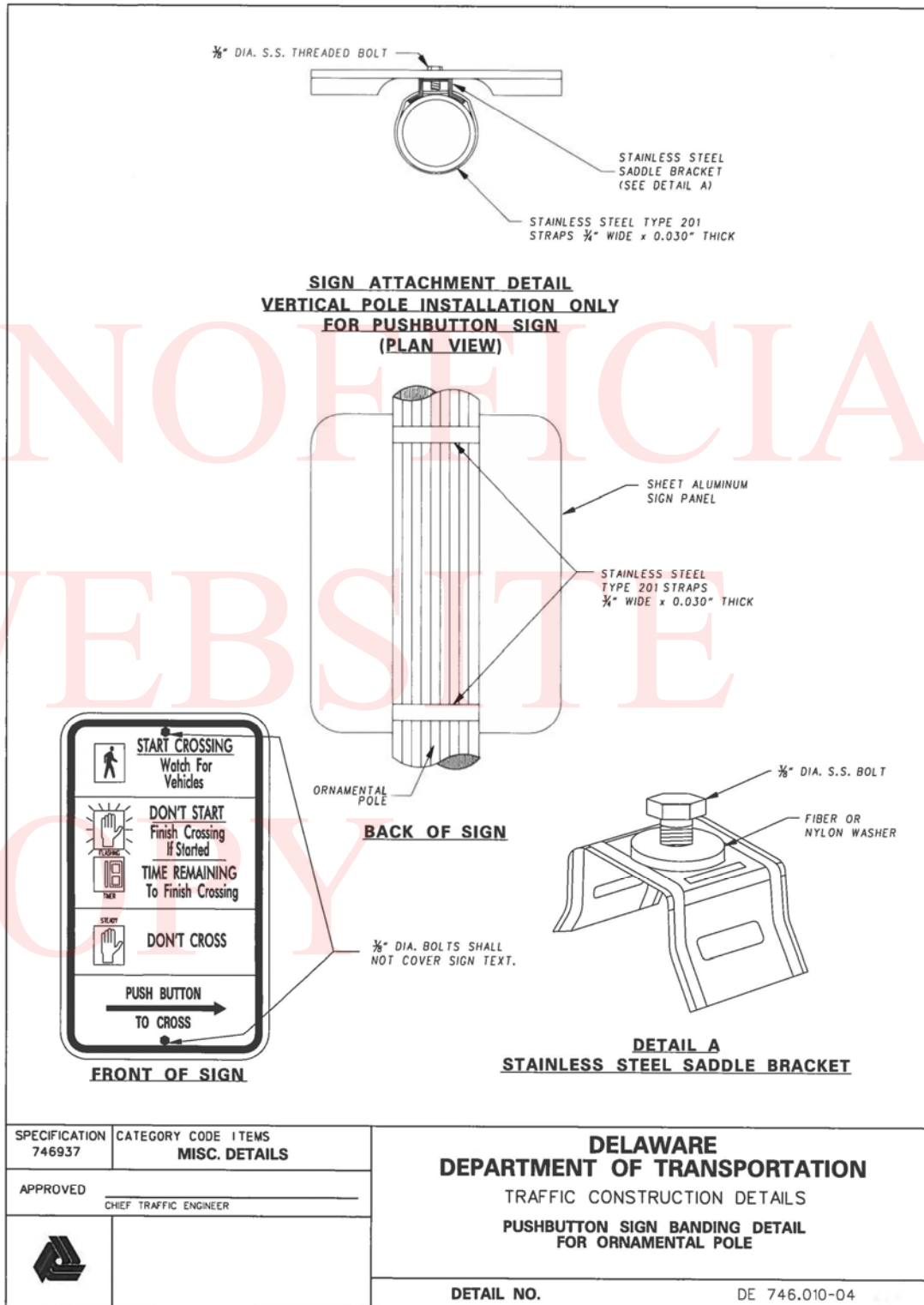


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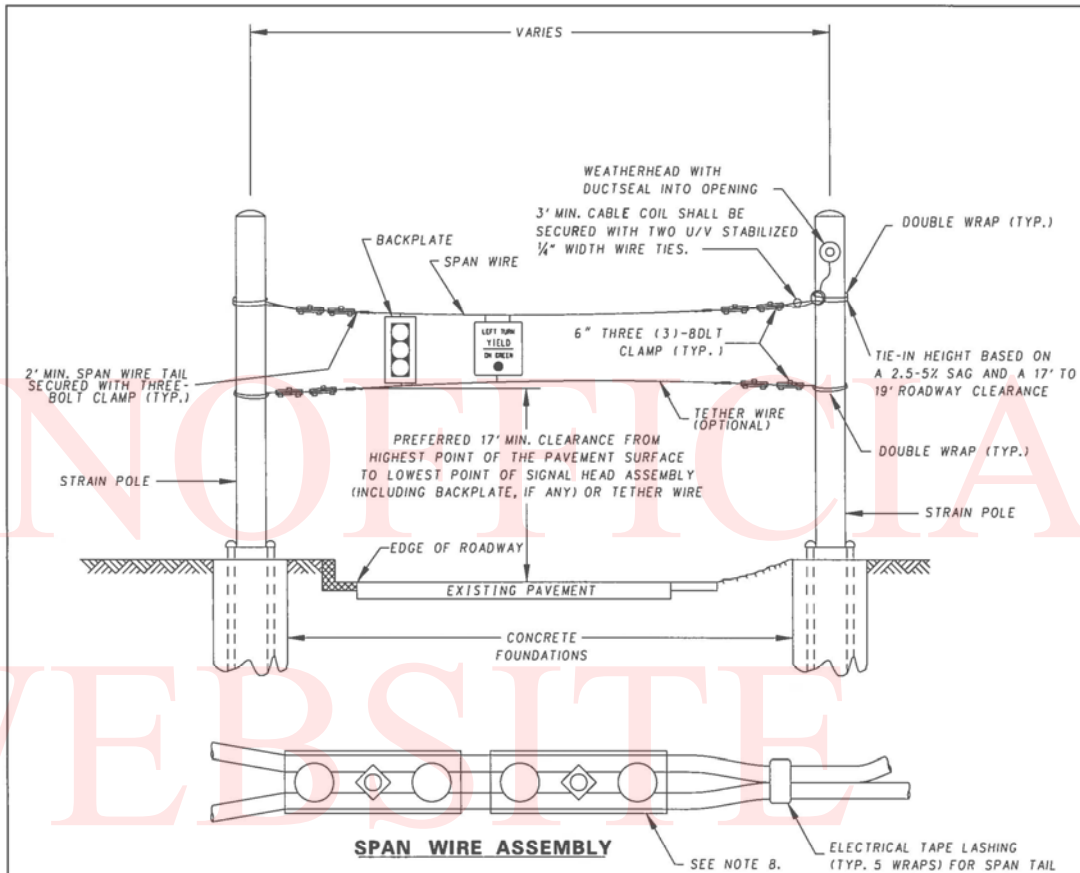




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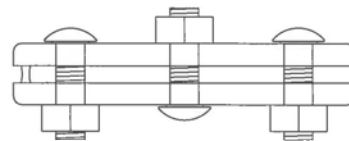
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NOTES:

1. ALL WIRES SHALL BE LASHED WITH FIVE (5) WRAP (12" O.C.) ELECTRICAL TAPE ACROSS SPAN WIRE.
2. POLES SHALL BE RAKED AS SPECIFIED BY THE PROJECT ENGINEER.
3. POLE PLACEMENT SHOULD BE OUTSIDE OF THE CLEAR ZONE BASED ON THE GUIDELINES OF THE MOST RECENT AASHTO ROADSIDE DESIGN GUIDE.
4. SPAN WIRE SHALL BE PLACED UNDER ALL RISERS.
5. SPAN WIRE SHALL BE 7/16" SEVEN (7)-WIRE GAL. STEEL STRAND. (STRENGTH SHALL BE SIEMENS-MARTIN 6,950 LBS.)
6. TETHER WIRE SHALL BE 1/4" SEVEN (7)-WIRE GAL. STEEL STRAND. (STRENGTH SHALL BE SIEMENS-MARTIN 3,150 LBS.)
7. TWO (2) THREE-BOLT CLAMPS SHALL BE USED FOR EACH END OF THE SPANS.



