

CALL BEFORE YOU DIG
MISS UTILITY OF DELMARVA
1-800-282-8555 (IN DE.)
PLEASE GIVE TWO WORKING DAYS
ADVANCE NOTICE

THIS DRAWING DOES NOT INCLUDE NECESSARY
COMPONENTS FOR CONSTRUCTION SAFETY.

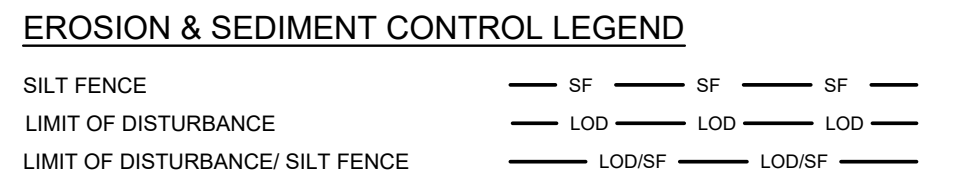
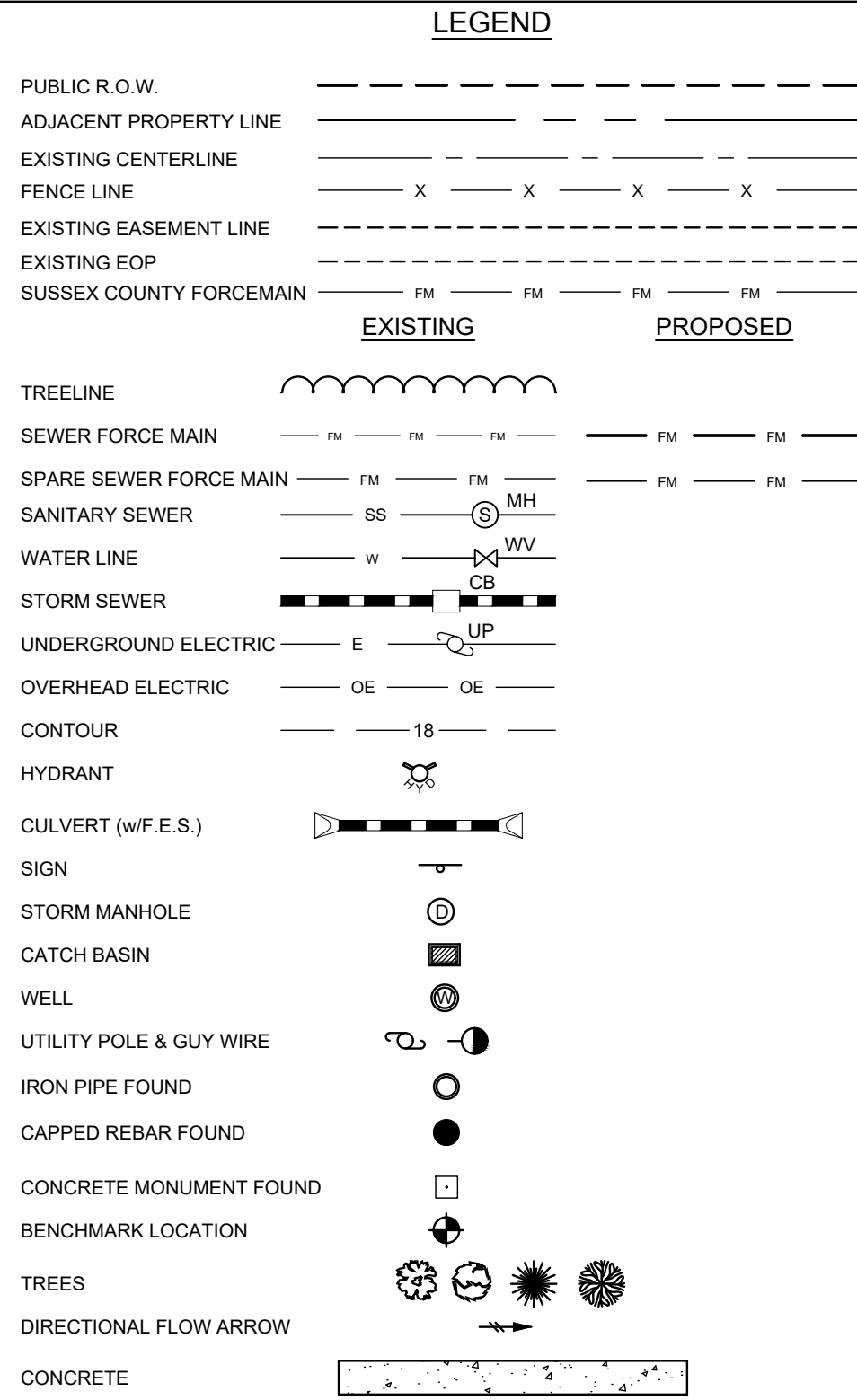
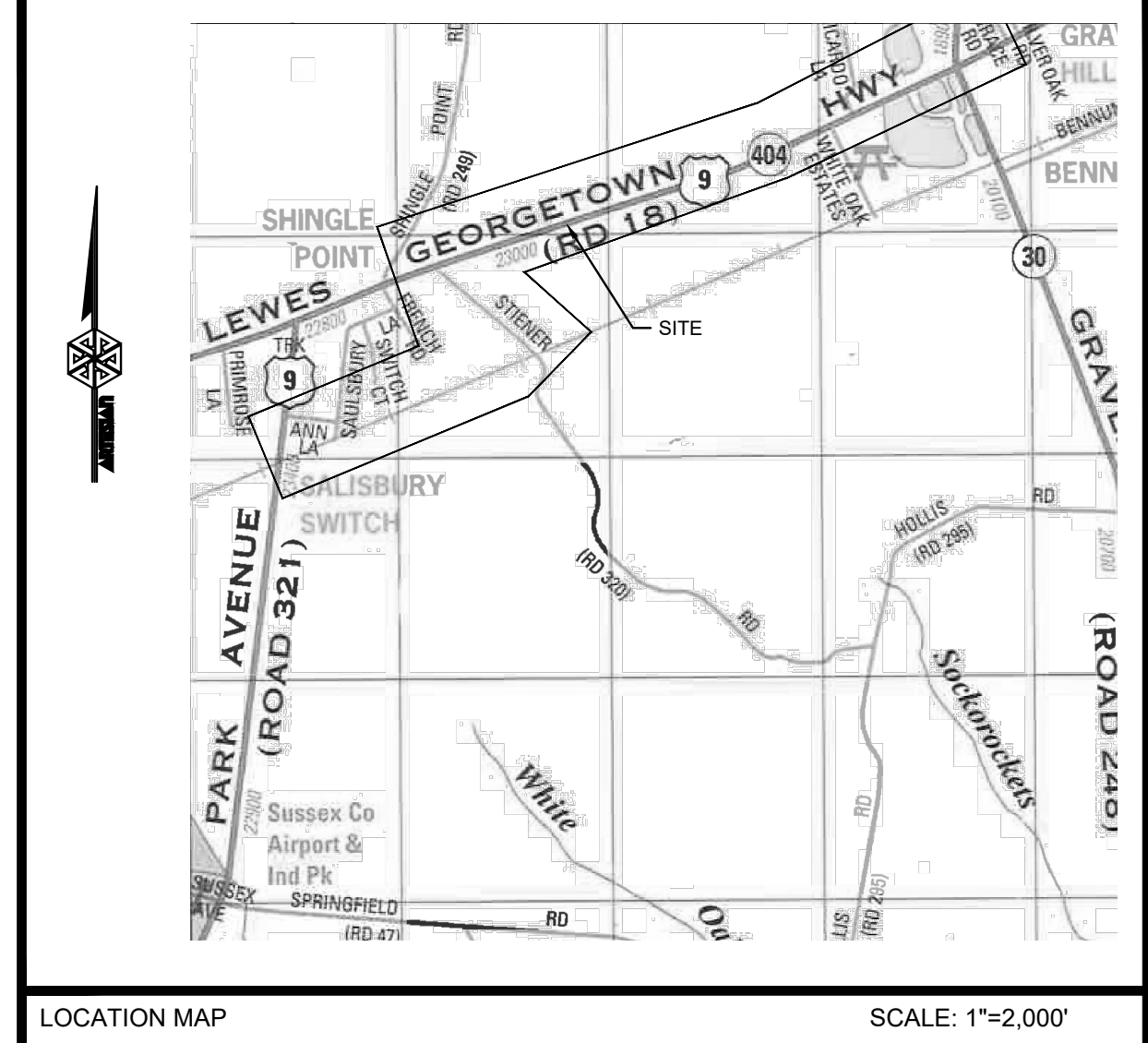
ALL CONSTRUCTION MUST BE DONE IN
COMPLIANCE WITH THE OCCUPATIONAL SAFETY
AND HEALTH ACT OF 1970 AND ALL RULES AND
REGULATIONS THERETO APPURTENANT.

CONSTRUCTION PLANS

FORCEMAIN EXTENSION

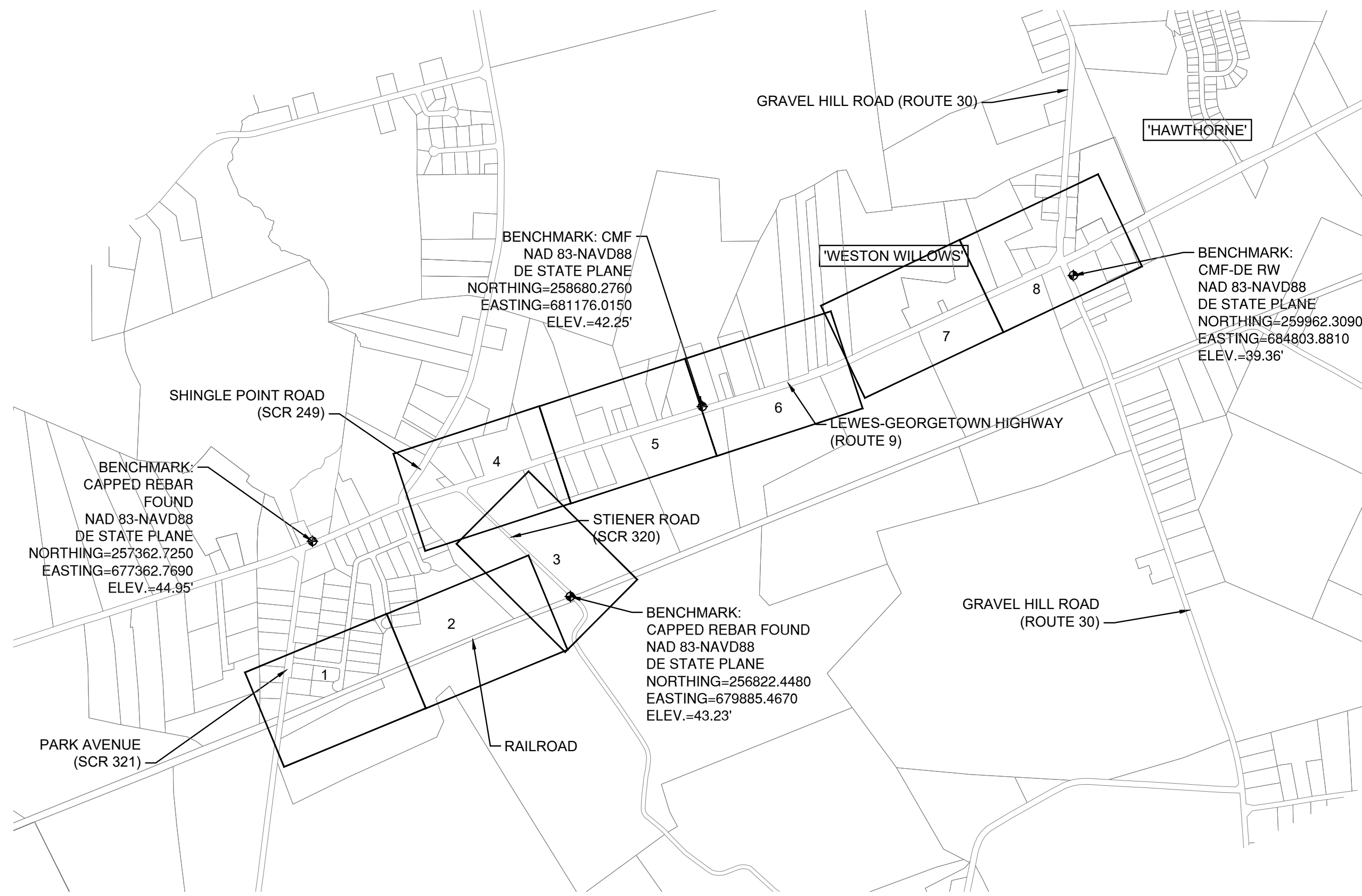
ROUTE 9-SUSSEX COUNTY TO HAWTHORNE

SITUATED IN
SUSSEX COUNTY * STATE OF DELAWARE



EROSION AND SEDIMENT CONTROL SEQUENCE OF CONSTRUCTION

- NOTIFY THE SUSSEX CONSERVATION DISTRICT SEDIMENT AND STORMWATER PROGRAM (THE AGENCY) IN WRITING AT LEAST FIVE (5) DAYS PRIOR TO THE START OF CONSTRUCTION. FAILURE TO DO SO CONSTITUTES A VIOLATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN.
- PRIOR TO ANY CLEARING, INSTALLATION OF SEDIMENT CONTROL MEASURES OR GRADING, A PRE-CONSTRUCTION MEETING MUST BE SCHEDULED AND CONDUCTED WITH THE AGENCY CONSTRUCTION SITE REVIEWER, THE LANDOWNER/DEVELOPER, CONTRACTOR, AND CERTIFIED CONSTRUCTION REVIEWER ARE REQUIRED TO BE IN ATTENDANCE AT THE PRE-CONSTRUCTION MEETING. THE DESIGNER IS RECOMMENDED TO ATTEND.
- CLEARLY MARK THE LIMITS OF DISTURBANCE AS SHOWN BY THESE PLANS. CLEAR AND GRUB AREAS NECESSARY FOR PERIMETER CONTROLS AND UTILITY INSTALLATION.
- INSTALL SILT FENCE AT THE LOCATIONS SHOWN ON THE PLAN, REFER TO THE STANDARD DETAIL FOR MINIMUM SPECIFICATIONS. ALL PERIMETER CONTROLS ARE TO BE REVIEWED BY THE AGENCY CONSTRUCTION SITE REVIEWER AND APPROVED PRIOR TO PROCEEDING WITH FURTHER SITE DISTURBANCE OR CONSTRUCTION.
- INSTALL STABILIZED CONSTRUCTION ENTRANCE PER STANDARD DETAIL FOR MINIMUM SPECIFICATIONS.
- INSTALL SEWER FORCE MAIN AND APPURTENANCES PER ARTESIAN WASTEWATER STANDARDS AND SPECIFICATIONS. ONLY ENOUGH TRENCH SHOULD BE EXCAVATED WHICH CAN BE BACKFILLED DAILY. EXCAVATED TRENCH MATERIAL SHOULD BE PLACED ON THE HIGH SIDE OF THE TRENCH.
- IMMEDIATELY FOLLOWING UTILITY INSTALLATION, THE TRENCH SHALL BE BACKFILLED, COMPACTED AND STABILIZED AT THE END OF EACH WORKING DAY. FULL TRENCH COMPACTION IS REQUIRED.
- THE CONTRACTOR SHALL AT ALL TIMES PROTECT AGAINST SEDIMENT OR DEBRIS LADEN RUNOFF OR WIND FROM LEAVING THE SITE. PERIMETER CONTROLS SHOULD BE CHECKED DAILY AND ADJUSTED AND/OR REPAIRED TO FULLY CONTAIN AND CONTROL SEDIMENTATION ON THE SITE. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED HALF OF THE EFFECTIVE CAPACITY OF THE CONTROL. IN ADDITION, THE CONTRACTOR MAY NEED TO ADJUST OR REPAIR MEASURES IN TIMES OF ADVERSE WEATHER CONDITIONS, OR AS DIRECTED BY THE AGENCY CONSTRUCTION SITE REVIEWER.
- NOTIFY THE PERSON RESPONSIBLE FOR STORMWATER SYSTEM CONSTRUCTION REVIEW AT LEAST THREE (3) DAYS PRIOR TO THE START OF THE STORMWATER SYSTEM CONSTRUCTION; STORMWATER FACILITIES MUST BE REVIEWED THROUGHOUT THEIR CONSTRUCTION.
- ANY DITCHES OR DRAINAGE WAYS DISTURBED DURING CONSTRUCTION WILL BE RESTORED TO ORIGINAL CONDITION IMMEDIATELY.
- APPLY STRAW MULCH AND CRIMP STRAW AS TEMPORARY FOR STABILIZATION PRIOR TO FARMING OPERATIONS.
- EROSION AND SEDIMENT CONTROL DEVICES SHOULD BE REMOVED ONLY AFTER WORK IN AN AREA HAS BEEN COMPLETED AND STABILIZED, WITH WRITTEN APPROVAL FROM THE AGENCY CONSTRUCTION SITE REVIEWER.
- ONLY AFTER RECEIVING APPROVAL, PROCEED TO REMOVE THE TEMPORARY EROSION MEASURES.
- PRIOR TO COMMENCING A NEW PHASE OF CONSTRUCTION, THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE AGENCY CONSTRUCTION SITE REVIEWER THAT THE PREVIOUS PHASE HAS BEEN SUFFICIENTLY STABILIZED.
- ALL PERIMETER CONTROLS ARE TO BE REVIEWED BY THE AGENCY CONSTRUCTION SITE REVIEWER AND APPROVED PRIOR TO PROCEEDING WITH FURTHER SITE DISTURBANCE OR CONSTRUCTION.
- THE TERMINATION OF THE CONSTRUCTION GENERAL PERMIT WILL REQUIRE SUBMISSION AND ACCEPTANCE OF THE POST CONSTRUCTION VERIFICATION DOCUMENTS, INCLUDING FINAL STABILIZATION THROUGHOUT THE SITE, ALL ELEMENTS OF THE SEDIMENT AND STORMWATER MANAGEMENT PLAN IMPLEMENTED, AND ACCEPTANCE OF THE FINAL OPERATION AND MAINTENANCE PLAN.



KEY MAP
SCALE: 1"=1,000'

PROJECT NOTES:

- EASEMENT TAX MAP NUMBERS * 135-16-00-25.00, 135-16-00-23.00, 135-16-00-23.01, 135-16-00-23.02, 135-16-00-23.03, 135-16-00-23.04, 135-16-00-22.00, 135-16-00-70.00, 135-11-00-31.00, 135-16-00-17.00, 135-16-00-72.00, 135-16-00-72.01, 135-11-00-32.01, 135-11-00-32.02, 135-11-00-32.03, 135-11-00-32.04, 135-11-00-32.00, 135-11-00-33.00, 135-11-00-34.00, 135-11-00-35.00, 135-11-00-63.00, 135-11-00-64.00, 135-11-00-65.00
- SITE ADDRESS * PARK AVENUE, STIENIER ROAD AND LEWES-GEORGETOWN HIGHWAY, GEORGETOWN, DE 19947
- LATITUDE & LONGITUDE * 38.7052, -75.3336
- THERE ARE WETLANDS LOCATED ADJACENT TO THIS SITE AS PER THE NATIONAL WETLANDS INVENTORY MAP.
- AREAS OF THIS SITE ARE LOCATED IN ZONE X, AREAS OF MINIMAL FLOOD HAZARD AS PER FIRM MAP 10005C0325L EFFECTIVE 6/20/2018.
- SOILS ON-SITE ARE FALLSINGTON SANDY LOAMS (FsdA), 0-2% SLOPES AND POORLY DRAINED; HAMMONTON LOAMY SAND (HmA), 0-2% SLOPES AND MODERATELY WELL DRAINED; HAMMONTON SANDY LOAM (HhA), 0-2% SLOPES AND MODERATELY WELL DRAINED; HURLOCK LOAMY SAND (HhA), 0-2% SLOPES AND POORLY DRAINED; KEYPORT FINE SANDY LOAM (KfA), 0-2% SLOPES AND MODERATELY WELL DRAINED; KLEJ LOAMY SAND (KsA), 0-2% SLOPES AND SOMEWHAT POORLY DRAINED; MULLICA MUCKY SANDY LOAM (MmA), 0-2% SLOPES AND VERY POORLY DRAINED; PEPPERBOX-ROSEDALE COMPLEX (PsbA), 0-2% SLOPES AND WELL DRAINED; PEPPERBOX-ROSEDALE COMPLEX (Psb), 2-6% SLOPES AND MODERATELY WELL DRAINED; ROCKAWALKIN LOAMY SAND (RkA), 0-2% SLOPES AND MODERATELY WELL DRAINED; UDORTHTENTS (Udb), BORROW AREA, 0-5% SLOPES AND MODERATELY WELL DRAINED; UDORTHTENTS (Udc), 0-10% SLOPES AND WELL DRAINED; AND WOODSTOWN SANDY LOAM (WddA), 0-2% SLOPES AND MODERATELY WELL DRAINED.
- TOTAL LIMITS OF DISTURBANCE IS 1.61± ACRES. THIS INCLUDES AREA INSIDE DELDOTS RIGHT-OF-WAY AND AREA OUTSIDE IN PRIVATE PROPERTY EASEMENTS.
- WATER SHED * BROADKILL
- RIGHT OF WAY AND/OR PROPERTY LINES DEPICTED ON PLANS ARE NOT THE RESULT OF ANY RIGHT OF WAY AND/OR PROPERTY LINE SURVEY BY ARTESIAN WASTEWATER MANAGEMENT, INC. RIGHT OF WAY AND/OR PROPERTY LINES ARE THE RESULT OF PHYSICAL MONUMENTS FOUND IN THE FIELD, DELAWARE DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ROAD PLANS AND THE BEST AVAILABLE INFORMATION FROM SUSSEX COUNTY MAPPING.

