

STATE OF DELAWARE



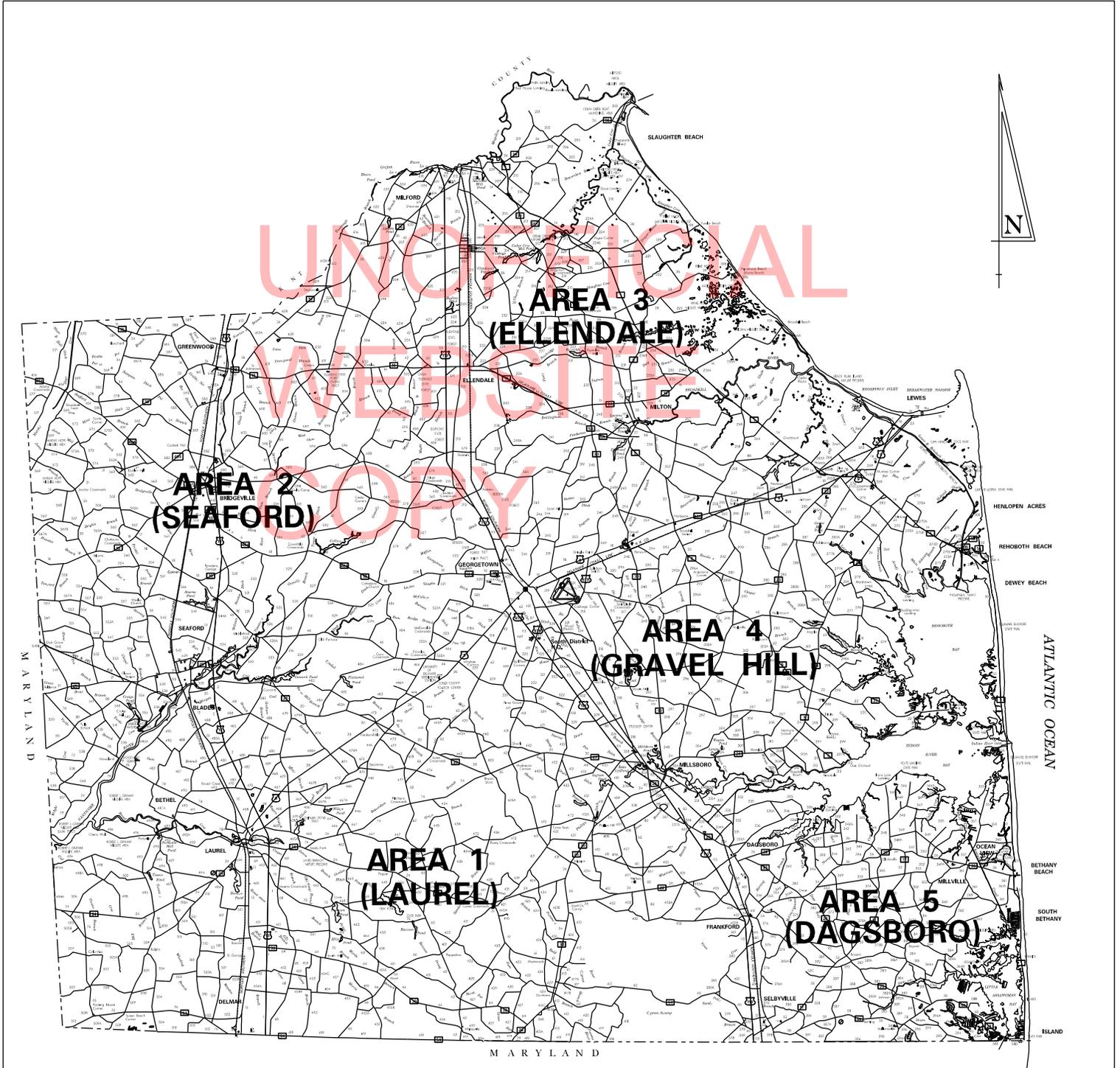
DEPARTMENT OF TRANSPORTATION
MAINTENANCE SUPPORT – SOUTH DISTRICT
PLANS AND SPECIFICATIONS FOR:

CONTRACT NO: T201480204 P3E: 14-55001
CONTRACT TITLE: PIPE INSTALLATION, OPEN END, SOUTH, 2014
PLANS PREPARED BY: GRANT PARKER (DESIGN TECHNICIAN)

PLANS REVIEWED BY: Jim Wyatt DATE: 10/31/13
MAINT.SUPPORT SUPERVISOR

<p>DATE RECOMMENDED: <u>10.31.13</u></p> <p>ASSISTANT MAINT. ENGINEER: <u>Jason McCluskey</u></p>	
<p>DATE RECOMMENDED: <u>10-31-13</u></p> <p>MAINTENANCE ENGINEER: <u>[Signature]</u></p>	
<p>DATE RECOMMENDED: <u>10/31/13</u></p> <p>SOUTH DISTRICT ENGINEER: <u>Jeffrey S. Reed</u></p>	