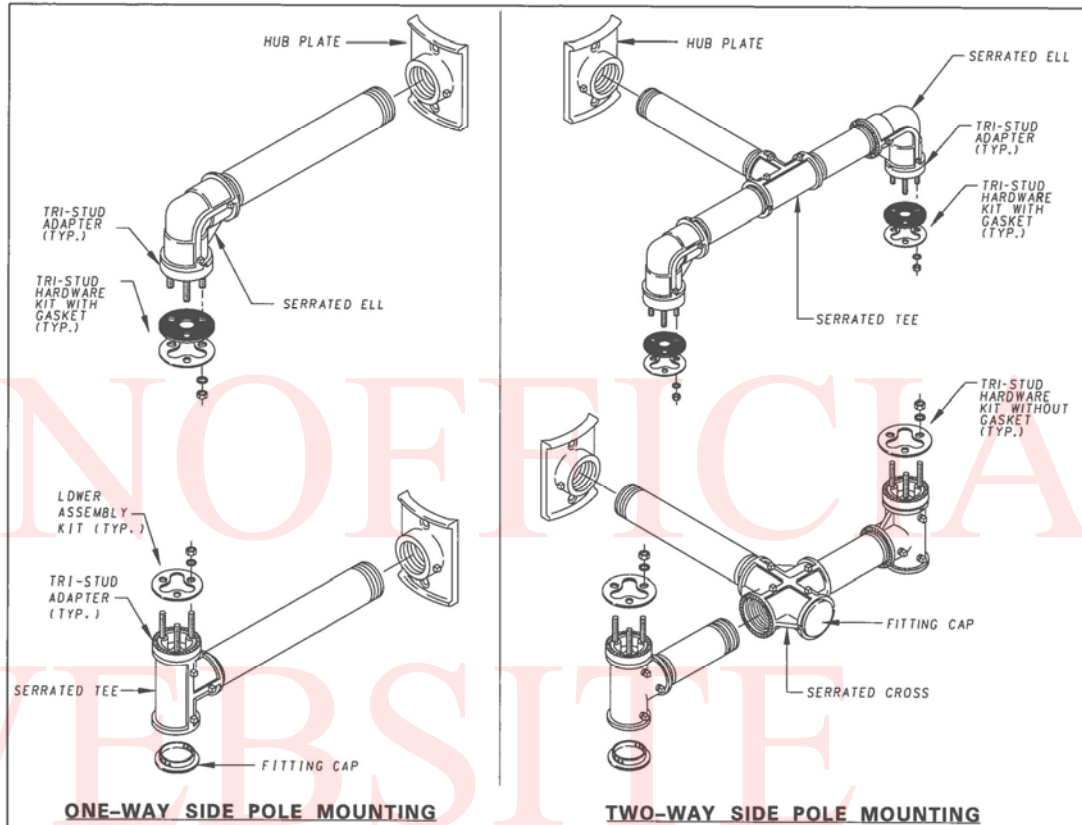
3-BOLT CLAMP

SPECIFICATION 746504 746506	CATEGORY CODE ITEMS OVERHEAD	DELAWARE DEPARTMENT OF TRANSPORTATION TRAFFIC CONSTRUCTION DETAILS PLACEMENT OF STRAIN POLE AND INCIDENTAL HARDWARE
APPROVED	_____	
CHIEF TRAFFIC ENGINEER		
		
DETAIL NO.		DE 746.011-01

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NOTES:

1. THE TOP HUB PLATE SHALL BE ROTATED UPWARD WHEN THE SIGNAL HEAD IS MOUNTED ON A WOOD POLE.
2. A 1" DIA. HOLE SHALL BE DRILLED IN THE METAL POLE FOR WIRING AT BOTTOM PLATE.
3. THE UPPER ARM SHALL CONSIST OF A SERRATED ELL, 12" NIPPLE, GASKET AND CAST NIPPLE.
 - THE SERRATED ELL SHALL HAVE A SERRATED 72 TOOTH BOSS ON ONE END. THE OUTSIDE DIAMETER OF THE SERRATION SHALL NOT EXCEED 2 3/8". THE NON-SERRATED END OF THE ELL SHALL BE NOTCHED TO ACCEPT A SEPARATE SERRATED LOCKRING. THE ELL SHALL BE THREADED 1 1/2" NPS ON BOTH ENDS. THE ELL SHALL HAVE A MINIMUM 3/8" WIDTH BOSS THAT EXTENDS THE ENTIRE LENGTH OF BOTH SIDES, ON ONE SIDE OF THE BOSS AT EACH END OF THE ELL SHALL BE A 1/4" - 20 THREADED OPENING FOR A SETSCREW.
 - A DIE CAST NIPPLE SHALL BE ASSEMBLED INTO THE ELL. THE CAST NIPPLE SHALL BE 1 1/2" NPS WITH THREAD LENGTH OF 1 1/2". THE HEAD OF THE CAST NIPPLE SHALL BE HEX AND 2 1/2" ACROSS THE FLATS. AN INDENTION SHALL BE ON EACH CORNER TO ACCOMMODATE A SPANNER WRENCH FOR TIGHTENING.
 - A 1 1/2" X 12" EXTRUDED NIPPLE SHALL HAVE 1 1/2" NPS THREADS ON BOTH ENDS. THE NIPPLE SHALL HAVE A "BRUSHED" FINISH.
4. THE LOWER ARM SHALL CONSIST OF A SERRATED TEE, 12" NIPPLE AND CAST NIPPLE.
 - THE SERRATED TEE SHALL BE FABRICATED LIKE THE ELL EXCEPT THE TEE IS TO HAVE SERRATIONS ON TWO (2) THREADED OPENINGS 90° APART. THE NON-SERRATED END SHALL COME STANDARD WITH A PLASTIC KNOCKOUT PIN.
 - THE DIE CAST NIPPLE SHALL BE THE SAME AS ABOVE.
 - THE 1 1/2" X 12" NIPPLE SHALL BE THE SAME AS ABOVE.
5. FOR WOOD POLE MOUNTING:
 - ATTACHMENT STRAPS FOR WOOD POLE SHALL BE 3/4" WIDTH, TYPE 201, STAINLESS STEEL.
 - ATTACHMENT BOLTS FOR WOOD POLE SHALL BE STAINLESS STEEL 3/8" DIA. X 2 1/2" LENGTH.