STORM DRAINAGE :

- IT IS THE CONTRACTORS RESPONSIBILITY TO REPAIR OR REPLACE ANY STORM DRAINAGE THAT IS DAMAGED DURING CONSTRUCTION

TRAFFIC CONTROL:

- CONTRACTOR IS RESPONSIBLE TO FOLLOW THE GUIDELINE SET FORTH IN THE LATEST VERSION OF THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AND DIRECTIVES SET FORTH BY THE DELAWARE DEPARTMENT OF TRANSPORTATION.

DELDOT NOTES:

- CONCRETE SIDEWALK PATCHES SHALL BE 4" DEPTH CONCRETE ON 4" DEPTH GRADED AGGREGATE BASE COURSE. AT DRIVEWAY ENTRANCES, THESE DEPTHS SHALL BE INCREASED TO 6" CONCRETE ON 6" GABC.
- SIGNS FOR PEDESTRIAN DETOURS SHALL BE PLACED BY CONTRACTOR, AS APPROVED BY DELDOT SAFETY OFFICER. PEDESTRIAN DETOUR SIGN PLAN SHALL BE SUBMITTED TO DELDOT, AND APPROVED BY DELDOT IN WRITING PRIOR TO COMMENCEMENT OF WORK.
- ALL WORK WITHIN THE STATE RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH THE MOST RECENT REVISION OF DELDOT STANDARD SPECIFICATIONS, DELDOT STANDARD CONSTRUCTION DETAILS, DELAWARE MUTCD, AND DELDOT UTILITIES MANUAL.
- RIGHT OF WAY AND EASEMENT LINES SHOWN ON THESE PLANS ARE FOR ASSISTANCE IN INTERPRETING THE PLANS. THEY ARE NOT OFFICIAL. FOR OFFICIAL RIGHT OF WAY AND EASEMENT INFORMATION SEE APPROPRIATE RIGHT OF WAY PLATS LOCATED IN THE SUSSEX COUNTY RECORDER OF DEEDS.
- VALVES SHALL NOT BE INSTALLED IN CONCRETE CURBS. DELDOT POLICY DISCOURAGES PLACEMENT OF VALVES IN SIDEWALK WITHIN STATE RIGHT-OF-WAY.

ARTESIAN WASTEWATER MANAGEMENT NOTES:

- BIDS ARE TO BE BASED ON THE DRAWINGS PROVIDED. THIS IS TO INCLUDE ALL RESTORATION NOTED ON THE DRAWING.
- ALL MATERIAL AND INSTALLATION SHALL CONFORM TO ARTESIAN WASTEWATER MANAGEMENT, INC. SPECIFICATIONS AND 10 STATES STANDARDS.
- DEPTH OF THE PROPOSED SEWER MAIN SHALL BE A MINIMUM OF 48" FROM FINISHED GRADE TO TOP OF PIPE, INCLUDING SERVICES, UNLESS OTHERWISE SHOWN.
- DEPTH OF THE PROPOSED SEWER MAIN MAY VARY DUE TO EXISTING FACILITIES.
- EXISTING GRADES ARE NOT TO BE CHANGED.
- 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES IS TO BE MAINTAINED.
- 10' HORIZONTAL SEPARATION FROM EXISTING WATER MAINS IS TO BE MAINTAINED UNLESS NOTED OTHERWISE.
- ALL ROADWAY PATCH SHALL BE TO STATE SPEC.
- ALL CONCRETE CURB SHALL NOT BE DISTURBED UNLESS IT IS UNAVOIDABLE.
- ALL CONCRETE SIDEWALK PATCHES SHALL BE 4" THICK WITH 4" OF CRUSHER RUN.
- THE DELDOT INSPECTOR NEEDS TO BE NOTIFIED 24 HOURS IN ADVANCE OF MATERIAL PLACEMENT TO REQUEST MATERIAL RELEASES. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE DELDOT INSPECTOR.
- ALL MOT SHALL BE IN ACCORDANCE WITH THE DELAWARE MUTCD MANUAL (LATEST EDITION) AND BE NCHRP 350 CERTIFIED.
- EXISTING UTILITIES ARE SHOWN IN ACCORDANCE WITH BEST AVAILABLE INFORMATION. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO VERIFY AND ALLOW FOR THEIR LOCATION.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE AND ANY DAMAGE DUE TO THEM DUE TO HIS NEGLIGENCE SHALL BE IMMEDIATELY AND COMPLETELY REPAIRED AT HIS EXPENSE.
- TEMPORARY SIDEWALK HAS TO BE PLACED WHERE EXISTING SIDEWALK IS REMOVED WITH BLACKTOP OR COLD PATCH. NO MORE THAN 500' CAN BE REMOVED WITHOUT PUTTING IN THE TEMPORARY SIDEWALK.
- HYDRO-SEEDING AND SIFTED TOPSOIL SHALL BE USED FOR THE RESTORATION IN GRASS AREAS/LAWNS.
GRASS SEED SPECIFICATIONS
FULL SUNSHADE MIX
30% MONTAUK TALL FESCUE
20% PERENNIAL RYEGRASS
20% ANNUAL RYEGRASS
20% CREEPING RED FESCUE
10% KENTUCKY BLUEGRASS
- ALL BUSHES, SHRUBS TREES AND OTHER VEGETATION WITHIN STATE RIGHT-OF-WAY REMOVED OR IMPACTED DURING CONSTRUCTION SHALL BE REPLACED IN KIND TO THE SATISFACTION OF DELDOT, OR AS APPROVED BY DELDOT INSPECTOR.
- SIDEWALKS THAT GO THROUGH DRIVEWAYS SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR SELECT. ALL OTHER SIDEWALK WILL BE A UNIT PRICE.
- VACUUM EXCAVATION METHOD IS TO BE USED FOR TEST HOLES WHERE EXISTING UTILITIES CROSS PROPOSED SEWER MAINS IN PAVING.
- CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF EXISTING UTILITIES AT ALL PROPOSED CROSSINGS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES AND/OR PROPOSED MODIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARTESIAN WASTEWATER MANAGEMENT INSPECTOR AT LEAST ONE WEEK PRIOR TO THE PLANNED COMMENCEMENT OF CONSTRUCTION.
- HOLD UTILITY POLES AS NEEDED, REMOVE & REPLACE GUY WIRES, AS NECESSARY.
- ANY EXISTING PROPERTY MONUMENTATION THAT IS DISTURBED DURING CONSTRUCTION ACTIVITIES ARE TO BE REPLACED OR RESTORED TO ORIGINAL POSITION BY CONTRACTOR.

INDEX OF SHEETS

COVER SHEET	SHEET C-1
FORCE MAIN PLANS & PROFILES	SHEETS FM-1 THRU FM-8
FORCE MAIN NOTES & DETAILS	SHEETS FM-9 THRU FM-11

REFER TO THE ABOVE INDEX FOR THE LOCATION OF OTHER DETAILS REQUIRED FOR SITE IMPROVEMENTS.

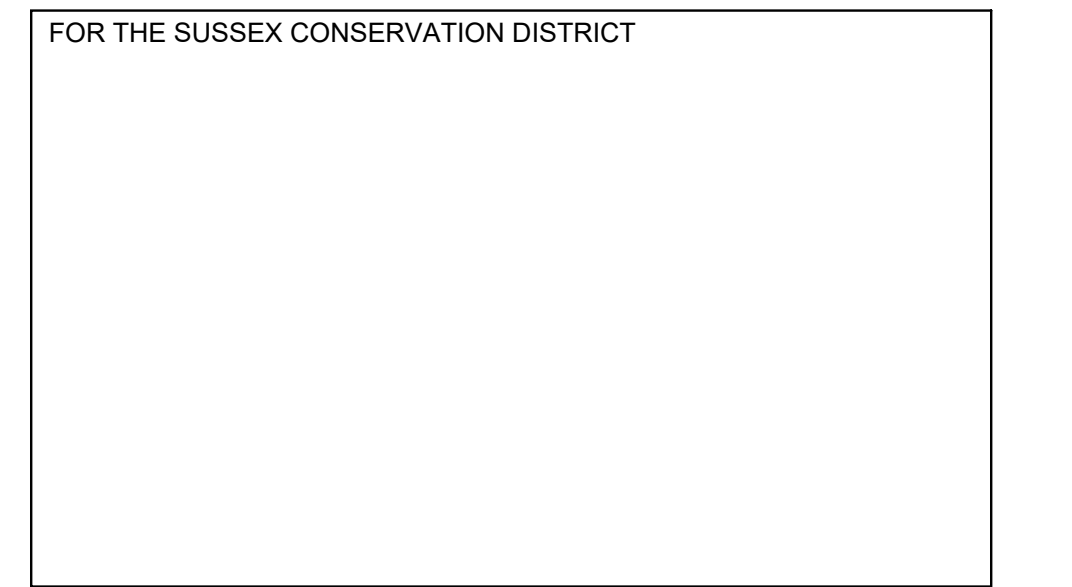
OWNER/DEVELOPER CERTIFICATION
I, HEREBY CERTIFY THAT I AM THE LEGAL REPRESENTATIVE FOR THE FORCEMAIN AND ASSOCIATED CONSTRUCTION IMPROVEMENTS SHOWN ON THIS PLAN. THAT THE PLAN WAS MADE AT MY DIRECTION, THAT I ACKNOWLEDGE THE SAME TO BE MY ACT, AND DESIRE THE PLAN TO BE DEVELOPED IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

I, THE UNDERSIGNED, CERTIFY THAT ALL LAND CLEARING, CONSTRUCTION AND DEVELOPMENT SHALL BE DONE PURSUANT TO THE APPROVED PLANS AND THAT RESPONSIBLE PERSONNEL (I.E. BLUE CARD HOLDERS) INVOLVED IN THE LAND DISTURBANCE WILL HAVE A CERTIFICATION OF TRAINING PRIOR TO INITIATION OF THE PROJECT, AT A DNREC SPONSORED OR APPROVED TRAINING COURSE FOR THE CONTROL OF EROSION AND SEDIMENT DURING CONSTRUCTION. IN ADDITION, I GRANT THE DNREC SEDIMENT AND STORMWATER PROGRAM AND/OR THE RELEVANT DELEGATED AGENCY THE RIGHT TO CONDUCT ON-SITE REVIEWS, AND I UNDERSTAND MY RESPONSIBILITIES UNDER THE NPDES CONSTRUCTION GENERAL PERMIT, AS REFERENCED ON THIS COVER SHEET.

DAVID SPACHT, PRESIDENT DATE: _____
ARTESIAN WASTEWATER MANAGEMENT, INC.
664 CHURCHMANS ROAD
NEWARK, DE 19702
PHONE: (302) 453-6900
FAX: (302) 453-6800

ENGINEER'S CERTIFICATION
I, DANIEL W. KONSTANSKI, P.E. HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF DELAWARE, AND THAT THE INFORMATION SHOWN HEREON HAS BEEN PREPARED UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF REPRESENTS GOOD ENGINEERING PRACTICES AS REQUIRED BY THE APPLICABLE LAWS OF THE STATE OF DELAWARE.

DANIEL W. KONSTANSKI, P.E. DATE: _____
ARTESIAN WASTEWATER MANAGEMENT, INC.
664 CHURCHMANS ROAD
NEWARK, DE 19702
PHONE: (302) 453-6900
FAX: (302) 453-6800



ARTESIAN
ARTESIAN WASTEWATER MANAGEMENT, INC.

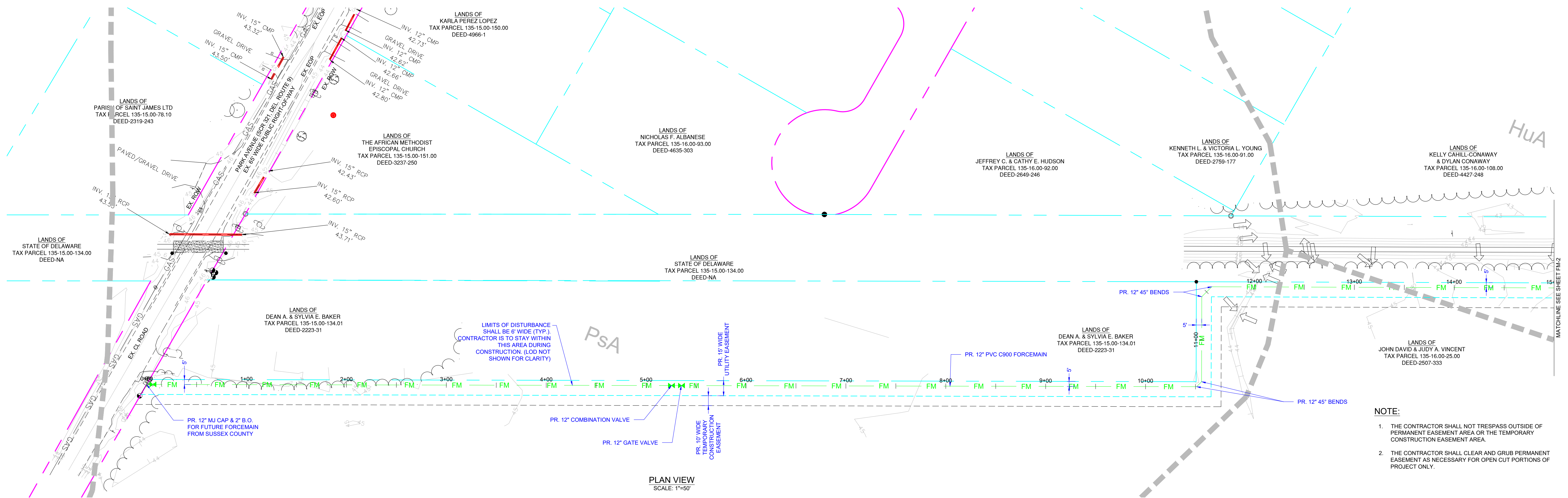
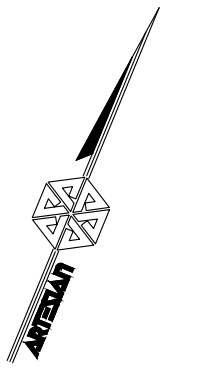
664 Churchmans Road
Newark, Delaware 19702
P.O. Box 15004, Wilmington, Delaware 19850
Phone: (302) 453-6900 Fax: (302) 453-5800

2/25/2020 REV. PER DNREC COMMENTS DATED 2/24/2020	KEG

Date: 11/12/19	Checked By: AG, DK	Sheet: C-1
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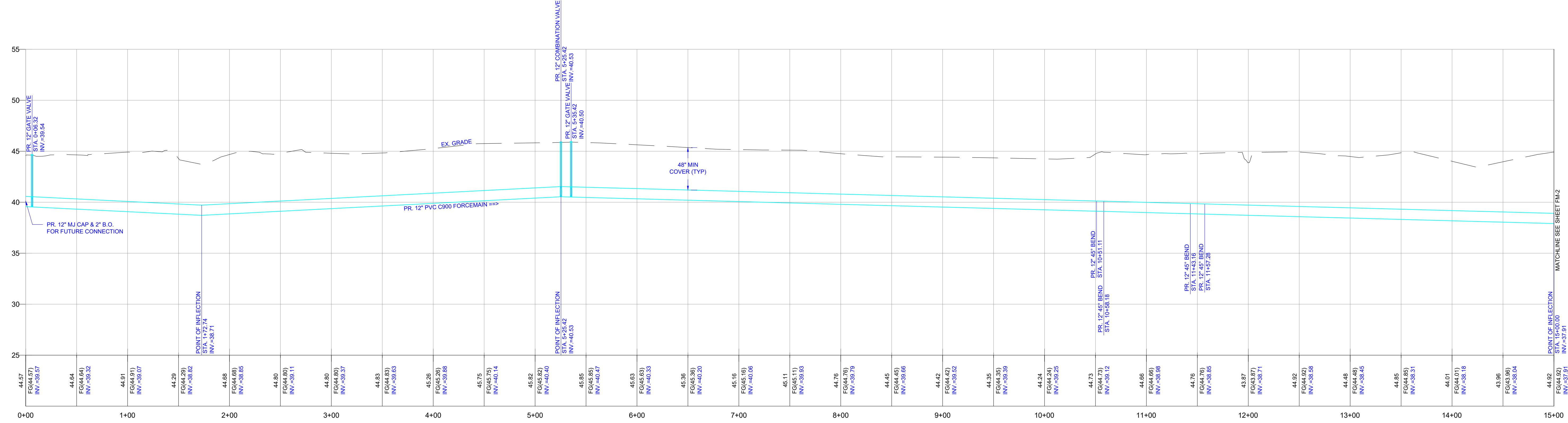
FORCEMAIN EXTENSION PLANS
ROUTE 9-SUSSEX COUNTY TO HAWTHORNE

SUSSEX COUNTY STATE OF DELAWARE



PLAN VIEW
SCALE: 1"=50'

- NOTE:**
1. THE CONTRACTOR SHALL NOT TRESPASS OUTSIDE OF PERMANENT EASEMENT AREA OR THE TEMPORARY CONSTRUCTION EASEMENT AREA.
 2. THE CONTRACTOR SHALL CLEAR AND GRUB PERMANENT EASEMENT AS NECESSARY FOR OPEN CUT PORTIONS OF PROJECT ONLY.