LOCATION MAP



VARIOUS LOCATIONS THROUGHOUT SUSSEX COUNTY

DEPARTMENT OF TRANSPORTATION

CONTRACT: T201480204

PAGE 3 OF 14

SOUTH DISTRICT

PIPE INSTALLATION, OPEN END, SOUTH, 2014

GENERAL CONTRACT NOTES

1. CONSTRUCTION OF THIS CONTRACT SHALL CONFORM TO DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, DATED AUGUST 2001 AS AMENDED BY THE SUPPLEMENTAL SPECIFICATIONS, THE SPECIAL PROVISIONS, THE STANDARD CONSTRUCTION DETAILS, AND THESE PLANS.
2. THE PURPOSE OF THIS CONTRACT IS TO MAKE DRAINAGE IMPROVEMENTS, INCLUDING ENTRANCE PIPE INSTALLATIONS, CROSSROAD PIPE REPLACEMENTS, PIPING OF EXISTING DITCHES, ETC AT VARIOUS LOCATIONS IN SUSSEX COUNTY.
3. THE CONTRACTOR IS REMINDED THAT SECTION 105.07 OF THE STANDARD SPECIFICATIONS REQUIRES THE GENERAL CONTRACTOR TO HAVE A COMPETENT SUPERINTENDENT OR FOREMAN ON THE PROJECT AT ALL TIMES.
4. IN LIEU OF SECTION 104.05 OF THE STANDARD SPECIFICATIONS AND DEPENDING ON FUND AVAILABILITY, THE DEPARTMENT RESERVES THE RIGHT TO ADD OR DELETE QUANTITIES TO THIS CONTRACT. SUCH QUANTITY ADDITIONS OR DELETIONS SHALL NOT BE CAUSE FOR AN INCREASE OR DECREASE IN ANY CONTRACT UNIT BID PRICES. NO ITEM PRICES ARE TO BE RENEGOTIATED DUE TO EITHER AN INCREASE OR DECREASE IN QUANTITY USAGE RESULTING FROM SAID ADDITIONS OR DELETIONS. IN THE CASE WHERE CONTRACT UNIT PRICES ARE NOT AVAILABLE, THE PRICES ARE TO BE NEGOTIATED OR PERFORMED BY FORCE ACCOUNT PROCEDURES.
5. THIS CONTRACT SHALL EXPIRE ONE CALENDAR YEAR FROM THE DATE OF THE NOTICE TO PROCEED. THE DEPARTMENT RESERVES THE RIGHT TO REQUEST TO EXTEND THE CONTRACT FOR AN ADDITIONAL ONE (1) YEAR AT THE ORIGINAL UNIT BID PRICES SPECIFIED. THE ONE-YEAR EXTENSION MUST BE APPROVED BY BOTH PARTIES IN WRITING AT LEAST 90 DAYS PRIOR TO EXPIRATION OF THE EXISTING CONTRACT. THE PERFORMANCE BOND SHALL BE SUBMITTED WITH THE CONTRACT EXECUTION AND SHALL BE SUBJECT TO ANY SUCH AGREED UPON RENEWAL FOR EXTENSION PERIODS. INITIAL EXPENSE SHALL ONLY BE PAID ONCE AND SHALL NOT BE PAID A SECOND TIME UPON AN EXTENSION OF THE CONTRACT. ANY ADDITIONAL EXPENSES RELATED TO THE EXTENSION OF THE CONTRACT MUST BE DOCUMENTED AND SHALL BE AGREED TO PRIOR TO CONTRACT EXTENSION.
6. DURING THE BIDDING PERIOD, ANY QUESTIONS PERTAINING TO THE WORK INVOLVED OR THIS CONTRACT SHALL BE DIRECTED TO THE CONTRACT ADMINISTRATOR. AFTER THE CONTRACT IS AWARDED, SUCH QUESTIONS SHALL BE REFERRED TO THE APPROPRIATE DISTRICT ENGINEER OR HIS REPRESENTATIVE.
7. ANY AND ALL CONSTRUCTION ENGINEERING SHALL BE INCIDENTAL TO THE CONTRACT.
8. THE CONTRACTOR SHALL NOTIFY THE DISTRICT AND THE APPROPRIATE DELDOT MAINTENANCE AREA SUPERVISOR 24 HOURS PRIOR TO STARTING ANY WORK.
9. THE WORK WILL BE SCHEDULED VIA WORK ORDERS FROM THE DISTRICT; WORK LOCATIONS WILL VARY IN SIZE. THE WORK ORDERS WILL INDICATE THE WORK TO BE PERFORMED AT EACH LOCATION.
10. THE CONTRACTOR SHALL BE ADVISED OF WORK TO BE PERFORMED VIA A WORK ORDER. THE WORK ORDER WILL INDICATE THE EXACT LOCATION OF WORK, THE QUANTITY OF WORK, AND THE SIZE OF PIPE TO BE INSTALLED. ISSUANCE OF EACH WORK ORDER CONSTITUTES THE NOTICE TO PROCEED WITH THE WORK DESCRIBED ON THAT WORK ORDER. ALL WORK ORDERS MUST BE COMPLETED WITHIN 15 CALENDAR DAYS FROM THE NOTICE TO PROCEED. NO WORK SHALL BE CONDUCTED ON SUNDAYS OR OFFICIAL STATE HOLIDAYS WITHOUT PRIOR APPROVAL FROM THE DISTRICT ENGINEER.

DEPARTMENT OF TRANSPORTATION

CONTRACT: T201480204

PAGE 4 OF 14

SOUTH DISTRICT

PIPE INSTALLATION, OPEN END, SOUTH, 2014

GENERAL CONTRACT NOTES cont.

IF WORK ON A SPECIFIC WORK ORDER IS NOT COMPLETED WITHIN 15 CALENDAR DAYS FROM THE DATE OF THE NOTICE TO PROCEED, LIQUIDATED DAMAGES WILL BE ASSESSED PER THE RATE SET IN THE SUPPLEMENTAL SPECIFICATIONS, SECTION 108.09.