SPECIFICATION 746929 746932 746935	CATEGORY CODE ITEMS SIGNAL HEADS	<div style="text-align: center;"> DELAWARE DEPARTMENT OF TRANSPORTATION TRAFFIC CONSTRUCTION DETAILS SIDE POLE MOUNTING FOR VEHICULAR AND PEDESTRIAN SIGNAL HEADS </div>
APPROVED 	CHIEF TRAFFIC ENGINEER	
		

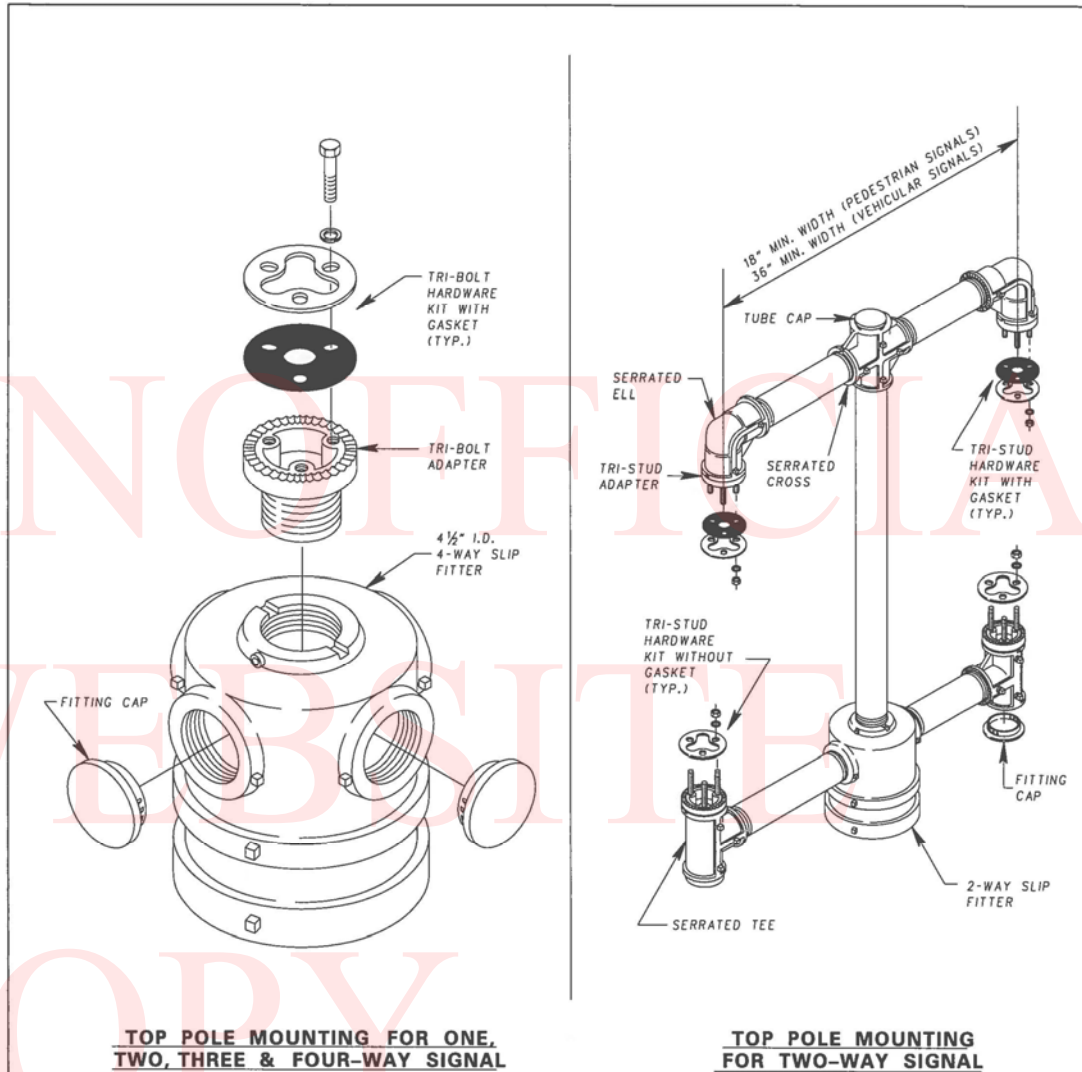
DETAIL NO.

DE 746.006-01

DELAWARE DEPARTMENT OF TRANSPORTATION


Contract No. DOT1209 – TRAFFIC SIG & ITS
Traffic Section

Traffic Signals, Lighting, and ITS
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NOTES:

1. ALL CAST MOUNTING HARDWARE SHALL BE ALODINE FINISHED ALUMINUM.
2. ALL BOLTS SHALL BE STAINLESS STEEL.

SPECIFICATION 746929 746932 746935	CATEGORY CODE ITEMS SIGNAL HEADS	DELAWARE DEPARTMENT OF TRANSPORTATION TRAFFIC CONSTRUCTION DETAILS TOP POLE MOUNTING FOR VEHICULAR AND PEDESTRIAN SIGNAL HEAD
APPROVED	_____ CHIEF TRAFFIC ENGINEER	
		DETAIL NO. DE 746.006-02

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WIRING COLOR CODE FOR #14/16 SIGNAL CABLE FOR SIGNAL HEADS

MAIN STREET SIGNALS

WIRE COLORS

SOLID RED
SOLID ORANGE
SOLID GREEN
SOLID WHITE

SIGNAL INDICATION

RED
YELLOW
GREEN
GROUND

SIDE STREET SIGNALS

WIRE COLORS

BLACK TRACER/RED
BLACK TRACER/ORANGE
BLACK TRACER/GREEN
BLACK TRACER/WHITE

SIGNAL INDICATION

RED
YELLOW
GREEN
GROUND

NON-PERMISSIVE LEFT TURN SIGNALS

MAIN STREET WIRE COLORS

WHITE TRACER/RED
WHITE TRACER/ORANGE
WHITE TRACER/GREEN
WHITE TRACER/BLUE

SIDE STREET WIRE COLORS

BLACK/RED TRACER
SOLID BLACK
SOLID BLUE
BLUE/BLACK TRACER

SIGNAL INDICATION

RED
YELLOW
GREEN
GROUND

5-SECTION SIGNAL ARROWS

MAIN STREET WIRE COLORS

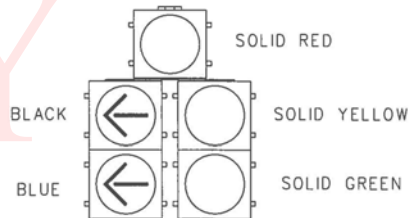
SOLID BLUE
SOLID BLACK


SIDE STREET WIRE COLORS

BLACK/RED TRACER
BLUE/BLACK TRACER

SIGNAL INDICATION

YELLOW ARROW
GREEN ARROW



SPECIFICATION 746922	CATEGORY CODE ITEMS SIGNAL HEADS	DELAWARE DEPARTMENT OF TRANSPORTATION TRAFFIC CONSTRUCTION DETAILS SIGNAL WIRE CABLE IDENTIFICATION COLOR CODE
APPROVED	CHIEF TRAFFIC ENGINEER	
		
DETAIL NO.		DE 746.007-01

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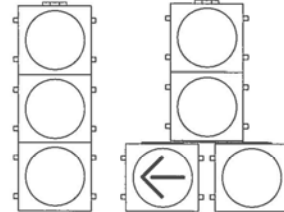
WIRING COLOR CODE FOR #14/9 TCC

MAST ARM:

MAIN STREET

WIRE COLORS
SOLID RED
SOLID YELLOW
SOLID GREEN
SOLID WHITE

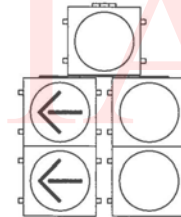
SIGNAL
INDICATION
RED
YELLOW
GREEN
GROUND



MAIN STREET
PERMISSIVE LEFT

WIRE COLORS
SOLID BLACK
SOLID BLUE
SOLID WHITE

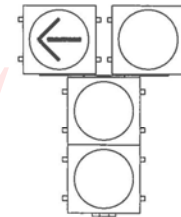
SIGNAL
INDICATION
YELLOW
GREEN
NEUTRAL



MAIN STREET
FLASHING TOP "T"

WIRE COLORS
BLACK/RED TRACER
SOLID WHITE

SIGNAL
INDICATION
RED
NEUTRAL



NOTES

1. HEAD CABLE SHALL BE MARKED WITH THE COLOR DESIGNATED FOR EACH DIRECTION OF TRAVEL. RED/NORTH, YELLOW/SOUTH, GREEN/EAST, BLUE/WEST.
2. SIDE STREET SIGNAL HEADS SHALL BE SPICED INTO THE BLACK TRACER WIRES INSTEAD OF SOLID COLOR WIRES.
3. ALL SIGNAL HEADS INSTALLED ON MAST ARMS SHALL HAVE OWN SIGNAL CABLE AND SHALL BE SPICED AT THE BASE.

SPECIFICATION
746921

CATEGORY CODE ITEMS
SIGNAL HEADS

APPROVED

CHIEF TRAFFIC ENGINEER



DELAWARE
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONSTRUCTION DETAILS

SIGNAL WIRE CABLE
IDENTIFICATION COLOR CODE

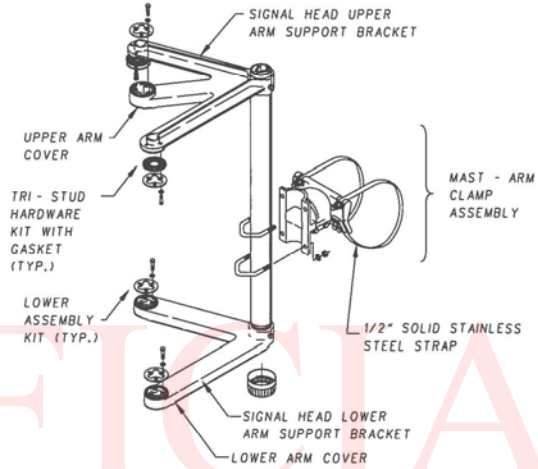
DETAIL NO.

DE 746.007-02

DELAWARE DEPARTMENT OF TRANSPORTATION

Contract No. DOT1209 – TRAFFIC SIG & ITS
Traffic Section

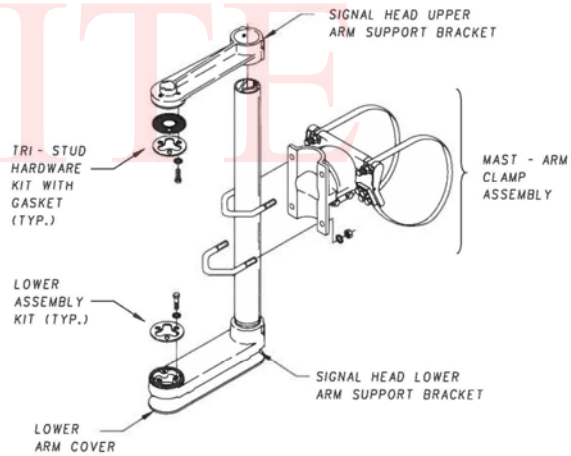
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**ONE-WAY, FIVE - SECTION
12" SIGNAL HEADS**

NOTES:

1. ALL CAST MOUNTING HARDWARE SHALL BE ALUMINUM WITH ALODINE FINISH.
2. ALL BOLTS SHALL BE STAINLESS STEEL.
3. BRACKET SHALL ADJUST IN FOUR DIRECTIONS.
4. UPPER AND LOWER ARMS SHALL BE CAST FROM 319 ALUMINUM ALLOY.
5. VERTICAL SUPPORT TUBE SHALL BE DOUBLE GUSSETED "C" SHAPED AND EXTRUDED FROM 6063 - T6 ALUMINUM ALLOY.
6. MAST ARM CLAMP ASSEMBLY SHALL BE CAST FROM 356 - T6 ALUMINUM ALLOY.
7. STRANDED BANDS SHALL BE A MINIMUM 1/2" STAINLESS STEEL, FABRICATED IN ONE PIECE.
8. CUT VERTICAL SUPPORT TUBE TO PROJECT 1" ABOVE SIGNAL HEAD TOP SUPPORT BRACKET.
9. WHEN ASSEMBLED, THE RECEIVING AND INDENTED PORTION OF THE CLAMP ASSEMBLY SHALL CONSIST OF TWO MIRRORED HALVES. THE CLAMP ASSEMBLY SHALL BE INVERSELY TIGHTENED AROUND THE MAST ARM OR POLE.
10. THE PROTRUDING PORTION OF THE CLAMP ASSEMBLY, WHICH FITS IN THE RECEIVING AND INDENTED PORTION, SHALL HAVE AN INTEGRALLY CAST FLANGE TO PREVENT SEPARATION FROM THE RECEIVING AND INDENTED SECTION.



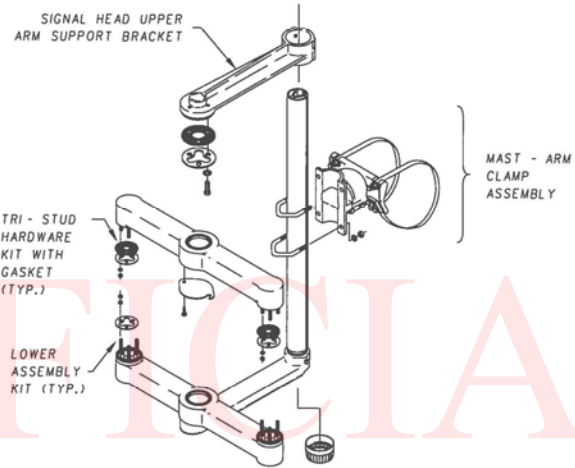
**ONE-WAY, THREE OR FOUR - SECTION
8" OR 12" SIGNAL HEADS**

<div>SPECIFICATION 746929 746932</div>	<div>CATEGORY CODE ITEMS SIGNAL HEADS</div>	<div>DELAWARE DEPARTMENT OF TRANSPORTATION TRAFFIC CONSTRUCTION DETAILS SIGNAL HEAD MOUNTING DETAILS RIGID MOUNT</div>
<div>APPROVED _____ CHIEF TRAFFIC ENGINEER</div>		
<div></div>		
DETAIL NO.		DE 746.008-01

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**ONE-WAY, FOUR OR FIVE - SECTION
8" OR 12" SIGNAL HEADS**

NOTES:

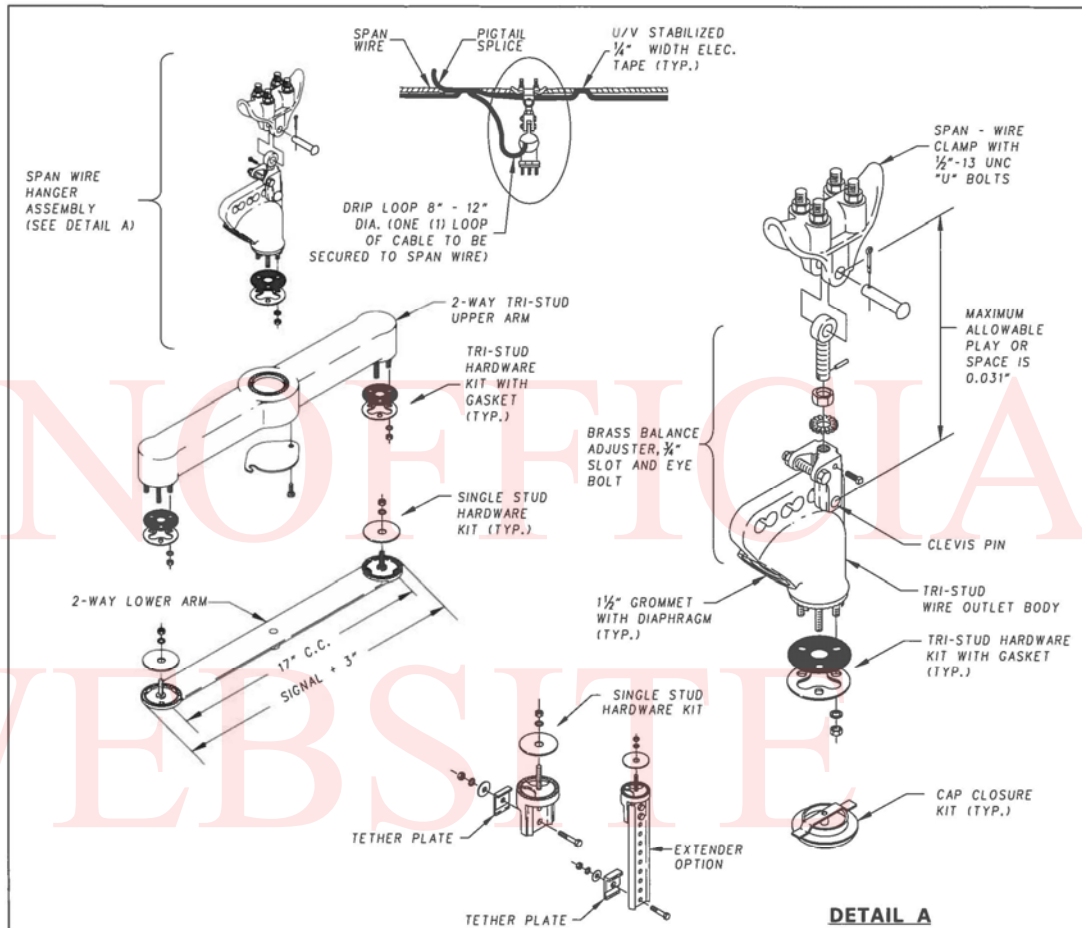
1. ALL CAST MOUNTING HARDWARE SHALL BE ALUMINUM WITH ALODINE FINISH.
2. ALL BOLTS SHALL BE STAINLESS STEEL.
3. BRACKET SHALL ADJUST IN FOUR DIRECTIONS.
4. UPPER AND LOWER ARMS SHALL BE CAST FROM 319 ALUMINUM ALLOY.
5. VERTICAL SUPPORT TUBE SHALL BE DOUBLE GUSSETED "C" SHAPED AND EXTRUDED FROM 6063 - T6 ALUMINUM ALLOY.
6. MAST ARM CLAMP ASSEMBLY SHALL BE CAST FROM 356 - T6 ALUMINUM ALLOY.
7. STRANDED BANDS SHALL BE A MINIMUM 1/2" STAINLESS STEEL, FABRICATED IN ONE PIECE.
8. CUT VERTICAL SUPPORT TUBE TO PROJECT 1" ABOVE SIGNAL HEAD TOP SUPPORT BRACKET.
9. WHEN ASSEMBLED, THE RECEIVING AND INDENTED PORTION OF THE CLAMP ASSEMBLY SHALL CONSIST OF TWO MIRRORED HALVES. THE CLAMP ASSEMBLY SHALL BE INVERSELY TIGHTENED AROUND THE MAST ARM OR POLE.
10. THE PROTRUDING PORTION OF THE CLAMP ASSEMBLY, WHICH FITS IN THE RECEIVING AND INDENTED PORTION, SHALL HAVE AN INTEGRALLY CAST FLANGE TO PREVENT SEPARATION FROM THE RECEIVING AND INDENTED SECTION.

SPECIFICATION 746929 746932	CATEGORY CODE ITEMS SIGNAL HEADS	DELAWARE DEPARTMENT OF TRANSPORTATION TRAFFIC CONSTRUCTION DETAILS SIGNAL HEAD MOUNTING DETAILS RIGID MOUNT
APPROVED	_____ CHIEF TRAFFIC ENGINEER	
		
DETAIL NO.		DE 746.008-02

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INVERTED "T" SIGNAL HEAD SPAN WIRE ASSEMBLY

NOTES:

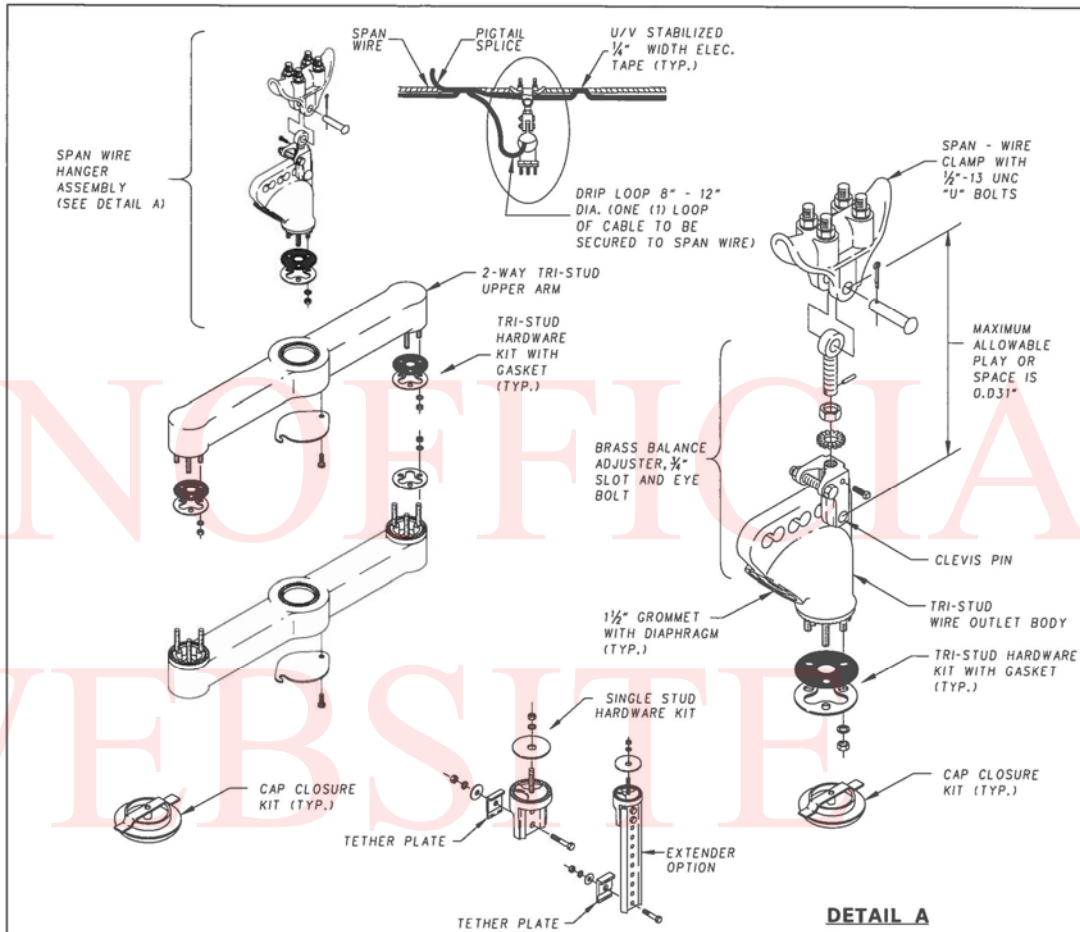
1. UPPER AND LOWER - ARM SHALL HAVE 17" CENTER-TO-CENTER SIGNAL MOUNTING DIMENSION.
2. UPPER - ARM SHALL HAVE A MINIMUM 1 1/2" OPENING THROUGHOUT FOR EASE OF WIRING AND INSTALLATION.
3. UPPER - ARM ATTACHMENT END SHALL BE SERRATED AND HAVE THREE (3) SIGNAL CENTERING BOSSES EXTENDING 1/8" FROM SERRATIONS.
4. UPPER ARM SHALL HAVE SERRATIONS AT SIGNAL ATTACHMENT END, AND TOP CENTER OPENING SHALL HAVE 72 TOOTH DESIGN (TO WATCH SIGNAL HEAD).
5. UPPER - ARM SHALL HAVE THREE (3) STAINLESS STEEL STUDS WHICH SHALL BE CAST INTO EACH SIGNAL ATTACHMENT END. THE STUDS SHALL BE 1/4" - 18 AND EXTEND 1 1/2" BEYOND THE SERRATION (+ 1/8").
6. UPPER - ARM SHALL HAVE 3 1/2" CENTER OPENING TO ALLOW FOR WIRE ACCESS.
7. UPPER - ARM CENTER OPENING SHALL HAVE AN INSPECTION COVER THAT IS CAPABLE OF BEING OPENED WITHOUT THE REMOVAL OF ANY SCREWS. THE COVER SHALL ROTATE ABOUT THE AXIS OF ONE END AND BE SECURED AT THE OTHER END.
8. LOWER - ARM SHALL HAVE HALF CIRCLE SERRATIONS ON BOTTOM FOR TETHER HARDWARE.
9. ORIENT WIRE OUTLET BODY IN SAME DIRECTION AS SIGNAL FACES.

SPECIFICATION 746930 746933	CATEGORY CODE ITEMS SIGNAL HEADS	DELAWARE DEPARTMENT OF TRANSPORTATION TRAFFIC CONSTRUCTION DETAILS SPAN WIRE MOUNTING FOR 3 OR 5 SECTION VEHICULAR SIGNAL HEADS
APPROVED	CHIEF TRAFFIC ENGINEER	
		
		DETAIL NO. DE 746.008-03

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"T" SIGNAL HEAD SPAN WIRE ASSEMBLY

NOTES:

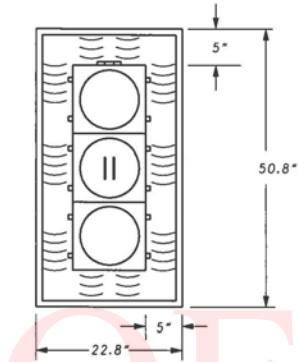
1. UPPER AND LOWER - ARM SHALL HAVE 17" CENTER-TO-CENTER SIGNAL MOUNTING DIMENSION.
2. UPPER - ARM SHALL HAVE A MINIMUM 1 1/2" OPENING THROUGHOUT FOR EASE OF WIRING AND INSTALLATION.
3. UPPER - ARM ATTACHMENT END SHALL BE SERRATED AND HAVE THREE (3) SIGNAL CENTERING BOSSES EXTENDING 3/8" FROM SERRATIONS.
4. UPPER ARM SHALL HAVE SERRATIONS AT SIGNAL ATTACHMENT END, AND TOP CENTER OPENING SHALL HAVE 72 TOOTH DESIGN (TO WATCH SIGNAL HEAD).
5. UPPER - ARM SHALL HAVE THREE (3) STAINLESS STEEL STUDS WHICH SHALL BE CAST INTO EACH SIGNAL ATTACHMENT END. THE STUDS SHALL BE 3/8" - 18 AND EXTEND 1 1/2" BEYOND THE SERRATION (+ 3/8").
6. UPPER - ARM SHALL HAVE 3 1/2" CENTER OPENING TO ALLOW FOR WIRE ACCESS.
7. UPPER - ARM CENTER OPENING SHALL HAVE AN INSPECTION COVER THAT IS CAPABLE OF BEING OPENED WITHOUT THE REMOVAL OF ANY SCREWS. THE COVER SHALL ROTATE ABOUT THE AXIS OF ONE END AND BE SECURED AT THE OTHER END.
8. LOWER - ARM SHALL HAVE HALF CIRCLE SERRATIONS ON BOTTOM FOR TETHER HARDWARE.
9. ORIENT WIRE OUTLET BODY IN SAME DIRECTION AS SIGNAL FACES.

SPECIFICATION 746930 746933	CATEGORY CODE ITEMS SIGNAL HEADS	DELAWARE DEPARTMENT OF TRANSPORTATION TRAFFIC CONSTRUCTION DETAILS SPAN WIRE MOUNTING FOR 4 SECTION "T" VEHICULAR SIGNAL HEADS
APPROVED	CHIEF TRAFFIC ENGINEER	
		
DETAIL NO.		DE 746.008-04

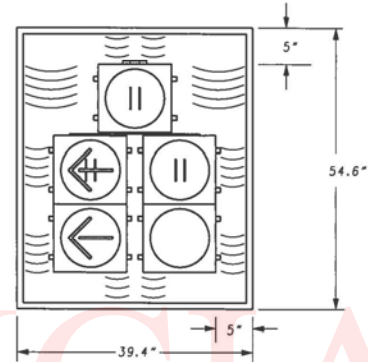
DELAWARE DEPARTMENT OF TRANSPORTATION

Contract No. DOT1209 – TRAFFIC SIG & ITS
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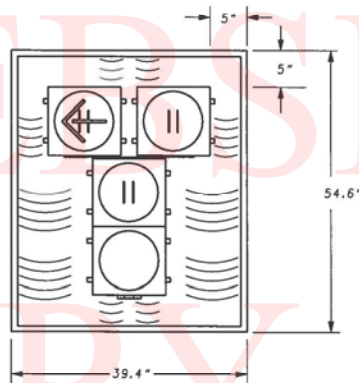
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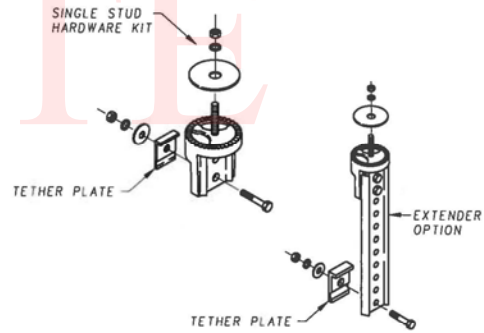
**ONE-WAY
THREE - SECTION
12" SIGNAL HEADS**



**ONE-WAY, FIVE-SECTION
12" SIGNAL HEADS**



**ONE-WAY
FOUR - SECTION
12" SIGNAL HEADS**




TETHER ASSEMBLY

NOTES:

1. ALL BOLTS SHALL BE STAINLESS STEEL.
2. ALL BACKPLATES SHALL BE POWDER-COATED ALUMINUM.

LEGEND:

|| LOCATION OF TERMINAL BLOCK

SPECIFICATION 746892	CATEGORY CODE ITEMS SIGNAL HEADS	DELAWARE DEPARTMENT OF TRANSPORTATION TRAFFIC CONSTRUCTION DETAILS SIGNAL HEAD BACKPLATE DETAILS
APPROVED _____ CHIEF TRAFFIC ENGINEER		
		
DETAIL NO.		DE 746.009-01

22. ITEM NUMBERS BY CATEGORY

To assist locating a particular item, the item numbers included in this contract have been divided into categories, as shown in the following table.