SANITARY SEWER PROFILE
PROPOSED 12-INCH FORCEMAIN
STA. 0+00.00 TO 15+00.00
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE 1" = 5'

NOTE:
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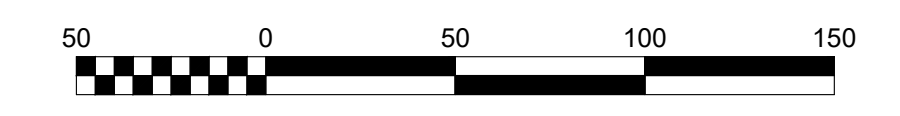
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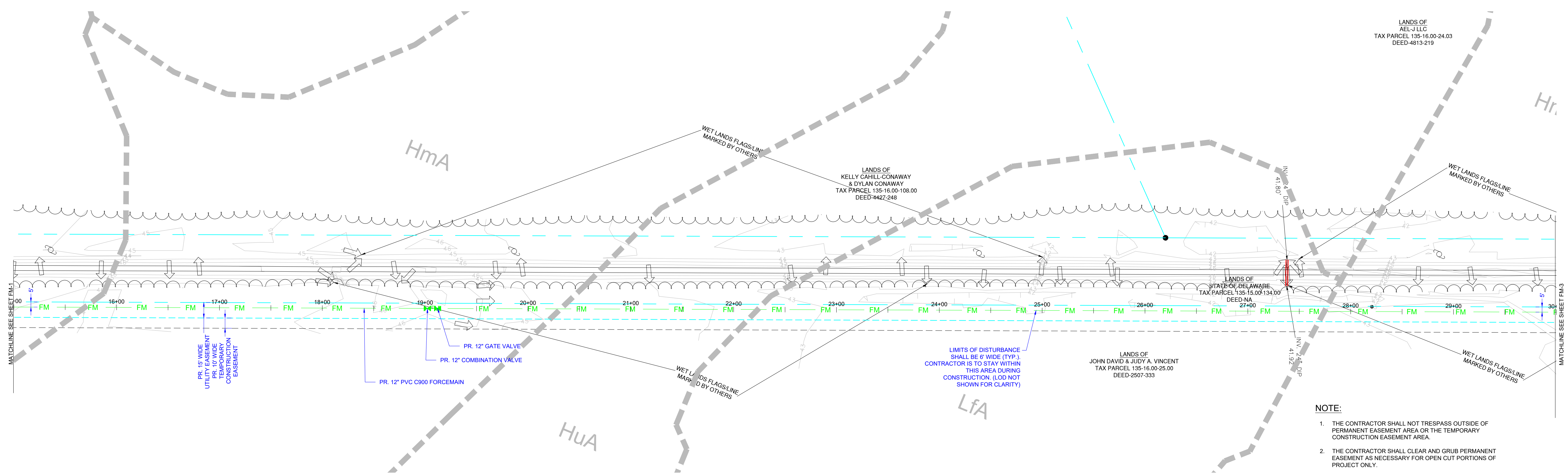
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**FORCEMAIN EXTENSION PLANS
ROUTE 9-SUSSEX COUNTY TO HAWTHORNE**

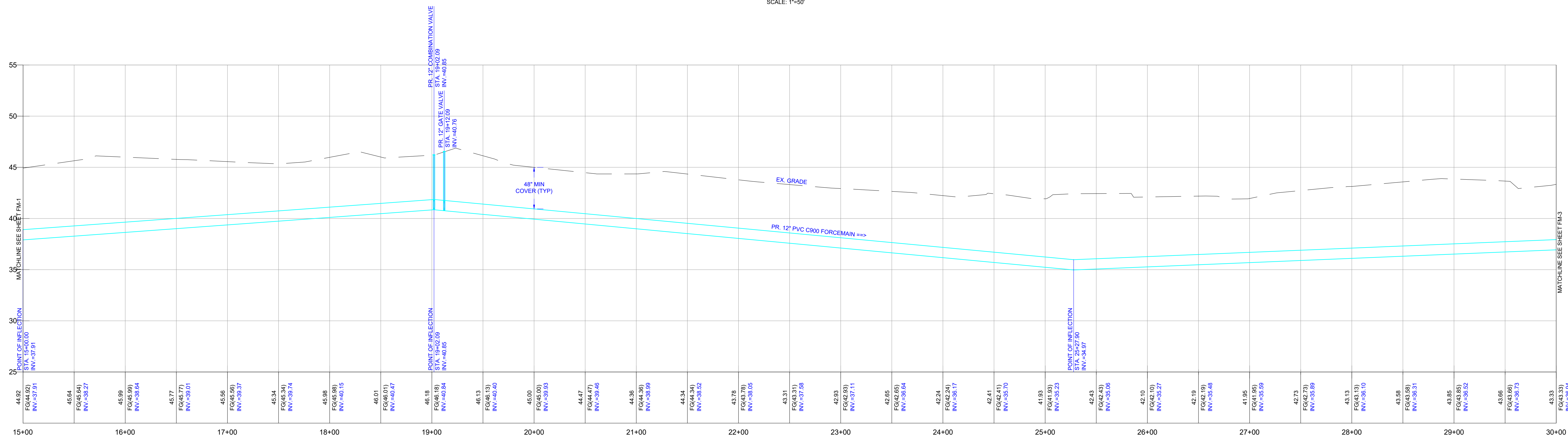
SUSSEX COUNTY



STATE OF DELAWARE



PLAN VIEW
SCALE: 1"=50'



SANITARY SEWER PROFILE
PROPOSED 12-INCH FORCEMAIN
STA: 15+00.00 TO 30+00.00
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

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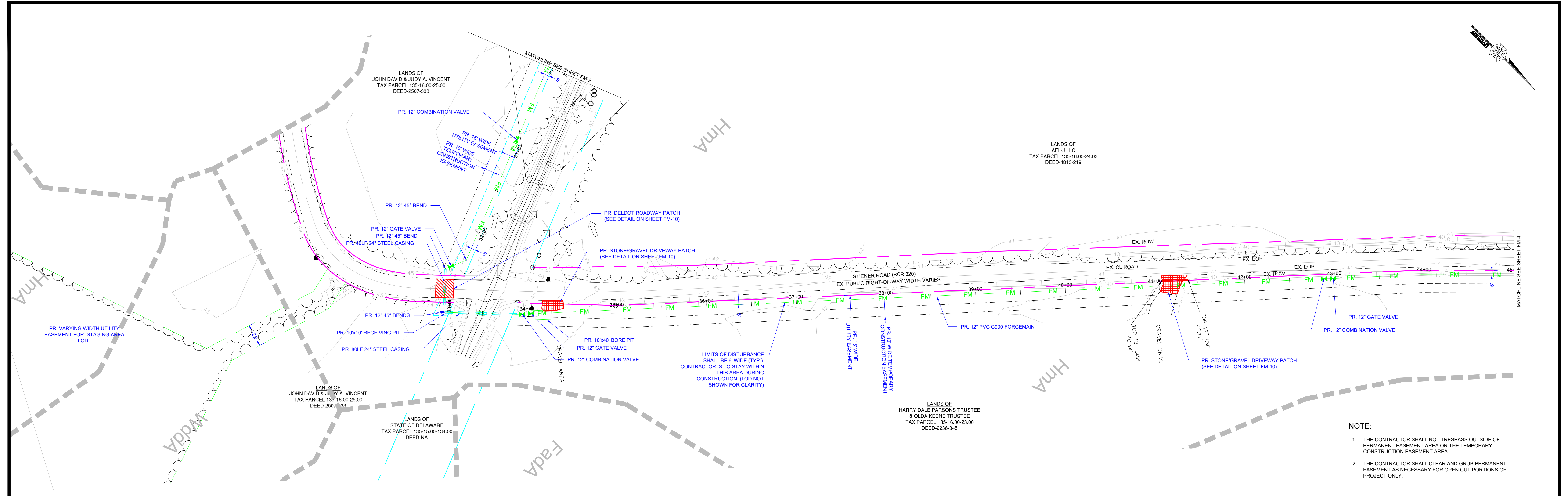
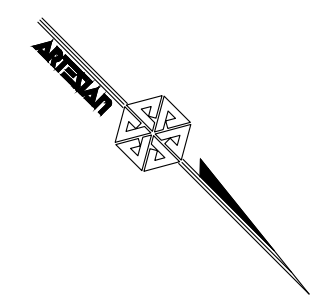
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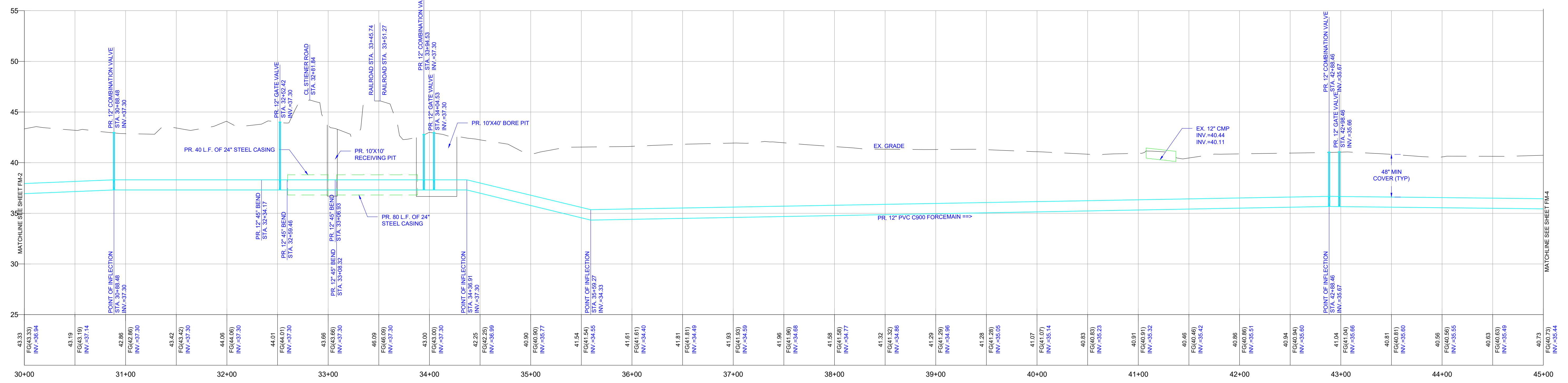
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FORCEMAIN EXTENSION PLANS
ROUTE 9-SUSSEX COUNTY TO HAWTHORNE

SUSSEX COUNTY STATE OF DELAWARE



PLAN VIEW
SCALE: 1"=50'



SANITARY SEWER PROFILE
PROPOSED 12-INCH FORCEMAIN
STA: 30+00.00 TO 45+00.00
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE 1" = 5'

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NO.	DESCRIPTION	BY	DATE
1	REV. PER DNREC COMMENTS DATED 2/24/2020	KEG	2/25/2020

Date: 11/12/19

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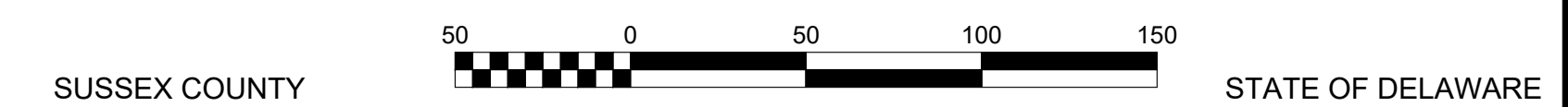
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CAD File: FORCEMAIN PLANS.dwg

Budget No. 3003255

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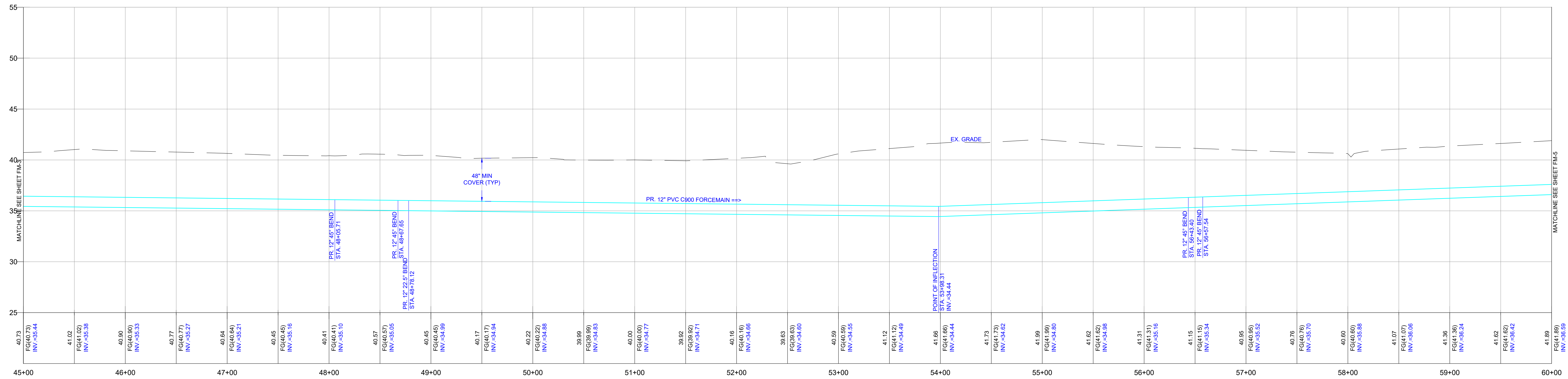




PLAN VIEW
SCALE: 1"=50'

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SANITARY SEWER PROFILE
PROPOSED 12-INCH FORCEMAIN
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VERTICAL SCALE 1" = 5'



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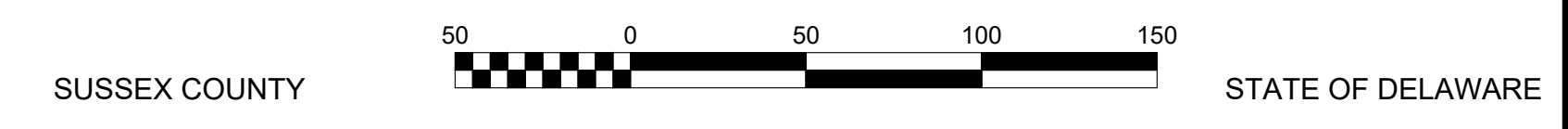
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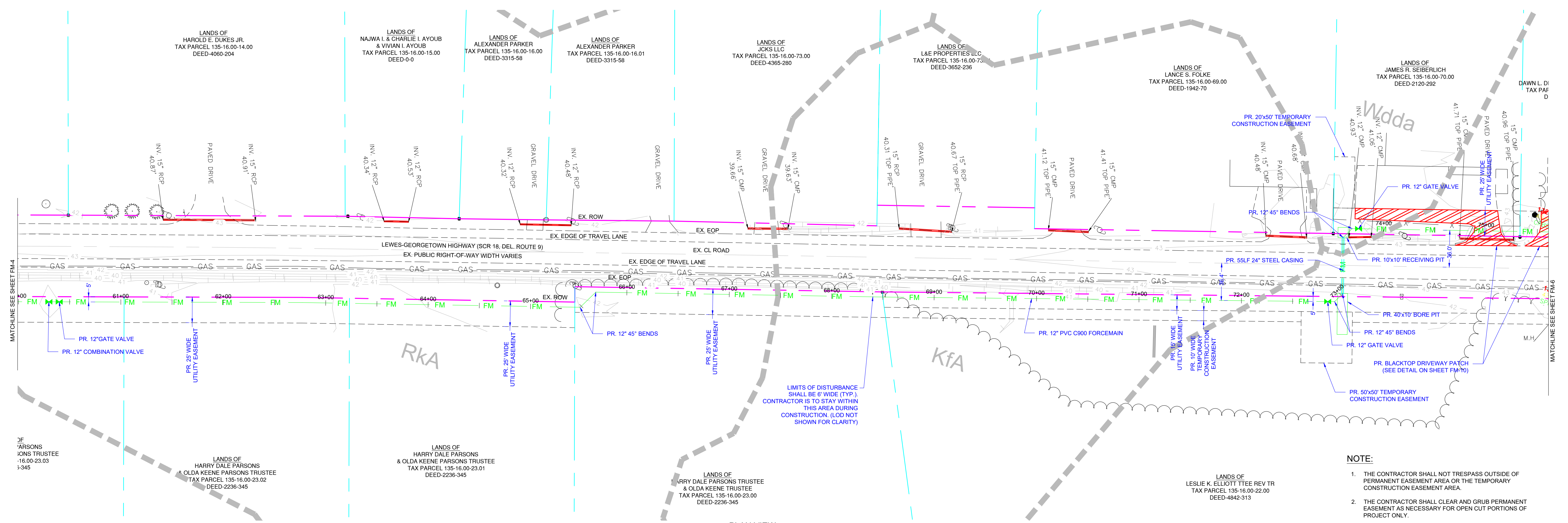
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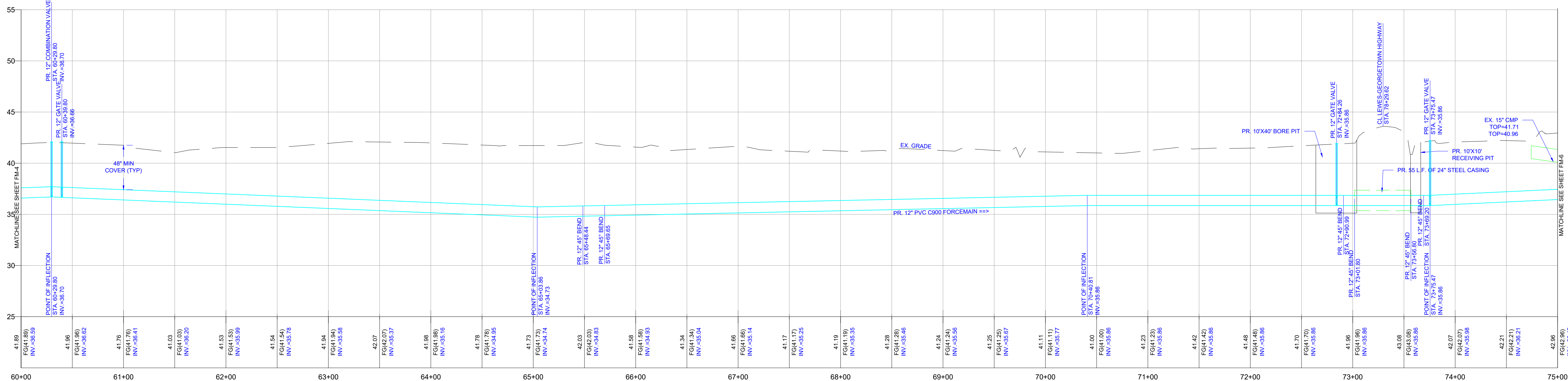
Sheet: FM-4
Hundred: GEORGETOWN
Budget No. 3003255

**FORCEMAIN EXTENSION PLANS
ROUTE 9-SUSSEX COUNTY TO HAWTHORNE**





PLAN VIEW
SCALE: 1"=50'



SANITARY SEWER PROFILE
PROPOSED 12-INCH FORCEMAIN
STA: 60+00.00 TO 75+00.00
HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=5'

NOTE:
RIGHT OF WAY AND/OR PROPERTY LINES DEPICTED ON PLANS ARE NOT THE RESULT OF ANY RIGHT OF WAY AND/OR PROPERTY LINE SURVEY BY ARTESIAN WASTEWATER MANAGEMENT, INC. RIGHT OF WAY AND/OR PROPERTY LINES ARE THE RESULT OF PHYSICAL MONUMENTS FOUND IN THE FIELD, DELAWARE DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ROAD PLANS AND THE BEST AVAILABLE INFORMATION FROM SUSSEX COUNTY MAPPING.



664 Churchmans Road
Newark, Delaware 19702
P.O. Box 15004, Wilmington, Delaware 19850
Phone: (302) 453-6900 Fax: (302) 453-5800

REVISIONS:	DESCRIPTION	BY	DATE
1	REV. PER DNREC COMMENTS DATED 2/24/2020	KEG	2/25/2020

Date: 11/12/19

Checked By: AG, DK

Sheet: FM-5

Scale: 1"=50'

Page & Grid:

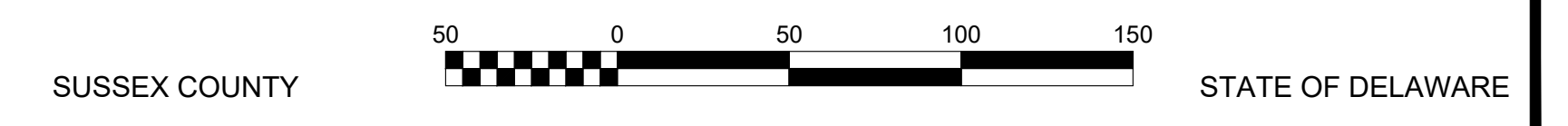
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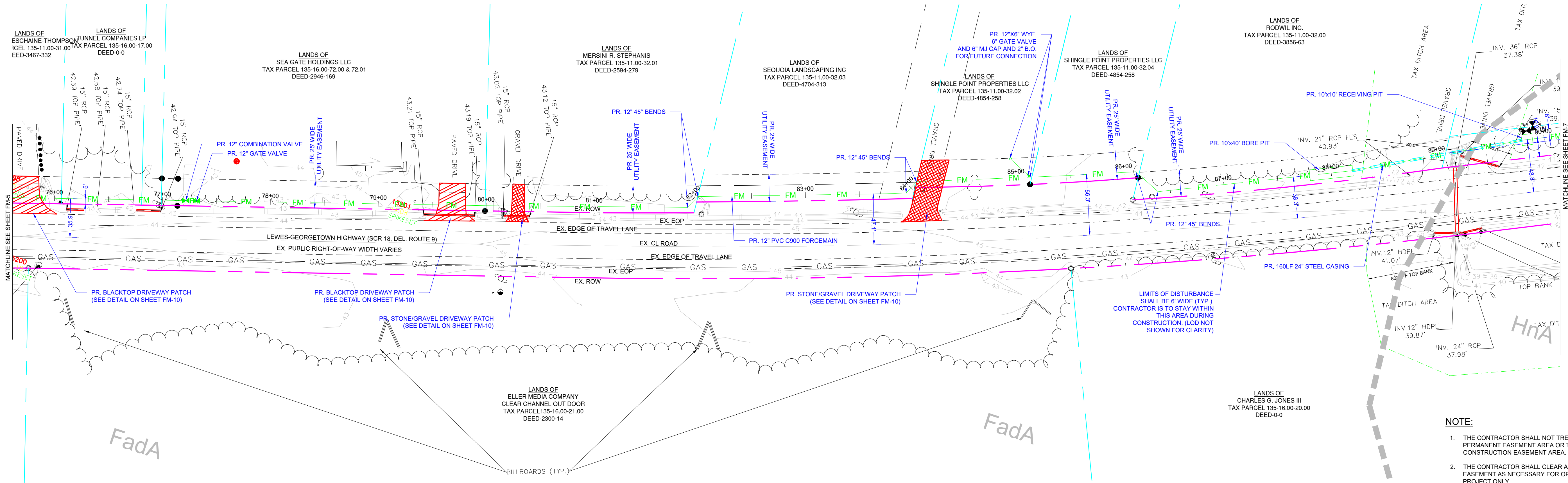
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CAD File: FORCEMAIN PLANS.dwg

Budget No. 3003255

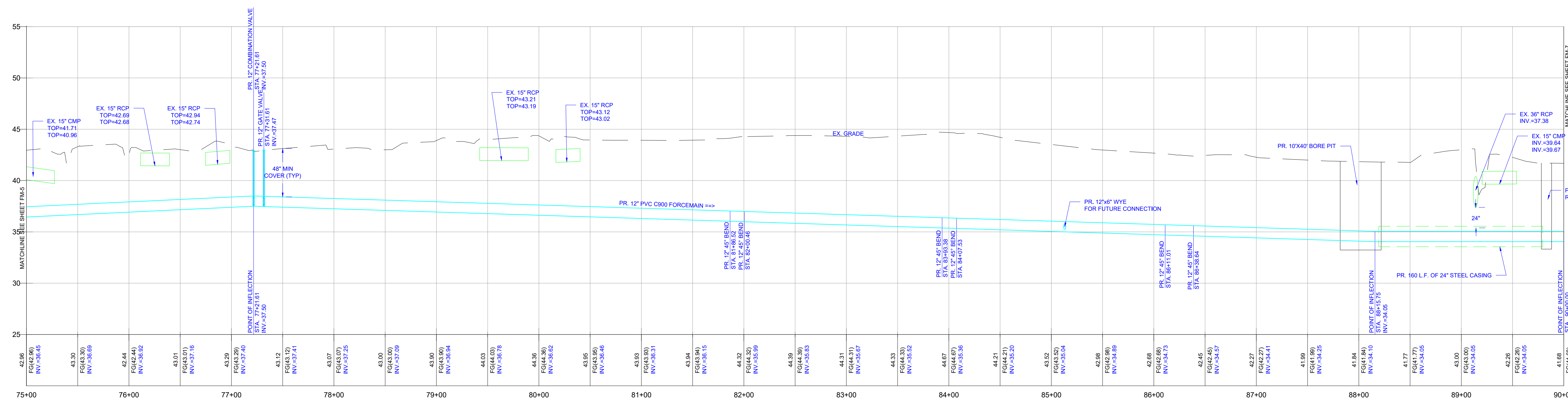
FORCEMAIN EXTENSION PLANS
ROUTE 9-SUSSEX COUNTY TO HAWTHORNE





PLAN VIEW
SCALE: 1"=50'

- NOTE:**
1. THE CONTRACTOR SHALL NOT TRESPASS OUTSIDE OF PERMANENT EASEMENT AREA OR THE TEMPORARY CONSTRUCTION EASEMENT AREA.
 2. THE CONTRACTOR SHALL CLEAR AND GRUB PERMANENT EASEMENT AS NECESSARY FOR OPEN CUT PORTIONS OF PROJECT ONLY.