11. THE CONTRACTOR SHALL COMMENCE WORK INDICATED ON THE WORK ORDER NO LATER THAN THE SEVENTH (7TH) WORKING DAY AFTER ISSUANCE UNLESS REQUIRED MATERIALS ARE NOT AVAILABLE. NON-AVAILABILITY OF MATERIALS SHALL BE VERIFIED BY AT LEAST THREE (3) DIFFERENT SOURCES. VERIFICATION SHALL BE FORMAL AND SUPPLIED BY THE CONTRACTOR IN WRITING. IF THERE IS A VERIFIED NON-AVAILABILITY OF MATERIALS, TIME CHARGES SHALL COMMENCE ON THE FIRST (1ST) WORKING DAY FOLLOWING THE DELIVERY DATE OF SAID MATERIALS.
12. EACH WORK ORDER SHALL BE CONSIDERED A SEPARATE UNIT OF WORK. THE ENGINEER WILL MAKE PAYMENT MONTHLY FOR THE COMPLETED INVOICES AS OUTLINED IN SECTION 109.07. UPON THE SUBSTANTIAL COMPLETION OF THE WORK AT AN INDIVIDUAL LOCATION, THE ENGINEER WILL STOP TIME AT THAT LOCATION AND PERFORM A SEMI-FINAL INSPECTION FOR THE WORK ORDER LOCATION IN ACCORDANCE WITH SUBSECTION 105.20. IF THE WORK IS SATISFACTORILY COMPLETED, THE ENGINEER WILL RELEASE THE CONTRACTOR FROM MAINTENANCE RESPONSIBILITY FOR THAT LOCATION. THE ENGINEER RESERVES THE RIGHT TO REQUIRE THE CONTRACTOR TO ADD WORK OR MAKE REPAIRS TO COMPLETED LOCATIONS AT THE DEPARTMENT'S EXPENSE UNTIL SUCH A LOCATION HAS BEEN ACCEPTED BY THE DEPARTMENT. THE CONTRACTOR MUST REPAIR ALL DEFECTS IN THE WORK CAUSED BY POOR WORKMANSHIP OR MATERIALS AT THEIR OWN EXPENSE UNTIL THE DEPARTMENT ACCEPTS THE CONTRACT AFTER THE FINAL INSPECTION. A FINAL INSPECTION WILL BE COMPLETED ON AN ANNUAL BASIS FOR WORK ORDERS COMPLETED IN A CALENDAR YEAR. UPON SATISFACTORY COMPLETION OF THE FINAL PUNCH LIST, THE DEPARTMENT WILL ACCEPT THE LOCATION AND RELEASE THE CONTRACTOR FROM RESPONSIBILITY FOR THE WORK AT THAT LOCATION. IF A WORK ORDER IS SUFFICIENTLY LARGE AND COMPLEX AS DETERMINED BY THE ENGINEER, A FINAL INSPECTION MAY BE HELD UPON THE COMPLETION OF THAT WORK ORDER.
13. 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 DISTRICT 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 DISTRICT ENGINEER.
14. NO ENVIRONMENTAL PERMITS ARE REQUIRED FOR THIS WORK PROVIDED THAT NO JURISDICTIONAL WETLANDS OR WATERS ARE IMPACTED. IF THERE IS ANY QUESTION AS TO WHETHER OR NOT A WETLAND OR WATERS IS JURISDICTIONAL, CONTACT THE DELDOT ENVIRONMENTAL SECTION AT 302-760-2264.
15. 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 DELDOT REPRESENTATIVE TO SECURE SUCH TRESPASS NEEDS.
16. 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 CONTRACTOR TO CONTACT THE RAILROAD CHIEF ENGINEER AND OBTAIN WRITTEN AUTHORIZATION BEFORE ENTERING.

DEPARTMENT OF TRANSPORTATION

CONTRACT: T201480204

PAGE 5 OF 14

SOUTH DISTRICT

PIPE INSTALLATION, OPEN END, SOUTH, 2014

GENERAL CONTRACT NOTES cont.

17. ALL NEW CORRUGATED POLYETHYLENE PIPE (CPEP) SHALL BE COMPATIBLE WITH EXISTING CPEP AND SHALL BE CAPABLE OF PROVIDING A WATERTIGHT SEAL TO DELDOT'S EXISTING INVENTORY OF CPEP MANUFACTURED BY ADS. THE PIPE SHALL ALSO MEET THE SPECIFICATION ON PAGE 7 OF THESE PLANS.
18. ALL DEWATERING METHODS, TRENCH BOXES, AND OTHER WORK ASSOCIATED WITH THE INSTALLATION OF THE PIPE SHALL BE INCIDENTAL TO THE CORRESPONDING PIPE ITEM.
19. REMOVAL AND DISPOSAL OF EXISTING PIPES THAT ARE TO BE REPLACED SHALL BE PAID UNDER ITEM # 208000, EXCAVATION AND BACKFILLING FOR PIPE TRENCHES. NO ADDITIONAL PAYMENT WILL BE MADE TO REMOVE OR DISPOSE OF EXISTING PIPES.
20. ITEM 714000 SHALL BE USED AS DIRECTED TO PAY FOR NEW DITCHING. THIS ITEM SHALL NOT BE USED TO PAY FOR ANY SWALING OVER NEWLY INSTALLED PIPE, AS SUCH WORK IS INCIDENTAL TO ITEM 208000 EXCAVATION AND BACKFILLING FOR PIPE TRENCHES.
21. ITEMS 208000 AND 210000, EXCAVATION AND BACKFILL SHALL BE CALCULATED AND PAID SEPARATELY AT EACH LOCATION; WITH THE EXCEPTION OF ITEM 614875 WHERE THESE ITEMS WILL BE INCIDENTAL.
22. THE DEPARTMENT AND THE CONTRACTOR SHALL INSPECT ALL EXISTING PIPES AND DRAINAGE STRUCTURES TO BE USED IN THE FINAL DRAINAGE SYSTEM AND AGREE ON THE CONDITION PRIOR TO THE START OF CONSTRUCTION. EXISTING PIPES AND DRAINAGE STRUCTURES DAMAGED DUE TO CONTRACTOR OPERATIONS SHALL BE REPAIRED OR REPLACED IN-KIND AT THE CONTRACTOR'S EXPENSE. THE DEPARTMENT WILL VIDEO INSPECT NEW PIPE RUNS TO CONFIRM CONDITION PRIOR TO ACCEPTANCE. PIPE CLEANING PRIOR TO VIDEO INSPECTION AND MAINTENANCE OF TRAFFIC DURING THE VIDEO INSPECTION ARE THE RESPONSIBILITY OF THE CONTRACTOR AND INCIDENTAL TO THE PIPE ITEM THAT IS BEING VIDEO INSPECTED.
23. THE DELDOT REPRESENTATIVE 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 THE CONTRACT (OR SITES), THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING AND SUBMITTING FOR APPROVAL OF THE SAFETY SECTION, MAINTENANCE OF TRAFFIC PLAN. SUFFICIENT TIME SHALL BE PROVIDED FOR THE REVIEW AND APPROVAL OF THE PLANS. THE MAINTENANCE OF TRAFFIC PLAN SHALL INCLUDE PROPOSED TIME RESTRICTIONS ON THE CLOSURE OF TRAVEL LANES SUBJECT TO THE APPROVAL OF THE SAFETY SECTION.
24. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THE TRAFFIC MANAGEMENT CENTER (1-302-659-4600) IS NOTIFIED EACH AND EVERY DAY WHEN WORK IS BEING PERFORMED IN STATE RIGHT OF WAY. THE CONTRACTOR MUST IDENTIFY THE TYPE OF WORK, ANY LANES OR SHOULDERS CLOSED, LENGTH OF TIME FOR WORK, WHEN THE LANE RESTRICTION IS IN PLACE, WHEN THE LANE RESTRICTION IS PICKED UP, DESIGNATED ON-SITE CONTACT PERSON/NUMBER AND STATE INSPECTOR
25. ALL TRAFFIC CONTROL DEVICES SHALL BE IN NEW OR REFURBISHED CONDITION AND SHALL BE IN COMPLIANCE WITH THE TRAFFIC CONTROL MANUAL AND NCHRP 350 AS DEFINED IN SECTION "6A" OF THE TRAFFIC CONTROL MANUAL AND SHALL BE APPROVED BY THE ENGINEER BEFORE INSTALLATION. TRAFFIC CONTROL DEVICES SHALL BE MAINTAINED IN GOOD CONDITION FOR DURATION OF USE

DEPARTMENT OF TRANSPORTATION

CONTRACT: T201480204

PAGE 6 OF 14

SOUTH DISTRICT

PIPE INSTALLATION, OPEN END, SOUTH, 2014

GENERAL CONTRACT NOTES cont.