UNOFFICIAL
WEBSITE
COPY

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ITEM	DESCRIPTION	UOM	QTY
	CABINETS AND CABINET BASES		
747513	Lighting Control and Distribution Enclosure (120/240)	EA	2
747514	Cabinet Base Type F	EA	1
747515	Cabinet Base Type M	EA	4
747516	Cabinet Base Type P	EA	10
747517	Cabinet Base Type R	EA	2
	CABLE AND SPLICES		
746906	Furnish & Install 4-conductor #18 AGW Shielded Opticom Cable	LF	6,500
746907	Furnish & Install 1-conductor #2 AWG THWN Stranded Copper	LF	2,500
746908	Furnish & Install 1-conductor #4 AWG THWN Stranded Copper	LF	1,700
746909	Furnish & Install 1-conductor #6 AWG THWN Stranded Copper	LF	5,700
746910	Furnish & Install 1-conductor #8 THWN AWG Stranded Copper	LF	28,500
746911	Furnish & Install 1-conductor #10 AWG THWN Stranded Copper	LF	5,000
746912	Furnish & Install 1-conductor #14 AWG THWN Stranded Copper	LF	1,000
746913	Furnish & Install 2-Conductor #14 AWG Aluminum Shielded Cable	LF	20,000
746914	Furnish & Install #6 Bare Stranded Copper ground	LF	15,000
746915	Furnish & Install #8/2 wire UF W/ground	LF	500
746916	Furnish & Install #8/3 wire UF W/ground	LF	50
746918	Furnish & Install #2/0 AWG THWN Stranded Copper	LF	1,000
746919	Furnish & Install #4/0 AWG THWN Stranded Copper	LF	500
746920	Furnish & Install 14/4 Traffic Control Cable	LF	700
746921	Furnish & Install 14/9 Traffic Control Cable	LF	10,000
746922	Furnish & Install 14/16 Traffic Control Cable	LF	6,700
746923	Furnish & Install a 1" Flexible Non-Metallic Liquidtight Conduit Detector Sleeve with Loop Wire	LF	900
746924	Furnish & Install Loop Wire 1-conductor # 14 AWG encased in 1/4" Flexible Tubing in a Loop Sawcut	LF	9,000
	CONCRETE		
202000	Excavation and Embankment	CY	250
210000	Furnishing Borrow Type "C" for Pipe, Utility Trench, and Structure Backfill	CY	35
302007	Graded Aggregate Base Course, Type B	CY	75
302008	Graded Aggregate Base Course, Type B, Patching	CY	100
302514	Milled Hotmix Base Course	N/A	N/A
401821	WMA, Superpave, Type C, 160 Gyration, PG 64-22, Patching	TON	50
401822	WMA, Superpave, Type B, 160 Gyration, PG 64-22, Patching	TON	75
401823	WMA, Superpave, Bituminous Concrete Basecourse, 160 Gyration, PG64-22 Patching	TON	125
503001	Patching P.C.C. Pavement, 6' to 15', Type A	SY	85
503006	Dowel Bars	EA	140
701010	Portland Cement Concrete Curb, Type 1 - 8	LF	340
701011	Portland Cement Concrete Curb, Type 2	LF	1,250
701012	Portland Cement Concrete Curb, Type 1 - 4	LF	85
701020	Integral Portland Cement Concrete Curb and Gutter, Type 1 - 8	LF	85
701021	Integral Portland Cement Concrete Curb and Gutter, Type 2	LF	35

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701022	Integral Portland Cement Concrete Curb and Gutter, Type 3 - 8	LF	85
701023	Integral Portland Cement Concrete Curb and Gutter, Type 3 - 6	LF	35
705001	Portland Cement Concrete Sidewalk, 4"	SF	2,300
705002	Portland Cement Concrete Sidewalk, 6"	SF	1,450
705007	Sidewalk Surface Detectable Warning System	SF	700
705008	Curb Ramp, Type 1	SF	700
705009	Curb Ramp, Type 2, 3 And/or 4	SF	2,500
705010	Curb Ramp, Type 5	SF	2,000
705530	Triangular Channelizing Island	SF	2,500
758000	Removal of Existing Portland Cement Concrete Pavement, Curb, and Sidewalk	SY	50
762001	Saw Cutting, Hot Mix	LF	2,000
762002	Saw Cutting, Concrete, Full Depth	LF	340
CONDUIT			
745601	Furnish & Install up to 3" Flexible Metallic-Liquidtight Conduit	LF	170
745602	Furnish & Install up to 4" Schedule 80 HDPE Conduit (Bore)	LF	5,700
745603	Furnish & Install up to 4" Schedule 80 PVC Conduit (Open Cut)	LF	500
745604	Furnish & Install up to 4" Schedule 80 PVC Conduit (Trench)	LF	15,000
745605	Furnish & Install up to 4" Schedule 80 PVC Conduit (On Structure)	LF	250
745606	Furnish & Install up to 4" Galvanized Steel Conduit (Trench)	LF	1,000
745607	Furnish & Install up to 4" Galvanized Steel Conduit (Bore)	LF	500
745608	Furnish & Install up to 4" Galvanized Steel Conduit (Open Cut)	LF	50
745609	Furnish & Install up to 4" Galvanized Steel Conduit (On Structure)	LF	35
745610	Furnish & Install up to 4" Nonmetallic Pole Riser Shield	LF	300
ELECTRIC SERVICE			
746925	Furnish & Install Embedded Metered Service Pedestal (100 AMP)	EA	15
746926	Furnish & Install Electrical Utility Service Equipment 120/240	EA	2
JUNCTION WELLS			
744520	Conduit Junction Well, Type 1, Precast Concrete	EA	15
744523	Conduit Junction Well, Type 4, Precast Concrete	EA	4
744524	Conduit Junction Well, Type 5, Precast Concrete	EA	2
744500	Conduit Junction Well, Type 6, Precast Polymer Concrete	EA	2
744506	Conduit Junction Well, Type 7, Precast Polymer Concrete	EA	10
744507	Conduit Junction Well, Type 8, Precast Polymer Concrete	EA	2
744508	Conduit Junction Well, Type 9, Precast Polymer Concrete	EA	2
744509	Conduit Junction Well, Type 10, Precast Polymer Concrete	EA	2
744530	Conduit Junction Well, Type 11, Precast Concrete / Polymer Lid-Frame	EA	150
744531	Conduit Junction Well, Type 14, Precast Concrete / Polymer Lid-Frame	EA	30
744532	Conduit Junction Well, Type 15, Precast Concrete / Polymer Lid-Frame	EA	17
744533	Furnish & Install Frame and Lid, for Junction Well, Type 1	EA	7
744534	Furnish & Install Frame and Lid, for Junction Well, Type 4	EA	4
744535	Furnish & Install Frame and Lid, for Junction Well, Type 5	EA	2