SANITARY SEWER PROFILE
PROPOSED 12-INCH FORCEMAIN
STA: 75+00.00 TO 90+00.00
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

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2	REV. PER ARTESIAN	KEG	3/2/2020

Date: 11/12/19

Checked By: AG, DK

Sheet: FM-6

Scale: 1"=50'

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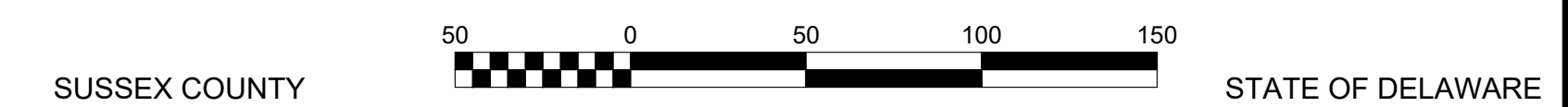
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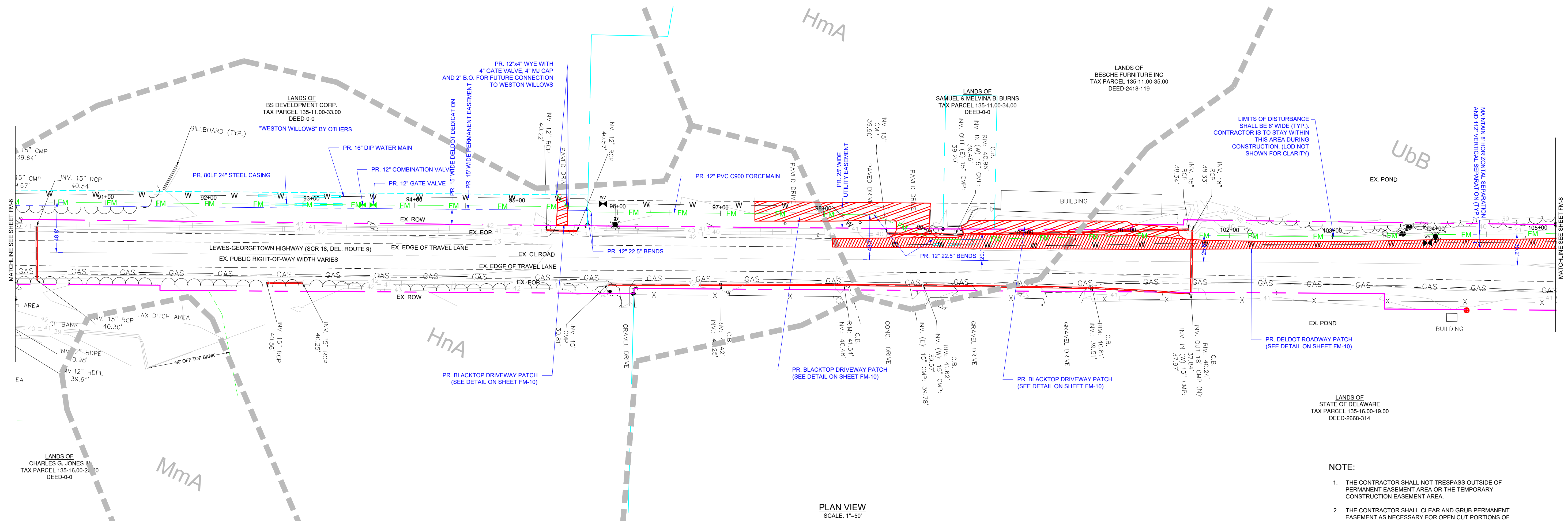
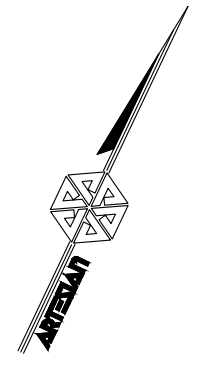
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CAD File: FORCEMAIN PLANS.dwg

Budget No. 3003255

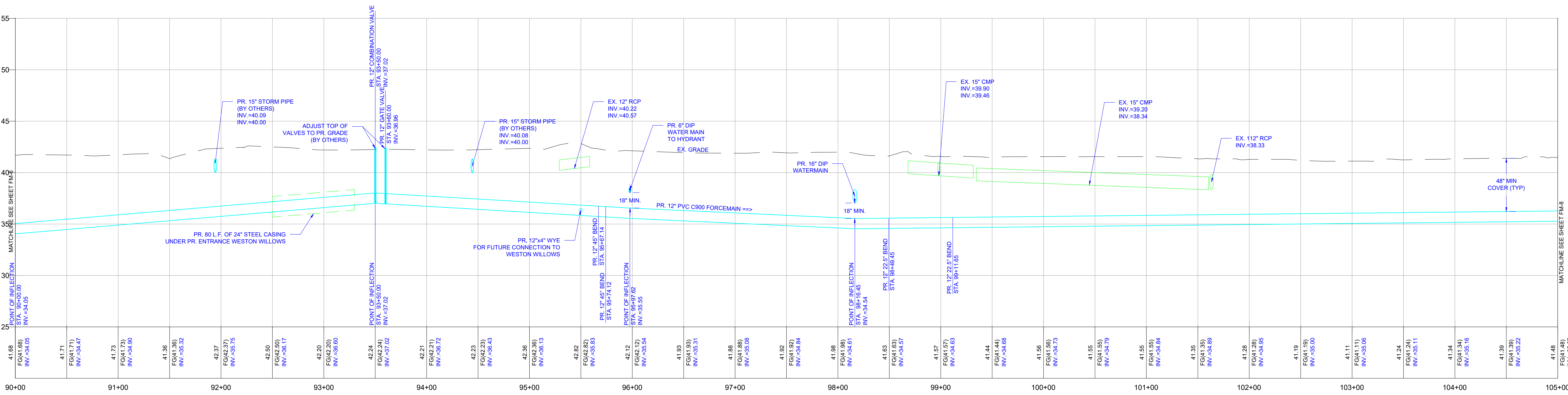
**FORCEMAIN EXTENSION PLANS
ROUTE 9-SUSSEX COUNTY TO HAWTHORNE**





PLAN VIEW
SCALE 1"=50'

- NOTE:**
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SANITARY SEWER PROFILE
PROPOSED 12-INCH FORCEMAIN
STA: 90+00.00 TO 105+00.00
HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE 1"=5'

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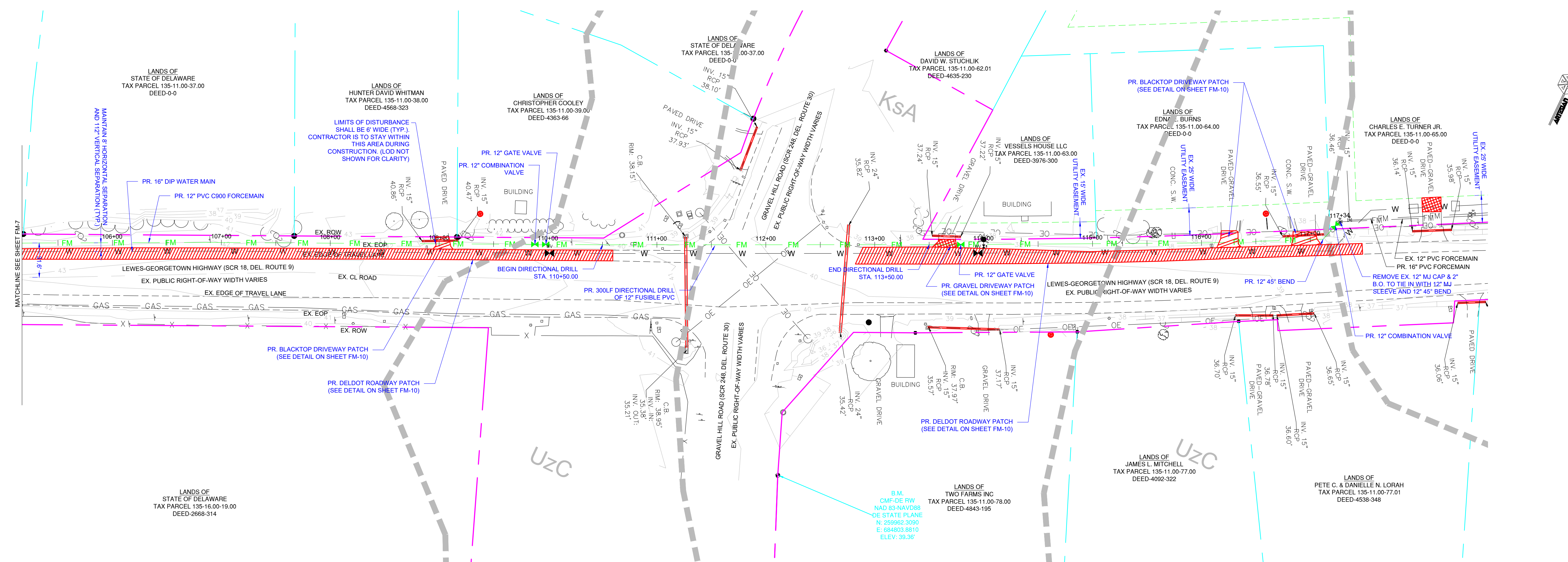
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NO.	DESCRIPTION	BY	DATE
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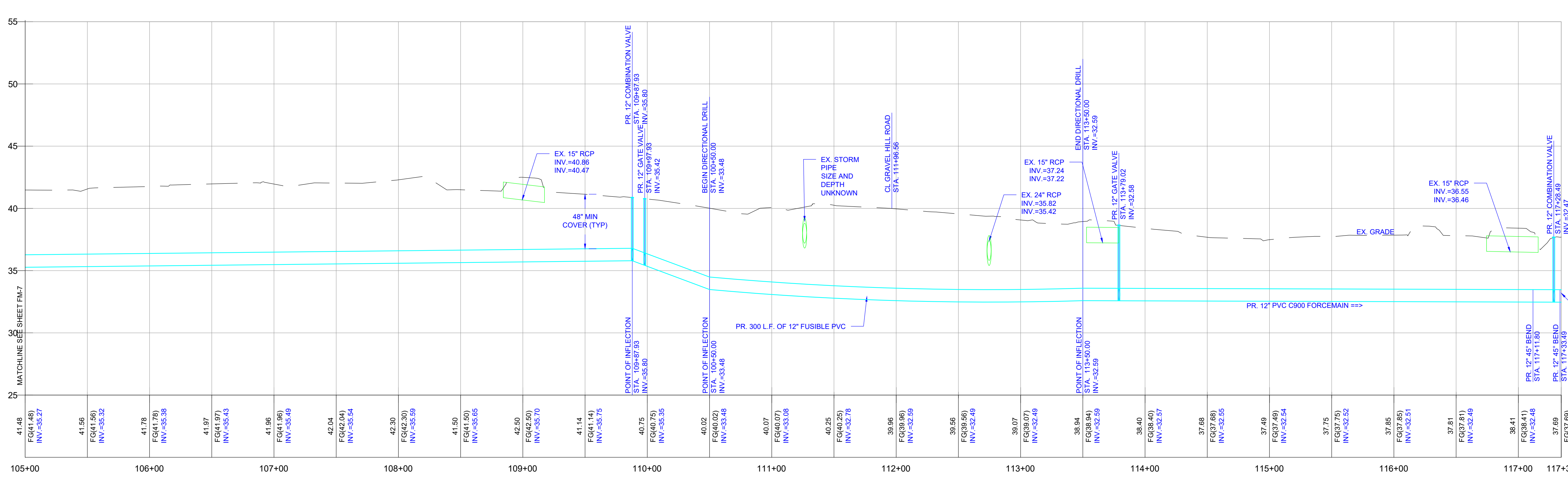
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Drawn By:	KEG	CAD File:	FORCEMAIN PLANS.dwg	Budget No.	3003255

FORCEMAIN EXTENSION PLANS
ROUTE 9-SUSSEX COUNTY TO HAWTHORNE

SUSSEX COUNTY STATE OF DELAWARE



PLAN VIEW
SCALE: 1"=50'



SANITARY SEWER PROFILE
PROPOSED 12-INCH FORCEMAIN
STA. 105+00.00 TO 117+34.49
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

- NOTE:
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Scale:	1"=50'	Page & Grid:		Hundred:	GEORGETOWN
Drawn By:	KEG	CAD File:	FORCEMAIN PLANS.dwg	Budget No.	3003255

FORCEMAIN EXTENSION PLANS
ROUTE 9-SUSSEX COUNTY TO HAWTHORNE

SUSSEX COUNTY STATE OF DELAWARE

Standard Detail & Specifications
Silt Fence

Construction Detail

Construction Notes:

- Geosynthetic fabric to be fastened securely to fence posts with wire ties or staples.
- When two sections of filter cloth adjoin each other they shall be overlapped by six inches and folded.
- Maintenance shall be performed as needed and material removed when "bulges" develop in the silt fence.

Materials:

- Stakes: Steel (either T or U) or 2" hardwood
- Geosynthetic Fabric: Type GD-I
- Reinforcing strip: Wooden lath, plastic strip or other approved equivalent
- Prefabricated Unit: Geofab, Envirofence, or approved equivalent

Source: Adapted from MD Stds. & Specs. for ESC
Symbol: **SF**
Detail No. **DE-ESC-3.1.2.1**
Sheet 1 of 2
Date: 12/03

Standard Detail & Specifications
Silt Fence

Construction Detail

Construction Notes:

- Geosynthetic fabric to be fastened securely to fence posts with wire ties or staples.
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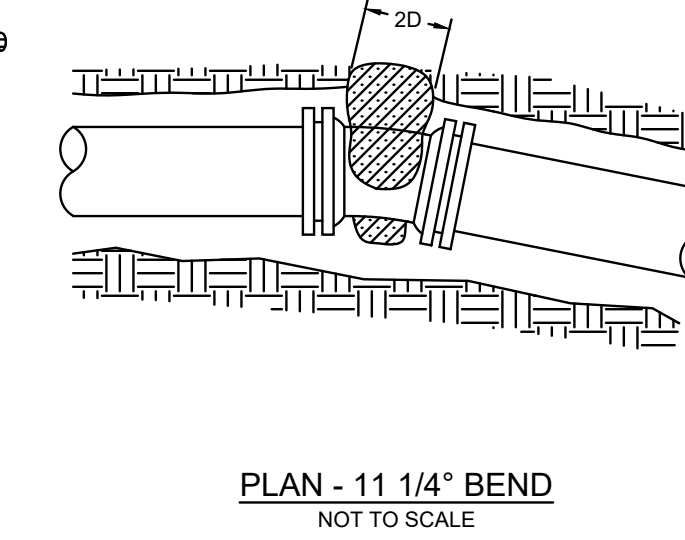
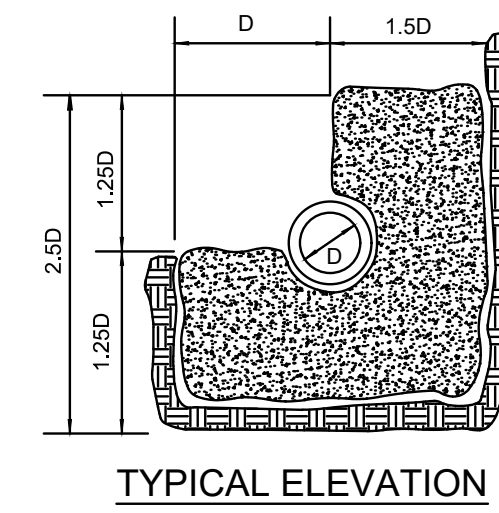
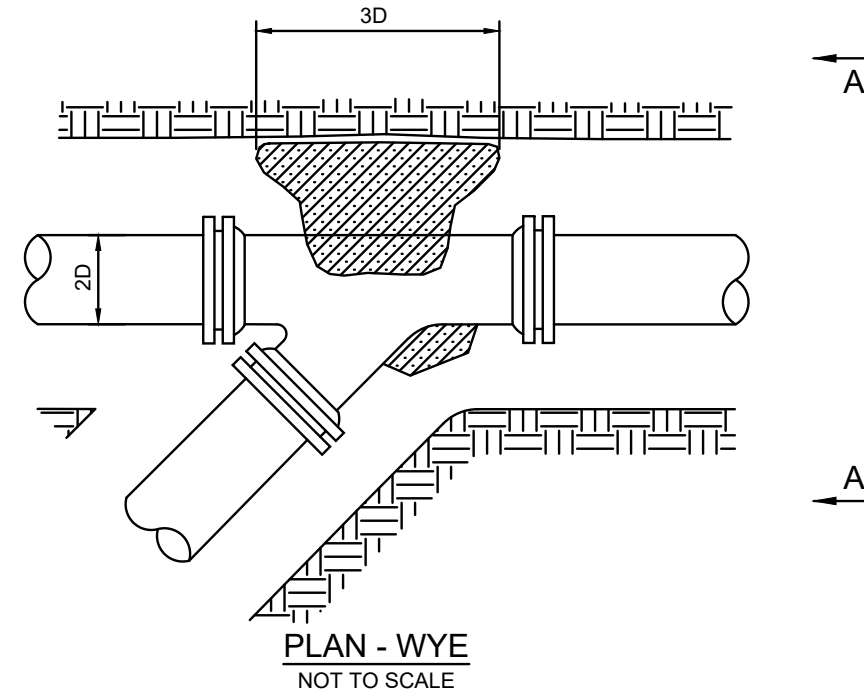
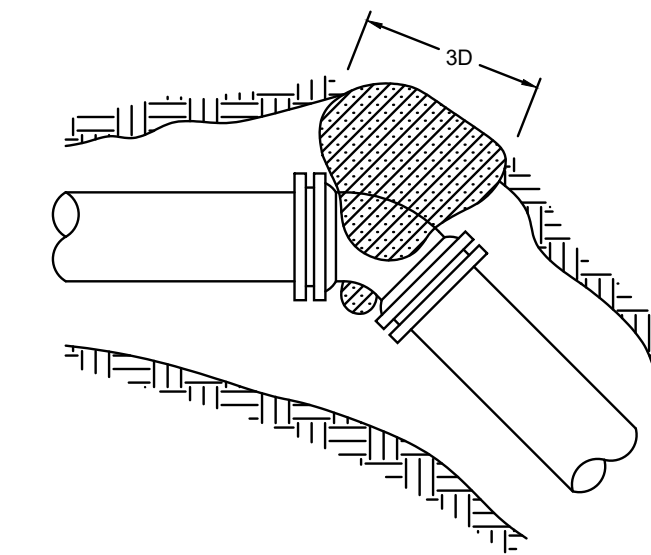
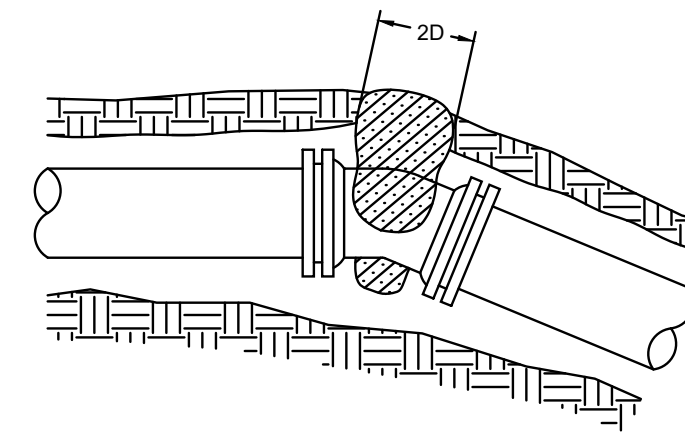
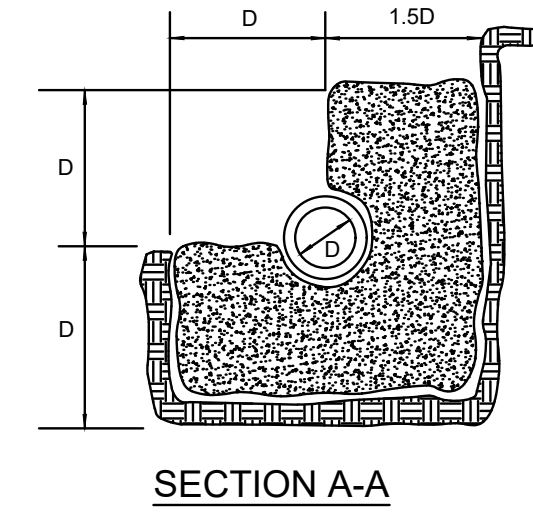
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- Reinforcing strip: Wooden lath, plastic strip or other approved equivalent
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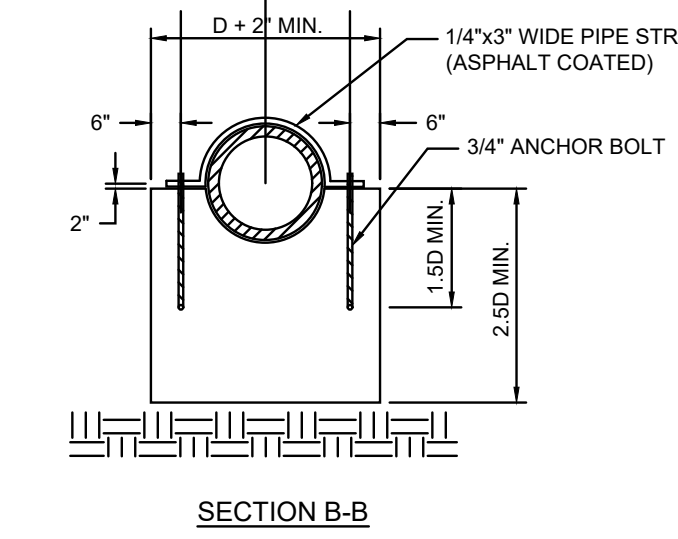
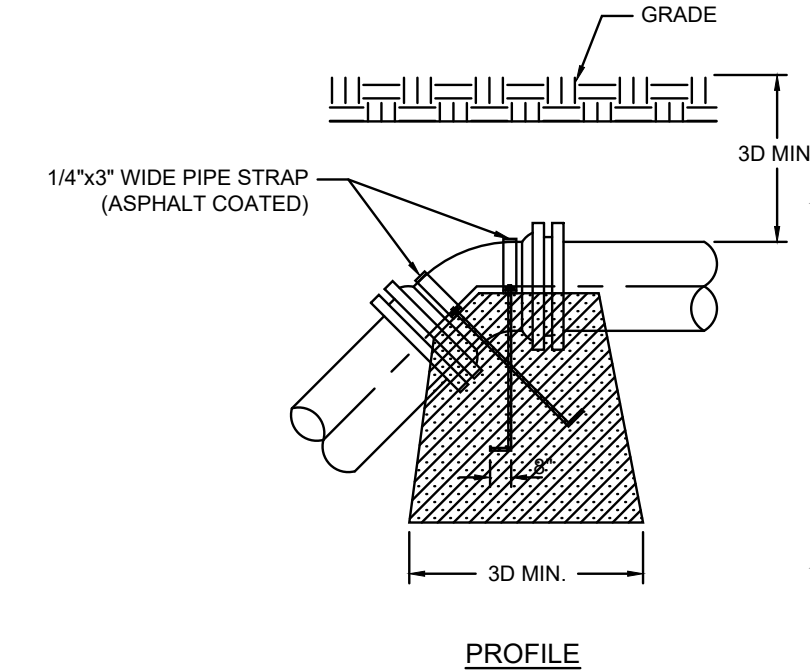
Source: Adapted from MD Stds. & Specs. for ESC
Symbol: **SF**
Detail No. **DE-ESC-3.1.2.1**
Sheet 2 of 2
Date: 12/03

WYE

PIPE SIZE "D"	1.5D	2D	3D
20"	30"	40"	60"
16"	24"	32"	48"
12"	18"	24"	36"
10"	15"	20"	30"
8"	12"	16"	24"
6"	9"	12"	18"
4"	6"	8"	12"



PIPE SIZE "D"	1.25D	1.5D	2D	2.5D	3D
20"	25"	30"	40"	50"	60"
16"	20"	24"	32"	40"	48"
12"	15"	18"	24"	30"	36"
10"	12.5"	15"	24"	25"	30"
8"	10"	12"	20"	20"	24"
6"	7.5"	9"	12"	15"	18"
4"	7.5"	9"	12"	15"	18"



STANDARD REACTION BACKING FOR VERTICAL BENDS
NOT TO SCALE

Standard Detail & Specifications
Site Pollution Prevention

Notes:

The Construction Site Pollution Prevention Plan should include the following elements:

- Material Inventory**
 - Document the storage and use of the following materials:
 - Concrete
 - Detergents
 - Paints (enamel and latex)
 - Cleaning solvents
 - Pesticides
 - Wood scraps
 - Fertilizers
 - Petroleum based products
- Good housekeeping practices**
 - Store only enough product required to do the job.
 - All materials shall be stored in a neat, orderly manner in their original labeled containers and covered.
 - Substances shall not be mixed.
 - When possible, all of a product shall be used up prior to disposal of the container.
 - Manufacturers' instructions for disposal shall be strictly adhered to.
 - The site foreman shall designate someone to inspect all BMPs daily.
- Waste management practices**
 - All waste materials shall be collected and stored in securely lidded dumpsters in a location that does not drain to a waterbody.
 - Waste materials shall be salvaged and/or recycled whenever possible.
 - The dumpsters shall be emptied a minimum of twice per week, or more if necessary. The licensed trash hauler is responsible for cleaning out dumpsters.

Source: Adapted from USEPA Pub. 840-B-92-002
Symbol:
Detail No. **DE-ESC-3.6.1**
Sheet 1 of 3
Date: 6/05

Standard Detail & Specifications
Site Pollution Prevention

Notes (cont.)

- Equipment maintenance practices**
 - If possible, equipment should be taken to off-site commercial facilities for washing and maintenance.
 - If performed on-site, vehicles shall be washed with high-pressure water spray without detergents in an area contained by an impervious berm.
 - Drip pans shall be used for all equipment maintenance.
 - Equipment shall be inspected for leaks on a daily basis.
 - Washout from concrete trucks shall be disposed of in a temporary pit for hardening and proper disposal.
 - Fuel nozzles shall be equipped with automatic shut-off valves.
- Spill prevention practices**
 - Potential spill areas shall be identified and contained in covered areas with no connection to the storm drain system.
 - Warning signs shall be posted in hazardous material storage areas.
 - Preventive maintenance shall be performed on all tanks, valves, pumps, pipes and other equipment as necessary.
 - Low or non-toxic substances shall be prioritized for use.

Source: Adapted from USEPA Pub. 840-B-92-002
Symbol:
Detail No. **DE-ESC-3.6.1**
Sheet 2 of 3
Date: 6/05

Standard Detail & Specifications
Site Pollution Prevention

Notes (cont.)

- Education**
 - Best management practices for construction site pollution control shall be a part of regular progress meetings.
 - Information regarding waste management, equipment maintenance and spill prevention shall be prominently posted in the construction trailer.

CONTACT INFORMATION

DNREC 24-Hour Toll Free Number 800-662-8802
DNREC Solid & Hazardous Waste Branch 302-739-9403

Source: Adapted from USEPA Pub. 840-B-92-002
Symbol:
Detail No. **DE-ESC-3.6.1**
Sheet 3 of 3
Date: 6/05

EROSION AND SEDIMENT CONTROL NOTES:

- THE SUSSEX CONSERVATION DISTRICT MUST BE NOTIFIED IN WRITING FIVE (5) DAYS PRIOR TO COMMENCING WITH CONSTRUCTION TO SCHEDULE A PRE-CONSTRUCTION MEETING. FAILURE TO DO SO CONSTITUTES A VIOLATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN.
- REVIEW AND APPROVAL OF SEDIMENT AND STORMWATER MANAGEMENT PLAN SHALL NOT RELIEVE THE CONTRACTOR FROM HIS OR HER RESPONSIBILITIES FOR COMPLIANCE WITH THE REQUIREMENTS OF THE SEDIMENT AND STORMWATER REGULATIONS. NOR SHALL IT RELIEVE THE CONTRACTOR FROM ERRORS OR OMISSIONS ON THE APPROVED PLAN.
- IF THE APPROVED PLAN NEEDS TO BE MODIFIED, ADDITIONAL SEDIMENT AND STORMWATER CONTROL MEASURES MAY BE REQUIRED AS DEEMED NECESSARY BY THE SUSSEX CONSERVATION DISTRICT.
- THE SUSSEX CONSERVATION DISTRICT RESERVES THE RIGHT TO ENTER PRIVATE PROPERTY FOR PURPOSES OF PERIODIC SITE INSPECTION.
- FOLLOWING SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN 14 CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER SEDIMENT CONTROLS, TOPSOIL STOCKPILES, AND ALL OTHER DISTURBED OR GRADED AREAS ON THE PROPOSED SITE.
- ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL COMPLY WITH THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK 1989 OR LATEST EDITION.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN AND REPAIR ALL STORMWATER AND SEDIMENT CONTROL PRACTICES DURING CONSTRUCTION AND UTILITY INSTALLATION.

EROSION AND SEDIMENT CONTROL NOTES:

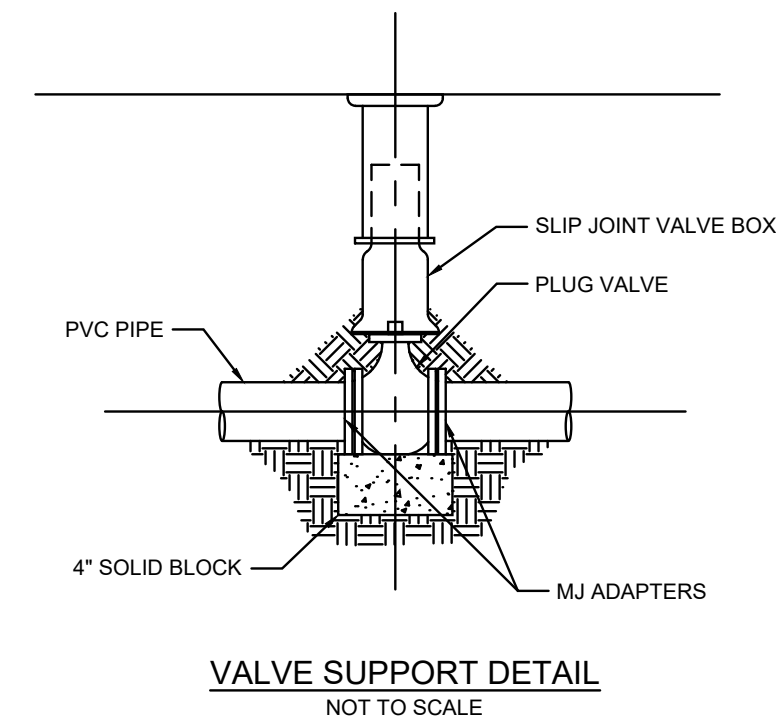
- IT SHALL BE THE OWNER'S RESPONSIBILITY TO MAINTAIN THE PROPERTY DURING THE PLAN REVIEW AND APPROVAL PROCESS. IT SHALL BE THE OWNERS RESPONSIBILITY TO MAINTAIN STORMWATER FACILITY UPON COMPLETION.
- APPROVED PLANS REMAIN VALID FOR 5 YEARS FROM THE DATE OF AN APPROVAL.
- AS-BUILT SURVEYS AND DRAWINGS ARE TO BE SUBMITTED TO THE DISTRICT WITHIN 60-DAYS OF STORMWATER MANAGEMENT FACILITY COMPLETION.
- APPROVAL OF A SEDIMENT AND STORMWATER PLAN DOES NOT GRANT NOR IMPLY A RIGHT TO DISCHARGE STORMWATER RUNOFF. THE OWNER/DEVELOPER IS RESPONSIBLE FOR ACQUIRING ANY AND ALL AGREEMENTS, EASEMENTS, ETC., NECESSARY TO COMPLY WITH STATE DRAINAGE AND OTHER APPLICABLE LAWS.
- EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED PERIODICALLY AND AFTER EACH RAINFALL. MAINTENANCE MUST BE PERFORMED AFTER EACH INSPECTION AS NECESSARY. ANY ERODED AREAS SHALL BE STABILIZED AND ANY ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF ACCORDING TO PLAN.
- THE EROSION AND SEDIMENT CONTROL OBJECTIVES WILL BE ACHIEVED BY MINIMIZING EXPOSURE TIME OF POTENTIALLY ERODIBLE SOILS TO RUNOFF, AND INSTALLATION OF THE TEMPORARY AND PERMANENT CONSERVATION MEASURES IN PROPER SEQUENCE WITH CONSTRUCTION.
- TOPSOIL STOCKPILED ON THE SITE SHALL BE STABILIZED WITH SEED AND MULCH WITHIN 5 CALENDAR DAYS OF PLACEMENT OF THE TOPSOIL. THE TEMPORARY TOPSOIL STOCKPILE SHALL BE USED FOR FINAL GRADING OF SITE ALL REMAINING STOCKPILED MATERIAL, IF APPLICABLE SHALL BE REMOVED FROM THE SITE IN AN APPROVED MANNER.

EROSION AND SEDIMENT CONTROL NOTES:

- CONTRACTOR SHALL TAKE CARE NOT TO "TRACK" MUD OFF SITE WITH CONSTRUCTION VEHICLES AND EQUIPMENT.
- ALL AREAS NOT STABILIZED BY STONE BASE COARSE OR PAVING ARE TO BE STABILIZED ACCORDING TO THE STABILIZATION SCHEDULE IMMEDIATELY AFTER DESIGN GRADE IS ACHIEVED. HYDRO SEEDING IS RECOMMENDED WHERE SLOPES EXCEED 3:1.
- IN THE EVENT EARTHWORK OPERATIONS ARE HALTED FOR THE WINTER MONTHS, BEFORE FINAL GRADING AND SEEDING OF ALL DISTURBED AREAS ARE COMPLETED, THOSE AREAS ARE TO BE STABILIZED PER THE STABILIZATION GUIDELINES OR STABILIZED WITH A MULCH, OR TACKED WITH A CHEMICAL ADHESIVE.
- EROSION CONTROL MATTING SHALL BE USED ON ALL SLOPES THAT ARE 3:1 (3 UNITS HORIZONTAL TO 1 UNIT VERTICAL) OR GREATER AND IN AREAS OF CONCENTRATED FLOW WHERE GRADES EXCEED 1% AND IN DISTURBED AREAS WHERE HIGHLY ERODIBLE SOILS ARE PRESENT. EROSION CONTROL BLANKET SHALL BE TYPE S-150 AS MANUFACTURED BY NORTH AMERICAN GREEN OR AN APPROVED EQUIVALENT.
- IF DUST CONTROL BECOMES A PROBLEM, METHODS SUCH AS MULCHING, OR SPRINKLING WATER SHALL BE IMPLEMENTED.
- ALL FILTER FABRIC TO BE USED UNDER RIP-RAP SHALL BE Mirafi 600X OR APPROVED EQUIVALENT.
- AT ANY TIME A DEWATERING OPERATION IS USED, IT SHALL BE PREVIOUSLY APPROVED BY THE AGENCY CONSTRUCTION SITE REVIEWER FOR A NON-EROSIVE POINT OF DISCHARGE, AND A DEWATERING PERMIT SHALL BE APPROVED BY THE DNREC WELL PERMITTING BRANCH.

EROSION AND SEDIMENT CONTROL NOTES:

- POST CONSTRUCTION VERIFICATION DOCUMENTS ARE TO BE SUBMITTED TO THE DNREC SEDIMENT AND STORM WATER PROGRAM OR THE RELEVANT DELEGATED AGENCY WITHIN 60 DAYS OF STORM WATER MANAGEMENT FACILITY COMPLETION.
- THE NOTICE OF INTENT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER A NPDES GENERAL PERMIT FOR THIS PROJECT IS #5540. AT ANY TIME THE OWNERSHIP OF THIS PROJECT CHANGES, A TRANSFER OF AUTHORIZATION OR A CO-PERMITTEE APPLICATION MUST BE SUBMITTED TO DNREC. THE PERMITTEE OF RECORD SHALL NOT BE RELIEVED OF THEIR RESPONSIBILITIES UNTIL A NOTICE OF TERMINATION HAS BEEN PROCESSED BY DNREC.
- THE OWNER SHALL BE FAMILIAR WITH AND COMPLY WITH ALL ASPECTS OF THE NPDES CONSTRUCTION GENERAL PERMIT ASSOCIATED WITH THE PROJECT, INCLUDING, BUT NOT LIMITED TO, PERFORMING WEEKLY SITE INSPECTIONS DURING CONSTRUCTION AND AFTER RAIN EVENTS, AND MAINTAINING WRITTEN LOGS OF THESE INSPECTIONS.
- BEFORE ANY EARTHWORK OR EXCAVATION TAKES PLACE, THE CONTRACTOR SHALL CALL MISS UTILITY AT 811 OR 1-800-282-8555 AT LEAST 48 HOURS PRIOR TO CONSTRUCTION, TO HAVE ALL EXISTING UTILITIES MARKED ON-SITE.
- THE CONTRACTOR SHALL AT ALL TIMES PROTECT AGAINST SEDIMENT OR DEBRIS LADEN RUNOFF OR WIND FROM LEAVING THE SITE. PERIMETER CONTROLS SHALL BE CHECKED DAILY AND ADJUSTED AND/OR REPAIRED TO FULLY CONTAIN AND CONTROL SEDIMENT FROM LEAVING THE SITE. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED HALF OF THE EFFECTIVE CAPACITY OF THE CONTROL. IN ADDITION, THE CONTRACTOR MAY NEED TO ADJUST OR ALTER MEASURES IN TIMES OF ADVERSE WEATHER CONDITIONS, OR AS DIRECTED BY THE AGENCY CONSTRUCTION SITE REVIEWER.
- BEST AVAILABLE TECHNOLOGY (BAT) SHALL BE EMPLOYED TO MANAGE TURBID DISCHARGES IN ACCORDANCE WITH REQUIREMENTS OF 7. Del. C. 69. REGULATIONS GOVERNING THE CONTROL OF WATER POLLUTION, SECTION 9.1.02, KNOWN AS SPECIAL CONDITIONS FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES, AND DEPARTMENT POLICIES, PROCEDURES, AND GUIDANCE.
- DOCUMENTATION OF SOIL TESTING AND MATERIALS USED FOR TEMPORARY OR PERMANENT STABILIZATION INCLUDING BUT NOT LIMITED TO SOIL TEST RESULTS, SEED TAGS, SOIL AMENDMENT TAGS, ETC. SHALL BE PROVIDED TO THE DEPARTMENT OR DELEGATED AGENCY TO VERIFY THAT THE PERMANENT OR TEMPORARY STABILIZATION HAS BEEN COMPLETED IN ACCORDANCE WITH THE APPROVED PLAN. THE DEPARTMENT OR DELEGATED AGENCY MAY REQUIRE ADDITIONAL SOIL TESTING AND REAPPLICATION OF PERMANENT OR TEMPORARY STABILIZATION IN ACCORDANCE WITH SPECIFICATIONS PROVIDED IN THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK OR ALTERNATIVE MEASURES THAT PROVIDE FUNCTIONAL EQUIVALENCY.