26. ALL TRAFFIC CONTROL DEVICES SHALL BE SUITABLY MAINTAINED AT ALL TIMES. INCLUDING SUCH MAINTENANCE AS WASHING SIGN FACES, REPLACING DEFICIENT BATTERIES AND LIGHTS, ALIGNING PROPERLY, REPLACING REFLECTIVE MATERIALS, RELOCATING BARRIERS AND ANY OTHER MAINTENANCE OF TRAFFIC CONTROL DEVICES DEEMED NECESSARY BY THE ENGINEER OR DESIGNEE TO MAINTAIN TRAFFIC IN A SAFE AND EFFECTIVE MANNER.
27. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS/HER WORK WITH OTHER CONTRACTORS IN THE AREA.
28. ACCESS TO ALL BUSINESSES AND RESIDENCES SHALL BE MAINTAINED AT ALL TIMES. ANY CLOSURE OF ENTRANCE/RESIDENCIES SHALL BE COORDINATED WITH THE LAND OWNER PRIOR TO ANY CLOSURES.
29. THE CONTRACTOR AND ALL OTHERS SHALL PERFORM ALL WORK IN A MANNER THAT WILL ENSURE THE LEAST PRACTICAL OBSTRUCTION TO THE TRAVELING PUBLIC AND SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST VERSION OF THE MANUAL ENTITLED "DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" IN EFFECT AT THE TIME OF ADVERTISEMENT FOR BIDS.
30. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN INCLUDING THE NECESSARY NCHRP 350 CERTIFICATIONS FOR ALL DEVICES THAT WILL BE UTILIZED FOR EACH LOCATION BEFORE THE START OF THE PRE-CONSTRUCTION MEETING. WRITTEN APPROVAL MUST BE RECEIVED BEFORE THE START OF WORK AT EACH AND EVERY LOCATION.
31. THE CONTRACTOR SHALL PROVIDE A WRITTEN NOTICE TO ALL RESIDENTS WHO LIVE ADJACENT TO THE WORK ZONE, A MINIMUM OF 48 HRS. PRIOR TO THE START OF CONSTRUCTION WORK. THIS NOTIFICATION SHALL INCLUDE THE SCOPE OF WORK, WORKING HOURS, ANTICIPATED START AND COMPLETION DATES, CONTRACTOR NAME & ADDRESS, AND DELDOT CONTACT NUMBERS. FAILURE TO GIVE PROPER NOTICE WILL RESULT IN A SUSPENSION OF WORK REQUIRING NOTICE, UNTIL PROPER NOTICE IS PROVIDED.
32. ALL REQUIRED MAINTENANCE OF TRAFFIC WARNING SIGNS SHALL BE PAID FOR UNDER ITEM 743024, TEMPORARY WARNING SIGNS AND PLAQUES. ALL WARNING SIGNS SHALL BE DIAMOND GRADE RETRO-REFLECTIVE. WOOD SHEETING IS NOT PERMITTED.
33. NO SEPARATE PAYMENT SHALL BE MADE FOR THE USE OF TRAFFIC CONES. TRAFFIC CONES AND/OR WORK ASSOCIATED WITH THEIR USE SUCH AS SET UP, REMOVAL, CLEANING, ETC., SHALL BE INCIDENTAL TO THE WORK FOR WHICH THEY PROTECT.

ITEM NO. 614875: ENTRANCE PIPE INSTALLATION NOTES

34. THE NOTES LISTED BELOW APPLY ONLY TO THE ENTRANCE PIPE ITEM NO. 614875. ALL CROSSROAD PIPE LOCATIONS, DITCH ENCLOSURES OR ANY OTHER WORK GIVEN NOT RELATING TO A PERMIT NUMBER WILL BE PAID PER THE APPLICABLE STANDARD SPECIFICATIONS.
35. THE PURPOSE OF THIS ITEM IS TO INSTALL PRIVATE PROPERTY ENTRANCE PIPES AT VARIOUS LOCATIONS ALONG 2-LANE ROADS THROUGHOUT SUSSEX COUNTY. THERE WILL BE NO LOCATIONS ISSUED FOR DUAL HIGHWAYS.
36. ALL MAINTENANCE OF TRAFFIC SHALL BE INCIDENTAL TO ITEM NO. 614875. TYPICAL APPLICATION #10 SHALL BE USED FOR MAINTENANCE OF TRAFFIC AT ENTRANCE PIPE LOCATIONS.

DEPARTMENT OF TRANSPORTATION

CONTRACT: T201480204

PAGE 7 OF 14

SOUTH DISTRICT

PIPE INSTALLATION, OPEN END, SOUTH, 2014

ITEM NO. 614875: ENTRANCE PIPE INSTALLATION NOTES cont.

- 37. THE ESTIMATED MINIMUM LENGTH OF PIPE TO BE INSTALLED AT EACH INDIVIDUAL LOCATION SHALL BE 24'. IT IS THE DEPARTMENT'S INTENT TO ISSUE NO MORE THAN 3 LOCATIONS PER DAY.
- 38. IN THE EVENT THAT WARM MIX MUST BE PLACED OVER AN ENTRANCE PIPE, THE WARM MIX WILL BE PAID SEPARATELY UNDER ITEMS 401821 AND 401822, HOWEVER, ITEM 406001, HOT MIX PATCHING, WILL NOT BE PAID AS THIS WORK WILL BE INCIDENTAL TO ITEM 614875.
- 39. INSTALLATION OF ENTRANCE PIPE SHALL BE MEASURED AND PAID FOR BY THE NUMBER OF LINEAR FEET OF PIPE INSTALLED AND ACCEPTED BY DELDOT. ALL REQUIRED ITEMS TO COMPLETE THE PIPE INSTALLATION WITHIN DRIVEWAY ENTRANCES, SUCH AS BORROW, GABC, TOPSOIL, SEED AND MULCH, ETC. SHALL BE INCIDENTAL TO ITEM 614875.