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Traffic Section**

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744536	Furnish & Install Precast Polymer Cover for Junction Well, Type 6	EA	2
744537	Furnish & Install Precast Polymer Cover for Junction Well, Type 7	EA	4
744538	Furnish & Install Precast Polymer Cover for Junction Well, Type 8	EA	2
744539	Furnish & Install Precast Polymer Cover for Junction Well, Type 9	EA	2
744540	Furnish & Install Precast Polymer Cover for Junction Well, Type 10	EA	2
744541	Furnish & Install Frame and Lid, for Junction Well, Type 11	EA	7
744542	Furnish & Install Frame and Lid, for Junction Well, Type 14	EA	4
744543	Furnish & Install Frame and Lid, for Junction Well, Type 15	EA	2
744544	Adjust or Repair Existing Conduit Junction Well	EA	40
744545	Bonding & Grounding Existing Junction Well	EA	100
	MISCELLANEOUS		
763684	Performance and Payment Bond, Open End Signal Contract	LS	1
	MAINTENANCE OF TRAFFIC		
743003	Arrow Panels, Type C	EA-DY	200
743004	Furnish & Maintain Portable Changeable Message Board	EA-DY	280
743004	Furnish & Maintain Portable Light Assembly (Flood Lights)	EA-DY	100
743006	Plastic Drums	EA-DY	6,000
743007	Traffic Officers	HR	800
743009	Furnish and Maintain Truck-Mounted Attenuator, Type I	EA-DY	20
743010	Furnish And Maintain Truck Mounted Attenuator, Type II	EA-DY	200
743023	Temporary Barricades, Type III	LF-DY	2,400
743024	Temporary Warning Signs and Plaques	EA-DY	1,600
743050	Flagger, New Castle County, State	HR	500
743051	Flagger, Kent County, State	HR	170
743052	Flagger, Sussex County, State	HR	340
743056	Flagger, New Castle County, Federal	HR	100
743057	Flagger, Kent County, Federal	HR	35
743058	Flagger, Sussex County, Federal	HR	70
743062	Flagger, New Castle County, State, Overtime	HR	50
743063	Flagger, Kent County, State, Overtime	HR	17
743064	Flagger, Sussex County, State, Overtime	HR	35
743065	Flagger, New Castle County, Federal, Overtime	HR	10
743066	Flagger, Kent County, Federal, Overtime	HR	4
743067	Flagger, Sussex County, Federal, Overtime	HR	7
743552	Pedestrian Channelizing Barricade System	LF/DY	700
743553	Temporary Pedestrian Pathway	SY	200
743555	Temporary Sidewalk – Type 2	LF	250
743556	Relocate Temporary Sidewalk – Type 2	LF	500
	POLES, MAST ARMS, POLE BASES		
746928	Installation of Steel Mast Arm Pole with Single or Twin Mast arms up to 70'	EA	17
746507	Installation of Steel Pole (Less than 40')	EA	25
746528	Installation of Steel Pole (Equal to or Greater than 40')	EA	4
746831	Installation of Pedestal Pole	EA	50
746697	Installation of Wood Pole	EA	2

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746942	Installation of Lighting Pole, with Arm and Luminaire	EA	35
746815	Installation of Luminaire	EA	4
746590	Furnish & Install Ground Rod	EA	4
746832	Furnish & Install Weatherhead, up to 3", on Steel Pole	EA	12
746555	Sheeting for Pole Base	EA	4
746614	Pole Base Extension	CF	70
746847	Pole Base Type 3	EA	40
746850	Pole Base Type 4	EA	50
746852	Pole Base Type 6	EA	35
	SIGNAL HEADS, PEDESTRIAN BUTTONS, EMERGENCY PREEMPTION		
746929	Furnish & Install 8" LED Signal Head Section, Rigid Mount	EA	7
746930	Furnish & Install 8" LED Signal Head Section, Span Mount	EA	10
746931	Furnish & Install 8" LED Traffic Signal Head Indication Module	EA	4
746932	Furnish & Install 12" LED Signal Head Section, Rigid Mount	EA	145
746933	Furnish & Install 12" LED Signal Head Section, Span Mount	EA	220
746934	Furnish & Install 12" LED Traffic Signal Head Indication Module	EA	35
746892	Furnish & Install Signal Head Backplate	EA	10
746935	Furnish and Install 16" LED Countdown Pedestrian Signal	EA	70
	Furnish & Install 16" LED Pedestrian Signal Head Indication Module	EA	7
746937	Furnish and Install Pedestrian Pushbutton with Sign	EA	70
746763	Realign or Slide Existing Signal Head	EA	35
746775	Furnish & Install Opticom Emergency Preemption Detector	EA	40
	SIGNS		
746938	Install Overhead Sign	SF	450
	SOIL		
732004	Topsoil	TON	100
736001	Sodding	SY	500
	SPAN, MESSENGER, AND GUY WIRE		
746501	Furnish & Install Down Guy and Anchor	EA	35
746504	Furnish & Install Span Wires, 7/16"	LF	3,700
746506	Furnish & Install Span Wires, 1/4"	LF	700
746703	Furnish & Install Dead End Messenger Wire Attachment	EA	4
746704	Adjustment of Span or Messenger Wire	EA	17
746706	Transfer of Existing Span or Messenger Attachment	EA	4
	REMOVAL		
746939	Traffic Control Device Equipment Turn on, Pick up, Removal & Maintenance, Type I	EA	9
746940	Traffic Control Device Equipment Turn on, Pick up, Removal & Maintenance, Type II	EA	5
746941	Traffic Control Device Equipment Turn on, Pick up, Removal & Maintenance, Type III	EA	4

	PAVEMENT MARKINGS		
	Permanent Pavement Striping, Symbol/Legend Alkyd-Thermoplastic	SF	5,000
748015	Temporary Markings, Paint, 4"	LF	170
748026	Temporary Markings, Paint Symbol/Legend	SF	840
748027	Permanent Pavement Striping, Alkyd-Thermoplastic, 12"	LF	700
748033	Permanent Pavement Striping, Alkyd-Thermoplastic, 5"	LF	840
748513	Retroreflective Preformed Patterned Markings, 12"	LF	70
748518	Blackout Tape, 6"	LF	35
748525	Temporary Markings, Tape, 4"	LF	170
748527	Temporary Markings, Tape, Words/Symbols	SF	840
748528	Blackout Tape, 8"	LF	35
748529	Retroreflective Preformed Patterned Markings, Symbol/Legend	SF	1,350
748530	Removal of Pavement Striping	SF	1,700
	Preformed Retroreflective Thermoplastic Pavement Markings, Bike Symbol	EA	7
748553			
748554	Preformed Retroreflective Thermoplastic Pavement Markings, Pedestrian Symbol	EA	2
748564	Retroreflective Preformed Patterned Markings, 5"	LF	170
748566	Retroreflective Preformed Patterned Markings, 8"	LF	340
748567	Retroreflective Preformed Patterned Markings, 13"	LF	120