AWCBS - 2

PLUG OR CAP

SIZE	A	B	C
4	1'-0"	1'-6"	1'-0"
6	1'-0"	1'-6"	1'-0"
8	1'-6"	2'-0"	1'-3"
10	1'-8"	2'-6"	1'-6"
12	2'-0"	3'-0"	1'-6"
16	2'-6"	3'-6"	2'-0"

BUTRESSES FOR PLUGS AND CAPS
NOT TO SCALE

AWCBS - 3

PLAN

PROFILE

SPECIFICATIONS DUE TO CHANGE WITHOUT NOTICE. CONTACT ARTESIAN WASTEWATER MANAGEMENT, INC. FOR LATEST REVISIONS.

- GENERAL NOTES**
- ALLOW SUFFICIENT SPACE TO HAVE AN ACCESS TO BOLTS IN THE MECHANICAL JOINT.
 - STRENGTH OF CONCRETE SHOULD BE 2500 P.S.I. (MIN.) AFTER 28 DAYS.
 - ALL REACTION BACKING TO EXTEND TO UNDISTURBED EARTH.
 - WHEN USING MECHANICAL JOINT, USE TAR PAPER BETWEEN FITTING AND CONCRETE.

ARTESIAN
ARTESIAN WASTEWATER MANAGEMENT, INC.

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Newark, Delaware 19702
P.O. Box 15004, Wilmington, Delaware 19850
Phone: (302) 453-6900 Fax: (302) 453-5800

REVISIONS:	DESCRIPTION	BY	DATE
1	REV. PER DNREC COMMENTS DATED 2/24/2020	KEG	2/25/2020

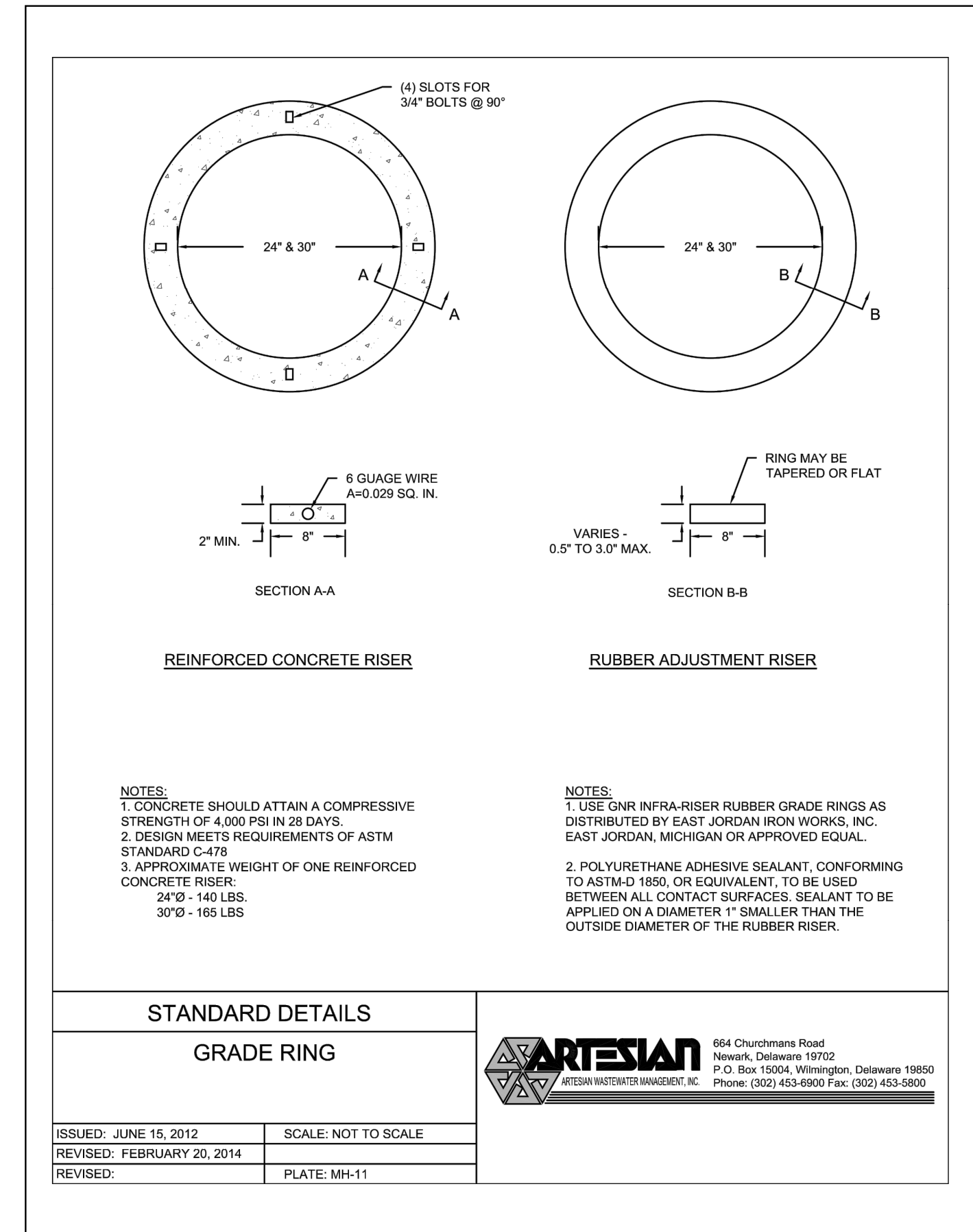
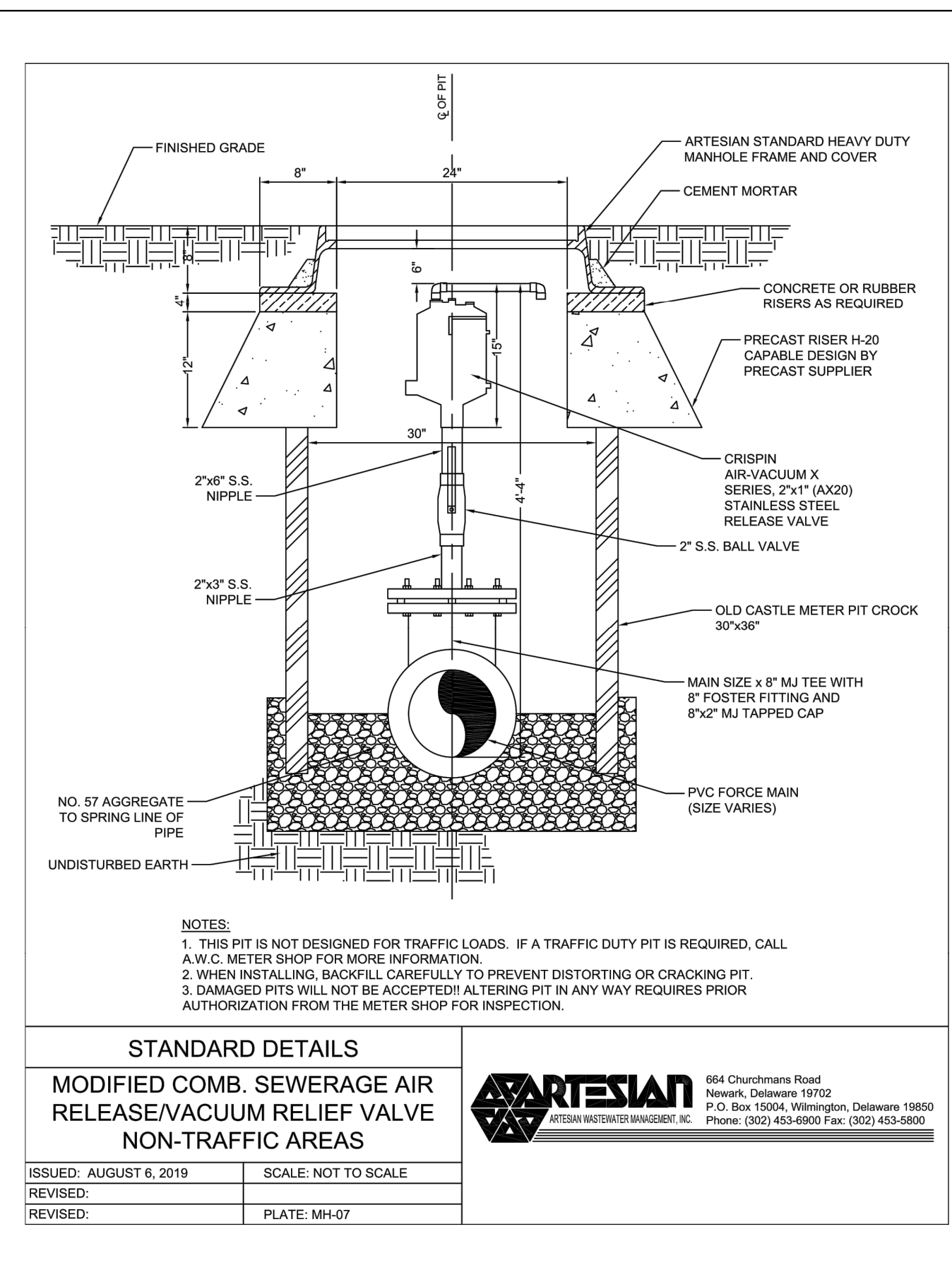
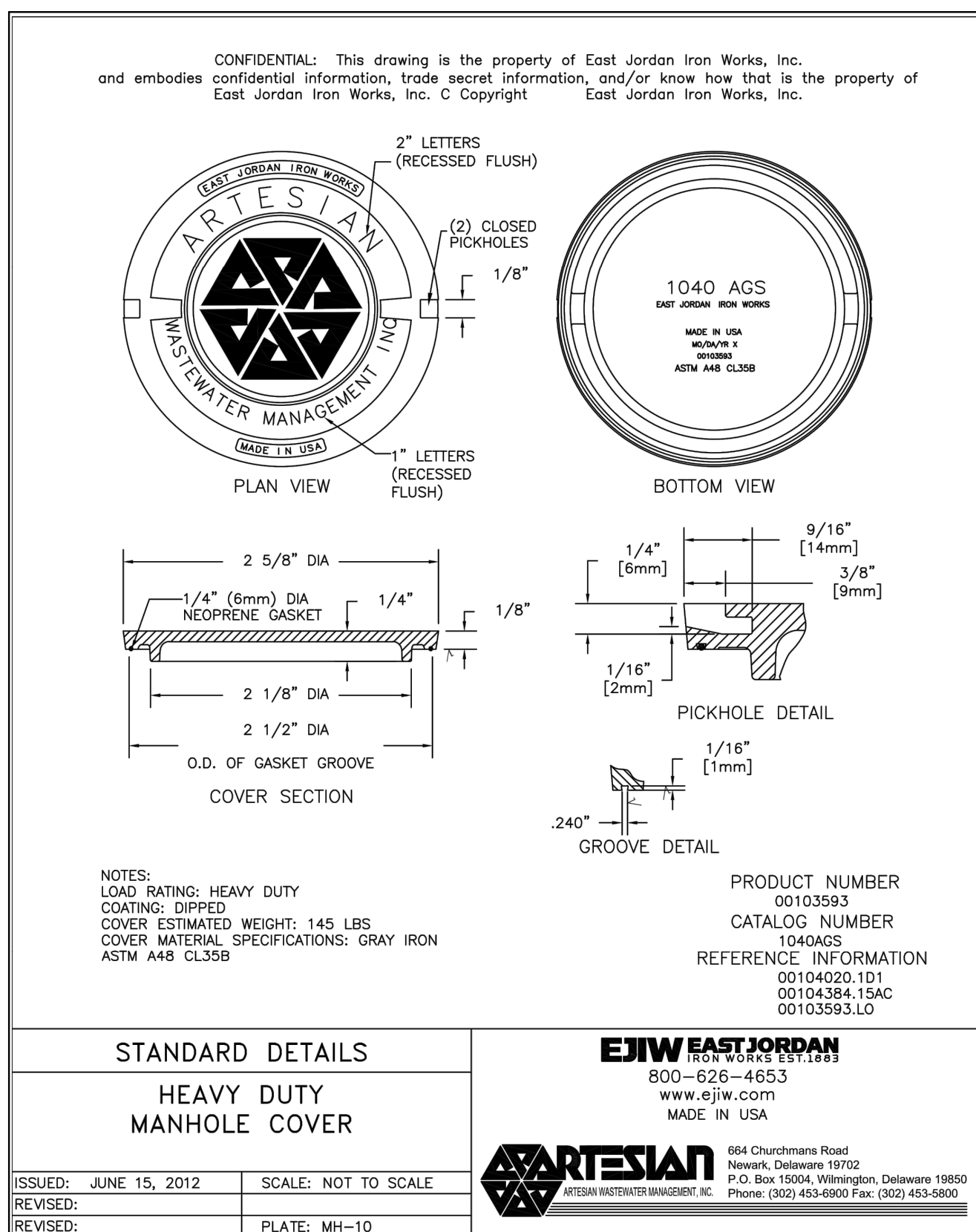
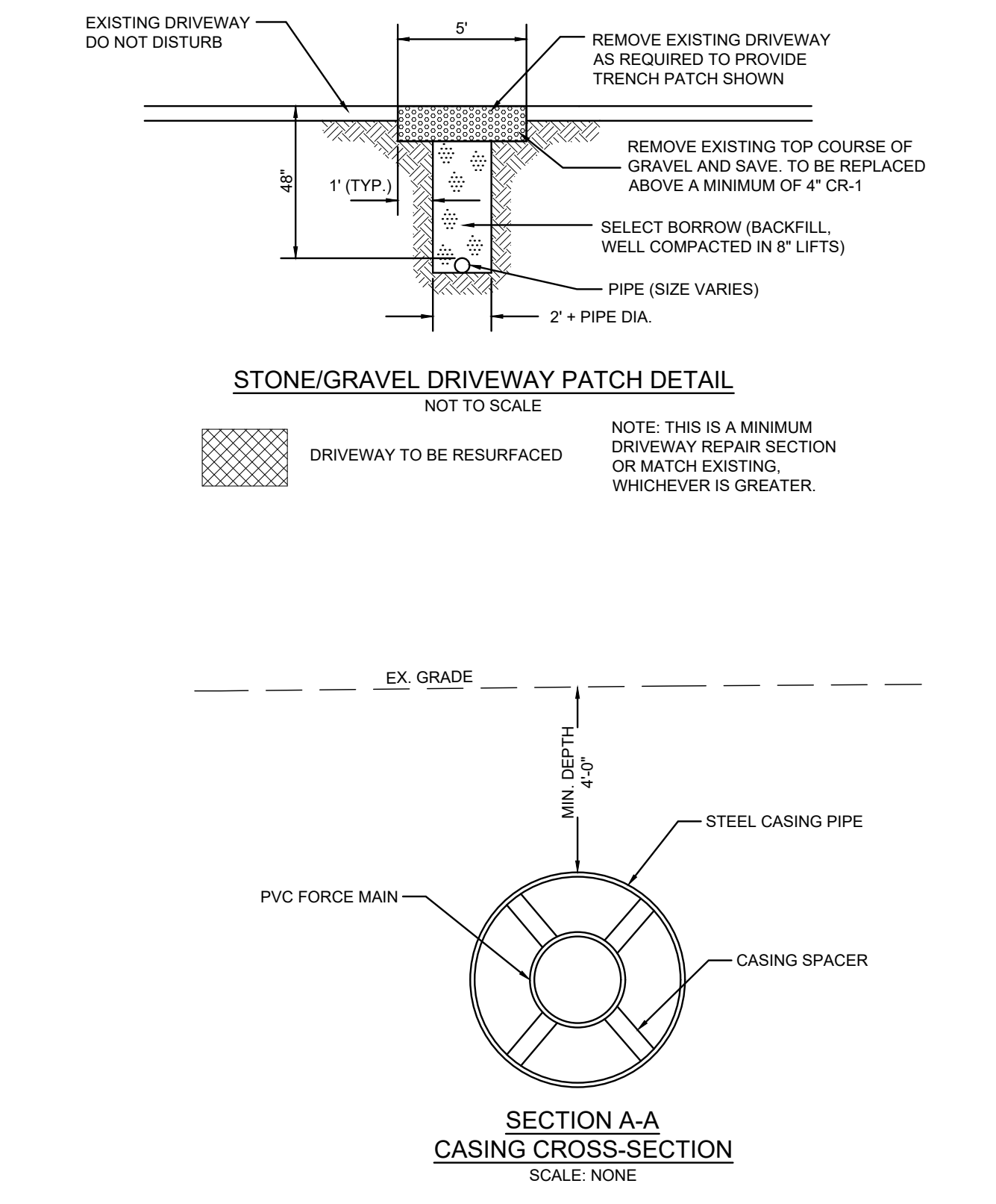
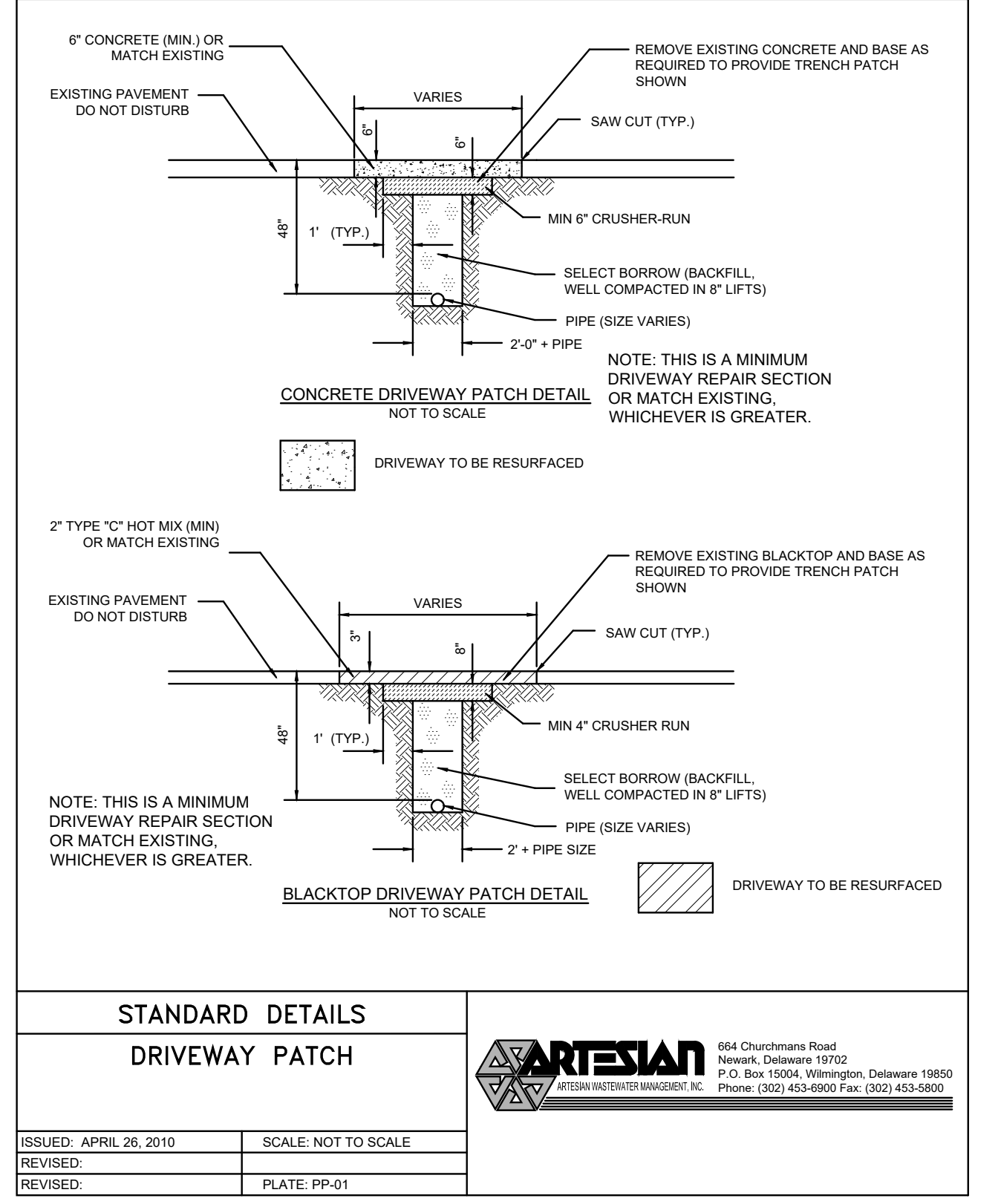
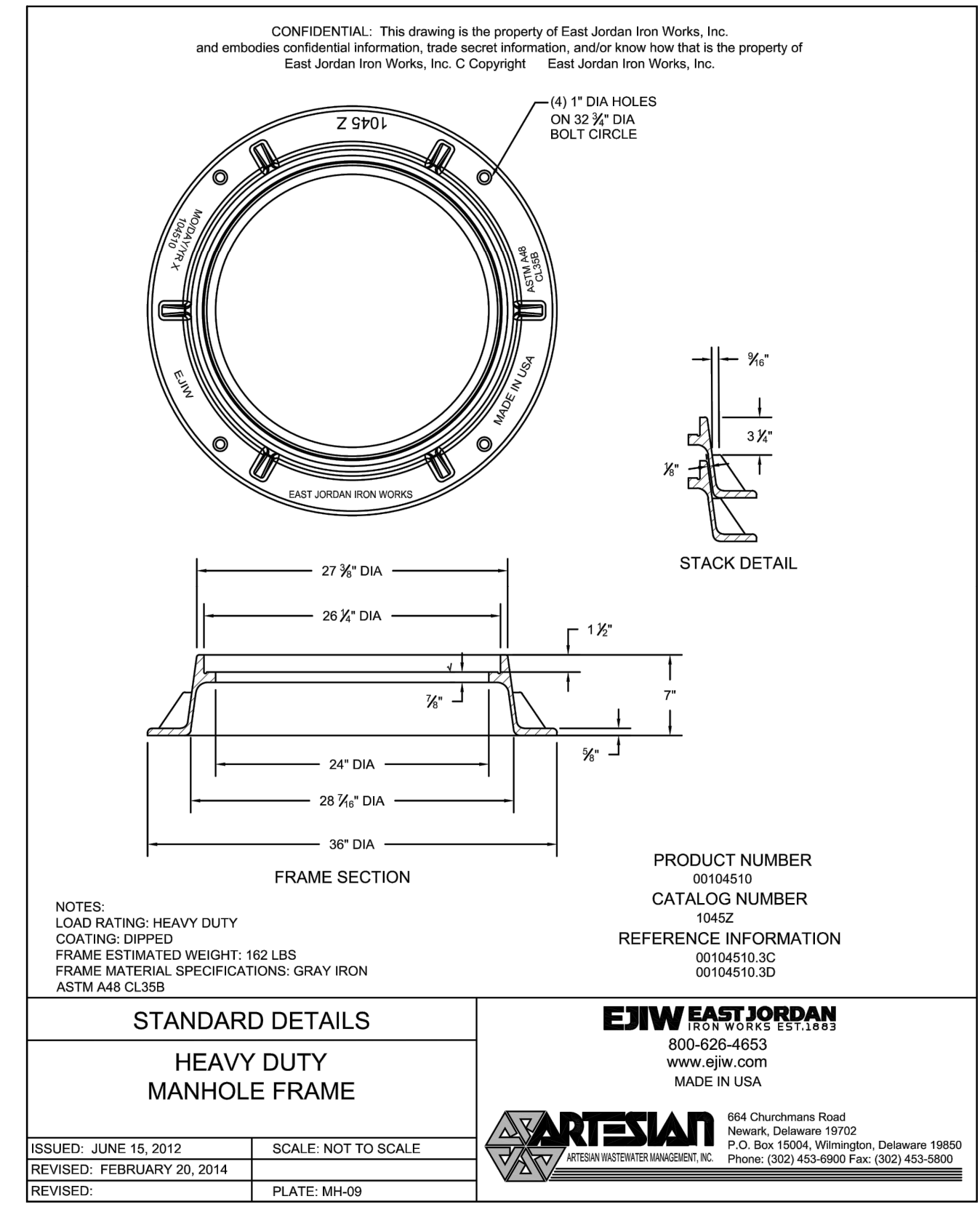
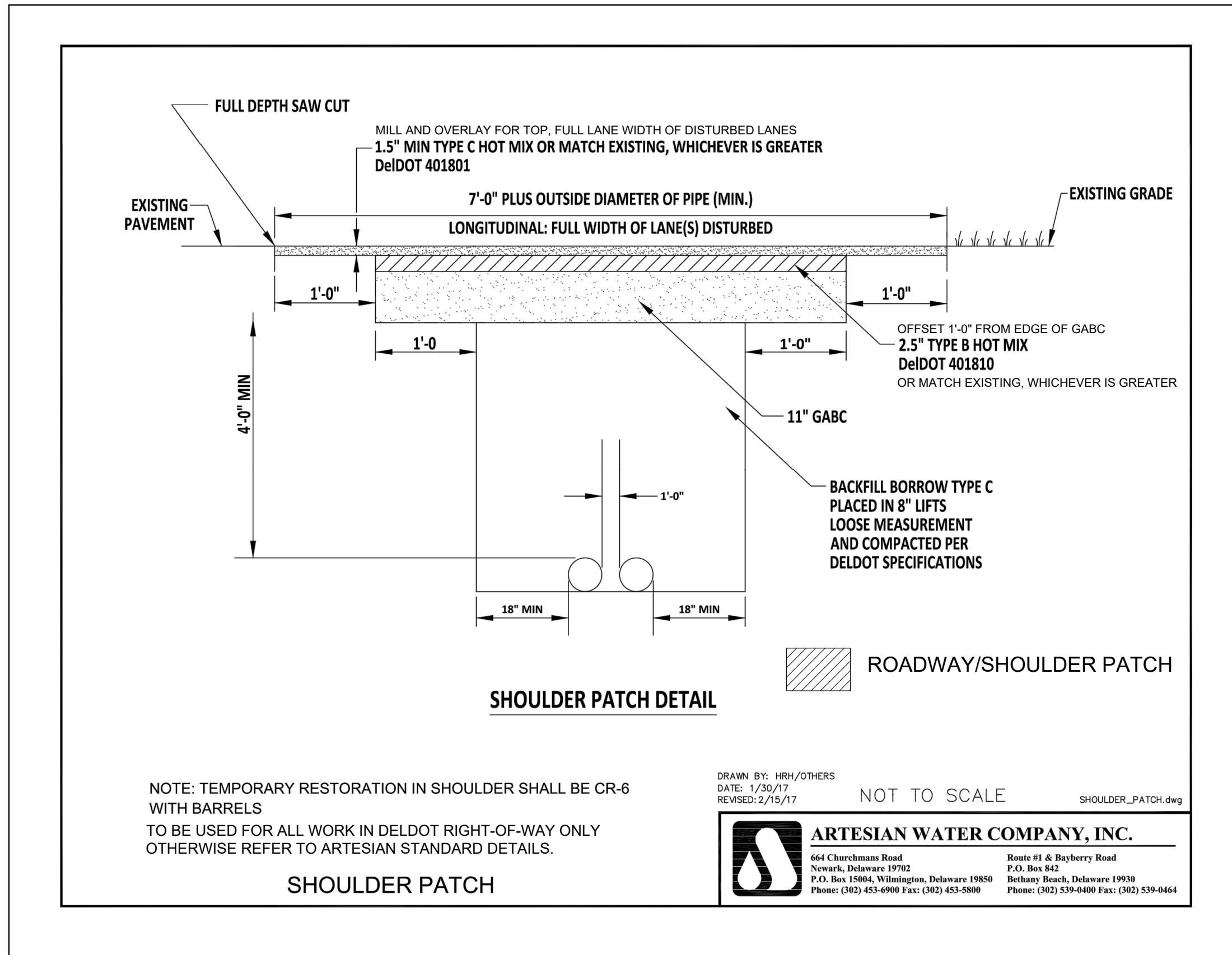
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FORCEMAIN EXTENSION PLANS
ROUTE 9-SUSSEX COUNTY TO HAWTHORNE