UNOFFICIAL
MATERIAL SPECIFICATIONS FOR:
COPY

- 612520 – CORRUGATED POLYETHYLENE PIPE, TYPE S, 15”**
- 612522 – CORRUGATED POLYETHYLENE PIPE, TYPE S, 12”**
- 612523 – CORRUGATED POLYETHYLENE PIPE, TYPE S, 18”**
- 612524 – CORRUGATED POLYETHYLENE PIPE, TYPE S, 24”**
- 612525 – CORRUGATED POLYETHYLENE PIPE, TYPE S, 30”**
- 612526 – CORRUGATED POLYETHYLENE PIPE, TYPE S, 36”**

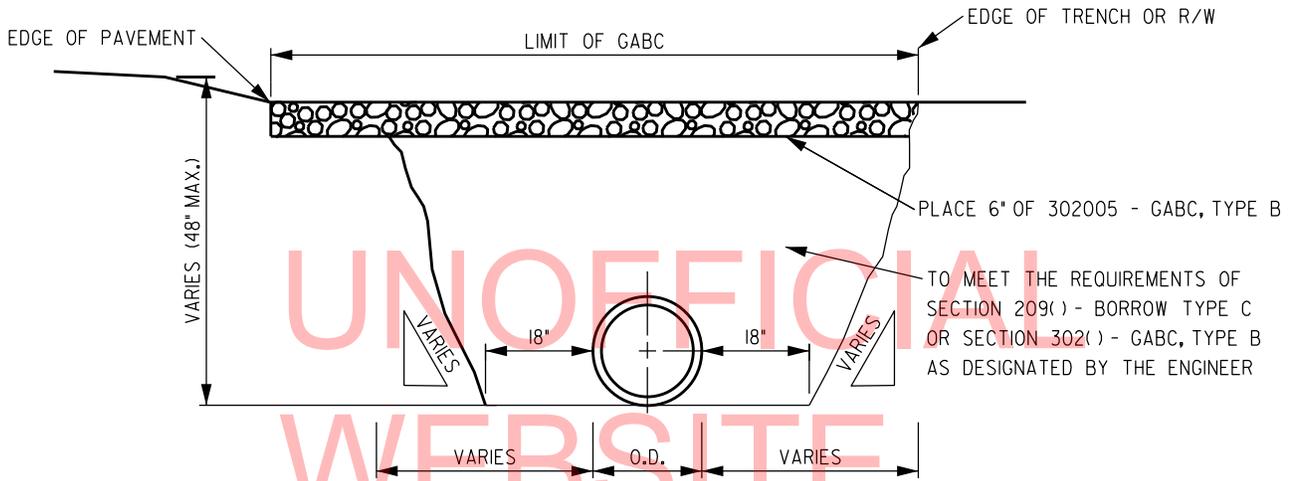
CORRUGATED POLYETHYLENE PIPE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M294, LATEST EDITION, FOR PIPE CLASSIFIED AS TYPE S. PIPE AND FITTING MATERIAL SHALL BE HIGH-DENSITY POLYETHYLENE MEETING ASTM D3350.

INDIVIDUAL PIPE SECTIONS SHALL BE INSTALLED WITH INTEGRAL BELL AND SPIGOT CONNECTIONS THAT PROVIDE LEAK RESISTANT CONNECTIONS WATERTIGHT TO A MINIMUM PRESSURE OF 10.8 PSI WHEN TESTED IN ACCORDANCE WITH THE METHODS DESCRIBED IN ASTM D3212.

THE PIPE SHALL BE INSTALLED WITH GASKETS PRE-INSTALLED BY THE PIPE MANUFACTURER. GASKETS SHALL BE LOCATED AT THE SPIGOT END AND MEET THE REQUIREMENTS OF ASTM F477. THE MANUFACTURER SHALL PROVIDE CERTIFICATION THAT THE GASKET MATERIAL SHOWED NO VISIBLE CRACKING WHEN TESTED ACCORDING TO ASTM D1149 AFTER 72-HOUR EXPOSURE IN 50 PPHM OZONE AT 104 DEGREES FAHRENHEIT. THE PIPE SHALL BE SUPPLIED WITH THE GASKETS COVERED WITH A REMOVABLE WRAP TO PROTECT THE GASKET MATERIAL FROM DAMAGE AND DEBRIS DURING INSTALLATION. A JOINT LUBRICANT SHALL BE USED TO INSTALL PIPE. CERTIFICATION FOR THE GASKETS SHALL BE PRODUCED BY THE PIPE MANUFACTURER.

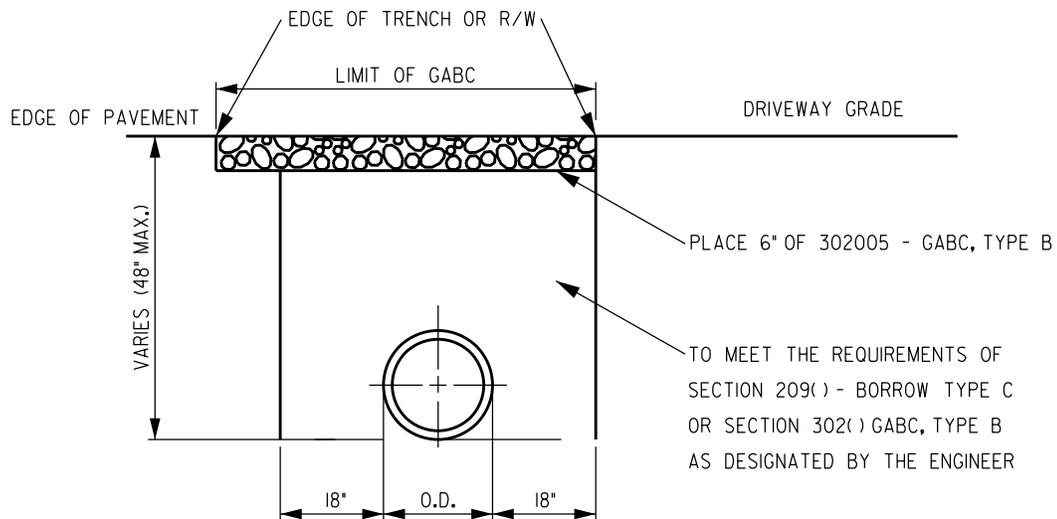
IN ADDITION, THE JOINT SYSTEM SHALL PROVIDE SUFFICIENT LONGITUDINAL STRENGTH TO PRESERVE PIPE ALIGNMENT AND PREVENT SEPARATION AT THE JOINT. ALL FITTINGS SHALL ALSO MEET THE WATER TIGHT REQUIREMENTS OF ASTM D3212 CONSISTENT WITH THE PIPE INSTALLED UNDER THE TERMS OF THIS CONTRACT.

ITEM 614875, INSTALLATION OF ENTRANCE PIPES, DETAILS



PIPE TRENCH DETAIL IN EXISTING DITCH

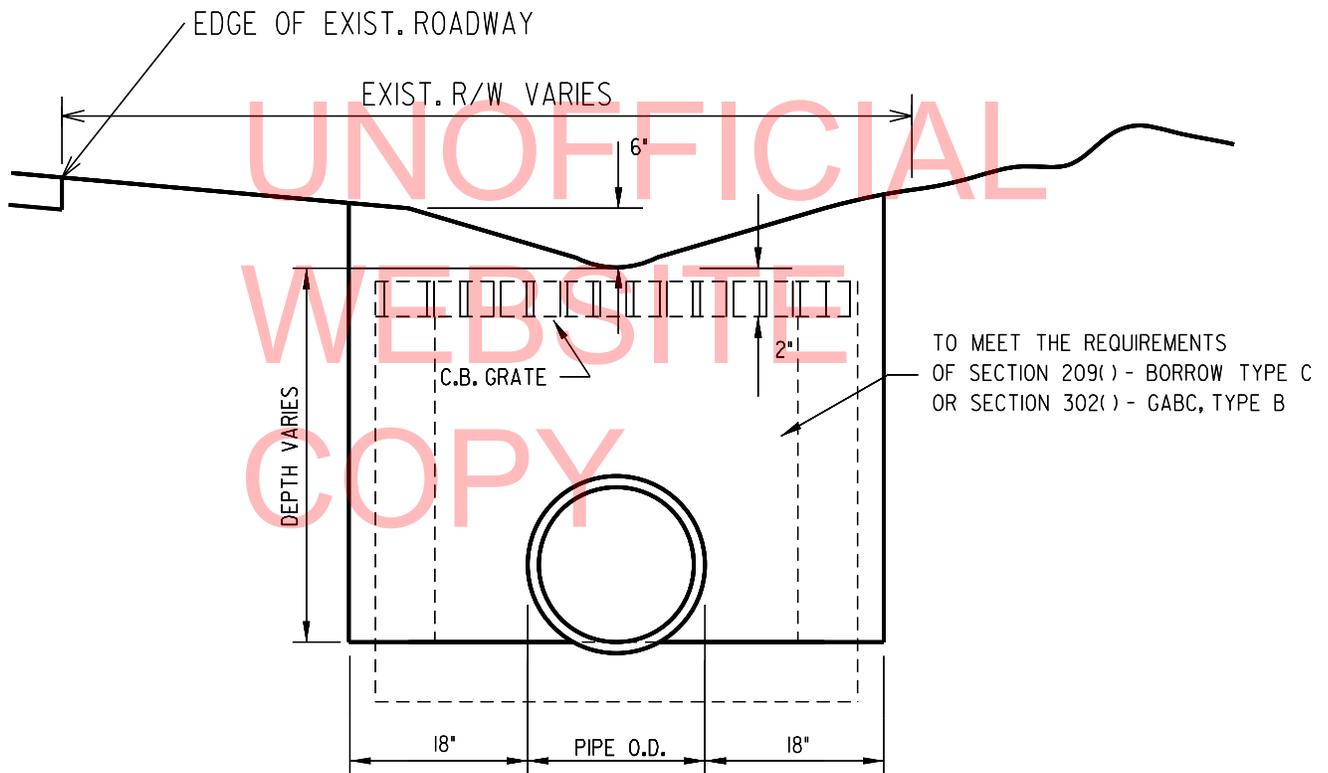
NOTE: ALL ITEMS, EXCEPT DRAINAGE INLETS, SHALL BE INCIDENTAL TO ITEM 614875 - INSTALLATION OF ENTRANCE PIPE. DRAINAGE INLETS SHALL BE PAID SEPERATELY