SUSSEX COUNTY STATE OF DELAWARE

SANITARY FORCE MAIN NOTES:

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH SUSSEX COUNTY, DELAWARE ORDINANCE 657 SPECIFICATIONS AND ARTESIAN WASTEWATER MANAGEMENT, INC. STANDARDS AND SPECIFICATIONS, LATEST EDITION.
- CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND DIMENSIONS PRIOR TO ORDERING AND/OR FABRICATION OF ANY MATERIALS.
- CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. ALL CONSTRUCTION MUST BE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THERETO APPURTENANT. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.
- CONTRACTOR SHALL SUPERVISE AND DIRECT WORK. HE WILL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, PROCEDURES AND SEQUENCE OF CONSTRUCTION.
- CONTRACTOR SHALL PATCH, REPAIR AND FINISH ALL DAMAGED SURFACES CAUSED BY THE WORK, USING MATERIALS OF THE SAME KINDS.
- FABRICATION AND INSTALLATION OF ALL MATERIALS, FINISHES, ETC. SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- EXISTING UTILITIES ARE SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE UTILITY COMPANIES INVOLVED IN ORDER TO SECURE THE MOST ACCURATE INFORMATION AVAILABLE AS TO UTILITY LOCATIONS AND ELEVATION. NO CONSTRUCTION AROUND OR ADJACENT TO UTILITIES SHALL BEGIN WITHOUT NOTIFYING THEIR OWNERS AT LEAST 48 HOURS IN ADVANCE. THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE AND ANY DAMAGE DONE TO THEM DUE TO HIS NEGLIGENCE SHALL BE IMMEDIATELY AND COMPLETELY REPAIRED AT THE CONTRACTOR'S EXPENSE. TO LOCATE EXISTING UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CALL MISS UTILITY OF DELAWARE (TELEPHONE NUMBER 1-800-282-8555).
- ALL EXCESS EXCAVATION AND ALL OLD PAVEMENT, BASE COURSE, BROKEN CONCRETE, ETC., SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE Hauled AWAY FROM THE SITE AND DISPOSED OF ACCORDING TO ALL APPLICABLE ORDINANCES, LAWS & REGULATIONS.
- IN ALL AREAS WHERE UNSTABLE OR UNSUITABLE MATERIALS ARE ENCOUNTERED, THE CONTRACTOR SHALL FIRST NOTIFY THE OWNER, THEN REVIEW WITH THE OWNER THE POSSIBLE OPTIONS, AND THEN PROCEED WITH THE MUTUALLY ACCEPTABLE CORRECTION.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROTECT ALL INSTALLED PIPING UNTIL THE COMPLETION OF CONSTRUCTION OF THE PROJECT. PIPES WITH SHALLOW COVER SHALL BE PROTECTED FROM DAMAGE BY CONSTRUCTION MACHINERY WITH ADEQUATE TEMPORARY COVER.
- ALL EXCAVATION SHALL BE KEPT DRY AT ALL TIMES. BACK FILL SHALL BE COMPACTED TO 95% PROCTOR DENSITY. ANY BORROW NECESSARY TO BRING GRADE TO THOSE SHOWN ON THE PLANS SHALL BE SUPPLIED BY THE CONTRACTOR. BORROW SHALL BE SELECT BORROW.
- ALL DIMENSIONS ARE TO THE CENTERLINE OF THE UTILITY UNLESS OTHERWISE NOTED.
- ALL DISTURBED AREAS OUTSIDE OF PAVEMENT SHALL BE STABILIZED WITH 6" OF TOPSOIL, SEEDED AND MULCHED PER THE SPECIFICATION. UNLESS OTHERWISE NOTED, TOPSOIL SHALL CONFORM TO: ASTM D 5298. REUSE TOPSOIL STOCKPILED ON THE SITE. VERIFY SUITABILITY OF SURFACE SOIL TO PRODUCE TOPSOIL MEETING THE REQUIREMENTS AND AMEND WHEN NECESSARY. SUPPLEMENT TOPSOIL WITH IMPORTED TOPSOIL WHEN QUANTITIES ARE INSUFFICIENT. CLEAN TOPSOIL OF ROOTS, PLANTS, SODS, STONES, CLAY LUMPS, AND OTHER EXTRANEIOUS MATERIALS HARMFUL TO PLANT GROWTH.
- ALL PIPE BEDDING SHALL MEET THE REQUIREMENTS OF CLASS 'C'.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN APPROVAL AND ACCEPTANCE OF THE FORCE MAINS AND PUMP STATIONS BY ARTESIAN WASTEWATER MANAGEMENT, INC. STANDARDS AND SPECIFICATIONS, LATEST EDITION.
- ALL FORCE MAINS SHALL BE PRESSURE TESTED IN ACCORDANCE WITH ARTESIAN WASTEWATER MANAGEMENT, INC. STANDARDS AND SPECIFICATIONS, LATEST EDITION.
- ALL EXCAVATED MATERIALS SHALL BE STORED ON THE HIGH SIDE OF THE TRENCH AND SHALL BE BACK FILLED AT THE END OF EACH DAY.
- THE CONTRACTOR SHALL PLACE MAGNETIC DETECTION TAPE OVER ALL SEWER MAINS AND FORCE MAINS PER ARTESIAN WASTEWATER MANAGEMENT, INC. STANDARDS AND SPECIFICATIONS, LATEST EDITION.
- ALL GRADING TO BE DONE SO AS TO CAUSE DRAINAGE TO FLOW AWAY FROM ANY CONSTRUCTED ITEMS OF WORK.
- CONCRETE BUTTRESSES CONFORMING TO THE STANDARD SPECIFICATIONS SHALL BE INSTALLED ON THE FORCE MAINS.



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FORCEMAIN EXTENSION PLANS
ROUTE 9-SUSSEX COUNTY TO HAWTHORNE

SUSSEX COUNTY STATE OF DELAWARE

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Standard Detail & Specifications
Vegetative Stabilization



Table with 5 columns: Mix #, Species*, Seeding Rate, Optimum Seeding Dates, Planting Depth†. Includes rows for Certified Seed and various grass species like Barley, Oats, Rye, etc.

- 1. Winter seeding requires 3 tons per acre of straw mulch for proper establishment.
2. May be planted throughout summer if soil moisture is adequate or seeded area can be irrigated.
3. Application on slopes 3:1 or less.
4. Fifty pounds per acre of Annual Aescopa may be added to 1/2 the seeding rate of any of the above species.
5. Use varieties currently recommended for Delaware. Contact a County Extension Office for information.
6. Warm season grasses such as Millet or Weeping Lovegrass may be used between 5/1 and 9/1 if desired. Seed at 3.5 lbs per acre. Good on low fertility and acid areas. Seed after frost through summer at a depth of 0.5"

Table with 3 columns: Source, Symbol, Detail No. Includes Delaware ESC Handbook, DE-ESC-3.4.3 Sheet 1 of 4, Date: 12/03.

Standard Detail & Specifications
Vegetative Stabilization



Table with 5 columns: Seeding Mixtures, Seeding Rate*, Optimum Seeding Dates, Remarks. Includes rows for Well Drained Soils, Coastal Plain, Piedmont, and All.

Table with 3 columns: Source, Symbol, Detail No. Includes Delaware ESC Handbook, DE-ESC-3.4.3 Sheet 2 of 4, Date: 12/03.

Standard Detail & Specifications
Vegetative Stabilization



Table with 5 columns: Seeding Mixtures, Seeding Rate*, Optimum Seeding Dates, Remarks. Includes rows for Well Drained Soils, Coastal Plain, Piedmont, and All.

Table with 3 columns: Source, Symbol, Detail No. Includes Delaware ESC Handbook, DE-ESC-3.4.3 Sheet 3 of 4, Date: 12/03.

Standard Detail & Specifications
Vegetative Stabilization



Table with 5 columns: Seeding Mixtures, Seeding Rate*, Optimum Seeding Dates, Remarks. Includes rows for Well Drained Soils, Coastal Plain, Piedmont, and All.

Table with 3 columns: Source, Symbol, Detail No. Includes Delaware ESC Handbook, DE-ESC-3.4.3 Sheet 4 of 4, Date: 12/03.

Construction Notes:

- 1. Site Preparation
a. Prior to seeding, install needed erosion and sediment control practices such as diversions, grade stabilization structures, berms, dikes, grassed waterways, and sediment basins.
b. Final grading and shaping is not necessary for temporary seedings.
2. Seedbed Preparation
It is important to prepare a good seedbed to insure the success of establishing vegetation. The seedbed should be well prepared, loose, uniform, and free of large clods, rocks, and other objectionable material. The soil surface should not be compacted or crusted.
3. Soil Amendments
a. Lime - Apply liming materials based on the recommendations of a soil test in accordance with the approved nutrient management plan.
b. Fertilizer - Apply fertilizer based on the recommendations of a soil test in accordance with the approved nutrient management plan.
4. Seeding
a. For temporary stabilization, select a mixture from Sheet 1. For a permanent stabilization, select a mixture from Sheet 2 or Sheet 3 depending on the conditions.
b. Apply seed uniformly with a broadcast seeder, drill, cultipacker seeder or hydroseeder. All seed will be applied at the recommended rate and planting depth.
c. Seed that has been broadcast should be covered by roller or dragging and then lightly tamped into place using a roller or cultipacker.
5. Mulching
All mulching shall be done in accordance with detail DE-ESC-3.4.5.

DELDOT UTILITY PLAN NOTES:

- 1. PLANS ARE REVIEWED FOR GENERAL CONFORMITY. DELDOT IS NOT RESPONSIBLE FOR ERRORS OR OMISSIONS WITHIN THE PLAN SET. THE UTILITY OWNER IS RESPONSIBLE TO ENSURE ACCURACY OF PLANS AND CONFORMANCE WITH DELDOT STANDARDS.
2. MANHOLE TOP SECTIONS WILL BE OFF SET CONE STYLE. ANY MANHOLE LIDS THAT ARE DETERMINED BY DELDOT TO NOT BE IN THE CENTER OF THE LANE SHALL BE ADJUSTED PRIOR TO FINAL PAVEMENT PLACEMENT.
3. MANHOLE COLLARS AND LIDS SHALL BE INITIALLY SET 1/2" LOW AND ADJUSTED TO FINISH GRADE WITH CONCRETE COLLAR AFTER FINAL PAVEMENT HAS BEEN PLACED.
4. CONCRETE FRAME AND LIDS SHALL BE POURED AROUND MANHOLE FRAME AND LIDS/VALVE BOXES TO FINISH GRADE USING CLASS "A" CONCRETE.
5. ALL BACKFILL MATERIAL IN EXISTING/PROPOSED ROADWAY SHALL CONFORM TO TYPE "C" BORROW. ALL BORROW BACKFILL SHALL BE COMPACTED TO 95% USING AASHTO T99 STANDARD FOR TESTING.
6. GABC PLACED SHALL BE COMPACTED TO 98%.
7. COMPACTION TESTING SHALL BE PERFORMED EVERY 100' AND TESTING SHALL BE TAKEN ON EACH LIFT OF MATERIAL PLACED.
8. TAR CHIPHOT MIXES ROADS: TRAVEL WAY PAVEMENT DISTURBED SHALL BE RESTORED AT THE END OF THE DAY PRIOR TO REOPENING TO TRAFFIC. HOT MIX SHALL BE PLACED PER TEMP PATCHING DETAIL 6" GABC AND 2" TYPE "C" HOT MIX.
9. TAR CHIPHOT MIXES SHOULDERS: SHOULDERS DISTURBED MAY BE LEFT IN GABC TO FINISH GRADE OVERNIGHT BUT SHALL BE CLOSED USING APPROPRIATE SIGNING AND DRUMS. TEMP PAVEMENT SHALL BE PLACED FOR SHOULDERS AT THE END OF EACH WORK WEEK.
10. ALL AREAS DISTURBED OUTSIDE OF THE PAVEMENT SHALL BE GRADED EACH DAY TO ENSURE POSITIVE DRAINAGE AND SHALL BE PERMANENTLY RESTORED AT THE END OF EACH WEEK.
11. ALL TEMPORARY HOT MIX SHALL BE PLACED TO PROVIDE A SMOOTH RIDABLE SURFACE TO DELDOT STANDARDS.
12. A SAFETY EDGE IS REQUIRED ON ALL HOT MIX PLACED.
13. ANY STRIPING DISTURBED SHALL BE PLACED AT THE END OF THE DAY PRIOR TO OPENING TO TRAFFIC.
14. PROOF ROLL OF GABC SHALL BE PERFORMED USING A LOADED 10 WHEELER PRIOR TO PLACEMENT OF HOT MIX.
15. ALL MATERIALS AND WORKMANSHIP WITHIN THE STATE RW SHALL BE COMPLETED IN ACCORDANCE WITH CURRENT STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, SUPPLEMENTAL SPECIFICATIONS, STANDARD CONSTRUCTION DETAILS, UTILITY MANUAL, SPECIAL PROVISIONS AND DESIGN MEMORANDUMS.
16. THERE IS A ONE YEAR WARRANTY ON ALL EARTH WORK AND CONCRETE. A THREE YEAR WARRANTY ON ALL HOT MIX INCLUDING SUBBASE/SUBGRADE ISSUES WITHIN THE PAVEMENT AREAS. WARRANTY DOES NOT START UNTIL ALL WORK IS COMPLETED AND A STAND OF GRASS HAS BEEN ESTABLISHED TO DELDOT STANDARDS AND A ACCEPTANCE LETTER HAS BEEN ISSUED.
17. ALL DISTURBED AREAS WITHIN THE STATE RIGHT-OF-WAY, BUT NOT IN THE PAVEMENT, SHALL BE TOP-SOILED (6" MINIMUM), FERTILIZED, SEEDED AND MULCHED. IF SOD IS USED NEXT TO SIDEWALK OR SHARED-USE PATH, CONTRACTOR SHALL GRADE TOPSOIL ADJACENT TO THE SIDEWALK OR SHARED-USE PATH PRIOR TO PLACEMENT OF SOD TO ENSURE THAT SOD IS PLACED FLUSH OR JUST BELOW EDGE OF SIDEWALK OR SHARED-USE PATH TO AVOID WATER PONDING ON THE SIDEWALK OR SHARED-USE PATH.
18. A 72-HOUR (MINIMUM) NOTICE SHALL BE GIVEN TO THE DELDOT DISTRICT PERMIT SUPERVISOR PRIOR TO STARTING UTILITY CONSTRUCTION.
19. A 48 HOUR NOTICE IS REQUIRED TO BE GIVEN TO THE DELDOT INSPECTOR PRIOR TO MATERIAL RELEASES.
20. ALL CONCRETE /HOT MIX MATERIALS SHALL BE RELEASED BY THE INSPECTOR PRIOR TO PLACEMENT.
21. MISS UTILITY OF DELAWARE SHALL BE NOTIFIED THREE (3) CONSECUTIVE WORKING DAYS PRIOR TO EXCAVATION. AT 1800-282-8555.
22. ALL SIGNING, STRIPING AND MAINTENANCE OF TRAFFIC IS THE CONTRACTOR'S RESPONSIBILITY AND SHALL FOLLOW THE GUIDELINES SHOWN IN THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (DE MUTCD) FOR STREETS AND HIGHWAYS (LATEST EDITION). THE OWNER OR MAINTENANCE CORPORATION SHALL BE RESPONSIBLE FOR MAINTENANCE OF ALL SIGNS INSTALLED AS PART OF THIS PROJECT.
23. A COPY OF THE UP TO DATE APPROVED CONSTRUCTION DOCUMENTS AND DELDOT APPROVAL LETTERS SHALL BE MAINTAINED ON THE PROJECT SITE AT ALL TIMES AND BE AVAILABLE FOR INSPECTION BY DELDOT PERSONNEL.
24. EXISTING UTILITIES ARE SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION. COMPLETENESS OR CORRECTNESS THEREOF IS NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE UTILITY COMPANIES INVOLVED IN ORDER TO SECURE THE MOST ACCURATE INFORMATION AVAILABLE AS TO UTILITY LOCATION AND ELEVATION. NO CONSTRUCTION AROUND OR ADJACENT TO UTILITIES SHALL BEGIN WITHOUT NOTIFYING THEIR OWNERS AT LEAST 48-HOURS IN ADVANCE. THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE AND ANY DAMAGE DONE TO THEM DUE TO HIS/HER NEGLIGENCE SHALL BE IMMEDIATELY AND COMPLETELY REPAIRED AT THE CONTRACTOR'S EXPENSE. TO LOCATE EXISTING UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CONTACT MISS UTILITY OF DELAWARE (SEE NOTE #5).
25. SHOULD UTILITY RELOCATION BE REQUIRED, THE DEVELOPER MUST SUBMIT A UTILITY RELOCATION PLAN FOR DELDOT REVIEW, ALONG WITH CORRESPONDENCE FROM THE UTILITY COMPANIES STATING PRELIMINARY APPROVAL TO THE RELOCATION AND DESIGN OF THE UTILITIES PRIOR TO THE DELDOT PRE-CONSTRUCTION MEETING. NO PHYSICAL CONSTRUCTION CAN OCCUR UNTIL THE UTILITY PLANS ARE APPROVED, THE INDIVIDUAL UTILITY COMPANIES ISSUE FINAL APPROVAL, AND A DELDOT UTILITY PERMIT IS ISSUED TO THE UTILITY COMPANY.
26. DESIGN AND INSTALLATION OF ALL PAVEMENT MARKINGS AND STRIPING SHALL BE AS OUTLINED IN THE LATEST VERSION OF THE DE MUTCD. FOR FINAL PERMANENT PAVEMENT MARKINGS EPOXY RESIN PASTE SHALL BE REQUIRED FOR LONG LINE STRIPING. THERMO PLASTIC (EXTRUDED OR PREFORMED MATERIAL) WILL BE REQUIRED ON ASPHALT SURFACES. FOR SHORT LINE STRIPING, I.E. SYMBOLS/LEGENDS, PERMANENT PAVEMENT MARKING TAPE (PER DELDOT APPROVED MATERIALS LIST) WILL BE REQUIRED ON CONCRETE SURFACES, FOR SHORT LINE STRIPING, I.E. SYMBOLS/LEGENDS.
27. BREAKAWAY POSTS SHALL BE USED WHEN INSTALLING ALL SIGNS. REFERENCE DELDOT STANDARD CONSTRUCTION DETAIL T-15.
28. ALL PROPOSED CLOSED STORM DRAIN SYSTEMS SHALL BE VIDEO INSPECTED, REPAIRED AS NECESSARY AND APPROVED PRIOR TO THE INSTALLATION OF FINAL PAVING. IF REPAIRS ARE NEEDED, THE REPAIRED PIPE SECTIONS WILL NEED TO BE VIDEO INSPECTED AGAIN BEFORE THE REPAIR CAN BE APPROVED.
29. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT PAVING WITHIN THE STATE OF DELAWARE RIGHT-OF-WAY IS INSTALLED TO THE ELEVATIONS SHOWN AND THAT NO PONDING OF WATER EXISTS AFTER PAVING IS COMPLETE.
30. THE DEPARTMENT RESERVES THE RIGHT TO STOP THE CONTRACTOR'S OPERATIONS, IF, IN THE OPINION OF THE DEPARTMENT'S REPRESENTATIVE, THE CONTRACTOR'S OPERATIONS ARE NOT IN COMPLIANCE WITH THE DELAWARE MUTCD, THE SPECIFICATIONS OR THE PLANS OR IF THE CONTRACTOR'S OPERATIONS ARE DEEMED UNSAFE.
31. ALL ROADWAY CLOSURES OR LANE CLOSURES BEYOND THOSE SPECIFIED AND APPROVED IN THE PLANS SHALL BE APPROVED BY THE DISTRICT SAFETY OFFICER A MINIMUM OF TWO WEEKS IN ADVANCE OF THE PROPOSED RESTRICTION.
32. TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE MAINTAINED IN GOOD CONDITION IN ACCORDANCE WITH THE BROCHURE ENTITLED 'QUALITY GUIDELINES FOR TEMPORARY TRAFFIC CONTROL DEVICES' PUBLISHED BY THE AMERICAN TRAFFIC SAFETY ASSOCIATION (ATSSA). ANY TEMPORARY TRAFFIC CONTROL DEVICES THAT DO NOT MEET THE QUALITY GUIDELINES SHALL BE REMOVED AND REPLACED WITH ACCEPTABLE DEVICES. FAILURE TO COMPLY WILL RESULT IN WORK STOPPAGE.
33. THE CONTRACTOR SHALL PROVIDE ALL PROPERTY OWNERS AND RESIDENTS WHO LIVE ADJACENT TO THE WORK ZONE WITH WRITTEN NOTICE, 48 HOURS IN ADVANCE OF THE START OF CONSTRUCTION WORK. THIS NOTIFICATION SHALL INCLUDE THE SCOPE OF WORK, WORKING HOURS, ANTICIPATED START AND COMPLETION DATES, A SUMMARY OF CONSTRUCTION ACTIVITIES WHICH MAY INTERFERE WITH ACCESS TO THE PROPERTY INCLUDING A SCHEDULE AND ACCESS COORDINATION PLAN, CONTRACTOR'S NAME AND ADDRESS AND A DELDOT CONTACT PHONE NUMBER. FAILURE TO GIVE PROPER NOTICE WILL RESULT IN A SUSPENSION OF THE WORK REQUIRING NOTICE, UNTIL PROPER NOTICE IS PROVIDED. THE CONTRACTOR SHALL PROVIDE WRITTEN VERIFICATION TO THE ENGINEER THAT THE PROPERTY OWNERS AND RESIDENTS WERE NOTIFIED.
34. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE LOCAL 911 CENTER, LOCAL SCHOOLS AND THE DELDOT PUBLIC INFORMATION CENTER OF ALL ROADS AND LANES TO BE CLOSED A MINIMUM OF SEVEN CALENDAR DAYS BEFORE THE CLOSURE.
35. THE CONTRACTOR SHALL NOTIFY THE LOCAL 911 CENTER IF ACCESS TO A FIRE HYDRANT IS TEMPORARILY RESTRICTED.
36. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE TRANSPORTATION MANAGEMENT CENTER IS NOTIFIED EACH AND EVERY DAY WHEN WORK IS BEING PERFORMED IN STATE RIGHT-OF-WAY. THE CONTRACTOR SHALL IDENTIFY THE TYPE OF WORK, ANY LANE(S) OR SHOULDERS CLOSED, THE LENGTH OF TIME FOR WORK, WHEN THE LANE RESTRICTIONS ARE IN PLACE AND WHEN LANE RESTRICTIONS ARE LIFTED, CONTACT PERSON/PHONE NUMBER AND STATE INSPECTOR. THE TRANSPORTATION MANAGEMENT CENTER CAN BE REACHED AT (302) 650-4000.
37. AT THE END OF EACH WORKDAY, THE CONTRACTOR SHALL CORRECT ALL VERTICAL DIFFERENCES IN ACCORDANCE WITH TABLE 66-1 OF THE DELAWARE MUTCD.
38. AT THE END OF EACH DAY'S OPERATION AND BEFORE TRAFFIC IS RETURNED TO UNRESTRICTED ROADWAY USE, TEMPORARY PAVEMENT MARKINGS SHALL BE APPLIED IN ACCORDANCE WITH THE DELAWARE MUTCD AND DELDOT'S TEMPORARY PAVEMENT MARKINGS POLICY.
39. WHEN SIDE ROADS INTERSECT THE WORK ZONE, ADDITIONAL TRAFFIC CONTROL DEVICES SHALL BE ERRECTED INCLUDING PERMANENT WARNING SIGNS.
40. ALL STORAGE OF EQUIPMENT AND MATERIAL SHALL COMPLY WITH SECTION 66.21 OF THE DELAWARE MUTCD.
41. ALL FLAGGERS SHALL COMPLY WITH CHAPTER 86 OF THE DELAWARE MUTCD.
42. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS/HER WORK WITH OTHER CONTRACTORS IN THE AREA.
43. ALL PERSONS WORKING WITHIN THE STATE RIGHT-OF-WAY SHALL WEAR A MINIMUM OF AN ANSI CLASS II SAFETY VEST MEETING OR EXCEEDING THE ANSI 107-2004 REQUIREMENTS, AS SPECIFIED IN THE DELAWARE.
44. ALL PAVEMENT MARKINGS THAT ARE NO LONGER IN USE AND CONFLICT WITH TEMPORARY PAVEMENT MARKINGS SHALL BE REMOVED AND COMPLETELY OBLITERATED BY A METHOD APPROVED BY THE ENGINEER. PAINTING OVER THE CONFLICTING PAVEMENT MARKINGS WILL NOT BE ACCEPTED AS A METHOD OF REMOVAL.
45. WITHIN THE MAINLINE WORK AREA, PERMANENT ADVANCE WARNING SIGNS WITH THE LEGENDS ROAD WORK 1500 FT, ROAD WORK 1000 FT AND ROAD WORK 500 FT SHALL BE INSTALLED IN ADVANCE OF THE WORK AREA IN BOTH DIRECTIONS. AN END ROAD WORK SIGN SHALL BE LOCATED 500 FEET DOWNSTREAM FROM THE WORK AREA ON INTERSECTING ROADWAYS WITHIN THE PROJECT LIMITS. A ROAD WORK AHEAD SIGN SHALL BE PLACED AT A DISTANCE NOT LESS THAN 500 FEET IN ADVANCE OF THE WORK AREA AND AN END ROAD WORK SIGN SHALL BE LOCATED 500 FEET DOWNSTREAM OF THE WORK AREA. ALL PERMANENT ADVANCE WARNING SIGNS SHALL BE GROUND MOUNTED ON TWO NCHRP-350 OR MASH APPROVED BREAKAWAY POSTS AND SHALL BE MOUNTED IN COMPLIANCE WITH THE DELAWARE MUTCD. PERMANENT ADVANCE WARNING SIGNS SHALL BE MOUNTED AT A HEIGHT OF 7 FEET, MEASURED FROM THE ROADWAY TO THE BOTTOM OF THE SIGN. THE USE OF SKID MOUNTED SIGN SUPPORTS IS NOT ALLOWED UNLESS THE CONTRACTOR CAN DEMONSTRATE THAT A UTILITY CONFLICT EXISTS, WHICH SHALL BE VERIFIED BY THE ENGINEER, OR CONCRETE MEDIANS PREVENT THE INSTALLATION OF THE PERMANENT ADVANCE WARNING SIGNS IN THE APPROPRIATE LOCATION.

Standard Detail & Specifications
Dust Control



Temporary Methods:

- 1. Mulches - See DE-ESC-3.4.5, Standard Detail and Specifications for Mulching.
2. Vegetative cover - See DE-ESC-3.4.3, Std. Detail and Specifications for Vegetative Stabilization.
3. Adhesives - Use on mineral soils only that effective on muck soils. Keep traffic off these areas. The following table may be used for general guidance.

Table with 4 columns: Type of Emulsion, Water Dilution, Type of Nozzle, Apply Gal/Ac. Includes rows for Latex emulsion, Resin-in-water emulsion, Acrylic emulsion (non-traffic), Acrylic emulsion (traffic).

- 4. Tillage - For emergency temporary treatment, scarify the soil surface to prevent or reduce the amount of blowing dust until a more appropriate solution can be implemented. Begin the tillage operation on the windward side of the site using a chisel-type plow for best results.
5. Sprinkling - Sprinkle site with water until the surface is moist. Repeat as needed.
6. Calcium Chloride - Apply as flakes or granular material with a spreader at a rate that will keep the soil surface moist. Re-apply as necessary.
7. Barriers - Place barriers such as solid board fences, snow fences, hay bales, etc. at right angles to the prevailing air currents at intervals of approx. 10X their height.

Permanent Methods:

- 1. Vegetative cover - See DE-ESC-3.4.3, Std. Detail and Specifications for Vegetative Stabilization.
2. Stone - Apply layer of crushed stone or coarse gravel to protect soil surface.

Table with 3 columns: Source, Symbol, Detail No. Includes Adapted from VA ESC Handbook, DE-ESC-3.4.8 Sheet 1 of 1, Date: 12/03.

Standard Detail & Specifications
Mulching



Materials and Amounts

- a. Straw - Straw shall be unrotted small grain straw applied at the rate of 1-1/2 to 2 tons per acre, or 70 to 90 pounds (two bales) per 1,000 square feet. Mulch materials shall be relatively free of weeds and shall be free of noxious weeds such as, thistles, johnsongrass, and quackgrass. Spread mulch uniformly by hand or mechanically. For uniform distribution of hand spread mulch, divide area into approximately 1,000 square feet sections and place 70-90 pounds (two bales) of mulch in each section.
b. Wood chips - Apply at the rate of approximately 6 tons per acre or 275 pounds per 1,000 square feet when available and when feasible. These are particularly well suited for utility and road right-of-way. If wood chips are used, increase the application rate of nitrogen fertilizer by 20 pounds of N per acre (200 pounds of 10-10-10 or 66 pounds of 30-0-0 per acre).
c. Hydraulically applied mulch - The following conditions apply to hydraulically applied mulch:
i. Definitions:
a. Wood fiber mulch shall consist of specially prepared wood that has been processed to a uniform state, is packaged for sale as a hydraulic mulch for use with hydraulic seeding equipment.
b. Blended fiber mulch shall consist of any hydraulic mulch that contains greater than 30% paper fiber. The paper component must consist of specially prepared paper that has been processed to a uniform fibrous state and is packaged for sale as a hydraulic mulch for use with hydraulic seeding equipment.
c. A bonded fiber matrix (BFM) consists of long strand, specially prepared wood fibers that have been processed to a uniform state held together by a water resistant bonding agent. BFMs shall contain no paper (cellulose) mulch but may contain small percentages of synthetic fibers to enhance performance.
d. Refer to Figure 3.4.5a for conditions and limitations of use for each of the above categories of hydraulic mulch.
ii. All components of the hydraulically applied mulches shall be pre-packaged by the manufacturer to assure material performance. Field mixing of the mulch components is acceptable, but must be done per manufacturers recommendations to ensure the proper results.
iii. Hydraulic mulches shall be applied with a viable seed and at manufacturer's recommended rates. Increased rates may be necessary based on site conditions.
iv. Hydraulically applied mulches and additives shall be mixed according to manufacturers recommendations.
v. Materials within this category shall only be used when hydraulically applied mulch has been specified for use on the approved Sediment and Stormwater Plan, or supplemental approval from the plan approval agency has been obtained in writing for a specific area.

Table with 3 columns: Source, Symbol, Detail No. Includes Delaware ESC Handbook, DE-ESC-3.4.5 Sheet 1 of 3, Date: 6/05.

Standard Detail & Specifications
Mulching



Application:

- a. Apply product to geotechnically stable slopes that have been designed and constructed to divert runoff away from the face of the slope.
b. Do not apply to saturated soils, or if precipitation is anticipated within 24-48 hours.
c. During the spring (March 1 to May 31) and fall (September 1 to November 30) seasons, hydraulic mulches may be applied in a one-step process where all components are mixed together in single-lank loads. It is recommended that the product be applied from opposing directions to achieve optimum soil coverage.
d. During the summer (June 1 to August 31) and winter (December 1 to February 28) seasons, the following two-step process is required:
Step One - Mix and apply seed and soil amendments with a small amount of mulch for visual metering.
Step Two - Mix and apply mulch at manufacturers recommended rates over freshly seeded surfaces. Apply from opposing directions to achieve optimum soil coverage.
e. Minimum curing temperature is 40°F (4°C). The best results and more rapid curing are achieved at temperatures exceeding 60°F (15°C). Curing times may be accelerated in high temperature, low humidity conditions, or dry soils.
vi. Recommended application rates are for informational purposes only. Conformance with this standard and specification shall be performance-based and requires 100% soil coverage. Any areas with bare soil showing shall be top dressed until full coverage is achieved.
2. Anchoring mulch - Mulch must be anchored immediately to minimize loss by wind or water. This may be done by one of the following methods, depending upon size of area, erosion hazard, and cost:
a. Crimping - A crimper is a tractor drawn implement designed to punch and anchor mulch into the top two (2) inches of soil. This practice affords maximum erosion control but is limited to flatter slopes where equipment can operate safely. On sloping land, crimping should be done on the contour whenever possible.
b. Tracking - Tracking is the process of cutting mulch (usually straw) into the soil using a bulldozer or other equipment that runs on cleated tracks. Tracking is used primarily on slopes 3:1 or steeper and should be done up and down the slope with cleat marks running across the slope.
c. Liquid mulch binders - Applications of liquid mulch binders should be heavier at edges, in valleys, and at crests of banks and other areas where the mulch will be moved by wind or water. All other areas should have a uniform application of binder. The use of synthetic binders is the preferred method of mulch binding and should be applied at the rates recommended by the manufacturer.
d. Paper fiber - The fiber binder shall be applied at a net dry weight of 750 lbs/acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons.
e. Nettings - Synthetic or organic nettings may be used to secure straw mulch. Install and secure according to the manufacturers recommendations.

Table with 3 columns: Source, Symbol, Detail No. Includes Delaware ESC Handbook, DE-ESC-3.4.5 Sheet 2 of 3, Date: 6/05.

Standard Detail & Specifications
Mulching



MULCHING MATERIAL SELECTION GUIDE table with columns for Material Type, Application Rate, and Selection Status (OK/Not OK) for various dates and conditions.

Table with 3 columns: Source, Symbol, Detail No. Includes Delaware ESC Handbook, DE-ESC-3.4.5 Sheet 3 of 3, Date: 6/05.



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REVISIONS:

Table with 3 columns: DESCRIPTION, BY, DATE. Includes rows for Description, By, Date.

Table with 2 columns: Field, Value. Includes Date: 11/12/19, Checked By: AG, DK, Scale: NTS, Page & Grid, Drawn By: KEG, CAD File: NOTES & DETAILS.dwg, Budget No. 3003255.

FORCEMAIN EXTENSION PLANS
ROUTE 9-SUSSEX COUNTY TO HAWTHORNE