PIPE TRENCH DETAIL WITH NO EXISTING DITCH

PIPE TRENCH DETAIL
NOT TO SCALE

DITCH ENCLOSURE - DETAIL



SWALE OVER PIPE TRENCH DETAIL

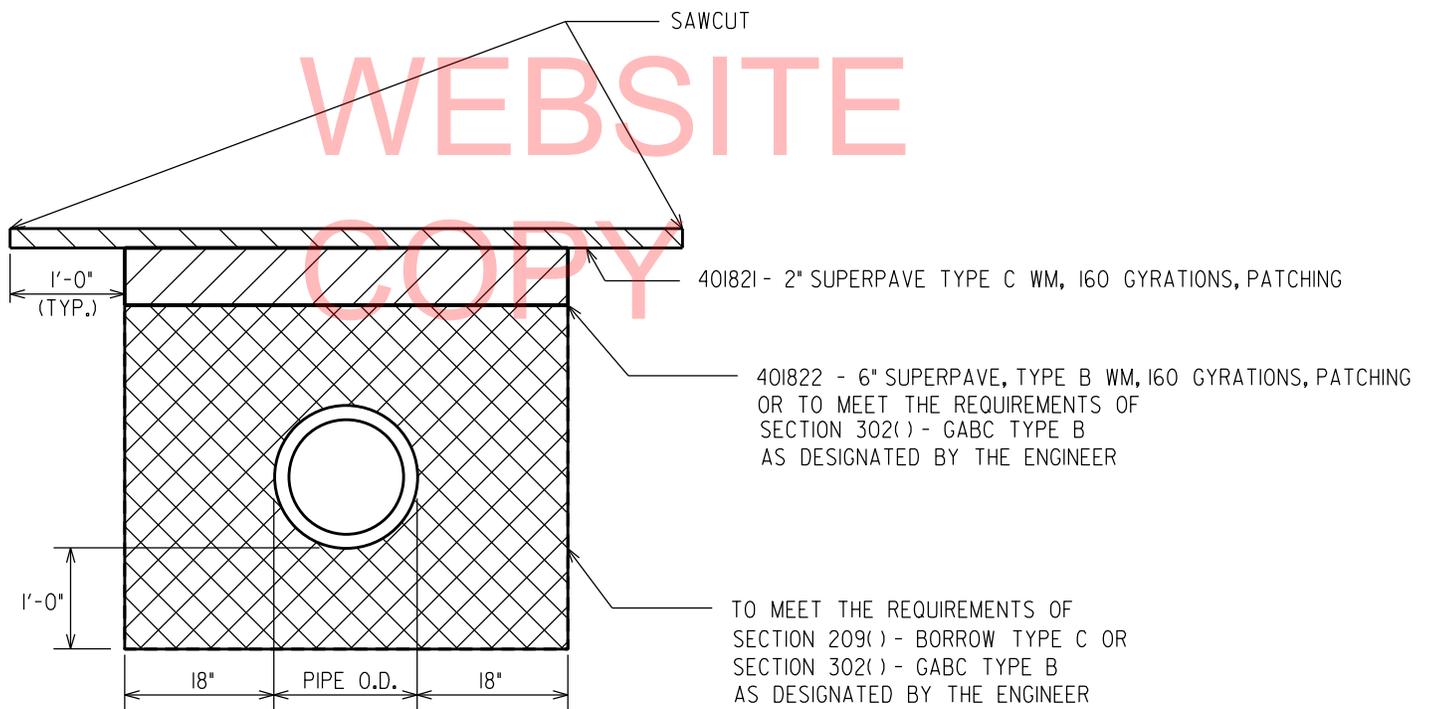
NOTES

- 1) A SWALE SHALL BE BUILT OVER NEW DRAINAGE TO INSURE POSITIVE FLOW TO CATCH BASIN(S).
- 2) EXCAVATION AND BACKFILL SHALL BE CALCULATED AND PAID SEPARATELY FOR DITCH ENCLOSURES.
- 3) DRAINAGE INLETS SHALL BE PAID FOR SEPARATELY
- 4) PLACE 4" TOPSOIL, SEED, & MULCH AT ALL DISTURBED AREAS

CROSSROAD PIPE REPLACEMENT - DETAIL

NOTES:

- 1. ALL EDGES TO BE SAWCUT.
- 2. THIS DETAIL SHALL BE USED FOR ALL WARM MIX PATCHES UNLESS OTHERWISE NOTED ON THE PLANS.
- 3. DEPTH OF WARM MIX PATCHING, 8" OR AS DIRECTED BY THE ENGINEER.



CROSSROAD PIPE REPLACEMENT DETAIL

DELAWARE DEPARTMENT OF TRANSPORTATION

CONTRACT T201480204

PAGE 11 OF 14

SOUTH
MAINTENANCE

PIPE INSTALLATION, OPEN END, SOUTH 2014

LOCATION 1 (PIPE INSTALLATION, OPEN END, SOUTH 2014) FROM TO

LENGTH

GENERAL IMPROVEMENTS

VARIOUS LOCATIONS THROUGHOUT SUSSEX COUNTY

COMMENTS:

MATERIAL ESTIMATE FOR LOCATION 1

208000	EXCAVATION AND BACKFILLING FOR PIPE TRENCHES	250.00 C.Y.
210000	FURNISHING BORROW TYPE "C" FOR PIPE, UTILITY TRENCH, AND STRUCTURE BACKFILL	250.00 C.Y.
302005	GRADED AGGREGATE BASE COURSE, TYPE B	125.00 TON
302012	DELAWARE NO. 57 STONE	100.00 TON
401821	WMA, SUPERPAVE, TYPE C, 160 GYRATIONS, PG 64-22, PATCHING	150.00 TON
401822	WMA, SUPERPAVE, TYPE B, 160 GYRATIONS, PG 64-22, PATCHING	150.00 TON
406001	WARM-MIX PATCHING	1,500.00 SY-IN
612021	REINFORCED CONCRETE PIPE, 15", CLASS IV	160.00 L.F.
612022	REINFORCED CONCRETE PIPE, 18", CLASS IV	160.00 L.F.
612023	REINFORCED CONCRETE PIPE, 24", CLASS IV	160.00 L.F.
612520	CORRUGATED POLYETHYLENE PIPE, TYPE S, 15"	160.00 L.F.
612522	CORRUGATED POLYETHYLENE PIPE, TYPE S, 12"	160.00 L.F.
612523	CORRUGATED POLYETHYLENE PIPE, TYPE S, 18"	160.00 L.F.
612524	CORRUGATED POLYETHYLENE PIPE, TYPE S, 24"	160.00 L.F.
614001	GALVANIZED CORRUGATED STEEL PIPE, 12", 16 GAGE, 2 2/3" X 1/2" CORRUGATION	160.00 L.F.
614002	GALVANIZED CORRUGATED STEEL PIPE, 15", 16 GAGE, 2 2/3" X 1/2" CORRUGATION	160.00 L.F.
614003	GALVANIZED CORRUGATED STEEL PIPE, 18", 16 GAGE, 2 2/3" X 1/2" CORRUGATION	160.00 L.F.
614875	INSTALLATION OF ENTRANCE PIPE	1,000.00 L.F.
617001	REINFORCED CONCRETE FLARED END SECTION, 12"	4.00 EACH
617002	REINFORCED CONCRETE FLARED END SECTION, 15"	4.00 EACH
617509	CORRUGATED POLYETHYLENE FLARED END SECTION, 12"	4.00 EACH
617510	CORRUGATED POLYETHYLENE FLARED END SECTION, 15"	4.00 EACH
708045	LAWN INLET	4.00 EACH
708050	DRAINAGE INLET, 34" X 18"	10.00 EACH
708051	DRAINAGE INLET, 34" X 24"	10.00 EACH
708107	MANHOLE, ROUND	4.00 EACH
708583	PERSONAL GRATE FOR PIPE INLET	10.00 EACH

DELAWARE DEPARTMENT OF TRANSPORTATION

CONTRACT T201480204

PAGE 12 OF 14

SOUTH
MAINTENANCE

PIPE INSTALLATION, OPEN END, SOUTH 2014

LOCATION 1 (PIPE INSTALLATION, OPEN END, SOUTH 2014) FROM TO

LENGTH

GENERAL IMPROVEMENTS

VARIOUS LOCATIONS THROUGHOUT SUSSEX COUNTY

COMMENTS:

MATERIAL ESTIMATE FOR LOCATION 1

712020	RIPRAP, R-4	100.00 TON
713002	GEOTEXTILES, SEPARATION	250.00 S.Y.
713003	GEOTEXTILES, RIPRAP	250.00 S.Y.
714000	LATERAL OR LONGITUDINAL DITCHING	250.00 L.F.
732004	TOPSOIL (TON)	50.00 TON
734013	PERMANENT GRASS SEEDING, DRY GROUND	500.00 S.Y.
735535	SOIL RETENTION BLANKET MULCH, TYPE 5	100.00 S.Y.
743010	FURNISH AND MAINTAIN TRUCK MOUNTED ATTENUATOR, TYPE II	20.00 EA-DY
743024	TEMPORARY WARNING SIGNS AND PLAQUES	200.00 EA-DY
743052	** FLAGGER, SUSSEX COUNTY, STATE	200.00 HOUR
743064	** FLAGGER, SUSSEX COUNTY, STATE, OVERTIME	24.00 HOUR
748548	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW, 5"	500.00 L.F.
762001	SAW CUTTING, HOT MIX	500.00 L.F.

** DENOTES FIXED PRICE ITEM

DELAWARE DEPARTMENT OF TRANSPORTATION

CONTRACT: T201480204

PAGE 13 OF 14

SOUTH PIPE INSTALLATION, OPEN END, SOUTH 2014
MAINTENANCE

CONTRACT QUANTITIES SUMMARY SHEET

208000	EXCAVATION AND BACKFILLING FOR PIPE TRENCHES	250.00 C.Y.
210000	FURNISHING BORROW TYPE "C" FOR PIPE, UTILITY TRENCH, AND STRUCTURE BACKFILL	250.00 C.Y.
302005	GRADED AGGREGATE BASE COURSE, TYPE B	125.00 TON
302012	DELAWARE NO. 57 STONE	100.00 TON
401821	WMA, SUPERPAVE, TYPE C, 160 GYRATIONS, PG 64-22, PATCHING	150.00 TON
401822	WMA, SUPERPAVE, TYPE B, 160 GYRATIONS, PG 64-22, PATCHING	150.00 TON
406001	WARM-MIX PATCHING	1,500.00 SY-IN
612021	REINFORCED CONCRETE PIPE, 15", CLASS IV	160.00 L.F.
612022	REINFORCED CONCRETE PIPE, 18", CLASS IV	160.00 L.F.
612023	REINFORCED CONCRETE PIPE, 24", CLASS IV	160.00 L.F.
612520	CORRUGATED POLYETHYLENE PIPE, TYPE S, 15"	160.00 L.F.
612522	CORRUGATED POLYETHYLENE PIPE, TYPE S, 12"	160.00 L.F.
612523	CORRUGATED POLYETHYLENE PIPE, TYPE S, 18"	160.00 L.F.
612524	CORRUGATED POLYETHYLENE PIPE, TYPE S, 24"	160.00 L.F.
614001	GALVANIZED CORRUGATED STEEL PIPE, 12", 16 GAGE, 2 2/3" X 1/2" CORRUGATION	160.00 L.F.
614002	GALVANIZED CORRUGATED STEEL PIPE, 15", 16 GAGE, 2 2/3" X 1/2" CORRUGATION	160.00 L.F.
614003	GALVANIZED CORRUGATED STEEL PIPE, 18", 16 GAGE, 2 2/3" X 1/2" CORRUGATION	160.00 L.F.
614875	INSTALLATION OF ENTRANCE PIPE	1,000.00 L.F.
617001	REINFORCED CONCRETE FLARED END SECTION, 12"	4.00 EACH
617002	REINFORCED CONCRETE FLARED END SECTION, 15"	4.00 EACH
617509	CORRUGATED POLYETHYLENE FLARED END SECTION, 12"	4.00 EACH
617510	CORRUGATED POLYETHYLENE FLARED END SECTION, 15"	4.00 EACH
708045	LAWN INLET	4.00 EACH
708050	DRAINAGE INLET, 34" X 18"	10.00 EACH
708051	DRAINAGE INLET, 34" X 24"	10.00 EACH
708107	MANHOLE, ROUND	4.00 EACH
708583	PERSONAL GRATE FOR PIPE INLET	10.00 EACH
712020	RIPRAP, R-4	100.00 TON
713002	GEOTEXTILES, SEPARATION	250.00 S.Y.

DELAWARE DEPARTMENT OF TRANSPORTATION

CONTRACT: T201480204

PAGE 14 OF 14

SOUTH PIPE INSTALLATION, OPEN END, SOUTH 2014
MAINTENANCE

CONTRACT QUANTITIES SUMMARY SHEET

713003	GEOTEXTILES, RIPRAP	250.00 S.Y.
714000	LATERAL OR LONGITUDINAL DITCHING	250.00 L.F.
732004	TOPSOIL (TON)	50.00 TON
734013	PERMANENT GRASS SEEDING, DRY GROUND	500.00 S.Y.
735535	SOIL RETENTION BLANKET MULCH, TYPE 5	100.00 S.Y.
743010	FURNISH AND MAINTAIN TRUCK MOUNTED ATTENUATOR, TYPE II	20.00 EA-DY
743024	TEMPORARY WARNING SIGNS AND PLAQUES	200.00 EA-DY
743052	** FLAGGER, SUSSEX COUNTY, STATE	200.00 HOUR
743064	** FLAGGER, SUSSEX COUNTY, STATE, OVERTIME	24.00 HOUR
748548	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW, 5"	500.00 L.F.
762001	SAW CUTTING, HOT MIX	500.00 L.F.
763000	INITIAL EXPENSE	LUMP SUM

** DENOTES FIXED PRICE ITEM